

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 4710 - L2 Version 4  
Chandra X-Ray Center

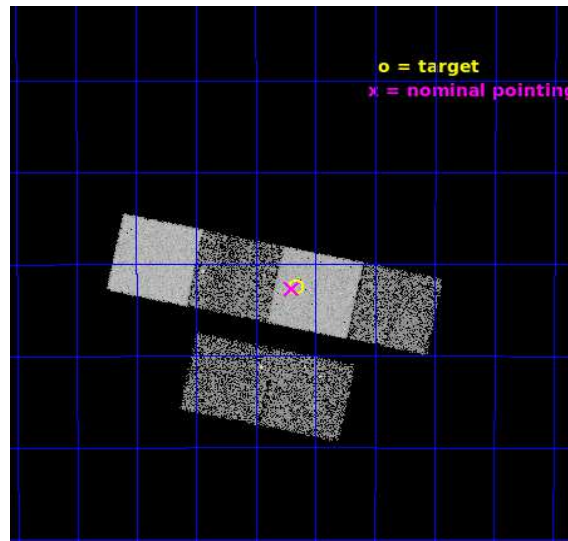
L2 Processing Date : Oct 2 2020

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# 1 Front

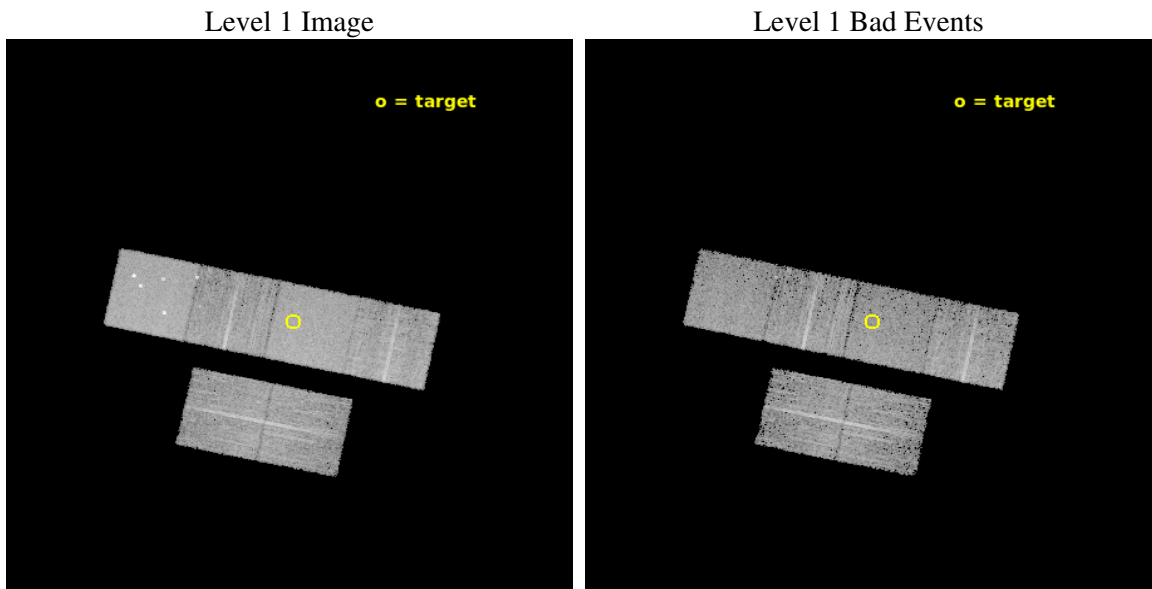
|          |  |   |
|----------|--|---|
| seq_num  | 600365   | Sequence number                             |
| obs_id   | 4710   | Observation id                              |
| title    | Using the Sculptor Dwarf Spheroidal Galaxy to Constrain X-ray Binary Production in Population II | Proposal title                              |
| observer | Thomas Maccarone   | Principal investigator                      |
| object   | SCULPTOR DWARF SPHEROIDAL  | Source name                                 |
| dtcycle  | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 15.039167  | Observer's specified target RA [deg]        |
| dec_targ | -33.708889   | Observer's specified target Dec [deg]       |
| ra_nom   | 15.049176398047  | Nominal RA [deg]                            |
| dec_nom  | -33.711469524718   | Nominal Dec [deg]                           |
| roll_nom | 11.951269231098  | Nominal Roll [deg]                          |
| revision | 4  | Processing version of data                  |
| ontime   | 5958.3999778032  | Sum of GTIs [s]                             |
| livetime | 5882.9511295666  | Livetime [s]                                |
| ontime2  | 5958.3999778032  | Sum of GTIs [s]                             |
| ontime3  | 5958.2978642881  | Sum of GTIs [s]                             |
| ontime5  | 5958.3799442947  | Sum of GTIs [s]                             |
| ontime6  | 5955.0979040861  | Sum of GTIs [s]                             |
| ontime7  | 5958.3999778032  | Sum of GTIs [s]                             |
| ontime8  | 5958.2568243146  | Sum of GTIs [s]                             |
| l2events | 72076  | Number of level 2 events                    |



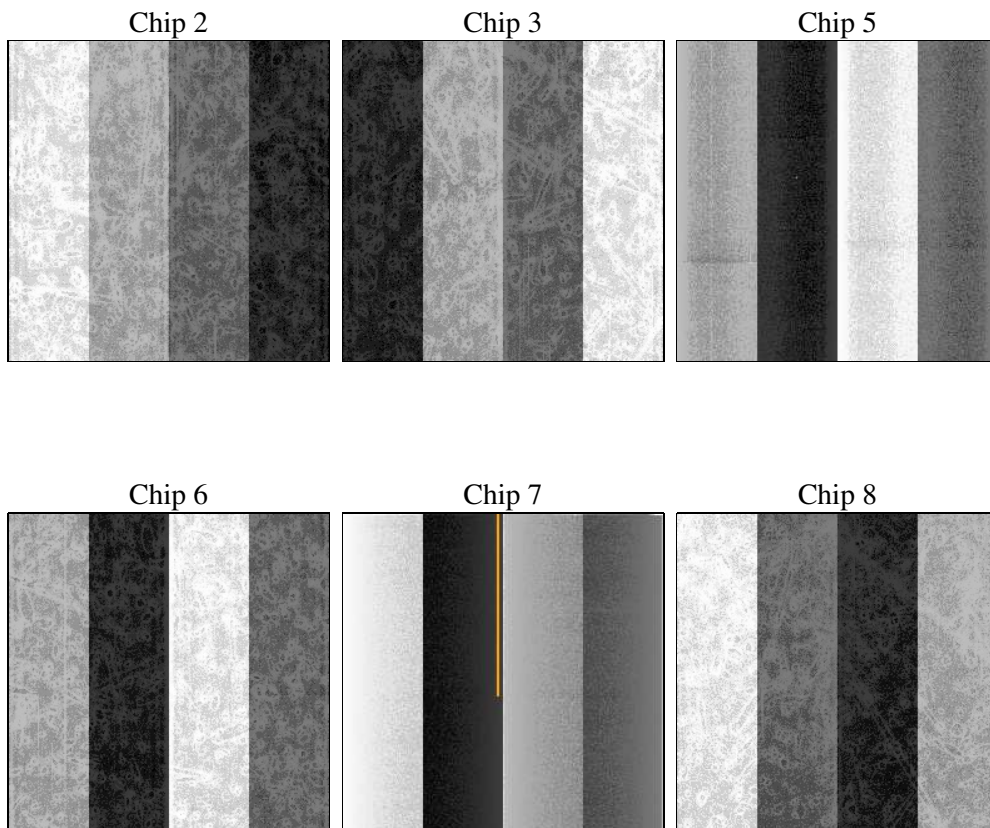
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 6000.000000     | [s] Scheduled observation exposure time |
| ascdsver | 10.9.1              | Processing system revision     | ontime         | 5958.3999778032 | Sum of GTIs [s]                         |
| caldsver | 4.9.2               | &#160                          | ontime2        | 5958.3999778032 | Sum of GTIs [s]                         |
| date     | 2020-10-02T20:30:07 | Date and time of file creation | ontime3        | 5958.2978642881 | Sum of GTIs [s]                         |
| revision | 4                   | Processing version of data     | ontime5        | 5958.3799442947 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 5955.0979040861 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 5958.3999778032 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 5958.2568243146 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 325781          | Number of level 1 events                |

### 2.1.4 Events

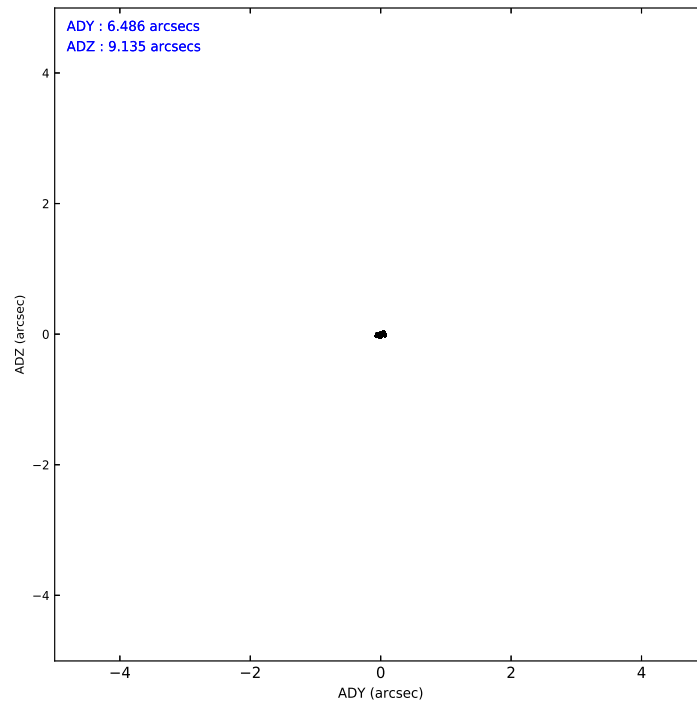
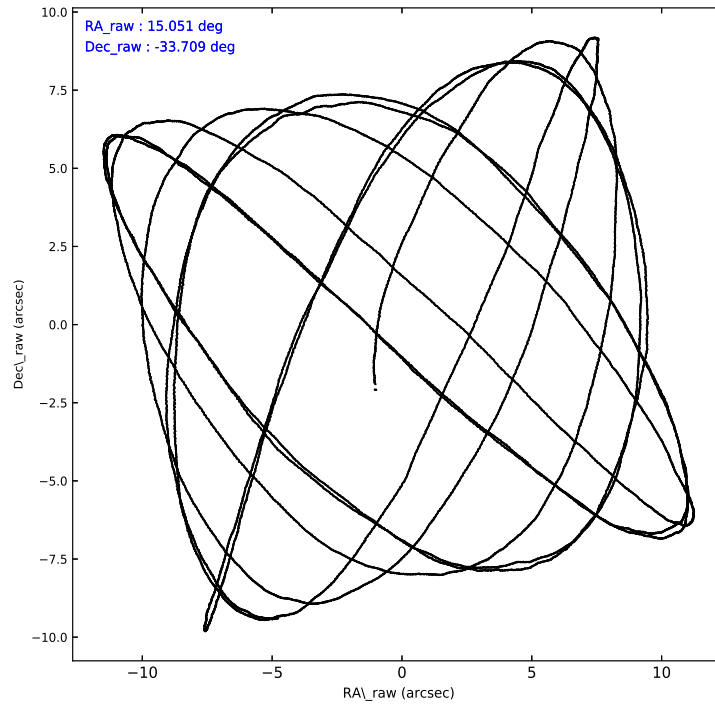
|                 | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |                | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 46184 | 44785 | 70344 | 46826 | 60901 | 56741 | grade 0 events | 2419  | 2397  | 5366  | 2213  | 2220  | 3667  |
| rejected events | 40750 | 39502 | 36746 | 41387 | 35607 | 45041 |                | 5%    | 5%    | 7%    | 4%    | 3%    | 6%    |
| rejected %      | 88%   | 88%   | 52%   | 88%   | 58%   | 79%   | grade 1 events | 27    | 30    | 214   | 19    | 58    | 43    |
|                 |       |       |       |       |       |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |       |       |       |       |       |       | grade 2 events | 1083  | 915   | 9710  | 1101  | 5125  | 2607  |
|                 |       |       |       |       |       |       |                | 2%    | 2%    | 13%   | 2%    | 8%    | 4%    |
|                 |       |       |       |       |       |       | grade 3 events | 494   | 516   | 1255  | 530   | 2233  | 1170  |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 1%    | 1%    | 3%    | 2%    |
|                 |       |       |       |       |       |       | grade 4 events | 545   | 529   | 1179  | 521   | 2323  | 1139  |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 1%    | 1%    | 3%    | 2%    |
|                 |       |       |       |       |       |       | grade 5 events | 1701  | 1984  | 5039  | 2167  | 5816  | 2669  |
|                 |       |       |       |       |       |       |                | 3%    | 4%    | 7%    | 4%    | 9%    | 4%    |
|                 |       |       |       |       |       |       | grade 6 events | 900   | 933   | 16129 | 1076  | 13430 | 3151  |
|                 |       |       |       |       |       |       |                | 1%    | 2%    | 22%   | 2%    | 22%   | 5%    |
|                 |       |       |       |       |       |       | grade 7 events | 39015 | 37481 | 31452 | 39199 | 29696 | 42295 |
|                 |       |       |       |       |       |       |                | 84%   | 83%   | 44%   | 83%   | 48%   | 74%   |

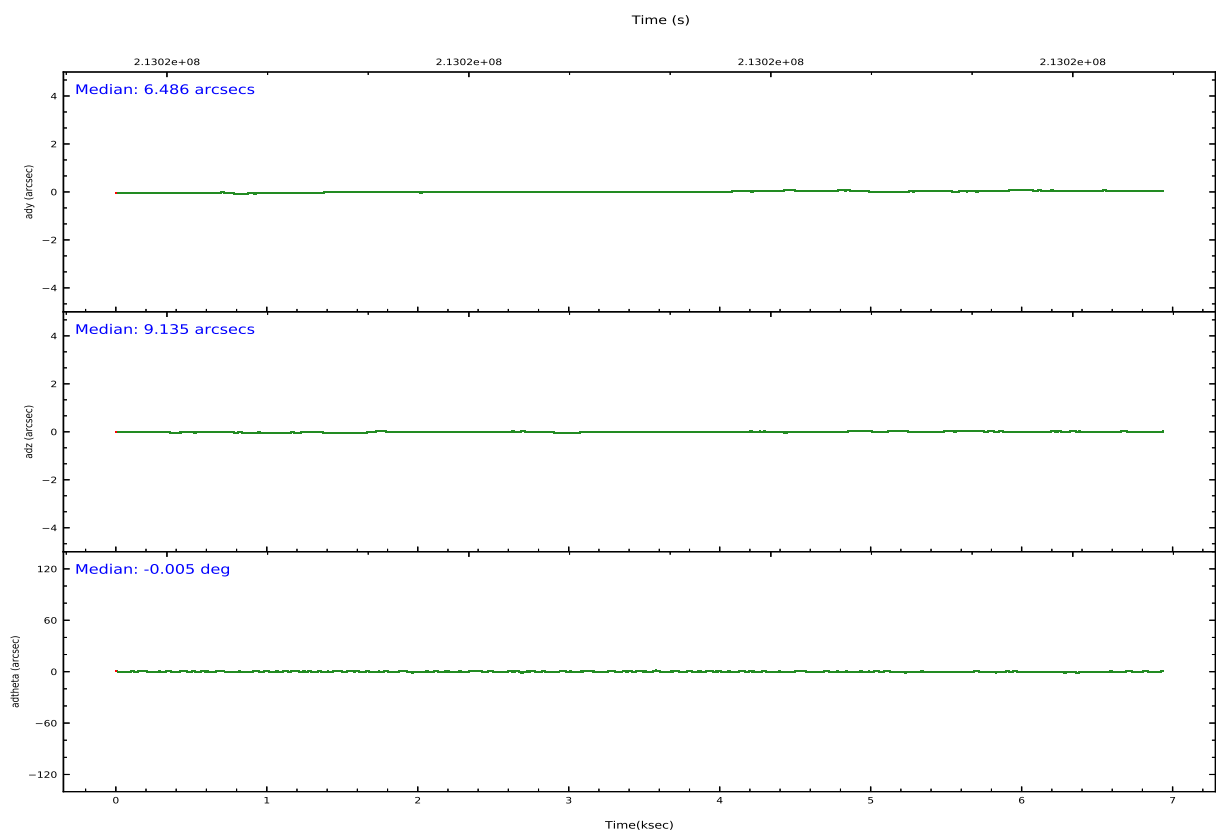
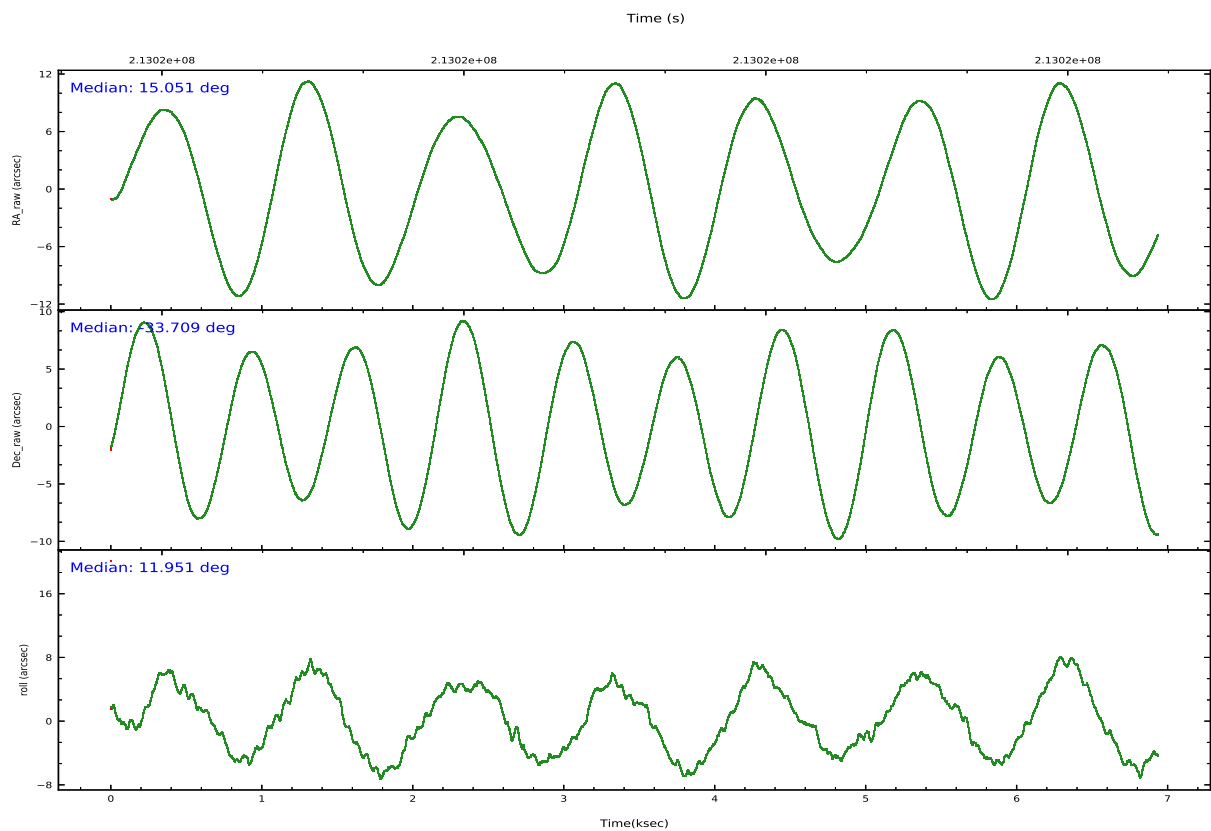


## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-235678         | ACIS-235678          | 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                 | 15.026732           | 15.049176398047      | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | -33.727053          | -33.711469524718     | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 11.781969           | 11.951269231098      | [s] Primary exposure time             | 0.000000  | 3.2     |
| [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)  | 213016599.184000    | 213015116.64453      |                                       |           |         |
| Observation start date            | 2004-10-01T11:15:35 | 2004-10-01T10:51:56  |                                       |           |         |
| [s] Observation end time (MET)    | 213022599.184000    | 213024213.00744      |                                       |           |         |
| Observation end date              | 2004-10-01T12:55:35 | 2004-10-01T13:23:33  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



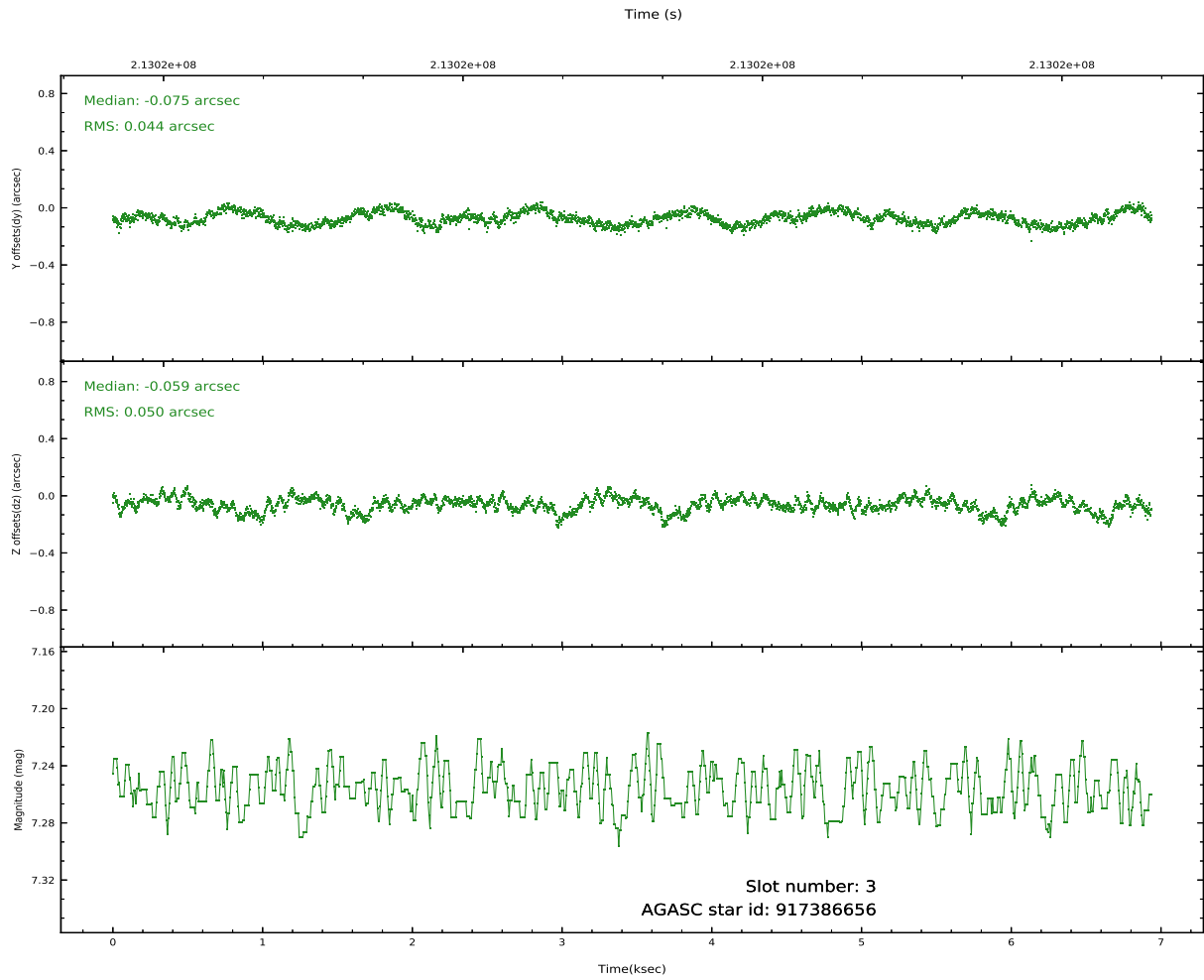
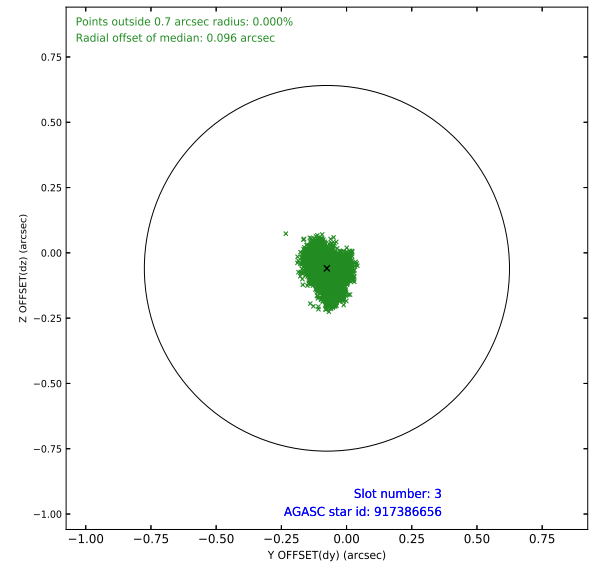
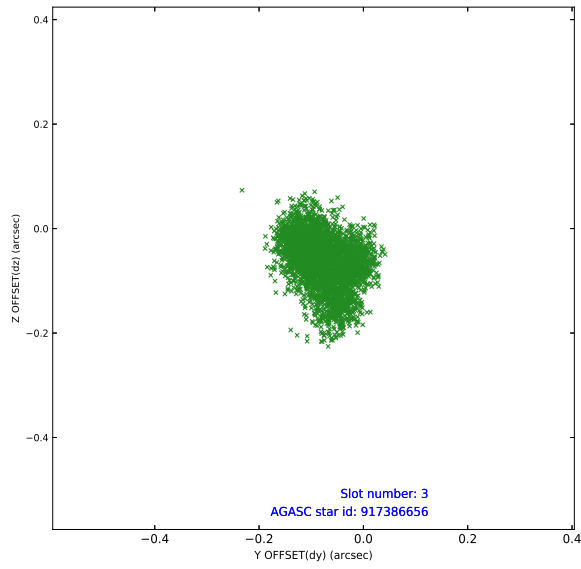


Slot Statistics

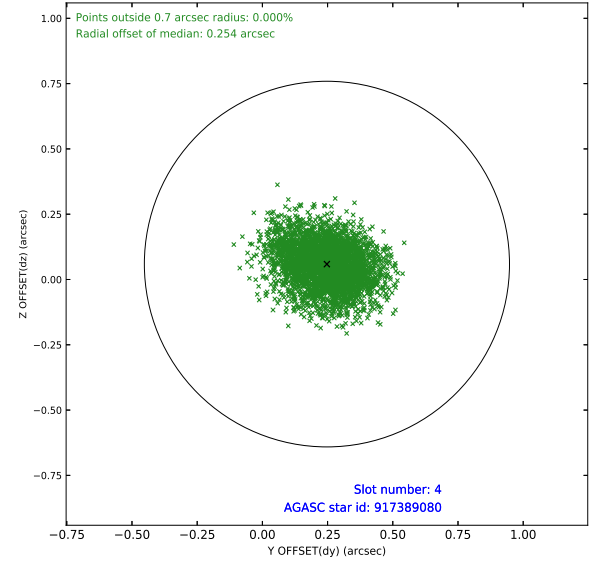
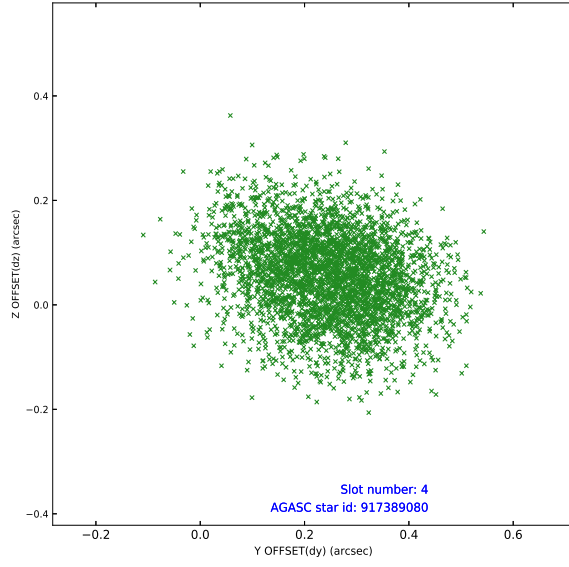
| pt | status | used | id        | mag   | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mea   |
|----|--------|------|-----------|-------|-------|----------|--------|--------|-------|-------|-----------|------------|----------|-------|
| 0  | FID    |      | ACIS-S-2  | 7.10  | 1693  | 1.000    | -0.076 | -0.079 | 0.008 | 0.013 | 0.000000  | 0.000000   | -759.26  | -1730 |
| 1  | FID    |      | ACIS-S-4  | 7.21  | 1693  | 1.000    | 0.142  | 0.058  | 0.007 | 0.012 | 0.000000  | 0.000000   | 2153.81  | 177   |
| 2  | FID    |      | ACIS-S-5  | 7.23  | 1693  | 1.000    | -0.098 | 0.030  | 0.007 | 0.012 | 0.000000  | 0.000000   | -1811.10 | 171   |
| 3  | GUIDE  | used | 917386656 | 7.26  | 3384  | 1.000    | -0.075 | -0.059 | 0.072 | 0.112 | 15.342124 | -33.359890 | 1198.09  | 1098  |
| 4  | GUIDE  | used | 917389080 | 10.10 | 3383  | 1.000    | 0.247  | 0.059  | 0.141 | 0.230 | 15.722484 | -33.662555 | 2087.70  | -204  |
| 5  | GUIDE  | used | 917389288 | 9.57  | 3382  | 1.000    | -0.032 | 0.046  | 0.104 | 0.168 | 15.394706 | -33.185862 | 1483.37  | 1678  |
| 6  | GUIDE  | used | 917645208 | 10.19 | 3379  | 1.000    | 0.019  | -0.019 | 0.152 | 0.243 | 15.521597 | -34.090794 | 1177.15  | -1586 |
| 7  | GUIDE  | used | 917651048 | 9.66  | 3381  | 1.000    | -0.154 | -0.022 | 0.106 | 0.169 | 14.655628 | -34.424089 | -1590.91 | -2234 |

## 2.4 Star Slots

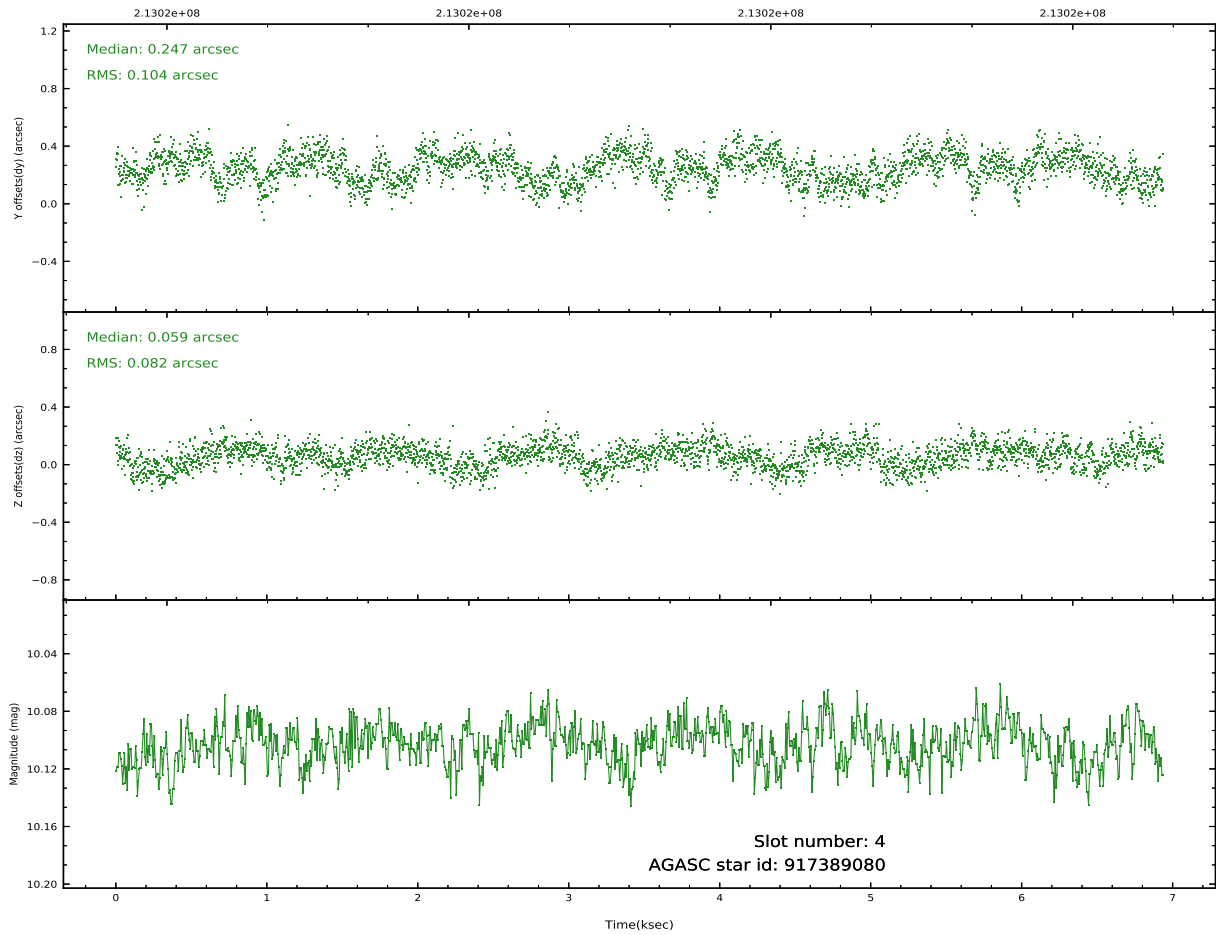
### 2.4.1 Slot 3



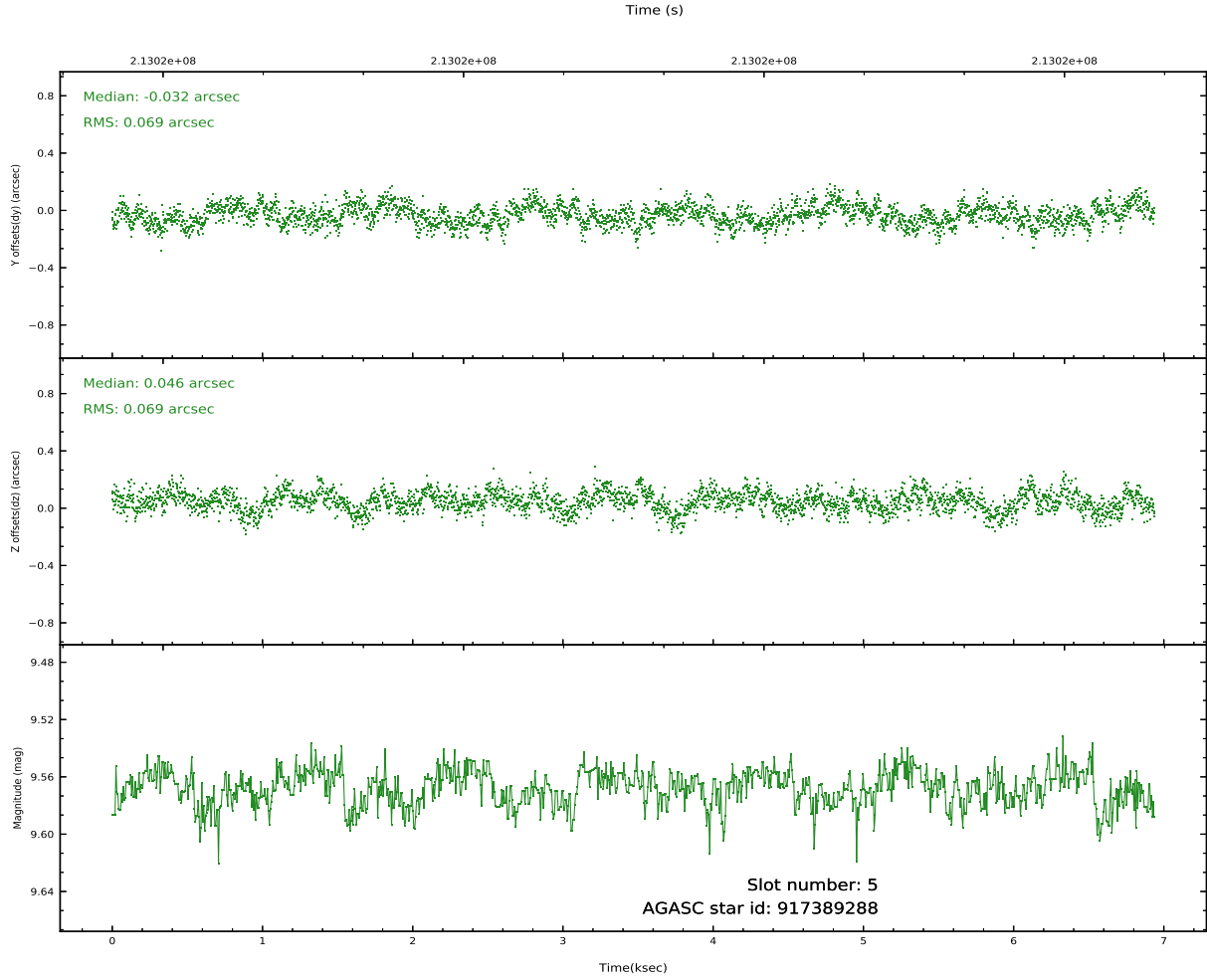
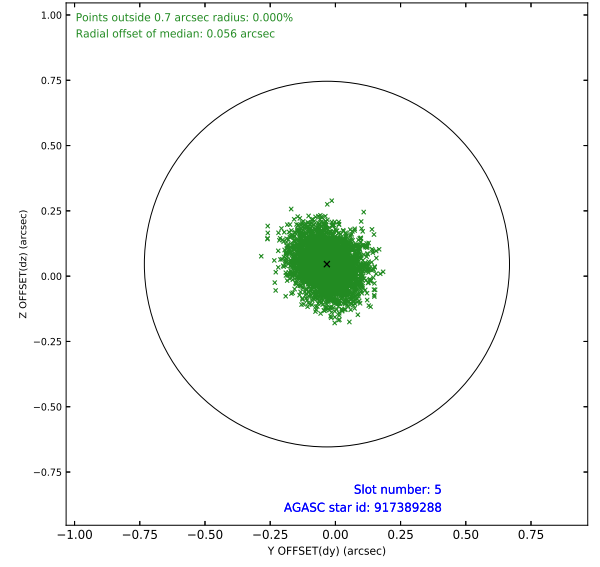
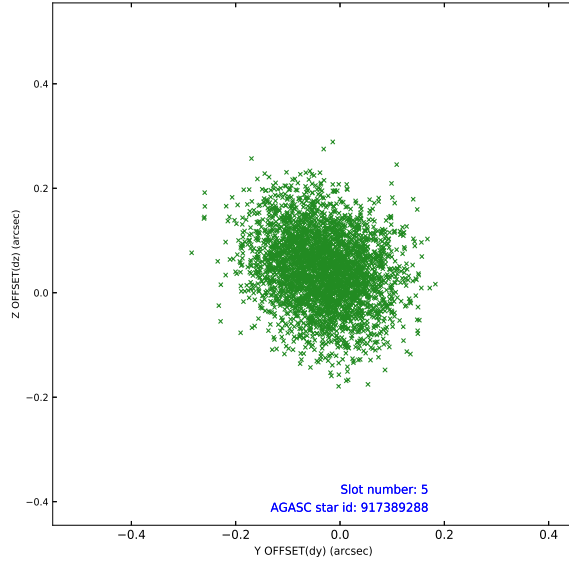
## 2.4.2 Slot 4



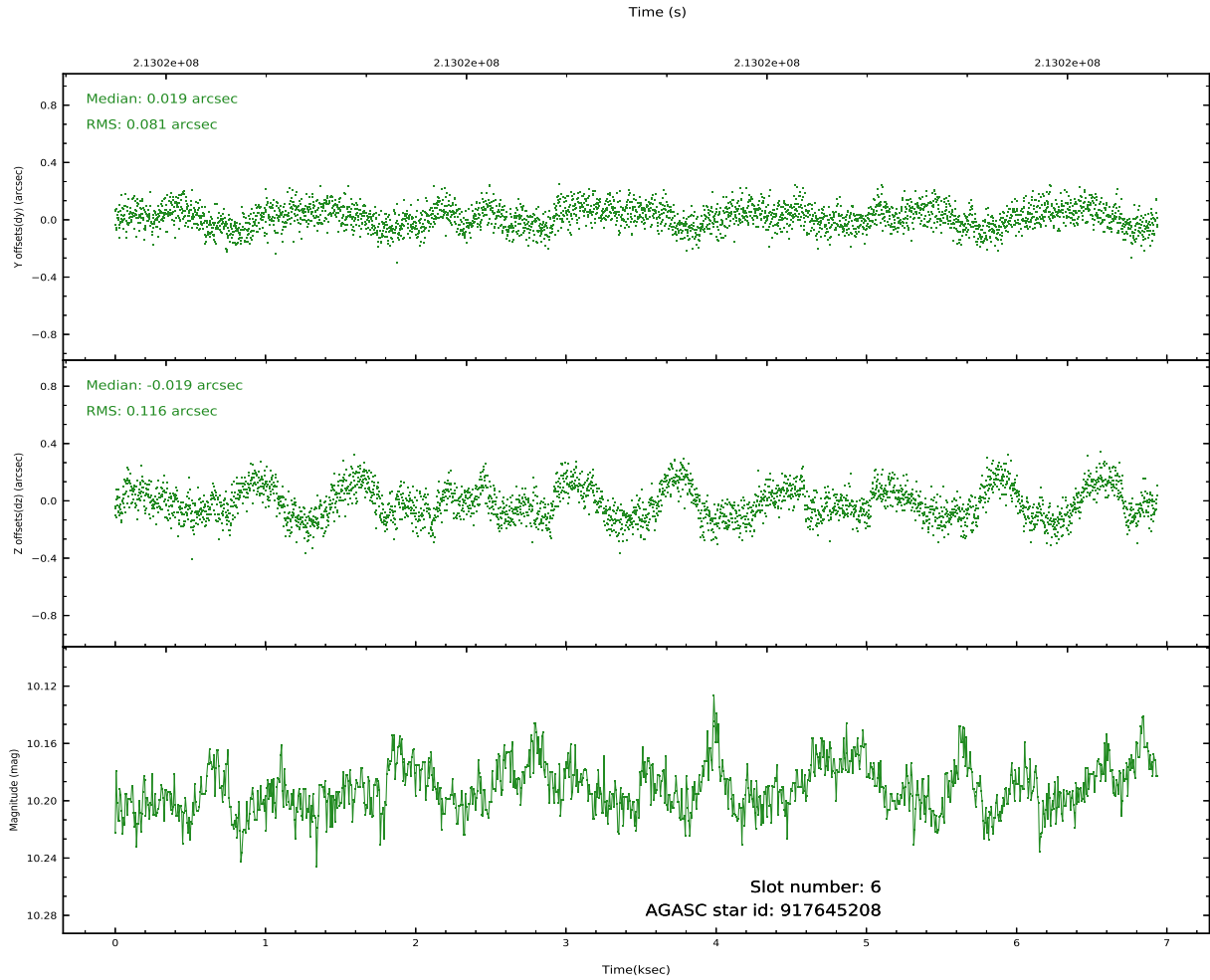
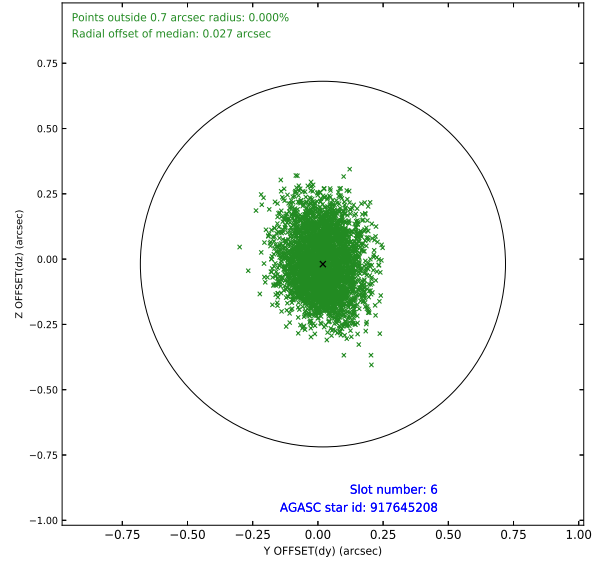
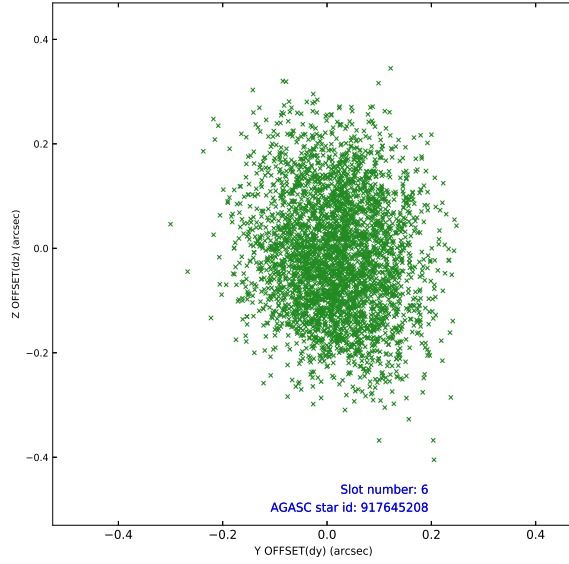
Time (s)



### 2.4.3 Slot 5

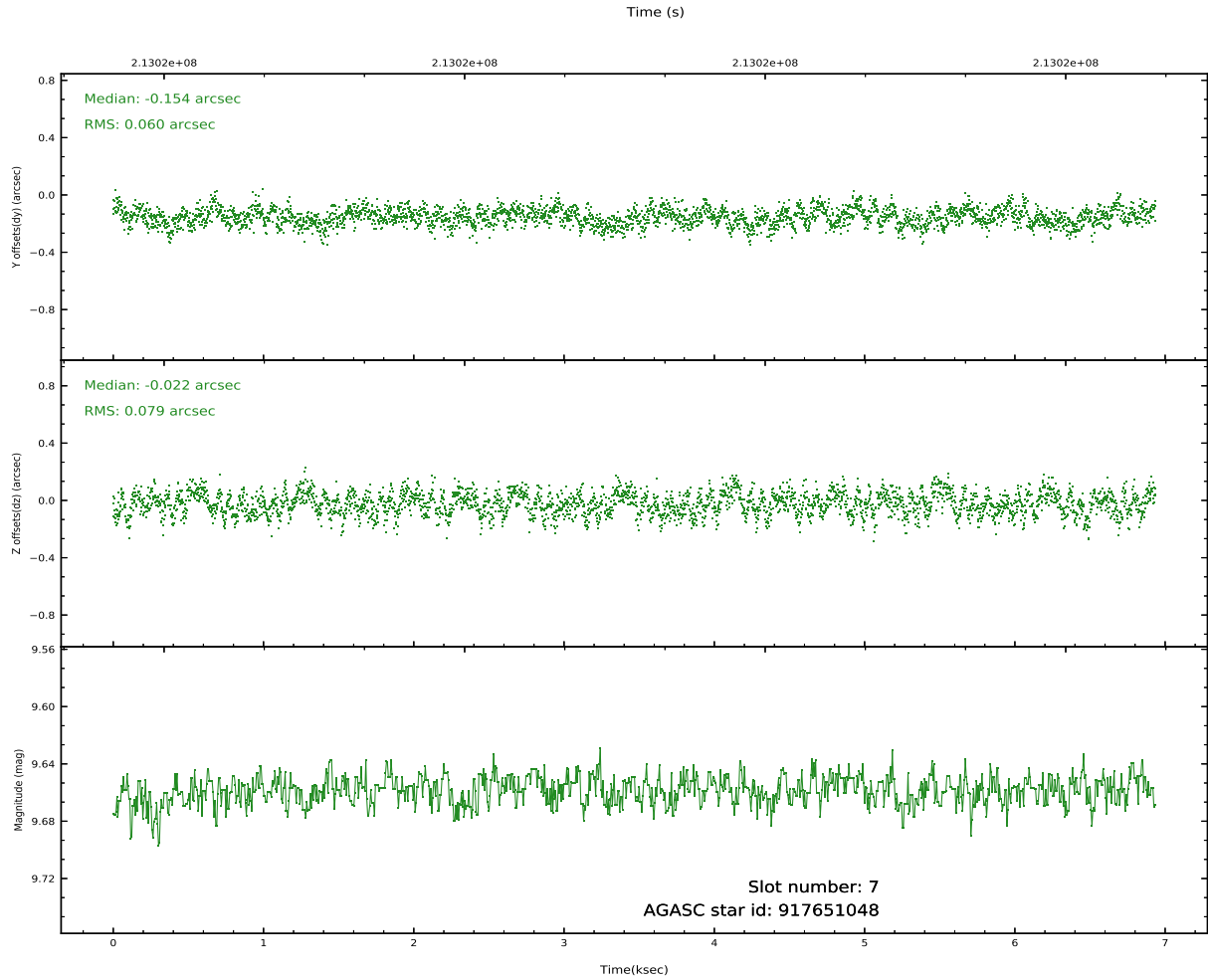
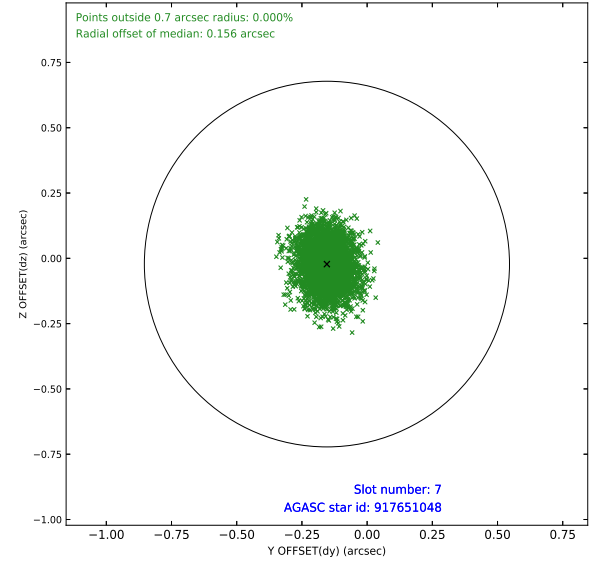
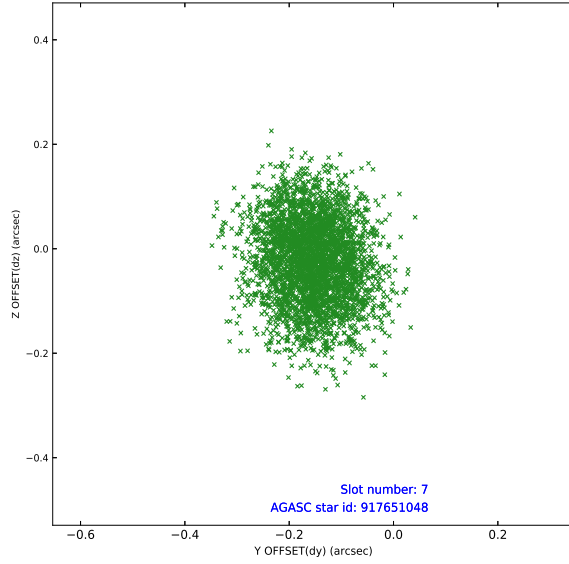


## 2.4.4 Slot 6



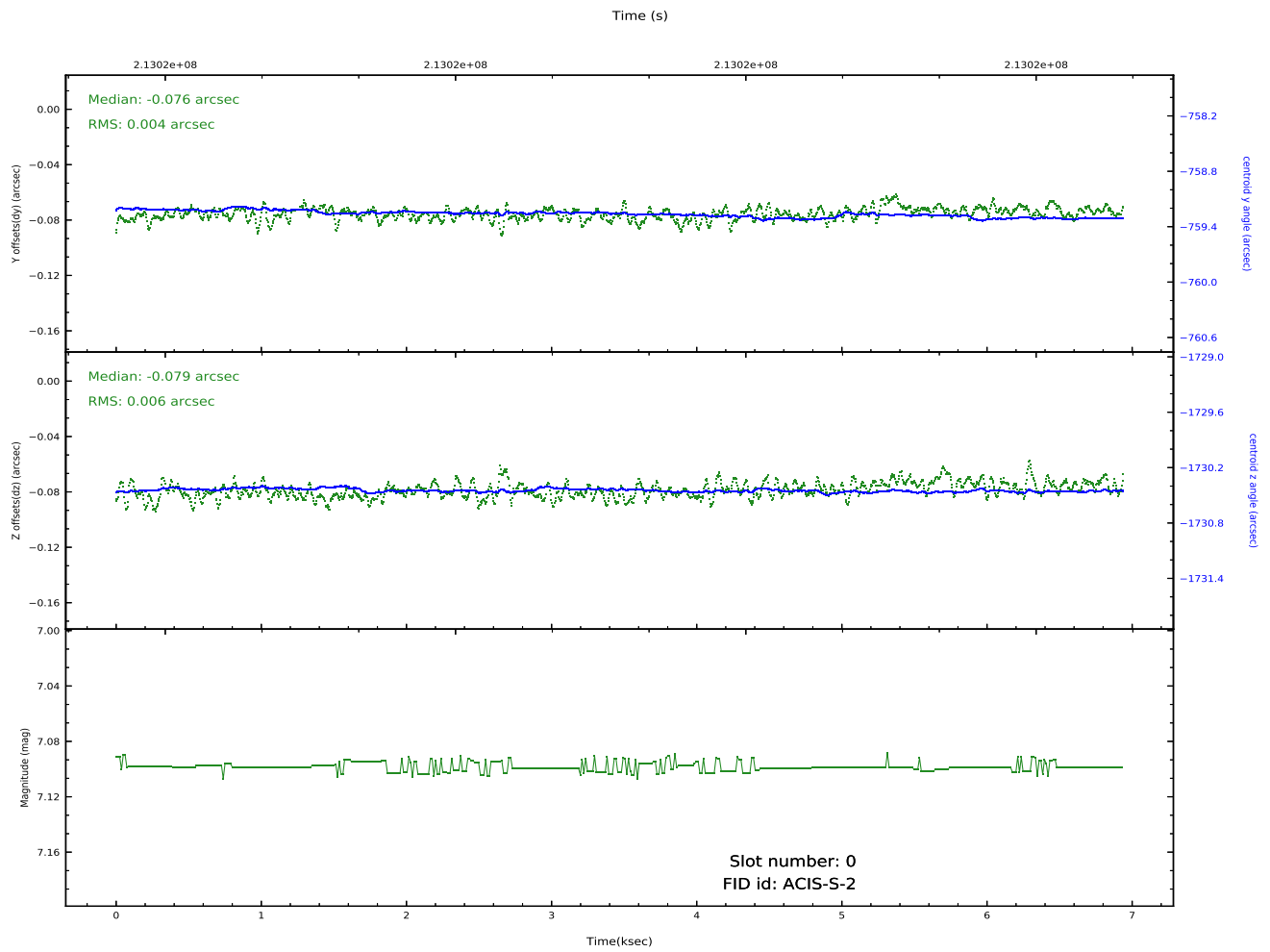
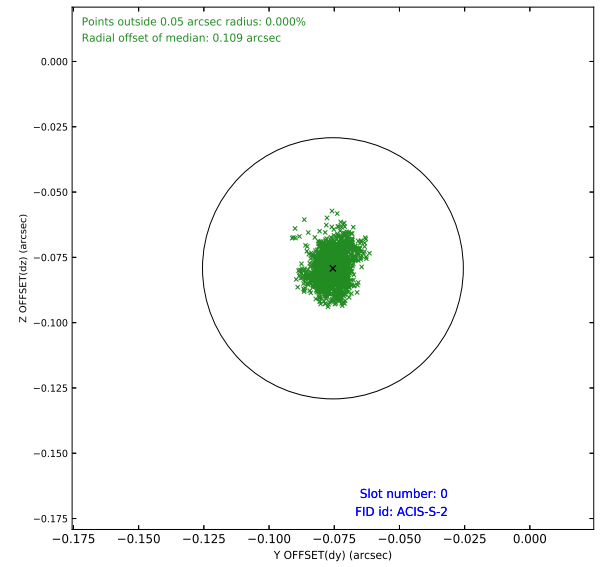
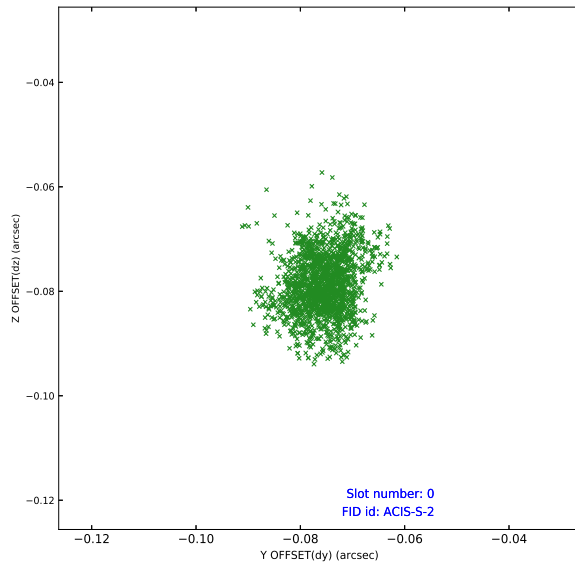


## 2.4.5 Slot 7

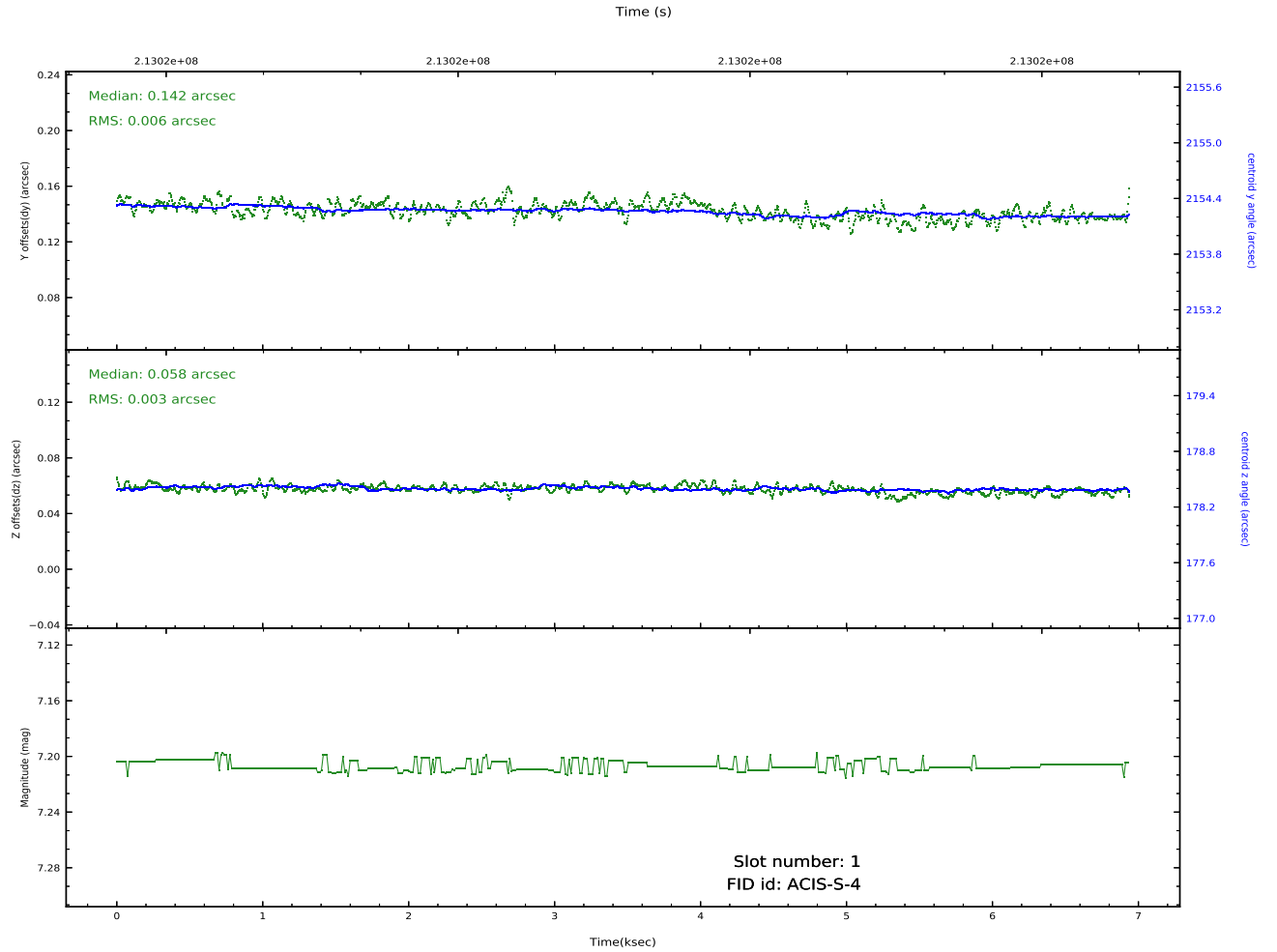
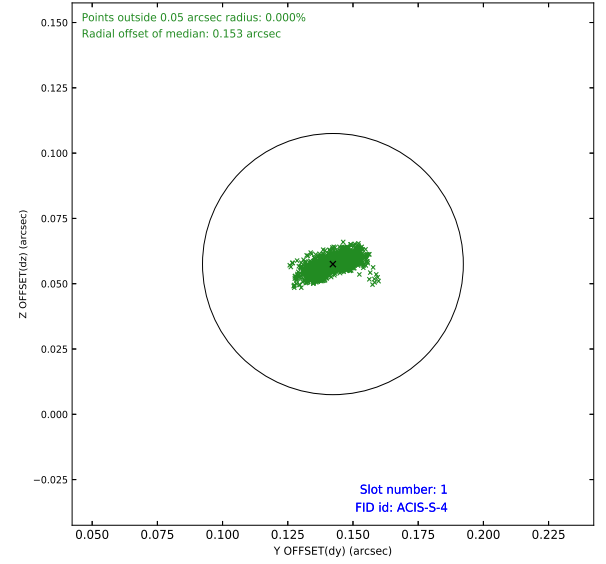
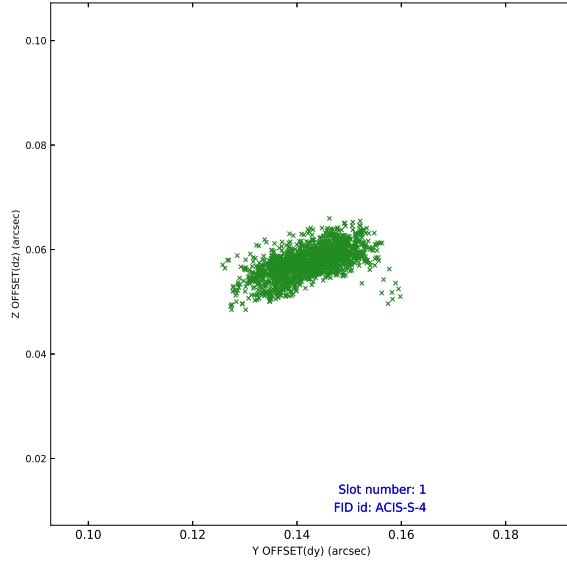


## 2.5 FID Slots

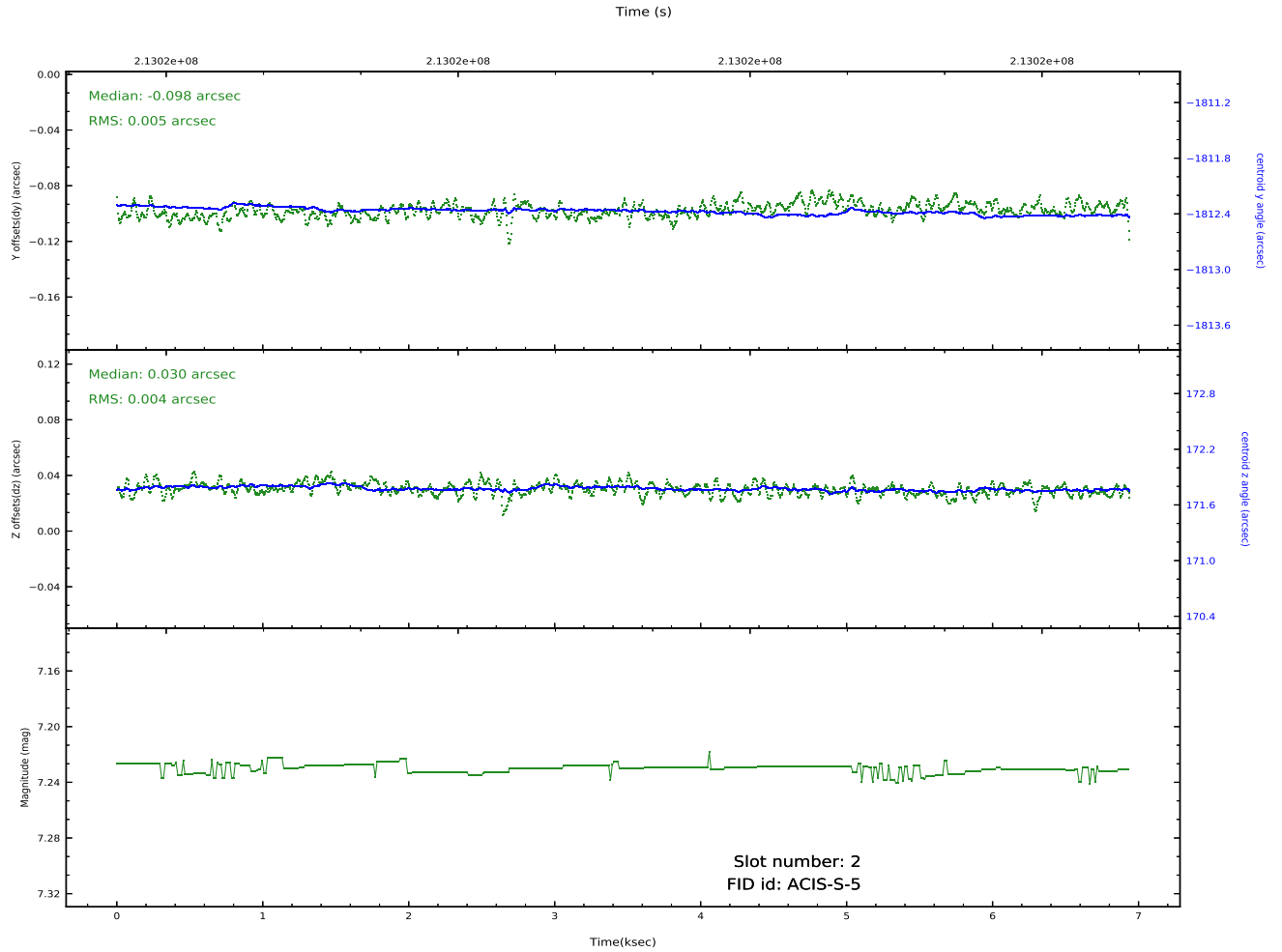
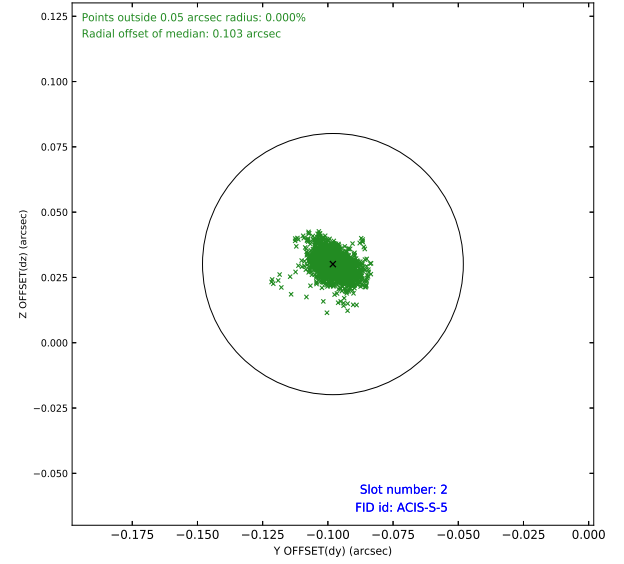
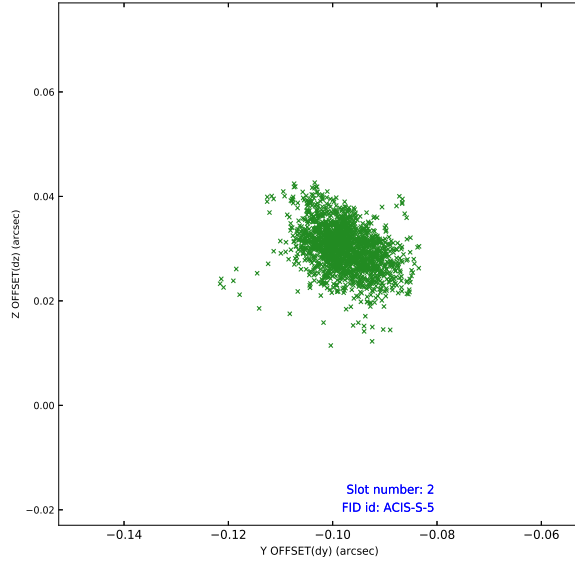
### 2.5.1 Slot 0



## 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)      | 2020.10.04    |
| V&V Edition                | 1             |
| V&V Disposition and Status | OK            |
| V&V Charge Time            | 5.958         |

## A.2 Comments

Joint proposal with NOAO.