

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 20279 - L2 Version 2  
Chandra X-Ray Center

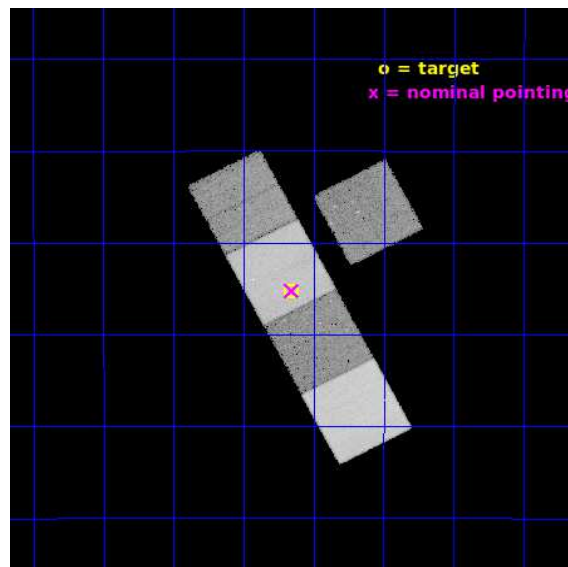
L2 Processing Date : Oct 26 2020

## 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  | 502978                                                              | Sequence number                             |
| obs_id   | 20279                                                               | Observation id                              |
| title    | Late-time X-rays to map the Zoo of Engine-driven Stellar Explosions | &#160                                       |
| observer | RAFFAELLA MARGUTTI                                                  | Principal investigator                      |
| object   | GRB171205A                                                          | Source name                                 |
| dtcycle  | 0                                                                   | &#160                                       |
| cycle    | P                                                                   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 167.414659                                                          | Observer's specified target RA [deg]        |
| dec_targ | -12.588467                                                          | Observer's specified target Dec [deg]       |
| ra_nom   | 167.41367753955                                                     | Nominal RA [deg]                            |
| dec_nom  | -12.587044611951                                                    | Nominal Dec [deg]                           |
| roll_nom | 242.32503402966                                                     | Nominal Roll [deg]                          |
| revision | 2                                                                   | Processing version of data                  |
| ontime   | 34053.500262022                                                     | Sum of GTIs [s]                             |
| livetime | 33608.566211277                                                     | Livetime [s]                                |
| ontime3  | 34044.077410579                                                     | Sum of GTIs [s]                             |
| ontime5  | 34053.500262022                                                     | Sum of GTIs [s]                             |
| ontime6  | 34050.359271765                                                     | Sum of GTIs [s]                             |
| ontime7  | 34053.500262022                                                     | Sum of GTIs [s]                             |
| ontime8  | 34047.218370914                                                     | Sum of GTIs [s]                             |
| l2events | 400377                                                              | Number of level 2 events                    |

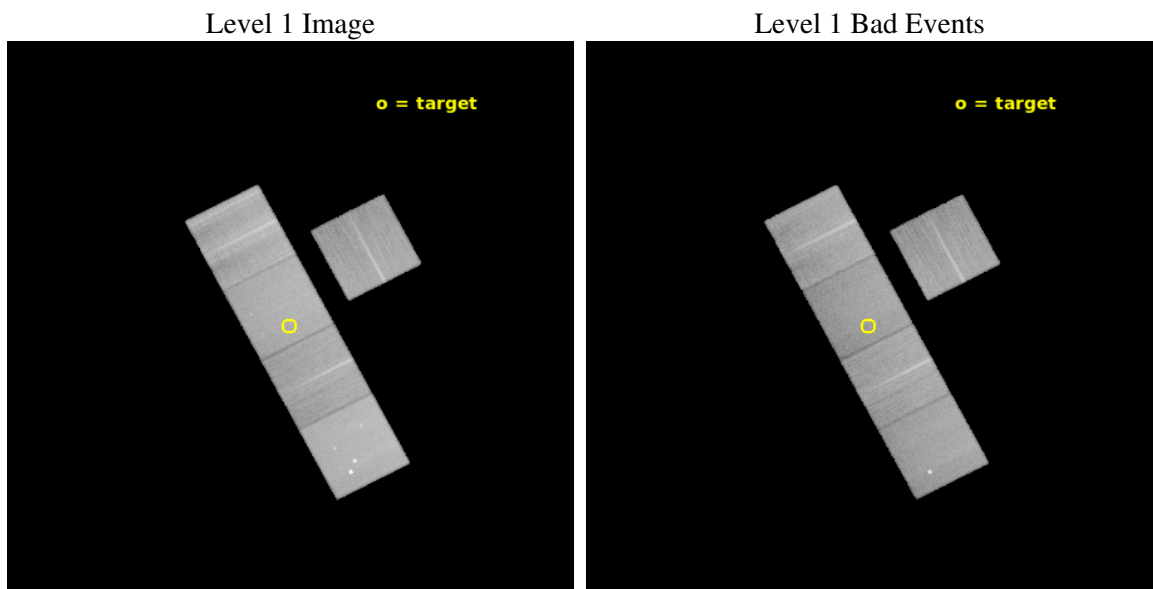




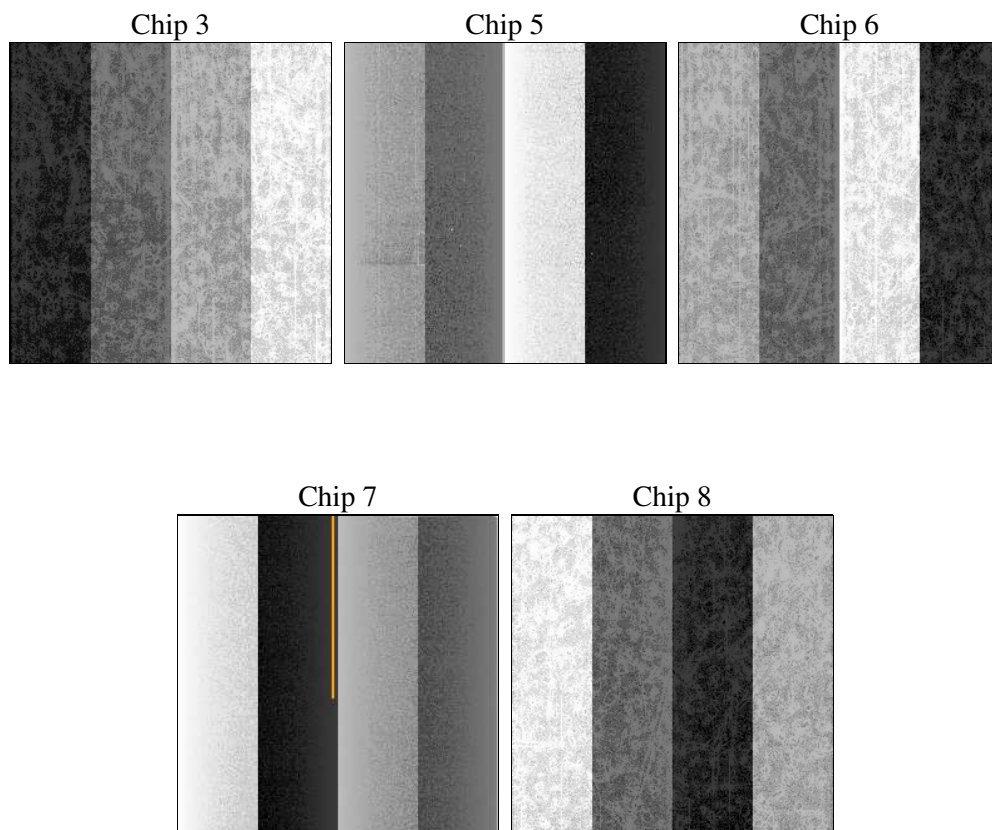
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 34000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.9.2              | Processing system revision     | ontime         | 34053.500262022 | Sum of GTIs [s]                         |
| caldsver | 4.9.3               | &#160                          | ontime3        | 34044.077410579 | Sum of GTIs [s]                         |
| date     | 2020-10-26T11:01:50 | Date and time of file creation | ontime5        | 34053.500262022 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime6        | 34050.359271765 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 34053.500262022 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 34047.218370914 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1551621         | Number of level 1 events                |

### 2.1.4 Events

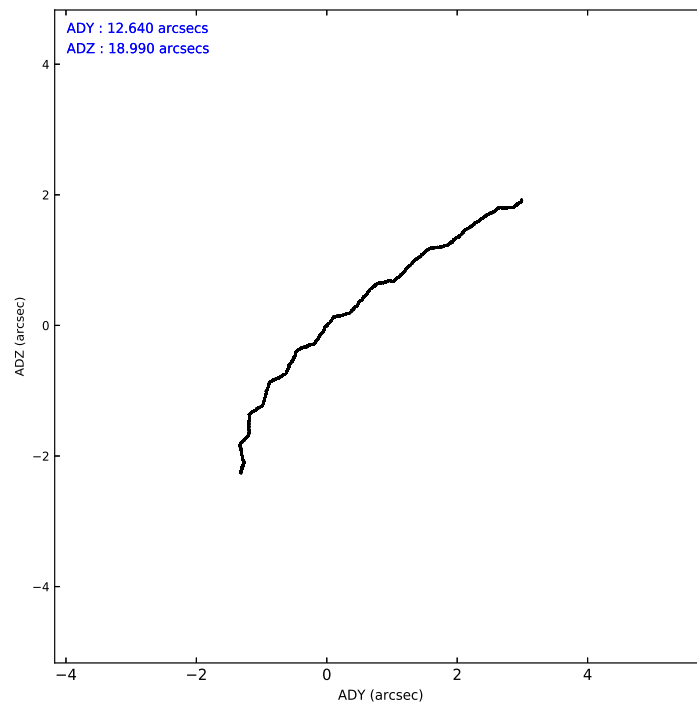
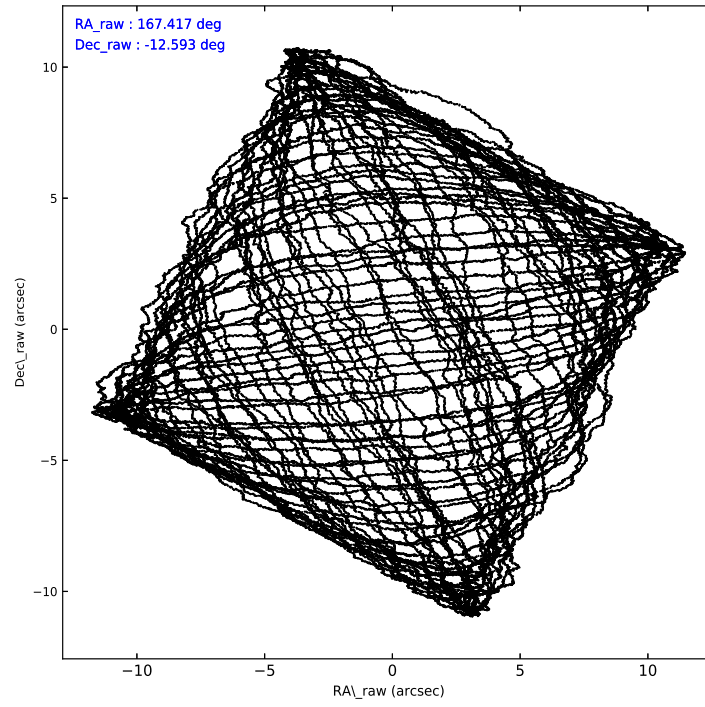
|                 | ccd 3  | ccd 5  | ccd 6  | ccd 7  | ccd 8  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 234542 | 406988 | 256682 | 321585 | 331824 |
| rejected events | 207742 | 208571 | 227991 | 180598 | 238235 |
| rejected %      | 88%    | 51%    | 88%    | 56%    | 71%    |

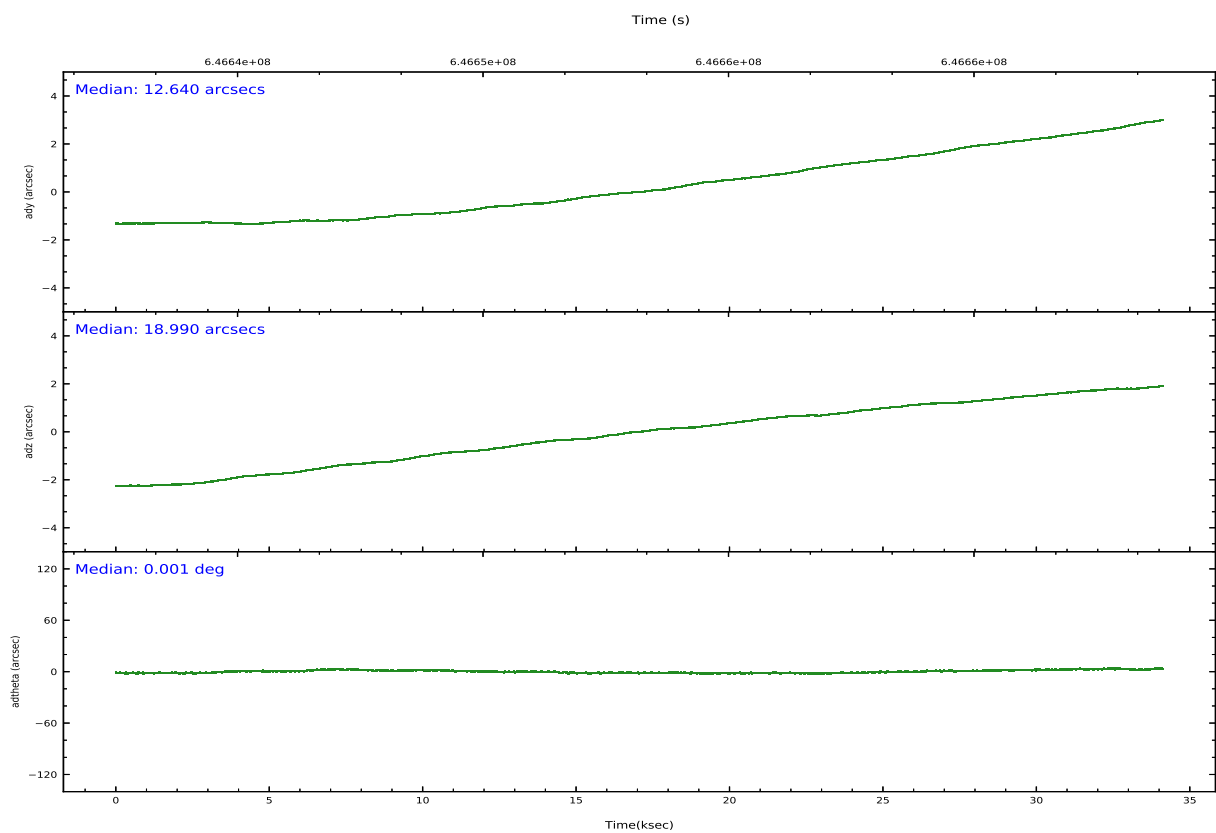
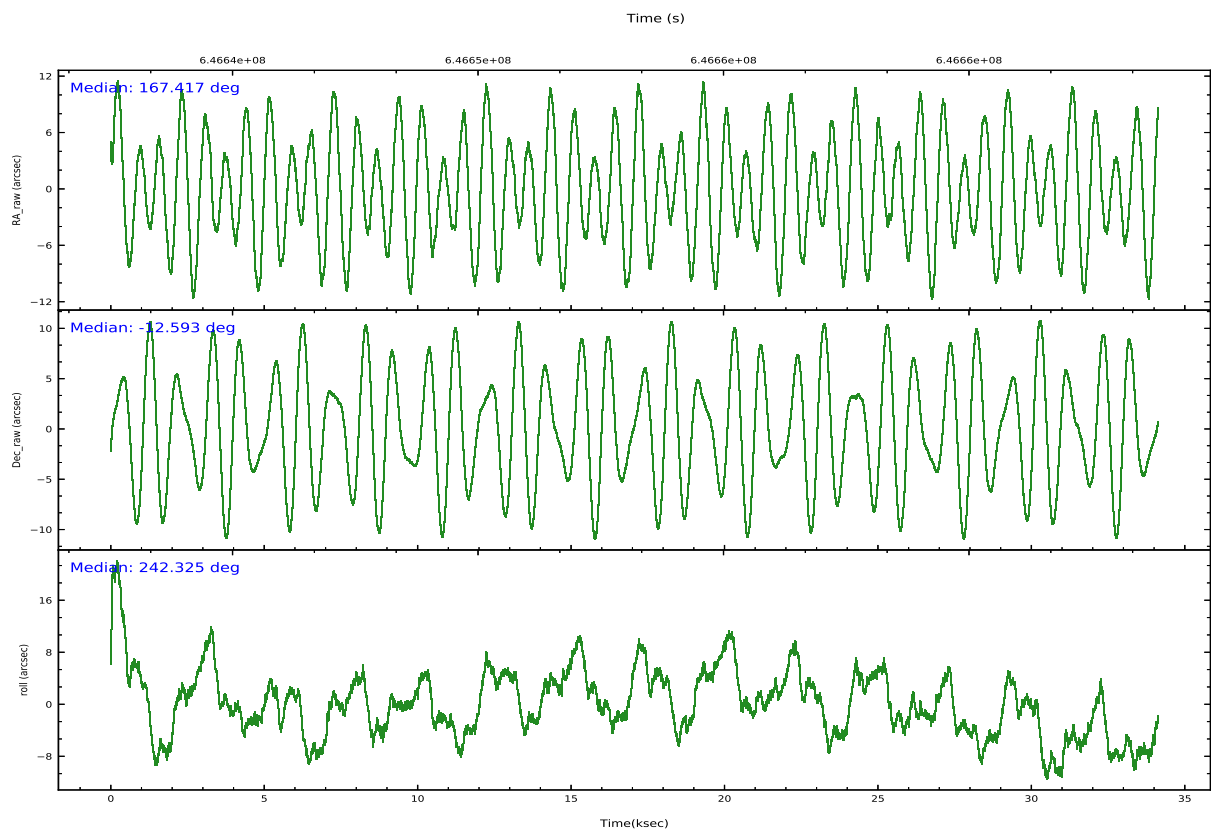
|                | ccd 3  | ccd 5  | ccd 6  | ccd 7  | ccd 8  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 9937   | 20307  | 9712   | 12172  | 26902  |
|                | 4%     | 4%     | 3%     | 3%     | 8%     |
| grade 1 events | 134    | 4157   | 123    | 455    | 270    |
|                | 0%     | 1%     | 0%     | 0%     | 0%     |
| grade 2 events | 5780   | 61271  | 6643   | 29898  | 22573  |
|                | 2%     | 15%    | 2%     | 9%     | 6%     |
| grade 3 events | 2733   | 6394   | 2732   | 11302  | 9773   |
|                | 1%     | 1%     | 1%     | 3%     | 2%     |
| grade 4 events | 2790   | 6223   | 2804   | 11286  | 9183   |
|                | 1%     | 1%     | 1%     | 3%     | 2%     |
| grade 5 events | 11958  | 29049  | 11975  | 32486  | 17965  |
|                | 5%     | 7%     | 4%     | 10%    | 5%     |
| grade 6 events | 5565   | 104242 | 6801   | 76344  | 25164  |
|                | 2%     | 25%    | 2%     | 23%    | 7%     |
| grade 7 events | 195645 | 175345 | 215892 | 147642 | 219994 |
|                | 83%    | 43%    | 84%    | 45%    | 66%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar version number                 | 8         | 8       |
| Detector                          | ACIS-35678          | ACIS-35678           | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | VFAINT              | VFAINT               | CCD I0 on                             | N         | N       |
| Observation mode                  | POINTING            | POINTING             | CCD I1 on                             | N         | N       |
| [deg] Pointing RA                 | 167.415333          | 167.41367753955      | CCD I2 on                             | N         | N       |
| [deg] Pointing Dec                | -12.565461          | -12.587044611951     | CCD I3 on                             | O1        | Y       |
| [deg] Pointing Roll               | 242.173946          | 242.32503402966      | CCD S0 on                             | N         | N       |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  | CCD S1 on                             | Y         | Y       |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 | CCD S2 on                             | Y         | Y       |
| [mm] SIM translation stage pos    | -190.132523         | -190.1400660498719   | CCD S3 on                             | Y         | Y       |
| [mm] SIM translation stage offset | 0                   | 0.00754346686406393  | CCD S4 on                             | Y         | Y       |
| [s] Observation start time (MET)  | 646636164.184000    | 646635052.65311      | CCD S5 on                             | N         | N       |
| Observation start date            | 2018-06-29T05:08:15 | 2018-06-29T04:50:52  | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 646670164.184000    | 646670965.58023      | On-chip summing requested             | N         | N       |
| Observation end date              | 2018-06-29T14:34:55 | 2018-06-29T14:49:25  | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                | Alternating exposures requested       | N         | N       |
|                                   |                     |                      | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



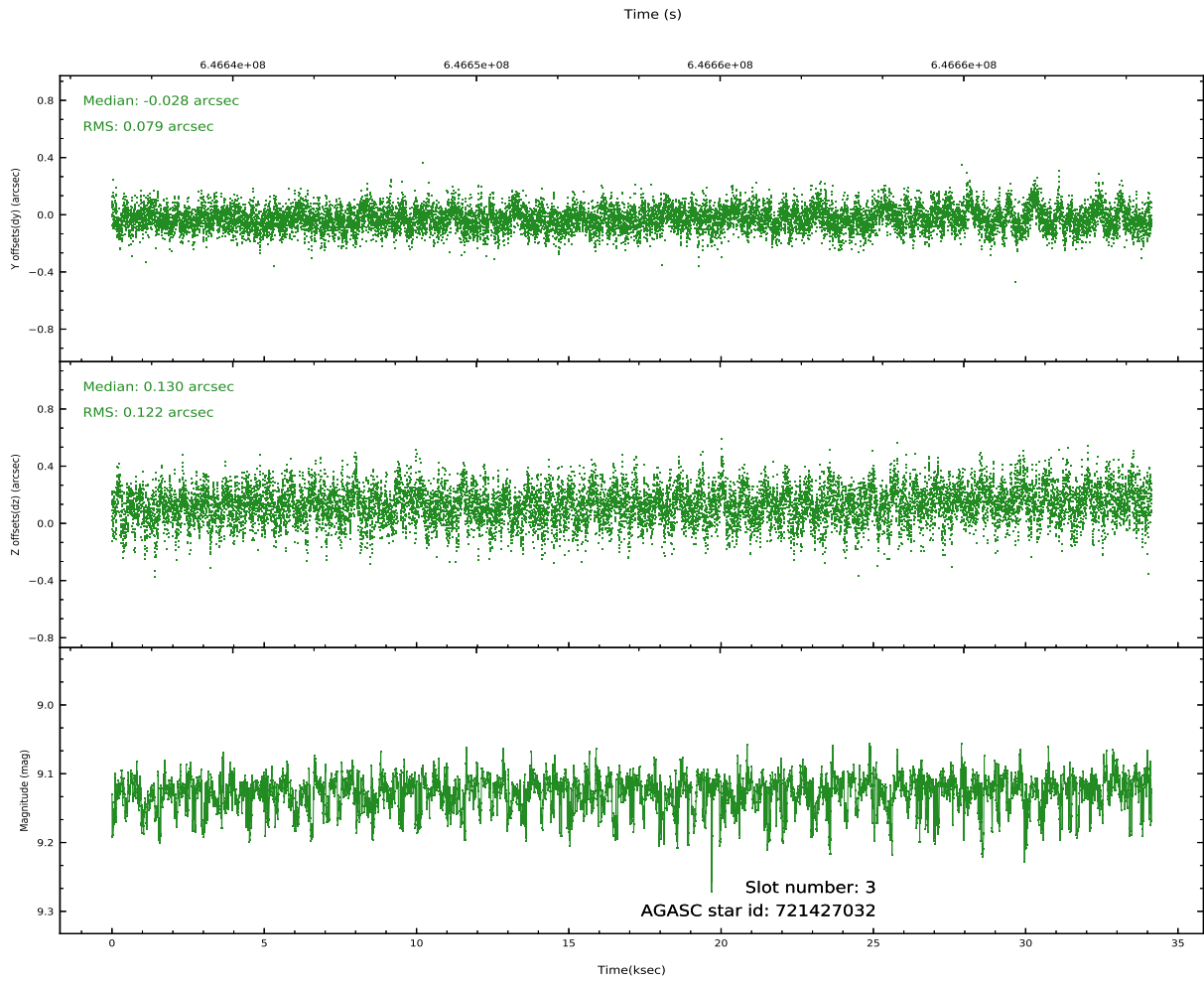
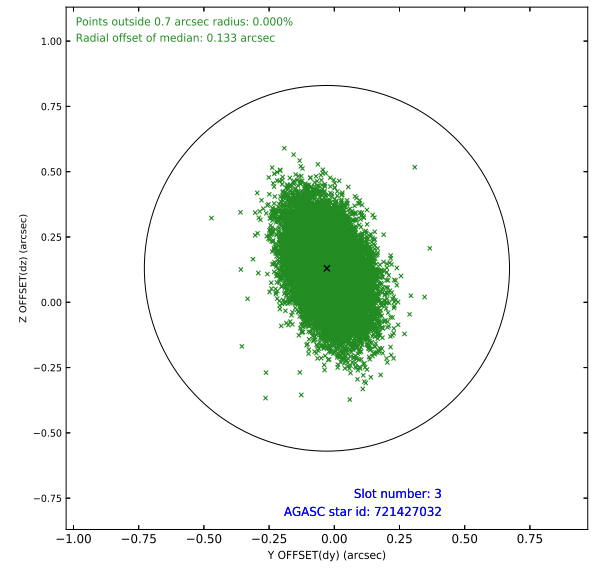
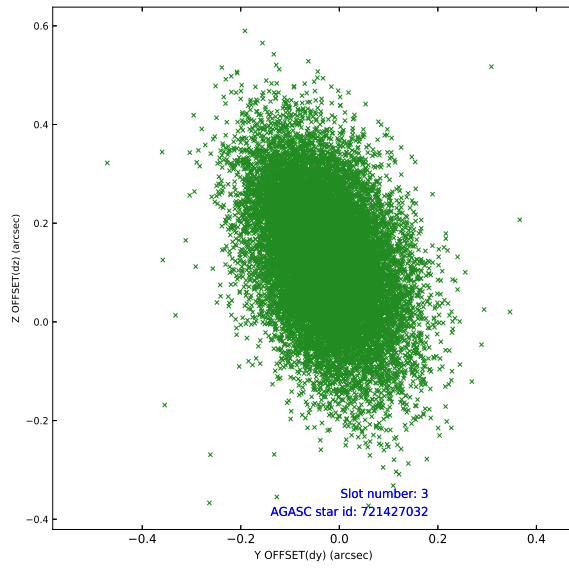


Slot Statistics

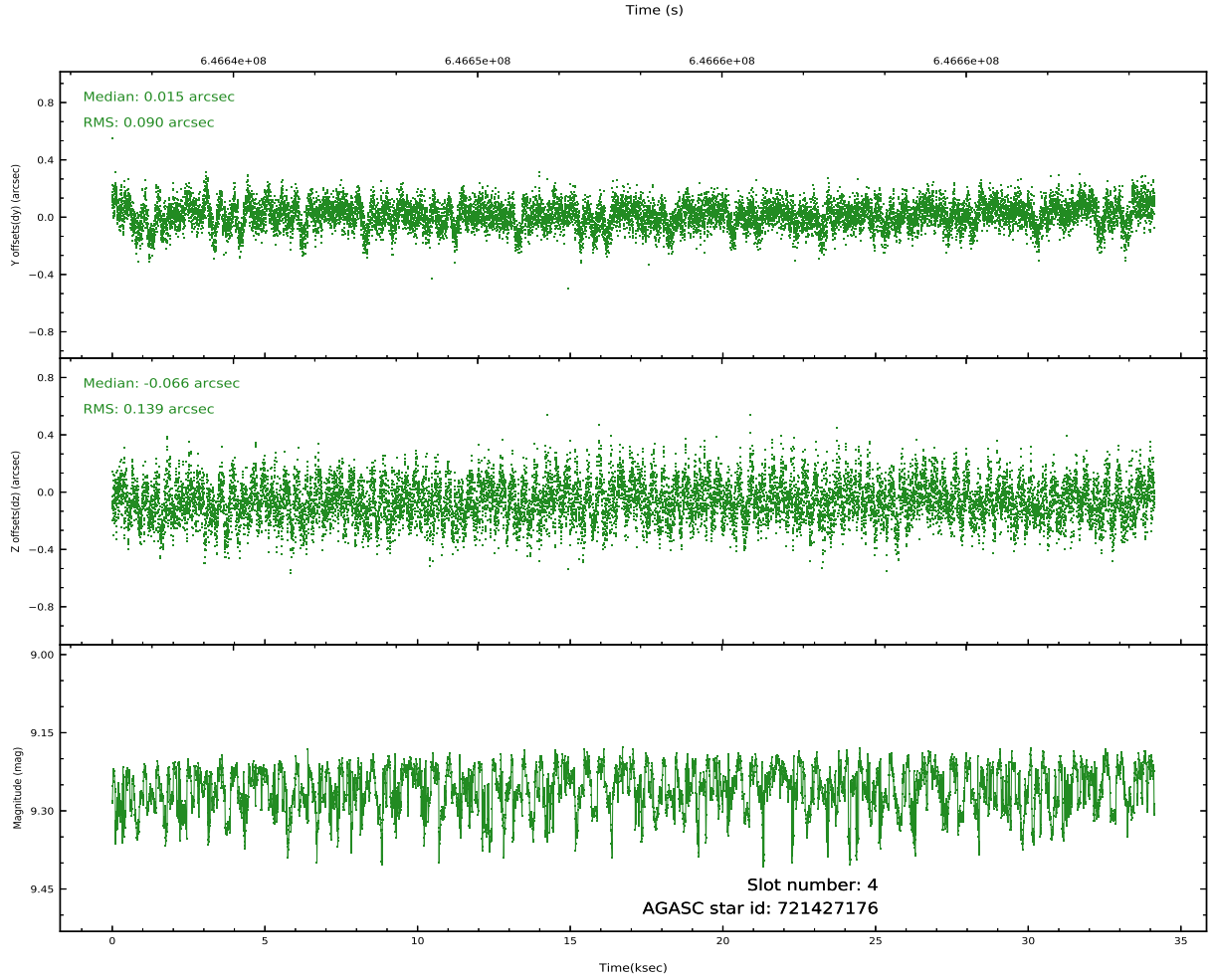
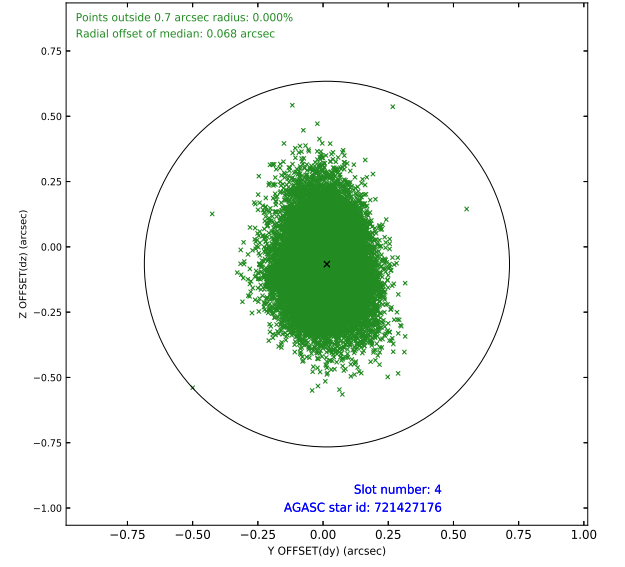
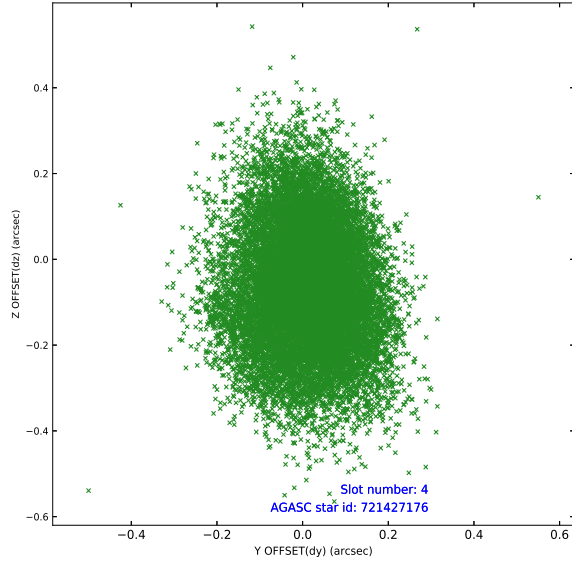
| pt | status | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mea   |
|----|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|------------|----------|-------|
| 0  | FID    |      | ACIS-S-2  | 6.91 | 8325  | 1.000    | 0.085  | -0.056 | 0.024 | 0.035 | 0.000000   | 0.000000   | -765.89  | -1740 |
| 1  | FID    |      | ACIS-S-4  | 7.03 | 8322  | 1.000    | 0.104  | -0.025 | 0.024 | 0.052 | 0.000000   | 0.000000   | 2147.55  | 167   |
| 2  | FID    |      | ACIS-S-5  | 7.02 | 8326  | 1.000    | -0.220 | 0.091  | 0.029 | 0.041 | 0.000000   | 0.000000   | -1818.82 | 162   |
| 3  | GUIDE  | used | 721427032 | 9.12 | 16629 | 1.000    | -0.028 | 0.130  | 0.150 | 0.262 | 167.356230 | -12.055223 | -1527.11 | -1041 |
| 4  | GUIDE  | used | 721427176 | 9.26 | 16634 | 1.000    | 0.015  | -0.066 | 0.174 | 0.290 | 167.132963 | -11.995350 | -1349.94 | -1837 |
| 5  | GUIDE  | used | 721432280 | 9.62 | 16597 | 1.000    | -0.257 | -0.044 | 0.241 | 0.412 | 168.028093 | -12.410593 | -1496.79 | 1645  |
| 6  | GUIDE  | used | 721817080 | 8.55 | 16644 | 1.000    | 0.141  | -0.108 | 0.166 | 0.267 | 167.241204 | -13.236782 | 2424.80  | 587   |
| 7  | GUIDE  | used | 721814184 | 9.30 | 16624 | 1.000    | 0.129  | 0.101  | 0.192 | 0.321 | 167.601359 | -13.175685 | 1640.48  | 1604  |

## 2.4 Star Slots

### 2.4.1 Slot 3

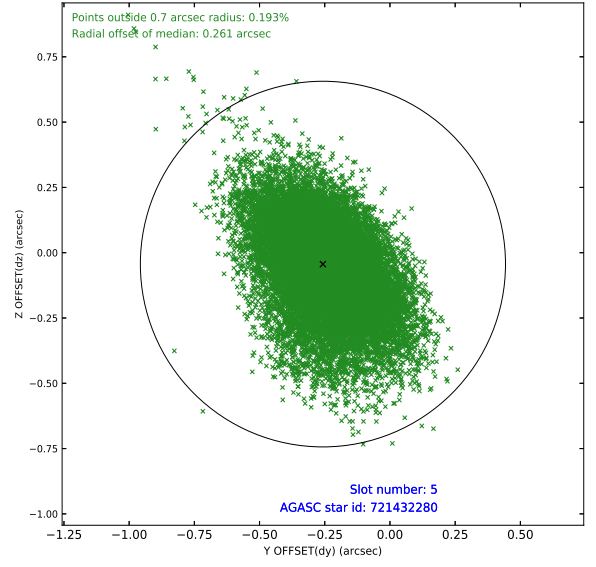
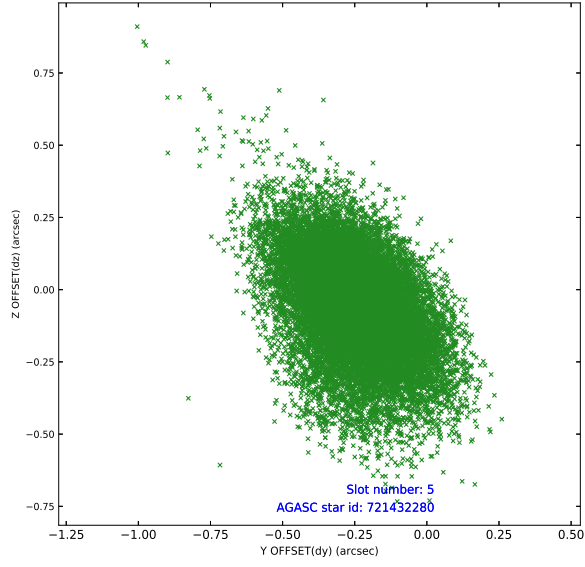


## 2.4.2 Slot 4

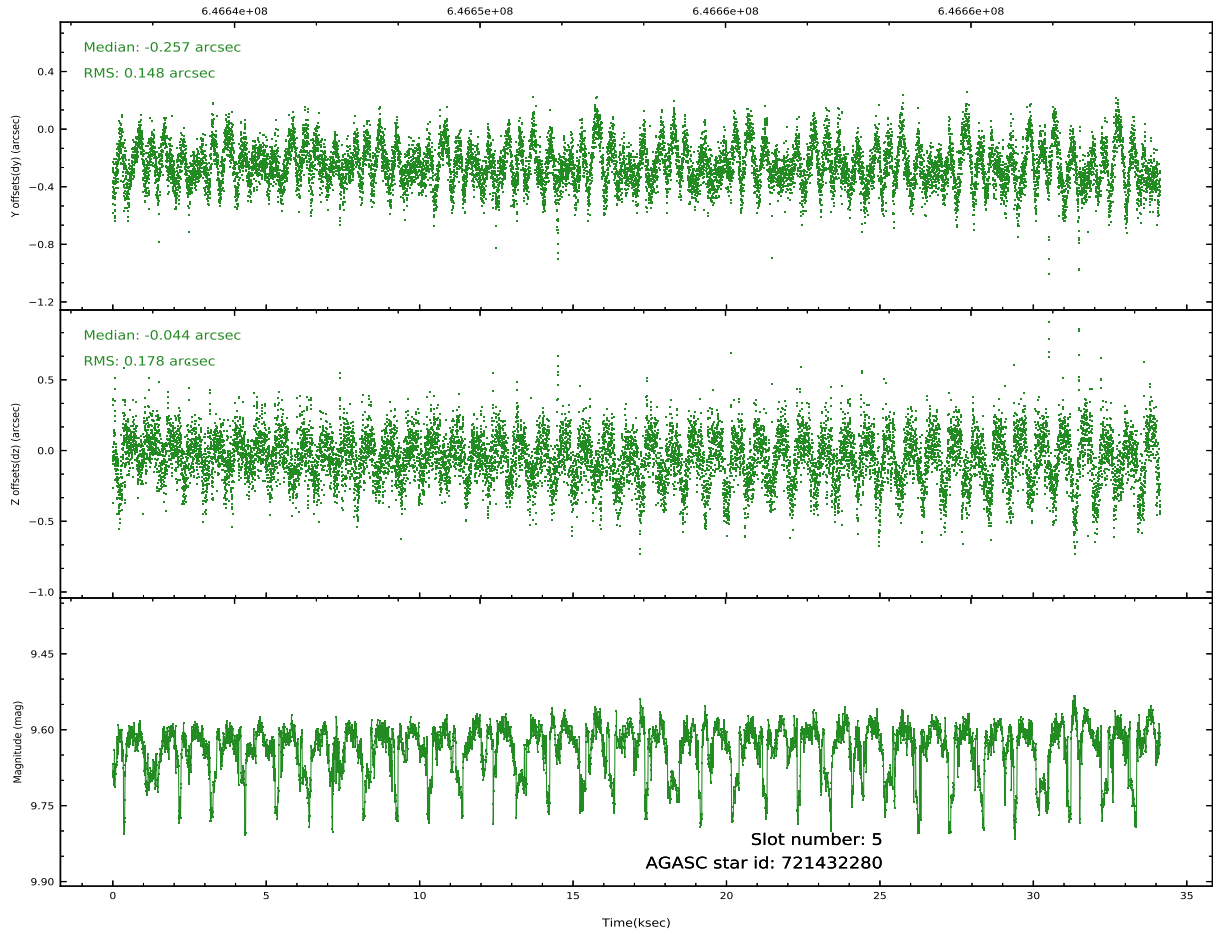




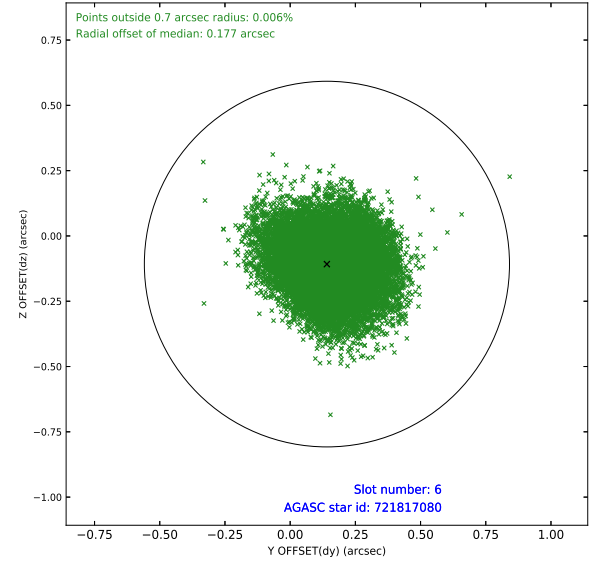
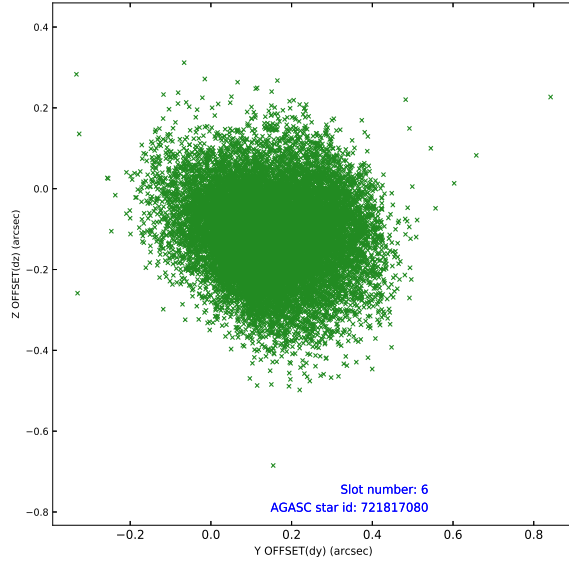
### 2.4.3 Slot 5



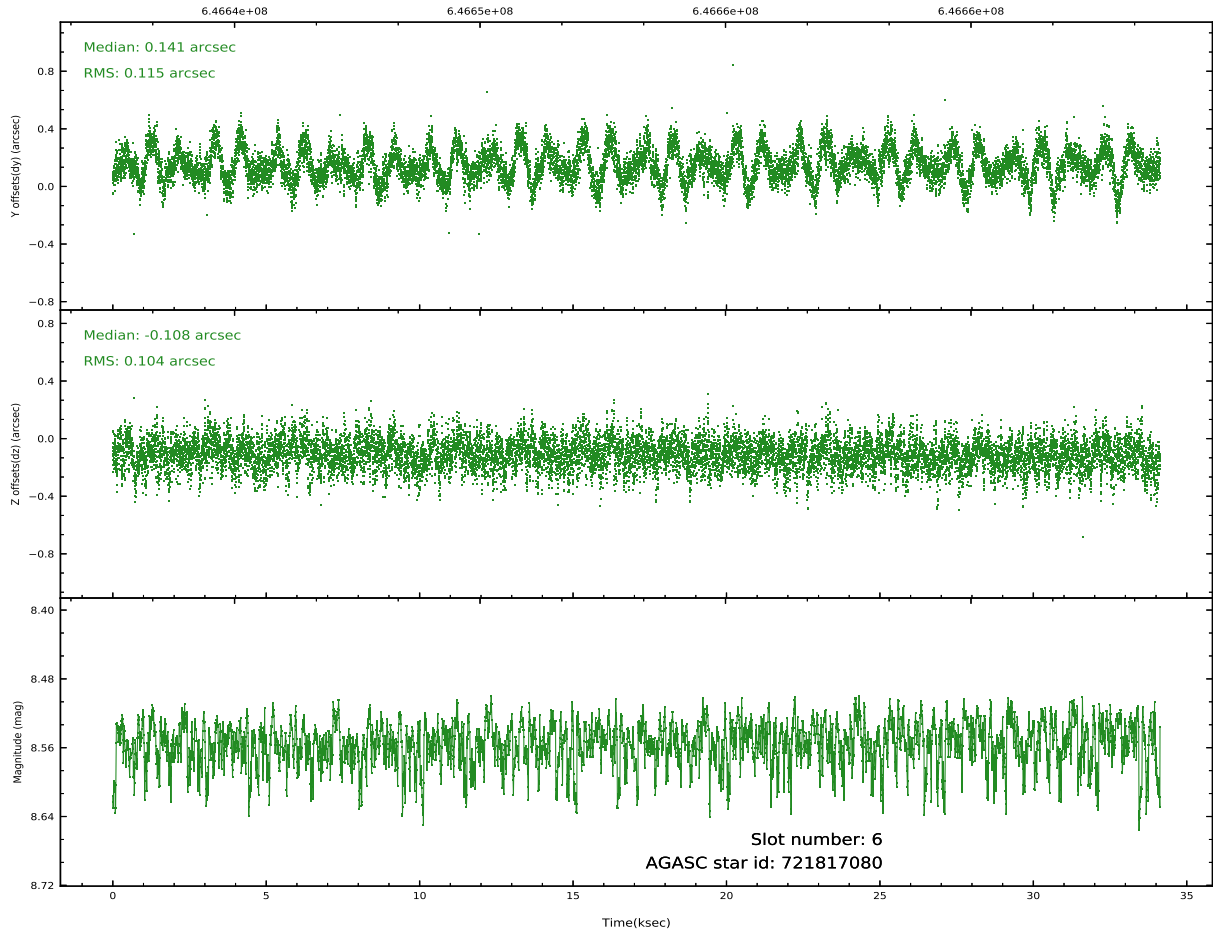
Time (s)



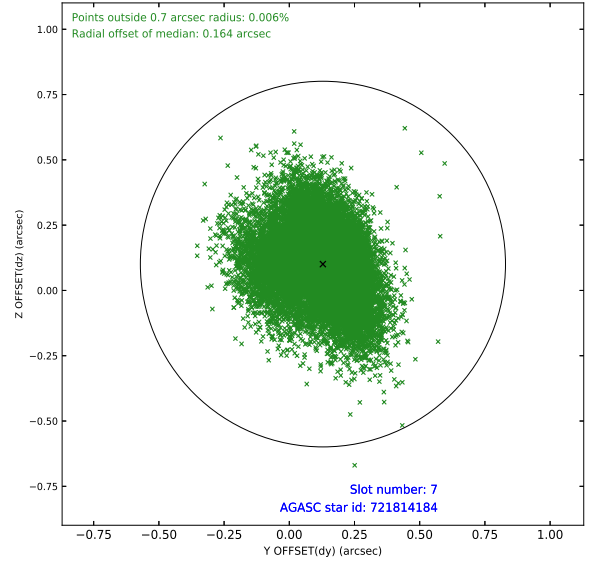
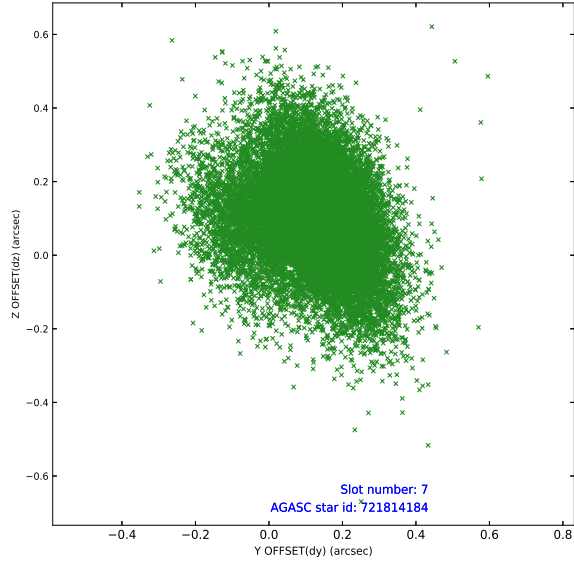
## 2.4.4 Slot 6



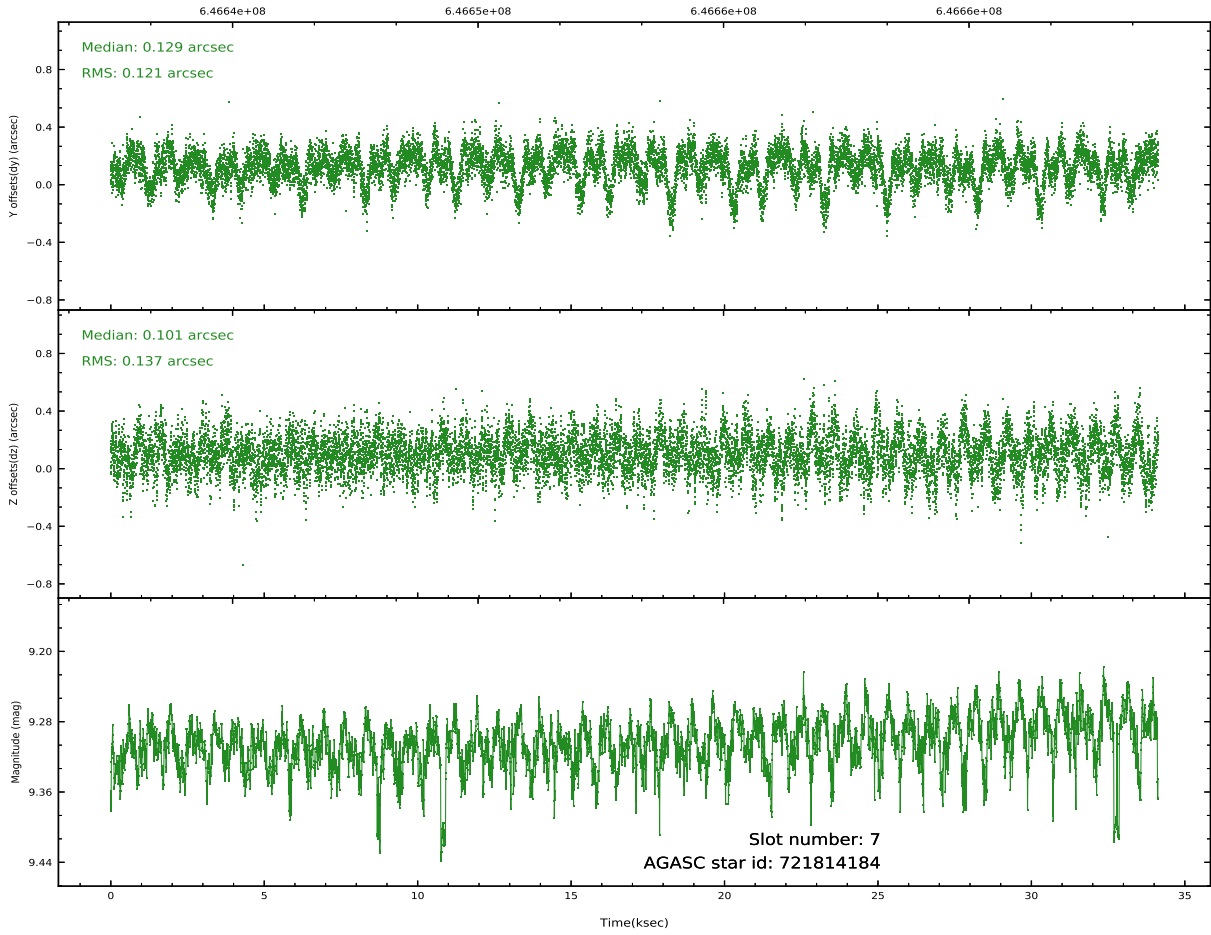
Time (s)



## 2.4.5 Slot 7

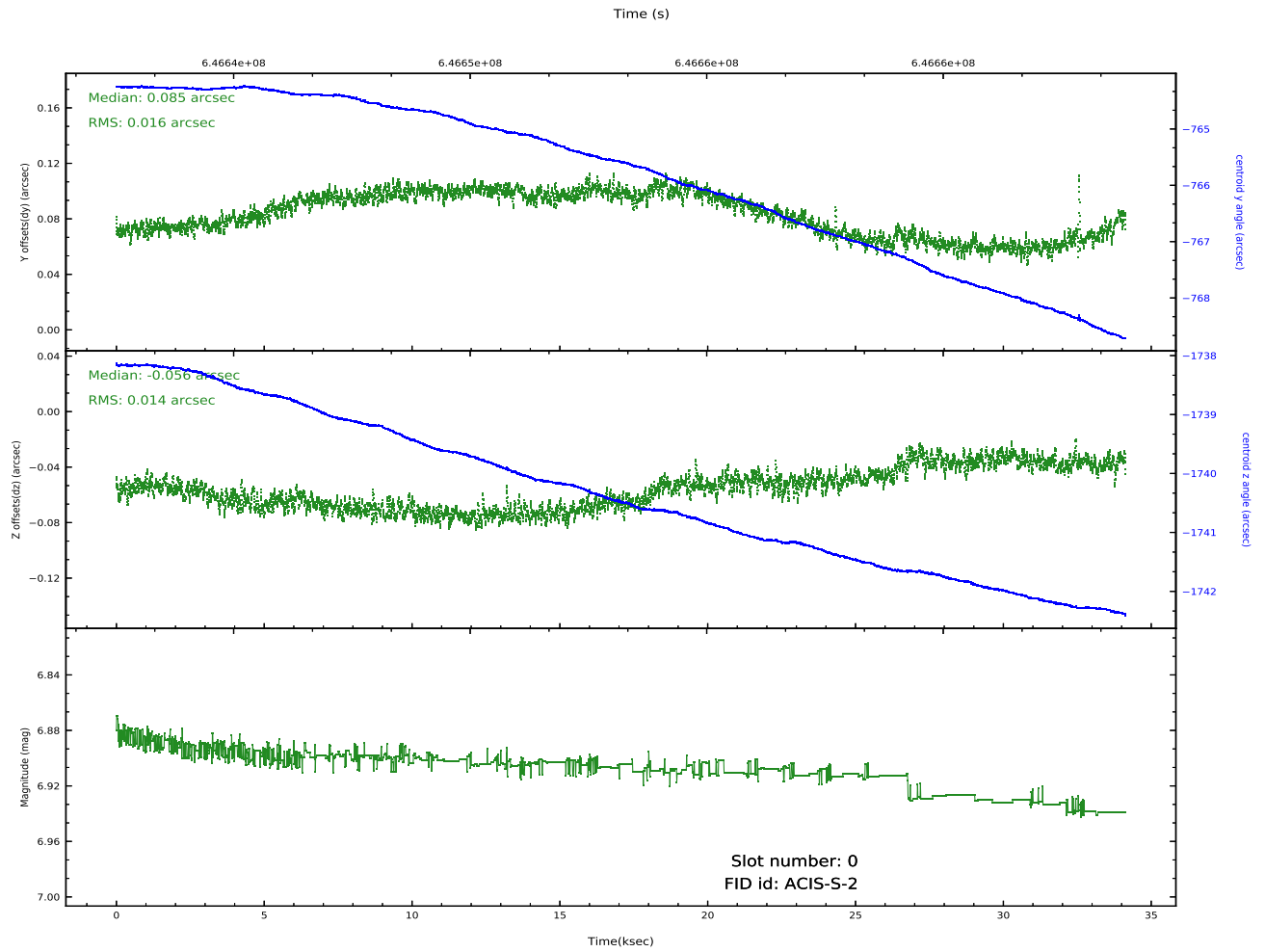
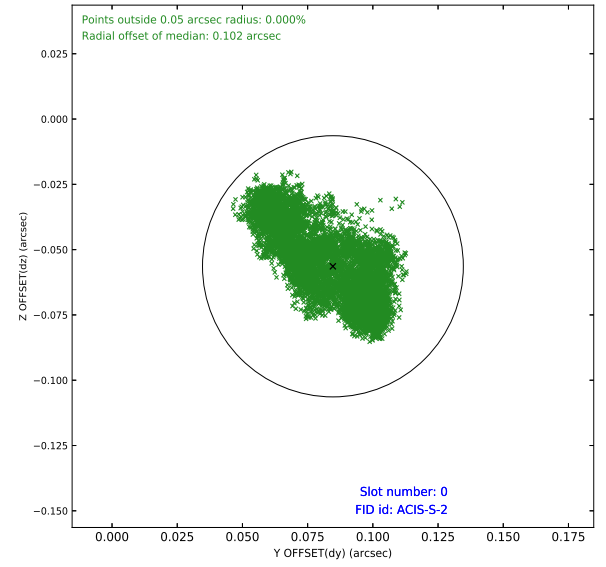
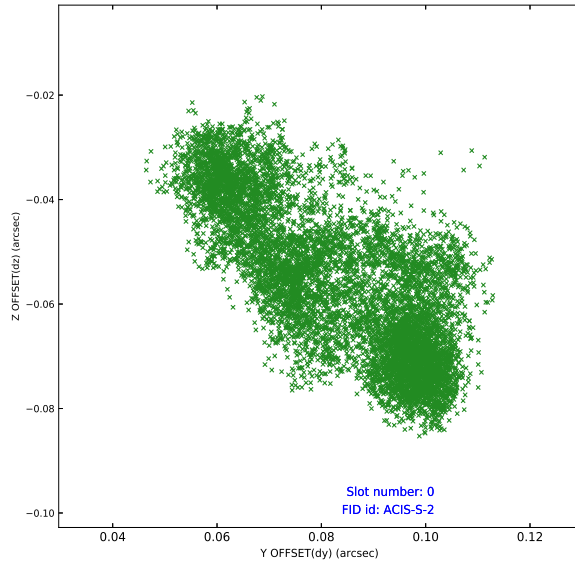


Time (s)

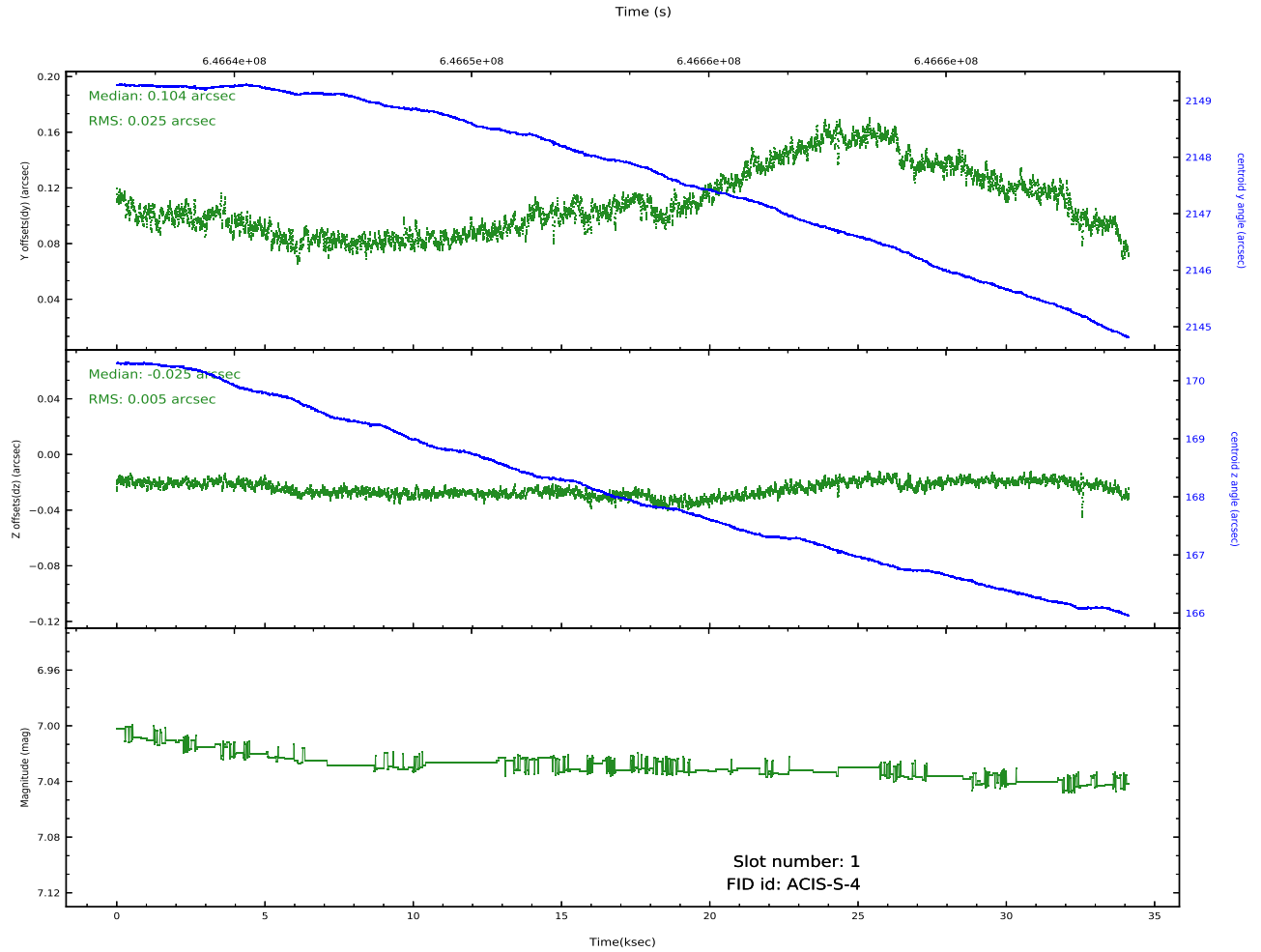
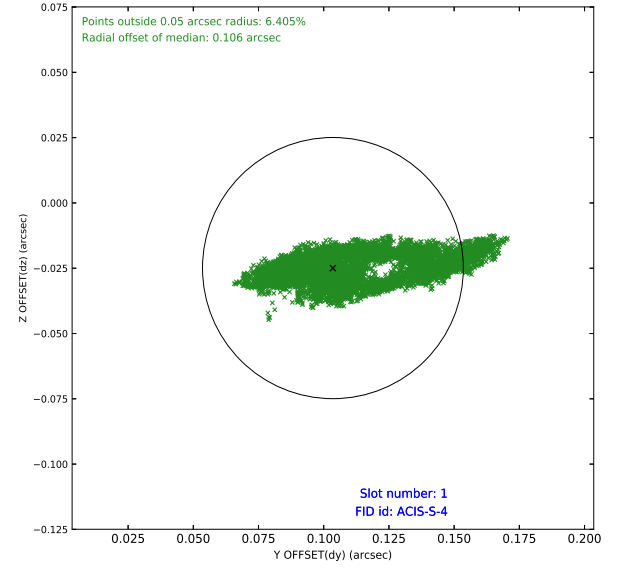
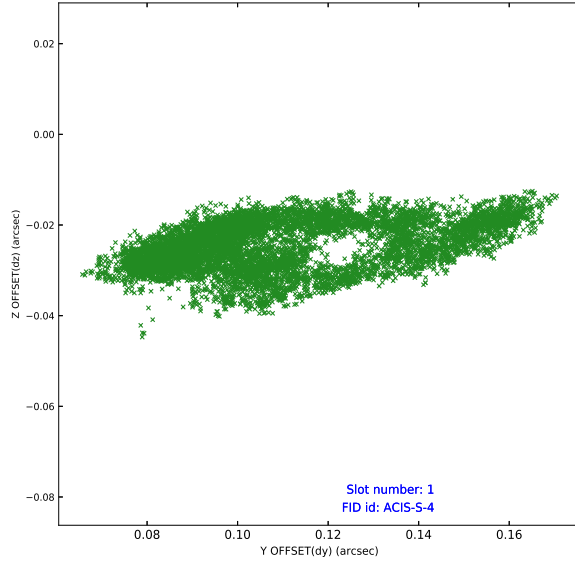


## 2.5 FID Slots

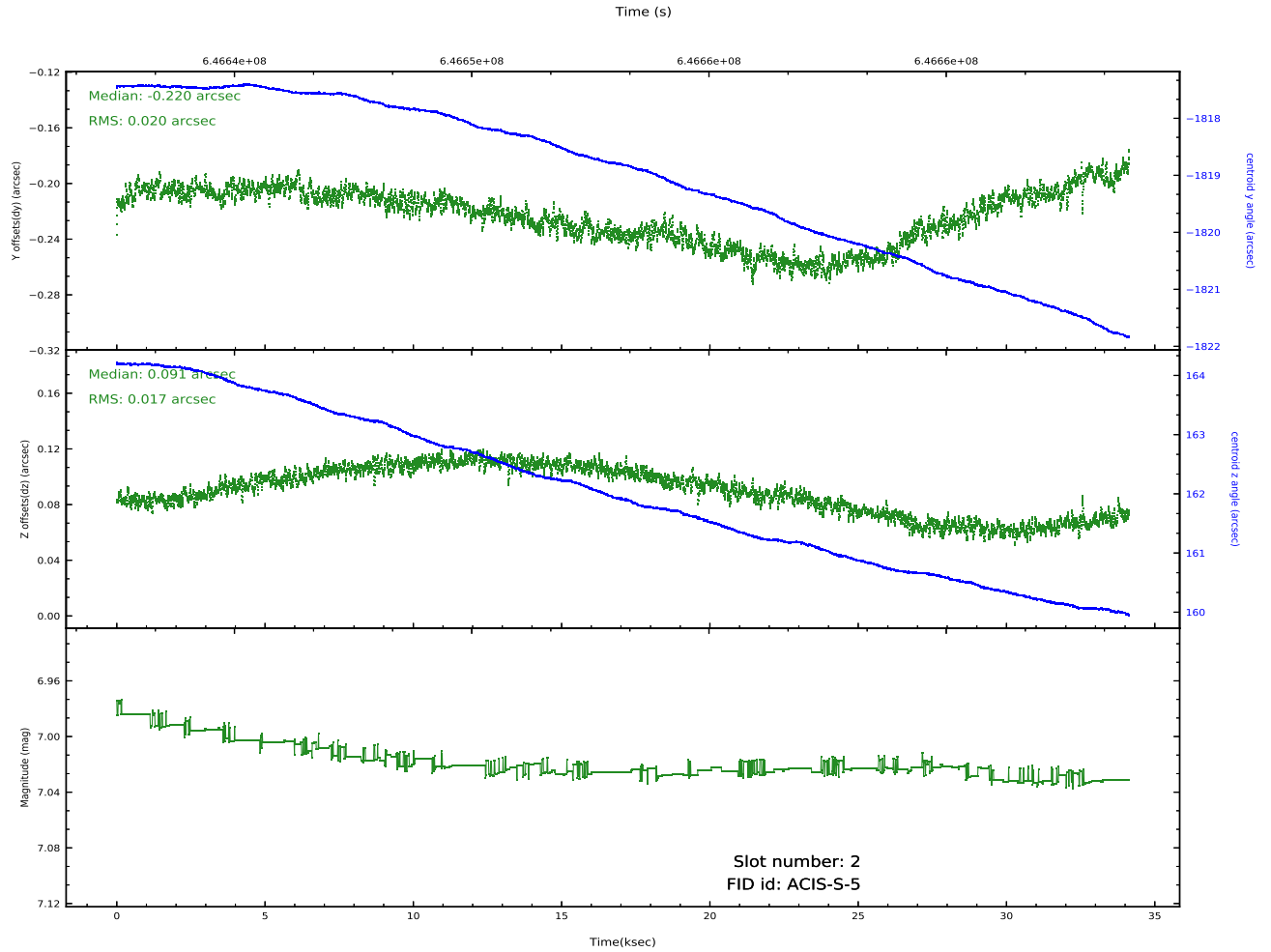
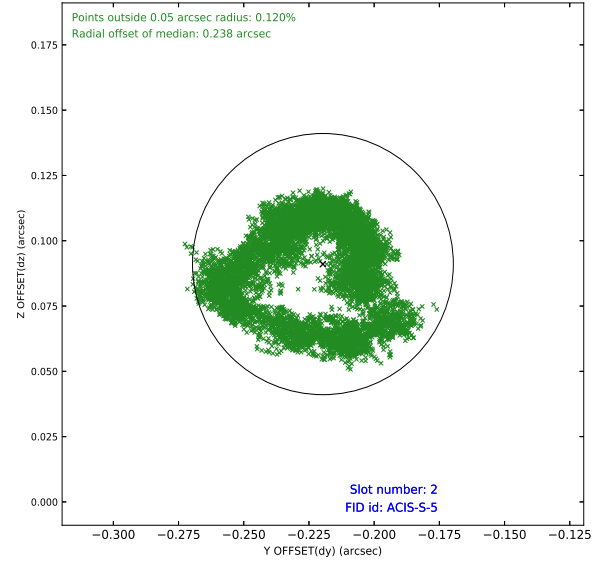
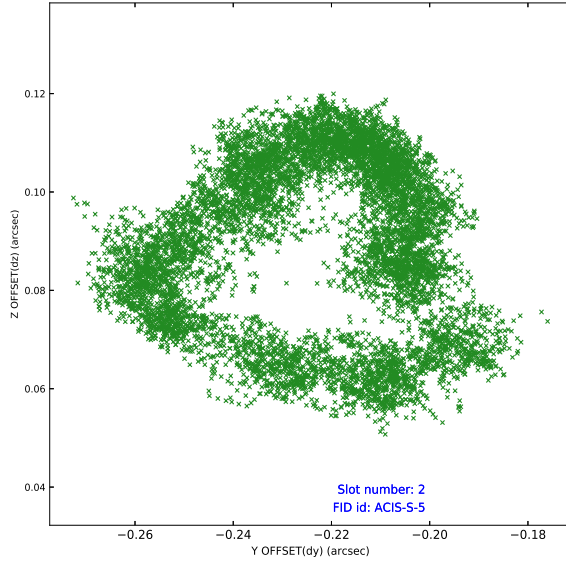
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | 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            | 34.053500262022 |

### A.2 Comments