

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 5743 - L2 Version 4  
Chandra X-Ray Center

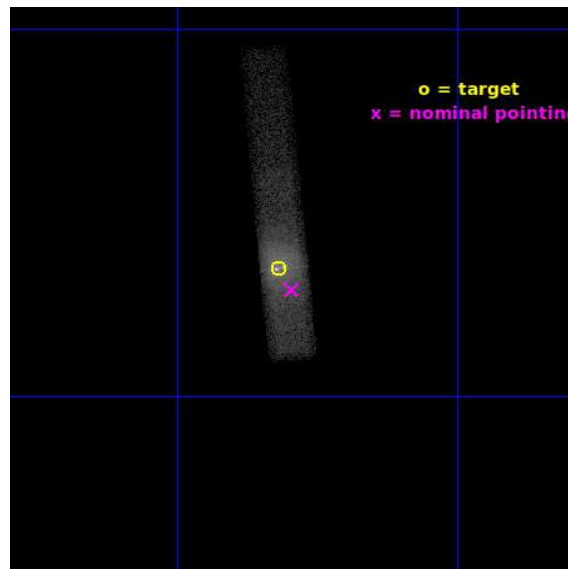
L2 Processing Date : Oct 9 2020

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# 1 Front

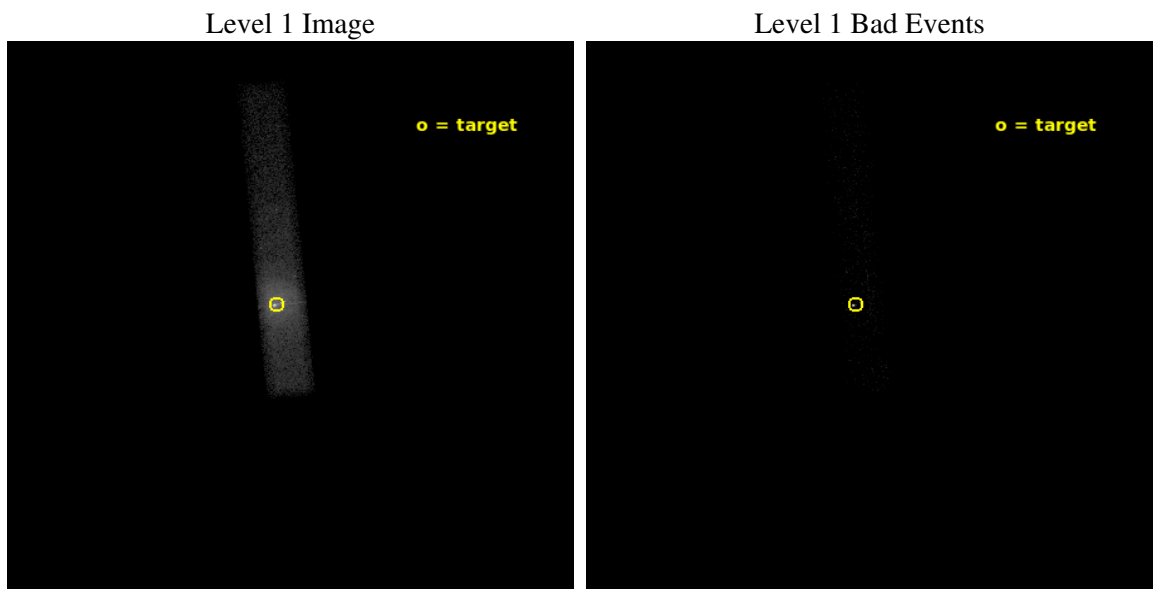
|          |  |   |
|----------|--|---|
| seq_num  | 701165   | Sequence number                             |
| obs_id   | 5743   | Observation id                              |
| title    | The X-ray Flares of Knot 'HST-1' in the M87 Jet (monitoring) | Pro   |
| observer | Dr. John Biretta   | Principal investigator                      |
| object   | M87  | Source name                                 |
| dtcycle  | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 187.704167   | Observer's specified target RA [deg]        |
| dec_targ | 12.391667  | Observer's specified target Dec [deg]       |
| ra_nom   | 187.69858524018  | Nominal RA [deg]                            |
| dec_nom  | 12.381762896833  | Nominal Dec [deg]                           |
| roll_nom | 264.65803981693  | Nominal Roll [deg]                          |
| revision | 4  | Processing version of data                  |
| ontime   | 5151.2000767291  | Sum of GTIs [s]                             |
| livetime | 4671.8665669591  | Livetime [s]                                |
| ontime7  | 5151.2000767291  | Sum of GTIs [s]                             |
| l2events | 58231  | Number of level 2 events                    |



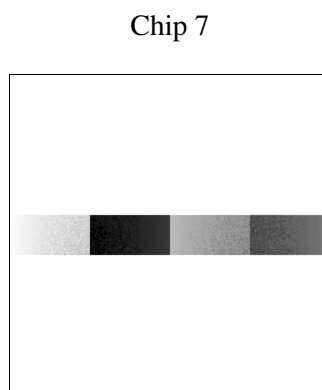
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 1                   | Obi number                     | sched_exp_time | 5000.000000     | [s] Scheduled observation exposure time |
| ascdsver | 10.9.1              | Processing system revision     | ontime         | 5151.2000767291 | Sum of GTIs [s]                         |
| caldbver | 4.9.2               | &#160                          | ontime7        | 5151.2000767291 | Sum of GTIs [s]                         |
| date     | 2020-10-09T18:03:26 | Date and time of file creation | l1events       | 72058           | Number of level 1 events                |
| revision | 4                   | Processing version of data     |                |                 |   |

### 2.1.4 Events

|                 |              |
|-----------------|--------------|
|                 | <b>ccd 7</b> |
| level 1 events  | 72058        |
| rejected events | 13212        |
| rejected %      | 18%          |

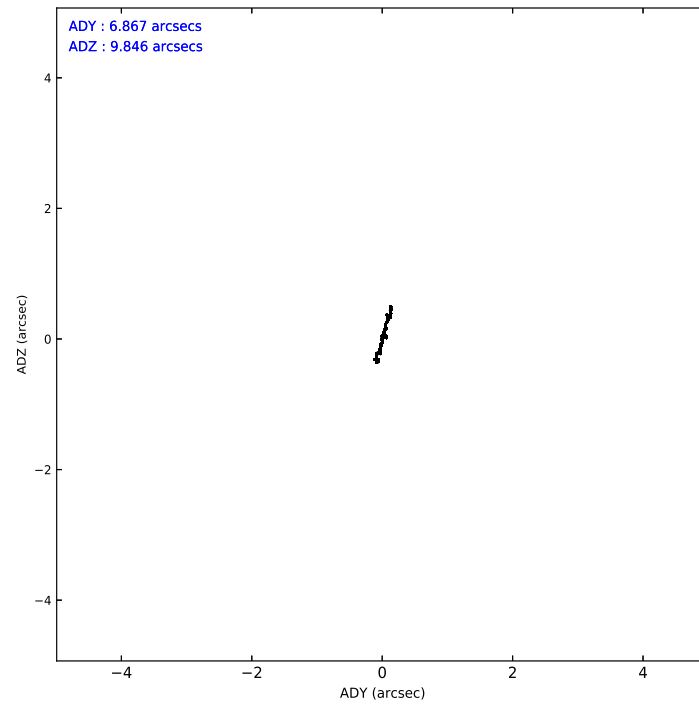
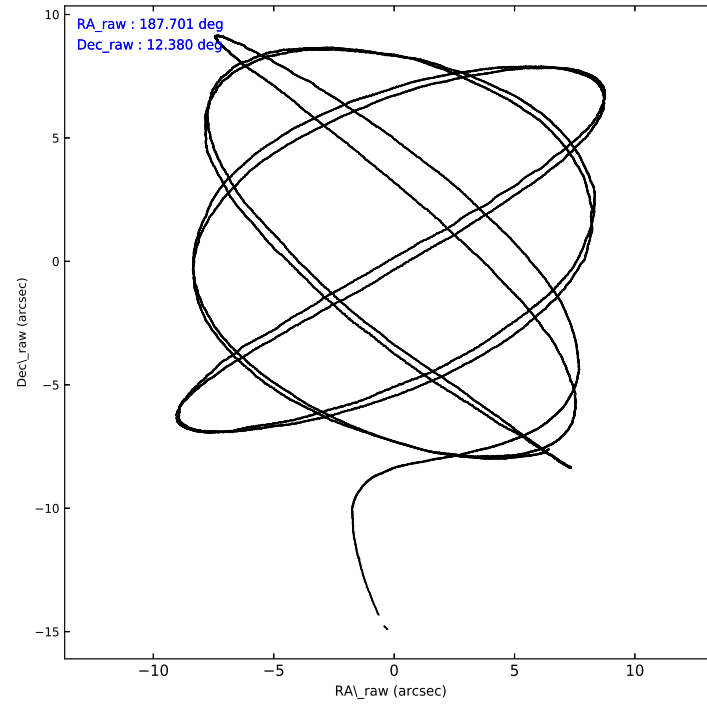
|                |              |
|----------------|--------------|
|                | <b>ccd 7</b> |
| grade 0 events | 18243        |
|                | 25%          |
| grade 1 events | 464          |
|                | 0%           |
| grade 2 events | 15240        |
|                | 21%          |
| grade 3 events | 7019         |
|                | 9%           |
| grade 4 events | 6786         |
|                | 9%           |
| grade 5 events | 2843         |
|                | 3%           |
| grade 6 events | 13908        |
|                | 19%          |
| grade 7 events | 7555         |
|                | 10%          |

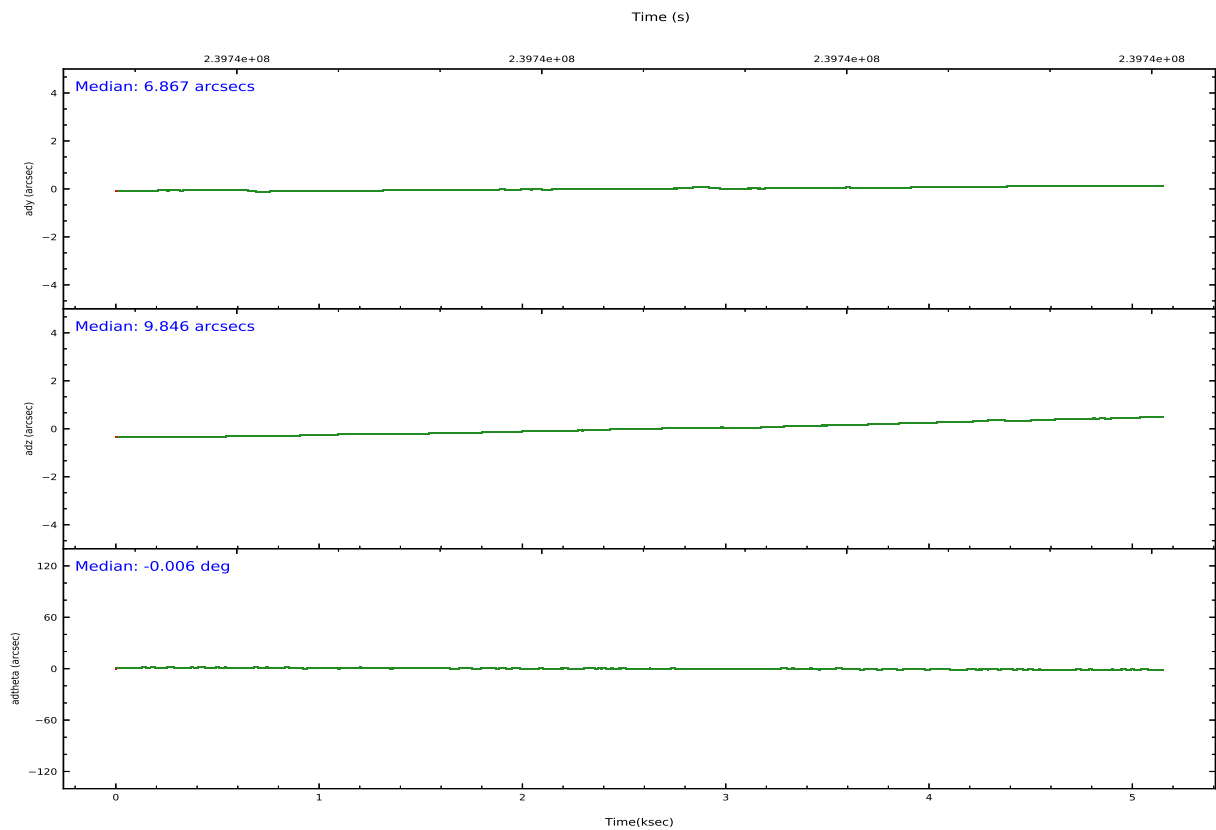
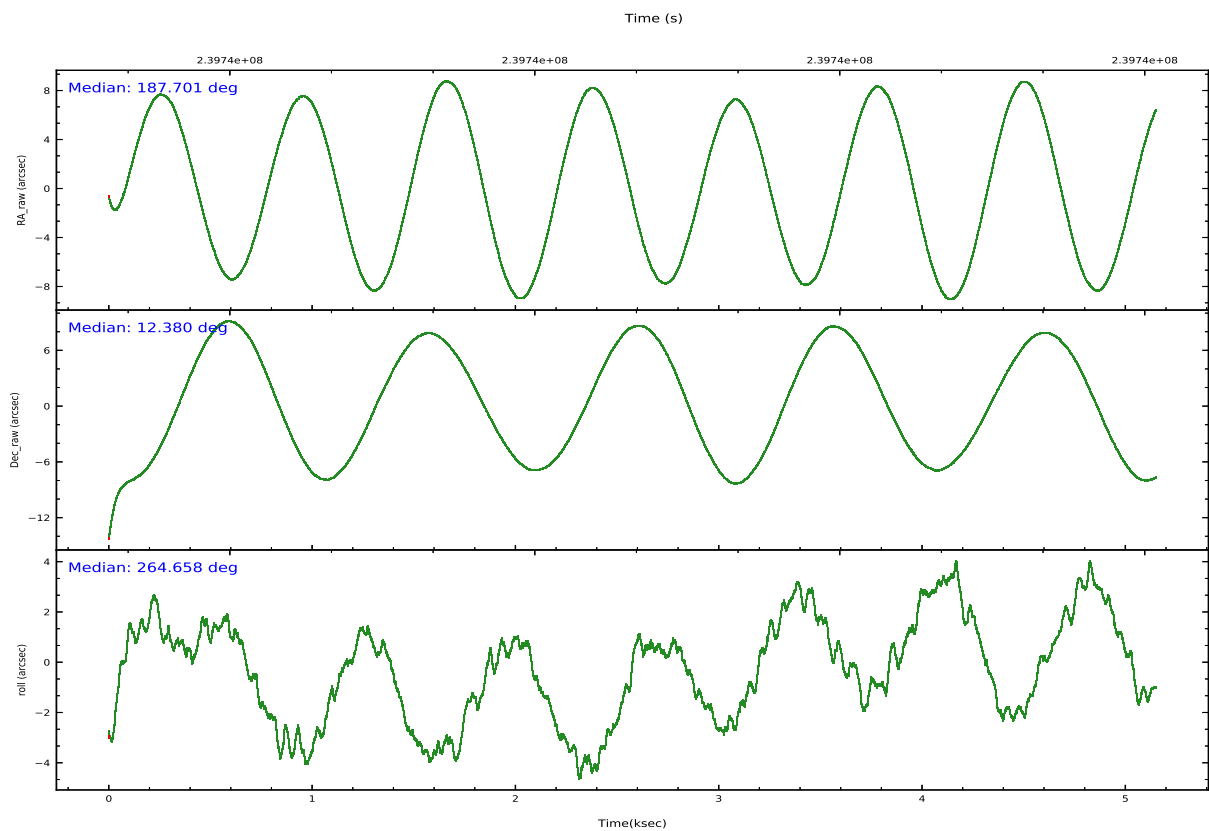


## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-7              | ACIS-7               | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | FAINT               | FAINT                | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 187.689279          | 187.69858524018      | Subarray requested                    | CUSTOM    | 1/8     |
| [deg] Pointing Dec                | 12.404121           | 12.381762896833      | Subarray start row                    | 449       | 449     |
| [deg] Pointing Roll               | 264.503195          | 264.65803981693      | Subarray row count                    | 128       | 128     |
| [s] Window start time (MET)       | 239241664.184000    | 239241664.184000     | Alternating exposures requested       | N         | N       |
| [s] Window stop time (MET)        | 239846464.184000    | 239846464.184000     | [s] Primary exposure time             | 0.000000  | 0.4     |
| [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)  | 239738057.184000    | 239736808.91722      |                                       |           |         |
| Observation start date            | 2005-08-06T17:53:13 | 2005-08-06T17:33:28  |                                       |           |         |
| [s] Observation end time (MET)    | 239743057.184000    | 239744578.93007      |                                       |           |         |
| Observation end date              | 2005-08-06T19:16:33 | 2005-08-06T19:42:58  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



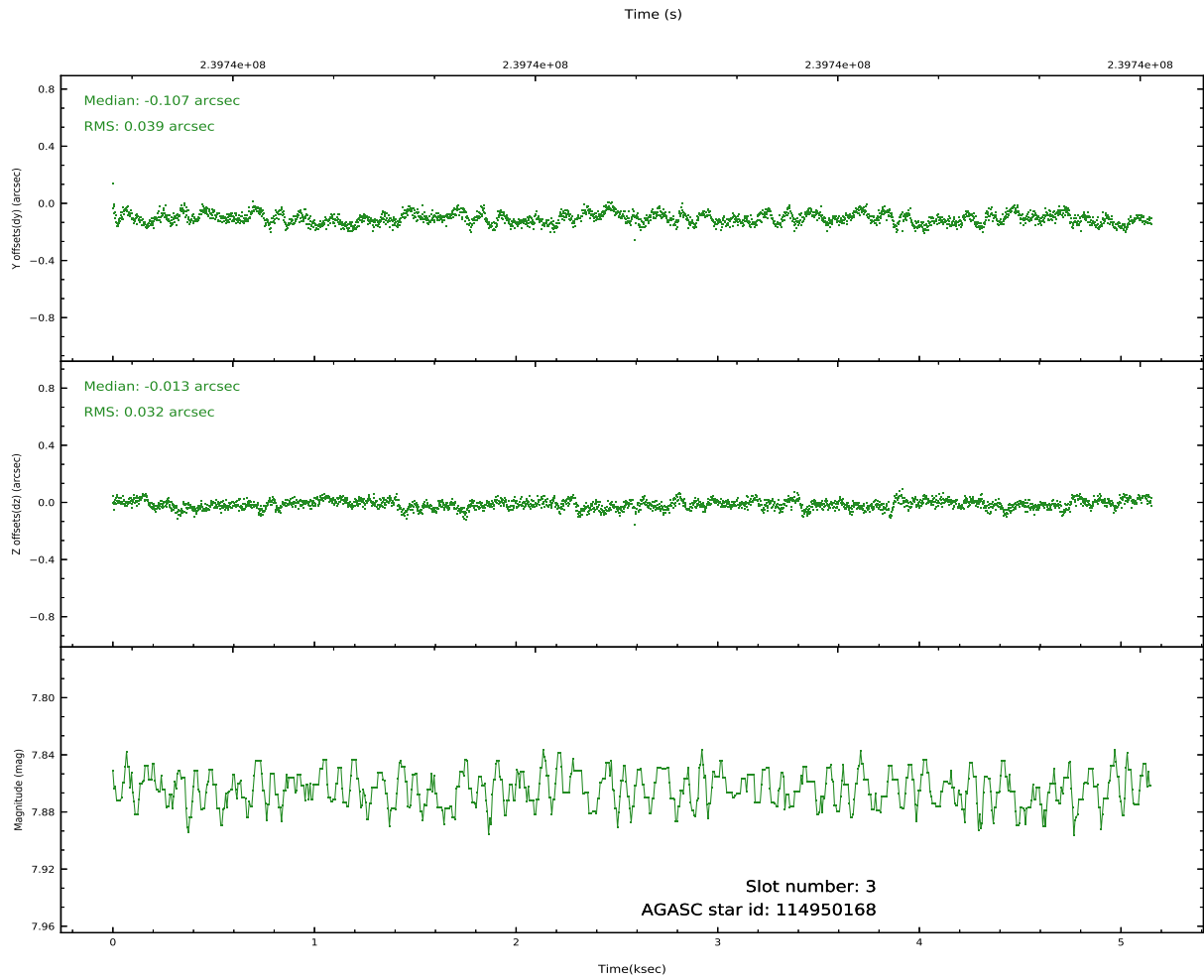
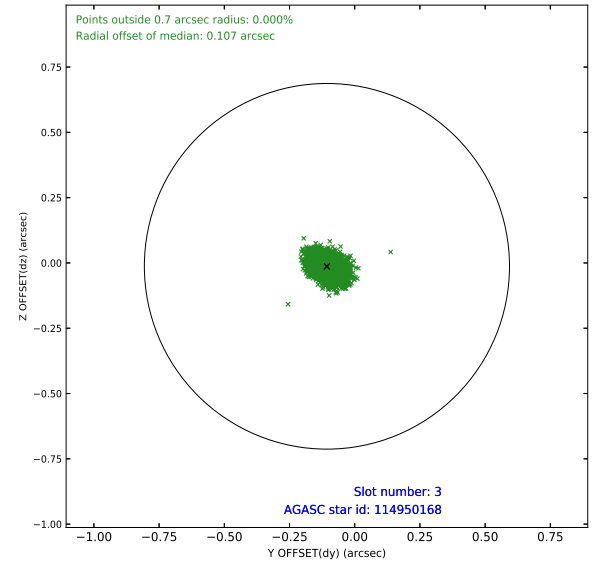
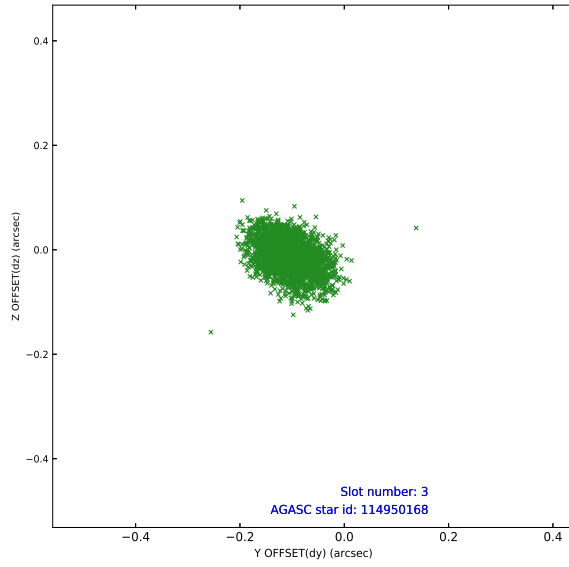


Slot Statistics

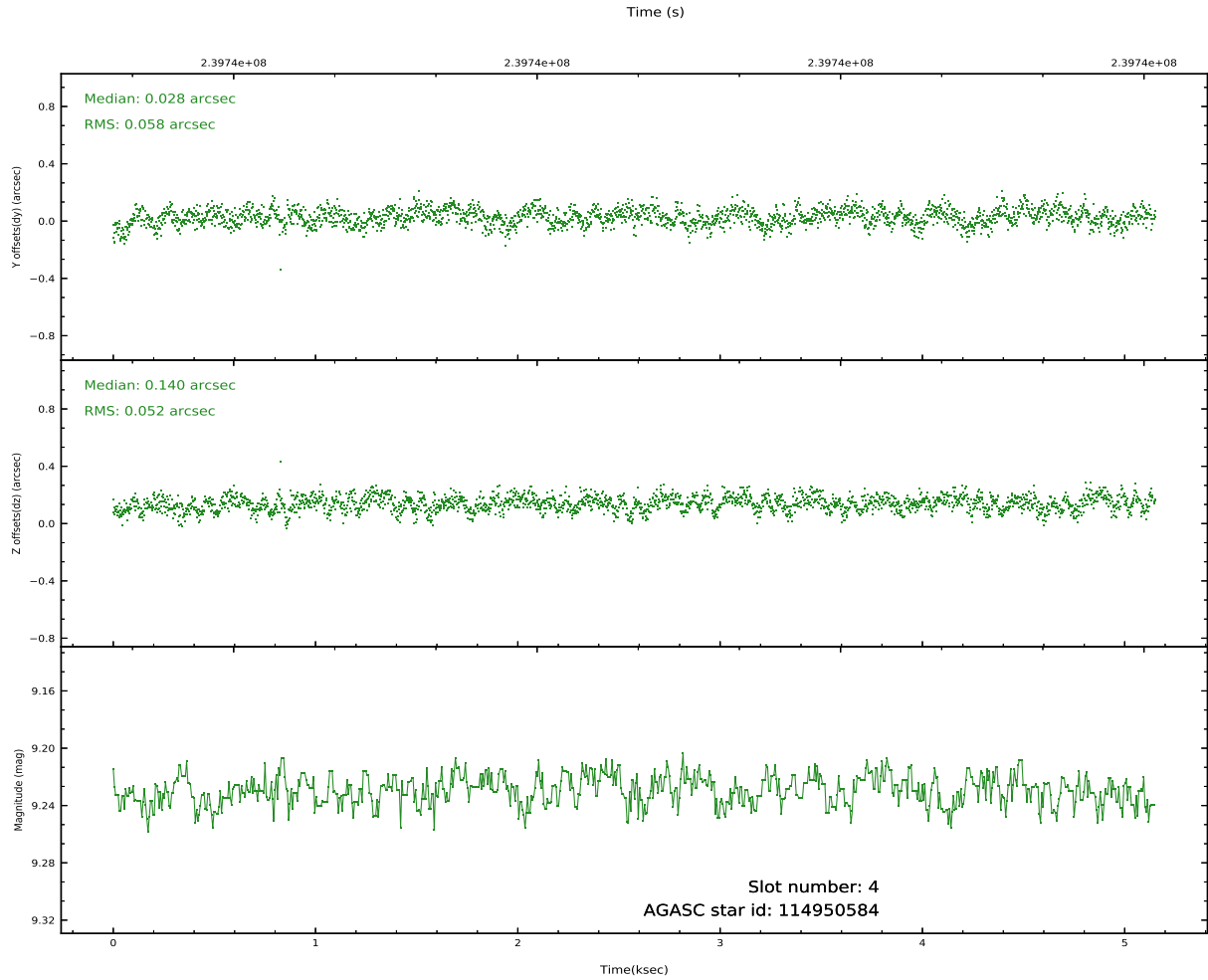
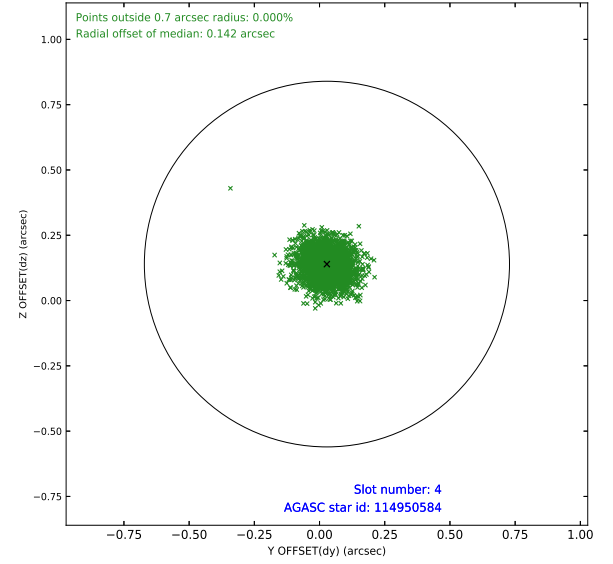
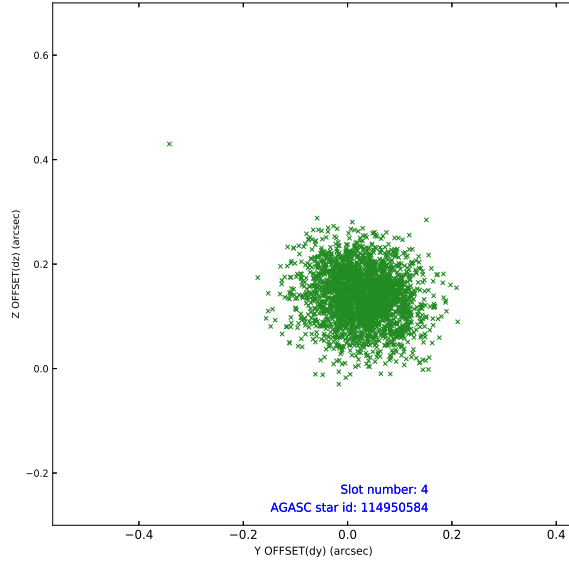
| pt | status | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mea   |
|----|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|-----------|----------|-------|
| 0  | FID    |      | ACIS-S-2  | 7.10 | 1257  | 1.000    | -0.088 | -0.073 | 0.008 | 0.013 | 0.000000   | 0.000000  | -759.65  | -1731 |
| 1  | FID    |      | ACIS-S-4  | 7.21 | 1257  | 1.000    | 0.165  | 0.062  | 0.005 | 0.010 | 0.000000   | 0.000000  | 2153.28  | 176   |
| 2  | FID    |      | ACIS-S-5  | 7.23 | 1257  | 1.000    | -0.108 | 0.020  | 0.008 | 0.014 | 0.000000   | 0.000000  | -1811.07 | 171   |
| 3  | GUIDE  | used | 114950168 | 7.86 | 2514  | 1.000    | -0.107 | -0.013 | 0.053 | 0.087 | 187.143398 | 12.117441 | 1209.74  | -1813 |
| 4  | GUIDE  | used | 114950584 | 9.23 | 2510  | 1.000    | 0.028  | 0.140  | 0.083 | 0.136 | 187.487323 | 11.827248 | 2135.85  | -509  |
| 5  | GUIDE  | used | 114952824 | 8.56 | 2514  | 1.000    | -0.018 | -0.140 | 0.069 | 0.113 | 187.703904 | 12.486727 | -299.92  | 22    |
| 6  | GUIDE  | used | 114955056 | 8.34 | 2513  | 1.000    | 0.056  | 0.148  | 0.054 | 0.087 | 187.914001 | 12.127854 | 913.92   | 882   |
| 7  | GUIDE  | used | 114955568 | 7.54 | 2513  | 1.000    | 0.041  | -0.137 | 0.079 | 0.125 | 187.061916 | 11.826551 | 2279.71  | -2001 |

## 2.4 Star Slots

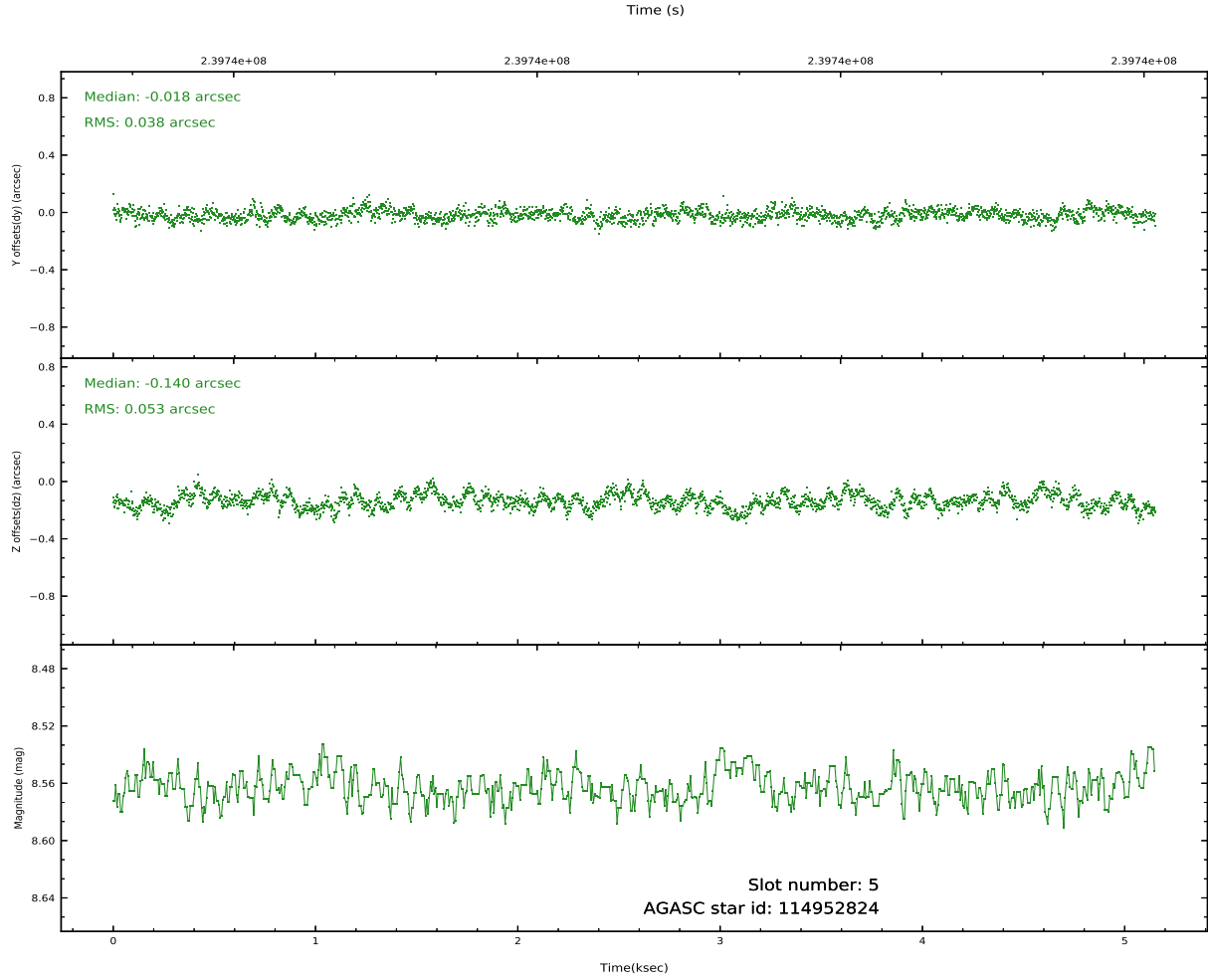
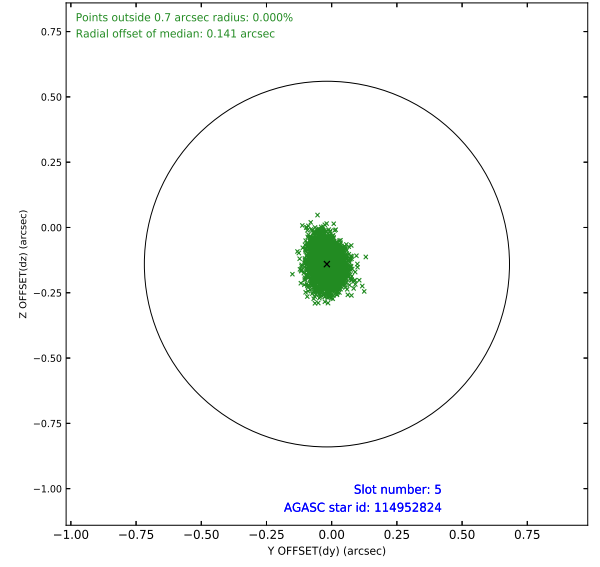
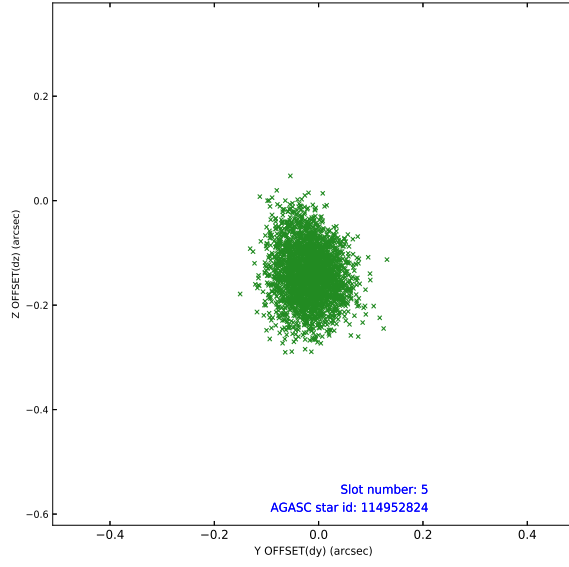
### 2.4.1 Slot 3



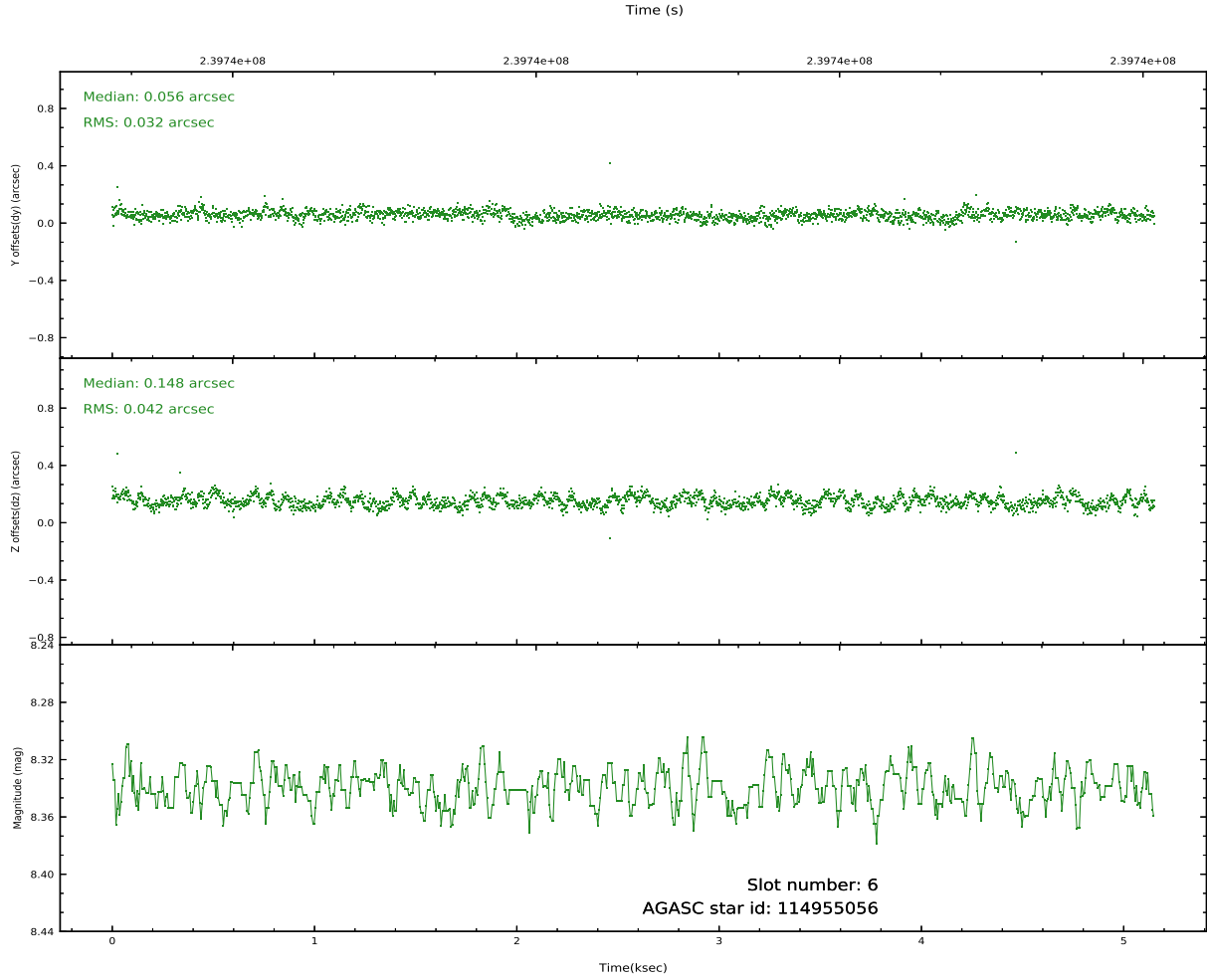
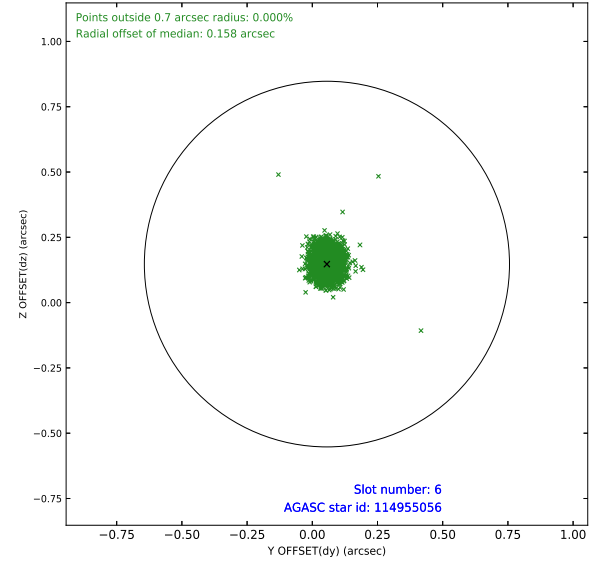
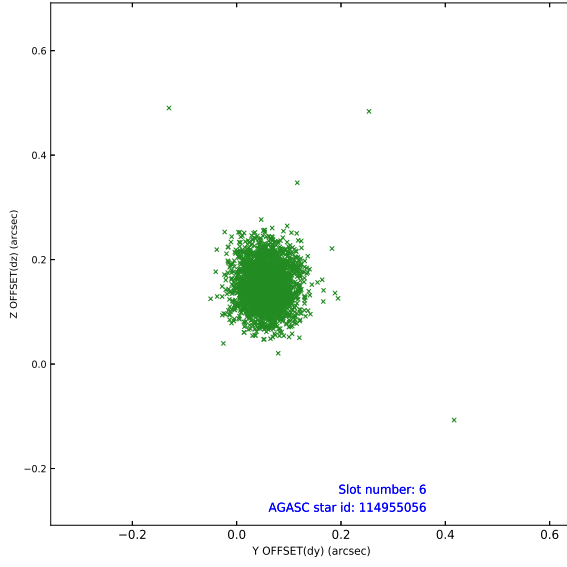
## 2.4.2 Slot 4



### 2.4.3 Slot 5

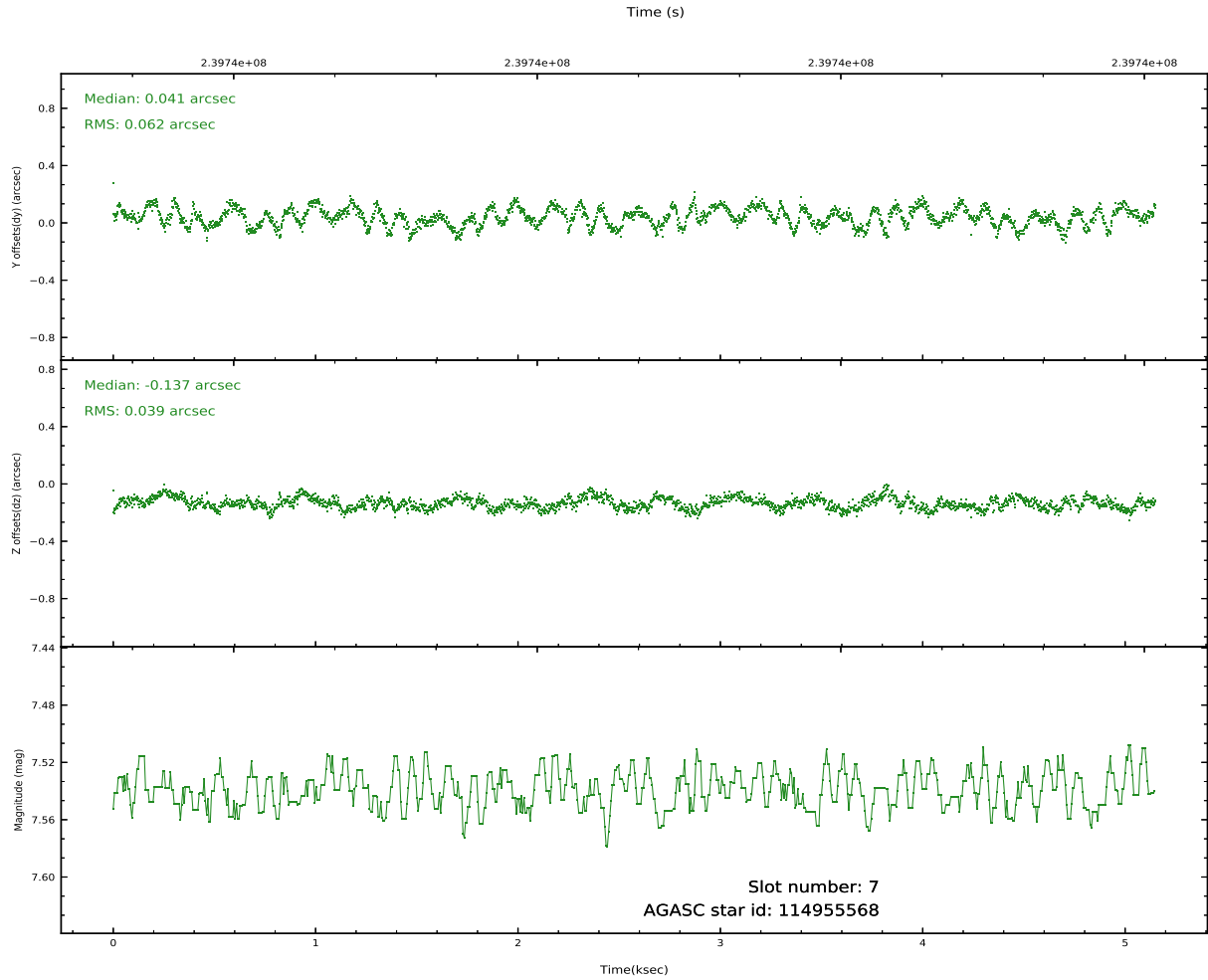
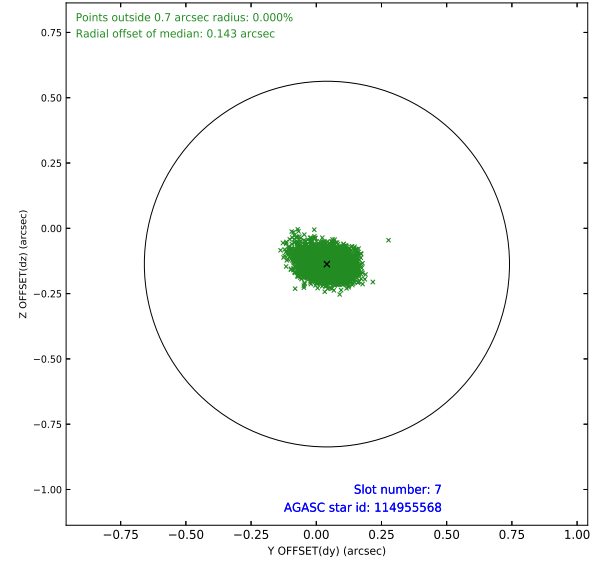
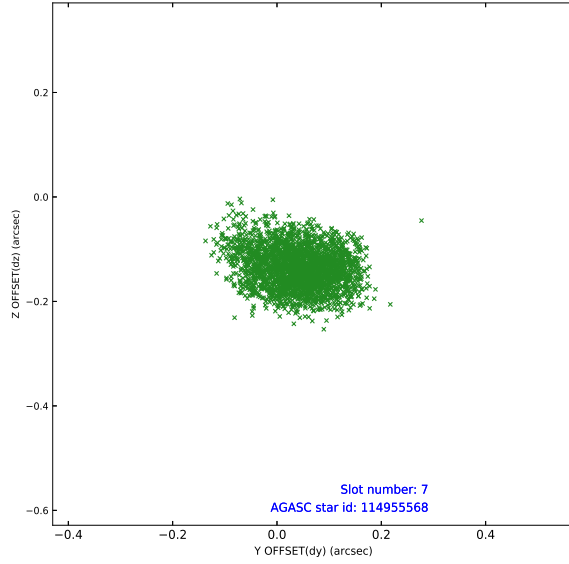


## 2.4.4 Slot 6



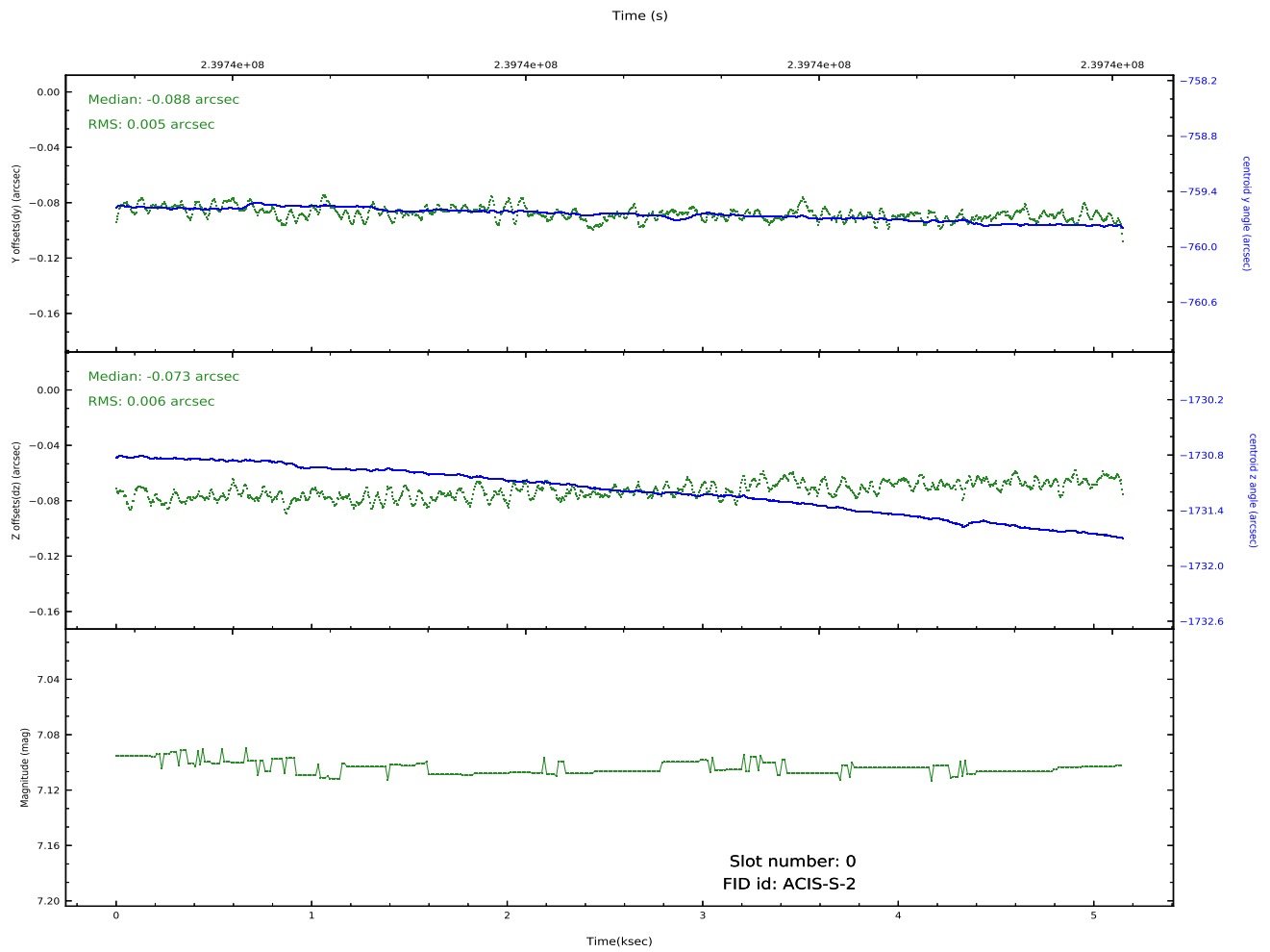
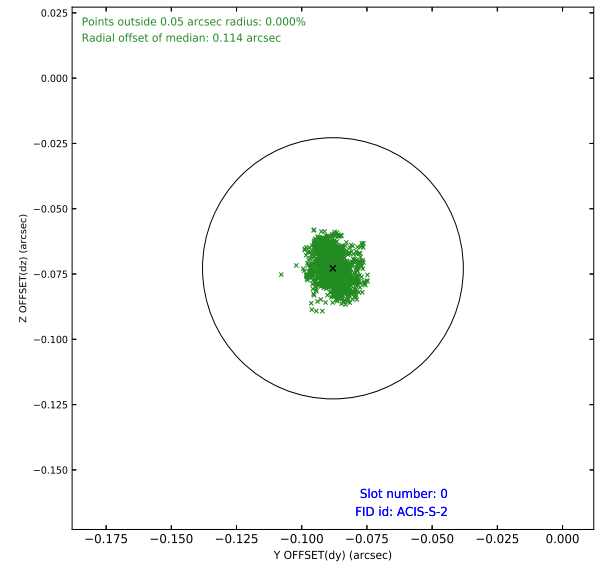
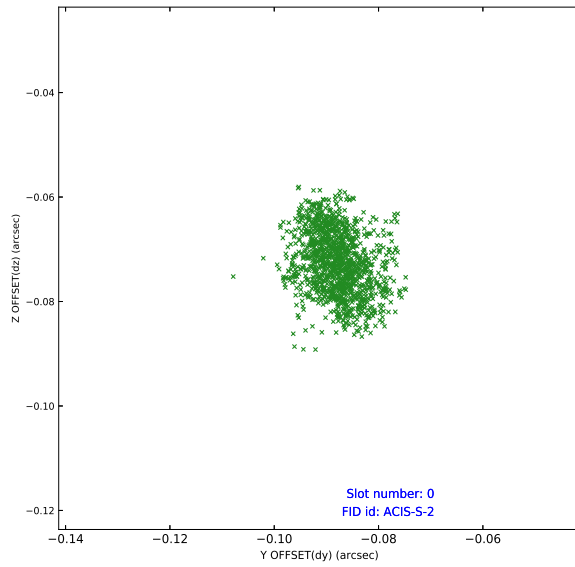


## 2.4.5 Slot 7

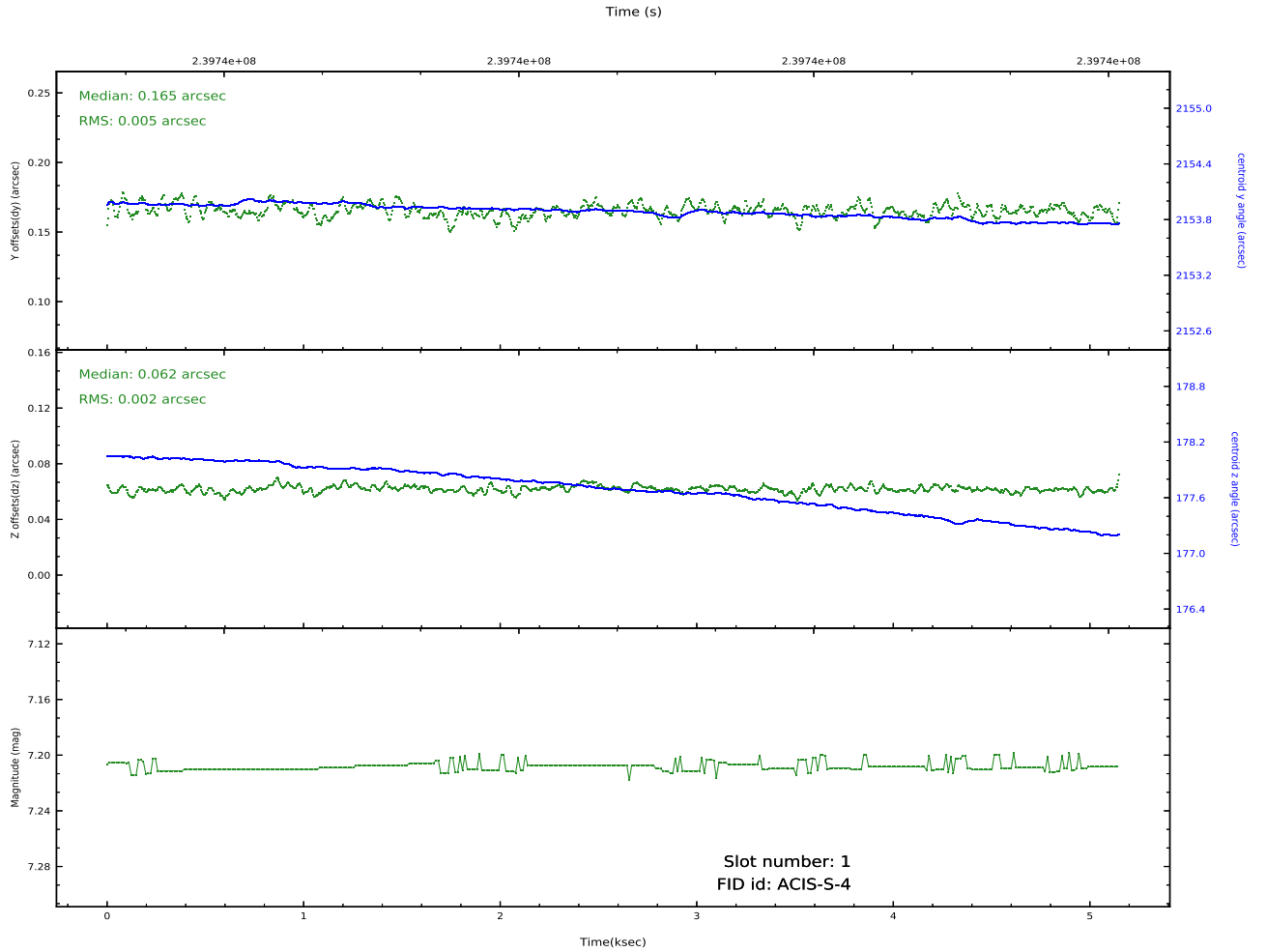
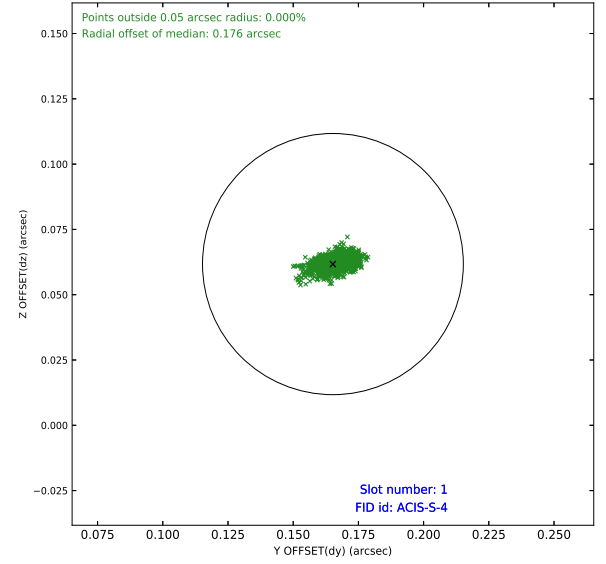
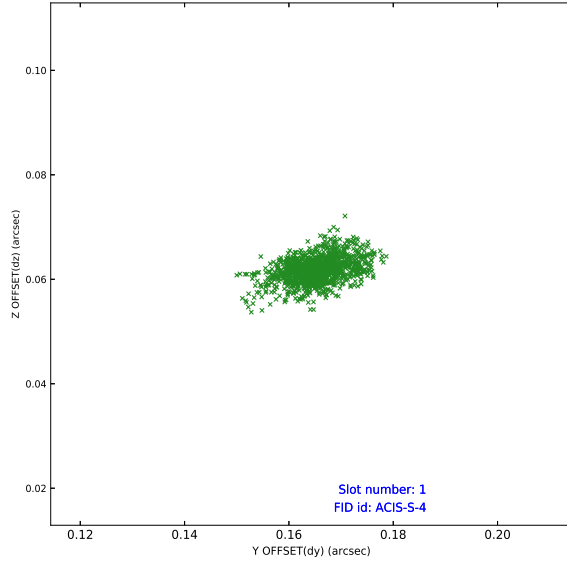


## 2.5 FID Slots

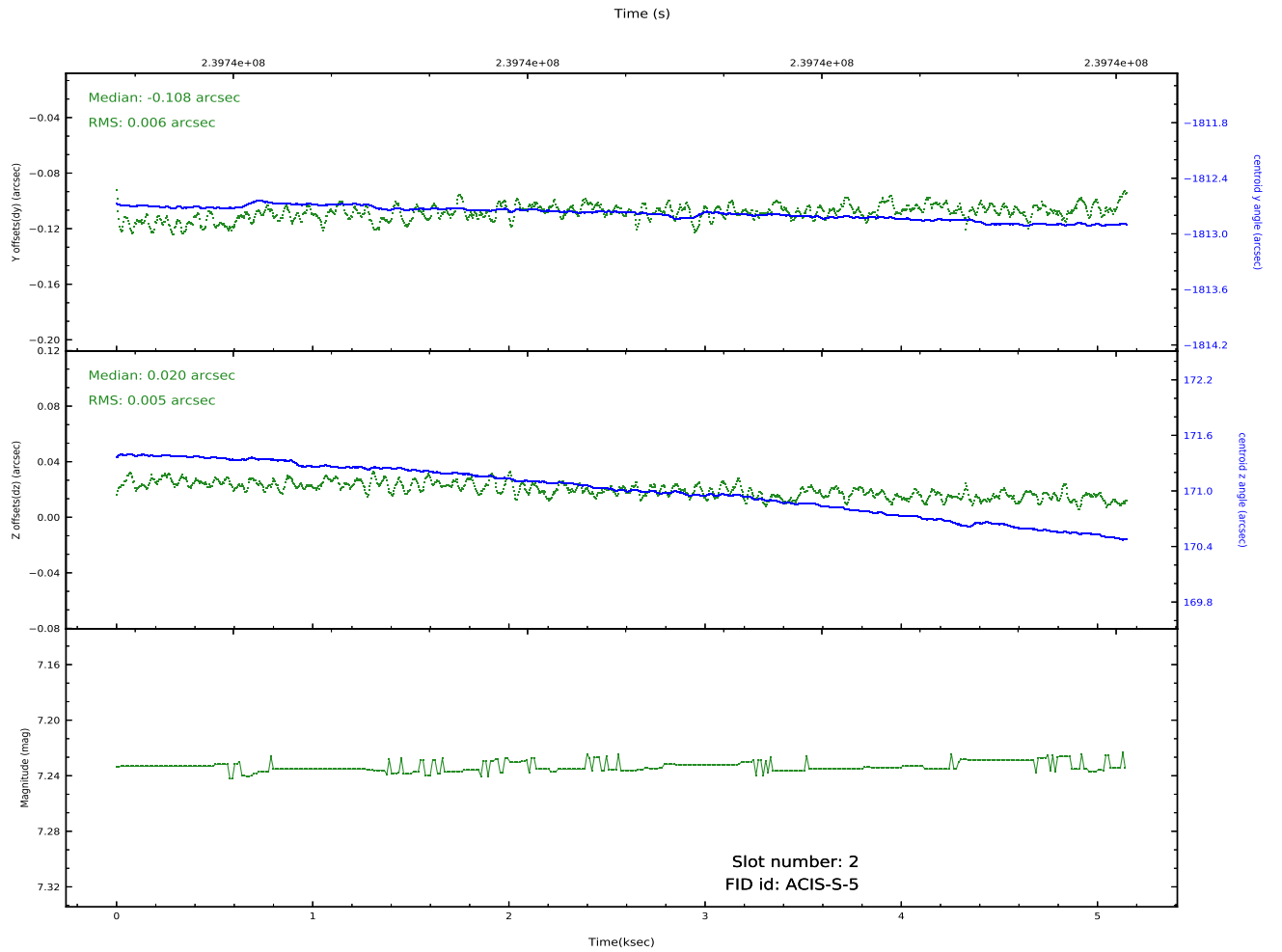
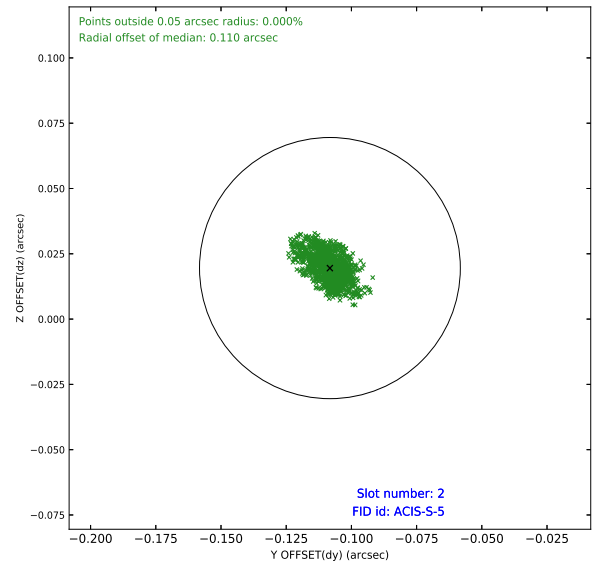
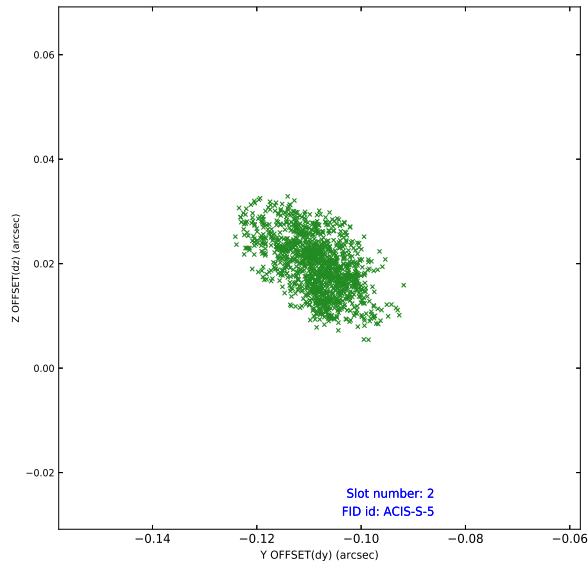
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



# A Summary

## A.1 Status

|                            |               |
|----------------------------|---------------|
| V&V Scientist              | Beth Sundheim |
| V&V Date (YYYY-MM-DD)      | 2020.10.13    |
| V&V Edition                | 1             |
| V&V Disposition and Status | OK            |
| V&V Charge Time            | 5.15120007    |

## A.2 Comments

Joint proposal with HST.

Window constraint met.