

MR 30 for SIGNA™

ARIA Monitoring Consensus Protocol

The following details define the GE HealthCare SIGNA™ MR scan protocol that meets the American Society for Neuroradiology (ASNR) Consensus criteria for the evaluation of Amyloid Related Imaging Abnormalities (ARIA)¹.

Essential Series

3 Plane Localizer

2D Axial T2 FLAIR

Axial T2* FGRE

Axial DWI b1000

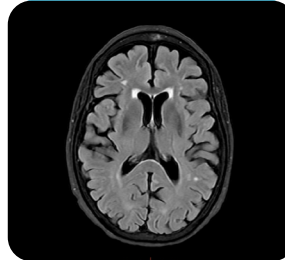
Optional Series

3D Sag CUBE T2 FLAIR

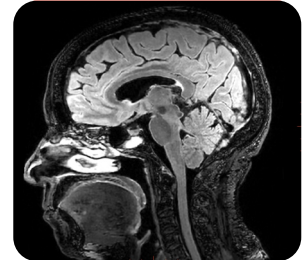
3D Axial SWAN

3D Sag T1 MP-RAGE

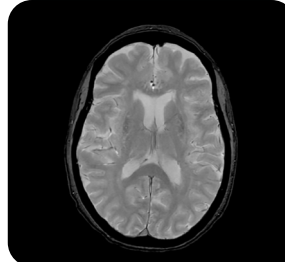
2D Axial T2 FLAIR



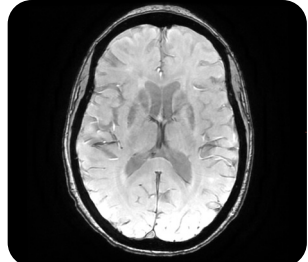
3D Sag CUBE T2 FLAIR



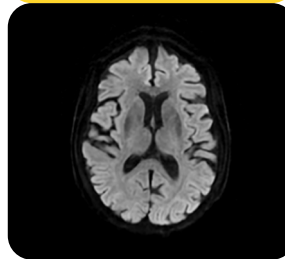
Axial T2* FGRE



3D Axial SWAN



Axial DWI b1000



3D Sag T1 MP-RAGE



Take your imaging to the next level with SIGNA™,2



Use **AIR™ Recon DL** to reduce scan time by up to 50%



Use **AIRx™ Brain** to automatically place slices and reduce setup



Leverage integrated **cloud-based quantification** tools for white-matter, grey-matter and segmentation

1. Cogswell PM, et al. AJNR Am J Neuroradiol. 2022;43(9):E19-E35.

2. Some options are available for purchase
JB25644XX | May 2024

ARIA Monitoring Consensus Protocol - 1.5T

2D Axial T2
FLAIR

Axial T2*
FGRE

Axial DWI
b1000

3D Sag
CUBE T2
FLAIR

3D Axial
SWAN

3D Sag T1
MP-RAGE

Imaging Parameters

Imaging Mode	2D	2D	2D	3D	3D	3D
Pulse Sequence	FSE	Gradient Echo	Spin Echo	CUBE T2 FLAIR	SWAN	MP-RAGE
Imaging Options	FC, EDR, TRF, Fast, ARC, MRF, T2flair	EDR, MRF, Fast	EPI, EDR, DIFF, Asset	EDR, Fast, ARC, HS, IrP, MRF, T2P	FC, EDR, ARC, HS, Fast	EDR, Fast, ARC, HS, IrP
Phase Acceleration	2.0	-	2.0	2.0	2.0	1.5
Slice Acceleration	1.0	-	1.0	1.0	1.5	1.0
HyperSense Factor				1.2	1.0	1.2

Scan Range

FOV (cm)	22.0	22.0	24.0	22.0	20.0	25.6
Slice Thickness (mm)	4.0	4.0	4.0	0.50	1.2	0.5
Slice Spacing (mm)	0.4	0.4	0.4	-	-	-
Slice Resolution	-	-	-	50%	50%	50%

Acquisition Timing

Frequency	300	224	120	224	288	256
Phase	200	200	160	224	288	256
Phase FOV	1.0	0.9	1.0	1.0	0.9	1.0
NEX	1.0	1.0	2.0	1.0	0.7	1.0
Flow Comp Direction	Slice	-	-	-	-	-
Phase Image	-	-	-	-	Yes	-

Scan Timing

Flip Angle	Auto (160)	20.0	-	-	25.0	12.0
TE	130	25	Minimum	90	35.9	3.1
TR	10,000	600	Auto (9,163)	5,500	Minimum	7.7
TI	Auto (2,687)	-	-	Auto (1,597)	-	799
# Echoes	1	1	1	1	3	1
Echo Train Length	20	-	-	200	-	-
Chem Sat	Fat	-	Fat	-	-	-
Receiver Bandwidth	50	35	250	50	15.63	31

The values in the table represent scan parameters developed with the 1.5T SIGNA™ Artist system using AIR™ Recon DL. Final parameters values may differ depending on your system's available software options.

3 Plane Localizer

3-Plane Localizer - 3-Plane Localizer

3-Plane Localizer - 3-Plane Localizer

IMAGING PARAMETERS

Imaging Mode	2D
Pulse Sequence	Spin Echo
Imaging Options	Seq, EDR, TRF, Fast, SS, ARC, MRF
Phase	2.00

SCAN RANGE

FOV	30.0
Slice Thickness	10.00
Slice Spacing	0.0
Overlap Locations	0

ACQ TIMING

Freq	288
Phase	192
Freq DIR	Unswap
# of Acq. Before Pause	0
Phase FOV	1.00
Auto Shim	Auto
Phase Correction	No
RF Drive Mode	Single
Excitation Mode	Selective

FMRI

PSD Trigger	Internal
View Order	Bottom/Up
# of Repetitions REST	0
# of Repetitions ACTIVE	0

SAT

Tag Type	None
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TRICKS

Pause On/Off	On
Auto Subtract	0
Auto SCIC	Off

SCAN TIMING

TE	80.0
Number of Echoes	1
TR	664.9
Receiver Bandwidth	83.33

IMAGE ENHANCE

Filter Choice	None
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USER CVS

User CV1	1.00
User CV Mask2	0

MULTI-PHASE

Seperate Series	0
Mask Phase	0
Mask Pause	0
Preserve	0

DIFFUSION

Recon All Images	On
# Synthetic b-values	1
Synthetic b-value	1000.0;

CONTRAST

Contrast Yes/No	No
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2D Axial T2 FLAIR

Ax T2 FLAIR FS - Ax T2 FLAIR FS	IMAGING PARAMETERS		SCAN TIMING	
	Imaging Mode	2D	Flip Angle	160.0
	Pulse Sequence	FSE-XL	TE	130.0
	Imaging Options	FC, EDR, TRF, Fast, ARC, MRF, T2flair	Number of Echoes	1
	Phase	2.00	TR	10000.0
	SCAN RANGE		TI	2687
	FOV	22.0	Echo Train Length	20
	Slice Thickness	4.00	Receiver Bandwidth	50.00
	Slice Spacing	0.4	IMAGE ENHANCE	
	Overlap Locations	0	Filter Choice	None
	Number of Slices	36	USER CVS	
	ACQ TIMING		User CV18	1.00
	Freq	300	User CV19	1.00
	Phase	200	User CV Mask2	0
	Freq DIR	Unswap	MULTI-PHASE	
	Fat Shift DIR	Normal	Seperate Series	0
	NEX	1.00	Mask Phase	0
	Phase FOV	1.00	Mask Pause	0
	Auto Shim	Auto	Preserve	0
	Phase Correction	No	DIFFUSION	
	Flow Direction Compensation	Slice	Recon All Images	On
	RF Drive Mode	Single	# Synthetic b-values	1
	Excitation Mode	Selective	Synthetic b-value	1000.0;
	FMRI		CONTRAST	
	PSD Trigger	Internal	Contrast Yes/No	No
View Order	Bottom/Up			
# of Repetitions REST	0			
# of Repetitions ACTIVE	0			
SAT				
Tag Type	None			
Fat/Water Saturation	Fat			
TRICKS				
Pause On/Off	On			
Auto Subtract	0			
Auto SCIC	3			

Ax T2 FLAIR FS - Ax T2 FLAIR FS

Axial T2* FGRE

Ax T2* FGRE - Ax T2* FGRE	IMAGING PARAMETERS		SCAN TIMING	
	Imaging Mode	2D	Flip Angle	20.0
	Pulse Sequence	Gradient Echo	TE	25.0
	Imaging Options	EDR, Fast, MRF	Number of Echoes	1
	SCAN RANGE		TR	600.0
	FOV	22.0	Receiver Bandwidth	35.71
	Slice Thickness	4.00	IMAGE ENHANCE	
	Slice Spacing	0.4	Filter Choice	None
	Overlap Locations	0	GATING/TRIGGER	
	Number of Slices	36	Pause After Navigator	0
	ACQ TIMING		Prescan	
	Freq	224	FMRI	
	Phase	200	PSD Trigger	Internal
	Freq DIR	A/P	View Order	Bottom/Up
	NEX	1.00	# of Repetitions REST	0
	# of Acq. Before Pause	0	# of Repetitions ACTIVE	0
	Phase FOV	0.90	SAT	
	Auto Shim	Auto	Tag Type	None
	Phase Correction	No	TRICKS	
	RF Drive Mode	Single	Pause On/Off	On
	Excitation Mode	Selective	Auto Subtract	0
	USER CVS		Auto SCIC	3
	User CV Mask2	0		
	MULTI-PHASE			
	Seperate Series	0		
Mask Phase	0			
Mask Pause	0			
Preserve	0			
DIFFUSION				
Recon All Images	On			
# Synthetic b-values	1			
Synthetic b-value	1000.0;			
CONTRAST				
Contrast Yes/No	No			

Ax T2* FGRE - Ax T2* FGRE

Axial DWI b1000

Ax DWI ALL b1000 - Ax DWI ALL b1000

Ax DWI ALL b1000 - Ax DWI ALL b1000

IMAGING PARAMETERS

Imaging Mode	2D
Pulse Sequence	Spin Echo
Imaging Options	EDR, EPI, DIFF, Asset
Phase	2.00

SCAN RANGE

FOV	24.0
Slice Thickness	4.00
Slice Spacing	0.4
Overlap Locations	0
Number of Slices	36

ACQ TIMING

Freq	120
Phase	160
Freq DIR	R/L
Phase FOV	1.00
Auto Shim	Auto
Phase Correction	Yes
RF Drive Mode	Single
Excitation Mode	Selective

FMRI

PSD Trigger	Internal
View Order	Bottom/Up
# of Repetitions REST	0
# of Repetitions ACTIVE	0

SAT

Tag Type	None
Fat/Water Saturation	Fat

TRICKS

Pause On/Off	On
Auto Subtract	0
Auto SCIC	2

SCAN TIMING

TE	Minimum
Number of Echoes	1
TR	9163.0
Number of Shots	1

IMAGE ENHANCE

Filter Choice	None
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USER CVS

User CV0	1.00
User CV5	1.00
User CV7	1.00
TR Min	2000.0
TR Max	17000.0
User CV Mask2	0

MULTI-PHASE

Seperate Series	0
Mask Phase	0
Mask Pause	0
Preserve	0

DIFFUSION

Optimized TE	Yes
Diffusion Directions	All
Number of Diffusion Directions	3
Number of T2 Images	1
Dual Spin Echo	Off
Recon All Images	On
Multi b-values	1000.0;
Multi NEX Values	2.0;
NEX For T2	1.00
Real Time Field Adjustment	1
# Synthetic b-values	0

CONTRAST

Contrast Yes/No	No
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3D Sag CUBE T2 FLAIR

3D Sag T2 FLAIR Cube - 3D Sag T2 FLAIR Cube	IMAGING PARAMETERS		SCAN TIMING	
	Imaging Mode	3D	TE	90.0
	Pulse Sequence	Cube T2 FLAIR	Number of Echoes	1
	Imaging Options	EDR, Fast, T2P, ARC, MRF, HS, IrP	TR	5500.0
	Phase	2.00	TI	1597
	Slice	1.00	Echo Train Length	200
	HyperSense	1.20	Receiver Bandwidth	50.00
	SCAN RANGE		IMAGE ENHANCE	
	FOV	22.0	Filter Choice	None
	Slice Thickness	0.50	USER CVS	
	Location per Slab	260	User CV5	1.00
	Overlap Locations	0	User CV11	20.00
	Number of Slices	1	User CV34	100.00
	ACQ TIMING		User CV Mask2	10
	Freq	224	MULTI-PHASE	
	Phase	224	Seperate Series	0
	Freq DIR	S/I	Mask Phase	0
	Fat Shift DIR	Normal (S)	Mask Pause	0
	NEX	1.00	Preserve	0
	Phase FOV	1.00	DIFFUSION	
	Auto Shim	Auto	Recon All Images	On
	Phase Correction	No	# Synthetic b-values	1
	RF Drive Mode	Single	Synthetic b-value	1000.0;
	Excitation Mode	Selective	CONTRAST	
	FMRI		Contrast Yes/No	No
PSD Trigger	Internal			
View Order	Bottom/Up			
# of Repetitions REST	0			
# of Repetitions ACTIVE	0			
SAT				
Tag Type	None			
Fat/Water Saturation	Fat			
TRICKS				
Pause On/Off	On			
Auto Subtract	0			
Auto SCIC	2			

3D Sag T2 FLAIR Cube - 3D Sag T2 FLAIR Cube

3D Axial SWAN

3D Ax SWAN - 3D Ax SWAN	IMAGING PARAMETERS		SCAN TIMING	
	Imaging Mode	3D	Flip Angle	25.0
	Pulse Sequence	SWAN	TE	35.9
	Imaging Options	FC, EDR, Fast, ZIP512, ARC, MRF, HS	Number of Echoes	3
	Phase	2.00	TR	Minimum
	Slice	1.50	Receiver Bandwidth	15.63
	HyperSense	1.00	IMAGE ENHANCE	
	SCAN RANGE		Filter Choice	None
	FOV	20.0	USER CVS	
	Slice Thickness	1.20	User CV16	20.00
	Location per Slab	160	User CV30	1.00
	Overlap Locations	0	User CV34	70.00
	Number of Slices	1	User CV Mask2	8
	ACQ TIMING		MULTI-PHASE	
	Freq	288	Seperate Series	0
	Phase	288	Mask Phase	0
	Freq DIR	A/P	Mask Pause	0
	Phase FOV	0.90	Preserve	0
	Auto Shim	Auto	DIFFUSION	
	Phase Correction	No	Recon All Images	On
	RF Drive Mode	Single	# Synthetic b-values	1
	Excitation Mode	Selective	Synthetic b-value	1000.0;
	Phase Image	0	CONTRAST	
	FMRI		Contrast Yes/No	No
	PSD Trigger	Internal		
View Order	Bottom/Up			
# of Repetitions REST	0			
# of Repetitions ACTIVE	0			
SAT				
Tag Type	None			
TRICKS				
Pause On/Off	On			
Auto Subtract	0			
Auto SCIC	2			

3D Ax SWAN - 3D Ax SWAN

3D Sag T1 MP-RAGE

3D Sag T1 MP-RAGE - 3D Sag T1 MP-RAGE	IMAGING PARAMETERS		SCAN TIMING	
	Imaging Mode	3D	Flip Angle	12.0
	Pulse Sequence	MP-RAGE	Number of Echoes	1
	Imaging Options	EDR, Fast, ARC, MRF, HS, IrP	TI	799
	Phase	1.50	Receiver Bandwidth	31.25
	Slice	1.00	Recovery Time	700
	HyperSense	1.20	IMAGE ENHANCE	
	SCAN RANGE		Filter Choice	None
	FOV	25.6	USER CVS	
	Slice Thickness	0.50	User CV6	1.00
	Location per Slab	260	User CV Mask2	16384
	Overlap Locations	0	MULTI-PHASE	
	Number of Slices	1	Seperate Series	0
	ACQ TIMING		Trigger Delay without AV	0
	Freq	256	Mask Phase	0
	Phase	256	Mask Pause	0
	Freq DIR	S/I	Preserve	0
	Fat Shift DIR	Normal (S)	DIFFUSION	
	NEX	1.00	Recon All Images	On
	Phase FOV	1.00	# Synthetic b-values	1
	Auto Shim	Auto	Synthetic b-value	1000.0;
	Phase Correction	No	CONTRAST	
	RF Drive Mode	Single	Contrast Yes/No	No
	Excitation Mode	Selective		
	FMRI			
	PSD Trigger	Internal		
	View Order	Bottom/Up		
	# of Repetitions REST	0		
	# of Repetitions ACTIVE	0		
	SAT			
Tag Type	None			
TRICKS				
Pause On/Off	On			
Auto Subtract	0			
Auto SCIC	2			

3D Sag T1 MP-RAGE - 3D Sag T1 MP-RAGE