

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 4130 - L2 Version 3  
Chandra X-Ray Center

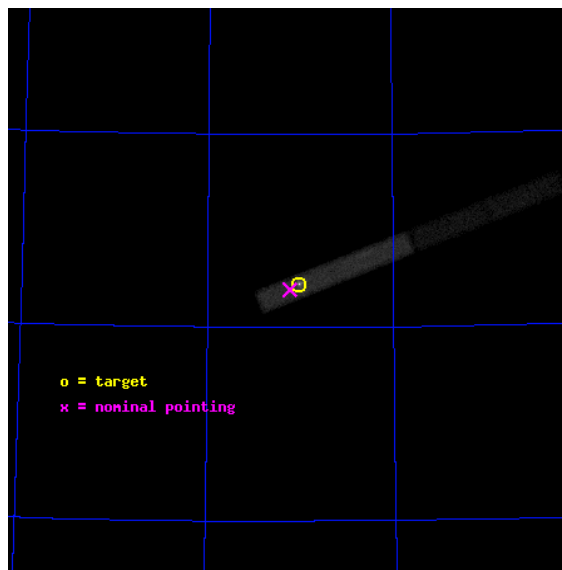
L2 Processing Date : Nov 7 2012

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# 1 Front

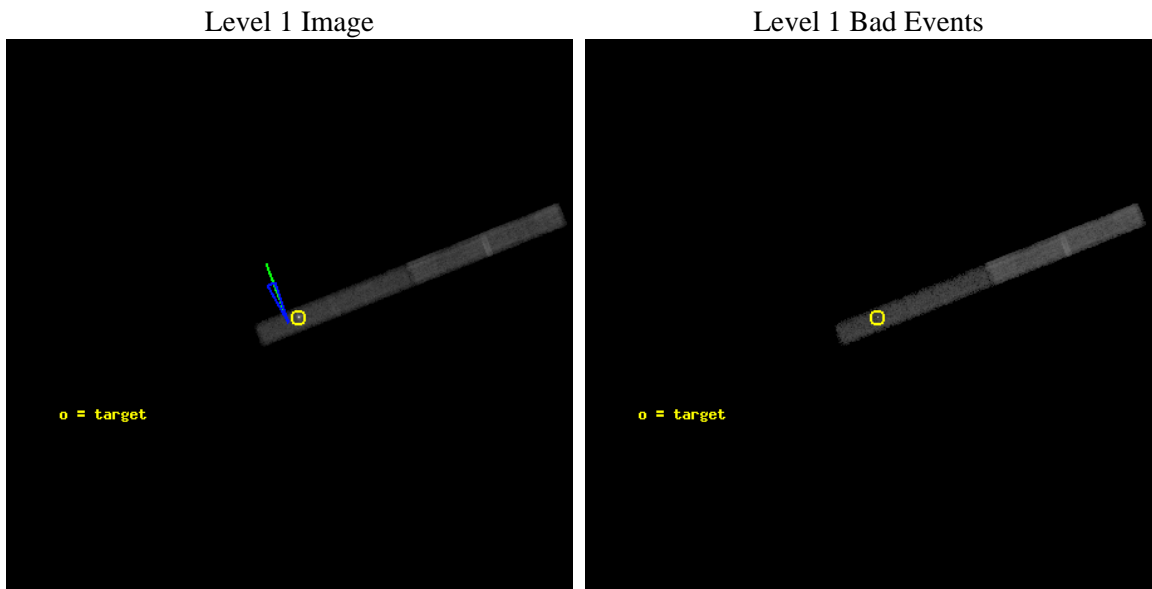
|          |  |   |
|----------|--|---|
| seq_num  | 700809   | Sequence number                             |
| obs_id   | 4130   | Observation id                              |
| title    | THE ACTIVE NUCLEUS AND 200-KPC X-RAY JET IN NGC 6251 | Proposal titl                               |
| observer | Dr Martin Hardcastle                                 | Principal investigator                      |
| object   | NGC 6251   | Source name                                 |
| dtycycle | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 248.132917   | Observer's specified target RA [deg]        |
| dec_targ | 82.537889  | Observer's specified target Dec [deg]       |
| ra_nom   | 248.19640639809                                      | Nominal RA [deg]                            |
| dec_nom  | 82.53280903097                                       | Nominal Dec [deg]                           |
| roll_nom | 338.40774613007                                      | Nominal Roll [deg]                          |
| revision | 3  | Processing version of data                  |
| ontime   | 49169.5  | Sum of GTIs [s]                             |
| livetime | 45439.801123762                                      | Livetime [s]                                |
| ontime7  | 49169.5  | Sum of GTIs [s]                             |
| ontime8  | 49167.876909941                                      | Sum of GTIs [s]                             |
| l2events | 67680  | Number of level 2 events                    |



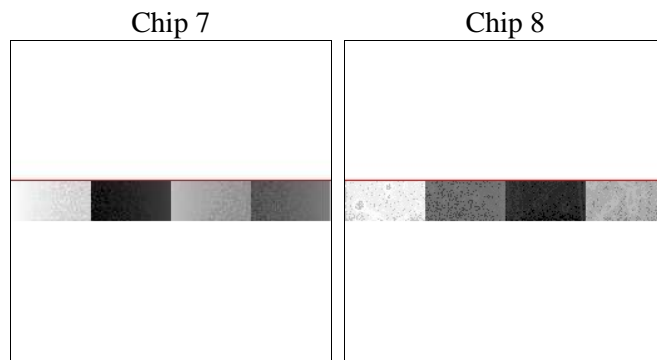
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 49000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 49169.5         | Sum of GTIs [s]                         |
| caldsver | 4.5.2               | &#160                          | ontime7        | 49169.5         | Sum of GTIs [s]                         |
| date     | 2012-11-07T23:28:19 | Date and time of file creation | ontime8        | 49167.876909941 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | l1events       | 173288          | Number of level 1 events                |

### 2.1.4 Events

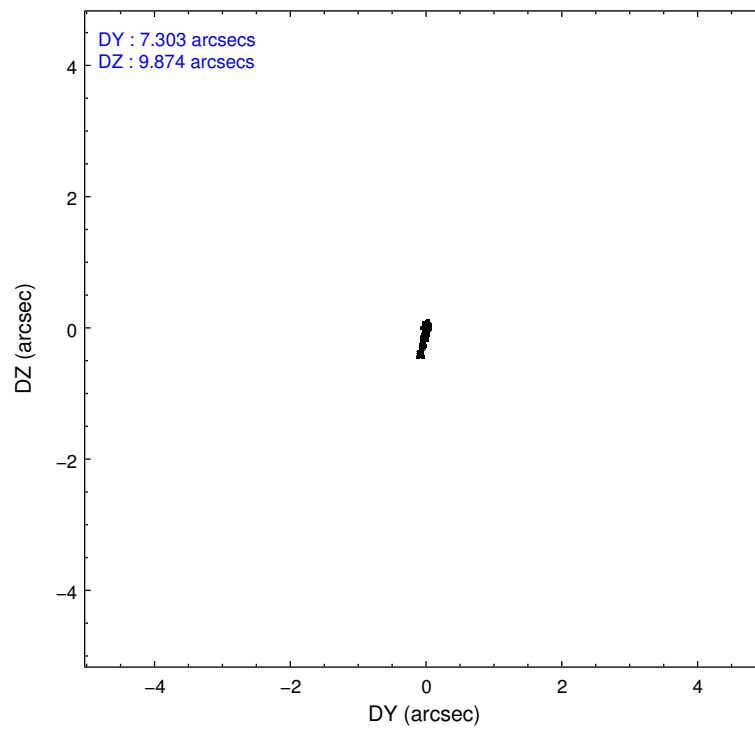
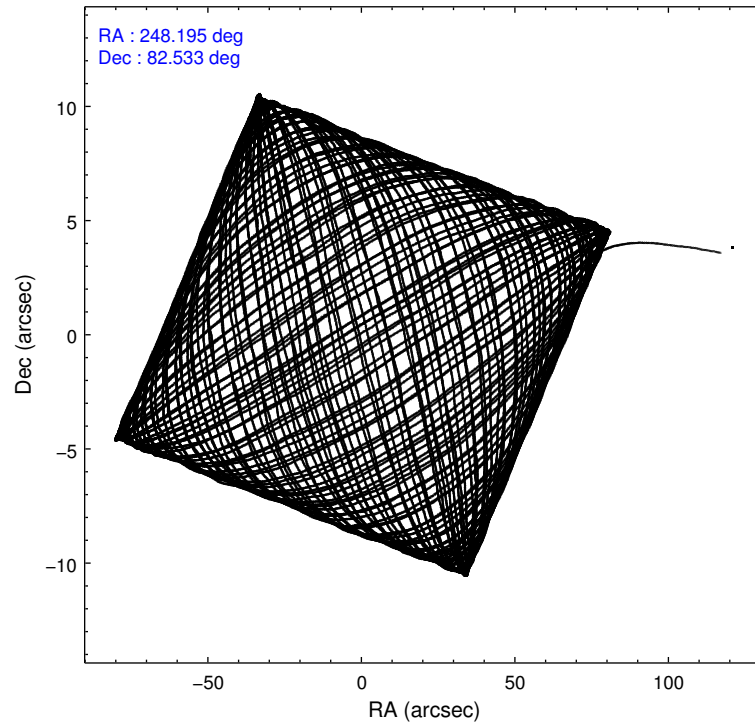
|                 | ccd 7 | ccd 8 |
|-----------------|-------|-------|
| level 1 events  | 94854 | 78434 |
| rejected events | 31500 | 65238 |
| rejected %      | 33%   | 83%   |

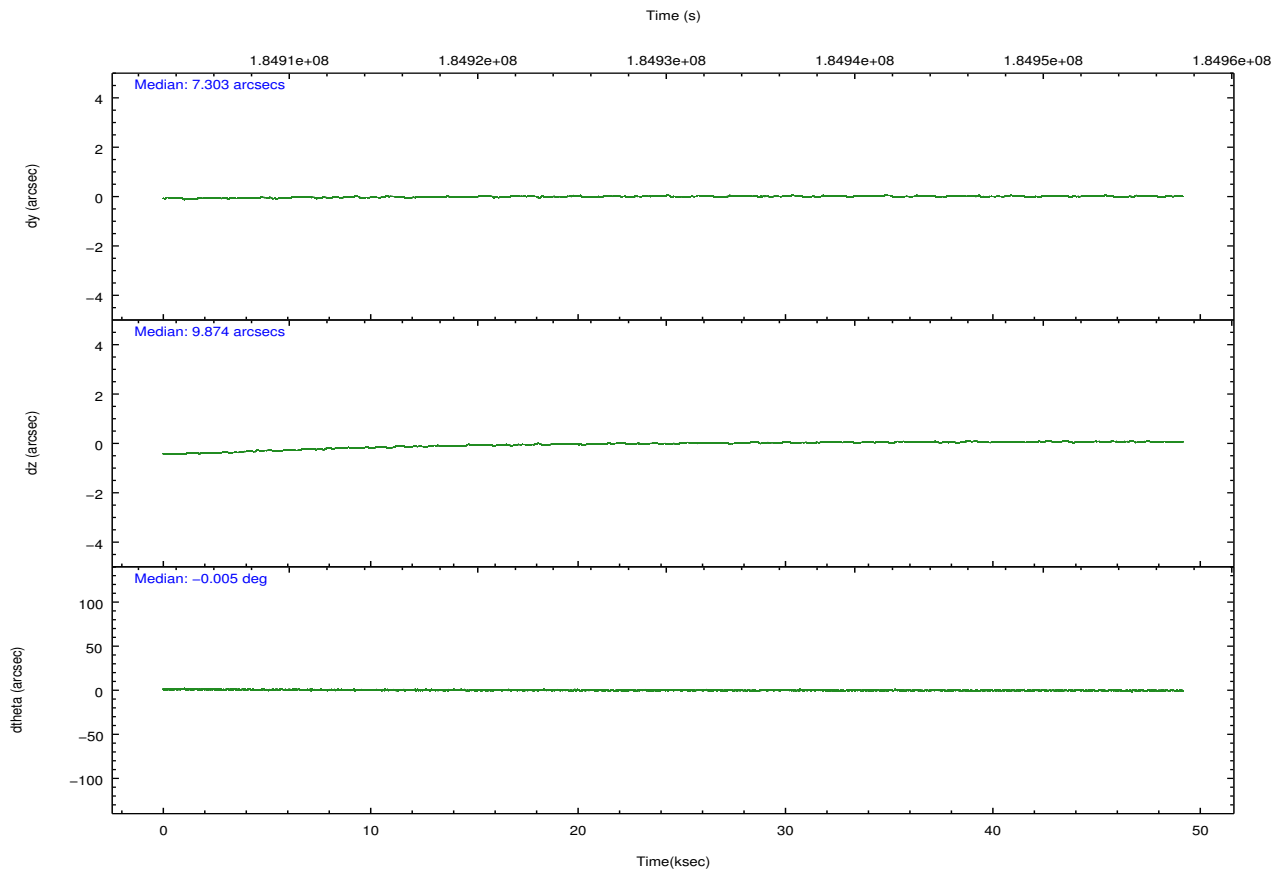
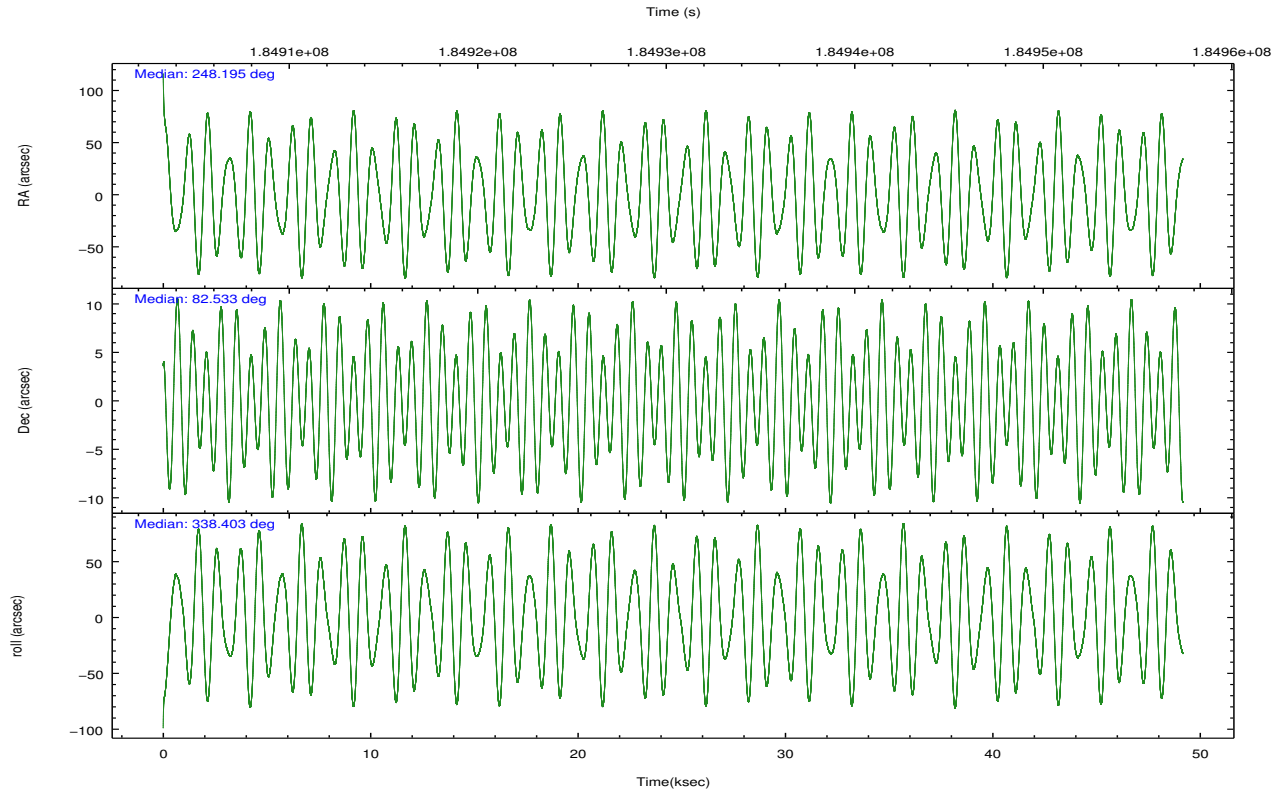
|                | ccd 7 | ccd 8 |
|----------------|-------|-------|
| grade 0 events | 13484 | 3618  |
|                | 14%   | 4%    |
| grade 1 events | 368   | 18    |
|                | 0%    | 0%    |
| grade 2 events | 14775 | 2518  |
|                | 15%   | 3%    |
| grade 3 events | 7680  | 1747  |
|                | 8%    | 2%    |
| grade 4 events | 7304  | 1692  |
|                | 7%    | 2%    |
| grade 5 events | 6094  | 2247  |
|                | 6%    | 2%    |
| grade 6 events | 20753 | 3968  |
|                | 21%   | 5%    |
| grade 7 events | 24396 | 62626 |
|                | 25%   | 79%   |

## 2.2 Compared Parameters

| Parameter                            | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|--------------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                           | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                             | ACIS-78             | ACIS-78              | 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                    | 247.989543          | 248.1964063980948    | Subarray requested                    | CUSTOM    | 1/8     |
| [deg] Pointing Dec                   | 82.528432           | 82.53280903097004    | Subarray start row                    | 449       | 449     |
| [deg] Pointing Roll                  | 338.456225          | 338.4077461300731    | Subarray row count                    | 128       | 128     |
| [deg] Roll angle                     | 335.500000          | 335.500000           | Alternating exposures requested       | N         | N       |
| [deg] Roll tolerance                 | 5.000000            | 5.000000             | [s] Primary exposure time             | 0.000000  | 0.5     |
| Roll constraint allows 180D rotation | N                   | N                    |                                       |           |         |
| [mm] SIM focus pos                   | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                     | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos       | -190.132523         | -190.1400660498719   |                                       |           |         |
| [mm] SIM translation stage offset    | 0                   | 0.00754346686406393  |                                       |           |         |
| [s] Observation start time (MET)     | 184905939.184000    | 184904649.79461      |                                       |           |         |
| Observation start date               | 2003-11-11T02:44:35 | 2003-11-11T02:24:09  |                                       |           |         |
| [s] Observation end time (MET)       | 184954939.184000    | 184955661.99682      |                                       |           |         |
| Observation end date                 | 2003-11-11T16:21:15 | 2003-11-11T16:34:21  |                                       |           |         |
| Read mode                            | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



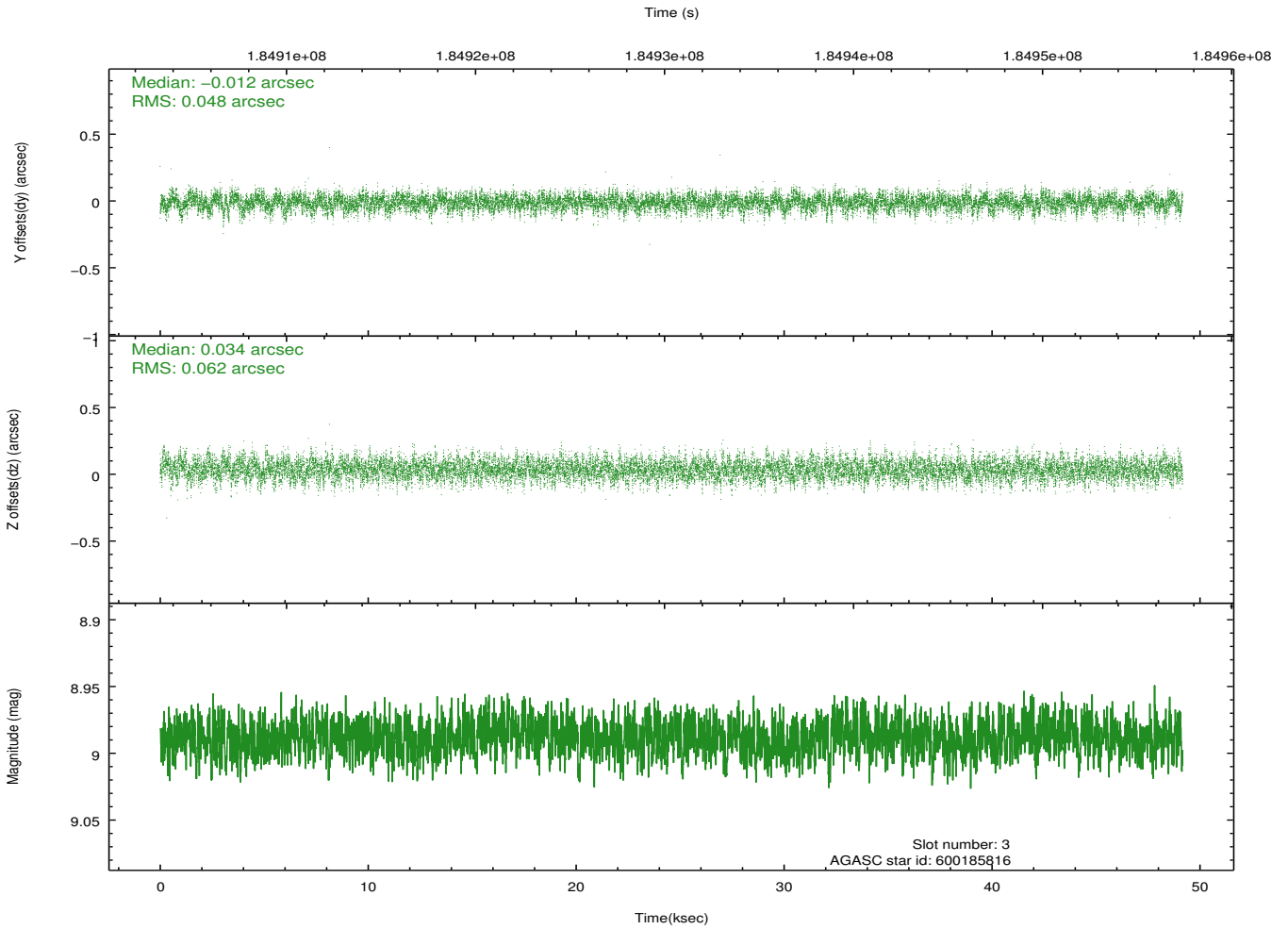
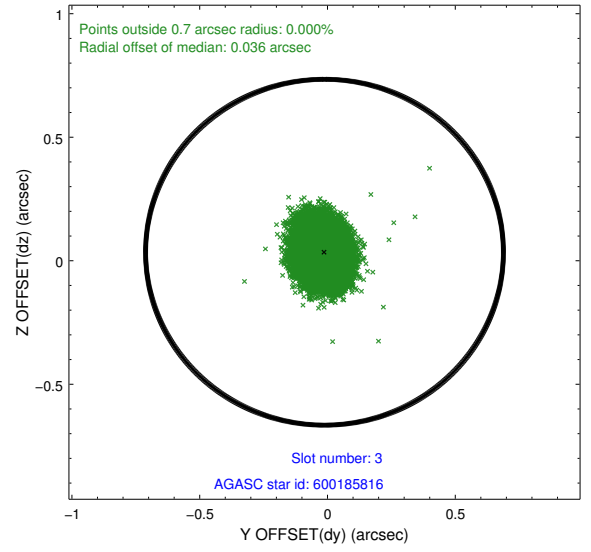
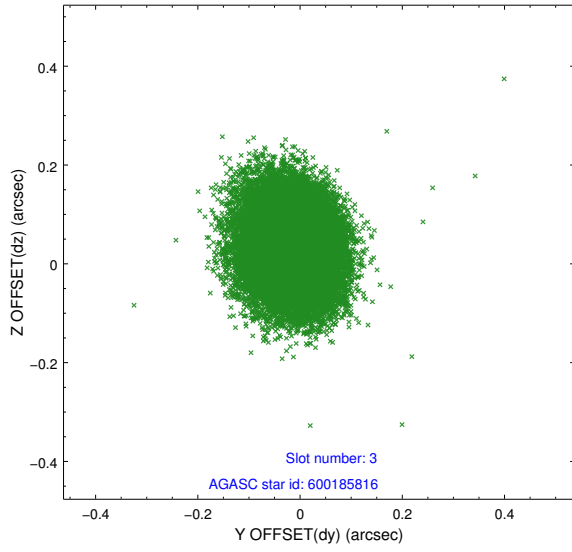


### Slot Statistics

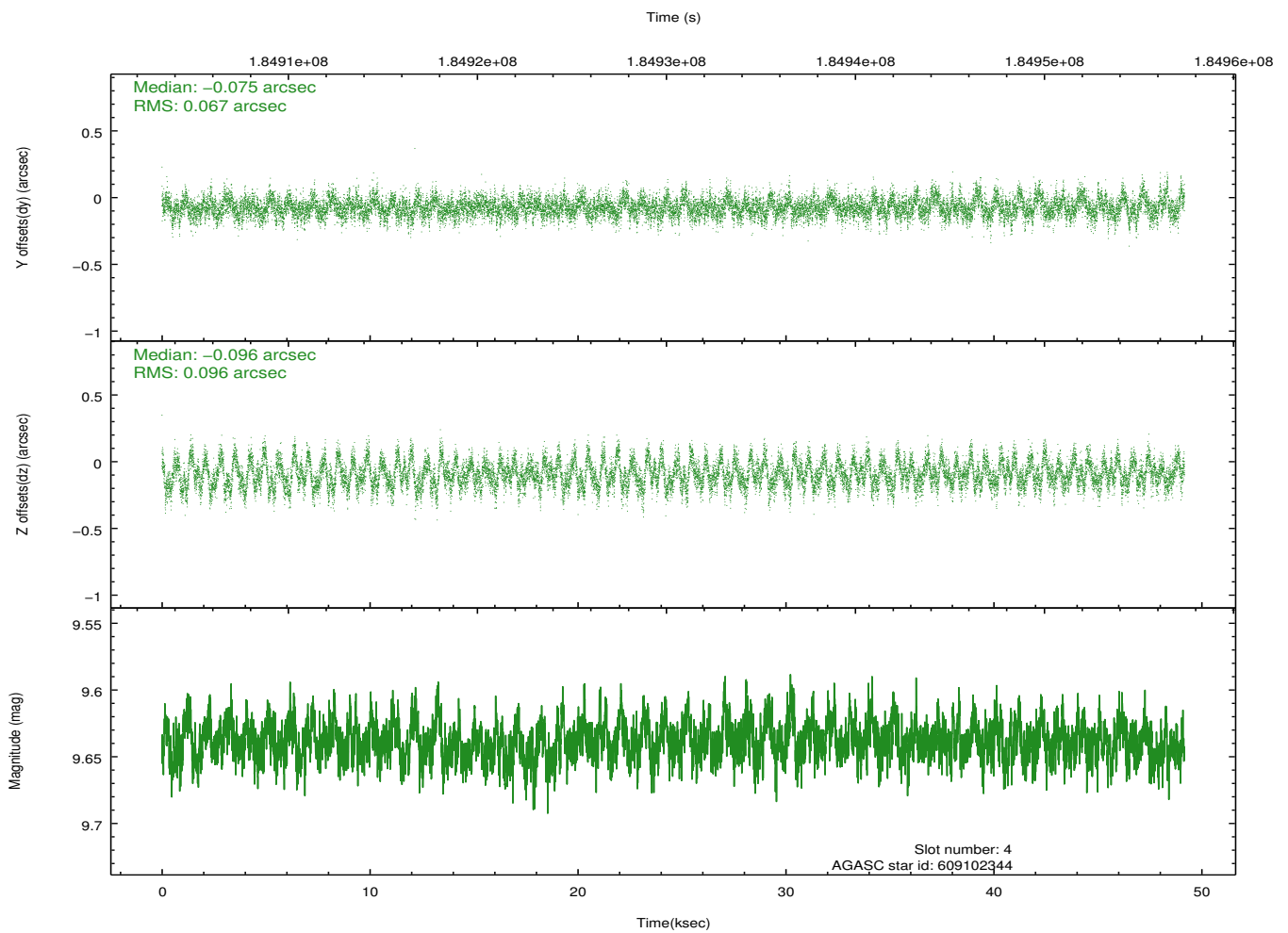
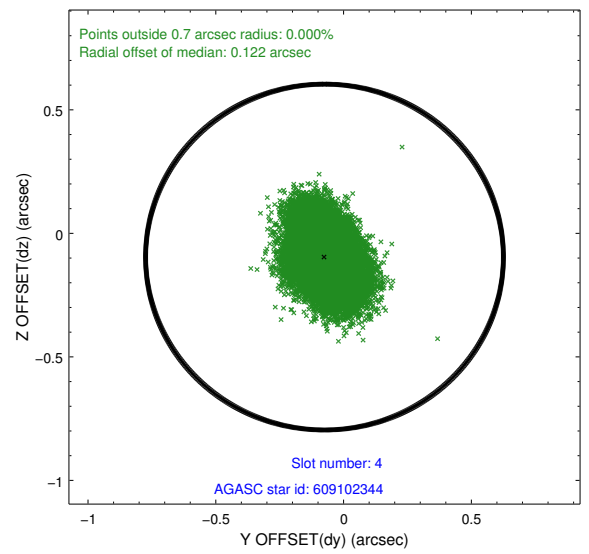
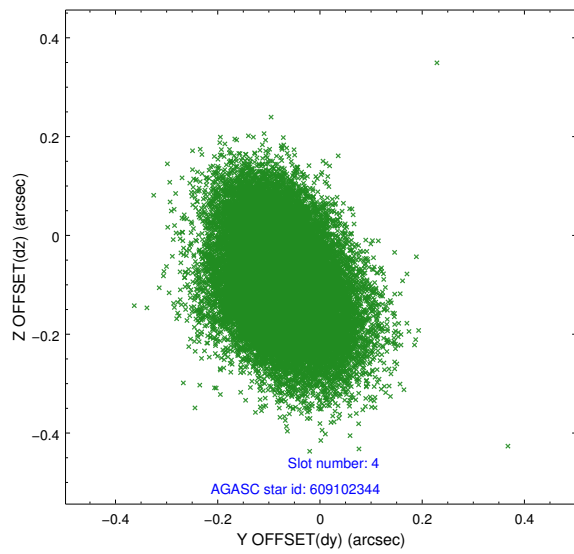
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    | ACIS-S-2  | 7.10 | 11992 | -0.042 | -0.017 | 0.008 | 0.012 | 0.000000   | 0.000000  | -760.07  | -1731.09 |
| 1    | FID    | ACIS-S-4  | 7.20 | 11993 | 0.070  | 0.025  | 0.006 | 0.011 | 0.000000   | 0.000000  | 2153.30  | 177.50   |
| 2    | FID    | ACIS-S-5  | 7.23 | 11992 | -0.059 | 0.001  | 0.007 | 0.012 | 0.000000   | 0.000000  | -1812.98 | 171.06   |
| 3    | GUIDE  | 600185816 | 8.99 | 23975 | -0.012 | 0.034  | 0.083 | 0.137 | 243.410736 | 82.087964 | -1558.63 | -2223.40 |
| 4    | GUIDE  | 609102344 | 9.64 | 23973 | -0.075 | -0.096 | 0.125 | 0.203 | 248.941637 | 82.969142 | -193.73  | 1633.14  |
| 5    | GUIDE  | 609106904 | 8.10 | 23985 | 0.006  | 0.000  | 0.069 | 0.107 | 243.316021 | 82.631901 | -2173.35 | -363.47  |
| 6    | GUIDE  | 609107400 | 9.81 | 23973 | 0.083  | 0.073  | 0.099 | 0.160 | 245.514880 | 82.606148 | -1177.61 | -137.37  |
| 7    | GUIDE  | 600180184 | 8.30 | 23981 | -0.004 | -0.010 | 0.080 | 0.127 | 242.510461 | 82.078959 | -1977.28 | -2381.85 |

## 2.4 Star Slots

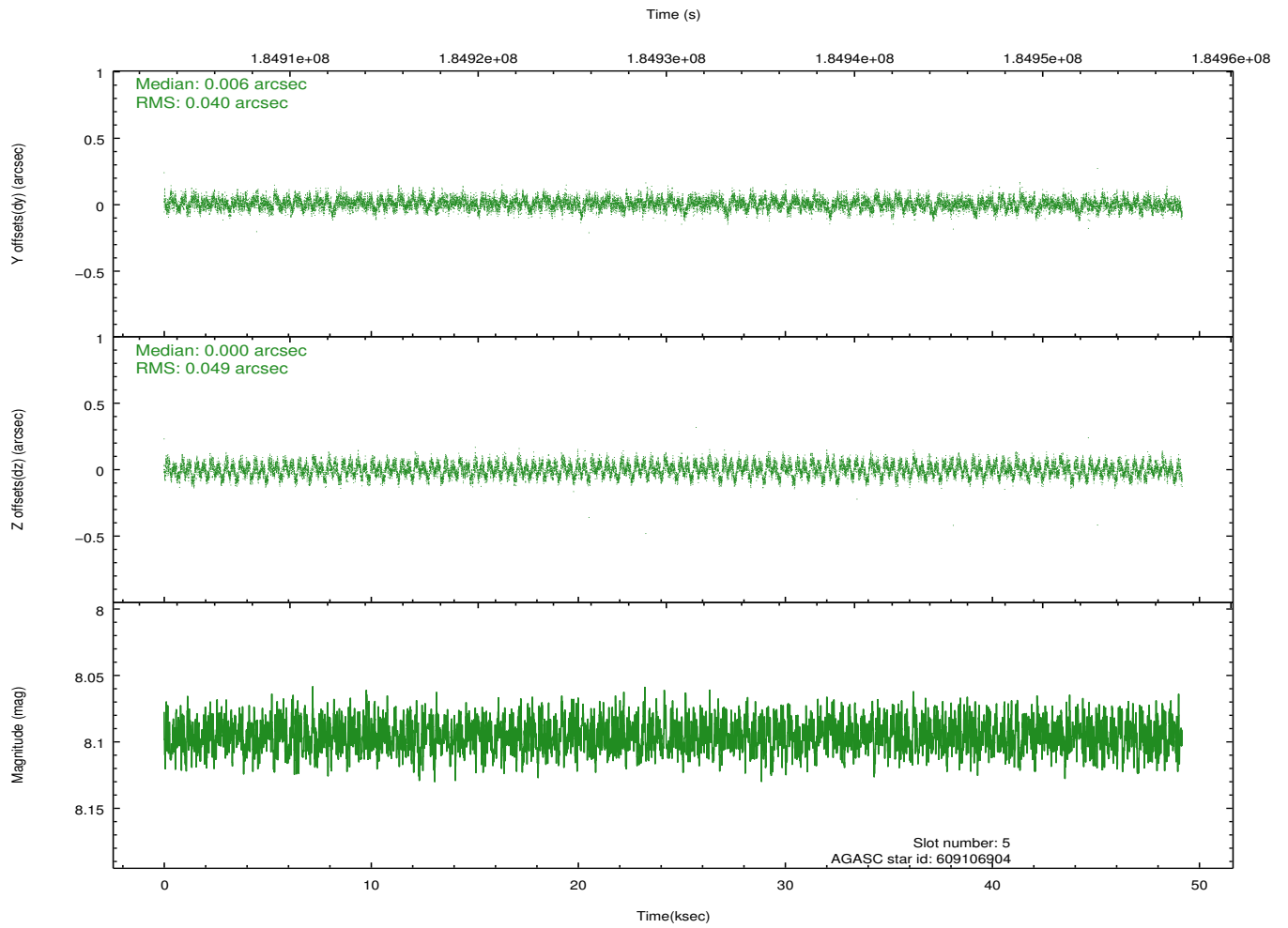
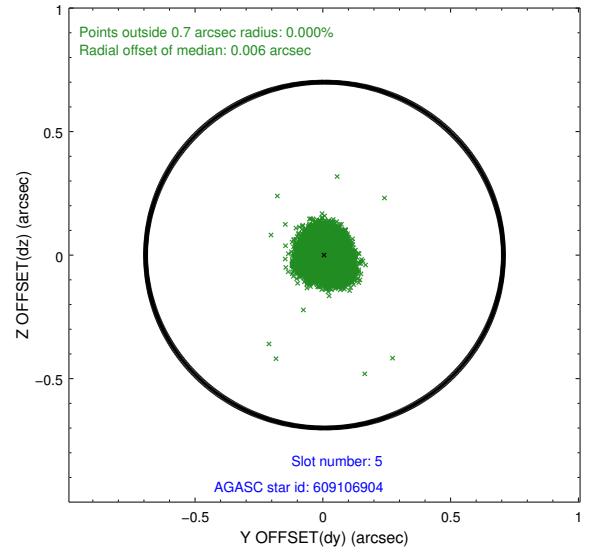
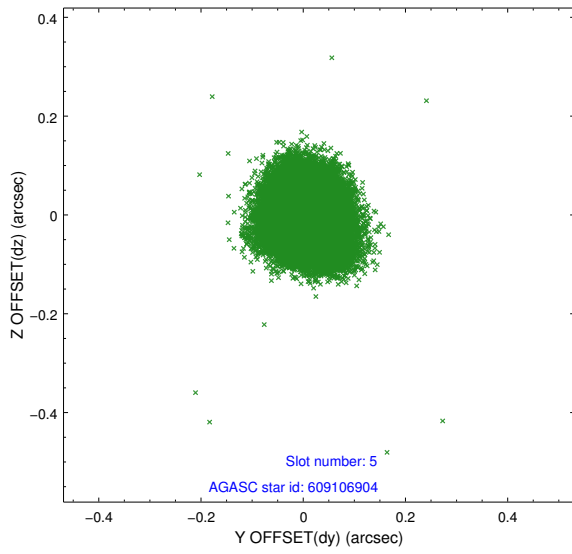
### 2.4.1 Slot 3



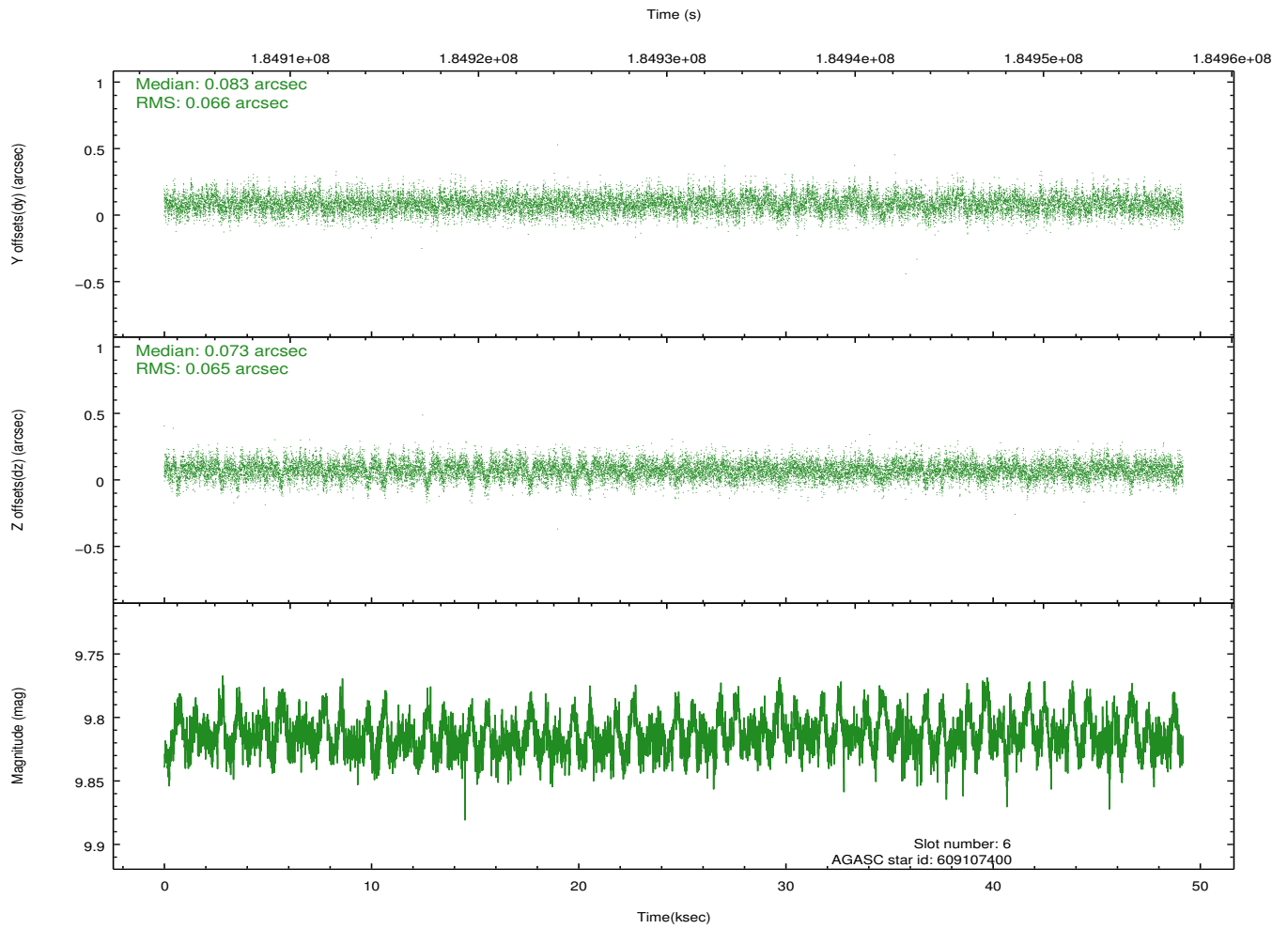
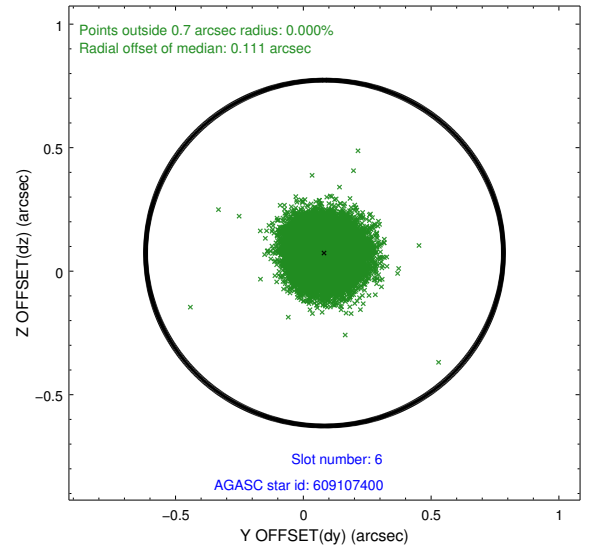
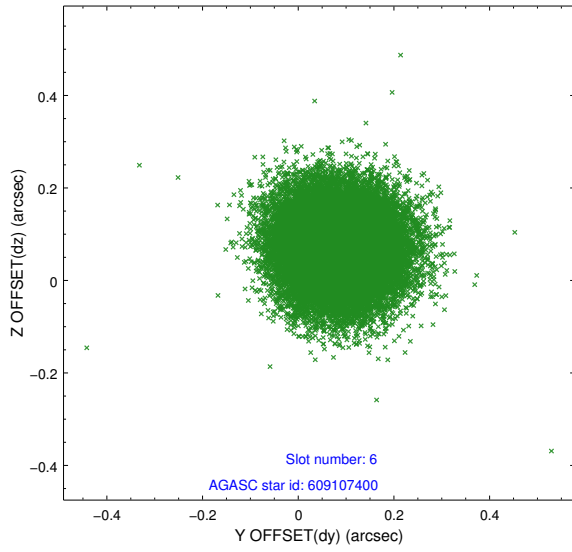
## 2.4.2 Slot 4



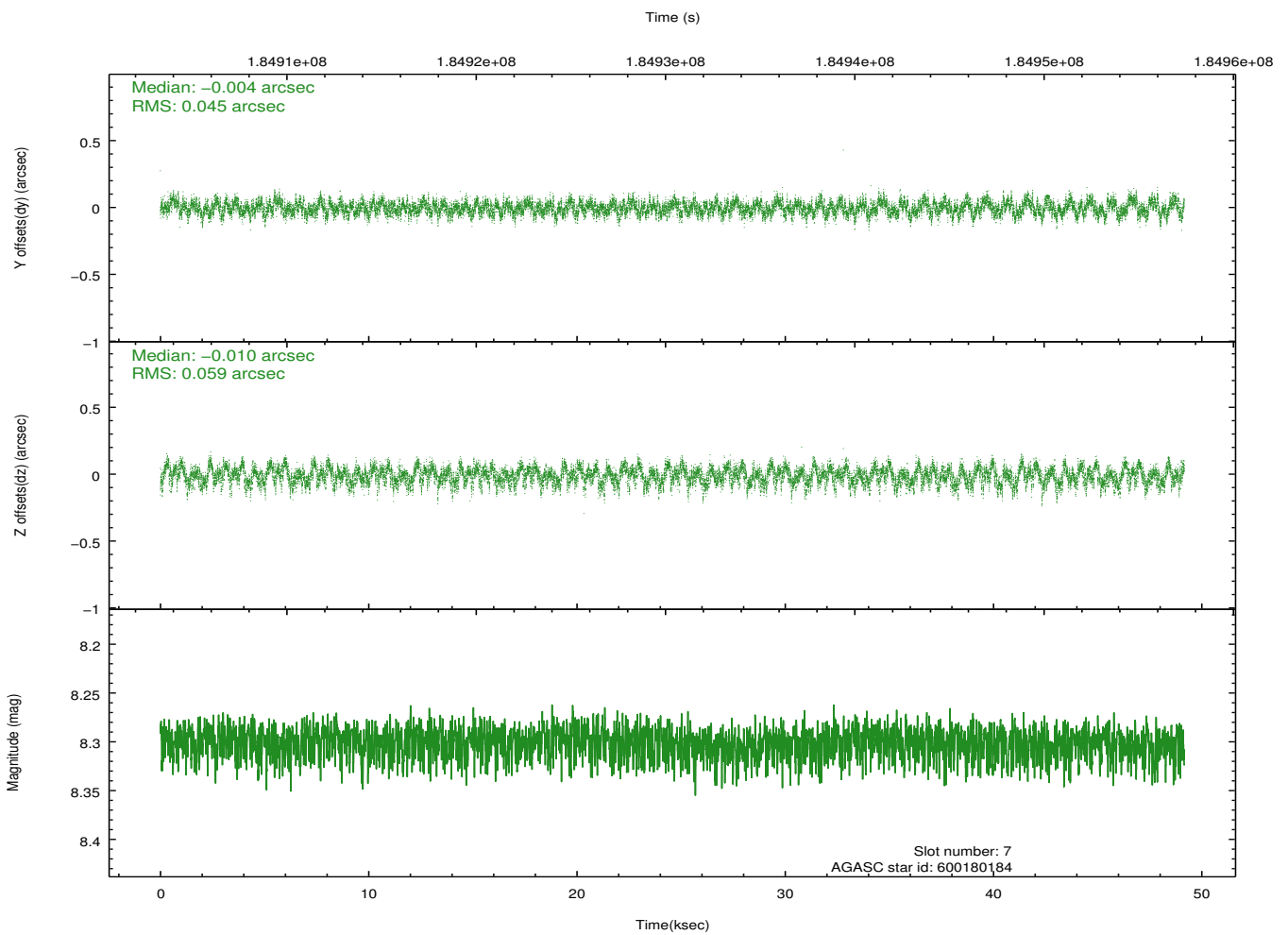
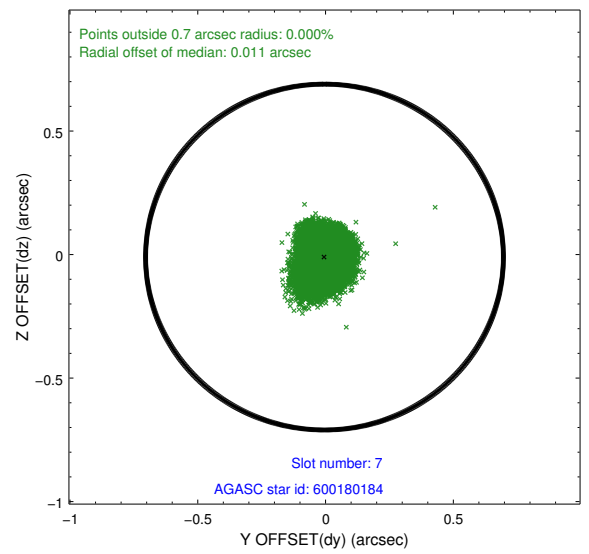
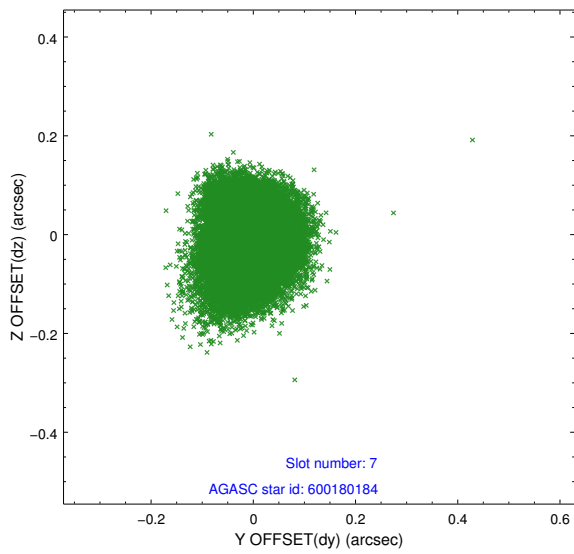
### 2.4.3 Slot 5



## 2.4.4 Slot 6

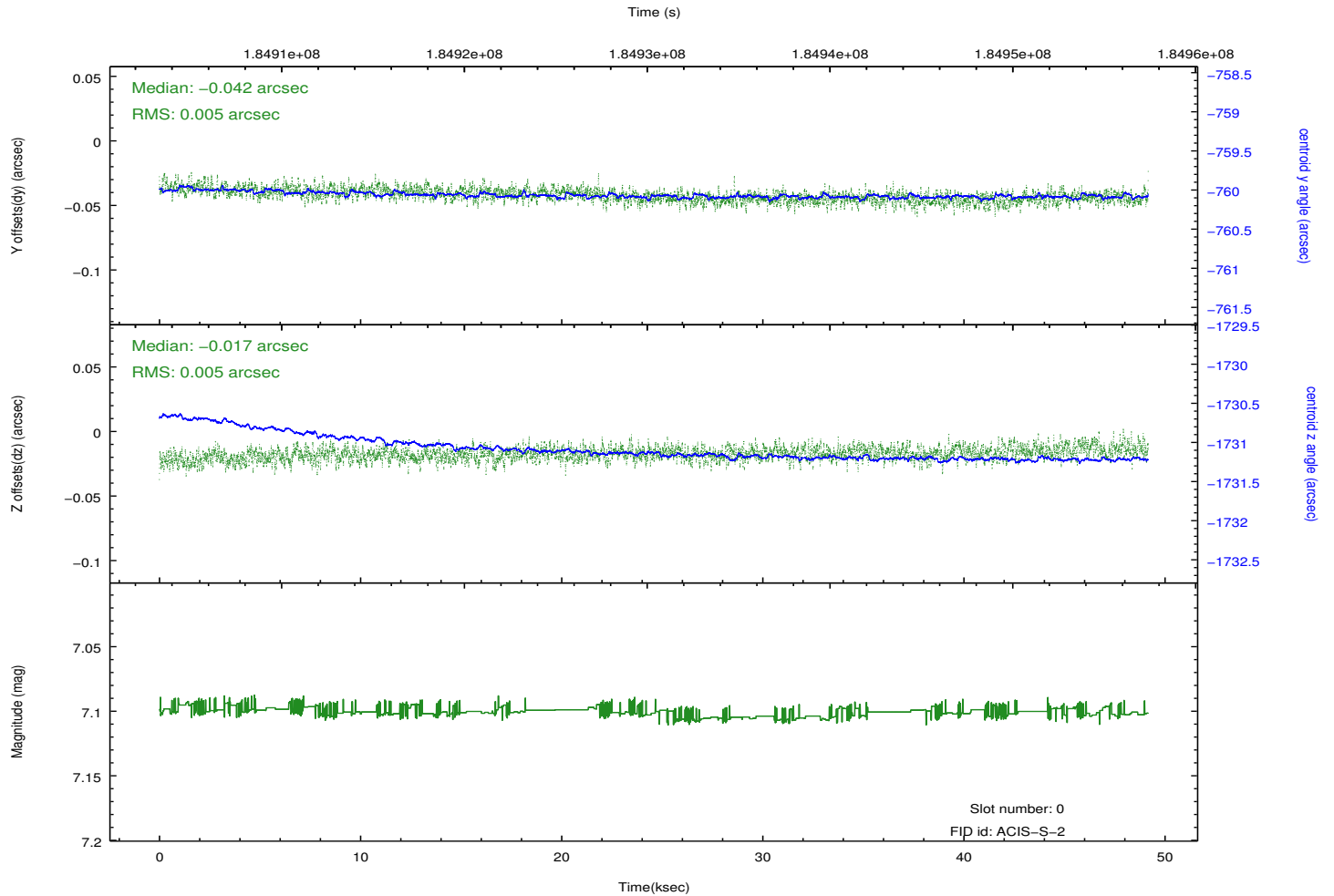
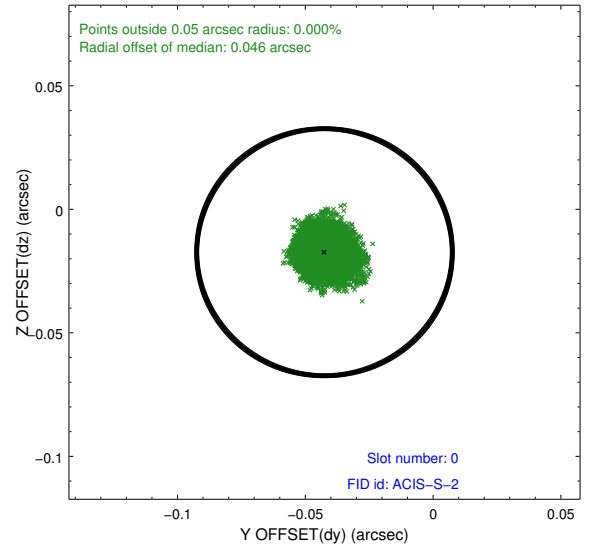
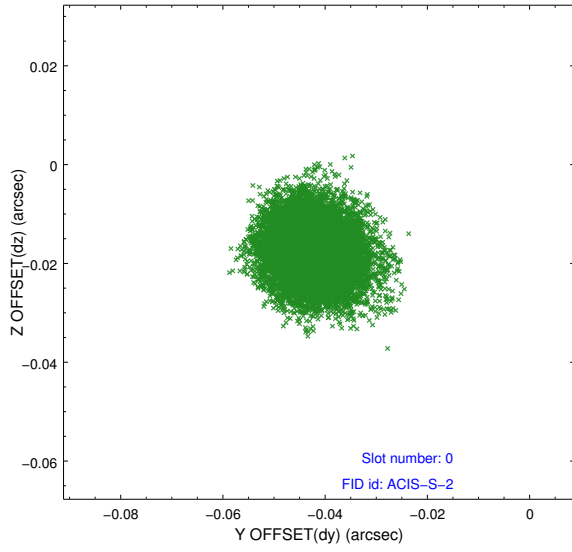


## 2.4.5 Slot 7

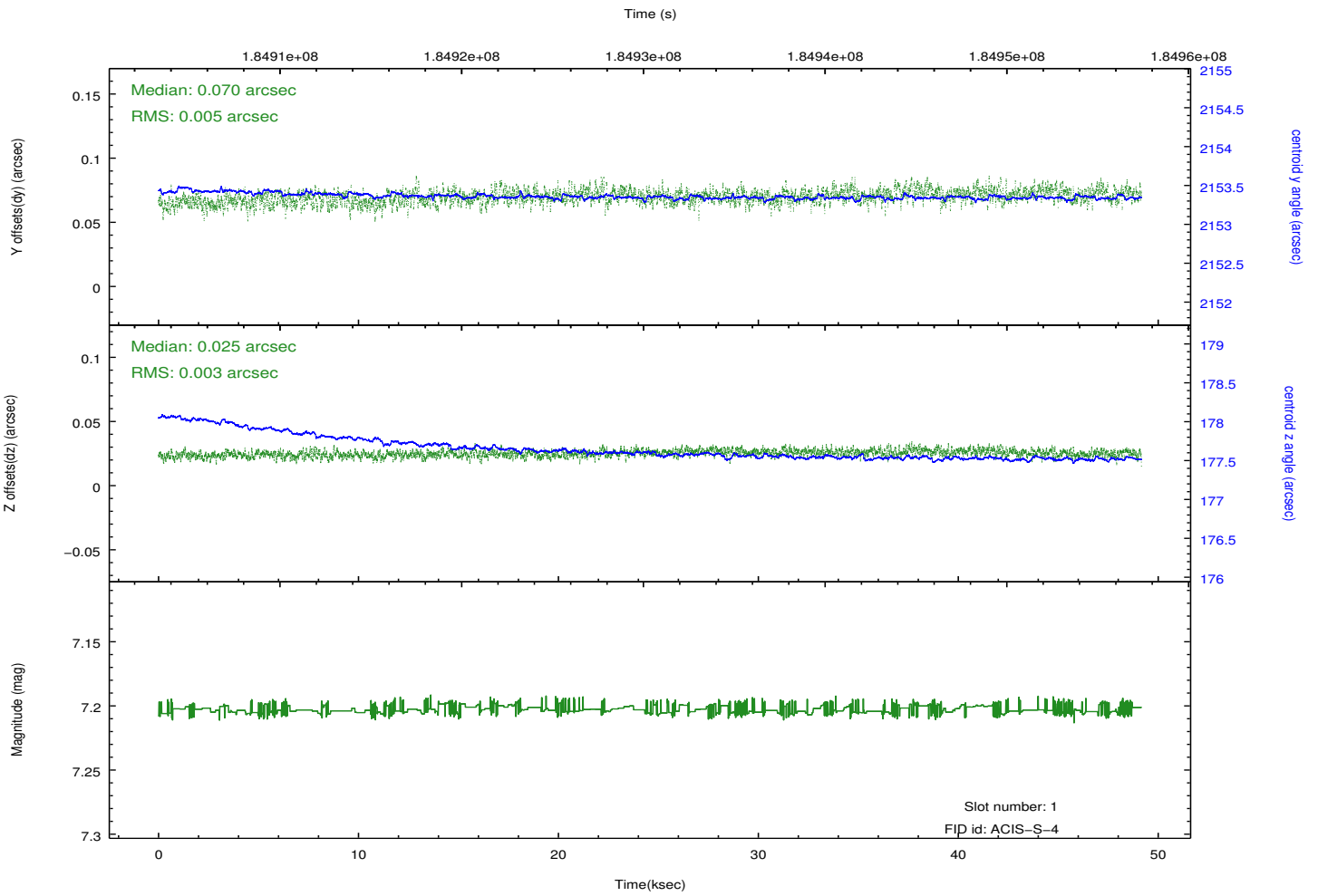
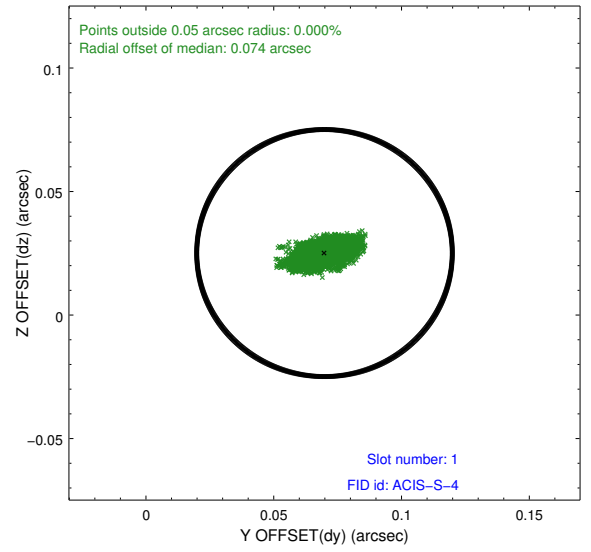
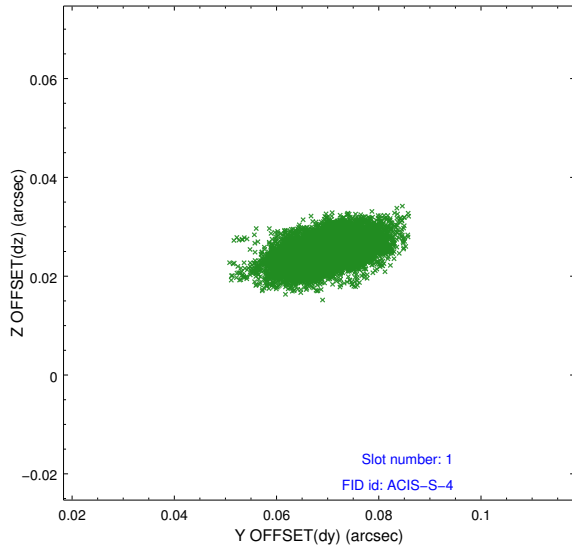


## 2.5 FID Slots

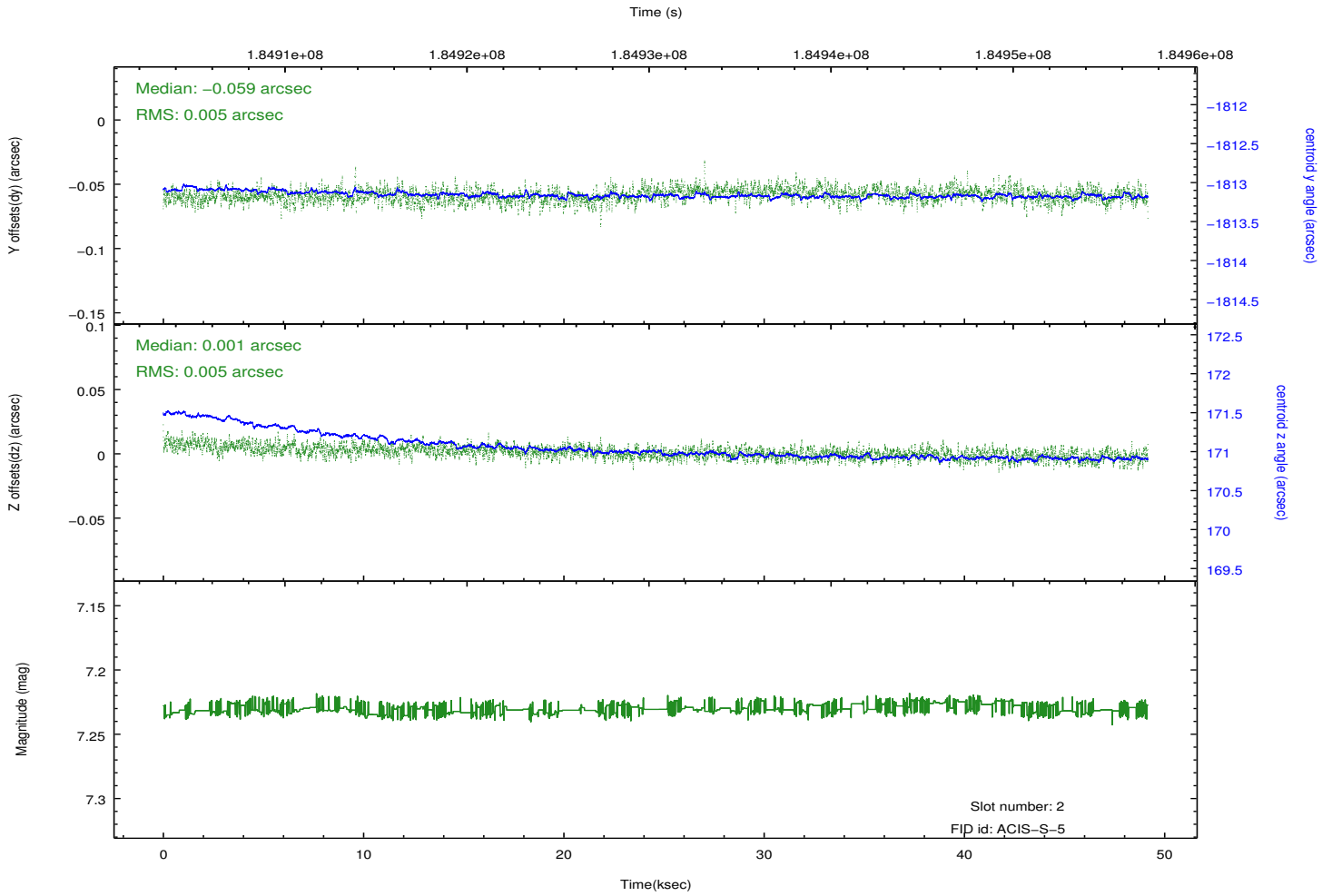
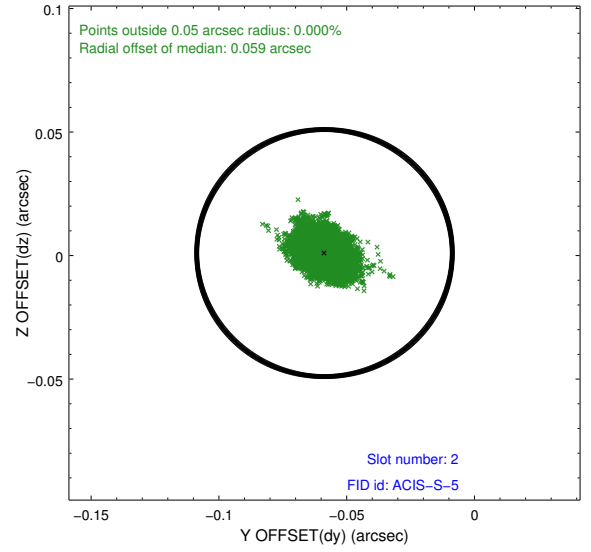
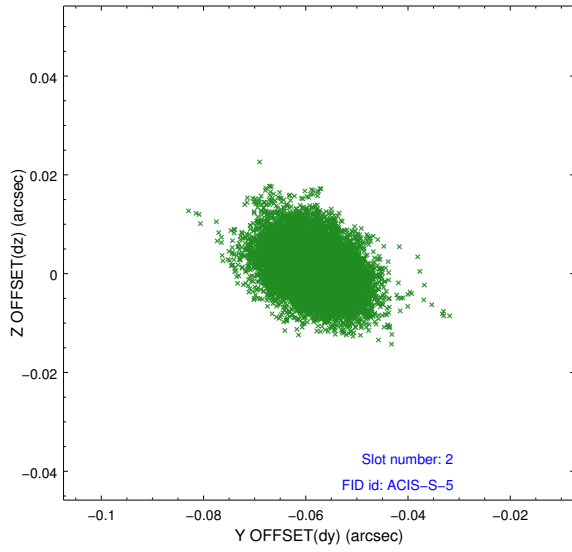
### 2.5.1 Slot 0



## 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)      | 2012.11.30 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 49.169     |

## A.2 Comments

Roll constraint satisfied.