MULTIPLE SCLEROSIS BRAIN WITH/WITHOUT IV CONTRAST 1.5T

INSTRUCTIONS AND PATIENT PREPARATION

Instructions	• Change patient into hospital issued gown and pants • 18- to 22-gauge IV access
Position	Supine, head first
Coil	15 channel head coil
Landmark	Glabella

CONTRAST AGENT PARAMETERS

Contrast Agent	Dose	Injection Rate
Gadopiclenol (VUEWAY)	0.05 mmol/kg	1-2 mL/sec
Saline Flush	10 mL	1-2 mL/sec
Comments	• Do 3D T2 FLAIR precontrast and reformat in orthogonal planes • T2 FLAIR postcontrast done to provide increased delay between contrast and Axial T1 postcontrast	

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MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems
Central Nervous System

IMAGING FORUMS, INC.

INFO PAGE

Scan Description	Survey Brain	AXIAL T1 +C	AXIAL T2 Fat Sat	AXIAL FLAIR +C	Source DTI	SAGITTAL 3D T1	SAGITTAL 3D T2 FLAIR	SAGITTAL 3D T1 +C
Total scan duration	00:31.4	02:55.0	02:34.8	03:30.0	02:09.2	04:02.9	04:24.0	04:02.9
Rel. SNR	1	1	1	1	1	1	1	1
Act. TR (ms)	—	460	5159	—	7175	—	—	—
Act. TR/TI (ms)	—	—	—	10000 / 2500	—	—	4800 / 1660	—
Act. TR/TE (ms)	15 / 5.2	—	—	—	—	25 / 4.6	—	25 / 4.6
Act. TE (ms)	—	10	90	110	74	—	315	—
ACQ matrix M x P	256 x 126	244 x 204	244 x 230	292 x 223	112 x 111	252 x 250	228 x 227	252 x 250
ACQ voxel MPS (mm)	0.98 / 1.98 / 10.0	0.90 / 0.90 / 3.00	0.90 / 0.80 / 3.00	0.75 / 0.82 / 3.00	2.00 / 2.02 / 3.00	0.99 / 1.00 / 1.00	1.10 / 1.10 / 1.12	0.99 / 1.00 / 1.00
REC voxel MPS (mm)	0.98 / 0.98 / 10.0	0.43 / 0.43 / 3.00	0.49 / 0.49 / 3.00	0.57 / 0.57 / 3.00	1.00 / 1.00 / 3.00	0.49 / 0.49 / 1.00	0.65 / 0.65 / 0.56	0.49 / 0.49 / 1.00
Scan percentage (%)	49	100	112	92	99	99	100	99
TFE shots	3	—	—	—	—	—	—	—
TFE dur. shot / acq (ms)	698.5 / 630.0	—	—	—	—	—	—	—
TFE shot interval (ms)	698.5	—	—	—	—	—	—	—
Min. TI delay	373.6	—	—	—	—	—	—	—
Packages	—	2	3	3	1	—	—	—
Min. slice gap (mm)	—	0	0	3	0	—	—	—
Optimal slices	—	25	17	34	—	—	—	—
Max. slices	—	—	51	51	—	—	—	—
EPI factor	—	—	—	—	111	—	—	—
Act. slice gap (mm)	—	—	—	—	—	0	-0.6	0
Act. WFS (pix) / BW (Hz)	1.161 / 187.1	—	—	—	—	1.511 / 143.8	—	1.511 / 143.8
Min. WFS (pix) / Max. BW (Hz)	0.525 / 413.8	—	—	—	—	0.236 / 918.5	—	0.236 / 918.5
Min. TR/TE (ms)	10 / 5.2	—	—	—	—	9.9 / 3.8	—	9.9 / 3.8
WFS (pix) / BW (Hz)	—	1.115 / 194.8	1.128 / 192.6	0.467 / 465.3	20.477 / 10.6	—	0.250 / 870.2	—
BW in EPI freq. dir. (Hz)	—	—	—	—	1526.6	—	—	—
TSE es / shot (ms)	—	—	10.6 / 169	5.0 / 170	—	—	3.2 / 602	—
TEeff / TEequiv (ms)	—	—	90 / 73	110 / 88	—	—	315 / 139	—
Min. TR (ms)	—	460	5159	—	—	—	—	—
Min. TR/TI (ms)	—	—	—	5743 / 50	—	—	2409 / 50	—
Head SAR	< 5 %	< 53 %	< 21 %	< 20 %	< 8 %	< 6 %	< 4 %	< 6 %
Whole body SAR / level	0.0 W/kg / normal	< 0.3 W/kg / normal	< 0.1 W/kg / normal	< 0.1 W/kg / normal	0.0 W/kg / normal	0.0 W/kg / normal	0.0 W/kg / normal	0.0 W/kg / normal
SED	0.0 kJ/kg	0.0 kJ/kg	0.0 kJ/kg	0.0 kJ/kg	0.0 kJ/kg	0.0 kJ/kg	0.0 kJ/kg	0.0 kJ/kg
Max B1+rms	1.05 uT	3.55 uT	2.24 uT	2.19 uT	1.38 uT	1.19 uT	1.10 uT	1.19 uT
PNS / level	17 % / normal	32 % / normal	47 % / normal	53 % / normal	59 % / normal	59 % / normal	71 % / normal	59 % / normal
dB/dt	12.8 T/s	53.9 T/s	42.2 T/s	47.8 T/s	62.4 T/s	56.3 T/s	55.8 T/s	56.3 T/s
Sound Pressure Level (dB)	-3.8	8.4	8	11	11.3	11.1	18.1	11.1

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MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems
Central Nervous System

IMAGING FORUMS, INC.

GEOMETRY

Scan Description	Survey Brain	AXIAL T1 +C	AXIAL T2 Fat Sat	AXIAL FLAIR +C	Source DTI	SAGITTAL 3D T1	SAGITTAL 3D T2 FLAIR	SAGITTAL 3D T1 +C
SmartSelect	yes	yes	yes	yes	yes	yes	yes	yes
Uniformity	—	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
FOV AP (mm)	250	220	220	220	224	250	250	250
FOV (mm)	(3) 50, (17) 10	—	—	—	—	—	—	—
FOV FH (mm)	250	150	150	150	150	250	250	250
FOV RL (mm)	—	184	185	183	224	185	180	185
ACQ voxel size AP (mm)	2	0.9	0.9	0.8	2	1	1.1	1
ACQ voxel size FH (mm)	1	—	—	—	—	1	1.1	1
ACQ voxel size RL (mm)	—	0.9	0.8	0.8	2	1	1.1	1
Slice thickness (mm)	10	3	3	3	3	—	—	—
Bar orientation	RL	—	—	—	—	—	—	—
VOI orientation	transverse	—	—	—	—	—	—	—
VOI size AP (mm)	30	—	—	—	—	—	—	—
VOI size FH (mm)	30	—	—	—	—	—	—	—
VOI size RL (mm)	30	—	—	—	—	—	—	—
Recon voxel size AP (mm)	1	0.4	0.5	0.6	1	0.5	0.7	0.5
Recon voxel size FH (mm)	1	—	—	—	—	0.5	0.7	0.5
Recon voxel size RL (mm)	—	0.4	0.5	0.6	1	1	0.6	1
Fold-over suppression	no	no	no	no	no	no	no	no
A (mm)	50	—	—	—	—	—	—	—
P (mm)	50	—	—	—	—	—	—	—
Slice oversampling	—	—	—	—	—	default	user defined	default
oversample factor	—	—	—	—	—	—	1	—
ENCASE enable	—	—	—	—	—	no	—	no
Reconstruction matrix	256	512	448	384	224	512	384	512
SENSE	no	no	no	no	no	no	no	no
CS-SENSE	no	yes	yes	yes	no	yes	yes	yes
reduction	—	2.2	1.6	1.1	—	5.5	6	5.5
denoising	—	system default	system default	system default	—	system default	system default	system default
k-t Acceleration	no	no	no	no	no	no	no	no
Stacks	3	1	1	1	1	1	1	1
type	(20) parallel	parallel	parallel	parallel	parallel	—	—	—
Slices	(3) 3, (17) 1	50	50	50	50	185	321	185
slice gap	user defined	user defined	user defined	user defined	user defined	—	—	—
gap (mm)	(20) 10	0	0	0	0	—	—	—
Slice orientation	sagittal, coronal, (18) transverse	transverse	transverse	transverse	transverse	sagittal	sagittal	sagittal
Fold-over direction	AP, (19) RL	RL	RL	RL	AP	AP	AP	AP
Fat shift direction	(2) F, (18) P	P	P	P	P	F	F	F
radial axis	AP, RL, AP, (17) RL	—	—	—	—	—	—	—
radial angle (deg)	(20) 0	—	—	—	—	—	—	—
Multi-chunk	—	—	—	—	—	no	no	no

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O-MAR	—	—	—	—	—	—	no	—
Slice scan order	default	—	—	—	—	—	—	—
Stack scan order	ascend	—	—	—	—	—	—	—
Move table per stack	no	—	—	—	—	—	—	—
Large table movement	no	—	—	—	—	no	no	no
Stack alignment	no	—	—	—	—	—	—	—
Stack sort order	no	—	—	—	—	—	—	—
Minimum number of Packages	—	1	1	3	1	—	—	—
Slice scan order	—	default	default	default	default	—	—	—
O-MAR	—	no	no	no	—	—	—	—
Large table movement	—	no	no	no	no	—	—	—
PlanAlign	no	no	no	no	no	no	no	no
REST slabs	0	0	0	0	0	0	0	0
Interactive positioning	no	no	no	no	no	no	no	no
Patient position	head first	head first	head first	head first	head first	head first	head first	head first
Patient body position	head first	head first	head first	head first	head first	head first	head first	head first
Patient orientation	supine	supine	supine	supine	supine	supine	supine	supine
Patient body orientation	supine	supine	supine	supine	supine	supine	supine	supine

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Central Nervous System

IMAGING FORUMS, INC.

CONTRAST

Scan Description	SurveyBrain	AXIAL T1 +C	AXIALT2 Fat Sat	AXIALFLAIR +C	SourceDTI	SAGITTAL3D T1	SAGITTAL3D T2 FLAIR	SAGITTAL3D T1 +C		
Scan type	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging	Scan type	—
Scan mode	M2D	MS	MS	MS	MS	3D	3D	3D	Scan mode	—
Modified SE	—	no	no	—	no	—	—	—	Modified SE	—
3D non-selective	—	—	—	—	—	no	—	no	3D non-selective	—
Contrast enhancement	T1	—	—	—	—	T1	—	T1	Contrast enhancement	—
Acquisition mode	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian	Acquisition mode	—
Fast Imaging mode	TFE	none	TSE	TSE	EPI	none	TSE	none	Fast Imaging mode	—
3D VIEW	—	—	—	—	—	—	Brain FLAIR	—	3D VIEW	—
TSE factor	—	—	16	34	—	—	178	—	TSE factor	—
TFE factor	42	—	—	—	—	—	—	—	TFE factor	—
Echoes	1	1	1	1	1	1	1	1	Echoes	—
TE	shortest	user defined	user defined	user defined	user defined	in-phase	shortest	in-phase	TE	—
Flip angle (deg)	20	69	90	—	90	30	—	30	Flip angle (deg)	—
Refocusing control	—	—	constant	constant	—	—	constant	—	Refocusing control	—
TR	user defined	range	range	user defined	shortest	user defined	user defined	user defined	TR	—
Halfscan	no	no	no	no	yes	no	no	no	Halfscan	—
Water-fat shift	maximum	maximum	maximum	maximum	minimum	maximum	maximum	maximum	Water-fat shift	—
IR delay (ms)	—	—	—	2500	—	—	1660	—	IR delay (ms)	—
Shim	—	default	default	default	auto	default	default	default	Shim	—
mDIXON	no	no	no	no	no	no	no	no	mDIXON	—
Fat suppression	no	no	SPAIR	no	SPIR	no	SPIR	no	Fat suppression	—
Water suppression	no	no	no	no	no	no	no	no	Water suppression	—
TFE prepulse	invert	—	—	—	—	—	—	—	TFE prepulse	—
PSIR	no	—	—	—	—	—	—	—	PSIR	—
MTC	no	no	no	no	no	no	no	no	MTC	—
T2prep	no	—	—	—	—	—	yes	—	T2prep	—
Diffusion mode	no	no	no	no	DTI	no	no	no	Diffusion mode	—
T1 mapping	no	no	no	no	no	no	no	no	T1 mapping	—
SAR mode	high	moderate	high	moderate	high	high	high	high	SAR mode	—
B1 mode	default	default	default	default	default	default	default	default	B1 mode	—
SAR allow first level	yes	yes	yes	yes	yes	yes	yes	yes	SAR allow first level	—
Patient pregnancy	no	no	no	no	no	no	no	no	Patient pregnancy	—
Patient WB SAR [W/kg]	—	—	—	—	—	—	—	—	Patient WB SAR [W/kg]	—
Patient Head SAR [W/kg]	—	—	—	—	—	—	—	—	Patient Head SAR [W/kg]	—
Patient max. dB/dt [T/s]	—	—	—	—	—	—	—	—	Patient max. dB/dt [T/s]	—
Max slewrate [T/m/s]	—	—	—	—	—	—	—	—	Max slewrate [T/m/s]	—
Max. B1+rms [uT]	—	—	—	—	—	—	—	—	Max. B1+rms [uT]	—
PNS mode	low	low	low	low	low	low	high	low	PNS mode	—
Gradient mode	regular	maximum	default	default	default	maximum	default	maximum	Gradient mode	—
SofTone mode	no	no	no	no	no	no	no	no	SofTone mode	—

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NW
IMAGING FORUMS, INC.

MOTION

Scan Description	Survey Brain	AXIAL T1 +C	AXIAL T2 Fat Sat	AXIAL FLAIR +C	Source DTI	SAGITTAL 3D T1	SAGITTAL 3D T2 FLAIR	SAGITTAL 3D T1 +C
Cardiac synchronization	no	no	no	no	no	no	no	no
Respiratory compensation	no	no	no	no	no	no	no	no
Navigator respiratory comp	no	no	no	no	no	no	no	no
Flow compensation	no	no	no	no	no	no	no	no
fMRI echo stabilisation	—	—	—	—	—	no	—	no
Temporal slice spacing	no	default	default	—	default	—	—	—
Motion smoothing	—	—	yes	no	—	—	no	—
NSA	1	2	1	1	1	1	2	1
partial NSA	—	no	—	—	—	—	no	—
SMART	—	no	—	—	—	—	no	—
MRE enable	no	—	no	no	no	no	no	no
CENTRA	—	—	—	—	—	—	no	—

DYNAMIC ANGIO

Scan Description	Survey Brain	AXIAL T1 +C	AXIAL T2 Fat Sat	AXIAL FLAIR +C	Source DTI	SAGITTAL 3D T1	SAGITTAL 3D T2 FLAIR	SAGITTAL 3D T1 +C
Angio / Contrast enh.	no	—	—	—	—	no	—	no
Quantitative flow	no	—	—	—	—	no	—	no
Manual start	no	no	no	no	no	no	no	no
Dynamic study	no	no	no	no	no	no	no	no
Arterial Spin labeling	no	no	no	no	no	no	no	no

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POST PROCESSING

Scan Description	Survey Brain	AXIAL T1 +C	AXIAL T2 Fat Sat	AXIAL FLAIR +C	Source DTI	SAGITTAL 3D T1	SAGITTAL 3D T2 FLAIR	SAGITTAL 3D T1 +C
Preparation phases	—	auto	auto	auto	auto	auto	auto	auto
Interactive F0	no	no	no	no	no	no	no	no
Quick Survey	default	default	default	default	default	default	default	default
MIP/MPR	no	no	no	no	no	no	no	no
SWIp	no	—	—	—	—	no	—	no
Images	M, (3) no	M, (3) no	M, (3) no	M, (3) no	M, (3) no	M, (3) no	M, (3) no	M, (3) no
Autoview image	M	M	M	M	M	M	M	M
Calculated images	(4) no	(4) no	(4) no	—	(4) no	(4) no	—	(4) no
Reference tissue	White matter	White matter	White matter	White matter	White matter	White matter	Grey matter	White matter
Recon compression	No	No	No	No	No	No	No	No
Preset window contrast	soft	soft	soft	soft	soft	soft	soft	soft
Reconstruction mode	immediate	real time	immediate	real time	immediate	immediate	real time	immediate
Save raw data	no	no	no	no	no	no	no	no
Hardcopy protocol	no	no	no	no	no	no	no	no
Image filter	system default	system default	system default	system default	system default	system default	system default	system default
Uniformity correction	no	no	no	no	no	no	no	no
Geometry correction	default	default	default	default	default	default	default	default
Elliptical k-space shutter	—	—	—	—	—	default	default	default
Free rotatable	no	no	no	no	no	no	no	no
IF_info_seperator	0	0	1634755923	1634755923	0	0	1634755923	0

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