



## Scanner details

Team Name: External provider

Scanner	Make	Model	Current Software Version	RF coil
1.5T	Siemens	MAGNETOM Avanto	B19	Body Matrix- A TIM coil

## Table of contents

\USER

	SCMR_CARDIAC_AVANTO_18Q
	Localizers_Module
	Recommended
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_db_haste_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	Free_Breathing
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_db_haste_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	Extreme_Arrhythmia
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	LV_Function_Module
	Recommended
	short_axis_cine
	four_chamber_cine
	two_chamber_cine
	three_chamber_cine
	Free_Breathing
	short_axis_cine
	four_chamber_cine
	two_chamber_cine
	three_chamber_cine
	Extreme_Arrhythmia
	short_axis_cine_realtime
	four_chambr_cine_realtime
	two_chambr_cine_realtime
	three_chambr_cine_realtime
	Dynamic_Module
	Recommended
	dynamic_test
	inject
	dynamic
	Free_Breathing
	dynamic_test
	inject
	dynamic
	Extreme_Arrhythmia
	dynamic_test
	inject
	dynamic
	Delayed_Module
	Extreme_Arrhythmia

\USER

	SCMR_CARDIAC_AVANTO_18Q
	Delayed_Module
	Extreme_Arrhythmia
	delayed
	short_axis_delayed
	four_chamber_delayed
	two_chamber_delayed
	Dobutamine_Stress_Module
	Recommended
	long_axis_rest
	short_axis_rest
	long_axis_stress1
	short_axis_stress1
	long_axis_stress2
	short_axis_stress2
	long_axis_stress3
	short_axis_stress3
	Free_Breathing
	long_axis_rest
	short_axis_rest
	long_axis_stress1
	short_axis_stress1
	long_axis_stress2
	short_axis_stress2
	long_axis_stress3
	short_axis_stress3
	Extreme_Arrhythmia
	long_axis_rest
	short_axis_rest
	long_axis_stress1
	short_axis_stress1
	long_axis_stress2
	short_axis_stress2
	long_axis_stress3
	short_axis_stress3
	Acute_Myocardial_Infarct
	Recommended
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_db_haste_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	short_axis_cine
	four_chamber_cine
	two_chamber_cine
	three_chamber_cine
	OPT_short_axis_db_t2
	OPT_four_chamber_db_t2
	OPT_two_chamber_db_t2
	OPT_short_axis_db_stir
	OPT_four_chamber_db_stir
	OPT_two_chamber_db_stir
	dynamic_test
	inject
	dynamic
	OPT_ti_scout
	OPT_short_axis_early
	OPT_four_chamber_early
	OPT_two_chamber_early

# SIEMENS MAGNETOM Avanto syngo MR B19

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SCMR_CARDIAC_AVANTO_18Q	
Acute_Myocardial_Infarct	
Recommended	
delayed	
ti_scout	
short_axis_delayed	
four_chamber_delayed	
two_chamber_delayed	
Free_Breathing	
turn_on_coupled_graphics	
turn_off_auto_coil_select	
auto_detect_table_position	
multi_plane_loc	
axial_db_haste_loc	
two_chamber_loc	
four_chamber_loc	
short_axis_loc	
three_chamber_loc	
short_axis_cine	
four_chamber_cine	
two_chamber_cine	
three_chamber_cine	
OPT_short_ax_db_hast_t2	
OPT_four_cham_db_hast_t2	
OPT_two_cham_db_hast_t2	
OPT_short_ax_db_hast_stir	
OPT_four_cham_db_hast_stir	
OPT_two_cham_db_hast_stir	
dynamic_test	
inject	
dynamic	
OPT_ti_scout	
OPT_short_axis_early	
OPT_four_chamber_early	
OPT_two_chamber_early	
delayed	
ti_scout	
short_axis_delayed	
four_chamber_delayed	
two_chamber_delayed	
Extreme_Arrhythmia	
turn_on_coupled_graphics	
turn_off_auto_coil_select	
auto_detect_table_position	
multi_plane_loc	
axial_loc	
two_chamber_loc	
four_chamber_loc	
short_axis_loc	
three_chamber_loc	
short_axis_cine_realtime	
four_chambr_cine_realtime	
two_chambr_cine_realtime	
three_chambr_cine_realtime	
dynamic_test	
inject	
dynamic	
OPT_short_axis_early	
OPT_four_chamber_early	
OPT_two_chamber_early	
delayed	
short_axis_delayed	
four_chamber_delayed	

# SIEMENS MAGNETOM Avanto syngo MR B19

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SCMR_CARDIAC_AVANTO_18Q	
Acute_Myocardial_Infarct	Extreme_Arrhythmia
	two_chamber_delayed
Chronic_Ischemic_Disease	
	Recommended
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_db_haste_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	short_axis_cine
	four_chamber_cine
	two_chamber_cine
	three_chamber_cine
	OPT_long_axis_rest
	OPT_short_axis_rest
	OPT_long_axis_stress1
	OPT_short_axis_stress1
	OPT_long_axis_stress2
	OPT_short_axis_stress2
	OPT_long_axis_stress3
	OPT_short_axis_stress3
	OPT_dynamic_test
	inject
	OPT_dynamic_stress
	inject
	OPT_dynamic_rest
	delayed
	ti_scout
	short_axis_delayed
	four_chamber_delayed
	two_chamber_delayed
Free_Breathing	
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_db_haste_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	short_axis_cine
	four_chamber_cine
	two_chamber_cine
	three_chamber_cine
	OPT_long_axis_rest
	OPT_short_axis_rest
	OPT_long_axis_stress1
	OPT_short_axis_stress1
	OPT_long_axis_stress2
	OPT_short_axis_stress2
	OPT_long_axis_stress3
	OPT_short_axis_stress3
	OPT_dynamic_test
	inject
	OPT_dynamic_stress
	inject

# SIEMENS MAGNETOM Avanto syngo MR B19

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SCMR_CARDIAC_AVANTO_18Q	
Chronic_Ischemic_Disease	
Free_Breathing	
OPT_dynamic_rest	
delayed	
ti_scout	
short_axis_delayed	
four_chamber_delayed	
two_chamber_delayed	
Extreme_Arrhythmia	
turn_on_coupled_graphics	
turn_off_auto_coil_select	
auto_detect_table_position	
multi_plane_loc	
axial_loc	
two_chamber_loc	
four_chamber_loc	
short_axis_loc	
three_chamber_loc	
short_axis_cine_realtime	
four_chambr_cine_realtime	
two_chambr_cine_realtime	
three_chambr_cine_realtime	
OPT_long_axis_rest	
OPT_short_axis_rest	
OPT_long_axis_stress1	
OPT_short_axis_stress1	
OPT_long_axis_stress2	
OPT_short_axis_stress2	
OPT_long_axis_stress3	
OPT_short_axis_stress3	
OPT_dynamic_test	
inject	
OPT_dynamic_stress	
inject	
OPT_dynamic_rest	
delayed	
short_axis_delayed	
four_chamber_delayed	
two_chamber_delayed	
Adenosine_Stress	
Recommended	
turn_on_coupled_graphics	
turn_off_auto_coil_select	
auto_detect_table_position	
multi_plane_loc	
axial_db_haste_loc	
two_chamber_loc	
four_chamber_loc	
short_axis_loc	
three_chamber_loc	
dynamic_test	
inject	
dynamic_stress	
short_axis_cine	
four_chamber_cine	
two_chamber_cine	
three_chamber_cine	
inject	
dynamic_rest	
delayed	
ti_scout	
short_axis_delayed	

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER

SCMR_CARDIAC_AVANTO_18Q
Adenosine_Stress
Recommended
four_chamber_delayed
two_chamber_delayed
Free_Breathing
turn_on_coupled_graphics
turn_off_auto_coil_select
auto_detect_table_position
multi_plane_loc
axial_db_haste_loc
two_chamber_loc
four_chamber_loc
short_axis_loc
three_chamber_loc
dynamic_test
inject
dynamic_stress
short_axis_cine
four_chamber_cine
two_chamber_cine
three_chamber_cine
inject
dynamic_rest
delayed
ti_scout
short_axis_delayed
four_chamber_delayed
two_chamber_delayed
Extreme_Arrhythmia
turn_on_coupled_graphics
turn_off_auto_coil_select
auto_detect_table_position
multi_plane_loc
axial_loc
two_chamber_loc
four_chamber_loc
short_axis_loc
three_chamber_loc
dynamic_test
inject
dynamic_stress
short_axis_cine_realtime
four_chambr_cine_realtime
two_chambr_cine_realtime
three_chambr_cine_realtime
inject
dynamic_stress
delayed
short_axis_delayed
four_chamber_delayed
two_chamber_delayed
Peripheral_Arteries
Recommended
position_patient_feetfirst
localize_230mm_above_feet
turn_on_coupled_graphics
leg_scout
thigh_scout
abdomen_scout
inject
leg_pre_&_post
-----deselect_inject_icon

# SIEMENS MAGNETOM Avanto syngo MR B19

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SCMR_CARDIAC_AVANTO_18Q	
Peripheral_Arteries	
Recommended	
thigh_pre	
abdomen_pre	
inject	
aorta_care-bolus	
abdomen_post	
thigh_post	
Thoracic_Aorta	
Recommended	
turn_on_coupled_graphics	
turn_off_auto_coil_select	
auto_detect_table_position	
multi_plane_loc	
axial_db_haste_loc	
two_chamber_loc	
four_chamber_loc	
short_axis_loc	
three_chamber_loc	
axial_aorta_bright_blood	
axial_aorta_dark_blood	
sagittal_cine	
three_chamber_cine	
coronal_aorta_cine	
aortic_valve_cine	
inject	
aorta_test-bolus	
deselect_inject_icon	
sagittal_aorta_pre	
inject	
sagittal_aorta_post	
OPT_axial_T1_aorta	
Free_Breathing	
turn_on_coupled_graphics	
turn_off_auto_coil_select	
auto_detect_table_position	
multi_plane_loc	
axial_db_haste_loc	
two_chamber_loc	
four_chamber_loc	
short_axis_loc	
three_chamber_loc	
axial_aorta_bright_blood	
axial_aorta_dark_blood	
sagittal_cine	
three_chamber_cine	
coronal_aorta_cine	
aortic_valve_cine	
inject	
sagittal_aorta_dynamic	
OPT_axial_T1_aorta	
Anomalous_Coronary_Artery	
Extreme_Arrhythmia	
turn_on_coupled_graphics	
turn_off_auto_coil_select	
auto_detect_table_position	
multi_plane_loc	
axial_loc	
two_chamber_loc	
four_chamber_loc	
short_axis_loc	
three_chamber_loc	

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER

SCMR_CARDIAC_AVANTO_18Q
Anomalous_Coronary_Artery
Extreme_Arrhythmia
short_axis_cine_realtime
four_chambr_cine_realtime
two_chambr_cine_realtime
three_chambr_cine_realtime
coronal_coronary_scout
dynamic_coronary_scout
axial_coronary_origins
Nonischemic_Cardiomyopathy
Recommended
turn_on_coupled_graphics
turn_off_auto_coil_select
auto_detect_table_position
multi_plane_loc
axial_db_haste_loc
two_chamber_loc
four_chamber_loc
short_axis_loc
three_chamber_loc
short_axis_cine
four_chamber_cine
two_chamber_cine
three_chamber_cine
short_axis_db_t2
four_chamber_db_t2
two_chamber_db_t2
OPT_dynamic_test
inject
OPT_dynamic_stress
inject
OPT_dynamic_rest
delayed
ti_scout
short_axis_delayed
four_chamber_delayed
two_chamber_delayed
Free_Breathing
turn_on_coupled_graphics
turn_off_auto_coil_select
auto_detect_table_position
multi_plane_loc
axial_db_haste_loc
two_chamber_loc
four_chamber_loc
short_axis_loc
three_chamber_loc
short_axis_cine
four_chamber_cine
two_chamber_cine
three_chamber_cine
short_axis_db_haste_t2
four_chamber_db_haste_t2
two_chamber_db_haste_t2
OPT_dynamic_test
inject
OPT_dynamic_stress
inject
OPT_dynamic_rest
delayed
ti_scout
short_axis_delayed

# SIEMENS MAGNETOM Avanto syngo MR B19

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	SCMR_CARDIAC_AVANTO_18Q
	Nonischemic_Cardiomyopathy
	Free_Breathing
	four_chamber_delayed
	two_chamber_delayed
	Extreme_Arrhythmia
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	short_axis_cine_realtime
	four_chambr_cine_realtime
	two_chambr_cine_realtime
	three_chambr_cine_realtime
	OPT_dynamic_test
	inject
	OPT_dynamic_stress
	inject
	OPT_dynamic_rest
	delayed
	short_axis_delayed
	four_chamber_delayed
	two_chamber_delayed
ARVC	Recommended
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_db_haste_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	short_axis_cine
	four_chamber_cine
	two_chamber_cine
	three_chamber_cine
	axial_cine
	OPT_axial_db_t1
	OPT_axial_db_t2_fatsat
	inject
	ti_scout
	axial_delayed
	Free_Breathing
	turn_on_coupled_graphics
	turn_off_auto_coil_select
	auto_detect_table_position
	multi_plane_loc
	axial_db_haste_loc
	two_chamber_loc
	four_chamber_loc
	short_axis_loc
	three_chamber_loc
	short_axis_cine
	four_chamber_cine
	two_chamber_cine
	three_chamber_cine

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Recommended\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Recommended\multi\_plane\_loc

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Recommended\axial\_db\_haste\_loc

TA: 0:34 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	425 ± 35 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Recommended\short\_axis\_loc

TA: 8.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	ECG/Trigger
Trajectory	Cartesian	Average cycle	425 ± 35 ms
Interpolation	Off	Captured cycle	425 ± 35
PAT mode	GRAPPA	Acquisition window	800 ms
Accel. factor PE	2	Trigger pulse	1
Ref. lines PE	24	Trigger delay	500 ms
Matrix Coil Mode	Auto (Triple)	Segments	74
Reference scan mode	Integrated	Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D	Resp. control	Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	256	A >> P	263 mm
Phase resolution	65 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode	GRAPPA	Captured cycle	425 ± 35
Accel. factor PE	2	Acquisition window	813 ms
Ref. lines PE	24	Trigger pulse	1
Matrix Coil Mode	Auto (Triple)	Trigger delay	480 ms
Reference scan mode	Integrated	Segments	95
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Prescan Normalize	Off	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Free\_Breathing\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Free\_Breathing\multi\_plane\_loc

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Free\_Breathing\axial\_db\_haste\_loc

TA: 0:34 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Free\_Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Free\_Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Free\_Breathing\short\_axis\_loc

TA: 8.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	243.60 ms
TE	1.21 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	500 ms
Segments	74
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Free\_Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Localizers_Module\Extreme_Arrhythmia\auto_detect_table_position					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Extreme\_Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
<hr/>	
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
<hr/>	
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Extreme\_Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	20
Dist. factor	10 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	271.16 ms
TE	1.14 ms
Averages	1
Concatenations	20
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	10 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	74

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Extreme\_Arrhythmia\two\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFi
<hr/>	
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Extreme\_Arrhythmia\four\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Extreme\_Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	243.60 ms
TE	1.21 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	74

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Localizers\_Module\Extreme\_Arrhythmia\three\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFi
<hr/>	
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Recommended\short\_axis\_cine

TA: 0:34 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	44 ms
TE	1.16 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	25
Concatenations	10
Segments	16

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Breath-hold
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Recommended\four\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Recommended\two\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Recommended\three\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Free\_Breathing\short\_axis\_cine

TA: 1:51 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	44 ms
TE	1.16 ms
Averages	4
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	25
Segments	16

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Free\_Breathing\four\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Free\_Breathing\two\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Free\_Breathing\three\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\LV_Function_Module\Extreme_Arrhythmia\short_axis_cine_realtim		
TA: 0:27	PAT: 2	Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV
<b>Properties</b>		
Prio Recon	Off	Prescan Normalize Off
Before measurement		Normalize Off
After measurement		B1 filter Off
Load to viewer	On	Raw filter Off
Inline movie	On	Elliptical filter Off
Auto store images	On	POCS Off
Load to stamp segments	On	
Load images to graphic segments	On	
Auto open inline display	Off	
Start measurement without further preparation	On	
Wait for user to start	Off	
Start measurements	single	
<b>Routine</b>		
Slice group 1		Geometry
Slices	10	Multi-slice mode Sequential
Dist. factor	25 %	Series Descending
Position	L15.7 A41.7 F26.9	
Orientation	C > S34.0 > T-25.2	
Phase enc. dir.	R >> L	Special sat. None
Rotation	0.00 deg	
Auto	Off	
Phase oversampling	0 %	
FoV read	400 mm	<b>System</b>
FoV phase	75.0 %	Body Off
Slice thickness	7.0 mm	BO1 On
TR	56.64 ms	BO2 On
TE	1.03 ms	SP4 Off
Averages	1	SP2 On
Concatenations	10	SP8 Off
Filter	Distortion Corr.(2D)	SP6 Off
Coil elements	BO1,2;SP2,3	SP3 On
Contrast		SP1 Off
TD	0 ms	SP7 Off
Magn. preparation	None	SP5 Off
Flip angle	70 deg	
Fat suppr.	None	
Restore magn.	On	
Averaging mode	Short term	Positioning mode REF
Reconstruction	Magnitude	Table position H
Measurements	1	Table position 0 mm
Multiple series	Each slice	MSMA S - C - T
Resolution		Sagittal R >> L
Base resolution	192	Coronal A >> P
Phase resolution	40 %	Transversal F >> H
Phase partial Fourier	Off	Save uncombined Off
Trajectory	Cartesian	Coil Combine Mode Adaptive Combine
View sharing	Shared phases	Auto Coil Select Default
Interpolation	Off	
PAT mode	GRAPPA	
Accel. factor PE	2	Shim mode Tune up
Ref. lines PE	12	Adjust with body coil On
Matrix Coil Mode	Auto (Triple)	Confirm freq. adjustment Off
Reference scan mode	Integrated	Assume Silicone Off
Image Filter	Off	? Ref. amplitude 1H 0.000 V
Distortion Corr.	On	Adjustment Tolerance Auto
Mode	2D	
Unfiltered images	Off	
<b>Physio</b>		
1st Signal/Mode	None	
Segments	35	
Phases	45	
Dark blood	Off	
Cine	On	
Resp. control	Off	
<b>Inline</b>		
Subtract	Off	
Std-Dev-Sag	Off	
Std-Dev-Cor	Off	
Std-Dev-Tra	Off	
Std-Dev-Time	Off	
MIP-Sag	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Extreme\_Arrhythmia\four\_chambr\_cine\_reali  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Extreme\_Arrhythmia\two\_chambr\_cine\_realti  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\LV\_Function\_Module\Extreme\_Arrhythmia\three\_chambr\_cine\_real  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L34.0 P18.2 H40.2	SP6	Off
Orientation	S > T-31.4 > C3.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode	GRAPPA	Phases	45
Accel. factor PE	2	Dark blood	
Ref. lines PE	12	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	On
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dynamic\_Module\Recommended\dynamic\_test

TA: 4.3 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off
Prio Recon	Off	PAT mode	GRAPPA
Before measurement		Accel. factor PE	2
After measurement		Ref. lines PE	14
Load to viewer	On	Matrix Coil Mode	Auto (Triple)
Inline movie	On	Reference scan mode	Integrated
Auto store images	On		
Load to stamp segments	On		
Load images to graphic segments	On		
Auto open inline display	On	Image Filter	Off
Start measurement without further preparation	On	Distortion Corr.	On
Wait for user to start	On	Mode	2D
Start measurements	single	Unfiltered images	Off
		Unfiltered images	Off
		Prescan Normalize	On
		Normalize	Off
		B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off
Routine		Geometry	
Slice group 1		Multi-slice mode	Single shot
Slices	3	Series	Descending
Dist. factor	50 %		
Position	Isocenter	Special sat.	None
Orientation	Transversal		
Phase enc. dir.	A >> P		
Rotation	0.00 deg		
Auto	Off		
Slice group 2			
Slices	1	Body	Off
Dist. factor	20 %	BO1	On
Position	Isocenter	BO2	On
Orientation	Sagittal	SP4	Off
Phase enc. dir.	A >> P	SP2	On
Rotation	0.00 deg	SP8	Off
Auto	Off	SP6	Off
Phase oversampling	0 %	SP3	On
FoV read	360 mm	SP1	Off
FoV phase	75.0 %	SP7	Off
Slice thickness	8.0 mm	SP5	Off
TR	162.86 ms		
TE	1.14 ms	Positioning mode	REF
Averages	1	Table position	H
Concatenations	1	Table position	0 mm
Filter	Distortion Corr.(2D), Prescan	MSMA	S - C - T
	Normalize	Sagittal	R >> L
Coil elements	BO1,2;SP2,3	Coronal	A >> P
		Transversal	F >> H
		Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
		Auto Coil Select	Default
Contrast		System	
Magn. preparation	Non-sel. SR perf	Shim mode	Tune up
TI	95 ms	Adjust with body coil	On
Flip angle	12 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	5	Orientation	Transversal
Pause after meas. 1	0.0 s	Rotation	0.00 deg
Pause after meas. 2	0.0 s	R >> L	350 mm
Pause after meas. 3	0.0 s	A >> P	263 mm
Pause after meas. 4	0.0 s	F >> H	350 mm
Multiple series	Each slice		
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	65 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off		
Trajectory	Cartesian		

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dynamic\_Module\Recommended\dynamic

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dynamic\_Module\Free\_Breathing\dynamic\_test

TA: 4.3 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off
Prio Recon	Off	PAT mode	GRAPPA
Before measurement		Accel. factor PE	2
After measurement		Ref. lines PE	14
Load to viewer	On	Matrix Coil Mode	Auto (Triple)
Inline movie	On	Reference scan mode	Integrated
Auto store images	On		
Load to stamp segments	On		
Load images to graphic segments	On		
Auto open inline display	On	Image Filter	Off
Start measurement without further preparation	On	Distortion Corr.	On
Wait for user to start	On	Mode	2D
Start measurements	single	Unfiltered images	Off
		Unfiltered images	Off
		Prescan Normalize	On
		Normalize	Off
		B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off
Routine		Geometry	
Slice group 1		Multi-slice mode	Single shot
Slices	3	Series	Descending
Dist. factor	50 %		
Position	Isocenter	Special sat.	None
Orientation	Transversal		
Phase enc. dir.	A >> P		
Rotation	0.00 deg		
Auto	Off		
Slice group 2			
Slices	1	Body	Off
Dist. factor	20 %	BO1	On
Position	Isocenter	BO2	On
Orientation	Sagittal	SP4	Off
Phase enc. dir.	A >> P	SP2	On
Rotation	0.00 deg	SP8	Off
Auto	Off	SP6	Off
Phase oversampling	0 %	SP3	On
FoV read	360 mm	SP1	Off
FoV phase	75.0 %	SP7	Off
Slice thickness	8.0 mm	SP5	Off
TR	162.86 ms		
TE	1.14 ms	Positioning mode	REF
Averages	1	Table position	H
Concatenations	1	Table position	0 mm
Filter	Distortion Corr.(2D), Prescan	MSMA	S - C - T
	Normalize	Sagittal	R >> L
Coil elements	BO1,2;SP2,3	Coronal	A >> P
		Transversal	F >> H
		Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
		Auto Coil Select	Default
Contrast		Shim mode	Tune up
Magn. preparation	Non-sel. SR perf	Adjust with body coil	On
TI	95 ms	Confirm freq. adjustment	Off
Flip angle	12 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
		Adjust volume	
Averaging mode	Long term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	5	Rotation	0.00 deg
Pause after meas. 1	0.0 s	R >> L	350 mm
Pause after meas. 2	0.0 s	A >> P	263 mm
Pause after meas. 3	0.0 s	F >> H	350 mm
Pause after meas. 4	0.0 s		
Multiple series	Each slice		
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	65 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off		
Trajectory	Cartesian		

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dynamic\_Module\Free\_Breathing\dynamic

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dynamic\_Module\Extreme\_Arrhythmia\dynamic\_test

TA: 4.1 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	54

# SIEMENS MAGNETOM Avanto syngo MR B19

Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	3.1 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dynamic\_Module\Extreme\_Arrhythmia\dynamic

TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Delayed\_Module\Extreme\_Arrhythmia\short\_axis\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	TruFI
<hr/>	
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Delayed\_Module\Extreme\_Arrhythmia\four\_chamber\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Delayed\_Module\Extreme\_Arrhythmia\two\_chamber\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	On	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Recommended\long\_axis\_rest

TA: 6.4 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	63.6 ms
TE	1.12 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
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Accel. factor PE	2
------------------	---

Ref. lines PE	24
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Matrix Coil Mode	Auto (Triple)
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Reference scan mode	Integrated
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Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
------------------	------------

Series	Descending
--------	------------

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	24
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Recommended\short\_axis\_rest

TA: 6.4 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	63.6 ms	MSMA	S - C - T
TE	1.12 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	65 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	425 ± 35 ms
Accel. factor PE	GRAPPA	Calculated phases	22
Ref. lines PE	2	Segments	24
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	
Image Filter		Dummy heartbeats	
Distortion Corr.	Off	Resp. control	
Mode	On	Off	
Unfiltered images	2D	Subtract	
	Off	Std-Dev-Sag	
		Std-Dev-Cor	
		Std-Dev-Tra	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\DoButamine\_Stress\_Module\Recommended\long\_axis\_stress1

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	58.3 ms
TE	1.12 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
----------	--------

Accel. factor PE	2
------------------	---

Ref. lines PE	24
---------------	----

Matrix Coil Mode	Auto (Triple)
------------------	---------------

Reference scan mode	Integrated
---------------------	------------

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
------------------	------------

Series	Descending
--------	------------

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	22
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Recommended\short\_axis\_stress1

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	58.3 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode		Calculated phases	22
Accel. factor PE	GRAPPA	Segments	22
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	Off
Reference scan mode	Auto (Triple)	Dummy heartbeats	On
Image Filter		Resp. control	1
Distortion Corr.	Integrated	Inline	
Mode	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\DoButamine\_Stress\_Module\Recommended\long\_axis\_stress2

TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	47.7 ms
TE	1.12 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
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Accel. factor PE	2
------------------	---

Ref. lines PE	24
---------------	----

Matrix Coil Mode	Auto (Triple)
------------------	---------------

Reference scan mode	Integrated
---------------------	------------

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
------------------	------------

Series	Descending
--------	------------

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	18
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Recommended\short\_axis\_stress2

TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	47.7 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode		Calculated phases	22
Accel. factor PE	GRAPPA	Segments	18
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	Off
Reference scan mode	Auto (Triple)	Dummy heartbeats	On
Image Filter		Resp. control	1
Distortion Corr.	Integrated	Inline	
Mode	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\DoButamine\_Stress\_Module\Recommended\long\_axis\_stress3

TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	42.4 ms
TE	1.12 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
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Accel. factor PE	2
------------------	---

Ref. lines PE	24
---------------	----

Matrix Coil Mode	Auto (Triple)
------------------	---------------

Reference scan mode	Integrated
---------------------	------------

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
------------------	------------

Series	Descending
--------	------------

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	16
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Recommended\short\_axis\_stress3

TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	42.4 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode		Calculated phases	22
Accel. factor PE	GRAPPA	Segments	16
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	Off
Reference scan mode	Auto (Triple)	Dummy heartbeats	On
Image Filter		Resp. control	1
Distortion Corr.	Integrated	Inline	
Mode	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\long\_axis\_rest

TA: 0:14 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	63.6 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On

  

Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

  

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

  

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

  

Multi-slice mode	Sequential
Series	Descending

  

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	24
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\short\_axis\_rest

TA: 0:14 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	63.6 ms	MSMA	S - C - T
TE	1.12 ms	Sagittal	R >> L
Averages	3	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	65 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	425 ± 35 ms
Accel. factor PE	GRAPPA	Calculated phases	22
Ref. lines PE	2	Segments	24
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	
Image Filter		Dummy heartbeats	
Distortion Corr.	Off	Resp. control	
Mode	On	Off	
Unfiltered images	2D	Subtract	
	Off	Std-Dev-Sag	
		Std-Dev-Cor	
		Std-Dev-Tra	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\long\_axis\_stress1

TA: 0:18 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	58.3 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	22
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\short\_axis\_stress1

TA: 0:18 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	58.3 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	3	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode		Calculated phases	22
Accel. factor PE	GRAPPA	Segments	22
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	Off
Reference scan mode	Auto (Triple)	Dummy heartbeats	On
Image Filter		Resp. control	1
Distortion Corr.	Integrated	Inline	
Mode	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\long\_axis\_stress2

TA: 0:22 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	47.7 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On

  

Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

  

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

  

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

  

Multi-slice mode	Sequential
Series	Descending

  

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

  

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	18
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\short\_axis\_stress2

TA: 0:22 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	47.7 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	3	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode		Calculated phases	22
Accel. factor PE	GRAPPA	Segments	18
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	Off
Reference scan mode	Auto (Triple)	Dummy heartbeats	On
Image Filter		Resp. control	1
Distortion Corr.	Integrated	Inline	
Mode	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\long\_axis\_stress3

TA: 0:22 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	42.4 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
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Accel. factor PE	2
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Ref. lines PE	24
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Matrix Coil Mode	Auto (Triple)
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Reference scan mode	Integrated
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Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
------------------	------------

Series	Descending
--------	------------

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	16
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Free\_Breathing\short\_axis\_stress3

TA: 0:22 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	42.4 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	3	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode		Calculated phases	22
Accel. factor PE	GRAPPA	Segments	16
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	Off
Reference scan mode	Auto (Triple)	Dummy heartbeats	On
Image Filter		Resp. control	1
Distortion Corr.	Integrated	Inline	
Mode	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Extreme\_Arrhythmia\long\_axis\_rest

TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	380 mm
FoV phase	75.0 %
Slice thickness	6.0 mm
TR	57.84 ms
TE	1.04 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Dobutamine\_Stress\_Module\Extreme\_Arrhythmia\short\_axis\_rest

TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L17.7 A20.3 F13.1	SP8	Off
Orientation	S > T-37.9 > C-12.6	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	380 mm	Positioning mode	
FoV phase	75.0 %	Table position	REF
Slice thickness	6.0 mm	Table position	H
TR	57.84 ms	MSMA	0 mm
TE	1.04 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode		Dark blood	Off
Accel. factor PE	GRAPPA	Cine	On
Ref. lines PE	2	Resp. control	
Matrix Coil Mode	12	Subtract	Off
Reference scan mode	Auto (Triple)	Std-Dev-Sag	Off
	Integrated	Std-Dev-Cor	Off
Image Filter		Std-Dev-Tra	Off
Distortion Corr.	Off	Std-Dev-Time	Off
Mode	On	MIP-Sag	Off
Unfiltered images	2D		
	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\DoButamine_Stress_Module\Extreme_Arrhythmia\long_axis_stress					
TA: 8.4 s	PAT: 2	Voxel size: 4.9x2.0x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		40 %	
Prio Recon	Off	Phase partial Fourier		Off	
Before measurement		Trajectory		Cartesian	
After measurement		View sharing		Shared phases	
Load to viewer	On	Interpolation		Off	
Inline movie	On				
Auto store images	On				
Load to stamp segments	On				
Load images to graphic segments	On				
Auto open inline display	Off	PAT mode		GRAPPA	
Start measurement without further preparation	On	Accel. factor PE		2	
Wait for user to start	Off	Ref. lines PE		12	
Start measurements	single	Matrix Coil Mode		Auto (Triple)	
		Reference scan mode		Integrated	
Routine					
Slice group 1		Image Filter		Off	
Slices	1	Distortion Corr.		On	
Dist. factor	20 %	Mode		2D	
Position	L17.7 A20.3 F13.1	Unfiltered images		Off	
Orientation	S > T-37.9 > C-12.6	Prescan Normalize		Off	
Phase enc. dir.	A >> P	Normalize		Off	
Rotation	0.00 deg	B1 filter		Off	
Auto	Off	Raw filter		Off	
Slice group 2		Elliptical filter		Off	
Slices	1	POCS		Off	
Dist. factor	20 %				
Position	R19.0 A15.9 H12.5	Geometry			
Orientation	C > S-40.3 > T5.1	Multi-slice mode		Sequential	
Phase enc. dir.	R >> L	Series		Descending	
Rotation	-2.00 deg	Special sat.		None	
Auto	Off				
Slice group 3		System			
Slices	1	Body		Off	
Dist. factor	20 %	BO1		On	
Position	L0.5 A21.5 H15.1	BO2		On	
Orientation	T > C30.9 > S-18.3	SP4		Off	
Phase enc. dir.	A >> P	SP2		On	
Rotation	11.00 deg	SP8		Off	
Auto	Off	SP6		Off	
Phase oversampling	0 %	SP3		On	
FoV read	380 mm	SP1		Off	
FoV phase	75.0 %	SP7		Off	
Slice thickness	6.0 mm	SP5		Off	
TR	57.84 ms	Positioning mode		FIX	
TE	1.04 ms	Table position		H	
Averages	1	Table position		0 mm	
Concatenations	3	MSMA		S - C - T	
Filter	Distortion Corr.(2D)	Sagittal		R >> L	
Coil elements	BO1,2;SP2,3	Coronal		A >> P	
		Transversal		F >> H	
Contrast		Save uncombined		Off	
TD	0 ms	Coil Combine Mode		Adaptive Combine	
Magn. preparation	None	Auto Coil Select		Default	
Flip angle	70 deg				
Fat suppr.	None	Shim mode		Tune up	
Restore magn.	On	Adjust with body coil		On	
Averaging mode	Short term	Confirm freq. adjustment		Off	
Reconstruction	Magnitude	Assume Silicone		Off	
Measurements	1	? Ref. amplitude 1H		0.000 V	
Multiple series	Each slice	Adjustment Tolerance		Auto	
Resolution		Adjust volume			
Base resolution	192	Position		Isocenter	
		Orientation		Transversal	
		Rotation		0.00 deg	
		R >> L		350 mm	
		A >> P		263 mm	
		F >> H		350 mm	

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\DoButamine\_Stress\_Module\Extreme\_Arrhythmia\short\_axis\_stress  
 TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L17.7 A20.3 F13.1	SP8	Off
Orientation	S > T-37.9 > C-12.6	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	380 mm	Positioning mode	
FoV phase	75.0 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	57.84 ms	MSMA	0 mm
TE	1.04 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode		Phases	45
Accel. factor PE	GRAPPA	Dark blood	
Ref. lines PE	2	Cine	Off
Matrix Coil Mode	12	Resp. control	
Reference scan mode	Auto (Triple)	Subtract	On
Image Filter		Std-Dev-Sag	Off
Distortion Corr.	Integrated	Std-Dev-Cor	Off
Mode	Off	Std-Dev-Tra	Off
Unfiltered images		Std-Dev-Time	Off
Inline		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\DoButamine_Stress_Module\Extreme_Arrhythmia\long_axis_stress:					
TA: 8.4 s	PAT: 2	Voxel size: 4.9x2.0x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		40 %	
Prio Recon	Off	Phase partial Fourier		Off	
Before measurement		Trajectory		Cartesian	
After measurement		View sharing		Shared phases	
Load to viewer	On	Interpolation		Off	
Inline movie	On				
Auto store images	On				
Load to stamp segments	On				
Load images to graphic segments	On				
Auto open inline display	Off	PAT mode		GRAPPA	
Start measurement without further preparation	On	Accel. factor PE		2	
Wait for user to start	Off	Ref. lines PE		12	
Start measurements	single	Matrix Coil Mode		Auto (Triple)	
		Reference scan mode		Integrated	
Routine					
Slice group 1		Image Filter		Off	
Slices	1	Distortion Corr.		On	
Dist. factor	20 %	Mode		2D	
Position	L17.7 A20.3 F13.1	Unfiltered images		Off	
Orientation	S > T-37.9 > C-12.6	Prescan Normalize		Off	
Phase enc. dir.	A >> P	Normalize		Off	
Rotation	0.00 deg	B1 filter		Off	
Auto	Off	Raw filter		Off	
Slice group 2		Elliptical filter		Off	
Slices	1	POCS		Off	
Dist. factor	20 %				
Position	R19.0 A15.9 H12.5	Geometry			
Orientation	C > S-40.3 > T5.1	Multi-slice mode		Sequential	
Phase enc. dir.	R >> L	Series		Descending	
Rotation	-2.00 deg	Special sat.		None	
Auto	Off				
Slice group 3		System			
Slices	1	Body		Off	
Dist. factor	20 %	BO1		On	
Position	L0.5 A21.5 H15.1	BO2		On	
Orientation	T > C30.9 > S-18.3	SP4		Off	
Phase enc. dir.	A >> P	SP2		On	
Rotation	11.00 deg	SP8		Off	
Auto	Off	SP6		Off	
Phase oversampling	0 %	SP3		On	
FoV read	380 mm	SP1		Off	
FoV phase	75.0 %	SP7		Off	
Slice thickness	6.0 mm	SP5		Off	
TR	57.84 ms	Positioning mode		FIX	
TE	1.04 ms	Table position		H	
Averages	1	Table position		0 mm	
Concatenations	3	MSMA		S - C - T	
Filter	Distortion Corr.(2D)	Sagittal		R >> L	
Coil elements	BO1,2;SP2,3	Coronal		A >> P	
		Transversal		F >> H	
Contrast		Save uncombined		Off	
TD	0 ms	Coil Combine Mode		Adaptive Combine	
Magn. preparation	None	Auto Coil Select		Default	
Flip angle	70 deg				
Fat suppr.	None	Shim mode		Tune up	
Restore magn.	On	Adjust with body coil		On	
Averaging mode	Short term	Confirm freq. adjustment		Off	
Reconstruction	Magnitude	Assume Silicone		Off	
Measurements	1	? Ref. amplitude 1H		0.000 V	
Multiple series	Each slice	Adjustment Tolerance		Auto	
Resolution		Adjust volume			
Base resolution	192	Position		Isocenter	
		Orientation		Transversal	
		Rotation		0.00 deg	
		R >> L		350 mm	
		A >> P		263 mm	
		F >> H		350 mm	

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\DoButamine\_Stress\_Module\Extreme\_Arrhythmia\short\_axis\_stress  
 TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L17.7 A20.3 F13.1	SP8	Off
Orientation	S > T-37.9 > C-12.6	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	380 mm	Positioning mode	
FoV phase	75.0 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	57.84 ms	MSMA	0 mm
TE	1.04 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode		Phases	45
Accel. factor PE	GRAPPA	Dark blood	
Ref. lines PE	2	Cine	Off
Matrix Coil Mode	12	Resp. control	
Reference scan mode	Auto (Triple)	Subtract	On
Image Filter		Std-Dev-Sag	Off
Distortion Corr.	Integrated	Std-Dev-Cor	Off
Mode	Off	Std-Dev-Tra	Off
Unfiltered images		Std-Dev-Time	Off
Inline		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\DoButamine_Stress_Module\Extreme_Arrhythmia\long_axis_stress:					
TA: 8.4 s	PAT: 2	Voxel size: 4.9x2.0x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		40 %	
Prio Recon	Off	Phase partial Fourier		Off	
Before measurement		Trajectory		Cartesian	
After measurement		View sharing		Shared phases	
Load to viewer	On	Interpolation		Off	
Inline movie	On				
Auto store images	On				
Load to stamp segments	On				
Load images to graphic segments	On				
Auto open inline display	Off	PAT mode		GRAPPA	
Start measurement without further preparation	On	Accel. factor PE		2	
Wait for user to start	Off	Ref. lines PE		12	
Start measurements	single	Matrix Coil Mode		Auto (Triple)	
		Reference scan mode		Integrated	
Routine					
Slice group 1		Image Filter		Off	
Slices	1	Distortion Corr.		On	
Dist. factor	20 %	Mode		2D	
Position	L17.7 A20.3 F13.1	Unfiltered images		Off	
Orientation	S > T-37.9 > C-12.6	Prescan Normalize		Off	
Phase enc. dir.	A >> P	Normalize		Off	
Rotation	0.00 deg	B1 filter		Off	
Auto	Off	Raw filter		Off	
Slice group 2		Elliptical filter		Off	
Slices	1	POCS		Off	
Dist. factor	20 %				
Position	R19.0 A15.9 H12.5	Geometry			
Orientation	C > S-40.3 > T5.1	Multi-slice mode		Sequential	
Phase enc. dir.	R >> L	Series		Descending	
Rotation	-2.00 deg	Special sat.		None	
Auto	Off				
Slice group 3		System			
Slices	1	Body		Off	
Dist. factor	20 %	BO1		On	
Position	L0.5 A21.5 H15.1	BO2		On	
Orientation	T > C30.9 > S-18.3	SP4		Off	
Phase enc. dir.	A >> P	SP2		On	
Rotation	11.00 deg	SP8		Off	
Auto	Off	SP6		Off	
Phase oversampling	0 %	SP3		On	
FoV read	380 mm	SP1		Off	
FoV phase	75.0 %	SP7		Off	
Slice thickness	6.0 mm	SP5		Off	
TR	57.84 ms	Positioning mode		FIX	
TE	1.04 ms	Table position		H	
Averages	1	Table position		0 mm	
Concatenations	3	MSMA		S - C - T	
Filter	Distortion Corr.(2D)	Sagittal		R >> L	
Coil elements	BO1,2;SP2,3	Coronal		A >> P	
		Transversal		F >> H	
Contrast		Save uncombined		Off	
TD	0 ms	Coil Combine Mode		Adaptive Combine	
Magn. preparation	None	Auto Coil Select		Default	
Flip angle	70 deg				
Fat suppr.	None	Shim mode		Tune up	
Restore magn.	On	Adjust with body coil		On	
Averaging mode	Short term	Confirm freq. adjustment		Off	
Reconstruction	Magnitude	Assume Silicone		Off	
Measurements	1	? Ref. amplitude 1H		0.000 V	
Multiple series	Each slice	Adjustment Tolerance		Auto	
Resolution		Adjust volume			
Base resolution	192	Position		Isocenter	
		Orientation		Transversal	
		Rotation		0.00 deg	
		R >> L		350 mm	
		A >> P		263 mm	
		F >> H		350 mm	

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\DoButamine\_Stress\_Module\Extreme\_Arrhythmia\short\_axis\_stress  
 TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L17.7 A20.3 F13.1	SP8	Off
Orientation	S > T-37.9 > C-12.6	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	380 mm	Positioning mode	
FoV phase	75.0 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	57.84 ms	MSMA	0 mm
TE	1.04 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode		Phases	45
Accel. factor PE	GRAPPA	Dark blood	
Ref. lines PE	2	Cine	Off
Matrix Coil Mode	12	Resp. control	
Reference scan mode	Auto (Triple)	Subtract	On
Image Filter		Std-Dev-Sag	Off
Distortion Corr.	Integrated	Std-Dev-Cor	Off
Mode	Off	Std-Dev-Tra	Off
Unfiltered images		Std-Dev-Time	Off
Inline		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Acute_Myocardial_Infarct\Recommended\auto_detect_table_positc					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		65 %	
Prio Recon	Off	Phase partial Fourier		Off	
Before measurement		Trajectory		Cartesian	
After measurement		Interpolation		Off	
Load to viewer	On	PAT mode		GRAPPA	
Inline movie	Off	Accel. factor PE	2		
Auto store images	On	Ref. lines PE	24		
Load to stamp segments	On	Matrix Coil Mode		Auto (Triple)	
Load images to graphic segments	On	Reference scan mode		Integrated	
Auto open inline display	Off	Image Filter		Off	
Start measurement without further preparation	Off	Distortion Corr.		On	
Wait for user to start	Off	Mode		2D	
Start measurements	single	Unfiltered images		Off	
Routine		Prescan Normalize		Off	
Slice group 1		Normalize		Off	
Slices	3	B1 filter		Off	
Dist. factor	300 %	Raw filter		Off	
Position	Isocenter	Elliptical filter		Off	
Orientation	Transversal	POCS		Off	
Phase enc. dir.	A >> P	Geometry			
Rotation	0.00 deg	Multi-slice mode	Sequential		
Auto	Off	Series	Descending		
Slice group 2		Special sat.	None		
Slices	3	System			
Dist. factor	300 %	Body	Off		
Position	L30.0 P0.0 H0.0	BO1	On		
Orientation	Sagittal	BO2	On		
Phase enc. dir.	A >> P	SP4	Off		
Rotation	0.00 deg	SP2	On		
Auto	Off	SP8	Off		
Slice group 3		SP6	Off		
Slices	3	SP3	On		
Dist. factor	300 %	SP1	On		
Position	L0.0 P10.0 H0.0	SP7	Off		
Orientation	Coronal	SP5	Off		
Phase enc. dir.	R >> L	Positioning mode	FIX		
Rotation	0.00 deg	Table position	H		
Auto	Off	Table position	0 mm		
Phase oversampling	0 %	MSMA	S - C - T		
FoV read	400 mm	Sagittal	R >> L		
FoV phase	100.0 %	Coronal	A >> P		
Slice thickness	7.0 mm	Transversal	F >> H		
TR	337.10 ms	Save uncombined	Off		
TE	1.14 ms	Coil Combine Mode	Adaptive Combine		
Averages	1	Auto Coil Select	Default		
Concatenations	9	Contrast			
Filter	Distortion Corr.(2D)	Shim mode	Tune up		
Coil elements	BO1,2;SP1-3	Adjust with body coil	On		
		Confirm freq. adjustment	Off		
		Assume Silicone	Off		
		? Ref. amplitude 1H	0.000 V		
		Adjustment Tolerance	Auto		
		Adjust volume			
		Position	Isocenter		
		Orientation	Transversal		
		Resolution			
		Physio			
		Base resolution	256		

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\multi\_plane\_loc

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\axial\_db\_haste\_loc

TA: 0:34 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	425 ± 35 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	256	A >> P	263 mm
Phase resolution	65 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode	GRAPPA	Captured cycle	425 ± 35
Accel. factor PE	2	Acquisition window	813 ms
Ref. lines PE	24	Trigger pulse	1
Matrix Coil Mode	Auto (Triple)	Trigger delay	480 ms
Reference scan mode	Integrated	Segments	95
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Prescan Normalize	Off	Off	
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\short\_axis\_loc

TA: 8.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	Default
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	None	Confirm freq. adjustment	On
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	Off	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	256	A >> P	263 mm
Phase resolution	65 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode	GRAPPA	Captured cycle	425 ± 35
Accel. factor PE	2	Acquisition window	800 ms
Ref. lines PE	24	Trigger pulse	1
Matrix Coil Mode	Auto (Triple)	Trigger delay	500 ms
Reference scan mode	Integrated	Segments	74
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Prescan Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\short\_axis\_cine

TA: 0:34 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Concatenations	10
Accel. factor PE	2	Segments	16
Ref. lines PE	24	Dark blood	Off
Matrix Coil Mode	Auto (Triple)	Cine	On
Reference scan mode	Integrated	Dummy heartbeats	1
Image Filter	Off	Resp. control	Breath-hold
Distortion Corr.	On	Inline	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\four\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\two\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\three\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_short\_axis\_db\_t2

TA: 8.5 s PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Prescan Normalize	On
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	Tim CT mode	
Wait for user to start	On	System	Off
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	360 mm	SP5	Off
FoV phase	75.0 %	Positioning mode	
Slice thickness	7.0 mm	Table position	REF
TR	800 ms	Table position	H
TE	79.0 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	1	Coronal	R >> L
Filter	Distortion Corr.(2D), Prescan	Transversal	A >> P
	Normalize	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
		Auto Coil Select	Adaptive Combine
Contrast			Default
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	180 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
Averaging mode		Adjust volume	
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	75 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Accel. factor PE	GRAPPA	Phases	1
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	43	Dark blood	On
Reference scan mode	Auto (Triple)	Dark blood thickness	300 %
	Integrated	Dark blood flip angle	200 deg
Image Filter	Off	Resp. control	
Distortion Corr.	On	Resp. control	Off
Mode	2D		
Unfiltered images	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_four\_chamber\_db\_t  
 TA: 8.5 s PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Prescan Normalize	On
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	Tim CT mode	
Wait for user to start	On	System	Off
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	L11.8 A39.9 H7.1	SP8	Off
Orientation	T > C40.1 > S5.6	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	360 mm	SP5	Off
FoV phase	75.0 %	Positioning mode	
Slice thickness	7.0 mm	Table position	REF
TR	800 ms	Table position	H
TE	79.0 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	1	Coronal	R >> L
Filter	Distortion Corr.(2D), Prescan	Transversal	A >> P
	Normalize	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
		Auto Coil Select	Adaptive Combine
Contrast			Default
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	180 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
Averaging mode		Adjust volume	
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	75 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Accel. factor PE	GRAPPA	Phases	1
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	43	Dark blood	On
Reference scan mode	Auto (Triple)	Dark blood thickness	300 %
	Integrated	Dark blood flip angle	200 deg
Image Filter	Off	Resp. control	
Distortion Corr.	On	Resp. control	Off
Mode	2D		
Unfiltered images	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Acute_Myocardial_Infarct\Recommended\OPT_two_chamber_db_t'		
TA: 8.5 s	PAT: 2	Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse
<b>Properties</b>		
Prio Recon	Off	Unfiltered images Off
Before measurement		Prescan Normalize On
After measurement		Normalize Off
Load to viewer	On	B1 filter Off
Inline movie	Off	Raw filter Off
Auto store images	On	Elliptical filter Off
Load to stamp segments	On	
Load images to graphic segments	On	
Auto open inline display	Off	
Start measurement without further preparation	On	
Wait for user to start	On	
Start measurements	single	
<b>Routine</b>		
Slice group 1		<b>Geometry</b>
Slices	1	Multi-slice mode Sequential
Dist. factor	50 %	Series Descending
Position	R12.5 P0.1 H0.0	
Orientation	S > C-34.0	
Phase enc. dir.	A >> P	
Rotation	0.00 deg	
Phase oversampling	0 %	
FoV read	360 mm	
FoV phase	75.0 %	
Slice thickness	7.0 mm	
TR	800 ms	
TE	79.0 ms	
Averages	1	
Concatenations	1	
Filter	Distortion Corr.(2D), Prescan	
	Normalize	
Coil elements	BO1,2;SP2,3	
<b>Contrast</b>		
MTC	Off	<b>System</b>
Magn. preparation	None	Body Off
Flip angle	180 deg	BO1 On
Fat suppr.	None	BO2 On
Water suppr.	None	SP4 Off
Restore magn.	Off	SP2 On
		SP8 Off
		SP6 Off
		SP3 On
		SP1 Off
		SP7 Off
		SP5 Off
		Positioning mode REF
		Table position H
		Table position 0 mm
		MSMA S - C - T
		Sagittal R >> L
		Coronal A >> P
		Transversal F >> H
		Save uncombined Off
		Coil Combine Mode Adaptive Combine
		Auto Coil Select Default
		Shim mode Tune up
		Adjust with body coil On
		Confirm freq. adjustment Off
		Assume Silicone Off
		? Ref. amplitude 1H 0.000 V
		Adjustment Tolerance Auto
		Adjust volume
		Position Isocenter
		Orientation Transversal
		Rotation 0.00 deg
		R >> L 350 mm
		A >> P 263 mm
		F >> H 350 mm
<b>Resolution</b>		
Base resolution	192	
Phase resolution	75 %	
Phase partial Fourier	Off	<b>Physio</b>
Trajectory	Cartesian	1st Signal/Mode ECG/Trigger
Interpolation	On	Average cycle 425 ± 35 ms
		Captured cycle -not set-
		Acquisition window 800 ms
		Trigger pulse 2
		Trigger delay 0 ms
		Phases 1
		Dark blood On
		Dark blood thickness 300 %
		Dark blood flip angle 200 deg
		Resp. control Off
Image Filter	Off	
Distortion Corr.	On	
Mode	2D	
Unfiltered images	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_short\_axis\_db\_stir

TA: 0:10 PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None
Tim CT mode	Off

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off

Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V

Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Resolution

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	800 ms
Trigger pulse	2
Trigger delay	0 ms
Phases	1

Dark blood	On
Dark blood thickness	300 %
Dark blood flip angle	200 deg

## Contrast

MTC	Off
Magn. preparation	Slice-sel. IR
TI	170 ms
Freeze suppressed tissue	Off
Flip angle	180 deg
Fat suppr.	None
Water suppr.	None
Restore magn.	Off

Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	On

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	42
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On

# SIEMENS MAGNETOM Avanto syngo MR B19

Resp. control	
	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	15
Echo trains per slice	5
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Acute_Myocardial_Infarct\Recommended\OPT_four_chamber_db_s			
TA: 0:10	PAT: 2	Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse	
<b>Properties</b>			
Prio Recon	Off	Mode	2D
Before measurement		Unfiltered images	Off
After measurement		Unfiltered images	Off
Load to viewer	On	Prescan Normalize	On
Inline movie	Off	Normalize	Off
Auto store images	On	B1 filter	Off
Load to stamp segments	On	Raw filter	Off
Load images to graphic segments	On	Elliptical filter	Off
Auto open inline display	Off		
Start measurement without further preparation	On		
Wait for user to start	On		
Start measurements	single		
<b>Routine</b>			
Slice group 1		Geometry	
Slices	1	Multi-slice mode	Sequential
Dist. factor	50 %	Series	Descending
Position	L11.8 A39.9 H7.1	Special sat.	None
Orientation	T > C40.1 > S5.6		
Phase enc. dir.	A >> P	Tim CT mode	Off
Rotation	0.00 deg		
Phase oversampling	0 %		
FoV read	360 mm		
FoV phase	75.0 %		
Slice thickness	7.0 mm		
TR	800 ms		
TE	63.0 ms		
Averages	1		
Concatenations	1		
Filter	Distortion Corr.(2D), Prescan		
	Normalize		
Coil elements	BO1,2;SP2,3		
<b>Contrast</b>			
MTC	Off	System	
Magn. preparation	Slice-sel. IR	Body	Off
TI	170 ms	BO1	On
Freeze suppressed tissue	Off	BO2	On
Flip angle	180 deg	SP4	Off
Fat suppr.	None	SP2	On
Water suppr.	None	SP8	Off
Restore magn.	Off	SP6	Off
		SP3	On
Averaging mode	Short term	SP1	Off
Reconstruction	Magnitude	SP7	Off
Measurements	1	SP5	Off
Multiple series	Off		
<b>Resolution</b>			
Base resolution	192	Positioning mode	REF
Phase resolution	75 %	Table position	H
Phase partial Fourier	Off	Table position	0 mm
Trajectory	Cartesian	MSMA	S - C - T
Interpolation	On	Sagittal	R >> L
		Coronal	A >> P
PAT mode	GRAPPA	Transversal	F >> H
Accel. factor PE	2	Save uncombined	Off
Ref. lines PE	42	Coil Combine Mode	Adaptive Combine
Matrix Coil Mode	Auto (Triple)	Auto Coil Select	Default
Reference scan mode	Integrated		
		Shim mode	Tune up
Image Filter	Off	Adjust with body coil	On
Distortion Corr.	On	Confirm freq. adjustment	Off
		Assume Silicone	Off
		? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
		Adjust volume	
		Position	Isocenter
		Orientation	Transversal
		Rotation	0.00 deg
		R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
<b>Physio</b>			
1st Signal/Mode	ECG/Trigger		
Average cycle	425 ± 35 ms		
Captured cycle	-not set-		
Acquisition window	800 ms		
Trigger pulse	2		
Trigger delay	0 ms		
Phases	1		
Dark blood	On		
Dark blood thickness	300 %		
Dark blood flip angle	200 deg		

# SIEMENS MAGNETOM Avanto syngo MR B19

Resp. control	
	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	15
Echo trains per slice	5
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_two\_chamber\_db\_s  
 TA: 0:10 PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Mode	2D
Prio Recon	Off	Unfiltered images	Off
Before measurement		Unfiltered images	Off
After measurement		Prescan Normalize	On
Load to viewer	On	Normalize	Off
Inline movie	Off	B1 filter	Off
Auto store images	On	Raw filter	Off
Load to stamp segments	On	Elliptical filter	Off
Load images to graphic segments	On		
Auto open inline display	Off		
Start measurement without further preparation	On		
Wait for user to start	On		
Start measurements	single		
Routine		Geometry	
Slice group 1		Multi-slice mode	Sequential
Slices	1	Series	Descending
Dist. factor	50 %	Special sat.	None
Position	R12.5 P0.1 H0.0	Tim CT mode	Off
Orientation	S > C-34.0		
Phase enc. dir.	A >> P		
Rotation	0.00 deg		
Phase oversampling	0 %		
FoV read	360 mm		
FoV phase	75.0 %		
Slice thickness	7.0 mm		
TR	800 ms		
TE	63.0 ms		
Averages	1		
Concatenations	1		
Filter	Distortion Corr.(2D), Prescan		
	Normalize		
Coil elements	BO1,2;SP2,3		
Contrast		System	
MTC	Off	Body	Off
Magn. preparation	Slice-sel. IR	BO1	On
TI	170 ms	BO2	On
Freeze suppressed tissue	Off	SP4	Off
Flip angle	180 deg	SP2	On
Fat suppr.	None	SP8	Off
Water suppr.	None	SP6	Off
Restore magn.	Off	SP3	On
		SP1	Off
Averaging mode	Short term	SP7	Off
Reconstruction	Magnitude	SP5	Off
Measurements	1		
Multiple series	Off		
Resolution		Positioning mode	REF
Base resolution	192	Table position	H
Phase resolution	75 %	Table position	0 mm
Phase partial Fourier	Off	MSMA	S - C - T
Trajectory	Cartesian	Sagittal	R >> L
Interpolation	On	Coronal	A >> P
		Transversal	F >> H
PAT mode	GRAPPA	Save uncombined	Off
Accel. factor PE	2	Coil Combine Mode	Adaptive Combine
Ref. lines PE	42	Auto Coil Select	Default
Matrix Coil Mode	Auto (Triple)		
Reference scan mode	Integrated		
		Shim mode	Tune up
Image Filter	Off	Adjust with body coil	On
Distortion Corr.	On	Confirm freq. adjustment	Off
		Assume Silicone	Off
		? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
		Adjust volume	
		Position	Isocenter
		Orientation	Transversal
		Rotation	0.00 deg
		R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Physio			
		1st Signal/Mode	ECG/Trigger
		Average cycle	425 ± 35 ms
		Captured cycle	-not set-
		Acquisition window	800 ms
		Trigger pulse	2
		Trigger delay	0 ms
		Phases	1
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg

SIEMENS MAGNETOM Avanto syngo MR B19

Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	15
Echo trains per slice	5
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\dynamic\_test

TA: 4.3 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off
Prio Recon	Off	PAT mode	GRAPPA
Before measurement		Accel. factor PE	2
After measurement		Ref. lines PE	14
Load to viewer	On	Matrix Coil Mode	Auto (Triple)
Inline movie	On	Reference scan mode	Integrated
Auto store images	On		
Load to stamp segments	On	Image Filter	Off
Load images to graphic segments	On	Distortion Corr.	On
Auto open inline display	On	Mode	2D
Start measurement without further preparation	On	Unfiltered images	Off
Wait for user to start	On	Unfiltered images	Off
Start measurements	single	Prescan Normalize	On
		Normalize	Off
		B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off
Routine		Geometry	
Slice group 1		Multi-slice mode	Single shot
Slices	3	Series	Descending
Dist. factor	50 %		
Position	Isocenter	Special sat.	None
Orientation	Transversal		
Phase enc. dir.	A >> P		
Rotation	0.00 deg		
Auto	Off		
Slice group 2		System	
Slices	1	Body	Off
Dist. factor	20 %	BO1	On
Position	Isocenter	BO2	On
Orientation	Sagittal	SP4	Off
Phase enc. dir.	A >> P	SP2	On
Rotation	0.00 deg	SP8	Off
Auto	Off	SP6	Off
Phase oversampling	0 %	SP3	On
FoV read	360 mm	SP1	Off
FoV phase	75.0 %	SP7	Off
Slice thickness	8.0 mm	SP5	Off
TR	162.86 ms		
TE	1.14 ms	Positioning mode	REF
Averages	1	Table position	H
Concatenations	1	Table position	0 mm
Filter	Distortion Corr.(2D), Prescan	MSMA	S - C - T
	Normalize	Sagittal	R >> L
Coil elements	BO1,2;SP2,3	Coronal	A >> P
		Transversal	F >> H
		Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
		Auto Coil Select	Default
Contrast		Shim mode	
Magn. preparation	Non-sel. SR perf	Adjust with body coil	Tune up
TI	95 ms	Confirm freq. adjustment	On
Flip angle	12 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
		Adjust volume	
Averaging mode	Long term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	5	Rotation	0.00 deg
Pause after meas. 1	0.0 s	R >> L	350 mm
Pause after meas. 2	0.0 s	A >> P	263 mm
Pause after meas. 3	0.0 s	F >> H	350 mm
Pause after meas. 4	0.0 s		
Multiple series	Each slice		
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	65 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off		
Trajectory	Cartesian		

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\dynamic

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_ti\_scout

TA: 0:12 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	50 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	17
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_short\_axis\_early

TA: 0:12 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Subtract	
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_four\_chamber\_early

TA: 0:12 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Segments	25
Matrix Coil Mode	Auto (CP)	Phases	1
		Dark blood	
Image Filter	Off	Cine	Off
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Unfiltered images	Off	Subtract	Off
Prescan Normalize	On	Std-Dev-Sag	Off
Normalize	Off	Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\OPT\_two\_chamber\_early  
 TA: 0:12 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Subtract	
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

## SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

### Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\ti\_scout

TA: 0:12 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	34.06 ms
TE	1.12 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	TI Scout
Flip angle	50 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	On
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	665 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	13
Phases	17

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\short\_axis\_delayed

TA: 1:44 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Off
	Normalize	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Concatenations	10
Matrix Coil Mode	Auto (CP)	Segments	25
		Phases	1
Image Filter	Off	Dark blood	
Distortion Corr.	On	Cine	
Mode	2D	Resp. control	
Unfiltered images	Off	Breath-hold	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\four\_chamber\_delayed

TA: 0:12 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Recommended\two\_chamber\_delayed

TA: 0:12 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Acute_Myocardial_Infarct\Free_Breathing\auto_detect_table_positio					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		65 %	
Prio Recon	Off	Phase partial Fourier		Off	
Before measurement		Trajectory		Cartesian	
After measurement		Interpolation		Off	
Load to viewer	On	PAT mode		GRAPPA	
Inline movie	Off	Accel. factor PE	2		
Auto store images	On	Ref. lines PE	24		
Load to stamp segments	On	Matrix Coil Mode		Auto (Triple)	
Load images to graphic segments	On	Reference scan mode		Integrated	
Auto open inline display	Off	Image Filter		Off	
Start measurement without further preparation	Off	Distortion Corr.		On	
Wait for user to start	Off	Mode		2D	
Start measurements	single	Unfiltered images		Off	
Routine		Prescan Normalize		Off	
Slice group 1		Normalize		Off	
Slices	3	B1 filter		Off	
Dist. factor	300 %	Raw filter		Off	
Position	Isocenter	Elliptical filter		Off	
Orientation	Transversal	POCS		Off	
Phase enc. dir.	A >> P	Geometry			
Rotation	0.00 deg	Multi-slice mode		Sequential	
Auto	Off	Series		Descending	
Slice group 2		Special sat.		None	
Slices	3	System			
Dist. factor	300 %	Body		Off	
Position	L30.0 P0.0 H0.0	BO1		On	
Orientation	Sagittal	BO2		On	
Phase enc. dir.	A >> P	SP4		Off	
Rotation	0.00 deg	SP2		On	
Auto	Off	SP8		Off	
Slice group 3		SP6		Off	
Slices	3	SP3		On	
Dist. factor	300 %	SP1		On	
Position	L0.0 P10.0 H0.0	SP7		Off	
Orientation	Coronal	SP5		Off	
Phase enc. dir.	R >> L	Positioning mode		FIX	
Rotation	0.00 deg	Table position		H	
Auto	Off	Table position		0 mm	
Phase oversampling	0 %	MSMA		S - C - T	
FoV read	400 mm	Sagittal		R >> L	
FoV phase	100.0 %	Coronal		A >> P	
Slice thickness	7.0 mm	Transversal		F >> H	
TR	337.10 ms	Save uncombined		Off	
TE	1.14 ms	Coil Combine Mode		Adaptive Combine	
Averages	1	Auto Coil Select		Default	
Concatenations	9	Contrast			
Filter	Distortion Corr.(2D)	Shim mode		Tune up	
Coil elements	BO1,2;SP1-3	Adjust with body coil		On	
		Confirm freq. adjustment		Off	
		Assume Silicone		Off	
		? Ref. amplitude 1H		0.000 V	
		Adjustment Tolerance		Auto	
		Adjust volume			
		Position		Isocenter	
		Orientation		Transversal	
		Rotation		0.00 deg	
		R >> L		350 mm	
		A >> P		263 mm	
		F >> H		350 mm	
Resolution		Physio			
Base resolution	256				

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\multi\_plane\_loc

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\axial\_db\_haste\_loc

TA: 0:34 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off		
B1 filter	Off	Resp. control	Off
Inline			
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\short\_axis\_loc

TA: 8.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	ECG/Trigger
Trajectory	Cartesian	Average cycle	425 ± 35 ms
Interpolation	Off	Captured cycle	425 ± 35
PAT mode	GRAPPA	Acquisition window	800 ms
Accel. factor PE	2	Trigger pulse	1
Ref. lines PE	24	Trigger delay	500 ms
Matrix Coil Mode	Auto (Triple)	Segments	74
Reference scan mode	Integrated	Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D	Resp. control	Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\short\_axis\_cine

TA: 1:51 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	360 mm	Positioning mode	
FoV phase	75.0 %	Table position	REF
Slice thickness	7.0 mm	Table position	H
TR	44 ms	MSMA	0 mm
TE	1.16 ms	Sagittal	S - C - T
Averages	4	Coronal	R >> L
Concatenations	10	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode		Segments	16
Accel. factor PE	GRAPPA	Dark blood	
Ref. lines PE	2	Cine	
Matrix Coil Mode	24	Dummy heartbeats	
Reference scan mode	Auto (Triple)	Resp. control	
	Integrated	Off	
Image Filter		Inline	
Distortion Corr.	Off	Subtract	Off
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\four\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\two\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\three\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_short\_ax\_db\_hast\_

TA: 1.7 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off	Tim CT mode	Off
Auto store images	On	System	
Load to stamp segments	On	Body	Off
Load images to graphic segments	On	BO1	On
Auto open inline display	Off	BO2	On
Start measurement without further preparation	On	SP4	Off
Wait for user to start	Off	SP2	On
Start measurements	single	SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	1	SP1	Off
Dist. factor	50 %	SP7	Off
Position	L15.7 A41.7 F26.9	SP5	Off
Orientation	C > S34.0 > T-25.2	Positioning mode	
Phase enc. dir.	R >> L	Table position	REF
Rotation	0.00 deg	Table position	H
Phase oversampling	0 %	MSMA	0 mm
FoV read	400 mm	Sagittal	S - C - T
FoV phase	62.5 %	Coronal	R >> L
Slice thickness	7.0 mm	Transversal	A >> P
TR	600 ms	Save uncombined	F >> H
TE	22 ms	Coil Combine Mode	Off
Averages	1	Auto Coil Select	Adaptive Combine
Concatenations	1	Default	
Filter	Distortion Corr.(2D), Prescan	Shim mode	Tune up
	Normalize	Adjust with body coil	On
Coil elements	BO1,2;SP2,3	Confirm freq. adjustment	Off
Contrast		Assume Silicone	Off
MTC	Off	? Ref. amplitude 1H	0.000 V
Magn. preparation	None	Adjustment Tolerance	Auto
Flip angle	160 deg	Adjust volume	
Fat suppr.	None	Position	Isocenter
Water suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
Averaging mode		R >> L	350 mm
Reconstruction	Long term	A >> P	263 mm
Measurements	Magnitude	F >> H	350 mm
Multiple series	1	Physio	
	Off	1st Signal/Mode	ECG/Trigger
Resolution		Average cycle	425 ± 35 ms
Base resolution	192	Captured cycle	-not set-
Phase resolution	85 %	Acquisition window	695 ms
Phase partial Fourier	5/8	Trigger pulse	2
Interpolation	On	Trigger delay	0 ms
PAT mode		Phases	1
Matrix Coil Mode	None	Dark blood	
	CP	Dark blood	On
Image Filter	Off	Dark blood thickness	300 %
Distortion Corr.	On	Dark blood flip angle	200 deg
Mode	2D	Resp. control	
Unfiltered images	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	On	Std-Dev-Cor	Off
Normalize	Off		
B1 filter	Off		
Inline			

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_four\_cham\_db\_has  
 TA: 1.7 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	50 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_two\_cham\_db\_has  
 TA: 1.7 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	50 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_short\_ax\_db\_hast\_

TA: 2.5 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interleaved
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	600 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
MTC	Off	Auto Coil Select	Default
Magn. preparation	Slice-sel. IR		
TI	170 ms	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	425 ± 35 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	695 ms
Unfiltered images	Off	Trigger pulse	3
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Off
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_four\_cham\_db\_has  
 TA: 2.5 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interleaved
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	L11.8 A39.9 H7.1	SP8	Off
Orientation	T > C40.1 > S5.6	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	600 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
MTC	Off	Auto Coil Select	Default
Magn. preparation	Slice-sel. IR		
TI	170 ms	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	425 ± 35 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	695 ms
Unfiltered images	Off	Trigger pulse	3
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Off
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_two\_cham\_db\_has  
 TA: 2.5 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interleaved
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	R12.5 P0.1 H0.0	SP8	Off
Orientation	S > C-34.0	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	600 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
MTC	Off	Auto Coil Select	Default
Magn. preparation	Slice-sel. IR		
TI	170 ms	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	425 ± 35 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	695 ms
Unfiltered images	Off	Trigger pulse	3
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Off
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\dynamic\_test

TA: 4.3 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto

Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\dynamic

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_ti\_scout

TA: 0:43 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	4	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	50 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	17
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_short\_axis\_early

TA: 1.7 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	840 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_four\_chamber\_earl  
 TA: 1.7 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On	System	
Auto open inline display	Off	Body	Off
Start measurement without further preparation	On	BO1	On
Wait for user to start	Off	BO2	On
Start measurements	single	SP4	Off
		SP2	On
		SP8	Off
		SP6	Off
		SP3	On
		SP1	Off
		SP7	Off
		SP5	Off
Routine		Positioning mode	REF
Slice group 1		Table position	H
Slices	1	Table position	0 mm
Dist. factor	20 %	MSMA	S - C - T
Position	L11.8 A39.9 H7.1	Sagittal	R >> L
Orientation	T > C40.1 > S5.6	Coronal	A >> P
Phase enc. dir.	A >> P	Transversal	F >> H
Rotation	0.00 deg	Save uncombined	Off
Auto	Off	Coil Combine Mode	Adaptive Combine
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	340 mm	Shim mode	Tune up
FoV phase	75.0 %	Adjust with body coil	On
Slice thickness	7.0 mm	Confirm freq. adjustment	Off
TR	700.00 ms	Assume Silicone	Off
TE	1.09 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	Distortion Corr.(2D), Prescan	Position	Isocenter
	Normalize	Orientation	Transversal
Coil elements	BO1,2;SP2,3	Rotation	0.00 deg
Contrast		R >> L	350 mm
Magn. preparation	Non-sel. IR	A >> P	263 mm
TI	300 ms	F >> H	350 mm
Flip angle	40 deg	Physio	
Fat suppr.	None	1st Signal/Mode	ECG/Trigger
Restore magn.	Off	Average cycle	425 ± 35 ms
Averaging mode	Short term	Captured cycle	-not set-
Reconstruction	Magnitude	Acquisition window	840 ms
Measurements	1	Trigger pulse	2
Multiple series	Off	Trigger delay	0 ms
Resolution		Segments	72
Base resolution	192	Phases	1
Phase resolution	50 %	Dark blood	Off
Phase partial Fourier	Off	Cine	Off
Trajectory	Cartesian	Resp. control	Off
Interpolation	Off	Inline	
PAT mode	None	Subtract	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On		
Mode	2D		
Unfiltered images	Off		
Unfiltered images	Off		
Prescan Normalize	On		
Normalize	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\OPT\_two\_chamber\_early  
 TA: 1.7 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	840 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

**\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\ti\_scout**

TA: 0:43    PAT: Off    Voxel size: 3.5x1.8x7.0 mm    Rel. SNR: 1.00    SIEMENS: CV

<b>Properties</b>		B1 filter	Off
Prio Recon		Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer		<b>Geometry</b>	
Inline movie		Multi-slice mode	Sequential
Auto store images		Series	Descending
Load to stamp segments		Special sat.	
Load images to graphic segments		None	
Auto open inline display		<b>System</b>	
Start measurement without further preparation		Body	Off
Wait for user to start		BO1	On
Start measurements		BO2	On
		SP4	Off
		SP2	On
		SP8	Off
		SP6	Off
		SP3	On
		SP1	Off
		SP7	Off
		SP5	Off
<b>Routine</b>		Positioning mode	REF
Slice group 1		Table position	H
Slices		Table position	0 mm
Dist. factor		MSMA	S - C - T
Position		Sagittal	R >> L
Orientation		Coronal	A >> P
Phase enc. dir.		Transversal	F >> H
Rotation		Save uncombined	Off
Auto		Coil Combine Mode	Adaptive Combine
Phase oversampling		Auto Coil Select	Default
FoV read		Shim mode	Tune up
FoV phase		Adjust with body coil	On
Slice thickness		Confirm freq. adjustment	Off
TR		Assume Silicone	Off
TE		? Ref. amplitude 1H	0.000 V
Averages		Adjustment Tolerance	Auto
Concatenations		Adjust volume	
Filter		Position	Isocenter
		Orientation	Transversal
		Rotation	0.00 deg
Coil elements		R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
<b>Contrast</b>		<b>Physio</b>	
Magn. preparation		1st Signal/Mode	ECG/Trigger
Flip angle		Average cycle	425 ± 35 ms
Fat suppr.		Captured cycle	-not set-
Restore magn.		Acquisition window	665 ms
Averaging mode		Trigger pulse	2
Reconstruction		Trigger delay	0 ms
Measurements		Segments	13
Multiple series		Phases	17
<b>Resolution</b>		Dark blood	Off
Base resolution		Cine	On
Phase resolution		Dummy heartbeats	1
Phase partial Fourier		Resp. control	Off
Trajectory		<b>Inline</b>	
View sharing		Subtract	Off
Interpolation		Std-Dev-Sag	Off
PAT mode			
Matrix Coil Mode			
Image Filter			
Distortion Corr.			
Mode			
Unfiltered images			
Unfiltered images			
Prescan Normalize			
Normalize			

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\short\_axis\_delayed

TA: 0:19 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	340 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	700.00 ms	Coronal	A >> P
TE	1.09 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Default
Coil elements	Normalize BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	Non-sel. IR	Assume Silicone	Off
TI	300 ms	? Ref. amplitude 1H	0.000 V
Flip angle	40 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
		Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D		
Unfiltered images	Off	Resp. control	Off
Unfiltered images	Off		
Prescan Normalize	On		
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\four\_chamber\_delayed

TA: 1.7 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Free\_Breathing\two\_chamber\_delayed

TA: 1.7 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Matrix Coil Mode	None	Segments	72
	Auto (CP)	Phases	1
Image Filter		Dark blood	
Distortion Corr.	Off	Cine	
Mode	On	Resp. control	
Unfiltered images	2D	Off	
Unfiltered images	Off	Subtract	
Prescan Normalize	Off	Off	
Normalize	On	Std-Dev-Sag	
	Off	Off	
		Std-Dev-Cor	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\auto\_detect\_table\_p  
 TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	65 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		Interpolation	Off
Load to viewer	On	PAT mode	GRAPPA
Inline movie	Off	Accel. factor PE	2
Auto store images	On	Ref. lines PE	24
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)
Load images to graphic segments	On	Reference scan mode	Integrated
Auto open inline display	Off	Image Filter	Off
Start measurement without further preparation	Off	Distortion Corr.	On
Wait for user to start	Off	Mode	2D
Start measurements	single	Unfiltered images	Off
Routine		Prescan Normalize	Off
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	300 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0.00 deg	Multi-slice mode	Sequential
Auto	Off	Series	Descending
Slice group 2		Special sat.	None
Slices	3	System	
Dist. factor	300 %	Body	Off
Position	L30.0 P0.0 H0.0	BO1	On
Orientation	Sagittal	BO2	On
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	On
Auto	Off	SP8	Off
Slice group 3		SP6	Off
Slices	3	SP3	On
Dist. factor	300 %	SP1	On
Position	L0.0 P10.0 H0.0	SP7	Off
Orientation	Coronal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	FIX
Rotation	0.00 deg	Table position	H
Auto	Off	Table position	0 mm
Phase oversampling	0 %	MSMA	S - C - T
FoV read	400 mm	Sagittal	R >> L
FoV phase	100.0 %	Coronal	A >> P
Slice thickness	7.0 mm	Transversal	F >> H
TR	337.10 ms	Save uncombined	Off
TE	1.14 ms	Coil Combine Mode	Adaptive Combine
Averages	1	Auto Coil Select	Default
Concatenations	9	Contrast	
Filter	Distortion Corr.(2D)	TD	0 ms
Coil elements	BO1,2;SP1-3	Magn. preparation	None
Contrast		Flip angle	80 deg
TD	0 ms	Fat suppr.	None
Magn. preparation	None	Restore magn.	On
Flip angle	80 deg	Averaging mode	Short term
Fat suppr.	None	Reconstruction	Magnitude
Restore magn.	On	Measurements	1
Averaging mode	Short term	Multiple series	Off
Reconstruction	Magnitude	Resolution	
Measurements	1	Base resolution	256
Multiple series	Off	Physio	

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	20	SP2	On
Dist. factor	10 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	On
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	10 mm
TR	271.16 ms	Sagittal	S - C - T
TE	1.14 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	20	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP1-3	Auto Coil Select	Adaptive Combine
Contrast		Default	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	74
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	Off
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\two\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	Off
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\four\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\three\_chamber\_loc  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\short\_axis\_cine\_rea  
 TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	56.64 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode		Phases	45
Accel. factor PE	GRAPPA	Dark blood	
Ref. lines PE	2	Cine	Off
Matrix Coil Mode	12	Resp. control	
Reference scan mode	Auto (Triple)	Subtract	On
Image Filter		Std-Dev-Sag	Off
Distortion Corr.	Integrated	Std-Dev-Cor	Off
Mode	Off	Std-Dev-Tra	Off
Unfiltered images		Std-Dev-Time	Off
Inline		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\four\_chambr\_cine\_r  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\two\_chambr\_cine\_re

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\three\_chambr\_cine\_  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L34.0 P18.2 H40.2	SP6	Off
Orientation	S > T-31.4 > C3.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\dynamic\_test

TA: 4.1 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	54

# SIEMENS MAGNETOM Avanto syngo MR B19

Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	3.1 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\dynamic

TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\OPT\_short\_axis\_ea

TA: 2.0 s PAT: Off Voxel size: 3.8x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	360 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.08 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1132 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\OPT\_four\_chamber.

TA: 2.0 s PAT: Off Voxel size: 3.8x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	360 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.08 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1132 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\OPT\_two\_chamber\_  
 TA: 2.0 s PAT: Off Voxel size: 3.8x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	360 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.08 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1132 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\short\_axis\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\four\_chamber\_delay

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Acute\_Myocardial\_Infarct\Extreme\_Arrhythmia\two\_chamber\_delay  
 TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	On	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Recommended\auto_detect_table_posi					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\multi\_plane\_loc

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\axial\_db\_haste\_loc

TA: 0:34 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	425 ± 35 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
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Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\short\_axis\_loc

TA: 8.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	ECG/Trigger
Trajectory	Cartesian	Average cycle	425 ± 35 ms
Interpolation	Off	Captured cycle	425 ± 35
PAT mode	GRAPPA	Acquisition window	800 ms
Accel. factor PE	2	Trigger pulse	1
Ref. lines PE	24	Trigger delay	500 ms
Matrix Coil Mode	Auto (Triple)	Segments	74
Reference scan mode	Integrated	Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D	Resp. control	Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\short\_axis\_cine

TA: 0:34 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Concatenations	10
Accel. factor PE	2	Segments	16
Ref. lines PE	24	Dark blood	Off
Matrix Coil Mode	Auto (Triple)	Cine	On
Reference scan mode	Integrated	Dummy heartbeats	1
Image Filter	Off	Resp. control	Breath-hold
Distortion Corr.	On	Inline	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\four\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\two\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\three\_chamber\_cine

TA: 3.4 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_long\_axis\_rest

TA: 6.4 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	63.6 ms
TE	1.12 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Resolution

Base resolution	192
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# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	24
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_short\_axis\_rest

TA: 6.4 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	63.6 ms	MSMA	S - C - T
TE	1.12 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	65 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	425 ± 35 ms
Accel. factor PE	GRAPPA	Calculated phases	22
Ref. lines PE	2	Segments	24
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	
Image Filter		Dummy heartbeats	
Distortion Corr.	Off	Resp. control	
Mode	On	Off	
Unfiltered images	2D	Subtract	
	Off	Std-Dev-Sag	
		Std-Dev-Cor	
		Std-Dev-Tra	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Recommended\OPT_long_axis_stress1					
TA: 7.6 s	PAT: 2	Voxel size: 2.4x1.8x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	58.3 ms
TE	1.12 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
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Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	22
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_short\_axis\_stress

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	58.3 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode		Calculated phases	22
Accel. factor PE	GRAPPA	Segments	22
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	Off
Reference scan mode	Auto (Triple)	Dummy heartbeats	On
Image Filter		Resp. control	1
Distortion Corr.	Integrated	Inline	
Mode	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_long\_axis\_stress2  
 TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	75 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		View sharing	Off
Load to viewer	On	Interpolation	Off
Inline movie	On		
Auto store images	On	PAT mode	GRAPPA
Load to stamp segments	On	Accel. factor PE	2
Load images to graphic segments	On	Ref. lines PE	24
Auto open inline display	Off	Matrix Coil Mode	Auto (Triple)
Start measurement without further preparation	On	Reference scan mode	Integrated
Wait for user to start	On		
Start measurements	single	Image Filter	Off
Routine		Distortion Corr.	On
Slice group 1		Mode	2D
Slices	1	Unfiltered images	Off
Dist. factor	20 %	Prescan Normalize	Off
Position	L17.7 A20.3 F13.1	Normalize	Off
Orientation	S > T-37.9 > C-12.6	B1 filter	Off
Phase enc. dir.	A >> P	Raw filter	Off
Rotation	0.00 deg	Elliptical filter	Off
Auto	Off	POCS	Off
Slice group 2		Geometry	
Slices	1	Multi-slice mode	Sequential
Dist. factor	20 %	Series	Descending
Position	R19.0 A15.9 H12.5		
Orientation	C > S-40.3 > T5.1	Special sat.	None
Phase enc. dir.	R >> L		
Rotation	-2.00 deg	System	
Auto	Off	Body	Off
Slice group 3		BO1	On
Slices	1	BO2	On
Dist. factor	20 %	SP4	Off
Position	L0.5 A21.5 H15.1	SP2	On
Orientation	T > C30.9 > S-18.3	SP8	Off
Phase enc. dir.	A >> P	SP6	Off
Rotation	11.00 deg	SP3	On
Auto	Off	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	340 mm	SP5	Off
FoV phase	81.3 %		
Slice thickness	6.0 mm	Positioning mode	FIX
TR	47.7 ms	Table position	H
TE	1.12 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	3	Sagittal	R >> L
Filter	Distortion Corr.(2D)	Coronal	A >> P
Coil elements	BO1,2;SP2,3	Transversal	F >> H
Contrast		Save uncombined	Off
TD	0 ms	Coil Combine Mode	Adaptive Combine
Magn. preparation	None	Auto Coil Select	Default
Flip angle	65 deg		
Fat suppr.	None	Shim mode	Tune up
Restore magn.	On	Adjust with body coil	On
Averaging mode	Short term	Confirm freq. adjustment	Off
Reconstruction	Magnitude	Assume Silicone	Off
Measurements	1	? Ref. amplitude 1H	0.000 V
Multiple series	Each slice	Adjustment Tolerance	Auto
Resolution		Adjust volume	
Base resolution	192	Position	Isocenter
		Orientation	Transversal
		Rotation	0.00 deg
		R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	18
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_short\_axis\_stress  
 TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	3	SP2	On
Dist. factor	250 %	SP8	Off
Position	L16.3 A33.3 F1.7	SP6	Off
Orientation	C > S44.2 > T-34.8	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	-25.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	FIX
FoV read	340 mm	Table position	H
FoV phase	81.3 %	Table position	0 mm
Slice thickness	6.0 mm	MSMA	S - C - T
TR	47.7 ms	Sagittal	R >> L
TE	1.12 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	3	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	65 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	75 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	22
PAT mode	GRAPPA	Segments	18
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_long\_axis\_stress3  
 TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	75 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		View sharing	Off
Load to viewer	On	Interpolation	Off
Inline movie	On		
Auto store images	On	PAT mode	GRAPPA
Load to stamp segments	On	Accel. factor PE	2
Load images to graphic segments	On	Ref. lines PE	24
Auto open inline display	Off	Matrix Coil Mode	Auto (Triple)
Start measurement without further preparation	On	Reference scan mode	Integrated
Wait for user to start	On		
Start measurements	single	Image Filter	Off
Routine		Distortion Corr.	On
Slice group 1		Mode	2D
Slices	1	Unfiltered images	Off
Dist. factor	20 %	Prescan Normalize	Off
Position	L17.7 A20.3 F13.1	Normalize	Off
Orientation	S > T-37.9 > C-12.6	B1 filter	Off
Phase enc. dir.	A >> P	Raw filter	Off
Rotation	0.00 deg	Elliptical filter	Off
Auto	Off	POCS	Off
Slice group 2		Geometry	
Slices	1	Multi-slice mode	Sequential
Dist. factor	20 %	Series	Descending
Position	R19.0 A15.9 H12.5	Special sat.	None
Orientation	C > S-40.3 > T5.1		
Phase enc. dir.	R >> L	System	
Rotation	-2.00 deg	Body	Off
Auto	Off	BO1	On
Slice group 3		BO2	On
Slices	1	SP4	Off
Dist. factor	20 %	SP2	On
Position	L0.5 A21.5 H15.1	SP8	Off
Orientation	T > C30.9 > S-18.3	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	11.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	FIX
FoV phase	81.3 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	42.4 ms	MSMA	S - C - T
TE	1.12 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	65 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Each slice	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	16
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_short\_axis\_stress  
 TA: 8.9 s PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	FIX
Slice thickness	6.0 mm	Table position	H
TR	42.4 ms	MSMA	0 mm
TE	1.12 ms	Sagittal	S - C - T
Averages	1	Coronal	R >> L
Concatenations	3	Transversal	A >> P
Filter	Distortion Corr.(2D)	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
Contrast		Auto Coil Select	Adaptive Combine
TD	0 ms	Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	65 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Each slice	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	425 ± 35 ms
PAT mode	GRAPPA	Calculated phases	22
Accel. factor PE	2	Segments	16
Ref. lines PE	24	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Dummy heartbeats	On
Image Filter	Off	Resp. control	1
Distortion Corr.	On	Inline	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_dynamic\_test

TA: 4.3 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V

Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_dynamic\_stress

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties			
Prio Recon	Off	Pause after meas. 11	0.0 s
Before measurement		Pause after meas. 12	0.0 s
After measurement		Pause after meas. 13	0.0 s
Load to viewer	On	Pause after meas. 14	0.0 s
Inline movie	On	Pause after meas. 15	0.0 s
Auto store images	On	Pause after meas. 16	0.0 s
Load to stamp segments	On	Pause after meas. 17	0.0 s
Load images to graphic segments	On	Pause after meas. 18	0.0 s
Auto open inline display	On	Pause after meas. 19	0.0 s
Start measurement without further preparation	On	Pause after meas. 20	0.0 s
Wait for user to start	On	Pause after meas. 21	0.0 s
Start measurements	single	Pause after meas. 22	0.0 s
Routine		Pause after meas. 23	0.0 s
Slice group 1		Pause after meas. 24	0.0 s
Slices	3	Pause after meas. 25	0.0 s
Dist. factor	50 %	Pause after meas. 26	0.0 s
Position	Isocenter	Pause after meas. 27	0.0 s
Orientation	Transversal	Pause after meas. 28	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 29	0.0 s
Rotation	0.00 deg	Pause after meas. 30	0.0 s
Auto	Off	Pause after meas. 31	0.0 s
Slice group 2		Pause after meas. 32	0.0 s
Slices	1	Pause after meas. 33	0.0 s
Dist. factor	20 %	Pause after meas. 34	0.0 s
Position	Isocenter	Pause after meas. 35	0.0 s
Orientation	Sagittal	Pause after meas. 36	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 37	0.0 s
Rotation	0.00 deg	Pause after meas. 38	0.0 s
Auto	Off	Pause after meas. 39	0.0 s
Phase oversampling	0 %	Pause after meas. 40	0.0 s
FoV read	360 mm	Pause after meas. 41	0.0 s
FoV phase	75.0 %	Pause after meas. 42	0.0 s
Slice thickness	8.0 mm	Pause after meas. 43	0.0 s
TR	162.86 ms	Pause after meas. 44	0.0 s
TE	1.14 ms	Pause after meas. 45	0.0 s
Averages	1	Pause after meas. 46	0.0 s
Concatenations	1	Pause after meas. 47	0.0 s
Filter	Distortion Corr.(2D), Prescan Normalize	Pause after meas. 48	0.0 s
Coil elements	BO1,2;SP2,3	Pause after meas. 49	0.0 s
Contrast		Multiple series	Each slice
Resolution			
Magn. preparation	Non-sel. SR perf	Base resolution	192
TI	95 ms	Phase resolution	65 %
Flip angle	12 deg	Phase partial Fourier	Off
Fat suppr.	None	Trajectory	Cartesian
Restore magn.	Off	Interpolation	Off
Averaging mode		PAT mode	GRAPPA
Reconstruction	Long term	Accel. factor PE	2
Measurements	Magnitude	Ref. lines PE	14
Pause after meas. 1	50	Matrix Coil Mode	Auto (Triple)
Pause after meas. 2	0.0 s	Reference scan mode	Integrated
Pause after meas. 3	0.0 s		
Pause after meas. 4	0.0 s	Image Filter	Off
Pause after meas. 5	0.0 s	Distortion Corr.	On
Pause after meas. 6	0.0 s	Mode	2D
Pause after meas. 7	0.0 s	Unfiltered images	Off
Pause after meas. 8	0.0 s	Unfiltered images	Off
Pause after meas. 9	0.0 s	Prescan Normalize	On
Pause after meas. 10	0.0 s	Normalize	Off
		B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\OPT\_dynamic\_rest

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\ti\_scout

TA: 0:12 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode		Adjust volume	Auto
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	192	F >> H	350 mm
Phase resolution	50 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	ECG/Trigger
Trajectory	Cartesian	Average cycle	425 ± 35 ms
View sharing	Off	Captured cycle	-not set-
Interpolation	On	Acquisition window	665 ms
PAT mode		Trigger pulse	2
Matrix Coil Mode	None	Trigger delay	0 ms
	Auto (CP)	Segments	13
Image Filter	Off	Phases	17
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Dummy heartbeats	On
Unfiltered images	Off	Resp. control	
Prescan Normalize	On		1
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\short\_axis\_delayed

TA: 1:44 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Off
	Normalize	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Concatenations	10
Matrix Coil Mode	Auto (CP)	Segments	25
		Phases	1
Image Filter	Off	Dark blood	
Distortion Corr.	On	Cine	
Mode	2D	Resp. control	
Unfiltered images	Off	Breath-hold	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\four\_chamber\_delayed

TA: 0:12 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Recommended\two\_chamber\_delayed

TA: 0:12 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Free_Breathing\auto_detect_table_posi					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\multi\_plane\_loc

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\axial\_db\_haste\_loc

TA: 0:34 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off		
B1 filter	Off	Resp. control	Off
Inline			
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\short\_axis\_loc

TA: 8.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	425 ± 35 ms
Accel. factor PE	2	Captured cycle	425 ± 35
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\short\_axis\_cine

TA: 1:51 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	360 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	44 ms	MSMA	S - C - T
TE	1.16 ms	Sagittal	R >> L
Averages	4	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	425 ± 35 ms
Accel. factor PE	GRAPPA	Calculated phases	25
Ref. lines PE	2	Segments	16
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	
Image Filter		Dummy heartbeats	
Distortion Corr.	Off	Resp. control	
Mode	On	Off	
Unfiltered images	2D	Subtract	
	Off	Std-Dev-Sag	
		Std-Dev-Cor	
		Std-Dev-Tra	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\four\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\two\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\three\_chamber\_cine

TA: 0:11 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_long\_axis\_rest

TA: 0:14 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Phase resolution 75 %

Phase partial Fourier Off

Trajectory Cartesian

View sharing Off

Interpolation Off

PAT mode GRAPPA

Accel. factor PE 2

Ref. lines PE 24

Matrix Coil Mode Auto (Triple)

Reference scan mode Integrated

Image Filter Off

Distortion Corr. On

Mode 2D

Unfiltered images Off

Prescan Normalize Off

Normalize Off

B1 filter Off

Raw filter Off

Elliptical filter Off

POCS Off

## Geometry

Multi-slice mode Sequential

Series Descending

Special sat. None

## System

Body Off

BO1 On

BO2 On

SP4 Off

SP2 On

SP8 Off

SP6 Off

SP3 On

SP1 Off

SP7 Off

SP5 Off

Positioning mode REF

Table position H

Table position 0 mm

MSMA S - C - T

Sagittal R >> L

Coronal A >> P

Transversal F >> H

Save uncombined Off

Coil Combine Mode Adaptive Combine

Auto Coil Select Default

Shim mode Tune up

Adjust with body coil On

Confirm freq. adjustment Off

Assume Silicone Off

? Ref. amplitude 1H 0.000 V

Adjustment Tolerance Auto

Adjust volume

Position Isocenter

Orientation Transversal

Rotation 0.00 deg

R >> L 350 mm

A >> P 263 mm

F >> H 350 mm

## Routine

### Slice group 1

Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off

### Geometry

Multi-slice mode

Sequential

Series

Descending

Special sat.

None

### Slice group 2

Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off

### System

Body Off

BO1 On

BO2 On

SP4 Off

SP2 On

SP8 Off

SP6 Off

SP3 On

SP1 Off

SP7 Off

SP5 Off

Positioning mode REF

Table position H

Table position 0 mm

MSMA S - C - T

Sagittal R >> L

Coronal A >> P

Transversal F >> H

Save uncombined Off

Coil Combine Mode Adaptive Combine

Auto Coil Select Default

Shim mode Tune up

Adjust with body coil On

Confirm freq. adjustment Off

Assume Silicone Off

? Ref. amplitude 1H 0.000 V

Adjustment Tolerance Auto

Adjust volume

Position Isocenter

Orientation Transversal

Rotation 0.00 deg

R >> L 350 mm

A >> P 263 mm

F >> H 350 mm

## Contrast

### TD

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On

Short term

Magnitude

1

Each slice

## Resolution

Base resolution 192

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	24
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_short\_axis\_rest

TA: 0:14 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	250 %	SP2	On
Position	L16.3 A33.3 F1.7	SP8	Off
Orientation	C > S44.2 > T-34.8	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	-25.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	340 mm	Positioning mode	
FoV phase	81.3 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	63.6 ms	MSMA	S - C - T
TE	1.12 ms	Sagittal	R >> L
Averages	3	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	65 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	425 ± 35 ms
Accel. factor PE	GRAPPA	Calculated phases	22
Ref. lines PE	2	Segments	24
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	
Image Filter		Dummy heartbeats	
Distortion Corr.	Off	1	
Mode	On	Resp. control	
Unfiltered images	2D	Off	
	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Free_Breathing\OPT_long_axis_stress'					
TA: 0:18	PAT: 2	Voxel size: 2.4x1.8x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	58.3 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
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Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
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Accel. factor PE	2
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Ref. lines PE	24
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Matrix Coil Mode	Auto (Triple)
------------------	---------------

Reference scan mode	Integrated
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Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	22
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_short\_axis\_stress  
 TA: 0:18 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	3	SP2	On
Dist. factor	250 %	SP8	Off
Position	L16.3 A33.3 F1.7	SP6	Off
Orientation	C > S44.2 > T-34.8	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	-25.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	FIX
FoV read	340 mm	Table position	H
FoV phase	81.3 %	Table position	0 mm
Slice thickness	6.0 mm	MSMA	S - C - T
TR	58.3 ms	Sagittal	R >> L
TE	1.12 ms	Coronal	A >> P
Averages	3	Transversal	F >> H
Concatenations	3	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	65 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	75 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	22
PAT mode	GRAPPA	Segments	22
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Free_Breathing\OPT_long_axis_stress\					
TA: 0:22	PAT: 2	Voxel size: 2.4x1.8x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	47.7 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
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Accel. factor PE	2
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Ref. lines PE	24
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Matrix Coil Mode	Auto (Triple)
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Reference scan mode	Integrated
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Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	18
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

## SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_short\_axis\_stress

TA: 0:22 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties	
Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single
Routine	
Slice group 1	
Slices	3
Dist. factor	250 %
Position	L16.3 A33.3 F1.7
Orientation	C > S44.2 > T-34.8
Phase enc. dir.	A >> P
Rotation	-25.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	47.7 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3
Contrast	
TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice
Resolution	
Base resolution	192
Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off
Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None
System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm
Physio	
1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	18
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Ax	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Free_Breathing\OPT_long_axis_stress					
TA: 0:22	PAT: 2	Voxel size: 2.4x1.8x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	81.3 %
Slice thickness	6.0 mm
TR	42.4 ms
TE	1.12 ms
Averages	3
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	65 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
-----------------	-----

Phase resolution	75 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

PAT mode	GRAPPA
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Accel. factor PE	2
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Ref. lines PE	24
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Matrix Coil Mode	Auto (Triple)
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Reference scan mode	Integrated
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Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	425 ± 35 ms
Calculated phases	22
Segments	16
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_short\_axis\_stress  
 TA: 0:22 PAT: 2 Voxel size: 2.4x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	3	SP2	On
Dist. factor	250 %	SP8	Off
Position	L16.3 A33.3 F1.7	SP6	Off
Orientation	C > S44.2 > T-34.8	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	-25.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	FIX
FoV read	340 mm	Table position	H
FoV phase	81.3 %	Table position	0 mm
Slice thickness	6.0 mm	MSMA	S - C - T
TR	42.4 ms	Sagittal	R >> L
TE	1.12 ms	Coronal	A >> P
Averages	3	Transversal	F >> H
Concatenations	3	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	65 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	75 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	Off	Calculated phases	22
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_dynamic\_test

TA: 4.3 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off
Prio Recon	Off	PAT mode	GRAPPA
Before measurement		Accel. factor PE	2
After measurement		Ref. lines PE	14
Load to viewer	On	Matrix Coil Mode	Auto (Triple)
Inline movie	On	Reference scan mode	Integrated
Auto store images	On	Image Filter	Off
Load to stamp segments	On	Distortion Corr.	On
Load images to graphic segments	On	Mode	2D
Auto open inline display	On	Unfiltered images	Off
Start measurement without further preparation	On	Unfiltered images	Off
Wait for user to start	On	Prescan Normalize	On
Start measurements	single	Normalize	Off
		B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off
Routine		Geometry	
Slice group 1		Multi-slice mode	Single shot
Slices	3	Series	Descending
Dist. factor	50 %	Special sat.	None
Position	Isocenter		
Orientation	Transversal		
Phase enc. dir.	A >> P		
Rotation	0.00 deg		
Auto	Off		
Slice group 2		System	
Slices	1	Body	Off
Dist. factor	20 %	BO1	On
Position	Isocenter	BO2	On
Orientation	Sagittal	SP4	Off
Phase enc. dir.	A >> P	SP2	On
Rotation	0.00 deg	SP8	Off
Auto	Off	SP6	Off
Phase oversampling	0 %	SP3	On
FoV read	360 mm	SP1	Off
FoV phase	75.0 %	SP7	Off
Slice thickness	8.0 mm	SP5	Off
TR	162.86 ms	Positioning mode	REF
TE	1.14 ms	Table position	H
Averages	1	Table position	0 mm
Concatenations	1	MSMA	S - C - T
Filter	Distortion Corr.(2D), Prescan	Sagittal	R >> L
	Normalize	Coronal	A >> P
Coil elements	BO1,2;SP2,3	Transversal	F >> H
		Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
Magn. preparation	Non-sel. SR perf	Auto Coil Select	Default
TI	95 ms		
Flip angle	12 deg	Shim mode	Tune up
Fat suppr.	None	Adjust with body coil	On
Restore magn.	Off	Confirm freq. adjustment	Off
		Assume Silicone	Off
Averaging mode	Long term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	5	Adjust volume	
Pause after meas. 1	0.0 s	Position	Isocenter
Pause after meas. 2	0.0 s	Orientation	Transversal
Pause after meas. 3	0.0 s	Rotation	0.00 deg
Pause after meas. 4	0.0 s	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	65 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off		
Trajectory	Cartesian		

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_dynamic\_stress

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties			
Prio Recon	Off	Pause after meas. 11	0.0 s
Before measurement		Pause after meas. 12	0.0 s
After measurement		Pause after meas. 13	0.0 s
Load to viewer	On	Pause after meas. 14	0.0 s
Inline movie	On	Pause after meas. 15	0.0 s
Auto store images	On	Pause after meas. 16	0.0 s
Load to stamp segments	On	Pause after meas. 17	0.0 s
Load images to graphic segments	On	Pause after meas. 18	0.0 s
Auto open inline display	On	Pause after meas. 19	0.0 s
Start measurement without further preparation	On	Pause after meas. 20	0.0 s
Wait for user to start	On	Pause after meas. 21	0.0 s
Start measurements	single	Pause after meas. 22	0.0 s
Routine		Pause after meas. 23	0.0 s
Slice group 1		Pause after meas. 24	0.0 s
Slices	3	Pause after meas. 25	0.0 s
Dist. factor	50 %	Pause after meas. 26	0.0 s
Position	Isocenter	Pause after meas. 27	0.0 s
Orientation	Transversal	Pause after meas. 28	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 29	0.0 s
Rotation	0.00 deg	Pause after meas. 30	0.0 s
Auto	Off	Pause after meas. 31	0.0 s
Slice group 2		Pause after meas. 32	0.0 s
Slices	1	Pause after meas. 33	0.0 s
Dist. factor	20 %	Pause after meas. 34	0.0 s
Position	Isocenter	Pause after meas. 35	0.0 s
Orientation	Sagittal	Pause after meas. 36	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 37	0.0 s
Rotation	0.00 deg	Pause after meas. 38	0.0 s
Auto	Off	Pause after meas. 39	0.0 s
Phase oversampling	0 %	Pause after meas. 40	0.0 s
FoV read	360 mm	Pause after meas. 41	0.0 s
FoV phase	75.0 %	Pause after meas. 42	0.0 s
Slice thickness	8.0 mm	Pause after meas. 43	0.0 s
TR	162.86 ms	Pause after meas. 44	0.0 s
TE	1.14 ms	Pause after meas. 45	0.0 s
Averages	1	Pause after meas. 46	0.0 s
Concatenations	1	Pause after meas. 47	0.0 s
Filter	Distortion Corr.(2D), Prescan Normalize	Pause after meas. 48	0.0 s
Coil elements	BO1,2;SP2,3	Pause after meas. 49	0.0 s
Contrast		Multiple series	Each slice
Resolution			
Magn. preparation	Non-sel. SR perf	Base resolution	192
TI	95 ms	Phase resolution	65 %
Flip angle	12 deg	Phase partial Fourier	Off
Fat suppr.	None	Trajectory	Cartesian
Restore magn.	Off	Interpolation	Off
Averaging mode		PAT mode	GRAPPA
Reconstruction	Long term	Accel. factor PE	2
Measurements	Magnitude	Ref. lines PE	14
Pause after meas. 1	50	Matrix Coil Mode	Auto (Triple)
Pause after meas. 2	0.0 s	Reference scan mode	Integrated
Pause after meas. 3	0.0 s		
Pause after meas. 4	0.0 s	Image Filter	Off
Pause after meas. 5	0.0 s	Distortion Corr.	On
Pause after meas. 6	0.0 s	Mode	2D
Pause after meas. 7	0.0 s	Unfiltered images	Off
Pause after meas. 8	0.0 s	Unfiltered images	Off
Pause after meas. 9	0.0 s	Prescan Normalize	On
Pause after meas. 10	0.0 s	Normalize	Off
		B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\OPT\_dynamic\_rest

TA: 0:43 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\ti\_scout

TA: 0:43 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	4	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	50 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	425 ± 35 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	17
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\short\_axis\_delayed

TA: 0:19 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	340 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	700.00 ms	Coronal	A >> P
TE	1.09 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Default
Coil elements	Normalize BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	Non-sel. IR	Assume Silicone	Off
TI	300 ms	? Ref. amplitude 1H	0.000 V
Flip angle	40 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	50 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	Off	Average cycle	425 ± 35 ms
Trajectory	Cartesian	Captured cycle	-not set-
Interpolation	Off	Acquisition window	1000 ms
PAT mode	None	Trigger pulse	2
Matrix Coil Mode	Auto (CP)	Trigger delay	0 ms
Image Filter	Off	Segments	72
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	Off
Unfiltered images	Off	Cine	Off
Unfiltered images	Off	Resp. control	Off
Prescan Normalize	On	Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\four\_chamber\_delayed

TA: 1.7 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Free\_Breathing\two\_chamber\_delayed  
 TA: 1.7 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	425 ± 35 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\auto\_detect\_table  
 TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	65 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		Interpolation	Off
Load to viewer	On	PAT mode	GRAPPA
Inline movie	Off	Accel. factor PE	2
Auto store images	On	Ref. lines PE	24
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)
Load images to graphic segments	On	Reference scan mode	Integrated
Auto open inline display	Off	Image Filter	Off
Start measurement without further preparation	Off	Distortion Corr.	On
Wait for user to start	Off	Mode	2D
Start measurements	single	Unfiltered images	Off
Routine		Prescan Normalize	Off
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	300 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0.00 deg	Multi-slice mode	Sequential
Auto	Off	Series	Descending
Slice group 2		Special sat.	None
Slices	3	System	
Dist. factor	300 %	Body	Off
Position	L30.0 P0.0 H0.0	BO1	On
Orientation	Sagittal	BO2	On
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	On
Auto	Off	SP8	Off
Slice group 3		SP6	Off
Slices	3	SP3	On
Dist. factor	300 %	SP1	On
Position	L0.0 P10.0 H0.0	SP7	Off
Orientation	Coronal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	FIX
Rotation	0.00 deg	Table position	H
Auto	Off	Table position	0 mm
Phase oversampling	0 %	MSMA	S - C - T
FoV read	400 mm	Sagittal	R >> L
FoV phase	100.0 %	Coronal	A >> P
Slice thickness	7.0 mm	Transversal	F >> H
TR	337.10 ms	Save uncombined	Off
TE	1.14 ms	Coil Combine Mode	Adaptive Combine
Averages	1	Auto Coil Select	Default
Concatenations	9	Contrast	
Filter	Distortion Corr.(2D)	Shim mode	Tune up
Coil elements	BO1,2;SP1-3	Adjust with body coil	On
Contrast		Confirm freq. adjustment	Off
TD	0 ms	Assume Silicone	Off
Magn. preparation	None	? Ref. amplitude 1H	0.000 V
Flip angle	80 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	On	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	256	Physio	

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off																																																						
Prio Recon	Off	B1 filter	Off																																																						
Before measurement		Raw filter	Off																																																						
After measurement		Elliptical filter	Off																																																						
Load to viewer	On	POCS	Off																																																						
Inline movie	Off	Geometry																																																							
Auto store images	On	Multi-slice mode	Sequential																																																						
Load to stamp segments	On	Series	Descending																																																						
Load images to graphic segments	On	Special sat.	None																																																						
Auto open inline display	Off	System																																																							
Start measurement without further preparation	On	Body	Off																																																						
Wait for user to start	Off	BO1	On																																																						
Start measurements	single	BO2	On																																																						
Routine		SP4	Off																																																						
Slice group 1		SP2	On																																																						
Slices	20	SP8	Off																																																						
Dist. factor	10 %	SP6	Off																																																						
Position	Isocenter	SP3	On																																																						
Orientation	Transversal	SP1	On																																																						
Phase enc. dir.	A >> P	SP7	Off																																																						
Rotation	0.00 deg	SP5	Off																																																						
Auto	Off	Positioning mode	REF																																																						
Phase oversampling	0 %	Table position	H																																																						
FoV read	400 mm	Table position	10 mm																																																						
FoV phase	75.0 %	MSMA	S - C - T																																																						
Slice thickness	7.0 mm	Sagittal	R >> L																																																						
TR	271.16 ms	Coronal	A >> P																																																						
TE	1.14 ms	Transversal	F >> H																																																						
Averages	1	Save uncombined	Off																																																						
Concatenations	20	Coil Combine Mode	Adaptive Combine																																																						
Filter	Distortion Corr.(2D)	Auto Coil Select	Default																																																						
Coil elements	BO1,2;SP1-3	Shim mode	Tune up																																																						
Contrast		Adjust with body coil	On																																																						
TD	0 ms	Confirm freq. adjustment	Off																																																						
Magn. preparation	None	Assume Silicone	Off																																																						
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V																																																						
Fat suppr.	None	Adjustment Tolerance	Auto																																																						
Restore magn.	On	Adjust volume																																																							
Averaging mode	Short term	Position	Isocenter																																																						
Reconstruction	Magnitude	Orientation	Transversal																																																						
Measurements	1	Rotation	0.00 deg																																																						
Multiple series	Off	R >> L	350 mm																																																						
Resolution		A >> P	263 mm																																																						
Base resolution	256	F >> H	350 mm																																																						
Phase resolution	65 %	Physio																																																							
Phase partial Fourier	Off	Trajectory	Cartesian	1st Signal/Mode	None	Interpolation	Off	Segments	74	PAT mode	GRAPPA	Dark blood	Off	Accel. factor PE	2	Cine	Off	Ref. lines PE	24	Resp. control	Off	Matrix Coil Mode	Auto (Triple)	Inline		Reference scan mode	Integrated	Subtract	Off	Image Filter	Off	Std-Dev-Sag	Off	Distortion Corr.	On	Std-Dev-Cor	Off	Mode	2D	Std-Dev-Tra	Off	Unfiltered images	Off	Std-Dev-Time	Off	Prescan Normalize	Off	MIP-Sag	Off			MIP-Cor	Off			MIP-Tra	Off
Trajectory	Cartesian	1st Signal/Mode	None																																																						
Interpolation	Off	Segments	74																																																						
PAT mode	GRAPPA	Dark blood	Off																																																						
Accel. factor PE	2	Cine	Off																																																						
Ref. lines PE	24	Resp. control	Off																																																						
Matrix Coil Mode	Auto (Triple)	Inline																																																							
Reference scan mode	Integrated	Subtract	Off																																																						
Image Filter	Off	Std-Dev-Sag	Off																																																						
Distortion Corr.	On	Std-Dev-Cor	Off																																																						
Mode	2D	Std-Dev-Tra	Off																																																						
Unfiltered images	Off	Std-Dev-Time	Off																																																						
Prescan Normalize	Off	MIP-Sag	Off																																																						
		MIP-Cor	Off																																																						
		MIP-Tra	Off																																																						

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\two\_chamber\_loc  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\four\_chamber\_loc  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFi
<hr/>	
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\three\_chamber\_lo  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\short\_axis\_cine\_re

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	75.0 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	56.64 ms	Sagittal	R >> L
TE	1.03 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	10	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\four\_chambr\_cine  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\two\_chambr\_cine\_

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode	GRAPPA	Phases	45
Accel. factor PE	2	Dark blood	
Ref. lines PE	12	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	On
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\three\_chambr\_cin  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L34.0 P18.2 H40.2	SP6	Off
Orientation	S > T-31.4 > C3.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Extreme_Arrhythmia\OPT_long_axis_re					
TA: 8.4 s	PAT: 2	Voxel size: 4.9x2.0x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		40 %	
Prio Recon	Off	Phase partial Fourier		Off	
Before measurement		Trajectory		Cartesian	
After measurement		View sharing		Shared phases	
Load to viewer	On	Interpolation		Off	
Inline movie	On				
Auto store images	On				
Load to stamp segments	On				
Load images to graphic segments	On				
Auto open inline display	Off	PAT mode		GRAPPA	
Start measurement without further preparation	On	Accel. factor PE		2	
Wait for user to start	Off	Ref. lines PE		12	
Start measurements	single	Matrix Coil Mode		Auto (Triple)	
		Reference scan mode		Integrated	
Routine					
Slice group 1		Image Filter		Off	
Slices	1	Distortion Corr.		On	
Dist. factor	20 %	Mode		2D	
Position	L17.7 A20.3 F13.1	Unfiltered images		Off	
Orientation	S > T-37.9 > C-12.6	Prescan Normalize		Off	
Phase enc. dir.	A >> P	Normalize		Off	
Rotation	0.00 deg	B1 filter		Off	
Auto	Off	Raw filter		Off	
Slice group 2		Elliptical filter		Off	
Slices	1	POCS		Off	
Dist. factor	20 %				
Position	R19.0 A15.9 H12.5	Geometry			
Orientation	C > S-40.3 > T5.1	Multi-slice mode		Sequential	
Phase enc. dir.	R >> L	Series		Descending	
Rotation	-2.00 deg	Special sat.		None	
Auto	Off				
Slice group 3		System			
Slices	1	Body		Off	
Dist. factor	20 %	BO1		On	
Position	L0.5 A21.5 H15.1	BO2		On	
Orientation	T > C30.9 > S-18.3	SP4		Off	
Phase enc. dir.	A >> P	SP2		On	
Rotation	11.00 deg	SP8		Off	
Auto	Off	SP6		Off	
Phase oversampling	0 %	SP3		On	
FoV read	380 mm	SP1		Off	
FoV phase	75.0 %	SP7		Off	
Slice thickness	6.0 mm	SP5		Off	
TR	57.84 ms	Positioning mode		REF	
TE	1.04 ms	Table position		H	
Averages	1	Table position		0 mm	
Concatenations	3	MSMA		S - C - T	
Filter	Distortion Corr.(2D)	Sagittal		R >> L	
Coil elements	BO1,2;SP2,3	Coronal		A >> P	
		Transversal		F >> H	
Contrast		Save uncombined		Off	
TD	0 ms	Coil Combine Mode		Adaptive Combine	
Magn. preparation	None	Auto Coil Select		Default	
Flip angle	70 deg				
Fat suppr.	None	Shim mode		Tune up	
Restore magn.	On	Adjust with body coil		On	
Averaging mode	Short term	Confirm freq. adjustment		Off	
Reconstruction	Magnitude	Assume Silicone		Off	
Measurements	1	? Ref. amplitude 1H		0.000 V	
Multiple series	Each slice	Adjustment Tolerance		Auto	
Resolution		Adjust volume			
Base resolution	192	Position		Isocenter	
		Orientation		Transversal	
		Rotation		0.00 deg	
		R >> L		350 mm	
		A >> P		263 mm	
		F >> H		350 mm	

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\OPT\_short\_axis\_r  
 TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	3	SP2	On
Dist. factor	250 %	SP8	Off
Position	L17.7 A20.3 F13.1	SP6	Off
Orientation	S > T-37.9 > C-12.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	380 mm	Table position	H
FoV phase	75.0 %	Table position	0 mm
Slice thickness	6.0 mm	MSMA	S - C - T
TR	57.84 ms	Sagittal	R >> L
TE	1.04 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	3	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\OPT\_long\_axis\_st  
 TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	40 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		View sharing	Shared phases
Load to viewer	On	Interpolation	Off
Inline movie	On	PAT mode	GRAPPA
Auto store images	On	Accel. factor PE	2
Load to stamp segments	On	Ref. lines PE	12
Load images to graphic segments	On	Matrix Coil Mode	Auto (Triple)
Auto open inline display	Off	Reference scan mode	Integrated
Start measurement without further preparation	On	Image Filter	Off
Wait for user to start	Off	Distortion Corr.	On
Start measurements	single	Mode	2D
Routine		Unfiltered images	Off
Slice group 1		Prescan Normalize	Off
Slices	1	Normalize	Off
Dist. factor	20 %	B1 filter	Off
Position	L17.7 A20.3 F13.1	Raw filter	Off
Orientation	S > T-37.9 > C-12.6	Elliptical filter	Off
Phase enc. dir.	A >> P	POCS	Off
Rotation	0.00 deg	Geometry	
Auto	Off	Multi-slice mode	Sequential
Slice group 2		Series	Descending
Slices	1	Special sat.	None
Dist. factor	20 %	System	
Position	R19.0 A15.9 H12.5	Body	Off
Orientation	C > S-40.3 > T5.1	BO1	On
Phase enc. dir.	R >> L	BO2	On
Rotation	-2.00 deg	SP4	Off
Auto	Off	SP2	On
Slice group 3		SP8	Off
Slices	1	SP6	Off
Dist. factor	20 %	SP3	On
Position	L0.5 A21.5 H15.1	SP1	Off
Orientation	T > C30.9 > S-18.3	SP7	Off
Phase enc. dir.	A >> P	SP5	Off
Rotation	11.00 deg	Positioning mode	FIX
Auto	Off	Table position	H
Phase oversampling	0 %	Table position	0 mm
FoV read	380 mm	MSMA	S - C - T
FoV phase	75.0 %	Sagittal	R >> L
Slice thickness	6.0 mm	Coronal	A >> P
TR	57.84 ms	Transversal	F >> H
TE	1.04 ms	Save uncombined	Off
Averages	1	Coil Combine Mode	Adaptive Combine
Concatenations	3	Auto Coil Select	Default
Filter	Distortion Corr.(2D)	Contrast	
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	70 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	On	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Each slice	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	192	F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\OPT\_short\_axis\_s  
 TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	3	SP2	On
Dist. factor	250 %	SP8	Off
Position	L17.7 A20.3 F13.1	SP6	Off
Orientation	S > T-37.9 > C-12.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	FIX
FoV read	380 mm	Table position	H
FoV phase	75.0 %	Table position	0 mm
Slice thickness	6.0 mm	MSMA	S - C - T
TR	57.84 ms	Sagittal	R >> L
TE	1.04 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	3	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\OPT\_long\_axis\_st  
 TA: 8.4 s PAT: 2 Voxel size: 4.9x2.0x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	40 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		View sharing	Shared phases
Load to viewer	On	Interpolation	Off
Inline movie	On	PAT mode	GRAPPA
Auto store images	On	Accel. factor PE	2
Load to stamp segments	On	Ref. lines PE	12
Load images to graphic segments	On	Matrix Coil Mode	Auto (Triple)
Auto open inline display	Off	Reference scan mode	Integrated
Start measurement without further preparation	On	Image Filter	Off
Wait for user to start	Off	Distortion Corr.	On
Start measurements	single	Mode	2D
Routine		Unfiltered images	Off
Slice group 1		Prescan Normalize	Off
Slices	1	Normalize	Off
Dist. factor	20 %	B1 filter	Off
Position	L17.7 A20.3 F13.1	Raw filter	Off
Orientation	S > T-37.9 > C-12.6	Elliptical filter	Off
Phase enc. dir.	A >> P	POCS	Off
Rotation	0.00 deg	Geometry	
Auto	Off	Multi-slice mode	Sequential
Slice group 2		Series	Descending
Slices	1	Special sat.	None
Dist. factor	20 %	System	
Position	R19.0 A15.9 H12.5	Body	Off
Orientation	C > S-40.3 > T5.1	BO1	On
Phase enc. dir.	R >> L	BO2	On
Rotation	-2.00 deg	SP4	Off
Auto	Off	SP2	On
Slice group 3		SP8	Off
Slices	1	SP6	Off
Dist. factor	20 %	SP3	On
Position	L0.5 A21.5 H15.1	SP1	Off
Orientation	T > C30.9 > S-18.3	SP7	Off
Phase enc. dir.	A >> P	SP5	Off
Rotation	11.00 deg	Positioning mode	FIX
Auto	Off	Table position	H
Phase oversampling	0 %	Table position	0 mm
FoV read	380 mm	MSMA	S - C - T
FoV phase	75.0 %	Sagittal	R >> L
Slice thickness	6.0 mm	Coronal	A >> P
TR	57.84 ms	Transversal	F >> H
TE	1.04 ms	Save uncombined	Off
Averages	1	Coil Combine Mode	Adaptive Combine
Concatenations	3	Auto Coil Select	Default
Filter	Distortion Corr.(2D)	Contrast	
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	70 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	On	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Each slice	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	192	F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Extreme_Arrhythmia\OPT_short_axis_s			
TA: 8.4 s	PAT: 2	Voxel size: 4.9x2.0x6.0 mm	Rel. SNR: 1.00 SIEMENS: CV
<b>Properties</b>			
Prio Recon	Off	Prescan Normalize	Off
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	On	Elliptical filter	Off
Auto store images	On	POCS	Off
Load to stamp segments	On	<b>Geometry</b>	
Load images to graphic segments	On	Multi-slice mode	Sequential
Auto open inline display	Off	Series	Descending
Start measurement without further preparation	On	Special sat.	None
Wait for user to start	Off	<b>System</b>	
Start measurements	single	Body	Off
<b>Routine</b>			
Slice group 1		BO1	On
Slices	3	BO2	On
Dist. factor	250 %	SP4	Off
Position	L17.7 A20.3 F13.1	SP2	On
Orientation	S > T-37.9 > C-12.6	SP8	Off
Phase enc. dir.	A >> P	SP6	Off
Rotation	0.00 deg	SP3	On
Auto	Off	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	380 mm	SP5	Off
FoV phase	75.0 %	<b>Positioning mode</b>	
Slice thickness	6.0 mm	Table position	FIX
TR	57.84 ms	Table position	H
TE	1.04 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	3	Coronal	R >> L
Filter	Distortion Corr.(2D)	Transversal	A >> P
Coil elements	BO1,2;SP2,3	Save uncombined	F >> H
<b>Contrast</b>			
TD	0 ms	Coil Combine Mode	Off
Magn. preparation	None	Auto Coil Select	Adaptive Combine
Flip angle	70 deg	Shim mode	Default
Fat suppr.	None	Adjust with body coil	Tune up
Restore magn.	On	Confirm freq. adjustment	On
Averaging mode	Short term	Assume Silicone	Off
Reconstruction	Magnitude	? Ref. amplitude 1H	Off
Measurements	1	Adjustment Tolerance	0.000 V
Multiple series	Each slice	Adjust volume	Auto
<b>Resolution</b>			
Base resolution	192	Position	Isocenter
Phase resolution	40 %	Orientation	Transversal
Phase partial Fourier	Off	Rotation	0.00 deg
Trajectory	Cartesian	R >> L	350 mm
View sharing	Shared phases	A >> P	263 mm
Interpolation	Off	F >> H	350 mm
<b>Physio</b>			
PAT mode	GRAPPA	1st Signal/Mode	None
Accel. factor PE	2	Segments	35
Ref. lines PE	12	Phases	45
Matrix Coil Mode	Auto (Triple)	Dark blood	Off
Reference scan mode	Integrated	Cine	On
<b>Inline</b>			
Image Filter	Off	Resp. control	Off
Distortion Corr.	On	<b>Subtract</b>	
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Extreme_Arrhythmia\OPT_long_axis_st					
TA: 8.4 s	PAT: 2	Voxel size: 4.9x2.0x6.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L17.7 A20.3 F13.1
Orientation	S > T-37.9 > C-12.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	R19.0 A15.9 H12.5
Orientation	C > S-40.3 > T5.1
Phase enc. dir.	R >> L
Rotation	-2.00 deg
Auto	Off
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.5 A21.5 H15.1
Orientation	T > C30.9 > S-18.3
Phase enc. dir.	A >> P
Rotation	11.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	380 mm
FoV phase	75.0 %
Slice thickness	6.0 mm
TR	57.84 ms
TE	1.04 ms
Averages	1
Concatenations	3
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
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Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Extreme_Arrhythmia\OPT_short_axis_s			
TA: 8.4 s	PAT: 2	Voxel size: 4.9x2.0x6.0 mm	Rel. SNR: 1.00 SIEMENS: CV
<b>Properties</b>			
Prio Recon	Off	Prescan Normalize	Off
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	On	Elliptical filter	Off
Auto store images	On	POCS	Off
Load to stamp segments	On	<b>Geometry</b>	
Load images to graphic segments	On	Multi-slice mode	Sequential
Auto open inline display	Off	Series	Descending
Start measurement without further preparation	On	Special sat.	None
Wait for user to start	Off	<b>System</b>	
Start measurements	single	Body	Off
<b>Routine</b>			
Slice group 1		BO1	On
Slices	3	BO2	On
Dist. factor	250 %	SP4	Off
Position	L17.7 A20.3 F13.1	SP2	On
Orientation	S > T-37.9 > C-12.6	SP8	Off
Phase enc. dir.	A >> P	SP6	Off
Rotation	0.00 deg	SP3	On
Auto	Off	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	380 mm	SP5	Off
FoV phase	75.0 %	<b>Positioning mode</b>	
Slice thickness	6.0 mm	Table position	FIX
TR	57.84 ms	Table position	H
TE	1.04 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	3	Coronal	R >> L
Filter	Distortion Corr.(2D)	Transversal	A >> P
Coil elements	BO1,2;SP2,3	Save uncombined	F >> H
<b>Contrast</b>			
TD	0 ms	Coil Combine Mode	Adaptive Combine
Magn. preparation	None	Auto Coil Select	Default
Flip angle	70 deg	<b>Shim mode</b>	
Fat suppr.	None	Adjust with body coil	Tune up
Restore magn.	On	Confirm freq. adjustment	On
Averaging mode	Short term	Assume Silicone	Off
Reconstruction	Magnitude	? Ref. amplitude 1H	Off
Measurements	1	Adjustment Tolerance	0.000 V
Multiple series	Each slice	Adjust volume	Auto
<b>Resolution</b>			
Base resolution	192	Position	Isocenter
Phase resolution	40 %	Orientation	Transversal
Phase partial Fourier	Off	Rotation	0.00 deg
Trajectory	Cartesian	R >> L	350 mm
View sharing	Shared phases	A >> P	263 mm
Interpolation	Off	F >> H	350 mm
<b>Physio</b>			
PAT mode	GRAPPA	1st Signal/Mode	None
Accel. factor PE	2	Segments	35
Ref. lines PE	12	Phases	45
Matrix Coil Mode	Auto (Triple)	Dark blood	Off
Reference scan mode	Integrated	Cine	On
<b>Inline</b>			
Image Filter	Off	Resp. control	Off
Distortion Corr.	On	<b>Subtract</b>	
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\OPT\_dynamic\_tes  
 TA: 4.1 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off
Prio Recon	Off	PAT mode	GRAPPA
Before measurement		Accel. factor PE	2
After measurement		Ref. lines PE	14
Load to viewer	On	Matrix Coil Mode	Auto (Triple)
Inline movie	On	Reference scan mode	Integrated
Auto store images	On	Image Filter	Off
Load to stamp segments	On	Distortion Corr.	On
Load images to graphic segments	On	Mode	2D
Auto open inline display	On	Unfiltered images	Off
Start measurement without further preparation	On	Unfiltered images	Off
Wait for user to start	On	Prescan Normalize	On
Start measurements	single	Normalize	Off
		B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off
Routine		Geometry	
Slice group 1		Multi-slice mode	Single shot
Slices	3	Series	Descending
Dist. factor	50 %	Special sat.	None
Position	Isocenter		
Orientation	Transversal		
Phase enc. dir.	A >> P		
Rotation	0.00 deg		
Auto	Off		
Slice group 2		System	
Slices	1	Body	Off
Dist. factor	20 %	BO1	On
Position	Isocenter	BO2	On
Orientation	Sagittal	SP4	Off
Phase enc. dir.	A >> P	SP2	On
Rotation	0.00 deg	SP8	Off
Auto	Off	SP6	Off
Phase oversampling	0 %	SP3	On
FoV read	360 mm	SP1	Off
FoV phase	75.0 %	SP7	Off
Slice thickness	8.0 mm	SP5	Off
TR	202.36 ms	Positioning mode	REF
TE	1.23 ms	Table position	H
Averages	1	Table position	0 mm
Concatenations	1	MSMA	S - C - T
Filter	Distortion Corr.(2D), Prescan	Sagittal	R >> L
	Normalize	Coronal	A >> P
Coil elements	BO1,2;SP2,3	Transversal	F >> H
		Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
Magn. preparation	Non-sel. SR perf	Auto Coil Select	Default
TI	115 ms		
Flip angle	12 deg	Shim mode	Tune up
Fat suppr.	None	Adjust with body coil	On
Restore magn.	Off	Confirm freq. adjustment	Off
		Assume Silicone	Off
Averaging mode	Long term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	5	Adjust volume	
Pause after meas. 1	0.0 s	Position	Isocenter
Pause after meas. 2	0.0 s	Orientation	Transversal
Pause after meas. 3	0.0 s	Rotation	0.00 deg
Pause after meas. 4	0.0 s	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
		F >> H	350 mm
Resolution			
Base resolution	192	Physio	
Phase resolution	65 %	1st Signal/Mode	None
Phase partial Fourier	Off	Segments	54
Trajectory	Cartesian		

# SIEMENS MAGNETOM Avanto syngo MR B19

Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	3.1 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Chronic_Ischemic_Disease\Extreme_Arrhythmia\OPT_dynamic_st			
TA: 0:41	PAT: 2	Voxel size: 2.9x1.9x8.0 mm	Rel. SNR: 1.00
SIEMENS: CV			
<b>Properties</b>			
Prio Recon	Off	Pause after meas. 11	0.0 s
Before measurement		Pause after meas. 12	0.0 s
After measurement		Pause after meas. 13	0.0 s
Load to viewer	On	Pause after meas. 14	0.0 s
Inline movie	On	Pause after meas. 15	0.0 s
Auto store images	On	Pause after meas. 16	0.0 s
Load to stamp segments	On	Pause after meas. 17	0.0 s
Load images to graphic segments	On	Pause after meas. 18	0.0 s
Auto open inline display	On	Pause after meas. 19	0.0 s
Start measurement without further preparation	On	Pause after meas. 20	0.0 s
Wait for user to start	On	Pause after meas. 21	0.0 s
Start measurements	single	Pause after meas. 22	0.0 s
Pause after meas. 23		Pause after meas. 23	0.0 s
Pause after meas. 24		Pause after meas. 24	0.0 s
Pause after meas. 25		Pause after meas. 25	0.0 s
Pause after meas. 26		Pause after meas. 26	0.0 s
Pause after meas. 27		Pause after meas. 27	0.0 s
Pause after meas. 28		Pause after meas. 28	0.0 s
Pause after meas. 29		Pause after meas. 29	0.0 s
Pause after meas. 30		Pause after meas. 30	0.0 s
Pause after meas. 31		Pause after meas. 31	0.0 s
Pause after meas. 32		Pause after meas. 32	0.0 s
Pause after meas. 33		Pause after meas. 33	0.0 s
Pause after meas. 34		Pause after meas. 34	0.0 s
Pause after meas. 35		Pause after meas. 35	0.0 s
Pause after meas. 36		Pause after meas. 36	0.0 s
Pause after meas. 37		Pause after meas. 37	0.0 s
Pause after meas. 38		Pause after meas. 38	0.0 s
Pause after meas. 39		Pause after meas. 39	0.0 s
Pause after meas. 40		Pause after meas. 40	0.0 s
Pause after meas. 41		Pause after meas. 41	0.0 s
Pause after meas. 42		Pause after meas. 42	0.0 s
Pause after meas. 43		Pause after meas. 43	0.0 s
Pause after meas. 44		Pause after meas. 44	0.0 s
Pause after meas. 45		Pause after meas. 45	0.0 s
Pause after meas. 46		Pause after meas. 46	0.0 s
Pause after meas. 47		Pause after meas. 47	0.0 s
Pause after meas. 48		Pause after meas. 48	0.0 s
Pause after meas. 49		Pause after meas. 49	0.0 s
Multiple series		Multiple series	Each slice
<b>Routine</b>			
Slice group 1			
Slices	3	Pause after meas. 50	0.0 s
Dist. factor	50 %	Pause after meas. 51	0.0 s
Position	Isocenter	Pause after meas. 52	0.0 s
Orientation	Transversal	Pause after meas. 53	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 54	0.0 s
Rotation	0.00 deg	Pause after meas. 55	0.0 s
Auto	Off	Pause after meas. 56	0.0 s
Slice group 2			
Slices	1	Pause after meas. 57	0.0 s
Dist. factor	20 %	Pause after meas. 58	0.0 s
Position	Isocenter	Pause after meas. 59	0.0 s
Orientation	Sagittal	Pause after meas. 60	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 61	0.0 s
Rotation	0.00 deg	Pause after meas. 62	0.0 s
Auto	Off	Pause after meas. 63	0.0 s
Phase oversampling	0 %	Pause after meas. 64	0.0 s
FoV read	360 mm	Pause after meas. 65	0.0 s
FoV phase	75.0 %	Pause after meas. 66	0.0 s
Slice thickness	8.0 mm	Pause after meas. 67	0.0 s
TR	202.36 ms	Pause after meas. 68	0.0 s
TE	1.23 ms	Pause after meas. 69	0.0 s
Averages	1	Multiple series	Each slice
Concatenations	1		
Filter	Distortion Corr.(2D), Prescan	<b>Resolution</b>	
	Normalize	Base resolution	192
Coil elements	BO1,2;SP2,3	Phase resolution	65 %
		Phase partial Fourier	Off
<b>Contrast</b>			
Magn. preparation	Non-sel. SR perf	Trajectory	Cartesian
TI	115 ms	Interpolation	Off
Flip angle	12 deg	PAT mode	GRAPPA
Fat suppr.	None	Accel. factor PE	2
Restore magn.	Off	Ref. lines PE	14
Averaging mode	Long term	Matrix Coil Mode	Auto (Triple)
Reconstruction	Magnitude	Reference scan mode	Integrated
Measurements	50		
Pause after meas. 1	0.0 s	Image Filter	Off
Pause after meas. 2	0.0 s	Distortion Corr.	On
Pause after meas. 3	0.0 s	Mode	2D
Pause after meas. 4	0.0 s	Unfiltered images	Off
Pause after meas. 5	0.0 s	Unfiltered images	Off
Pause after meas. 6	0.0 s	Prescan Normalize	On
Pause after meas. 7	0.0 s	Normalize	Off
Pause after meas. 8	0.0 s	B1 filter	Off
Pause after meas. 9	0.0 s	Raw filter	Off
Pause after meas. 10	0.0 s	Elliptical filter	Off
		POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\OPT\_dynamic\_res  
 TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties			
Prio Recon	Off	Pause after meas. 11	0.0 s
Before measurement		Pause after meas. 12	0.0 s
After measurement		Pause after meas. 13	0.0 s
Load to viewer	On	Pause after meas. 14	0.0 s
Inline movie	On	Pause after meas. 15	0.0 s
Auto store images	On	Pause after meas. 16	0.0 s
Load to stamp segments	On	Pause after meas. 17	0.0 s
Load images to graphic segments	On	Pause after meas. 18	0.0 s
Auto open inline display	On	Pause after meas. 19	0.0 s
Start measurement without further preparation	On	Pause after meas. 20	0.0 s
Wait for user to start	On	Pause after meas. 21	0.0 s
Start measurements	single	Pause after meas. 22	0.0 s
Routine		Pause after meas. 23	0.0 s
Slice group 1		Pause after meas. 24	0.0 s
Slices	3	Pause after meas. 25	0.0 s
Dist. factor	50 %	Pause after meas. 26	0.0 s
Position	Isocenter	Pause after meas. 27	0.0 s
Orientation	Transversal	Pause after meas. 28	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 29	0.0 s
Rotation	0.00 deg	Pause after meas. 30	0.0 s
Auto	Off	Pause after meas. 31	0.0 s
Slice group 2		Pause after meas. 32	0.0 s
Slices	1	Pause after meas. 33	0.0 s
Dist. factor	20 %	Pause after meas. 34	0.0 s
Position	Isocenter	Pause after meas. 35	0.0 s
Orientation	Sagittal	Pause after meas. 36	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 37	0.0 s
Rotation	0.00 deg	Pause after meas. 38	0.0 s
Auto	Off	Pause after meas. 39	0.0 s
Phase oversampling	0 %	Pause after meas. 40	0.0 s
FoV read	360 mm	Pause after meas. 41	0.0 s
FoV phase	75.0 %	Pause after meas. 42	0.0 s
Slice thickness	8.0 mm	Pause after meas. 43	0.0 s
TR	202.36 ms	Pause after meas. 44	0.0 s
TE	1.23 ms	Pause after meas. 45	0.0 s
Averages	1	Pause after meas. 46	0.0 s
Concatenations	1	Pause after meas. 47	0.0 s
Filter	Distortion Corr.(2D), Prescan Normalize	Pause after meas. 48	0.0 s
Coil elements	BO1,2;SP2,3	Pause after meas. 49	0.0 s
Contrast		Multiple series	Each slice
Resolution			
Magn. preparation	Non-sel. SR perf	Base resolution	192
TI	115 ms	Phase resolution	65 %
Flip angle	12 deg	Phase partial Fourier	Off
Fat suppr.	None	Trajectory	Cartesian
Restore magn.	Off	Interpolation	Off
Averaging mode		PAT mode	GRAPPA
Reconstruction	Long term	Accel. factor PE	2
Measurements	Magnitude	Ref. lines PE	14
Pause after meas. 1	50	Matrix Coil Mode	Auto (Triple)
Pause after meas. 2	0.0 s	Reference scan mode	Integrated
Pause after meas. 3	0.0 s	Image Filter	Off
Pause after meas. 4	0.0 s	Distortion Corr.	On
Pause after meas. 5	0.0 s	Mode	2D
Pause after meas. 6	0.0 s	Unfiltered images	Off
Pause after meas. 7	0.0 s	Unfiltered images	Off
Pause after meas. 8	0.0 s	Prescan Normalize	On
Pause after meas. 9	0.0 s	Normalize	Off
Pause after meas. 10	0.0 s	B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\short\_axis\_delaye  
 TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\four\_chamber\_del  
 TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Chronic\_Ischemic\_Disease\Extreme\_Arrhythmia\two\_chamber\_de:  
 TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	On	Resp. control	
PAT mode	None		Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	On	MIP-Sag	Off
Normalize	Off	MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\multi\_plane\_loc

TA: 7.6 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	425 ± 35 ms
Captured cycle	425 ± 35
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\axial\_db\_haste\_loc

TA: 0:34 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	425 ± 35 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

## SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

### Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	407 ± 52 ms
Accel. factor PE	2	Captured cycle	407 ± 52
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	243.60 ms
TE	1.21 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	500 ms
Segments	74
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\dynamic\_test

TA: 4.0 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V

Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg

R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\dynamic\_stress

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\short\_axis\_cine

TA: 0:32 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	44 ms
TE	1.16 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Concatenations	10
Segments	16

  

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Breath-hold
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\four\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\two\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		1
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\three\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\dynamic\_rest

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\ti\_scout

TA: 0:11 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	50 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	17
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\short\_axis\_delayed

TA: 1:38 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Off
	Normalize	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Concatenations	10
Matrix Coil Mode	Auto (CP)	Segments	25
		Phases	1
Image Filter	Off	Dark blood	
Distortion Corr.	On	Cine	Off
Mode	2D	Resp. control	
Unfiltered images	Off	Breath-hold	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\four\_chamber\_delayed

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Segments	25
Matrix Coil Mode	Auto (CP)	Phases	1
		Dark blood	
Image Filter	Off	Cine	Off
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Unfiltered images	Off	Subtract	Off
Prescan Normalize	On	Std-Dev-Sag	Off
Normalize	Off	Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Recommended\two\_chamber\_delayed

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Subtract	
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\\USER\\SCMR\_CARDIAC\_AVANTO\_18Q\\Adenosine\_Stress\\Free\_Breathing\\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off	Tim CT mode	Off
Auto store images	On	System	
Load to stamp segments	On	Body	Off
Load images to graphic segments	On	BO1	On
Auto open inline display	Off	BO2	On
Start measurement without further preparation	On	SP4	Off
Wait for user to start	Off	SP2	On
Start measurements	single	SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	20	SP1	Off
Dist. factor	25 %	SP7	Off
Position	Isocenter	SP5	Off
Orientation	Transversal	Positioning mode	
Phase enc. dir.	A >> P	Table position	REF
Rotation	0.00 deg	Table position	H
Phase oversampling	0 %	MSMA	0 mm
FoV read	400 mm	Sagittal	S - C - T
FoV phase	62.5 %	Coronal	R >> L
Slice thickness	7.0 mm	Transversal	A >> P
TR	600 ms	Save uncombined	F >> H
TE	22 ms	Coil Combine Mode	Off
Averages	1	Auto Coil Select	Adaptive Combine
Concatenations	1	Default	
Filter	Distortion Corr.(2D), Prescan	Shim mode	
	Normalize	Adjust with body coil	Tune up
Coil elements	BO1,2;SP2,3	Confirm freq. adjustment	On
Contrast		Assume Silicone	Off
MTC	Off	? Ref. amplitude 1H	Off
Magn. preparation	None	Adjustment Tolerance	0.000 V
Flip angle	160 deg	Adjust volume	Auto
Fat suppr.	None	Position	Isocenter
Water suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
Averaging mode		R >> L	350 mm
Reconstruction	Long term	A >> P	263 mm
Measurements	Magnitude	F >> H	350 mm
Multiple series	1	Physio	
Resolution	Off	1st Signal/Mode	ECG/Trigger
Base resolution	192	Average cycle	400 ± 20 ms
Phase resolution	85 %	Captured cycle	-not set-
Phase partial Fourier	5/8	Acquisition window	695 ms
Interpolation	On	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	CP	Phases	1
Image Filter	Off	Dark blood	
Distortion Corr.	On	Dark blood	On
Mode	2D	Dark blood thickness	300 %
Unfiltered images	Off	Dark blood flip angle	200 deg
Unfiltered images	Off	Resp. control	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
B1 filter	Off	Std-Dev-Cor	Off
Inline			

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
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Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Position	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Resp. control	
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\dynamic\_test

TA: 4.0 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto

Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\dynamic\_stress

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\short\_axis\_cine

TA: 1:44 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	360 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	44 ms	MSMA	S - C - T
TE	1.16 ms	Sagittal	R >> L
Averages	4	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
	Each slice	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	400 ± 20 ms
PAT mode		Calculated phases	25
Accel. factor PE	GRAPPA	Segments	16
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	
Reference scan mode	Auto (Triple)	Dummy heartbeats	
	Integrated	Resp. control	
Image Filter		Off	
Distortion Corr.	Off	Subtract	
Mode	On	Off	
Unfiltered images	2D	Std-Dev-Sag	
	Off	Off	
		Std-Dev-Cor	
		Off	
		Std-Dev-Tra	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\four\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\two\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\three\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\dynamic\_rest

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\ti\_scout

TA: 0:40 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	34.06 ms
TE	1.12 ms
Averages	4
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	TI Scout
Flip angle	50 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	On
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	665 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	13
Phases	17

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\short\_axis\_delayed

TA: 0:18 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	700.00 ms
TE	1.09 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	Non-sel. IR
TI	300 ms
Flip angle	40 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude/Real
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	72
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\four\_chamber\_delayed

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Free\_Breathing\two\_chamber\_delayed

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
<hr/>	
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
<hr/>	
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	20
Dist. factor	10 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	271.16 ms
TE	1.14 ms
Averages	1
Concatenations	20
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	10 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	74

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	
Shots per slice	Shots
Trufi delta freq.	1
RF pulse type	0 Hz
Gradient mode	Fast
Excitation	Fast
Flip angle mode	Slice-sel.
	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\two\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Off	
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
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Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\four\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	
Shots per slice	Shots
Trufi delta freq.	1
RF pulse type	0 Hz
Gradient mode	Fast
Excitation	Fast*
Flip angle mode	Slice-sel.
	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\three\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\dynamic\_test

TA: 4.1 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	54

# SIEMENS MAGNETOM Avanto syngo MR B19

Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	3.1 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\dynamic\_stress

TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\short\_axis\_cine\_realtime

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	75.0 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	56.64 ms	Sagittal	R >> L
TE	1.03 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	10	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\four\_chambr\_cine\_realtime  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\two\_chambr\_cine\_realtime

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\three\_chambr\_cine\_realtim

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L34.0 P18.2 H40.2	SP6	Off
Orientation	S > T-31.4 > C3.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\dynamic\_stress

TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\short\_axis\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\four\_chamber\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Adenosine\_Stress\Extreme\_Arrhythmia\two\_chamber\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	On	Resp. control	
PAT mode	None		Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	On	MIP-Sag	Off
Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\leg\_scout

TA: 0:17 PAT: Off Voxel size: 2.3x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: trufi

Properties		Multiple series	Off
Prio Recon	Off	Resolution	
Before measurement		Base resolution	256
After measurement		Phase resolution	75 %
Load to viewer	On	Phase partial Fourier	Off
Inline movie	Off	Interpolation	On
Auto store images	On	PAT mode	None
Load to stamp segments	On	Matrix Coil Mode	Auto (CP)
Load images to graphic segments	On	Image Filter	Off
Auto open inline display	Off	Distortion Corr.	On
Start measurement without further preparation	Off	Mode	2D
Wait for user to start	Off	Unfiltered images	Off
Start measurements	single	Prescan Normalize	Off
Routine		Normalize	Off
Slice group 1		B1 filter	Off
Slices	12	Raw filter	Off
Dist. factor	75 %	Elliptical filter	On
Position	L0.0 P80.0 H0.0	Mode	Inplane
Orientation	Coronal	Geometry	
Phase enc. dir.	R >> L	Multi-slice mode	Sequential
Rotation	0.00 deg	Series	Ascending
Slice group 2		System	
Slices	10	Body	On
Dist. factor	400 %	BO1	Off
Position	L0.0 P80.0 H0.0	BO2	Off
Orientation	Transversal	NE2	Off
Phase enc. dir.	A >> P	NE1	Off
Rotation	0.00 deg	HE2	Off
Slice group 3		HE4	Off
Slices	3	BO1	Off
Dist. factor	300 %	BO2	Off
Position	R60.0 P80.0 H0.0	HE1	Off
Orientation	Sagittal	HE3	Off
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	Off
Slice group 4		SP8	Off
Slices	3	SP6	Off
Dist. factor	300 %	PL3	Off
Position	L60.0 P80.0 H0.0	PL4	Off
Orientation	Sagittal	PR3	Off
Phase enc. dir.	A >> P	PR4	Off
Rotation	0.00 deg	PL1	Off
Phase oversampling	0 %	PL2	Off
FoV read	450 mm	PR1	Off
FoV phase	81.3 %	PR2	Off
Slice thickness	7.0 mm	SP3	Off
TR	3.73 ms	SP1	Off
TE	1.87 ms	SP7	Off
Averages	1	SP5	Off
Filter	Distortion Corr.(2D), Elliptical filter	Positioning mode	FIX
Coil elements	BC	Table position	H
Contrast		Table position	0 mm
TD	0 ms	MSMA	C - T - S
Magn. preparation	None	Sagittal	R >> L
Flip angle	50 deg	Coronal	A >> P
Fat suppr.	None	Transversal	F >> H
Averaging mode	Short term	Save uncombined	Off
Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine
Measurements	1	Auto Coil Select	Default
		Shim mode	Tune up

# SIEMENS MAGNETOM Avanto syngo MR B19

Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	1

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Off
Bandwidth	488 Hz/Px
Flow comp.	No

RF pulse type	Normal
Gradient mode	Fast
Excitation	Slice-sel.

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\thigh\_scout

TA: 0:17 PAT: Off Voxel size: 2.3x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: trufi

Properties		Multiple series	Off
Prio Recon	Off	Resolution	
Before measurement		Base resolution	256
After measurement		Phase resolution	75 %
Load to viewer	On	Phase partial Fourier	Off
Inline movie	Off	Interpolation	On
Auto store images	On	PAT mode	None
Load to stamp segments	On	Matrix Coil Mode	Auto (CP)
Load images to graphic segments	On	Image Filter	Off
Auto open inline display	Off	Distortion Corr.	On
Start measurement without further preparation	Off	Mode	2D
Wait for user to start	Off	Unfiltered images	Off
Start measurements	single	Prescan Normalize	Off
Routine		Normalize	Off
Slice group 1		B1 filter	Off
Slices	12	Raw filter	Off
Dist. factor	75 %	Elliptical filter	On
Position	L0.0 A15.0 H450.0	Mode	Inplane
Orientation	Coronal	Geometry	
Phase enc. dir.	R >> L	Multi-slice mode	Sequential
Rotation	0.00 deg	Series	Ascending
Slice group 2		System	
Slices	10	Body	On
Dist. factor	400 %	BO1	Off
Position	L0.0 A15.0 H450.0	BO2	Off
Orientation	Transversal	NE2	Off
Phase enc. dir.	A >> P	NE1	Off
Rotation	0.00 deg	HE2	Off
Slice group 3		HE4	Off
Slices	3	BO1	Off
Dist. factor	300 %	BO2	Off
Position	R75.0 A15.0 H450.0	HE1	Off
Orientation	Sagittal	HE3	Off
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	Off
Slice group 4		SP8	Off
Slices	3	SP6	Off
Dist. factor	300 %	PL3	Off
Position	L75.0 A15.0 H450.0	PL4	Off
Orientation	Sagittal	PR3	Off
Phase enc. dir.	A >> P	PR4	Off
Rotation	0.00 deg	PL1	Off
Phase oversampling	0 %	PL2	Off
FoV read	450 mm	PR1	Off
FoV phase	81.3 %	PR2	Off
Slice thickness	7.0 mm	SP3	Off
TR	3.73 ms	SP1	Off
TE	1.87 ms	SP7	Off
Averages	1	SP5	Off
Filter	Distortion Corr.(2D), Elliptical filter	Positioning mode	FIX
Coil elements	BC	Table position	H
Contrast		Table position	450 mm
TD	0 ms	MSMA	C - T - S
Magn. preparation	None	Sagittal	R >> L
Flip angle	50 deg	Coronal	A >> P
Fat suppr.	None	Transversal	F >> H
Averaging mode	Short term	Save uncombined	Off
Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine
Measurements	1	Auto Coil Select	Default
		Shim mode	Tune up

# SIEMENS MAGNETOM Avanto syngo MR B19

Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	1

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Off
Bandwidth	488 Hz/Px
Flow comp.	No

RF pulse type	Normal
Gradient mode	Fast
Excitation	Slice-sel.

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\abdomen\_scout

TA: 0:17 PAT: Off Voxel size: 2.3x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: trufi

Properties		PAT mode	None
		Matrix Coil Mode	Auto (CP)
Prio Recon	Off	Image Filter	Off
Before measurement		Distortion Corr.	On
After measurement		Mode	2D
Load to viewer	On	Unfiltered images	Off
Inline movie	Off	Prescan Normalize	Off
Auto store images	On	Normalize	Off
Load to stamp segments	On	B1 filter	Off
Load images to graphic segments	On	Raw filter	Off
Auto open inline display	Off	Elliptical filter	On
Start measurement without further preparation	Off	Mode	Inplane
Wait for user to start	Off	Geometry	
Start measurements	single	Multi-slice mode	Sequential
Routine		Series	Ascending
Slice group 1		System	
Slices	12	Body	On
Dist. factor	75 %	BO1	Off
Position	L0.0 A15.0 H900.0	BO2	Off
Orientation	Coronal	NE2	Off
Phase enc. dir.	R >> L	NE1	Off
Rotation	0.00 deg	HE2	Off
Slice group 2		HE4	Off
Slices	10	BO1	Off
Dist. factor	400 %	BO2	Off
Position	L0.0 A15.0 H900.0	HE1	Off
Orientation	Transversal	HE3	Off
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	Off
Slice group 3		SP8	Off
Slices	6	SP6	Off
Dist. factor	200 %	PL3	Off
Position	L0.0 A15.0 H900.0	PL4	Off
Orientation	Sagittal	PR3	Off
Phase enc. dir.	A >> P	PR4	Off
Rotation	0.00 deg	PL1	Off
Phase oversampling	0 %	PL2	Off
FoV read	450 mm	PR1	Off
FoV phase	81.3 %	PR2	Off
Slice thickness	7.0 mm	SP3	Off
TR	3.73 ms	SP1	Off
TE	1.87 ms	SP7	Off
Averages	1	SP5	Off
Filter	Distortion Corr.(2D), Elliptical filter	Positioning mode	
Coil elements	BC	Table position	FIX
Contrast		Table position	H
TD	0 ms	Table position	900 mm
Magn. preparation	None	MSMA	C - T - S
Flip angle	50 deg	Sagittal	R >> L
Fat suppr.	None	Coronal	A >> P
Averaging mode	Short term	Transversal	F >> H
Reconstruction	Magnitude	Save uncombined	Off
Measurements	1	Coil Combine Mode	Adaptive Combine
Multiple series	Off	Auto Coil Select	Default
Resolution		Shim mode	Tune up
Base resolution	256	Adjust with body coil	Off
Phase resolution	75 %	Confirm freq. adjustment	Off
Phase partial Fourier	Off	Assume Silicone	Off
Interpolation	On	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
		Adjust volume	
		Position	Isocenter

# SIEMENS MAGNETOM Avanto syngo MR B19

Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	1

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Off
Bandwidth	488 Hz/Px
Flow comp.	No

---

RF pulse type	Normal
Gradient mode	Fast
Excitation	Slice-sel.

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\leg\_pre\_&\_post

TA: 1:06 PAT: 2 Voxel size: 1.3x1.2x1.2 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		Unfiltered images	Off
Prio Recon	Off	Prescan Normalize	Off
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Ascending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		PL3	Off
Slab group 1		PL4	Off
Slabs	1	PR3	Off
Dist. factor	20 %	PR4	Off
Position	L19.2 A2.0 H0.0	PL1	On
Orientation	Coronal	PL2	On
Phase enc. dir.	R >> L	PR1	On
Rotation	0.00 deg	PR2	On
Phase oversampling	0 %	SP4	Off
Slice oversampling	12.5 %	SP2	On
Slices per slab	64	SP8	Off
FoV read	450 mm	SP6	Off
FoV phase	62.5 %	BO1	Off
Slice thickness	1.20 mm	BO2	Off
TR	3.01 ms	SP3	On
TE	1.04 ms	SP1	On
Averages	1	SP7	Off
Filter	Distortion Corr.(2D)	SP5	Off
Coil elements	PL1,2;PR1,2;SP1-3	BO1	Off
Contrast		BO2	Off
Magn. preparation	None	Positioning mode	
Flip angle	25 deg	Table position	ISO
Fat suppr.	None	Table position	H
		Table position	0 mm
Averaging mode	Short term	MSMA	C - T - S
Reconstruction	Magnitude	Sagittal	R >> L
Measurements	4	Coronal	A >> P
Pause after meas. 1	20.0 s	Transversal	F >> H
Pause after meas. 2	0.0 s	Save uncombined	Off
Pause after meas. 3	0.0 s	Coil Combine Mode	Adaptive Combine
Multiple series	Each measurement	Auto Coil Select	Default
Resolution		Shim mode	
Base resolution	384	Adjust with body coil	Tune up
Phase resolution	90 %	Confirm freq. adjustment	Off
Slice resolution	61 %	Assume Silicone	Off
Phase partial Fourier	7/8	? Ref. amplitude 1H	0.000 V
Slice partial Fourier	6/8	Adjustment Tolerance	Maximum
Interpolation	Off	Adjust volume	
		Position	Isocenter
PAT mode	GRAPPA	Orientation	Transversal
Accel. factor PE	2	Rotation	0.00 deg
Ref. lines PE	24	R >> L	350 mm
Matrix Coil Mode	Dual	A >> P	263 mm
Reference scan mode	Integrated	F >> H	350 mm
Image Filter		Physio	
Distortion Corr.	Off	1st Signal/Mode	None
Mode	On	Segments	1
		Angio	
		3D centric reordering	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Time to center	4.4 s
Subtract	On
Autoscaling	Off
Scaling factor	3
Offset	0
Subtrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On
<hr/>	
Sequence	
Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\thigh\_pre

TA: 0:15 PAT: 2 Voxel size: 1.3x1.2x1.4 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Ascending
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	PL3	On
Start measurements	single	PL4	On
Routine		PR3	On
Slab group 1		PR4	On
Slabs	1	PL1	Off
Dist. factor	20 %	PL2	Off
Position	L11.0 A8.0 H450.0	PR1	Off
Orientation	Coronal	PR2	Off
Phase enc. dir.	R >> L	SP4	On
Rotation	0.00 deg	SP2	Off
Phase oversampling	0 %	SP8	Off
Slice oversampling	10.0 %	SP6	Off
Slices per slab	80	BO1	Off
FoV read	450 mm	BO2	Off
FoV phase	62.5 %	SP3	On
Slice thickness	1.40 mm	SP1	Off
TR	3.01 ms	SP7	Off
TE	1.04 ms	SP5	On
Averages	1	BO1	Off
Filter	Distortion Corr.(2D)	BO2	Off
Coil elements	PL3,4;PR3,4;SP3-5		
Contrast		Positioning mode	ISO
Magn. preparation	None	Table position	H
Flip angle	25 deg	Table position	450 mm
Fat suppr.	None	MSMA	C - T - S
Averaging mode	Short term	Sagittal	R >> L
Reconstruction	Magnitude	Coronal	A >> P
Measurements	1	Transversal	F >> H
Multiple series	Each measurement	Save uncombined	Off
Resolution		Coil Combine Mode	Adaptive Combine
Base resolution	384	Auto Coil Select	Default
Phase resolution	90 %		
Slice resolution	61 %	Shim mode	Tune up
Phase partial Fourier	7/8	Adjust with body coil	Off
Slice partial Fourier	6/8	Confirm freq. adjustment	Off
Interpolation	Off	Assume Silicone	Off
PAT mode	GRAPPA	? Ref. amplitude 1H	0.000 V
Accel. factor PE	2	Adjustment Tolerance	Maximum
Ref. lines PE	24	Adjust volume	
Matrix Coil Mode	Dual	Position	Isocenter
Reference scan mode	Integrated	Orientation	Transversal
Image Filter	Off	Rotation	0.00 deg
Distortion Corr.	On	R >> L	350 mm
Mode	2D	A >> P	263 mm
Unfiltered images	Off	F >> H	350 mm
Prescan Normalize	Off		
Normalize	Off		
Physio			
1st Signal/Mode		None	
Segments		1	
Angio			
3D centric reordering		On	
Time to center		1.0 s	
Subtract		On	
Autoscaling		Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

Scaling factor	3
Offset	0
Subrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\abdomen\_pre

TA: 0:14 PAT: 2 Voxel size: 1.3x1.2x1.4 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Ascending
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	PL3	Off
Start measurements	single	PL4	Off
Routine		PR3	Off
Slab group 1		PR4	Off
Slabs	1	PL1	Off
Dist. factor	20 %	PL2	Off
Position	L11.0 P2.8 H900.0	PR1	Off
Orientation	Coronal	PR2	Off
Phase enc. dir.	R >> L	SP4	Off
Rotation	0.00 deg	SP2	Off
Phase oversampling	0 %	SP8	On
Slice oversampling	10.0 %	SP6	On
Slices per slab	80	BO1	On
FoV read	450 mm	BO2	On
FoV phase	62.5 %	SP3	Off
Slice thickness	1.40 mm	SP1	Off
TR	3.01 ms	SP7	On
TE	1.04 ms	SP5	On
Averages	1	BO1	On
Filter	Distortion Corr.(2D)	BO2	On
Coil elements	BO1,2;BO1,2;SP5-8		
Contrast		Positioning mode	ISO
Magn. preparation	None	Table position	H
Flip angle	25 deg	Table position	900 mm
Fat suppr.	None	MSMA	C - T - S
Averaging mode	Short term	Sagittal	R >> L
Reconstruction	Magnitude	Coronal	A >> P
Measurements	1	Transversal	F >> H
Multiple series	Each measurement	Save uncombined	Off
Resolution		Coil Combine Mode	Adaptive Combine
Base resolution	384	Auto Coil Select	Default
Phase resolution	90 %		
Slice resolution	61 %	Shim mode	Tune up
Phase partial Fourier	7/8	Adjust with body coil	Off
Slice partial Fourier	6/8	Confirm freq. adjustment	Off
Interpolation	Off	Assume Silicone	Off
PAT mode	GRAPPA	? Ref. amplitude 1H	0.000 V
Accel. factor PE	2	Adjustment Tolerance	Maximum
Ref. lines PE	24	Adjust volume	
Matrix Coil Mode	Dual	Position	Isocenter
Reference scan mode	Integrated	Orientation	Transversal
Image Filter	Off	Rotation	0.00 deg
Distortion Corr.	On	R >> L	350 mm
Mode	2D	A >> P	263 mm
Unfiltered images	Off	F >> H	350 mm
Prescan Normalize	Off		
Normalize	Off		
		Physio	
		1st Signal/Mode	None
		Segments	1
		Angio	
		3D centric reordering	Off
		Time to center	5.4 s
		Subtract	On
		Autoscaling	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Scaling factor	3
Offset	0
Subrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\orta\_care-bolus

TA: 1:37 PAT: Off Voxel size: 2.0x1.6x22.0 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

## Properties

Prio Recon	On
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	22 mm
TR	37.25 ms
TE	1.33 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;BO1,2;SP5-8

## Contrast

Magn. preparation	None
Flip angle	30 deg
Fat suppr.	None
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	90
Pause after meas.	0.0 s
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	79 %
Phase partial Fourier	Off
Interpolation	Off

PAT mode	None
Matrix Coil Mode	Auto (CP)

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

## Geometry

Multi-slice mode	Sequential
Series	Ascending

Special sat.	Parallel A/P
Gap	5.0 mm
Thickness	50 mm

## System

Body	Off
BO1	On
BO2	On
NE2	Off
NE1	Off
HE2	Off
HE4	Off
BO1	On
BO2	On
HE1	Off
HE3	Off
SP4	Off
SP2	Off
SP8	On
SP6	On
PL3	Off
PL4	Off
PR3	Off
PR4	Off
PL1	Off
PL2	Off
PR1	Off
PR2	Off
SP3	Off
SP1	Off
SP7	On
SP5	On

Positioning mode	FIX
Table position	H

Table position	900 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	Off

Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Maximum

Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	7

## Angio

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	400 Hz/Px
Optimization	Min. TE
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\abdomen\_post

TA: 0:14 PAT: 2 Voxel size: 1.3x1.2x1.4 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Ascending
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	Off	Body	Off
Wait for user to start	Off	PL3	Off
Start measurements	single	PL4	Off
Routine		PR3	Off
Slab group 1		PR4	Off
Slabs	1	PL1	Off
Dist. factor	20 %	PL2	Off
Position	L11.0 P2.8 H900.0	PR1	Off
Orientation	Coronal	PR2	Off
Phase enc. dir.	R >> L	SP4	Off
Rotation	0.00 deg	SP2	Off
Phase oversampling	0 %	SP8	On
Slice oversampling	10.0 %	SP6	On
Slices per slab	80	BO1	On
FoV read	450 mm	BO2	On
FoV phase	62.5 %	SP3	Off
Slice thickness	1.40 mm	SP1	Off
TR	3.01 ms	SP7	On
TE	1.04 ms	SP5	On
Averages	1	BO1	On
Filter	Distortion Corr.(2D)	BO2	On
Coil elements	BO1,2;BO1,2;SP5-8		
Contrast		Positioning mode	ISO
Magn. preparation	None	Table position	H
Flip angle	25 deg	Table position	900 mm
Fat suppr.	None	MSMA	C - T - S
Averaging mode	Short term	Sagittal	R >> L
Reconstruction	Magnitude	Coronal	A >> P
Measurements	1	Transversal	F >> H
Multiple series	Each measurement	Save uncombined	Off
Resolution		Coil Combine Mode	Adaptive Combine
Base resolution	384	Auto Coil Select	Default
Phase resolution	90 %		
Slice resolution	61 %	Shim mode	Tune up
Phase partial Fourier	7/8	Adjust with body coil	Off
Slice partial Fourier	6/8	Confirm freq. adjustment	Off
Interpolation	Off	Assume Silicone	Off
PAT mode	GRAPPA	? Ref. amplitude 1H	0.000 V
Accel. factor PE	2	Adjustment Tolerance	Maximum
Ref. lines PE	24	Adjust volume	
Matrix Coil Mode	Dual	Position	Isocenter
Reference scan mode	Integrated	Orientation	Transversal
Image Filter	Off	Rotation	0.00 deg
Distortion Corr.	On	R >> L	350 mm
Mode	2D	A >> P	263 mm
Unfiltered images	Off	F >> H	350 mm
Prescan Normalize	Off		
Normalize	Off		
		Physio	
		1st Signal/Mode	None
		Segments	1
		Angio	
		3D centric reordering	Off
		Time to center	5.4 s
		Subtract	On
		Autoscaling	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Scaling factor	3
Offset	0
Subrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Peripheral\_Arteries\Recommended\thigh\_post

TA: 0:15 PAT: 2 Voxel size: 1.3x1.2x1.4 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Ascending
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	Off	Body	Off
Wait for user to start	Off	PL3	On
Start measurements	single	PL4	On
Routine		PR3	On
Slab group 1		PR4	On
Slabs	1	PL1	Off
Dist. factor	20 %	PL2	Off
Position	L11.0 A8.0 H450.0	PR1	Off
Orientation	Coronal	PR2	Off
Phase enc. dir.	R >> L	SP4	On
Rotation	0.00 deg	SP2	Off
Phase oversampling	0 %	SP8	Off
Slice oversampling	10.0 %	SP6	Off
Slices per slab	80	BO1	Off
FoV read	450 mm	BO2	Off
FoV phase	62.5 %	SP3	On
Slice thickness	1.40 mm	SP1	Off
TR	3.01 ms	SP7	Off
TE	1.04 ms	SP5	On
Averages	1	BO1	Off
Filter	Distortion Corr.(2D)	BO2	Off
Coil elements	PL3,4;PR3,4;SP3-5		
Contrast		Positioning mode	ISO
Magn. preparation	None	Table position	H
Flip angle	25 deg	Table position	450 mm
Fat suppr.	None	MSMA	C - T - S
Averaging mode	Short term	Sagittal	R >> L
Reconstruction	Magnitude	Coronal	A >> P
Measurements	1	Transversal	F >> H
Multiple series	Each measurement	Save uncombined	Off
Resolution		Coil Combine Mode	Adaptive Combine
Base resolution	384	Auto Coil Select	Default
Phase resolution	90 %		
Slice resolution	61 %	Shim mode	Tune up
Phase partial Fourier	7/8	Adjust with body coil	Off
Slice partial Fourier	6/8	Confirm freq. adjustment	Off
Interpolation	Off	Assume Silicone	Off
PAT mode	GRAPPA	? Ref. amplitude 1H	0.000 V
Accel. factor PE	2	Adjustment Tolerance	Maximum
Ref. lines PE	24	Adjust volume	
Matrix Coil Mode	Dual	Position	Isocenter
Reference scan mode	Integrated	Orientation	Transversal
Image Filter	Off	Rotation	0.00 deg
Distortion Corr.	On	R >> L	350 mm
Mode	2D	A >> P	263 mm
Unfiltered images	Off	F >> H	350 mm
Prescan Normalize	Off		
Normalize	Off		
		Physio	
		1st Signal/Mode	None
		Segments	1
		Angio	
		3D centric reordering	On
		Time to center	1.0 s
		Subtract	On
		Autoscaling	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Scaling factor	3
Offset	0
Subrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\multi\_plane\_loc

TA: 7.3 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	85 %	F >> H	350 mm
Phase partial Fourier	5/8		
Interpolation	On	Physio	
		1st Signal/Mode	ECG/Trigger
PAT mode	None	Average cycle	400 ± 20 ms
Matrix Coil Mode	CP	Captured cycle	-not set-
		Acquisition window	800 ms
Image Filter	Off	Trigger pulse	2
Distortion Corr.	On	Trigger delay	0 ms
Mode	2D	Phases	1
Unfiltered images	Off		
Unfiltered images	Off	Dark blood	On
Prescan Normalize	On	Dark blood thickness	300 %
Normalize	Off	Dark blood flip angle	200 deg

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
Subtract		Resp. control	Off
Std-Dev-Sag		567/+	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\axial\_aorta\_bright\_blood

TA: 0:25 PAT: 2 Voxel size: 2.5x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	30	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	360 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	8.0 mm	Sagittal	S - C - T
TR	200.07 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	65 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	75 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	On	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	16	Acquisition window	833 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	632 ms
Image Filter	Off	Concatenations	3
Distortion Corr.	On	Segments	62
Mode	2D	Phases	1
Unfiltered images	Off	Dark blood	
Prescan Normalize	Off	Cine	Off
Normalize	Off	Resp. control	
Inline		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1132 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\axial\_aorta\_dark\_blood

TA: 0:52 PAT: 2 Voxel size: 1.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: tse

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None
Tim CT mode	Off

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

## Routine

Slice group 1	
Slices	5
Dist. factor	25 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	800 ms
TE	32.0 ms
Averages	1
Concatenations	5
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm
Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	0 ms
Phases	1
Dark blood	On
Dark blood thickness	300 %
Dark blood flip angle	200 deg
Resp. control	Breath-hold

## Contrast

TD	0.0 ms
MTC	Off
Magn. preparation	None
Flip angle	180 deg
Fat suppr.	None
Water suppr.	None
Restore magn.	Off

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	On

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	0 ms
Phases	1
Dark blood	On
Dark blood thickness	300 %
Dark blood flip angle	200 deg
Resp. control	Breath-hold

Image Filter	Off
Distortion Corr.	On
Mode	2D

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	7
Echo trains per slice	12
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\sagittal\_cine

TA: 3.6 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	S > C10.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	38.5 ms
TE	1.16 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

## Image Filter

Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Segments	14

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Off
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Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\three\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\coronal\_aorta\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R17.4 A40.3 F17.3	SP6	Off
Orientation	C > S10.8 > T-7.1	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\oortic\_valve\_cine

TA: 0:24 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Elliptical filter	Off
Prio Recon		POCS	Off
Before measurement		Geometry	
After measurement		Multi-slice mode	Sequential
Load to viewer		Series	Descending
Inline movie		Special sat.	
Auto store images		None	
Load to stamp segments		System	
Load images to graphic segments		Body	Off
Auto open inline display		BO1	On
Start measurement without further preparation		BO2	On
Wait for user to start		SP4	Off
Start measurements		SP2	On
Routine		SP8	Off
Slice group 1		SP6	Off
Slices		SP3	On
Dist. factor		SP1	Off
Position		SP7	Off
Orientation		SP5	Off
Phase enc. dir.		Positioning mode	
Rotation		Table position	REF
Auto		Table position	H
Phase oversampling		MSMA	0 mm
FoV read		Sagittal	S - C - T
FoV phase		Coronal	R >> L
Slice thickness		Transversal	A >> P
TR		Save uncombined	F >> H
TE		Coil Combine Mode	Off
Averages		Auto Coil Select	Adaptive Combine
Filter		Shim mode	Default
Coil elements		Adjust with body coil	Tune up
Contrast		Confirm freq. adjustment	On
TD		Assume Silicone	Off
Magn. preparation		? Ref. amplitude 1H	Off
Flip angle		Adjustment Tolerance	0.000 V
Fat suppr.		Adjust volume	Auto
Restore magn.		Position	Isocenter
Averaging mode		Orientation	Transversal
Reconstruction		Rotation	0.00 deg
Measurements		R >> L	350 mm
Multiple series		A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution		Physio	
Phase resolution		1st Signal/Mode	ECG/Retro
Phase partial Fourier		Average cycle	400 ± 20 ms
Trajectory		Calculated phases	30
View sharing		Concatenations	3
Interpolation		Segments	12
PAT mode		Dark blood	
Matrix Coil Mode		Cine	Off
Image Filter		Dummy heartbeats	On
Distortion Corr.		Resp. control	1
Mode		Inline	
Unfiltered images		Subtract	Off
Prescan Normalize		Std-Dev-Sag	Off
Normalize		Std-Dev-Cor	Off
B1 filter		Std-Dev-Tra	Off
Raw filter		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\orta\_test-bolus

TA: 1:37 PAT: Off Voxel size: 2.0x1.6x22.0 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

## Properties

Prio Recon	On
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	S > C20.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	22 mm
TR	37.25 ms
TE	1.33 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	30 deg
Fat suppr.	None
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	90
Pause after meas.	0.0 s
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	79 %
Phase partial Fourier	Off
Interpolation	Off

PAT mode	None
Matrix Coil Mode	Auto (CP)

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

Multi-slice mode	Sequential
Series	Descending

Special sat.	Parallel R/L
Gap	5.0 mm
Thickness	50 mm

## System

Body	Off
BO1	On
BO2	On
NE2	Off
NE1	Off
HE2	Off
HE4	Off
BO1	Off
BO2	Off
HE1	Off
HE3	Off
SP4	Off
SP2	On
SP8	Off
SP6	Off
PL3	Off
PL4	Off
PR3	Off
PR4	Off
PL1	Off
PL2	Off
PR1	Off
PR2	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	900 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Maximum

Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	7

## Angio

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	400 Hz/Px
Optimization	Min. TE
<hr/>	
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\sagittal\_aorta\_pre

TA: 5.5 s PAT: 2 Voxel size: 1.3x0.9x1.3 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		Prescan Normalize	On
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slab group 1		SP2	On
Slabs	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L22.3 A2.8 H15.2	SP3	On
Orientation	S > C14.3	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	
Slice oversampling	8.3 %	Table position	REF
Slices per slab	48	Table position	H
FoV read	360 mm	MSMA	0 mm
FoV phase	50.0 %	Sagittal	S - C - T
Slice thickness	1.30 mm	Coronal	R >> L
TR	2.98 ms	Transversal	A >> P
TE	1.12 ms	Save uncombined	F >> H
Averages	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
Coil elements	Normalize BO1,2;SP2,3	Default	
Contrast		Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	Off
Flip angle	35 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Maximum
Measurements	1	Adjust volume	
Multiple series	Each measurement	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	384	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Slice resolution	65 %	A >> P	263 mm
Phase partial Fourier	6/8	F >> H	350 mm
Slice partial Fourier	6/8	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	1
Accel. factor PE	2	Angio	
Ref. lines PE	20	3D centric reordering	Off
Matrix Coil Mode	Dual	Time to center	2.1 s
Reference scan mode	Integrated	Subtract	On
Image Filter	Off	Autoscaling	Off
Distortion Corr.	On	Scaling factor	3
Mode	2D	Offset	0
Unfiltered images	Off	Subtrahend	1
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	On

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	570 Hz/Px
Optimization	Min. TE TR
<hr/>	
RF pulse type	Fast
Gradient mode	Normal
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\sagittal\_aorta\_post

TA: 5.5 s PAT: 2 Voxel size: 1.3x0.9x1.3 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		Prescan Normalize	On
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	repeated	BO2	On
Routine		SP4	Off
Slab group 1		SP2	On
Slabs	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L22.3 A2.8 H15.2	SP3	On
Orientation	S > C14.3	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	
Slice oversampling	8.3 %	Table position	FIX
Slices per slab	48	Table position	H
FoV read	360 mm	MSMA	0 mm
FoV phase	50.0 %	Sagittal	S - C - T
Slice thickness	1.30 mm	Coronal	R >> L
TR	2.98 ms	Transversal	A >> P
TE	1.12 ms	Save uncombined	F >> H
Averages	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
Coil elements	Normalize BO1,2;SP2,3	Default	
Contrast		Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	Off
Flip angle	35 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Maximum
Measurements	1	Adjust volume	
Multiple series	Each measurement	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	384	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Slice resolution	65 %	A >> P	263 mm
Phase partial Fourier	6/8	F >> H	350 mm
Slice partial Fourier	6/8	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	1
Accel. factor PE	2	Angio	
Ref. lines PE	20	3D centric reordering	Off
Matrix Coil Mode	Dual	Time to center	2.1 s
Reference scan mode	Integrated	Subtract	On
Image Filter	Off	Autoscaling	Off
Distortion Corr.	On	Scaling factor	3
Mode	2D	Offset	0
Unfiltered images	Off	Subtrahend	1
Unfiltered images	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	On

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	570 Hz/Px
Optimization	Min. TE TR
<hr/>	
RF pulse type	Fast
Gradient mode	Normal
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Recommended\OPT\_axial\_T1\_aorta

TA: 0:11 PAT: Off Voxel size: 1.9x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	6.0 mm
TR	87.23 ms
TE	3.42 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize, Elliptical filter
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	30 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off

Raw filter	Off
Elliptical filter	On
Mode	Inplane
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Ascending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	773 ms
Trigger pulse	1
Trigger delay	685 ms
Segments	11
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	202 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE
Echo spacing	7.5 ms
Sequence type	Gre
Define	Segments
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
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Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	243.60 ms
TE	1.21 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	500 ms
Segments	74
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\axial\_aorta\_bright\_blood

TA: 0:24 PAT: 2 Voxel size: 2.5x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon		B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer		POCS	Off
Inline movie		Geometry	
Auto store images		Multi-slice mode	Sequential
Load to stamp segments		Series	Descending
Load images to graphic segments		Special sat.	
Auto open inline display		None	
Start measurement without further preparation		System	
Wait for user to start		Body	Off
Start measurements		BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices		SP2	On
Dist. factor		SP8	Off
Position		SP6	Off
Orientation		SP3	On
Phase enc. dir.		SP1	Off
Rotation		SP7	Off
Auto		SP5	Off
Phase oversampling		Positioning mode	
FoV read		Table position	REF
FoV phase		Table position	H
Slice thickness		MSMA	0 mm
TR		Sagittal	S - C - T
TE		Coronal	R >> L
Averages		Transversal	A >> P
Concatenations		Save uncombined	F >> H
Filter		Coil Combine Mode	Off
Coil elements		Auto Coil Select	Adaptive Combine
Contrast		Shim mode	Default
TD		Adjust with body coil	Tune up
Magn. preparation		Confirm freq. adjustment	On
Flip angle		Assume Silicone	Off
Fat suppr.		? Ref. amplitude 1H	Off
Restore magn.		Adjustment Tolerance	0.000 V
Averaging mode		Adjust volume	Auto
Reconstruction		Position	Isocenter
Measurements		Orientation	Transversal
Multiple series		Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution		A >> P	263 mm
Phase resolution		F >> H	350 mm
Phase partial Fourier		Physio	
Trajectory		1st Signal/Mode	ECG/Trigger
Interpolation		Average cycle	400 ± 20 ms
PAT mode		Captured cycle	400 ± 20
Accel. factor PE		Acquisition window	718 ms
Ref. lines PE		Trigger pulse	1
Matrix Coil Mode		Trigger delay	517 ms
Reference scan mode		Segments	62
Image Filter		Phases	1
Distortion Corr.		Dark blood	
Mode		Cine	Off
Unfiltered images		Resp. control	
Prescan Normalize		Off	Off
Inline		Subtract	
		Std-Dev-Sag	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1132 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\axial\_aorta\_dark\_blood

TA: 8.0 s PAT: Off Voxel size: 2.3x2.0x8.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	5	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	380 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	8.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.08 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\sagittal\_cine

TA: 0:12 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	S > C10.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	38.5 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	14
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	26	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\three\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\coronal\_aorta\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R17.4 A40.3 F17.3	SP3	On
Orientation	C > S10.8 > T-7.1	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\aortic\_valve\_cine

TA: 1:29 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Before measurement		POCS	Off
After measurement		Geometry	
Load to viewer	On	Multi-slice mode	Sequential
Inline movie	On	Series	Descending
Auto store images	On	Special sat.	None
Load to stamp segments	On	System	
Load images to graphic segments	On	Body	Off
Auto open inline display	Off	BO1	On
Start measurement without further preparation	On	BO2	On
Wait for user to start	Off	SP4	Off
Start measurements	single	SP2	On
System		SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	3	SP1	Off
Dist. factor	0 %	SP7	Off
Position	Isocenter	SP5	Off
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Auto	Off	MSMA	S - C - T
Phase oversampling	65 %	Sagittal	R >> L
FoV read	200 mm	Coronal	A >> P
FoV phase	100.0 %	Transversal	F >> H
Slice thickness	5.0 mm	Save uncombined	Off
TR	34.8 ms	Coil Combine Mode	Adaptive Combine
TE	1.21 ms	Auto Coil Select	Default
Averages	4	Shim mode	Tune up
Concatenations	3	Adjust with body coil	On
Filter	Distortion Corr.(2D)	Confirm freq. adjustment	Off
Coil elements	BO1,2;SP2,3	Assume Silicone	Off
Contrast		? Ref. amplitude 1H	0.000 V
TD	0 ms	Adjustment Tolerance	Auto
Magn. preparation	None	Adjust volume	
Flip angle	90 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
Restore magn.	On	Rotation	0.00 deg
Averaging mode	Short term	R >> L	350 mm
Reconstruction	Magnitude	A >> P	263 mm
Measurements	1	F >> H	350 mm
Multiple series	Each slice	Physio	
Resolution		1st Signal/Mode	ECG/Retro
Base resolution	128	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	30
Phase partial Fourier	Off	Segments	12
Trajectory	Cartesian	Dark blood	Off
View sharing	Off	Cine	On
Interpolation	On	Dummy heartbeats	1
PAT mode	None	Resp. control	Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off	MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\sagittal\_aorta\_dynamic

TA: 0:22 PAT: 2 Voxel size: 1.4x1.2x2.0 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		Mode	2D
Prio Recon	Off	Unfiltered images	Off
Before measurement		Prescan Normalize	Off
After measurement		Normalize	Off
Load to viewer	On	B1 filter	Off
Inline movie	Off	Raw filter	Off
Auto store images	On	Elliptical filter	Off
Load to stamp segments	On	Geometry	
Load images to graphic segments	On	Multi-slice mode	Sequential
Auto open inline display	Off	Series	Ascending
Start measurement without further preparation	On	Special sat.	None
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slab group 1		BO2	On
Slabs	1	NE2	Off
Dist. factor	20 %	NE1	Off
Position	Isocenter	HE2	Off
Orientation	S > C10.0	HE4	Off
Phase enc. dir.	A >> P	BO1	Off
Rotation	0.00 deg	BO2	Off
Phase oversampling	0 %	HE1	Off
Slice oversampling	0.0 %	HE3	Off
Slices per slab	32	SP4	Off
FoV read	450 mm	SP2	On
FoV phase	62.5 %	SP8	Off
Slice thickness	2.00 mm	SP6	Off
TR	2.97 ms	PL3	Off
TE	1.02 ms	PL4	Off
Averages	1	PR3	Off
Filter	Distortion Corr.(2D)	PR4	Off
Coil elements	BO1,2;SP2,3	PL1	Off
Contrast		PL2	Off
Magn. preparation	None	PR1	Off
Flip angle	25 deg	PR2	Off
Fat suppr.	None	SP3	On
Averaging mode	Short term	SP1	Off
Reconstruction	Magnitude	SP7	Off
Measurements	5	SP5	Off
Pause after meas. 1	0.0 s	Positioning mode	
Pause after meas. 2	0.0 s	Table position	ISO
Pause after meas. 3	0.0 s	Table position	H
Pause after meas. 4	0.0 s	MSMA	0 mm
Multiple series	Each measurement	Sagittal	C - T - S
Resolution		Coronal	R >> L
Base resolution	384	Transversal	A >> P
Phase resolution	85 %	Save uncombined	F >> H
Slice resolution	63 %	Coil Combine Mode	Off
Phase partial Fourier	6/8	Auto Coil Select	Adaptive Combine
Slice partial Fourier	6/8	Shim mode	Default
Interpolation	Off	Adjust with body coil	Tune up
PAT mode	GRAPPA	Confirm freq. adjustment	Off
Accel. factor PE	2	Assume Silicone	Off
Ref. lines PE	24	? Ref. amplitude 1H	0.000 V
Matrix Coil Mode	Dual	Adjustment Tolerance	Maximum
Reference scan mode	Integrated	Adjust volume	
Image Filter	Off	Position	Isocenter
Distortion Corr.	On	Orientation	Transversal
		Rotation	0.00 deg
		R >> L	350 mm
		A >> P	263 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

| F >> H                    350 mm

## Physio

1st Signal/Mode	None
Segments	1

## Angio

3D centric reordering	Off
Time to center	1.8 s
Subtract	On
Autoscaling	Off
Scaling factor	3
Offset	0
Subtrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	On
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Thoracic\_Aorta\Free\_Breathing\OPT\_axial\_T1\_aorta

TA: 0:45 PAT: Off Voxel size: 1.9x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	On
Before measurement		Mode	Inplane
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Ascending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	Isocenter	SP3	Off
Orientation	Transversal	SP1	On
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	360 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	6.0 mm	Sagittal	S - C - T
TR	87.23 ms	Coronal	R >> L
TE	3.42 ms	Transversal	A >> P
Averages	4	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan Normalize, Elliptical filter	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP1,2	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	30 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Long term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode		Average cycle	400 ± 20 ms
Matrix Coil Mode	None	Captured cycle	400 ± 20
Image Filter		Acquisition window	773 ms
Distortion Corr.	On	Trigger pulse	1
Mode	2D	Trigger delay	685 ms
Unfiltered images	Off	Segments	11
Unfiltered images	Off	Phases	1
Prescan Normalize	On	Dark blood	
Normalize	Off	Cine	
B1 filter	Off	Resp. control	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	202 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE
Echo spacing	7.5 ms
Sequence type	Gre
Define	Segments
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Anomalous_Coronary_Artery\Extreme_Arrhythmia\auto_detect_table					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\multi\_plane\_loc  
 TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Phase resolution 65 %

Phase partial Fourier Off

Trajectory Cartesian

Interpolation Off

PAT mode GRAPPA

Accel. factor PE 2

Ref. lines PE 24

Matrix Coil Mode Auto (Triple)

Reference scan mode Integrated

Image Filter Off

Distortion Corr. On

Mode 2D

Unfiltered images Off

Prescan Normalize Off

Normalize Off

B1 filter Off

Raw filter Off

Elliptical filter Off

POCS Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode Tune up

Adjust with body coil On

Confirm freq. adjustment Off

Assume Silicone Off

? Ref. amplitude 1H 0.000 V

Adjustment Tolerance Auto

Adjust volume Position Isocenter

Orientation Transversal

Rotation 0.00 deg

R >> L 350 mm

A >> P 263 mm

F >> H 350 mm

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

Physio

## Resolution

Base resolution	256
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# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	10 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	On
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	10 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	271.16 ms	Coronal	A >> P
TE	1.14 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	20	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP1-3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	On	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\two\_chamber\_lo  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\four\_chamber\_lc  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\three\_chamber\_  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\short\_axis\_cine\_

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	56.64 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	70 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Each slice	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode	GRAPPA	Phases	45
Accel. factor PE	2	Dark blood	
Ref. lines PE	12	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated		Off
Image Filter		Inline	
Distortion Corr.	Off	Subtract	Off
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\four\_chambr\_cir  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Off	
Distortion Corr.	On	Subtract	
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\two\_chambr\_cin

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\three\_chambr\_c  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L34.0 P18.2 H40.2	SP6	Off
Orientation	S > T-31.4 > C3.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\coronal\_coronar  
 TA: 3.6 s PAT: 2 Voxel size: 2.4x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	0 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Coronal	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	100.0 %	MSMA	S - C - T
Slice thickness	6.0 mm	Sagittal	R >> L
TR	352.87 ms	Coronal	A >> P
TE	1.14 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	90 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	95
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\dynamic\_corona  
 TA: 0:11 PAT: 2 Voxel size: 2.4x1.6x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Pause after meas. 21	0.0 s
Prio Recon		Pause after meas. 22	0.0 s
Before measurement		Pause after meas. 23	0.0 s
After measurement		Pause after meas. 24	0.0 s
Load to viewer		Pause after meas. 25	0.0 s
Inline movie		Pause after meas. 26	0.0 s
Auto store images		Pause after meas. 27	0.0 s
Load to stamp segments		Pause after meas. 28	0.0 s
Load images to graphic segments		Pause after meas. 29	0.0 s
Auto open inline display		Multiple series	Off
Start measurement without further preparation		Resolution	
Wait for user to start		Base resolution	256
Start measurements		Phase resolution	66 %
Routine		Phase partial Fourier	Off
Slice group 1		Trajectory	Cartesian
Slices		Interpolation	Off
Dist. factor		PAT mode	
Position		Accel. factor PE	GRAPPA
Orientation		Ref. lines PE	2
Phase enc. dir.		Matrix Coil Mode	24
Rotation		Reference scan mode	Auto (Triple)
Auto		Image Filter	
Phase oversampling		Distortion Corr.	Off
FoV read		Mode	On
FoV phase		Unfiltered images	2D
Slice thickness		Prescan Normalize	Off
TR		Normalize	Off
TE		B1 filter	Off
Averages		Raw filter	Off
Concatenations		Elliptical filter	Off
Filter		POCS	Off
Coil elements		Geometry	
Contrast		Multi-slice mode	Sequential
Magn. preparation		Series	Descending
Flip angle		Special sat.	
Fat suppr.		System	None
Restore magn.		Body	Off
Averaging mode		BO1	On
Reconstruction		BO2	On
Measurements		SP4	Off
Pause after meas. 1		SP2	On
Pause after meas. 2		SP8	Off
Pause after meas. 3		SP6	Off
Pause after meas. 4		SP3	On
Pause after meas. 5		SP1	Off
Pause after meas. 6		SP7	Off
Pause after meas. 7		SP5	Off
Pause after meas. 8		Positioning mode	
Pause after meas. 9		Table position	REF
Pause after meas. 10		Table position	H
Pause after meas. 11		Table position	0 mm
Pause after meas. 12		MSMA	S - C - T
Pause after meas. 13		Sagittal	R >> L
Pause after meas. 14		Coronal	A >> P
Pause after meas. 15		Transversal	F >> H
Pause after meas. 16		Save uncombined	Off
Pause after meas. 17		Coil Combine Mode	Adaptive Combine
Pause after meas. 18		Auto Coil Select	Default
Pause after meas. 19		Shim mode	
Pause after meas. 20		Adjust with body coil	Tune up
			On

# SIEMENS MAGNETOM Avanto syngo MR B19

Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	96
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Anomalous\_Coronary\_Artery\Extreme\_Arrhythmia\axial\_coronary\_c  
 TA: 6.9 s PAT: 2 Voxel size: 1.8x1.3x4.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	0 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	340 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	4.0 mm	Sagittal	R >> L
TR	341.30 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	20	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	90 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	Adjustment Tolerance	Auto
Restore magn.	On	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	75 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	81
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	18	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Nonischemic_Cardiomyopathy\Recommended\auto_detect_table_p					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		65 %	
Prio Recon	Off	Phase partial Fourier	Off	Off	
Before measurement		Trajectory	Cartesian		
After measurement		Interpolation	Off		
Load to viewer	On	PAT mode	GRAPPA		
Inline movie	Off	Accel. factor PE	2		
Auto store images	On	Ref. lines PE	24		
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)		
Load images to graphic segments	On	Reference scan mode	Integrated		
Auto open inline display	Off	Image Filter	Off		
Start measurement without further preparation	Off	Distortion Corr.	On		
Wait for user to start	Off	Mode	2D		
Start measurements	single	Unfiltered images	Off		
Routine		Prescan Normalize	Off		
Slice group 1		Normalize	Off		
Slices	3	B1 filter	Off		
Dist. factor	300 %	Raw filter	Off		
Position	Isocenter	Elliptical filter	Off		
Orientation	Transversal	POCS	Off		
Phase enc. dir.	A >> P	Geometry			
Rotation	0.00 deg	Multi-slice mode	Sequential		
Auto	Off	Series	Descending		
Slice group 2		Special sat.	None		
Slices	3	System			
Dist. factor	300 %	Body	Off		
Position	L30.0 P0.0 H0.0	BO1	On		
Orientation	Sagittal	BO2	On		
Phase enc. dir.	A >> P	SP4	Off		
Rotation	0.00 deg	SP2	On		
Auto	Off	SP8	Off		
Slice group 3		SP6	Off		
Slices	3	SP3	On		
Dist. factor	300 %	SP1	On		
Position	L0.0 P10.0 H0.0	SP7	Off		
Orientation	Coronal	SP5	Off		
Phase enc. dir.	R >> L	Positioning mode	FIX		
Rotation	0.00 deg	Table position	H		
Auto	Off	Table position	0 mm		
Phase oversampling	0 %	MSMA	S - C - T		
FoV read	400 mm	Sagittal	R >> L		
FoV phase	100.0 %	Coronal	A >> P		
Slice thickness	7.0 mm	Transversal	F >> H		
TR	337.10 ms	Save uncombined	Off		
TE	1.14 ms	Coil Combine Mode	Adaptive Combine		
Averages	1	Auto Coil Select	Default		
Concatenations	9	Contrast			
Filter	Distortion Corr.(2D)	Shim mode	Tune up		
Coil elements	BO1,2;SP1-3	Adjust with body coil	On		
		Confirm freq. adjustment	Off		
		Assume Silicone	Off		
		? Ref. amplitude 1H	0.000 V		
		Adjustment Tolerance	Auto		
		Adjust volume			
		Position	Isocenter		
		Orientation	Transversal		
		Resolution			
		Rotation	0.00 deg		
		R >> L	350 mm		
		A >> P	263 mm		
		F >> H	350 mm		
TD	0 ms	Physio			
Magn. preparation	None				
Flip angle	80 deg				
Fat suppr.	None				
Restore magn.	On				
Averaging mode	Short term				
Reconstruction	Magnitude				
Measurements	1				
Multiple series	Off				
Resolution					
Base resolution	256				
		649/+			

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\multi\_plane\_loc

TA: 7.3 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\axial\_db\_haste\_loc  
 TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	400 ± 20 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\three\_chamber\_loc  
 TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Resp. control	
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\short\_axis\_cine

TA: 0:32 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off																																																										
Prio Recon	Off	B1 filter	Off																																																										
Before measurement		Raw filter	Off																																																										
After measurement		Elliptical filter	Off																																																										
Load to viewer	On	POCS	Off																																																										
Inline movie	On	Geometry																																																											
Auto store images	On	Multi-slice mode	Sequential																																																										
Load to stamp segments	On	Series	Descending																																																										
Load images to graphic segments	On	Special sat.																																																											
Auto open inline display	On	None																																																											
Start measurement without further preparation	On	System																																																											
Wait for user to start	Off	Body	Off																																																										
Start measurements	single	BO1	On																																																										
Routine		BO2	On																																																										
Slice group 1		SP4	Off																																																										
Slices	10	SP2	On																																																										
Dist. factor	25 %	SP8	Off																																																										
Position	L15.7 A41.7 F26.9	SP6	Off																																																										
Orientation	C > S34.0 > T-25.2	SP3	On																																																										
Phase enc. dir.	R >> L	SP1	Off																																																										
Rotation	0.00 deg	SP7	Off																																																										
Auto	Off	SP5	Off																																																										
Phase oversampling	0 %	Positioning mode																																																											
FoV read	360 mm	Table position	REF																																																										
FoV phase	75.0 %	Table position	H																																																										
Slice thickness	7.0 mm	MSMA	0 mm																																																										
TR	44 ms	Sagittal	S - C - T																																																										
TE	1.16 ms	Coronal	R >> L																																																										
Averages	1	Transversal	A >> P																																																										
Filter	Distortion Corr.(2D)	Save uncombined	F >> H																																																										
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off																																																										
Contrast		Auto Coil Select	Adaptive Combine																																																										
TD	0 ms	Shim mode	Default																																																										
Magn. preparation	None	Adjust with body coil	Tune up																																																										
Flip angle	80 deg	Confirm freq. adjustment	On																																																										
Fat suppr.	None	Assume Silicone	Off																																																										
Restore magn.	On	? Ref. amplitude 1H	Off																																																										
Averaging mode	Short term	Adjustment Tolerance	0.000 V																																																										
Reconstruction	Magnitude	Adjust volume	Auto																																																										
Measurements	1	Position	Isocenter																																																										
Multiple series	Each slice	Orientation	Transversal																																																										
Resolution		Rotation	0.00 deg																																																										
Base resolution	192	R >> L	350 mm																																																										
Phase resolution	100 %	A >> P	263 mm																																																										
Phase partial Fourier	Off	F >> H	350 mm																																																										
Trajectory	Cartesian	Physio																																																											
View sharing	Off	Interpolation	Off	1st Signal/Mode	ECG/Retro	PAT mode	GRAPPA	Average cycle	400 ± 20 ms	Accel. factor PE	2	Calculated phases	25	Ref. lines PE	24	Concatenations	10	Matrix Coil Mode	Auto (Triple)	Segments	16	Reference scan mode	Integrated	Dark blood		Image Filter	Off	Cine	Off	Distortion Corr.	On	Dummy heartbeats	On	Mode	2D	Resp. control		Unfiltered images	Off	Breath-hold		Prescan Normalize	Off	Inline				Subtract	Off			Std-Dev-Sag	Off			Std-Dev-Cor	Off			Std-Dev-Tra	Off
Interpolation	Off	1st Signal/Mode	ECG/Retro																																																										
PAT mode	GRAPPA	Average cycle	400 ± 20 ms																																																										
Accel. factor PE	2	Calculated phases	25																																																										
Ref. lines PE	24	Concatenations	10																																																										
Matrix Coil Mode	Auto (Triple)	Segments	16																																																										
Reference scan mode	Integrated	Dark blood																																																											
Image Filter	Off	Cine	Off																																																										
Distortion Corr.	On	Dummy heartbeats	On																																																										
Mode	2D	Resp. control																																																											
Unfiltered images	Off	Breath-hold																																																											
Prescan Normalize	Off	Inline																																																											
		Subtract	Off																																																										
		Std-Dev-Sag	Off																																																										
		Std-Dev-Cor	Off																																																										
		Std-Dev-Tra	Off																																																										

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\four\_chamber\_cine  
 TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Tune up	
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	400 ± 20 ms
PAT mode	GRAPPA	Calculated phases	25
Accel. factor PE	2	Segments	16
Ref. lines PE	24	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Dummy heartbeats	On
Image Filter	Off	Resp. control	1
Distortion Corr.	On	Inline	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\two\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\three\_chamber\_cine  
 TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\short\_axis\_db\_t2

TA: 8.0 s PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Prescan Normalize	On
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	Tim CT mode	
Wait for user to start	On	System	Off
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	360 mm	SP5	Off
FoV phase	75.0 %	Positioning mode	
Slice thickness	7.0 mm	Table position	REF
TR	800 ms	Table position	H
TE	79.0 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	1	Coronal	R >> L
Filter	Distortion Corr.(2D), Prescan	Transversal	A >> P
	Normalize	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
		Auto Coil Select	Adaptive Combine
Contrast			Default
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	180 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
Averaging mode		Adjust volume	
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	75 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Accel. factor PE	GRAPPA	Phases	1
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	43	Dark blood	On
Reference scan mode	Auto (Triple)	Dark blood thickness	300 %
	Integrated	Dark blood flip angle	200 deg
Image Filter	Off	Resp. control	
Distortion Corr.	On	Resp. control	Off
Mode	2D		
Unfiltered images	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Nonischemic_Cardiomyopathy\Recommended\four_chamber_db_t2		
TA: 8.0 s	PAT: 2	Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse
<b>Properties</b>		
Prio Recon	Off	Unfiltered images Off
Before measurement		Prescan Normalize On
After measurement		Normalize Off
Load to viewer	On	B1 filter Off
Inline movie	Off	Raw filter Off
Auto store images	On	Elliptical filter Off
Load to stamp segments	On	
Load images to graphic segments	On	
Auto open inline display	Off	
Start measurement without further preparation	On	
Wait for user to start	On	
Start measurements	single	
<b>Routine</b>		
Slice group 1		<b>Geometry</b>
Slices	1	Multi-slice mode Sequential
Dist. factor	50 %	Series Descending
Position	L11.8 A39.9 H7.1	
Orientation	T > C40.1 > S5.6	
Phase enc. dir.	A >> P	Special sat. None
Rotation	0.00 deg	
Phase oversampling	0 %	
FoV read	360 mm	Tim CT mode Off
FoV phase	75.0 %	
Slice thickness	7.0 mm	
TR	800 ms	<b>System</b>
TE	79.0 ms	
Averages	1	Body Off
Concatenations	1	BO1 On
Filter	Distortion Corr.(2D), Prescan	BO2 On
	Normalize	SP4 Off
Coil elements	BO1,2;SP2,3	SP2 On
		SP8 Off
		SP6 Off
		SP3 On
		SP1 Off
		SP7 Off
		SP5 Off
<b>Contrast</b>		
MTC	Off	<b>Positioning mode</b> REF
Magn. preparation	None	Table position H
Flip angle	180 deg	Table position 0 mm
Fat suppr.	None	MSMA S - C - T
Water suppr.	None	Sagittal R >> L
Restore magn.	Off	Coronal A >> P
Averaging mode	Short term	Transversal F >> H
Reconstruction	Magnitude	Save uncombined Off
Measurements	1	Coil Combine Mode Adaptive Combine
Multiple series	Off	Auto Coil Select Default
<b>Resolution</b>		
Base resolution	192	<b>Shim mode</b> Tune up
Phase resolution	75 %	Adjust with body coil On
Phase partial Fourier	Off	Confirm freq. adjustment Off
Trajectory	Cartesian	Assume Silicone Off
Interpolation	On	? Ref. amplitude 1H 0.000 V
PAT mode	GRAPPA	Adjustment Tolerance Auto
Accel. factor PE	2	Adjust volume
Ref. lines PE	43	Position Isocenter
Matrix Coil Mode	Auto (Triple)	Orientation Transversal
Reference scan mode	Integrated	Rotation 0.00 deg
Image Filter	Off	R >> L 350 mm
Distortion Corr.	On	A >> P 263 mm
Mode	2D	F >> H 350 mm
Unfiltered images		
<b>Physio</b>		
PAT mode	GRAPPA	1st Signal/Mode ECG/Trigger
Accel. factor PE	2	Average cycle 400 ± 20 ms
Ref. lines PE	43	Captured cycle -not set-
Matrix Coil Mode	Auto (Triple)	Acquisition window 800 ms
Reference scan mode	Integrated	Trigger pulse 2
Image Filter	Off	Trigger delay 0 ms
Distortion Corr.	On	Phases 1
Mode	2D	
Unfiltered images		
Dark blood		Dark blood On
Dark blood thickness		300 %
Dark blood flip angle		200 deg
Resp. control		

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Nonischemic_Cardiomyopathy\Recommended\two_chamber_db_t2		
TA: 8.0 s	PAT: 2	Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse
<b>Properties</b>		
Prio Recon	Off	Unfiltered images Off
Before measurement		Prescan Normalize On
After measurement		Normalize Off
Load to viewer	On	B1 filter Off
Inline movie	Off	Raw filter Off
Auto store images	On	Elliptical filter Off
Load to stamp segments	On	
Load images to graphic segments	On	
Auto open inline display	Off	
Start measurement without further preparation	On	
Wait for user to start	On	
Start measurements	single	
<b>Routine</b>		
Slice group 1		<b>Geometry</b>
Slices	1	Multi-slice mode Sequential
Dist. factor	50 %	Series Descending
Position	R12.5 P0.1 H0.0	
Orientation	S > C-34.0	
Phase enc. dir.	A >> P	
Rotation	0.00 deg	
Phase oversampling	0 %	
FoV read	360 mm	
FoV phase	75.0 %	
Slice thickness	7.0 mm	
TR	800 ms	
TE	79.0 ms	
Averages	1	
Concatenations	1	
Filter	Distortion Corr.(2D), Prescan	
	Normalize	
Coil elements	BO1,2;SP2,3	
<b>Contrast</b>		
MTC	Off	<b>System</b>
Magn. preparation	None	Body Off
Flip angle	180 deg	BO1 On
Fat suppr.	None	BO2 On
Water suppr.	None	SP4 Off
Restore magn.	Off	SP2 On
		SP8 Off
		SP6 Off
		SP3 On
		SP1 Off
		SP7 Off
		SP5 Off
		Positioning mode REF
		Table position H
		Table position 0 mm
		MSMA S - C - T
		Sagittal R >> L
		Coronal A >> P
		Transversal F >> H
		Save uncombined Off
		Coil Combine Mode Adaptive Combine
		Auto Coil Select Default
		Shim mode Tune up
		Adjust with body coil On
		Confirm freq. adjustment Off
		Assume Silicone Off
		? Ref. amplitude 1H 0.000 V
		Adjustment Tolerance Auto
		Adjust volume
		Position Isocenter
		Orientation Transversal
		Rotation 0.00 deg
		R >> L 350 mm
		A >> P 263 mm
		F >> H 350 mm
<b>Resolution</b>		
Base resolution	192	
Phase resolution	75 %	
Phase partial Fourier	Off	<b>Physio</b>
Trajectory	Cartesian	1st Signal/Mode ECG/Trigger
Interpolation	On	Average cycle 400 ± 20 ms
		Captured cycle -not set-
		Acquisition window 800 ms
		Trigger pulse 2
		Trigger delay 0 ms
		Phases 1
		Dark blood On
		Dark blood thickness 300 %
		Dark blood flip angle 200 deg
		Resp. control Off
Image Filter	Off	
Distortion Corr.	On	
Mode	2D	
Unfiltered images	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\OPT\_dynamic\_test

TA: 4.0 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian

## Interpolation

	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On

Confirm freq. adjustment	Off
Assume Silicone	Off

? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto

Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\OPT\_dynamic\_stres  
 TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties			
Prio Recon	Off	Pause after meas. 11	0.0 s
Before measurement		Pause after meas. 12	0.0 s
After measurement		Pause after meas. 13	0.0 s
Load to viewer	On	Pause after meas. 14	0.0 s
Inline movie	On	Pause after meas. 15	0.0 s
Auto store images	On	Pause after meas. 16	0.0 s
Load to stamp segments	On	Pause after meas. 17	0.0 s
Load images to graphic segments	On	Pause after meas. 18	0.0 s
Auto open inline display	On	Pause after meas. 19	0.0 s
Start measurement without further preparation	On	Pause after meas. 20	0.0 s
Wait for user to start	On	Pause after meas. 21	0.0 s
Start measurements	single	Pause after meas. 22	0.0 s
Routine		Pause after meas. 23	0.0 s
Slice group 1		Pause after meas. 24	0.0 s
Slices	3	Pause after meas. 25	0.0 s
Dist. factor	50 %	Pause after meas. 26	0.0 s
Position	Isocenter	Pause after meas. 27	0.0 s
Orientation	Transversal	Pause after meas. 28	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 29	0.0 s
Rotation	0.00 deg	Pause after meas. 30	0.0 s
Auto	Off	Pause after meas. 31	0.0 s
Slice group 2		Pause after meas. 32	0.0 s
Slices	1	Pause after meas. 33	0.0 s
Dist. factor	20 %	Pause after meas. 34	0.0 s
Position	Isocenter	Pause after meas. 35	0.0 s
Orientation	Sagittal	Pause after meas. 36	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 37	0.0 s
Rotation	0.00 deg	Pause after meas. 38	0.0 s
Auto	Off	Pause after meas. 39	0.0 s
Phase oversampling	0 %	Pause after meas. 40	0.0 s
FoV read	360 mm	Pause after meas. 41	0.0 s
FoV phase	75.0 %	Pause after meas. 42	0.0 s
Slice thickness	8.0 mm	Pause after meas. 43	0.0 s
TR	162.86 ms	Pause after meas. 44	0.0 s
TE	1.14 ms	Pause after meas. 45	0.0 s
Averages	1	Pause after meas. 46	0.0 s
Concatenations	1	Pause after meas. 47	0.0 s
Filter	Distortion Corr.(2D), Prescan Normalize	Pause after meas. 48	0.0 s
Coil elements	BO1,2;SP2,3	Pause after meas. 49	0.0 s
Contrast		Multiple series	Each slice
Resolution			
Magn. preparation	Non-sel. SR perf	Base resolution	192
TI	95 ms	Phase resolution	65 %
Flip angle	12 deg	Phase partial Fourier	Off
Fat suppr.	None	Trajectory	Cartesian
Restore magn.	Off	Interpolation	Off
Averaging mode		PAT mode	GRAPPA
Reconstruction	Long term	Accel. factor PE	2
Measurements	Magnitude	Ref. lines PE	14
Pause after meas. 1	50	Matrix Coil Mode	Auto (Triple)
Pause after meas. 2	0.0 s	Reference scan mode	Integrated
Pause after meas. 3	0.0 s	Image Filter	Off
Pause after meas. 4	0.0 s	Distortion Corr.	On
Pause after meas. 5	0.0 s	Mode	2D
Pause after meas. 6	0.0 s	Unfiltered images	Off
Pause after meas. 7	0.0 s	Unfiltered images	Off
Pause after meas. 8	0.0 s	Prescan Normalize	On
Pause after meas. 9	0.0 s	Normalize	Off
Pause after meas. 10	0.0 s	B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\OPT\_dynamic\_rest

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\ti\_scout

TA: 0:11 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode		Adjust volume	Auto
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	192	F >> H	350 mm
Phase resolution	50 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	ECG/Trigger
Trajectory	Cartesian	Average cycle	400 ± 20 ms
View sharing	Off	Captured cycle	-not set-
Interpolation	On	Acquisition window	665 ms
PAT mode		Trigger pulse	2
Matrix Coil Mode	None	Trigger delay	0 ms
	Auto (CP)	Segments	13
Image Filter	Off	Phases	17
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Dummy heartbeats	
Unfiltered images	Off	Resp. control	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\short\_axis\_delayed

TA: 1:38 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	340 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	800.00 ms	Coronal	A >> P
TE	3 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	Non-sel. IR	Assume Silicone	Off
TI	300 ms	? Ref. amplitude 1H	0.000 V
Flip angle	25 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	100 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	Off	Average cycle	400 ± 20 ms
Trajectory	Cartesian	Captured cycle	-not set-
Interpolation	Off	Acquisition window	1000 ms
PAT mode	None	Trigger pulse	2
Matrix Coil Mode	Auto (CP)	Trigger delay	0 ms
Image Filter	Off	Concatenations	10
Distortion Corr.	On	Segments	25
Mode	2D	Phases	1
Unfiltered images	Off	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	On	Resp. control	Breath-hold
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\four\_chamber\_delay  
 TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Subtract	
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Recommended\two\_chamber\_delay

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	800.00 ms
TE	3 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. IR
TI	300 ms
Flip angle	25 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude/Real
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	25
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\auto\_detect\_table\_p  
 TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	65 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		Interpolation	Off
Load to viewer	On	PAT mode	GRAPPA
Inline movie	Off	Accel. factor PE	2
Auto store images	On	Ref. lines PE	24
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)
Load images to graphic segments	On	Reference scan mode	Integrated
Auto open inline display	Off	Image Filter	Off
Start measurement without further preparation	Off	Distortion Corr.	On
Wait for user to start	Off	Mode	2D
Start measurements	single	Unfiltered images	Off
Routine		Prescan Normalize	Off
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	300 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0.00 deg	Multi-slice mode	Sequential
Auto	Off	Series	Descending
Slice group 2		Special sat.	None
Slices	3	System	
Dist. factor	300 %	Body	Off
Position	L30.0 P0.0 H0.0	BO1	On
Orientation	Sagittal	BO2	On
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	On
Auto	Off	SP8	Off
Slice group 3		SP6	Off
Slices	3	SP3	On
Dist. factor	300 %	SP1	On
Position	L0.0 P10.0 H0.0	SP7	Off
Orientation	Coronal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	FIX
Rotation	0.00 deg	Table position	H
Auto	Off	Table position	0 mm
Phase oversampling	0 %	MSMA	S - C - T
FoV read	400 mm	Sagittal	R >> L
FoV phase	100.0 %	Coronal	A >> P
Slice thickness	7.0 mm	Transversal	F >> H
TR	337.10 ms	Save uncombined	Off
TE	1.14 ms	Coil Combine Mode	Adaptive Combine
Averages	1	Auto Coil Select	Default
Concatenations	9	Shim mode	Tune up
Filter	Distortion Corr.(2D)	Adjust with body coil	On
Coil elements	BO1,2;SP1-3	Confirm freq. adjustment	Off
Contrast		Assume Silicone	Off
TD	0 ms	? Ref. amplitude 1H	0.000 V
Magn. preparation	None	Adjustment Tolerance	Auto
Flip angle	80 deg	Adjust volume	
Fat suppr.	None	Position	Isocenter
Restore magn.	On	Orientation	Transversal
Averaging mode	Short term	Rotation	0.00 deg
Reconstruction	Magnitude	R >> L	350 mm
Measurements	1	A >> P	263 mm
Multiple series	Off	F >> H	350 mm
Resolution		Physio	
Base resolution	256		

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\axial\_db\_haste\_loc  
 TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	ECG/Trigger
Trajectory	Cartesian	Average cycle	400 ± 20 ms
Interpolation	Off	Captured cycle	400 ± 20
PAT mode	GRAPPA	Acquisition window	800 ms
Accel. factor PE	2	Trigger pulse	1
Ref. lines PE	24	Trigger delay	500 ms
Matrix Coil Mode	Auto (Triple)	Segments	74
Reference scan mode	Integrated	Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D	Resp. control	Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\three\_chamber\_loc  
 TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Resp. control	
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\short\_axis\_cine

TA: 1:44 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	360 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	44 ms	MSMA	S - C - T
TE	1.16 ms	Sagittal	R >> L
Averages	4	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	400 ± 20 ms
Accel. factor PE	GRAPPA	Calculated phases	25
Ref. lines PE	2	Segments	16
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	
Image Filter		Dummy heartbeats	
Distortion Corr.	Off	Resp. control	
Mode	On	Off	
Unfiltered images	2D	Subtract	
	Off	Std-Dev-Sag	
		Std-Dev-Cor	
		Std-Dev-Tra	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\four\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\two\_chamber\_cine  
 TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\three\_chamber\_cine  
 TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\short\_axis\_db\_hast

TA: 1.6 s	PAT: Off	Voxel size: 2.5x2.1x7.0 mm	Rel. SNR: 1.00	SIEMENS: haste
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Properties		Raw filter	Off
Prio Recon		Elliptical filter	Off
Before measurement		Geometry	
After measurement		Multi-slice mode	Single shot
Load to viewer		Series	Interleaved
Inline movie		Special sat.	None
Auto store images		Tim CT mode	Off
Load to stamp segments		System	
Load images to graphic segments		Body	Off
Auto open inline display		BO1	On
Start measurement without further preparation		BO2	On
Wait for user to start		SP4	Off
Start measurements		SP2	On
Routine		SP8	Off
Slice group 1		SP6	Off
Slices		SP3	On
Dist. factor		SP1	Off
Position		SP7	Off
Orientation		SP5	Off
Phase enc. dir.		Positioning mode	REF
Rotation		Table position	H
Phase oversampling		Table position	0 mm
FoV read		MSMA	S - C - T
FoV phase		Sagittal	R >> L
Slice thickness		Coronal	A >> P
TR		Transversal	F >> H
TE		Save uncombined	Off
Averages		Coil Combine Mode	Adaptive Combine
Concatenations		Auto Coil Select	Default
Filter		Shim mode	Tune up
Coil elements		Adjust with body coil	On
Contrast		Confirm freq. adjustment	Off
MTC		Assume Silicone	Off
Magn. preparation		? Ref. amplitude 1H	0.000 V
Flip angle		Adjustment Tolerance	Auto
Fat suppr.		Adjust volume	
Water suppr.		Position	Isocenter
Restore magn.		Orientation	Transversal
Averaging mode		Rotation	0.00 deg
Reconstruction		R >> L	350 mm
Measurements		A >> P	263 mm
Multiple series		F >> H	350 mm
Resolution		Physio	
Base resolution		1st Signal/Mode	ECG/Trigger
Phase resolution		Average cycle	400 ± 20 ms
Phase partial Fourier		Captured cycle	-not set-
Interpolation		Acquisition window	695 ms
PAT mode		Trigger pulse	2
Matrix Coil Mode		Trigger delay	0 ms
Image Filter		Phases	1
Distortion Corr.		Dark blood	On
Mode		Dark blood thickness	300 %
Unfiltered images		Dark blood flip angle	200 deg
Unfiltered images		Resp. control	Off
Prescan Normalize		Inline	
Normalize		Subtract	Off
B1 filter		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\four\_chamber\_db\_h  
 TA: 1.6 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off	Tim CT mode	Off
Auto store images	On	System	
Load to stamp segments	On	Body	Off
Load images to graphic segments	On	BO1	On
Auto open inline display	Off	BO2	On
Start measurement without further preparation	On	SP4	Off
Wait for user to start	Off	SP2	On
Start measurements	single	SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	1	SP1	Off
Dist. factor	50 %	SP7	Off
Position	L11.8 A39.9 H7.1	SP5	Off
Orientation	T > C40.1 > S5.6	Positioning mode	
Phase enc. dir.	A >> P	Table position	REF
Rotation	0.00 deg	Table position	H
Phase oversampling	0 %	MSMA	0 mm
FoV read	400 mm	Sagittal	S - C - T
FoV phase	62.5 %	Coronal	R >> L
Slice thickness	7.0 mm	Transversal	A >> P
TR	600 ms	Save uncombined	F >> H
TE	22 ms	Coil Combine Mode	Off
Averages	1	Auto Coil Select	Adaptive Combine
Concatenations	1	Default	
Filter	Distortion Corr.(2D), Prescan	Shim mode	Tune up
	Normalize	Adjust with body coil	On
Coil elements	BO1,2;SP2,3	Confirm freq. adjustment	Off
Contrast		Assume Silicone	Off
MTC	Off	? Ref. amplitude 1H	0.000 V
Magn. preparation	None	Adjustment Tolerance	Auto
Flip angle	160 deg	Adjust volume	
Fat suppr.	None	Position	Isocenter
Water suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
Averaging mode		R >> L	350 mm
Reconstruction	Long term	A >> P	263 mm
Measurements	Magnitude	F >> H	350 mm
Multiple series	1	Physio	
	Off	1st Signal/Mode	ECG/Trigger
Resolution		Average cycle	400 ± 20 ms
Base resolution	192	Captured cycle	-not set-
Phase resolution	85 %	Acquisition window	695 ms
Phase partial Fourier	5/8	Trigger pulse	2
Interpolation	On	Trigger delay	0 ms
PAT mode		Phases	1
Matrix Coil Mode	None	Dark blood	
	CP	Dark blood	On
Image Filter	Off	Dark blood thickness	300 %
Distortion Corr.	On	Dark blood flip angle	200 deg
Mode	2D	Resp. control	
Unfiltered images	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	On	Std-Dev-Cor	Off
Normalize	Off		
B1 filter	Off		
Inline			

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\two\_chamber\_db\_h  
 TA: 1.6 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off	Tim CT mode	Off
Auto store images	On	System	
Load to stamp segments	On	Body	Off
Load images to graphic segments	On	BO1	On
Auto open inline display	Off	BO2	On
Start measurement without further preparation	On	SP4	Off
Wait for user to start	Off	SP2	On
Start measurements	single	SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	1	SP1	Off
Dist. factor	50 %	SP7	Off
Position	R12.5 P0.1 H0.0	SP5	Off
Orientation	S > C-34.0	Positioning mode	
Phase enc. dir.	A >> P	Table position	REF
Rotation	0.00 deg	Table position	H
Phase oversampling	0 %	MSMA	0 mm
FoV read	400 mm	Sagittal	S - C - T
FoV phase	62.5 %	Coronal	R >> L
Slice thickness	7.0 mm	Transversal	A >> P
TR	600 ms	Save uncombined	F >> H
TE	22 ms	Coil Combine Mode	Off
Averages	1	Auto Coil Select	Adaptive Combine
Concatenations	1	Default	
Filter	Distortion Corr.(2D), Prescan	Shim mode	Tune up
	Normalize	Adjust with body coil	On
Coil elements	BO1,2;SP2,3	Confirm freq. adjustment	Off
Contrast		Assume Silicone	Off
MTC	Off	? Ref. amplitude 1H	0.000 V
Magn. preparation	None	Adjustment Tolerance	Auto
Flip angle	160 deg	Adjust volume	
Fat suppr.	None	Position	Isocenter
Water suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
Averaging mode		R >> L	350 mm
Reconstruction	Long term	A >> P	263 mm
Measurements	Magnitude	F >> H	350 mm
Multiple series	1	Physio	
	Off	1st Signal/Mode	ECG/Trigger
Resolution		Average cycle	400 ± 20 ms
Base resolution	192	Captured cycle	-not set-
Phase resolution	85 %	Acquisition window	695 ms
Phase partial Fourier	5/8	Trigger pulse	2
Interpolation	On	Trigger delay	0 ms
PAT mode		Phases	1
Matrix Coil Mode	None	Dark blood	
	CP	Dark blood	On
Image Filter	Off	Dark blood thickness	300 %
Distortion Corr.	On	Dark blood flip angle	200 deg
Mode	2D	Resp. control	
Unfiltered images	Off	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	On	Std-Dev-Cor	Off
Normalize	Off		
B1 filter	Off		
Inline			

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\OPT\_dynamic\_test  
 TA: 4.0 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off																																																																																																																																																																																
Prio Recon	Off	PAT mode	GRAPPA																																																																																																																																																																																
Before measurement		Accel. factor PE	2																																																																																																																																																																																
After measurement		Ref. lines PE	14																																																																																																																																																																																
Load to viewer	On	Matrix Coil Mode	Auto (Triple)																																																																																																																																																																																
Inline movie	On	Reference scan mode	Integrated																																																																																																																																																																																
Auto store images	On																																																																																																																																																																																		
Load to stamp segments	On																																																																																																																																																																																		
Load images to graphic segments	On																																																																																																																																																																																		
Auto open inline display	On	Image Filter	Off																																																																																																																																																																																
Start measurement without further preparation	On	Distortion Corr.	On																																																																																																																																																																																
Wait for user to start	On	Mode	2D																																																																																																																																																																																
Start measurements	single	Unfiltered images	Off																																																																																																																																																																																
		Unfiltered images	Off																																																																																																																																																																																
Routine		Prescan Normalize	On																																																																																																																																																																																
Slice group 1		Normalize	Off																																																																																																																																																																																
Slices	3	B1 filter	Off																																																																																																																																																																																
Dist. factor	50 %	Raw filter	Off																																																																																																																																																																																
Position	Isocenter	Elliptical filter	Off																																																																																																																																																																																
Orientation	Transversal	POCS	Off																																																																																																																																																																																
Phase enc. dir.	A >> P																																																																																																																																																																																		
Rotation	0.00 deg	Geometry																																																																																																																																																																																	
Auto	Off	Slice group 2		Multi-slice mode	Single shot	Slices	1	Series	Descending	Dist. factor	20 %	Special sat.	None	Position	Isocenter			Orientation	Sagittal	System		Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	162.86 ms	SP6	Off	TE	1.14 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	95 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode		ECG/Trigger		Average cycle		400 ± 20 ms	
Slice group 2		Multi-slice mode	Single shot																																																																																																																																																																																
Slices	1	Series	Descending																																																																																																																																																																																
Dist. factor	20 %	Special sat.	None																																																																																																																																																																																
Position	Isocenter																																																																																																																																																																																		
Orientation	Sagittal	System																																																																																																																																																																																	
Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	162.86 ms	SP6	Off	TE	1.14 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	95 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode		ECG/Trigger		Average cycle		400 ± 20 ms																							
Rotation	0.00 deg	Body	Off																																																																																																																																																																																
Auto	Off	BO1	On																																																																																																																																																																																
Phase oversampling	0 %	BO2	On																																																																																																																																																																																
FoV read	360 mm	SP4	Off																																																																																																																																																																																
FoV phase	75.0 %	SP2	On																																																																																																																																																																																
Slice thickness	8.0 mm	SP8	Off																																																																																																																																																																																
TR	162.86 ms	SP6	Off																																																																																																																																																																																
TE	1.14 ms	SP3	On																																																																																																																																																																																
Averages	1	SP1	Off																																																																																																																																																																																
Concatenations	1	SP7	Off																																																																																																																																																																																
Filter	Distortion Corr.(2D), Prescan	SP5	Off																																																																																																																																																																																
	Normalize																																																																																																																																																																																		
Coil elements	BO1,2;SP2,3	Positioning mode	REF																																																																																																																																																																																
Contrast		Table position	H																																																																																																																																																																																
Magn. preparation	Non-sel. SR perf	Table position	0 mm																																																																																																																																																																																
TI	95 ms	MSMA	S - C - T																																																																																																																																																																																
Flip angle	12 deg	Sagittal	R >> L																																																																																																																																																																																
Fat suppr.	None	Coronal	A >> P																																																																																																																																																																																
Restore magn.	Off	Transversal	F >> H																																																																																																																																																																																
Averaging mode	Long term	Save uncombined	Off																																																																																																																																																																																
Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine																																																																																																																																																																																
Measurements	5	Auto Coil Select	Default																																																																																																																																																																																
Pause after meas. 1	0.0 s																																																																																																																																																																																		
Pause after meas. 2	0.0 s	Shim mode	Tune up																																																																																																																																																																																
Pause after meas. 3	0.0 s	Adjust with body coil	On																																																																																																																																																																																
Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off																																																																																																																																																																																
Multiple series	Each slice	Assume Silicone	Off																																																																																																																																																																																
Resolution		? Ref. amplitude 1H	0.000 V																																																																																																																																																																																
Base resolution	192	Adjustment Tolerance	Auto																																																																																																																																																																																
Phase resolution	65 %	Adjust volume																																																																																																																																																																																	
Phase partial Fourier	Off	Position	Isocenter																																																																																																																																																																																
Trajectory	Cartesian	Orientation	Transversal																																																																																																																																																																																
		Rotation	0.00 deg																																																																																																																																																																																
		R >> L	350 mm																																																																																																																																																																																
		A >> P	263 mm																																																																																																																																																																																
		F >> H	350 mm																																																																																																																																																																																
Physio																																																																																																																																																																																			
1st Signal/Mode		ECG/Trigger																																																																																																																																																																																	
Average cycle		400 ± 20 ms																																																																																																																																																																																	

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Nonischemic_Cardiomyopathy\Free_Breathing\OPT_dynamic_stress				
TA: 0:40	PAT: 2	Voxel size: 2.9x1.9x8.0 mm	Rel. SNR: 1.00	SIEMENS: CV

Properties		Pause after meas. 11		0.0 s
Prio Recon	Off	Pause after meas. 12		0.0 s
Before measurement		Pause after meas. 13		0.0 s
After measurement		Pause after meas. 14		0.0 s
Load to viewer	On	Pause after meas. 15		0.0 s
Inline movie	On	Pause after meas. 16		0.0 s
Auto store images	On	Pause after meas. 17		0.0 s
Load to stamp segments	On	Pause after meas. 18		0.0 s
Load images to graphic segments	On	Pause after meas. 19		0.0 s
Auto open inline display	On	Pause after meas. 20		0.0 s
Start measurement without further preparation	On	Pause after meas. 21		0.0 s
Wait for user to start	On	Pause after meas. 22		0.0 s
Start measurements	single	Pause after meas. 23		0.0 s
Routine		Pause after meas. 24		0.0 s
Slice group 1		Pause after meas. 25		0.0 s
Slices	3	Pause after meas. 26		0.0 s
Dist. factor	50 %	Pause after meas. 27		0.0 s
Position	Isocenter	Pause after meas. 28		0.0 s
Orientation	Transversal	Pause after meas. 29		0.0 s
Phase enc. dir.	A >> P	Pause after meas. 30		0.0 s
Rotation	0.00 deg	Pause after meas. 31		0.0 s
Auto	Off	Pause after meas. 32		0.0 s
Slice group 2		Pause after meas. 33		0.0 s
Slices	1	Pause after meas. 34		0.0 s
Dist. factor	20 %	Pause after meas. 35		0.0 s
Position	Isocenter	Pause after meas. 36		0.0 s
Orientation	Sagittal	Pause after meas. 37		0.0 s
Phase enc. dir.	A >> P	Pause after meas. 38		0.0 s
Rotation	0.00 deg	Pause after meas. 39		0.0 s
Auto	Off	Pause after meas. 40		0.0 s
Phase oversampling	0 %	Pause after meas. 41		0.0 s
FoV read	360 mm	Pause after meas. 42		0.0 s
FoV phase	75.0 %	Pause after meas. 43		0.0 s
Slice thickness	8.0 mm	Pause after meas. 44		0.0 s
TR	162.86 ms	Pause after meas. 45		0.0 s
TE	1.14 ms	Pause after meas. 46		0.0 s
Averages	1	Pause after meas. 47		0.0 s
Concatenations	1	Pause after meas. 48		0.0 s
Filter	Distortion Corr.(2D), Prescan Normalize	Pause after meas. 49		0.0 s
Coil elements	BO1,2;SP2,3	Multiple series		Each slice
Contrast		Resolution		
Magn. preparation	Non-sel. SR perf	Base resolution	192	
TI	95 ms	Phase resolution	65 %	
Flip angle	12 deg	Phase partial Fourier	Off	
Fat suppr.	None	Trajectory	Cartesian	
Restore magn.	Off	Interpolation	Off	
Averaging mode		PAT mode	GRAPPA	
Reconstruction	Long term	Accel. factor PE	2	
Measurements	Magnitude	Ref. lines PE	14	
Pause after meas. 1	50	Matrix Coil Mode	Auto (Triple)	
Pause after meas. 2	0.0 s	Reference scan mode	Integrated	
Pause after meas. 3	0.0 s	Image Filter	Off	
Pause after meas. 4	0.0 s	Distortion Corr.	On	
Pause after meas. 5	0.0 s	Mode	2D	
Pause after meas. 6	0.0 s	Unfiltered images	Off	
Pause after meas. 7	0.0 s	Unfiltered images	Off	
Pause after meas. 8	0.0 s	Prescan Normalize	On	
Pause after meas. 9	0.0 s	Normalize	Off	
Pause after meas. 10	0.0 s	B1 filter	Off	
		Raw filter	Off	
		Elliptical filter	Off	
		POCS	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\OPT\_dynamic\_rest

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\ti\_scout

TA: 0:40 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	4	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	50 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	17
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\short\_axis\_delayed  
 TA: 0:18 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	340 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	700.00 ms	Coronal	A >> P
TE	1.09 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Default
Coil elements	Normalize BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	Non-sel. IR	Assume Silicone	Off
TI	300 ms	? Ref. amplitude 1H	0.000 V
Flip angle	40 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
		Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D		
Unfiltered images	Off	Resp. control	Off
Unfiltered images	Off		
Prescan Normalize	On		
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\four\_chamber\_delay

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Free\_Breathing\two\_chamber\_delay  
 TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Subtract	
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Nonischemic_Cardiomyopathy\Extreme_Arrhythmia\auto_detect_ta					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\multi\_plane\_lo  
 TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	65 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		Interpolation	Off
Load to viewer	On	PAT mode	GRAPPA
Inline movie	Off	Accel. factor PE	2
Auto store images	On	Ref. lines PE	24
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)
Load images to graphic segments	On	Reference scan mode	Integrated
Auto open inline display	Off	Image Filter	Off
Start measurement without further preparation	On	Distortion Corr.	On
Wait for user to start	Off	Mode	2D
Start measurements	single	Unfiltered images	Off
Routine		Prescan Normalize	Off
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	300 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0.00 deg	Multi-slice mode	Sequential
Auto	Off	Series	Descending
Slice group 2		Special sat.	None
Slices	3	System	
Dist. factor	300 %	Body	Off
Position	L30.0 P0.0 H0.0	BO1	On
Orientation	Sagittal	BO2	On
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	On
Auto	Off	SP8	Off
Slice group 3		SP6	Off
Slices	3	SP3	On
Dist. factor	300 %	SP1	On
Position	L0.0 P10.0 H0.0	SP7	Off
Orientation	Coronal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	ISO
Rotation	0.00 deg	Table position	H
Auto	Off	Table position	0 mm
Phase oversampling	0 %	MSMA	S - C - T
FoV read	400 mm	Sagittal	R >> L
FoV phase	100.0 %	Coronal	A >> P
Slice thickness	7.0 mm	Transversal	F >> H
TR	337.10 ms	Save uncombined	Off
TE	1.14 ms	Coil Combine Mode	Adaptive Combine
Averages	1	Auto Coil Select	Default
Concatenations	9	Shim mode	Tune up
Filter	Distortion Corr.(2D)	Adjust with body coil	On
Coil elements	BO1,2;SP1-3	Confirm freq. adjustment	Off
Contrast		Assume Silicone	Off
TD	0 ms	? Ref. amplitude 1H	0.000 V
Magn. preparation	None	Adjustment Tolerance	Auto
Flip angle	80 deg	Adjust volume	
Fat suppr.	None	Position	Isocenter
Restore magn.	On	Orientation	Transversal
Averaging mode	Short term	Rotation	0.00 deg
Reconstruction	Magnitude	R >> L	350 mm
Measurements	1	A >> P	263 mm
Multiple series	Off	F >> H	350 mm
Resolution		Physio	
Base resolution	256		

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	10 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	On
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	10 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	271.16 ms	Coronal	A >> P
TE	1.14 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	20	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP1-3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	On	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\two\_chamber\_  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off
		MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\four\_chamber\_  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off
		MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\three\_chamber  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Nonischemic_Cardiomyopathy\Extreme_Arrhythmia\short_axis_cine		
TA: 0:27	PAT: 2	Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV
<b>Properties</b>		
Prio Recon	Off	Prescan Normalize Off
Before measurement		Normalize Off
After measurement		B1 filter Off
Load to viewer	On	Raw filter Off
Inline movie	On	Elliptical filter Off
Auto store images	On	POCS Off
Load to stamp segments	On	
Load images to graphic segments	On	
Auto open inline display	Off	<b>Geometry</b>
Start measurement without further preparation	On	Multi-slice mode Sequential
Wait for user to start	Off	Series Descending
Start measurements	single	Special sat. None
<b>Routine</b>		
Slice group 1		<b>System</b>
Slices	10	Body Off
Dist. factor	25 %	BO1 On
Position	L15.7 A41.7 F26.9	BO2 On
Orientation	C > S34.0 > T-25.2	SP4 Off
Phase enc. dir.	R >> L	SP2 On
Rotation	0.00 deg	SP8 Off
Auto	Off	SP6 Off
Phase oversampling	0 %	SP3 On
FoV read	400 mm	SP1 Off
FoV phase	75.0 %	SP7 Off
Slice thickness	7.0 mm	SP5 Off
TR	56.64 ms	
TE	1.03 ms	Positioning mode REF
Averages	1	Table position H
Concatenations	10	Table position 0 mm
Filter	Distortion Corr.(2D)	MSMA S - C - T
Coil elements	BO1,2;SP2,3	Sagittal R >> L
<b>Contrast</b>		
TD	0 ms	Coronal A >> P
Magn. preparation	None	Transversal F >> H
Flip angle	70 deg	Save uncombined Off
Fat suppr.	None	Coil Combine Mode Adaptive Combine
Restore magn.	On	Auto Coil Select Default
Averaging mode	Short term	<b>Shim mode</b> Tune up
Reconstruction	Magnitude	Adjust with body coil On
Measurements	1	Confirm freq. adjustment Off
Multiple series	Each slice	Assume Silicone Off
<b>Resolution</b>		
Base resolution	192	? Ref. amplitude 1H 0.000 V
Phase resolution	40 %	Adjustment Tolerance Auto
Phase partial Fourier	Off	
Trajectory	Cartesian	Adjust volume
View sharing	Shared phases	Position Isocenter
Interpolation	Off	Orientation Transversal
PAT mode	GRAPPA	Rotation 0.00 deg
Accel. factor PE	2	R >> L 350 mm
Ref. lines PE	12	A >> P 263 mm
Matrix Coil Mode	Auto (Triple)	F >> H 350 mm
Reference scan mode	Integrated	
Image Filter	Off	<b>Physio</b>
Distortion Corr.	On	1st Signal/Mode None
Mode	2D	Segments 35
Unfiltered images	Off	Phases 45
Subtract	Off	Dark blood Off
Std-Dev-Sag	Off	Cine On
Std-Dev-Cor	Off	
Std-Dev-Tra	Off	
Std-Dev-Time	Off	
MIP-Sag	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\four\_chambr\_c  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\two\_chambr\_ci  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\three\_chambr\_

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L34.0 P18.2 H40.2	SP6	Off
Orientation	S > T-31.4 > C3.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\OPT\_dynamic\_  
 TA: 4.1 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off
Prio Recon	Off	PAT mode	GRAPPA
Before measurement		Accel. factor PE	2
After measurement		Ref. lines PE	14
Load to viewer	On	Matrix Coil Mode	Auto (Triple)
Inline movie	On	Reference scan mode	Integrated
Auto store images	On		
Load to stamp segments	On		
Load images to graphic segments	On		
Auto open inline display	On	Image Filter	Off
Start measurement without further preparation	On	Distortion Corr.	On
Wait for user to start	On	Mode	2D
Start measurements	single	Unfiltered images	Off
		Unfiltered images	Off
Routine		Prescan Normalize	On
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	50 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P		
Rotation	0.00 deg	Geometry	
Auto	Off	Multi-slice mode	Single shot
Slice group 2		Series	Descending
Slices	1	Special sat.	None
Dist. factor	20 %		
Position	Isocenter	System	
Orientation	Sagittal	Body	Off
Phase enc. dir.	A >> P	BO1	On
Rotation	0.00 deg	BO2	On
Auto	Off	SP4	Off
Phase oversampling	0 %	SP2	On
FoV read	360 mm	SP8	Off
FoV phase	75.0 %	SP6	Off
Slice thickness	8.0 mm	SP3	On
TR	202.36 ms	SP1	Off
TE	1.23 ms	SP7	Off
Averages	1	SP5	Off
Concatenations	1		
Filter	Distortion Corr.(2D), Prescan	Positioning mode	REF
	Normalize	Table position	H
Coil elements	BO1,2;SP2,3	Table position	0 mm
		MSMA	S - C - T
Contrast		Sagittal	R >> L
Magn. preparation	Non-sel. SR perf	Coronal	A >> P
TI	115 ms	Transversal	F >> H
Flip angle	12 deg	Save uncombined	Off
Fat suppr.	None	Coil Combine Mode	Adaptive Combine
Restore magn.	Off	Auto Coil Select	Default
Averaging mode	Long term		
Reconstruction	Magnitude	Shim mode	Tune up
Measurements	5	Adjust with body coil	On
Pause after meas. 1	0.0 s	Confirm freq. adjustment	Off
Pause after meas. 2	0.0 s	Assume Silicone	Off
Pause after meas. 3	0.0 s	? Ref. amplitude 1H	0.000 V
Pause after meas. 4	0.0 s	Adjustment Tolerance	Auto
Multiple series	Each slice	Adjust volume	
		Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	65 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
		Physio	
		1st Signal/Mode	None
		Segments	54

# SIEMENS MAGNETOM Avanto syngo MR B19

Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	3.1 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\OPT\_dynamic\_  
 TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties			
Prio Recon	Off	Pause after meas. 11	0.0 s
Before measurement		Pause after meas. 12	0.0 s
After measurement		Pause after meas. 13	0.0 s
Load to viewer	On	Pause after meas. 14	0.0 s
Inline movie	On	Pause after meas. 15	0.0 s
Auto store images	On	Pause after meas. 16	0.0 s
Load to stamp segments	On	Pause after meas. 17	0.0 s
Load images to graphic segments	On	Pause after meas. 18	0.0 s
Auto open inline display	On	Pause after meas. 19	0.0 s
Start measurement without further preparation	On	Pause after meas. 20	0.0 s
Wait for user to start	On	Pause after meas. 21	0.0 s
Start measurements	single	Pause after meas. 22	0.0 s
Routine		Pause after meas. 23	0.0 s
Slice group 1		Pause after meas. 24	0.0 s
Slices	3	Pause after meas. 25	0.0 s
Dist. factor	50 %	Pause after meas. 26	0.0 s
Position	Isocenter	Pause after meas. 27	0.0 s
Orientation	Transversal	Pause after meas. 28	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 29	0.0 s
Rotation	0.00 deg	Pause after meas. 30	0.0 s
Auto	Off	Pause after meas. 31	0.0 s
Slice group 2		Pause after meas. 32	0.0 s
Slices	1	Pause after meas. 33	0.0 s
Dist. factor	20 %	Pause after meas. 34	0.0 s
Position	Isocenter	Pause after meas. 35	0.0 s
Orientation	Sagittal	Pause after meas. 36	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 37	0.0 s
Rotation	0.00 deg	Pause after meas. 38	0.0 s
Auto	Off	Pause after meas. 39	0.0 s
Phase oversampling	0 %	Pause after meas. 40	0.0 s
FoV read	360 mm	Pause after meas. 41	0.0 s
FoV phase	75.0 %	Pause after meas. 42	0.0 s
Slice thickness	8.0 mm	Pause after meas. 43	0.0 s
TR	202.36 ms	Pause after meas. 44	0.0 s
TE	1.23 ms	Pause after meas. 45	0.0 s
Averages	1	Pause after meas. 46	0.0 s
Concatenations	1	Pause after meas. 47	0.0 s
Filter	Distortion Corr.(2D), Prescan Normalize	Pause after meas. 48	0.0 s
Coil elements	BO1,2;SP2,3	Pause after meas. 49	0.0 s
Contrast		Multiple series	Each slice
Resolution			
Magn. preparation	Non-sel. SR perf	Base resolution	192
TI	115 ms	Phase resolution	65 %
Flip angle	12 deg	Phase partial Fourier	Off
Fat suppr.	None	Trajectory	Cartesian
Restore magn.	Off	Interpolation	Off
Averaging mode		PAT mode	GRAPPA
Reconstruction	Long term	Accel. factor PE	2
Measurements	Magnitude	Ref. lines PE	14
Pause after meas. 1	50	Matrix Coil Mode	Auto (Triple)
Pause after meas. 2	0.0 s	Reference scan mode	Integrated
Pause after meas. 3	0.0 s	Image Filter	Off
Pause after meas. 4	0.0 s	Distortion Corr.	On
Pause after meas. 5	0.0 s	Mode	2D
Pause after meas. 6	0.0 s	Unfiltered images	Off
Pause after meas. 7	0.0 s	Unfiltered images	Off
Pause after meas. 8	0.0 s	Prescan Normalize	On
Pause after meas. 9	0.0 s	Normalize	Off
Pause after meas. 10	0.0 s	B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\OPT\_dynamic\_  
 TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties			
Prio Recon	Off	Pause after meas. 11	0.0 s
Before measurement		Pause after meas. 12	0.0 s
After measurement		Pause after meas. 13	0.0 s
Load to viewer	On	Pause after meas. 14	0.0 s
Inline movie	On	Pause after meas. 15	0.0 s
Auto store images	On	Pause after meas. 16	0.0 s
Load to stamp segments	On	Pause after meas. 17	0.0 s
Load images to graphic segments	On	Pause after meas. 18	0.0 s
Auto open inline display	On	Pause after meas. 19	0.0 s
Start measurement without further preparation	On	Pause after meas. 20	0.0 s
Wait for user to start	On	Pause after meas. 21	0.0 s
Start measurements	single	Pause after meas. 22	0.0 s
Routine		Pause after meas. 23	0.0 s
Slice group 1		Pause after meas. 24	0.0 s
Slices	3	Pause after meas. 25	0.0 s
Dist. factor	50 %	Pause after meas. 26	0.0 s
Position	Isocenter	Pause after meas. 27	0.0 s
Orientation	Transversal	Pause after meas. 28	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 29	0.0 s
Rotation	0.00 deg	Pause after meas. 30	0.0 s
Auto	Off	Pause after meas. 31	0.0 s
Slice group 2		Pause after meas. 32	0.0 s
Slices	1	Pause after meas. 33	0.0 s
Dist. factor	20 %	Pause after meas. 34	0.0 s
Position	Isocenter	Pause after meas. 35	0.0 s
Orientation	Sagittal	Pause after meas. 36	0.0 s
Phase enc. dir.	A >> P	Pause after meas. 37	0.0 s
Rotation	0.00 deg	Pause after meas. 38	0.0 s
Auto	Off	Pause after meas. 39	0.0 s
Phase oversampling	0 %	Pause after meas. 40	0.0 s
FoV read	360 mm	Pause after meas. 41	0.0 s
FoV phase	75.0 %	Pause after meas. 42	0.0 s
Slice thickness	8.0 mm	Pause after meas. 43	0.0 s
TR	202.36 ms	Pause after meas. 44	0.0 s
TE	1.23 ms	Pause after meas. 45	0.0 s
Averages	1	Pause after meas. 46	0.0 s
Concatenations	1	Pause after meas. 47	0.0 s
Filter	Distortion Corr.(2D), Prescan Normalize	Pause after meas. 48	0.0 s
Coil elements	BO1,2;SP2,3	Pause after meas. 49	0.0 s
Contrast		Multiple series	Each slice
Resolution			
Magn. preparation	Non-sel. SR perf	Base resolution	192
TI	115 ms	Phase resolution	65 %
Flip angle	12 deg	Phase partial Fourier	Off
Fat suppr.	None	Trajectory	Cartesian
Restore magn.	Off	Interpolation	Off
Averaging mode		PAT mode	GRAPPA
Reconstruction	Long term	Accel. factor PE	2
Measurements	Magnitude	Ref. lines PE	14
Pause after meas. 1	50	Matrix Coil Mode	Auto (Triple)
Pause after meas. 2	0.0 s	Reference scan mode	Integrated
Pause after meas. 3	0.0 s	Image Filter	Off
Pause after meas. 4	0.0 s	Distortion Corr.	On
Pause after meas. 5	0.0 s	Mode	2D
Pause after meas. 6	0.0 s	Unfiltered images	Off
Pause after meas. 7	0.0 s	Unfiltered images	Off
Pause after meas. 8	0.0 s	Prescan Normalize	On
Pause after meas. 9	0.0 s	Normalize	Off
Pause after meas. 10	0.0 s	B1 filter	Off
		Raw filter	Off
		Elliptical filter	Off
		POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\short\_axis\_deb:

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\four\_chamber\_

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Nonischemic\_Cardiomyopathy\Extreme\_Arrhythmia\two\_chamber\_1  
 TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	On	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\multi\_plane\_loc

TA: 7.3 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	400 ± 20 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	Default
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	None	Confirm freq. adjustment	On
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	Off	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	256	A >> P	263 mm
Phase resolution	65 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
Interpolation	Off	Average cycle	400 ± 20 ms
PAT mode	GRAPPA	Captured cycle	400 ± 20
Accel. factor PE	2	Acquisition window	800 ms
Ref. lines PE	24	Trigger pulse	1
Matrix Coil Mode	Auto (Triple)	Trigger delay	500 ms
Reference scan mode	Integrated	Segments	74
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Prescan Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\short\_axis\_cine

TA: 0:36 PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	46.72 ms
TE	1.24 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Concatenations	10
Segments	16
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Breath-hold

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\four\_chamber\_cine

TA: 3.6 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	300 mm	Table position	REF
FoV phase	100.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	46.72 ms	Sagittal	S - C - T
TE	1.24 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\two\_chamber\_cine

TA: 3.6 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	300 mm	Table position	REF
FoV phase	100.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	46.72 ms	Sagittal	S - C - T
TE	1.24 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\three\_chamber\_cine

TA: 3.6 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	300 mm	Table position	REF
FoV phase	100.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	46.72 ms	Sagittal	S - C - T
TE	1.24 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\axial\_cine

TA: 0:40 PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	40.88 ms
TE	1.24 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
--------------	------

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Concatenations	10
Segments	14

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Breath-hold
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\OPT\_axial\_db\_t1

TA: 0:14 PAT: 2 Voxel size: 1.8x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: tse

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Phase oversampling	0 %
FoV read	340 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	800 ms
TE	7.9 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

MTC	Off
Magn. preparation	None
Flip angle	180 deg
Fat suppr.	None
Water suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	On
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	31
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None
Tim CT mode	Off

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	0 ms
Phases	1
Dark blood	On
Dark blood thickness	300 %
Dark blood flip angle	200 deg
Resp. control	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	7
Echo trains per slice	16
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\OPT\_axial\_db\_t2\_fatsat

TA: 0:11 PAT: 2 Voxel size: 1.8x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Unfiltered images	Off
Before measurement		Prescan Normalize	On
After measurement		Normalize	Off
Load to viewer	On	B1 filter	Off
Inline movie	Off	Raw filter	Off
Auto store images	On	Elliptical filter	Off
Load to stamp segments	On	Geometry	
Load images to graphic segments	On	Multi-slice mode	Sequential
Auto open inline display	Off	Series	Descending
Start measurement without further preparation	On	Special sat.	None
Wait for user to start	On	Tim CT mode	
Start measurements	single	System	
Routine		Body	Off
Slice group 1		BO1	On
Slices	1	BO2	On
Dist. factor	50 %	SP4	Off
Position	Isocenter	SP2	On
Orientation	Transversal	SP8	Off
Phase enc. dir.	A >> P	SP6	Off
Rotation	0.00 deg	SP3	On
Phase oversampling	0 %	SP1	Off
FoV read	340 mm	SP7	Off
FoV phase	100.0 %	SP5	Off
Slice thickness	6.0 mm	Positioning mode	
TR	670 ms	Table position	REF
TE	79.0 ms	Table position	H
Averages	1	0 mm	0 mm
Concatenations	1	MSMA	S - C - T
Filter	Distortion Corr.(2D), Prescan	Sagittal	R >> L
	Normalize	Coronal	A >> P
Coil elements	BO1,2;SP2,3	Transversal	F >> H
Contrast		Save uncombined	Off
MTC	Off	Coil Combine Mode	Adaptive Combine
Magn. preparation	None	Auto Coil Select	Default
Flip angle	180 deg	Shim mode	
Fat suppr.	Fat sat.	Adjust with body coil	Tune up
Fat sat. mode	Strong	Confirm freq. adjustment	On
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	On	1st Signal/Mode	ECG/Trigger
PAT mode		Average cycle	400 ± 20 ms
Accel. factor PE	GRAPPA	Captured cycle	-not set-
Ref. lines PE	2	Acquisition window	670 ms
Matrix Coil Mode	35	Trigger pulse	2
Reference scan mode	Auto (Triple)	Trigger delay	0 ms
	Integrated	Phases	1
Image Filter		Dark blood	On
Distortion Corr.	Off	Dark blood thickness	300 %
Mode	On	Dark blood flip angle	200 deg
	2D	Resp. control	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	6
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\ti\_scout

TA: 0:11 PAT: Off Voxel size: 3.5x2.7x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	6.0 mm	Sagittal	S - C - T
TR	31.59 ms	Coronal	R >> L
TE	1.05 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	128	A >> P	263 mm
Phase resolution	75 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	18
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	953 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Recommended\axial\_delayed

TA: 1:38 PAT: Off Voxel size: 1.8x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	6.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Off
	Normalize	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Concatenations	10
Image Filter	Off	Segments	25
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Unfiltered images	Off	Resp. control	
Prescan Normalize	On	Breath-hold	
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

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# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off	Tim CT mode	Off
Auto store images	On	System	
Load to stamp segments	On	Body	Off
Load images to graphic segments	On	BO1	On
Auto open inline display	Off	BO2	On
Start measurement without further preparation	On	SP4	Off
Wait for user to start	Off	SP2	On
Start measurements	single	SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	20	SP1	Off
Dist. factor	25 %	SP7	Off
Position	Isocenter	SP5	Off
Orientation	Transversal	Positioning mode	
Phase enc. dir.	A >> P	Table position	REF
Rotation	0.00 deg	Table position	H
Phase oversampling	0 %	MSMA	0 mm
FoV read	400 mm	Sagittal	S - C - T
FoV phase	62.5 %	Coronal	R >> L
Slice thickness	7.0 mm	Transversal	A >> P
TR	600 ms	Save uncombined	F >> H
TE	22 ms	Coil Combine Mode	Off
Averages	1	Auto Coil Select	Adaptive Combine
Concatenations	1	Default	
Filter	Distortion Corr.(2D), Prescan	Shim mode	
	Normalize	Adjust with body coil	Tune up
Coil elements	BO1,2;SP2,3	Confirm freq. adjustment	On
Contrast		Assume Silicone	Off
MTC	Off	? Ref. amplitude 1H	Off
Magn. preparation	None	Adjustment Tolerance	0.000 V
Flip angle	160 deg	Adjust volume	Auto
Fat suppr.	None	Position	Isocenter
Water suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
Averaging mode		R >> L	350 mm
Reconstruction	Long term	A >> P	263 mm
Measurements	Magnitude	F >> H	350 mm
Multiple series	1	Physio	
Resolution	Off	1st Signal/Mode	ECG/Trigger
Base resolution	192	Average cycle	400 ± 20 ms
Phase resolution	85 %	Captured cycle	-not set-
Phase partial Fourier	5/8	Acquisition window	695 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Matrix Coil Mode	None	Phases	1
Image Filter	CP	Dark blood	
Distortion Corr.	Off	Dark blood	On
Mode	On	Dark blood thickness	300 %
Unfiltered images	2D	Dark blood flip angle	200 deg
Unfiltered images	Off	Resp. control	
Prescan Normalize	Off	Subtract	Off
Normalize	On	Std-Dev-Sag	Off
B1 filter	Off	Std-Dev-Cor	Off
Inline			

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	243.60 ms
TE	1.21 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	500 ms
Segments	74
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\short\_axis\_cine

TA: 2:00 PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	46.72 ms
TE	1.24 ms
Averages	4
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Segments	16

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\four\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	300 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	6.0 mm	Sagittal	R >> L
TR	46.72 ms	Coronal	A >> P
TE	1.24 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\two\_chamber\_cine

TA: 0:12 PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	300 mm	Table position	REF
FoV phase	100.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	46.72 ms	Sagittal	S - C - T
TE	1.24 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\three\_chamber\_cine

TA: 0:12 PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	300 mm	Table position	0 mm
FoV phase	100.0 %	MSMA	S - C - T
Slice thickness	6.0 mm	Sagittal	R >> L
TR	46.72 ms	Coronal	A >> P
TE	1.24 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\axial\_cine

TA: 2:16 PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	40.88 ms
TE	1.24 ms
Averages	4
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Segments	14

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\OPT\_axial\_db\_haste

TA: 0:16 PAT: Off Voxel size: 2.5x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	6.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	20 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	4/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.26 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\OPT\_axial\_db\_haste\_fatsat

TA: 0:16 PAT: Off Voxel size: 2.5x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interleaved
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	6.0 mm	Positioning mode	REF
TR	600 ms	Table position	H
TE	20 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
MTC	Off	Auto Coil Select	Default
Magn. preparation	None		
Flip angle	160 deg	Shim mode	Tune up
Fat suppr.	Fat sat.	Adjust with body coil	On
Fat sat. mode	Strong	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	85 %	F >> H	350 mm
Phase partial Fourier	4/8		
Interpolation	On	Physio	
		1st Signal/Mode	ECG/Trigger
PAT mode	None	Average cycle	400 ± 20 ms
Matrix Coil Mode	CP	Captured cycle	-not set-
		Acquisition window	695 ms
Image Filter	Off	Trigger pulse	2
Distortion Corr.	On	Trigger delay	0 ms
Mode	2D	Phases	1
Unfiltered images	Off		
Unfiltered images	Off	Dark blood	On
Prescan Normalize	On	Dark blood thickness	300 %
Normalize	Off	Dark blood flip angle	200 deg
		Resp. control	Off
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.26 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\ti\_scout

TA: 0:40 PAT: Off Voxel size: 3.5x2.7x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	6.0 mm	Sagittal	S - C - T
TR	31.59 ms	Coronal	R >> L
TE	1.05 ms	Transversal	A >> P
Averages	4	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	128	A >> P	263 mm
Phase resolution	75 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	18
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	953 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Free\_Breathing\axial\_delayed

TA: 0:18 PAT: Off Voxel size: 3.5x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	50.0 %
Slice thickness	6.0 mm
TR	700.00 ms
TE	1.09 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	Non-sel. IR
TI	300 ms
Flip angle	40 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude/Real
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	48
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Resolution

Base resolution	256
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## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	20
Dist. factor	10 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	271.16 ms
TE	1.14 ms
Averages	1
Concatenations	20
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	10 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	74

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\two\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution	Off	Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\four\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	95

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	243.60 ms
TE	1.21 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	74

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\three\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\short\_axis\_cine\_realtime

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	56.88 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode		Segments	35
Accel. factor PE	GRAPPA	Phases	45
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	12	Cine	Off
Reference scan mode	Auto (Triple)	Resp. control	
Image Filter		Inline	
Distortion Corr.	Off	Subtract	Off
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\four\_chamber\_cine\_realtime

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	56.88 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\two\_chamber\_cine\_realtime

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	56.88 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\three\_chambr\_cine\_realtime

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	6.0 mm	Sagittal	R >> L
TR	56.88 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\axial\_cine\_realtime

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	56.88 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode		Segments	35
Accel. factor PE	GRAPPA	Phases	45
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	12	Cine	Off
Reference scan mode	Auto (Triple)	Resp. control	
Image Filter		None	
Distortion Corr.	Off	Subtract	
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\ARVC\Extreme\_Arrhythmia\axial\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off																																																												
Prio Recon	Off	Raw filter	Off																																																												
Before measurement		Elliptical filter	Off																																																												
After measurement		POCS	Off																																																												
Load to viewer	On	Geometry																																																													
Inline movie	Off	Multi-slice mode	Sequential																																																												
Auto store images	On	Series	Descending																																																												
Load to stamp segments	On	Special sat.																																																													
Load images to graphic segments	On	None																																																													
Auto open inline display	Off	System																																																													
Start measurement without further preparation	On	Body	Off																																																												
Wait for user to start	Off	BO1	On																																																												
Start measurements	single	BO2	On																																																												
Routine		SP4	Off																																																												
Slice group 1		SP2	On																																																												
Slices	1	SP8	Off																																																												
Dist. factor	20 %	SP6	Off																																																												
Position	Isocenter	SP3	On																																																												
Orientation	Transversal	SP1	Off																																																												
Phase enc. dir.	A >> P	SP7	Off																																																												
Rotation	0.00 deg	SP5	Off																																																												
Auto	Off	Positioning mode																																																													
Phase oversampling	0 %	Table position	REF																																																												
FoV read	340 mm	Table position	H																																																												
FoV phase	50.0 %	MSMA	0 mm																																																												
Slice thickness	6.0 mm	Sagittal	S - C - T																																																												
TR	2000.00 ms	Coronal	R >> L																																																												
TE	1.09 ms	Transversal	A >> P																																																												
Averages	1	Save uncombined	F >> H																																																												
Concatenations	1	Coil Combine Mode	Off																																																												
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine																																																												
	Normalize		Default																																																												
Coil elements	BO1,2;SP2,3	Shim mode																																																													
Contrast		Tune up																																																													
Magn. preparation	Non-sel. IR	Adjust with body coil	On																																																												
TI	300 ms	Confirm freq. adjustment	Off																																																												
Flip angle	40 deg	Assume Silicone	Off																																																												
Fat suppr.	None	? Ref. amplitude 1H	0.000 V																																																												
Restore magn.	Off	Adjustment Tolerance	Auto																																																												
Averaging mode		Adjust volume																																																													
Reconstruction	Short term	Position	Isocenter																																																												
Measurements	Magnitude	Orientation	Transversal																																																												
Multiple series	1	Rotation	0.00 deg																																																												
	Off	R >> L	350 mm																																																												
Resolution		A >> P	263 mm																																																												
Base resolution	192	F >> H	350 mm																																																												
Phase resolution	50 %	Physio																																																													
Phase partial Fourier	Off	Trajectory	Cartesian	1st Signal/Mode	None	Interpolation	Off	Segments	48	PAT mode	None	Dark blood		Matrix Coil Mode	Auto (CP)	Cine	Off	Image Filter		Resp. control	Off	Distortion Corr.	Off	Inline		Mode	On	Unfiltered images	2D	Subtract	Off	Unfiltered images	Off	Std-Dev-Sag	Off	Prescan Normalize	Off	Std-Dev-Cor	Off	Normalize	On	Std-Dev-Tra	Off		Off	Std-Dev-Time	Off			MIP-Sag	Off			MIP-Cor	Off			MIP-Tra	Off			MIP-Time	Off
Trajectory	Cartesian	1st Signal/Mode	None																																																												
Interpolation	Off	Segments	48																																																												
PAT mode	None	Dark blood																																																													
Matrix Coil Mode	Auto (CP)	Cine	Off																																																												
Image Filter		Resp. control	Off																																																												
Distortion Corr.	Off	Inline																																																													
Mode	On	Unfiltered images	2D	Subtract	Off	Unfiltered images	Off	Std-Dev-Sag	Off	Prescan Normalize	Off	Std-Dev-Cor	Off	Normalize	On	Std-Dev-Tra	Off		Off	Std-Dev-Time	Off			MIP-Sag	Off			MIP-Cor	Off			MIP-Tra	Off			MIP-Time	Off																										
Unfiltered images	2D	Subtract	Off																																																												
Unfiltered images	Off	Std-Dev-Sag	Off																																																												
Prescan Normalize	Off	Std-Dev-Cor	Off																																																												
Normalize	On	Std-Dev-Tra	Off																																																												
	Off	Std-Dev-Time	Off																																																												
		MIP-Sag	Off																																																												
		MIP-Cor	Off																																																												
		MIP-Tra	Off																																																												
		MIP-Time	Off																																																												

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\multi\_plane\_loc

TA: 7.3 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	400 ± 20 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	Default
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	None	Confirm freq. adjustment	On
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	Off	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	256	A >> P	263 mm
Phase resolution	65 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
Interpolation	Off	Average cycle	400 ± 20 ms
PAT mode	GRAPPA	Captured cycle	400 ± 20
Accel. factor PE	2	Acquisition window	800 ms
Ref. lines PE	24	Trigger pulse	1
Matrix Coil Mode	Auto (Triple)	Trigger delay	500 ms
Reference scan mode	Integrated	Segments	74
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Prescan Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	332.22 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	813 ms
Trigger pulse	1
Trigger delay	480 ms
Segments	95
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\short\_axis\_cine

TA: 0:32 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	44 ms
TE	1.16 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Concatenations	10
Segments	16

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Breath-hold
---------------	-------------

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\four\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\two\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\three\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\axial\_aorta\_cine

TA: 0:32 PAT: 2 Voxel size: 1.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	43.84 ms
TE	1.16 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Concatenations	10
Segments	16

  

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Breath-hold
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.7 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\sagittal\_aorta\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Sagittal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\coronal\_aorta\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R17.4 A40.3 F17.3	SP6	Off
Orientation	C > S10.8 > T-7.1	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\rv\_long\_axis\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R25.0 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\pulmonary\_outflow\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	S > C-10.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\orta\_thru\_plane\_flow

TA: 0:12 PAT: 2 Voxel size: 2.5x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	On	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	Table position	ISO
Slices	20 %	Table position	H
Dist. factor	Isocenter	MSMA	0 mm
Position	Transversal	Sagittal	S - C - T
Orientation	A >> P	Coronal	R >> L
Phase enc. dir.	0.00 deg	Transversal	A >> P
Rotation	0 %	Coil Combine Mode	F >> H
Phase oversampling	360 mm	Auto Coil Select	Adaptive Combine
FoV read	75.0 %		Default
FoV phase	6.0 mm	Shim mode	Tune up
Slice thickness	40.70 ms	Adjust with body coil	On
TR	3.34 ms	Confirm freq. adjustment	Off
TE	1	Assume Silicone	Off
Averages	1	? Ref. amplitude 1H	0.000 V
Concatenations	1	Adjustment Tolerance	Auto
Filter	Distortion Corr.(2D)	Adjust volume	
Coil elements	BO1,2;SP2,3	Position	Isocenter
		Orientation	Transversal
Contrast		Rotation	0.00 deg
Flip angle	20 deg	R >> L	350 mm
Averaging mode	Short term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	1	Physio	
Multiple series	Off	1st Signal/Mode	ECG/Retro
Resolution		Average cycle	400 ± 20 ms
Base resolution	192	Calculated phases	25
Phase resolution	75 %	Segments	3
Phase partial Fourier	Off	Angio	
Interpolation	Off	Flow mode	Single dir.
PAT mode	GRAPPA	Encodings	1
Accel. factor PE	2	Velocity enc.	150 cm/s
Ref. lines PE	18	Direction	Through plane
Matrix Coil Mode	Auto (Triple)	Rephased images	On
Reference scan mode	Integrated	Magnitude images	Off
Image Filter	Off	Phase images	On
Distortion Corr.	On		
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off	Std-Dev-Tra	Off
B1 filter	Off	Std-Dev-Time	Off
Raw filter	Off	MIP-Sag	Off
Elliptical filter	Off	MIP-Cor	Off
Geometry		MIP-Tra	Off
Multi-slice mode	Sequential	MIP-Time	Off
		Save original images	On
Sequence			

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\pulmonary\_thru\_plane\_flow

TA: 0:13 PAT: 2 Voxel size: 2.5x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	On	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	Table position	ISO
Slices	20 %	Table position	H
Dist. factor	Isocenter	MSMA	0 mm
Position	Coronal	Sagittal	S - C - T
Orientation	R >> L	Coronal	R >> L
Phase enc. dir.	0.00 deg	Transversal	A >> P
Rotation	0 %	Coil Combine Mode	F >> H
Phase oversampling	360 mm	Auto Coil Select	Adaptive Combine
FoV read	75.0 %		Default
FoV phase	6.0 mm	Shim mode	Tune up
Slice thickness	42.50 ms	Adjust with body coil	On
TR	3.64 ms	Confirm freq. adjustment	Off
TE	1	Assume Silicone	Off
Averages	1	? Ref. amplitude 1H	0.000 V
Concatenations	1	Adjustment Tolerance	Auto
Filter	Distortion Corr.(2D)	Adjust volume	
Coil elements	BO1,2;SP2,3	Position	Isocenter
		Orientation	Transversal
Contrast		Rotation	0.00 deg
Flip angle	20 deg	R >> L	350 mm
Averaging mode	Short term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	1	Physio	
Multiple series	Off	1st Signal/Mode	ECG/Retro
Resolution		Average cycle	400 ± 20 ms
Base resolution	192	Calculated phases	25
Phase resolution	75 %	Segments	3
Phase partial Fourier	Off	Angio	
Interpolation	Off	Flow mode	Single dir.
PAT mode	GRAPPA	Encodings	1
Accel. factor PE	2	Velocity enc.	90 cm/s
Ref. lines PE	18	Direction	Through plane
Matrix Coil Mode	Auto (Triple)	Rephased images	On
Reference scan mode	Integrated	Magnitude images	Off
Image Filter	Off	Phase images	On
Distortion Corr.	On		
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off	Std-Dev-Tra	Off
B1 filter	Off	Std-Dev-Time	Off
Raw filter	Off	MIP-Sag	Off
Elliptical filter	Off	MIP-Cor	Off
Geometry		MIP-Tra	Off
Multi-slice mode	Sequential	MIP-Time	Off
		Save original images	On
Sequence			

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\OPT\_stenotic\_jet\_gre\_cine

TA: 0:18 PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	50.12 ms	Sagittal	S - C - T
TE	7.05 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	20 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	4
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		1
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Off
Bandwidth	130 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	12.5 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\OPT\_shunt\_in\_plane\_flow

TA: 0:13 PAT: 2 Voxel size: 2.5x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	On	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	REF	
Slices	20 %	H	
Dist. factor	Isocenter	0 mm	
Position	Sagittal	S - C - T	
Orientation	A >> P	R >> L	
Phase enc. dir.	0.00 deg	A >> P	
Rotation	0 %	F >> H	
Phase oversampling	360 mm	Coil Combine Mode	Adaptive Combine
FoV read	75.0 %	Auto Coil Select	Default
FoV phase	6.0 mm	Shim mode	Tune up
Slice thickness	42.30 ms	Adjust with body coil	On
TR	3.61 ms	Confirm freq. adjustment	Off
TE	1	Assume Silicone	Off
Averages	1	? Ref. amplitude 1H	0.000 V
Concatenations	1	Adjustment Tolerance	Auto
Filter	Distortion Corr.(2D)	Adjust volume	
Coil elements	BO1,2;SP2,3	Position	Isocenter
		Orientation	Transversal
Contrast		Rotation	0.00 deg
Flip angle	20 deg	R >> L	350 mm
Averaging mode	Short term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	1	Physio	
Multiple series	Off	1st Signal/Mode	ECG/Retro
Resolution		Average cycle	400 ± 20 ms
Base resolution	192	Calculated phases	25
Phase resolution	75 %	Segments	3
Phase partial Fourier	Off	Angio	
Interpolation	Off	Flow mode	Single dir.
PAT mode	GRAPPA	Encodings	1
Accel. factor PE	2	Velocity enc.	150 cm/s
Ref. lines PE	18	Direction	F >> H
Matrix Coil Mode	Auto (Triple)	Rephased images	On
Reference scan mode	Integrated	Magnitude images	Off
Image Filter	Off	Phase images	On
Distortion Corr.	On		
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off	Std-Dev-Tra	Off
B1 filter	Off	Std-Dev-Time	Off
Raw filter	Off	MIP-Sag	Off
Elliptical filter	Off	MIP-Cor	Off
Geometry		MIP-Tra	Off
Multi-slice mode	Sequential	MIP-Time	Off
		Save original images	On
Sequence			

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Adults\coronal\_dynamic

TA: 0:32 PAT: 2 Voxel size: 1.7x1.2x2.5 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		Mode	2D
Prio Recon	Off	Unfiltered images	Off
Before measurement		Prescan Normalize	Off
After measurement		Normalize	Off
Load to viewer	On	B1 filter	Off
Inline movie	Off	Raw filter	Off
Auto store images	On	Elliptical filter	Off
Load to stamp segments	On	Geometry	
Load images to graphic segments	On	Multi-slice mode	Sequential
Auto open inline display	Off	Series	Ascending
Start measurement without further preparation	On	Special sat.	None
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slab group 1		BO2	On
Slabs	1	NE2	Off
Dist. factor	20 %	NE1	Off
Position	Isocenter	HE2	Off
Orientation	Coronal	HE4	Off
Phase enc. dir.	R >> L	BO1	Off
Rotation	0.00 deg	BO2	Off
Phase oversampling	0 %	HE1	Off
Slice oversampling	0.0 %	HE3	Off
Slices per slab	48	SP4	Off
FoV read	450 mm	SP2	On
FoV phase	75.0 %	SP8	Off
Slice thickness	2.50 mm	SP6	Off
TR	2.87 ms	PL3	Off
TE	0.97 ms	PL4	Off
Averages	1	PR3	Off
Filter	Distortion Corr.(2D)	PR4	Off
Coil elements	BO1,2;SP2,3	PL1	Off
Contrast		PL2	Off
Magn. preparation	None	PR1	Off
Flip angle	25 deg	PR2	Off
Fat suppr.	None	SP3	On
Averaging mode	Short term	SP1	Off
Reconstruction	Magnitude	SP7	Off
Measurements	5	SP5	Off
Pause after meas. 1	0.0 s	Positioning mode	
Pause after meas. 2	0.0 s	Table position	ISO
Pause after meas. 3	0.0 s	Table position	H
Pause after meas. 4	0.0 s	MSMA	0 mm
Multiple series	Each measurement	Sagittal	C - T - S
Resolution		Coronal	R >> L
Base resolution	384	Transversal	A >> P
Phase resolution	70 %	Save uncombined	F >> H
Slice resolution	63 %	Coil Combine Mode	Off
Phase partial Fourier	6/8	Auto Coil Select	Adaptive Combine
Slice partial Fourier	6/8	Shim mode	
Interpolation	Off	Adjust with body coil	Default
PAT mode	GRAPPA	Confirm freq. adjustment	Tune up
Accel. factor PE	2	Assume Silicone	Off
Ref. lines PE	24	? Ref. amplitude 1H	Off
Matrix Coil Mode	Dual	Adjustment Tolerance	0.000 V
Reference scan mode	Integrated	Adjust volume	Maximum
Image Filter	Off	Position	Isocenter
Distortion Corr.	On	Orientation	Transversal
		Rotation	0.00 deg
		R >> L	350 mm
		A >> P	263 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

| F >> H                    350 mm

## Physio

1st Signal/Mode	None
Segments	1

## Angio

3D centric reordering	Off
Time to center	2.5 s
Subtract	On
Autoscaling	Off
Scaling factor	3
Offset	0
Subtrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\auto\_detect\_table\_position

TA: 3.5 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	100 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		Interpolation	Off
Load to viewer	On	PAT mode	GRAPPA
Inline movie	Off	Accel. factor PE	2
Auto store images	On	Ref. lines PE	24
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)
Load images to graphic segments	On	Reference scan mode	Integrated
Auto open inline display	Off	Image Filter	Off
Start measurement without further preparation	Off	Distortion Corr.	On
Wait for user to start	Off	Mode	2D
Start measurements	single	Unfiltered images	Off
Routine		Prescan Normalize	Off
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	300 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0.00 deg	Multi-slice mode	Sequential
Auto	Off	Series	Descending
Slice group 2		Special sat.	None
Slices	3	System	
Dist. factor	300 %	Body	Off
Position	L30.0 P0.0 H0.0	BO1	On
Orientation	Sagittal	BO2	On
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	On
Auto	Off	SP8	Off
Slice group 3		SP6	Off
Slices	3	SP3	On
Dist. factor	300 %	SP1	On
Position	L0.0 P10.0 H0.0	SP7	Off
Orientation	Coronal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	FIX
Rotation	0.00 deg	Table position	H
Auto	Off	Table position	0 mm
Phase oversampling	0 %	MSMA	S - C - T
FoV read	300 mm	Sagittal	R >> L
FoV phase	100.0 %	Coronal	A >> P
Slice thickness	6.0 mm	Transversal	F >> H
TR	381.52 ms	Save uncombined	Off
TE	1.14 ms	Coil Combine Mode	Adaptive Combine
Averages	1	Auto Coil Select	Default
Concatenations	9	Contrast	
Filter	Distortion Corr.(2D)	Shim mode	Tune up
Coil elements	BO1,2;SP1-3	Adjust with body coil	On
Contrast		Confirm freq. adjustment	Off
TD	0 ms	Assume Silicone	Off
Magn. preparation	None	? Ref. amplitude 1H	0.000 V
Flip angle	90 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	On	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	108
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

**\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\multi\_plane\_loc**

TA: 7.2 s    PAT: 2    Voxel size: 1.6x1.6x6.0 mm    Rel. SNR: 1.00    SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	381.52 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
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Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	663 ms
Trigger pulse	1
Trigger delay	281 ms
Segments	108
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 1.8x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	300 mm	Table position	H
FoV phase	50.0 %	Table position	0 mm
Slice thickness	6.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	20 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.26 ms
-----	
Turbo factor	82
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	376.58 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	816 ms
Trigger pulse	1
Trigger delay	439 ms
Segments	108
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	300 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	6.0 mm	Sagittal	S - C - T
TR	376.58 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	90 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	816 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	439 ms
Image Filter	Off	Segments	108
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	75.0 %
Slice thickness	6.0 mm
TR	273.24 ms
TE	1.23 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	839 ms
Trigger pulse	1
Trigger delay	500 ms
Segments	84
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 1.6x1.6x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	300 mm
FoV phase	100.0 %
Slice thickness	6.0 mm
TR	376.58 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	816 ms
Trigger pulse	1
Trigger delay	439 ms
Segments	108
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\short\_axis\_cine

TA: 2:00 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	250 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	37.08 ms	MSMA	S - C - T
TE	1.31 ms	Sagittal	R >> L
Averages	4	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	400 ± 20 ms
Accel. factor PE	GRAPPA	Calculated phases	25
Ref. lines PE	2	Segments	12
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	
Image Filter		Dummy heartbeats	
Distortion Corr.	Off	Resp. control	
Mode	On	Off	
Unfiltered images	2D	Subtract	
	Off	Std-Dev-Sag	
		Std-Dev-Cor	
		Std-Dev-Tra	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\four\_chamber\_cine

TA: 0:12 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	250 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	37.08 ms	Sagittal	S - C - T
TE	1.31 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	12
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\two\_chamber\_cine

TA: 0:12 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	250 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	37.08 ms	Sagittal	S - C - T
TE	1.31 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	12
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\three\_chamber\_cine

TA: 0:12 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	250 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	37.08 ms	Sagittal	S - C - T
TE	1.31 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	12
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\axial\_aorta\_cine

TA: 1:28 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	250 mm
FoV phase	50.0 %
Slice thickness	6.0 mm
TR	37.08 ms
TE	1.31 ms
Averages	4
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Segments	12
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\sagittal\_aorta\_cine

TA: 8.8 s PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Sagittal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	250 mm	Table position	REF
FoV phase	50.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	37.08 ms	Sagittal	S - C - T
TE	1.31 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	12
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\coronal\_aorta\_cine

TA: 0:15 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R17.4 A40.3 F17.3	SP6	Off
Orientation	C > S10.8 > T-7.1	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	250 mm	Table position	REF
FoV phase	100.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	37.08 ms	Sagittal	S - C - T
TE	1.31 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	12
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\rv\_long\_axis\_cine

TA: 0:12 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R25.0 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	250 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	37.08 ms	Sagittal	S - C - T
TE	1.31 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	12
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

**\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\pulmonary\_outflow\_cine**

TA: 0:12    PAT: 2    Voxel size: 1.3x1.3x6.0 mm    Rel. SNR: 1.00    SIEMENS: CV

<b>Properties</b>		Normalize	Off
Prio Recon		B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer		POCS	Off
Inline movie		<b>Geometry</b>	
Auto store images		Multi-slice mode	Sequential
Load to stamp segments		Series	Descending
Load images to graphic segments		Special sat.	
Auto open inline display		None	
Start measurement without further preparation		<b>System</b>	
Wait for user to start		Body	Off
Start measurements		BO1	On
<b>Routine</b>		BO2	On
Slice group 1		SP4	Off
Slices		SP2	On
Dist. factor		SP8	Off
Position		SP6	Off
Orientation		SP3	On
Phase enc. dir.		SP1	Off
Rotation		SP7	Off
Auto		SP5	Off
Phase oversampling		Positioning mode	
FoV read		Table position	REF
FoV phase		Table position	H
Slice thickness		MSMA	0 mm
TR		Sagittal	S - C - T
TE		Coronal	R >> L
Averages		Transversal	A >> P
Concatenations		Save uncombined	F >> H
Filter		Coil Combine Mode	Off
Coil elements		Auto Coil Select	Adaptive Combine
<b>Contrast</b>		Shim mode	Default
Magn. preparation		Tune up	
Flip angle		Adjust with body coil	On
Fat suppr.		Confirm freq. adjustment	Off
Restore magn.		Assume Silicone	Off
? Ref. amplitude 1H		? Ref. amplitude 1H	0.000 V
Adjustment Tolerance		Adjustment Tolerance	Auto
Adjust volume		Position	Isocenter
Averaging mode		Orientation	Transversal
Reconstruction		Rotation	0.00 deg
Measurements		R >> L	350 mm
Multiple series		A >> P	263 mm
<b>Resolution</b>		F >> H	350 mm
Base resolution		<b>Physio</b>	
Phase resolution		1st Signal/Mode	ECG/Retro
Phase partial Fourier		Average cycle	400 ± 20 ms
Trajectory		Calculated phases	25
View sharing		Segments	12
Interpolation		Dark blood	
PAT mode		Cine	Off
Accel. factor PE		Dummy heartbeats	On
Ref. lines PE		1	
Matrix Coil Mode		Resp. control	
Reference scan mode		Off	
<b>Image Filter</b>		<b>Inline</b>	
Distortion Corr.		Subtract	Off
Mode		Std-Dev-Sag	Off
Unfiltered images		Std-Dev-Cor	Off
Prescan Normalize		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3.1 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\orta\_thru\_plane\_flow

TA: 1:38 PAT: 2 Voxel size: 1.3x1.3x5.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending	
Prio Recon	Off	Special sat.	None	
Before measurement	System			
After measurement	On	Body	Off	
Load to viewer	On	BO1	On	
Inline movie	On	BO2	On	
Auto store images	On	SP4	Off	
Load to stamp segments	On	SP2	On	
Load images to graphic segments	On	SP8	Off	
Auto open inline display	Off	SP6	Off	
Start measurement without further preparation	On	SP3	On	
Wait for user to start	Off	SP1	Off	
Start measurements	single	SP7	Off	
		SP5	Off	
Routine	Positioning mode			
Slice group 1	1	Table position	ISO	
Slices	20 %	Table position	H	
Dist. factor	Isocenter	MSMA	0 mm	
Position	Transversal	Sagittal	S - C - T	
Orientation	A >> P	Coronal	R >> L	
Phase enc. dir.	0.00 deg	Transversal	A >> P	
Rotation	0 %	Coil Combine Mode	F >> H	
Phase oversampling	250 mm	Auto Coil Select	Adaptive Combine	
FoV read	75.0 %		Default	
FoV phase	5.0 mm	Shim mode	Tune up	
Slice thickness	29.65 ms	Adjust with body coil	On	
TR	3.94 ms	Confirm freq. adjustment	Off	
TE	4	Assume Silicone	Off	
Averages	1	? Ref. amplitude 1H	0.000 V	
Concatenations	Distortion Corr.(2D)	Adjustment Tolerance	Auto	
Filter	BO1,2;SP2,3	Adjust volume		
Coil elements		Position	Isocenter	
		Orientation	Transversal	
Contrast		Rotation	0.00 deg	
Flip angle	20 deg	R >> L	350 mm	
Averaging mode	Short term	A >> P	263 mm	
Reconstruction	Magnitude	F >> H	350 mm	
Measurements	1	Physio		
Multiple series	Off	1st Signal/Mode	ECG/Retro	
Resolution	Resolution			
Base resolution	192	Average cycle	400 ± 20 ms	
Phase resolution	100 %	Calculated phases	25	
Phase partial Fourier	Off	Segments	2	
Interpolation	Off	Angio		
PAT mode	GRAPPA	Flow mode	Single dir.	
Accel. factor PE	2	Encodings	1	
Ref. lines PE	18	Velocity enc.	150 cm/s	
Matrix Coil Mode	Auto (Triple)	Direction	Through plane	
Reference scan mode	Integrated	Rephased images	On	
Image Filter	Off	Magnitude images	Off	
Distortion Corr.	On	Phase images	On	
Mode	2D	Geometry		
Unfiltered images	Off	Subtract	Off	
Prescan Normalize	Off	Std-Dev-Sag	Off	
Normalize	Off	Std-Dev-Cor	Off	
B1 filter	Off	Std-Dev-Tra	Off	
Raw filter	Off	Std-Dev-Time	Off	
Elliptical filter	Off	MIP-Sag	Off	
		MIP-Cor	Off	
		MIP-Tra	Off	
		MIP-Time	Off	
		Save original images	On	
Multi-slice mode	Sequential	Sequence		

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\pulmonary\_thru\_plane\_flow

TA: 1:38 PAT: 2 Voxel size: 1.3x1.3x5.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending	
Prio Recon	Off	Special sat.	None	
Before measurement	System			
After measurement	On	Body	Off	
Load to viewer	On	BO1	On	
Inline movie	On	BO2	On	
Auto store images	On	SP4	Off	
Load to stamp segments	On	SP2	On	
Load images to graphic segments	On	SP8	Off	
Auto open inline display	Off	SP6	Off	
Start measurement without further preparation	On	SP3	On	
Wait for user to start	Off	SP1	Off	
Start measurements	single	SP7	Off	
		SP5	Off	
Routine	Positioning mode			
Slice group 1	1	Table position	ISO	
Slices	20 %	Table position	H	
Dist. factor	Isocenter	MSMA	0 mm	
Position	Coronal	Sagittal	S - C - T	
Orientation	R >> L	Coronal	R >> L	
Phase enc. dir.	0.00 deg	Transversal	A >> P	
Rotation	0 %	Coil Combine Mode	F >> H	
Phase oversampling	250 mm	Auto Coil Select	Adaptive Combine	
FoV read	75.0 %		Default	
FoV phase	5.0 mm	Shim mode	Tune up	
Slice thickness	29.65 ms	Adjust with body coil	On	
TR	3.94 ms	Confirm freq. adjustment	Off	
TE	4	Assume Silicone	Off	
Averages	1	? Ref. amplitude 1H	0.000 V	
Concatenations	Distortion Corr.(2D)	Adjustment Tolerance	Auto	
Filter	BO1,2;SP2,3	Adjust volume		
Coil elements		Position	Isocenter	
		Orientation	Transversal	
Contrast		Rotation	0.00 deg	
Flip angle	20 deg	R >> L	350 mm	
Averaging mode	Short term	A >> P	263 mm	
Reconstruction	Magnitude	F >> H	350 mm	
Measurements	1	Physio		
Multiple series	Off	1st Signal/Mode	ECG/Retro	
Resolution	Resolution			
Base resolution	192	Average cycle	400 ± 20 ms	
Phase resolution	100 %	Calculated phases	25	
Phase partial Fourier	Off	Segments	2	
Interpolation	Off	Angio		
PAT mode	GRAPPA	Flow mode	Single dir.	
Accel. factor PE	2	Encodings	1	
Ref. lines PE	18	Velocity enc.	90 cm/s	
Matrix Coil Mode	Auto (Triple)	Direction	Through plane	
Reference scan mode	Integrated	Rephased images	On	
Image Filter	Off	Magnitude images	Off	
Distortion Corr.	On	Phase images	On	
Mode	2D	Geometry		
Unfiltered images	Off	Subtract	Off	
Prescan Normalize	Off	Std-Dev-Sag	Off	
Normalize	Off	Std-Dev-Cor	Off	
B1 filter	Off	Std-Dev-Tra	Off	
Raw filter	Off	Std-Dev-Time	Off	
Elliptical filter	Off	MIP-Sag	Off	
		MIP-Cor	Off	
		MIP-Tra	Off	
		MIP-Time	Off	
		Save original images	On	
Multi-slice mode	Sequential	Sequence		

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\OPT\_stenotic\_jet\_gre\_cine

TA: 1:59 PAT: 2 Voxel size: 1.3x1.3x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	250 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	MSMA	0 mm
TR	39.51 ms	Sagittal	S - C - T
TE	7.54 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	20 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	3
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Off
Bandwidth	130 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	13.2 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\OPT\_shunt\_in\_plane\_flow

TA: 1:14 PAT: 2 Voxel size: 1.3x1.3x5.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	Off	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	REF	
Slices	20 %	H	
Dist. factor	Isocenter	0 mm	
Position	Sagittal	S - C - T	
Orientation	A >> P	R >> L	
Phase enc. dir.	0.00 deg	A >> P	
Rotation	0 %	F >> H	
Phase oversampling	250 mm	Coil Combine Mode	Adaptive Combine
FoV read	50.0 %	Auto Coil Select	Default
FoV phase	5.0 mm	Shim mode	Tune up
Slice thickness	31.55 ms	Adjust with body coil	On
TR	4.41 ms	Confirm freq. adjustment	Off
TE	4	Assume Silicone	Off
Averages	1	? Ref. amplitude 1H	0.000 V
Concatenations	Distortion Corr.(2D)	Adjustment Tolerance	Auto
Filter	BO1,2;SP2,3	Adjust volume	
Coil elements		Position	Isocenter
Contrast		Orientation	Transversal
Flip angle	20 deg	Rotation	0.00 deg
Averaging mode	Short term	R >> L	350 mm
Reconstruction	Magnitude	A >> P	263 mm
Measurements	1	F >> H	350 mm
Multiple series	Off	Physio	
Resolution		1st Signal/Mode	ECG/Retro
Base resolution	192	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	25
Phase partial Fourier	Off	Segments	2
Interpolation	Off	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	20	Velocity enc.	150 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	F >> H
Reference scan mode	Integrated	Rephased images	On
Image Filter	Off	Magnitude images	Off
Distortion Corr.	On	Phase images	On
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off	Std-Dev-Tra	Off
B1 filter	Off	Std-Dev-Time	Off
Raw filter	Off	MIP-Sag	Off
Elliptical filter	Off	MIP-Cor	Off
Geometry		MIP-Tra	Off
Multi-slice mode	Sequential	MIP-Time	Off
		Save original images	On
Sequence			

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Children\coronal\_dynamic

TA: 0:30 PAT: 2 Voxel size: 1.0x0.8x2.0 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

## Geometry

Multi-slice mode	Sequential
Series	Ascending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
NE2	Off
NE1	Off
HE2	Off
HE4	Off
BO1	Off
BO2	Off
HE1	Off
HE3	Off
SP4	Off
SP2	On
SP8	Off
SP6	Off
PL3	Off
PL4	Off
PR3	Off
PR4	Off
PL1	Off
PL2	Off
PR1	Off
PR2	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

## Routine

Slab group 1	
Slabs	1
Dist. factor	20 %
Position	Isocenter
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Phase oversampling	0 %
Slice oversampling	0.0 %
Slices per slab	40
FoV read	300 mm
FoV phase	75.0 %
Slice thickness	2.00 mm
TR	3.15 ms
TE	1.12 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	25 deg
Fat suppr.	None
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	5
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Multiple series	Each measurement

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	C - T - S
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Maximum
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm

## Resolution

Base resolution	384
Phase resolution	75 %
Slice resolution	60 %
Phase partial Fourier	6/8
Slice partial Fourier	6/8
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Dual
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On

# SIEMENS MAGNETOM Avanto syngo MR B19

| F >> H                    350 mm

## Physio

1st Signal/Mode	None
Segments	1

## Angio

3D centric reordering	Off
Time to center	2.3 s
Subtract	On
Autoscaling	Off
Scaling factor	3
Offset	0
Subtrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\auto\_detect\_table\_position

TA: 2.6 s PAT: 2 Voxel size: 1.6x1.6x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	100 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		Interpolation	Off
Load to viewer	On	PAT mode	GRAPPA
Inline movie	Off	Accel. factor PE	2
Auto store images	On	Ref. lines PE	24
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)
Load images to graphic segments	On	Reference scan mode	Integrated
Auto open inline display	Off	Image Filter	Off
Start measurement without further preparation	Off	Distortion Corr.	On
Wait for user to start	Off	Mode	2D
Start measurements	single	Unfiltered images	Off
Routine		Prescan Normalize	Off
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	300 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0.00 deg	Multi-slice mode	Sequential
Auto	Off	Series	Descending
Slice group 2		Special sat.	None
Slices	3	System	
Dist. factor	300 %	Body	Off
Position	L30.0 P0.0 H0.0	BO1	On
Orientation	Sagittal	BO2	On
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	On
Auto	Off	SP8	Off
Slice group 3		SP6	Off
Slices	3	SP3	On
Dist. factor	300 %	SP1	On
Position	L0.0 P10.0 H0.0	SP7	Off
Orientation	Coronal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	FIX
Rotation	0.00 deg	Table position	H
Auto	Off	Table position	0 mm
Phase oversampling	0 %	MSMA	S - C - T
FoV read	200 mm	Sagittal	R >> L
FoV phase	100.0 %	Coronal	A >> P
Slice thickness	4.5 mm	Transversal	F >> H
TR	282.04 ms	Save uncombined	Off
TE	1.13 ms	Coil Combine Mode	Adaptive Combine
Averages	1	Auto Coil Select	Default
Concatenations	9	Contrast	
Filter	Distortion Corr.(2D)	Shim mode	Tune up
Coil elements	BO1,2;SP1-3	Adjust with body coil	On
Contrast		Confirm freq. adjustment	Off
TD	0 ms	Assume Silicone	Off
Magn. preparation	None	? Ref. amplitude 1H	0.000 V
Flip angle	90 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	On	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	128	Physio	

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	76
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.7 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 1.6x1.6x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	4.5 mm
TR	282.04 ms
TE	1.13 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	128
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Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	689 ms
Trigger pulse	1
Trigger delay	342 ms
Segments	76
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.7 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 1.6x1.6x4.5 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	200 mm	Table position	H
FoV phase	50.0 %	Table position	0 mm
Slice thickness	4.5 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	24 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	128	Physio	
Phase resolution	100 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.48 ms
<hr/>	
Turbo factor	64
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\two\_chamber\_loc

TA: 0.8 s PAT: 2 Voxel size: 1.6x1.6x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	200 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	4.5 mm	Sagittal	S - C - T
TR	276.86 ms	Coronal	R >> L
TE	1.13 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	90 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	128	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	843 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	76
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.7 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\four\_chamber\_loc

TA: 0.8 s PAT: 2 Voxel size: 1.6x1.6x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	4.5 mm
TR	276.86 ms
TE	1.13 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	128
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	843 ms
Trigger pulse	1
Trigger delay	500 ms
Segments	76
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.7 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 1.6x1.6x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	200 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	4.5 mm	MSMA	0 mm
TR	296.66 ms	Sagittal	S - C - T
TE	1.2 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	90 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	128	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	60
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\three\_chamber\_loc

TA: 0.8 s PAT: 2 Voxel size: 1.6x1.6x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	4.5 mm
TR	276.86 ms
TE	1.13 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	128
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	844 ms
Trigger pulse	1
Trigger delay	500 ms
Segments	76
Phases	1

Dark blood	Off
Cine	Off

Resp. control	Off
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1184 Hz/Px
Optimization	Min. TE
Echo spacing	2.7 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\short\_axis\_cine

TA: 2:16 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	180 mm
FoV phase	75.0 %
Slice thickness	4.5 mm
TR	24.24 ms
TE	1.27 ms
Averages	4
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	128
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Segments	8

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\four\_chamber\_cine

TA: 0:14 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	180 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	4.5 mm	Sagittal	R >> L
TR	24.24 ms	Coronal	A >> P
TE	1.27 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	128	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	8
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

**\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\two\_chamber\_cine**

TA: 0:14    PAT: 2    Voxel size: 1.4x1.4x4.5 mm    Rel. SNR: 1.00    SIEMENS: CV

<b>Properties</b>		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	<b>Geometry</b>	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	<b>System</b>	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
<b>Routine</b>		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	180 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	4.5 mm	Sagittal	R >> L
TR	24.24 ms	Coronal	A >> P
TE	1.27 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	<b>Contrast</b>	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
<b>Resolution</b>		Orientation	Transversal
Base resolution	128	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	<b>Physio</b>	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	8
Matrix Coil Mode	Auto (Triple)	Dark blood	Off
Reference scan mode	Integrated	Cine	On
Image Filter	Off	Dummy heartbeats	1
Distortion Corr.	On	Resp. control	Off
Mode	2D	<b>Inline</b>	
Unfiltered images	Off	Subtract	Off
Prescan Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\three\_chamber\_cine

TA: 0:14 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	180 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	4.5 mm	Sagittal	R >> L
TR	24.24 ms	Coronal	A >> P
TE	1.27 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	128	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	8
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\axial\_aorta\_cine

TA: 1:44 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	180 mm
FoV phase	50.0 %
Slice thickness	4.5 mm
TR	24.24 ms
TE	1.27 ms
Averages	4
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	90 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	128
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Segments	8

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\sagittal\_aorta\_cine

TA: 0:10 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Sagittal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	180 mm	Table position	REF
FoV phase	50.0 %	Table position	H
Slice thickness	4.5 mm	MSMA	0 mm
TR	24.24 ms	Sagittal	S - C - T
TE	1.27 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	128	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	8
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\coronal\_aorta\_cine

TA: 0:17 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R17.4 A40.3 F17.3	SP6	Off
Orientation	C > S10.8 > T-7.1	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	180 mm	Table position	REF
FoV phase	100.0 %	Table position	H
Slice thickness	4.5 mm	MSMA	0 mm
TR	24.24 ms	Sagittal	S - C - T
TE	1.27 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	128	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	8
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\rv\_long\_axis\_cine

TA: 0:14 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R25.0 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	180 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	4.5 mm	MSMA	0 mm
TR	24.24 ms	Sagittal	S - C - T
TE	1.27 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	128	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	8
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\pulmonary\_outflow\_cine

TA: 0:14 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	S > C-10.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	180 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	4.5 mm	Sagittal	R >> L
TR	24.24 ms	Coronal	A >> P
TE	1.27 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	128	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	8
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	3 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\orta\_thru\_plane\_flow

TA: 1:11 PAT: 2 Voxel size: 1.4x1.4x4.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	Off	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	Table position	ISO
Slices	20 %	Table position	H
Dist. factor	Isocenter	MSMA	0 mm
Position	Transversal	Sagittal	S - C - T
Orientation	A >> P	Coronal	R >> L
Phase enc. dir.	0.00 deg	Transversal	A >> P
Rotation	0 %	Coil Combine Mode	F >> H
Phase oversampling	180 mm	Auto Coil Select	Adaptive Combine
FoV read	75.0 %		Default
FoV phase	4.0 mm	Shim mode	Tune up
Slice thickness	30.15 ms	Adjust with body coil	On
TR	4.01 ms	Confirm freq. adjustment	Off
TE	4 averages	Assume Silicone	Off
Averages	4 concatenations	? Ref. amplitude 1H	0.000 V
Concatenations	1 filter	Adjustment Tolerance	Auto
Filter	Distortion Corr.(2D)	Adjust volume	
Coil elements	BO1,2;SP2,3	Position	Isocenter
		Orientation	Transversal
Contrast		Rotation	0.00 deg
Flip angle	20 deg	R >> L	350 mm
Averaging mode	Short term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	1	Physio	
Multiple series	Off	1st Signal/Mode	ECG/Retro
Resolution	Resolution		
Base resolution	128	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	25
Phase partial Fourier	Off	Segments	2
Interpolation	Off	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	18	Velocity enc.	150 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Integrated	Rephased images	On
Image Filter	Off	Magnitude images	Off
Distortion Corr.	On	Phase images	On
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off	Std-Dev-Tra	Off
B1 filter	Off	Std-Dev-Time	Off
Raw filter	Off	MIP-Sag	Off
Elliptical filter	Off	MIP-Cor	Off
Geometry	Sequence		
Multi-slice mode	Sequential	MIP-Tra	Off
		MIP-Time	Off
		Save original images	On

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	346 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\pulmonary\_thru\_plane\_flow

TA: 1:11 PAT: 2 Voxel size: 1.4x1.4x4.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	Off	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	Table position	ISO
Slices	20 %	Table position	H
Dist. factor	Isocenter	0 mm	0 mm
Position	Coronal	MSMA	S - C - T
Orientation	R >> L	Sagittal	R >> L
Phase enc. dir.	0.00 deg	Coronal	A >> P
Rotation	0 %	Transversal	F >> H
Phase oversampling	180 mm	Coil Combine Mode	Adaptive Combine
FoV read	75.0 %	Auto Coil Select	Default
FoV phase	4.0 mm	Shim mode	Tune up
Slice thickness	30.15 ms	Adjust with body coil	On
TR	4.01 ms	Confirm freq. adjustment	Off
TE	4 averages	Assume Silicone	Off
Averages	4 concatenations	? Ref. amplitude 1H	0.000 V
Concatenations	1 filter	Adjustment Tolerance	Auto
Filter	Distortion Corr.(2D)	Adjust volume	
Coil elements	BO1,2;SP2,3	Position	Isocenter
		Orientation	Transversal
Contrast		Rotation	0.00 deg
Flip angle	20 deg	R >> L	350 mm
Averaging mode	Short term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	1	Physio	
Multiple series	Off	1st Signal/Mode	ECG/Retro
Resolution	Resolution		
Base resolution	128	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	25
Phase partial Fourier	Off	Segments	2
Interpolation	Off	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	18	Velocity enc.	90 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Integrated	Rephased images	On
Image Filter	Off	Magnitude images	Off
Distortion Corr.	On	Phase images	On
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off	Std-Dev-Tra	Off
B1 filter	Off	Std-Dev-Time	Off
Raw filter	Off	MIP-Sag	Off
Elliptical filter	Off	MIP-Cor	Off
Geometry	Sequence		
Multi-slice mode	Sequential	MIP-Tra	Off
		MIP-Time	Off
		Save original images	On

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	346 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\OPT\_stenotic\_jet\_gre\_cine

TA: 1:55 PAT: 2 Voxel size: 1.4x1.4x4.5 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	180 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	4.5 mm	MSMA	0 mm
TR	23.76 ms	Sagittal	S - C - T
TE	6.28 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Tune up	Default
Flip angle	20 deg	Adjust with body coil	
Fat suppr.	None	Confirm freq. adjustment	
Restore magn.	Off	Assume Silicone	
Averaging mode	Short term	? Ref. amplitude 1H	
Reconstruction	Magnitude	Adjustment Tolerance	
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	128	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	2
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	130 Hz/Px
Flow comp.	Yes
Optimization	Min. TE TR
Echo spacing	11.9 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\OPT\_shunt\_in\_plane\_flow

TA: 0:49 PAT: 2 Voxel size: 1.4x1.4x4.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	Off	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	REF	
Slices	20 %	H	
Dist. factor	Isocenter	0 mm	
Position	Sagittal	S - C - T	
Orientation	A >> P	R >> L	
Phase enc. dir.	0.00 deg	A >> P	
Rotation	0 %	F >> H	
Phase oversampling	180 mm	Adaptive Combine	
FoV read	50.0 %	Default	
FoV phase	4.0 mm		
Slice thickness	28.65 ms	Shim mode	Tune up
TR	3.64 ms	Adjust with body coil	On
TE	4	Confirm freq. adjustment	Off
Averages	1	Assume Silicone	Off
Concatenations	Distortion Corr.(2D)	? Ref. amplitude 1H	0.000 V
Filter	BO1,2;SP2,3	Adjustment Tolerance	Auto
Coil elements		Adjust volume	
		Position	Isocenter
		Orientation	Transversal
		Rotation	0.00 deg
		R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Contrast	Physio		
Flip angle	20 deg	1st Signal/Mode	ECG/Retro
Averaging mode	Short term	Average cycle	400 ± 20 ms
Reconstruction	Magnitude	Calculated phases	25
Measurements	1	Segments	2
Multiple series	Off		
Resolution	Angio		
Base resolution	128	Flow mode	Single dir.
Phase resolution	100 %	Encodings	1
Phase partial Fourier	Off	Velocity enc.	150 cm/s
Interpolation	Off	Direction	F >> H
PAT mode	GRAPPA	Rephased images	On
Accel. factor PE	2	Magnitude images	Off
Ref. lines PE	20	Phase images	On
Matrix Coil Mode	Auto (Triple)		
Reference scan mode	Integrated		
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off	MIP-Cor	Off
Raw filter	Off	MIP-Tra	Off
Elliptical filter	Off	MIP-Time	Off
Geometry	Save original images		
Multi-slice mode	Sequential		On
	Sequence		

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	346 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Congenital\_Disease\Infants\coronal\_dynamic

TA: 0:28 PAT: 2 Voxel size: 0.7x0.5x1.5 mm Rel. SNR: 1.00 SIEMENS: fl3d\_ce

Properties		Mode	2D
Prio Recon	Off	Unfiltered images	Off
Before measurement		Prescan Normalize	Off
After measurement		Normalize	Off
Load to viewer	On	B1 filter	Off
Inline movie	Off	Raw filter	Off
Auto store images	On	Elliptical filter	Off
Load to stamp segments	On	Geometry	
Load images to graphic segments	On	Multi-slice mode	Sequential
Auto open inline display	Off	Series	Ascending
Start measurement without further preparation	On	Special sat.	None
Wait for user to start	On	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slab group 1		BO2	On
Slabs	1	NE2	Off
Dist. factor	20 %	NE1	Off
Position	Isocenter	HE2	Off
Orientation	Coronal	HE4	Off
Phase enc. dir.	R >> L	BO1	Off
Rotation	0.00 deg	BO2	Off
Phase oversampling	0 %	HE1	Off
Slice oversampling	0.0 %	HE3	Off
Slices per slab	32	SP4	Off
FoV read	200 mm	SP2	On
FoV phase	75.0 %	SP8	Off
Slice thickness	1.50 mm	SP6	Off
TR	3.55 ms	PL3	Off
TE	1.32 ms	PL4	Off
Averages	1	PR3	Off
Filter	Distortion Corr.(2D)	PR4	Off
Coil elements	BO1,2;SP2,3	PL1	Off
Contrast		PL2	Off
Magn. preparation	None	PR1	Off
Flip angle	25 deg	PR2	Off
Fat suppr.	None	SP3	On
Averaging mode	Short term	SP1	Off
Reconstruction	Magnitude	SP7	Off
Measurements	5	SP5	Off
Pause after meas. 1	0.0 s	Positioning mode	
Pause after meas. 2	0.0 s	Table position	ISO
Pause after meas. 3	0.0 s	Table position	H
Pause after meas. 4	0.0 s	MSMA	0 mm
Multiple series	Each measurement	Sagittal	C - T - S
Resolution		Coronal	R >> L
Base resolution	384	Transversal	A >> P
Phase resolution	75 %	Save uncombined	F >> H
Slice resolution	63 %	Coil Combine Mode	Off
Phase partial Fourier	6/8	Auto Coil Select	Adaptive Combine
Slice partial Fourier	6/8	Shim mode	
Interpolation	Off	Adjust with body coil	Default
PAT mode	GRAPPA	Confirm freq. adjustment	Tune up
Accel. factor PE	2	Assume Silicone	Off
Ref. lines PE	24	? Ref. amplitude 1H	Off
Matrix Coil Mode	Dual	Adjustment Tolerance	0.000 V
Reference scan mode	Integrated	Adjust volume	Maximum
Image Filter	Off	Position	Isocenter
Distortion Corr.	On	Orientation	Transversal
		Rotation	0.00 deg
		R >> L	350 mm
		A >> P	263 mm

# SIEMENS MAGNETOM Avanto syngo MR B19

| F >> H                    350 mm

## Physio

1st Signal/Mode	None
Segments	1

## Angio

3D centric reordering	Off
Time to center	2.2 s
Subtract	On
Autoscaling	Off
Scaling factor	3
Offset	0
Subtrahend	1
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	On
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Bandwidth	450 Hz/Px
Optimization	Min. TE TR
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

**\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\multi\_plane\_loc**

TA: 7.3 s    PAT: 2    Voxel size: 2.4x1.6x7.0 mm    Rel. SNR: 1.00    SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	400 ± 20 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\short\_axis\_cine

TA: 0:32 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	44 ms
TE	1.16 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Concatenations	10
Segments	16

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Breath-hold
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\four\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\two\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		1
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\three\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\coronal\_aorta\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R17.4 A40.3 F17.3	SP6	Off
Orientation	C > S10.8 > T-7.1	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\rv\_long\_axis\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R25.0 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\pulmonary\_outflow\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	S > C-10.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		1
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\orta\_thru\_plane\_flow

TA: 0:12 PAT: 2 Voxel size: 2.5x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending	
Prio Recon	Off	Special sat.	None	
Before measurement	System			
After measurement	On	Body	Off	
Load to viewer	On	BO1	On	
Inline movie	On	BO2	On	
Auto store images	On	SP4	Off	
Load to stamp segments	On	SP2	On	
Load images to graphic segments	On	SP8	Off	
Auto open inline display	Off	SP6	Off	
Start measurement without further preparation	On	SP3	On	
Wait for user to start	On	SP1	Off	
Start measurements	single	SP7	Off	
		SP5	Off	
Routine	Positioning mode			
Slice group 1	1	Table position	ISO	
Slices	20 %	Table position	H	
Dist. factor	Isocenter	MSMA	0 mm	
Position	Transversal	Sagittal	S - C - T	
Orientation	A >> P	Coronal	R >> L	
Phase enc. dir.	0.00 deg	Transversal	A >> P	
Rotation	0 %	Coil Combine Mode	F >> H	
Phase oversampling	360 mm	Auto Coil Select	Adaptive Combine	
FoV read	75.0 %		Default	
FoV phase	6.0 mm	Shim mode	Tune up	
Slice thickness	40.70 ms	Adjust with body coil	On	
TR	3.34 ms	Confirm freq. adjustment	Off	
TE	1	Assume Silicone	Off	
Averages	1	? Ref. amplitude 1H	0.000 V	
Concatenations	1	Adjustment Tolerance	Auto	
Filter	Distortion Corr.(2D)	Adjust volume		
Coil elements	BO1,2;SP2,3	Position	Isocenter	
		Orientation	Transversal	
Contrast		Rotation	0.00 deg	
Flip angle	20 deg	R >> L	350 mm	
Averaging mode	Short term	A >> P	263 mm	
Reconstruction	Magnitude	F >> H	350 mm	
Measurements	1	Physio		
Multiple series	Off	1st Signal/Mode	ECG/Retro	
Resolution	Resolution			
Base resolution	192	Average cycle	400 ± 20 ms	
Phase resolution	75 %	Calculated phases	25	
Phase partial Fourier	Off	Segments	3	
Interpolation	Off	Angio		
PAT mode	GRAPPA	Flow mode	Single dir.	
Accel. factor PE	2	Encodings	1	
Ref. lines PE	18	Velocity enc.	150 cm/s	
Matrix Coil Mode	Auto (Triple)	Direction	Through plane	
Reference scan mode	Integrated	Rephased images	On	
Image Filter	Off	Magnitude images	Off	
Distortion Corr.	On	Phase images	On	
Mode	2D	Geometry		
Unfiltered images	Off	Subtract	Off	
Prescan Normalize	Off	Std-Dev-Sag	Off	
Normalize	Off	Std-Dev-Cor	Off	
B1 filter	Off	Std-Dev-Tra	Off	
Raw filter	Off	Std-Dev-Time	Off	
Elliptical filter	Off	MIP-Sag	Off	
		MIP-Cor	Off	
		MIP-Tra	Off	
		MIP-Time	Off	
		Save original images	On	
Multi-slice mode	Sequential	Sequence		

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\pulmonary\_thru\_plane\_flow

TA: 0:13 PAT: 2 Voxel size: 2.5x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending	
Prio Recon	Off	Special sat.	None	
Before measurement	System			
After measurement	On	Body	Off	
Load to viewer	On	BO1	On	
Inline movie	On	BO2	On	
Auto store images	On	SP4	Off	
Load to stamp segments	On	SP2	On	
Load images to graphic segments	On	SP8	Off	
Auto open inline display	Off	SP6	Off	
Start measurement without further preparation	On	SP3	On	
Wait for user to start	On	SP1	Off	
Start measurements	single	SP7	Off	
		SP5	Off	
Routine	Positioning mode			
Slice group 1	1	Table position	ISO	
Slices	20 %	Table position	H	
Dist. factor	Isocenter	MSMA	0 mm	
Position	Coronal	Sagittal	S - C - T	
Orientation	R >> L	Coronal	R >> L	
Phase enc. dir.	0.00 deg	Transversal	A >> P	
Rotation	0 %	Coil Combine Mode	F >> H	
Phase oversampling	360 mm	Auto Coil Select	Adaptive Combine	
FoV read	75.0 %		Default	
FoV phase	6.0 mm	Shim mode	Tune up	
Slice thickness	42.50 ms	Adjust with body coil	On	
TR	3.64 ms	Confirm freq. adjustment	Off	
TE	1	Assume Silicone	Off	
Averages	1	? Ref. amplitude 1H	0.000 V	
Concatenations	1	Adjustment Tolerance	Auto	
Filter	Distortion Corr.(2D)	Adjust volume		
Coil elements	BO1,2;SP2,3	Position	Isocenter	
		Orientation	Transversal	
Contrast		Rotation	0.00 deg	
Flip angle	20 deg	R >> L	350 mm	
Averaging mode	Short term	A >> P	263 mm	
Reconstruction	Magnitude	F >> H	350 mm	
Measurements	1	Physio		
Multiple series	Off	1st Signal/Mode	ECG/Retro	
Resolution	Resolution			
Base resolution	192	Average cycle	400 ± 20 ms	
Phase resolution	75 %	Calculated phases	25	
Phase partial Fourier	Off	Segments	3	
Interpolation	Off	Angio		
PAT mode	GRAPPA	Flow mode	Single dir.	
Accel. factor PE	2	Encodings	1	
Ref. lines PE	18	Velocity enc.	90 cm/s	
Matrix Coil Mode	Auto (Triple)	Direction	Through plane	
Reference scan mode	Integrated	Rephased images	On	
Image Filter	Off	Magnitude images	Off	
Distortion Corr.	On	Phase images	On	
Mode	2D	Geometry		
Unfiltered images	Off	Subtract	Off	
Prescan Normalize	Off	Std-Dev-Sag	Off	
Normalize	Off	Std-Dev-Cor	Off	
B1 filter	Off	Std-Dev-Tra	Off	
Raw filter	Off	Std-Dev-Time	Off	
Elliptical filter	Off	MIP-Sag	Off	
		MIP-Cor	Off	
		MIP-Tra	Off	
		MIP-Time	Off	
		Save original images	On	
Multi-slice mode	Sequential	Sequence		

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\OPT\_aortic\_valve\_cine

TA: 0:24 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Elliptical filter	Off
Prio Recon		POCS	Off
Before measurement		Geometry	
After measurement		Multi-slice mode	Sequential
Load to viewer		Series	Descending
Inline movie		Special sat.	
Auto store images		None	
Load to stamp segments		System	
Load images to graphic segments		Body	Off
Auto open inline display		BO1	On
Start measurement without further preparation		BO2	On
Wait for user to start		SP4	Off
Start measurements		SP2	On
Routine		SP8	Off
Slice group 1		SP6	Off
Slices		SP3	On
Dist. factor		SP1	Off
Position		SP7	Off
Orientation		SP5	Off
Phase enc. dir.		Positioning mode	
Rotation		Table position	REF
Auto		Table position	H
Phase oversampling		MSMA	0 mm
FoV read		Sagittal	S - C - T
FoV phase		Coronal	R >> L
Slice thickness		Transversal	A >> P
TR		Save uncombined	F >> H
TE		Coil Combine Mode	Off
Averages		Auto Coil Select	Adaptive Combine
Filter		Shim mode	Default
Coil elements		Adjust with body coil	Tune up
Contrast		Confirm freq. adjustment	On
TD		Assume Silicone	Off
Magn. preparation		? Ref. amplitude 1H	Off
Flip angle		Adjustment Tolerance	0.000 V
Fat suppr.		Adjust volume	Auto
Restore magn.		Position	Isocenter
Averaging mode		Orientation	Transversal
Reconstruction		Rotation	0.00 deg
Measurements		R >> L	350 mm
Multiple series		A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution		Physio	
Phase resolution		1st Signal/Mode	ECG/Retro
Phase partial Fourier		Average cycle	400 ± 20 ms
Trajectory		Calculated phases	30
View sharing		Concatenations	3
Interpolation		Segments	12
PAT mode		Dark blood	
Matrix Coil Mode		Cine	Off
Image Filter		Dummy heartbeats	On
Distortion Corr.		Resp. control	1
Mode		Inline	
Unfiltered images		Subtract	Off
Prescan Normalize		Std-Dev-Sag	Off
Normalize		Std-Dev-Cor	Off
B1 filter		Std-Dev-Tra	Off
Raw filter		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\OPT\_pulmonic\_valve\_cine

TA: 0:24 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Elliptical filter	Off	
Prio Recon	Off	POCS	Off	
Geometry				
Before measurement	Multi-slice mode		Sequential	
After measurement	Series		Descending	
Load to viewer	Special sat.		None	
Inline movie	System			
Auto store images	Body		Off	
Load to stamp segments	BO1		On	
Load images to graphic segments	BO2		On	
Auto open inline display	SP4		Off	
Start measurement without further preparation	SP2		On	
Wait for user to start	SP8		Off	
Start measurements	single	SP6	Off	
Routine		SP3	On	
Slice group 1	SP1		Off	
Slices	3	SP7	Off	
Dist. factor	0 %	SP5	Off	
Position	Positioning mode			
Orientation	REF			
Phase enc. dir.	Table position		H	
Rotation	Table position		0 mm	
Auto	MSMA		S - C - T	
Phase oversampling	65 %	Sagittal	R >> L	
FoV read	200 mm	Coronal	A >> P	
FoV phase	100.0 %	Transversal	F >> H	
Slice thickness	5.0 mm	Save uncombined	Off	
TR	34.8 ms	Coil Combine Mode	Adaptive Combine	
TE	1.21 ms	Auto Coil Select	Default	
Averages	1	Shim mode		
Filter	Distortion Corr.(2D)	Tune up		
Coil elements	BO1,2;SP2,3	Adjust with body coil	On	
Contrast		Confirm freq. adjustment	Off	
TD	0 ms	Assume Silicone	Off	
Magn. preparation	None	? Ref. amplitude 1H	0.000 V	
Flip angle	90 deg	Adjustment Tolerance	Auto	
Fat suppr.	None	Adjust volume		
Restore magn.	On	Position	Isocenter	
Averaging mode	Short term	Orientation	Transversal	
Reconstruction	Magnitude	Rotation	0.00 deg	
Measurements	1	R >> L	350 mm	
Multiple series	Each slice	A >> P	263 mm	
F >> H			350 mm	
Resolution		Physio		
Base resolution	128	1st Signal/Mode	ECG/Retro	
Phase resolution	100 %	Average cycle	400 ± 20 ms	
Phase partial Fourier	Off	Calculated phases	30	
Trajectory	Cartesian	Concatenations	3	
View sharing	Off	Segments	12	
Interpolation	On	Dark blood		
PAT mode	None	Off		
Matrix Coil Mode	Auto (CP)	Cine	On	
Dummy heartbeats			1	
Image Filter	Off	Resp. control	Breath-hold	
Distortion Corr.	On	Inline		
Mode	2D	Subtract	Off	
Unfiltered images	Off	Std-Dev-Sag	Off	
Prescan Normalize	Off	Std-Dev-Cor	Off	
Normalize	Off	Std-Dev-Tra	Off	
B1 filter	Off	Std-Dev-Time	Off	
Raw filter	Off	MIP-Sag	Off	
		MIP-Cor	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\OPT\_mitral\_valve\_cine

TA: 0:24 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Elliptical filter	Off	
Prio Recon	Off	POCS	Off	
Geometry				
Before measurement	Multi-slice mode		Sequential	
After measurement	Series		Descending	
Load to viewer	Special sat.		None	
Inline movie	System			
Auto store images	Body		Off	
Load to stamp segments	BO1		On	
Load images to graphic segments	BO2		On	
Auto open inline display	SP4		Off	
Start measurement without further preparation	SP2		On	
Wait for user to start	SP8		Off	
Start measurements	single	SP6	Off	
Routine		SP3	On	
Slice group 1	SP1		Off	
Slices	3	SP7	Off	
Dist. factor	0 %	SP5	Off	
Position	Positioning mode			
Orientation	REF			
Phase enc. dir.	Table position		H	
Rotation	Table position		0 mm	
Auto	MSMA		S - C - T	
Phase oversampling	65 %	Sagittal	R >> L	
FoV read	200 mm	Coronal	A >> P	
FoV phase	100.0 %	Transversal	F >> H	
Slice thickness	5.0 mm	Save uncombined	Off	
TR	34.8 ms	Coil Combine Mode	Adaptive Combine	
TE	1.21 ms	Auto Coil Select	Default	
Averages	1	Shim mode		
Filter	Distortion Corr.(2D)	Tune up		
Coil elements	BO1,2;SP2,3	Adjust with body coil	On	
Contrast		Confirm freq. adjustment	Off	
TD	0 ms	Assume Silicone	Off	
Magn. preparation	None	? Ref. amplitude 1H	0.000 V	
Flip angle	90 deg	Adjustment Tolerance	Auto	
Fat suppr.	None	Adjust volume		
Restore magn.	On	Position	Isocenter	
Averaging mode	Short term	Orientation	Transversal	
Reconstruction	Magnitude	Rotation	0.00 deg	
Measurements	1	R >> L	350 mm	
Multiple series	Each slice	A >> P	263 mm	
F >> H			350 mm	
Resolution		Physio		
Base resolution	128	1st Signal/Mode	ECG/Retro	
Phase resolution	100 %	Average cycle	400 ± 20 ms	
Phase partial Fourier	Off	Calculated phases	30	
Trajectory	Cartesian	Concatenations	3	
View sharing	Off	Segments	12	
Interpolation	On	Dark blood		
PAT mode	None	Off		
Matrix Coil Mode	Auto (CP)	Cine	On	
Dummy heartbeats			1	
Image Filter	Off	Resp. control	Breath-hold	
Distortion Corr.	On	Inline		
Mode	2D	Subtract	Off	
Unfiltered images	Off	Std-Dev-Sag	Off	
Prescan Normalize	Off	Std-Dev-Cor	Off	
Normalize	Off	Std-Dev-Tra	Off	
B1 filter	Off	Std-Dev-Time	Off	
Raw filter	Off	MIP-Sag	Off	
		MIP-Cor	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\OPT\_tricuspid\_valve\_cine

TA: 0:24 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Elliptical filter	Off
Prio Recon		POCS	Off
Before measurement		Geometry	
After measurement		Multi-slice mode	Sequential
Load to viewer		Series	Descending
Inline movie		Special sat.	
Auto store images		None	
Load to stamp segments		System	
Load images to graphic segments		Body	Off
Auto open inline display		BO1	On
Start measurement without further preparation		BO2	On
Wait for user to start		SP4	Off
Start measurements		SP2	On
Routine		SP8	Off
Slice group 1		SP6	Off
Slices		SP3	On
Dist. factor		SP1	Off
Position		SP7	Off
Orientation		SP5	Off
Phase enc. dir.		Positioning mode	
Rotation		Table position	REF
Auto		Table position	H
Phase oversampling		MSMA	0 mm
FoV read		Sagittal	S - C - T
FoV phase		Coronal	R >> L
Slice thickness		Transversal	A >> P
TR		Save uncombined	F >> H
TE		Coil Combine Mode	Off
Averages		Auto Coil Select	Adaptive Combine
Filter		Shim mode	Default
Coil elements		Adjust with body coil	Tune up
Contrast		Confirm freq. adjustment	On
TD		Assume Silicone	Off
Magn. preparation		? Ref. amplitude 1H	Off
Flip angle		Adjustment Tolerance	0.000 V
Fat suppr.		Adjust volume	Auto
Restore magn.		Position	Isocenter
Averaging mode		Orientation	Transversal
Reconstruction		Rotation	0.00 deg
Measurements		R >> L	350 mm
Multiple series		A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution		Physio	
Phase resolution		1st Signal/Mode	ECG/Retro
Phase partial Fourier		Average cycle	400 ± 20 ms
Trajectory		Calculated phases	30
View sharing		Concatenations	3
Interpolation		Segments	12
PAT mode		Dark blood	
Matrix Coil Mode		Cine	Off
Image Filter		Dummy heartbeats	On
Distortion Corr.		Resp. control	1
Mode		Inline	
Unfiltered images		Subtract	Off
Prescan Normalize		Std-Dev-Sag	Off
Normalize		Std-Dev-Cor	Off
B1 filter		Std-Dev-Tra	Off
Raw filter		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Recommended\OPT\_stenotic\_jet\_gre\_cine

TA: 0:18 PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	50.12 ms	Sagittal	S - C - T
TE	7.05 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	20 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	75 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	4
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Off
Bandwidth	130 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	12.5 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution 65 %

Phase partial Fourier Off

Trajectory Cartesian

Interpolation Off

PAT mode GRAPPA

Accel. factor PE 2

Ref. lines PE 24

Matrix Coil Mode Auto (Triple)

Reference scan mode Integrated

Image Filter Off

Distortion Corr. On

Mode 2D

Unfiltered images Off

Prescan Normalize Off

Normalize Off

B1 filter Off

Raw filter Off

Elliptical filter Off

POCS Off

## Geometry

Multi-slice mode Sequential

Series Descending

Special sat. None

## System

Body Off

BO1 On

BO2 On

SP4 Off

SP2 On

SP8 Off

SP6 Off

SP3 On

SP1 On

SP7 Off

SP5 Off

Positioning mode FIX

Table position H

Table position 0 mm

MSMA S - C - T

Sagittal R >> L

Coronal A >> P

Transversal F >> H

Save uncombined Off

Coil Combine Mode Adaptive Combine

Auto Coil Select Default

Shim mode Tune up

Adjust with body coil On

Confirm freq. adjustment Off

Assume Silicone Off

? Ref. amplitude 1H 0.000 V

Adjustment Tolerance Auto

Adjust volume Isocenter

Position Transversal

Orientation 0.00 deg

Rotation 350 mm

R >> L 263 mm

A >> P 350 mm

F >> H

## Physio

1025/+

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1027/+

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
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Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Resp. control	
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Resp. control	
Normalize	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\short\_axis\_cine

TA: 1:44 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	360 mm	Table position	H
FoV phase	75.0 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	44 ms	Sagittal	R >> L
TE	1.16 ms	Coronal	A >> P
Averages	4	Transversal	F >> H
Concatenations	10	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\four\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\two\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\three\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\coronal\_aorta\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R17.4 A40.3 F17.3	SP3	On
Orientation	C > S10.8 > T-7.1	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\rv\_long\_axis\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R25.0 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\pulmonary\_outflow\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	S > C-10.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	90 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\orta\_thru\_plane\_flow

TA: 0:46 PAT: 2 Voxel size: 2.5x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending	
Prio Recon	Off	Special sat.	None	
Before measurement	System			
After measurement	On	Body	Off	
Load to viewer	On	BO1	On	
Inline movie	On	BO2	On	
Auto store images	On	SP4	Off	
Load to stamp segments	On	SP2	On	
Load images to graphic segments	On	SP8	Off	
Auto open inline display	Off	SP6	Off	
Start measurement without further preparation	On	SP3	On	
Wait for user to start	Off	SP1	Off	
Start measurements	single	SP7	Off	
		SP5	Off	
Routine	Positioning mode			
Slice group 1	1	Table position	ISO	
Slices	20 %	Table position	H	
Dist. factor	Isocenter	MSMA	0 mm	
Position	Transversal	Sagittal	S - C - T	
Orientation	A >> P	Coronal	R >> L	
Phase enc. dir.	0.00 deg	Transversal	A >> P	
Rotation	0 %	Coil Combine Mode	F >> H	
Phase oversampling	360 mm	Auto Coil Select	Adaptive Combine	
FoV read	75.0 %		Default	
FoV phase	6.0 mm	Shim mode	Tune up	
Slice thickness	40.70 ms	Adjust with body coil	On	
TR	3.34 ms	Confirm freq. adjustment	Off	
TE	4	Assume Silicone	Off	
Averages	1	? Ref. amplitude 1H	0.000 V	
Concatenations	Distortion Corr.(2D)	Adjustment Tolerance	Auto	
Filter	BO1,2;SP2,3	Adjust volume		
Coil elements		Position	Isocenter	
		Orientation	Transversal	
Contrast		Rotation	0.00 deg	
Flip angle	20 deg	R >> L	350 mm	
Averaging mode	Short term	A >> P	263 mm	
Reconstruction	Magnitude	F >> H	350 mm	
Measurements	1	Physio		
Multiple series	Off	1st Signal/Mode	ECG/Retro	
Resolution	Resolution			
Base resolution	192	Average cycle	400 ± 20 ms	
Phase resolution	75 %	Calculated phases	25	
Phase partial Fourier	Off	Segments	3	
Interpolation	Off	Angio		
PAT mode	GRAPPA	Flow mode	Single dir.	
Accel. factor PE	2	Encodings	1	
Ref. lines PE	18	Velocity enc.	150 cm/s	
Matrix Coil Mode	Auto (Triple)	Direction	Through plane	
Reference scan mode	Integrated	Rephased images	On	
Image Filter	Off	Magnitude images	Off	
Distortion Corr.	On	Phase images	On	
Mode	2D	Image Processing		
Unfiltered images	Off	Subtract	Off	
Prescan Normalize	Off	Std-Dev-Sag	Off	
Normalize	Off	Std-Dev-Cor	Off	
B1 filter	Off	Std-Dev-Tra	Off	
Raw filter	Off	Std-Dev-Time	Off	
Elliptical filter	Off	MIP-Sag	Off	
Geometry	Sequence			
Multi-slice mode	Sequential	MIP-Cor	Off	
		MIP-Tra	Off	
		MIP-Time	Off	
		Save original images	On	

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\pulmonary\_thru\_plane\_flow

TA: 0:48 PAT: 2 Voxel size: 2.5x1.9x6.0 mm Rel. SNR: 1.00 SIEMENS: fl\_fq\_retro

Properties		Series	Descending
Prio Recon	Off	Special sat.	None
Before measurement	System		
After measurement	On	Body	Off
Load to viewer	On	BO1	On
Inline movie	On	BO2	On
Auto store images	On	SP4	Off
Load to stamp segments	On	SP2	On
Load images to graphic segments	On	SP8	Off
Auto open inline display	Off	SP6	Off
Start measurement without further preparation	On	SP3	On
Wait for user to start	Off	SP1	Off
Start measurements	single	SP7	Off
		SP5	Off
Routine	Positioning mode		
Slice group 1	1	Table position	ISO
Slices	20 %	Table position	H
Dist. factor	Isocenter	0 mm	0 mm
Position	Coronal	MSMA	S - C - T
Orientation	R >> L	Sagittal	R >> L
Phase enc. dir.	0.00 deg	Coronal	A >> P
Rotation	0 %	Transversal	F >> H
Phase oversampling	360 mm	Coil Combine Mode	Adaptive Combine
FoV read	75.0 %	Auto Coil Select	Default
FoV phase	6.0 mm	Shim mode	Tune up
Slice thickness	42.50 ms	Adjust with body coil	On
TR	3.64 ms	Confirm freq. adjustment	Off
TE	4	Assume Silicone	Off
Averages	1	? Ref. amplitude 1H	0.000 V
Concatenations	Distortion Corr.(2D)	Adjustment Tolerance	Auto
Filter	BO1,2;SP2,3	Adjust volume	
Coil elements		Position	Isocenter
Contrast		Orientation	Transversal
Flip angle	20 deg	Rotation	0.00 deg
Averaging mode	Short term	R >> L	350 mm
Reconstruction	Magnitude	A >> P	263 mm
Measurements	1	F >> H	350 mm
Multiple series	Off	Physio	
Resolution		1st Signal/Mode	ECG/Retro
Base resolution	192	Average cycle	400 ± 20 ms
Phase resolution	75 %	Calculated phases	25
Phase partial Fourier	Off	Segments	3
Interpolation	Off	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	18	Velocity enc.	90 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Integrated	Rephased images	On
Image Filter	Off	Magnitude images	Off
Distortion Corr.	On	Phase images	On
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off	Std-Dev-Tra	Off
B1 filter	Off	Std-Dev-Time	Off
Raw filter	Off	MIP-Sag	Off
Elliptical filter	Off	MIP-Cor	Off
Geometry		MIP-Tra	Off
Multi-slice mode	Sequential	MIP-Time	Off
		Save original images	On
Sequence			

## SIEMENS MAGNETOM Avanto syngo MR B19

Introduction	Off
Asymmetric echo	Weak
Contrasts	1
Bandwidth	347 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast
RF spoiling	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\OPT\_aortic\_valve\_cine

TA: 1:29 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Before measurement		POCS	Off
After measurement		Geometry	
Load to viewer	On	Multi-slice mode	Sequential
Inline movie	On	Series	Descending
Auto store images	On	Special sat.	None
Load to stamp segments	On	System	
Load images to graphic segments	On	Body	Off
Auto open inline display	Off	BO1	On
Start measurement without further preparation	On	BO2	On
Wait for user to start	Off	SP4	Off
Start measurements	single	SP2	On
System		SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	3	SP1	Off
Dist. factor	0 %	SP7	Off
Position	Isocenter	SP5	Off
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Auto	Off	MSMA	S - C - T
Phase oversampling	65 %	Sagittal	R >> L
FoV read	200 mm	Coronal	A >> P
FoV phase	100.0 %	Transversal	F >> H
Slice thickness	5.0 mm	Save uncombined	Off
TR	34.8 ms	Coil Combine Mode	Adaptive Combine
TE	1.21 ms	Auto Coil Select	Default
Averages	4	Shim mode	Tune up
Concatenations	3	Adjust with body coil	On
Filter	Distortion Corr.(2D)	Confirm freq. adjustment	Off
Coil elements	BO1,2;SP2,3	Assume Silicone	Off
Contrast		? Ref. amplitude 1H	0.000 V
TD	0 ms	Adjustment Tolerance	Auto
Magn. preparation	None	Adjust volume	
Flip angle	90 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
Restore magn.	On	Rotation	0.00 deg
Averaging mode	Short term	R >> L	350 mm
Reconstruction	Magnitude	A >> P	263 mm
Measurements	1	F >> H	350 mm
Multiple series	Each slice	Physio	
Resolution		1st Signal/Mode	ECG/Retro
Base resolution	128	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	30
Phase partial Fourier	Off	Segments	12
Trajectory	Cartesian	Dark blood	Off
View sharing	Off	Cine	On
Interpolation	On	Dummy heartbeats	1
PAT mode	None	Resp. control	Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off	MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\OPT\_pulmonic\_valve\_cine

TA: 1:29 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Before measurement		POCS	Off
After measurement		Geometry	
Load to viewer	On	Multi-slice mode	Sequential
Inline movie	On	Series	Descending
Auto store images	On	Special sat.	None
Load to stamp segments	On	System	
Load images to graphic segments	On	Body	Off
Auto open inline display	Off	BO1	On
Start measurement without further preparation	On	BO2	On
Wait for user to start	Off	SP4	Off
Start measurements	single	SP2	On
System		SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	3	SP1	Off
Dist. factor	0 %	SP7	Off
Position	Isocenter	SP5	Off
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Auto	Off	MSMA	S - C - T
Phase oversampling	65 %	Sagittal	R >> L
FoV read	200 mm	Coronal	A >> P
FoV phase	100.0 %	Transversal	F >> H
Slice thickness	5.0 mm	Save uncombined	Off
TR	34.8 ms	Coil Combine Mode	Adaptive Combine
TE	1.21 ms	Auto Coil Select	Default
Averages	4	Shim mode	Tune up
Concatenations	3	Adjust with body coil	On
Filter	Distortion Corr.(2D)	Confirm freq. adjustment	Off
Coil elements	BO1,2;SP2,3	Assume Silicone	Off
Contrast		? Ref. amplitude 1H	0.000 V
TD	0 ms	Adjustment Tolerance	Auto
Magn. preparation	None	Adjust volume	
Flip angle	90 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
Restore magn.	On	Rotation	0.00 deg
Averaging mode	Short term	R >> L	350 mm
Reconstruction	Magnitude	A >> P	263 mm
Measurements	1	F >> H	350 mm
Multiple series	Each slice	Physio	
Resolution		1st Signal/Mode	ECG/Retro
Base resolution	128	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	30
Phase partial Fourier	Off	Segments	12
Trajectory	Cartesian	Dark blood	Off
View sharing	Off	Cine	On
Interpolation	On	Dummy heartbeats	1
PAT mode	None	Resp. control	Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off	MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\OPT\_mitral\_valve\_cine

TA: 1:29 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Before measurement		POCS	Off
After measurement		Geometry	
Load to viewer	On	Multi-slice mode	Sequential
Inline movie	On	Series	Descending
Auto store images	On	Special sat.	None
Load to stamp segments	On	System	
Load images to graphic segments	On	Body	Off
Auto open inline display	Off	BO1	On
Start measurement without further preparation	On	BO2	On
Wait for user to start	Off	SP4	Off
Start measurements	single	SP2	On
System		SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	3	SP1	Off
Dist. factor	0 %	SP7	Off
Position	Isocenter	SP5	Off
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Auto	Off	MSMA	S - C - T
Phase oversampling	65 %	Sagittal	R >> L
FoV read	200 mm	Coronal	A >> P
FoV phase	100.0 %	Transversal	F >> H
Slice thickness	5.0 mm	Save uncombined	Off
TR	34.8 ms	Coil Combine Mode	Adaptive Combine
TE	1.21 ms	Auto Coil Select	Default
Averages	4	Shim mode	Tune up
Concatenations	3	Adjust with body coil	On
Filter	Distortion Corr.(2D)	Confirm freq. adjustment	Off
Coil elements	BO1,2;SP2,3	Assume Silicone	Off
Contrast		? Ref. amplitude 1H	0.000 V
TD	0 ms	Adjustment Tolerance	Auto
Magn. preparation	None	Adjust volume	
Flip angle	90 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
Restore magn.	On	Rotation	0.00 deg
Averaging mode	Short term	R >> L	350 mm
Reconstruction	Magnitude	A >> P	263 mm
Measurements	1	F >> H	350 mm
Multiple series	Each slice	Physio	
Resolution		1st Signal/Mode	ECG/Retro
Base resolution	128	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	30
Phase partial Fourier	Off	Segments	12
Trajectory	Cartesian	Dark blood	Off
View sharing	Off	Cine	On
Interpolation	On	Dummy heartbeats	1
PAT mode	None	Resp. control	Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off	MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\OPT\_tricuspid\_valve\_cine

TA: 1:29 PAT: Off Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Before measurement		POCS	Off
After measurement		Geometry	
Load to viewer	On	Multi-slice mode	Sequential
Inline movie	On	Series	Descending
Auto store images	On	Special sat.	None
Load to stamp segments	On	System	
Load images to graphic segments	On	Body	Off
Auto open inline display	Off	BO1	On
Start measurement without further preparation	On	BO2	On
Wait for user to start	Off	SP4	Off
Start measurements	single	SP2	On
System		SP8	Off
Routine		SP6	Off
Slice group 1		SP3	On
Slices	3	SP1	Off
Dist. factor	0 %	SP7	Off
Position	Isocenter	SP5	Off
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Auto	Off	MSMA	S - C - T
Phase oversampling	65 %	Sagittal	R >> L
FoV read	200 mm	Coronal	A >> P
FoV phase	100.0 %	Transversal	F >> H
Slice thickness	5.0 mm	Save uncombined	Off
TR	34.8 ms	Coil Combine Mode	Adaptive Combine
TE	1.21 ms	Auto Coil Select	Default
Averages	4	Shim mode	Tune up
Concatenations	3	Adjust with body coil	On
Filter	Distortion Corr.(2D)	Confirm freq. adjustment	Off
Coil elements	BO1,2;SP2,3	Assume Silicone	Off
Contrast		? Ref. amplitude 1H	0.000 V
TD	0 ms	Adjustment Tolerance	Auto
Magn. preparation	None	Adjust volume	
Flip angle	90 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
Restore magn.	On	Rotation	0.00 deg
Averaging mode	Short term	R >> L	350 mm
Reconstruction	Magnitude	A >> P	263 mm
Measurements	1	F >> H	350 mm
Multiple series	Each slice	Physio	
Resolution		1st Signal/Mode	ECG/Retro
Base resolution	128	Average cycle	400 ± 20 ms
Phase resolution	100 %	Calculated phases	30
Phase partial Fourier	Off	Segments	12
Trajectory	Cartesian	Dark blood	Off
View sharing	Off	Cine	On
Interpolation	On	Dummy heartbeats	1
PAT mode	None	Resp. control	Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off	MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.9 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Free Breathing\OPT\_stenotic\_jet\_gre\_cine

TA: 1:09 PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	50.12 ms	Coronal	A >> P
TE	7.05 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	20 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	75 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	4
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Off
Bandwidth	130 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	12.5 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Phase resolution	65 %
Prio Recon	Off	Phase partial Fourier	Off
Before measurement		Trajectory	Cartesian
After measurement		Interpolation	Off
Load to viewer	On	PAT mode	GRAPPA
Inline movie	Off	Accel. factor PE	2
Auto store images	On	Ref. lines PE	24
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)
Load images to graphic segments	On	Reference scan mode	Integrated
Auto open inline display	Off	Image Filter	Off
Start measurement without further preparation	Off	Distortion Corr.	On
Wait for user to start	Off	Mode	2D
Start measurements	single	Unfiltered images	Off
Routine		Prescan Normalize	Off
Slice group 1		Normalize	Off
Slices	3	B1 filter	Off
Dist. factor	300 %	Raw filter	Off
Position	Isocenter	Elliptical filter	Off
Orientation	Transversal	POCS	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0.00 deg	Multi-slice mode	Sequential
Auto	Off	Series	Descending
Slice group 2		Special sat.	None
Slices	3	System	
Dist. factor	300 %	Body	Off
Position	L30.0 P0.0 H0.0	BO1	On
Orientation	Sagittal	BO2	On
Phase enc. dir.	A >> P	SP4	Off
Rotation	0.00 deg	SP2	On
Auto	Off	SP8	Off
Slice group 3		SP6	Off
Slices	3	SP3	On
Dist. factor	300 %	SP1	On
Position	L0.0 P10.0 H0.0	SP7	Off
Orientation	Coronal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	FIX
Rotation	0.00 deg	Table position	H
Auto	Off	Table position	0 mm
Phase oversampling	0 %	MSMA	S - C - T
FoV read	400 mm	Sagittal	R >> L
FoV phase	100.0 %	Coronal	A >> P
Slice thickness	7.0 mm	Transversal	F >> H
TR	337.10 ms	Save uncombined	Off
TE	1.14 ms	Coil Combine Mode	Adaptive Combine
Averages	1	Auto Coil Select	Default
Concatenations	9	Contrast	
Filter	Distortion Corr.(2D)	Shim mode	Tune up
Coil elements	BO1,2;SP1-3	Adjust with body coil	On
Contrast		Confirm freq. adjustment	Off
TD	0 ms	Assume Silicone	Off
Magn. preparation	None	? Ref. amplitude 1H	0.000 V
Flip angle	80 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	On	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	256	Physio	

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution 65 %

Phase partial Fourier Off

Trajectory Cartesian

Interpolation Off

PAT mode GRAPPA

Accel. factor PE 2

Ref. lines PE 24

Matrix Coil Mode Auto (Triple)

Reference scan mode Integrated

Image Filter Off

Distortion Corr. On

Mode 2D

Unfiltered images Off

Prescan Normalize Off

Normalize Off

B1 filter Off

Raw filter Off

Elliptical filter Off

POCS Off

## Geometry

Multi-slice mode Sequential

Series Descending

Special sat. None

## System

Body Off

BO1 On

BO2 On

SP4 Off

SP2 On

SP8 Off

SP6 Off

SP3 On

SP1 On

SP7 Off

SP5 Off

Positioning mode ISO

Table position H

Table position 0 mm

MSMA S - C - T

Sagittal R >> L

Coronal A >> P

Transversal F >> H

Save uncombined Off

Coil Combine Mode Adaptive Combine

Auto Coil Select Default

Shim mode Tune up

Adjust with body coil On

Confirm freq. adjustment Off

Assume Silicone Off

? Ref. amplitude 1H 0.000 V

Adjustment Tolerance Auto

Adjust volume Isocenter

Position Transversal

Orientation 0.00 deg

Rotation 350 mm

R >> L 263 mm

A >> P 350 mm

F >> H

## Physio

1069/+

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	10 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	On
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	10 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	271.16 ms	Coronal	A >> P
TE	1.14 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	20	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP1-3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	On	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\two\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off																																																
Prio Recon	Off	Raw filter	Off																																																
Before measurement		Elliptical filter	Off																																																
After measurement		POCS	Off																																																
Load to viewer	On	Geometry																																																	
Inline movie	Off	Multi-slice mode	Sequential																																																
Auto store images	On	Series	Descending																																																
Load to stamp segments	On	Special sat.	None																																																
Load images to graphic segments	On	System																																																	
Auto open inline display	Off	Body	Off																																																
Start measurement without further preparation	On	BO1	On																																																
Wait for user to start	Off	BO2	On																																																
Start measurements	single	SP4	Off																																																
Routine		SP2	On																																																
Slice group 1		SP8	Off																																																
Slices	1	SP6	Off																																																
Dist. factor	20 %	SP3	On																																																
Position	R12.5 P0.1 H0.0	SP1	Off																																																
Orientation	S > C-34.0	SP7	Off																																																
Phase enc. dir.	A >> P	SP5	Off																																																
Rotation	0.00 deg	Positioning mode																																																	
Auto	Off	Table position	H																																																
Phase oversampling	0 %	Table position	0 mm																																																
FoV read	400 mm	MSMA	S - C - T																																																
FoV phase	100.0 %	Sagittal	R >> L																																																
Slice thickness	7.0 mm	Coronal	A >> P																																																
TR	332.22 ms	Transversal	F >> H																																																
TE	1.14 ms	Save uncombined	Off																																																
Averages	1	Coil Combine Mode	Adaptive Combine																																																
Concatenations	1	Auto Coil Select	Default																																																
Filter	Distortion Corr.(2D)	Shim mode																																																	
Coil elements	BO1,2;SP2,3	Adjust with body coil	Tune up																																																
Contrast		Confirm freq. adjustment	On																																																
Magn. preparation	None	Assume Silicone	Off																																																
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V																																																
Fat suppr.	None	Adjustment Tolerance	Auto																																																
Restore magn.	Off	Adjust volume																																																	
Averaging mode	Short term	Position	Isocenter																																																
Reconstruction	Magnitude	Orientation	Transversal																																																
Measurements	1	Rotation	0.00 deg																																																
Multiple series	Off	R >> L	350 mm																																																
Resolution		A >> P	263 mm																																																
Base resolution	256	F >> H	350 mm																																																
Phase resolution	65 %	Physio																																																	
Phase partial Fourier	Off	Trajectory	Cartesian	1st Signal/Mode	None	Interpolation	Off	Segments	95	PAT mode	GRAPPA	Accel. factor PE	2	Dark blood	Off	Ref. lines PE	24	Cine	Off	Matrix Coil Mode	Auto (Triple)	Resp. control	Off	Reference scan mode	Integrated	Inline		Image Filter	Off	Subtract	Off	Distortion Corr.	On	Std-Dev-Sag	Off	Mode	2D	Std-Dev-Cor	Off	Unfiltered images	Off	Std-Dev-Tra	Off	Prescan Normalize	Off	Std-Dev-Time	Off	Normalize	Off	MIP-Sag	Off
Trajectory	Cartesian	1st Signal/Mode	None																																																
Interpolation	Off	Segments	95																																																
PAT mode	GRAPPA	Accel. factor PE	2	Dark blood	Off	Ref. lines PE	24	Cine	Off	Matrix Coil Mode	Auto (Triple)	Resp. control	Off	Reference scan mode	Integrated	Inline		Image Filter	Off	Subtract	Off	Distortion Corr.	On	Std-Dev-Sag	Off	Mode	2D	Std-Dev-Cor	Off	Unfiltered images	Off	Std-Dev-Tra	Off	Prescan Normalize	Off	Std-Dev-Time	Off	Normalize	Off	MIP-Sag	Off										
Accel. factor PE	2	Dark blood	Off																																																
Ref. lines PE	24	Cine	Off																																																
Matrix Coil Mode	Auto (Triple)	Resp. control	Off																																																
Reference scan mode	Integrated	Inline																																																	
Image Filter	Off	Subtract	Off																																																
Distortion Corr.	On	Std-Dev-Sag	Off																																																
Mode	2D	Std-Dev-Cor	Off																																																
Unfiltered images	Off	Std-Dev-Tra	Off																																																
Prescan Normalize	Off	Std-Dev-Time	Off																																																
Normalize	Off	MIP-Sag	Off																																																

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFI
<hr/>	
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\four\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFI
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	74
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	Off
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\three\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\short\_axis\_cine\_realtim

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	56.64 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode		Segments	35
Accel. factor PE	GRAPPA	Phases	45
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	12	Cine	Off
Reference scan mode	Auto (Triple)	Resp. control	
Image Filter		None	
Distortion Corr.	Off	Subtract	
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\four\_chambr\_cine\_realtime

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\two\_chambr\_cine\_realtime

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme\_Arrhythmia\three\_chambr\_cine\_realtime

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\coronal\_aorta\_cine\_realtim

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R17.4 A40.3 F17.3	SP3	On
Orientation	C > S10.8 > T-7.1	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\rv\_long\_axis\_cine\_realtme

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R25.0 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode	GRAPPA	Phases	45
Accel. factor PE	2	Dark blood	
Ref. lines PE	12	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	On
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\pulmo\_outflow\_cine\_realtim

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	S > C-10.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	56.64 ms	Coronal	A >> P
TE	1.03 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\OPT\_aortic\_valve\_cine\_rt

TA: 8.3 s PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	0 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	56.88 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode		Phases	45
Accel. factor PE	GRAPPA	Dark blood	
Ref. lines PE	2	Cine	Off
Matrix Coil Mode	12	Resp. control	
Reference scan mode	Auto (Triple)	Subtract	On
Image Filter		Std-Dev-Sag	Off
Distortion Corr.	Integrated	Std-Dev-Cor	Off
Mode	Off	Std-Dev-Tra	Off
Unfiltered images		Std-Dev-Time	Off
Inline		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\OPT\_pulmo\_valve\_cine\_rt

TA: 8.3 s PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	0 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	56.88 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode		Segments	35
Accel. factor PE	GRAPPA	Phases	45
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	12	Cine	Off
Reference scan mode	Auto (Triple)	Resp. control	
Image Filter		None	
Distortion Corr.	Off	Subtract	
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\OPT\_mitral\_valve\_cine\_rt

TA: 8.3 s PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	0 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	56.88 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	70 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	On	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	40 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Shared phases	1st Signal/Mode	None
Interpolation	Off	Segments	35
PAT mode		Phases	45
Accel. factor PE	GRAPPA	Dark blood	
Ref. lines PE	2	Cine	Off
Matrix Coil Mode	12	Resp. control	
Reference scan mode	Auto (Triple)	Subtract	On
Image Filter		Std-Dev-Sag	Off
Distortion Corr.	Integrated	Std-Dev-Cor	Off
Mode	Off	Std-Dev-Tra	Off
Unfiltered images		Std-Dev-Time	Off
Inline		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Valvular\_Disease\Extreme Arrhythmia\OPT\_tricuspid\_valve\_cine\_rt

TA: 8.3 s PAT: 2 Voxel size: 5.2x2.1x6.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	0 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	400 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	6.0 mm	Table position	0 mm
TR	56.88 ms	MSMA	S - C - T
TE	1.03 ms	Sagittal	R >> L
Averages	1	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode		Segments	35
Accel. factor PE	GRAPPA	Phases	45
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	12	Cine	Off
Reference scan mode	Auto (Triple)	Resp. control	
Image Filter		None	
Distortion Corr.	Off	Subtract	
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\multi\_plane\_loc

TA: 7.3 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	400 ± 20 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\short\_axis\_cine

TA: 0:32 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	44 ms
TE	1.16 ms
Averages	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Concatenations	10
Segments	16

  

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Breath-hold
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\four\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\two\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\three\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\short\_axis\_db\_t2

TA: 8.0 s PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Prescan Normalize	On
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	Tim CT mode	
Wait for user to start	On	System	Off
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	360 mm	SP5	Off
FoV phase	75.0 %	Positioning mode	
Slice thickness	7.0 mm	Table position	REF
TR	800 ms	Table position	H
TE	79.0 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	1	Coronal	R >> L
Filter	Distortion Corr.(2D), Prescan	Transversal	A >> P
	Normalize	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
		Auto Coil Select	Adaptive Combine
Contrast			Default
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	180 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
Averaging mode		Adjust volume	
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	75 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Accel. factor PE	GRAPPA	Phases	1
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	43	Dark blood	On
Reference scan mode	Auto (Triple)	Dark blood thickness	300 %
	Integrated	Dark blood flip angle	200 deg
Image Filter	Off	Resp. control	
Distortion Corr.	On	Resp. control	Off
Mode	2D		
Unfiltered images	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\four\_chamber\_db\_t2

TA: 8.0 s PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Prescan Normalize	On
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	Tim CT mode	
Wait for user to start	On	System	Off
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	L11.8 A39.9 H7.1	SP8	Off
Orientation	T > C40.1 > S5.6	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	360 mm	SP5	Off
FoV phase	75.0 %	Positioning mode	
Slice thickness	7.0 mm	Table position	REF
TR	800 ms	Table position	H
TE	79.0 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	1	Coronal	R >> L
Filter	Distortion Corr.(2D), Prescan	Transversal	A >> P
	Normalize	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
		Auto Coil Select	Adaptive Combine
Contrast			Default
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	180 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
Averaging mode		Adjust volume	
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	75 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Accel. factor PE	GRAPPA	Phases	1
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	43	Dark blood	On
Reference scan mode	Auto (Triple)	Dark blood thickness	300 %
	Integrated	Dark blood flip angle	200 deg
Image Filter	Off	Resp. control	
Distortion Corr.	On	Resp. control	Off
Mode	2D		
Unfiltered images	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\two\_chamber\_db\_t2

TA: 8.0 s PAT: 2 Voxel size: 2.5x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Prescan Normalize	On
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	Tim CT mode	
Wait for user to start	On	System	Off
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	R12.5 P0.1 H0.0	SP8	Off
Orientation	S > C-34.0	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	360 mm	SP5	Off
FoV phase	75.0 %	Positioning mode	
Slice thickness	7.0 mm	Table position	REF
TR	800 ms	Table position	H
TE	79.0 ms	MSMA	0 mm
Averages	1	Sagittal	S - C - T
Concatenations	1	Coronal	R >> L
Filter	Distortion Corr.(2D), Prescan	Transversal	A >> P
	Normalize	Save uncombined	F >> H
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off
		Auto Coil Select	Adaptive Combine
Contrast			Default
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	180 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
Averaging mode		Adjust volume	
Reconstruction	Short term	Position	Isocenter
Measurements	Magnitude	Orientation	Transversal
Multiple series	1	Rotation	0.00 deg
	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	75 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	800 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Accel. factor PE	GRAPPA	Phases	1
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	43	Dark blood	On
Reference scan mode	Auto (Triple)	Dark blood thickness	300 %
	Integrated	Dark blood flip angle	200 deg
Image Filter	Off	Resp. control	
Distortion Corr.	On	Resp. control	Off
Mode	2D		
Unfiltered images	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	4
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\OPT\_short\_axis\_grid\_tag

TA: 0:27 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off																																																		
Prio Recon	Off	B1 filter	Off																																																		
Before measurement		Raw filter	Off																																																		
After measurement		Elliptical filter	Off																																																		
Load to viewer	On	POCS	Off																																																		
Inline movie	On	Geometry																																																			
Auto store images	On	Multi-slice mode	Sequential																																																		
Load to stamp segments	On	Series	Descending																																																		
Load images to graphic segments	On	Special sat.																																																			
Auto open inline display	On	None																																																			
Start measurement without further preparation	On	System																																																			
Wait for user to start	Off	Body	Off																																																		
Start measurements	single	BO1	On																																																		
Routine		BO2	On																																																		
Slice group 1		SP4	Off																																																		
Slices	3	SP2	On																																																		
Dist. factor	100 %	SP8	Off																																																		
Position	L70.0 A15.0 H10.0	SP6	Off																																																		
Orientation	S > C40.0 > T20.0	SP3	On																																																		
Phase enc. dir.	A >> P	SP1	Off																																																		
Rotation	0.00 deg	SP7	Off																																																		
Auto	Off	SP5	Off																																																		
Phase oversampling	0 %	Positioning mode																																																			
FoV read	360 mm	Table position	REF																																																		
FoV phase	75.0 %	Table position	H																																																		
Slice thickness	7.0 mm	MSMA	0 mm																																																		
TR	45.06 ms	Sagittal	S - C - T																																																		
TE	3.46 ms	Coronal	R >> L																																																		
Averages	1	Transversal	A >> P																																																		
Filter	Distortion Corr.(2D)	Save uncombined	F >> H																																																		
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Off																																																		
Contrast		Auto Coil Select	Adaptive Combine																																																		
TD	0 ms	Shim mode	Default																																																		
Magn. preparation	None	Adjust with body coil	Tune up																																																		
Flip angle	15 deg	Confirm freq. adjustment	On																																																		
Fat suppr.	None	Assume Silicone	Off																																																		
Restore magn.	Off	? Ref. amplitude 1H	Off																																																		
Averaging mode	Short term	Adjustment Tolerance	0.000 V																																																		
Reconstruction	Magnitude	Adjust volume	Auto																																																		
Measurements	1	Position	Isocenter																																																		
Multiple series	Each slice	Orientation	Transversal																																																		
Resolution		Rotation	0.00 deg																																																		
Base resolution	192	R >> L	350 mm																																																		
Phase resolution	100 %	A >> P	263 mm																																																		
Phase partial Fourier	Off	F >> H	350 mm																																																		
Trajectory	Cartesian	Physio																																																			
View sharing	Off	Interpolation	On	1st Signal/Mode	ECG/Retro	PAT mode	GRAPPA	Average cycle	400 ± 20 ms	Accel. factor PE	2	Calculated phases	25	Ref. lines PE	24	Concatenations	3	Matrix Coil Mode	Auto (Triple)	Segments	6	Reference scan mode	Integrated	Dark blood		Image Filter	Off	Cine	Off	Distortion Corr.	On	Dummy heartbeats	On	Mode	2D	Resp. control		Unfiltered images	Off	Subtract	Breath-hold	Prescan Normalize	Off	Std-Dev-Sag	Off			Std-Dev-Cor	Off			Std-Dev-Tra	Off
Interpolation	On	1st Signal/Mode	ECG/Retro																																																		
PAT mode	GRAPPA	Average cycle	400 ± 20 ms																																																		
Accel. factor PE	2	Calculated phases	25																																																		
Ref. lines PE	24	Concatenations	3																																																		
Matrix Coil Mode	Auto (Triple)	Segments	6																																																		
Reference scan mode	Integrated	Dark blood																																																			
Image Filter	Off	Cine	Off																																																		
Distortion Corr.	On	Dummy heartbeats	On																																																		
Mode	2D	Resp. control																																																			
Unfiltered images	Off	Subtract	Breath-hold																																																		
Prescan Normalize	Off	Std-Dev-Sag	Off																																																		
		Std-Dev-Cor	Off																																																		
		Std-Dev-Tra	Off																																																		

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	200 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	7.5 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

## SIEMENS MAGNETOM Avanto syngo MR B19

\\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\OPT\_four\_chamber\_line\_tag

TA: 0:12 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties	
Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single
Routine	
Slice group 1	
Slices	1
Dist. factor	20 %
Position	L70.0 A15.0 H10.0
Orientation	S > C40.0 > T20.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	45.06 ms
TE	3.46 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3
Contrast	
Magn. preparation	None
Flip angle	15 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off
Resolution	
Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	On
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off
Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None
System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm
Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	777 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	6
Phases	17
Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off
Inline	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	200 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	7.5 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\ti\_scout

TA: 0:11 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	34.06 ms
TE	1.12 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	TI Scout
Flip angle	50 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	On
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	665 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	13
Phases	17

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\short\_axis\_delayed

TA: 1:38 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Off
	Normalize	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Concatenations	10
Matrix Coil Mode	Auto (CP)	Segments	25
		Phases	1
Image Filter	Off	Dark blood	
Distortion Corr.	On	Cine	Off
Mode	2D	Resp. control	
Unfiltered images	Off	Breath-hold	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\four\_chamber\_delayed

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Segments	25
Matrix Coil Mode	Auto (CP)	Phases	1
		Dark blood	
Image Filter	Off	Cine	
Distortion Corr.	On	Resp. control	
Mode	2D	Off	
Unfiltered images	Off	Subtract	
Unfiltered images	Off	Std-Dev-Sag	
Prescan Normalize	On	Std-Dev-Cor	
Normalize	Off	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Recommended\two\_chamber\_delayed

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	25
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\auto\_detect\_table\_position

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off		
Start measurement without further preparation	On		
Wait for user to start	Off		
Start measurements	single		
System			
Routine		Body	Off
Slice group 1		BO1	On
Slices	20	BO2	On
Dist. factor	25 %	SP4	Off
Position	Isocenter	SP2	On
Orientation	Transversal	SP8	Off
Phase enc. dir.	A >> P	SP6	Off
Rotation	0.00 deg	SP3	On
Phase oversampling	0 %	SP1	Off
FoV read	400 mm	SP7	Off
FoV phase	62.5 %	SP5	Off
Slice thickness	7.0 mm		
TR	600 ms	Positioning mode	REF
TE	22 ms	Table position	H
Averages	1	Table position	0 mm
Concatenations	1	MSMA	S - C - T
Filter	Distortion Corr.(2D), Prescan	Sagittal	R >> L
	Normalize	Coronal	A >> P
Coil elements	BO1,2;SP2,3	Transversal	F >> H
		Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
		Auto Coil Select	Default
Contrast			
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	160 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
		Adjust volume	
Averaging mode	Long term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution			
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
		Acquisition window	695 ms
PAT mode	None	Trigger pulse	2
Matrix Coil Mode	CP	Trigger delay	0 ms
		Phases	1
Image Filter	Off		
Distortion Corr.	On	Dark blood	On
Mode	2D	Dark blood thickness	300 %
Unfiltered images	Off	Dark blood flip angle	200 deg
Unfiltered images	Off		
Prescan Normalize	On	Resp. control	Off
Normalize	Off		
B1 filter	Off		
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	Off	Cine	Off
Inline		Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\short\_axis\_cine

TA: 1:44 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	44 ms
TE	1.16 ms
Averages	4
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Retro
Average cycle	400 ± 20 ms
Calculated phases	25
Segments	16

Dark blood	Off
Cine	On
Dummy heartbeats	1

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\four\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\two\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\three\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\short\_axis\_db\_haste\_t2

TA: 1.6 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On	Tim CT mode	Off
Load to stamp segments	On		
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	50 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\four\_chamber\_db\_haste\_t2

TA: 1.6 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off		
Start measurement without further preparation	On		
Wait for user to start	Off		
Start measurements	single		
System			
Routine		Body	Off
Slice group 1		BO1	On
Slices	1	BO2	On
Dist. factor	50 %	SP4	Off
Position	L11.8 A39.9 H7.1	SP2	On
Orientation	T > C40.1 > S5.6	SP8	Off
Phase enc. dir.	A >> P	SP6	Off
Rotation	0.00 deg	SP3	On
Phase oversampling	0 %	SP1	Off
FoV read	400 mm	SP7	Off
FoV phase	62.5 %	SP5	Off
Slice thickness	7.0 mm		
TR	600 ms	Positioning mode	REF
TE	22 ms	Table position	H
Averages	1	Table position	0 mm
Concatenations	1	MSMA	S - C - T
Filter	Distortion Corr.(2D), Prescan	Sagittal	R >> L
	Normalize	Coronal	A >> P
Coil elements	BO1,2;SP2,3	Transversal	F >> H
		Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
		Auto Coil Select	Default
Contrast			
MTC	Off	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	160 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Water suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	Off	Adjustment Tolerance	Auto
		Adjust volume	
Averaging mode	Long term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
		A >> P	263 mm
		F >> H	350 mm
Resolution			
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
		Acquisition window	695 ms
PAT mode	None	Trigger pulse	2
Matrix Coil Mode	CP	Trigger delay	0 ms
		Phases	1
Image Filter	Off		
Distortion Corr.	On	Dark blood	On
Mode	2D	Dark blood thickness	300 %
Unfiltered images	Off	Dark blood flip angle	200 deg
Unfiltered images	Off		
Prescan Normalize	On	Resp. control	Off
Normalize	Off		
B1 filter	Off		
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\two\_chamber\_db\_haste\_t2

TA: 1.6 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement	Multi-slice mode		Single shot
After measurement	Series		Interleaved
Load to viewer	Special sat.		None
Inline movie	Tim CT mode		Off
Auto store images	System		
Load to stamp segments	On	Body	Off
Load images to graphic segments	On	BO1	On
Auto open inline display	On	BO2	On
Start measurement without further preparation	On	SP4	Off
Wait for user to start	Off	SP2	On
Start measurements	single	SP8	Off
Routine		SP6	Off
Slice group 1	SP3		On
Slices	1	SP1	Off
Dist. factor	50 %	SP7	Off
Position	R12.5 P0.1 H0.0	SP5	Off
Orientation	S > C-34.0	Positioning mode	
Phase enc. dir.	A >> P	Table position	REF
Rotation	0.00 deg	Table position	H
Phase oversampling	0 %	MSMA	0 mm
FoV read	400 mm	Sagittal	S - C - T
FoV phase	62.5 %	Coronal	R >> L
Slice thickness	7.0 mm	Transversal	A >> P
TR	600 ms	Save uncombined	F >> H
TE	22 ms	Coil Combine Mode	Off
Averages	1	Auto Coil Select	Adaptive Combine
Concatenations	1	Default	
Filter	Distortion Corr.(2D), Prescan	Shim mode	
	Normalize	Adjust with body coil	Tune up
Coil elements	BO1,2;SP2,3	Confirm freq. adjustment	On
Contrast		Assume Silicone	Off
MTC	Off	? Ref. amplitude 1H	Off
Magn. preparation	None	Adjustment Tolerance	0.000 V
Flip angle	160 deg	Adjust volume	Auto
Fat suppr.	None	Position	Isocenter
Water suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
Averaging mode		R >> L	350 mm
Reconstruction	Long term	A >> P	263 mm
Measurements	Magnitude	F >> H	350 mm
Multiple series	1	Physio	
Resolution		1st Signal/Mode	ECG/Trigger
Base resolution	192	Average cycle	400 ± 20 ms
Phase resolution	85 %	Captured cycle	-not set-
Phase partial Fourier	5/8	Acquisition window	695 ms
Interpolation	On	Trigger pulse	2
PAT mode		Trigger delay	0 ms
Matrix Coil Mode	None	Phases	1
Image Filter		Dark blood	
Distortion Corr.	CP	Dark blood	On
Mode	Off	Dark blood thickness	300 %
Unfiltered images	On	Dark blood flip angle	200 deg
Unfiltered images	2D	Resp. control	
Prescan Normalize	Off	Inline	
Normalize	Off	Subtract	Off
B1 filter	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\OPT\_short\_axis\_grid\_tag

TA: 1:43 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	3	SP4	Off
Dist. factor	100 %	SP2	On
Position	L70.0 A15.0 H10.0	SP8	Off
Orientation	S > C40.0 > T20.0	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	360 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	45.06 ms	MSMA	S - C - T
TE	3.46 ms	Sagittal	R >> L
Averages	4	Coronal	A >> P
Concatenations	3	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	15 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	On	1st Signal/Mode	ECG/Retro
PAT mode		Average cycle	400 ± 20 ms
Accel. factor PE	GRAPPA	Calculated phases	25
Ref. lines PE	2	Segments	6
Matrix Coil Mode	24	Dark blood	
Reference scan mode	Auto (Triple)	Cine	Off
Image Filter		Dummy heartbeats	On
Distortion Corr.	Integrated	Resp. control	
Mode	Off	Inplane	
Unfiltered images		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	200 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	7.5 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\OPT\_four\_chamber\_line\_tag

TA: 0:49 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L70.0 A15.0 H10.0	SP6	Off
Orientation	S > C40.0 > T20.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	45.06 ms	Sagittal	S - C - T
TE	3.46 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	15 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	On	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	-not set-
Ref. lines PE	24	Acquisition window	877 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	0 ms
Image Filter	Off	Segments	6
Distortion Corr.	On	Phases	19
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Dummy heartbeats	On
Inline		Resp. control	1
Subtract			Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	200 Hz/Px
Flow comp.	Slice/Read
Optimization	Min. TE TR
Echo spacing	7.5 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\ti\_scout

TA: 0:40 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	34.06 ms
TE	1.12 ms
Averages	4
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	TI Scout
Flip angle	50 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	On
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	665 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	13
Phases	17

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\short\_axis\_delayed

TA: 0:18 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	340 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	700.00 ms	Coronal	A >> P
TE	1.09 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Default
Coil elements	Normalize BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	Non-sel. IR	Assume Silicone	Off
TI	300 ms	? Ref. amplitude 1H	0.000 V
Flip angle	40 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
		Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D		
Unfiltered images	Off	Resp. control	Off
Unfiltered images	Off		
Prescan Normalize	On		
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\four\_chamber\_delayed

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Free Breathing\two\_chamber\_delayed

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	20
Dist. factor	10 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	271.16 ms
TE	1.14 ms
Averages	1
Concatenations	20
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	REF
Table position	H
Table position	10 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	74

Dark blood	Off
Cine	Off

Resp. control	Off
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## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	
Shots per slice	Shots
Trufi delta freq.	1
RF pulse type	0 Hz
Gradient mode	Fast
Excitation	Fast
Flip angle mode	Slice-sel.
	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\two\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off
		MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFI
<hr/>	
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\four\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFI
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Shim mode	Tune up
Magn. preparation	None	Adjust with body coil	On
Flip angle	80 deg	Confirm freq. adjustment	Off
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Short term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	74
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	Off
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	
Shots per slice	Shots
	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\three\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFI
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\short\_axis\_cine\_realtme

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	None
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	75.0 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	56.64 ms	Sagittal	R >> L
TE	1.03 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	10	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	70 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	40 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	None
View sharing	Shared phases	Segments	35
Interpolation	Off	Phases	45
PAT mode	GRAPPA	Dark blood	Off
Accel. factor PE	2	Cine	On
Ref. lines PE	12	Resp. control	Off
Matrix Coil Mode	Auto (Triple)	Inline	
Reference scan mode	Integrated	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
		MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	56.64 ms
TE	1.03 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	56.64 ms
TE	1.03 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	56.64 ms
TE	1.03 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\short\_axis\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	TruFI
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\four\_chamber\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	
PAT mode	None		Off
Matrix Coil Mode	Auto (CP)	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Prescan Normalize	On	MIP-Sag	Off
Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Pericardial\_Disease\Extreme Arrhythmia\two\_chamber\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	On	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	TruFI
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR_CARDIAC_AVANTO_18Q\Cardiac_Mass_Thrombus\Recommended\auto_detect_table_positc					
TA: 3.1 s	PAT: 2	Voxel size: 2.4x1.6x7.0 mm	Rel. SNR: 1.00	SIEMENS: CV	

Properties		Phase resolution		65 %	
Prio Recon	Off	Phase partial Fourier		Off	
Before measurement		Trajectory		Cartesian	
After measurement		Interpolation		Off	
Load to viewer	On	PAT mode		GRAPPA	
Inline movie	Off	Accel. factor PE	2		
Auto store images	On	Ref. lines PE	24		
Load to stamp segments	On	Matrix Coil Mode	Auto (Triple)		
Load images to graphic segments	On	Reference scan mode	Integrated		
Auto open inline display	Off	Image Filter		Off	
Start measurement without further preparation	Off	Distortion Corr.		On	
Wait for user to start	Off	Mode	2D		
Start measurements	single	Unfiltered images		Off	
Routine		Prescan Normalize		Off	
Slice group 1		Normalize		Off	
Slices	3	B1 filter		Off	
Dist. factor	300 %	Raw filter		Off	
Position	Isocenter	Elliptical filter		Off	
Orientation	Transversal	POCS		Off	
Phase enc. dir.	A >> P	Geometry			
Rotation	0.00 deg	Multi-slice mode	Sequential		
Auto	Off	Series	Descending		
Slice group 2		Special sat.	None		
Slices	3	System			
Dist. factor	300 %	Body	Off		
Position	L30.0 P0.0 H0.0	BO1	On		
Orientation	Sagittal	BO2	On		
Phase enc. dir.	A >> P	SP4	Off		
Rotation	0.00 deg	SP2	On		
Auto	Off	SP8	Off		
Slice group 3		SP6	Off		
Slices	3	SP3	On		
Dist. factor	300 %	SP1	On		
Position	L0.0 P10.0 H0.0	SP7	Off		
Orientation	Coronal	SP5	Off		
Phase enc. dir.	R >> L	Positioning mode	FIX		
Rotation	0.00 deg	Table position	H		
Auto	Off	Table position	0 mm		
Phase oversampling	0 %	MSMA	S - C - T		
FoV read	400 mm	Sagittal	R >> L		
FoV phase	100.0 %	Coronal	A >> P		
Slice thickness	7.0 mm	Transversal	F >> H		
TR	337.10 ms	Save uncombined	Off		
TE	1.14 ms	Coil Combine Mode	Adaptive Combine		
Averages	1	Auto Coil Select	Default		
Concatenations	9	Contrast			
Filter	Distortion Corr.(2D)	Shim mode	Tune up		
Coil elements	BO1,2;SP1-3	Adjust with body coil	On		
		Confirm freq. adjustment	Off		
		Assume Silicone	Off		
		? Ref. amplitude 1H	0.000 V		
		Adjustment Tolerance	Auto		
		Adjust volume			
		Position	Isocenter		
		Orientation	Transversal		
		Resolution			
		Physio			
		Base resolution	256		

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\multi\_plane\_loc

TA: 7.3 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	462 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interl. in B.-h.
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	On	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	20	SP4	Off
Dist. factor	25 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	700 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	4	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
TD	0.0 ms	Auto Coil Select	Default
MTC	Off		
Magn. preparation	None	Shim mode	Tune up
Flip angle	160 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	85 %	A >> P	263 mm
Phase partial Fourier	5/8	F >> H	350 mm
Interpolation	On		
PAT mode	None	Physio	
Matrix Coil Mode	CP	1st Signal/Mode	ECG/Trigger
Image Filter	Off	Average cycle	400 ± 20 ms
Distortion Corr.	On	Captured cycle	-not set-
Mode	2D	Acquisition window	800 ms
Unfiltered images	Off	Trigger pulse	2
Unfiltered images	Off	Trigger delay	0 ms
Prescan Normalize	On	Phases	1
Normalize	Off		
		Dark blood	On
		Dark blood thickness	300 %
		Dark blood flip angle	200 deg
		Resp. control	Breath-hold
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
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Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
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Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	10	SP2	On
Dist. factor	25 %	SP8	Off
Position	L15.7 A41.7 F26.9	SP6	Off
Orientation	C > S34.0 > T-25.2	SP3	On
Phase enc. dir.	R >> L	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	243.60 ms	Sagittal	S - C - T
TE	1.21 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	10	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
TD	0 ms	Position	Default
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	800 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	500 ms
Image Filter	Off	Segments	74
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	Off
Prescan Normalize	Off	Resp. control	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\short\_axis\_cine

TA: 0:32 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Filter	Distortion Corr.(2D)	Coil Combine Mode	Adaptive Combine
Coil elements	BO1,2;SP2,3	Auto Coil Select	Default
Contrast		Shim mode	Tune up
TD	0 ms	Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Each slice	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Concatenations	10
Accel. factor PE	2	Segments	16
Ref. lines PE	24	Dark blood	Off
Matrix Coil Mode	Auto (Triple)	Cine	On
Reference scan mode	Integrated	Dummy heartbeats	1
Image Filter	Off	Resp. control	Breath-hold
Distortion Corr.	On	Inline	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\four\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	L11.8 A39.9 H7.1	SP6	Off
Orientation	T > C40.1 > S5.6	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\two\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	R12.5 P0.1 H0.0	SP6	Off
Orientation	S > C-34.0	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\three\_chamber\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\db\_t1

TA: 0:11 PAT: 2 Voxel size: 2.2x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Phase oversampling	0 %
FoV read	340 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	800 ms
TE	7.9 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

MTC	Off
Magn. preparation	None
Flip angle	180 deg
Fat suppr.	None
Water suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	80 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	On
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	27
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None
Tim CT mode	Off

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	800 ms
Trigger pulse	1
Trigger delay	0 ms
Phases	1
Dark blood	On
Dark blood thickness	300 %
Dark blood flip angle	200 deg
Resp. control	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	7
Echo trains per slice	13
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\db\_t2\_fatsat

TA: 9.6 s PAT: 2 Voxel size: 2.2x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties		Unfiltered images	Off
Prio Recon	Off	Unfiltered images	Off
Before measurement		Prescan Normalize	On
After measurement		Normalize	Off
Load to viewer	On	B1 filter	Off
Inline movie	Off	Raw filter	Off
Auto store images	On	Elliptical filter	Off
Load to stamp segments	On	Geometry	
Load images to graphic segments	On	Multi-slice mode	Sequential
Auto open inline display	Off	Series	Descending
Start measurement without further preparation	On	Special sat.	None
Wait for user to start	On	Tim CT mode	
Start measurements	single	System	
Routine		Body	Off
Slice group 1		BO1	On
Slices	1	BO2	On
Dist. factor	50 %	SP4	Off
Position	Isocenter	SP2	On
Orientation	Transversal	SP8	Off
Phase enc. dir.	A >> P	SP6	Off
Rotation	0.00 deg	SP3	On
Phase oversampling	0 %	SP1	Off
FoV read	340 mm	SP7	Off
FoV phase	100.0 %	SP5	Off
Slice thickness	7.0 mm	Positioning mode	
TR	670 ms	Table position	REF
TE	79.0 ms	Table position	H
Averages	1	0 mm	0 mm
Concatenations	1	MSMA	S - C - T
Filter	Distortion Corr.(2D), Prescan	Sagittal	R >> L
	Normalize	Coronal	A >> P
Coil elements	BO1,2;SP2,3	Transversal	F >> H
Contrast		Save uncombined	Off
MTC	Off	Coil Combine Mode	Adaptive Combine
Magn. preparation	None	Auto Coil Select	Default
Flip angle	180 deg	Shim mode	
Fat suppr.	Fat sat.	Adjust with body coil	Tune up
Fat sat. mode	Strong	Confirm freq. adjustment	On
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode		Adjustment Tolerance	0.000 V
Reconstruction	Short term	Adjust volume	Auto
Measurements	Magnitude	Position	Isocenter
Multiple series	1	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	80 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	On	1st Signal/Mode	ECG/Trigger
PAT mode		Average cycle	400 ± 20 ms
Accel. factor PE	GRAPPA	Captured cycle	-not set-
Ref. lines PE	2	Acquisition window	670 ms
Matrix Coil Mode	35	Trigger pulse	2
Reference scan mode	Auto (Triple)	Trigger delay	0 ms
	Integrated	Phases	1
Image Filter		Dark blood	On
Distortion Corr.	Off	Dark blood thickness	300 %
Mode	On	Dark blood flip angle	200 deg
	2D	Resp. control	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	Off
Contrasts	1
Bandwidth	180 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	7.9 ms
Define	Turbo factor
Turbo factor	19
Echo trains per slice	5
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\dynamic\_test

TA: 4.0 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off																																																																																																																																																																																
Prio Recon	Off	PAT mode	GRAPPA																																																																																																																																																																																
Before measurement		Accel. factor PE	2																																																																																																																																																																																
After measurement		Ref. lines PE	14																																																																																																																																																																																
Load to viewer	On	Matrix Coil Mode	Auto (Triple)																																																																																																																																																																																
Inline movie	On	Reference scan mode	Integrated																																																																																																																																																																																
Auto store images	On																																																																																																																																																																																		
Load to stamp segments	On																																																																																																																																																																																		
Load images to graphic segments	On																																																																																																																																																																																		
Auto open inline display	On	Image Filter	Off																																																																																																																																																																																
Start measurement without further preparation	On	Distortion Corr.	On																																																																																																																																																																																
Wait for user to start	On	Mode	2D																																																																																																																																																																																
Start measurements	single	Unfiltered images	Off																																																																																																																																																																																
		Unfiltered images	Off																																																																																																																																																																																
Routine		Prescan Normalize	On																																																																																																																																																																																
Slice group 1		Normalize	Off																																																																																																																																																																																
Slices	3	B1 filter	Off																																																																																																																																																																																
Dist. factor	50 %	Raw filter	Off																																																																																																																																																																																
Position	Isocenter	Elliptical filter	Off																																																																																																																																																																																
Orientation	Transversal	POCS	Off																																																																																																																																																																																
Phase enc. dir.	A >> P																																																																																																																																																																																		
Rotation	0.00 deg	Geometry																																																																																																																																																																																	
Auto	Off	Slice group 2		Multi-slice mode	Single shot	Slices	1	Series	Descending	Dist. factor	20 %	Special sat.	None	Position	Isocenter			Orientation	Sagittal	System		Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	162.86 ms	SP6	Off	TE	1.14 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	95 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode		ECG/Trigger		Average cycle		400 ± 20 ms	
Slice group 2		Multi-slice mode	Single shot																																																																																																																																																																																
Slices	1	Series	Descending																																																																																																																																																																																
Dist. factor	20 %	Special sat.	None																																																																																																																																																																																
Position	Isocenter																																																																																																																																																																																		
Orientation	Sagittal	System																																																																																																																																																																																	
Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	162.86 ms	SP6	Off	TE	1.14 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	95 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode		ECG/Trigger		Average cycle		400 ± 20 ms																							
Rotation	0.00 deg	Body	Off																																																																																																																																																																																
Auto	Off	BO1	On																																																																																																																																																																																
Phase oversampling	0 %	BO2	On																																																																																																																																																																																
FoV read	360 mm	SP4	Off																																																																																																																																																																																
FoV phase	75.0 %	SP2	On																																																																																																																																																																																
Slice thickness	8.0 mm	SP8	Off																																																																																																																																																																																
TR	162.86 ms	SP6	Off																																																																																																																																																																																
TE	1.14 ms	SP3	On																																																																																																																																																																																
Averages	1	SP1	Off																																																																																																																																																																																
Concatenations	1	SP7	Off																																																																																																																																																																																
Filter	Distortion Corr.(2D), Prescan	SP5	Off																																																																																																																																																																																
	Normalize																																																																																																																																																																																		
Coil elements	BO1,2;SP2,3	Positioning mode	REF																																																																																																																																																																																
Contrast		Table position	H																																																																																																																																																																																
Magn. preparation	Non-sel. SR perf	Table position	0 mm																																																																																																																																																																																
TI	95 ms	MSMA	S - C - T																																																																																																																																																																																
Flip angle	12 deg	Sagittal	R >> L																																																																																																																																																																																
Fat suppr.	None	Coronal	A >> P																																																																																																																																																																																
Restore magn.	Off	Transversal	F >> H																																																																																																																																																																																
Averaging mode	Long term	Save uncombined	Off																																																																																																																																																																																
Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine																																																																																																																																																																																
Measurements	5	Auto Coil Select	Default																																																																																																																																																																																
Pause after meas. 1	0.0 s																																																																																																																																																																																		
Pause after meas. 2	0.0 s	Shim mode	Tune up																																																																																																																																																																																
Pause after meas. 3	0.0 s	Adjust with body coil	On																																																																																																																																																																																
Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off																																																																																																																																																																																
Multiple series	Each slice	Assume Silicone	Off																																																																																																																																																																																
Resolution		? Ref. amplitude 1H	0.000 V																																																																																																																																																																																
Base resolution	192	Adjustment Tolerance	Auto																																																																																																																																																																																
Phase resolution	65 %	Adjust volume																																																																																																																																																																																	
Phase partial Fourier	Off	Position	Isocenter																																																																																																																																																																																
Trajectory	Cartesian	Orientation	Transversal																																																																																																																																																																																
		Rotation	0.00 deg																																																																																																																																																																																
		R >> L	350 mm																																																																																																																																																																																
		A >> P	263 mm																																																																																																																																																																																
		F >> H	350 mm																																																																																																																																																																																
Physio																																																																																																																																																																																			
1st Signal/Mode		ECG/Trigger																																																																																																																																																																																	
Average cycle		400 ± 20 ms																																																																																																																																																																																	

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
<b>Inline</b>	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
<b>Sequence</b>	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\dynamic

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\OPT\_t1

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	800.00 ms
TE	3 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. IR
TI	300 ms
Flip angle	25 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Short term
Reconstruction	Magnitude/Real
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	25
Phases	1

Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\OPT\_cine

TA: 3.2 s PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	On	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D	Subtract	Off
Unfiltered images	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Inline		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\ti\_scout

TA: 0:11 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	34.06 ms
TE	1.12 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	TI Scout
Flip angle	50 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Off
Interpolation	On
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	665 ms
Trigger pulse	2
Trigger delay	0 ms
Segments	13
Phases	17

Dark blood	Off
Cine	On
Dummy heartbeats	1
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\short\_axis\_delayed

TA: 1:38 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	On	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Off
	Normalize	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
TD	0 ms	Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Each slice	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Concatenations	10
Matrix Coil Mode	Auto (CP)	Segments	25
		Phases	1
Image Filter	Off	Dark blood	
Distortion Corr.	On	Cine	
Mode	2D	Resp. control	
Unfiltered images	Off	Breath-hold	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
<hr/>	
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\four\_chamber\_delayed

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Segments	25
Matrix Coil Mode	Auto (CP)	Phases	1
		Dark blood	
Image Filter	Off	Cine	
Distortion Corr.	On	Resp. control	
Mode	2D	Off	
Unfiltered images	Off	Subtract	
Unfiltered images	Off	Std-Dev-Sag	
Prescan Normalize	On	Std-Dev-Cor	
Normalize	Off	Off	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Recommended\two\_chamber\_delayed

TA: 0:11 PAT: Off Voxel size: 1.8x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	On	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	800.00 ms	Coronal	R >> L
TE	3 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
		Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	100 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
		Trigger delay	0 ms
PAT mode	None	Segments	25
Matrix Coil Mode	Auto (CP)	Phases	1
		Dark blood	
Image Filter	Off	Cine	
Distortion Corr.	On	Resp. control	
Mode	2D	Off	
Unfiltered images	Off	Subtract	
Unfiltered images	Off	Std-Dev-Sag	
Prescan Normalize	On	Std-Dev-Cor	
Normalize	Off		

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	150 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	7.7 ms
Sequence type	Gre
Define	Segments
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

**\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free**

TA: 3.1 s    PAT: 2    Voxel size: 2.4x1.6x7.0 mm    Rel. SNR: 1.00    SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
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Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\multi\_plane\_loc

TA: 7.2 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1255/+

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	400 ± 20
Acquisition window	626 ms
Trigger pulse	1
Trigger delay	288 ms
Segments	95
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\axial\_db\_haste\_loc

TA: 0:32 PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	25 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	400 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\two\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\four\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\short\_axis\_loc

TA: 8.0 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	ECG/Trigger
Trajectory	Cartesian	Average cycle	400 ± 20 ms
Interpolation	Off	Captured cycle	400 ± 20
PAT mode	GRAPPA	Acquisition window	800 ms
Accel. factor PE	2	Trigger pulse	1
Ref. lines PE	24	Trigger delay	500 ms
Matrix Coil Mode	Auto (Triple)	Segments	74
Reference scan mode	Integrated	Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D	Resp. control	Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\three\_chamber\_loc

TA: 0.9 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Trigger
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Captured cycle	400 ± 20
Ref. lines PE	24	Acquisition window	813 ms
Matrix Coil Mode	Auto (Triple)	Trigger pulse	1
Reference scan mode	Integrated	Trigger delay	480 ms
Image Filter	Off	Segments	95
Distortion Corr.	On	Phases	1
Mode	2D	Dark blood	
Unfiltered images	Off	Cine	
Prescan Normalize	Off	Resp. control	
Normalize	Off	Off	
Inline		Subtract	
		Std-Dev-Sag	
		Std-Dev-Cor	

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\short\_axis\_cine

TA: 1:44 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Prescan Normalize	Off
Prio Recon	Off	Normalize	Off
Before measurement		B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	Off
Inline movie	On	POCS	Off
Auto store images	On	Geometry	
Load to stamp segments	On	Multi-slice mode	Sequential
Load images to graphic segments	On	Series	Descending
Auto open inline display	Off	Special sat.	
Start measurement without further preparation	On	None	
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	10	SP4	Off
Dist. factor	25 %	SP2	On
Position	L15.7 A41.7 F26.9	SP8	Off
Orientation	C > S34.0 > T-25.2	SP6	Off
Phase enc. dir.	R >> L	SP3	On
Rotation	0.00 deg	SP1	Off
Auto	Off	SP7	Off
Phase oversampling	0 %	SP5	Off
FoV read	360 mm	Positioning mode	
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	Table position	0 mm
TR	44 ms	MSMA	S - C - T
TE	1.16 ms	Sagittal	R >> L
Averages	4	Coronal	A >> P
Concatenations	10	Transversal	F >> H
Filter	Distortion Corr.(2D)	Save uncombined	Off
Coil elements	BO1,2;SP2,3	Coil Combine Mode	Adaptive Combine
Contrast		Auto Coil Select	Default
TD	0 ms	Shim mode	
Magn. preparation	None	Tune up	
Flip angle	80 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
	Each slice	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	192	R >> L	350 mm
Phase resolution	100 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
View sharing	Off	1st Signal/Mode	ECG/Retro
Interpolation	Off	Average cycle	400 ± 20 ms
PAT mode		Calculated phases	25
Accel. factor PE	GRAPPA	Segments	16
Ref. lines PE	2	Dark blood	
Matrix Coil Mode	24	Cine	
Reference scan mode	Auto (Triple)	Dummy heartbeats	
	Integrated	Resp. control	
Image Filter		Off	
Distortion Corr.	Off	Subtract	Off
Mode	On	Std-Dev-Sag	Off
Unfiltered images	2D	Std-Dev-Cor	Off
	Off	Std-Dev-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\four\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\two\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\three\_chamber\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	360 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	44 ms	Coronal	A >> P
TE	1.16 ms	Transversal	F >> H
Averages	4	Save uncombined	Off
Concatenations	1	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
Magn. preparation	None	Confirm freq. adjustment	Off
Flip angle	80 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	0.000 V
Restore magn.	On	Adjustment Tolerance	Auto
Averaging mode	Short term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	100 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Retro
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	Off	Calculated phases	25
PAT mode	GRAPPA	Segments	16
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Cine	On
Matrix Coil Mode	Auto (Triple)	Dummy heartbeats	1
Reference scan mode	Integrated	Resp. control	Off
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\db\_haste

TA: 1.6 s PAT: Off Voxel size: 2.1x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		Raw filter	Off
Prio Recon	Off	Elliptical filter	Off
Geometry			
Before measurement		Multi-slice mode	Single shot
After measurement		Series	Interleaved
Load to viewer	On	Special sat.	None
Inline movie	Off		
Auto store images	On		
Load to stamp segments	On	Tim CT mode	Off
Load images to graphic segments	On		
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	50 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Phase oversampling	0 %	Positioning mode	REF
FoV read	350 mm	Table position	H
FoV phase	62.5 %	Table position	0 mm
Slice thickness	7.0 mm	MSMA	S - C - T
TR	600 ms	Sagittal	R >> L
TE	22 ms	Coronal	A >> P
Averages	1	Transversal	F >> H
Concatenations	1	Save uncombined	Off
Filter	Distortion Corr.(2D), Prescan	Coil Combine Mode	Adaptive Combine
	Normalize	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
MTC	Off	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	160 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Water suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Long term	Orientation	Transversal
Reconstruction	Magnitude	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
Resolution		F >> H	350 mm
Base resolution	192	Physio	
Phase resolution	85 %	1st Signal/Mode	ECG/Trigger
Phase partial Fourier	5/8	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	695 ms
Matrix Coil Mode	CP	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Phases	1
Mode	2D		
Unfiltered images	Off	Dark blood	On
Unfiltered images	Off	Dark blood thickness	300 %
Prescan Normalize	On	Dark blood flip angle	200 deg
Normalize	Off	Resp. control	Off
B1 filter	Off	Inline	
		Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\db\_haste\_fatsat

TA: 1.6 s PAT: Off Voxel size: 2.5x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: haste

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement			
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Single shot
Auto store images	On	Series	Interleaved
Load to stamp segments	On	Special sat.	None
Load images to graphic segments	On		
Auto open inline display	Off	Tim CT mode	Off
Start measurement without further preparation	On		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		BO1	On
Slice group 1		BO2	On
Slices	1	SP4	Off
Dist. factor	50 %	SP2	On
Position	Isocenter	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	400 mm	SP5	Off
FoV phase	62.5 %		
Slice thickness	7.0 mm	Positioning mode	REF
TR	600 ms	Table position	H
TE	22 ms	Table position	0 mm
Averages	1	MSMA	S - C - T
Concatenations	1	Sagittal	R >> L
Filter	Distortion Corr.(2D), Prescan	Coronal	A >> P
	Normalize	Transversal	F >> H
Coil elements	BO1,2;SP2,3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
MTC	Off	Auto Coil Select	Default
Magn. preparation	None		
Flip angle	160 deg	Shim mode	Tune up
Fat suppr.	Fat sat.	Adjust with body coil	On
Fat sat. mode	Strong	Confirm freq. adjustment	Off
Water suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	85 %	F >> H	350 mm
Phase partial Fourier	5/8		
Interpolation	On	Physio	
		1st Signal/Mode	ECG/Trigger
PAT mode	None	Average cycle	400 ± 20 ms
Matrix Coil Mode	CP	Captured cycle	-not set-
		Acquisition window	695 ms
Image Filter	Off	Trigger pulse	2
Distortion Corr.	On	Trigger delay	0 ms
Mode	2D	Phases	1
Unfiltered images	Off		
Unfiltered images	Off	Dark blood	On
Prescan Normalize	On	Dark blood thickness	300 %
Normalize	Off	Dark blood flip angle	200 deg
		Resp. control	Off
		Inline	
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Contrasts	1
Bandwidth	766 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	3.16 ms
<hr/>	
Turbo factor	102
RF pulse type	Fast
Gradient mode	Fast

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\dynamic\_test

TA: 4.0 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off																																																																																																																																																																																
Prio Recon	Off	PAT mode	GRAPPA																																																																																																																																																																																
Before measurement		Accel. factor PE	2																																																																																																																																																																																
After measurement		Ref. lines PE	14																																																																																																																																																																																
Load to viewer	On	Matrix Coil Mode	Auto (Triple)																																																																																																																																																																																
Inline movie	On	Reference scan mode	Integrated																																																																																																																																																																																
Auto store images	On																																																																																																																																																																																		
Load to stamp segments	On																																																																																																																																																																																		
Load images to graphic segments	On																																																																																																																																																																																		
Auto open inline display	On	Image Filter	Off																																																																																																																																																																																
Start measurement without further preparation	On	Distortion Corr.	On																																																																																																																																																																																
Wait for user to start	On	Mode	2D																																																																																																																																																																																
Start measurements	single	Unfiltered images	Off																																																																																																																																																																																
		Unfiltered images	Off																																																																																																																																																																																
Routine		Prescan Normalize	On																																																																																																																																																																																
Slice group 1		Normalize	Off																																																																																																																																																																																
Slices	3	B1 filter	Off																																																																																																																																																																																
Dist. factor	50 %	Raw filter	Off																																																																																																																																																																																
Position	Isocenter	Elliptical filter	Off																																																																																																																																																																																
Orientation	Transversal	POCS	Off																																																																																																																																																																																
Phase enc. dir.	A >> P																																																																																																																																																																																		
Rotation	0.00 deg	Geometry																																																																																																																																																																																	
Auto	Off	Slice group 2		Multi-slice mode	Single shot	Slices	1	Series	Descending	Dist. factor	20 %	Special sat.	None	Position	Isocenter			Orientation	Sagittal	System		Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	162.86 ms	SP6	Off	TE	1.14 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	95 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode		ECG/Trigger		Average cycle		400 ± 20 ms	
Slice group 2		Multi-slice mode	Single shot																																																																																																																																																																																
Slices	1	Series	Descending																																																																																																																																																																																
Dist. factor	20 %	Special sat.	None																																																																																																																																																																																
Position	Isocenter																																																																																																																																																																																		
Orientation	Sagittal	System																																																																																																																																																																																	
Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	162.86 ms	SP6	Off	TE	1.14 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	95 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode		ECG/Trigger		Average cycle		400 ± 20 ms																							
Rotation	0.00 deg	Body	Off																																																																																																																																																																																
Auto	Off	BO1	On																																																																																																																																																																																
Phase oversampling	0 %	BO2	On																																																																																																																																																																																
FoV read	360 mm	SP4	Off																																																																																																																																																																																
FoV phase	75.0 %	SP2	On																																																																																																																																																																																
Slice thickness	8.0 mm	SP8	Off																																																																																																																																																																																
TR	162.86 ms	SP6	Off																																																																																																																																																																																
TE	1.14 ms	SP3	On																																																																																																																																																																																
Averages	1	SP1	Off																																																																																																																																																																																
Concatenations	1	SP7	Off																																																																																																																																																																																
Filter	Distortion Corr.(2D), Prescan	SP5	Off																																																																																																																																																																																
	Normalize																																																																																																																																																																																		
Coil elements	BO1,2;SP2,3	Positioning mode	REF																																																																																																																																																																																
Contrast		Table position	H																																																																																																																																																																																
Magn. preparation	Non-sel. SR perf	Table position	0 mm																																																																																																																																																																																
TI	95 ms	MSMA	S - C - T																																																																																																																																																																																
Flip angle	12 deg	Sagittal	R >> L																																																																																																																																																																																
Fat suppr.	None	Coronal	A >> P																																																																																																																																																																																
Restore magn.	Off	Transversal	F >> H																																																																																																																																																																																
Averaging mode	Long term	Save uncombined	Off																																																																																																																																																																																
Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine																																																																																																																																																																																
Measurements	5	Auto Coil Select	Default																																																																																																																																																																																
Pause after meas. 1	0.0 s																																																																																																																																																																																		
Pause after meas. 2	0.0 s	Shim mode	Tune up																																																																																																																																																																																
Pause after meas. 3	0.0 s	Adjust with body coil	On																																																																																																																																																																																
Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off																																																																																																																																																																																
Multiple series	Each slice	Assume Silicone	Off																																																																																																																																																																																
Resolution		? Ref. amplitude 1H	0.000 V																																																																																																																																																																																
Base resolution	192	Adjustment Tolerance	Auto																																																																																																																																																																																
Phase resolution	65 %	Adjust volume																																																																																																																																																																																	
Phase partial Fourier	Off	Position	Isocenter																																																																																																																																																																																
Trajectory	Cartesian	Orientation	Transversal																																																																																																																																																																																
		Rotation	0.00 deg																																																																																																																																																																																
		R >> L	350 mm																																																																																																																																																																																
		A >> P	263 mm																																																																																																																																																																																
		F >> H	350 mm																																																																																																																																																																																
Physio																																																																																																																																																																																			
1st Signal/Mode		ECG/Trigger																																																																																																																																																																																	
Average cycle		400 ± 20 ms																																																																																																																																																																																	

# SIEMENS MAGNETOM Avanto syngo MR B19

Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off
<b>Inline</b>	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
<b>Sequence</b>	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\dynamic

TA: 0:40 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	162.86 ms
TE	1.14 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	95 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

## Geometry

Multi-slice mode	Single shot
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	ECG/Trigger
Average cycle	400 ± 20 ms
Captured cycle	-not set-
Acquisition window	1000 ms
Trigger pulse	1
Trigger delay	0 ms
Segments	54
Phases	1
Dark blood	Off
Cine	Off
Resp. control	Off

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	2.4 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\OPT\_t1

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	Off
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Off	
Prescan Normalize	On	Inline	
Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\OPT\_cine

TA: 0:10 PAT: 2 Voxel size: 1.9x1.9x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	360 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	44 ms	Sagittal	S - C - T
TE	1.16 ms	Coronal	R >> L
Averages	4	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Default	
Magn. preparation	None	Shim mode	Tune up
Flip angle	90 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode	Short term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Off	Position	Isocenter
Resolution		Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	100 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Off	Physio	
Interpolation	Off	1st Signal/Mode	ECG/Retro
PAT mode	GRAPPA	Average cycle	400 ± 20 ms
Accel. factor PE	2	Calculated phases	25
Ref. lines PE	24	Segments	16
Matrix Coil Mode	Auto (Triple)	Dark blood	
Reference scan mode	Integrated	Cine	Off
Image Filter	Off	Dummy heartbeats	On
Distortion Corr.	On	Resp. control	
Mode	2D		Off
Unfiltered images	Off	Inline	
Prescan Normalize	Off	Subtract	Off
		Std-Dev-Sag	Off
		Std-Dev-Cor	Off
		Std-Dev-Tra	Off
		Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	930 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.8 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast*
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\ti\_scout

TA: 0:40 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	On	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	34.06 ms	Coronal	R >> L
TE	1.12 ms	Transversal	A >> P
Averages	4	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	TI Scout	Confirm freq. adjustment	On
Flip angle	50 deg	Assume Silicone	Off
Fat suppr.	None	? Ref. amplitude 1H	Off
Restore magn.	On	Adjustment Tolerance	0.000 V
Averaging mode	Short term	Adjust volume	Auto
Reconstruction	Magnitude	Position	Isocenter
Measurements	1	Orientation	Transversal
Multiple series	Off	Rotation	0.00 deg
Resolution		R >> L	350 mm
Base resolution	192	A >> P	263 mm
Phase resolution	50 %	F >> H	350 mm
Phase partial Fourier	Off	Physio	
Trajectory	Cartesian	1st Signal/Mode	ECG/Trigger
View sharing	Off	Average cycle	400 ± 20 ms
Interpolation	On	Captured cycle	-not set-
PAT mode	None	Acquisition window	665 ms
Matrix Coil Mode	Auto (CP)	Trigger pulse	2
Image Filter	Off	Trigger delay	0 ms
Distortion Corr.	On	Segments	13
Mode	2D	Phases	17
Unfiltered images	Off	Inline	
Unfiltered images	Off	Dark blood	Off
Prescan Normalize	On	Cine	On
Normalize	Off	Dummy heartbeats	1

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Centric
Asymmetric echo	Allowed
Bandwidth	965 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Segments
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\short\_axis\_delayed

TA: 0:18 PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	340 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	700.00 ms	Coronal	A >> P
TE	1.09 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Default
Coil elements	Normalize BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	Non-sel. IR	Assume Silicone	Off
TI	300 ms	? Ref. amplitude 1H	0.000 V
Flip angle	40 deg	Adjustment Tolerance	Auto
Fat suppr.	None	Adjust volume	
Restore magn.	Off	Position	Isocenter
Averaging mode	Short term	Orientation	Transversal
Reconstruction	Magnitude/Real	Rotation	0.00 deg
Measurements	1	R >> L	350 mm
Multiple series	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
		Phases	1
Image Filter	Off	Dark blood	Off
Distortion Corr.	On	Cine	Off
Mode	2D		
Unfiltered images	Off	Resp. control	Off
Unfiltered images	Off		
Prescan Normalize	On		
		Subtract	Off
		Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\four\_chamber\_delayed

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Free Breathing\two\_chamber\_delayed

TA: 1.6 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	700.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	Off	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude/Real	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	ECG/Trigger
Phase resolution	50 %	Average cycle	400 ± 20 ms
Phase partial Fourier	Off	Captured cycle	-not set-
Trajectory	Cartesian	Acquisition window	1000 ms
Interpolation	Off	Trigger pulse	2
PAT mode	None	Trigger delay	0 ms
Matrix Coil Mode	Auto (CP)	Segments	72
Image Filter	Off	Phases	1
Distortion Corr.	On	Dark blood	
Mode	2D	Cine	
Unfiltered images	Off	Resp. control	
Unfiltered images	Off	Inline	
Prescan Normalize	On	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1295/+

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\multi\_plane\_loc

TA: 3.1 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	300 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	3
Dist. factor	300 %
Position	L30.0 P0.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 3	
Slices	3
Dist. factor	300 %
Position	L0.0 P10.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	337.10 ms
TE	1.14 ms
Averages	1
Concatenations	9
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP1-3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	80 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	256
-----------------	-----

Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

## Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	None

## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	On
SP7	Off
SP5	Off
Positioning mode	ISO
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

# SIEMENS MAGNETOM Avanto syngo MR B19

1st Signal/Mode	None
Segments	95
Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\axial\_loc

TA: 5.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	20	SP8	Off
Dist. factor	10 %	SP6	Off
Position	Isocenter	SP3	On
Orientation	Transversal	SP1	On
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	10 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	271.16 ms	Coronal	A >> P
TE	1.14 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	20	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP1-3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	On	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	Trufi
Define	
Shots per slice	Shots
Trufi delta freq.	1
RF pulse type	0 Hz
Gradient mode	Fast
Excitation	Fast
Flip angle mode	Slice-sel.
	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\two\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	R12.5 P0.1 H0.0	SP3	On
Orientation	S > C-34.0	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	On	Std-Dev-Sag	Off
Mode	2D	Std-Dev-Cor	Off
Unfiltered images	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\four\_chamber\_loc

TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFI
<hr/>	
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\short\_axis\_loc

TA: 2.5 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	Off	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	None
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	10	SP8	Off
Dist. factor	25 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	REF
Phase oversampling	0 %	Table position	H
FoV read	400 mm	Table position	0 mm
FoV phase	75.0 %	MSMA	S - C - T
Slice thickness	7.0 mm	Sagittal	R >> L
TR	243.60 ms	Coronal	A >> P
TE	1.21 ms	Transversal	F >> H
Averages	1	Save uncombined	Off
Concatenations	10	Coil Combine Mode	Adaptive Combine
Filter	Distortion Corr.(2D)	Auto Coil Select	Default
Coil elements	BO1,2;SP2,3	Shim mode	Tune up
Contrast		Adjust with body coil	On
TD	0 ms	Confirm freq. adjustment	Off
Magn. preparation	None	Assume Silicone	Off
Flip angle	80 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	None	Adjustment Tolerance	Auto
Restore magn.	Off	Adjust volume	
Averaging mode	Short term	Position	Isocenter
Reconstruction	Magnitude	Orientation	Transversal
Measurements	1	Rotation	0.00 deg
Multiple series	Off	R >> L	350 mm
Resolution		A >> P	263 mm
Base resolution	256	F >> H	350 mm
Phase resolution	65 %	Physio	
Phase partial Fourier	Off	1st Signal/Mode	None
Trajectory	Cartesian	Segments	74
Interpolation	Off	Dark blood	Off
PAT mode	GRAPPA	Cine	Off
Accel. factor PE	2	Resp. control	Off
Ref. lines PE	24	Inline	
Matrix Coil Mode	Auto (Triple)	Subtract	Off
Reference scan mode	Integrated	Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	On	Std-Dev-Tra	Off
Mode	2D	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.8 ms
Sequence type	Trufi
Define	
Shots per slice	Shots
Trufi delta freq.	1
RF pulse type	0 Hz
Gradient mode	Fast
Excitation	Fast*
Flip angle mode	Slice-sel.
	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\three\_chamber\_loc  
 TA: 0.4 s PAT: 2 Voxel size: 2.4x1.6x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L34.0 P18.2 H40.2	SP3	On
Orientation	S > T-31.4 > C3.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	400 mm	Table position	H
FoV phase	100.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	332.22 ms	Coronal	R >> L
TE	1.14 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D)	Auto Coil Select	Adaptive Combine
Coil elements	BO1,2;SP2,3	Default	
Contrast		Shim mode	
Magn. preparation	None	Adjust with body coil	Tune up
Flip angle	80 deg	Confirm freq. adjustment	On
Fat suppr.	None	Assume Silicone	Off
Restore magn.	Off	? Ref. amplitude 1H	Off
Averaging mode	Short term	Adjustment Tolerance	0.000 V
Reconstruction	Magnitude	Adjust volume	Auto
Measurements	1	Position	Isocenter
Multiple series	Off	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	256	R >> L	350 mm
Phase resolution	65 %	A >> P	263 mm
Phase partial Fourier	Off	F >> H	350 mm
Trajectory	Cartesian	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	95
Accel. factor PE	2	Dark blood	
Ref. lines PE	24	Cine	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	
Reference scan mode	Integrated	Off	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off
		MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1149 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFI
Define	Shots
Shots per slice	1
TruFI delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme

TA: 0:27 PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	10
Dist. factor	25 %
Position	L15.7 A41.7 F26.9
Orientation	C > S34.0 > T-25.2
Phase enc. dir.	R >> L
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	56.64 ms
TE	1.03 ms
Averages	1
Concatenations	10
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

TD	0 ms
Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending

Special sat.	None
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## System

Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off

  

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

## Physio

1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On

Resp. control	Off
---------------	-----

## Inline

Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
<hr/>	
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

**\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme**

TA: 2.8 s    PAT: 2    Voxel size: 5.2x2.1x7.0 mm    Rel. SNR: 1.00    SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L11.8 A39.9 H7.1
Orientation	T > C40.1 > S5.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	56.64 ms
TE	1.03 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	56.64 ms
TE	1.03 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme

TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L34.0 P18.2 H40.2
Orientation	S > T-31.4 > C3.6
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	400 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	56.64 ms
TE	1.03 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D)
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	None
Flip angle	70 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	40 %
Phase partial Fourier	Off
Trajectory	Cartesian
View sharing	Shared phases
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	12
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	Off

Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	35
Phases	45
Dark blood	Off
Cine	On
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\dynamic\_test

TA: 4.1 s PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Interpolation	Off																																																																																																																																																																																
Prio Recon	Off	PAT mode	GRAPPA																																																																																																																																																																																
Before measurement		Accel. factor PE	2																																																																																																																																																																																
After measurement		Ref. lines PE	14																																																																																																																																																																																
Load to viewer	On	Matrix Coil Mode	Auto (Triple)																																																																																																																																																																																
Inline movie	On	Reference scan mode	Integrated																																																																																																																																																																																
Auto store images	On																																																																																																																																																																																		
Load to stamp segments	On																																																																																																																																																																																		
Load images to graphic segments	On																																																																																																																																																																																		
Auto open inline display	On	Image Filter	Off																																																																																																																																																																																
Start measurement without further preparation	On	Distortion Corr.	On																																																																																																																																																																																
Wait for user to start	On	Mode	2D																																																																																																																																																																																
Start measurements	single	Unfiltered images	Off																																																																																																																																																																																
		Unfiltered images	Off																																																																																																																																																																																
Routine		Prescan Normalize	On																																																																																																																																																																																
Slice group 1		Normalize	Off																																																																																																																																																																																
Slices	3	B1 filter	Off																																																																																																																																																																																
Dist. factor	50 %	Raw filter	Off																																																																																																																																																																																
Position	Isocenter	Elliptical filter	Off																																																																																																																																																																																
Orientation	Transversal	POCS	Off																																																																																																																																																																																
Phase enc. dir.	A >> P																																																																																																																																																																																		
Rotation	0.00 deg	Geometry																																																																																																																																																																																	
Auto	Off	Slice group 2		Multi-slice mode	Single shot	Slices	1	Series	Descending	Dist. factor	20 %	Special sat.	None	Position	Isocenter			Orientation	Sagittal	System		Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	202.36 ms	SP6	Off	TE	1.23 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	115 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode				Segments			
Slice group 2		Multi-slice mode	Single shot																																																																																																																																																																																
Slices	1	Series	Descending																																																																																																																																																																																
Dist. factor	20 %	Special sat.	None																																																																																																																																																																																
Position	Isocenter																																																																																																																																																																																		
Orientation	Sagittal	System																																																																																																																																																																																	
Phase enc. dir.	A >> P	Rotation	0.00 deg	Body	Off	Auto	Off	BO1	On	Phase oversampling	0 %	BO2	On	FoV read	360 mm	SP4	Off	FoV phase	75.0 %	SP2	On	Slice thickness	8.0 mm	SP8	Off	TR	202.36 ms	SP6	Off	TE	1.23 ms	SP3	On	Averages	1	SP1	Off	Concatenations	1	SP7	Off	Filter	Distortion Corr.(2D), Prescan	SP5	Off		Normalize			Coil elements	BO1,2;SP2,3	Positioning mode	REF	Contrast		Table position	H	Magn. preparation	Non-sel. SR perf	Table position	0 mm	TI	115 ms	MSMA	S - C - T	Flip angle	12 deg	Sagittal	R >> L	Fat suppr.	None	Coronal	A >> P	Restore magn.	Off	Transversal	F >> H	Averaging mode	Long term	Save uncombined	Off	Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine	Measurements	5	Auto Coil Select	Default	Pause after meas. 1	0.0 s			Pause after meas. 2	0.0 s	Shim mode	Tune up	Pause after meas. 3	0.0 s	Adjust with body coil	On	Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off	Multiple series	Each slice	Assume Silicone	Off	Resolution		? Ref. amplitude 1H	0.000 V	Base resolution	192	Adjustment Tolerance	Auto	Phase resolution	65 %	Adjust volume		Phase partial Fourier	Off	Position	Isocenter	Trajectory	Cartesian	Orientation	Transversal			Rotation	0.00 deg			R >> L	350 mm			A >> P	263 mm			F >> H	350 mm	Physio				1st Signal/Mode				Segments																									
Rotation	0.00 deg	Body	Off																																																																																																																																																																																
Auto	Off	BO1	On																																																																																																																																																																																
Phase oversampling	0 %	BO2	On																																																																																																																																																																																
FoV read	360 mm	SP4	Off																																																																																																																																																																																
FoV phase	75.0 %	SP2	On																																																																																																																																																																																
Slice thickness	8.0 mm	SP8	Off																																																																																																																																																																																
TR	202.36 ms	SP6	Off																																																																																																																																																																																
TE	1.23 ms	SP3	On																																																																																																																																																																																
Averages	1	SP1	Off																																																																																																																																																																																
Concatenations	1	SP7	Off																																																																																																																																																																																
Filter	Distortion Corr.(2D), Prescan	SP5	Off																																																																																																																																																																																
	Normalize																																																																																																																																																																																		
Coil elements	BO1,2;SP2,3	Positioning mode	REF																																																																																																																																																																																
Contrast		Table position	H																																																																																																																																																																																
Magn. preparation	Non-sel. SR perf	Table position	0 mm																																																																																																																																																																																
TI	115 ms	MSMA	S - C - T																																																																																																																																																																																
Flip angle	12 deg	Sagittal	R >> L																																																																																																																																																																																
Fat suppr.	None	Coronal	A >> P																																																																																																																																																																																
Restore magn.	Off	Transversal	F >> H																																																																																																																																																																																
Averaging mode	Long term	Save uncombined	Off																																																																																																																																																																																
Reconstruction	Magnitude	Coil Combine Mode	Adaptive Combine																																																																																																																																																																																
Measurements	5	Auto Coil Select	Default																																																																																																																																																																																
Pause after meas. 1	0.0 s																																																																																																																																																																																		
Pause after meas. 2	0.0 s	Shim mode	Tune up																																																																																																																																																																																
Pause after meas. 3	0.0 s	Adjust with body coil	On																																																																																																																																																																																
Pause after meas. 4	0.0 s	Confirm freq. adjustment	Off																																																																																																																																																																																
Multiple series	Each slice	Assume Silicone	Off																																																																																																																																																																																
Resolution		? Ref. amplitude 1H	0.000 V																																																																																																																																																																																
Base resolution	192	Adjustment Tolerance	Auto																																																																																																																																																																																
Phase resolution	65 %	Adjust volume																																																																																																																																																																																	
Phase partial Fourier	Off	Position	Isocenter																																																																																																																																																																																
Trajectory	Cartesian	Orientation	Transversal																																																																																																																																																																																
		Rotation	0.00 deg																																																																																																																																																																																
		R >> L	350 mm																																																																																																																																																																																
		A >> P	263 mm																																																																																																																																																																																
		F >> H	350 mm																																																																																																																																																																																
Physio																																																																																																																																																																																			
1st Signal/Mode																																																																																																																																																																																			
Segments																																																																																																																																																																																			

# SIEMENS MAGNETOM Avanto syngo MR B19

Dark blood	Off
Cine	Off
Resp. control	Off
Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	566 Hz/Px
Flow comp.	No
Optimization	Min. TE
Echo spacing	3.1 ms
Sequence type	Gre
Define	Shots
Shots per slice	1
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant
RF spoiling	On
Phase Enc. Rewinder	On

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\dynamic

TA: 0:41 PAT: 2 Voxel size: 2.9x1.9x8.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	On
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	On
Start measurement without further preparation	On
Wait for user to start	On
Start measurements	single

## Routine

Slice group 1	
Slices	3
Dist. factor	50 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Slice group 2	
Slices	1
Dist. factor	20 %
Position	Isocenter
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	360 mm
FoV phase	75.0 %
Slice thickness	8.0 mm
TR	202.36 ms
TE	1.23 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. SR perf
TI	115 ms
Flip angle	12 deg
Fat suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s
Pause after meas. 4	0.0 s
Pause after meas. 5	0.0 s
Pause after meas. 6	0.0 s
Pause after meas. 7	0.0 s
Pause after meas. 8	0.0 s
Pause after meas. 9	0.0 s
Pause after meas. 10	0.0 s

Pause after meas. 11	0.0 s
Pause after meas. 12	0.0 s
Pause after meas. 13	0.0 s
Pause after meas. 14	0.0 s
Pause after meas. 15	0.0 s
Pause after meas. 16	0.0 s
Pause after meas. 17	0.0 s
Pause after meas. 18	0.0 s
Pause after meas. 19	0.0 s
Pause after meas. 20	0.0 s
Pause after meas. 21	0.0 s
Pause after meas. 22	0.0 s
Pause after meas. 23	0.0 s
Pause after meas. 24	0.0 s
Pause after meas. 25	0.0 s
Pause after meas. 26	0.0 s
Pause after meas. 27	0.0 s
Pause after meas. 28	0.0 s
Pause after meas. 29	0.0 s
Pause after meas. 30	0.0 s
Pause after meas. 31	0.0 s
Pause after meas. 32	0.0 s
Pause after meas. 33	0.0 s
Pause after meas. 34	0.0 s
Pause after meas. 35	0.0 s
Pause after meas. 36	0.0 s
Pause after meas. 37	0.0 s
Pause after meas. 38	0.0 s
Pause after meas. 39	0.0 s
Pause after meas. 40	0.0 s
Pause after meas. 41	0.0 s
Pause after meas. 42	0.0 s
Pause after meas. 43	0.0 s
Pause after meas. 44	0.0 s
Pause after meas. 45	0.0 s
Pause after meas. 46	0.0 s
Pause after meas. 47	0.0 s
Pause after meas. 48	0.0 s
Pause after meas. 49	0.0 s
Multiple series	Each slice

## Resolution

Base resolution	192
Phase resolution	65 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	14
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

Geometry		Bandwidth	566 Hz/Px
Multi-slice mode	Single shot	Flow comp.	No
Series	Descending	Optimization	Min. TE
Special sat.	None	Echo spacing	3.1 ms
Sequence type	Gre		
System		Define	Shots
Body	Off	Shots per slice	1
BO1	On	RF pulse type	Fast
BO2	On	Gradient mode	Fast
SP4	Off	Excitation	Slice-sel.
SP2	On	Flip angle mode	Constant
SP8	Off	RF spoiling	On
SP6	Off	Phase Enc. Rewinder	On
SP3	On		
SP1	Off		
SP7	Off		
SP5	Off		
Positioning mode	REF		
Table position	H		
Table position	0 mm		
MSMA	S - C - T		
Sagittal	R >> L		
Coronal	A >> P		
Transversal	F >> H		
Save uncombined	Off		
Coil Combine Mode	Adaptive Combine		
Auto Coil Select	Default		
Shim mode	Tune up		
Adjust with body coil	On		
Confirm freq. adjustment	Off		
Assume Silicone	Off		
? Ref. amplitude 1H	0.000 V		
Adjustment Tolerance	Auto		
Adjust volume			
Position	Isocenter		
Orientation	Transversal		
Rotation	0.00 deg		
R >> L	350 mm		
A >> P	263 mm		
F >> H	350 mm		
Physio			
1st Signal/Mode	None		
Segments	54		
Dark blood	Off		
Cine	Off		
Resp. control	Off		
Inline			
Subtract	Off		
Std-Dev-Sag	Off		
Std-Dev-Cor	Off		
Std-Dev-Tra	Off		
Std-Dev-Time	Off		
MIP-Sag	Off		
MIP-Cor	Off		
MIP-Tra	Off		
MIP-Time	Off		
Save original images	On		
Sequence			
Introduction	Off		
Dimension	2D		
Reordering	Linear		
Asymmetric echo	Allowed		

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\OPT\_t1

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1132 Hz/Px
Optimization	Min. TE
Echo spacing	2.6 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\OPT\_cine\_realtime  
 TA: 2.8 s PAT: 2 Voxel size: 5.2x2.1x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	Off
Load to viewer	On	POCS	Off
Inline movie	On	Geometry	
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic segments	On	Special sat.	
Auto open inline display	Off	None	
Start measurement without further preparation	On	System	
Wait for user to start	Off	Body	Off
Start measurements	single	BO1	On
Routine		BO2	On
Slice group 1		SP4	Off
Slices	1	SP2	On
Dist. factor	20 %	SP8	Off
Position	Isocenter	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Auto	Off	SP5	Off
Phase oversampling	0 %	Positioning mode	
FoV read	400 mm	Table position	REF
FoV phase	75.0 %	Table position	H
Slice thickness	7.0 mm	MSMA	0 mm
TR	56.64 ms	Sagittal	S - C - T
TE	1.03 ms	Coronal	R >> L
Averages	1	Transversal	A >> P
Concatenations	1	Save uncombined	F >> H
Filter	Distortion Corr.(2D)	Coil Combine Mode	Off
Coil elements	BO1,2;SP2,3	Auto Coil Select	Adaptive Combine
Contrast		Shim mode	
Magn. preparation	None	Shim mode	Tune up
Flip angle	70 deg	Adjust with body coil	On
Fat suppr.	None	Confirm freq. adjustment	Off
Restore magn.	On	Assume Silicone	Off
Averaging mode		? Ref. amplitude 1H	0.000 V
Reconstruction	Short term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
Multiple series	1	Position	Isocenter
Resolution	Off	Orientation	Transversal
Base resolution	192	Rotation	0.00 deg
Phase resolution	40 %	R >> L	350 mm
Phase partial Fourier	Off	A >> P	263 mm
Trajectory	Cartesian	F >> H	350 mm
View sharing	Shared phases	Physio	
Interpolation	Off	1st Signal/Mode	None
PAT mode	GRAPPA	Segments	35
Accel. factor PE	2	Phases	45
Ref. lines PE	12	Dark blood	
Matrix Coil Mode	Auto (Triple)	Cine	Off
Reference scan mode	Integrated	Resp. control	
Image Filter	Off	Inline	
Distortion Corr.	On	Subtract	Off
Mode	2D	Std-Dev-Sag	Off
Unfiltered images	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
		Std-Dev-Time	Off
		MIP-Sag	Off
		MIP-Cor	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

MIP-Tra	Off
MIP-Time	Off
Save original images	On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1532 Hz/Px
Optimization	Min. TE TR
Echo spacing	2.4 ms
Sequence type	Trufi
Define	Shots
Shots per slice	1
Trufi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme Arrhythmia\short\_axis\_delayed

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L15.7 A41.7 F26.9	SP3	On
Orientation	C > S34.0 > T-25.2	SP1	Off
Phase enc. dir.	R >> L	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

Properties		B1 filter	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Elliptical filter	Off
After measurement		POCS	Off
Load to viewer	On	Geometry	
Inline movie	Off	Multi-slice mode	Sequential
Auto store images	On	Series	Descending
Load to stamp segments	On	Special sat.	
Load images to graphic segments	On	None	
Auto open inline display	Off	System	
Start measurement without further preparation	On	Body	Off
Wait for user to start	Off	BO1	On
Start measurements	single	BO2	On
Routine		SP4	Off
Slice group 1		SP2	On
Slices	1	SP8	Off
Dist. factor	20 %	SP6	Off
Position	L11.8 A39.9 H7.1	SP3	On
Orientation	T > C40.1 > S5.6	SP1	Off
Phase enc. dir.	A >> P	SP7	Off
Rotation	0.00 deg	SP5	Off
Auto	Off	Positioning mode	
Phase oversampling	0 %	Table position	REF
FoV read	340 mm	Table position	H
FoV phase	75.0 %	MSMA	0 mm
Slice thickness	7.0 mm	Sagittal	S - C - T
TR	2000.00 ms	Coronal	R >> L
TE	1.09 ms	Transversal	A >> P
Averages	1	Save uncombined	F >> H
Concatenations	1	Coil Combine Mode	Off
Filter	Distortion Corr.(2D), Prescan	Auto Coil Select	Adaptive Combine
	Normalize		Default
Coil elements	BO1,2;SP2,3	Shim mode	
Contrast		Adjust with body coil	Tune up
Magn. preparation	Non-sel. IR	Confirm freq. adjustment	On
TI	300 ms	Assume Silicone	Off
Flip angle	40 deg	? Ref. amplitude 1H	Off
Fat suppr.	None	Adjustment Tolerance	0.000 V
Restore magn.	On	Adjust volume	Auto
Averaging mode		Position	Isocenter
Reconstruction	Short term	Orientation	Transversal
Measurements	Magnitude	Rotation	0.00 deg
Multiple series	1	R >> L	350 mm
	Off	A >> P	263 mm
		F >> H	350 mm
Resolution		Physio	
Base resolution	192	1st Signal/Mode	None
Phase resolution	50 %	Segments	72
Phase partial Fourier	Off	Dark blood	
Trajectory	Cartesian	Cine	Off
Interpolation	Off	Resp. control	Off
PAT mode	None	Inline	
Matrix Coil Mode	Auto (CP)	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	On	Std-Dev-Cor	Off
Mode	2D	Std-Dev-Tra	Off
Unfiltered images	Off	Std-Dev-Time	Off
Unfiltered images	Off	MIP-Sag	Off
Prescan Normalize	On	MIP-Cor	Off
Normalize	Off	MIP-Tra	Off
		MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant

# SIEMENS MAGNETOM Avanto syngo MR B19

\USER\SCMR\_CARDIAC\_AVANTO\_18Q\Cardiac\_Mass\_Thrombus\Extreme

TA: 2.0 s PAT: Off Voxel size: 3.5x1.8x7.0 mm Rel. SNR: 1.00 SIEMENS: CV

## Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

## Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	R12.5 P0.1 H0.0
Orientation	S > C-34.0
Phase enc. dir.	A >> P
Rotation	0.00 deg
Auto	Off
Phase oversampling	0 %
FoV read	340 mm
FoV phase	75.0 %
Slice thickness	7.0 mm
TR	2000.00 ms
TE	1.09 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	BO1,2;SP2,3

## Contrast

Magn. preparation	Non-sel. IR
TI	300 ms
Flip angle	40 deg
Fat suppr.	None
Restore magn.	On
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Off

## Resolution

Base resolution	192
Phase resolution	50 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	On
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off

B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry	
Multi-slice mode	Sequential
Series	Descending
Special sat.	None

System	
Body	Off
BO1	On
BO2	On
SP4	Off
SP2	On
SP8	Off
SP6	Off
SP3	On
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default

Shim mode	Tune up
Adjust with body coil	On
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio	
1st Signal/Mode	None
Segments	72
Dark blood	Off
Cine	Off
Resp. control	Off

Inline	
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off

# SIEMENS MAGNETOM Avanto syngo MR B19

| Save original images      On

## Sequence

Introduction	Off
Dimension	2D
Reordering	Linear
Asymmetric echo	Allowed
Bandwidth	1302 Hz/Px
Optimization	Min. TE
Echo spacing	2.5 ms
Sequence type	TruFi
Define	Shots
Shots per slice	1
TruFi delta freq.	0 Hz
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slice-sel.
Flip angle mode	Constant