Phantom QA Results: 32 CH

Date:02/25/2019

Dartmouth Brain Imaging Center (DBIC)

| Measurement	Value	Comments
Signal-to-Noise Ratio (SNR) (fig 2)	239.7	
Signal-to-Fluctuation-Noise ratio (SFNR) (fig 2)	232.3	
Radius of Decorrelation (RDC) (fig 3)	7.7	
Drift (fig 1)	0.72	
Percent Fluctuation (fig 1)	0.06	
Fourier analysis of the residuals (fig 2)	<2	
Ghost Mean Percentage (fig 10)	2.37%	Better than the recommended level (3% <) in ref 2:

Table 1: Key measurements

result.xml [percent fluct (trend removed), drift, driftfit] = [0.06, 0.72, 0.5

Figure 1

Figure 2

rdc = 7.7 pixels

Figure 3

Smoothness(FWHM) in mm – X: [min mean max] = [2.060 2.300 2.816]

Figure 4

Smoothness(FWHM) in mm — Y: [min mean max] = [2.486 2.648 3.005]

Figure 5

Smoothness(FWHM) in mm — Z: [min mean max] = [2.187 2.751 3.534]

Figure 6

Center of Mass in mm – X: [maxdisplacement drift] = [0.023 -0.011]

Figure 7

Center of Mass in mm – Y: [maxdisplacement drift] = [0.158 0.158]
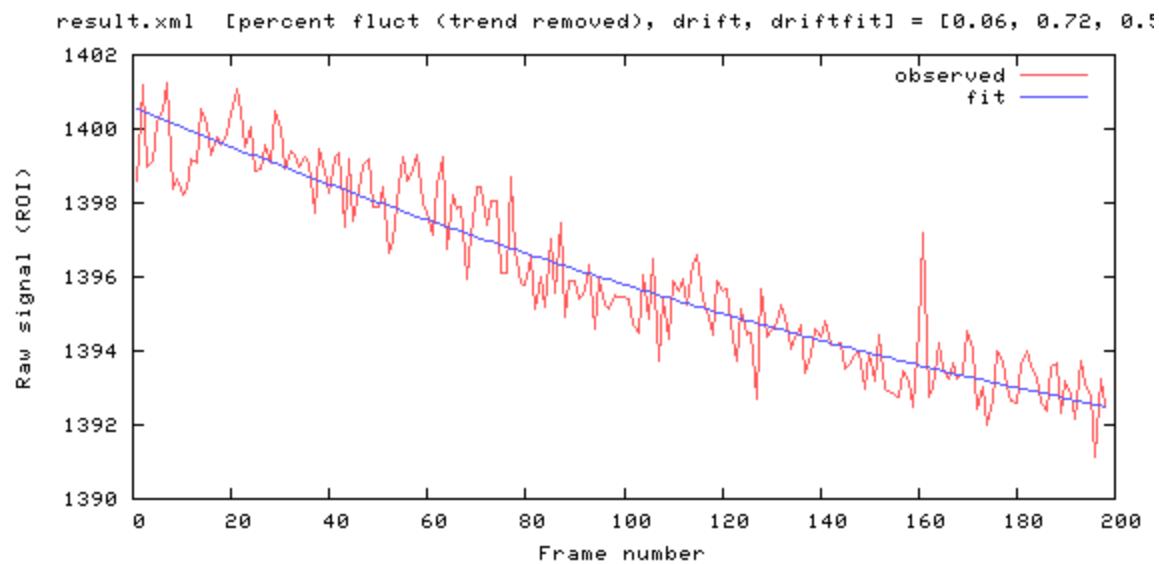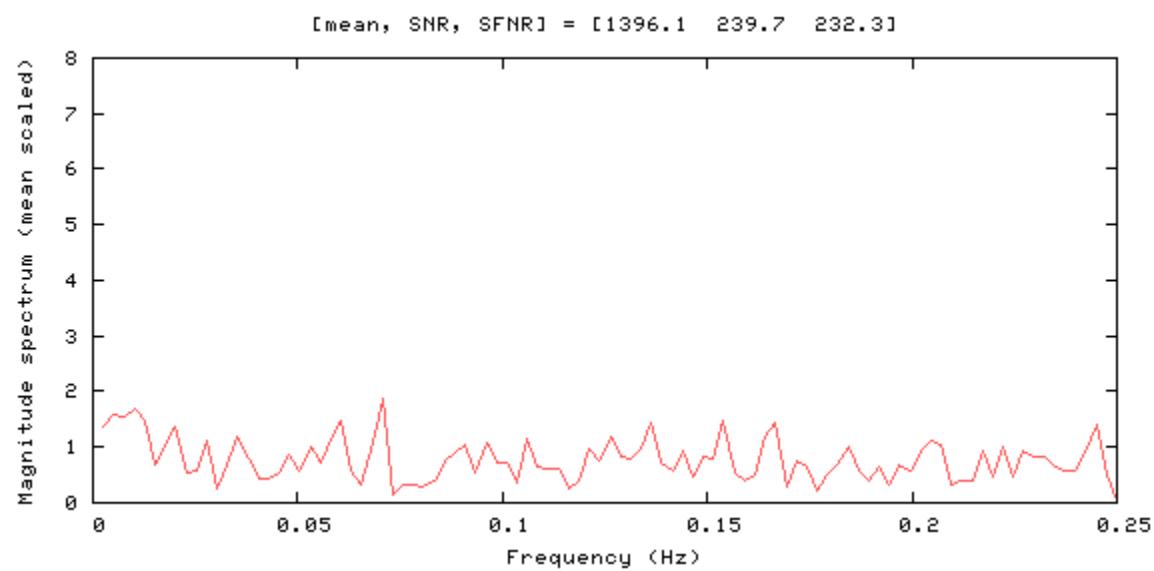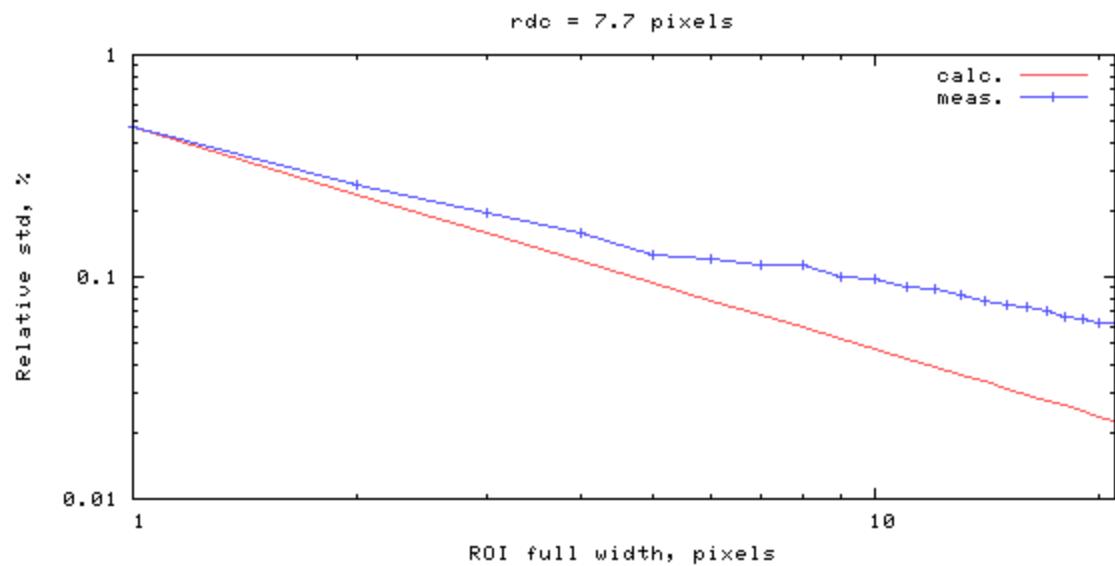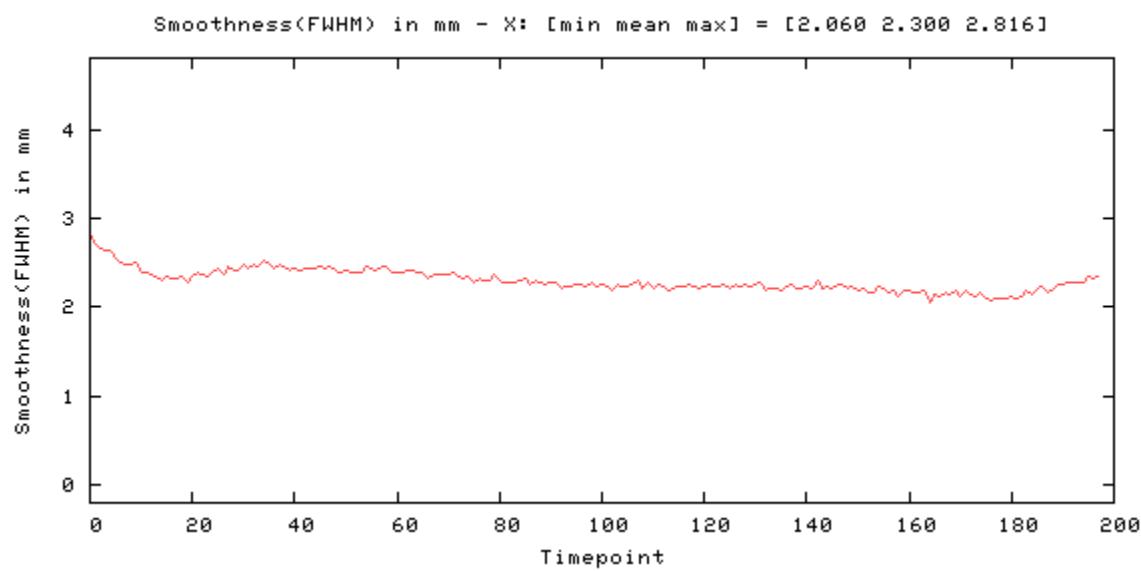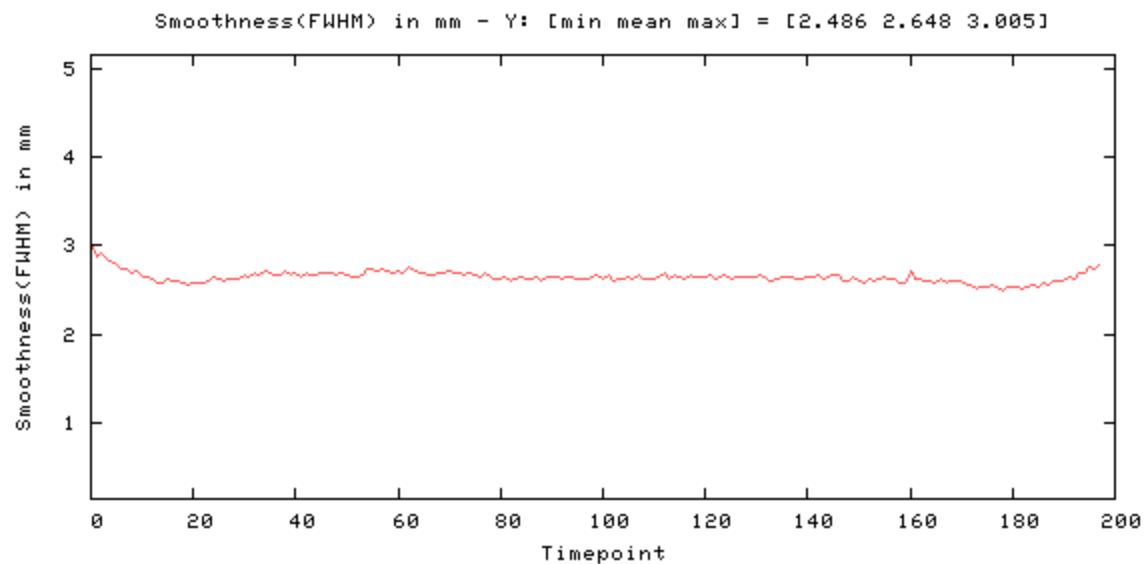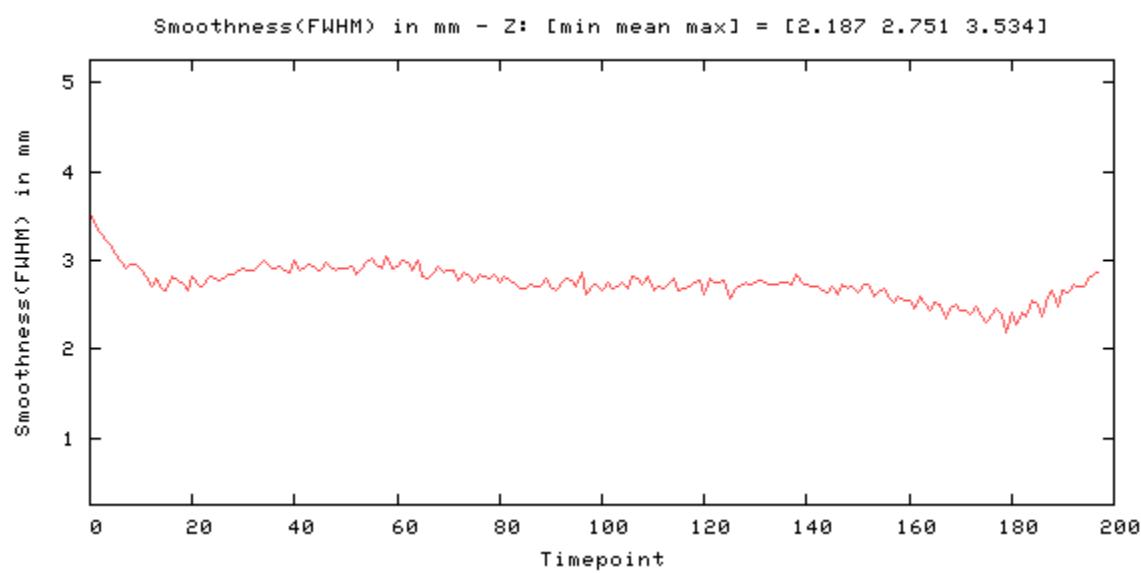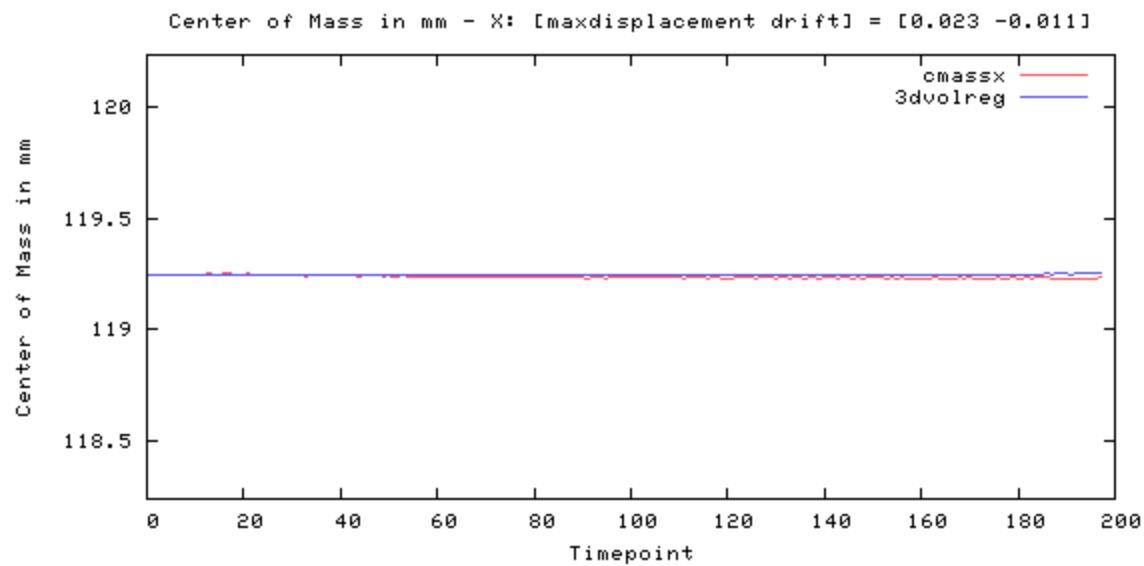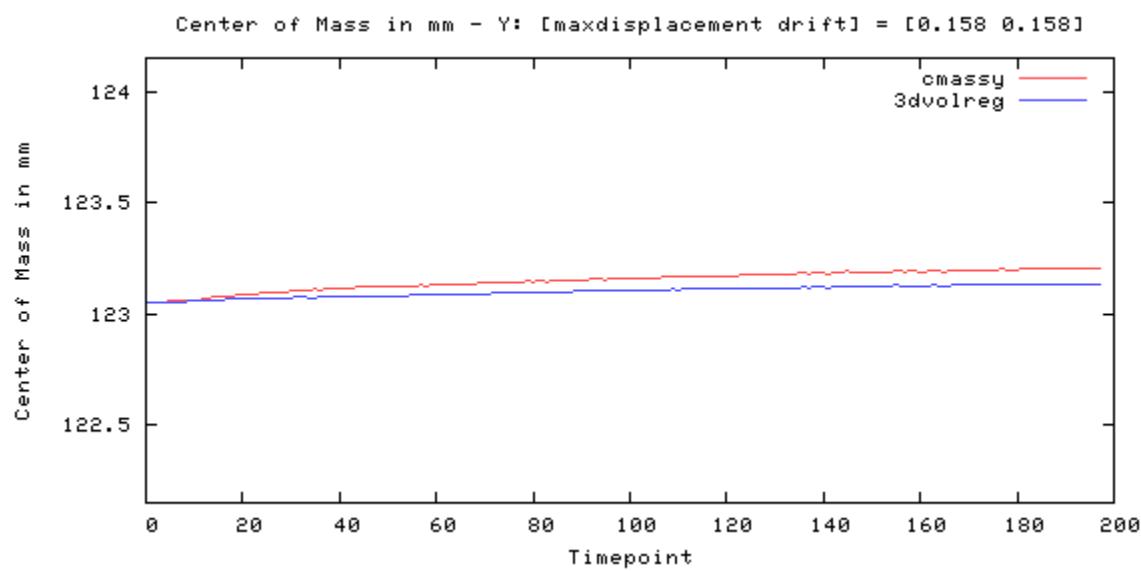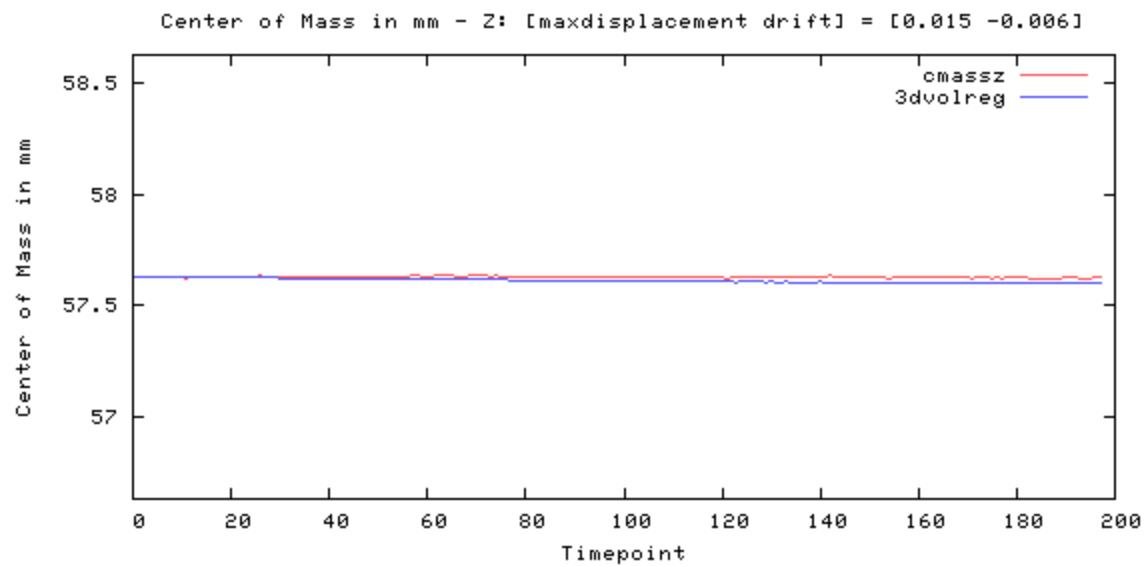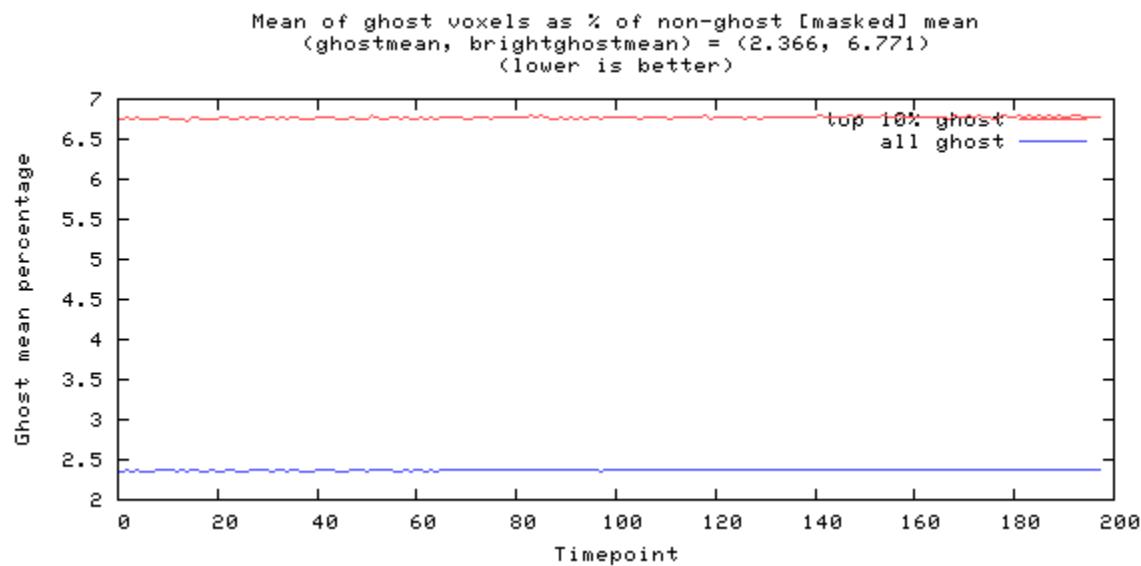
Figure 8

Figure 9

Figure 10

Odd-even difference image

-272   262

image min: -272, image max: 262
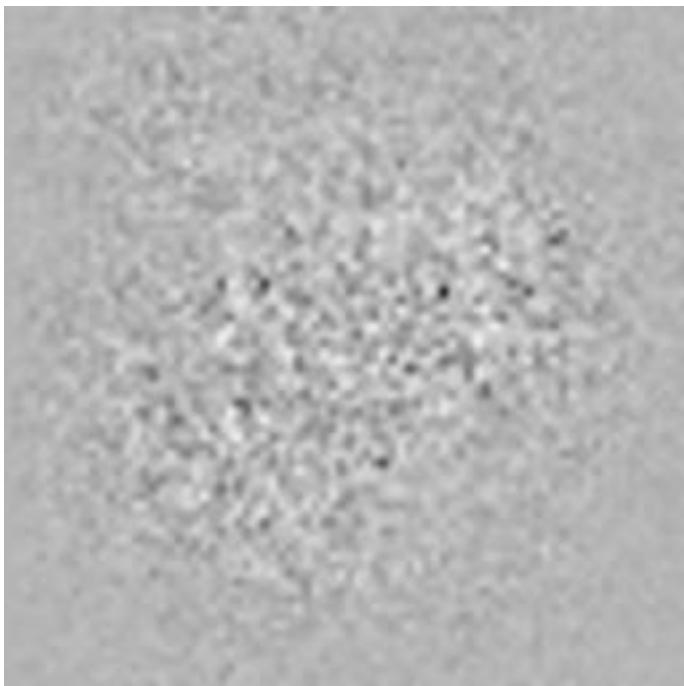
Figure 11

Mean image

0   2038.94

image min: 0, image max: 2038.94
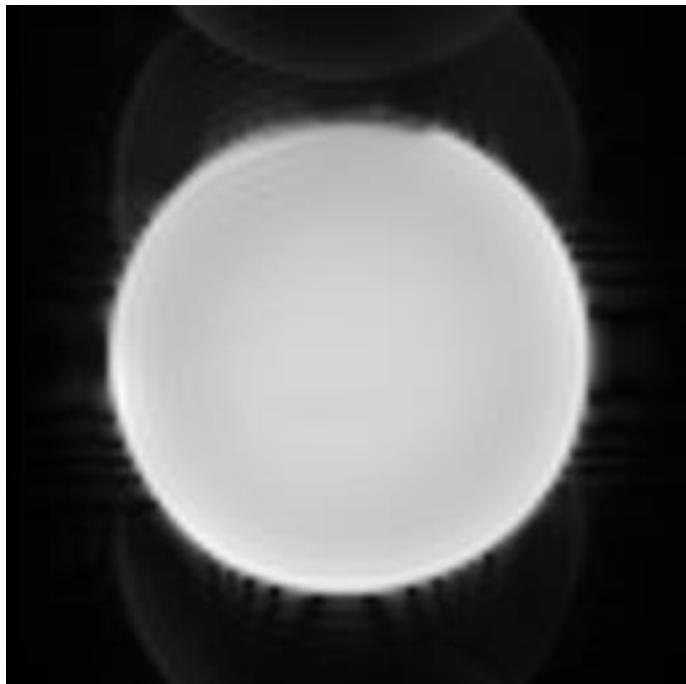

Figure 12

Standard Deviation image

0   9.07214

image min: 0, image max: 9.85489
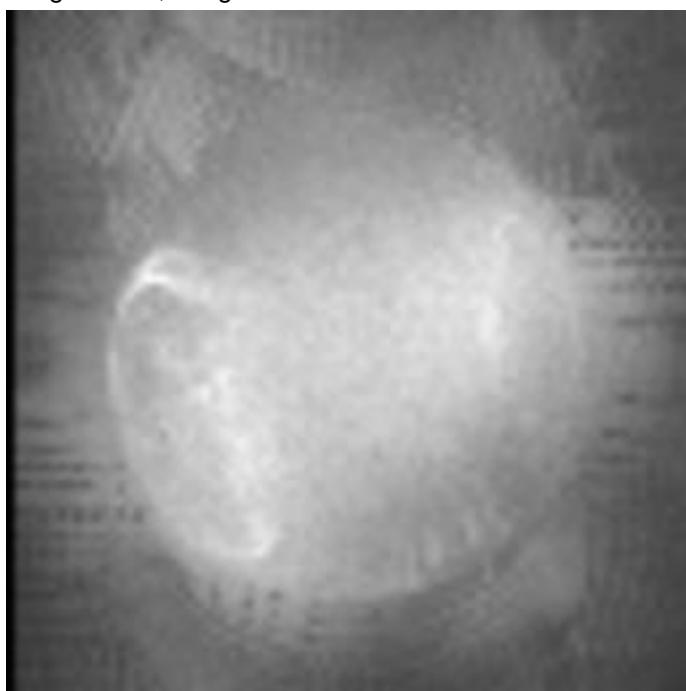
Figure 13

SFNR image

0   705.881

image min: 0, image max: 782.599
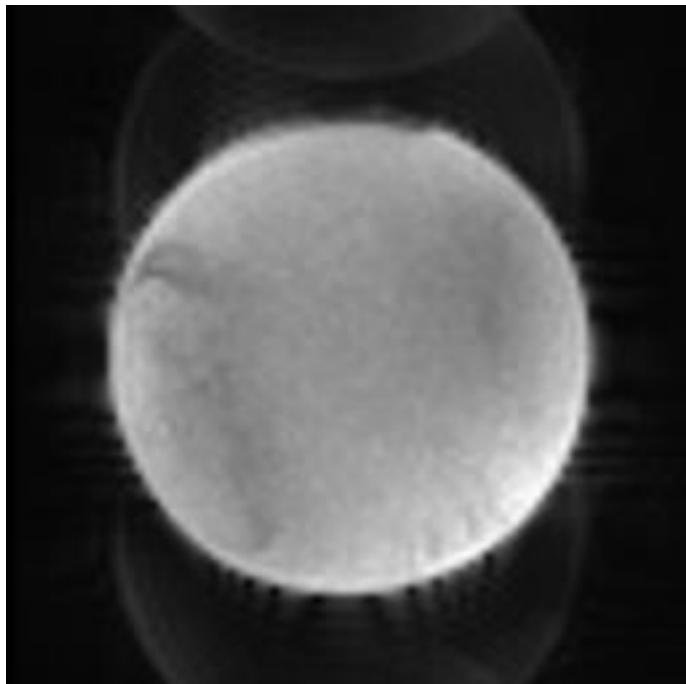
Figure 14

Acquisition parameters

dimensions	80x80x30x200
spacing	3mmx3mmx3.99mmx2000ms
gap	0mmx0mmx0.49mmx0ms
scanner	AWP66112
psdname	%SiemensSeq%\ep2d_bold
examnumber	100
studyid	qa
seriesnumber	5
runnumber	1
scanningsequence	EP
sequencevariant	SK
magneticfield	3
description	func-bold_task-rest_acq-p2
scandate	2019-02-25
scantime	09:16:24
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
institutionaldepartment name	Department
scanoptions	FS
mracquisitiontype	2D
sequencename	*epfid2d1_80
angioflag	N
numaverages	1
imagingfrequency	123.252438
imagednucleus	1H
spacingbetweenslices	3.9900000519937
numphaseencodingsteps	79
echotrainlength	39
percentsampling	100
percentphasefieldofview	100
scannerserialnumber	66112
softwareversions	syngo MR E11
inplanephaseencoding direction	COL
variableflipangleflag	N
sar	0.05572789764277
dBdt	0
acquisitionnumber	1
instancenumber	1
samplesperpixel	1
photometricinterpretation	MONOCHROME2
rows	480
columns	480
bitsallocated	16
bitsstored	12
highbit	11
pixelbandwidth	2315
otherinfo	

| sliceorder | 2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,1,3,5,7,9,11,13,15,17,19,21,23,25,27,29 |

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