

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 2224 - L2 Version 3  
Chandra X-Ray Center

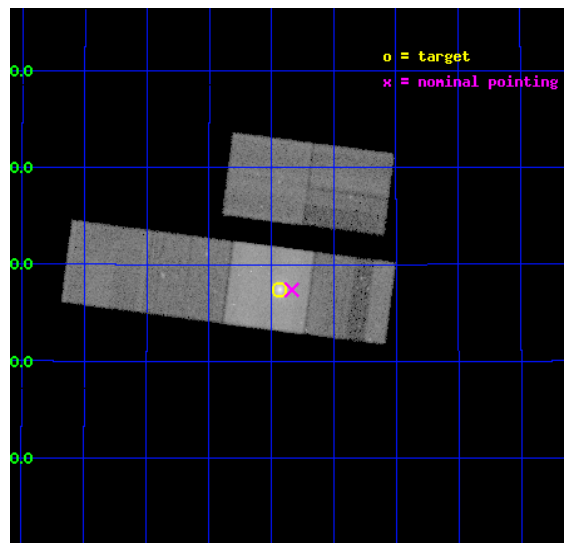
L2 Processing Date : Sep 10 2012

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# 1 Front

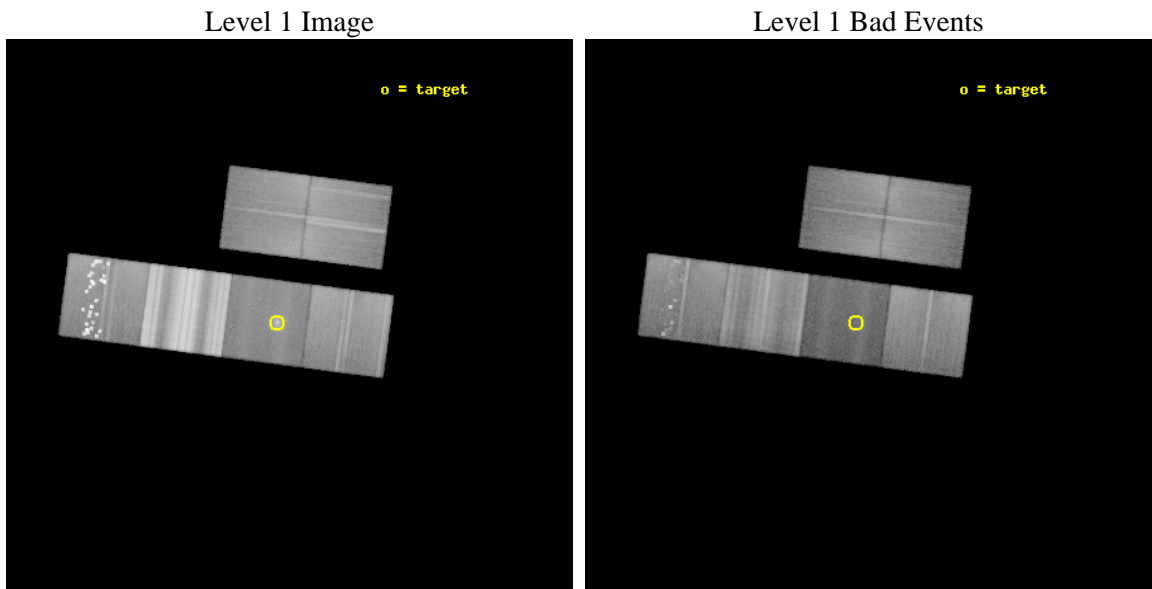
|          |   |   |
|----------|---|---|
| seq_num  | 800163  | Sequence number                             |
| obs_id   | 2224  | Observation id                              |
| title    | CHANDRA OBSERVATIONS OF MS0440.5+0204 & MS0839.9+2938:<br>COOLING FLOW CLUSTERS IN FORMATION? | Proposal title                              |
| observer | Prof. Brian McNamara  | Principal investigator                      |
| object   | MS0839.9+2938   | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 130.732917  | Observer's specified target RA<br>[deg]     |
| dec_targ | 29.4575   | Observer's specified target Dec<br>[deg]    |
| ra_nom   | 130.70893159644   | Nominal RA [deg]                            |
| dec_nom  | 29.456605342478   | Nominal Dec [deg]                           |
| roll_nom | 187.37532734235   | Nominal Roll [deg]                          |
| revision | 3   | Processing version of data                  |
| ontime   | 30153.559067816   | Sum of GTIs [s]                             |
| livetime | 29771.736546605   | Livetime [s]                                |
| ontime2  | 30156.800028071   | Sum of GTIs [s]                             |
| ontime3  | 30153.559037894   | Sum of GTIs [s]                             |
| ontime6  | 30156.800028071   | Sum of GTIs [s]                             |
| ontime7  | 30153.559067816   | Sum of GTIs [s]                             |
| ontime8  | 30153.559087753   | Sum of GTIs [s]                             |
| ontime9  | 30156.800028071   | Sum of GTIs [s]                             |
| l2events | 327366  | Number of level 2 events                    |



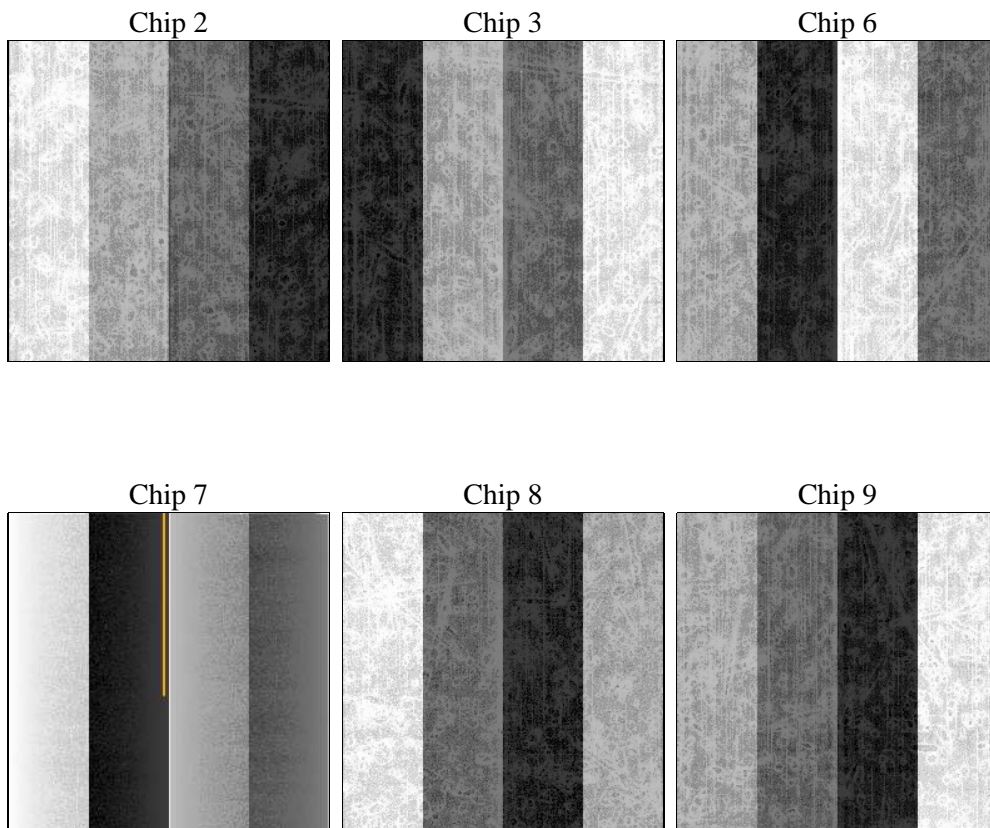
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 30000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 30153.559067816 | Sum of GTIs [s]                         |
| caldbver | 4.5.1.1             | &#160                          | ontime2        | 30156.800028071 | Sum of GTIs [s]                         |
| date     | 2012-09-07T06:30:14 | Date and time of file creation | ontime3        | 30153.559037894 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime6        | 30156.800028071 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 30153.559067816 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 30153.559087753 | Sum of GTIs [s]                         |
|          |                     |                                | ontime9        | 30156.800028071 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 4138301         | Number of level 1 events                |

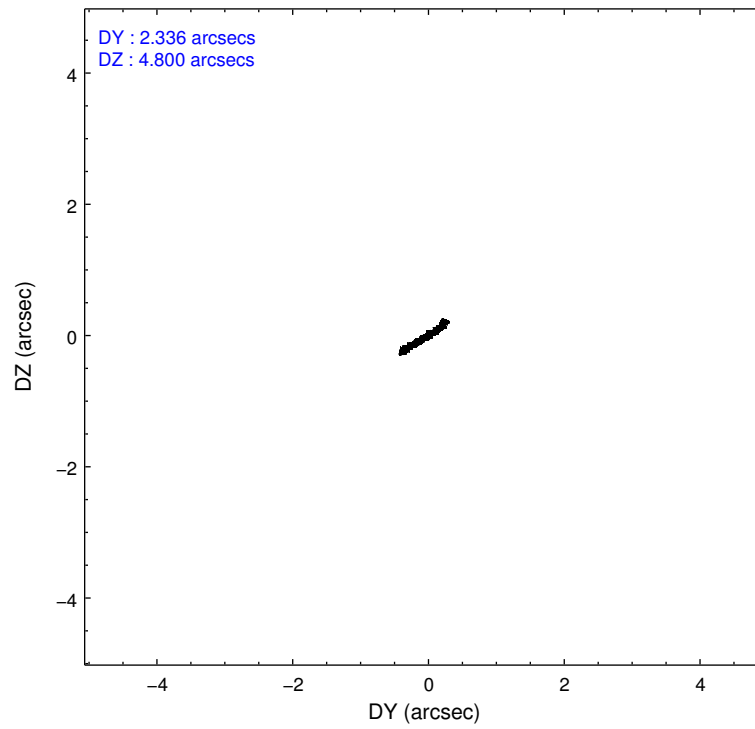
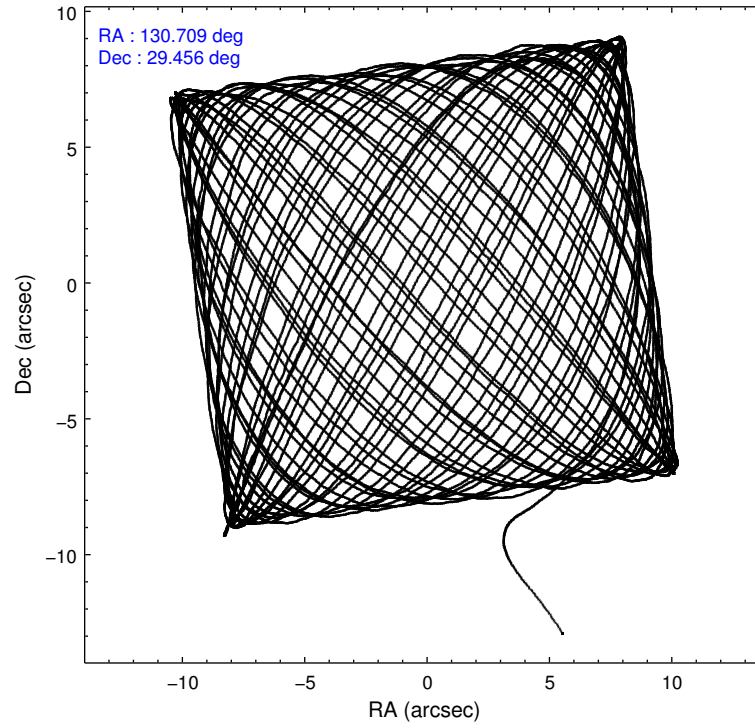
### 2.1.4 Events

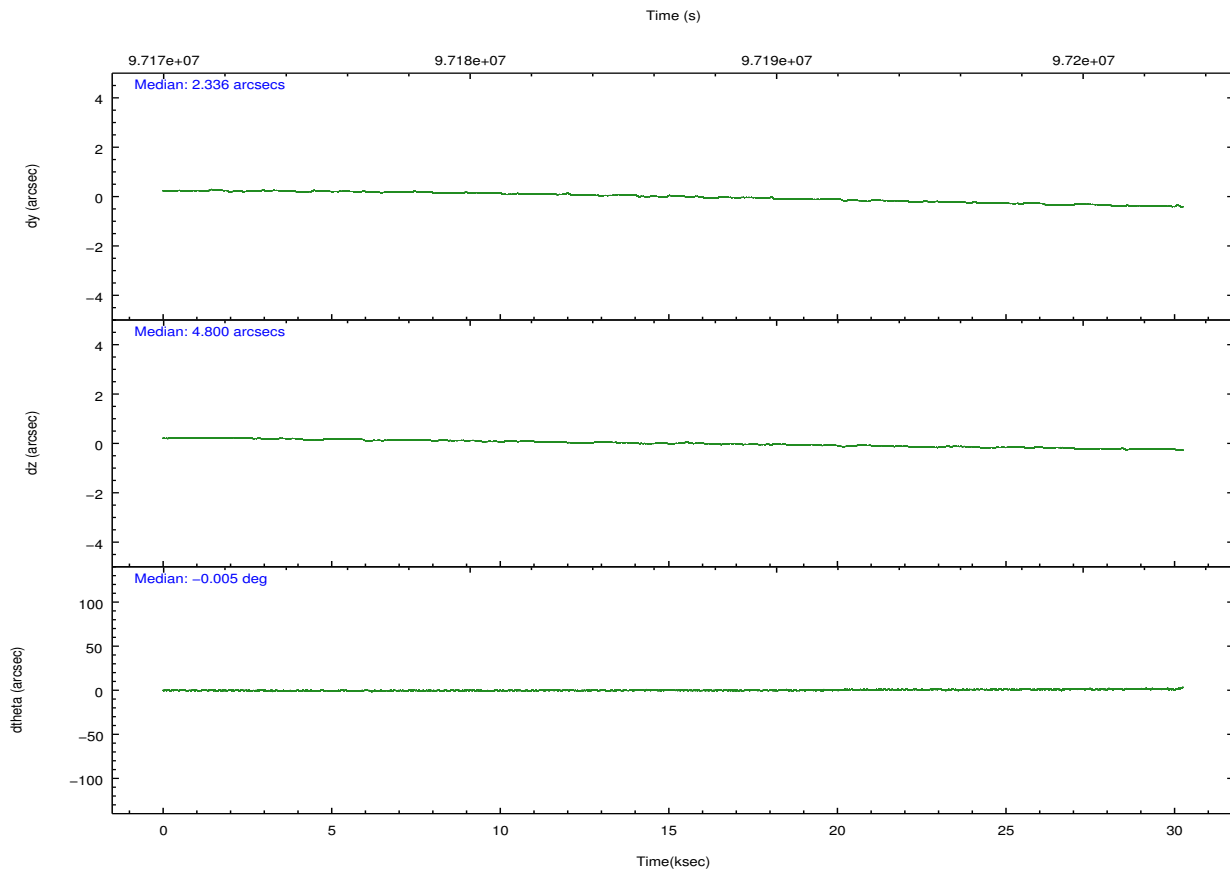
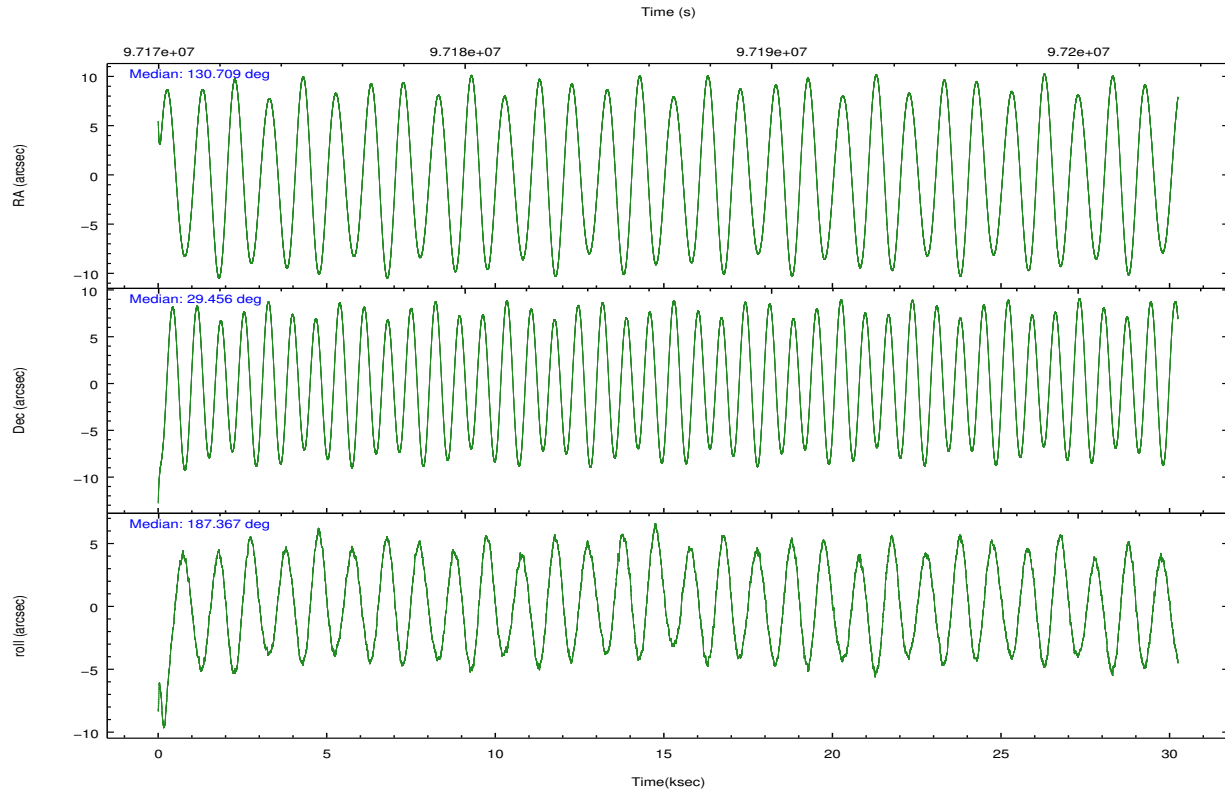
|                 | ccd 2  | ccd 3  | ccd 6  | ccd 7  | ccd 8   | ccd 9  |                | ccd 2  | ccd 3  | ccd 6  | ccd 7  | ccd 8  | ccd 9  |
|-----------------|--------|--------|--------|--------|---------|--------|----------------|--------|--------|--------|--------|--------|--------|
| level 1 events  | 481528 | 430645 | 481573 | 305575 | 1716088 | 722892 | grade 0 events | 35315  | 13061  | 26402  | 20674  | 355643 | 208757 |
| rejected events | 401187 | 385703 | 417354 | 160550 | 521350  | 395606 |                | 7%     | 3%     | 5%     | 6%     | 20%    | 28%    |
| rejected %      | 83%    | 89%    | 86%    | 52%    | 30%     | 54%    | grade 1 events | 364    | 111    | 267    | 703    | 3151   | 8607   |
|                 |        |        |        |        |         |        |                | 0%     | 0%     | 0%     | 0%     | 0%     | 1%     |
|                 |        |        |        |        |         |        | grade 2 events | 25968  | 14357  | 22619  | 36943  | 149304 | 93206  |
|                 |        |        |        |        |         |        |                | 5%     | 3%     | 4%     | 12%    | 8%     | 12%    |
|                 |        |        |        |        |         |        | grade 3 events | 2139   | 2284   | 2463   | 15065  | 242473 | 2901   |
|                 |        |        |        |        |         |        |                | 0%     | 0%     | 0%     | 4%     | 14%    | 0%     |
|                 |        |        |        |        |         |        | grade 4 events | 5759   | 2472   | 2442   | 14982  | 212337 | 9565   |
|                 |        |        |        |        |         |        |                | 1%     | 0%     | 0%     | 4%     | 12%    | 1%     |
|                 |        |        |        |        |         |        | grade 5 events | 6757   | 6923   | 7741   | 25529  | 25633  | 15216  |
|                 |        |        |        |        |         |        |                | 1%     | 1%     | 1%     | 8%     | 1%     | 2%     |
|                 |        |        |        |        |         |        | grade 6 events | 12161  | 13153  | 11050  | 58910  | 252323 | 16246  |
|                 |        |        |        |        |         |        |                | 2%     | 3%     | 2%     | 19%    | 14%    | 2%     |
|                 |        |        |        |        |         |        | grade 7 events | 393065 | 378284 | 408589 | 132769 | 475224 | 368394 |
|                 |        |        |        |        |         |        |                | 81%    | 87%    | 84%    | 43%    | 27%    | 50%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-236789         | ACIS-236789          | 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                 | 130.733695          | 130.7089315964364    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | 29.473379           | 29.45660534247759    | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 187.206522          | 187.3753273423469    | [s] Primary exposure time             | 0.000000  | 3.2     |
| [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)  | 97171658.184000     | 97170425.67136       |                                       |           |         |
| Observation start date            | 2001-01-29T16:06:34 | 2001-01-29T15:47:05  |                                       |           |         |
| [s] Observation end time (MET)    | 97201658.184000     | 97202217.58508401    |                                       |           |         |
| Observation end date              | 2001-01-30T00:26:34 | 2001-01-30T00:36:57  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



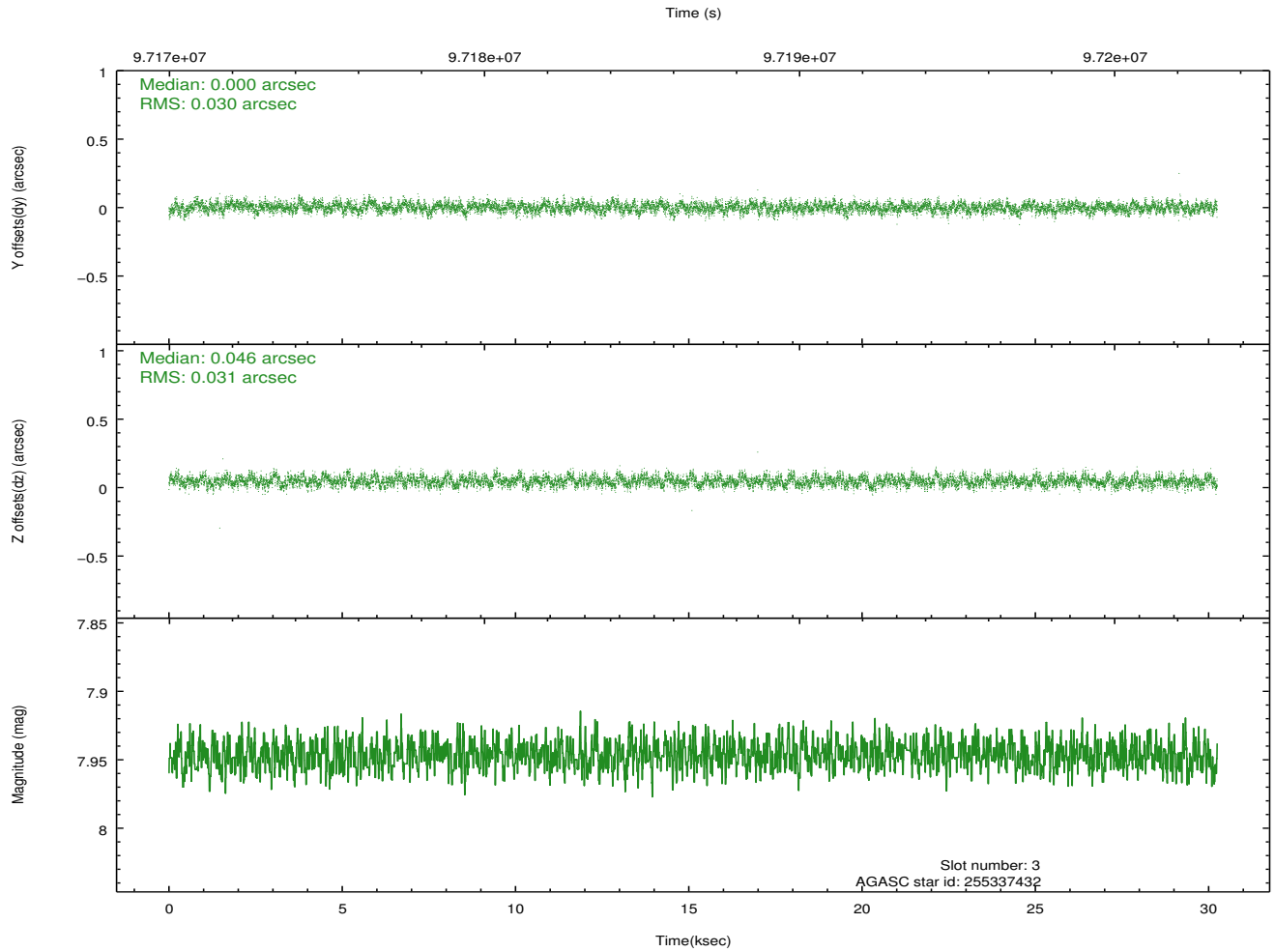
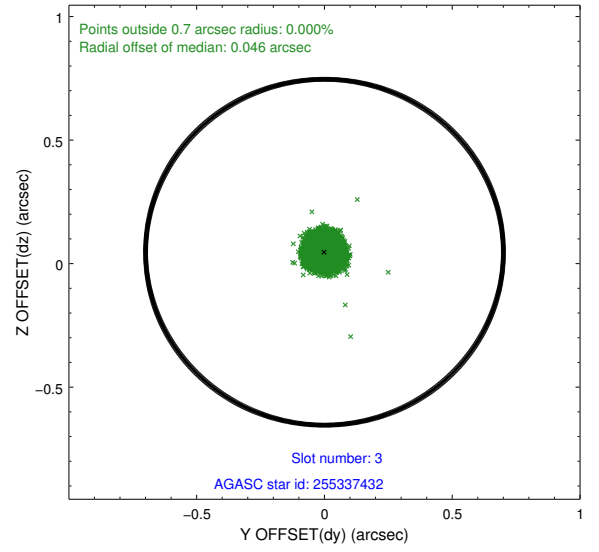
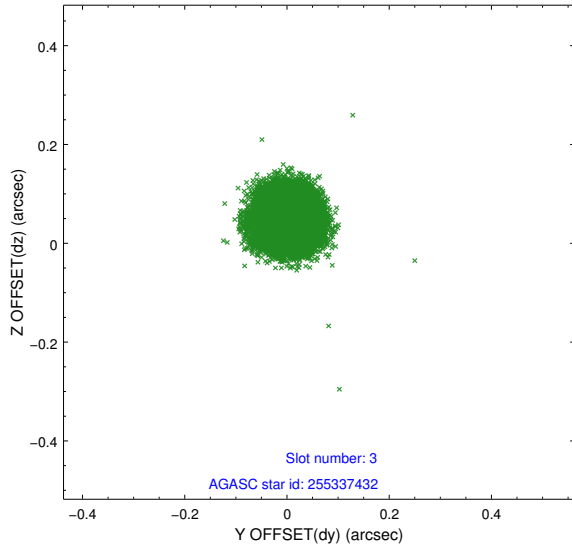


### Slot Statistics

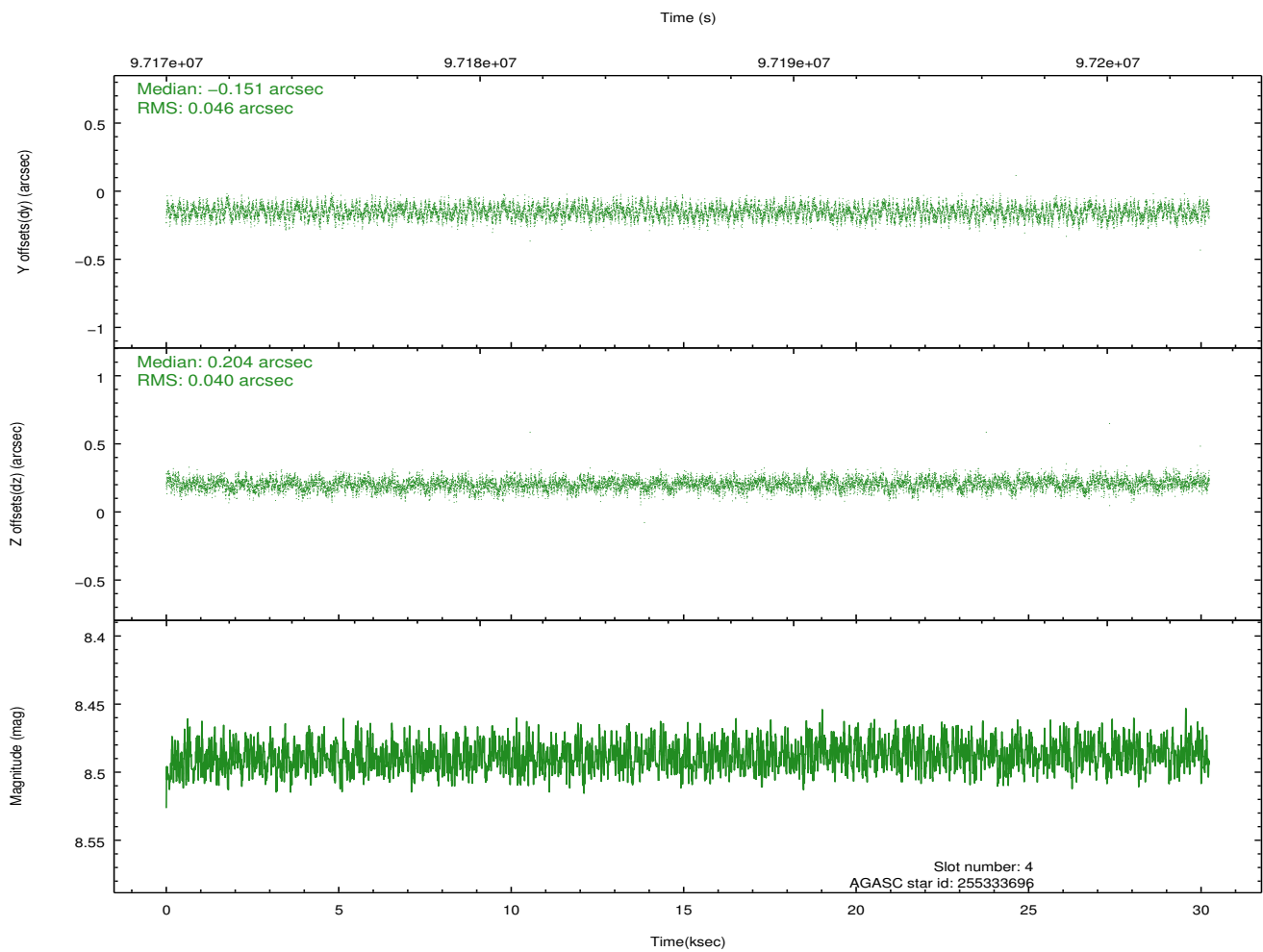
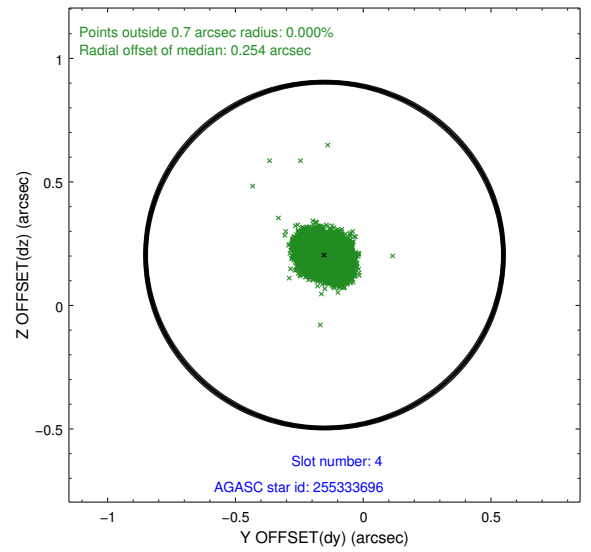
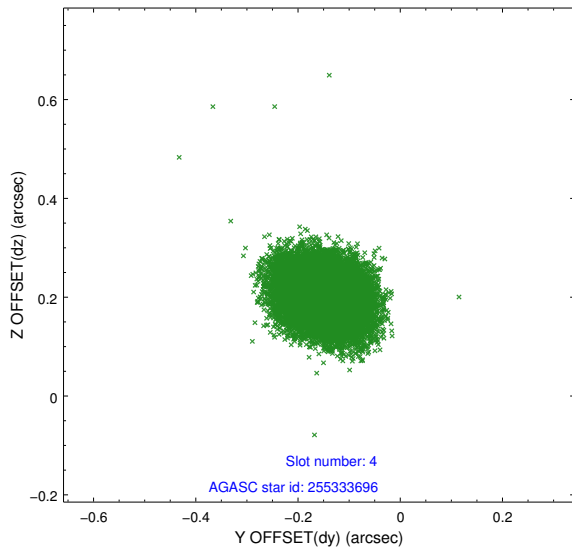
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    | ACIS-S-2  | 7.11 | 7376  | -0.030 | -0.012 | 0.007 | 0.012 | 0.000000   | 0.000000  | -754.94  | -1725.88 |
| 1    | FID    | ACIS-S-4  | 7.20 | 7377  | -0.022 | 0.018  | 0.010 | 0.019 | 0.000000   | 0.000000  | 2158.29  | 182.61   |
| 2    | FID    | ACIS-S-5  | 7.24 | 7378  | 0.020  | 0.003  | 0.008 | 0.014 | 0.000000   | 0.000000  | -1807.67 | 176.28   |
| 3    | GUIDE  | 255337432 | 7.95 | 14754 | 0.000  | 0.046  | 0.046 | 0.074 | 130.226540 | 29.206439 | 1701.05  | 749.89   |
| 4    | GUIDE  | 255333696 | 8.49 | 14747 | -0.151 | 0.204  | 0.066 | 0.104 | 130.413204 | 29.994468 | 756.16   | -1987.91 |
| 5    | GUIDE  | 255463912 | 8.43 | 14754 | -0.071 | -0.629 | 0.067 | 0.110 | 131.388127 | 29.267753 | -1947.02 | 985.03   |
| 6    | GUIDE  | 255332544 | 8.66 | 14754 | 0.017  | 0.016  | 0.052 | 0.085 | 130.024735 | 29.283160 | 2293.38  | 393.38   |
| 7    | GUIDE  | 255464040 | 8.95 | 14750 | 0.206  | 0.364  | 0.086 | 0.135 | 131.534556 | 28.968726 | -2275.70 | 2109.95  |

## 2.4 Star Slots

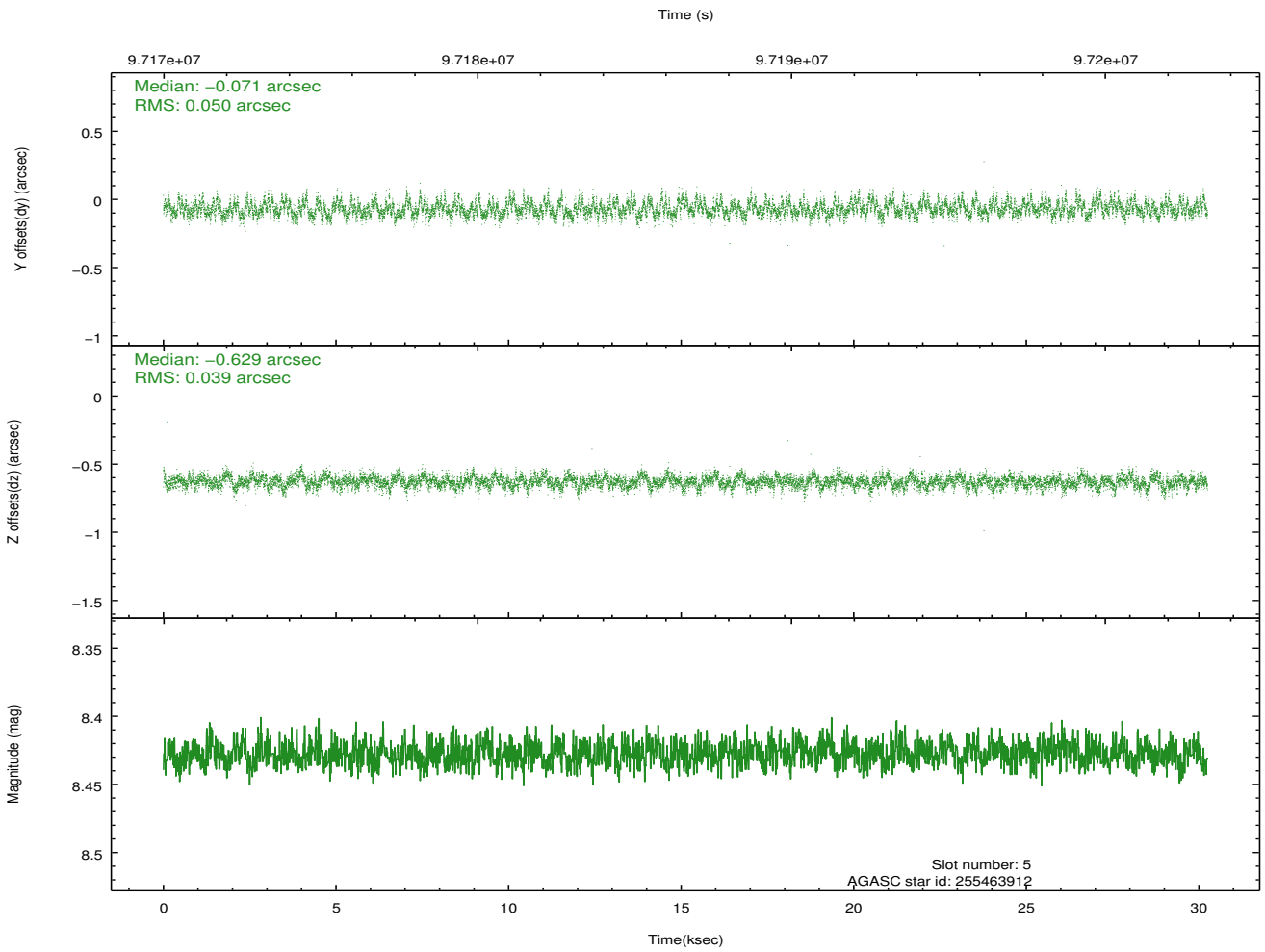
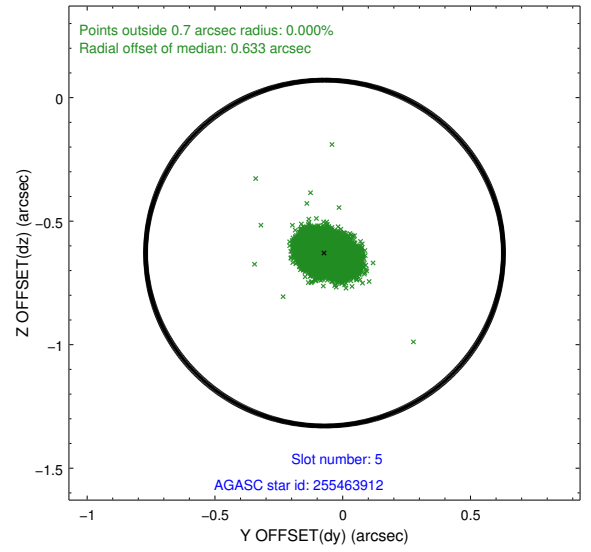
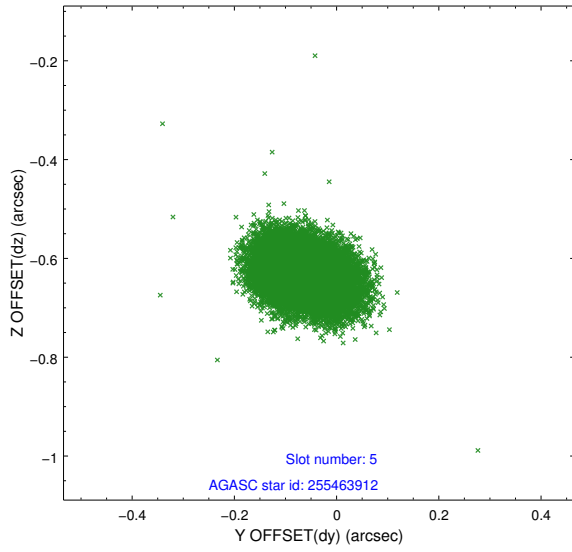
### 2.4.1 Slot 3



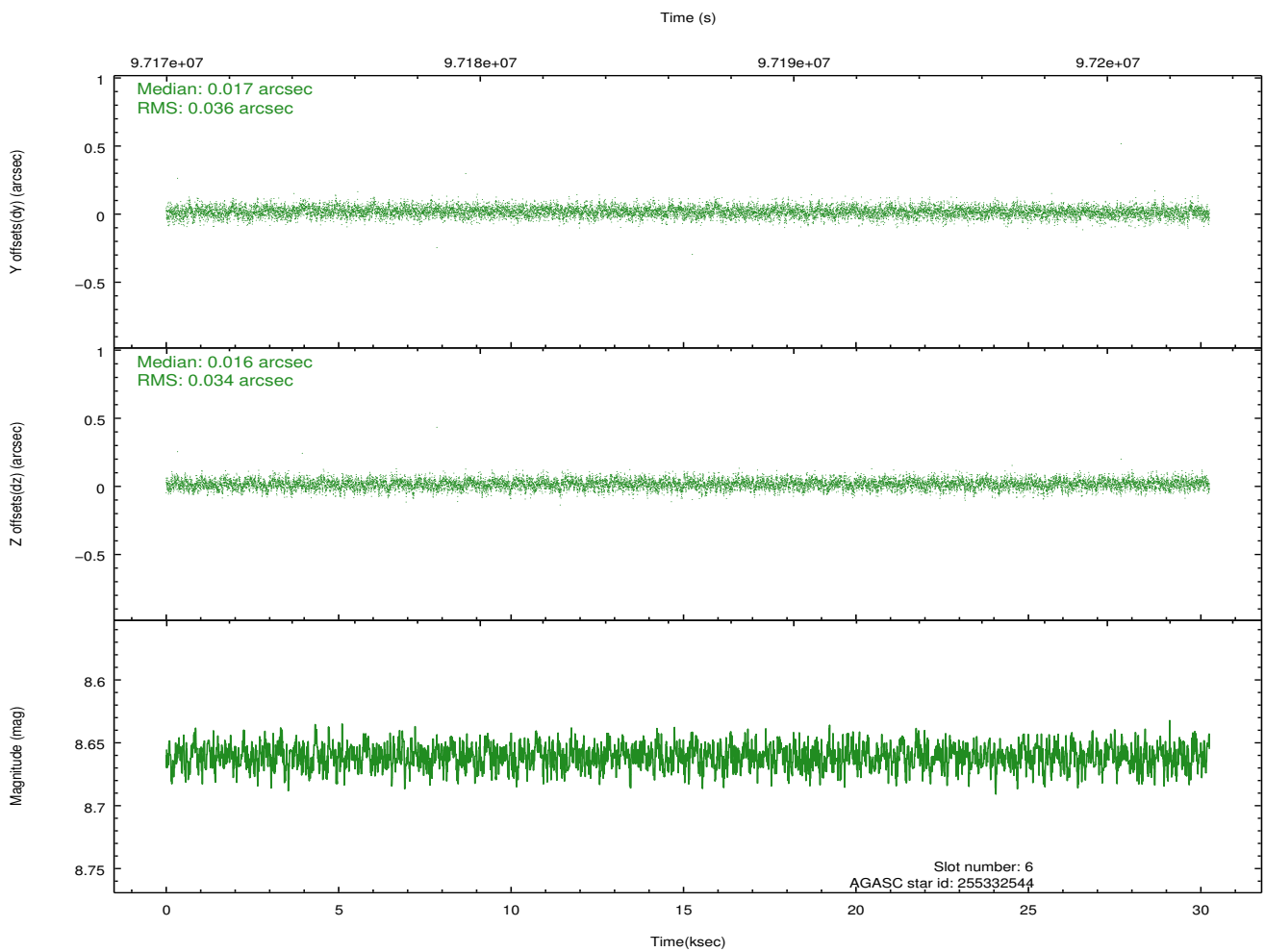
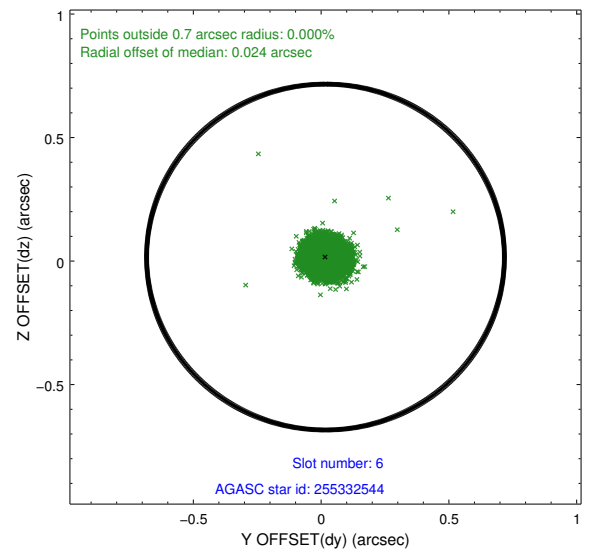
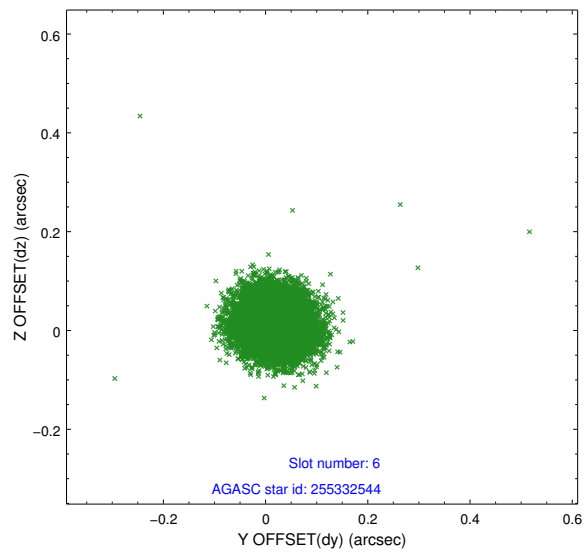
## 2.4.2 Slot 4



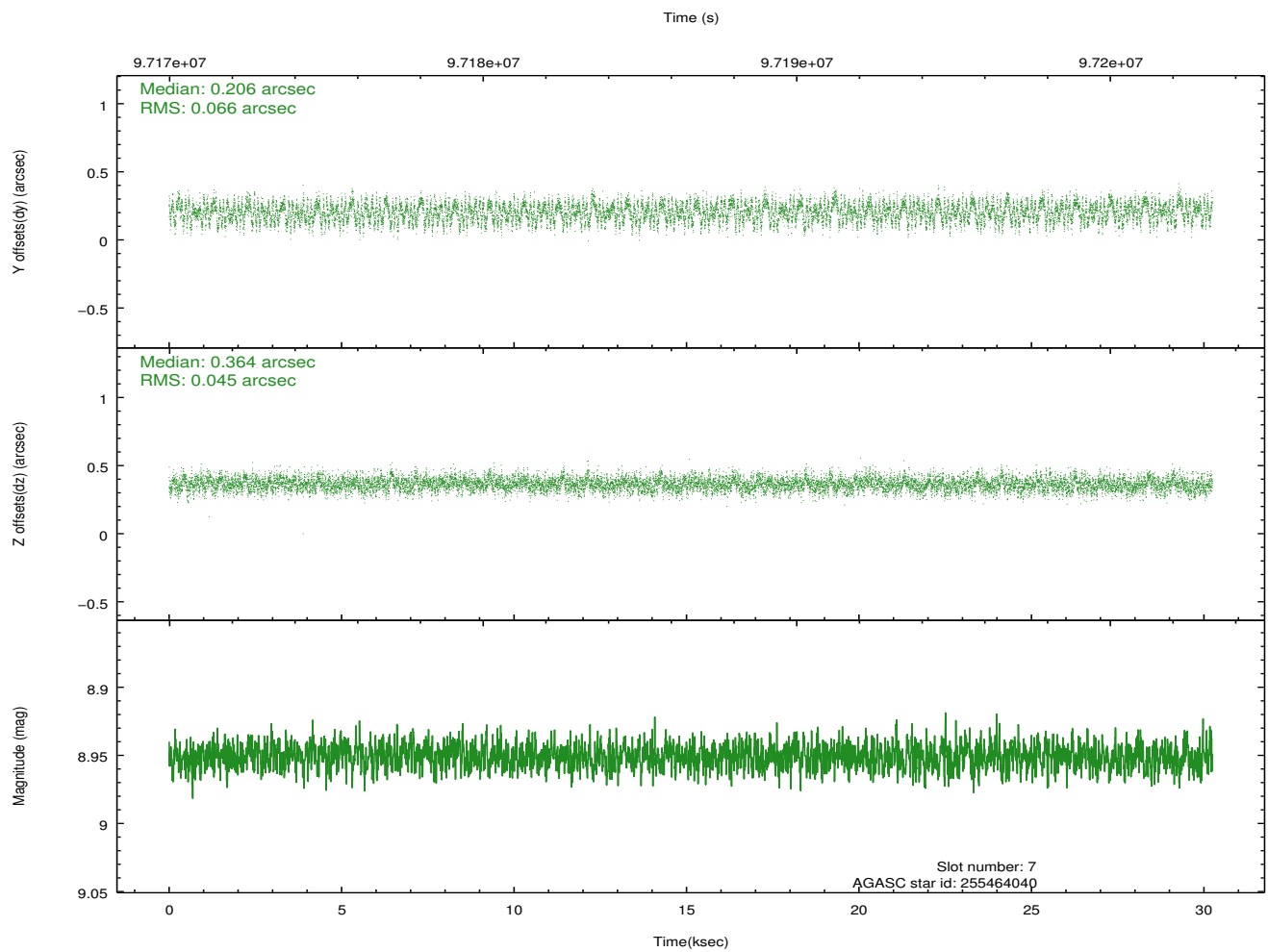
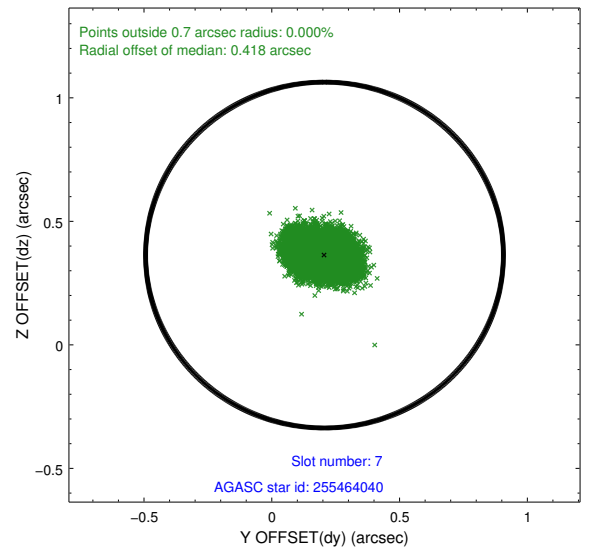
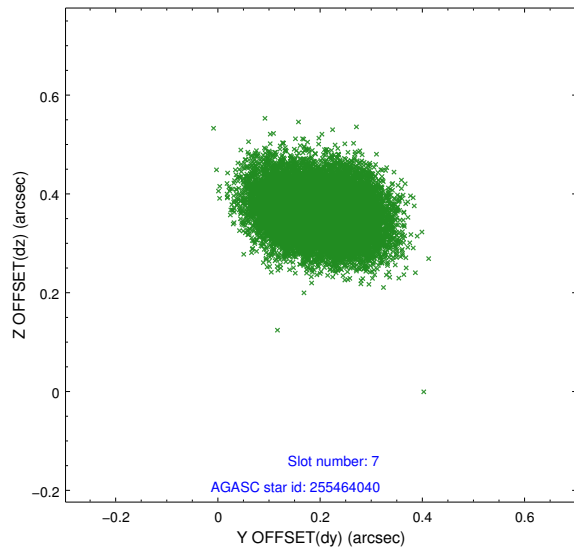
### 2.4.3 Slot 5



## 2.4.4 Slot 6

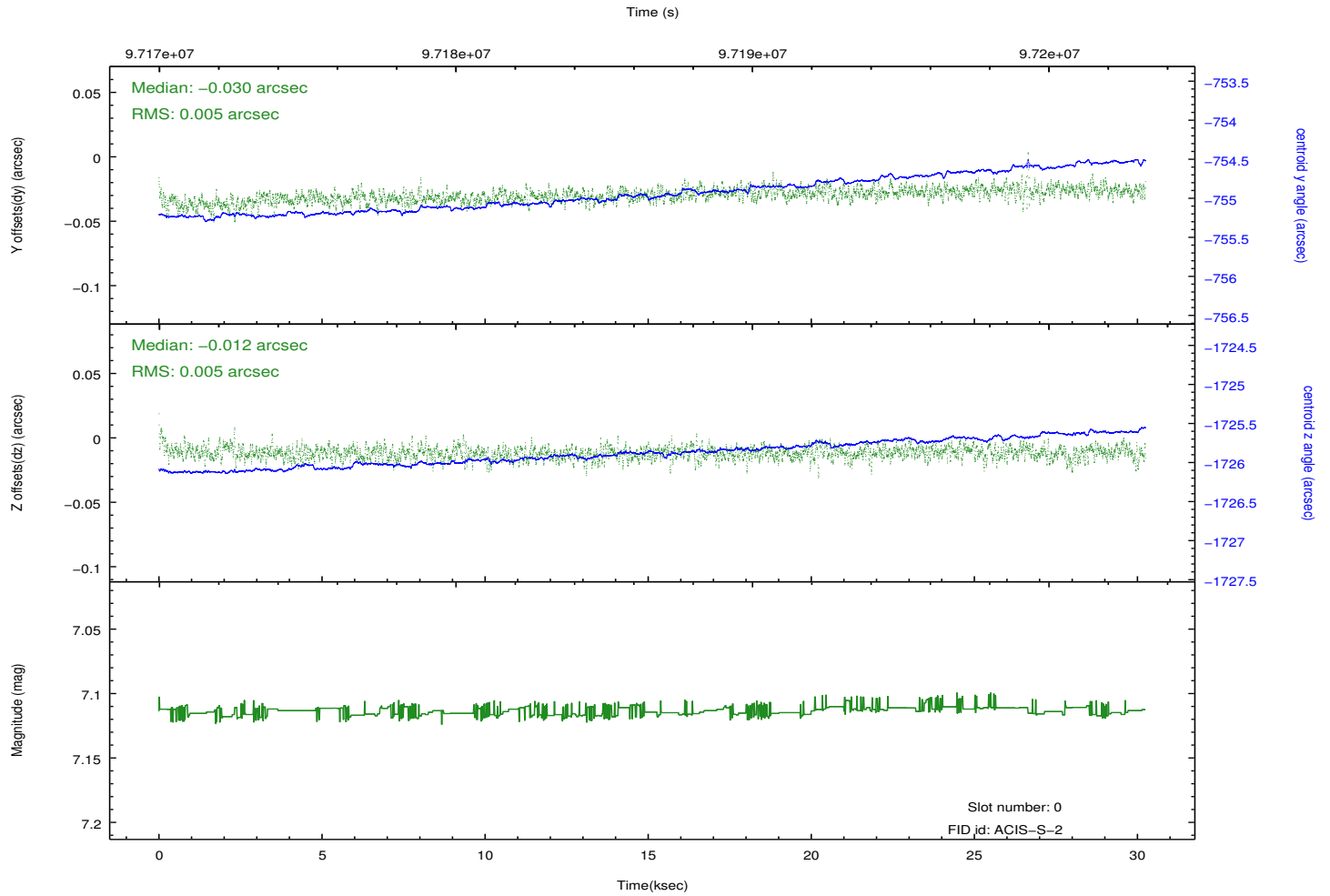
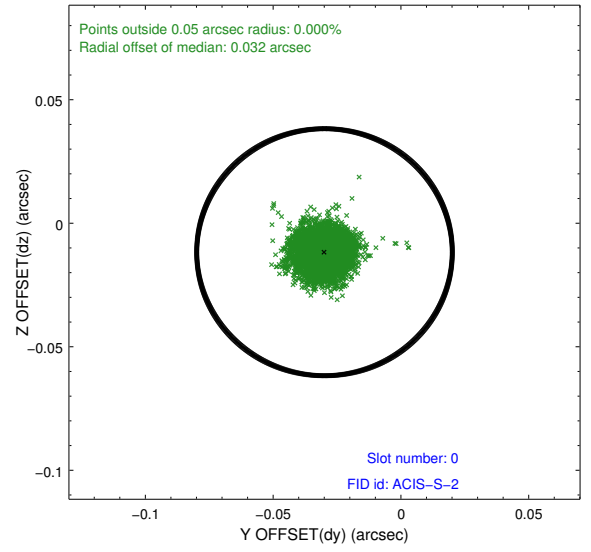
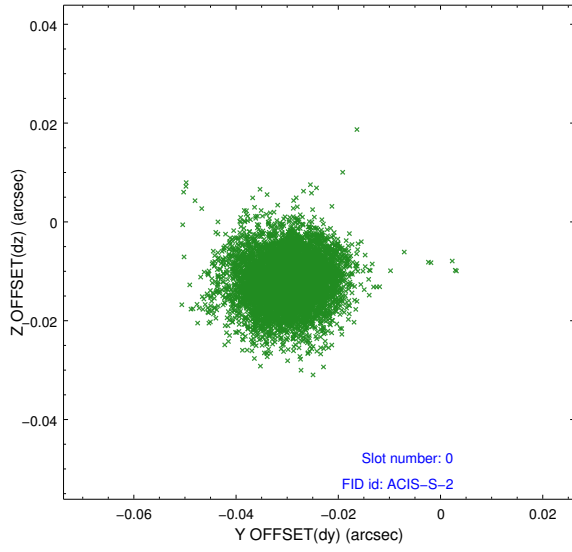


## 2.4.5 Slot 7

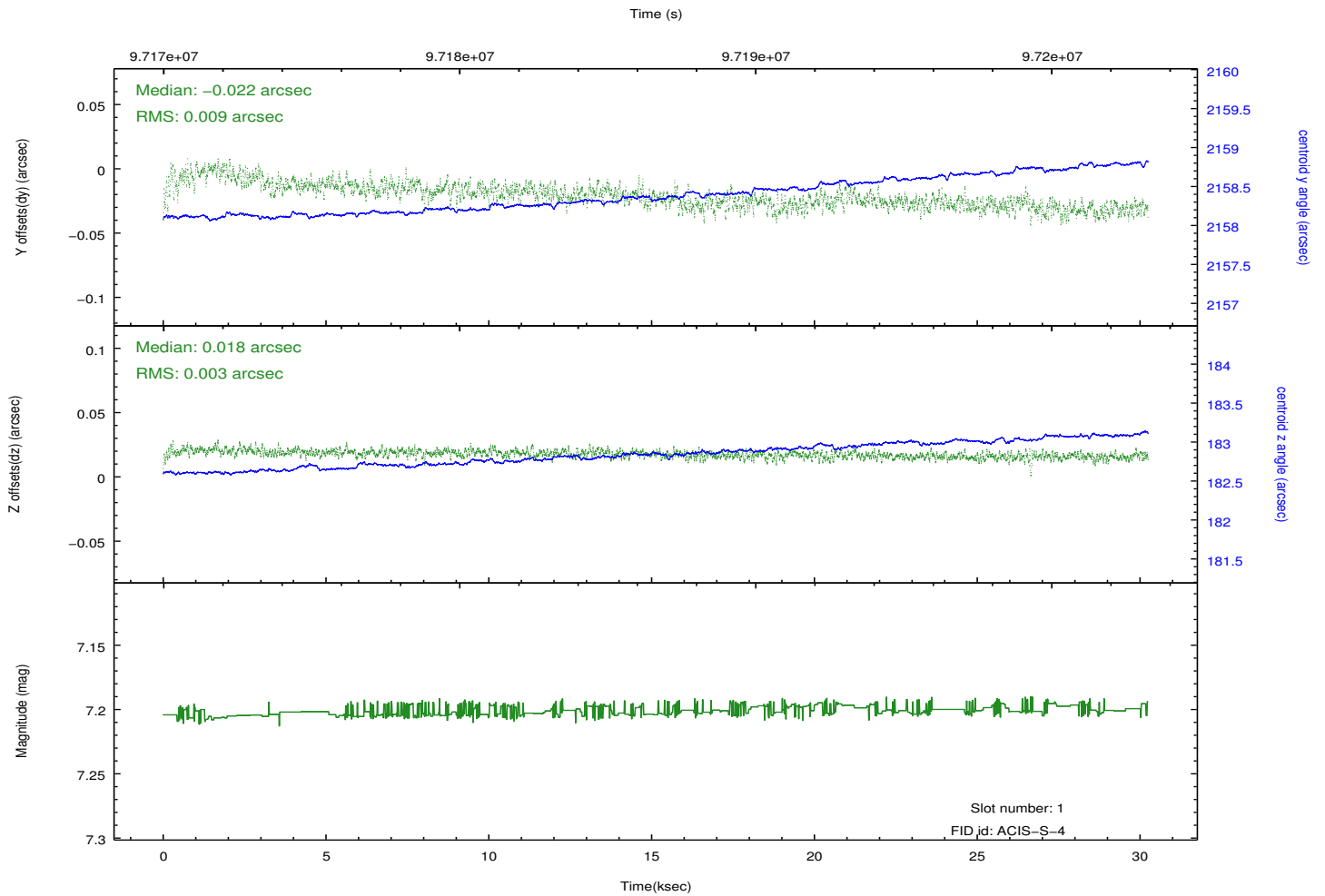
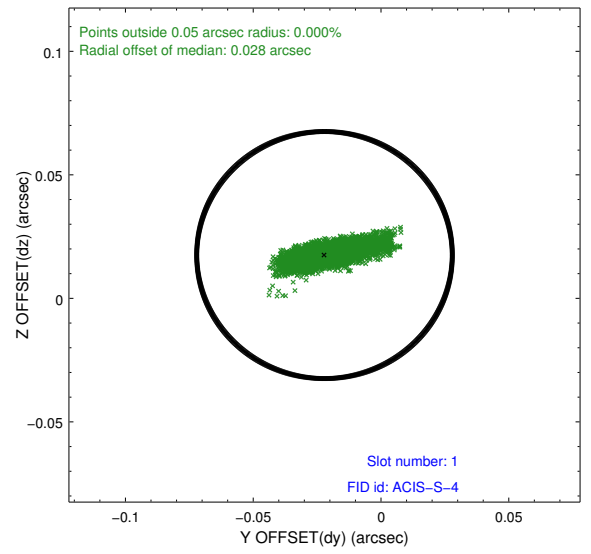
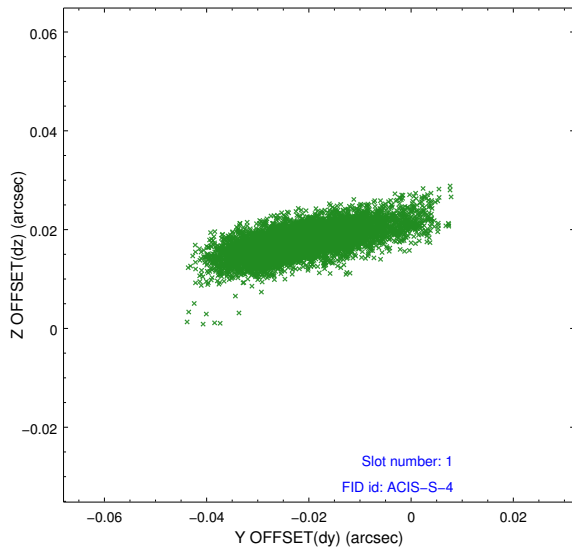


## 2.5 FID Slots

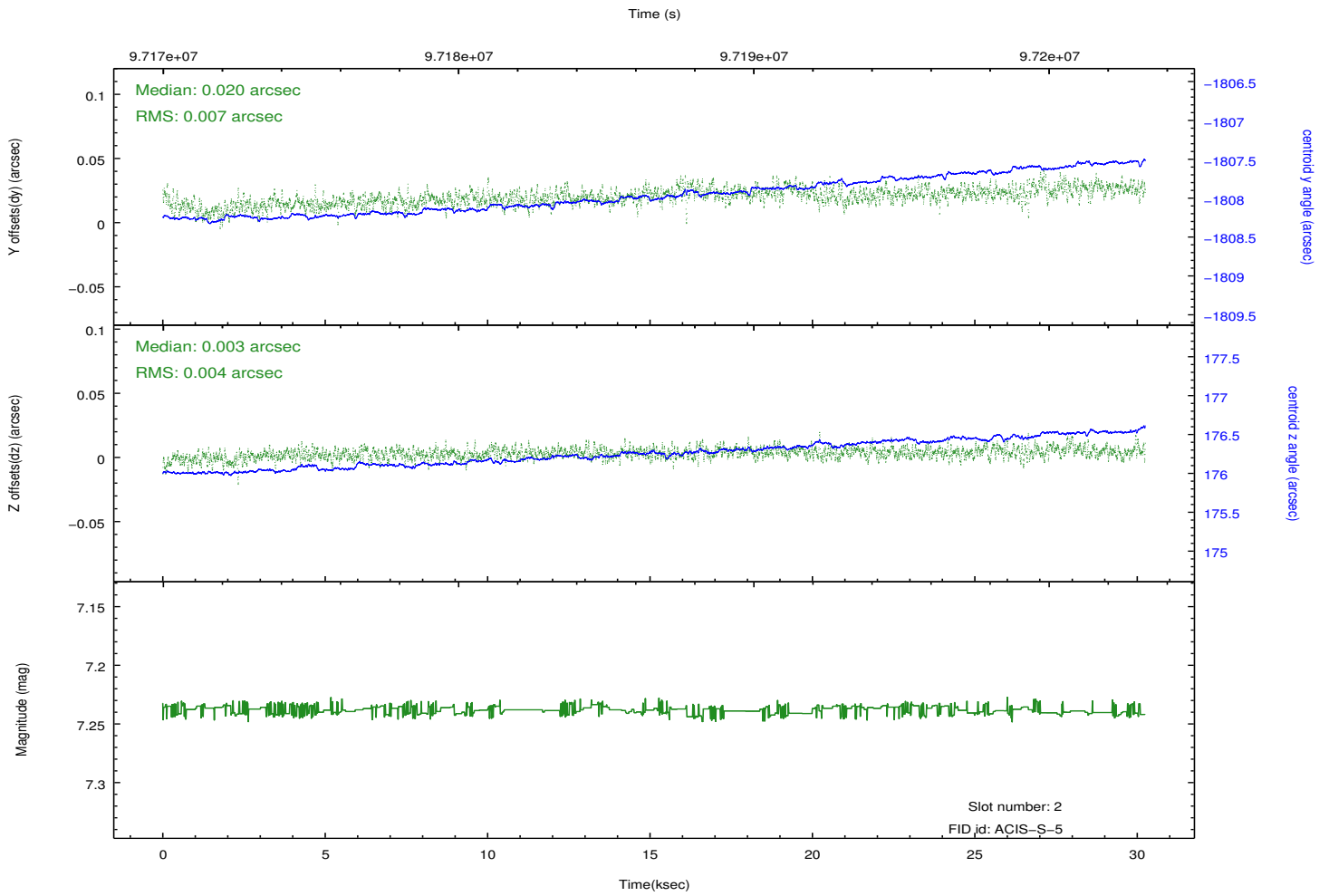
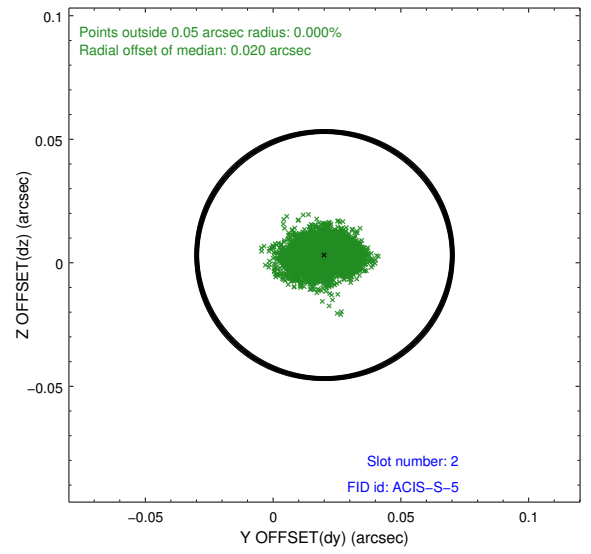
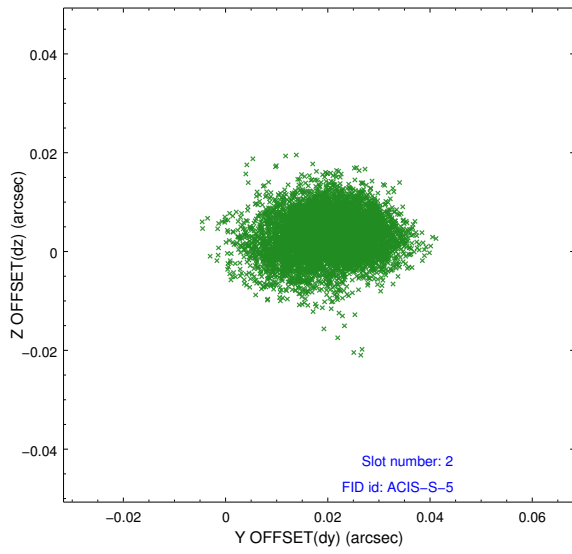
### 2.5.1 Slot 0



## 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)      | 2012.09.17 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 30.153     |

## A.2 Comments