

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 20398 - L2 Version 2  
Chandra X-Ray Center

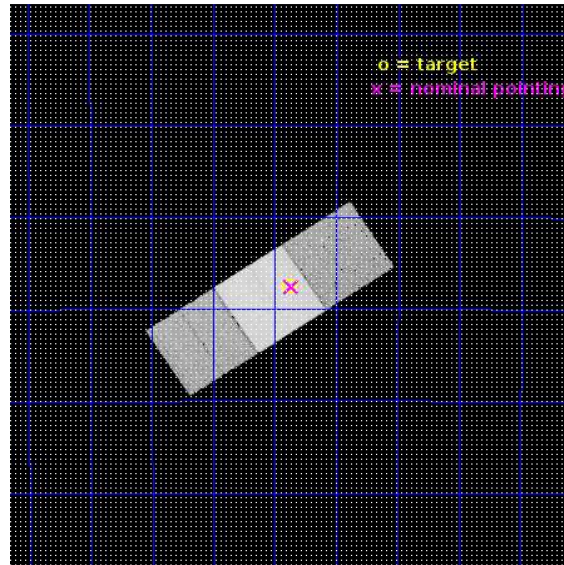
L2 Processing Date : May 10 2019

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# 1 Front

|          |                                            |                                             |
|----------|--------------------------------------------|---------------------------------------------|
| seq_num  | 703503                                     | Sequence number                             |
| obs_id   | 20398                                      | Observation id                              |
| title    | A Reliable X-ray View of the First Quasars | Proposal title                              |
| observer | William Brandt                             | Principal investigator                      |
| object   | VIK J0109-3047                             | Source name                                 |
| dtcycle  | 0                                          | &#160                                       |
| cycle    | P                                          | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 17.47125                                   | Observer's specified target RA [deg]        |
| dec_targ | -30.790639                                 | Observer's specified target Dec [deg]       |
| ra_nom   | 17.466454958854                            | Nominal RA [deg]                            |
| dec_nom  | -30.792476842966                           | Nominal Dec [deg]                           |
| roll_nom | 146.65418961905                            | Nominal Roll [deg]                          |
| revision | 2                                          | Processing version of data                  |
| ontime   | 37510.000288606                            | Sum of GTIs [s]                             |
| livetime | 37019.904520375                            | Livetime [s]                                |
| ontime6  | 37510.000288606                            | Sum of GTIs [s]                             |
| ontime7  | 37510.000288606                            | Sum of GTIs [s]                             |
| ontime8  | 37506.859298468                            | Sum of GTIs [s]                             |
| l2events | 216831                                     | Number of level 2 events                    |

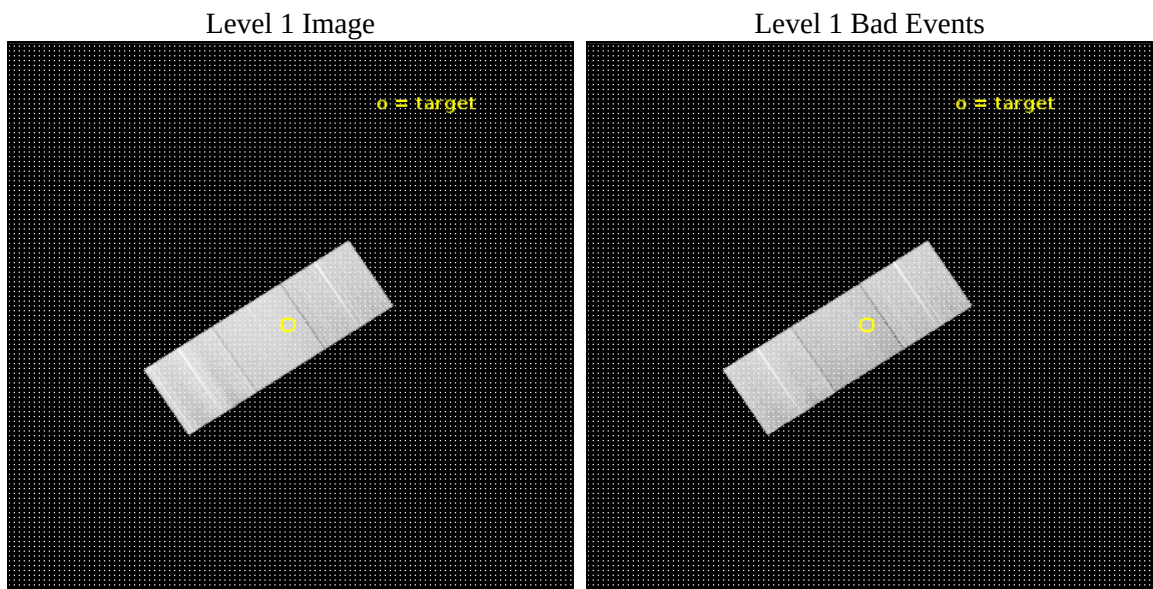




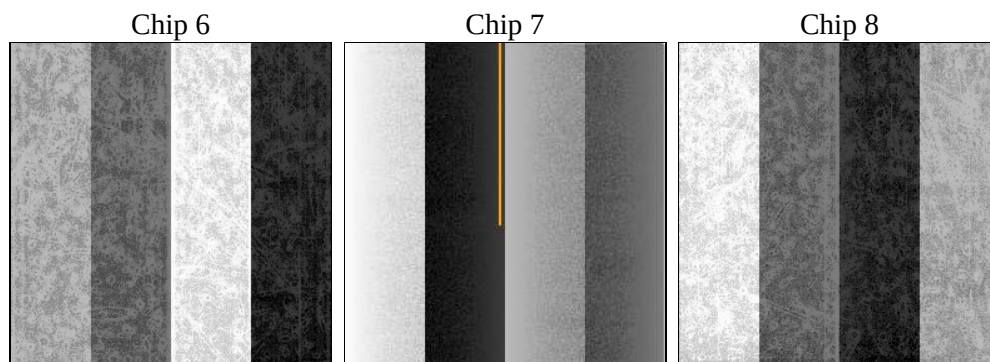
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 37400.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.7.1              | Processing system revision     | ontime         | 37510.000288606 | Sum of GTIs [s]                         |
| caldsver | 4.8.2               | &#160                          | ontime6        | 37510.000288606 | Sum of GTIs [s]                         |
| date     | 2019-05-10T13:38:41 | Date and time of file creation | ontime7        | 37510.000288606 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime8        | 37506.859298468 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1023692         | Number of level 1 events                |

### 2.1.4 Events

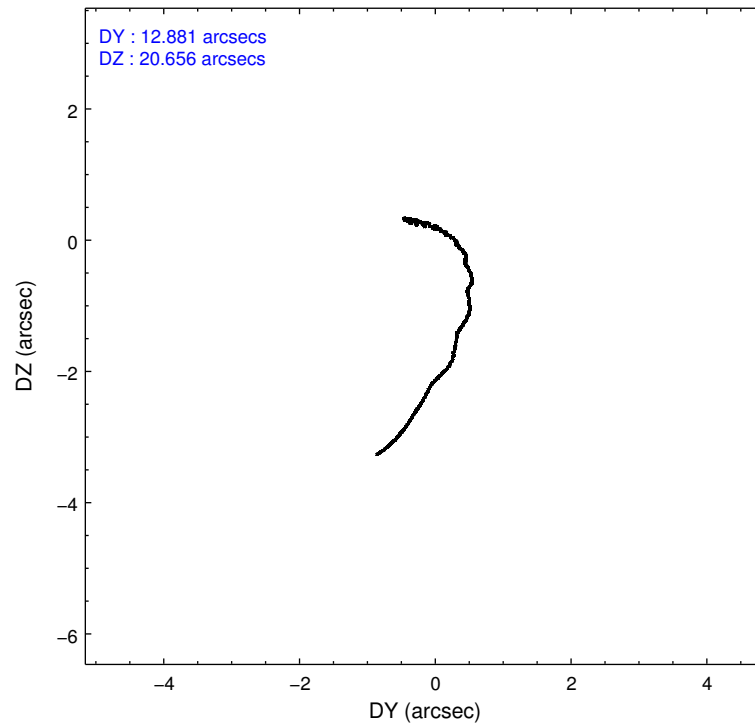
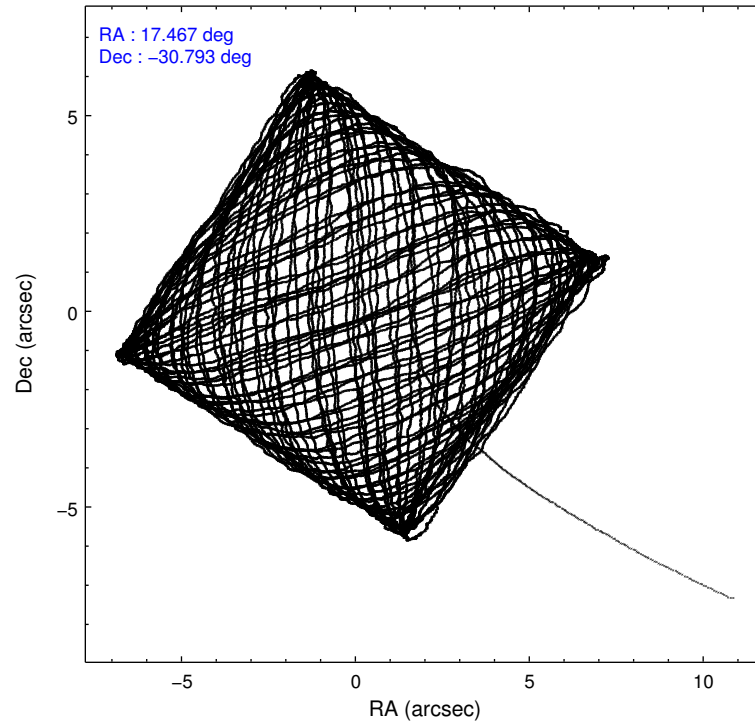
|                 | <b>ccd 6</b> | <b>ccd 7</b> | <b>ccd 8</b> |
|-----------------|--------------|--------------|--------------|
| level 1 events  | 287679       | 357229       | 378784       |
| rejected events | 255179       | 199992       | 273712       |
| rejected %      | 88%          | 55%          | 72%          |

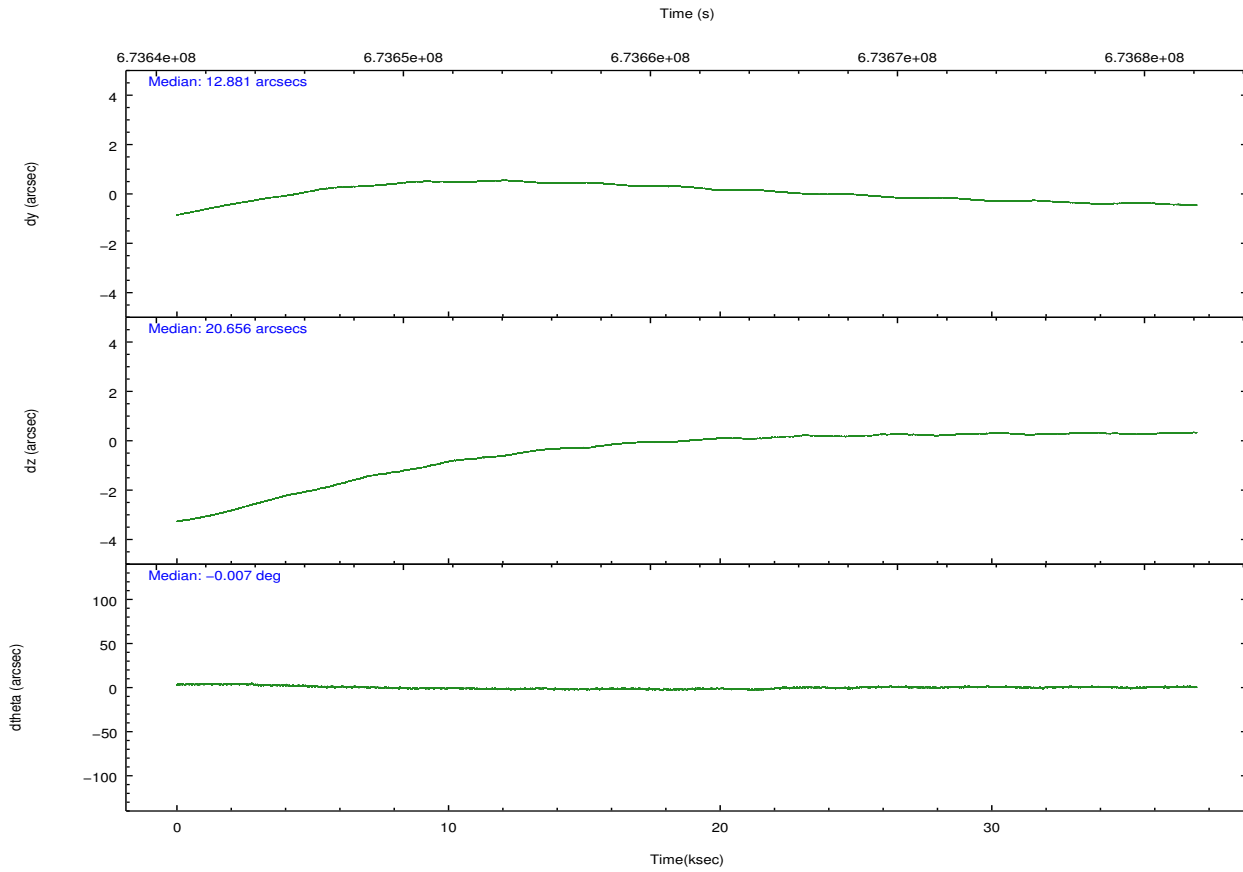
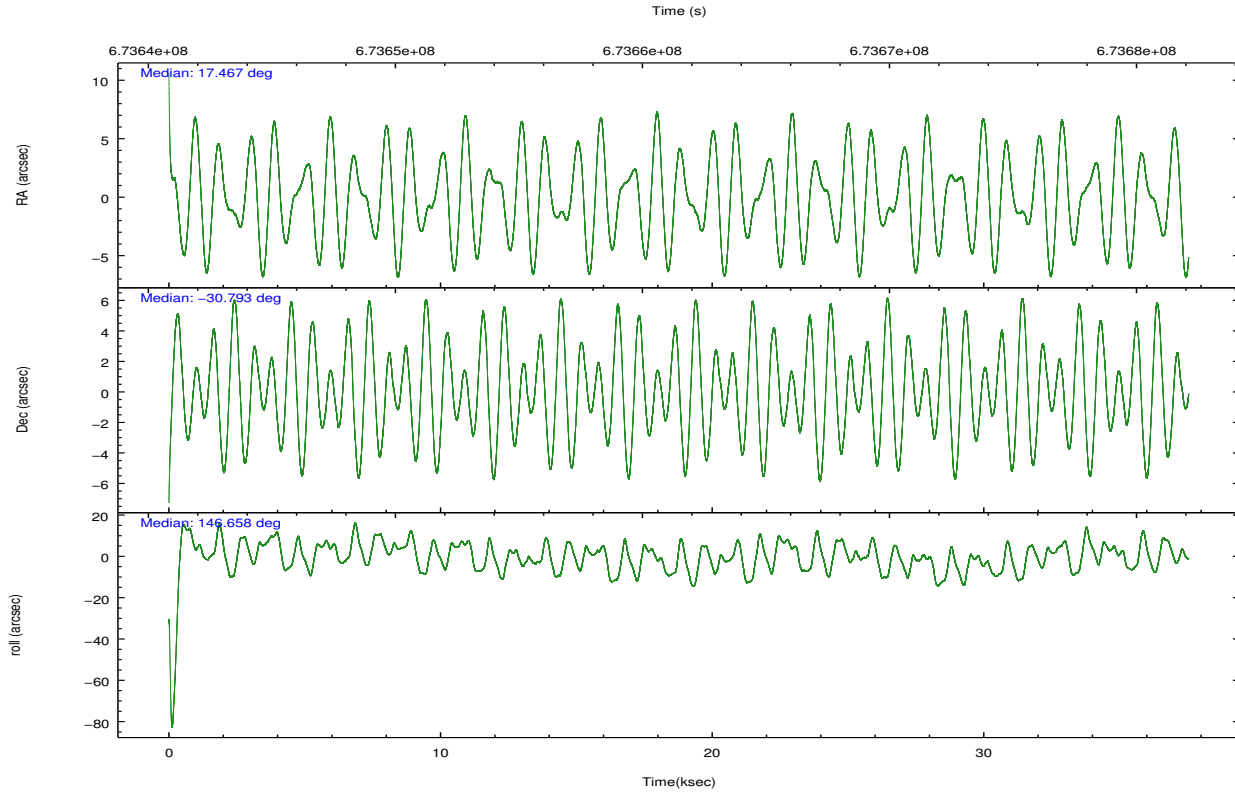
|                | <b>ccd 6</b> | <b>ccd 7</b> | <b>ccd 8</b> |
|----------------|--------------|--------------|--------------|
| grade 0 events | 10589        | 13397        | 30392        |
|                | 3%           | 3%           | 8%           |
| grade 1 events | 135          | 554          | 299          |
|                | 0%           | 0%           | 0%           |
| grade 2 events | 7943         | 33643        | 25342        |
|                | 2%           | 9%           | 6%           |
| grade 3 events | 3163         | 12374        | 10962        |
|                | 1%           | 3%           | 2%           |
| grade 4 events | 3039         | 12243        | 10249        |
|                | 1%           | 3%           | 2%           |
| grade 5 events | 13112        | 35433        | 20161        |
|                | 4%           | 9%           | 5%           |
| grade 6 events | 7775         | 85611        | 28133        |
|                | 2%           | 23%          | 7%           |
| grade 7 events | 241923       | 163974       | 253246       |
|                | 84%          | 45%          | 66%          |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-678            | ACIS-678             | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | VFAINT              | VFAINT               | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 17.498369           | 17.4664549588544     | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | -30.793721          | -30.79247684296635   | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 146.513882          | 146.6541896190505    | [s] Primary exposure time             | 0.000000  | 3.1     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos    | -190.132523         | -190.1400660498719   |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.00754346686406393  |                                       |           |         |
| [s] Observation start time (MET)  | 673642845.184000    | 673641681.05461      |                                       |           |         |
| Observation start date            | 2019-05-07T18:59:36 | 2019-05-07T18:41:21  |                                       |           |         |
| [s] Observation end time (MET)    | 673680245.184000    | 673680454.75692      |                                       |           |         |
| Observation end date              | 2019-05-08T05:22:56 | 2019-05-08T05:27:34  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



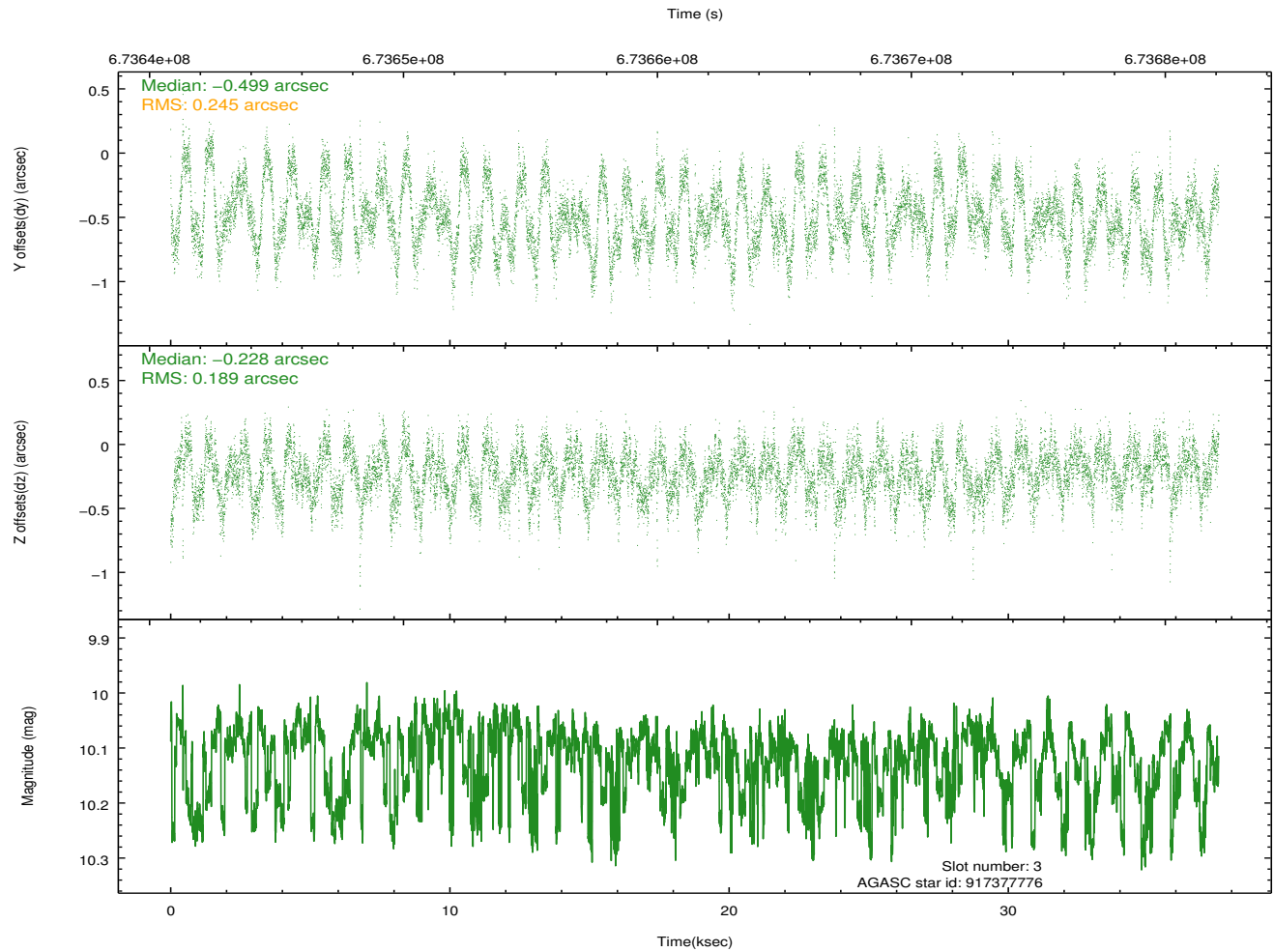
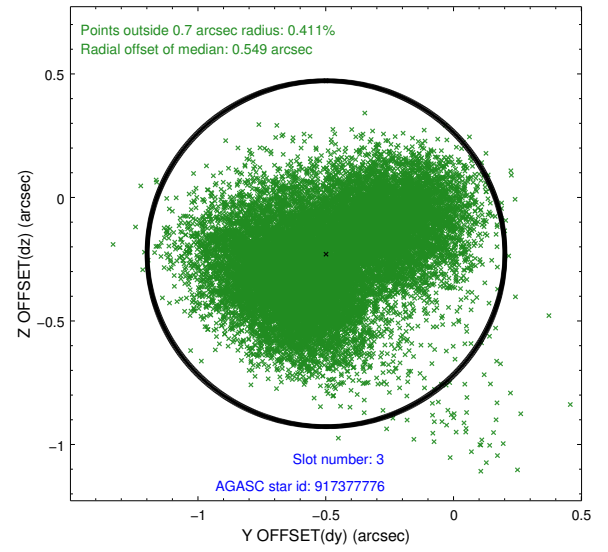
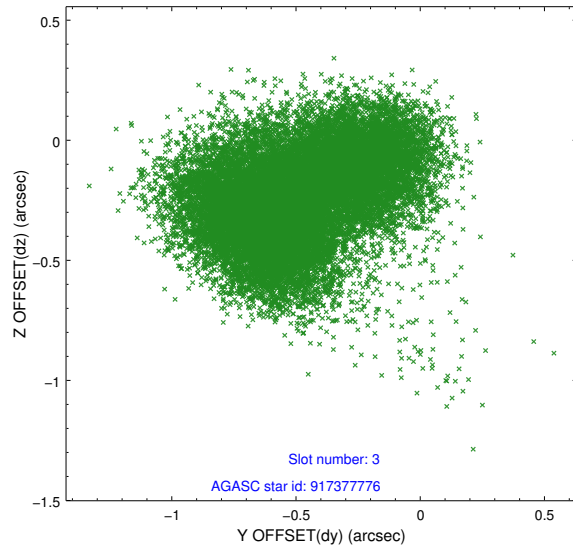


Slot Statistics

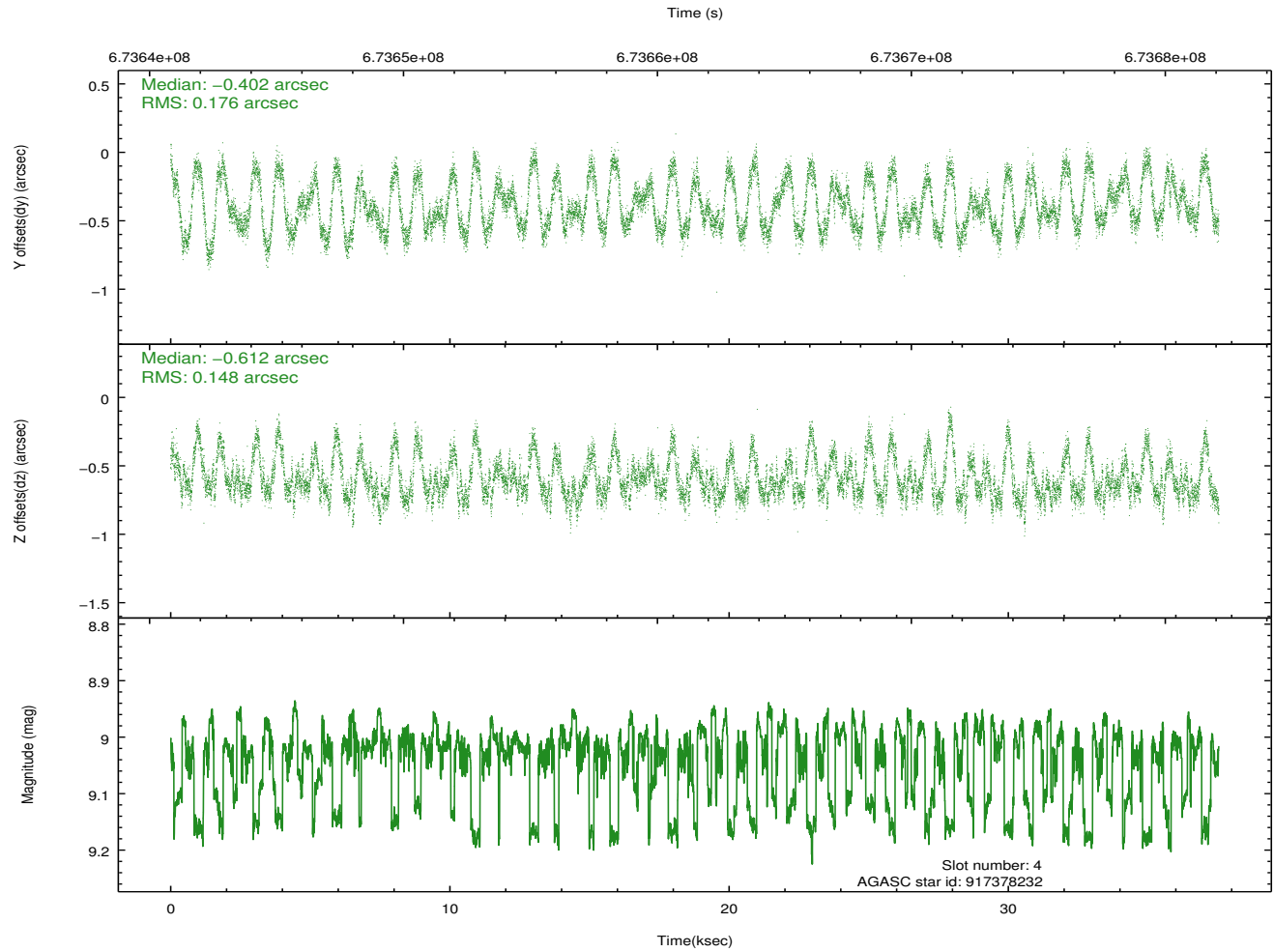
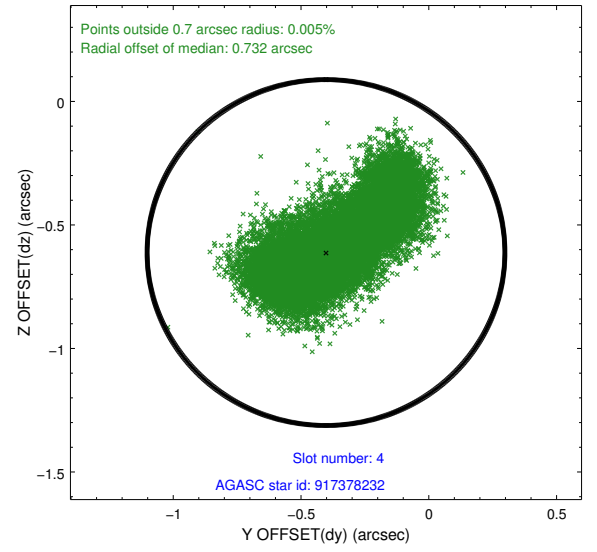
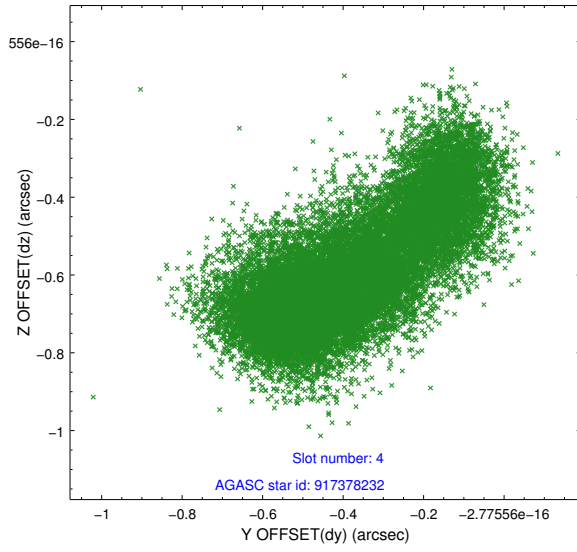
| pt | status  | used | id        | mag   | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mea   |
|----|---------|------|-----------|-------|-------|----------|--------|--------|-------|-------|-----------|------------|----------|-------|
| 0  | FID     |      | ACIS-S-2  | 7.02  | 9157  | 1.000    | -0.269 | -0.132 | 0.025 | 0.065 | 0.000000  | 0.000000   | -766.01  | -1741 |
| 1  | FID     |      | ACIS-S-4  | 7.15  | 9154  | 1.000    | 0.689  | 0.166  | 0.037 | 0.051 | 0.000000  | 0.000000   | 2148.13  | 167   |
| 2  | FID     |      | ACIS-S-5  | 7.13  | 9156  | 1.000    | -0.449 | -0.025 | 0.040 | 0.070 | 0.000000  | 0.000000   | -1819.09 | 160   |
| 3  | GUIDE   | used | 917377776 | 10.12 | 18244 | 1.000    | -0.499 | -0.228 | 0.338 | 0.513 | 17.172259 | -30.440347 | 1544.64  | -500  |
| 4  | GUIDE   | used | 917378232 | 9.03  | 18292 | 1.000    | -0.402 | -0.612 | 0.242 | 0.417 | 17.241463 | -30.929276 | 387.81   | 844   |
| 5  | GUIDE   | used | 917768456 | 6.75  | 18313 | 1.000    | 0.278  | 0.357  | 0.314 | 0.431 | 18.097153 | -30.802130 | -1564.20 | -991  |
| 6  | GUIDE   | used | 917773912 | 9.37  | 18295 | 1.000    | 0.628  | 0.504  | 0.331 | 0.501 | 18.253947 | -30.450654 | -1278.03 | -2317 |
| 7  | OMITTED |      |           | 0.00  | 0     | 0.000    | 0.000  | 0.000  | 0.000 | 0.000 | 0.000000  | 0.000000   | 0.00     | 0     |

## 2.4 Star Slots

### 2.4.1 Slot 3

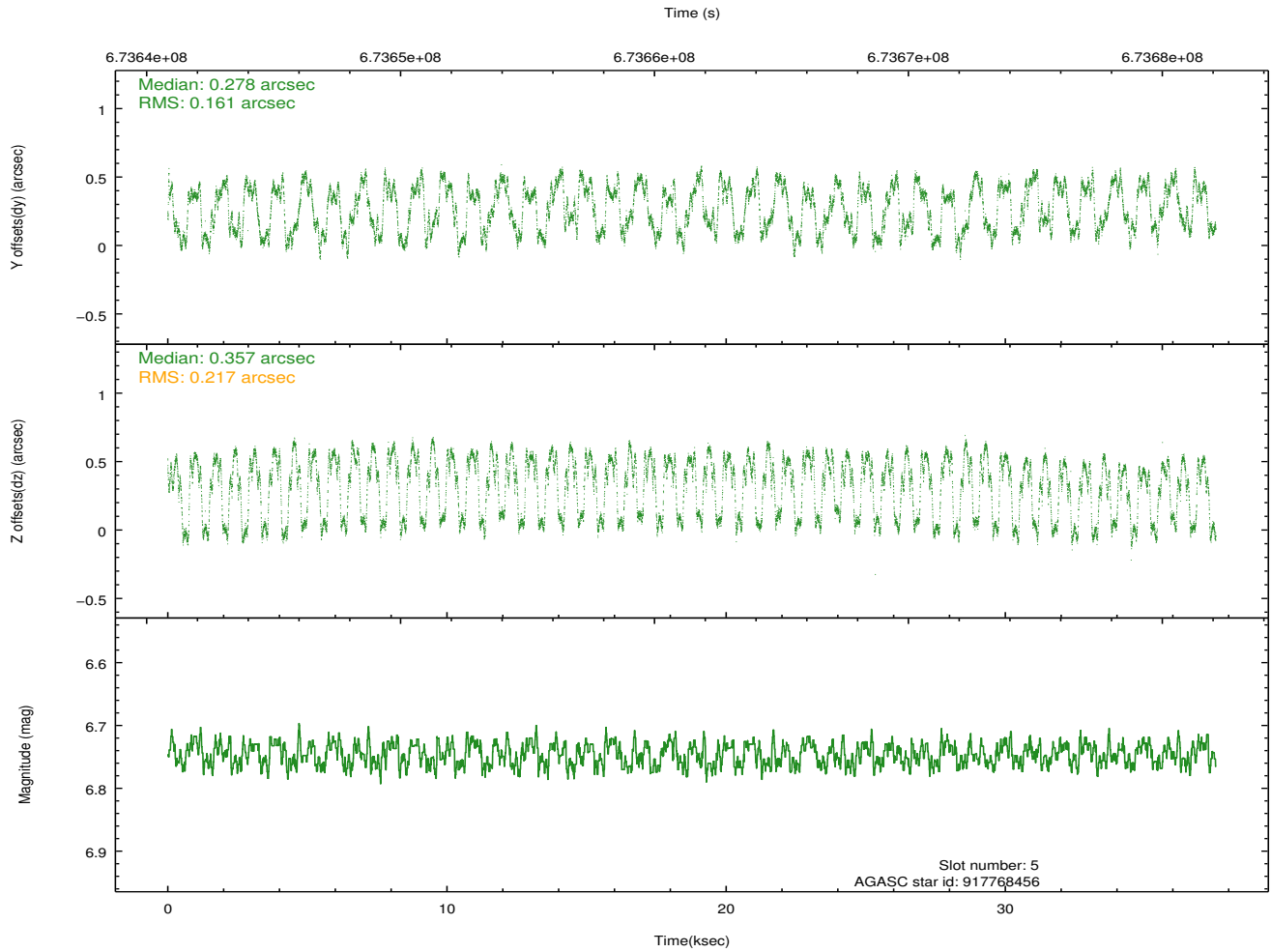
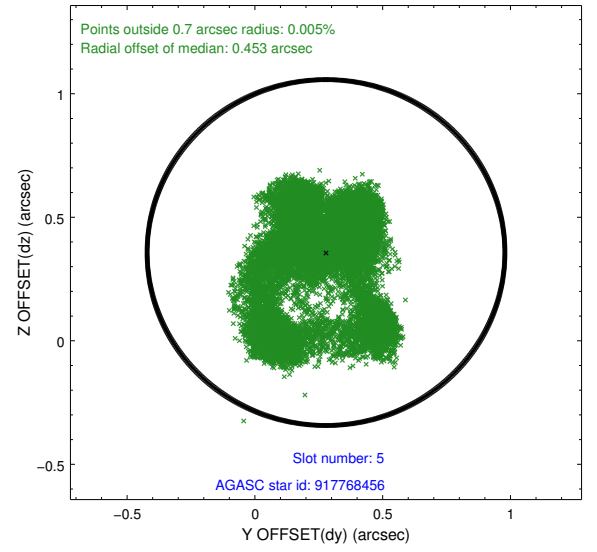
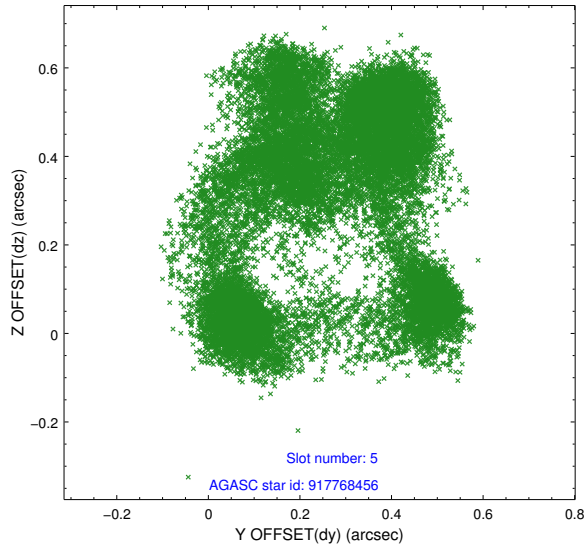


## 2.4.2 Slot 4

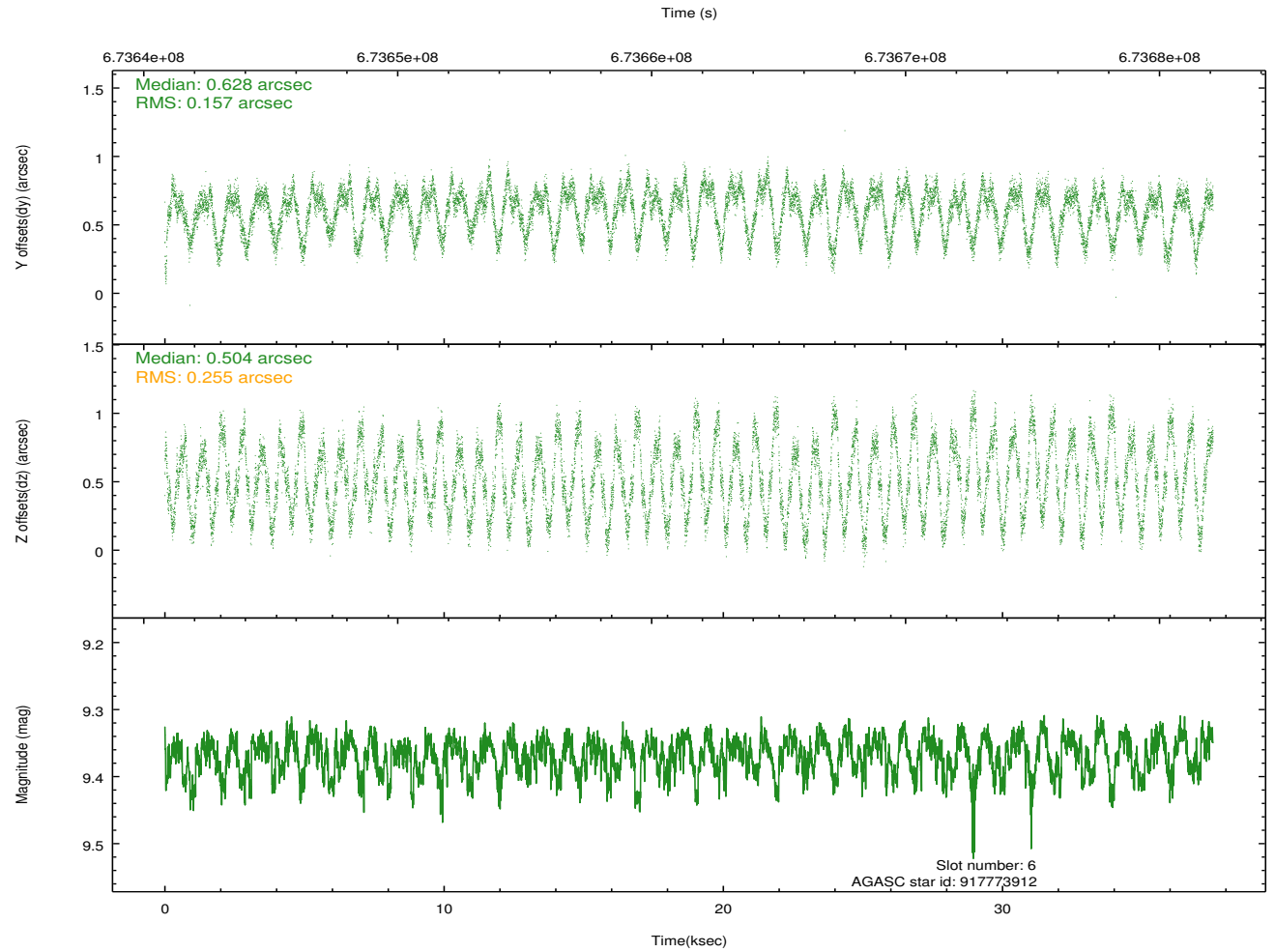
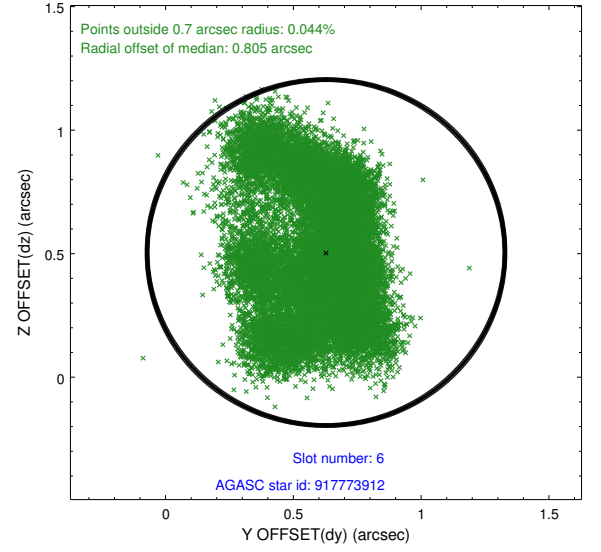
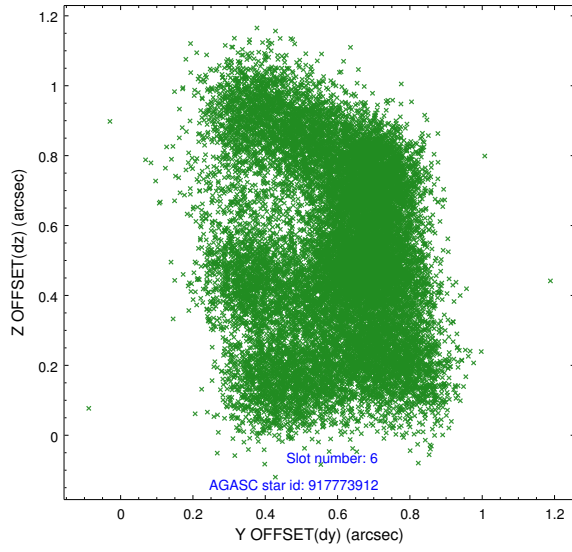




### 2.4.3 Slot 5

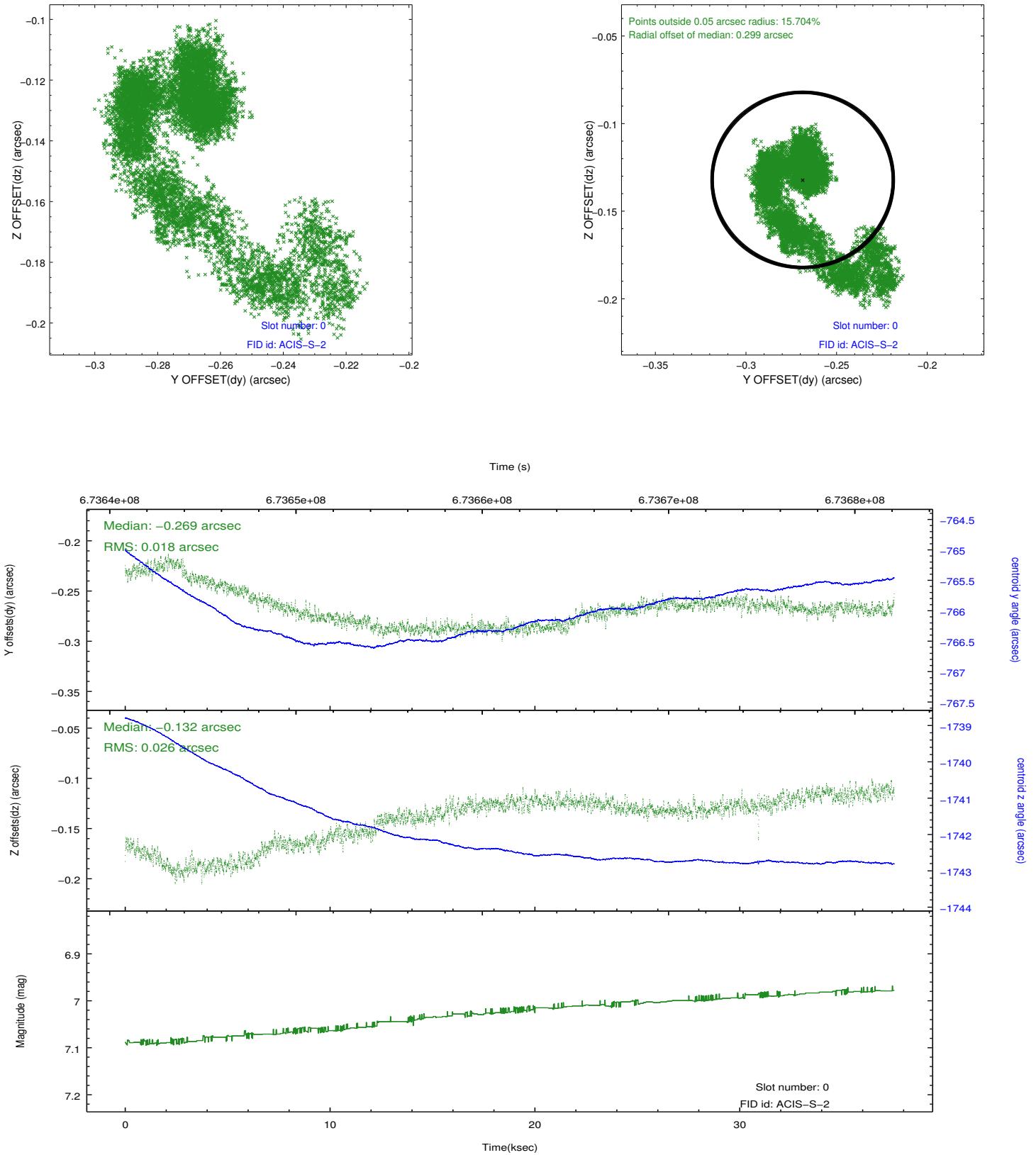


## 2.4.4 Slot 6

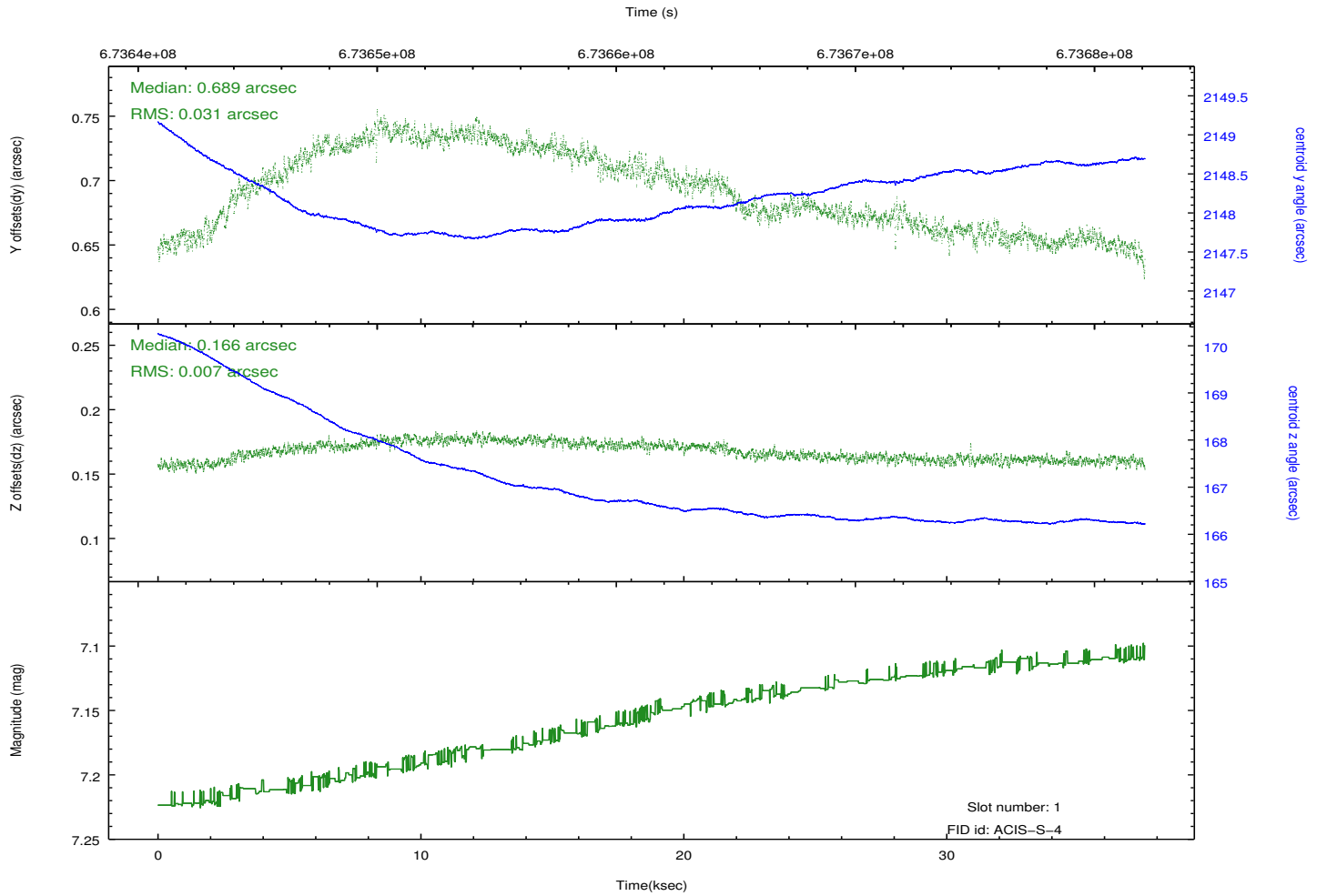
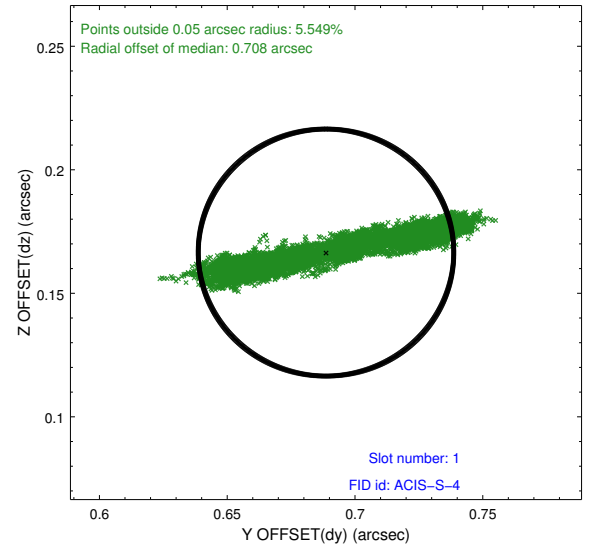
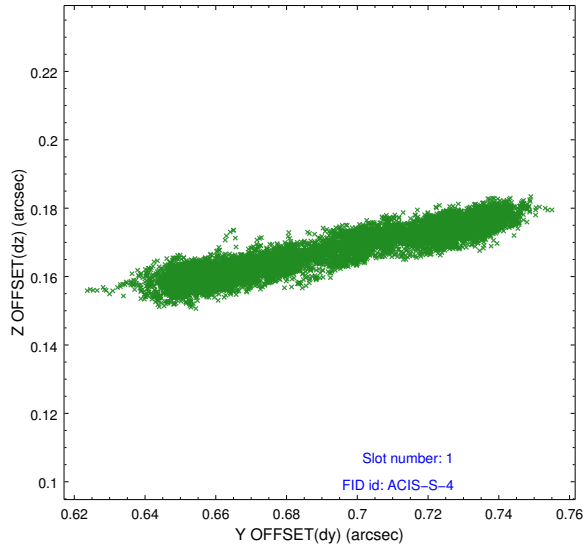


## 2.5 FID Slots

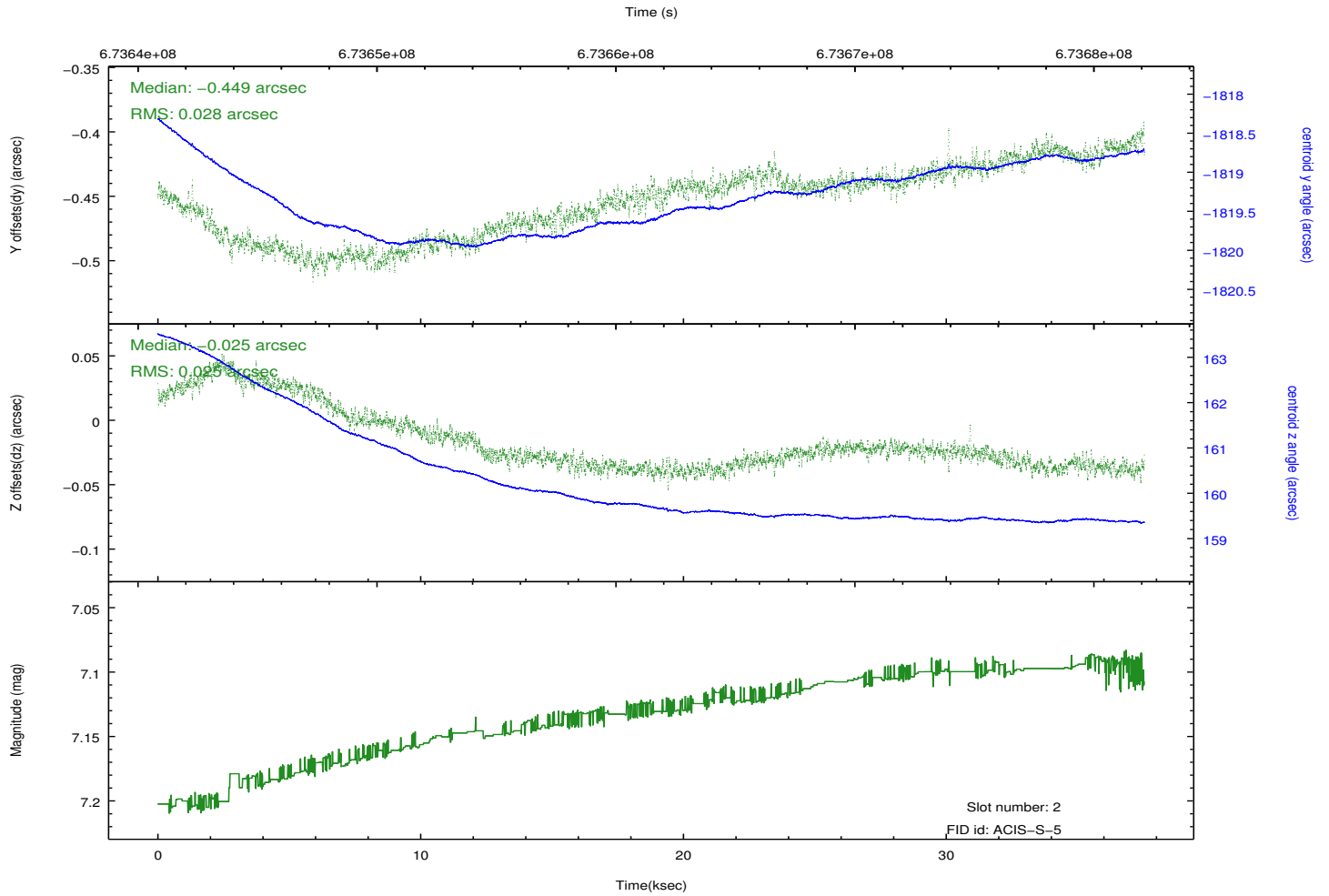
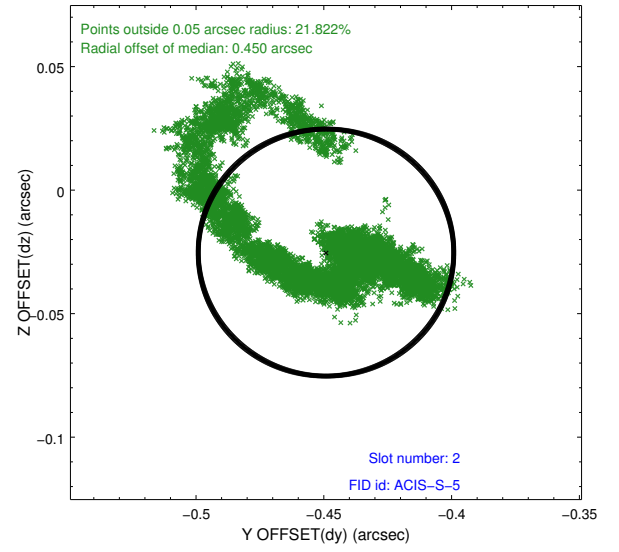
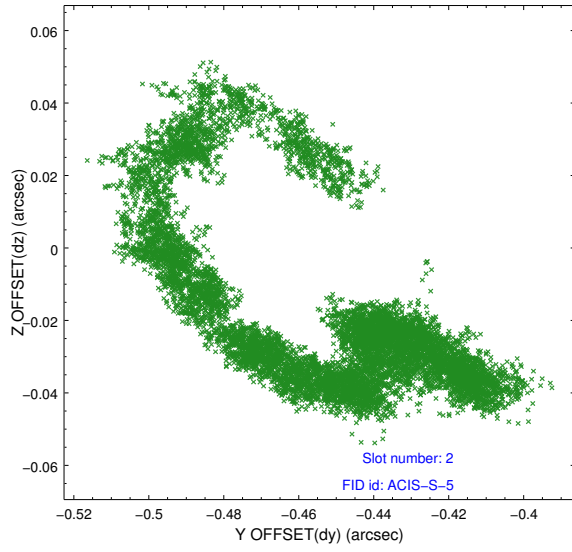
### 2.5.1 Slot 0



## 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)      | 2019.05.10      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 37.510000288606 |

### A.2 Comments

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.