\\USER\Feinberglab\Test\lc\ep2d_venc_ms_sbmb_SAT				
TA: 0.2 s	PAT: Off	Voxel size: 7.8×3.9×5.0 mm	Rel. SNR: 1.00	USER: ep2d_venc_ms_sbmb_SAT

Properties		Inline Composing	Off
Prio Recon	Off	System	
Before measurement	.	T1	On
After measurement		M2	Off
Load to viewer	On	B4	Off
Inline movie	Off	M3	Off
Auto store images	On	V32	Off
Load to stamp segments	Off	Positioning mode	REF
Load images to graphic	Off	Positioning mode MSMA	S-C-T
segments		Sagittal	R >> L
Auto open inline display	Off	Coronal	A >> P
Start measurement without	On	Transversal	F >> H
further preparation	2"	Coil Combine Mode	Sum of Squares
Wait for user to start	Off	AutoAlign	
Start measurements	single	Auto Coil Select	Default
Routine		Chim made	Ctondord
Slice group 1		Shim mode Adjust with body coil	Standard Off
Slices	1	Confirm freq. adjustment	Off
Dist. factor	200 %	Assume Silicone	Off
Position	Isocenter	? Ref. amplitude 1H	0.000 V
Orientation	Transversal	Adjustment Tolerance	Auto
Phase enc. dir.	A >> P	Adjust volume	Adio
Rotation	0.00 deg	Position	Isocenter
Phase oversampling	0 %	Orientation	Transversal
FoV read	500 mm	Rotation	0.00 deg
FoV phase	100.0 %	R >> L	500 mm
Slice thickness	5.0 mm	A >> P	500 mm
TR TE	59 ms	F >> H	5 mm
Averages	1.0 ms 1	Dhysis	
Concatenations	1	Physio 1st Signal/Mada	None
Filter	None	1st Signal/Mode	None
Coil elements	T1	Angio	
	• •	Flow mode	Single dir.
Contrast	0"	Encodings	1
MTC	Off	Velocity enc.	90 cm/s
Flip angle	90 deg	Direction	Through plane
Fat suppr.	Fat sat.	Magnitude sum	Off
Averaging mode	Long term	Sequence	
Reconstruction	Magnitude	Introduction	Off
Measurements	20	Bandwidth	752 Hz/Px
Delay in TR	0 ms	Free echo spacing	Off
Multiple series	Off	Echo spacing	1.4 ms
Resolution		EPI factor	64
Base resolution	128	RF pulse type	Normal
Phase resolution	50 %	Gradient mode	Fast
Phase partial Fourier	5/8	RF spoiling	On
Interpolation	Off		5400
PAT mode	None	RF90 duration	5120
······		MB Number DummyScan Number	1
Distortion Corr.	Off	FOV Shift Number	1
Prescan Normalize	Off	Shift K0 Center	1
Raw filter	Off	Every Other Slice	1
Elliptical filter	Off	SER Number	1
Hamming	Off	Venc Repetition	1
Geometry		Spoil factor	5
Multi-slice mode	Interleaved	Skew Direction	0
Series	Ascending	DualBand Sat	0
Ì	Ascending	Baaibana Gat	
0		FOV Dir	0
Special sat.	None		
Special sat. Table position		FOV Dir	
	None	FOV Dir Venc Type(0off,1+-,20+,3on,4	

\\USER\Feinberglab\Test\lc\fl_fq_mb_gre

Rel. SNR: 1.00

USER: fl_fq_mb_gre

Voxel size: 1.2x1.2x5.0 mm

TA: 0:41

PAT: Off

Properties		System	
Prio Recon	Off		On
Before measurement		M2	Off
After measurement		B4	Off
Load to viewer	On	M3	Off
Inline movie	Off	V32	Off
Auto store images	On		
	Off	Positioning mode	REF
Load to stamp segments		MSMA	S-C-T
Load images to graphic	Off	Sagittal	R >> L
segments	0.44	Coronal	A >> P
Auto open inline display	Off	Transversal	F >> H
Start measurement without	On	Coil Combine Mode	Adaptive Combine
further preparation		AutoAlign	
Wait for user to start	Off	Auto Coil Select	
Start measurements	single	Auto Coil Select	Default
Doubles		Shim mode	Tune up
Routine		Adjust with body coil	Off
Slice group 1		Confirm freq. adjustment	Off
Slices	1	Assume Silicone	Off
Dist. factor	20 %		
Position	Isocenter	? Ref. amplitude 1H	0.000 V
Orientation	Transversal	Adjustment Tolerance	Auto
Phase enc. dir.	A >> P	Adjust volume	
Rotation	0.00 deg	Position	Isocenter
Phase oversampling	0 %	Orientation	Transversal
		Rotation	0.00 deg
FoV read	300 mm	R >> L	350 mm
FoV phase	100.0 %	A >> P	263 mm
Slice thickness	5.0 mm	F >> H	350 mm
TR	150.00 ms	1 >> 11	330 11111
TE	10.00 ms	Physio	
Averages	1	1st Signal/Mode	None
Concatenations	1	Segments	1
Filter	None	1 -	•
Coil elements	T1	Angio	
Con ciomonic	• •	Flow mode	Single dir.
Contrast		Encodings	1
Flip angle	15 deg	Velocity enc.	90 cm/s
		Direction	Through plane
Averaging mode	Short term	Rephased images	On
Reconstruction	Magnitude	Magnitude images	On
	1		
Measurements	Į.		0
Multiple series	Each measurement	Phase images	On
Multiple series			On Off
Multiple series Resolution	Each measurement	Subtract	Off
Multiple series Resolution Base resolution	Each measurement	Subtract — Std-Dev-Sag	Off Off
Multiple series Resolution Base resolution Phase resolution	Each measurement 256 100 %	Subtract Std-Dev-Sag Std-Dev-Cor	Off Off Off
Multiple series Resolution Base resolution	Each measurement	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra	Off Off Off Off
Multiple series Resolution Base resolution Phase resolution	Each measurement 256 100 %	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time	Off Off Off Off Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation	Each measurement 256 100 % Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag	Off Off Off Off Off Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier	Each measurement 256 100 % Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor	Off Off Off Off Off Off Off Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode	Each measurement 256 100 % Off Off None	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra	Off Off Off Off Off Off Off Off Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter	Each measurement 256 100 % Off Off None Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor	Off Off Off Off Off Off Off Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr.	Each measurement 256 100 % Off Off None Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time	Off Off Off Off Off Off Off Off Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize	Each measurement 256 100 % Off Off None Off Off Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images	Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize	Each measurement 256 100 % Off Off None Off Off Off Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence	Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter	Each measurement 256 100 % Off Off None Off Off Off Off Off Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction	Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize	Each measurement 256 100 % Off Off None Off Off Off Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence	Off
Multiple series Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter	Each measurement 256 100 % Off Off None Off Off Off Off Off Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter	Each measurement 256 100 % Off Off None Off Off Off Off Off Off Off Off Off	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter Geometry	256 100 % Off Off None Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter	256 100 % Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth Flow comp.	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter Geometry	256 100 % Off Off None Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter Geometry Multi-slice mode Series	256 100 % Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth Flow comp.	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter Geometry Multi-slice mode	256 100 % Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth Flow comp. RF pulse type	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter Geometry Multi-slice mode Series Special sat.	256 100 % Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth Flow comp. RF pulse type Gradient mode RF spoiling	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter Geometry Multi-slice mode Series Special sat. Table position	Each measurement 256 100 % Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth Flow comp. RF pulse type Gradient mode RF spoiling MB Number	Off
Resolution Base resolution Phase resolution Phase partial Fourier Interpolation PAT mode Image Filter Distortion Corr. Prescan Normalize Normalize B1 filter Raw filter Elliptical filter Geometry Multi-slice mode Series Special sat.	256 100 % Off Off Off Off Off Off Off Off Off Of	Subtract Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time Save original images Sequence Introduction Asymmetric echo Contrasts Bandwidth Flow comp. RF pulse type Gradient mode RF spoiling	Off

\\USER\Feinberglab\Test\lc\fl_fq_mb_gre_3D_seg

roperties		System	
Prio Recon	Off	T1	On
Before measurement		M2	Off
After measurement		B4	Off
Load to viewer	On	M3	Off
Inline movie	Off	V32	Off
Auto store images	On	Positioning mode	REF
Load to stamp segments	Off	Positioning mode	
Load images to graphic	Off	MSMA	S-C-T
segments		Sagittal	R >> L
Auto open inline display	Off	Coronal	A >> P
Start measurement without	On	Transversal	F >> H
further preparation	.	Coil Combine Mode	Sum of Squares
Wait for user to start	Off	AutoAlign	
Start measurements	single	Auto Coil Select	Default
Start measurements	Sirigle	Obies as a de	T
outine		Shim mode	Tune up
Slice group 1		Adjust with body coil	Off
Slices	1	Confirm freq. adjustment	Off
Dist. factor	20 %	Assume Silicone	Off
Position	Isocenter	? Ref. amplitude 1H	0.000 V
Orientation	Transversal	Adjustment Tolerance	Auto
	A >> P	Adjust volume	
Phase enc. dir.		Position	Isocenter
Rotation	0.00 deg	Orientation	Transversal
Phase oversampling	0 %	Rotation	0.00 deg
FoV read	300 mm	R >> L	350 mm
FoV phase	100.0 %	A >> P	263 mm
Slice thickness	5.0 mm	F >> H	350 mm
TR	150.00 ms		330 11111
TE	10.00 ms	Physio	
Averages	1	1st Signal/Mode	None
Concatenations	1	Segments	1
Filter	None	1	•
Coil elements	T1	Angio	
	• •	Flow mode	Single dir.
Contrast		Encodings	1
Flip angle	15 deg	Velocity enc.	90 cm/s
A	Ob 4	Direction	Through plane
Averaging mode	Short term	Rephased images	On
Reconstruction	Magnitude	Magnitude images	On
Measurements	1	Magnitude sum	Off
Multiple series	Each measurement	Phase images	On
esolution		- Hase images	
	256	—— Subtract	Off
Base resolution	256	Std-Dev-Sag	Off
Phase resolution	100 %	Std-Dev-Cor	Off
Phase partial Fourier	Off	Std-Dev-Tra	Off
Interpolation	Off	Std-Dev-Time	Off
PAT mode	None	MIP-Sag	Off
		MIP-Cor	Off
Image Filter	Off		
Distortion Corr.	Off	MIP-Tra	Off
Prescan Normalize	Off	MIP-Time	Off
Normalize	Off	Save original images	On
B1 filter	Off	Sequence	
Raw filter	Off	Introduction	On
Elliptical filter	Off	Dimension	2D
Geometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
Series	Interleaved	Bandwidth	260 Hz/Px
		Flow comp.	No
Special sat.	None		Namaal
		RF pulse type	Normal
T-61 : : :	Н	Gradient mode	Fast
Table position Table position	П 0 mm	RF spoiling	On

MB Number 1 FOV Shift 1 \\USER\Feinberglab\Test\lc\ep2d_venc_sms2__

TA: 5:14 PAT: 2	J	Rel. SNR: 1.00 USER: ep2	2d_venc_ms_sbmb_SAT
B		Sat. region 1	
Properties		_ Thickness	50 mm
Prio Recon	Off	Position	L0.0 A81.0 H0.0
Before measurement		Orientation	Coronal
After measurement		Sat. region 2	Colonal
Load to viewer	On	Thickness	50 mm
Inline movie	Off	Position	L0.0 P69.4 H0.0
Auto store images	On	Orientation	Coronal
Load to stamp segments	Off	Special sat.	None
Load images to graphic	Off		
segments		Table position	Н
Auto open inline display	Off	Table position	0 mm
Start measurement without	On	Inline Composing	Off
further preparation		System	
Wait for user to start	Off	System T1	05
Start measurements	single		On On
Douting		M2	On
Routine		_ B4	On
Slice group 1	0	M3	On Off
Slices	2	V32	Off
Dist. factor	800 %	Positioning mode	REF
Position	Isocenter	MSMA	S - C - T
Orientation	Transversal	Sagittal	R >> L
Phase enc. dir.	A >> P	Coronal	A >> P
Rotation	0.00 deg	Transversal	F >> H
Phase oversampling	0 %	Coil Combine Mode	Sum of Squares
FoV read	200 mm	AutoAlign	
FoV phase	100.0 %	Auto Coil Select	Default
Slice thickness	5.0 mm	Auto Coli Select	
TR	5700 ms	Shim mode	Standard
TE	34.0 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Contrast		Adjust volume	
MTC	Off	Position	Isocenter
Flip angle	15 deg	Orientation	Transversal
	None	Rotation	0.00 deg
Fat suppr.		R >> L	200 mm
Averaging mode	Long term	A >> P	200 mm
Reconstruction	Magnitude	F >> H	50 mm
Measurements	420	Dhuais	
Delay in TR	0 ms	Physio 1/Marks	Name
Multiple series	Off	1st Signal/Mode	None
Resolution		Angio	
	100	Flow mode	Single dir.
Base resolution	128 100 %	Encodings	1
Phase resolution		Velocity enc.	10 cm/s
Phase partial Fourier	6/8	Direction	Through plane
Interpolation	Off	Magnitude sum	Off
PAT mode	GRAPPA	1	
Accel. factor PE	2	Sequence	0"
Ref. lines PE	24	Introduction	Off
Reference scan mode	Separate	Bandwidth	2298 Hz/Px
		Free echo spacing	Off
Distortion Corr.	Off	Echo spacing	0.82 ms
Prescan Normalize	Off	EPI factor	128
Raw filter	Off	RF pulse type	Normal
Elliptical filter	Off	Gradient mode	Fast
Hamming	Off	RF spoiling	On
Geometry			
Multi-slice mode	Interleaved	RF90 duration	5120
Series	Ascending	MB Number	2
		DummyScan Number	5

FOV Shift Number	2
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	40
Spoil factor	5
Skew Direction	0
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	

\\USER\Feinberglab\Test\lc\ep2d_venc_sms2_noSAT			
TA: 5:14 PAT: 2	Voxel size: 1.6×1.6×5.0 mm	Rel. SNR: 1.00 USER: ep2	d_venc_ms_sbmb_SAT
		Sat. region 1	
Properties	~"	Thickness	50 mm
Prio Recon	Off	Position	L0.0 A81.0 H0.0
Before measurement		Orientation	Coronal
After measurement	_	Sat. region 2	
Load to viewer	On	Thickness	50 mm
Inline movie	Off	Position	L0.0 P69.4 H0.0
Auto store images	On	Orientation	Coronal
Load to stamp segments	Off	Special sat.	None
Load images to graphic	Off		
segments		Table position	Н
Auto open inline display	Off	Table position	0 mm
Start measurement without	On	Inline Composing	Off
further preparation		System	
Wait for user to start	Off	T1	On
Start measurements	single	M2	On
Routine		B4	_
			On
Slice group 1		M3	On O"
Slices	2	V32	Off
Dist. factor	800 %	Positioning mode	REF
Position	Isocenter	MSMA	S - C - T
Orientation	Transversal	Sagittal	R >> L
Phase enc. dir.	A >> P	Coronal	A >> P
Rotation	0.00 deg	Transversal	F >> H
Phase oversampling	0 %	Coil Combine Mode	Sum of Squares
FoV read	200 mm	AutoAlign	
FoV phase	100.0 %	Auto Coil Select	Default
Slice thickness	5.0 mm	Auto Coli Select	
TR	5700 ms	Shim mode	Standard
TE	34.0 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
ı	,,0,	Adjust volume	Auto
Contrast		Position	Isocenter
MTC	Off	Orientation	Transversal
Flip angle	15 deg	Rotation	0.00 deg
Fat suppr.	Fat sat.	R >> L	200 mm
Averaging mode	Long torm	A >> P	200 mm
Averaging mode Reconstruction	Long term Magnitude	F>> H	50 mm
Measurements	420		30 11111
	0 ms	Physio	
Delay in TR	Off	1st Signal/Mode	None
Multiple series	Oil	1	
Resolution		Angio	Oire all a dire
Base resolution	128	Flow mode	Single dir.
Phase resolution	100 %	Encodings	1
Phase partial Fourier	6/8	Velocity enc.	10 cm/s
Interpolation	Off	Direction	Through plane
		Magnitude sum	Off
PAT mode	GRAPPA	Sequence	
Accel. factor PE	2	Introduction	Off
Ref. lines PE	24	Bandwidth	2298 Hz/Px
Reference scan mode	Separate	Free echo spacing	Off
Distortion Corr.	Off	Echo spacing	0.82 ms
	Off	Lond spacing	U.UZ III3
Prescan Normalize Raw filter	Off	EPI factor	128
		RF pulse type	Normal
Elliptical filter	Off	Gradient mode	Fast
Hamming	Off	RF spoiling	On
Geometry			
Multi-slice mode	Interleaved	RF90 duration	5120

Multi-slice mode

Interleaved

Ascending

DummyScan Number

MB Number

2

5

FOV Shift Number	2
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	40
Spoil factor	5
Skew Direction	0
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	

 $\verb|\USER\Feinberg| lab\Test\| lc\| fq_mb2f2_gre_3D_seg2|$

USER: fl_fq_mb_gre_3D_seg

Voxel size: 1.6×1.6×3.0 mm Rel. SNR: 1.00

TA: 2:50

PAT: 2

Properties		Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Ascending
After measurement			
Load to viewer	On	Special sat.	None
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off	Inline Composing	Oil
segments	Oli	System	
Auto open inline display	Off	T1	On
Start measurement without	On	M2	On
	Oli	B4	On
further preparation	0#	M3	On
Wait for user to start	Off	V32	Off
Start measurements	single		
Routine		Positioning mode	REF
Slab group 1		MSMA	S - C - T
Slabs	2	Sagittal	R >> L
Dist. factor	100 %	Coronal	A >> P
		Transversal	F >> H
Position	L0.0 P1.3 F39.1	Coil Combine Mode	Sum of Squares
Orientation	Transversal	AutoAlign	
Phase enc. dir.	A >> P	Auto Coil Select	Default
Rotation	0.00 deg	Auto Con Gelect	
Phase oversampling	0 %	Shim mode	Tune up
Slice oversampling	0.0 %	Adjust with body coil	Off
Slices per slab	12	Confirm freq. adjustment	Off
FoV read	200 mm	Assume Silicone	Off
FoV phase	100.0 %	? Ref. amplitude 1H	0.000 V
Slice thickness	3.00 mm	Adjustment Tolerance	Auto
TR	75.15 ms	Adjust volume	71010
TE	5.91 ms	Position	Isocenter
Averages	1		
Concatenations	2	Orientation	Transversal
Filter	None	Rotation	0.00 deg
Coil elements		R >> L	350 mm
Con elements	B4;M2,3;T1	A >> P	263 mm
Contrast		F >> H	350 mm
Flip angle	15 deg	Physio	
		1st Signal/Mode	ECG/Trigger
Averaging mode	Short term	Average cycle	No Signal ms
Reconstruction	Magnitude	Captured cycle	
Measurements	1	Acquisition window	-not set- 440 ms
Multiple series	Each measurement		
Resolution		Trigger pulse	1
	120	Trigger delay	0 ms
Base resolution	128 100 %	Segments	2
Phase resolution		Phases	5
Slice resolution	100 %	Angio	
Phase partial Fourier	Off	Flow mode	Single vel.
Interpolation	Off	Encodings	3
PAT mode	GRAPPA	<u> </u>	-
Accel. factor PE	2	Velocity enc.	90 cm/s
Ref. lines PE	24	Direction 1	Through plane
		Direction 2	A >> P
Accel. factor 3D	1	Direction 3	R >> L
Ref. lines 3D	12	Rephased images	On
Reference scan mode	Separate	Magnitude images	On
Image Filter	Off	Magnitude sum	Off
Distortion Corr.	Off	Phase images	On
Prescan Normalize	Off	Outstand of	O#
		Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
B1 filter	Off	Std-Dev-Cor	Off
Raw filter	Off	Std-Dev-Tra	Off
Elliptical filter	Off	Std-Dev-Time	Off

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

 $\verb|\USER\Feinberg|| ab\Test\\| fq_mb2f2_gre_3D_seg$

TA: 5:39 PAT: 2	Voxel size: 1.6×1.6×3.0 mm		I_fq_mb_gre_3D_seg
Properties		Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Interleaved
After measurement			
Load to viewer	On	Special sat.	None
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off		
segments		System	
Auto open inline display	Off	T1	On
Start measurement without	On	M2	On
further preparation		B4	On
Wait for user to start	Off	M3	On O"
Start measurements	single	V32	Off
Routine		Positioning mode	REF
Slab group 1		MSMA	S - C - T
Slabs	2	Sagittal	R >> L
Dist. factor	100 %	Coronal	A >> P
Position	L0.0 A8.1 F40.5	Transversal	F >> H
Orientation	Transversal	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %	Shim mode	Tung un
Slice oversampling	0.0 %		Tune up Off
Slices per slab	12	Adjust with body coil Confirm freq. adjustment	Off
FoV read	200 mm	Assume Silicone	Off
FoV phase	100.0 %		0.000 V
Slice thickness	3.00 mm	? Ref. amplitude 1H Adjustment Tolerance	Auto
TR	37.65 ms	Adjust volume	Auto
TE	5.91 ms	Position	Isocenter
Averages	1	Orientation	Transversal
Concatenations	2	Rotation	
Filter	None	Rotation R >> L	0.00 deg 350 mm
Coil elements	B4;M2,3;T1	A >> P	263 mm
	_ ·,···_,o, · ·	F >> H	350 mm
Contrast		1 >>11	330 11111
Flip angle	15 deg	Physio	
Averaging mode	Short term	1st Signal/Mode	ECG/Trigger
Reconstruction	Magnitude	Average cycle	No Signal ms
Measurements	1	Captured cycle	-not set-
Multiple series	Each measurement	Acquisition window	440 ms
1		Trigger pulse	1
Resolution	400	Trigger delay	0 ms
Base resolution	128	Segments	1
Phase resolution	100 %	Phases	11
Slice resolution	100 %	Angio	
Phase partial Fourier	Off	Flow mode	Single vel.
Interpolation	Off	Encodings	3
PAT mode	GRAPPA	Velocity enc.	90 cm/s
Accel. factor PE	2	Direction 1	Through plane
Ref. lines PE	24	Direction 2	A >> P
Accel. factor 3D	1	Direction 3	R >> L
Ref. lines 3D	12	Rephased images	On _
Reference scan mode	Separate	Magnitude images	On
Imaga Citar		Magnitude sum	Off
Image Filter	Off	Phase images	On
Distortion Corr.	Off		
Prescan Normalize	Off	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
B1 filter	Off	Std-Dev-Cor	Off
Raw filter	Off	Std-Dev-Tra	Off
Elliptical filter	Off	Std-Dev-Time	Off

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

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TA: 0:29 PAT: 2 Voxel size: 1.6×1.6×5.0 mm Rel. SNR: 1.00 USER: fl_fq_mb_gre				
Droportion		Table position	Н	
Properties	0"	Table position	0 mm	
Prio Recon	Off	Inline Composing	Off	
Before measurement		System		
After measurement Load to viewer	On	T1	On	
Inline movie	Off	M2	On	
Auto store images	On	B4	On	
Load to stamp segments	Off	M3	On	
Load images to graphic	Off	V32	Off	
segments				
Auto open inline display	Off	Positioning mode	REF	
Start measurement without	On	MSMA	S - C - T	
further preparation		Sagittal	R >> L	
Wait for user to start	Off	Coronal	A >> P	
Start measurements	single	Transversal	F >> H	
ı	3	Coil Combine Mode	Adaptive Combine	
Routine		AutoAlign	 D ();	
Slice group 1	2	Auto Coil Select	Default	
Slices	2 800 %	Shim mode	Tune up	
Dist. factor		Adjust with body coil	Off .	
Position	Isocenter	Confirm freq. adjustment	Off	
Orientation	Transversal A >> P	Assume Silicone	Off	
Phase enc. dir. Rotation	0.00 deg	? Ref. amplitude 1H	0.000 V	
Phase oversampling	0.00 deg 0 %	Adjustment Tolerance	Auto	
FoV read	200 mm	Adjust volume		
FoV phase	100.0 %	Position	Isocenter	
Slice thickness	5.0 mm	Orientation	Transversal	
TR	15.75 ms	Rotation	0.00 deg	
TE	4.35 ms	R >> L	350 mm	
Averages	1	A >> P	263 mm	
Concatenations	2	F >> H	350 mm	
Filter	None	Physio		
Coil elements	B4;M2,3;T1	1st Signal/Mode	ECG/Trigger	
I _	21,1112,0,11	Average cycle	No Signal ms	
Contrast		Captured cycle	-not set-	
Flip angle	15 deg	Acquisition window	440 ms	
Averaging mode	Short term	Trigger pulse	1	
Reconstruction	Magnitude	Trigger delay	0 ms	
Measurements	1	Segments	1	
Multiple series	Each measurement	Phases	27	
1		Anaria		
Resolution Base resolution	128	Angio Flow mode	Cingle dir	
Phase resolution	100 %	Encodings	Single dir.	
Phase partial Fourier	Off	Velocity enc.	90 cm/s	
Interpolation	Off	Direction	Through plane	
	OII	Rephased images	On	
PAT mode	GRAPPA	Magnitude images	On	
Accel. factor PE	2	Phase images	On	
Ref. lines PE	24		••••••••••••••••••••••••••••••••••••••	
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	
Elliptical filter	Off	MIP-Tra	Off	
	5 11	MIP-Time	Off	
Geometry		Save original images	On	
Multi-slice mode	Sequential	Sequence		
Series	Ascending	Introduction	On	
Special sat.	None	Asymmetric echo	Off	
opoolal oat.	. 10110	1 .,	=	

Contrasts Bandwidth Flow comp.	1 260 Hz/Px No
RF pulse type Gradient mode RF spoiling	Normal Fast On
MB Number FOV Shift	2 2

\\USER\Feinberglab\Test\lc\ep2d	venc	sms2ipat4	SAT
	V 0110	oi i iozipat i	O,

TA: 5:14 PAT: 4 Voxel size: 1.6×1.6×5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_ms_sbmb_SAT

Properties Prio Recon Before measurement After measurement Load to viewer Inline movie	Off	Sat. region 1 Thickness Position	50 mm L0.0 A81.0 H0.0
Before measurement After measurement Load to viewer	Oil		L0.0 A81.0 H0.0
After measurement Load to viewer			
Load to viewer		Orientation	Coronal
	On	Sat. region 2	
	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P69.4 H0.0
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments	Oli	Table position	Н
Auto open inline display	Off	Table position	0 mm
Start measurement without	On	Inline Composing	Off
further preparation	011	1	On
Wait for user to start	Off	System	
Start measurements	single	T1	On
I .	omgio	M2	On
Routine		B4	On
Slice group 1	_	M3	On
Slices	2	V32	Off
Dist. factor	800 %	Positioning mode	REF
Position	Isocenter	MSMA	S-C-T
Orientation	Transversal	Sagittal	R >> L
Phase enc. dir.	A >> P	Coronal	A >> P
Rotation	0.00 deg	Transversal	F >> H
Phase oversampling	0 %	Coil Combine Mode	Sum of Squares
FoV read	200 mm	AutoAlign	
FoV phase	100.0 %	Auto Coil Select	Default
Slice thickness	5.0 mm		
TR	5700 ms	Shim mode	Standard
TE	28.0 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Contrast		Adjust volume	
MTC	Off	——— Position	Isocenter
Flip angle	15 deg	Orientation	Transversal
Fat suppr.	Fat sat.	Rotation	0.00 deg
		R >> L	200 mm
Averaging mode	Long term	A >> P	200 mm
Reconstruction	Magnitude	F >> H	50 mm
Measurements	60	Physio	
Delay in TR	0 ms	1st Signal/Mode	None
Multiple series	Off		110110
Resolution		Angio	0: 1
Base resolution	128	Flow mode	Single dir.
Phase resolution	100 %	Encodings	1
Phase partial Fourier	6/8	Velocity enc.	10 cm/s
Interpolation	Off	Direction	Through plane
		Magnitude sum	Off
PAT mode	GRAPPA	Sequence	
Accel. factor PE	4	Introduction	Off
Ref. lines PE	28	Bandwidth	2298 Hz/Px
Reference scan mode	Separate	Free echo spacing	Off
Distortion Corr.	Off	Echo spacing	0.82 ms
Prescan Normalize	Off		
Raw filter	Off	EPI factor	128
Elliptical filter	Off	RF pulse type	Normal
Hamming	Off	Gradient mode	Fast
1	=	RF spoiling	On
Geometry		RF90 duration	5120
•	Interleaved		
Multi-slice mode Series	Ascending	MB Number	2

FOV Shift Number	2
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	40
Spoil factor	5
Skew Direction	0
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	

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Properties	TA: 0:27 P.	AT: Off Voxel size: 1.2	<1.1×3.0 mm Rel. SNR: 1.00	SIEMENS: gre
PRo Recon Off Interpolation On PAT mode None				
Before measurement After measurement Aft		Off		
Load to viewer On				
Inline movie		0	PAI mode	None
Inline move Off Auto store images Off Auto store images Off Normalize Off Start measurement without Off Start measurements Off Start measurement Off Normalize Off			Image Filter	Off
Load to stamp segments				_
Load images to graphic segments Off NorMalize Uff Off NorMalize Uff Off Start measurement without further preparation Off Raw filter Off Off Raw filter Off Off Start measurement without further preparation Geometry Water for the start off Geometry Multi-silice mode Sequential interleaved Routine Silice group 1 Silices Solist factor 20 % Multi-silice mode Standard Silices Solist factor 20 % Table position on mode Standard Standard Position Orientation Sagittal None None Special sat. None Silices Group 2 Silice group 2 Table position on mode Standard Special sat. None Silices Group 3 Silices Group 2 Time Composing Off Time Composing Off Silices group 2 Silices Group 3 Silice group 3 </td <td></td> <td>-</td> <td>Prescan Normalize</td> <td>Off</td>		-	Prescan Normalize	Off
sagments B1 niter Off Auto open inlined display Off Raw filter Off Start measurement without further preparation Off Multi-silice mode Sequential Wait for user to start Off Multi-silice mode Sequential Slice group 1 Slice group 1 Special sat. None Slice group 2 Sloces 5 Saturation mode Standard Special sat. None None Special sat. None Slice group 2 Silice group 2 Table position H Table position Sequential Table position H Table position <td></td> <td></td> <td></td> <td>~</td>				~
Auto open inline display Off Raw litter Off		J.,	1 -	
Start measurement without Unit Comparation Wait for user to start Off Start measurements Start measurements Single Series Serie		Off		
Multi-click mode			Elliptical filter	Off
Wait for user to start Off Multi-silce mode Sequential Routine Salice group 1 Saturation mode Standard Slice group 1 Silce group 1 Saturation mode Standard Solices 5 5 Standard Special sat. None Position 1 Isocenter Table position 1 H Domestion Phase enc. dir. A >> P Table position 1 Orm Drim			Geometry	
Saturation mode				Sequential
Silice group 1 Silice group 1 Silice group 1 Silice group 1 Silice group 2 Silice group 3 Silice group 4 Silice group 5 Sili	Start measurements	single		
Silice group 1 Silice group 1 Silice group 1 Silice group 1 Silice group 2 Silice group 3 Silice group 4 Silice group 5 Sili	Routine		Saturation mode	Standard
Silices 5				
Dist. factor		5		110110
Position Societter Table position O mm			Table position	 Н
Orientation Sagittal Inline Composing Off Phase enc. dir. A >> P Tim CT mode Off Slice group 2 Silce group 2 System Slices 5 T1 On Dist. factor 20 % M2 On Position Isocenter B4 On Orientation Coronal M3 On Phase enc. dir. R >> L W32 Off Rotation 0.00 deg Positioning mode FIX Slice group 3 Silces 5 MSMA S - C - T Slices of Dist. factor 20 % Sagittal R > L Orientation Isocenter Coronal A >> P Orientation Transversal F > H Sagittal R > L Rotation 0.00 deg Coronal A >> P AutoAlign	Position	Isocenter		
Phase enc. dir. A >> P Rotation 0.00 deg Slices 5 Dist. factor 20 % Position Isocenter B4 On Orientation Coronal M3 On Phase enc. dir. R >> L Rotation 0.00 deg Slice group 3 Slice group 3 Slice group 3 FO Slice group 3 Position Slice so 5 MSMA S - C - T Slice sroup 3 Slice sroup 3 Slice	Orientation			_
Silice group 2				
Silices 5		0.00 deg	Tim C1 mode	Off
Silices 5		_	System	
Position				On
Orientation Coronal M3 On Phase enc. dir. R >> L V32 Off Rotation 0.00 deg Positioning mode FIX Slices group 3 Silce group 3 Position Iscoenter Silces Sightland S - C - T Dist, factor 20 % Sagittal R >> L Position Iscoenter Coronal A >> P Orientation Transversal F >> H Phase enc. dir. A >> P Save uncombined Off Phase oversampling 0 % AutoAllign FoV read 280 mm Auto Coil Select Off FoV phase 100.0 % Shim mode Tune up Silce thickness 3.0 mm Adjust with body coil Off TR 10.0 ms Confirm freq. adjustment Off Averages 1 Raylus with body coil Off Assume Silicone Off Assume Silicone Auto Coil elements B4;M2,3;T1 Adjust with body coil Off				_
Phase enc. dir. R > L 0.00 deg V32 Off Slice group 3 Slices 5 MSMA S - C - T Dist. factor 20 % Sagittal R > L Position Isocenter Coronal A >> P Orientation Transversal Transversal F >> H Phase enc. dir. A >> P Save uncombined Off Rotation 0.00 deg Coil Combine Mode Adaptive Combine Phase oversampling 0 % AutoAlign				
Rotation 0.00 deg Fix			_	_
Positioning mode			V32	Off
Silices 5		J.OU deg	Positionina mode	FIX
Dist. factor		5		
Position Orientation Isocenter Transversal Coronal A >> P Orientation Transversal F >> H Phase enc. dir. A >> P Gold Combine Mode Adaptive Combine Phase oversampling 0 % Auto Adilgn FoV read 280 mm Auto Coil Select Off FoV phase 100.0 % Shim mode Tune up Slice thickness 3.0 mm Adjust with body coil Off TR 10.0 ms Adjust with body coil Off TE 3.00 ms Assume Silicone Off Averages 1 I Ref. amplitude 1H 200.000 V Averages 1 I Ref. amplitude 1H 200.000 V Adjust volume Adjust volume Position Isocenter Contrast D oms Rotation 0.00 deg MTC Off R >> L 350 mm Magn. preparation None F >> H 350 mm Flit a suppr. None F >> H 350 mm Fat suppr.			_	
Orientation Transversal F >> H Phase enc. dir. A >> P Save uncombined Off Rotation 0.00 deg Coil Combine Mode Adaptive Combine Phase oversampling 0 % AutoAlign FoV read 280 mm Auto Coil Select Off FoV phase 100.0 % Shim mode Tune up Slice thickness 3.0 mm Adjust with body coil Off TR 10.0 ms Confirm freq, adjustment Off Averages 1 Save uncombined Off AutoAlign Off Auto Coil Select Off Off Slice thickness 3.0 mm Adjust with body coil Off Averages 1 Save adjustment Off Averages 1 Assume Silicone Off I Ref. amplitude 1H 200.000 V Adjustment Tolerance Auto Adjustment Tolerance Auto Auto Auto MTC Off A > P 263 mm				A >> P
Rotation 0.00 deg Phase oversampling 0 % AutoAlign			Transversal	
Phase oversampling 0 % AutoAlign — FoV read 280 mm Auto Coil Select Off FoV phase 100.0 % Shim mode Tune up Slice thickness 3.0 mm Adjust with body coil Off TR 10.0 ms Confirm freq, adjustment Off Averages 1 ! Ref, amplitude 1H 200.000 V Averages 1 ! Ref, amplitude 1H 200.000 V Adjustment Tolerance Auto Adjustment Tolerance Auto Contrast Doms Adjust with body coil Off Assume Silicone Off Assume Silicone Off Assume Value Auto Adjustment Tolerance Auto Adjust with body coil Off Assume Silicone Off Assume Value Position Isocenter Oo doubt off Adjust with body coil Off Assume Value Auto Adjustment Tolerance Auto Auto Auto Adjust vivit body coil Contreation Auto S	Phase enc. dir.			
FoV read	Rotation	0.00 deg		Adaptive Combine
FoV phase				
Slice thickness 3.0 mm			Auto Coil Select	Off
Adjust with body coil Off	•		Shim mode	Tune up
TR				•
Averages 1 Assure Silicone Off Concatenations 15 Ref. amplitude 1H 200.000 V Filter None Adjust wolume Auto Coil elements B4;M2,3;T1 Position Isocenter Contrast 0 ms Rotation 0.00 deg MTC Off R >> L 350 mm Magn. preparation None A >> P 263 mm Flip angle 10 deg F >> H 350 mm Fat suppr. None Physio Water suppr. None Segments 1 Averaging mode Short term Tagging None Reconstruction Magnitude Dark blood Off Measurements 1 Resp. control Off Resolution Inline Off			Confirm freq. adjustment	
Concatenations Filter None Coil elements B4;M2,3;T1 TD O ms MTC Magn. preparation Flip angle Fat suppr. Water suppr. SWI Adjustment Tolerance Adjust volume Position Orientation Transversal Rotation O.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm Physio Physio Physio Tagging None Segments Tagging None Dark blood Off Resp. control Off Resp. control Off Auto Adjustment Tolerance Adjust volume Position Isocenter Orientation Transversal 0.00 deg R >> L 350 mm F >> H 350 mm Physio Tagging None Off Tagging None Off Resp. control Off Resp. control Off				
Filter None Coil elements B4;M2,3;T1 Contrast TD 0 ms None Rotation 0.00 deg Rotation 0.00 deg R >> L 350 mm Magn. preparation None Flip angle 10 deg Fat suppr. None Water suppr. None SWI Off Segments 1 Averaging mode Reconstruction Magnitude Resolution Magnitude None Segments 1 Multiple series Each measurement Resolution Rays Control Off Resp. control Off Resp. control Off Resp. control Off Inline		=	·	
Coil elements B4;M2,3;T1 Adjust volume Position Isocenter Contrast Orientation Transversal TD 0 ms Rotation 0.00 deg MTC Off R >> L 350 mm Magn. preparation None A >> P 263 mm Flip angle 10 deg F >> H 350 mm Fat suppr. None Physio Water suppr. None Physio SWI Off 1st Signal/Mode None Segments 1 Averaging mode Short term Tagging None Resolution Off Resp. control Off				Auto
Contrast TD 0 ms MTC Off R >> L 350 mm Magn. preparation None A >> P 263 mm Flip angle 10 deg F >> H 350 mm Flip angle None None Water suppr. None Water suppr. None SWI Off T T Segments 1 Averaging mode Reconstruction Magnitude Neasurements 1 Multiple series Each measurement Resolution Isocenter Isocenter Isocenter Isocenter Transversal Rotation Transversal Rotation 0.00 deg Rotation None One Statem Retail None Statem Isocenter Transversal Rotation D.400 deg F >> H Tast Signal/Mode None Segments 1 Tagging None Off Resp. control Off Resp. control Off Resolution				lacacutau
TD	1	, , ,		
MTC Off R >> L 350 mm Magn. preparation None A >> P 263 mm Flip angle 10 deg F >> H 350 mm Fat suppr. None Physio Water suppr. None SWI Off Segments 1 Averaging mode Short term Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution Resolution Inline		0 ma		
Magn. preparationNoneA >> P263 mmFlip angle10 degF >> H350 mmFat suppr.NonePhysioWater suppr.None1st Signal/ModeNoneSWIOffSegments1Averaging modeShort termTaggingNoneReconstructionMagnitudeDark bloodOffMeasurements1Resp. controlOffMultiple seriesEach measurementResp. controlOff				
Flip angle 10 deg F >> H 350 mm Fat suppr. None Physio Water suppr. None SWI Off Segments 1 Averaging mode Short term Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution Resolution Inline				
Fat suppr. None Water suppr. None SWI Off Segments 1 Averaging mode Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution Resolution Magnitude Measurements In Multiple series Each measurement Resolution Inline				
Water suppr. SWI Off 1st Signal/Mode Segments 1 Averaging mode Reconstruction Measurements Multiple series Resolution None Tagging Dark blood Off Resp. control Off Inline		<u> </u>	l	
SWI Off Segments 1 Averaging mode Short term Reconstruction Magnitude Magnitude Dark blood Off Measurements 1 Multiple series Each measurement Resolution Inline				None
Averaging mode Short term Reconstruction Magnitude Dark blood Off Measurements 1 Multiple series Each measurement Resolution Inline				
Reconstruction Magnitude Dark blood Off Measurements 1 Multiple series Each measurement Resp. control Off Resolution Inline			Segments	I
Measurements 1			Tagging	None
Multiple series Each measurement Resp. control Off Resolution Inline		wagnitude 1		Off
Resolution Inline		Fach measurement	Resp. control	Off
	1	Laur measurement	1	Oil
Base resolution 256 Subtract Off				
	Base resolution	256	Subtract	Off

Sequence

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

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TA: 39:26 PAT: 2	Voxel size: 1.6×1.6×5.0 mm	Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Droportion		Sat. region 1	
Properties Properties	O#	— Thickness	50 mm
Prio Recon	Off	Position	L0.0 A106.6 F60.7
Before measurement		Orientation	Coronal
After measurement	0	Sat. region 2	
Load to viewer	On	Thickness	50 mm
Inline movie	Off	Position	L0.0 P43.8 F60.7
Auto store images	On O"	Orientation	Coronal
Load to stamp segments	Off	Special sat.	None
Load images to graphic	Off		
segments	0"	Table position	Н
Auto open inline display	Off	Table position	0 mm
Start measurement without	On	Inline Composing	Off
further preparation		System	
Wait for user to start	Off	T1	On
Start measurements	single	M2	On
Routine		B4	On
Slice group 1		_ M3	On
Slices	2	V32	Off
Dist. factor	800 %	V 32	
Position	L0.0 A25.6 F60.7	Positioning mode	REF
Orientation		MSMA	S - C - T
	Transversal	Sagittal	R >> L
Phase enc. dir.	A >> P	Coronal	A >> P
Rotation	0.00 deg	Transversal	F >> H
Phase oversampling	0 %	Coil Combine Mode	Sum of Squares
FoV read	200 mm	AutoAlign	
FoV phase	100.0 %	Auto Coil Select	Default
Slice thickness	5.0 mm		
TR	5700 ms	Shim mode	Standard
TE	34.0 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Contrast		Adjust volume	
	0#	Position	L0.0 A25.6 F60.7
MTC	Off	Orientation	Transversal
Flip angle	15 deg	Rotation	0.00 deg
Fat suppr.	None	R >> L	200 mm
Averaging mode	Long term	A >> P	200 mm
Reconstruction	Magnitude	F >> H	50 mm
Measurements	420	l	
Delay in TR	0 ms	Physio	
Multiple series	Off	1st Signal/Mode	None
•	O.I.	Angio	
Resolution		Flow mode	Single dir.
Base resolution	128	Encodings	3 ingle uii.
Phase resolution	100 %	<u> </u>	10 cm/s
Phase partial Fourier	6/8	Velocity enc.	
Interpolation	Off	Direction	Through plane
	OD 4 DD 4	Magnitude sum	Off
PAT mode	GRAPPA	Sequence	
Accel. factor PE	2	Introduction	Off
Ref. lines PE	24	Bandwidth	2298 Hz/Px
Reference scan mode	Separate	Free echo spacing	Off
Distortion Corr.	Off	Echo spacing	0.82 ms
Prescan Normalize	Off		
Raw filter	Off	EPI factor	128
Elliptical filter	Off	RF pulse type	Normal
Hamming	Off	Gradient mode	Fast
Hallining	Oil	RF spoiling	On
Geometry			F100
Multi-slice mode	Interleaved	RF90 duration AR Number	5120
Series	Ascending	MB Number	2
	-	DummyScan Number	5

FOV Shift Number	2
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	0
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	

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TA: 39:26 PAT: 4	Voxel size: 1.6×1.6×5.0 mm	·	2d_venc_ms_sbmb_SAT
		Sat. region 1	
Properties		_ Thickness	50 mm
Prio Recon	Off	Position	L0.0 A106.6 F60.7
Before measurement		Orientation	Coronal
After measurement		Sat. region 2	Coronal
Load to viewer	On	Thickness	50 mm
Inline movie	Off	Position	L0.0 P43.8 F60.7
Auto store images	On	Orientation	Coronal
Load to stamp segments	Off		· · · · · · · · · · · · · · · · · ·
Load images to graphic	Off	Special sat.	None
segments		Table position	Н
Auto open inline display	Off	Table position	0 mm
Start measurement without	On	Inline Composing	Off
further preparation	011	1	O.I.
Wait for user to start	Off	System	
Start measurements	single	T1	On
Start measurements	single	M2	On
Routine		B4	On
Slice group 1		- M3	On
Slices	2	V32	Off
Dist. factor	800 %		
Position	L0.0 A25.6 F60.7	Positioning mode	REF
		MSMA	S-C-T
Orientation	Transversal	Sagittal	R >> L
Phase enc. dir.	A >> P	Coronal	A >> P
Rotation	0.00 deg	Transversal	F >> H
Phase oversampling	0 %	Coil Combine Mode	Sum of Squares
FoV read	200 mm	AutoAlign	
FoV phase	100.0 %	Auto Coil Select	Default
Slice thickness	5.0 mm	Auto Coil Select	Delault
TR	5700 ms	Shim mode	Standard
TE	28.0 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Con ciomonic	D 1,1412,0,1 1	Adjust volume	Auto
Contrast		- Position	L0.0 A25.6 F60.7
MTC	Off		
Flip angle	15 deg	Orientation	Transversal
Fat suppr.	Fat sat.	Rotation	0.00 deg
		R >> L	200 mm
Averaging mode	Long term	A >> P	200 mm
Reconstruction	Magnitude	F >> H	50 mm
Measurements	420	Physio	
Delay in TR	0 ms	1st Signal/Mode	None
Multiple series	Off	1st Signal/Mode	None
Pacalutian		Angio	
Resolution	120	- Flow mode	Single dir.
Base resolution	128	Encodings	1
Phase resolution	100 %	Velocity enc.	10 cm/s
Phase partial Fourier	6/8	Direction	Through plane
Interpolation	Off	Magnitude sum	Off
PAT mode	GRAPPA	Iviagilitude suili	Oli
Accel. factor PE	4	Sequence	
Ref. lines PE		Introduction	Off
	28	Bandwidth	2298 Hz/Px
Reference scan mode	Separate	Free echo spacing	Off
Distortion Corr.	Off	Echo spacing	0.82 ms
Prescan Normalize	Off		
Raw filter	Off	EPI factor	128
Elliptical filter	Off	RF pulse type	Normal
·		Gradient mode	Fast
Hamming	Off	RF spoiling	On
Geometry			
Multi-slice mode	Interleaved	 RF90 duration 	5120
Series	Ascending	MB Number	2

Ascending

Series

DummyScan Number

FOV Shift Number	2
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	0
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4 00++)	1

 $\verb|\USER\Feinberg| lab\Test\| lc\| fq_mb2f2_gre_3D_seg2|$

Voxel size: 1.5×1.5×2.0 mm Rel. SNR: 1.00

TA: 5:27

PAT: 2

USER: fl_fq_mb_gre_3D_seg

171. 0.27	VOXCI 3120. 1.0X1.0X2.0 111111	Trei. Grant. 1.00 GGER. I	
Properties		Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Ascending
After measurement		0	
Load to viewer	On	Special sat.	None
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off		.
segments		System	
Auto open inline display	Off	T1	On
Start measurement without	On	M2	On
further preparation		B4	On
Wait for user to start	Off	M3	On
Start measurements	single	V32	Off
ļ	59.5	Positioning mode	REF
Routine		MSMA	S-C-T
Slab group 1		_	
Slabs	2	Sagittal	R >> L
Dist. factor	100 %	Coronal	A >> P
Position	L0.0 A29.7 F58.7	Transversal	F >> H
Orientation	Transversal	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %	Shim mode	Tune up
Slice oversampling	0.0 %	Adjust with body coil	Off
Slices per slab	12	Confirm freq. adjustment	Off
FoV read	192 mm	Assume Silicone	Off
FoV phase	100.0 %	? Ref. amplitude 1H	0.000 V
Slice thickness	2.00 mm		
TR	75.15 ms	Adjustment Tolerance	Auto
TE	5.91 ms	Adjust volume	
		Position	Isocenter
Averages	1	Orientation	Transversal
Concatenations	2	Rotation	0.00 deg
Filter	None	R >> L	350 mm
Coil elements	B4;M2,3;T1	A >> P	263 mm
Contrast		F >> H	350 mm
Flip angle	15 deg	Physio	
		1st Signal/Mode	Pulse/Trigger
Averaging mode	Short term	Average cycle	No Signal ms
Reconstruction	Magnitude	Captured cycle	-not set-
Measurements	1	Acquisition window	849 ms
Multiple series	Each measurement	Trigger pulse	
Resolution			1
Base resolution	128	Trigger delay	0 ms
Phase resolution	100 %	Segments	2
		Phases	11
Slice resolution	100 %	Angio	
Phase partial Fourier	Off	Flow mode	Single vel.
Interpolation	Off	Encodings	3
PAT mode	GRAPPA	Velocity enc.	90 cm/s
Accel. factor PE	2	Direction 1	Through plane
Ref. lines PE	24	Direction 2	A >> P
Accel. factor 3D	1		
	1 12	Direction 3	R >> L
Ref. lines 3D		Rephased images	On
Reference scan mode	Separate	Magnitude images	On
Image Filter	Off	Magnitude sum	Off
Distortion Corr.	Off	Phase images	On
Prescan Normalize	Off	Subtract	Off
Normalize	Off		Off
B1 filter	Off	Std-Dev-Sag	Off
Raw filter	Off	Std-Dev-Cor	Off
		Std-Dev-Tra	Off
Elliptical filter	Off	Std-Dev-Time	Off

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

\\USER\Feinberglab\Test\lc\fl_fq_mb2f2_gre_3D_seg

Voxel size: 1.5×1.5×2.0 mm Rel. SNR: 1.00

TA: 9:52

PAT: 2

USER: fl_fq_mb_gre_3D_seg

Droportion		Coometry	
Properties	0"	Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Ascending
After measurement		Special sat.	None
Load to viewer	On	opecial sat.	
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off		011
segments	3	System	
Auto open inline display	Off	T1	On
		M2	On
Start measurement without	On	B4	On
further preparation		M3	On
Wait for user to start	Off	V32	Off
Start measurements	single	V32	Oli
Douting		Positioning mode	REF
Routine		MSMA	S-C-T
Slab group 1		_	R >> L
Slabs	2	Sagittal	
Dist. factor	100 %	Coronal	A >> P
Position	L0.0 A29.7 F58.7	Transversal	F >> H
Orientation	Transversal	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %	Shim mode	Tune up
Slice oversampling	0.0 %	Adjust with body coil	Off
Slices per slab	12	Confirm freq. adjustment	Off
FoV read	192 mm	Assume Silicone	Off
FoV phase	100.0 %	? Ref. amplitude 1H	0.000 V
Slice thickness	2.00 mm	Adjustment Tolerance	Auto
TR	37.65 ms	Adjust volume	Auto
TE	5.91 ms		Innocentos
Averages		Position	Isocenter
_	1	Orientation	Transversal
Concatenations	2	Rotation	0.00 deg
Filter	None	R >> L	350 mm
Coil elements	B4;M2,3;T1	A >> P	263 mm
Contract		F >> H	350 mm
Contrast	45 de		
Flip angle	15 deg	Physio	Dula a /Tai a sa a
Averaging mode	Short term	1st Signal/Mode	Pulse/Trigger
Reconstruction	Magnitude	Average cycle	No Signal ms
Measurements	1	Captured cycle	-not set-
Multiple series	Each measurement	Acquisition window	770 ms
Widiaple series	Laon meadarement	Trigger pulse	1
Resolution		Trigger delay	0 ms
Base resolution	128	Segments	1
Phase resolution	100 %	Phases	20
Slice resolution	100 %	Thases	20
Phase partial Fourier	Off	Angio	
	Off	Flow mode	Single vel.
Interpolation	Oli	Encodings	3
PAT mode	GRAPPA	Velocity enc.	90 cm/s
Accel. factor PE	2	Direction 1	Through plane
Ref. lines PE	24		A >> P
		Direction 2	
Accel. factor 3D	1	Direction 3	R >> L
Ref. lines 3D	12	Rephased images	On
Reference scan mode	Separate	Magnitude images	On
Image Filter	Off	Magnitude sum	Off
Image Filter	Off	Phase images	On
Distortion Corr.	Off		
Prescan Normalize	Off	Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
B1 filter	Off	Std-Dev-Cor	Off
Raw filter	Off	Std-Dev-Tra	Off
Elliptical filter	Off	Std-Dev-Time	Off
•		1	

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

		Table position	Н
operties		Table position Table position	H 0 mm
Prio Recon	Off	Inline Composing	Off
Before measurement			3 11
After measurement		System	
Load to viewer	On	T1	On
Inline movie	Off	M2	On
Auto store images	On Off	B4	On
Load to stamp segments	Off	M3	On O#
Load images to graphic	Off	V32	Off
segments	0#	Positioning mode	REF
Auto open inline display	Off	MSMA	S - C - T
Start measurement without	On	Sagittal	R >> L
further preparation Wait for user to start	Off	Coronal	A >> P
Start measurements	single	Transversal	F >> H
	Sirigie	Coil Combine Mode	Adaptive Combine
outine		AutoAlign	
Slice group 1		Auto Coil Select	Default
Slices	2	Shim mode	Tune up
Dist. factor	800 %	Adjust with body coil	Off
Position	L0.0 A27.0 F61.4	Confirm freq. adjustment	Off
Orientation	Transversal	Assume Silicone	Off
Phase enc. dir.	A >> P	? Ref. amplitude 1H	0.000 V
Rotation	0.00 deg	Adjustment Tolerance	Auto
Phase oversampling	0 %	Adjust rolume	, 1010
FoV read	200 mm	Position	Isocenter
FoV phase	100.0 %	Orientation	Transversal
Slice thickness	3.0 mm	Rotation	0.00 deg
TR	41.85 ms	R >> L	350 mm
TE Average	6.98 ms	A >> P	263 mm
Averages	1	F >> H	350 mm
Concatenations	2 None		
Filter	None	Physio	D. I. /T.:
Coil elements	B4;M2,3;T1	1st Signal/Mode	Pulse/Trigger
ontrast		Average cycle	No Signal ms
Flip angle	15 deg	Captured cycle	-not set-
		Acquisition window	770 ms
Averaging mode	Short term	Trigger pulse	1
Reconstruction	Magnitude	Trigger delay	0 ms
Measurements Multiple series	1 Each measurement	Segments Phases	1
Multiple series	Each measurement	FilaSeS	18
esolution		Angio	
Base resolution	256	Flow mode	Single vel.
Phase 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
Reference scan mode	Integrated	Magnitude images	On
		Phase images	On
Image Filter	Off	Subtract	Off
Distortion Corr.	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
eometry		MIP-Tra	Off
Multi-slice mode	Sequential	MIP-Time	Off
Series	Ascending	Save original images	On
	Nama	Sequence	
Special sat.	None	Sequence	

Introduction	On
Asymmetric echo	Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On
MB Number	2
FOV Shift	2

 $\verb|\USER\Feinberg| lab\Test\| lc\| fq_mb1f1_gre_3D_seg2|$

USER: fl_fq_mb_gre_3D_seg

Voxel size: 1.5×1.5×2.0 mm Rel. SNR: 1.00

TA: 5:28

PAT: 2

Properties		Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Ascending
After measurement			
Load to viewer	On	Special sat.	None
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off	Inline Composing	Oli
segments		System	
Auto open inline display	Off	T1	On
Start measurement without	On	M2	On
further preparation	Oli	B4	On
Wait for user to start	Off	M3	On
		V32	Off
Start measurements	single		
Routine		Positioning mode	REF
Slab group 1		- MSMA	S - C - T
Slabs	1	Sagittal	R >> L
Dist. factor	100 %	Coronal	A >> P
Position	L0.0 A29.7 F58.7	Transversal	F >> H
Orientation	Transversal	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
	0.00 deg 0 %		···· <u>-</u>
Phase oversampling		Shim mode	Tune up
Slice oversampling	0.0 %	Adjust with body coil	Off
Slices per slab	12	Confirm freq. adjustment	Off
FoV read	192 mm	Assume Silicone	Off
FoV phase	100.0 %	? Ref. amplitude 1H	0.000 V
Slice thickness	2.00 mm	Adjustment Tolerance	Auto
TR	75.15 ms	Adjust volume	
TE	5.91 ms	Position	Isocenter
Averages	1	Orientation	Transversal
Concatenations	1	Rotation	0.00 deg
Filter	None	R >> L	350 mm
Coil elements	B4;M2,3;T1	A >> P	263 mm
Countries		F >> H	350 mm
Contrast	45 da ::	_	
Flip angle	15 deg	Physio	
Averaging mode	Short term	1st Signal/Mode	Pulse/Trigger
Reconstruction	Magnitude	Average cycle	No Signal ms
Measurements	1	Captured cycle	-not set-
Multiple series	Each measurement	Acquisition window	849 ms
•		Trigger pulse	1
Resolution		_ Trigger delay	0 ms
Base resolution	128	Segments	2
Phase resolution	100 %	Phases	11
Slice resolution	100 %	Anaia	
Phase partial Fourier	Off	Angio	Cinale val
Interpolation	Off	Flow mode	Single vel.
DAT de	CD ADD A	Encodings	3
PAT mode	GRAPPA	Velocity enc.	90 cm/s
Accel. factor PE	2	Direction 1	Through plane
Ref. lines PE	24	Direction 2	A >> P
Accel. factor 3D	1	Direction 3	R >> L
Ref. lines 3D	12	Rephased images	On
Reference scan mode	Separate	Magnitude images	On
Image Filter	Off	Magnitude sum	Off
Distortion Corr.	Off	Phase images	On
Prescan Normalize	Off	Cultinat	O#
		Subtract	Off
Normalize	Off	Std-Dev-Sag	Off
B1 filter	Off	Std-Dev-Cor	Off
Raw filter	Off	Std-Dev-Tra	Off
Elliptical filter	Off	Std-Dev-Time	Off

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

 $\verb|\USER\Feinberg| lab\Test\| lc\| fq_mb2f2_gre_3D_seg2|$

USER: fl_fq_mb_gre_3D_seg

Voxel size: 1.6×1.6×3.0 mm Rel. SNR: 1.00

TA: 5:23

PAT: 2

Properties		Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Ascending
After measurement			
Load to viewer	On	Special sat.	None
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off	I milite Composing	Oli
segments	0.11	System	
Auto open inline display	Off	T1	On
Start measurement without	On	M2	On
further preparation	OII	B4	On
Wait for user to start	Off	M3	On
		V32	Off
Start measurements	single		
Routine		Positioning mode	REF
Slab group 1		─ MSMA	S - C - T
Slabs	2	Sagittal	R >> L
Dist. factor	_ 100 %	Coronal	A >> P
Position	R0.7 A31.0 F33.5	Transversal	F >> H
Orientation	Transversal	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
	0.00 deg 0 %		
Phase oversampling		Shim mode	Tune up
Slice oversampling	0.0 %	Adjust with body coil	Off
Slices per slab	12	Confirm freq. adjustment	Off
FoV read	200 mm	Assume Silicone	Off
FoV phase	100.0 %	! Ref. amplitude 1H	230.000 V
Slice thickness	3.00 mm	Adjustment Tolerance	Auto
TR	75.15 ms	Adjust volume	
TE	5.91 ms	Position	Isocenter
Averages	1	Orientation	Transversal
Concatenations	2	Rotation	0.00 deg
Filter	None	R >> L	350 mm
Coil elements	B4;M2,3;T1	A >> P	263 mm
Contrast		F >> H	350 mm
	12 dog	_ ' _{Bl.} .	
Flip angle	12 deg	Physio	
Averaging mode	Short term	1st Signal/Mode	Pulse/Trigger
Reconstruction	Magnitude	Average cycle	No Signal ms
Measurements	1	Captured cycle	-not set-
Multiple series	Each measurement	Acquisition window	840 ms
1		Trigger pulse	1
Resolution		Trigger delay	0 ms
Base resolution	128	Segments	2
Phase resolution	100 %	Phases	11
Slice resolution	100 %	Angio	
Phase partial Fourier	Off	Flow mode	Single vel.
Interpolation	Off	Encodings	3
PAT mode	GRAPPA	S .	-
Accel. factor PE	2	Velocity enc.	90 cm/s
Ref. lines PE	24	Direction 1	Through plane
		Direction 2	A >> P
Accel. factor 3D	1	Direction 3	R >> L
Ref. lines 3D	12	Rephased images	On
Reference scan mode	Separate	Magnitude images	On
Image Filter	Off	Magnitude sum	Off
Distortion Corr.	Off	Phase images	On
Prescan Normalize	Off	Subtract	Off
Normalize	Off		Off
B1 filter	Off	Std-Dev-Sag	_
Raw filter	Off	Std-Dev-Cor	Off
Elliptical filter	Off	Std-Dev-Tra	Off Off
Linpuodi Ilitei	OII	Std-Dev-Time	Off

MIP-Sag MIP-Cor MIP-Tra MIP-Time Save origi	inal images	Off Off Off On
Sequence	Ü	
Introduction	on	On
Dimension	า	3D
Elliptical s		Off
Asymmeti	ric echo	Off
Contrasts		1
Bandwidth	า	260 Hz/Px
Flow com	p.	No
RF pulse	type	Normal
Gradient r	, ı	Fast
RF spoilin	g	On
MB Numb	er	2
FOV Shift		2

 $\verb|\USER\Feinberg| lab\Test\| lc\| fq_mb1f1_gre_3D_seg2|$

TA: 5:24 PAT: 2	Voxel size: 1.6×1.6×3.0 mm	Rel. SNR: 1.00 USER: fl	_fq_mb_gre_3D_seg
Properties		Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Ascending
After measurement		Special sat.	None
Load to viewer	On Off		
Inline movie	Off On	Table position	Н
Auto store images Load to stamp segments	Off	Table position Inline Composing	0 mm Off
Load images to graphic	Off	1	Oli
segments		System	
Auto open inline display	Off	T1	On
Start measurement without	On	M2 B4	On On
further preparation		M3	On
Wait for user to start	Off	V32	Off
Start measurements	single		
Routine		Positioning mode	REF
Slab group 1		MSMA Sagittal	S - C - T R >> L
Slabs	1	Sagittal Coronal	K >> L A >> P
Dist. factor	100 %	Transversal	F >> H
Position Orientation	R0.7 A31.0 F33.5 Transversal	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %	Shim mode	Tune up
Slice oversampling	0.0 %	Adjust with body coil	Off
Slices per slab	12	Confirm freq. adjustment	Off
FoV read	200 mm	Assume Silicone	Off
FoV phase	100.0 %	! Ref. amplitude 1H	230.000 V
Slice thickness	3.00 mm	Adjustment Tolerance	Auto
TR	75.15 ms	Adjust volume	
TE Averages	5.91 ms 1	Position	Isocenter
Averages Concatenations	1	Orientation	Transversal
Filter	None	Rotation R >> L	0.00 deg 350 mm
Coil elements	B4;M2,3;T1	A >> P	263 mm
Contract	, , ,	F >> H	350 mm
Contrast Flip angle	12 deg	Dhusia	
	12 deg	Physio 1st Signal/Mode	Pulse/Trigger
Averaging mode	Short term	Average cycle	No Signal ms
Reconstruction	Magnitude	Captured cycle	-not set-
Measurements Multiple series	Each measurement	Acquisition window	840 ms
-	Lacii illeasurement	Trigger pulse	1
Resolution		Trigger delay	0 ms
Base resolution	128	Segments	2
Phase resolution	100 %	Phases	11
Slice resolution Phase partial Fourier	100 % Off	Angio	
Interpolation	Off	Flow mode	Single vel.
		Encodings	3
PAT mode	GRAPPA	Velocity enc.	90 cm/s
Accel. factor PE	2	Direction 1	Through plane
Ref. lines PE Accel. factor 3D	24 1	Direction 2 Direction 3	A >> P R >> L
Ref. lines 3D	12	Rephased images	N >> L On
Reference scan mode	Separate	Magnitude images	On
		Magnitude images Magnitude sum	Off
Image Filter	Off	Phase images	On
Distortion Corr. Prescan Normalize	Off Off		O#
Normalize	Off	Subtract Std-Dev-Sag	Off Off
B1 filter	Off	Std-Dev-Sag Std-Dev-Cor	Off
Raw filter	Off	Std-Dev-Col Std-Dev-Tra	Off
Elliptical filter	Off	Std-Dev-Time	Off
•		1	

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

		1	
roperties		Table position	H 0 mm
Prio Recon	Off	Table position Inline Composing	0 mm Off
Before measurement		Inline Composing	Oli
After measurement		System	
Load to viewer	On	T1	On
Inline movie	Off	M2	On
Auto store images	On	B4	On
Load to stamp segments	Off	M3	On
Load images to graphic	Off	V32	Off
segments		Positioning mode	REF
Auto open inline display	Off	MSMA	S-C-T
Start measurement without	On	Sagittal	R >> L
further preparation		Coronal	A >> P
Wait for user to start	Off	Transversal	F >> H
Start measurements	single	Coil Combine Mode	Adaptive Combine
outine		AutoAlign	
Slice group 1		Auto Coil Select	Default
Slices	1		
Dist. factor	800 %	Shim mode	Tune up
Position	L4.0 A31.0 F51.3	Adjust with body coil	Off
Orientation	Transversal	Confirm freq. adjustment	Off
Phase enc. dir.	A >> P	Assume Silicone	Off
Rotation	0.00 deg	! Ref. amplitude 1H	230.000 V
Phase oversampling	0.00 deg 0 %	Adjustment Tolerance	Auto
FoV read	192 mm	Adjust volume	
FoV phase	100.0 %	Position	Isocenter
Slice thickness	3.0 mm	Orientation	Transversal
TR	41.85 ms	Rotation	0.00 deg
TE	6.98 ms	R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	1	F >> H	350 mm
Filter	None	Physio	
Coil elements	B4;M2,3;T1		Dulas/Trigger
Con elements	D4,IVI2,3,1 1	1st Signal/Mode	Pulse/Trigger
ontrast		Average cycle	No Signal ms
Flip angle	15 deg	Captured cycle	-not set-
Avaraging made	Chart tarm	Acquisition window	840 ms
Averaging mode	Short term	Trigger pulse	1
Reconstruction	Magnitude	Trigger delay	0 ms
Measurements	I Fach massurament	Segments Phases	1
Multiple series	Each measurement	Phases	20
esolution		Angio	
Base resolution	256	Flow mode	Single vel.
Phase resolution	100 %	Encodings	3
Phase partial Fourier	Off	Velocity enc.	90 cm/s
Interpolation	Off	Direction 1	Through plane
	CD A DD A	Direction 2	A >> P
PAT mode	GRAPPA	Direction 3	R >> L
Accel. factor PE	2	Rephased images	On
Ref. lines PE	24	Magnitude images	On
Reference scan mode	Separate	Phase images	On
Image Filter	Off		
Distortion Corr.	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
	Off	MIP-Sag	Off
Elliptical filter	∵ 11	MIP-Cor	Off
Elliptical filter			
eometry		MIP-Tra	Off
•	Sequential	MIP-Tra MIP-Time	Off Off
eometry	Sequential Ascending	MIP-Tra	Off

Introduction Asymmetric echo	On Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On
MB Number	1
FOV Shift	1

		Table position	П
operties		Table position Table position	H 0 mm
Prio Recon	Off	Inline Composing	Off
Before measurement		•	Oli
After measurement		System	
Load to viewer	On	T1	On
Inline movie	Off	M2	On
Auto store images	On	B4	On
Load to stamp segments	Off	M3	On
Load images to graphic	Off	V32	Off
segments		Positioning mode	REF
Auto open inline display	Off	MSMA	S - C - T
Start measurement without	On	Sagittal	R >> L
further preparation		Coronal	A >> P
Wait for user to start	Off	Transversal	F >> H
Start measurements	single	Coil Combine Mode	Adaptive Combine
outine		AutoAlign	
Slice group 1		Auto Coil Select	Default
Slices	2		
Dist. factor	800 %	Shim mode	Tune up
Position	L4.0 A31.0 F64.8	Adjust with body coil	Off
Orientation	Transversal	Confirm freq. adjustment	Off
Phase enc. dir.	A >> P	Assume Silicone	Off
Rotation	0.00 deg	! Ref. amplitude 1H	230.000 V
Phase oversampling	0.00 deg 0 %	Adjustment Tolerance	Auto
FoV read	192 mm	Adjust volume	
FoV phase	100.0 %	Position	Isocenter
Slice thickness	3.0 mm	Orientation	Transversal
TR	41.85 ms	Rotation	0.00 deg
TE	6.98 ms	R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	2	F >> H	350 mm
Filter	None	Physio	
Coil elements	B4;M2,3;T1	1st Signal/Mode	Pulse/Trigger
Con ciomonio	51,1412,0,11	Average cycle	No Signal ms
ontrast		Captured cycle	-not set-
Flip angle	15 deg	Acquisition window	740 ms
Averaging mode	Short term	Trigger pulse	140 1113
Reconstruction	Magnitude	Trigger delay	0 ms
Measurements	1	Segments	1
Multiple series	Each measurement	Phases	17
Waltiple Series	Lacifileasurement	1 Hases	17
esolution		Angio	
Base resolution	256	Flow mode	Single vel.
Phase 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	GRAPPA 2	Direction 3	R >> L
Ref. lines PE	24	Rephased images	On
		Magnitude images	On
Reference scan mode	Separate	Phase images	On
Image Filter	Off	Subtract	Off
Distortion Corr.	Off	Subtract Std Doy Sag	Off
Prescan Normalize	Off	Std-Dev-Sag	Off Off
Normalize	Off	Std-Dev-Cor	Off
B1 filter	Off	Std-Dev-Tra	Off Off
Raw filter	Off	Std-Dev-Time	Off
	Off	MIP-Sag	Off
'		MIP-Cor	Off
Elliptical filter			
eometry		MIP-Tra	Off
eometry Multi-slice mode	Sequential	MIP-Time	Off
eometry	Sequential Ascending		

Introduction	On
Asymmetric echo	Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On
MB Number	2
FOV Shift	2

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