University Health™	**Policy #: Rad Proc 14. 17. 3**
SUBJECT: BREAST TUMOR	**Effective: 10/1/2013** **Reviewed: 2.2015; 2/2017**
APPROVED BY	**Page 1 of 2**

Purpose: To provide MRI staff with approved protocol for performing a breast Tumor.

EXAM: BREAST TUMOR ORIENTATION: FEET FIRST/PRONE COIL HD BREAST

PLANE	3 PLN LOC	CALI B.	AX T1 ASSET	AX T2 ASSET	AX T2 STIR ASSET	AX VIBRANT MPh C+	OP AX DWI ASSET b600	OP SAG T2 FS LT	OP SAG T2 FS RT	OP COR T2	OP COR T2 STIR ASSET
SEQ	SSFSE	GRE	FRFSE XL	FRFSEXL	FSE IR	VIBRANT	SE	FSE XL	FSE XL	FSEXL	FSE IR
MODE	2D	2D	2D	2D	2D	3D	2D	2D	2D	2D	2D
IMAGING OPTIONS	SEQ/FAST/ SS	FAST /SS	TRF/FAST / ASSET/FR	TRF/FAST/ ASSET/FR	FC/SEQ/TRF/ FAST/ASSET	FAST/ASSET /MPhVar	EPI/DIFF/ ASSET	NPW/TRF/ FAST	NPW/TRF / FAST	TRF/FAST / ASSET/FR	FC/SEQ/TR F/ FAST/ASSE T
TE	80ms+		MIN FULL	90 ms +	32 ms		MIN	90 ms +	90 ms +	90 ms +	32 ms
TR	MIN		400-600 ms	3800 ms+	7800 ms		2600 ms	3800 ms +	3800 ms +	3800 ms +	7800 ms
TI					150 ms						150 ms
FLIP ANGLE						10					
ETL			2	12-18	9			12-18	12-18	12-18	9
BW	83.33		31.25	31.25	31.25	62.50		20.83	20.83	31.25	31.25
FOV	40	48	38	38	38	38	38	20	20	46	38
SLICE THICKNESS	7	10	5	5	5	1.8	5	4	4	4	5
SLICE SPACING	5	0	1	1	1	LOCS/SL 114	1	1	1	1	1
Frequency	256		384	384	320	320	256	256	256	384	320
Phase	160		256	256	192	320	192	224	224	256	192
NEX			1	1	1			2	2	1	1
PHASE FOV	1		1	1	1	1	1				1
FREQ DIR	UNSWAP	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	S/I	A/P
FLOW COMP DIR					SLICE					FREQ	SLICE
SHIM	AUTO	AUT	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO

		0									
PHASE CORRECT	OFF	OFF	ON	ON	OFF	OFF	ON	ON	ON	ON	OFF

NOTES: The AX T1, AX T2, AX STIR, and AX VIBRANT will be acquired on every patient. The optional scans will be included when requested by the radiologist, these include: AX DIFFUSION, SAG T2 FS RT/LT, COR T2, COR T2 STIR ASSET. These optional scans should be acquired prior to contrast. The VIBRANT sequence is set to acquire 6 phases. Each phase is approximately 90 seconds. The mask will be acquired first and then the scanner will pause. VIBRANT: Go into manual pre-scan and adjust both shim volumes. This will improve the uniformity of the fat sat. After the mask is complete, make sure that the fat sat quality of the images is adequate. After verifying the fat sat quality, inject contrast via power injection. Wait 16 seconds before starting the scan. After the 16 seconds passes, initiate the scan.
AX DIFFUSION: Do not adjust the slice thickness or spacing. Leave the frequency at A/P. Within the diffusion screen, the b-value is set at 600, the frequency is S/I, the NEX is 16, optimize TE is on, and dual spin echo is off. These settings must remain as they are to result in a quality image and ADC map. ASSET must also be on.
REPROCESSING FOR AX DIFFUSION: Go into functool and click ADC. Make sure all of the green dots are removed from the image. You should only see green lines. Use the slide bars to adjust the threshold if necessary. Click next twice and right click on right lower sagittal image and select color ramps. Change the color to grey levels. Next, select the advanced settings button. Click on custom and change the confidence level to 0.9. Select done and then compute. Next, select film/save/report and functional maps. Select all and multiple locations and then select next. Next, select save as processed images and save. Send the diffusion imaging sequence, the eADC, and ADC maps to PACS.

Send the entire exam to PACS. Send the following to the CAD system: AX T1, AX T2, AX STIR, AX VIBRANT, and any optional scans. DO NOT SEND THE AUTOMATIC VIBRANT SUBTRACTIONS CREATED BY THE SYSTEM TO THE CAD SYSTEM. When ready to read is visible beside an exam on the CAD system, the Radiologist may work with the exam.

Note: Additional sequences may be requested at the discretion of the Radiologist monitoring the exam.