

# Phantom QA Results: 32 CH

**Date:10/17/2016**

**Dartmouth Brain Imaging Center (DBIC)**

| Measurement                               | Value | Comments  |
|---|-------|---|
| Signal-to-Noise Ratio (SNR)               | 242.8 |   |
| Signal-to-Fluctuation-Noise ratio (SFNR)  | 241.9 |   |
| Radius of Decorrelation (RDC) (fig 3)     | 8.5   |   |
| Drift (fig 1)                             | 0.63  |   |
| Percent Fluctuation (fig 1)               | 0.04  |   |
| Fourier analysis of the residuals (fig 2) | <2    |   |
| Ghost Mean Percentage (fig 10)            | 1.95% | Better than the recommended level (3% < ) in ref 2: |

Table 1: Key measurements

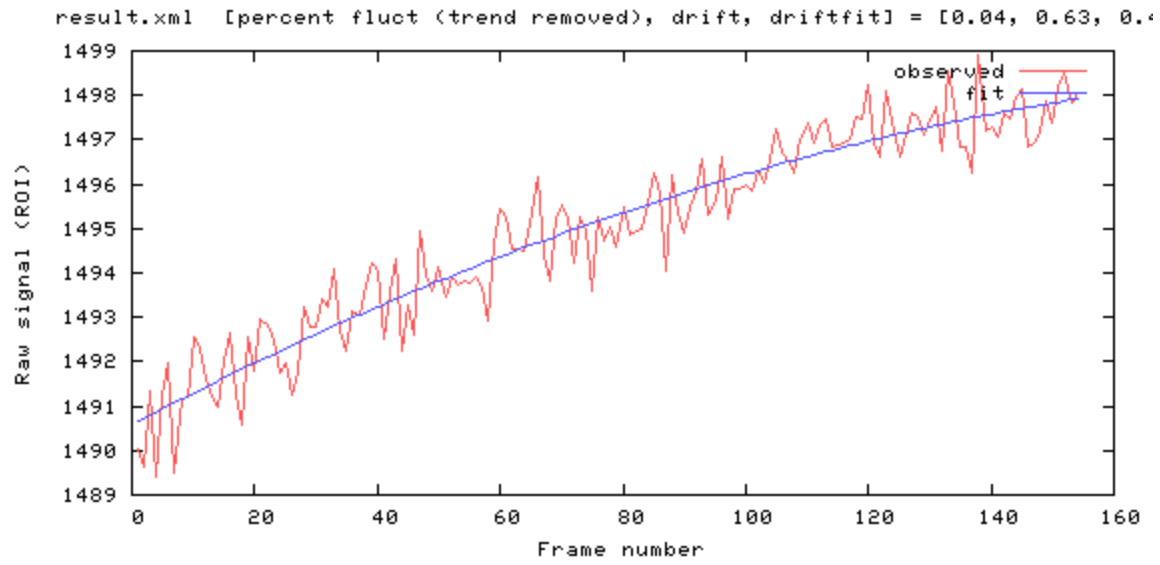


Figure 1

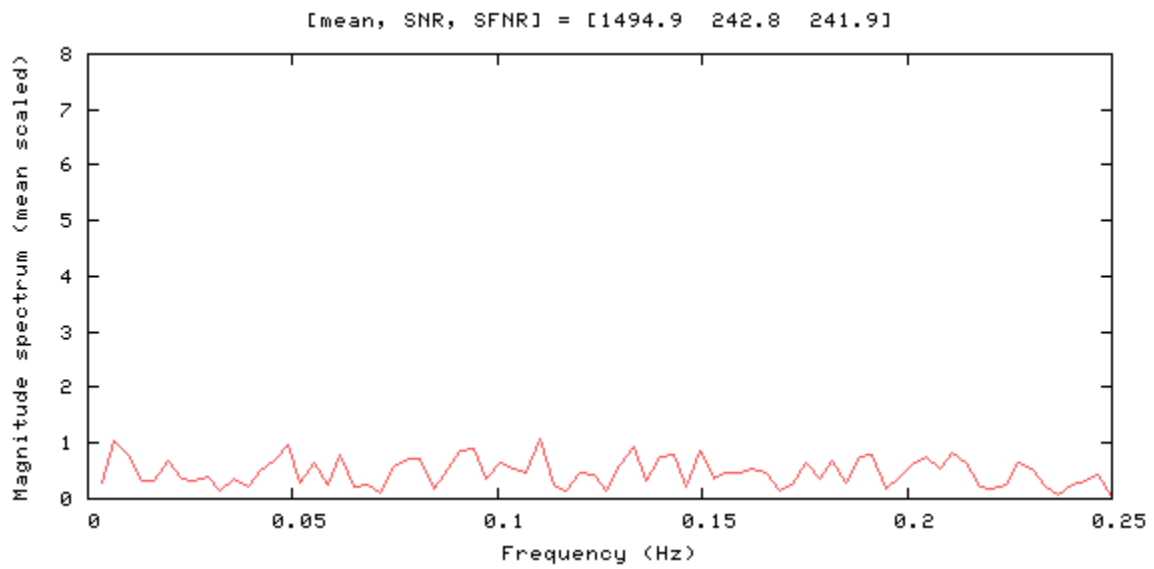


Figure 2

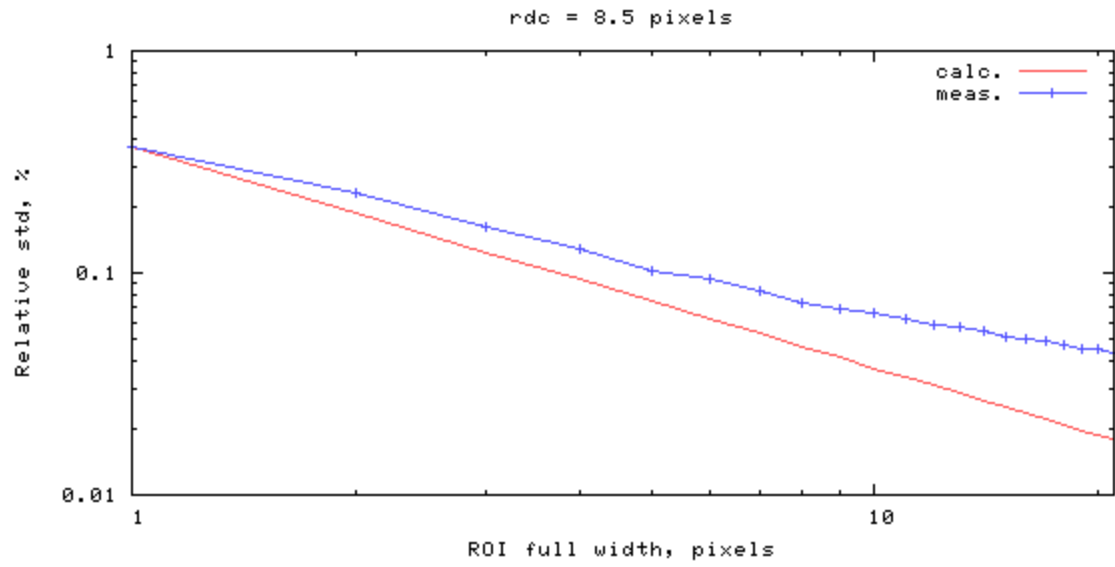


Figure 3

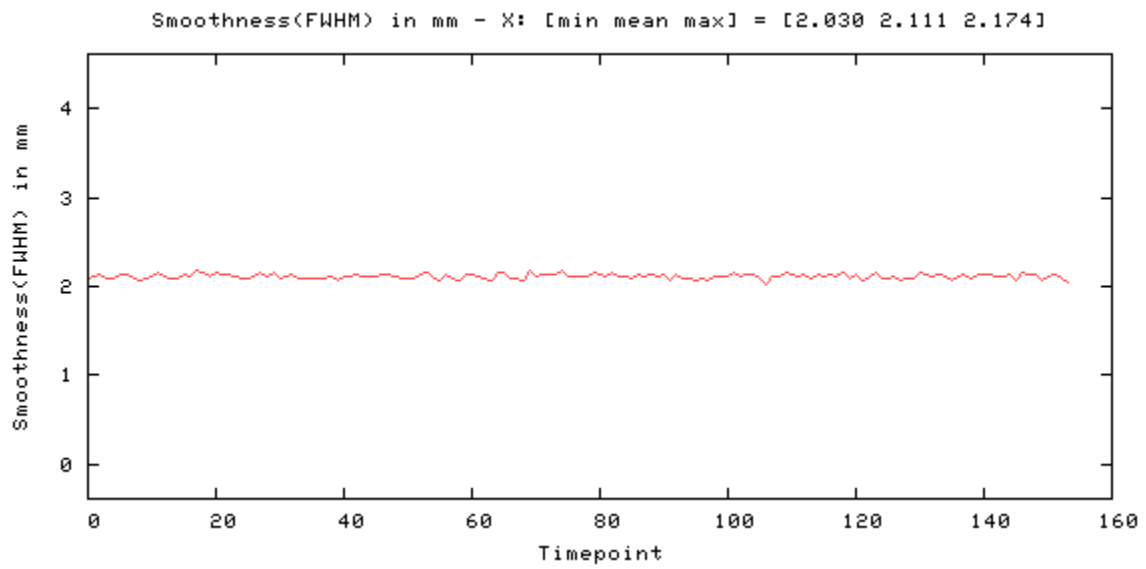


Figure 4

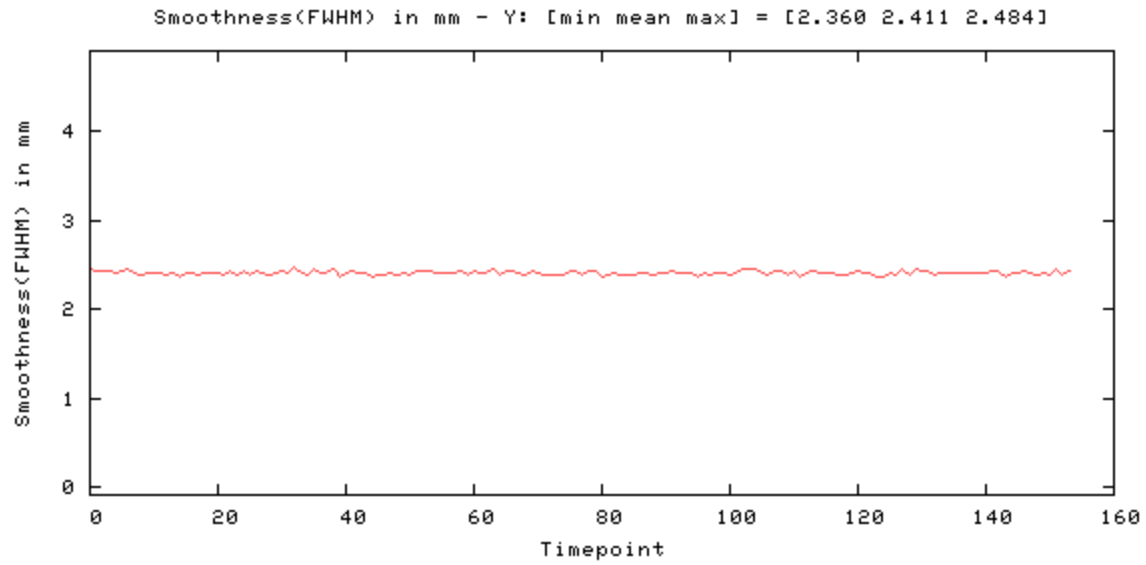


Figure 5

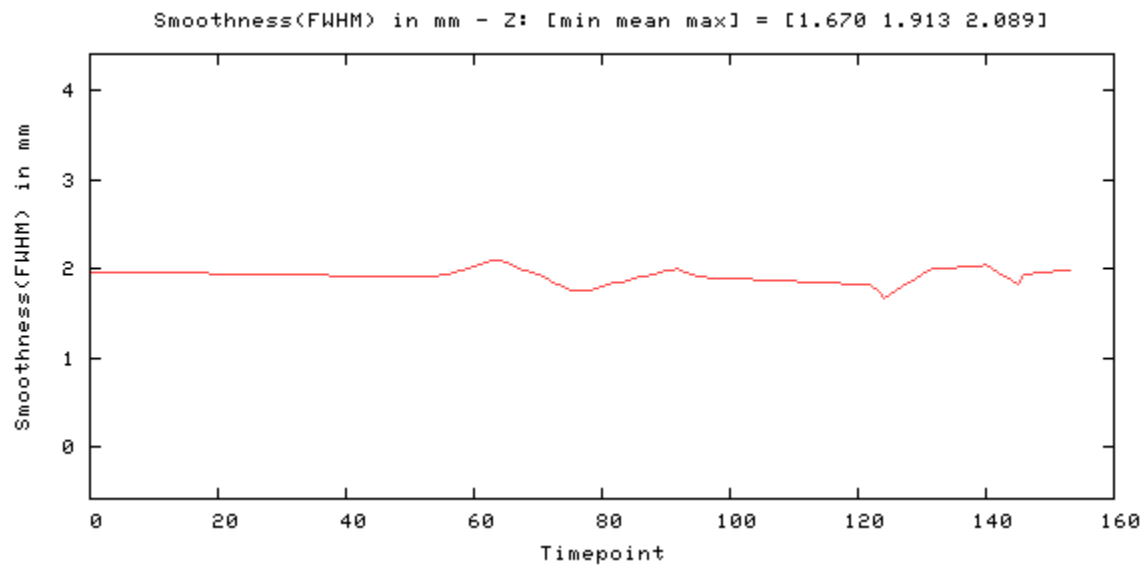


Figure 6

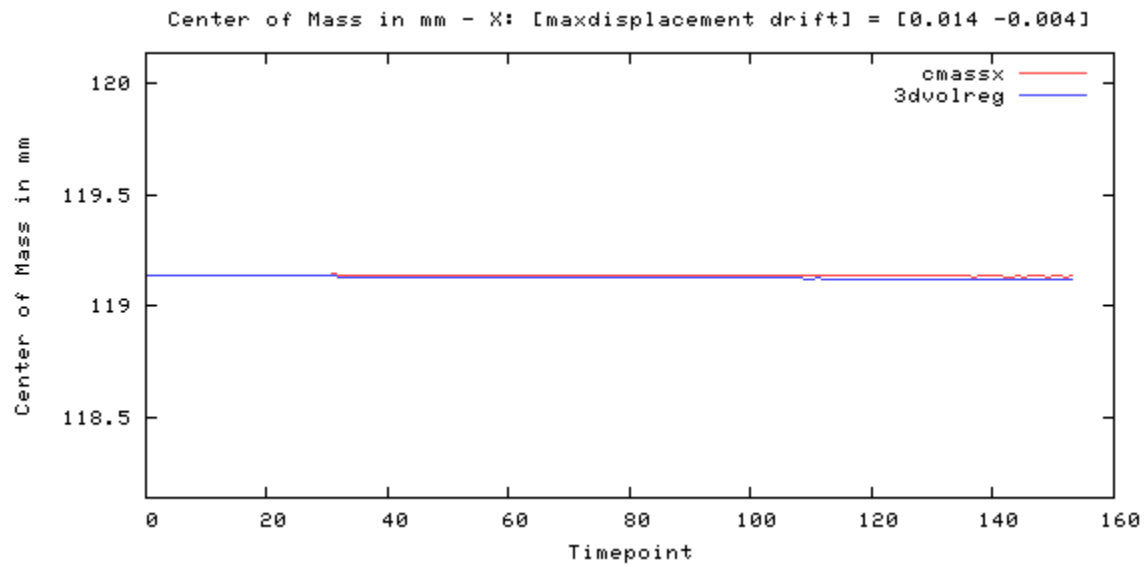


Figure 7

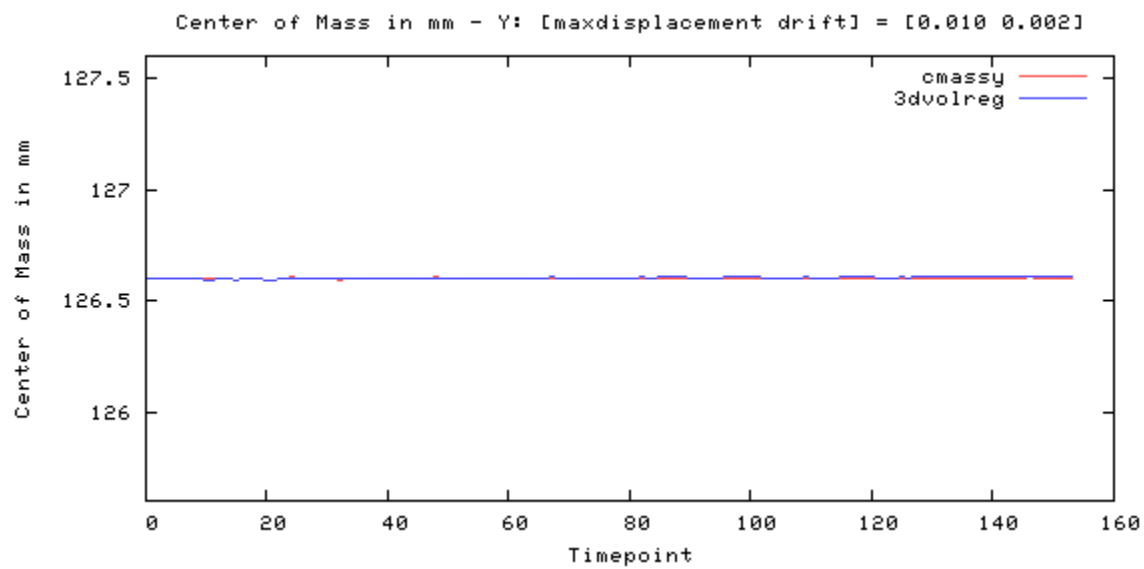


Figure 8

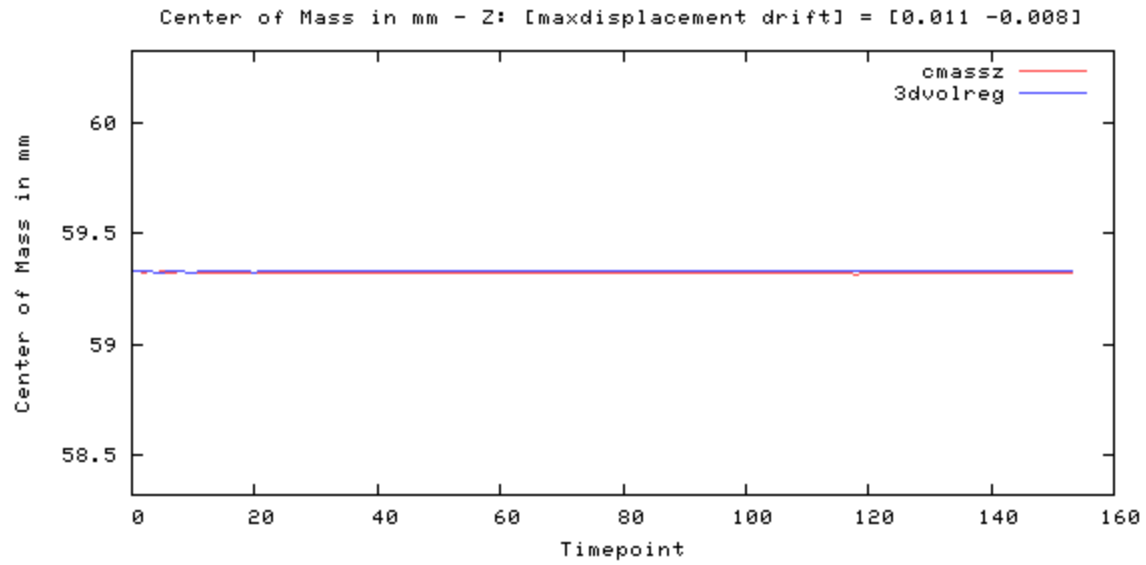


Figure 9

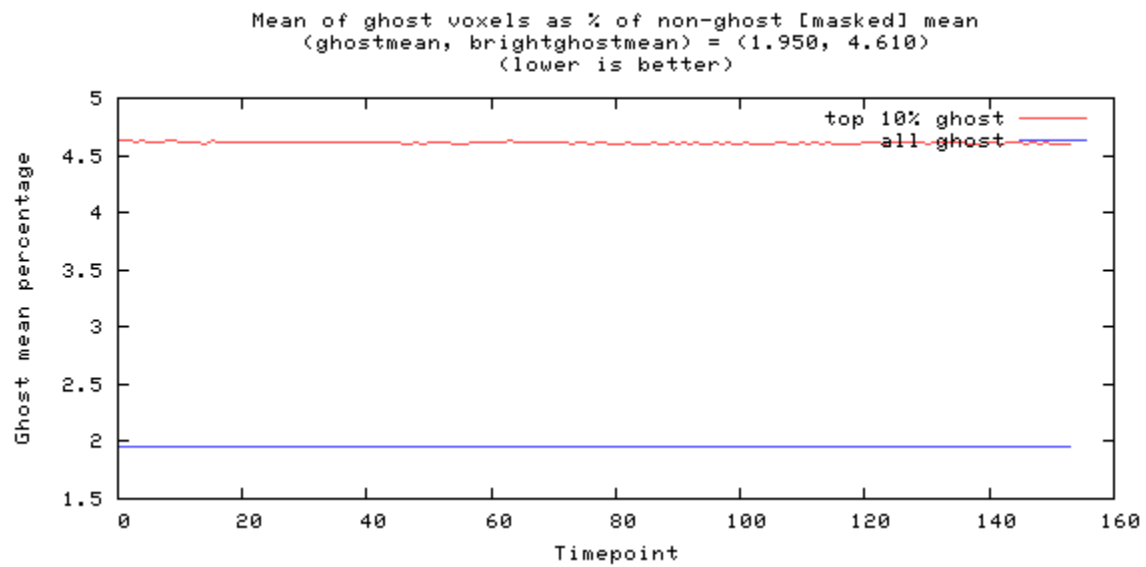


Figure 10

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## Odd-even difference image



image min: -296, image max: 293

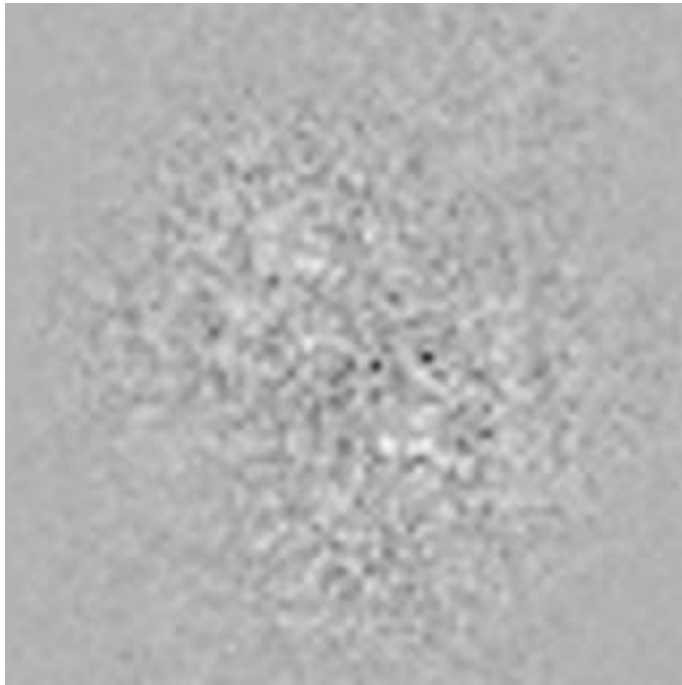


Figure 11

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## Mean image



image min: 0, image max: 2048.92

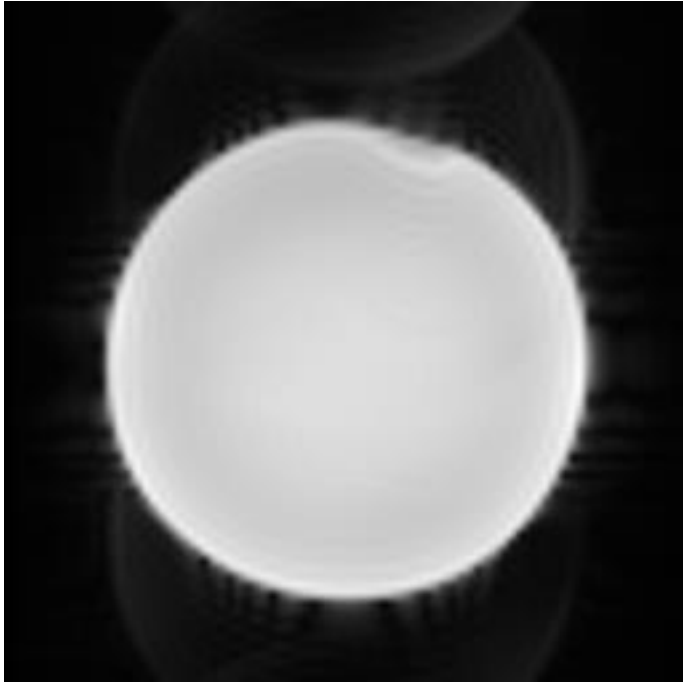


Figure 12



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## Standard Deviation image



image min: 0, image max: 8.56171

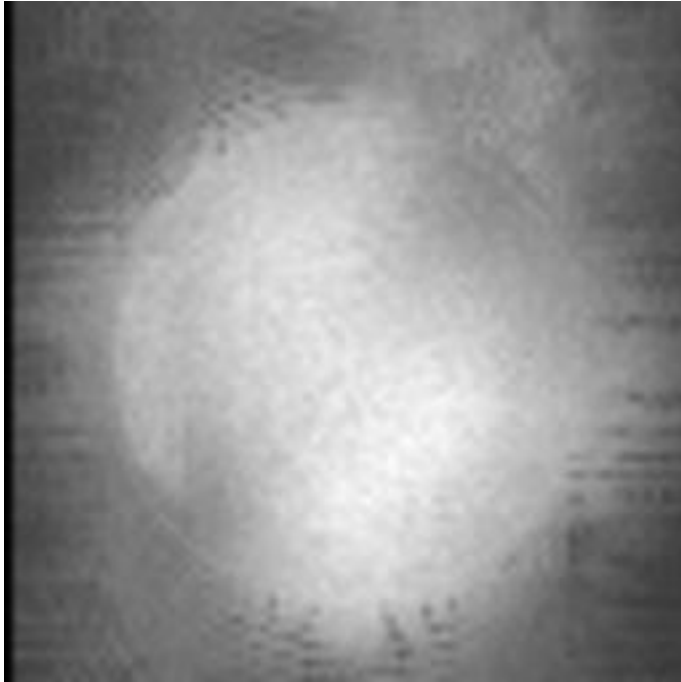


Figure 13

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## SFNR image



image min: 0, image max: 908.811

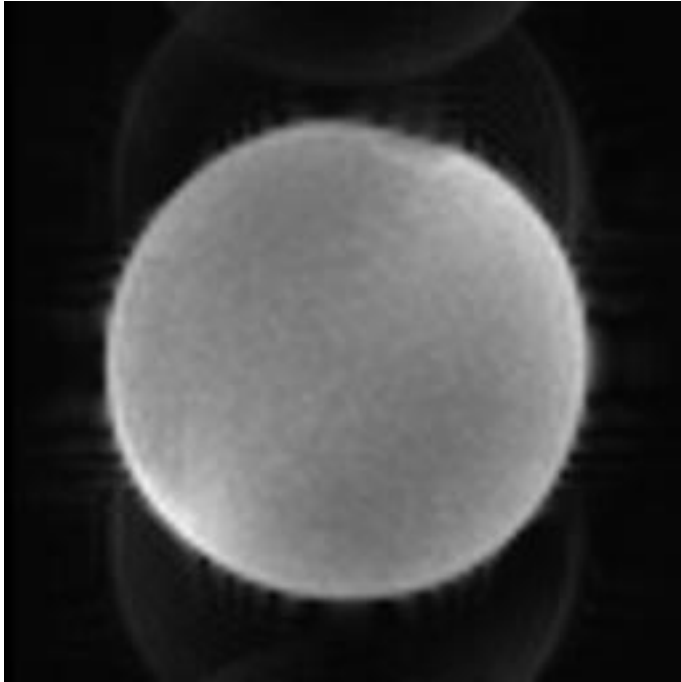


Figure 14

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## Acquisition parameters

|                        |                         |
|------------------------|-------------------------|
| dimensions             | 80x80x30x157            |
| spacing                | 3mmx3mmx3.99mmx2000ms   |
| gap                    | 0mmx0mmx0.49mmx0ms      |
| scanner                | AWP66112                |
| psdname                | %SiemensSeq%\ep2d_bold  |
| examnumber             | 2                       |
| studyid                | QA                      |
| seriesnumber           | 21                      |
| runnumber              | 1                       |
| scanningsequence       | EP                      |
| sequencevariant        | SK                      |
| magneticfield          | 3                       |
| description            | BOLD_p2                 |
| scandate               | 2016-10-17              |
| scantime               | 10:44:10                |
| 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^QA              |
| scanner                | AWP66112                |
| scannermanufacturer    | SIEMENS                 |
| scannermodelname       | Prisma                  |
| fieldofview            | 240 240                 |
| psdname                | %SiemensSeq%\ep2d_bold  |
| protocolname           | BOLD_p2 (BOLD_p2)       |

|                                |                               |
|--------------------------------|-------------------------------|
| institutionaddress             | Maynard 3,Hanover,NH,US,03755 |
| institutionaldepartment name   | Department                    |
| scanoptions                    | FS                            |
| mracquistiontype               | 2D                            |
| sequencename                   | *epfid2d1_80                  |
| angioflag                      | N                             |
| numaverages                    | 1                             |
| imagingfrequency               | 123.252607                    |
| imagednucleus                  | 1H                            |
| spacingbetweenslices           | 3.9900000445417               |
| numphaseencodingsteps          | 79                            |
| echotrainlength                | 39                            |
| percentsampling                | 100                           |
| percentphasefieldofview        | 100                           |
| scannerserialnumber            | 66112                         |
| softwareversions               | syngo MR E11                  |
| inplanephaseencoding direction | COL                           |
| variableflipangleflag          | N                             |
| sar                            | 0.04768427714843              |
| 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](https://www.nitrc.org/projects/bxh_xcede_tools)