This protocol is developed (by Ana) for optimal Freesurfer performance of cortical segmentation.
The output needs to be Biad field corrected and skul stripped (recomendation is SPM).
Recon all is advised with the "-highres" flag and the expert.opts file (mris_inflate -n 100)

SIEMENS MAGNETOM 7.0T W60 Numaris/X VA60A-0CT2

\\INVESTIGATORS A-G\BLAZEJEWSKA\ANA\clust_s01\MEMPRAGE_2e_p2_FOCI_750um_dist3D

TA: 7:24 min Coil Selection: Manual Voxel Size: 0.8×0.8×0.8 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
Disable auto transfer to PACS	Off
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	50 %
Position	R0.1 A29.1 F46.3 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slices per Slab	224
Phase Oversampling	0 %
Slice Oversampling	0.0 %
FOV Read	240 mm
FOV Phase	100.0 %
Slice Thickness	0.75 mm
TR	2530.0 ms
TE 1	1.76 ms
TE 2	3.70 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	AC

Contrast - Common

TR	2530.0 ms
TE 1	1.76 ms
TE 2	3.70 ms
Magn. Preparation	Non-sel. IR
TI	1100 ms
Flip Angle	7 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	2
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1

Contrast - Dynamic

Multiple Series	Each Measurement
Reordering	Linear

Resolution - Common

FOV Read	240 mm
FOV Phase	100.0 %
Slice Thickness	0.75 mm
Base Resolution	320
Phase Resolution	100 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration Mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	32
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	3D
Normalize	Off
Image Filter	Off

switch this to weak, if the stripes annoy you

needed to make it viewable in exam task card

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	50 %
Position	R0.1 A29.1 F46.3 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slices per Slab	224
Phase Oversampling	0 %
Slice Oversampling	0.0 %
FOV Read	240 mm
FOV Phase	100.0 %
Slice Thickness	0.75 mm
TR	2530.0 ms
Multi-Slice Mode	Single Shot
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1

Geometry - AutoAlign

Position	R0.1 A29.1 F46.3 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R0.1 A29.1 F46.3
R	0.1 mm
A	29.1 mm
F	46.3 mm
Initial Orientation	Sagittal
Initial Rotation	0.00 deg

Geometry - Navigator

Geometry - Tim Planning Suite

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

System - Miscellaneous

Coil Selection	Manual
Radial Sorting	Off
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	Brain
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R0.1 A29.1 F46.3 mm
Orientation	Sagittal
Rotation	0.00 deg
A >> P	240 mm
F >> H	240 mm
R >> L	168 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Non-sel.

System - Tx/Rx

Frequency 1H	297.117877 MHz
! Ref. Amplitude 1H	430.000 V
Reset	Off
Correction Factor	1.00

System - Tx/Rx

Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	2530.0 ms
Concatenations	1

Physio - Cardiac

Fat-Water Contrast	Standard
Magn. Preparation	Non-sel. IR
TI	1100 ms
Dark Blood	Off
FOV Read	240 mm
FOV Phase	100.0 %
Phase Resolution	100 %

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - MIP

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

Inline - Composing

Inline - MapIt

MapIt	None
Flip Angle	7 deg
Measurements	1
Contrasts	2
TE 1	1.76 ms
TE 2	3.70 ms
TR	2530.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	tfl_me
Dimension	3D
Excitation	Non-sel.
RF Pulse Type	Fast

Sequence - Part 1

Gradient Mode	Normal
Flow Compensation 1	None
Flow Compensation 2	None
Reordering	Linear
Bandwidth 1	650 Hz/Px
Bandwidth 2	650 Hz/Px
Echo Spacing	6.20 ms
Asymmetric Echo	Off
Turbo Factor	224

Sequence - Part 2

Introduction	On
RF Spoiling	On
Incr. Gradient Spoiling	Off

Sequence - Special

Readout polarity	Positive
Readout trajectory	Bipolar
FOCI pulse voltage	510.00 V
Gradient spoiling	Siemens
Gradient moment factor	1.00
Averaging	RMS

Sequence - Assistant

SAR Assistant	Off