

# V&V Reference Report

## L2 ASCDS Version : 10.5.2

Observation 18985 - L2 Version 1  
Chandra X-Ray Center

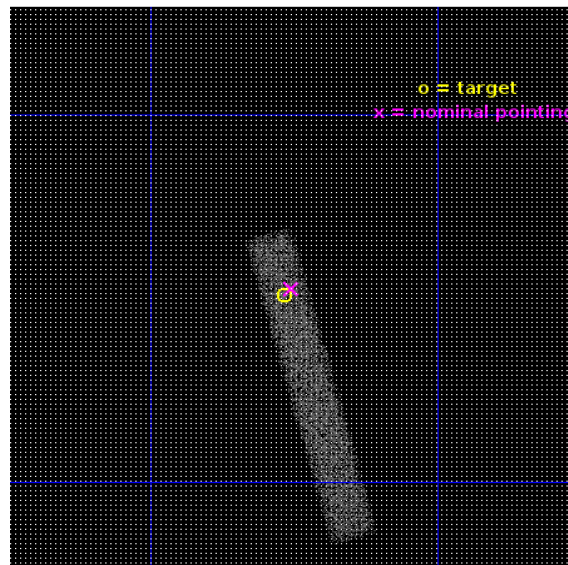
L2 Processing Date : Feb 21 2017

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# 1 Front

|          |                                                           |                                             |
|----------|-----------------------------------------------------------|---------------------------------------------|
| seq_num  | 401853                                                    | Sequence number                             |
| obs_id   | 18985                                                     | Observation id                              |
| title    | New progress in understanding the crusts of neutron stars | Proposal                                    |
| observer | Nathalie Degenaar                                         | Principal investigator                      |
| object   | Aql X-1                                                   | Source name                                 |
| dtcycle  | 0                                                         | &#160                                       |
| cycle    | P                                                         | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 287.81625                                                 | Observer's specified target RA [deg]        |
| dec_targ | 0.584639                                                  | Observer's specified target Dec [deg]       |
| ra_nom   | 287.81345137463                                           | Nominal RA [deg]                            |
| dec_nom  | 0.58781763285583                                          | Nominal Dec [deg]                           |
| roll_nom | 74.702100129691                                           | Nominal Roll [deg]                          |
| revision | 1                                                         | Processing version of data                  |
| ontime   | 20069.5482409                                             | Sum of GTIs [s]                             |
| livetime | 18202.02089688                                            | Livetime [s]                                |
| ontime7  | 20069.5482409                                             | Sum of GTIs [s]                             |
| l2events | 12580                                                     | Number of level 2 events                    |

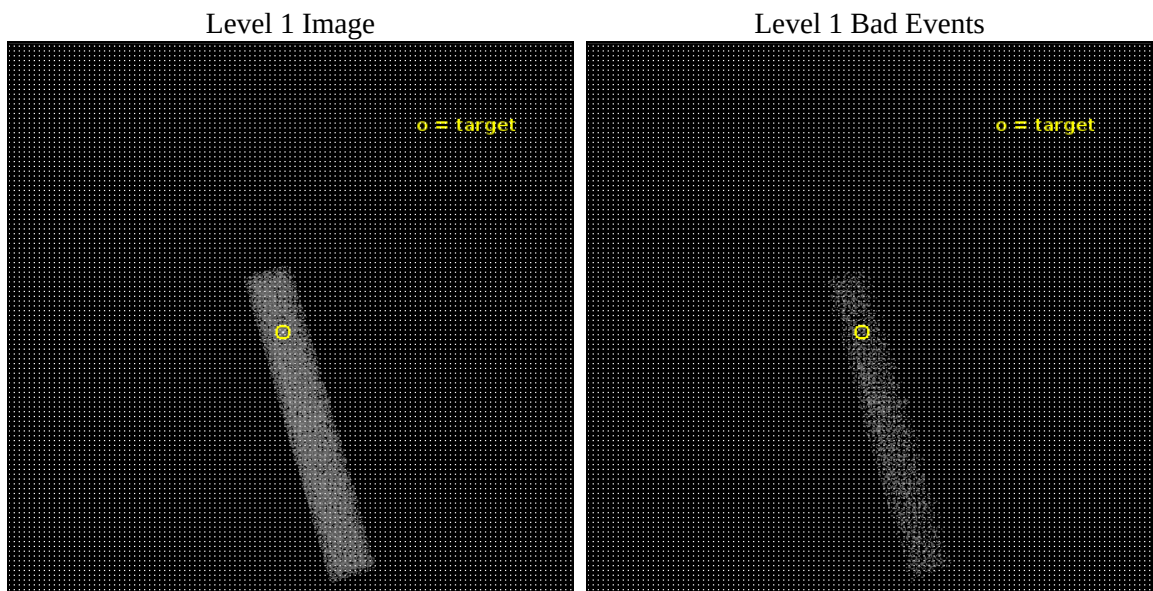




## 2 OBI

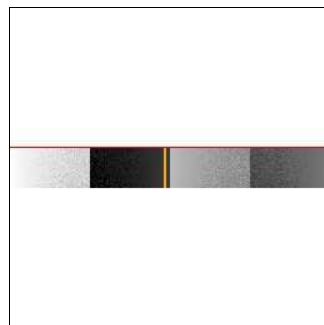
### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias

Chip 7



### 2.1.3 Parameters

|          |                     |                                |                |               |                                         |
|----------|---------------------|--------------------------------|----------------|---------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 20000.000000  | [s] Scheduled observation exposure time |
| ascdsver | 10.5.2              | Processing system revision     | ontime         | 20069.5482409 | Sum of GTIs [s]                         |
| caldbver | 4.7.3               | &#160                          | ontime7        | 20069.5482409 | Sum of GTIs [s]                         |
| date     | 2017-02-21T05:36:26 | Date and time of file creation | l1events       | 25798         | Number of level 1 events                |
| revision | 1                   | Processing version of data     |                |               |                                         |

### 2.1.4 Events

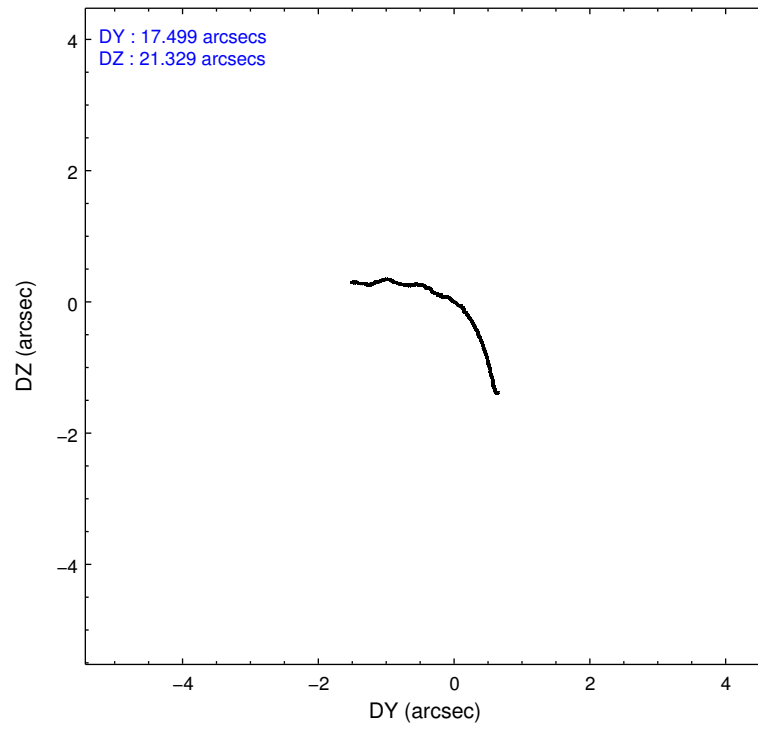
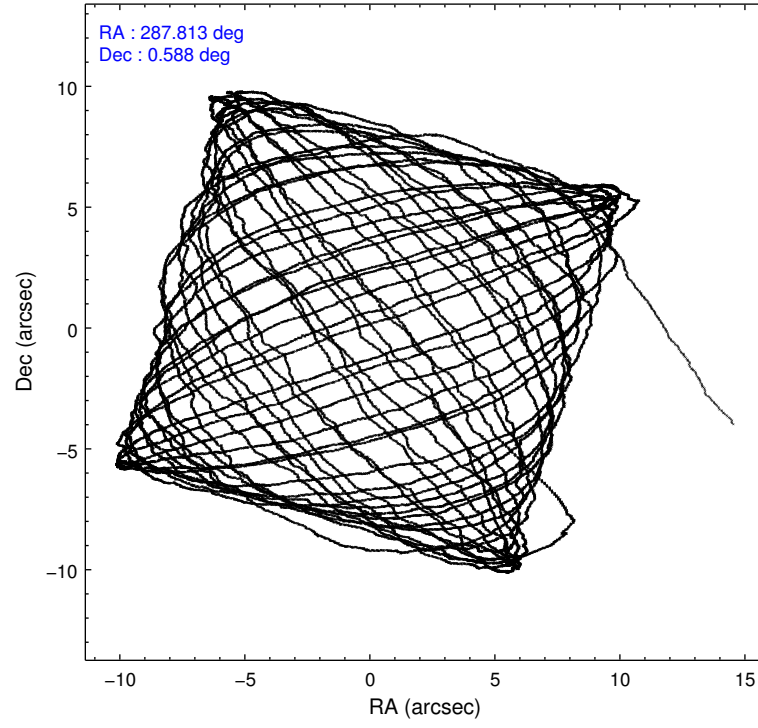
|                 |              |
|-----------------|--------------|
|                 | <b>ccd 7</b> |
| level 1 events  | 25798        |
| rejected events | 12658        |
| rejected %      | 49%          |

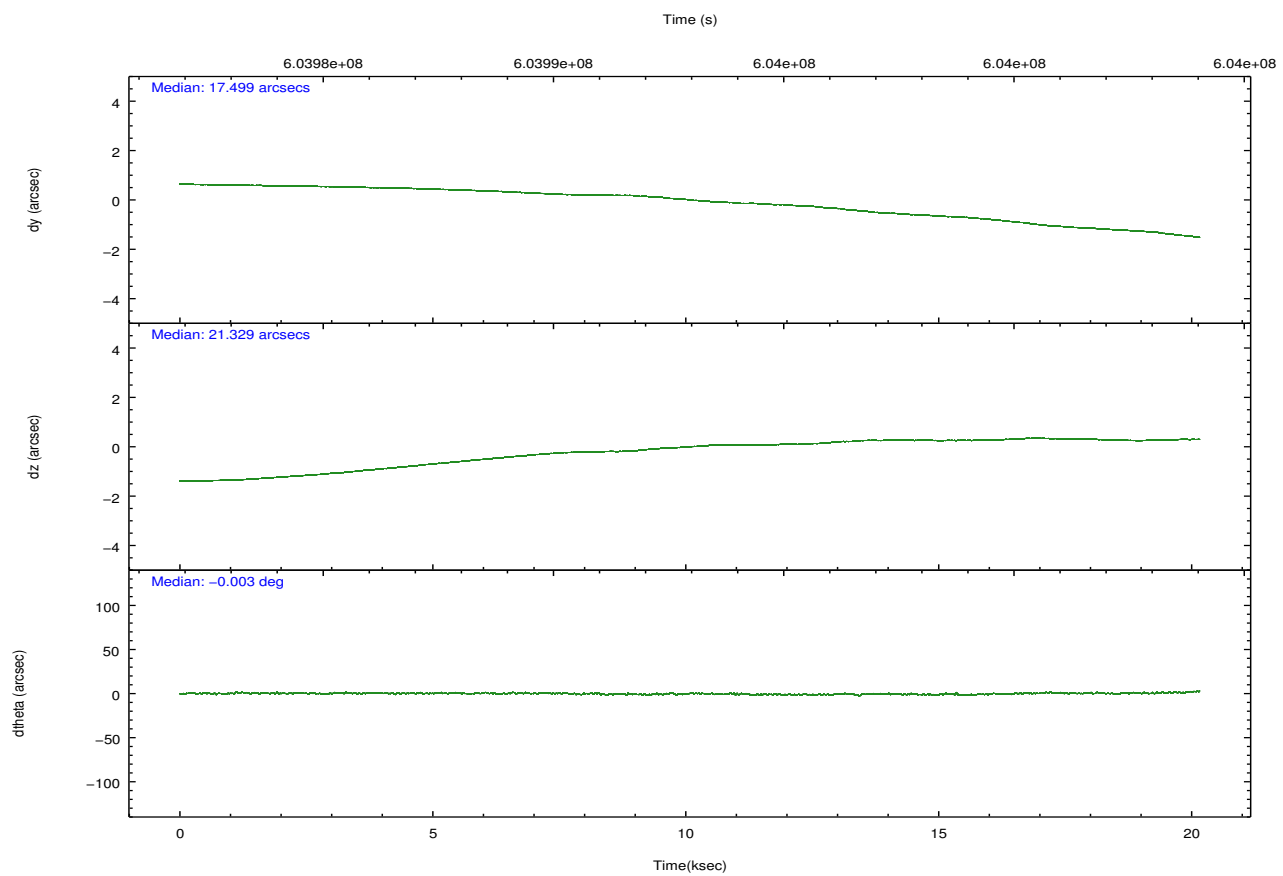
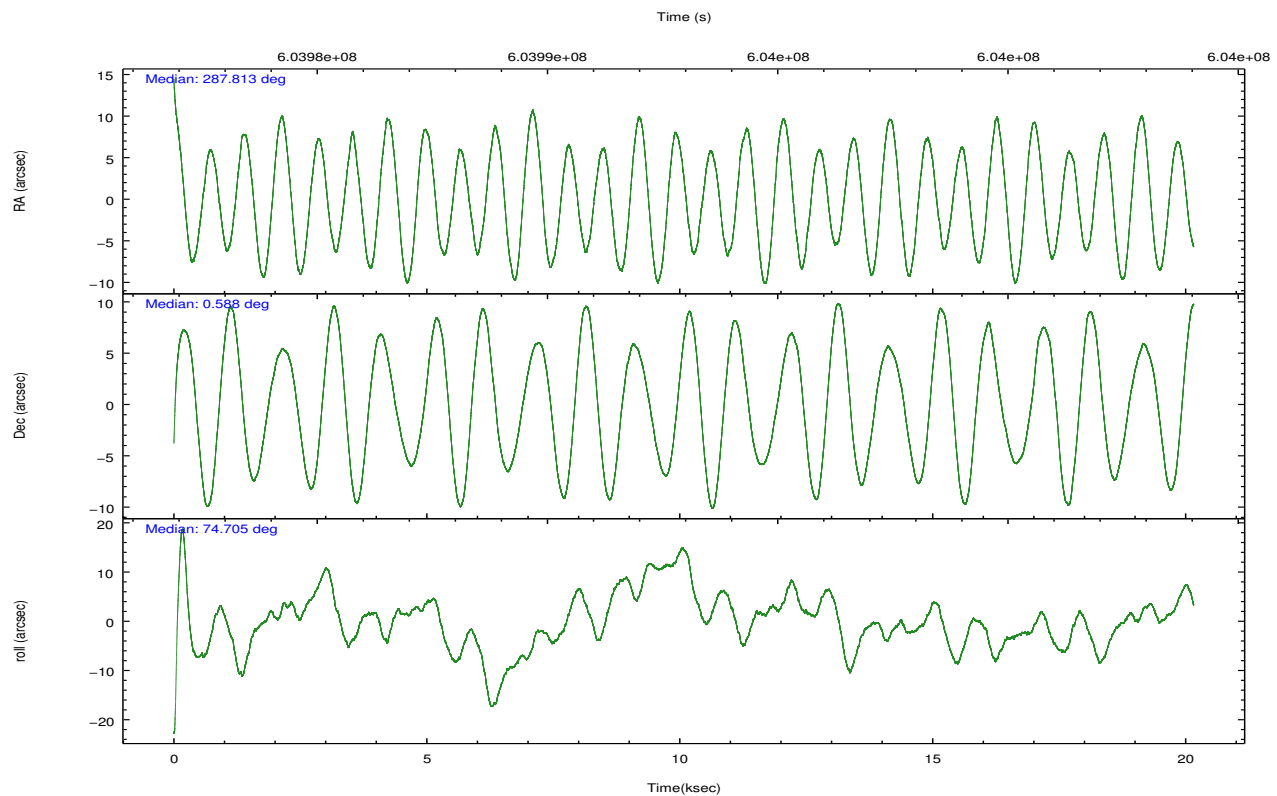
|                |              |
|----------------|--------------|
|                | <b>ccd 7</b> |
| grade 0 events | 1505         |
|                | 5%           |
| grade 1 events | 35           |
|                | 0%           |
| grade 2 events | 2558         |
|                | 9%           |
| grade 3 events | 1708         |
|                | 6%           |
| grade 4 events | 1628         |
|                | 6%           |
| grade 5 events | 2476         |
|                | 9%           |
| grade 6 events | 5741         |
|                | 22%          |
| grade 7 events | 10147        |
|                | 39%          |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-7              | ACIS-7               | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | FAINT               | FAINT                | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 287.820754          | 287.8134513746326    | Subarray requested                    | CUSTOM    | 1/8     |
| [deg] Pointing Dec                | 0.561346            | 0.587817632855831    | Subarray start row                    | 449       | 449     |
| [deg] Pointing Roll               | 74.545432           | 74.70210012969127    | Subarray row count                    | 128       | 128     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  | Alternating exposures requested       | N         | N       |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 | [s] Primary exposure time             | 0.000000  | 0.4     |
| [mm] SIM translation stage pos    | -190.132523         | -190.1425803651734   |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.01005778216563158  |                                       |           |         |
| [s] Observation start time (MET)  | 603983032.184000    | 603981773.84123      |                                       |           |         |
| Observation start date            | 2017-02-20T13:02:43 | 2017-02-20T12:42:53  |                                       |           |         |
| [s] Observation end time (MET)    | 604003032.184000    | 604004350.49254      |                                       |           |         |
| Observation end date              | 2017-02-20T18:36:03 | 2017-02-20T18:59:10  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



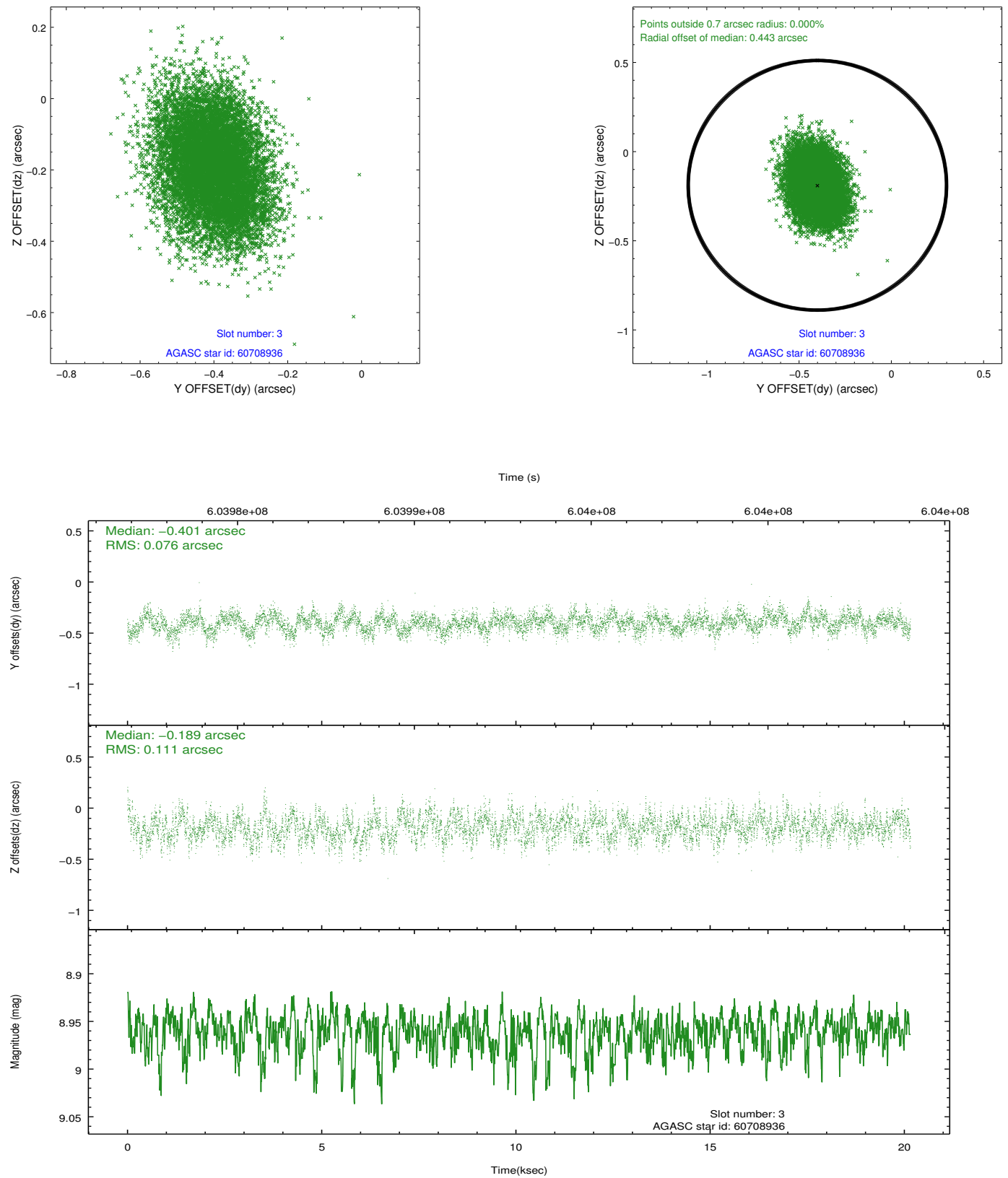


# Slot Statistics

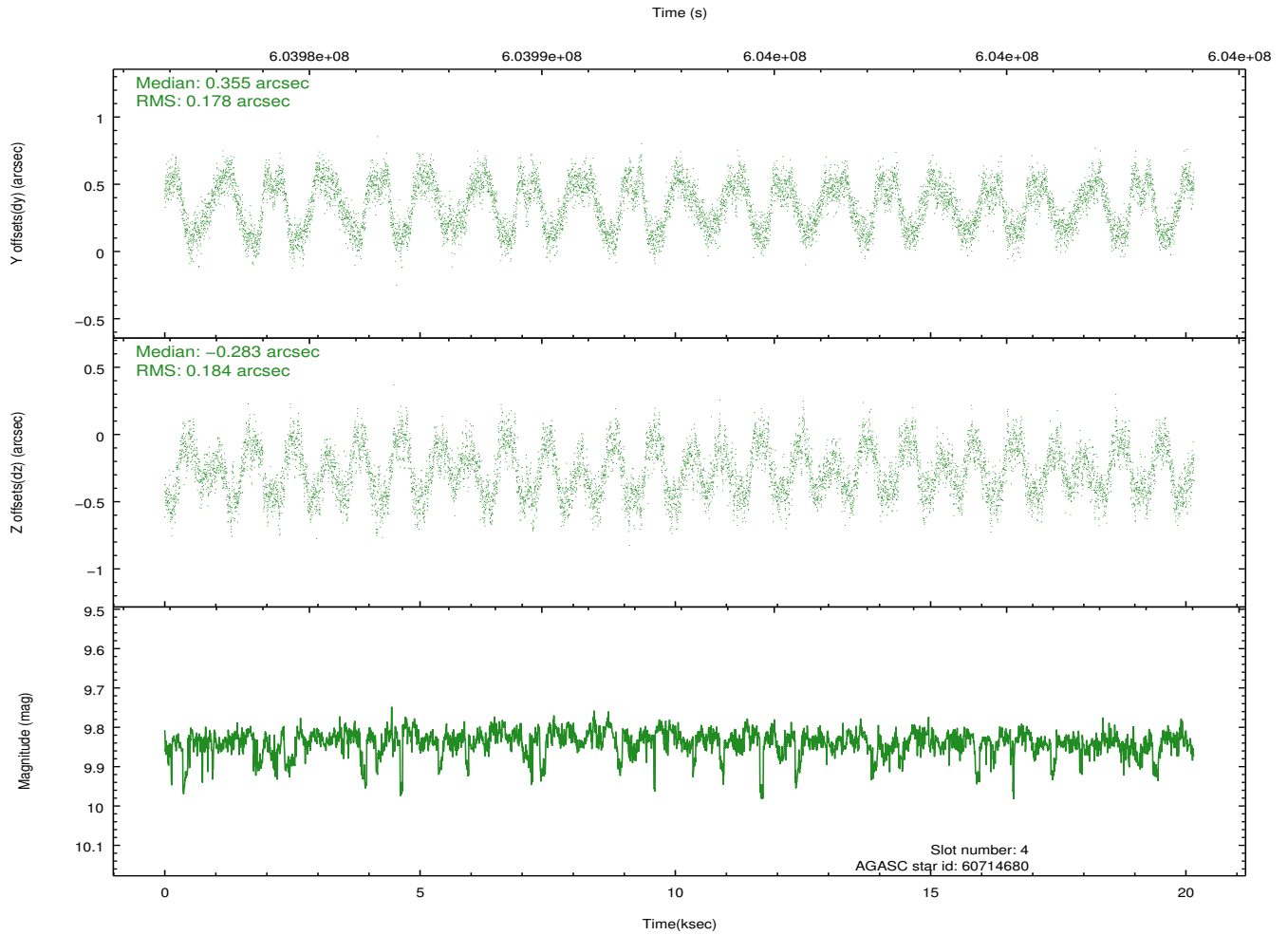
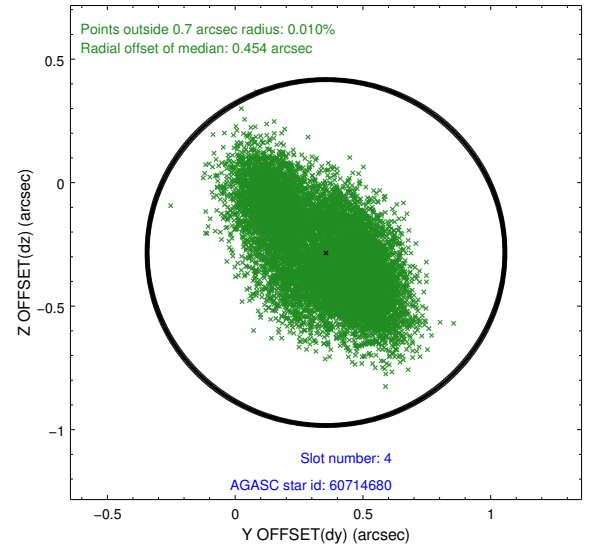
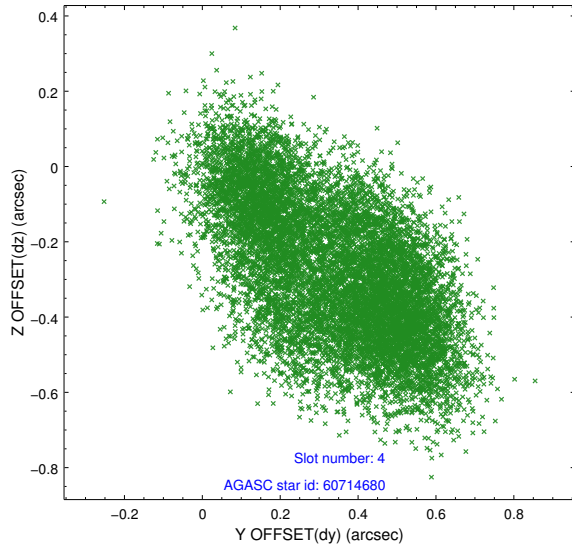
| slot | status | used | id       | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec      | mean_y   | mean_z   |
|------|--------|------|----------|------|-------|--------|--------|-------|-------|------------|----------|----------|----------|
| 0    | FID    |      | ACIS-S-2 | 7.13 | 4917  | -0.295 | -0.210 | 0.030 | 0.038 | 0.000000   | 0.000000 | -770.72  | -1742.76 |
| 1    | FID    |      | ACIS-S-4 | 7.24 | 4917  | 0.320  | 0.161  | 0.028 | 0.042 | 0.000000   | 0.000000 | 2143.14  | 165.83   |
| 2    | FID    |      | ACIS-S-6 | 7.38 | 4917  | -0.053 | 0.050  | 0.011 | 0.018 | 0.000000   | 0.000000 | 391.80   | 803.36   |
| 3    | GUIDE  | used | 60708936 | 8.96 | 9824  | -0.401 | -0.189 | 0.143 | 0.232 | 287.407925 | 0.924863 | 864.88   | 1780.98  |
| 4    | GUIDE  | used | 60714680 | 9.84 | 9814  | 0.355  | -0.283 | 0.275 | 0.424 | 287.468055 | 0.176061 | -1674.98 | 854.39   |
| 5    | GUIDE  | used | 60715360 | 9.15 | 9823  | 0.295  | 0.575  | 0.120 | 0.199 | 287.763141 | 0.163266 | -1436.66 | -181.07  |
| 6    | GUIDE  | used | 60718872 | 9.36 | 9800  | 0.331  | 0.260  | 0.212 | 0.371 | 287.679270 | 0.108754 | -1706.22 | 57.27    |
| 7    | GUIDE  | used | 60699528 | 8.88 | 9823  | -0.536 | -0.376 | 0.133 | 0.219 | 287.344521 | 1.231468 | 1867.78  | 2294.77  |

## 2.4 Star Slots

### 2.4.1 Slot 3

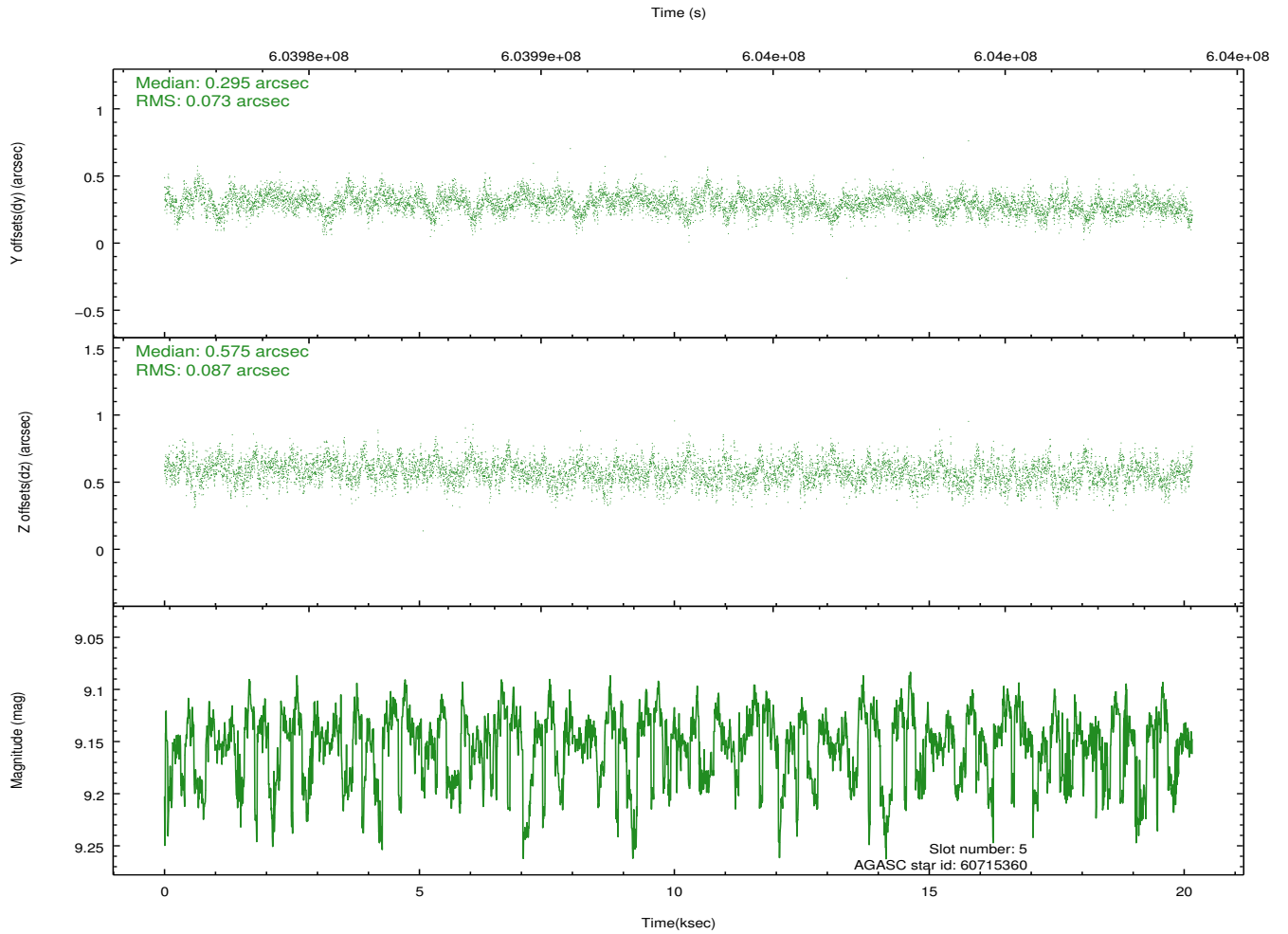
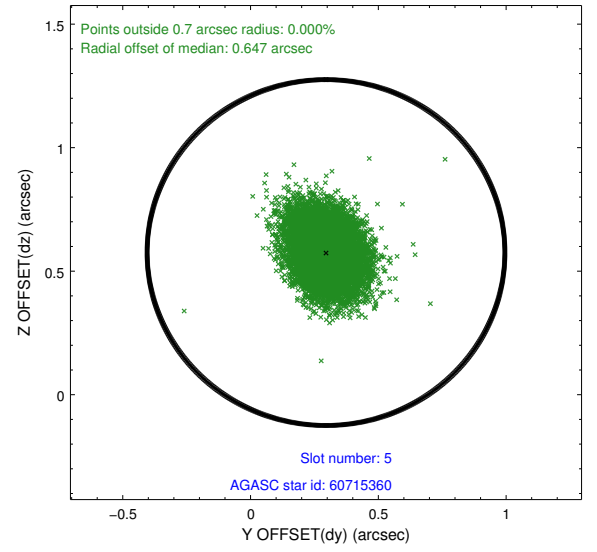
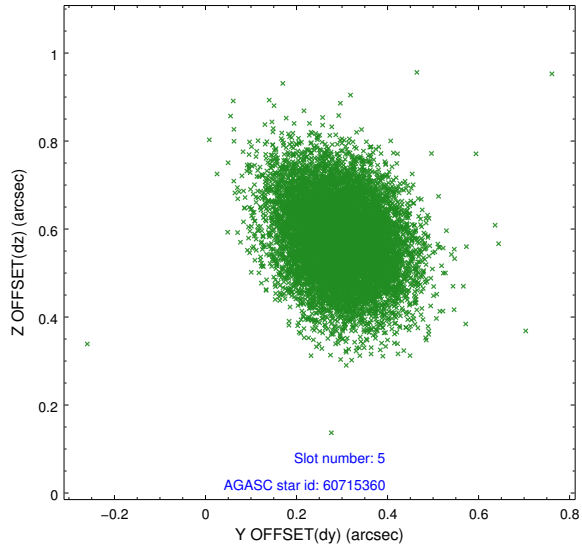


## 2.4.2 Slot 4

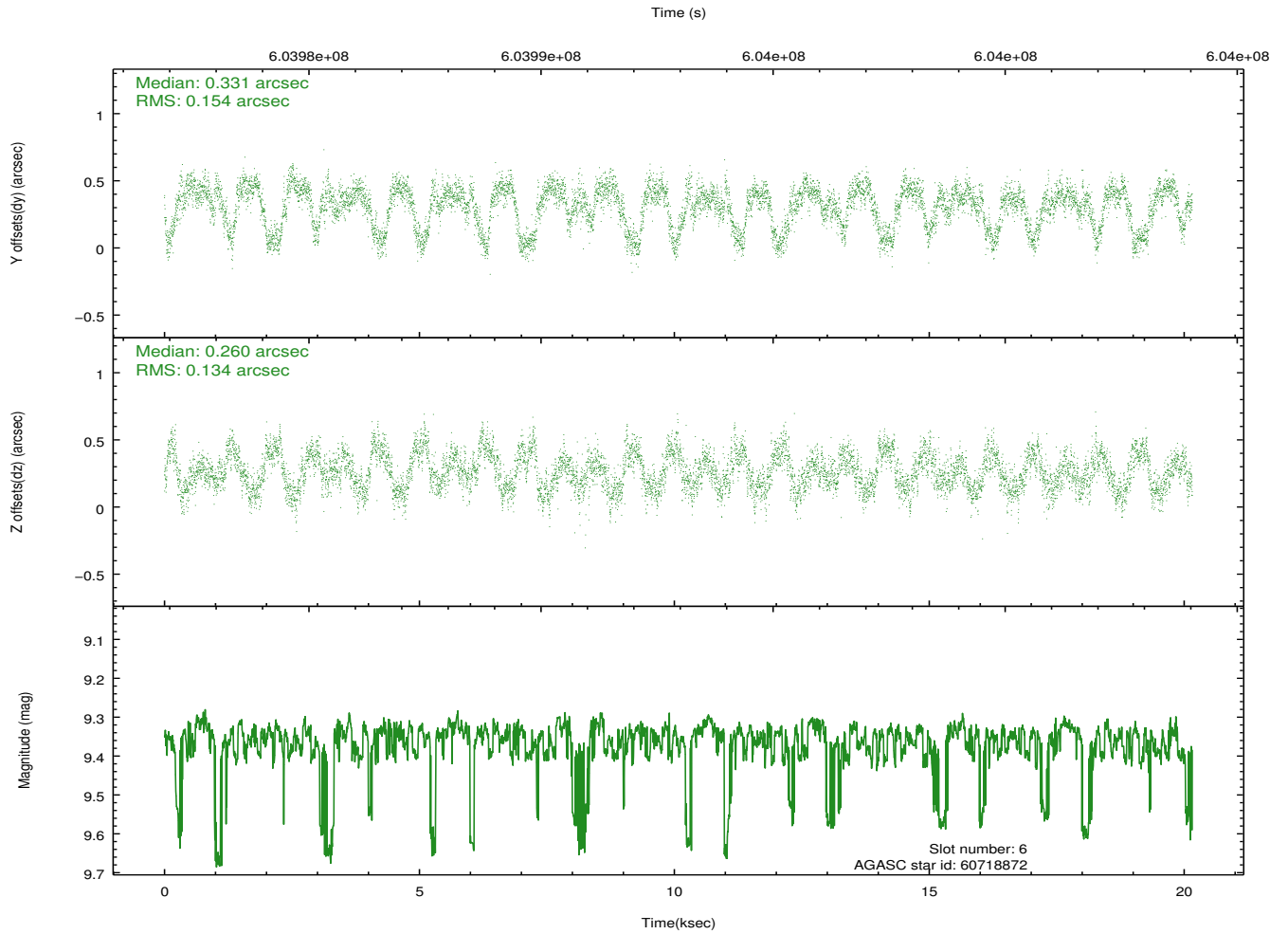
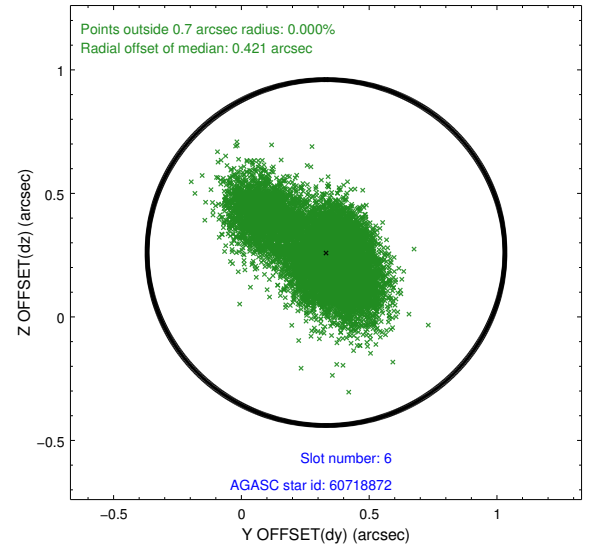
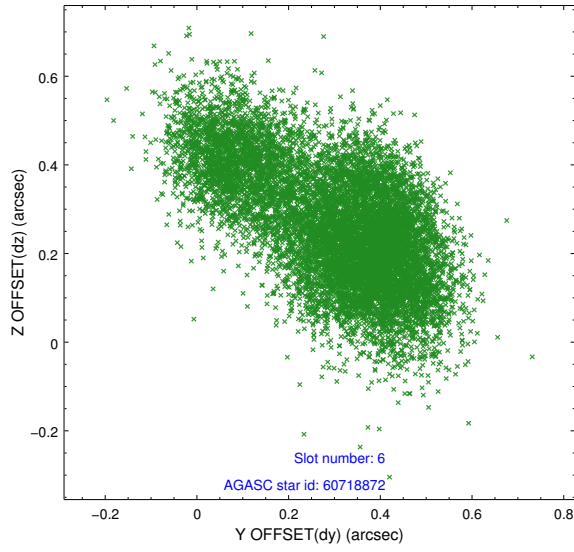




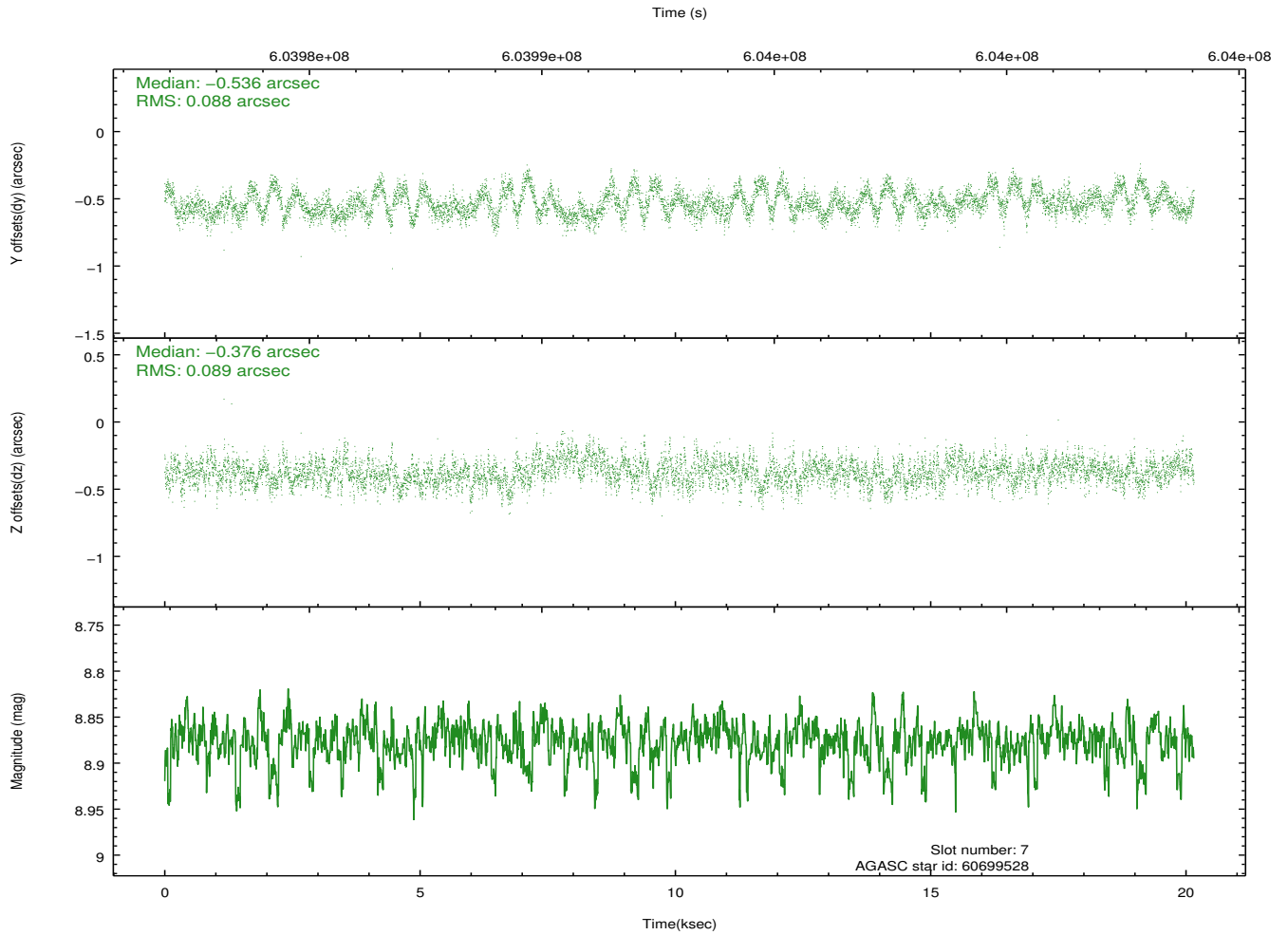
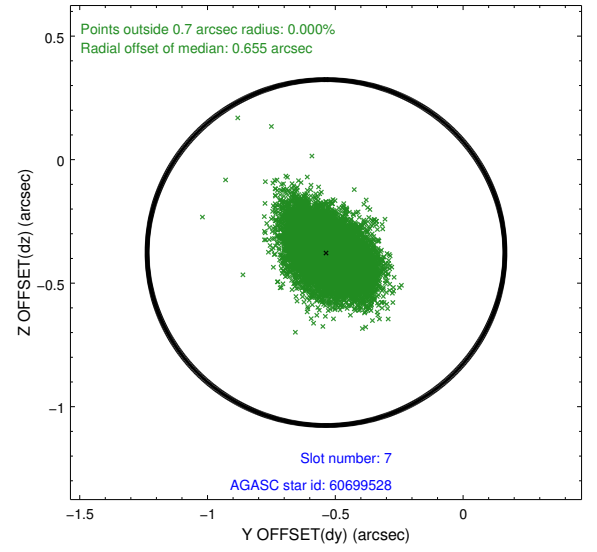
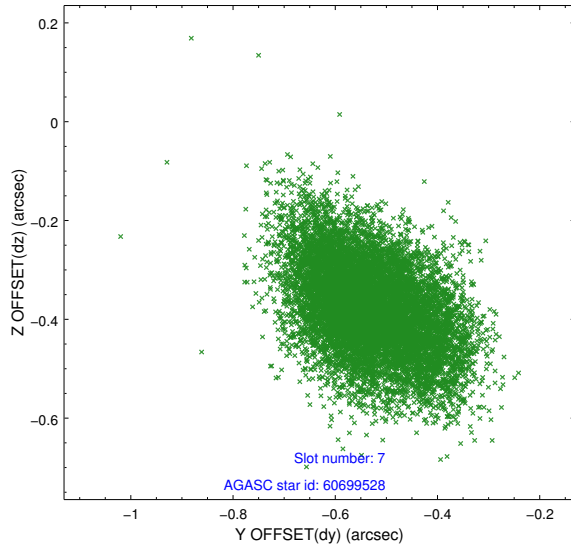
### 2.4.3 Slot 5



## 2.4.4 Slot 6

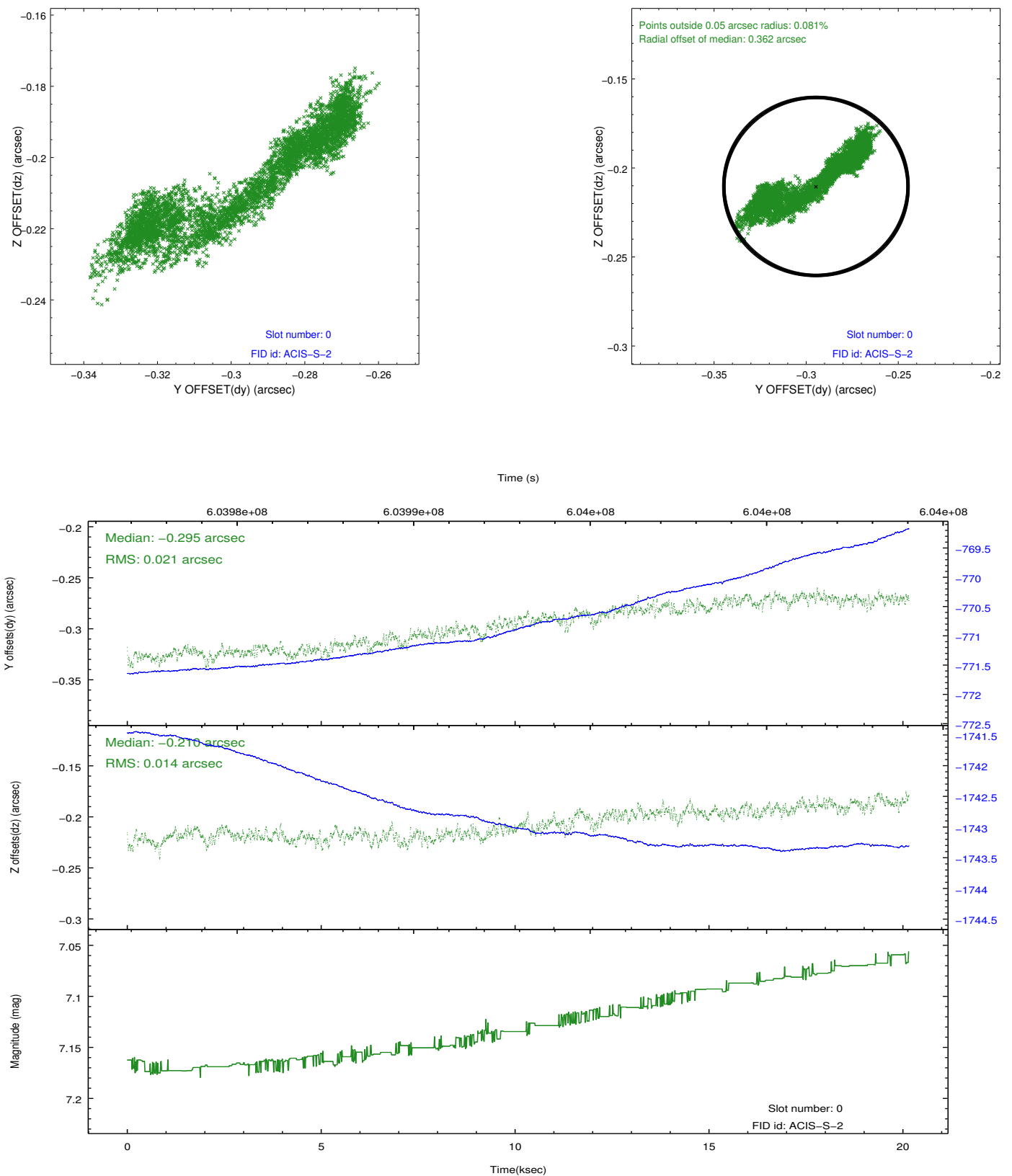


## 2.4.5 Slot 7

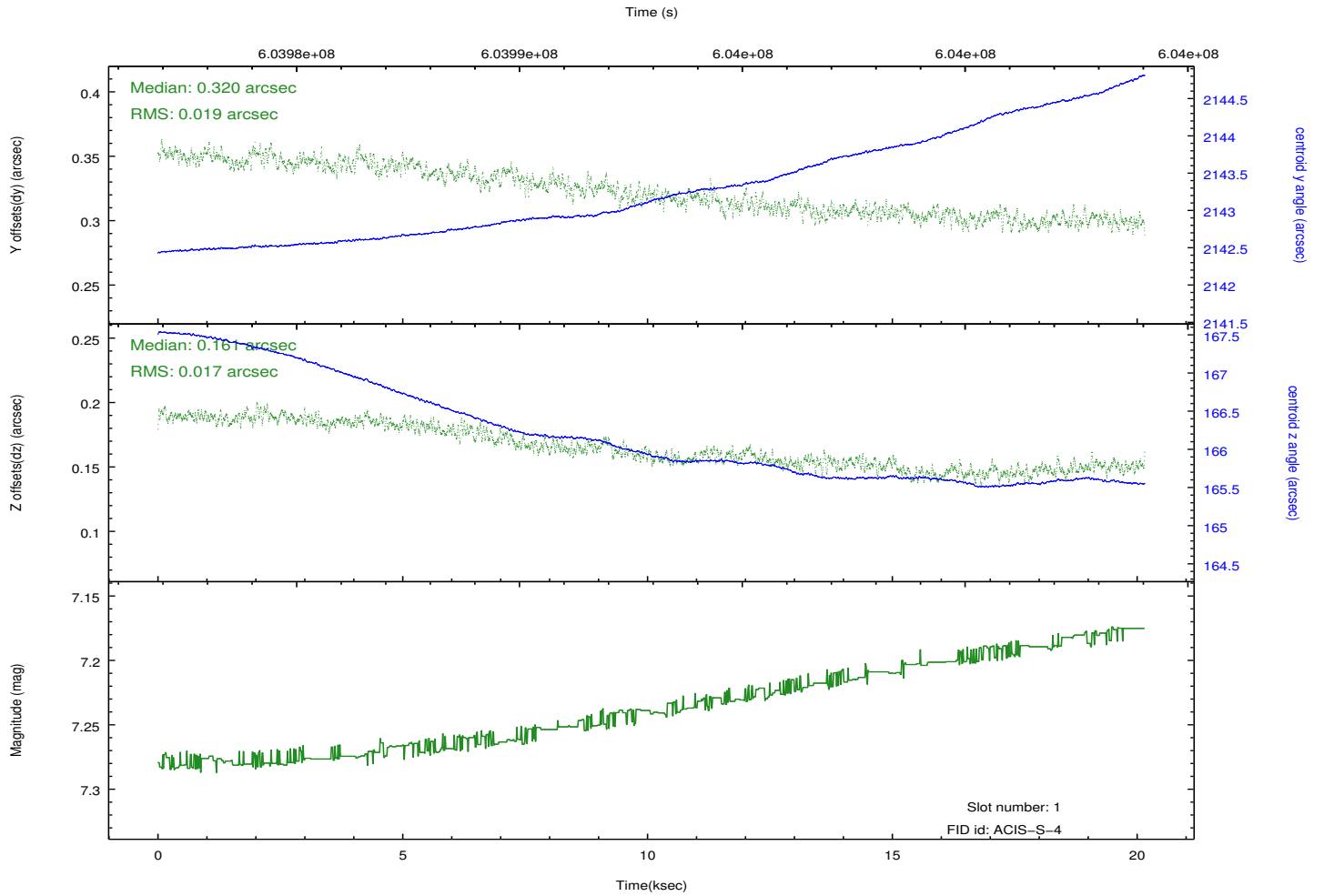
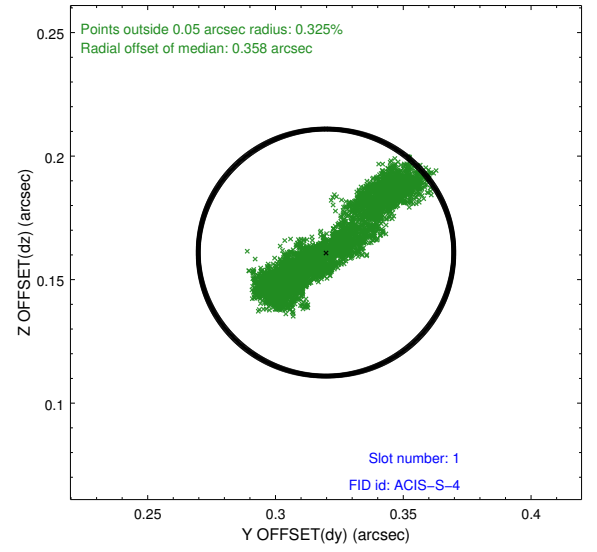
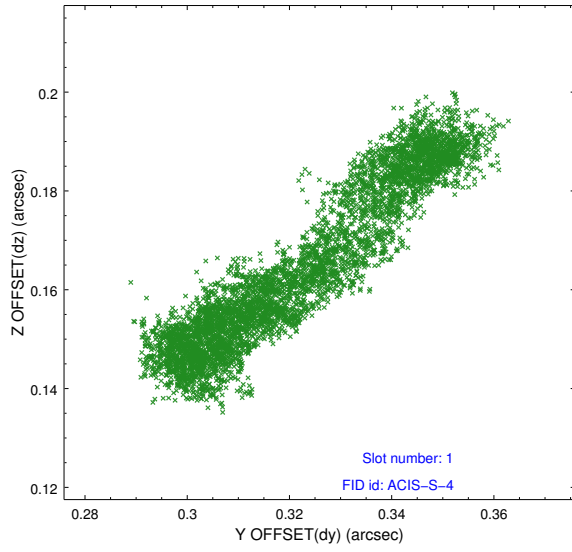


## 2.5 FID Slots

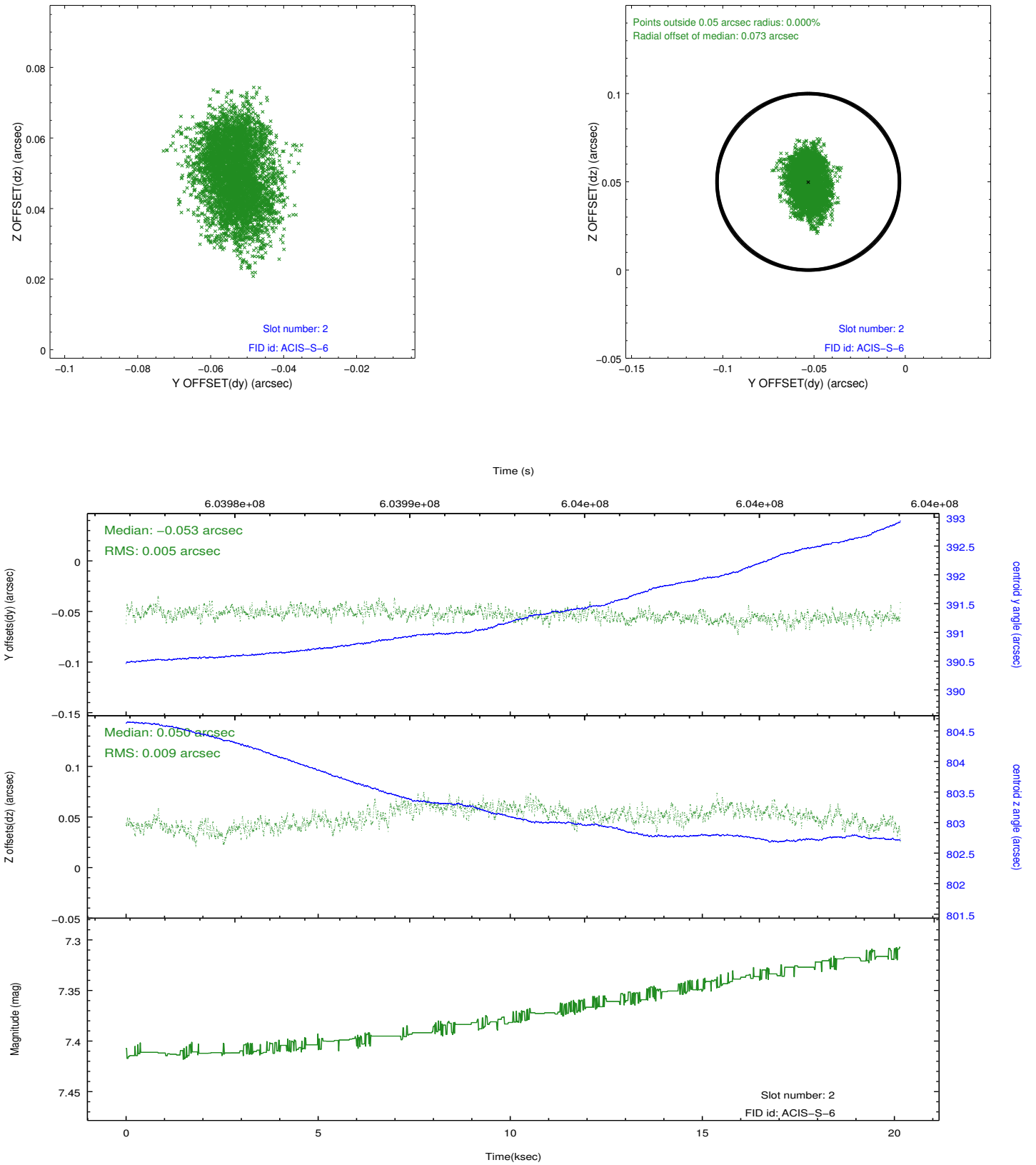
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |               |
|----------------------------|---------------|
| V&V Scientist              | Joy Nichols   |
| V&V Date (YYYY-MM-DD)      | 2017.02.21    |
| V&V Edition                | 1             |
| V&V Disposition and Status | OK            |
| V&V Charge Time            | 20.0695482409 |

### A.2 Comments