

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 6394 - L2 Version 5  
Chandra X-Ray Center

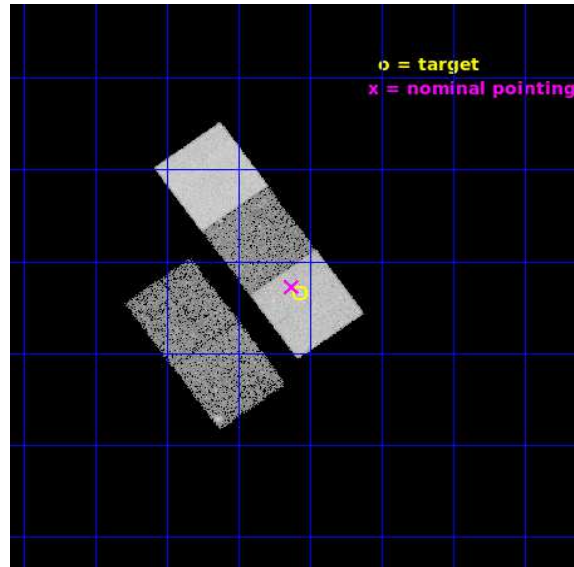
L2 Processing Date : Oct 10 2020

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# 1 Front

|          |  |   |
|----------|--|---|
| seq_num  | 800500                                       | Sequence number                             |
| obs_id   | 6394   | Observation id                              |
| title    | A detailed study of a $z > 1$ galaxy cluster | Proposal title                              |
| observer | Dr Laurence Jones                            | Principal investigator                      |
| object   | 2XLSSd J022404.2-041331                      | Source name                                 |
| dtcycle  | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 36.017083                                    | Observer's specified target RA [deg]        |
| dec_targ | -4.224694                                    | Observer's specified target Dec [deg]       |
| ra_nom   | 36.031989458457                              | Nominal RA [deg]                            |
| dec_nom  | -4.2123648509005                             | Nominal Dec [deg]                           |
| roll_nom | 54.16283876265                               | Nominal Roll [deg]                          |
| revision | 5  | Processing version of data                  |
| ontime   | 17772.299965799                              | Sum of GTIs [s]                             |
| livetime | 17540.091782969                              | Livetime [s]                                |
| ontime2  | 17772.299965799                              | Sum of GTIs [s]                             |
| ontime3  | 17772.299965799                              | Sum of GTIs [s]                             |
| ontime5  | 17772.299965799                              | Sum of GTIs [s]                             |
| ontime6  | 17769.158995539                              | Sum of GTIs [s]                             |
| ontime7  | 17772.299965799                              | Sum of GTIs [s]                             |
| l2events | 151797                                       | Number of level 2 events                    |

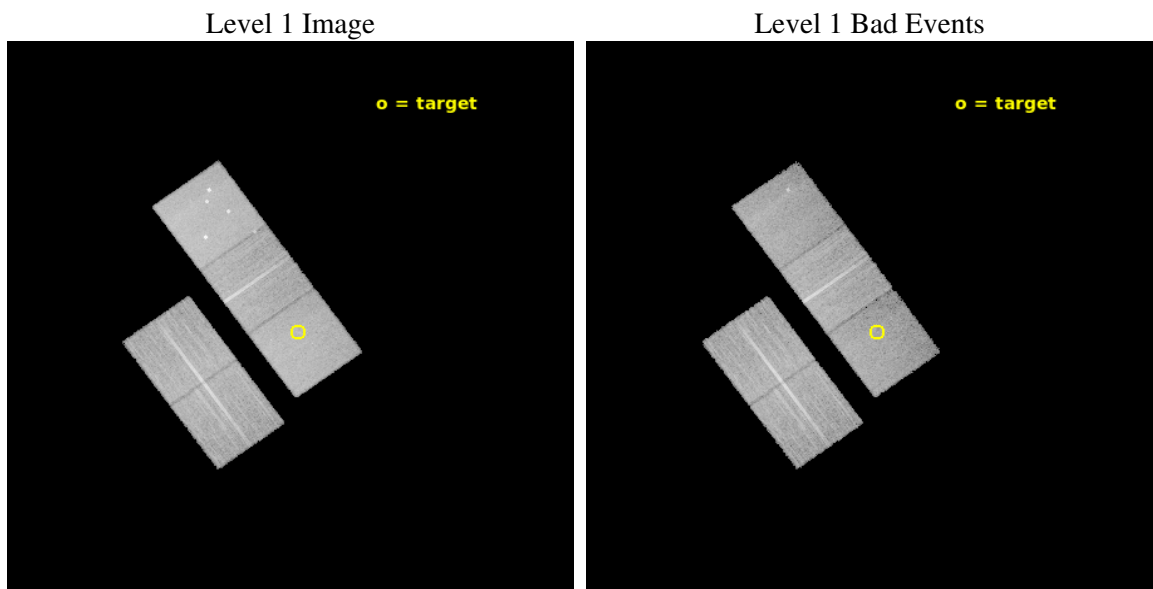




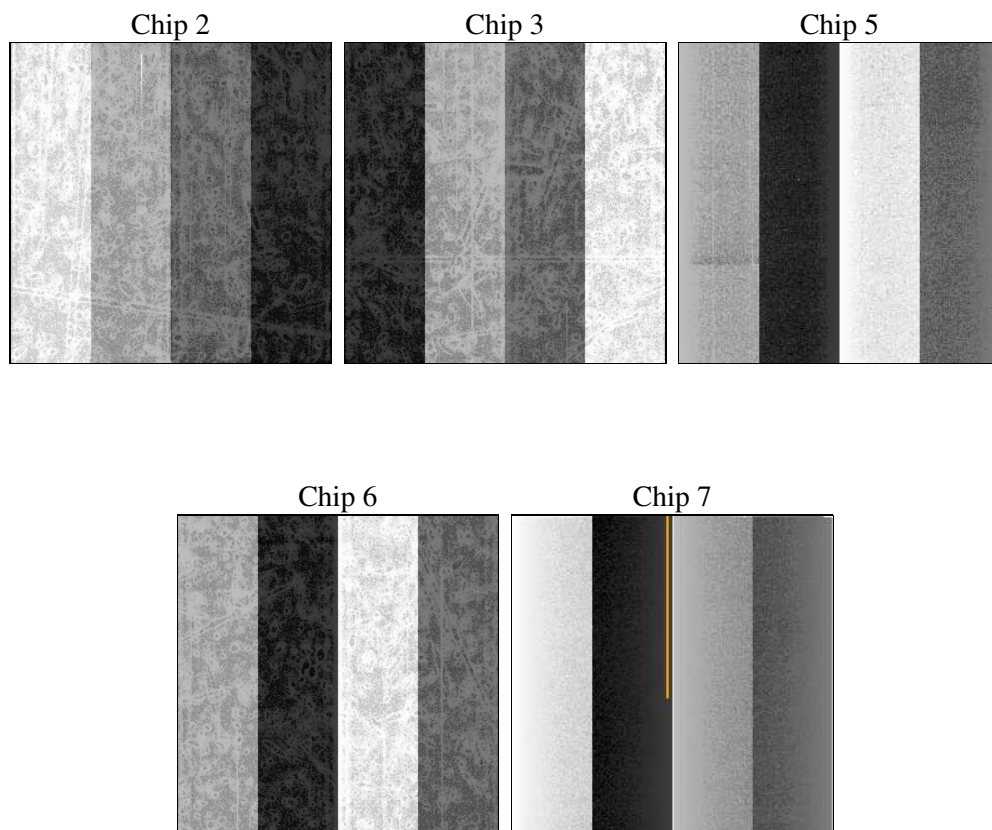
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 17600.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.9.1              | Processing system revision     | ontime         | 17772.299965799 | Sum of GTIs [s]                         |
| caldsver | 4.9.2               | &#160                          | ontime2        | 17772.299965799 | Sum of GTIs [s]                         |
| date     | 2020-10-11T02:14:58 | Date and time of file creation | ontime3        | 17772.299965799 | Sum of GTIs [s]                         |
| revision | 5                   | Processing version of data     | ontime5        | 17772.299965799 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 17769.158995539 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 17772.299965799 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 647283          | Number of level 1 events                |

### 2.1.4 Events

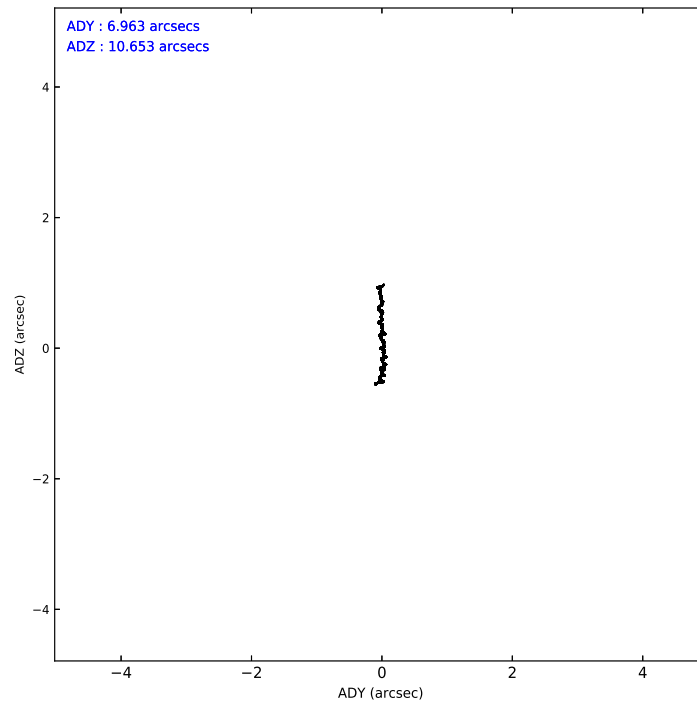
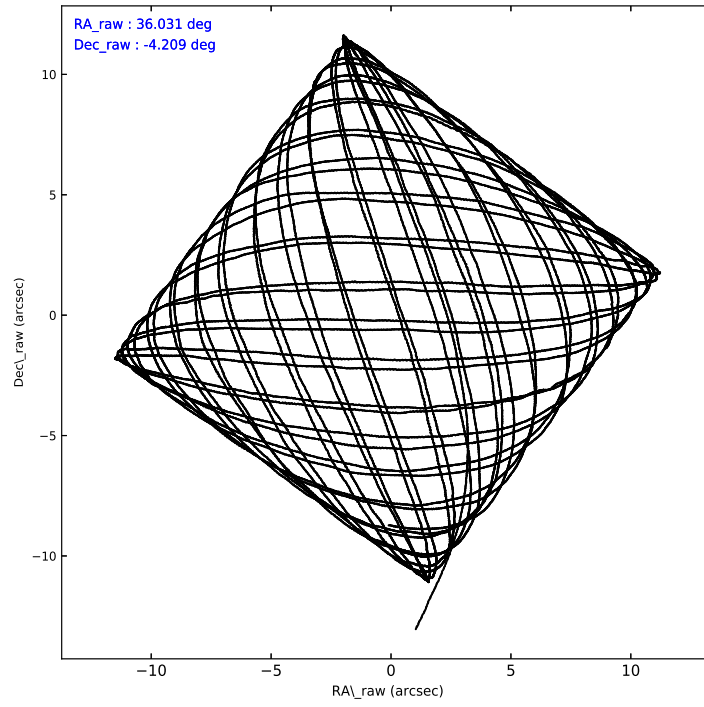
|                 | ccd 2  | ccd 3  | ccd 5  | ccd 6  | ccd 7  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 121888 | 113945 | 163248 | 117689 | 130513 |
| rejected events | 111195 | 103348 | 86232  | 106012 | 74791  |
| rejected %      | 91%    | 90%    | 52%    | 90%    | 57%    |

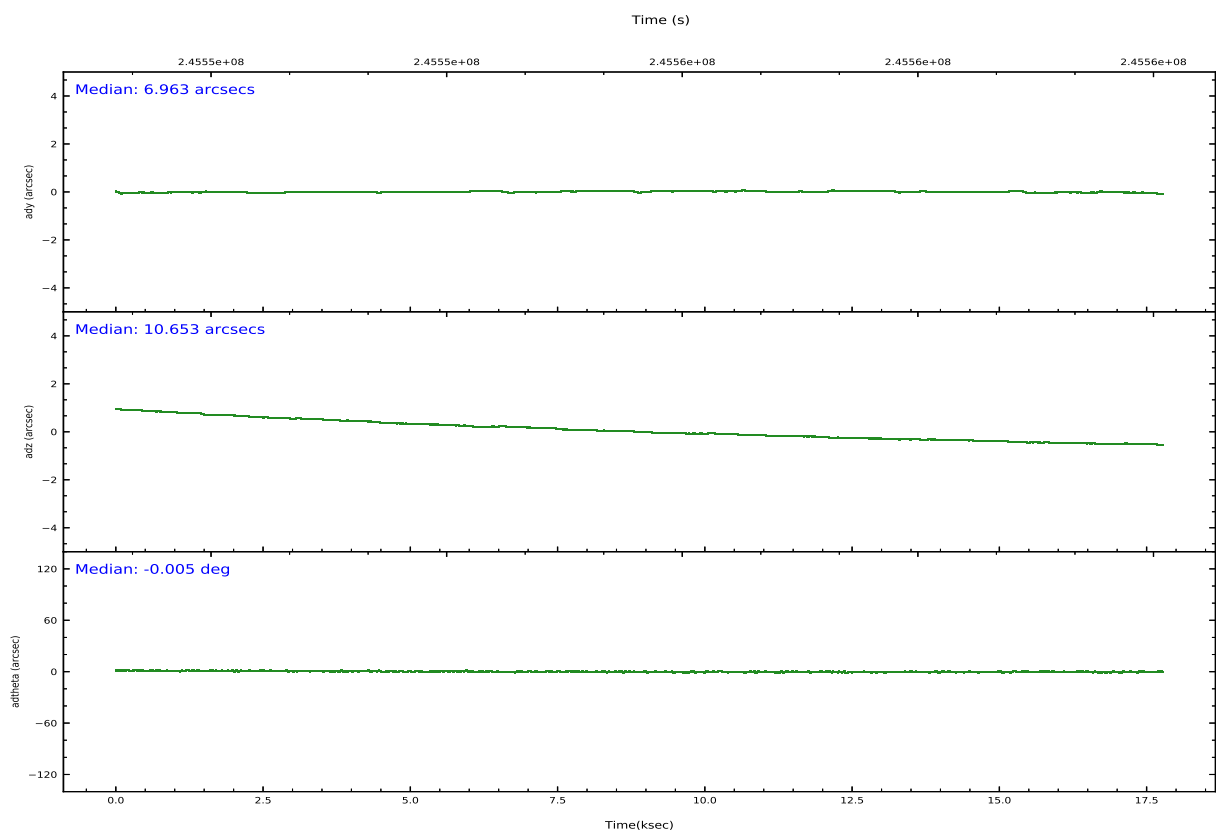
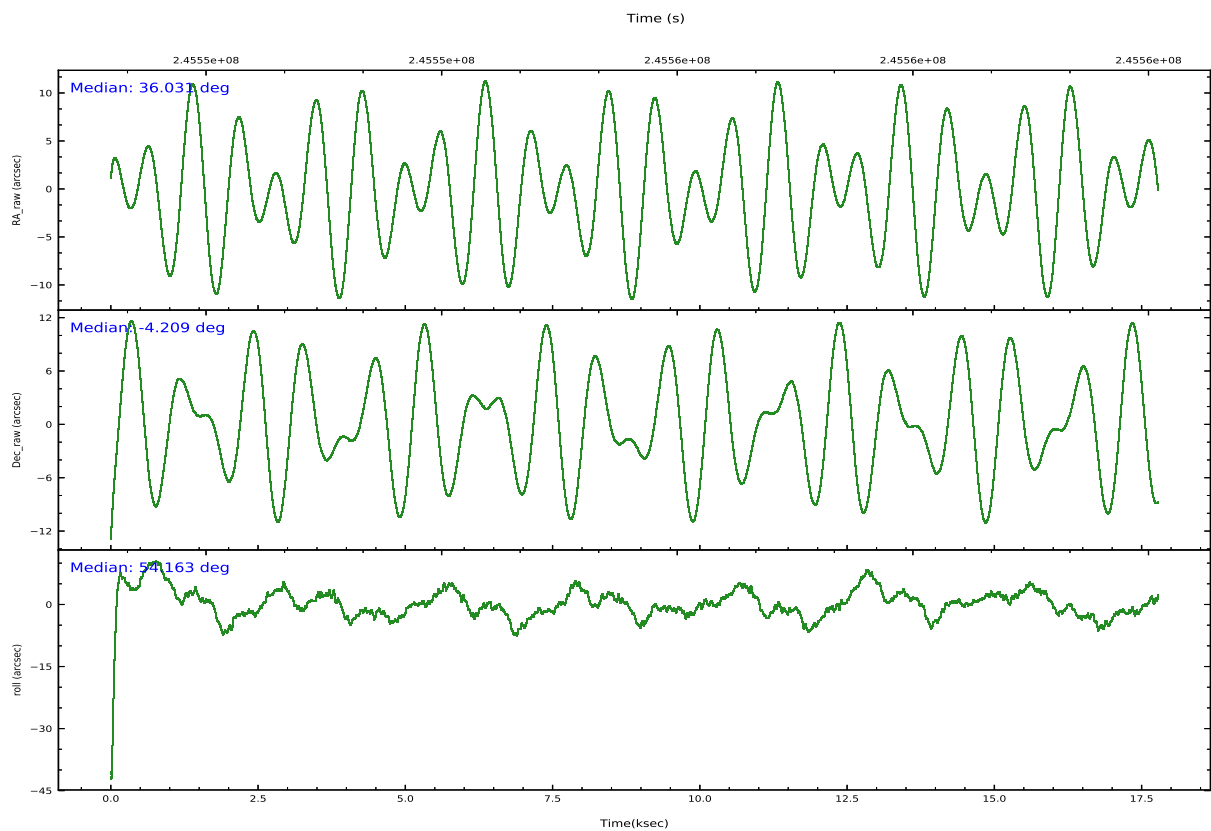
|                | ccd 2  | ccd 3 | ccd 5 | ccd 6  | ccd 7 |
|----------------|--------|-------|-------|--------|-------|
| grade 0 events | 4011   | 3932  | 9326  | 4250   | 5192  |
|                | 3%     | 3%    | 5%    | 3%     | 3%    |
| grade 1 events | 51     | 56    | 160   | 51     | 104   |
|                | 0%     | 0%    | 0%    | 0%     | 0%    |
| grade 2 events | 2690   | 2408  | 23500 | 2686   | 11719 |
|                | 2%     | 2%    | 14%   | 2%     | 8%    |
| grade 3 events | 1248   | 1291  | 3609  | 1383   | 5494  |
|                | 1%     | 1%    | 2%    | 1%     | 4%    |
| grade 4 events | 1251   | 1252  | 3442  | 1363   | 5553  |
|                | 1%     | 1%    | 2%    | 1%     | 4%    |
| grade 5 events | 3801   | 4631  | 13315 | 4740   | 13775 |
|                | 3%     | 4%    | 8%    | 4%     | 10%   |
| grade 6 events | 2017   | 2207  | 41323 | 2560   | 30721 |
|                | 1%     | 1%    | 25%   | 2%     | 23%   |
| grade 7 events | 106819 | 98168 | 68573 | 100656 | 57955 |
|                | 87%    | 86%   | 42%   | 85%    | 44%   |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-23567          | ACIS-23567           | 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                 | 36.028223           | 36.031989458457      | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | -4.236056           | -4.2123648509005     | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 54.000825           | 54.16283876265       | [s] Primary exposure time             | 0.000000  | 3.1     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos    | -190.132523         | -190.1425803651734   |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.01005778216563158  |                                       |           |         |
| [s] Observation start time (MET)  | 245546563.184000    | 245545118.25904      |                                       |           |         |
| Observation start date            | 2005-10-12T23:21:39 | 2005-10-12T22:58:38  |                                       |           |         |
| [s] Observation end time (MET)    | 245564163.184000    | 245565369.69747      |                                       |           |         |
| Observation end date              | 2005-10-13T04:14:59 | 2005-10-13T04:36:09  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



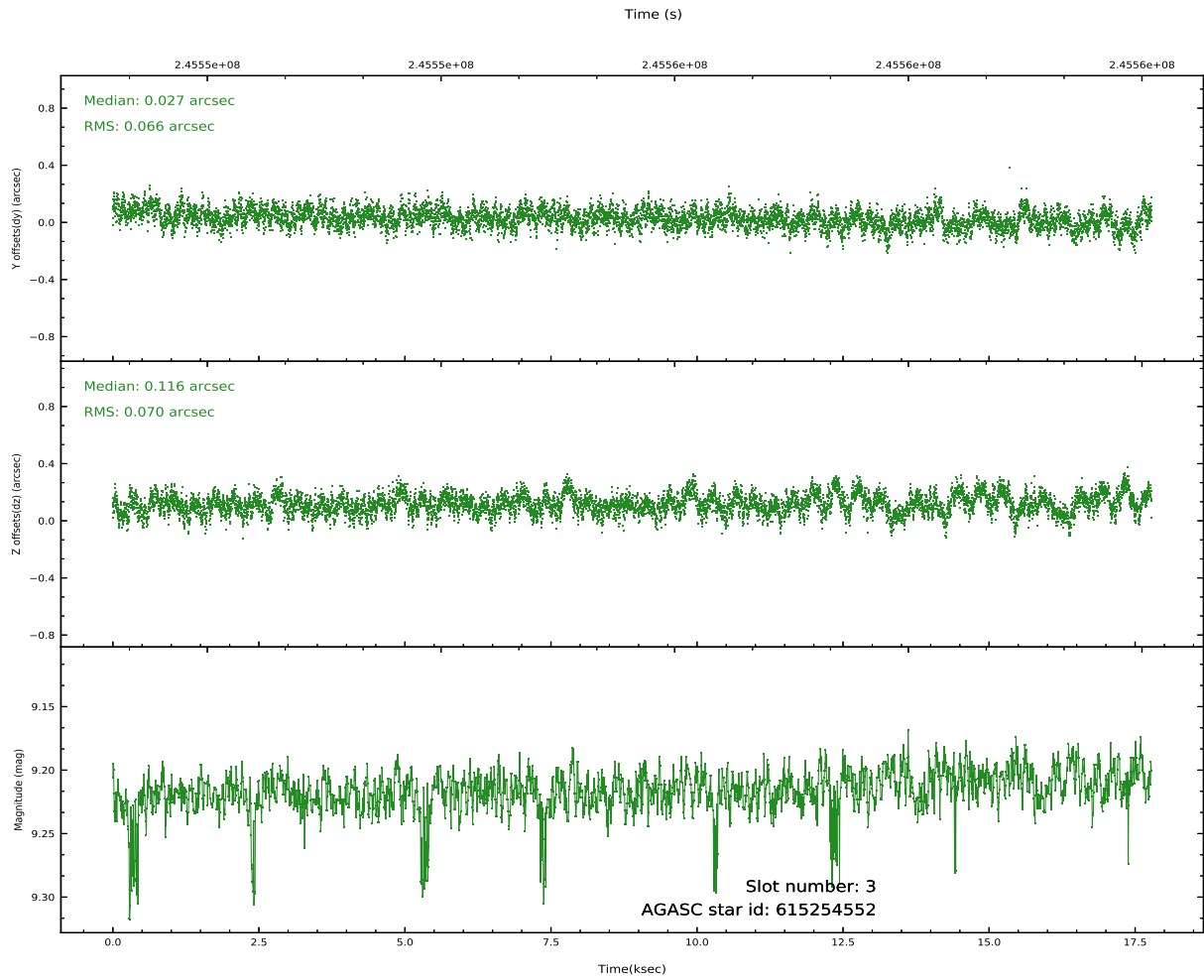
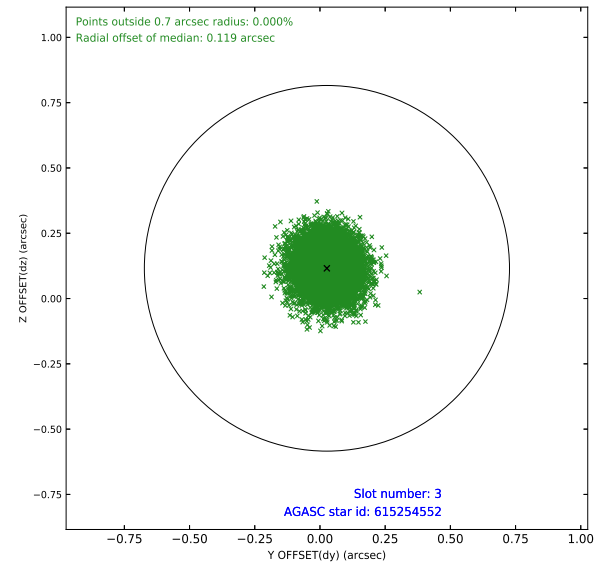
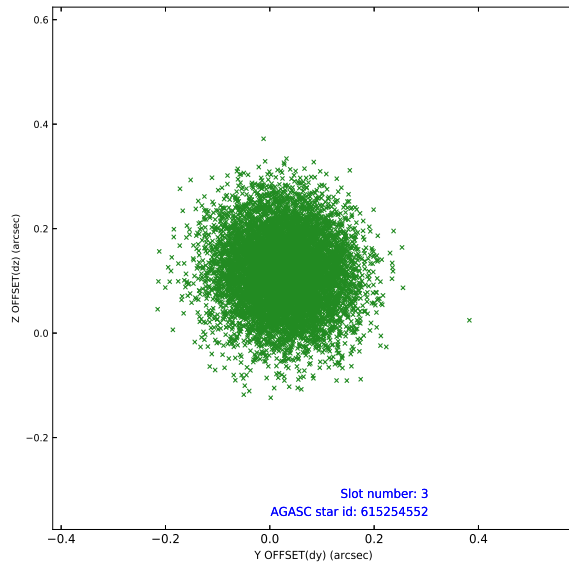


Slot Statistics

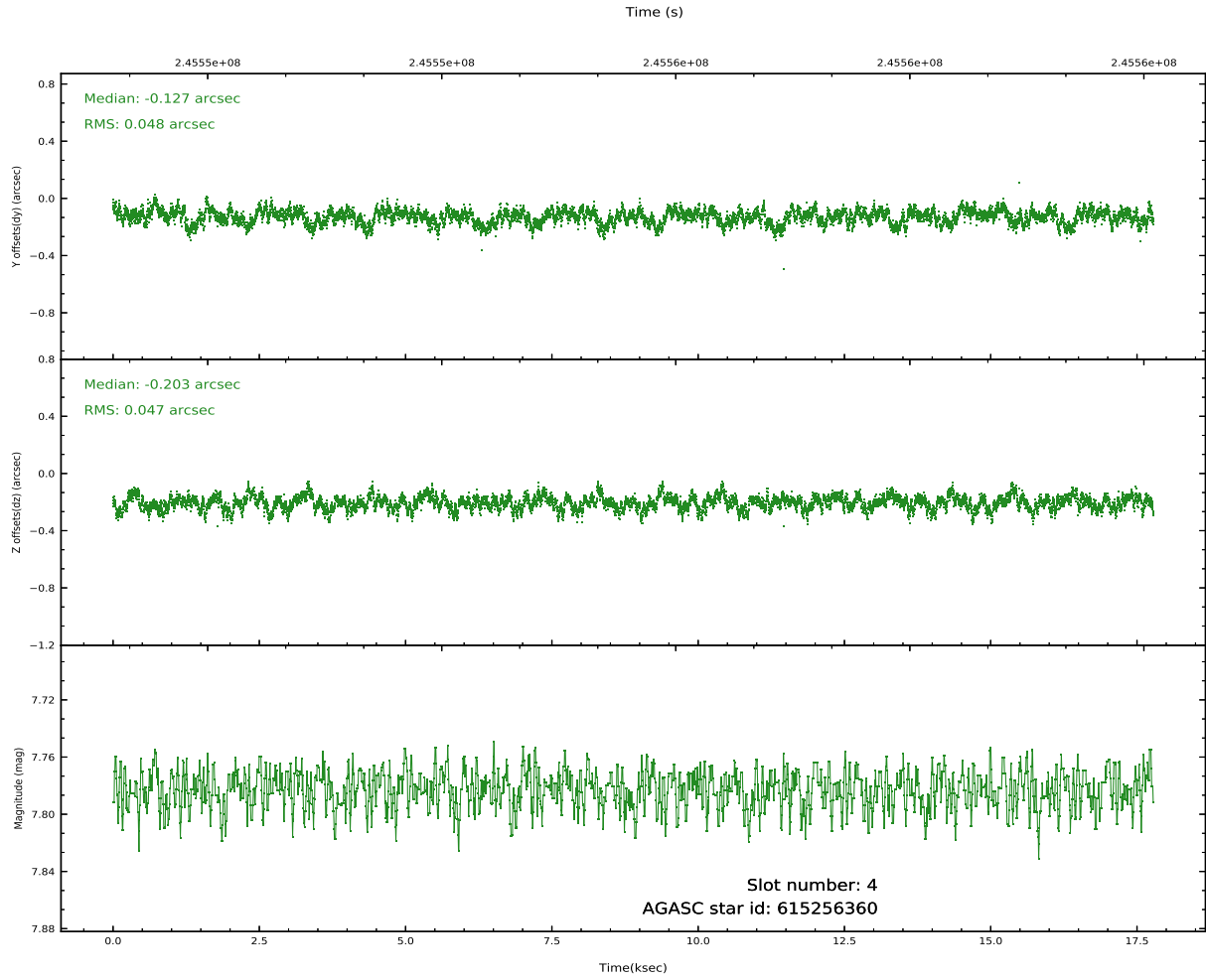
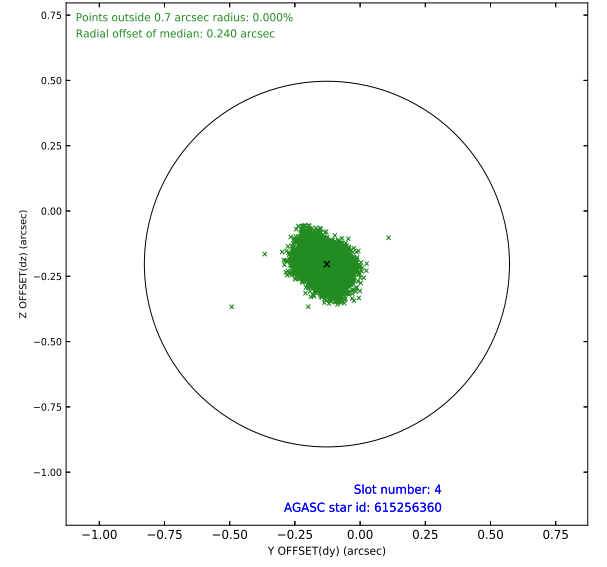
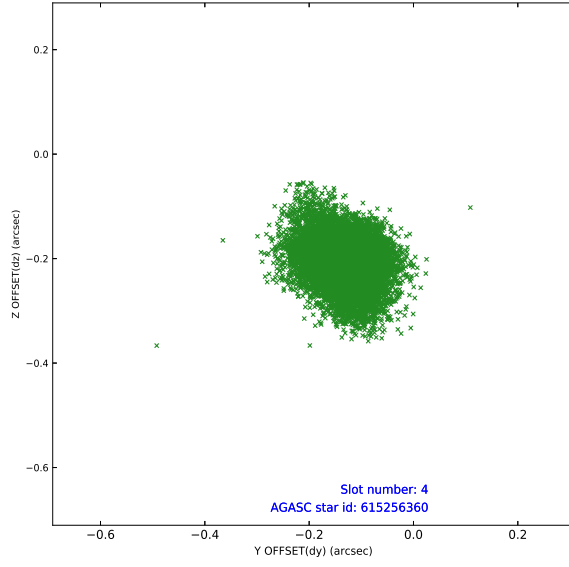
| pt | status | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec       | mean_y   | mea   |
|----|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|-----------|-----------|----------|-------|
| 0  | FID    |      | ACIS-S-2  | 7.10 | 4337  | 1.000    | -0.116 | -0.099 | 0.007 | 0.013 | 0.000000  | 0.000000  | -759.79  | -1732 |
| 1  | FID    |      | ACIS-S-4  | 7.21 | 4337  | 1.000    | 0.106  | 0.053  | 0.009 | 0.014 | 0.000000  | 0.000000  | 2153.56  | 176   |
| 2  | FID    |      | ACIS-S-6  | 7.35 | 4337  | 1.000    | -0.016 | 0.053  | 0.010 | 0.017 | 0.000000  | 0.000000  | 402.53   | 814   |
| 3  | GUIDE  | used | 615254552 | 9.22 | 8659  | 1.000    | 0.027  | 0.116  | 0.103 | 0.165 | 36.600600 | -3.877551 | 2251.91  | -904  |
| 4  | GUIDE  | used | 615256360 | 7.78 | 8674  | 1.000    | -0.127 | -0.203 | 0.072 | 0.117 | 36.286608 | -3.875886 | 1594.65  | 10    |
| 5  | GUIDE  | used | 615256944 | 9.79 | 8655  | 1.000    | 0.191  | 0.009  | 0.121 | 0.203 | 35.497386 | -4.510719 | -1919.93 | 959   |
| 6  | GUIDE  | used | 615260160 | 9.71 | 8664  | 1.000    | 0.033  | 0.075  | 0.141 | 0.222 | 35.737387 | -3.921265 | 302.12   | 1510  |
| 7  | GUIDE  | used | 615260392 | 7.62 | 8672  | 1.000    | -0.112 | 0.007  | 0.057 | 0.098 | 35.914136 | -3.376682 | 2261.87  | 2150  |

## 2.4 Star Slots

### 2.4.1 Slot 3

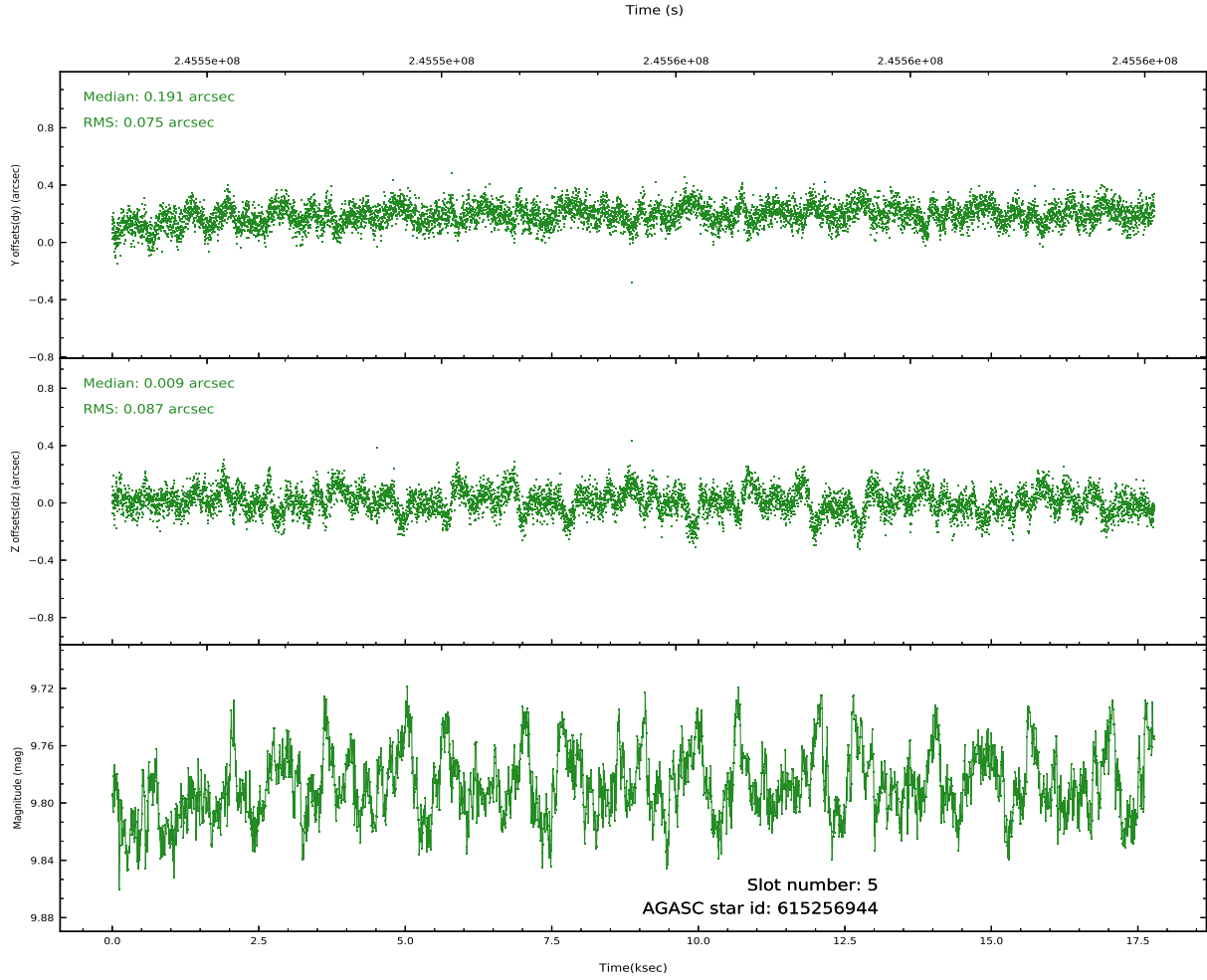
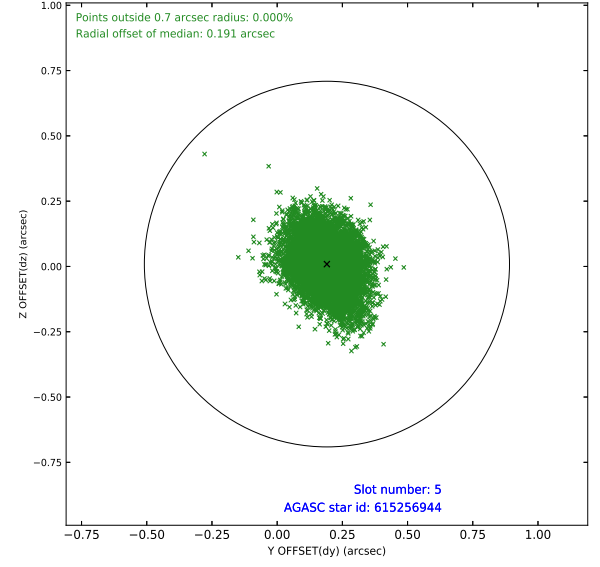
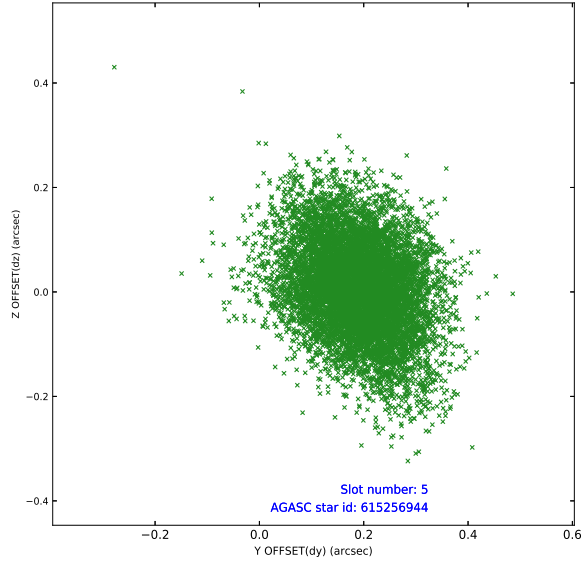


## 2.4.2 Slot 4

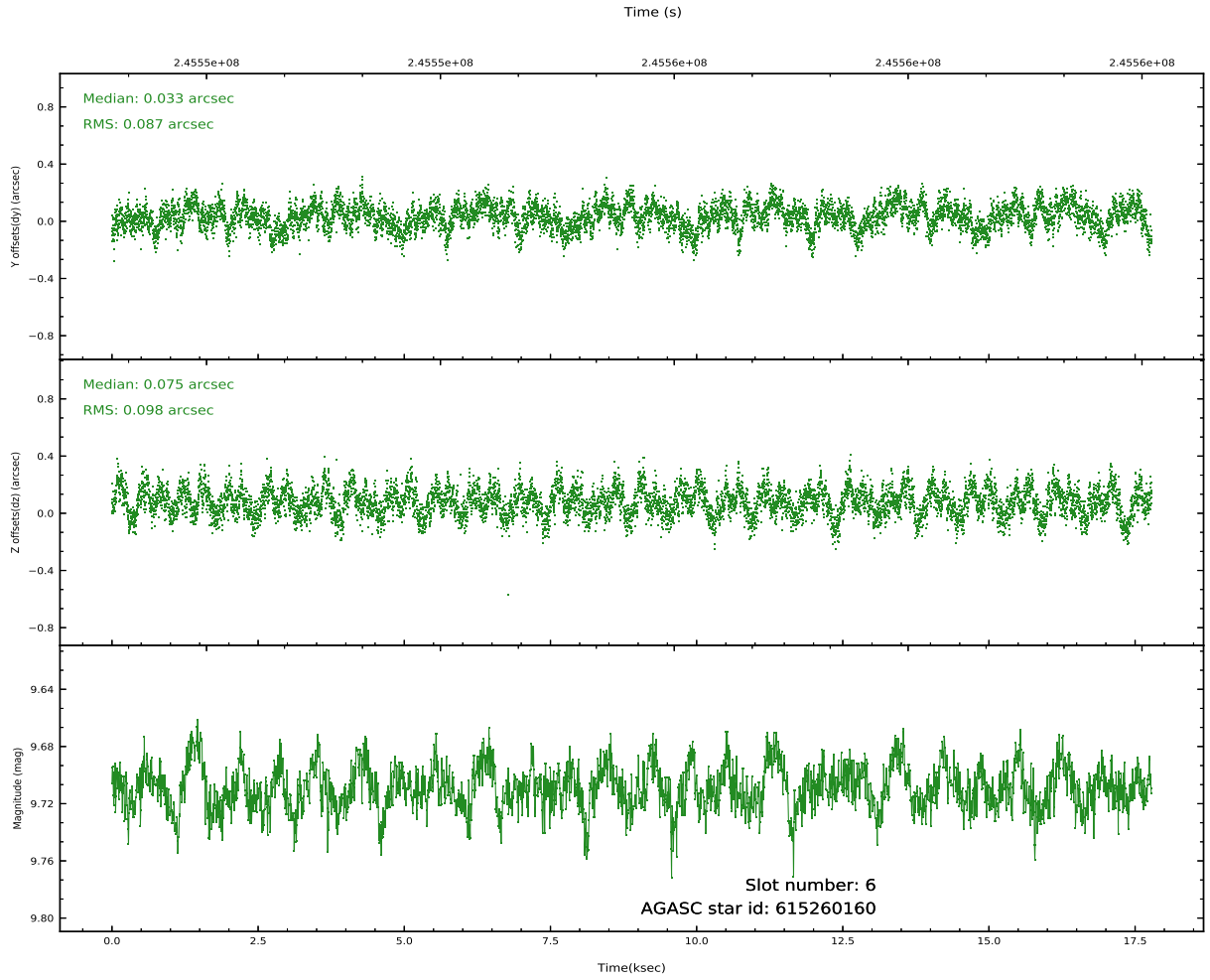
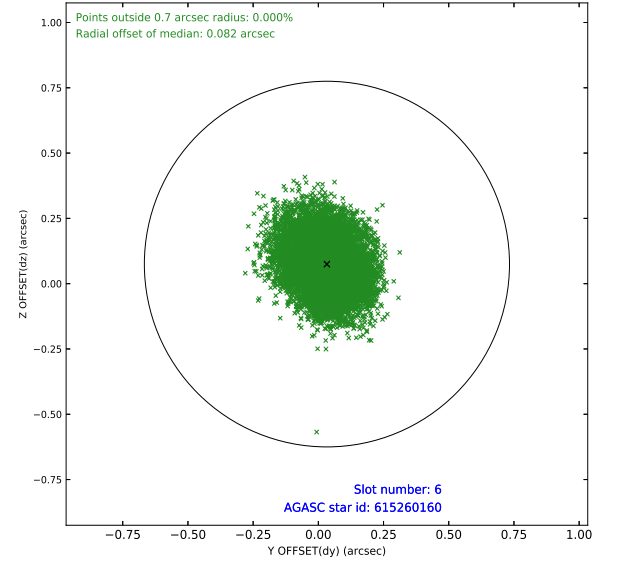
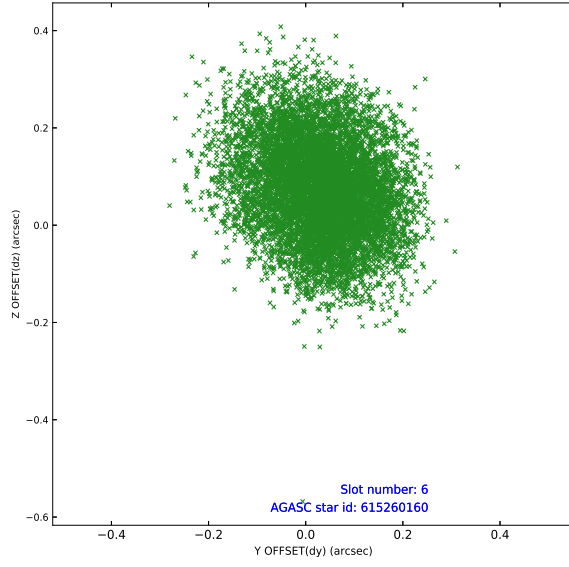




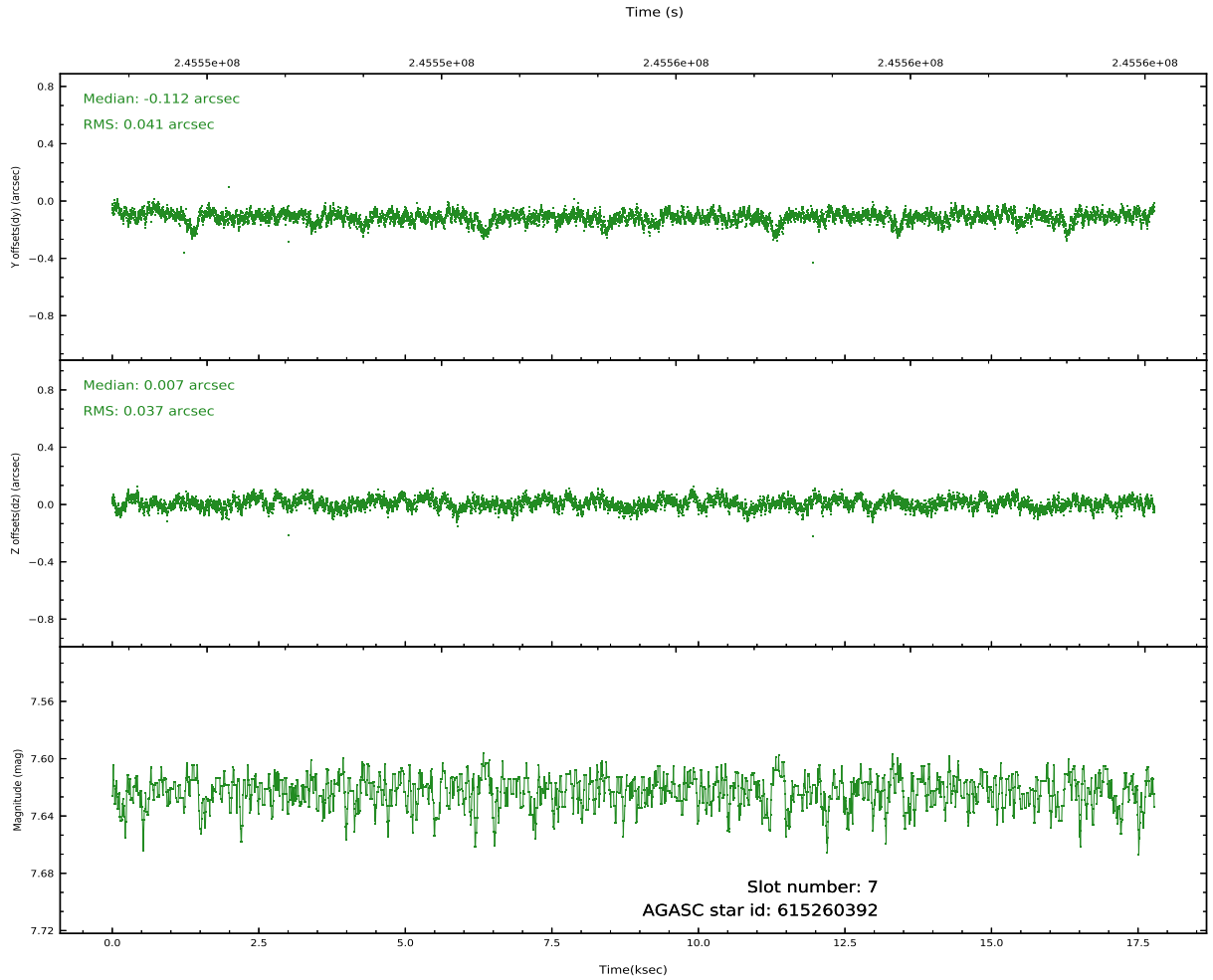
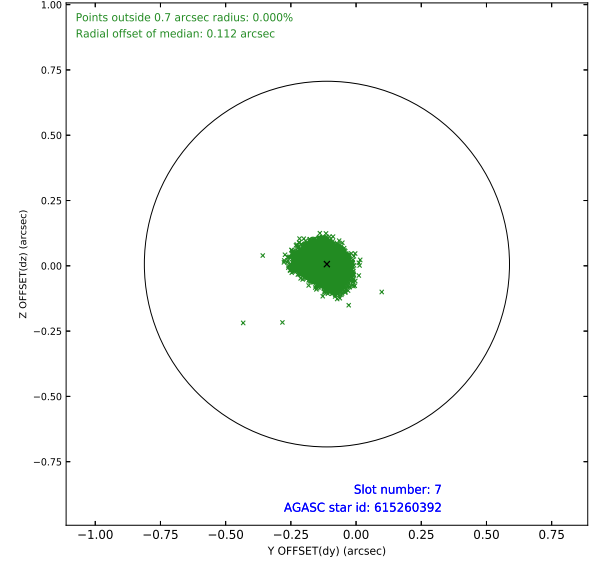
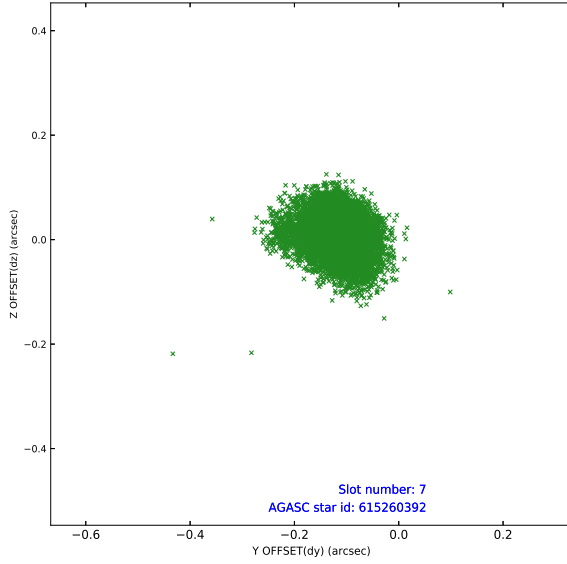
### 2.4.3 Slot 5



## 2.4.4 Slot 6

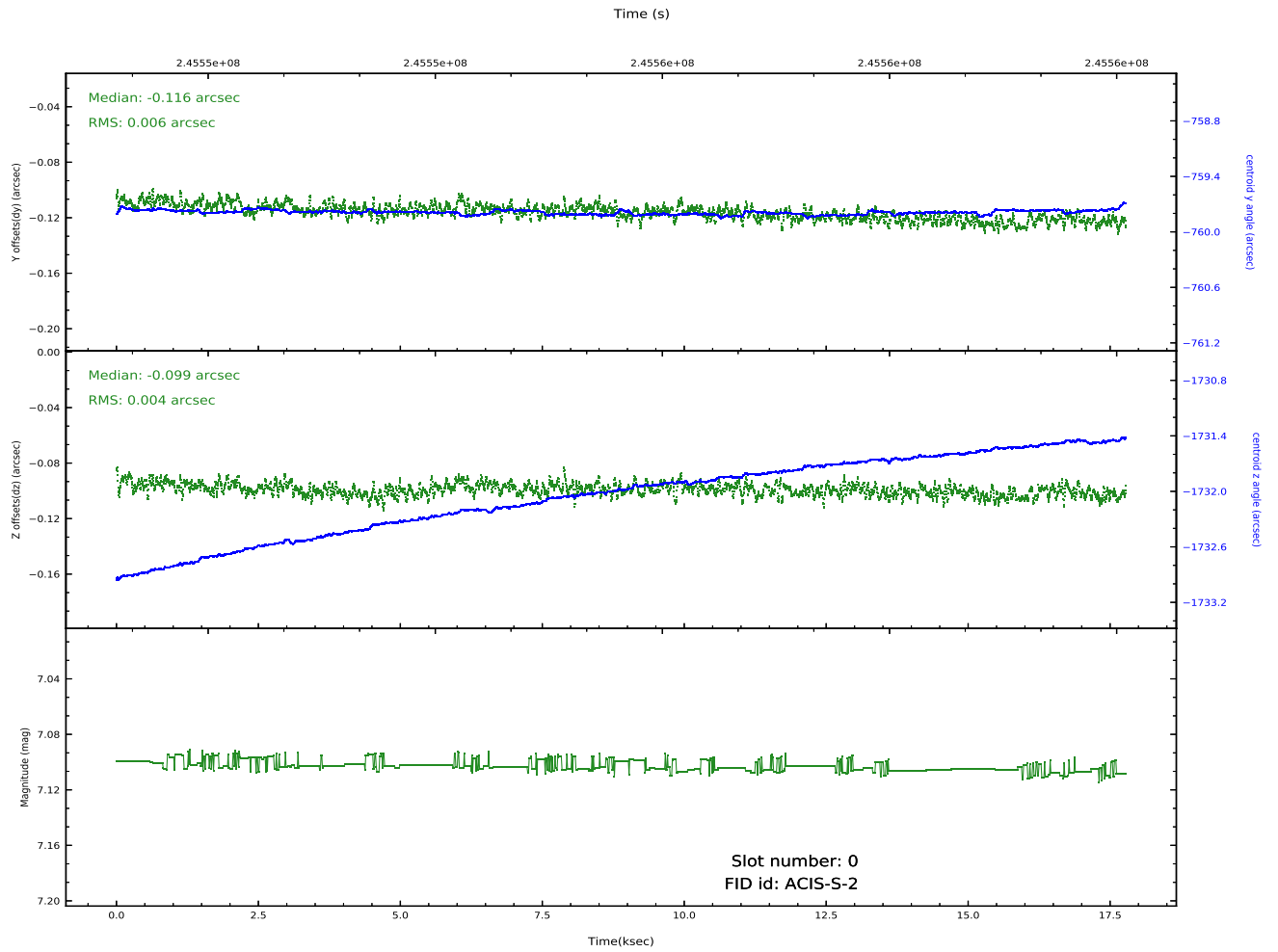
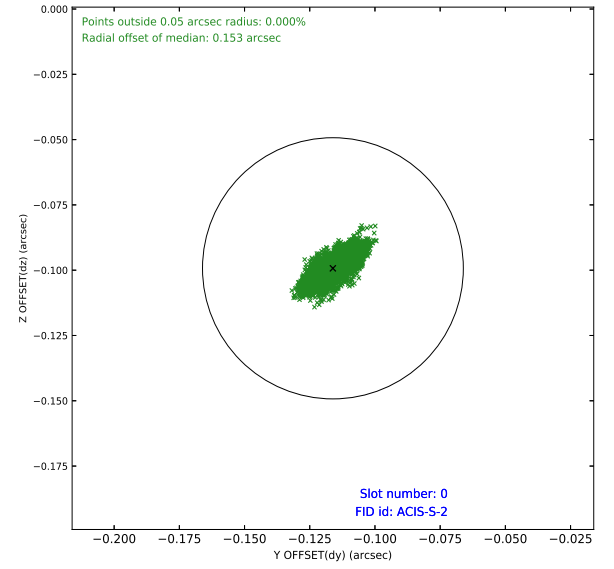
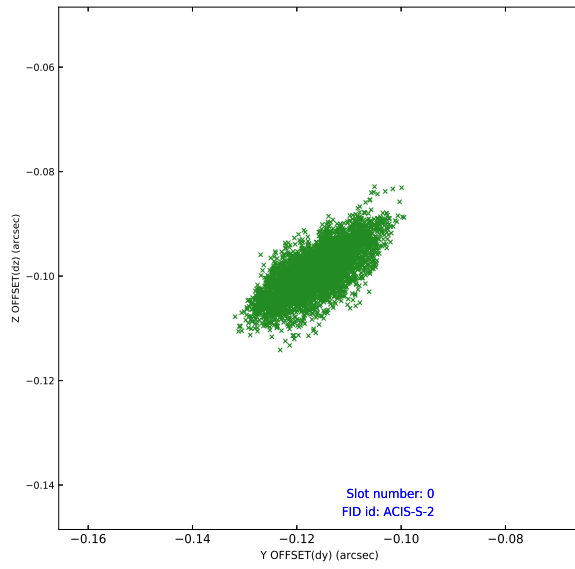


## 2.4.5 Slot 7

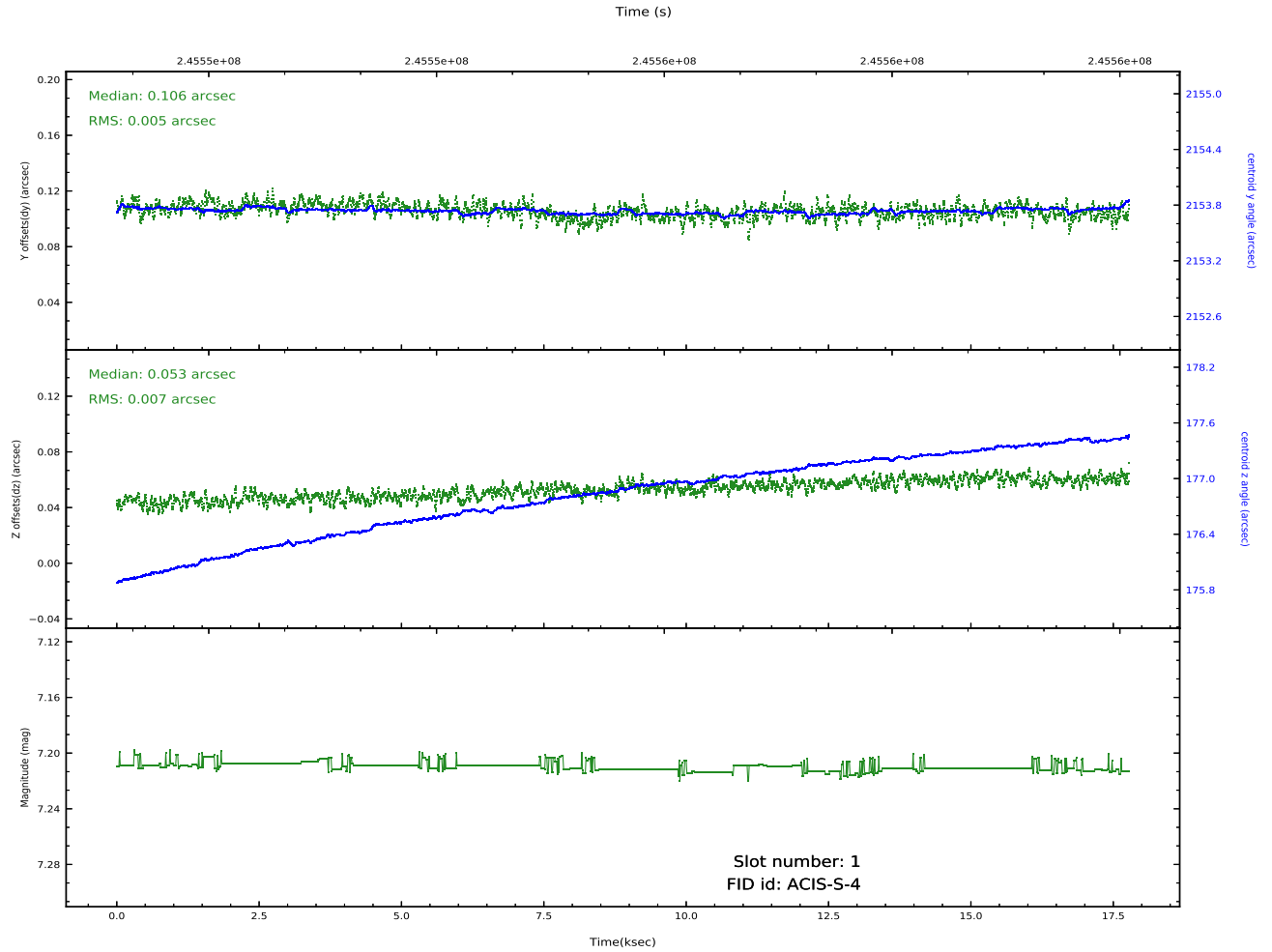
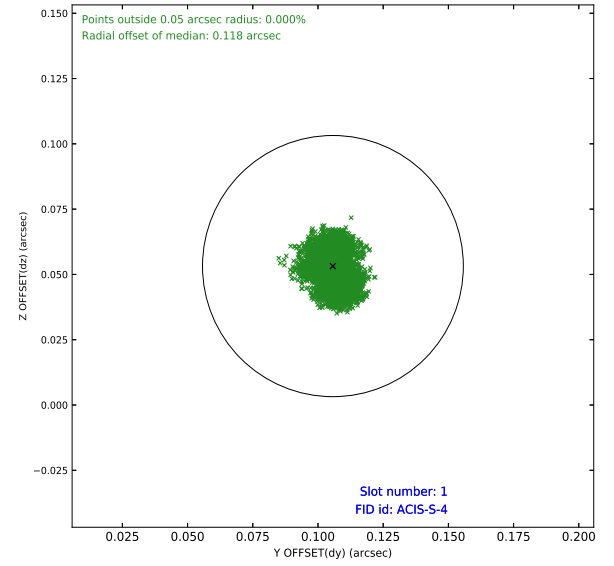
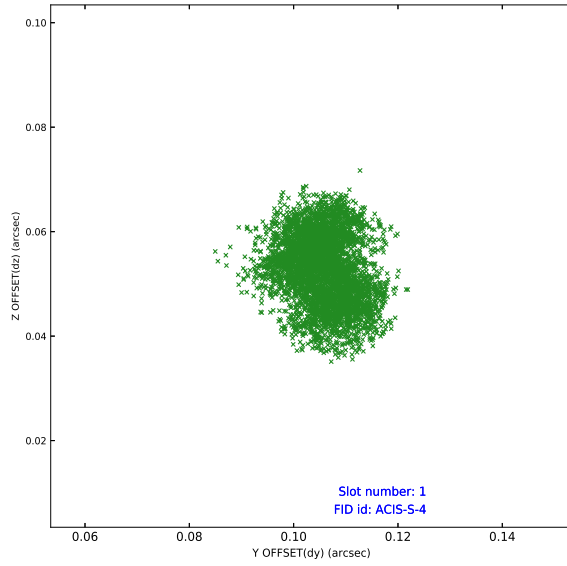


## 2.5 FID Slots

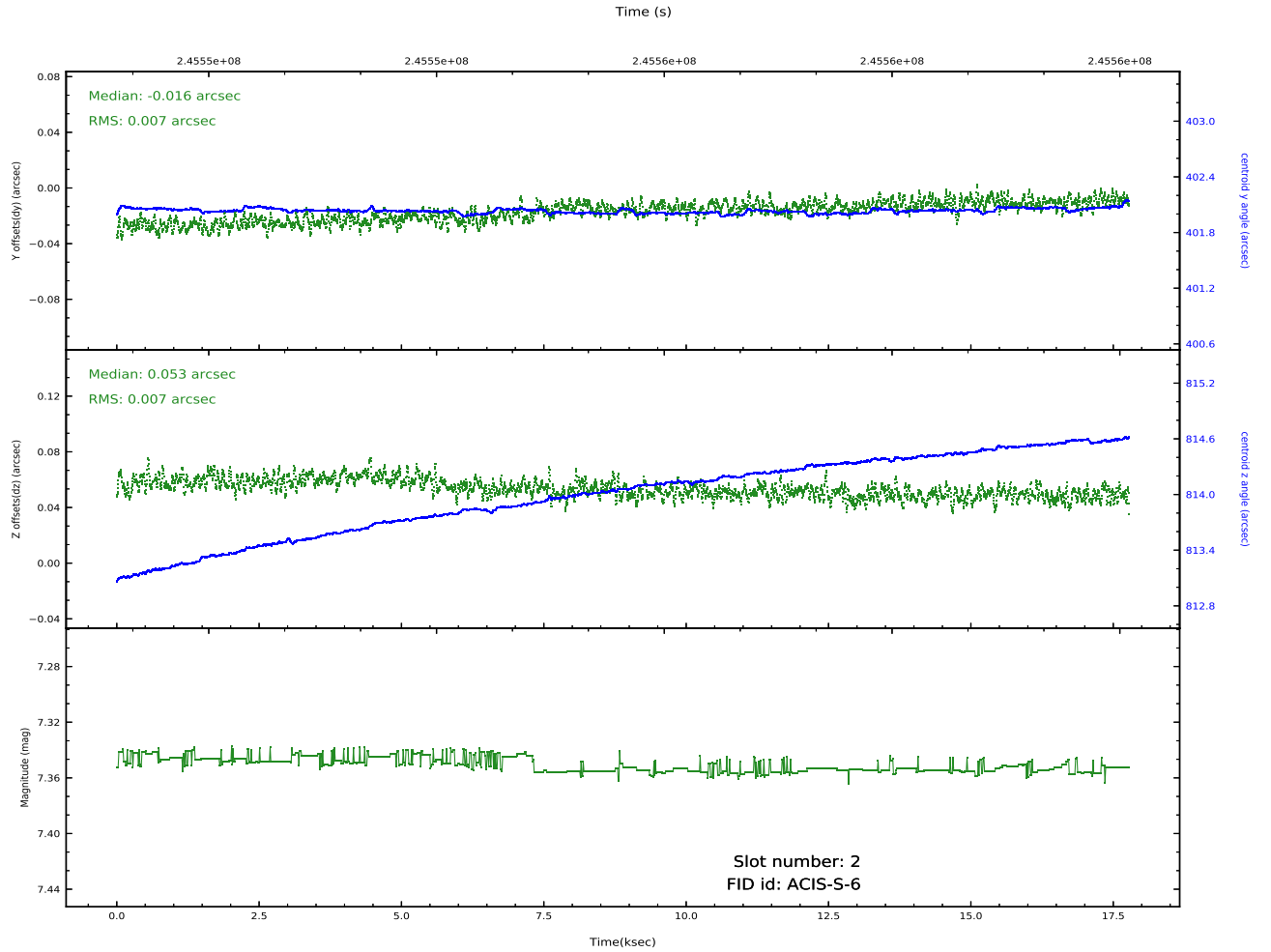
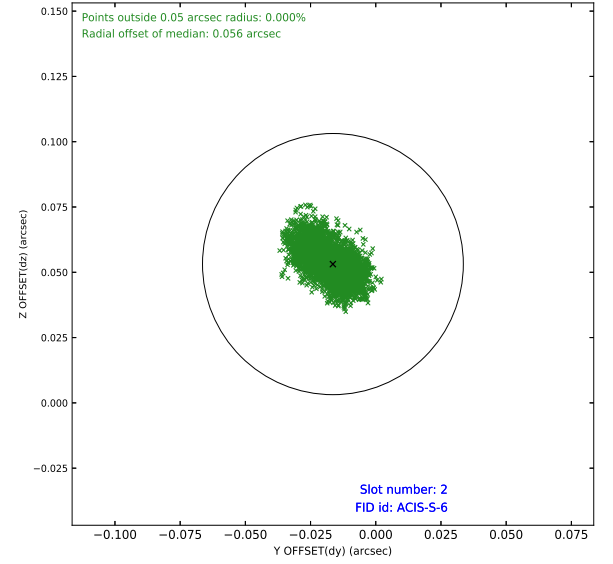
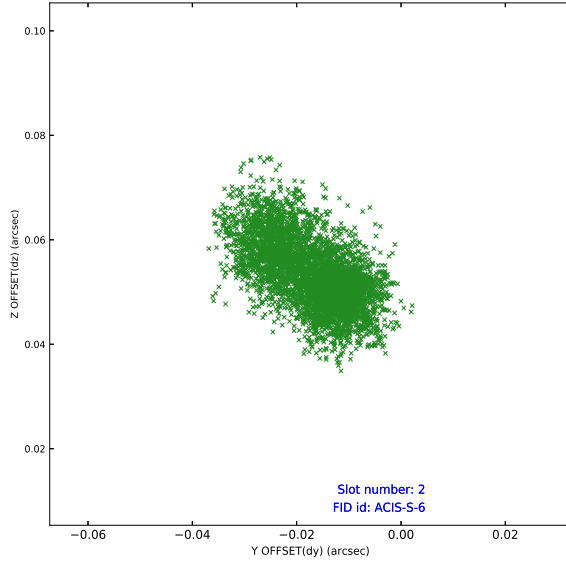
### 2.5.1 Slot 0



## 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)      | 2020.10.22 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 17.77229   |

## A.2 Comments

As a consequence of the DEA-A shutdown anomaly on Sep 15th (DOY258), the reported value of the ACIS FP temperature was ~1.3 degrees warmer than the actual temperature. The value for FP temperature reported in the headers of the Level 2 event file and the Mission Timeline files ARE INCORRECT by this amount for this processing. However, the temperature is corrected in the processing in order to obtain the correct temperature for the CTI correction. So the calibrated data are correct.

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Joint Proposal: XMM