Phantom QA Results: 32 CH

Date:01/21/2020

Dartmouth Brain Imaging Center (DBIC)

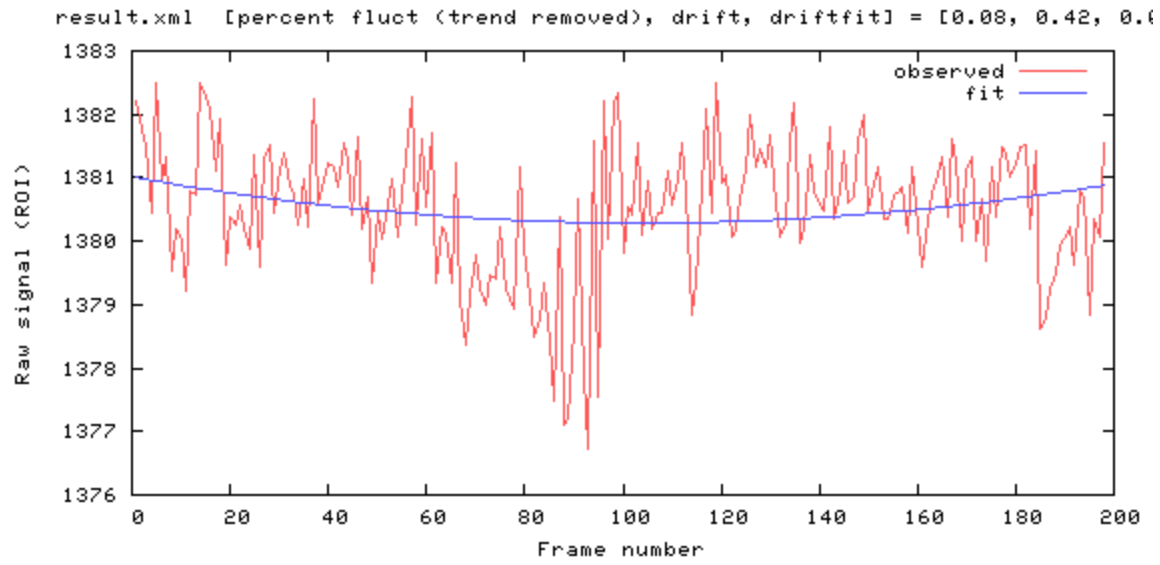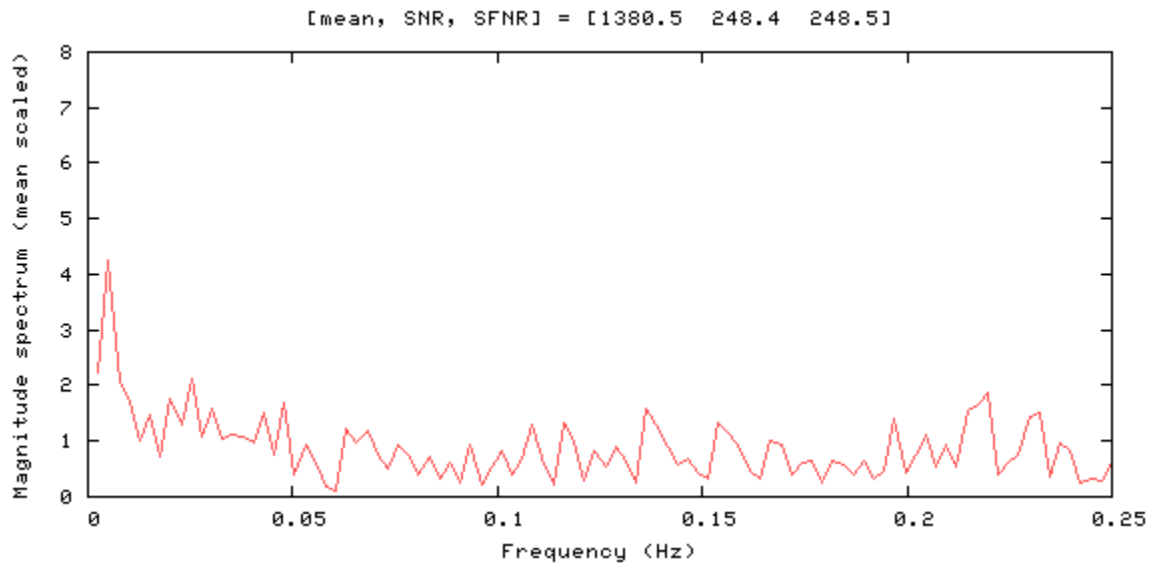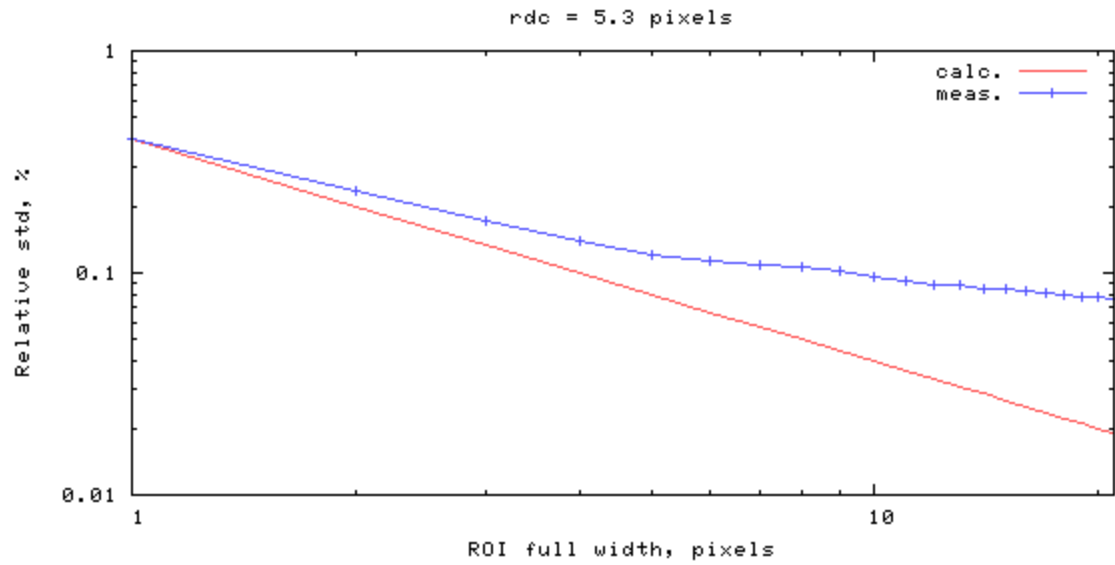| Measurement	Value	Comments
Signal-to-Noise Ratio (SNR) (fig 2)	248.4	
Signal-to-Fluctuation-Noise ratio (SFNR) (fig 2)	248.5	
Radius of Decorrelation (RDC) (fig 3)	5.3	
Drift (fig 1)	0.42	
Percent Fluctuation (fig 1)	0.08	More than usual
Fourier analysis of the residuals (fig 2)	<4	Low frequency feature
Ghost Mean Percentage (fig 10)	2.35%	Better than the recommended level (3% <) in ref 2:

Table 1: Key measurements

result.xml [percent fluct (trend removed), drift, driftfit] = [0.08, 0.42, 0.0

Figure 1

[mean, SNR, SFNR] = [1380.5 248.4 248.5]

Figure 2

rdc = 5.3 pixels

Relative std, %

ROI full width, pixels

calc.
meas.

Figure 3

Smoothness(FWHM) in mm – X: [min mean max] = [2.069 2.167 2.404]

Smoothness(FWHM) in mm

Timepoint

Figure 4

Smoothness(FWHM) in mm - Y: [min mean max] = [2.390 2.459 2.633]

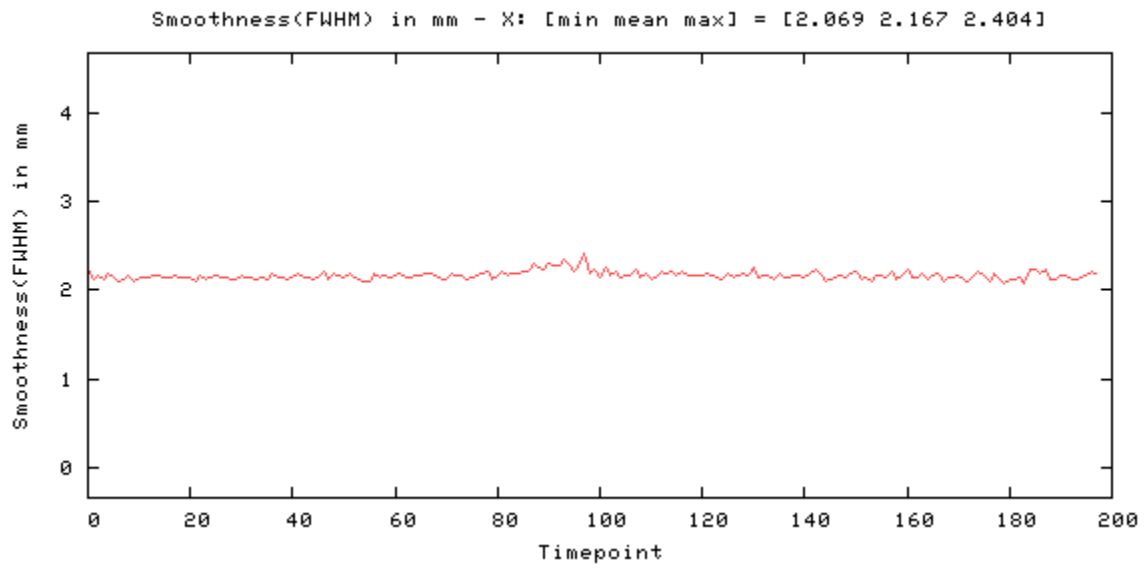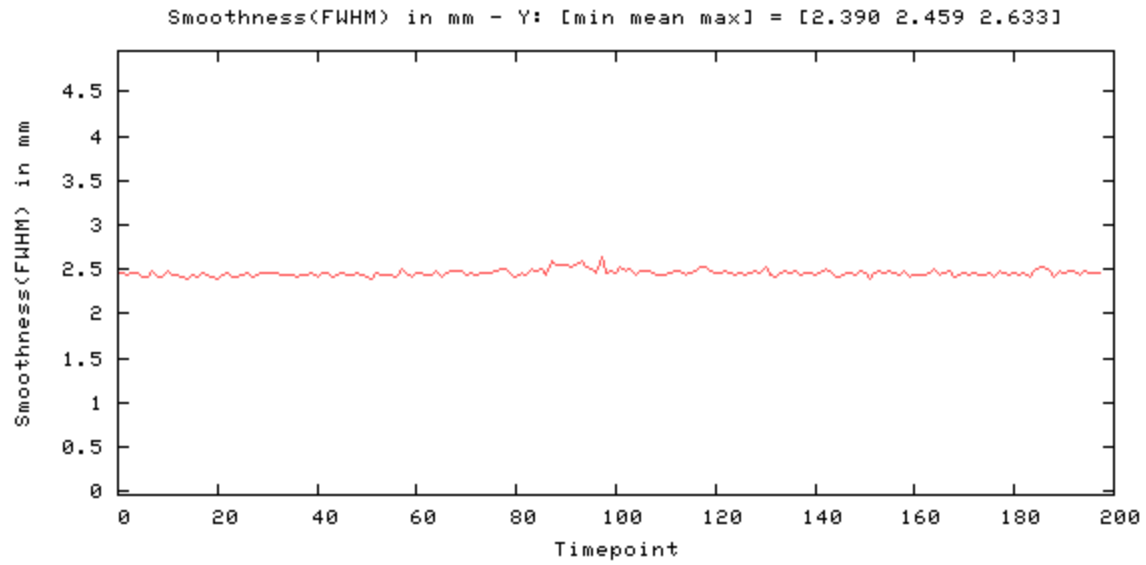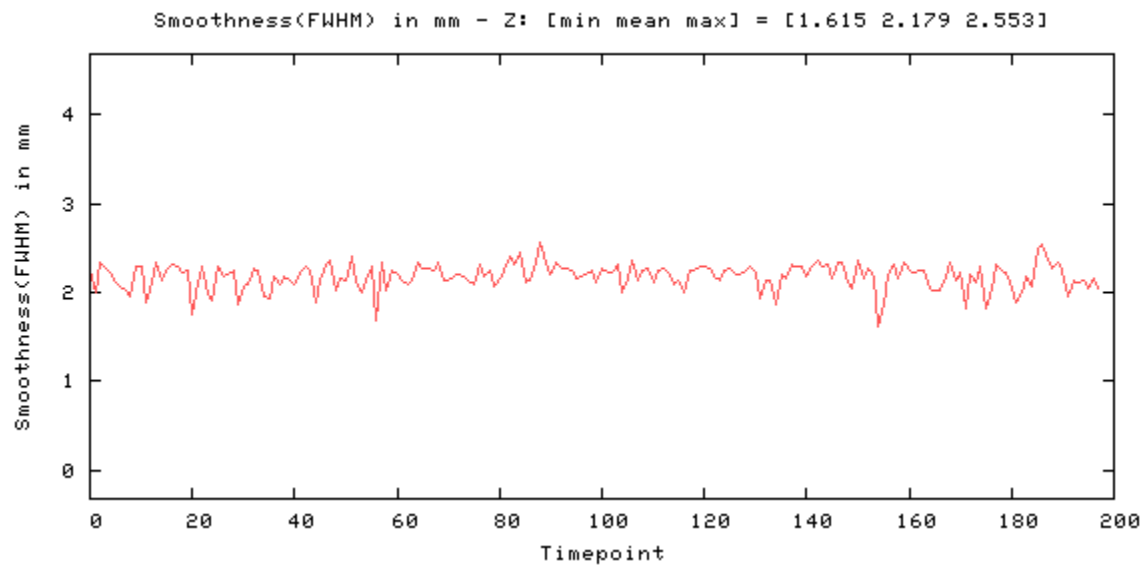Figure 5

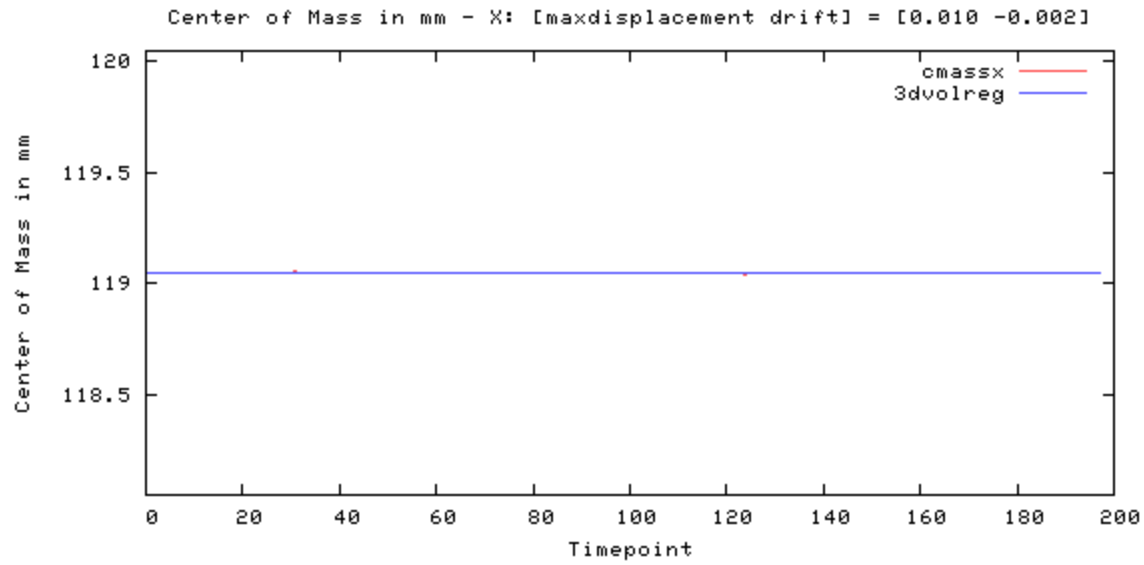Smoothness(FWHM) in mm - Z: [min mean max] = [1.615 2.179 2.553]

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10
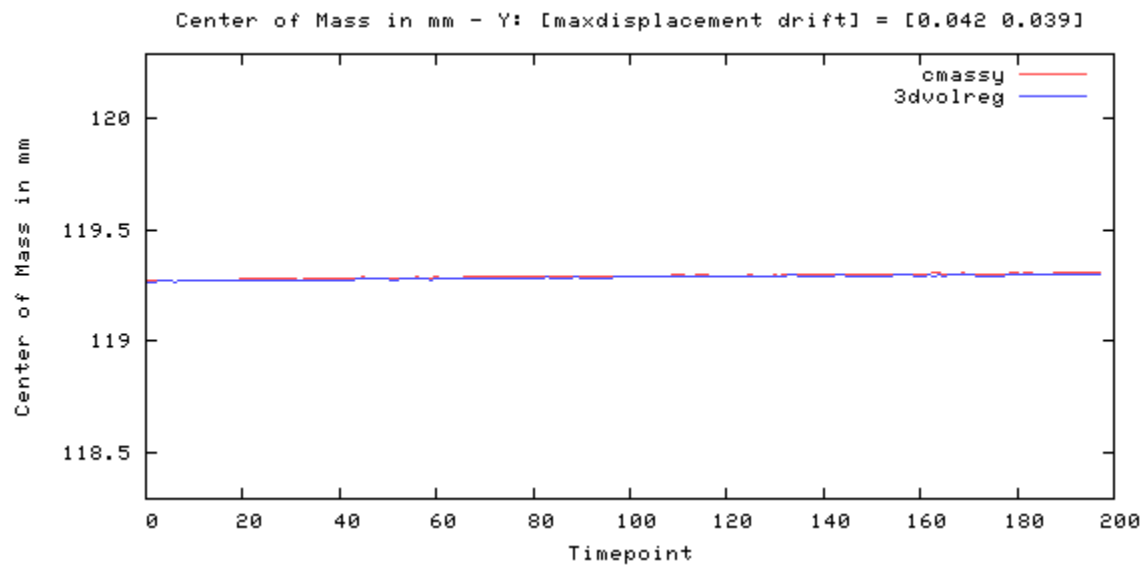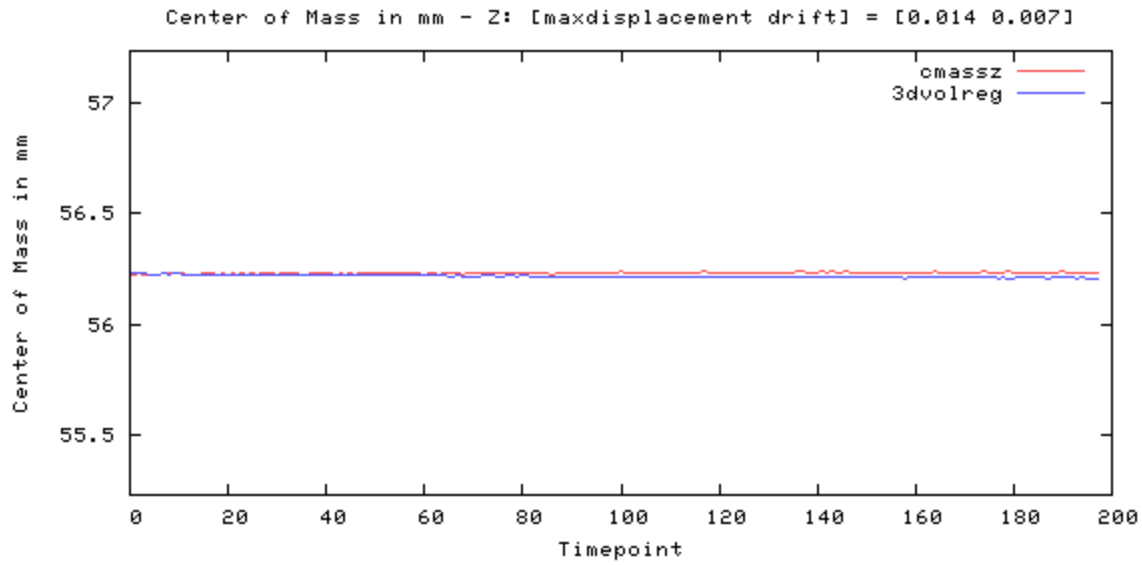
Odd-even difference image

-268   247
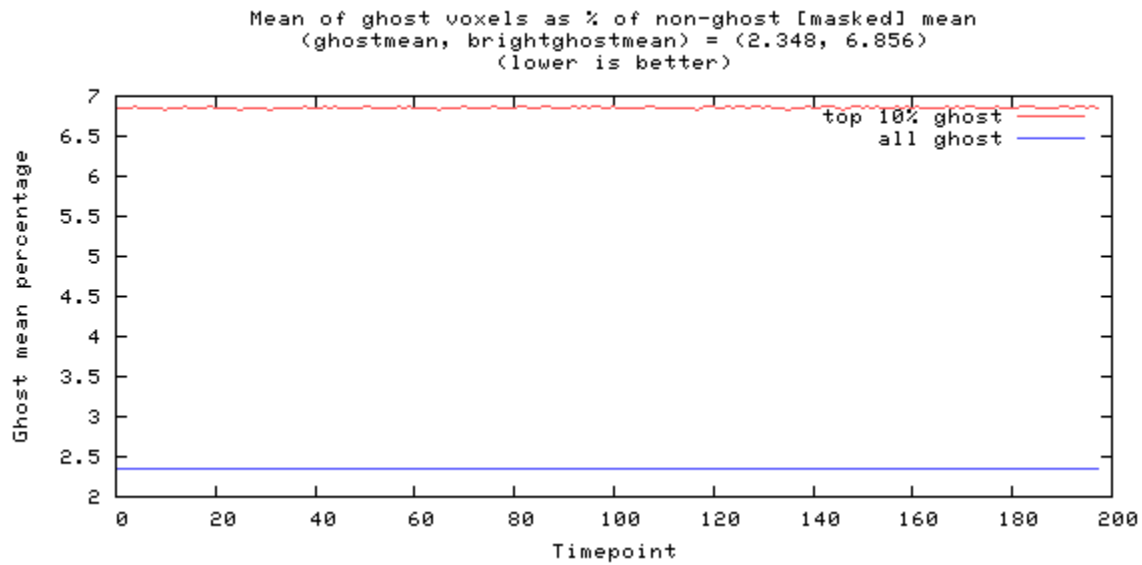
image min: -268, image max: 247

Figure 11

Mean image

0   1858.87
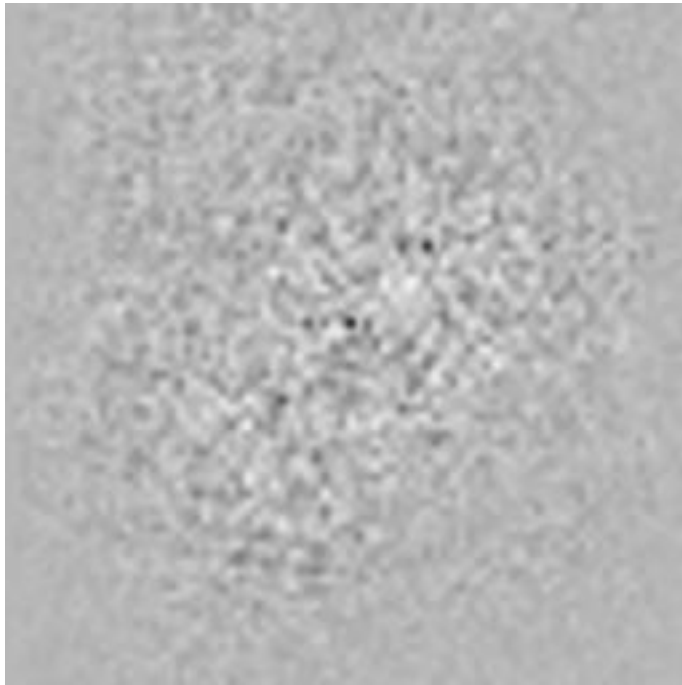
image min: 0, image max: 1883.45

Figure 12

Standard Deviation image

0   6.82975

image min: 0, image max: 6.82975

Figure 13
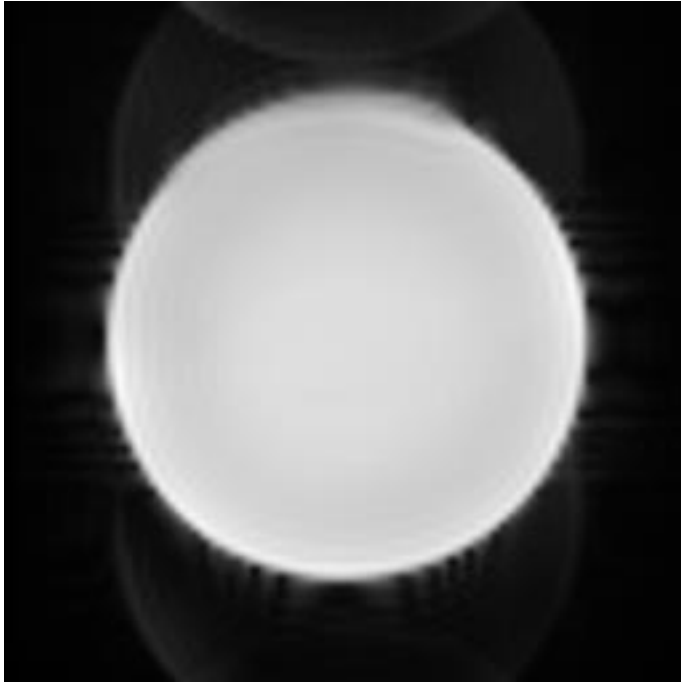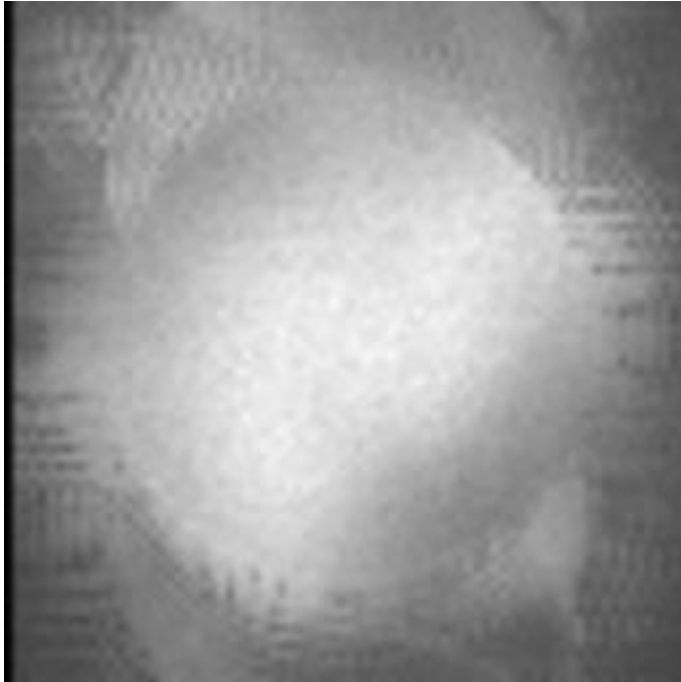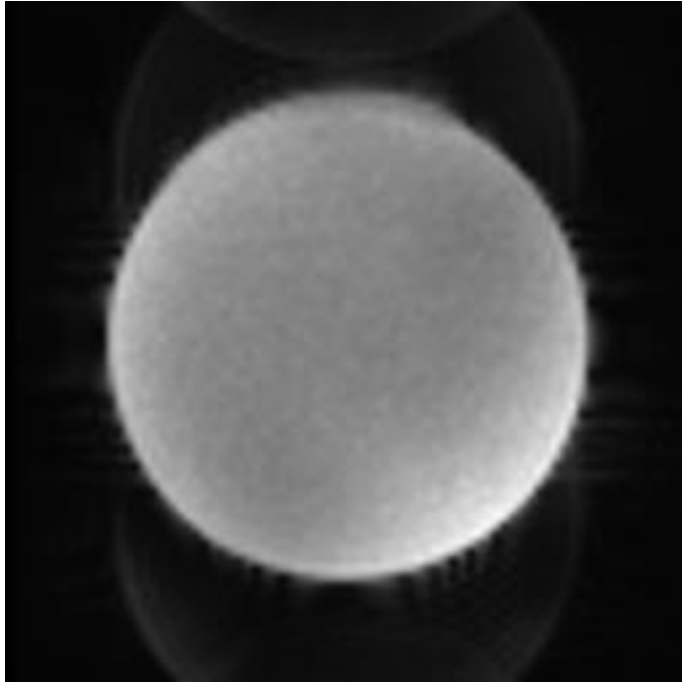
SFNR image

0   893.603

image min: 0, image max: 893.603

Figure 14

Acquisition parameters

dimensions	80x80x30x200
spacing	3mmx3mmx3.99mmx2000ms
gap	0mmx0mmx0.49mmx0ms
scanner	AWP66112
psdname	%SiemensSeq%\ep2d_bold
examnumber	8
studyid	qa
seriesnumber	5
runnumber	1
scanningsequence	EP
sequencevariant	SK
magneticfield	3
description	func-bold_task-rest_acq-p2
scandate	2020-01-21
scantime	13:07:13
tr	2000
te	35.000000
flipangle	90
prescribedslicespacing	3.99
frequencydirection	1
acquisitionmatrix	80 80
bandwidth	185.2
transmitcoilname	Body
institution	Dartmouth College - PBS
examdescription	dbic^QA
scanner	AWP66112
scannermanufacturer	SIEMENS
scannermodelname	Prisma
fieldofview	240 240
psdname	%SiemensSeq%\ep2d_bold
protocolname	func-bold_task-rest_acq-p2 (func-bold_task-rest_acq-p2)

institutionaddress	Maynard 3,Hanover,NH,US,03755
institutionaldepartmentname	Department
scanoptions	FS
mracquisitiontype	2D
sequencename	*epfid2d1_80
angioflag	N
numaverages	1
imagingfrequency	123.252362
imagednucleus	1H
spacingbetweenslices	3.9900000115779
numphaseencodingsteps	79
echotrainlength	39
percentsampling	100
percentphasefieldofview	100
scannerserialnumber	66112
softwareversions	syngo MR E11
inplanephaseencodingdirection	COL
variableflipangleflag	N
sar	0.05551545144352
dBdt	0
acquisitionnumber	1
instancenumber	1
samplesperpixel	1
photometricinterpretation	MONOCHROME2
rows	480
columns	480
bitsallocated	16
bitsstored	12
highbit	11
pixelbandwidth	2315
otherinfo	
sliceorder	2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,1,3,5,7,9,11,13,15,17,19,21

References:

1. Friedman L, Glover GH. Report on a multicenter fMRI quality assurance protocol. J Magn Reson
Imaging. 2006a; 23(6):827–839. [PubMed: 16649196]

2. Acceptance Testing and Quality Assurance Procedures for Magnetic Resonance Imaging
Facilities, AAPM Report No. 100

3. https://www.nitrc.org/projects/bxh_xcede_tools