

# V&V Reference Report

## L2 ASCDS Version : 10.5

Observation 18661 - L2 Version 1  
Chandra X-Ray Center

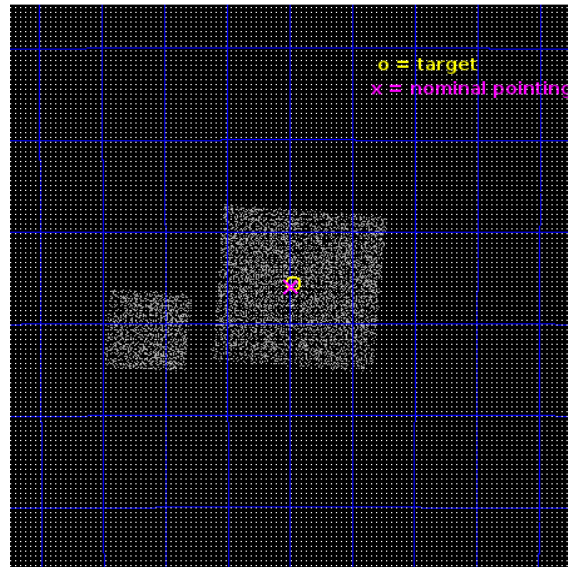
L2 Processing Date : Jul 31 2016

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# 1 Front

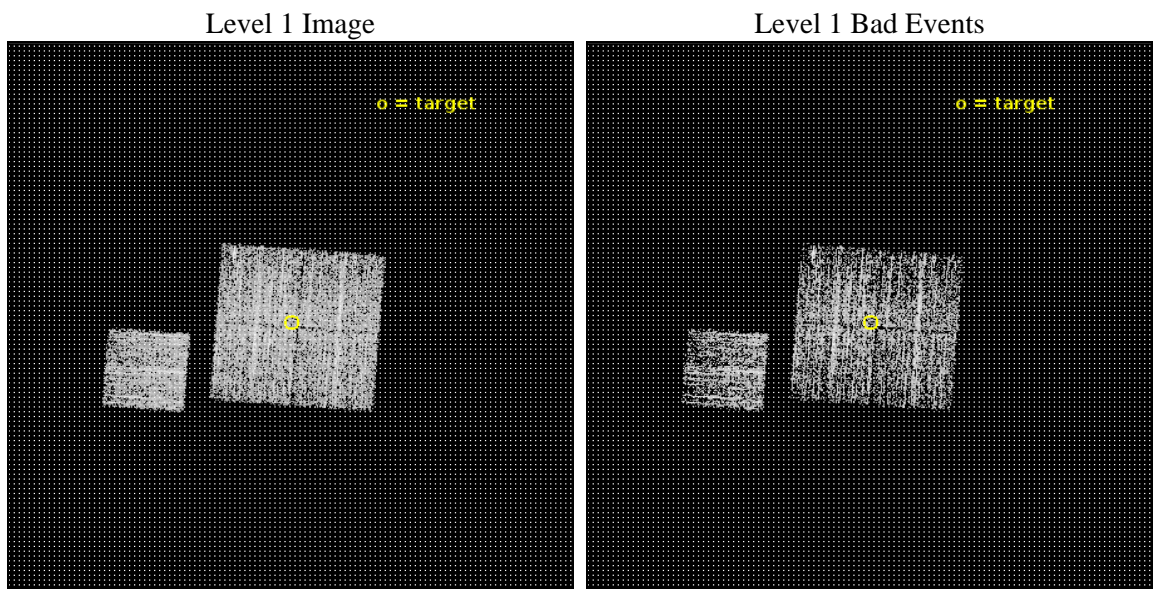
|          |  |   |
|----------|--|---|
| seq_num  | 300385                                       | Sequence number                             |
| obs_id   | 18661  | Observation id                              |
| title    | X-raying the Galactic center/bulge interface | Proposal title                              |
| observer | Q. Daniel Wang                               | Principal investigator                      |
| object   | GC-GB interface                              | Source name                                 |
| dtcycle  | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 264.36805                                    | Observer's specified target RA [deg]        |
| dec_targ | -29.42719                                    | Observer's specified target Dec [deg]       |
| ra_nom   | 264.37167891429                              | Nominal RA [deg]                            |
| dec_nom  | -29.433499372171                             | Nominal Dec [deg]                           |
| roll_nom | 274.43996057055                              | Nominal Roll [deg]                          |
| revision | 1  | Processing version of data                  |
| ontime   | 1955.960247159                               | Sum of GTIs [s]                             |
| livetime | 1930.4041865729                              | Livetime [s]                                |
| ontime0  | 1952.69607687                                | Sum of GTIs [s]                             |
| ontime1  | 1955.8781671524                              | Sum of GTIs [s]                             |
| ontime2  | 1949.6371065378                              | Sum of GTIs [s]                             |
| ontime3  | 1955.960247159                               | Sum of GTIs [s]                             |
| ontime6  | 1955.7960871458                              | Sum of GTIs [s]                             |
| l2events | 6972   | Number of level 2 events                    |



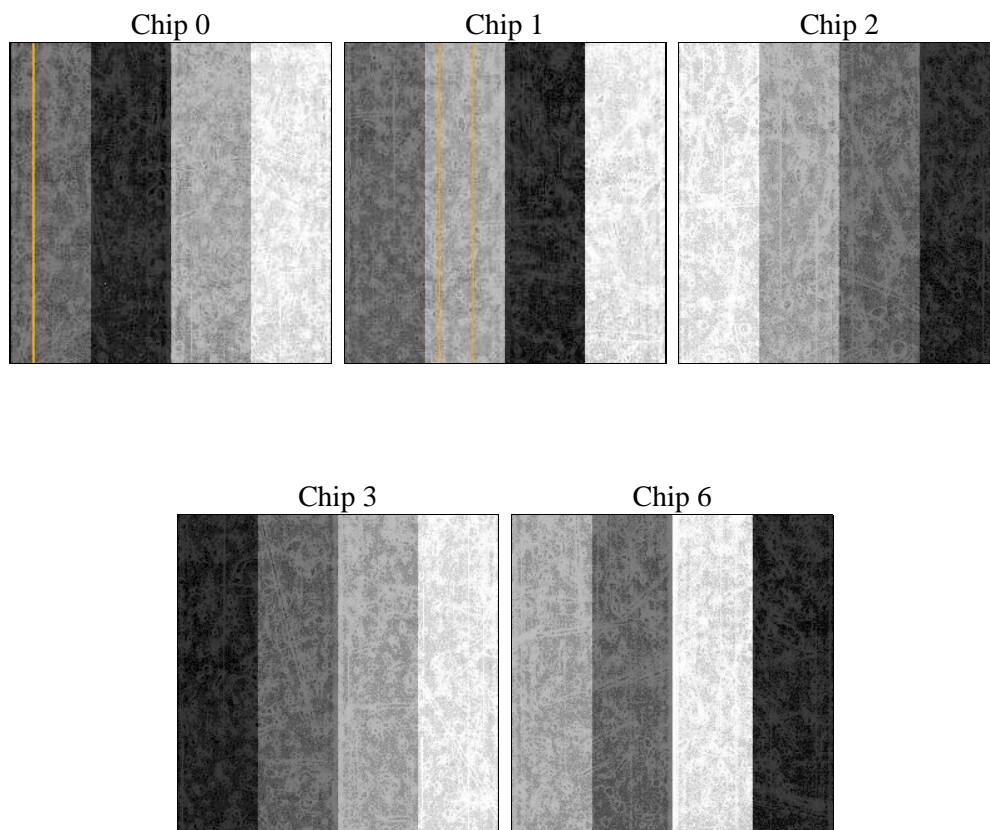
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 2180.000000     | [s] Scheduled observation exposure time |
| ascdsver | 10.5                | Processing system revision     | ontime         | 1955.960247159  | Sum of GTIs [s]                         |
| caldsver | 4.7.2               | &#160                          | ontime0        | 1952.69607687   | Sum of GTIs [s]                         |
| date     | 2016-07-31T17:53:09 | Date and time of file creation | ontime1        | 1955.8781671524 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime2        | 1949.6371065378 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 1955.960247159  | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 1955.7960871458 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 66465           | Number of level 1 events                |

### 2.1.4 Events

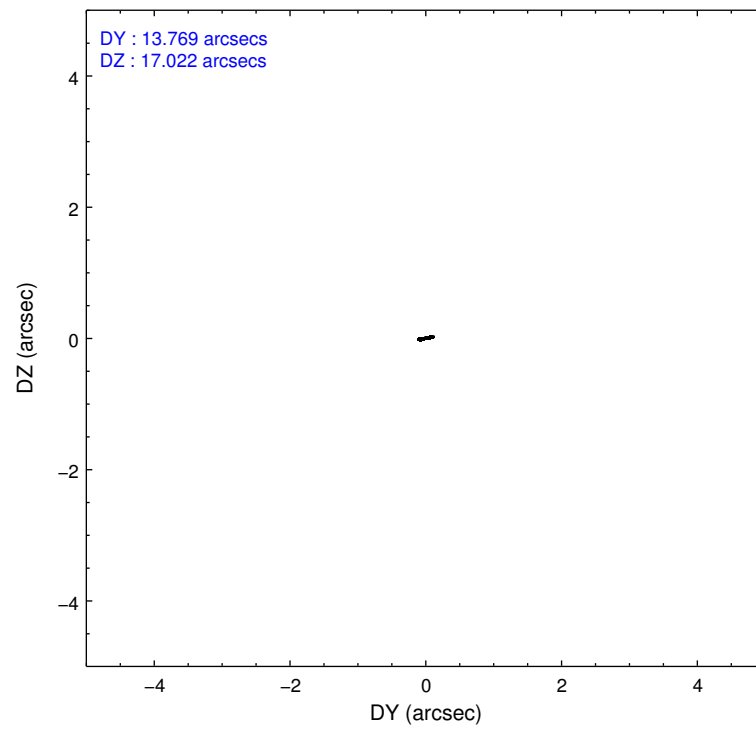
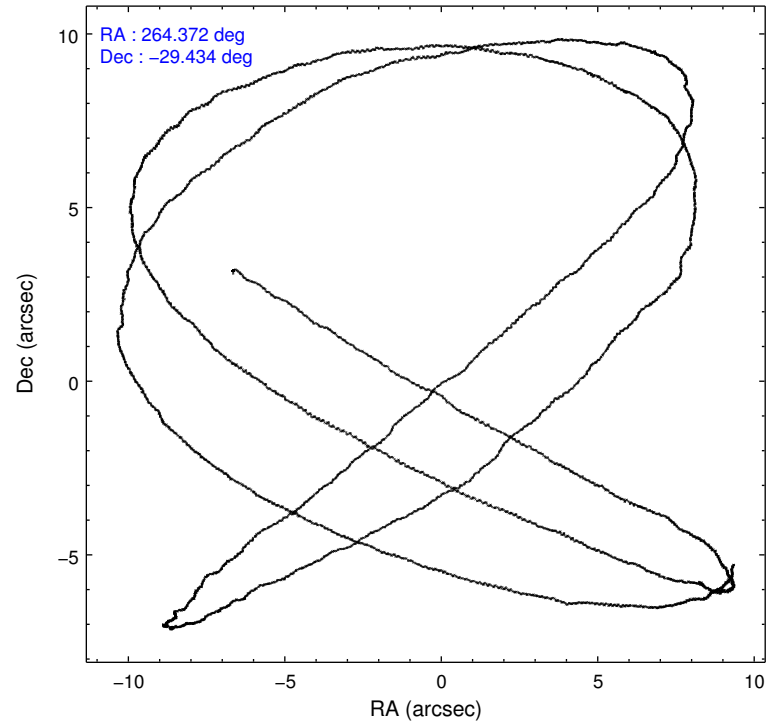
|                 | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 |
|-----------------|-------|-------|-------|-------|-------|
| level 1 events  | 12406 | 12418 | 13989 | 13892 | 13760 |
| rejected events | 10756 | 10644 | 12395 | 12288 | 12216 |
| rejected %      | 86%   | 85%   | 88%   | 88%   | 88%   |

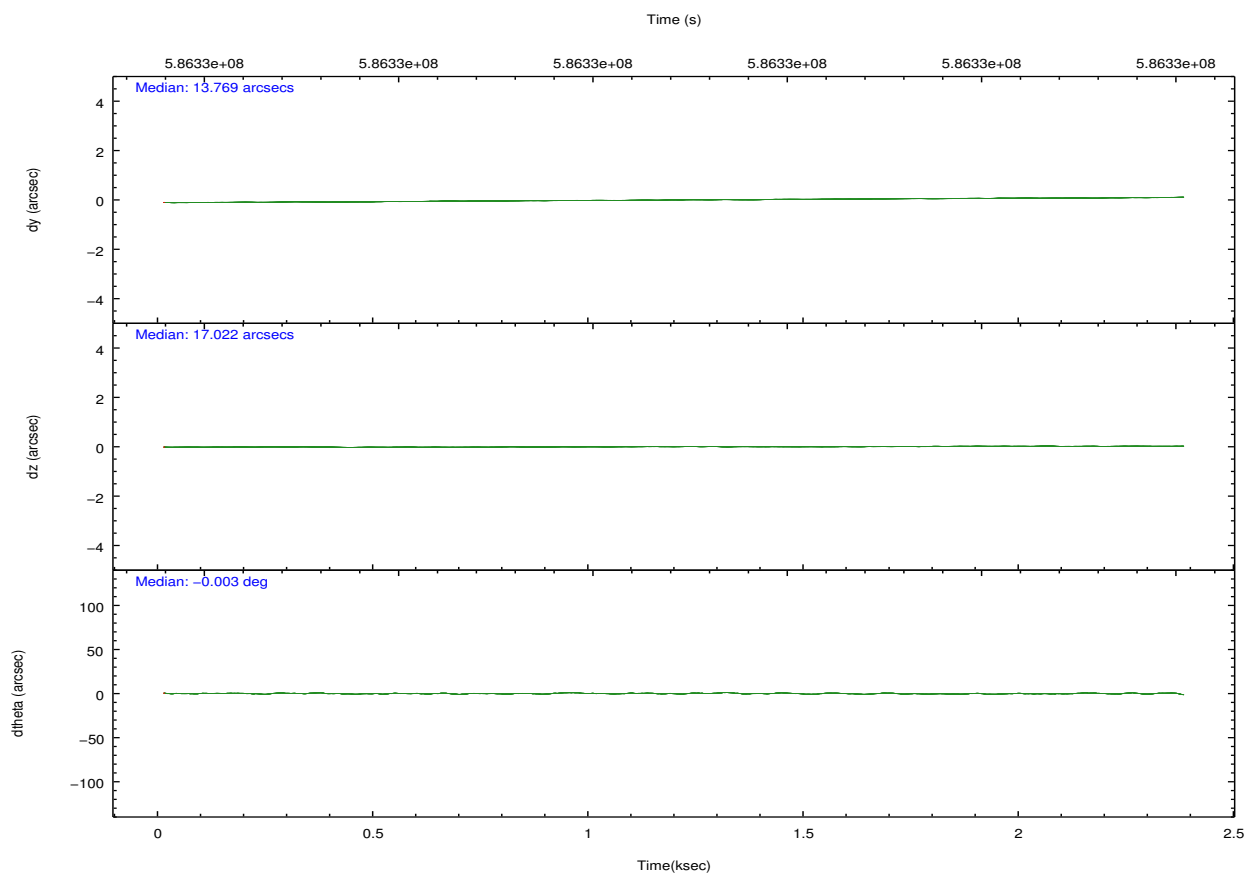
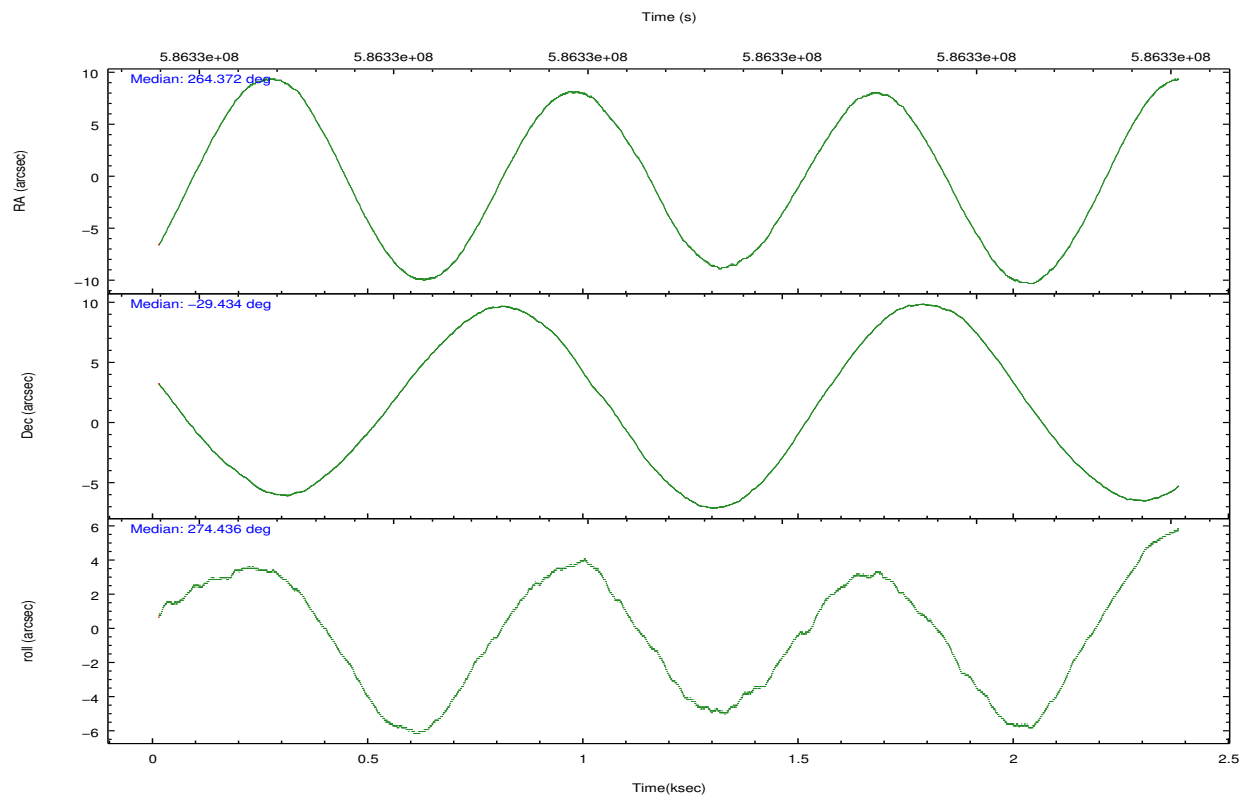
|                | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 |
|----------------|-------|-------|-------|-------|-------|
| grade 0 events | 649   | 704   | 657   | 647   | 601   |
|                | 5%    | 5%    | 4%    | 4%    | 4%    |
| grade 1 events | 6     | 7     | 6     | 7     | 10    |
|                | 0%    | 0%    | 0%    | 0%    | 0%    |
| grade 2 events | 382   | 393   | 343   | 336   | 317   |
|                | 3%    | 3%    | 2%    | 2%    | 2%    |
| grade 3 events | 172   | 167   | 143   | 161   | 157   |
|                | 1%    | 1%    | 1%    | 1%    | 1%    |
| grade 4 events | 143   | 171   | 166   | 167   | 158   |
|                | 1%    | 1%    | 1%    | 1%    | 1%    |
| grade 5 events | 559   | 567   | 518   | 618   | 642   |
|                | 4%    | 4%    | 3%    | 4%    | 4%    |
| grade 6 events | 306   | 344   | 290   | 300   | 316   |
|                | 2%    | 2%    | 2%    | 2%    | 2%    |
| grade 7 events | 10189 | 10065 | 11866 | 11656 | 11559 |
|                | 82%   | 81%   | 84%   | 83%   | 84%   |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual                | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|-----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                  | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-01236          | ACIS-01236            | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                  | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | VFAINT              | VFAINT                | CCD I0 on                             | Y         | Y       |
| Observation mode                  | POINTING            | POINTING              | CCD I1 on                             | Y         | Y       |
| [deg] Pointing RA                 | 264.353504          | 264.3716789142886     | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | -29.410555          | -29.43349937217118    | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 274.222332          | 274.4399605705473     | CCD S0 on                             | N         | N       |
| [mm] SIM focus pos                | -0.782348           | -0.7809083437167272   | CCD S1 on                             | N         | N       |
| [mm] SIM defocus                  | 0                   | 0.001439871863259334  | CCD S2 on                             | O1        | Y       |
| [mm] SIM translation stage pos    | -233.592463         | -233.5874344608287    | CCD S3 on                             | N         | N       |
| [mm] SIM translation stage offset | 0                   | -0.005018542100998502 | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 586329230.184000    | 586328853.82253       | CCD S5 on                             | N         | N       |
| Observation start date            | 2016-07-31T05:12:42 | 2016-07-31T05:07:33   | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 586331410.184000    | 586331543.42268       | On-chip summing requested             | N         | N       |
| Observation end date              | 2016-07-31T05:49:02 | 2016-07-31T05:52:23   | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                 | Alternating exposures requested       | N         | N       |
|                                   |                     |                       | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect





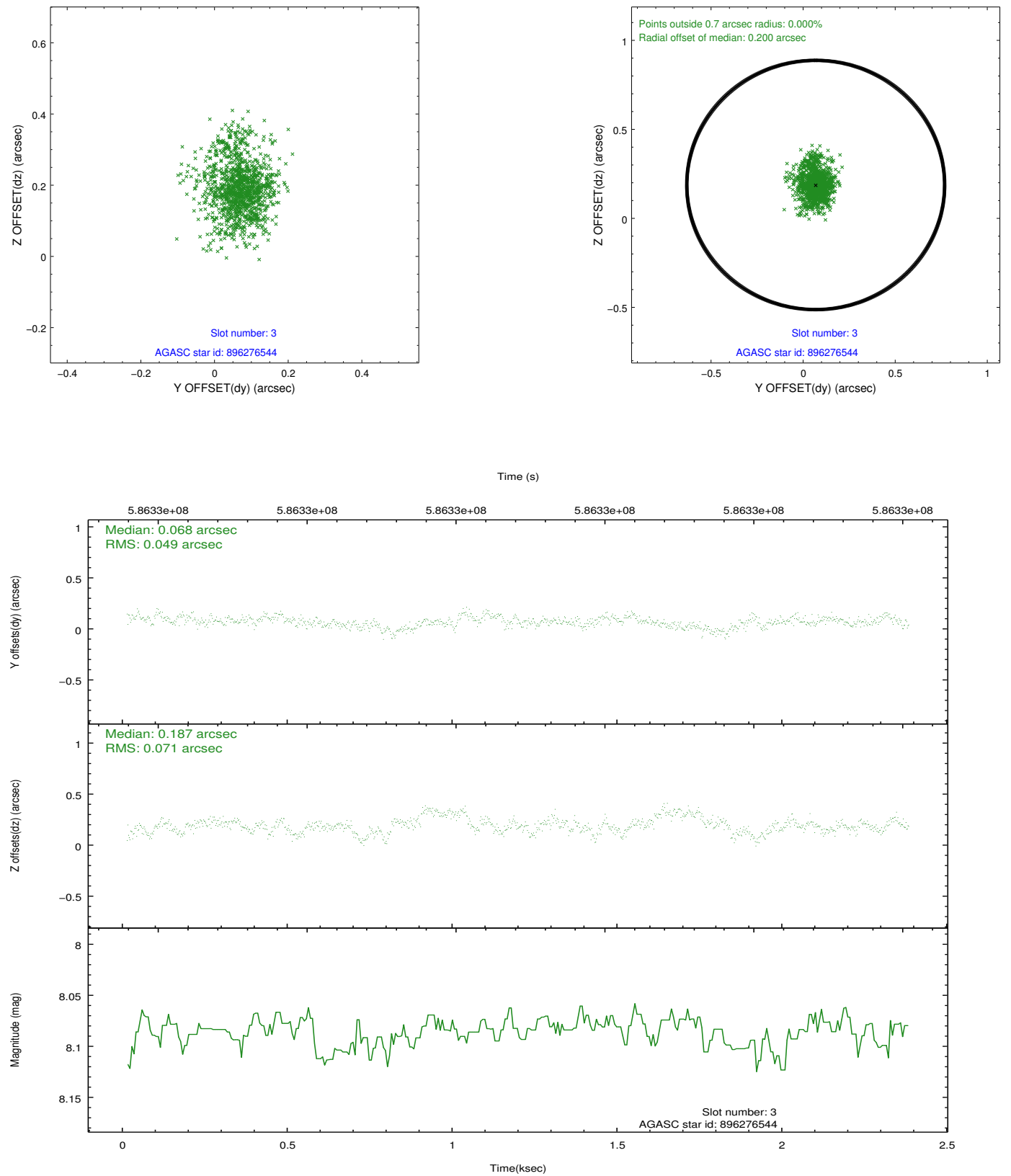
### Slot Statistics

| slot | status | used | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mean_z   |
|------|--------|------|-----------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0    | FID    |      | ACIS-I-1  | 7.08 | 579   | 0.079  | -0.061 | 0.006 | 0.010 | 0.000000   | 0.000000   | 925.82   | -840.72  |
| 1    | FID    |      | ACIS-I-5  | 7.08 | 579   | -0.312 | 0.047  | 0.007 | 0.012 | 0.000000   | 0.000000   | -1821.20 | 1055.45  |
| 2    | FID    |      | ACIS-I-6  | 7.07 | 579   | 0.142  | 0.084  | 0.006 | 0.011 | 0.000000   | 0.000000   | 388.41   | 1703.13  |
| 3    | GUIDE  | used | 896276544 | 8.08 | 1157  | 0.068  | 0.187  | 0.090 | 0.160 | 263.666616 | -29.255819 | -708.37  | -2111.10 |
| 4    | GUIDE  | used | 896278192 | 8.70 | 1157  | 0.265  | 0.168  | 0.088 | 0.139 | 263.596121 | -29.333327 | -445.29  | -2352.58 |
| 5    | GUIDE  | used | 896401864 | 7.87 | 1157  | -0.080 | -0.249 | 0.070 | 0.117 | 264.861768 | -29.959752 | 2090.86  | 1432.81  |
| 6    | GUIDE  | used | 896403072 | 8.32 | 1156  | -0.066 | 0.137  | 0.088 | 0.142 | 263.956439 | -28.943077 | -1767.06 | -1122.81 |
| 7    | GUIDE  | used | 896404376 | 6.65 | 1156  | -0.188 | -0.242 | 0.077 | 0.121 | 264.835179 | -29.530972 | 544.18   | 1471.09  |

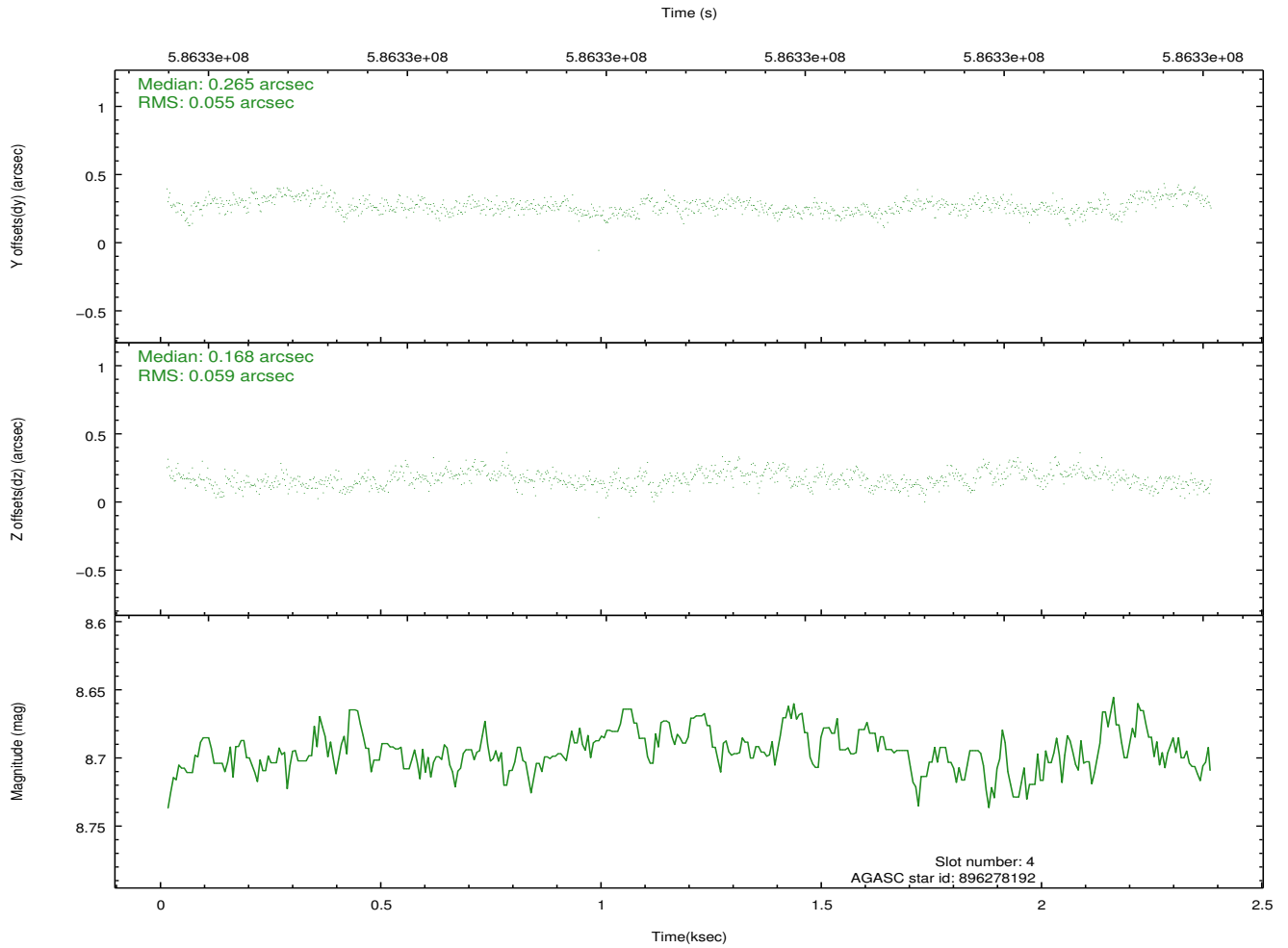
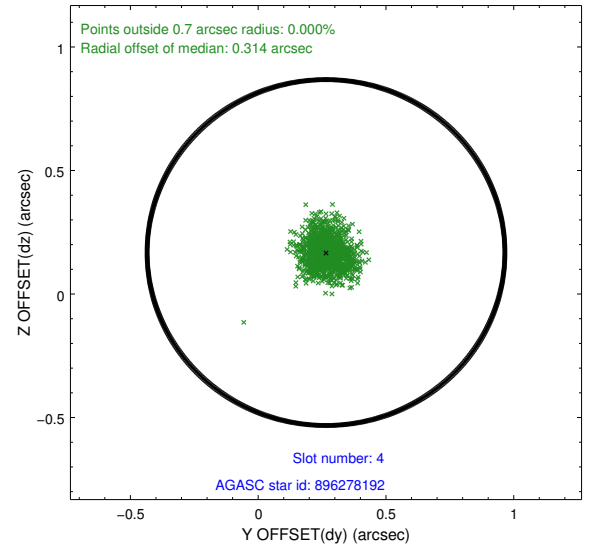
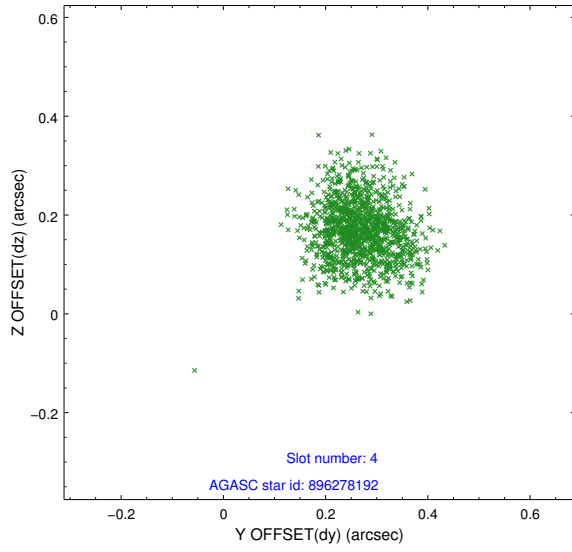


## 2.4 Star Slots

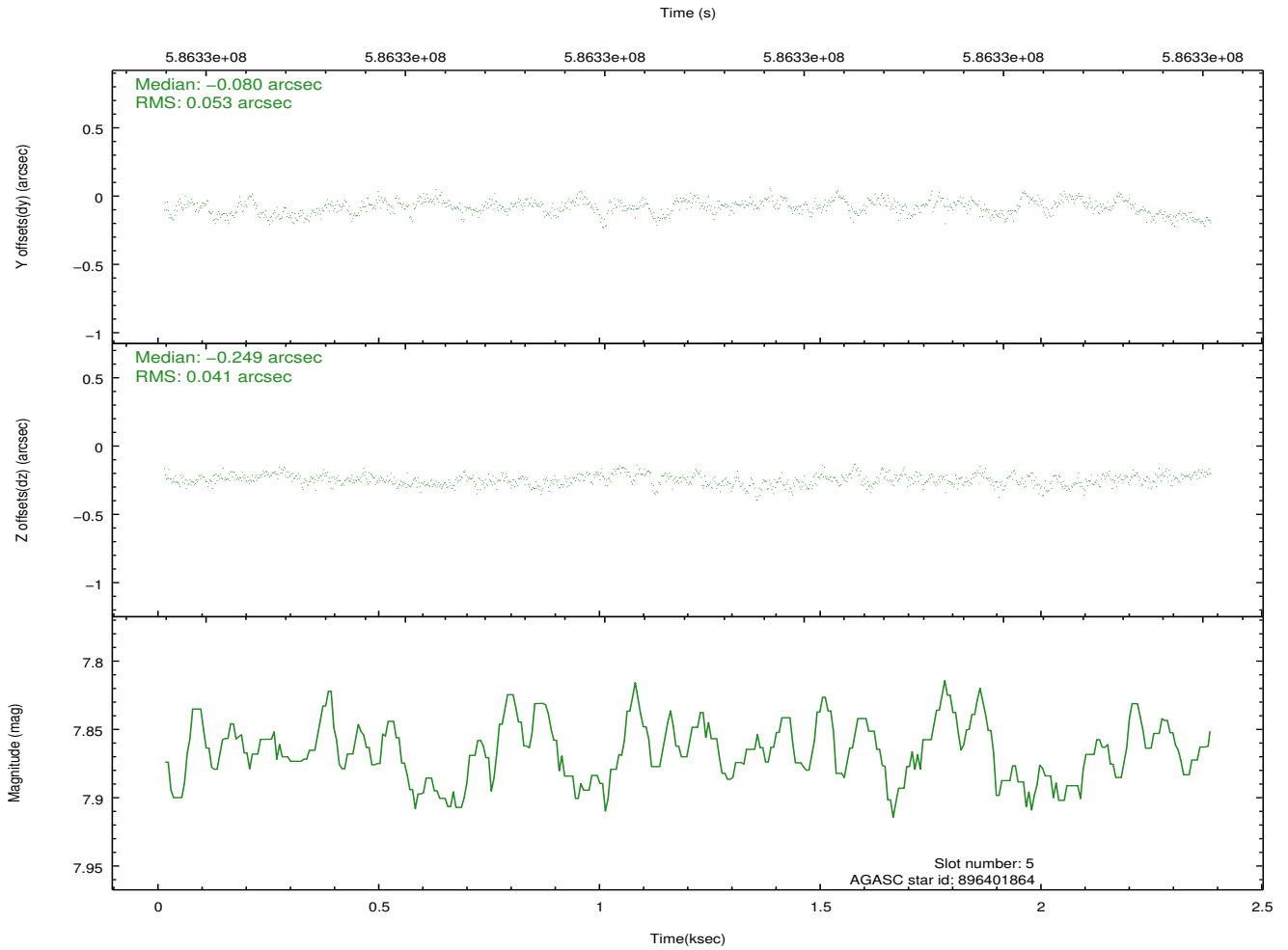
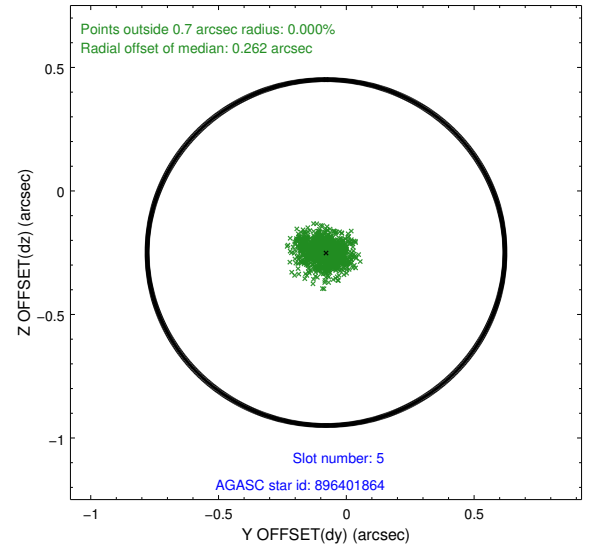
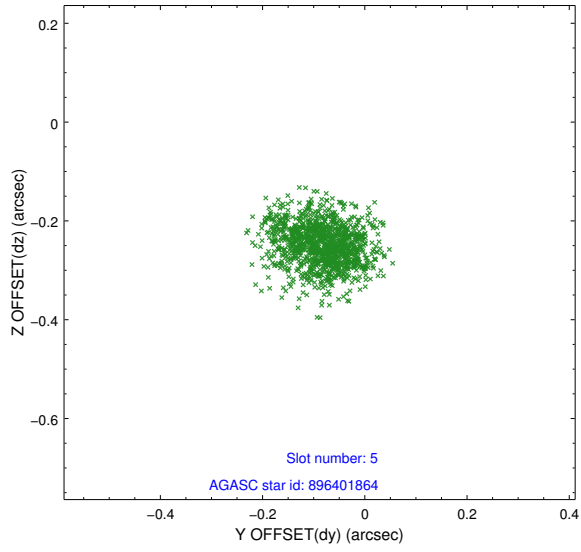
### 2.4.1 Slot 3



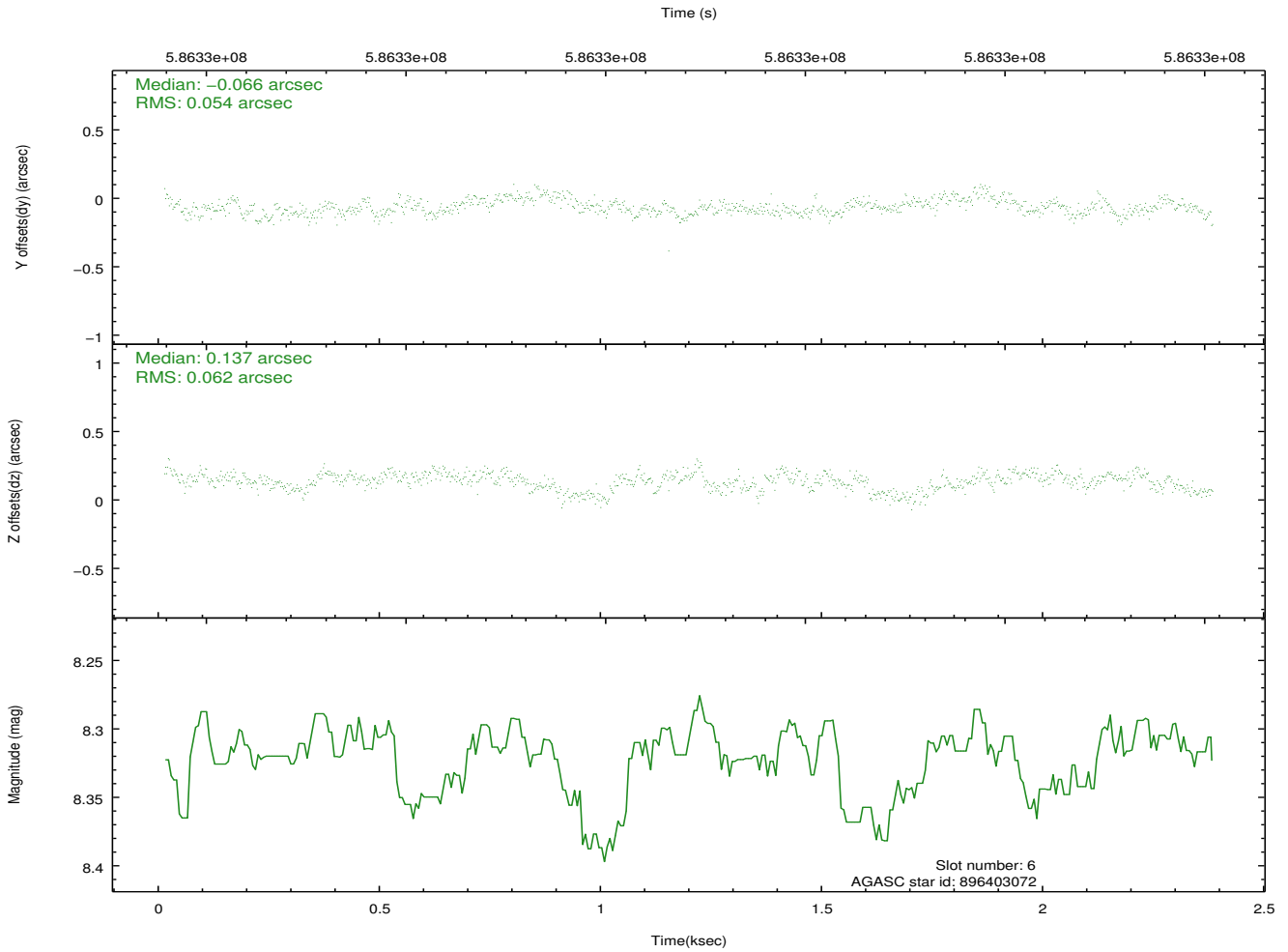
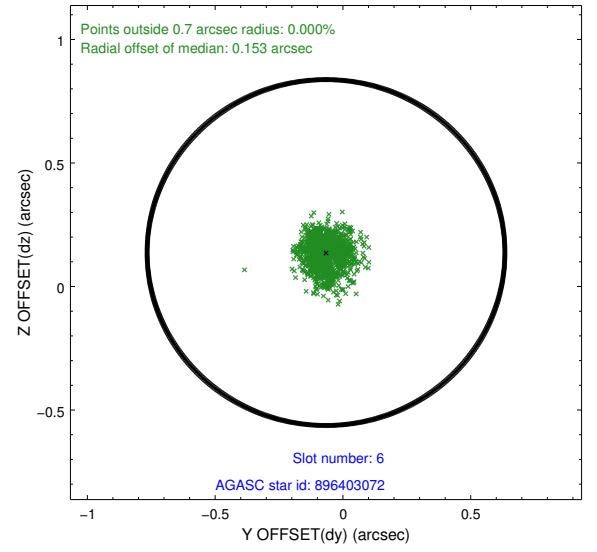
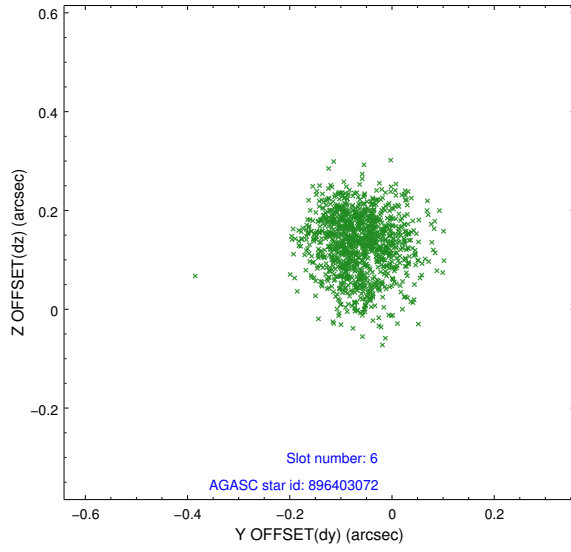
## 2.4.2 Slot 4



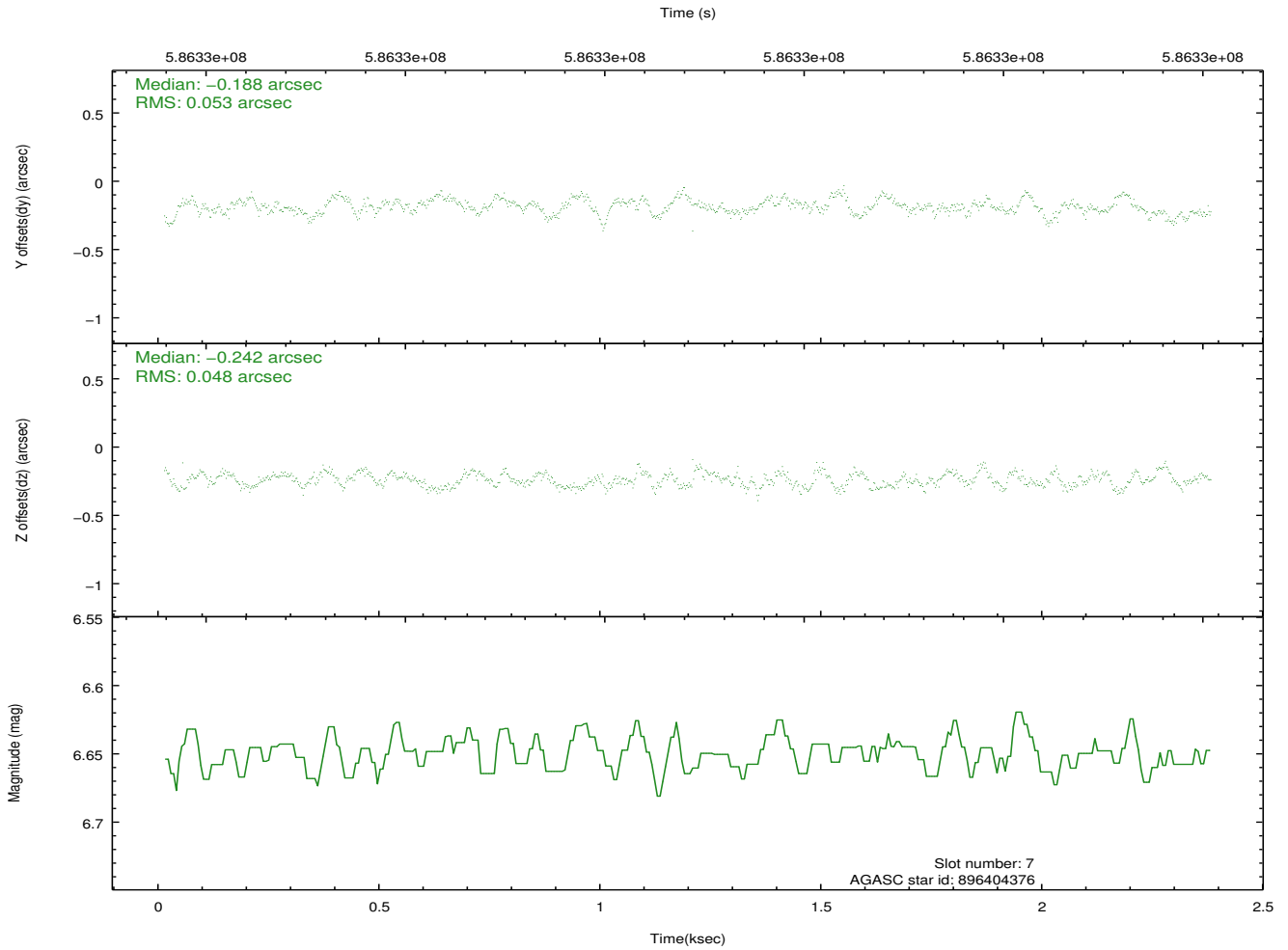
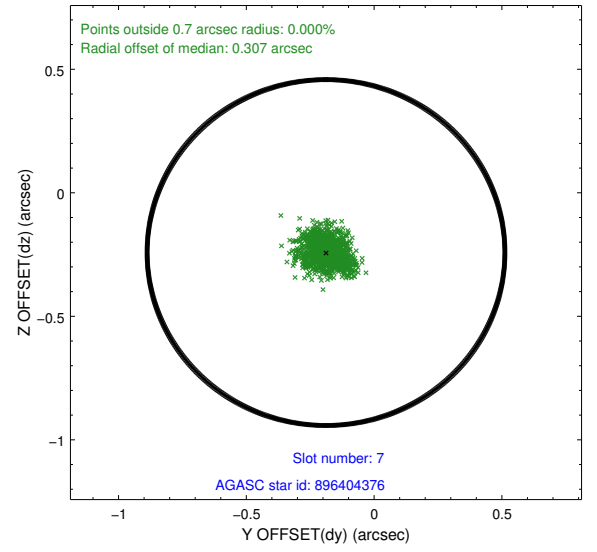
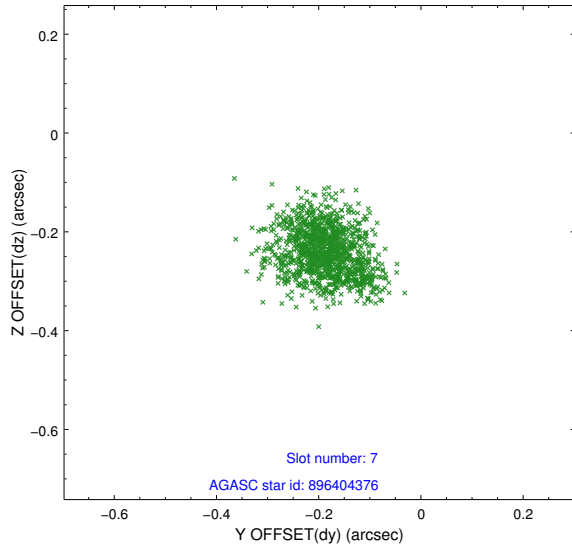
### 2.4.3 Slot 5



## 2.4.4 Slot 6

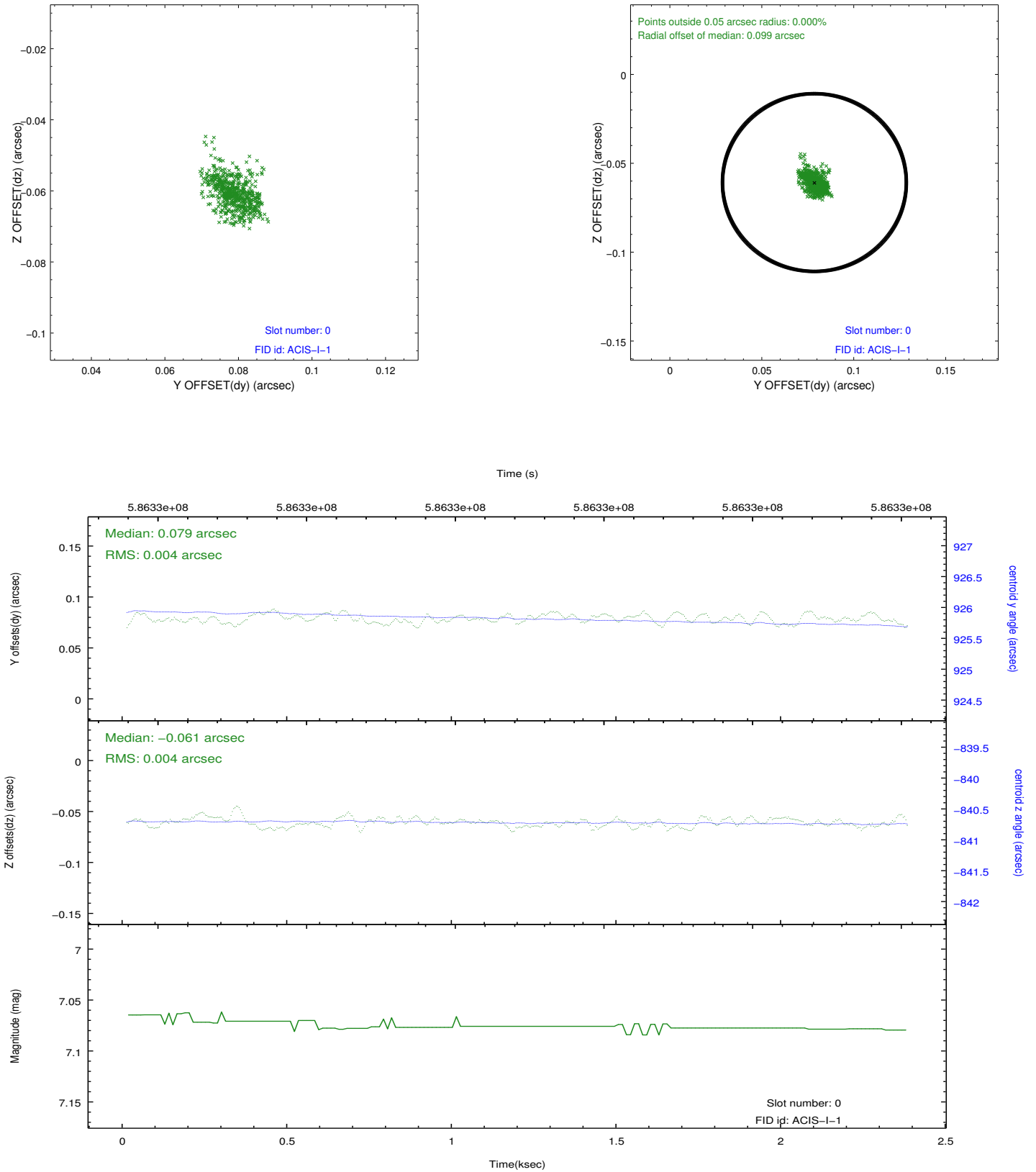


## 2.4.5 Slot 7

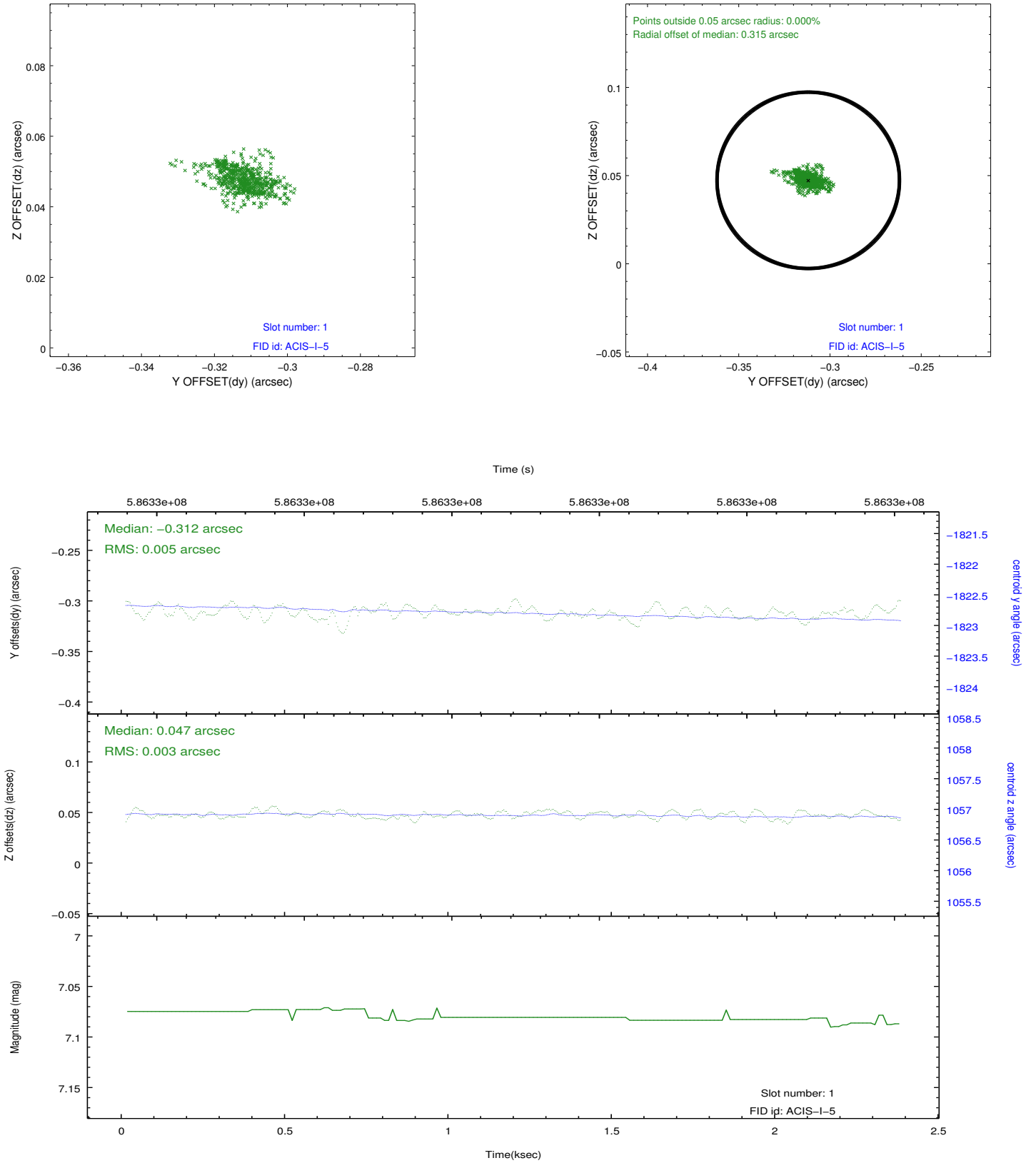


## 2.5 FID Slots

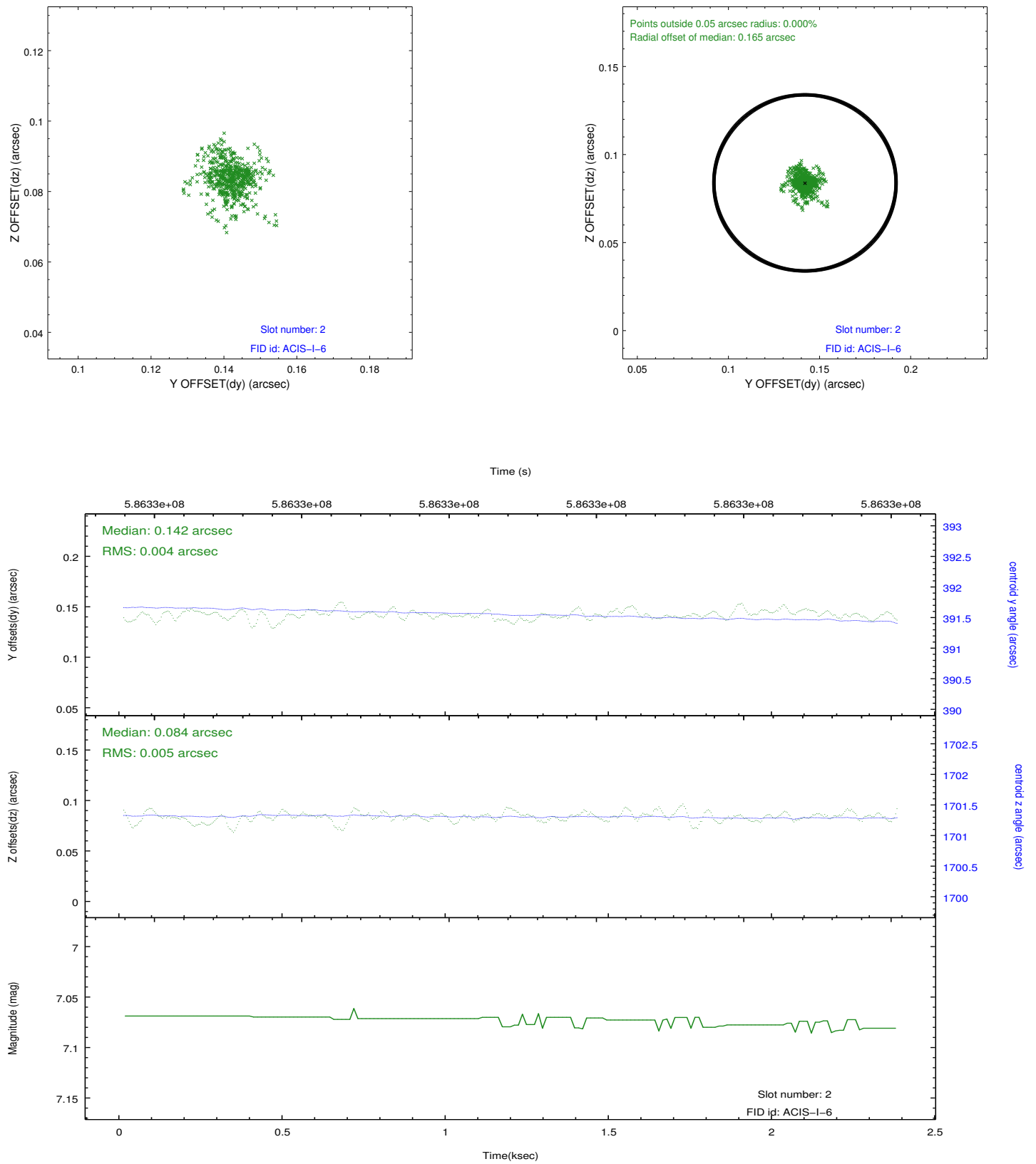
### 2.5.1 Slot 0



## 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)      | 2016.08.01     |
| V&V Edition                | 1              |
| V&V Disposition and Status | OK             |
| V&V Charge Time            | 1.955960247159 |

### A.2 Comments