

# V&V Reference Report

## L2 ASCDS Version : 10.5

Observation 18049 - L2 Version 1  
Chandra X-Ray Center

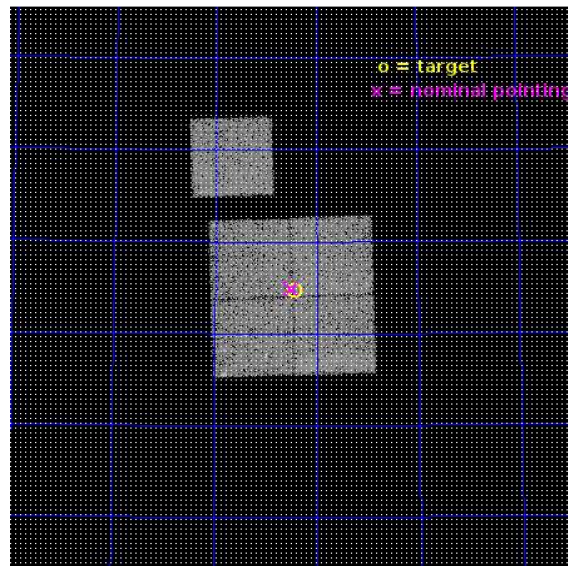
L2 Processing Date : Aug 15 2016

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# 1 Front

|          |                                                                        |                                             |
|----------|------------------------------------------------------------------------|---------------------------------------------|
| seq_num  | 601234                                                                 | Sequence number                             |
| obs_id   | 18049                                                                  | Observation id                              |
| title    | To the Edge and Beyond: A Legacy Survey of the Grand Design Spiral M81 | Proposal title                              |
| observer | Douglas Swartz                                                         | Principal investigator                      |
| object   | M81 N                                                                  | Source name                                 |
| dtcycle  | 0                                                                      | &#160                                       |
| cycle    | P                                                                      | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 148.605833                                                             | Observer's specified target RA [deg]        |
| dec_targ | 69.246222                                                              | Observer's specified target Dec [deg]       |
| ra_nom   | 148.62386602145                                                        | Nominal RA [deg]                            |
| dec_nom  | 69.248578386697                                                        | Nominal Dec [deg]                           |
| roll_nom | 358.1917605115                                                         | Nominal Roll [deg]                          |
| revision | 1                                                                      | Processing version of data                  |
| ontime   | 20210.522185326                                                        | Sum of GTIs [s]                             |
| livetime | 19946.456834204                                                        | Livetime [s]                                |
| ontime0  | 20213.539936066                                                        | Sum of GTIs [s]                             |
| ontime1  | 20210.44000566                                                         | Sum of GTIs [s]                             |
| ontime2  | 20213.622016072                                                        | Sum of GTIs [s]                             |
| ontime3  | 20210.522185326                                                        | Sum of GTIs [s]                             |
| ontime6  | 20213.498896003                                                        | Sum of GTIs [s]                             |
| l2events | 63018                                                                  | Number of level 2 events                    |

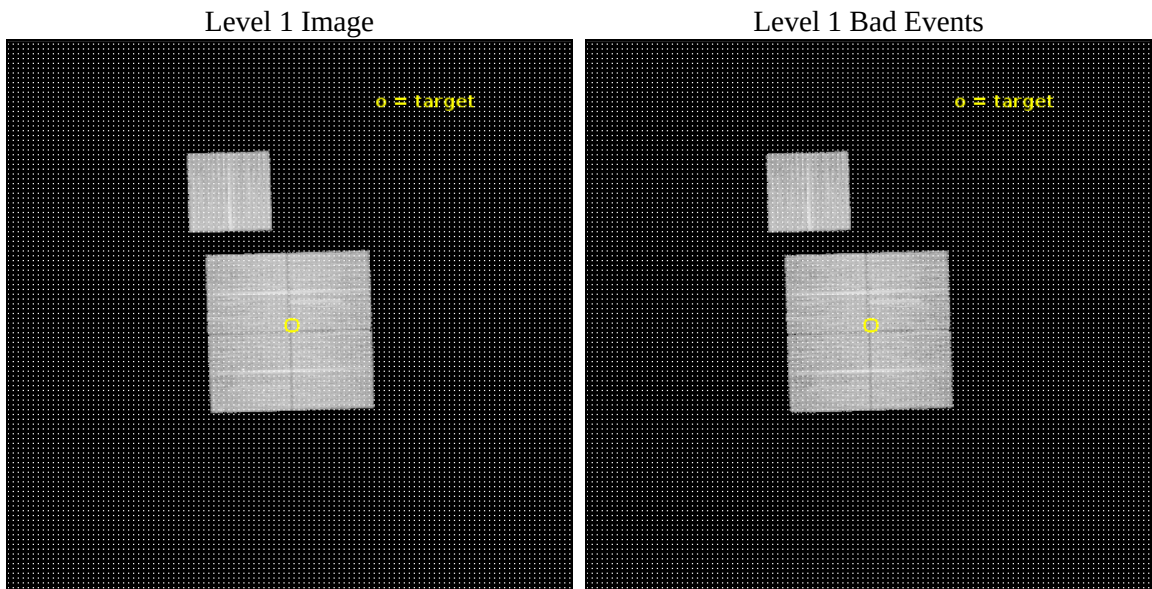




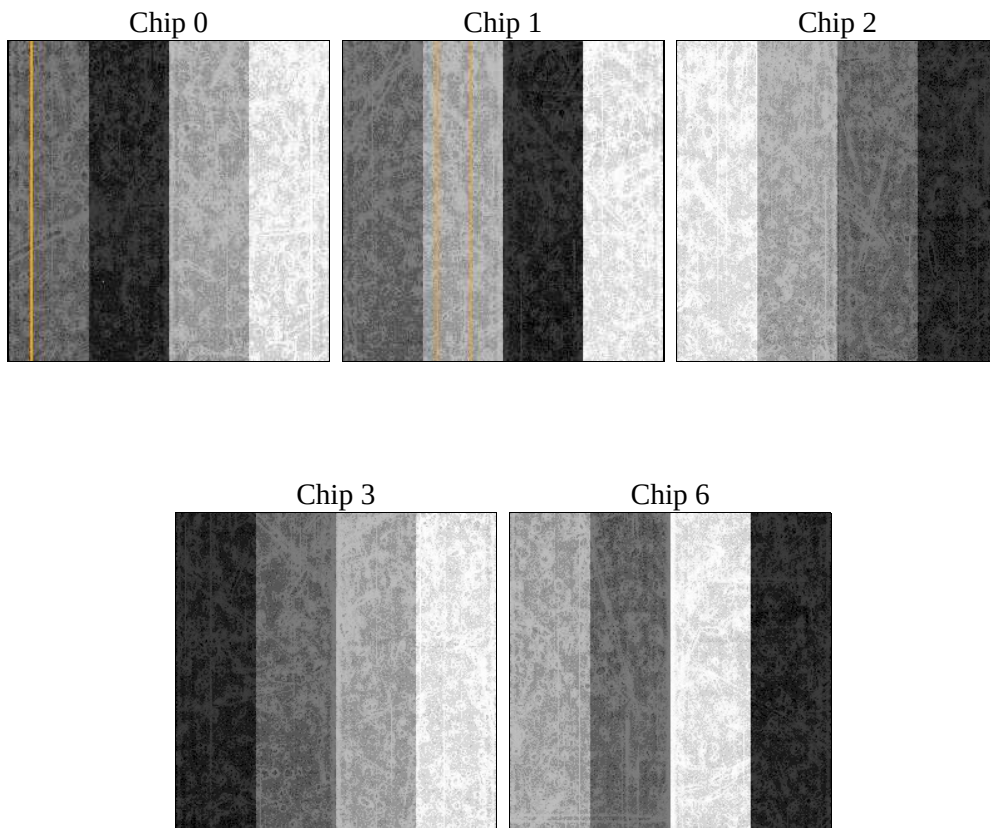
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 20147.132000    | [s] Scheduled observation exposure time |
| ascdsver | 10.5                | Processing system revision     | ontime         | 20210.522185326 | Sum of GTIs [s]                         |
| caldsver | 4.7.2               | &#160                          | ontime0        | 20213.539936066 | Sum of GTIs [s]                         |
| date     | 2016-08-15T15:23:42 | Date and time of file creation | ontime1        | 20210.44000566  | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime2        | 20213.622016072 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 20210.522185326 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 20213.498896003 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 628726          | Number of level 1 events                |

### 2.1.4 Events

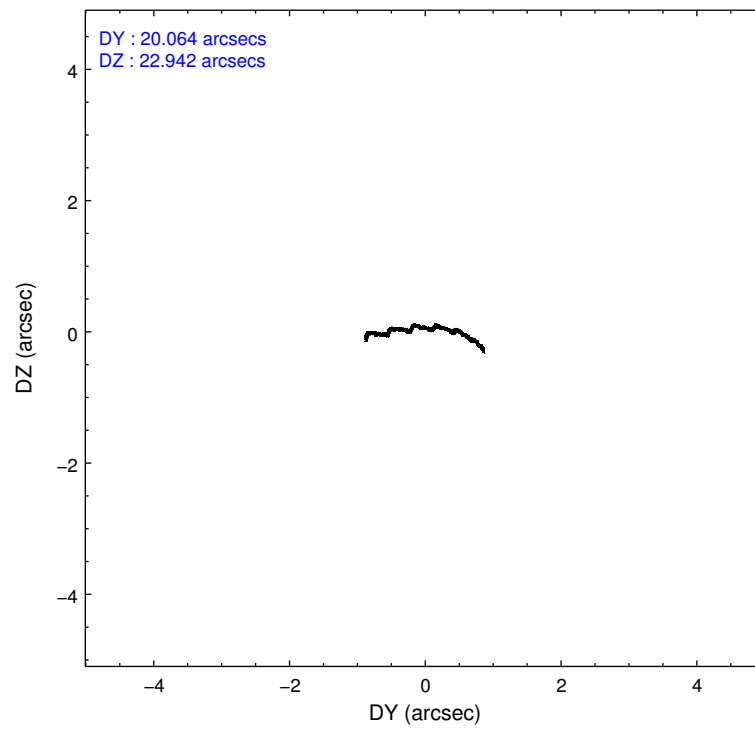
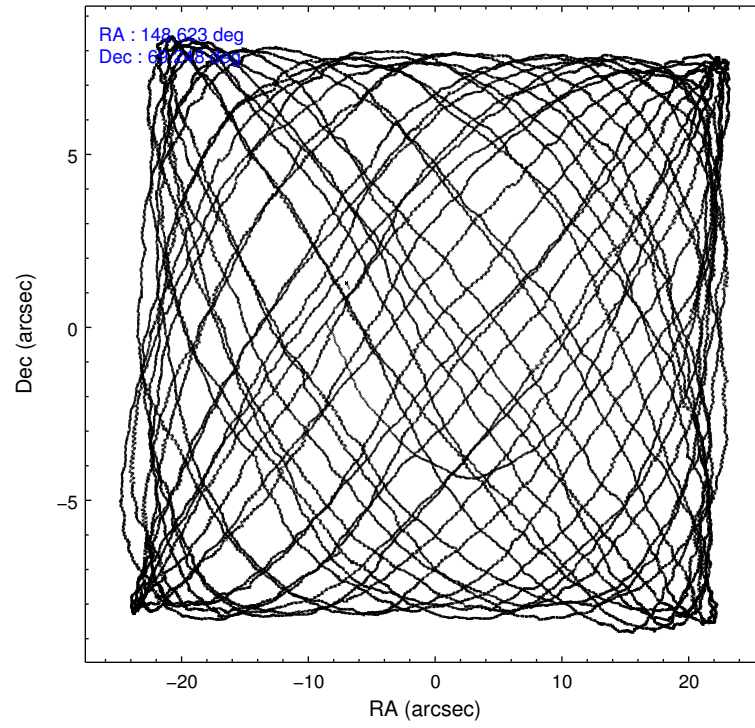
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 118142 | 120269 | 130815 | 129220 | 130280 |
| rejected events | 102428 | 104380 | 116575 | 115127 | 115777 |
| rejected %      | 86%    | 86%    | 89%    | 89%    | 88%    |

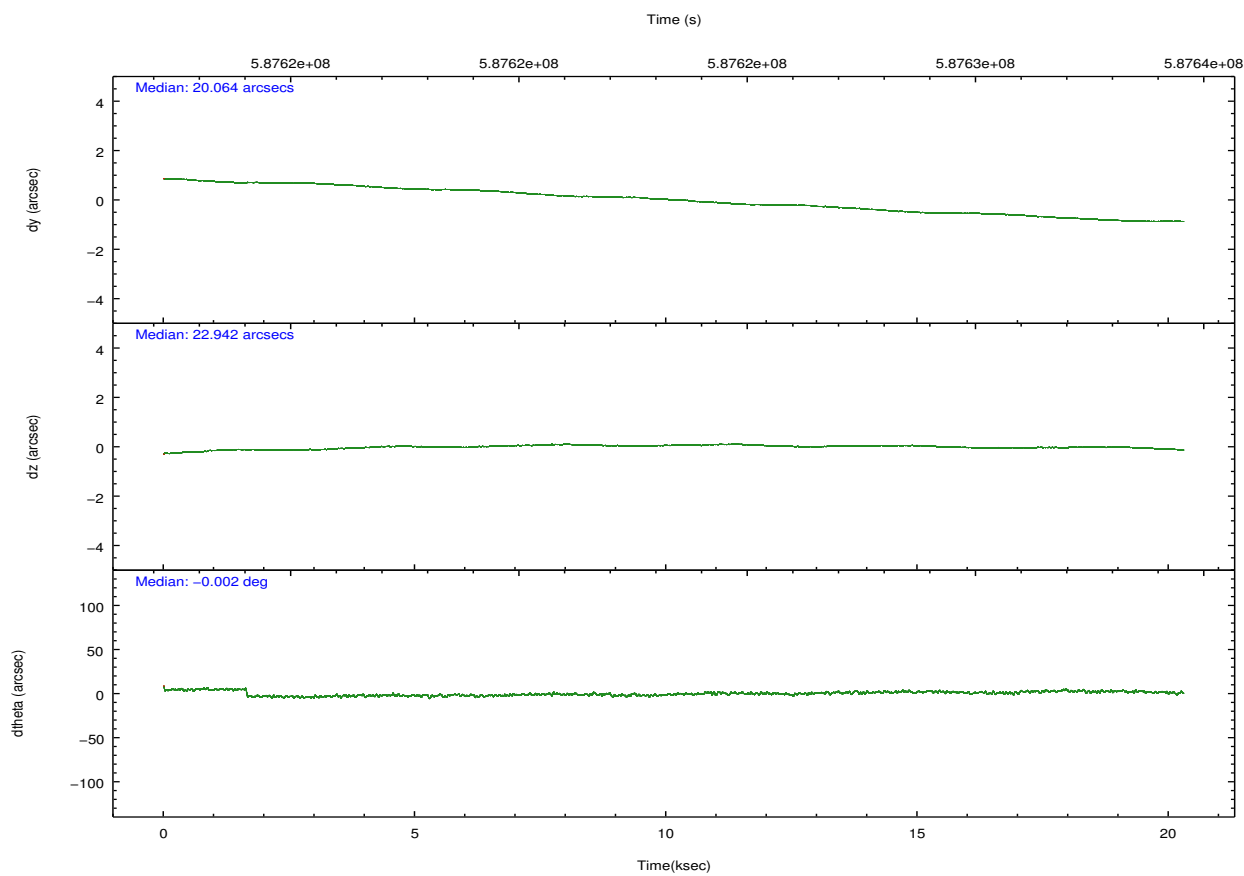
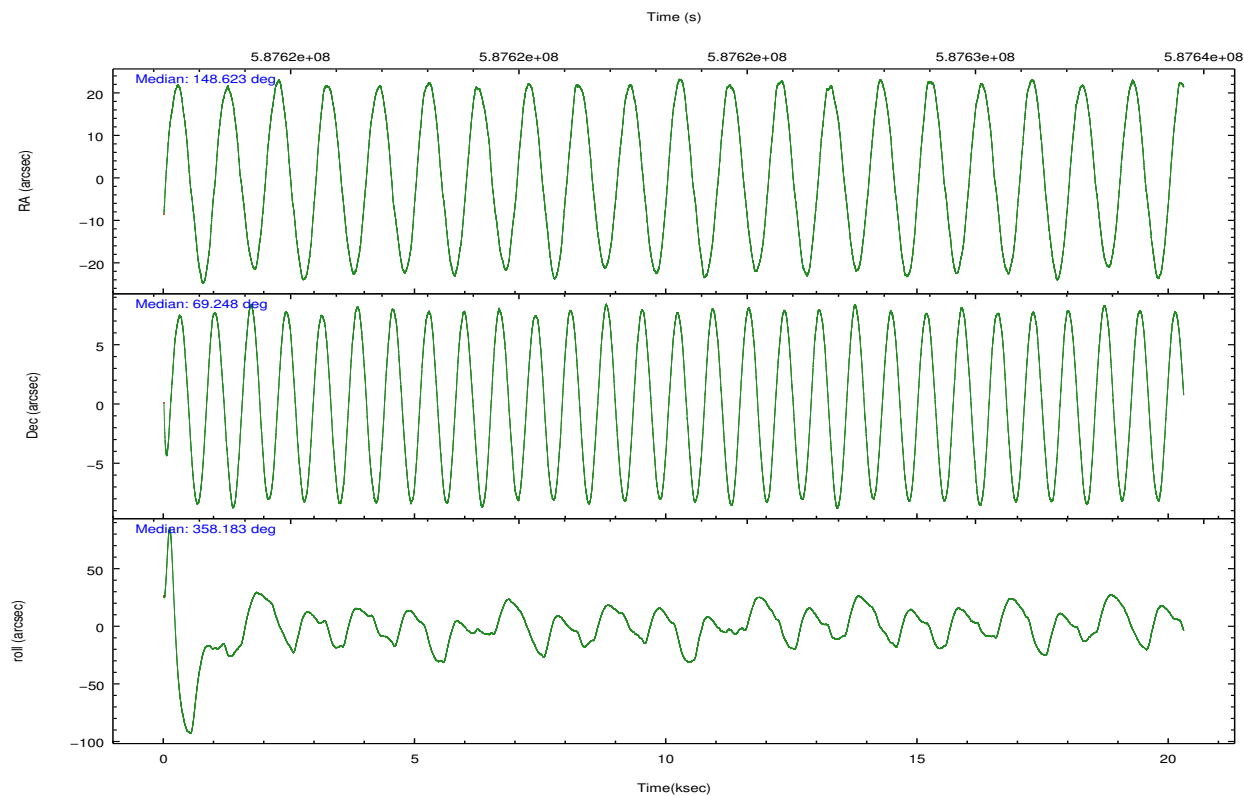
|                | ccd 0 | ccd 1 | ccd 2  | ccd 3  | ccd 6  |
|----------------|-------|-------|--------|--------|--------|
| grade 0 events | 5950  | 5253  | 5100   | 5285   | 4914   |
|                | 5%    | 4%    | 3%     | 4%     | 3%     |
| grade 1 events | 84    | 61    | 71     | 77     | 55     |
|                | 0%    | 0%    | 0%     | 0%     | 0%     |
| grade 2 events | 3818  | 3964  | 3521   | 3068   | 3320   |
|                | 3%    | 3%    | 2%     | 2%     | 2%     |
| grade 3 events | 1506  | 1603  | 1383   | 1386   | 1379   |
|                | 1%    | 1%    | 1%     | 1%     | 1%     |
| grade 4 events | 1424  | 1563  | 1358   | 1431   | 1442   |
|                | 1%    | 1%    | 1%     | 1%     | 1%     |
| grade 5 events | 5658  | 5978  | 5325   | 6302   | 6132   |
|                | 4%    | 4%    | 4%     | 4%     | 4%     |
| grade 6 events | 3018  | 3510  | 2880   | 2927   | 3453   |
|                | 2%    | 2%    | 2%     | 2%     | 2%     |
| grade 7 events | 96684 | 98337 | 111177 | 108744 | 109585 |
|                | 81%   | 81%   | 84%    | 84%    | 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                 | 148.555331          | 148.6238660214456     | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | 69.235424           | 69.24857838669672     | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 358.047226          | 358.1917605114974     | 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)  | 587613410.184000    | 587612338.3962801     | CCD S5 on                             | N         | N       |
| Observation start date            | 2016-08-15T01:55:42 | 2016-08-15T01:38:58   | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 587633557.184000    | 587633800.87251       | On-chip summing requested             | N         | N       |
| Observation end date              | 2016-08-15T07:31:29 | 2016-08-15T07:36:40   | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                 | Alternating exposures requested       | N         | N       |
|                                   |                     |                       | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



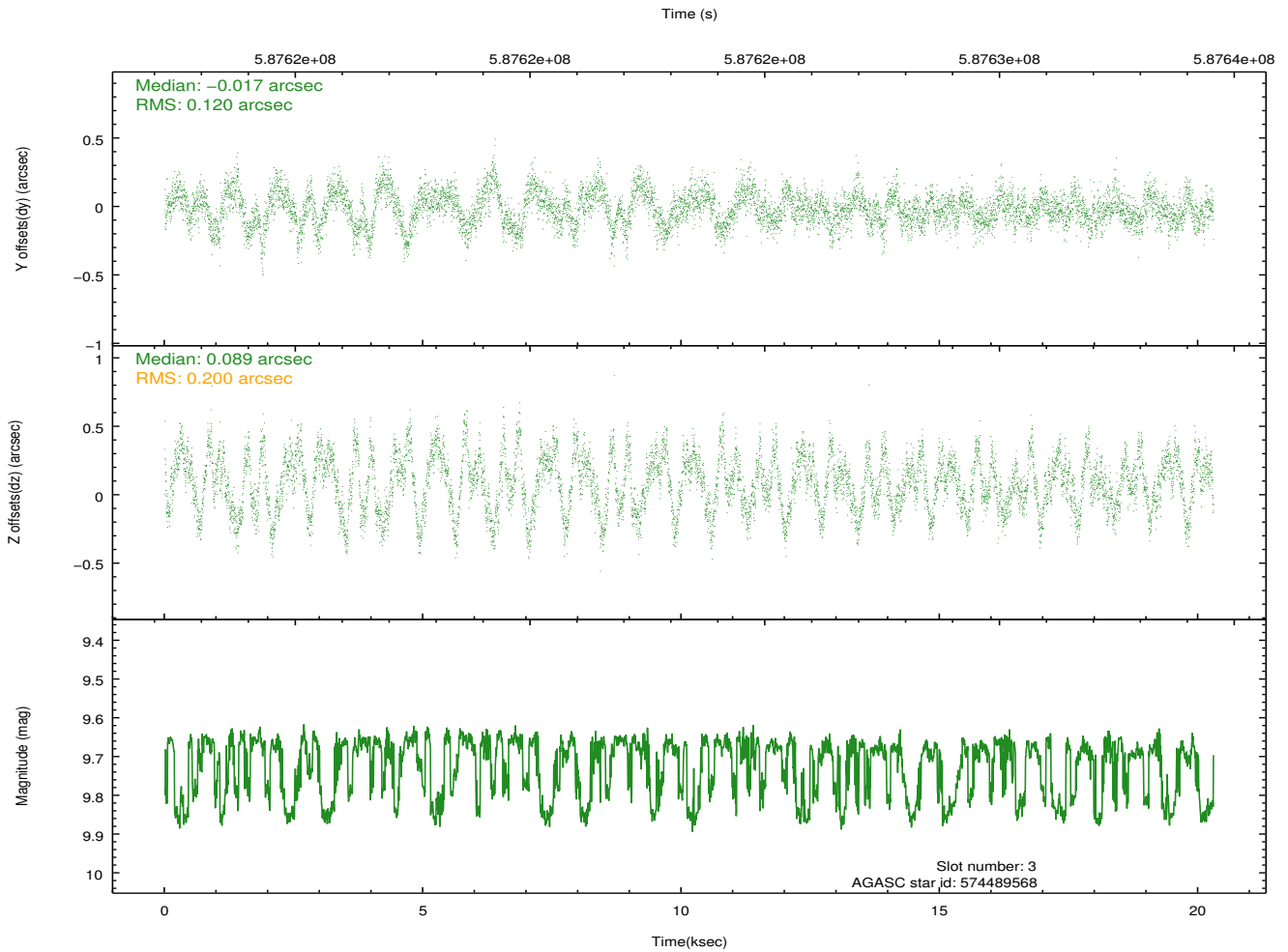
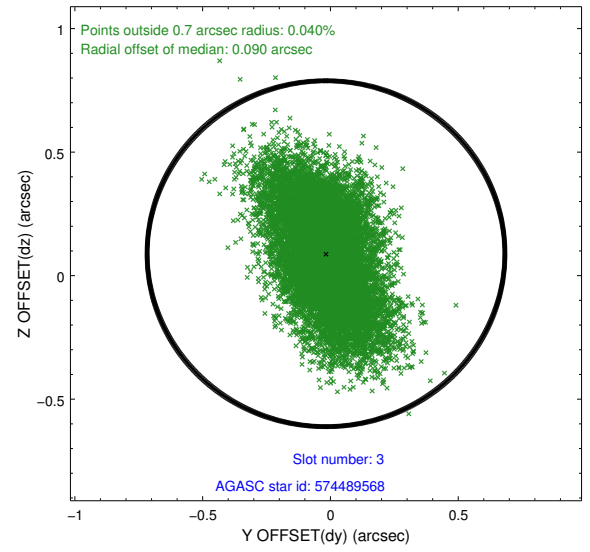
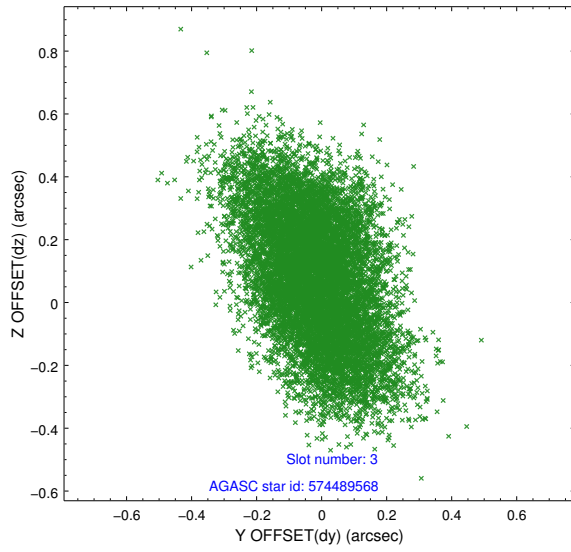


# Slot Statistics

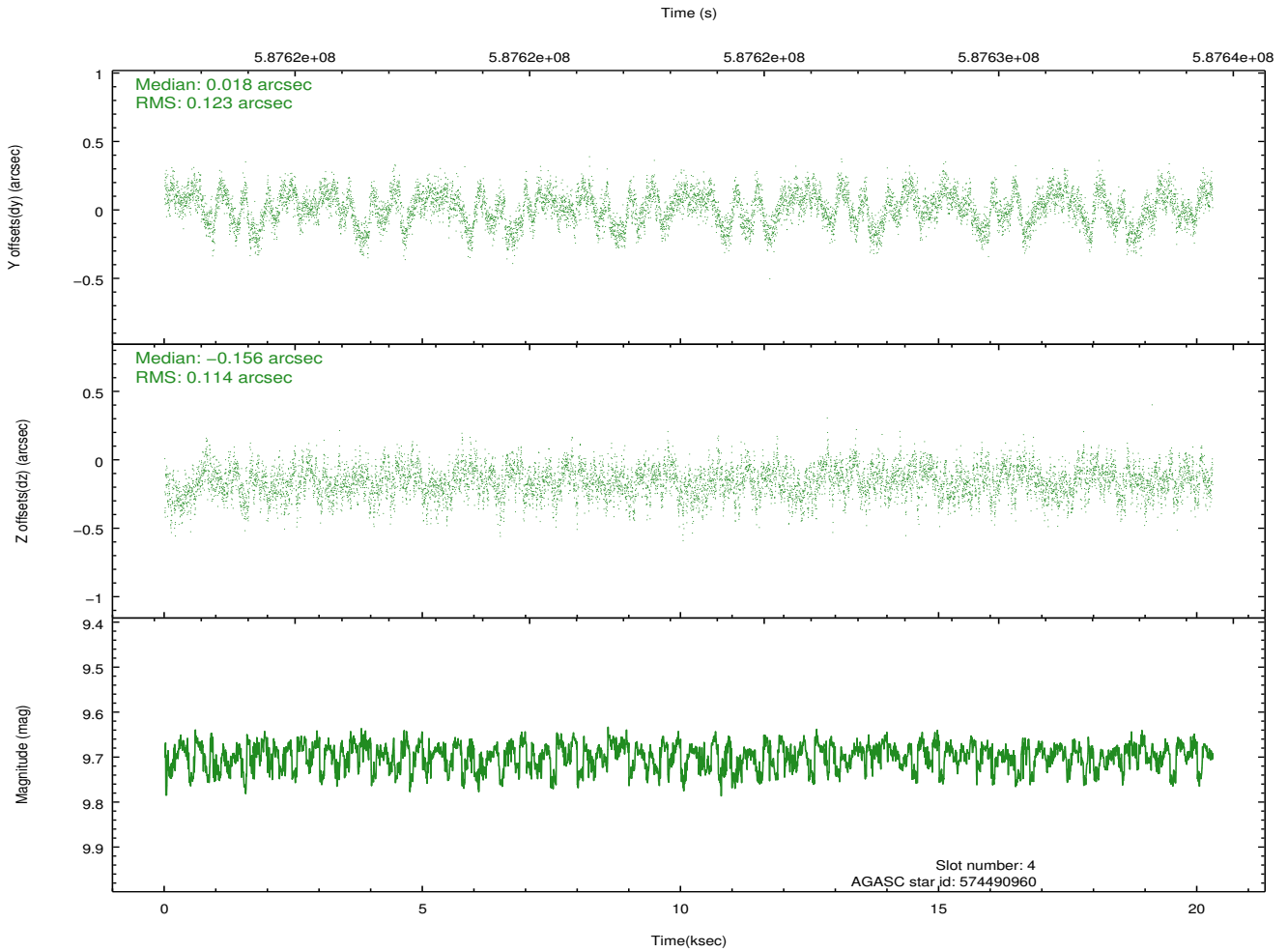
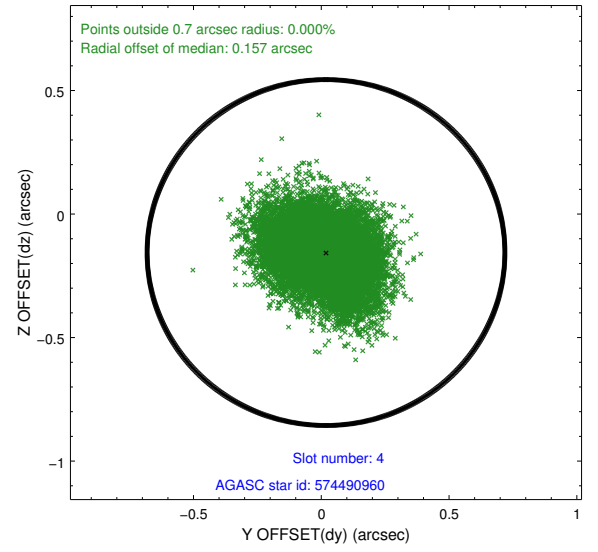
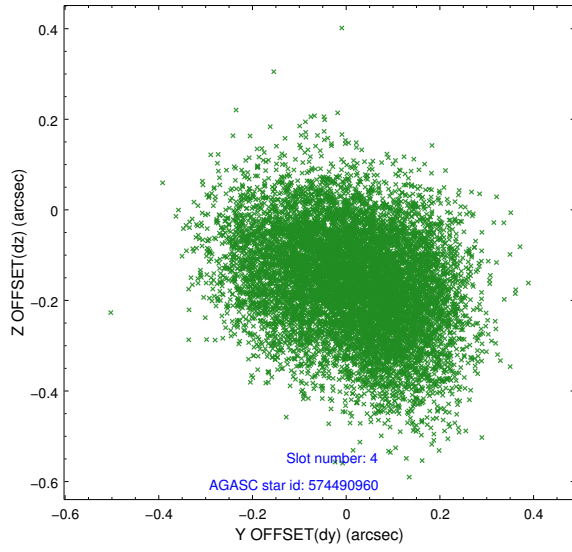
| slot | status | used | id        | mag   | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|------|-----------|-------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    |      | ACIS-I-1  | 7.17  | 4951  | -0.049 | -0.008 | 0.014 | 0.041 | 0.000000   | 0.000000  | 919.22   | -846.74  |
| 1    | FID    |      | ACIS-I-2  | 7.07  | 4950  | -0.322 | -0.169 | 0.012 | 0.019 | 0.000000   | 0.000000  | -775.04  | -853.43  |
| 2    | FID    |      | ACIS-I-4  | 7.11  | 4950  | 0.274  | 0.242  | 0.012 | 0.024 | 0.000000   | 0.000000  | 2139.35  | 1053.21  |
| 3    | GUIDE  | used | 574489568 | 9.70  | 9885  | -0.017 | 0.089  | 0.249 | 0.413 | 147.223974 | 69.438157 | -1707.47 | 690.50   |
| 4    | GUIDE  | used | 574490960 | 9.70  | 9886  | 0.018  | -0.156 | 0.181 | 0.286 | 148.185918 | 69.658768 | -514.36  | 1508.44  |
| 5    | GUIDE  | used | 574491184 | 9.06  | 9893  | -0.177 | -0.364 | 0.131 | 0.220 | 148.582453 | 69.768699 | -31.82   | 1919.96  |
| 6    | GUIDE  | used | 574491872 | 9.22  | 9886  | -0.080 | -0.195 | 0.135 | 0.229 | 147.207613 | 69.765453 | -1743.04 | 1862.96  |
| 7    | GUIDE  | used | 574500920 | 10.05 | 9866  | 0.260  | 0.637  | 0.277 | 0.433 | 147.014605 | 68.742334 | -1949.25 | -1816.57 |

## 2.4 Star Slots

### 2.4.1 Slot 3

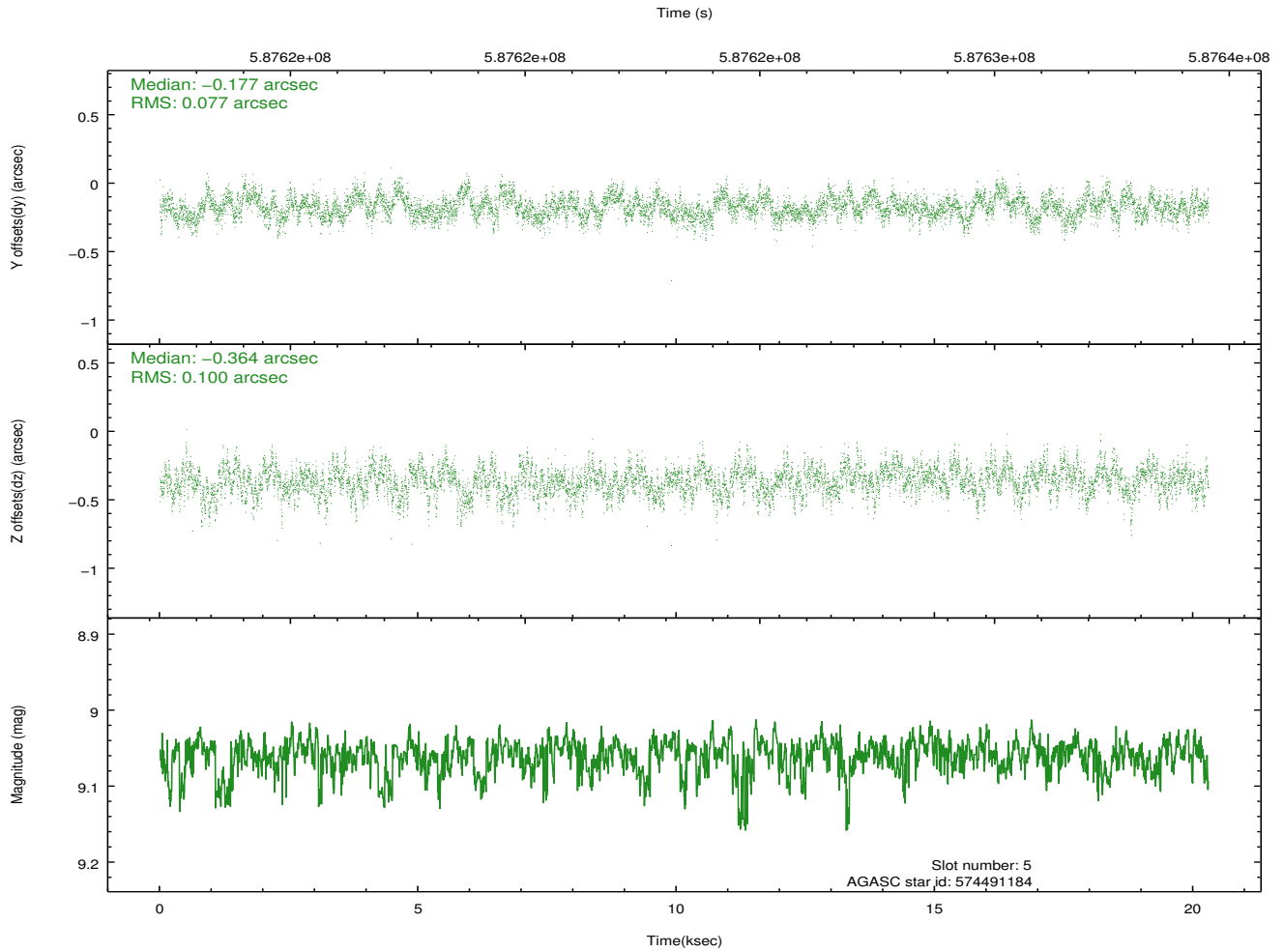
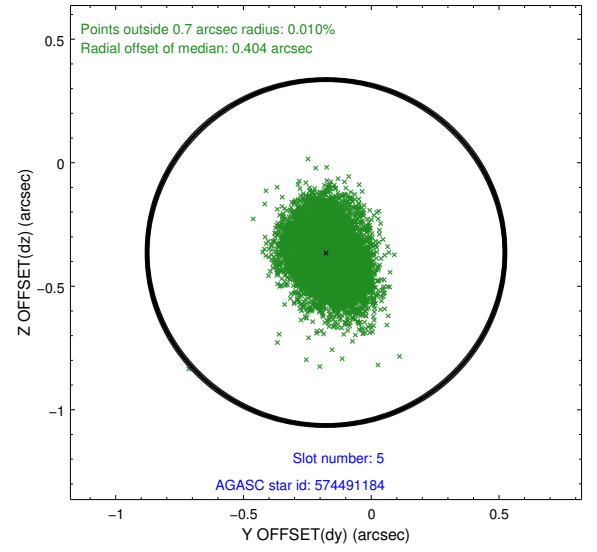
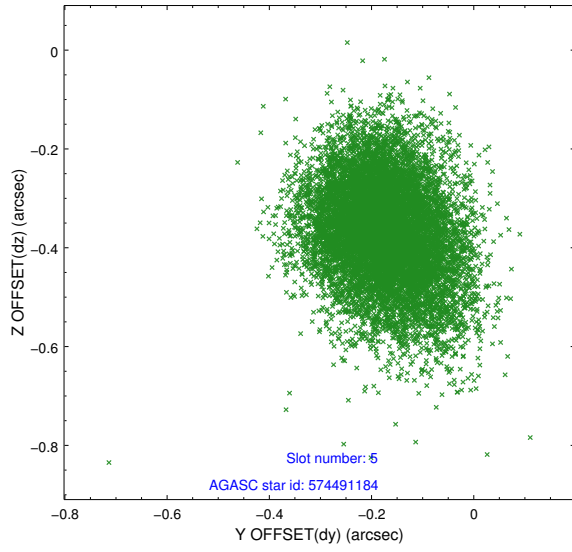


## 2.4.2 Slot 4

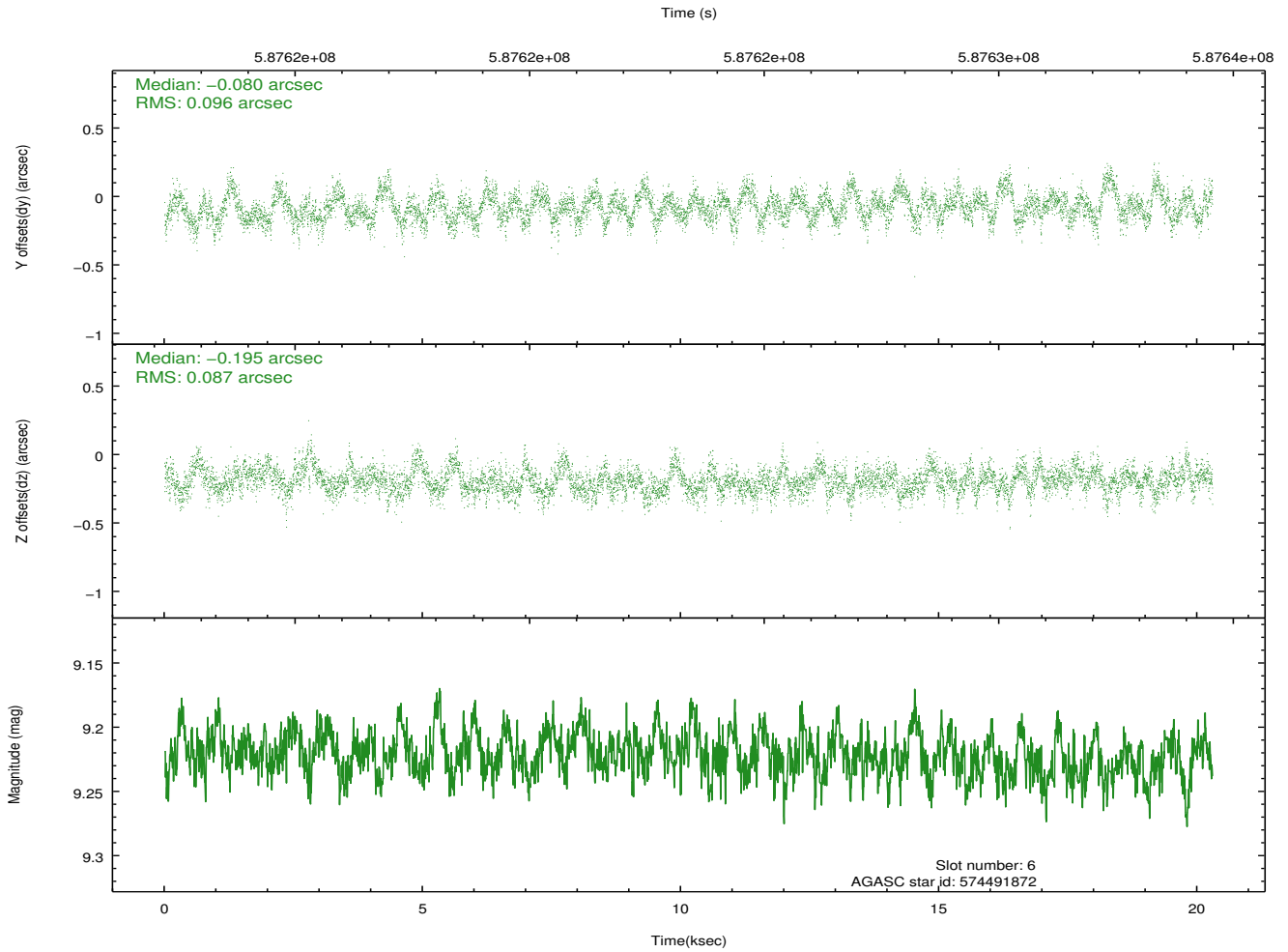
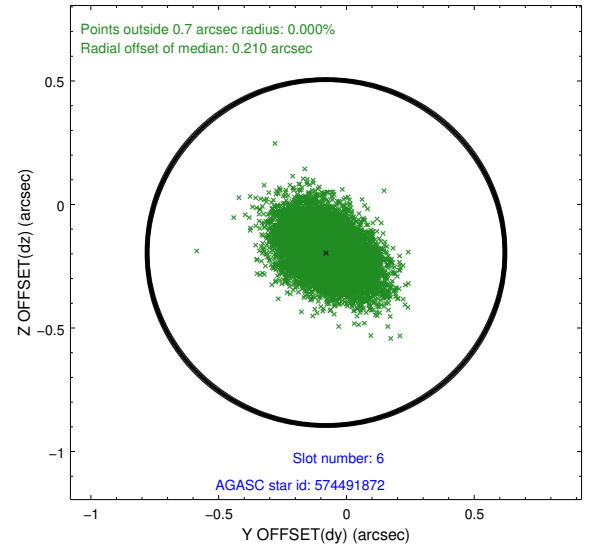
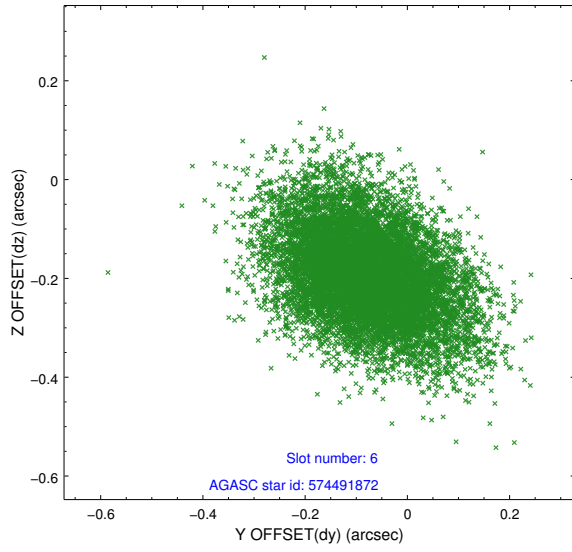




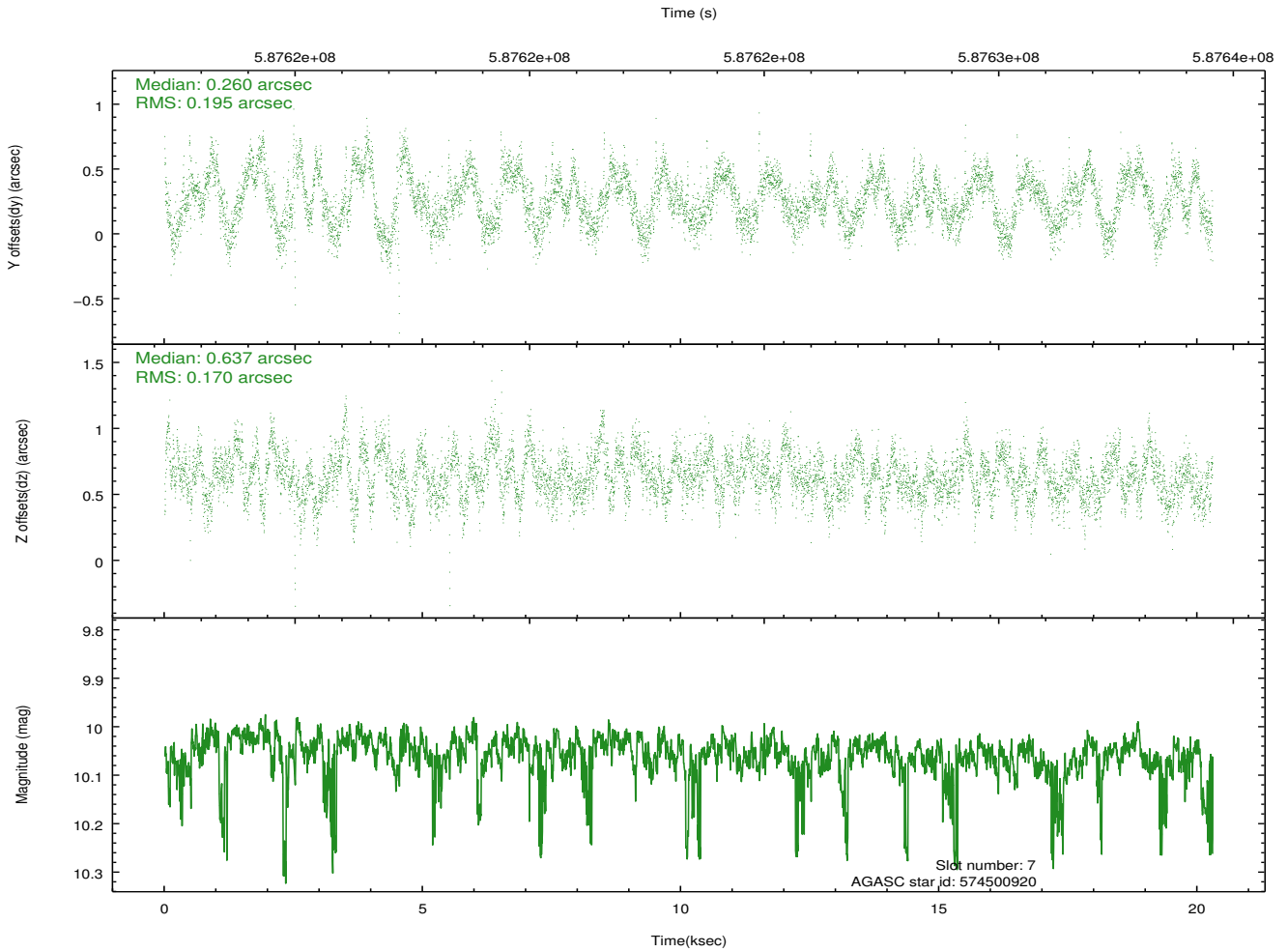
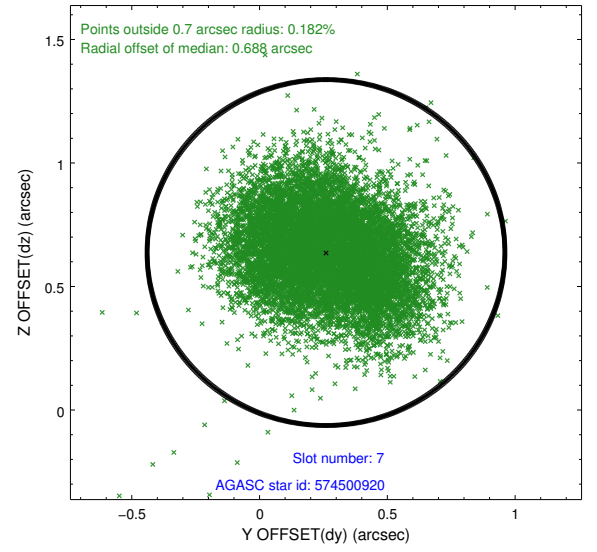
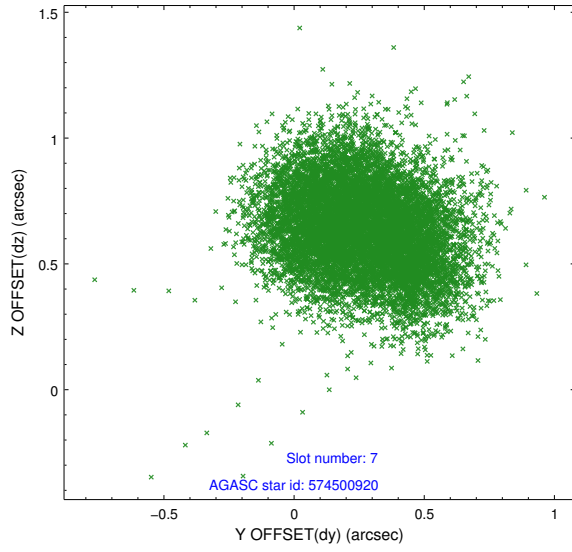
### 2.4.3 Slot 5



## 2.4.4 Slot 6

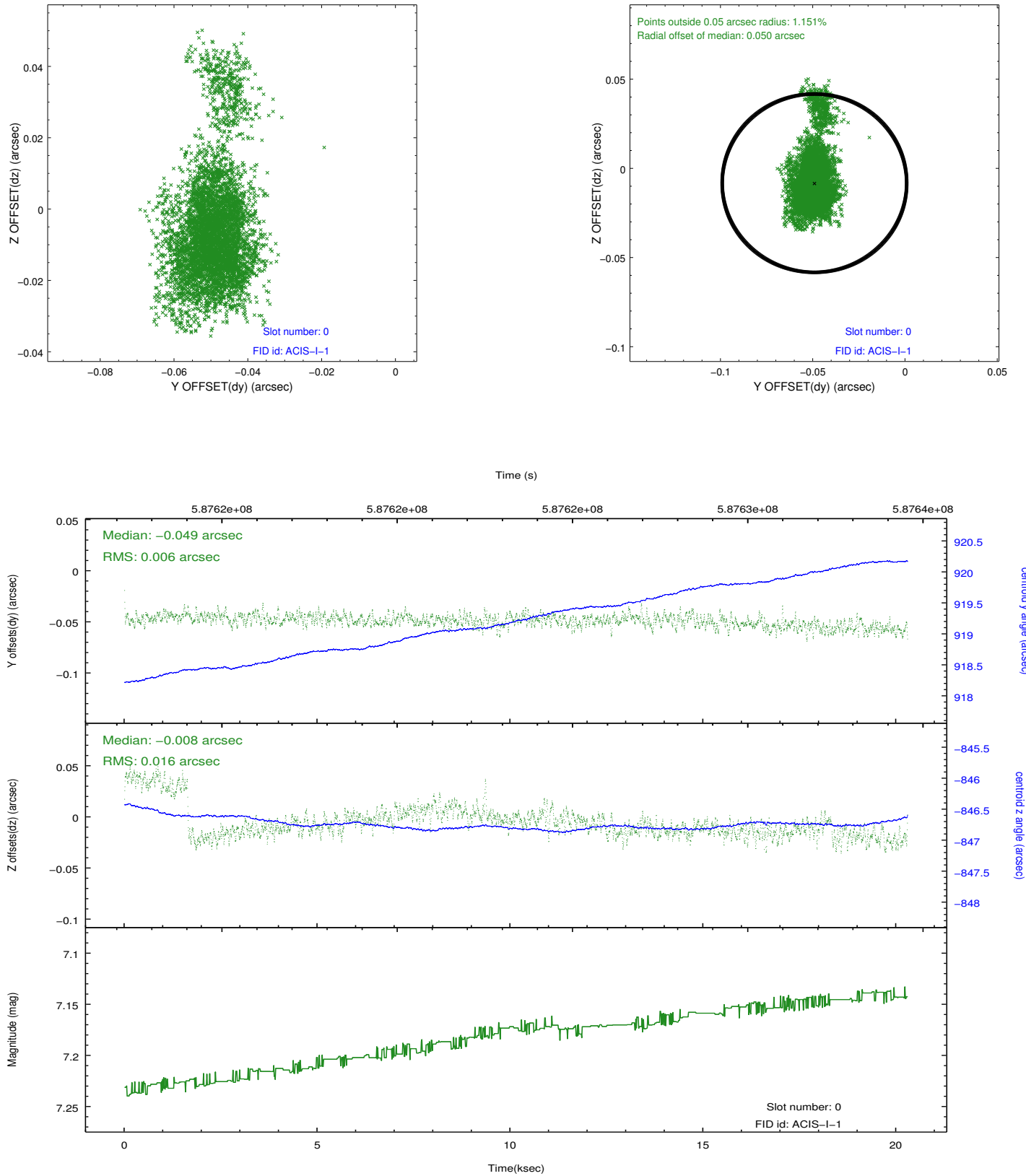


## 2.4.5 Slot 7

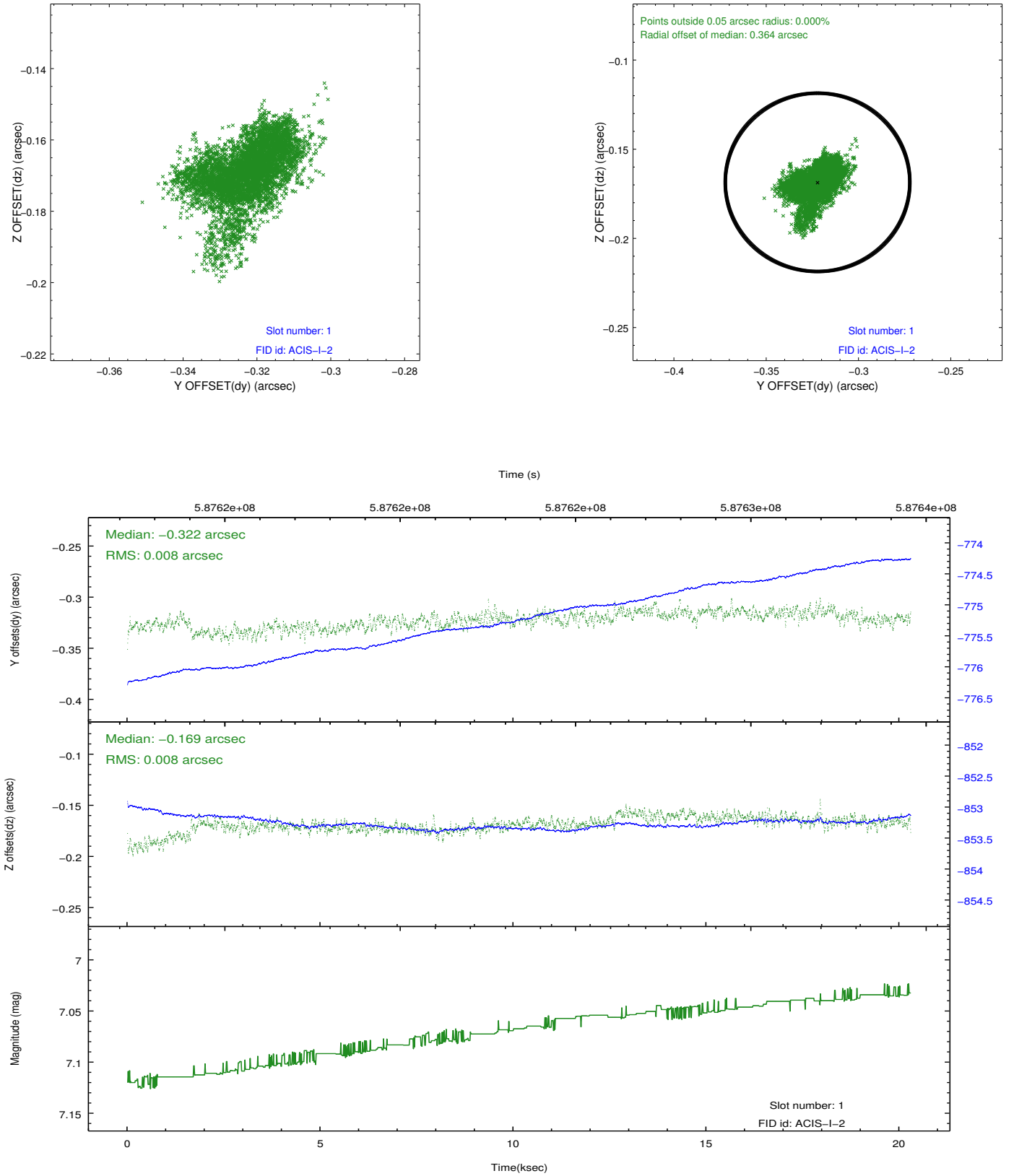


## 2.5 FID Slots

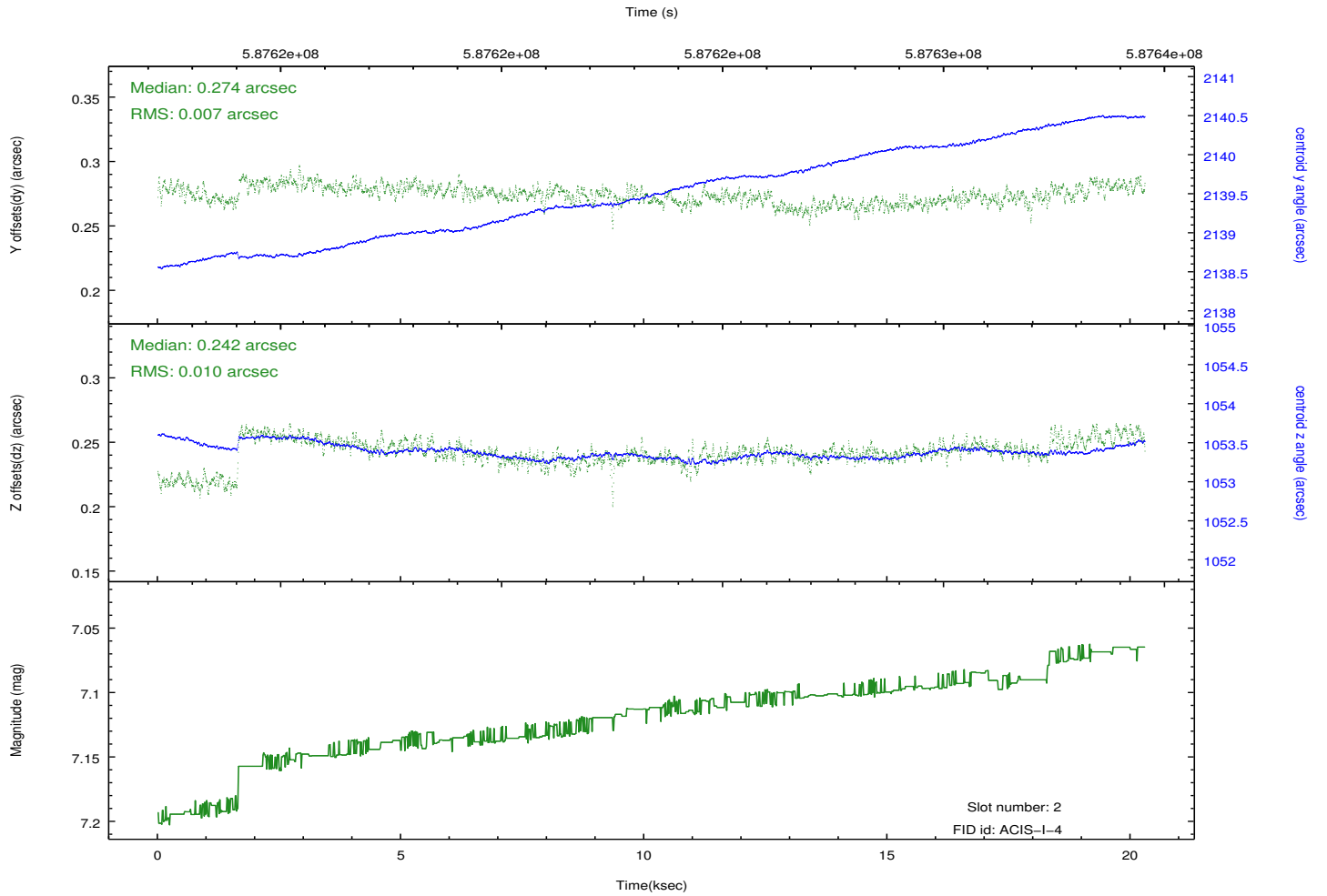
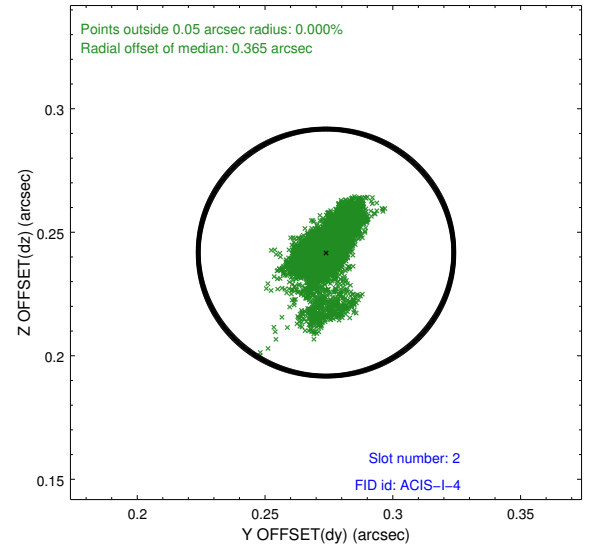
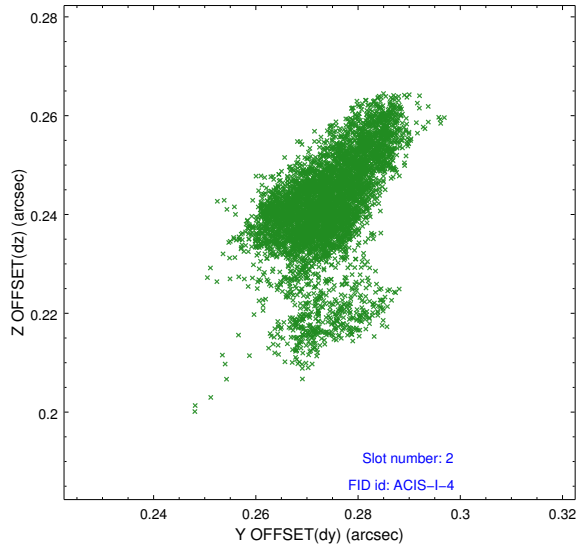
### 2.5.1 Slot 0



## 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)      | 2016.08.15      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 20.210522185326 |

### A.2 Comments