

# V&V Reference Report

## L2 ASCDS Version : 10.5

Observation 18245 - L2 Version 1  
Chandra X-Ray Center

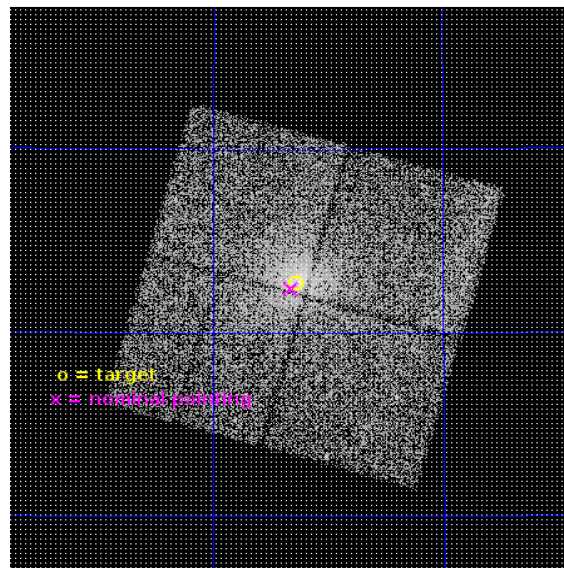
L2 Processing Date : Jul 11 2016

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# 1 Front

|          |                                                       |                                             |
|----------|-------------------------------------------------------|---------------------------------------------|
| seq_num  | 801569                                                | Sequence number                             |
| obs_id   | 18245                                                 | Observation id                              |
| title    | X-ray/dynamical masses with the complete CHeCS sample | Proposal tit                                |
| observer | Dr Ben Maughan                                        | Principal investigator                      |
| object   | A1302                                                 | Source name                                 |
| dtcycle  | 0                                                     | &#160                                       |
| cycle    | P                                                     | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 173.319583                                            | Observer's specified<br>target RA [deg]     |
| dec_targ | 66.378611                                             | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 173.32986718891                                       | Nominal RA [deg]                            |
| dec_nom  | 66.373282173067                                       | Nominal Dec [deg]                           |
| roll_nom | 285.84549510415                                       | Nominal Roll [deg]                          |
| revision | 1                                                     | Processing version of<br>data               |
| ontime   | 19082.492725968                                       | Sum of GTIs [s]                             |
| livetime | 18833.165910177                                       | Livetime [s]                                |
| ontime0  | 19082.369606018                                       | Sum of GTIs [s]                             |
| ontime1  | 19082.410645962                                       | Sum of GTIs [s]                             |
| ontime2  | 19082.451686025                                       | Sum of GTIs [s]                             |
| ontime3  | 19082.492725968                                       | Sum of GTIs [s]                             |
| l2events | 55814                                                 | Number of level 2 events                    |

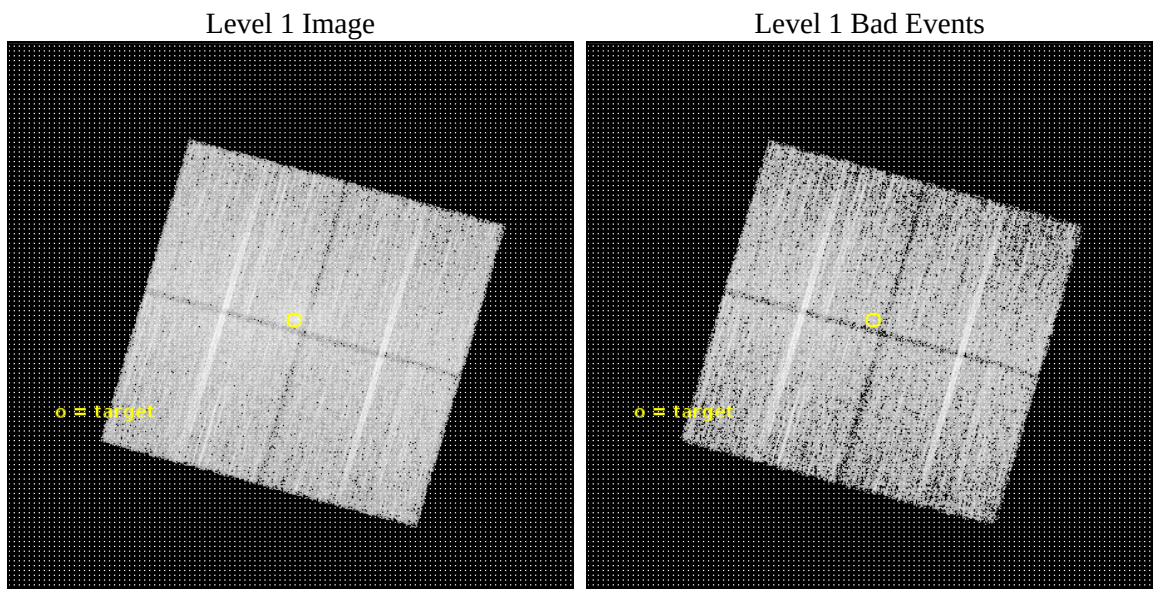




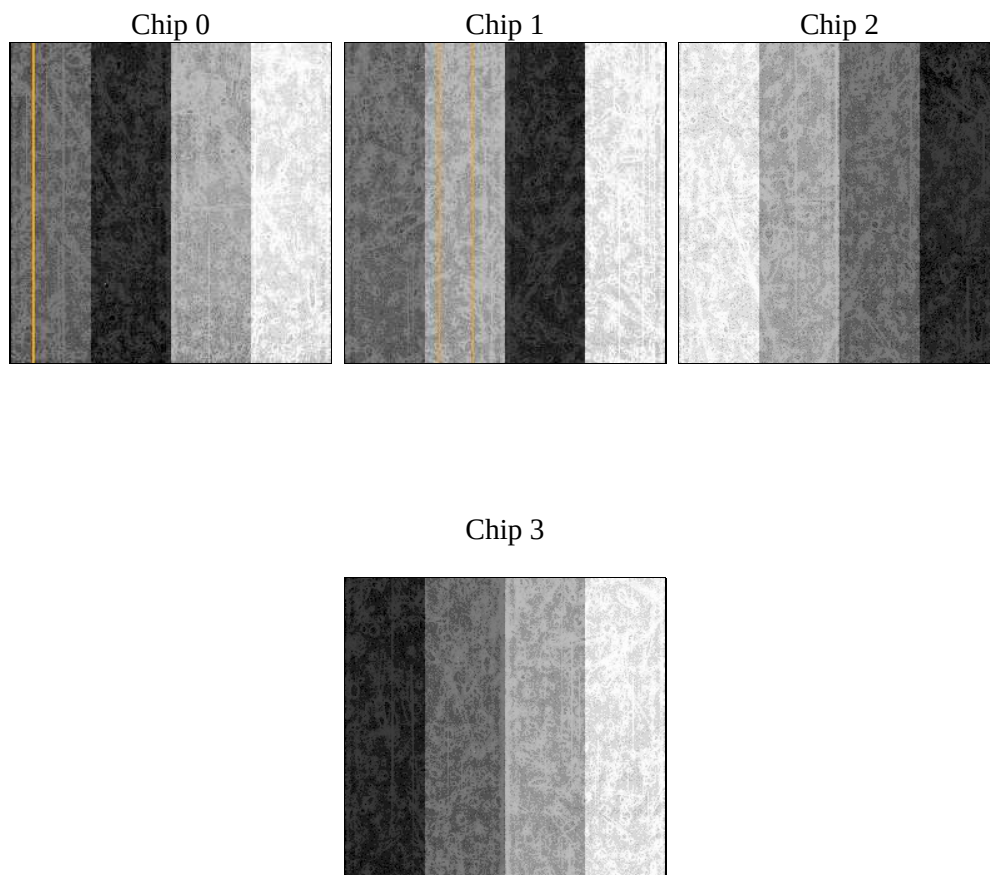
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 19000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.5                | Processing system revision     | ontime         | 19082.492725968 | Sum of GTIs [s]                         |
| caldsver | 4.7.2               | &#160                          | ontime0        | 19082.369606018 | Sum of GTIs [s]                         |
| date     | 2016-07-11T07:31:59 | Date and time of file creation | ontime1        | 19082.410645962 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime2        | 19082.451686025 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 19082.492725968 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 458598          | Number of level 1 events                |

### 2.1.4 Events

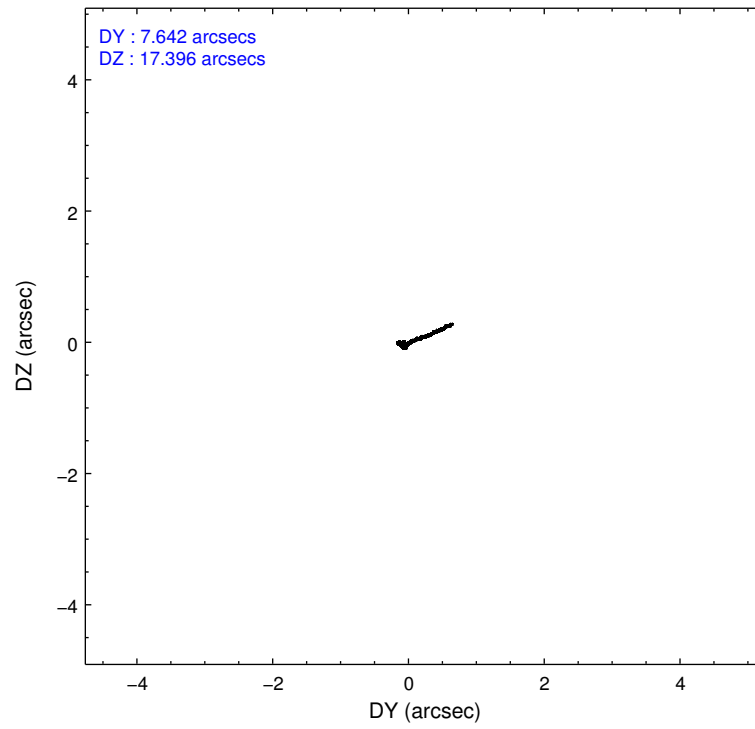
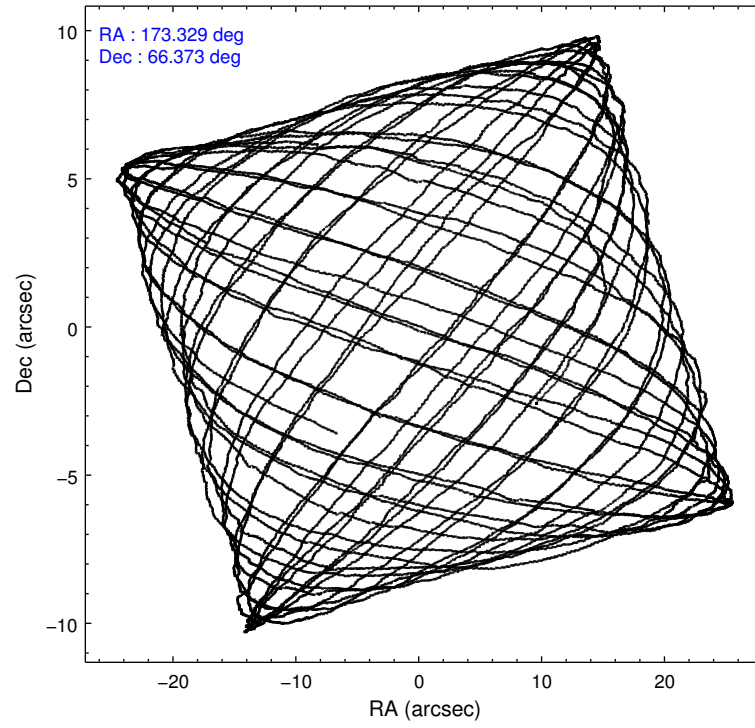
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  |
|-----------------|--------|--------|--------|--------|
| level 1 events  | 104876 | 111143 | 120388 | 122191 |
| rejected events | 90361  | 93461  | 105084 | 104330 |
| rejected %      | 86%    | 84%    | 87%    | 85%    |

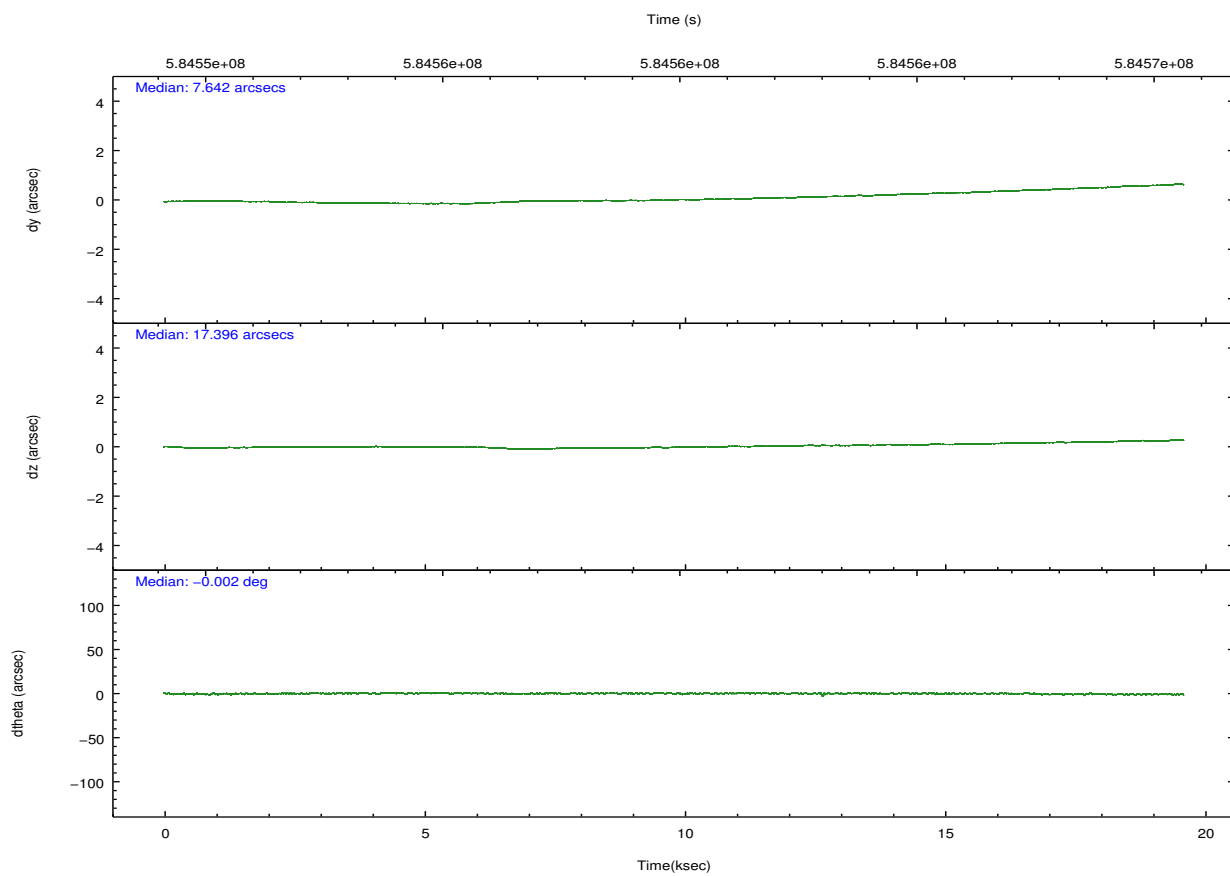
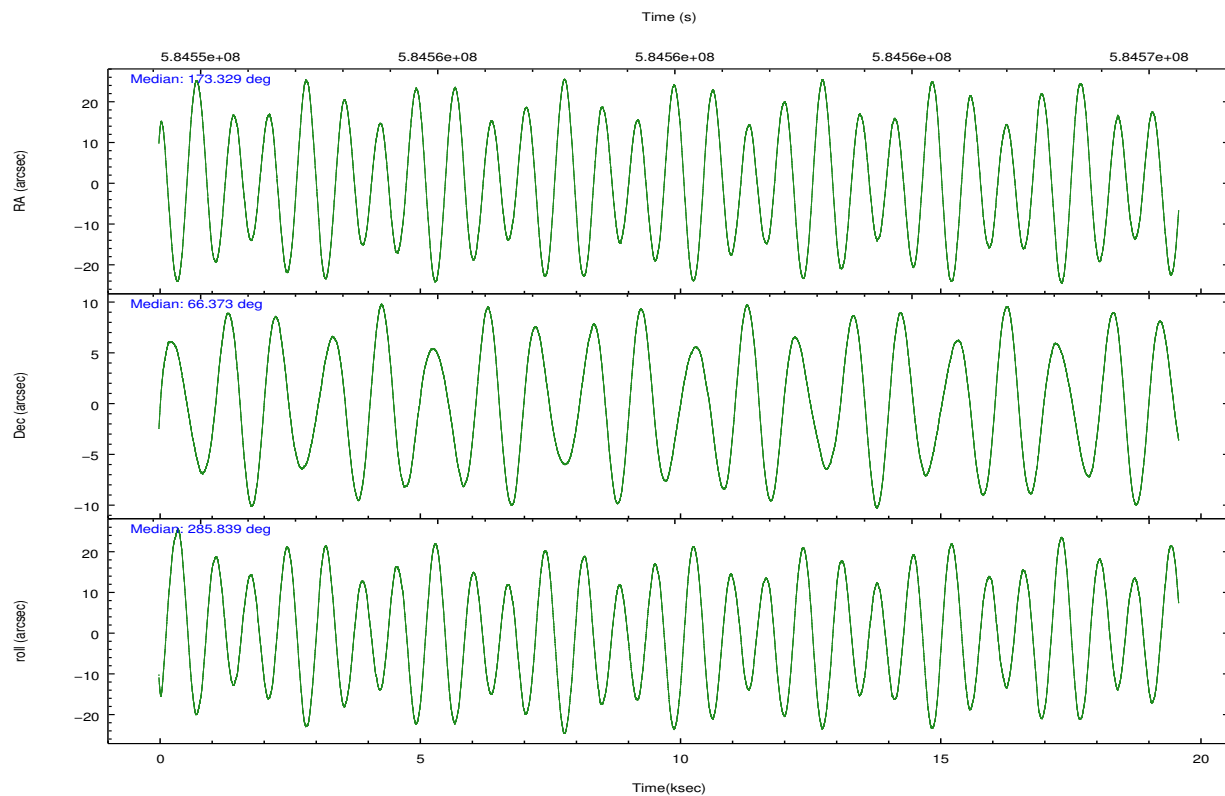
|                | ccd 0 | ccd 1 | ccd 2  | ccd 3 |
|----------------|-------|-------|--------|-------|
| grade 0 events | 5371  | 7253  | 6448   | 8995  |
|                | 5%    | 6%    | 5%     | 7%    |
| grade 1 events | 56    | 79    | 66     | 92    |
|                | 0%    | 0%    | 0%     | 0%    |
| grade 2 events | 3538  | 4071  | 3466   | 3219  |
|                | 3%    | 3%    | 2%     | 2%    |
| grade 3 events | 1403  | 1565  | 1306   | 1462  |
|                | 1%    | 1%    | 1%     | 1%    |
| grade 4 events | 1389  | 1484  | 1495   | 1501  |
|                | 1%    | 1%    | 1%     | 1%    |
| grade 5 events | 5133  | 5555  | 4909   | 5712  |
|                | 4%    | 4%    | 4%     | 4%    |
| grade 6 events | 2818  | 3313  | 2595   | 2689  |
|                | 2%    | 2%    | 2%     | 2%    |
| grade 7 events | 85168 | 87823 | 100103 | 98521 |
|                | 81%   | 79%   | 83%    | 80%   |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual                | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|-----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                  | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-0123           | ACIS-0123             | 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                 | 173.280296          | 173.32986718891       | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | 66.392385           | 66.37328217306698     | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 285.682229          | 285.8454951041542     | 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        | N       |
| [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)  | 584550653.184000    | 584549417.8454        | CCD S5 on                             | N         | N       |
| Observation start date            | 2016-07-10T15:09:45 | 2016-07-10T14:50:17   | Number of optional ACIS chips dropped | 1         | 1       |
| [s] Observation end time (MET)    | 584569653.184000    | 584570402.15911       | On-chip summing requested             | N         | N       |
| Observation end date              | 2016-07-10T20:26:25 | 2016-07-10T20:40:02   | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                 | Alternating exposures requested       | N         | N       |
|                                   |                     |                       | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



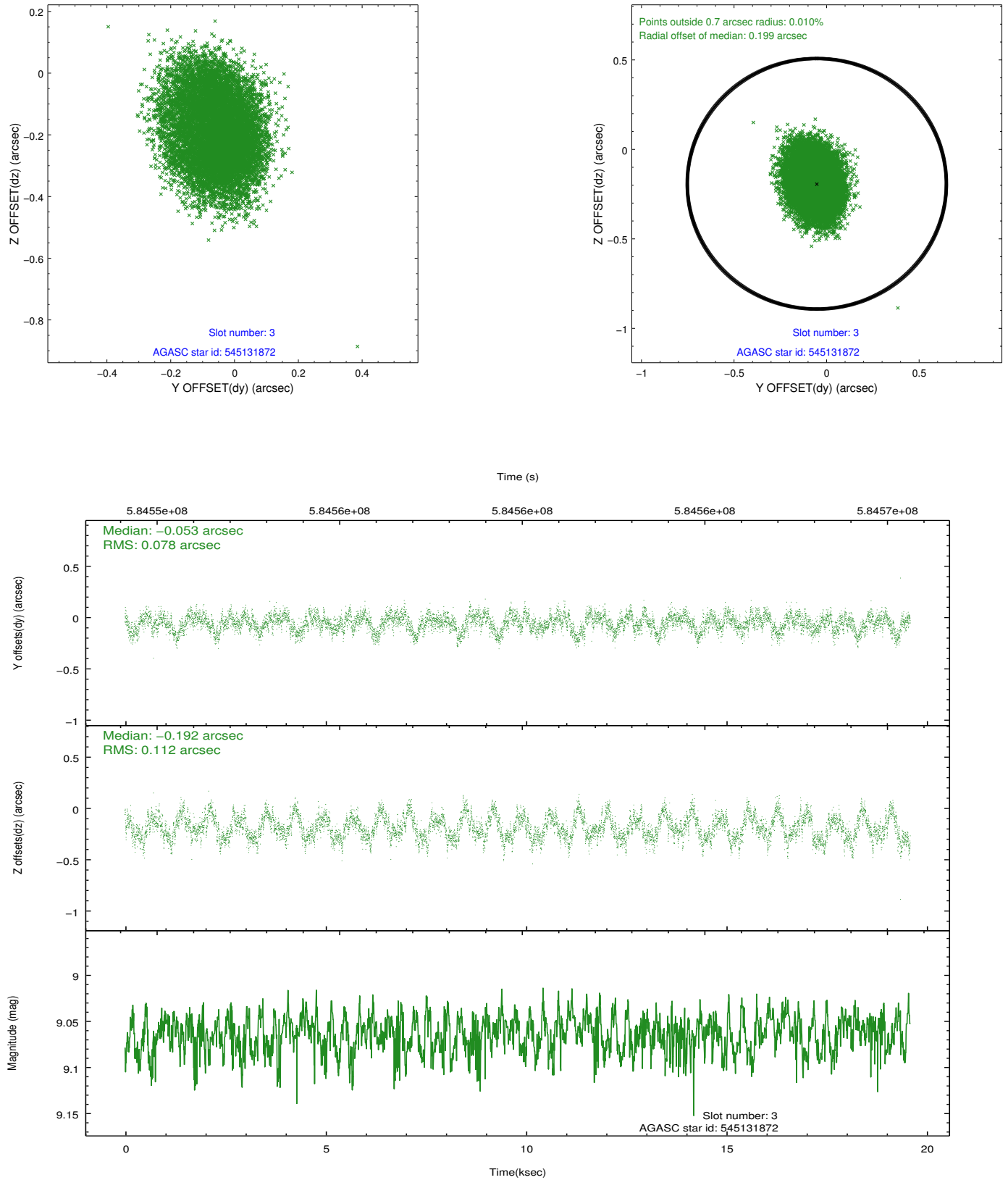


# Slot Statistics

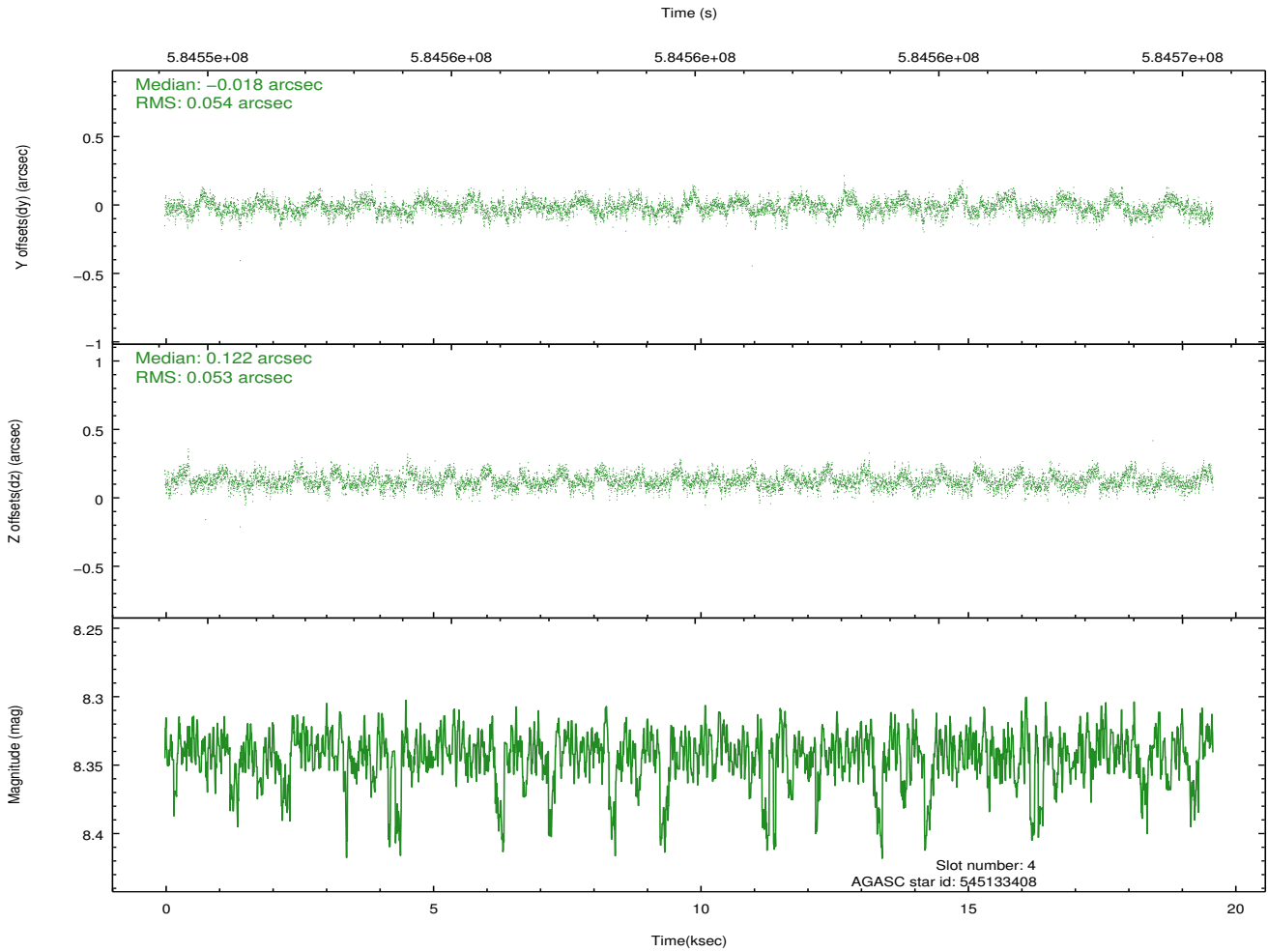
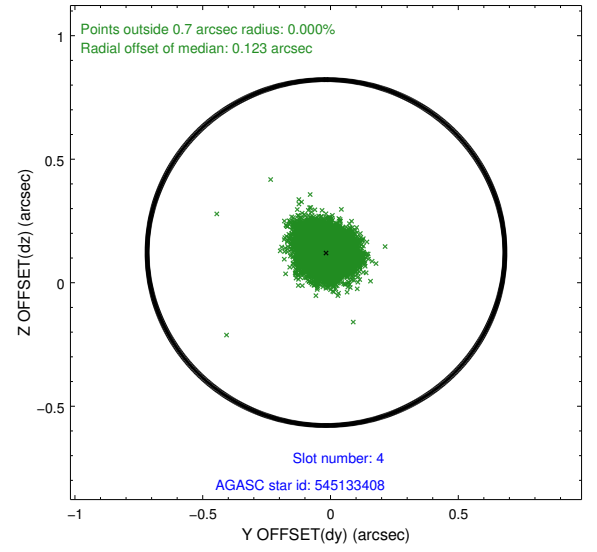
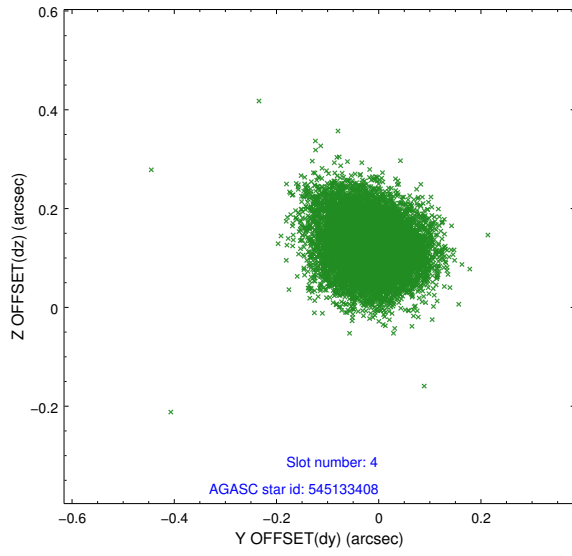
| slot | status | used | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|------|-----------|------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    |      | ACIS-I-1  | 7.25 | 4780  | 0.108  | -0.045 | 0.008 | 0.029 | 0.000000   | 0.000000  | 932.03   | -841.14  |
| 1    | FID    |      | ACIS-I-5  | 7.23 | 4779  | -0.269 | 0.098  | 0.007 | 0.014 | 0.000000   | 0.000000  | -1816.36 | 1056.37  |
| 2    | FID    |      | ACIS-I-6  | 7.24 | 4780  | 0.069  | 0.017  | 0.008 | 0.018 | 0.000000   | 0.000000  | 397.30   | 1701.03  |
| 3    | GUIDE  | used | 545131872 | 9.06 | 9554  | -0.053 | -0.192 | 0.148 | 0.230 | 173.698413 | 66.289244 | 519.81   | 482.89   |
| 4    | GUIDE  | used | 545133408 | 8.34 | 9558  | -0.018 | 0.122  | 0.080 | 0.128 | 173.106698 | 66.317519 | 192.05   | -314.03  |
| 5    | GUIDE  | used | 545138160 | 7.42 | 9558  | 0.146  | 0.161  | 0.072 | 0.114 | 171.515461 | 66.754345 | -1965.41 | -2051.85 |
| 6    | GUIDE  | used | 545138408 | 8.61 | 9557  | 0.111  | -0.086 | 0.085 | 0.144 | 173.540993 | 66.458018 | -126.46  | 425.07   |
| 7    | GUIDE  | used | 545132176 | 8.11 | 9555  | -0.190 | -0.009 | 0.087 | 0.135 | 173.089564 | 67.054186 | -2366.21 | 386.54   |

## 2.4 Star Slots

### 2.4.1 Slot 3

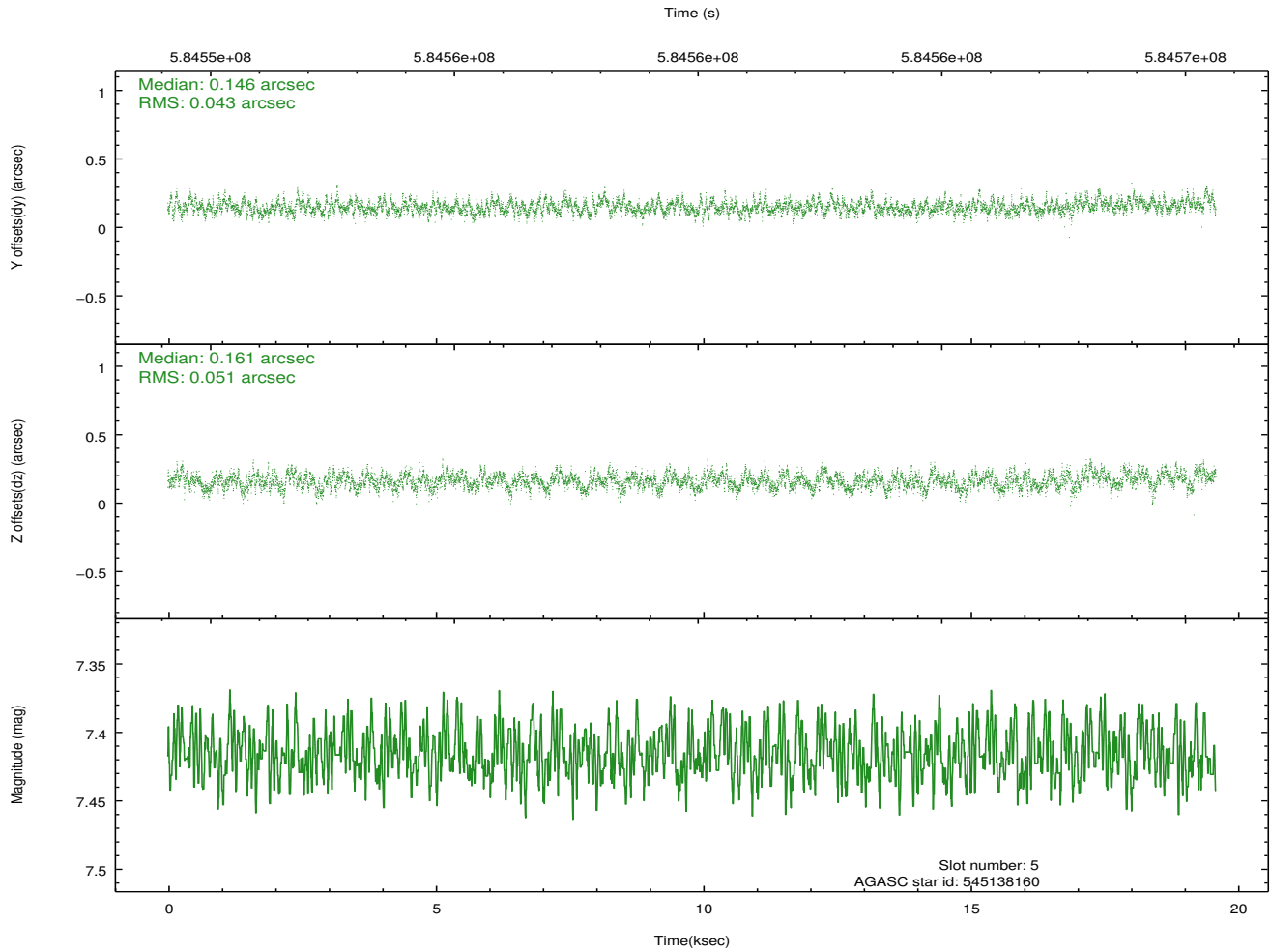
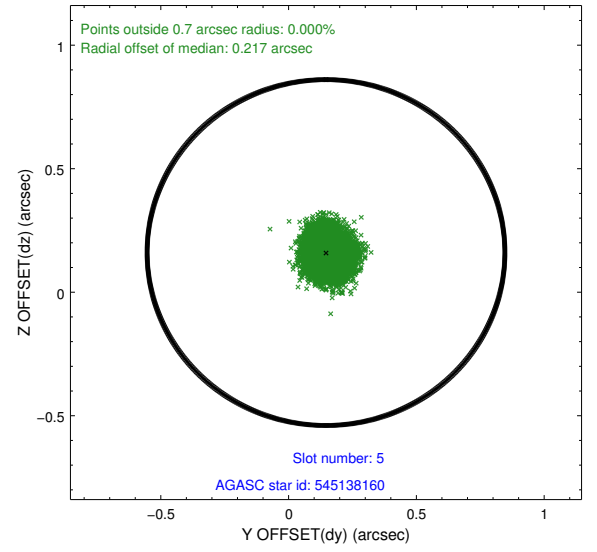
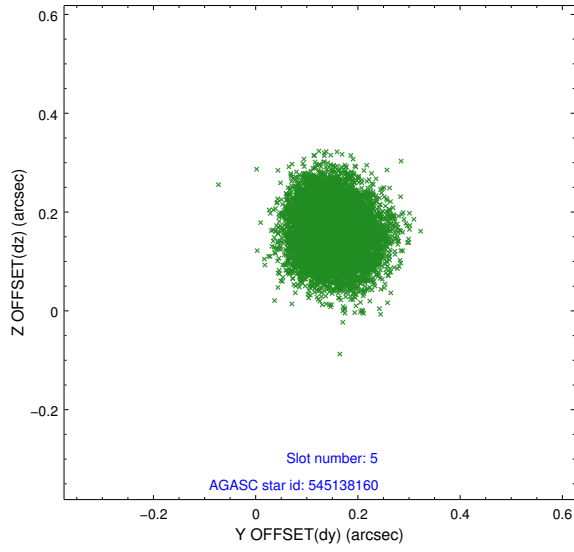


## 2.4.2 Slot 4

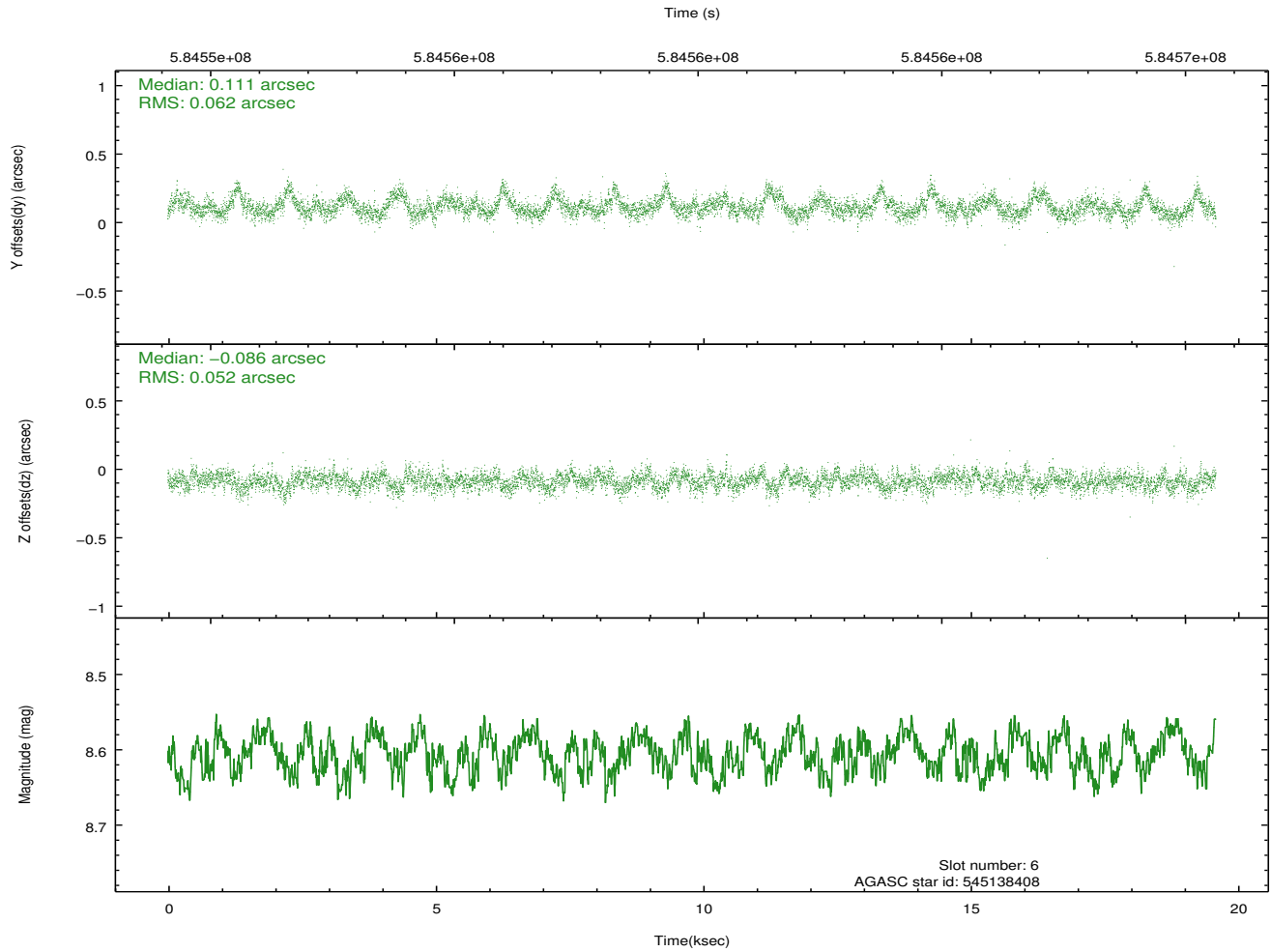
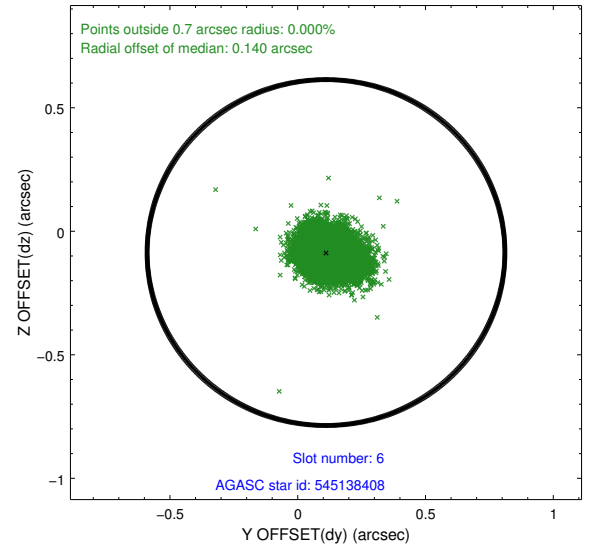
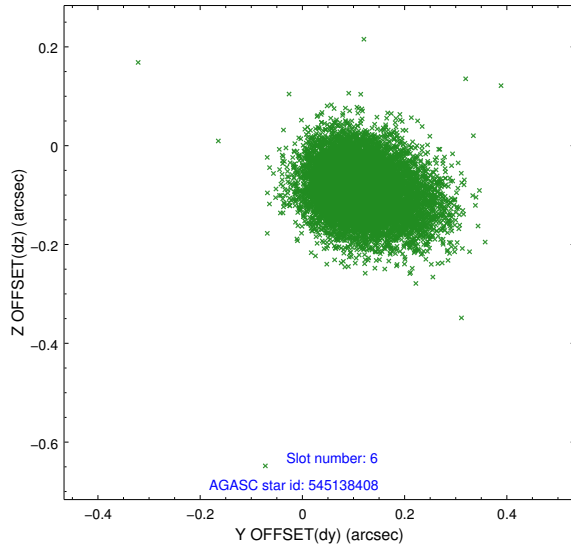




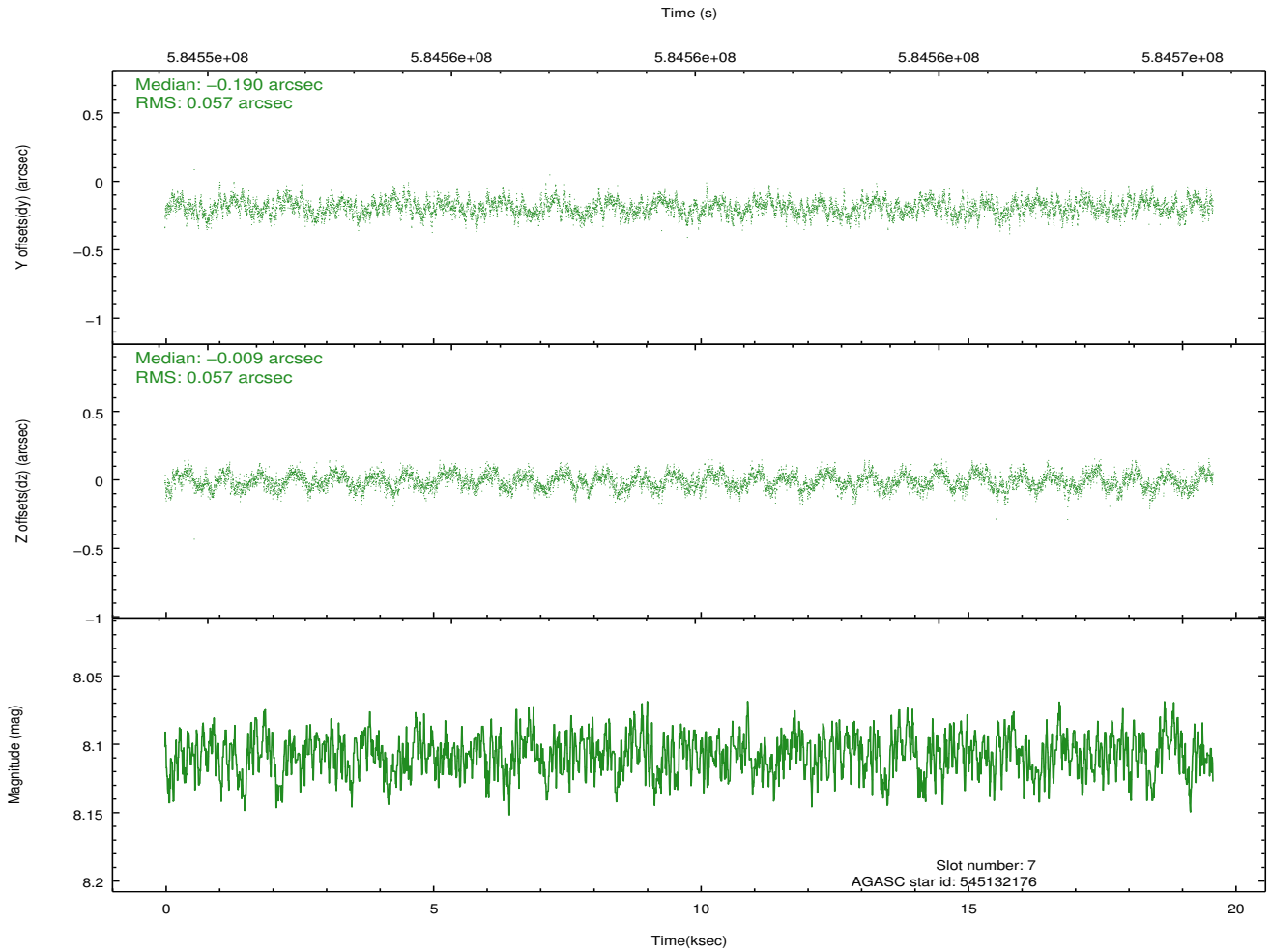
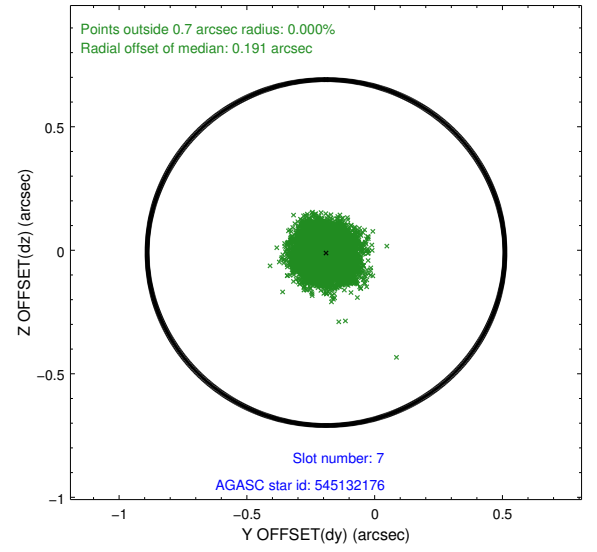
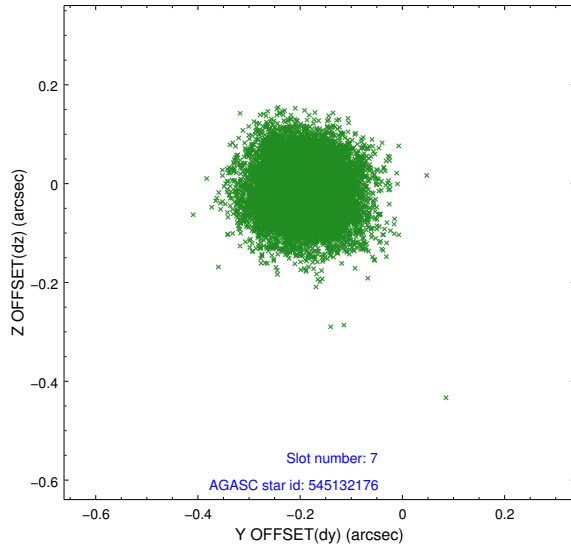
### 2.4.3 Slot 5



## 2.4.4 Slot 6

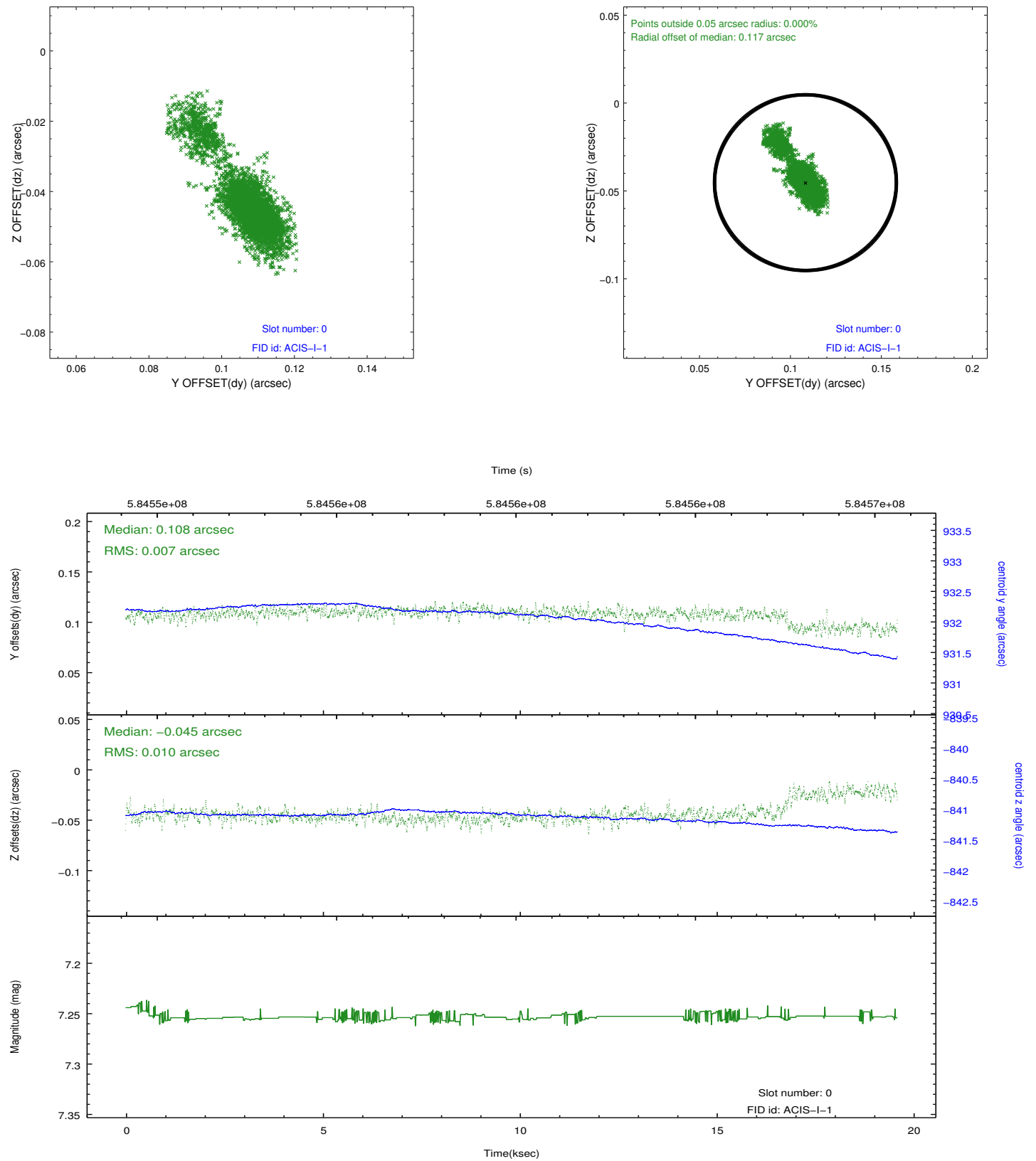


## 2.4.5 Slot 7

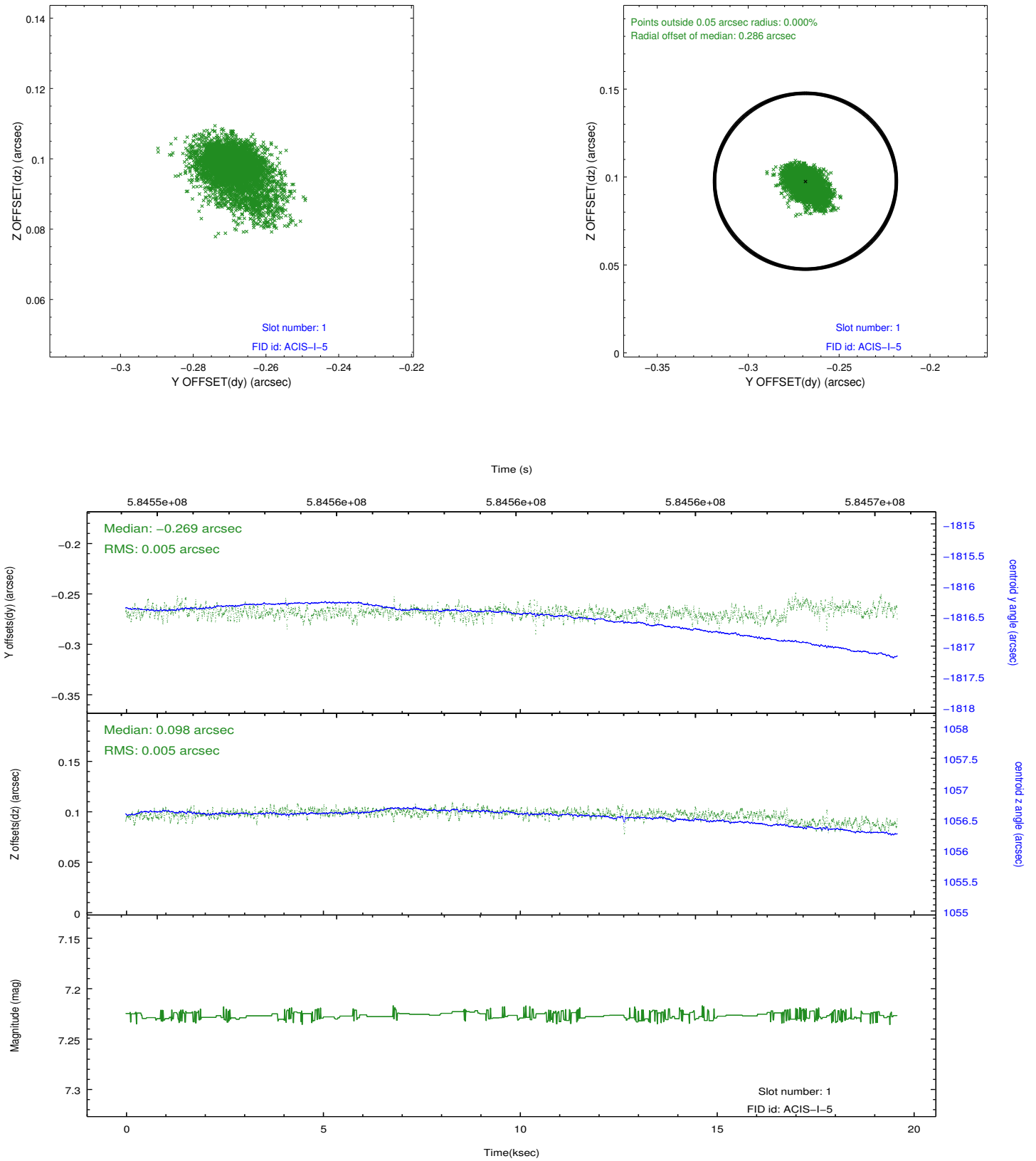


## 2.5 FID Slots

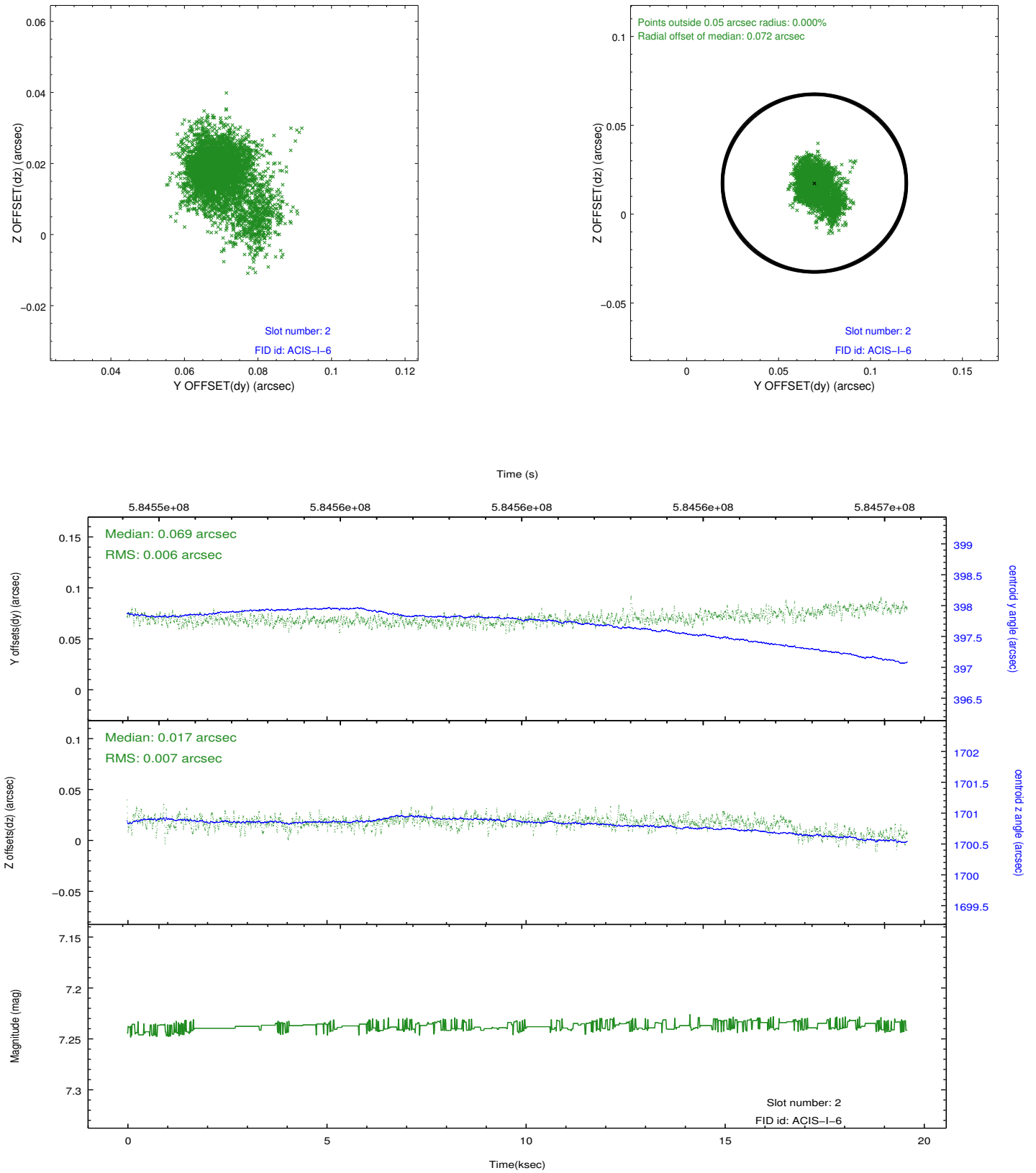
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Joy Nichols     |
| V&V Date (YYYY-MM-DD)      | 2016.07.11      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 19.082492725968 |

### A.2 Comments