

# V&V Reference Report

## L2 ASCDS Version : 10.4.2.1

Observation 18707 - L2 Version 2  
Chandra X-Ray Center

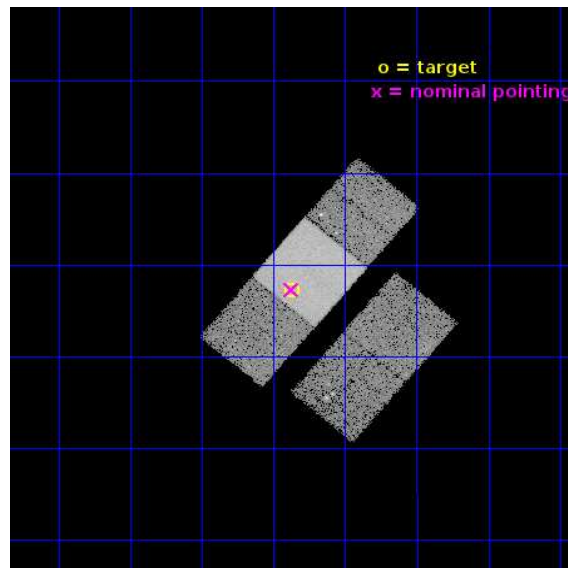
L2 Processing Date : Nov 30 2015

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# 1 Front

|          |                                                                                                          |                                             |
|----------|----------------------------------------------------------------------------------------------------------|---------------------------------------------|
| seq_num  | 703272                                                                                                   | Sequence number                             |
| obs_id   | 18707                                                                                                    | Observation id                              |
| title    | Extremely Luminous Dusty Quasars with Unobscured UV Emission:<br>Dual AGN or Extreme Single AGN Systems? | Proposal title                              |
| observer | Dr. Roberto Assef                                                                                        | Principal investigator                      |
| object   | WISEA J022052.13+013711.4                                                                                | Source name                                 |
| dtcycle  | 0                                                                                                        | &#160                                       |
| cycle    | P                                                                                                        | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 35.217083                                                                                                | Observer's specified target RA<br>[deg]     |
| dec_targ | 1.619889                                                                                                 | Observer's specified target Dec<br>[deg]    |
| ra_nom   | 35.218709768511                                                                                          | Nominal RA [deg]                            |
| dec_nom  | 1.6213192919919                                                                                          | Nominal Dec [deg]                           |
| roll_nom | 310.15658936972                                                                                          | Nominal Roll [deg]                          |
| revision | 2                                                                                                        | Processing version of data                  |
| ontime   | 20060.1001544                                                                                            | Sum of GTIs [s]                             |
| livetime | 19798.000177852                                                                                          | Livetime [s]                                |
| ontime2  | 20060.1001544                                                                                            | Sum of GTIs [s]                             |
| ontime3  | 20060.1001544                                                                                            | Sum of GTIs [s]                             |
| ontime6  | 20060.1001544                                                                                            | Sum of GTIs [s]                             |
| ontime7  | 20060.1001544                                                                                            | Sum of GTIs [s]                             |
| ontime8  | 20060.1001544                                                                                            | Sum of GTIs [s]                             |
| l2events | 110064                                                                                                   | Number of level 2 events                    |

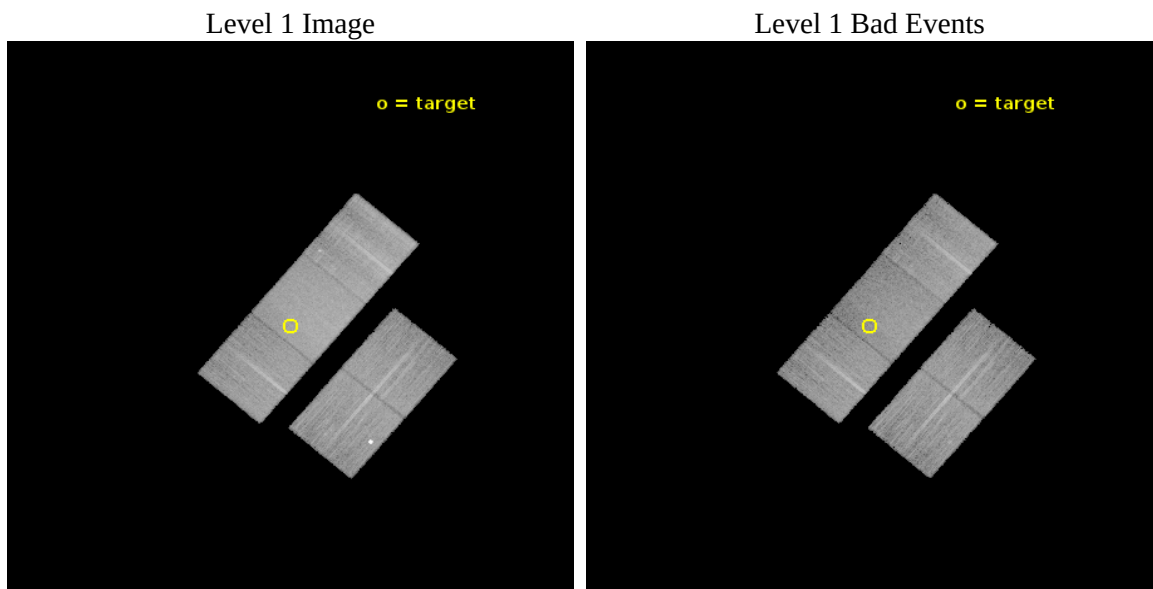




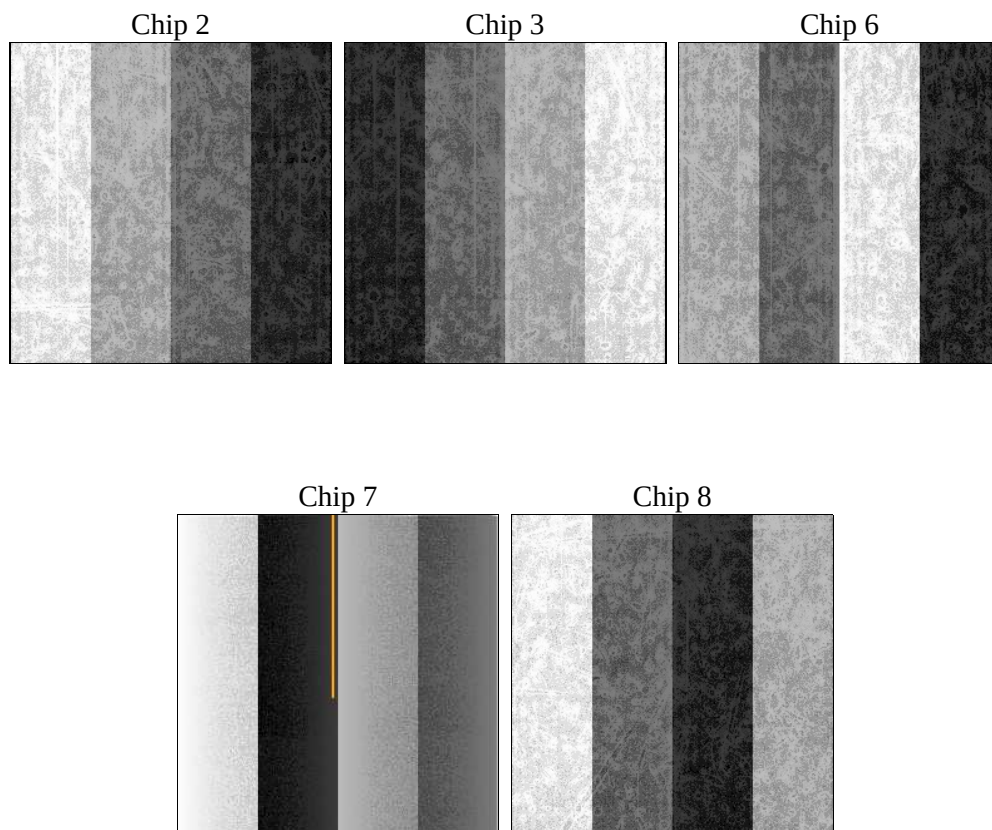
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |               |                                         |
|----------|---------------------|--------------------------------|----------------|---------------|-----------------------------------------|
| obi_num  | 1                   | Obi number                     | sched_exp_time | 20000.000000  | [s] Scheduled observation exposure time |
| ascdsver | 10.4.2.1            | Processing system revision     | ontime         | 20060.1001544 | Sum of GTIs [s]                         |
| caldsver | 4.6.10a             | &#160                          | ontime2        | 20060.1001544 | Sum of GTIs [s]                         |
| date     | 2015-11-30T20:47:45 | Date and time of file creation | ontime3        | 20060.1001544 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime6        | 20060.1001544 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 20060.1001544 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 20060.1001544 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 659438        | Number of level 1 events                |

### 2.1.4 Events

|                 | ccd 2  | ccd 3  | ccd 6  | ccd 7  | ccd 8  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 124082 | 112034 | 118407 | 154088 | 150827 |
| rejected events | 105538 | 99459  | 104868 | 89002  | 112936 |
| rejected %      | 85%    | 88%    | 88%    | 57%    | 74%    |

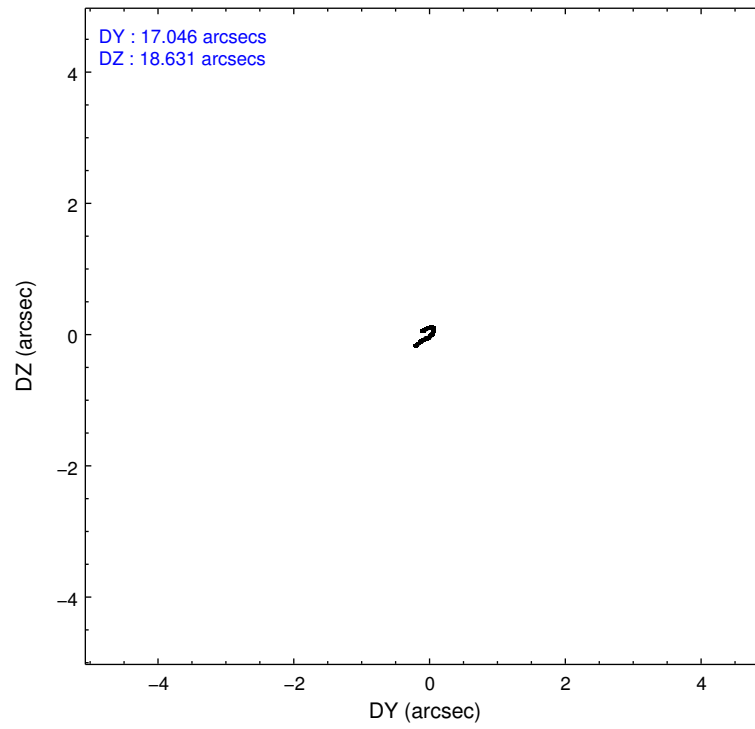
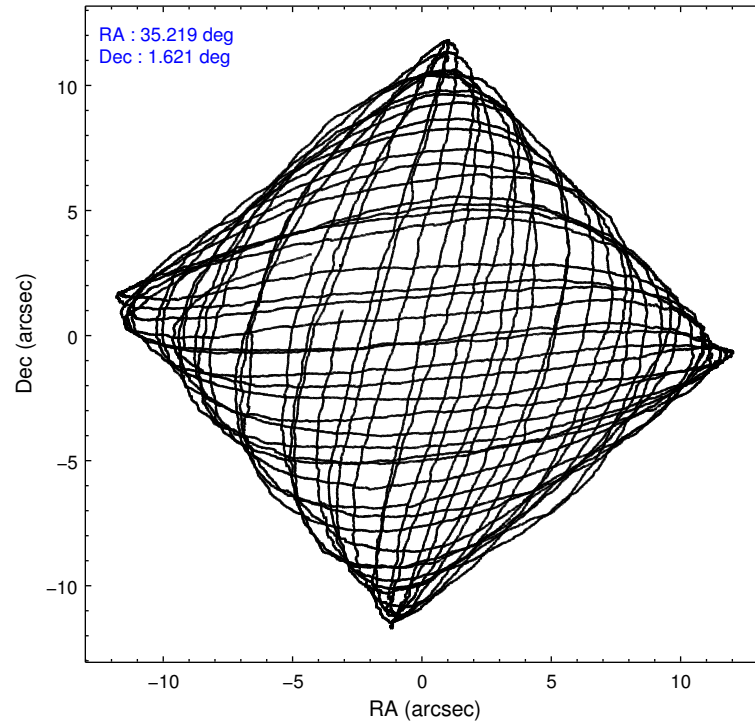
|                | ccd 2  | ccd 3 | ccd 6 | ccd 7 | ccd 8  |
|----------------|--------|-------|-------|-------|--------|
| grade 0 events | 4519   | 4421  | 4543  | 5319  | 10653  |
|                | 3%     | 3%    | 3%    | 3%    | 7%     |
| grade 1 events | 72     | 72    | 56    | 208   | 95     |
|                | 0%     | 0%    | 0%    | 0%    | 0%     |
| grade 2 events | 8950   | 2805  | 3092  | 13553 | 9306   |
|                | 7%     | 2%    | 2%    | 8%    | 6%     |
| grade 3 events | 1322   | 1307  | 1332  | 5171  | 3898   |
|                | 1%     | 1%    | 1%    | 3%    | 2%     |
| grade 4 events | 1317   | 1309  | 1331  | 5113  | 3669   |
|                | 1%     | 1%    | 1%    | 3%    | 2%     |
| grade 5 events | 4660   | 5817  | 5710  | 15302 | 8286   |
|                | 3%     | 5%    | 4%    | 9%    | 5%     |
| grade 6 events | 2439   | 2733  | 3243  | 35938 | 10365  |
|                | 1%     | 2%    | 2%    | 23%   | 6%     |
| grade 7 events | 100803 | 93570 | 99100 | 73484 | 104555 |
|                | 81%    | 83%   | 83%   | 47%   | 69%    |

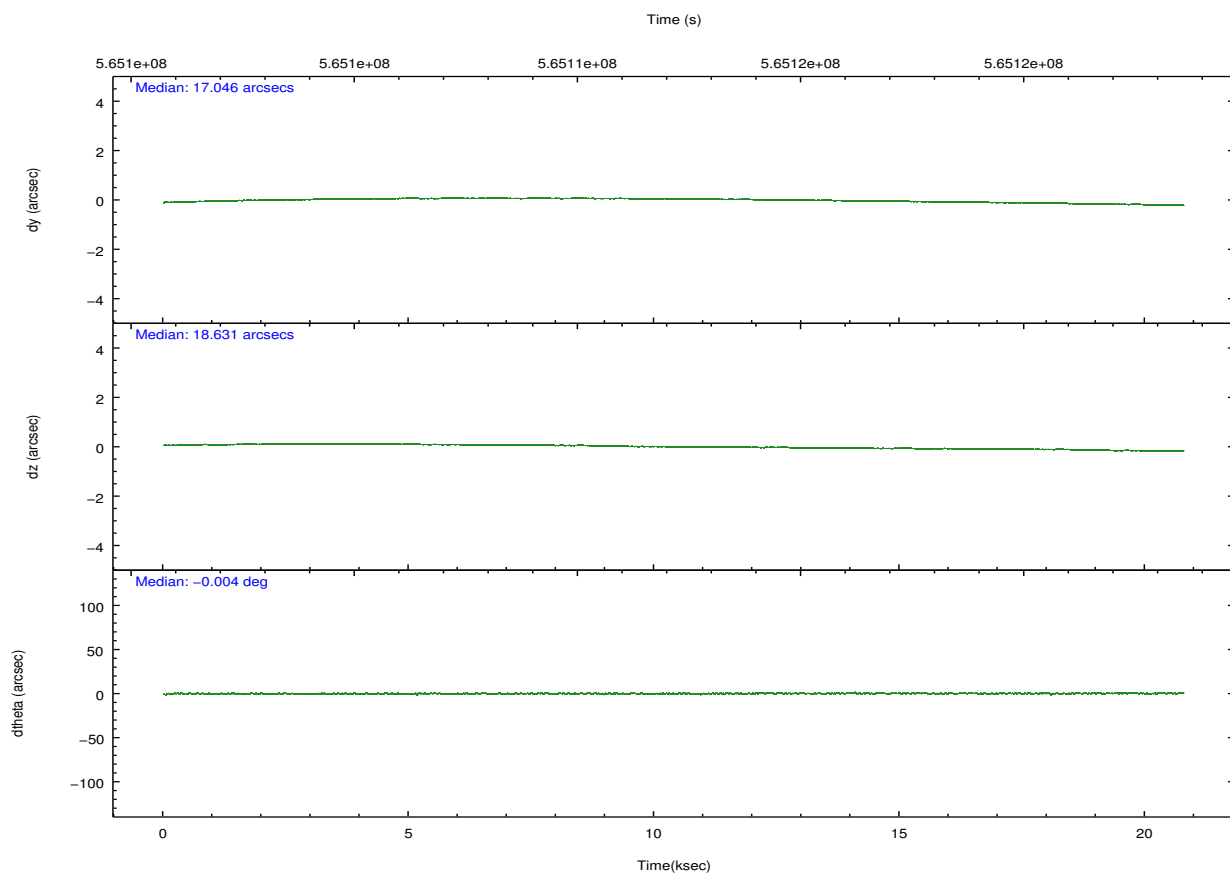
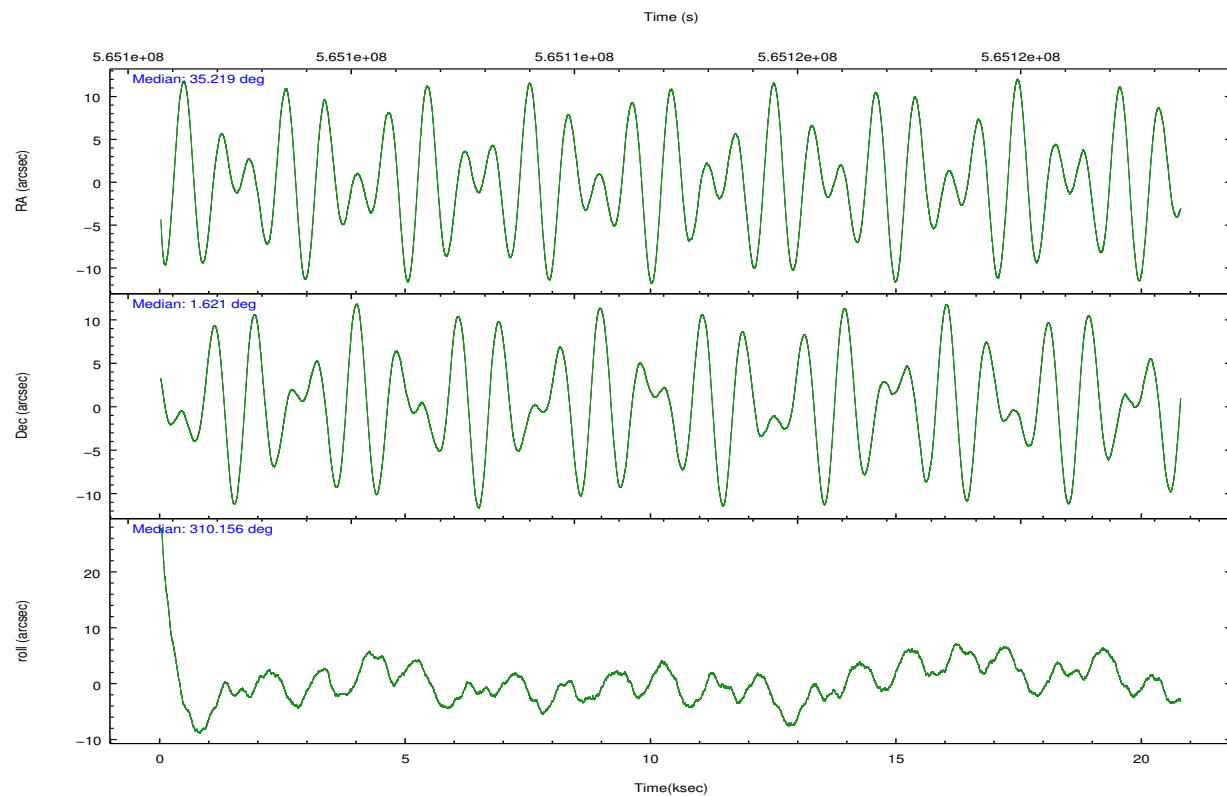
## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               |
|-----------------------------------|---------------------|----------------------|
| Instrument                        | ACIS                | ACIS                 |
| Detector                          | ACIS-23678          | ACIS-23678           |
| Grating                           | NONE                | NONE                 |
| Data mode                         | FAINT               | FAINT                |
| Observation mode                  | POINTING            | POINTING             |
| [deg] Pointing RA                 | 35.192762           | 35.21870976851108    |
| [deg] Pointing Dec                | 1.630311            | 1.621319291991867    |
| [deg] Pointing Roll               | 310.000685          | 310.156589369718     |
| [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)  | 565102563.184000    | 565101327.15089      |
| Observation start date            | 2015-11-28T12:54:55 | 2015-11-28T12:35:27  |
| [s] Observation end time (MET)    | 565122563.184000    | 565123383.1021399    |
| Observation end date              | 2015-11-28T18:28:15 | 2015-11-28T18:43:03  |
| Read mode                         | TIMED               | TIMED                |

| Parameter                             | Planned   | Actual  |
|---------------------------------------|-----------|---------|
| Obspar format version number          | 7         | 7       |
| Obspar file type                      | PREDICTED | ACTUAL  |
| Obspar update status                  | NONE      | UPDATED |
| CCD I0 on                             | N         | N       |
| CCD I1 on                             | N         | N       |
| CCD I2 on                             | O1        | Y       |
| CCD I3 on                             | Y         | Y       |
| CCD S0 on                             | N         | N       |
| CCD S1 on                             | N         | N       |
| CCD S2 on                             | Y         | Y       |
| CCD S3 on                             | Y         | Y       |
| CCD S4 on                             | Y         | Y       |
| CCD S5 on                             | N         | N       |
| Number of optional ACIS chips dropped | 0         | 0       |
| On-chip summing requested             | N         | N       |
| Subarray requested                    | NONE      | NONE    |
| Alternating exposures requested       | N         | N       |
| [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



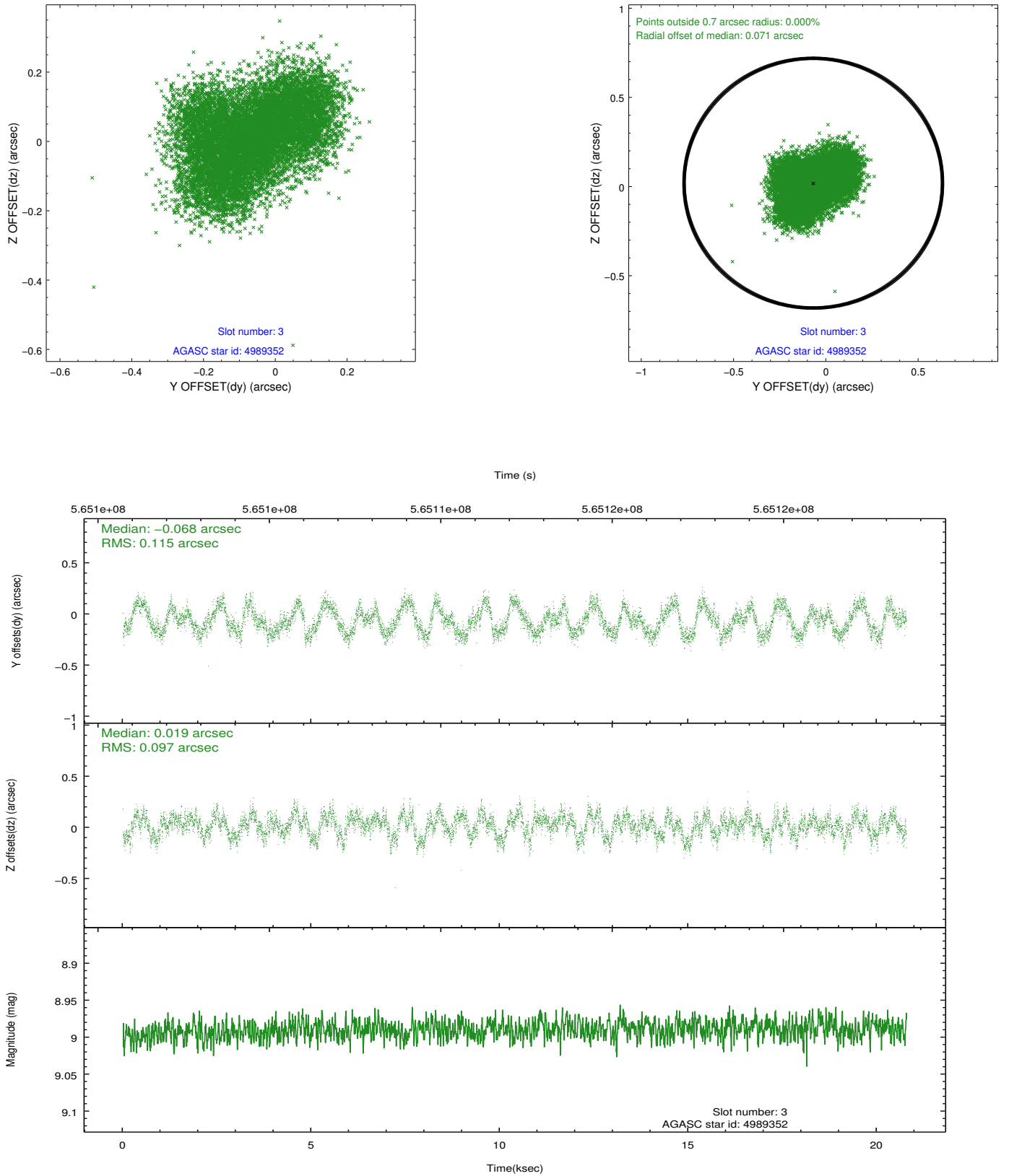


# Slot Statistics

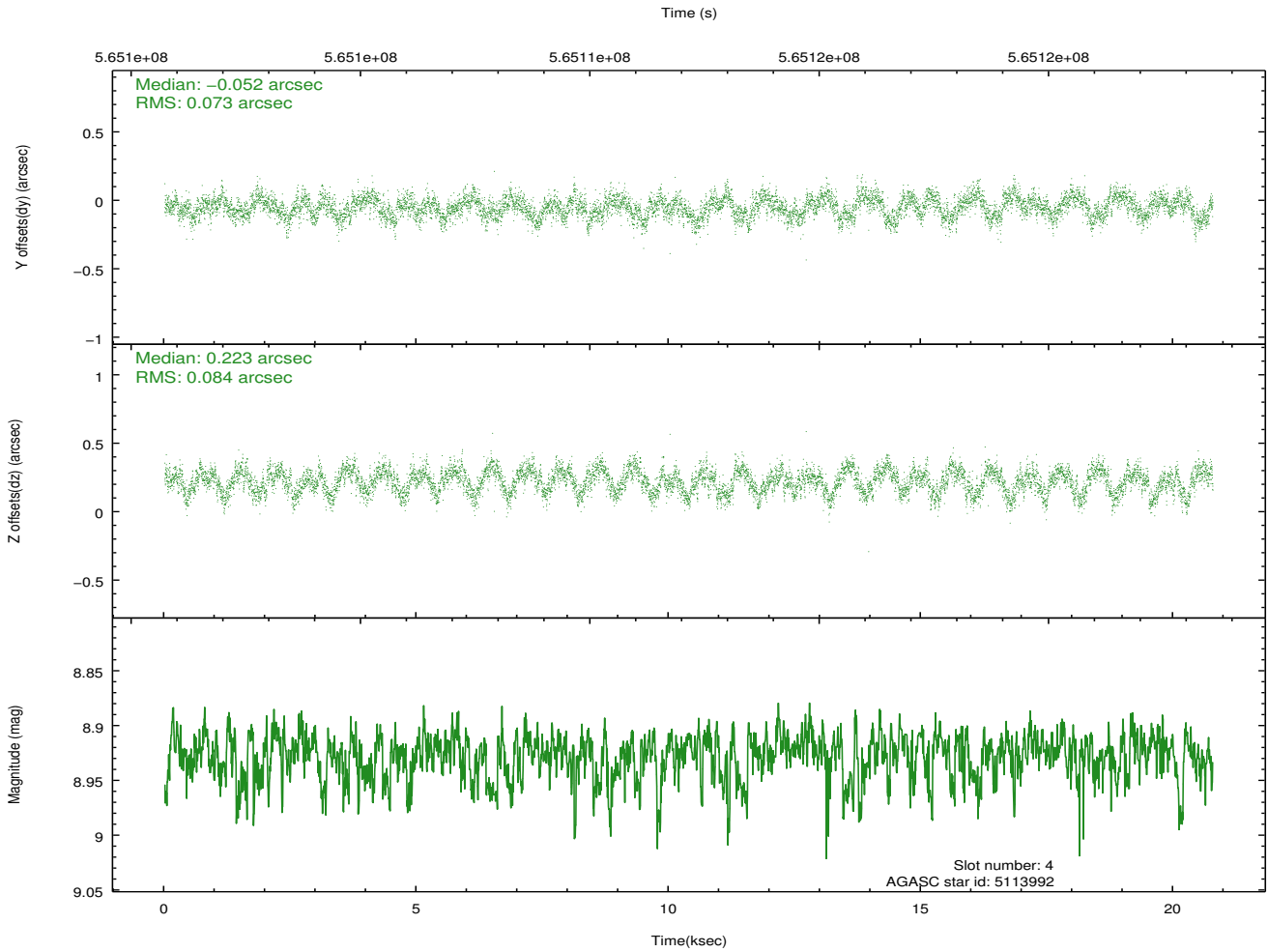
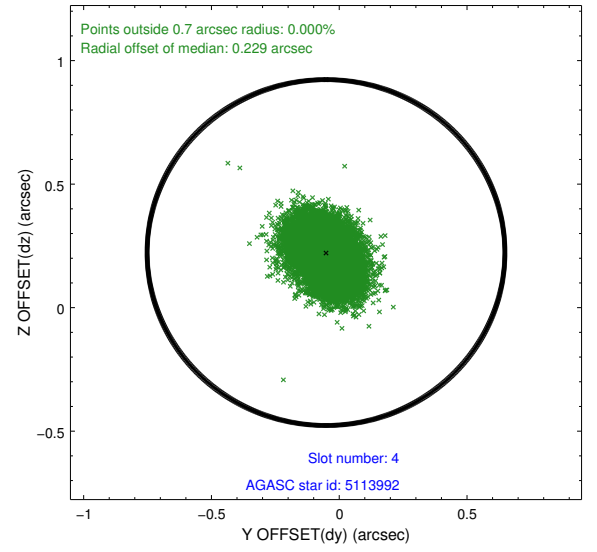
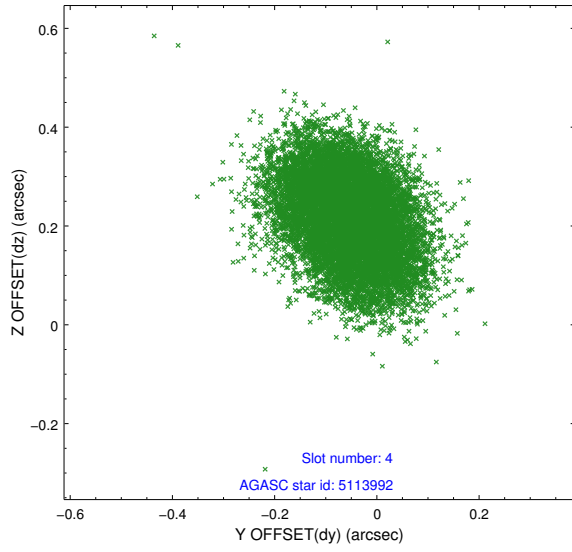
| slot | status  | used | id       | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec      | mean_y   | mean_z   |
|------|---------|------|----------|------|-------|--------|--------|-------|-------|-----------|----------|----------|----------|
| 0    | FID     |      | ACIS-S-2 | 7.13 | 5066  | -0.154 | -0.145 | 0.007 | 0.012 | 0.000000  | 0.000000 | -770.20  | -1740.20 |
| 1    | FID     |      | ACIS-S-4 | 7.22 | 5068  | 0.410  | 0.113  | 0.006 | 0.011 | 0.000000  | 0.000000 | 2143.56  | 168.36   |
| 2    | FID     |      | ACIS-S-5 | 7.24 | 5067  | -0.287 | 0.041  | 0.007 | 0.012 | 0.000000  | 0.000000 | -1822.95 | 162.15   |
| 3    | GUIDE   | used | 4989352  | 8.99 | 10126 | -0.068 | 0.019  | 0.167 | 0.246 | 34.701469 | 1.967173 | -2064.91 | -574.25  |
| 4    | GUIDE   | used | 5113992  | 8.93 | 10127 | -0.052 | 0.223  | 0.119 | 0.188 | 35.266692 | 1.031435 | 1822.90  | -1181.64 |
| 5    | OMITTED |      |          | 0.00 | 0     | 0.000  | 0.000  | 0.000 | 0.000 | 0.000000  | 0.000000 | 0.00     | 0.00     |
| 6    | GUIDE   | used | 5113104  | 8.93 | 10133 | 0.042  | 0.051  | 0.151 | 0.235 | 35.108626 | 1.589275 | -78.89   | -325.20  |
| 7    | GUIDE   | used | 5114296  | 9.63 | 10114 | 0.086  | -0.274 | 0.201 | 0.320 | 35.167650 | 1.120375 | 1348.80  | -1249.38 |

## 2.4 Star Slots

### 2.4.1 Slot 3

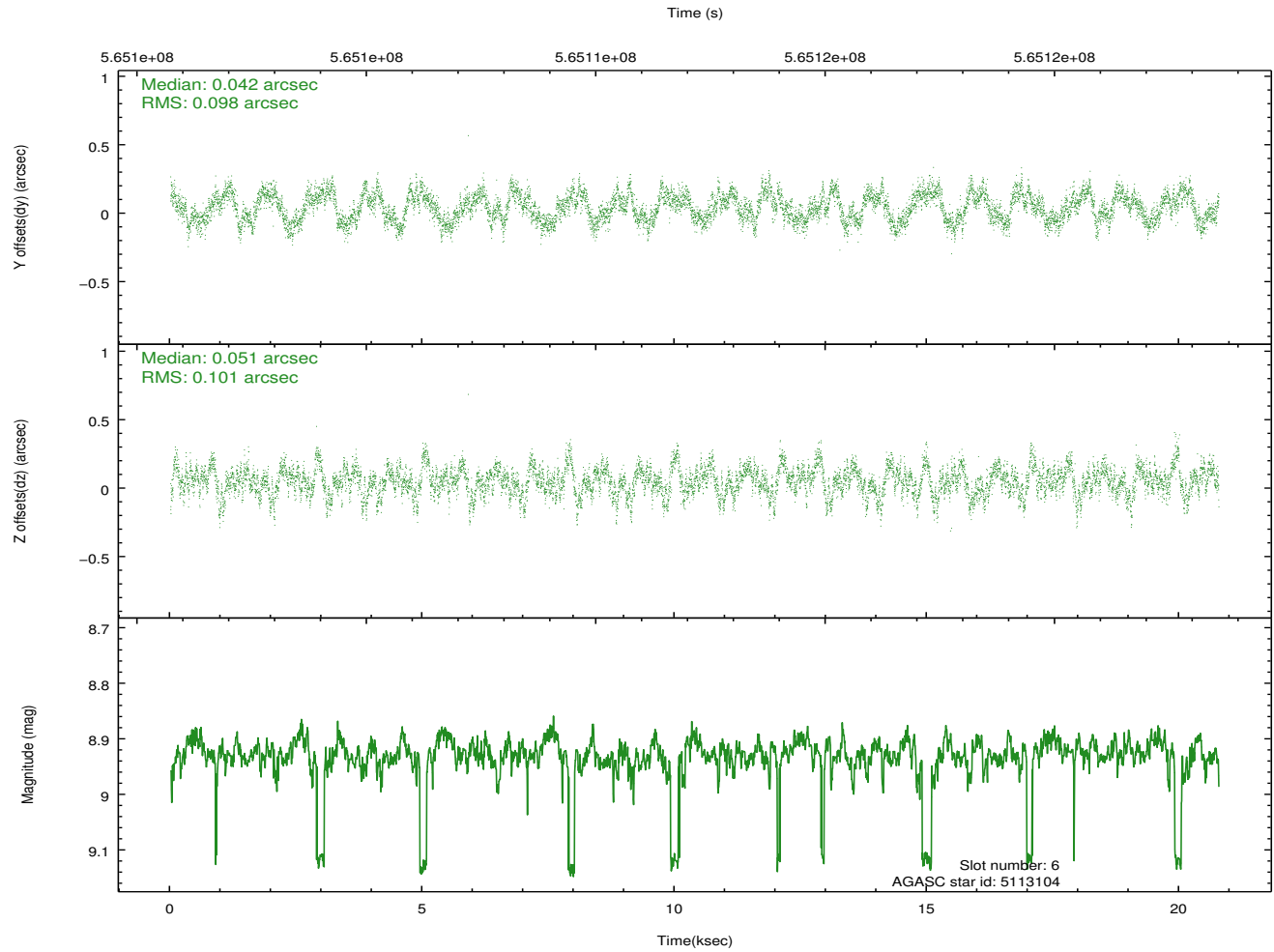
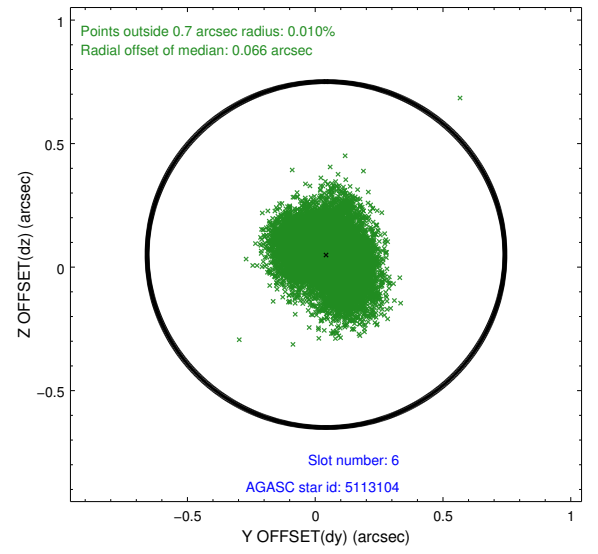
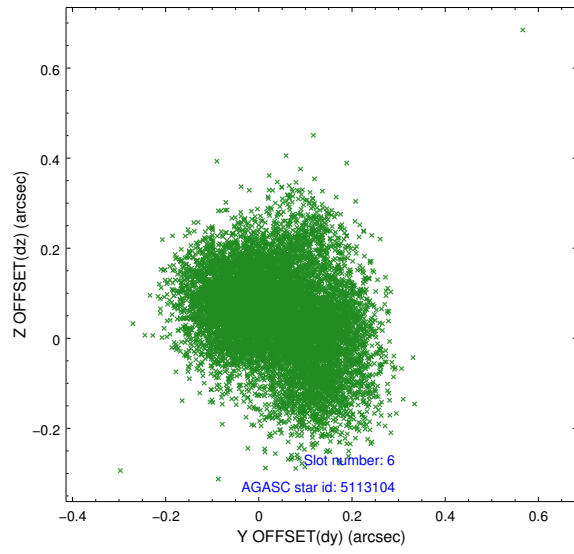


## 2.4.2 Slot 4

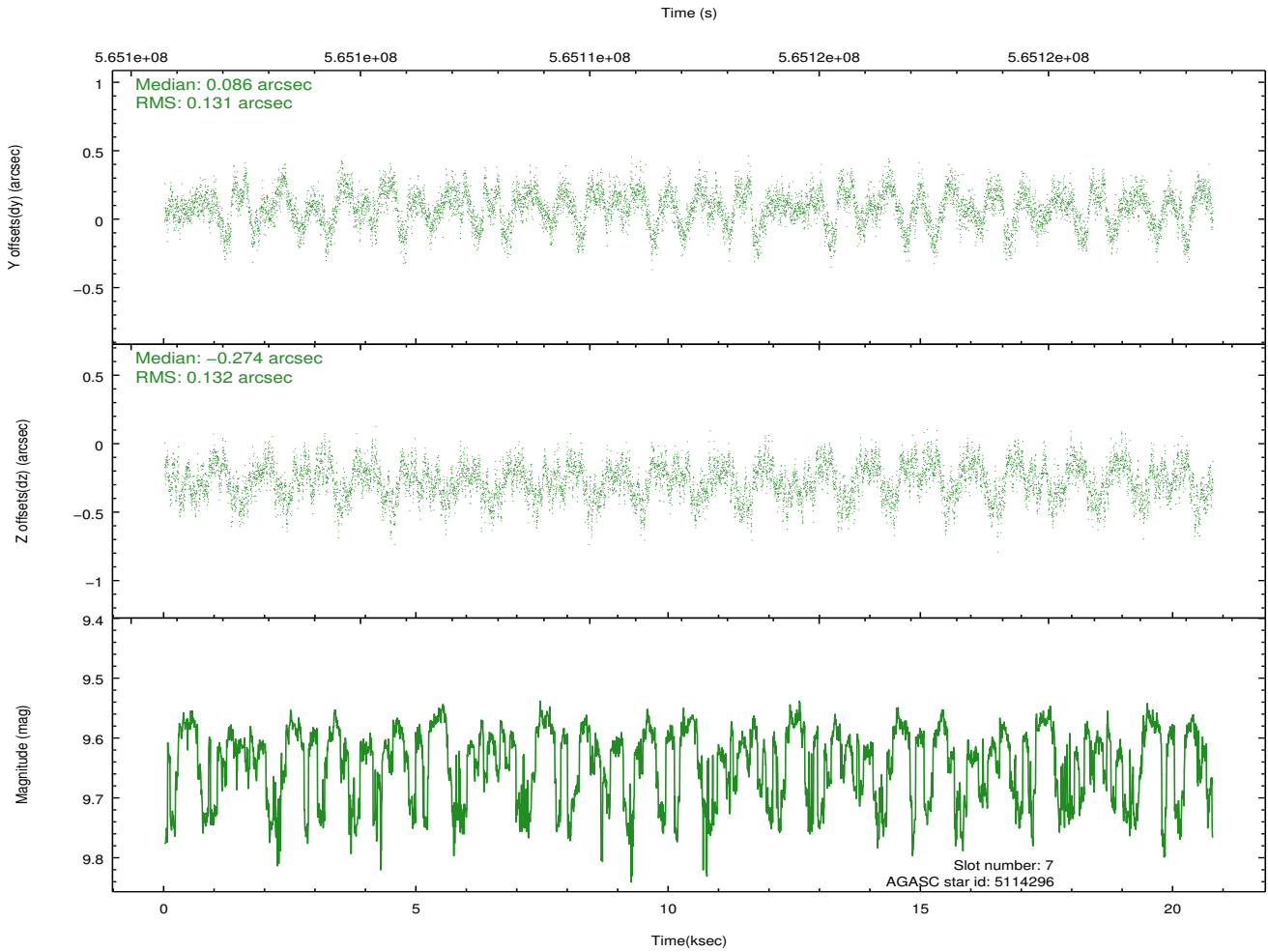
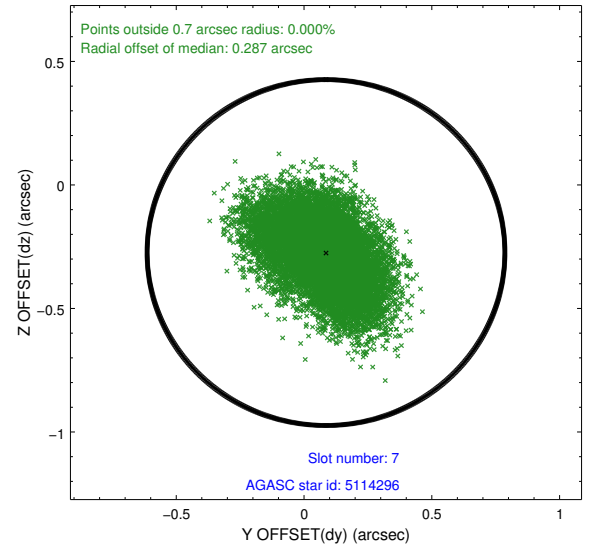
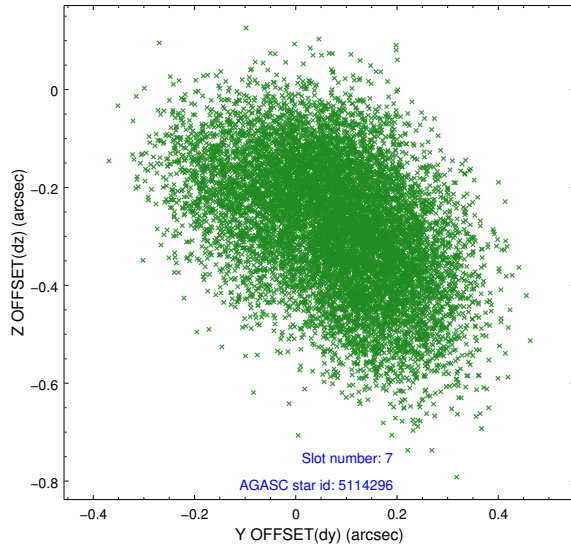




### 2.4.3 Slot 6

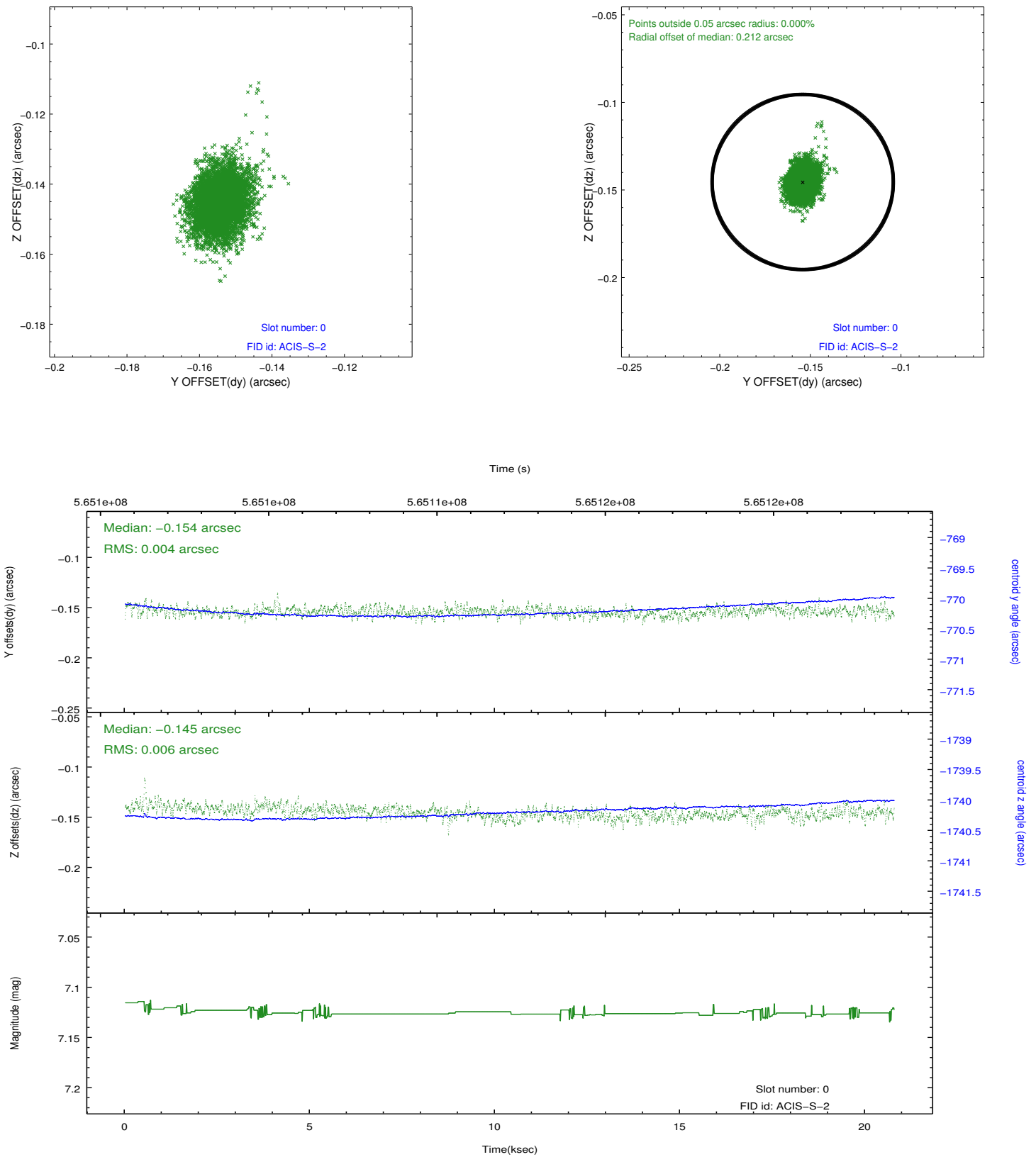


## 2.4.4 Slot 7

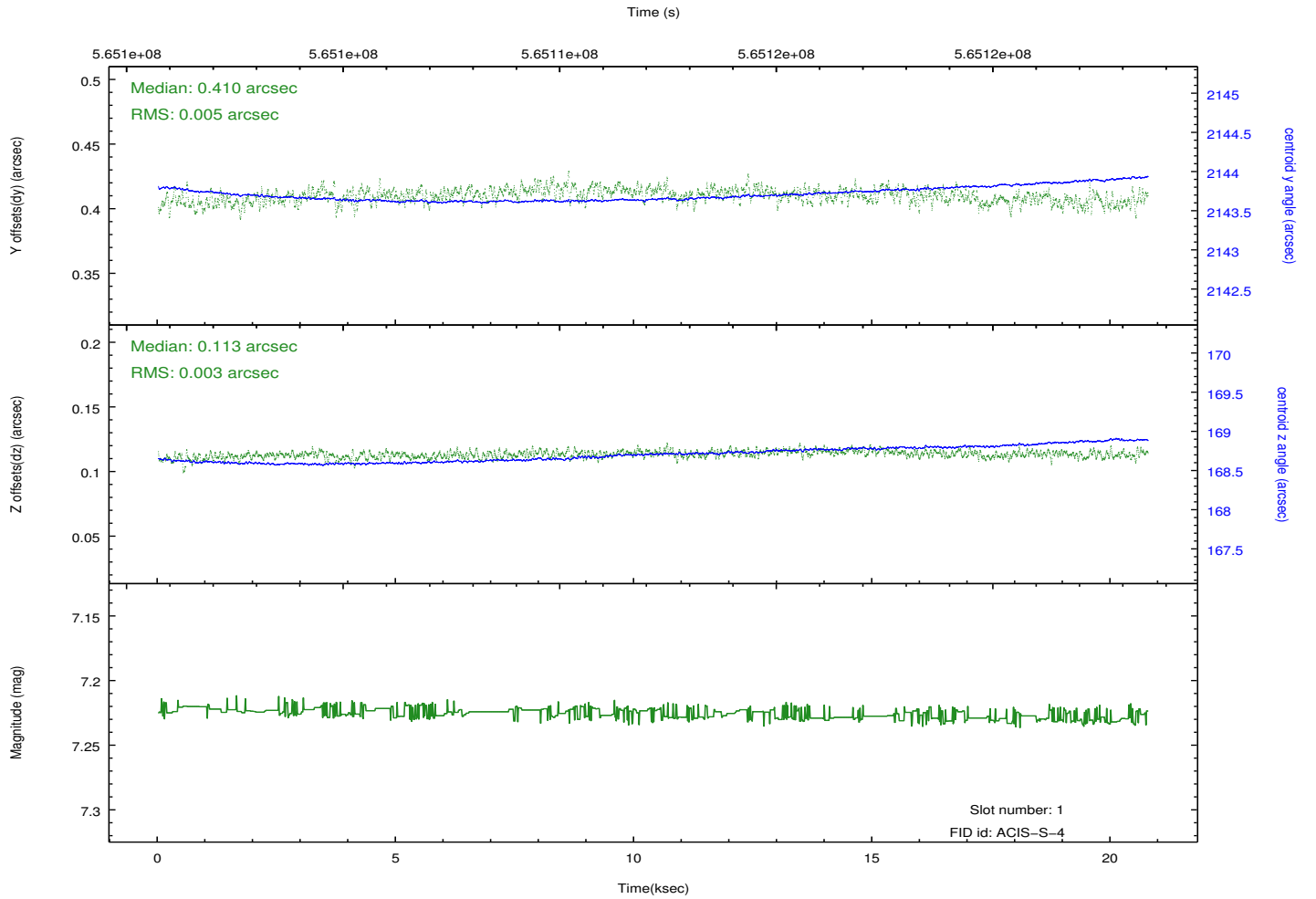
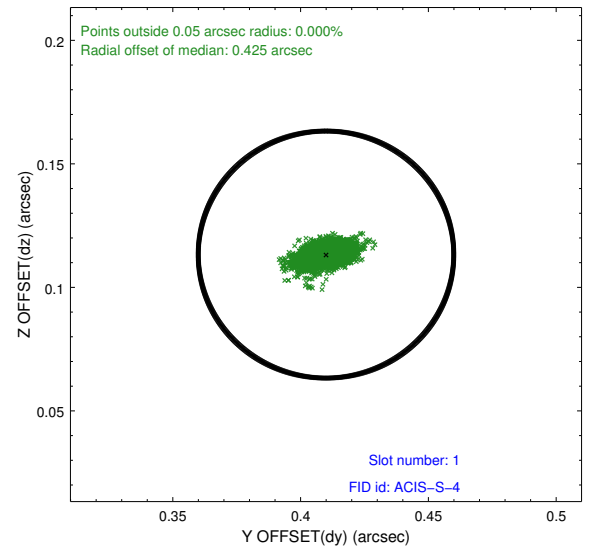
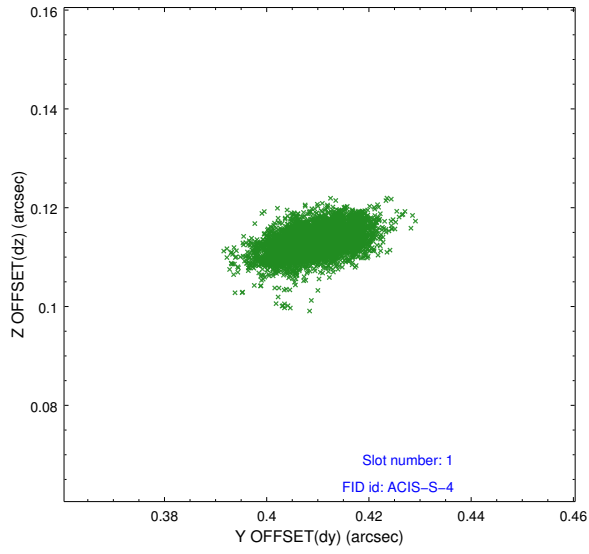


## 2.5 FID Slots

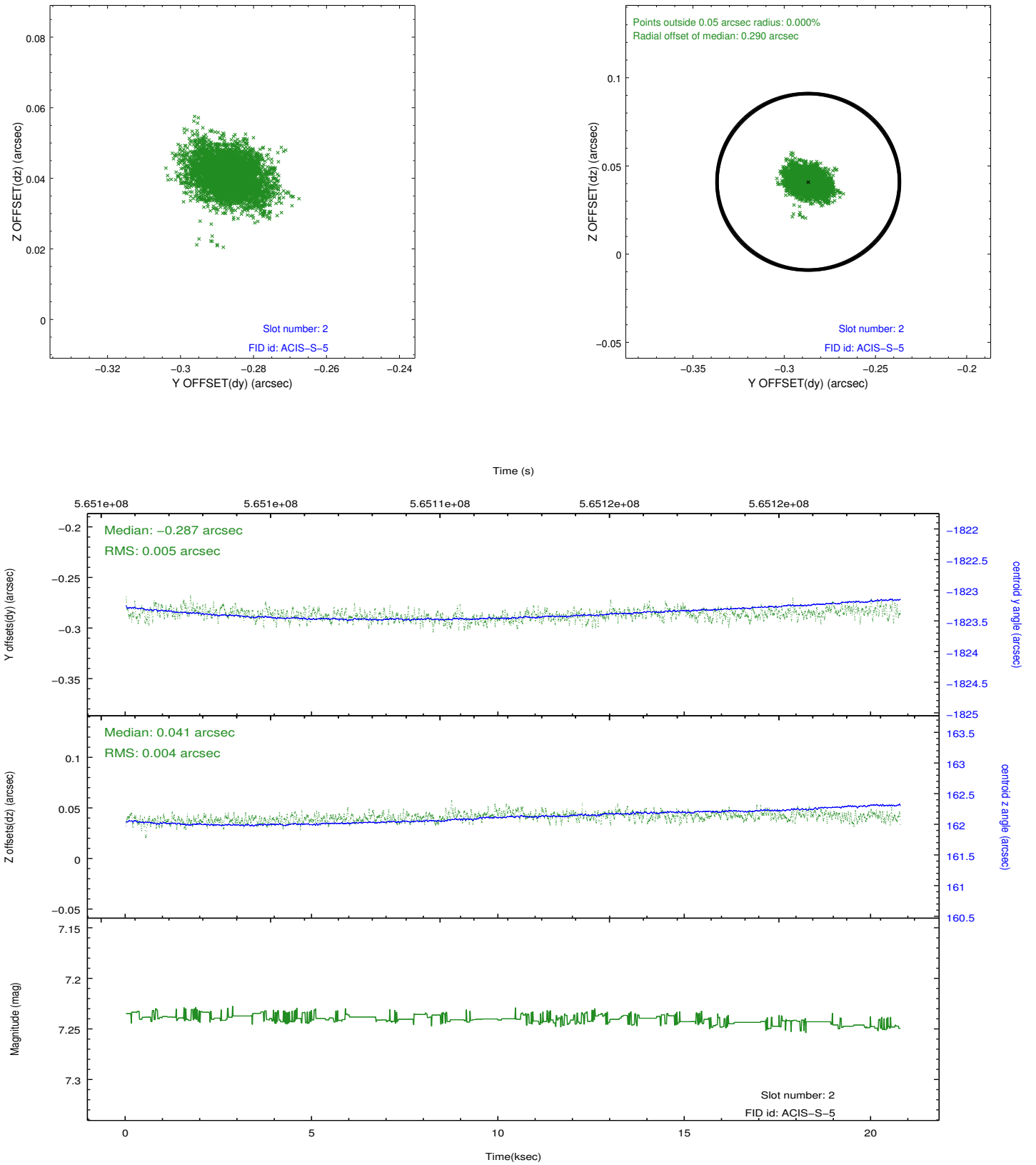
### 2.5.1 Slot 0



## 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)      | 2015.12.01    |
| V&V Edition                | 1             |
| V&V Disposition and Status | OK            |
| V&V Charge Time            | 20.0601001544 |

### A.2 Comments

The guide star in slot 5 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this guide star from the solution.