

\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\localizer\_irtfl\_Richard

TA: 1:28 PM: REF Voxel size: 1.0×1.0×2.0 mmPAT: Off Rel. SNR: 1.00 : tfl

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	On
Auto close inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	Single measurement

**Contrast - Dynamic**

Measurements	1
Multiple series	Each measurement

**Resolution - Common**

FoV read	200 mm
FoV phase	100.0 %
Slice thickness	2.0 mm
Base resolution	192
Phase resolution	100 %
Phase partial Fourier	Off
Interpolation	Off

**Routine**

Slice group	1
Slices	6
Dist. factor	600 %
Position	L1.5 A5.0 F25.3 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slice group	2
Slices	8
Dist. factor	250 %
Position	L1.5 A21.0 H30.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slice group	3
Slices	6
Dist. factor	700 %
Position	L1.5 A10.0 F25.9 mm
Orientation	Coronal
Phase enc. dir.	R >> L
AutoAlign	---
Phase oversampling	0 %
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	2.0 mm
TR	4300.0 ms
TE	3.46 ms
Averages	1
Concatenations	20
Filter	None
Coil elements	A32

**Resolution - iPAT**

PAT mode	None
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**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slice group	1
Slices	6
Dist. factor	600 %
Position	L1.5 A5.0 F25.3 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slice group	2
Slices	8
Dist. factor	250 %
Position	L1.5 A21.0 H30.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slice group	3
Slices	6
Dist. factor	700 %
Position	L1.5 A10.0 F25.9 mm
Orientation	Coronal
Phase enc. dir.	R >> L
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	2.0 mm
TR	4300.0 ms
Multi-slice mode	Sequential
Series	Ascending
Concatenations	20

**Contrast - Common**

TR	4300.0 ms
TE	3.46 ms
TD	0 ms
Magn. preparation	Slice-sel. IR
T1 1	840 ms
T1 2	2540 ms
Flip angle 1	5.0 deg
Flip angle 2	8.0 deg
Fat suppr.	None
Water suppr.	None

**Contrast - Dynamic**

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude

**Geometry - AutoAlign**

Slice group	1
Position	L1.5 A5.0 F25.3 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slice group	2
Position	L1.5 A21.0 H30.0 mm

**Geometry - AutoAlign**

Orientation	Transversal
Phase enc. dir.	A >> P
Slice group	3
Position	L1.5 A10.0 F25.9 mm
Orientation	Coronal
Phase enc. dir.	R >> L
AutoAlign	---
Initial Position	L1.5 A5.0 F25.3
L	1.5 mm
A	5.0 mm
F	25.3 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Navigator****System - Miscellaneous**

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

**System - Adjustments**

B0 Shim mode	Tune up
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	250.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	4300.0 ms
Concatenations	20

**Physio - Cardiac**

Magn. preparation	Slice-sel. IR
TI 1	840 ms

**Physio - Cardiac**

TI 2	2540 ms
Fat suppr.	None
Dark blood	Off
FoV read	200 mm
FoV phase	100.0 %
Phase resolution	100 %

**Physio - PACE**

Resp. control	Off
Concatenations	20

**Inline - Common**

Subtract	Off
Measurements	1
StdDev	Off
Save original images	On

**Inline - MIP**

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

**Inline - Composing**

Distortion Corr.	Off
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**Sequence - Part 1**

Introduction	On
Dimension	2D
Asymmetric echo	Off
Flow comp.	No
Multi-slice mode	Sequential
Echo spacing	6.7 ms
Bandwidth	240 Hz/Px

**Sequence - Part 2**

RF pulse type	Normal
Gradient mode	Fast
Excitation	Slice-sel.
RF spoiling	On
Incr. Gradient spoiling	Off
Turbo factor	192

**Sequence - Nuclei**

TX/RX Nucleus	1H
TX/RX delta frequency	0 Hz
TX Nucleus	None
TX delta frequency	0 Hz
Coil elements	A32

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\CMRR\_ax\_1104\_slab

TA: 2:27 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L0.0 A12.6 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	2680 ms
TE	26.40 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	2680 ms
TE	26.40 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	50
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	101 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L0.0 A12.6 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	2680 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L0.0 A12.6 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 A12.6 H0.0
L	0.0 mm
A	12.6 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	2680 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	50
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.01 ms
Bandwidth	1104 Hz/Px

**Sequence - Part 2**

EPI factor	206
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard

\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\NIH5p\_866HzES1p26

TA: 0:24 PM: REF Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	66.4 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Rotation	0.00 deg
A >> P	175 mm
R >> L	175 mm
F >> H	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.26 ms
Bandwidth	866 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\NIH5p\_932ES1p18

TA: 0:24 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	62.2 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Rotation	0.00 deg
A >> P	175 mm
R >> L	175 mm
F >> H	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.18 ms
Bandwidth	934 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_1012ES1p09

TA: 0:23 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	57.6 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Rotation	0.00 deg
A >> P	175 mm
R >> L	175 mm
F >> H	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.09 ms
Bandwidth	1012 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10 <sup>-6</sup>
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_1104ES1p01

TA: 0:23 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	53.4 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Rotation	0.00 deg
A >> P	175 mm
R >> L	175 mm
F >> H	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.01 ms
Bandwidth	1104 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10 <sup>-6</sup>
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_1516ES1p14

TA: 0:23 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	60.2 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Rotation	0.00 deg
A >> P	175 mm
R >> L	175 mm
F >> H	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.14 ms
Bandwidth	1516 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\CMRR\_866Hz1p26

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.26 ms
Bandwidth	866 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard



\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\CMRR\_970Hz1p13

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.13 ms
Bandwidth	970 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard

\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\CMRR\_1104Hz1p01

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.01 ms
Bandwidth	1104 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard

\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\CMRR\_1278Hz1p

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : eptid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1 ms
Bandwidth	1278 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard

\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\CMRR\_1516Hz1p08

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A13.9 H0.0 mm
Orientation	Transversal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A13.9 H0.0
L	3.3 mm
A	13.9 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.08 ms
Bandwidth	1516 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard



\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_866ES1p26\_z

TA: 0:24 PM: REF Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	66.4 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	REF
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Rotation	0.00 deg
A >> P	175 mm
F >> H	175 mm
R >> L	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.26 ms
Bandwidth	866 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_932ES1p18\_z

TA: 0:24 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	62.2 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
---------------	-----

**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Rotation	0.00 deg
A >> P	175 mm
F >> H	175 mm
R >> L	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.18 ms
Bandwidth	934 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
------	-----

\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_1012ES1p09\_z

TA: 0:23 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	57.6 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
---------------	-----

**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Rotation	0.00 deg
A >> P	175 mm
F >> H	175 mm
R >> L	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.09 ms
Bandwidth	1012 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_1104ES1p01\_z

TA: 0:23 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	53.4 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
---------------	-----

**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Rotation	0.00 deg
A >> P	175 mm
F >> H	175 mm
R >> L	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.01 ms
Bandwidth	1104 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\NIH5p\_1516ES1p14\_z

TA: 0:23 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : nih5p

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Averages	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR 1	78.2 ms
TR 2	3142 ms
TE 1	25.50 ms
Multi-echo spacing	60.2 ms
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	Fat sat.
Magn. Prep. Shots	1

**Contrast - Dynamic**

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	4
Pause after meas. 1	0.0 s
Pause after meas. 2	0.0 s
Pause after meas. 3	0.0 s

**Resolution - Common**

FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	6/8
Slice partial Fourier	Off

**Resolution - Common**

Interpolation	Off
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**Resolution - iPAT**

PAT mode	CAIPIRINHA
Acc. factor PE	1
Ref. lines PE	63
Acc. factor 3D	3
Ref. lines 3D	36
CAIPI 3D Shift	1
Reference Scan Mode	EPI/separate
CAIPI Mode (tooltip)	Skipped-CAIPI
Total PAT factor	3

**Resolution - Filter Image**

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off

**Geometry - Common**

Slab group	1
Slabs	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slab Scale	-10 %
Slices per slab	36
FoV read	175 mm
FoV phase	100.0 %
Slice thickness	0.84 mm
TR 1	78.2 ms
TR 2	3142 ms

**Geometry - AutoAlign**

Slab group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Saturation mode	Standard
Fat suppr.	Fat sat.

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T

**System - Miscellaneous**

Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Rotation	0.00 deg
A >> P	175 mm
F >> H	175 mm
R >> L	31 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	0.300
Reset	Off
! Ref. amplitude 1H	215.000 V

**Sequence - Part 1**

Introduction	On
Dimension	3D
Reordering	Linear
Contrasts	1
Echo spacing	1.14 ms
Bandwidth	1516 Hz/Px

**Sequence - Part 2**

EPI factor	52
Segmentation	3
RF pulse type	Normal
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Turbo factor	36

**Sequence - Special**

PATRef FA	3 deg
RF duration	2000 us
RF BWT product	8
Ernst T1	1200 ms
PATRef prep. shots	10
Volume dummy shots	0
Dummy Measurements	0
ETL per RTEB	1
Invert PE	Off
Min. TE if PF	On
Echo Time Shift	On
Ramp Sampling	On

**Sequence - Special**

NORDIC	Off
SVDPC	Off
Sym VASO	Off
Dual-pol. EPI	On
Invert RO	Off
Invert 3D	Off
Disable PF reco	Off
Disable PF reco	Off
Save sampling	Off
PE VComp	Off
Water Exc.	-none-
External PC	per Series
Saturation RF	per Shot
FIDNavs	-none-
EPI rise time factor	1.10
Mosaic DICOMs	On
Modify Ice Config	On
G-factor map	Off
GRAPPA Regularization	50000 10^-6
Var. FA /MAGEC	0
MAGEC FA ratio	100
spoiler scale	1

**Sequence - Assistant**

Mode	Off
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\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\CMRR\_866Hz1p26\_z

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.26 ms
Bandwidth	866 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard

\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\CMRR\_970Hz1p13\_z

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.13 ms
Bandwidth	970 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard

\\USER\FMRIF\XT-ID:93-M-0170\Renzo\20240123\_thirdordershim\CMRR\_1104Hz1p01\_z

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.01 ms
Bandwidth	1104 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard



\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\CMRR\_1278Hz1p\_z

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1 ms
Bandwidth	1278 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard

\\USER\FMRIF\[XT-ID:93-M-0170]Renzo\20240123\_thirdordershim\CMRR\_1516Hz1p08\_z

TA: 0:32 PM: FIX Voxel size: 0.8×0.8×0.8 mmPAT: 3 Rel. SNR: 1.00 : epfid

**Properties**

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Auto close inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	Single measurement

**Routine**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
TE	31.00 ms
Multi-band accel. factor	1
Filter	None
Coil elements	A32

**Contrast - Common**

TR	3590 ms
TE	31.00 ms
MTC	Off
Magn. preparation	None
Flip angle	60 deg
Fat suppr.	Fat sat.

**Contrast - Dynamic**

Averaging mode	Long term
Reconstruction	Magnitude
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Resolution - Common**

FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
Base resolution	206
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

**Resolution - iPAT**

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	63
Reference scan mode	Segmented

**Resolution - Filter Image**

Distortion Corr.	Off
Prescan Normalize	Off

**Resolution - Filter Rawdata**

Raw filter	Off
Elliptical filter	Off
Hamming	Off

**Geometry - Common**

Slice group	1
Slices	36
Dist. factor	0 %
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
FoV read	175 mm
FoV phase	99.0 %
Slice thickness	0.84 mm
TR	3590 ms
Multi-slice mode	Interleaved
Series	Interleaved
Multi-band accel. factor	1

**Geometry - AutoAlign**

Slice group	1
Position	L3.3 A11.5 F11.6 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L3.3 A11.5 F11.6
L	3.3 mm
A	11.5 mm
F	11.6 mm
Initial Rotation	0.00 deg
Initial Orientation	Sagittal

**Geometry - Saturation**

Fat suppr.	Fat sat.
Special sat.	None

**System - Miscellaneous**

Positioning mode	FIX
Table position	H
Table position	0 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

**System - Adjustments**

B0 Shim mode	Brain
B1 Shim mode	TrueForm
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

**System - Adjust Volume**

! Position	L0.4 A11.1 H0.3 mm
! Orientation	T > C0.4
! Rotation	90.00 deg
! R >> L	185 mm
! A >> P	179 mm
! F >> H	32 mm
Reset	Off

**System - Tx/Rx**

Frequency 1H	297.175924 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
! Ref. amplitude 1H	215.000 V

**Physio - Signal1**

1st Signal/Mode	None
TR	3590 ms
Multi-band accel. factor	1

**BOLD**

GLM Statistics	Off
Dynamic t-maps	Off
Ignore meas. at start	0
Ignore after transition	0
Model transition states	On
Temp. highpass filter	On
Threshold	4.00
Paradigm size	20
Meas[1]	Baseline
Meas[2]	Baseline
Meas[3]	Baseline
Meas[4]	Baseline
Meas[5]	Baseline
Meas[6]	Baseline
Meas[7]	Baseline
Meas[8]	Baseline
Meas[9]	Baseline
Meas[10]	Baseline
Meas[11]	Active
Meas[12]	Active
Meas[13]	Active
Meas[14]	Active
Meas[15]	Active
Meas[16]	Active
Meas[17]	Active
Meas[18]	Active
Meas[19]	Active
Meas[20]	Active
Motion correction	Off
Spatial filter	Off
Measurements	4
Delay in TR	0 ms
Multiple series	Off

**Sequence - Part 1**

Introduction	Off
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	Off
Echo spacing	1.08 ms
Bandwidth	1516 Hz/Px

**Sequence - Part 2**

EPI factor	204
Gradient mode	Fast
RF spoiling	On

**Sequence - Special**

Excite pulse duration	3640 us
EPI noise scans	0
SENSE1 coil combine	On
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Disable freq. update	Off
Force equal slice timing	Off
FFT scale factor	0.75
Fat saturation FA	110.0 deg
Physio recording	Off
Triggering scheme	Standard