\\USER\AMRIT\Liyong2\4d-flow\localizer Voxel size: 1.1×1.0×7.0 mm Rel. SNR: 1.00

TA: 0:13

PAT: Off

SIEMENS: gre

	711. 611 10001 3126. 1.171.07	TOIL CIVIC 1.00	
Properties Properties	0#	Phase resolution Phase partial Fourier	90 % Off
Prio Recon	Off	Interpolation	On
Before measurement			
After measurement		PAT mode	None
Load to viewer	On	Matrix Coil Mode	Auto (CP)
Inline movie	Off	Imaga Filtor	
Auto store images	On	Image Filter	Off
Load to stamp segments	Off	Distortion Corr.	Off
Load images to graphic	Off	Unfiltered images	Off
segments		Prescan Normalize	On
Auto open inline display	Off	Normalize	Off
Start measurement without	Off	B1 filter	Off
further preparation	<del></del>	Raw filter	Off
Wait for user to start	Off	Elliptical filter	On
Start measurements	single	Mode	Inplane
ı	S910	Geometry	
Routine		Geometry Multi slice mode	Soguential
Slice group 1	-	- Multi-slice mode	Sequential
Slices	1	Series	Interleaved
Dist. factor	20 %	Saturation mode	Standard
Position	Isocenter	Special sat.	None
Orientation	Sagittal		
Phase enc. dir.	A >> P	Tim CT mode	Off
Rotation	0.00 deg		Oil
Slice group 2		System	
Slices	1	Body	Off
Dist. factor	20 %	HEP	On
Position	Isocenter	HEA	On
Orientation	Transversal		
		Positioning mode	REF
Phase enc. dir.	A >> P	Table position	Н
Rotation	0.00 deg	Table position	0 mm
Slice group 3	4	MSMA	S - C - T
Slices	1	Sagittal	R >> L
Dist. factor	20 %	Coronal	A >> P
Position	Isocenter	Transversal	F >> H
Orientation	Coronal	Save uncombined	Off
Phase enc. dir.	R >> L	Coil Combine Mode	Adaptive Combine
Rotation	0.00 deg	AutoAlign	
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	250 mm		
FoV phase	100.0 %	Shim mode	Tune up
Slice thickness	7.0 mm	Adjust with body coil	Off
TR	8.6 ms	Confirm freq. adjustment	Off
TE	4.00 ms	Assume Silicone	Off
Averages	2	? Ref. amplitude 1H	0.000 V
Concatenations	3	Adjustment Tolerance	Auto
Filter	Prescan Normalize, Elliptical	Adjust volume	
	filter	Position	Isocenter
Coil elements	HEA;HEP	Orientation	Transversal
I 	, <del></del>	Rotation	0.00 deg
Contrast		R >> L	350 mm
TD	0 ms	A >> P	263 mm
MTC	Off	F >> H	350 mm
Magn. preparation	None	I	- · · · · · · · · · · · · · · · · · · ·
Flip angle	20 deg	Physio	
Fat suppr.	None	1st Signal/Mode	None
Water suppr.	None	Segments	1
Averaging mode	Short term	Dark blood	Off
Reconstruction	Magnitude	Post control	Off
Measurements	1	Resp. control	Off
Multiple series	Each measurement	Inline	
		Subtract	Off
Resolution		Liver registration	Off
Base resolution	256	Std-Dev-Sag	Off
		1 July Day	<b>5</b>

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
Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off

#### Sequence

Introduction	On
Dimension	2D
Phase stabilisation	Off
Asymmetric echo	Allowed
Contrasts	1
Bandwidth	320 Hz/Px
Flow comp.	No
Allowed delay	0 s
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
RF spoiling	On
. •	

\\USER\AMRIT\Liyong2\4d-flow\TOF\_3D\_multi-slab

TA: 3:54 P	AT: 2 Voxel size: 0.5×0.5	5×0.5 mm Rel. SNR: 1.00 S	SIEMENS: fl_tof
Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement	Oll	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	Off	0	
segments		Special sat.	Tracking H 10 mm
Auto open inline display	Off	Gap	
Start measurement without	On	Thickness	40 mm
further preparation		System	
Wait for user to start	Off	Body	Off
Start measurements	single	HEP	On
Routine		HEA	On
Slab group 1		Positioning mode	REF
Slabs	3	Positioning mode Table position	H
Dist. factor	-20.00 %	Table position	0 mm
Position	L4.2 A10.0 H7.3	MSMA	S - C - T
Orientation	Transversal	Sagittal	R >> L
Phase enc. dir.	R >> L	Coronal	A >> P
Rotation	90.00 deg	Transversal	F >> H
Phase oversampling	0 %	Save uncombined	Off
Slice oversampling	20.0 %	Coil Combine Mode	Adaptive Combine
Slices per slab	40	AutoAlign	
FoV read	200 mm	Auto Coil Select	Default
FoV phase	90.6 %		
Slice thickness	0.50 mm	Shim mode	Standard
TR	20 ms	Adjust with body coil	Off
TE	3.59 ms	Confirm freq. adjustment	Off
Averages	1	Assume Silicone	Off
Concatenations	3	? Ref. amplitude 1H	0.000 V
Filter	None	Adjustment Tolerance	Auto
Coil elements	HEA;HEP	Adjust volume	
2		Position	L4.2 A10.0 H7.3
Contrast	0.000	Orientation	Transversal
TD	0.000 ms	Rotation	90.00 deg
MTC	Off	A >> P	200 mm
Flip angle	18 deg None	R >> L	182 mm
Fat suppr.	None	F >> H	52 mm
Water suppr.		Physio	
Averaging mode	Short term	1st Signal/Mode	None
Reconstruction	Magnitude	Dark blood	Off
Measurements	1	Dark blood	Oli
Resolution		Angio	
Base resolution	384	TONE ramp	70 %
Phase resolution	95 %	Flow direction	F >> H
Slice resolution	50 %	3D centric reordering	On
Phase partial Fourier	Off	Cultura at	Ο <sup>μ</sup>
Slice partial Fourier	7/8	Subtract	Off
Interpolation	On	Std-Dev-Sag	Off Off
		Std-Dev-Cor Std-Dev-Tra	Off
PAT mode	GRAPPA	Std-Dev-Tra	Off
Accel. factor PE	2		
Ref. lines PE	24	MIP-Sag MIP-Cor	On On
Accel. factor 3D	1	MIP-Cor MIP-Tra	On On
Matrix Coil Mode	Auto (Triple)	MIP-Tra MIP-Time	On Off
Reference scan mode	Integrated	_	
Image Filter	Off	Save original images	On
Image Filter Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	On
. 1000aii Noimaii26	<b>5</b> 11	Dimension	3D
		•	

Elliptical scanning Off
Asymmetric echo Allowed
Contrasts 1
Bandwidth 165 Hz/Px
Flow comp. Yes

Gradient mode Fast
RF spoiling On

\\USER\AMRIT\Liyong2\4d-flow\trufi\_singleshot\_15sl\_iPAT

TA: 0:17	PAT: 2 Voxel size: 0.8×0	0.8×3.0 mm Rel. SNR: 1.00	SIEMENS: CV
Properties		Normalize	Off
Prio Recon	Off	B1 filter	Off
Before measurement	Oli	Raw filter	Off
		Elliptical filter	Off
After measurement	05	POCS	Off
Load to viewer	On O#	Coometry	
Inline movie	Off	Geometry	Opposedial
Auto store images	On	Multi-slice mode	Sequential
Load to stamp segments	On	Series	Descending
Load images to graphic	On	Special sat.	None
segments	0"		
Auto open inline display	Off	System	
Start measurement without	On	Body	Off
further preparation		HEP	On
Wait for user to start	On .	HEA	On
Start measurements	single		
Routine		Positioning mode	FIX
Slice group 1		Table position	Н
Slices	30	Table position	0 mm
Dist. factor	25 %	MSMA	S - C - T
Position	L4.2 A10.0 H7.3	Sagittal	R >> L
Orientation	Transversal	Coronal	A >> P
Phase enc. dir.	A >> P	Transversal	F >> H
Rotation	0 deg	Save uncombined	Off
Auto	On	Coil Combine Mode	Adaptive Combine
Phase oversampling	0 %	AutoAlign	·
FoV read	200 mm	Auto Coil Select	Default
FoV phase	100.0 %	China mada	T
Slice thickness	3.0 mm	Shim mode	Tune up
TR	551.56 ms	Adjust with body coil	Off
TE TE	1.49 ms	Confirm freq. adjustment	Off
Averages	1	Assume Silicone	Off
Concatenations	30	? Ref. amplitude 1H	0.000 V
Filter	Distortion Corr.(2D)	Adjustment Tolerance	Auto
Coil elements	HEA;HEP	Adjust volume	
Con elements	IILA,IILI	Position	Isocenter
Contrast		Orientation	Transversal
TD	0 ms	Rotation	0.00 deg
Magn. preparation	None	R >> L	350 mm
Flip angle	53 deg	A >> P	263 mm
Fat suppr.	None	F >> H	350 mm
Restore magn.	On	Physio	
Averaging mode	Short term	1st Signal/Mode	None
Averaging mode		Segments	140
Reconstruction	Magnitude		
Measurements	Each measurement	Dark blood	Off
Multiple series	Each measurement	Cine	Off
Resolution		Resp. control	Off
Base resolution	256	·	<del></del>
Phase resolution	100 %	Inline	
Phase partial Fourier	Off	Subtract	Off
Trajectory	Cartesian	Std-Dev-Sag	Off
Interpolation	Off	Std-Dev-Cor	Off
	CD 4 DD 4	Std-Dev-Tra	Off
PAT mode	GRAPPA	Std-Dev-Time	Off
Accel. factor PE	2	MIP-Sag	Off
Ref. lines PE	24	MIP-Cor	Off
Matrix Coil Mode	Auto (Triple)	MIP-Tra	Off
Reference scan mode	Integrated	MIP-Time	Off
Image Filter	Off	Save original images	On
Distortion Corr.	On	Sequence	
Mode	2D	Introduction	Off
Unfiltered images	Off	Dimension	2D
Prescan Normalize	Off	Reordering	Linear
1	-	Redidening	Lilicai

Asymmetric echo Bandwidth Optimization Allowed delay Echo spacing Sequence type	Allowed 849 Hz/Px Min. TE TR 3 s 3.6 ms Trufi
Define Shots per slice Trufi delta freq. RF pulse type Gradient mode Excitation Flip angle mode	Shots 1 0 Hz Fast Fast Slice-sel. Constant

TA: 4:30 PAT: 2	Voxel size: 1.5×1.5×3.0 mm		i_gag i_fq_mb_gre_3D_seg
Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement	<b></b>	Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments		HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	REF
further preparation		Table position	H
Wait for user to start	Off	Table position	0 mm
Start measurements	single	MSMA	S-C-T
Routine		Sagittal	R >> L
		Coronal	A >> P
Slab group 1	2	Transversal	F >> H
Slabs	2	Coil Combine Mode	Sum of Squares
Dist. factor Position	75 % L5.5 A16.9 H10.7	AutoAlign	Defecult
		Auto Coil Select	Default
Orientation Phase enc. dir.	Sagittal A >> P	Shim mode	Tune up
Rotation		Adjust with body coil	Off
	0.00 deg 0 %	Confirm freq. adjustment	Off
Phase oversampling		Assume Silicone	Off
Slice oversampling Slices per slab	0.0 % 12	? Ref. amplitude 1H	0.000 V
FoV read	12 192 mm	Adjustment Tolerance	Auto
FoV read FoV phase	100.0 %	Adjust volume	
Slice thickness	3.00 mm	Position	Isocenter
TR	69.15 ms	Orientation	Transversal
TE	5.52 ms	Rotation	0.00 deg
Averages	1	R >> L	350 mm
Concatenations	2	A >> P	263 mm
Filter	None	F >> H	350 mm
Coil elements	HEA;HEP	Physio	
	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1st Signal/Mode	Pulse/Trigger
Contrast		<u> </u>	No Signal ms
Flip angle	15 deg	Average cycle Captured cycle	-not set-
Averaging mode	Short term	Acquisition window	700 ms
Reconstruction	Magnitude	Trigger pulse	1
Measurements	1	Trigger delay	0 ms
Multiple series	Each measurement	Segments	2
		Phases	10
Resolution		ļ	. •
Base resolution	128	Angio	0: 1
Phase resolution	100 %	Flow mode	Single vel.
Slice resolution	100 %	Encodings	3
Phase partial Fourier	Off	Velocity enc.	90 cm/s
Interpolation	Off	Direction 1	Through plane
PAT mode	GRAPPA	Direction 2	A >> P
Accel. factor PE	2	Direction 3	F >> H
Ref. lines PE	24	Rephased images	On
Accel. factor 3D	1	Magnitude images	On Off
Ref. lines 3D	12	Magnitude sum	Off
Matrix Coil Mode	Auto (Triple)	Phase images	On
Reference scan mode	Separate	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Image Filter Distortion Corr.	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off
B1 filter	Off	MIP-Sag	Off
Raw filter	Off	MIP-Cor	Off
1		MIP-Tra	Off

	MIP-Time Save original images	Off On
	Sequence	
ı	Introduction	On
	Dimension	3D
	Elliptical scanning	Off
	Asymmetric echo	Off
	Contrasts	1
	Bandwidth	260 Hz/Px
	Flow comp.	No
	RF pulse type	Fast
	Gradient mode	Fast*
	RF spoiling	On
	MB Number	2
	FOV Shift	1

 $\label{lowfl_fq_mb_gre_3D_seg2_m1f1_sag} $$ \USER\AMRIT\Liyong2\4d-flow\fl_fq_mb_gre_3D_seg2_m1f1_sag $$ $$$ 

TA: 4:30 PAT: 2	Voxel size: 1.5×1.5×3.0 mm	Rel. SNR: 1.00 USER: f	fl_fq_mb_gre_3D_seg
Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement	<b>.</b>	Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments		HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	FIX
further preparation		Table position	Н
Wait for user to start	Off	Table position	0 mm
Start measurements	single	MSMA	S - C - T
Doublin a	•	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1	4	Transversal	F >> H
Slabs	1	Coil Combine Mode	Sum of Squares
Dist. factor	100 %	AutoAlign	 5 ( );
Position	L37.0 A16.9 H10.7	Auto Coil Select	Default
Orientation	Sagittal	Shim mode	Tune up
Phase enc. dir.	A >> P	Adjust with body coil	Off
Rotation	0.00 deg	Confirm freq. adjustment	Off
Phase oversampling	0 %	Assume Silicone	Off
Slice oversampling	0.0 %	? Ref. amplitude 1H	0.000 V
Slices per slab	12	Adjustment Tolerance	Auto
FoV read	192 mm	Adjust volume	, 1010
FoV phase	100.0 %	Position	Isocenter
Slice thickness	3.00 mm	Orientation	Transversal
TR	69.15 ms	Rotation	0.00 deg
TE A	5.52 ms	R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	1 Name	F >> H	350 mm
Filter	None	I	333 11111
Coil elements	HEA;HEP	Physio	
Contrast		1st Signal/Mode	Pulse/Trigger
Flip angle	15 deg	Average cycle	No Signal ms
		Captured cycle	-not set-
Averaging mode	Short term	Acquisition window	700 ms
Reconstruction	Magnitude	Trigger pulse	1
Measurements	1	Trigger delay	0 ms
Multiple series	Each measurement	Segments	2
Resolution		Phases	10
Base resolution	128	Angio	
Phase resolution	100 %	Flow mode	Single vel.
Slice resolution	100 %	Encodings	3
Phase partial Fourier	Off	Velocity enc.	90 cm/s
Interpolation	Off	Direction 1	Through plane
	ODADDA	Direction 2	A >> P
PAT mode	GRAPPA	Direction 3	F >> H
Accel. factor PE	2	Rephased images	On
Ref. lines PE	24	Magnitude images	On
Accel. factor 3D	1	Magnitude sum	Off
Ref. lines 3D	12	Phase images	On
Matrix Coil Mode	Auto (Triple)		
Reference scan mode	Separate	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Distortion Corr.	Off	Std-Dev-Cor	Off
Prescan Normalize	Off	Std-Dev-Tra	Off
Normalize	Off	Std-Dev-Time	Off
B1 filter	Off	MIP-Sag	Off
Raw filter	Off	MIP-Cor	Off
		MIP-Tra	Off

MIP-Time Save original images	Off On
Sequence	
Introduction	On
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast*
RF spoiling	On
	OII
MB Number	1
FOV Shift	1

 $\label{lowfl_fq_mb_gre_3D_seg2_m1f1_sag} $$ \USER\AMRIT\Liyong2\4d-flow\fl_fq_mb_gre_3D_seg2_m1f1_sag $$ $$$ 

TA: 8:59 PAT: 2	Voxel size: 1.5×1.5×3.0 mm		I_fq_mb_gre_3D_seg
Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement	311	Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		7.000maing
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments	<b>.</b>	HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	FIX
further preparation	311	Table position	Н
Wait for user to start	Off	Table position	0 mm
Start measurements	single	MSMA	S - C - T
ı	Single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	2	Coil Combine Mode	Sum of Squares
Dist. factor	75 %	AutoAlign	
Position	L37.0 A16.9 H10.7	Auto Coil Select	Default
Orientation	Sagittal	Shim mode	Tuno un
Phase enc. dir.	A >> P		Tune up
Rotation	0.00 deg	Adjust with body coil	Off Off
Phase oversampling	0 %	Confirm freq. adjustment Assume Silicone	Off
Slice oversampling	0.0 %		0.000 V
Slices per slab	12	? Ref. amplitude 1H	
FoV read	192 mm	Adjustment Tolerance	Auto
FoV phase	100.0 %	Adjust volume Position	laggantar
Slice thickness	3.00 mm	Orientation	Isocenter
TR	69.15 ms		Transversal
TE	5.52 ms	Rotation	0.00 deg
Averages	1	R >> L	350 mm 263 mm
Concatenations	2	A >> P F >> H	
Filter	None	Г >> П	350 mm
Coil elements	HEA;HEP	Physio	
Contrast		1st Signal/Mode	Pulse/Trigger
Flip angle	15 deg	Average cycle	No Signal ms
·····		Captured cycle	-not set-
Averaging mode	Short term	Acquisition window	700 ms
Reconstruction	Magnitude	Trigger pulse	1
Measurements	1	Trigger delay	0 ms
Multiple series	Each measurement	Segments	2
Resolution		Phases	10
Base resolution	128	Angio	
Phase resolution	100 %	Flow mode	Single vel.
Slice resolution	100 %		Single vel. 3
Phase partial Fourier	Off	Encodings Velocity enc.	90 cm/s
Interpolation	Off		
		Direction 1 Direction 2	Through plane A >> P
PAT mode	GRAPPA		
Accel. factor PE	2	Direction 3	F >> H
Ref. lines PE	24	Rephased images	On On
Accel. factor 3D	1	Magnitude images	On
Ref. lines 3D	12	Magnitude sum	Off
Matrix Coil Mode	Auto (Triple)	Phase images	On
Reference scan mode	Separate	Subtract	Off
Income Cities		Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	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
		1	

MIP-Time Save original images	Off On
Sequence	
Introduction	On
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Fast
Gradient mode	Fast*
RF spoiling	On
MB Number	1
FOV Shift	1

 $\verb|\USER\AMRIT\Liyong2\4d-flow\fl_fq_mb4f2p1_greYY| \\$ Voxel size: 1.0×1.0×5.0 mm Rel. SNR: 1.00

TA: 2:15

PAT: Off

USER: fl\_fq\_mb\_greYY

Properties		HEP	On
Prio Recon	Off	HEA	On
Before measurement		Positioning mode	REF
After measurement		Table position	Н
Load to viewer	On	Table position	0 mm
Inline movie	Off	MSMA	S - C - T
Auto store images	On	Sagittal	R >> L
Load to stamp segments	Off	Coronal	A >> P
Load images to graphic	Off	Transversal	F >> H
segments		Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	
Start measurement without	On	Auto Coil Select	Default
further preparation		Chim made	Tuno un
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
	<b>G</b>	Confirm freq. adjustment	Off
Routine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	4	Adjustment Tolerance	Auto
Dist. factor	700 %	Adjust volume	
Position	L0.0 A16.0 H2.3	Position	Isocenter
Orientation	Transversal	Orientation	Transversal
Phase enc. dir.	A >> P	Rotation	0.00 deg
Rotation	0.00 deg	R >> L	350 mm
Phase oversampling	0.00 deg 0 %	A >> P	263 mm
FoV read	200 mm	F >> H	350 mm
FoV phase	100.0 %	Physio	
Slice thickness	5.0 mm	1st Signal/Mode	Pulse/Trigger
TR	43.30 ms	Average cycle	No Signal ms
TE	7.09 ms		•
Averages	1	Captured cycle	-not set-
Concatenations	4	Acquisition window	700 ms
Filter	None	Trigger pulse	1
Coil elements	HEA;HEP	Trigger delay	0 ms
	11274,1121	Segments	1
Contrast		Phases	16
Flip angle	15 deg	Angio	
Averaging mode	Short term	Flow mode	Single vel.
Reconstruction	Magnitude	Encodings	3
Measurements	1	Velocity enc.	120 cm/s
Multiple series	Each measurement	Direction 1	Through plane
Multiple series	Lacifileasurement		A >> P
Resolution		Direction 2	
Base resolution	192	—— Direction 3	R >> L
Phase resolution	100 %	Rephased images	On
Phase partial Fourier	Off	Magnitude images	On
	-	Phase images	On
Interpolation	Off		O#
PAT mode	None	Subtract	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Sag	Off
······································	, tato (OI )	Std-Dev-Cor	Off
Image Filter	Off	Std-Dev-Tra	Off
Distortion Corr.	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
Normalize	Off	MIP-Cor	Off
B1 filter	Off	MIP-Tra	Off
Raw filter	Off	MIP-Time	Off
Elliptical filter	Off	Save original images	On
•	Oil	1	
Geometry	Commenti-I	Sequence	On
Multi-slice mode	Sequential	Introduction	On O"
Series	Ascending	Asymmetric echo	Off
Special set	None	··· Contrasts	1
Special sat.	None	Bandwidth	260 Hz/Px
System		Flow comp.	No
		•	

	RF pulse type	Normal
	Gradient mode	Fast
	RF spoiling	On
	MB Number	4
	FOV Shift	2

\\USER\AMRIT\Liyong2\4d-flow\fl\_fq\_mb4f1p1\_greYY

Off Voxel size: 1.0×1.0×5.0 mm Rel. SNR: 1.00 USE

TA: 2:15

Body

Off

PAT: Off

USER: fl\_fq\_mb\_greYY

IA. 2.15 FAT. 0	OII VOXEI SIZE. I.UXI.UX	3.0 IIIII Kei. SNK. 1.00 USE	r. II_Iq_IIIb_gre i i
		HEP	On
Properties		—— HEA	On
Prio Recon	Off		
Before measurement		Positioning mode	REF
After measurement	0.5	Table position	H
Load to viewer	On O"	Table position	0 mm
Inline movie	Off	MSMA	S-C-T
Auto store images	On O"	Sagittal	R >> L
Load to stamp segments	Off Off	Coronal	A >> P
Load images to graphic	Off	Transversal	F >> H
segments	0"	Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	 D ( );
Start measurement without	On	Auto Coil Select	Default
further preparation	0"	Shim mode	Tune up
Wait for user to start	Off	Adjust with body coil	Off
Start measurements	single	Confirm freq. adjustment	Off
Routine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	4	Adjustment Tolerance	Auto
Dist. factor	700 %	Adjust volume	
Position	L0.0 A16.0 H2.3	Position	Isocenter
Orientation	Transversal	Orientation	Transversal
Phase enc. dir.	A >> P	Rotation	0.00 deg
Rotation	0.00 deg	R >> L	350 mm
Phase oversampling	0 %	A >> P	263 mm
FoV read	200 mm	F >> H	350 mm
FoV phase	100.0 %		330 11111
Slice thickness	5.0 mm	Physio	
TR	43.30 ms	1st Signal/Mode	Pulse/Trigger
TE	7.09 ms	Average cycle	No Signal ms
Averages	1	Captured cycle	-not set-
Concatenations	4	Acquisition window	700 ms
Filter	None	Trigger pulse	1
Coil elements	HEA;HEP	Trigger delay	0 ms
I	11273,1121	Segments	1
Contrast		Phases	16
Flip angle	15 deg	Angio	
Averaging mode	Short term	Flow mode	Single vel.
Reconstruction	Magnitude	Encodings	3
Measurements	1	Velocity enc.	120 cm/s
Multiple series	Each measurement	Direction 1	Through plane
	Lucii mododi omoni	Direction 2	A >> P
Resolution		—— Direction 3	R >> L
Base resolution	192	Rephased images	On
Phase resolution	100 %	Magnitude images	On
Phase partial Fourier	Off	Phase images	On
Interpolation	Off		
PAT mode	None	Subtract	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Sag	Off
wattix Coll Mode	Auto (GF)	Std-Dev-Cor	Off
Image Filter	Off	Std-Dev-Tra	Off
Distortion Corr.	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
Normalize	Off	MIP-Cor	Off
B1 filter	Off	MIP-Tra	Off
Raw filter	Off	MIP-Time	Off
Elliptical filter	Off	Save original images	On
	-		
Geometry		Sequence	On
Multi-slice mode	Sequential	Introduction	On Off
Series	Ascending	Asymmetric echo	Off
Special sat.	None	Contrasts	1 200 H=/Dv
		Bandwidth	260 Hz/Px
System		Flow comp.	No 
	0"		

	RF pulse type Gradient mode RF spoiling	Normal Fast On
-	MB Number	4
	FOV Shift	1

\\USER\AMRIT\Liyong2\4d-flow\fl\_fq\_mb\_gre\_3D\_seg\_m2f1\_sag

Voxel size: 1.1×1.1×1.0 mm Rel. SNR: 1.00

PAT: 2

TA: 20:10

USER: fl\_fq\_mb\_gre\_3D\_seg

	VOXO1 3120: 1.1X1.1X1.1X1.10 11111	THOIL GIVEN. 1.00 GOLIN.	
Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement		Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off		Off
	Off	Body	
Load images to graphic	Oil	HEP	On
segments	2"	HEA	On
Auto open inline display	Off	Positioning mode	REF
Start measurement without	On		H
further preparation		Table position	
Wait for user to start	Off	Table position	0 mm
Start measurements	single	MSMA	S-C-T
	•	Sagittal	R >> L
Routine		_ Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	2	Coil Combine Mode	Sum of Squares
Dist. factor	100 %	AutoAlign	· 
Position	L5.5 A22.4 H9.5	Auto Coil Select	Default
Orientation	Transversal		
Phase enc. dir.	A >> P	Shim mode	Tune up
Rotation	0.00 deg	Adjust with body coil	Off
	0.00 deg 0 %	Confirm freq. adjustment	Off
Phase oversampling		Assume Silicone	Off
Slice oversampling	0.0 %	? Ref. amplitude 1H	0.000 V
Slices per slab	36	Adjustment Tolerance	Auto
FoV read	220 mm	Adjust volume	Auto
FoV phase	100.0 %	1	laasantan
Slice thickness	1.00 mm	Position	Isocenter
TR	76.35 ms	Orientation	Transversal
TE	6.2 ms	Rotation	0.00 deg
Averages	1	R >> L	350 mm
Concatenations	2	A >> P	263 mm
Filter	None	F >> H	350 mm
Coil elements			
Con elements	HEA;HEP	Physio	
Contrast		1st Signal/Mode	Pulse/Trigger
Flip angle	15 deg	- Average cycle	No Signal ms
		Captured cycle	-not set-
Averaging mode	Short term	Acquisition window	700 ms
Reconstruction	Magnitude	Trigger pulse	1
Measurements	1	Trigger delay	0 ms
Multiple series	Each measurement	Segments	2
		Phases	9
Resolution		i ilases	9
Base resolution	192	Angio	
Phase resolution	100 %	Flow mode	Single vel.
Slice resolution	100 %	Encodings	3
Phase partial Fourier	Off	Velocity enc.	90 cm/s
Interpolation	Off	Direction 1	
			Through plane
PAT mode	GRAPPA	Direction 2	A >> P
Accel. factor PE	2	Direction 3	R >> L
Ref. lines PE	24	Rephased images	On
Accel. factor 3D	1	Magnitude images	On
Ref. lines 3D		Magnitude sum	Off
	36	Phase images	On
Matrix Coil Mode	Auto (Triple)		
Reference scan mode	Separate	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
Image Filter		Std-Dev-Cor	Off
Distortion Corr.	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off	MIP-Sag MIP-Cor	Off
Raw filter	Off		
1		MIP-Tra	Off

	MIP-Time Save original images	Off On
,	Sequence	
Г	Introduction	On
	Dimension	3D
	Elliptical scanning	Off
	Asymmetric echo	Off
	Contrasts	1
	Bandwidth	260 Hz/Px
	Flow comp.	No
-	RF pulse type	Fast
	Gradient mode	Fast*
	RF spoiling	On
-		
	MB Number	2
	FOV Shift	1

 $\verb|\USER\AMRIT\Liyong2\4d-flow\fl_fq_mb2f2p1_greYY| \\$ Voxel size: 1.1×1.1×5.0 mm Rel. SNR: 1.00

TA: 2:16

PAT: Off

USER: fl\_fq\_mb\_greYY

Properties		HEP	On
Prio Recon	Off	HEA	On
Before measurement		Positioning mode	REF
After measurement		Table position	Н
Load to viewer	On	Table position	0 mm
Inline movie	Off	MSMA	S - C - T
Auto store images	On	Sagittal	R >> L
Load to stamp segments	Off	Coronal Transversal	A >> P
Load images to graphic	Off		F >> H
segments		Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	
Start measurement without	On	Auto Coil Select	Default
further preparation		Shim mode	Tune up
Wait for user to start	Off		Off
Start measurements	single	Adjust with body coil	
Davidaa		Confirm freq. adjustment	Off
Routine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	2	Adjustment Tolerance	Auto
Dist. factor	1400 %	Adjust volume	
Position	L0.0 A26.3 H3.5	Position	Isocenter
Orientation	Transversal	Orientation	Transversal
Phase enc. dir.	A >> P	Rotation	0.00 deg
Rotation	0.00 deg	R >> L	350 mm
Phase oversampling	0 %	A >> P	263 mm
FoV read	220 mm	F >> H	350 mm
FoV phase	100.0 %	1 22 11	000 111111
Slice thickness	5.0 mm	Physio	
TR	43.30 ms	1st Signal/Mode	Pulse/Trigger
		Average cycle	No Signal ms
TE	7.09 ms	Captured cycle	-not set-
Averages	1	Acquisition window	700 ms
Concatenations	2	Trigger pulse	1
Filter	None	Trigger delay	0 ms
Coil elements	HEA;HEP	Segments	1
Contrast		Phases	16
Flip angle	15 deg		16
		Angio	
Averaging mode	Short term	Flow mode	Single vel.
Reconstruction	Magnitude	Encodings	3
Measurements	1	Velocity enc.	120 cm/s
Multiple series	Each measurement	Direction 1	Through plane
D		Direction 2	A >> P
Resolution		—— Direction 3	R >> L
Base resolution	192	Rephased images	On
Phase resolution	100 %	Magnitude images	On
Phase partial Fourier	Off	Phase images	On
Interpolation	Off		
DAT de	NI	Subtract	Off
PAT mode	None	Std-Dev-Sag	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Cor	Off
Image Filter	Off	Std-Dev-Tra	Off
Distortion Corr.	Off	Std-Dev-Time	Off
		MIP-Sag	Off
Prescan Normalize	Off Off	MIP-Cor	Off
Normalize	Off		
B1 filter	Off	MIP-Tra	Off
Raw filter	Off	MIP-Time	Off
Elliptical filter	Off	Save original images	On
Geometry		Sequence	
Multi-slice mode	Sequential	Introduction	On
Series	Ascending	Asymmetric echo	Off
		Contrasts	1
Special sat.	None	Bandwidth	260 Hz/Px
			···································
System		Flow comp.	No

	RF pulse type Gradient mode RF spoiling	Normal Fast On
	MB Number	2
	FOV Shift	2

 $\verb|\USER\AMRIT\Liyong2\4d-flow\fl_fq_mb2f1p1_greYY| \\$ Voxel size: 1.1×1.1×5.0 mm Rel. SNR: 1.00

TA: 2:16

PAT: Off

USER: fl\_fq\_mb\_greYY

Properties		HEP	On
Prio Recon	Off	HEA	On
Before measurement		Positioning mode	REF
After measurement		Table position	H
Load to viewer	On	Table position	0 mm
Inline movie	Off	MSMA	S - C - T
		_	R >> L
Auto store images	On O"	Sagittal	
Load to stamp segments	Off	Coronal	A >> P
Load images to graphic	Off	Transversal	F >> H
segments		Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	
Start measurement without	On	Auto Coil Select	Default
further preparation		Obine and de	T
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
	3 -	Confirm freq. adjustment	Off
Routine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	2	Adjustment Tolerance	Auto
Dist. factor	1400 %	Adjust volume	
Position	L0.0 A26.3 H3.5	Position	Isocenter
Orientation	Transversal	Orientation	Transversal
Phase enc. dir.	A >> P	Rotation	0.00 deg
Rotation	0.00 deg	Rotation R >> L	350 mm
Phase oversampling	0 %	A >> P	263 mm
FoV read	220 mm	F >> H	350 mm
FoV phase	100.0 %	Physio	
Slice thickness	5.0 mm	1st Signal/Mode	Pulse/Trigger
TR	43.30 ms		
TE	7.09 ms	Average cycle	No Signal ms
Averages	1	Captured cycle	-not set-
Concatenations	2	Acquisition window	700 ms
Filter	None	Trigger pulse	1
Coil elements		Trigger delay	0 ms
Con elements	HEA;HEP	Segments	1
Contrast		Phases	16
Flip angle	15 deg	Angio	
Averaging mode	Short term	Flow mode	Single vel.
Reconstruction	Magnitude	Encodings	3
Measurements	1	Velocity enc.	120 cm/s
Multiple series	Each measurement	Direction 1	Through plane
Multiple series	Lacii illeasureilleilt		A >> P
Resolution		Direction 2	
Base resolution	192	— Direction 3	R >> L
Phase resolution	100 %	Rephased images	On
Phase partial Fourier	Off	Magnitude images	On
		Phase images	On
Interpolation	Off		O#
PAT mode	None	Subtract	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Sag	Off
······································	, (ato (O1 )	Std-Dev-Cor	Off
Image Filter	Off	Std-Dev-Tra	Off
Distortion Corr.	Off	Std-Dev-Time	Off
Prescan Normalize	Off	MIP-Sag	Off
Normalize	Off	MIP-Cor	Off
B1 filter	Off	MIP-Tra	Off
Raw filter		MIP-Time	Off
Elliptical filter	Off Off	Save original images	On
•	Oil		<b></b>
Geometry	Cognostial	Sequence Introduction	On
Multi-slice mode	Sequential		
Series	Ascending	Asymmetric echo	Off
Special sat.	None	Contrasts	1
Opeciai sat.	140116	Bandwidth	260 Hz/Px
System		Flow comp.	No
Body	Off		

	RF pulse type Gradient mode RF spoiling	Normal Fast On
	MB Number	2
1	FOV Shift	1

\\USER\AMRIT\Liyong2\4d-flow\localizer

TA: 0:13 PAT: Off Voxel size: 1.1×1.0×7.0 mm Rel. SNR: 1.00 SIEMENS: gre			
Proportios		Phase resolution	90 %
Properties Prio Recon	Off	Phase partial Fourier	Off
Before measurement	Oli	Interpolation	On
After measurement		PAT mode	None
Load to viewer	On	Matrix Coil Mode	Auto (CP)
Inline movie	Off		
Auto store images	On	Image Filter Distortion Corr.	Off Off
Load to stamp segments	Off	Unfiltered images	Off
Load images to graphic	Off	Prescan Normalize	On
segments	0"	Normalize	Off
Auto open inline display Start measurement without	Off Off	B1 filter	Off
further preparation	Oli	Raw filter	Off
Wait for user to start	Off	Elliptical filter	On
Start measurements	single	Mode	Inplane
Douting	· ·	Geometry	
Routine Clica group 1		- Multi-slice mode	Sequential
Slice group 1 Slices	1	Series	Interleaved
Dist. factor	20 %	Saturation mode	Standard
Position	Isocenter	Special sat.	None
Orientation	Sagittal		
Phase enc. dir.	A >> P	Tim CT mode	Off
Rotation	0.00 deg	Custom	-
Slice group 2		System	04
Slices	1	Body HEP	Off On
Dist. factor	20 %	HEA	On
Position Orientation	Isocenter Transversal		
Phase enc. dir.	A >> P	Positioning mode	REF
Rotation	0.00 deg	Table position	H
Slice group 3	0.00 <b>4</b> 0g	Table position MSMA	0 mm S - C - T
Slices	1	Sagittal	8 - C - 1 R -> L
Dist. factor	20 %	Coronal	A >> P
Position	Isocenter	Transversal	F >> H
Orientation	Coronal	Save uncombined	Off
Phase enc. dir.	R >> L	Coil Combine Mode	Adaptive Combine
Rotation	0.00 deg	AutoAlign	
Phase oversampling FoV read	0 % 250 mm	Auto Coil Select	Default
FoV read FoV phase	100.0 %	Shim mode	Tune up
Slice thickness	7.0 mm	Adjust with body coil	Off
TR	8.6 ms	Confirm freq. adjustment	Off
TE	4.00 ms	Assume Silicone	Off
Averages	2	? Ref. amplitude 1H	0.000 V
Concatenations	3	Adjustment Tolerance	Auto
Filter	Prescan Normalize, Elliptical	Adjust volume	la a contan
	filter	Position Orientation	Isocenter
Coil elements	HEA;HEP	Rotation	Transversal 0.00 deg
Contrast		Rotation R >> L	350 mm
TD	0 ms	A >> P	263 mm
MTC	Off	F >> H	350 mm
Magn. preparation	None	Physio	
Flip angle	20 deg	Physio 1st Signal/Mode	None
Fat suppr. Water suppr.	None None	Segments	1
Averaging mode	Short term	Dark blood	Off
Reconstruction	Magnitude	Resp. control	Off
Measurements Multiple series	I Each magairement	Inline	
Multiple series	Each measurement	Subtract	Off
Resolution		Liver registration	Off
Base resolution	256	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
Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off

#### Sequence

Introduction	On
Dimension	2D
Phase stabilisation	Off
Asymmetric echo	Allowed
Contrasts	1
Bandwidth	320 Hz/Px
Flow comp.	No
Allowed delay	0 s
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
RF spoiling	On

\\USER\AMRIT\Liyong2\4d-flow\trufi\_singleshot\_15sl\_iPAT

TA: 0:17 PAT: 2 Voxel size: 0.8×0.8×3.0 mm Rel. SNR: 1.00 SIEMENS: CV				
Properties		Normalize	Off	
Prio Recon	Off	B1 filter	Off	
Before measurement	<b>3</b> 11	Raw filter	Off	
After measurement		Elliptical filter	Off	
Load to viewer	On	POCS	Off	
	_	Coomotry		
Inline movie	Off	Geometry		
Auto store images	On	Multi-slice mode	Sequential	
Load to stamp segments	On	Series	Descending	
Load images to graphic	On	Special sat.	None	
segments				
Auto open inline display	Off	Custom		
Start measurement without	On	System		
further preparation		Body	Off	
Wait for user to start	Off	NE2	On	
Start measurements	single	NE1	On	
ļ	3 -	HEP	On	
Routine		HEA	On	
Slice group 1		Destriction of the second	FIV	
Slices	30	Positioning mode	FIX	
Dist. factor	25 %	Table position	H	
Position	L4.2 A10.0 H7.3	Table position	0 mm	
Orientation	Transversal	MSMA	S - C - T	
Phase enc. dir.	A >> P	Sagittal	R >> L	
Rotation	0 deg	Coronal	A >> P	
Auto	On	Transversal	F >> H	
	0 %	Save uncombined	Off	
Phase oversampling		Coil Combine Mode	Adaptive Combine	
FoV read	200 mm	AutoAlign		
FoV phase	100.0 %	Auto Coil Select	Default	
Slice thickness	3.0 mm	Auto Coil Gelect		
TR	551.56 ms	Shim mode	Tune up	
TE	1.49 ms	Adjust with body coil	Off	
Averages	1	Confirm freq. adjustment	Off	
Concatenations	30	Assume Silicone	Off	
Filter	Distortion Corr.(2D)	? Ref. amplitude 1H	0.000 V	
Coil elements	HEA;HEP;NE1,2			
Con cicinents	112/1,1121 ,142 1,2	Adjustment Tolerance	Auto	
Contrast		Adjust volume		
TD	0 ms	<ul><li>Position</li></ul>	Isocenter	
Magn. preparation	None	Orientation	Transversal	
Flip angle	48 deg	Rotation	0.00 deg	
Fat suppr.	None	R >> L	350 mm	
Restore magn.	On	A >> P	263 mm	
		F >> H	350 mm	
Averaging mode	Short term	l .		
Reconstruction	Magnitude	Physio		
Measurements	1	1st Signal/Mode	None	
Multiple series	Each measurement	Segments	140	
1		Dark blood	Off	
Resolution			Off	
Base resolution	256	- Cine		
Phase resolution	100 %	Resp. control	Off	
Phase partial Fourier	Off			
Trajectory	Cartesian	Inline		
Interpolation	Off	Subtract	Off	
		Std-Dev-Sag	Off	
PAT mode	GRAPPA	Std-Dev-Cor	Off	
Accel. factor PE	2	Std-Dev-Tra	Off	
Ref. lines PE	24	Std-Dev-Time	Off	
Matrix Coil Mode	Auto (Triple)	MIP-Sag	Off	
Reference scan mode	Integrated			
		MIP-Cor	Off	
Image Filter	Off	MIP-Tra	Off	
Distortion Corr.	On	MIP-Time	Off	
Mode	2D	Save original images	On	
Unfiltered images	Off	Sequence		
Prescan Normalize	Off	Introduction	Off	
1		miroduction	Oil	

Dimension 2D Reordering Linear Asymmetric echo Allowed 849 Hz/Px Bandwidth Optimization Min. TE TR Allowed delay 3 s Echo spacing 3.6 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

 $\label{lower} $$\USER\AMRIT\Liyong2\4d-flow\fl_fq_mb_gre_3D_seg_m2f1_sag $$$ 

TA: 17:56 PAT: 2	Voxel size: 1.1×1.1×1.1	mm Rel. SNR: 1.00 USER:	fl_fq_mb_gre_3D_seg
Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement	<b>.</b>	Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments		HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	REF
further preparation		Table position	Н
Wait for user to start	Off	Table position	0 mm
Start measurements	single	MSMA	S - C - T
I	3 -	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	2	Coil Combine Mode	Sum of Squares
Dist. factor	75 %	AutoAlign	
Position	L5.5 A16.9 H10.7	Auto Coil Select	Default
Orientation	Sagittal	Chim made	Tuno un
Phase enc. dir.	A >> P	Shim mode Adjust with body coil	Tune up Off
Rotation	0.00 deg		
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	32	? Ref. amplitude 1H	0.000 V
FoV read	220 mm	Adjustment Tolerance	Auto
FoV phase	100.0 %	Adjust volume	
Slice thickness	1.10 mm	Position	Isocenter
TR	75.75 ms	Orientation	Transversal
TE	6.2 ms	Rotation	0.00 deg
Averages	1	R >> L	350 mm
Concatenations	2	A >> P	263 mm
Filter	None	F >> H	350 mm
Coil elements	HEA;HEP	Physio	
Contrast		1st Signal/Mode	Pulse/Trigger
Flip angle	15 deg	Average cycle	No Signal ms
		Captured cycle	-not set-
Averaging mode	Short term	Acquisition window	700 ms
Reconstruction	Magnitude	Trigger pulse	1
Measurements	1	Trigger delay	0 ms
Multiple series	Each measurement	Segments	2
Resolution		Phases	9
Base resolution	192	 Angio	
Phase resolution	100 %		Cingle vel
Slice resolution	100 %	Flow mode	Single vel.
Phase partial Fourier	Off	Encodings	3
Interpolation	Off	Velocity enc.	90 cm/s
	OII	Direction 1	Through plane
PAT mode	GRAPPA	Direction 2	A >> P
Accel. factor PE	2	Direction 3	F >> H
Ref. lines PE	24	Rephased images	On
Accel. factor 3D	1	Magnitude images	On Off
Ref. lines 3D	32	Magnitude sum	Off
Matrix Coil Mode	Auto (Triple)	Phase images	On
Reference scan mode	Separate	Subtract	Off
Impara Filter		Std-Dev-Sag	Off
Image Filter	Off	Std-Dev-Cor	Off
Distortion Corr.	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
		WIF-11a 27/+	VIII

	MIP-Time Save original images	Off On
	Sequence	
ı	Introduction	On
	Dimension	3D
	Elliptical scanning	Off
	Asymmetric echo	Off
	Contrasts	1
	Bandwidth	260 Hz/Px
	Flow comp.	No
	RF pulse type	Fast
	Gradient mode	Fast*
	RF spoiling	On
	MB Number	2
	FOV Shift	1