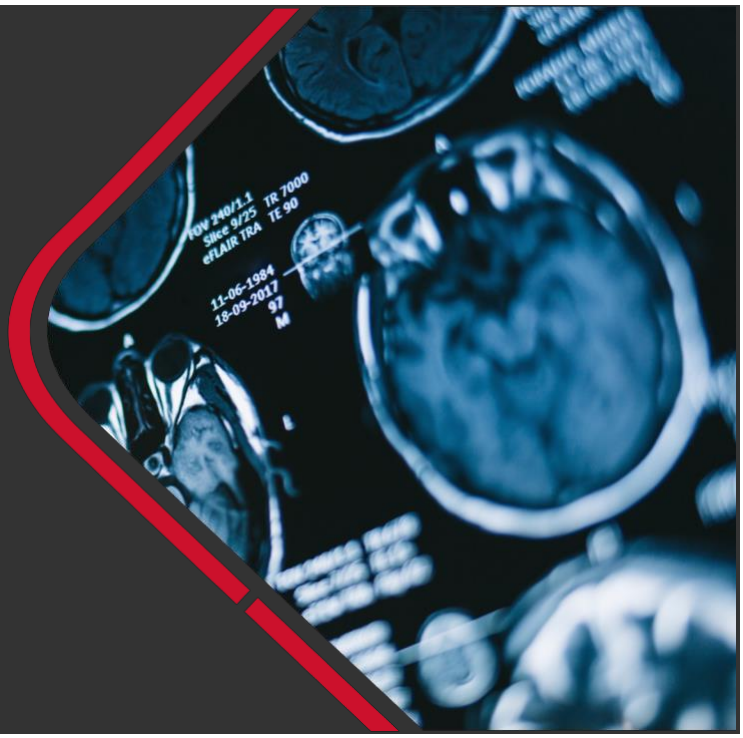
NeuroQuant 3.0

Scanner Parameters



Attention NeuroQuant Users:

1. NeuroQuant software requires the use of image series acquired with specified protocols as listed below.
2. Deviation from recommended protocols can result in reduced quality of NeuroQuant output.
3. Noisy scan, motion and other imaging artifact may affect results.
4. NeuroQuant requires all scan data to use the DICOM format. The software provides a data filtering mechanism, which filters scans based on scanning parameters prior to initiating processing. DICOM data must not be compressed in any way (e.g. no JPEG compression).

NeuroQuant / GE T1 Settings

FIELD STRENGTH	**1.5T**	**3T**	**3T**
Mode	3D	3D	3D Parallel Imaging
Plane	Sagittal	Sagittal	Sagittal
Pulse Sequence	SPGR	SPGR	SPGR
Gradient Mode	Zoom	Zoom	Zoom
Imaging Options	EDR, IrP	EDR, IrP	EDR, IrP, ACC
Frequency	192	192	192
Phase	192	192	192
Frequency Direction	S/I	S/I	S/I
FOV	24 – 25.6 cm	24 – 25.6 cm	24 – 25.6 cm
Phase FOV	100%	100%	100%
Slice Thickness	1.2 mm	1.2 mm	1.2 mm
Spacing Between Slices	1.2 mm	1.2 mm	1.2 mm
Locs/Slab (Number of slices)	160-170	160-170	160-170
NEX	1	1	1
TE	M in Full	M in Full	M in Full
Prep Time (TI)	500 ms	600 ms	600 ms
Flip Angle	10°	8°	8°
Shim	Auto	Auto	Auto
Bandwidth	~ 16 KHz	~ 31 HHz	~ 31 KHz
ASSET Parallel Imaging Factor*	N/A	N/A	1.8

Notes

1. *ASSET (ACC_GEMS) Parallel imaging compatible with Discovery 750 3T, Signa 3T, and Signa HDxt 3T scanners. NeuroQuant 2.0 or greater required
2. Ensure Surface Coil Intensity Correction (SCIC) is off
3. CUBE sequence is incompatible with NeuroQuant 3D T1 sequence
4. Do not add post processing filters
5. Do not use Zip 512

NeuroQuant / Philips T1 Settings

FIELD STRENGTH	***1.5T**	**3T**	**3T**
Mode	3D	3D	3D Parallel Imaging
Plane	Sagittal	Sagittal	Sagittal
Technique	FFE	FFE	FFE
Contrast Enhancement	T1	T1	T1
Fast Imaging Mode	TFE	TFE	TFE
FOV	240-256 mm	240-256 mm	240-256 mm
RFOV	100%	100%	100%
Matrix Scan	192	192	192
Stacks	1	1	1
Scan Percentage	100%	100%	100%
Slices	160-170	160-170	160-170
Slice Thickness	1.2 mm	1.2 mm	1.2 mm
Spacing Between Slices	1.2 mm	1.2 mm	1.2 mm
TFE Shot Interval	2300 ms	2500 ms	2500 ms
Echoes	1	1	1
TE	4 ms	Shortest	Shortest
TR	Shortest	Shortest	Shortest
Flip Angle	8°	9°	9°
TFE Prepulse Delay / TI	1000 mss	900 ms	900 ms
Water Fat shift	Maximum	Maximum	Maximum
Gradient Mode	Default	Maximum	Maximum
**SENSE Parallel Acceleration Factor*	N/A	N/A	1.8

Notes

1. *1.5T scan protocol is based on Philips Acheiva scanner with software version 3.2.2
2. **SENSE Parallel imaging compatible with Acheiva, Ingenia, and Intera 3T scanners
3. CLEAR (Homogeneity Correction) must be **ON**
4. DICOM connection must be Classic
5. Do not add post processing filters

NeuroQuant / Siemens T1 Settings

FIELD STRENGTH	1.5T	3T	3T
Mode	3D	3D	3D Parallel Imaging
Plane	Sagittal	Sagittal	Sagittal
Sequence	MPRAGE	MPRAGE	MPRAGE
FOV Phase	100%	100%	100%
FOV Read	240-256 mm	240-256 mm	240-256 mm
Base Resolution	192	192	192
Slice Thickness	1.2 mm	1.2 mm	1.2 mm
Phase Oversampling	0%	0%	0%
Slice Oversampling	0%	0%	0%
Slices per Slab	160-170	160-170	160-170
Averages	1	1	1
Concentrations	1	1	1
Gradient Mode	Fast	Fast	Fast
Mag. Preparation	Non-Sel. IR	Non-Sel. IR	Non-Sel. IR
RF Pulse Type	Fast	Fast	Fast
Excitation	Non-Sel. IR	Non-Sel. IR	Non-Sel. IR
TR	2400 ms	2300 ms	2300 ms
TE	Minimum	Minimum	Minimum
TI	1000 ms	900 ms	900 ms
Flip Angle	8°	9°	9°
Bandwidth	180 HZ/Px	240 HZ/Px	240 HZ/Px
Filter	Non	Non	Non
Parallel Technique iPAT	Off	Off	On
Max Parallel Acceleration Factor	N/A	N/A	GRAPPA 2

Notes

1. GRAPPA parallel imaging compatible with Verio, Trio Tim and Skyra 3T scanners only
2. Pre-scan Normalize must be **ON**
3. Do not add post processing filters

NeuroQuant / Canon (Toshiba) T1 Settings

FIELD STRENGTH	***1.5T**	****3T**
Mode	3D	3D
Plane	Sagittal	Sagittal
Sequence	FFE3D	FFE3D
Sequence Option	Basic	Default
Matrix	192 x 192	192 x 192
FOV	24 cm	24 cm
Slice Thickness	1.2 mm	1.2 mm
Spacing Between Slices	1.2 mm	1.2 mm
RF Type	Fine	Normal
Gradient Type	Normal	Normal
TE	2.9 ms	3.2 ms
TR	7.1 ms	7.3 ms
IR Pulse	Non – Sel.	Non – Sel.
TI	800 ms	900 ms
Flip Angle	9°	9°
Bandwidth	217 HZ/pix	244HZ/pix
No Wrap	1	1
Speeder	PE 1	PE 1
Number of Segments/Type	2 / Sequential	1
Shot Interval	1600 ms	2300 ms
Bandwidth	139.5 Hz/px	651 Hz/px
IDC (Gradient Correction)	VMC	VMC
NAQ	1	1

Notes

1. Settings are for Toshiba Titan MRI scanners
2. Do not add post processing filters

*1.5T settings only to be used with MPower v3.6 software or later. NeuroQuant 2.1 or greater required.
**3T settings only to be used with Mpower v3.5 software or later. NeuroQuant 2.0 or greater required.

NeuroQuant / Hitachi T1 Settings

FIELD STRENGTH	**1.2T**	**1.5T**	**3T**
Acquisition Type	3D	3D	2D
Plane	Sagittal	Sagittal	Sagittal
Mode	GEIR	GEIR	GEIR
Sequence	RSSG	RSSG	RSSG
FOV	240 – 256 mm	240 – 256 mm	240 – 256 mm
Acquisition Matrix	192 x 192	192 x 192	192 x 192
Slice Thickness	1.2 mm	1.2 mm	1.2 mm
Spacing Between Slices	1.2 mm	1.2 mm	1.2 mm
NSA	1	1	1
Slices Per Slab (# of Slices)	160 - 170	160 - 170	160 - 170
TR	8.7 ms	8.6 ms	7.2 ms
TE	4 ms	4 ms	2.9 ms
TI	550 ms	550 ms	900 ms
Flip Angle	12°	12°	10°
Bandwidth	53.2 KHz	58.2 KHz	92.6 KHz
Parallel Imaging RAPID Phase & Slice	1, 1	1, 1	1, 1
Filter Option VIVID	3	1	1

Notes

1. Gradient Correction should be **ON** for all magnetic field strengths & modes
2. Do not use post processing filters other than Vivid