

Phantom QA Results: 32 CH

Date:10/26/2020

Dartmouth Brain Imaging Center (DBIC)

Measurement	Value	Comments
Signal-to-Noise Ratio (SNR)	254.0	
Signal-to-Fluctuation-Noise ratio (SFNR)	198.6	Comparably Low
Radius of Decorrelation (RDC) (fig 3)	5.6	
Drift (fig 1)	0.83	High
Percent Fluctuation (fig 1)	0.09	
Fourier analysis of the residuals (fig 2)	<5	Low frequency noise
Ghost Mean Percentage (fig 10)	2.05%	Better than the recommended level (3% <) in ref 2:

Table 1: Key measurements

result.xml [percent fluct (trend removed), drift, driftfit] = [0.09, 0.83, 0.4

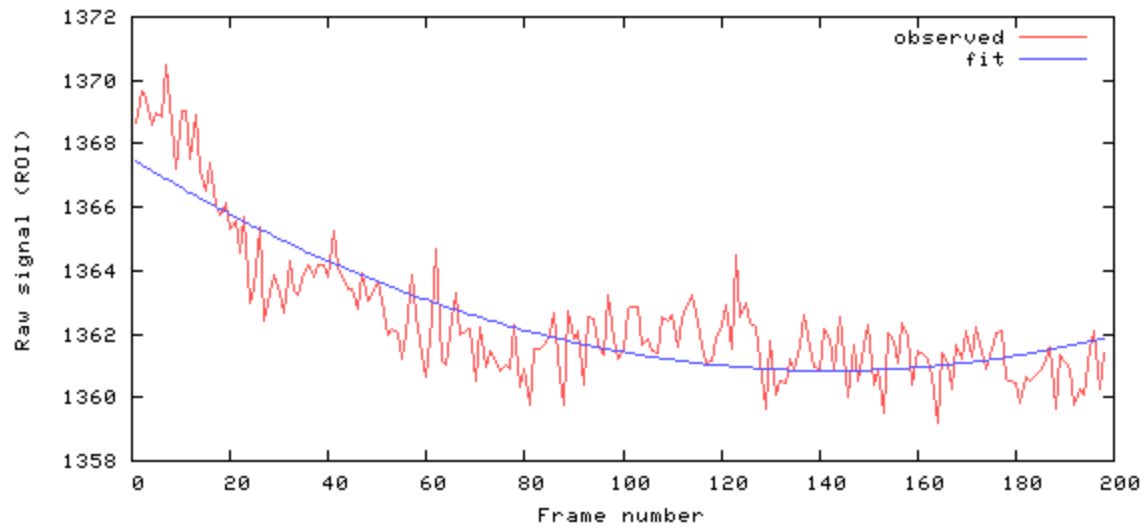


Figure 1

[mean, SNR, SFNR] = [1362.5 254.0 198.6]

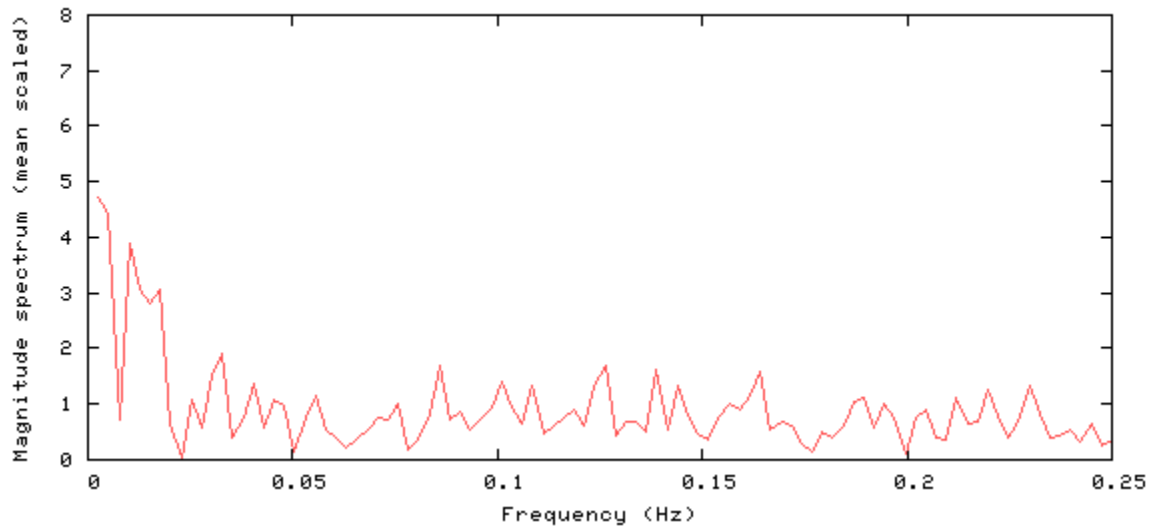


Figure 2

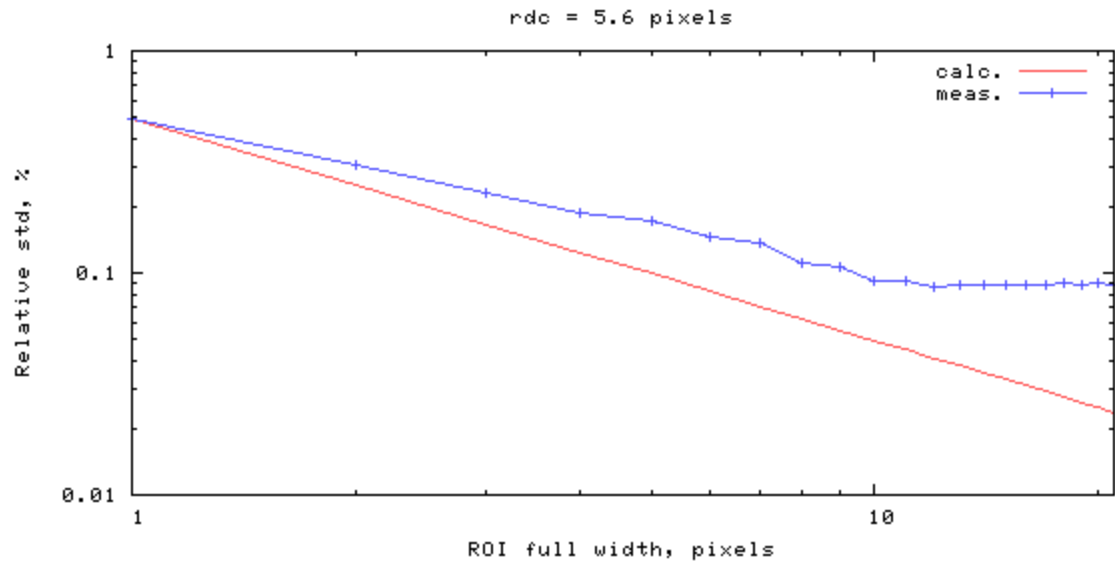


Figure 3

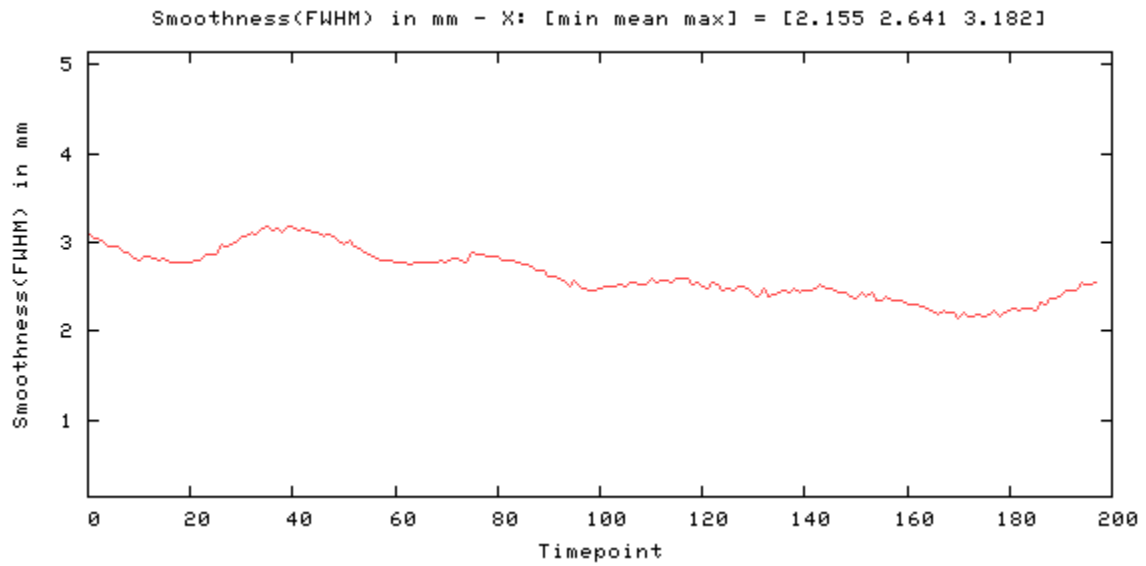


Figure 4

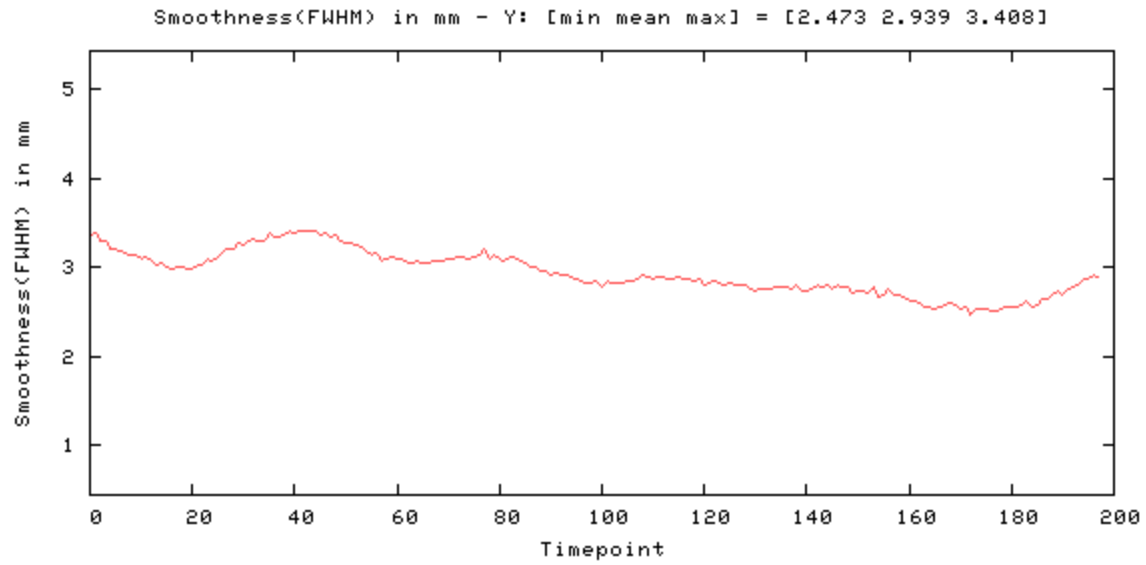


Figure 5

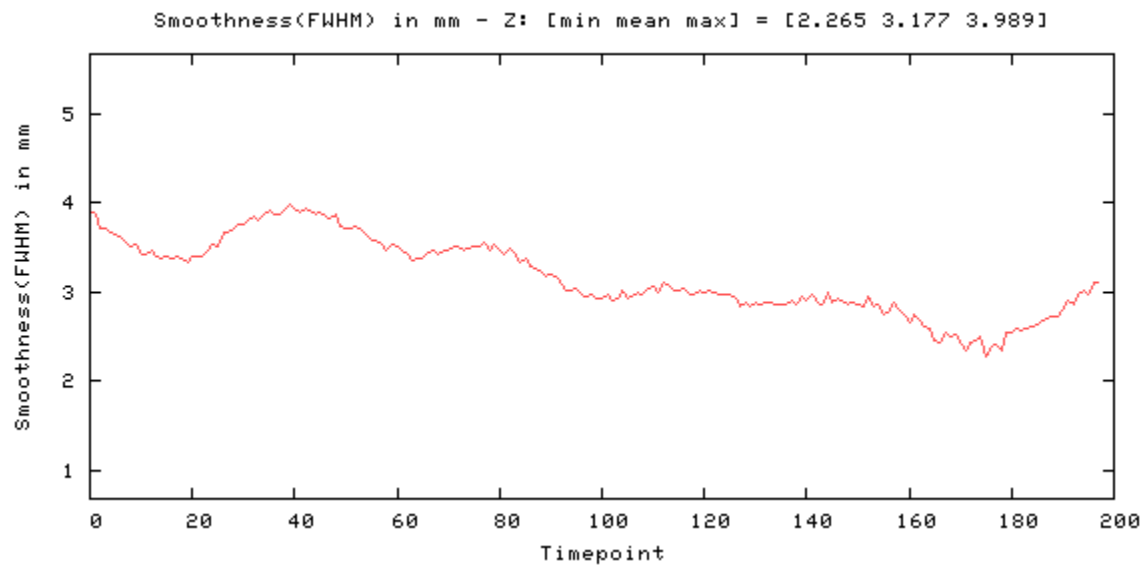


Figure 6

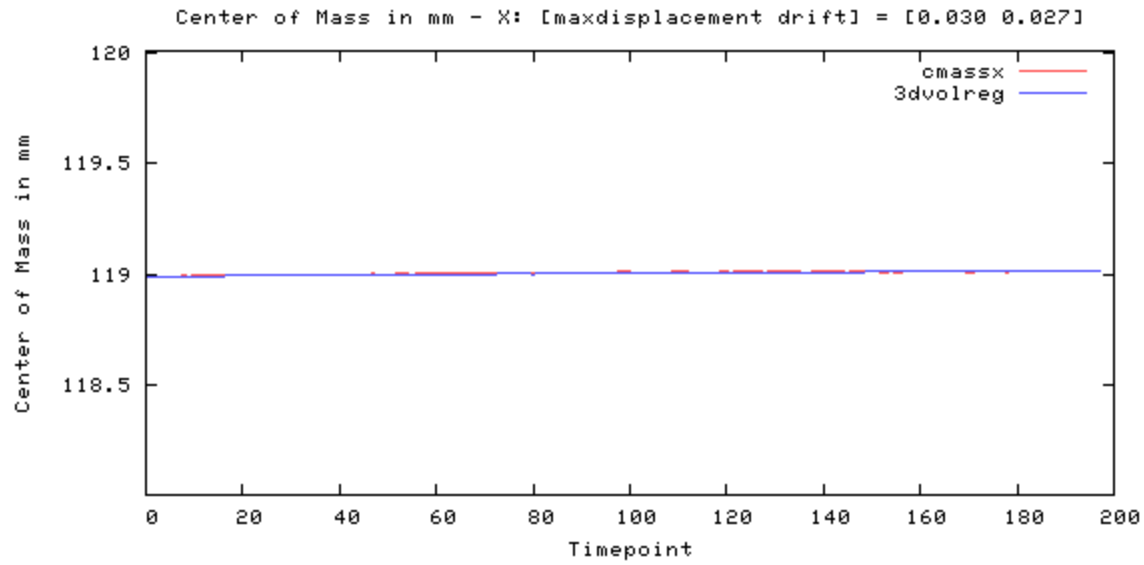


Figure 7

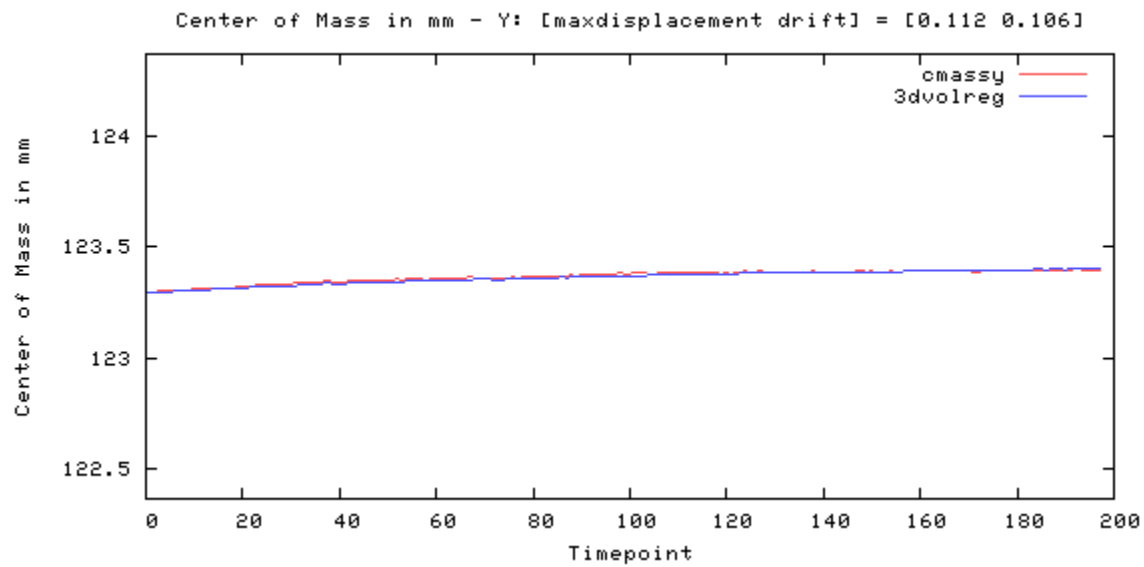


Figure 8

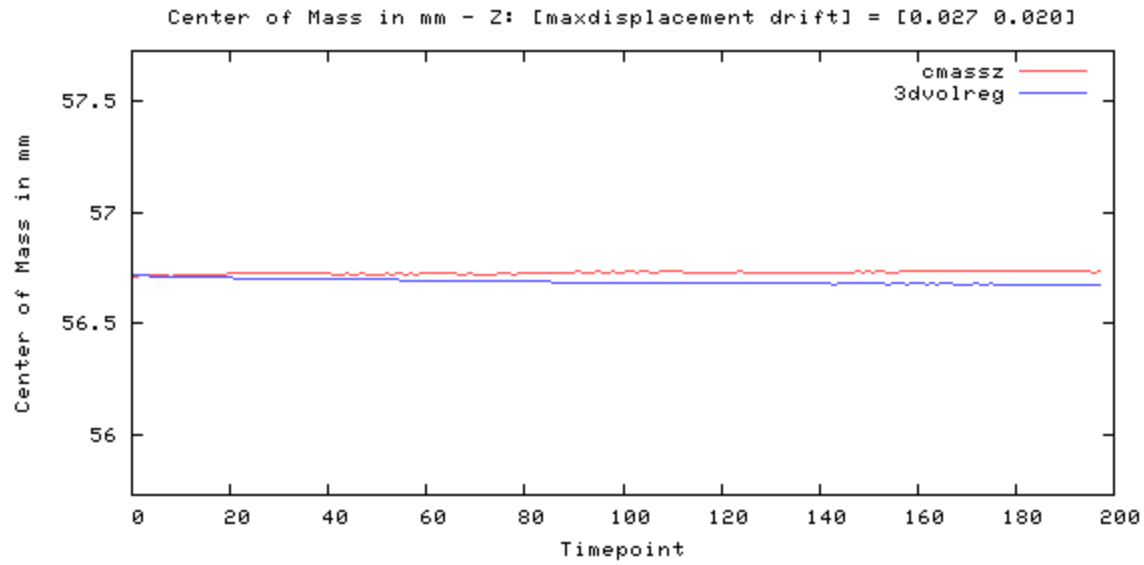


Figure 9

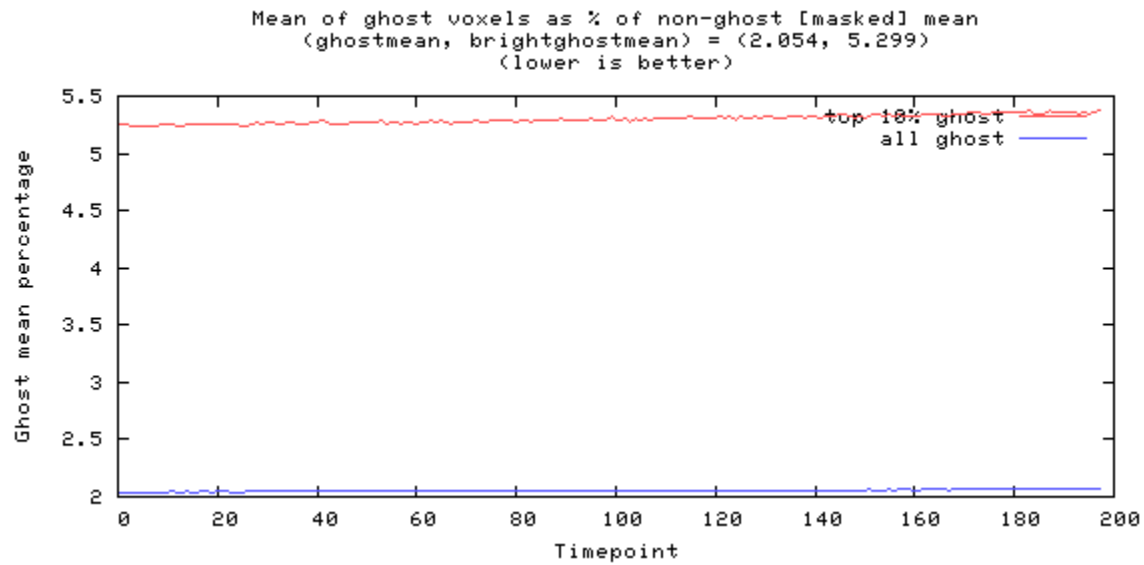


Figure 10

Odd-even difference image



image min: -233, image max: 265

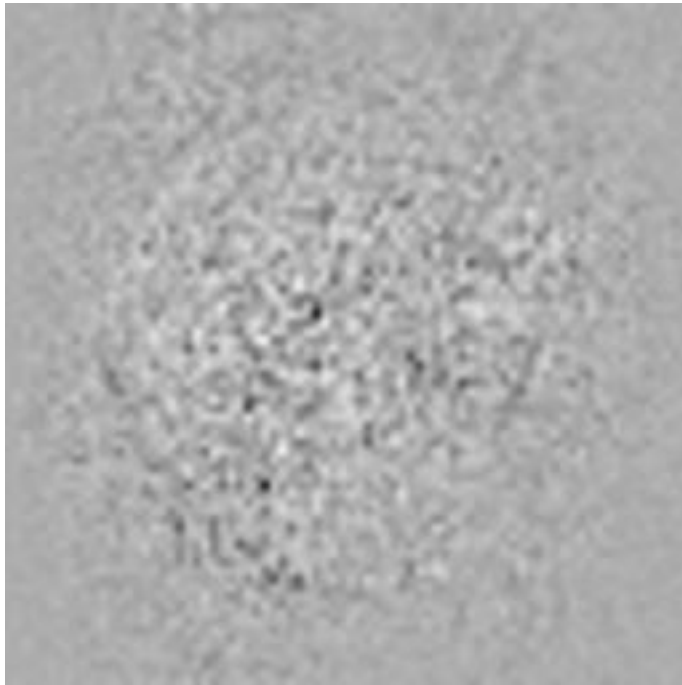


Figure 11

Mean image



image min: 0, image max: 1906.65

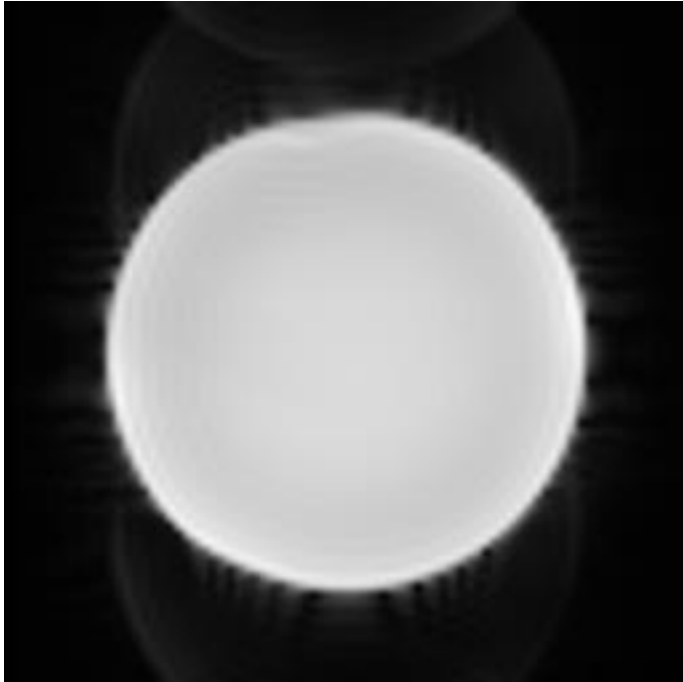


Figure 12

Standard Deviation image



image min: 0, image max: 11.6624

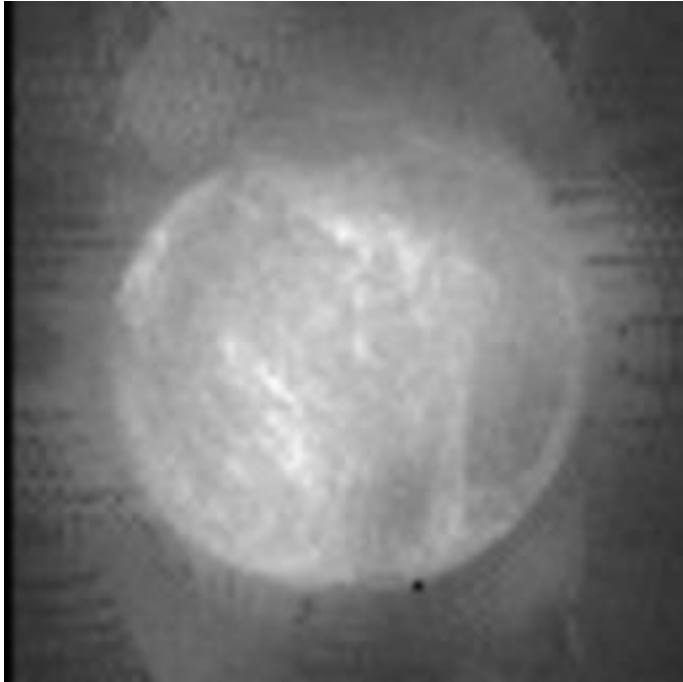


Figure 13

SFNR image



image min: 0, image max: 604.248

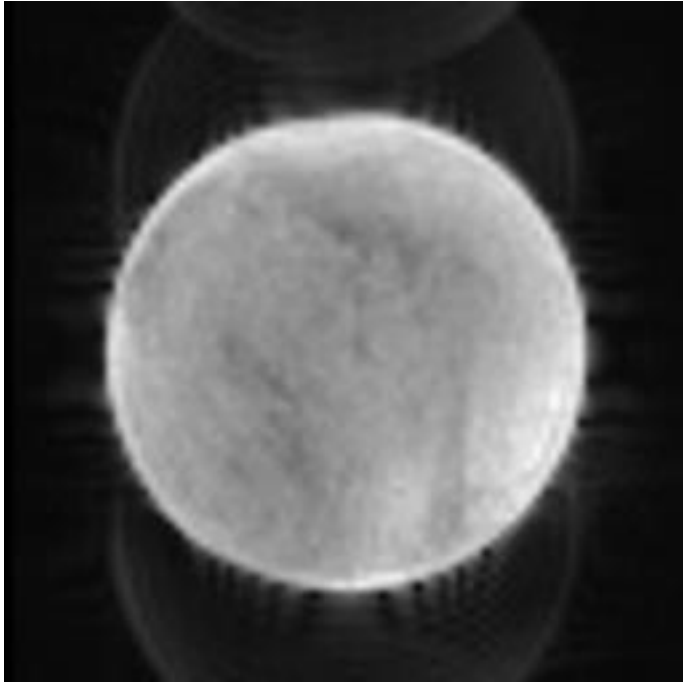


Figure 14

Acquisition parameters

dimensions	80x80x30x200
spacing	3mmx3mmx3.99mmx2000ms
gap	0mmx0mmx0.49mmx0ms
scanner	AWP66112
psdname	%SiemensSeq%\ep2d_bold
examnumber	58
studyid	qa
seriesnumber	5
runnumber	1
scanningsequence	EP
sequencevariant	SK
magneticfield	3
description	func-bold_task-rest_acq-p2
scandate	2020-10-26
scantime	09:31:05
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	123.252357
imagednucleus	1H
spacingbetweenslices	3.9900000182304
numphaseencodingsteps	79
echotrainlength	39
percentsampling	100
percentphasefieldofview	100
scannerserialnumber	66112
softwareversions	syngo MR E11
inplanephaseencodingdirection	COL
variableflipangleflag	N
sar	0.05540379491337
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