Example MR Protocols

1. Siemens AVANTO (1.5T) with SG gradients (45mT/m | SR 200)
2. Siemens VERIO (3T) with VQ gradients (45mT/m | SR 200)
3. Siemens VIDA (3T) with XQ gradients (45mT/m | SR 200)

Siemens AVANTO (1.5T) with SG gradients

Table of contents

\\USER\Brain\Stroke\Acute stroke\AAHead_Scout

TA: 0:19 PM: REF Voxel size: 1.6×1.6×1.6 mmPAT: 3 Rel. SNR: 1.00 : fl

Properties

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

Routine

Slab group	1
Slabs	1
Dist. factor	20 %
Position	L0.0 A10.0 H0.0 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Phase oversampling	0 %
Slice oversampling	0.0 %
Slices per slab	128
FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
TR	4.52 ms
TE	2.38 ms
Averages	1
Concatenations	1
Filter	Prescan Normalize
Coil elements	HE1-4

Contrast - Common

TR	4.52 ms
TE	2.38 ms
Flip angle	8 deg

Contrast - Dynamic

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1

Resolution - Common

FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
Base resolution	160
Phase resolution	100 %
Slice resolution	69 %
Phase partial Fourier	6/8
Slice partial Fourier	6/8
Trajectory	Cartesian

Resolution - iPAT

PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	24
Accel. factor 3D	1

Resolution - iPAT

Reference scan mode	Integrated

Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	On
Unfiltered images	Off
Normalize	Off
B1 filter	Off

Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

Geometry - Common

Slab group	1
Slabs	1
Dist. factor	20 %
Position	L0.0 A10.0 H0.0 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Slice oversampling	0.0 %
Slices per slab	128
FoV read	260 mm
FoV phase	100.0 %
Slice thickness	1.6 mm
TR	4.52 ms
Multi-slice mode	Sequential
Series	Ascending
Concatenations	1

Geometry - AutoAlign

Slab group	1
Position	L0.0 A10.0 H0.0 mm
Orientation	Sagittal
Phase enc. dir.	A >> P
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
H	0.0 mm
Initial Rotation	0.00 deg
Initial Orientation	Transversal

Geometry - Tim Planning Suite

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

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

System - Miscellaneous

Coil Select Mode	On - AutoCoilSelect

System - Adjustments

B0 Shim mode	Tune up
Adjust with body coil	Off
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	63.678991 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - PACE

Resp. control	Off
Concatenations	1

Inline - Common

Flip angle	8 deg
Measurements	1
Time to center	8.2 s

Inline - Inline

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

Inline Composing	Off
Distortion Corr.	Off

Sequence - Part 1

Introduction	On
Dimension	3D
Asymmetric echo	Weak
Contrasts	1
Multi-slice mode	Sequential
Bandwidth	540 Hz/Px

Sequence - Part 2

RF pulse type	Fast

Sequence - Part 2

Gradient mode	Normal
Excitation	Non-sel.
RF spoiling	On

Sequence - Assistant

Mode	Off

\\USER\Brain\Stroke\Acute stroke\DWI fast (send to RAPID)

TA: 0:37 PM: FIX Voxel size: 1.9×1.9×5.0 mmPAT: Off Rel. SNR: 1.00 : epse

Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	On
Load images to graphic segments	On
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	31
Dist. factor	0 %
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	2 %
FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
TR	7100 ms
TE	96.0 ms
Averages	1
Concatenations	1
Filter	Raw filter, Prescan Normalize
Coil elements	HE1-4

Contrast - Common

TR	7100 ms
TE	96.0 ms
MTC	Off
Magn. preparation	None
Fat suppr.	Fat sat.
Fat sat. mode	Strong

Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1
Delay in TR	0 ms

Resolution - Common

FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
Base resolution	128
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off

Resolution - iPAT

Accel. mode	None

Resolution - Filter Image

Distortion Corr.	Off
Prescan Normalize	On
Dynamic Field Corr.	Off

Resolution - Filter Rawdata

Raw filter	On
Elliptical filter	Off

Geometry - Common

Slice group	1
Slices	31
Dist. factor	0 %
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	A >> P
FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
TR	7100 ms
Multi-slice mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice group	1
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	R4.5 A30.7 F9.1
R	4.5 mm
A	30.7 mm
F	9.1 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-3.3
> S	-0.7

Geometry - Saturation

Fat suppr.	Fat sat.
Fat sat. mode	Strong
Special sat.	None

Geometry - Navigator

Geometry - Tim Planning Suite

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

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	Adaptive Combine

System - Miscellaneous

Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	On - AutoCoilSelect

System - Adjustments

B0 Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

System - Adjust Volume

Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Rotation	0.00 deg
A >> P	240 mm
R >> L	240 mm
F >> H	155 mm
Reset	Off

System - Tx/Rx

Frequency 1H	63.678991 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - Signal1

1st Signal/Mode	None
TR	7100 ms
Concatenations	1

Physio - PACE

Resp. control	Off
Concatenations	1

Diff - Neuro

Diffusion mode	Orthogonal
Diff. directions	3
Diffusion Scheme	Monopolar
Diff. weightings	2
b-value 1	0 s/mm²
b-value 2	1000 s/mm²
b-value 1	1
b-value 2	1
Diff. weighted images	On
Trace weighted images	On
ADC maps	On
FA maps	Off
Mosaic	Off
Tensor	Off
Noise level	40

Diff - Body

Diffusion mode	Orthogonal
Diff. directions	3
Diffusion Scheme	Monopolar
Diff. weightings	2
b-value 1	0 s/mm²
b-value 2	1000 s/mm²
b-value 1	1

Diff - Body

b-value 2	1
Diff. weighted images	On
Trace weighted images	On
ADC maps	On
Exponential ADC Maps	Off
FA maps	Off
Invert Gray Scale	Off
Calculated Image	Off
b-Value >=	0 s/mm²
Noise level	40

Diff - Composing

Inline Composing	Off
Distortion Corr.	Off

Sequence - Part 1

Introduction	On
Optimization	Min. TE
Multi-slice mode	Interleaved
Free echo spacing	On
Echo spacing	0.88 ms
Bandwidth	1220 Hz/Px

Sequence - Part 2

EPI factor	128
RF pulse type	Normal
Gradient mode	Fast

\\USER\Brain\Stroke\Acute stroke\SWI fast p2

TA: 1:54 PM: FIX Voxel size: 1.1×1.1×3.0 mmPAT: 2 Rel. SNR: 1.00 : swi_r

Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	On
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
Dist. factor	20 %
Position	R4.5 A23.2 H21.8 mm
Orientation	T > C-3.3 > S-2.8
Phase enc. dir.	R >> L
AutoAlign	---
Phase oversampling	0 %
Slice oversampling	0.0 %
Slices per slab	40
FoV read	240 mm
FoV phase	80.4 %
Slice thickness	3.00 mm
TR	42.0 ms
TE	33.00 ms
Averages	1
Concatenations	1
Filter	Prescan Normalize
Coil elements	HE1-4

Contrast - Common

TR	42.0 ms
TE	33.00 ms
MTC	Off
Magn. preparation	None
Flip angle	15 deg
Fat suppr.	None
Water suppr.	None
SWI	On

Contrast - Dynamic

Averages	1
Averaging mode	Short term
Reconstruction	Magn./Phase
Measurements	1
Multiple series	Off

Resolution - Common

FoV read	240 mm
FoV phase	80.4 %
Slice thickness	3.00 mm
Base resolution	224
Phase resolution	100 %
Slice resolution	100 %
Phase partial Fourier	Off
Slice partial Fourier	6/8

Resolution - Common

Interpolation	Off

Resolution - iPAT

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Accel. factor 3D	1
Reference scan mode	Integrated

Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	On
Unfiltered images	Off
Normalize	Off
B1 filter	Off

Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off

Geometry - Common

Slab group	1
Slabs	1
Dist. factor	20 %
Position	R4.5 A23.2 H21.8 mm
Orientation	T > C-3.3 > S-2.8
Phase enc. dir.	R >> L
Slice oversampling	0.0 %
Slices per slab	40
FoV read	240 mm
FoV phase	80.4 %
Slice thickness	3.00 mm
TR	42.0 ms
Multi-slice mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab group	1
Position	R4.5 A23.2 H21.8 mm
Orientation	T > C-3.3 > S-2.8
Phase enc. dir.	R >> L
AutoAlign	---
Initial Position	R4.5 A23.2 H21.8
R	4.5 mm
A	23.2 mm
H	21.8 mm
Initial Rotation	90.00 deg
Initial Orientation	T > C
T > C	-3.3
> S	-2.8

Geometry - Saturation

Saturation mode	Standard
Fat suppr.	None
Water suppr.	None
Special sat.	None

Geometry - Tim Planning Suite

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

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	Adaptive Combine
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	On - AutoCoilSelect

System - Adjustments

B0 Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

System - Adjust Volume

Position	R4.5 A23.2 H21.8 mm
Orientation	T > C-3.3 > S-2.8
Rotation	90.00 deg
R >> L	193 mm
A >> P	240 mm
F >> H	120 mm
Reset	Off

System - Tx/Rx

Frequency 1H	63.678991 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - Signal1

1st Signal/Mode	None
TR	42.0 ms
Concatenations	1
Segments	1

Physio - Cardiac

Tagging	None
Magn. preparation	None
Fat suppr.	None
Dark blood	Off
FoV read	240 mm
FoV phase	80.4 %
Phase resolution	100 %

Physio - PACE

Resp. control	Off
Concatenations	1

Inline - Common

Subtract	Off
Measurements	1
StdDev	Off
Liver registration	Off
Save original images	On

Inline - MIP

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

Inline - Soft Tissue

Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off
Measurements	1

Inline - Composing

Inline Composing	Off
Distortion Corr.	Off

Sequence - Part 1

Introduction	On
Dimension	3D
Elliptical scanning	On
Phase stabilisation	Off
Asymmetric echo	Off
Contrasts	1
Flow comp.	Yes
Multi-slice mode	Interleaved
Bandwidth	80 Hz/Px

Sequence - Part 2

Segments	1
Acoustic noise reduction	None
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slab-sel.
RF spoiling	On

Sequence - Assistant

Mode	Off

\\USER\Brain\Stroke\Acute stroke\3D TOF fast 4 slabs

TA: 2:37 PM: REF Voxel size: 0.4×0.4×0.9 mmPAT: 2 Rel. SNR: 1.00 : fl_r

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	4
Dist. factor	-18.75 %
Position	L2.0 A22.0 H0.3 mm
Orientation	Transversal
Phase enc. dir.	R >> L
AutoAlign	---
Phase oversampling	0 %
Slice oversampling	12.5 %
Slices per slab	32
FoV read	180 mm
FoV phase	100.0 %
Slice thickness	0.90 mm
TR	22.0 ms
TE	7.00 ms
Averages	1
Concatenations	4
Filter	Prescan Normalize
Coil elements	HE1-4;NE1,2

Contrast - Common

TR	22.0 ms
TE	7.00 ms
TD	0.000 ms
MTC	Off
Flip angle	18 deg
Fat suppr.	None
Water suppr.	None

Contrast - Dynamic

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1

Resolution - Common

FoV read	180 mm
FoV phase	100.0 %
Slice thickness	0.90 mm
Base resolution	256
Phase resolution	90 %
Slice resolution	50 %
Phase partial Fourier	6/8
Slice partial Fourier	7/8
Interpolation	On

Resolution - iPAT

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	20
Accel. factor 3D	1
Reference scan mode	Integrated

Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	On
Unfiltered images	Off
Normalize	Off
B1 filter	Off

Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry - Common

Slab group	1
Slabs	4
Dist. factor	-18.75 %
Position	L2.0 A22.0 H0.3 mm
Orientation	Transversal
Phase enc. dir.	R >> L
Slice oversampling	12.5 %
Slices per slab	32
FoV read	180 mm
FoV phase	100.0 %
Slice thickness	0.90 mm
TR	22.0 ms
Multi-slice mode	Sequential
Series	Descending
Concatenations	4

Geometry - AutoAlign

Slab group	1
Position	L2.0 A22.0 H0.3 mm
Orientation	Transversal
Phase enc. dir.	R >> L
AutoAlign	---
Initial Position	L2.0 A22.0 H0.3
L	2.0 mm
A	22.0 mm
H	0.3 mm
Initial Rotation	90.00 deg
Initial Orientation	Transversal

Geometry - Saturation

Fat suppr.	None
Water suppr.	None
Special sat.	Tracking H
Gap	10 mm
Thickness	40 mm

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	H
Table position	0 mm

Geometry - Tim Planning Suite

Inline Composing	Off

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	Sum of Squares
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	Default

System - Adjustments

B0 Shim mode	Tune up
Adjust with body coil	Off
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	63.678991 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - Signal1

1st Signal/Mode	None
TR	22.0 ms
Concatenations	4

Physio - Cardiac

Fat suppr.	None
Dark blood	Off
FoV read	180 mm
FoV phase	100.0 %
Phase resolution	90 %

Angio - Common

TONE ramp	70 %
Flow direction	F >> H
Flip angle	18 deg
MTC	Off
Measurements	1
3D centric reordering	On

Angio - Inline

Subtract	Off

Angio - Inline

Measurements	1
StdDev	Off
Save original images	On

Angio - MIP

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

Angio - Composing

Inline Composing	Off
Distortion Corr.	Off

Sequence - Part 1

Introduction	On
Dimension	3D
Elliptical scanning	On
Asymmetric echo	Allowed
Contrasts	1
Flow comp.	Yes
Multi-slice mode	Sequential
Bandwidth	122 Hz/Px

Sequence - Part 2

Gradient mode	Fast
RF spoiling	On

Sequence - Assistant

Mode	Off

\\USER\Brain\Stroke\Acute stroke\T2w FLAIR fast

TA: 2:35 PM: FIX Voxel size: 0.5×0.5×5.0 mmPAT: 2 Rel. SNR: 1.00 : qtir

Properties

Prio recon	Off
Load images to viewer	On
Inline movie	Off
Auto store images	On
Load images to stamp segments	On
Load images to graphic segments	On
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	31
Dist. factor	15 %
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	R >> L
AutoAlign	---
Phase oversampling	0 %
FoV read	240 mm
FoV phase	84.4 %
Slice thickness	5.0 mm
TR	8500.0 ms
TE	106.0 ms
Averages	1
Concatenations	2
Filter	Prescan Normalize, Elliptical filter
Coil elements	HE1-4

Contrast - Common

TR	8500.0 ms
TE	106.0 ms
TD	0.0 ms
MTC	Off
Magn. preparation	Slice-sel. IR
TI	2437 ms
Flip angle	150 deg
Fat suppr.	None
Water suppr.	None
Restore magn.	Off
Freeze suppressed tissue	On

Contrast - Dynamic

Averages	1
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each measurement

Resolution - Common

FoV read	240 mm
FoV phase	84.4 %
Slice thickness	5.0 mm
Base resolution	256
Phase resolution	100 %
Phase partial Fourier	Off

Resolution - Common

Trajectory	Cartesian
Interpolation	On

Resolution - iPAT

PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	39
Reference scan mode	Integrated

Resolution - Filter Image

Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	On
Unfiltered images	Off
Normalize	Off
B1 filter	Off

Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	On

Geometry - Common

Slice group	1
Slices	31
Dist. factor	15 %
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	R >> L
FoV read	240 mm
FoV phase	84.4 %
Slice thickness	5.0 mm
TR	8500.0 ms
Multi-slice mode	Interleaved
Series	Interleaved
Concatenations	2

Geometry - AutoAlign

Slice group	1
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	R >> L
AutoAlign	---
Initial Position	R4.5 A30.7 F9.1
R	4.5 mm
A	30.7 mm
F	9.1 mm
Initial Rotation	90.00 deg
Initial Orientation	T > C
T > C	-3.3
> S	-0.7

Geometry - Saturation

Fat suppr.	None
Water suppr.	None
Restore magn.	Off
Special sat.	Parallel F
Gap	10 mm
Thickness	50 mm

Geometry - Navigator

Geometry - Tim Planning Suite

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

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	Adaptive Combine
Save uncombined	Off
Matrix Optimization	Off
AutoAlign	---
Coil Select Mode	On - AutoCoilSelect

System - Adjustments

B0 Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

System - Adjust Volume

Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Rotation	90.00 deg
R >> L	203 mm
A >> P	240 mm
F >> H	178 mm
Reset	Off

System - Tx/Rx

Frequency 1H	63.678991 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - Signal1

1st Signal/Mode	None
TR	8500.0 ms
Concatenations	2

Physio - Cardiac

Magn. preparation	Slice-sel. IR
TI	2437 ms
Fat suppr.	None
Dark blood	Off
FoV read	240 mm
FoV phase	84.4 %
Phase resolution	100 %
Trajectory	Cartesian

Physio - PACE

Resp. control	Off
Concatenations	2

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

Inline Composing	Off
Distortion Corr.	Off

Sequence - Part 1

Introduction	On
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	On
Contrasts	1
Flow comp.	No
Multi-slice mode	Interleaved
Free echo spacing	On
Echo spacing	9.6 ms
Bandwidth	201 Hz/Px

Sequence - Part 2

Define	Turbo factor
Echo trains per slice	8
Phase correction	Automatic
Acoustic noise reduction	Active
RF pulse type	Normal
Gradient mode	Normal
WARP	Off
Red. EC sensitivity	Off
Turbo factor	16

Sequence - Assistant

Mode	Off
Allowed delay	30 s

\\USER\Brain\Stroke\Acute stroke\T2*w PWI 15sec inj delay (send to RAPID)

TA: 2:12 PM: FIX Voxel size: 2.6×2.6×5.0 mmPAT: Off 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	On
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	On
Start measurements	Single measurement

Routine

Slice group	1
Slices	25
Dist. factor	0 %
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	0 %
FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
TR	2100 ms
TE	40.0 ms
Averages	1
Concatenations	1
Filter	Raw filter
Coil elements	HE1-4

Contrast - Common

TR	2100 ms
TE	40.0 ms
MTC	Off
Flip angle	80 deg
Fat suppr.	Fat sat.

Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	60
Delay in TR	0 ms
Multiple series	Off

Resolution - Common

FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
Base resolution	92
Phase resolution	100 %
Phase partial Fourier	Off
Interpolation	Off

Resolution - iPAT

Accel. mode	None

Resolution - Filter Image

Distortion Corr.	Off
Prescan Normalize	Off

Resolution - Filter Rawdata

Raw filter	On
Elliptical filter	Off
Hamming	Off

Geometry - Common

Slice group	1
Slices	25
Dist. factor	0 %
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	A >> P
FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
TR	2100 ms
Multi-slice mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice group	1
Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	R4.5 A30.7 F9.1
R	4.5 mm
A	30.7 mm
F	9.1 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C
T > C	-3.3
> S	-0.7

Geometry - Saturation

Fat suppr.	Fat sat.
Special sat.	None

Geometry - Tim Planning Suite

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

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	On - AutoCoilSelect

System - Adjustments

B0 Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

System - Adjust Volume

Position	R4.5 A30.7 F9.1 mm
Orientation	T > C-3.3 > S-0.7
Rotation	0.00 deg
A >> P	240 mm
R >> L	240 mm
F >> H	125 mm
Reset	Off

System - Tx/Rx

Frequency 1H	63.678991 MHz
Correction factor	1
Gain	High
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - Signal1

1st Signal/Mode	None
TR	2100 ms
Concatenations	1

Perf

GBP	Off
PBP	Off
TTP	Off
relCBV	Off
relCBF	Off
relMTT	Off
relCBVCorr	Off
Measurements	60
Motion correction	Off
Spatial filter	Off

Sequence - Part 1

Introduction	On
Multi-slice mode	Interleaved
Free echo spacing	On
Echo spacing	0.54 ms
Bandwidth	2174 Hz/Px

Sequence - Part 2

EPI factor	92
RF pulse type	Normal
Gradient mode	Fast*

Geometry - AutoAlign

T > C	7.9
> S	0.0

Geometry - Saturation

Fat suppr.	None
Water suppr.	None
Dixon	On
Special sat.	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	F
Table position	151 mm
Inline Composing	Off

System - Miscellaneous

Positioning mode	ISO
Table position	F
Table position	151 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	H >> F
Coil Combine Mode	Adaptive Combine
Save uncombined	Off
Matrix Optimization	Off
Coil Focus	Flat
AutoAlign	---
Coil Select Mode	On - AutoCoilSelect

System - Adjustments

B0 Shim mode	Standard Neck
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

System - Adjust Volume

Position	L0.0 A6.0 F150.8 mm
Orientation	T > C7.9
Rotation	0.00 deg
A >> P	50 mm
R >> L	200 mm
F >> H	208 mm
Reset	Off

System - Tx/Rx

Frequency 1H	63.678991 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - PACE

Resp. control	Off
Concatenations	1

Inline - Common

View sharing	Off
Flip angle	20.0 deg
Measurements	1

Inline - Common

Burn time-to-center	Off
Temporal interpolation	1
3D centric reordering	Off
Time to center	29.4 s

Inline - Inline

Subtract	Off
Measurements	1
StdDev	Off
Liver registration	Off
Save original images	On

Inline - MIP

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

Inline - Soft Tissue

Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off
Measurements	1

Inline - Composing

Inline Composing	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Sequence - Part 1

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Weak
Contrasts	2
Readout mode	Bipolar
Optimization	Opp/In
Multi-slice mode	Sequential
Bandwidth 1	380 Hz/Px
Bandwidth 2	400 Hz/Px

Sequence - Part 2

RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Incr. Gradient spoiling	Off

Sequence - Assistant

Mode	Off

\\USER\Brain\Stroke\Acute stroke\t1_vibe_dixon_tra_p2_2mm_288_FAST

TA: 1:15 PM: ISO Voxel size: 0.7×0.7×2.0 mmPAT: 2 Rel. SNR: 1.00 : fl

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	On
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
Dist. factor	20 %
Position	L0.0 A6.0 F150.8 mm
Orientation	T > C7.9
Phase enc. dir.	A >> P
AutoAlign	---
Phase oversampling	30 %
Slice oversampling	100.0 %
Slices per slab	104
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	2.0 mm
TR	7.16 ms
TE 1	2.39 ms
TE 2	4.77 ms
Averages	1
Concatenations	1
Filter	Distortion Corr.(2D), Prescan Normalize
Coil elements	NE1,2;SP1

Contrast - Common

TR	7.16 ms
TE 1	2.39 ms
TE 2	4.77 ms
Flip angle	20.0 deg
Fat suppr.	None
Water suppr.	None
Dixon	On

Contrast - Dynamic

Averages	1
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each measurement

Resolution - Common

FoV read	200 mm
FoV phase	100.0 %
Slice thickness	2.0 mm
Base resolution	288
Phase resolution	75 %
Slice resolution	50 %
Phase partial Fourier	7/8

Resolution - Common

Slice partial Fourier	6/8
Trajectory	Cartesian
View sharing	Off
Interpolation	Off

Resolution - iPAT

PAT mode	CAIPIRINHA
Accel. factor PE	1
Ref. lines PE	24
Accel. factor 3D	2
Ref. lines 3D	24
Reordering Shift 3D	1
Reference scan mode	GRE/separate
CAIPIRINHA mode	Body Tra
Total PAT factor	2

Resolution - Filter Image

Image Filter	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off
Prescan Normalize	On
Unfiltered images	Off
Normalize	Off
B1 filter	Off

Resolution - Filter Rawdata

Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry - Common

Slab group	1
Slabs	1
Dist. factor	20 %
Position	L0.0 A6.0 F150.8 mm
Orientation	T > C7.9
Phase enc. dir.	A >> P
Slice oversampling	100.0 %
Slices per slab	104
FoV read	200 mm
FoV phase	100.0 %
Slice thickness	2.0 mm
TR	7.16 ms
Multi-slice mode	Sequential
Series	Ascending
Concatenations	1

Geometry - AutoAlign

Slab group	1
Position	L0.0 A6.0 F150.8 mm
Orientation	T > C7.9
Phase enc. dir.	A >> P
AutoAlign	---
Initial Position	L0.0 A6.0 F150.8
L	0.0 mm
A	6.0 mm
F	150.8 mm
Initial Rotation	0.00 deg
Initial Orientation	T > C

Geometry - AutoAlign

T > C	7.9
> S	0.0

Geometry - Saturation

Fat suppr.	None
Water suppr.	None
Dixon	On
Special sat.	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table position	F
Table position	151 mm
Inline Composing	Off

System - Miscellaneous

Positioning mode	ISO
Table position	F
Table position	151 mm
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	H >> F
Coil Combine Mode	Adaptive Combine
Save uncombined	Off
Matrix Optimization	Off
Coil Focus	Flat
AutoAlign	---
Coil Select Mode	On - AutoCoilSelect

System - Adjustments

B0 Shim mode	Standard Neck
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Dominant Fat	Off
Assume Silicone	Off
Adjustment Tolerance	Auto

System - Adjust Volume

Position	L0.0 A6.0 F150.8 mm
Orientation	T > C7.9
Rotation	0.00 deg
A >> P	50 mm
R >> L	200 mm
F >> H	208 mm
Reset	Off

System - Tx/Rx

Frequency 1H	63.678991 MHz
Correction factor	1
Gain	Low
Img. Scale Cor.	1.000
Reset	Off
? Ref. amplitude 1H	0.000 V

Physio - PACE

Resp. control	Off
Concatenations	1

Inline - Common

View sharing	Off
Flip angle	20.0 deg
Measurements	1

Inline - Common

Burn time-to-center	Off
Temporal interpolation	1
3D centric reordering	Off
Time to center	29.4 s

Inline - Inline

Subtract	Off
Measurements	1
StdDev	Off
Liver registration	Off
Save original images	On

Inline - MIP

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

Inline - Soft Tissue

Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off
Measurements	1

Inline - Composing

Inline Composing	Off
Distortion Corr.	On
Mode	2D
Unfiltered images	Off

Sequence - Part 1

Introduction	Off
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Weak
Contrasts	2
Readout mode	Bipolar
Optimization	Opp/In
Multi-slice mode	Sequential
Bandwidth 1	380 Hz/Px
Bandwidth 2	400 Hz/Px

Sequence - Part 2

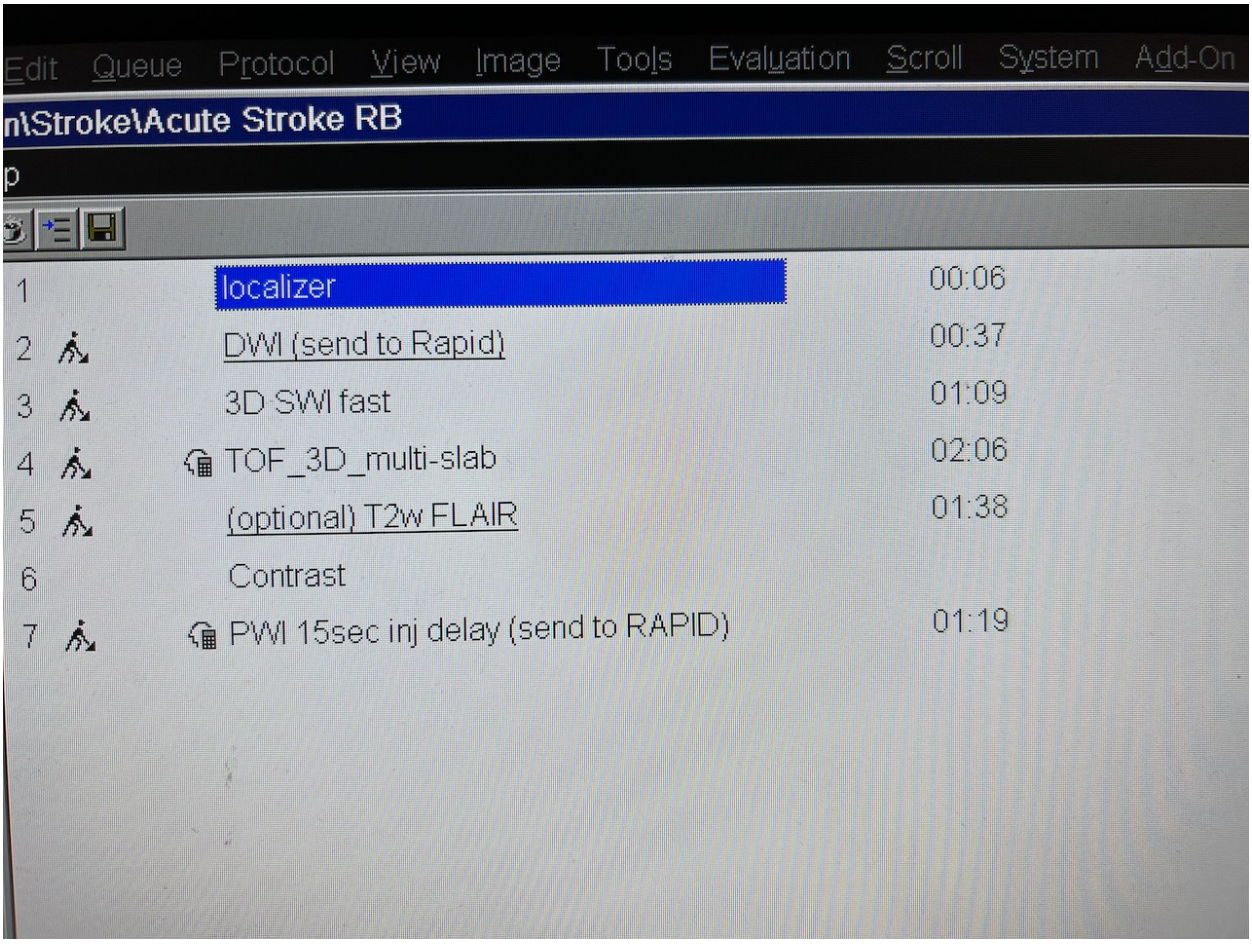
RF pulse type	Fast
Gradient mode	Fast
Excitation	Slab-sel.
RF spoiling	On
Incr. Gradient spoiling	Off

Sequence - Assistant

Mode	Off

Siemens VERIO (3T) with VQ gradients

Table of contents



SIEMENS MAGNETOM Verio syngo MR B19

\\USER\Brain\Stroke\Acute Stroke RB\localizer

TA: 5.6 s PAT: Off Voxel size: 1.3×1.0×7.0 mm Rel. SNR: 1.00 SIEMENS: gre

Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	Off
Auto open inline display	Off
Start measurement without further preparation	Off
Wait for user to start	Off
Start measurements	single

Routine

Slice group 1	
Slices	1
Dist. factor	20 %
Position	L0.0 P20.0 H0.0
Orientation	Sagittal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Slice group 2	
Slices	1
Dist. factor	20 %
Position	L0.0 P20.0 H0.0
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Slice group 3	
Slices	1
Dist. factor	20 %
Position	L0.0 P20.0 H0.0
Orientation	Coronal
Phase enc. dir.	R >> L
Rotation	0.00 deg
Phase oversampling	0 %
FoV read	250 mm
FoV phase	100.0 %
Slice thickness	7.0 mm
TR	8.2 ms
TE	4.00 ms
Averages	1
Concatenations	3
Filter	Prescan Normalize, Elliptical filter
Coil elements	HEA;HEP

Contrast

TD	0 ms
MTC	Off
Magn. preparation	None
Flip angle	20 deg
Fat suppr.	None
Water suppr.	None
SWI	Off
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each measurement

Resolution

Base resolution	256
Phase resolution	75 %
Phase partial Fourier	7/8
Interpolation	On
PAT mode	None
Matrix Coil Mode	Auto (CP)
Image Filter	Off
Distortion Corr.	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	On
Mode	Inplane

Geometry

Multi-slice mode	Sequential
Series	Interleaved
Saturation mode	Standard
Special sat.	None
Table position	H
Table position	0 mm
Inline Composing	Off
Tim CT mode	Off

System

Body	Off
HEP	On
HEA	On
Positioning mode	REF
MSMA	S - C - T
Sagittal	R >> L
Coronal	P >> A
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio

1st Signal/Mode	None
Segments	1
Dark blood	Off
Resp. control	Off

Inline

Subtract	Off
Liver registration	Off

Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off
MapIt	None
Contrasts	1

Sequence

Introduction	On
Dimension	2D
Phase stabilisation	Off
Asymmetric echo	Allowed
Bandwidth	430 Hz/Px
Flow comp.	No
Allowed delay	0 s
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
RF spoiling	On

SIEMENS MAGNETOM Verio syngo MR B19

\\USER\Brain\Stroke\Acute Stroke RB\DWI (send to Rapid)

TA: 0:37 PAT: 2 Voxel size: 1.8×1.8×5.0 mm Rel. SNR: 1.00 SIEMENS: ep2d_diff

Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Routine

Slice group 1	
Slices	30
Dist. factor	0 %
Position	L0.1 P14.9 H24.3
Orientation	T > C-13.8
Phase enc. dir.	A >> P
Rotation	0.60 deg
Phase oversampling	0 %
FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
TR	5000 ms
TE	88 ms
Averages	1
Concatenations	1
Filter	Raw filter, Prescan Normalize
Coil elements	HEA;HEP

Contrast

MTC	Off
Magn. preparation	None
Fat suppr.	Fat sat.
Fat sat. mode	Strong
Averaging mode	Long term
Reconstruction	Magnitude
Delay in TR	0 ms

Resolution

Base resolution	130
Phase resolution	100 %
Phase partial Fourier	6/8
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Matrix Coil Mode	CP
Reference scan mode	Separate
Distortion Corr.	Off
Prescan Normalize	On
Raw filter	On
Intensity	Weak
Slope	25
Elliptical filter	Off
Hamming	Off

Geometry

Multi-slice mode	Interleaved
Series	Interleaved
Special sat.	None
Table position	H
Table position	0 mm
Inline Composing	Off

System

Body	Off
HEP	On
HEA	On
SP4	Off
SP2	Off
SP8	Off
SP6	Off
SP3	Off
SP1	Off
SP7	Off
SP5	Off
Positioning mode	FIX
MSMA	S - C - T
Sagittal	R >> L
Coronal	P >> A
Transversal	F >> H
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	L0.1 P14.9 H24.3
Orientation	T > C-13.8
Rotation	0.60 deg
R >> L	240 mm
A >> P	240 mm
F >> H	150 mm

Physio

1st Signal/Mode	None
Resp. control	Off

Diff

Diffusion mode	Orthogonal
Diff. weightings	2
b-value 1	0 s/mm²
b-value 2	1000 s/mm²
Diff. weighted images	On
Trace weighted images	On
Average ADC maps	On
Individual ADC maps	Off
FA maps	Off
Mosaic	Off
Tensor	Off
Noise level	40
Diff. directions	3

Sequence

Introduction	On
Bandwidth	1672 Hz/Px
Free echo spacing	Off

Echo spacing	0.76 ms
EPI factor	130
RF pulse type	Normal
Gradient mode	Fast

\\USER\Brain\Stroke\Acute Stroke RB\3D SWI fast

TA: 1:09 PAT: 3 Voxel size: 1.1×0.9×3.0 mm Rel. SNR: 1.00 SIEMENS: gre

Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	Off
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Routine

Slab group 1	
Slabs	1
Dist. factor	20 %
Position	L0.1 P14.9 H24.3
Orientation	T > C-13.8
Phase enc. dir.	R >> L
Rotation	90.60 deg
Phase oversampling	0 %
Slice oversampling	8.3 %
Slices per slab	48
FoV read	240 mm
FoV phase	78.1 %
Slice thickness	3.00 mm
TR	23 ms
TE	18.00 ms
Averages	1
Concatenations	1
Filter	Prescan Normalize
Coil elements	HEA;HEP

Contrast

MTC	Off
Magn. preparation	None
Flip angle	15 deg
Fat suppr.	None
Water suppr.	None
SWI	Off
Averaging mode	Short term
Reconstruction	Magn./Phase
Measurements	1
Multiple series	Each measurement

Resolution

Base resolution	256
Phase resolution	85 %
Slice resolution	77 %
Phase partial Fourier	Off
Slice partial Fourier	Off
Interpolation	On
PAT mode	GRAPPA
Accel. factor PE	3
Ref. lines PE	24
Accel. factor 3D	1
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off

Geometry

Multi-slice mode	Interleaved
Series	Interleaved
Saturation mode	Standard
Special sat.	None
Table position	H
Table position	0 mm
Inline Composing	Off
Tim CT mode	Off

System

Body	Off
HEP	On
HEA	On
SP4	Off
SP2	Off
SP8	Off
SP6	Off
SP3	Off
SP1	Off
SP7	Off
SP5	Off
Positioning mode	FIX
MSMA	S - C - T
Sagittal	R >> L
Coronal	P >> A
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Sum of Squares
Auto Coil Select	Default
Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	L0.1 P14.9 H24.3
Orientation	T > C-13.8
Rotation	90.60 deg
A >> P	240 mm
R >> L	188 mm
F >> H	144 mm

Physio

1st Signal/Mode	None
Segments	1
Dark blood	Off
Resp. control	Off

Inline

Subtract	Off
Liver registration	Off

Std-Dev-Sag	Off
Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off
MapIt	None
Contrasts	1

Sequence

Introduction	On
Dimension	3D
Elliptical scanning	Off
Phase stabilisation	Off
Asymmetric echo	Off
Bandwidth	210 Hz/Px
Flow comp.	Yes
Allowed delay	0 s
RF pulse type	Fast
Gradient mode	Normal
Excitation	Slab-sel.
RF spoiling	On

SIEMENS MAGNETOM Verio syngo MR B19

\\USER\Brain\Stroke\Acute Stroke RB\TOF_3D_multi-slab

TA: 2:06 PAT: 2 Voxel size: 0.8×0.8×0.9 mm Rel. SNR: 1.00 SIEMENS: fl_tof

Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	Off
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Routine

Slab group 1	
Slabs	3
Dist. factor	-16.67 %
Position	L0.0 A10.0 H0.0
Orientation	Transversal
Phase enc. dir.	R >> L
Rotation	90.00 deg
Phase oversampling	0 %
Slice oversampling	22.2 %
Slices per slab	36
FoV read	200 mm
FoV phase	90.6 %
Slice thickness	0.90 mm
TR	20 ms
TE	3.89 ms
Averages	1
Concatenations	3
Filter	None
Coil elements	HEA;HEP

Contrast

TD	0.000 ms
MTC	Off
Flip angle	16 deg
Fat suppr.	None
Water suppr.	None
Averaging mode	Short term
Reconstruction	Magnitude
Measurements	1

Resolution

Base resolution	256
Phase resolution	95 %
Slice resolution	50 %
Phase partial Fourier	6/8
Slice partial Fourier	7/8
Interpolation	On
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	24
Accel. factor 3D	1
Matrix Coil Mode	Dual
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	Off
Prescan Normalize	Off
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	Off
POCS	Off

Geometry

Multi-slice mode	Sequential
Series	Descending
Special sat.	Tracking H
Gap	10 mm
Thickness	40 mm
Table position	H
Table position	0 mm
Inline Composing	Off

System

Body	Off
NE2	Off
NE1	Off
HEP	On
HEA	On
SP4	Off
SP2	Off
SP8	Off
SP6	Off
SP3	Off
SP1	Off
SP7	Off
SP5	Off
Positioning mode	REF
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Tune up
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	350 mm
A >> P	263 mm
F >> H	350 mm

Physio

1st Signal/Mode	None
Dark blood	Off

Angio

TONE ramp	70 %
Flow direction	F >> H
3D centric reordering	On
Subtract	Off
Std-Dev-Sag	Off
Std-Dev-Cor	Off

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

Sequence

Introduction	On
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Allowed
Contrasts	1
Bandwidth	150 Hz/Px
Flow comp.	Yes
Gradient mode	Fast
RF spoiling	On

\\USER\Brain\Stroke\Acute Stroke RB\(optional) T2w FLAIR

TA: 1:38 PAT: 2 Voxel size: 1.3×0.9×5.0 mm Rel. SNR: 1.00 SIEMENS: tse

Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	On
Load images to graphic segments	On
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Routine

Slice group 1	
Slices	30
Dist. factor	0 %
Position	L0.1 P14.9 H24.3
Orientation	T > C-13.8
Phase enc. dir.	R >> L
Rotation	90.60 deg
Phase oversampling	0 %
FoV read	240 mm
FoV phase	81.3 %
Slice thickness	5.0 mm
TR	8000 ms
TE	104 ms
Averages	1
Concatenations	2
Filter	Prescan Normalize, Elliptical filter
Coil elements	HEA;HEP

Contrast

TD	0.0 ms
MTC	Off
Magn. preparation	Slice-sel. IR
TI	2368.5 ms
Freeze suppressed tissue	On
Flip angle	160 deg
Fat suppr.	Fat sat.
Fat sat. mode	Strong
Water suppr.	None
Restore magn.	Off
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	1
Multiple series	Each measurement

Resolution

Base resolution	256
Phase resolution	70 %
Phase partial Fourier	Off
Trajectory	Cartesian
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	34
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Integrated
Image Filter	Off
Distortion Corr.	Off
Unfiltered images	Off
Prescan Normalize	On
Normalize	Off
B1 filter	Off
Raw filter	Off
Elliptical filter	On
Mode	Inplane

Geometry

Multi-slice mode	Interleaved
Series	Interleaved
Special sat.	Parallel F
Gap	10 mm
Thickness	50 mm
Table position	H
Table position	0 mm
Inline Composing	Off
Tim CT mode	Off

System

Body	Off
HEP	On
HEA	On
SP4	Off
SP2	Off
SP8	Off
SP6	Off
SP3	Off
SP1	Off
SP7	Off
SP5	Off
Positioning mode	FIX
MSMA	S - C - T
Sagittal	R >> L
Coronal	P >> A
Transversal	F >> H
Save uncombined	Off
Coil Combine Mode	Adaptive Combine
Auto Coil Select	Default
Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	L0.1 P14.9 H24.3
Orientation	T > C-13.8
Rotation	90.60 deg
A >> P	240 mm
R >> L	195 mm
F >> H	150 mm

Physio

1st Signal/Mode	None
Dark blood	Off
Resp. control	Off

Inline

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

Sequence

Introduction	On
Dimension	2D
Compensate T2 decay	Off
Reduce Motion Sens.	On
Contrasts	1
Bandwidth	268 Hz/Px
Flow comp.	Slice
Allowed delay	60 s
Echo spacing	13 ms
Define	Turbo factor
Turbo factor	18
Echo trains per slice	5
RF pulse type	Normal
Gradient mode	Fast

\\USER\Brain\Stroke\Acute Stroke RB\PWI 15sec inj delay (send to RAPID)

TA: 1:19 PAT: 2 Voxel size: 1.8×1.8×5.0 mm Rel. SNR: 1.00 SIEMENS: ep2d_fid

Properties

Prio Recon	Off
Before measurement	
After measurement	
Load to viewer	On
Inline movie	Off
Auto store images	On
Load to stamp segments	Off
Load images to graphic segments	Off
Auto open inline display	Off
Start measurement without further preparation	On
Wait for user to start	Off
Start measurements	single

Routine

Slice group 1	
Slices	24
Dist. factor	0 %
Position	Isocenter
Orientation	Transversal
Phase enc. dir.	A >> P
Rotation	0.00 deg
Phase oversampling	0 %
FoV read	240 mm
FoV phase	100.0 %
Slice thickness	5.0 mm
TR	1800 ms
TE	30 ms
Averages	1
Concatenations	1
Filter	Raw filter
Coil elements	HEA;HEP

Contrast

MTC	Off
Flip angle	80 deg
Fat suppr.	Fat sat.
Averaging mode	Long term
Reconstruction	Magnitude
Measurements	40
Delay in TR	0 ms
Multiple series	Off

Resolution

Base resolution	130
Phase resolution	100 %
Phase partial Fourier	Off
Interpolation	Off
PAT mode	GRAPPA
Accel. factor PE	2
Ref. lines PE	40
Matrix Coil Mode	Auto (Triple)
Reference scan mode	Separate
Distortion Corr.	Off
Prescan Normalize	Off
Raw filter	On
Intensity	Weak
Slope	25
Elliptical filter	Off
Hamming	Off

Geometry

Multi-slice mode	Interleaved
Series	Interleaved
Special sat.	None
Table position	H
Table position	0 mm
Inline Composing	Off

System

Body	Off
HEP	On
HEA	On
Positioning mode	REF
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combine Mode	Sum of Squares
Auto Coil Select	Default
Shim mode	Standard
Adjust with body coil	Off
Confirm freq. adjustment	Off
Assume Silicone	Off
? Ref. amplitude 1H	0.000 V
Adjustment Tolerance	Auto
Adjust volume	
Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
R >> L	240 mm
A >> P	240 mm
F >> H	120 mm

Physio

1st Signal/Mode	None

Perf

GBP	On
PBP	On
TTP	On
Original images	On
Starting ignore meas	2

Sequence

Introduction	On
Bandwidth	1602 Hz/Px
Free echo spacing	Off
Echo spacing	0.73 ms
EPI factor	130
RF pulse type	Normal
Gradient mode	Fast

Siemens VIDA (3T) with XQ gradients

Table of contents

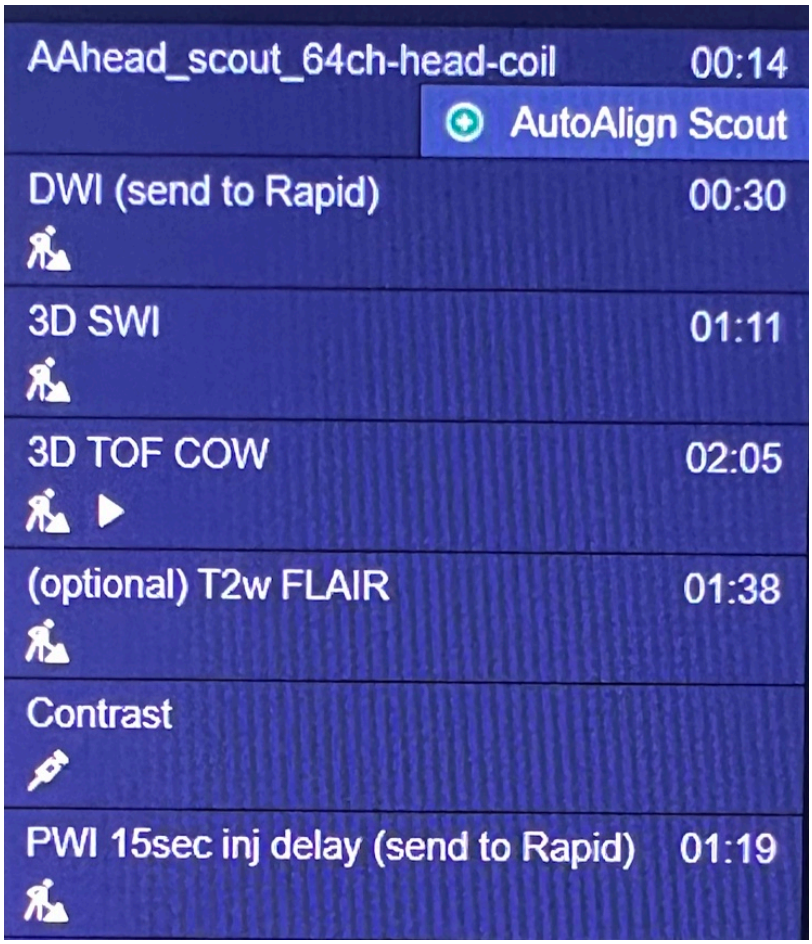
\\USER

Brain

64Ch

Stroke

AAhead_scout_64ch-head-coil *
DWI (send to Rapid) *
3D SWI *
3D TOF COW *
(optional) T2w FLAIR *
PWI 15sec inj delay (send to Rapid) *
*
*
*
*
*



\\USER\Brain\64Ch\Stroke\AAhead_scout_64ch-head-coil *

TA: 14 sec Coil Selection: Auto Voxel Size: 1.6×1.6×1.6 mm³ Acc:: 3 Rel. SNR: 1.00

Properties

Start measurement without further preparation	Off
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
Load Images to Stamp Segments	On
Load Images to Graphic Segments	On
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	L0.0 P10.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slices per Slab	128
Phase Oversampling	0 %
Slice Oversampling	0.0 %
FoV Read	260 mm
FoV Phase	100.0 %
Slice Thickness	1.6 mm
TR	3.2 ms
TE	1.37 ms
Averages	1
Concatenations	1
AutoAlign	Head
Coil Elements	HC1-7;NC1,2

Contrast - Common

TR	3.2 ms
TE	1.37 ms
Flip Angle	8 deg
Fat-Water Contrast	Standard
Contrasts	1
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Time to Center	6.2 s

Resolution - Common

FoV Read	260 mm
FoV Phase	100.0 %
Slice Thickness	1.6 mm
Base Resolution	160
Phase Resolution	100 %
Slice Resolution	69 %
Trajectory	Cartesian

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	3

Resolution - Acceleration

Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	6/8
Slice Partial Fourier	6/8
Asymmetric Echo	Weak

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	3D
Normalize	Prescan
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	L0.0 P10.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slices per Slab	128
Phase Oversampling	0 %
Slice Oversampling	0.0 %
FoV Read	260 mm
FoV Phase	100.0 %
Slice Thickness	1.6 mm
TR	3.2 ms
Multi-Slice Mode	Sequential
Series	Ascending
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	L0.0 P10.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
AutoAlign	Head
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	0.00 deg

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

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Tune up
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	263 mm
A >> P	350 mm
F >> H	350 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Non-sel.

System - Tx/Rx

Frequency 1H	123.233179 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Dynamic

Dynamic Mode	Standard
Flip Angle	8 deg
Measurements	1
Time to Center	6.2 s

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Save Original Images	On
Contrasts	1
TE	1.37 ms
TR	3.2 ms

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

Sequence - Part 1

Sequence Name	fl
Dimension	3D
Excitation	Non-sel.
RF Pulse Type	Fast
Gradient Mode	Normal
Bandwidth	540 Hz/Px
Asymmetric Echo	Weak

Sequence - Part 2

Introduction	On
RF Spoiling	On

Sequence - Assistant

SAR Assistant	Off

\\USER\Brain\64Ch\Stroke\DWI (send to Rapid) *

TA: 30 sec Coil Selection: Auto Voxel Size: 0.9×0.9×5.0 mm³ 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
Load Images to Stamp Segments	On
Load Images to Graphic Segments	On
Graphic segment	Default
Inline Movie	Off

Routine

Slice Group	1
Slices	30
Distance Factor	0 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	240 mm
FoV Phase	100.0 %
Slice Thickness	5.0 mm
TR	4300.0 ms
TE	74.00 ms
Concatenations	1
AutoAlign	Head > Brain
Coil Elements	HC1-7

Contrast - Common

TR	4300.0 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	240 mm
FoV Phase	100.0 %
Slice Thickness	5.0 mm
Base Resolution	130
Phase Resolution	100 %
Interpolation	On

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	EPI/Separate
Acceleration Factor PE	2
Reference Lines PE	32
Phase Partial Fourier	6/8

Resolution - Filter

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

Geometry - Common

Slice Group	1
Slices	30
Distance Factor	0 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	240 mm
FoV Phase	100.0 %
Slice Thickness	5.0 mm
TR	4300.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice Group	1
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	A >> P
AutoAlign	Head > Brain
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	0.01 deg

Geometry - Navigator

Geometry - Saturation

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

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto

System - Adjustments

Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.01 deg
A >> P	240 mm
R >> L	240 mm
F >> H	150 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Standard

System - Tx/Rx

Frequency 1H	123.233179 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	4300.0 ms
Concatenations	1

Physio - PACE

Resp. Control	Off
Concatenations	1

Diff

Diffusion Mode	Orthogonal
Diff. Directions	3
Diffusion Scheme	Monopolar
Diff. Weightings	2
b-value 1	0 s/mm²
b-value 2	1000 s/mm²
Averages 1	1
Averages 2	1
Dynamic Field Correction	Off
Invert Gray Scale	Off
Diff. Weighted Images	On
Trace Weighted Images	On
Tensor	Off
FA Maps	Off
ADC Maps	On
Exponential ADC Maps	Off
b-value >=	0 s/mm²
ADC Noise Threshold	40
Noise Masking	Off
Calculated Image	Off

Sequence - Part 1

Sequence Name	epse
Excitation	Standard
RF Pulse Type	Normal
Gradient Mode	Fast
Bandwidth	1748 Hz/Px
Echo Spacing	0.70 ms
Free Echo Spacing	Off

Sequence - Part 1

Optimization	Min. TE
EPI Factor	130

Sequence - Part 2

Introduction	Off
Phase Correction	Internal

\\USER\Brain\64Ch\Stroke\3D SWI *

TA: 1:11 min Coil Selection: Auto Voxel Size: 0.9×0.9×3.0 mm³ 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
Load Images to Stamp Segments	On
Load Images to Graphic Segments	On
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slices per Slab	48
Phase Oversampling	0 %
Slice Oversampling	8.3 %
FoV Read	240 mm
FoV Phase	78.1 %
Slice Thickness	3.0 mm
TR	24.0 ms
TE	18.00 ms
Averages	1
Concatenations	1
AutoAlign	Head > Brain
Coil Elements	HC1-7

Contrast - Common

TR	24.0 ms
TE	18.00 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	240 mm
FoV Phase	78.1 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	70 %
Slice Resolution	69 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Off
Elliptical Scanning	Off

Resolution - Filter

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

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Slices per Slab	48
Phase Oversampling	0 %
Slice Oversampling	8.3 %
FoV Read	240 mm
FoV Phase	78.1 %
Slice Thickness	3.0 mm
TR	24.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
AutoAlign	Head > Brain
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	90.01 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

System - Miscellaneous

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

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	90.01 deg
R >> L	188 mm
A >> P	240 mm
F >> H	144 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.
LR Balancing	Off

System - Tx/Rx

Frequency 1H	123.233179 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	24.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	240 mm
FoV Phase	78.1 %
Phase Resolution	70 %
Dynamic Mode	Standard

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 - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	18.00 ms
TR	24.0 ms

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

Sequence - Part 1

Sequence Name	swi_r
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Gradient Mode	Normal
Flow Compensation	On
Bandwidth	210 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	30 s

\\USER\Brain\64Ch\Stroke\3D TOF COW *

TA: 2:05 min Coil Selection: Auto Voxel Size: 0.4×0.4×0.9 mm³ Acc:: 2 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
Load Images to Stamp Segments	On
Load Images to Graphic Segments	On
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	3
Distance Factor	-14 %
Position	R3.0 A2.4 F42.0 mm
Orientation	T > C-5.9
Phase Encoding Dir.	R >> L
Slices per Slab	36
Phase Oversampling	0 %
Slice Oversampling	22.2 %
FoV Read	200 mm
FoV Phase	90.6 %
Slice Thickness	0.9 mm
TR	20.8 ms
TE	3.69 ms
Averages	1
Concatenations	3
AutoAlign	Head > Brain
Coil Elements	HC1-7;NC1,2

Contrast - Common

TR	20.8 ms
TE	3.69 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle Mode	Constant
Flip Angle	15 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
Reordering	Linear

Resolution - Common

FoV Read	200 mm
FoV Phase	90.6 %
Slice Thickness	0.9 mm
Base Resolution	256
Phase Resolution	95 %

Resolution - Common

Slice Resolution	50 %
Trajectory	Cartesian
Interpolation	2.00

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	7/8
Slice Partial Fourier	6/8
Asymmetric Echo	Weak
Elliptical Scanning	Off

Resolution - Filter

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

Geometry - Common

Slab Group	1
Slabs	3
Distance Factor	-14 %
Position	R3.0 A2.4 F42.0 mm
Orientation	T > C-5.9
Phase Encoding Dir.	R >> L
Slices per Slab	36
Phase Oversampling	0 %
Slice Oversampling	22.2 %
FoV Read	200 mm
FoV Phase	90.6 %
Slice Thickness	0.9 mm
TR	20.8 ms
Multi-Slice Mode	Sequential
Series	Descending
Concatenations	3

Geometry - AutoAlign

Slab Group	1
Position	R3.0 A2.4 F42.0 mm
Orientation	T > C-5.9
Phase Encoding Dir.	R >> L
AutoAlign	Head > Brain
Initial Position	R3.0 A2.4 F42.0
R	3.0 mm
A	2.4 mm
F	42.0 mm
Initial Orientation	T > C
T > C	-5.90
> S	0.00
Initial Rotation	90.00 deg

Geometry - Navigator

Geometry - Saturation

Special Saturation	Tracking H

Geometry - Saturation

Gap	10.00 mm
Thickness	40.00 mm

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	42 mm
Table Position	F
Inline Composing	Off

System - Miscellaneous

Coil Selection	Auto Coil Select
MSMA	S - C - T
Sagittal	R >> L
Coronal	P >> A
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

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	R3.0 A2.4 F42.0 mm
Orientation	T > C-5.9
Rotation	90.00 deg
R >> L	182 mm
A >> P	200 mm
F >> H	89 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	TONE

System - Tx/Rx

Frequency 1H	123.233179 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	20.8 ms
Segments	1
Concatenations	3

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	200 mm
FoV Phase	90.6 %
Phase Resolution	95 %
Cine	Off

Physio - Cardiac

Trajectory	Cartesian
Dynamic Mode	Standard
Dummy Heartbeats	1

Physio - PACE

Resp. Control	Off
Concatenations	3

Inline - Dynamic

Dynamic Mode	Standard
MTC	Off
Flow Direction	F >> H
TONE Ramp	70 %
Flip Angle	15 deg
Measurements	1
Multiple Series	Each Measurement

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Inline Evaluation	Off
Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	3.69 ms
TR	20.8 ms

Inline - MIP

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

Inline - Composing

Inline Composing	Off

Sequence - Part 1

Sequence Name	fl_r
Dimension	3D
Sequence Type	Gre
Excitation	TONE
RF Pulse Type	Normal
Gradient Mode	Fast
Flow Compensation	Slice/Read
Reordering	Linear
Bandwidth	186 Hz/Px
Echo Spacing	8.98 ms
Asymmetric Echo	Weak
Optimization	None
Define	Segments
Segments	1

Sequence - Part 2

Introduction	Off

Sequence - Part 2

RF Spoiling	On
Phase Enc. Rewinder	On

Sequence - Assistant

SAR Assistant	Flip Angle
Min Flip Angle	16 deg
Allowed Delay	0 s
Optimization	None

\\USER\Brain\64Ch\Stroke\(optional) T2w FLAIR *

TA: 1:38 min Coil Selection: Auto Voxel Size: 0.9×0.9×5.0 mm³ 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
Load Images to Stamp Segments	On
Load Images to Graphic Segments	On
Graphic segment	Default
Inline Movie	Off

Routine

Slice Group	1
Slices	30
Distance Factor	15 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Phase Oversampling	0 %
FoV Read	240 mm
FoV Phase	81.3 %
Slice Thickness	5.0 mm
TR	8000.0 ms
TE	104.00 ms
Averages	1
Concatenations	2
AutoAlign	Head > Brain
Coil Elements	HC1-7

Contrast - Common

TR	8000.0 ms
TE	104.00 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	Slice-sel. IR
TI	2373 ms
Freeze Suppr. Tissue	On
Flip Angle	160 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	240 mm
FoV Phase	81.3 %
Slice Thickness	5.0 mm
Base Resolution	256
Phase Resolution	70 %
Trajectory	Cartesian
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	34
Phase Partial Fourier	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	On
Distortion Correction	2D
Normalize	B1 Filter
Image Filter	Off

Geometry - Common

Slice Group	1
Slices	30
Distance Factor	15 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
Phase Oversampling	0 %
FoV Read	240 mm
FoV Phase	81.3 %
Slice Thickness	5.0 mm
TR	8000.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	2

Geometry - AutoAlign

Slice Group	1
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	R >> L
AutoAlign	Head > Brain
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
F	0.0 mm
Initial Orientation	Transversal
Initial Rotation	90.01 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
MSMA	S - C - T
Sagittal	R >> L
Coronal	P >> A

System - Miscellaneous

Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

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

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	90.01 deg
R >> L	195 mm
A >> P	240 mm
F >> H	172 mm
Reset	Off

System - pTx

B1 Shim	TrueForm C
LR Balancing	Auto

System - Tx/Rx

Frequency 1H	123.233179 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	8000.0 ms
Concatenations	2

Physio - Cardiac

Fat-Water Contrast	Standard
Magn. Preparation	Slice-sel. IR
TI	2373 ms
Dark Blood	Off
FoV Read	240 mm
FoV Phase	81.3 %
Phase Resolution	70 %
Trajectory	Cartesian
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	2

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	Slice-sel. IR
Save Original Images	On

Inline - Cardiac

Contrasts	1
TE	104.00 ms
TR	8000.0 ms

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

Sequence - Part 1

Sequence Name	tir_rs
Dimension	2D
RF Pulse Type	Normal
Gradient Mode	Fast
Flow Compensation	Slice
Bandwidth	268 Hz/Px
Echo Spacing	13.0 ms
Free Echo Spacing	Off
Define	Turbo Factor
Turbo Factor	18
Echo Trains per Slice	5

Sequence - Part 2

Introduction	On
Phase Correction	Automatic
Compensate T2 Decay	Off
Hyperecho	Off
WARP	Off
Red. EC Sensitivity	Off
Acoustic noise reduction	Off
Reduce Motion Sens.	On

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	60 s

\\USER\Brain\64Ch\Stroke\PWI 15sec inj delay (send to Rapid) *

TA: 1:19 min Coil Selection: Auto Voxel Size: 1.8×1.8×5.0 mm³ 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
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slice Group	1
Slices	24
Distance Factor	0 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	240 mm
FoV Phase	100.0 %
Slice Thickness	5.0 mm
TR	1800.0 ms
TE	30.00 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	HE1-4

Contrast - Common

TR	1800.0 ms
TE	30.00 ms
MTC	Off
Flip Angle	80 deg
Fat-Water Contrast	Fat Saturation
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	40
Multiple Series	Off
Delay in TR	0.00 ms

Resolution - Common

FoV Read	240 mm
FoV Phase	100.0 %
Slice Thickness	5.0 mm
Base Resolution	130
Phase Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	EPI/Separate
Acceleration Factor PE	2
Reference Lines PE	64
Phase Partial Fourier	Off

Resolution - Filter

Raw Filter	On
Elliptical Filter	Off
Hamming	Off
Distortion Correction	2D
Normalize	Off

Geometry - Common

Slice Group	1
Slices	24
Distance Factor	0 %
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	240 mm
FoV Phase	100.0 %
Slice Thickness	5.0 mm
TR	1800.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice Group	1
Position	Isocenter
Orientation	Transversal
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	Isocenter
L	0.0 mm
P	0.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	0.00 deg

Geometry - Saturation

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
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
CoilShim	Off
Adjustment Tolerance	Auto
Adjust with Body Coil	Off

System - Adjustments

Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	240 mm
R >> L	240 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Standard

System - Tx/Rx

Frequency 1H	123.233179 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	1800.0 ms
Concatenations	1

Perf

GBP	On
PBP	On
TTP	On
relCBV	Off
relCBF	Off
relMTT	Off
relCBVCorr	Off
Measurements	40
Motion Correction	Off
Spatial Filter	Off

Sequence - Part 1

Sequence Name	epfid
Excitation	Standard
RF Pulse Type	Normal
Gradient Mode	Fast
Bandwidth	1480 Hz/Px
Echo Spacing	0.76 ms
Free Echo Spacing	Off
EPI Factor	130

Sequence - Part 2

Introduction	On

Key Points to Remember When using Less Contrast Volumes

1. **Flow (rate) influences attack slope (Fig A)**
   Consequence: more ICM does not mean faster uptake, time-density curve just keeps rising.

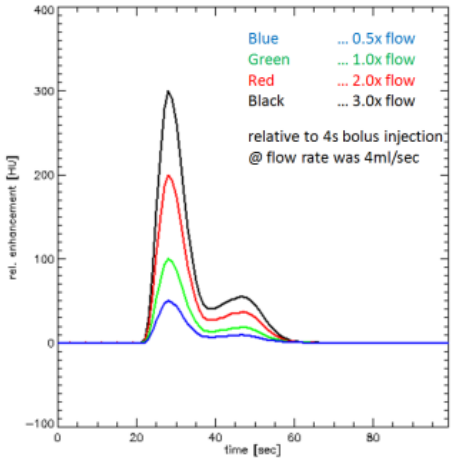


Fig. A – Simulated impact of injection flow rate on arterial time-density curve. The flow rate has direct influence on the attack slope of the time-density curve. Provided sufficient tracer material is supplied, all curves peak at the same time (i.e., proportionally more injected volume is needed for higher flow rates relative to the 4sec @ 4ml/sec 16ml comparator [green curve]). This simulation did not include dispersion of the bolus through the lung circulation and cardiac output/heart rate whilst the tracer is *en route* to the brain.

2. **Less volume means maximum peak enhancement earlier (Fig B)**
   Consequence: start of CTA needs to occur sooner; note, some CT scanners have a minimum time following the fluoro-trigger after which the CTA can be acquired. To start CTA acquisition sooner, the threshold for the fluoro-trigger needs to be lowered, eg., to 80HU. CTAs timed with a testbolus, one should factor in that the test bolus peaks earlier than the CTA bolus but when the ICM volume is reduced this peak is less delayed.

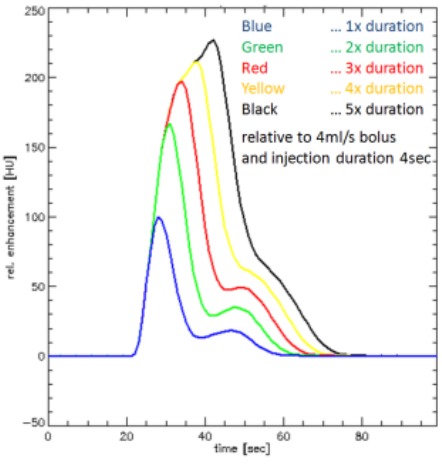
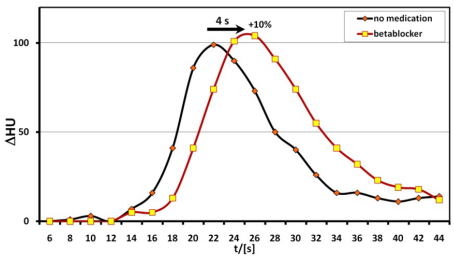


Fig. B – Simulated impact of injection duration on arterial time-density curve. Each of these curves use the same flow rate, hence, the same angle is seen on the attacking slope. However, as the injected volume is increased, relative to the reference standard (blue curve), by proportionally increasing the injection duration, the time-density curves peak later. Notice the shape degeneration for the yellow and black curve. This is due the length of the bolus relative to how long it takes for blood with tracer material to recirculate. For the yellow and black curves the 'slug' of bolus was still incoming whilst some of the tracer was already recirculating and overlaying on top of it.

3. Cardiac Output (CO) (usually unknown before CTA) is affecting arterial enhancement (Fig C)

Consequence: CO leads to delayed arrival time and can increase arterial enhancement (bradycardia) or broadened and lower enhancement curves (patients with reduced extraction fraction). If known, adjust CTA for delayed and possible broadened bolus curve. It is advisable to perform CTP prior to CTA. If unknown, quickly review time density curve in a large intracranial vessel on the contra-lateral side and check for presence of delay or bolus dispersion and adjust timing of CTA accordingly.



courtesy of D. Fleischmann, Stanford University

CO	arrival	enhancement
↑	early	lower
↓	late	higher

Fig. C – (left) Impact of CO-reduction on arterial enhancement curves in patients receiving beta-blocker relative to when they receive the same bolus before receiving the betablocker. (right). Table summarizing the consequence of CO on the arterial enhancement time-density curve. In bradycardic patients, more contrast material can accumulate in the ventricle and thus concentration is usually higher, although delayed relative to patients with higher heart rates. This scenario needs to be seen in contradistinction with the one in patients reduced right or left ventricular (or both) ejection fraction (e.g., chronic pulmonary hypertension, etc). In those patients, the bolus does not only arrive later, but it is usually also broadened and peak arterial concentration is not as high as in other patients.

4. Central Blood Volume (usually unknown before CTA) is inverse affecting arterial enhancement, its surrogate patient weight can be misleading in obese patients (small person in a large body problem)

Consequence: Arterial concentration of ICM depends on the volume of blood into which the ICM is distributed. A taller person has usually a higher central blood volume than a normal person. Hence, often weight-

based contrast-dosing is recommended. However, a normal tall person with a large central blood volume can weigh as much as person of normal height and blood volume that is obese. "These concerns are especially important in morbid obesity. With progressive increases in excess body fat, total circulating BV increases as body mass increases, but BV measured as mL/kg total body weight, i.e. indexed blood volume (InBV (mL/kg)), actually decreases in a non-linear manner with increasing weight. Conversely, in an individual with an abnormally low BMI, the weight-based ICM volume calculation would underestimate the distribution volume of the contrast agent." [Lemmens HJM, et al. Obesity Surgery 16, 773-776, 2006]. Note that, "the mean value for central blood volume in healthy adults is usually 70mL/kg, with males and females being somewhat higher and lower by +/- 5mL/kg, respectively." [Lemmens HJM, et al. Obesity Surgery 16, 773-776, 2006]. Consequently, a BMI-corrected weight-based formula appears more sensible to use when performing weight-based calculation/adjustments of contrast agent dose. **Fig. D** and the subsequent table below show a correction factor derived from the Lemmens *et al* paper. To address the BMI bias, the amount of ICM volume determined by weight-based calculation, needs to be adjusted by dividing the weight-based-calculated ICM volume by this correction factor.

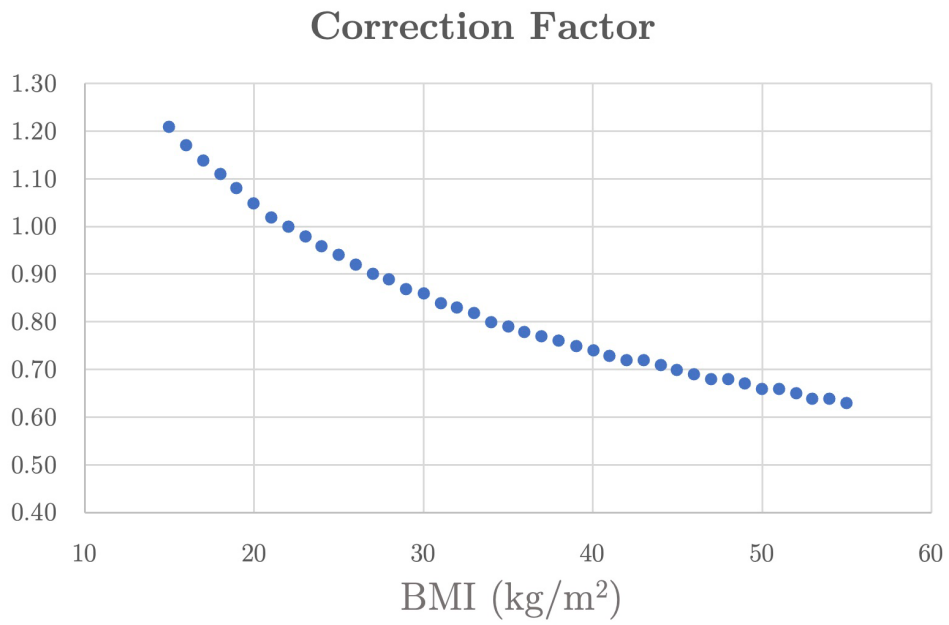


Fig. D – BMI-based correction factor for weight-based calculated ICM volume.

Table for BMI-based correction of weight-based ICM injection volume

BMI	Correction Factor	BMI	Correction Factor
15	1.21	36	0.78
16	1.17	37	0.77
17	1.14	38	0.76
18	1.11	39	0.75
19	1.08	40	0.74
20	1.05	41	0.73
21	1.02	42	0.72
22	1.00	43	0.72
23	0.98	44	0.71
24	0.96	45	0.70
25	0.94	46	0.69
26	0.92	47	0.68
27	0.90	48	0.68
28	0.89	49	0.67
29	0.87	50	0.66
30	0.86	51	0.66
31	0.84	52	0.65
32	0.83	53	0.64
33	0.82	54	0.64
34	0.80	55	0.63
35	0.79		

Example CT Protocols

1. GE Discovery 750HD GSI CT with 40mm detector width
2. Toshiba Aquilion ONE with 160mm detector width

GE Discovery 750HD GSI CT

Example Shuttle-Mode CTP Protocol for 40mm detector-width (e.g., GE 750 HD)

Start Position	S116.0	**Number of Shuttle Passes**	24
End Position	S191.0	**Number of Images**	384
RFOV	25.0cm	**Total scan duration**	66.2
kVp	80	**mA**	500
Exposure	0.4	**Gantry Tilt**	S0.0
Prep Group	10sec	**Acquisition interval**	2.0
ISD/cycle time	0sec / 2.8sec	**Acquisition**	full
Detector Width	40mm	**Images per rotation**	8
Recon Kernel	Standard	**Slice thickness**	5mm
Scan Mode	Axial	**Intervall**	40mm
Recon Mode	Full	**ASIR-V**	AR50 50%
Shuttle Mode	On	**Autoscan**	On

Injection Protocol:

Flow rate ICM	6mL/sec	**Contrast Volume**	40mL
Flow rate NaCl	6mL/sec	**Saline Chaser Volume**	60mL

Example CTA Protocol for 40mm detector-width (e.g., GE 750 HD)

Start Position	I50.0	**Gantry Tilt**	S0.0
End Position	S250.0	**Number of Images**	481
RFOV	18.5cm	**SFOV**	Head
kVp	80	**mA**	500
Rotation Time	0.4s	**Gantry Tilt**	S0.0
Prep Group	SP 4.9	**Intervall (mm)**	0.625
ISD	1.3s	**Image Check**	On
Helical Thickness	0.625	**Coverage time**	6.6sec
Coverage Speed	51.56mm/s	**Pitch & Speed (mm/rot)**	0.516:1 20.62
Detector Coverage	40mm	**Autoscan**	On
Recon Kernel	Standard	**Slice thickness**	5mm
Shuttle Mode	Off	**ASiR-V**	50%
Scan Mode	Helical	**SmartPrepRx**	On
Recon Type	Full	**GSI Mode**	Off
Hi Res Mode	Off	**Autoscan**	On
Auto mA	On	**Reference Noise Index**	6.0
Min	80	**Max**	800
Noise Index	13.50	**Anatomical Reference**	SN
Smart Prep	On	**Monitor Location**	S0.0
mA	40	**Monitoring Delay**	10.0s
Monitoring ISD	1.0s	**Enhancement Threshold**	85.0
Diagnostic Delay	4.9s	**Auto Minimum Delay**	On

Injection Protocol:

Flow rate ICM	4-6mL/sec	**Contrast Volume**	3-40mL
Flow rate NaCl	4-6mL/sec	**Saline Chaser Volume**	60mL

TOSHIBA Aquilion ONE CT

Example Burst Mode CTP Protocol for Large Detector CTs (e.g. Toshiba Aquilion One)

Angio Mask:

Start Position	0.0	**Number of Cycles**	1
End Position	140.0mm	**Number of Images**	280
RFOV	22.0 cm	**Total scan duration**	0.75sec
kVp	80	**mA**	310
Exposure	0.75	**Focus**	Small
Wait time	5sec	**Acquisition interval**	-
Start time	5sec	**End time**	-
Detector Width	140mm	**Images per rotation**	280
Recon Kernel	Standard	**Slice thickness**	0.5mm
Scan Mode	Axial	**Increment**	0.5mm

Remaining Burst Mode CTP:

Start Position	0.0	**Number of Cycles**	29
End Position	140.0mm	**Number of Images**	6,960
RFOV	22.0cm	**Total scan duration**	0.75sec
kVp	80	**mA**	150
Exposure	0.75	**Focus**	Small
Wait time	4.25sec	**Acquisition interval**	2.0
Start time	10sec	**End time**	66sec
Detector Width	140mm	**Images per rotation**	280
Recon Kernel	Standard	**Slice thickness**	0.5mm
Scan Mode	Axial	**Increment**	0.5mm

Injection Protocol:

Scan delay	0sec	already integrated above	
Flow rate ICM	6mL/sec	**Contrast Volume**	40mL
Flow rate NaCl	6mL/sec	**Saline Chaser Volume**	60mL

Example CTA Protocol for Wide Detector CTs
(e.g. Toshiba Aquilion One)

RFOV	26.0cm	**Total ScanTime**	3.3sec
kVp	80	**mA**	R ***
Rotation Time	0.275	**Focus**	Small
CE	On	**Range**	252.0
Direction	Out	**Thickness**	Standard
Collimation	0.5mm x 80mm	**PF / HP**	0.637 / 51.0
Sure Exp 3D	Other	**Neck Standard**	
SD	12.50	**Max**	800mA
Min	180mA	**ImgThickness**	3.0mm
XY Modulation	On	**OE Modulation**	Off
Adaptive SD	On		

Injection Protocol:

Scan delay	0sec	already integrated above	
Flow rate ICM	4mL/sec	**Contrast Volume**	20-40mL
Flow rate NaCl	4mL/sec	**Saline Chaser Volume**	60mL