

# V&V Reference Report

## L2 ASCDS Version : 10.5.2

Observation 20016 - L2 Version 1  
Chandra X-Ray Center

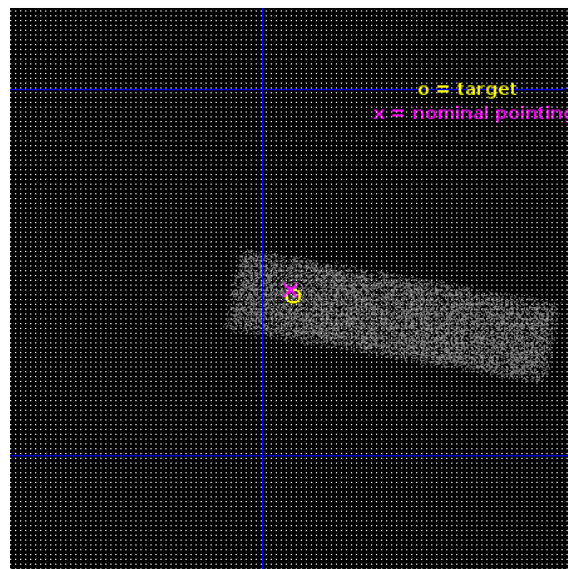
L2 Processing Date : Mar 4 2017

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# 1 Front

|           |                                                                               |                                             |
|-----------|-------------------------------------------------------------------------------|---------------------------------------------|
| seq_num   | 201045                                                                        | Sequence number                             |
| obs_id    | 20016                                                                         | Observation id                              |
| title     | Testing Colliding Wind Shock Models in the Eclipsing Wolf-Rayet Binary CQ Cep | Proposal title                              |
| observer  | Stephen Skinner                                                               | Principal investigator                      |
| object    | HD 214419                                                                     | Source name                                 |
| dtcycle   | 0                                                                             | &#160                                       |
| cycle     | P                                                                             | events from which exps?<br>Prim/Second/Both |
| ra_targ   | 339.224792                                                                    | Observer's specified target RA [deg]        |
| dec_targ  | 56.905833                                                                     | Observer's specified target Dec [deg]       |
| ra_nom    | 339.22630088413                                                               | Nominal RA [deg]                            |
| dec_nom   | 56.908806909453                                                               | Nominal Dec [deg]                           |
| roll_nom  | 10.15537267547                                                                | Nominal Roll [deg]                          |
| revision  | 1                                                                             | Processing version of data                  |
| ontime    | 14437.417942286                                                               | Sum of GTIs [s]                             |
| liveltime | 13732.919187944                                                               | Livetime [s]                                |
| ontime7   | 14437.417942286                                                               | Sum of GTIs [s]                             |
| l2events  | 13999                                                                         | Number of level 2 events                    |

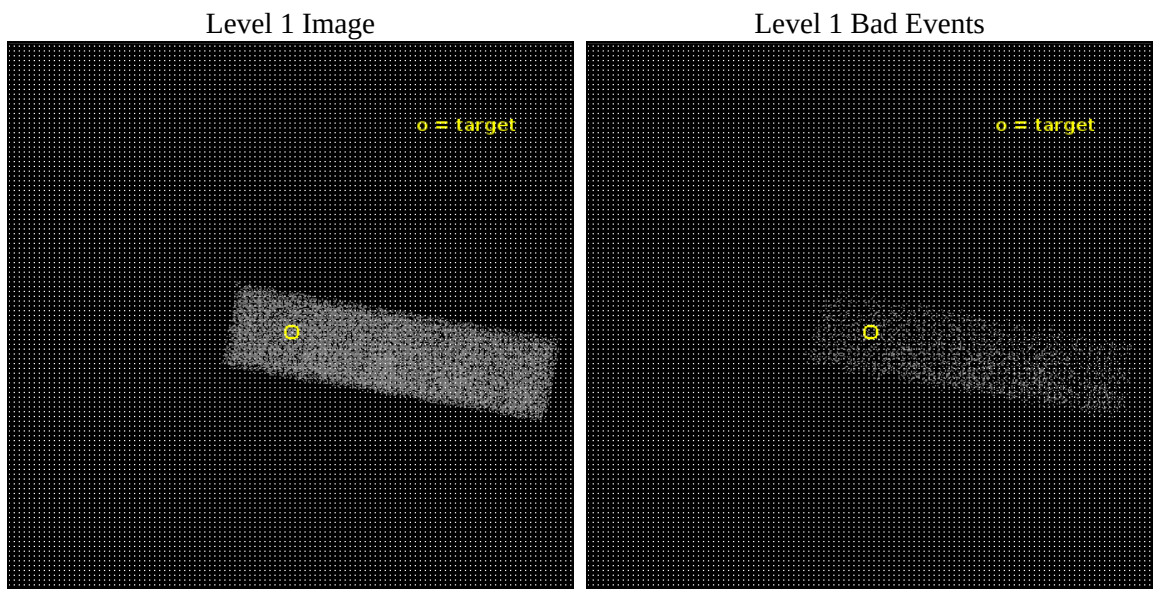




## 2 OBI

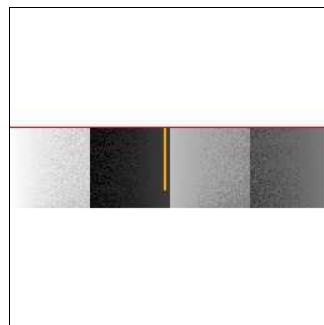
### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias

Chip 7



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 14373.647000    | [s] Scheduled observation exposure time |
| ascdsver | 10.5.2              | Processing system revision     | ontime         | 14437.417942286 | Sum of GTIs [s]                         |
| caldsver | 4.7.3               | &#160                          | ontime7        | 14437.417942286 | Sum of GTIs [s]                         |
| date     | 2017-03-04T14:35:17 | Date and time of file creation | l1events       | 27339           | Number of level 1 events                |
| revision | 1                   | Processing version of data     |                |                 |                                         |

### 2.1.4 Events

|                 |              |
|-----------------|--------------|
|                 | <b>ccd 7</b> |
| level 1 events  | 27339        |
| rejected events | 12792        |
| rejected %      | 46%          |

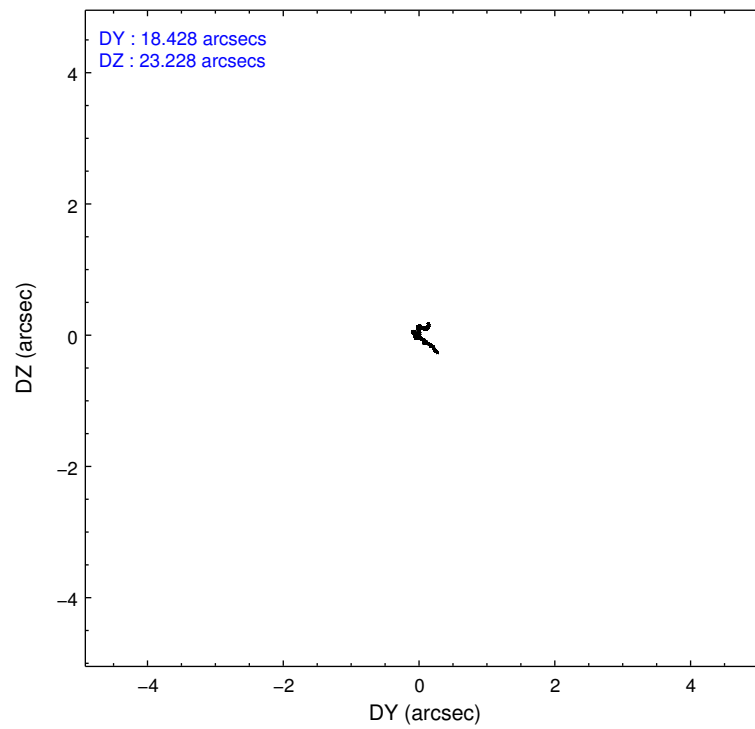
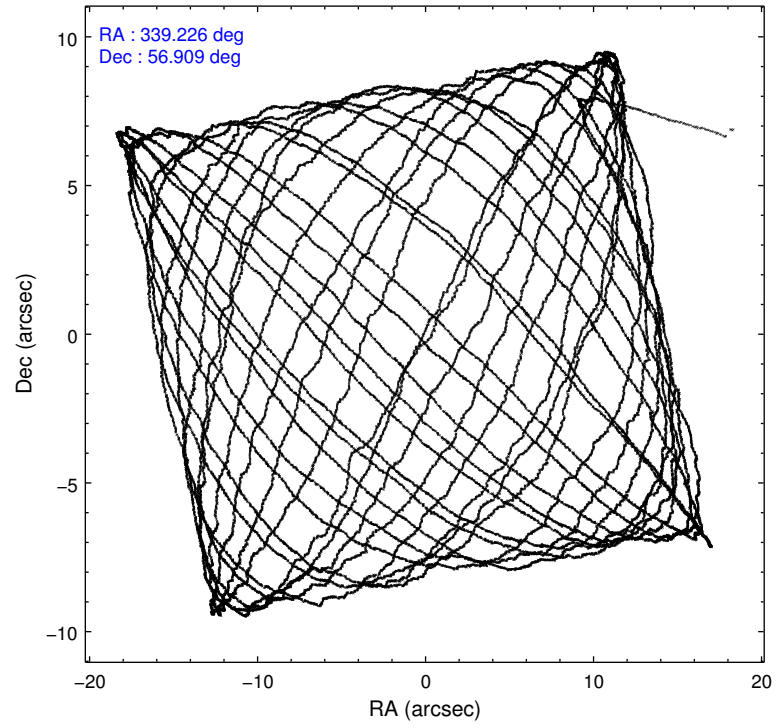
|                |              |
|----------------|--------------|
|                | <b>ccd 7</b> |
| grade 0 events | 1525         |
|                | 5%           |
| grade 1 events | 45           |
|                | 0%           |
| grade 2 events | 3230         |
|                | 11%          |
| grade 3 events | 1652         |
|                | 6%           |
| grade 4 events | 1615         |
|                | 5%           |
| grade 5 events | 2897         |
|                | 10%          |
| grade 6 events | 6525         |
|                | 23%          |
| grade 7 events | 9850         |
|                | 36%          |

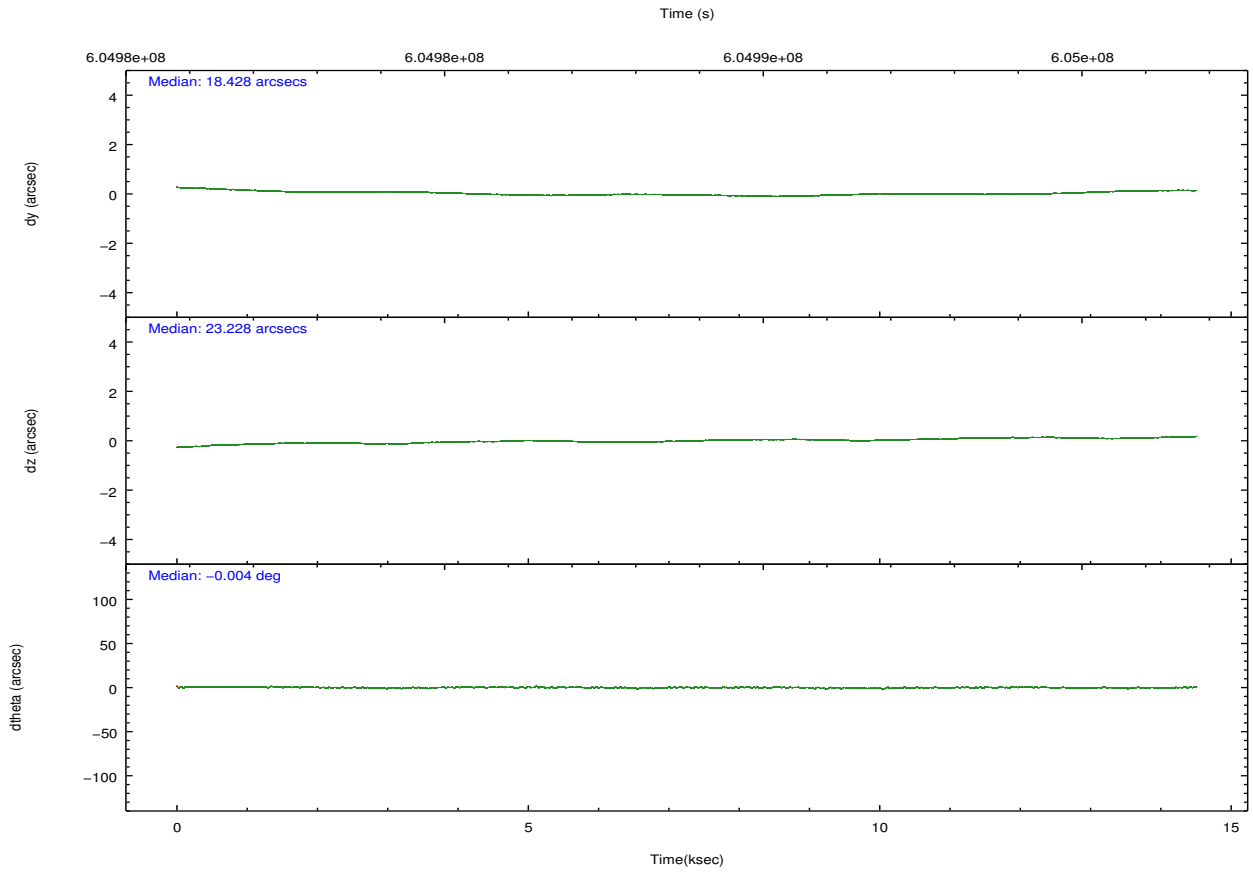
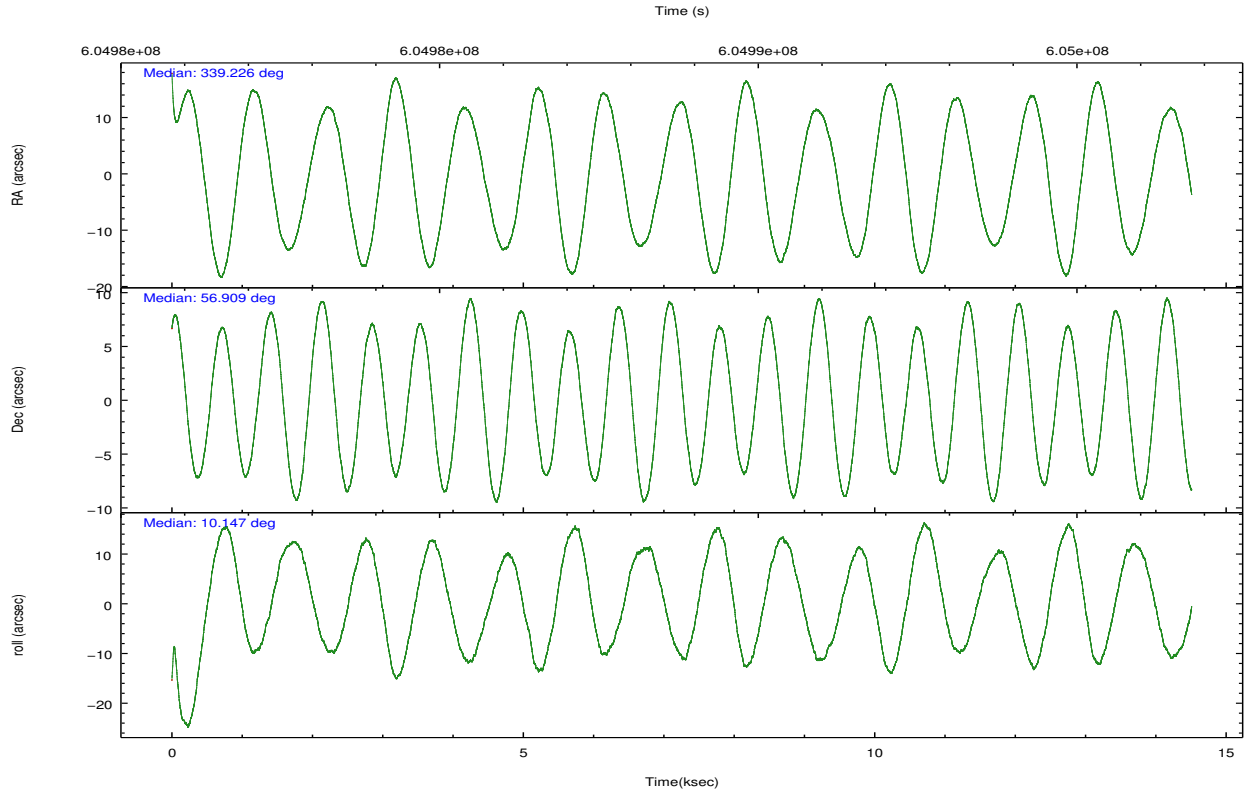
## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               |
|-----------------------------------|---------------------|----------------------|
| Instrument                        | ACIS                | ACIS                 |
| Detector                          | ACIS-7              | ACIS-7               |
| Grating                           | NONE                | NONE                 |
| Data mode                         | FAINT               | FAINT                |
| Observation mode                  | POINTING            | POINTING             |
| [deg] Pointing RA                 | 339.188233          | 339.2263008841343    |
| [deg] Pointing Dec                | 56.890820           | 56.90880690945286    |
| [deg] Pointing Roll               | 10.030628           | 10.15537267547039    |
| [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  |
| Phase constraints                 | Y                   | Y                    |
| [d] Phase period                  | 1.641240            | 1.641240             |
| [d] Phase epoch (MJD)             | 56370.705613        | 56370.705613         |
| Phase start                       | 0.450000            | 0.450000             |
| Phase end                         | 0.040000            | 0.040000             |
| Phase start error                 | 0.015000            | 0.015000             |
| Phase end error                   | 0.015000            | 0.015000             |
| [s] Observation start time (MET)  | 604981692.184000    | 604979925.0491       |
| Observation start date            | 2017-03-04T02:27:03 | 2017-03-04T01:58:45  |
| [s] Observation end time (MET)    | 604996065.184000    | 604996294.8125499    |
| Observation end date              | 2017-03-04T06:26:36 | 2017-03-04T06:31:34  |
| Read mode                         | TIMED               | TIMED                |

| Parameter                             | Planned   | Actual  |
|---------------------------------------|-----------|---------|
| Obspar format version number          | 7         | 7       |
| Obspar file type                      | PREDICTED | ACTUAL  |
| Obspar update status                  | NONE      | UPDATED |
| Number of optional ACIS chips dropped | 0         | 0       |
| On-chip summing requested             | N         | N       |
| Subarray requested                    | CUSTOM    | 1/4     |
| Subarray start row                    | 385       | 385     |
| Subarray row count                    | 256       | 256     |
| Alternating exposures requested       | N         | N       |
| [s] Primary exposure time             | 0.000000  | 0.8     |

## 2.3 Aspect



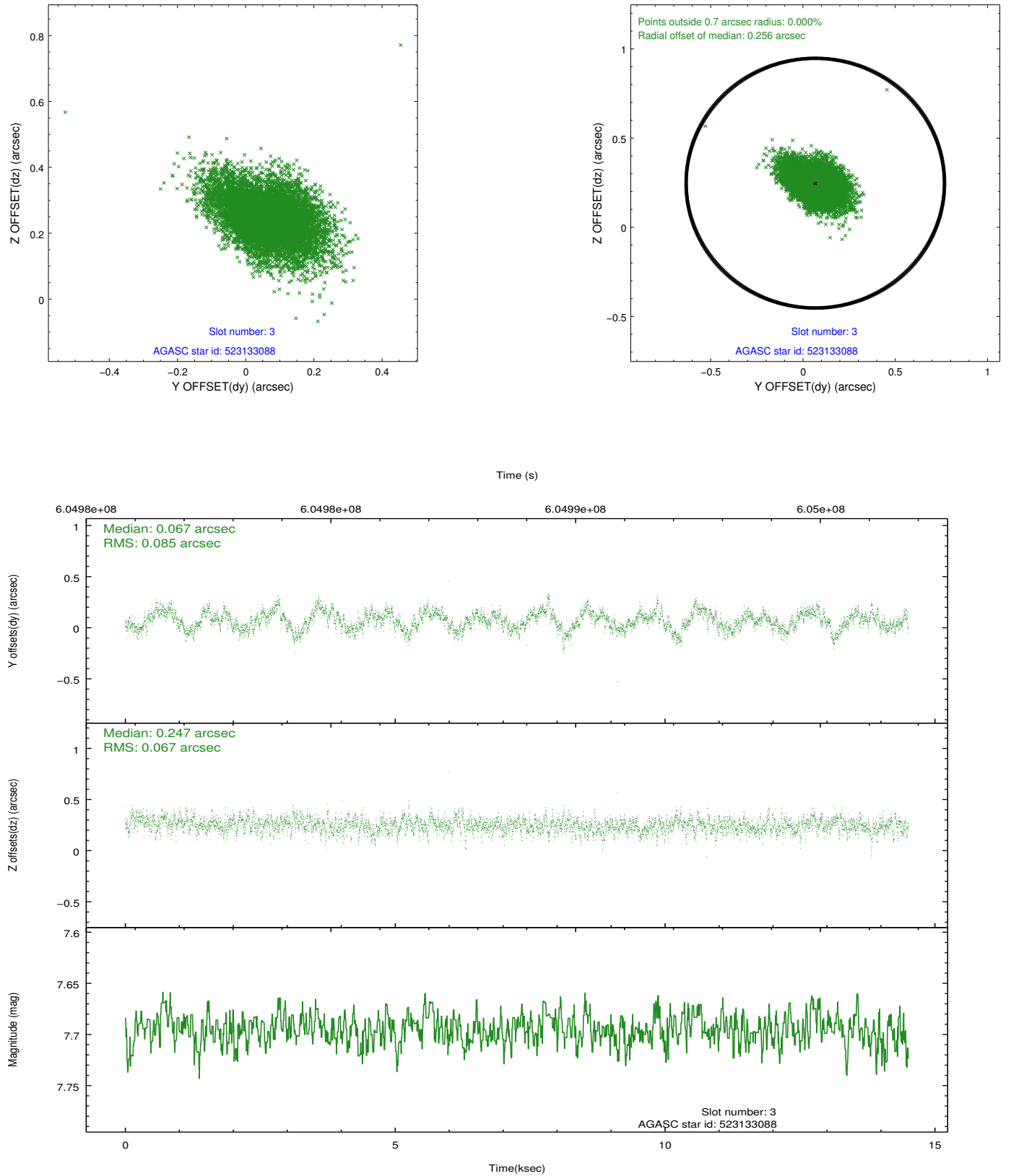


### Slot Statistics

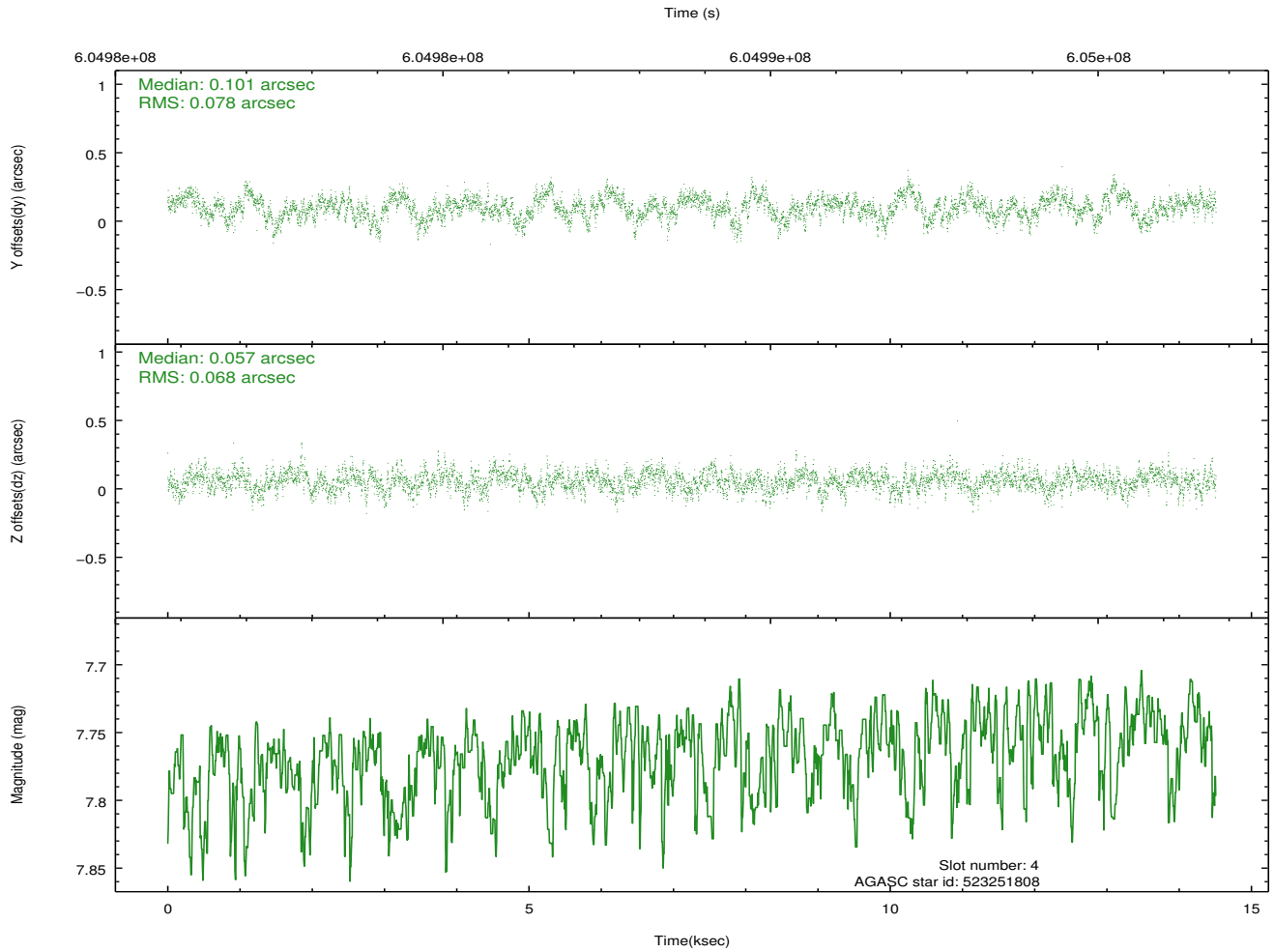
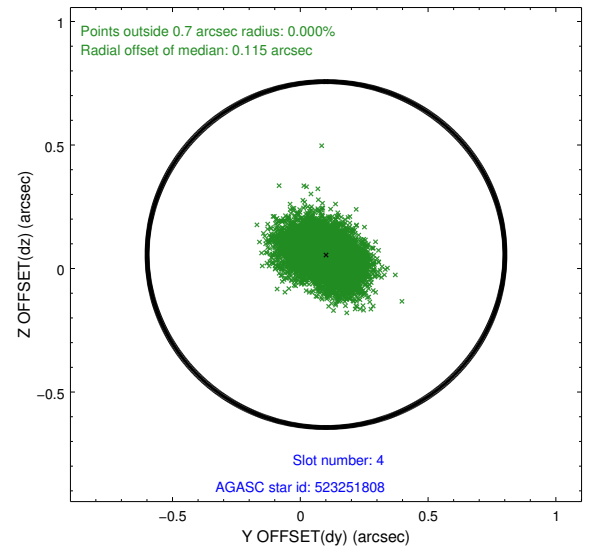
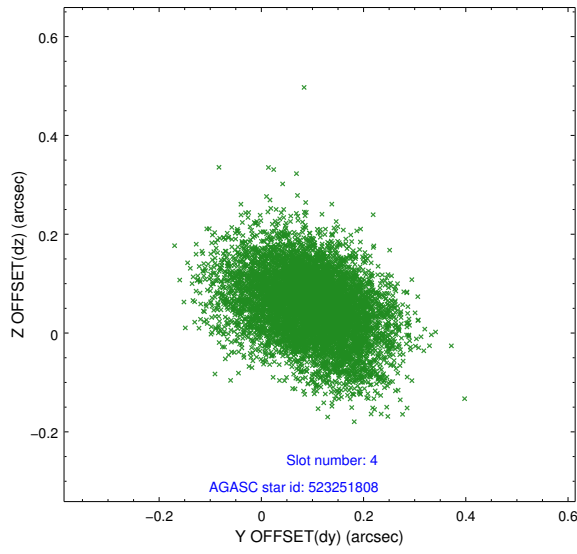
| slot | status | used | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|------|-----------|------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    |      | ACIS-S-2  | 7.02 | 3540  | -0.187 | -0.137 | 0.009 | 0.014 | 0.000000   | 0.000000  | -771.71  | -1744.91 |
| 1    | FID    |      | ACIS-S-4  | 7.12 | 3538  | 0.446  | 0.127  | 0.007 | 0.013 | 0.000000   | 0.000000  | 2142.06  | 163.50   |
| 2    | FID    |      | ACIS-S-5  | 7.13 | 3539  | -0.289 | 0.019  | 0.007 | 0.013 | 0.000000   | 0.000000  | -1824.24 | 157.43   |
| 3    | GUIDE  | used | 523133088 | 7.70 | 7079  | 0.067  | 0.247  | 0.113 | 0.190 | 339.713736 | 56.449525 | 753.91   | -1742.03 |
| 4    | GUIDE  | used | 523251808 | 7.77 | 7079  | 0.101  | 0.057  | 0.108 | 0.182 | 340.217284 | 56.829457 | 1960.31  | -555.30  |
| 5    | GUIDE  | used | 523120288 | 8.15 | 7077  | -0.032 | 0.108  | 0.111 | 0.185 | 337.832302 | 57.243756 | -2374.82 | 1736.85  |
| 6    | GUIDE  | used | 523114272 | 9.28 | 7073  | -0.103 | -0.377 | 0.149 | 0.228 | 339.681878 | 57.611510 | 1389.14  | 2392.69  |
| 7    | GUIDE  | used | 523116960 | 8.74 | 3533  | -0.037 | -0.071 | 0.116 | 0.190 | 339.224810 | 56.905829 | 80.56    | 41.47    |

## 2.4 Star Slots

### 2.4.1 Slot 3

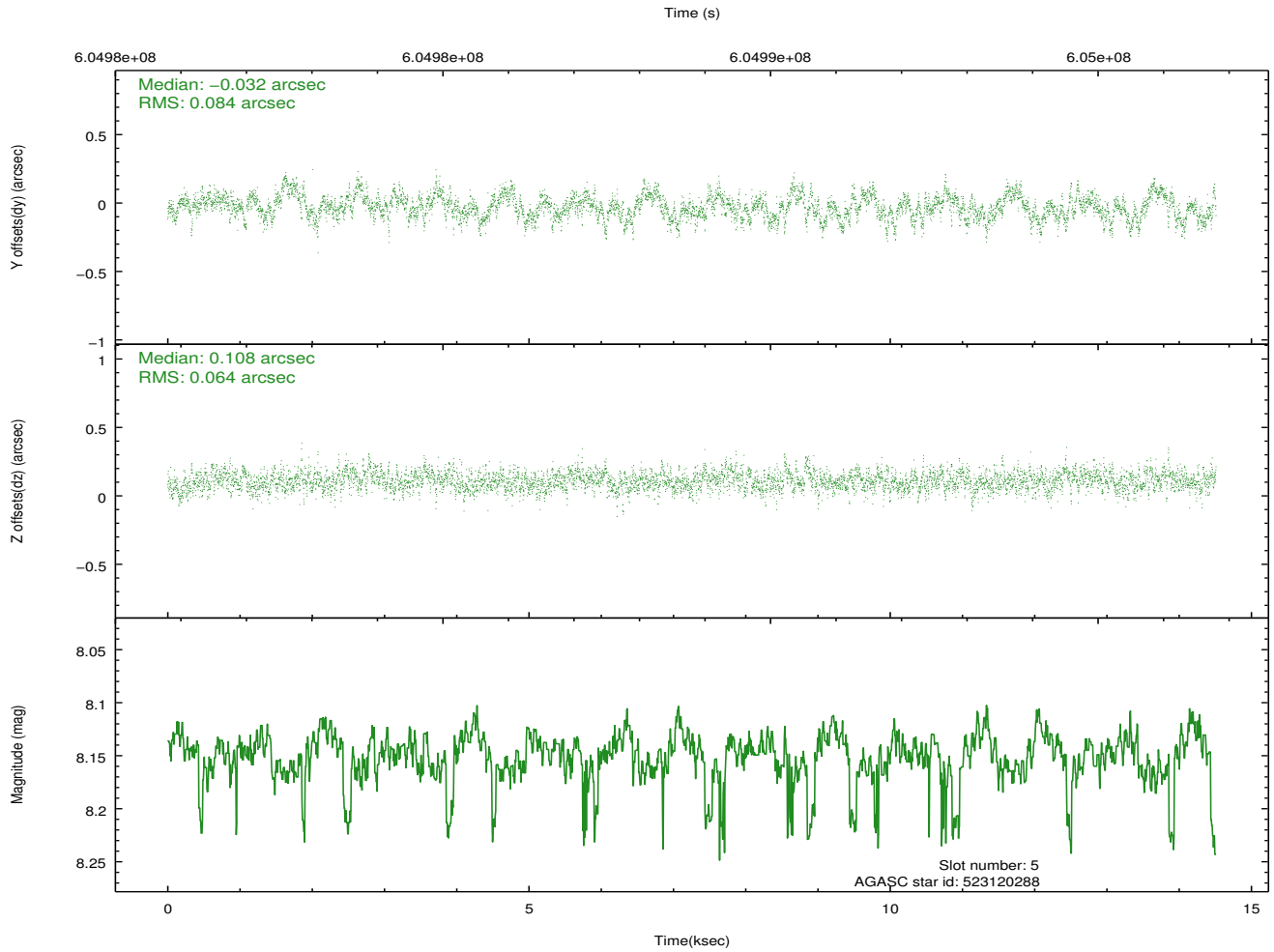
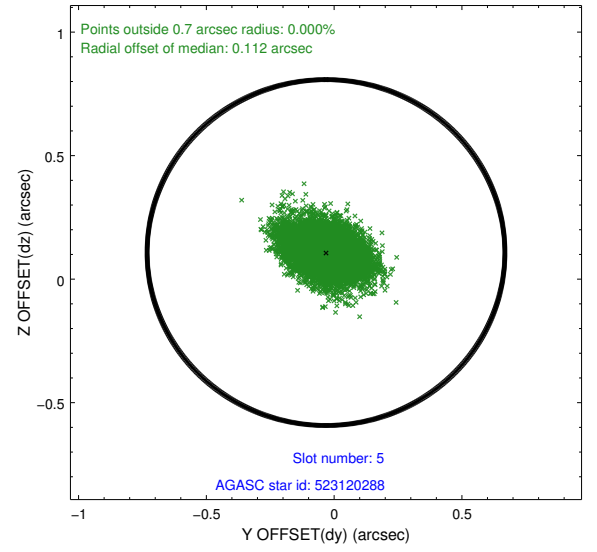
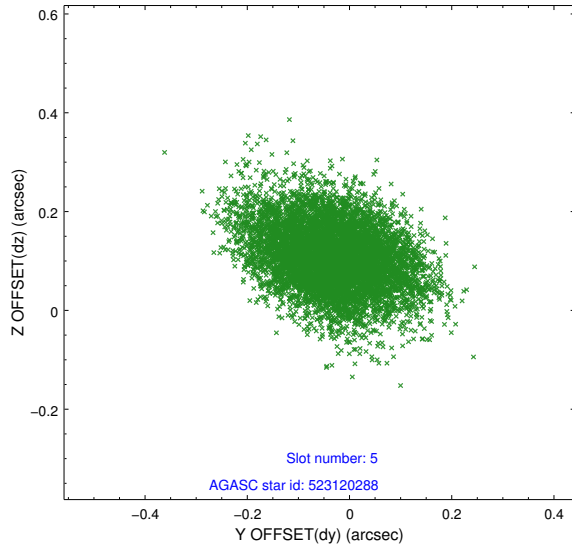


## 2.4.2 Slot 4

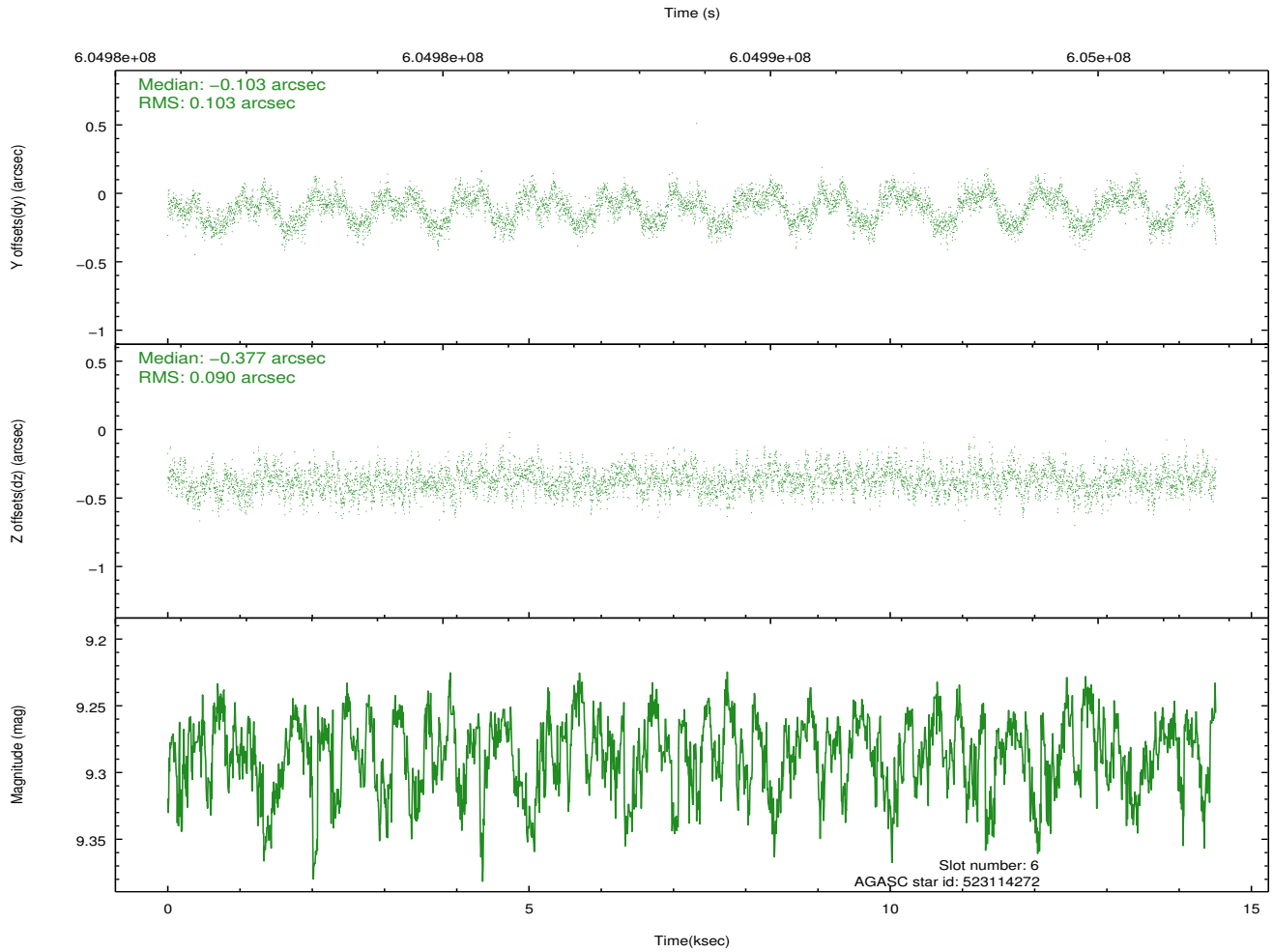
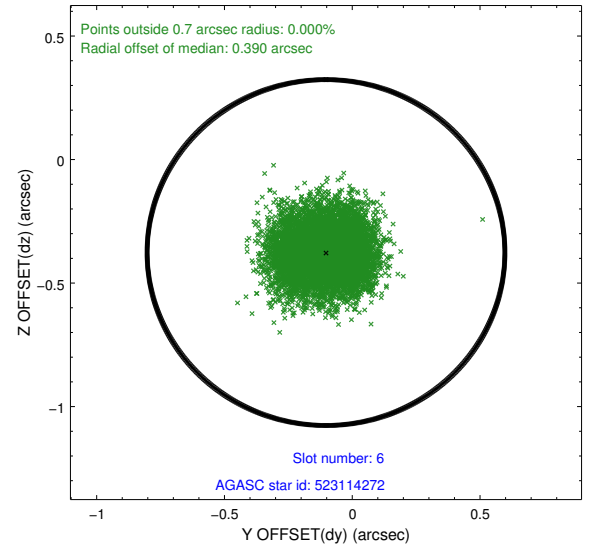
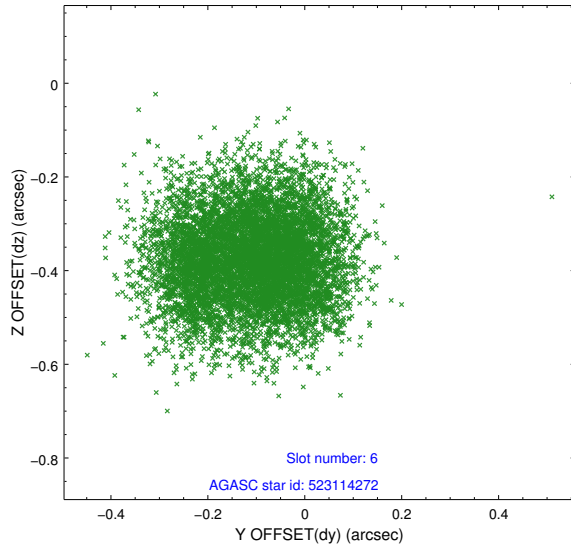




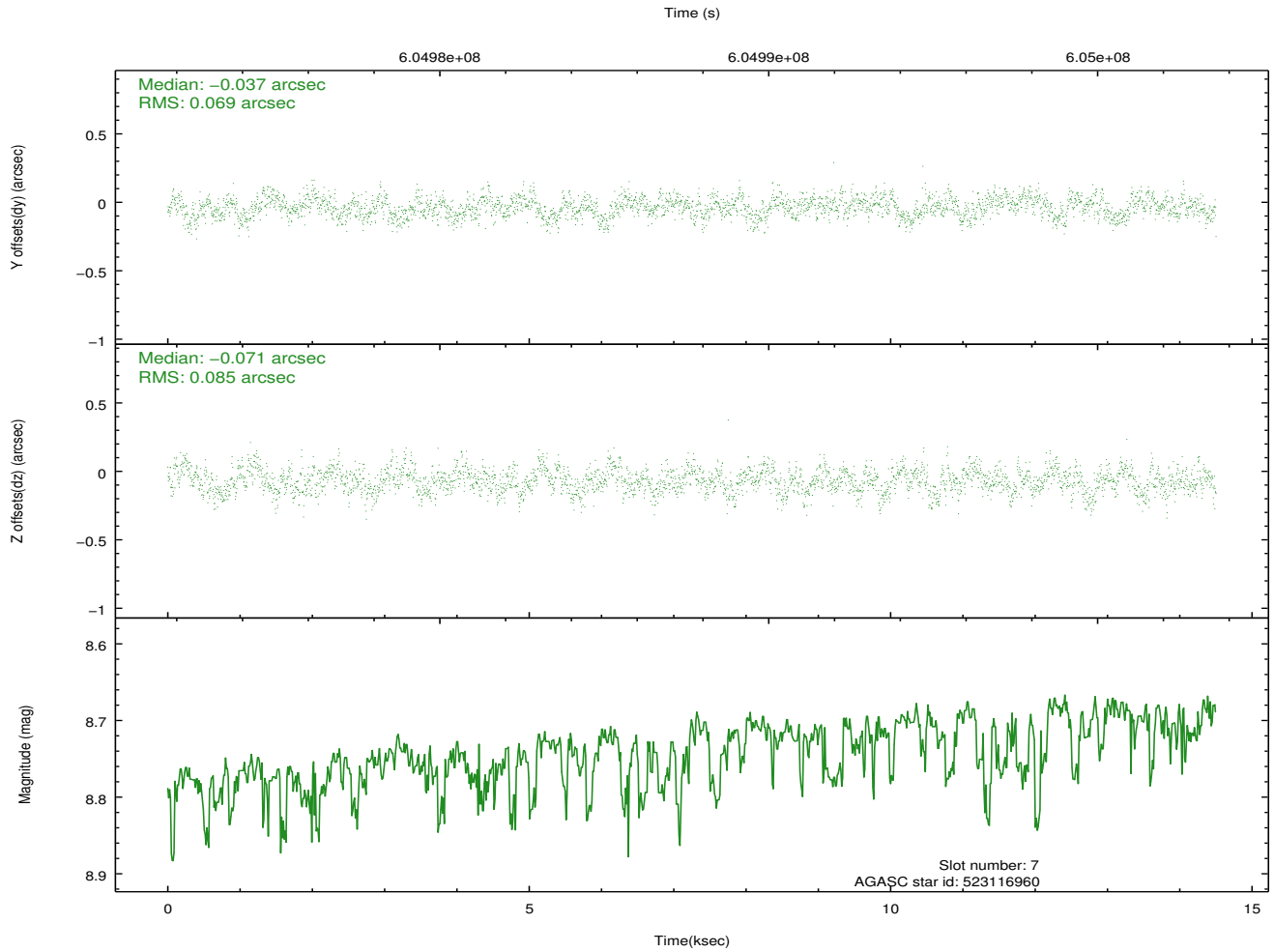
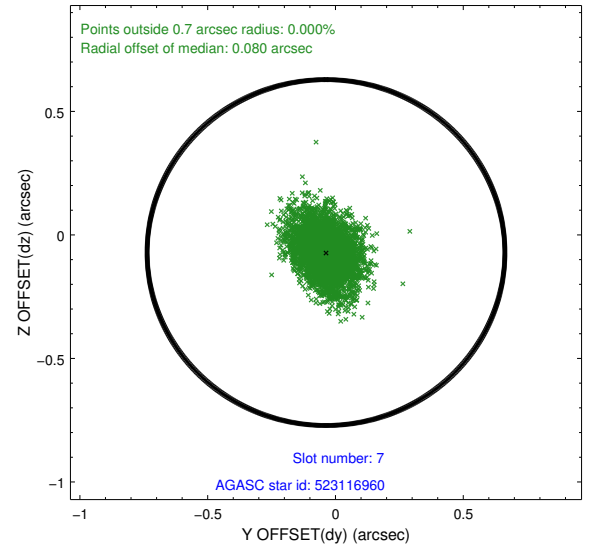
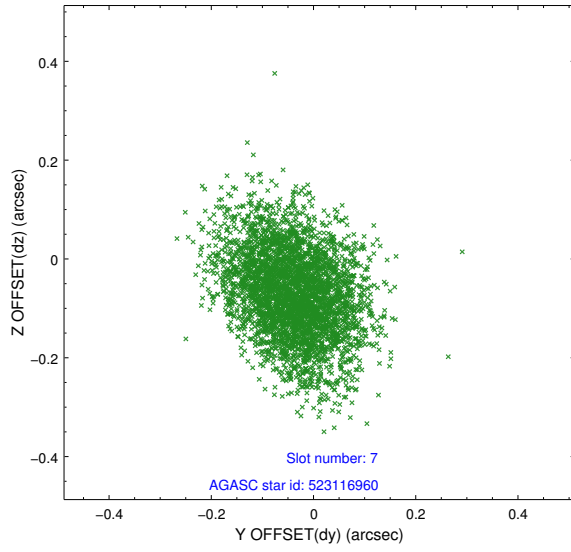
### 2.4.3 Slot 5



## 2.4.4 Slot 6

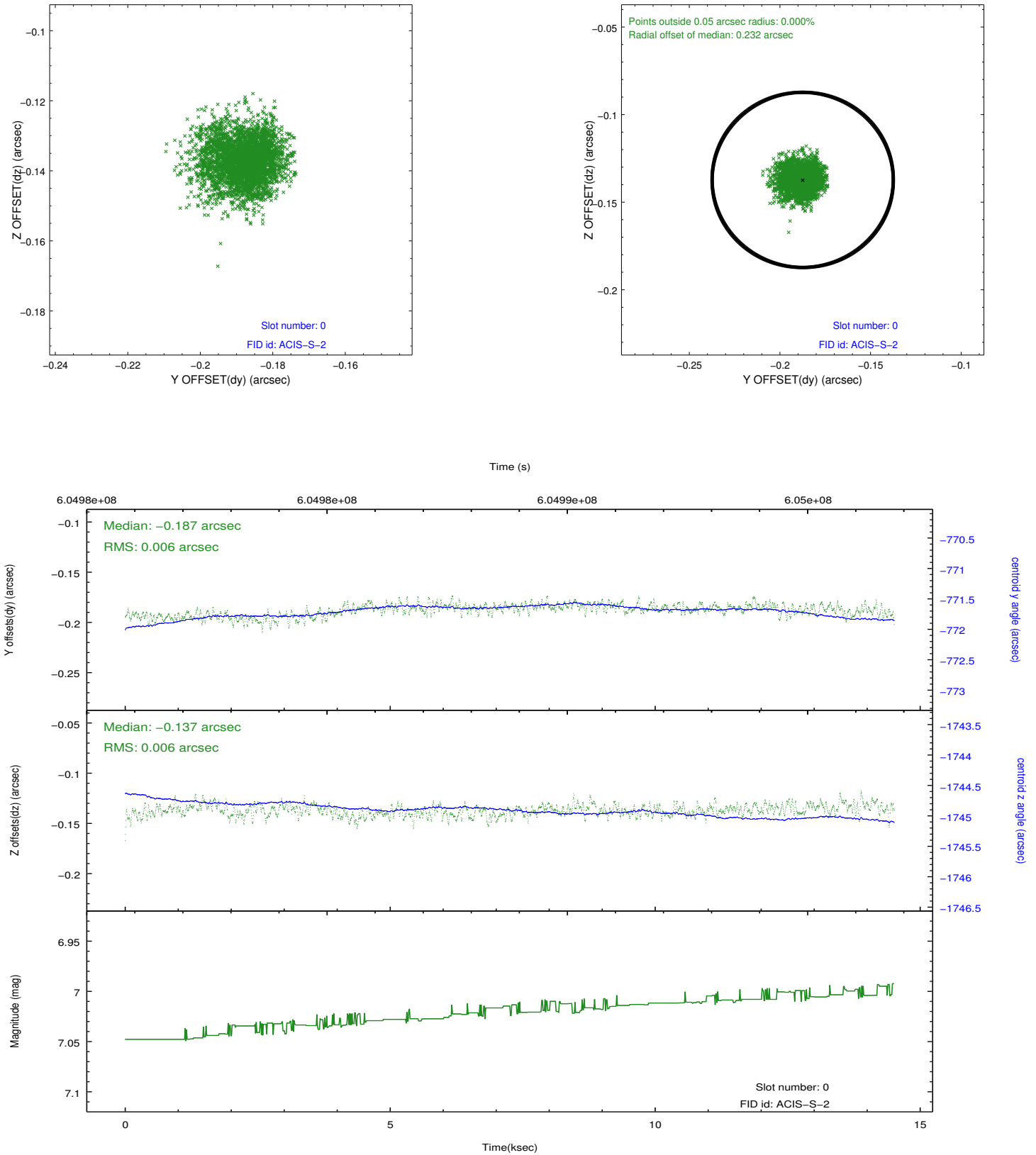


## 2.4.5 Slot 7

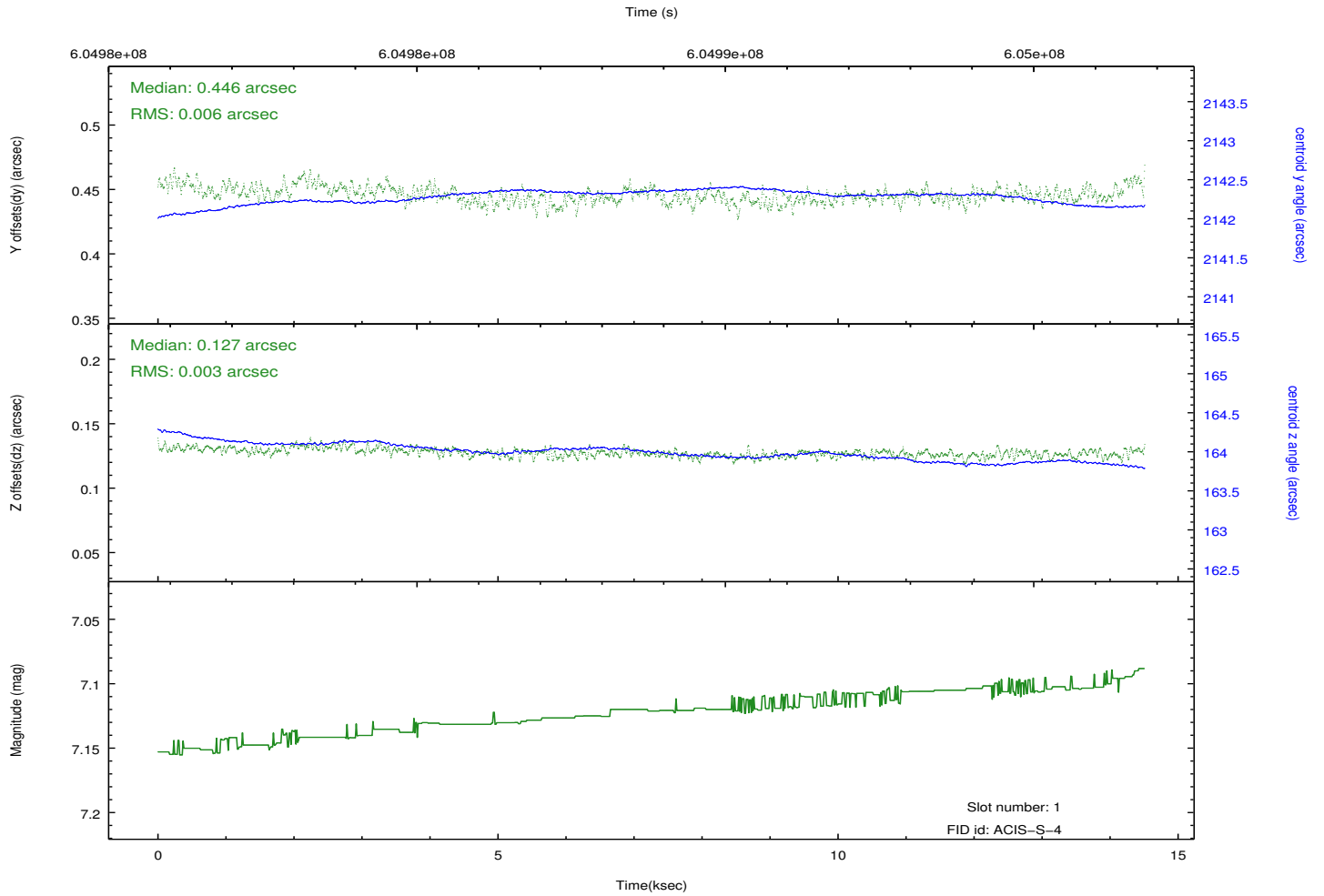
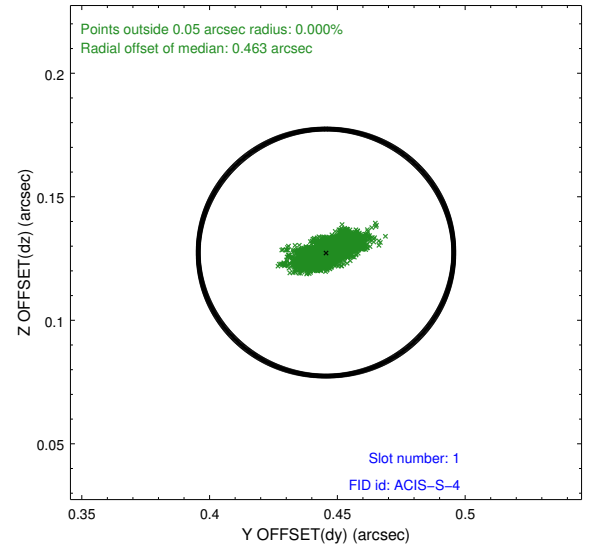
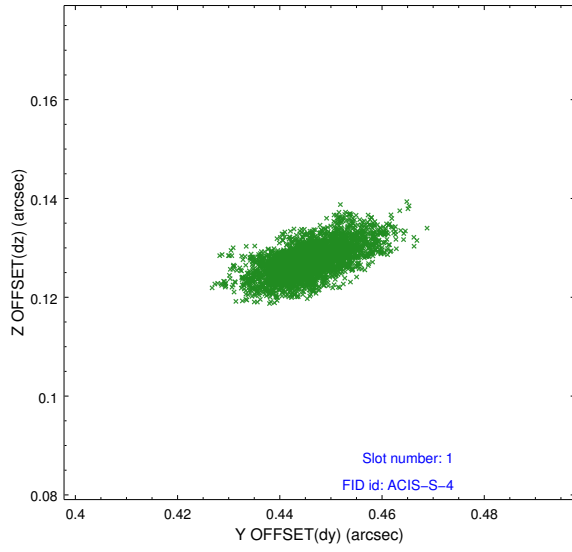


## 2.5 FID Slots

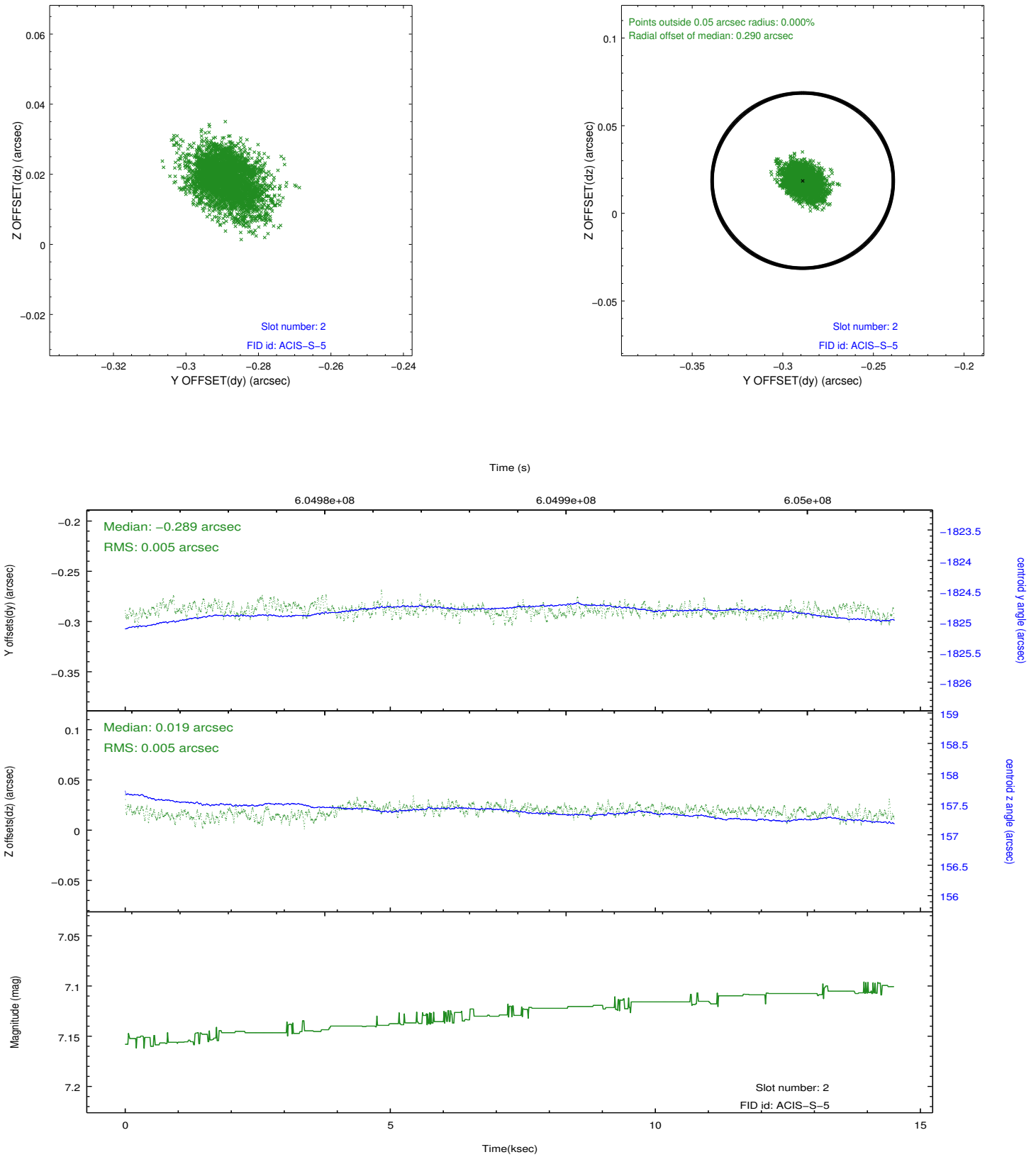
### 2.5.1 Slot 0



## 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)      | 2017.03.06      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 14.437417942286 |

### A.2 Comments

The target was optically monitored in slot 7.