GEHC validation dataset for BIDS`TablePosition`

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GEHC validation datasets

Two exams collected with GE phantom landmarked via laser at 794 mm (Exam1486) and 711 mm (Exam1487) while the location of phantom unchanged in world coordinates.

Note that the table landmarked at 794 mm moved further inside bore.

Each exam consists of 6 fMRI series:

Feet-first

1) Localizer
2) fMRI - the SI coverage I11.1 – S15.9
3) fMRI - the SI coverage I21.1 – S10.9
4) fMRI - the SI coverage I01.1 – S25.9

Head-first (Phantom & landmark remains unchanged)

5) Localizer
6) fMRI - the SI coverage I11.1 – S15.9
7) fMRI - the SI coverage I21.1 – S10.9
8) fMRI - the SI coverage I01.1 – S25.9

Courtesy of Emory SPARC

EMORY HEALTHCARE
SPORTS PERFORMANCE AND RESEARCH CENTER

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GEHC DICOM private tags

BIDS `TablePosition` [mm]
= the 3rd value of (0043,10b2) – the value of (0019,107f)

(0043,10b2) MR Table Position Information:

Ex) (0043,10b2) LO [950\1257.1\-30.4999\0\-9999\-9999]

1) isoVectorZ (Distance from ISO to ALIGN)
2) Landmark (Position value relative to the table/cradle home position)
3) **tablePosition + tableDelta**
4) dzPETMR
5) topOfHead
6) distanceFromTopOfHead

(0019,107f) Table delta

Ex) (0019,107f) DS [0.000000]

tableDelta (a.k.a. Table Offset): the distance on the z-axis between the Scanner's Magnet Isocenter and the MR Scan Volume's z-axis center.

(0019,1019) **DS [-1.1]** # 4, 1 FirstScanLocation

(0019,101b) **DS [25.9]** # 4, 1 LastScanLocation

Unit-of-Measure: **mm**

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Table delta (a.k.a Table Offset)

Note from Andrew Byshenk at GEHC

The Table Offset identifies the distance on the z-axis between the Scanner's Magnet Isocenter and the MR Scan Volume's z-axis center.

For most MR Scans, the Table Offset is 0, but there are some normal situations when the Table Offset is non-0:

For MR Scans simultaneous with PET Tasks, it is necessary to perform the MR Scan at the same cradle position as its encapsulating PET Bed, and the cradle is positioned so the PET Bed Scan Volume's z-axis center is at the Scanner's Magnet Isocenter. If the Simultaneous MR Task is NOT center-linked with its encapsulating PET Bed, the cradle is likely not positioned so the MR Scan Volume's z-axis center is at the Scanner's Magnet Isocenter, and the Table Offset is set for the prescribed MR Scan Volume.

For some specialized Head Scanning, it is necessary to perform multiple MR Scans without moving the cradle, even though the multiple Scan Volumes may have different z-axis centers. The cradle is moved so the z-axis center of the first MR Scan Volume is at the Scanner's Magnet Isocenter, the multiple MR Scans are performed without moving the cradle, and the Table Offset is set for each MR Scan Volume.

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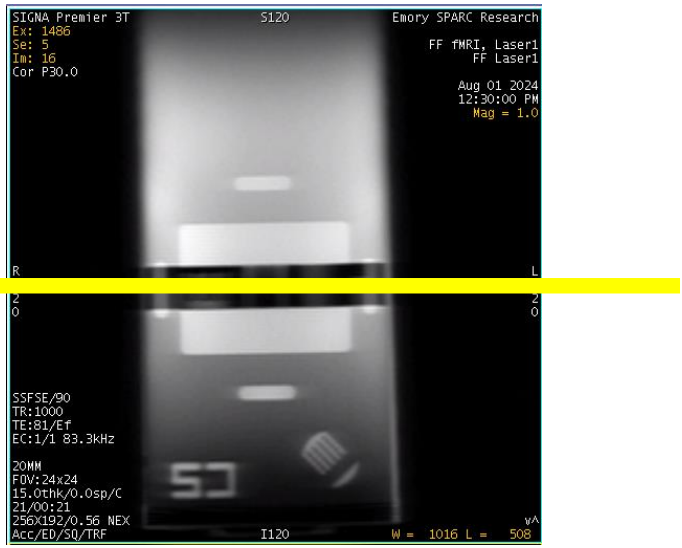
Laser landmarked at 794 mm (ex1486) and 711 mm (ex1487)

Table moved further toward bore

794mm
Ex1486



711mm
Ex1487

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Laser landmarked at 794 mm (ex1486)

Feet-first
- 01_3_Plane_Localizer_FF
- 02_Ax_fMRI_FF_I11.1_S15.9
- 03_Ax_fMRI_FF_I21.1_S05.9
- 04_Ax_fMRI_FF_I01.1_S25.9

Head-first
- 05_3_Plane_Localizer_HF
- 06_Ax_fMRI_HF_I11.1_S15.9
- 07_Ax_fMRI_HF_I21.1_S05.9
- 08_Ax_fMRI_HF_I01.1_S25.9

Phantom & landmark remained unchanged (in world coordinate)

Feet-first

Head-first

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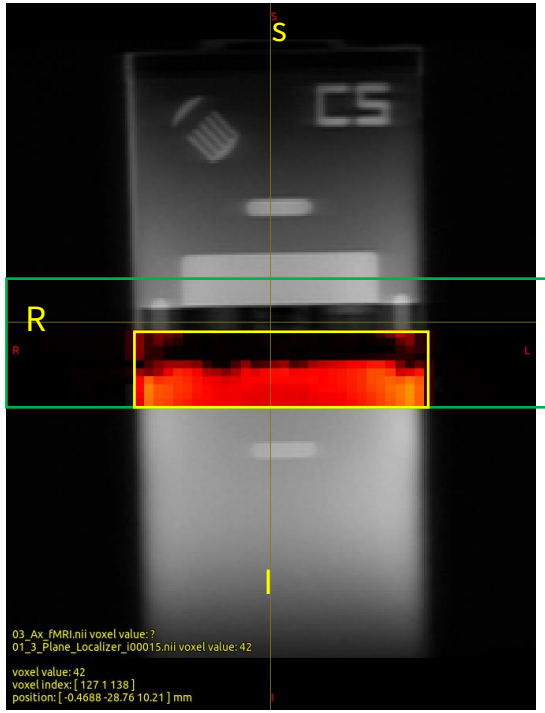
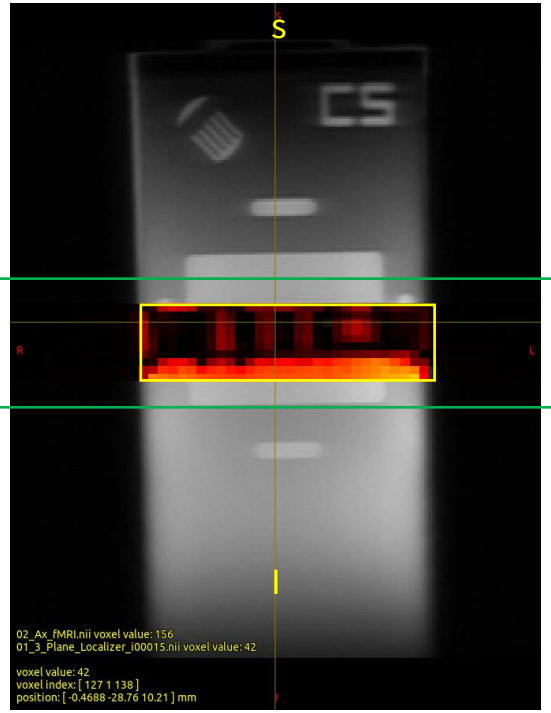
Exam1486, Laser landmarked at 794mm, Feet-first

03_Ax_fMRI_FF_I21.1_S05.9



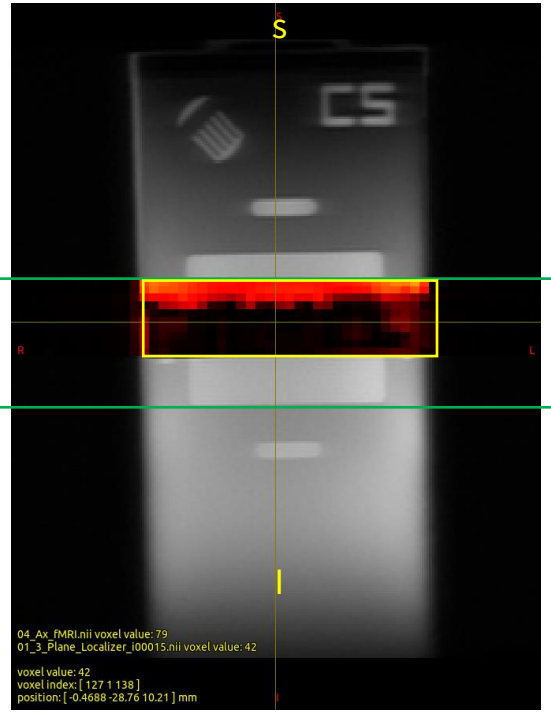
(0019,1019) DS [-21.1]
(0019,101b) DS [5.9]
(0019,107f) DS [0.000000]
(0020,1041) DS [-21.10000038]
(0043,10b2) LO [965.4\794.1\-7.59998\
0\-9999\-9999]

02_Ax_fMRI_FF_I11.1_S15.9

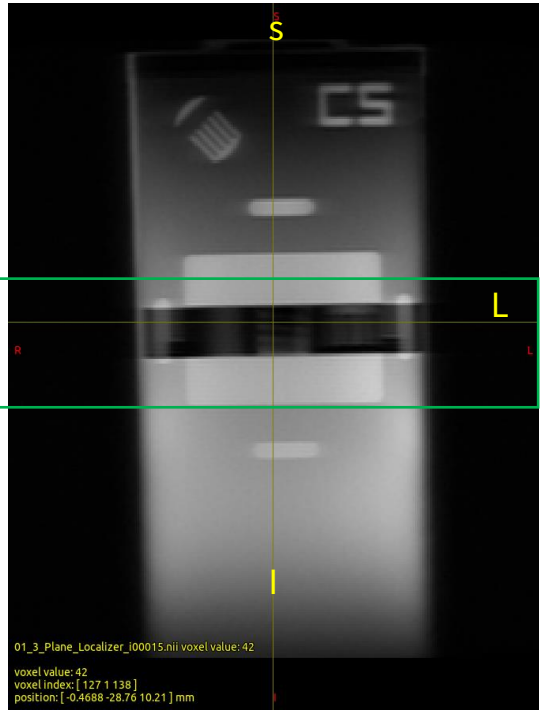


(0019,1019) DS [-11.1]
(0019,101b) DS [15.9]
(0019,107f) DS [0.000000]
(0020,1041) DS [-11.10000038]
(0043,10b2) LO [965.4\794.1\2.40002\
0\-9999\-9999]

04_Ax_fMRI_FF_I01.1_S25.9



(0019,1019) DS [-1.1]
(0019,101b) DS [25.9]
(0019,107f) DS [0.000000]
(0020,1041) DS [-1.100000381]
(0043,10b2) LO [965.4\794.1\12.4\
0\-9999\-9999]



4, 1 FirstScanLocation
4, 1 LastScanLocation
8, 1 TableDelta
12, 1 SliceLocation
32, 6 MR Table Position

dcmdump 02_*/*.MRDC.1 | egrep -a '0020,1041|0043,10b2|0019,1019|0019,101b|0019,107f' | awk -F'#' '{print $1}'

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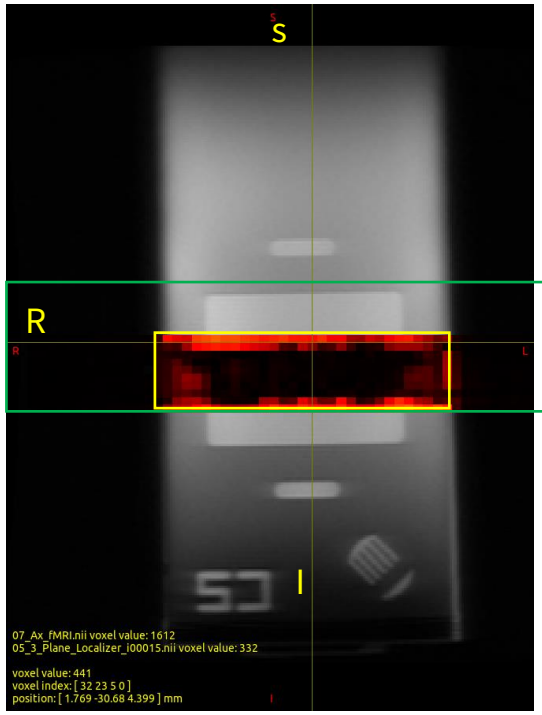
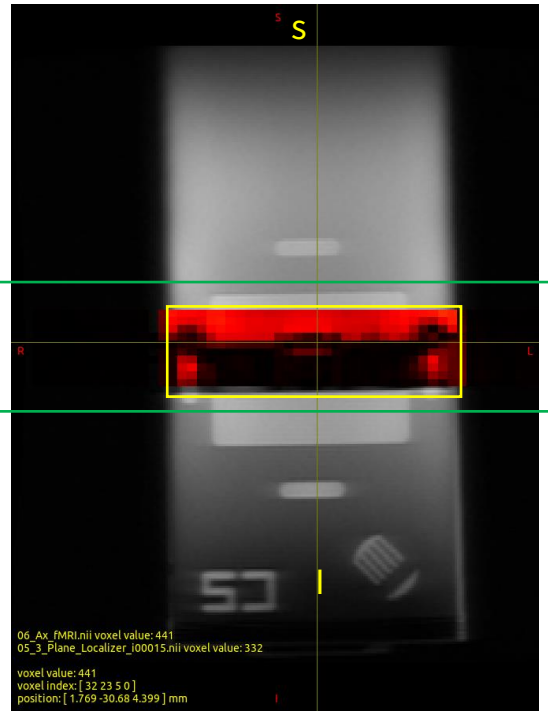
Exam1486, Laser landmarked at 794mm, Head-first

07_Ax_fMRI_HF_I21.1_S05.9



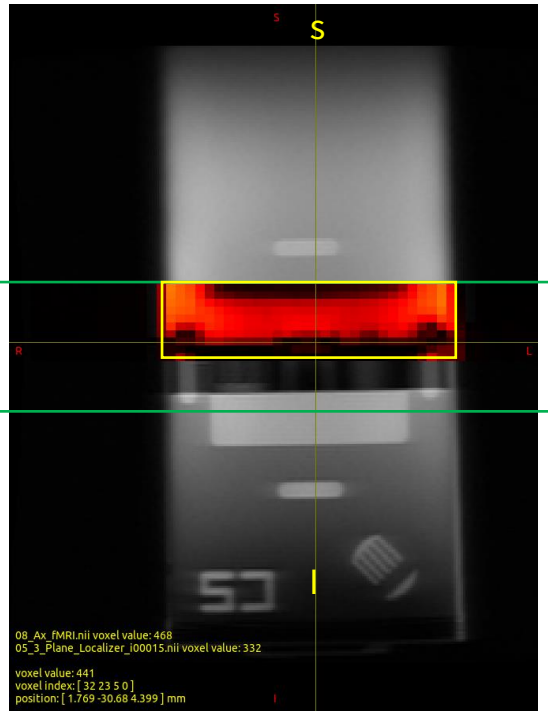
(0019,1019) DS [-21.1]
(0019,101b) DS [5.9]
(0019,107f) DS [0.000000]
(0020,1041) DS [-21.10000038]
(0043,10b2) LO [965.4\794.1\7.59998
0\-9999\-9999]

06_Ax_fMRI_HF_I11.1_S15.9



(0019,1019) DS [-11.1]
(0019,101b) DS [15.9]
(0019,107f) DS [0.000000]
(0020,1041) DS [-11.10000038]
(0043,10b2) LO [965.4\794.1\-2.40002\
0\-9999\-9999]

08_Ax_fMRI_HF_I01.1_S25.9



(0019,1019) DS [-1.1]
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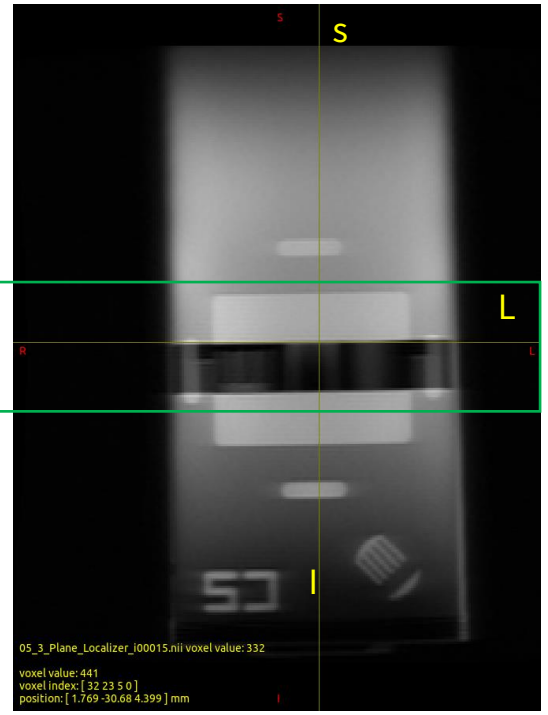
(0019,107f) DS [0.000000]
(0020,1041) DS [-1.100000381]
(0043,10b2) LO [965.4\794.1\-12.4\
0\-9999\-9999]



4, 1 FirstScanLocation
4, 1 LastScanLocation
8, 1 TableDelta
12, 1 SliceLocation
32, 6 MR Table Position

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Laser landmarked at 711 mm (ex1487)

Feet-first
- 01_3_Plane_Localizer_FF
- 02_Ax_fMRI_FF_I11.1_S15.9
- 03_Ax_fMRI_FF_I21.1_S05.9
- 04_Ax_fMRI_FF_I01.1_S25.9

Head-first
- 05_3_Plane_Localizer_HF
- 06_Ax_fMRI_HF_I11.1_S15.9
- 07_Ax_fMRI_HF_I21.1_S05.9
- 08_Ax_fMRI_HF_I01.1_S25.9

Phantom & landmark remained unchanged (in world coordinate)

Feet-first

Head-first

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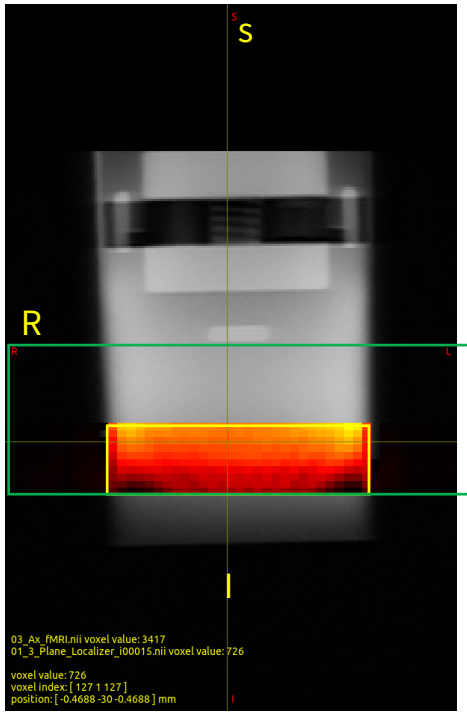
Exam1487, Laser landmarked at 711mm, Feet-first

03_Ax_fMRI_FF_I21.1_S05.9



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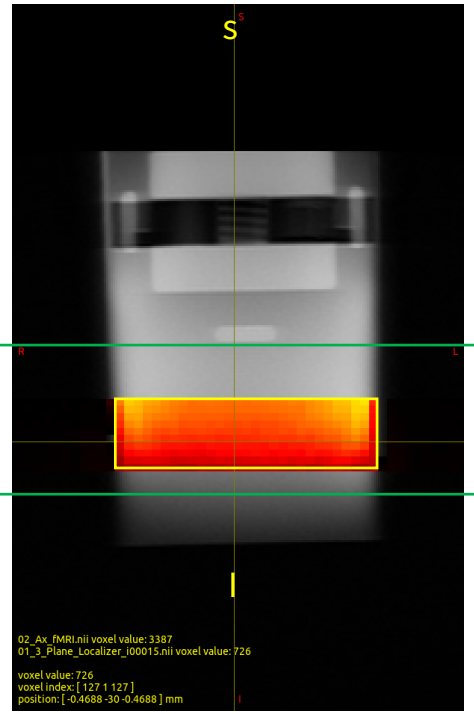
(0019,107f) DS [0.000000]
(0020,1041) DS [-21.10000038]
(0043,10b2) LO [965.4\710.9\-7.59998\
0\-9999\-9999]

02_Ax_fMRI_FF_I11.1_S15.9



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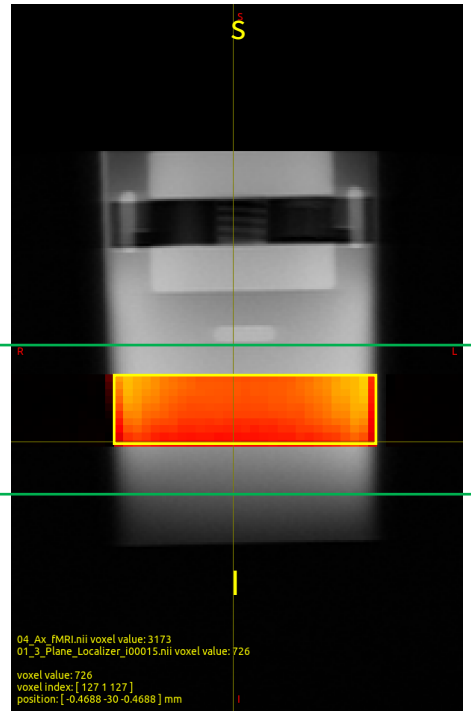
04_Ax_fMRI_FF_I01.1_S25.9



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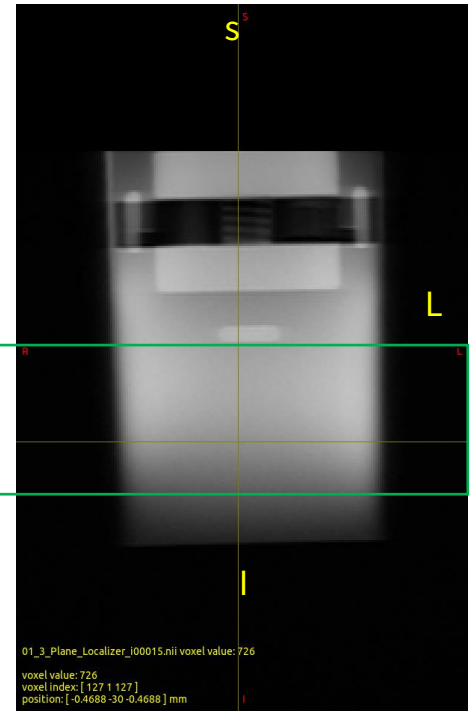

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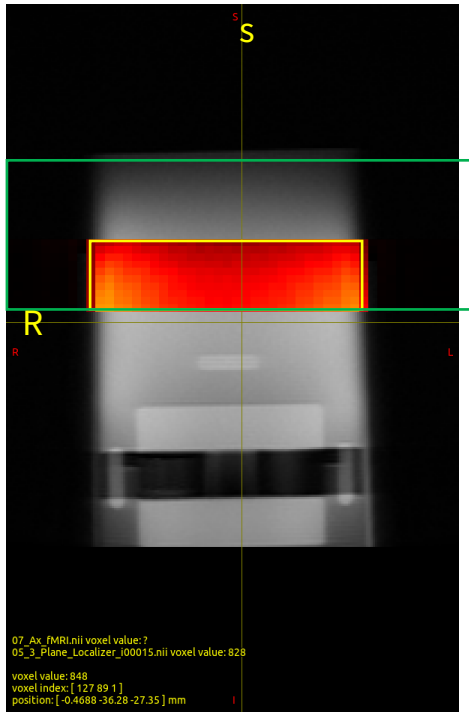
Exam1487, Laser landmarked at 711mm, Head-first

07_Ax_fMRI_HF_I21.1_S05.9



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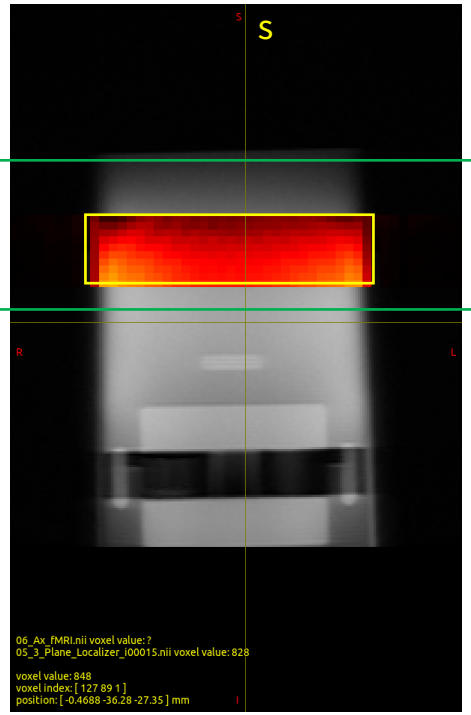

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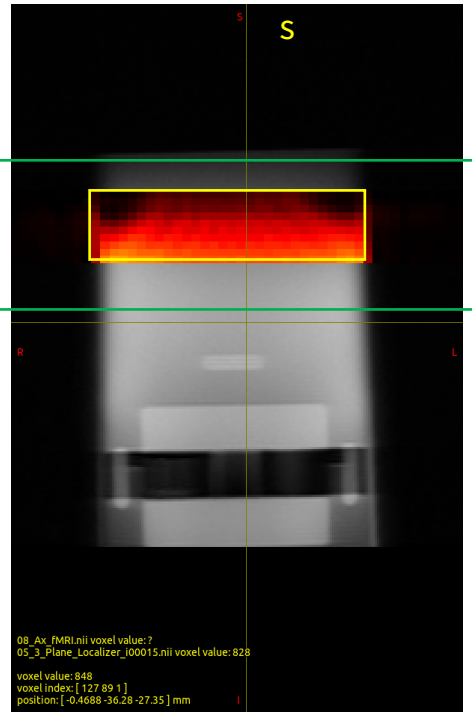
08_Ax_fMRI_HF_I01.1_S25.9



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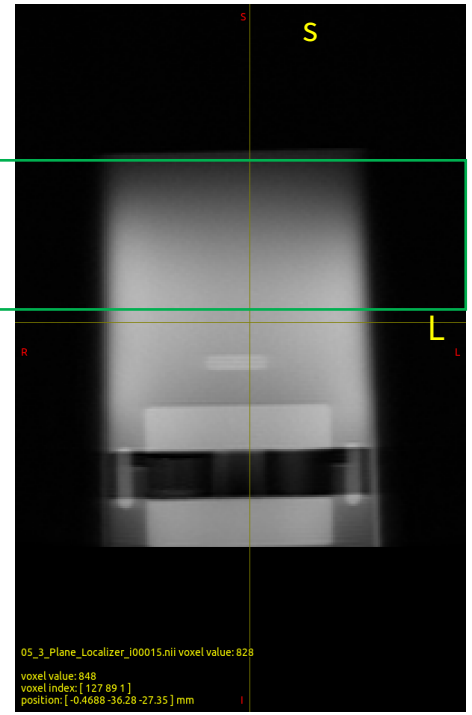

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