SILICONE SEQUENCES 3T

INSTRUCTIONS AND PATIENT PREPARATION

Instructions	• Ensure to increase the FOV as needed to include all breast tissue and axillae; use same FOV for all sequences • Ensure to pull abdominal tissue down to prevent a fold into the coil and FOV • Ensure to pull medial breast tissue into coil • Ensure axilla tissue is in the coil and not above the side panel
Common Indications	Diagnostic and screening
Position	Prone
Coil	Bilateral Breast Coil
Landmark	Mid-breast, Nipples

CONTRAST AGENT PARAMETERS

Contrast Agent	Dose	Injection Rate
Gadopiclenol (VUEWAY)	0.05 mmol/kg up to a calculated volume of 10 mL (If adding Routine Bilateral)	2 mL/sec
Saline Flush	20 mL	2 mL/sec
Comments	The Coronal T2 FLAIR and T2 sequences should be acquired perpendicular to the plane of the hippocampus	

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MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems
Breast MR Imaging

NW
IMAGING FORUMS, INC.

INFO PAGE

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	LT SILICONE	RT SILICONE	SILICONE SEQUENCE
Total scan duration	00:32.0	01:42.7	04:14.6	02:49.7	02:49.7	02:58.2
Rel. SNR	6.3	2.7	8.6	1.5	1.5	1.2
Act. TR (ms)	—	—	4715	—	—	—
Act. TE (ms)	—	—	70	65	65	65
Act. TR/TE (ms)	9.5 / 4.6	5.2 / 2.7	—	—	—	—
Act. TR/TI (ms)	—	—	—	14139 / 3100	14139 / 3100	14846 / 3100
ACQ matrix M x P	232 x 232	268 x 402	144 x 219	240 x 137	240 x 137	240 x 185
ACQ voxel MPS (mm)	1.51 / 1.51 / 7.00	0.60 / 0.60 / 2.00	1.11 / 1.11 / 2.00	1.25 / 1.95 / 3.00	1.25 / 1.95 / 3.00	1.25 / 1.62 / 3.00
REC voxel MPS (mm)	1.46 / 1.46 / 7.00	0.25 / 0.25 / 2.00	0.56 / 0.56 / 2.00	1.04 / 1.04 / 3.00	1.04 / 1.04 / 3.00	1.04 / 1.04 / 3.00
Scan percentage (%)	100	99	100	64	64	77
Packages	—	—	6	3	3	3
Min. slice gap (mm)	—	—	2	0.6	0.6	0.6
Optimal slices	—	—	30	—	—	—
Act. slice gap (mm)	—	0	—	0.3	0.3	0.3
Max.slices	—	—	90	—	—	—
TFE shots	2	630	—	—	—	—
TFE dur. shot / acq (ms)	426.5 / 369.3	160.7 / 160.7	—	—	—	—
TFE shot interval (ms)	426.5	160.7	—	—	—	—
Min. TI delay	229.3	—	—	—	—	—
Act. WFS (pix) / BW (Hz)	2.169 / 200.3	0.820 / 530.0	—	—	—	—
Min. WFS (pix) / Max. BW (Hz)	0.677 / 641.4	0.820 / 530.0	—	—	—	—
WFS (pix) / BW (Hz)	—	—	2.079 / 208.9	1.993 / 217.9	1.993 / 217.9	1.993 / 217.9
TSE es / shot (ms)	—	—	8.0 / 160	14.2 / 312	14.2 / 312	14.2 / 312
TEeff / TEequiv (ms)	—	—	70 / 52	65 / 59	65 / 59	65 / 59
Min. TR (ms)	—	—	4715	—	—	—
Min. TR/TE (ms)	9.5 / 3.9	—	—	—	—	—
SPAIR offset act./default (Hz)	—	—	220 [220]	—	—	—
Local torso SAR	< 42 %	< 24 %	< 100 %	< 79 %	< 79 %	< 80 %
Whole body SAR / level	< 0.9 W/kg / normal	< 0.5 W/kg / normal	< 2.1 W/kg / 1st level	< 1.7 W/kg / normal	< 1.7 W/kg / normal	< 1.7 W/kg / normal
SED	0.0 kJ/kg	< 0.1 kJ/kg	< 0.5 kJ/kg	< 0.3 kJ/kg	< 0.3 kJ/kg	< 0.3 kJ/kg
Coil Power	40%	23%	96%	75%	75%	76%
Max B1+rms	1.47 uT	1.13 uT	2.30 uT	2.13 uT	2.13 uT	2.13 uT
PNS / level	19 % / normal	80 % / normal	47 % / normal	51 % / normal	37 % / normal	35 % / normal
dB/dt	16.1 T/s	58.4 T/s	53.8 T/s	45.8 T/s	38.3 T/s	40.7 T/s
Sound Pressure Level (dB)	-4.6	16.9	7.4	9.2	4.5	10.4

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MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems
Breast MR Imaging

NW IMAGING FORUMS, INC.

GEOMETRY

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	LT SILICONE	RT SILICONE	SILICONE SEQUENCE
SmartSelect	yes	yes	yes	yes	yes	yes
Coil 1 (exclude)	—	None	None	None	None	None
Uniformity	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
FOV AP (mm)	350	160	160	267	300	300
FOV (mm)	245, (19) 75	—	—	—	—	—
FOV FH (mm)	350	172	172	300	267	161
FOV RL (mm)	—	242	243	152	152	300
ACQ voxel size AP (mm)	1.5	0.6	1.1	1.5	1.25	1.25
ACQ voxel size FH (mm)	1.5	2	—	1.25	1.5	—
ACQ voxel size RL (mm)	—	0.6	1	—	—	1.5
Slice thickness (mm)	7	—	2	3	3	3
Bar orientation	RL	—	—	—	—	—
VOI orientation	transverse	—	—	—	—	—
VOI size AP (mm)	30	—	—	—	—	—
VOI size RL (mm)	30	—	—	—	—	—
VOI size FH (mm)	30	—	—	—	—	—
Recon voxel size AP (mm)	1.5	0.3	0.6	1	1	1
Recon voxel size FH (mm)	1.5	2	—	1	1	—
Recon voxel size RL (mm)	—	0.3	0.6	—	—	1
Fold-over suppression	no	oversampling	oversampling	oversampling	oversampling	oversampling
L (mm)	—	80.2	81.6	79.2	—	25
R (mm)	—	80.2	81.6	79.2	—	25
F (mm)	—	—	—	—	79.2	—
H (mm)	—	—	—	—	79.2	—
A (mm)	50	—	—	—	—	—
P (mm)	50	—	—	—	—	—
Slice oversampling	—	user defined	—	—	—	—
oversample factor	—	1	—	—	—	—
ENCASE enable	—	no	—	—	—	—
Reconstruction matrix	240	960	432	288	288	288
SENSE	no	yes	yes	yes	yes	yes
P reduction (AP)	—	—	—	3	—	—
P reduction (FH)	—	—	—	—	3	—
P reduction (RL)	—	1	2.3	—	—	3
S reduction (FH)	—	2	—	—	—	—
CS-SENSE	yes	no	no	no	no	no
reduction	3	—	—	—	—	—
denoising	system default	—	—	—	—	—
k-t Acceleration	no	no	no	no	no	no
Stacks	3	1	1	1	1	1
type	(20) parallel	—	parallel	parallel	parallel	parallel

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Slices	15, (19) 5	86	86	46	46	49
slice gap	user defined	—	user defined	default	default	default
gap (mm)	(20) 10	—	0	—	—	—
Slice orientation	sagittal, transverse, (18) coronal	transverse	transverse	sagittal	sagittal	transverse
Fold-over direction	AP, (19) RL	RL	RL	AP	FH	RL
Fat shift direction	F, P, (18) F	P	P	F	P	P
radial axis	(2) AP, (18) RL	—	—	—	—	—
radial angle (deg)	(20) 0	—	—	—	—	—
Multi-chunk	—	no	—	—	—	—
Minimum number of packages	—	—	1	3	3	3
Slice scan order	default	—	default	default	default	default
Stack scan order	ascend	—	—	—	—	—
O-MAR	—	—	no	no	no	no
Move table per stack	no	—	—	—	—	—
Large table movement	no	no	no	no	no	no
Stack alignment	no	—	—	—	—	—
Stack sort order	no	—	—	—	—	—
PlanAlign	no	no	no	no	no	no
REST slabs	0	0	0	0	0	0
Interactive positioning	no	no	no	no	no	no
Patient position	feet first	feet first	feet first	feet first	feet first	feet first
Patient body position	feet first	feet first	feet first	feet first	feet first	feet first
Patient orientation	prone	prone	prone	prone	prone	prone
Patient body orientation	prone	prone	prone	prone	prone	prone

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Breast MR Imaging

IMAGING FORUMS, INC.

CONTRAST

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	LT SILICONE	RT SILICONE	SILICONE SEQUENCE
Scan type	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging
Scan mode	M2D	3D	MS	MS	MS	MS
technique	FFE	FFE	SE	IR	IR	IR
Modified SE	—	—	no	—	—	—
Contrast enhancement	T1	T1	—	—	—	—
Acquisition mode	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian
Fast Imaging mode	TFE	TFE	TSE	TSE	TSE	TSE
shot mode	multishot	multishot	multishot	multishot	multishot	multishot
TFE factor	39	31	—	—	—	—
TSE factor	—	—	20	22	22	22
TE spacing	—	—	user defined	—	—	—
(ms)	—	—	8	—	—	—
startup Echoes	default	user defined	—	—	—	—
(number)	—	—	—	—	—	—
shot interval	shortest	shortest	—	—	—	—
profile order	linear	low_high	asymmetric	linear	linear	linear
turbo direction	—	Z	—	—	—	—
DRIVE	—	—	no	no	no	no
ultrashort	—	—	no	no	no	no
fid reduction	—	—	default	default	default	default
Echoes	1	1	1	1	1	1
partial echo	no	no	no	no	no	no
shifted echo	no	no	—	—	—	—
TE	in-phase	shortest	user defined	user defined	user defined	user defined
(ms)	4.6	—	70	65	65	65
Flip angle (deg)	25	12	90	—	—	—
Refocusing control	—	—	T2-optimized	constant	constant	constant
angle (deg)/min. angle (deg)	—	—	70	120	120	120
mid. angle (deg)	—	—	120	—	—	—
max. angle (deg)	—	—	160	—	—	—
TR	shortest	shortest	range	shortest	shortest	shortest
minimum (ms)	—	—	4000	—	—	—
maximum (ms)	—	—	5000	—	—	—
Halfscan	no	yes	no	yes	yes	yes
factor	—	—	—	0.6	0.6	0.6
factor Y	—	0.6	—	—	—	—
factor Z	—	1	—	—	—	—
Water-fat shift	maximum	minimum	maximum	user defined	user defined	user defined
(pixels)	—	—	—	2	2	2
IR delay (ms)	—	—	—	3100	3100	3100
acquire during delay	—	—	—	yes	yes	yes
dual	—	—	—	yes	yes	yes

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delay (ms)	—	—	—	220	220	220
power	—	—	—	1	1	1
RF Shims	fixed	smart	smart	adaptive	adaptive	adaptive
Shim	default	SmartBreast	SmartBreast	SmartBreast	SmartBreast	default
mDIXON	no	no	no	no	no	no
Fat suppression	no	no	SPAIR	no	no	no
power	—	—	2	—	—	—
inversion delay	—	—	auto	—	—	—
suppr. level	—	—	strong	—	—	—
frequency offset	—	—	user defined	—	—	—
offset (Hz)	—	—	220	—	—	—
Water suppression	no	no	no	no	no	no
TFE prepulse	invert	no	—	—	—	—
slice selection	no	—	—	—	—	—
shared	no	—	—	—	—	—
delay	shortest	—	—	—	—	—
PSIR	no	—	—	—	—	—
BB pulse	—	—	no	no	no	no
MTC	no	no	no	no	no	no
Diffusion mode	no	no	no	no	no	no
T1 mapping	no	no	no	no	no	no
SAR mode	high	high	high	high	high	high
B1 mode	default	default	default	default	default	default
SAR allow first level	yes	yes	yes	yes	yes	yes
Patient pregnancy	no	no	no	no	no	no
Patient WB SAR [W/kg]	—	—	—	—	—	—
Patient Head SAR [W/kg]	—	—	—	—	—	—
Patient max. dB/dt [T/s]	—	—	—	—	—	—
Max slewrate [T/m/s]	—	—	—	—	—	—
Max. B1+rms [uT]	—	—	—	—	—	—
PNS mode	low	moderate	low	low	low	low
Gradient mode	regular	default	default	default	default	default

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MOTION

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	LT SILICONE	RT SILICONE	SILICONE SEQUENCE
Cardiac synchronization	no	no	no	no	no	no
Respiratory compensation	no	no	no	no	no	no
Navigator respiratory comp	no	no	no	no	no	no
Flow compensation	no	no	no	no	no	no
fMRI echo stabilisation	no	no	—	—	—	—
Temporal slice spacing	—	—	default	—	—	—
Motion smoothing	—	—	no	no	no	no
NSA	1	1	1	1	1	1
MRE enable	no	no	no	no	no	no

DYNAMIC ANGIO

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	LT SILICONE	RT SILICONE	SILICONE SEQUENCE
Angio / Contrast enh.	no	no	—	—	—	—
Quantitative flow	no	no	—	—	—	—
CENTRA	—	no	—	—	—	—
Manual start	no	no	no	no	no	no
Dynamic study	no	no	no	no	no	no
Arterial Spin labeling	no	no	no	no	no	no

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POST PROCESSING

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	LT SILICONE	RT SILICONE	SILICONE SEQUENCE
Preparation phases	auto	auto	full	full	full	full
Interactive F0	no	auto	select	select	select	select
Quick Survey	default	default	default	default	default	default
MIP/MPR	no	no	no	MIP	MIP	MIP
protocol	—	—	—	compose	compose	compose
SWIp	no	no	—	—	—	—
Images	M, (3) no	M, (3) no	M, (3) no	M, R, (2) no	M, R, (2) no	M, R, (2) no
Autoview image	M	M	M	M	M	M
Calculated images	(4) no	(4) no	(4) no	—	—	—
Reference tissue	Breast	Breast	Breast	Breast	Breast	Breast
Recon compression	No	No	No	No	No	No
Preset window contrast	soft	soft	soft	soft	soft	soft
Reconstruction mode	real time	real time	real time	real time	real time	real time
Save raw data	no	no	no	no	no	no
Hardcopy protocol	no	no	no	no	no	no
Image filter	system default	system default	system default	system default	system default	system default
Uniformity correction	no	no	yes	no	no	no
Geometry correction	default	default	default	default	default	default
Elliptical k-space shutter	—	default	—	—	—	—
Free rotatable	no	no	no	no	no	no
IF_info_seperator	1634755923	1634755923	1634755923	1634755923	1634755923	1634755923

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