

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 13808 - L2 Version 1  
Chandra X-Ray Center

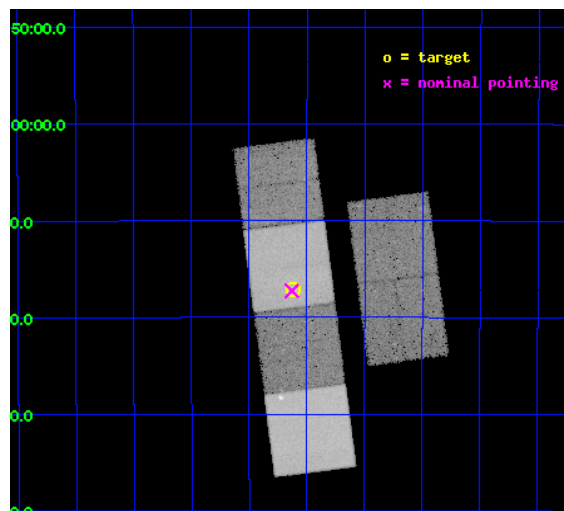
L2 Processing Date : Jul 9 2012

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# 1 Front

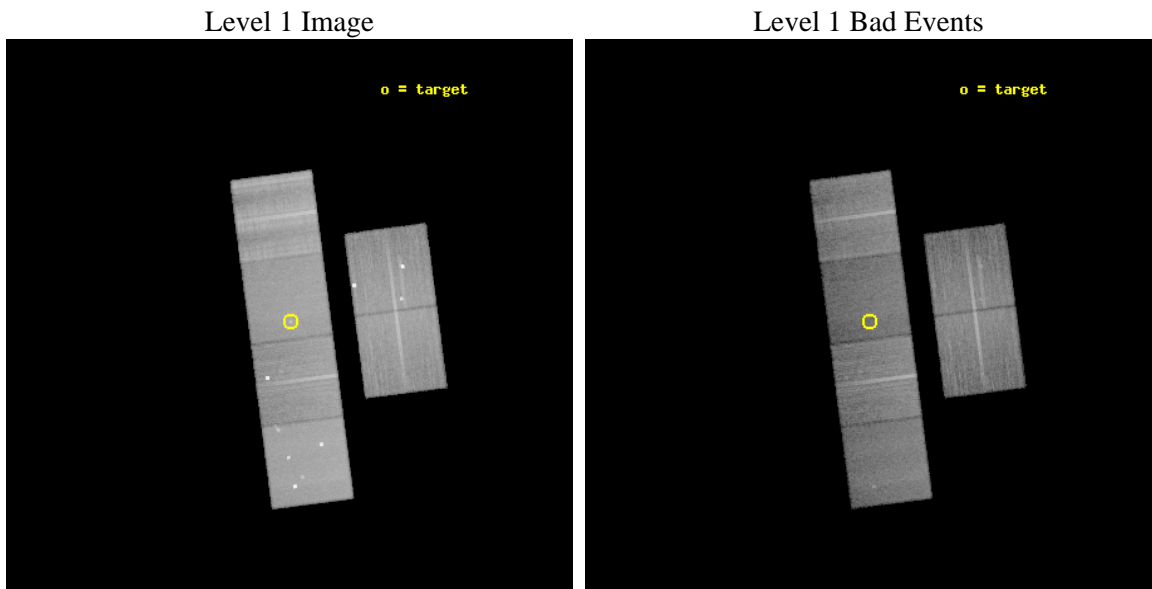
|          |   |   |
|----------|---|---|
| seq_num  | 600991  | Sequence number                             |
| obs_id   | 13808   | Observation id                              |
| title    | Baryons and Dark Matter in Isolated Elliptical Galaxies | Proposal t                                  |
| observer | Dr. DAVID BUOTE   | Principal investigator                      |
| object   | IC 4451   | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 218.654583  | Observer's specified<br>target RA [deg]     |
| dec_targ | -36.285833  | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 218.6574773624  | Nominal RA [deg]                            |
| dec_nom  | -36.287767347531  | Nominal Dec [deg]                           |
| roll_nom | 262.59449400186   | Nominal Roll [deg]                          |
| revision | 1   | Processing version of<br>data               |
| ontime   | 29964.799888432   | Sum of GTIs [s]                             |
| livetime | 29585.367549608   | Livetime [s]                                |
| ontime2  | 29964.799888432   | Sum of GTIs [s]                             |
| ontime3  | 29964.799888432   | Sum of GTIs [s]                             |
| ontime5  | 29964.799888432   | Sum of GTIs [s]                             |
| ontime6  | 29961.558848083   | Sum of GTIs [s]                             |
| ontime7  | 29964.799888432   | Sum of GTIs [s]                             |
| ontime8  | 29964.799888432   | Sum of GTIs [s]                             |
| l2events | 341261  | Number of level 2 events                    |



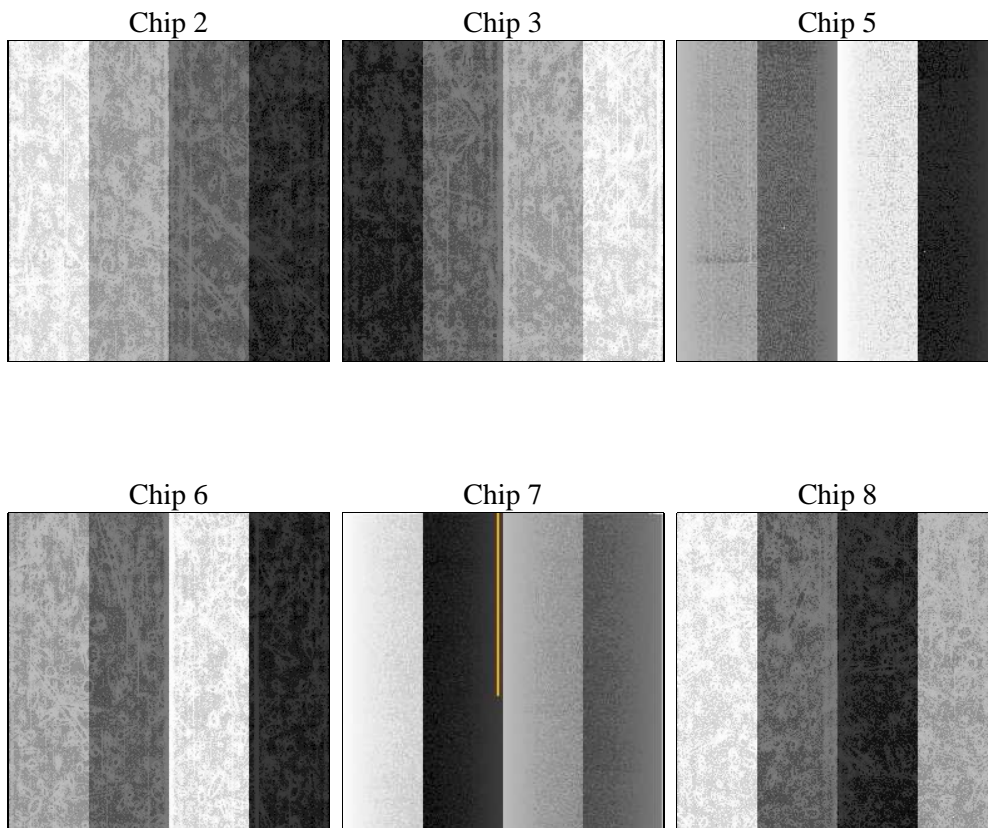
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 1                   | Obi number                     | sched_exp_time | 30000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 29964.799888432 | Sum of GTIs [s]                         |
| caldbver | 4.5.0               | &#160                          | ontime2        | 29964.799888432 | Sum of GTIs [s]                         |
| date     | 2012-07-09T18:41:01 | Date and time of file creation | ontime3        | 29964.799888432 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime5        | 29964.799888432 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 29961.558848083 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 29964.799888432 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 29964.799888432 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1511478         | Number of level 1 events                |

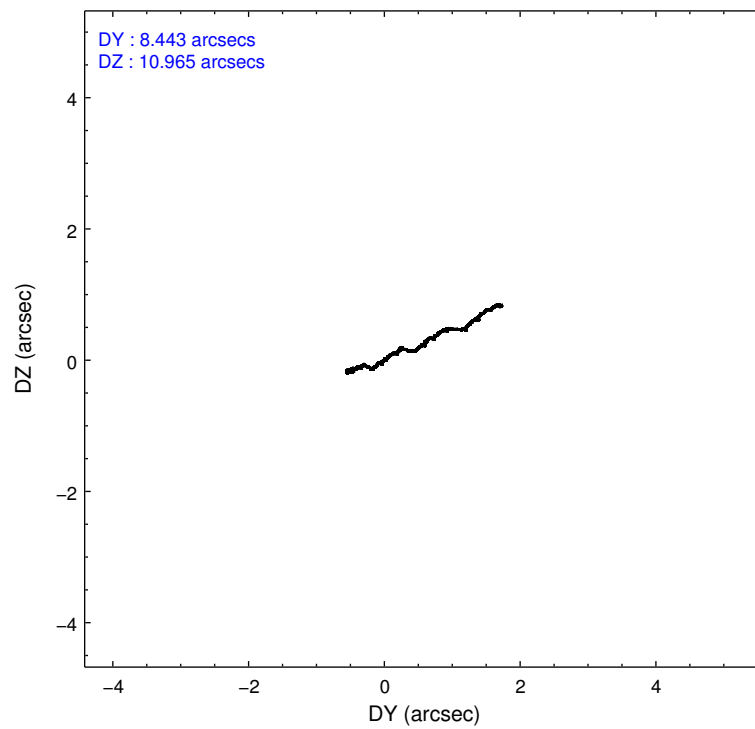
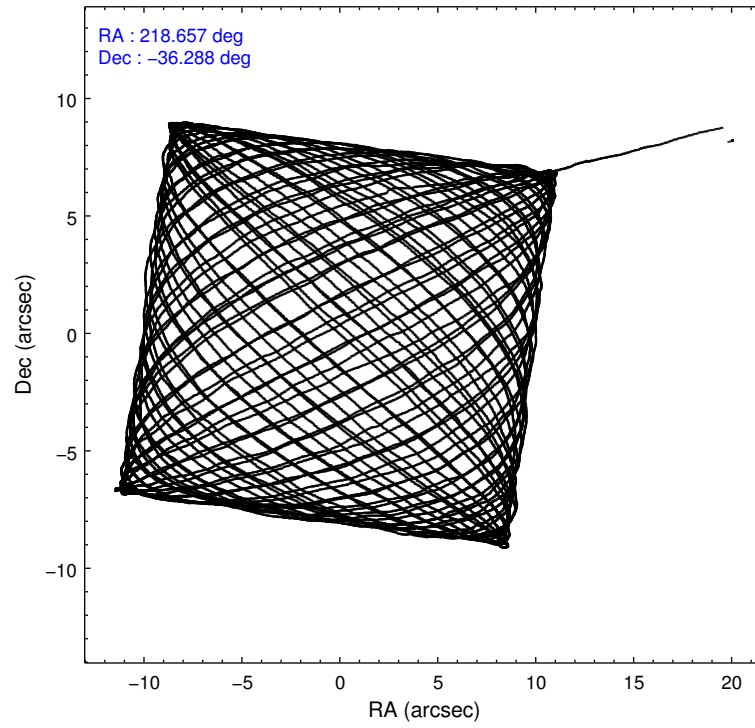
### 2.1.4 Events

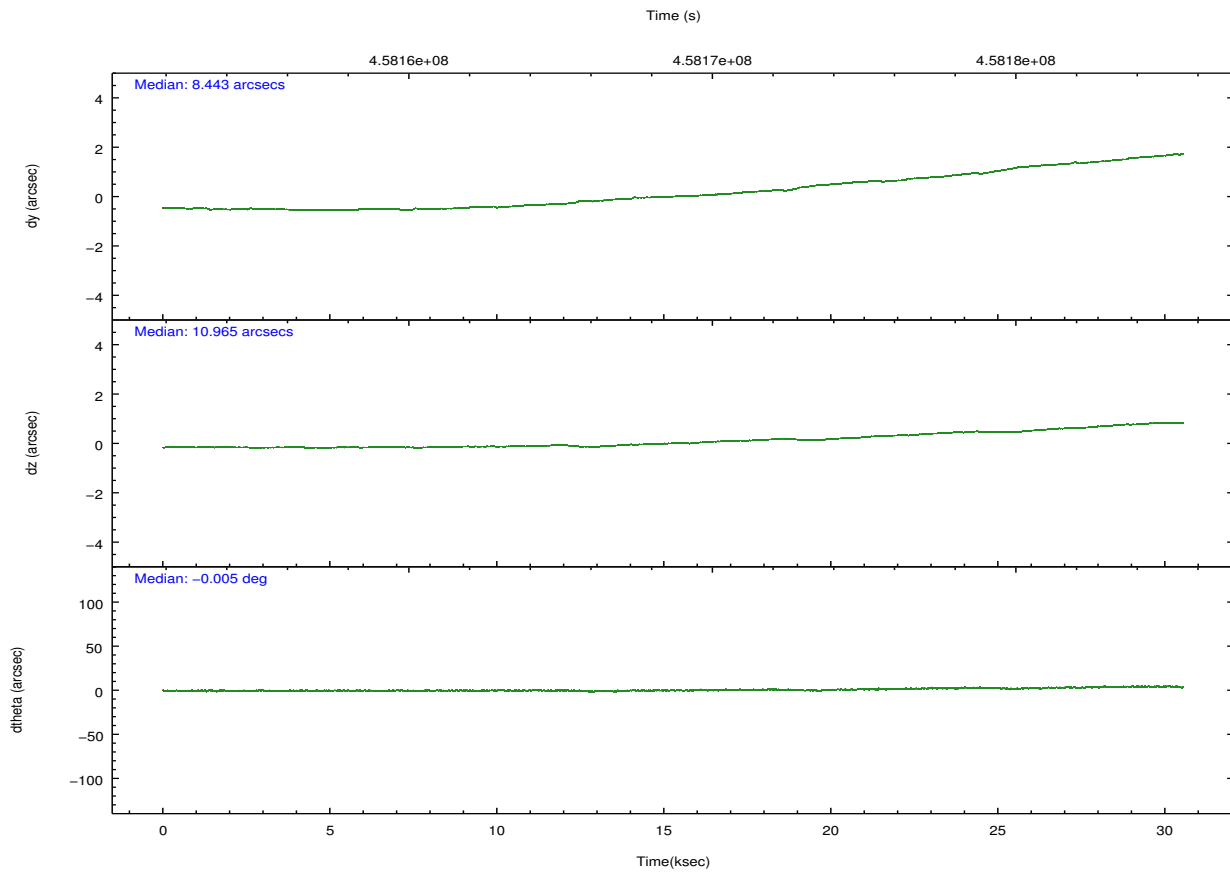
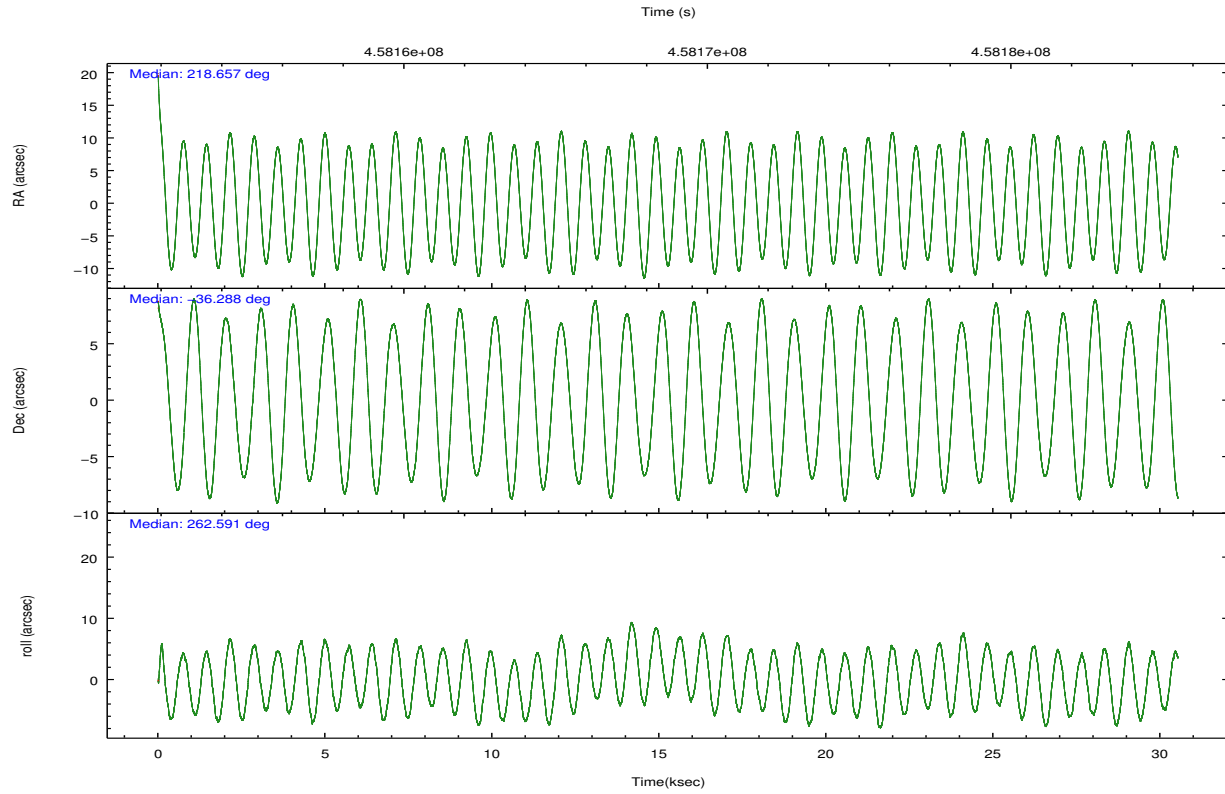
|                 | ccd 2  | ccd 3  | ccd 5  | ccd 6  | ccd 7  | ccd 8  |                | ccd 2  | ccd 3  | ccd 5  | ccd 6  | ccd 7  | ccd 8  |
|-----------------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|--------|
| level 1 events  | 213233 | 221458 | 307007 | 221683 | 240800 | 307297 | grade 0 events | 9971   | 19911  | 23310  | 19412  | 12981  | 35849  |
| rejected events | 188768 | 179115 | 143456 | 186833 | 124271 | 194882 |                | 4%     | 8%     | 7%     | 8%     | 5%     | 11%    |
| rejected %      | 88%    | 80%    | 46%    | 84%    | 51%    | 63%    | grade 1 events | 158    | 254    | 988    | 162    | 329    | 334    |
|                 |        |        |        |        |        |        |                | 0%     | 0%     | 0%     | 0%     | 0%     | 0%     |
|                 |        |        |        |        |        |        | grade 2 events | 5666   | 13498  | 52942  | 5420   | 25573  | 22472  |
|                 |        |        |        |        |        |        |                | 2%     | 6%     | 17%    | 2%     | 10%    | 7%     |
|                 |        |        |        |        |        |        | grade 3 events | 2198   | 2381   | 6119   | 2411   | 10230  | 14673  |
|                 |        |        |        |        |        |        |                | 1%     | 1%     | 1%     | 1%     | 4%     | 4%     |
|                 |        |        |        |        |        |        | grade 4 events | 2448   | 2225   | 5918   | 2382   | 10027  | 13489  |
|                 |        |        |        |        |        |        |                | 1%     | 1%     | 1%     | 1%     | 4%     | 4%     |
|                 |        |        |        |        |        |        | grade 5 events | 6851   | 8128   | 20496  | 8180   | 22923  | 12627  |
|                 |        |        |        |        |        |        |                | 3%     | 3%     | 6%     | 3%     | 9%     | 4%     |
|                 |        |        |        |        |        |        | grade 6 events | 4182   | 4332   | 75274  | 5228   | 57735  | 25935  |
|                 |        |        |        |        |        |        |                | 1%     | 1%     | 24%    | 2%     | 23%    | 8%     |
|                 |        |        |        |        |        |        | grade 7 events | 181759 | 170729 | 121960 | 178488 | 101002 | 181918 |
|                 |        |        |        |        |        |        |                | 85%    | 77%    | 39%    | 80%    | 41%    | 59%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-235678         | ACIS-235678          | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | VFAINT              | VFAINT               | CCD I0 on                             | N         | N       |
| Observation mode                  | POINTING            | POINTING             | CCD I1 on                             | N         | N       |
| [deg] Pointing RA                 | 218.644015          | 218.6574773623971    | CCD I2 on                             | O2        | Y       |
| [deg] Pointing Dec                | -36.262680          | -36.28776734753131   | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 262.429904          | 262.5944940018633    | CCD S0 on                             | N         | N       |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  | CCD S1 on                             | Y         | Y       |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 | CCD S2 on                             | Y         | Y       |
| [mm] SIM translation stage pos    | -190.132523         | -190.1400660498719   | CCD S3 on                             | Y         | Y       |
| [mm] SIM translation stage offset | 0                   | 0.00754346686406393  | CCD S4 on                             | O1        | Y       |
| [s] Observation start time (MET)  | 458153982.184000    | 458152850.19933      | CCD S5 on                             | N         | N       |
| Observation start date            | 2012-07-08T16:58:35 | 2012-07-08T16:40:50  | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 458183982.184000    | 458184513.98852      | On-chip summing requested             | N         | N       |
| Observation end date              | 2012-07-09T01:18:35 | 2012-07-09T01:28:33  | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                | Alternating exposures requested       | N         | N       |
|                                   |                     |                      | [s] Primary exposure time             | 0.000000  | 3.2     |

## 2.3 Aspect



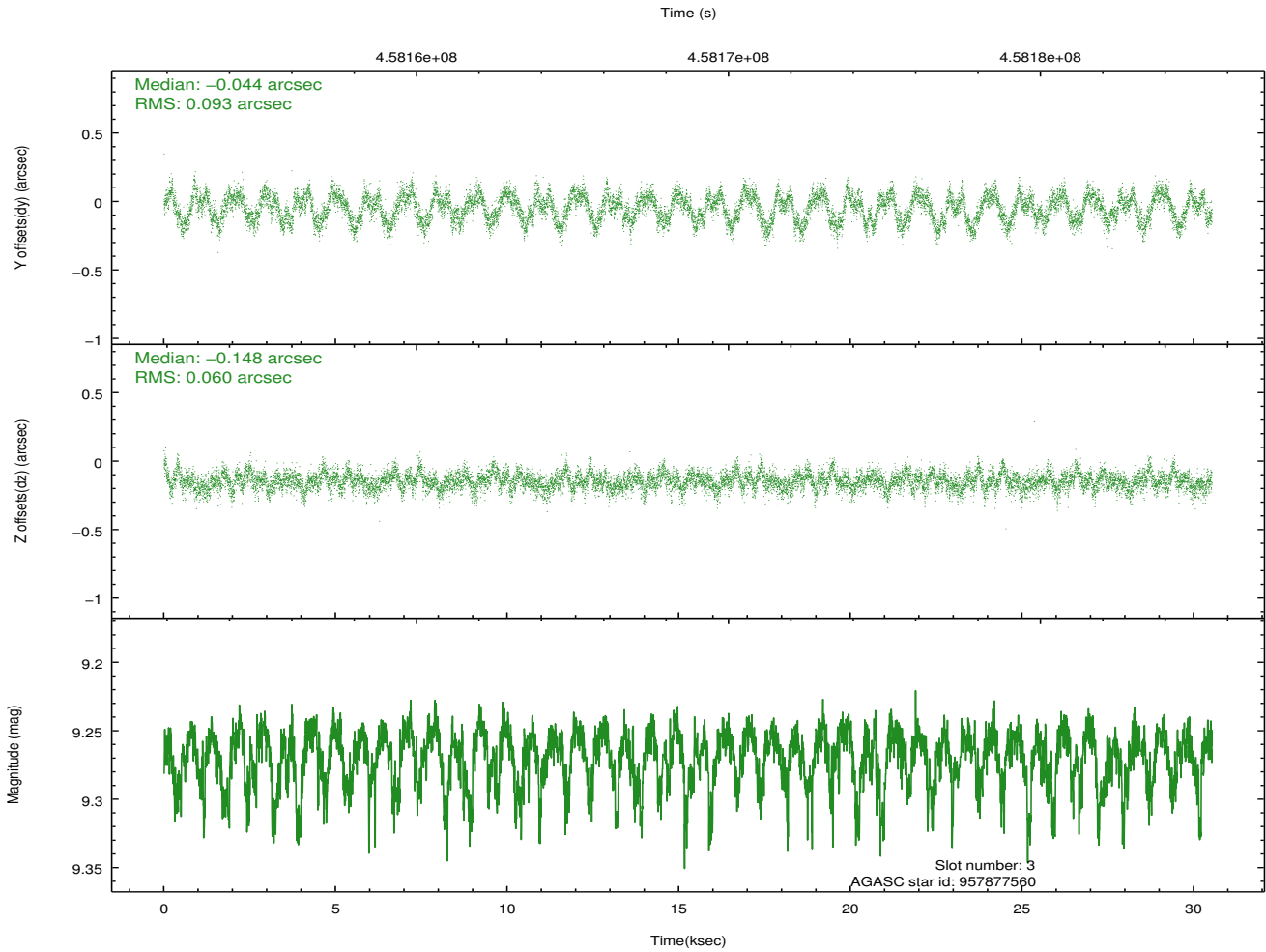
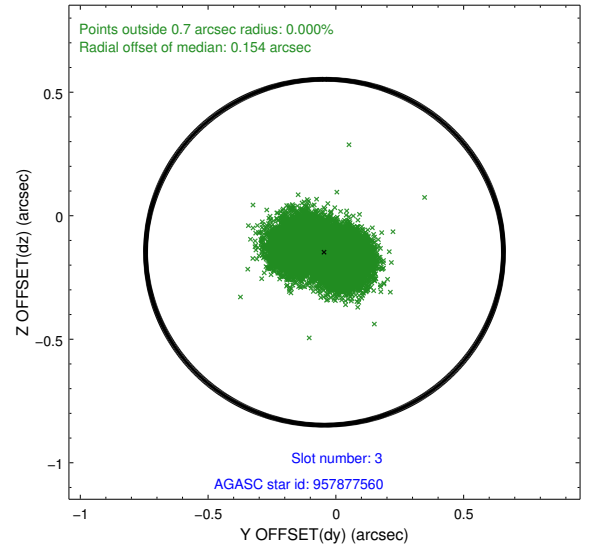
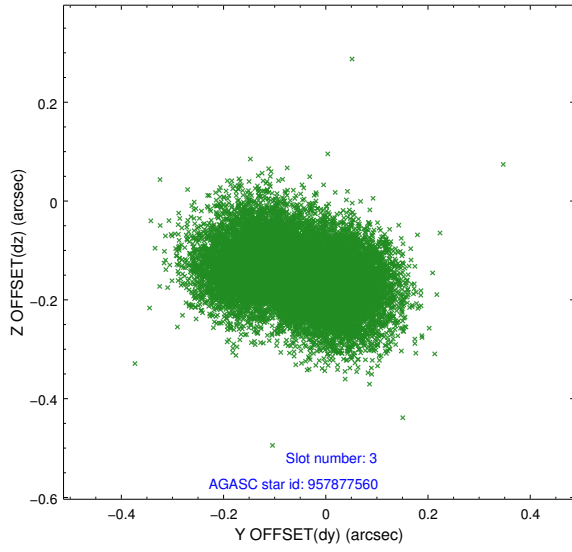


### Slot Statistics

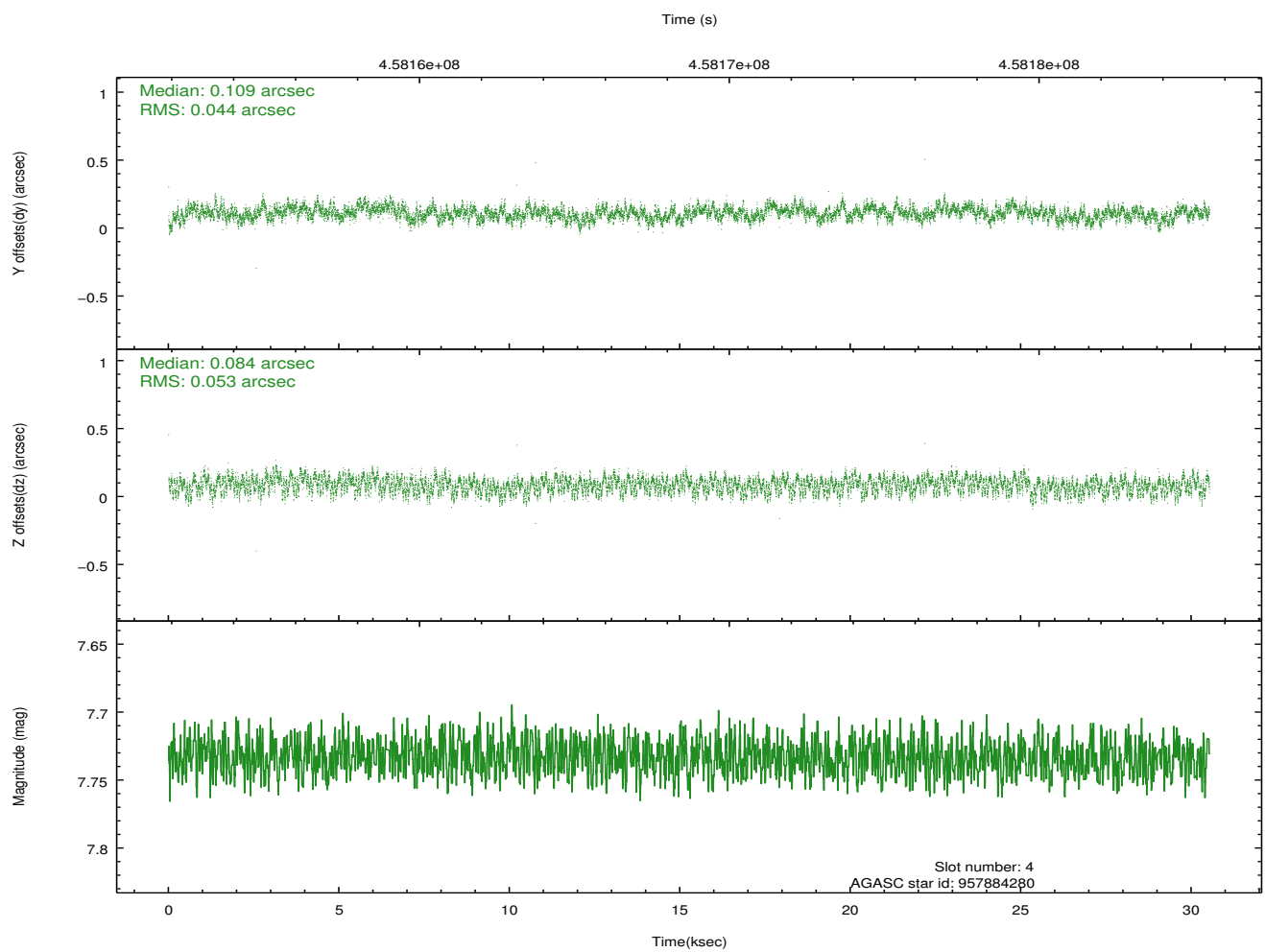
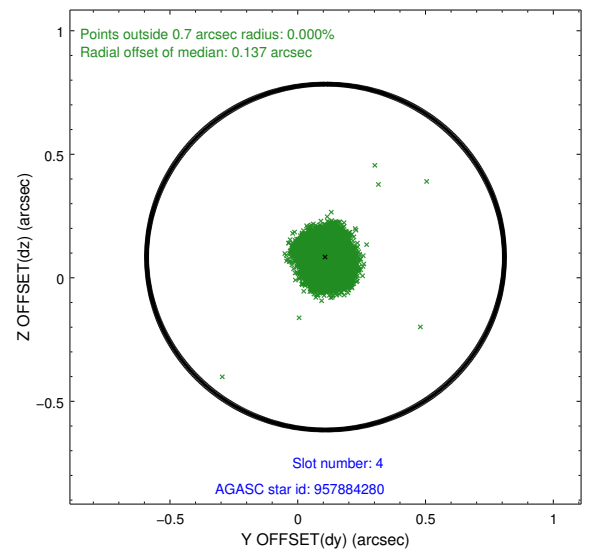
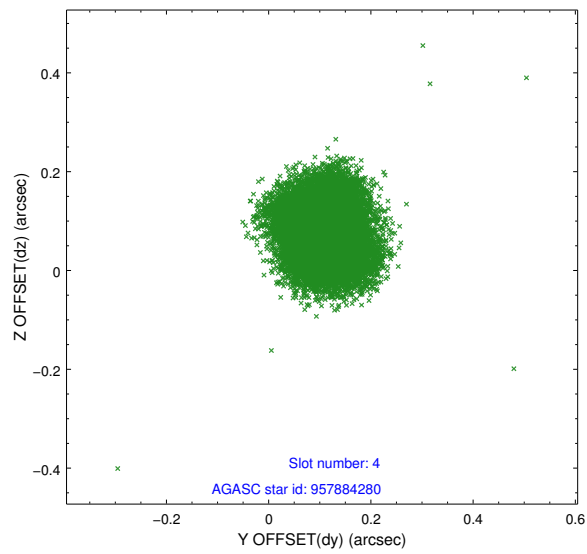
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mean_z   |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0    | FID    | ACIS-S-2  | 7.01 | 7447  | -0.058 | -0.015 | 0.009 | 0.014 | 0.000000   | 0.000000   | -761.49  | -1732.39 |
| 1    | FID    | ACIS-S-4  | 7.10 | 7447  | 0.191  | 0.032  | 0.016 | 0.026 | 0.000000   | 0.000000   | 2151.99  | 176.09   |
| 2    | FID    | ACIS-S-5  | 7.12 | 7446  | -0.165 | -0.008 | 0.015 | 0.025 | 0.000000   | 0.000000   | -1814.37 | 169.77   |
| 3    | GUIDE  | 957877560 | 9.27 | 14873 | -0.044 | -0.148 | 0.120 | 0.187 | 218.894184 | -35.837636 | -1611.64 | 523.53   |
| 4    | GUIDE  | 957884280 | 7.73 | 14890 | 0.109  | 0.084  | 0.074 | 0.116 | 219.279518 | -36.925078 | 2129.10  | 2128.45  |
| 5    | GUIDE  | 957888672 | 9.16 | 14829 | -0.055 | 0.168  | 0.115 | 0.183 | 218.598682 | -35.681080 | -2057.48 | -407.02  |
| 6    | GUIDE  | 957894032 | 9.13 | 14878 | 0.047  | -0.118 | 0.080 | 0.129 | 218.444043 | -35.874684 | -1306.93 | -762.28  |
| 7    | GUIDE  | 957894496 | 8.94 | 14853 | -0.060 | 0.017  | 0.072 | 0.117 | 218.427297 | -36.269418 | 108.10   | -620.41  |

## 2.4 Star Slots

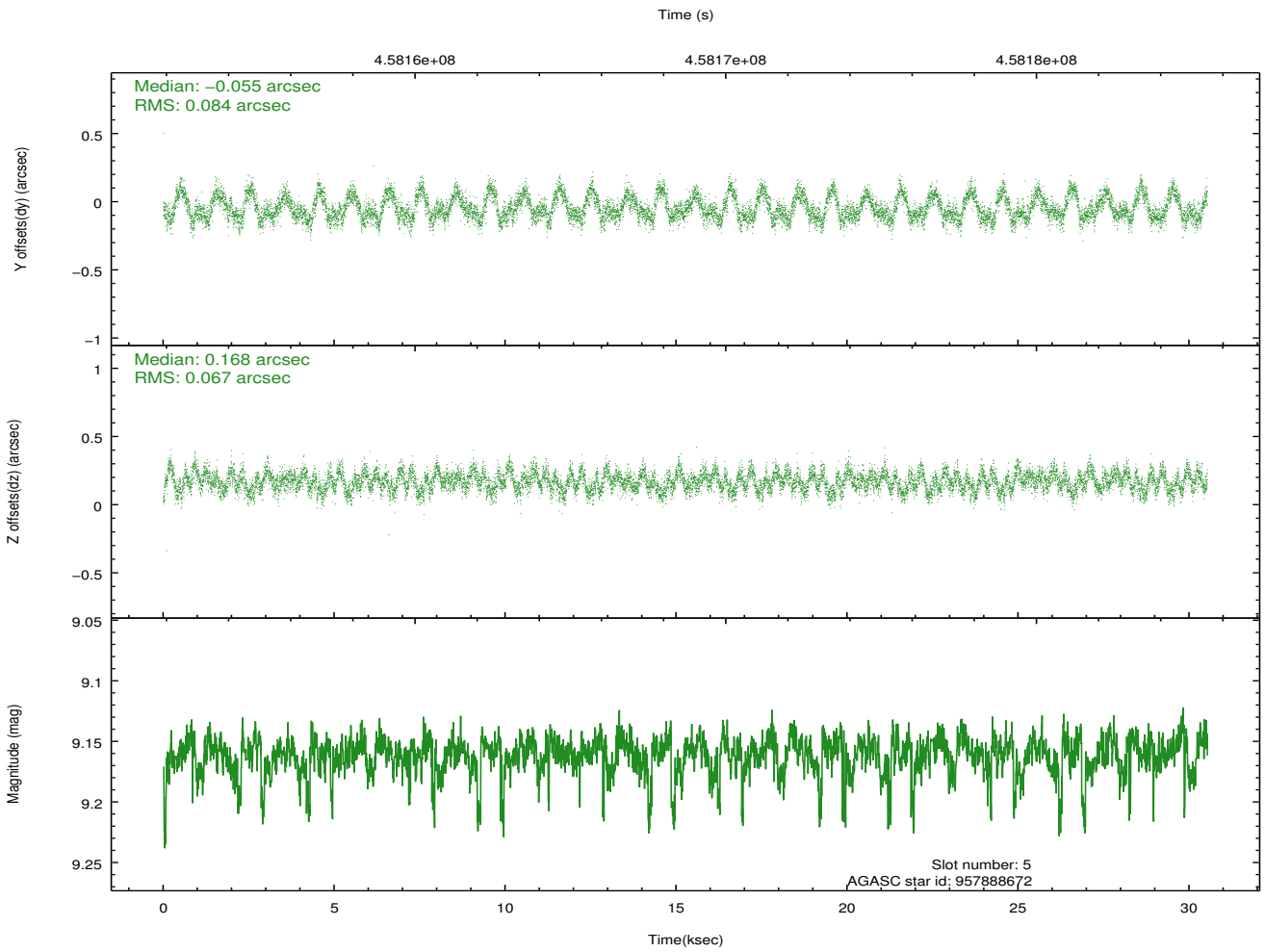
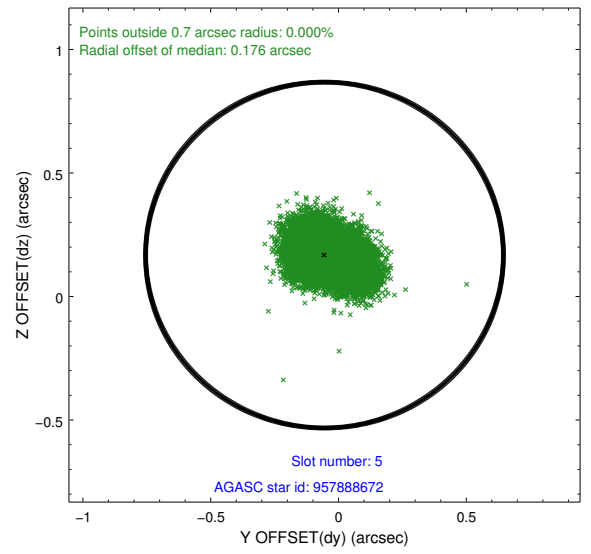
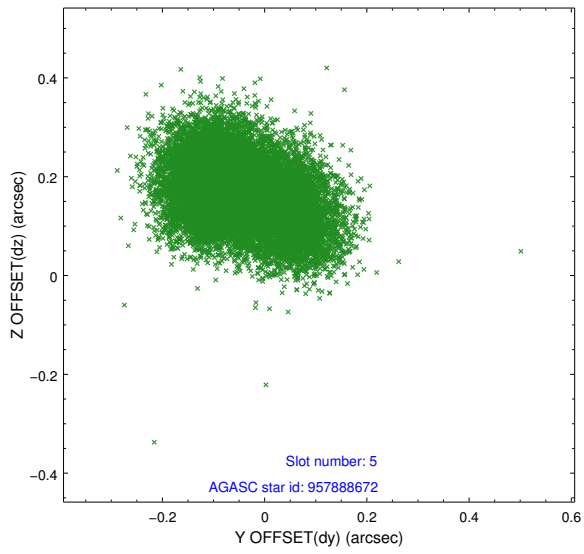
### 2.4.1 Slot 3



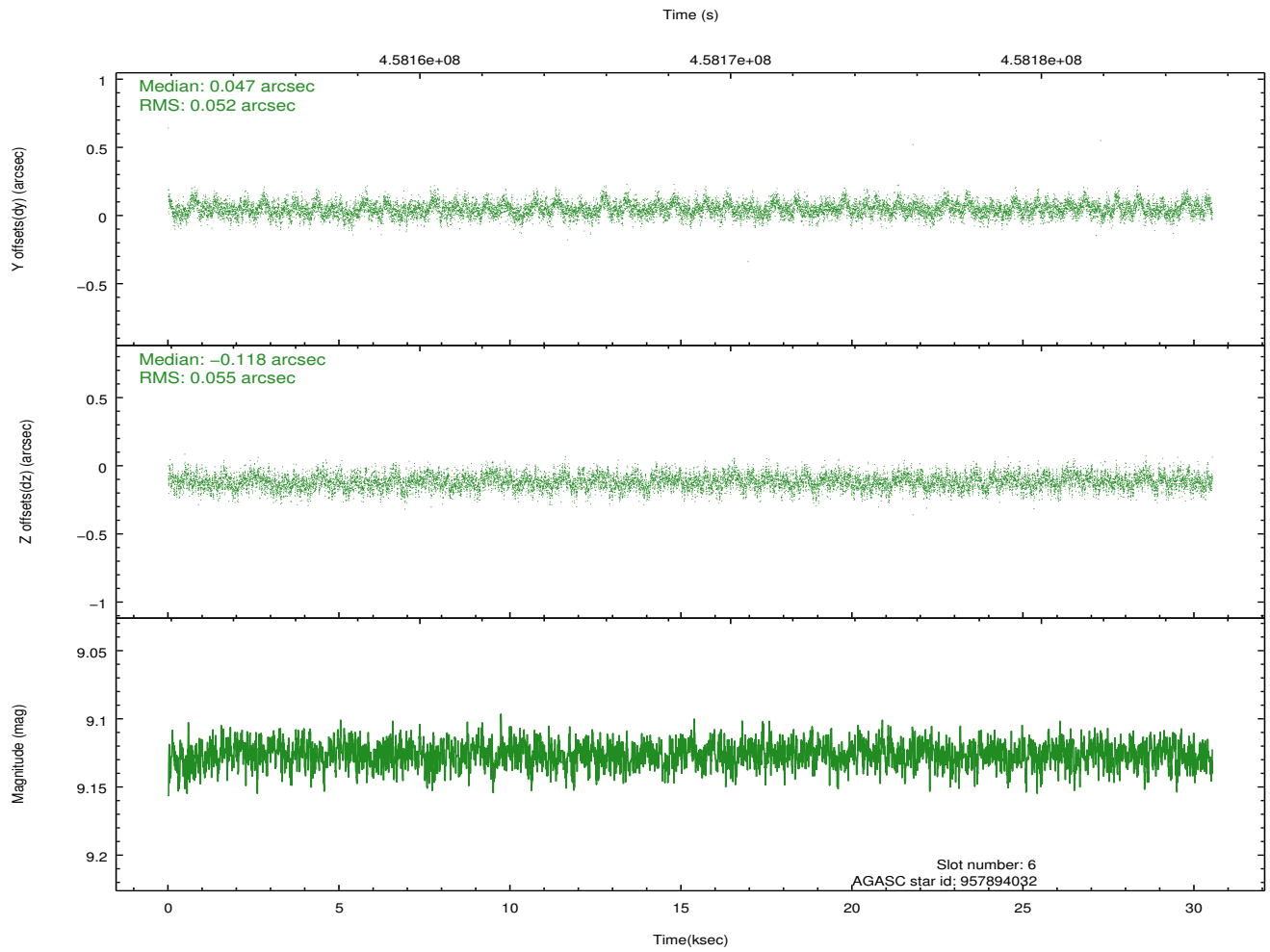
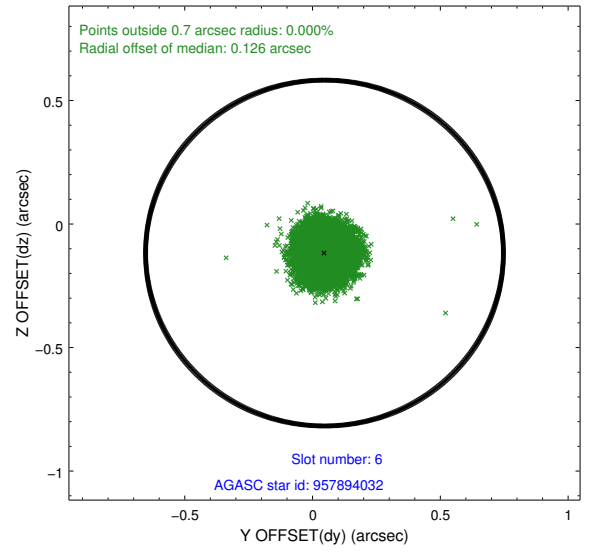
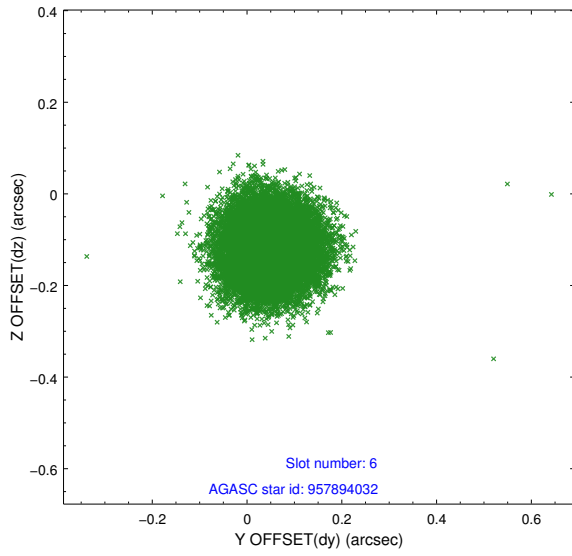
## 2.4.2 Slot 4



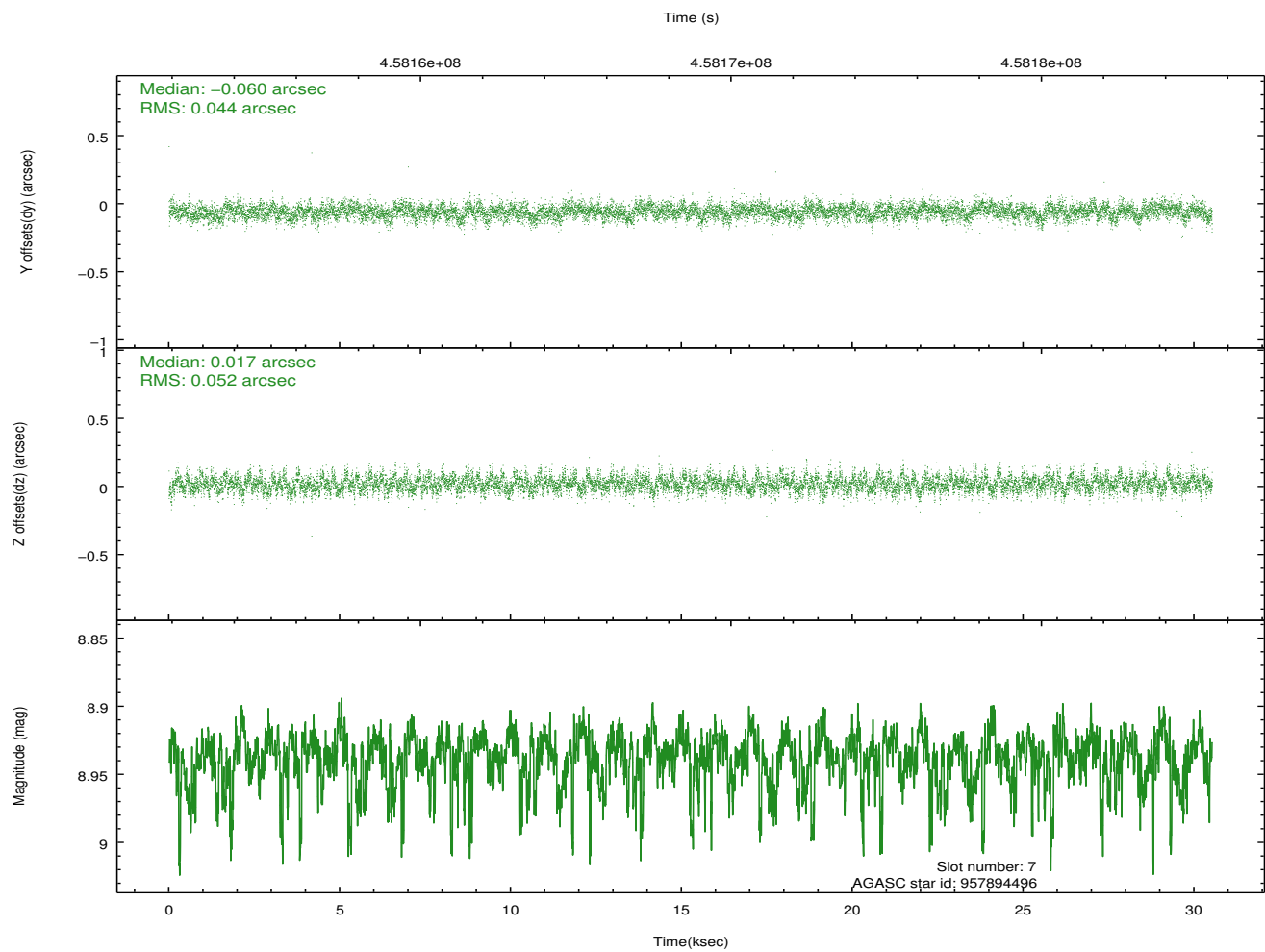
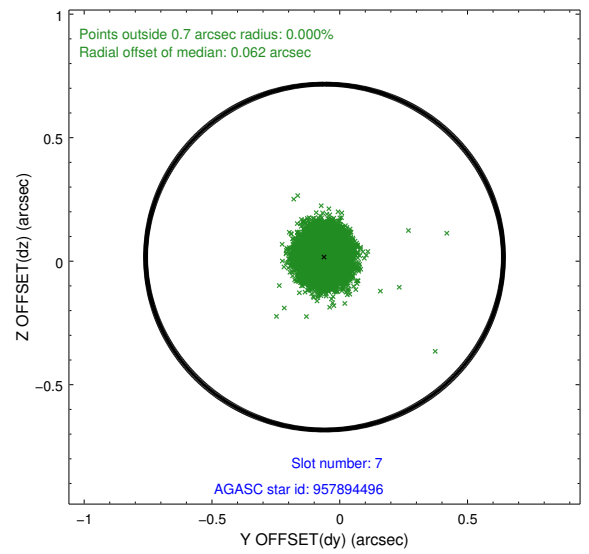
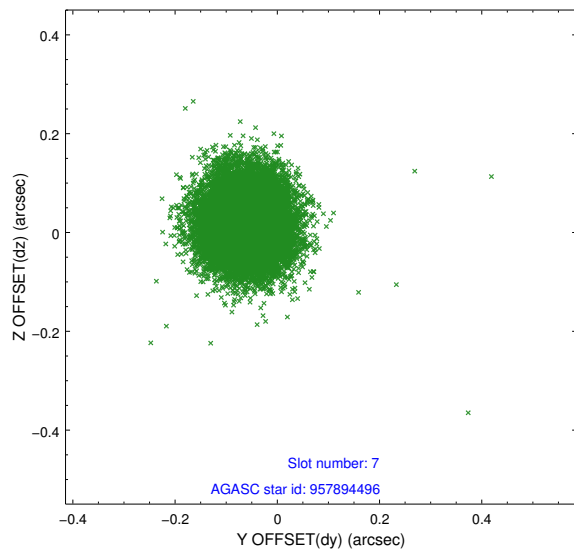
### 2.4.3 Slot 5



### 2.4.4 Slot 6

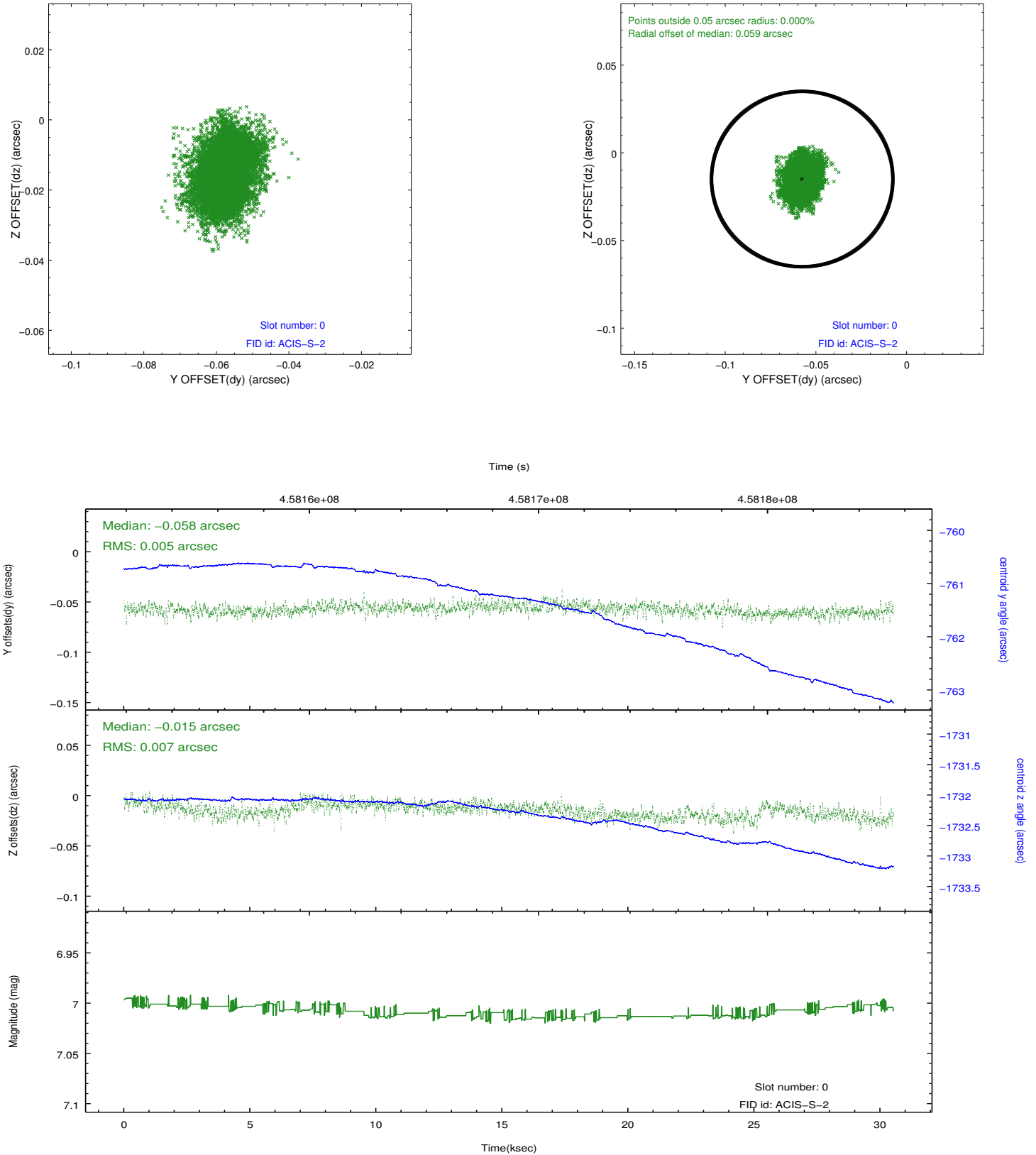


## 2.4.5 Slot 7

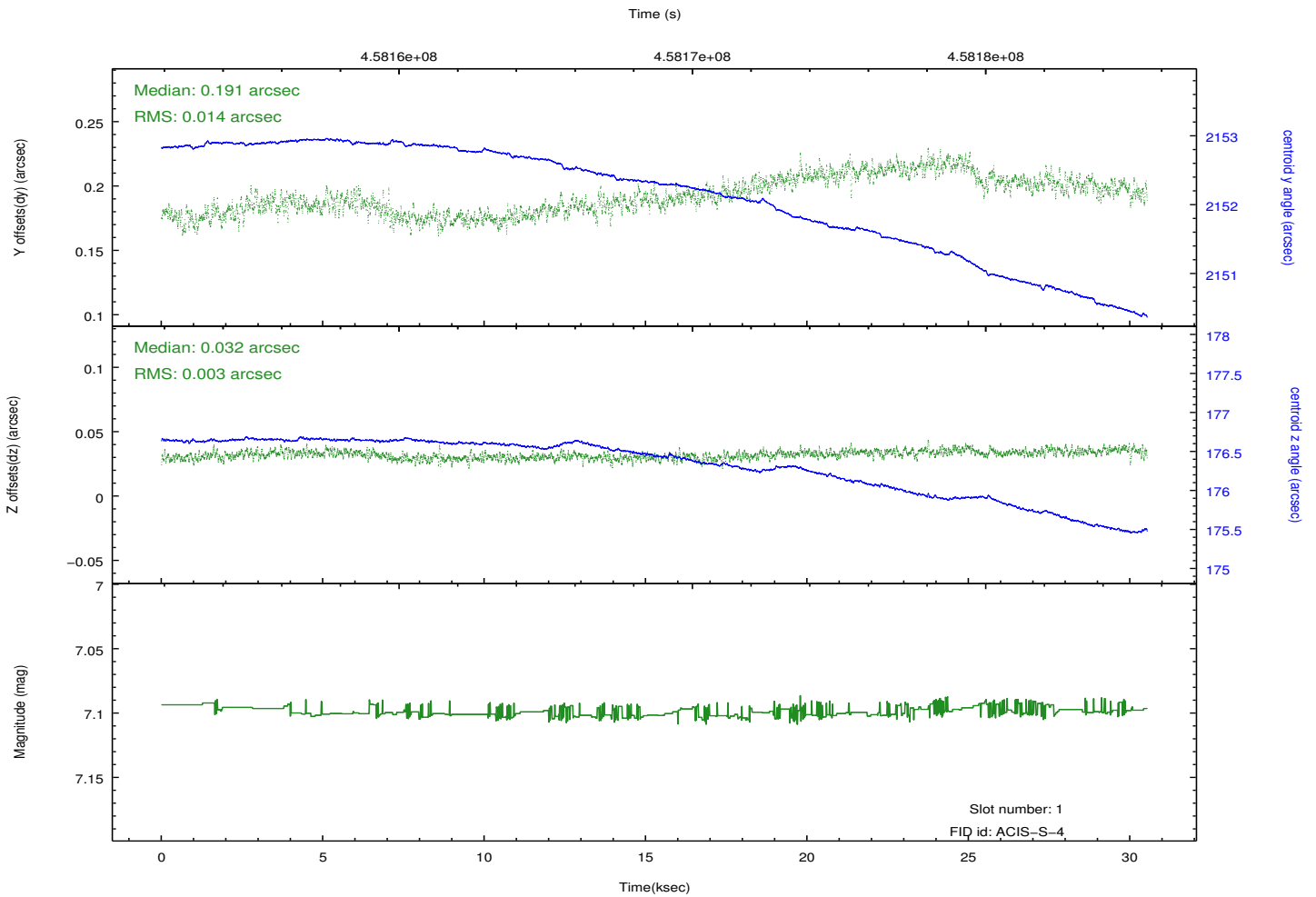
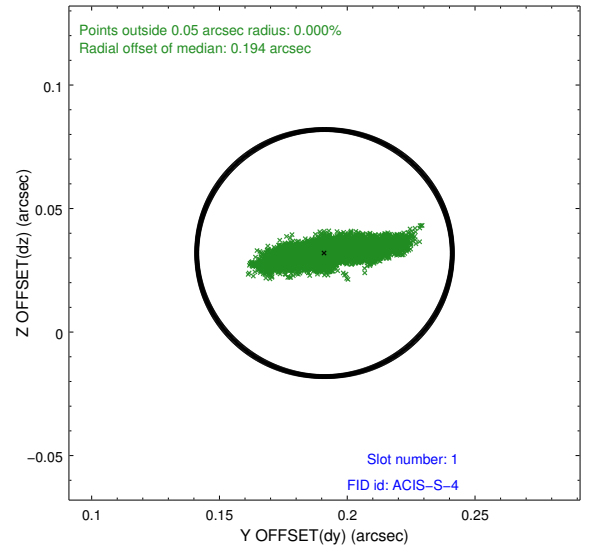
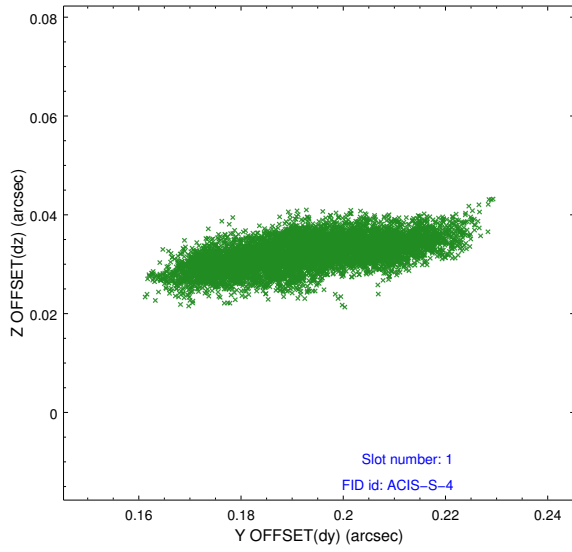


## 2.5 FID Slots

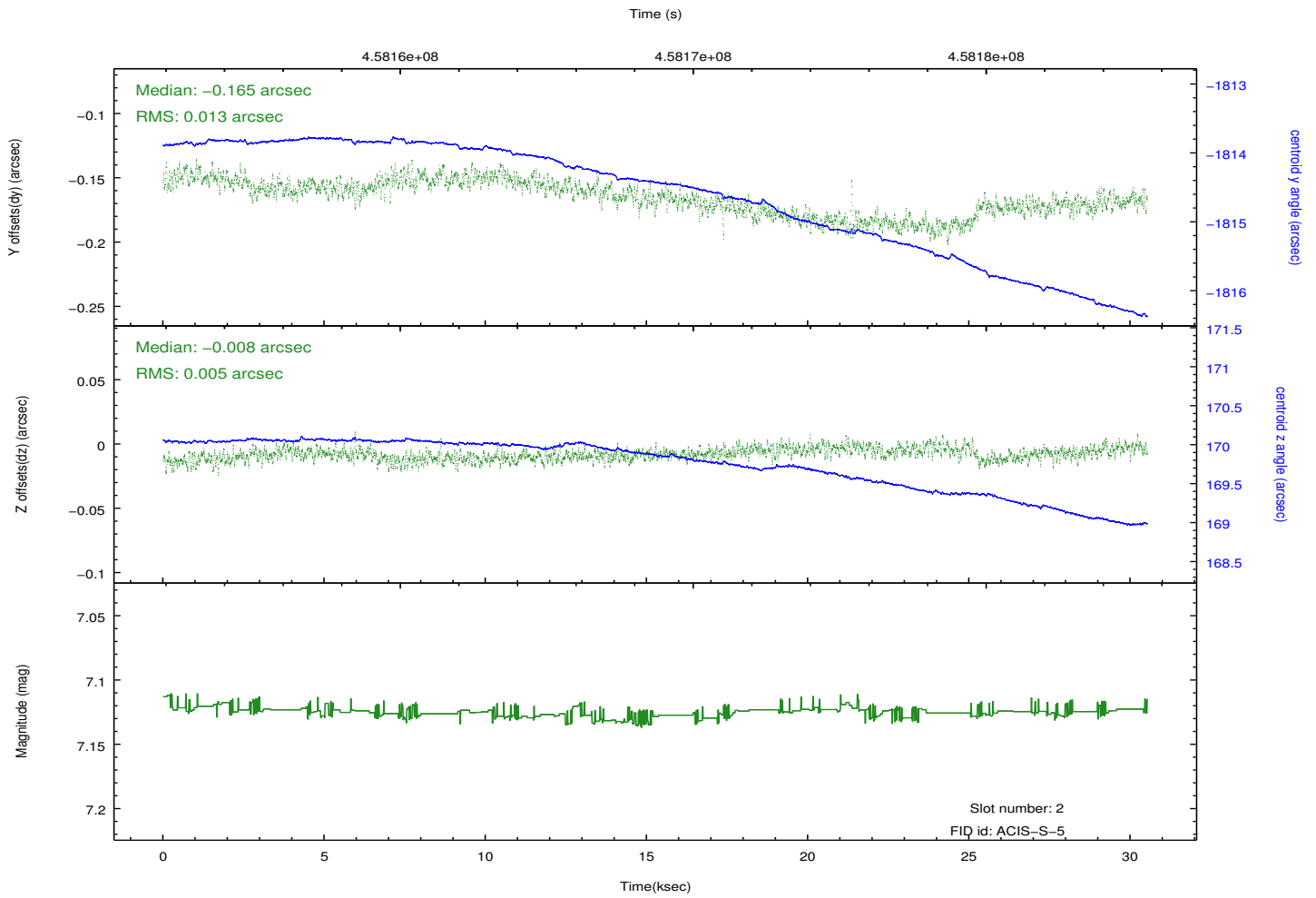
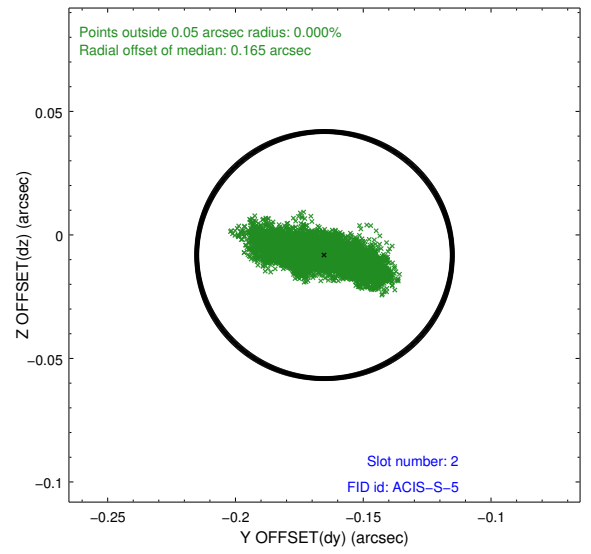
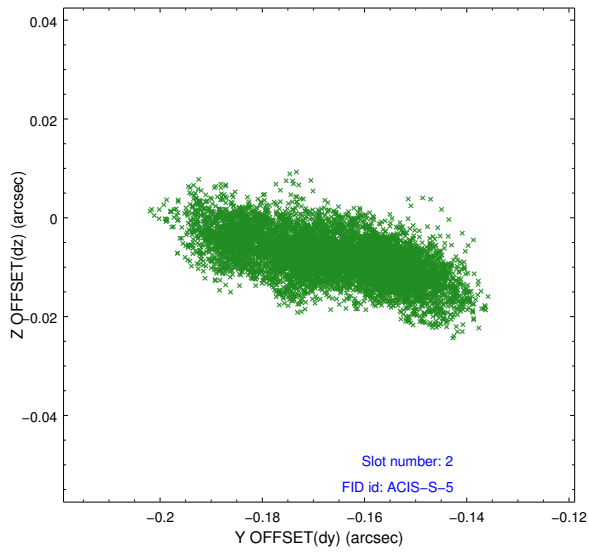
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



# A Summary

## A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Jen Lauer       |
| V&V Date (YYYY-MM-DD)      | 2012.07.10      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 29.964799888432 |

## A.2 Comments