

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 20386 - L2 Version 2  
Chandra X-Ray Center

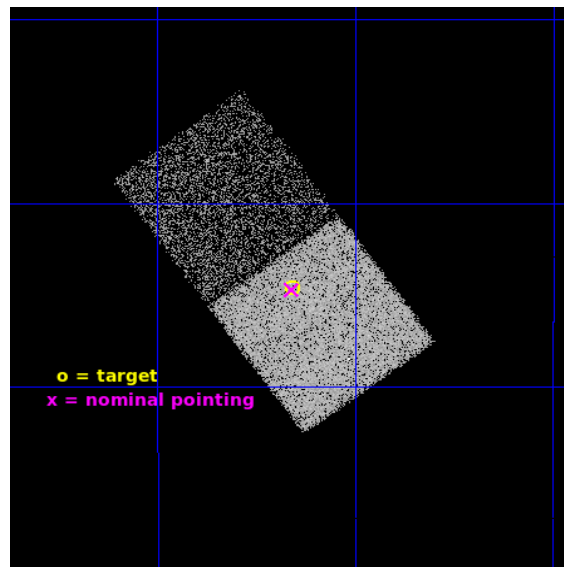
L2 Processing Date : Oct 26 2020

## Contents

|          |                               |           |
|----------|-------------------------------|-----------|
| <b>1</b> | <b>Front</b>                  | <b>2</b>  |
| <b>2</b> | <b>OBI</b>                    | <b>3</b>  |
| 2.1      | OBI . . . . .                 | 3         |
| 2.1.1    | Images . . . . .              | 3         |
| 2.1.2    | Bias . . . . .                | 3         |
| 2.1.3    | Parameters . . . . .          | 4         |
| 2.1.4    | Events . . . . .              | 4         |
| 2.2      | Compared Parameters . . . . . | 5         |
| 2.3      | Aspect . . . . .              | 6         |
| 2.4      | Star Slots . . . . .          | 9         |
| 2.4.1    | Slot 3 . . . . .              | 9         |
| 2.4.2    | Slot 4 . . . . .              | 10        |
| 2.4.3    | Slot 5 . . . . .              | 11        |
| 2.4.4    | Slot 6 . . . . .              | 12        |
| 2.4.5    | Slot 7 . . . . .              | 13        |
| 2.5      | FID Slots . . . . .           | 14        |
| 2.5.1    | Slot 0 . . . . .              | 14        |
| 2.5.2    | Slot 1 . . . . .              | 15        |
| 2.5.3    | Slot 2 . . . . .              | 16        |
| <b>A</b> | <b>Summary</b>                | <b>17</b> |
| A.1      | Status . . . . .              | 17        |
| A.2      | Comments . . . . .            | 17        |

# 1 Front

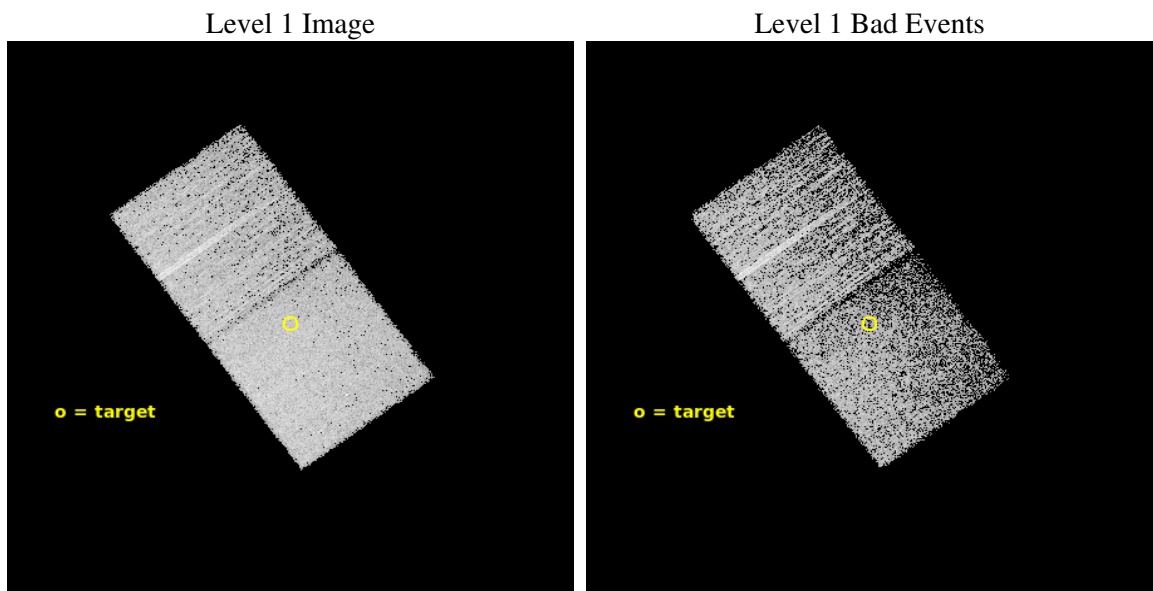
|          |                                                                                        |                                             |
|----------|----------------------------------------------------------------------------------------|---------------------------------------------|
| seq_num  | 703491                                                                                 | Sequence number                             |
| obs_id   | 20386                                                                                  | Observation id                              |
| title    | HEAVILY REDDENED, LUMINOUS TYPE 1 QSOs: A TRANSITION POPULATION EMERGING FROM THE DUST | Proposal title                              |
| observer | Enrico Piconcelli                                                                      | Principal investigator                      |
| object   | VHSJ2212-4624                                                                          | Source name                                 |
| dtcycle  | 0                                                                                      | &#160                                       |
| cycle    | P                                                                                      | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 333.079583                                                                             | Observer's specified target RA [deg]        |
| dec_targ | -46.410111                                                                             | Observer's specified target Dec [deg]       |
| ra_nom   | 333.07974217007                                                                        | Nominal RA [deg]                            |
| dec_nom  | -46.41198161652                                                                        | Nominal Dec [deg]                           |
| roll_nom | 53.918442475183                                                                        | Nominal Roll [deg]                          |
| revision | 2                                                                                      | Processing version of data                  |
| ontime   | 9080.1756391525                                                                        | Sum of GTIs [s]                             |
| livetime | 8957.6351897567                                                                        | Livetime [s]                                |
| ontime6  | 9080.1345992088                                                                        | Sum of GTIs [s]                             |
| ontime7  | 9080.1756391525                                                                        | Sum of GTIs [s]                             |
| l2events | 42795                                                                                  | Number of level 2 events                    |



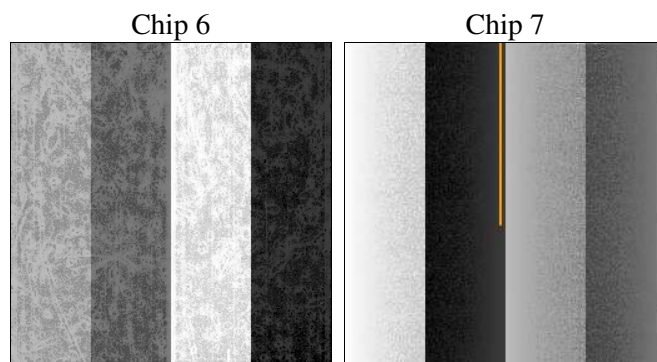
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 9000.000000     | [s] Scheduled observation exposure time |
| ascdsver | 10.9.2              | Processing system revision     | ontime         | 9080.1756391525 | Sum of GTIs [s]                         |
| caldsver | 4.9.3               | &#160                          | ontime6        | 9080.1345992088 | Sum of GTIs [s]                         |
| date     | 2020-10-26T20:48:41 | Date and time of file creation | ontime7        | 9080.1756391525 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | l1events       | 158334          | Number of level 1 events                |

### 2.1.4 Events

|                 | <b>ccd 6</b> | <b>ccd 7</b> |
|-----------------|--------------|--------------|
| level 1 events  | 70972        | 87362        |
| rejected events | 63422        | 49811        |
| rejected %      | 89%          | 57%          |

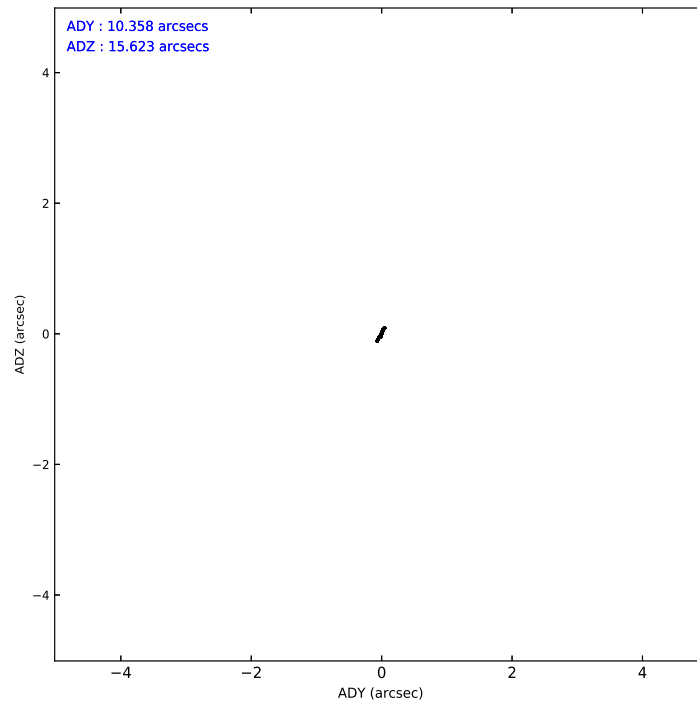
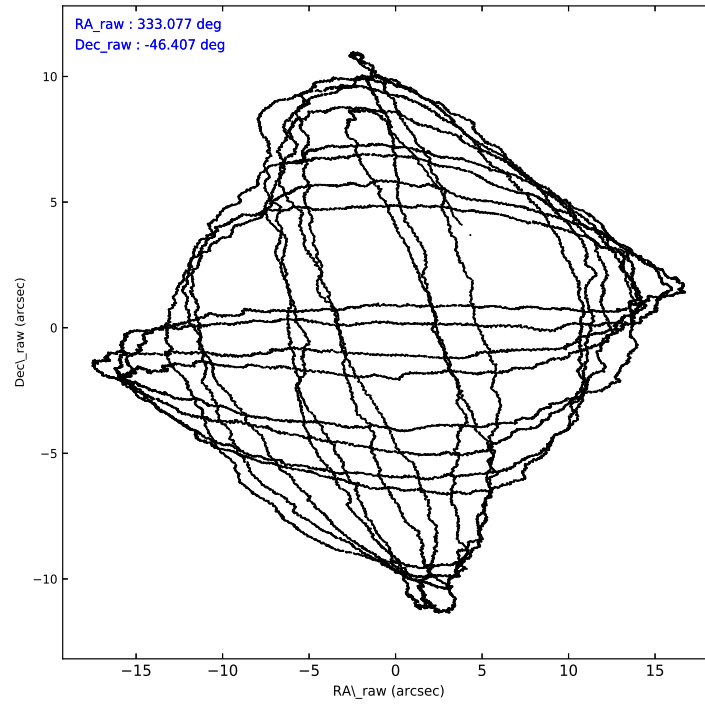
|                | <b>ccd 6</b> | <b>ccd 7</b> |
|----------------|--------------|--------------|
| grade 0 events | 2263         | 3030         |
|                | 3%           | 3%           |
| grade 1 events | 25           | 118          |
|                | 0%           | 0%           |
| grade 2 events | 1980         | 7793         |
|                | 2%           | 8%           |
| grade 3 events | 709          | 2961         |
|                | 0%           | 3%           |
| grade 4 events | 666          | 2999         |
|                | 0%           | 3%           |
| grade 5 events | 2915         | 8511         |
|                | 4%           | 9%           |
| grade 6 events | 1939         | 20778        |
|                | 2%           | 23%          |
| grade 7 events | 60475        | 41172        |
|                | 85%          | 47%          |

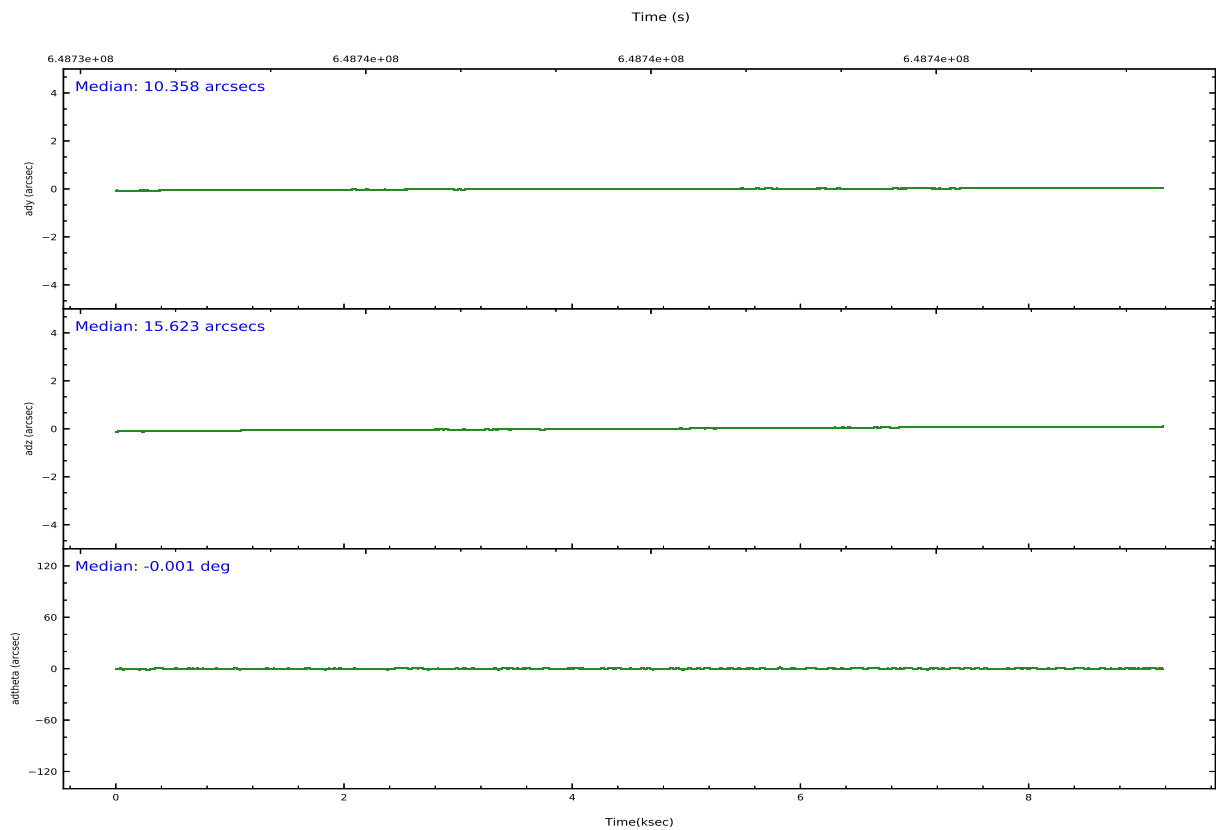
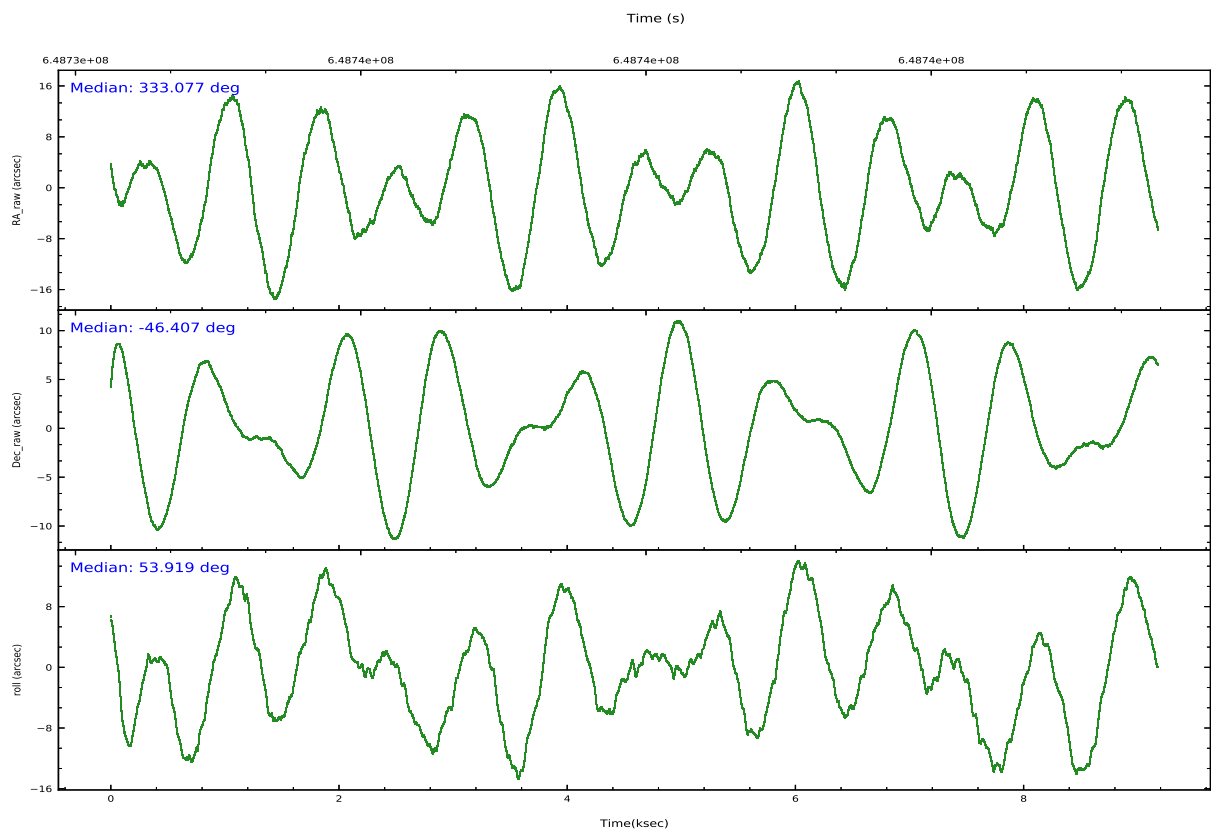


## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-67             | ACIS-67              | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | FAINT               | FAINT                | CCD I0 on                             | N         | N       |
| Observation mode                  | POINTING            | POINTING             | CCD I1 on                             | N         | N       |
| [deg] Pointing RA                 | 333.073378          | 333.07974217007      | CCD I2 on                             | O1        | N       |
| [deg] Pointing Dec                | -46.434225          | -46.41198161652      | CCD I3 on                             | O2        | N       |
| [deg] Pointing Roll               | 53.765996           | 53.918442475183      | CCD S0 on                             | N         | N       |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  | CCD S1 on                             | N         | N       |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 | CCD S2 on                             | Y         | Y       |
| [mm] SIM translation stage pos    | -190.132523         | -190.1425803651734   | CCD S3 on                             | Y         | Y       |
| [mm] SIM translation stage offset | 0                   | 0.01005778216563158  | CCD S4 on                             | O3        | N       |
| [s] Observation start time (MET)  | 648732989.184000    | 648731863.5023       | CCD S5 on                             | N         | N       |
| Observation start date            | 2018-07-23T11:35:20 | 2018-07-23T11:17:43  | Number of optional ACIS chips dropped | 3         | 3       |
| [s] Observation end time (MET)    | 648741989.184000    | 648742835.10295      | On-chip summing requested             | N         | N       |
| Observation end date              | 2018-07-23T14:05:20 | 2018-07-23T14:20:35  | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                | Alternating exposures requested       | N         | N       |
|                                   |                     |                      | [s] Primary exposure time             | 0.000000  | 3       |

## 2.3 Aspect



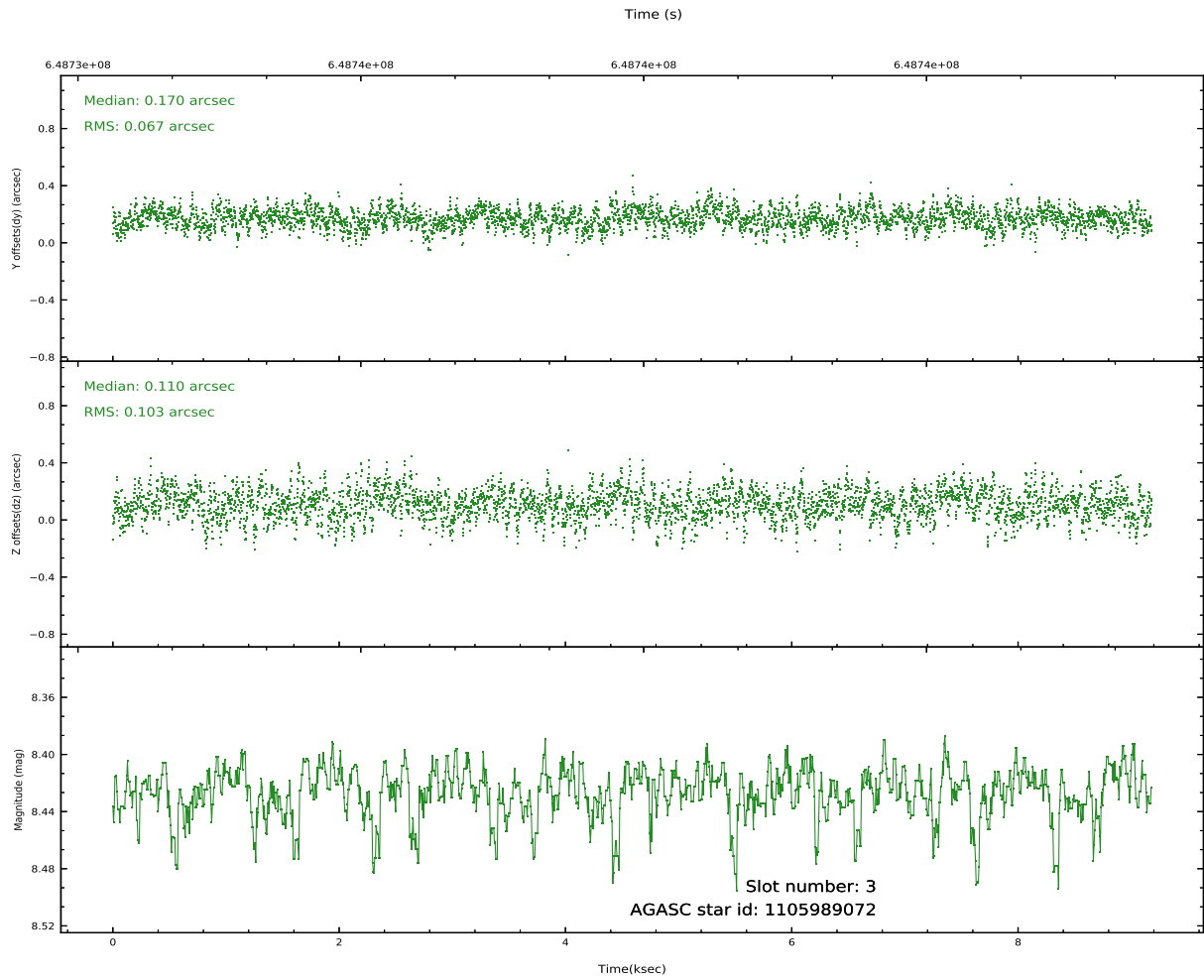
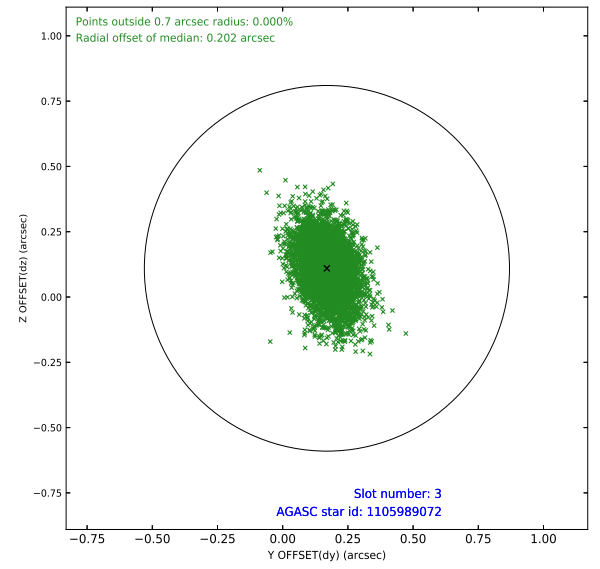
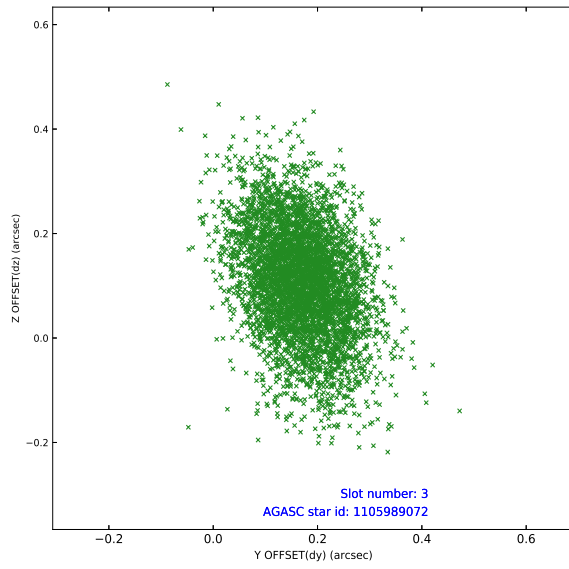


Slot Statistics

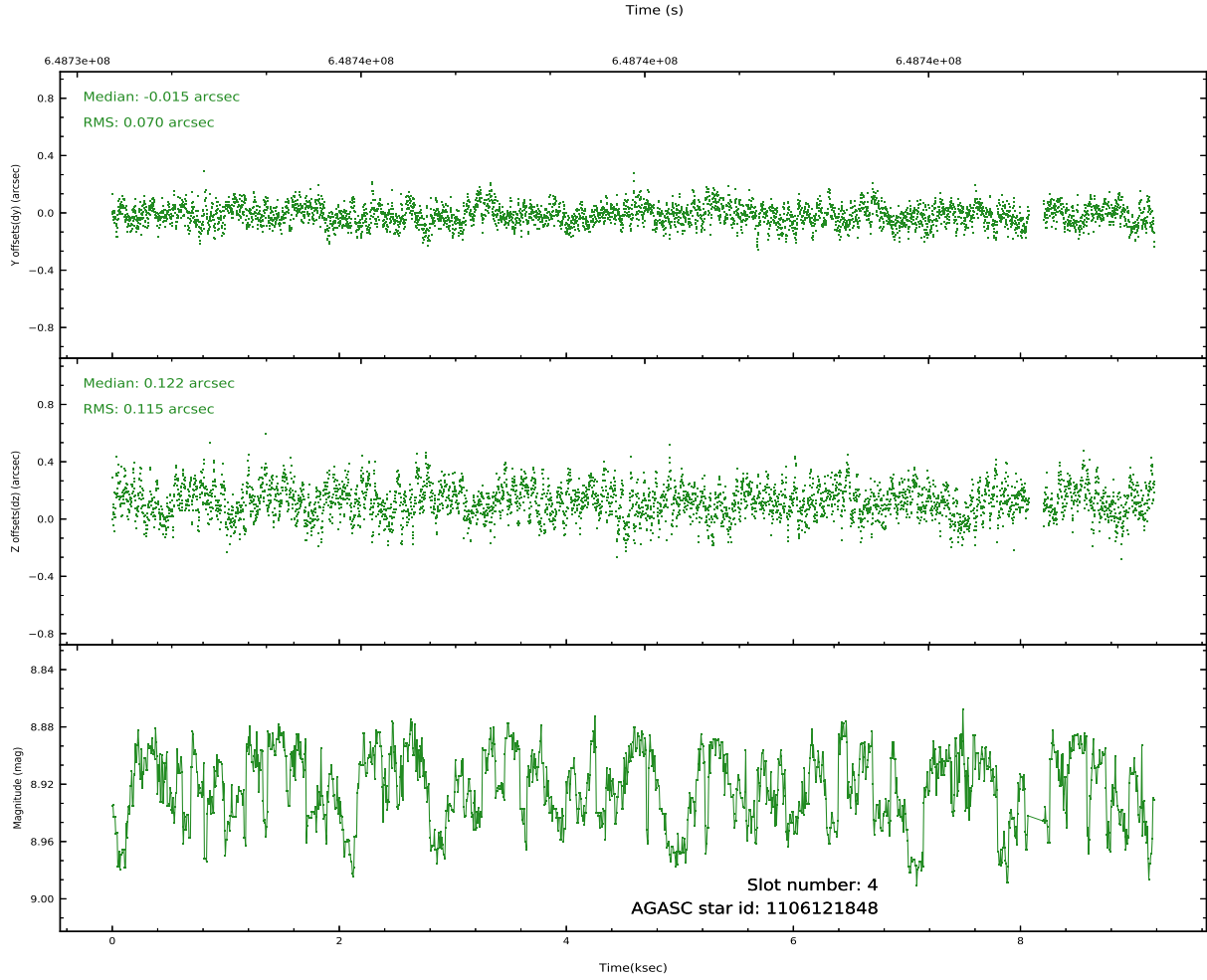
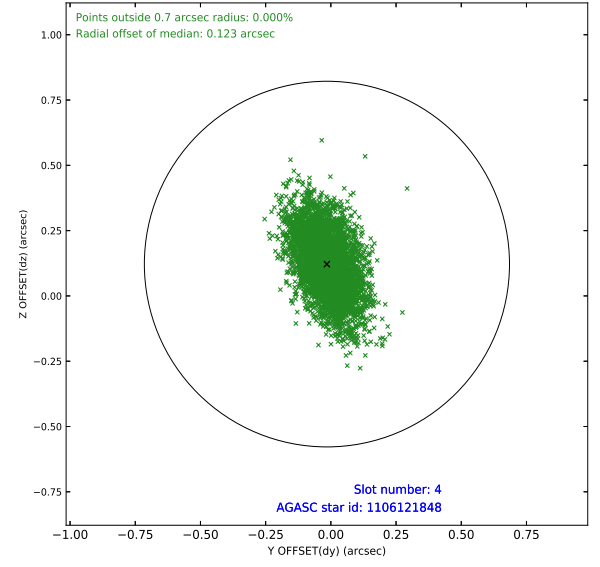
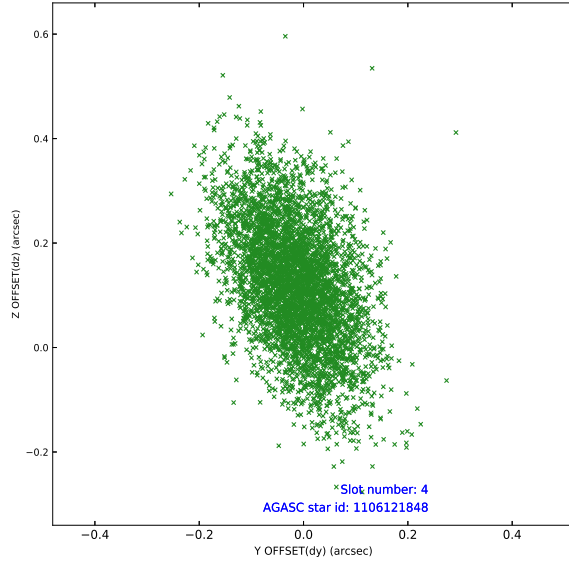
| pt | status | used | id         | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y  | mea   |
|----|--------|------|------------|------|-------|----------|--------|--------|-------|-------|------------|------------|---------|-------|
| 0  | FID    |      | ACIS-S-2   | 7.08 | 2240  | 1.000    | -0.065 | -0.040 | 0.005 | 0.010 | 0.000000   | 0.000000   | -763.35 | -1736 |
| 1  | FID    |      | ACIS-S-4   | 7.22 | 2239  | 1.000    | 0.127  | 0.010  | 0.006 | 0.010 | 0.000000   | 0.000000   | 2149.94 | 170   |
| 2  | FID    |      | ACIS-S-6   | 7.37 | 2239  | 1.000    | -0.090 | 0.037  | 0.007 | 0.012 | 0.000000   | 0.000000   | 399.49  | 808   |
| 3  | GUIDE  | used | 1105989072 | 8.42 | 4476  | 1.000    | 0.170  | 0.110  | 0.128 | 0.221 | 333.442765 | -46.743684 | -361.69 | -1394 |
| 4  | GUIDE  | used | 1106121848 | 8.92 | 4414  | 1.000    | -0.015 | 0.122  | 0.140 | 0.240 | 333.830182 | -46.778320 | 96.92   | -2242 |
| 5  | GUIDE  | used | 1106125232 | 8.72 | 4472  | 1.000    | 0.046  | 0.083  | 0.138 | 0.237 | 333.797678 | -46.530816 | 772.86  | -1659 |
| 6  | GUIDE  | used | 1105987872 | 9.29 | 4475  | 1.000    | -0.098 | -0.091 | 0.178 | 0.302 | 332.499188 | -45.881922 | 749.02  | 2331  |
| 7  | GUIDE  | used | 1105985872 | 7.55 | 4478  | 1.000    | -0.100 | -0.225 | 0.125 | 0.222 | 333.468773 | -45.806387 | 2407.86 | 534   |

## 2.4 Star Slots

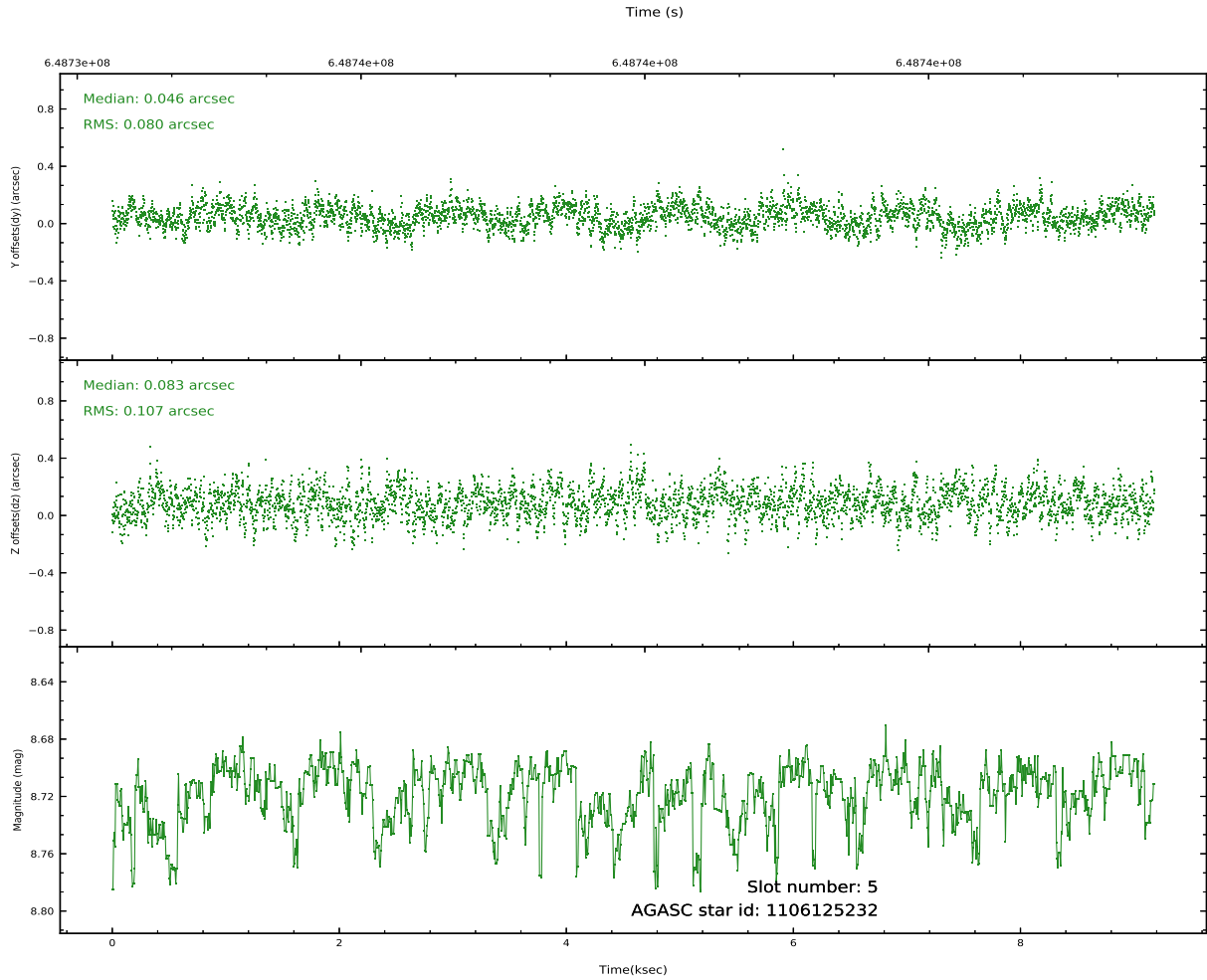
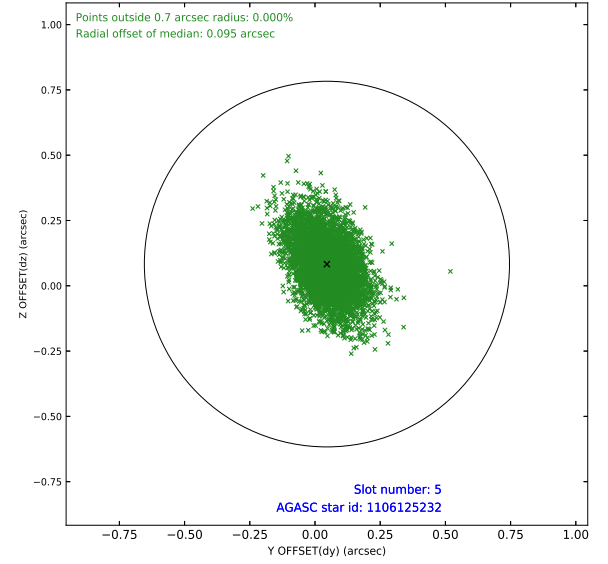
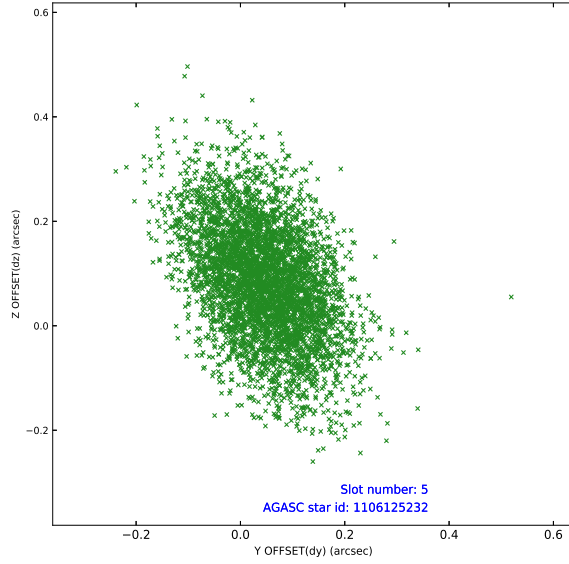
### 2.4.1 Slot 3



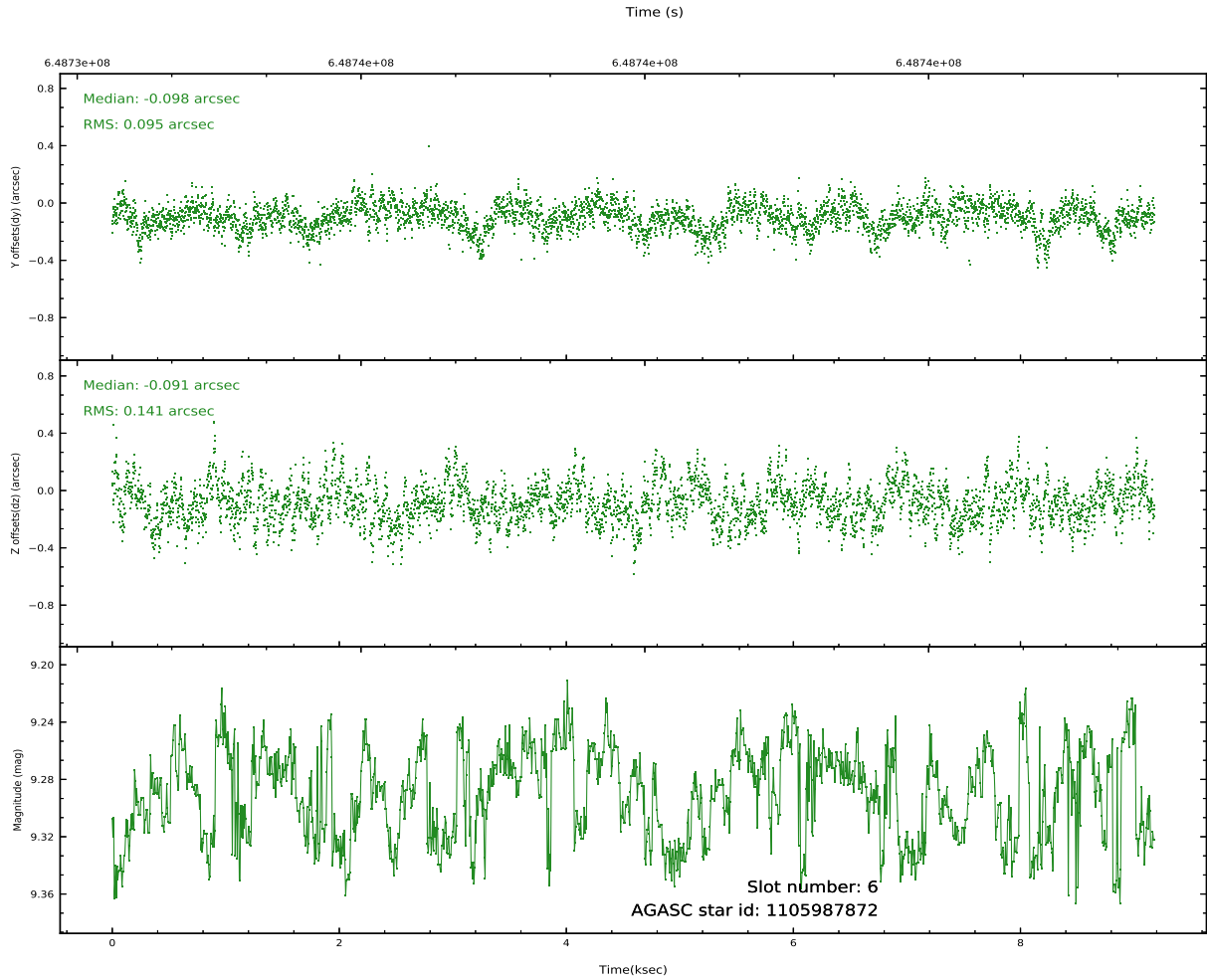
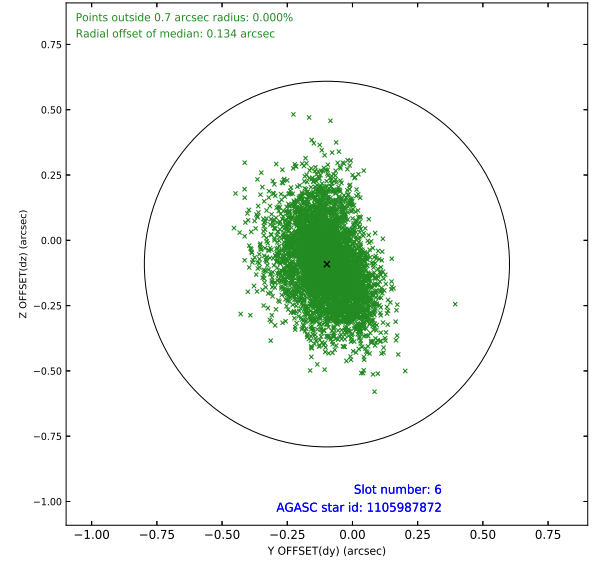
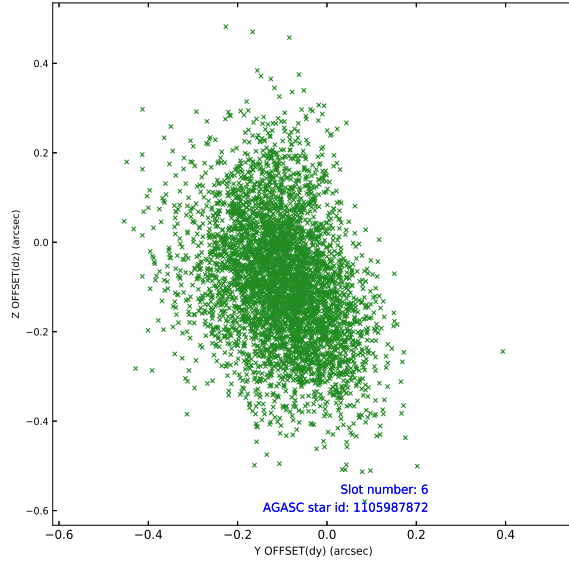
## 2.4.2 Slot 4



### 2.4.3 Slot 5

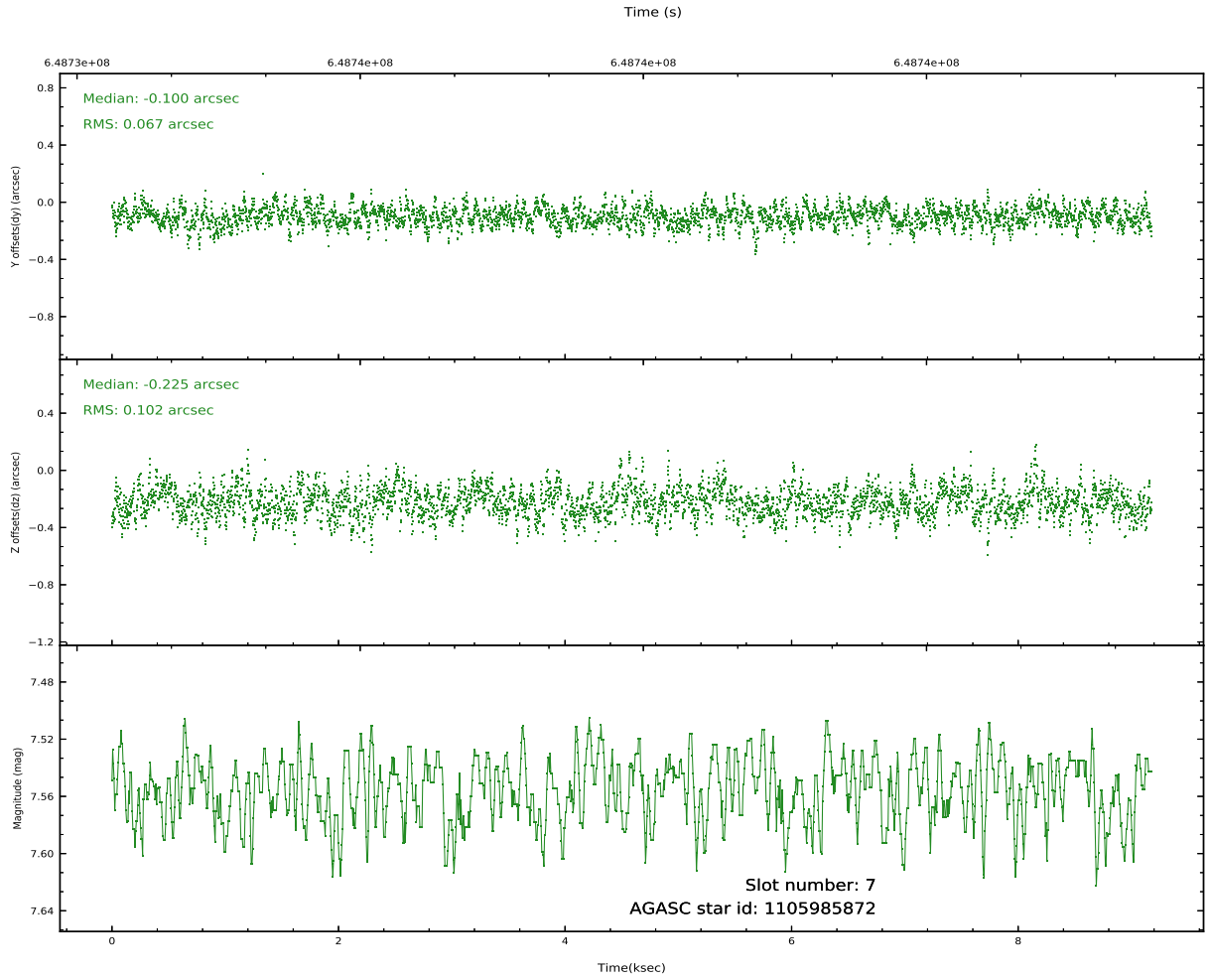
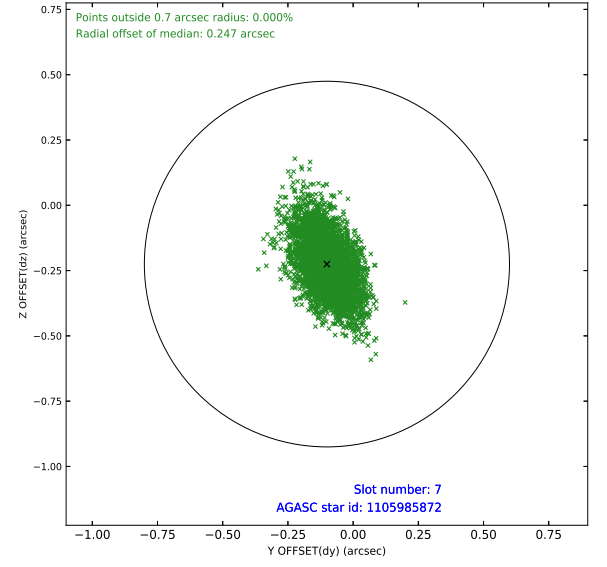
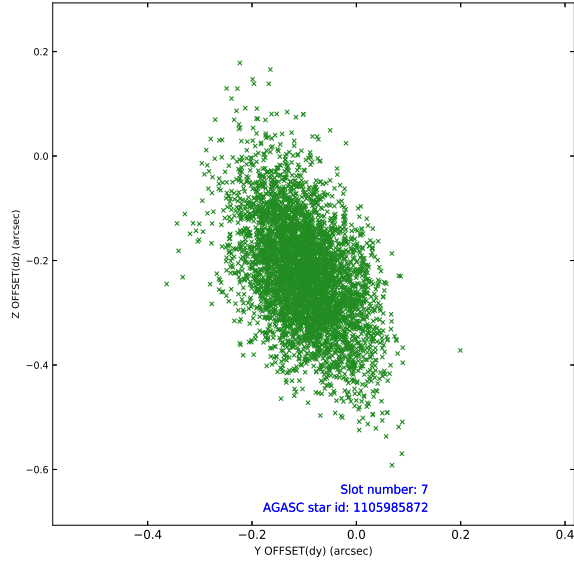


## 2.4.4 Slot 6



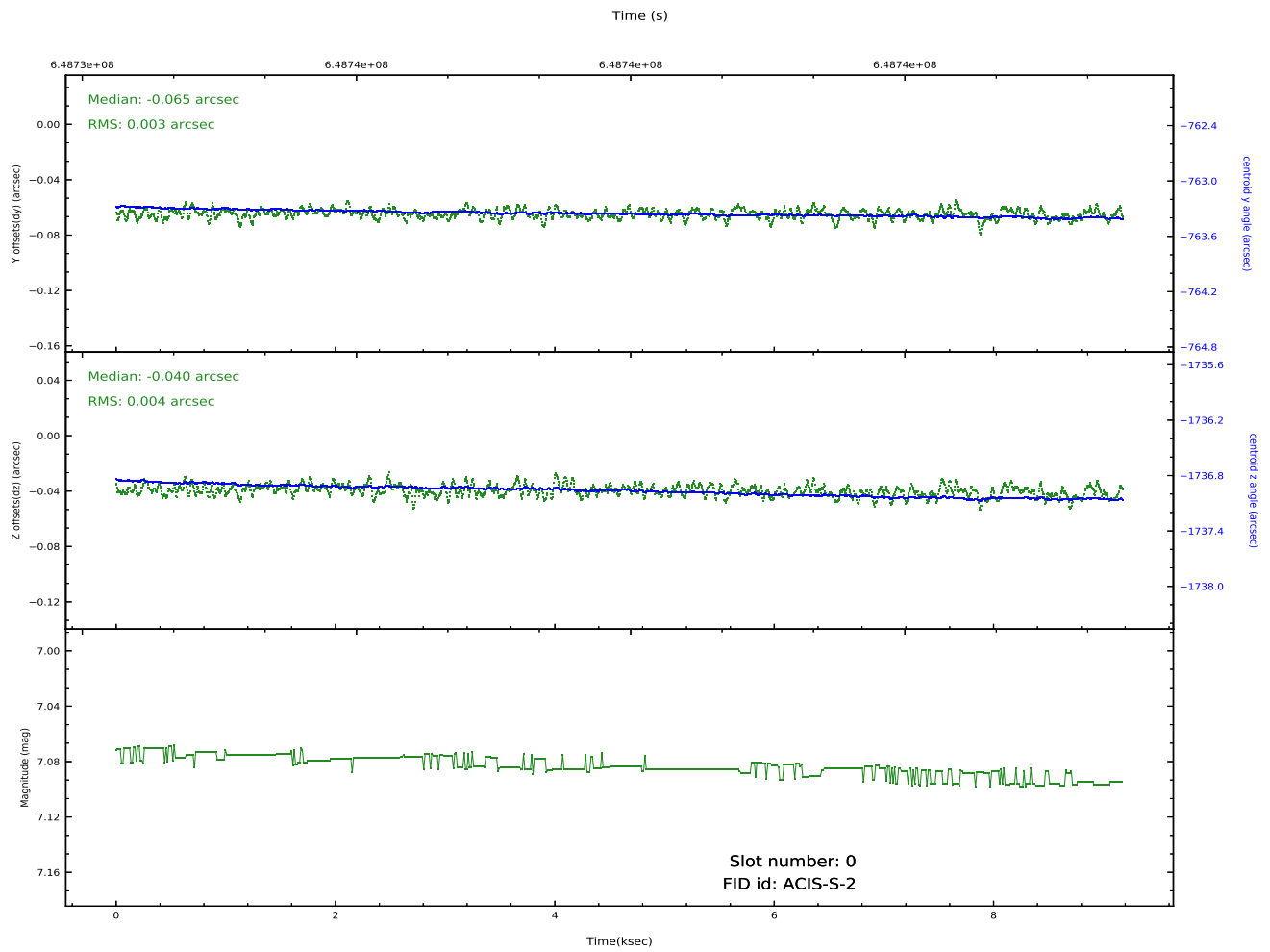
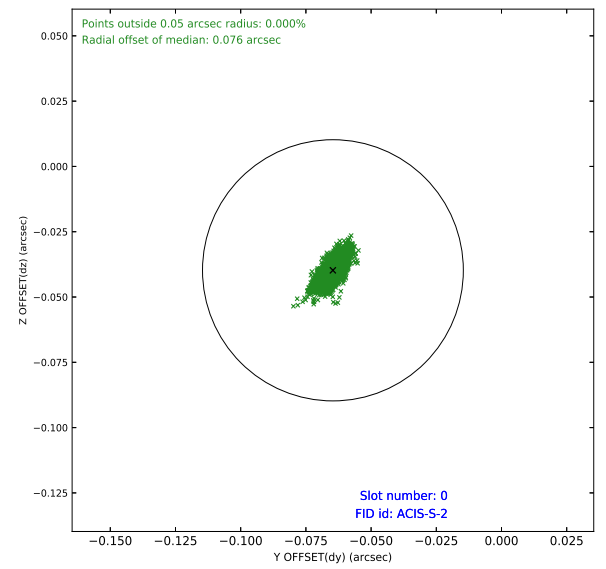
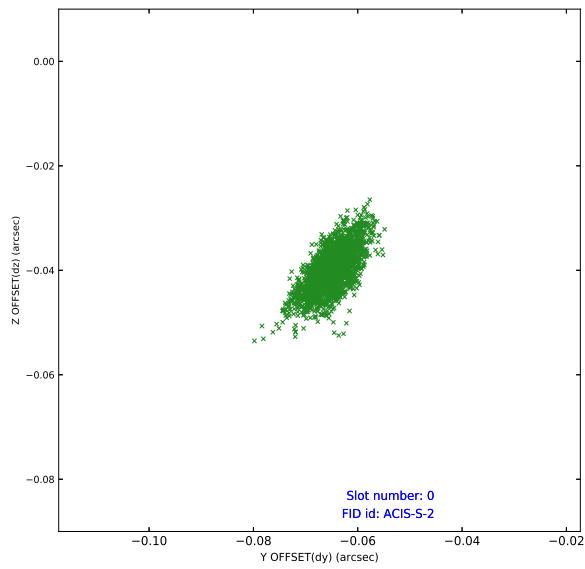


## 2.4.5 Slot 7

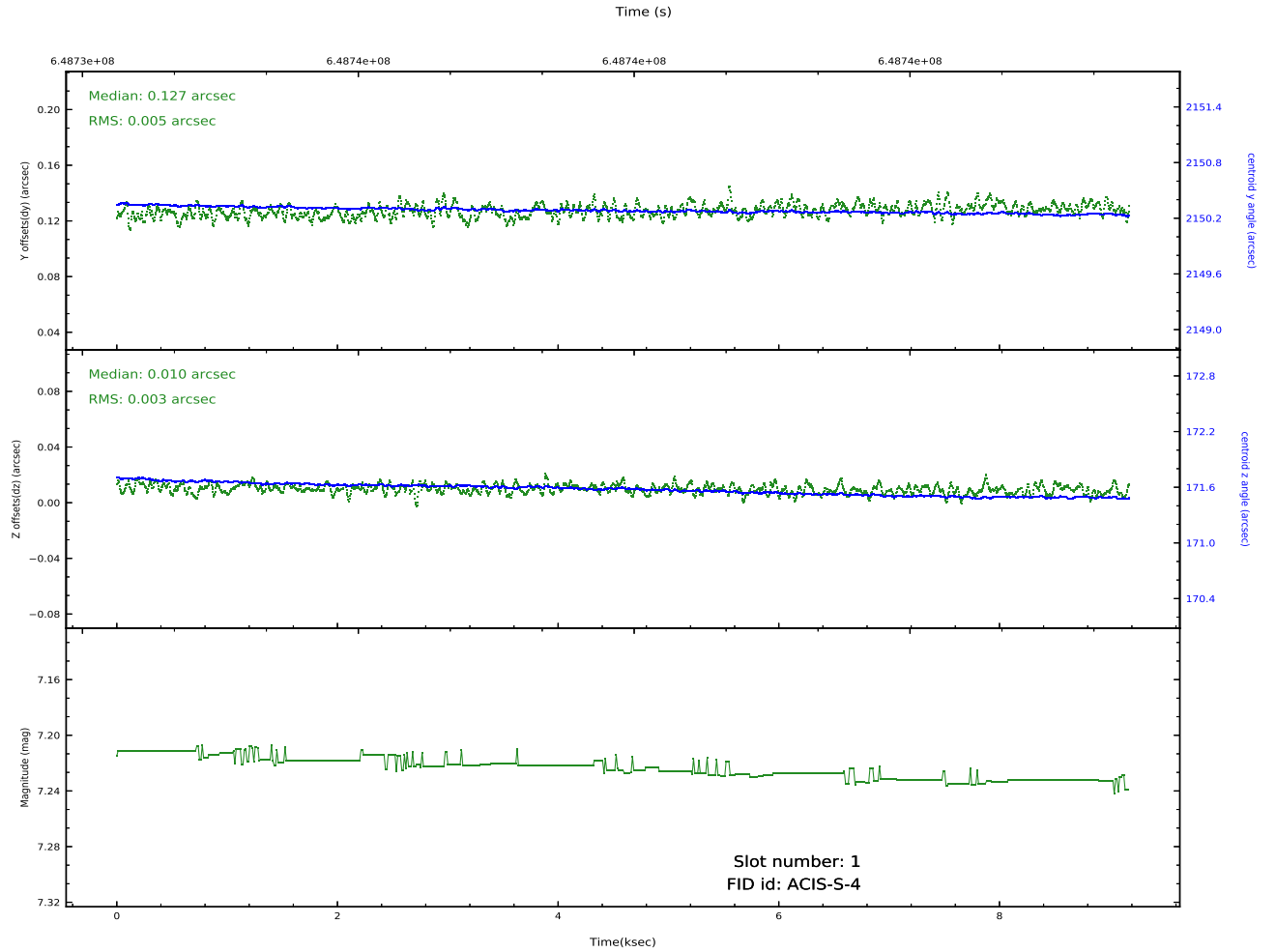
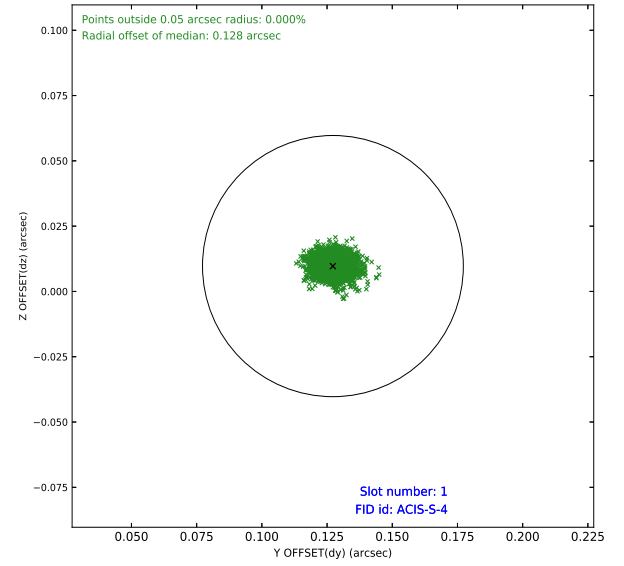
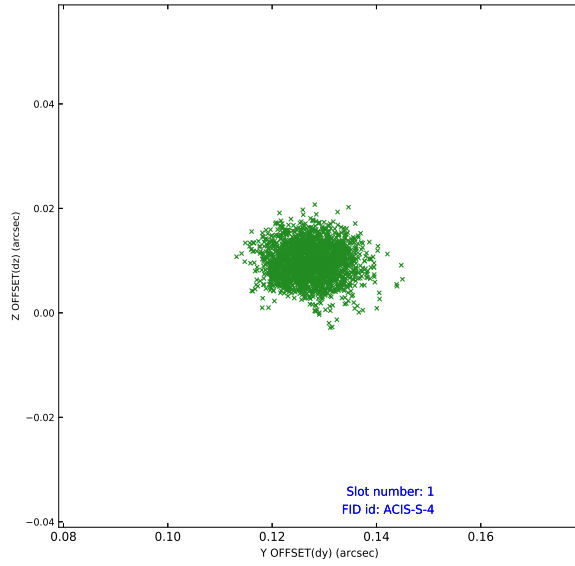


## 2.5 FID Slots

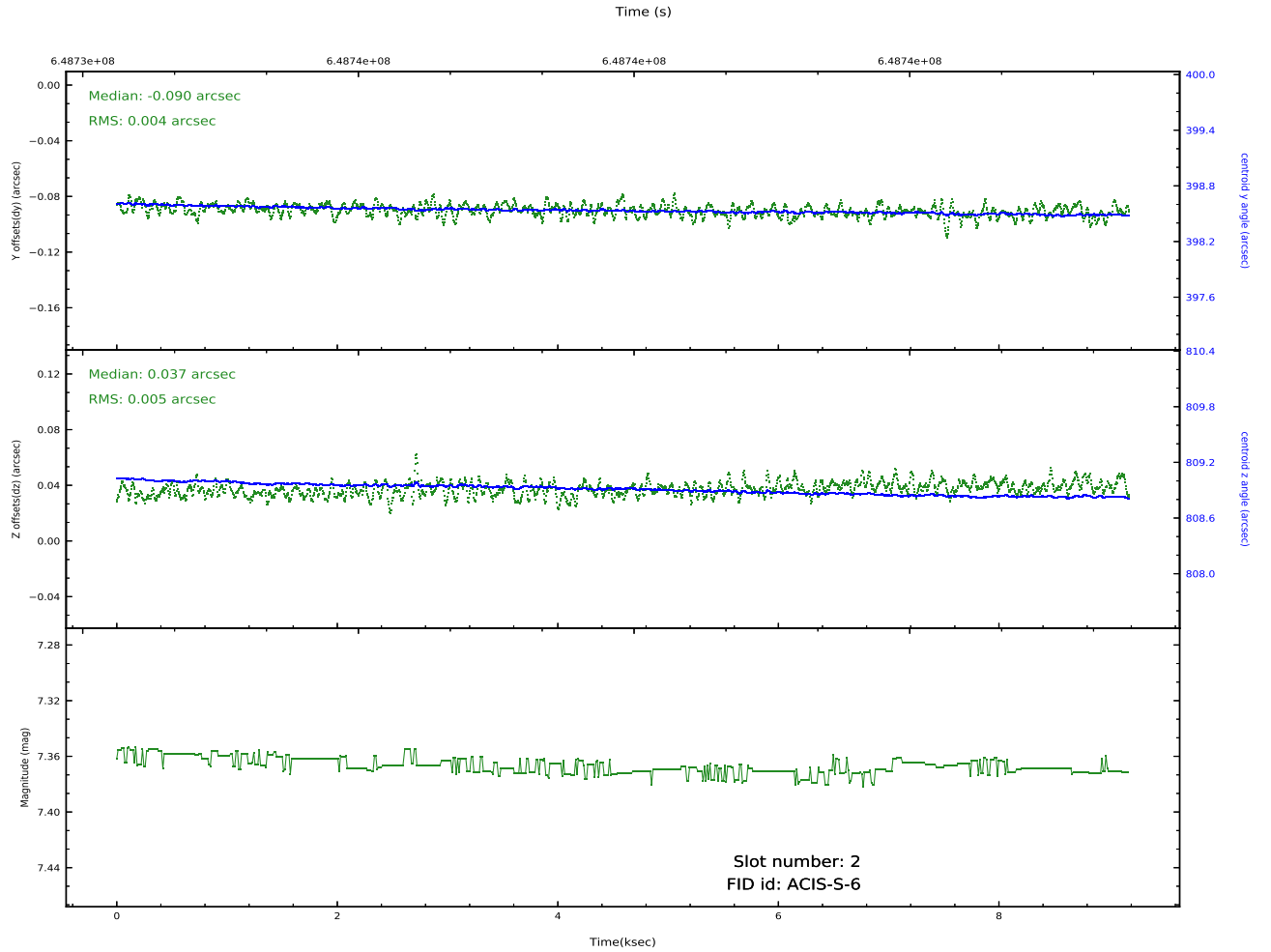
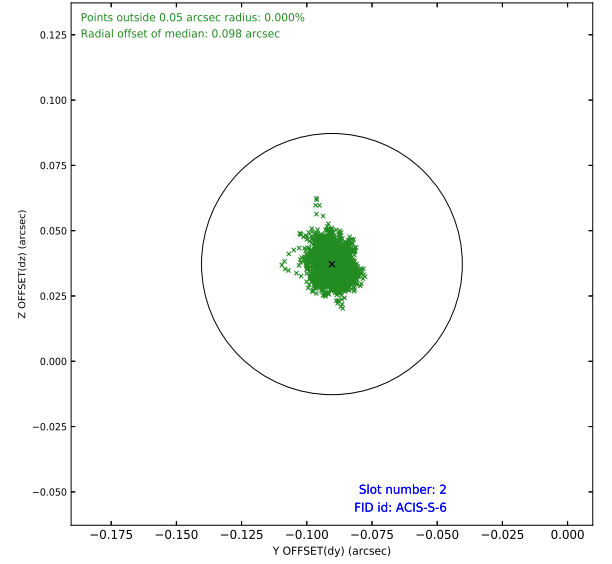
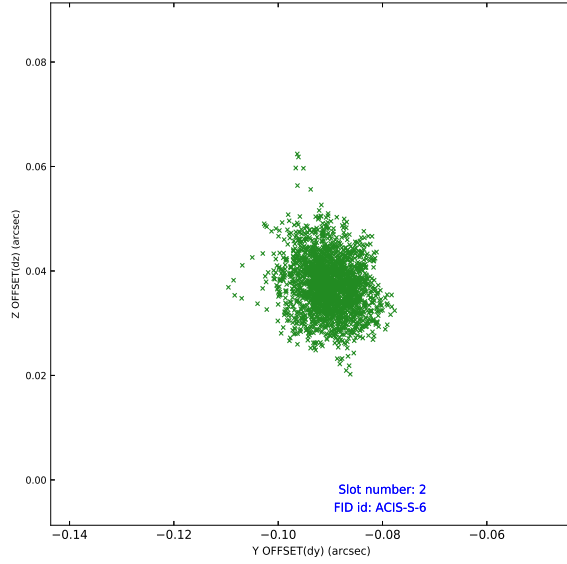
### 2.5.1 Slot 0



## 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)      | 2020.10.28      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 9.0801756392717 |

### A.2 Comments

Three optional chips were dropped.