

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 4654 - L2 Version 5  
Chandra X-Ray Center

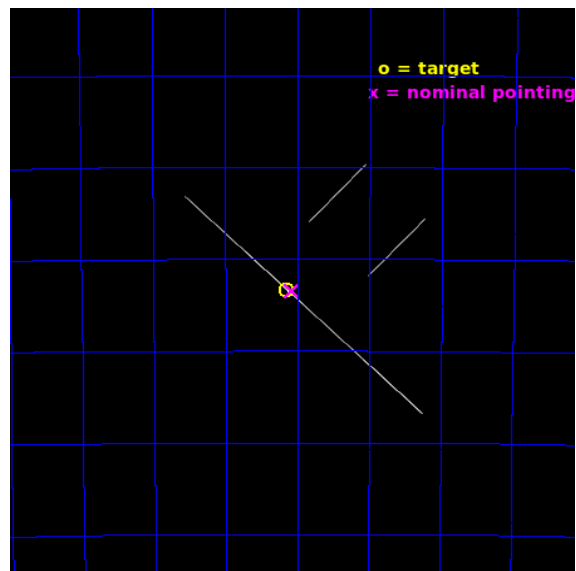
L2 Processing Date : Sep 27 2020

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# 1 Front

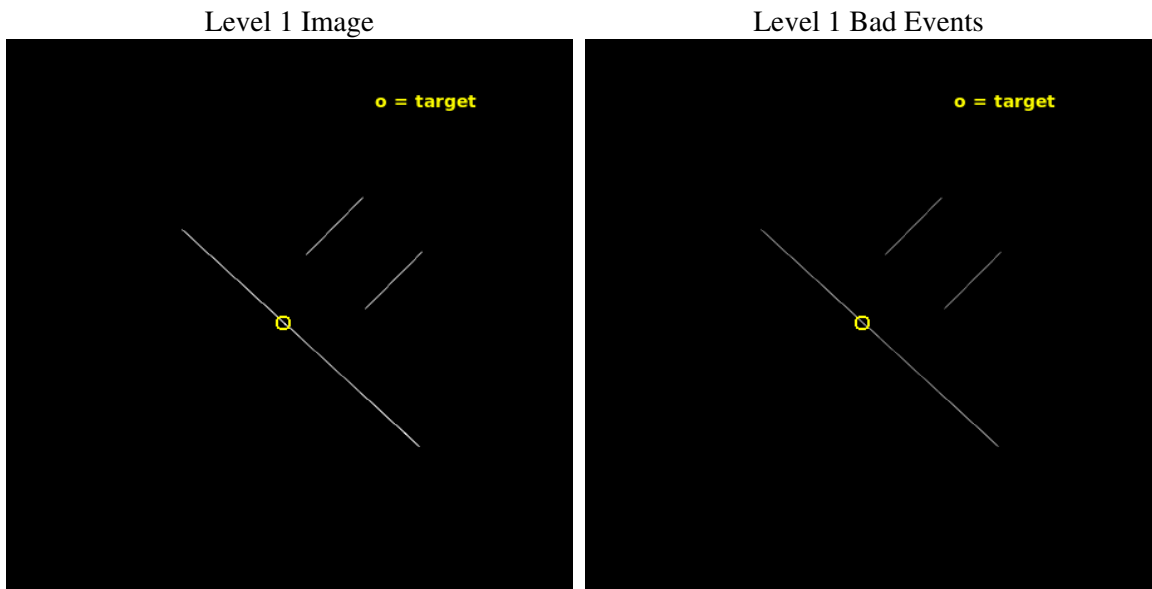
|          |   |                                       |
|----------|---|---------------------------------------|
| seq_num  | 500473                                    | Sequence number                       |
| obs_id   | 4654                                      | Observation id                        |
| title    | X-ray Bursts from Anomalous X-ray Pulsars | Proposal title                        |
| observer | Victoria Kaspi                            | Principal investigator                |
| object   | 1E 1048.1-5937                            | Source name                           |
| ra_targ  | 162.537083                                | Observer's specified target RA [deg]  |
| dec_targ | -59.889                                   | Observer's specified target Dec [deg] |
| ra_nom   | 162.51920394947                           | Nominal RA [deg]                      |
| dec_nom  | -59.891009748687                          | Nominal Dec [deg]                     |
| roll_nom | 223.57926752729                           | Nominal Roll [deg]                    |
| revision | 5   | Processing version of data            |
| ontime   | 28081.041903526                           | Sum of GTIs [s]                       |
| livetime | 27971.35033359                            | Livetime [s]                          |
| ontime2  | 28081.041651338                           | Sum of GTIs [s]                       |
| ontime3  | 28081.039886832                           | Sum of GTIs [s]                       |
| ontime5  | 28081.041901559                           | Sum of GTIs [s]                       |
| ontime6  | 28081.041902423                           | Sum of GTIs [s]                       |
| ontime7  | 28081.041903526                           | Sum of GTIs [s]                       |
| ontime8  | 28081.04190439                            | Sum of GTIs [s]                       |
| l2events | 412608                                    | Number of level 2 events              |



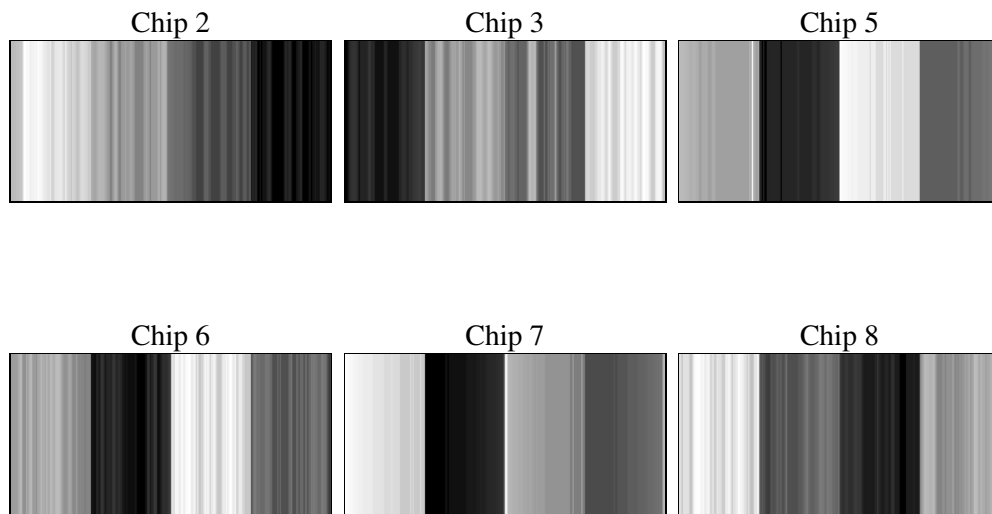
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 27952.157000    | [s] Scheduled observation exposure time |
| ascdsver | 10.9.1              | Processing system revision     | ontime         | 28081.041903526 | Sum of GTIs [s]                         |
| caldbver | 4.9.2               | &#160                          | ontime2        | 28081.041651338 | Sum of GTIs [s]                         |
| date     | 2020-09-27T13:01:42 | Date and time of file creation | ontime3        | 28081.039886832 | Sum of GTIs [s]                         |
| revision | 5                   | Processing version of data     | ontime5        | 28081.041901559 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 28081.041902423 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 28081.041903526 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 28081.04190439  | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 642698          | Number of level 1 events                |

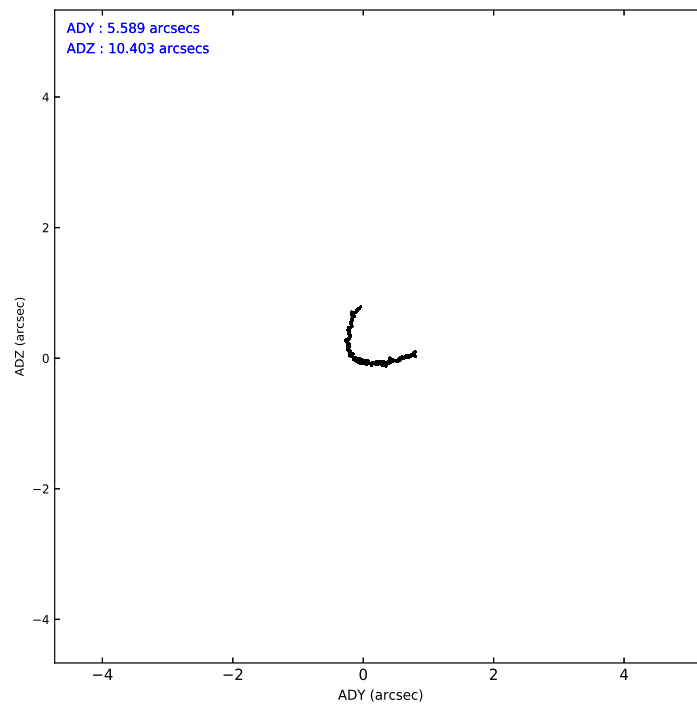
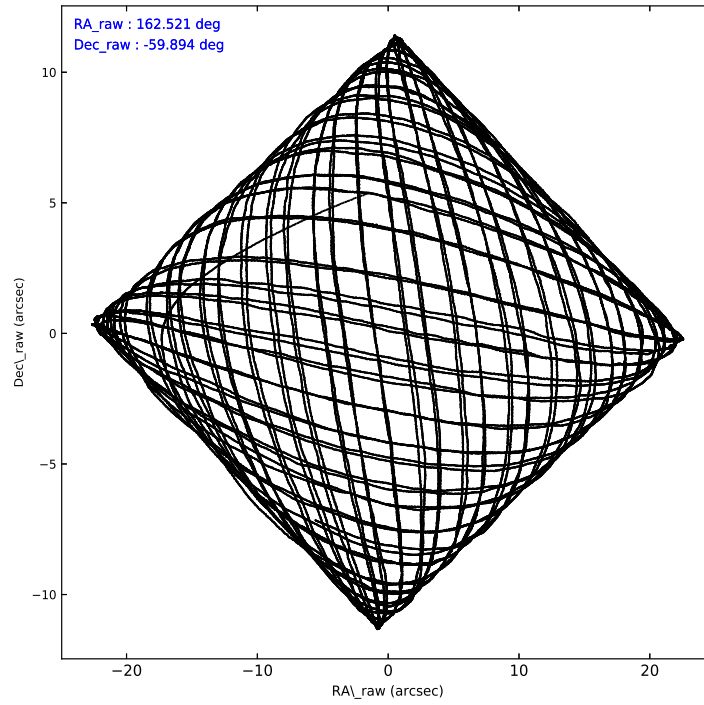
### 2.1.4 Events

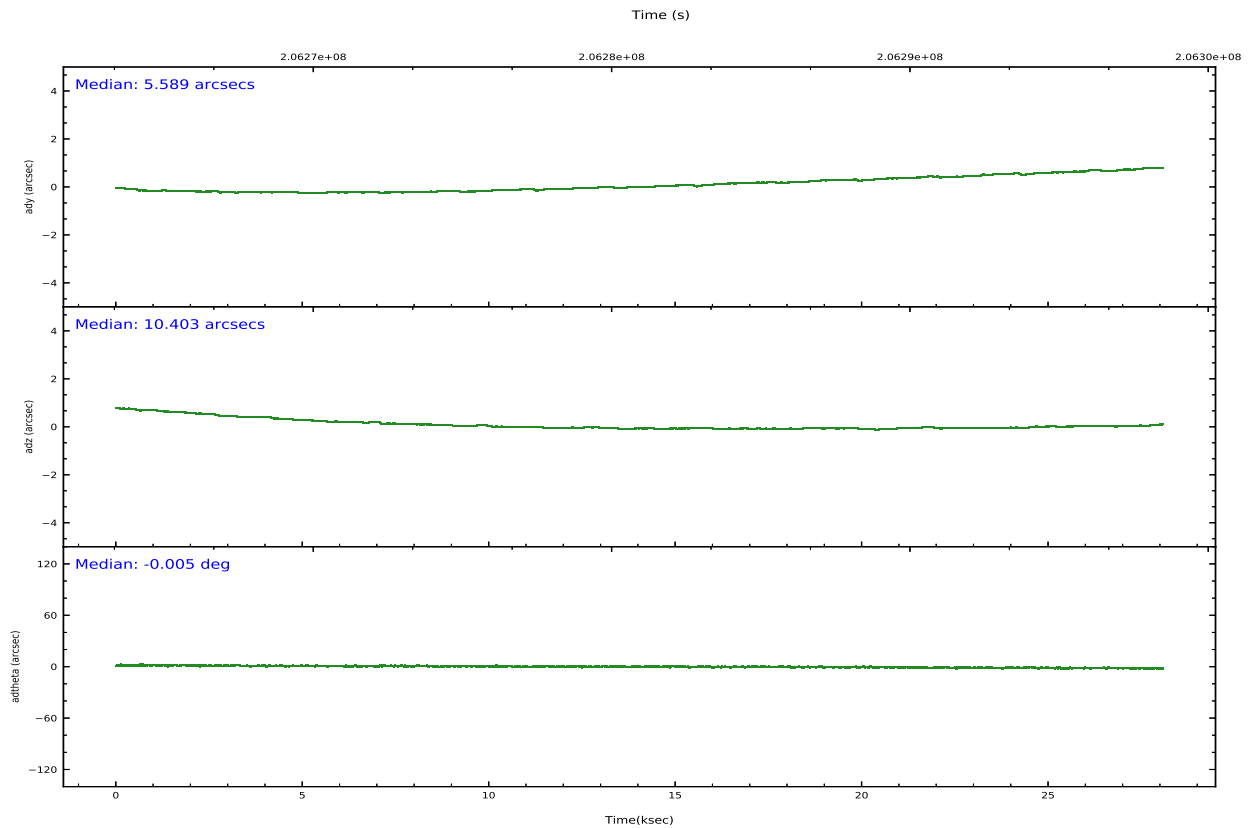
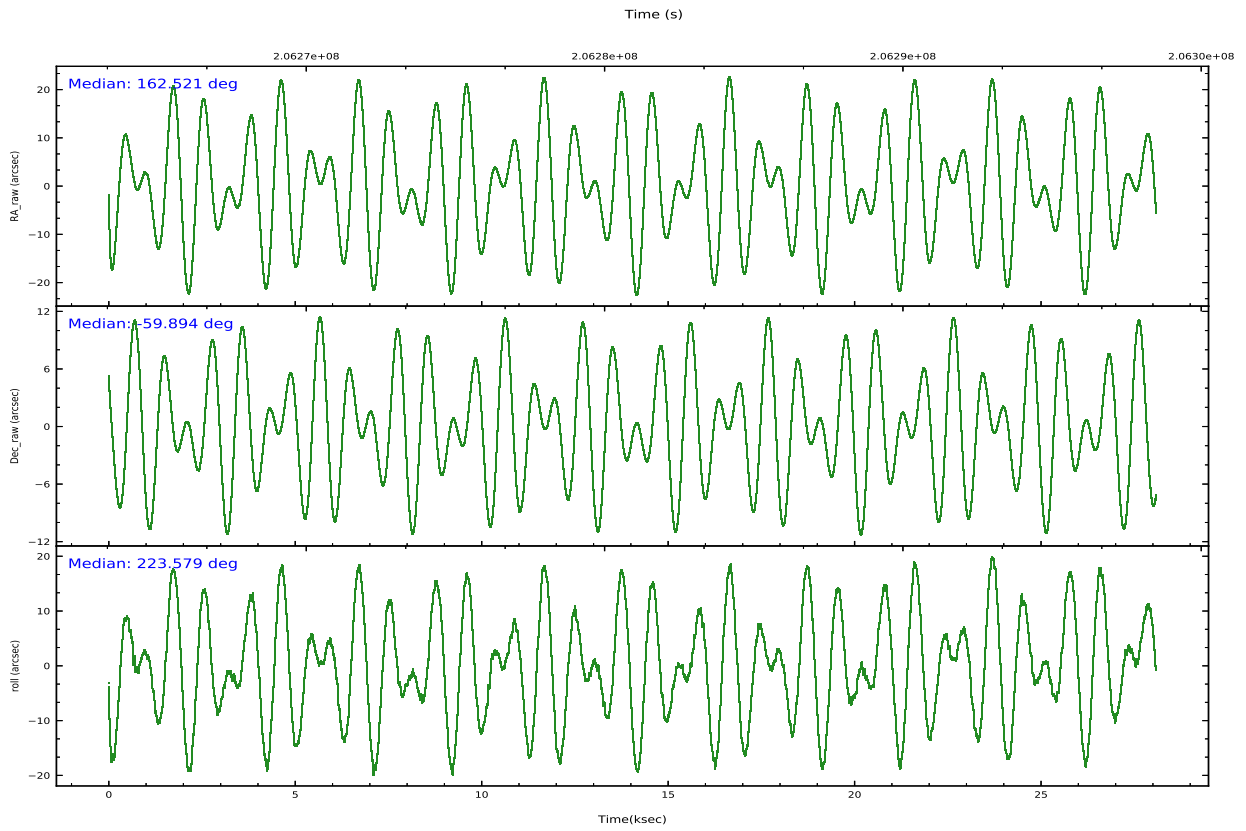
|                 | ccd 2 | ccd 3 | ccd 5  | ccd 6 | ccd 7  | ccd 8 |                | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|--------|-------|--------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 46474 | 46547 | 228183 | 48246 | 180105 | 93143 | grade 0 events | 6260  | 5226  | 58693 | 4884  | 20452 | 16282 |
| rejected events | 9655  | 9836  | 27419  | 10908 | 28343  | 16399 |                | 13%   | 11%   | 25%   | 10%   | 11%   | 17%   |
| rejected %      | 20%   | 21%   | 12%    | 22%   | 15%    | 17%   | grade 1 events | 191   | 195   | 327   | 175   | 399   | 353   |
|                 |       |       |        |       |        |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |       |       |        |       |        |       | grade 2 events | 14650 | 14872 | 56810 | 15452 | 39763 | 25597 |
|                 |       |       |        |       |        |       |                | 31%   | 31%   | 24%   | 32%   | 22%   | 27%   |
|                 |       |       |        |       |        |       | grade 3 events | 4585  | 5380  | 4206  | 4728  | 12707 | 8685  |
|                 |       |       |        |       |        |       |                | 9%    | 11%   | 1%    | 9%    | 7%    | 9%    |
|                 |       |       |        |       |        |       | grade 4 events | 4914  | 4708  | 4058  | 4568  | 12473 | 8452  |
|                 |       |       |        |       |        |       |                | 10%   | 10%   | 1%    | 9%    | 6%    | 9%    |
|                 |       |       |        |       |        |       | grade 5 events | 8132  | 8245  | 19883 | 9308  | 23415 | 12894 |
|                 |       |       |        |       |        |       |                | 17%   | 17%   | 8%    | 19%   | 13%   | 13%   |
|                 |       |       |        |       |        |       | grade 6 events | 7742  | 7921  | 84206 | 9131  | 70896 | 20876 |
|                 |       |       |        |       |        |       |                | 16%   | 17%   | 36%   | 18%   | 39%   | 22%   |
|                 |       |       |        |       |        |       | grade 7 events | 0     | 0     | 0     | 0     | 0     | 4     |
|                 |       |       |        |       |        |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |

## 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                         | CC33_FAINT          | CC33_FAINT           | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 162.535642          | 162.51920394947      | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | -59.868118          | -59.891009748687     | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 223.438089          | 223.57926752729      | [s] Primary exposure time             | 0.000000  | 0       |
| [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)  | 206266839.184000    | 206265590.76887      |                                       |           |         |
| Observation start date            | 2004-07-15T08:19:35 | 2004-07-15T07:59:50  |                                       |           |         |
| [s] Observation end time (MET)    | 206294792.184000    | 206295005.70768      |                                       |           |         |
| Observation end date              | 2004-07-15T16:05:28 | 2004-07-15T16:10:05  |                                       |           |         |
| Read mode                         | CONTINUOUS          | CONTINUOUS           |                                       |           |         |

## 2.3 Aspect





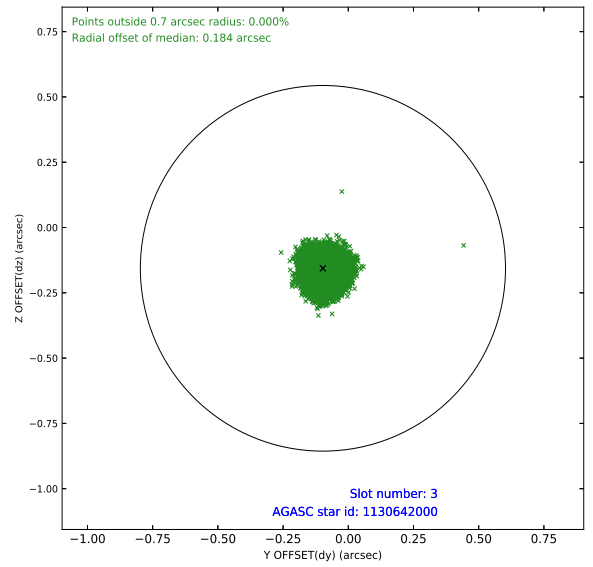
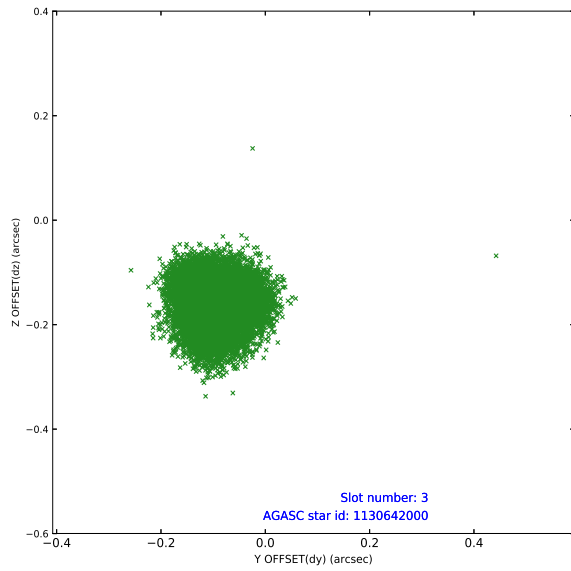
### Slot Statistics

| slot | 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 | 6850  | 1.000    | -0.124 | -0.103 | 0.007 | 0.013 | 0.000000   | 0.000000   | -758.52  | -1731 |
| 1    | FID    |      | ACIS-S-4   | 7.21 | 6849  | 1.000    | 0.089  | 0.067  | 0.008 | 0.013 | 0.000000   | 0.000000   | 2154.91  | 176   |
| 2    | FID    |      | ACIS-S-6   | 7.34 | 6849  | 1.000    | 0.006  | 0.044  | 0.009 | 0.015 | 0.000000   | 0.000000   | 403.68   | 814   |
| 3    | GUIDE  | used | 1130642000 | 7.93 | 13697 | 1.000    | -0.097 | -0.156 | 0.064 | 0.100 | 162.836255 | -59.743891 | -702.56  | 51    |
| 4    | GUIDE  | used | 1174031160 | 8.82 | 13694 | 1.000    | 0.223  | 0.160  | 0.060 | 0.097 | 162.483783 | -60.757597 | 2268.14  | 2263  |
| 5    | GUIDE  | used | 1130646160 | 8.65 | 13683 | 1.000    | 0.016  | -0.119 | 0.072 | 0.112 | 162.161730 | -59.561264 | -262.60  | -1269 |
| 6    | GUIDE  | used | 1174033144 | 8.46 | 13686 | 1.000    | -0.067 | 0.012  | 0.067 | 0.111 | 161.168741 | -60.059230 | 2273.90  | -1170 |
| 7    | GUIDE  | used | 1174150720 | 8.96 | 13686 | 1.000    | -0.071 | 0.101  | 0.096 | 0.155 | 164.104813 | -60.030464 | -1624.17 | 2388  |

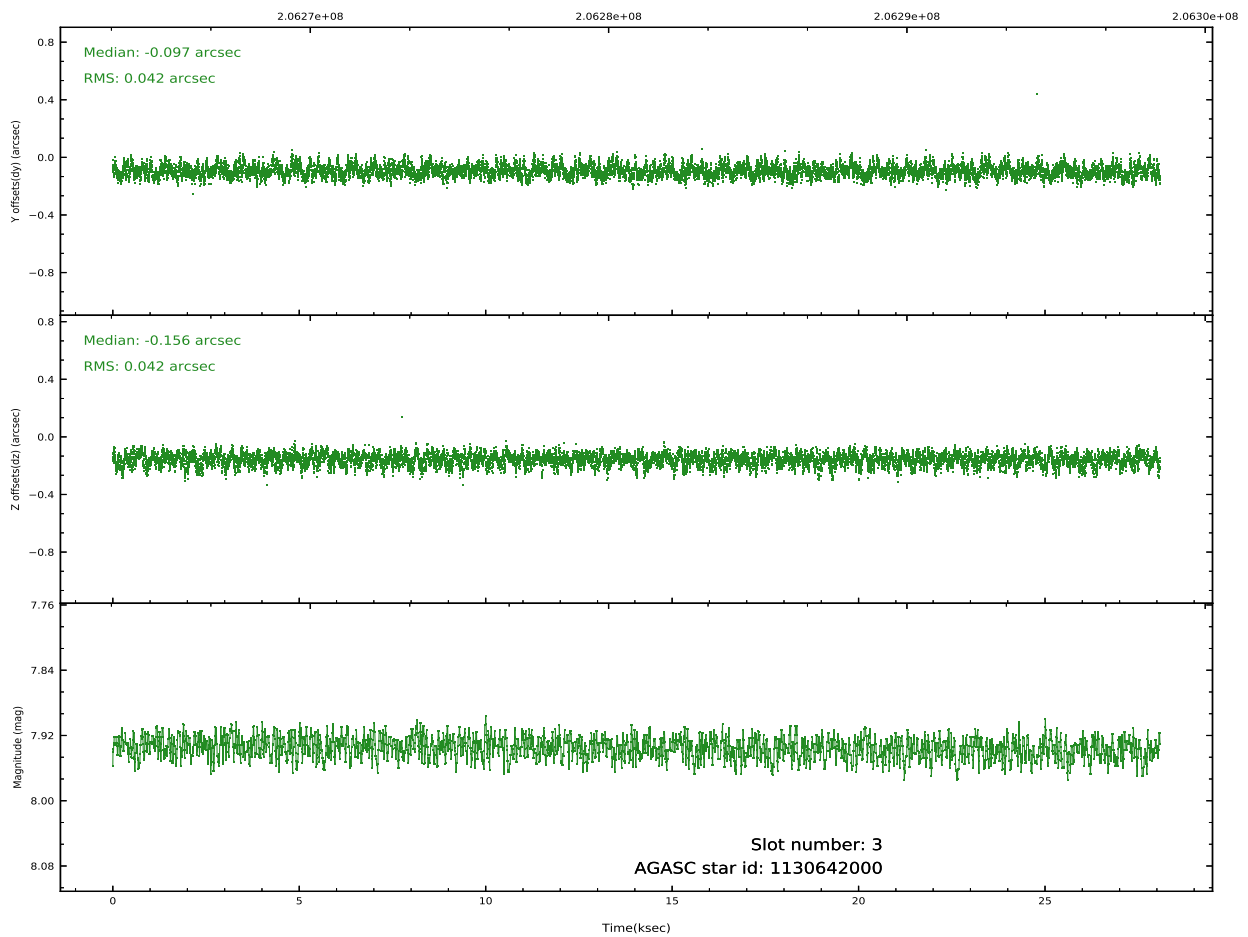
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## 2.4 Star Slots

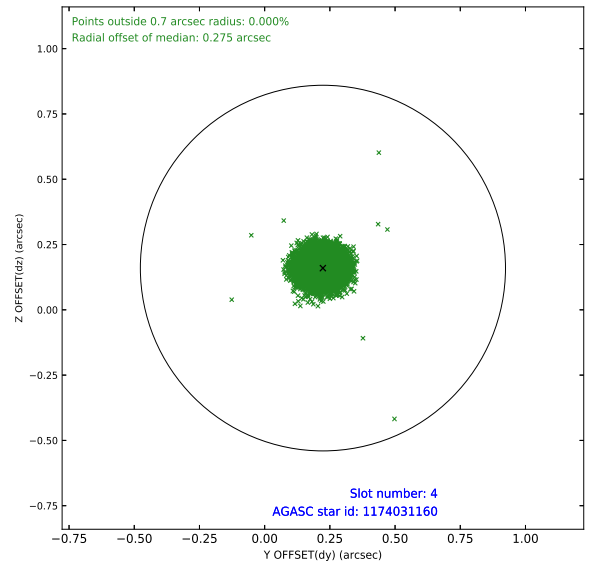
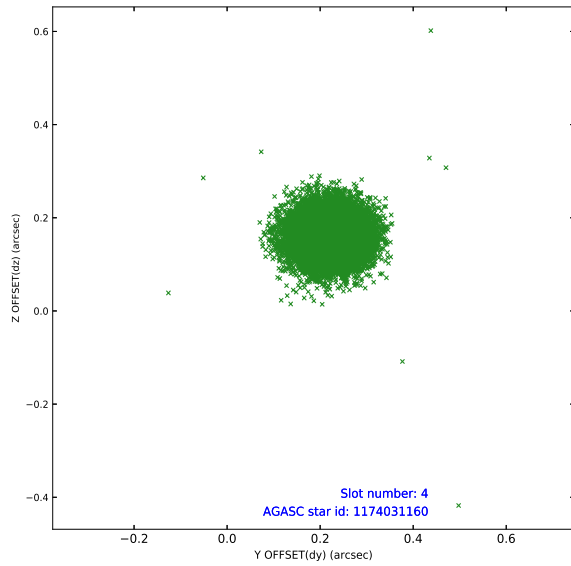
### 2.4.1 Slot 3



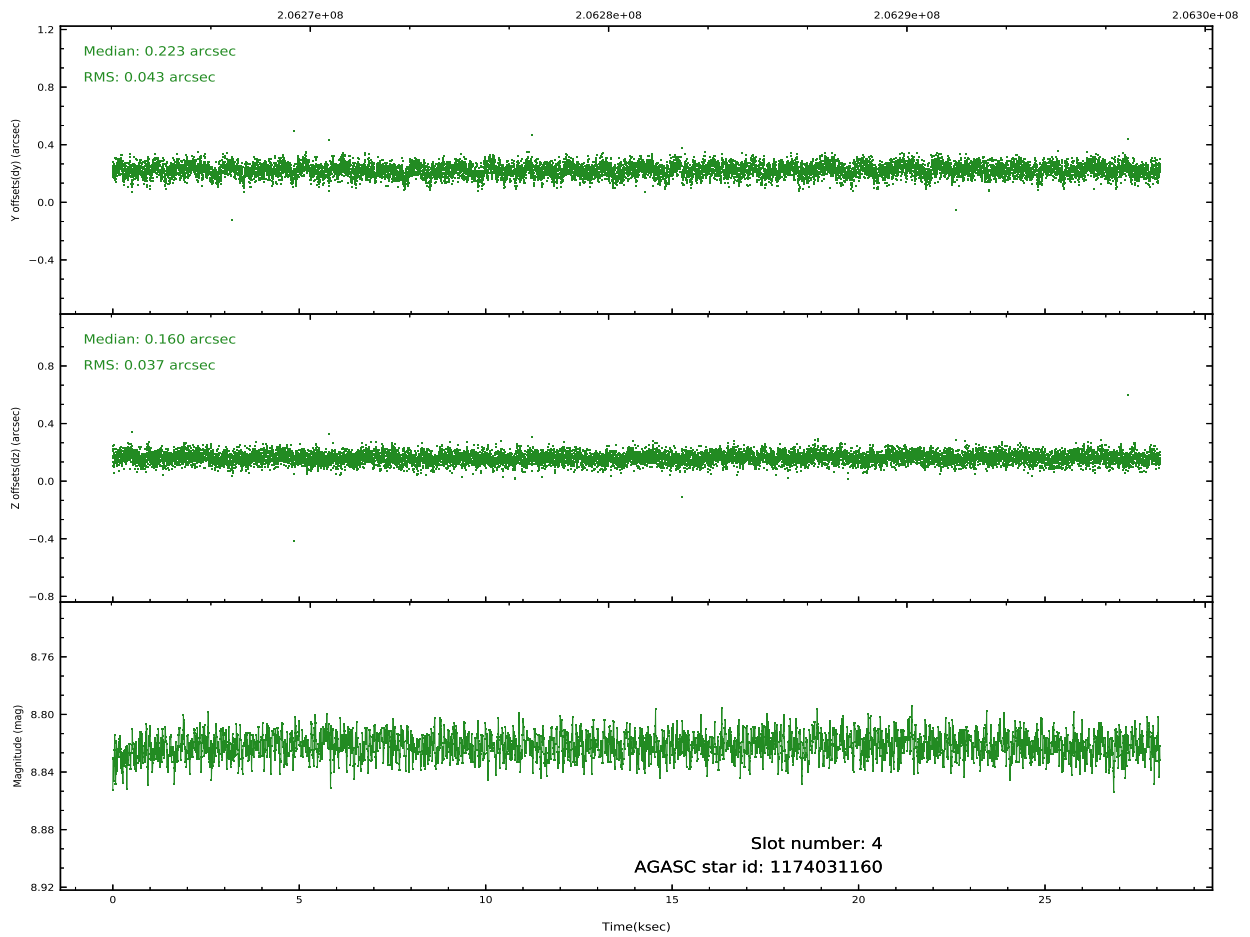
Time (s)



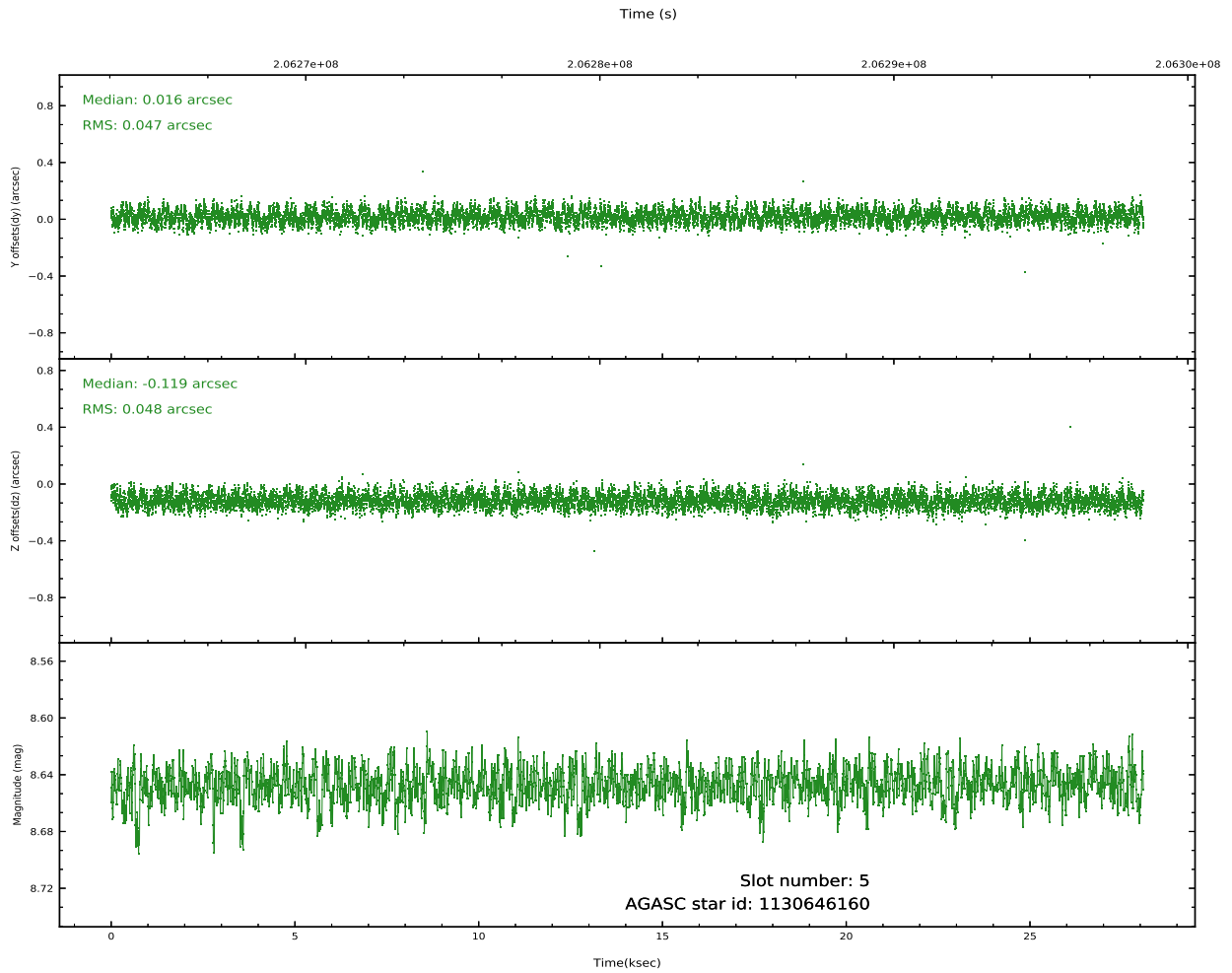
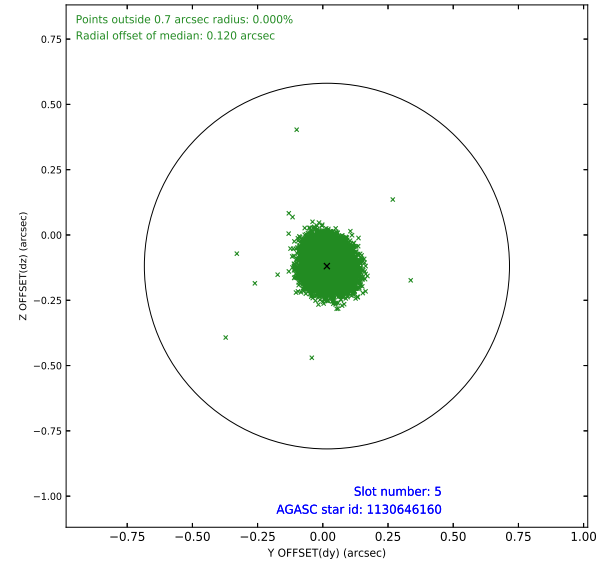
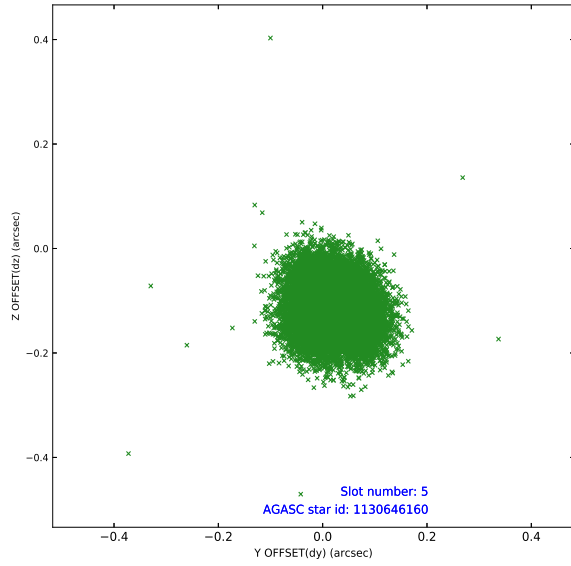
## 2.4.2 Slot 4



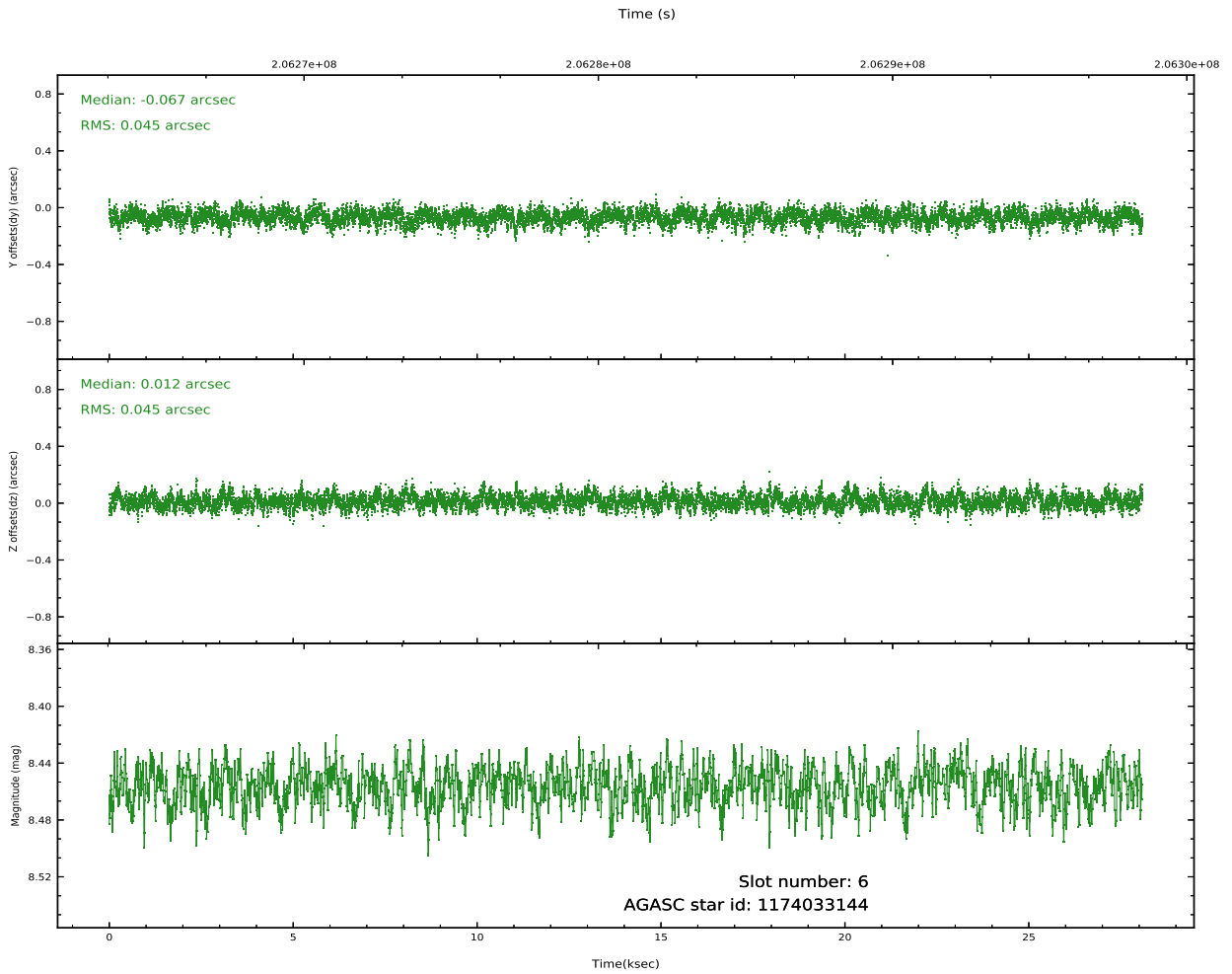
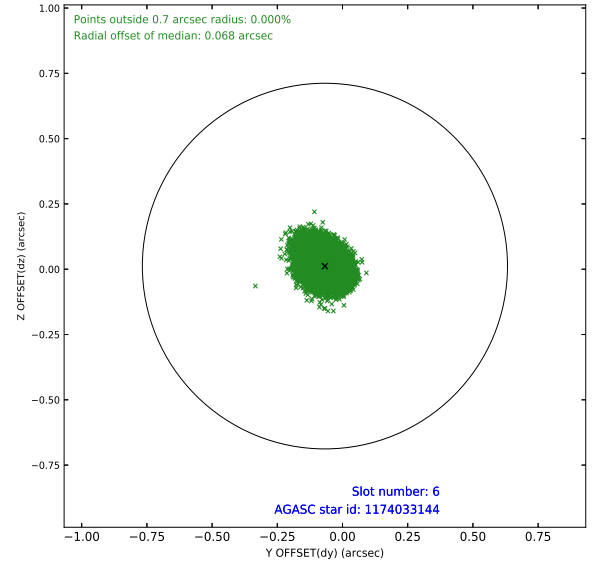
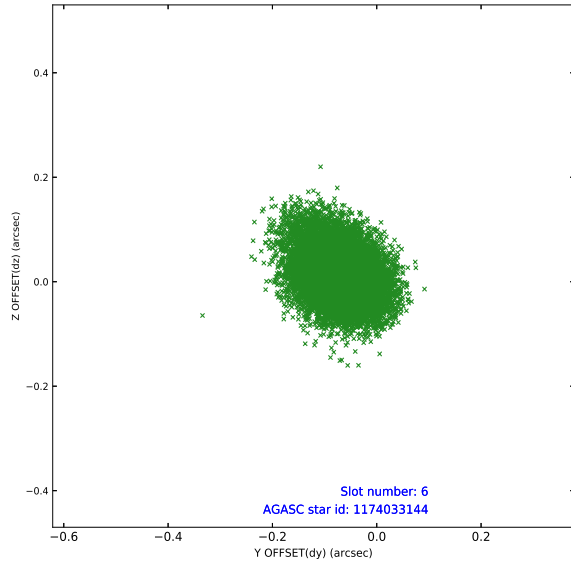
Time (s)



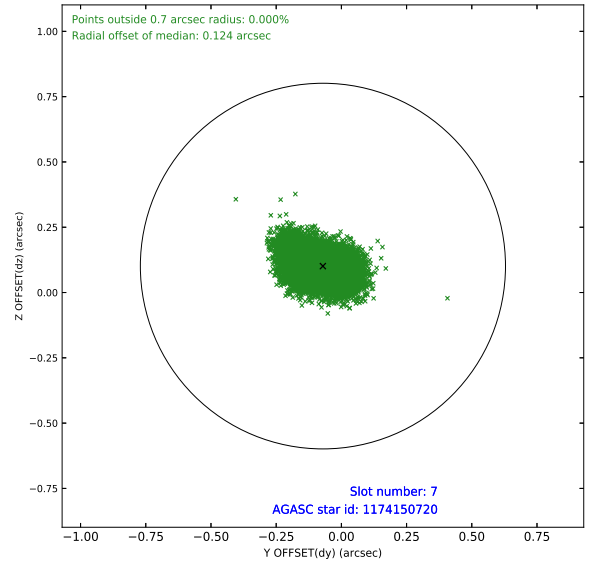
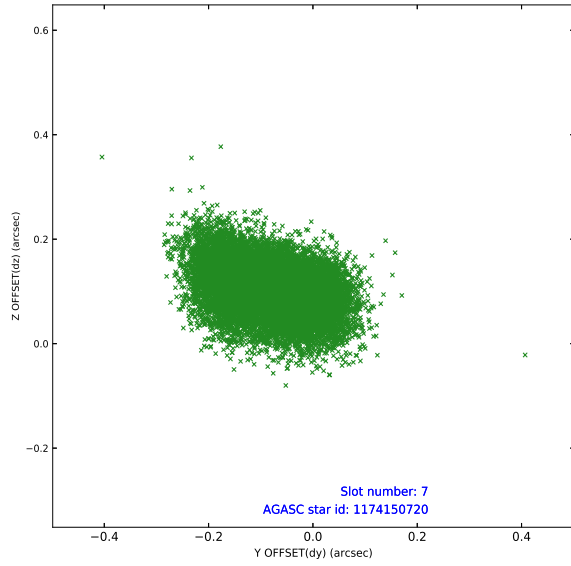
### 2.4.3 Slot 5



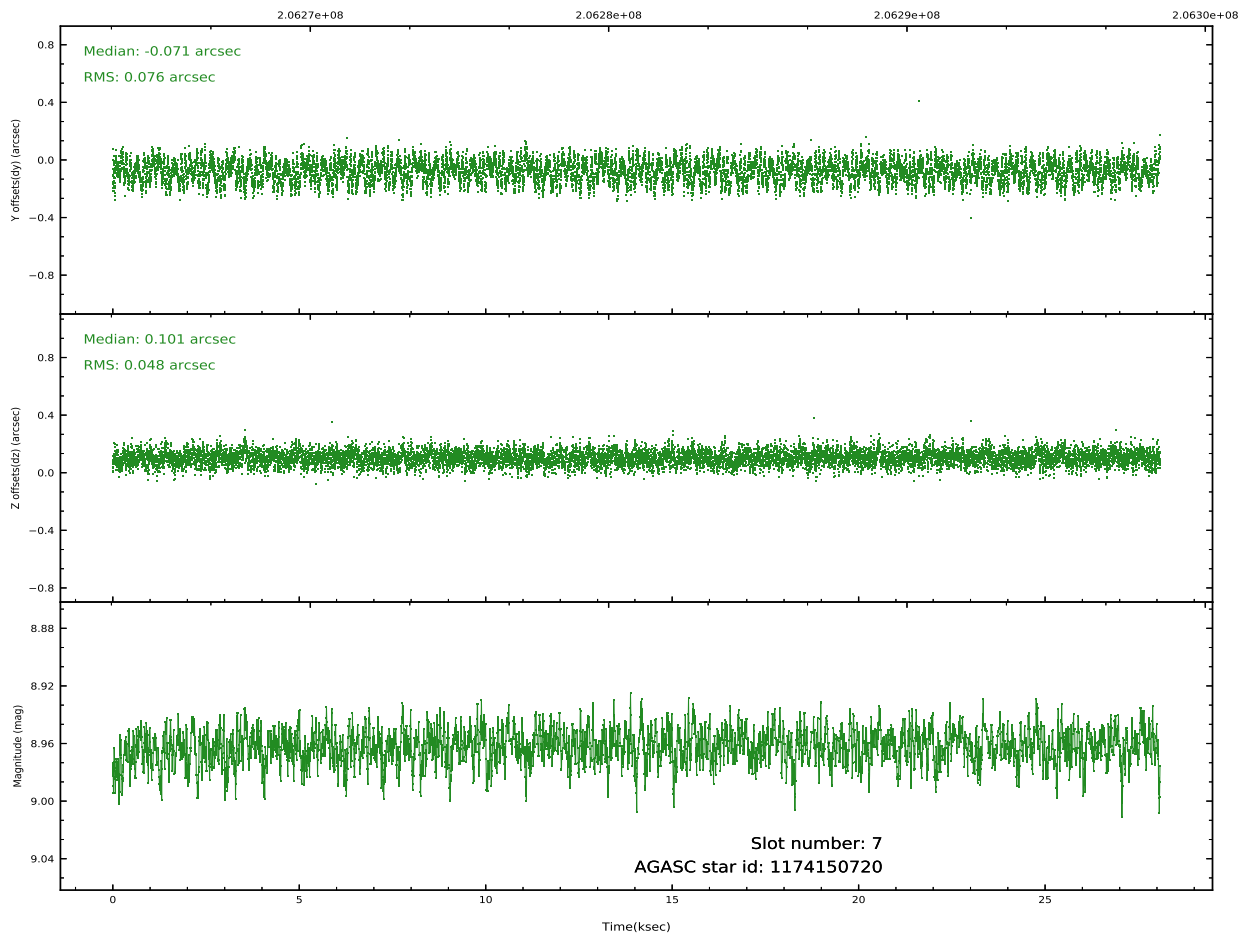
## 2.4.4 Slot 6



## 2.4.5 Slot 7

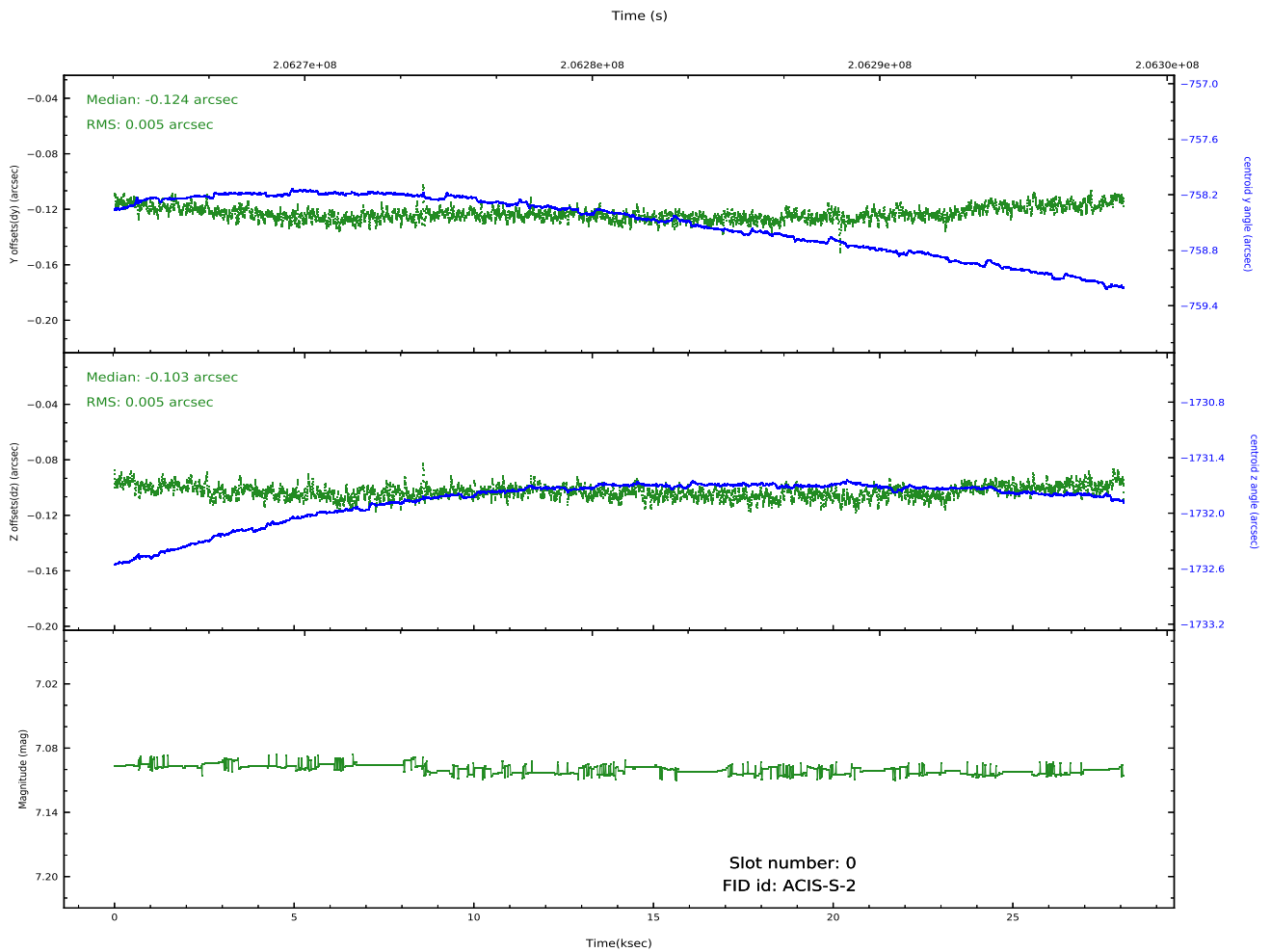
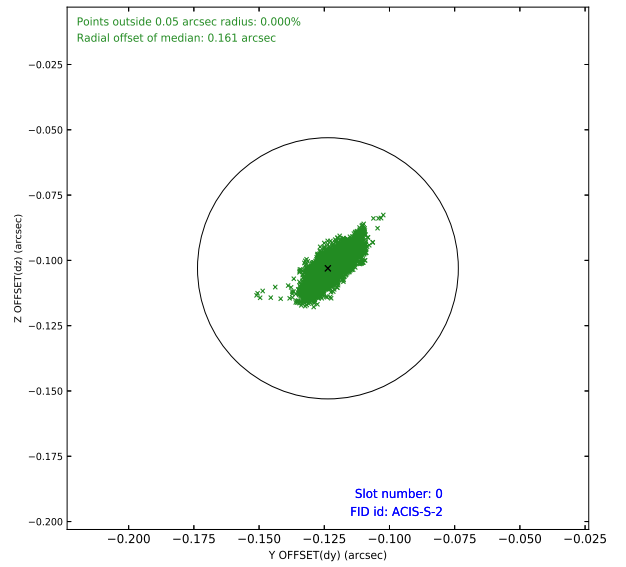
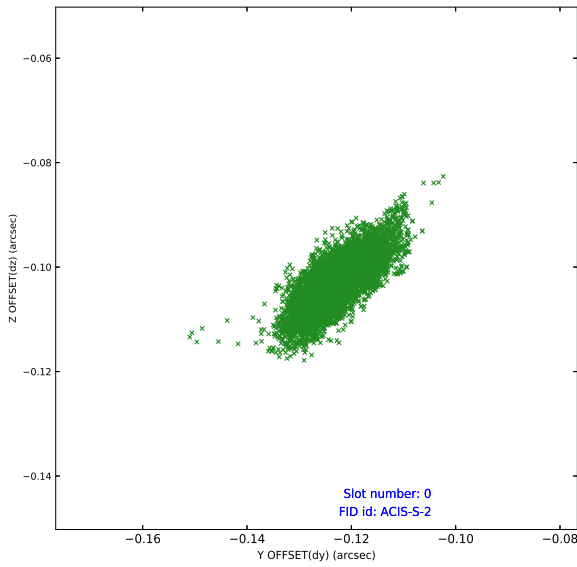


Time (s)

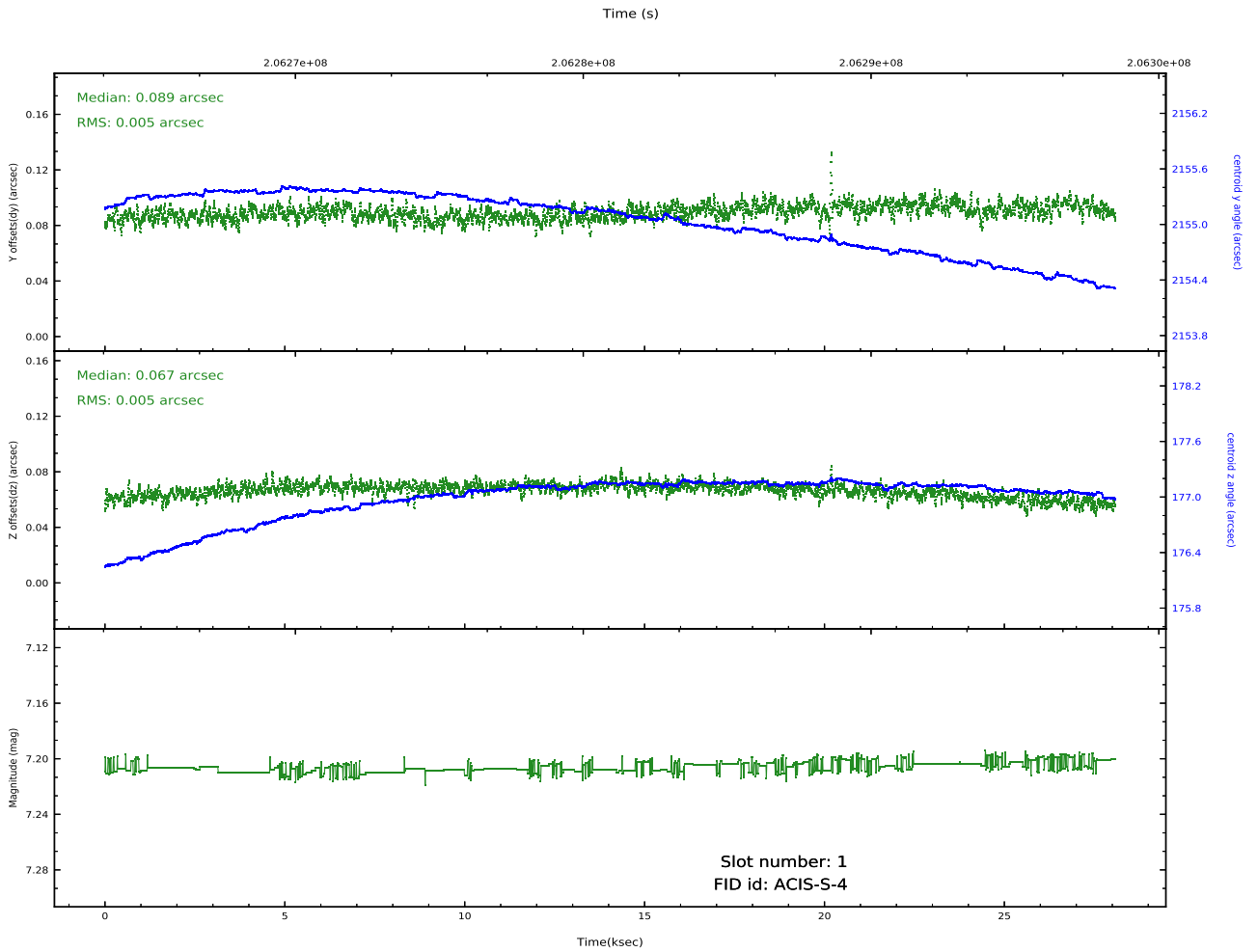
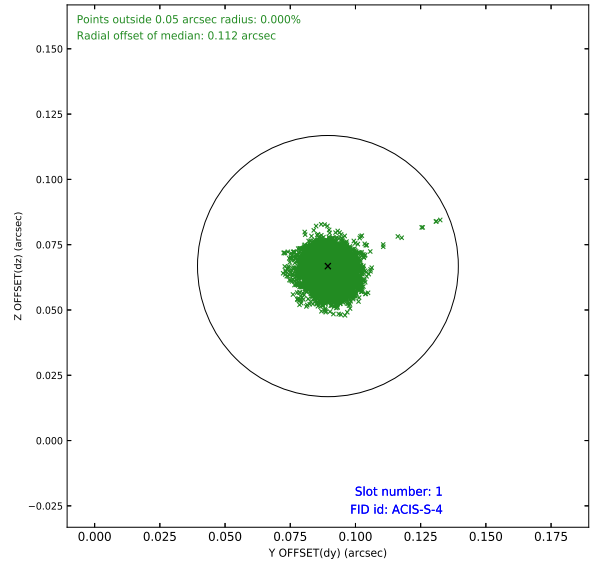
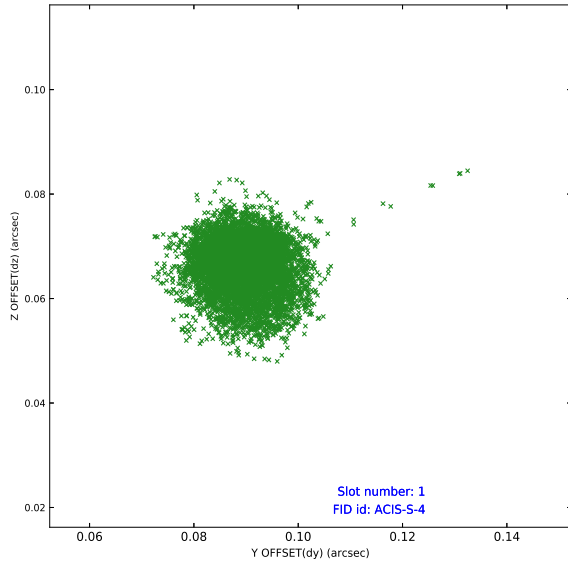


## 2.5 FID Slots

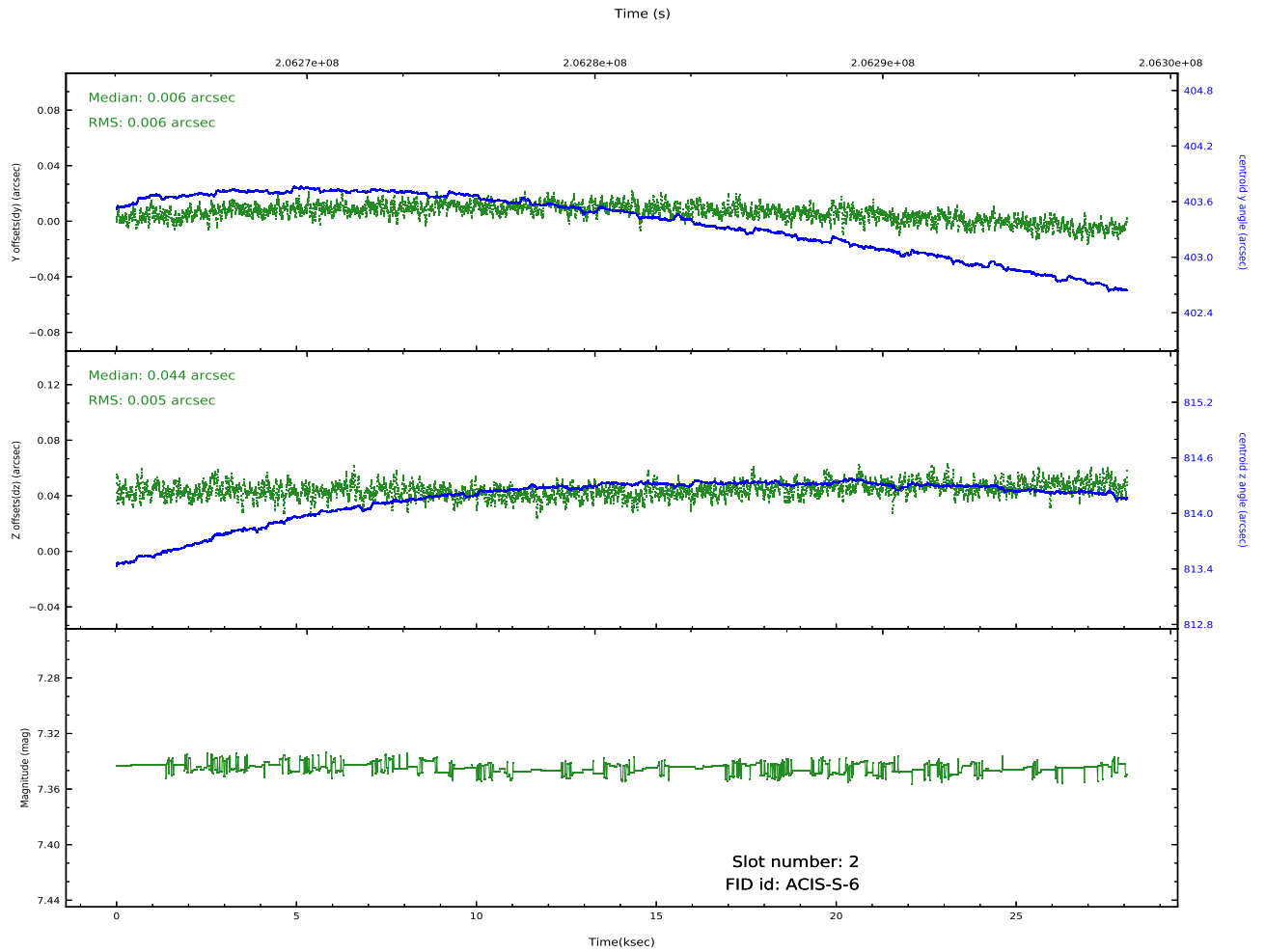
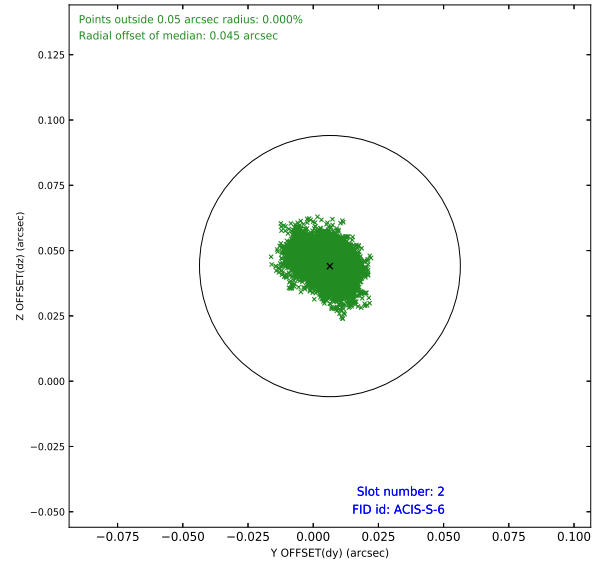
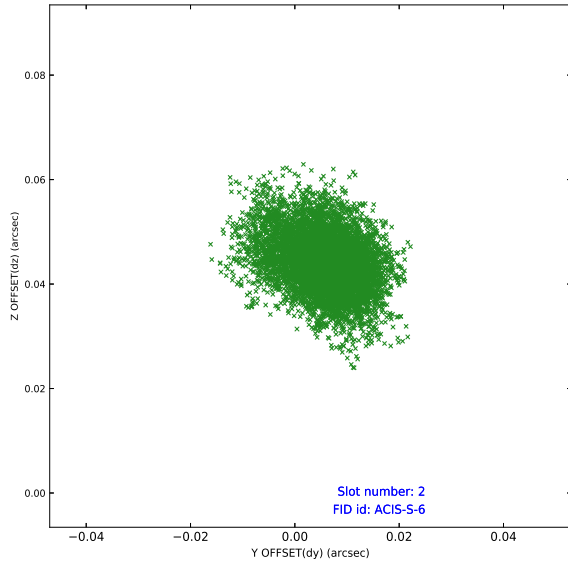
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



# A Summary

## A.1 Status

|                            |                |
|----------------------------|----------------|
| V&V Scientist              | David Principe |
| V&V Date (YYYY-MM-DD)      | 2020.10.05     |
| V&V Edition                | 1              |
| V&V Disposition and Status | OK             |
| V&V Charge Time            | 28.081         |

## A.2 Comments