\\USER\AMRIT\Liyong\20150303\localizer

TA: 0:13 P/	TA: 0:13 PAT: Off Voxel size: 1.1×1.0×7.0 mm Rel. SNR: 1.00 SIEMENS: gre				
Properties		Phase resolution	90 %		
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	Off		
Load to stamp segments	Off	Distortion Corr.	Off		
Load images to graphic	Off	Unfiltered images Prescan Normalize	Off On		
segments		Normalize	Off		
Auto open inline display	Off	B1 filter	Off		
Start measurement without	Off	Raw filter	Off		
further preparation	Off	Elliptical filter	On		
Wait for user to start Start measurements	single	Mode	Inplane		
Start measurements	Sirigle	Geometry			
Routine		- Multi-slice mode	Seguential		
Slice group 1		Series	Interleaved		
Slices	1				
Dist. factor	20 %	Saturation mode	Standard		
Position	Isocenter	Special sat.	None		
Orientation Phase enc. dir.	Sagittal A >> P				
Rotation	0.00 deg	Tim CT mode	Off		
Slice group 2	0.00 deg	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	H		
Rotation	0.00 deg	Table position	0 mm		
Slice group 3		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. Rotation	R >> L	Coil Combine Mode	Adaptive Combine		
Phase oversampling	0.00 deg 0 %	AutoAlign			
Follow Follows	250 mm	Auto Coil Select	Default		
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	lacantar		
	filter	Position	Isocenter		
Coil elements	HEA;HEP	Orientation	Transversal		
Contrast		Rotation R >> L	0.00 deg 350 mm		
TD	0 ms	A >> L A >> P	263 mm		
MTC	Off	F >> H	350 mm		
Magn. preparation	None	l	330		
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	Poor control	Off		
Measurements	1	Resp. control	Oil		
Multiple series	Each measurement	Inline			
Resolution		Subtract	Off		
Base resolution	256	Liver registration	Off		
		Std-Dev-Sag	Off		

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

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nortico		Width	4
perties	0#	Unfiltered images	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement	05	Elliptical filter	On
Load to viewer	On Off	Mode	Inplane
Inline movie	-	Goomotry	
Auto store images	On O#	Geometry	Cinale abot
Load to stamp segments	Off Off	Multi-slice mode	Single shot Interleaved
Load images to graphic	Oil	Series	interieaved
segments	Off	Special sat.	None
Auto open inline display Start measurement without	On		
	Oli	Tim CT mode	Off
further preparation Wait for user to start	Off	ı	
Start measurements	single	System	~~
Start measurements	Single	Body	Off
outine		HEP	On
Slice group 1		— HEA	On
Slices	80	Positioning mode	FIX
Dist. factor	0 %	Table position	H
Position	R0.1 A8.2 H30.4	Table position	0 mm
Orientation	Transversal	MSMA	S - C - T
Phase enc. dir.	A >> P	Sagittal	R >> L
Rotation	0.00 deg	Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
FoV read	192 mm	Save uncombined	Off
FoV phase	100.0 %	Coil Combine Mode	Adaptive Combine
Slice thickness	2.0 mm	AutoAlign	
TR	905 ms	Auto Coil Select	Default
TE	76 ms		
Averages	1	Shim mode	Tune up
Concatenations	1	Adjust with body coil	Off
Filter	Normalize, Elliptical filter	Confirm freq. adjustment	Off
Coil elements	HEA;HEP	Assume Silicone	Off
ontroot		? Ref. amplitude 1H	0.000 V
ontrast	0"	Adjustment Tolerance	Auto
MTC	Off	Adjust volume	
Magn. preparation	None	Position	Isocenter
Flip angle	150 deg	Orientation	Transversal
Fat suppr.	None	Rotation	0.00 deg
Water suppr.	None	R >> L	350 mm
Restore magn.	Off	A >> P	263 mm
Averaging mode	Long term	F >> H	350 mm
Reconstruction	Magnitude	Physio	
Measurements	1	1st Signal/Mode	None
Multiple series	Each measurement		
·	-	Dark blood	Off
esolution Base resolution	192	Resp. control	Off
Phase resolution	100 %	· ·	
		Inline	
Phase partial Fourier	5/8 Off	Subtract	Off
Interpolation	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
		MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	Save original images	On
Prescan Normalize	Off	1	
Normalize	On	Sequence	
Intensity	Medium	Introduction	On
Cut off	20	Dimension	2D

Contrasts	1
Bandwidth	592 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	5.82 ms
 Turbo factor	192
RF pulse type	Fast
Gradient mode	Fast

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TA: 1:40 PA	AT: 2 Voxel size: 1.0×1.0×	2.0 mm Rel. SNR: 1.00 S	IEMENS: haste
Properties		Width	4
Prio Recon	Off	Unfiltered images	Off
Before measurement	Oli	B1 filter	Off
		Raw filter	Off
After measurement	0.5	Elliptical filter	On
Load to viewer	On O"	Mode	Inplane
Inline movie	Off		•
Auto store images	On	Geometry	
Load to stamp segments	Off	Multi-slice mode	Single shot
Load images to graphic	Off	Series	Interleaved
segments			A1
Auto open inline display	Off	Special sat.	None
Start measurement without	On		
further preparation	.	Tim CT mode	Off
Wait for user to start	Off	0	
		System	
Start measurements	single	Body	Off
outine		HEP	On
Slice group 1		— HEA	On
	100		
Slices	100	Positioning mode	FIX
Dist. factor	0 %	Table position	Н
Position	R0.1 A8.2 H14.0	Table position	0 mm
Orientation	Coronal	MSMA	S - C - T
Phase enc. dir.	R >> L	Sagittal	R >> L
Rotation	0.00 deg	Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
FoV read	192 mm		
		Save uncombined	Off
FoV phase	100.0 %	Coil Combine Mode	Adaptive Combine
Slice thickness	2.0 mm	AutoAlign	
TR	984 ms	Auto Coil Select	Default
TE	76 ms		
Averages	1	Shim mode	Tune up
Concatenations	1	Adjust with body coil	Off
Filter	Normalize, Elliptical filter	Confirm freq. adjustment	Off
Coil elements	HEA;HEP	Assume Silicone	Off
Con elements	IILA,IILF	? Ref. amplitude 1H	0.000 V
Contrast		Adjustment Tolerance	Auto
MTC	Off	Adjust volume	Auto
Magn. preparation	None		la a a a mata m
•		Position	Isocenter
Flip angle	150 deg	Orientation	Transversal
Fat suppr.	None	Rotation	0.00 deg
Water suppr.	None	R >> L	350 mm
Restore magn.	Off	A >> P	263 mm
A	Language Agree	F >> H	350 mm
Averaging mode	Long term		
Reconstruction	Magnitude	Physio	
Measurements	1	1st Signal/Mode	None
Multiple series	Each measurement		O#
esolution		Dark blood	Off
Base resolution	192	Resp. control	Off
Phase resolution	100 %	In line	
Phase partial Fourier	5/8	Inline	
		Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	GRAPPA	Std-Dev-Cor	Off
Accel. factor PE	2	Std-Dev-Tra	Off
		Std-Dev-Time	Off
Ref. lines PE	24	MIP-Sag	Off
Matrix Coil Mode	Auto (Triple)		
Reference scan mode	Integrated	MIP-Cor	Off
L 1214		MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	Save original images	On
Prescan Normalize	Off	1	
Normalize	On	Sequence	
	_	Introduction	On
Intensity	Medium	Introduction	Oli

Contrasts	1
Bandwidth	592 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	5.82 ms
 Turbo factor	192
RF pulse type	Fast
Gradient mode	Fast

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nortico		Width	4
perties Prio Recon	Off	Unfiltered images	Off
Prio Recon Before measurement	OII	B1 filter	Off
		Raw filter	Off
ofter measurement oad to viewer	On	Elliptical filter	On
nline movie	Off	Mode	Inplane
Auto store images	On	Geometry	
oad to stamp segments	Off	Multi-slice mode	Single shot
oad images to graphic	Off	Series	Interleaved
egments	Oli		
uto open inline display	Off	Special sat.	None
tart measurement without	On		
urther preparation		Tim CT mode	Off
/ait for user to start	Off	System	
tart measurements	single	Body	Off
	g	HEP	On
tine		— HEA	On
Slice group 1	400		
Slices	100	Positioning mode	FIX
Dist. factor	0 %	Table position	Н
Position	R0.1 A12.5 H16.5	Table position	0 mm
Orientation	Sagittal	MSMA	S - C - T
Phase enc. dir.	A >> P	Sagittal	R >> L
Rotation	0.00 deg	Coronal	A >> P
hase oversampling	0 %	Transversal	F >> H
oV read	192 mm	Save uncombined	Off
oV phase lice thickness	100.0 % 2.0 mm	Coil Combine Mode	Adaptive Combine
R	2.0 mm 1210 ms	AutoAlign	
E		Auto Coil Select	Default
	76 ms 1	Shim mode	Tune up
verages Concatenations	1	Adjust with body coil	Off
ilter	Normalize, Elliptical filter	Confirm freq. adjustment	Off
Coil elements	HEA;HEP	Assume Silicone	Off
on elements	HEA,HEF	? Ref. amplitude 1H	0.000 V
trast		Adjustment Tolerance	Auto
MTC	Off	Adjust volume	
/lagn. preparation	None	Position	Isocenter
Flip angle	150 deg	Orientation	Transversal
at suppr.	None	Rotation	0.00 deg
Nater suppr.	None	R >> L	350 mm
Restore magn.	Off	A >> P	263 mm
Averaging mode	Long term	F >> H	350 mm
Reconstruction	Magnitude	Physio	
Measurements	1	1st Signal/Mode	None
Multiple series	Each measurement	15t Signal/Wode	INOLIG
·		Dark blood	Off
solution	102	Resp. control	Off
Base resolution Phase resolution	192 100 %	· ·	
Phase resolution Phase partial Fourier	5/8	Inline	
nterpolation	Off	Subtract	Off
	OII	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
maga Filtor		MIP-Tra	Off
mage Filter	Off Off	MIP-Time	Off
Distortion Corr.		Save original images	On
Prescan Normalize	Off	Sequence	
Normalize	On Medium	Introduction	On
Intensity	IVIEUIUIII	Dimension	2D

Contrasts Bandwidth Flow comp. Allowed delay Echo spacing	1 592 Hz/Px No 30 s 5.82 ms
Turbo factor	192
RF pulse type	Fast
Gradient mode	Fast

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USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

TA: 41:26

PAT: 2

Properties				
Pilo Recon Before measurement After measurement After measurement After measurement After measurement After measurement After measurement Condition Condit	Properties		Sat. region 1	
Before measurement	•	Off		50 mm
After measurement Code Coronal				
Load to viewer				
Inline movie		On		Colonal
Auto store images On Position L.O P66.8 F21.1 Load to stamp segments Off Special sat. None Segments Auto open inline display Off Special sat. None Statr measurement without further preparation On HEP On Wait for user to start Off HEP On Slice group 1 Slice group 1 Slice group 1 Table position H Slices 3 MSMA S C - T Slices 3 MSMA S C - T Slices or position L0.0 A10.1 F21.1 Coronal A S - P Position L0.0 A10.1 F21.1 Coronal A S - P Position L0.0 A10.1 F21.1 Coronal A S - P Rotation A S - P AutoRial S - H FoV read 192 mm AutoRaling AutoColl Select Default FoV phase 100.0 % AutoRaling AutoColl Select Default TE 38.0 ms AutoColl Select AutoColl Select				FO
Load to stamp segments Off Orientation Coronal Load images to graphic segments Off Special sat. None Auto open inline display Start measurement without further preparation Off Body Off Wait for user to start Off HEP On Start measurements Single Position HEP On Slices 3 Single REF Table position H Slices 3 Single REF Table position H Slices 3 Single REF Table position H Position L0, 0 A10.1 F21.1 Table position H Table position H Phase onc. dir. A >> P Coronal A >> P Table position H Ave P Phase onc. dir. A >> P Coronal A >> P Table position Mode Sum of Squares FoV phase 100.0 wh Aludo Algust with body coil Aludo Algust with body coil Off Off Table position Drift pate <t< td=""><td></td><td></td><td></td><td></td></t<>				
Load images to graphic segments Off Special sat. None Auto open inline display Off System Start measurement without further preparation On HEP On Wait for user to start Off HEP On Start measurements single Positioning mode REF Routine Table position H H Slices 3 MSMA S - C - T Slices 3 MSMA S - C - T Special sat. No On Routine Table position H Slice stock 3 MSMA S - C - T Special sat. No No No Position L0.0 A10.1 F21.1 Table position H Table position H No P Position L0.0 A0 Start and A0 A> P Auto Coll Select Default A > P Auto Coll Select Default FoV phase 100.0 % Adjust with body coil Off <td< td=""><td></td><td></td><td></td><td></td></td<>				
segments System System Auto open inline display Off Body Off Start measurement without further preparation On HEP On Wait for user to start Off HEP On Start measurements single Position HEP On Routine Table position H Table position H N Slices group 1 Silces group 1 Sagittal R >> L C-T Sagittal R >> L C-T Coronal AS P Position Disposition L C-T Coronal AS P Position Disposition L C-T Coronal AS P P P AS P P P P Sagittal R >> L P P P				
Auto open inline display Start measurement without further preparation Wait for user to start Off HEP On On Management M		Off	Special sat.	None
Start measurement without further preparation turther preparatio			System	
HEP	Auto open inline display	Off		0#
Maif for user to start Start measurements Single Positioning mode REF	Start measurement without	On		
Wait for user to start Off HEA On Start measurements single Positioning mode REF Routine Table position H Slices 3 MSMA S - C - T Slices 3 MSMA S - C - T Position L0.0 A10.1F21.1 Coronal A >> P Orientation Transversal Transversal F >> H Phase enc. dir. A >> P Coil Combine Mode Sum of Squares FoV read 192 mm Shim mode Standard FoV phase 100.0% Adjust with body coil Off TE 38.0 ms 2 Ref. amplitude 1H Assume Silicone Off TE 38.0 ms	further preparation			
Positioning mode REF Table position H Table position O mm Table position O mm Table position O mm MSMA S - C - T Silces S Dist. factor 700 % Sagittal R >> L Coronal A >> P Transversal F >> H Coil Combine Mode Sum of Squares AutoAlign Coronal A >> P AutoAlign Coronal Coronal AutoAlign Coronal Coronal AutoAlign Coronal Coronal Coronal		Off	HEA	On
Table position			Positioning mode	RFF
Silice group 1		Single		
MSMA S - C - T	Routine			
Silices 3	Slice group 1			
Dist. factor		3		
Position				
Orientation Transversal I ransversal F Coil Combine Mode Sum of Squares Rotation 0.00 deg Auto Coil Select Default FoV read 192 mm Shim mode Standard FoV phase 100.0 % Shim mode Standard Slice thickness 5.0 mm Confirm freq, adjustment of Magnitude Off TR 5920 ms Assume Silicone Off TE 38.0 ms ? Ref. amplitude 1H 0.000 V Averages 1 Adjustment Tolerance Auto Contrast HEA;HEP Orientation Transversal Contrast HEA;HEP Orientation Transversal Contrast Fat sat. Position L0.0 A10.1 F21.1 MTC Off As > L 192 mm Fat suppr. Fat sat. Fat sat. Fat sat. Averaging mode Long term Rocanstruction Magnitude None Averaging mode Long term Fat sat. Flow mode Single dir. Resolution				
Phase enc. dir.			Transversal	F >> H
Rotation			Coil Combine Mode	Sum of Squares
Note			AutoAlign	
Filips Oversampling				Default
FoV phase				
Slice thickness 5.0 mm		-		Standard
TR 5920 ms Assume Silicone Off TE 38.0 ms ? Ref. amplitude 1H 0.000 V Averages 1 Adjust wolume L0.0 A10.1 F21.1 Concatenations 1 Adjust wolume L0.0 A10.1 F21.1 Coll elements HEA;HEP Orientation Transversal Contrast Off None Position L0.0 A10.1 F21.1 Contrast Off P192 mm P192 mm Fat suppr. Fat sat. P192 mm F>> H Averaging mode Long term Resoultion Resoultion None Reconstruction Magnitude None Angio Delay in TR 0 ms Flow mode Single dir. Resolution 128 Flow mode Single dir. Resolution 128 Sequence		100.0 %	Adjust with body coil	Off
TE 38.0 ms ? Ref. amplitude 1H 0.000 V Averages 1 Adjustment Tolerance Auto Concatenations 1 Adjust volume Filter Coil elements HEA;HEP Position L0.0 At0.1 F21.1 Contrast Orientation Transversal MTC Off Rotation 0.00 deg RS L 192 mm 192 mm Fat suppr. Fat sat. F >> H 85 mm Averaging mode Long term Physio None Reconstruction Magnitude Angio None Averaging mode Long term Physio None Reconstruction Magnitude None None Reconstruction Magnitude None None Reconstruction Magnitude None None Reconstruction Magnitude None Single dir. Resolution 100 ms Flow mode Single dir. Resolution 100 % Presolution Off </td <td>Slice thickness</td> <td>5.0 mm</td> <td>Confirm freq. adjustment</td> <td>Off</td>	Slice thickness	5.0 mm	Confirm freq. adjustment	Off
TE 38.0 ms ? Ref. amplitude 1H 0.000 V Averages 1 Adjust wolume Auto Concatenations 1 Position L0.0 A10.1 F21.1 Coll elements HEA;HEP Orientation Transversal Contrast Off Rotation 0.00 deg MTC Off A >> P 192 mm Filip angle 25 deg Fat sat. Fat suppr. Fat sat. Averaging mode Long term Physio St Signal/Mode None Reconstruction Magnitude Angio None Measurements 420 Angio None Multiple series Off Flow mode Single dir. Resolution 100 % Phase resolution 100 % Phase partial Fourier 6/8 Sequence Interpolation Off Sequence Introduction Off PAT mode GRAPPA Accel. factor PE 2 Ref. ines PE 24 Free echo spacing Off	TR	5920 ms	Assume Silicone	Off
Averages	TE	38.0 ms		
Concatenations Filter	Averages	1		
Filter Coil elements None HEA;HEP Position Orientation Transversal L0.0 A10.1 F21.1 Transversal Contrast Rotation 0.00 deg R >> L 192 mm MTC Flip angle 25 deg Fat suppr. Fat sat. Fat sat. Fs >> H 85 mm Averaging mode Reconstruction Magnitude Measurements 420 Long term Asy Physio Physio Averaging mode Reconstruction Measurements 420 Angio None Measurements 420 Angio Single dir. Multiple series Off Flow mode Single dir. Multiple series Off Flow mode Single dir. Resolution 128 Velocity enc. 5 cm/s Phase resolution 100 % Direction Through plane Magnitude sum Off Phase partial Fourier Interpolation Off Magnitude sum Off Interpolation Off Off PAT mode GRAPPA Accel. factor PE 2 Encospany Off Ref. lines PE 24 Enco spacing Off Matrix Coil Mode Auto (Triple) EPI factor 128 Reference scan mode Separate RF pulse type Normal Gradient mode Fast Distortion Corr. Off Resolution Off Resolution Site of Prescan Normalize Off Resolution Site of Prescan Normalize Off Resolution Site of Prescan Normalize Site of Prescan Normalize Site of Prescan Normalize Site		1		7.0.10
Coil elements HEA;HEP Orientation Rotation 0.00 deg Rotation Rotation 0.00 deg Rotation 0.00 deg Rotation Rotation 0.00 deg Rotation Rotation 0.00 deg Rotation 0.00 deg Rotation 0.00 deg Rotation Rotation Rotation 0.00 deg Rotation Rotation Rotation 0.00 deg Rotation Rotation 0.00 deg Rotation Rotation 0.00 deg Rotation Rotation Rotation Rotation Rotation 0.00 deg Rotation R		•		I 0 0 A 10 1 E 21 1
Contrast Rotation 0.00 deg MTC Off R > L 192 mm Filip angle 25 deg P + 192 mm 192 mm Fat suppr. Fat sat. Physio Smm Averaging mode Long term Physio None Reconstruction Magnitude Angio None Measurements 420 Angio Single dir. Multiple series Off Encodings 1 Resolution 100 % Encodings 1 Phase resolution 100 % Pirection Through plane Phase partial Fourier 6/8 Sequence Interpolation Off Magnitude sum Off PAT mode GRAPPA Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Coff Free echo spacing Off Ref. lines PE 24 Echo spacing 0.94 ms Prist and the prist				
R > L 192 mm	Our elements	1127,1121		
M C	Contrast			· ·
Filip angle	MTC	Off		_
Fat suppr. Fat sat. Averaging mode Reconstruction Magnitude Measurements Delay in TR Multiple series Off Resolution Base resolution Phase partial Fourier Interpolation Off PAT mode Accel. factor PE Reference scan mode Reference scan mode Distortion Corr. Prescan Normalize Distortion Corr. Prescan Normalize Distortion Corr. Prescan Normalize Distortion Corr. Plate sat. Flow mode Encodings Flow mode Encodings 1 Velocity enc. 5 cm/s Direction Direction Magnitude sum Off Sequence Interpolation Off Bandwidth 1776 Hz/Px Free echo spacing Echo spacing Distortion Corr. Prescan Normalize Off Raw filter Off Raw filter Off Hamming Off Geometry Multi-slice mode Interleaved Physio Physio Physio Physio 1st Signal/Mode None Angio Seignal/Mode None Physio 1st Signal/Mode None Angio Seignal Flow mode Encodings 1 Velocity enc. 5 cm/s Direction Magnitude sum Off Baquence Introduction Magnitude sum Off Bandwidth 1776 Hz/Px Free echo spacing Coff Echo spacing Coff Free echo spacing Coff Bandwidth Coff Free echo spacing Coff Free echo spac	Flip angle	25 dea		_
Averaging mode Reconstruction Magnitude Measurements A20 Delay in TR O ms Multiple series Off Base resolution Phase partial Fourier Interpolation Off PAT mode Accel. factor PE Ref. lines PE Additix Coil Mode Reference scan mode Distortion Corr. Prescan Normalize Distortion Corr. Prescan Normalize Distortion Corr. Prescan Normalize Distortion Corr. Place Reference Reconstruction Magnitude Auto (Triple) Ref. lines PE Ref	· ·	•	F >> H	85 mm
Averaging mode Reconstruction Magnitude Measurements 420 Delay in TR Multiple series Off Resolution Base resolution Phase partial Fourier Interpolation PAT mode Accel. factor PE Ref. lines PE Matrix Coil Mode Actel Separate Distortion Corr. Prescan Normalize Diff Geometry Multi-slice mode Long term Magnitude Angio Angio Angio Flow mode Single dir. None Angio Angio Sequence Flow mode Single dir. Introduction Single dir. Sequence Introduction Magnitude sum Off Pat Introduction Bandwidth 1776 Hz/Px Free echo spacing Off Bandwidth 1776 Hz/Px Free echo spacing Off Fet Sequence EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoilling On RF90 duration Sitze MB Number 3 Shift KO Center 1 Epu Other Sitice 4			Physio	
Measurements 420 Delay in TR 0 ms Multiple series Off Resolution 128 Phase resolution 100 % Phase partial Fourier Interpolation 6/8 PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Hamming Off Multi-slice mode Interleaved Angio Flow mode Single dir. Flow in the file interved Flow of the	Averaging mode	Long term	-	None
Delay in TR	Reconstruction	Magnitude	ist Signal/Wode	None
Delay in TR Multiple series Off Resolution Base resolution Phase resolution Phase partial Fourier Interpolation Off PAT mode Accel. factor PE Reference scan mode Single dir. Phase resolution Off Patrix Coil Mode Adrix Coil Mode Reference scan mode Separate Distortion Corr. Prescan Normalize Raw filter Raw filter Elliptical filter Hamming Off Geometry Multi-slice mode Flow mode Single dir. Flow single dir. Flow mode Single dir. Flow mode Single dir. Flow single dir. Flow single dir. Flow mode Single dir. Flow single singles single single single single single single single single singles	Measurements	420	Anaio	
Multiple series Off Resolution Base resolution 128 Phase resolution 100 % Phase partial Fourier 6/8 Interpolation Off PAT mode Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Raw filter Elliptical filter Off Elliptical filter Amming Geometry Multi-slice mode Megolity enc. 5 cm/s Direction Through plane Magnitude sum Off Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Free Chory Slice 14	Delay in TR	0 ms	3	Single dir
Resolution Base resolution 128 Phase resolution 100 % Phase partial Fourier 6/8 Interpolation Off PAT mode Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Pase resolution 100 % Page resolution 100 % Magnitude sum Off Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Bandwidth 1776 Hz/Px Free echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Final Velocity enc. 5 cm/s Through plane Magnitude sum Off Bandwidth 1776 Hz/Px Free echo spacing Echo spacing Off Bandwidth 1776 Hz/Px Free echo spacing Cff Bandwidth 1776 Hz/Px Free echo spacing Cff Bandwidth 1776 Hz/Px Free echo spacing Off Bandwidth 1776 Hz/Px Free				_
Base resolution	•			•
Phase resolution Phase partial Fourier Interpolation PAT mode Accel. factor PE Ref. lines PE Matrix Coil Mode Reference scan mode Distortion Corr. Prescan Normalize Raw filter Raw filter Elliptical filter Hamming Geometry Multi-slice mode Interleaved Magnitude sum Off Magnitude sum Off Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms Free echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration MB Number 3 Shift K0 Center 1 Fuery Other Slice Interleaved	Resolution		1	
Phase partial Fourier 6/8 Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1	Base resolution	128		• .
Interpolation Off Introduction Off PAT mode GRAPPA Accel. factor PE 2 Free echo spacing Off Echo spacing 0.94 ms Matrix Coil Mode Auto (Triple) EPI factor 128 Reference scan mode Separate RF pulse type Normal Gradient mode Fast RF spoiling On Prescan Normalize Off Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Even Off Service Chert Slice 1 Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing Onf EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On S120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Even Offer Slice 1	Phase resolution	100 %	Magnitude sum	Οπ
Interpolation Off Introduction Off PAT mode GRAPPA Accel. factor PE 2 Free echo spacing Off Echo spacing 0.94 ms Matrix Coil Mode Auto (Triple) EPI factor 128 Reference scan mode Separate RF pulse type Normal Gradient mode Fast RF spoiling On Prescan Normalize Off Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Even Off Service Chert Slice 1 Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing Onf EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On S120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Even Offer Slice 1	Phase partial Fourier	6/8	Sequence	
PAT mode Accel. factor PE Ref. lines PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Raw filter Elliptical filter Hamming Geometry Multi-slice mode PAT mode GRAPPA Bandwidth Free echo spacing Coff Echo spacing Reference scaning Off Echo spacing Reference scaning Off Echo spacing On Prese echo spacing On Prescan Spacing On Reference scaning On Separate PPI factor Reference Reference Reference scan mode Reference scan mode Separate Reference scan mode Reference scan mode Separate Reference scan mode Refere	•		•	Off
Accel. factor PE Ref. lines PE Adtrix Coil Mode Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming Geometry Multi-slice mode Free echo spacing Off Echo spacing O.94 ms Free echo spacing O.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF spoiling On RF90 duration MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Free echo spacing Off Echo spacing O.94 ms Normal Free echo spacing O.94 ms Auto Off RF pulse type Normal Gradient mode Fast RF spoiling On Shift K0 Center 1 Fovery Other Slice				
Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Distortion PE 24 Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF spoiling Size Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Echo spacing 0.94 ms	PAT mode	GRAPPA		
Matrix Coil Mode Auto (Triple) Reference scan mode Separate RF pulse type Normal Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Interleaved EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Epign Other Slice	Accel. factor PE	2		
Matrix Coil Mode Reference scan modeAuto (Triple) SeparateEPI factor RF pulse type128 NormalDistortion Corr. Prescan NormalizeOff Raw filterGradient mode RF spoilingFast RF spoilingElliptical filter HammingOffRF90 duration MB Number DummyScan Number FOV Shift Number5120 3 DummyScan Number FOV Shift NumberGeometryShift K0 Center For Other Slice1	Ref. lines PE	24	Echo spacing	0.94 ms
Reference scan mode Distortion Corr. Prescan Normalize RF pulse type Geometry RF pulse type RF pulse type Gradient mode Fast RF spoiling On MB Number Spoiling On Spoilin	Matrix Coil Mode	Auto (Triple)	EPI factor	128
Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Multi-slice mode Interleaved Gradient mode RF spot RF spoiling On RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1				
Prescan Normalize Off Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1			1	
Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 Geometry FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1	Distortion Corr.	Off		
Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1			RF spoiling	On
Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 Geometry FOV Shift Number 3 Shift K0 Center 1 Elliptical filter Off MB Number 3 SummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1		-	RF90 duration	5120
Hamming Off DummyScan Number 5 Geometry Shift Number 3 Multi-slice mode Interleaved Shift K0 Center 1 Fyory Other Slice 1				
Geometry 5 Multi-slice mode Interleaved 5 Shift K0 Center 1 Every Other Slice 1	•			
Multi-slice mode Interleaved Shift K0 Center 1 Figure Other Slice 1	Hamming	Oil		
Multi-slice mode Interleaved Shift K0 Center 1 Fyory Other Slice 1	Geometry			
Every Other Slice 1		Interleaved		•
Series Ascending Levely Suiter Silver	Series	Ascending	Every Other Slice	1

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

 $\verb|\USER\AMRIT\Liyong\20150303\ep2d_venc5_push_adboda_TP_SAT| \\$

Rel. SNR: 1.00

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×5.0 mm

PAT: 2

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off		50 mm
	Oil	Thickness	50 mm
Before measurement		Position	L0.0 A88.8 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P66.8 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		0:	
Auto open inline display	Off	System	0"
Start measurement without	On	Body	Off
further preparation	_	HEP	On
Wait for user to start	Off	HEA	On
Start measurements	single	Positioning mode	REF
Clart modear omente	onigio	Table position	H
Routine		Table position	
Slice group 1			0 mm
Slices	3	MSMA	S-C-T
Dist. factor	700 %	Sagittal	R >> L
Position	L0.0 A10.1 F21.1	Coronal	A >> P
Orientation	Transversal	Transversal	F >> H
Phase enc. dir.	A >> P	Coil Combine Mode	Sum of Squares
Rotation	0.00 deg	AutoAlign	
Phase oversampling	0.00 deg 0 %	Auto Coil Select	Default
FoV read	192 mm	Ohio oo da	0
	-	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	5.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	38.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A10.1 F21.1
Coil elements	HEA;HEP	Orientation	Transversal
Contrast		Rotation	0.00 deg
MTC	0"	R >> L	192 mm
	Off	A >> P	192 mm
Flip angle	25 deg	F >> H	85 mm
Fat suppr.	Fat sat.		
Averaging mode	Long term	Physio Physio	
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms	Flow mode	Cinalo dir
Multiple series	Off		Single dir.
Multiple selles	Oli	Encodings	1
Resolution		Velocity enc.	5 cm/s
Base resolution	128	Direction	Through plane
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
		Bandwidth	1776 Hz/Px
PAT mode	GRAPPA		
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	0.94 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
		Gradient mode	Fast
Distortion Corr.	Off	RF spoiling	On
Prescan Normalize	Off	ixi spoiling	
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
•		FOV Shift Number	3
Geometry		Shift K0 Center	- 1
Multi-slice mode	Interleaved	Every Other Slice	1
Series	Ascending		

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

 $\verb|\USER\AMRIT\Liyong\20150303\ep2d_venc5_push_adboda_TP_SAT| \\$

Rel. SNR: 1.00

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×5.0 mm

PAT: 2

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
	Oli		
Before measurement		Position	L0.0 A88.8 F21.1
After measurement	0	Orientation	Coronal
Load to viewer	On	Sat. region 2	=0
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P66.8 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off	System	0"
Start measurement without	On	Body	Off
further preparation		HEP	On
Wait for user to start	Off	HEA	On
Start measurements	single	Positioning mode	REF
	5g.c	Table position	H
Routine		Table position	0 mm
Slice group 1			_
Slices	3	MSMA	S-C-T
Dist. factor	700 %	Sagittal	R >> L
Position	L0.0 A10.1 F21.1	Coronal	A >> P
Orientation	Transversal	Transversal	F >> H
Phase enc. dir.	A >> P	Coil Combine Mode	Sum of Squares
Rotation	0.00 deg	AutoAlign	
Phase oversampling	0.00 deg 0 %	Auto Coil Select	Default
FoV read	192 mm	01:	0, 1 1
	-	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	5.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	38.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A10.1 F21.1
Coil elements	HEA;HEP	Orientation	Transversal
0		Rotation	0.00 deg
Contrast			192 mm
MTC	Off	A >> P	192 mm
Flip angle	25 deg	F >> H	85 mm
Fat suppr.	Fat sat.	1 >>11	00 111111
Avoraging mode	Long torm	Physio	
Averaging mode Reconstruction	Long term	1st Signal/Mode	None
	Magnitude 420	'	
Measurements		Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
Resolution		Velocity enc.	5 cm/s
Base resolution	128	—— Direction	Through plane
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Comunica	
		Sequence	0"
Interpolation	Off	Introduction	Off
PAT mode	GRAPPA	Bandwidth	1776 Hz/Px
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	0.94 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
Distortion Corr.	Off	Gradient mode	Fast
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
	Off		
Hamming	OII	DummyScan Number	5
Hamming		EO) / O) :// N	0
Hamming Geometry		FOV Shift Number	3
•	Interleaved	FOV Shift Number Shift K0 Center Every Other Slice	3 1 1

1
400
5
1
0
0
- 1

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

PAT: 2

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	L0.0 A88.8 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	Coronal
Inline movie	Off	Thickness	50 mm
Auto store images	On O"	Position	L0.0 P66.8 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off	Body	Off
Start measurement without	On		
further preparation		HEP	On
Wait for user to start	Off	HEA	On
Start measurements	single	Positioning mode	REF
	9.1	Table position	H
Routine		Table position	0 mm
Slice group 1			
Slices	3	MSMA	S-C-T
Dist. factor	700 %	Sagittal	R >> L
Position	L0.0 A10.1 F21.1	Coronal	A >> P
Orientation	Transversal	Transversal	F >> H
Phase enc. dir.	A >> P	Coil Combine Mode	Sum of Squares
		AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %		
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	5.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	38.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A10.1 F21.1
Coil elements	HEA;HEP	Orientation	Transversal
Con dicitionio	11274,1121	Rotation	0.00 deg
Contrast		—— Rotation R >> L	192 mm
MTC	Off		-
Flip angle	25 deg	A >> P	192 mm
Fat suppr.	Fat sat.	F >> H	85 mm
		····· Physio	
Averaging mode	Long term	1st Signal/Mode	None
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
•		Velocity enc.	5 cm/s
Resolution		—— Direction	
Base resolution	128		Through plane
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
		Bandwidth	1776 Hz/Px
PAT mode	GRAPPA		
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	0.94 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
		Gradient mode	Fast
	Off		
Distortion Corr.	Off	RF spoiling	On
Distortion Corr. Prescan Normalize	O.1.		F400
	Off	RF90 duration	5120
Prescan Normalize Raw filter	Off	RF90 duration MB Number	5120 3
Prescan Normalize Raw filter Elliptical filter	Off Off	MB Number	3
Prescan Normalize Raw filter	Off	MB Number DummyScan Number	3 5
Prescan Normalize Raw filter Elliptical filter	Off Off	MB Number DummyScan Number FOV Shift Number	3 5 3
Prescan Normalize Raw filter Elliptical filter Hamming	Off Off	MB Number DummyScan Number	3 5

1
400
5
1
0
0
0

 $\verb|\USER\AMRIT\>| Liyong \end{|} 20150303 \end{|} ep2d_venc5_breathhold_TP_SAT$

Properties	TA: 41:26 PAT: 2	Voxel size: 1.5×1.5×5.0 mm	Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Pin Recon Pin	Properties		Sat region 1	
Before measurement		Off		50 mm
After measurement On Inline movie On Inline move On Inline move On Inline move Off Sat. region 2 Thickness 50 mm Position Coronal Coron		3 11		
Load to viewer Inline movie Off Sat. region 2 Thickness 50 mm Auto store images On Position L.0.0 Pesition L.0.0 Pesition Coronal Load to stamp segments Off Special sat. None Segments Auto open inline display Off Special sat. None Stat measurement without further preparation Off Body Off Wait for user to start Off Body Off Start measurements single Positioning mode REF Routine Tolk position Annotation HEP On Slice group 1 Siles group 1 Siles group 1 Table position H Table position H H Table position H H Table position H Table position H Table position H Able position N S C - T Sagittal R S C - T Sagittal R S C - T Sagittal R S E - T Table position M				
Inline movie		On		Colonal
Auto store images		_		50 mm
Load to stamp segments				
Load images to graphic segments Auto open inline display Start measurement without further preparation Wait for user to start Single Positioning mode REF Table position HEP On MEP On				
segments System Auto open inline display Off Start measurement without further preparation On Wait for user to start Off Start measurements single Routine — Position Slices 3 Dist. factor 700 % Position L0.0 A10.1 F21.1 Table position 0.00 Mm Orientation Transversal Phase enc. dir. A >> P Rotation 0.00 deg Phase enc. dir. A >> P Rotation 0.00 deg Phase eversampling 0% FoV read 192 mm FoV phase 100.0 % Slice thickness 5.0 mm Slice thickness 5.0 mm TR 5920 ms Averages 1 Averages 1 1 Confirm freq. adjustment Averages 1 Averaging mode Long term Averaging mode Long term Averaging mode				
Auto open inline displays Off System		Oli	Opecial Sat.	None
Start measurement without		Off	System	
further preparation MEP On Wait for user to start Single Positioning mode REF Routine Table position HEA On Slices 3 MSMA S. C. T Slices 3 MSMA S. C. T Slices 3 MSMA S. C. T Orientation L0.0 A10.1 F21.1 Coronal A >> P Orientation Transversal F. > H Coronal A >> P Rotation 0.00 deg Auto-Ailign Auto-Ailign FOV read 192 mm Shim mode Standard Adjust with body coil Off Off FE 38.0 ms 2 Ref. amplitude 1H 0.000 V Adjust with body coil Off Off Off Assume Silicone Off Off Assume Silicone Off Off Assume Silicone Off Auto-Aigust with body coil Off Off Off Assume Silicone Off Off Assume Silicone Off Off Assume Silicone <td></td> <td></td> <td>Body</td> <td>Off</td>			Body	Off
Wait for user to start		Oli	HEP	On
Statt measurements		0#	HEA	On
Table position				
Table position	Start measurements	single		
Silces S	Routine			
Silces 3	Slice group 1			
Dist. factor		3		
Position				
Orientation Transversal F >> H Phase enc. dir. A >> P Coil Combine Mode Sum of Squares Rotation 0.00 deg Auto Coil Select Default FoV read 192 mm Shim mode Standard FoV phase 100.0 % Adjust with body coil Off FoV phase 100.0 % Adjust with body coil Off FE 38.0 ms Confirm freq adjustment Off TE 38.0 ms ? Ref. amplitude 1H 0.000 V Averages 1 Adjust volume Auto Filiter None Position L0.0 A10.1 F21.1 Coil elements HEA;HEP Orientation Transversal Contrast Rotation 0.00 deg R > L 192 mm MTC Off A >> P 192 mm F > H 85 mm Averaging mode Long term F >> H 85 mm F > H 85 mm Reconstruction Magnitude Aprice Angio F > H 85 mm				
Phase enc. dir. A ≫ P Rotation 0.00 deg Phase oversampling 0 % FoV read 192 mm FoV phase 100.0 % Slice thickness 5.0 mm Sice thickness 5.0 mm TR 5920 ms TE 38.0 ms Avarages 1 Concatenations 1 Filter None Coil elements HEA;HEP Contrast Position LO, 0 Ato.1 F21.1 Orientation Transversal Rotation 0.00 deg R > L 192 mm Fat suppr. Fat sat. Averaging mode Long term Base resolution 10 ms Phase resolution 10 ms Phase resolution 10 ms				
Rotation		A >> P		Sum of Squares
Phase oversampling 0 % Auto Coll Select Default FoV read 192 mm Shim mode Standard FoV phase 100.0 % Adjust with body coil Off Slice thickness 5.0 mm Confirm freq, adjustment Off TR 5920 ms Assume Silicone Off TE 38.0 ms ? Ref. amplitude 1H 0.000 V Averages 1 Adjust volume Auto Adjust volume Filter None Position L0.0 A10.1 F21.1 Coll elements HEA;HEP Orientation Transversal Contrast Toff R > L 192 mm AVERGING AS P 192 mm AS P Fat suppr. Fat sat. Physio Transversal Averaging mode Long term R > L 192 mm Reconstruction Magnitude Angio None Measurements 420 Angio None Measurements 420 Angio Flow mode Single dir. <				
FoV read			Auto Coil Select	Default
FoV phase			Shim mode	Standard
Slice thickness 5.0 mm Filter 5920 ms Assume Silicone Off				
TR 5920 ms Assume Silicone Off TE 38.0 ms ? Ref. amplitude 1H 0.000 V Averages 1 Adjust volume Filter None Position L0.0 A10.1 F21.1 Coll elements HEA;HEP Orientation Transversal Contrast Toff Rotation 0.00 deg MTC Off Passion 1.00 A10.1 F21.1 Orientation Transversal Rotation 0.00 deg R >> L 192 mm P192 mm A >> P 192 mm P192 mm A southloade Assign/Mode None Area (support of the passing through the passing through the passing through the passing through through the passing through throu				
TE				
Averages 1 Adjustment Tolerance Auto Concatenations 1 Adjust volume Filter None Position L0.0 A10.1 F21.1 Coll elements HEA;HEP Orientation Transversal MTC Off RS > L 192 mm Flip angle 25 deg FS + H 85 mm Fat suppr. Fat sat. Physio FS + H Averaging mode Long term Physio None Measurements 420 Angio None Measurements 420 Angio Flow mode Single dir. Multiple series Off Flow mode Single dir. Multiple series Off Flow mode Single dir. Multiple series of Unity of Phase resolution 128 Piculation Through plane Phase resolution 100 % Sequence Direction Through plane Phase resolution 0ff Interpolation Off Bandwidth 1776 Hz/Px PAT mode GRAPPA				
Concatenations Filter None Position L0.0 A10.1 F21.1				
Filter Coil elements None HEA;HEP Position Orientation Transversal L0.0 A10.1 F21.1 Transversal Contrast Rotation 0.00 deg R > L 192 mm 192 mm MTC Flip angle 25 deg Fat sat. Fat sat. 192 mm Averaging mode Reconstruction Magnitude Measurements 420 Long term Angio Physio Multiple series Off Oms Mode Single dir. None Multiple series Off Flow mode Single dir. Single dir. Resolution Down Phase partial Fourier Interpolation Off 100 % Magnitude sum Off PAT mode Accel. factor PE 2 Ref. lines PE 24 Adartix Coil Mode Auto (Triple) Reference scan mode Separate Reference Scan mode Reference Off EPI factor Scale Scale Normal Scale Scale Reference Scan mode Separate Reference Scan mode Scan mode Separate Reference Scan mode Scan mo				Auto
Coil elements HEA;HEP Orientation Transversal Contrast MTC Off Rotation 0.00 deg MTC Off R >> L 192 mm Flip angle 25 deg A >> P 192 mm Fat suppr. Fat sat. F> H 85 mm Averaging mode Long term Physio None Reconstruction Magnitude Angio None Measurements 420 Angio Angio Delay in TR 0 ms Flow mode Single dir. Multiple series Off Encodings 1 Resolution 128 Plow mode Single dir. Resolution 128 Plow mode Single dir. Resolution 100 % Magnitude sum Off Phase resolution 128 Sequence Direction Through plane Phase partial Fourier 6/8 Sequence Introduction Off PAT mode GRAPPA Free echo spacing Off				LOO A10 1 F21 1
Contrast Rotation 0.00 deg MTC Off R > L 192 mm Filip angle 25 deg F > H 192 mm Fat suppr. Fat sat. Physio Averaging mode Long term Physio Averaging mode Measurements 420 Angio Delay in TR 0 ms Flow mode Single dir. Multiple series Off Encodings 1 Resolution 128 Phase resolution 5 cm/s Phase partial Fourier 6/8 Sequence Interpolation Off Introduction Off PAT mode GRAPPA Free echo spacing Off Accel. factor PE 2 Echo spacing Off Accel. factor PE 24 Echo spacing Off Matrix Coil Mode Auto (Triple) EPI factor 128 Reference scan mode Separate RF pulse type Normal Distortion Corr. Off RF spoiling On Prescan Normaliz				
R > L 192 mm	Con elements	HEA,HEF		
MTC Off A > P 192 mm Flip angle 25 deg Fat sat. Averaging mode Long term Physio Reconstruction Magnitude None Measurements 420 Angio Delay in TR 0 ms Flow mode Single dir. Multiple series Off Encodings 1 Velocity enc. 5 cm/s 5 cm/s Direction Through plane Magnitude sum Off Phase resolution 100 % Sequence Introduction Off Phase partial Fourier 6/8 Sequence Introduction Off PAT mode GRAPPA Sequence Introduction Off PAT mode Accel. factor PE 2 Echo spacing Off Ref. lines PE 24 Echo spacing 0.94 ms Matrix Coil Mode Auto (Triple) EPI factor 128 Reference scan mode Separate RF pulse type Normal Distortion Corr. Off RF spoiling </td <td>Contrast</td> <td></td> <td></td> <td></td>	Contrast			
Fat suppr. Fat sat. Averaging mode Reconstruction Magnitude Measurements 420 Delay in TR 0 ms Multiple series Off Encodings 1 Base resolution 100 % Phase partial Fourier 6/8 Sequence Interpolation Off Encodings Off Series PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Prescan Normalize Resolution Off Sequence Off Sequence Distortion Corr. Prescan Normalize Off Sequence Off Sequence Off Sequence Off Sequence Distortion Corr. Prescan Normalize Off Sequence Off	MTC	Off		
Averaging mode Reconstruction Magnitude Measurements 420 Delay in TR 0 ms Multiple series Off Encodings 1 Resolution 128 Phase resolution 100 % Phase partial Fourier 6/8 Interpolation Off Introduction Off Seference scan mode Separate Sep	Flip angle	25 deg		_
Averaging mode Reconstruction Magnitude Measurements 420 Delay in TR 0 ms Multiple series Off Resolution Base resolution 100 % Phase partial Fourier 6/8 Interpolation Off PAT mode Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Prescan Normalize Off Raw filter Off Raw filter Off Elliptical filter Off Elliptical filter Off Hamming Off Magnitude Ist Signal/Mode None Angio Angio Flow mode Single dir. Plow mode Single dir. Nellotive encodings 1 Velocity enc. 5 cm/s Dietction Through plane Magnitude sum Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF-90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Single dir. None Angio A	Fat suppr.	Fat sat.	F >> H	65 mm
Reconstruction Magnitude Measurements 420 Delay in TR 0 ms Multiple series Off Resolution Base resolution 128 Phase resolution 100 % Phase partial Fourier 11erpolation Off PAT mode GRAPPA Accel. factor PE 2 Afference scan mode Separate Matrix Coil Mode Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Hamming Off Geometry Multi-slice mode Interleaved Angio Flow mode Single dir. Flow mode Single dir. Flow mode Single dir. Angio Flow mode Single dir. Flow mode Single dir. Angio Angio Flow mode Single dir. Angio Flow mode Single dir. Angio Flow mode Single dir. Angio Angio Flow mode Single dir. Angio Angio Angio Flow mode Single dir. Angio Intercolon; Angio Angio Angio Flow mode Single dir. Angio Flow mode Single dir. Angio Ang	Averaging mode	Long torm	Physio	
Measurements Delay in TR 420 Delay in TR 0 ms Multiple series Off Resolution 128 Phase resolution Phase partial Fourier Interpolation 100 % PAT mode Accel. factor PE Accel. factor PE Ref. lines PE Matrix Coil Mode Reference scan mode 24 Matrix Coil Mode Reference scan mode Separate Distortion Corr. Prescan Normalize Prescan Normalize Elliptical filter Elliptical filter Hamming Off Geometry Multi-slice mode Multi-slice mode Interleaved Angio Flow mode Single dir. Flow mode Single dir. Single dir. Flow mode Encodings 1 Velocity enc. 5 cm/s 5 cm/s Direction Through plane Off Base resolution Off Bandwith 1776 Hz/Px Free echo spacing Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 094 ms EPI factor 128 RF publication Fast RF spoiling On RF spoiling On On Prescan Normalize The Number Bandwidth 1776 Hz/Px Frov Shift Number 3 DummyScan Number			1st Signal/Mode	None
Delay in TR		•	Annia	
Multiple series Off Resolution Base resolution 128 Phase resolution 100 % Phase partial Fourier 6/8 Interpolation Off PAT mode Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Reference scan mode Separate Distortion Corr. Off Reaw filter Off Raw filter Off Elliptical filter Amming Off Geometry Multi-slice mode Magnitude sum Off Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing Off Reflector 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 Shift KO Center 1 Encodings 1 Velocity enc. 5 cm/s Direction Through plane Magnitude sum Off Through plane Off Bandwith 1776 Hz/Px Free echo spacing Off Bandwidth 1776 Hz/Px Free e		-		0: 1 1:
Resolution Base resolution 128 Phase resolution 100 % Phase partial Fourier 6/8 Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Adming Off Geometry Multi-slice mode Pase resolution 128 Direction Through plane Magnitude sum Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Every Other Stice 1				Single dir.
Base resolution 128 Phase resolution 100 % Phase partial Fourier 6/8 Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Reference scan mode Separate Distortion Corr. Off Prescan Normalize Raw filter Elliptical filter Hamming Off Geometry Multi-slice mode Direction Magnitude sum Off Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Bandwidth 1776 Hz/	Multiple series	Oil		1
Phase resolution 100 % Phase partial Fourier 6/8 Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Magnitude sum Off Magnitude sum Off Magnitude sum Off Sequence Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms Free echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Four Other Slice	Resolution			
Phase partial Fourier Interpolation Off Introduction Off Introduction Off Bandwidth 1776 Hz/Px PAT mode GRAPPA Free echo spacing Off Echo spacing 0.94 ms Matrix Coil Mode Auto (Triple) EPI factor 128 Reference scan mode Separate RF pulse type Normal Gradient mode Fast RF spoiling On Past RF spoiling On MB Number 3 Distortion Corr. Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Sequence Introduction Off MB Number 3 Shift KO Center 1 Sequence Introduction Off MB Number 3 Shift KO Center 1 Sequence Introduction Off MB Number 3 Shift KO Center 1 FOV Shift Number 3 Shift KO Center 1	Base resolution	128		
Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Raw filter Off Elliptical filter Off Hamming Off Geometry Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice	Phase resolution	100 %	Magnitude sum	Off
Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Raw filter Off Elliptical filter Off Hamming Off Geometry Introduction Off Bandwidth 1776 Hz/Px Free echo spacing Off Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice	Phase partial Fourier	6/8	Sequence	
PAT mode Accel. factor PE Ref. lines PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming Geometry Multi-slice mode PAT mode GRAPPA GRAPPA Free echo spacing Coff Elliptactor RF pulse type Normal Gradient mode Fast RF spoiling Con RF90 duration MB Number SummyScan Number Solit K0 Center Solit K0 Center Solit K0 Center Solit Kon Soli				Off
Accel. factor PE Ref. lines PE Ref. lines PE Matrix Coil Mode Reference scan mode Distortion Corr. Prescan Normalize Raw filter Raw filter Elliptical filter Hamming Geometry Multi-slice mode Pree echo spacing Echo spacing Free echo spacing EPI factor REPI factor 128 RF pulse type Normal Gradient mode RF spoiling On RF90 duration MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Free echo spacing 0.94 ms Auto New Shift Number 3 Shift KO Center 1 Free echo spacing 0.94 ms Auto New Shift Number 3 Shift KO Center 1 Free echo spacing 0.94 ms Auto New Shift Number 3 Shift KO Center 1 Free echo spacing 0.94 ms Auto New Shift Number 3 Shift KO Center 1				_
Ref. lines PE 24 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Distortion PE 24 Echo spacing 0.94 ms EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift KO Center 1 Echo spacing 0.94 ms				
Matrix Coil Mode Auto (Triple) Reference scan mode Separate Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Interleaved EPI factor 128 RF pulse type Normal Gradient mode Fast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice				
Reference scan mode Distortion Corr. Prescan Normalize RF pulse type Geometry RF pulse type Normal Gradient mode Fast RF spoiling On RF spoiling On RF90 duration MB Number DummyScan Number FOV Shift Number Shift KO Center Strong Other Slice A Strong Other Slice Separate RF pulse type Normal RF pulse type Normal RF syoiling On Strong Other Slice Normal RF syoiling On Strong Other Slice A Strong Other Slice Strong Other Slice A				
Distortion Corr. Off Prescan Normalize Off Raw filter Off Elliptical filter Off Hamming Off Geometry Multi-slice mode Interleaved Gradient mode RF sast RF spoiling On RF90 duration 5120 MB Number 3 DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Event Other Slice			EPI factor	
Prescan Normalize Off Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1	Reference scan mode	Separate		Normal
Prescan Normalize Off Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1	Distortion Corr	Off		Fast
Raw filter Off RF90 duration 5120 Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 Geometry FOV Shift Number 3 Shift K0 Center 1 Every Other Slice 1			RF spoiling	On
Elliptical filter Off MB Number 3 Hamming Off DummyScan Number 5 FOV Shift Number 3 Multi-slice mode Interleaved Shift KO Center 1 Every Other Slice 1				F120
Hamming Off DummyScan Number 5 Geometry 5 Multi-slice mode Interleaved 5 Shift K0 Center 1 Event Other Slice 1				
Geometry Multi-slice mode Interleaved FOV Shift Number 3 Shift K0 Center 1 Event Other Slice 1	•			-
Multi-slice mode Interleaved Shift K0 Center 1 Fyony Other Slice 1	пашшид	OII		
Multi-slice mode Interleaved Shift K0 Center 1	Geometry			3
Series Ascending Every Other Slice 1	-	Interleaved		1
	Series	Ascending	Every Other Silce	ı

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

	• •	3\ep2d_venc5_slowbreath_T	
TA: 41:26 PAT: 2	Voxel size: 1.5×1.5×5.0 mm	Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	Off		50 mm
	OII	Thickness	
Before measurement		Position	L0.0 A88.8 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P66.8 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
	On	Opecial sat.	None
segments	0"	System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation		HEA	On
Wait for user to start	Off	HEA	On
Start measurements	single	Positioning mode	REF
I	3	Table position	H
Routine			
Slice group 1		Table position	0 mm
Slices	3	MSMA	S - C - T
Dist. factor	700 %	Sagittal	R >> L
		Coronal	A >> P
Position	L0.0 A10.1 F21.1	Transversal	F >> H
Orientation	Transversal	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg		
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %		Off
· ·		Adjust with body coil	
Slice thickness	5.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	38.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A10.1 F21.1
Coil elements	HEA;HEP	Orientation	Transversal
Con elements	HEA,HEI		
Contrast		Rotation	0.00 deg
MTC	Off	— R >> L	192 mm
Flip angle	25 deg	A >> P	192 mm
Fat suppr.	Fat sat.	F >> H	85 mm
ι αι συρρι.	1 at sat.	Dhusia	
Averaging mode	Long term	Physio	
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms		Cinalo dir
		Flow mode	Single dir.
Multiple series	Off	Encodings	1
Resolution		Velocity enc.	5 cm/s
Base resolution	128	Direction	Through plane
		Magnitude sum	Off
Phase resolution	100 %	1	
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
DAT d-	OD 4 DD 4	Bandwidth	1776 Hz/Px
PAT mode	GRAPPA	Free echo spacing	Off
Accel. factor PE	2	Echo spacing	0.94 ms
Ref. lines PE	24	Lono spacing	U.UT IIIS
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
Distortion Corr.	Off	Gradient mode	Fast
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
Geometry		FOV Shift Number	3
Geometry	Intariague	 Shift K0 Center 	1
Multi-slice mode	Interleaved	Every Other Slice	i 1
Series	Ascending	1 2.5., 5.1.5. 5.1.65	•

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

 $\verb|\USER\AMRIT\Liyong\20150303\ep2d_venc5_slowbreath_AP_24slc|$

Rel. SNR: 1.00

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×4.0 mm

PAT: 2

TA: 5:31:31

Properties		Sat. region 1	
Prio Recon	Off		50 mm
	Oli	Thickness	
Before measurement		Position	L0.0 A96.2 H8.5
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P59.4 H8.5
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		0 1	
Auto open inline display	Off	System	
Start measurement without	On	Body	Off
further preparation	.	HEP	On
Wait for user to start	Off	HEA	On
Start measurements	single	Desitioning made	REF
Start measurements	Sirigio	Positioning mode	
Routine		Table position	Н
Slice group 1		Table position	0 mm
Slices	24	MSMA	S - C - T
Dist. factor	0 %	Sagittal	R >> L
Position	L0.0 A17.6 H8.5	Coronal	A >> P
Orientation	Transversal	Transversal	F >> H
		Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %		
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	4.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	38.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	rate
Filter	None	Position	L0.0 A17.6 H8.5
Coil elements	HEA;HEP		
Con elements	HEA,HEF	Orientation	Transversal
Contrast		Rotation	0.00 deg
MTC	Off	—— R >> L	192 mm
Flip angle	25 deg	A >> P	192 mm
Fat suppr.	Fat sat.	F >> H	96 mm
		Physio	
Averaging mode	Long term		None
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	4000	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
•	_	Velocity enc.	5 cm/s
Resolution		—— Direction	A >> P
Base resolution	128	Magnitude sum	Off
Phase resolution	100 %	Magnitude Sum	Oli
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
		Bandwidth	1776 Hz/Px
PAT mode	GRAPPA	Free echo spacing	Off
Accel. factor PE	2		0.94 ms
Ref. lines PE	24	Echo spacing	0.94 1115
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
		Gradient mode	Fast
Distortion Corr.	Off	RF spoiling	On
Prescan Normalize	Off	KE SPOINING	OII
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
•	-	FOV Shift Number	3
Geometry		Shift K0 Center	1
Multi-slice mode	Interleaved	Every Other Slice	1
Series	Ascending		

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

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Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

PAT: 2

TA: 1:20:54

USER: ep2d_venc_ms_sbmb_SAT

_			
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation		HEA	On
Wait for user to start	Off	ПЕА	On
Start measurements	single	Positioning mode	REF
	•	Table position	H
Routine		Table position	0 mm
Slice group 1		MSMA	S - C - T
Slices	3		
Dist. factor	700 %	Sagittal	R >> L
Position	R23.6 P13.5 F21.1	Coronal	A >> P
Orientation	Transversal	Transversal	F >> H
Phase enc. dir.	R >> L	Coil Combine Mode	Sum of Squares
Rotation	90.00 deg	AutoAlign	
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	5.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	40.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	R23.6 P13.5 F21.1
Coil elements	HEA;HEP	Orientation	Transversal
		Rotation	90.00 deg
Contrast		—— A >> P	192 mm
MTC	Off		· *= ······
Flip angle	25 deg	R >> L	192 mm
Fat suppr.	Fat sat.	F >> H	85 mm
		···· Physio	
Averaging mode	Long term	1st Signal/Mode	None
Reconstruction	Magnitude	13t Signal/Mode	None
Measurements	820	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
•		Velocity enc.	5 cm/s
Resolution		—— Direction	
Base resolution	128		Through plane
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
		Bandwidth	1302 Hz/Px
PAT mode	GRAPPA		
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	1.04 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
Distortion Corr.	Off	Gradient mode	Fast
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off		
Hamming	Jii	DummyScan Number	5
Geometry		FOV Shift Number	3
Multi-slice mode	Interleaved	—— Shift K0 Center	1
Mulli-Slice Hilduc	IIItorioavoa	Every Other Slice	1

SER Number	1
Venc Repetition	800
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,	,4 1
00++)	

 $\verb|\USER\AMRIT\Liyong\20150303\| localizer$

Properties Pr	TA: 0:13 P/	AT: Off Voxel size: 1.1×1.0×	7.0 mm Rel. SNR: 1.00	SIEMENS: gre
Prignative Pri	Dranautica		Phase resolution	90 %
Before measurement		Off		
After measurement Load to viewer On Inline move Off Martix Coll Mode Auto (CP) Auto (C		OII	Interpolation	On
Load to viewer On			PAT mode	None
Inline movie		On		
Auto store images				
Load inages to graphic Off Unfiltered images Off Normalize Off Prescan Normalize Off		_	•	_
Prescan Normalize				
Segments	o .	Off		* · ·
Auto open inline alsplay		Off		_
further preparation Wait for user to start Start measurements Single			B1 filter	
Wait for user to start		Oil		
Statt measurements		Off		
Routline			Mode	Inplane
Multi-silce mode Sequential Interleaved Series Interleaved Interleaved Series Interleaved Interleaved Series Interleaved Interleaved Series Interleaved Inte	I	~	Geometry	
Sicios				•
Dist. factor		1	Series	Interleaved
Position			Saturation mode	Standard
Orientation Sagittal Phase enc. dir. A >> P Tim CT mode Off Rotation 0.00 deg System System Slice group 2 1 Body Off Slices 1 HEP Off Dist. factor 20 % HEP Off Position Isocenter HEA Off Orientation Transversal SP4 On Phase enc. dir. A >> P SP2 On Rotation 0.00 deg SP8 Off Slice group 3 Slices 1 SP3 On Slice group 3 Slices 1 SP3 On Slice sproup 3 Slices 1 SP3 On Slice sproup 3 Slice sproup 3 SP3 On Off Slices of pour pour pour pour pour pour pour pour				
Phase enc. dir. A >> P Tim CT mode Off	Orientation	Sagittal		
Rotation Silice group 2 Silices 1 Silices Silice				
Slices		0.00 deg	I	
Dist. factor		1		Off
Position				
Second				
Phase enc. dir. A >> P SP2 On Rotation 0.00 deg SP6 Off Slices 1 SP3 On Dist. factor 20 % SP1 On Position Isocenter SP7 Off Orientation Coronal SP5 Off Phase enc. dir. R >> L SP5 Off Rotation 0.00 deg SP5 Off Phase enc. dir. R >> L ReF Orrect off SP7 Off Rotation 0.00 deg Positioning mode REF REF Table position H				
Rotation Silce group 3 SP8 Off Silce group 3 Silces 1 SP3 On SP1 On SP1 On SP7 Off SP5 Off SP5 Off SP5 Off SP5 Off SP5 Off SP7 Off SP5 Off				
Slice group 3 Slice s				
Silices	Slice group 3	Č		
Position Isocenter SPT Off SP5 Off				_
Note				
Phase enc. dir. R >> L Rotation 0.00 deg Phase oversampling 0 % FoV read 250 mm FoV pread 250 mm FoV phase 100.0 % Slice thickness 7.0 mm TE 8.6 ms TE 4.00 ms Averages 2 Concatenations 3 Filter Prescan Normalize, Elliptical filter Coil elements SP1-4 Contrast TD 0 ms MTC Off Magn. preparation None Filp angle 20 deg Fat suppr. None Water suppr. None Water suppr. None Reconstruction Magnitude Reconstruction Magnitude Reconstruction Measurements 1 Multiple series Resolution Resolution Phositioning mode REF Table position H H Table position H Residual R >> L Coronal A >> P Transversal F >> H Saue uncombined Off Coril Combine Mode Adaptive Combine Avato Coil Select Default Coil Combine Mode AutoAlign Auto Coil Select Default Shim mode Tune up Adjust with body coil Off Confirm freq. adjustment Off Assume Silicone Off Ref. amplitude 1H 0.000 V Adjust volume Position Isocenter Orientation Transversal Averaging mode Short term Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution Physio Position/None Segments 1 Position/None Position Somm Phosio Ist Signal/Mode None Segments 1				_
Rotation			JF0	
Phase oversampling			_	
FoV read			•	
FoV phase 100.0 % Slice thickness 7.0 mm TR 8.6 ms TE 4.00 ms Averages 2 Concatenations 3 Filter Prescan Normalize, Elliptical filter Coil elements SP1-4 Shim mode AutoAlign Auto Coil Select Default Confirm freq. adjustment Off Adjust with body coil Off Confirm freq. adjustment Off Adjust with body coil Off Confirm freq. adjustment Off Adjust volume Position Short term Averaging mode Averaging mode Short term Averaging mode Short term Averaging mode Short term Averaging mode Short term Averaging mode Averaging mode Short term Averaging mode Averaging mo				
Slice thickness				
TR TE 4.00 ms Transversal F >> H Averages Concatenations 2 Concatenations Coil Combine Mode Adaptive Combine Adaptive Combine Filter Prescan Normalize, Elliptical filter Auto Coil Select Default Coil elements SP1-4 Shim mode Adjust with body coil Confirm freq. adjustment Tune up Adjust with body coil Confirm freq. adjustment MTC Magn. preparation None Magn. preparation None Flip angle Off 2 Ref. amplitude 1H 0.000 V Fat suppr. Water suppr. None None Adjust volume Position Auto Adjust volume Averaging mode Reconstruction Short term Measurements Rotation None Measurements Transversal A >> P 263 mm A >> P Resolution Physio Resolution 1st Signal/Mode Segments None				
TE Averages 2 Concatenations 3 Filter Prescan Normalize, Elliptical filter Coil elements SP1-4 Contrast TD MTC Magn. preparation Flip angle Fat suppr. Water suppr. Water suppr. Averaging mode Reconstruction Measurements Multiple series Resolution Resolution Resolution Resolution Save uncombined Coff Coil Combine Mode Adaptive Combine Auto Coil Select Default Coil Combine Mode Auto Coil Select Default Coil Combine Moto Coil Select Default Auto Coil Select Default Coil Combine Moto Coil Select Default Auto Coil Select Default Coil Combine Moto Coil Select Default Coil Combine Moto Coil Select Default Coil Combine Moto Coil Combine Auto Align Confirm freq, adjustment Off Assume Silicone Poff Assume Silicone Poff Auto Coil Select Default Coil Coil Combine Auto Coil Select Default Auto Coil Select Default				
Averages Concatenations Filter Prescan Normalize, Elliptical filter Coil elements SP1-4 Contrast TD MTC Magn. preparation Flip angle Fat suppr. Water suppr. Water suppr. Water suppr. Averaging mode Reconstruction Measurements Measurements Measurements Default Shim mode Adjust with body coil Confirm freq. adjustment Assume Silicone Pesition Assume Silicone Off Pef. amplitude 1H O.000 V Adjustment Tolerance Adjust volume Position Orientation Position Rotation None Resolution Resolution Physio Coil Combine Mode AutoAlign Auto Coil Select Default Shim mode Tune up Adjust with body coil Confirm freq. adjustment Off Position Assume Silicone Off Off One Confirm freq. adjustment Adjust with body coil Confirm freq. adjustment Assume Silicone Off Pestion Assume Silicone Off Off One Assume Silicone Off Assume Silicone Off Off One Assume Silicone Off Assume Silicone Off Off One Assume Silicone Off Assume Silicone Off Off One Adjust volume Position Orientation Transversal Rotation O.00 deg R >> L One				
Concatenations Filter Prescan Normalize, Elliptical filter SP1-4 Shim mode Tune up				
filter Coil elements SP1-4 Contrast TD		_		
Coil elements SP1-4 Contrast TD O ms MTC Magn. preparation Flip angle Fat suppr. Water suppr. None Averaging mode Reconstruction Magnitude Resolution Resolution Base resolution Shim mode Adjust with body coil Confirm freq. adjustment Adjustment Off Assume Silicone Off Assume Silicone Off Assume Silicone Off Assume Silicone Adjustment Tolerance Aduto Adjustment Tolerance Adjust volume Position Orientation Transversal Rotation 0.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm Physio Ist Signal/Mode Segments 1 Shim mode Tune up Adjust with body coil Off Confirm freq. adjustment Off Assume Silicone Off Assume Silicone Off Assume Silicone Off Assume Silicone Off Adjust volume Position Isocenter Orientation Transversal Rotation 0.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm Physio	Filter	•	Auto Coil Select	Default
Contrast Adjust with body coil Off	Coil elements			Tune up
TD 0 ms MTC Off Magn. preparation None Flip angle 20 deg Fat suppr. None Water suppr. None Averaging mode Short term Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution To mas Assume Silicone Ref. amplitude 1H Adjustment Tolerance Adjust volume Position Orientation Transversal Rotation Rotation None Physio Physio Test Signal/Mode Segments None Segments Toff Assume Silicone Off Ref. amplitude 1H 0.000 V Adjust volume Position Rotation Fransversal Rotation None Segments Transversal Rotation None Segments	Contrast			
MTCOffAssume sincomeOffMagn. preparationNone? Ref. amplitude 1H0.000 VFlip angle20 degAdjustment ToleranceAutoFat suppr.NonePositionIsocenterWater suppr.NoneOrientationTransversalAveraging modeShort termRotation0.00 degReconstructionMagnitudeR >> L350 mmMeasurements1A >> P263 mmMultiple seriesEach measurementF >> H350 mmResolutionPhysioBase resolution2561st Signal/Mode SegmentsNone		0 ms		
Magn. preparation Flip angle Fat suppr. Water suppr.None NoneAdjustment Tolerance Adjust volumeAutoAveraging mode Reconstruction Measurements Multiple seriesShort term Magnitude Fach measurementRotation 				
Flip angle 20 deg Fat suppr. Water suppr. None Adjust volume Position Position Orientation Transversal Averaging mode Reconstruction Magnitude Reasurements Multiple series Resolution Resolution Base resolution Adjust volume Position Position Position Adjust volume Position Position Retarment Position Position Position Adjust volume Position Position Position Adjust volume Position Position Transversal A >> L 350 mm F >> H 350 mm Physio Physio Ist Signal/Mode Segments None Segments				
Fat suppr. Water suppr. None None Position Orientation Transversal Averaging mode Reconstruction Magnitude Measurements Multiple series Resolution Resolution Resolution Base resolution None Position Rotation Rotation O.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm Physio Physio 1st Signal/Mode Segments 1 None Segments				Auto
Water suppr. None Orientation Transversal Averaging mode Short term Rotation 0.00 deg Reconstruction Magnitude R >> L 350 mm Measurements 1 A >> P 263 mm Multiple series Each measurement F >> H 350 mm Resolution Physio Base resolution 256 1st Signal/Mode Segments None None				Isocenter
Averaging mode Short term Rotation 0.00 deg Reconstruction Magnitude R >> L 350 mm Measurements 1 A >> P 263 mm Multiple series Each measurement F >> H 350 mm Resolution Physio Base resolution 256 1st Signal/Mode Segments None Segments	Water suppr.	None		
Reconstruction Magnitude R >> L 350 mm Measurements 1 A >> P 263 mm Multiple series Each measurement F >> H 350 mm Resolution Base resolution 256 1st Signal/Mode Segments None Segments	Averaging mode	Short term		
Measurements Multiple series 1				350 mm
Resolution Base resolution 256 Physio 1st Signal/Mode None Segments 1		1		
Base resolution 256 1st Signal/Mode None Segments 1	Multiple series	Each measurement	F >> H	350 mm
Base resolution 256 1st Signal/Mode None Segments 1	Resolution		Physio	
Segments 1		256	1st Signal/Mode	None
	1		_	1

1	
Dark blood	Off
Resp. control	Off
Inline	
Subtract	Off
Liver registration	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
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\Liyong\20150303\t2_haste_sag_p1

TA: 0:24 PA	, ,	2.0 mm Rel. SNR: 1.00 S	IEMENS: haste
.		Width	4
Properties		Unfiltered images	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	On
Load to viewer	On	Mode	Inplane
Inline movie	Off		•
Auto store images	On	Geometry	
Load to stamp segments	Off	Multi-slice mode	Single shot
Load images to graphic	Off	Series	Interleaved
segments	0"	Special sat.	None
Auto open inline display	Off		
Start measurement without	On	Tim CT mode	Off
further preparation	O#		.
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		HEP	Off
Slice group 1		— HEA	Off
Slices	45	SP4	Off
Dist. factor	10 %	SP2	On
Position	R9.7 A6.4 H0.1	SP8	Off
Orientation	Sagittal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	250 mm	SP5	Off
FoV phase	100.0 %	Positioning mode	FIX
Slice thickness	2.0 mm	Table position	H
TR	500 ms	Table position	0 mm
TE	75 ms	MSMA	S - C - T
Averages	1	Sagittal	R >> L
Concatenations	1	Coronal	A >> P
Filter	Normalize, Elliptical filter	Transversal	F >> H
Coil elements	SP2,3	Save uncombined	Off
Operation of	,	Coil Combine Mode	Adaptive Combine
Contrast	0"	— AutoAlign	
MTC	Off	Auto Coil Select	Default
Magn. preparation	None		
Flip angle	150 deg	Shim mode	Tune up
Fat suppr.	None	Adjust with body coil	Off
Water suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode	Long term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	
Multiple series	Each measurement	Position	Isocenter
	-	Orientation	Transversal
Resolution	000	Rotation	0.00 deg
Base resolution	320	R >> L	350 mm
Phase resolution	80 %	A >> P	263 mm
Phase partial Fourier	4/8	F >> H	350 mm
Interpolation	Off	Physio	
PAT mode	GRAPPA	1st Signal/Mode	None
Accel. factor PE	2		
Ref. lines PE	24	Dark blood	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	Off
Reference scan mode	Integrated		Oii
		Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	On	Std-Dev-Tra	Off
Intensity	Medium	Std-Dev-Time	Off
Cut off	20	MIP-Sag	Off
34.5	- v	wir-sag	Oii

Off
Off
Off
On
On
2D
1
601 Hz/Px
No
30 s
5.8 ms
256
Fast
Fast

 $\label{lem:linear_loss} $$\USER\AMRIT\Liyong\20150303\fl_fq_mb4f2_bottom $$$ Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

USER: fl_fq_mb

TA: 1:45

PAT: Off

1A. 1.45 FA	1. OII VOXEI SIZE. 1.3X1.3X	k5.0 IIIII Kei. SNK. 1.00	USER. II_Iq_IIIb
		HEP	On
Properties	0"	_ HEA	Off
Prio Recon	Off		
Before measurement		Positioning mode	FIX
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	Sagittal	R >> L
Load to stamp segments	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	
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	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	
Position	L0.0 A27.2 F30.2	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	192 mm	F >> H	350 mm
FoV phase	100.0 %	I	330 11111
Slice thickness	5.0 mm	Physio	
TR	16.85 ms	1st Signal/Mode	Pulse/Trigger
TE	4.65 ms	Average cycle	No Signal ms
Averages	1	Captured cycle	-not set-
Concatenations	1	Acquisition window	800 ms
Filter	None	Trigger pulse	1
Coil elements	HEP	Trigger delay	0 ms
Con elements	ПСР	Segments	1
Contrast		Phases	47
Flip angle	15 deg	Angio	
Averaging mode	Short term	Flow mode	Single dir.
Reconstruction	Magnitude	Encodings	1
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
•		Rephased images	On
Resolution	100	Magnitude images	On
Base resolution	128	Phase images	On
Phase resolution	100 %		
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Tra	Off
WALLIA CON MICH		Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off	Sequence	
Elliptical filter	Off		On
		Introduction	On Off
Geometry	0 (1)	Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1 260 Hz/Dy
Series	Interleaved	Bandwidth	260 Hz/Px
Special sat.	None	Flow comp.	No
		RF pulse type	Normal
System	Off	Gradient mode	Fast
Body			

RF spoiling	On
MB Number	4
FOV Shift	2
Distance22	40

 $\label{lem:linear_loss} $$\USER\AMRIT\Liyong\20150303\fl_fq_mb4f2_bottom $$$

		LUED	0
operties		HEP HEA	On Off
Prio Recon	Off	——	OII
Before measurement		Positioning mode	FIX
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	•	Shim mode	Tune up
Wait for user to start	Off	Adjust with body coil	Off
Start measurements	single	Confirm freq. adjustment	Off
outine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	
Position	L0.0 A27.2 F30.2	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	192 mm	F >> H	350 mm
FoV phase	100.0 %	Dhuais	
Slice thickness	5.0 mm	Physio	Dulas /Trians
TR	16.85 ms	1st Signal/Mode	Pulse/Trigger
TE	4.65 ms	Average cycle	No Signal ms
Averages	1	Captured cycle	-not set-
Concatenations	1	Acquisition window	800 ms
Filter	None	Trigger pulse	1
Coil elements	HEP	Trigger delay	0 ms
ontrast		Segments Phases	1 47
Flip angle	15 deg	Phases	47
·····		Angio	
Averaging mode	Short term	Flow mode	Single dir.
Reconstruction	Magnitude	Encodings	1
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
esolution		Rephased images	On
Base resolution	128	—— Magnitude images	On
Phase resolution	100 %	Phase images	On
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
		Std-Dev-Gag	Off
PAT mode	None	Std-Dev-Tra	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off		.
Elliptical filter	Off	Sequence	
•	Jii	Introduction	On
eometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
Series	Interleaved	Bandwidth	260 Hz/Px
Special sat	None	Flow comp.	No
Special sat.	None	RF pulse type	Normal
vstem		The pulse type	Hommun

RF spoiling	On	
MB Number	4	
FOV Shift	2	
Distance22	40	

\\USER\AMRIT\Liyong\20150303\t2_haste_sag_p1

TA: 0:24 PA		:2.0 mm Rel. SNR: 1.00 S	IEMENS: haste
.		Width	4
Properties		Unfiltered images	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	On
Load to viewer	On	Mode	Inplane
Inline movie	Off	1	•
Auto store images	On	Geometry	
Load to stamp segments	Off	Multi-slice mode	Single shot
Load images to graphic	Off	Series	Interleaved
segments	0"	Special sat.	None
Auto open inline display	Off		
Start measurement without	On	Tim CT mode	Off
further preparation	0"	1	5
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		HEP	Off
Slice group 1		— HEA	Off
Slices	45	SP4	On
Dist. factor	10 %	SP2	On
Position	R9.7 A6.4 H0.1	SP8	Off
Orientation	Sagittal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	On
Phase oversampling	0 %	SP7	Off
FoV read	250 mm	SP5	Off
FoV phase	100.0 %	Positioning mode	FIX
Slice thickness	2.0 mm	Positioning mode	H
TR	500 ms	Table position Table position	
TE	75 ms		0 mm
Averages	1	MSMA Societal	S - C - T R >> L
Concatenations	1	Sagittal	
Filter	Normalize, Elliptical filter	Coronal	A >> P
Coil elements	SP1-4	Transversal	F >> H
Con elements	31 1-4	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
MTC	Off	Auto Cail Salast	Default
Magn. preparation	None	Auto Coil Select	Default
Flip angle	150 deg	Shim mode	Tune up
Fat suppr.	None	Adjust with body coil	Off .
Water suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode	Long torm	? Ref. amplitude 1H	0.000 V
Reconstruction	Long term	Adjustment Tolerance	Auto
Measurements	Magnitude	Adjust volume	
	Fach messurement	Position	Isocenter
Multiple series	Each measurement	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	320	R >> L	350 mm
Phase resolution	80 %	A >> P	263 mm
Phase partial Fourier	4/8	F >> H	350 mm
Interpolation	Off	ı	
PAT mode	GRAPPA	Physio	None
Accel. factor PE	2	1st Signal/Mode	None
Ref. lines PE	2 24	Dark blood	Off
Matrix Coil Mode Reference scan mode	Auto (Triple) Integrated	Resp. control	Off
		Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	On	Std-Dev-Tra	Off
Intensity	Medium	Std-Dev-Time	Off
Cut off	20	MIP-Sag	Off
1		1	

MIP-Cor MIP-Tra MIP-Time Save original images	Off Off Off On	
Sequence		
Introduction	On	
Dimension	2D	
Contrasts	1	
Bandwidth	601 Hz/Px	
Flow comp.	No	
Allowed delay	30 s	
Echo spacing	5.8 ms	

 $\verb|\USER\AMRIT\Liyong\20150303\t2_haste_tra_p3||$

oportios		Width	4
roperties Prio Recon	Off	Unfiltered images	Off
	OII	B1 filter	Off
Before measurement		Raw filter	Off
After measurement	On	Elliptical filter	On
Load to viewer Inline movie	On Off	Mode	Inplane
		Geometry	
Auto store images	On Off	Geometry Multi-slice mode	Cinalo chat
Load to stamp segments	Off	Multi-slice mode Series	Single shot Interleaved
Load images to graphic	Off		Interieaved
segments	Off	Special sat.	None
Auto open inline display Start measurement without	On		
	Oli	Tim CT mode	Off
further preparation Wait for user to start	Off	Cyatam	
Start measurements	single	System	0#
Start Incasurements	Sirigic	Body	Off
outine		HEP	Off
Slice group 1		— HEA	Off
Slices	45	SP4	Off
Dist. factor	10 %	SP2	On O"
Position	L0.6 A7.6 H72.2	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	Off
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	250 mm	SP5	Off
FoV phase	100.0 %	Docitioning mode	EIV
Slice thickness	2.0 mm	Positioning mode	FIX
TR	500 ms	Table position	H 0
TE	75 ms	Table position	0 mm
Averages	7 0 1113 1	MSMA	S-C-T
Concatenations	1	Sagittal	R >> L
Filter	Normaliza Elliptical filter	Coronal	A >> P
	Normalize, Elliptical filter	Transversal	F >> H
Coil elements	SP2	Save uncombined	Off
ontrast		Coil Combine Mode	Adaptive Combine
MTC	Off	— AutoAlign	
Magn. preparation	None	Auto Coil Select	Default
Flip angle	150 deg	Shim mode	Tune un
Fat suppr.	None	Adjust with body coil	Tune up Off
Water suppr.	None		Off
Restore magn.	Off	Confirm freq. adjustment Assume Silicone	
			Off
Averaging mode	Long term	? Ref. amplitude 1H	0.000 V
Reconstruction	Magnitude	Adjustment Tolerance	Auto
Measurements	1	Adjust volume	Innant
Multiple series	Each measurement	Position	Isocenter
•		Orientation	Transversal
esolution	200	Rotation	0.00 deg
Base resolution	320	R >> L	350 mm
Phase resolution	80 %	A >> P	263 mm
Phase partial Fourier	4/8	F >> H	350 mm
Interpolation	Off	Physio	
PAT mode	GRAPPA	Physio 1st Signal/Mode	None
Accel. factor PE	2	ist signal/iviode	INUTIE
Ref. lines PE	24	Dark blood	Off
	Auto (Triple)	Resp. control	Off
Matrix Coil Mode		1 12	
	Integrated	. Inline	
Matrix Coil Mode Reference scan mode	Integrated Off	Inline Subtract	Off
Matrix Coil Mode Reference scan mode Image Filter	Off	Subtract	Off
Matrix Coil Mode Reference scan mode Image Filter Distortion Corr.	Off Off	Subtract Std-Dev-Sag	Off
Matrix Coil Mode Reference scan mode Image Filter Distortion Corr. Prescan Normalize	Off Off Off	Subtract Std-Dev-Sag Std-Dev-Cor	Off Off
Matrix Coil Mode Reference scan mode Image Filter Distortion Corr.	Off Off	Subtract Std-Dev-Sag	Off

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	On
Dimension	2D
Contrasts	1
Bandwidth	601 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	5.8 ms
Turbo factor	256

Fast Fast

RF pulse type Gradient mode

\\USER\AMRIT\Liyong\20150303\t2_haste_tra_p2

TA: 0:24 PAT: 2 Voxel size: 1.0×0.8×2.0 mm Rel. SNR: 1.00 SIEMENS: haste			
Dranartiaa		Width	4
Properties	0"	Unfiltered images	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement	0.5	Elliptical filter	On
Load to viewer	On O#	Mode	Inplane
Inline movie	Off	Coomotru	
Auto store images	On O#	Geometry	Cinale abot
Load to stamp segments	Off	Multi-slice mode Series	Single shot Interleaved
Load images to graphic	Off	= = = = =	inteneaved
segments	0#	Special sat.	None
Auto open inline display	Off On		
Start measurement without	On	Tim CT mode	Off
further preparation Wait for user to start	Off		
Start measurements		System	
Start measurements	single	Body	Off
Routine		HEP	Off
Slice group 1		HEA	Off
Slices	45	SP4	On
Dist. factor	10 %	SP2	On
Position	L0.6 A10.7 F18.6	SP8	Off
Orientation	Transversal	SP6	Off
Phase enc. dir.	A >> P	SP3	On
Rotation	0.00 deg	SP1	Off
Phase oversampling	0 %	SP7	Off
FoV read	250 mm	SP5	On
FoV phase	100.0 %	Positioning mode	EIV
Slice thickness	2.0 mm	Positioning mode	FIX
TR	500 ms	Table position	H
TE	75 ms	Table position	0 mm
Averages	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MSMA	S-C-T
Concatenations	1	Sagittal	R >> L
Filter	Normalize, Elliptical filter	Coronal	A >> P
Coil elements	SP2-5	Transversal	F >> H
Con elements	3F2-3	Save uncombined	Off
Contrast		Coil Combine Mode	Adaptive Combine
MTC	Off	AutoAlign	
Magn. preparation	None	Auto Coil Select	Default
Flip angle	150 deg	Shim mode	Tune up
Fat suppr.	None	Adjust with body coil	Off
Water suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
A	L 4	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	I Fack management	Position	Isocenter
Multiple series	Each measurement	Orientation	Transversal
Resolution		Rotation	0.00 deg
Base resolution	320	R >> L	350 mm
Phase resolution	80 %	A >> P	263 mm
Phase partial Fourier	4/8	F >> H	350 mm
Interpolation	Off	ı	500 11111
		Physio	
PAT mode	GRAPPA	1st Signal/Mode	None
Accel. factor PE	2	Dark blood	Off
Ref. lines PE	24	Dark blood	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	Off
Reference scan mode	Integrated	'	
Image Filter	Off	Inline	0"
Image Filter Distortion Corr.		Subtract	Off
טואוטווטוו לטוו.	Off		
Droggen Narmali	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	Off On	Std-Dev-Cor Std-Dev-Tra	Off Off
	Off	Std-Dev-Cor	Off

١	MIP-Cor	Off
ı	MIP-Tra	Off
ı	MIP-Time	Off
	Save original images	On
	Sequence	
ı	Introduction	On
ı	Dimension	2D
ı	Contrasts	1
ı	Bandwidth	601 Hz/Px
ı	Flow comp.	No
ı	Allowed delay	30 s
	Echo spacing	5.8 ms
	Turbo factor	256
	RF pulse type	Fast
	Gradient mode	Fast

\\USER\AMRIT\Liyong\20150303\t2_haste_tra_p1

		Width	4
roperties		Unfiltered images	Off
Prio Recon	Off	B1 filter	Off
Before measurement		Raw filter	Off
After measurement		Elliptical filter	On
Load to viewer	On	Mode	Inplane
Inline movie	Off	I	1
Auto store images	On	Geometry	
Load to stamp segments	Off	Multi-slice mode	Single shot
Load images to graphic	Off	Series	Interleaved
segments		Special sat.	None
Auto open inline display	Off		
Start measurement without	On	Tim CT mode	Off
further preparation		Till OT Hode	Oii
Wait for user to start	Off	System	
Start measurements	single	Body	Off
outine		HEP	Off
		— │ HEA	Off
Slice group 1 Slices	45	SP4	On
Dist. factor	45 10 %	SP2	On
		SP8	Off
Position	L0.6 A13.7 F111.3	SP6	Off
Orientation	Transversal	SP3	On
Phase enc. dir.	A >> P	SP1	Off
Rotation	0.00 deg	SP7	Off
Phase oversampling	0 %	SP5	On
FoV read	250 mm		
FoV phase	100.0 %	Positioning mode	FIX
Slice thickness	2.0 mm	Table position	Н
TR	500 ms	Table position	0 mm
TE	75 ms	MSMA	S - C - T
Averages	1	Sagittal	R >> L
Concatenations	1	Coronal	A >> P
Filter	Normalize, Elliptical filter	Transversal	F >> H
Coil elements	SP2-5	Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
ontrast		— AutoAlign	
MTC	Off	Auto Coil Select	Default
Magn. preparation	None		Delauit
Flip angle	150 deg	Shim mode	Tune up
Fat suppr.	None	Adjust with body coil	Off .
Water suppr.	None	Confirm freq. adjustment	Off
Restore magn.	Off	Assume Silicone	Off
Averaging mode	Long term	? Ref. amplitude 1H	0.000 V
Averaging mode	Long term	Adjustment Tolerance	Auto
Reconstruction	Magnitude	Adjust volume	
Measurements	I Fack massesses :	Position	Isocenter
Multiple series	Each measurement	Orientation	Transversal
esolution		Rotation	0.00 deg
Base resolution	320	R >> L	350 mm
Phase resolution	80 %	A >> P	263 mm
Phase partial Fourier	4/8		
	4/8 Off	F >> H	350 mm
Interpolation	OII	Physio	
PAT mode	GRAPPA	1st Signal/Mode	None
Accel. factor PE	2		
Ref. lines PE	24	Dark blood	Off
Matrix Coil Mode	Auto (Triple)	Resp. control	Off
Reference scan mode	Integrated	'	Oil
		Inline	
Image Filter	Off	Subtract	Off
Distortion Corr.	Off	Std-Dev-Sag	Off
Prescan Normalize	Off	Std-Dev-Cor	Off
Normalize	On	Std-Dev-Tra	Off
	Medium		
Intensity	MEGIUIII	Std-Dev-Time	Off

MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Sequence	
Introduction	On
Dimension	2D
Contrasts	1
Bandwidth	601 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	5.8 ms
Turbo factor	256
RF pulse type	Fast
Gradient mode	Fast

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_slowbreath_TP_SAT			
TA: 41:26 PAT: 2	Voxel size: 1.5×1.5×5.0 mm	Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Droportion		0-1	
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		1 -	
Auto open inline display	Off	System	
Start measurement without	On	Body	Off
further preparation	011	HEP	Off
Wait for user to start	Off	HEA	Off
		SP4	Off
Start measurements	single	SP2	On
Routine		SP8	Off
Slice group 1		- SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
		SP7	_
Position	R23.6 P13.5 F21.1		Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	REF
Rotation	90.00 deg	Table position	H
Phase oversampling	0 %	Table position	0 mm
FoV read	192 mm	MSMA	S - C - T
FoV phase	100.0 %		
Slice thickness	5.0 mm	Sagittal	R >> L
TR	5920 ms	Coronal	A >> P
TE	40.0 ms	Transversal	F >> H
Averages	1	Coil Combine Mode	Sum of Squares
Concatenations	1	AutoAlign	
Filter	None	Auto Coil Select	Default
Coil elements	SP2,3	Shim mode	Standard
Contrast		Adjust with body coil	Off
MTC	Off	 Confirm freq. adjustment 	Off
Flip angle	25 deg	Assume Silicone	Off
Fat suppr.	Fat sat.	? Ref. amplitude 1H	0.000 V
1 at Suppr.		Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
	Jii	R >> L	192 mm
Resolution		_	85 mm
Base resolution	128	-	OJ IIIIII
Phase resolution	100 %	Physio	
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off		
		Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
1			
Geometry		_ EPI factor	128
Multi clico modo	Intorlogued	DE pulco typo	Normal

RF pulse type

Gradient mode

Normal

Fast

Multi-slice mode

Series

Interleaved

Ascending

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	
DummyScan Number FOV Shift Number Shift K0 Center Every Other Slice SER Number Venc Repetition Spoil factor Skew Direction DualBand Sat FOV Dir Venc Type(0off,1+-,20+,3on,4	5 3 1 1 1 400 5 1 0

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_slowbreath_TP_SAT			
TA: 41:26 PAT: 2	Voxel size: 1.5×1.5×5.0 m	m Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	O#		F0 mm
	Off	Thickness	50 mm
Before measurement		Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	Off
further preparation			
Wait for user to start	Off	HEA	Off
Start measurements	single	SP4	Off
Otal tilleasurements	Sirigio	SP2	On
Routine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	3 700 %	SP1	Off
			_
Position	R23.6 P13.5 F21.1	SP7	Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L		
Rotation	90.00 deg	Positioning mode	REF
Phase oversampling	0 %	Table position	Н
FoV read	192 mm	Table position	0 mm
		MSMA	S - C - T
FoV phase	100.0 %	Sagittal	R >> L
Slice thickness	5.0 mm	Coronal	A >> P
TR	5920 ms		
TE	40.0 ms	Transversal	F >> H
Averages	1	Coil Combine Mode	Sum of Squares
Concatenations	1	AutoAlign	
	•	Auto Coil Select	Default
Filter	None		
Coil elements	SP2,3	Shim mode	Standard
Contrast		Adjust with body coil	Off
	0#	Confirm freq. adjustment	Off
MTC	Off	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	Adjustment Tolerance	Auto
			Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
•		R >> L	192 mm
Resolution		F>> H	85 mm
Base resolution	128	— г»п	00 111111
Phase resolution	100 %	Physio	
Phase partial Fourier	6/8	1st Signal/Mode	None
	Off	13t Olgridi/Mode	None
Interpolation	Oli	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
			-
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
Diotortics Carr	O#	Soguence	
Distortion Corr.	Off	Sequence	~"
Prescan Normalize	Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
			
Geometry		EPI factor	128
Multi-slice mode	Interleaved	RF pulse type	Normal
Series	Ascendina	Gradient mode	Fast

Gradient mode

Fast

Ascending

Series

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	
DummyScan Number FOV Shift Number Shift K0 Center Every Other Slice SER Number Venc Repetition Spoil factor Skew Direction DualBand Sat FOV Dir Venc Type(0off,1+-,20+,3on,4	5 3 1 1 1 400 5 1 0

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_breathhold_TP_SAT TA: 41:26 PAT: 2 Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_ms_sbmb_SAT Properties Sat. region 1 Prio Recon Off **Thickness** 50 mm R23.6 A65.2 F21.1 Before measurement Position After measurement Orientation Coronal On Load to viewer Sat. region 2 Inline movie Off **Thickness** 50 mm R23.6 P90.5 F21.1 Auto store images On Position Load to stamp segments Off Orientation Coronal Load images to graphic Off Special sat. None segments System Off Auto open inline display Body Off Start measurement without On HEP Off further preparation HEA Off Wait for user to start Off SP4 On Start measurements single SP2 On Routine SP8 Off SP6 Slice group 1 Off Slices 3 SP3 On Dist. factor 700 % SP1 Off Position R23.6 P13.5 F21.1 SP7 Off Orientation Transversal SP5 On Phase enc. dir. R >> L Positioning mode **REF** 90.00 deg Rotation Table position Н Phase oversampling 0 % Table position 0 mm FoV read 192 mm **MSMA** S - C - T FoV phase 100.0 % Sagittal R >> L Slice thickness 5.0 mm Coronal A >> P TR 5920 ms Transversal F >> H ΤE 40.0 ms Coil Combine Mode Sum of Squares **Averages** AutoAlign Concatenations Auto Coil Select Default Filter None Coil elements SP2-5 Shim mode Standard Adjust with body coil Off Contrast Confirm freq. adjustment Off MTC Off Assume Silicone Off Flip angle 25 deg ? Ref. amplitude 1H 0.000 V Fat suppr. Fat sat. Adjustment Tolerance Auto Averaging mode Adjust volume Long term Reconstruction Magnitude Position R23.6 P13.5 F21.1 Measurements 420 Orientation Transversal Delay in TR 0 ms Rotation 90.00 deg Multiple series Off A >> P 192 mm R >> L 192 mm Resolution F >> H 85 mm Base resolution 128 Physio Phase resolution 100 % 6/8 1st Signal/Mode None Phase partial Fourier Interpolation Off Angio PAT mode Flow mode **GRAPPA** Single dir. Accel. factor PE **Encodings** Ref. lines PE 24 Velocity enc. 5 cm/s Matrix Coil Mode Auto (Triple) Direction Through plane Reference scan mode Separate Magnitude sum Off Off Sequence Distortion Corr. Prescan Normalize Off Introduction Off Raw filter Off Bandwidth 1302 Hz/Px Elliptical filter Off Free echo spacing Off Hamming Off Echo spacing 1.04 ms Geometry EPI factor 128

Multi-slice mode

Series

Interleaved

Ascending

RF pulse type

Gradient mode

Normal

Fast

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_breathhold_TP_SAT TA: 41:26 PAT: 2 Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_ms_sbmb_SAT Properties Sat. region 1 Prio Recon Off **Thickness** 50 mm R23.6 A65.2 F21.1 Before measurement Position After measurement Orientation Coronal On Load to viewer Sat. region 2 Inline movie Off **Thickness** 50 mm R23.6 P90.5 F21.1 Auto store images On Position Load to stamp segments Off Orientation Coronal Load images to graphic Off Special sat. None segments System Auto open inline display Off Body Off Start measurement without On HEP Off further preparation HEA Off Wait for user to start Off SP4 On Start measurements single SP2 On Routine SP8 Off SP6 Slice group 1 Off Slices 3 SP3 On Dist. factor 700 % SP1 Off Position R23.6 P13.5 F21.1 SP7 Off Orientation Transversal SP5 On Phase enc. dir. R >> L Positioning mode **REF** 90.00 deg Rotation Table position Н Phase oversampling 0 % Table position 0 mm FoV read 192 mm **MSMA** S - C - T FoV phase 100.0 % Sagittal R >> L Slice thickness 5.0 mm Coronal A >> P TR 5920 ms Transversal F >> H ΤE 40.0 ms Coil Combine Mode Sum of Squares **Averages** AutoAlign Concatenations Auto Coil Select Default Filter None Coil elements SP2-5 Shim mode Standard Adjust with body coil Off Contrast Confirm freq. adjustment Off MTC Off Assume Silicone Off Flip angle 25 deg ? Ref. amplitude 1H 0.000 V Fat suppr. Fat sat. Adjustment Tolerance Auto Averaging mode Adjust volume Long term Reconstruction Magnitude Position R23.6 P13.5 F21.1 Measurements 420 Orientation Transversal Delay in TR 0 ms Rotation 90.00 deg Multiple series Off A >> P 192 mm R >> L 192 mm Resolution F >> H 85 mm Base resolution 128 Physio 100 % Phase resolution 6/8 1st Signal/Mode None Phase partial Fourier Interpolation Off Angio PAT mode Flow mode **GRAPPA** Single dir. Accel. factor PE **Encodings** Ref. lines PE 24 Velocity enc. 5 cm/s Matrix Coil Mode Auto (Triple) Direction Through plane Reference scan mode Separate Magnitude sum Off Distortion Corr. Off Sequence Prescan Normalize Off Introduction Off Raw filter Off Bandwidth 1302 Hz/Px Elliptical filter Off Free echo spacing Off Hamming Off Echo spacing 1.04 ms Geometry EPI factor 128

Multi-slice mode

Series

Interleaved

Ascending

RF pulse type

Gradient mode

Normal

Fast

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_fastbreath_TP_SAT			
TA: 41:26 PAT: 2 Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_ms_sbmb_SAT			
Properties		Sat ragion 1	
	0"	Sat. region 1	FO
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	R23.6 A65.2 F21.1
After measurement	_	Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments	3. 1	Openial call	110110
Auto open inline display	Off	System	
		Body	Off
Start measurement without	On	HEP	Off
further preparation		HEA	Off
Wait for user to start	Off	SP4	Off
Start measurements	single	SP2	On
Douting			
Routine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
Position	R23.6 P13.5 F21.1	SP7	Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L		
Rotation	90.00 deg	Positioning mode	REF
Phase oversampling	0 %	Table position	Н
		Table position	0 mm
FoV read	192 mm	MSMA	S - C - T
FoV phase	100.0 %	Sagittal	R >> L
Slice thickness	5.0 mm	Coronal	A >> P
TR	5920 ms		
TE	40.0 ms	Transversal	F >> H
Averages	1	Coil Combine Mode	Sum of Squares
Concatenations	1	AutoAlign	
Filter	None	Auto Coil Select	Default
Coil elements	SP2,3	Object of the second of the se	04
Con elements	3F2,3	Shim mode	Standard
Contrast		Adjust with body coil	Off
MTC	Off	Confirm freq. adjustment	Off
Flip angle	25 deg	Assume Silicone	Off
	_	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
	0 ms	Rotation	
Delay in TR			90.00 deg
Multiple series	Off	A >> P	192 mm
Resolution		R >> L	192 mm
Base resolution	128	F >> H	85 mm
Phase resolution	100 %	Physio	
			None
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2		1
		Encodings	-
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
Distortion Corr	Off	Sequence	
Distortion Corr.	Off	•	0#
Prescan Normalize	Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
Geometry		EPI factor	128
Multi-slice mode	Interleaved	RF pulse type	Normal
Series	Ascending	Gradient mode	Fast

Gradient mode

Fast

Ascending

Series

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_fastbreath_TP_SAT

TA: 41:26 PAT: 2	Voxel size: 1.5×1.5×5.0 mm	n Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement	On	Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On		Colonal
		Sat. region 2	FO
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off		Off
Start measurement without	On	Body	
further preparation		HEP	Off
Wait for user to start	Off	HEA	Off
Start measurements	single	SP4	Off
Clart measurements	Sirigio	SP2	On
Routine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
Position	R23.6 P13.5 F21.1	SP7	Off
Orientation	Transversal	SP5	Off
		575	OII
Phase enc. dir.	R >> L	Positioning mode	REF
Rotation	90.00 deg	Table position	H
Phase oversampling	0 %	Table position	0 mm
FoV read	192 mm	MSMA	S - C - T
FoV phase	100.0 %		
Slice thickness	5.0 mm	Sagittal	R >> L
TR	5920 ms	Coronal	A >> P
TE	40.0 ms	Transversal	F >> H
Averages	1	Coil Combine Mode	Sum of Squares
Concatenations	1	AutoAlign	
	•	Auto Coil Select	Default
Filter	None		
Coil elements	SP2,3	Shim mode	Standard
Contrast		Adjust with body coil	Off
MTC	Off	Confirm freq. adjustment	Off
Flip angle	25 deg	Assume Silicone	Off
	_	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	A 12 4 T 1	Auto
Averaging mode	Long term	Adjust volume	. 1010
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
Resolution		R >> L	192 mm
Base resolution	128	F >> H	85 mm
Phase resolution	100 %	Physio	
			Name
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2		3ingle dir. 1
		Encodings	·
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
Distortion Corr	Off	Sequence	
Distortion Corr.	Off Off		Off
Prescan Normalize	Off Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
Goomotry		CDI footor	400
Geometry		EPI factor	128
Multi olioala			
Multi-slice mode Series	Interleaved Ascending	RF pulse type Gradient mode	Normal Fast

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	
DummyScan Number FOV Shift Number Shift K0 Center Every Other Slice SER Number Venc Repetition Spoil factor Skew Direction DualBand Sat FOV Dir Venc Type(0off,1+-,20+,3on,4	5 3 1 1 1 400 5 1 0

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_fastbreath_pushad_TP_SAT

		m Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement	011	Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On		Colonal
		Sat. region 2	FO
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off		0"
Start measurement without	On	Body	Off
further preparation		HEP	Off
Wait for user to start	Off	HEA	Off
Start measurements	single	SP4	Off
Start measurements	Sirigie	SP2	On
outine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
Position		SP7	
	R23.6 P13.5 F21.1		Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	REF
Rotation	90.00 deg		
Phase oversampling	0 %	Table position	Η
FoV read	192 mm	Table position	0 mm
FoV phase	100.0 %	MSMA	S - C - T
Slice thickness	5.0 mm	Sagittal	R >> L
TR	5920 ms	Coronal	A >> P
TE		Transversal	F >> H
	40.0 ms	Coil Combine Mode	Sum of Squares
Averages	1	AutoAlign	
Concatenations	1	Auto Coil Select	Default
Filter	None	Auto Con Gelect	
Coil elements	SP2,3	Shim mode	Standard
Southoot		Adjust with body coil	Off
Contrast		Confirm freq. adjustment	Off
MTC	Off	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.		
			Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
·		R >> L	192 mm
Resolution		F >> H	85 mm
Base resolution	128	1	
Phase resolution	100 %	Physio	
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	,	
		••••	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
		·····	OII
Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off		Off
		Free echo spacing	
Hamming	Off	Echo spacing	1.04 ms
Geometry		EPI factor	128
			Normal
Multi-clice mode	Interiosyce		
Multi-slice mode Series	Interleaved Ascending	RF pulse type Gradient mode	Fast

On
5120
3
5
3
1
1
1
400
5
1
0
0
1

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_fastbreath_pushad_TP_SAT

		m Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement	011	Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On		Colonal
		Sat. region 2	FO
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off		0"
Start measurement without	On	Body	Off
further preparation		HEP	Off
Wait for user to start	Off	HEA	Off
Start measurements	single	SP4	Off
Start measurements	Sirigie	SP2	On
outine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
Position		SP7	
	R23.6 P13.5 F21.1		Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	REF
Rotation	90.00 deg	Table position	H
Phase oversampling	0 %		
FoV read	192 mm	Table position	0 mm
FoV phase	100.0 %	MSMA	S - C - T
Slice thickness	5.0 mm	Sagittal	R >> L
TR	5920 ms	Coronal	A >> P
TE		Transversal	F >> H
	40.0 ms	Coil Combine Mode	Sum of Squares
Averages	1	AutoAlign	
Concatenations	1	Auto Coil Select	Default
Filter	None	Auto Con Gelect	
Coil elements	SP2,3	Shim mode	Standard
Southeast		Adjust with body coil	Off
Contrast		Confirm freq. adjustment	Off
MTC	Off	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.		
			Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
·		R >> L	192 mm
Resolution		F >> H	85 mm
Base resolution	128	1	
Phase resolution	100 %	Physio	
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	,	
		••••	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
·····			
Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
		EDI 44	120
Geometry		I FPLIACION	120
	Interleaved	EPI factor	128 Normal
Geometry Multi-slice mode Series	Interleaved Ascending	RF pulse type Gradient mode	Normal Fast

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	
DummyScan Number FOV Shift Number Shift K0 Center Every Other Slice SER Number Venc Repetition Spoil factor Skew Direction DualBand Sat FOV Dir Venc Type(0off,1+-,20+,3on,4	5 3 1 1 1 400 5 1 0

\\USER\AMRIT\Liyong\20150303\ep_seg_fid33_venc

TA: 6.9 s	Voxel size: 1.6×1.6×5.0 mm	Rel. SNR: 1.00 USER: e	p_seg_fid_venc
Dranation		Hamming	Off
Properties	0"	,	
Prio Recon	Off	Geometry	On many tind
Before measurement		Multi-slice mode	Sequential
After measurement	On	Series	Ascending
Load to viewer	On Off	Special sat.	None
Inline movie	_		
Auto store images	On Off	System	
Load to stamp segments Load images to graphic	Off	Body	Off
segments	Oli	HEP	On
Auto open inline display	Off	HEA	On
Start measurement without	On	Desitioning and	
further preparation	Oli	Positioning mode	REF
Wait for user to start	Off	Table position	Н
Start measurements	single	Table position	0 mm
Start measurements	Sirigie	MSMA	S-C-T
Routine		Sagittal	R >> L
Slice group 1		Coronal	A >> P
Slices	1	Transversal	F >> H
Dist. factor	50 %	Save uncombined	Off
Position	L0.0 A9.1 H21.8	Coil Combine Mode	Sum of Squares
Orientation	Transversal	AutoAlign	D-f!!
Phase enc. dir.	A >> P	Auto Coil Select	Default
Rotation	0.00 deg	Shim mode	Standard
Phase oversampling	0 %	Adjust with body coil	Off
FoV read	200 mm	Confirm freq. adjustment	Off
FoV phase	100.0 %	Assume Silicone	Off
Slice thickness	5.0 mm	? Ref. amplitude 1H	0.000 V
TR	138 ms	Adjustment Tolerance	Auto
TE	16 ms	Adjust volume	. 1010
Averages	1	Position	L0.0 A9.1 H21.8
Concatenations	1	Orientation	Transversal
Filter	None	Rotation	0.00 deg
Coil elements	HEA;HEP	R >> L	200 mm
Contract		A >> P	200 mm
Contrast	0"	F >> H	5 mm
MTC	Off	ı	5
Flip angle	15 deg	Physio	
Fat suppr.	None	1st Signal/Mode	None
Averaging mode	Long term	Segments	4
Reconstruction	Magnitude	Resp. control	Off
Measurements	10	resp. control	Oli
Pause after meas. 1	0.0 s	Sequence	
Pause after meas. 2	0.0 s	Introduction	Off
Pause after meas. 3	0.0 s	Dimension	2D
Pause after meas. 4	0.0 s	Bandwidth	1502 Hz/Px
Pause after meas. 5	0.0 s	Free echo spacing	Off
Pause after meas. 6	0.0 s	Echo spacing	0.79 ms
Pause after meas. 7	0.0 s	EPI factor	33
Pause after meas. 8	0.0 s	RF pulse type	Normal
Pause after meas. 9	0.0 s	Gradient mode	Fast
Multiple series	Each measurement	RF spoiling	On
•			••••••••••••••••••••••••••••••••••••••
Resolution	400	Flow Compensation	Off
Base resolution	128	Centric Reorder	On
Phase resolution	100 %	Pat Ref Scan	On
Phase partial Fourier	Off	VENC value	100
Interpolation	Off	Undersampled	Off
Matrix Coil Mode		•	
	Auto (CP)		
Distortion Corr.	Auto (CP) Off		
Distortion Corr.	Off		

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TA: 41:26 PAT: 2 Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_ms_sbmb_SAT Properties Sat. region 1 Prio Recon Off **Thickness** 50 mm R23.6 A65.2 F21.1 Before measurement Position After measurement Orientation Coronal On Load to viewer Sat. region 2 Inline movie Off **Thickness** 50 mm R23.6 P90.5 F21.1 Auto store images On Position Load to stamp segments Off Orientation Coronal Load images to graphic Off Special sat. None segments System Off Auto open inline display Body Off Start measurement without On HEP Off further preparation HEA Off Wait for user to start Off SP4 Off Start measurements single SP2 On Routine SP8 Off SP6 Slice group 1 Off Slices 3 SP3 On Dist. factor 700 % SP1 Off Position R23.6 P13.5 F21.1 SP7 Off Orientation Transversal SP5 Off Phase enc. dir. R >> L Positioning mode **REF** Rotation 90.00 deg Table position Н Phase oversampling 0 % Table position 0 mm FoV read 192 mm **MSMA** S - C - T FoV phase 100.0 % Sagittal R >> L Slice thickness 5.0 mm Coronal A >> P TR 5920 ms Transversal F >> H ΤE 40.0 ms Coil Combine Mode Sum of Squares **Averages** AutoAlign Concatenations Auto Coil Select Default Filter None Coil elements SP2,3 Shim mode Standard Adjust with body coil Off Contrast Confirm freq. adjustment Off MTC Off Assume Silicone Off Flip angle 25 deg ? Ref. amplitude 1H 0.000 V Fat suppr. Fat sat. Adjustment Tolerance Auto Averaging mode Adjust volume Long term Reconstruction Magnitude Position R23.6 P13.5 F21.1 Measurements 420 Orientation Transversal Delay in TR 0 ms Rotation 90.00 deg Multiple series Off A >> P 192 mm R >> L 192 mm Resolution F >> H 85 mm Base resolution 128 Physio Phase resolution 100 % 6/8 1st Signal/Mode None Phase partial Fourier Interpolation Off Angio PAT mode Flow mode **GRAPPA** Single dir. Accel. factor PE **Encodings** Ref. lines PE 24 Velocity enc. 5 cm/s Matrix Coil Mode Auto (Triple) Direction Through plane Reference scan mode Separate Magnitude sum Off Off Sequence Distortion Corr. Prescan Normalize Off Introduction Off Raw filter Off Bandwidth 1302 Hz/Px Elliptical filter Off Free echo spacing Off Hamming Off Echo spacing 1.04 ms Geometry EPI factor 128 RF pulse type Multi-slice mode Interleaved Normal

Ascending

Series

Gradient mode

Fast

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	
DummyScan Number FOV Shift Number Shift K0 Center Every Other Slice SER Number Venc Repetition Spoil factor Skew Direction DualBand Sat FOV Dir Venc Type(0off,1+-,20+,3on,4	5 3 1 1 1 400 5 1 0

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_fastbreath_pushad_1more_TP_SAT

TA: 41:26 PAT: 2	Voxel size: 1.5×1.5×5.0 mm	<u> </u>	2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement	Oli	Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	Colonal
		•	F0 mm
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments		System	
Auto open inline display	Off		Off
Start measurement without	On	Body	_
further preparation		HEP	Off
Wait for user to start	Off	HEA	Off
Start measurements	single	SP4	Off
	g	SP2	On
outine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
Position	R23.6 P13.5 F21.1	SP7	Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L		
Rotation	90.00 deg	Positioning mode	REF
	0 %	Table position	Н
Phase oversampling		Table position	0 mm
FoV read	192 mm	MSMA	S - C - T
FoV phase	100.0 %	Sagittal	R >> L
Slice thickness	5.0 mm	Coronal	A >> P
TR	5920 ms	Transversal	F >> H
TE	40.0 ms	Coil Combine Mode	
Averages	1		Sum of Squares
Concatenations	1	AutoAlign	
Filter	None	Auto Coil Select	Default
Coil elements	SP2,3	Shim mode	Standard
Con diamenta	3. 2,3	Adjust with body coil	Off
Contrast		Confirm freq. adjustment	Off
MTC	Off		Off
Flip angle	25 deg	Assume Silicone	
Fat suppr.	Fat sat.	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
·		R >> L	192 mm
esolution		_	85 mm
Base resolution	128	1	00
Phase resolution	100 %	Physio	
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	A .	
·		Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
		'	
Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
· ·			
Geometry		EPI factor	128
Multi-slice mode	Interleaved	RF pulse type	Normal
	Ascending	Gradient mode	Fast

Gradient mode

Fast

Ascending

Series

RF spoiling	On
RF90 duration	5120
MB Number	3
DummyScan Number	5
FOV Shift Number	3
Shift K0 Center	1
Every Other Slice	1
SER Number	1
Venc Repetition	400
Spoil factor	5
Skew Direction	1
DualBand Sat	0
FOV Dir	0
Venc Type(0off,1+-,20+,3on,4	1
00++)	
DummyScan Number FOV Shift Number Shift K0 Center Every Other Slice SER Number Venc Repetition Spoil factor Skew Direction DualBand Sat FOV Dir Venc Type(0off,1+-,20+,3on,4	5 3 1 1 1 400 5 1 0

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USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	Coronai
	Off	_	F0 mm
Inline movie		Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments			
Auto open inline display	Off	System	
Start measurement without	On	Body	Off
	On	HEP	Off
further preparation	•	HEA	Off
Wait for user to start	Off	SP4	Off
Start measurements	single	SP2	
andin -			On
outine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
Position	R23.6 P13.5 F21.1	SP7	Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	REF
Rotation	90.00 deg		
Phase oversampling	0 %	Table position	H
FoV read	192 mm	Table position	0 mm
FoV phase	100.0 %	MSMA	S - C - T
		Sagittal	R >> L
Slice thickness	5.0 mm	Coronal	A >> P
TR	5920 ms	Transversal	F >> H
TE	40.0 ms		
Averages	1	Coil Combine Mode	Sum of Squares
Concatenations	1	AutoAlign	
Filter	None	Auto Coil Select	Default
Coil elements		OL: 1	····
Con elements	SP2,3	Shim mode	Standard
Contrast		Adjust with body coil	Off
MTC	Off	Confirm freq. adjustment	Off
		Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	Adjustment Tolerance	Auto
Λ	1 t	1 1	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
maniple conce	3	R >> L	192 mm
tesolution			
Base resolution	128	F >> H	85 mm
Phase resolution	100 %	Physio	
Phase partial Fourier		1st Signal/Mode	None
•	6/8	15t Signal/Mode	None
Interpolation	Off	Angio	
DAT made	CDADDA	Flow mode	Cinalo dir
PAT mode	GRAPPA		Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off .
			-
Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	Off
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
2 cometry		EDI fostor	120
Geometry		EPI factor	128
Multi-slice mode	Interleaved	RF pulse type	Normal
Series	Ascending	Gradient mode	Fast

RF90 duration 5120	
MB Number 3	
DummyScan Number 5	
FOV Shift Number 3	
Shift K0 Center 1	
Every Other Slice 1	
SER Number 1	
Venc Repetition 400	
Spoil factor 5	
Skew Direction 1	
DualBand Sat 0	
FOV Dir 0	
Venc Type(0off,1+-,20+,3on,4 0	
00++)	

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USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	R23.6 A65.2 F21.1
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	Coronar
	Off	_	50 mm
Inline movie		Thickness	50 mm
Auto store images	On	Position	R23.6 P90.5 F21.1
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments			
Auto open inline display	Off	System	
Start measurement without	On	Body	Off
	On	HEP	Off
further preparation		HEA	Off
Wait for user to start	Off	SP4	Off
Start measurements	single		
		SP2	On
outine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	Off
Position	R23.6 P13.5 F21.1	SP7	Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	REF
Rotation	90.00 deg		
Phase oversampling	0 %	Table position	H
FoV read	192 mm	Table position	0 mm
FoV phase	100.0 %	MSMA	S - C - T
		Sagittal	R >> L
Slice thickness	5.0 mm	Coronal	A >> P
TR	5920 ms	Transversal	F >> H
TE	40.0 ms		
Averages	1	Coil Combine Mode	Sum of Squares
Concatenations	1	AutoAlign	
Filter	None	Auto Coil Select	Default
Coil elements	SP2,3	Shim mode	Standard
Contrast		Adjust with body coil	Off
	Off	Confirm freq. adjustment	Off
MTC		Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.		
		Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	
Reconstruction	Magnitude	Position	R23.6 P13.5 F21.1
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
Multiple Selles	Oil		
Resolution		R >> L	192 mm
Base resolution	128	F >> H	85 mm
		Physic	
Phase resolution	100 %	Physio	N
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	Angio	
	OD 4 DD 4	Angio	0: 1:
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode		Magnitude sum	Off
reference scall illoue	Separate		Oil
Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	Off
			_
Raw filter	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
_			
Beometry		EPI factor	128
Multi-slice mode	Interleaved	RF pulse type	Normal
	Ascending	Gradient mode	

On
5120
3
5
3
1
1
1
400
5
1
0
0
0

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TA: 41:26 PAT: 2	Voxel size: 1.5×1.5×5.0 mm	Rel. SNR: 1.00 USER: ep	o2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement	Oli	Position	R23.6 A64.0 H91.5
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	Colonal
Inline movie	Off	Thickness	50 mm
	On	Position	R23.6 P91.7 H91.5
Auto store images		Orientation	Coronal
Load to stamp segments	Off Off		None
Load images to graphic	Oil	Special sat.	None
segments	0#	System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation	0"	HEA	Off
Wait for user to start	Off	SP4	On
Start measurements	single	SP2	On
Routine		SP8	Off
Slice group 1		_ SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	On
Position	R23.6 P14.7 H91.5	SP7	Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L	Positioning mode	REF
Rotation	90.00 deg	Table position	Н
Phase oversampling	0 %	Table position	0 mm
FoV read	192 mm	MSMA	S - C - T
FoV phase	100.0 %	Sagittal	R >> L
Slice thickness	5.0 mm	Coronal	A >> P
TR	5920 ms	Transversal	F >> H
TE	40.0 ms	Coil Combine Mode	Sum of Squares
Averages	1	AutoAlign	Sum of Squares
Concatenations	1	Auto Coil Select	Default
Filter	None	Auto Coil Select	Delault
Coil elements	HEP;SP1-4	Shim mode	Standard
Contrast		Adjust with body coil	Off
	0"	 Confirm freq. adjustment 	Off
MTC	Off	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	Adjustment Tolerance	Auto
Averaging mode	Long term	Adjust volume	7.0.10
Reconstruction	Magnitude	Position	R23.6 P14.7 H91.5
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
Multiple Selles	Oli	R >> L	192 mm
Resolution		_ F>> H	85 mm
Base resolution	128	— г>>п	03 11111
Phase resolution	100 %	Physio	
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	1	
		Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
Accel. factor PE	2	Encodings	1
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
Distortion Corr.	Off	Sequence	
Prescan Normalize	Off	Introduction	Off
Raw filter			
	Off	Bandwidth	1302 Hz/Px
Elliptical filter	Off	Free echo spacing	Off
Hamming	Off	Echo spacing	1.04 ms
Geometry		EPI factor	128
Multi-slice mode	Interleaved	RF pulse type	Normal
Series	Ascending	Gradient mode	Fact

Gradient mode

Fast

Ascending

Series

On
5120
3
5
3
1
1
1
400
5
1
0
0
0

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USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

TA: 41:26

		·	
		1	
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	R23.6 A64.0 H91.5
After measurement		Orientation	Coronal
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	R23.6 P91.7 H91.5
<u> </u>	Off	Orientation	Coronal
Load to stamp segments			
Load images to graphic	Off	Special sat.	None
segments	0"	System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation		HEA	Off
Wait for user to start	Off	SP4	On
Start measurements	single		_
Douting		SP2	On O"
Routine		SP8	Off
Slice group 1		SP6	Off
Slices	3	SP3	On
Dist. factor	700 %	SP1	On
Position	R23.6 P14.7 H91.5	SP7	Off
Orientation	Transversal	SP5	Off
Phase enc. dir.	R >> L		
Rotation	90.00 deg	Positioning mode	REF
Phase oversampling	0 %	Table position	Н
FoV read	192 mm	Table position	0 mm
FoV phase	100.0 %	MSMA	S - C - T
•		Sagittal	R >> L
Slice thickness	5.0 mm	Coronal	A >> P
TR	5920 ms	Transversal	F >> H
TE	40.0 ms	Coil Combine Mode	Sum of Squares
Averages	1	AutoAlign	
Concatenations	1	Auto Coil Select	Default
Filter	None	Auto Con Select	
Coil elements	HEP;SP1-4	Shim mode	Standard
Contract		Adjust with body coil	Off
Contrast	0"	Confirm freq. adjustment	Off
MTC	Off	Assume Silicone	Off
Flip angle	25 deg	? Ref. amplitude 1H	0.000 V
Fat suppr.	Fat sat.	Adjustment Tolerance	Auto
Averaging mode	Long torm	•	Auto
Averaging mode	Long term	Adjust volume Position	R23.6 P14.7 H91.5
Reconstruction	Magnitude		
Measurements	420	Orientation	Transversal
Delay in TR	0 ms	Rotation	90.00 deg
Multiple series	Off	A >> P	192 mm
Resolution		R >> L	192 mm
Base resolution	128	F >> H	85 mm
		Dhyoio	
Phase resolution	100 %	Physio	Mana
Phase partial Fourier	6/8	1st Signal/Mode	None
Interpolation	Off	Angio	
PAT mode	GRAPPA	Flow mode	Single dir.
			Single uii.
Accel. factor PE	2	Encodings	1 F. om/o
Ref. lines PE	24	Velocity enc.	5 cm/s
Matrix Coil Mode	Auto (Triple)	Direction	Through plane
Reference scan mode	Separate	Magnitude sum	Off
Distortion Corr.	Off	Sequence	
Prescan Normalize		Introduction	Off
r restau Normanze	() TT	HILLOUUCUOH	OII
	Off		1202 H-/Dv
Raw filter	Off	Bandwidth	1302 Hz/Px
Raw filter Elliptical filter	Off Off	Bandwidth Free echo spacing	Off
Raw filter	Off	Bandwidth	
Raw filter Elliptical filter Hamming	Off Off	Bandwidth Free echo spacing Echo spacing	Off 1.04 ms
Raw filter Elliptical filter Hamming Geometry	Off Off Off	Bandwidth Free echo spacing Echo spacing EPI factor	Off 1.04 ms 128
Raw filter Elliptical filter Hamming	Off Off	Bandwidth Free echo spacing Echo spacing	Off 1.04 ms

RF90 duration 5120	
MB Number 3	
DummyScan Number 5	
FOV Shift Number 3	
Shift K0 Center 1	
Every Other Slice 1	
SER Number 1	
Venc Repetition 400	
Spoil factor 5	
Skew Direction 1	
DualBand Sat 0	
FOV Dir 0	
Venc Type(0off,1+-,20+,3on,4 0	
00++)	

\\IICED\AMDIT\I	ivong\20150303\ep2d_v	one mh2 flachrof nky
\\USEK\AIVIKII\I	-1VONO\ZUTSU3U3\&DZO_V	enc mos hashrel okx

TA: 5:35 PAT: 4 Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_sbmb_SAT_flashref_pkx

Properties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off		
Auto store images	On	Positioning mode	FIX
Load to stamp segments	Off	Table position	Н
Load images to graphic	Off	Table position	0 mm
segments	0"	MSMA	S - C - T
Auto open inline display	Off	Sagittal	R >> L
Start measurement without	On	Coronal	A >> P
further preparation	0"	Transversal	F >> H
Wait for user to start	Off	Coil Combine Mode	Sum of Squares
Start measurements	single	AutoAlign	
Routine		Auto Coil Select	Default
Slice group 1		Shim mode	Standard
Slices	3	Adjust with body coil	Off
Dist. factor	700 %	Confirm freq. adjustment	Off
Position	L0.0 A10.1 H13.3	Assume Silicone	Off
Orientation	T > C10.6	? Ref. amplitude 1H	0.000 V
Phase enc. dir.	A >> P	Adjustment Tolerance	Auto
Rotation	0.00 deg	Adjust volume	
Phase oversampling	0 %	Position	L0.0 A10.1 H13.3
FoV read	192 mm	Orientation	T > C10.6
FoV phase	100.0 %	Rotation	0.00 deg
Slice thickness	5.0 mm	R >> L	192 mm
TR	408 ms	A >> P	192 mm
TE	1.0 ms	F >> H	85 mm
Averages	1	Physio	
Concatenations	1	1st Signal/Mode	None
Filter	None	1	140110
Coil elements	HEA;HEP	Angio	
Contrast		Flow mode	Single dir.
MTC	Off	Encodings	1
Flip angle	15 deg	Velocity enc.	5 cm/s
Fat suppr.	Fat sat.	Direction	Through plane
Averaging mode	Long term	Magnitude sum	Off
Averaging mode Reconstruction	Long term Magnitude	Sequence	
Measurements	821	Introduction	Off
Delay in TR	0 ms	Asymmetric echo	Off
Multiple series	Off	Bandwidth	1502 Hz/Px
•	311	Free echo spacing	Off
Resolution		Echo spacing	0.98 ms
Base resolution	128	EPI factor	128
Phase resolution	100 %	RF pulse type	Normal
Phase partial Fourier	6/8	Gradient mode	Fast
Interpolation	Off	RF spoiling	On
PAT mode	GRAPPA		
Accel. factor PE	4	RF90 duration	5120
Ref. lines PE	48	MB Number	3
Matrix Coil Mode	Auto (Triple)	DummyScan Number	5
Reference scan mode	Separate	FOV Shift Number	3
Distantian Carr		Shift K0 Center	1
Distortion Corr.	Off Off	Every Other Slice	1
Prescan Normalize	Off Off	SER Number	1
Raw filter	Off	Venc Repetition	800
Elliptical filter	Off Off	Spoil factor	5
Hamming	Off	Skew Direction	0
Geometry		Dual On(1)	0
	Interleaved	true TE	16670
Multi-slice mode	IIILEITEAVEU	true TR	33960

Venc Type(0off,1+-,20+,3on) 1

\\USER\AMRIT\Liyong\20150303\ep2d_venc_ms3_mb3_seg_centric

TA: 0:13 PAT: 2 Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_ms_sbmb_seg

Properties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement	•	HEP	On
Load to viewer	On O"	HEA	On
Inline movie	Off		
Auto store images	On Off	Positioning mode	REF
Load to stamp segments	Off Off	Table position	Н
Load images to graphic	Oli	Table position	0 mm
segments	Off	MSMA	S-C-T
Auto open inline display Start measurement without	On	Sagittal	R >> L
	On	Coronal	A >> P
further preparation Wait for user to start	Off	Transversal	F >> H
Start measurements		Coil Combine Mode	Sum of Squares
1	single	AutoAlign Auto Coil Select	 Default
Routine			
Slice group 1	2	Shim mode	Standard
Slices	3	Adjust with body coil	Off
Dist. factor	700 %	Confirm freq. adjustment	Off
Position	Isocenter	Assume Silicone	Off
Orientation	Transversal	? Ref. amplitude 1H	0.000 V
Phase enc. dir.	A >> P	Adjustment Tolerance	Auto
Rotation	0.00 deg	Adjust volume	
Phase oversampling	0 %	Position	Isocenter
FoV read	200 mm	Orientation	Transversal
FoV phase	100.0 %	Rotation	0.00 deg
Slice thickness	5.0 mm	R >> L	200 mm
TR TE	222 ms	A >> P	200 mm
	50.0 ms	F >> H	85 mm
Averages Concatenations	1 1	Physio	
Filter	None	1st Signal/Mode	None
Coil elements	HEA;HEP	1	
Con elements	пса,псг	Angio	G: 1 !!
Contrast		Flow mode	Single dir.
MTC	Off	Encodings	1
Flip angle	20 deg	Velocity enc.	90 cm/s
Fat suppr.	Fat sat.	Direction	Through plane
Averaging mode	Long term	Magnitude sum	Off
Reconstruction	Magnitude	Sequence	
Measurements	26	Introduction	Off
Delay in TR	0 ms	Bandwidth	1776 Hz/Px
Multiple series	Off	Free echo spacing	Off
	OII	Echo spacing	0.92 ms
Resolution	400	EPI factor	32
Base resolution	128	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Phase partial Fourier	Off Off	RF spoiling	On
Interpolation	Oli		
PAT mode	GRAPPA	RF90 duration	5120
Accel. factor PE	2	MB Number	3
Ref. lines PE	24	DummyScan Number	4
Matrix Coil Mode	Auto (Triple)	FOV Shift Number Shift K0 Center	1
Reference scan mode	Separate		1
Distortion Corr.	Off	Every Other Slice SER Number	1
Prescan Normalize	Off		0
Raw filter	On	2nd RFoff(1)	Off
Elliptical filter	Off	Flow Compensation Centric Reorder	
Hamming	Off	Venc Type(0off,1+-,20+,3on)	On 1
	Jii	Venc Type(0011,1+-,20+,3011) Venc Repetition	10
Geometry		MB Measurements	10
Multi-slice mode	Interleaved	ivid ivieasurements	10
Series	Ascending		
		72/∔	

\\USER\AMRIT\Liyong\20150303\ep2d_venc_ms3_mb3_seg

TA: 0:13 PAT: 2 Voxel size: 1.6x1.6x5.0 mm Rel. SNR: 1.00 USER: ep2d_venc_ms_sbmb_seg

Properties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On O"	HEA	On
Inline movie	Off		
Auto store images	On O#	Positioning mode	REF
Load to stamp segments	Off Off	Table position	H
Load images to graphic	Off	Table position	0 mm
segments	0#	MSMA	S-C-T
Auto open inline display Start measurement without	Off	Sagittal	R >> L
	On	Coronal	A >> P
further preparation Wait for user to start	Off	Transversal	F >> H
Start measurements		Coil Combine Mode	Sum of Squares
Start measurements	single	AutoAlign Auto Coil Select	 Default
Routine			
Slice group 1	2	Shim mode	Standard
Slices Diet feeter	3	Adjust with body coil	Off
Dist. factor	700 %	Confirm freq. adjustment	Off
Position	Isocenter	Assume Silicone	Off
Orientation Phase enc. dir.	Transversal A >> P	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
Rotation Phase oversampling	0.00 deg 0 %	Adjust volume	lagantar
FoV read	0 % 200 mm	Position	Isocenter
FoV phase	100.0 %	Orientation	Transversal
Slice thickness	5.0 mm	Rotation	0.00 deg
TR	222 ms	R >> L	200 mm
TE	50.0 ms	A >> P	200 mm
Averages	1	F >> H	85 mm
Concatenations	1	Physio	
Filter	None	1st Signal/Mode	None
Coil elements	HEA;HEP		
Coll elements	HEA,HEI	Angio	Oissals dia
Contrast		Flow mode	Single dir.
MTC	Off	Encodings	90 cm/s
Flip angle	20 deg	Velocity enc.	
Fat suppr.	Fat sat.	Direction Magnitude cum	Through plane Off
Averaging mode	Long term	Magnitude sum	Oli
Reconstruction	Magnitude	Sequence	
Measurements	26	Introduction	Off
Delay in TR	0 ms	Bandwidth	1776 Hz/Px
Multiple series	Off	Free echo spacing	Off
	.	Echo spacing	0.92 ms
Resolution	400	EPI factor	32
Base resolution	128	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Phase partial Fourier Interpolation	Off Off	RF spoiling	On
		RF90 duration	5120
PAT mode	GRAPPA	MB Number	3
Accel. factor PE	2	DummyScan Number	4
Ref. lines PE	24	FOV Shift Number	1
Matrix Coil Mode	Auto (Triple)	Shift K0 Center	1
Reference scan mode	Separate	Every Other Slice	1
Distortion Corr.	Off	SER Number	1
Prescan Normalize	Off	2nd RFoff(1)	0
Raw filter	On	Flow Compensation	Off
Elliptical filter	Off	Centric Reorder	Off
Hamming	Off	Venc Type(0off,1+-,20+,3on)	1
	- ''	Venc Repetition	10
Geometry		MB Measurements	10
Multi-slice mode	Interleaved	IND MCd3drements	10
Series	Ascending		
1	-	73/+	

 $\verb|\USER\AMRIT\Liyong\20150303\fl_gre_pc_TEST| \\$ Voxel size: 1.2×1.2×5.0 mm Rel. SNR: 1.00

		HEP	Off
roperties	0"	HEA	Off
Prio Recon	Off	Decitioning mode	DEE
Before measurement		Positioning mode	REF
After measurement Load to viewer	On	Table position	H 0 mm
	Off	Table position	S - C - T
Inline movie		MSMA Societal	S-C-1 R>>L
Auto store images	On Off	Sagittal Coronal	R >> L A >> P
Load to stamp segments Load images to graphic	Off	Transversal	A >> P F >> H
segments	Oil	Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	
Start measurement without	On	Auto Coil Select	Default
further preparation	Oli	Auto Coil Select	Delault
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
Start measurements	Single	Confirm freq. adjustment	Off
outine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	
Position	Isocenter	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	300 mm	F >> H	350 mm
FoV phase	100.0 %	Physio	
Slice thickness	5.0 mm	1st Signal/Mode	None
TR	150.00 ms	Segments	1
TE	10.00 ms	Segments	1
Averages	1	Angio	
Concatenations	1	Flow mode	Single dir.
Filter	None	Encodings	1
Coil elements	BC	Velocity enc.	90 cm/s
ontrast		Direction	Through plane
Flip angle	15 deg	Rephased images	On
		Magnitude images	On
Averaging mode	Short term	Phase images	On
Reconstruction	Magnitude	Cubtroot	O#
Measurements	1	Subtract	Off
Multiple series	Each measurement	Std-Dev-Sag Std-Dev-Cor	Off Off
esolution		Std-Dev-Col	Off
	050		
Base resolution	256	Std-Dev-Time	Off
Phase resolution	100 %	MIP-Sag MIP-Cor	Off
Phase partial Fourier	Off	MIP-Cor MIP-Tra	Off Off
Interpolation	Off	MIP-Tra MIP-Time	Off
PAT mode	None		
Matrix Coil Mode	Auto (CP)	Save original images	On
Imaga Filter		Sequence	
Image Filter	Off Off	Introduction	On
Distortion Corr.	Off Off	Asymmetric echo	Off
Prescan Normalize	Off Off	Contrasts	1
Normalize	Off Off	Bandwidth	260 Hz/Px
B1 filter	Off Off	Flow comp.	No
Raw filter	Off Off		Name
Elliptical filter	Off	RF pulse type	Normal
eometry		Gradient mode	Fast
,	Sequential	RF spoiling	On
Multi-slice mode			
Multi-slice mode Series			
Series	Interleaved		

 $\label{loss} $$\USER\AMRIT\Liyong\20150303\fl_fq_TEST $$$

Rel. SNR: 1.00

USER: fl_fq_TEST

Voxel size: 0.8×0.8×5.0 mm

TA: 2:04

PAT: Off

TA. 2.04 PA	1. Oli Voxel Size. 0.8x0.	ox5.0 IIIII Rei. SNR. 1.00 U	3EK. II_Iq_1E31
		HEP	Off
Properties		—— HEA	Off
Prio Recon	Off		
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
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		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	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	, 1010
Position	Isocenter	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 %		330 11111
Slice thickness	5.0 mm	Physio	
TR	474.10 ms	1st Signal/Mode	None
TE	5.77 ms	Segments	1
Averages	5.77 ms 1	Angia	
Concatenations	1	Angio	Cinalo dir
Filter	None	Flow mode	Single dir.
Coil elements	BC	Encodings	1
Con elements	ВС	Velocity enc.	90 cm/s
Contrast		Direction	Through plane
Flip angle	15 deg	Rephased images	On
Averaging mode	Chart tarm	Magnitude images	On
Averaging mode	Short term	Phase images	On
Reconstruction	Magnitude	Subtract	Off
Measurements	I Each magairement	Std-Dev-Sag	Off
Multiple series	Each measurement	Std-Dev-Cor	Off
Resolution		Std-Dev-Tra	Off
Base resolution	256	Std-Dev-Time	Off
Phase resolution	100 %	MIP-Sag	Off
Phase partial Fourier	Off	MIP-Cor	Off
Interpolation	Off	MIP-Tra	Off
		···· MIP-Time	Off
PAT mode	None	Save original images	On
Matrix Coil Mode	Auto (CP)		
Image Filter	Off	Sequence	
Distortion Corr.	Off	Introduction	On
Prescan Normalize	Off	Asymmetric echo	Off
Normalize	Off	Contrasts	1
B1 filter	Off	Bandwidth	260 Hz/Px
Raw filter	Off	Flow comp.	No
Elliptical filter	Off	RF pulse type	Normal
•	3 11	Gradient mode	Fast
Geometry		—— RF spoiling	On
Multi-slice mode	Sequential	10 Spoining	On .
Series	Interleaved		
Special set	None		
Special sat.	None		
System			
Body	On		
-		75/+	

 $\verb|\USER\AMRIT\Liyong\20150303\fl_fq_mb| \\$

roperties		HEP	Off
Prio Recon	Off	HEA	Off
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		Shim mode	Tuno un
Wait for user to start	Off	Adjust with body coil	Tune up Off
Start measurements	single		Off
outine		Confirm freq. adjustment Assume Silicone	Off
Slice group 1 Slices	1	? Ref. amplitude 1H Adjustment Tolerance	0.000 V Auto
Dist. factor	20 %	Adjustment Tolerance Adjust volume	Auto
Position	Isocenter	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	0.00 deg 0 %	A >> P	263 mm
FoV read	300 mm	F >> H	350 mm
FoV phase	100.0 %		330 11111
Slice thickness	5.0 mm	Physio	
TR	150.00 ms	1st Signal/Mode	None
TE	10.00 ms	Segments	1
Averages	1	Angio	
Concatenations	1	Flow mode	Cinalo dir
Filter	None		Single dir. 1
Coil elements	BC	Encodings	90 cm/s
Con elements	ВО	Velocity enc. Direction	
ontrast		Rephased images	Through plane On
Flip angle	15 deg	Magnitude images	On
Averaging mode	Short term	Phase images	On
Reconstruction	Magnitude	· ····································	OII
Measurements	1	Subtract	Off
Multiple series	Each measurement	Std-Dev-Sag	Off
Waltiple Series	Lacifileasurement	Std-Dev-Cor	Off
esolution		Std-Dev-Tra	Off
Base resolution	256	Std-Dev-Time	Off
Phase resolution	100 %	MIP-Sag	Off
Phase partial Fourier	Off	MIP-Cor	Off
Interpolation	Off	MIP-Tra	Off
PAT mode	None	···· MIP-Time	Off
Matrix Coil Mode	None Auto (CP)	Save original images	On
······································	Auto (CP)	Sequence	
Image Filter	Off	Introduction	On
Distortion Corr.	Off	Asymmetric echo	Off
Prescan Normalize	Off	Contrasts	1
Normalize	Off	Bandwidth	1 260 Hz/Px
B1 filter	Off		
Raw filter	Off	Flow comp.	No
Elliptical filter	Off	RF pulse type	Normal
·		Gradient mode	Fast
eometry	On many of the	RF spoiling	On
Multi-slice mode	Sequential		
Series	Interleaved	MB Number	1
• • • •	None	FOV Shift	1
Special sat.	NONE	l D:-4: 00	
Special sat. ystem	None	Distance22	0

 $\label{local_loc$

Rel. SNR: 1.00

USER: fl_fq_mb

Voxel size: 0.8×0.8×5.0 mm

TA: 2:05

PAT: Off

1A. 2.05 P/	41. OII VOXEI SIZE. U.OXI	0.6x5.0	USEK. II_IQ_IIIb
		Orientation	Transversal
Properties		Sat. region 2	Tanovoloai
Prio Recon	Off	Thickness	5 mm
Before measurement		Position	L0.0 P0.0 H20.0
After measurement		Orientation	Transversal
Load to viewer	On Off	Special sat.	None
Inline movie	Off	System	
Auto store images	On Off	System	Off
Load to stamp segments Load images to graphic	Off	Body HEP	On
segments	Oli	HEA	On
Auto open inline display	Off	IILA	
Start measurement without	On	Positioning mode	REF
further preparation	On	Table position	Н
Wait for user to start	Off	Table position	0 mm
Start measurements	single	MSMA	S - C - T
ļ	Single	Sagittal	R >> L
Routine		Coronal	A >> P
Slice group 1		Transversal	F >> H
Slices	1	Coil Combine Mode	Adaptive Combine
Dist. factor	20 %	AutoAlign	
Position	L0.0 A5.4 H25.4	Auto Coil Select	Default
Orientation	Transversal	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
FoV read	200 mm	? Ref. amplitude 1H	0.000 V
FoV phase	100.0 %	Adjustment Tolerance	Auto
Slice thickness	5.0 mm	Adjust volume	rato
TR	31.75 ms	Position	Isocenter
ŢE .	5.77 ms	Orientation	Transversal
Averages	1	Rotation	0.00 deg
Concatenations	1	R >> L	350 mm
Filter	None	A >> P	263 mm
Coil elements	HEA;HEP	F >> H	350 mm
Contrast		Dhyoio	
Flip angle	15 deg	Physio 1st Signal/Mode	ECG/Trigger
Averaging mode	Short term	Average cycle	No Signal ms
Reconstruction	Magnitude	Captured cycle	-not set-
Measurements	1	Acquisition window	480 ms
Multiple series	Each measurement	Trigger pulse	1
1 .	zaon modediement	Trigger delay	0 ms
Resolution		Segments	1
Base resolution	256	Phases	15
Phase resolution	100 %	l	· -
Phase partial Fourier	Off	Angio	0: 1:
Interpolation	Off	Flow mode	Single dir.
PAT mode	None	Encodings	1
Matrix Coil Mode	Auto (CP)	Velocity enc.	90 cm/s
		Direction	Through plane
Image Filter	Off	Rephased images	On
Distortion Corr.	Off	Magnitude images	On
Prescan Normalize	Off	Phase images	On
Normalize	Off	Subtract	Off
B1 filter	Off	Std-Dev-Sag	Off
Raw filter	Off	Std-Dev-Cor	Off
Elliptical filter	Off	Std-Dev-Tra	Off
Geometry		Std-Dev-Time	Off
Multi-slice mode	Sequential	MIP-Sag	Off
Series	Interleaved	MIP-Cor	Off
		···· MIP-Tra	Off
Sat. region 1	_	MIP-Time	Off
Thickness	5 mm	Save original images	On
Position	Isocenter	· · · · · · · · · ·	

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	3
FOV Shift	1
Distance22	0

 $\label{local_loc$

TA: 2:05 PA	AT: Off Voxel size: 0.8×0	, , ,	USER: fl_fq_mb
Properties		Orientation	Transversal
Prio Recon	Off	—— Sat. region 2	
Before measurement	Oli	Thickness	5 mm
After measurement		Position	L0.0 P0.0 H20.0
Load to viewer	On	Orientation	Transversal
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	Oli	HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	REF
further preparation	Oli	Table position	Н
Wait for user to start	Off	Table position	0 mm
Start measurements	single	MSMA	S - C - T
Start measurements	Sirigie	Sagittal	R >> L
Routine		Coronal	A >> P
Slice group 1		Transversal	F >> H
Slices	1	Coil Combine Mode	Adaptive Combine
Dist. factor	20 %	AutoAlign	·
Position	L0.0 A5.4 H25.4	Auto Coil Select	Default
Orientation	Transversal	Chim mad-	Tuno un
Phase enc. dir.	A >> P	Shim mode	Tune up
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
FoV read	200 mm	Assume Silicone	Off
FoV phase	100.0 %	? Ref. amplitude 1H	0.000 V
Slice thickness	5.0 mm	Adjustment Tolerance	Auto
TR	31.75 ms	Adjust volume	
TE	5.77 ms	Position	Isocenter
Averages	1	Orientation	Transversal
Concatenations	1	Rotation	0.00 deg
Filter	None	R >> L	350 mm
Coil elements	HEA;HEP	A >> P	263 mm
	,	F >> H	350 mm
Contrast		—— Physio	
Flip angle	15 deg	1st Signal/Mode	ECG/Trigger
Averaging mode	Short term	Average cycle	No Signal ms
Reconstruction	Magnitude	Captured cycle	-not set-
Measurements	1	Acquisition window	480 ms
Multiple series	Each measurement	Trigger pulse	1
·	Laon measarement	Trigger delay	0 ms
Resolution		Segments	1
Base resolution	256	Phases	15
Phase resolution	100 %		
Phase partial Fourier	Off	Angio	
Interpolation	Off	Flow mode	Single dir.
PAT mode	None	Encodings	1
Matrix Coil Mode	Auto (CP)	Velocity enc.	90 cm/s
······		Direction	Through plane
Image Filter	Off	Rephased images	On
Distortion Corr.	Off	Magnitude images	On
Prescan Normalize	Off	Phase images	On
Normalize	Off	Subtract	Off
B1 filter	Off	Subtract	Off Off
Raw filter	Off	Std-Dev-Sag	Off Off
Elliptical filter	Off	Std-Dev-Cor	Off Off
•		Std-Dev-Tra	Off Off
Geometry		Std-Dev-Time	Off Off
Multi-slice mode	Sequential	MIP-Sag	Off
Series	Interleaved	MIP-Cor	Off
Sat. region 1		MIP-Tra	Off
Thickness	5 mm	MIP-Time	Off
Position	Isocenter	Save original images	On

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	1
FOV Shift	1
Distance22	0

 $\verb|\USER\AMRIT\Liyong\20150303\FLASH_orig_upper| \\$

roperties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off	Positioning mode	FIX
Auto store images	On	Table position	H
Load to stamp segments	Off	Table position	П 0 mm
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		Save uncombined	Off
Wait for user to start	Off	Coil Combine Mode	Adaptive Combine
Start measurements	single	AutoAlign	
Routine		Auto Coil Select	Default
Slice group 1		Auto Coli Select	Delauit
Slice group 1	3	Shim mode	Tune up
Dist. factor	3 400 %	Adjust with body coil	Off .
Position	400 % L0.0 A5.4 H50.4	Confirm freq. adjustment	Off
Position Orientation		Assume Silicone	Off
Phase enc. dir.	Transversal A >> P	? Ref. amplitude 1H	0.000 V
Rotation		Adjustment Tolerance	Auto
	0.00 deg 0 %	Adjust volume	
Phase oversampling	0 % 200 mm	Position	Isocenter
FoV read		Orientation	Transversal
FoV phase	100.0 %	Rotation	0.00 deg
Slice thickness	5.0 mm	R >> L	350 mm
TR	9.1 ms	A >> P	263 mm
TE	4.8 ms	F >> H	350 mm
Averages	1	Di :	
Concatenations Filter	3 Nana	Physio	
	None	1st Signal/Mode	None
Coil elements	HEA;HEP	Inline	
Contrast		Subtract	Off
TD	0 ms	Std-Dev-Sag	Off
MTC	Off	Std-Dev-Cor	Off
Flip angle	15 deg	Std-Dev-Tra	Off
Fat suppr.	None	Std-Dev-Time	Off
Water suppr.	None	MIP-Sag	Off
	01	MIP-Cor	Off
Averaging mode	Short term	MIP-Tra	Off
Reconstruction	Magnitude	MIP-Time	Off
Measurements	1	Save original images	On
Multiple series	Off		
Resolution		Sequence	~"
Base resolution	256	Introduction	Off
Phase resolution	100 %	Dimension	2D
Phase partial Fourier	Off	Contrasts	1
Interpolation	Off	Bandwidth	390 Hz/Px
		Gradient mode	Fast
Matrix Coil Mode	Auto (CP)	RF spoiling	On
Image Filter	Off	Online ICE	Off
Distortion Corr.	Off	Selection box	Second Choice
Prescan Normalize	Off		On
Normalize	Off	Spoil me!	_
B1 filter	Off	Test Time	400 ms
Raw filter	Off	dARRAY [1]	2.0 [UnitArr]
Elliptical filter	Off	dARRAY [2]	12.0 [UnitArr]
•		dARRAY [3]	22.00 [UnitArr]
Geometry			
Multi-slice mode	Sequential		

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roperties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off		
Auto store images	On	Positioning mode	FIX
Load to stamp segments	Off	Table position	H
Load images to graphic	Off	Table position	0 mm
segments		MSMA	S-C-T
Auto open inline display	Off	Sagittal	R >> L
Start measurement without	On	Coronal	A >> P
further preparation		Transversal	F >> H
Wait for user to start	Off	Save uncombined	Off
Start measurements	single	Coil Combine Mode	Adaptive Combine
Navatina a	Ğ	AutoAlign	 D (!!
Clica aroun 4		Auto Coil Select	Default
Slice group 1	2	Shim mode	Tune up
Slices	3	Adjust with body coil	Off
Dist. factor	400 %	Confirm freq. adjustment	Off
Position	L0.0 A5.4 H0.4	Assume Silicone	Off
Orientation	Transversal	? Ref. amplitude 1H	0.000 V
Phase enc. dir.	A >> P	Adjustment Tolerance	Auto
Rotation	0.00 deg	Adjust volume	
Phase oversampling	0 %	Position	Isocenter
FoV read	200 mm	Orientation	Transversal
FoV phase	100.0 %	Rotation	0.00 deg
Slice thickness	5.0 mm	R >> L	350 mm
TR	9.1 ms	A >> P	263 mm
TE	4.8 ms	F >> H	350 mm
Averages	1	I .	
Concatenations	3	Physio	
Filter	None	1st Signal/Mode	None
Coil elements	HEA;HEP	Inline	
Contrast		Subtract	Off
TD	0 ms	Std-Dev-Sag	Off
MTC	Off	Std-Dev-Cor	Off
Flip angle	15 deg	Std-Dev-Tra	Off
Fat suppr.	None	Std-Dev-Time	Off
Water suppr.	None	MIP-Sag	Off
		MIP-Cor	Off
Averaging mode	Short term	MIP-Tra	Off
Reconstruction	Magnitude	MIP-Time	Off
Measurements	1	Save original images	On
Multiple series	Off		-
esolution		Sequence	
Base resolution	256	Introduction	Off
Phase resolution	100 %	Dimension	2D
Phase partial Fourier	Off	Contrasts	1
Interpolation	Off	Bandwidth	390 Hz/Px
Matrix Coil Mode	Auto (CP)	Gradient mode	Fast
		RF spoiling	On
Image Filter	Off	Online ICE	Off
Distortion Corr.	Off	Selection box	Second Choice
Prescan Normalize	Off	Spoil me!	On
Normalize	Off	Test Time	400 ms
B1 filter	Off	dARRAY [1]	2.0 [UnitArr]
Raw filter	Off	dARRAY [2]	12.0 [UnitArr]
Elliptical filter	Off	dARRAY [3]	22.00 [UnitArr]
Geometry		[O]	22.00 [01.10 11.]
Multi-slice mode	Sequential		
Series	Ascending		

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		.2x5.0 mm Rel. SNR: 1.00	·
roperties		HEP	Off
Prio Recon	Off	—— HEA	Off
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		01:	
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
autia a	•	Confirm freq. adjustment	Off
outine		Assume Silicone	Off
Slice group 1	4	? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	Income.
Position	Isocenter	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	300 mm	F >> H	350 mm
FoV phase	100.0 %	Physio	
Slice thickness	5.0 mm	1st Signal/Mode	None
TR	150.00 ms	Segments	1
TE	10.00 ms	Segments	!
Averages	1	Angio	
Concatenations	1	Flow mode	Single dir.
Filter	None	Encodings	1
Coil elements	BC	Velocity enc.	90 cm/s
ontrast		Direction	Through plane
	15 dog	Rephased images	On
Flip angle	15 deg	Magnitude images	On
Averaging mode	Short term	Phase images	On
Reconstruction	Magnitude	Out the set	O#
Measurements	1	Subtract	Off
Multiple series	Each measurement	Std-Dev-Sag	Off
•		Std-Dev-Cor	Off
esolution		Std-Dev-Tra	Off
Base resolution	256	Std-Dev-Time	Off
Phase resolution	100 %	MIP-Sag	Off
Phase partial Fourier	Off	MIP-Cor	Off
Interpolation	Off	MIP-Tra	Off
PAT mode	None	MIP-Time	Off
Matrix Coil Mode	Auto (CP)	Save original images	On
·····	······	Sequence	
Image Filter	Off	Introduction	On
Distortion Corr.	Off	Asymmetric echo	Off
Prescan Normalize	Off	Contrasts	1
Normalize	Off	Bandwidth	260 Hz/Px
B1 filter	Off		200 H2/FX No
Raw filter	Off	Flow comp.	·····
Elliptical filter	Off	RF pulse type	Normal
		Gradient mode	Fast
eometry		RF spoiling	On
	Sequential		
Multi-slice mode		I BAD Alcondon	4
Multi-slice mode Series	Interleaved	MB Number	1
Series		FOV Shift	1
	Interleaved None		

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TA: 0:13 PAT:	Off Voxel size: 1.6×1.6	6x3.0 mm Rel. SNR: 1.00 USI	ER: MB_cv_FLASH
Dranartica		Image Filter	Off
Properties	~"	Distortion Corr.	Off
Prio Recon	Off	Prescan Normalize	Off
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On O"	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On O"	POCS	Off
Load to stamp segments	Off	0	
Load images to graphic	Off	Geometry	0: 1 1 1
segments	0"	Multi-slice mode	Single shot
Auto open inline display	Off	Series	Ascending
Start measurement without	On	Special sat.	None
further preparation	0"		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		HEP	On
Slice group 1		HEA	On
Slices	3		
Dist. factor	800 %	Positioning mode	REF
Position	L0.0 A5.4 H32.7	Table position	Н
Orientation	Transversal	Table position	0 mm
Phase enc. dir.	A >> P	MSMA	S - C - T
Rotation	0.00 deg	Sagittal	R >> L
Auto	Off	Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
FoV read	200 mm	Save uncombined	Off
		Coil Combine Mode	Adaptive Combine
FoV phase	100.0 %	AutoAlign	
Slice thickness	3.0 mm	Auto Coil Select	Default
TR	436.48 ms		
TE	1.68 ms	Shim mode	Tune up
Averages	1	Adjust with body coil	Off
Concatenations	1	Confirm freq. adjustment	Off
Filter	None	Assume Silicone	Off
Coil elements	HEA;HEP	? Ref. amplitude 1H	0.000 V
Contrast		Adjustment Tolerance	Auto
Magn. preparation	None	Adjust volume	
Flip angle	12 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
	OII	R >> L	350 mm
Averaging mode	Long term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	10	ļ	
Pause after meas. 1	0.0 s	Physio	
Pause after meas. 2	0.0 s	1st Signal/Mode	None
Pause after meas. 3	0.0 s	Segments	128
Pause after meas. 4	0.0 s	Dark blood	Off
Pause after meas. 5	0.0 s	Cine	Off
Pause after meas. 6	0.0 s	Cirle	OII
Pause after meas. 7	0.0 s	Resp. control	Off
Pause after meas. 8	0.0 s	'	
Pause after meas. 9	0.0 s	Inline	~~
Multiple series	Off	Subtract	Off
•	Sii	Std-Dev-Sag	Off
Resolution		Std-Dev-Cor	Off
Base resolution	128	Std-Dev-Tra	Off
Phase resolution	100 %	Std-Dev-Time	Off
Phase partial Fourier	Off	MIP-Sag	Off
Trajectory	Cartesian	MIP-Cor	Off
Interpolation	Off	MIP-Tra	Off
	J.,	MIP-Time	Off
PAT mode	None	Save original images	On
Matrix Coil Mode	Auto (CP)		
		Sequence	

Introduction Off Dimension 2D Reordering Linear Asymmetric echo Off Bandwidth 908 Hz/Px Flow comp. No Optimization Min. TE TR Allowed delay 0 s Echo spacing 3.4 ms

Define Shots
Shots per slice 1
RF pulse type Normal
Gradient mode Fast
Excitation Slice-sel.
Flip angle mode Constant
RF spoiling On

Gre

On

Sequence type

Phase Enc. Rewinder

Kernel CV
Label Offset 80 mm
Post Label Delay 1000000 us

MB Number 3
FOV Shift 3
Polarity(1) 0
my checkbox Off

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		Image Filter	Off
roperties		—— Distortion Corr.	Off
Prio Recon	Off	Prescan Normalize	Off
Before measurement		Normalize	Off
After measurement	_	B1 filter	Off
Load to viewer	On	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	POCS	Off
Load to stamp segments	Off	ı	3
Load images to graphic	Off	Geometry	
segments		Multi-slice mode	Single shot
Auto open inline display	Off	Series	Ascending
Start measurement without	On	Special sat.	None
further preparation		Opecial Sat.	
Wait for user to start	Off	Syntom	
Start measurements	single	System	0#
outine		Body	Off
Slice group 1		HEP	On
Slice group 1	3	HEA	On
Dist. factor	3 800 %	Positioning mode	REF
Position	800 % L0.0 A5.4 H32.7	Table position	H
		Table position	0 mm
Orientation	Transversal	MSMA	S - C - T
Phase enc. dir.	A >> P	Sagittal	R >> L
Rotation	0.00 deg	Coronal	A >> P
Auto	Off	Transversal	F >> H
Phase oversampling	0 %	Save uncombined	Off
FoV read	200 mm	Coil Combine Mode	Adaptive Combine
FoV phase	100.0 %	AutoAlign	
Slice thickness	3.0 mm	Auto Coil Select	Default
TR	436.48 ms	Auto Con Select	
TE	1.68 ms	Shim mode	Tune up
Averages	1	Adjust with body coil	Off
Concatenations	1	Confirm freq. adjustment	Off
Filter	None	Assume Silicone	Off
Coil elements	HEA;HEP	? Ref. amplitude 1H	0.000 V
ontrast		Adjustment Tolerance	Auto
	None	Adjust volume	
Magn. preparation		Position	Isocenter
Flip angle	12 deg	Orientation	Transversal
Fat suppr.	None O#	Rotation	0.00 deg
Restore magn.	Off	R >> L	350 mm
Averaging mode	Long term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	10	I	300
Pause after meas. 1	0.0 s	Physio	
Pause after meas. 2	0.0 s	1st Signal/Mode	None
Pause after meas. 3	0.0 s	Segments	128
Pause after meas. 4	0.0 s	Dark blood	Off
Pause after meas. 5	0.0 s	Dark blood	Off Off
Pause after meas. 6	0.0 s	Cine	Off
Pause after meas. 7	0.0 s	Resp. control	Off
Pause after meas. 7 Pause after meas. 8	0.0 s 0.0 s	'	
		Inline	
Pause after meas. 9	0.0 s	Subtract	Off
Multiple series	Off	Std-Dev-Sag	Off
esolution		Std-Dev-Cor	Off
Base resolution	128	Std-Dev-Tra	Off
Phase resolution	100 %	Std-Dev-Time	Off
Phase partial Fourier	Off	MIP-Sag	Off
Trajectory	Cartesian	MIP-Cor	Off
Interpolation	Off	MIP-Tra	Off
interpolation	OII	MIP-Time	Off
			
PAT mode	None	Save original images	On

Introduction Off Dimension 2D Reordering Linear Asymmetric echo Off Bandwidth 908 Hz/Px Flow comp. No Optimization Min. TE TR Allowed delay 0 s Echo spacing 3.4 ms Sequence type Gre

Define Shots
Shots per slice 1
RF pulse type Normal
Gradient mode Fast
Excitation Slice-sel.
Flip angle mode Constant
RF spoiling On
Phase Enc. Rewinder On

Kernel CV
Label Offset 80 mm
Post Label Delay 1000000 us

MB Number 3
FOV Shift 1
Polarity(1) 0
my checkbox Off

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TA: 0:13 PAT:	Off Voxel size: 1.6×1.6	6×3.0 mm Rel. SNR: 1.00 USI	ER: MB_cv_FLASH
Duamantia		Image Filter	Off
Properties	~	Distortion Corr.	Off
Prio Recon	Off	Prescan Normalize	Off
Before measurement		Normalize	Off
After measurement		B1 filter	Off
Load to viewer	On O"	Raw filter	Off
Inline movie	Off	Elliptical filter	Off
Auto store images	On	POCS	Off
Load to stamp segments	Off	0	
Load images to graphic	Off	Geometry	0: 1 1 1
segments	0"	Multi-slice mode	Single shot
Auto open inline display	Off	Series	Ascending
Start measurement without	On	Special sat.	None
further preparation	0"		
Wait for user to start	Off	System	
Start measurements	single	Body	Off
Routine		HEP	On
Slice group 1		HEA	On
Slices	3		
Dist. factor	800 %	Positioning mode	REF
Position	L0.0 A5.4 H32.7	Table position	Н
Orientation	Transversal	Table position	0 mm
Phase enc. dir.	A >> P	MSMA	S - C - T
Rotation	0.00 deg	Sagittal	R >> L
Auto	Off	Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
FoV read	200 mm	Save uncombined	Off
FoV phase	100.0 %	Coil Combine Mode	Adaptive Combine
Slice thickness	3.0 mm	AutoAlign	
TR	436.48 ms	Auto Coil Select	Default
TE	436.48 ms		
		Shim mode	Tune up
Averages	1	Adjust with body coil	Off
Concatenations	1 Name	Confirm freq. adjustment	Off
Filter	None	Assume Silicone	Off
Coil elements	HEA;HEP	? Ref. amplitude 1H	0.000 V
Contrast		Adjustment Tolerance	Auto
Magn. preparation	None	Adjust volume	
Flip angle	12 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
Restore magn.	Off	Rotation	0.00 deg
		R >> L	350 mm
Averaging mode	Long term	A >> P	263 mm
Reconstruction	Magnitude	F >> H	350 mm
Measurements	10	Physio	
Pause after meas. 1	0.0 s	1st Signal/Mode	None
Pause after meas. 2	0.0 s	Segments	128
Pause after meas. 3	0.0 s	Jeginenis	120
Pause after meas. 4	0.0 s	Dark blood	Off
Pause after meas. 5	0.0 s	Cine	Off
Pause after meas. 6	0.0 s		
Pause after meas. 7	0.0 s	Resp. control	Off
Pause after meas. 8	0.0 s	Inline	
Pause after meas. 9	0.0 s	Subtract	Off
Multiple series	Off	Std-Dev-Sag	Off
Resolution		Std-Dev-Cor	Off
	400	Std-Dev-Tra	Off
Base resolution	128	Std-Dev-Time	Off
Phase resolution	100 %	MIP-Sag	Off
Phase partial Fourier	Off	MIP-Cor	Off
Trajectory	Cartesian	MIP-Tra	Off
Interpolation	Off	MIP-Tra MIP-Time	
PAT mode	None	Save original images	Off
	INCHE	I SAVE OLIGINAL IMAGES	On
Matrix Coil Mode	Auto (CP)	Dave original irriages	3

Introduction Off Dimension 2D Reordering Linear Asymmetric echo Off Bandwidth 908 Hz/Px Flow comp. No Optimization Min. TE TR Allowed delay 0 s Echo spacing 3.4 ms

Define Shots
Shots per slice 1
RF pulse type Normal
Gradient mode Fast
Excitation Slice-sel.
Flip angle mode Constant
RF spoiling On

Gre

On

Sequence type

Phase Enc. Rewinder

Kernel CV
Label Offset 80 mm
Post Label Delay 1000000 us

MB Number 3
FOV Shift 2
Polarity(1) 0
my checkbox Off

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TA: 3:15 PA	AT: Off Voxel size: 1.0×1.0×	5.0 mm Rel. SNR: 1.00	USER: fl_fq_mb
Properties		HEP	On
Prio Recon	Off	– HEA	On
Before measurement		Positioning mode	FIX
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			
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
		Confirm freq. adjustment	Off
Routine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	lanaamta:
Position	L0.0 A22.4 F72.5	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	200 mm	F >> H	350 mm
FoV phase	100.0 %	Physio	
Slice thickness	5.0 mm	1st Signal/Mode	Pulse/Trigger
TR	18.00 ms	Average cycle	No Signal ms
TE	5.23 ms	Captured cycle	-not set-
Averages	1	Acquisition window	1000 ms
Concatenations	1 Name	Trigger pulse	1
Filter	None	Trigger delay	0 ms
Coil elements	HEA;HEP	Segments	1
Contrast		Phases	55
Flip angle	15 deg	Angio	
Averaging mode	Short term	Flow mode	Single dir.
Reconstruction	Magnitude	Encodings	1
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
·		Rephased images	On
Resolution	400	Magnitude images	On
Base resolution	192	Phase images	On
Phase resolution	100 %		O#
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Tra	Off
		Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off	Sequence	
Elliptical filter	Off	Introduction	On
Geometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
Series	Interleaved	Bandwidth	260 Hz/Px
	None	Flow comp.	No
	NODE	i i	
Special sat.	None	RF pulse type	Normal
System Body	Off	RF pulse type Gradient mode	Normal Fast

RF spoiling	On
MB Number	1
FOV Shift	1
Distance22	100

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roperties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off		FIV
Auto store images	On	Positioning mode	FIX
Load to stamp segments	Off	Table position	H
Load images to graphic	Off	Table position	0 mm
segments		MSMA Consisted	S-C-T
Auto open inline display	Off	Sagittal	R >> L A >> P
Start measurement without	On	Coronal Transversal	A >> P F >> H
further preparation		Save uncombined	г>>п Off
Wait for user to start	Off	Coil Combine Mode	
Start measurements	single		Adaptive Combine
Routine		AutoAlign Auto Coil Select	Default
Slice group 1		Auto Coli Select	Delauit
Slices	3	Shim mode	Tune up
Dist. factor	700 %	Adjust with body coil	Off
Position	L0.0 A22.4 F32.5	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	0.00 deg 0 %	Adjust volume	
FoV read	200 mm	Position	Isocenter
FoV phase	100.0 %	Orientation	Transversal
Slice thickness	5.0 mm	Rotation	0.00 deg
TR	9.1 ms	R >> L	350 mm
TE	4.8 ms	A >> P	263 mm
Averages	1	F >> H	350 mm
Concatenations	3	Physio	
Filter	None	•	None
Coil elements	HEA;HEP	1st Signal/Mode	None
	IILA,IILI	Inline	
Contrast		Subtract	Off
TD	0 ms	Std-Dev-Sag	Off
MTC	Off	Std-Dev-Cor	Off
Flip angle	15 deg	Std-Dev-Tra	Off
Fat suppr.	None	Std-Dev-Time	Off
Water suppr.	None	MIP-Sag	Off
Averaging mode	Short term	MIP-Cor	Off
Reconstruction	Magnitude	MIP-Tra	Off
Measurements	Magrillade 1	MIP-Time	Off
Multiple series	Off	Save original images	On
•	Jii	Sequence	
Resolution		Introduction	Off
Base resolution	256	Dimension	2D
Phase resolution	100 %	Contrasts	1
Phase partial Fourier	Off	Bandwidth	390 Hz/Px
Interpolation	Off		
Matrix Coil Mode	Auto (CP)	Gradient mode	Fast
		RF spoiling	On
Image Filter	Off	Online ICE	Off
Distortion Corr.	Off	Selection box	Second Choice
Prescan Normalize	Off	Spoil me!	On
Normalize	Off	Test Time	400 ms
B1 filter	Off	dARRAY [1]	2.0 [UnitArr]
Raw filter	Off	dARRAY [1]	12.0 [UnitArr]
Elliptical filter	Off	dARRAY [2] dARRAY [3]	22.00 [UnitArr]
Seometry		UANNAT [3]	22.00 [OIIIIAII]
Multi-slice mode	Sequential		

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TA: 3:15 PA	T: Off Voxel size: 1.0×1.0×	5.0 mm Rel. SNR: 1.00	USER: fl_fq_mb
Properties		HEP	On
Prio Recon	Off	- HEA	On
Before measurement		Positioning mode	FIX
After measurement		Table position	H
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			
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
	•	Confirm freq. adjustment	Off
Routine		Assume Silicone	Off
Slice group 1	4	? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	lanaamta:
Position	L0.0 A22.4 F72.5	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	200 mm	F >> H	350 mm
FoV phase	100.0 %	Physio	
Slice thickness	5.0 mm	1st Signal/Mode	Pulse/Trigger
TR	18.00 ms	Average cycle	No Signal ms
TE Average	5.23 ms	Captured cycle	-not set-
Averages	1	Acquisition window	1000 ms
Concatenations	None	Trigger pulse	1
Filter	None	Trigger delay	0 ms
Coil elements	HEA;HEP	Segments	1
Contrast		Phases	55
Flip angle	15 deg	- 1 Angio	
Averaging mode	Short term	Flow mode	Single dir.
Reconstruction	Magnitude	Encodings	1
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
·		Rephased images	On
Resolution		Magnitude images	On
Base resolution	192	Phase images	On
Phase resolution	100 %		
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Tra	Off
		Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off	Sequence	
Elliptical filter	Off	Introduction	On
Geometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
Series	Interleaved	Bandwidth	260 Hz/Px
		Flow comp.	No No
Special sat.	None	RF pulse type	Normal
System		_ Gradient mode	Fast

RF spoiling	On
MB Number	3
FOV Shift	1
Distance22	40

 $\verb|\USER\AMRIT\Liyong\20150303\fl_fq_mb2_bottom_RL|$ Voxel size: 1.5×1.5×5.0 mm Rel. SNR: 1.00

USER: fl_fq_mb

TA: 1:45

PAT: Off

TA. 1.45	AT. OII VOXel Size. 1.5x	1.5x5.0 IIIII Rei. SNR. 1.00	USER. II_Iq_IIIb
		LUED	05
Properties		HEP HEA	On On
Prio Recon	Off		
Before measurement		Positioning mode	FIX
After measurement	_	Table position	H
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	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	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	
Position	L0.0 A12.7 F51.3	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	192 mm	F >> H	350 mm
FoV phase	100.0 %	Physic	
Slice thickness	5.0 mm	Physio 1st Signal/Mode	Dulao/Triggor
TR	16.85 ms	Average cycle	Pulse/Trigger No Signal ms
TE	4.65 ms	Captured cycle	-not set-
Averages	1	Acquisition window	800 ms
Concatenations	1	Trigger pulse	1
Filter	None	Trigger delay	0 ms
Coil elements	HEA;HEP	Segments	1
Contrast		Phases	47
Flip angle	15 deg		
Averaging mode	Short term	Angio Flow mode	Cingle dir
Averaging mode Reconstruction	Magnitude		Single dir. 1
Measurements	Magrittude	Encodings Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	8 >> L
Multiple Selles	Lacii illeasurement	Rephased images	On
Resolution		—— Magnitude images	On
Base resolution	128	Phase images	On
Phase resolution	100 %		
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Tra	Off
	Auto (CP)	Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off	Sequence	
Elliptical filter	Off	Introduction	On
•		Asymmetric echo	Off
Geometry Multi slice mode	Sequential	Contrasts	1
Multi-slice mode	Sequential	Bandwidth	260 Hz/Px
Series	Interleaved	Flow comp.	No
Special sat.	None		
System		RF pulse type	Normal
System	Off	Gradient mode	Fast
Body	OII	95/+	

RF spoiling	On
MB Number	2
FOV Shift	1
Distance22	40

 $\label{local_loc$ Voxel size: 0.8×0.8×5.0 mm Rel. SNR: 1.00

USER: fl_fq_mb

TA: 3:14

PAT: Off

1A. 3.14 PA	AT. OII VOXEI SIZE. U.OXU	0.0x3.0 IIIII Kei. 3NK. 1.00	USEK. II_Iq_IIIb
		HEP	On
Properties	0"	HEA	On
Prio Recon	Off		FIV
Before measurement		Positioning mode	FIX H
After measurement Load to viewer	On	Table position 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	O.I.	Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	
Start measurement without	On	Auto Coil Select	Default
further preparation			
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
	5	Confirm freq. adjustment	Off
Routine		Assume Silicone	Off
Slice group 1	4	? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	laggenter
Position	L0.0 A30.9 F47.7	Position	Isocenter
Orientation	Transversal A >> P	Orientation Rotation	Transversal
Phase enc. dir. Rotation	A >> P 0.00 deg	Rotation R >> L	0.00 deg 350 mm
Phase oversampling	0.00 deg 0 %	A >> P	263 mm
Friase oversampling FoV read	200 mm	F>> H	350 mm
FoV phase	100.0 %	1 >>11	330 11111
Slice thickness	5.0 mm	Physio	
TR	19.10 ms	1st Signal/Mode	Pulse/Trigger
TE	5.77 ms	Average cycle	No Signal ms
Averages	1	Captured cycle	-not set-
Concatenations	1	Acquisition window	750 ms
Filter	None	Trigger pulse	1
Coil elements	HEA;HEP	Trigger delay	0 ms
I	,	Segments	1
Contrast Flip angle	15 deg	Phases	39
		Angio	
Averaging mode	Short term	Flow mode	Single dir.
Reconstruction	Magnitude	Encodings	1
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
Resolution		Rephased images	On
Base resolution	256	Magnitude images	On
Phase resolution	100 %	Phase images	On
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor	Off
Matrix Coil Mode	None Auto (CP)	Std-Dev-Tra	Off
IVIALITA COII IVIOUE	Auto (GF)	Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off	Sequence	
Elliptical filter	Off	Introduction	On
Geometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
Series	Interleaved	Bandwidth	260 Hz/Px
		Flow comp.	No
Special sat.	None		Normal
System		RF pulse type Gradient mode	Normal Fast
Body	Off	Gradient mode	Γαοι
•		07/±	

RF spoiling	On
MB Number	1
FOV Shift	1
Distance22	40

 $\label{local_loc$ Voxel size: 0.8×0.8×5.0 mm Rel. SNR: 1.00

USER: fl_fq_mb

TA: 3:14

PAT: Off

TA. 3.14 PA	AT. OII VOXEI SIZE. U.OXU	J.ox5.0 IIIII Rei. SINR. 1.00	USEK. II_Iq_IIIb
		I UED	On
Properties		HEP HEA	On On
Prio Recon	Off		
Before measurement		Positioning mode	FIX
After measurement	_	Table position	H
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	0"	Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	Defects
Start measurement without	On	Auto Coil Select	Default
further preparation	Off	Shim mode	Tune up
Wait for user to start		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	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	
Position	L0.0 A30.9 F47.7	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 %	Physio	
Slice thickness	5.0 mm	1st Signal/Mode	Pulse/Trigger
TR	19.10 ms	Average cycle	No Signal ms
TE	5.77 ms	Captured cycle	-not set-
Averages	1	Acquisition window	750 ms
Concatenations	1	Trigger pulse	1 1
Filter	None	Trigger delay	0 ms
Coil elements	HEA;HEP	Segments	1
Contrast		Phases	39
Flip angle	15 deg		
Averaging mode	Short term	Angio Flow mode	Cingle dir
Averaging mode Reconstruction			Single dir. 1
Measurements	Magnitude	Encodings Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
Multiple Selles	Lacifileasurement	Rephased images	On
Resolution		—— Magnitude images	On
Base resolution	256	Phase images	On
Phase resolution	100 %		
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Tra	Off
	Auto (CF)	Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off	Sequence	
Elliptical filter	Off	Introduction	On
Geometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
Series	Interleaved	Bandwidth	260 Hz/Px
Jenes	IIIIEIIEaveu	Flow comp.	No
Special sat.	None		
System		RF pulse type	Normal
Body	Off	Gradient mode	Fast
Body	OII	90/+	

RF spoiling	On
MB Number	3
FOV Shift	1
Distance22	40

 $\verb|\USER\AMRIT\Liyong\20150303\FLASH_orig_upper| \\$

roperties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off	Positioning mode	FIX
Auto store images	On	Positioning mode Table position	H
Load to stamp segments	Off	Table position	П 0 mm
Load images to graphic	Off	MSMA	S - C - T
segments		Sagittal	8 -> L
Auto open inline display	Off	Coronal	A >> P
Start measurement without	On	Transversal	F >> H
further preparation		Save uncombined	Off
Wait for user to start	Off	Coil Combine Mode	Adaptive Combine
Start measurements	single	AutoAlign	
Routine		Auto Coil Select	Default
Slice group 1			
Slices	3	Shim mode	Tune up
Dist. factor	700 %	Adjust with body coil	Off
Position	L0.0 A30.9 F7.7	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 volume	
FoV read	200 mm	Position	Isocenter
FoV phase	100.0 %	Orientation	Transversal
Slice thickness	5.0 mm	Rotation	0.00 deg
TR	9.1 ms	R >> L	350 mm
TE	4.8 ms	A >> P	263 mm
Averages	1	F >> H	350 mm
Concatenations	3	Physio	
Filter	None	1st Signal/Mode	None
Coil elements	HEA;HEP	1	None
		Inline	
Contrast		Subtract	Off
TD	0 ms	Std-Dev-Sag	Off
MTC	Off	Std-Dev-Cor	Off
Flip angle	15 deg	Std-Dev-Tra	Off
Fat suppr.	None	Std-Dev-Time	Off
Water suppr.	None	MIP-Sag	Off
Averaging mode	Short term	MIP-Cor	Off
Reconstruction	Magnitude	MIP-Tra	Off
Measurements	1	MIP-Time	Off
Multiple series	Off	Save original images	On
•		Sequence	
Resolution	050	Introduction	Off
Base resolution	256	Dimension	2D
Phase resolution	100 %	Contrasts	1
Phase partial Fourier	Off	Bandwidth	390 Hz/Px
Interpolation	Off		
Matrix Coil Mode	Auto (CP)	Gradient mode	Fast On
Image Filter	Off	RF spoiling	OII
Distortion Corr.	Off	Online ICE	Off
Prescan Normalize	Off	Selection box	Second Choice
Normalize	Off	Spoil me!	On
Normalize B1 filter	Off	Test Time	400 ms
Raw filter	Off	dARRAY [1]	2.0 [UnitArr]
	Off	dARRAY [2]	12.0 [UnitArr]
Elliptical filter	OII	dARRAY [3]	22.00 [UnitArr]
		T = 1	=
Geometry			

 $\verb|\USER\AMRIT\Liyong\20150303\FLASH_orig_upper_slc2|$

operties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off	Destination and	FIV
Auto store images	On	Positioning mode	FIX
Load to stamp segments	Off	Table position	Н
Load images to graphic	Off	Table position	0 mm
segments		MSMA	S-C-T
Auto open inline display	Off	Sagittal	R >> L
Start measurement without	On	Coronal	A >> P
further preparation		Transversal	F >> H
Wait for user to start	Off	Save uncombined	Off
Start measurements	single	Coil Combine Mode	Adaptive Combine
	G	AutoAlign	
outine		Auto Coil Select	Default
Slice group 1		Shim mode	Tune up
Slices	2	Adjust with body coil	Off
Dist. factor	700 %	Confirm freq. adjustment	Off
Position	L0.0 A30.9 F27.7	Assume Silicone	Off
Orientation	Transversal	? Ref. amplitude 1H	0.000 V
Phase enc. dir.	A >> P	Adjustment Tolerance	Auto
Rotation	0.00 deg	Adjust volume	rato
Phase oversampling	0 %	Position	Isocenter
FoV read	200 mm	Orientation	Transversal
FoV phase	100.0 %	Rotation	0.00 deg
Slice thickness	5.0 mm	R >> L	350 mm
TR	9.1 ms	A >> P	263 mm
TE	4.8 ms	F >> H	350 mm
Averages	1	1 >>11	330 11111
Concatenations	2	Physio	
Filter	None	1st Signal/Mode	None
Coil elements	HEA;HEP	Inline	
ontrast		Subtract	Off
TD	0 ms	Std-Dev-Sag	Off
MTC	Off	Std-Dev-Gag Std-Dev-Cor	Off
Flip angle	15 deg	Std-Dev-Tra	Off
Fat suppr.	None	Std-Dev-Time	
Water suppr.	None		Off
		MIP-Sag	Off
Averaging mode	Short term	MIP-Cor MIP-Tra	Off
Reconstruction	Magnitude	MIP-Tra MIP-Time	Off Off
Measurements	1		
Multiple series	Off	Save original images	On
esolution		Sequence	
	256	Introduction	Off
Base resolution	256	Dimension	2D
Phase resolution	100 %	Contrasts	1
Phase partial Fourier	Off Off	Bandwidth	390 Hz/Px
Interpolation	Off		
Matrix Coil Mode	Auto (CP)	Gradient mode	Fast
		RF spoiling	On
Image Filter	Off	Online ICE	Off
Distortion Corr.	Off	Selection box	Second Choice
Prescan Normalize	Off	Spoil me!	On
Normalize	Off	Test Time	400 ms
B1 filter	Off	dARRAY [1]	2.0 [UnitArr]
Raw filter	Off		
Elliptical filter	Off	dARRAY [2]	12.0 [UnitArr]
eometry		dARRAY [3]	22.00 [UnitArr]
Multi-slice mode	Sequential		

 $\label{loss} $$\USER\AMRIT\Liyong\20150303\fl_pc_venc10$$

TA: 1:36 PA	T: Off Voxel size: 1.5×1.	5×3.0 mm Rel. SNR: 1.00	SIEMENS: fl_pc
Properties		HEP	On
Prio Recon	Off	HEA	On
Before measurement	Oli	Positioning mode	FIX
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	Oli	Coil Combine Mode	Sum of Squares
Auto open inline display	Off	AutoAlign	Sull of Squares
Start measurement without	On	Auto Coil Select	Default
further preparation	Oli	Auto Coli Select	Delault
Wait for user to start	Off	Shim mode	Tune up
Start measurements		Adjust with body coil	Off
Start measurements	single	Confirm freq. adjustment	Off
outine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	700 %	Adjust volume	
Position	L0.0 A18.8 H0.6	Position	Isocenter
Orientation	T > C8.2 > S-4.4	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	192 mm	F >> H	350 mm
FoV phase	100.0 %		000 11111
Slice thickness	3.0 mm	Physio	
TR	22.55 ms	1st Signal/Mode	Pulse/Trigger
TE	7.37 ms	Average cycle	No Signal ms
Averages	1	Captured cycle	-not set-
Concatenations	1	Acquisition window	737 ms
Filter	None	Trigger pulse	1
	HEA;HEP	Trigger delay	0 ms
Coil elements	пеа,пер	Segments	1
Contrast		Phases	32
Flip angle	15 deg	Angio	
Averaging made	Chart tarm	Angio Flow mode	Cinalo dir
Averaging mode	Short term		Single dir.
Reconstruction	Magnitude	Encodings	•
Measurements		Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
esolution		Rephased images	On
Base resolution	128	Magnitude images	On O"
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	Off	Phase images	On
Interpolation	Off	Subtract	Off
		Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Tra	Off
Image Filter	Off	Std-Dev-Time	Off
Image Filter Distortion Corr.	Off	MIP-Sag	Off
Prescan Normalize	Off	MIP-Cor	Off
		MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off		On
Raw filter	Off	Save original images	OII
Elliptical filter	Off	Sequence	
eometry		Introduction	On
Multi-slice mode	Sequential	Dimension	2D
Series	Ascending	Asymmetric echo	Off
		Contrasts	1
Special sat.	None	Bandwidth	260 Hz/Px
Operation.			200 i i2/ i A
ystem		Flow comp.	No

RF pulse type
Gradient mode
RF spoiling

RF spoiling

Normal Fast On

 $\verb|\USER\AMRIT\>| Liyong \| 20150303 \| FLASH_orig_upper 6$

oportion		Special sat.	None
operties Prio Recon	Off	System	
Before measurement	Jii	Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off		
Auto store images	On	Positioning mode	FIX
Load to stamp segments	Off	Table position	H
Load images to graphic	Off	Table position	0 mm
segments		MSMA	S-C-T
Auto open inline display	Off	Sagittal	R >> L
Start measurement without	On	Coronal	A >> P
further preparation		Transversal	F >> H
Wait for user to start	Off	Save uncombined	Off
Start measurements	single	Coil Combine Mode	Adaptive Combine
	3 -	AutoAlign	
outine		Auto Coil Select	Default
Slice group 1		Shim mode	Tune up
Slices	6	Adjust with body coil	Off
Dist. factor	300 %	Confirm freq. adjustment	Off
Position	L0.0 A27.2 H29.8	Assume Silicone	Off
Orientation	Transversal	? Ref. amplitude 1H	0.000 V
Phase enc. dir.	A >> P	Adjustment Tolerance	Auto
Rotation	0.00 deg	Adjust volume	, 1010
Phase oversampling	0 %	Position	Isocenter
FoV read	192 mm	Orientation	Transversal
FoV phase	100.0 %	Rotation	0.00 deg
Slice thickness	5.0 mm	R >> L	350 mm
TR	9.1 ms	A >> P	263 mm
TE	4.8 ms	F >> H	350 mm
Averages	1	Į.	000 mm
Concatenations	6	Physio	
Filter	None	1st Signal/Mode	None
Coil elements	HEA;HEP	Inline	
ontrast		Subtract	Off
TD	0 ms	Std-Dev-Sag	Off
MTC	Off	Std-Dev-Sag Std-Dev-Cor	Off
Flip angle	15 deg	Std-Dev-Cor Std-Dev-Tra	Off
Fat suppr.	None	Std-Dev-Tra Std-Dev-Time	Off
Water suppr.	None	MIP-Sag	Off
		MIP-Sag	Off
Averaging mode	Short term	MIP-Tra	Off
Reconstruction	Magnitude	MIP-Tra	Off
Measurements	1		On
Multiple series	Off	Save original images	Oli
esolution		Sequence	
Base resolution	128	—— Introduction	Off
Phase resolution	100 %	Dimension	2D
Phase partial Fourier	Off	Contrasts	1
Interpolation	Off	Bandwidth	390 Hz/Px
		Gradient mode	Fast
Matrix Coil Mode	Auto (CP)	RF spoiling	On
Image Filter	Off		
Distortion Corr.	Off	Online ICE	Off
Prescan Normalize	Off	Selection box	Second Choice
		Spoil me!	On
Normalize B1 filter	Off Off	Test Time	400 ms
Raw filter	Off	dARRAY [1]	2.0 [UnitArr]
Elliptical filter	Off	dARRAY [2]	12.0 [UnitArr]
Empudai milei	OII	dARRAY [3]	22.00 [UnitArr]
eometry		1	
Multi-slice mode	Sequential		
Series	Ascending		

 $\label{lem:linear_loss} $$\USER\AMRIT\Liyong\20150303\fl_fq_mb6f3_bottom $$$

Properties		HEP	On
Prio Recon	Off	HEA	On
Before measurement	Oli	Positioning mode	FIX
After measurement		Table position	H
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	311	Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	
Start measurement without	On	Auto Coil Select	Default
further preparation	011	······	
Wait for user to start	Off	Shim mode	Tune up
Start measurements	single	Adjust with body coil	Off
	Sirigio	Confirm freq. adjustment	Off
outine		Assume Silicone	Off
Slice group 1		? Ref. amplitude 1H	0.000 V
Slices	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	
Position	L0.0 A27.2 F20.2	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	192 mm	F >> H	350 mm
FoV phase	100.0 %		
Slice thickness	5.0 mm	Physio	
TR	16.85 ms	1st Signal/Mode	Pulse/Trigger
TE	4.65 ms	Average cycle	No Signal ms
Averages	1	Captured cycle	-not set-
Concatenations	1	Acquisition window	800 ms
Filter	None	Trigger pulse	1
Coil elements	HEA;HEP	Trigger delay	0 ms
Con ciements	1127,1121	Segments	1
contrast		Phases	47
Flip angle	15 deg	Angio	
Averaging mode	Short term	Flow mode	Single dir.
Reconstruction	Magnitude	Encodings	1
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
·	Lacit measurement	Rephased images	On
esolution		—— Magnitude images	On
Base resolution	128	Phase images	On
Phase resolution	100 %		
Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
DAT mode	None	Std-Dev-Cor	Off
PAT mode Matrix Coil Mode	None	Std-Dev-Tra	Off
Matrix Coil Mode	Auto (CP)	Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off		
Elliptical filter	Off	Sequence	
•		Introduction	On
eometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
Series	Interleaved	Bandwidth	260 Hz/Px
Special sat.	None	Flow comp.	No
•	140116	RF pulse type	Normal
vetom			
System Body		Gradient mode	Fast

RF spoiling	On
MB Number	6
FOV Shift	3
Distance22	20

 $\verb|\USER\AMRIT\Liyong\20150303\FLASH_orig_upper| \\$

	Special sat.	None
Off	System	
		Off
	HEP	On
On	HEA	On
Off		
On		FIX
Off		Н
Off		0 mm
	_	S-C-T
Off		R >> L
On		A >> P
		F >> H Off
Off		
single		Adaptive Combine
		Defects
	Auto Coll Select	Default
4	Shim mode	Tune up
	Adjust with body coil	Off
	Confirm freq. adjustment	Off
	Assume Silicone	Off
	? Ref. amplitude 1H	0.000 V
		Auto
	Adjust volume	
	Position	Isocenter
	Orientation	Transversal
	Rotation	0.00 deg
	R >> L	350 mm
	A >> P	263 mm
	F >> H	350 mm
	I .	
•	•	
	1st Signal/Mode	None
HEA;HEP	Inline	
		Off
0 ms		Off
Off	G	Off
15 deg		Off
None		Off
None		Off
Chart tare	MIP-Cor	Off
	MIP-Tra	Off
_	MIP-Time	Off
	Save original images	On
Oli		
	•	0#
128		Off
100 %		2D
Off		1 200 H-/D:
Off	Bandwidth	390 Hz/Px
	Gradient mode	Fast
Auto (CP)	RF spoiling	On
Off		
Off		Off
Off		Second Choice
		On
Off		400 ms
Off		2.0 [UnitArr]
	dARRAY [2]	12.0 [UnitArr]
Off		
Off	dARRAY [3]	22.00 [UnitArr]
Sequential	dARRAY [3]	22.00 [UnitArr]
	On Off On Off On Off Off Off Off Off On Off On Off Single 4 700 % L0.0 A27.2 H29.8 Transversal A >> P 0.00 deg 0 % 192 mm 100.0 % 5.0 mm 9.1 ms 4.8 ms 1 4 None HEA;HEP 0 ms Off 15 deg None None Short term Magnitude 1 Off 128 100 % Off Off Off Off Off Off Off Off Off Of	Off System Body HEP On HEA Off Positioning mode Table position Table position MSMA Sagittal Cornal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil Confirm freq, adjustment Assume Silicone Ref. amplitude 1H Assume Silicone Position Orientation Rotation Rotation Rotation <tr< td=""></tr<>

 $\label{lem:linear_loss} $$\USER\AMRIT\Liyong\20150303\fl_fq_mb4f2_bottom $$$

TA: 1:45 PA	•	5x5.0 mm Rel. SNR: 1.00	USER: fl_fq_mb
Properties		HEP	On
Prio Recon	Off	HEA	On
Before measurement	Oli	Positioning mode	FIX
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	3 11	Coil Combine Mode	Adaptive Combine
Auto open inline display	Off	AutoAlign	
Start measurement without	On	Auto Coil Select	Default
further preparation	Oli	Auto Coli Select	
Wait for user to start	Off	Shim mode	Tune up
Start measurements		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	1	Adjustment Tolerance	Auto
Dist. factor	20 %	Adjust volume	
Position	L0.0 A27.2 F30.2	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	192 mm	F >> H	350 mm
FoV phase	100.0 %	1 >>11	330 11111
Slice thickness	5.0 mm	Physio	
TR	16.85 ms	1st Signal/Mode	Pulse/Trigger
TE	4.65 ms	Average cycle	No Signal ms
	4.05 ms 1	Captured cycle	-not set-
Averages	1	Acquisition window	800 ms
Concatenations	·	Trigger pulse	1
Filter	None	Trigger delay	0 ms
Coil elements	HEA;HEP	Segments	1
Contrast		Phases	47
Flip angle	15 deg	I	
		Angio	<u> </u>
Averaging mode	Short term	Flow mode	Single dir.
Reconstruction	Magnitude	Encodings	1
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction	Through plane
Resolution		Rephased images	On
Base resolution	128	— Magnitude images	On
Phase resolution	100 %	Phase images	On
Phase resolution Phase partial Fourier	Off	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
PAT mode	None	Std-Dev-Cor Std-Dev-Tra	Off
Matrix Coil Mode	Auto (CP)		Off Off
		Std-Dev-Time	Off
Image Filter	Off	MIP-Sag	Off
Distortion Corr.	Off	MIP-Cor	Off
Prescan Normalize	Off	MIP-Tra	Off
Normalize	Off	MIP-Time	Off
B1 filter	Off	Save original images	On
Raw filter	Off	Sequence	
Elliptical filter	Off	Introduction	On
Geometry		Asymmetric echo	Off
Multi-slice mode	Sequential	Contrasts	1
	Sequential	Bandwidth	260 Hz/Px
Series	Interleaved		
Special sat.	None	Flow comp.	No
•		RF pulse type	Normal
System			_
Body	Off	Gradient mode	Fast

RF spoiling	On
MB Number	4
FOV Shift	2
Distance22	40

$\verb|\USER\AMRIT\Liyong\20150303\ep2d_mb3_flashref| \\$

TA: 3.3 s PAT: 2 Voxel size: 1.6×1.6×5.0 mm Rel. SNR: 1.00 USER: ep2d_bold_sbmb_cte_ipat_fov_asym_fl

Properties		Special sat.	None
Prio Recon	Off	System	
Before measurement		Body	Off
After measurement		HEP	On
Load to viewer	On	HEA	On
Inline movie	Off		
Auto store images	On Off	Positioning mode	REF
Load to stamp segments	Off	Table position	Н
Load images to graphic	Off	Table position	0 mm
segments	Off	MSMA	S-C-T
Auto open inline display Start measurement without	On	Sagittal	R >> L
further preparation	Oli	Coronal	A >> P
Wait for user to start	Off	Transversal	F >> H
Start measurements	single	Coil Combine Mode	Sum of Squares
Start measurements	Sirigie	AutoAlign Auto Coil Select	 Default
Routine		_ Auto Coil Select	Delauli
Slice group 1		Shim mode	Standard
Slices	12	Adjust with body coil	Off
Dist. factor	50 %	Confirm freq. adjustment	Off
Position	L0.0 A16.3 H0.0	Assume Silicone	Off
Orientation	Transversal	? Ref. amplitude 1H	0.000 V
Phase enc. dir.	A >> P	Adjustment Tolerance	Auto
Rotation	0.00 deg	Adjust volume	
Phase oversampling	0 %	Position	L0.0 A16.3 H0.0
FoV read	200 mm	Orientation	Transversal
FoV phase	100.0 %	Rotation	0.00 deg
Slice thickness	5.00 mm	R >> L	200 mm
TR	300 ms	A >> P	200 mm
TE	30 ms	F >> H	88 mm
Averages	1	Physio	
Concatenations	1	1st Signal/Mode	None
Filter	None		140110
Coil elements	HEA;HEP	BOLD	
Contrast		GLM Statistics	Off
MTC	Off	Dynamic t-maps	Off
Flip angle	90 deg	Starting ignore meas	0
Fat suppr.	Fat sat.	Ignore after transition	0
	L 4	Model transition states	On
Averaging mode	Long term	Temp. highpass filter	On
Reconstruction	Magnitude 8	Threshold	4.00
Measurements		Paradigm size	20
Delay in TR Multiple series	0 ms Off	Meas[1]	Baseline
Multiple series	Oii	Meas[2]	Baseline
Resolution		Meas[3]	Baseline
Base resolution	128	- Meas[4]	Baseline
Phase resolution	100 %	Meas[5]	Baseline
Phase partial Fourier	6/8	Meas[6]	Baseline
Interpolation	Off	Meas[7]	Baseline
DAT mode	CDADDA	Meas[8]	Baseline
PAT mode Accel. factor PE	GRAPPA	Meas[9]	Baseline
Ref. lines PE	2	Meas[10]	Baseline
	24 Auto (Triplo)	Meas[11]	Active
Matrix Coil Mode	Auto (Triple)	Meas[12]	Active
Reference scan mode	Separate	Meas[13]	Active
Distortion Corr.	Off	Meas[14]	Active
Prescan Normalize	Off	Meas[15]	Active
Raw filter	Off	Meas[16]	Active
Elliptical filter	Off	Meas[17]	Active
Hamming	Off	Meas[18]	Active
· ·		Meas[19]	Active
Geometry		Meas[20]	Active
Multi-slice mode	Interleaved Ascending	Motion correction Interpolation	On 3D-K-space
Series			

	Spatial filter	Off				
	Sequence					
	Introduction	Off				
	Bandwidth	1698 Hz/Px				
	Free echo spacing	Off 0.76 ms				
	Echo spacing	0.76 IIIS				
	EPI factor	128				
	RF pulse type	Normal				
	Gradient mode	Fast				
	RF spoiling	On				
	RF90 duration	5120				
	MB Number	3				
	DummyScan Number	1				
	FOV Shift Number	2				
	Shift K0 Center	1				
	Every Other Slice	1				
	SER Number	1				
	2nd RFoff(1)	0				
	Polarity(1)	0				
	Dephase(0) Echo Distance	0 1.00				
	MB Measurements	4				
	Ramp On	On				
ı	Namp On	OII				

 $\label{local_loc$

Rel. SNR: 1.00

Voxel size: 1.6×1.6×5.0 mm

TA: 3.0 s

USER: ep_seg_fid_venc

roperties		System	
Prio Recon	Off	Body	On
Before measurement		HEP	Off
After measurement		Positioning mode	REF
Load to viewer	On	Table position	H
Inline movie	Off	Table position	0 mm
Auto store images	On	MSMA	S - C - T
Load to stamp segments	Off	Sagittal	R >> L
Load images to graphic	Off	Coronal	A >> P
segments		Transversal	F >> H
Auto open inline display	Off	Save uncombined	Off
Start measurement without	On	Coil Combine Mode	Sum of Squares
further preparation		AutoAlign	
Wait for user to start	Off	Auto Coil Select	Default
Start measurements	single		
outine		Shim mode	Standard
Slice group 1		Adjust with body coil	Off
Slices	1	Confirm freq. adjustment	Off
Dist. factor	50 %	Assume Silicone	Off
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
FoV read	200 mm	Rotation	0.00 deg
FoV phase	100.0 %	R >> L	200 mm
Slice thickness	5.0 mm	A >> P	200 mm
TR	23 ms	F >> H	5 mm
TE	4.3 ms	Physio	
Averages	1	1st Signal/Mode	None
Concatenations	1	Segments	43
Filter	None	·····	
Coil elements	BC	Resp. control	Off
		Sequence	
Contrast MTC	Off	Introduction	Off
Flip angle	_	Dimension	2D
	15 deg	Bandwidth	1502 Hz/Px
Fat suppr.	Fat sat.		Off
Averaging mode	Long term	Echo spacing	1.03 ms
Reconstruction	Magnitude		
Measurements	3	EPI factor	3
Pause after meas. 1	0.0 s	RF pulse type	Normal
Pause after meas. 2	0.0 s	Gradient mode	Fast
Multiple series	Each measurement	RF spoiling	On
esolution		Flow Compensation	Off
Base resolution	128	Centric Reorder	Off
Phase resolution	100 %	Pat Ref Scan	Off
		VENC value	0
Phase partial Fourier	Off Off	Undersampled	Off
Interpolation	OII		
Matrix Coil Mode	Auto (CP)		
Distortion Corr.	Off		
Prescan Normalize	Off		
Raw filter	Off		
Elliptical filter	Off		
Hamming	Off		
_	OII		
Geometry	O-marti I		
Multi-slice mode Series	Sequential Ascending		
Special sat.	Ascending		

 $\verb|\USER\AMRIT\Liyong\20150303\ep_seg_fid65_venc|$

TA: 0.6 s	Voxel size: 1.6×1.6×5.0 n	nm Rel. SNR: 1.00 USER: e	p_seg_fid_venc
Properties		System	
Prio Recon	Off	Body	On
Before measurement		HEP	Off
After measurement		Docitioning mode	DEE
Load to viewer	On	Positioning mode	REF
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	MSMA Sociital	S-C-T
Load images to graphic	Off	Sagittal Coronal	R >> L A >> P
segments		Transversal	F >> H
Auto open inline display	Off		Cff
Start measurement without	On	Save uncombined Coil Combine Mode	Sum of Squares
further preparation		AutoAlign	
Wait for user to start	Off	Auto Coil Select	Default
Start measurements	single	Auto Coil Select	Delault
Routine		Shim mode	Standard
		Adjust with body coil	Off
Slice group 1 Slices	1	Confirm freq. adjustment	Off
Dist. factor	1 50 %	Assume Silicone	Off
Position		? Ref. amplitude 1H	0.000 V
Orientation	Isocenter Transversal	Adjustment Tolerance	Auto
	A >> P	Adjust volume	
Phase enc. dir. Rotation		Position	Isocenter
	0.00 deg	Orientation	Transversal
Phase oversampling	0 %	Rotation	0.00 deg
FoV read	200 mm	R >> L	200 mm
FoV phase Slice thickness	100.0 %	A >> P	200 mm
TR	5.0 mm	F >> H	5 mm
TE	68 ms 27 ms	Dhuais	
	27 ms 1	Physio	Mana
Averages Concatenations	1	1st Signal/Mode	None
Filter	None	Segments	2
Coil elements	BC	Resp. control	Off
Con elements	ВС	· ·	
Contrast		Sequence	0"
MTC	Off	Introduction	Off
Flip angle	15 deg	Dimension	2D
Fat suppr.	Fat sat.	Bandwidth	1502 Hz/Px
Averaging mode	Long torm		Off
Averaging mode Reconstruction	Long term Magnitude	Echo spacing	0.75 ms
Measurements	3	EPI factor	65
Pause after meas. 1	0.0 s	RF pulse type	Normal
Pause after meas. 1 Pause after meas. 2	0.0 s 0.0 s	Gradient mode	Fast
Multiple series	0.0 s Each measurement	RF spoiling	On
·	Each measurement		
Resolution		Flow Compensation	Off
Base resolution	128	Centric Reorder	Off
Phase resolution	100 %	Pat Ref Scan	Off
Phase partial Fourier	Off	VENC value	0
Interpolation	Off	Undersampled	Off
Matrix Coil Mode	Auto (CP)		
Distortion Corr.	Off		
Prescan Normalize	Off		
Raw filter	Off		
Elliptical filter	Off		
Hamming	Off		
-	J.,		
Geometry			
Multi-slice mode	Sequential		
Series	Ascending		
Special sat.	None		
opoolal oat.	. 10110		

 $\verb|\USER\AMRIT\Liyong\20150303\ep_seg_fid33_venc|$

TA: 0.5 s	Voxel size: 1.6×1.6×5.0		p_seg_fid_venc
Properties		System	
Prio Recon	Off	Body	Off
Before measurement		HEP	On
After measurement		Desitioning mode	DEE
Load to viewer	On	Positioning mode	REF H
Inline movie	Off	Table position Table position	П 0 mm
Auto store images	On	MSMA	S - C - T
Load to stamp segments	Off	Sagittal	R >> L
Load images to graphic	Off	Coronal	A >> P
segments		Transversal	F >> H
Auto open inline display	Off	Save uncombined	Off
Start measurement without	On	Coil Combine Mode	Sum of Squares
further preparation	0"	AutoAlign	
Wait for user to start	Off	Auto Coil Select	Default
Start measurements	single		
Routine		Shim mode	Standard
Slice group 1		Adjust with body coil	Off
Slices	1	Confirm freq. adjustment	Off
Dist. factor	50 %	Assume Silicone	Off
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
FoV read	200 mm	Rotation	0.00 deg
FoV phase	100.0 %	R >> L	200 mm
Slice thickness	5.0 mm	A >> P	200 mm
TR	33 ms	F >> H	5 mm
TE	16 ms	Physio	
Averages	1	1st Signal/Mode	None
Concatenations	1	Segments	4
Filter	None	Door control	
Coil elements	HEP	Resp. control	Off
Contrast		Sequence	
MTC	Off	Introduction	Off
Flip angle	15 deg	Dimension	2D
Fat suppr.	None	Bandwidth	1502 Hz/Px
			Off
Averaging mode	Long term	Echo spacing	0.79 ms
Reconstruction	Magnitude	EPI factor	33
Measurements Pause after meas. 1	3 0.0 s	RF pulse type	Normal
Pause after meas. 1 Pause after meas. 2	0.0 s 0.0 s	Gradient mode	Fast
Multiple series	O.U S Off	RF spoiling	On
·	OII		
Resolution		Flow Compensation	Off
Base resolution	128	Centric Reorder	On On
Phase resolution	100 %	Pat Ref Scan	On 10
Phase partial Fourier	Off	VENC value	10 On
Interpolation	Off	Undersampled	On
Matrix Coil Mode	Auto (CP)		
Distortion Corr.	Off		
Prescan Normalize	Off		
Raw filter	Off		
Elliptical filter	Off		
Hamming	Off		
Geometry			
Multi-slice mode	Sequential		
Series	Ascending		
Special sat.	None		
openiai sat.	140110		

$\verb|\USER\AMRIT\Liyong\20150303\fl_gre|$

TA: 2:21 PAT: Off Voxel size: 0.8×0.8×2.0 mm Rel. SNR: 1.00 USER: fl_gre

Properties		Geometry	
Prio Recon	Off	Multi-slice mode	Sequential
Before measurement		Series	Descending
After measurement		Special sat.	None
Load to viewer	On	1 .	None
Inline movie	Off	System	
Auto store images	On	Body	On
Load to stamp segments	Off	HEP	Off
Load images to graphic	Off	Positioning mode	REF
segments		Table position	H
Auto open inline display	Off	Table position	0 mm
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
Routine		Save uncombined	Off
Slab group 1		Coil Combine Mode	Adaptive Combine
Slabs	1	AutoAlign	
Dist. factor	-50.00 %	Auto Coil Select	 Default
Position	Isocenter	Auto Con Select	Delauli
Orientation	Transversal	Shim mode	Tune up
Phase enc. dir.	A >> P	Adjust with body coil	Off
Rotation	0.00 deg	Confirm freq. adjustment	Off
Phase oversampling	0.00 deg 0 %	Assume Silicone	Off
Slice oversampling	25.0 %	? Ref. amplitude 1H	0.000 V
Slices per slab	32	Adjustment Tolerance	Auto
FoV read	200 mm	Adjust volume	
FoV phase	100.0 %	Position	Isocenter
Slice thickness	2.00 mm	Orientation	Transversal
TR	21 ms	Rotation	0.00 deg
TE	10.00 ms	R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	1	F >> H	350 mm
Filter	None	Dhysis	
Coil elements	BC	Physio	None
	20	1st Signal/Mode	None
Contrast		Dark blood	Off
MTC	Off	Angio	
Flip angle	20 deg	Angio TONE ramp	70 %
Fat suppr.	None	Flow direction	70 % F >> H
Water suppr.	None	3D centric reordering	On
Averaging mode	Short term		
Reconstruction	Magnitude	Subtract	Off
Measurements	1	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
Resolution	050	Std-Dev-Tra	Off
Base resolution	256	Std-Dev-Time	Off
Phase resolution	100 %	MIP-Sag	Off
Slice resolution	100 %	MIP-Cor	Off
Phase partial Fourier	6/8	MIP-Tra	Off
Slice partial Fourier	6/8	MIP-Time	Off
Interpolation	Off	Save original images	On
PAT mode	None	Sequence	
Matrix Coil Mode	Auto (CP)	Introduction	Off
		Dimension	3D
Image Filter	Off	Elliptical scanning	Off
Distortion Corr.	Off	Asymmetric echo	Allowed
Prescan Normalize	Off	Contrasts	1
			·
Normalize	Off	Bandwidth	78 Hz/Px
B1 filter	Off	Bandwidth Flow comp	78 Hz/Px Yes
B1 filter Raw filter	Off Off	Flow comp.	Yes
B1 filter	Off		

 $\verb|\USER\AMRIT\Liyong\20150303\ep_seg_fid33_venc|$

TA: 6.9 s	Voxel size: 1.6×1.6×5.0 mm	Rel. SNR: 1.00 USER: e	p_seg_fid_venc
Properties		Hamming	Off
Prio Recon	Off	Geometry	
Before measurement		Multi-slice mode	Interleaved
After measurement		Series	Interleaved
Load to viewer	On	Chariel ant	Nana
Inline movie	Off	Special sat.	None
Auto store images	On	Custom	
Load to stamp segments	Off	System	0"
Load images to graphic	Off	Body	Off
segments		HEP HEA	On 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
Routine		Sagittal	R >> L
Slice group 1		- Coronal	A >> P
Slices	1	Transversal	F >> H
Dist. factor	50 %	Save uncombined	Off
Position	Isocenter	Coil Combine Mode	Sum of Squares
Orientation	Transversal	AutoAlign	
Phase enc. dir.	A >> P	Auto Coil Select	Default
Rotation	0.00 deg	Shim mode	Standard
Phase oversampling	0 %	Adjust with body coil	Off
FoV read	200 mm	Confirm freq. adjustment	Off
FoV phase	100.0 %	Assume Silicone	Off
Slice thickness	5.0 mm	? Ref. amplitude 1H	0.000 V
TR	138 ms	Adjustment Tolerance	Auto
TE	16 ms	Adjust volume	
Averages	1	Position	Isocenter
Concatenations	1	Orientation	Transversal
Filter	None	Rotation	0.00 deg
Coil elements	HEA;HEP	R >> L	200 mm
Contrast		A >> P	200 mm
MTC	Off	- F >> H	5 mm
Flip angle	15 deg	Physio	
Fat suppr.	None	1st Signal/Mode	None
		Segments	4
Averaging mode	Long term	·····	
Reconstruction	Magnitude	Resp. control	Off
Measurements	10	Sequence	
Pause after meas. 1 Pause after meas. 2	0.0 s 0.0 s	Introduction	Off
Pause after meas. 2 Pause after meas. 3	0.0 s 0.0 s	Dimension	2D
Pause after meas. 4	0.0 s 0.0 s	Bandwidth	1502 Hz/Px
Pause after meas. 5	0.0 s	Free echo spacing	Off
Pause after meas. 6	0.0 s	Echo spacing	0.79 ms
Pause after meas. 7	0.0 s		22
Pause after meas. 8	0.0 s	EPI factor	33 Normal
Pause after meas. 9	0.0 s	RF pulse type	Normal Foot
Multiple series	Each measurement	Gradient mode	Fast
		RF spoiling	On
Resolution	420	Flow Compensation	Off
Base resolution	128	Centric Reorder	On
Phase resolution	100 %	Pat Ref Scan	On
Phase partial Fourier	Off Off	VENC value	10
Interpolation	Off	Undersampled	On
Matrix Coil Mode	Auto (CP)		
Distortion Corr.	Off		
Prescan Normalize	Off		
Raw filter	Off		
Elliptical filter	Off		
•			

TA: 1:06	Voxel size: 1.6×1.6×5.0 mm	Rel. SNR: 1.00 USER: e	p_seg_fid_venc
Droportion		Body	Off
Properties	0"	- HEP	On
Prio Recon Before measurement	Off	HEA	On
After measurement		Positioning mode	REF
Load to viewer	On	Table position	H
Inline movie	Off	Table position	0 mm
Auto store images	On	MSMA	S - C - T
Load to stamp segments	Off	Sagittal	R >> L
Load images to graphic	Off	Coronal	A >> P
segments	GII	Transversal	F >> H
Auto open inline display	Off	Save uncombined	Off
Start measurement without	On	Coil Combine Mode	Sum of Squares
further preparation	311	AutoAlign	
Wait for user to start	Off	Auto Coil Select	Default
Start measurements	single		
	Sing.S	Shim mode	Standard
Routine		Adjust with body coil	Off
Slice group 1		Confirm freq. adjustment	Off
Slices	1	Assume Silicone	Off
Dist. factor	50 %	? Ref. amplitude 1H	0.000 V
Position	L0.0 A6.7 H90.2	Adjustment Tolerance	Auto
Orientation	Transversal	Adjust volume	
Phase enc. dir.	A >> P	Position	L0.0 A6.7 H90.2
Rotation	0.00 deg	Orientation	Transversal
Phase oversampling	0 %	Rotation	0.00 deg
FoV read	200 mm	R >> L	200 mm
FoV phase	100.0 %	A >> P	200 mm
Slice thickness	5.0 mm	F >> H	5 mm
TR	33 ms	Physio	
TE	16 ms	1st Signal/Mode	None
Averages	1	Segments	4
Concatenations	1	·····	
Filter	None	Resp. control	Off
Coil elements	HEA;HEP	Sequence	
Contrast		Introduction	Off
MTC	Off	Dimension	2D
Flip angle	15 deg	Bandwidth	1502 Hz/Px
Fat suppr.	None	Free echo spacing	Off
		Echo spacing	0.79 ms
Averaging mode	Long term		
Reconstruction	Magnitude	EPI factor	33
Measurements	400	RF pulse type	Normal
Pause after meas.	0.0 s	Gradient mode	Fast
Multiple series	Off	RF spoiling	On
Resolution		Flow Compensation	Off
Base resolution	128	Centric Reorder	On
Phase resolution	100 %	Pat Ref Scan	On
Phase partial Fourier	Off	VENC value	10
Interpolation	Off	Undersampled	On
Matrix Coil Mode	Auto (CP)		
Distortion Corr.	Off		
Prescan Normalize	Off		
Raw filter	Off		
Elliptical filter	Off		
•	Off		
Hamming			
Hamming Geometrv	.		
Geometry		-	
Geometry Multi-slice mode	Sequential	-	
Geometry		-	

System

 $\verb|\USER\AMRIT\Liyong\20150303\ep_seg_fid33_venc10_tr400| \\$

TA: 1:06	Voxel size: 1.6×1.6×5.0 mm	Rel. SNR: 1.00 USER: e	p_seg_fid_venc
Dranantia		Body	Off
Properties		- HEP	On
Prio Recon	Off	HEA	On
Before measurement			
After measurement	_	Positioning mode	REF
Load to viewer	On	Table position	H
Inline movie	Off	Table position	0 mm
Auto store images	On	MSMA	S - C - T
Load to stamp segments	Off	Sagittal	R >> L
Load images to graphic	Off	Coronal	A >> P
segments		Transversal	F >> H
Auto open inline display	Off	Save uncombined	Off
Start measurement without	On	Coil Combine Mode	Sum of Squares
further preparation		AutoAlign	
Wait for user to start	Off	Auto Coil Select	Default
Start measurements	single	Chim made	Standard
Routine		Shim mode	
		Adjust with body coil	Off
Slice group 1		Confirm freq. adjustment	Off
Slices	1	Assume Silicone	Off
Dist. factor	50 %	? Ref. amplitude 1H	0.000 V
Position	L0.0 A13.9 H15.7	Adjustment Tolerance	Auto
Orientation	Transversal	Adjust volume	
Phase enc. dir.	A >> P	Position	L0.0 A13.9 H15.7
Rotation	0.00 deg	Orientation	Transversal
Phase oversampling	0 %	Rotation	0.00 deg
FoV read	200 mm	R >> L	200 mm
FoV phase	100.0 %	A >> P	200 mm
Slice thickness	5.0 mm	F >> H	5 mm
TR	33 ms	Physio	
TE	16 ms	1st Signal/Mode	None
Averages	1	Segments	4
Concatenations	1	Segments	4
Filter	None	Resp. control	Off
Coil elements	HEA;HEP	1	
Contrast		Sequence	0"
	0#	Introduction	Off
MTC	Off	Dimension	2D
Flip angle	15 deg	Bandwidth	1502 Hz/Px
Fat suppr.	None	Free echo spacing	Off
Averaging mode	Long term	Echo spacing	0.79 ms
Reconstruction	Magnitude	EPI factor	33
Measurements	400	RF pulse type	Normal
Pause after meas.	0.0 s	Gradient mode	Fast
Multiple series	Off	RF spoiling	On
•	On .		
Resolution		Flow Compensation	Off
Base resolution	128	Centric Reorder	On
Phase resolution	100 %	Pat Ref Scan	On
Phase partial Fourier	Off	VENC value	100
Interpolation	Off	Undersampled	On
Matrix Coil Mode	Auto (CP)	'	
Distortion Corr			
Distortion Corr.	Off		
Prescan Normalize	Off		
Raw filter	Off		
Elliptical filter	Off		
Hamming	Off		
Geometry Multi-slice mode	Sequential	-	
	•		
Series	Ascending		
Special sat.	None		
0 1			

System

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Properties	TA: 0:13 PAT: Off Voxel size: 1.1×1.0×7.0 mm Rel. SNR: 1.00 SIEMENS: gre			
Prio Recon Definition Def	Droportion		Phase resolution	90 %
Before measurement Load to viewer On Inflier position On Inflier On In		0"	Phase partial Fourier	Off
Alter measurement Load to viewer On Inline movie Off Matrix Coll Mode Auto (CP) Inline movie Off Matrix Coll Mode Auto (CP) Auto (Coll Mode (CP) Auto (Coll		OII	Interpolation	On
Load to viewer On			PAT mode	None
Inline movie		On		
Auto store images				Adio (Ci)
Load to stamp segments			Image Filter	_
Load images to graphic segments Auto open inline display Off segments		_		Off
Segments				* ··
Auto open inline display Off Start measurement without further preparation Off Start measurements Single Start measurements Start measurements Single Start measurements Start measurements Single Start measurements Start measurements Start measurements Start measurement St				_
Start measurement without further preparation Wait for user to start Off Elliptical filter Off Content Off Content Con		Off		
Further preparation Wait for user to start Off Start measurements Single Start measurements Single Start measurements Single Single Silice group 1 Silices 1 Silices 1 Silices Starturation Sagittal Starturation Sagittal Starturation Starturation Sagittal Starturation Sagittal Starturation Startura			1 -	
Wait for user to start Off Start measurements Single Souther				
State Sequential Sequenti		Off		
Slice group 1 Slices	Start measurements	single	Mode	inpiane
Multi-slice mode Sequential	Pouting		Geometry	
Silices 1			- Multi-slice mode	Sequential
Dist. factor		1	Series	Interleaved
Position			Saturation mode	Standard
Orientation Sagittal Phase enc. dir. A >> P Rotation 0.00 deg Slice group 2 System Slices 1 Dist. factor 20 % Position Isocenter HEP On Orientation Transversal Phase enc. dir. A >> P Rotation 0.00 deg Flore group 3 Table position Slice group 3 Hand the position Slice group 3 Table position Slice group 3 MSMA S · C · T Slice group 3 Sagittal R > L Slice group 3 Sagittal R > L Slice group 3 Laster group the position H m Slice group 3 Silce thing the position H m Slice strict 1 Sagittal R > L Distanctor 20 % Coronal A > P Postition Isocenter Transversal F > H Average 250 mm Aluto Coil Select Default				
Phase enc. dir. A >> P Tim CT mode Off Rotation 0.00 deg System Slices group 2 Silces 1 Body Off Dist. factor 20 % HEP On Position Isocenter HEA On Orientation Transversal Positioning mode REF Phase enc. dir. A >> P Table position H Rotation 0.00 deg MSMA S · C · T Slices of 1 Sagital R >> L Dist. factor 20 % Coronal A >> P Position Isocenter Transversal R >> L Orientation Coronal A >> P Orientation Coronal A >> P Orientation O.00 deg Auto Acidion Adaptive Combine Phase eversampling 0 % Auto Coil Select Default Fov read 250 mm Auto Coil Select Default Fov phase 100.0 % Alude transplance Auto Coil Select De				
Rotation Slice group 2 System System		•		
Silce group 2 Silce s 1 Body Off			Tim C1 mode	OII
Silices		0.00 4 0g	System	
Desition Socenter Position Socenter Position Transversal Phase enc. dir. A > P Position Table position H Table position Table		1	Body	Off
Note	Dist. factor	20 %	HEP	On
Phase enc. dir. A >> P	Position		HEA	On
Phase enc. dir. A >> P Rotation O.00 deg	Orientation	Transversal	Positioning mode	DEE
Rotation Slice group 3 Slices 1	Phase enc. dir.	A >> P		
Silice group 3	Rotation	0.00 deg		
Silces 1 20 % Coronal R >> L Coronal A >> P	Slice group 3	-		-
Dist. factor	Slices	1		
Position Socenter Coronal Save uncombined Off Off	Dist. factor	20 %		
Orientation Coronal Phase enc. dir. R >> L Save uncombined Coil Combine Mode Adaptive Combine Adaptive	Position	Isocenter		
Phase enc. dir. Rotation Phase oversampling FoV read FoV phase Slice thickness TR 8.6 ms TR Averages Concatenations Filter Coil elements FERSE Staypr. Water suppr. Averaging mode Resolution Resolution Roy read Slice thickness Size thickness TO mm Adjust with body coil Confirm freq. adjustment Adjust with body coil Confirm freq. adjustment Off Confirm freq. adjustment Off Confirm freq. adjustment Off Confirm freq. adjustment Off Assume Silicene Off Confirm freq. adjustment Off Assume Silicene Auto Adjust wolume Position Resolution Filip angle Segments Filer Ferse frequency Adjust with body coil Off Confirm freq. adjustment Off Confirm freq. adjustment Off Confirm freq. adjustment Off Confirm freq. adjustment Off Assume Silicene Off Confirm freq. adjustment Off Confirm freq. adjustment Off Confirm freq. adjustment Off Assume Silicene Off Confirm freq. adjustment Off Assume Silicene Off Confirm freq. adjustment Off Confirm freq. adjustment Off Confirm freq. adjustment Off Confirm freq. adjustment Off Assume Silicene Off Confirm freq. adjustment Off Off Confirm freq. adjustment Off Confir	Orientation			
Rotation			Coil Combine Mode	Adaptive Combine
FoV read				•
FoV phase 100.0 % Shim mode Tune up Adjust with body coil Off Confirm freq. adjustment Onf Confirm freq. adjustmen			Auto Coil Select	Default
Slice thickness 7.0 mm Adjust with body coil Off			Oh: d-	T
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 Adjust volume Position Isocenter Coil elements HEA;HEP Orientation Transversal Rotation 0.00 deg R >> L 350 mm MOTC Off F >> H 350 mm Magn. preparation None F >> H 350 mm Filip angle 20 deg Physio Physio Fat suppr. None Segments 1 Averaging mode Short term Dark blood Off Resolution Resp. control Off Resp. control Off Subtract Off Liver registration Off Liver registration Off				•
TE 4.00 ms Averages 2 Concatenations 3 Filter Prescan Normalize, Elliptical filter Coil elements HEA;HEP Contrast TD 0 ms MTC Off Asy P 263 mm MTC Magn. preparation None Flip angle 20 deg Fat suppr. Water suppr. None Water suppr. None Assume Silicone Off Page resolution Assume Silicone ? Ref. amplitude 1H 0.000 V Adjustment Tolerance Auto Adjust volume Position Isocenter Orientation Transversal Rotation 0.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm A >> P 263 mm F >> H 350 mm A >> P 350 mm A >> P 350 mm Dark blood Off Resp. control Off Resp. control Off Resp. control Off Coff Coff Coff Coff Coff Coff Coff				
Averages 2 Concatenations 3 Filter Prescan Normalize, Elliptical filter Position Isocenter Coil elements HEA;HEP Orientation Transversal Rotation 0.00 deg TD Oms Off F>> H Signal/Mode None Filip angle 20 deg Fat suppr. None Water suppr. None Water suppr. None Averaging mode Short term Resolution Magnitude Measurements 1 Multiple series Each measurement Resolution Prescan Normalize, Elliptical Adjust volume Position Isocenter Orientation Transversal Rotation 0.00 deg R >> L 350 mm AA >> P 263 mm F >> H 350 mm Physio 1st Signal/Mode None Segments 1 Dark blood Off Resp. control Off Resp. control Off Resp. control Off Resp. control Off Liver registration Off				
Concatenations Filter Prescan Normalize, Elliptical filter Coil elements HEA;HEP Orientation TD Off Magn. preparation Filip angle Fat suppr. Water suppr. Averaging mode Reconstruction Measurements Multiple series Resolution Resolution Adjustment Tolerance Adjust volume Position Orientation Transversal Rotation O.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm Physio 1st Signal/Mode None Segments 1 Dark blood Off Resp. control Off Resp. control Off Liver registration				_
Filter Prescan Normalize, Elliptical filter Position Isocenter Coil elements HEA;HEP Orientation Transversal Rotation 0.00 deg R >> L 350 mm A >> P 263 mm Filp angle 20 deg Fat suppr. None Pater suppr. None Segments 1 Averaging mode Reconstruction Magnitude Resolution Magnitude Measurements 1 Multiple series Each measurement Inline Resolution Orientation Transversal Rotation 0.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm None Off Physio Dark blood Off Resp. control Off Resp. control Off Subtract Off Liver registration Off				
Coil elements				Adio
Contrast TD 0 ms A >> P 263 mm MTC Off F >> H 350 mm Magn. preparation Flip angle 20 deg Fat suppr. None Water suppr. None Water suppr. None Averaging mode Short term Acconstruction Magnitude Resonstruction Magnitude Resonstruction Magnitude Resonstruction Magnitude Resonstruction Magnitude Resolution Resolution Resolution Orientation Transversal Rotation 0.00 deg R >> L 350 mm A >> P 263 mm F >> H 350 mm None Ist Signal/Mode None Segments 1 Dark blood Off Resp. control Off Inline Subtract Off Liver registration Off	i litei			Isocenter
Rotation 0.00 deg R >> L 350 mm A >> P 263 mm A > P	Coil elements			
Contrast TD 0 ms	ı			
TD 0 ms 0 ms A >> P 263 mm MTC Off F >> H 350 mm Magn. preparation None Flip angle 20 deg Physio Fat suppr. None Segments 1 Averaging mode Short term Dark blood Off Reconstruction Magnitude Resourcements 1 Multiple series Each measurement Inline Resolution Subtract Off Liver registration Off				
Magn. preparation None Flip angle 20 deg Fat suppr. None Water suppr. None Averaging mode Short term Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution Subtract Control Off Liver registration Off Liver registration Off			-	
Flip angle 20 deg Fat suppr. None Water suppr. None Averaging mode Short term Reconstruction Magnitude Measurements Multiple series Resolution Resolution Page resolution Flags resolution Flags resolution Page 1 st Signal/Mode None Segments 1 Dark blood Resp. control Resp. control Off Inline Subtract Liver registration Off Liver registration Off			F >> H	350 mm
Fat suppr. None Segments 1 Averaging mode Short term Dark blood Off Reconstruction Magnitude Resp. control Off Measurements 1 Multiple series Each measurement Inline Resolution Subtract Off Liver registration Off			Physic	
Water suppr. Averaging mode Short term Dark blood Off Reconstruction Magnitude Resp. control Off Measurements 1 Multiple series Each measurement Inline Resolution Resolution Subtract Off Liver registration Off	. •	•		None
Averaging mode Short term Dark blood Off Reconstruction Magnitude Resp. control Off Measurements 1 Multiple series Each measurement Inline Resolution Subtract Off Liver registration Off				
Reconstruction Magnitude Resp. control Off Measurements 1 Multiple series Each measurement Inline Resolution Subtract Off Liver registration Off	vvater suppr.	INONE	Segments	I
Reconstruction Magnitude Resp. control Off Measurements 1 Multiple series Each measurement Inline Resolution Subtract Off Liver registration Off	Averaging mode	Short term	Dark blood	Off
Measurements 1 Multiple series Each measurement Inline Resolution Resp. control Coll Resp. control Coll Coll			Poor control	Off
Resolution Subtract Off Liver registration Off		1	Resp. control	OII
Resolution Subtract Off Liver registration Off	Multiple series	Each measurement	Inline	
Race recolution 256 Liver registration Off	1		Subtract	Off
Std-Dev-Sag Off		256		Off
	Dase resolution	200	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
. •	

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operties		Width	4
Prio Recon	Off	Unfiltered images	Off
Before measurement	5	B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	On
Inline movie	Off	Mode	Inplane
Auto store images	On	Geometry	
Load to stamp segments	Off	Multi-slice mode	Single shot
Load images to graphic	Off	Series	Interleaved
segments	.		
Auto open inline display	Off	Special sat.	None
Start measurement without	On		
further preparation		Tim CT mode	Off
Wait for user to start	Off	System	
Start measurements	single	Body	Off
	3 -	HEP	On
outine		— I HEA	On
Slice group 1			
Slices	100	Positioning mode	FIX
Dist. factor	0 %	Table position	Н
Position	L5.4 A14.3 H18.3	Table position	0 mm
Orientation	Sagittal	MSMA	S - C - T
Phase enc. dir.	A >> P	Sagittal	R >> L
Rotation	0.00 deg	Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
FoV read	192 mm	Save uncombined	Off
FoV phase	100.0 %	Coil Combine Mode	Adaptive Combine
Slice thickness	2.0 mm		·
TR	395 ms	Auto Coil Soloet	 Default
TE	76 ms	Auto Coil Select	Default
Averages	70 IIIS 1	Shim mode	Tune up
_	1	Adjust with body coil	Off
Concatenations	Normaliza Ellistical filter	Confirm freq. adjustment	Off
Filter	Normalize, Elliptical filter	Assume Silicone	Off
Coil elements	HEA;HEP	? Ref. amplitude 1H	0.000 V
ontrast		Adjustment Tolerance	Auto
MTC	Off		Auto
Magn. preparation	None	Adjust volume	laggantar
Flip angle	113 deg	Position	Isocenter
Fat suppr.	None	Orientation	Transversal
	None	Rotation	0.00 deg
Water suppr.	Off	R >> L	350 mm
Restore magn.	OII	A >> P	263 mm
Averaging mode	Long term	F >> H	350 mm
Reconstruction	Magnitude	Physio	
Measurements	1		None
Multiple series	Each measurement	1st Signal/Mode	None
•	_aon moadaromont	Dark blood	Off
esolution		- Doop control	O#
Base resolution	192	Resp. control	Off
Phase resolution	100 %	Inline	
Phase partial Fourier	5/8	Subtract	Off
Interpolation	Off	Std-Dev-Sag	Off
	CDADDA	Std-Dev-Gag Std-Dev-Cor	Off
PAT mode	GRAPPA	Std-Dev-Col	Off
Accel. factor PE	2		-
Ref. lines PE	24	Std-Dev-Time	Off
Matrix Coil Mode	Auto (Triple)	MIP-Sag	Off
Reference scan mode	Integrated	MIP-Cor	Off
Language Elle		MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	Save original images	On
Prescan Normalize	Off	1	
Normalize	On	Sequence	
Intensity	Medium	Introduction	On
Cut off	20	Dimension	2D

Contrasts	1
Bandwidth	592 Hz/Px
Flow comp.	No
Allowed delay	30 s
Echo spacing	5.82 ms
Turbo factor	192
RF pulse type	Fast
Gradient mode	Fast

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perties		Width	4
Prio Recon	Off	Unfiltered images	Off
Before measurement	Oli	B1 filter	Off
After measurement		Raw filter	Off
Load to viewer	On	Elliptical filter	On
Inline movie	Off	Mode	Inplane
Auto store images	On	Geometry	
Load to stamp segments	Off	Multi-slice mode	Single shot
Load images to graphic	Off	Series	Interleaved
segments	3 11		
Auto open inline display	Off	Special sat.	None
Start measurement without	On		
further preparation	011	Tim CT mode	Off
Wait for user to start	Off	Custom	
Start measurements	single	System	0#
	Singio	Body	Off
outine		HEP	On
Slice group 1		— HEA	On
Slices	100	Positioning mode	FIX
Dist. factor	0 %	Table position	H
Position	R0.1 A14.3 H15.3	Table position	0 mm
Orientation	Coronal	MSMA	S - C - T
Phase enc. dir.	R >> L	Sagittal	R >> L
Rotation	0.00 deg	Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
FoV read	192 mm	Save uncombined	Off
FoV phase	100.0 %	Coil Combine Mode	Adaptive Combine
Slice thickness	2.0 mm		
TR	395 ms	AutoAlign Auto Coil Select	
TE	76 ms	Auto Coll Select	Default
Averages	1	Shim mode	Tune up
Concatenations	1	Adjust with body coil	Off
Filter	Normalize, Elliptical filter	Confirm freq. adjustment	Off
		Assume Silicone	Off
Coil elements	HEA;HEP	? Ref. amplitude 1H	0.000 V
ontrast		Adjustment Tolerance	Auto
MTC	Off	Adjust volume	Adio
Magn. preparation	None	Position	Isocenter
Flip angle	113 deg	Orientation	Transversal
Fat suppr.	None	Rotation	0.00 deg
Water suppr.	None	R >> L	350 mm
Restore magn.	Off	A >> P	263 mm
		F>> H	263 mm 350 mm
Averaging mode	Long term	F >> F	SSU IIIII
Reconstruction	Magnitude	Physio	
Measurements	1	1st Signal/Mode	None
Multiple series	Each measurement		
esolution		Dark blood	Off
Base resolution	192	Resp. control	Off
		· ·	-
Phase resolution	100 %	Inline	
Phase partial Fourier	5/8	Subtract	Off
Interpolation	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		MIP-Sag	Off
	Auto (Triple)	MIP-Cor	Off
Reference scan mode	Integrated	MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	Save original images	On
Prescan Normalize	Off	Jave Original images	OII
Normalize	On	Sequence	
Intensity	Medium	Introduction	On
THOUGHT	MEGIUIII	Dimension	2D

Contrasts Bandwidth Flow comp. Allowed delay Echo spacing	1 592 Hz/Px No 30 s 5.82 ms
Turbo factor	192
RF pulse type	Fast
Gradient mode	Fast

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USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×4.0 mm Rel. SNR: 1.00

TA: 41:26

PAT: 2

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	L0.0 A90.3 F13.6
After measurement		Orientation	C > T-15.0
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P60.0 H26.7
Load to stamp segments	Off	Orientation	C > T-15.0
Load images to graphic	Off	Special sat.	None
	Oli	Special sat.	None
segments	04	System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation	0.4	HEA	On
Wait for user to start	Off		
Start measurements	single	Positioning mode	REF
Routine		Table position	Н
		Table position	0 mm
Slice group 1		MSMA	S - C - T
Slices	3	Sagittal	R >> L
Dist. factor	700 %	Coronal	A >> P
Position	L0.0 A14.3 H6.8	Transversal	F >> H
Orientation	T > C15.0	Coil Combine Mode	
Phase enc. dir.	A >> P		Sum of Squares
Rotation	0.00 deg	AutoAlign	
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	4.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	36.0 ms		
		? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A14.3 H6.8
Coil elements	HEA;HEP	Orientation	T > C15.0
Contrast		Rotation	0.00 deg
MTC	Off	R >> L	192 mm
	25 deg	A >> P	192 mm
Flip angle	•	F >> H	68 mm
Fat suppr.	Fat sat.	,	
Averaging mode	Long term	Physio	
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off		_
Multiple Series	Oli	Encodings	1
Resolution		Velocity enc.	10 cm/s
Base resolution	128	—— Direction	Through plane
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
	OII		_
PAT mode	GRAPPA	Bandwidth	1776 Hz/Px
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	0.94 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
		Gradient mode	
Distortion Corr.	Off		Fast
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
-		FOV Shift Number	3
Geometry		Shift K0 Center	1
Multi-slice mode	Interleaved	Every Other Slice	1
	Ascending		

1
400
5
1
0
0
- 1

	Voxel size: 1.5×1.5×4.0 mr	m Rel. SNR: 1.00 USER: ep	2d_venc_ms_sbmb_SAT
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement	Oll	Position	L0.0 A90.3 F13.6
After measurement		Orientation	C > T-15.0
Load to viewer	On	Sat. region 2	C > 1-15.0
Inline movie	Off	Thickness	50 mm
	On	Position	L0.0 P60.0 H26.7
Auto store images			C > T-15.0
Load to stamp segments	Off Off	Orientation	
Load images to graphic	Off	Special sat.	None
segments	0"	System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation	0"	HEA	On
Wait for user to start	Off		
Start measurements	single	Positioning mode	REF
Routine		Table position	Н
Slice group 1		—— Table position	0 mm
Slices	3	MSMA	S - C - T
Dist. factor	3 700 %	Sagittal	R >> L
Position		Coronal	A >> P
	L0.0 A14.3 H6.8	Transversal	F >> H
Orientation	T > C15.0	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	·
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %		
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	4.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	36.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A14.3 H6.8
Coil elements	HEA;HEP	Orientation	T > C15.0
O- inter-ot		Rotation	0.00 deg
Contrast	~	— R >> L	192 mm
MTC	Off	A >> P	192 mm
Flip angle	25 deg	F >> H	68 mm
Fat suppr.	Fat sat.	1 22 11	00 111111
Averaging mode	Long term	Physio	
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
	0 ms	Angio	Oire also alia
Delay in TR		Flow mode	Single dir.
Multiple series	Off	Encodings	1
Resolution		Velocity enc.	10 cm/s
Base resolution	128	— Direction	Through plane
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
	OII		
PAT mode	GRAPPA	Bandwidth	1776 Hz/Px
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	0.94 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
		Gradient mode	Fast
Distortion Corr.	Off		
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
· ·	•	FOV Shift Number	3
Geometry		— Shift K0 Center	1
Multi-slice mode	Interleaved	Every Other Slice	1
Series	Ascending	Lvery Other Slice	1

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

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Rel. SNR: 1.00

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×4.0 mm

PAT: 2

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	L0.0 A90.3 F13.6
After measurement		Orientation	C > T-15.0
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P60.0 H26.7
Load to stamp segments	Off	Orientation	C > T-15.0
Load images to graphic	Off	Special sat.	None
segments	Oli	Special sat.	None
Auto open inline display	Off	System	
		Body	Off
Start measurement without	On	HEP	On
further preparation	0"	HEA	On
Wait for user to start	Off		
Start measurements	single	Positioning mode	REF
Routine		Table position	Н
		Table position	0 mm
Slice group 1	0	MSMA	S - C - T
Slices	3	Sagittal	R >> L
Dist. factor	700 %	Coronal	A >> P
Position	L0.0 A14.3 H6.8	Transversal	F >> H
Orientation	T > C15.0	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %	Auto Coil Select	Delault
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	4.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	36.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	Auto
Filter	None		LOO A44 2 HG 9
Coil elements	HEA;HEP	Position	L0.0 A14.3 H6.8
Coll elements	пса,псР	Orientation	T > C15.0
Contrast		Rotation	0.00 deg
MTC	Off	R >> L	192 mm
Flip angle	25 deg	A >> P	192 mm
Fat suppr.	Fat sat.	F >> H	68 mm
		Physio	
Averaging mode	Long term	1st Signal/Mode	None
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
Deselution		Velocity enc.	10 cm/s
Resolution		—— Direction	Through plane
Base resolution	128	Magnitude sum	Off
Phase resolution	100 %	Magrittado odini	O.I.
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
PAT mode	CDADDA	Bandwidth	1776 Hz/Px
	GRAPPA	Free echo spacing	Off
Accel. factor PE	2	Echo spacing	0.94 ms
Ref. lines PE	24		
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
Distortion Corr.	Off	Gradient mode	Fast
		RF spoiling	On
Prescan Normalize	Off Off		
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
Geometry		FOV Shift Number	3
Multi-slice mode	Interleaved	——— Shift K0 Center	1
Series	Ascending	Every Other Slice	1
Oches	Ascending	120/1	

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

\\USER\AMRIT\Liyong\20150303\ep2d_venc10_freebreath_TP_SAT

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×4.0 mm Rel. SNR: 1.00

PAT: 2

TA: 41:26

_			
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	L0.0 A90.3 F13.6
After measurement		Orientation	C > T-15.0
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P60.0 H26.7
Load to stamp segments	Off	Orientation	C > T-15.0
Load images to graphic	Off	Special sat.	None
	Oli	Special sat.	None
segments	0"	System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation		HEA	On
Wait for user to start	Off	IILA	
Start measurements	single	Positioning mode	REF
5 ··	-	Table position	Н
Routine		Table position	0 mm
Slice group 1		MSMA	S - C - T
Slices	3		R >> L
Dist. factor	700 %	Sagittal	
Position	L0.0 A14.3 H6.8	Coronal	A >> P
Orientation	T > C15.0	Transversal	F >> H
Phase enc. dir.	A >> P	Coil Combine Mode	Sum of Squares
Rotation	0.00 deg	AutoAlign	
Phase oversampling	0.00 deg 0 %	Auto Coil Select	Default
. •	192 mm	Obias as a de	0
FoV read	-	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	4.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	36.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A14.3 H6.8
Coil elements	HEA;HEP	Orientation	T > C15.0
		Rotation	0.00 deg
Contrast			192 mm
MTC	Off		192 mm
Flip angle	25 deg	A >> P	
Fat suppr.	Fat sat.	F >> H	68 mm
		····· Physio	
Averaging mode	Long term	1st Signal/Mode	None
Reconstruction	Magnitude	13t Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
•		Velocity enc.	10 cm/s
Resolution		—— Direction	Through plane
Base resolution	128		• .
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
		Bandwidth	1776 Hz/Px
PAT mode	GRAPPA		Off
Accel. factor PE	2	Free echo spacing	_
Ref. lines PE	24	Echo spacing	0.94 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
	2010	Gradient mode	
Distortion Corr.	Off		Fast
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
	3 11		
Geometry		FOV Shift Number	3
Multi-slice mode	Interleaved	——— Shift K0 Center	1
Multi-Slice mode	Interioavea	Every Other Slice	1

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

 $\verb|\USER\AMRIT\Liyong\20150303\ep2d_venc10_holdinsp_TP_SAT| \\$

Rel. SNR: 1.00

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.5×1.5×4.0 mm

PAT: 2

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement		Position	L0.0 A90.3 F13.6
After measurement		Orientation	C > T-15.0
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P60.0 H26.7
Load to stamp segments	Off	Orientation	C > T-15.0
Load images to graphic	Off		None
o .	Oli	Special sat.	None
segments	0"	System	
Auto open inline display	Off	Body	Off
Start measurement without	On	HEP	On
further preparation		HEA	On
Wait for user to start	Off	IILA	
Start measurements	single	Positioning mode	REF
Davitina		Table position	Н
Routine		Table position	0 mm
Slice group 1		MSMA	S - C - T
Slices	3	Sagittal	R >> L
Dist. factor	700 %	Coronal	A >> P
Position	L0.0 A14.3 H6.8		
Orientation	T > C15.0	Transversal	F >> H
Phase enc. dir.	A >> P	Coil Combine Mode	Sum of Squares
Rotation	0.00 deg	AutoAlign	
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %		Off
Slice thickness		Adjust with body coil	_
	4.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	36.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A14.3 H6.8
Coil elements	HEA;HEP	Orientation	T > C15.0
Contract		Rotation	0.00 deg
Contrast	0"		192 mm
MTC	Off	A >> P	192 mm
Flip angle	25 deg	F >> H	68 mm
Fat suppr.	Fat sat.	1 2211	00 111111
Averaging mode	Long term	Physio	
Averaging mode Reconstruction	Long term Magnitude	1st Signal/Mode	None
Measurements	420	'	
		Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
Resolution		Velocity enc.	10 cm/s
Base resolution	128	——— Direction	Through plane
Phase resolution	100 %	Magnitude sum	Off
		0	
Phase partial Fourier	6/8	Sequence	~"
Interpolation	Off	Introduction	Off
PAT mode	GRAPPA	Bandwidth	1776 Hz/Px
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	0.94 ms
		EDI ()	400
Matrix Coil Mode	Auto (Triple)	EPI factor	128
Reference scan mode	Separate	RF pulse type	Normal
Distortion Corr.	Off	Gradient mode	Fast
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	DEOO duration	F400
		RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
Geometry		FOV Shift Number	3
Multi-slice mode	Interleaved	——— Shift K0 Center	1
Series	Ascending	Every Other Slice	1
Jenes	/ Goording	124/1	

1
400
5
1
0
0
- 1

\\USER\AMRIT\Liyong\20150303\ep2d_venc10_fastbreath_TrueTP_highres

Rel. SNR: 1.00

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.2×1.2×3.0 mm

PAT: 2

TA: 41:26

Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
	Oli		
Before measurement		Position	L0.0 A90.3 F13.6
After measurement		Orientation	C > T-15.0
Load to viewer	On	Sat. region 2	
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P60.0 H26.7
Load to stamp segments	Off	Orientation	C > T-15.0
Load images to graphic	Off	Special sat.	None
segments		Overtone	
Auto open inline display	Off	System	~"
Start measurement without	On	Body	Off
further preparation		HEP	On
Wait for user to start	Off	HEA	On
Start measurements	single	Positioning mode	REF
Start measurements	Sirigie	Positioning mode	
Routine		Table position	Н
Slice group 1		Table position	0 mm
Slices	3	MSMA	S - C - T
Dist. factor	700 %	Sagittal	R >> L
Position	L0.0 A14.3 H6.8	Coronal	A >> P
		Transversal	F >> H
Orientation	T > C15.0	Coil Combine Mode	Sum of Squares
Phase enc. dir.	A >> P	AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %	Auto Coli Select	
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	3.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	40.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	Auto
Filter	None	1 5	100044401100
Coil elements		Position	L0.0 A14.3 H6.8
Coll elements	HEA;HEP	Orientation	T > C15.0
Contrast		Rotation	0.00 deg
MTC	Off	—— R >> L	192 mm
Flip angle	25 deg	A >> P	192 mm
Fat suppr.	Fat sat.	F >> H	51 mm
ι αι συρρι. ·····	ı aı saı.	Physic	
Averaging mode	Long term	Physio	N
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
•	J		1 10 cm/s
Resolution		Velocity enc.	
Base resolution	154	Direction	Through plane
Phase resolution	100 %	Magnitude sum	Off
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
		Bandwidth	1476 Hz/Px
PAT mode	GRAPPA		
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	1.04 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	154
Reference scan mode	Separate	RF pulse type	Normal
Distortion Corr.	Off	Gradient mode	Fast
Prescan Normalize	Off	RF spoiling	On
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5 5
	Oii		
Hamming			
Geometry		FOV Shift Number	3
•	Interleaved	Shift K0 Center Every Other Slice	3 1 1

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

\\USER\AMRIT\Liyong\20150303\ep2d_venc5_fastbreath_AP_highres

USER: ep2d_venc_ms_sbmb_SAT

Voxel size: 1.2x1.2x3.0 mm Rel. SNR: 1.00

PAT: 2

TA: 41:26

TA. 41.20 FAT. 2	VOXELSIZE. 1.2×1.2×3.0 III	iii kei. Sikk. 1.00 OSEK. ep	
Properties		Sat. region 1	
Prio Recon	Off	Thickness	50 mm
Before measurement	Oli	Position	L0.0 A102.9 H52.4
After measurement		Orientation	C > T-15.0
Load to viewer	On	Sat. region 2	0 / 1 10.0
Inline movie	Off	Thickness	50 mm
Auto store images	On	Position	L0.0 P47.5 H92.7
Load to stamp segments	Off	Orientation	C > T-15.0
Load images to graphic	Off	Special sat.	None
segments	O.I.	1 .	140110
Auto open inline display	Off	System	
Start measurement without	On	Body	Off
further preparation	011	HEP	On
Wait for user to start	Off	HEA	On
Start measurements	single	Positioning mode	REF
Ctart measurements	Single	Table position	H
Routine		Table position	
Slice group 1		MSMA	0 mm S - C - T
Slices	3		R >> L
Dist. factor	700 %	Sagittal Coronal	K >> L A >> P
Position	L0.0 A26.8 H72.8	Transversal	A >> P F >> H
Orientation	T > C15.0		
Phase enc. dir.	A >> P	Coil Combine Mode	Sum of Squares
Rotation	0.00 deg	AutoAlign	Defends
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	192 mm	Shim mode	Standard
FoV phase	100.0 %	Adjust with body coil	Off
Slice thickness	3.0 mm	Confirm freq. adjustment	Off
TR	5920 ms	Assume Silicone	Off
TE	43.0 ms	? Ref. amplitude 1H	0.000 V
Averages	1	Adjustment Tolerance	Auto
Concatenations	1	Adjust volume	
Filter	None	Position	L0.0 A26.8 H72.8
Coil elements	HEA;HEP	Orientation	T > C15.0
0	•	Rotation	0.00 deg
Contrast	0"	— R >> L	192 mm
MTC	Off	A >> P	192 mm
Flip angle	25 deg	F >> H	51 mm
Fat suppr.	Fat sat.	l	
Averaging mode	Long term	Physio	
Reconstruction	Magnitude	1st Signal/Mode	None
Measurements	420	Angio	
Delay in TR	0 ms	Flow mode	Single dir.
Multiple series	Off	Encodings	1
		Velocity enc.	5 cm/s
Resolution	151	— Direction	A >> P
Base resolution	154	Magnitude sum	Off
Phase resolution	100 %		
Phase partial Fourier	6/8	Sequence	
Interpolation	Off	Introduction	Off
PAT mode	GRAPPA	Bandwidth	1476 Hz/Px
Accel. factor PE	2	Free echo spacing	Off
Ref. lines PE	24	Echo spacing	1.04 ms
Matrix Coil Mode	Auto (Triple)	EPI factor	154
Reference scan mode	Separate	RF pulse type	Normal
		Gradient mode	Fast
Distortion Corr.	Off	RF spoiling	On
Prescan Normalize	Off	iti apoliilig	
Raw filter	Off	RF90 duration	5120
Elliptical filter	Off	MB Number	3
Hamming	Off	DummyScan Number	5
Geometry		FOV Shift Number	3
Multi-slice mode	Interleaved	—— Shift K0 Center	1
Series	Ascending	Every Other Slice	1
Octios	Ascending	•	

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