

# V&V Reference Report

## L2 ASCDS Version : 10.5.2

Observation 18475 - L2 Version 2  
Chandra X-Ray Center

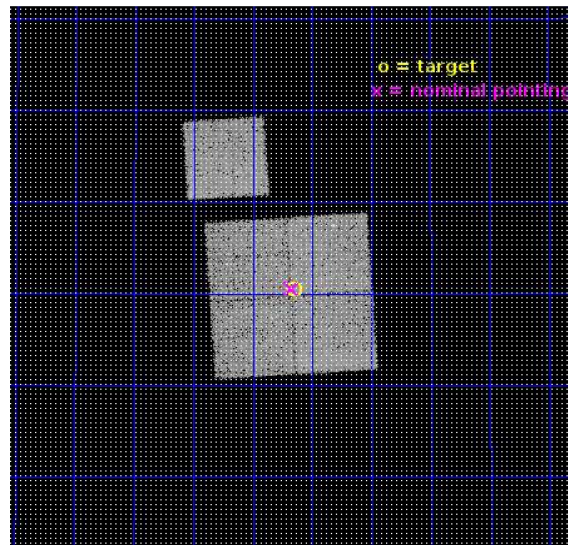
L2 Processing Date : Nov 1 2016

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# 1 Front

|          |                                                                            |                                             |
|----------|----------------------------------------------------------------------------|---------------------------------------------|
| seq_num  | 901208                                                                     | Sequence number                             |
| obs_id   | 18475                                                                      | Observation id                              |
| title    | An extended moderate-depth contiguous layer of the Chandra<br>Bootes field | Proposal title                              |
| observer | Ralph Kraft                                                                | Principal investigator                      |
| object   | Bootes Cy17-1                                                              | Source name                                 |
| dtcycle  | 0                                                                          | &#160                                       |
| cycle    | P                                                                          | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 218.16125                                                                  | Observer's specified<br>target RA [deg]     |
| dec_targ | 34.174                                                                     | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 218.1687618305                                                             | Nominal RA [deg]                            |
| dec_nom  | 34.17608094433                                                             | Nominal Dec [deg]                           |
| roll_nom | 356.2044813899                                                             | Nominal Roll [deg]                          |
| revision | 2                                                                          | Processing version of<br>data               |
| ontime   | 25044.900192738                                                            | Sum of GTIs [s]                             |
| livetime | 24717.670133932                                                            | Livetime [s]                                |
| ontime0  | 25044.900192738                                                            | Sum of GTIs [s]                             |
| ontime1  | 25044.900192738                                                            | Sum of GTIs [s]                             |
| ontime2  | 25032.336091518                                                            | Sum of GTIs [s]                             |
| ontime3  | 25044.900192738                                                            | Sum of GTIs [s]                             |
| ontime6  | 25044.900192738                                                            | Sum of GTIs [s]                             |
| l2events | 79212                                                                      | Number of level 2 events                    |

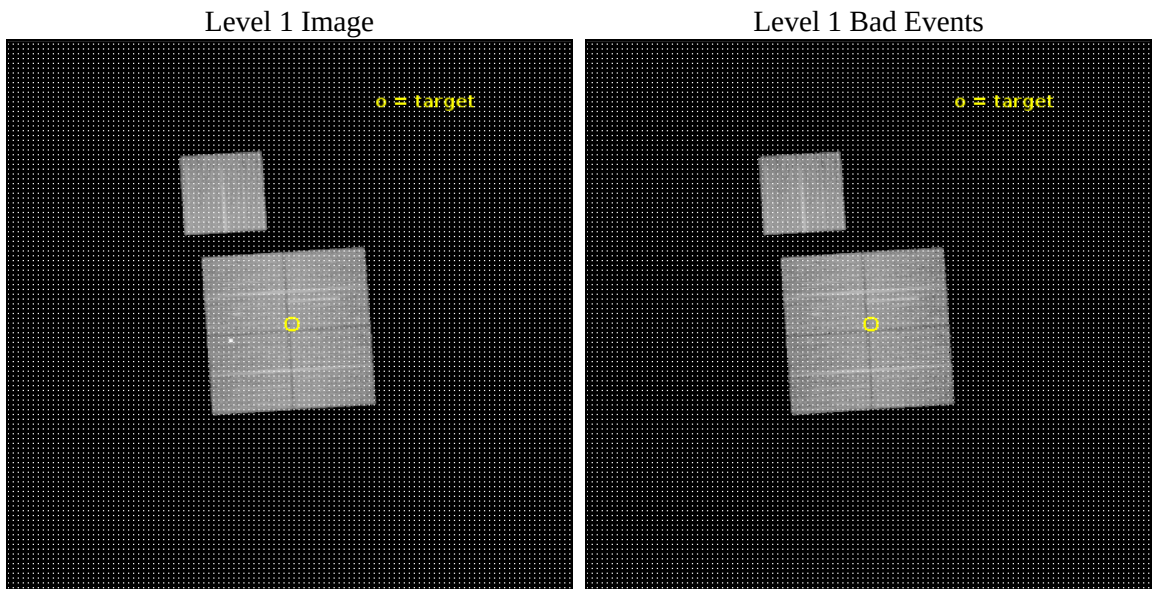




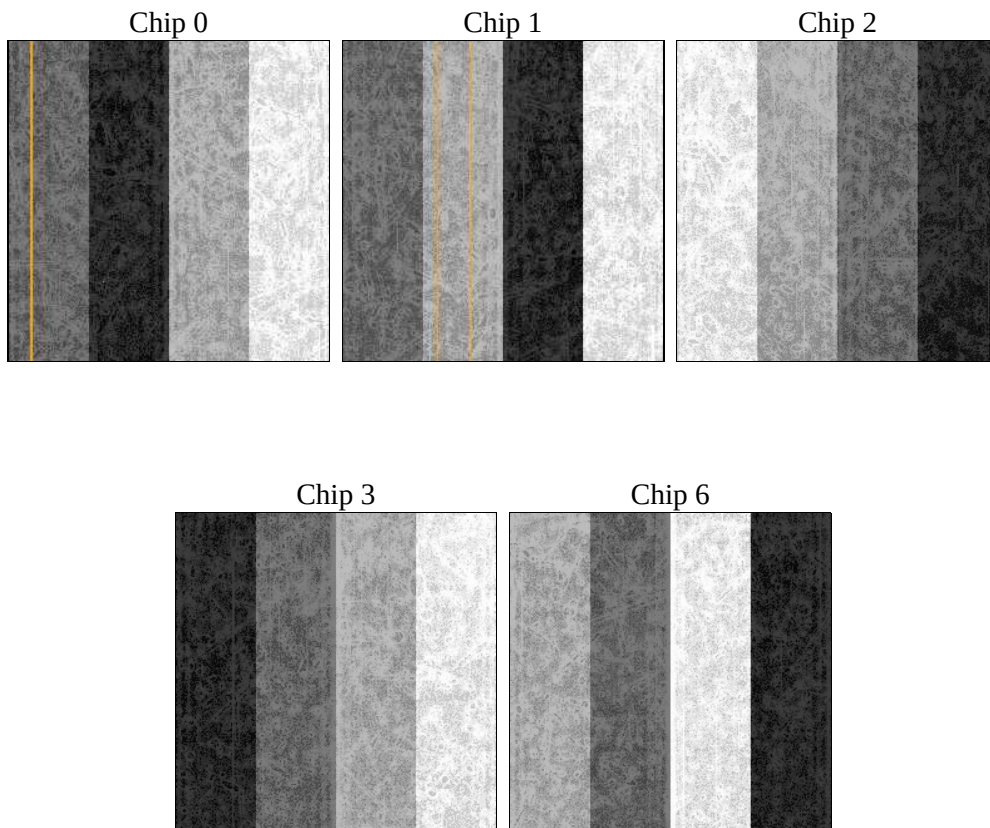
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 25000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.5.2              | Processing system revision     | ontime         | 25044.900192738 | Sum of GTIs [s]                         |
| caldsver | 4.7.2               | &#160                          | ontime0        | 25044.900192738 | Sum of GTIs [s]                         |
| date     | 2016-11-01T15:30:17 | Date and time of file creation | ontime1        | 25044.900192738 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime2        | 25032.336091518 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 25044.900192738 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 25044.900192738 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 819948          | Number of level 1 events                |

### 2.1.4 Events

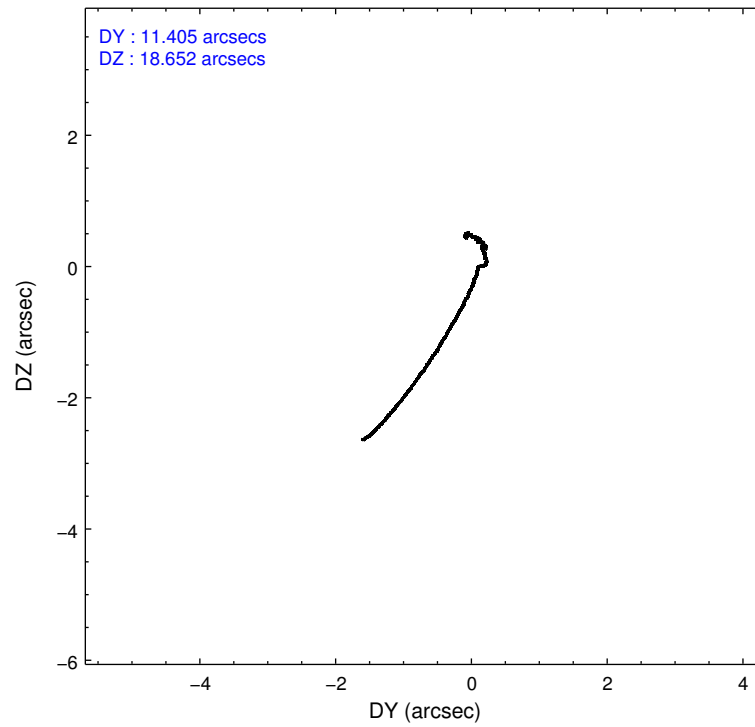
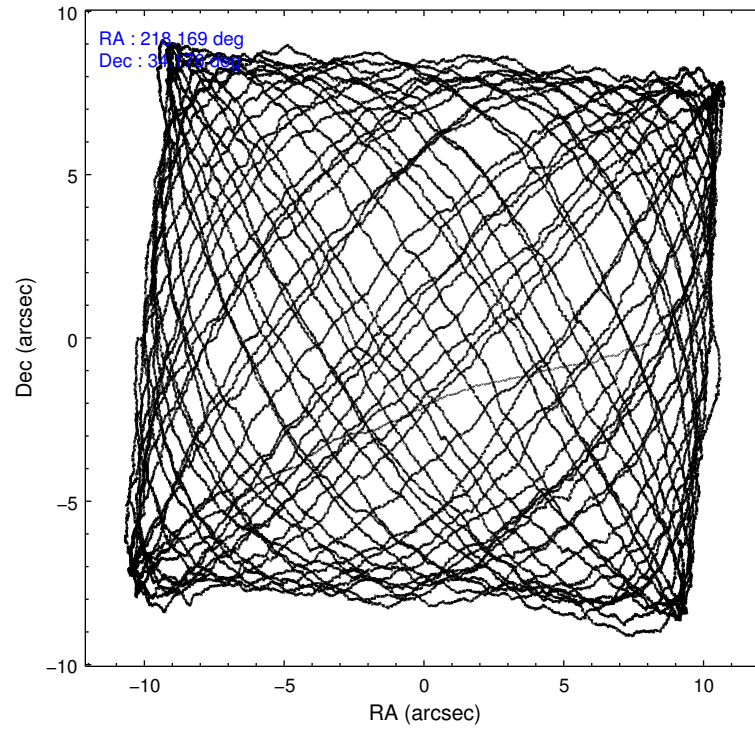
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 159401 | 155716 | 171470 | 167525 | 165836 |
| rejected events | 133306 | 135158 | 153762 | 149205 | 146963 |
| rejected %      | 83%    | 86%    | 89%    | 89%    | 88%    |

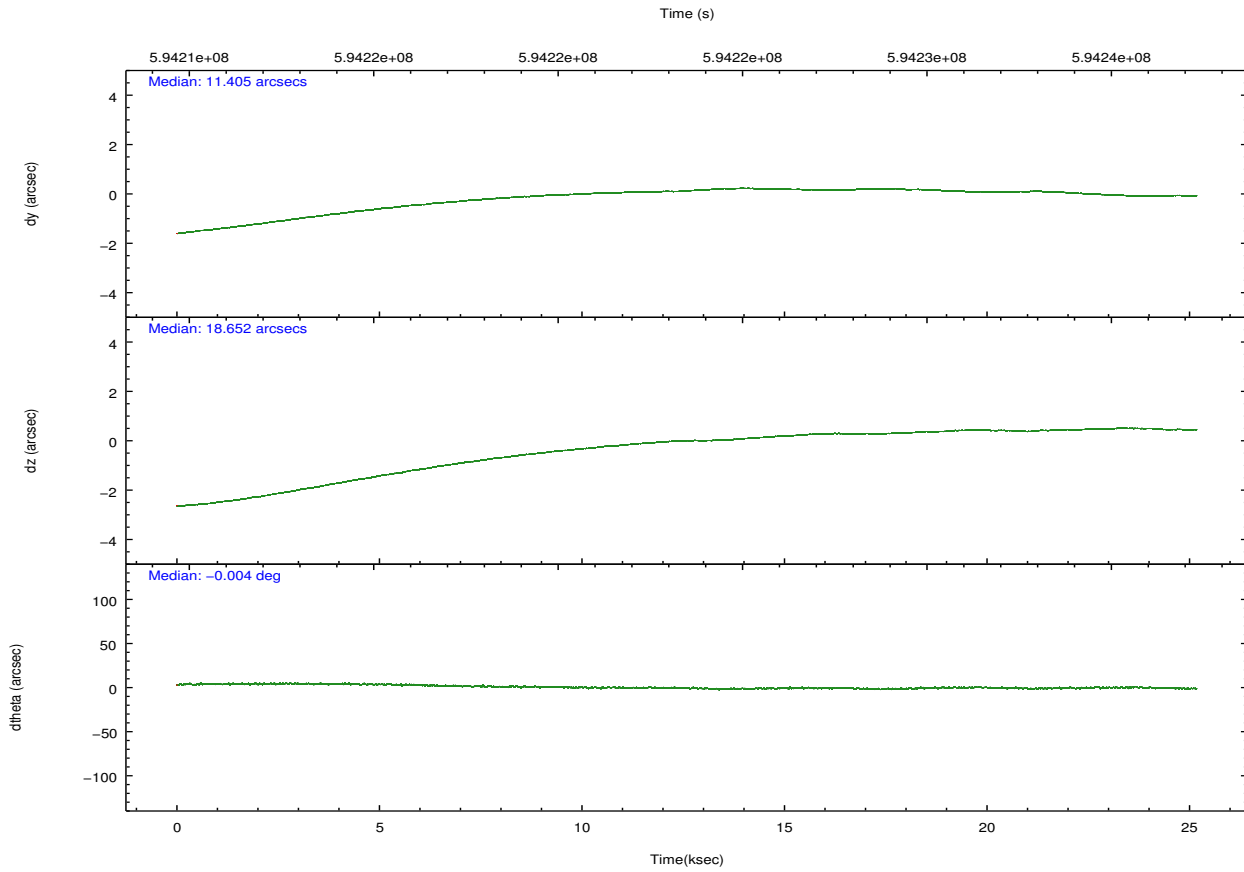
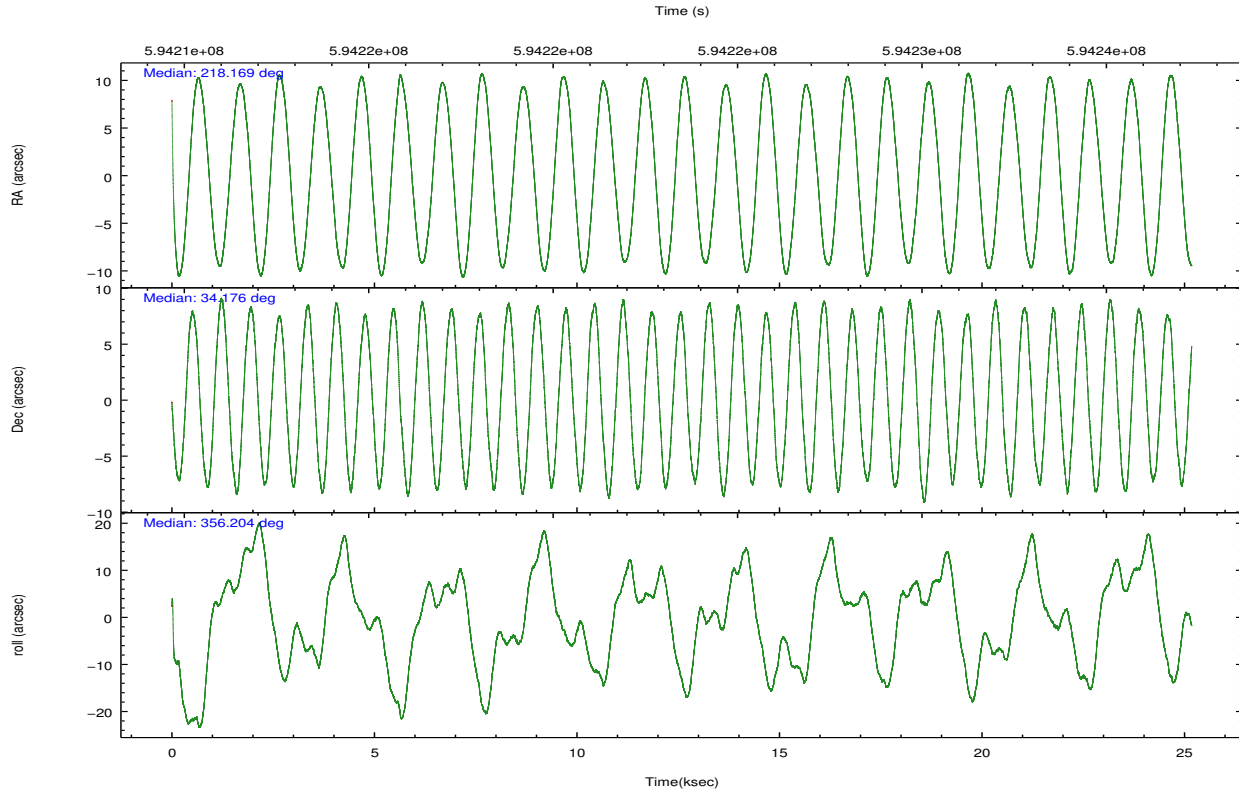
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 13887  | 6819   | 6394   | 6766   | 6223   |
|                | 8%     | 4%     | 3%     | 4%     | 3%     |
| grade 1 events | 113    | 62     | 98     | 103    | 73     |
|                | 0%     | 0%     | 0%     | 0%     | 0%     |
| grade 2 events | 4704   | 5275   | 4403   | 4015   | 4463   |
|                | 2%     | 3%     | 2%     | 2%     | 2%     |
| grade 3 events | 1896   | 1927   | 1701   | 1866   | 1893   |
|                | 1%     | 1%     | 0%     | 1%     | 1%     |
| grade 4 events | 1732   | 1891   | 1704   | 1939   | 1855   |
|                | 1%     | 1%     | 0%     | 1%     | 1%     |
| grade 5 events | 6855   | 7422   | 6703   | 8060   | 7571   |
|                | 4%     | 4%     | 3%     | 4%     | 4%     |
| grade 6 events | 3878   | 4648   | 3507   | 3738   | 4442   |
|                | 2%     | 2%     | 2%     | 2%     | 2%     |
| grade 7 events | 126336 | 127672 | 146960 | 141038 | 139316 |
|                | 79%    | 81%    | 85%    | 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                 | 218.138889          | 218.1687618304963     | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | 34.163820           | 34.17608094433048     | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 356.012563          | 356.2044813899026     | 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                             | O2        | Y       |
| [mm] SIM translation stage pos    | -233.592463         | -233.5874344608287    | CCD S3 on                             | O1        | N       |
| [mm] SIM translation stage offset | 0                   | -0.005018542100998502 | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 594211076.184000    | 594209898.87612       | CCD S5 on                             | N         | N       |
| Observation start date            | 2016-10-30T10:36:48 | 2016-10-30T10:18:18   | Number of optional ACIS chips dropped | 1         | 1       |
| [s] Observation end time (MET)    | 594236076.184000    | 594236210.62764       | On-chip summing requested             | N         | N       |
| Observation end date              | 2016-10-30T17:33:28 | 2016-10-30T17:36:50   | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                 | Alternating exposures requested       | N         | N       |
|                                   |                     |                       | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



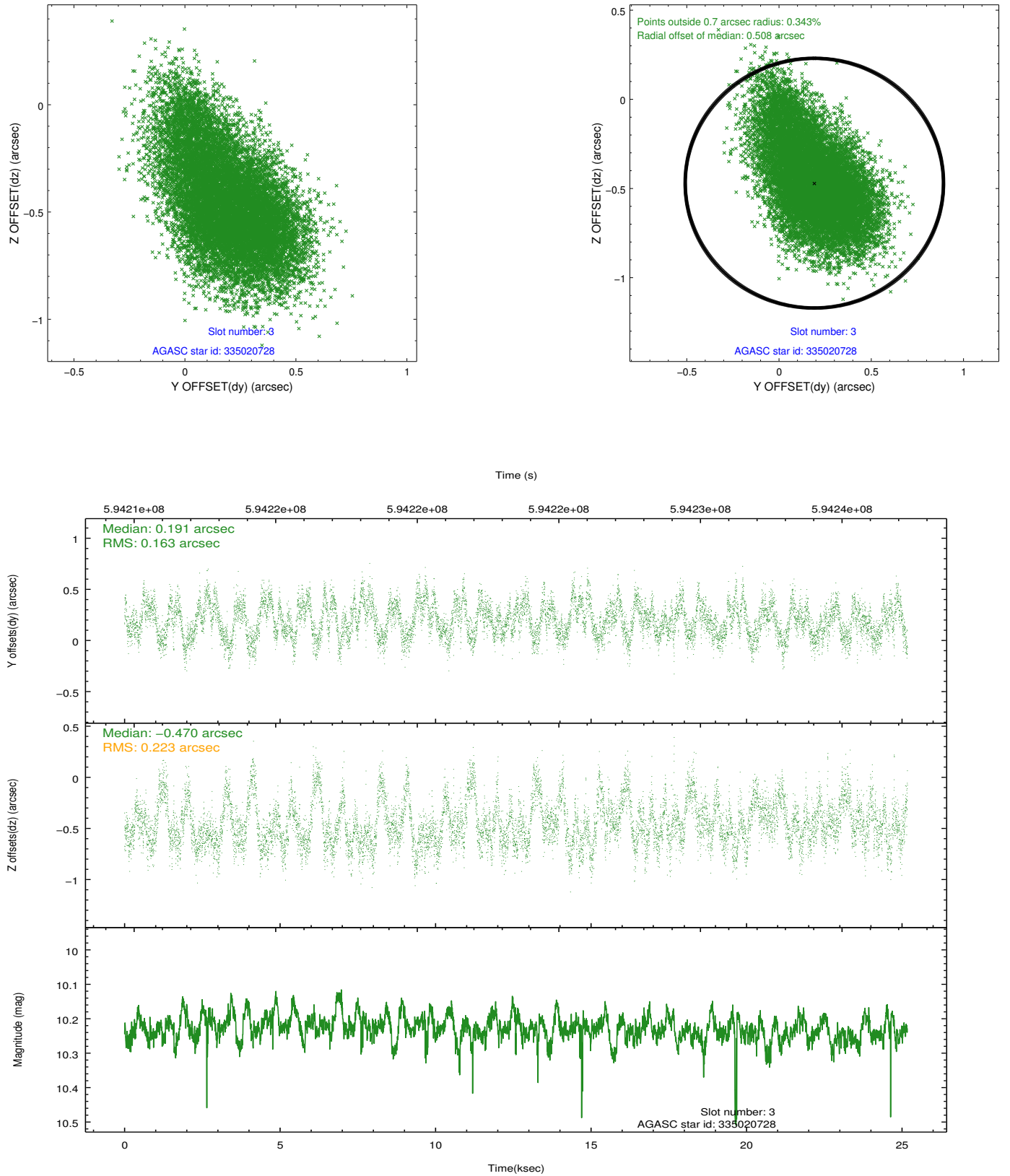


# Slot Statistics

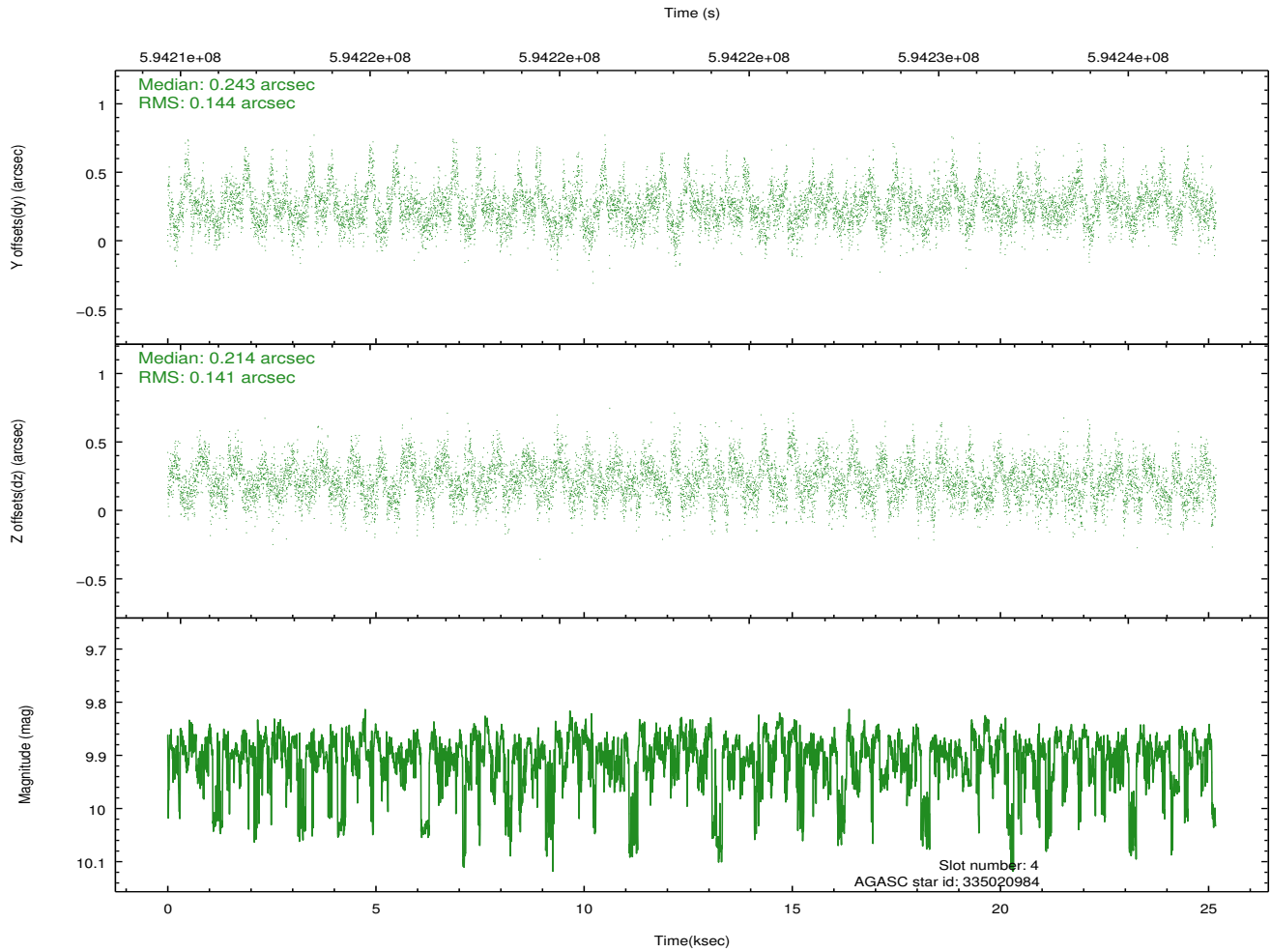
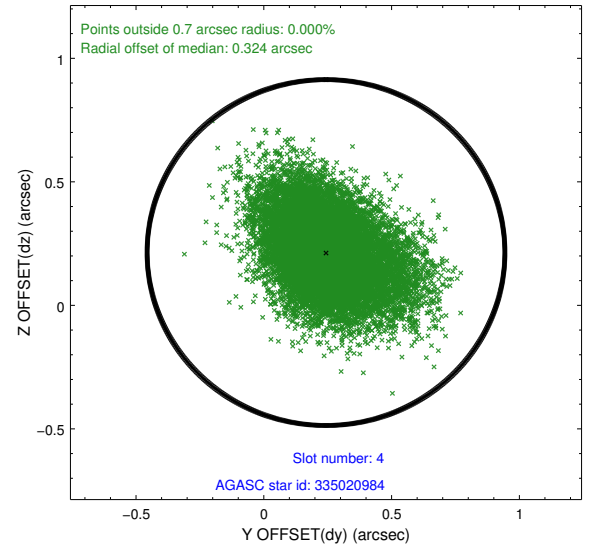
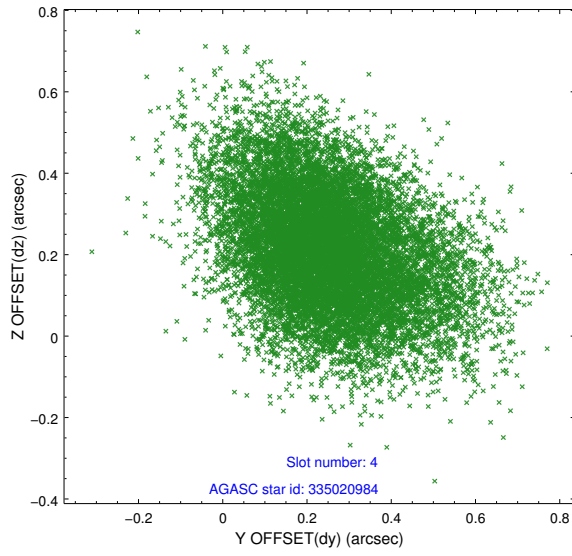
| slot | status  | used | id        | mag   | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|---------|------|-----------|-------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID     |      | ACIS-I-1  | 7.23  | 6141  | 0.057  | 0.005  | 0.020 | 0.111 | 0.000000   | 0.000000  | 928.46   | -841.89  |
| 1    | FID     |      | ACIS-I-5  | 7.24  | 6141  | -0.293 | 0.044  | 0.012 | 0.028 | 0.000000   | 0.000000  | -1820.01 | 1055.50  |
| 2    | FID     |      | ACIS-I-6  | 7.23  | 6138  | 0.143  | 0.021  | 0.015 | 0.110 | 0.000000   | 0.000000  | 393.87   | 1700.21  |
| 3    | GUIDE   | used | 335020728 | 10.23 | 12232 | 0.191  | -0.470 | 0.290 | 0.492 | 217.586522 | 34.733044 | -1773.59 | 1934.13  |
| 4    | GUIDE   | used | 335020984 | 9.90  | 12262 | 0.243  | 0.214  | 0.212 | 0.357 | 218.841668 | 33.815112 | 2182.35  | -1096.44 |
| 5    | GUIDE   | used | 335021368 | 9.65  | 12257 | -0.406 | 0.367  | 0.219 | 0.358 | 217.529643 | 33.934817 | -1758.46 | -943.08  |
| 6    | GUIDE   | used | 335023304 | 8.38  | 12278 | -0.057 | -0.131 | 0.139 | 0.227 | 218.883608 | 34.686545 | 2067.74  | 2038.74  |
| 7    | OMITTED |      |           | 0.00  | 0     | 0.000  | 0.000  | 0.000 | 0.000 | 0.000000   | 0.000000  | 0.00     | 0.00     |

## 2.4 Star Slots

### 2.4.1 Slot 3

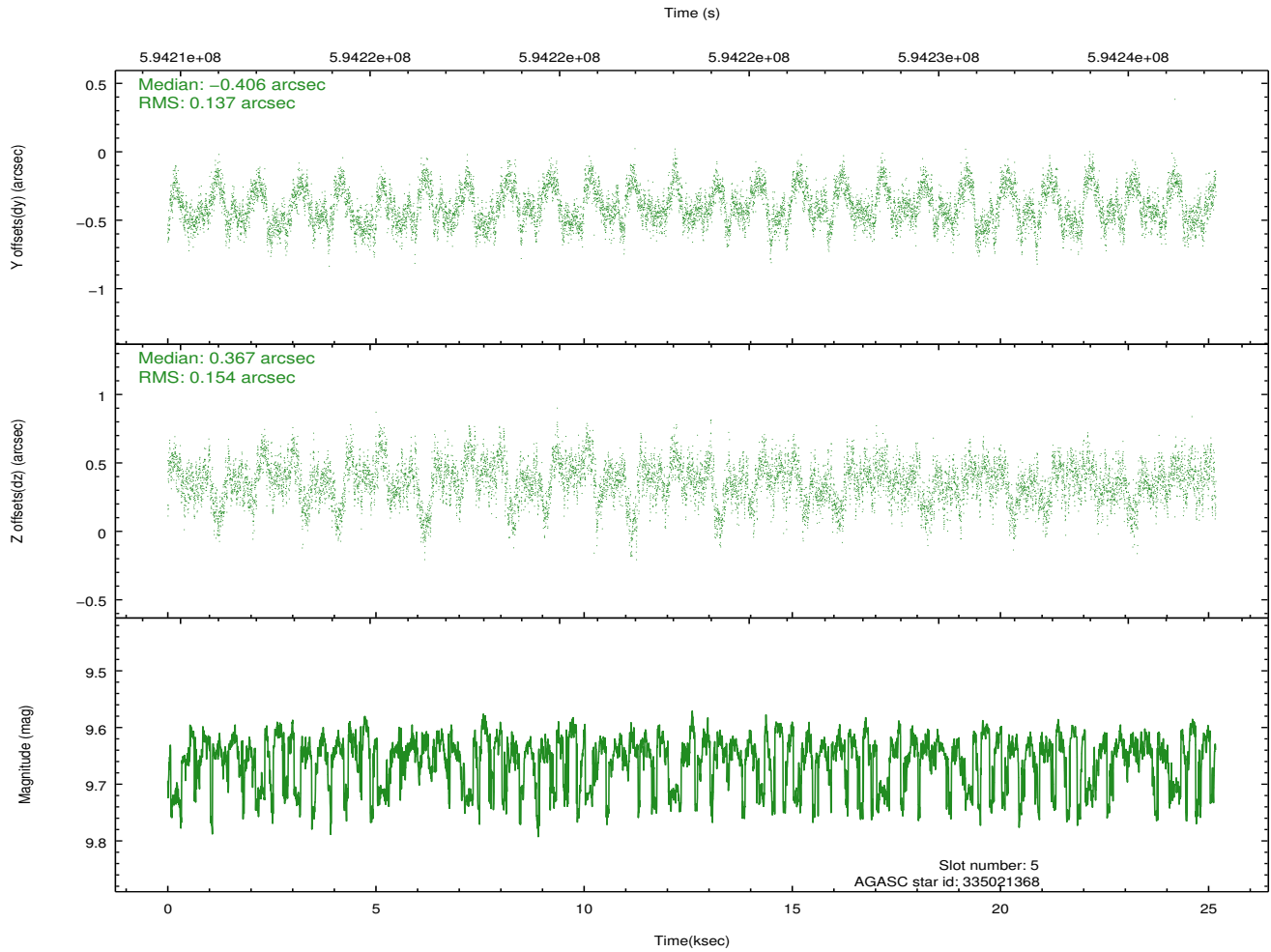
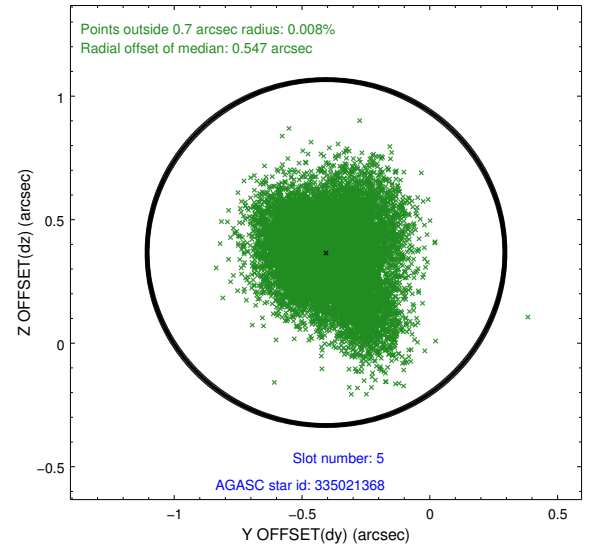
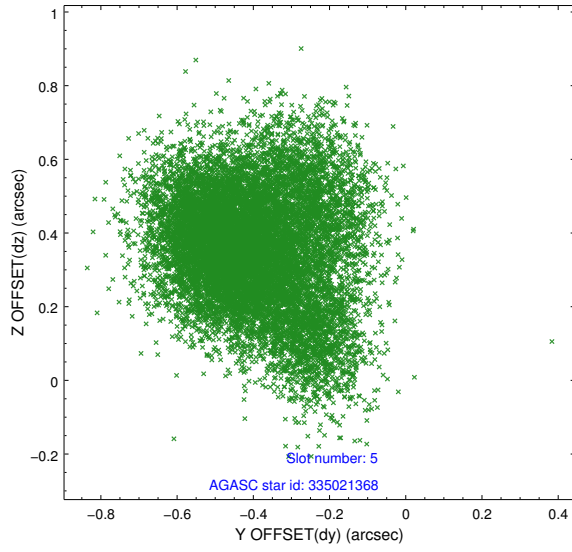


## 2.4.2 Slot 4

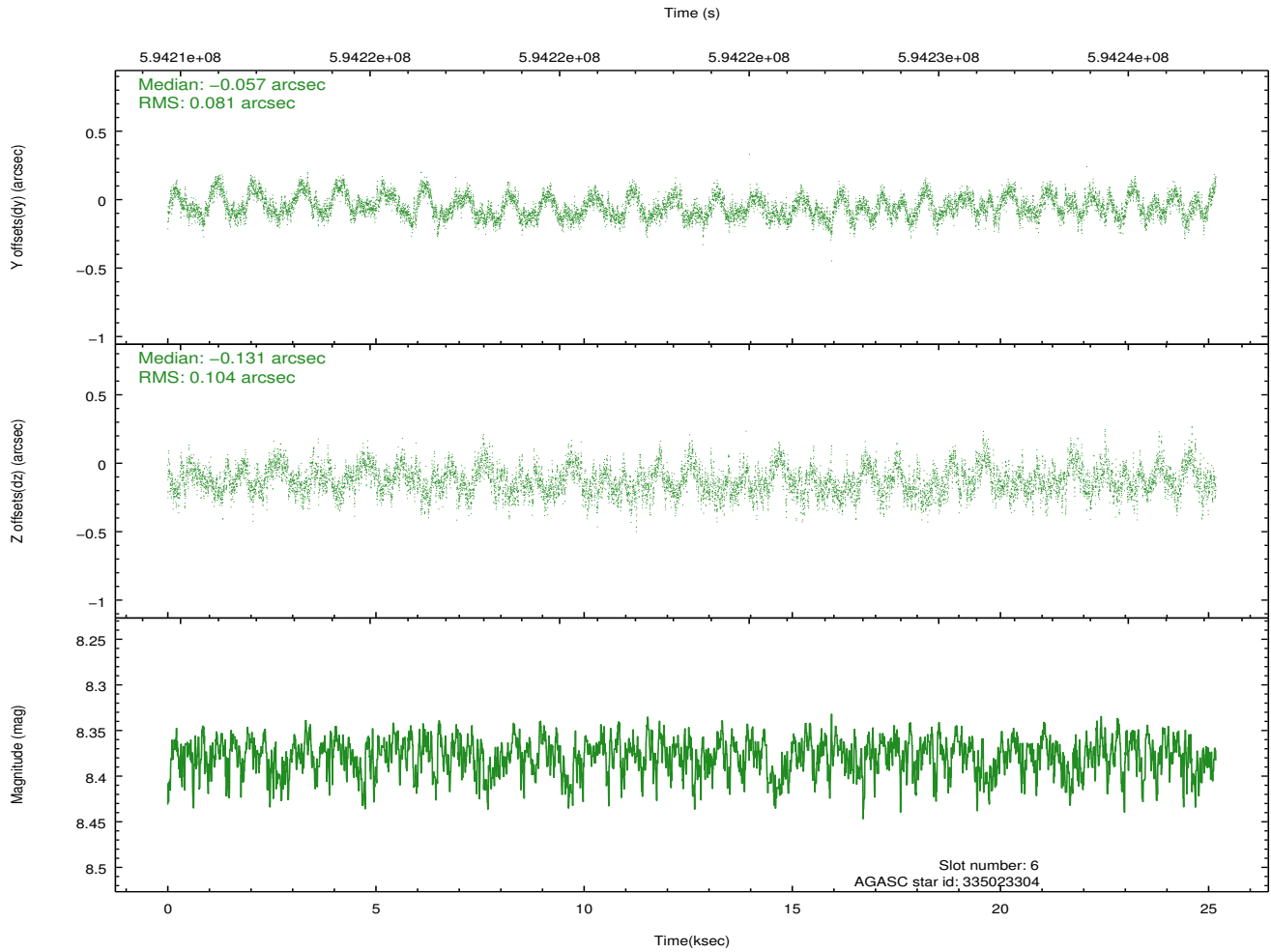
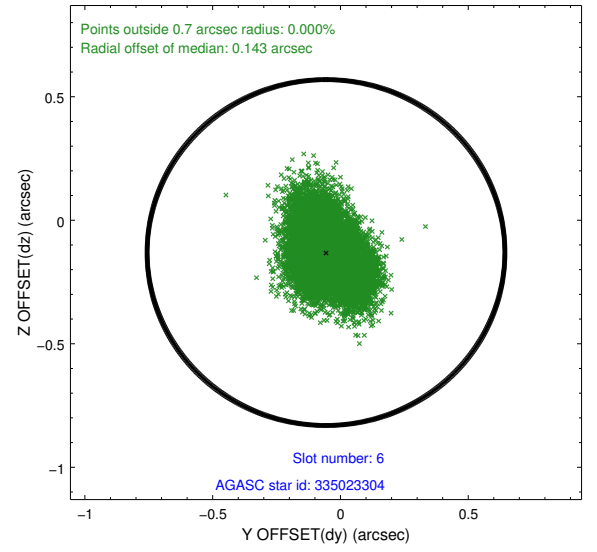
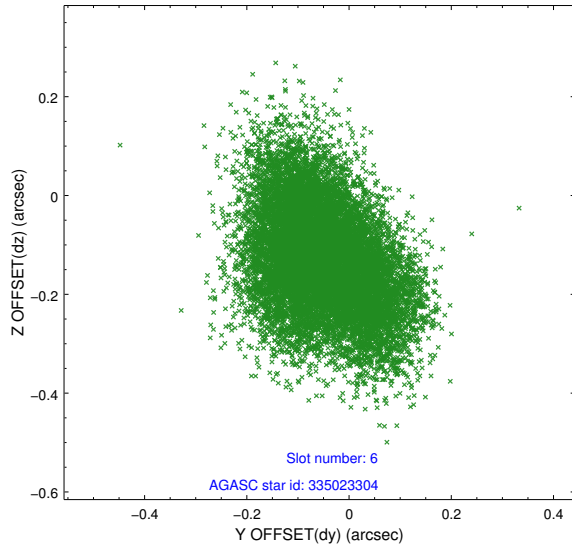




### 2.4.3 Slot 5

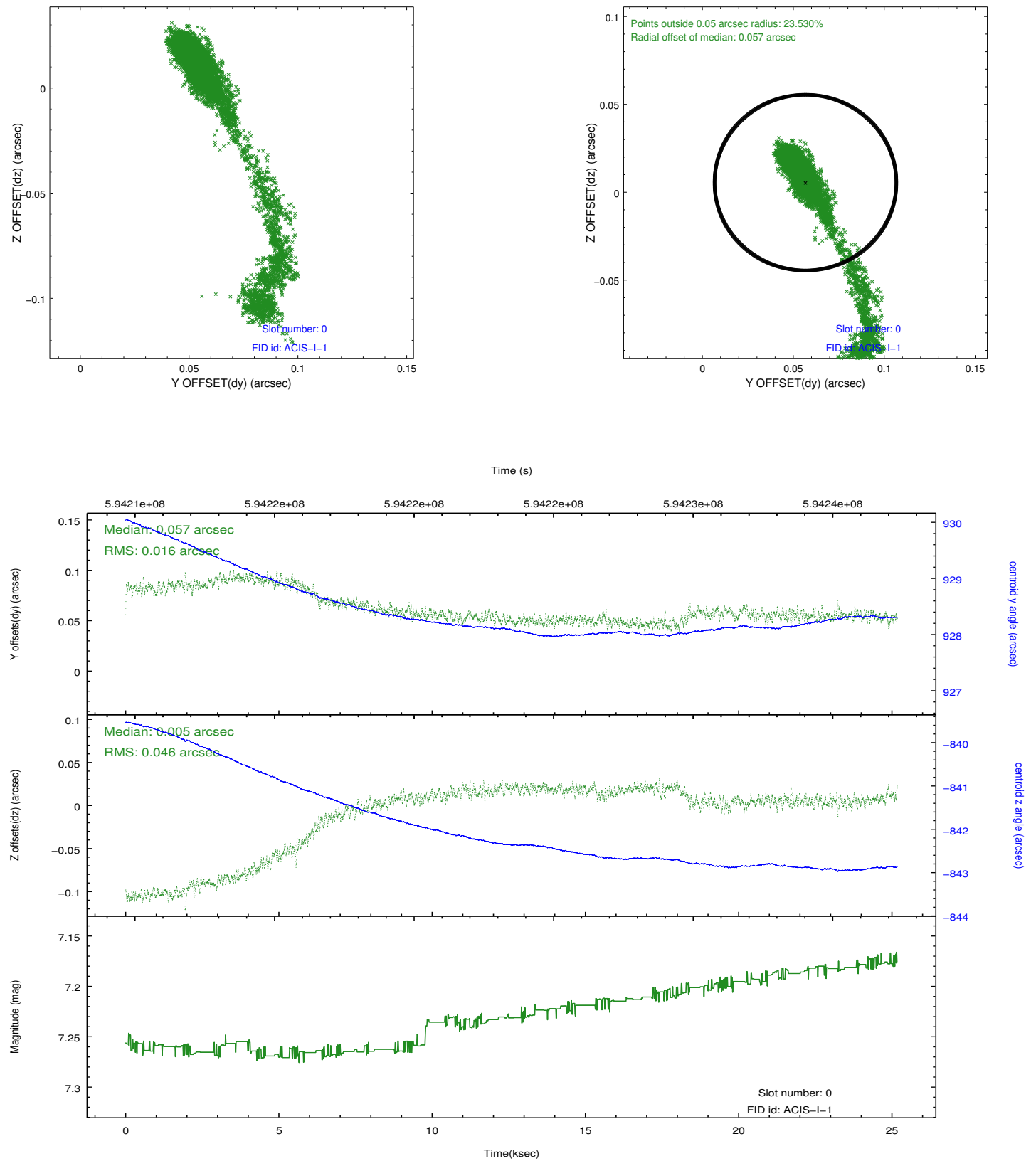


## 2.4.4 Slot 6

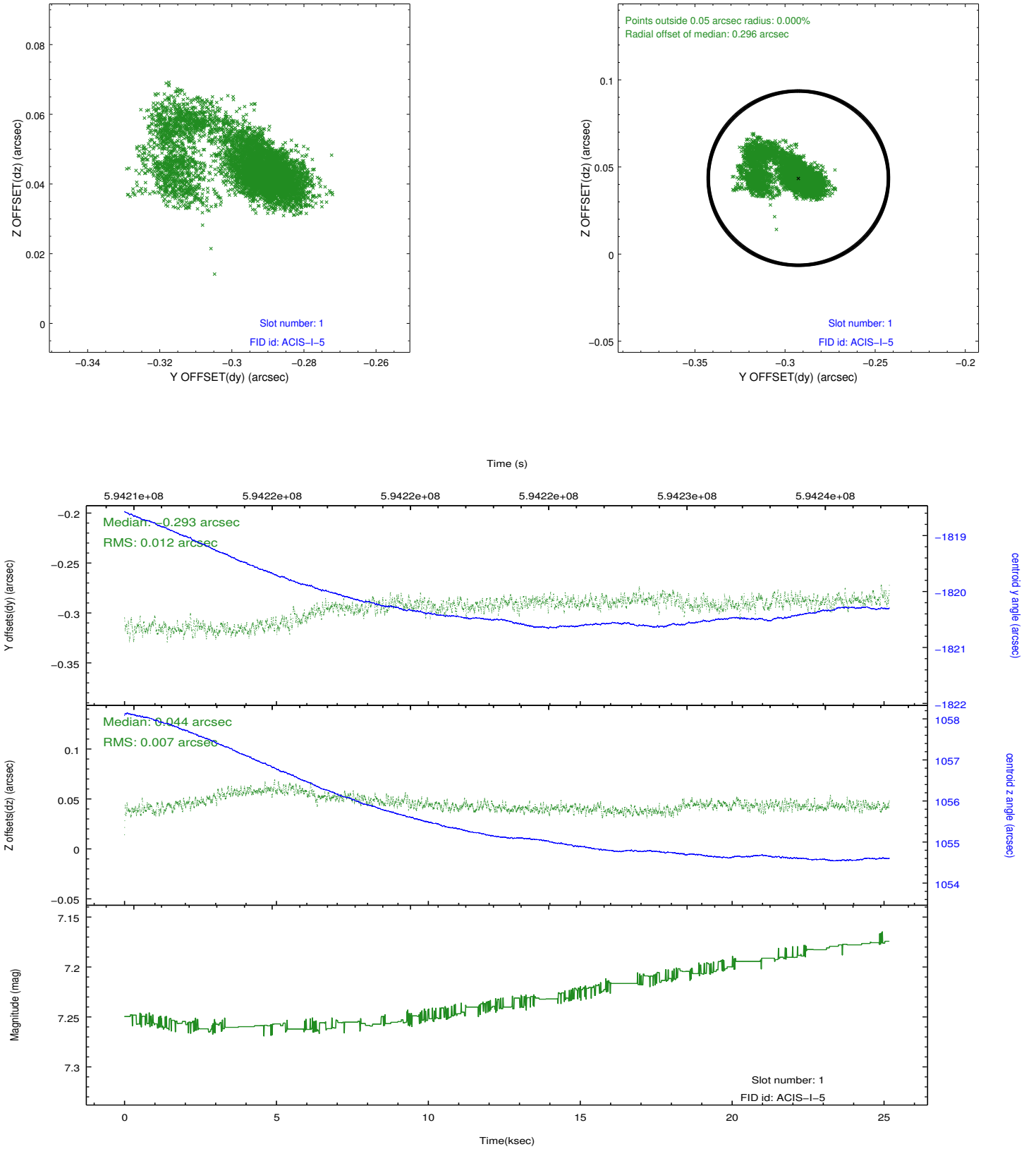


## 2.5 FID Slots

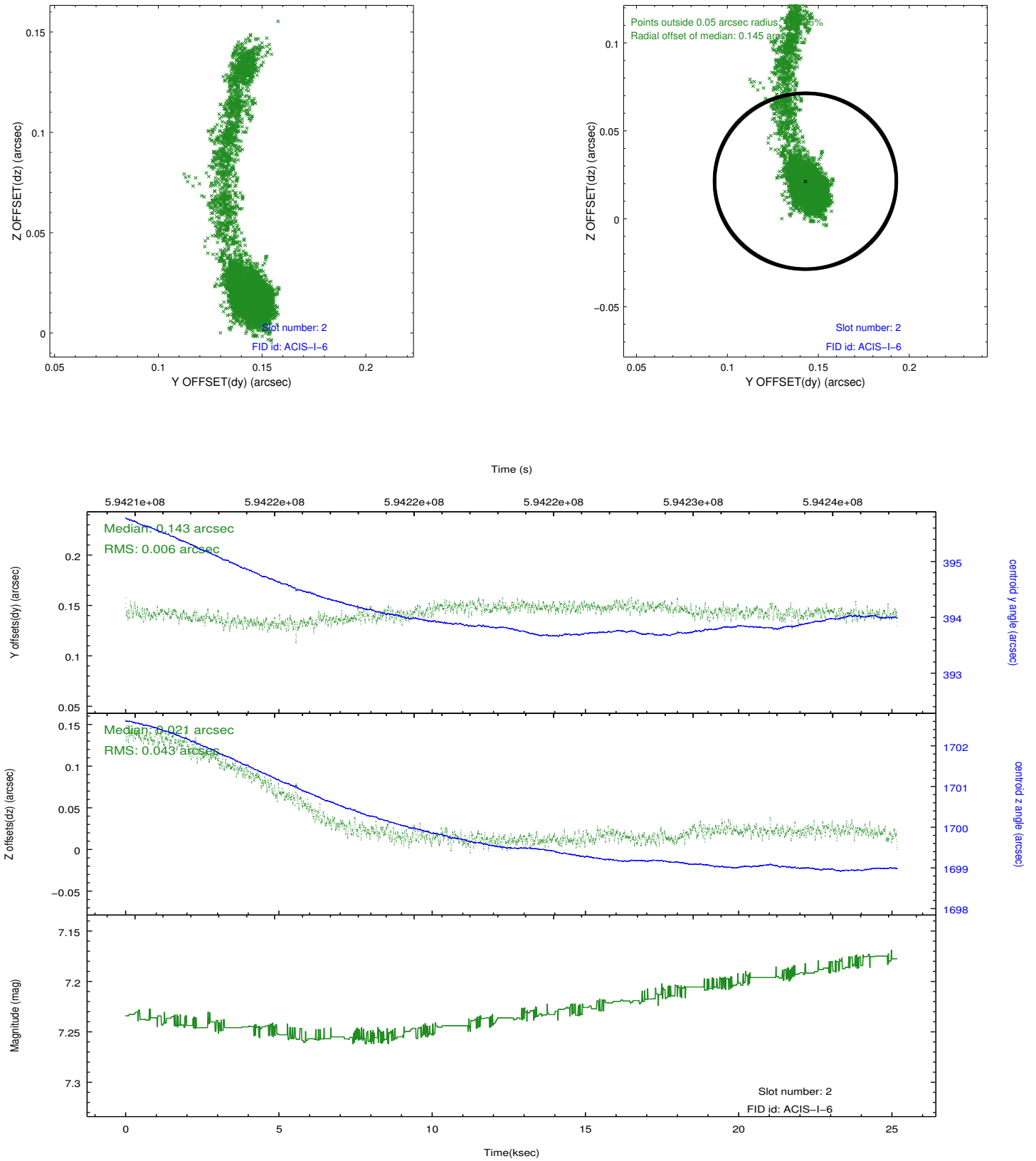
### 2.5.1 Slot 0



## 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)      | 2016.11.01      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 25.044900192738 |

## A.2 Comments

Optional chip S3 was dropped.

The guide star in slot 7 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.