

# V&V Reference Report

## L2 ASCDS Version : 10.6

Observation 19763 - L2 Version 2  
Chandra X-Ray Center

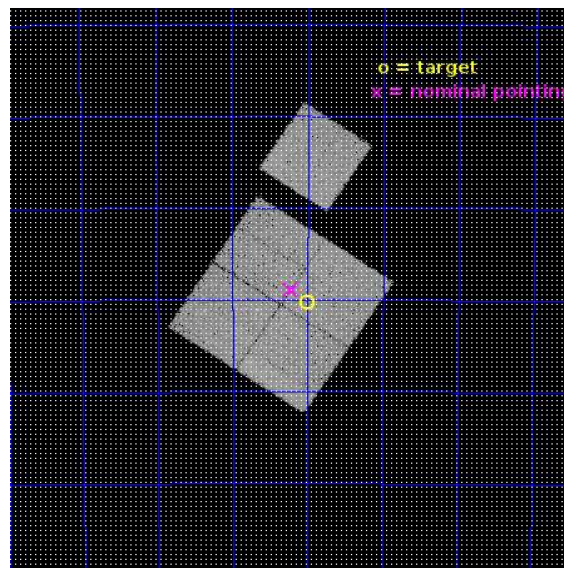
L2 Processing Date : Aug 15 2017

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# 1 Front

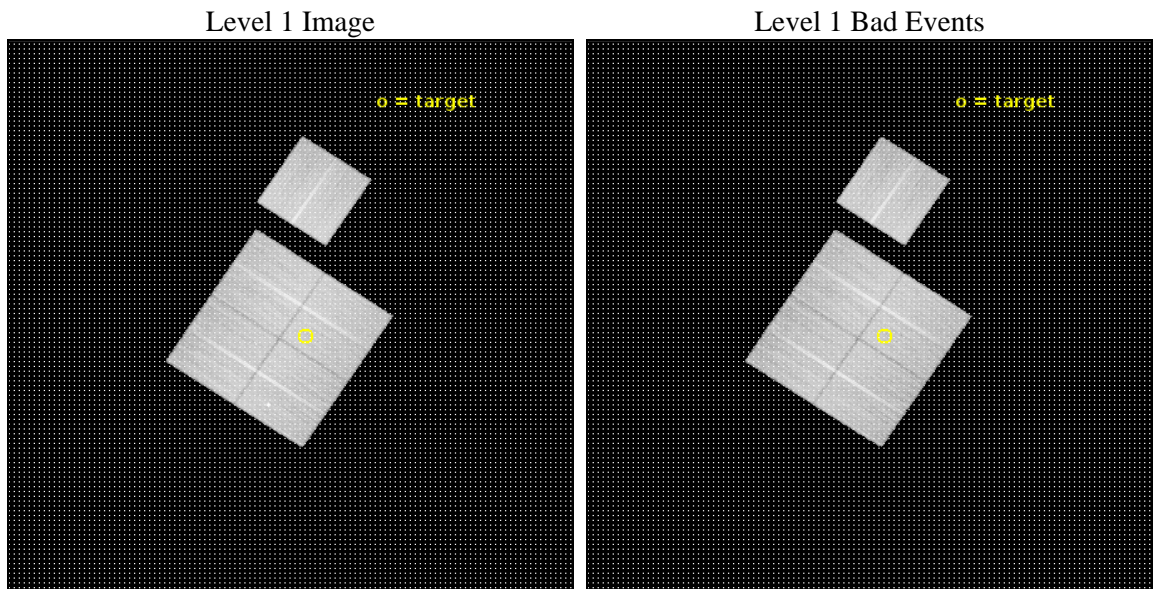
|          |  |   |
|----------|--|---|
| seq_num  | 801700   | Sequence number                             |
| obs_id   | 19763  | Observation id                              |
| title    | A Chandra Survey of low-mass clusters at $0.8 < z < 0.9$ selected in the 100 deg <sup>2</sup> SPT-Pol Deep Field | Proposal title                              |
| observer | Ralph Kraft  | Principal investigator                      |
| object   | SPT-CLJ2312-5820   | Source name                                 |
| dtcycle  | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 348.000833   | Observer's specified target RA [deg]        |
| dec_targ | -58.338  | Observer's specified target Dec [deg]       |
| ra_nom   | 348.05401926832  | Nominal RA [deg]                            |
| dec_nom  | -58.314974419993   | Nominal Dec [deg]                           |
| roll_nom | 33.505183228929  | Nominal Roll [deg]                          |
| revision | 2  | Processing version of data                  |
| ontime   | 34068.190362096  | Sum of GTIs [s]                             |
| livetime | 33623.064374378  | Livetime [s]                                |
| ontime0  | 34068.067222238  | Sum of GTIs [s]                             |
| ontime1  | 34071.249332428  | Sum of GTIs [s]                             |
| ontime2  | 34065.008251667  | Sum of GTIs [s]                             |
| ontime3  | 34068.190362096  | Sum of GTIs [s]                             |
| ontime6  | 34068.026182175  | Sum of GTIs [s]                             |
| l2events | 112098   | Number of level 2 events                    |



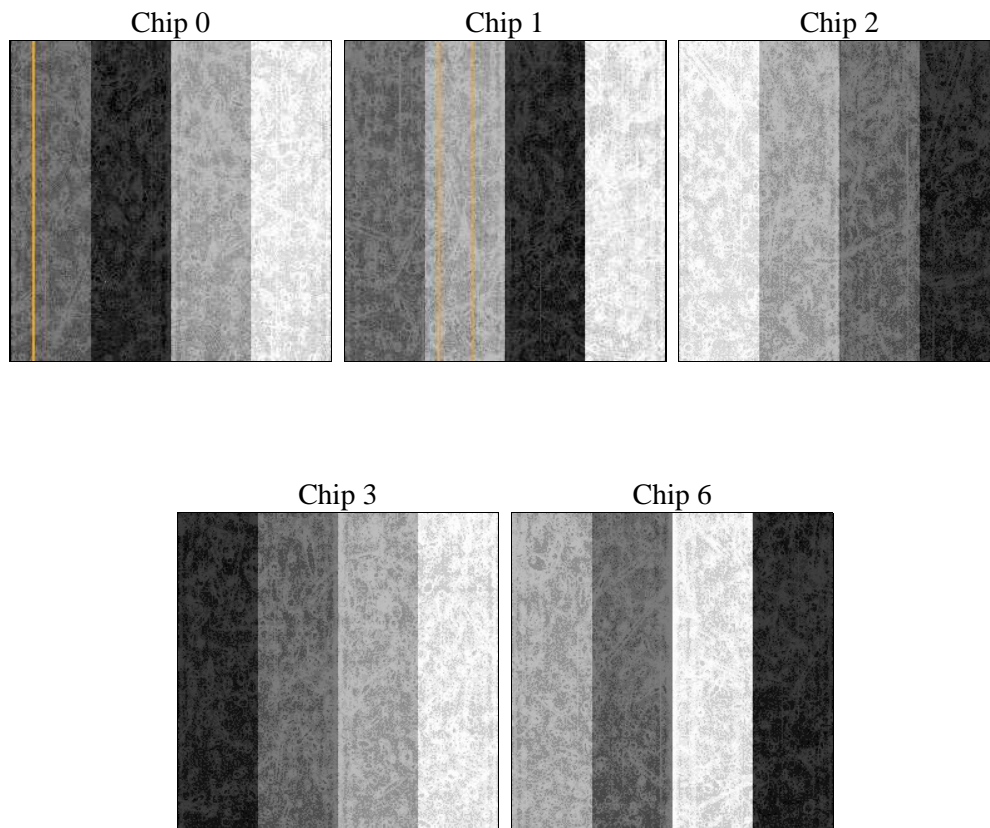
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 34000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.6                | Processing system revision     | ontime         | 34068.190362096 | Sum of GTIs [s]                         |
| caldbver | 4.7.5               | &#160                          | ontime0        | 34068.067222238 | Sum of GTIs [s]                         |
| date     | 2017-08-15T15:25:10 | Date and time of file creation | ontime1        | 34071.249332428 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime2        | 34065.008251667 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 34068.190362096 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 34068.026182175 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1153986         | Number of level 1 events                |

### 2.1.4 Events

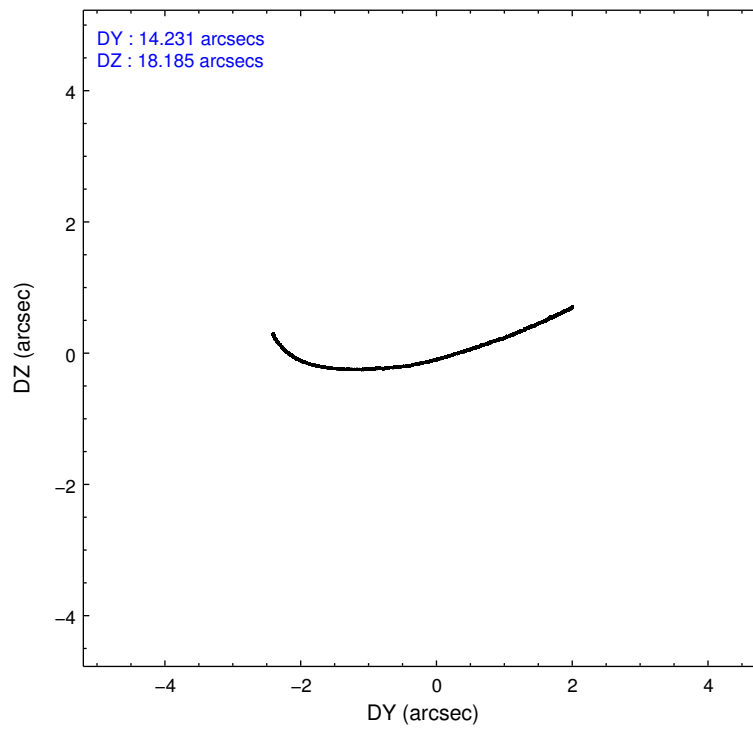
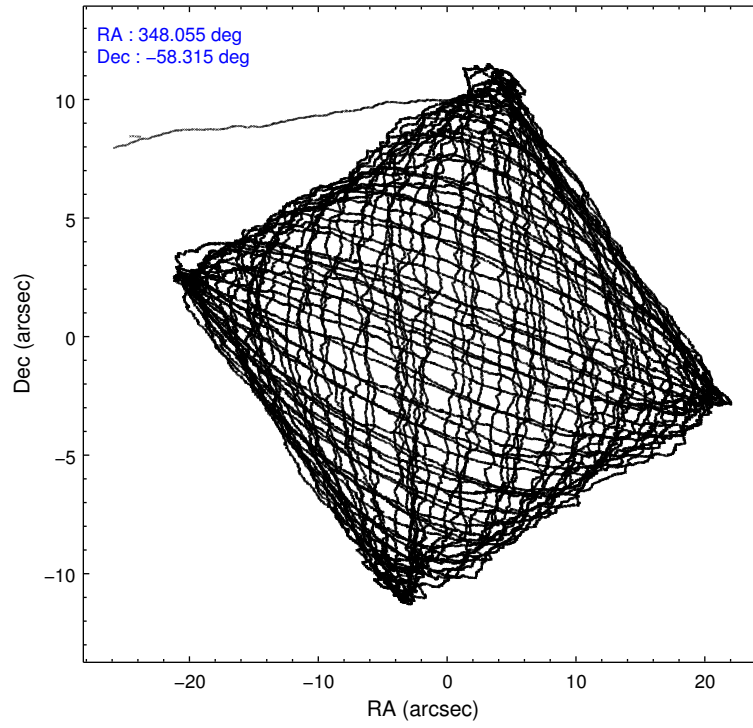
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 217866 | 224615 | 238532 | 232418 | 240555 |
| rejected events | 190655 | 194112 | 212977 | 207544 | 213746 |
| rejected %      | 87%    | 86%    | 89%    | 89%    | 88%    |

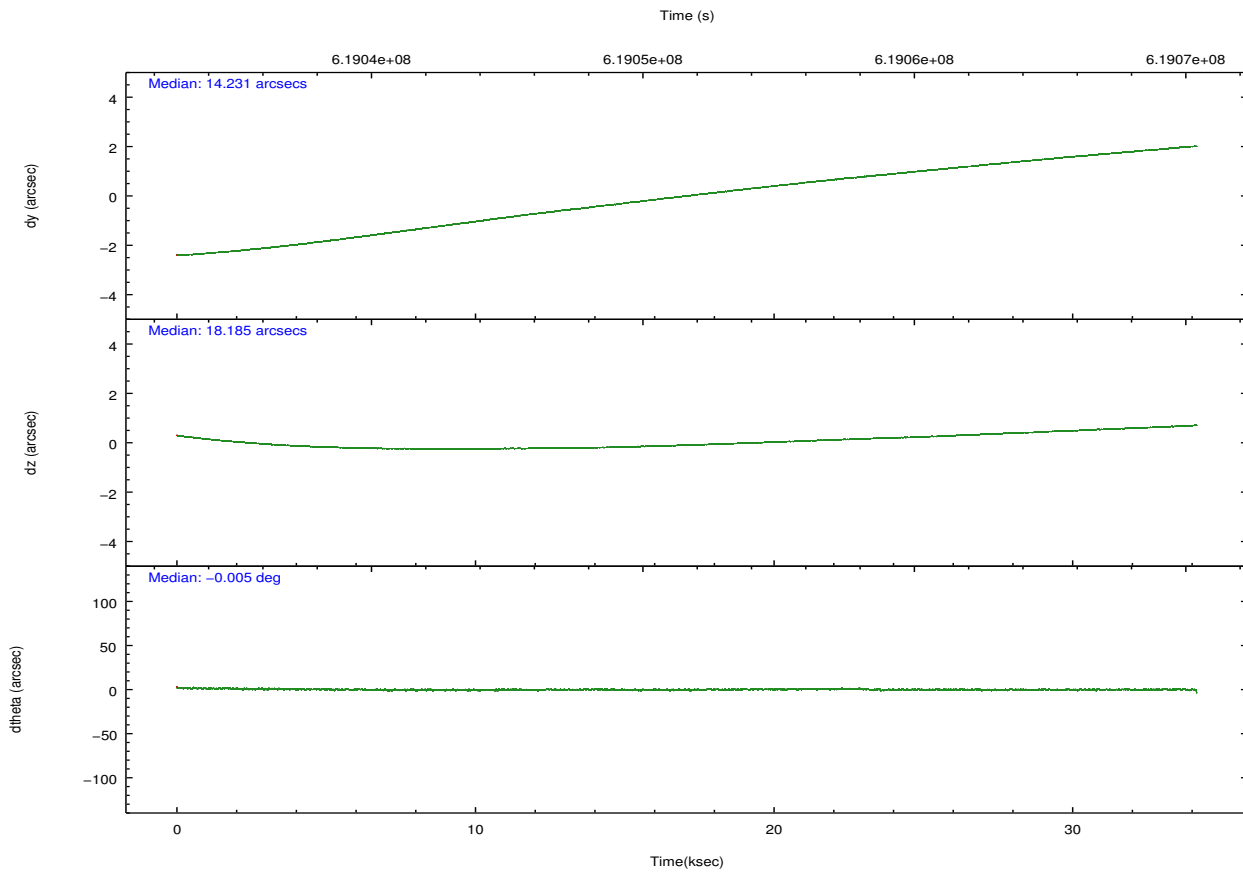
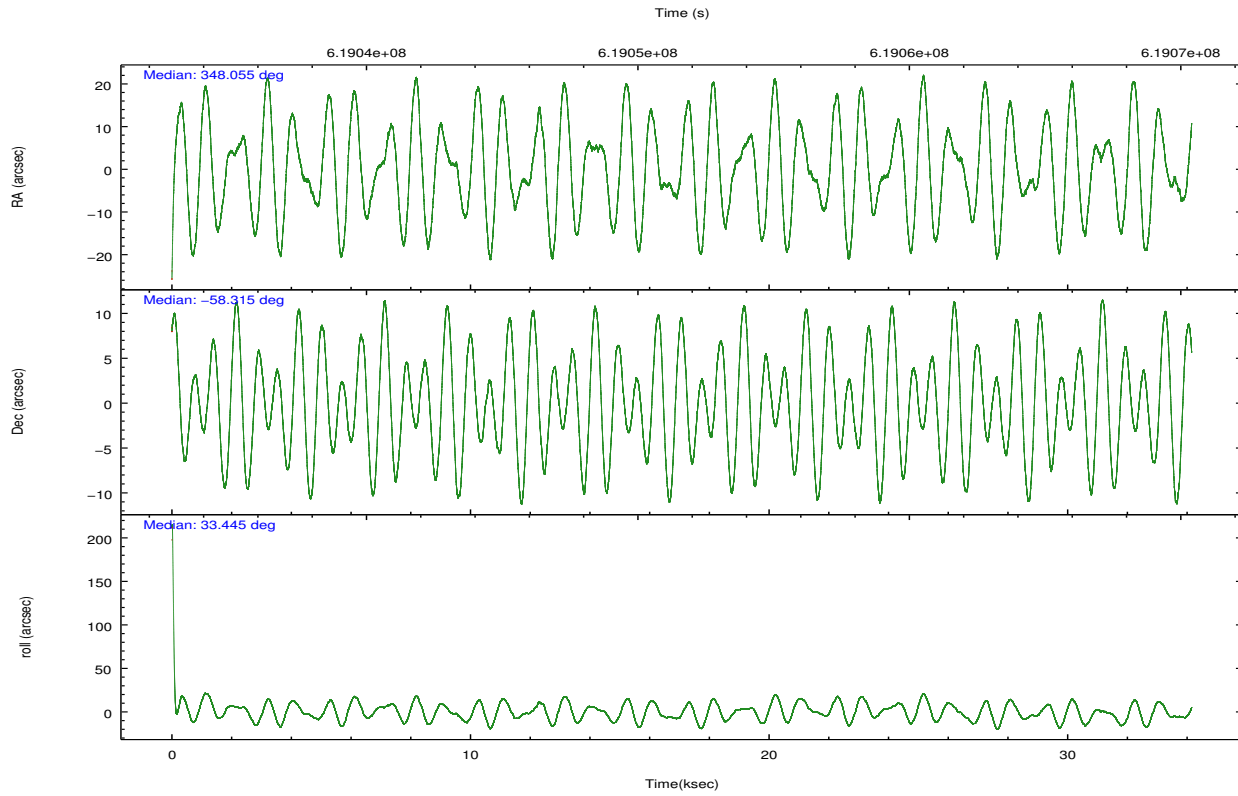
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 9272   | 11173  | 8893   | 8684   | 8675   |
|                | 4%     | 4%     | 3%     | 3%     | 3%     |
| grade 1 events | 150    | 137    | 144    | 121    | 102    |
|                | 0%     | 0%     | 0%     | 0%     | 0%     |
| grade 2 events | 6944   | 7140   | 6333   | 5557   | 6316   |
|                | 3%     | 3%     | 2%     | 2%     | 2%     |
| grade 3 events | 2816   | 2732   | 2618   | 2648   | 2698   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 4 events | 2600   | 2850   | 2661   | 2563   | 2682   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 5 events | 10275  | 10740  | 9650   | 11600  | 11031  |
|                | 4%     | 4%     | 4%     | 4%     | 4%     |
| grade 6 events | 5582   | 6615   | 5055   | 5426   | 6452   |
|                | 2%     | 2%     | 2%     | 2%     | 2%     |
| grade 7 events | 180227 | 183228 | 203178 | 195819 | 202599 |
|                | 82%    | 81%    | 85%    | 84%    | 84%    |

## 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                 | 348.030727          | 348.054019268317     | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | -58.339736          | -58.31497441999284   | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 33.276568           | 33.50518322892872    | 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    | -230.082463         | -230.0875075610572   | CCD S3 on                             | N         | N       |
| [mm] SIM translation stage offset | -3.51               | -3.504945441872508   | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 619034713.184000    | 619033645.5168       | CCD S5 on                             | N         | N       |
| Observation start date            | 2017-08-13T18:04:04 | 2017-08-13T17:47:25  | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 619068713.184000    | 619068913.20636      | On-chip summing requested             | N         | N       |
| Observation end date              | 2017-08-14T03:30:44 | 2017-08-14T03:35:13  | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                | Alternating exposures requested       | N         | N       |
|                                   |                     |                      | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect





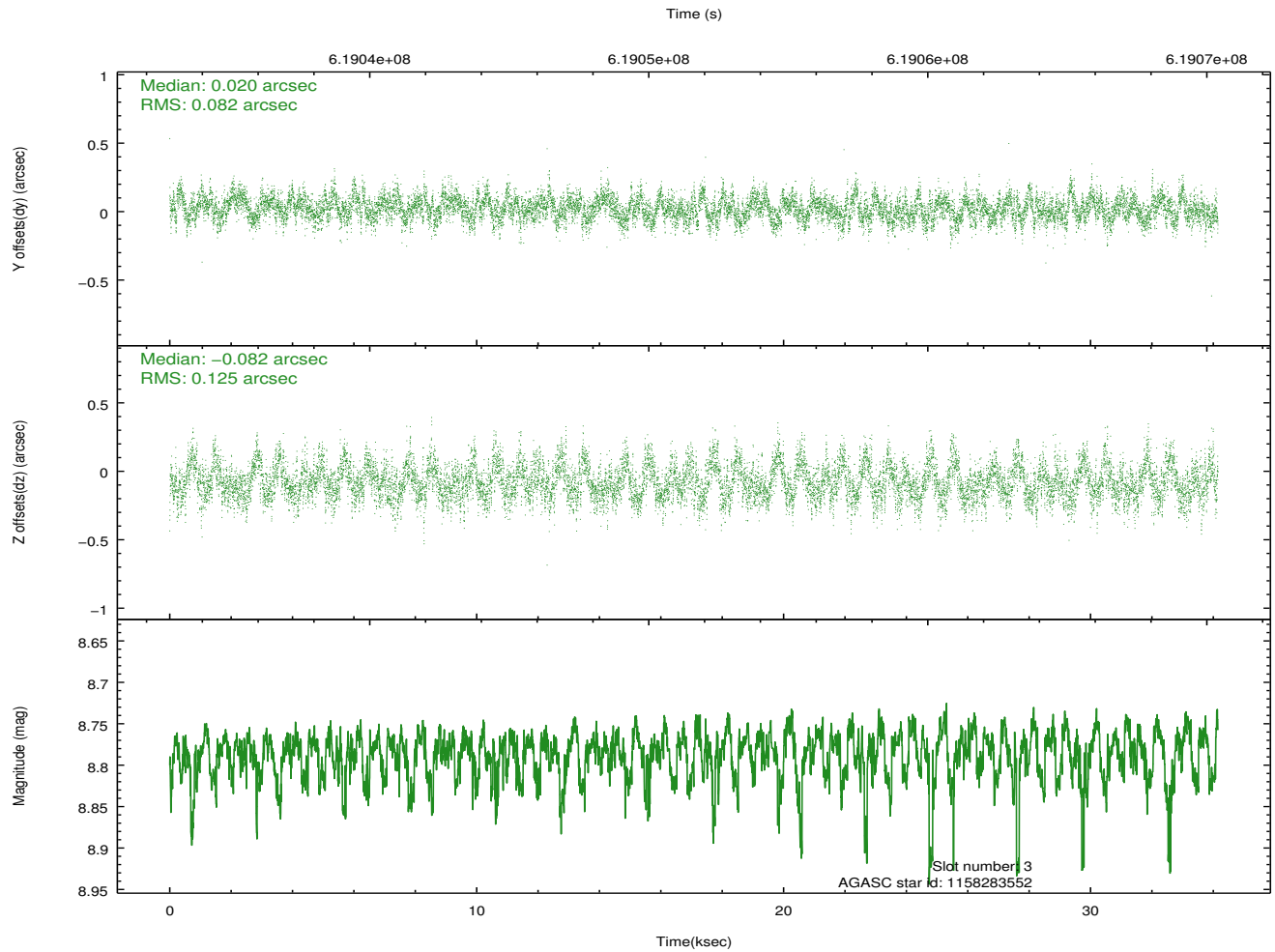
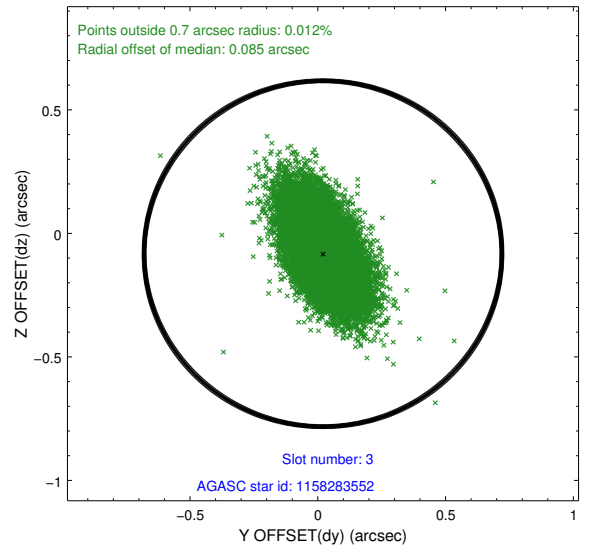
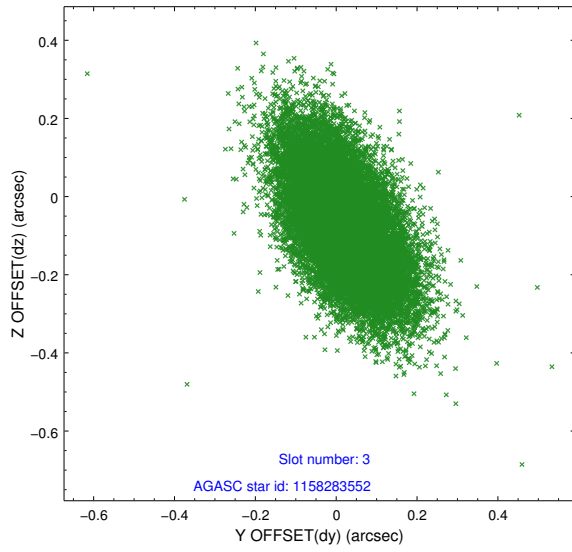
### Slot Statistics

| slot | status  | used | id         | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mean_z   |
|------|---------|------|------------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0    | FID     |      | ACIS-I-1   | 7.14 | 8330  | 0.105  | -0.121 | 0.016 | 0.035 | 0.000000   | 0.000000   | 925.44   | -913.91  |
| 1    | FID     |      | ACIS-I-5   | 7.13 | 8331  | -0.379 | 0.045  | 0.024 | 0.038 | 0.000000   | 0.000000   | -1823.23 | 983.57   |
| 2    | FID     |      | ACIS-I-6   | 7.14 | 8331  | 0.181  | 0.146  | 0.014 | 0.036 | 0.000000   | 0.000000   | 390.87   | 1628.34  |
| 3    | GUIDE   | used | 1158283552 | 8.78 | 16644 | 0.020  | -0.082 | 0.154 | 0.271 | 348.601588 | -58.521149 | 536.55   | -1137.11 |
| 4    | GUIDE   | used | 1158284160 | 9.09 | 16646 | 0.089  | 0.100  | 0.169 | 0.278 | 347.613662 | -59.115195 | -2176.75 | -1914.60 |
| 5    | GUIDE   | used | 1158284576 | 9.27 | 16643 | -0.360 | -0.142 | 0.194 | 0.321 | 348.502914 | -58.374813 | 673.32   | -595.77  |
| 6    | GUIDE   | used | 1158284928 | 8.84 | 16648 | 0.251  | 0.111  | 0.122 | 0.211 | 348.369666 | -58.766413 | -313.71  | -1631.90 |
| 7    | OMITTED |      |            | 0.00 | 0     | 0.000  | 0.000  | 0.000 | 0.000 | 0.000000   | 0.000000   | 0.00     | 0.00     |

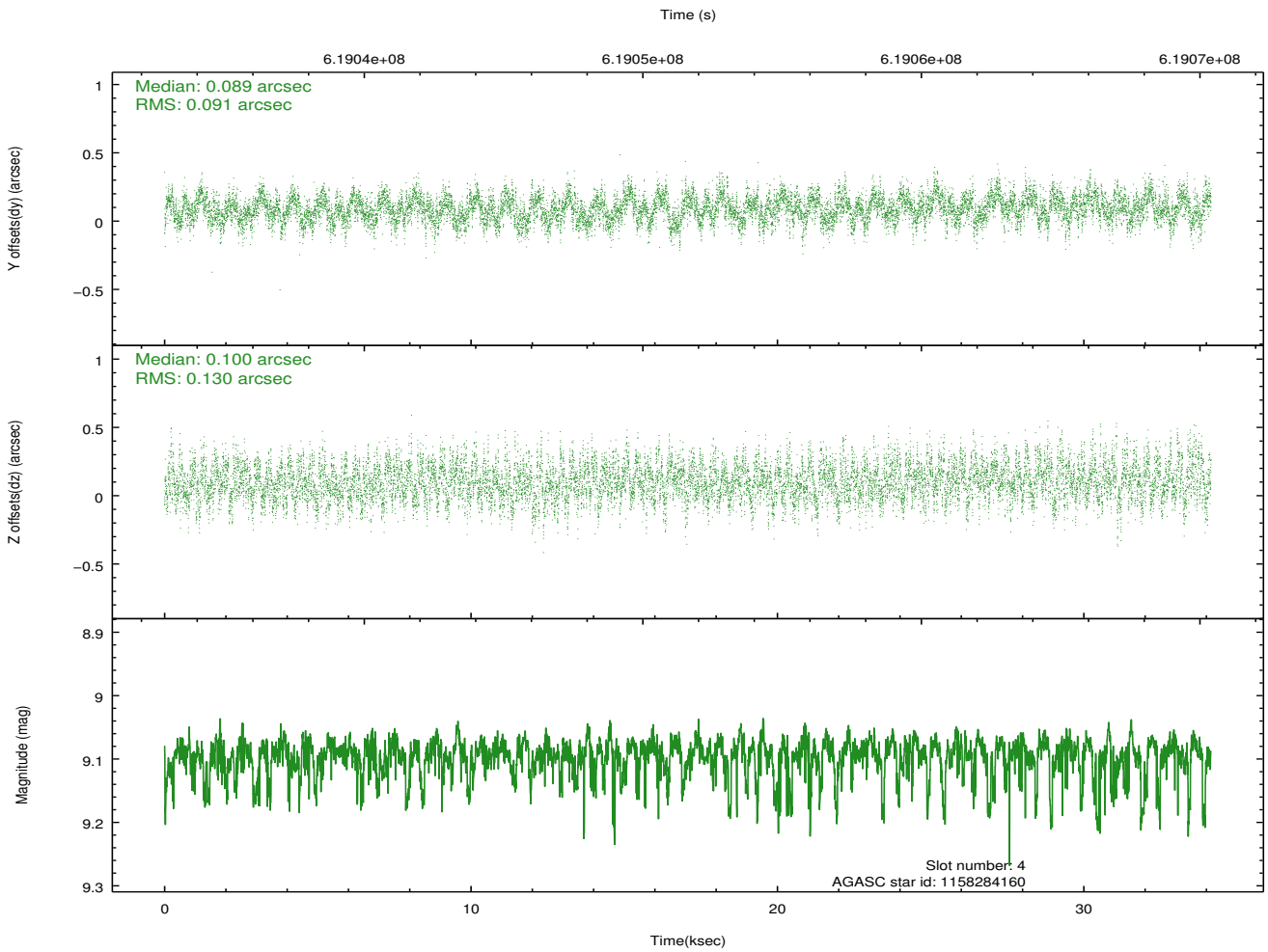
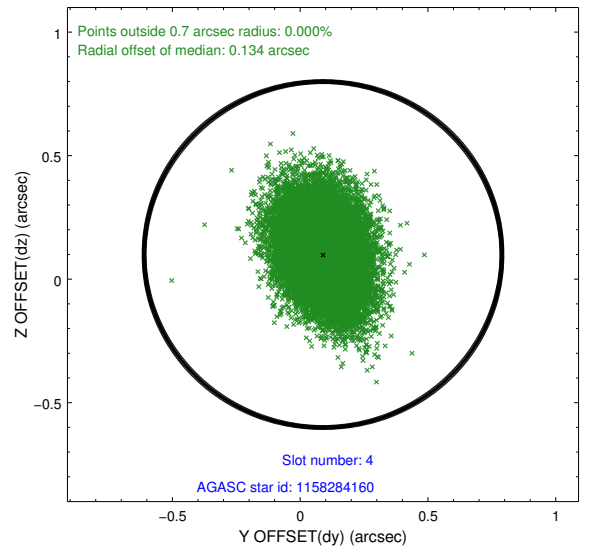
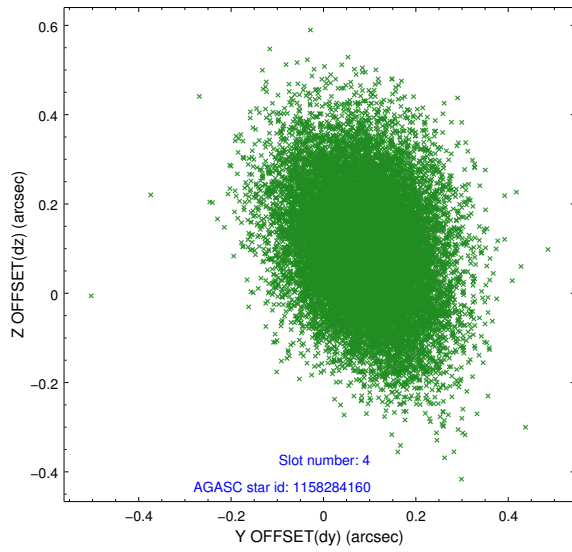
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## 2.4 Star Slots

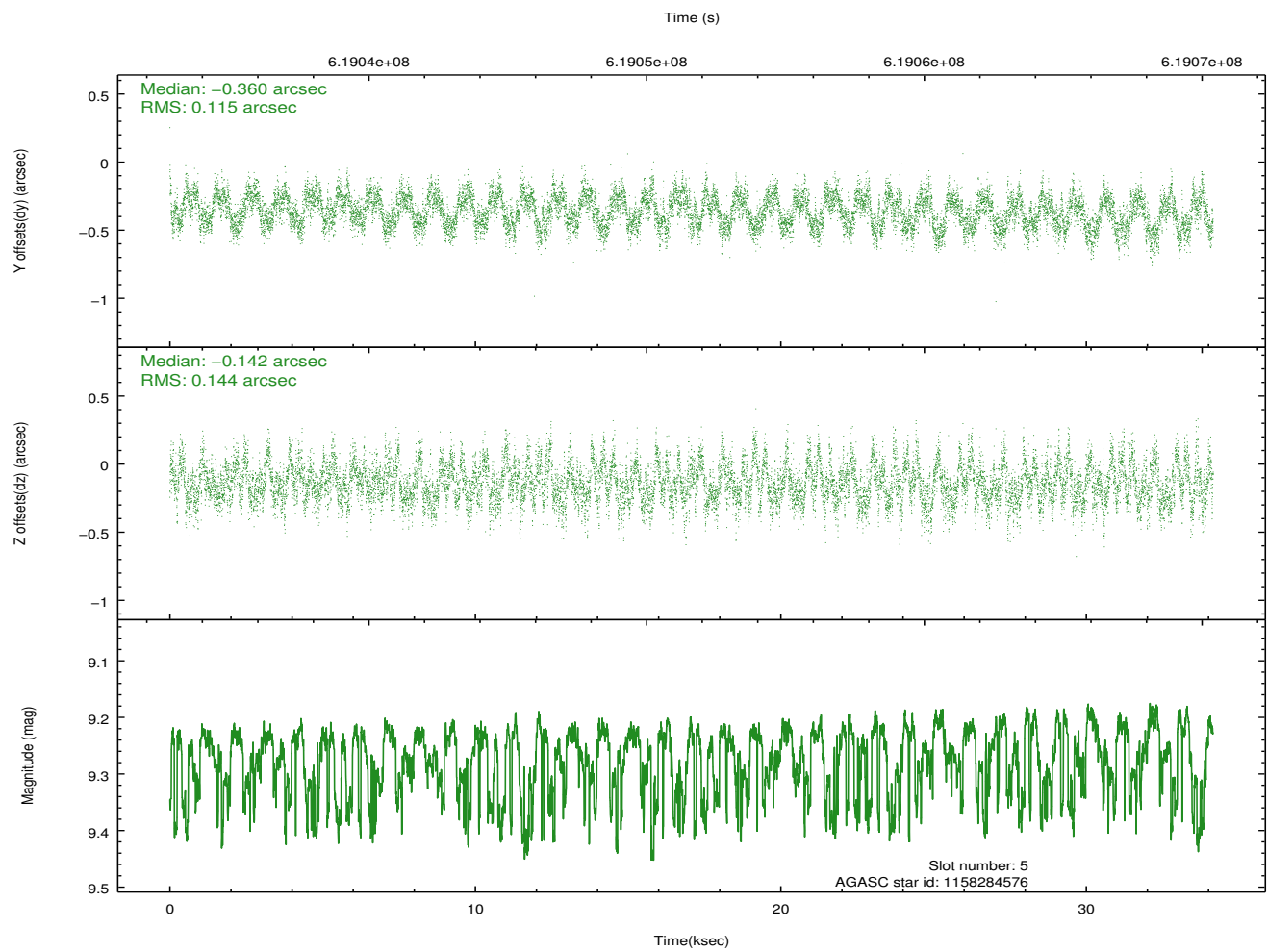
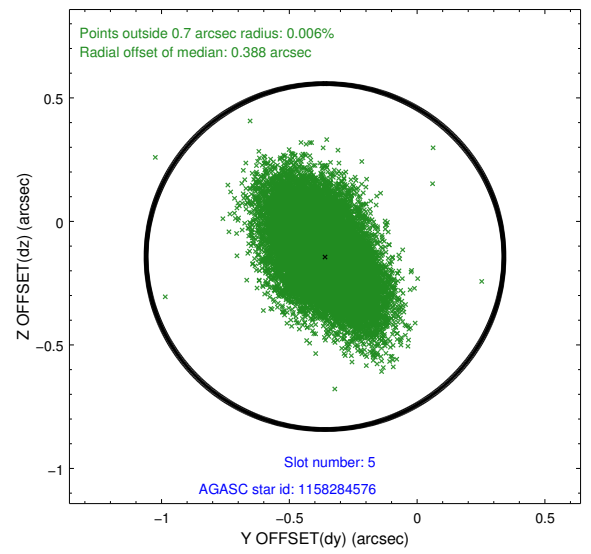
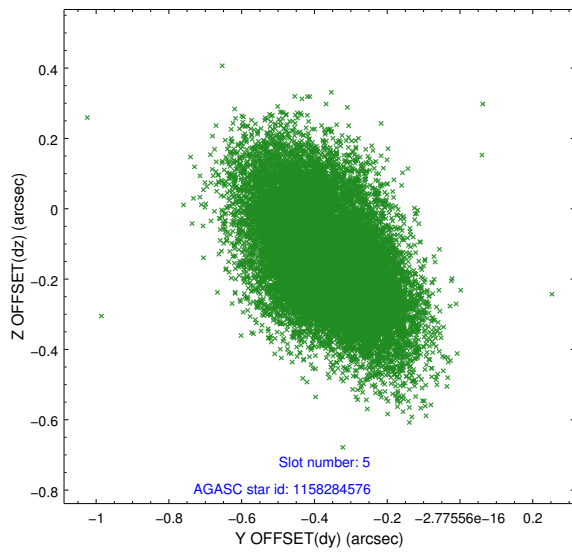
### 2.4.1 Slot 3



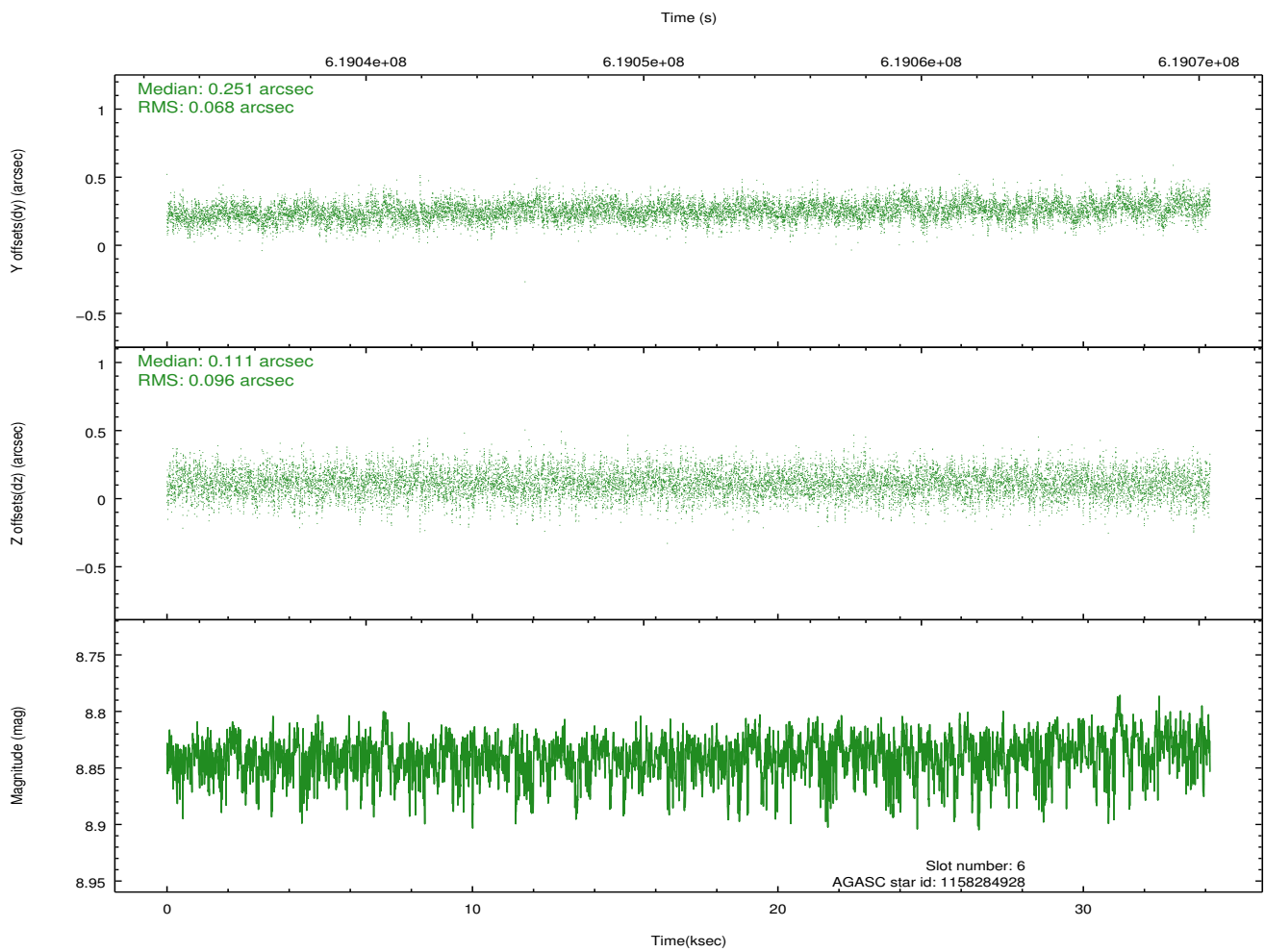
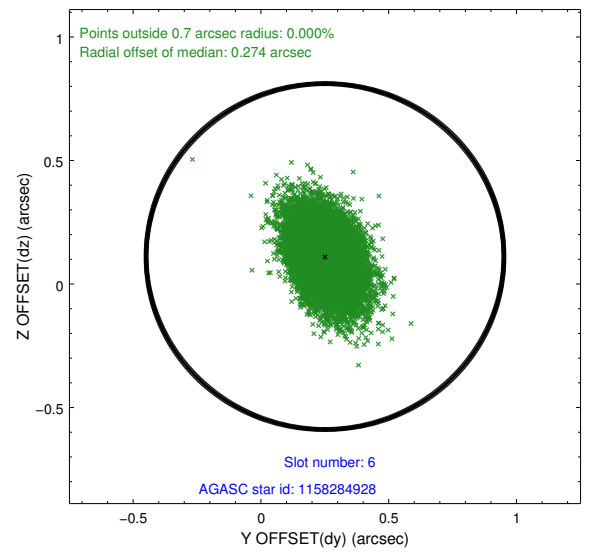
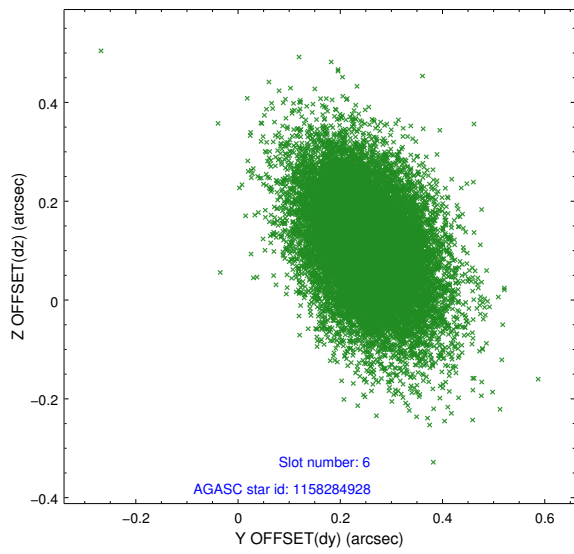
## 2.4.2 Slot 4



### 2.4.3 Slot 5

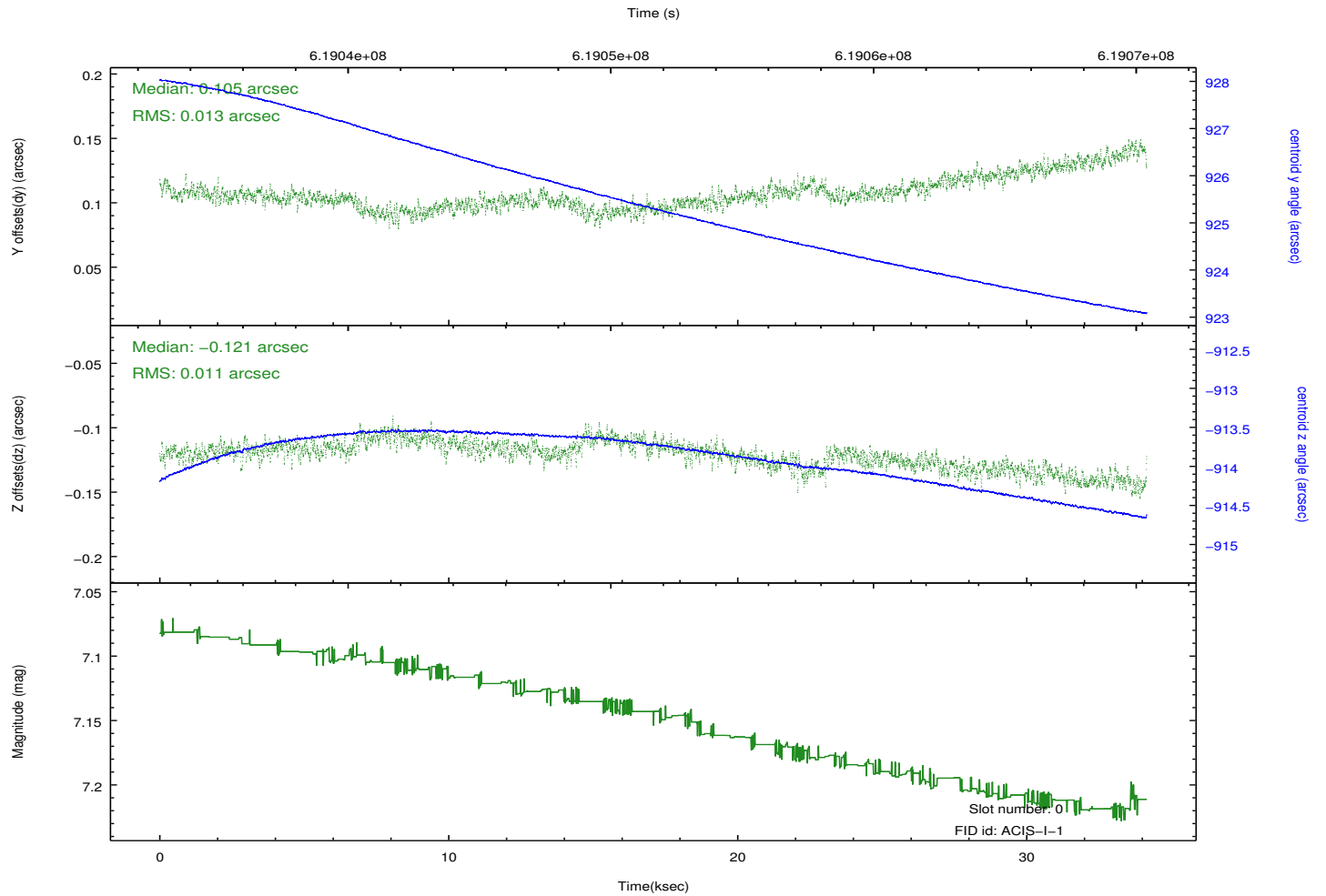
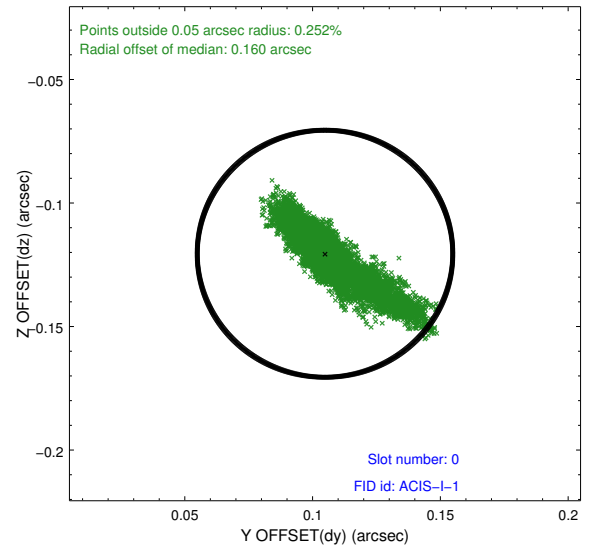
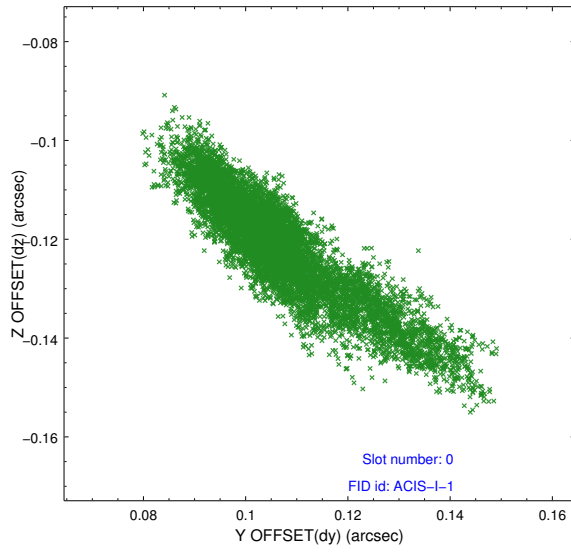


## 2.4.4 Slot 6

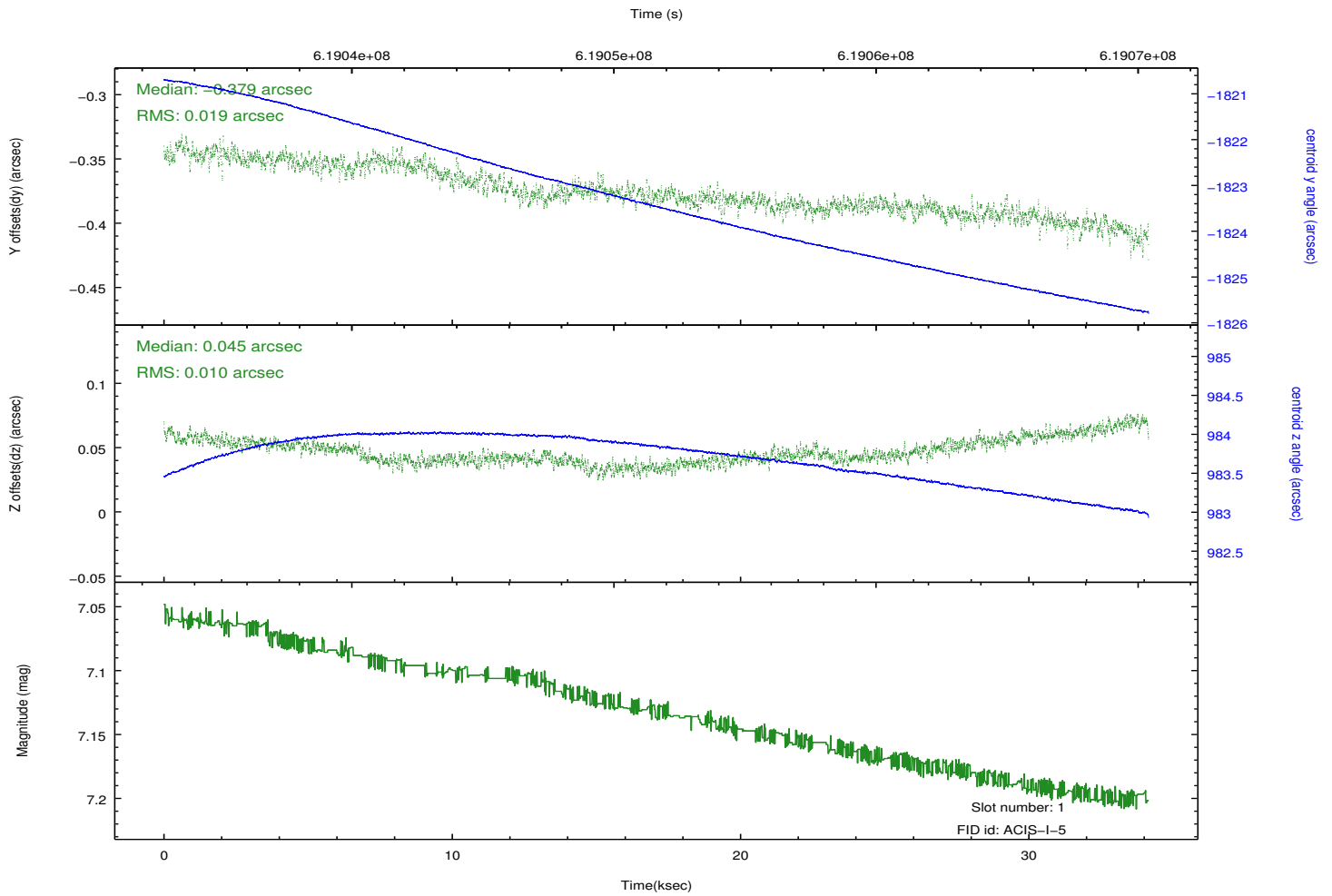
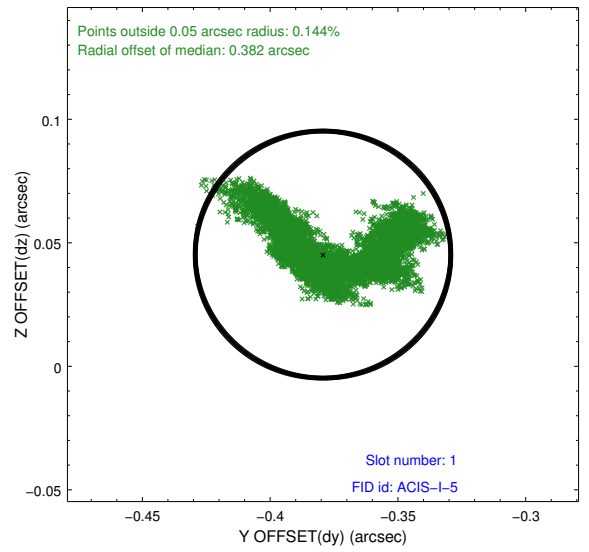
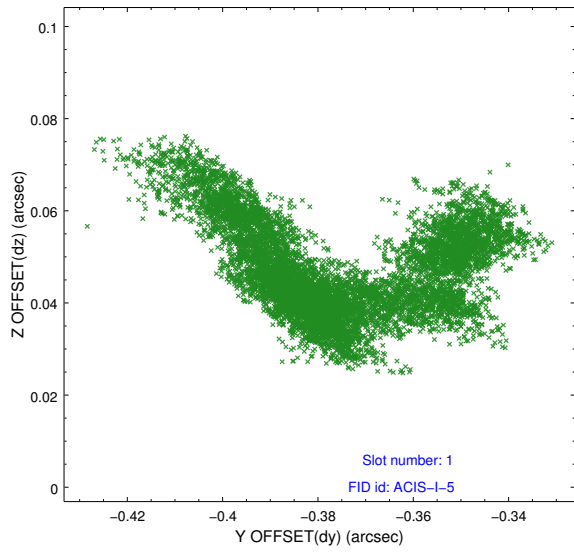


## 2.5 FID Slots

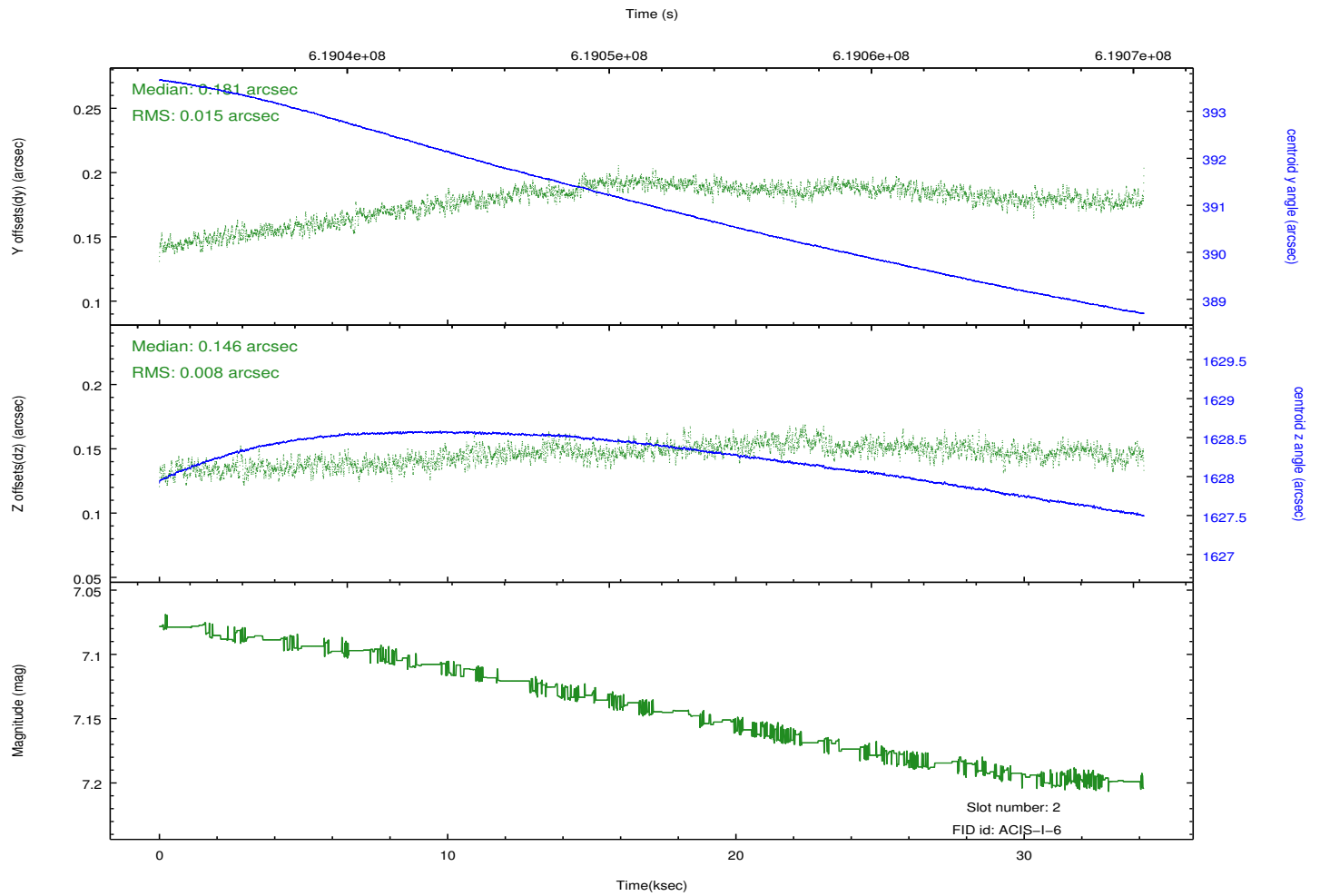
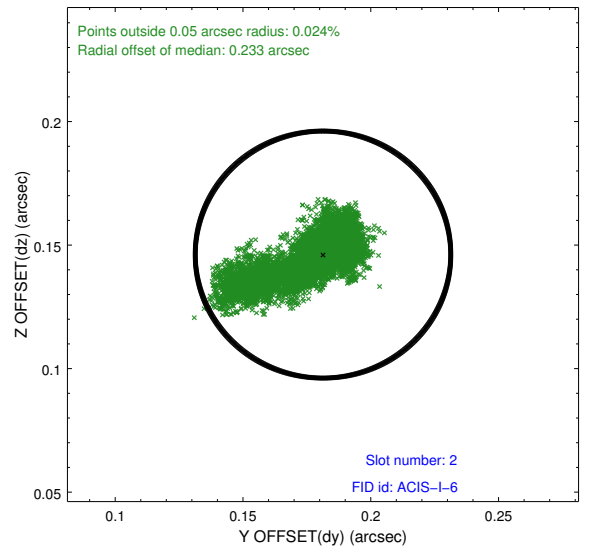
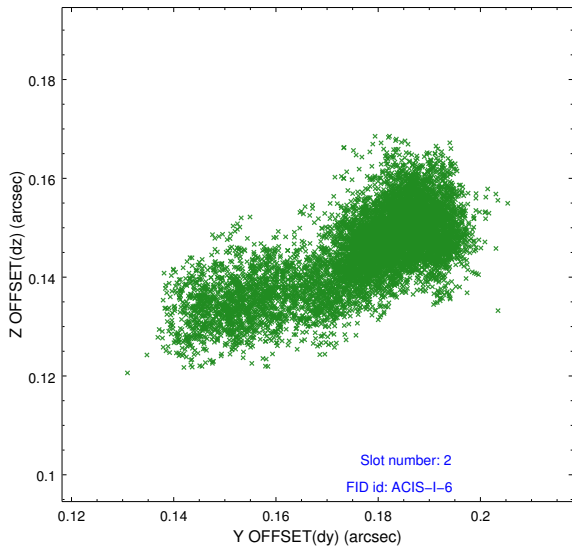
### 2.5.1 Slot 0



## 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)      | 2017.08.15      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 34.068190362096 |

## A.2 Comments

The guide star in slot 7 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.