BREAST BILATERAL ROUTINE 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	2 mL/sec
Saline Flush	20 mL	2 mL/sec

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

IMAGING FORUMS, INC.

INFO PAGE

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	DYNAMICS THRIVE	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Total scan duration	00:32.0	01:42.7	04:14.6	05:48.9	02:04.1	01:59.1
Rel. SNR	6.3	2.7	8.6	4.1	4.3	4.1
Act. TR (ms)	—	—	4715	—	—	—
Act. TE (ms)	—	—	70	—	—	—
Act. TR/TE (ms)	9.5 / 4.6	5.2 / 2.7	—	3.7 / 1.90	4.2 / 2.2	4.2 / 2.2
Dyn. scan time	—	—	—	01:09.2	—	—
ACQ matrix M x P	232 x 232	268 x 402	144 x 219	160 x 243	220 x 220	220 x 220
ACQ voxel MPS (mm)	1.51 / 1.51 / 7.00	0.60 / 0.60 / 2.00	1.11 / 1.11 / 2.00	1.00 / 1.00 / 2.00	1.00 / 1.00 / 2.00	1.00 / 1.00 / 2.00
REC voxel MPS (mm)	1.46 / 1.46 / 7.00	0.25 / 0.25 / 2.00	0.56 / 0.56 / 2.00	0.34 / 0.34 / 2.00	0.51 / 0.51 / 2.00	0.57 / 0.57 / 2.00
Scan percentage (%)	100	99	100	100	100	100
Act. slice gap (mm)	—	0	—	0	0	0
Packages	—	—	6	—	—	—
Min. slice gap (mm)	—	—	2	—	—	—
Optimal slices	—	—	30	—	—	—
Max.slices	—	—	90	—	—	—
TFE shots	2	630	—	336	536	526
TFE dur. shot / acq (ms)	426.5 / 369.3	160.7 / 160.7	—	206.0 / 124.8	206.4 / 114.1	196.4 / 104.3
TFE shot interval (ms)	426.5	160.7	—	206.0	228.6	223.5
Min. TI delay	229.3	—	—	—	—	—
Act. WFS (pix) / BW (Hz)	2.169 / 200.3	0.820 / 530.0	—	0.489 / 887.8	0.489 / 887.8	0.489 / 887.8
Min. WFS (pix) / Max. BW (Hz)	0.677 / 641.4	0.820 / 530.0	—	0.489 / 887.8	0.489 / 887.8	0.489 / 887.8
WFS (pix) / BW (Hz)	—	—	2.079 / 208.9	—	—	—
TSE es / shot (ms)	—	—	8.0 / 160	—	—	—
TEeff / TEequiv (ms)	—	—	70 / 52	—	—	—
Min. TR (ms)	—	—	4715	—	—	—
Min. TR/TE (ms)	9.5 / 3.9	—	—	—	—	—
SPAIR offset act./default (Hz)	—	—	220 [220]	220 [220]	220 [220]	220 [220]
Local torso SAR	< 42 %	< 24 %	< 100 %	< 60 %	< 50 %	< 50 %
Whole body SAR / level	< 0.9 W/kg / normal	< 0.5 W/kg / normal	< 2.1 W/kg / 1st level	< 1.3 W/kg / normal	< 1.1 W/kg / normal	< 1.1 W/kg / normal
SED	0.0 kJ/kg	< 0.1 kJ/kg	< 0.5 kJ/kg	< 0.4 kJ/kg	< 0.1 kJ/kg	< 0.1 kJ/kg
Coil Power	40%	23%	96%	57%	48%	48%
Max B1+rms	1.47 uT	1.13 uT	2.30 uT	1.77 uT	1.62 uT	1.62 uT
PNS / level	19 % / normal	80 % / normal	47 % / normal	77 % / normal	59 % / normal	60 % / normal
dB/dt	16.1 T/s	58.4 T/s	53.8 T/s	60.7 T/s	32.4 T/s	32.4 T/s
Sound Pressure Level (dB)	-4.6	16.9	7.4	9.4	11.4	9.7

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

IMAGING FORUMS, INC.

GEOMETRY

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	DYNAMICS THRIVE	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
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	160	220	220
FOV (mm)	245, (19) 75	—	—	—	—	—
FOV FH (mm)	350	172	172	172	220	220
FOV RL (mm)	—	242	243	244	130	120
ACQ voxel size AP (mm)	1.5	0.6	1.1	1	1	1
ACQ voxel size FH (mm)	1.5	2	—	2	1	1
ACQ voxel size RL (mm)	—	0.6	1	1	2	2
Slice thickness (mm)	7	—	2	—	—	—
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	0.3	0.5	0.6
Recon voxel size FH (mm)	1.5	2	—	2	0.5	0.6
Recon voxel size RL (mm)	—	0.3	0.6	0.3	2	2
Fold-over suppression	no	oversampling	oversampling	oversampling	oversampling	oversampling
L (mm)	—	80.2	81.6	81.6	—	—
R (mm)	—	80.2	81.6	81.6	—	—
F (mm)	—	—	—	—	100	100
H (mm)	—	—	—	—	105	100
A (mm)	50	—	—	—	—	—
P (mm)	50	—	—	—	—	—
Slice oversampling	—	user defined	—	user defined	default	default
oversample factor	—	1	—	1	—	—
ENCASE enable	—	no	—	no	no	no
Reconstruction matrix	240	960	432	720	432	384
SENSE	no	yes	yes	no	yes	yes
P reduction (FH)	—	—	—	—	1	1
P reduction (RL)	—	2	2.3	—	—	—
S reduction (FH)	—	1	—	—	—	—
S reduction (RL)	—	—	—	—	1.7	1.7
CS-SENSE	yes	no	no	yes	no	no
reduction	3	—	—	1.9	—	—
denoising	system default	—	—	system default	—	—
k-t Acceleration	no	no	no	no	no	no
Stacks	3	1	1	1	1	1

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type	(20) parallel	—	parallel	—	—	—
Slices	15, (19) 5	86	86	86	65	60
slice gap	user defined	—	user defined	—	—	—
gap (mm)	(20) 10	—	0	—	—	—
Slice orientation	sagittal, transverse, (18) coronal	transverse	transverse	transverse	sagittal	sagittal
Fold-over direction	AP, (19) RL	RL	RL	RL	FH	FH
Fat shift direction	F, P, (18) F	P	P	P	P	P
radial axis	(2) AP, (18) RL	—	—	—	—	—
radial angle (deg)	(20) 0	—	—	—	—	—
Minimum number of packages	default	—	1	—	—	—
Slice scan order	ascend	—	default	—	—	—
Stack scan order	—	—	—	—	—	—
Multi-chunk	—	no	—	no	no	no
O-MAR	—	—	—	—	—	—
Move table per stack	no	—	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

NW IMAGING FORUMS, INC.

CONTRAST

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	DYNAMICS THRIVE	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Scan type	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging
Scan mode	M2D	3D	MS	3D	3D	3D
technique	FFE	FFE	SE	FFE	FFE	FFE
Modified SE	—	—	no	—	—	—
Contrast enhancement	T1	T1	—	T1	T1	T1
Acquisition mode	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian
Fast Imaging mode	TFE	TFE	TSE	TFE	TFE	TFE
shot mode	multishot	multishot	multishot	multishot	multishot	multishot
TFE factor	39	31	—	34	27	25
TSE factor	—	—	20	—	—	—
TE spacing	—	—	user defined	—	—	—
(ms)	—	—	8	—	—	—
startup Echoes	default	user defined	—	user defined	user defined	user defined
(number)	—	—	—	—	—	—
shot interval	shortest	shortest	—	shortest	shortest	shortest
profile order	linear	low_high	asymmetric	low_high	low_high	low_high
turbo direction	—	Z	—	radial	Z	Z
DRIVE	—	—	no	—	—	—
ultrashort	—	—	no	—	—	—
fid reduction	—	—	default	—	—	—
Echoes	1	1	1	1	1	1
partial echo	no	no	no	no	no	no
shifted echo	no	no	—	no	no	no
TE	in-phase	shortest	user defined	shortest	shortest	shortest
(ms)	4.6	—	70	—	—	—
Flip angle (deg)	25	12	90	12	12	12
Refocusing control	—	—	T2-optimized	—	—	—
min. angle (deg)	—	—	70	—	—	—
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 Y	—	0.6	—	0.7	0.6	0.6
factor Z	—	1	—	1	1	1
Water-fat shift	maximum	minimum	maximum	minimum	minimum	minimum
RF Shims	fixed	smart	smart	smart	smart	smart
Shim	default	SmartBreast	SmartBreast	SmartBreast	SmartBreast	SmartBreast
mDIXON	no	no	no	no	no	no
Fat suppression	no	no	SPAIR	SPAIR	SPAIR	SPAIR
power	—	—	2	2	2	2

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inversion delay	—	—	auto	auto	auto	auto
suppr. level	—	—	strong	strong	strong	strong
frequency offset	—	—	user defined	user defined	user defined	user defined
offset (Hz)	—	—	220	220	220	220
Water suppression	no	no	no	no	no	no
TFE prepulse	invert	no	—	no	no	no
slice selection	no	—	—	—	—	—
shared	no	—	—	—	—	—
delay	shortest	—	—	—	—	—
PSIR	no	—	—	—	—	—
BB pulse	—	—	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	low	low
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	moderate	low	low
Gradient mode	regular	default	default	default	default	default

MOTION

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	DYNAMICS THRIVE	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
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	—	no	no	no
Temporal slice spacing	—	—	default	—	—	—
Motion smoothing	—	—	no	—	—	—
NSA	1	1	1	1	1	1
MRE enable	no	no	no	no	no	no

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DYNAMIC ANGIO

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	DYNAMICS THRIVE	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Angio / Contrast enh.	no	no	—	no	no	no
Quantitative flow	no	no	—	no	no	no
CENTRA	—	no	—	no	no	no
Manual start	no	no	no	no	no	no
Dynamic study	no	no	no	individual	no	no
dyn scans	—	—	—	5	—	—
dyn scan times	—	—	—	user defined	—	—
(mm:ss)	—	—	—	shortest (00:00.0), manual (01:10.7), shortest (02:21.3), shortest (03:30.5), shortest (04:39.7)	—	—
dummy scans	—	—	—	0	—	—
immediate subtraction	—	—	—	no	—	—
fast next scan	—	—	—	no	—	—
synch. ext. device	—	—	—	no	—	—
dyn stabilization	—	—	—	no	—	—
prospect. motion corr.	—	—	—	no	—	—
Keyhole	—	—	—	no	—	—
Arterial Spin labeling	no	no	no	no	no	no

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POST PROCESSING

Scan Description	SURVEY	AXIAL T1	AXIAL T2 SPAIR	DYNAMICS THRIVE	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Preparation phases	auto	auto	full	auto	full	full
Interactive F0	no	auto	select	auto	select	select
Quick Survey	default	default	default	default	default	default
MIP/MPR	no	no	no	no	no	no
SWIp	no	no	—	no	no	no
Images	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
Calculated images	(4) no	(4) no	(4) no	(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	—	default	default	default
Free rotatable	no	no	no	no	no	no
IF_info_seperator	1634755923	1634755923	1634755923	1634755923	1634755923	1634755923

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