

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 20874 - L2 Version 2  
Chandra X-Ray Center

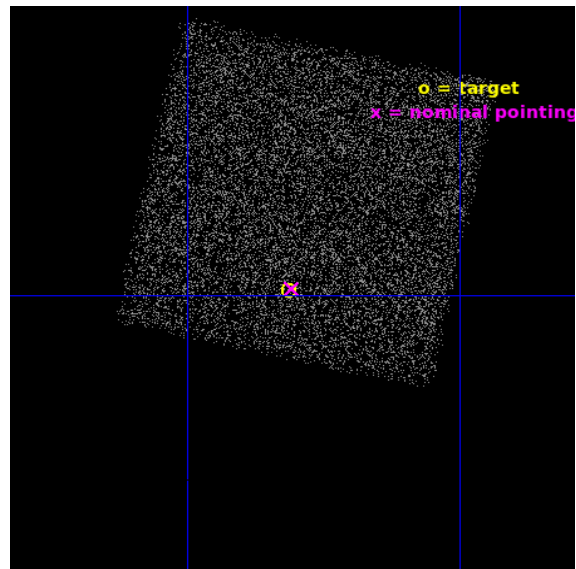
L2 Processing Date : Oct 24 2020

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# 1 Front

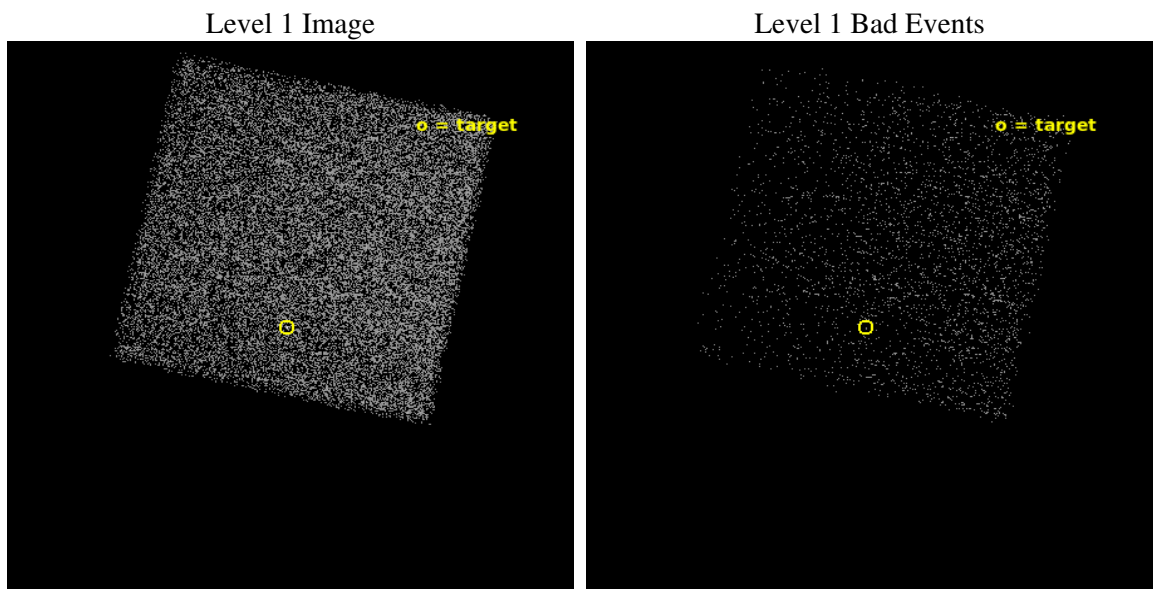
|          |                                                                                |                                             |
|----------|--------------------------------------------------------------------------------|---------------------------------------------|
| seq_num  | 201203                                                                         | Sequence number                             |
| obs_id   | 20874                                                                          | Observation id                              |
| title    | Characterizing X-ray driven molecular chemistry in a young protoplanetary disk | Proposal title                              |
| observer | Lauren Cleeves                                                                 | Principal investigator                      |
| object   | DM Tau                                                                         | Source name                                 |
| dtcycle  | 0                                                                              | &#160                                       |
| cycle    | P                                                                              | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 68.452917                                                                      | Observer's specified<br>target RA [deg]     |
| dec_targ | 18.169417                                                                      | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 68.45168608204                                                                 | Nominal RA [deg]                            |
| dec_nom  | 18.169950615672                                                                | Nominal Dec [deg]                           |
| roll_nom | 281.98290099692                                                                | Nominal Roll [deg]                          |
| revision | 2                                                                              | Processing version of<br>data               |
| ontime   | 4092.0                                                                         | Sum of GTIs [s]                             |
| livetime | 4036.7768921159                                                                | Livetime [s]                                |
| ontime7  | 4092.0                                                                         | Sum of GTIs [s]                             |
| l2events | 16594                                                                          | Number of level 2 events                    |



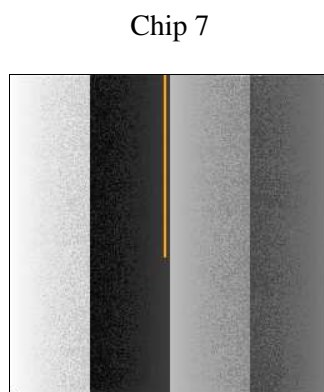
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |             |                                         |
|----------|---------------------|--------------------------------|----------------|-------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 4000.000000 | [s] Scheduled observation exposure time |
| ascdsver | 10.9.2              | Processing system revision     | ontime         | 4092.0      | Sum of GTIs [s]                         |
| caldsver | 4.9.3               | &#160                          | ontime7        | 4092.0      | Sum of GTIs [s]                         |
| date     | 2020-10-24T07:48:02 | Date and time of file creation | l1events       | 39457       | Number of level 1 events                |
| revision | 2                   | Processing version of data     |                |             |                                         |

### 2.1.4 Events

|                 |              |
|-----------------|--------------|
|                 | <b>ccd 7</b> |
| level 1 events  | 39457        |
| rejected events | 22304        |
| rejected %      | 56%          |

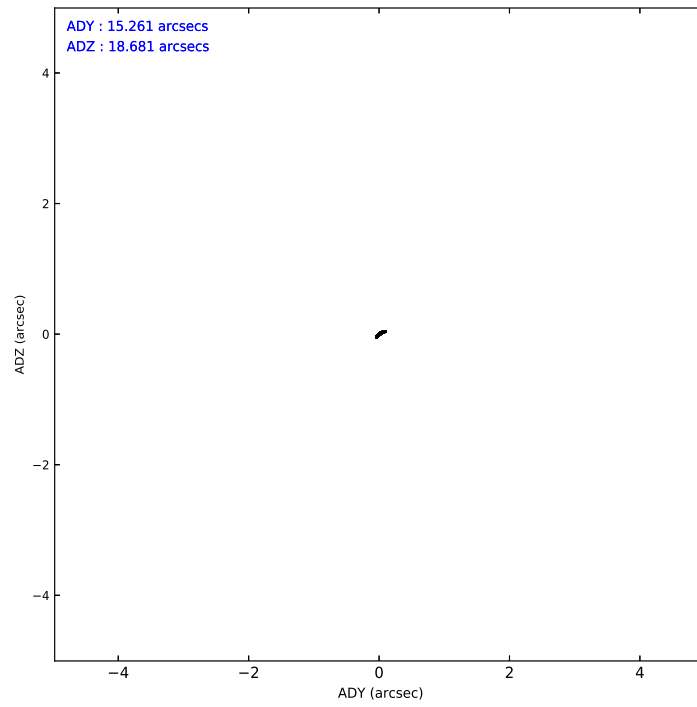
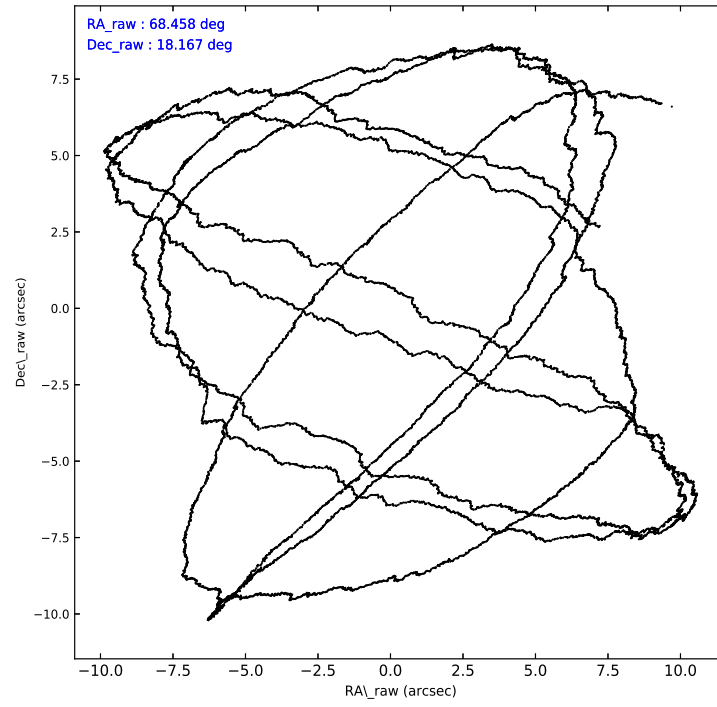
|                |              |
|----------------|--------------|
|                | <b>ccd 7</b> |
| grade 0 events | 1390         |
|                | 3%           |
| grade 1 events | 66           |
|                | 0%           |
| grade 2 events | 3468         |
|                | 8%           |
| grade 3 events | 1391         |
|                | 3%           |
| grade 4 events | 1401         |
|                | 3%           |
| grade 5 events | 3719         |
|                | 9%           |
| grade 6 events | 9514         |
|                | 24%          |
| grade 7 events | 18508        |
|                | 46%          |

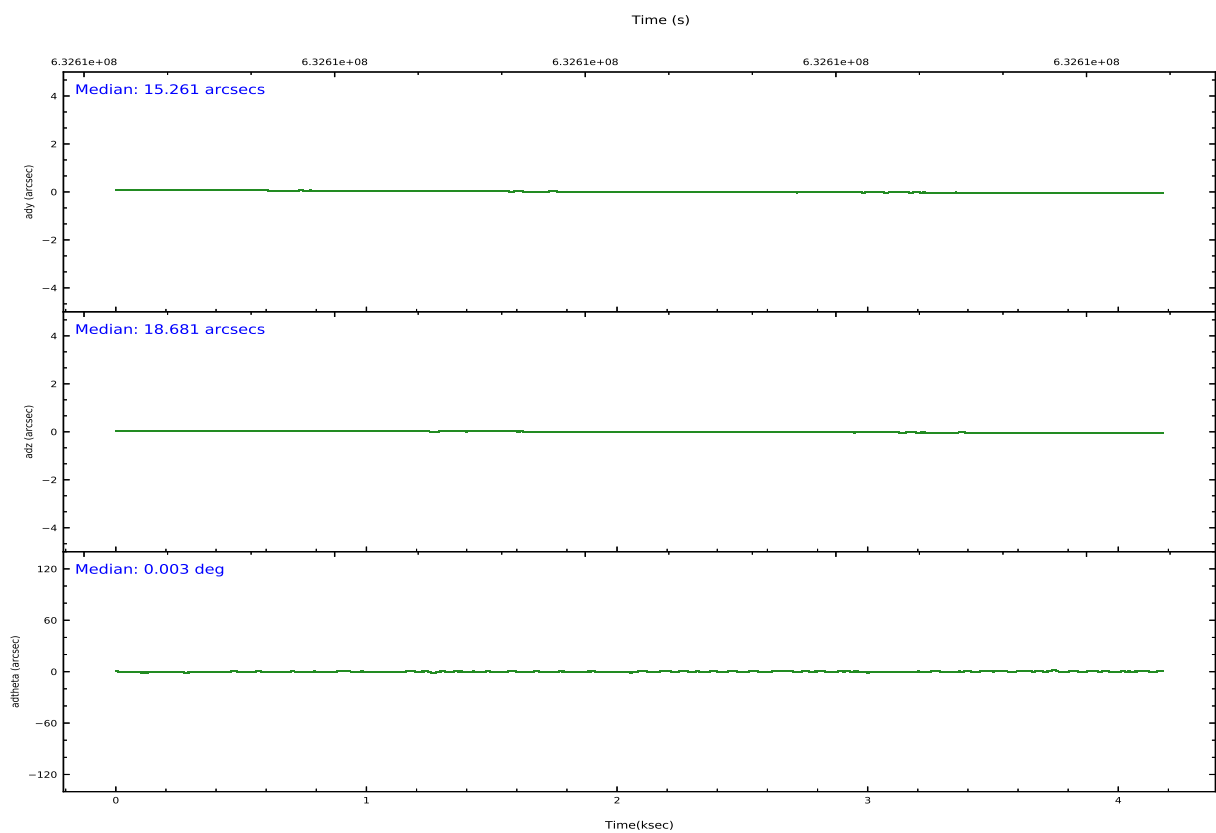
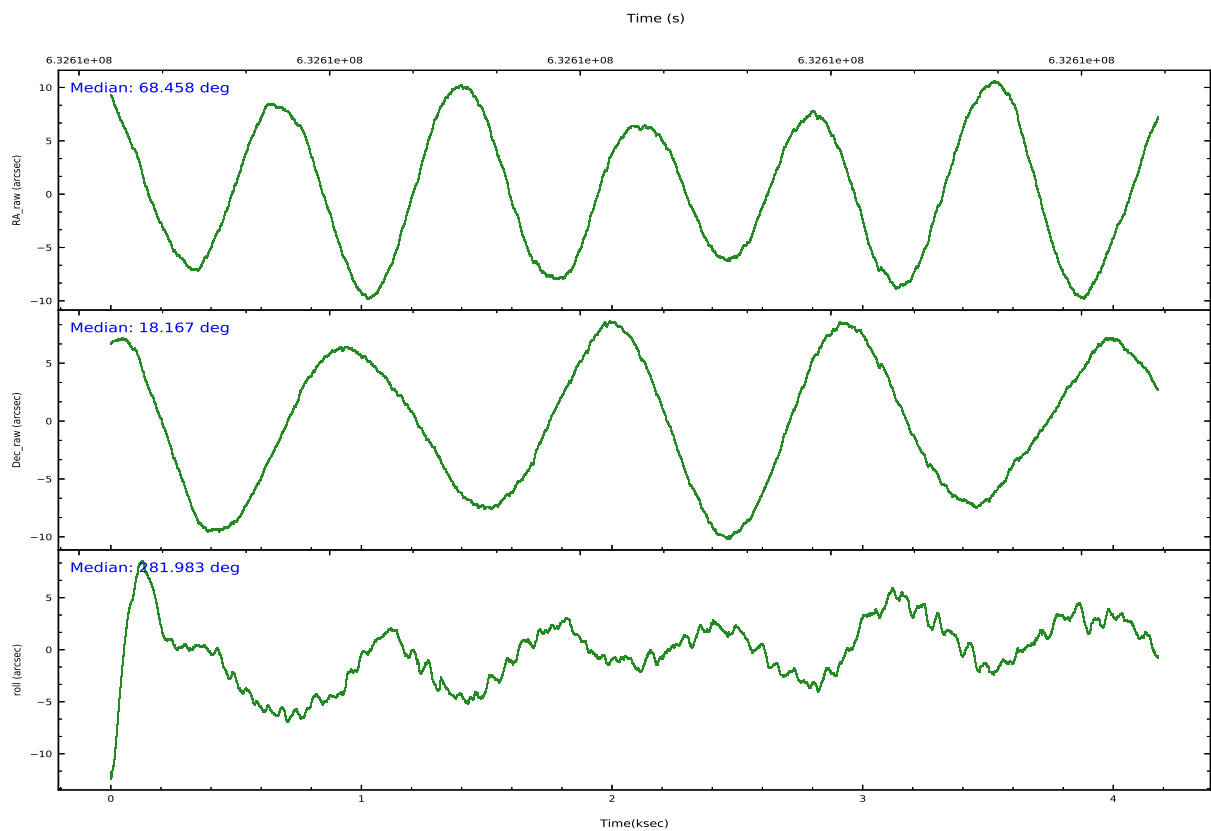
## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               |
|-----------------------------------|---------------------|----------------------|
| Instrument                        | ACIS                | ACIS                 |
| Detector                          | ACIS-7              | ACIS-7               |
| Grating                           | NONE                | NONE                 |
| Data mode                         | VFAINT              | VFAINT               |
| Observation mode                  | POINTING            | POINTING             |
| [deg] Pointing RA                 | 68.438582           | 68.45168608204       |
| [deg] Pointing Dec                | 18.186784           | 18.169950615672      |
| [deg] Pointing Roll               | 281.842157          | 281.98290099692      |
| [s] Window start time (MET)       | 632527269.184000    | 632527269.184000     |
| [s] Window stop time (MET)        | 632700069.184000    | 632700069.184000     |
| [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)  | 632606306.184000    | 632604852.33751      |
| Observation start date            | 2018-01-17T19:57:17 | 2018-01-17T19:34:12  |
| [s] Observation end time (MET)    | 632610306.184000    | 632611725.47541      |
| Observation end date              | 2018-01-17T21:03:57 | 2018-01-17T21:28:45  |
| Read mode                         | TIMED               | TIMED                |

| Parameter                             | Planned   | Actual  |
|---------------------------------------|-----------|---------|
| Obspar version number                 | 8         | 8       |
| Obspar file type                      | PREDICTED | ACTUAL  |
| Obspar update status                  | NONE      | UPDATED |
| Number of optional ACIS chips dropped | 0         | 0       |
| On-chip summing requested             | N         | N       |
| Subarray requested                    | NONE      | NONE    |
| Alternating exposures requested       | N         | N       |
| [s] Primary exposure time             | 0.000000  | 3       |

## 2.3 Aspect



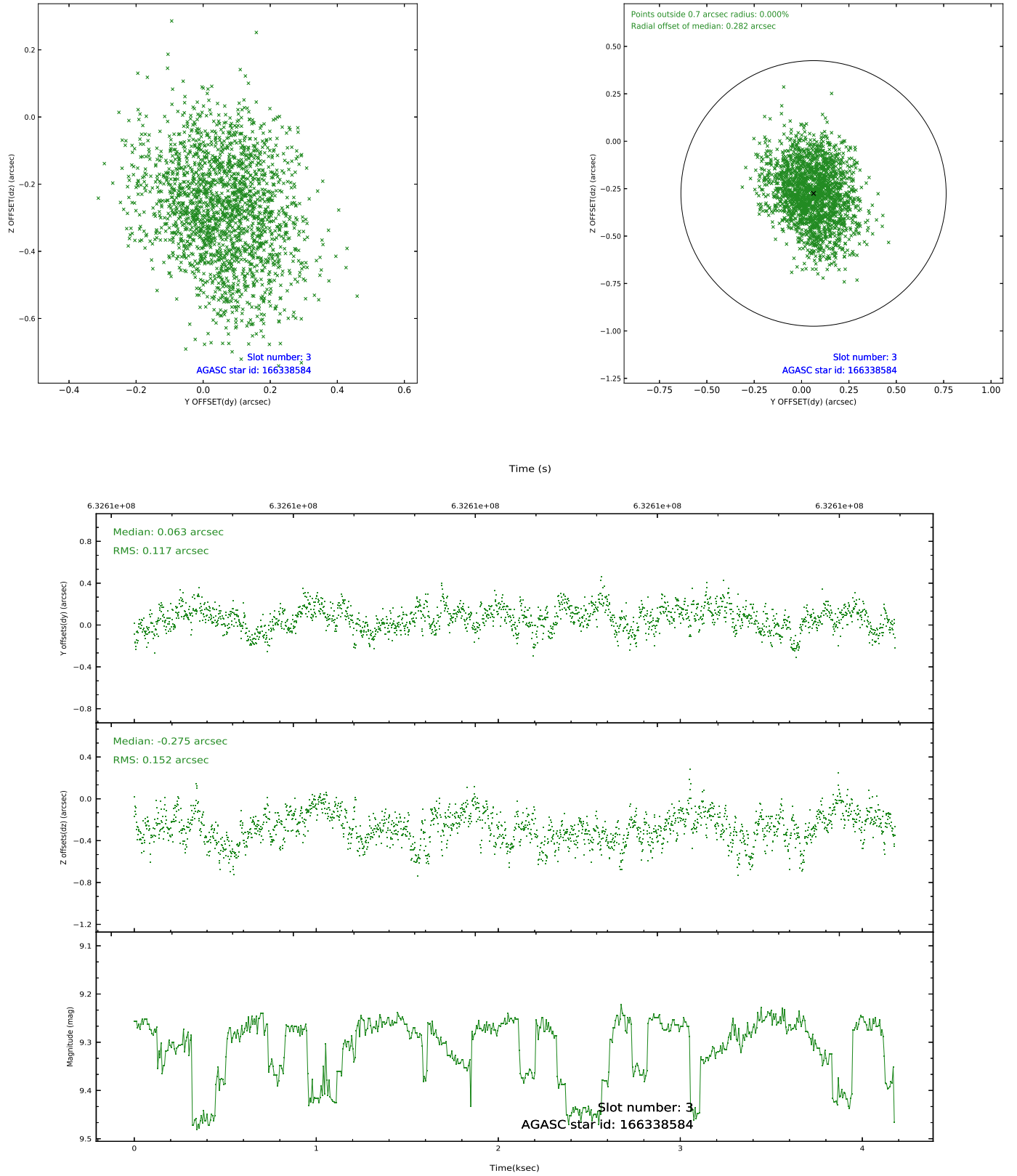


Slot Statistics

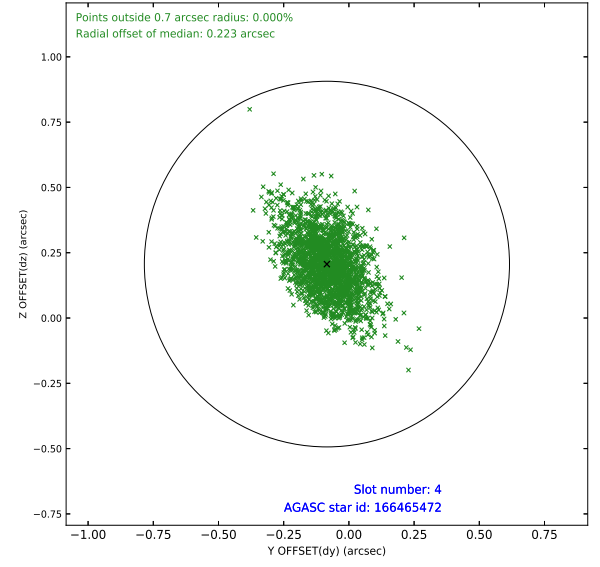
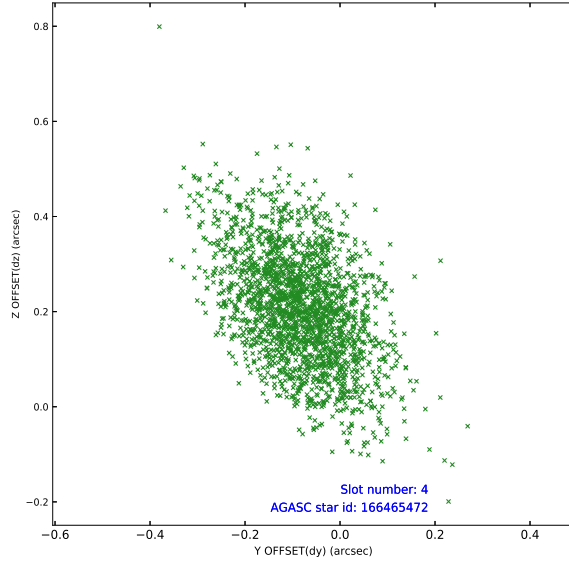
| pt | status | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec       | mean_y   | mea   |
|----|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|-----------|-----------|----------|-------|
| 0  | FID    |      | ACIS-S-2  | 7.19 | 1020  | 1.000    | 0.087  | -0.112 | 0.007 | 0.011 | 0.000000  | 0.000000  | -768.36  | -1740 |
| 1  | FID    |      | ACIS-S-4  | 7.31 | 1020  | 1.000    | 0.166  | -0.012 | 0.006 | 0.010 | 0.000000  | 0.000000  | 2144.53  | 166   |
| 2  | FID    |      | ACIS-S-5  | 7.29 | 1020  | 1.000    | -0.284 | 0.132  | 0.007 | 0.011 | 0.000000  | 0.000000  | -1819.46 | 162   |
| 3  | GUIDE  | used | 166338584 | 9.29 | 2037  | 1.000    | 0.063  | -0.275 | 0.205 | 0.329 | 67.904616 | 17.709782 | 1304.28  | -2142 |
| 4  | GUIDE  | used | 166465472 | 8.32 | 2040  | 1.000    | -0.084 | 0.207  | 0.152 | 0.261 | 68.719684 | 18.413404 | -600.96  | 1106  |
| 5  | GUIDE  | used | 166467888 | 8.08 | 2040  | 1.000    | 0.066  | -0.183 | 0.163 | 0.286 | 68.675864 | 17.748180 | 1713.07  | 474   |
| 6  | GUIDE  | used | 166468240 | 8.99 | 2037  | 1.000    | 0.057  | -0.053 | 0.221 | 0.337 | 68.167699 | 17.861525 | 956.87   | -1148 |
| 7  | GUIDE  | used | 166472048 | 8.56 | 2036  | 1.000    | -0.083 | 0.308  | 0.136 | 0.247 | 69.128417 | 17.932418 | 1377.89  | 2125  |

## 2.4 Star Slots

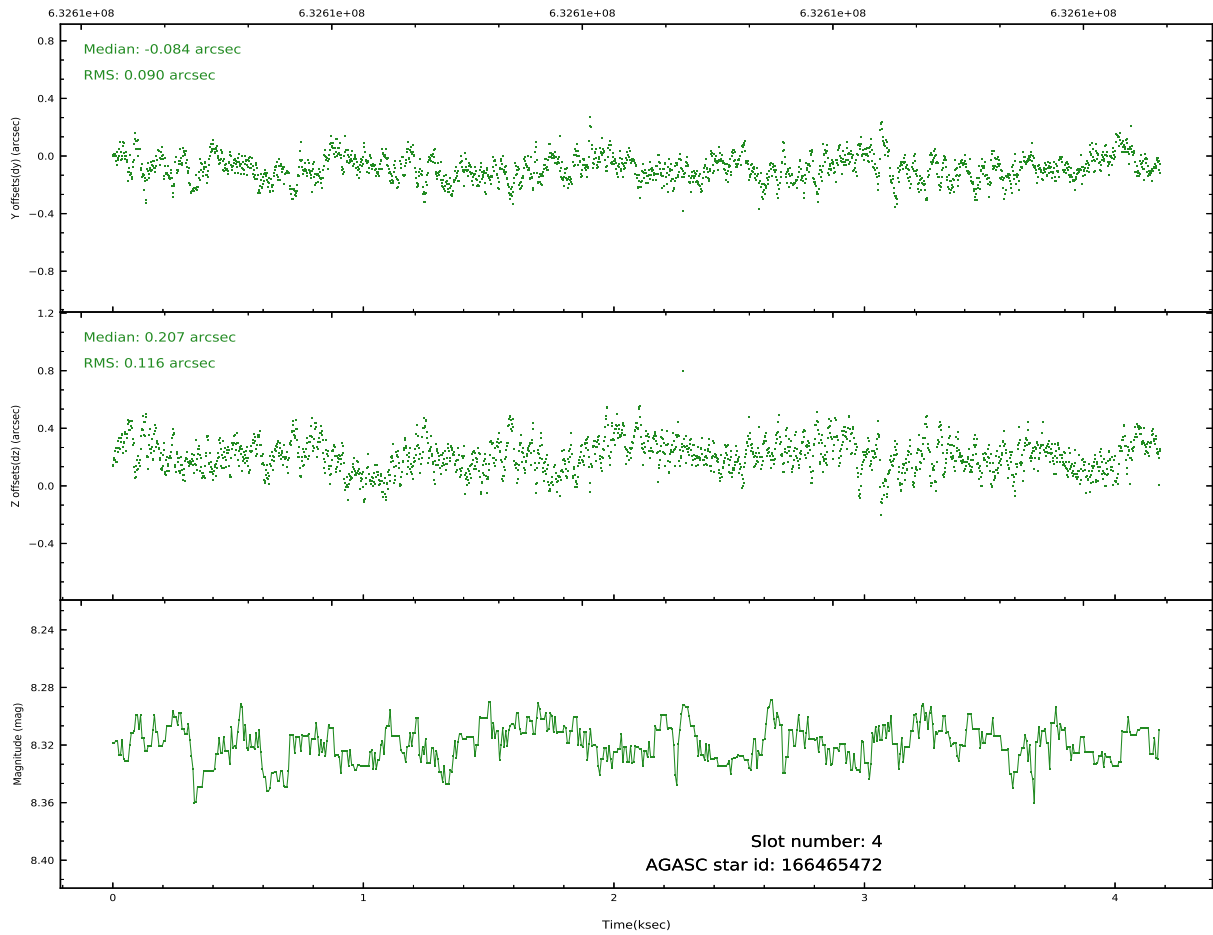
### 2.4.1 Slot 3



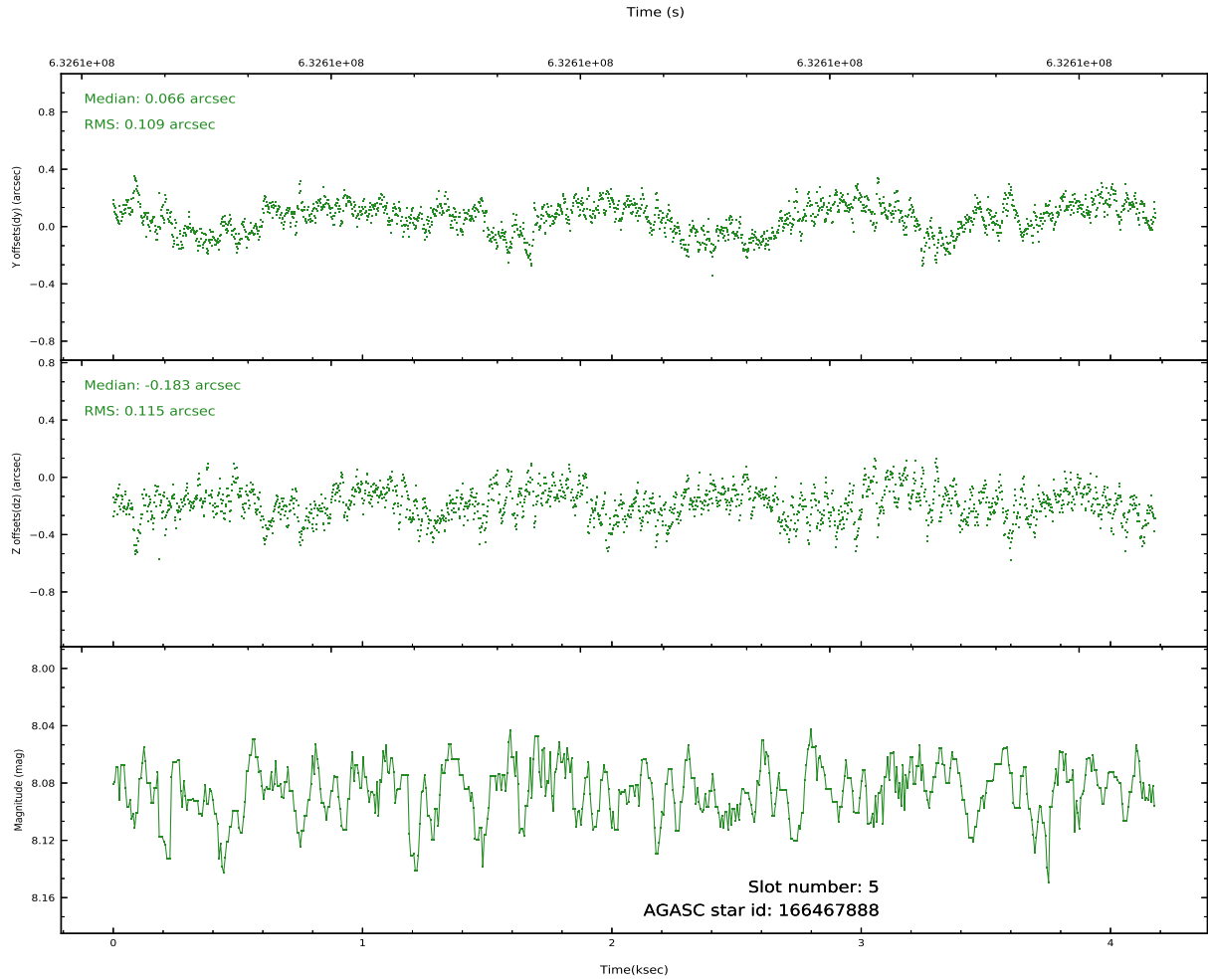
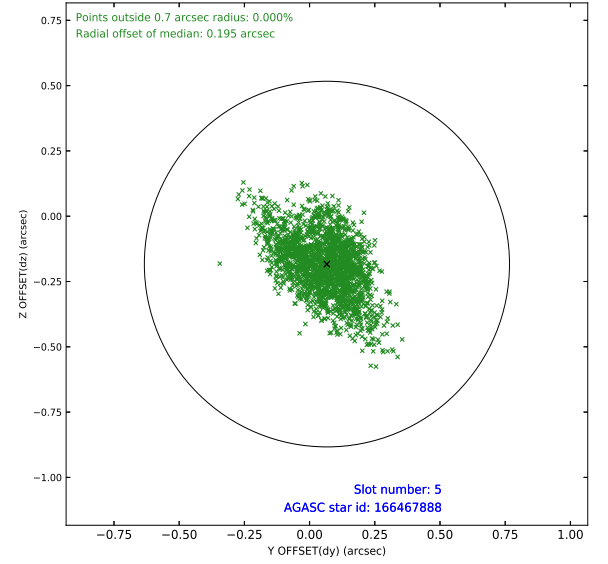
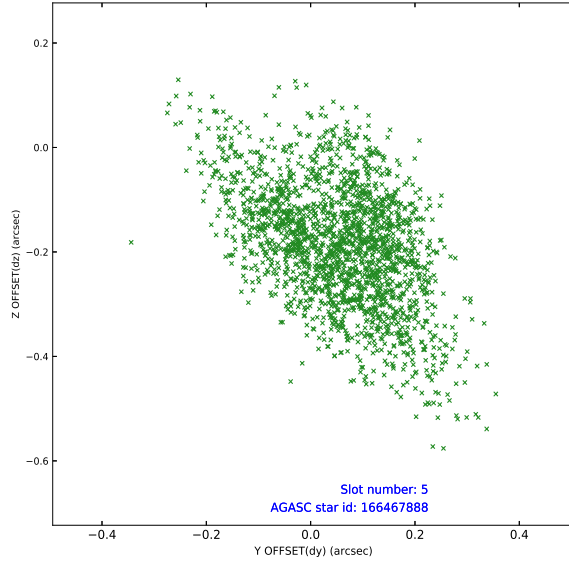
## 2.4.2 Slot 4



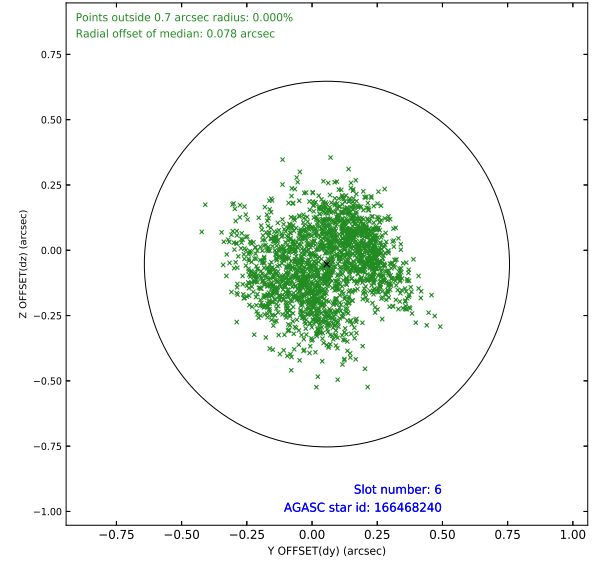
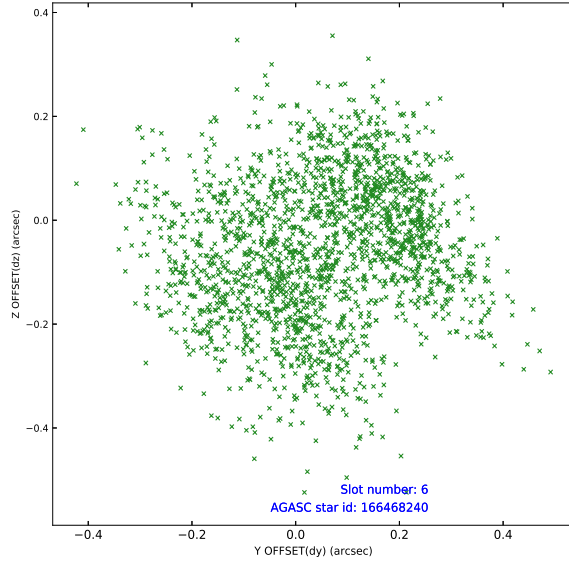
Time (s)



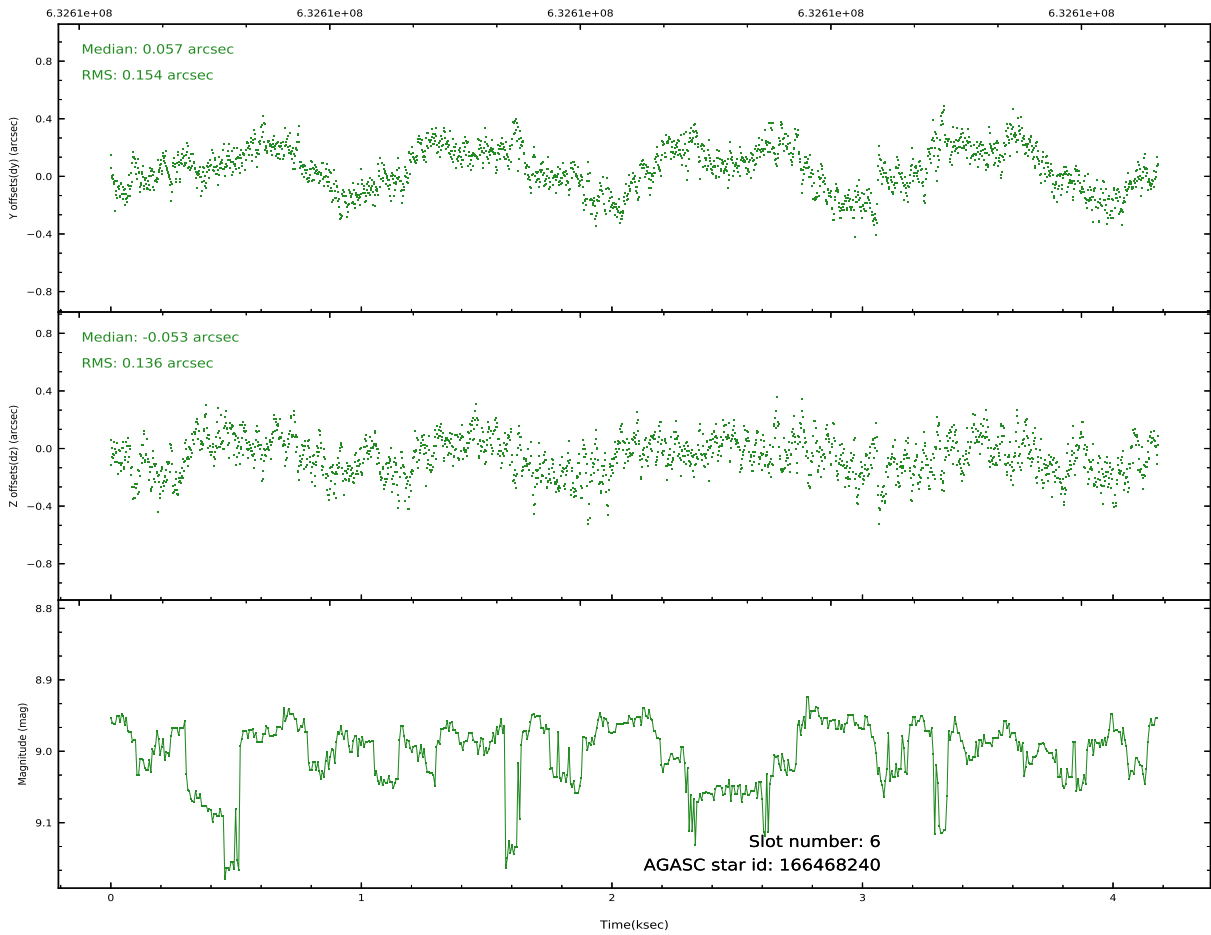
### 2.4.3 Slot 5



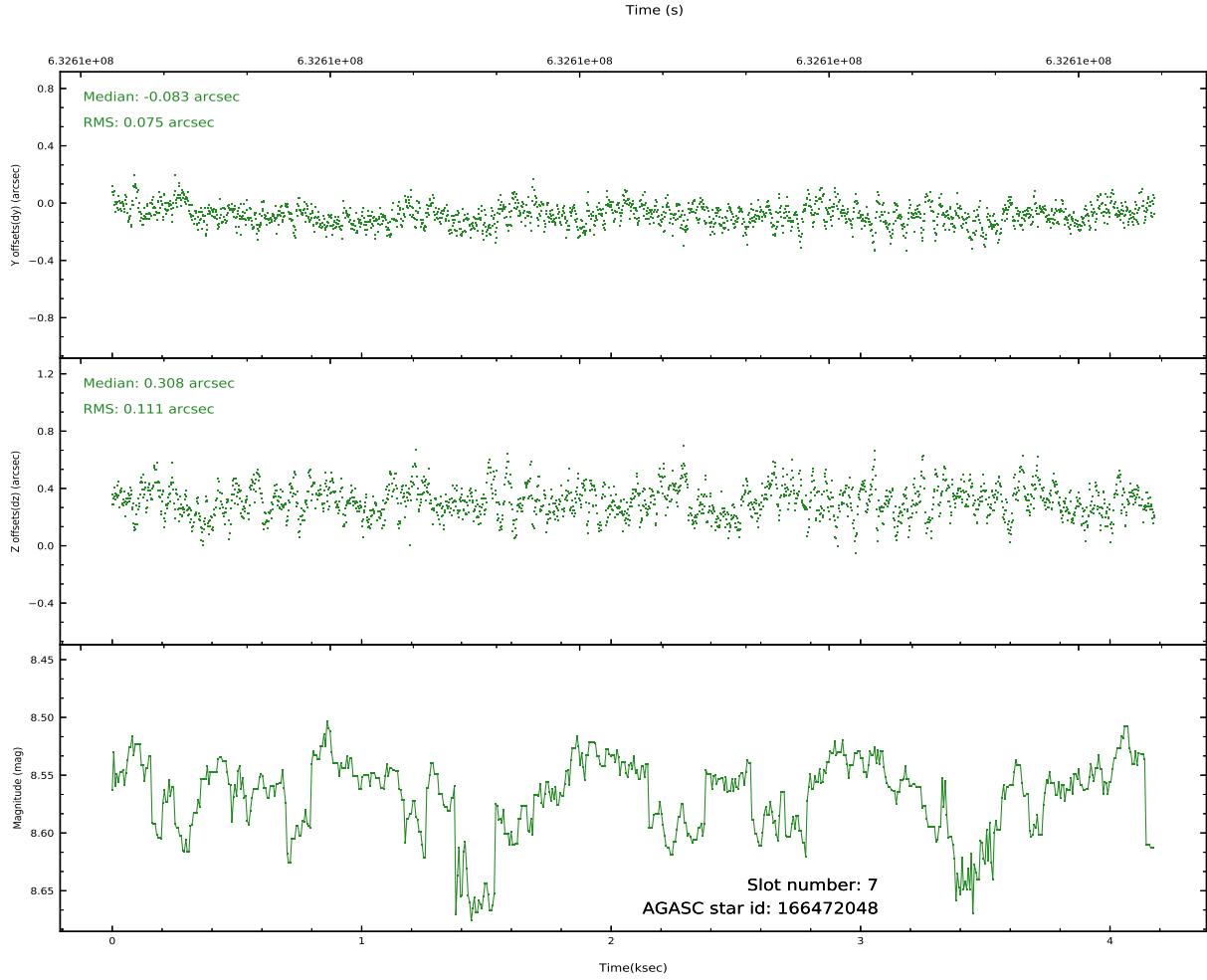
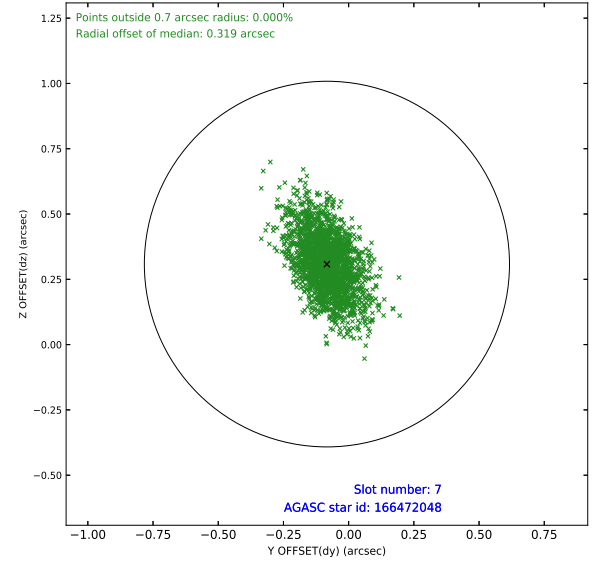
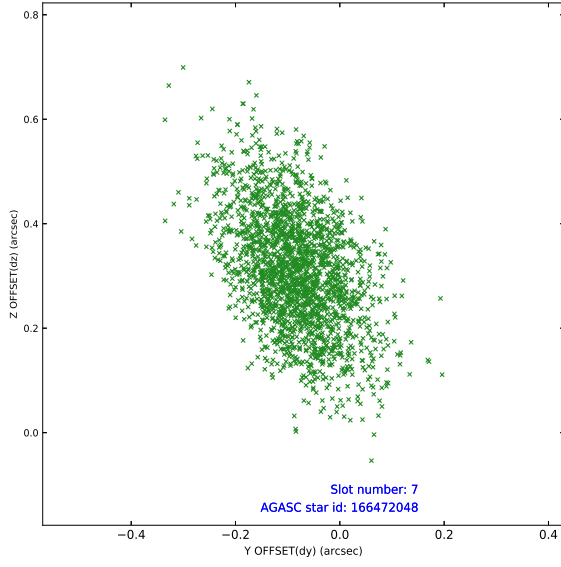
## 2.4.4 Slot 6



Time (s)

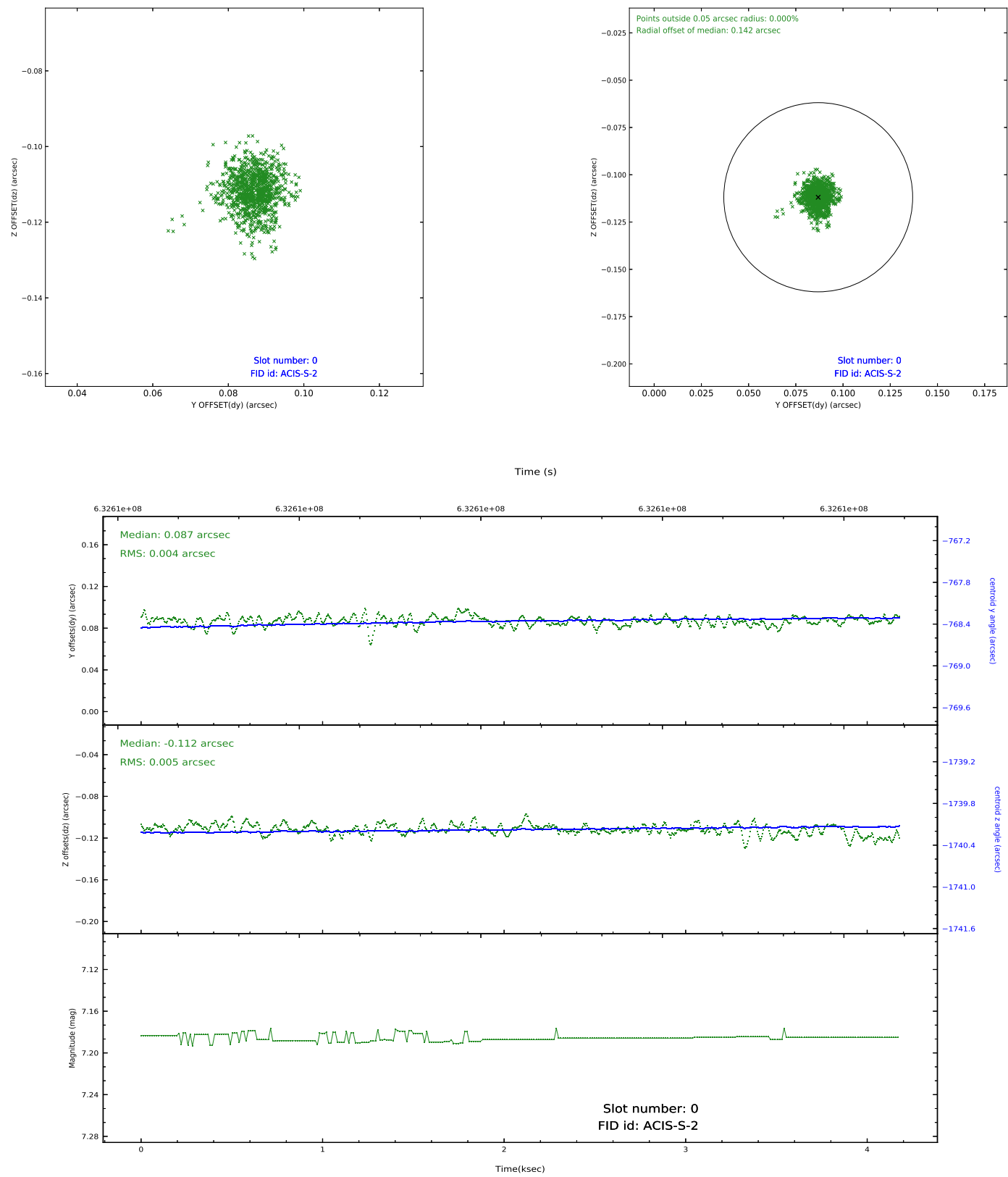


## 2.4.5 Slot 7

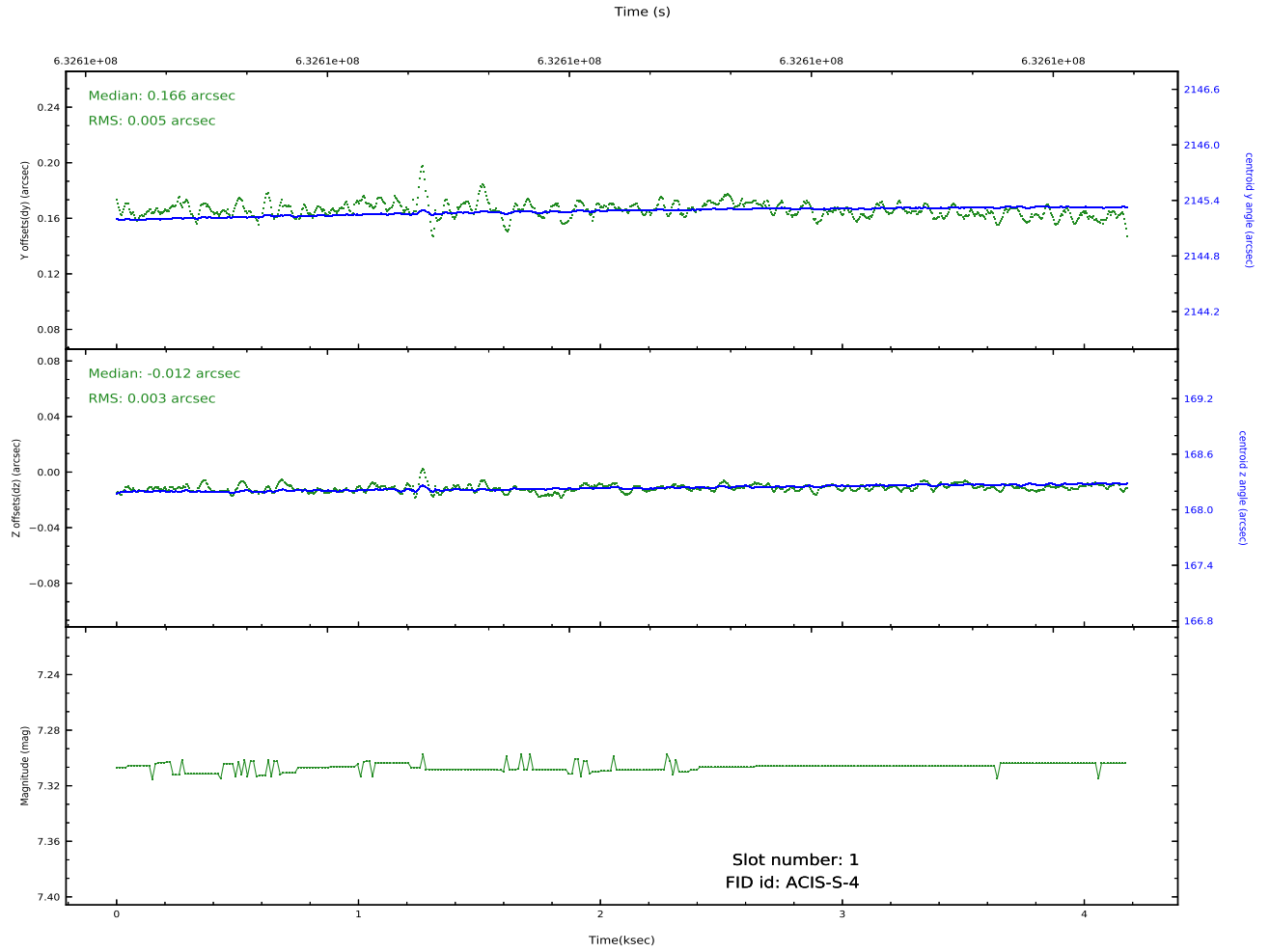
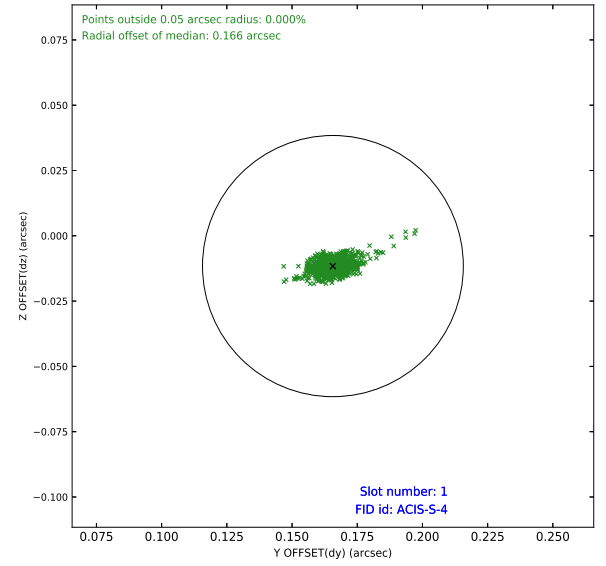
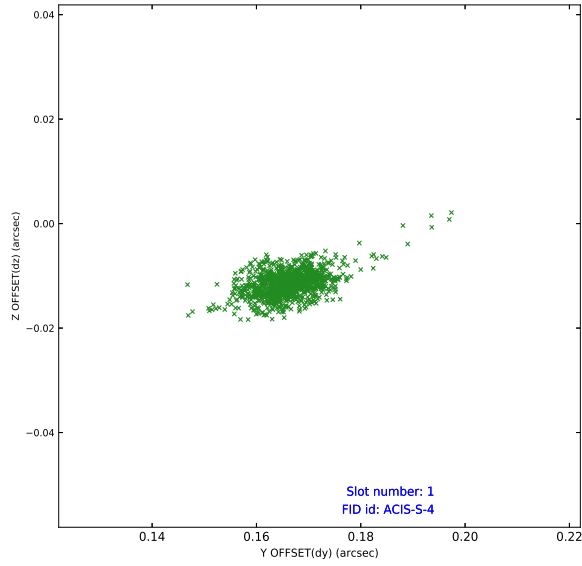


# 2.5 FID Slots

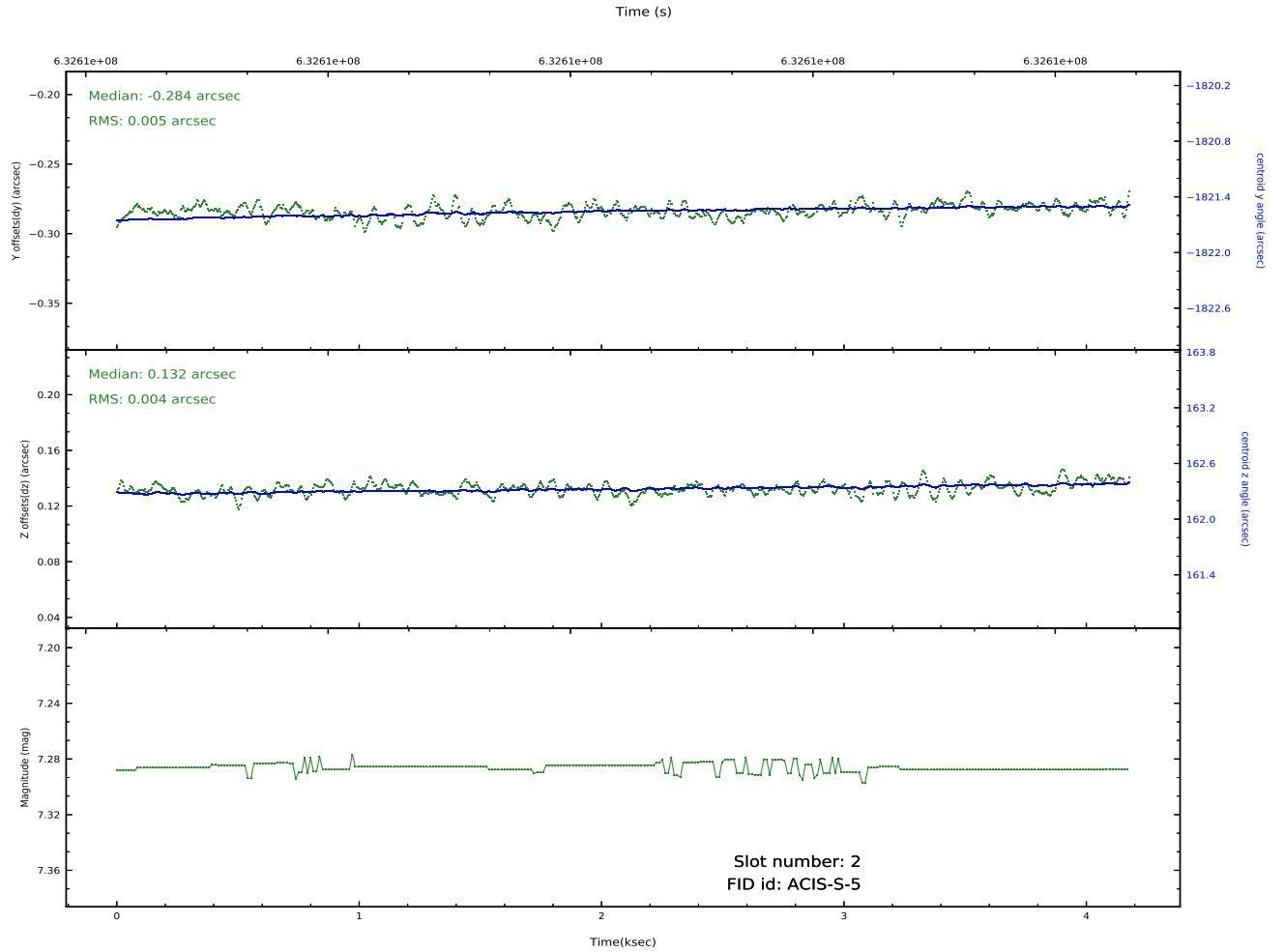
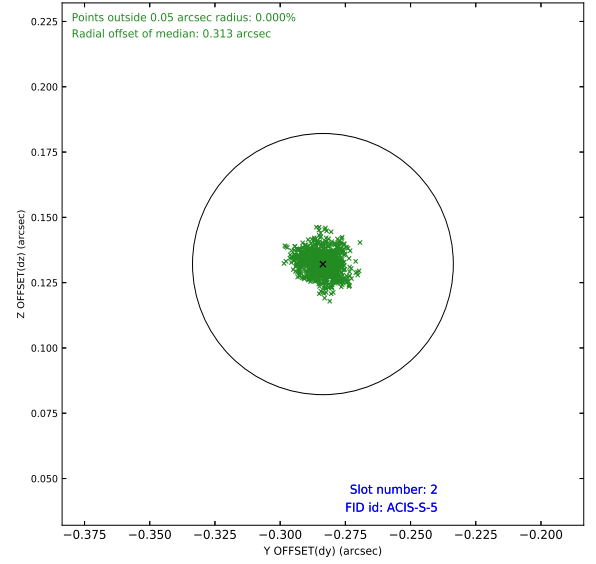
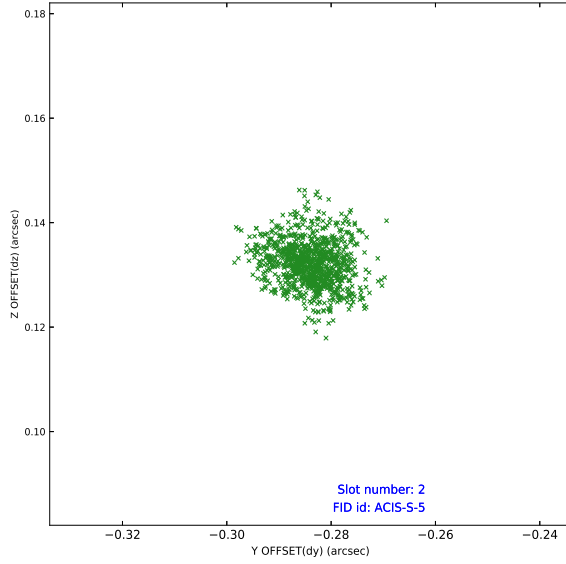
## 2.5.1 Slot 0



## 2.5.2 Slot 1



## 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |               |
|----------------------------|---------------|
| V&V Scientist              | Beth Sundheim |
| V&V Date (YYYY-MM-DD)      | 2020.10.26    |
| V&V Edition                | 1             |
| V&V Disposition and Status | OK            |
| V&V Charge Time            | 4.092         |

### A.2 Comments

Window constraint was met.