

Phantom QA Results: 32 CH

Date:02/15/2021

Dartmouth Brain Imaging Center (DBIC)

| Measurement | Value | Comments |
|---|-------|---|
| Signal-to-Noise Ratio (SNR) | 270 | |
| Signal-to-Fluctuation-Noise ratio (SFNR) | 262.8 | |
| Radius of Decorrelation (RDC) (fig 3) | 8.6 | |
| Drift (fig 1) | 0.49 | |
| Percent Fluctuation (fig 1) | 0.05 | |
| Fourier analysis of the residuals (fig 2) | <2 | |
| Ghost Mean Percentage (fig 10) | 2.03% | Better than the recommended level (3% <) in ref 2: |

Table 1: Key measurements

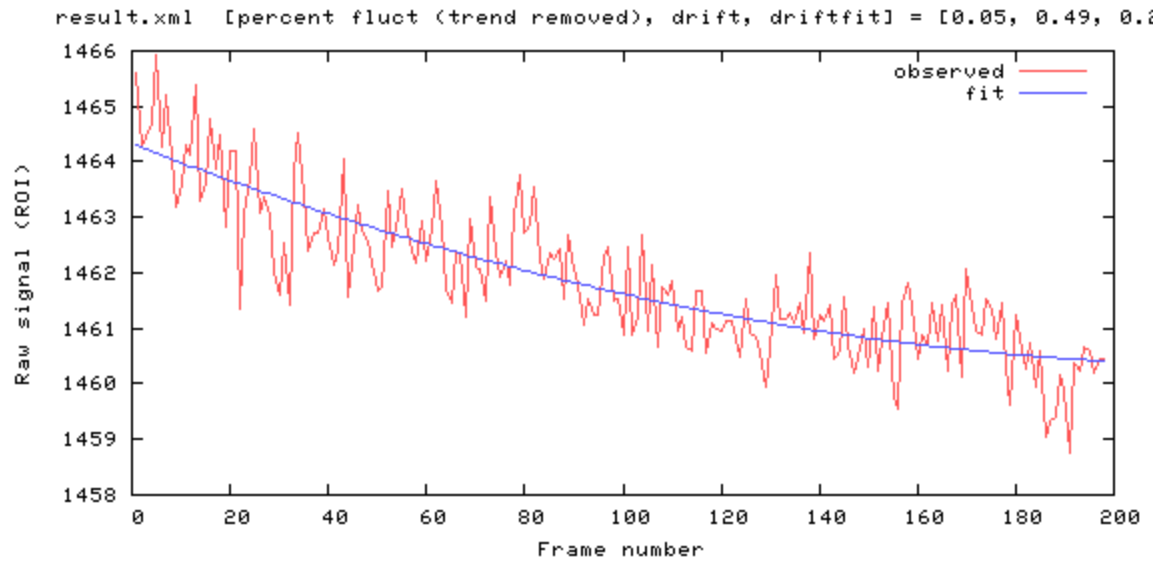


Figure 1

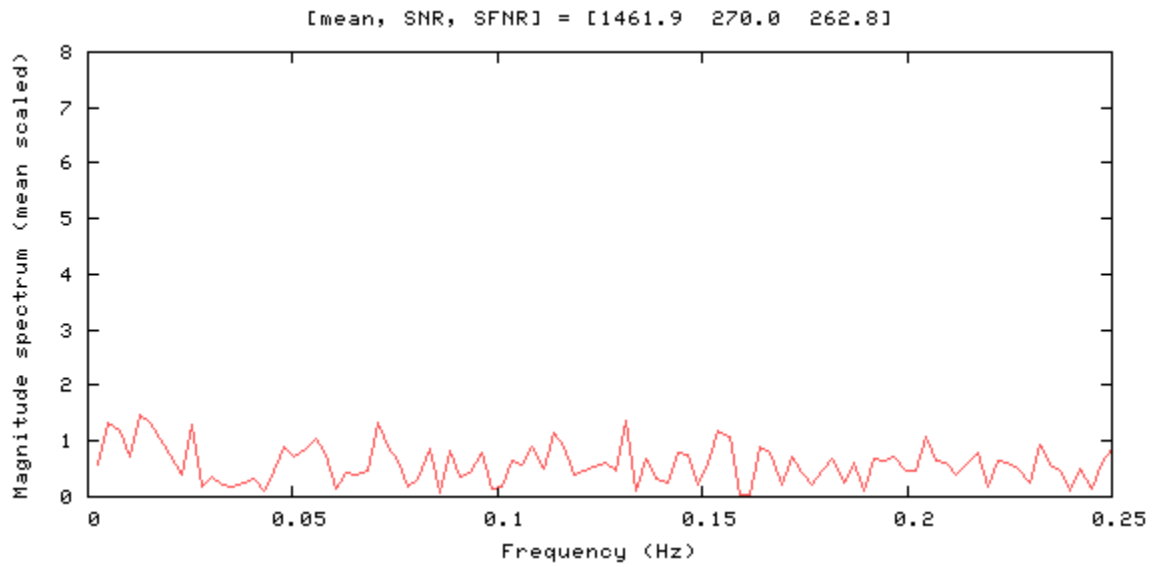


Figure 2

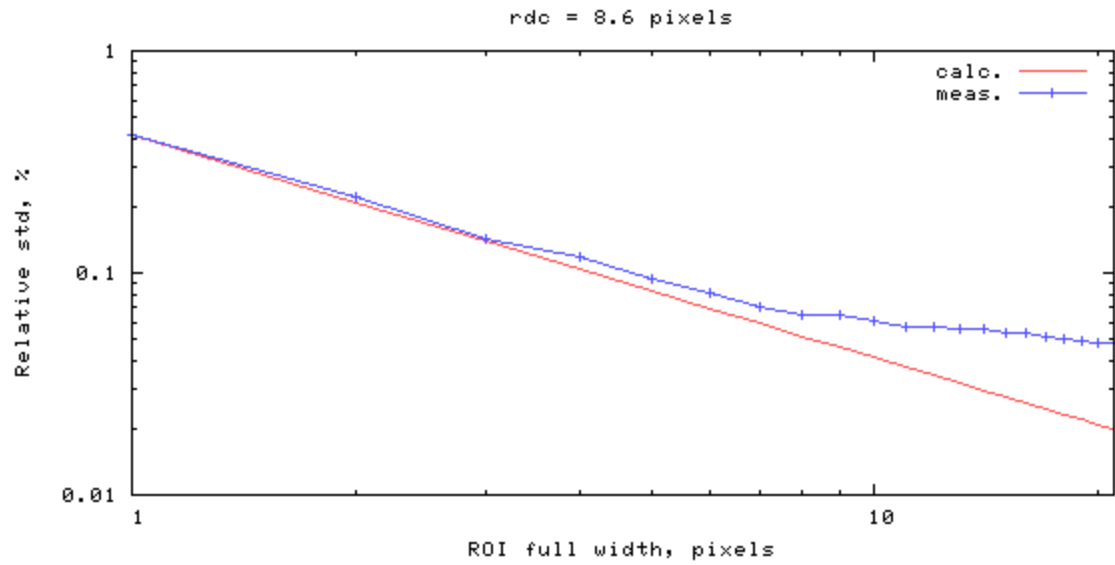


Figure 3

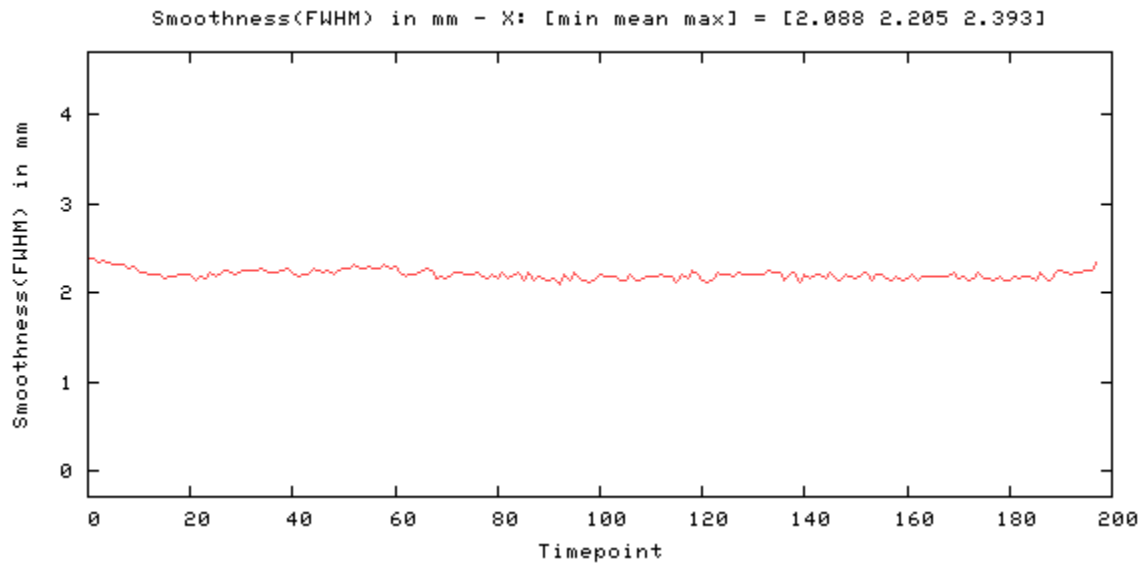


Figure 4

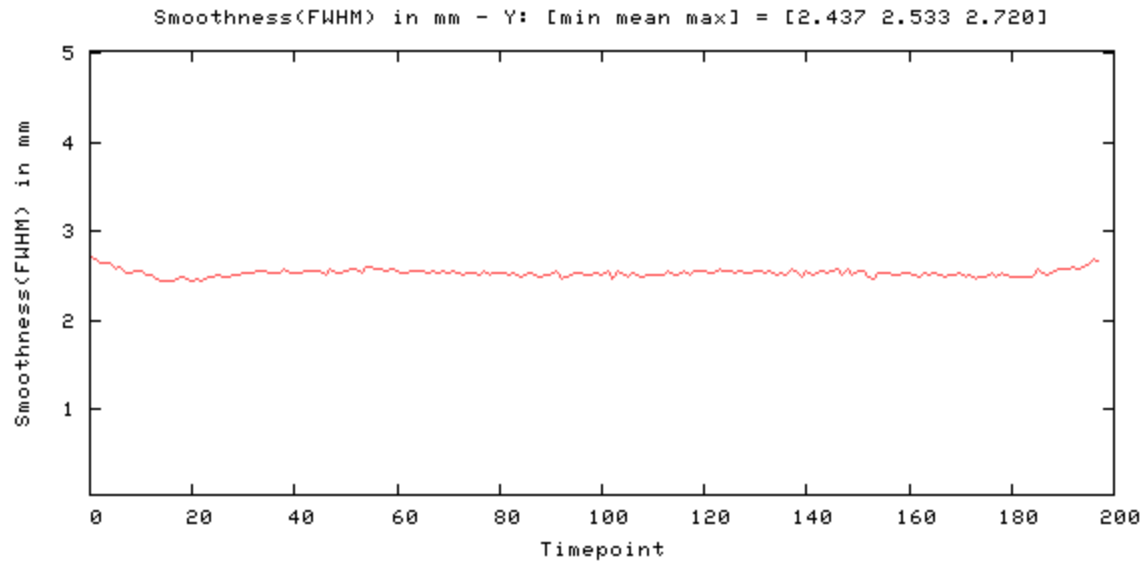


Figure 5

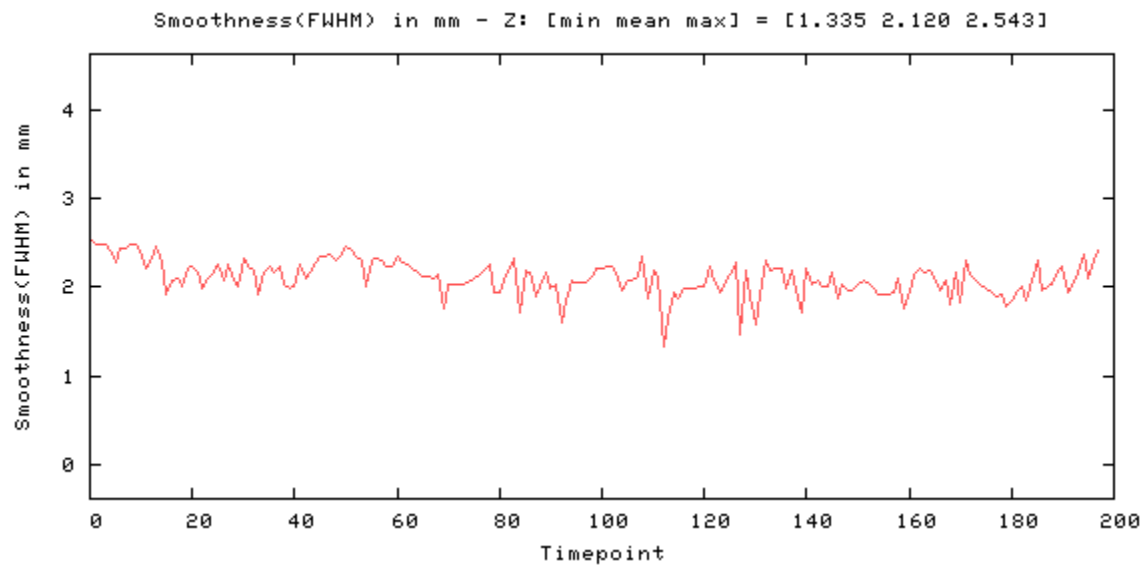


Figure 6

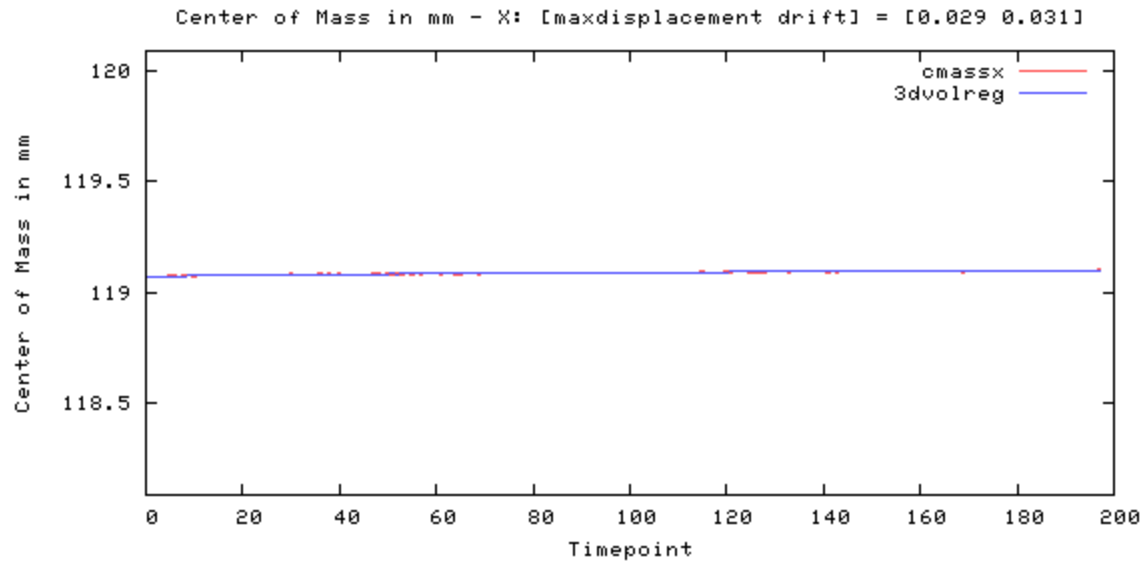


Figure 7

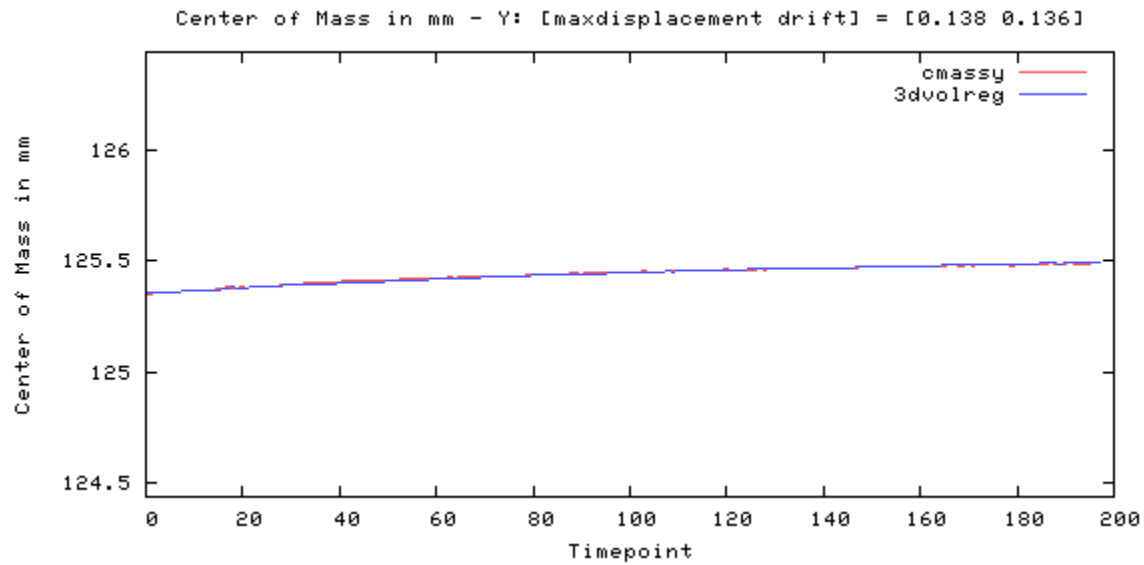


Figure 8

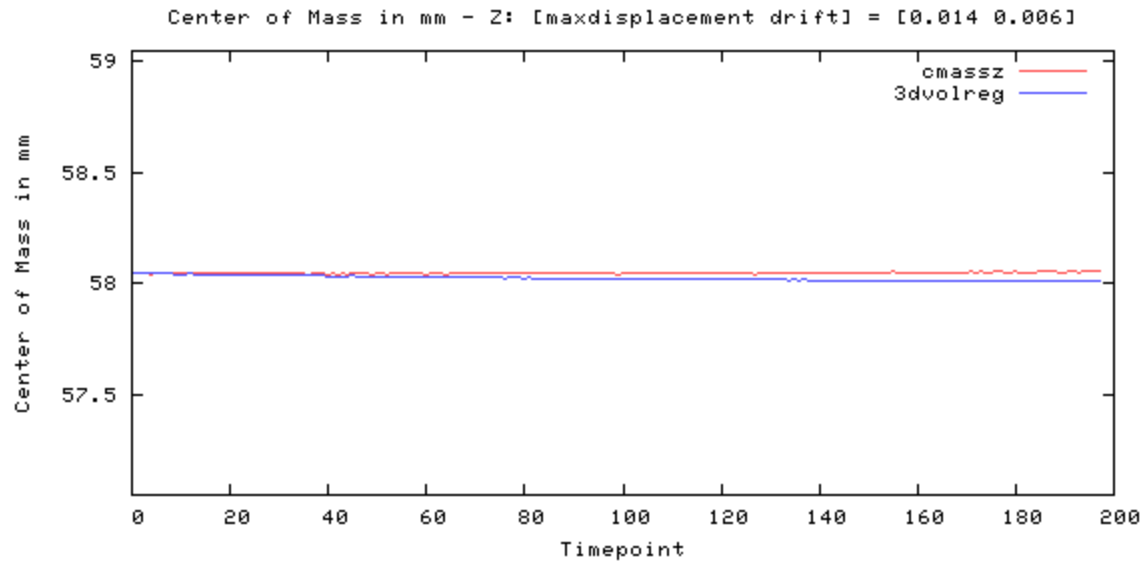


Figure 9

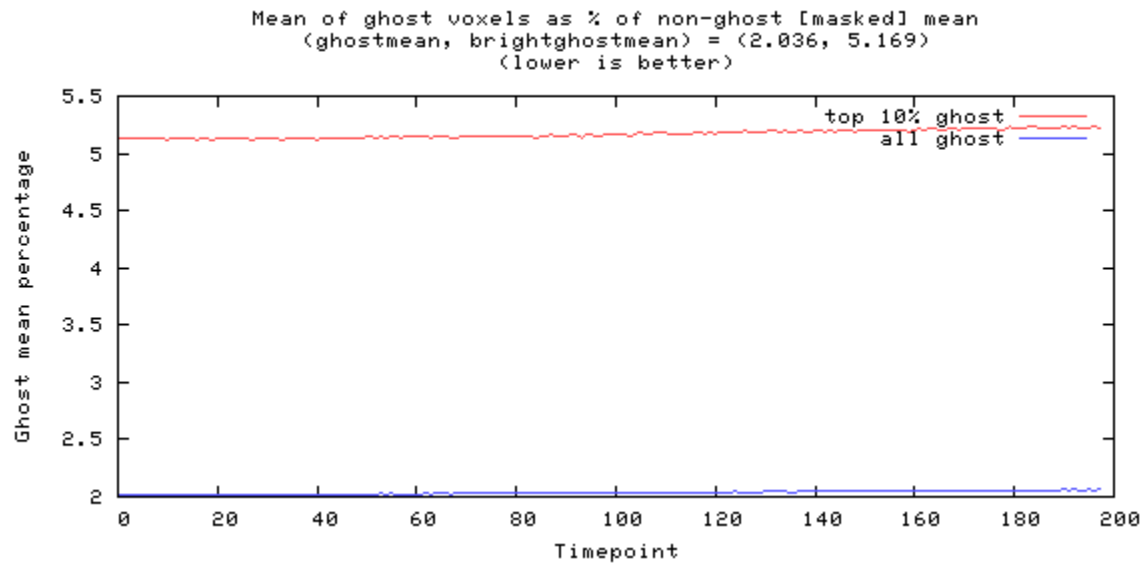


Figure 10

Odd-even difference image



image min: -228, image max: 235

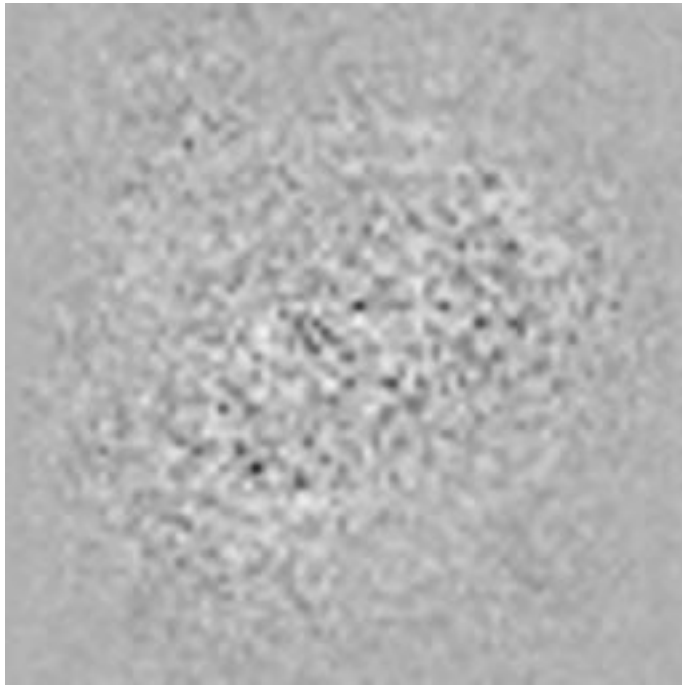


Figure 11

Mean image



image min: 0, image max: 1966.64

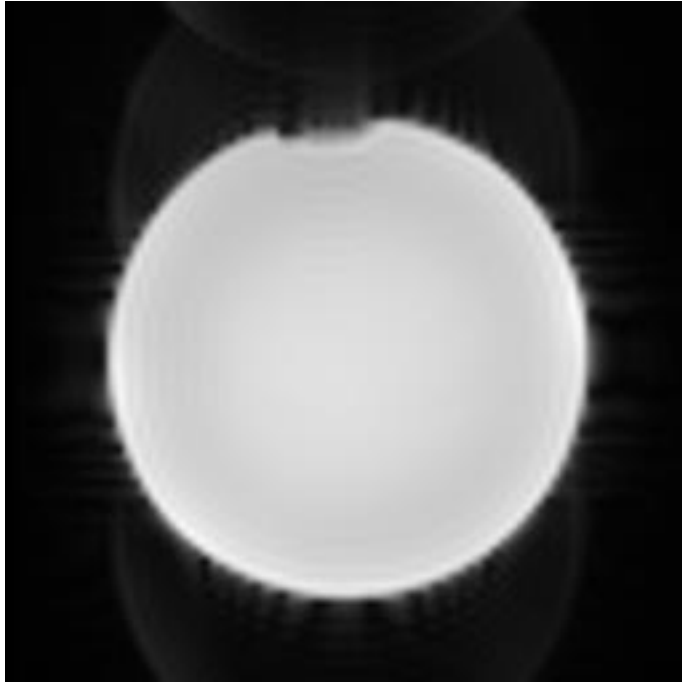


Figure 12

Standard Deviation image



image min: 0, image max: 6.4941

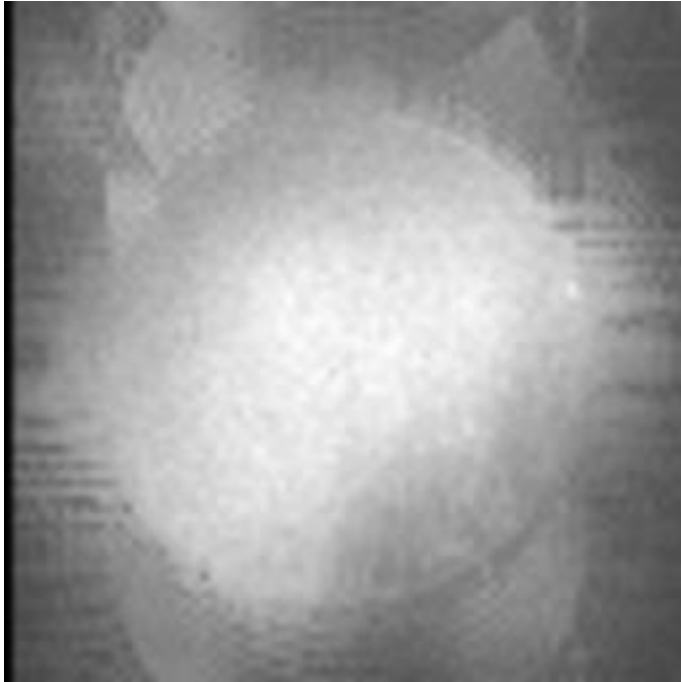


Figure 13

SFNR image



image min: 0, image max: 967.261

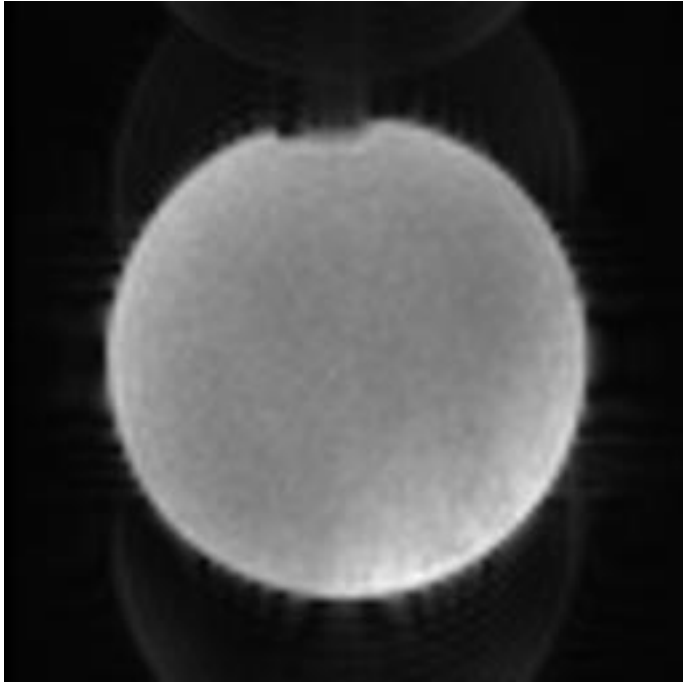


Figure 14

Acquisition parameters

| | |
|------------------------|---|
| dimensions | 80x80x30x200 |
| spacing | 3mmx3mmx3.99mmx2000ms |
| gap | 0mmx0mmx0.49mmx0ms |
| scanner | AWP66112 |
| psdname | %SiemensSeq%\ep2d_bold |
| examnumber | 2 |
| studyid | qa |
| seriesnumber | 5 |
| runnumber | 1 |
| scanningsequence | EP |
| sequencevariant | SK |
| magneticfield | 3 |
| description | func-bold_task-rest_acq-p2 |
| scandate | 2021-02-15 |
| scantime | 09:44:53 |
| 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 | 123.252325 |
| imagednucleus | 1H |
| spacingbetweenslices | 3.9900000613053 |
| numphaseencodingsteps | 79 |
| echotrainlength | 39 |
| percentsampling | 100 |
| percentphasefieldofview | 100 |
| scannerserialnumber | 66112 |
| softwareversions | syngo MR E11 |
| inplaneencodingdirection | COL |
| variableflipangleflag | N |
| sar | 0.05566532698696 |
| 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