

# V&V Reference Report

## L2 ASCDS Version : 8.4.4

Observation 9893 - L2 Version 3  
Chandra X-Ray Center

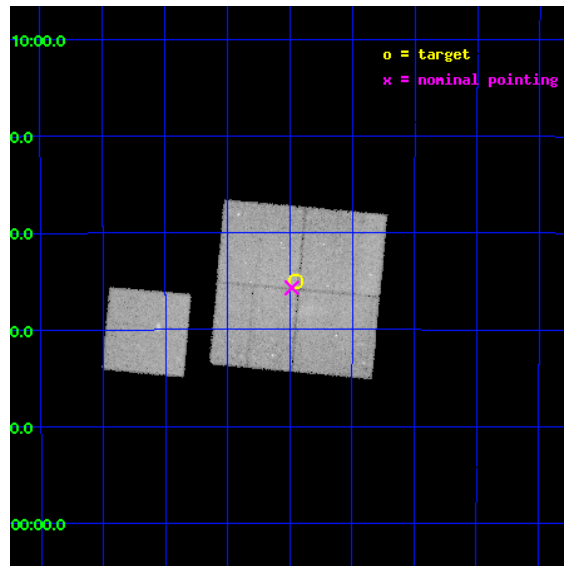
L2 Processing Date : May 20 2012

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# 1 Front

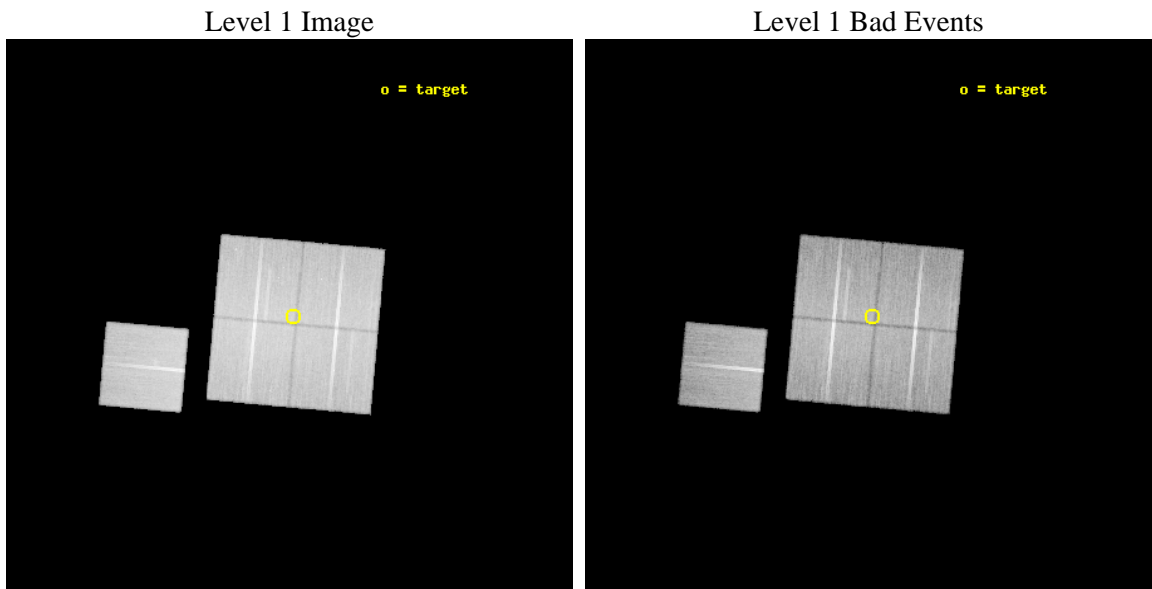
|          |   |   |
|----------|---|---|
| seq_num  | 900837  | Sequence number                             |
| obs_id   | 9893  | Observation id                              |
| title    | THE ORIGIN OF THE GALACTIC RIDGE X-RAY EMISSION | Proposal title                              |
| observer | Dr. Mikhail Revnivtsev                          | Principal investigator                      |
| object   | 1.5deg_window                                   | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 267.86375                                       | Observer's specified target RA [deg]        |
| dec_targ | -29.58475                                       | Observer's specified target Dec [deg]       |
| ra_nom   | 267.87097908384                                 | Nominal RA [deg]                            |
| dec_nom  | -29.594898945527                                | Nominal Dec [deg]                           |
| roll_nom | 275.21225825746                                 | Nominal Roll [deg]                          |
| revision | 3   | Processing version of data                  |
| ontime   | 42716.375993669                                 | Sum of GTIs [s]                             |
| livetime | 42158.255093973                                 | Livetime [s]                                |
| ontime0  | 42731.957755804                                 | Sum of GTIs [s]                             |
| ontime1  | 42725.716795385                                 | Sum of GTIs [s]                             |
| ontime2  | 42738.321826458                                 | Sum of GTIs [s]                             |
| ontime3  | 42716.375993669                                 | Sum of GTIs [s]                             |
| ontime6  | 42725.634715319                                 | Sum of GTIs [s]                             |
| l2events | 223151  | Number of level 2 events                    |



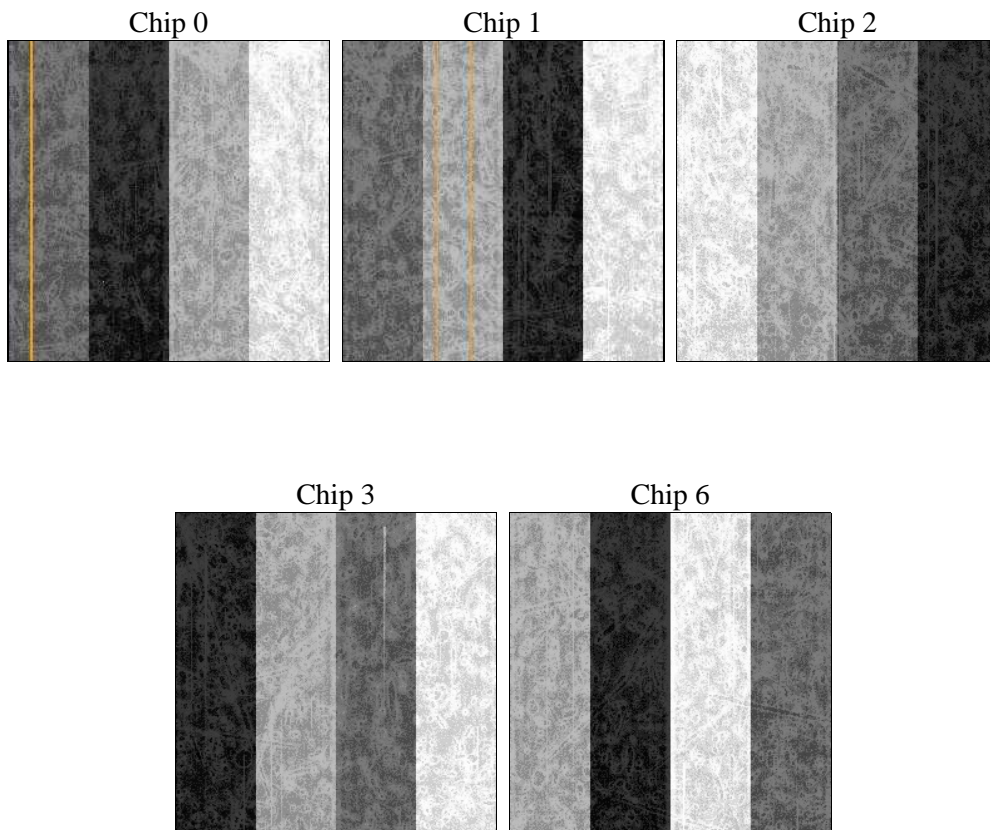
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 42965.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.4.4               | Processing system revision     | ontime         | 42716.375993669 | Sum of GTIs [s]                         |
| caldbver | 4.4.9               | &#160                          | ontime0        | 42731.957755804 | Sum of GTIs [s]                         |
| date     | 2012-05-20T16:31:52 | Date and time of file creation | ontime1        | 42725.716795385 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime2        | 42738.321826458 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 42716.375993669 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 42725.634715319 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1801294         | Number of level 1 events                |

### 2.1.4 Events

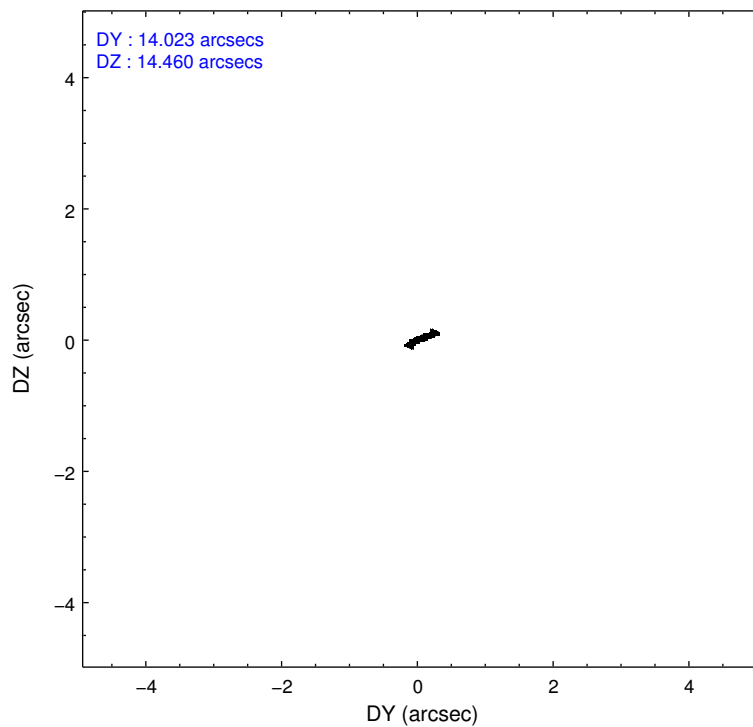
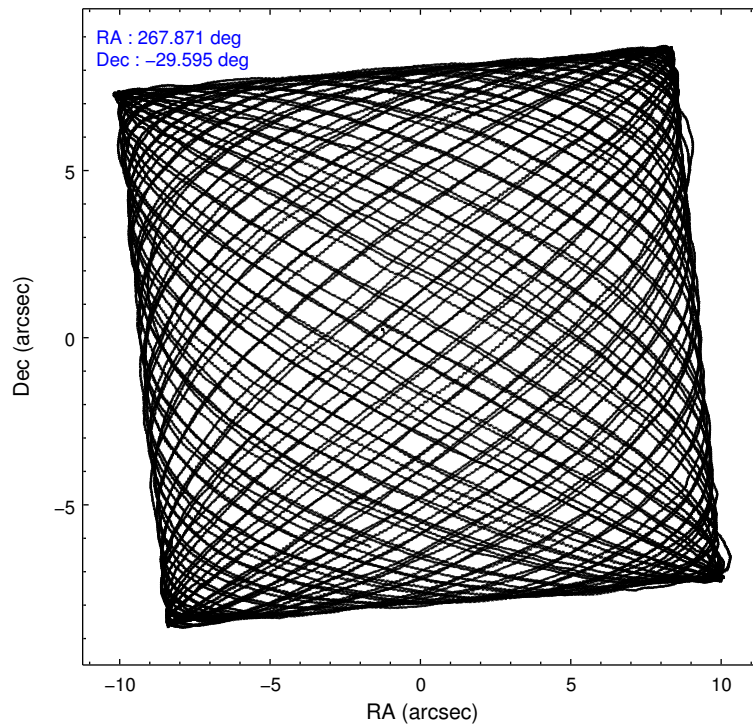
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 345906 | 346497 | 387369 | 359552 | 361970 |
| rejected events | 294636 | 291763 | 334423 | 309941 | 312802 |
| rejected %      | 85%    | 84%    | 86%    | 86%    | 86%    |

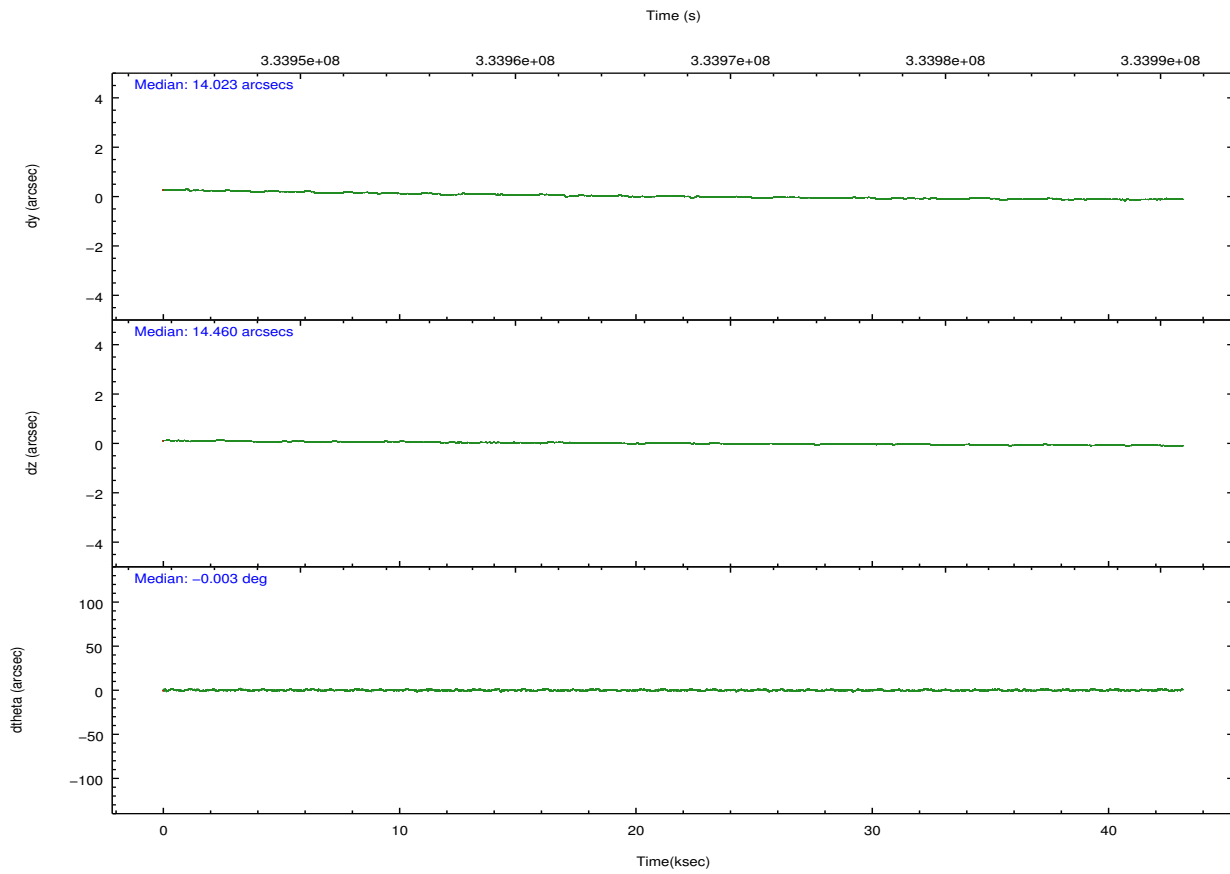
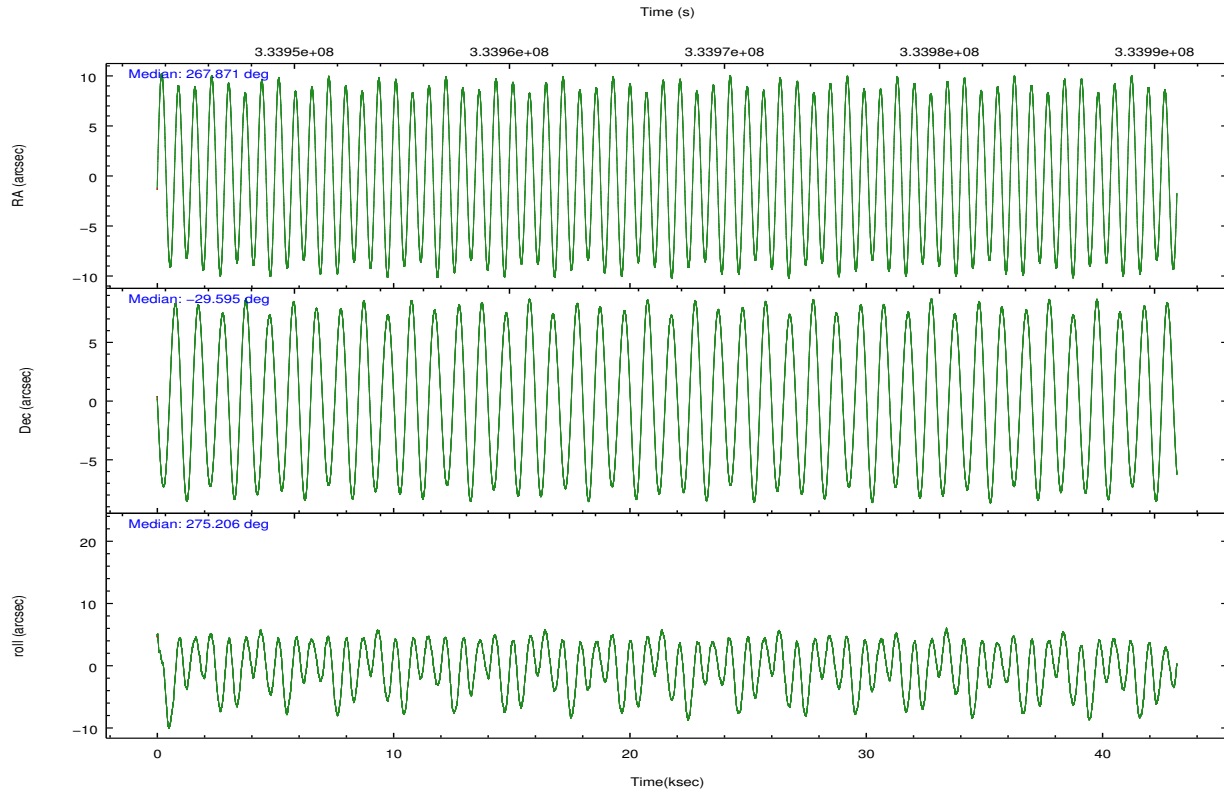
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 25862  | 26670  | 27834  | 25357  | 23298  |
|                | 7%     | 7%     | 7%     | 7%     | 6%     |
| grade 1 events | 274    | 274    | 308    | 281    | 245    |
|                | 0%     | 0%     | 0%     | 0%     | 0%     |
| grade 2 events | 10076  | 10494  | 9785   | 8889   | 9313   |
|                | 2%     | 3%     | 2%     | 2%     | 2%     |
| grade 3 events | 4246   | 4628   | 4173   | 4212   | 4413   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 4 events | 4070   | 4541   | 4279   | 4253   | 4193   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 5 events | 12592  | 13924  | 11563  | 14616  | 14151  |
|                | 3%     | 4%     | 2%     | 4%     | 3%     |
| grade 6 events | 7021   | 8403   | 6878   | 6902   | 7957   |
|                | 2%     | 2%     | 1%     | 1%     | 2%     |
| grade 7 events | 281765 | 277563 | 322549 | 295042 | 298400 |
|                | 81%    | 80%    | 83%    | 82%    | 82%    |

## 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                 | 267.852645          | 267.8709790838444     | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | -29.572489          | -29.59489894552673    | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 274.994520          | 275.2122582574596     | 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    | -233.592463         | -233.5874344608287    | CCD S3 on                             | N         | N       |
| [mm] SIM translation stage offset | 0                   | -0.005018542100998502 | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 333945941.184000    | 333945565.32471       | CCD S5 on                             | N         | N       |
| Observation start date            | 2008-08-01T02:44:36 | 2008-08-01T02:39:25   | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 333988906.184000    | 333989758.71437       | On-chip summing requested             | N         | N       |
| Observation end date              | 2008-08-01T14:40:41 | 2008-08-01T14:55:58   | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                 | Alternating exposures requested       | N         | N       |
|                                   |                     |                       | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



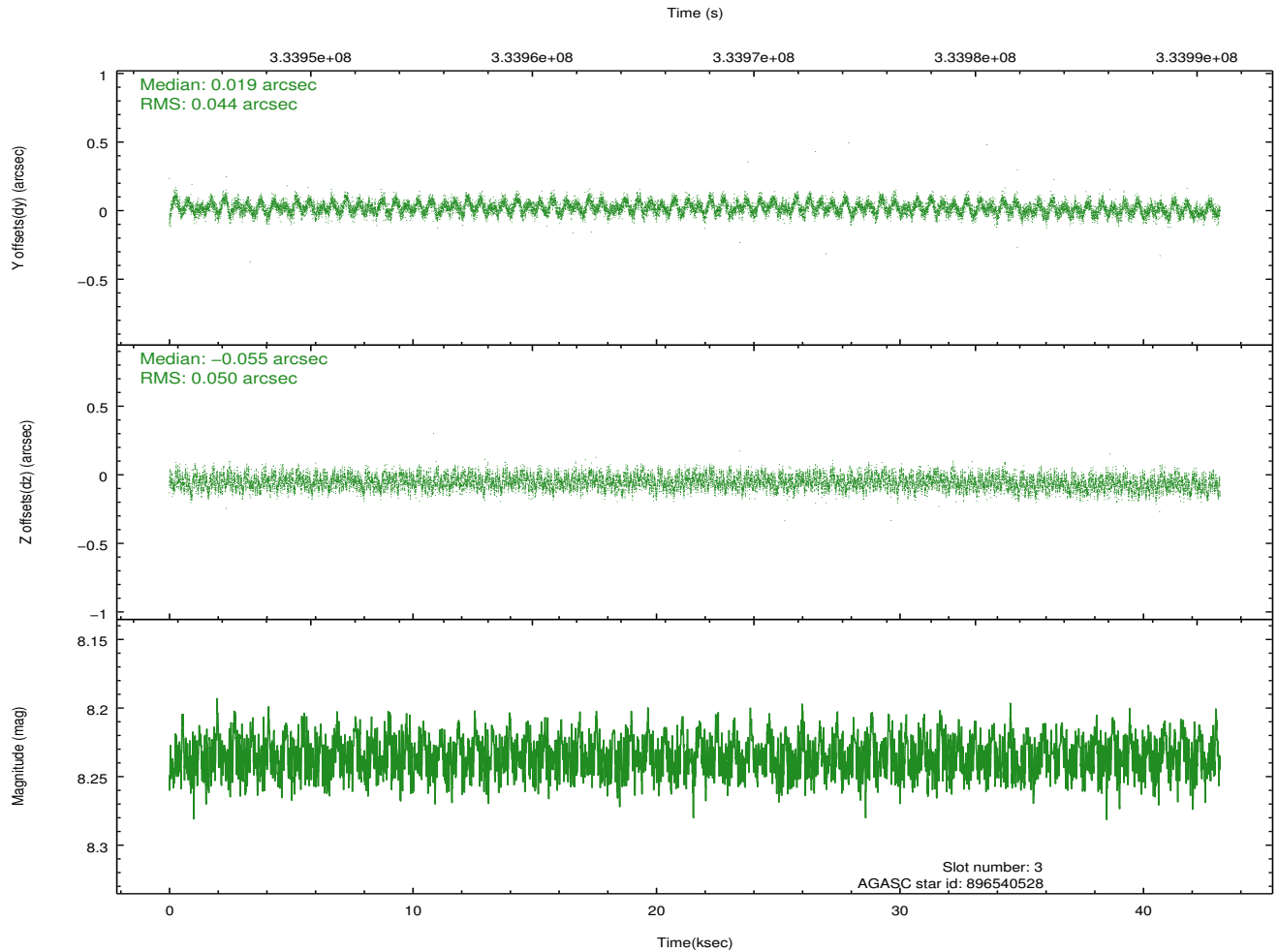
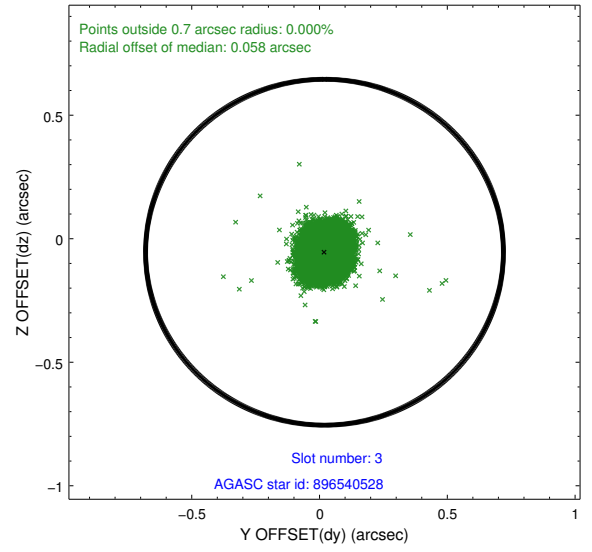
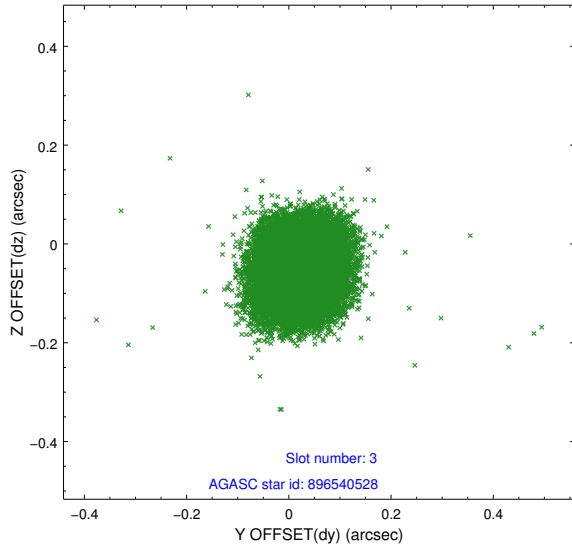


### Slot Statistics

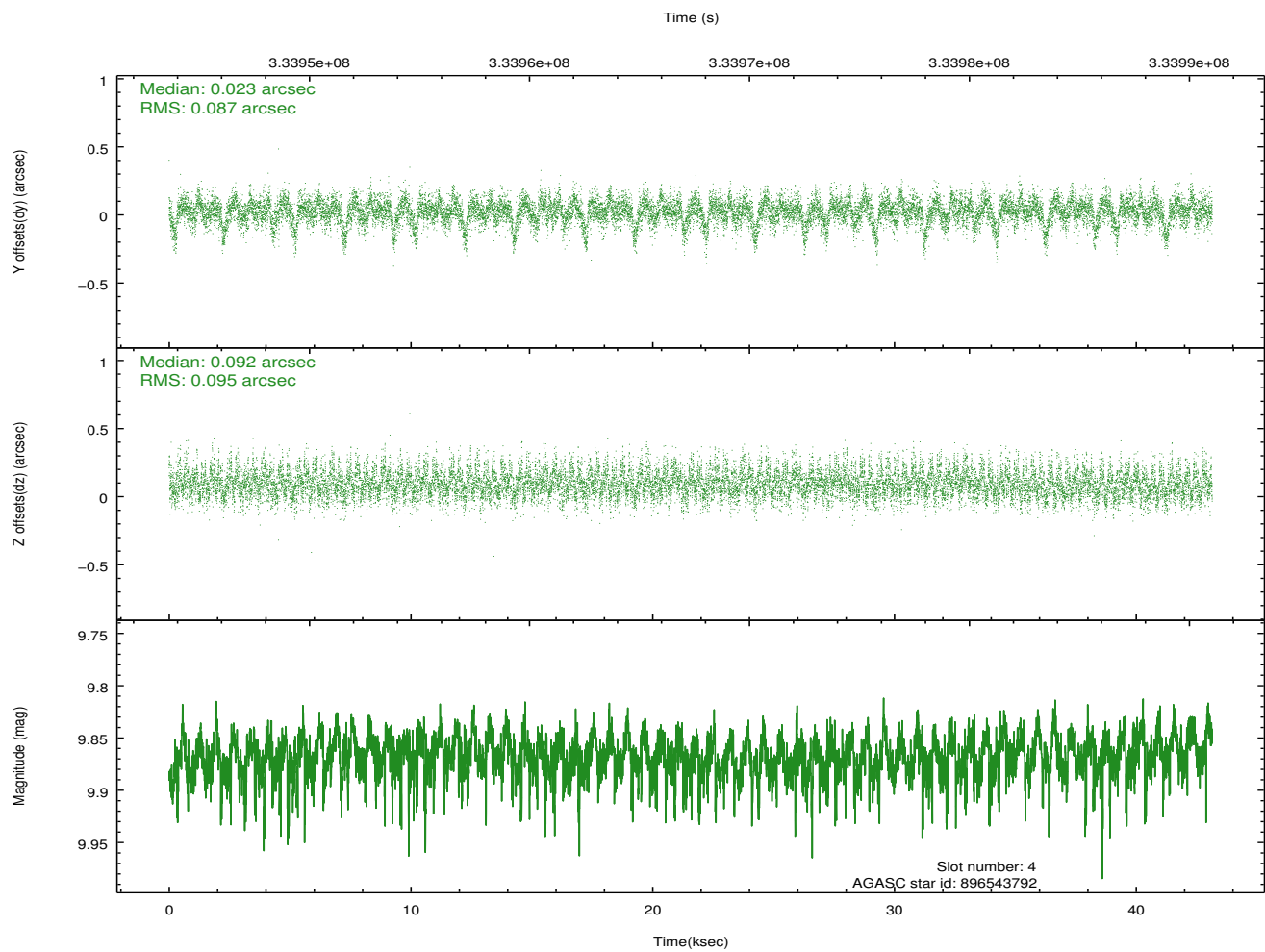
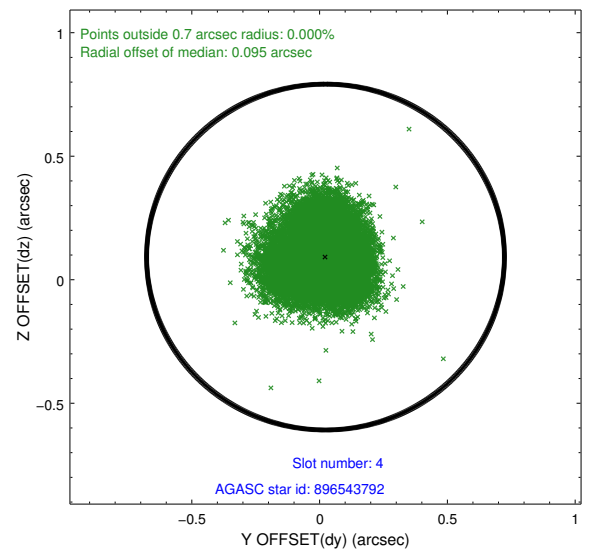
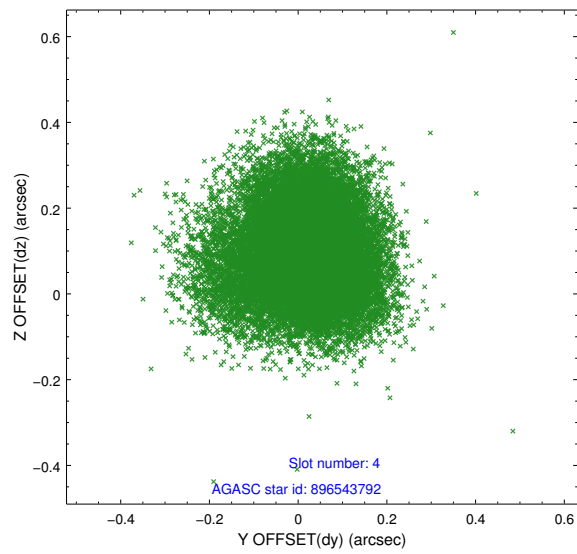
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mean_z   |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0    | FID    | ACIS-I-1  | 7.07 | 10526 | 0.007  | 0.035  | 0.010 | 0.020 | 0.000000   | 0.000000   | 925.45   | -838.01  |
| 1    | FID    | ACIS-I-5  | 7.06 | 10526 | -0.196 | 0.023  | 0.010 | 0.018 | 0.000000   | 0.000000   | -1822.88 | 1059.44  |
| 2    | FID    | ACIS-I-6  | 7.07 | 10526 | 0.097  | 0.014  | 0.009 | 0.016 | 0.000000   | 0.000000   | 391.06   | 1703.96  |
| 3    | GUIDE  | 896540528 | 8.24 | 21043 | 0.019  | -0.055 | 0.071 | 0.111 | 267.368305 | -29.314773 | -1052.79 | -1433.77 |
| 4    | GUIDE  | 896543792 | 9.87 | 21008 | 0.023  | 0.092  | 0.136 | 0.227 | 267.148052 | -29.957989 | 1198.51  | -2310.44 |
| 5    | GUIDE  | 898247688 | 8.66 | 21037 | -0.172 | 0.117  | 0.078 | 0.127 | 268.426687 | -29.012154 | -1847.82 | 1975.59  |
| 6    | GUIDE  | 898248800 | 8.23 | 21037 | -0.073 | -0.158 | 0.068 | 0.108 | 267.977609 | -29.931731 | 1322.68  | 275.99   |
| 7    | GUIDE  | 967053960 | 9.23 | 21032 | 0.207  | 0.002  | 0.103 | 0.164 | 268.185736 | -30.091336 | 1953.11  | 871.23   |

## 2.4 Star Slots

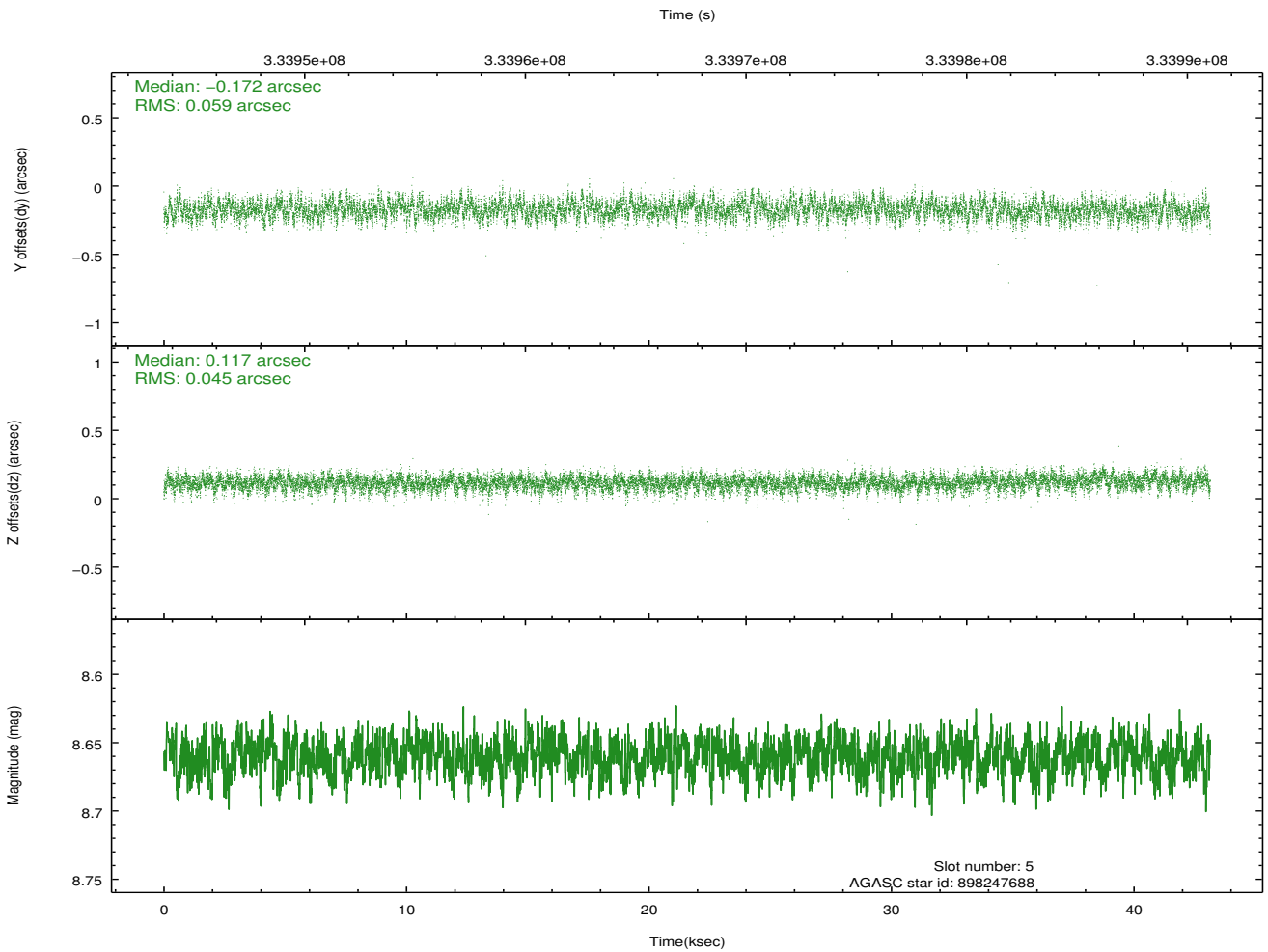
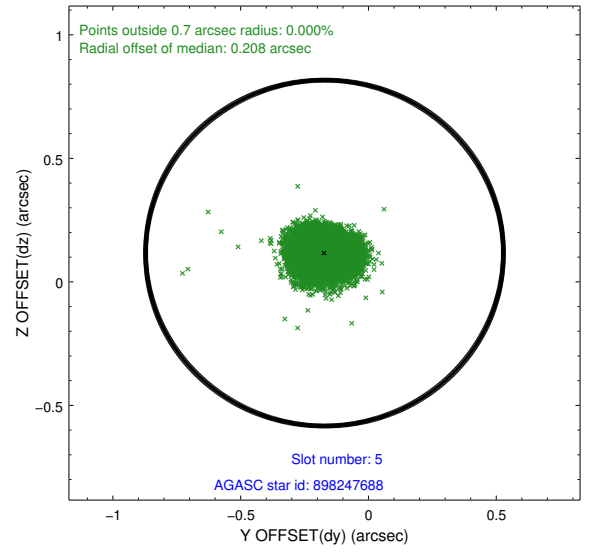
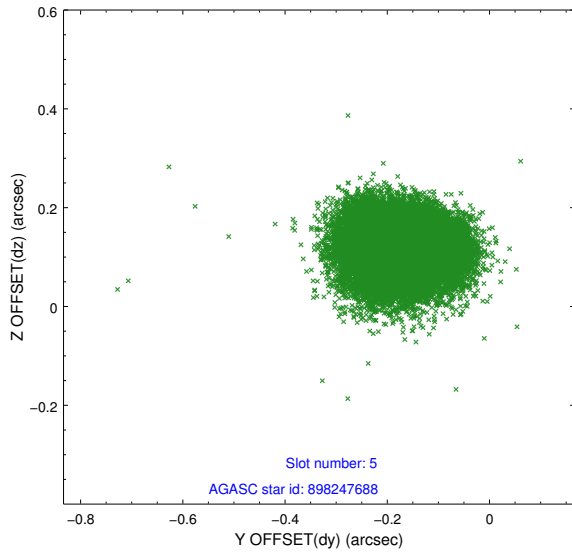
### 2.4.1 Slot 3



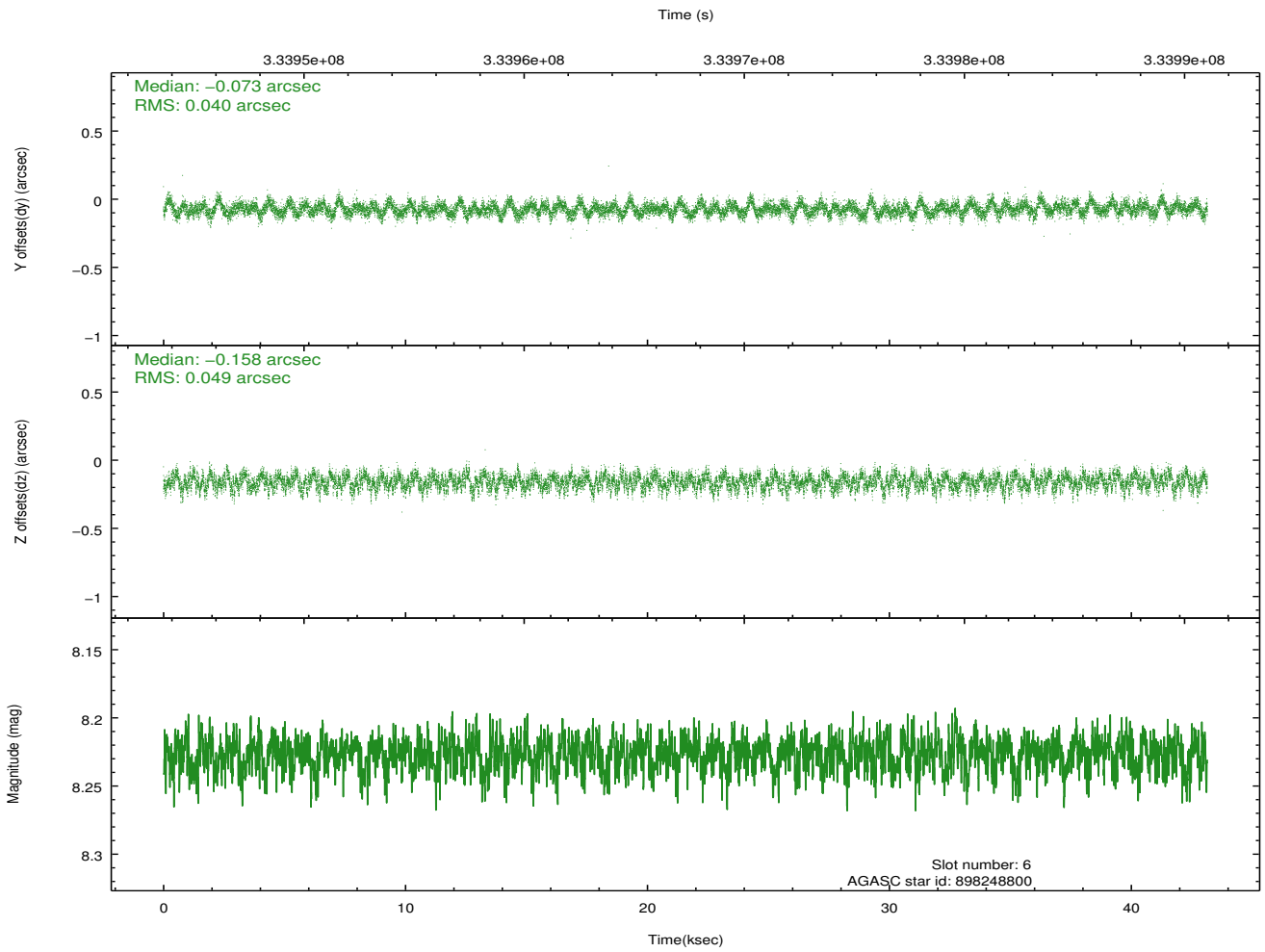
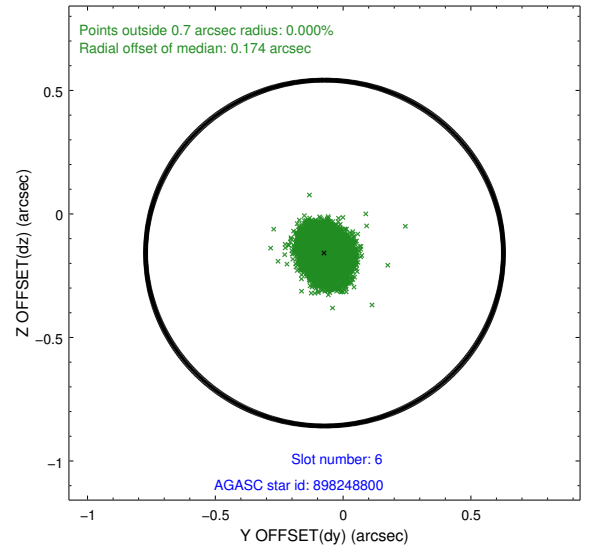
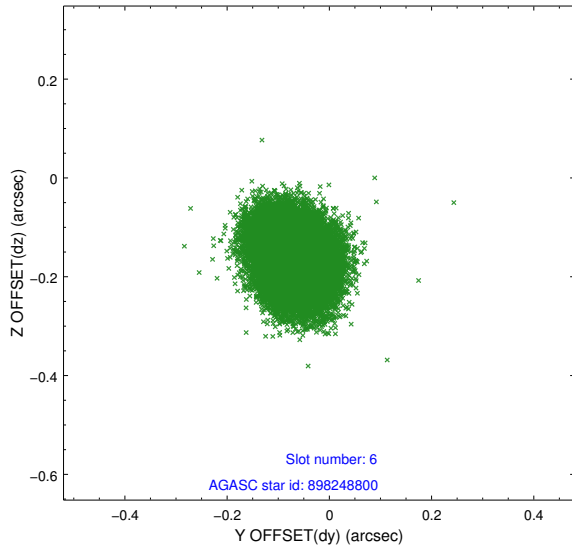
## 2.4.2 Slot 4



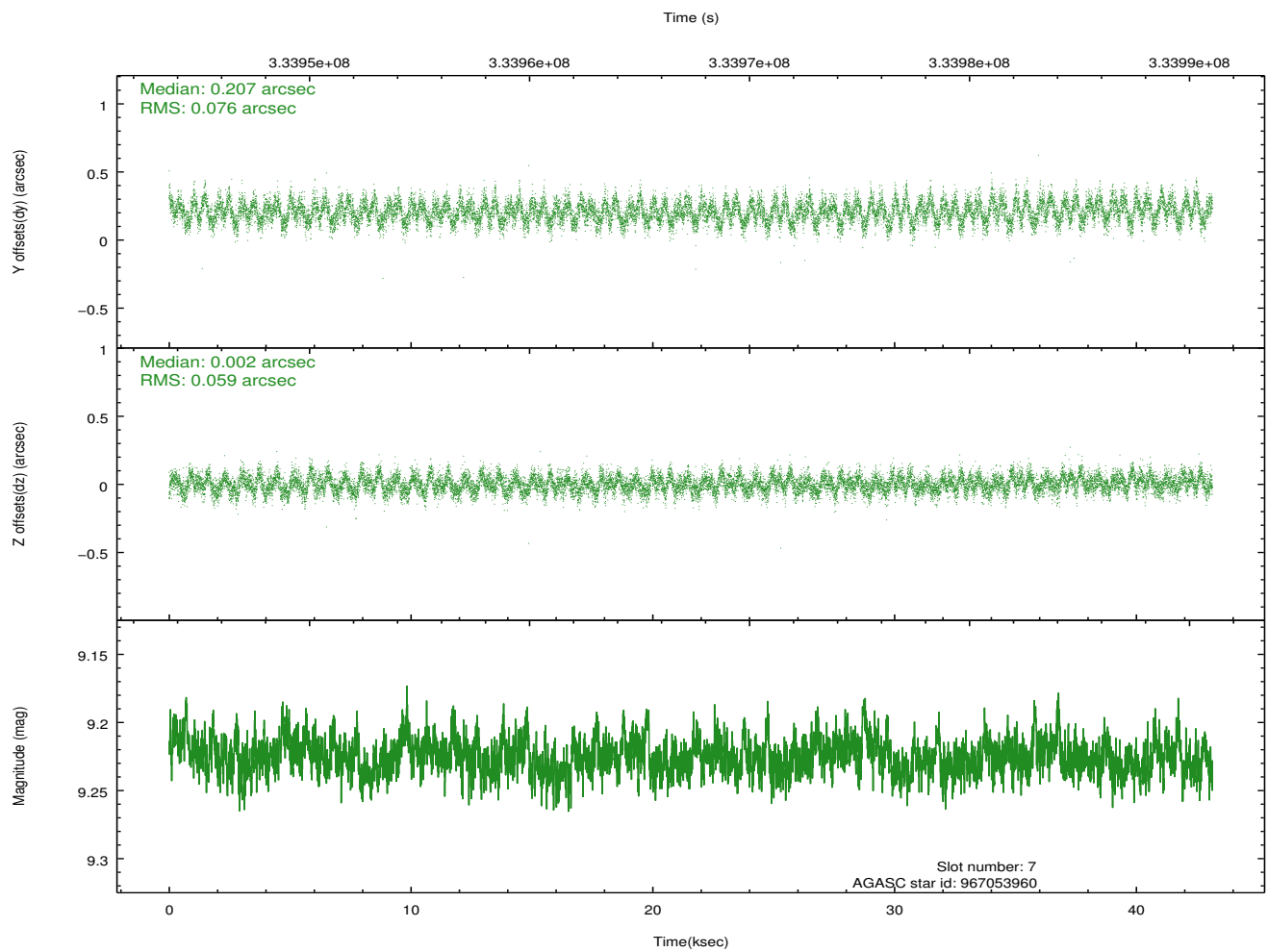
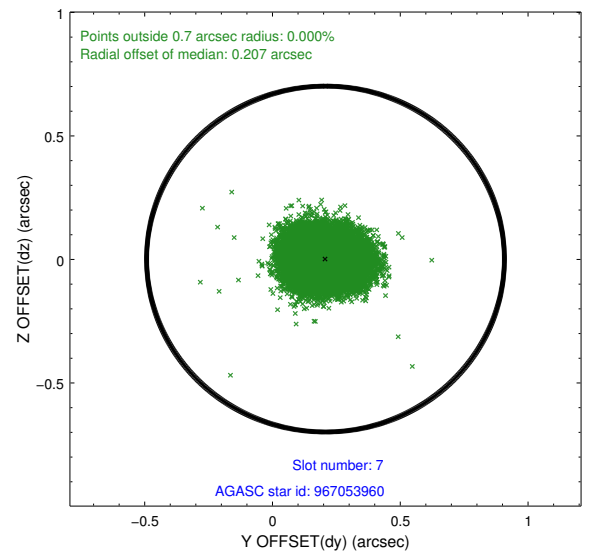
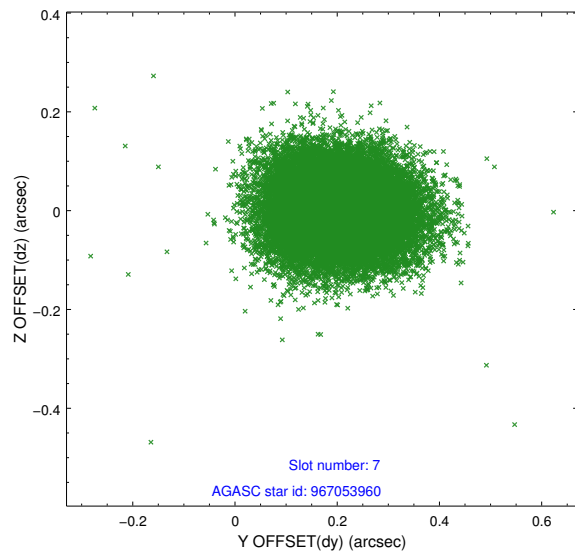
### 2.4.3 Slot 5



### 2.4.4 Slot 6

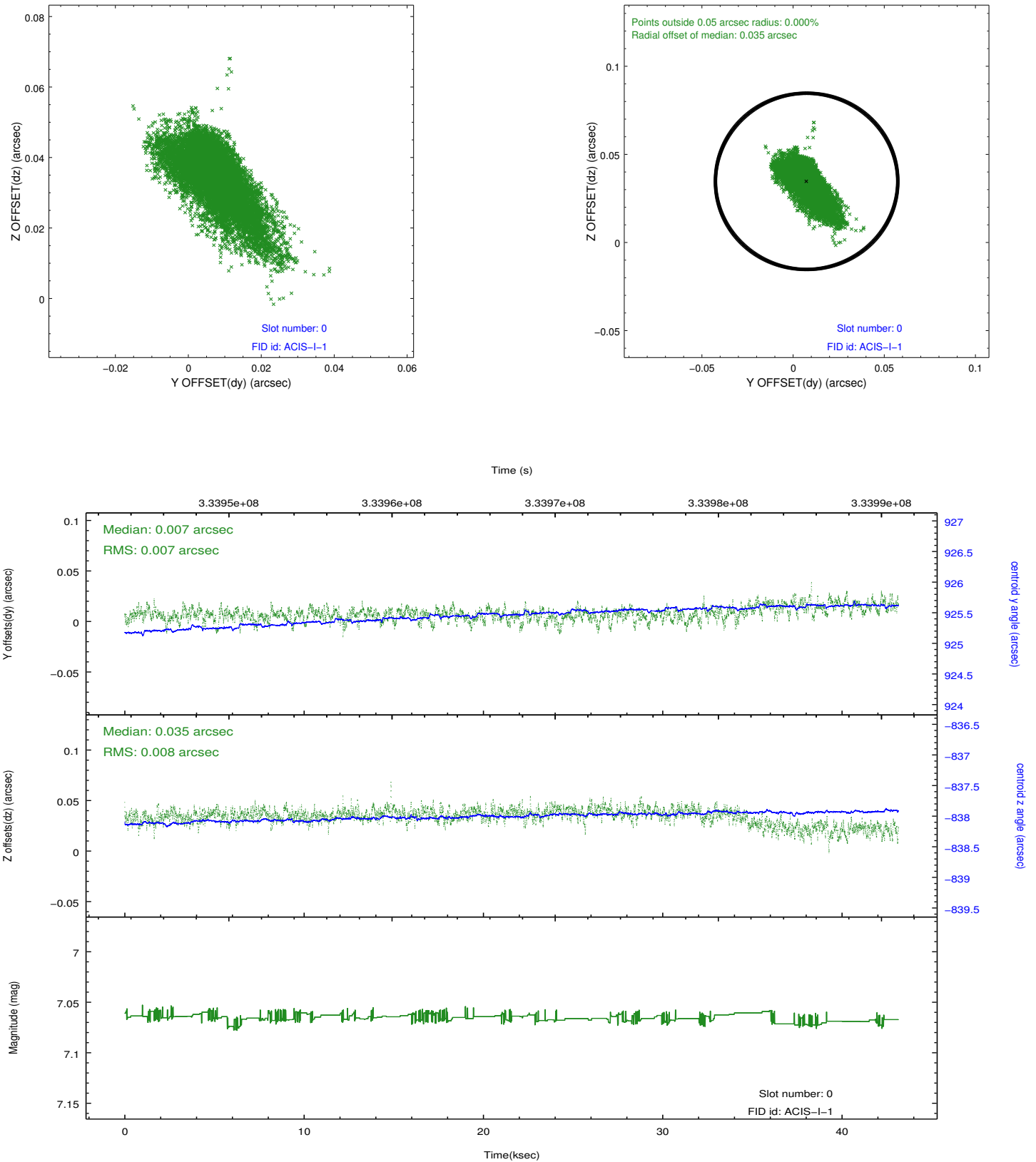


## 2.4.5 Slot 7

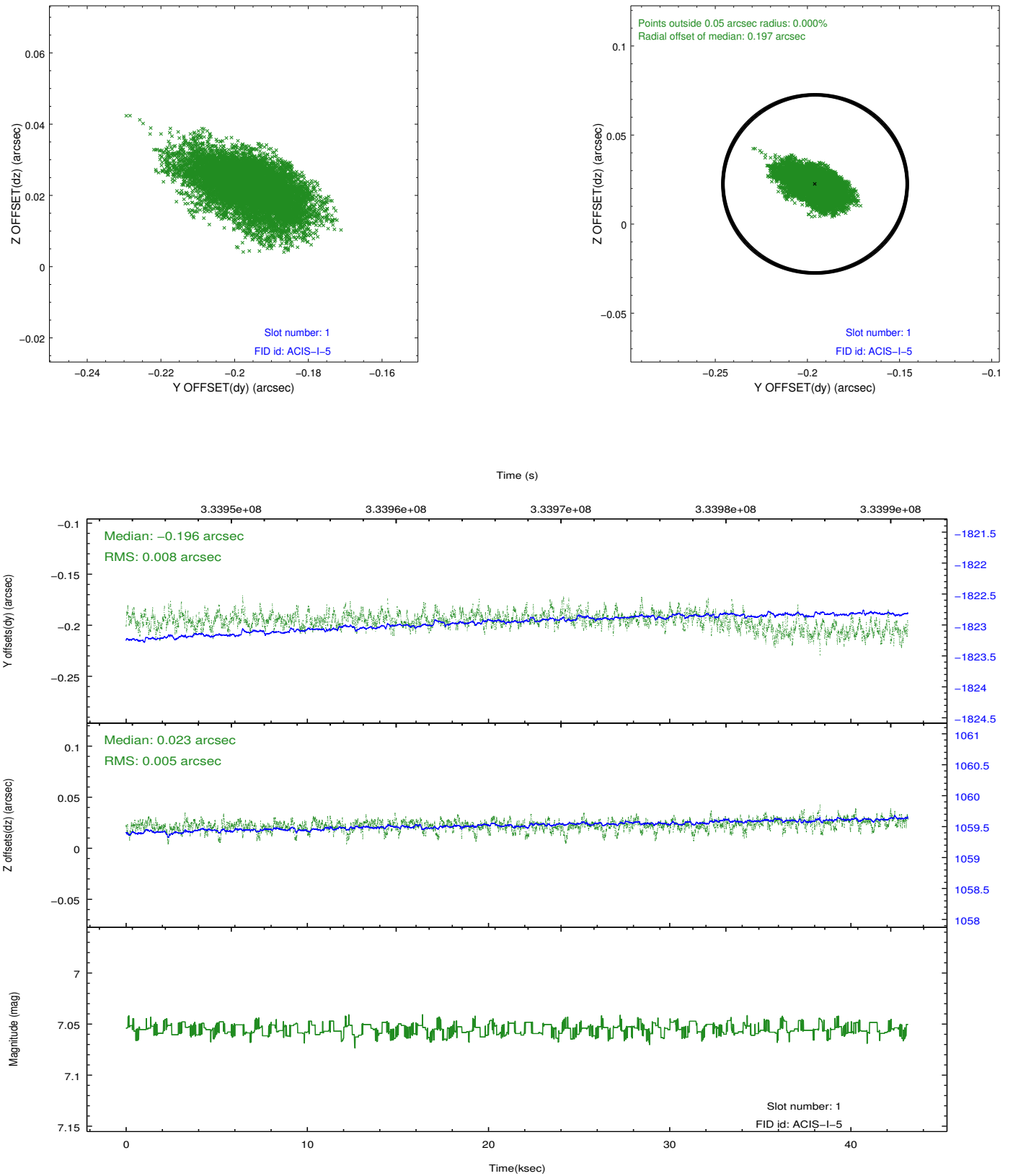


## 2.5 FID Slots

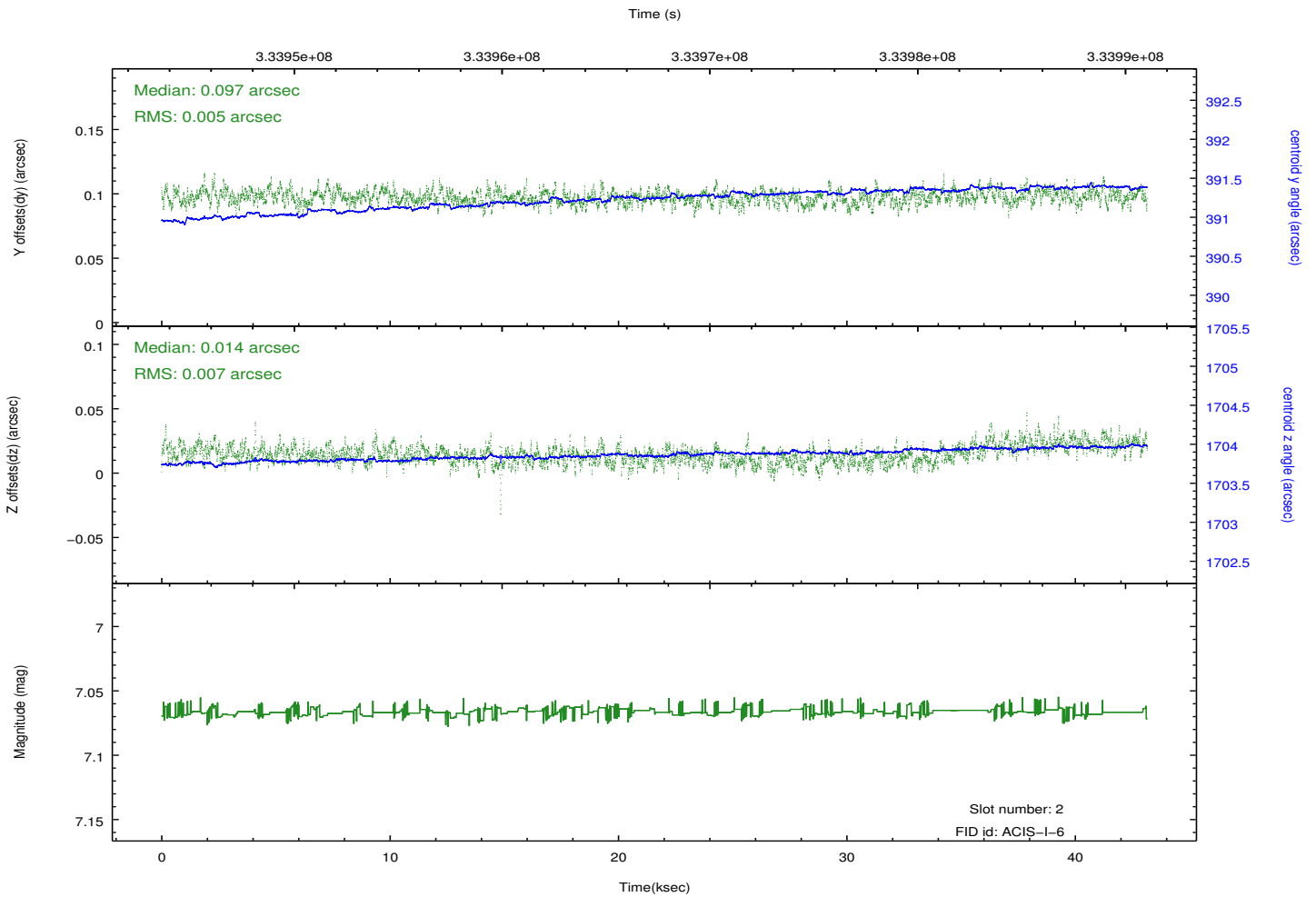
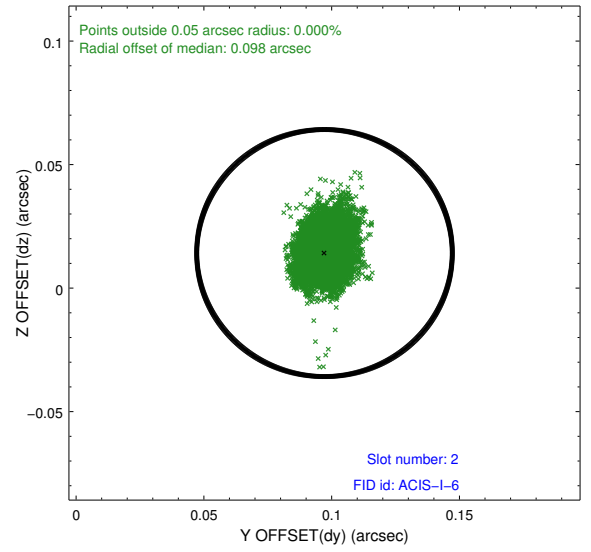
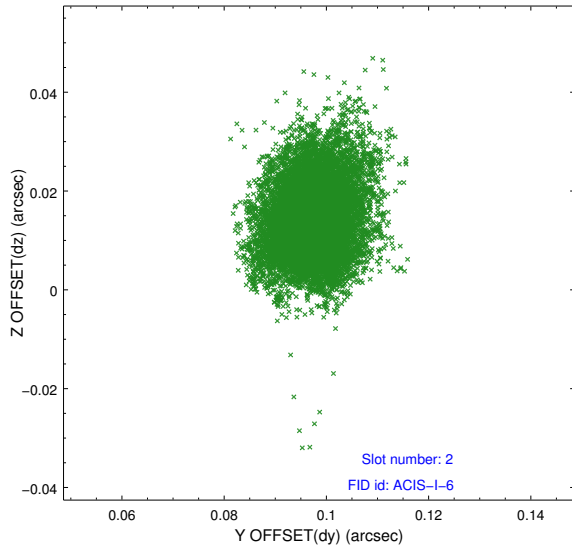
### 2.5.1 Slot 0



## 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)      | 2012.05.29 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 42.7177134 |

## A.2 Comments

A spatial region of the original bias map for CCD = 6 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small ( $\sim 20$  eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 6 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords:  
(268.24047, -29.64066), (268.24020, -29.63821), (268.19831, -29.64167), (268.20108, -29.64391)