BREAST BILATERAL ROUTINE 1.5T

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

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

Supported by an educational grant from Bracco Diagnostics Inc.

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

IMAGING FORUMS, INC.

INFO PAGE

Scan Description	SURVEY	AXIAL T1	AXIAL T2 FS	DYNAMICS	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Total scan duration	00:23.3	02:42.1	03:30.0	06:13.9	01:38.6	01:34.3
Rel. SNR	2.4	3.8	1.4	2.3	1.8	1.7
Act. TR (ms)	—	491	4773	—	—	—
Act. TE (ms)	—	8	112	—	—	—
Act. TR/TE (ms)	7.1 / 3.5	—	—	5.1 / 2.5	5.6 / 2.8	5.6 / 2.8
Dyn. scan time	—	—	—	01:14.2	—	—
Time to k0	—	—	—	00:59.1	—	—
ACQ matrix M x P	256 x 128	260 x 336	260 x 327	260 x 342	252 x 249	252 x 249
ACQ voxel MPS (mm)	1.76 / 3.52 / 10.0	1.00 / 1.02 / 3.00	1.00 / 1.05 / 3.00	1.00 / 1.00 / 3.00	0.79 / 0.80 / 3.00	0.79 / 0.80 / 3.00
REC voxel MPS (mm)	1.76 / 1.76 / 10.0	0.67 / 0.67 / 3.00	0.61 / 0.61 / 3.00	0.67 / 0.67 / 3.00	0.63 / 0.63 / 3.00	0.63 / 0.63 / 3.00
Scan percentage (%)	50	98	95	100	99	99
Act. slice gap (mm)	—	—	—	0	0	0
Packages	—	5	4	—	—	—
Min. slice gap (mm)	—	3	3	—	—	—
Optimal slices	—	20	26	—	—	—
Max.slices	—	—	52	—	—	—
TFE shots	—	—	—	240	242	251
TFE dur. shot / acq (ms)	—	—	—	309.0 / 193.8	400.9 / 273.7	370.0 / 245.8
TFE shot interval (ms)	—	—	—	309.0	400.9	370.0
Act. WFS (pix) / BW (Hz)	0.854 / 254.3	—	—	0.601 / 361.5	0.600 / 362.1	0.600 / 362.1
Min. WFS (pix) / Max. BW (Hz)	0.280 / 775.0	—	—	0.285 / 763.1	0.315 / 688.9	0.315 / 688.9
WFS (pix) / BW (Hz)	—	1.134 / 191.5	1.037 / 209.5	—	—	—
TSE es / shot (ms)	—	8.0 / 40	7.5 / 224	—	—	—
TEeff / TEequiv (ms)	—	—	112 / 79	—	—	—
Min. TR (ms)	—	491	4773	—	—	—
Min. TR/TE (ms)	7.1 / 3.1	—	—	—	—	—
Local torso SAR	< 21 %	< 89 %	< 41 %	< 7 %	< 6 %	< 6 %
Whole body SAR / level	< 0.7 W/kg / normal	< 3.0 W/kg / 1st level	< 1.4 W/kg / normal	< 0.2 W/kg / normal	< 0.2 W/kg / normal	< 0.2 W/kg / normal
SED	0.0 kJ/kg	< 0.5 kJ/kg	< 0.3 kJ/kg	< 0.1 kJ/kg	0.0 kJ/kg	0.0 kJ/kg
Max B1+rms	1.95 uT	3.99 uT	2.71 uT	1.11 uT	1.04 uT	1.05 uT
PNS / level	24 % / normal	43 % / normal	47 % / normal	64 % / normal	59 % / normal	59 % / normal
dB/dt	12.8 T/s	40.2 T/s	43.6 T/s	56.5 T/s	43.7 T/s	43.7 T/s
Sound Pressure Level (dB)	9.5	14.5	11.0	16.7	13.1	12.5

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

Supported by an educational grant from Bracco Diagnostics Inc.

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

IMAGING FORUMS, INC.

GEOMETRY

Scan Description	SURVEY	AXIAL T1	AXIAL T2 FS	DYNAMICS	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
FOV AP (mm)	450	260	260	260	200	200
FOV (mm)	290, (19) 82	—	—	—	—	—
FOV FH (mm)	450	150	150	150	200	200
FOV RL (mm)	—	343	343	343	114	114
ACQ voxel size AP (mm)	3.5	1	1	1	0.8	0.8
ACQ voxel size FH (mm)	1.8	—	—	3	0.8	0.8
ACQ voxel size RL (mm)	—	1	1	1.0	3	3
Slice thickness (mm)	10	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)	1.8	0.7	0.6	0.7	0.6	0.6
Recon voxel size FH (mm)	1.8	—	—	3	0.6	0.6
Recon voxel size RL (mm)	—	0.7	0.6	0.7	3	3
Image shutter	yes	—	—	—	—	—
Fold-over suppression	no	oversampling	oversampling	oversampling	oversampling	oversampling
L (mm)	—	85.5	85.5	85.5	—	—
R (mm)	—	85.5	85.5	85.5	—	—
F (mm)	—	—	—	—	110	110
H (mm)	—	—	—	—	110	110
A (mm)	50	—	—	—	—	—
P (mm)	50	—	—	—	—	—
Slice oversampling	—	—	—	user defined	default	default
oversample factor	—	—	—	1	—	—
ENCASE enable	—	—	—	no	no	no
Reconstruction matrix	256	512	560	512	320	320
SENSE	no	yes	yes	no	no	no
P reduction (RL)	—	3.5	1.7	—	—	—
CS-SENSE	no	no	no	yes	yes	yes
reduction	—	—	—	1.5	1.2	1.3
denoising	—	—	—	system default	system default	system default
Stacks	3	1	1	1	1	1
type	(20) parallel	parallel	parallel	—	—	—
Slices	15, (19) 5	50	50	50	38	38
slice gap	user defined	user defined	user defined	—	—	—

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

Supported by an educational grant from Bracco Diagnostics Inc.

gap (mm)	10, (19) 8	0	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	—	1	1	—	—	—
Slice scan order	default	default	default	—	—	—
Stack scan order	ascend	—	—	—	—	—
Multi-chunk	—	—	—	no	no	no
O-MAR	—	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
orientation	—	—	—	—	sagittal	sagittal
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

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

Supported by an educational grant from Bracco Diagnostics Inc.

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

IMAGING FORUMS, INC.

CONTRAST

Scan Description	SURVEY	AXIAL T1	AXIAL T2 FS	DYNAMICS	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Scan type	Imaging	Imaging	Imaging	Imaging	Imaging	Imaging
Scan mode	M2D	MS	MS	3D	3D	3D
technique	FFE	SE	SE	FFE	FFE	FFE
Modified SE	—	no	no	—	—	—
Contrast enhancement	T1	—	—	T1	T1	T1
Acquisition mode	cartesian	cartesian	cartesian	cartesian	cartesian	cartesian
Fast Imaging mode	none	TSE	TSE	TFE	TFE	TFE
shot mode	—	multishot	multishot	multishot	multishot	multishot
TFE factor	—	—	—	38	49	44
TSE factor	—	5	29	—	—	—
startup Echoes	—	—	—	user defined	user defined	user defined
(number)	—	—	—	—	—	—
shot interval	—	—	—	shortest	shortest	shortest
profile order	—	low_high	linear	low_high	low_high	low_high
turbo direction	—	—	—	Z	Z	Z
DRIVE	—	no	yes	—	—	—
ultrashort	—	no	no	—	—	—
fid reduction	—	default	default	—	—	—
Echoes	1	1	1	1	1	1
partial echo	no	no	no	no	no	no
shifted echo	no	—	—	no	no	no
TE	user defined	user defined	user defined	shortest	shortest	shortest
(ms)	3.5	8	112	—	—	—
Flip angle (deg)	50	90	90	10	10	10
Refocusing control	—	no	PSS Adv (T2-opt)	—	—	—
min. angle (deg)	—	—	70	—	—	—
mid. angle (deg)	—	—	120	—	—	—
max. angle (deg)	—	—	160	—	—	—
TR	shortest	range	range	shortest	shortest	shortest
minimum (ms)	—	350	2000	—	—	—
maximum (ms)	—	550	5000	—	—	—
Halfscan	no	no	no	yes	yes	yes
factor Y	—	—	—	0.6	0.6	0.6
factor Z	—	—	—	1	1	1
Water-fat shift	maximum	maximum	maximum	user defined	user defined	user defined
(pixels)	—	—	—	0.6	0.6	0.6
Shim	—	default	default	SmartBreast	IB-volume	IB-volume
ShimAlign	—	—	—	—	no	no
mDIXON	no	no	no	no	no	no
Fat suppression	no	no	SPAIR	SPAIR	SPAIR	SPAIR
power	—	—	2	2	2	2
inversion delay	—	—	auto	auto	auto	auto

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

Supported by an educational grant from Bracco Diagnostics Inc.

suppr. level	—	—	strong	strong	strong	strong
frequency offset	—	—	default	default	default	default
Water suppression	no	no	no	no	no	no
TFE prepulse	—	—	—	no	no	no
BB pulse	—	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	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	low	low	moderate	low	low
Gradient mode	default	default	default	default	default	default

MOTION

Scan Description	SURVEY	AXIAL T1	AXIAL T2 FS	DYNAMICS	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
Temporal slice spacing	—	default	default	—	—	—
Motion smoothing	—	no	yes	—	—	—
NSA	1	2	1	1	1	1
SMART	—	yes	—	—	—	—
MRE enable	no	no	no	no	no	no

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

Supported by an educational grant from Bracco Diagnostics Inc.

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

IMAGING FORUMS, INC.

DYNAMIC ANGIO

Scan Description	SURVEY	AXIAL T1	AXIAL T2 FS	DYNAMICS	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Angio / Contrast enh.	no	—	—	no	no	no
Quantitative flow	no	—	—	no	no	no
CENTRA	—	—	—	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 (01:15.7), shortest (02:31.4), shortest (03:45.6), shortest (04:59.8)	—	—
dummy scans	—	—	—	0	—	—
immediate subtraction	—	—	—	no	—	—
fast next scan	—	—	—	no	—	—
synch. ext. device	—	—	—	no	—	—
prospect. motion corr.	—	—	—	no	—	—
Keyhole	—	—	—	no	—	—
Arterial Spin labeling	no	no	no	no	no	no

POST PROCESSING

Scan Description	SURVEY	AXIAL T1	AXIAL T2 FS	DYNAMICS	LT OBLIQUE SAGITTAL	RT OBLIQUE SAGITTAL
Preparation phases	—	auto	auto	auto	full	full
Interactive F0	no	no	no	auto	select	select
Quick Survey	default	default	default	default	default	default
MIP/MPR	no	no	no	no	no	no
SWIp	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	no	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	yes	yes	yes	no	no	no
Geometry correction	default	default	default	default	default	default
Elliptical k-space shutter	—	—	—	default	default	default
IF_info_seperator	1634755923	1634755923	1634755923	1634755923	1634755923	1634755923

Disclaimer: The MR Protocols information is provided by independent physicians and technologists and is not intended to provide definitive or complete medical instructional or treatment information. Products referenced herein should be used consistently with their package inserts, and any devices referenced herein should be used consistently with the operation instructions provided by their respective manufactures. Northwest Imaging Forums, Inc. and Bracco Diagnostics Inc. do not offer medical advice and shall not be responsible for any person's reliance on this protocol.

Supported by an educational grant from Bracco Diagnostics Inc.