

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 6100 - L2 Version 4  
Chandra X-Ray Center

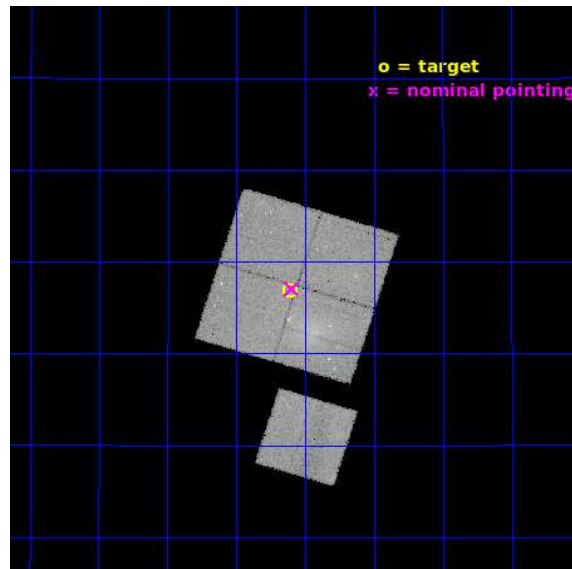
L2 Processing Date : Oct 7 2020

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# 1 Front

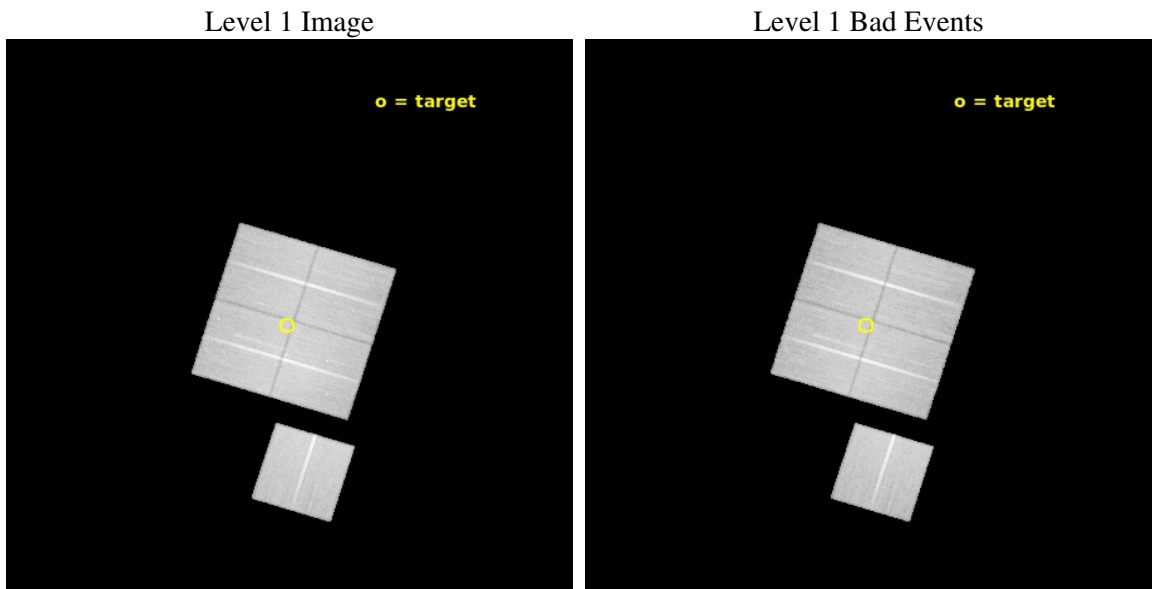
|          |   |   |
|----------|---|---|
| seq_num  | 800548  | Sequence number                             |
| obs_id   | 6100  | Observation id                              |
| title    | A Chandra Study of the Unusual Galaxy Cluster A1569 | Proposal title                              |
| observer | Dr. Stephen Murray                                  | Principal investigator                      |
| object   | Abell 1569  | Source name                                 |
| dtycycle | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 189.15247   | Observer's specified target RA [deg]        |
| dec_targ | 16.613885   | Observer's specified target Dec [deg]       |
| ra_nom   | 189.14921125001                                     | Nominal RA [deg]                            |
| dec_nom  | 16.617928605489                                     | Nominal Dec [deg]                           |
| roll_nom | 197.27391287333                                     | Nominal Roll [deg]                          |
| revision | 4   | Processing version of data                  |
| ontime   | 41753.108253807                                     | Sum of GTIs [s]                             |
| livetime | 41207.57315628                                      | Livetime [s]                                |
| ontime0  | 41749.84414354                                      | Sum of GTIs [s]                             |
| ontime1  | 41753.0261738                                       | Sum of GTIs [s]                             |
| ontime2  | 41746.785233319                                     | Sum of GTIs [s]                             |
| ontime3  | 41753.108253807                                     | Sum of GTIs [s]                             |
| ontime6  | 41752.944093794                                     | Sum of GTIs [s]                             |
| l2events | 181666  | Number of level 2 events                    |



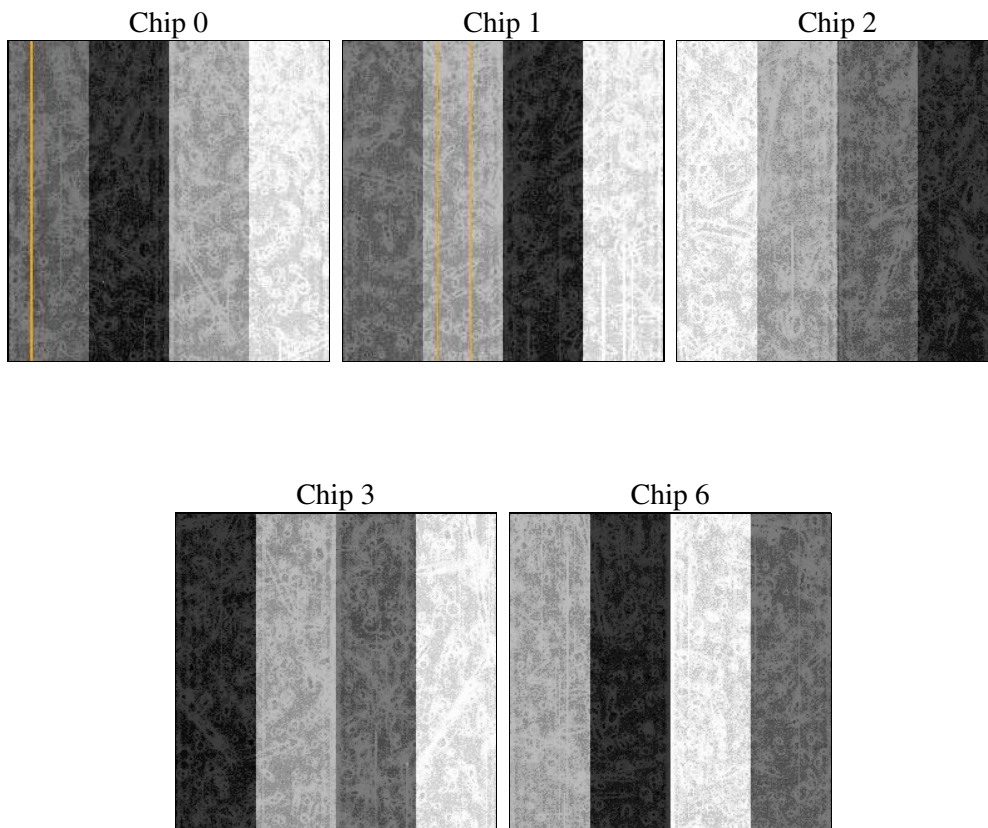
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 1                   | Obi number                     | sched_exp_time | 41700.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.9.1              | Processing system revision     | ontime         | 41753.108253807 | Sum of GTIs [s]                         |
| caldbver | 4.9.2               | &#160                          | ontime0        | 41749.84414354  | Sum of GTIs [s]                         |
| date     | 2020-10-07T16:27:46 | Date and time of file creation | ontime1        | 41753.0261738   | Sum of GTIs [s]                         |
| revision | 4                   | Processing version of data     | ontime2        | 41746.785233319 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 41753.108253807 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 41752.944093794 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1548355         | Number of level 1 events                |

### 2.1.4 Events

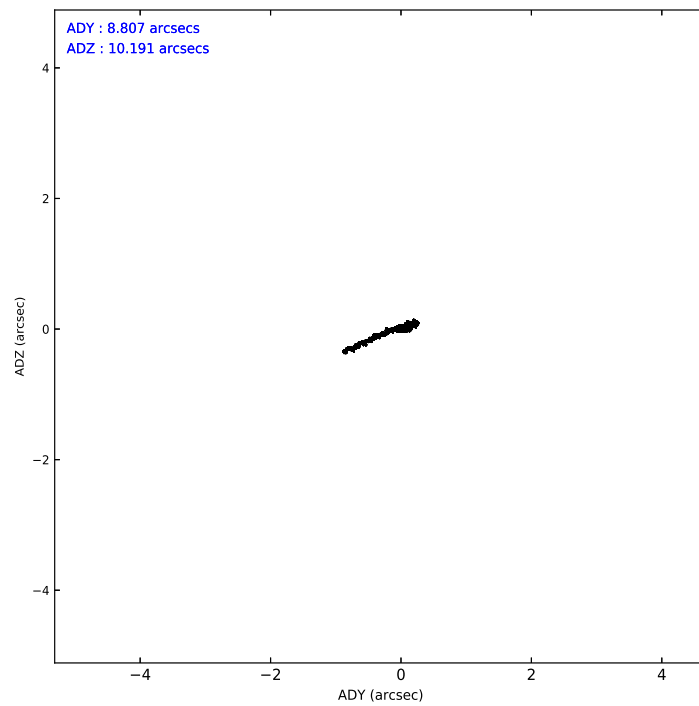
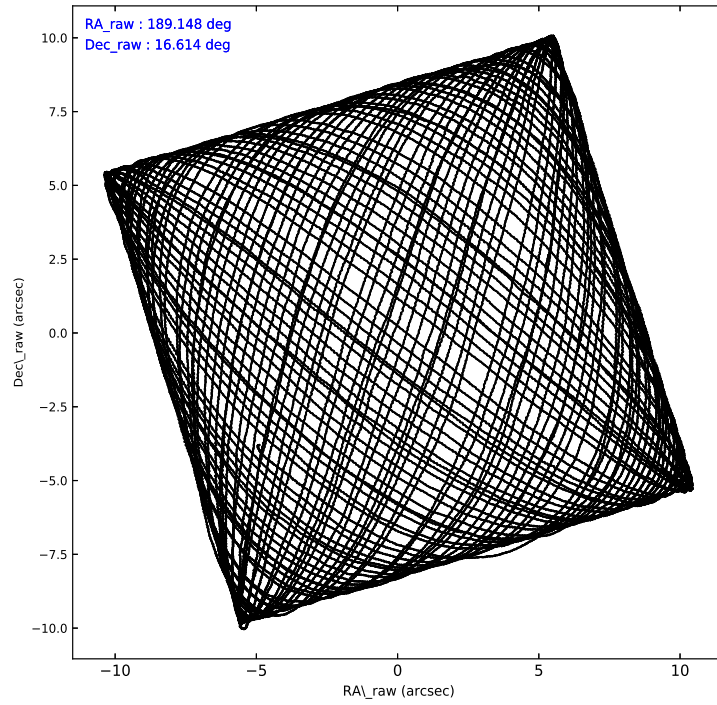
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 295116 | 293816 | 330689 | 311704 | 317030 |
| rejected events | 253940 | 253045 | 278760 | 273094 | 279443 |
| rejected %      | 86%    | 86%    | 84%    | 87%    | 88%    |

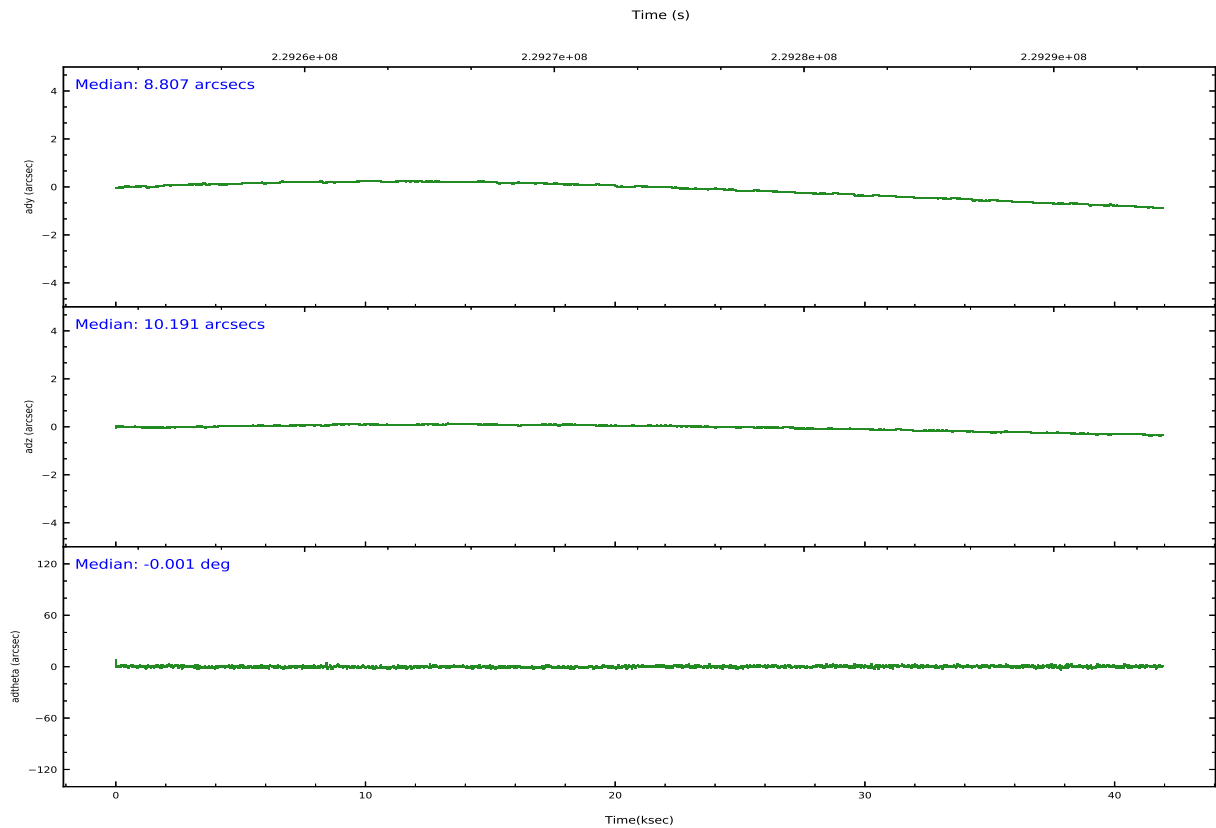
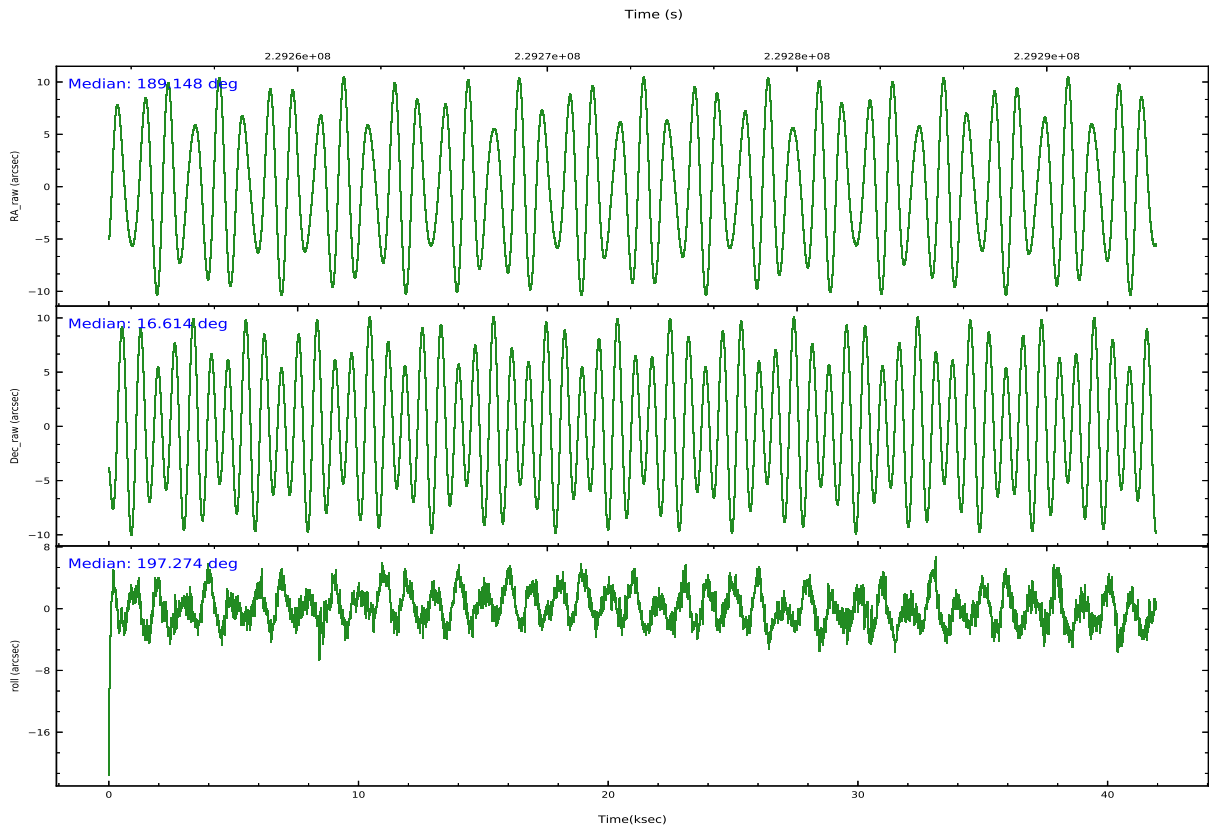
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 18808  | 16214  | 28717  | 17254  | 15036  |
|                | 6%     | 5%     | 8%     | 5%     | 4%     |
| grade 1 events | 163    | 142    | 256    | 180    | 155    |
|                | 0%     | 0%     | 0%     | 0%     | 0%     |
| grade 2 events | 8452   | 8989   | 8983   | 7402   | 7809   |
|                | 2%     | 3%     | 2%     | 2%     | 2%     |
| grade 3 events | 3884   | 3914   | 3819   | 3629   | 3629   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 4 events | 3599   | 3873   | 3893   | 3593   | 3618   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 5 events | 13231  | 13901  | 12612  | 14433  | 14293  |
|                | 4%     | 4%     | 3%     | 4%     | 4%     |
| grade 6 events | 6433   | 7782   | 6519   | 6737   | 7499   |
|                | 2%     | 2%     | 1%     | 2%     | 2%     |
| grade 7 events | 240546 | 239001 | 265890 | 258476 | 264991 |
|                | 81%    | 81%    | 80%    | 82%    | 83%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual                | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|-----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                  | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-01236          | ACIS-01236            | 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                 | 189.166960          | 189.14921125001       | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | 16.634533           | 16.617928605489       | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 197.062061          | 197.27391287333       | [s] Primary exposure time             | 0.000000  | 3.1     |
| [mm] SIM focus pos                | -0.782348           | -0.7809083437167272   |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001439871863259334  |                                       |           |         |
| [mm] SIM translation stage pos    | -233.592463         | -233.5874344608287    |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | -0.005018542100998502 |                                       |           |         |
| [s] Observation start time (MET)  | 229252681.184000    | 229251722.6388        |                                       |           |         |
| Observation start date            | 2005-04-07T09:16:57 | 2005-04-07T09:02:02   |                                       |           |         |
| [s] Observation end time (MET)    | 229294381.184000    | 229295039.14077       |                                       |           |         |
| Observation end date              | 2005-04-07T20:51:57 | 2005-04-07T21:03:59   |                                       |           |         |
| Read mode                         | TIMED               | TIMED                 |                                       |           |         |

## 2.3 Aspect



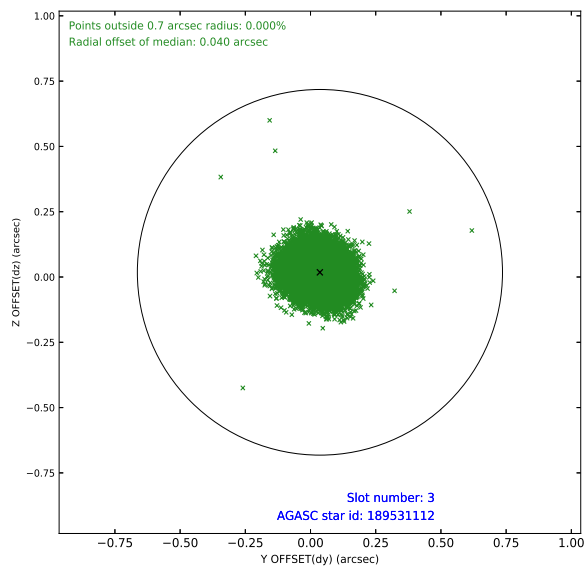
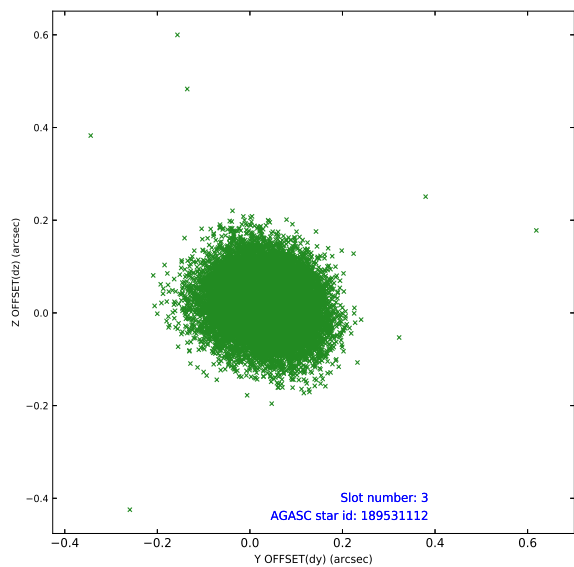


### Slot Statistics

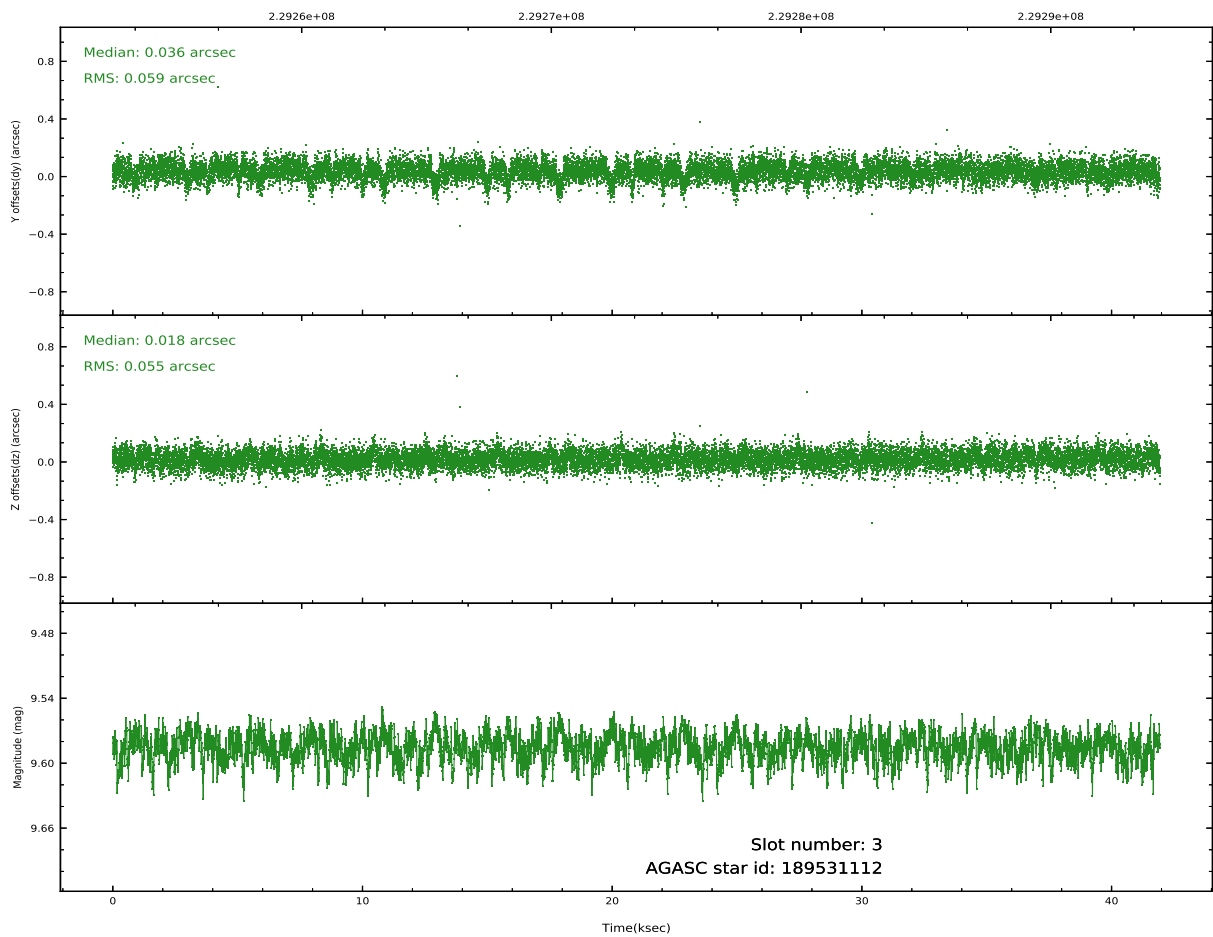
| slot | status | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mea  |
|------|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|-----------|----------|------|
| 0    | FID    |      | ACIS-I-1  | 7.24 | 10231 | 1.000    | -0.047 | 0.054  | 0.017 | 0.030 | 0.000000   | 0.000000  | 930.90   | -833 |
| 1    | FID    |      | ACIS-I-2  | 7.14 | 10229 | 1.000    | -0.209 | -0.117 | 0.013 | 0.028 | 0.000000   | 0.000000  | -763.33  | -840 |
| 2    | FID    |      | ACIS-I-4  | 7.17 | 10231 | 1.000    | 0.156  | 0.130  | 0.010 | 0.018 | 0.000000   | 0.000000  | 2151.02  | 1066 |
| 3    | GUIDE  | used | 189531112 | 9.59 | 20441 | 1.000    | 0.036  | 0.018  | 0.085 | 0.139 | 189.744251 | 16.502335 | -1765.95 | 1037 |
| 4    | GUIDE  | used | 189533632 | 9.41 | 20445 | 1.000    | 0.084  | -0.045 | 0.086 | 0.142 | 188.646001 | 16.426664 | 1938.72  | 185  |
| 5    | GUIDE  | used | 189535528 | 9.21 | 20443 | 1.000    | 0.038  | 0.001  | 0.092 | 0.153 | 188.943906 | 16.829854 | 528.82   | -897 |
| 6    | GUIDE  | used | 189537488 | 7.76 | 20461 | 1.000    | -0.125 | 0.014  | 0.055 | 0.087 | 189.788372 | 16.479780 | -1887.85 | 1158 |
| 7    | GUIDE  | used | 189540176 | 9.24 | 20441 | 1.000    | -0.033 | 0.008  | 0.080 | 0.134 | 189.801571 | 16.510067 | -1963.26 | 1067 |

## 2.4 Star Slots

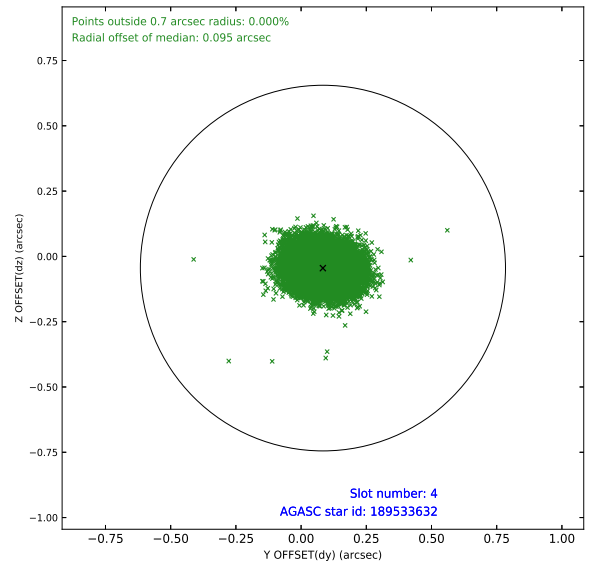
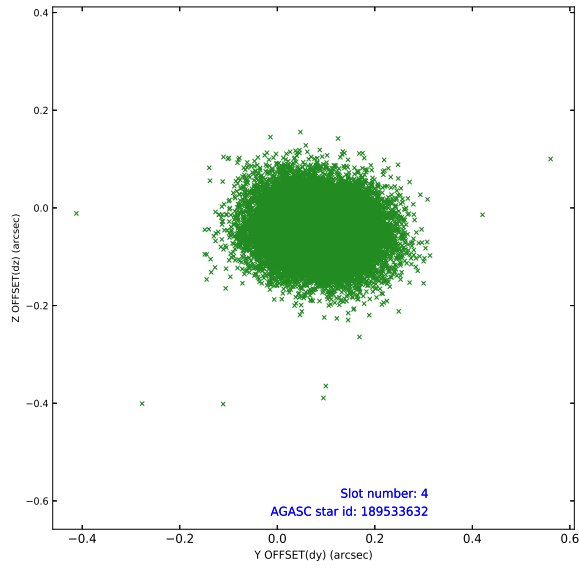
### 2.4.1 Slot 3



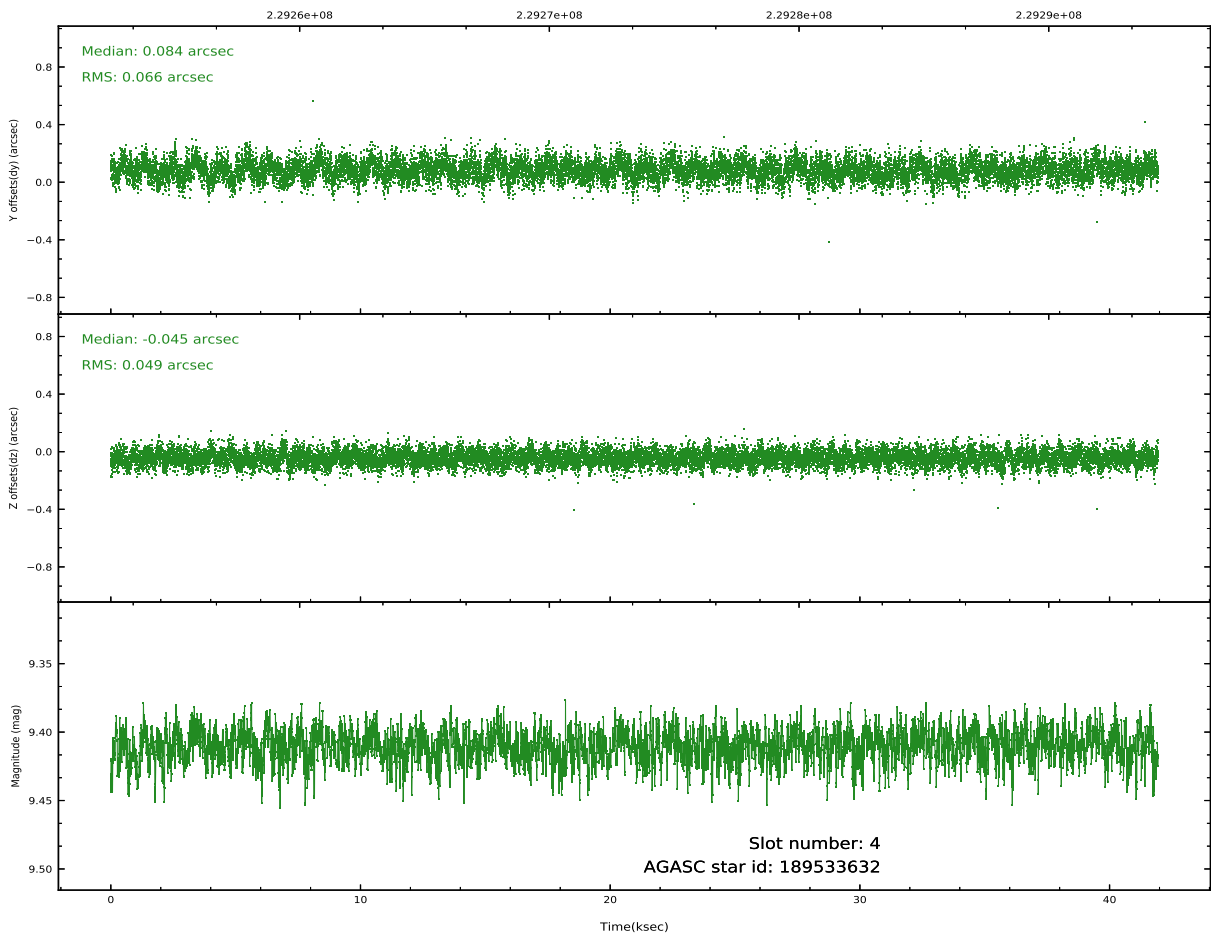
Time (s)



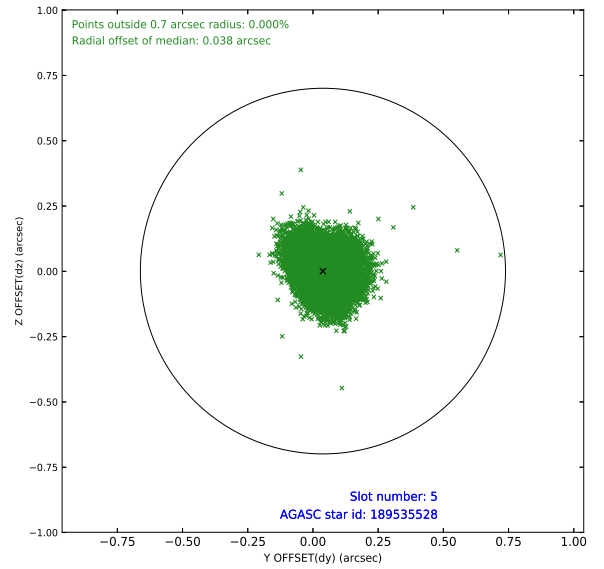
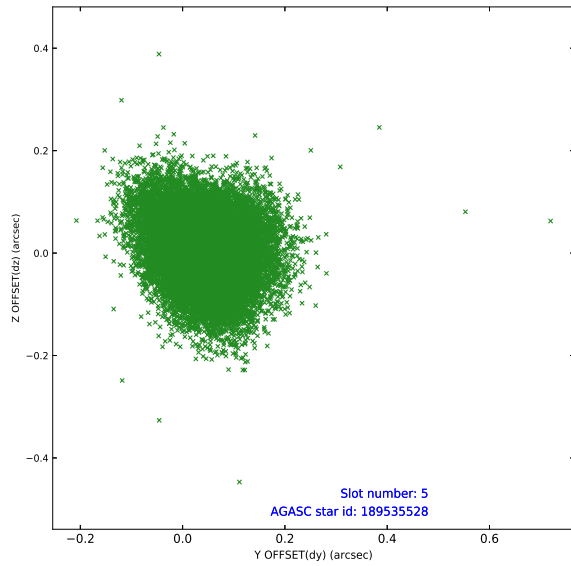
## 2.4.2 Slot 4



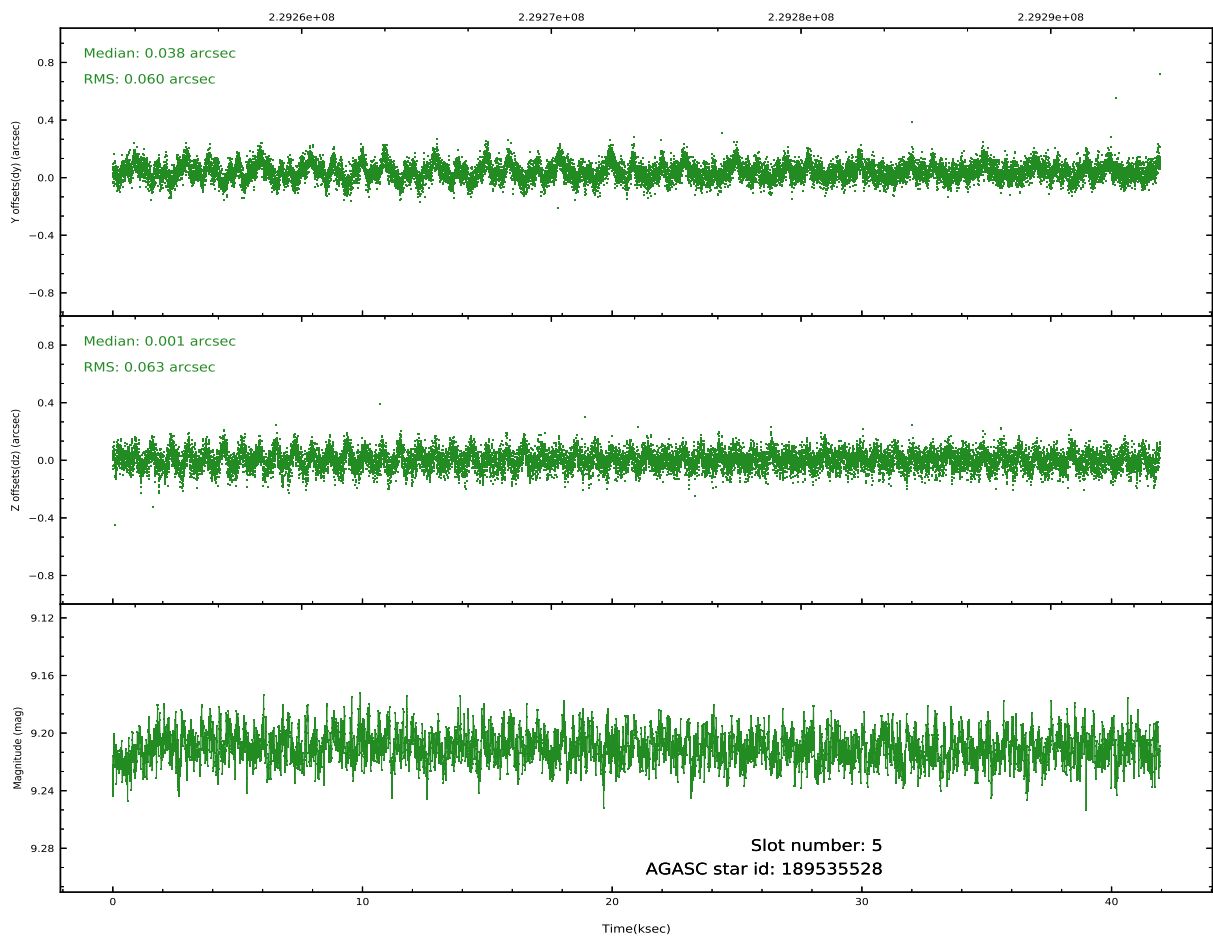
Time (s)



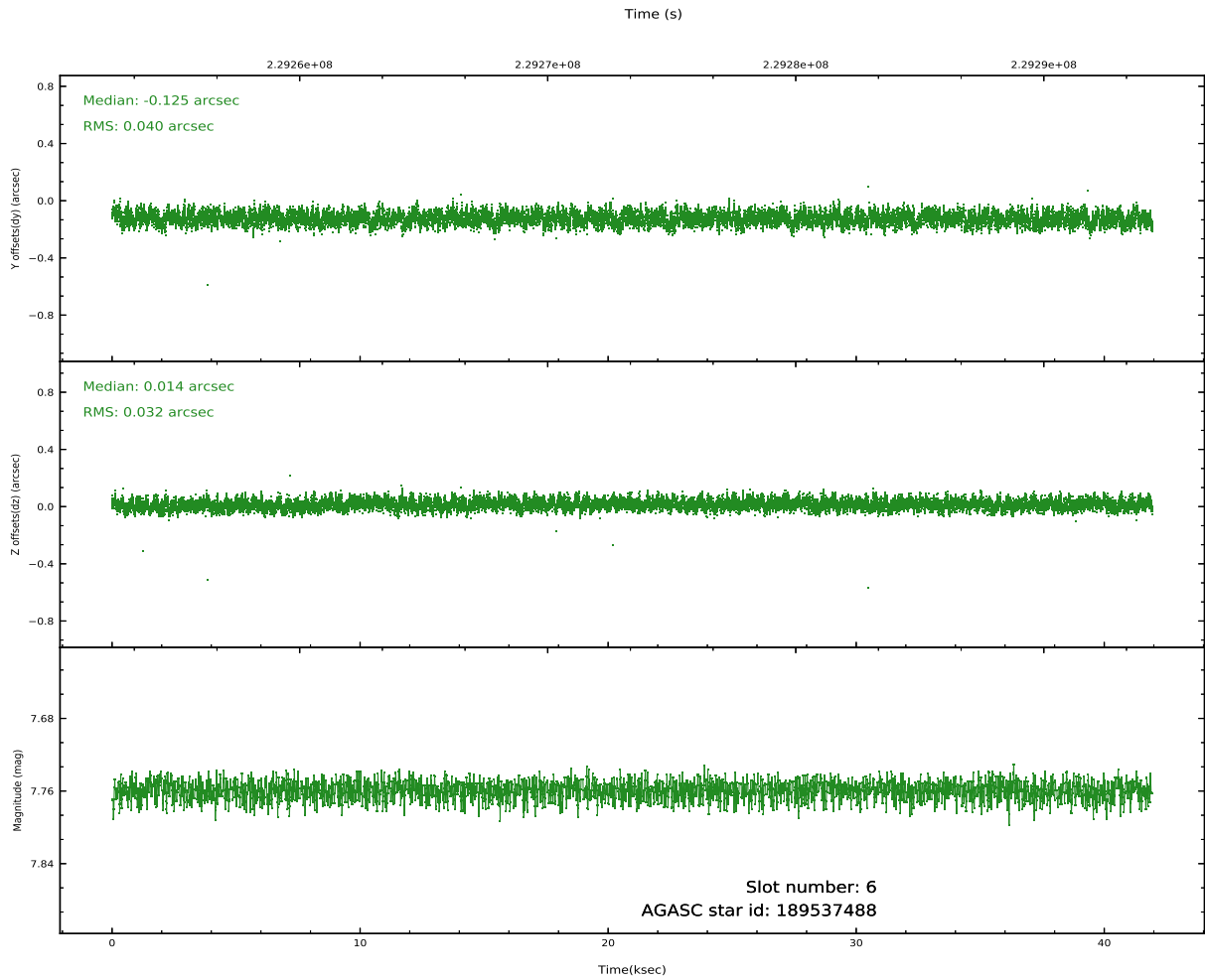
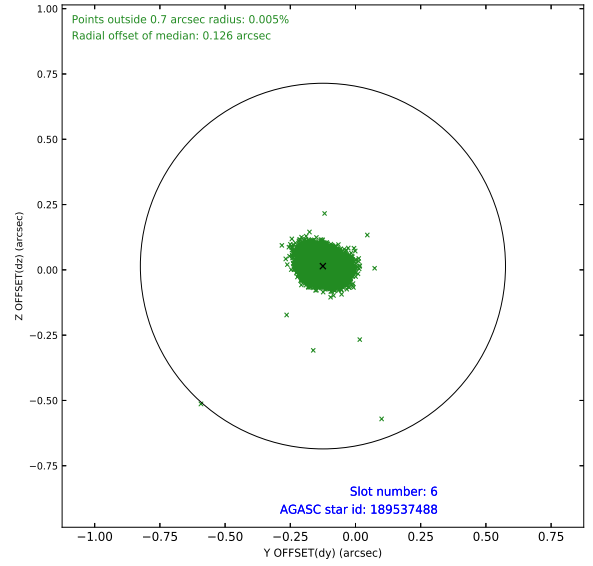
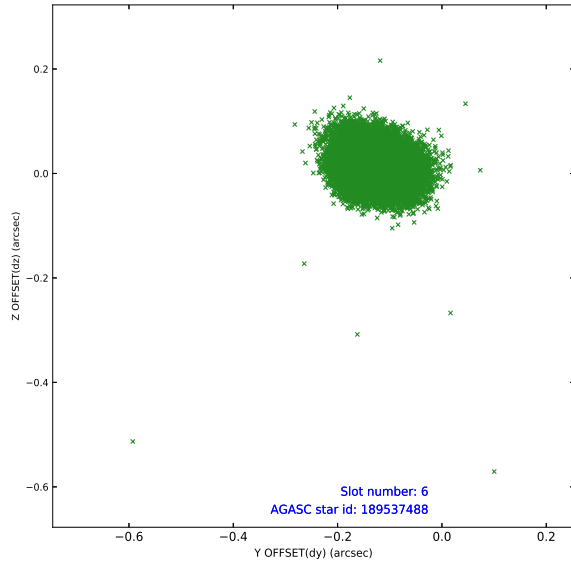
### 2.4.3 Slot 5



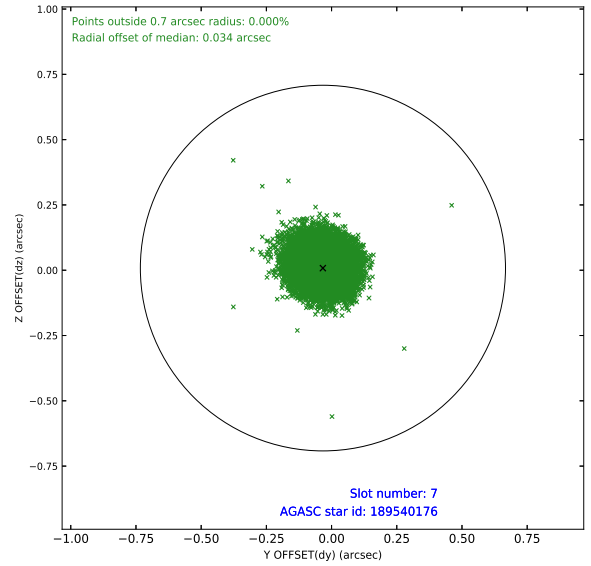
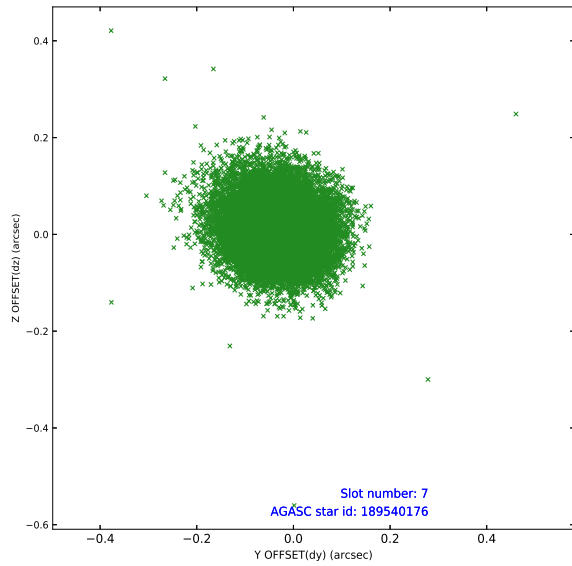
Time (s)



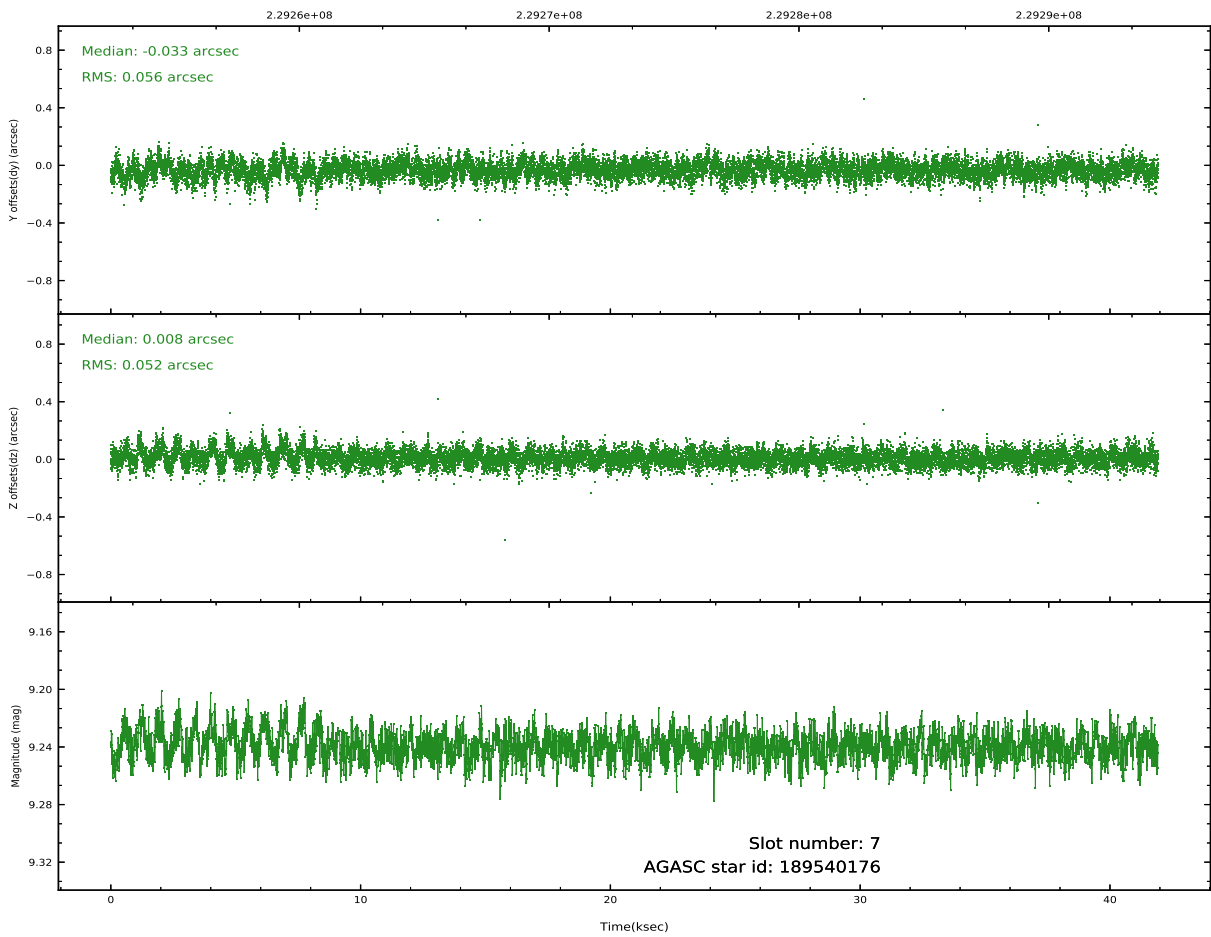
## 2.4.4 Slot 6



## 2.4.5 Slot 7

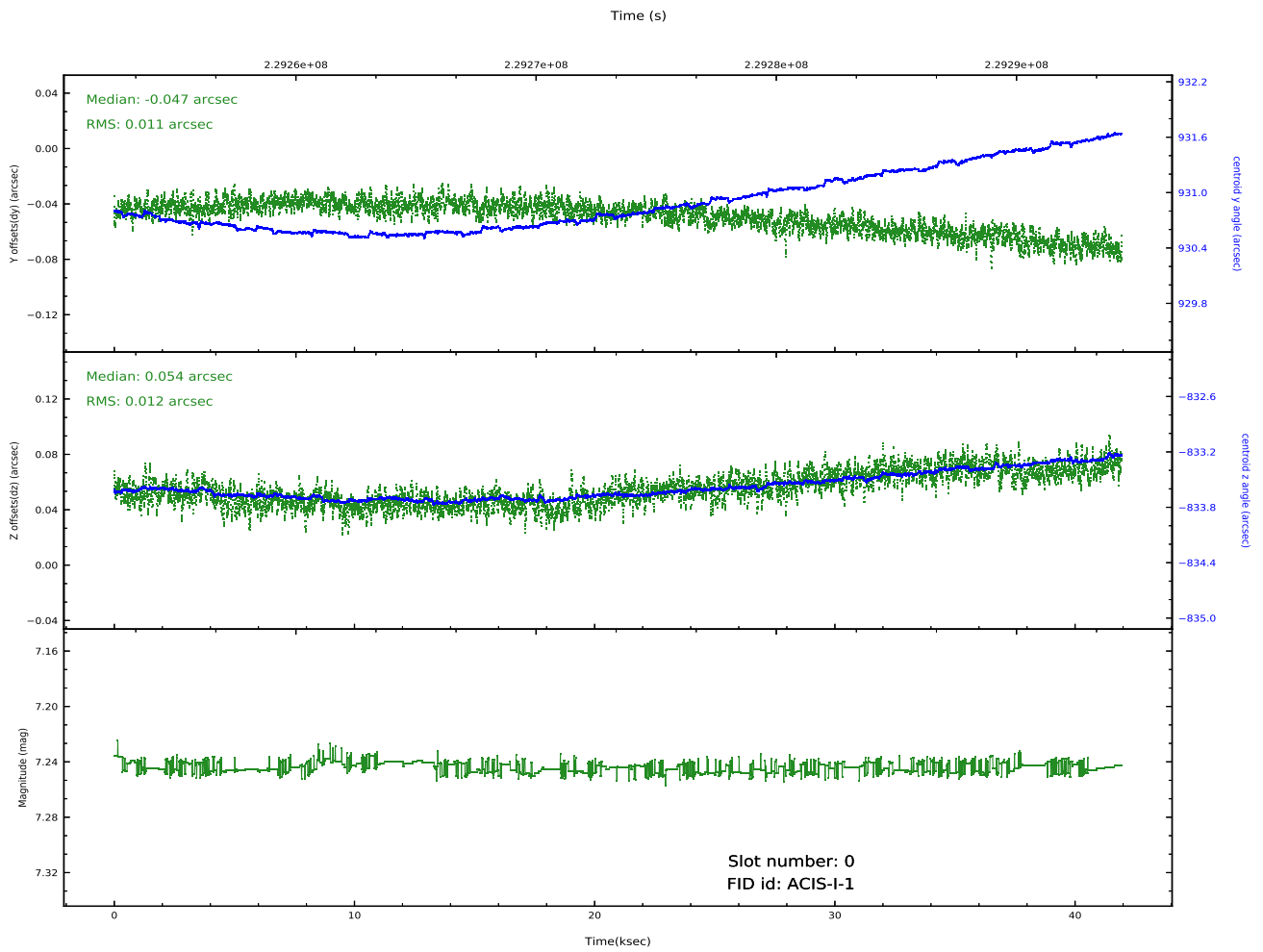
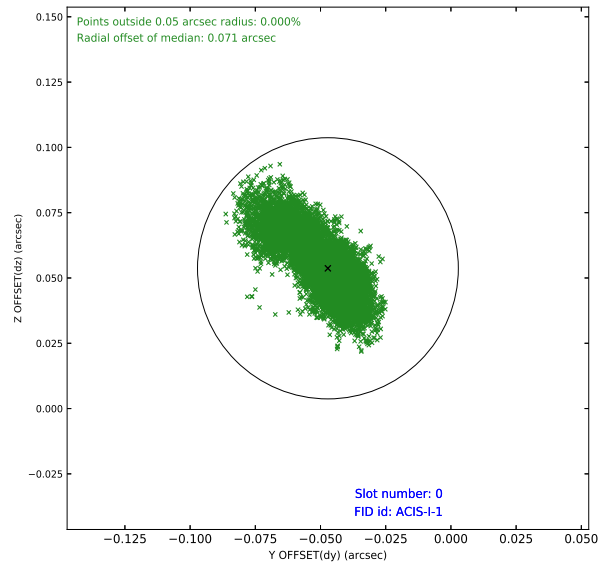
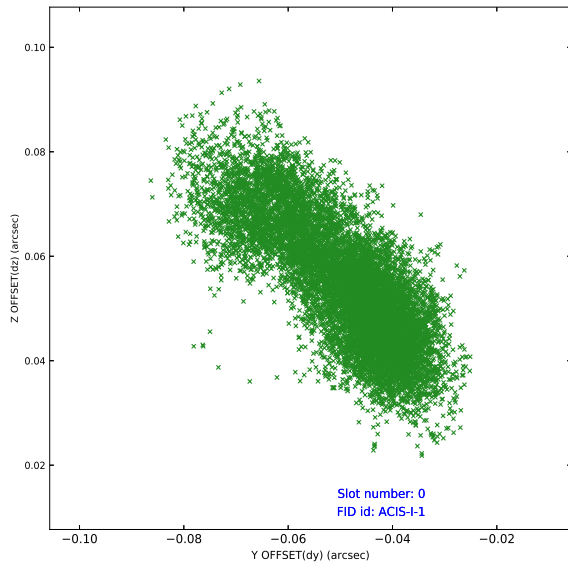


Time (s)

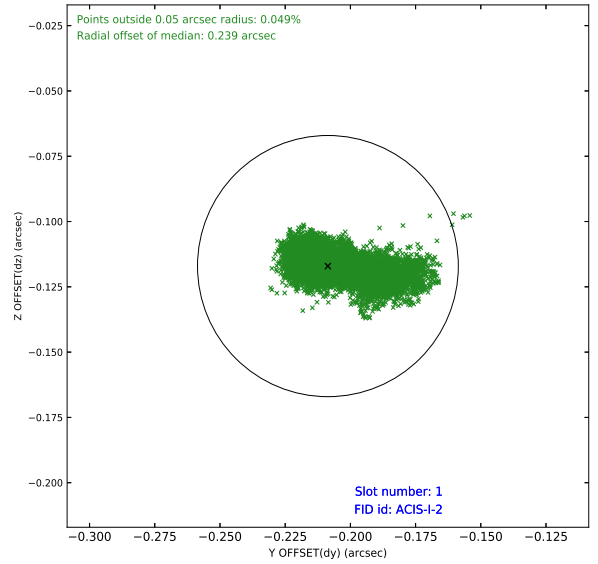
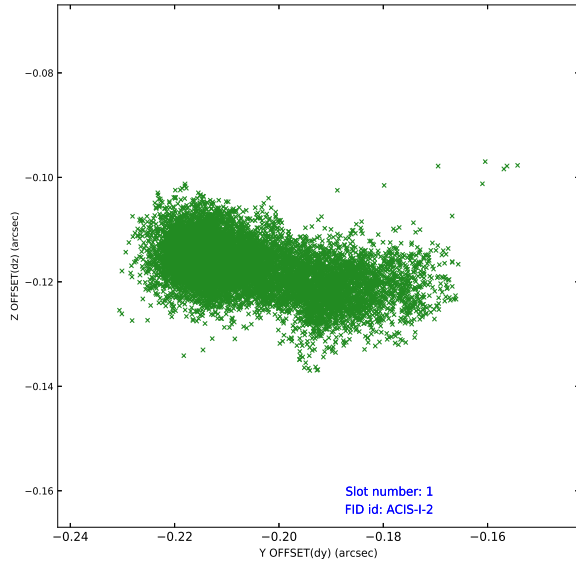


## 2.5 FID Slots

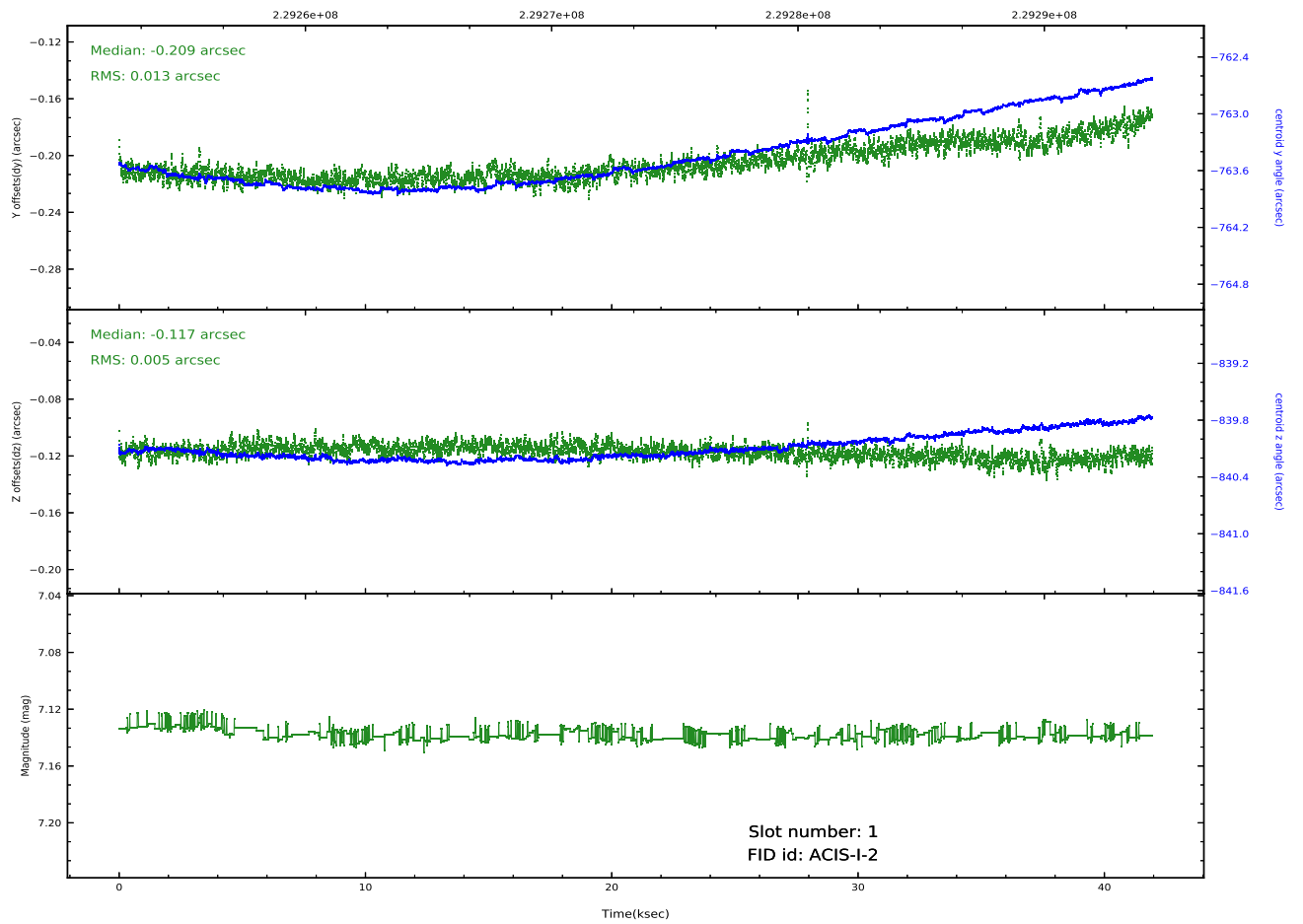
### 2.5.1 Slot 0



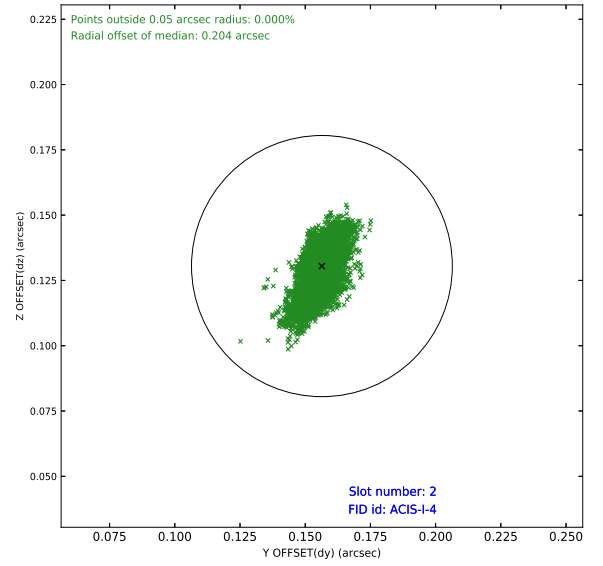
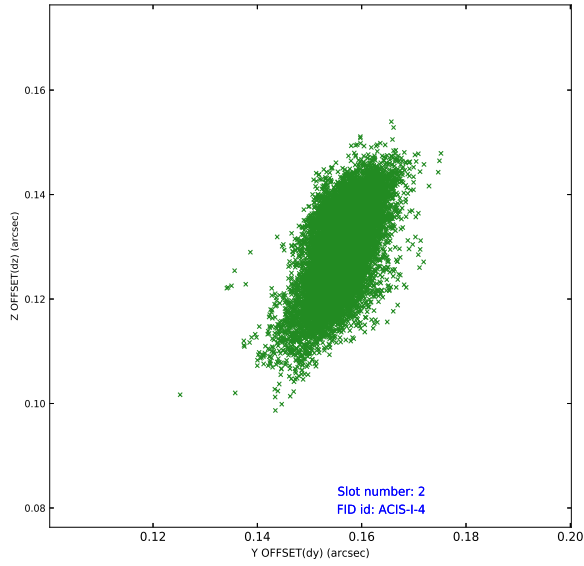
## 2.5.2 Slot 1



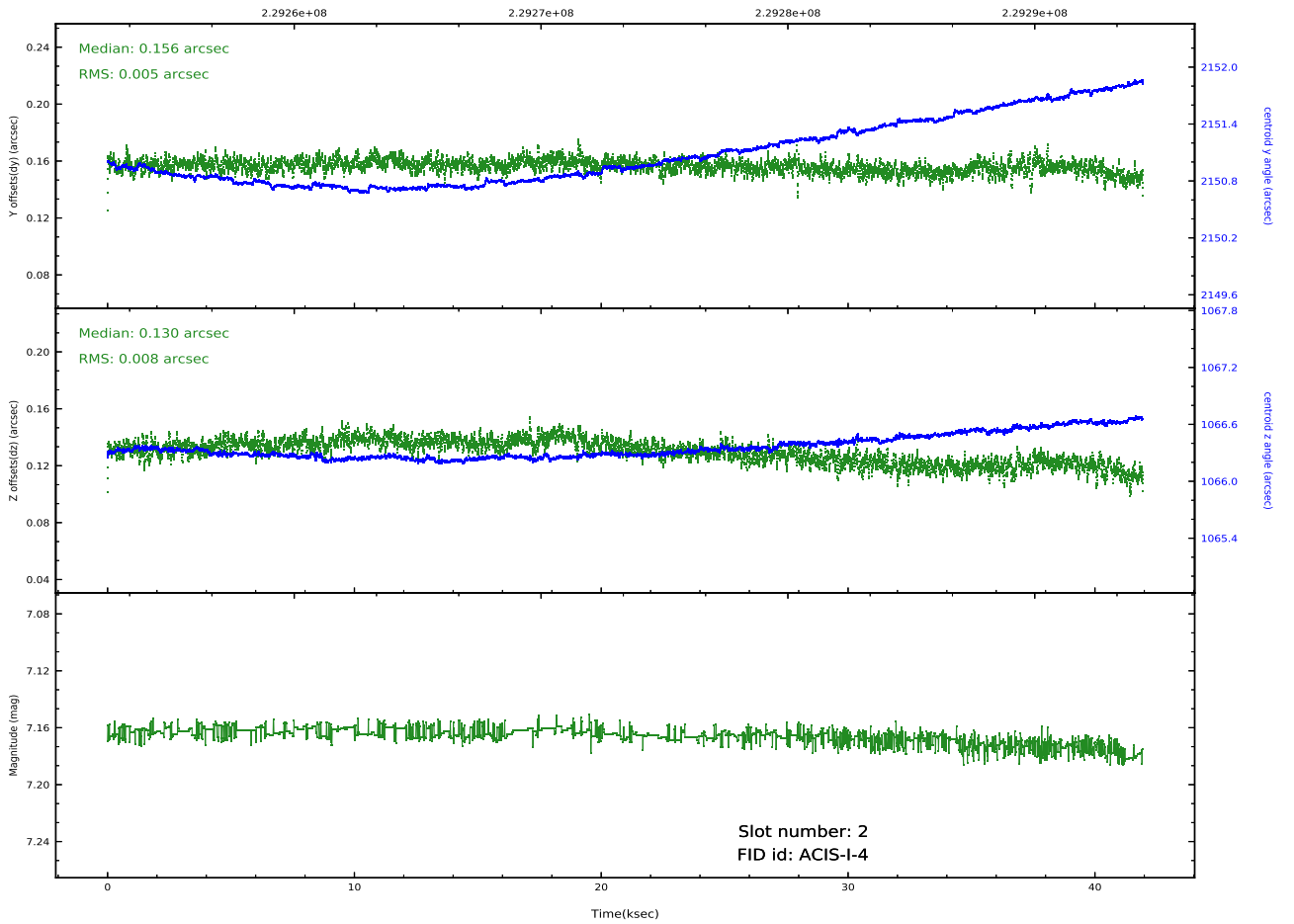
Time (s)



### 2.5.3 Slot 2



Time (s)



# A Summary

## A.1 Status

|                            |            |
|----------------------------|------------|
| V&V Scientist              | Jen Lauer  |
| V&V Date (YYYY-MM-DD)      | 2020.10.08 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 41.75389   |

## A.2 Comments