

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 4049 - L2 Version 3  
Chandra X-Ray Center

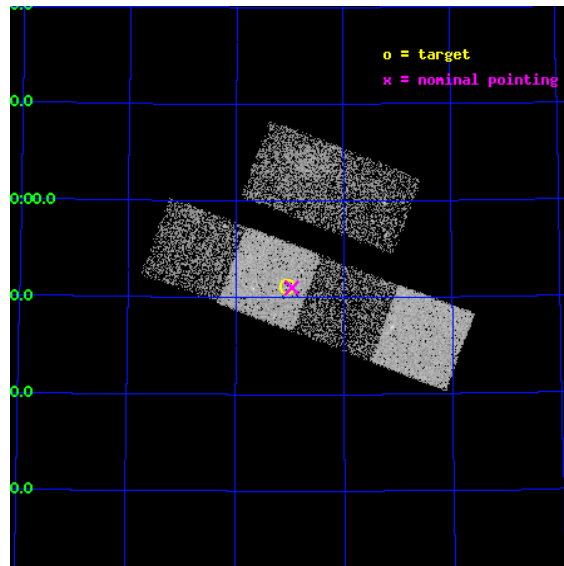
L2 Processing Date : Oct 31 2012

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# 1 Front

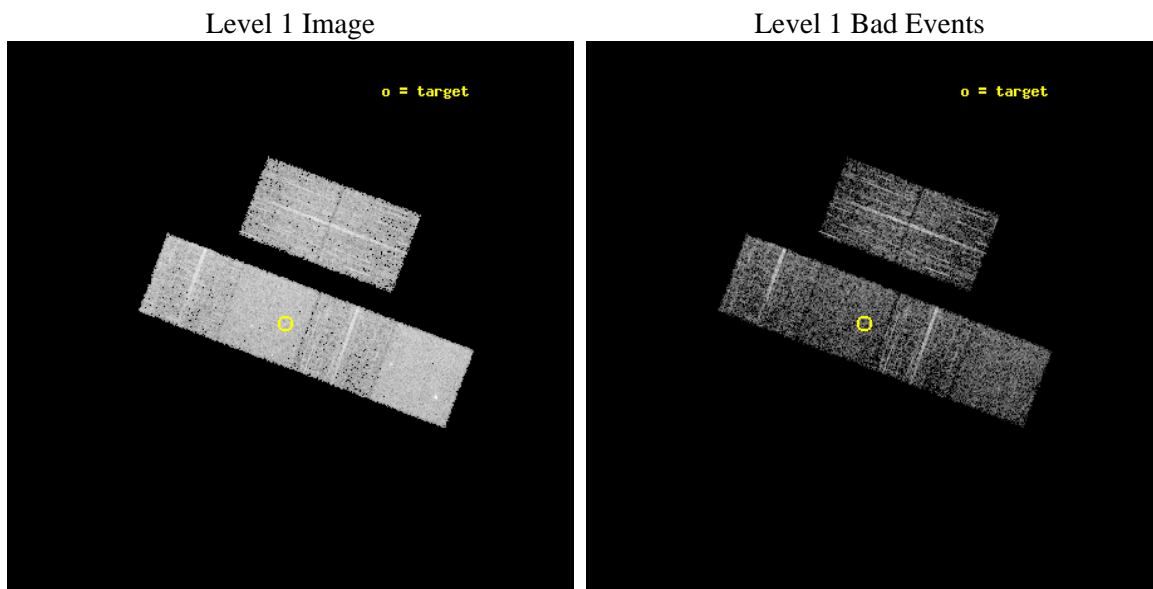
|          |   |   |
|----------|---|---|
| seq_num  | 700728  | Sequence number                             |
| obs_id   | 4049  | Observation id                              |
| title    | WHY DO WE SEE BROAD LINES IN X-RAY<br>ABSORBED AGN? | Proposal title                              |
| observer | Dr. Belinda Wilkes                                  | Principal investigator                      |
| object   | 2MASS175504+675108                                  | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 268.765833  | Observer's specified target RA [deg]        |
| dec_targ | 67.852333   | Observer's specified target Dec [deg]       |
| ra_nom   | 268.74052497812                                     | Nominal RA [deg]                            |
| dec_nom  | 67.85047536417                                      | Nominal Dec [deg]                           |
| roll_nom | 200.66395701949                                     | Nominal Roll [deg]                          |
| revision | 3   | Processing version of data                  |
| ontime   | 4051.1999849081                                     | Sum of GTIs [s]                             |
| livetime | 3999.9012513594                                     | Livetime [s]                                |
| ontime2  | 4051.1999849081                                     | Sum of GTIs [s]                             |
| ontime3  | 4051.1999849081                                     | Sum of GTIs [s]                             |
| ontime5  | 4051.1999849081                                     | Sum of GTIs [s]                             |
| ontime6  | 4051.1999849081                                     | Sum of GTIs [s]                             |
| ontime7  | 4051.1999849081                                     | Sum of GTIs [s]                             |
| ontime8  | 4051.1999849081                                     | Sum of GTIs [s]                             |
| l2events | 40870   | Number of level 2 events                    |



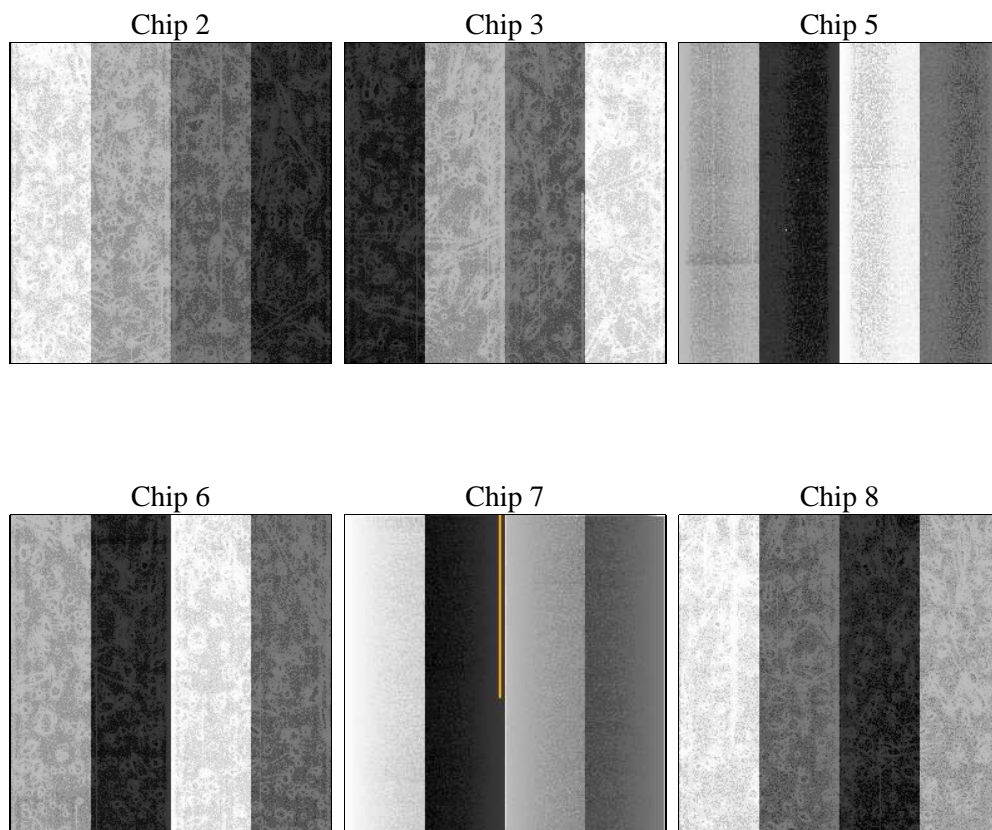
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 3956.000000     | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 4051.1999849081 | Sum of GTIs [s]                         |
| caldsver | 4.5.2               | &#160                          | ontime2        | 4051.1999849081 | Sum of GTIs [s]                         |
| date     | 2012-11-01T02:04:02 | Date and time of file creation | ontime3        | 4051.1999849081 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime5        | 4051.1999849081 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 4051.1999849081 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 4051.1999849081 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 4051.1999849081 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 173549          | Number of level 1 events                |

### 2.1.4 Events

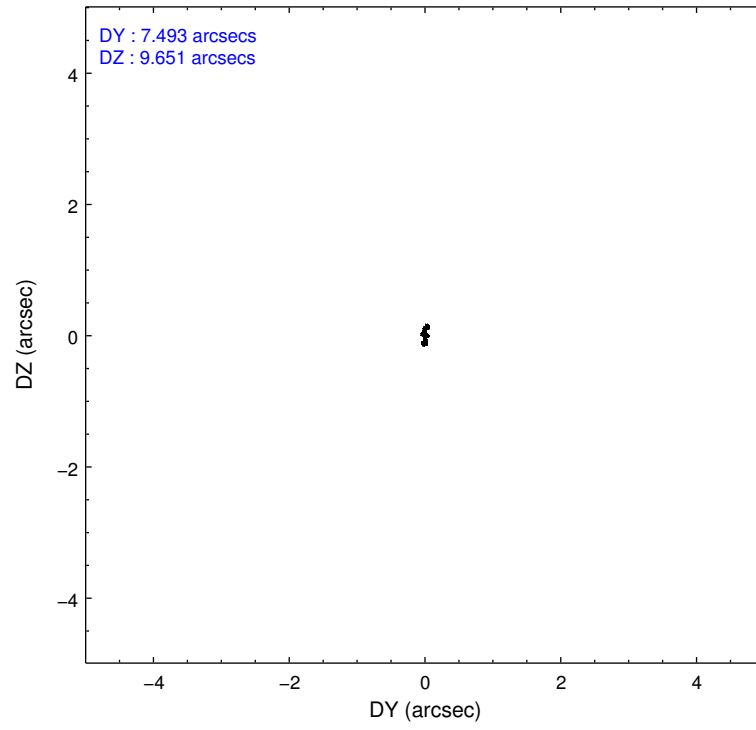
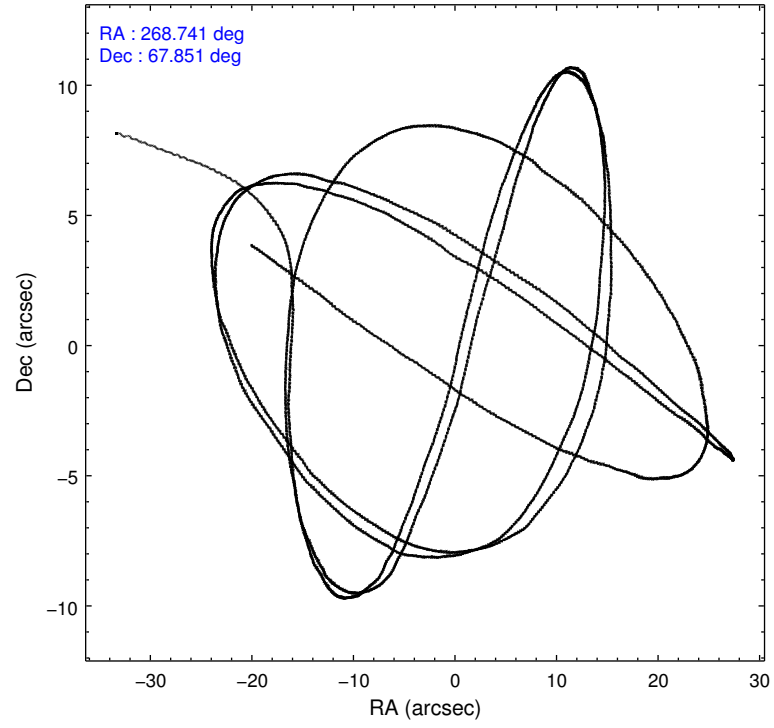
|                 | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |                | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 24341 | 26014 | 35012 | 24712 | 33010 | 30460 | grade 0 events | 1560  | 2356  | 1307  | 1182  | 1448  | 2063  |
| rejected events | 21224 | 21892 | 19276 | 21761 | 19066 | 24091 |                | 6%    | 9%    | 3%    | 4%    | 4%    | 6%    |
| rejected %      | 87%   | 84%   | 55%   | 88%   | 57%   | 79%   | grade 1 events | 12    | 18    | 35    | 8     | 28    | 18    |
|                 |       |       |       |       |       |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |       |       |       |       |       |       | grade 2 events | 528   | 626   | 4671  | 604   | 2762  | 1346  |
|                 |       |       |       |       |       |       |                | 2%    | 2%    | 13%   | 2%    | 8%    | 4%    |
|                 |       |       |       |       |       |       | grade 3 events | 292   | 348   | 594   | 295   | 1300  | 630   |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 1%    | 1%    | 3%    | 2%    |
|                 |       |       |       |       |       |       | grade 4 events | 267   | 295   | 525   | 286   | 1224  | 654   |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 1%    | 1%    | 3%    | 2%    |
|                 |       |       |       |       |       |       | grade 5 events | 896   | 1064  | 2416  | 1071  | 3075  | 1398  |
|                 |       |       |       |       |       |       |                | 3%    | 4%    | 6%    | 4%    | 9%    | 4%    |
|                 |       |       |       |       |       |       | grade 6 events | 476   | 504   | 8663  | 586   | 7221  | 1682  |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 24%   | 2%    | 21%   | 5%    |
|                 |       |       |       |       |       |       | grade 7 events | 20310 | 20803 | 16801 | 20680 | 15952 | 22669 |
|                 |       |       |       |       |       |       |                | 83%   | 79%   | 47%   | 83%   | 48%   | 74%   |

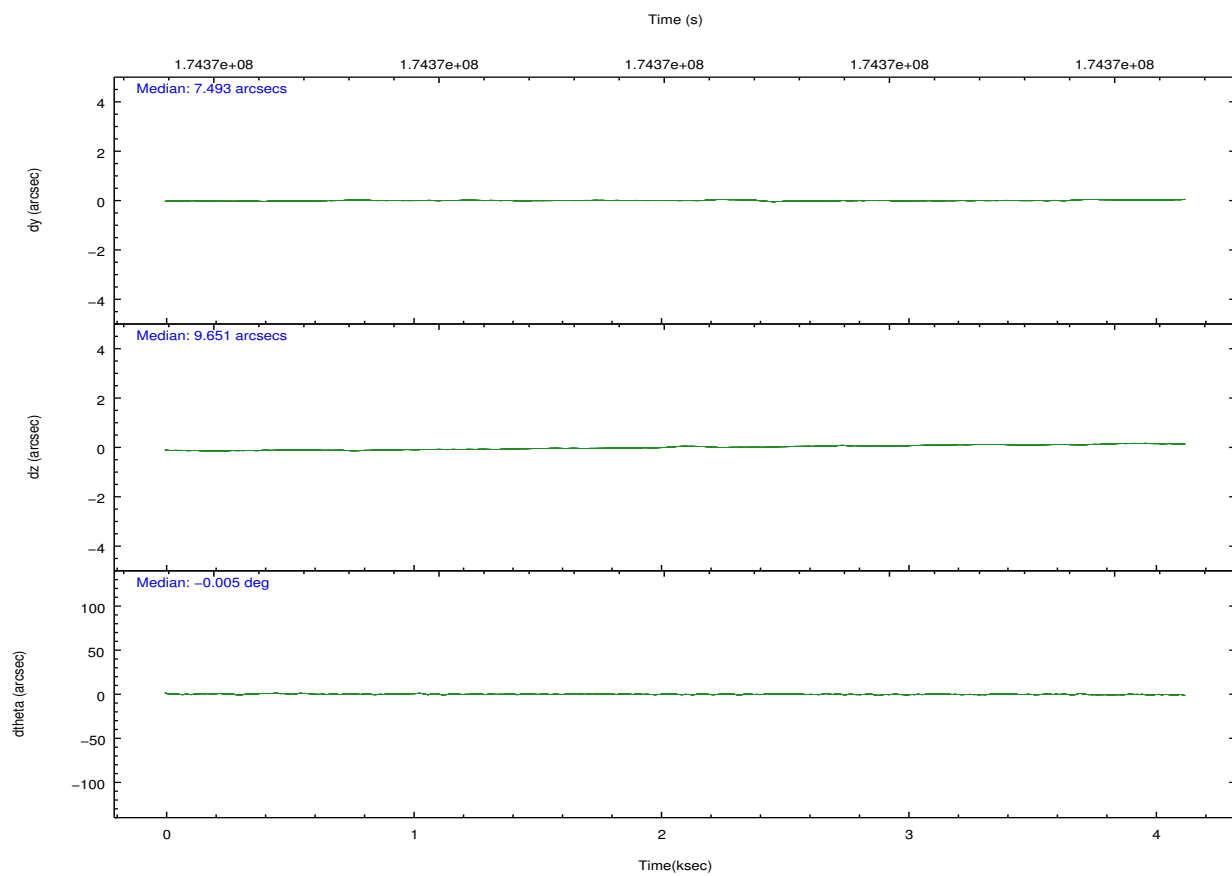
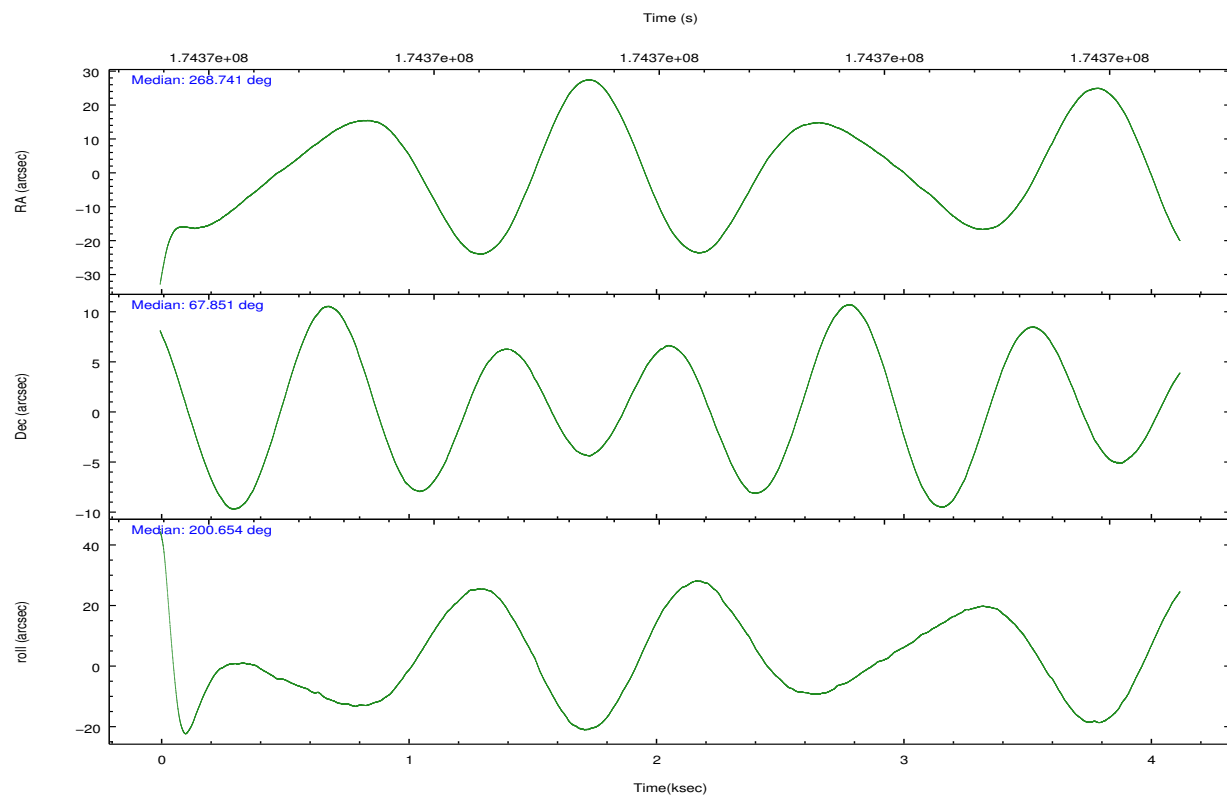


## 2.2 Compared Parameters

| 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                         | FAINT               | FAINT                | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 268.785677          | 268.7405249781224    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | 67.871844           | 67.85047536416957    | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 200.465329          | 200.6639570194898    | [s] Primary exposure time             | 0.000000  | 3.2     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos    | -190.132523         | -190.1400660498719   |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.00754346686406393  |                                       |           |         |
| [s] Observation start time (MET)  | 174369152.184000    | 174368122.89288      |                                       |           |         |
| Observation start date            | 2003-07-12T03:51:28 | 2003-07-12T03:35:22  |                                       |           |         |
| [s] Observation end time (MET)    | 174373108.184000    | 174373424.70561      |                                       |           |         |
| Observation end date              | 2003-07-12T04:57:24 | 2003-07-12T05:03:44  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



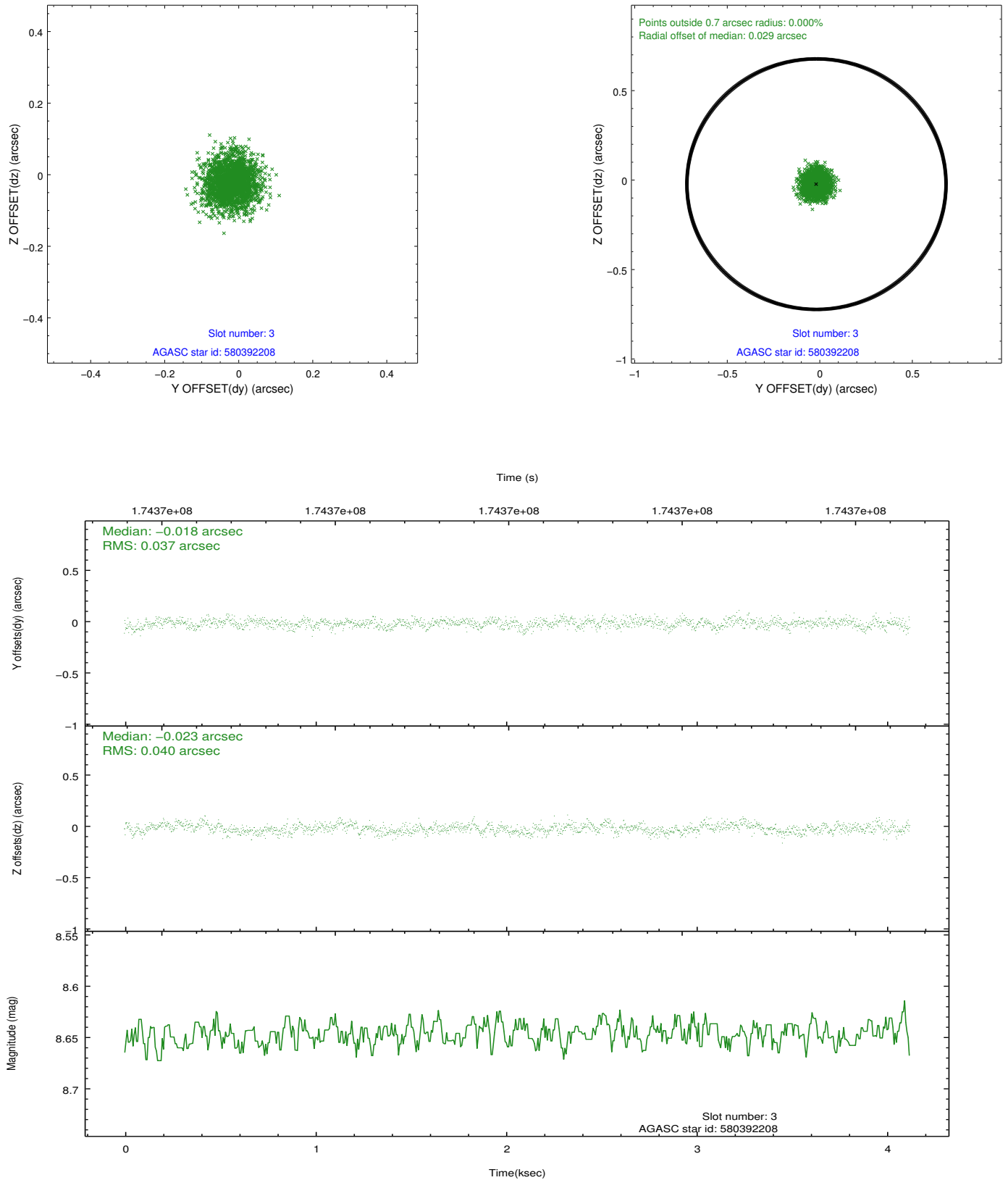


### Slot Statistics

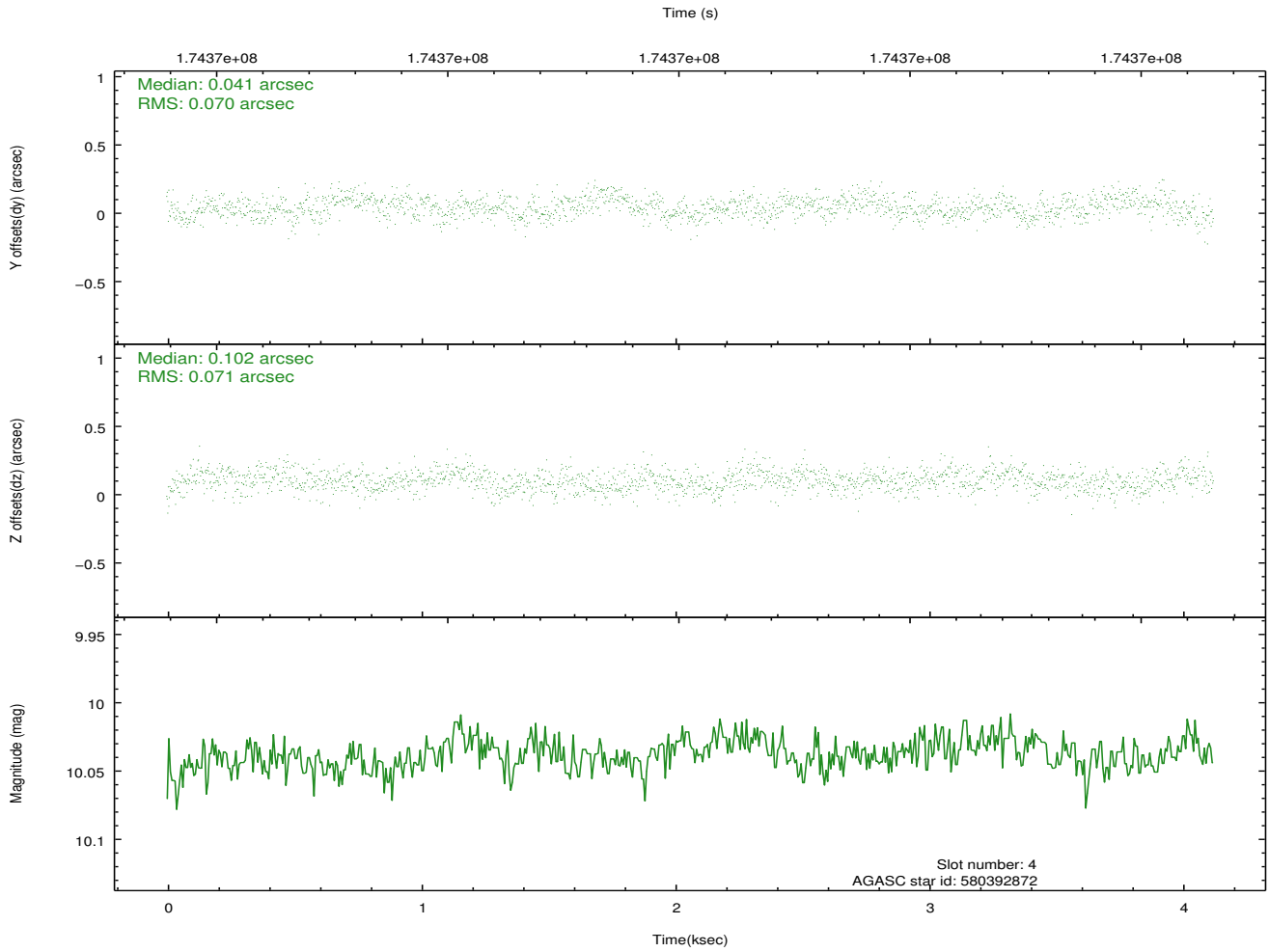
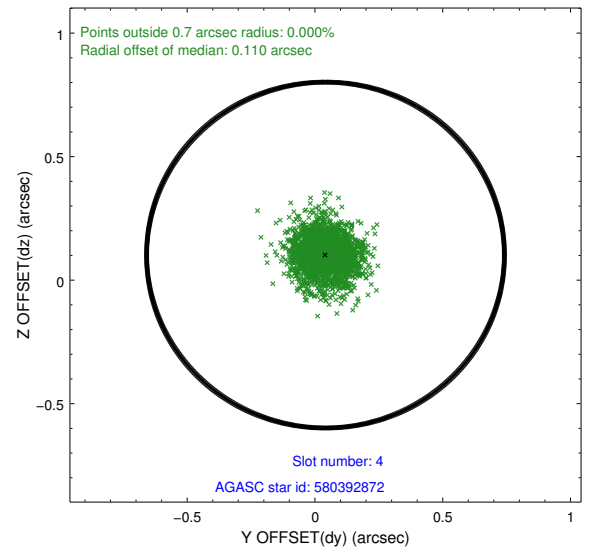
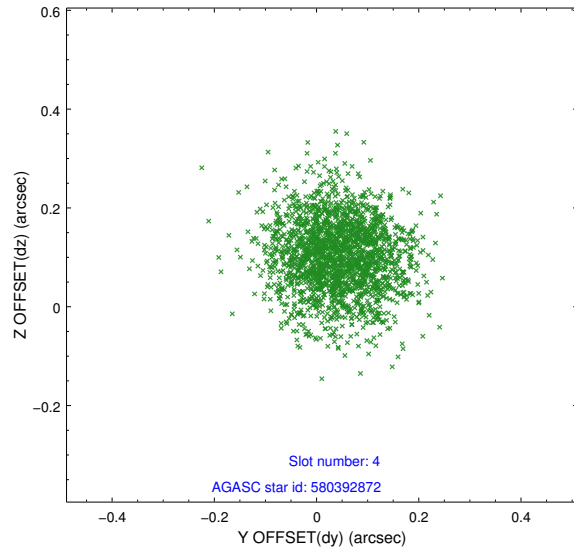
| slot | status | id        | mag   | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|-----------|-------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    | ACIS-S-2  | 7.10  | 1006  | -0.037 | -0.029 | 0.008 | 0.013 | 0.000000   | 0.000000  | -760.26  | -1730.93 |
| 1    | FID    | ACIS-S-4  | 7.20  | 1006  | 0.079  | 0.025  | 0.006 | 0.010 | 0.000000   | 0.000000  | 2152.41  | 176.10   |
| 2    | FID    | ACIS-S-5  | 7.23  | 1006  | -0.073 | 0.012  | 0.007 | 0.011 | 0.000000   | 0.000000  | -1811.24 | 171.41   |
| 3    | GUIDE  | 580392208 | 8.65  | 2010  | -0.018 | -0.023 | 0.058 | 0.095 | 269.218850 | 67.601026 | -216.54  | 1119.18  |
| 4    | GUIDE  | 580392872 | 10.04 | 2008  | 0.041  | 0.102  | 0.106 | 0.171 | 269.607901 | 68.379285 | -1662.69 | -1336.59 |
| 5    | GUIDE  | 580395936 | 8.95  | 2012  | -0.003 | -0.053 | 0.074 | 0.120 | 269.727854 | 67.793590 | -1106.60 | 702.11   |
| 6    | GUIDE  | 580396416 | 9.38  | 2003  | -0.012 | -0.100 | 0.097 | 0.153 | 268.610456 | 67.747248 | 380.01   | 336.68   |
| 7    | GUIDE  | 580397224 | 8.09  | 2011  | -0.019 | 0.072  | 0.082 | 0.125 | 267.258534 | 68.341831 | 1301.28  | -2317.60 |

## 2.4 Star Slots

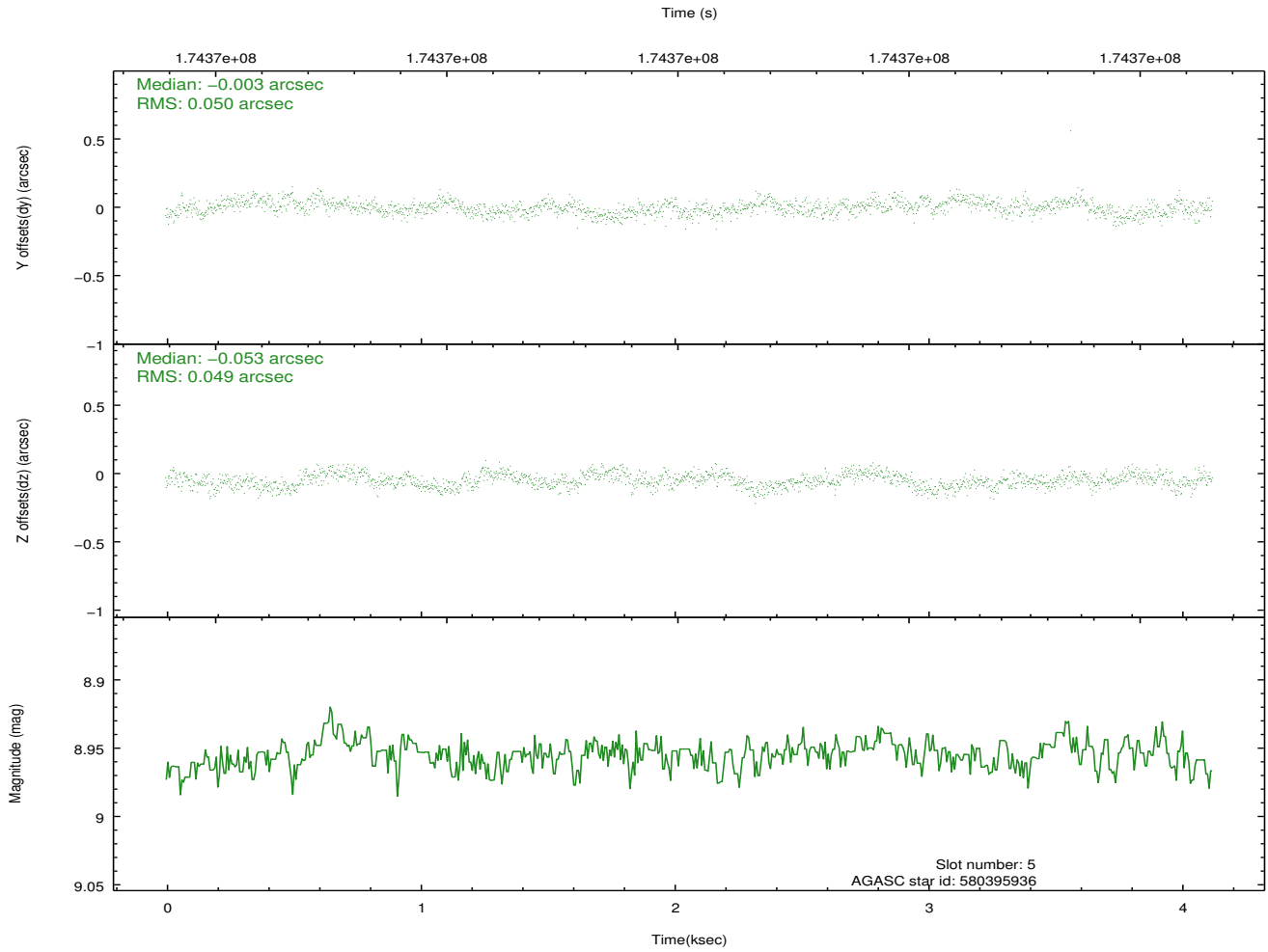
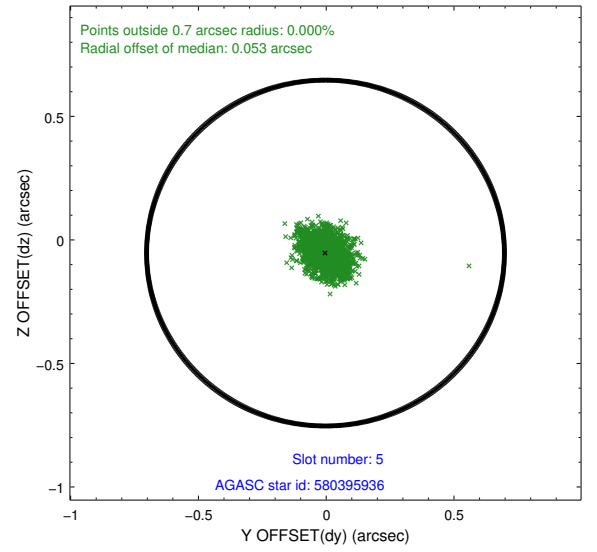
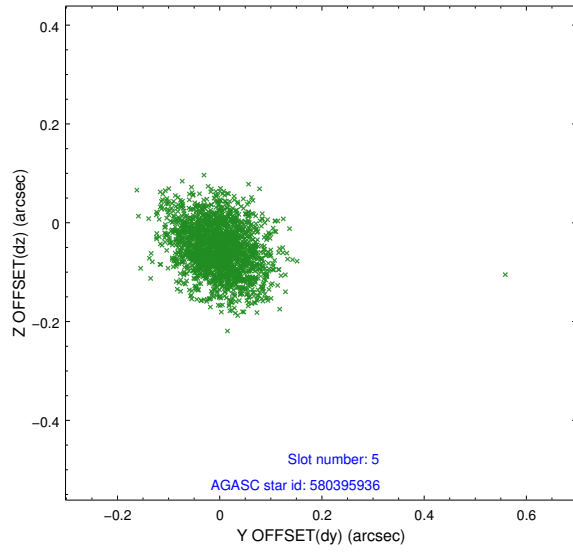
### 2.4.1 Slot 3



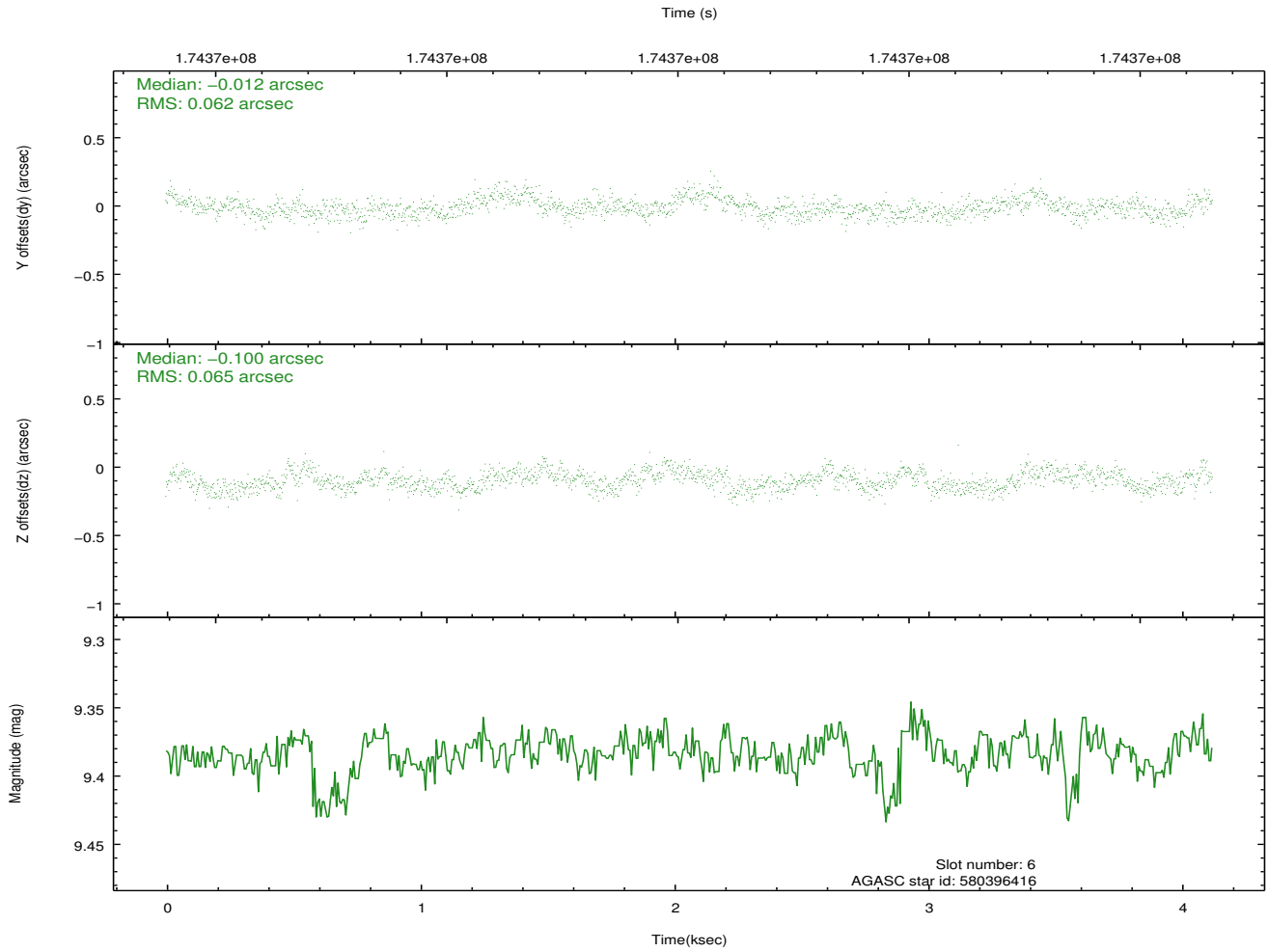
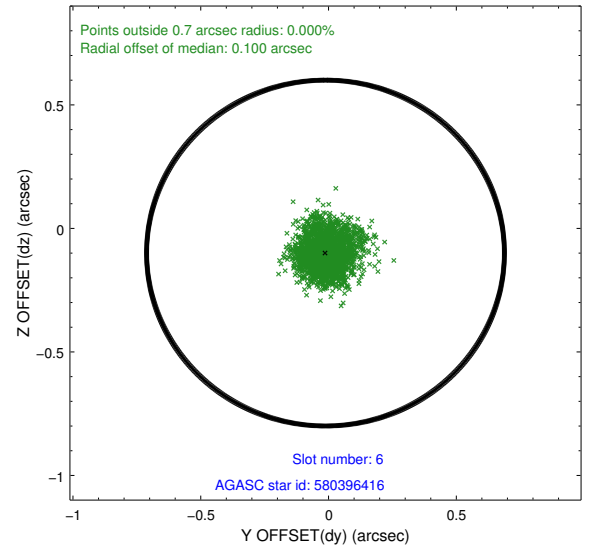
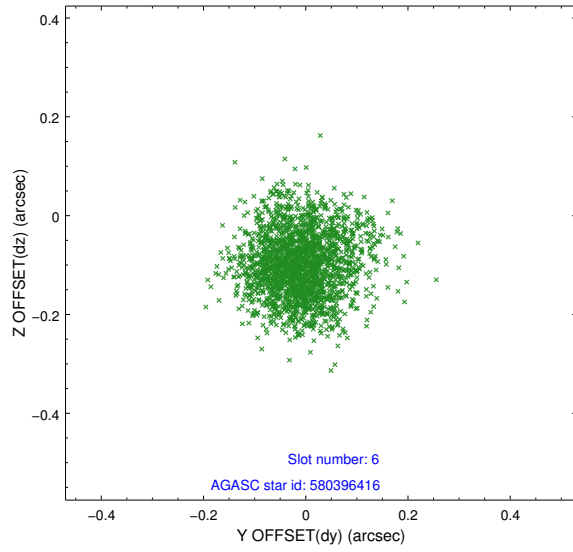
## 2.4.2 Slot 4



### 2.4.3 Slot 5

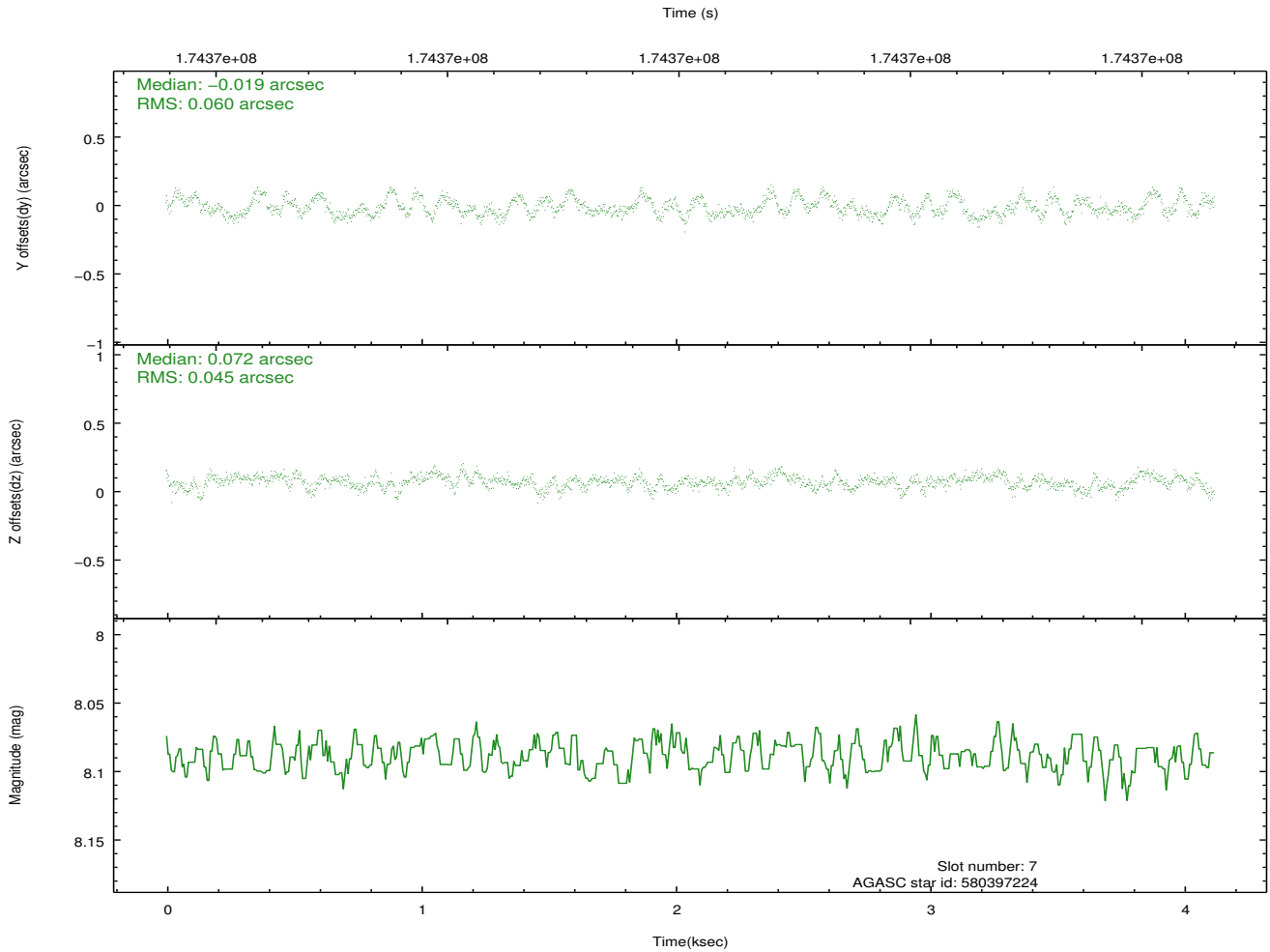
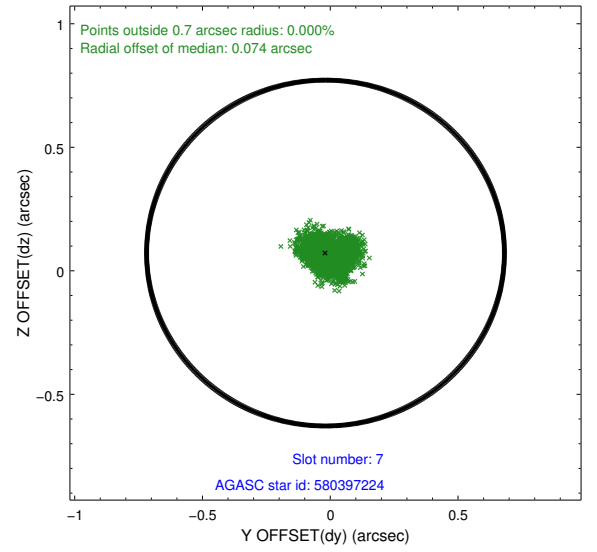
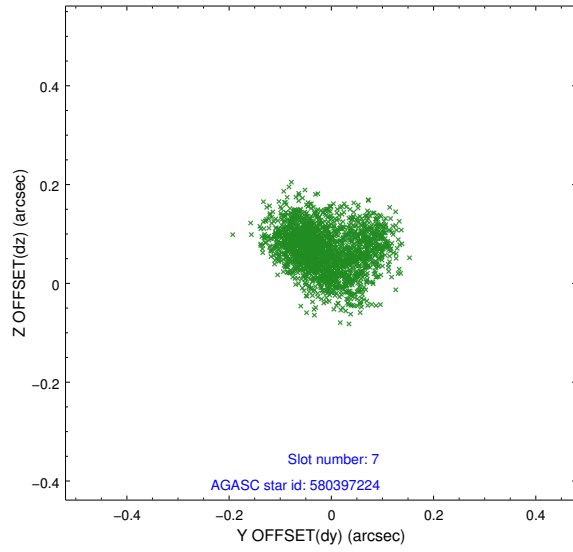


## 2.4.4 Slot 6



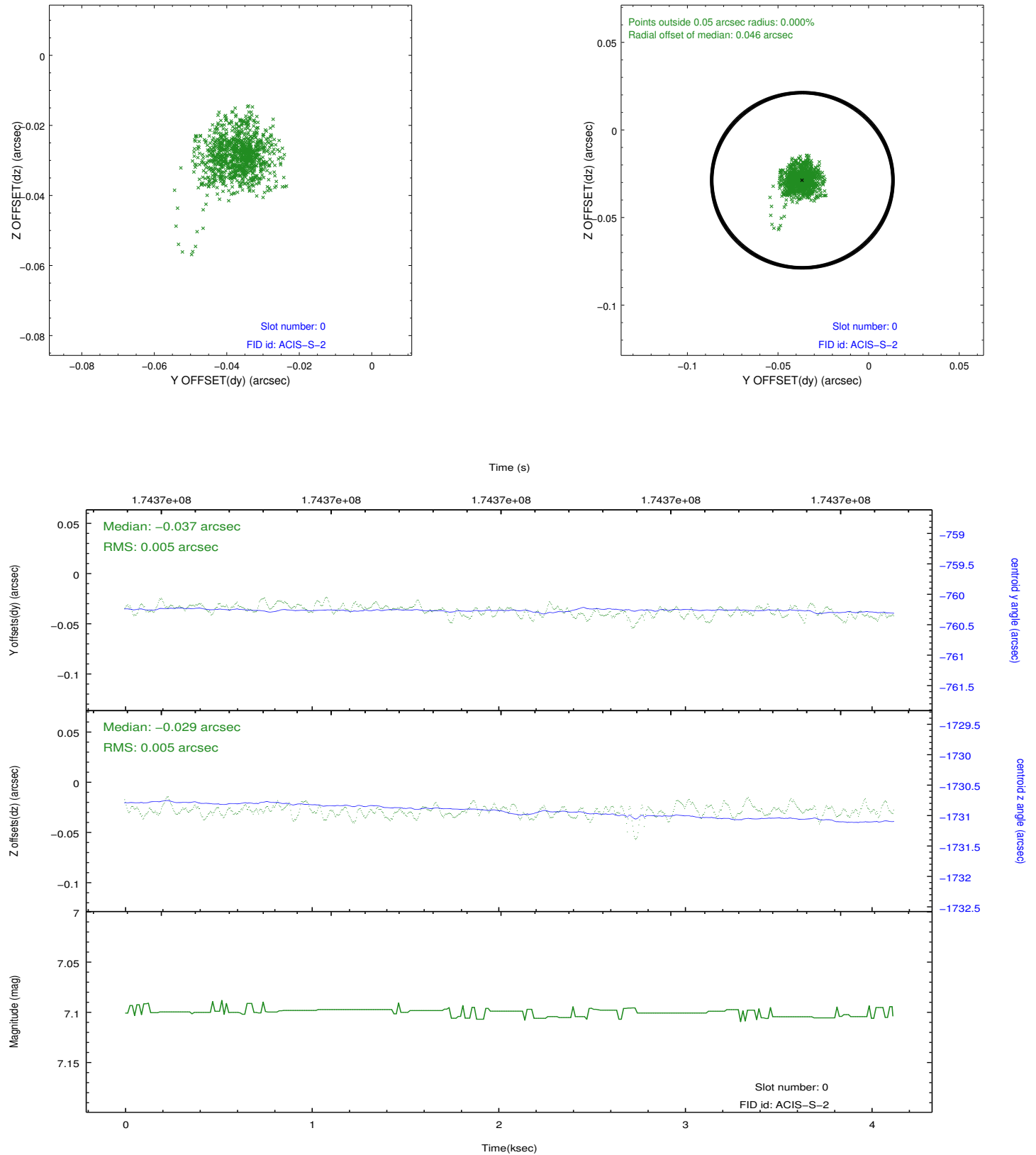


## 2.4.5 Slot 7

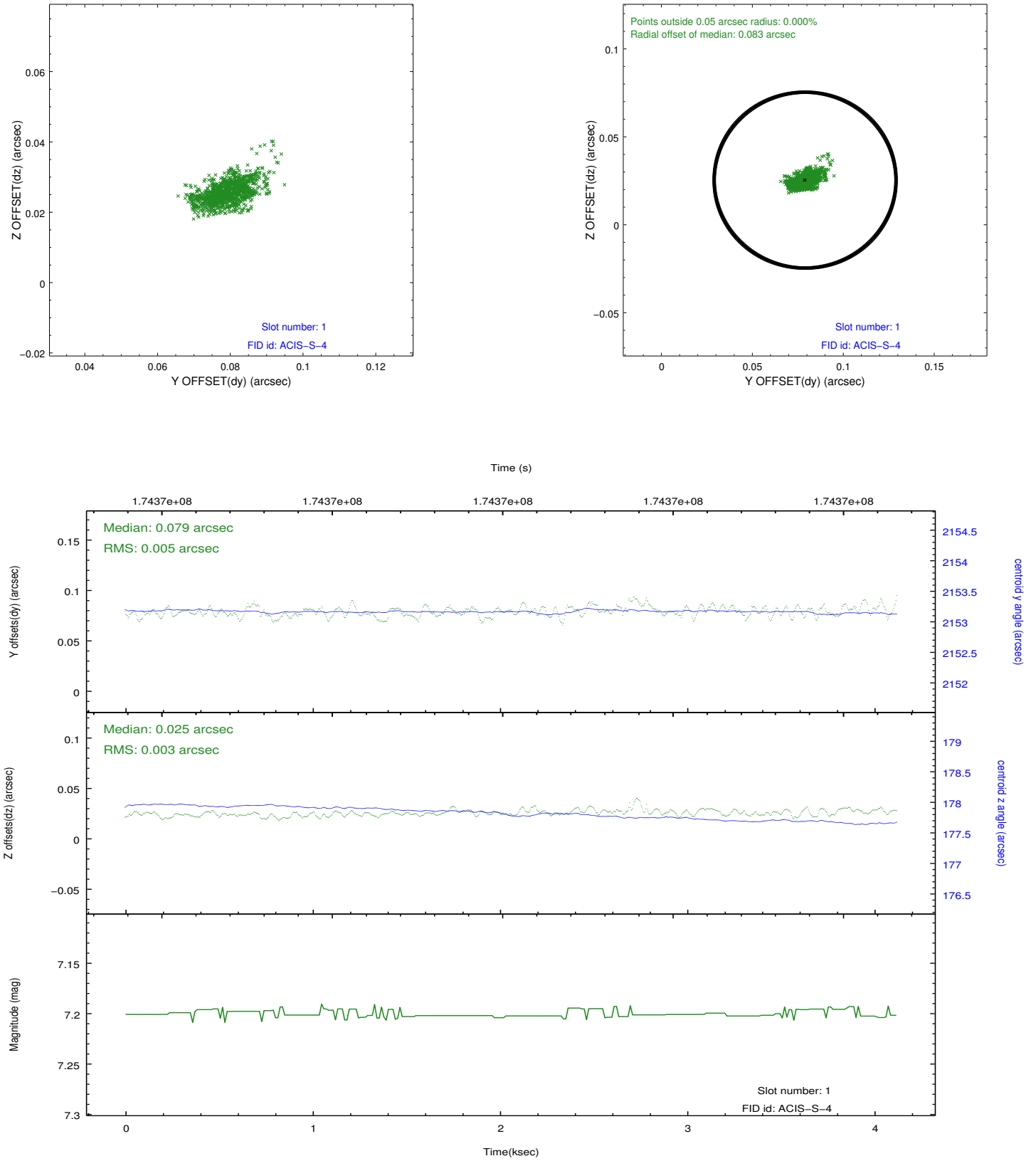


## 2.5 FID Slots

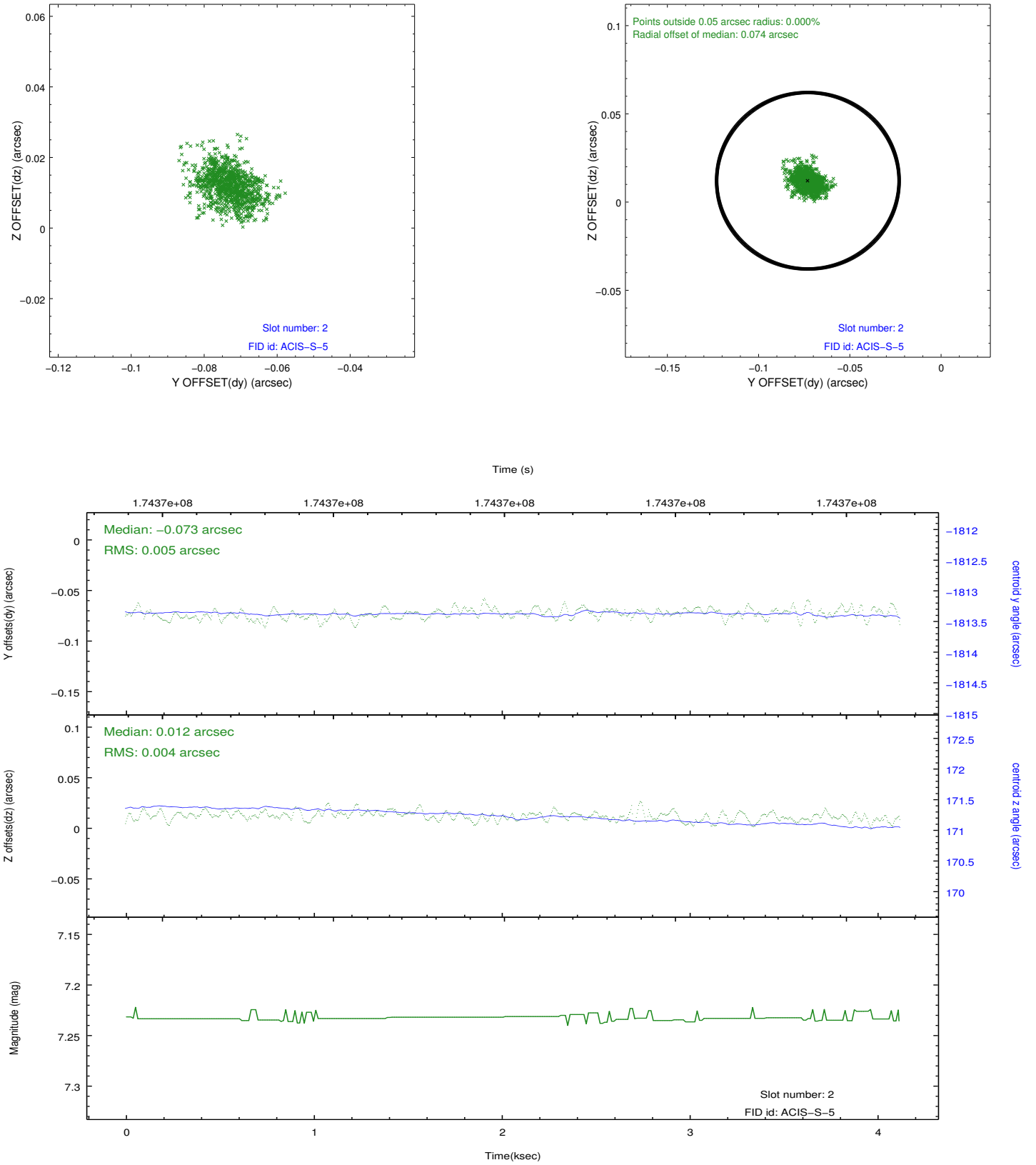
### 2.5.1 Slot 0



## 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)      | 2012.11.16 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 4.054      |

### A.2 Comments