

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 4100 - L2 Version 3  
Chandra X-Ray Center

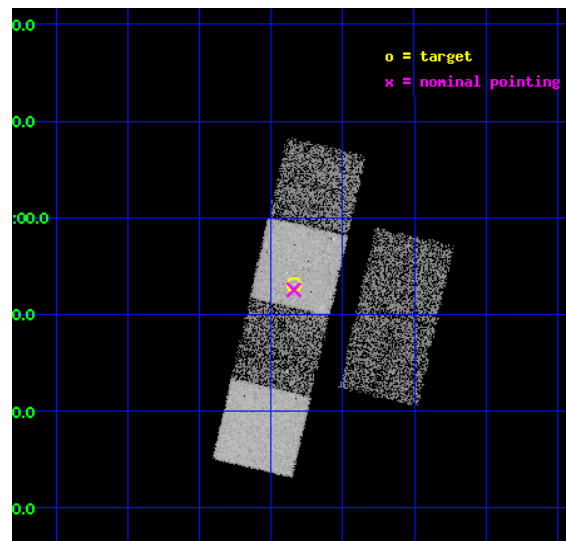
L2 Processing Date : Oct 23 2012

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# 1 Front

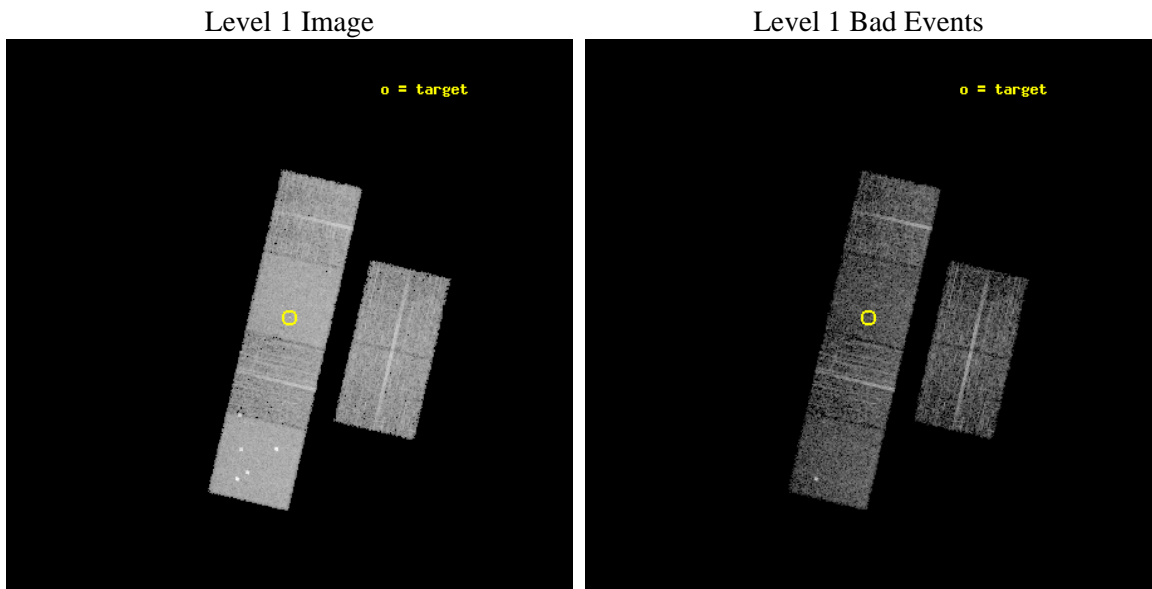
|          |   |   |
|----------|---|---|
| seq_num  | 700779  | Sequence number                             |
| obs_id   | 4100  | Observation id                              |
| title    | X-RAY CONSTRAINTS ON THE STRUCTURE OF THE BROAD EMISSION LINE REGION IN QUASARS | Proposal title                              |
| observer | Dr. Gordon Richards   | Principal investigator                      |
| object   | SDSS J015650.28+005308.4  | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 29.2095   | Observer's specified target RA [deg]        |
| dec_targ | 0.885667  | Observer's specified target Dec [deg]       |
| ra_nom   | 29.210027678794   | Nominal RA [deg]                            |
| dec_nom  | 0.87593553680896  | Nominal Dec [deg]                           |
| roll_nom | 283.09007458049   | Nominal Roll [deg]                          |
| revision | 3   | Processing version of data                  |
| ontime   | 5644.7999789715   | Sum of GTIs [s]                             |
| livetime | 5573.3221227473   | Livetime [s]                                |
| ontime2  | 5644.7999789715   | Sum of GTIs [s]                             |
| ontime3  | 5644.7999789715   | Sum of GTIs [s]                             |
| ontime5  | 5644.7999789715   | Sum of GTIs [s]                             |
| ontime6  | 5644.7999789715   | Sum of GTIs [s]                             |
| ontime7  | 5644.7999789715   | Sum of GTIs [s]                             |
| ontime8  | 5644.7999789715   | Sum of GTIs [s]                             |
| l2events | 74641   | Number of level 2 events                    |



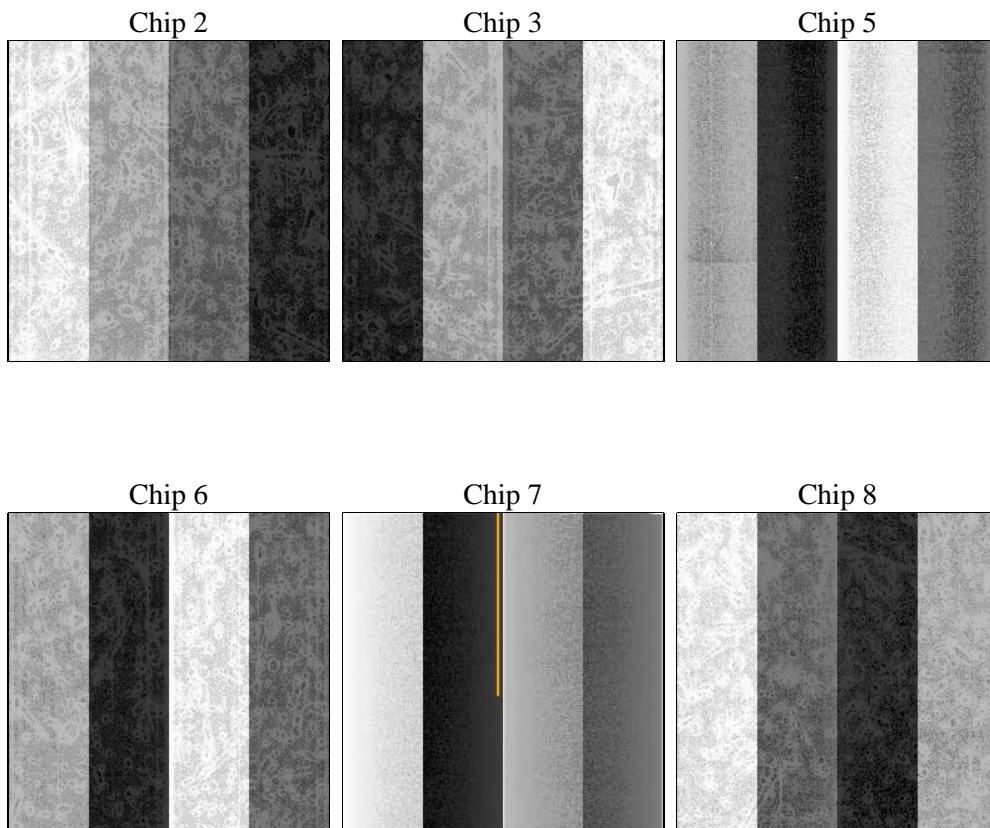
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 5500.000000     | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 5644.7999789715 | Sum of GTIs [s]                         |
| caldsver | 4.5.2               | &#160                          | ontime2        | 5644.7999789715 | Sum of GTIs [s]                         |
| date     | 2012-10-23T11:02:51 | Date and time of file creation | ontime3        | 5644.7999789715 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime5        | 5644.7999789715 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 5644.7999789715 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 5644.7999789715 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 5644.7999789715 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 299695          | Number of level 1 events                |

### 2.1.4 Events

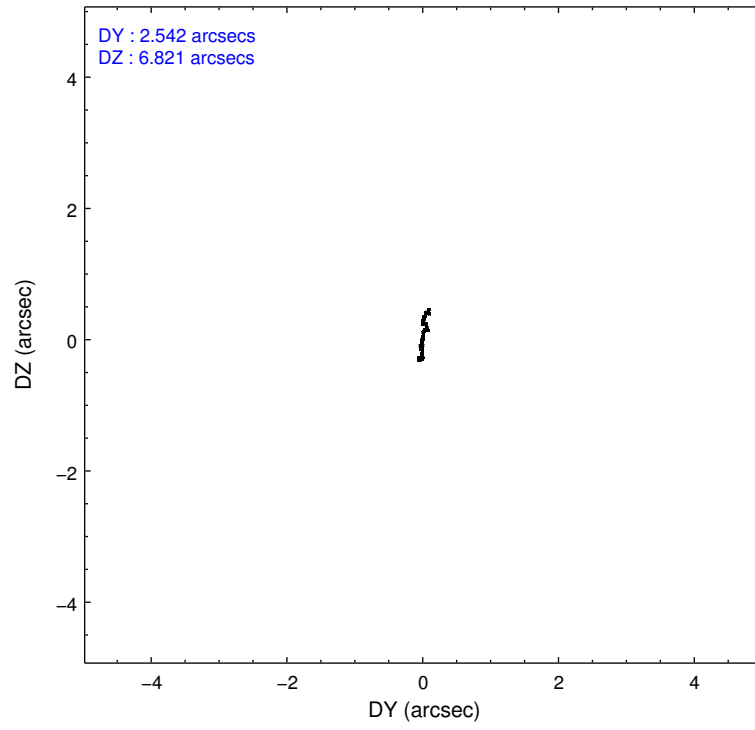
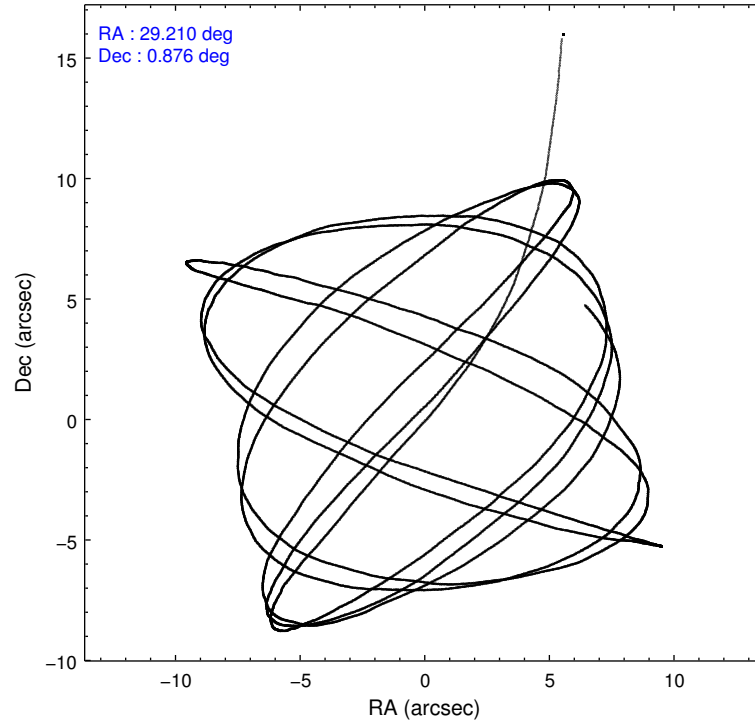
|                 | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |                | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 39325 | 38132 | 70871 | 41296 | 61099 | 48972 | grade 0 events | 2103  | 2195  | 7806  | 2315  | 3250  | 3705  |
| rejected events | 35155 | 33912 | 34769 | 36646 | 32647 | 39350 |                | 5%    | 5%    | 11%   | 5%    | 5%    | 7%    |
| rejected %      | 89%   | 88%   | 49%   | 88%   | 53%   | 80%   | grade 1 events | 17    | 28    | 410   | 18    | 60    | 30    |
|                 |       |       |       |       |       |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |       |       |       |       |       |       | grade 2 events | 936   | 805   | 10593 | 954   | 5713  | 2182  |
|                 |       |       |       |       |       |       |                | 2%    | 2%    | 14%   | 2%    | 9%    | 4%    |
|                 |       |       |       |       |       |       | grade 3 events | 407   | 455   | 1651  | 434   | 2571  | 1077  |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 2%    | 1%    | 4%    | 2%    |
|                 |       |       |       |       |       |       | grade 4 events | 388   | 393   | 1561  | 460   | 2573  | 982   |
|                 |       |       |       |       |       |       |                | 0%    | 1%    | 2%    | 1%    | 4%    | 2%    |
|                 |       |       |       |       |       |       | grade 5 events | 1453  | 1674  | 4375  | 1731  | 4942  | 2178  |
|                 |       |       |       |       |       |       |                | 3%    | 4%    | 6%    | 4%    | 8%    | 4%    |
|                 |       |       |       |       |       |       | grade 6 events | 728   | 772   | 17395 | 915   | 16688 | 2595  |
|                 |       |       |       |       |       |       |                | 1%    | 2%    | 24%   | 2%    | 27%   | 5%    |
|                 |       |       |       |       |       |       | grade 7 events | 33293 | 31810 | 27080 | 34469 | 25302 | 36223 |
|                 |       |       |       |       |       |       |                | 84%   | 83%   | 38%   | 83%   | 41%   | 73%   |

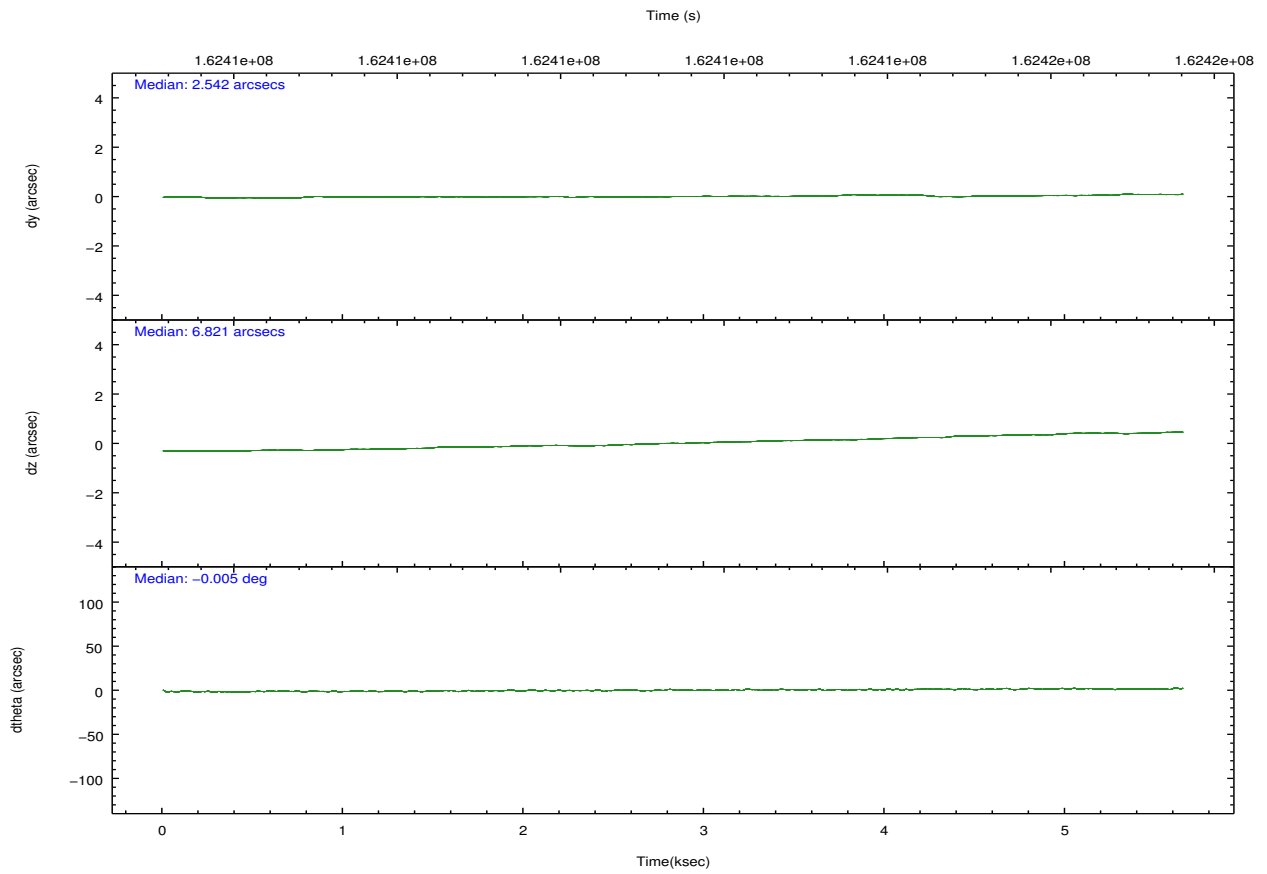
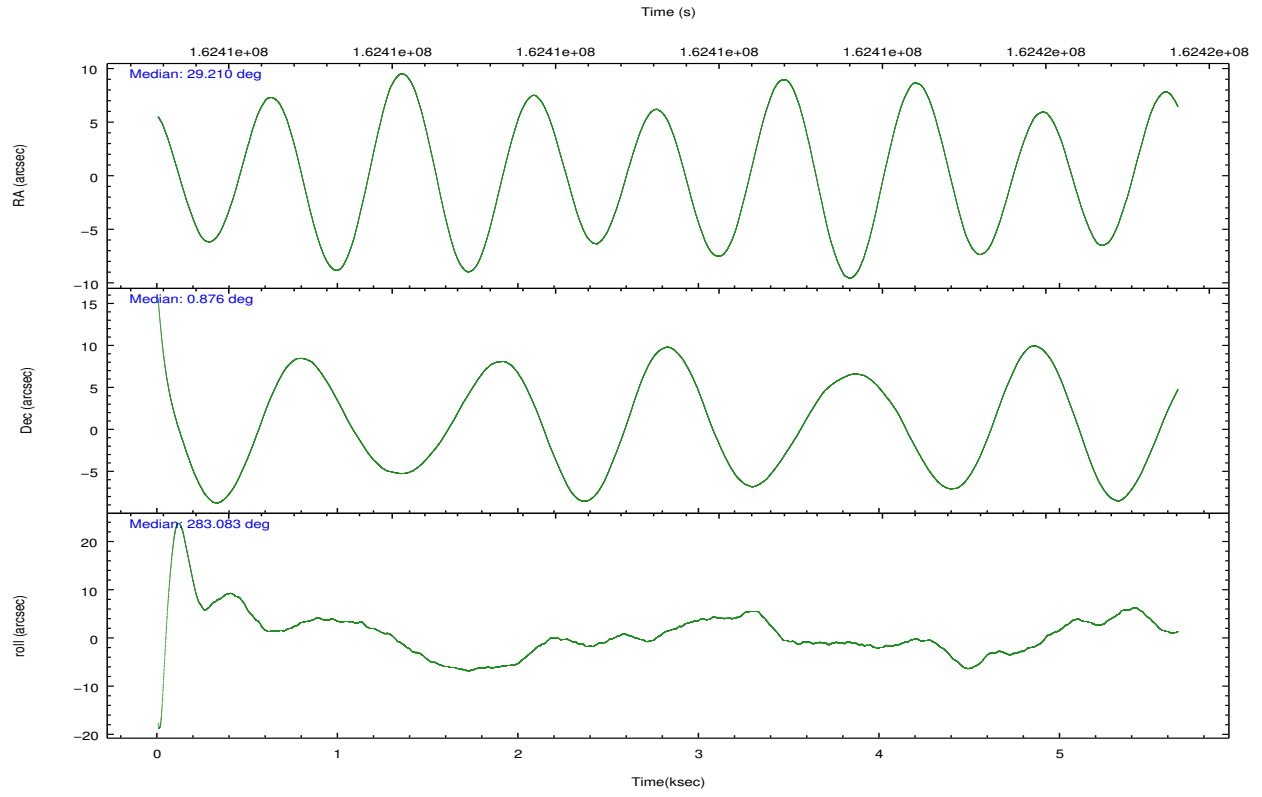


## 2.2 Compared Parameters

| 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                 | 29.191130           | 29.21002767879388    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | 0.895643            | 0.8759355368089641   | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 282.933855          | 283.0900745804948    | [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         | -190.145094680475    |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.01257209746719923  |                                       |           |         |
| [s] Observation start time (MET)  | 162410013.184000    | 162408709.8994       |                                       |           |         |
| Observation start date            | 2003-02-23T17:52:29 | 2003-02-23T17:31:49  |                                       |           |         |
| [s] Observation end time (MET)    | 162415513.184000    | 162416523.47473      |                                       |           |         |
| Observation end date              | 2003-02-23T19:24:09 | 2003-02-23T19:42:03  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



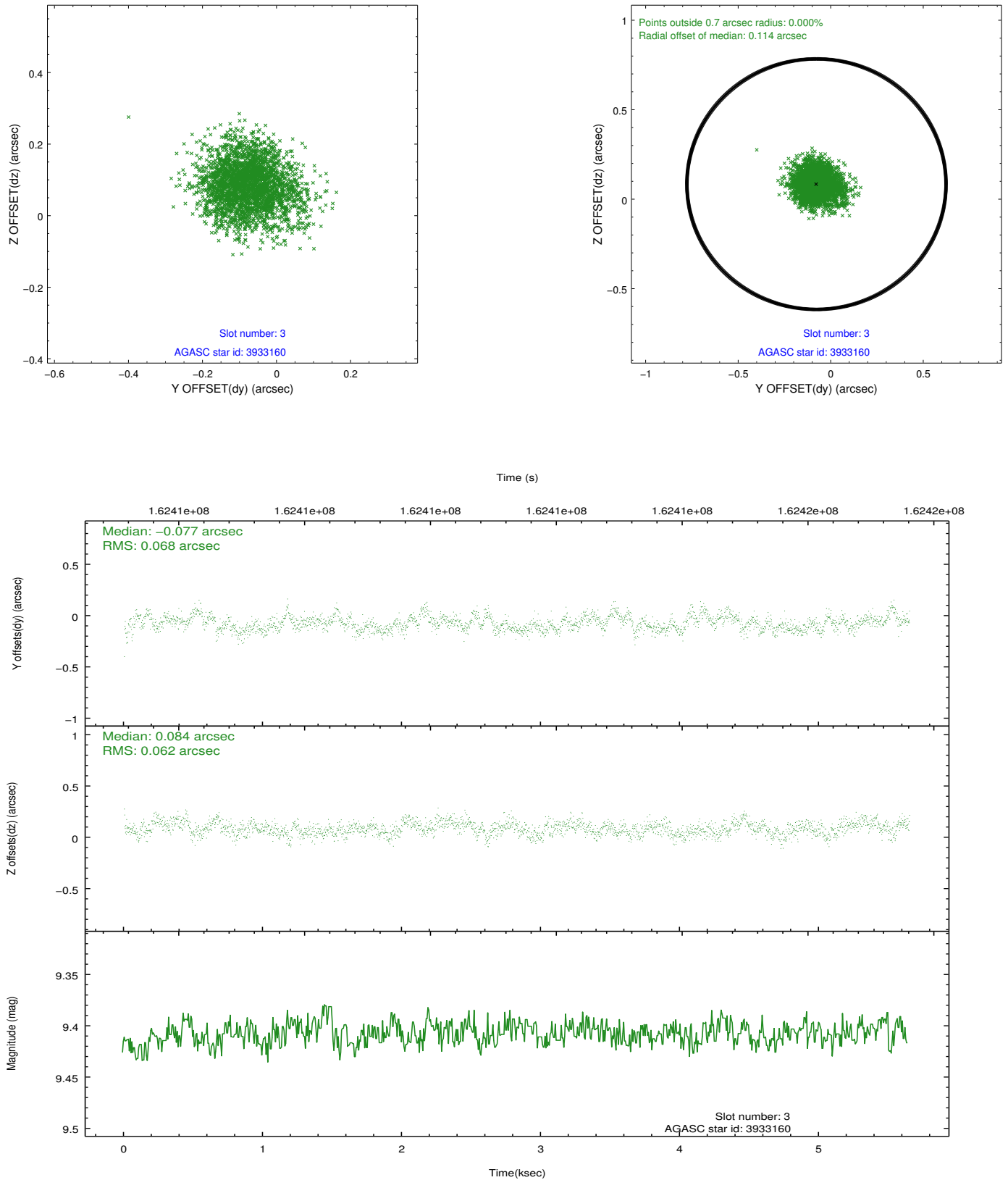


### Slot Statistics

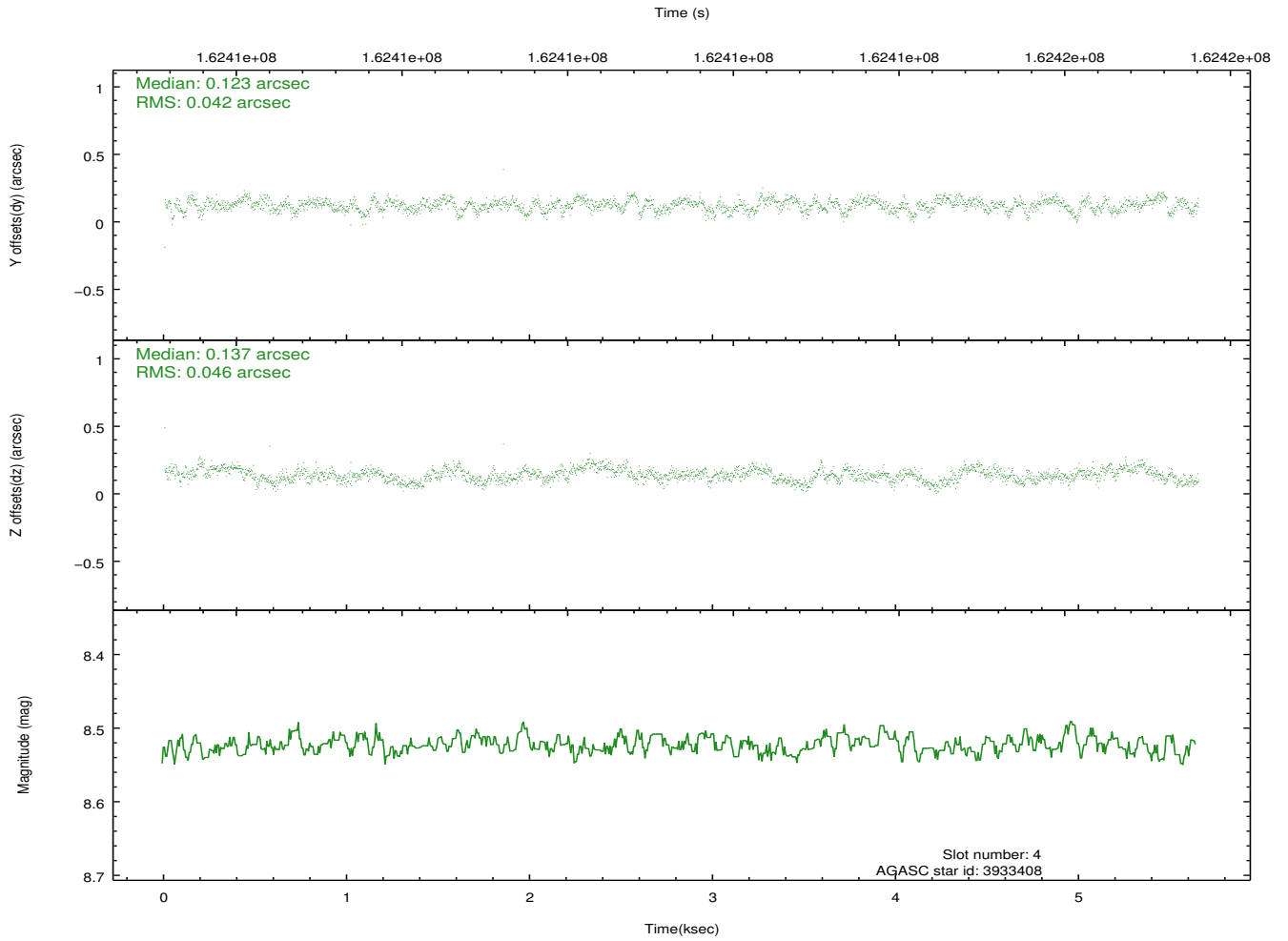
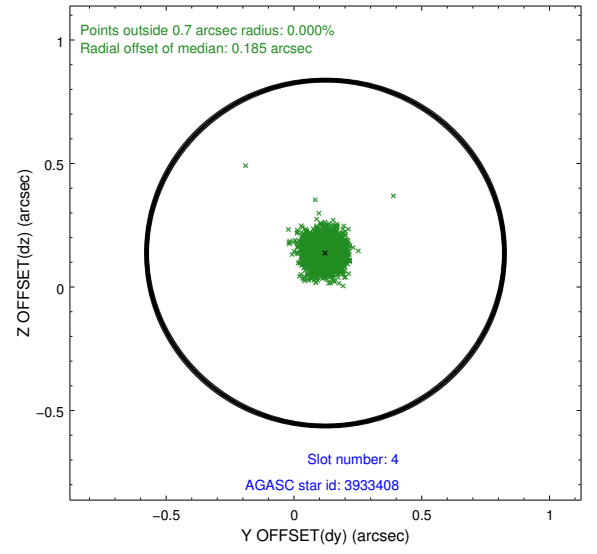
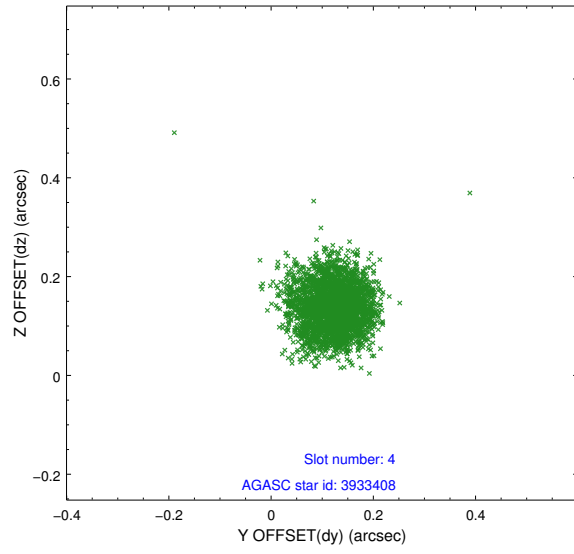
| slot | status | id       | mag   | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec      | mean_y   | mean_z   |
|------|--------|----------|-------|-------|--------|--------|-------|-------|-----------|----------|----------|----------|
| 0    | FID    | ACIS-S-2 | 7.12  | 1378  | -0.038 | -0.000 | 0.010 | 0.015 | 0.000000  | 0.000000 | -755.19  | -1727.91 |
| 1    | FID    | ACIS-S-4 | 7.20  | 1378  | -0.003 | 0.018  | 0.006 | 0.012 | 0.000000  | 0.000000 | 2157.61  | 179.53   |
| 2    | FID    | ACIS-S-5 | 7.24  | 1379  | 0.009  | -0.009 | 0.009 | 0.014 | 0.000000  | 0.000000 | -1806.65 | 174.33   |
| 3    | GUIDE  | 3933160  | 9.41  | 2756  | -0.077 | 0.084  | 0.098 | 0.159 | 29.607018 | 0.758442 | 816.15   | 1348.85  |
| 4    | GUIDE  | 3933408  | 8.52  | 2757  | 0.123  | 0.137  | 0.067 | 0.102 | 29.793077 | 0.506917 | 1848.98  | 1799.81  |
| 5    | GUIDE  | 3937024  | 10.02 | 2755  | -0.155 | -0.061 | 0.128 | 0.202 | 28.630904 | 1.215320 | -1572.49 | -1707.07 |
| 6    | GUIDE  | 3939256  | 9.94  | 2746  | 0.097  | 0.026  | 0.156 | 0.243 | 28.955841 | 0.906301 | -227.47  | -817.31  |
| 7    | GUIDE  | 3932200  | 9.31  | 2754  | 0.020  | -0.178 | 0.126 | 0.233 | 28.826564 | 0.608712 | 713.03   | -1510.61 |

## 2.4 Star Slots

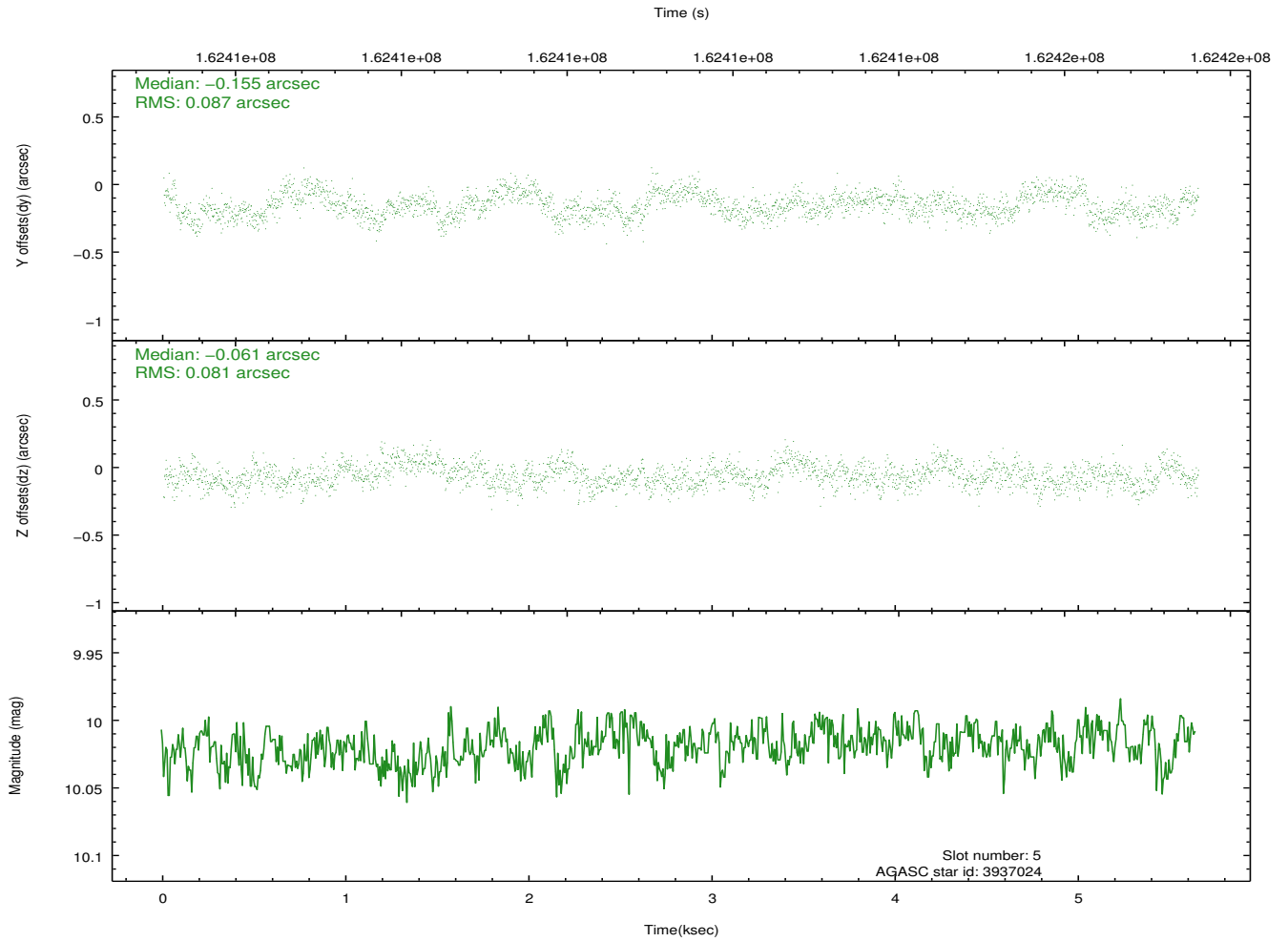
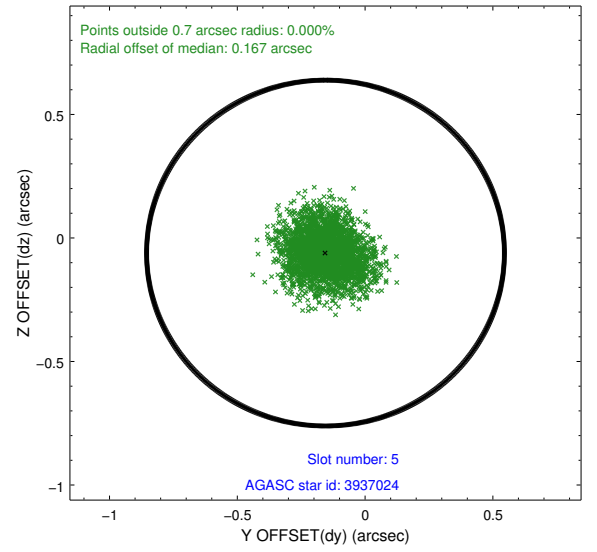
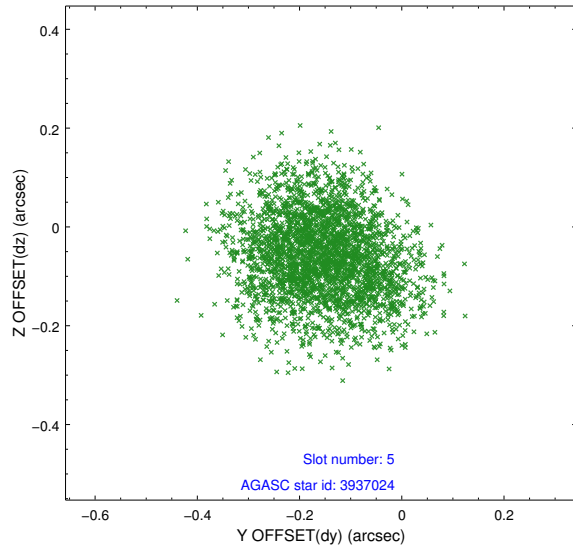
### 2.4.1 Slot 3



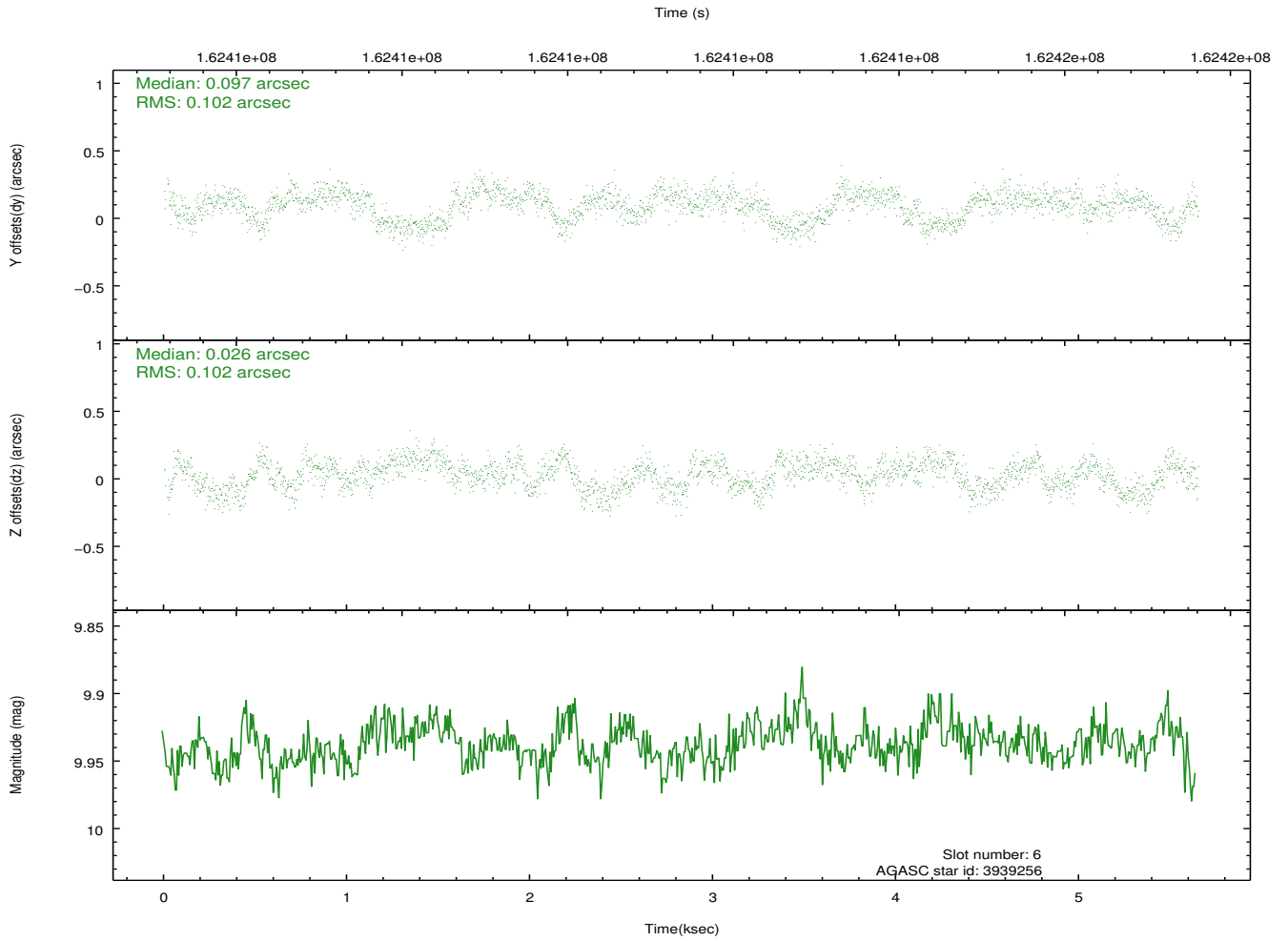
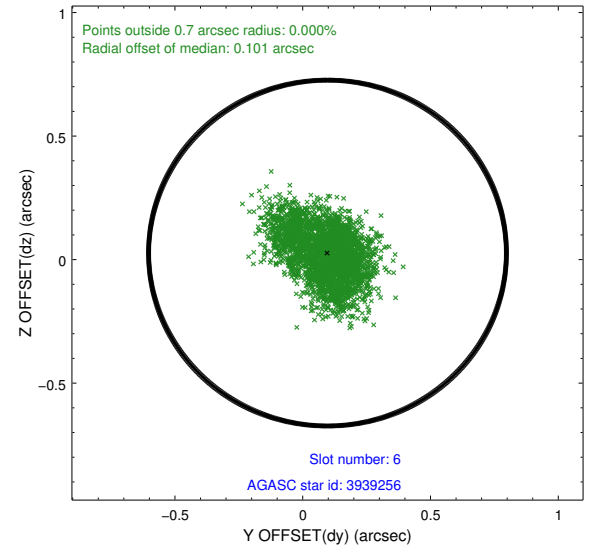
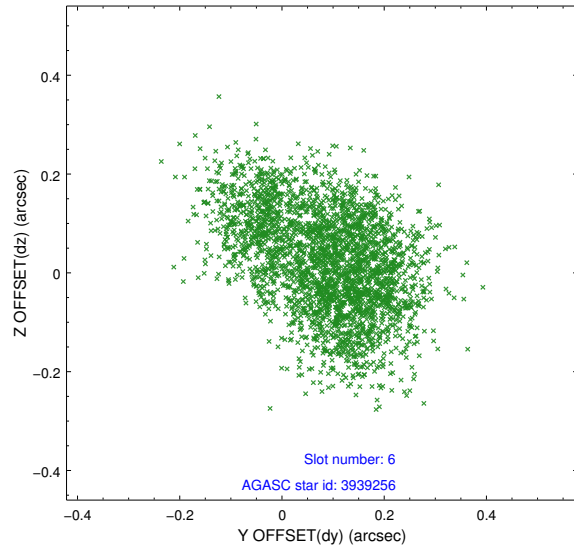
## 2.4.2 Slot 4



### 2.4.3 Slot 5

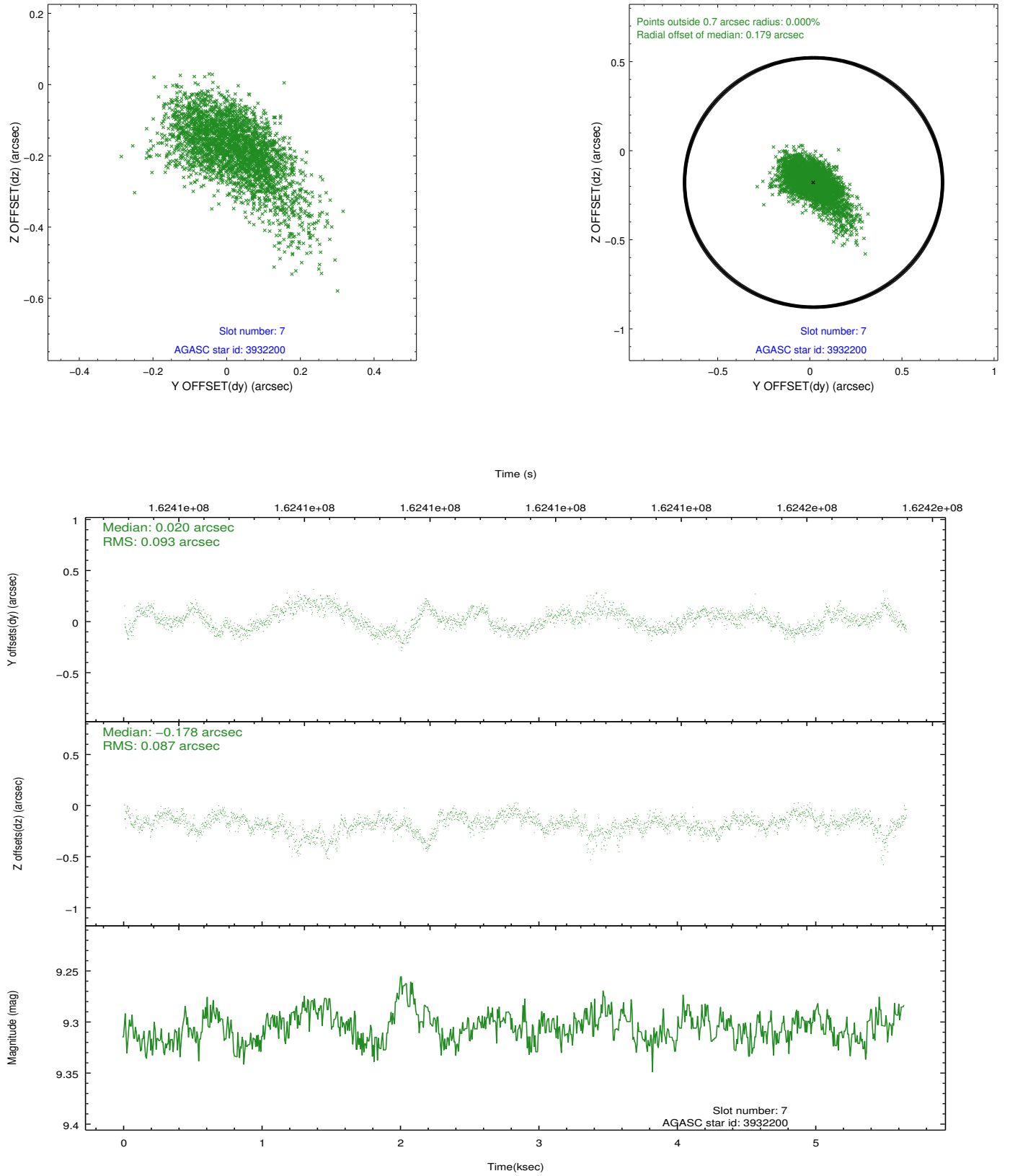


## 2.4.4 Slot 6



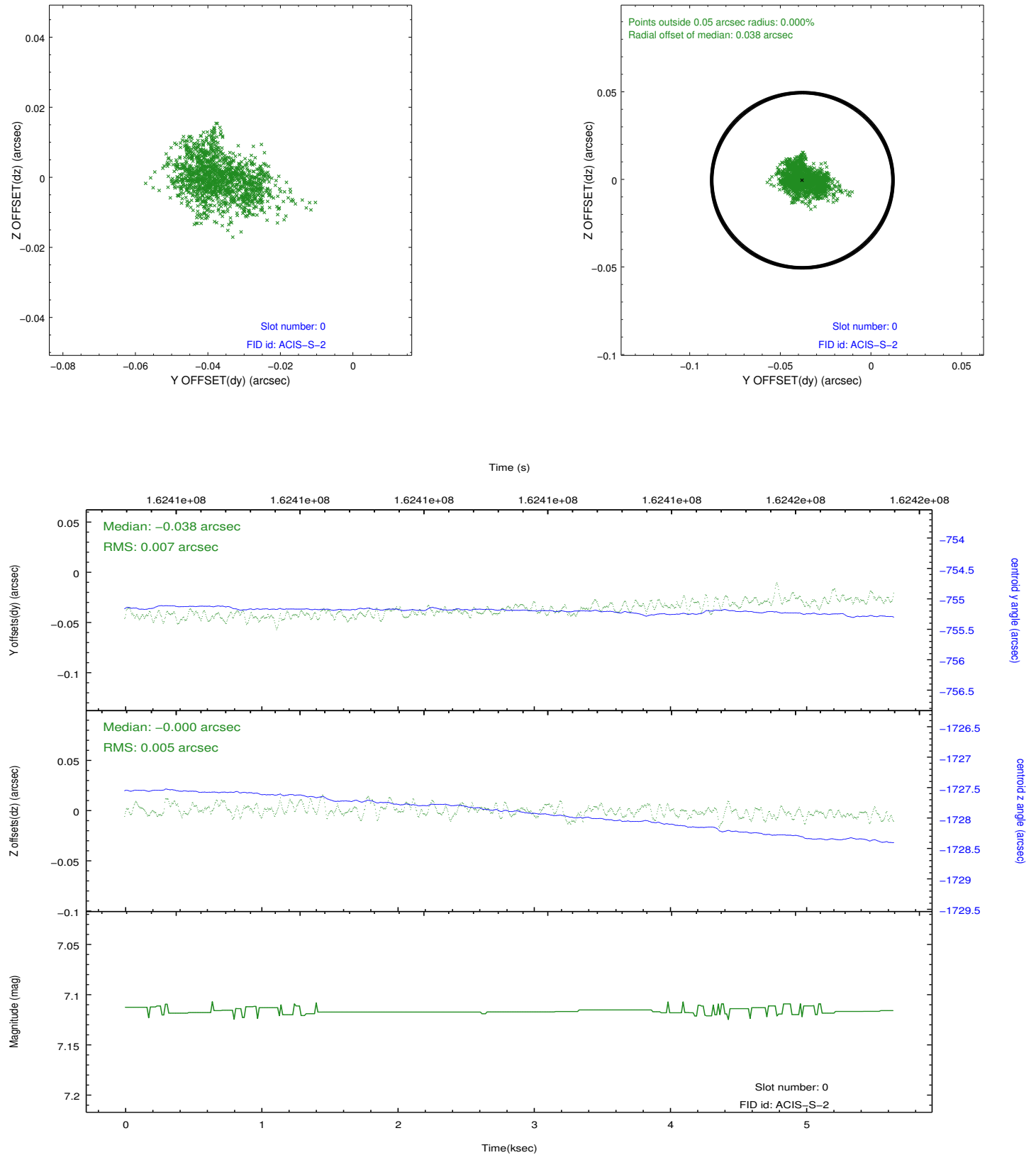


## 2.4.5 Slot 7

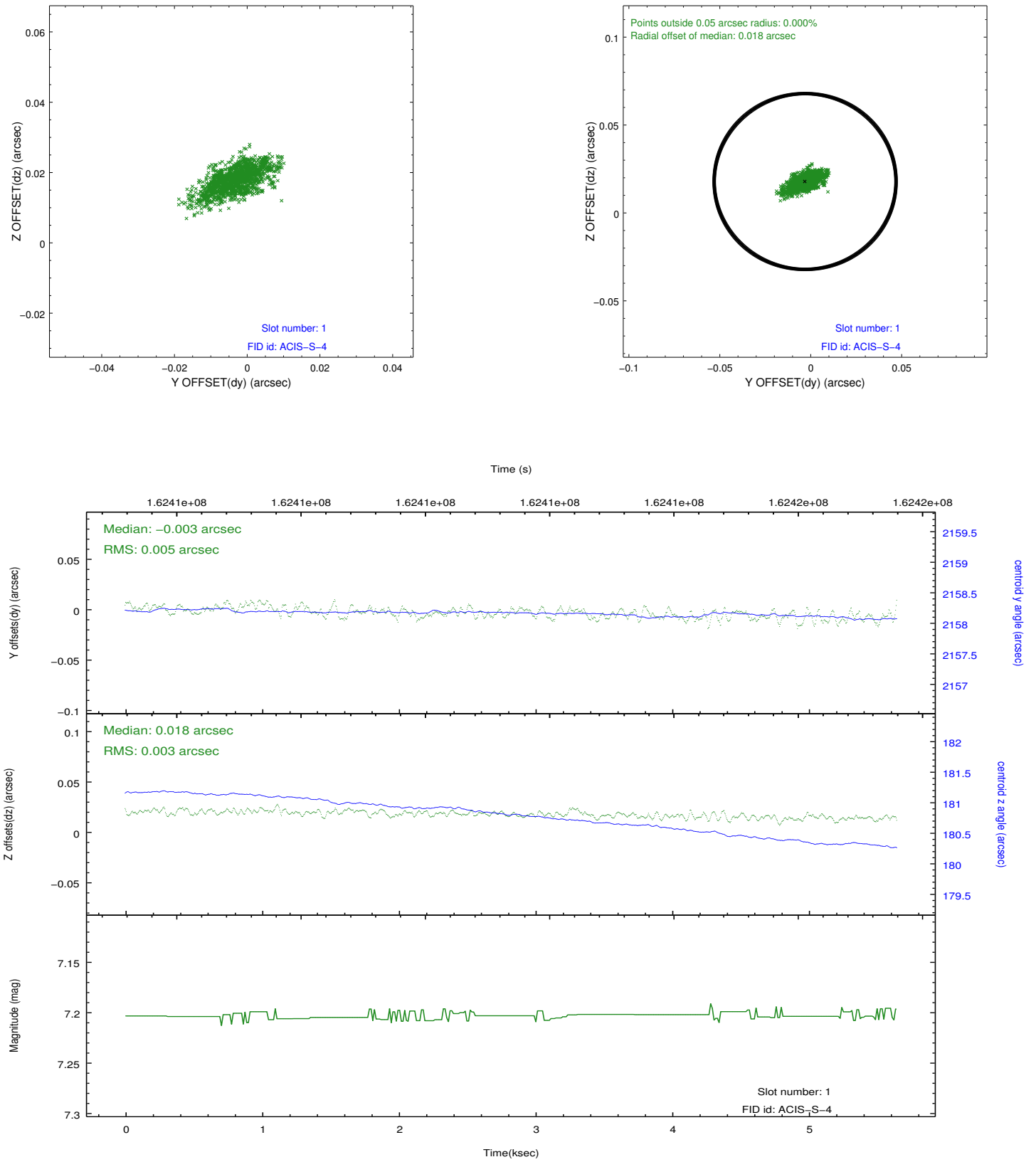


## 2.5 FID Slots

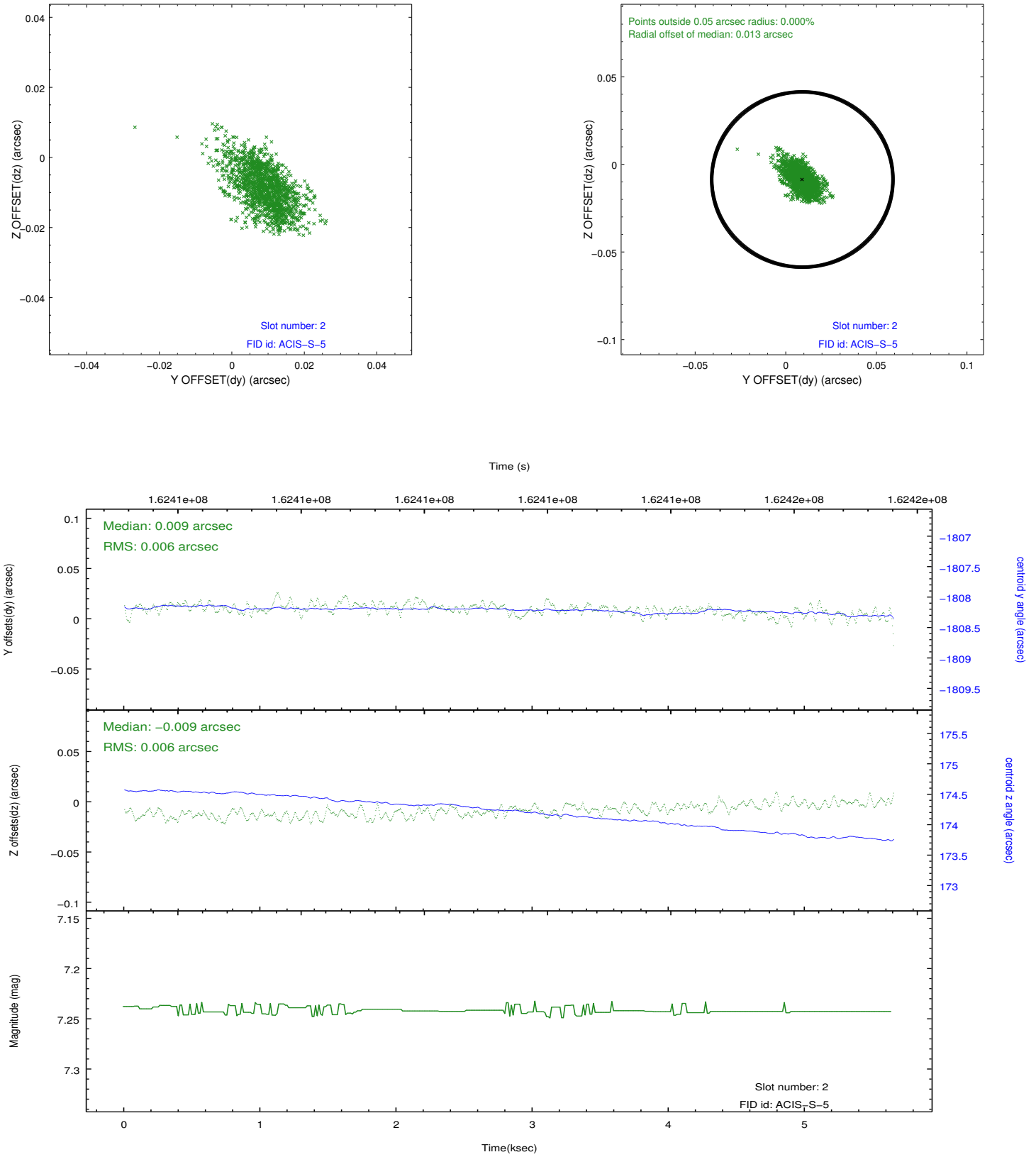
### 2.5.1 Slot 0



## 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)      | 2012.11.07 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 5.644      |

### A.2 Comments