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Brain
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General
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Fast Headache XA60
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HASTE_Loc			*
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T2	FLAIR_Cor_3.0mm_drb		*
T2	tse_Sag_3mm_drb		*
DWI	ep2d_diff		*
T1	MPRAGE_Sag		*
3D	SWI	1.8mm	*
3D	SWI	Hi-res	*

## \\USER\Brain\General\Fast Headache XA60\HASTE\_Loc \*

TA: 44 sec Coil Selection: Auto Voxel Size: 0.8x0.8x4.0 mm<sup>3</sup> Acc:: 2 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Routine**

Slice Group	1
Slices	3
Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slice Group	2
Slices	3
Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slice Group	3
Slices	3
Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Phase Oversampling	0 %
FOV Read	260 mm
FOV Phase	100.0 %
Slice Thickness	4.0 mm
TR	2000.0 ms
TE	89.00 ms
Averages	1
Concatenations	3
AutoAlign	---

**Contrast - Common**

TR	2000.0 ms
TE	89.00 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle Mode	Constant

**Contrast - Common**

Flip Angle	150 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
Wrap-up Magn.	None
Reconstruction	Magnitude

**Contrast - Dynamic**

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

**Resolution - Common**

FOV Read	260 mm
FOV Phase	100.0 %
Slice Thickness	4.0 mm
Base Resolution	320
Phase Resolution	80 %
Interpolation	1.00

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Deep Resolve	Off
Phase Partial Fourier	5/8

**Resolution - Filter**

Raw Filter	Off
Elliptical Filter	On
Distortion Correction	2D
Normalize	Prescan
Image Filter	Off

**Geometry - Common**

Slice Group	1
Slices	3
Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slice Group	2
Slices	3
Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slice Group	3
Slices	3

**Geometry - Common**

Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Phase Oversampling	0 %
FOV Read	260 mm
FOV Phase	100.0 %
Slice Thickness	4.0 mm
TR	2000.0 ms
Multi-Slice Mode	Single Shot
Series	Interleaved
Concatenations	3

**Geometry - AutoAlign**

Slice Group	1
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slice Group	2
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slice Group	3
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
AutoAlign	---
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	90.00 deg

**Geometry - Navigator****Geometry - Saturation**

Special Saturation	None
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**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

**System - Miscellaneous**

Coil Focus	Flat
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**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	L2.4 P0.0 H9.6 mm
Orientation	Transversal
Rotation	0.00 deg
A >> P	260 mm
R >> L	265 mm
F >> H	260 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	2000.0 ms
Concatenations	3

**Physio - Cardiac**

Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FOV Read	260 mm
FOV Phase	100.0 %
Phase Resolution	80 %
Motion Correction	None

**Physio - PACE**

Resp. Control	Off
Concatenations	3

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Motion Correction	None
Save Original Images	On

**Inline - MIP**

MIP Sag	Off
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**Inline - MIP**

MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Composing**

Inline Composing	Off
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**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	h
Dimension	2D
RF Pulse Type	Fast
Gradient Mode	Fast
Flow Compensation	None
Bandwidth	401 Hz/Px
Echo Spacing	5.26 ms
Turbo Factor	256

**Sequence - Part 2**

Introduction	On
Motion Correction	None

**Sequence - Assistant**

SAR Assistant	Off
Allowed Delay	30 s

\\USER\Brain\General\Fast Headache XA60\T2 Ax\_Tran\_3.5mm\_drb \*

TA: 1:19 min Coil Selection: Auto Voxel Size: 0.3×0.3×3.5 mm<sup>3</sup> Acc:: 4 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	On
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Resolution - Common**

FOV Read	220 mm
FOV Phase	86.3 %
Slice Thickness	3.5 mm
Base Resolution	320
Phase Resolution	80 %
Interpolation	On

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	4
Reference Lines PE	34
Deep Resolve	On
Phase Partial Fourier	Off

**Routine**

Slice Group	1
Slices	46
Distance Factor	15 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Phase Oversampling	100 %
FOV Read	220 mm
FOV Phase	86.3 %
Slice Thickness	3.5 mm
TR	4300.0 ms
TE	97.00 ms
Averages	1
Concatenations	2
AutoAlign	---

**Resolution - Filter**

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Prescan
Image Filter	Off

**Geometry - Common**

Slice Group	1
Slices	46
Distance Factor	15 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Phase Oversampling	100 %
FOV Read	220 mm
FOV Phase	86.3 %
Slice Thickness	3.5 mm
TR	4300.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	2

**Contrast - Common**

TR	4300.0 ms
TE	97.00 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle Mode	Constant
Flip Angle	150 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
Wrap-up Magn.	Restore
Reconstruction	Magnitude

**Contrast - Dynamic**

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

**Geometry - AutoAlign**

Slice Group	1
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
AutoAlign	---
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
F	0.0 mm
Initial Orientation	Transversal
Initial Rotation	90.00 deg

**Geometry - Navigator****Geometry - Saturation**

Special Saturation	Parallel F
Gap	10.00 mm
Thickness	50.00 mm

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	Isocenter
Orientation	Transversal
Rotation	90.00 deg
R >> L	190 mm
A >> P	220 mm
F >> H	185 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	4300.0 ms
Concatenations	2

**Physio - Cardiac**

Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FOV Read	220 mm
FOV Phase	86.3 %
Phase Resolution	80 %
Motion Correction	None

**Physio - PACE**

Resp. Control	Off
Concatenations	2

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Motion Correction	None
Save Original Images	On

**Inline - MIP**

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Composing**

Inline Composing	Off
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**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	tseR
Dimension	2D
RF Pulse Type	Low SAR
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	284 Hz/Px
Echo Spacing	9.70 ms
Free Echo Spacing	Off
Define	Turbo Factor
Turbo Factor	17
Echo Trains per Slice	8

**Sequence - Part 2**

Introduction	On
Phase Correction	Off
Compensate T2 Decay	Off
Fast Mode	Off

**Sequence - Part 2**

WARP	Off
Red. EC Sensitivity	Off
Acoustic noise reduction	Off
Reduce Motion Sens.	Off
Motion Correction	None

**Sequence - Assistant**

SAR Assistant	Flip Angle
Min Flip Angle	140 deg
Allowed Delay	30 s

\\USER\Brain\General\Fast Headache XA60\T2\_FLAIR\_Cor\_3.0mm\_drb \*

TA: 2:03 min Coil Selection: Auto Voxel Size: 0.4×0.4×3.0 mm<sup>3</sup> Acc:: 4 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	On
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Routine**

Slice Group	1
Slices	46
Distance Factor	5 %
Position	Isocenter
Orientation	Coronal
Phase Encoding Dir.	R >> L
Phase Oversampling	100 %
FOV Read	220 mm
FOV Phase	91.0 %
Slice Thickness	3.0 mm
TR	7600.0 ms
TE	114.00 ms
Averages	1
Concatenations	2
AutoAlign	---

**Contrast - Common**

TR	7600.0 ms
TE	114.00 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	Slice-sel. IR
TI	2270 ms
Freeze Suppr. Tissue	On
Flip Angle Mode	Constant
Flip Angle	150 deg
Fat-Water Contrast	Fat Saturation
Fat Saturation	Strong
Dark Blood	Off
Contrasts	1
Wrap-up Magn.	None
Reconstruction	Magnitude

**Contrast - Dynamic**

Dynamic Mode	Standard
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**Contrast - Dynamic**

Measurements	1
Multiple Series	Each Measurement

**Resolution - Common**

FOV Read	220 mm
FOV Phase	91.0 %
Slice Thickness	3.0 mm
Base Resolution	288
Phase Resolution	75 %
Interpolation	On

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	4
Reference Lines PE	27
Deep Resolve	On
Phase Partial Fourier	Off

**Resolution - Filter**

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Prescan
Image Filter	Off

**Geometry - Common**

Slice Group	1
Slices	46
Distance Factor	5 %
Position	Isocenter
Orientation	Coronal
Phase Encoding Dir.	R >> L
Phase Oversampling	100 %
FOV Read	220 mm
FOV Phase	91.0 %
Slice Thickness	3.0 mm
TR	7600.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	2

**Geometry - AutoAlign**

Slice Group	1
Position	Isocenter
Orientation	Coronal
Phase Encoding Dir.	R >> L
AutoAlign	---
Initial Position	Isocenter
L	0.0 mm



**Geometry - AutoAlign**

P	0.0 mm
F	0.0 mm
Initial Orientation	Coronal
Initial Rotation	0.00 deg

**Geometry - Navigator****Geometry - Saturation**

Special Saturation	Parallel A
Gap	10.00 mm
Thickness	50.00 mm

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	Isocenter
Orientation	Coronal
Rotation	0.00 deg
R >> L	201 mm
F >> H	220 mm
A >> P	145 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	7600.0 ms
Concatenations	2

**Physio - Cardiac**

Fat-Water Contrast	Fat Saturation
Magn. Preparation	Slice-sel. IR
TI	2270 ms
Dark Blood	Off
FOV Read	220 mm
FOV Phase	91.0 %
Phase Resolution	75 %
Motion Correction	None

**Physio - PACE**

Resp. Control	Off
Concatenations	2

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Motion Correction	None
Save Original Images	On

**Inline - MIP**

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Composing**

Inline Composing	Off
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**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	tir
Dimension	2D
RF Pulse Type	Fast
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	299 Hz/Px
Echo Spacing	7.13 ms
Free Echo Spacing	Off
Define	Turbo Factor
Turbo Factor	17
Echo Trains per Slice	7

**Sequence - Part 2**

Introduction	On
Phase Correction	Off
Compensate T2 Decay	Off
Fast Mode	Off
WARP	Off
Red. EC Sensitivity	Off
Acoustic noise reduction	Off
Reduce Motion Sens.	Off
Motion Correction	None

**Sequence - Assistant**

SAR Assistant	Flip Angle
Min Flip Angle	140 deg
Allowed Delay	30 s

\\USER\Brain\General\Fast Headache XA60\T2 tse\_Sag\_3mm\_drb \*

TA: 1:18 min Coil Selection: Auto Voxel Size: 0.3×0.3×3.0 mm<sup>3</sup> Acc:: 3 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	On
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Resolution - Common**

FOV Read	220 mm
FOV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	384
Phase Resolution	80 %
Interpolation	On

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	3
Reference Lines PE	47
Deep Resolve	On
Phase Partial Fourier	Off

**Routine**

Slice Group	1
Slices	23
Distance Factor	5 %
Position	Isocenter
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	150 %
FOV Read	220 mm
FOV Phase	100.0 %
Slice Thickness	3.0 mm
TR	4270.0 ms
TE	91.00 ms
Averages	1
Concatenations	1
AutoAlign	---

**Resolution - Filter**

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Prescan
Image Filter	Off

**Geometry - Common**

Slice Group	1
Slices	23
Distance Factor	5 %
Position	Isocenter
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	150 %
FOV Read	220 mm
FOV Phase	100.0 %
Slice Thickness	3.0 mm
TR	4270.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

**Contrast - Common**

TR	4270.0 ms
TE	91.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle Mode	Constant
Flip Angle	150 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
Wrap-up Magn.	None
Reconstruction	Magnitude

**Contrast - Dynamic**

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

**Geometry - AutoAlign**

Slice Group	1
Position	Isocenter
Orientation	Sagittal
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	L0.0 P0.0 F150.0
L	0.0 mm
P	0.0 mm
F	150.0 mm
Initial Orientation	Sagittal
Initial Rotation	0.00 deg

**Geometry - Navigator****Geometry - Saturation**

Saturation Region	1
Thickness	50.00 mm
Position	Isocenter
Orientation	Transversal
Shape	Standard
Special Saturation	None

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	150 mm
Table Position	F
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	Isocenter
Orientation	Sagittal
Rotation	0.00 deg
A >> P	220 mm
F >> H	220 mm
R >> L	73 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	4270.0 ms

**Physio - Signal**

Concatenations	1
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**Physio - Cardiac**

Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FOV Read	220 mm
FOV Phase	100.0 %
Phase Resolution	80 %
Motion Correction	None

**Physio - PACE**

Resp. Control	Off
Concatenations	1

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Motion Correction	None
Save Original Images	On

**Inline - MIP**

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Composing**

Inline Composing	Off
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**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	tse_rr
Dimension	2D
RF Pulse Type	Low SAR
Gradient Mode	Normal
Flow Compensation	Read
Bandwidth	303 Hz/Px
Echo Spacing	10.1 ms
Free Echo Spacing	Off
Define	Turbo Factor
Turbo Factor	17
Echo Trains per Slice	17

**Sequence - Part 2**

Introduction	On
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**Sequence - Part 2**

Phase Correction	Off
Compensate T2 Decay	Off
Fast Mode	Off
WARP	Off
Red. EC Sensitivity	Off
Acoustic noise reduction	Off
Reduce Motion Sens.	Off
Motion Correction	None

**Sequence - Assistant**

SAR Assistant	Flip Angle > TR
Min Flip Angle	130 deg
Max. TR	4500.0 ms
Allowed Delay	30 s

\\USER\Brain\General\Fast Headache XA60\DWI ep2d\_diff \*

TA: 1:11 min Coil Selection: Auto Voxel Size: 0.7×0.7×3.5 mm<sup>3</sup> Acc:: 4 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	On
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Routine**

Slice Group	1
Slices	34
Distance Factor	25 %
Position	L1.1 A8.6 H22.9 mm
Orientation	T > C6.8 > S-5.5
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FOV Read	272 mm
FOV Phase	100.0 %
Slice Thickness	3.5 mm
TR	3700.0 ms
TE	74.00 ms
Concatenations	1
AutoAlign	---

**Contrast - Common**

TR	3700.0 ms
TE	74.00 ms
MTC	Off
Magn. Preparation	None
Fat-Water Contrast	Fat Saturation
Fat Saturation	Strong
Reconstruction	Magnitude

**Contrast - Dynamic**

Dynamic Mode	Standard
Delay in TR	0.00 ms

**Resolution - Common**

FOV Read	272 mm
FOV Phase	100.0 %
Slice Thickness	3.5 mm
Base Resolution	192
Phase Resolution	100 %

**Resolution - Common**

Interpolation	On
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**Resolution - Acceleration**

Acceleration Mode	SMS
Reference Scans	EPI/Separate
Acceleration Factor PE	2
Reference Lines PE	40
SMS Factor	2
Deep Resolve	Off
Phase Partial Fourier	6/8

**Resolution - Filter**

Raw Filter	On
Elliptical Filter	Off
Distortion Correction	Off
Static Field Correction	Off
Normalize	Prescan
Noise Masking	Off

**Geometry - Common**

Slice Group	1
Slices	34
Distance Factor	25 %
Position	L1.1 A8.6 H22.9 mm
Orientation	T > C6.8 > S-5.5
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FOV Read	272 mm
FOV Phase	100.0 %
Slice Thickness	3.5 mm
TR	3700.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

**Geometry - AutoAlign**

Slice Group	1
Position	L1.1 A8.6 H22.9 mm
Orientation	T > C6.8 > S-5.5
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	L1.1 A8.6 H22.9
L	1.1 mm
A	8.6 mm
H	22.9 mm
Initial Orientation	T > C
T > C	6.80
> S	-5.50
Initial Rotation	1.30 deg

**Geometry - Navigator****Geometry - Saturation**

Special Saturation	None
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**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	ACS All but spine
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Advanced
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	L1.1 A8.6 H22.9 mm
Orientation	T > C6.8 > S-5.5
Rotation	1.30 deg
A >> P	272 mm
R >> L	272 mm
F >> H	148 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	3700.0 ms
Concatenations	1

**Physio - PACE**

Resp. Control	Off
Concatenations	1

**Diff**

Diffusion Mode	4-Scan Trace
Diff. Directions	4
Diffusion Scheme	Monopolar
Diff. Weightings	2
b-value 1	0 s/mm <sup>2</sup>
b-value 2	1000 s/mm <sup>2</sup>
Averages 1	2
Averages 2	3
Complex Averaging	Off
Dynamic Field Correction	Off
Invert Gray Scale	Off
Diff. Weighted Images	Off
Trace Weighted Images	On
Tensor	Off
FA Maps	Off
ADC Maps	On
Exponential ADC Maps	Off
b-value >=	0 s/mm <sup>2</sup>
ADC Noise Threshold	40
Noise Masking	Off
Calculated Image	Off

**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	epse
Excitation	Standard
RF Pulse Type	Normal
Gradient Mode	Fast
Bandwidth	1446 Hz/Px
Echo Spacing	0.96 ms
Free Echo Spacing	Off
Optimization	None
EPI Factor	192

**Sequence - Part 2**

Introduction	On
Phase Correction	Internal
Ghost Reduction	Off

**Sequence - Assistant**

SAR Assistant	Off
Optimization	None

## \\USER\Brain\General\Fast Headache XA60\T1\_MPRAGE\_Sag \*

TA: 3:03 min Coil Selection: Auto Voxel Size: 0.5×0.5×0.5 mm<sup>3</sup> Acc:: 3 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Routine**

Slab Group	1
Slabs	1
Distance Factor	50 %
Position	R2.0 A1.7 F8.1 mm
Orientation	S > T-4.4 > C-2.4
Phase Encoding Dir.	A >> P
Slices per Slab	384
Phase Oversampling	15 %
Slice Oversampling	0.0 %
FOV Read	256 mm
FOV Phase	93.8 %
Slice Thickness	0.50 mm
TR	1700.0 ms
TE	2.36 ms
Averages	1
Concatenations	1
AutoAlign	---

**Contrast - Common**

TR	1700.0 ms
TE	2.36 ms
Magn. Preparation	Non-sel. IR
TI	900 ms
Flip Angle	9 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
Reconstruction	Magnitude

**Contrast - Dynamic**

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement
Reordering	Linear

**Resolution - Common**

FOV Read	256 mm
FOV Phase	93.8 %
Slice Thickness	0.50 mm
Base Resolution	256
Phase Resolution	100 %
Slice Resolution	50 %
Interpolation	On

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	3
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

**Resolution - Filter**

Raw Filter	Off
Elliptical Filter	On
Distortion Correction	2D
Normalize	Prescan
Image Filter	Off

**Geometry - Common**

Slab Group	1
Slabs	1
Distance Factor	50 %
Position	R2.0 A1.7 F8.1 mm
Orientation	S > T-4.4 > C-2.4
Phase Encoding Dir.	A >> P
Slices per Slab	384
Phase Oversampling	15 %
Slice Oversampling	0.0 %
FOV Read	256 mm
FOV Phase	93.8 %
Slice Thickness	0.50 mm
TR	1700.0 ms
Multi-Slice Mode	Single Shot
Series	Ascending
Concatenations	1

**Geometry - AutoAlign**

Slab Group	1
Position	R2.0 A1.7 F8.1 mm
Orientation	S > T-4.4 > C-2.4
Phase Encoding Dir.	A >> P
AutoAlign	---



**Geometry - AutoAlign**

Initial Position	R2.0 A1.7 F8.1
R	2.0 mm
A	1.7 mm
F	8.1 mm
Initial Orientation	S > T
S > T	-4.40
> C	-2.40
Initial Rotation	0.00 deg

**Geometry - Navigator****Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	8 mm
Table Position	F
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	On
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	R2.0 A1.7 F8.1 mm
Orientation	S > T-4.4 > C-2.4
Rotation	0.00 deg
A >> P	240 mm
F >> H	256 mm
R >> L	192 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	1700.0 ms
Concatenations	1

**Physio - Cardiac**

Fat-Water Contrast	Standard
Magn. Preparation	Non-sel. IR
TI	900 ms
Dark Blood	Off
FOV Read	256 mm
FOV Phase	93.8 %
Phase Resolution	100 %

**Physio - PACE**

Resp. Control	Off
Concatenations	1

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

**Inline - MIP**

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Composing**

Inline Composing	Off
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**Inline - MapIt**

MapIt	None
Flip Angle	9 deg
Measurements	1
Contrasts	1
TE	2.36 ms
TR	1700.0 ms
Save Original Images	On

**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	tfl
Dimension	3D
Excitation	Non-sel.
RF Pulse Type	Normal

**Sequence - Part 1**

Gradient Mode	Fast
Flow Compensation	None
Reordering	Linear
Bandwidth	180 Hz/Px
Echo Spacing	7.04 ms
Asymmetric Echo	Allowed
Turbo Factor	192

**Sequence - Part 2**

Introduction	On
RF Spoiling	On
Incr. Gradient Spoiling	Off
BM Motion Correction	Off

**Sequence - Assistant**

SAR Assistant	Off
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## \\USER\Brain\General\Fast Headache XA60\3D SWI 1.8mm \*

TA: 1:50 min Coil Selection: Auto Voxel Size: 0.4×0.4×1.8 mm<sup>3</sup> Acc:: 3 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Routine**

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5
Phase Encoding Dir.	R >> L
Slices per Slab	80
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FOV Read	210 mm
FOV Phase	75.0 %
Slice Thickness	1.80 mm
TR	27.0 ms
TE	19.70 ms
Averages	1
Concatenations	1
AutoAlign	---

**Contrast - Common**

TR	27.0 ms
TE	19.70 ms
MTC	Off
Magn. Preparation	None
Flip Angle	15 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	On
Reconstruction	Magn./Phase

**Contrast - Dynamic**

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

**Resolution - Common**

FOV Read	210 mm
FOV Phase	75.0 %
Slice Thickness	1.80 mm
Base Resolution	288
Phase Resolution	70 %
Slice Resolution	68 %
Interpolation	On

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	3
Reference Lines PE	24
Acceleration Factor 3D	1
Deep Resolve	Off
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Off
Elliptical Scanning	On

**Resolution - Filter**

Raw Filter	On
Elliptical Filter	Off
POCS	Off
Distortion Correction	2D
Normalize	Prescan
Image Filter	Off

**Geometry - Common**

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5
Phase Encoding Dir.	R >> L
Slices per Slab	80
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FOV Read	210 mm
FOV Phase	75.0 %
Slice Thickness	1.80 mm
TR	27.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

**Geometry - AutoAlign**

Slab Group	1
Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5

**Geometry - AutoAlign**

Phase Encoding Dir.	R >> L
AutoAlign	---
Initial Position	R0.1 A24.9 F9.4
R	0.1 mm
A	24.9 mm
F	9.4 mm
Initial Orientation	T > C
T > C	13.90
> S	0.50
Initial Rotation	90.00 deg

**Geometry - Saturation**

Saturation Mode	Standard
Special Saturation	None

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	9 mm
Table Position	F
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5
Rotation	90.00 deg
R >> L	158 mm
A >> P	210 mm
F >> H	144 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V

**System - Tx/Rx**

Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	27.0 ms
Segments	1
Concatenations	1

**Physio - Cardiac**

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FOV Read	210 mm
FOV Phase	75.0 %
Phase Resolution	70 %

**Physio - PACE**

Resp. Control	Off
Concatenations	1

**Inline - Liver**

Liver Registration	Off
Save Original Images	On

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

**Inline - MIP**

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Soft Tissue**

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

**Inline - Composing**

Inline Composing	Off
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**Inline - MapIt**

MapIt	None
Flip Angle	15 deg
Measurements	1
Contrasts	1
TE	19.70 ms
TR	27.0 ms
Save Original Images	On

**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	swi_r
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Normal
Flow Compensation	On
Bandwidth	120 Hz/Px
Asymmetric Echo	Off
Segments	1

**Sequence - Part 2**

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

**Sequence - Assistant**

SAR Assistant	Off
Allowed Delay	0 s

## \\USER\Brain\General\Fast Headache XA60\3D SWI Hi-res \*

TA: 2:14 min Coil Selection: Auto Voxel Size: 0.4×0.4×1.8 mm<sup>3</sup> Acc:: 4 Rel. SNR: 1.00**Properties**

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

**Routine**

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5
Phase Encoding Dir.	R >> L
Slices per Slab	88
Phase Oversampling	0 %
Slice Oversampling	9.1 %
FOV Read	210 mm
FOV Phase	75.0 %
Slice Thickness	1.75 mm
TR	27.0 ms
TE	19.70 ms
Averages	1
Concatenations	1
AutoAlign	---

**Contrast - Common**

TR	27.0 ms
TE	19.70 ms
MTC	Off
Magn. Preparation	None
Flip Angle	15 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	On
Reconstruction	Magn./Phase

**Contrast - Dynamic**

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

**Resolution - Common**

FOV Read	210 mm
FOV Phase	75.0 %
Slice Thickness	1.75 mm
Base Resolution	256
Phase Resolution	70 %
Slice Resolution	100 %
Interpolation	On

**Resolution - Acceleration**

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	4
Reference Lines PE	24
Acceleration Factor 3D	1
Deep Resolve	Off
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Off
Elliptical Scanning	Off

**Resolution - Filter**

Raw Filter	On
Elliptical Filter	Off
POCS	Off
Distortion Correction	2D
Normalize	Prescan
Image Filter	Off

**Geometry - Common**

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5
Phase Encoding Dir.	R >> L
Slices per Slab	88
Phase Oversampling	0 %
Slice Oversampling	9.1 %
FOV Read	210 mm
FOV Phase	75.0 %
Slice Thickness	1.75 mm
TR	27.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

**Geometry - AutoAlign**

Slab Group	1
Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5

**Geometry - AutoAlign**

Phase Encoding Dir.	R >> L
AutoAlign	---
Initial Position	R0.1 A24.9 F9.4
R	0.1 mm
A	24.9 mm
F	9.4 mm
Initial Orientation	T > C
T > C	13.90
> S	0.50
Initial Rotation	90.00 deg

**Geometry - Saturation**

Saturation Mode	Standard
Special Saturation	None

**Geometry - Tim Planning Suite**

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

**System - Miscellaneous**

Coil Selection	Auto Coil Select
Radial Sorting	Off
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off
Coil Focus	Flat

**System - Adjustments**

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

**System - Adjust Volume**

Position	R0.1 A24.9 F9.4 mm
Orientation	T > C13.9 > S0.5
Rotation	90.00 deg
R >> L	158 mm
A >> P	210 mm
F >> H	154 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	123.200000 MHz
? Ref. Amplitude 1H	0.000 V

**System - Tx/Rx**

Reset	Off
Image Scaling	1.000

**Physio - Signal**

1st Signal/Mode	None
TR	27.0 ms
Segments	1
Concatenations	1

**Physio - Cardiac**

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FOV Read	210 mm
FOV Phase	75.0 %
Phase Resolution	70 %

**Physio - PACE**

Resp. Control	Off
Concatenations	1

**Inline - Liver**

Liver Registration	Off
Save Original Images	On

**Inline - Subtraction**

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

**Inline - MIP**

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

**Inline - Soft Tissue**

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

**Inline - Composing**

Inline Composing	Off
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**Inline - MapIt**

MapIt	None
Flip Angle	15 deg
Measurements	1
Contrasts	1
TE	19.70 ms
TR	27.0 ms
Save Original Images	On

**Inline - Open Recon**

Algorithm	None
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**Sequence - Part 1**

Sequence Name	swi_r
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Normal
Flow Compensation	On
Bandwidth	120 Hz/Px
Asymmetric Echo	Off
Segments	1

**Sequence - Part 2**

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

**Sequence - Assistant**

SAR Assistant	Off
Allowed Delay	0 s