

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 13475 - L2 Version 3  
Chandra X-Ray Center

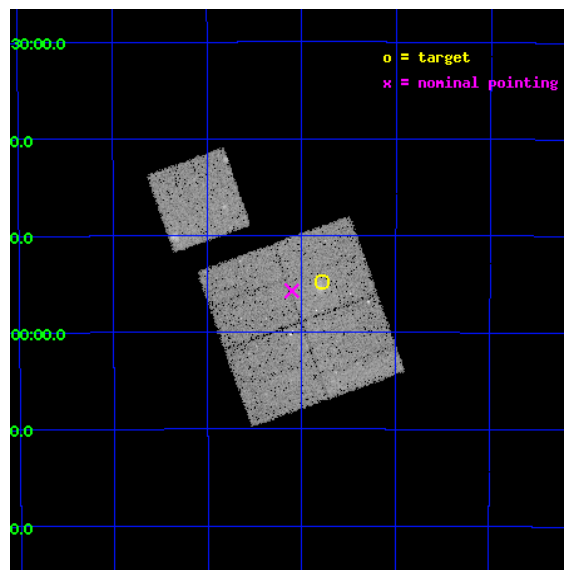
L2 Processing Date : Feb 28 2012

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# 1 Front

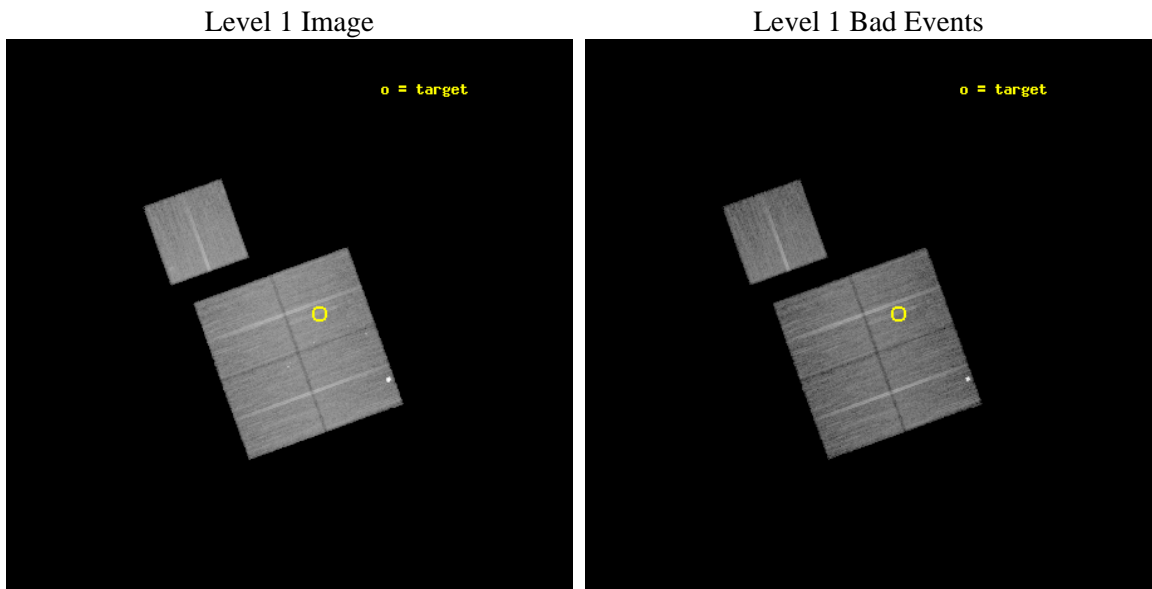
|          |   |   |
|----------|---|---|
| seq_num  | 801116  | Sequence number                             |
| obs_id   | 13475   | Observation id                              |
| title    | Cosmology and Cluster Evolution from the 80 Most Massive Clusters in 2000 deg <sup>2</sup> from the South Pole Telescope Survey | Proposal title                              |
| observer | Dr Bradford Benson  | Principal investigator                      |
| object   | SPT-CLJ0441-4854  | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 70.447083   | Observer's specified target RA [deg]        |
| dec_targ | -48.9125  | Observer's specified target Dec [deg]       |
| ra_nom   | 70.526082733079   | Nominal RA [deg]                            |
| dec_nom  | -48.928783084025  | Nominal Dec [deg]                           |
| roll_nom | 340.26822269244   | Nominal Roll [deg]                          |
| revision | 3   | Processing version of data                  |
| ontime   | 25057.300192714   | Sum of GTIs [s]                             |
| livetime | 24729.90811878  | Livetime [s]                                |
| ontime0  | 25057.300192714   | Sum of GTIs [s]                             |
| ontime1  | 25054.159192383   | Sum of GTIs [s]                             |
| ontime2  | 25051.018202066   | Sum of GTIs [s]                             |
| ontime3  | 25057.300192714   | Sum of GTIs [s]                             |
| ontime6  | 25057.300192714   | Sum of GTIs [s]                             |
| l2events | 78690   | Number of level 2 events                    |



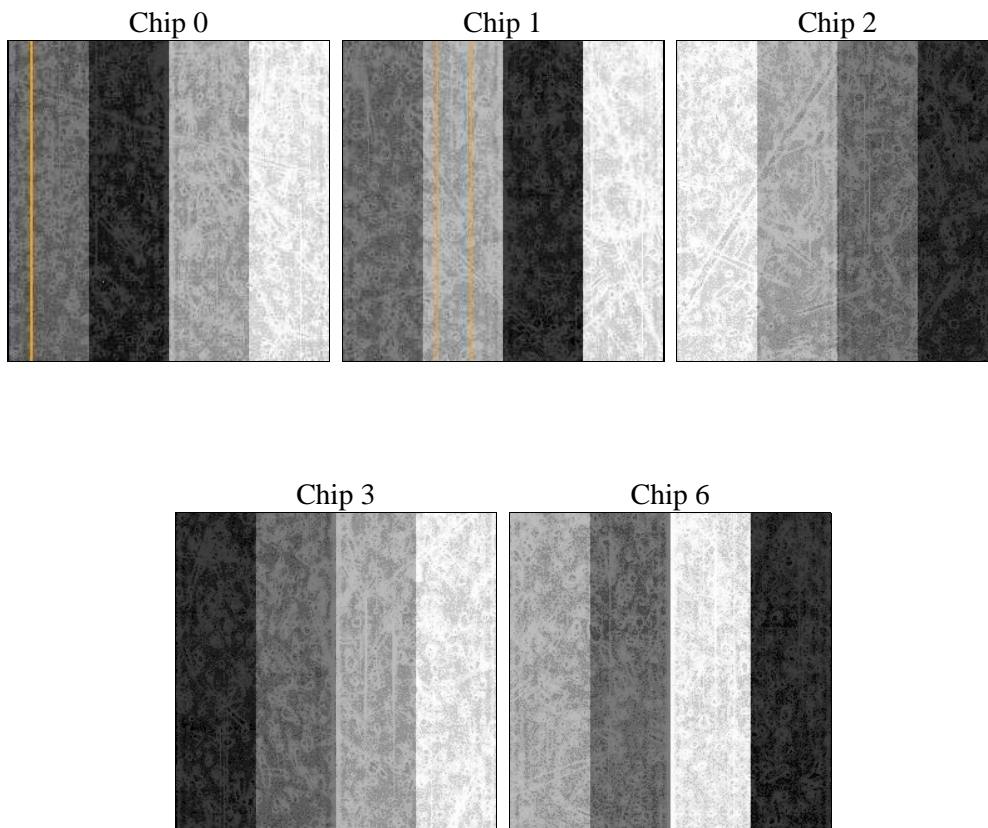
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 25000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.4.3               | Processing system revision     | ontime         | 25057.300192714 | Sum of GTIs [s]                         |
| caldbver | 4.4.8               | &#160                          | ontime0        | 25057.300192714 | Sum of GTIs [s]                         |
| date     | 2012-02-28T16:36:33 | Date and time of file creation | ontime1        | 25054.159192383 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime2        | 25051.018202066 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 25057.300192714 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 25057.300192714 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 796987          | Number of level 1 events                |

### 2.1.4 Events

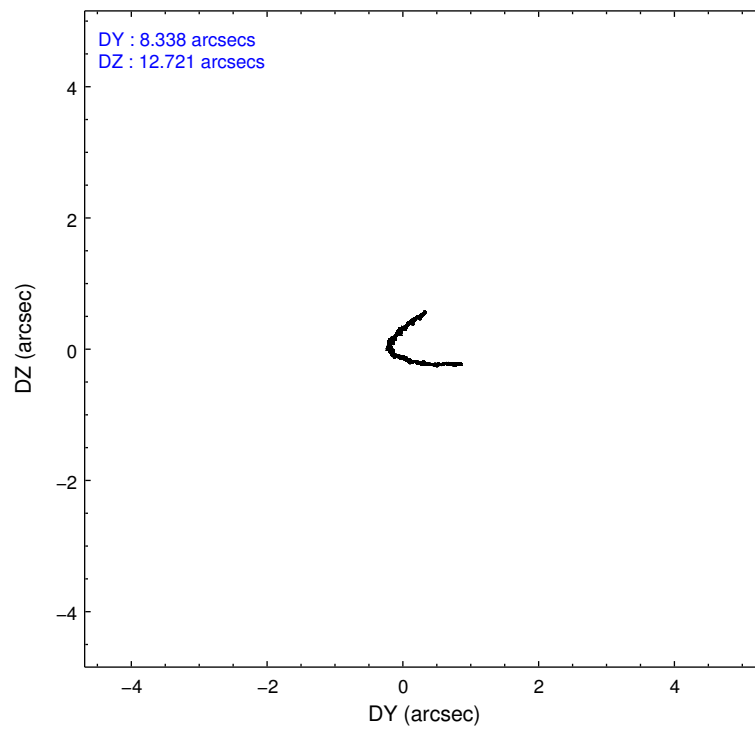
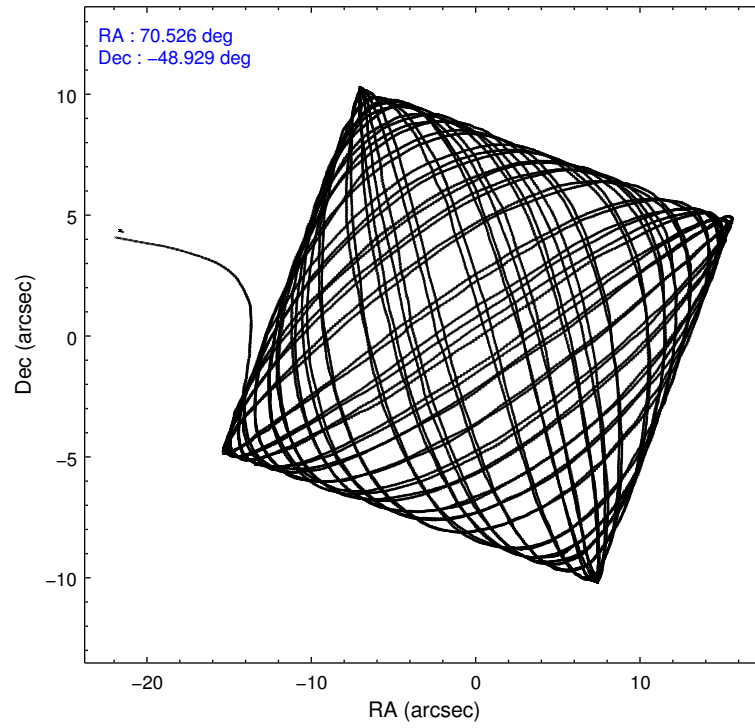
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 148276 | 166358 | 160093 | 160104 | 162156 |
| rejected events | 129770 | 138880 | 142450 | 141941 | 143216 |
| rejected %      | 87%    | 83%    | 88%    | 88%    | 88%    |

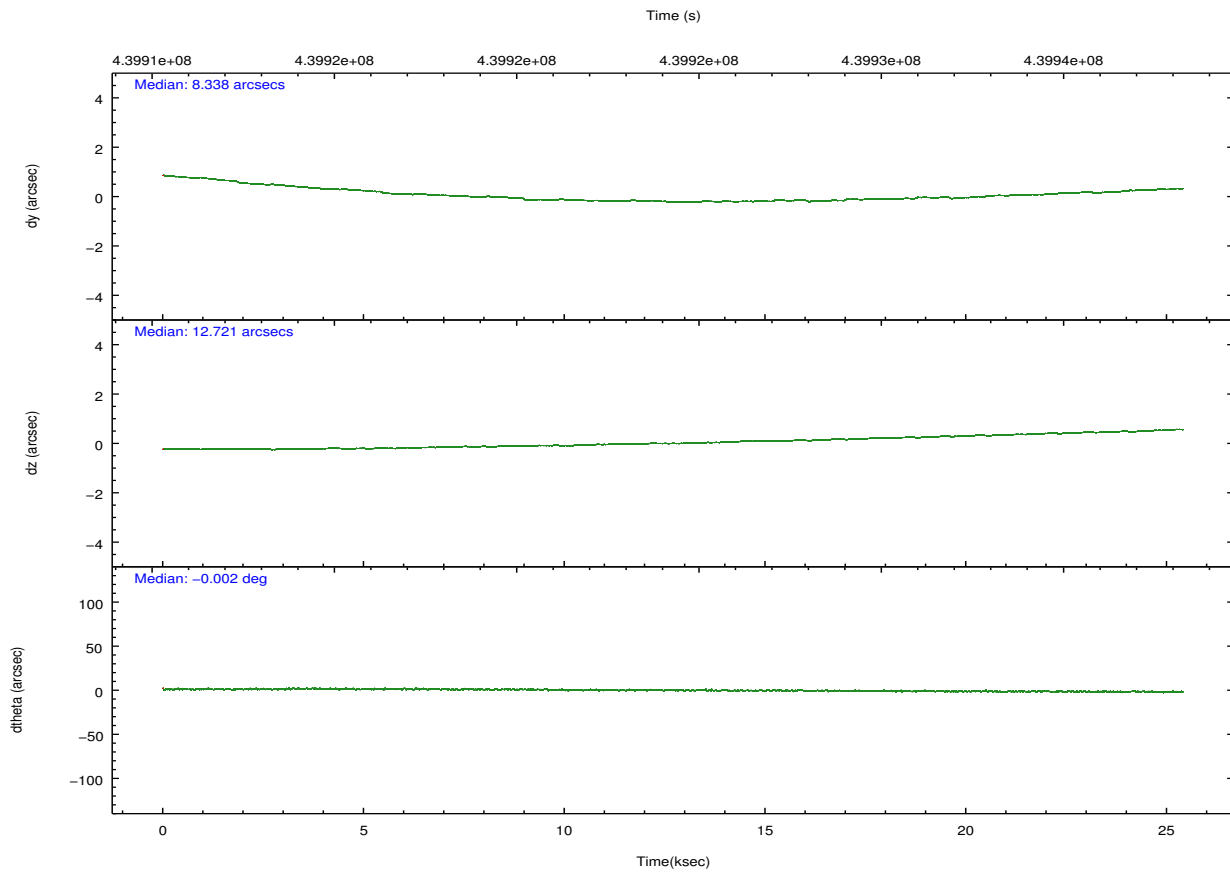
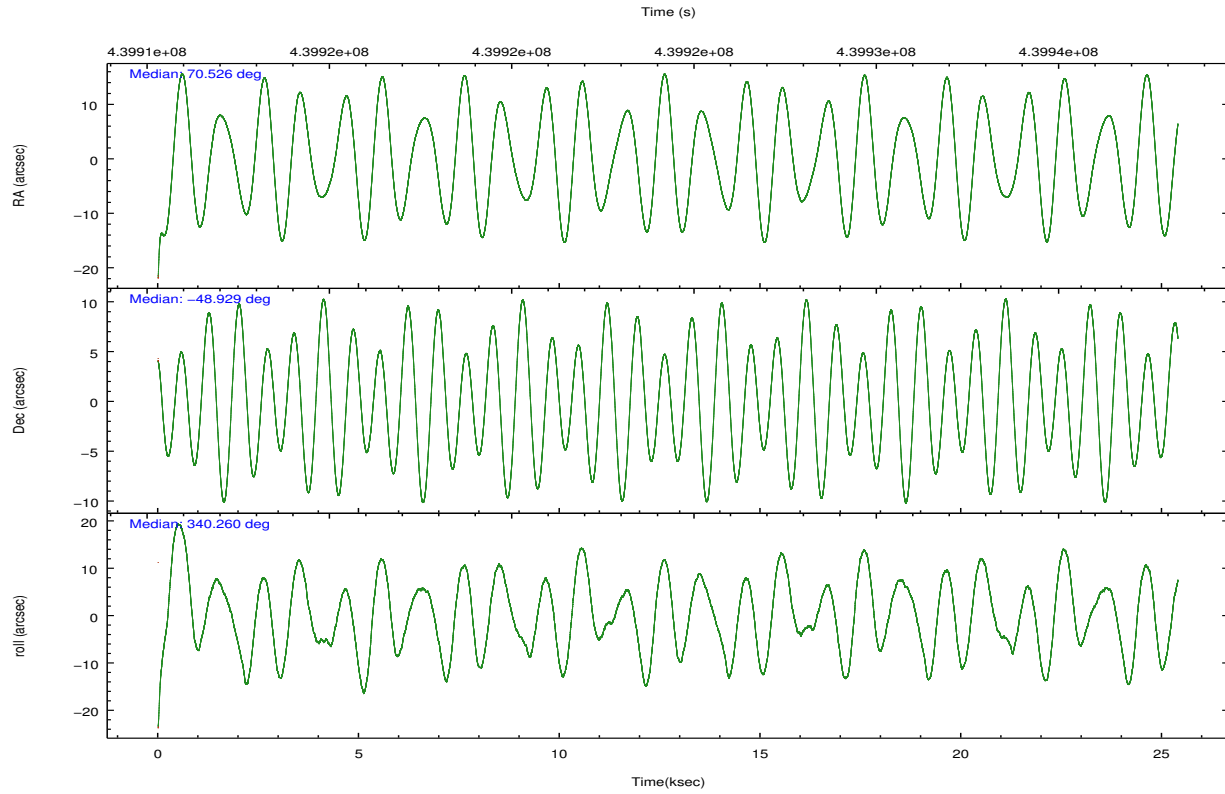
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 6615   | 14959  | 6430   | 6842   | 6799   |
|                | 4%     | 8%     | 4%     | 4%     | 4%     |
| grade 1 events | 74     | 7850   | 98     | 113    | 97     |
|                | 0%     | 4%     | 0%     | 0%     | 0%     |
| grade 2 events | 4520   | 4412   | 4268   | 3982   | 4190   |
|                | 3%     | 2%     | 2%     | 2%     | 2%     |
| grade 3 events | 1926   | 1960   | 1849   | 1854   | 1971   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 4 events | 1787   | 1966   | 1803   | 1861   | 1902   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 5 events | 7148   | 7395   | 6562   | 7628   | 7523   |
|                | 4%     | 4%     | 4%     | 4%     | 4%     |
| grade 6 events | 3659   | 4183   | 3294   | 3626   | 4081   |
|                | 2%     | 2%     | 2%     | 2%     | 2%     |
| grade 7 events | 122547 | 123633 | 135789 | 134198 | 135593 |
|                | 82%    | 74%    | 84%    | 83%    | 83%    |

## 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               | CCD I0 on                             | Y         | Y       |
| Observation mode                  | POINTING            | POINTING             | CCD I1 on                             | Y         | Y       |
| [deg] Pointing RA                 | 70.484966           | 70.52608273307899    | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | -48.933790          | -48.92878308402534   | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 340.028548          | 340.2682226924442    | CCD S0 on                             | N         | N       |
| [mm] SIM focus pos                | -0.782348           | -0.7809083437167272  | CCD S1 on                             | N         | N       |
| [mm] SIM defocus                  | 0                   | 0.001439871863259334 | CCD S2 on                             | O1        | Y       |
| [mm] SIM translation stage pos    | -225.842463         | -225.8433433320239   | CCD S3 on                             | N         | N       |
| [mm] SIM translation stage offset | -7.75               | -7.749109670905796   | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 439911995.184000    | 439910813.53551      | CCD S5 on                             | N         | N       |
| Observation start date            | 2011-12-10T13:45:29 | 2011-12-10T13:26:53  | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 439936995.184000    | 439937719.78693      | On-chip summing requested             | N         | N       |
| Observation end date              | 2011-12-10T20:42:09 | 2011-12-10T20:55:19  | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                | Alternating exposures requested       | N         | N       |
|                                   |                     |                      | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



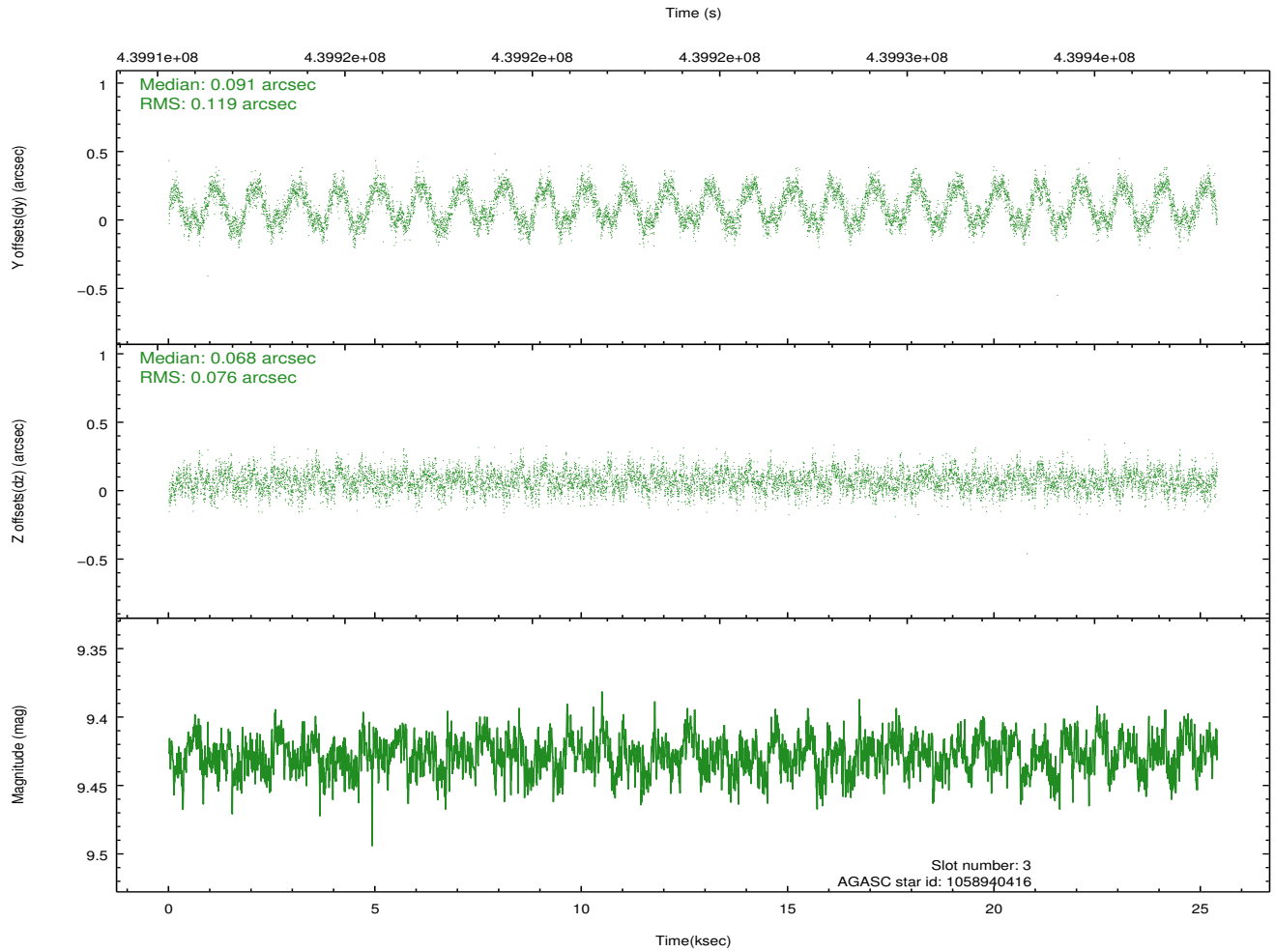
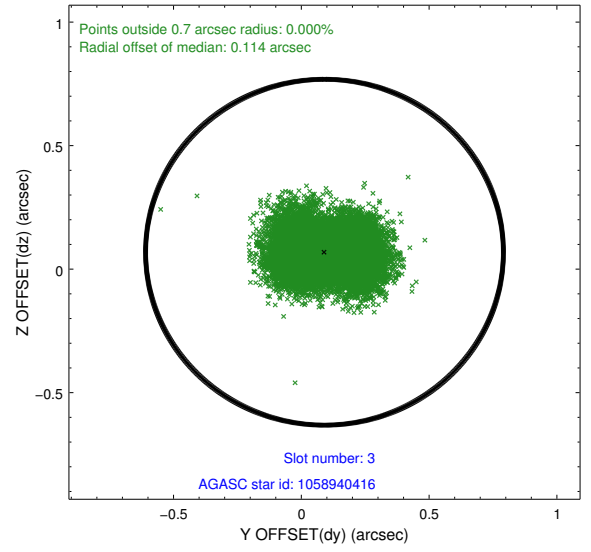
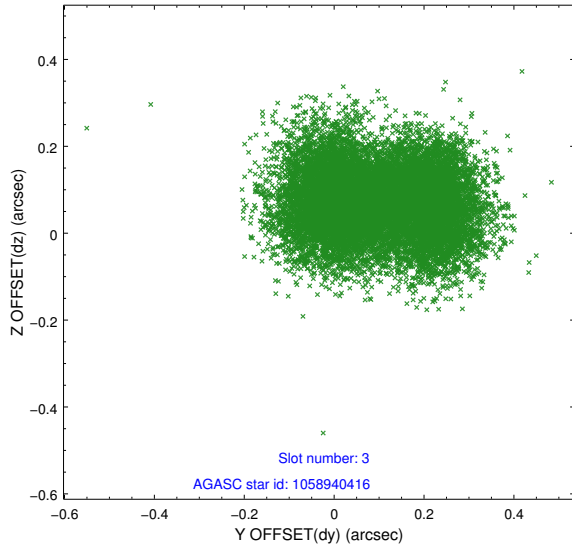


### Slot Statistics

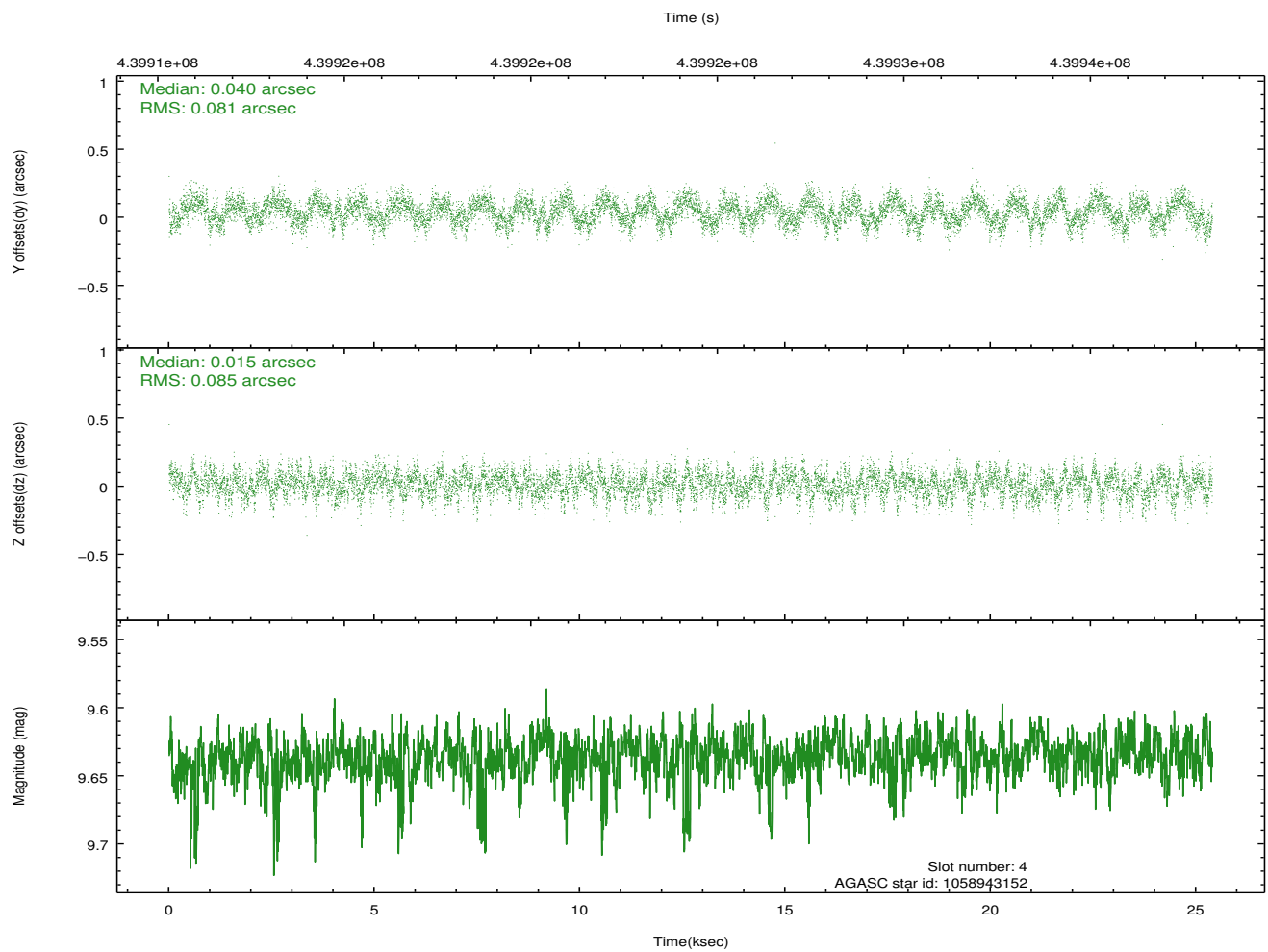
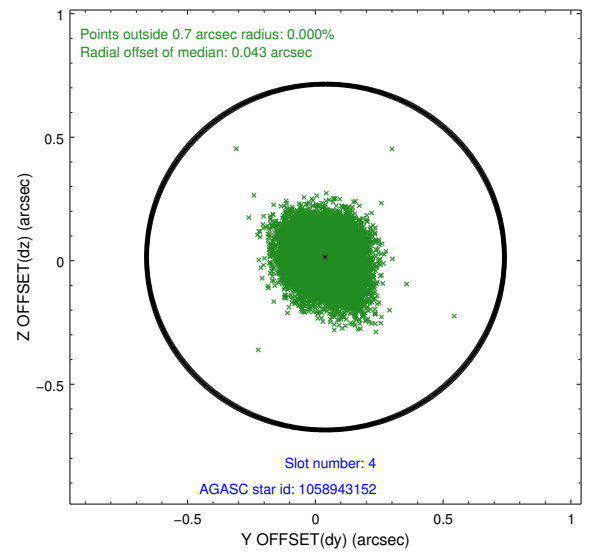
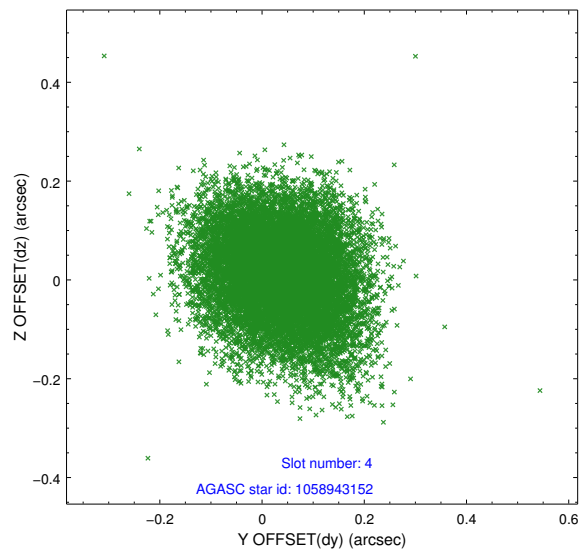
| slot | status | id         | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mean_z   |
|------|--------|------------|------|-------|--------|--------|-------|-------|-----------|------------|----------|----------|
| 0    | FID    | ACIS-I-1   | 7.12 | 6195  | 0.132  | -0.105 | 0.013 | 0.024 | 0.000000  | 0.000000   | 931.21   | -995.51  |
| 1    | FID    | ACIS-I-5   | 7.12 | 6195  | -0.262 | 0.114  | 0.012 | 0.027 | 0.000000  | 0.000000   | -1817.23 | 902.12   |
| 2    | FID    | ACIS-I-6   | 7.14 | 6195  | 0.038  | 0.062  | 0.010 | 0.016 | 0.000000  | 0.000000   | 396.54   | 1546.70  |
| 3    | GUIDE  | 1058940416 | 9.43 | 12370 | 0.091  | 0.068  | 0.154 | 0.229 | 69.423334 | -49.218347 | -1989.68 | -1831.89 |
| 4    | GUIDE  | 1058943152 | 9.64 | 12375 | 0.040  | 0.015  | 0.125 | 0.201 | 70.556842 | -49.380673 | 708.97   | -1454.38 |
| 5    | GUIDE  | 1058944440 | 8.83 | 12379 | 0.085  | 0.037  | 0.075 | 0.120 | 70.407720 | -48.487834 | -721.21  | 1446.04  |
| 6    | GUIDE  | 1058944968 | 9.53 | 12363 | -0.134 | -0.133 | 0.125 | 0.211 | 70.820940 | -48.883196 | 686.02   | 441.47   |
| 7    | GUIDE  | 1058940064 | 6.77 | 12389 | -0.109 | 0.010  | 0.083 | 0.141 | 70.142591 | -48.538241 | -1252.65 | 1058.26  |

## 2.4 Star Slots

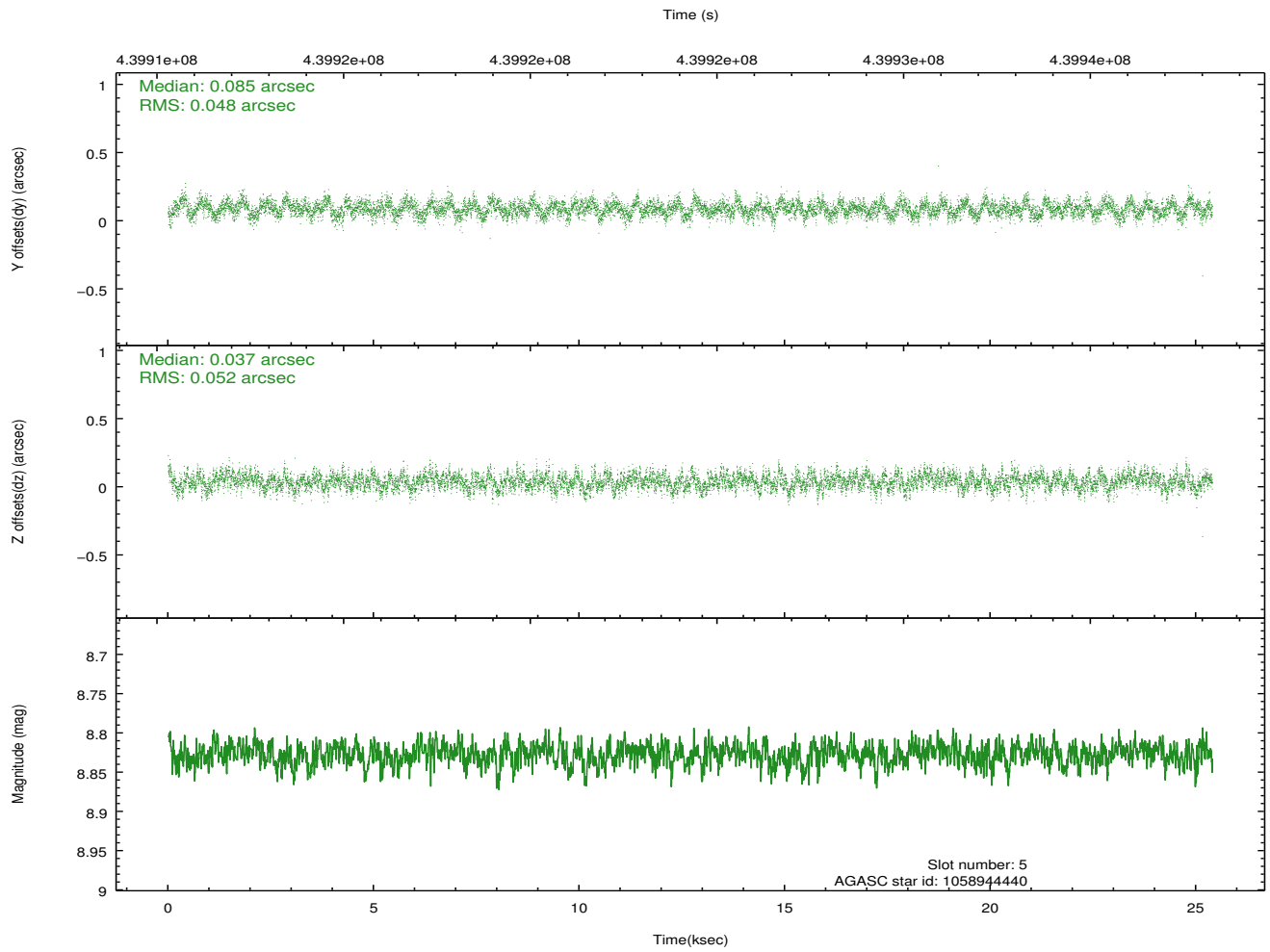
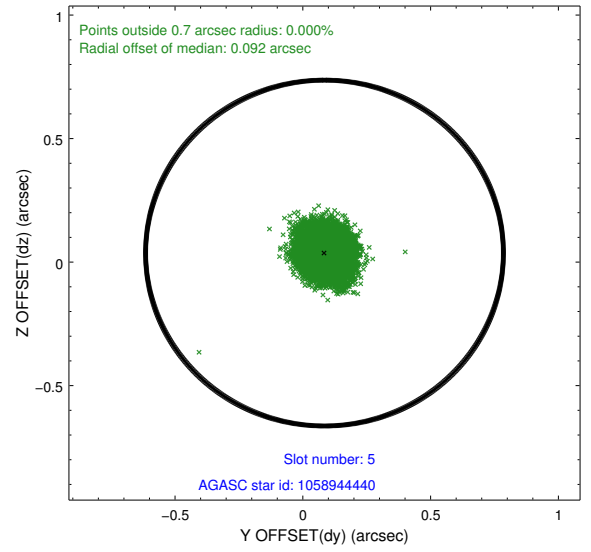
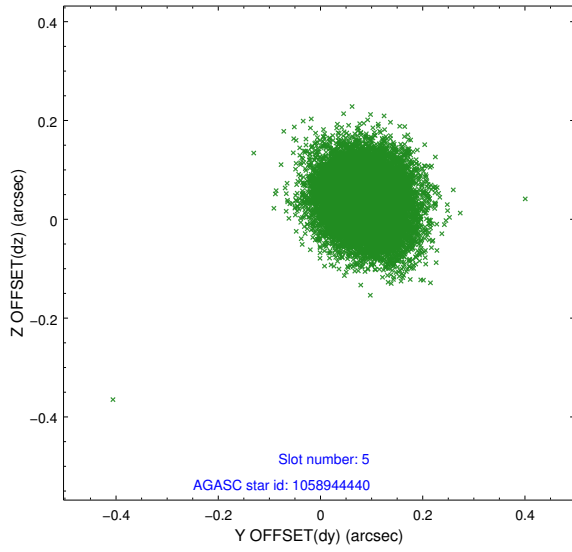
### 2.4.1 Slot 3



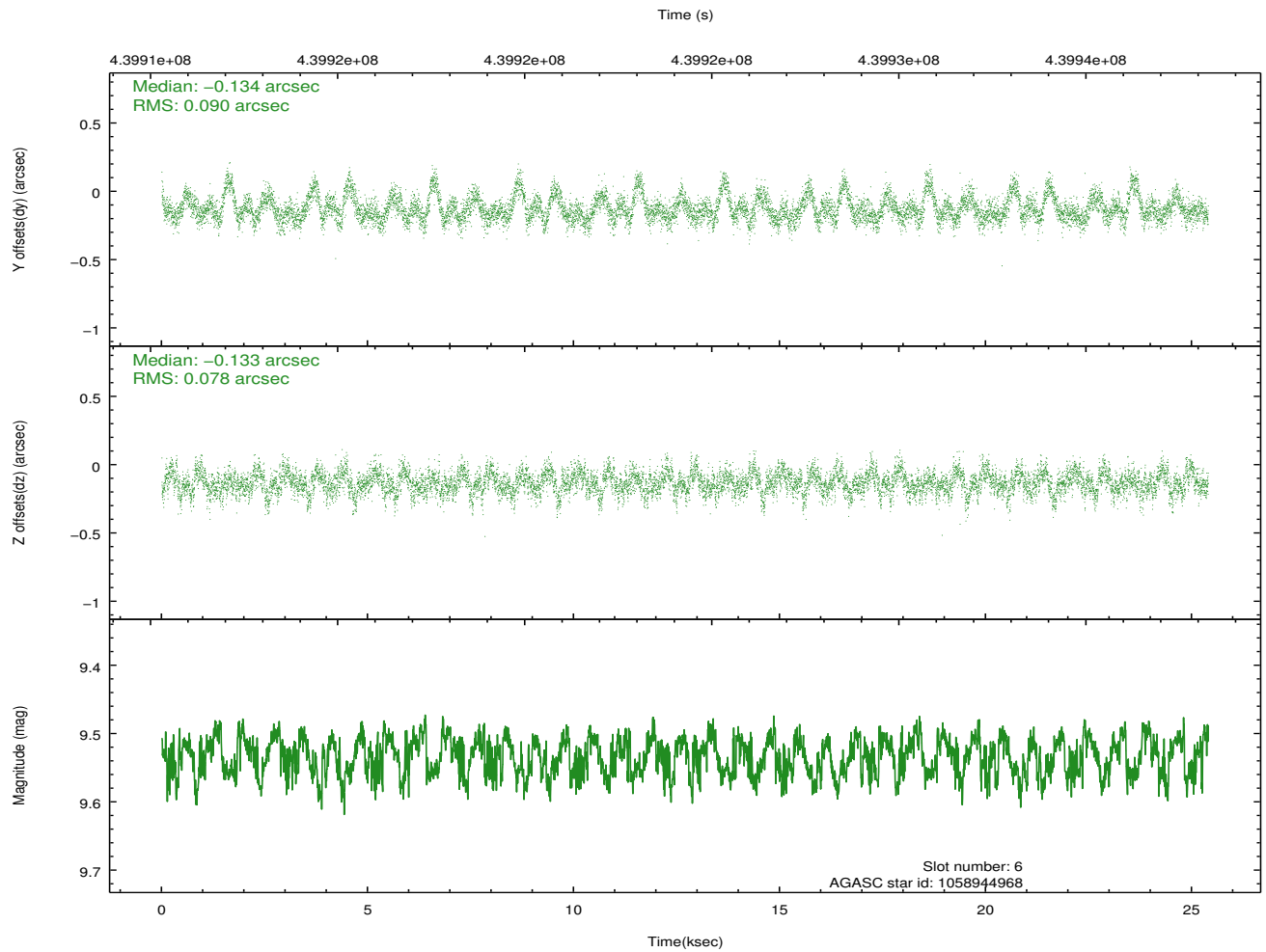
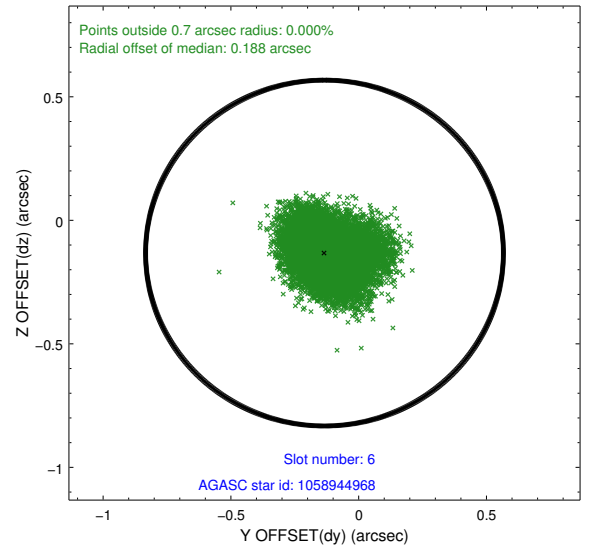
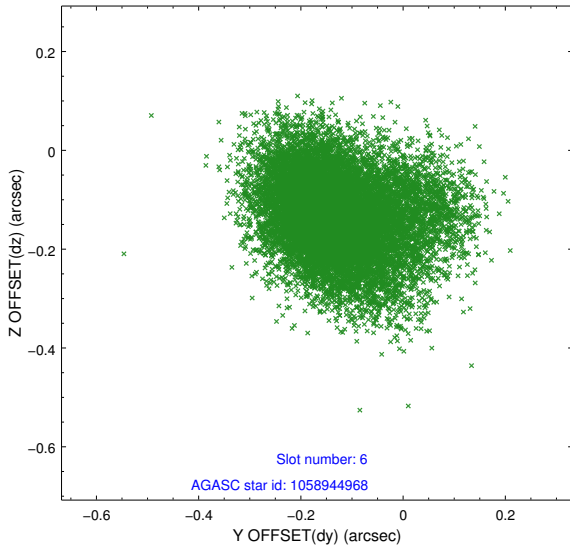
## 2.4.2 Slot 4



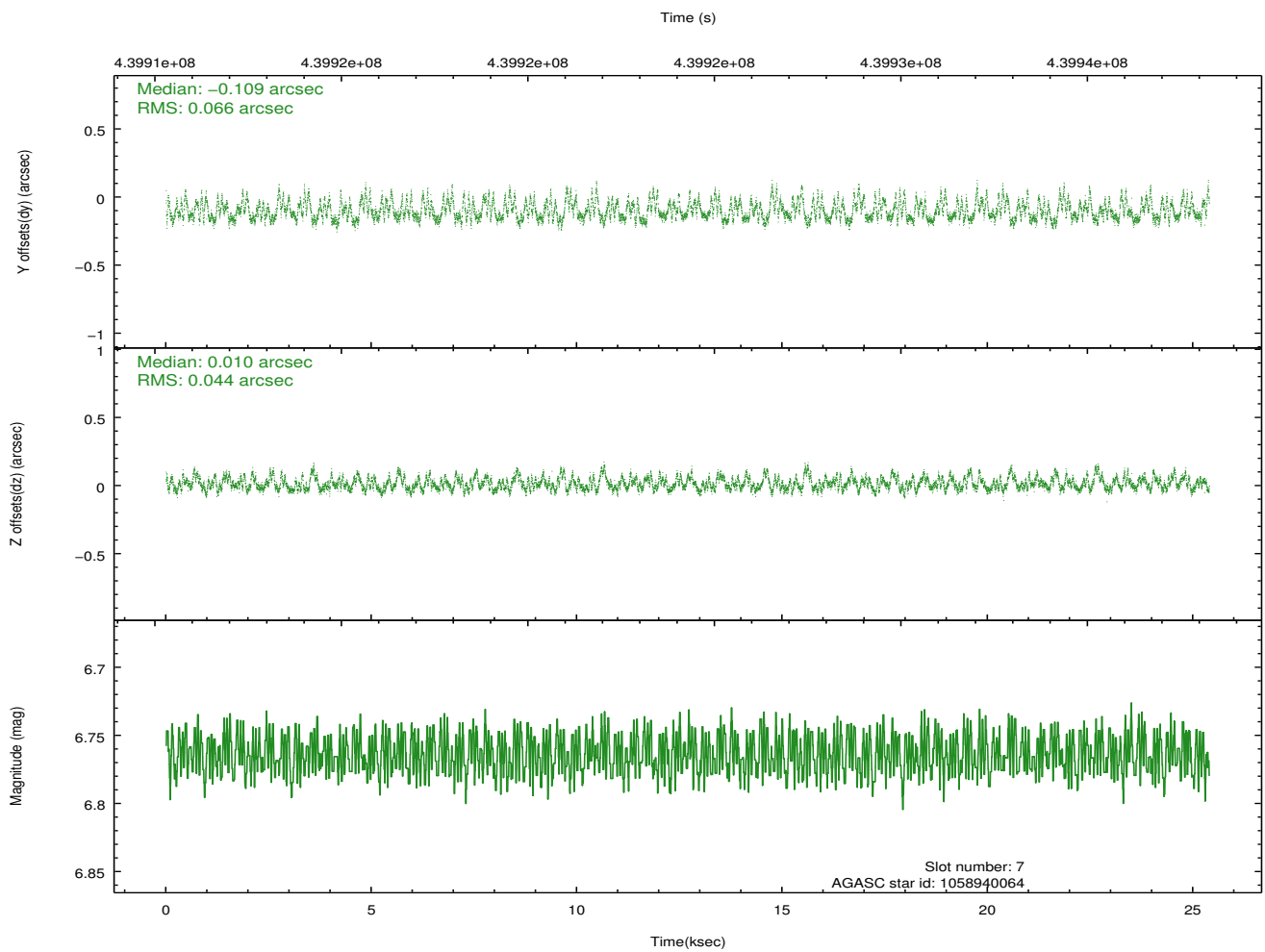
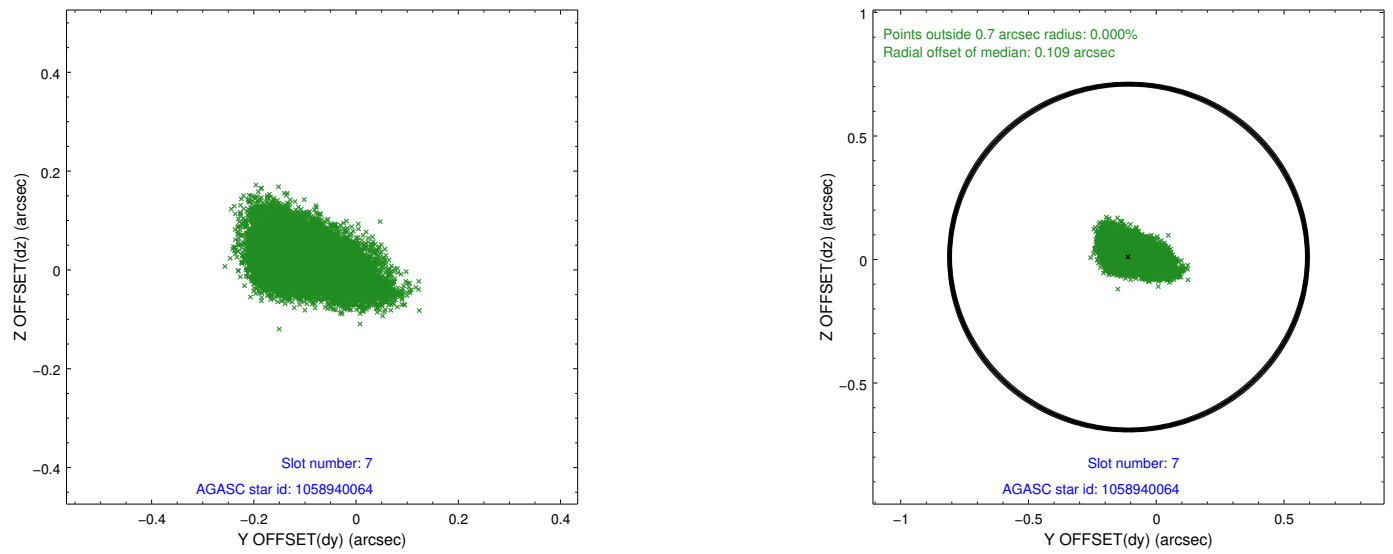
### 2.4.3 Slot 5



### 2.4.4 Slot 6

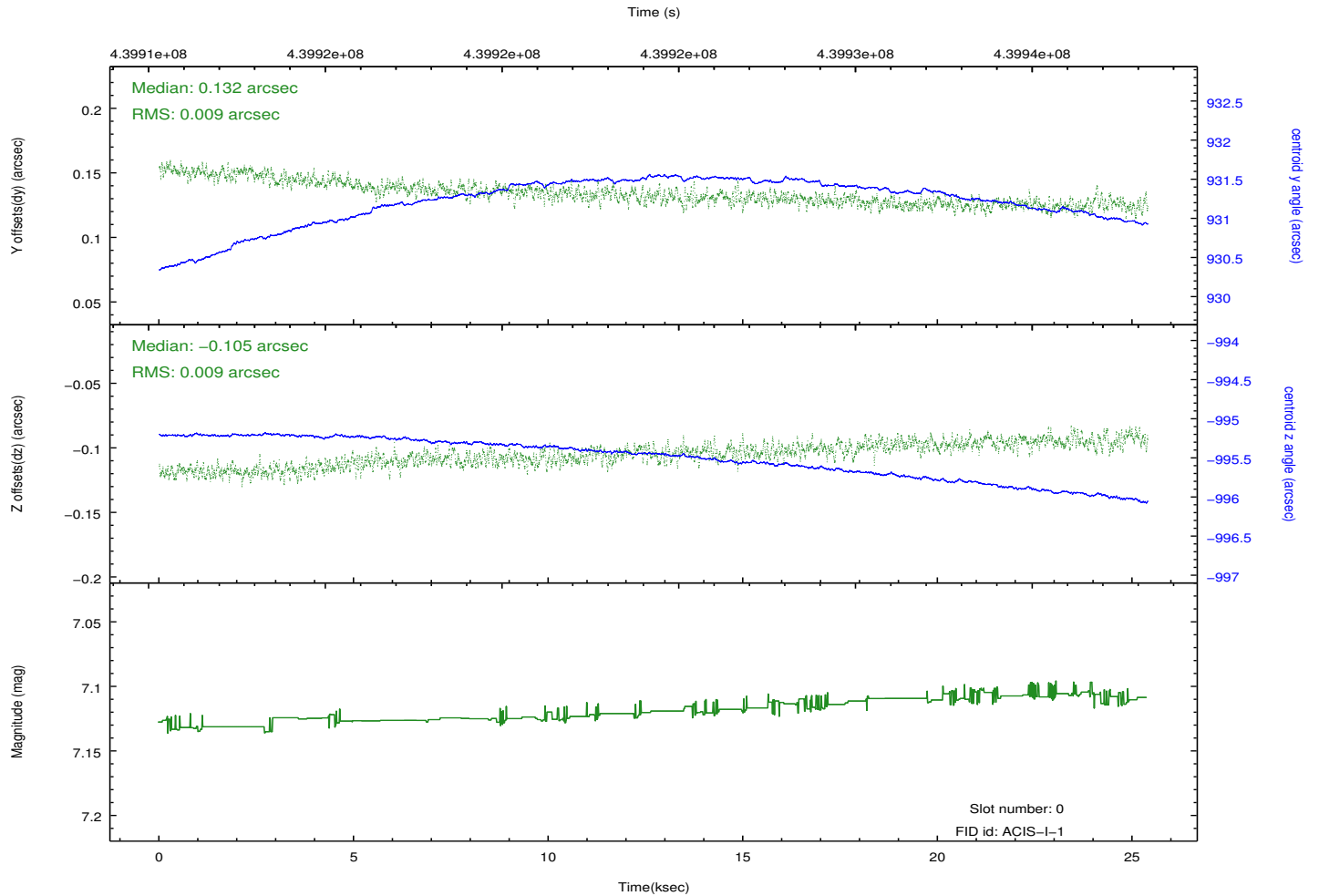
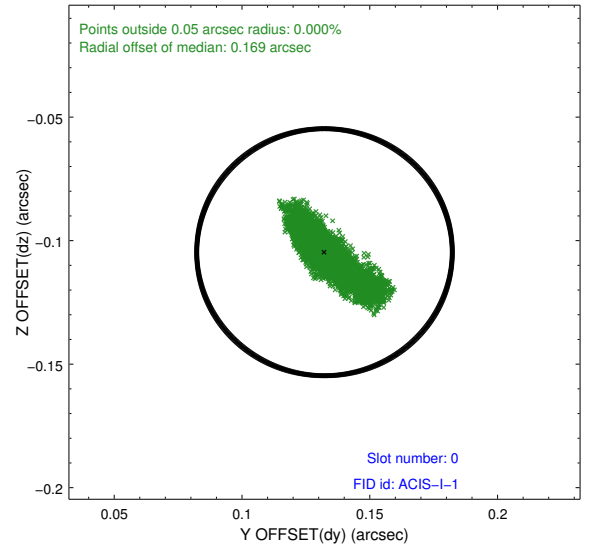
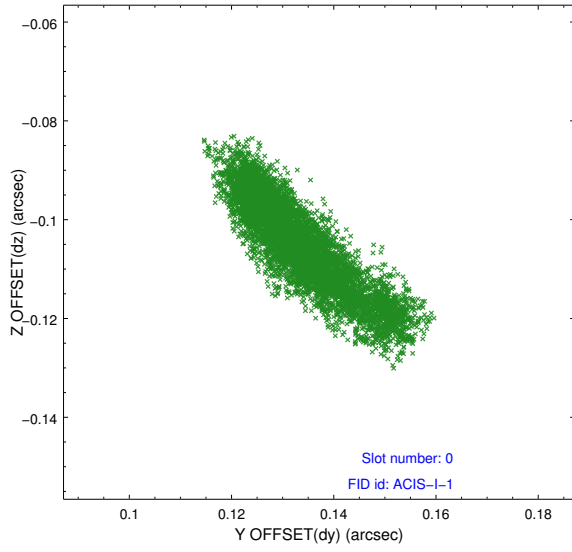


## 2.4.5 Slot 7

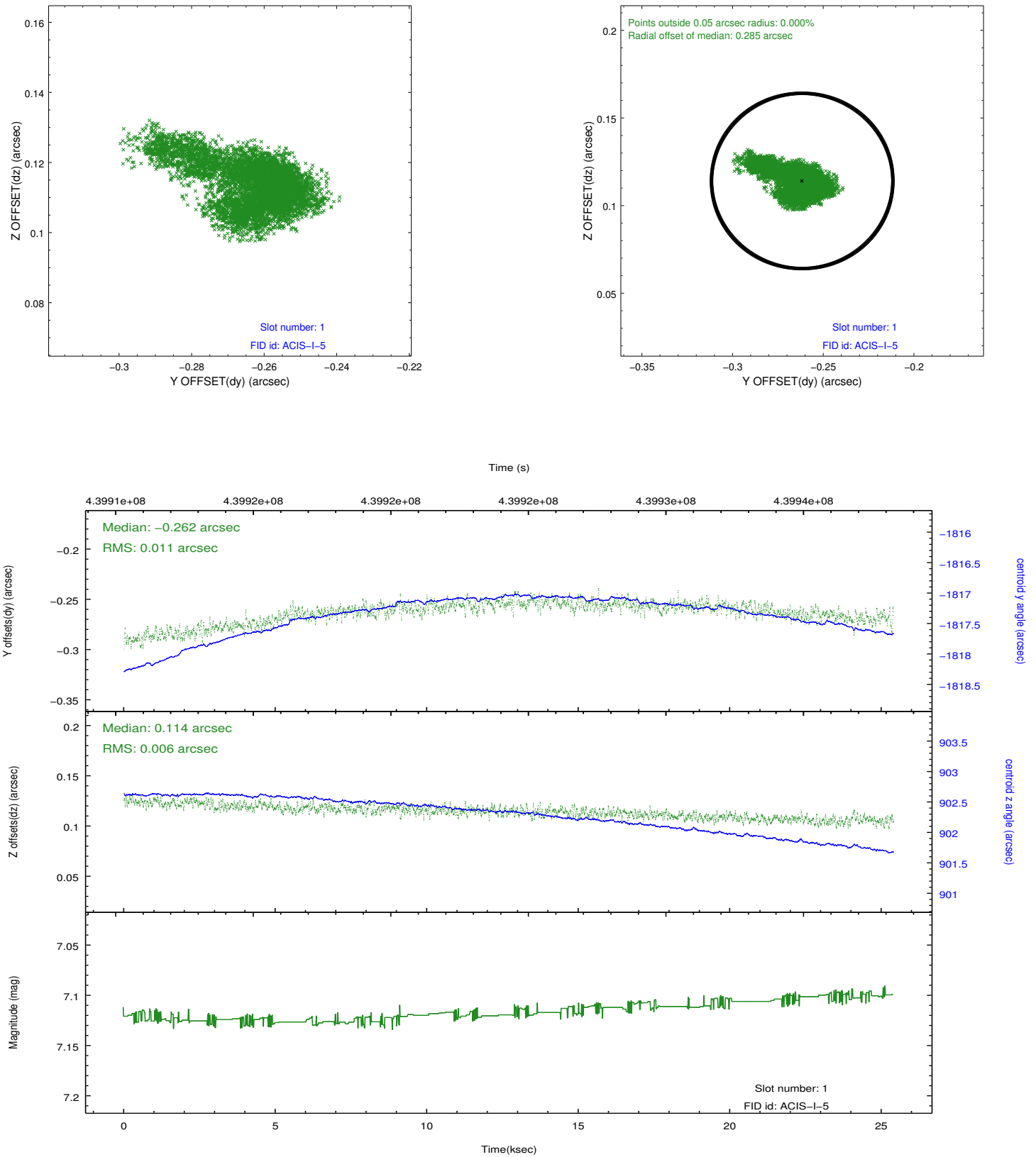


## 2.5 FID Slots

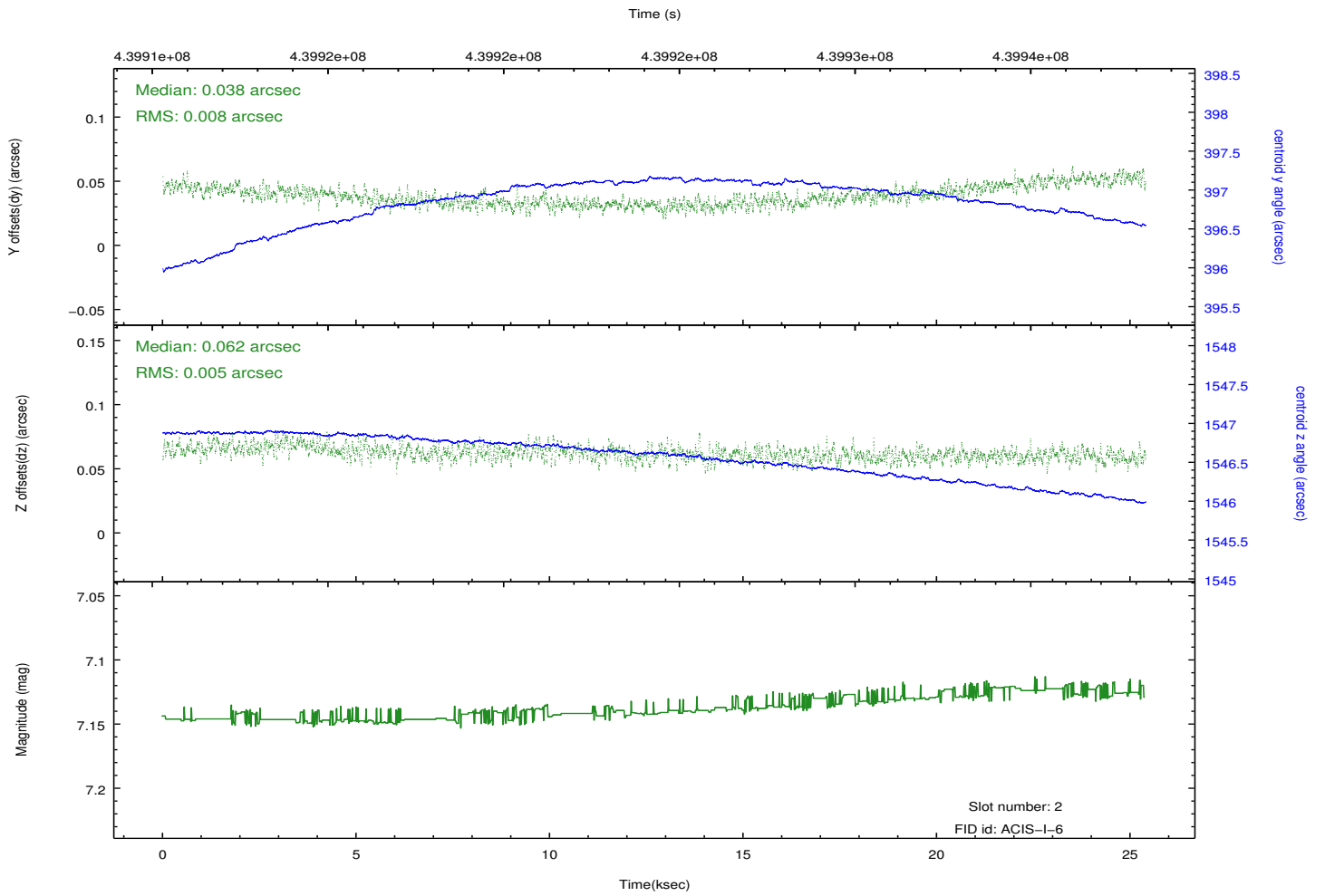
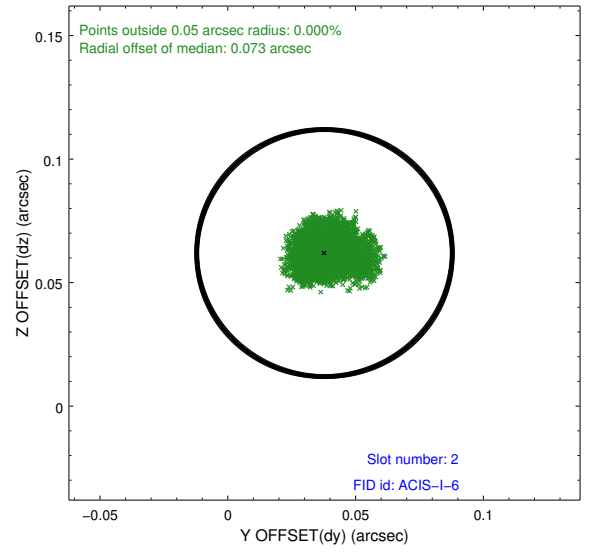
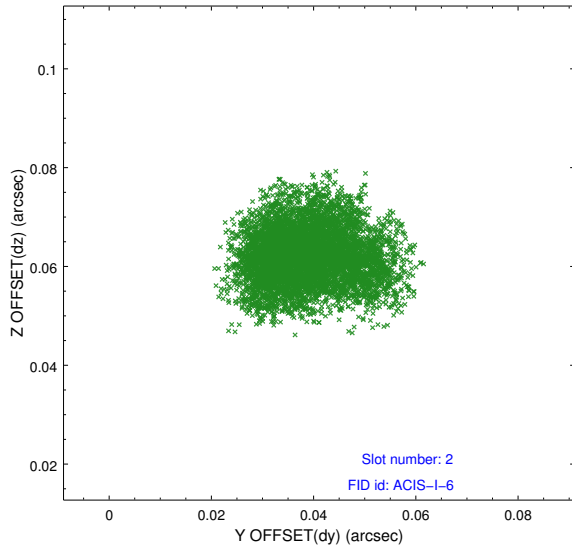
### 2.5.1 Slot 0



## 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)      | 2012.02.29      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 25.057300192714 |

## A.2 Comments