

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 19351 - L2 Version 3  
Chandra X-Ray Center

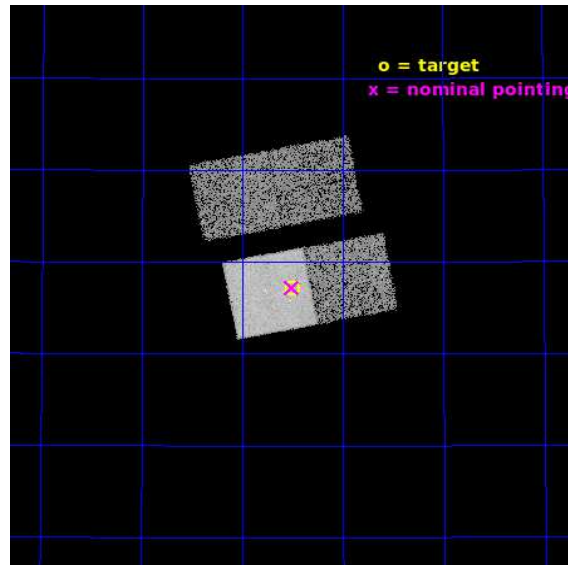
L2 Processing Date : Oct 24 2020

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# 1 Front

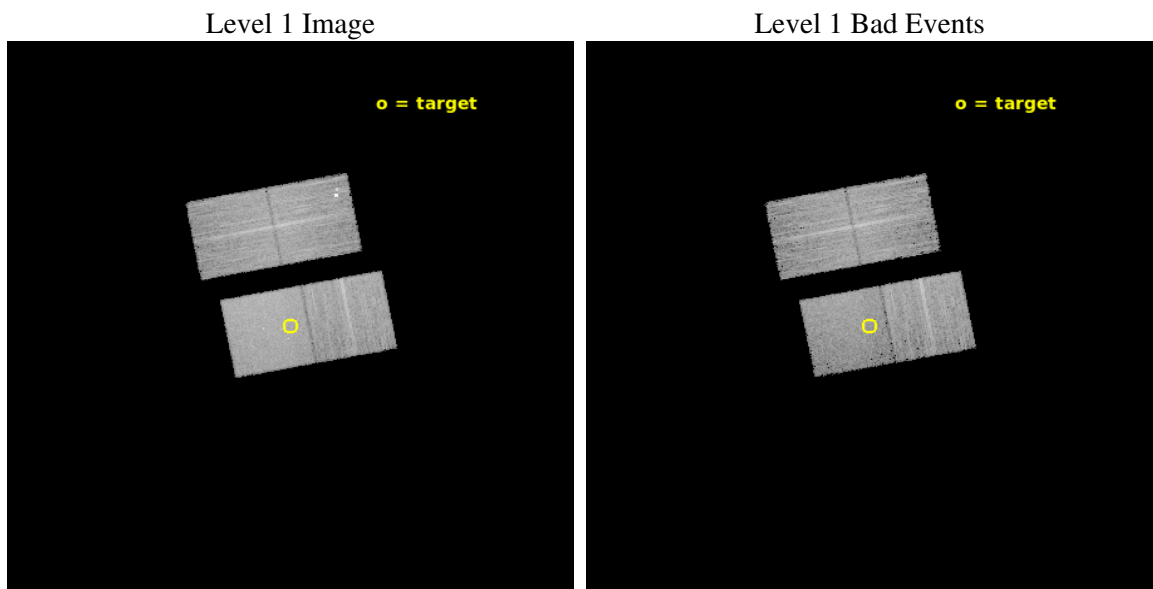
|          |                                                                                                                   |                                             |
|----------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| seq_num  | 601308                                                                                                            | Sequence number                             |
| obs_id   | 19351                                                                                                             | Observation id                              |
| title    | A Statistically Complete High Resolution Chandra and Radio (eMERLIN) Survey of the Palomar Nearby Galaxies Sample | Proposal title                              |
| observer | Ian McHardy                                                                                                       | Principal investigator                      |
| object   | NGC 4242                                                                                                          | Source name                                 |
| dtcycle  | 0                                                                                                                 | &#160                                       |
| cycle    | P                                                                                                                 | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 184.375417                                                                                                        | Observer's specified target RA [deg]        |
| dec_targ | 45.619194                                                                                                         | Observer's specified target Dec [deg]       |
| ra_nom   | 184.37697029699                                                                                                   | Nominal RA [deg]                            |
| dec_nom  | 45.620266964681                                                                                                   | Nominal Dec [deg]                           |
| roll_nom | 169.15018254544                                                                                                   | Nominal Roll [deg]                          |
| revision | 3                                                                                                                 | Processing version of data                  |
| ontime   | 10068.06360054                                                                                                    | Sum of GTIs [s]                             |
| livetime | 9936.5169375985                                                                                                   | Livetime [s]                                |
| ontime2  | 10067.94048059                                                                                                    | Sum of GTIs [s]                             |
| ontime3  | 10067.981520534                                                                                                   | Sum of GTIs [s]                             |
| ontime6  | 10068.022560596                                                                                                   | Sum of GTIs [s]                             |
| ontime7  | 10068.06360054                                                                                                    | Sum of GTIs [s]                             |
| l2events | 60724                                                                                                             | Number of level 2 events                    |



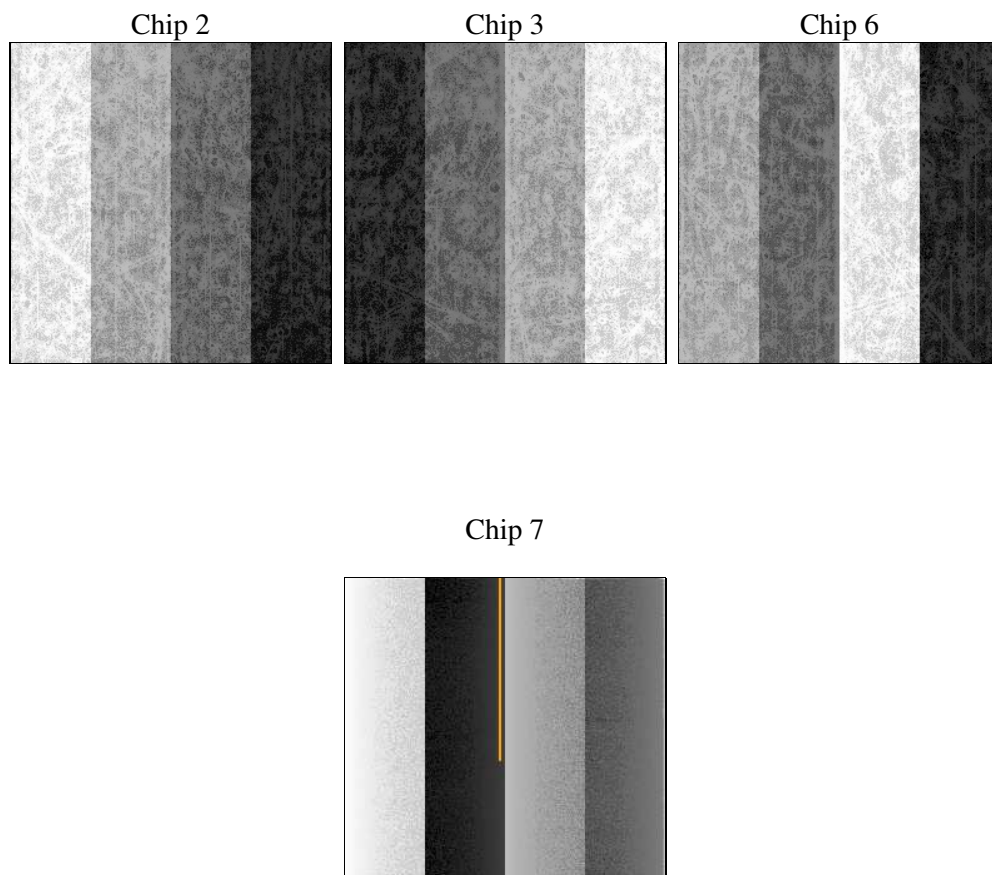
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 10000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.9.2              | Processing system revision     | ontime         | 10068.06360054  | Sum of GTIs [s]                         |
| caldsver | 4.9.3               | &#160                          | ontime2        | 10067.94048059  | Sum of GTIs [s]                         |
| date     | 2020-10-25T02:35:04 | Date and time of file creation | ontime3        | 10067.981520534 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime6        | 10068.022560596 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 10068.06360054  | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 327402          | Number of level 1 events                |

### 2.1.4 Events

|                 | ccd 2 | ccd 3 | ccd 6 | ccd 7 |
|-----------------|-------|-------|-------|-------|
| level 1 events  | 81424 | 72881 | 77853 | 95244 |
| rejected events | 70868 | 65307 | 69315 | 53812 |
| rejected %      | 87%   | 89%   | 89%   | 56%   |

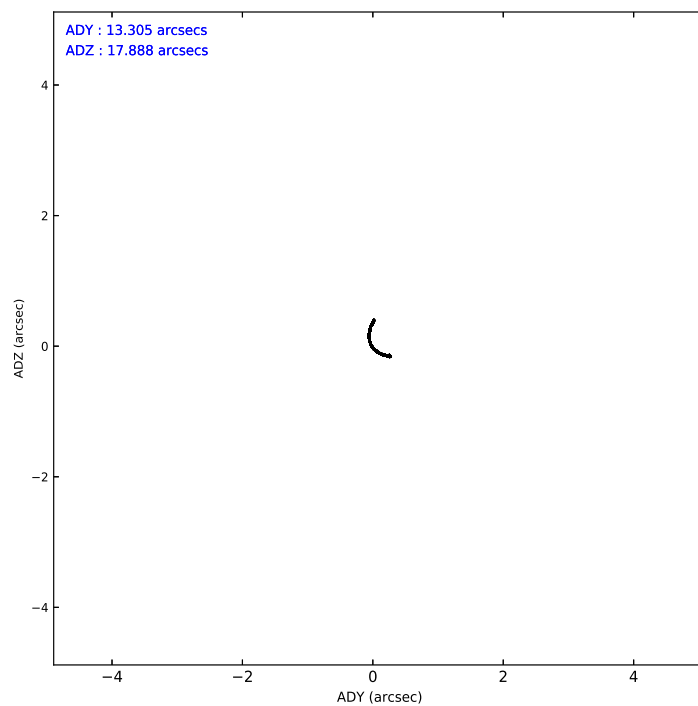
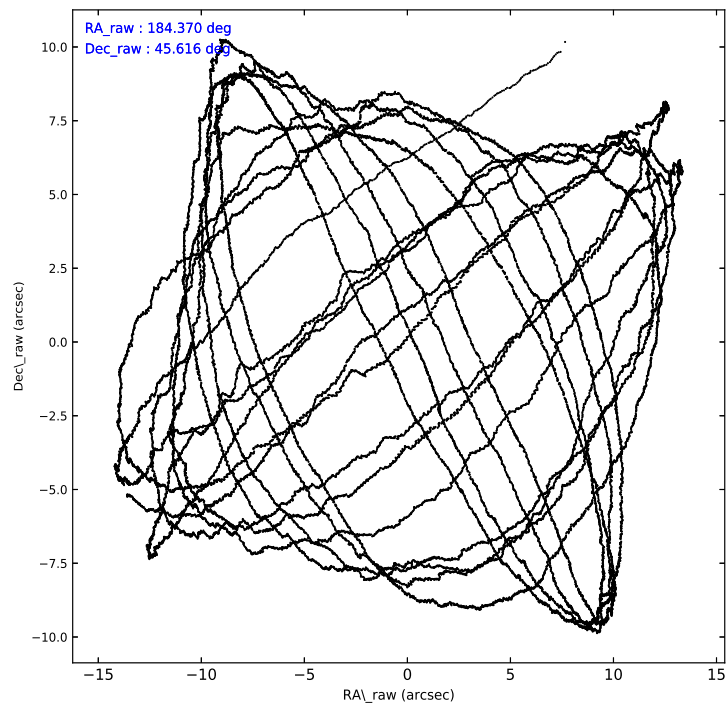
|                | ccd 2 | ccd 3 | ccd 6 | ccd 7 |
|----------------|-------|-------|-------|-------|
| grade 0 events | 5593  | 2675  | 2706  | 3489  |
|                | 6%    | 3%    | 3%    | 3%    |
| grade 1 events | 44    | 43    | 40    | 121   |
|                | 0%    | 0%    | 0%    | 0%    |
| grade 2 events | 1848  | 1681  | 2155  | 8568  |
|                | 2%    | 2%    | 2%    | 8%    |
| grade 3 events | 818   | 797   | 779   | 3216  |
|                | 1%    | 1%    | 1%    | 3%    |
| grade 4 events | 811   | 799   | 770   | 3210  |
|                | 0%    | 1%    | 0%    | 3%    |
| grade 5 events | 2815  | 3405  | 3323  | 9056  |
|                | 3%    | 4%    | 4%    | 9%    |
| grade 6 events | 1494  | 1626  | 2135  | 22977 |
|                | 1%    | 2%    | 2%    | 24%   |
| grade 7 events | 68001 | 61855 | 65945 | 44607 |
|                | 83%   | 84%   | 84%   | 46%   |

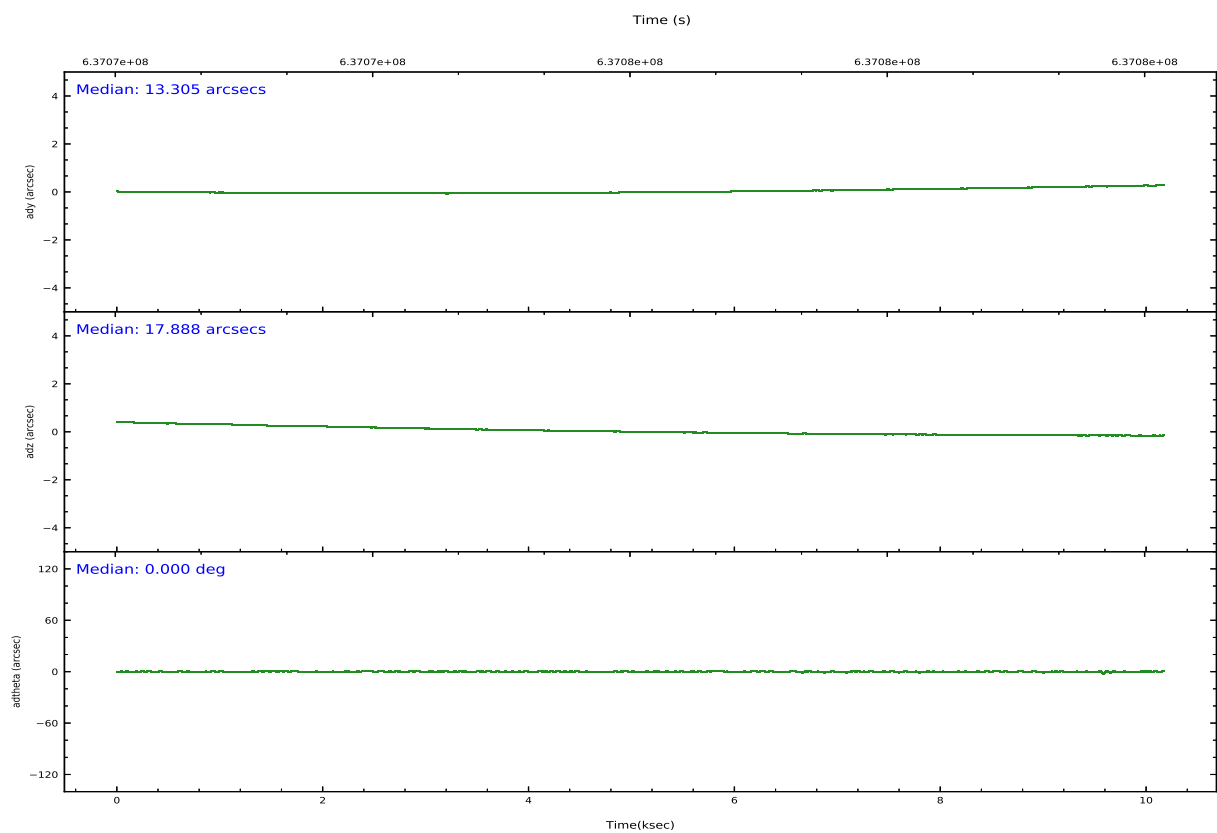
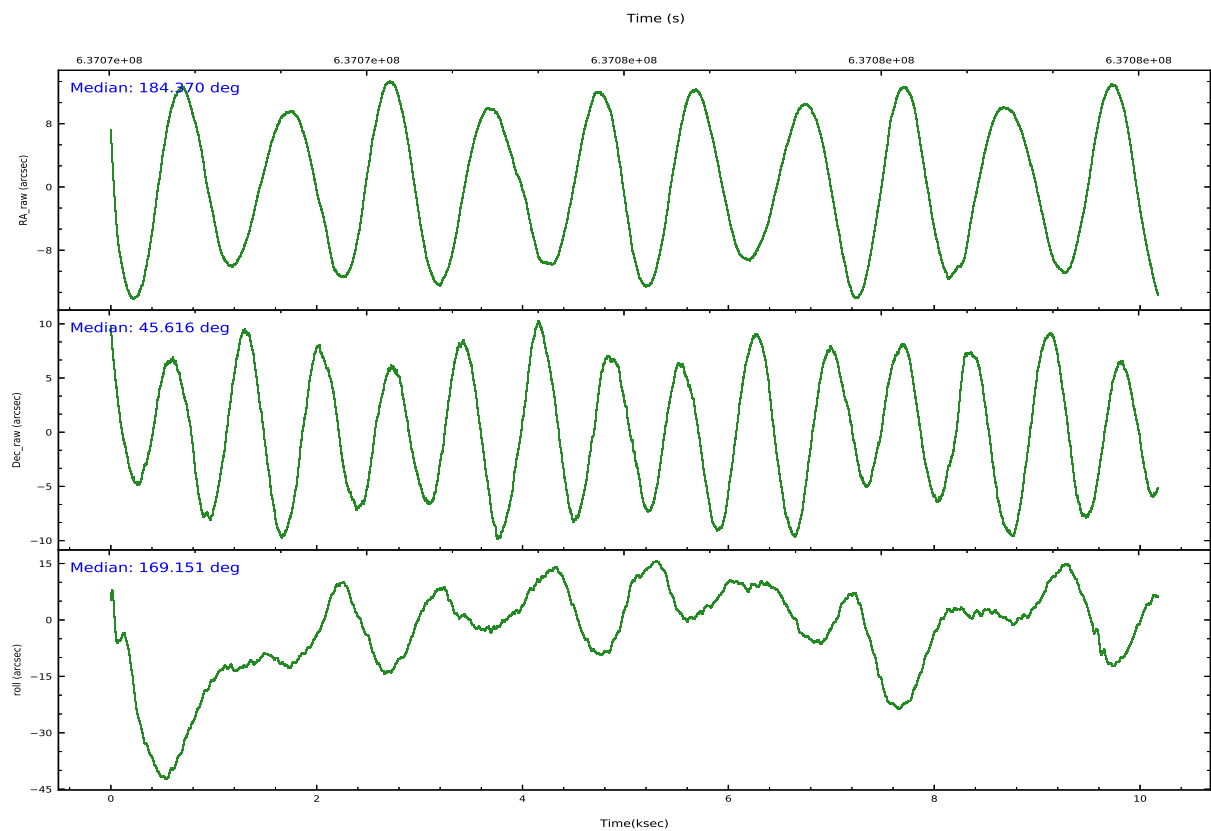


## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-2367           | ACIS-2367            | 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                 | 184.407275          | 184.37697029699      | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | 45.625257           | 45.620266964681      | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 168.977227          | 169.15018254544      | [s] Primary exposure time             | 0.000000  | 3.1     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos    | -190.132523         | -190.1425803651734   |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.01005778216563158  |                                       |           |         |
| [s] Observation start time (MET)  | 637070191.184000    | 637068502.61295      |                                       |           |         |
| Observation start date            | 2018-03-10T11:55:22 | 2018-03-10T11:28:22  |                                       |           |         |
| [s] Observation end time (MET)    | 637080191.184000    | 637080516.12616      |                                       |           |         |
| Observation end date              | 2018-03-10T14:42:02 | 2018-03-10T14:48:36  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



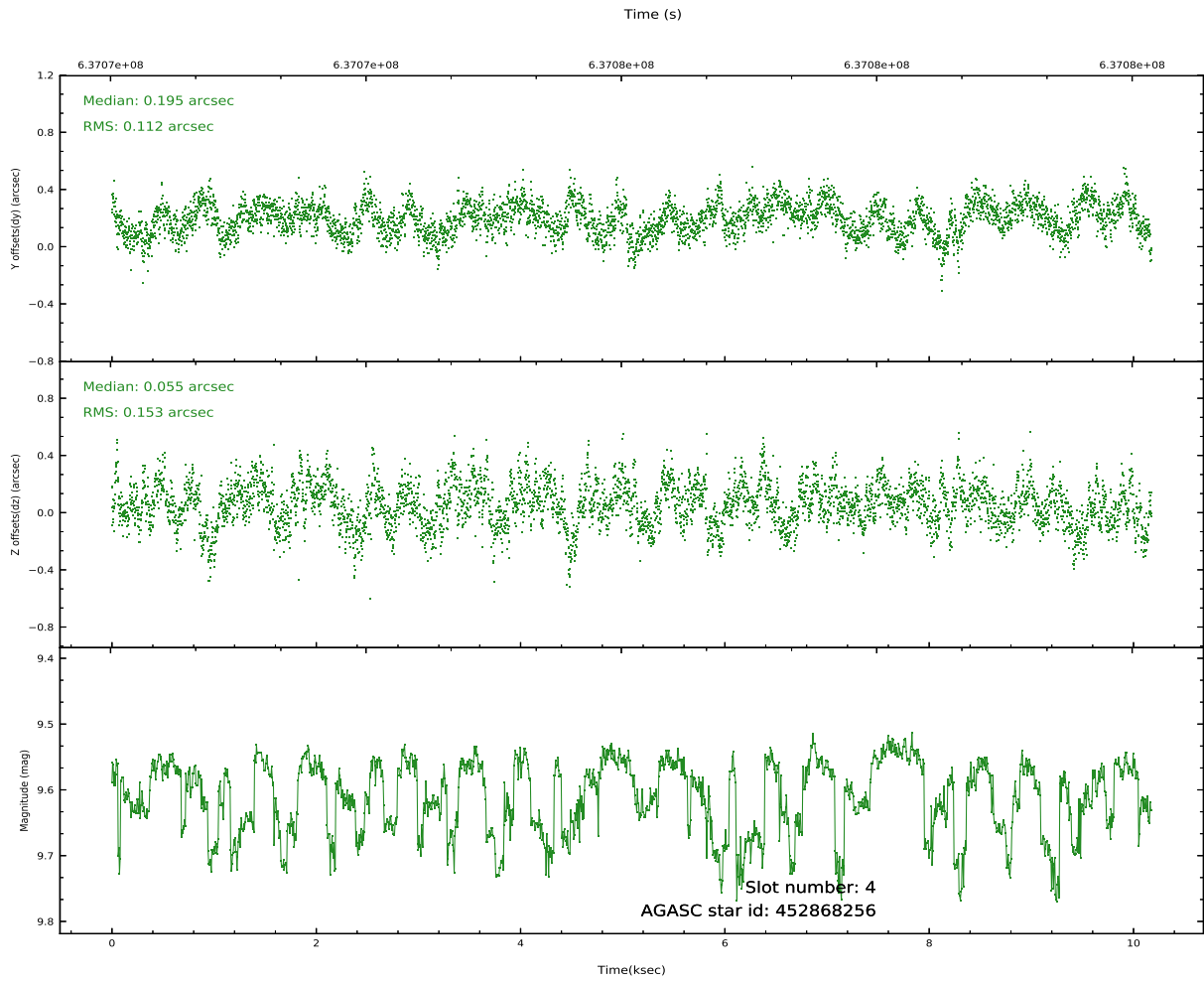
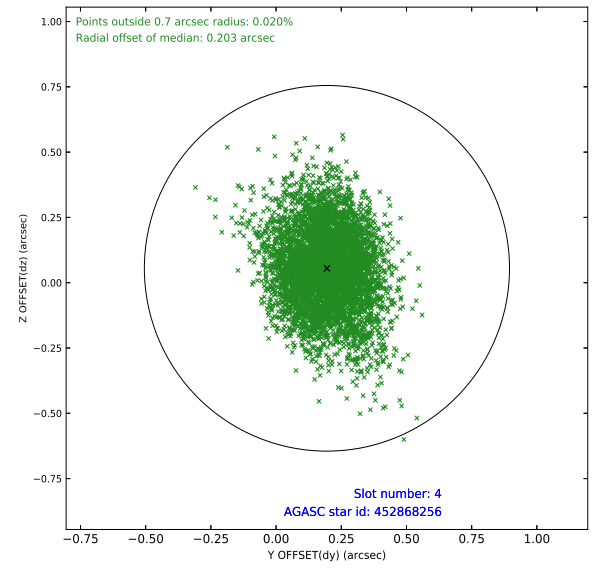
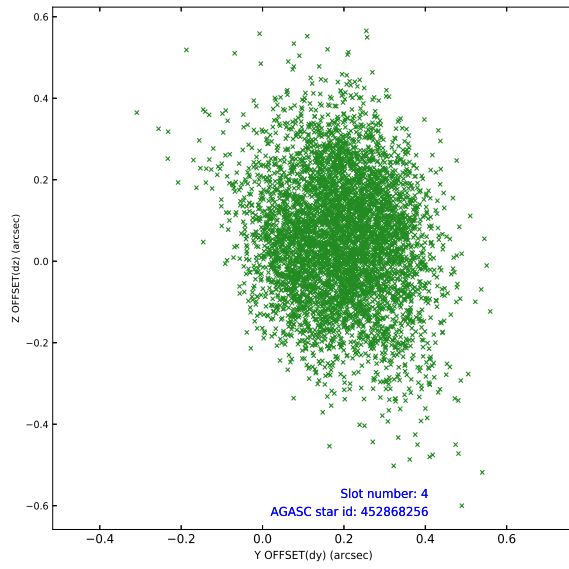


Slot Statistics

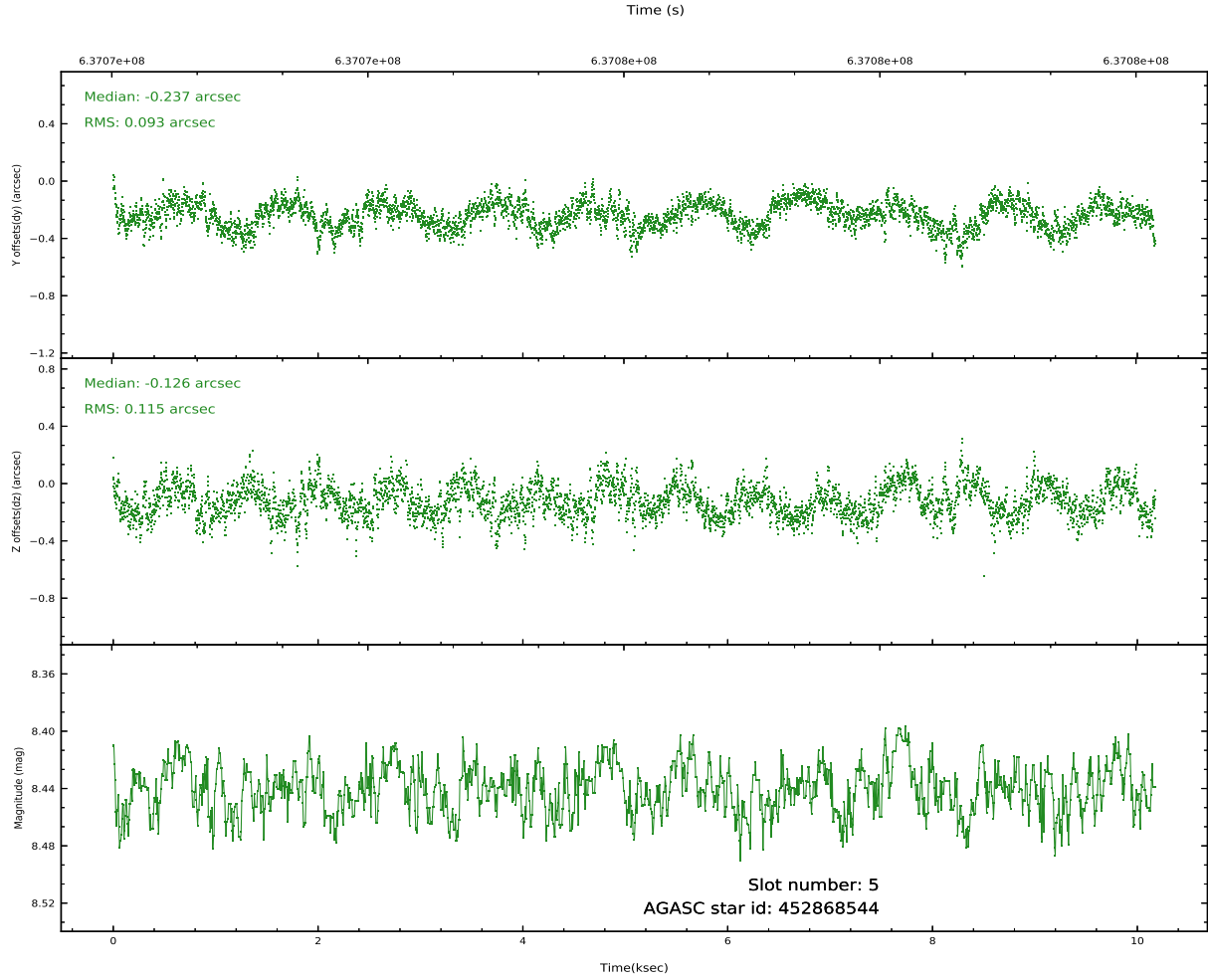
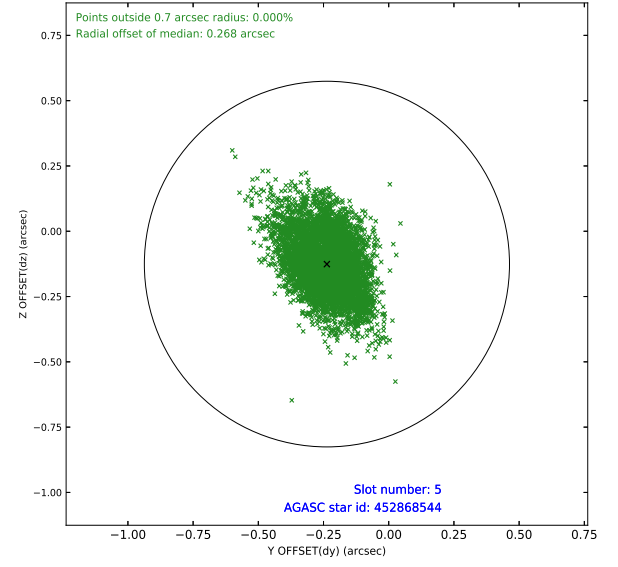
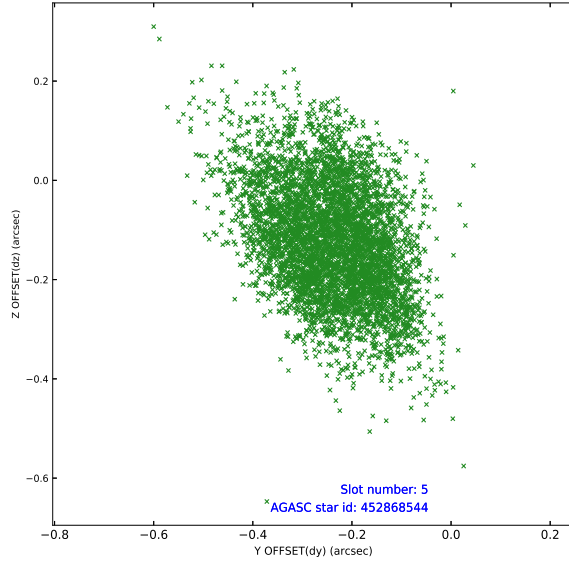
| pt | status  | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mea   |
|----|---------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|-----------|----------|-------|
| 0  | FID     |      | ACIS-S-1  | 7.18 | 2481  | 1.000    | 0.282  | -0.096 | 0.010 | 0.017 | 0.000000   | 0.000000  | 929.87   | -1735 |
| 1  | FID     |      | ACIS-S-4  | 7.20 | 2482  | 1.000    | 0.084  | -0.064 | 0.008 | 0.012 | 0.000000   | 0.000000  | 2147.55  | 168   |
| 2  | FID     |      | ACIS-S-5  | 7.18 | 2482  | 1.000    | -0.393 | 0.173  | 0.008 | 0.015 | 0.000000   | 0.000000  | -1818.83 | 163   |
| 3  | OMITTED |      |           | 0.00 | 0     | 0.000    | 0.000  | 0.000  | 0.000 | 0.000 | 0.000000   | 0.000000  | 0.00     | 0     |
| 4  | GUIDE   | used | 452868256 | 9.60 | 4949  | 1.000    | 0.195  | 0.055  | 0.198 | 0.331 | 184.397048 | 45.168627 | -284.33  | 1620  |
| 5  | GUIDE   | used | 452868544 | 8.44 | 4963  | 1.000    | -0.237 | -0.126 | 0.154 | 0.255 | 184.220519 | 45.089089 | 96.39    | 1985  |
| 6  | GUIDE   | used | 452865648 | 9.00 | 4961  | 1.000    | -0.012 | 0.096  | 0.190 | 0.305 | 184.770912 | 46.247011 | -460.13  | -2371 |
| 7  | GUIDE   | used | 395707288 | 9.45 | 4959  | 1.000    | 0.047  | -0.024 | 0.196 | 0.327 | 184.882822 | 44.879546 | -1704.16 | 2400  |

## 2.4 Star Slots

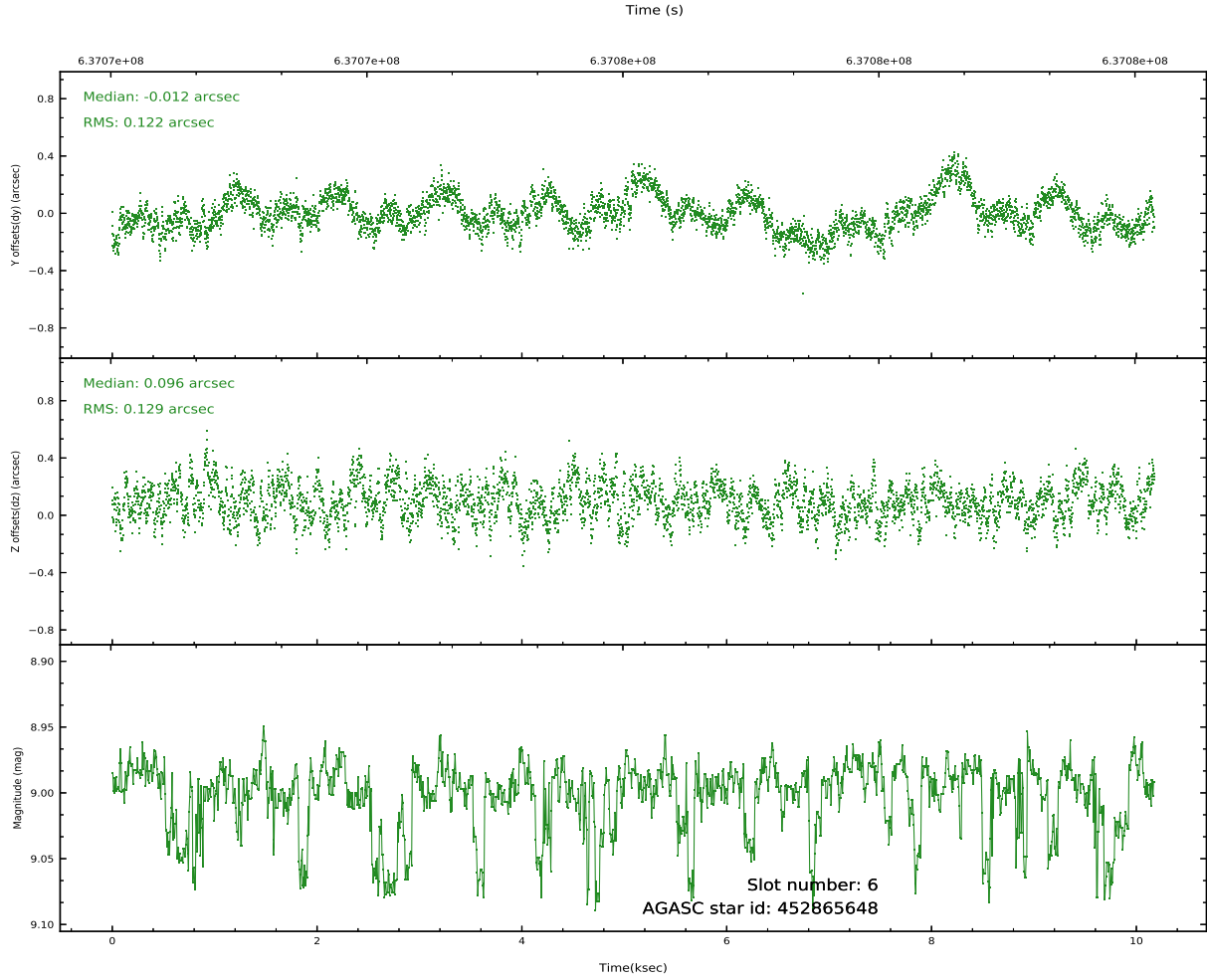
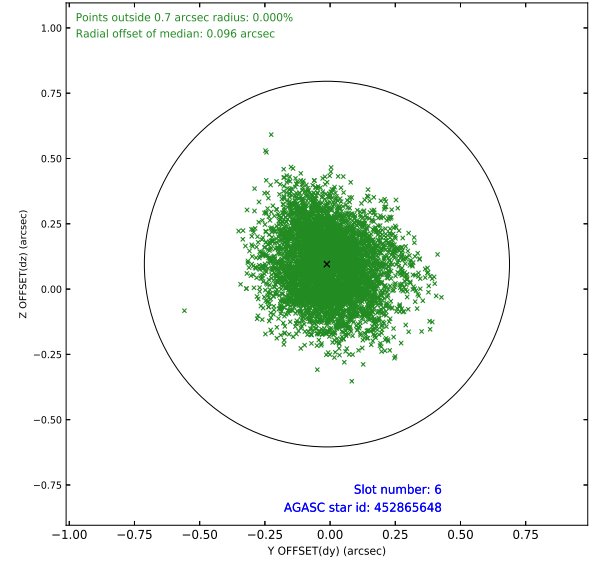
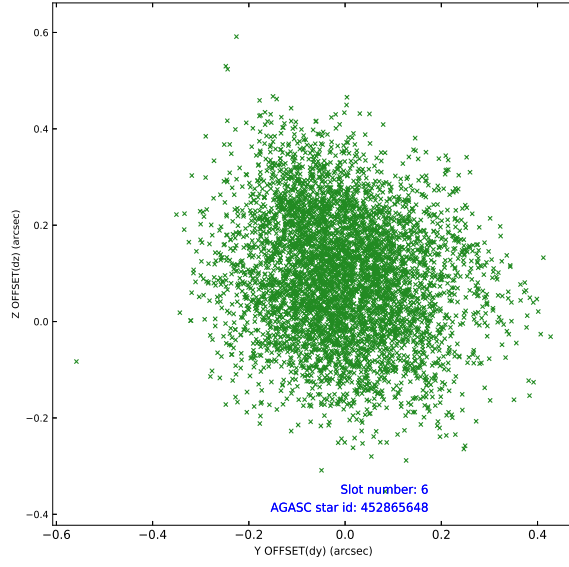
### 2.4.1 Slot 4



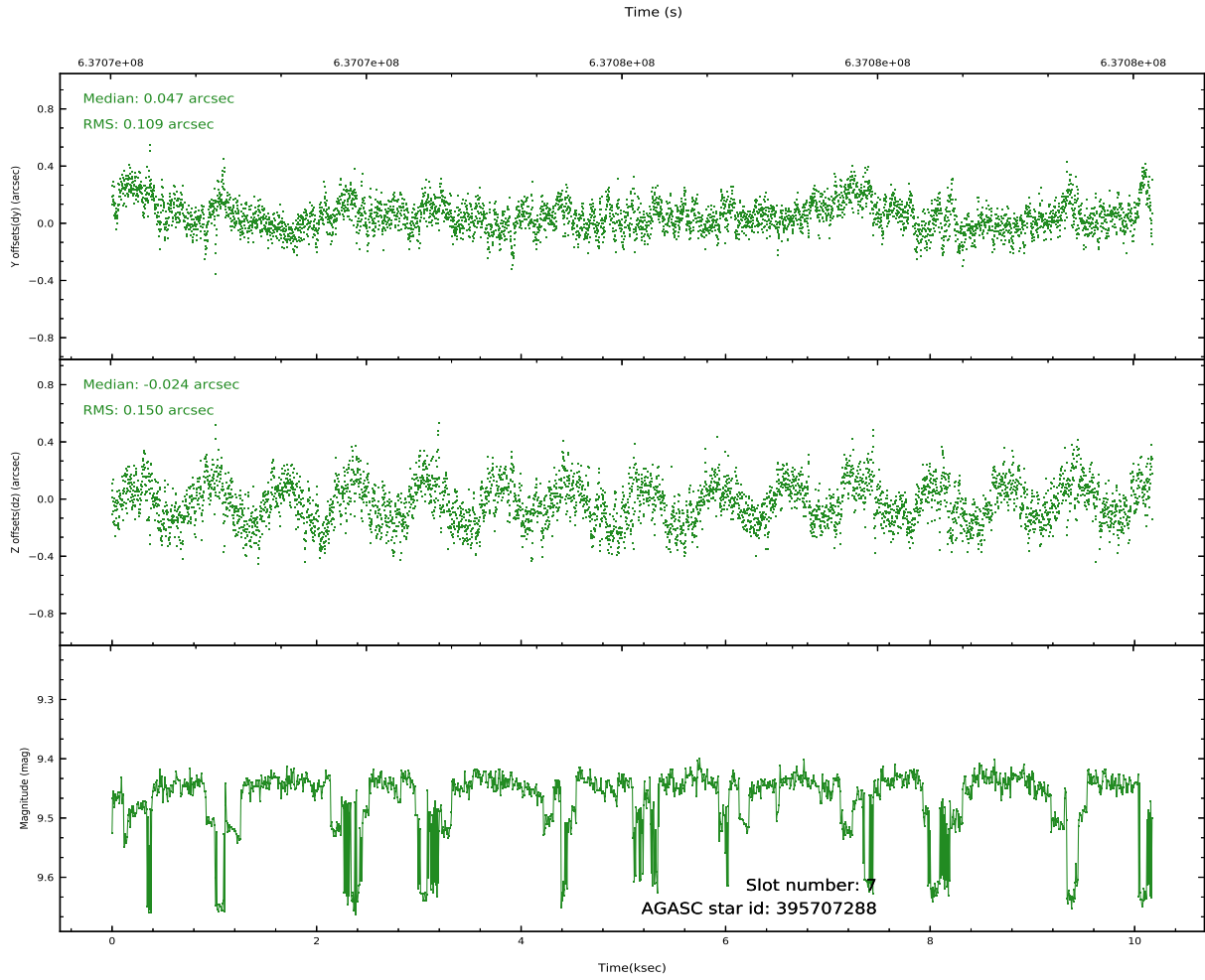
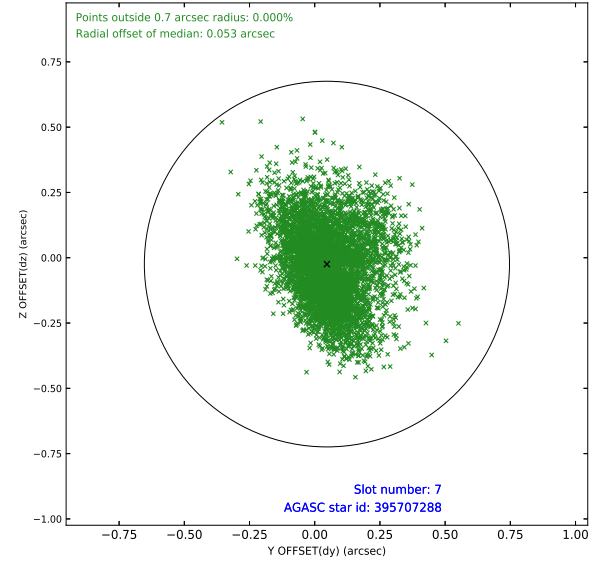
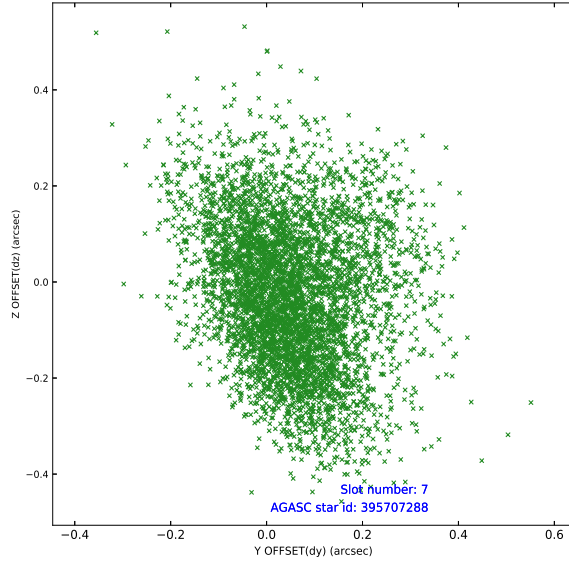
## 2.4.2 Slot 5



### 2.4.3 Slot 6



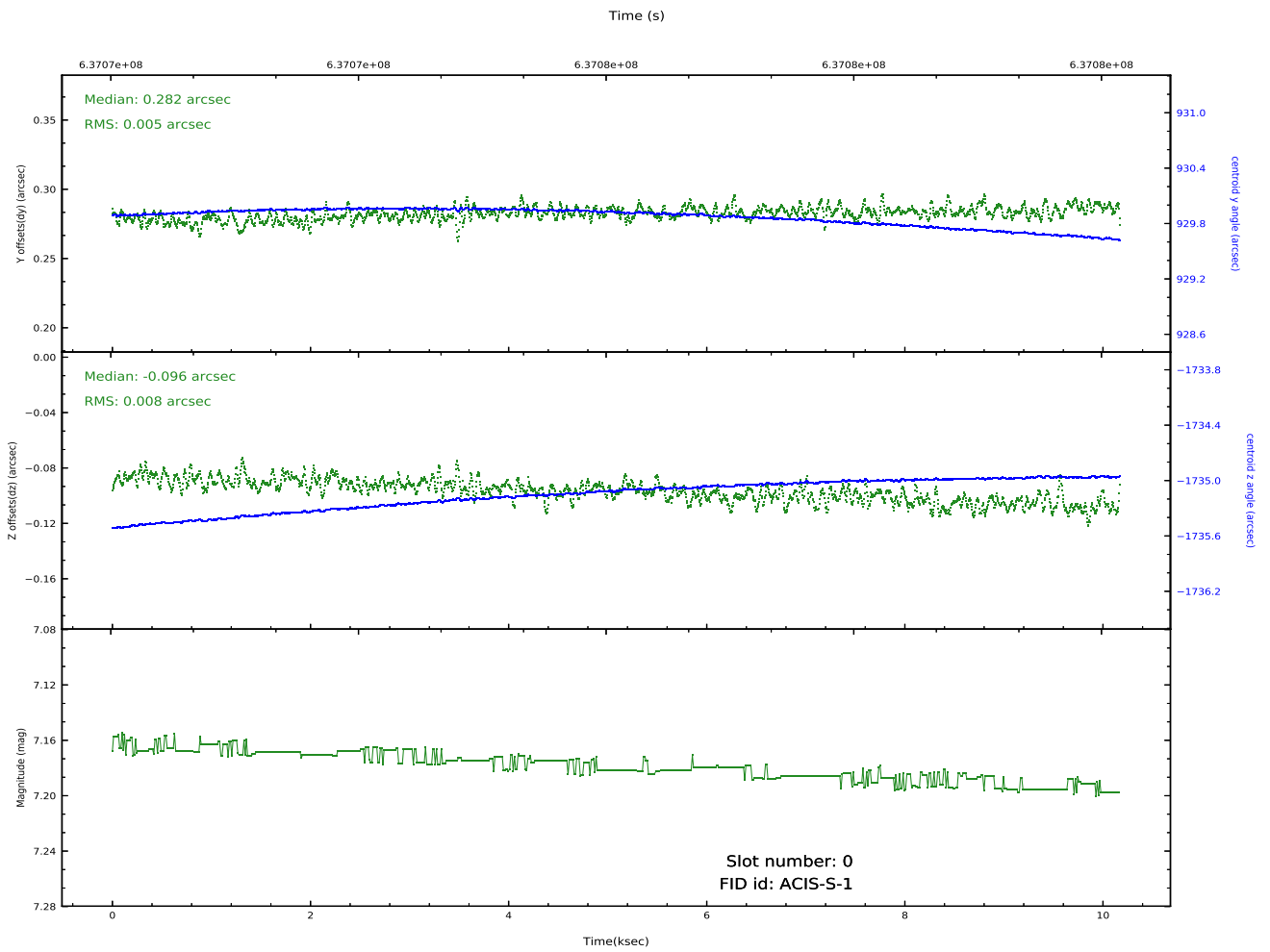
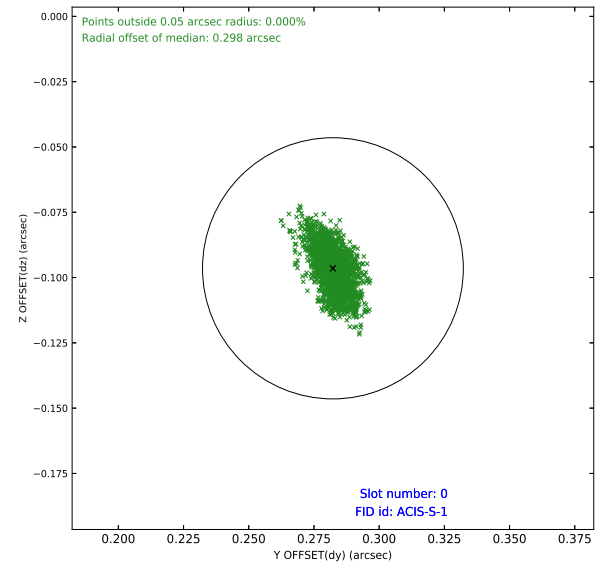
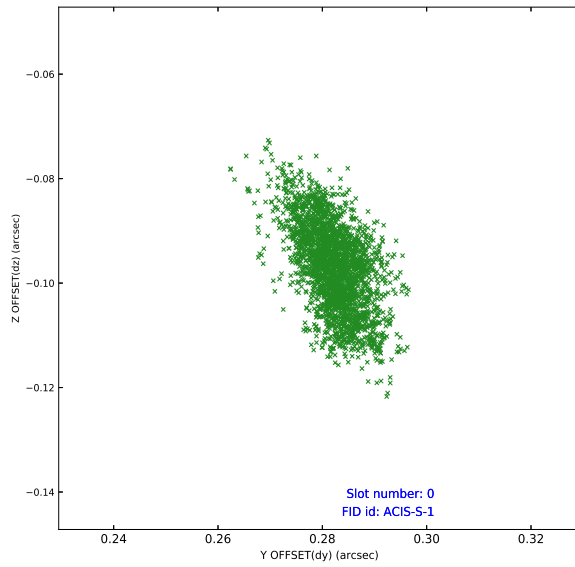
## 2.4.4 Slot 7



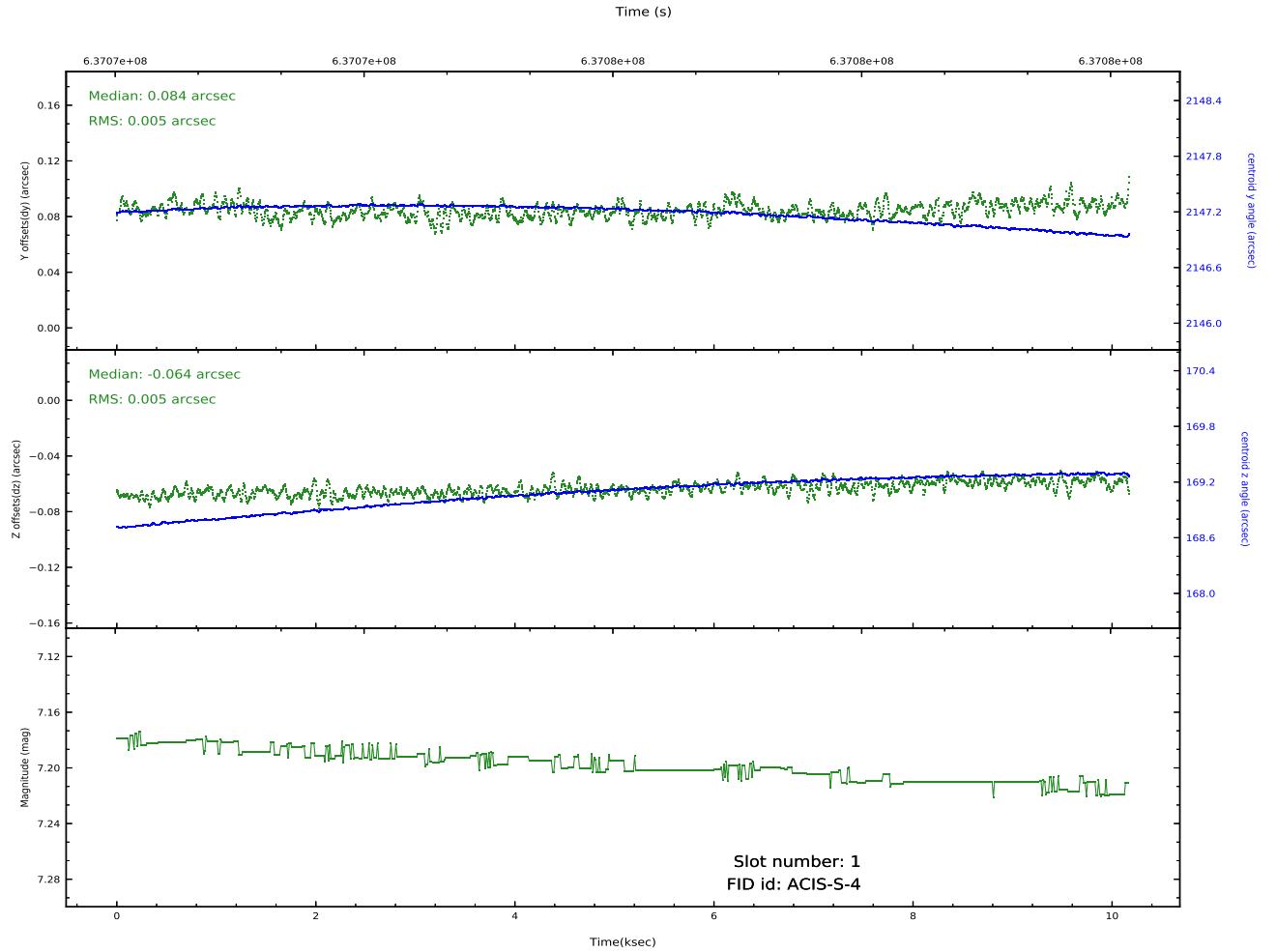
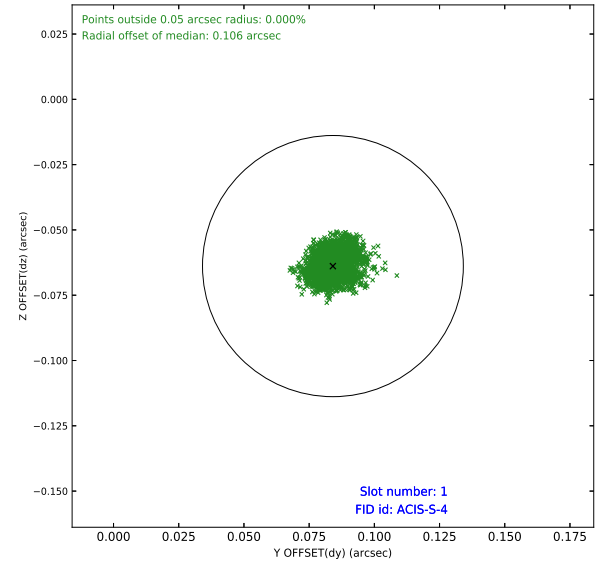
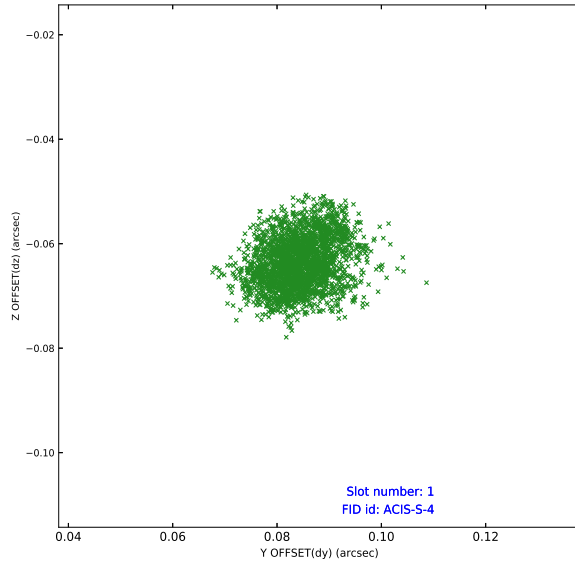


## 2.5 FID Slots

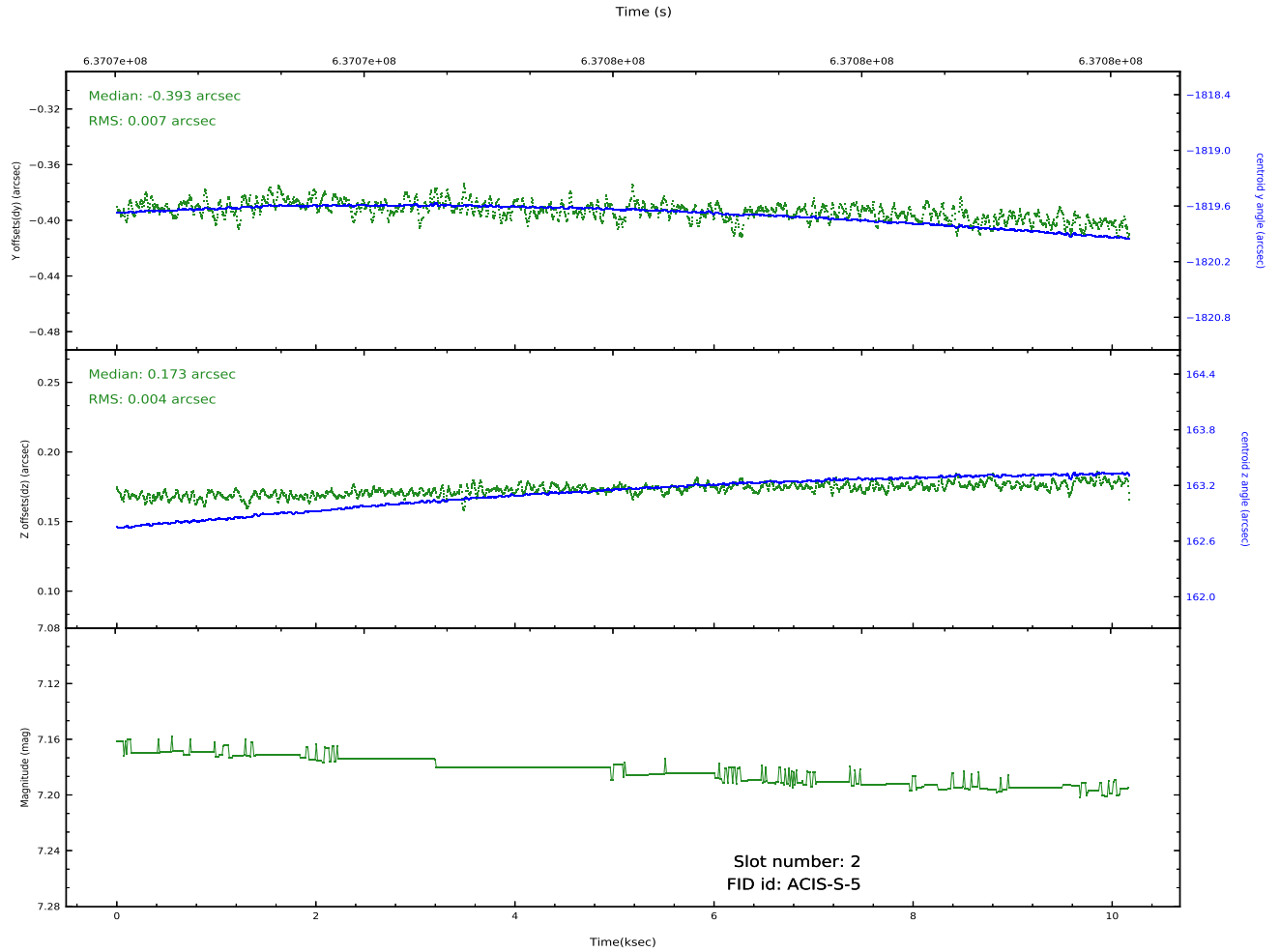
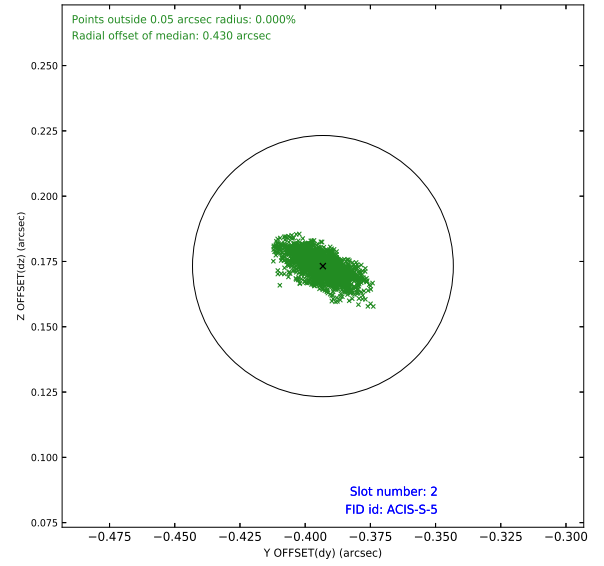
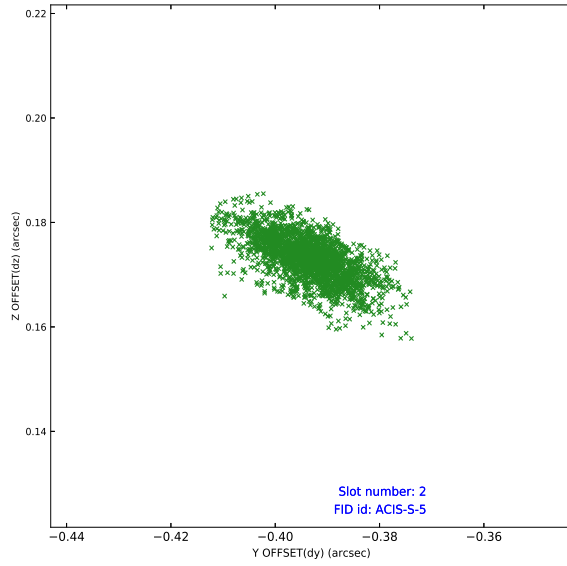
### 2.5.1 Slot 0



## 2.5.2 Slot 1



## 2.5.3 Slot 2



# A Summary

## A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Jen Lauer       |
| V&V Date (YYYY-MM-DD)      | 2020.10.26      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 10.068063600183 |

## A.2 Comments

The guide star in slot 3 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.