

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 20328 - L2 Version 2  
Chandra X-Ray Center

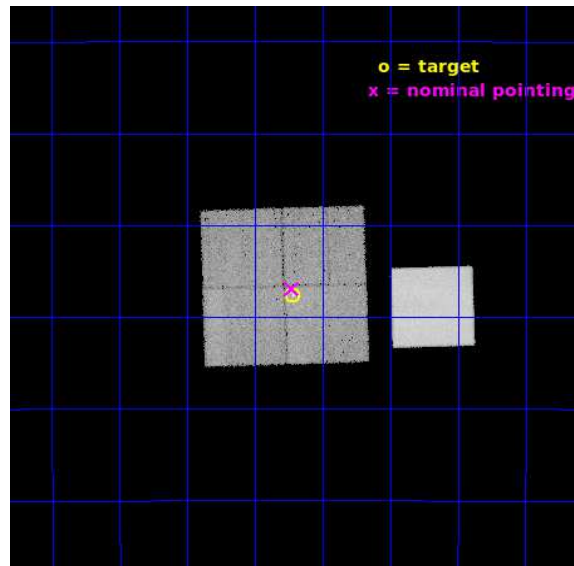
L2 Processing Date : Oct 25 2020

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# 1 Front

|          |                                                         |                                             |
|----------|---------------------------------------------------------|---------------------------------------------|
| seq_num  | 503021                                                  | Sequence number                             |
| obs_id   | 20328                                                   | Observation id                              |
| title    | The wagging jet and the X-ray plerion of PSR J1809-1917 | Proposal t                                  |
| observer | George Pavlov                                           | Principal investigator                      |
| object   | PSR J1809-1917                                          | Source name                                 |
| dtcycle  | 0                                                       | &#160                                       |
| cycle    | P                                                       | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 272.429583                                              | Observer's specified target RA [deg]        |
| dec_targ | -19.293917                                              | Observer's specified target Dec [deg]       |
| ra_nom   | 272.43174717412                                         | Nominal RA [deg]                            |
| dec_nom  | -19.281981026283                                        | Nominal Dec [deg]                           |
| roll_nom | 88.201560847455                                         | Nominal Roll [deg]                          |
| revision | 2                                                       | Processing version of data                  |
| ontime   | 34049.515354991                                         | Sum of GTIs [s]                             |
| livetime | 33604.633369989                                         | Livetime [s]                                |
| ontime0  | 34052.533214927                                         | Sum of GTIs [s]                             |
| ontime1  | 34055.715245247                                         | Sum of GTIs [s]                             |
| ontime2  | 34052.615294933                                         | Sum of GTIs [s]                             |
| ontime3  | 34049.515354991                                         | Sum of GTIs [s]                             |
| ontime7  | 34055.838365197                                         | Sum of GTIs [s]                             |
| l2events | 255124                                                  | Number of level 2 events                    |

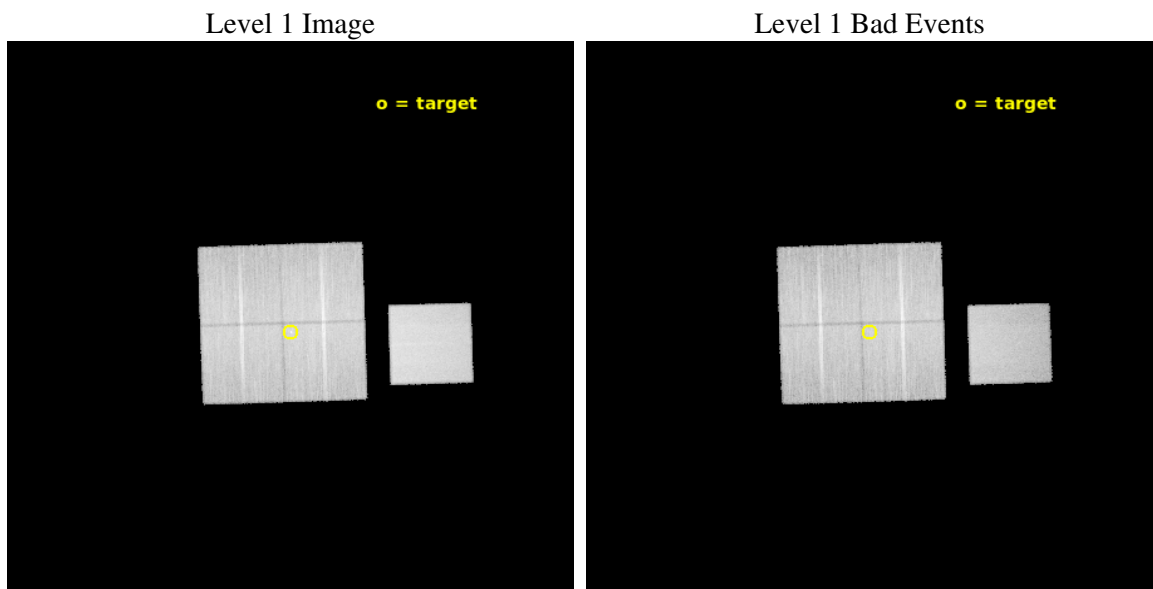




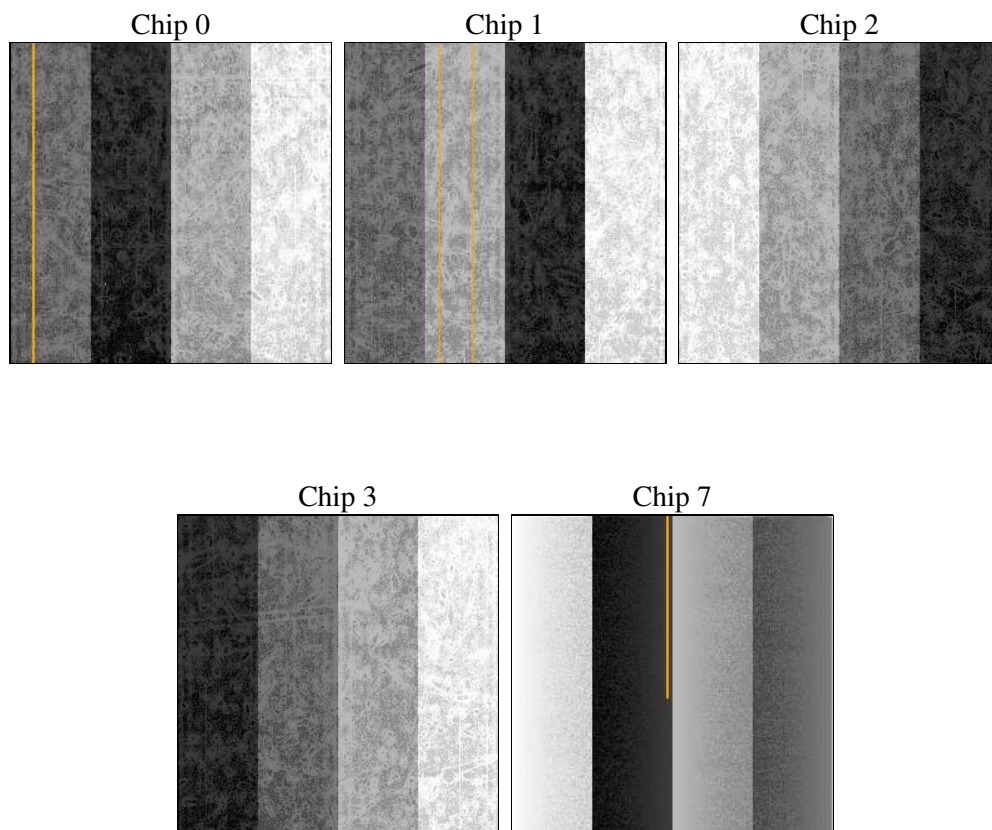
## 2 OBI

### 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 | 10.9.2              | Processing system revision     | ontime         | 34049.515354991 | Sum of GTIs [s]                         |
| caldsver | 4.9.3               | &#160                          | ontime0        | 34052.533214927 | Sum of GTIs [s]                         |
| date     | 2020-10-25T10:57:25 | Date and time of file creation | ontime1        | 34055.715245247 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime2        | 34052.615294933 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 34049.515354991 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 34055.838365197 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1294891         | Number of level 1 events                |

### 2.1.4 Events

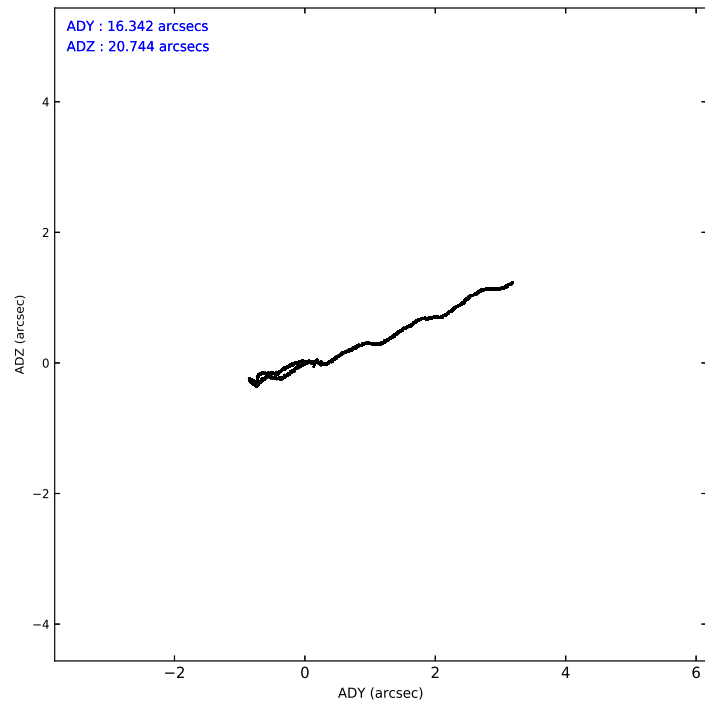
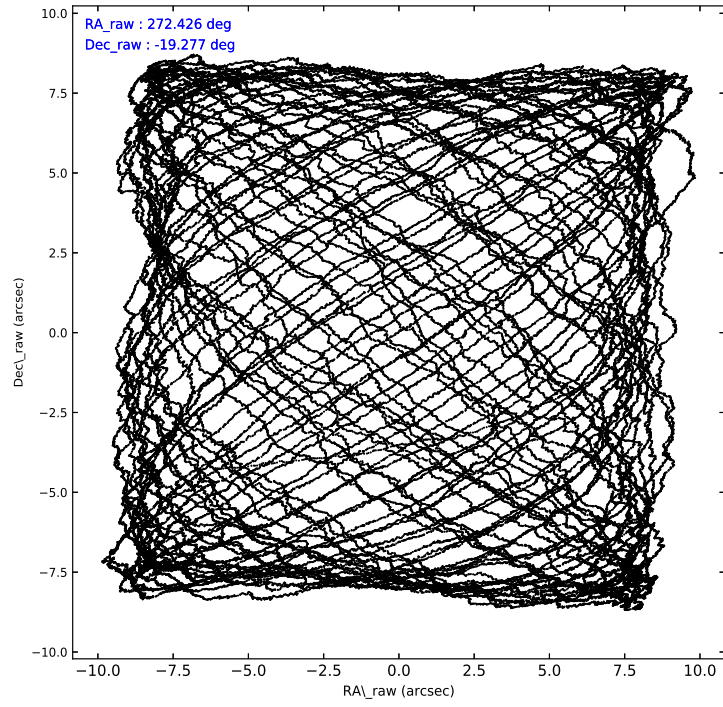
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 7  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 230649 | 233145 | 256025 | 250443 | 324629 |
| rejected events | 198596 | 196048 | 224612 | 216594 | 179261 |
| rejected %      | 86%    | 84%    | 87%    | 86%    | 55%    |

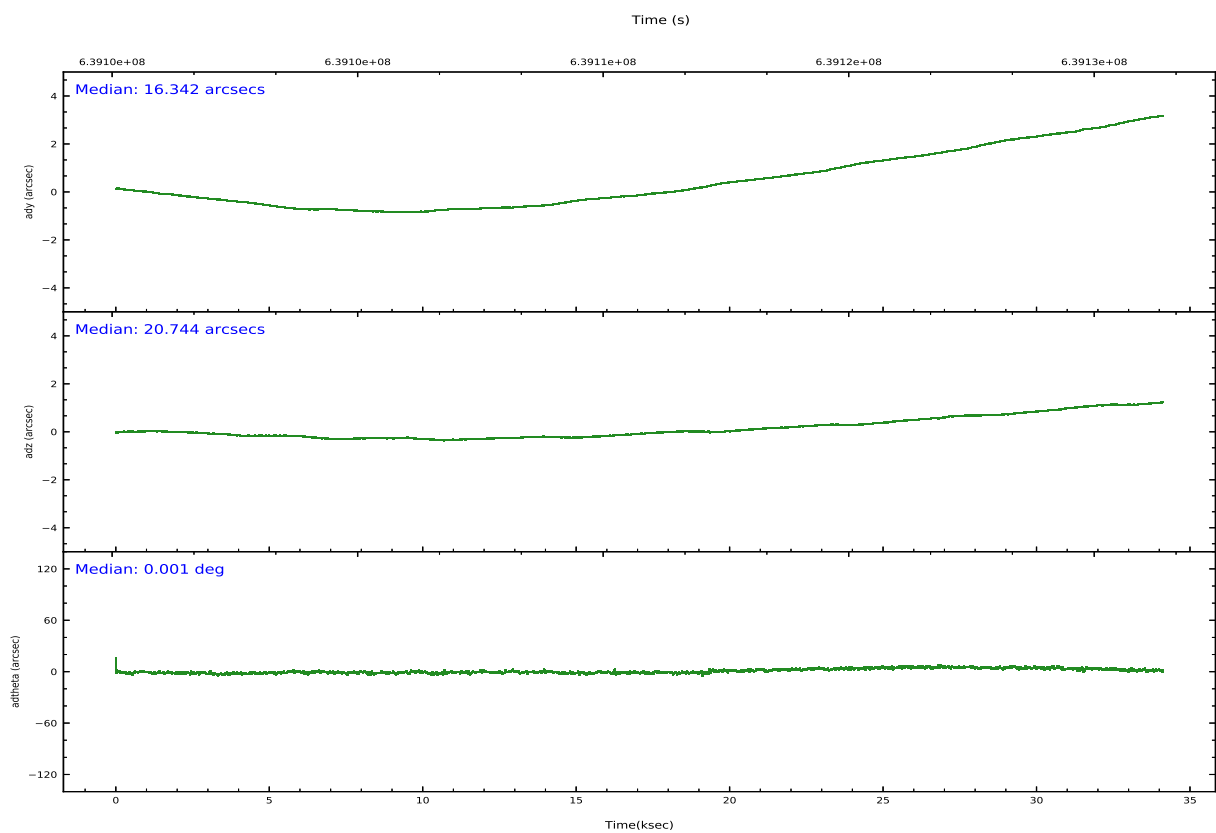
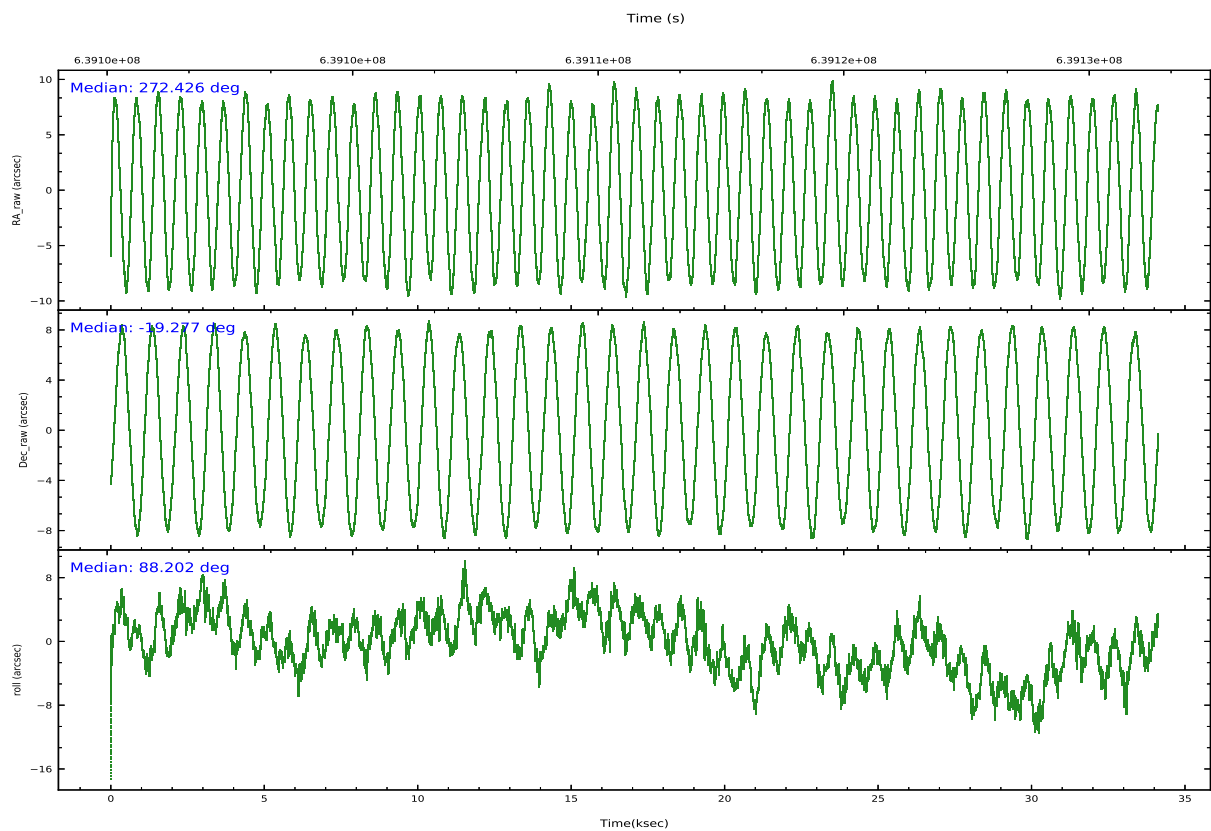
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 7  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 12522  | 14432  | 12650  | 14978  | 12860  |
|                | 5%     | 6%     | 4%     | 5%     | 3%     |
| grade 1 events | 141    | 143    | 177    | 181    | 481    |
|                | 0%     | 0%     | 0%     | 0%     | 0%     |
| grade 2 events | 7545   | 9176   | 7300   | 6789   | 31031  |
|                | 3%     | 3%     | 2%     | 2%     | 9%     |
| grade 3 events | 3021   | 3188   | 2877   | 3052   | 11842  |
|                | 1%     | 1%     | 1%     | 1%     | 3%     |
| grade 4 events | 2907   | 3169   | 2945   | 3066   | 11856  |
|                | 1%     | 1%     | 1%     | 1%     | 3%     |
| grade 5 events | 10601  | 11256  | 9928   | 12051  | 32493  |
|                | 4%     | 4%     | 3%     | 4%     | 10%    |
| grade 6 events | 6062   | 7139   | 5646   | 5971   | 77820  |
|                | 2%     | 3%     | 2%     | 2%     | 23%    |
| grade 7 events | 187850 | 184642 | 214502 | 204355 | 146246 |
|                | 81%    | 79%    | 83%    | 81%    | 45%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-01237          | ACIS-01237           | 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                 | 272.439490          | 272.43174717412      | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | -19.301238          | -19.281981026283     | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 88.003271           | 88.201560847455      | 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                             | N         | N       |
| [mm] SIM translation stage pos    | -232.422463         | -232.4207921609049   | CCD S3 on                             | O1        | Y       |
| [mm] SIM translation stage offset | -1.17               | -1.171660842024835   | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 639096246.184000    | 639095117.86998      | CCD S5 on                             | N         | N       |
| Observation start date            | 2018-04-02T22:42:57 | 2018-04-02T22:25:17  | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 639130246.184000    | 639131075.3846       | On-chip summing requested             | N         | N       |
| Observation end date              | 2018-04-03T08:09:37 | 2018-04-03T08:24:35  | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                | Alternating exposures requested       | N         | N       |
|                                   |                     |                      | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



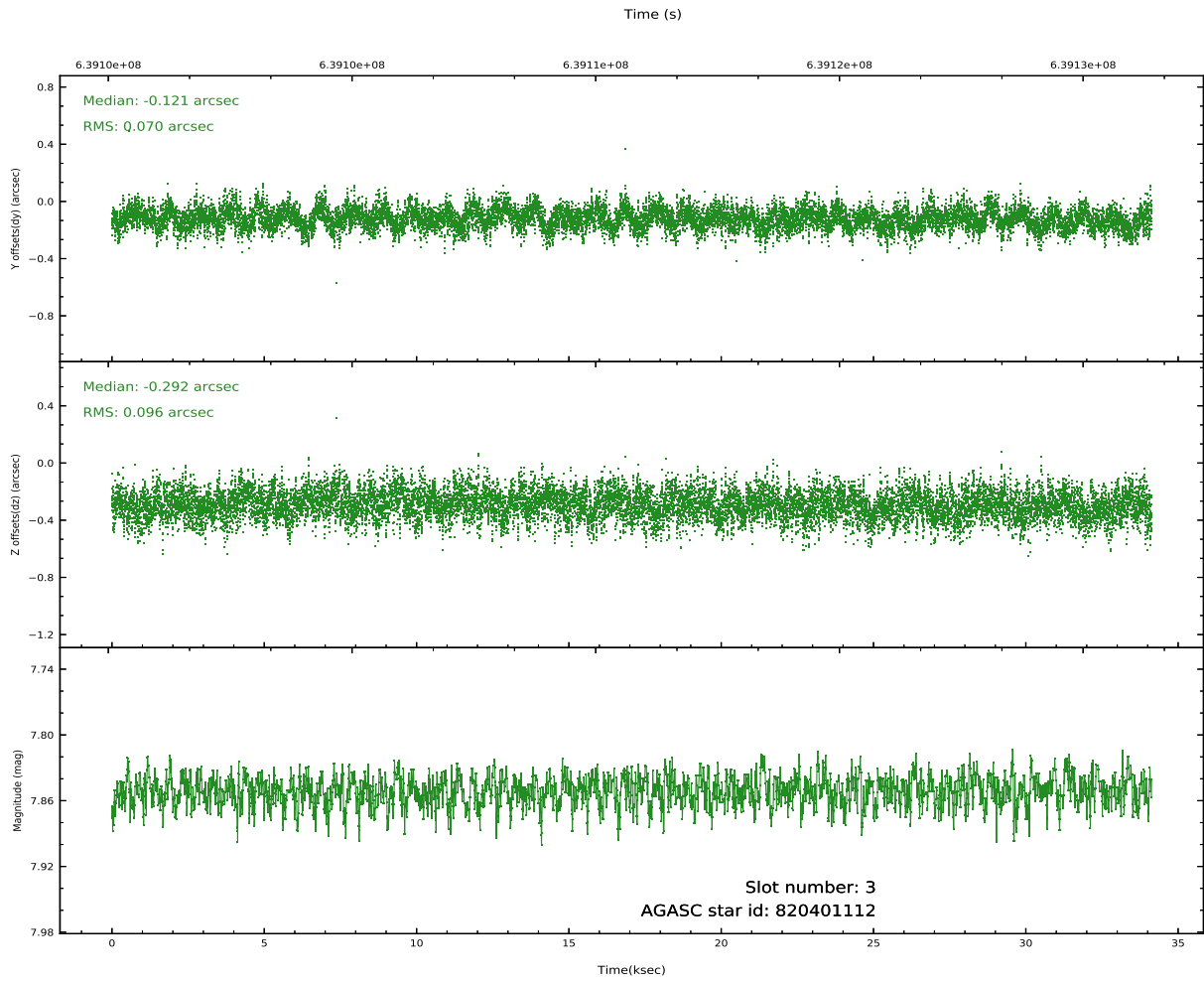
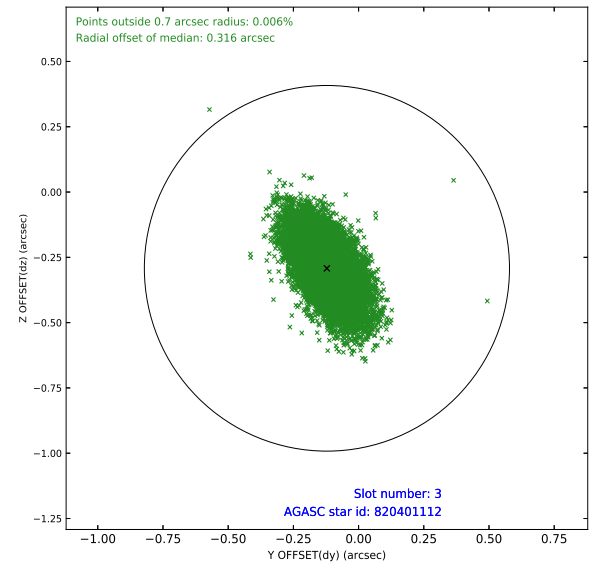
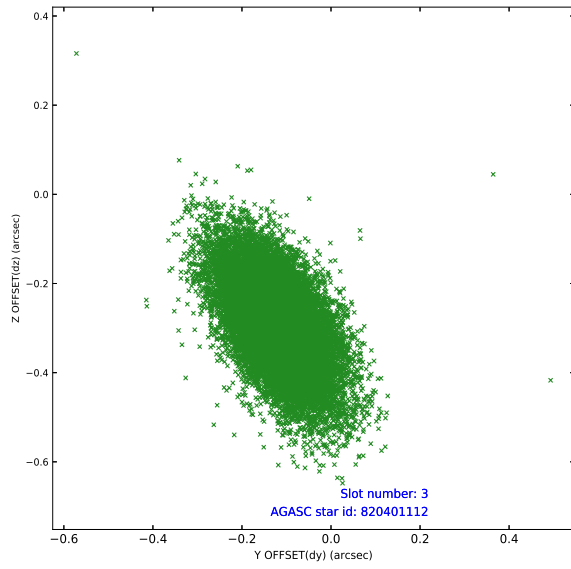


### Slot Statistics

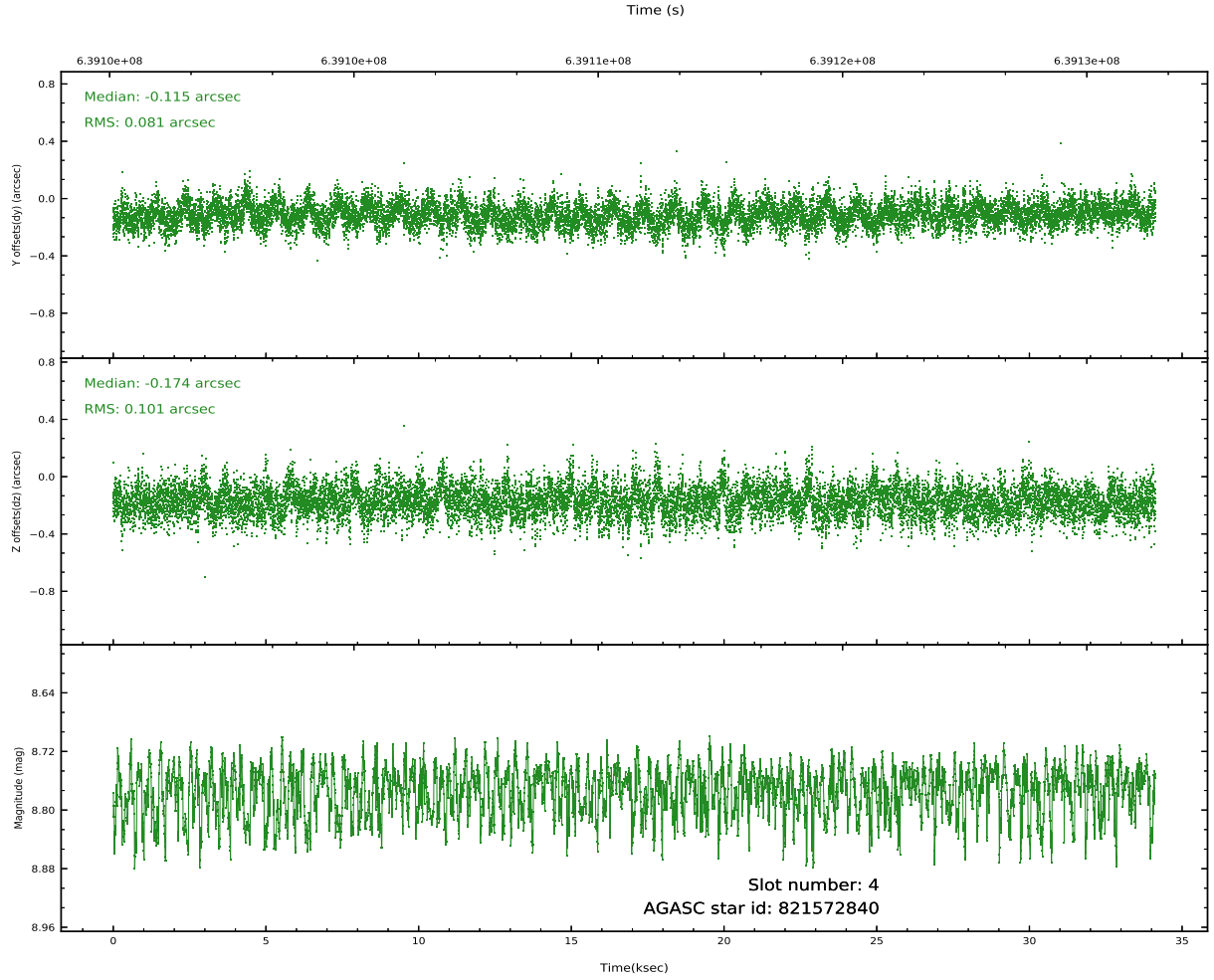
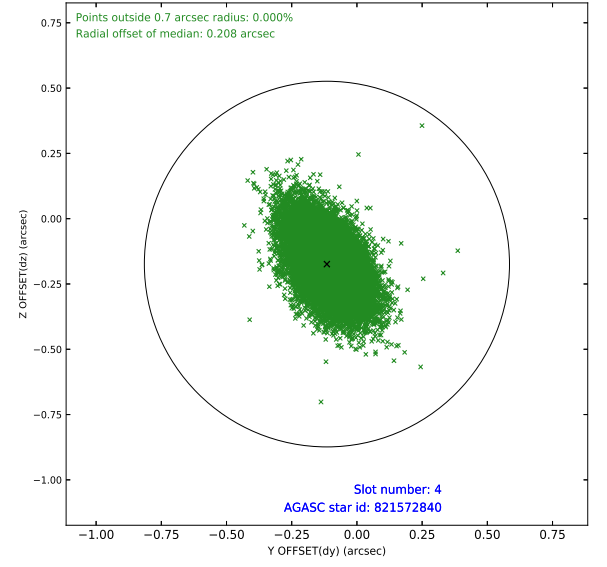
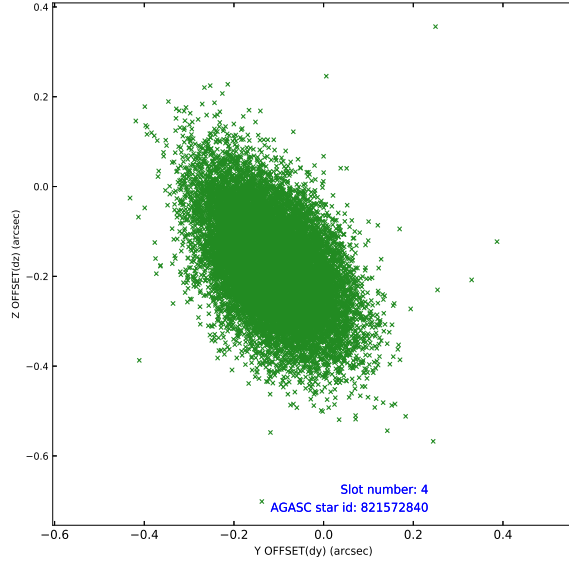
| pt | status | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mea   |
|----|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|------------|----------|-------|
| 0  | FID    |      | ACIS-I-1  | 7.15 | 8324  | 1.000    | 0.020  | 0.051  | 0.023 | 0.041 | 0.000000   | 0.000000   | 922.53   | -868  |
| 1  | FID    |      | ACIS-I-2  | 7.06 | 8323  | 1.000    | -0.098 | 0.003  | 0.014 | 0.020 | 0.000000   | 0.000000   | -771.71  | -874  |
| 2  | FID    |      | ACIS-I-4  | 7.07 | 8324  | 1.000    | -0.021 | 0.016  | 0.015 | 0.027 | 0.000000   | 0.000000   | 2142.41  | 1031  |
| 3  | GUIDE  | used | 820401112 | 7.85 | 16644 | 1.000    | -0.121 | -0.292 | 0.121 | 0.215 | 271.884761 | -19.293988 | -42.68   | 1884  |
| 4  | GUIDE  | used | 821572840 | 8.77 | 16639 | 1.000    | -0.115 | -0.174 | 0.133 | 0.233 | 272.287378 | -18.702558 | 2135.47  | 593   |
| 5  | GUIDE  | used | 822088160 | 6.56 | 16648 | 1.000    | -0.276 | 0.182  | 0.111 | 0.207 | 272.729284 | -18.869551 | 1586.82  | -932  |
| 6  | GUIDE  | used | 822096760 | 8.04 | 16641 | 1.000    | 0.303  | 0.260  | 0.128 | 0.217 | 272.830526 | -19.438690 | -449.10  | -1343 |
| 7  | GUIDE  | used | 822100176 | 8.57 | 16635 | 1.000    | 0.205  | 0.026  | 0.137 | 0.241 | 272.112888 | -19.868886 | -2081.61 | 1033  |

## 2.4 Star Slots

### 2.4.1 Slot 3

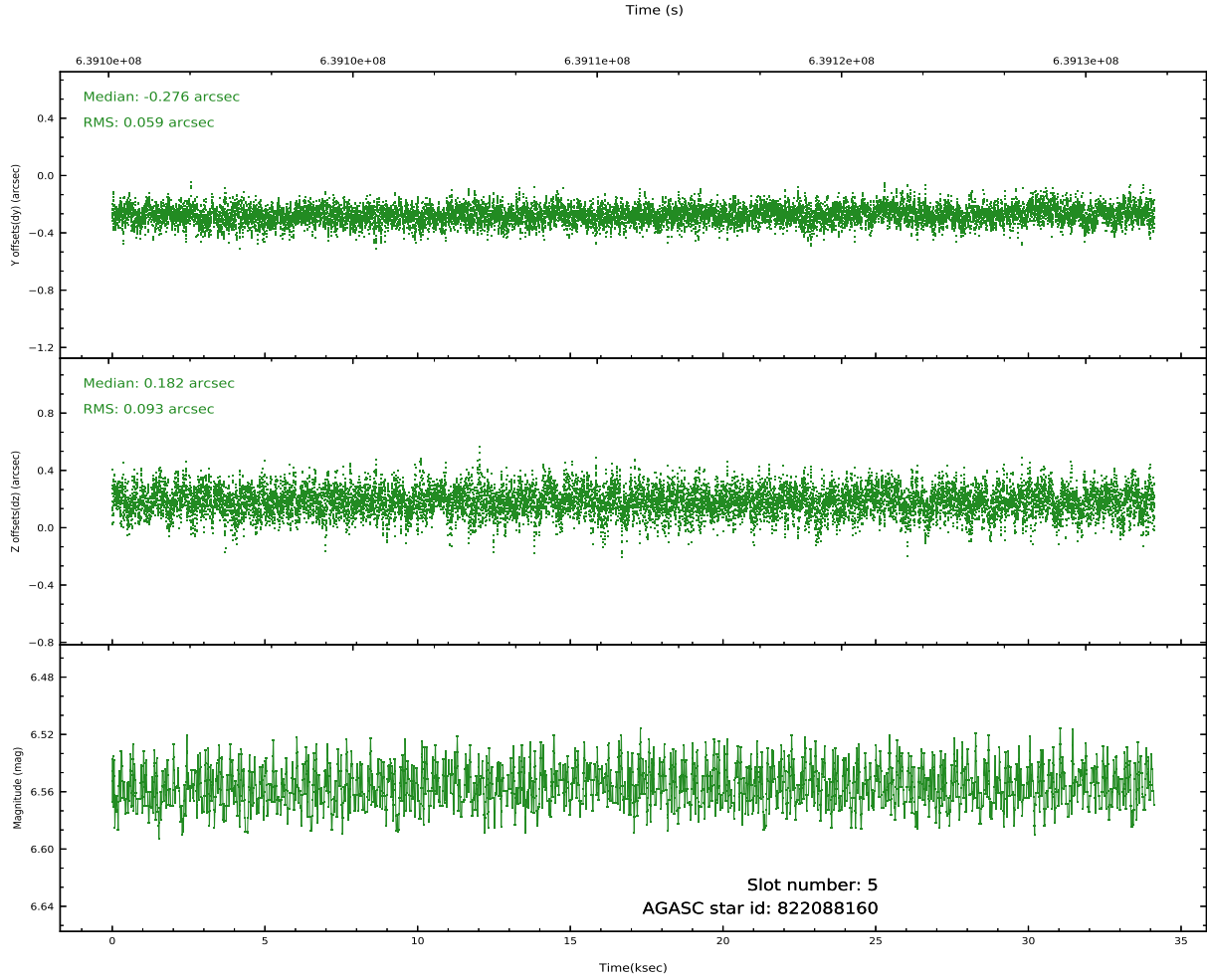
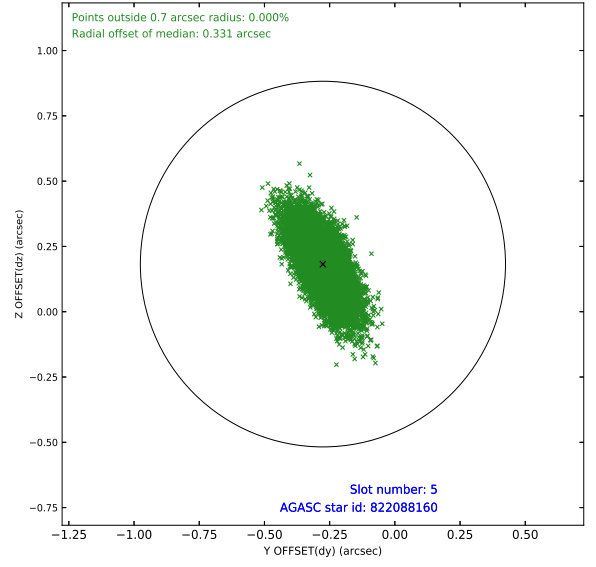
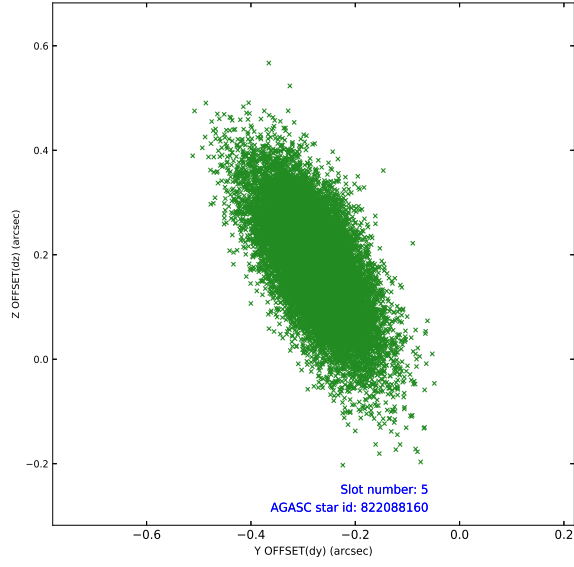


## 2.4.2 Slot 4

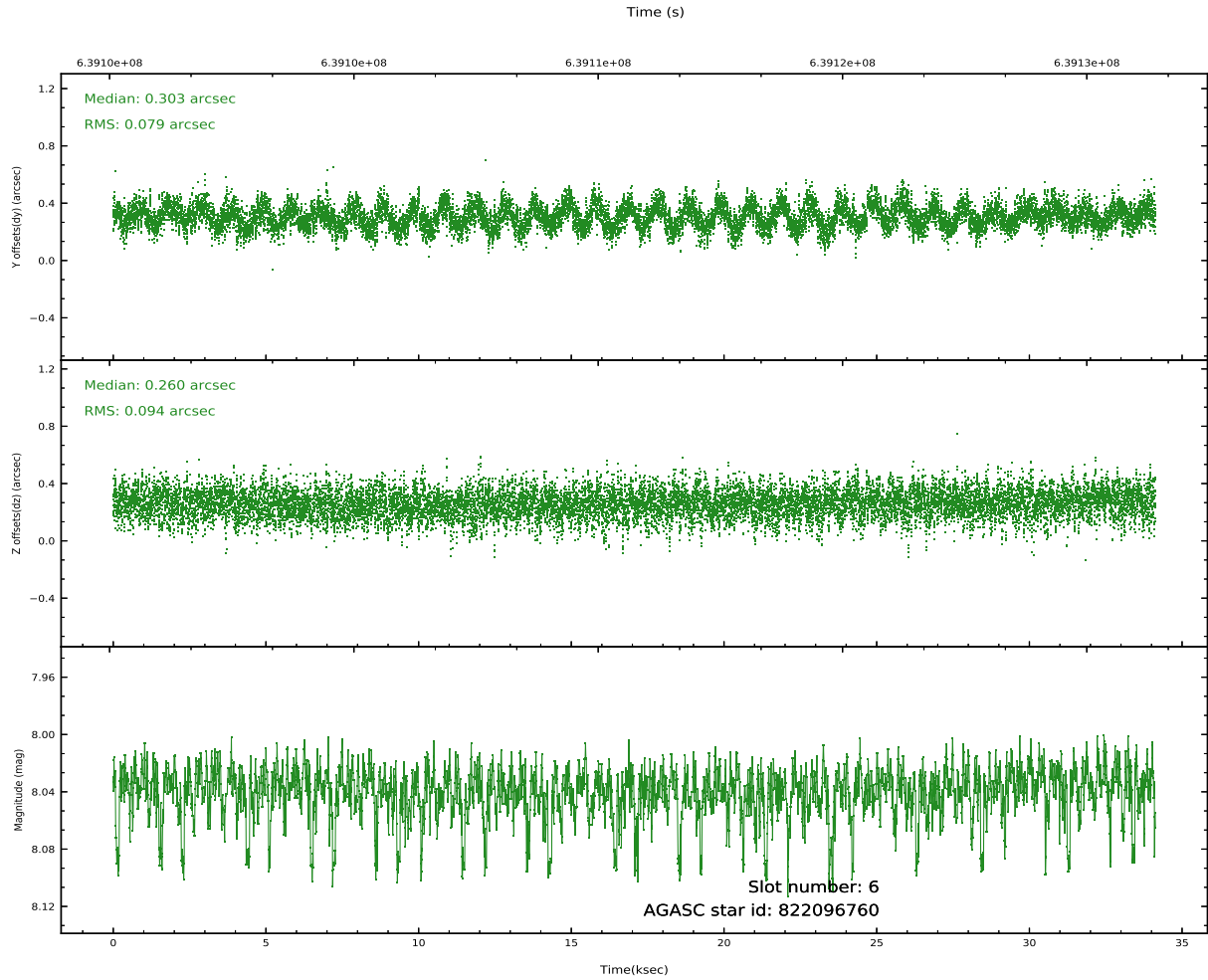
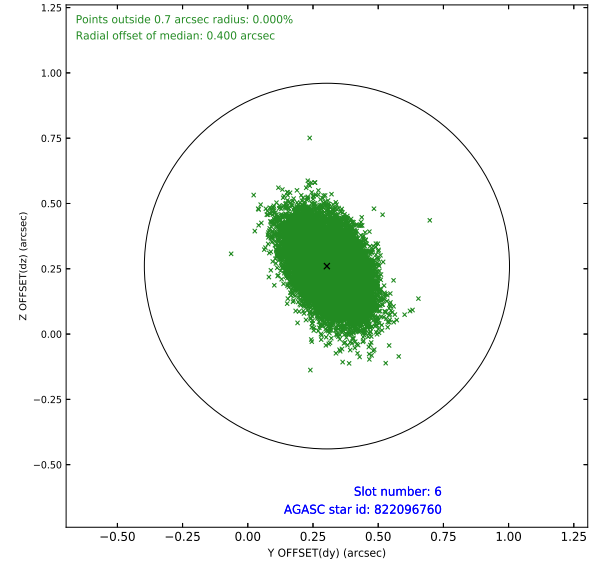
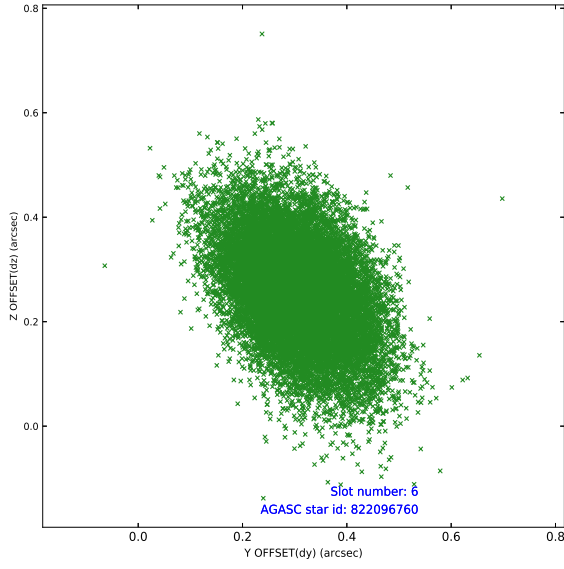




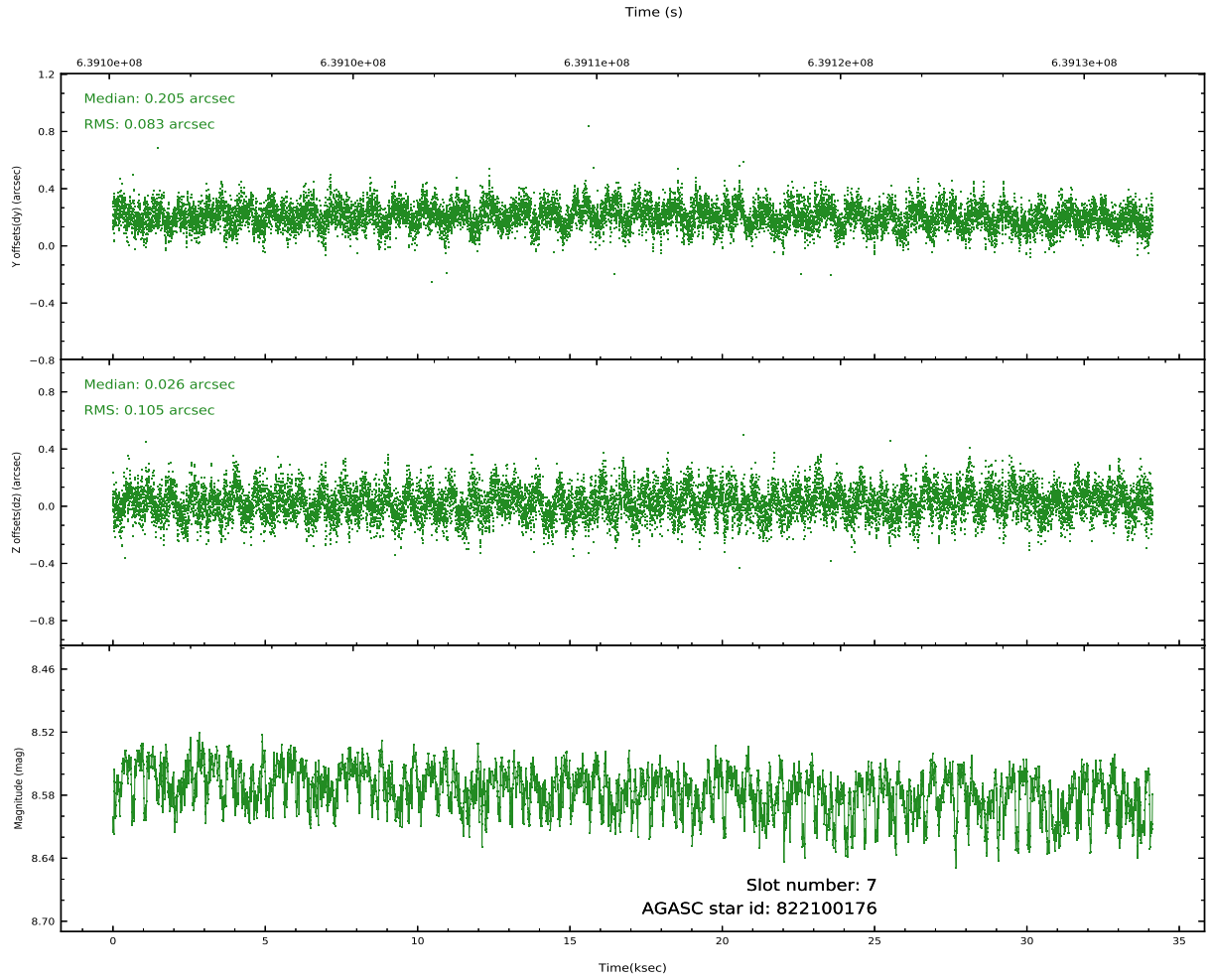
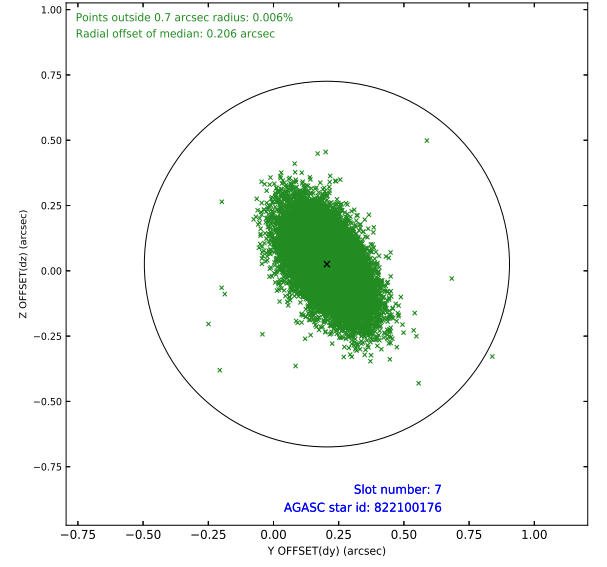
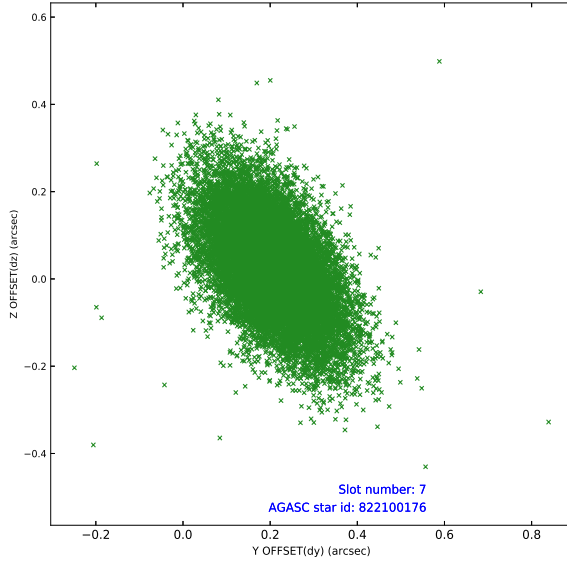
### 2.4.3 Slot 5



## 2.4.4 Slot 6

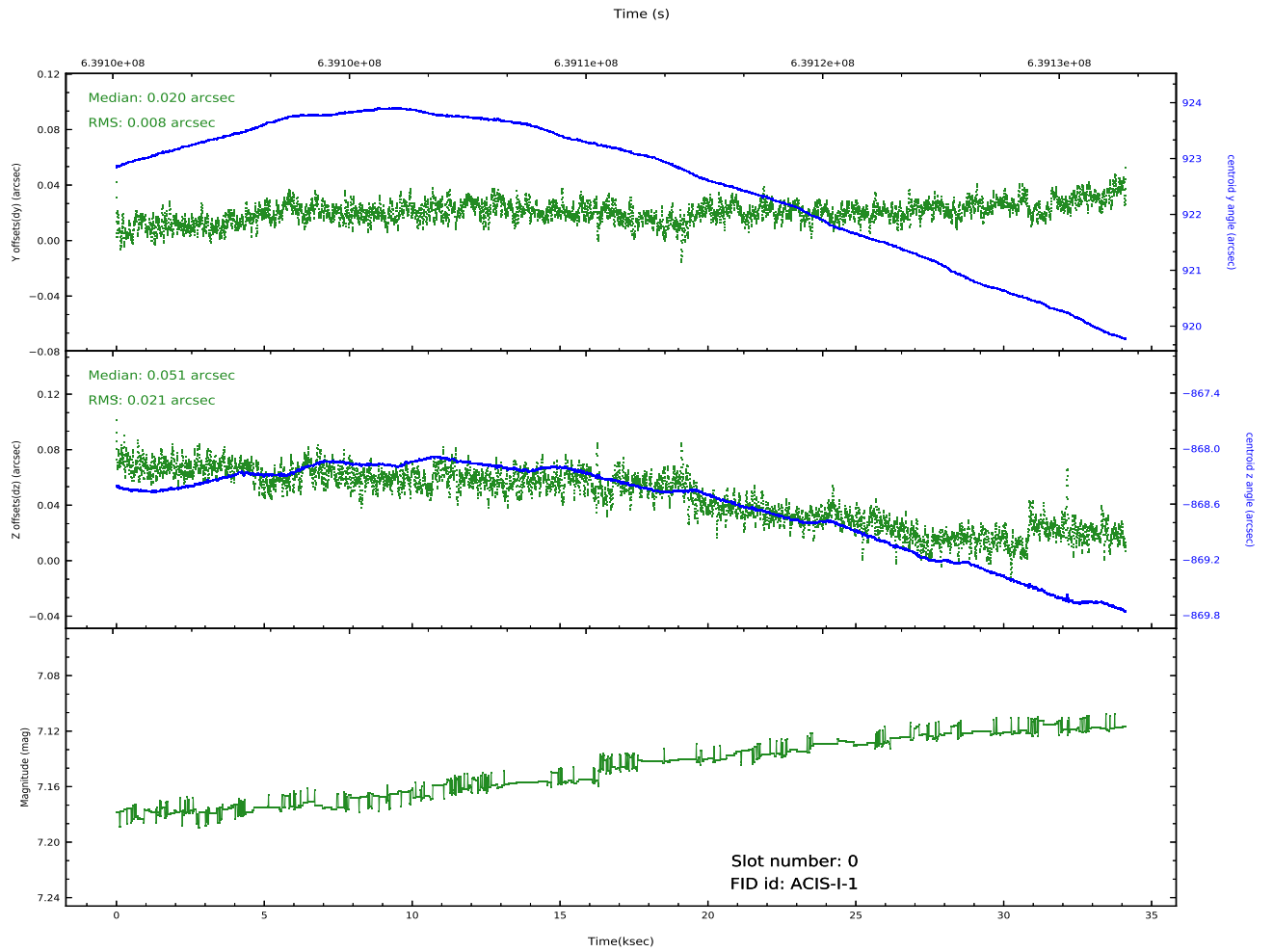
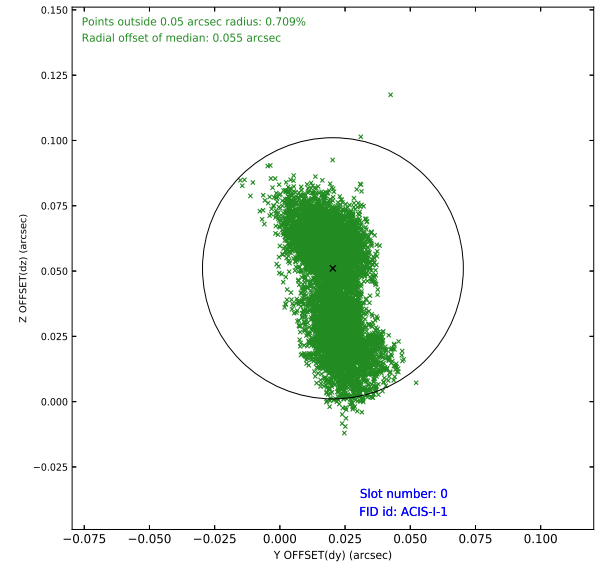
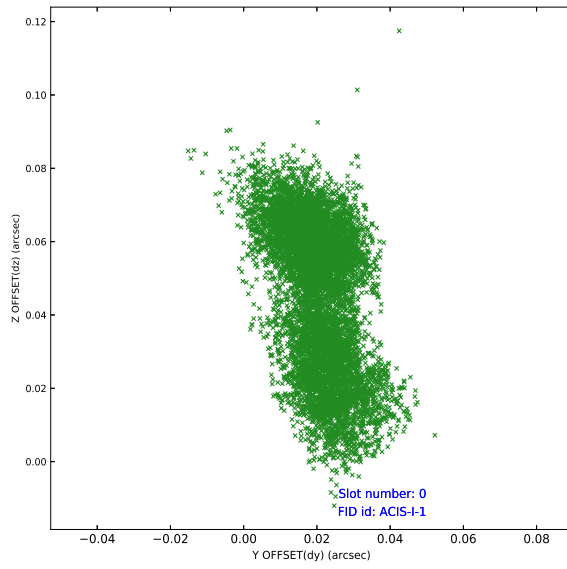


## 2.4.5 Slot 7

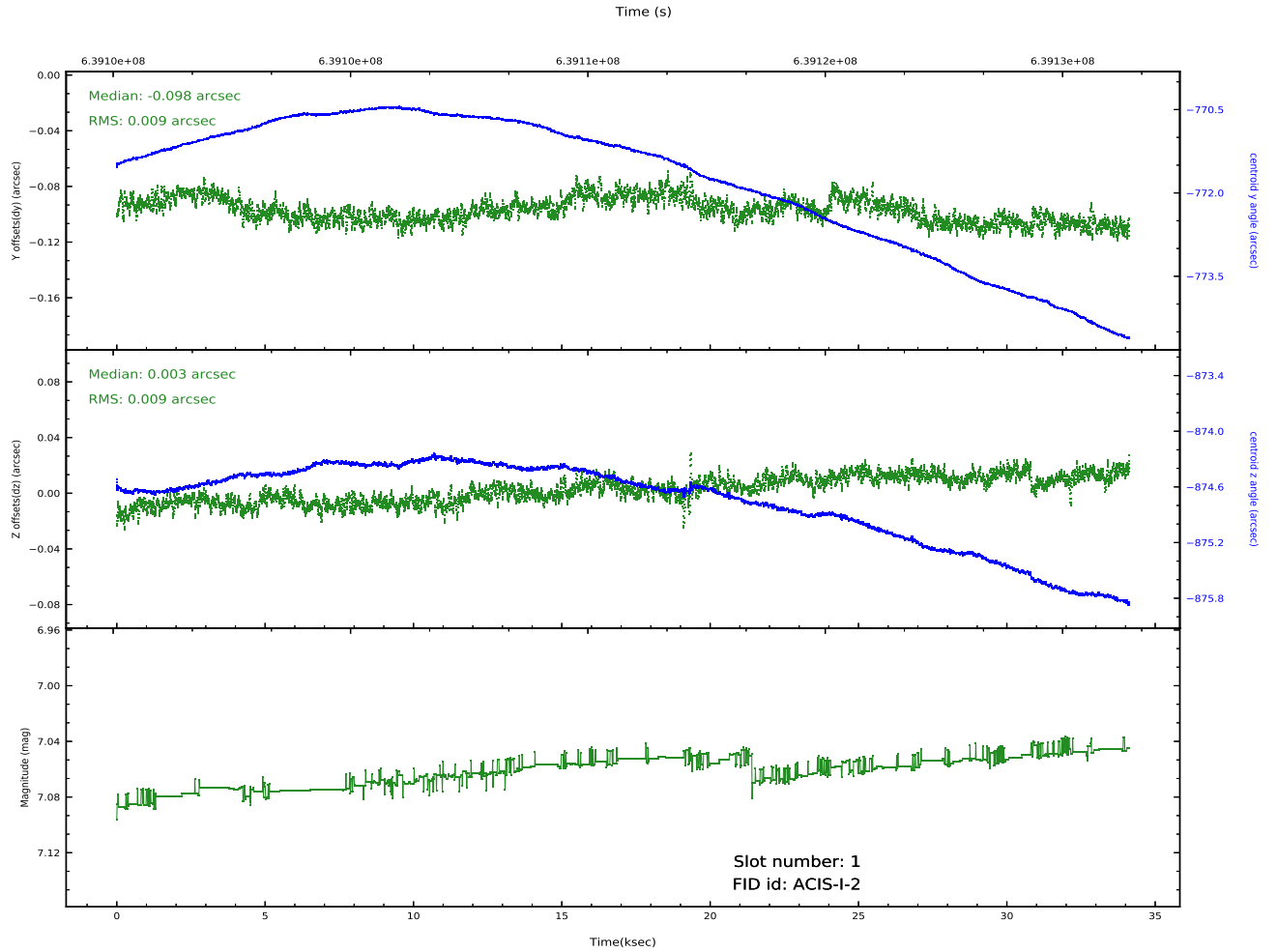
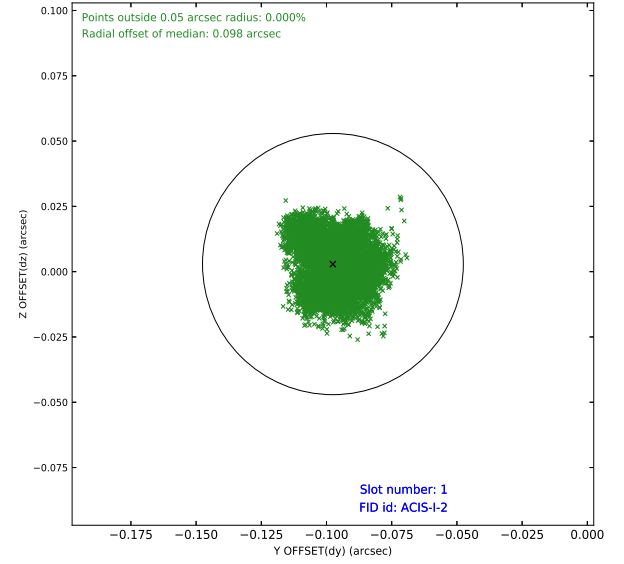
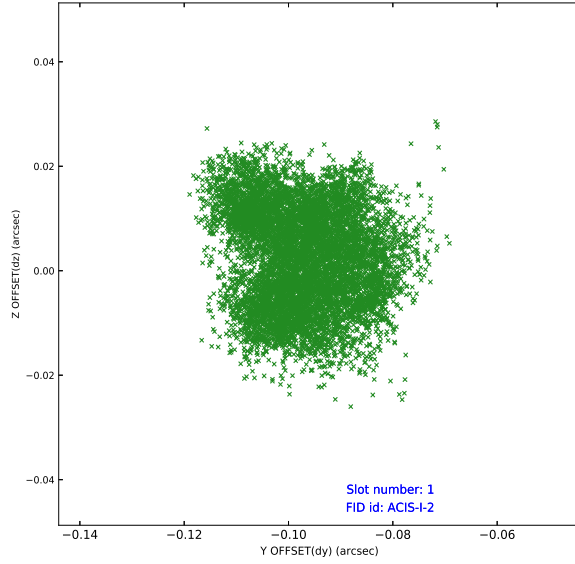


## 2.5 FID Slots

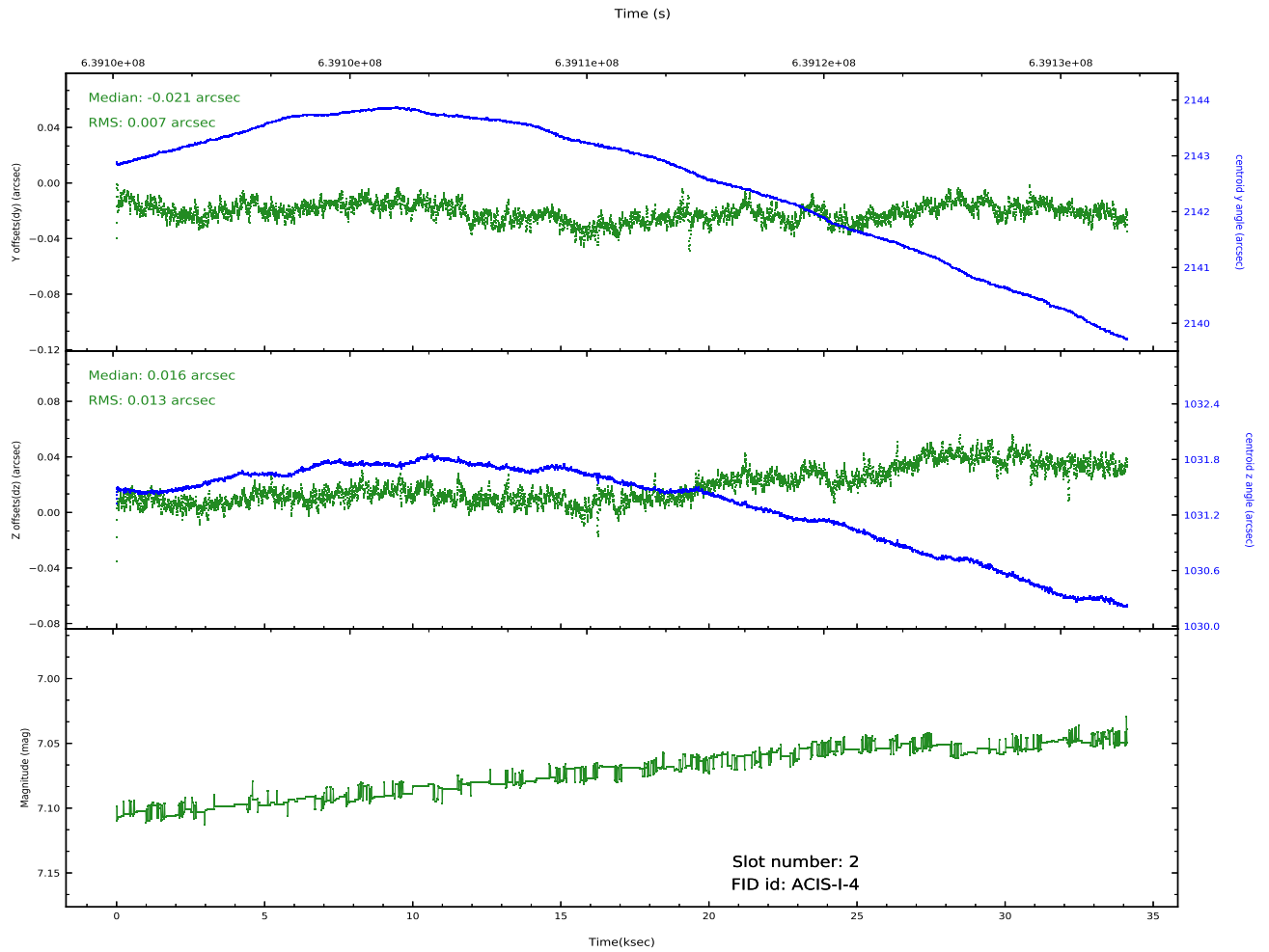
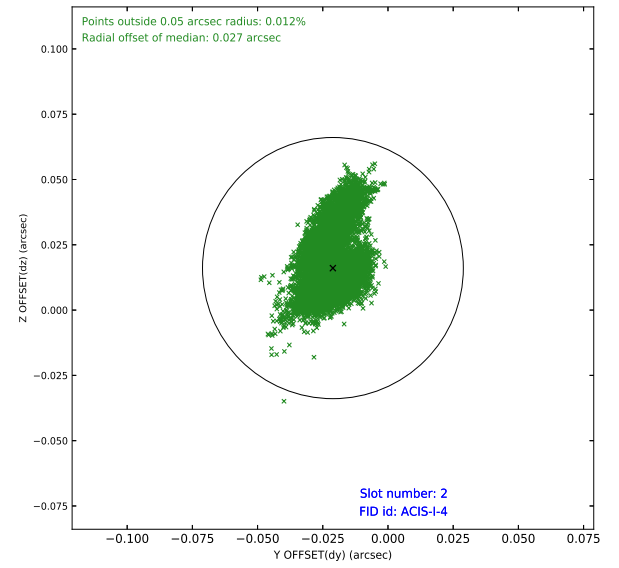
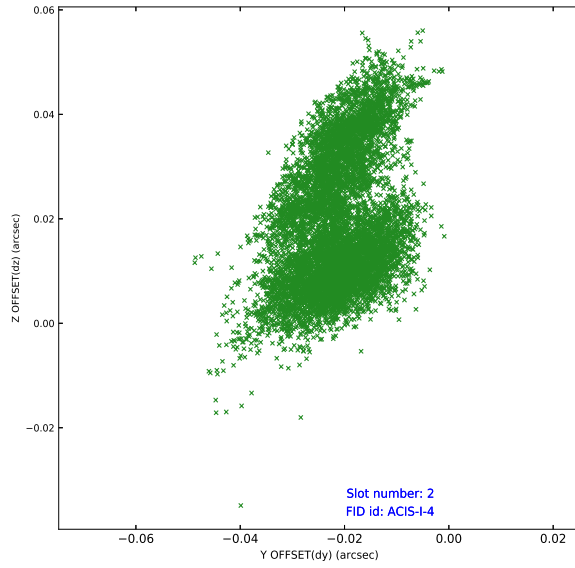
### 2.5.1 Slot 0



## 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)      | 2020.10.26      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 34.049515352368 |

### A.2 Comments