

# V&V Reference Report

## L2 ASCDS Version : 8.5.1.1

Observation 5810 - L2 Version 3  
Chandra X-Ray Center

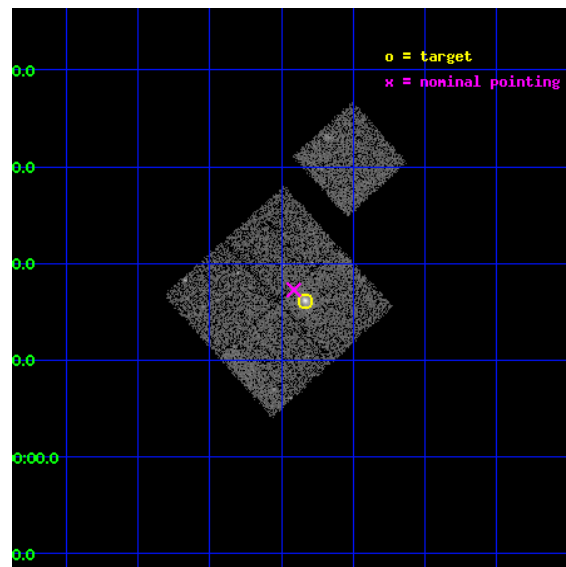
L2 Processing Date : Dec 30 2012

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# 1 Front

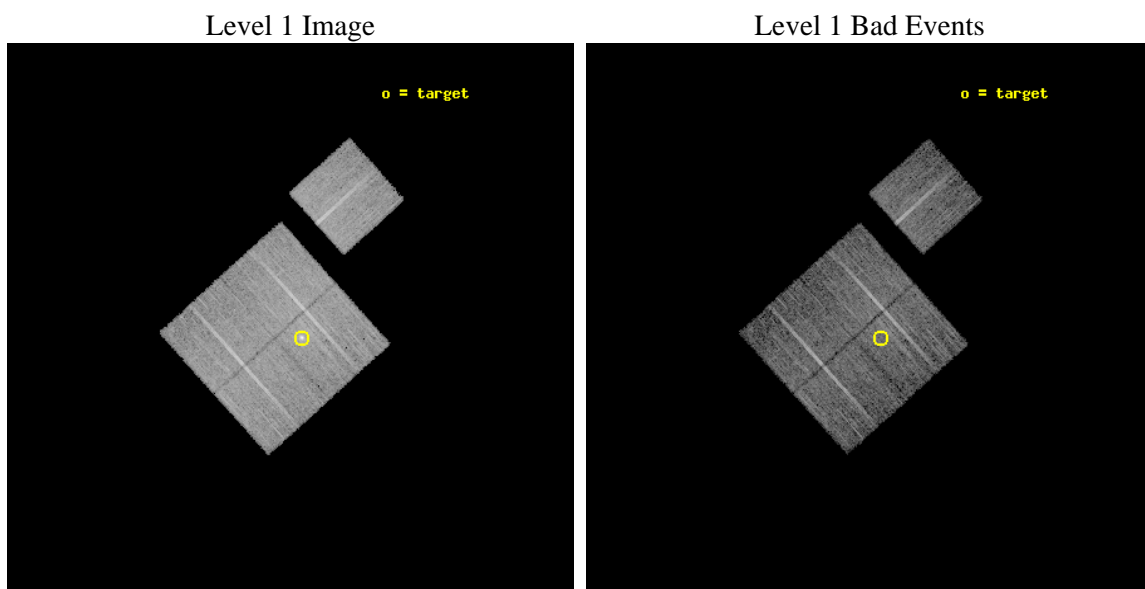
|          |   |   |
|----------|---|---|
| seq_num  | 800523  | Sequence number                             |
| obs_id   | 5810  | Observation id                              |
| title    | MACS: The most massive galaxy clusters at $z>0.3$ | Proposal title                              |
| observer | Dr. Harald Ebeling                                | Principal investigator                      |
| object   | MACSJ0326.8-0043                                  | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 51.708458   | Observer's specified<br>target RA [deg]     |
| dec_targ | -0.731361   | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 51.728350515721                                   | Nominal RA [deg]                            |
| dec_nom  | -0.71217274803276                                 | Nominal Dec [deg]                           |
| roll_nom | 47.88011082156                                    | Nominal Roll [deg]                          |
| revision | 3   | Processing version of data                  |
| ontime   | 10048.914086342                                   | Sum of GTIs [s]                             |
| livetime | 9917.6176259009                                   | Livetime [s]                                |
| ontime0  | 10048.790966332                                   | Sum of GTIs [s]                             |
| ontime1  | 10045.691026092                                   | Sum of GTIs [s]                             |
| ontime2  | 10048.873046339                                   | Sum of GTIs [s]                             |
| ontime3  | 10048.914086342                                   | Sum of GTIs [s]                             |
| ontime6  | 10048.749926329                                   | Sum of GTIs [s]                             |
| l2events | 31253   | Number of level 2 events                    |



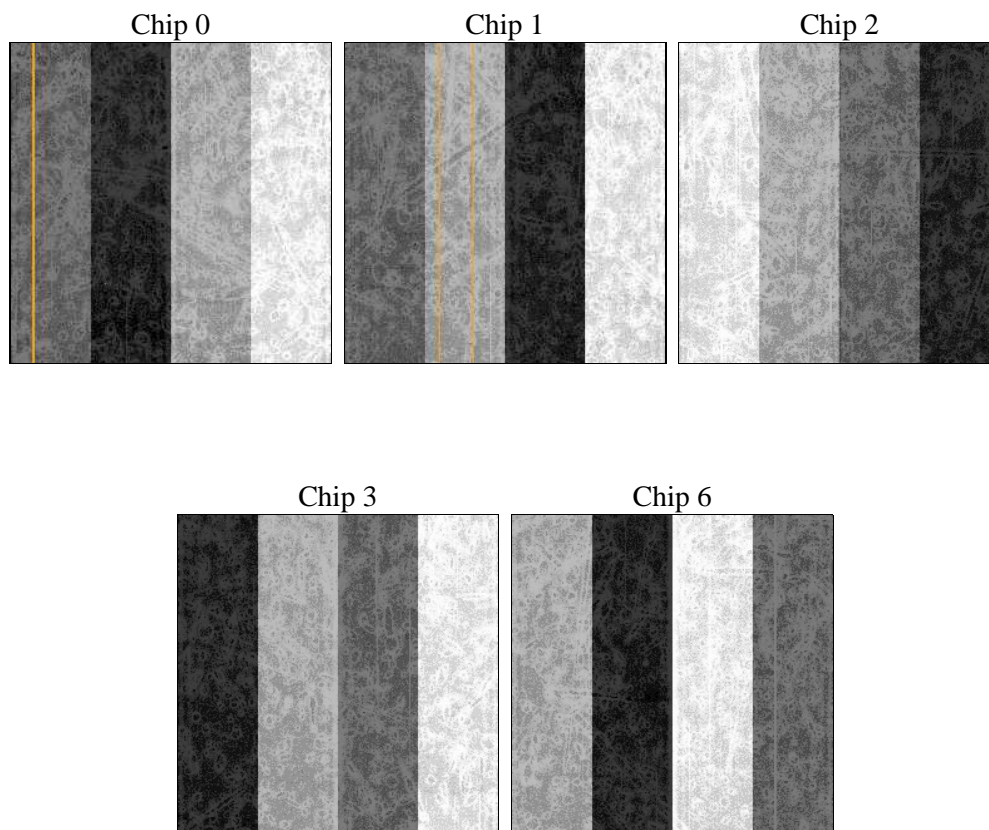
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 1                   | Obi number                     | sched_exp_time | 10000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.5.1.1             | Processing system revision     | ontime         | 10048.914086342 | Sum of GTIs [s]                         |
| caldsver | 4.5.5               | &#160                          | ontime0        | 10048.790966332 | Sum of GTIs [s]                         |
| date     | 2012-12-30T22:49:48 | Date and time of file creation | ontime1        | 10045.691026092 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime2        | 10048.873046339 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 10048.914086342 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 10048.749926329 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 331321          | Number of level 1 events                |

### 2.1.4 Events

|                 | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 |
|-----------------|-------|-------|-------|-------|-------|
| level 1 events  | 61657 | 62688 | 69462 | 69580 | 67934 |
| rejected events | 55066 | 55237 | 62889 | 60250 | 60747 |
| rejected %      | 89%   | 88%   | 90%   | 86%   | 89%   |

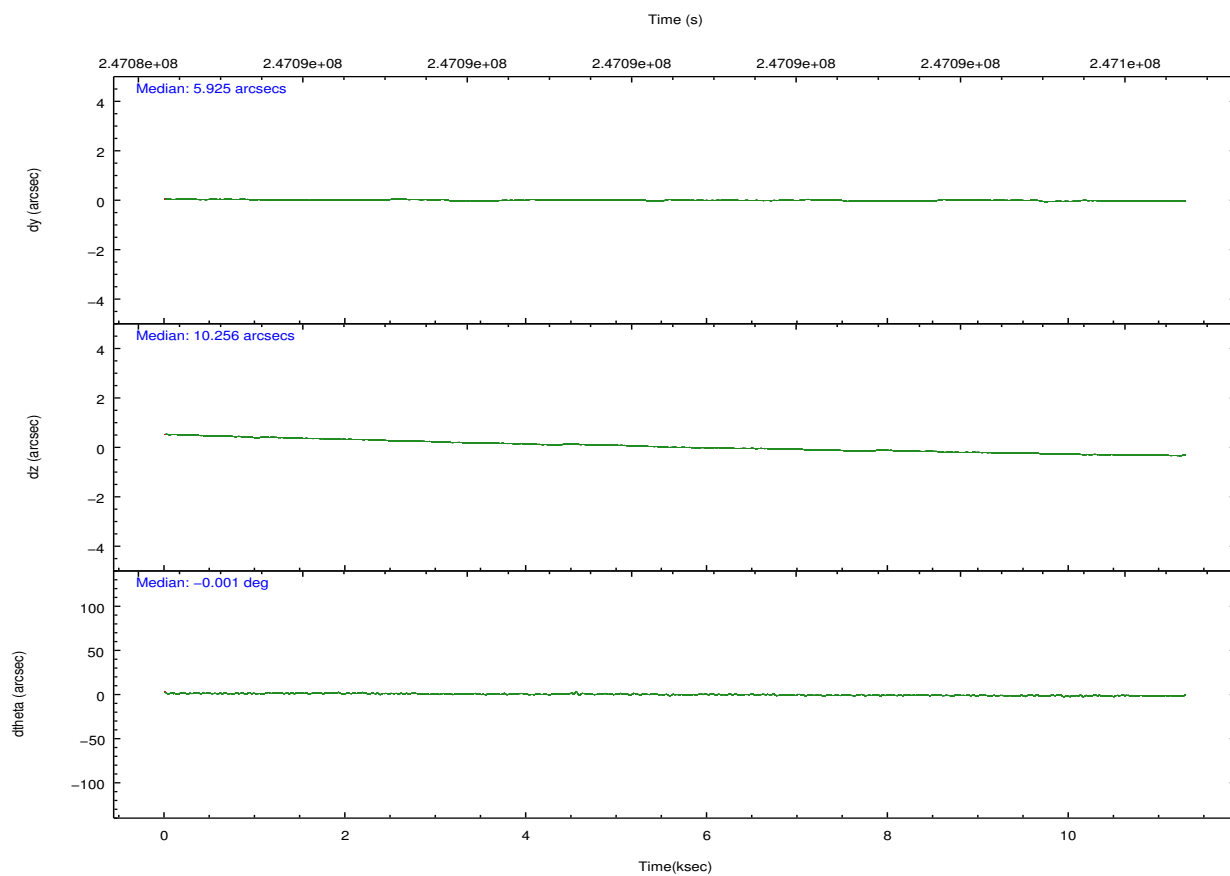
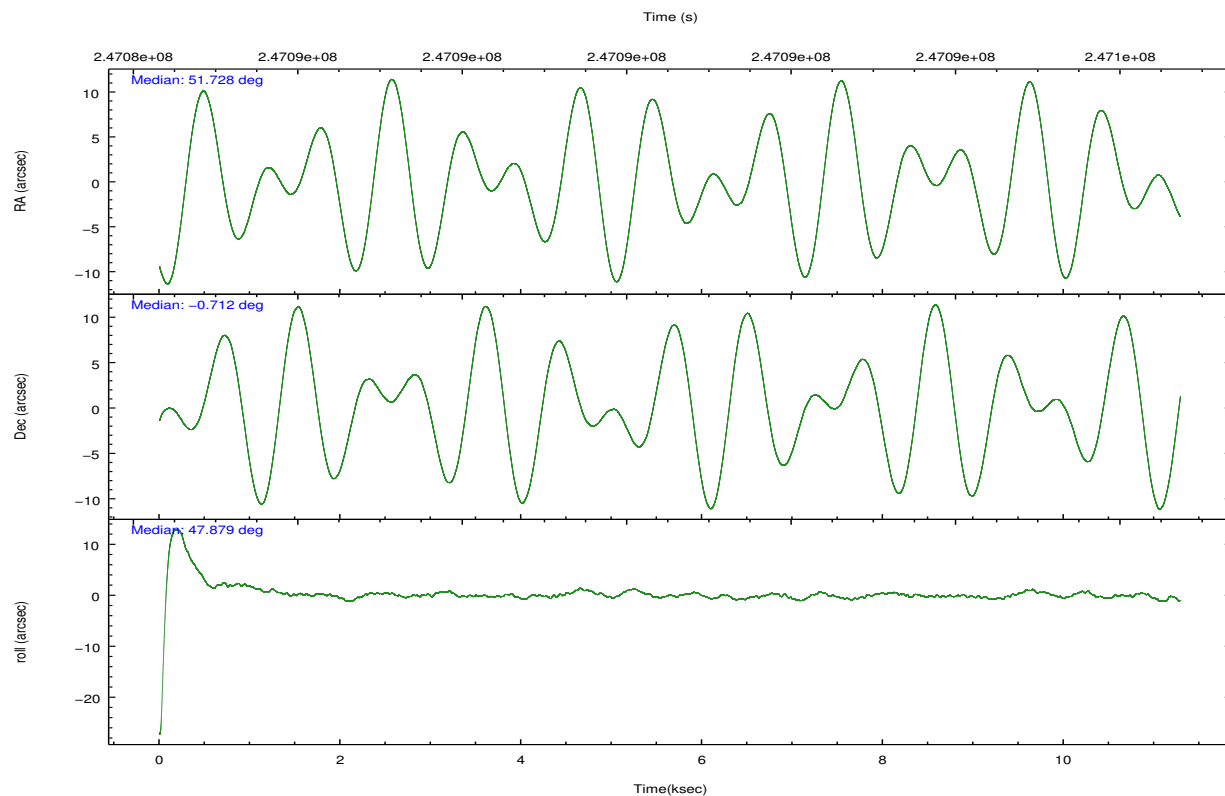
|                | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 |
|----------------|-------|-------|-------|-------|-------|
| grade 0 events | 2393  | 2663  | 2381  | 4665  | 2601  |
|                | 3%    | 4%    | 3%    | 6%    | 3%    |
| grade 1 events | 31    | 36    | 41    | 45    | 30    |
|                | 0%    | 0%    | 0%    | 0%    | 0%    |
| grade 2 events | 1587  | 1649  | 1544  | 1600  | 1530  |
|                | 2%    | 2%    | 2%    | 2%    | 2%    |
| grade 3 events | 725   | 821   | 680   | 852   | 788   |
|                | 1%    | 1%    | 0%    | 1%    | 1%    |
| grade 4 events | 701   | 825   | 710   | 850   | 763   |
|                | 1%    | 1%    | 1%    | 1%    | 1%    |
| grade 5 events | 2233  | 2448  | 2164  | 2841  | 2595  |
|                | 3%    | 3%    | 3%    | 4%    | 3%    |
| grade 6 events | 1190  | 1504  | 1261  | 1371  | 1507  |
|                | 1%    | 2%    | 1%    | 1%    | 2%    |
| grade 7 events | 52797 | 52742 | 60681 | 57356 | 58120 |
|                | 85%   | 84%   | 87%   | 82%   | 85%   |



## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-01236          | ACIS-01236           | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | VFAINT              | VFAINT               | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 51.722739           | 51.72835051572051    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | -0.738956           | -0.712172748032756   | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 47.671394           | 47.88011082156028    | [s] Primary exposure time             | 0.000000  | 3.1     |
| [mm] SIM focus pos                | -0.782348           | -0.7809083437167272  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001439871863259334 |                                       |           |         |
| [mm] SIM translation stage pos    | -229.442463         | -229.4438428438578   |                                       |           |         |
| [mm] SIM translation stage offset | -4.15               | -4.148610159071865   |                                       |           |         |
| [s] Observation start time (MET)  | 247086176.184000    | 247084699.59248      |                                       |           |         |
| Observation start date            | 2005-10-30T19:01:52 | 2005-10-30T18:38:19  |                                       |           |         |
| [s] Observation end time (MET)    | 247096176.184000    | 247097488.51807      |                                       |           |         |
| Observation end date              | 2005-10-30T21:48:32 | 2005-10-30T22:11:28  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect

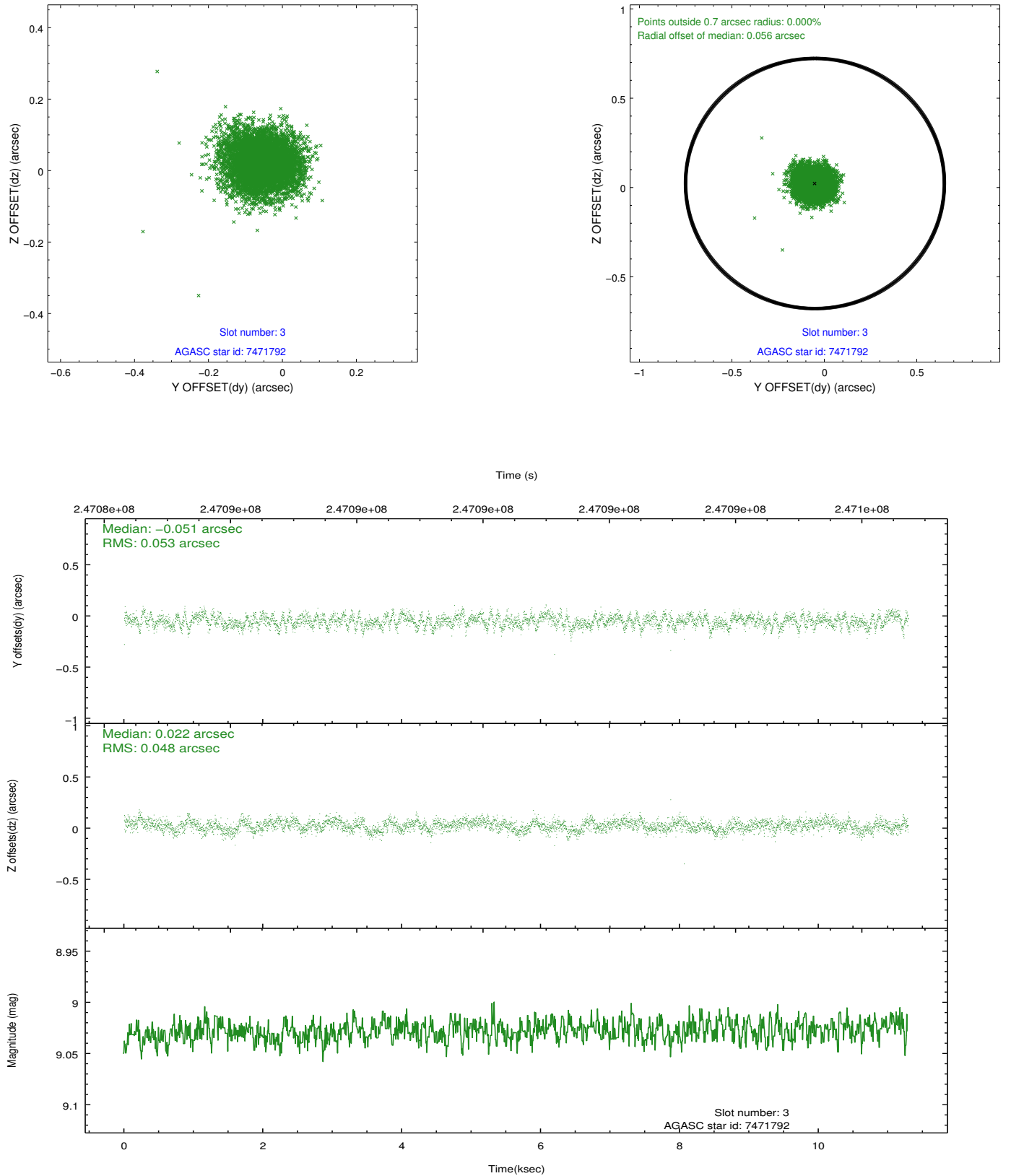


### Slot Statistics

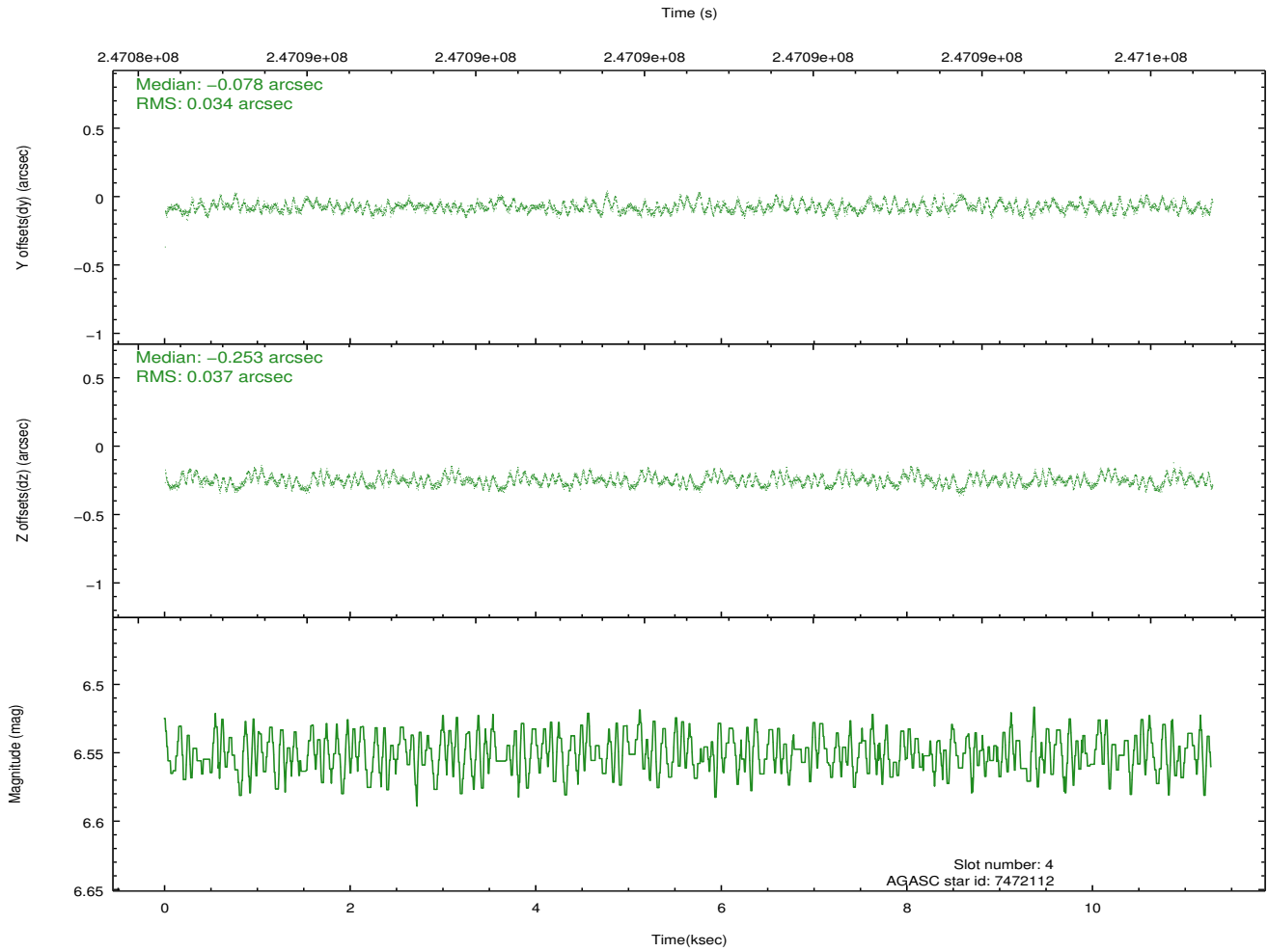
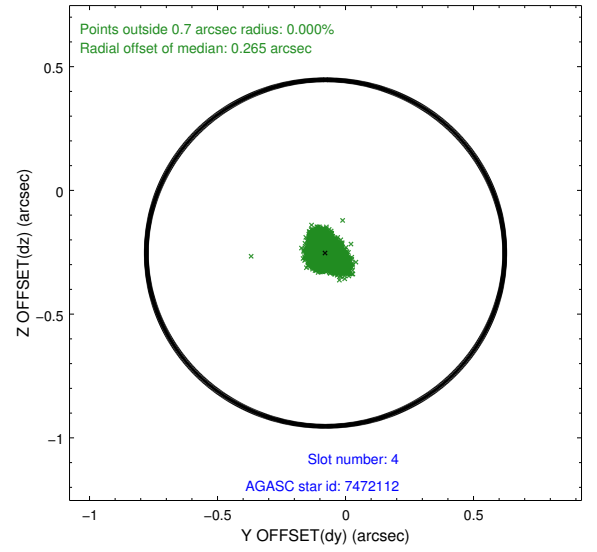
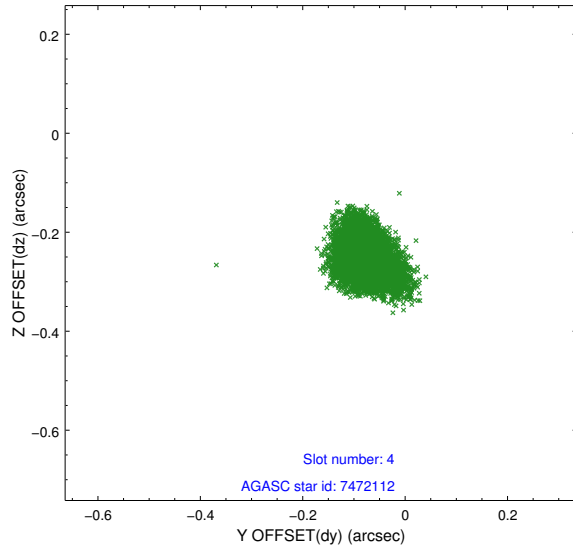
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec       | mean_y   | mean_z  |
|------|--------|-----------|------|-------|--------|--------|-------|-------|-----------|-----------|----------|---------|
| 0    | FID    | ACIS-I-1  | 7.25 | 2754  | 0.078  | -0.041 | 0.008 | 0.014 | 0.000000  | 0.000000  | 933.77   | -918.95 |
| 1    | FID    | ACIS-I-5  | 7.23 | 2753  | -0.222 | 0.077  | 0.008 | 0.013 | 0.000000  | 0.000000  | -1814.35 | 978.45  |
| 2    | FID    | ACIS-I-6  | 7.25 | 2754  | 0.053  | 0.034  | 0.009 | 0.015 | 0.000000  | 0.000000  | 398.84   | 1623.38 |
| 3    | GUIDE  | 7471792   | 9.03 | 5501  | -0.051 | 0.022  | 0.076 | 0.121 | 51.669944 | 0.071818  | 2030.03  | 2106.02 |
| 4    | GUIDE  | 7472112   | 6.55 | 5507  | -0.078 | -0.253 | 0.054 | 0.085 | 51.705167 | 0.026178  | 1994.35  | 1901.76 |
| 5    | GUIDE  | 617223568 | 8.61 | 5508  | -0.053 | 0.188  | 0.079 | 0.120 | 52.227027 | -0.417531 | 2078.38  | -563.09 |
| 6    | GUIDE  | 617226472 | 8.72 | 5502  | 0.135  | 0.031  | 0.065 | 0.106 | 51.517896 | -0.643841 | -242.54  | 775.74  |
| 7    | GUIDE  | 617227784 | 9.10 | 5505  | 0.046  | 0.008  | 0.078 | 0.128 | 51.447692 | -0.728205 | -637.87  | 758.08  |

## 2.4 Star Slots

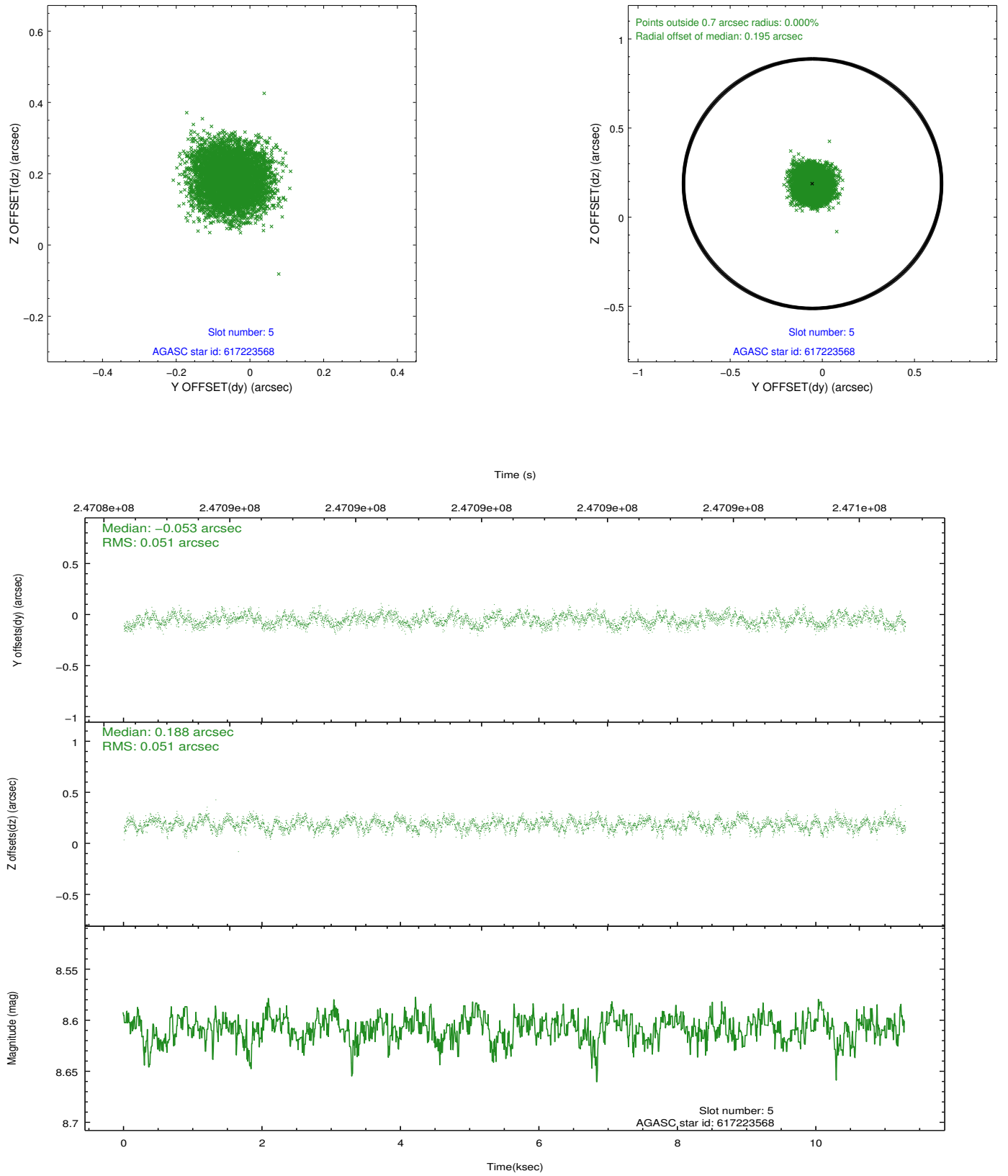
### 2.4.1 Slot 3



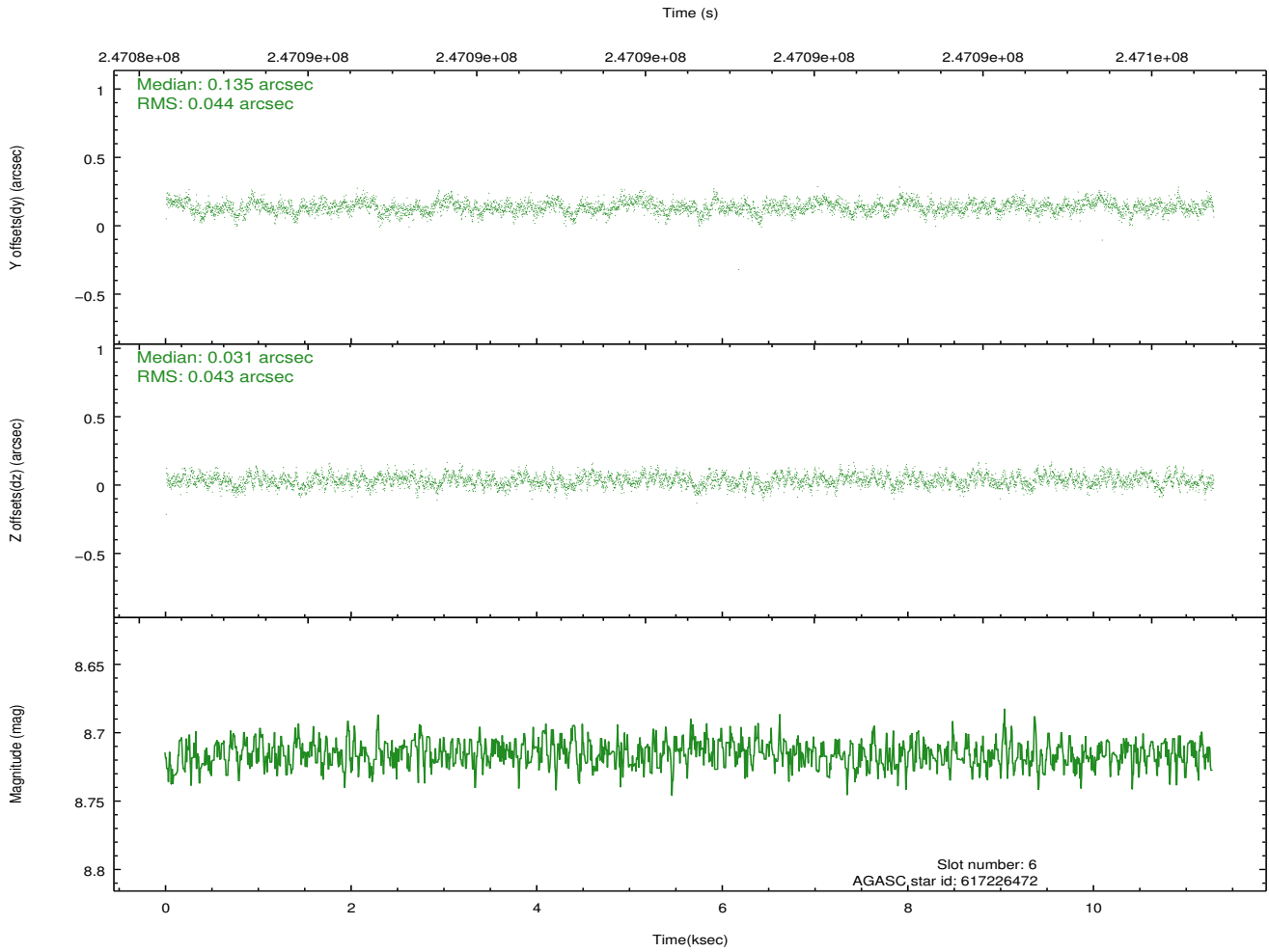
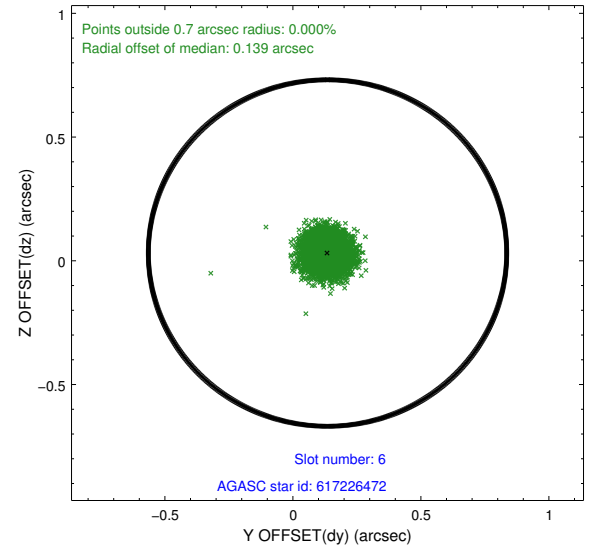
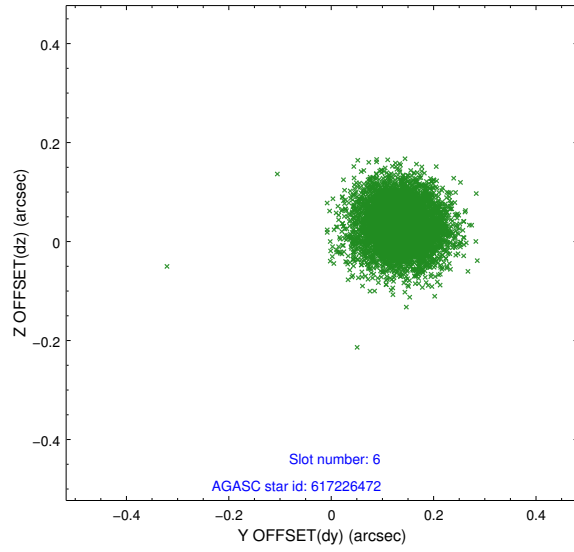
## 2.4.2 Slot 4



### 2.4.3 Slot 5

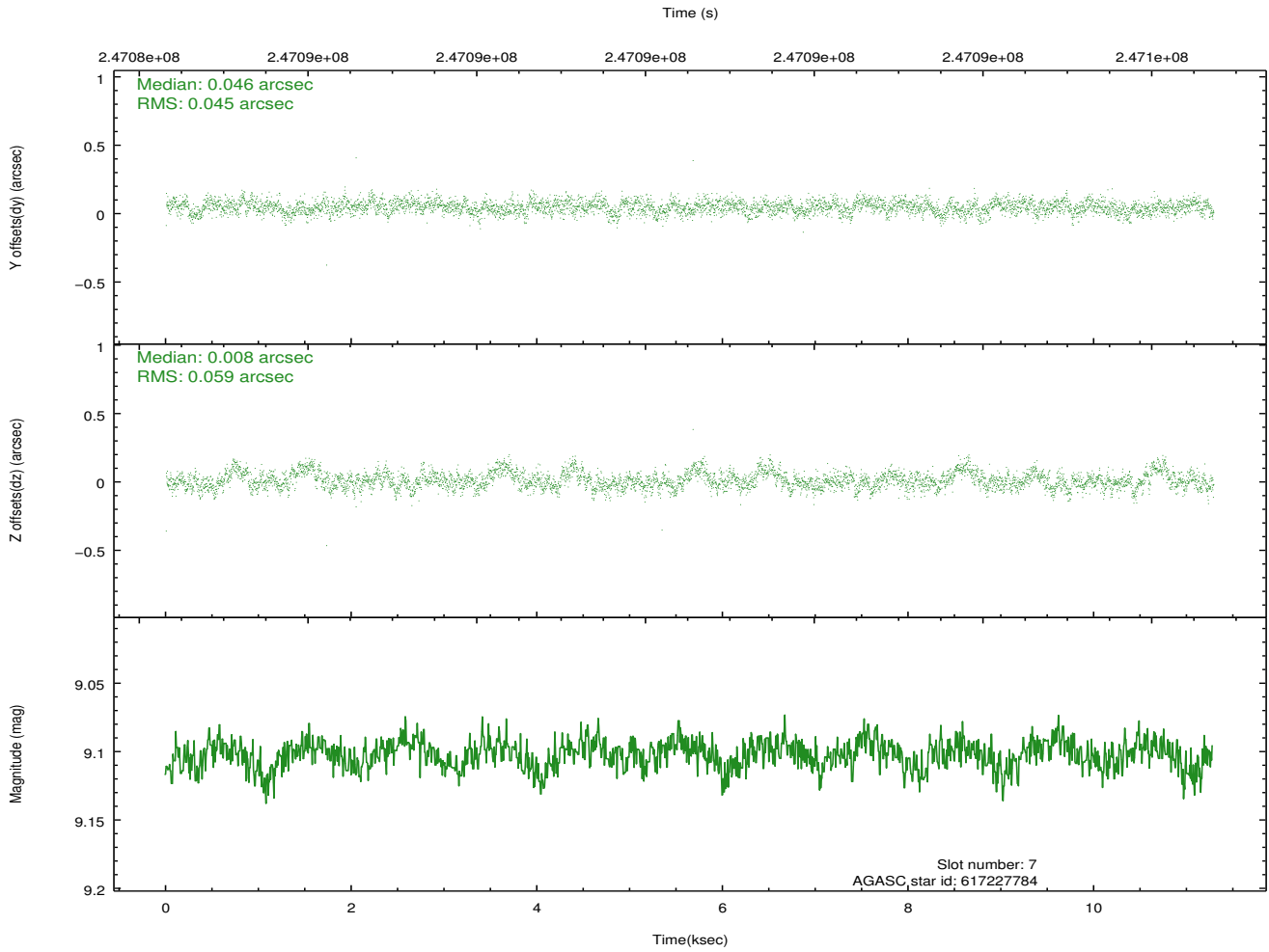
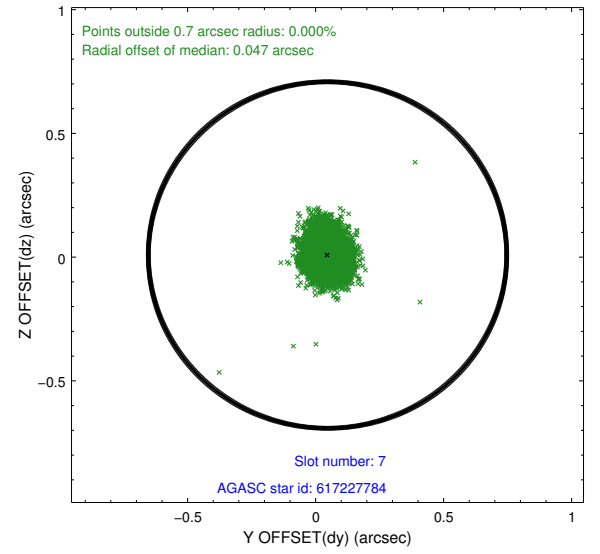
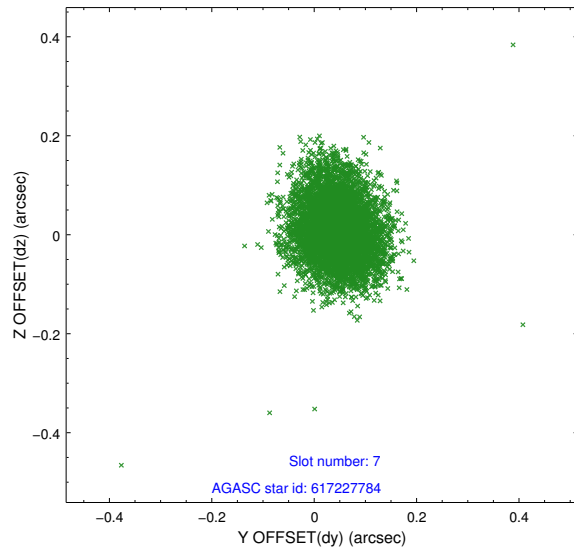


## 2.4.4 Slot 6



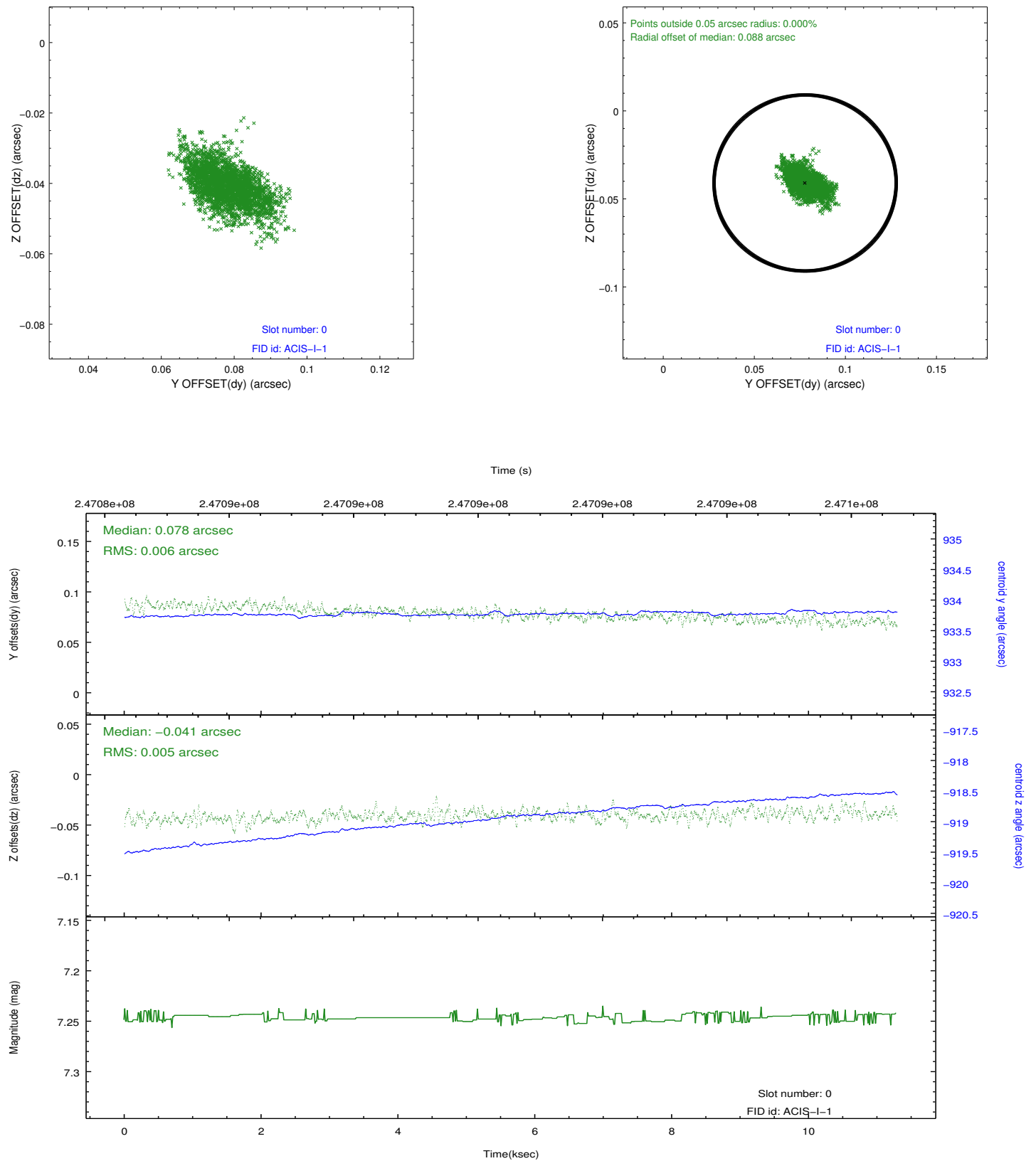


### 2.4.5 Slot 7

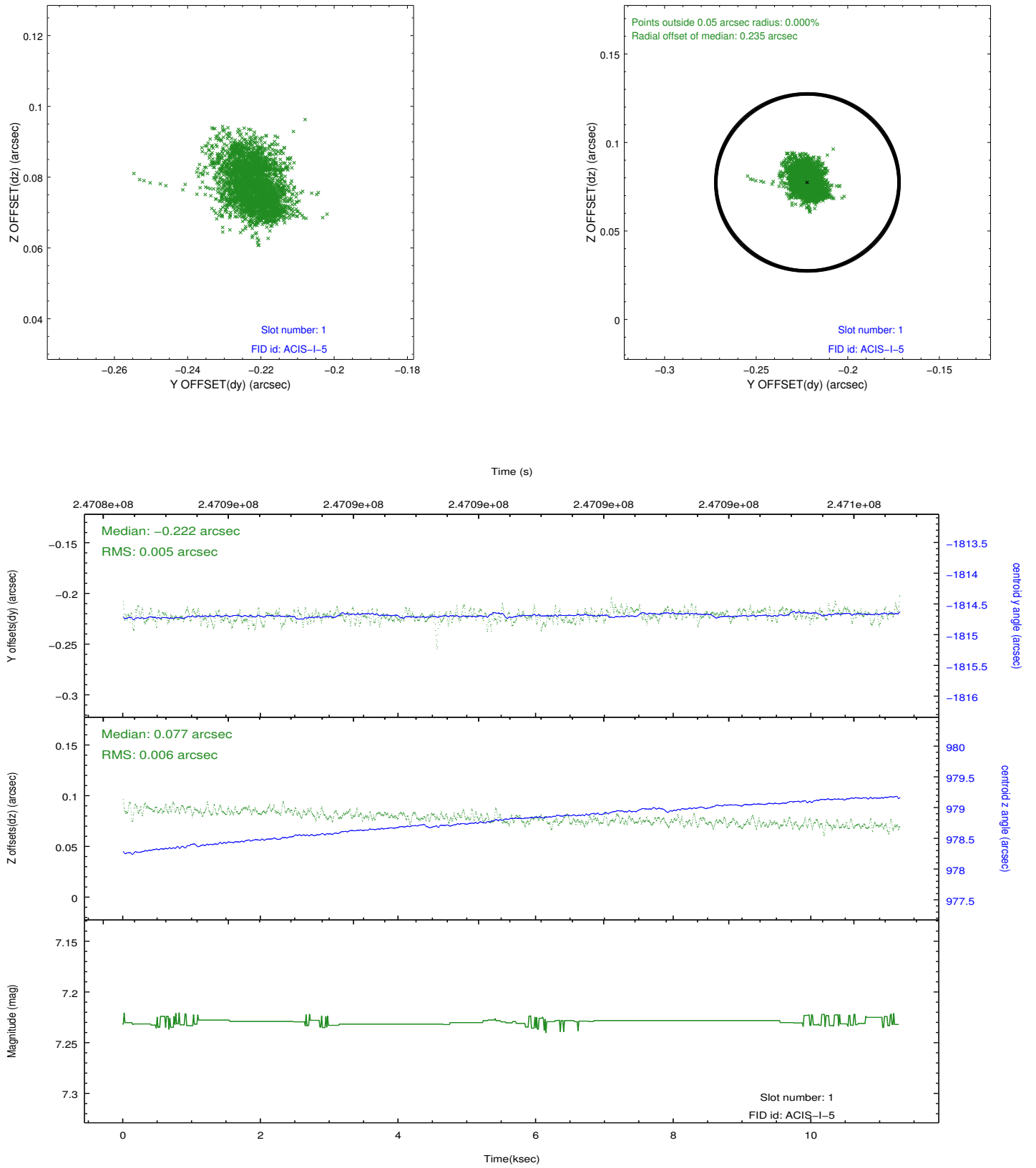


## 2.5 FID Slots

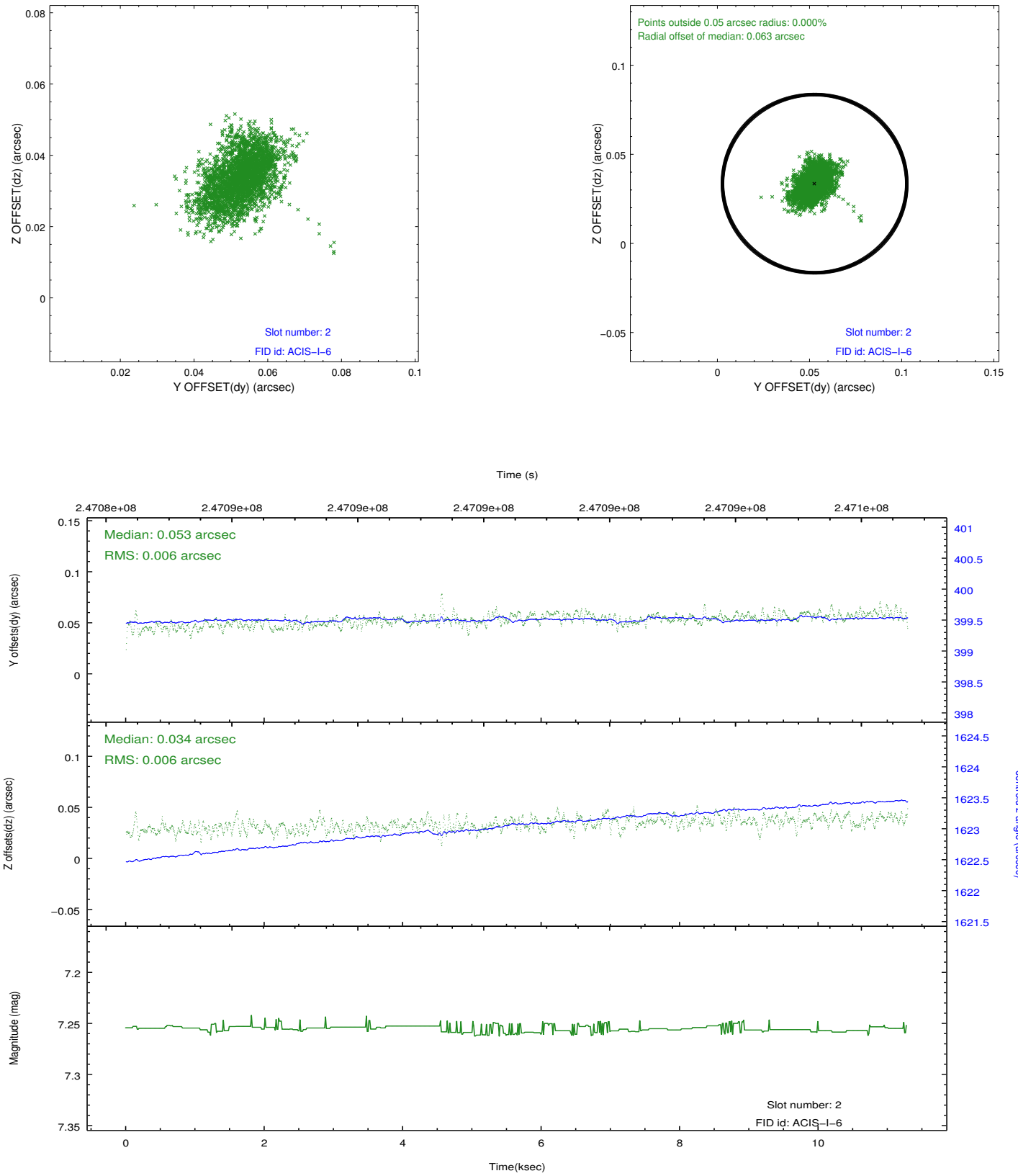
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |               |
|----------------------------|---------------|
| V&V Scientist              | Beth Sundheim |
| V&V Date (YYYY-MM-DD)      | 2013.01.27    |
| V&V Edition                | 1             |
| V&V Disposition and Status | OK            |
| V&V Charge Time            | 10.05019      |

### A.2 Comments