

# V&V Reference Report

## L2 ASCDS Version : 8.5.1.1

Observation 15559 - L2 Version 2  
Chandra X-Ray Center

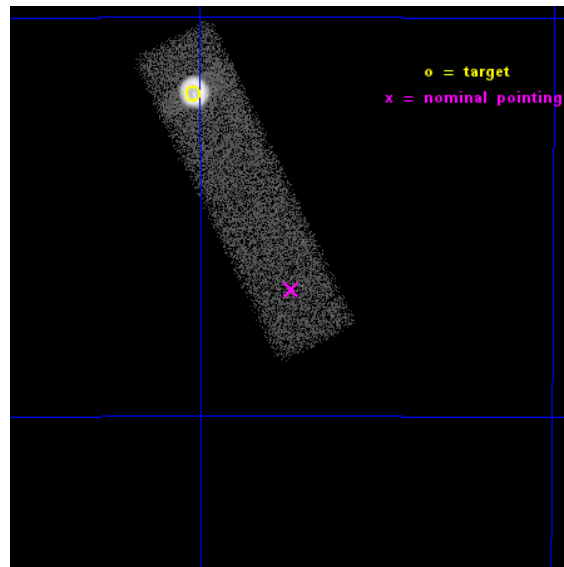
L2 Processing Date : Dec 1 2014

## Contents

|          |                               |           |
|----------|-------------------------------|-----------|
| <b>1</b> | <b>Front</b>                  | <b>2</b>  |
| <b>2</b> | <b>OBI</b>                    | <b>3</b>  |
| 2.1      | OBI . . . . .                 | 3         |
| 2.1.1    | Images . . . . .              | 3         |
| 2.1.2    | Bias . . . . .                | 3         |
| 2.1.3    | Parameters . . . . .          | 4         |
| 2.1.4    | Events . . . . .              | 4         |
| 2.2      | Compared Parameters . . . . . | 5         |
| 2.3      | Aspect . . . . .              | 6         |
| 2.4      | Star Slots . . . . .          | 9         |
| 2.4.1    | Slot 3 . . . . .              | 9         |
| 2.4.2    | Slot 4 . . . . .              | 10        |
| 2.4.3    | Slot 5 . . . . .              | 11        |
| 2.4.4    | Slot 6 . . . . .              | 12        |
| 2.4.5    | Slot 7 . . . . .              | 13        |
| 2.5      | FID Slots . . . . .           | 14        |
| 2.5.1    | Slot 0 . . . . .              | 14        |
| 2.5.2    | Slot 1 . . . . .              | 15        |
| 2.5.3    | Slot 2 . . . . .              | 16        |
| <b>A</b> | <b>Summary</b>                | <b>17</b> |
| A.1      | Status . . . . .              | 17        |
| A.2      | Comments . . . . .            | 17        |

# 1 Front

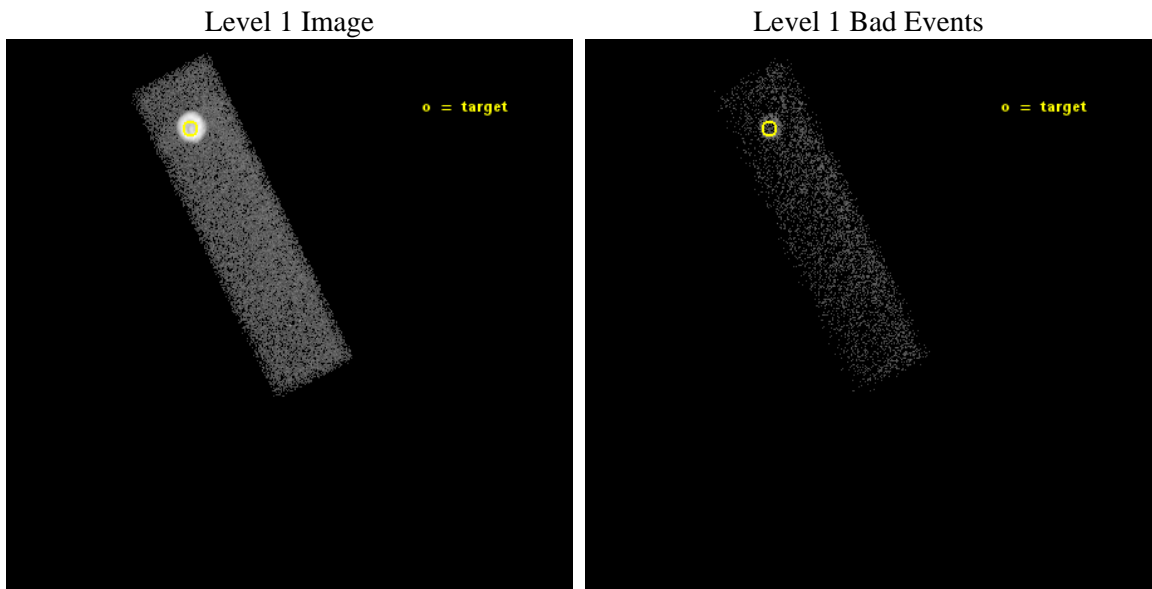
|          |   |   |
|----------|---|---|
| seq_num  | 590531  | Sequence number                             |
| obs_id   | 15559   | Observation id                              |
| title    | AO-14 S3 Calibration Observations of E0102-72 | Proposal title                              |
| observer | Dr. CXC Calibration                           | Principal investigator                      |
| object   | E0102-72 S3,-120,-5.2,0,-7.7                  | Source name                                 |
| dtycycle | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 16.01   | Observer's specified target RA [deg]        |
| dec_targ | -72.032028                                    | Observer's specified target Dec [deg]       |
| ra_nom   | 15.870446104977                               | Nominal RA [deg]                            |
| dec_nom  | -72.113926740886                              | Nominal Dec [deg]                           |
| roll_nom | 243.42630614732                               | Nominal Roll [deg]                          |
| revision | 2   | Processing version of data                  |
| ontime   | 25064.800373554                               | Sum of GTIs [s]                             |
| livetime | 23841.720130842                               | Livetime [s]                                |
| ontime7  | 25064.800373554                               | Sum of GTIs [s]                             |
| l2events | 113713  | Number of level 2 events                    |



## 2 OBI

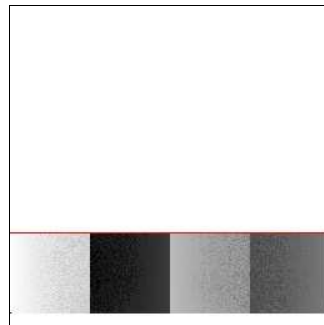
### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias

Chip 7



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 25000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.3                | Processing system revision     | ontime         | 25064.800373554 | Sum of GTIs [s]                         |
| caldbver | 4.6.4               | &#160                          | ontime7        | 25064.800373554 | Sum of GTIs [s]                         |
| date     | 2014-12-01T08:53:57 | Date and time of file creation | l1events       | 132519          | Number of level 1 events                |
| revision | 2                   | Processing version of data     |                |                 |   |

### 2.1.4 Events

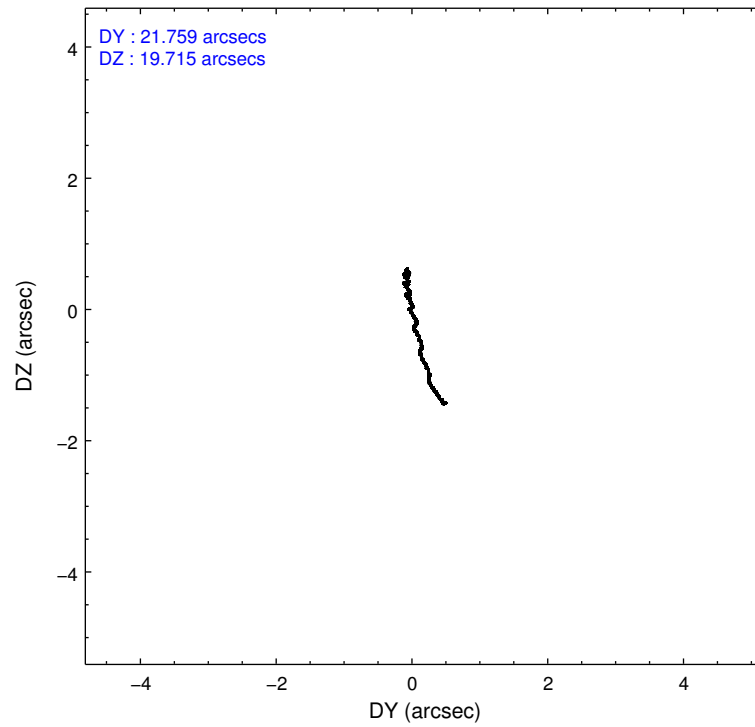
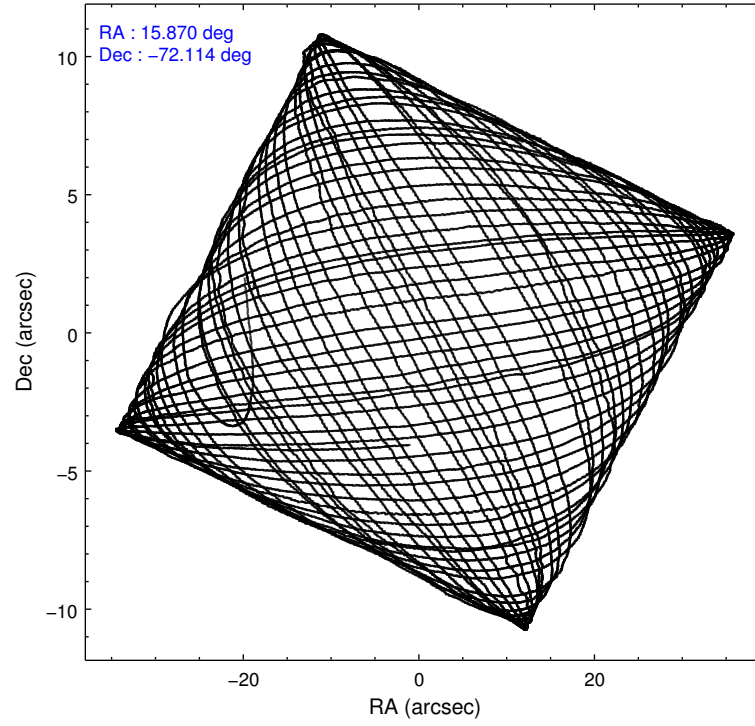
|                 | <b>ccd 7</b> |
|-----------------|--------------|
| level 1 events  | 132519       |
| rejected events | 18312        |
| rejected %      | <b>13%</b>   |

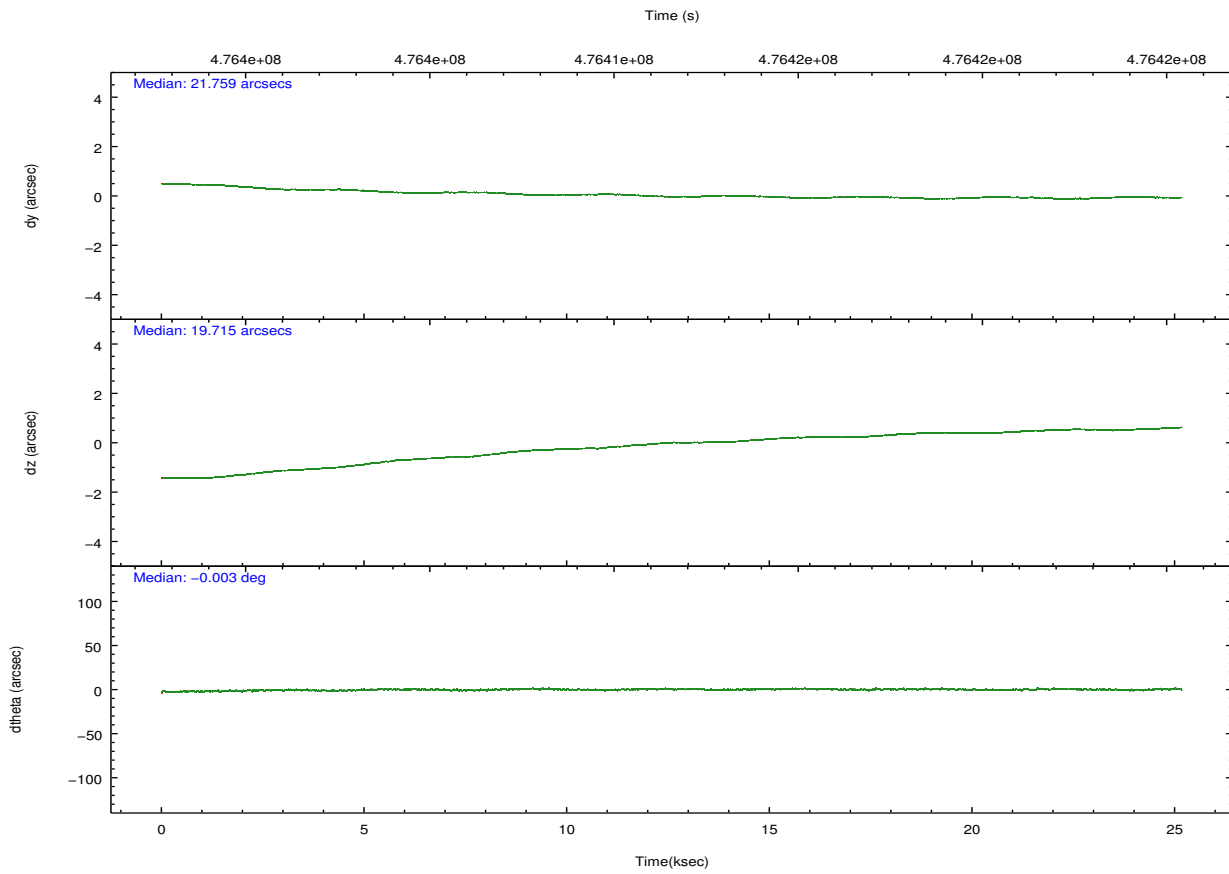
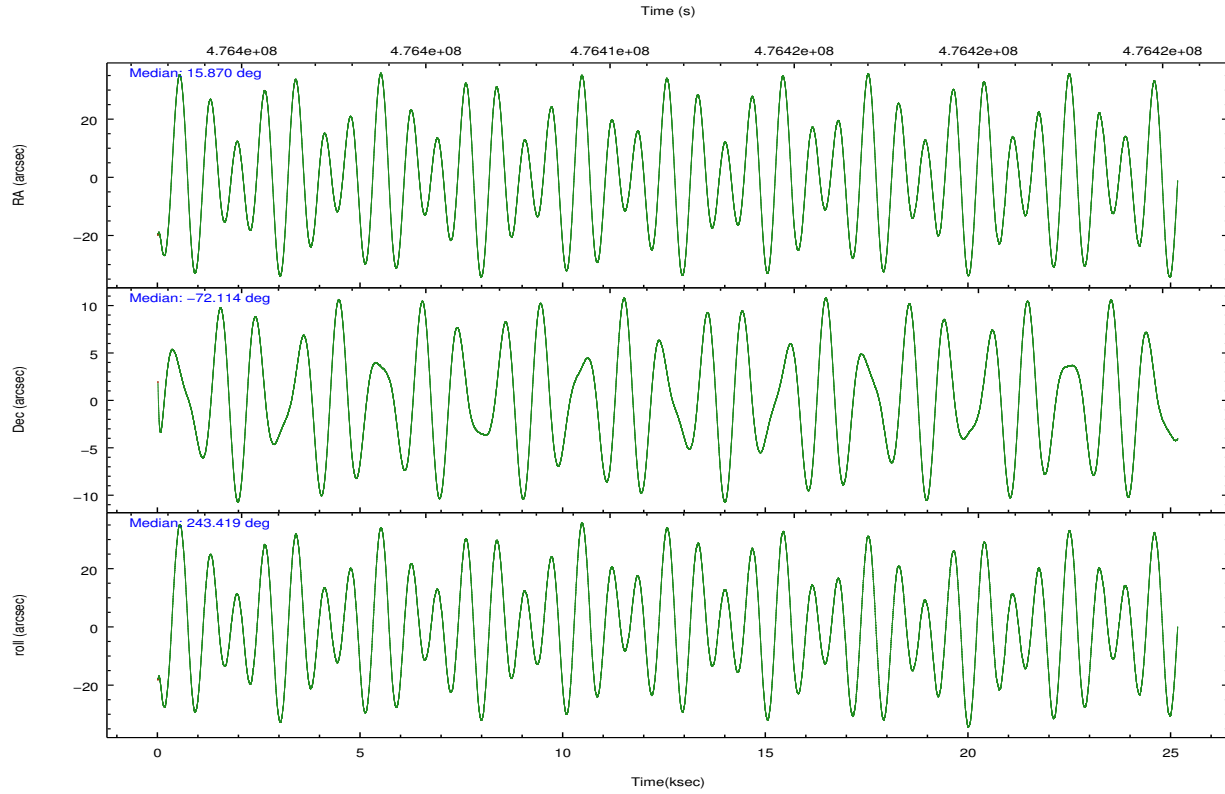
|                | <b>ccd 7</b> |
|----------------|--------------|
| grade 0 events | 33039        |
|                | 24%          |
| grade 1 events | 149          |
|                | 0%           |
| grade 2 events | 29485        |
|                | 22%          |
| grade 3 events | 14125        |
|                | 10%          |
| grade 4 events | 14165        |
|                | 10%          |
| grade 5 events | 4343         |
|                | 3%           |
| grade 6 events | 23395        |
|                | 17%          |
| grade 7 events | 13818        |
|                | 10%          |

## 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                         | VFAINT              | VFAINT               | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 15.864013           | 15.87044610497652    | Subarray requested                    | CUSTOM    | 1/4     |
| [deg] Pointing Dec                | -72.086680          | -72.11392674088641   | Subarray start row                    | 42        | 42      |
| [deg] Pointing Roll               | 243.263559          | 243.4263061473164    | Subarray row count                    | 256       | 256     |
| [s] Window start time (MET)       | 470707267.184000    | 470707267.184000     | Alternating exposures requested       | N         | N       |
| [s] Window stop time (MET)        | 483667267.184000    | 483667267.184000     | [s] Primary exposure time             | 0.000000  | 0.8     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos    | -182.432523         | -182.436203965892    |                                       |           |         |
| [mm] SIM translation stage offset | -7.7                | -7.696318617115764   |                                       |           |         |
| [s] Observation start time (MET)  | 476399150.184000    | 476397977.25371      |                                       |           |         |
| Observation start date            | 2013-02-04T21:04:43 | 2013-02-04T20:46:17  |                                       |           |         |
| [s] Observation end time (MET)    | 476424150.184000    | 476425085.94268      |                                       |           |         |
| Observation end date              | 2013-02-05T04:01:23 | 2013-02-05T04:18:05  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect





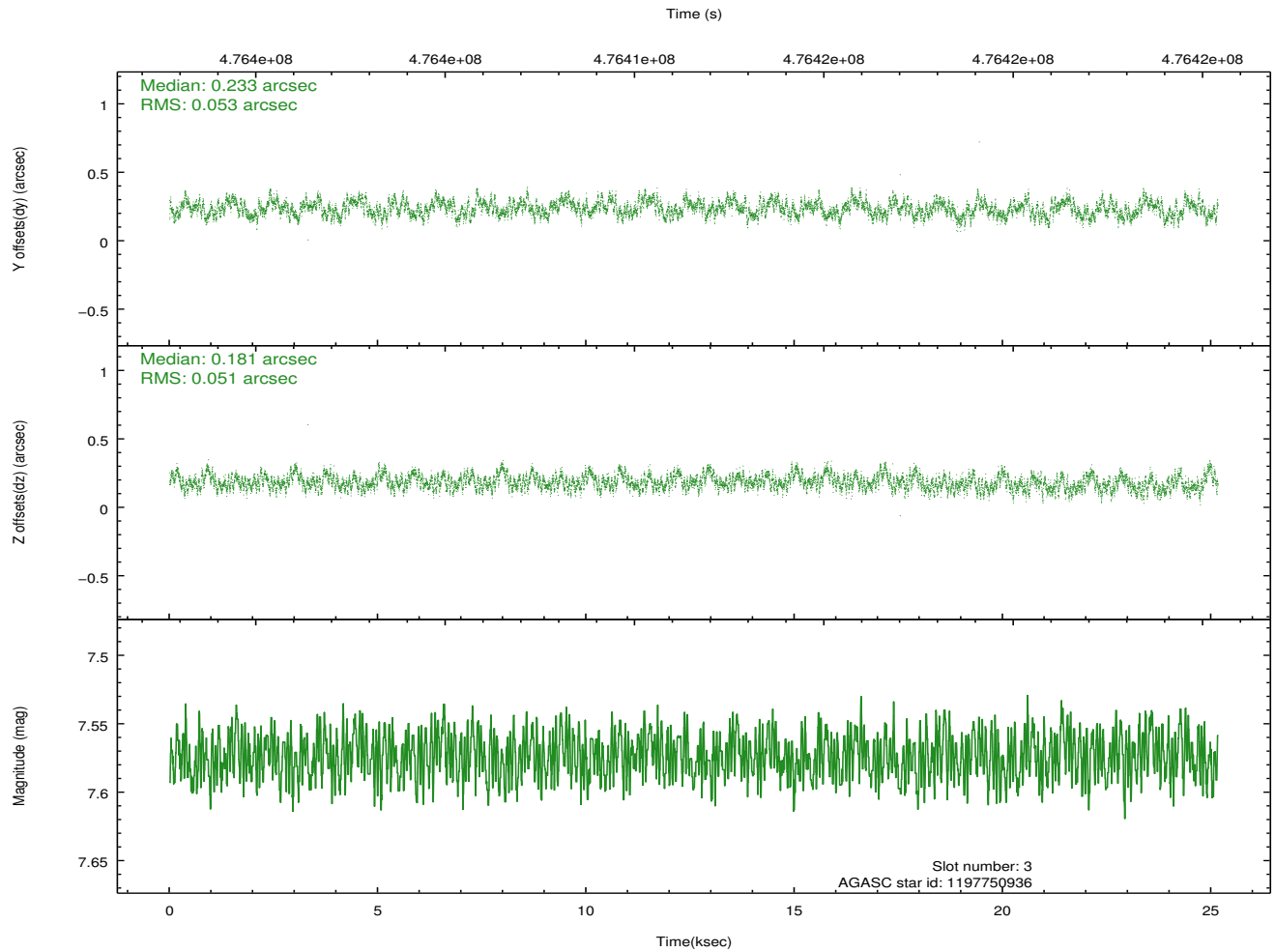
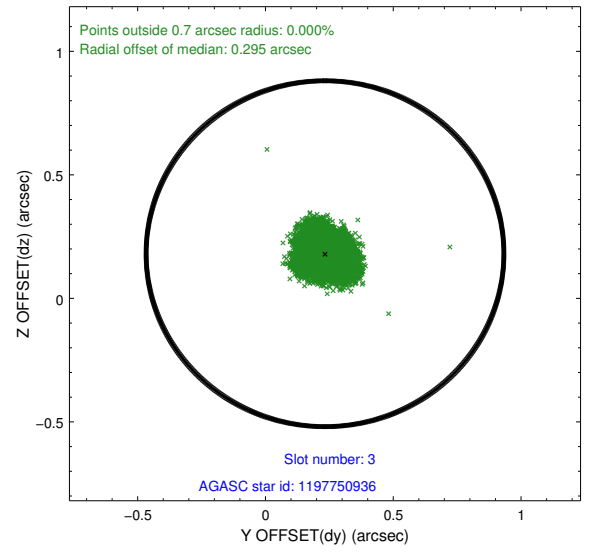
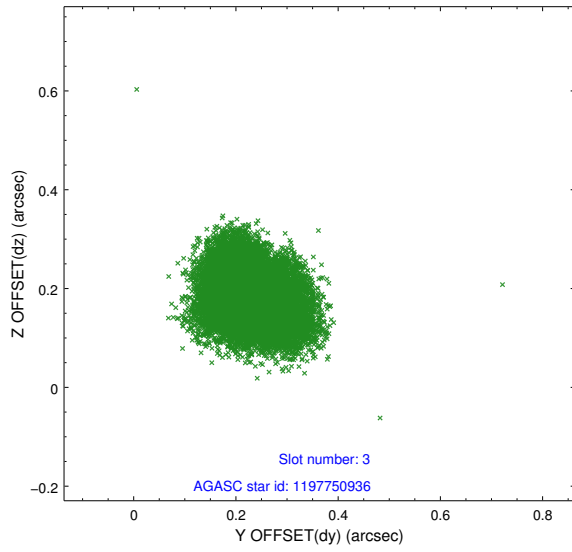
### Slot Statistics

| slot | status | used | id         | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mean_z   |
|------|--------|------|------------|------|-------|--------|--------|-------|-------|-----------|------------|----------|----------|
| 0    | FID    |      | ACIS-S-1   | 7.06 | 6138  | 0.057  | 0.195  | 0.039 | 0.052 | 0.000000  | 0.000000   | 921.59   | -1895.05 |
| 1    | FID    |      | ACIS-S-2   | 6.97 | 6138  | -0.257 | -0.205 | 0.018 | 0.025 | 0.000000  | 0.000000   | -774.56  | -1900.08 |
| 2    | FID    |      | ACIS-S-4   | 7.03 | 6138  | 0.174  | 0.014  | 0.022 | 0.028 | 0.000000  | 0.000000   | 2138.97  | 8.72     |
| 3    | GUIDE  | used | 1197750936 | 7.57 | 12274 | 0.233  | 0.181  | 0.080 | 0.122 | 15.387940 | -71.549550 | -1479.88 | -1352.68 |
| 4    | GUIDE  | used | 1197884536 | 8.50 | 12270 | -0.103 | -0.079 | 0.103 | 0.158 | 17.160729 | -71.835289 | -1448.97 | 899.50   |
| 5    | GUIDE  | used | 1197885104 | 9.33 | 12266 | -0.049 | -0.236 | 0.221 | 0.311 | 17.845067 | -72.189368 | -618.17  | 2130.31  |
| 6    | GUIDE  | used | 1197885328 | 7.26 | 12273 | 0.116  | 0.258  | 0.092 | 0.150 | 16.283090 | -71.733943 | -1346.13 | -146.69  |
| 7    | GUIDE  | used | 1198189696 | 7.38 | 12274 | -0.206 | -0.110 | 0.066 | 0.109 | 15.223750 | -72.697522 | 2275.57  | 379.53   |

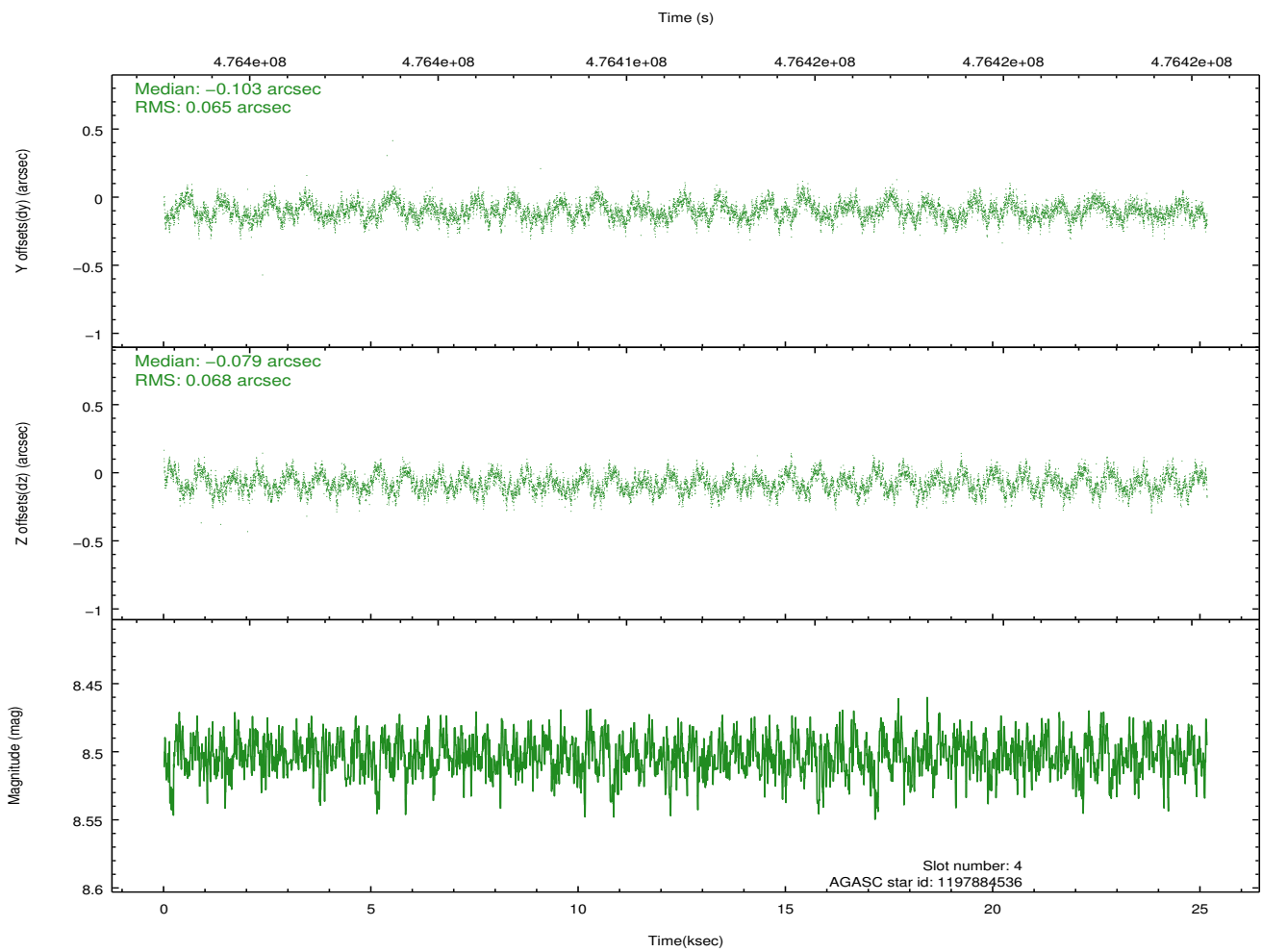
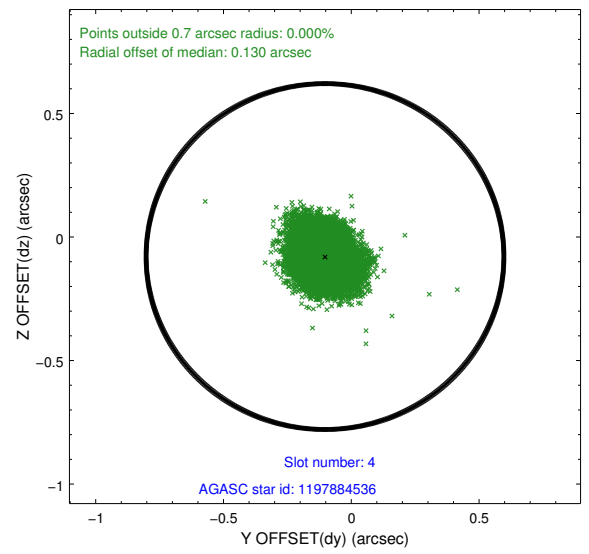
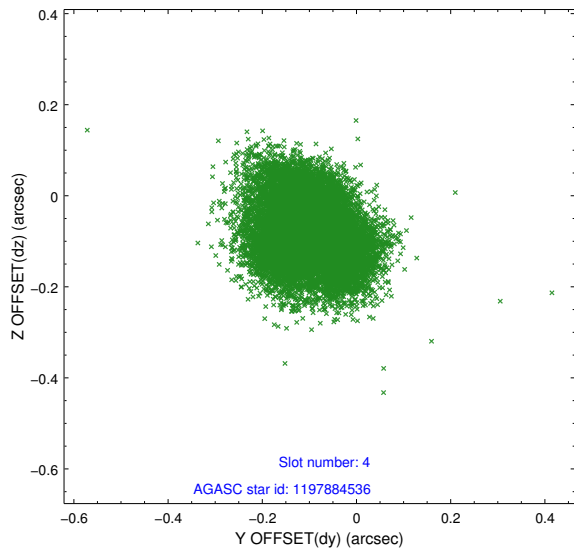
∞

## 2.4 Star Slots

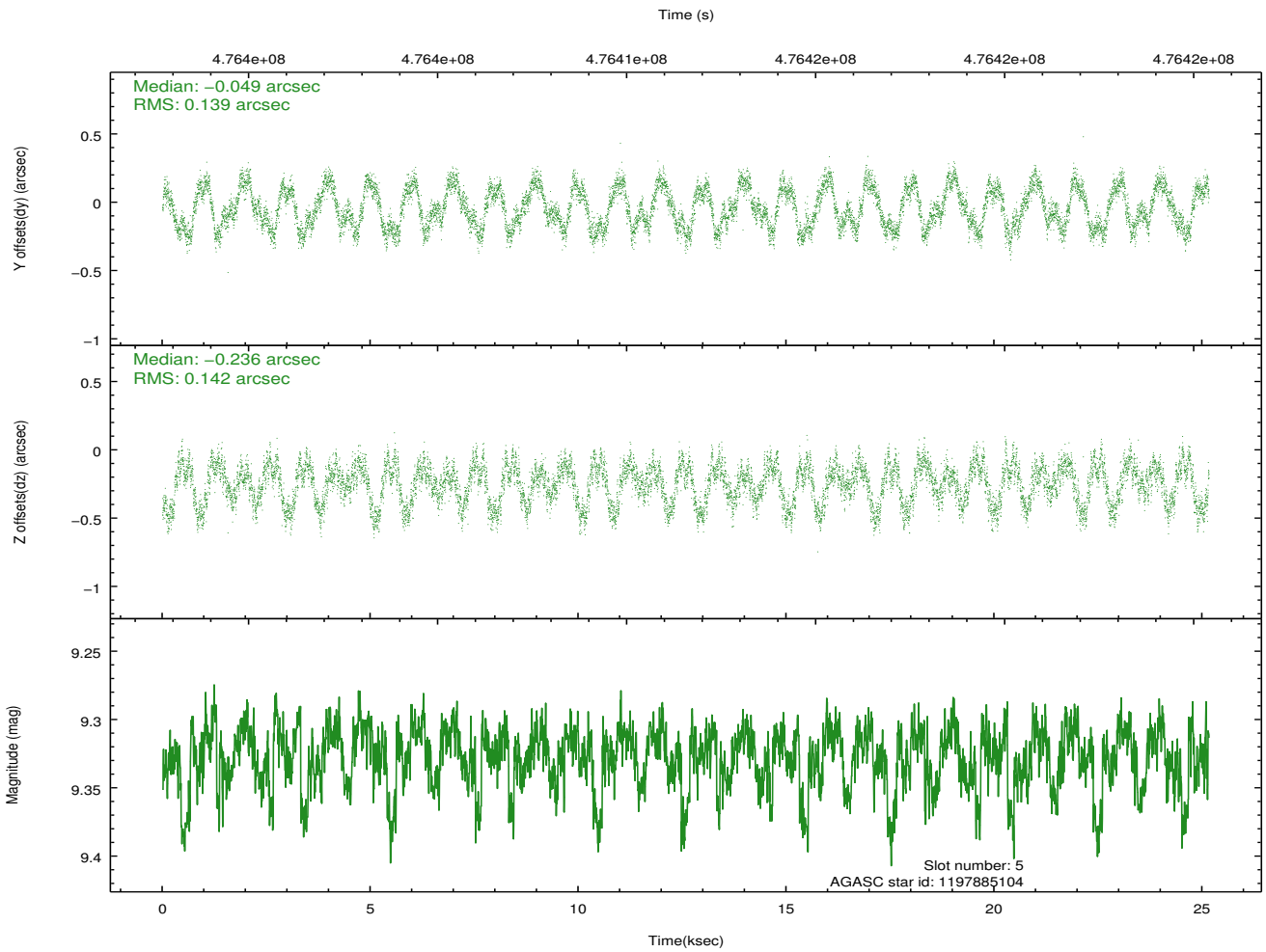
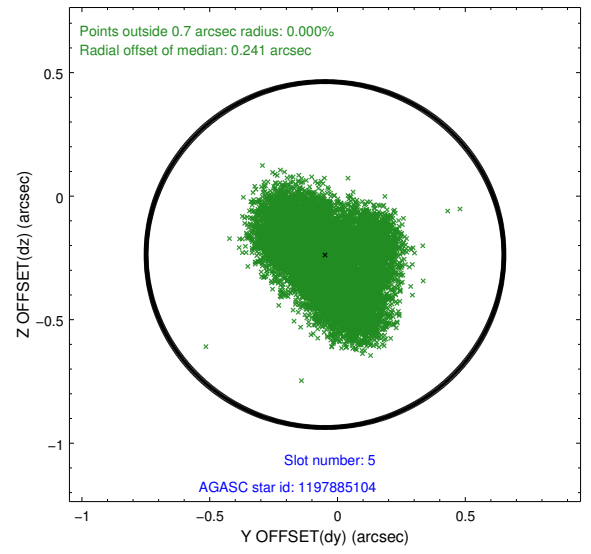
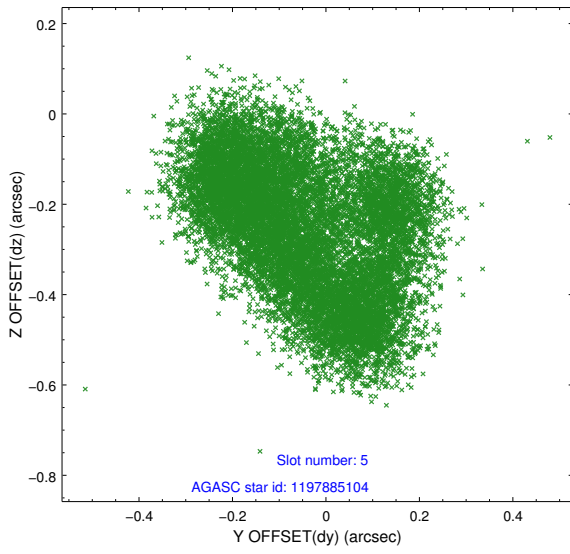
### 2.4.1 Slot 3



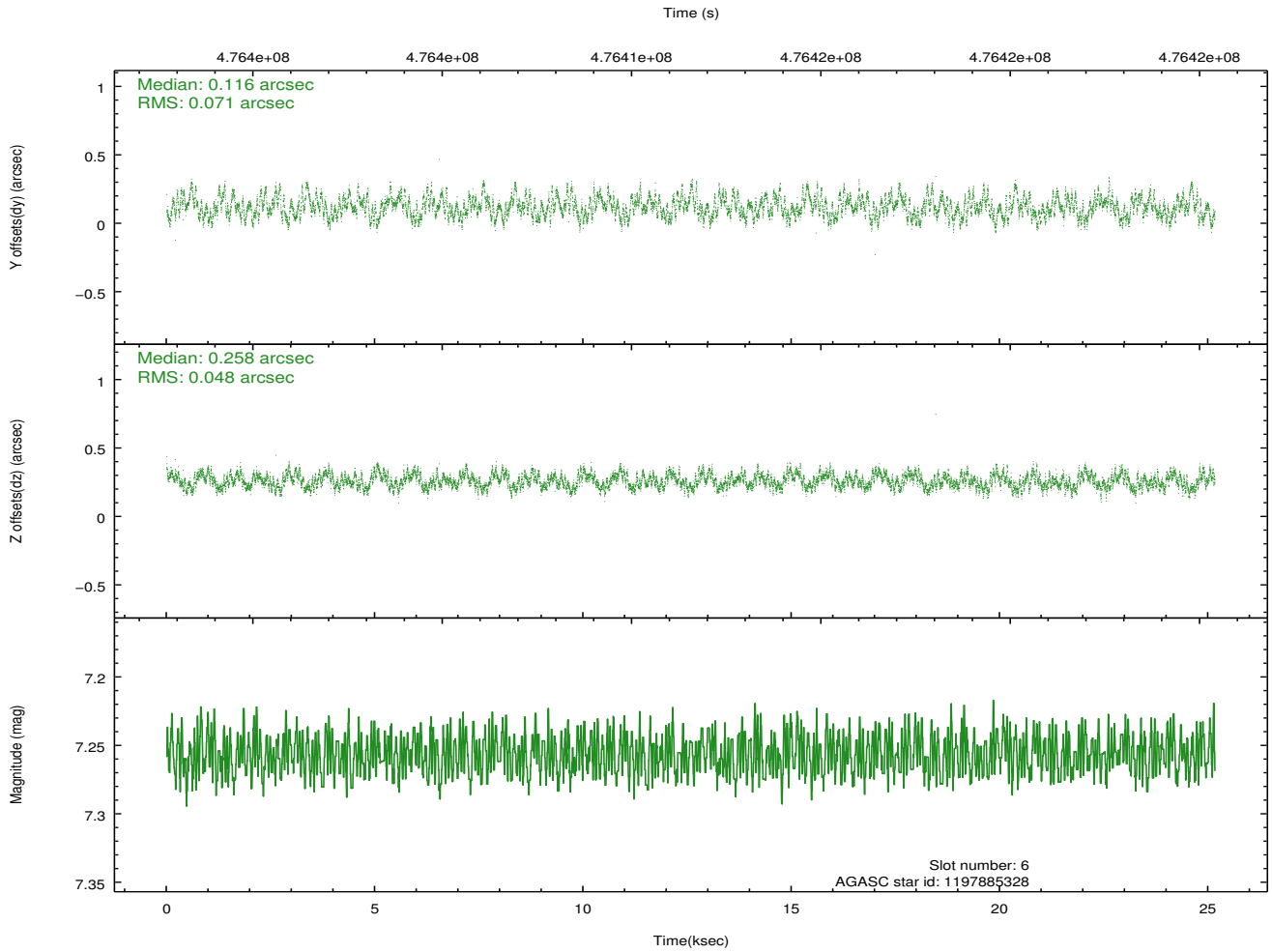
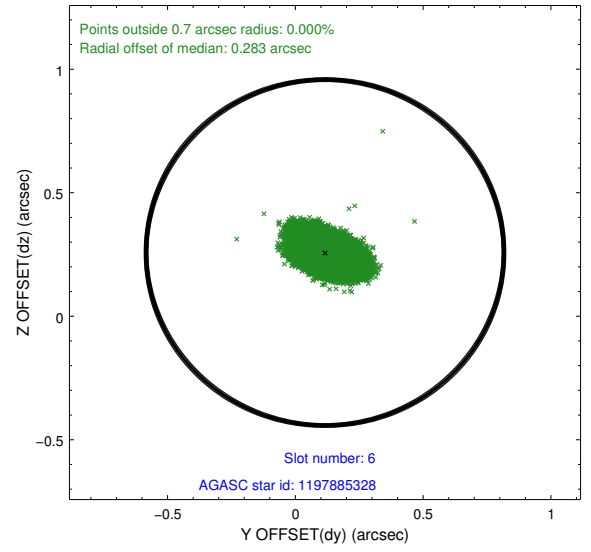
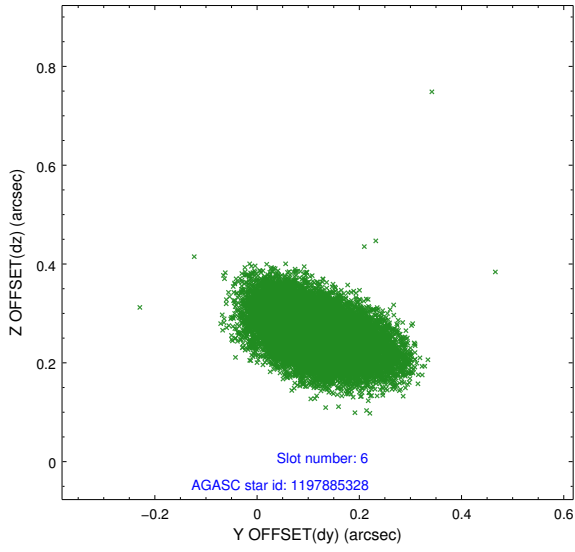
## 2.4.2 Slot 4



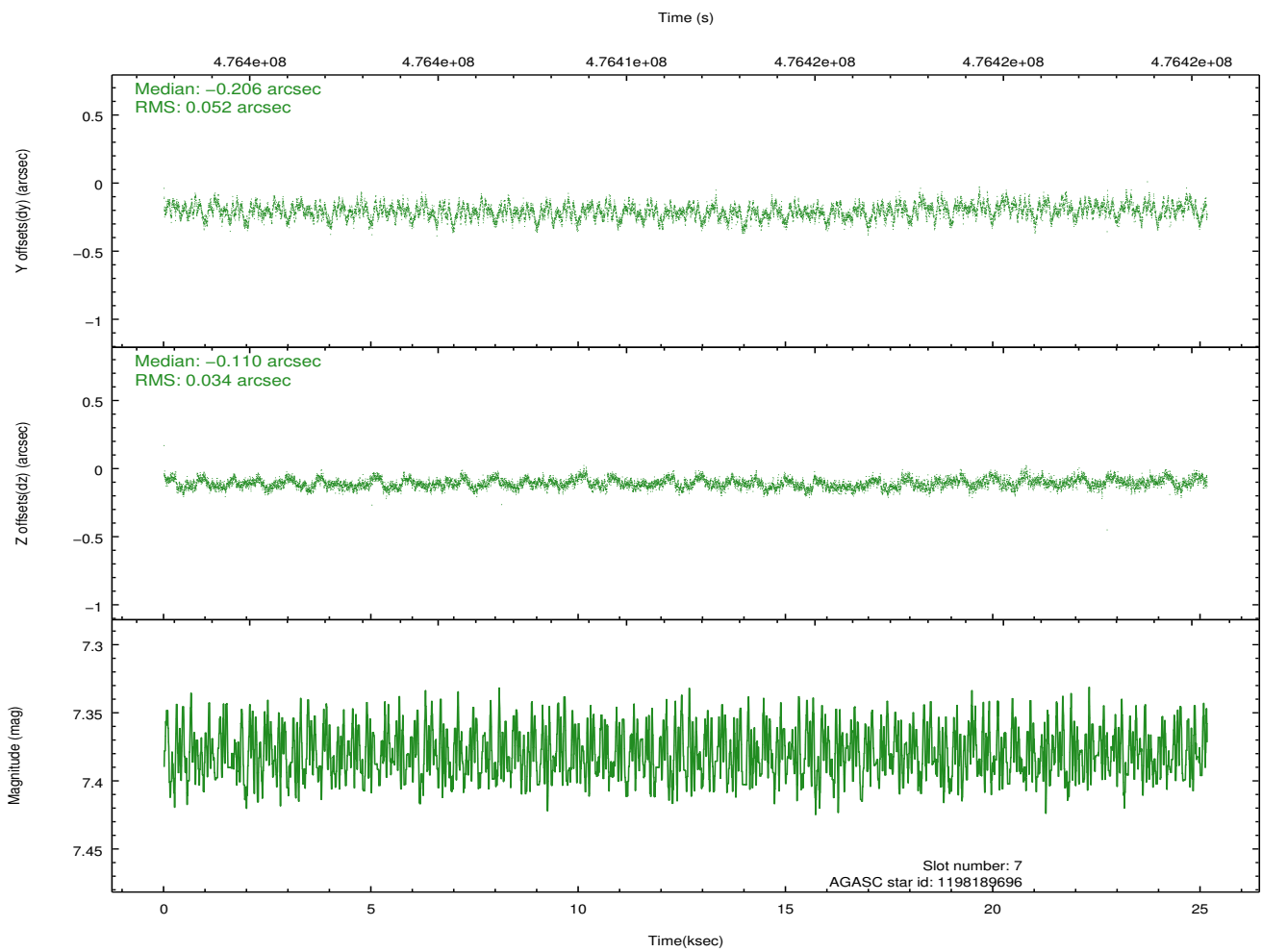
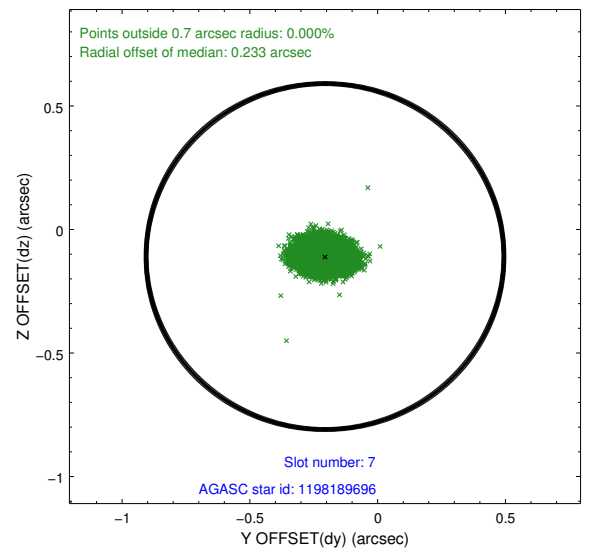
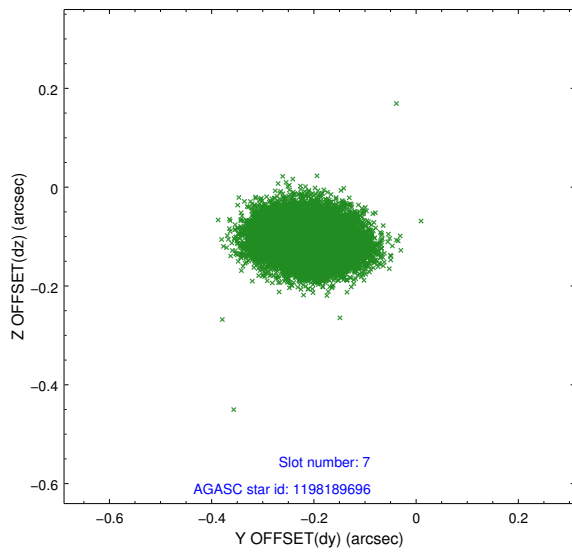
### 2.4.3 Slot 5



### 2.4.4 Slot 6

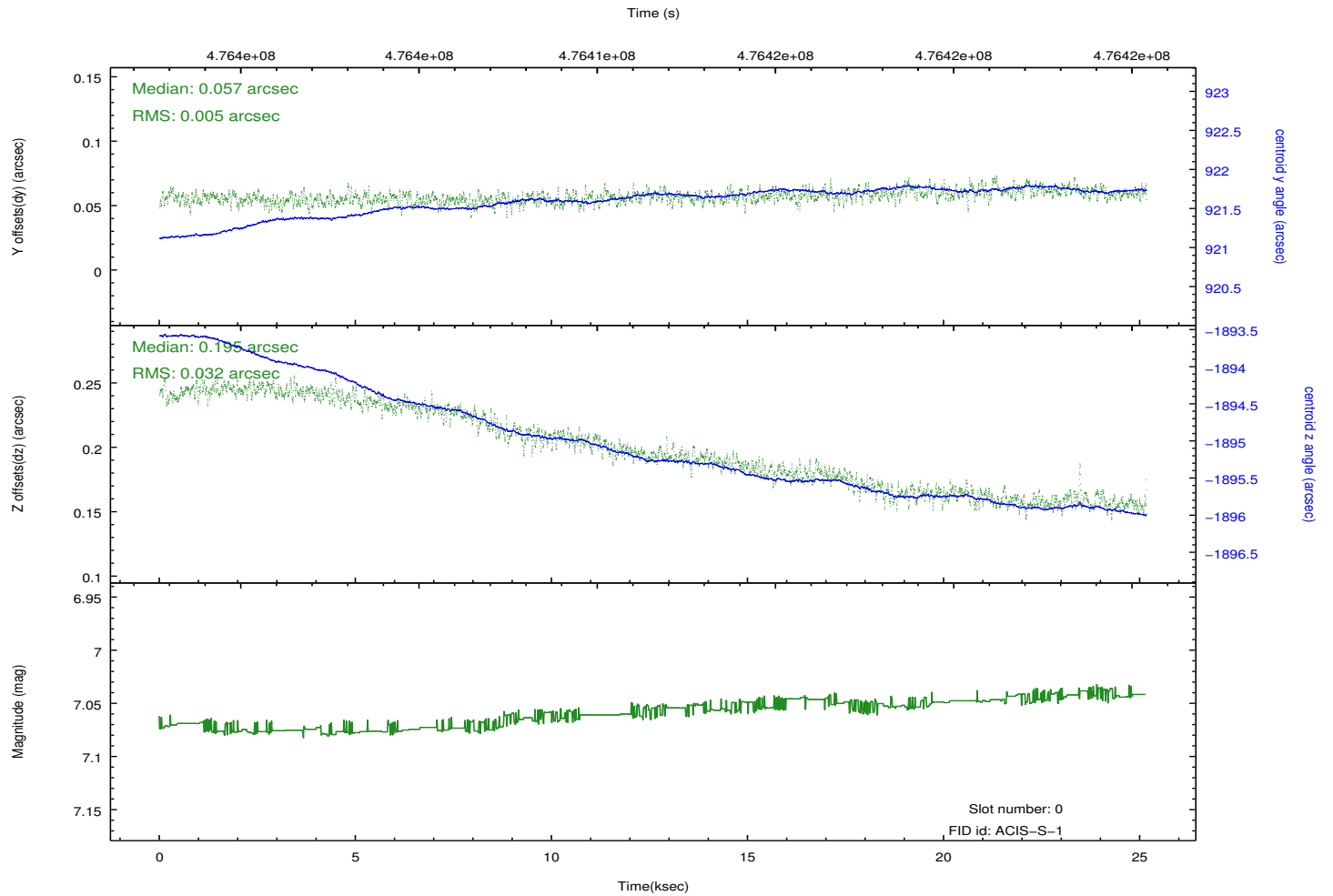
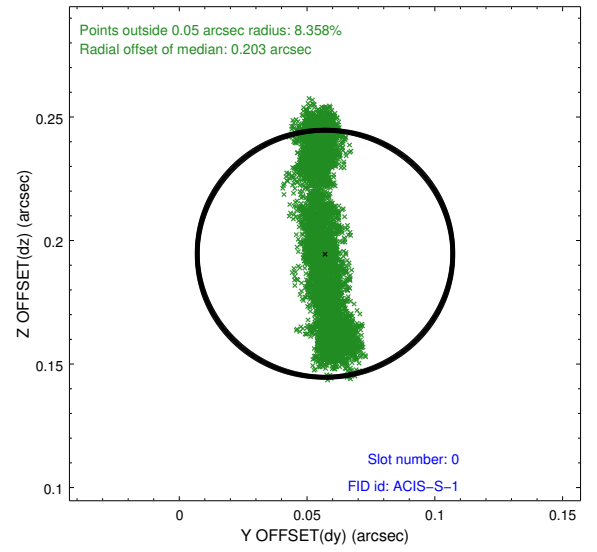
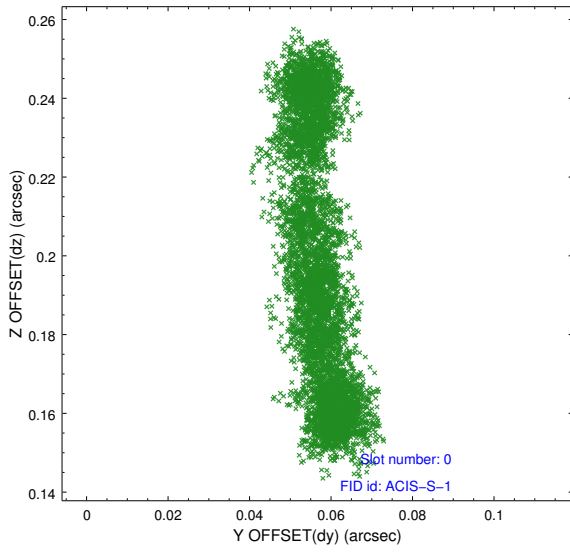


## 2.4.5 Slot 7

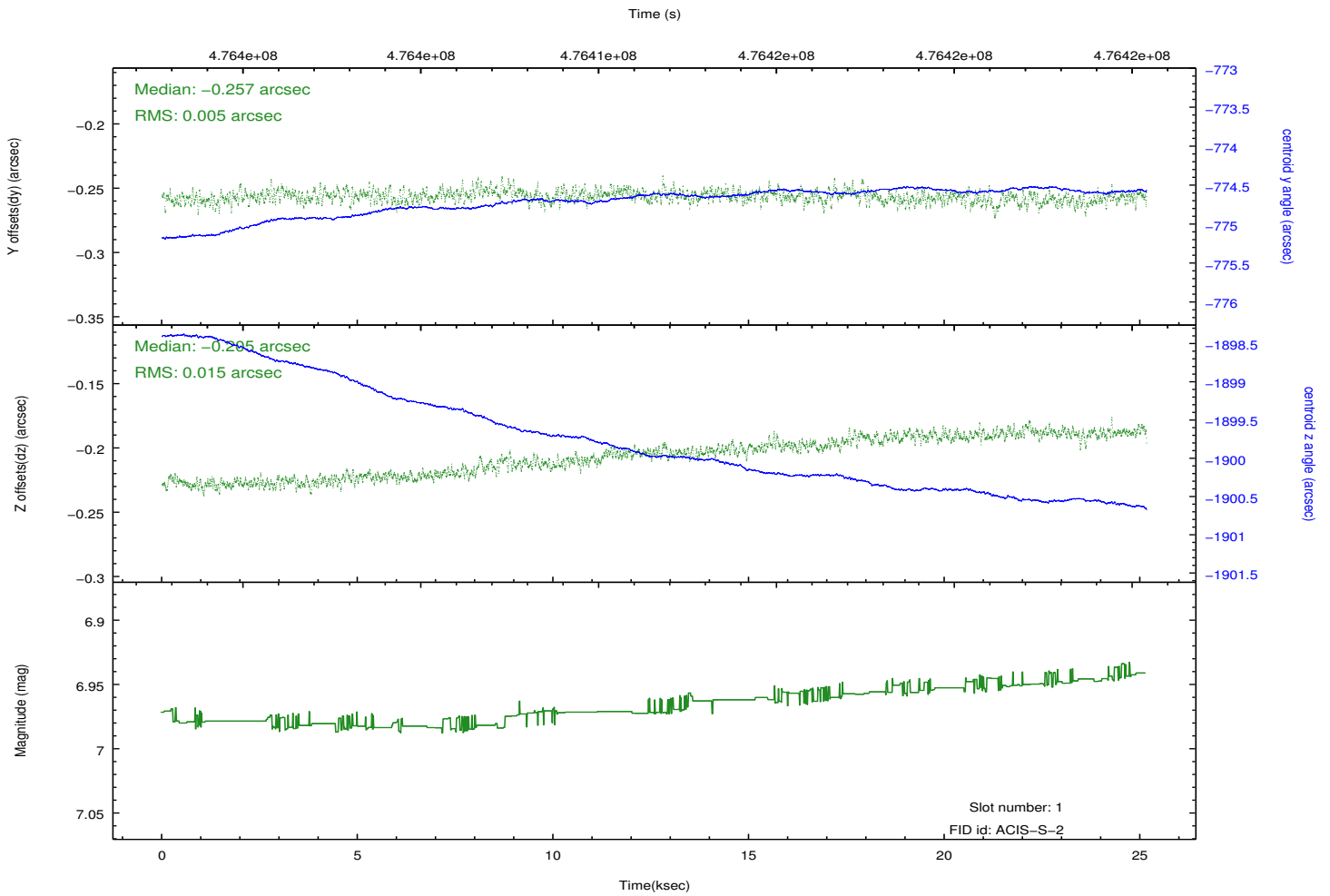
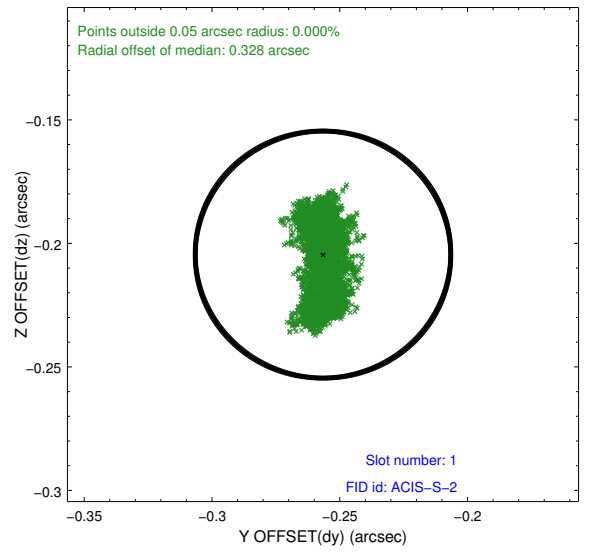
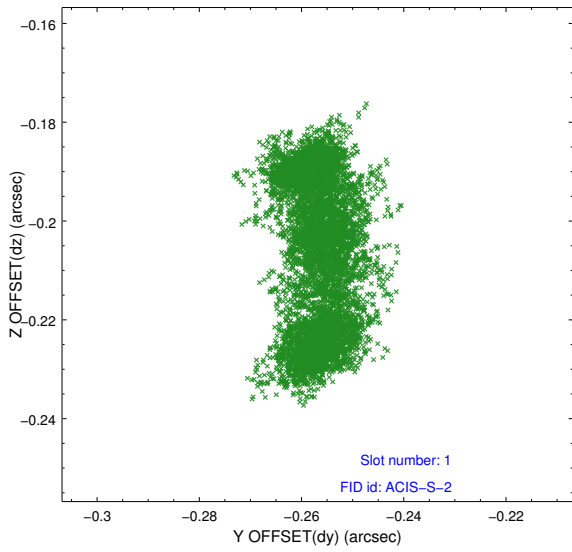


## 2.5 FID Slots

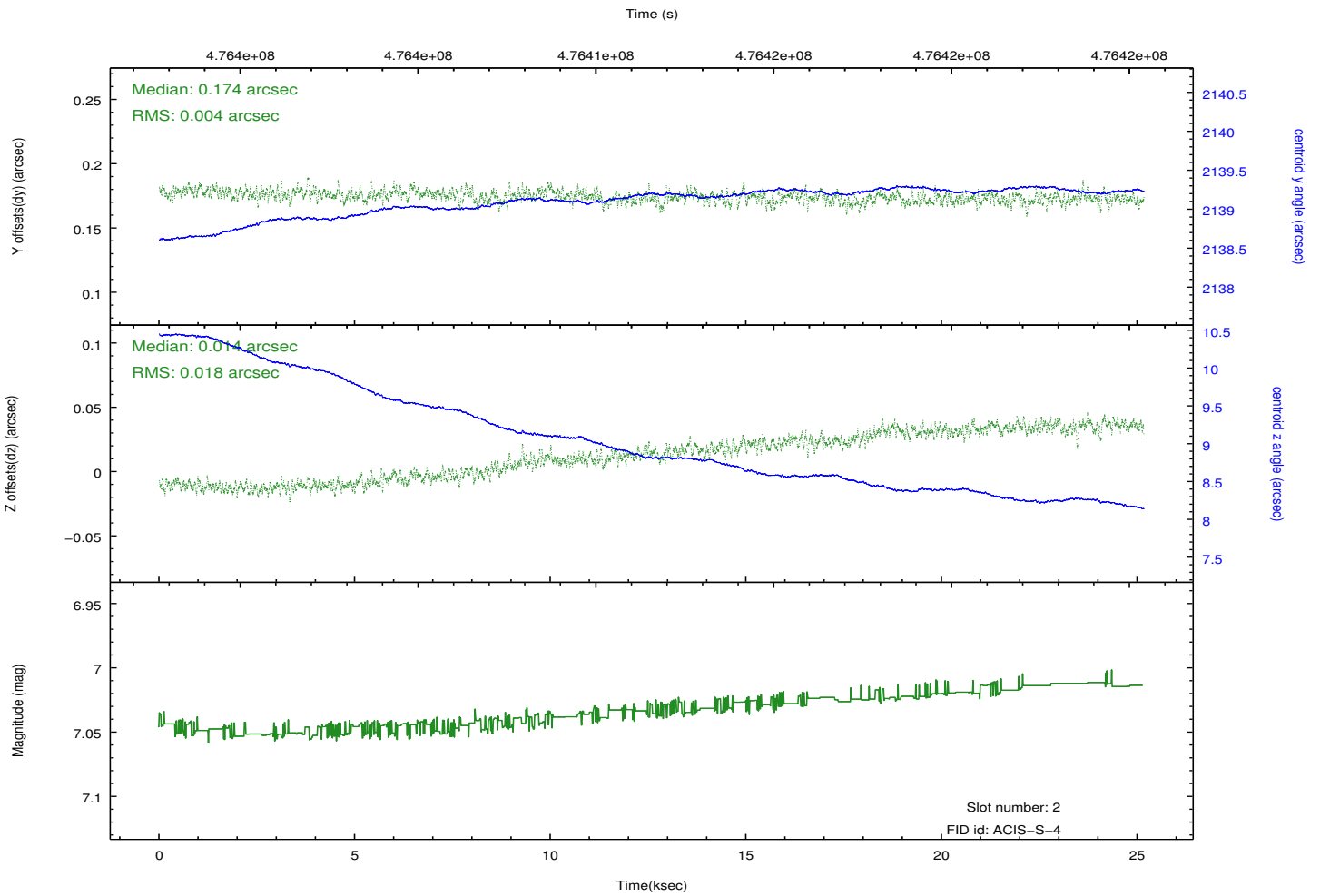
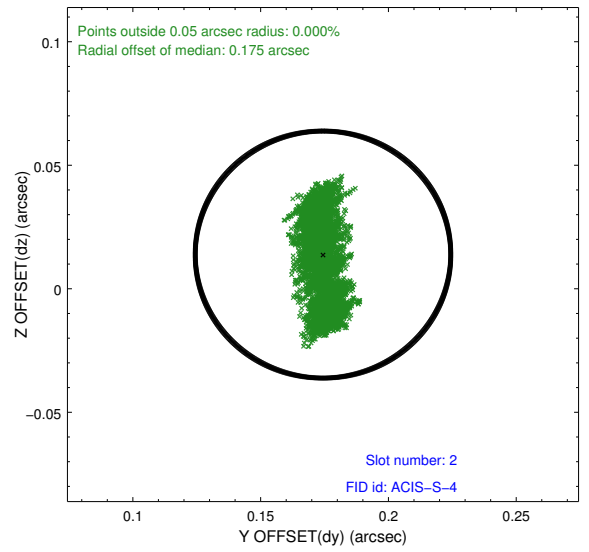
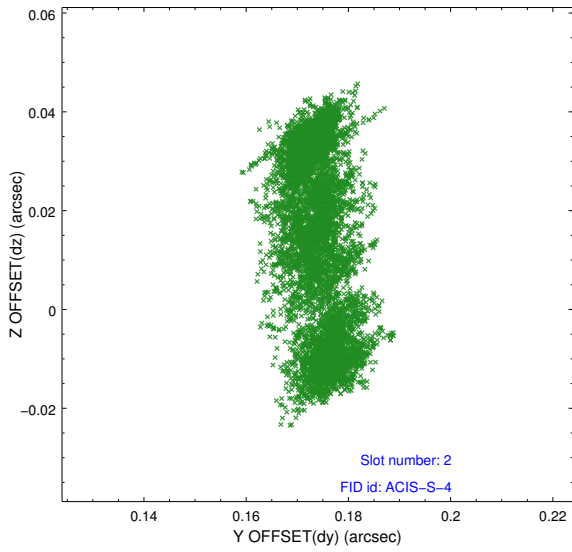
### 2.5.1 Slot 0



## 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)      | 2014.12.08      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 25.064800373554 |

## A.2 Comments

Window preference met.

These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.