

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 6325 - L2 Version 4  
Chandra X-Ray Center

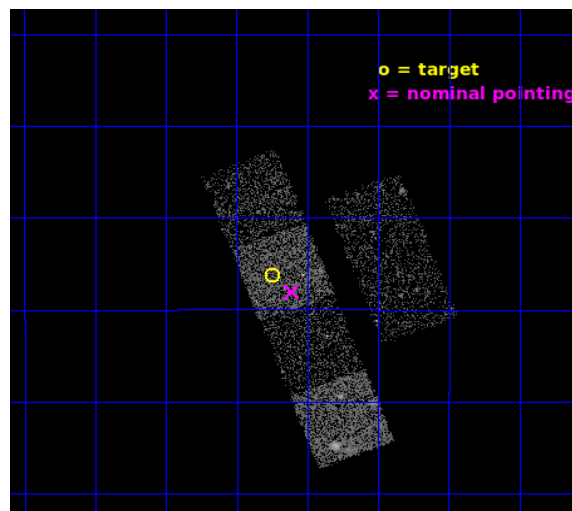
L2 Processing Date : Oct 9 2020

## 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

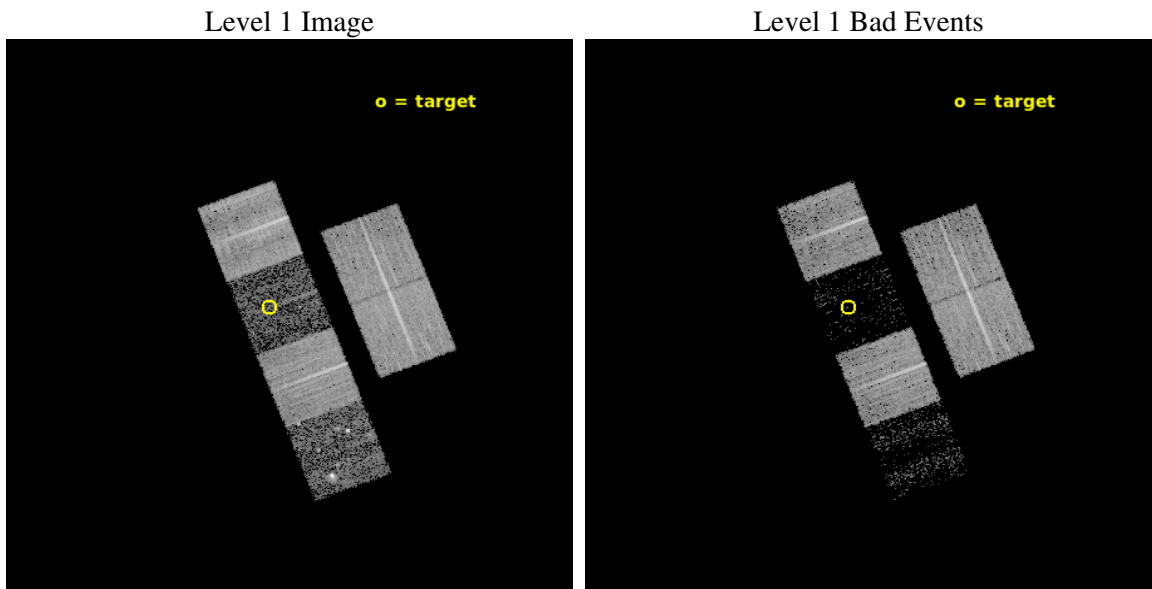
|          |  |   |
|----------|--|---|
| seq_num  | 100060   | Sequence number                             |
| obs_id   | 6325   | Observation id                              |
| title    | Comet 9P/Tempel 1 During the Deep Impact Encounter | Proposal title                              |
| observer | Carey Lisse  | Principal investigator                      |
| object   | Comet 9P/Tempel 1                                  | Source name                                 |
| dtcycle  | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 204.437451   | Observer's specified<br>target RA [deg]     |
| dec_targ | -9.603522  | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 204.4024309612                                     | Nominal RA [deg]                            |
| dec_nom  | -9.6339230785889                                   | Nominal Dec [deg]                           |
| roll_nom | 248.83354383433                                    | Nominal Roll [deg]                          |
| revision | 4  | Processing version of<br>data               |
| ontime   | 10806.399959743                                    | Sum of GTIs [s]                             |
| livetime | 10669.56281662                                     | Livetime [s]                                |
| ontime2  | 10806.399959743                                    | Sum of GTIs [s]                             |
| ontime3  | 10806.399959743                                    | Sum of GTIs [s]                             |
| ontime5  | 10806.399959743                                    | Sum of GTIs [s]                             |
| ontime6  | 10806.399959743                                    | Sum of GTIs [s]                             |
| ontime7  | 10806.399959743                                    | Sum of GTIs [s]                             |
| ontime8  | 10806.399959743                                    | Sum of GTIs [s]                             |
| l2events | 16029  | Number of level 2 events                    |



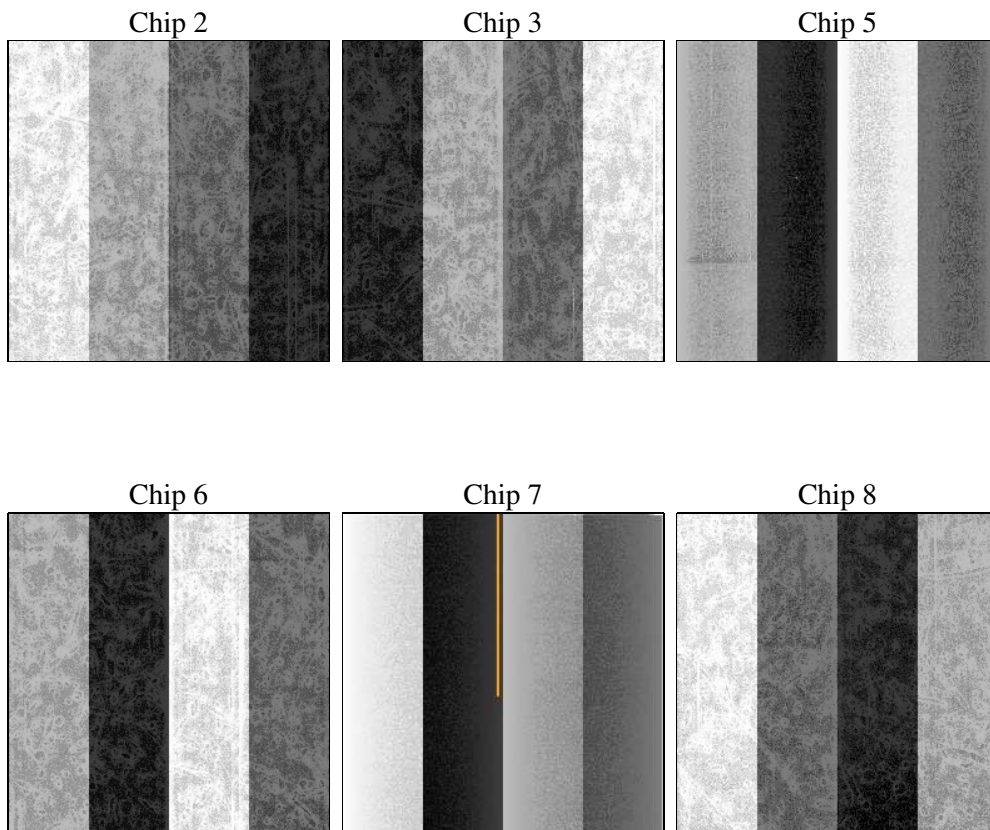
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 10799.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.9.1              | Processing system revision     | ontime         | 10806.399959743 | Sum of GTIs [s]                         |
| caldbver | 4.9.2               | &#160                          | ontime2        | 10806.399959743 | Sum of GTIs [s]                         |
| date     | 2020-10-09T07:52:54 | Date and time of file creation | ontime3        | 10806.399959743 | Sum of GTIs [s]                         |
| revision | 4                   | Processing version of data     | ontime5        | 10806.399959743 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 10806.399959743 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 10806.399959743 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 10806.399959743 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 218141          | Number of level 1 events                |

### 2.1.4 Events

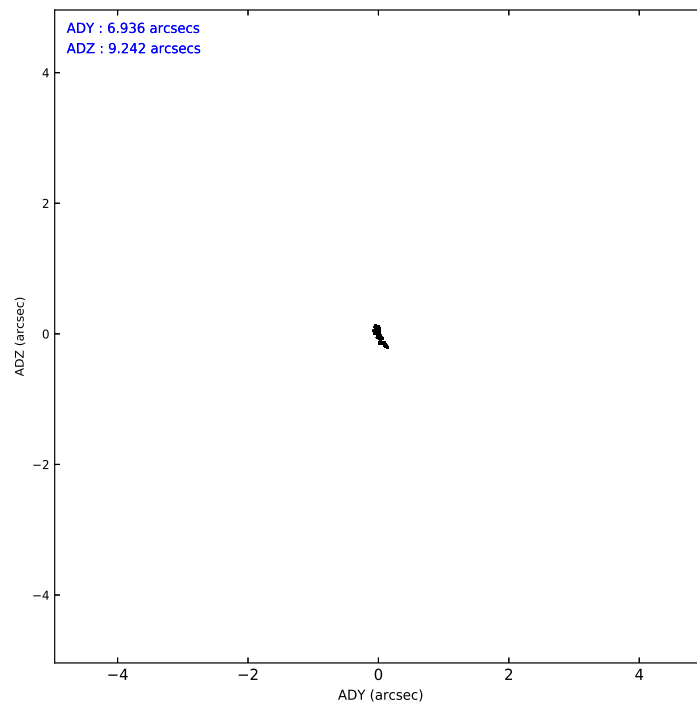
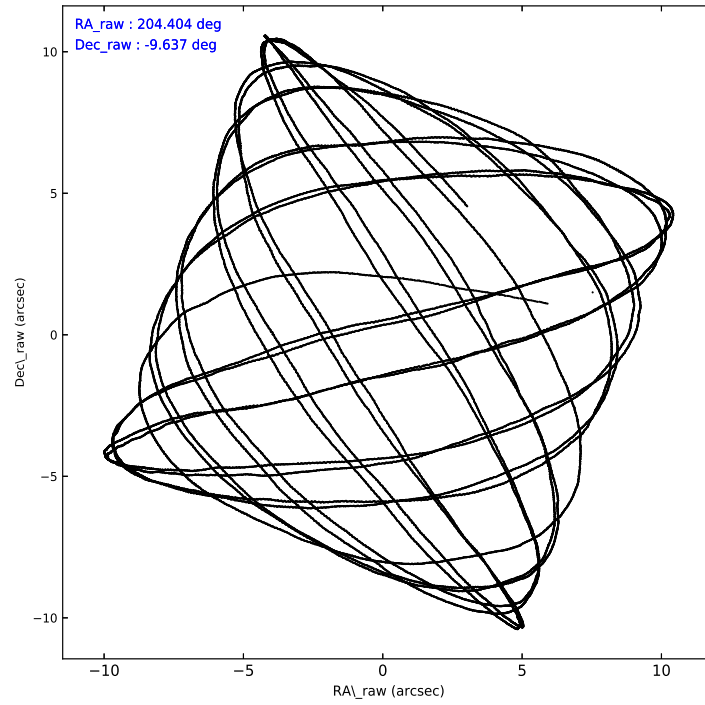
|                 | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 54675 | 44619 | 12265 | 45941 | 6884  | 53757 |
| rejected events | 52472 | 42987 | 2912  | 43840 | 1558  | 40151 |
| rejected %      | 95%   | 96%   | 23%   | 95%   | 22%   | 74%   |

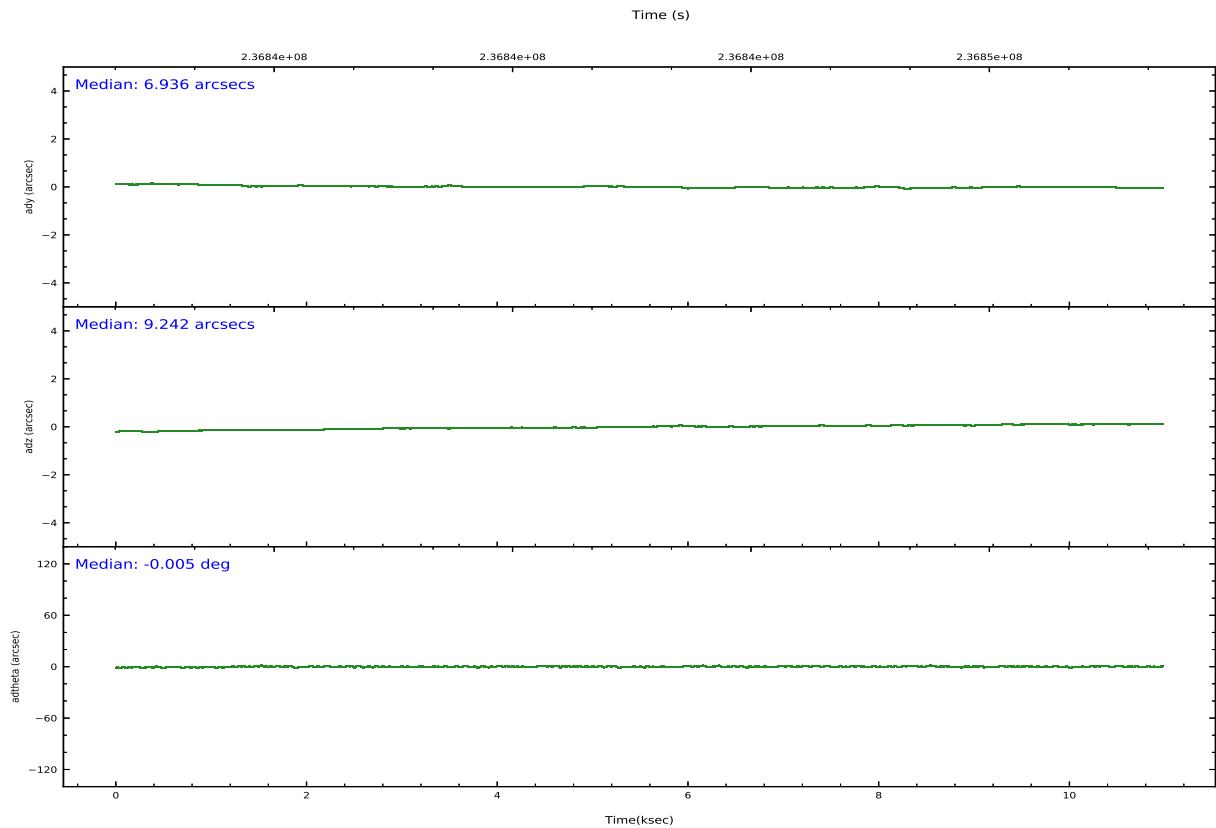
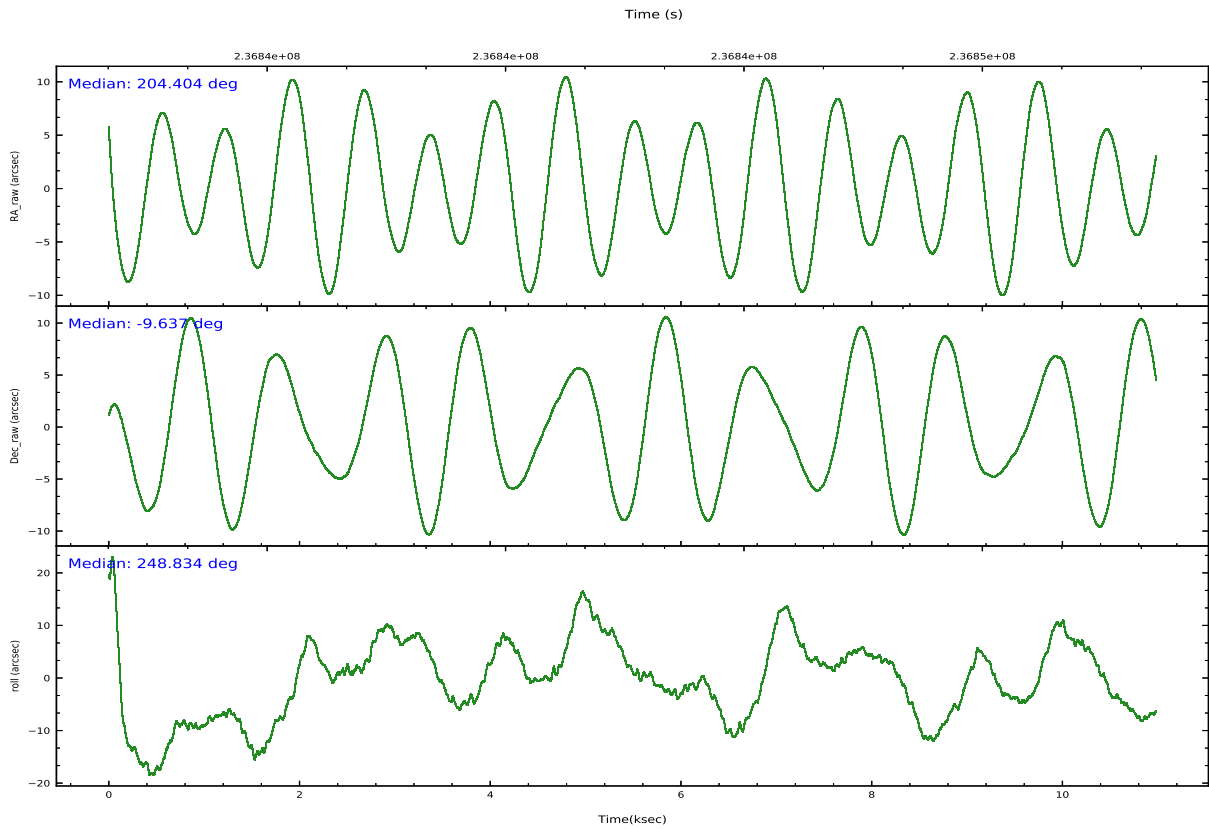
|                | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|----------------|-------|-------|-------|-------|-------|-------|
| grade 0 events | 846   | 801   | 3982  | 1047  | 1439  | 3786  |
|                | 1%    | 1%    | 32%   | 2%    | 20%   | 7%    |
| grade 1 events | 16    | 15    | 80    | 15    | 44    | 36    |
|                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
| grade 2 events | 569   | 184   | 3100  | 366   | 1809  | 3073  |
|                | 1%    | 0%    | 25%   | 0%    | 26%   | 5%    |
| grade 3 events | 261   | 291   | 776   | 272   | 759   | 1551  |
|                | 0%    | 0%    | 6%    | 0%    | 11%   | 2%    |
| grade 4 events | 330   | 265   | 775   | 291   | 724   | 1413  |
|                | 0%    | 0%    | 6%    | 0%    | 10%   | 2%    |
| grade 5 events | 77    | 40    | 520   | 33    | 202   | 324   |
|                | 0%    | 0%    | 4%    | 0%    | 2%    | 0%    |
| grade 6 events | 221   | 112   | 799   | 151   | 661   | 3927  |
|                | 0%    | 0%    | 6%    | 0%    | 9%    | 7%    |
| grade 7 events | 52355 | 42911 | 2233  | 43766 | 1246  | 39647 |
|                | 95%   | 96%   | 18%   | 95%   | 18%   | 73%   |

## 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                         | VFAINT              | VFAINT               | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 204.399745          | 204.4024309612       | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | -9.609943           | -9.6339230785889     | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 248.679014          | 248.83354383433      | [s] Primary exposure time             | 0.000000  | 3.2     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos    | -190.132523         | -190.145094680475    |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.01257209746719923  |                                       |           |         |
| [s] Observation start time (MET)  | 236838524.184000    | 236837539.90951      |                                       |           |         |
| Observation start date            | 2005-07-04T04:27:40 | 2005-07-04T04:12:19  |                                       |           |         |
| [s] Observation end time (MET)    | 236849323.184000    | 236849457.07255      |                                       |           |         |
| Observation end date              | 2005-07-04T07:27:39 | 2005-07-04T07:30:57  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect





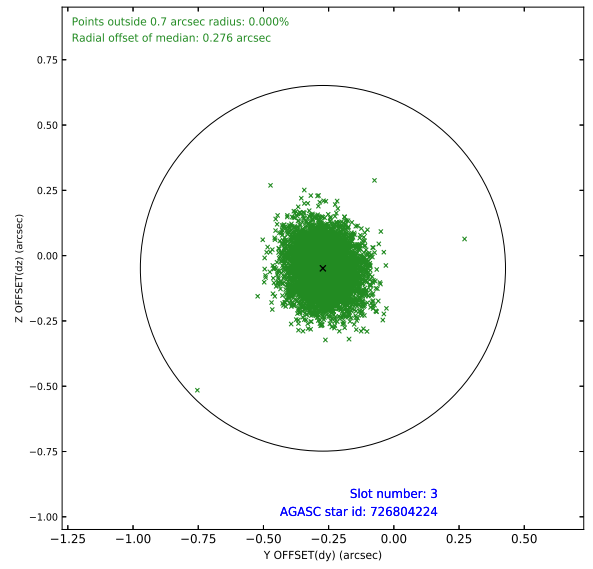
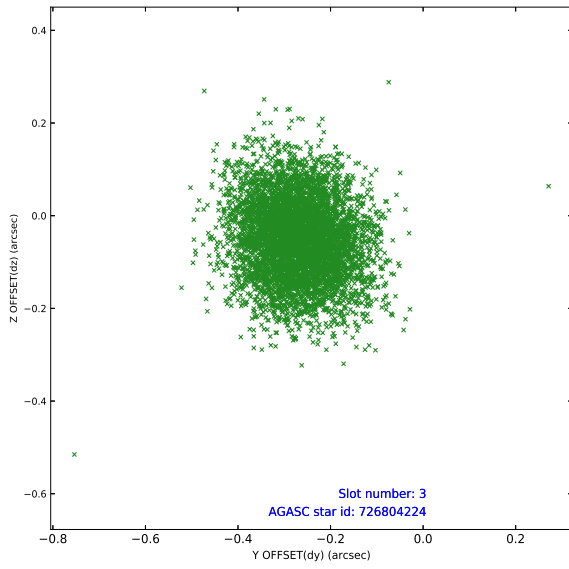
### Slot Statistics

| slot | status | used | id        | mag   | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mea   |
|------|--------|------|-----------|-------|-------|----------|--------|--------|-------|-------|------------|------------|----------|-------|
| 0    | FID    |      | ACIS-S-1  | 7.19  | 2679  | 1.000    | 0.059  | -0.009 | 0.006 | 0.010 | 0.000000   | 0.000000   | 936.39   | -1725 |
| 1    | FID    |      | ACIS-S-2  | 7.10  | 2679  | 1.000    | -0.094 | -0.055 | 0.007 | 0.012 | 0.000000   | 0.000000   | -759.40  | -1731 |
| 2    | FID    |      | ACIS-S-6  | 7.35  | 2679  | 1.000    | 0.015  | 0.068  | 0.006 | 0.011 | 0.000000   | 0.000000   | 401.81   | 814   |
| 3    | GUIDE  | used | 726804224 | 9.85  | 5351  | 1.000    | -0.272 | -0.049 | 0.119 | 0.191 | 203.979225 | -8.888668  | -1874.16 | -2336 |
| 4    | GUIDE  | used | 726804320 | 10.44 | 5348  | 1.000    | 0.137  | -0.145 | 0.198 | 0.315 | 203.890975 | -9.273004  | -471.33  | -2124 |
| 5    | GUIDE  | used | 726932888 | 9.56  | 5356  | 1.000    | -0.516 | -0.176 | 0.121 | 0.204 | 204.640397 | -9.165404  | -1801.93 | 214   |
| 6    | GUIDE  | used | 726935840 | 9.51  | 5354  | 1.000    | 0.477  | -0.023 | 0.089 | 0.147 | 205.084608 | -9.297514  | -1930.04 | 1858  |
| 7    | GUIDE  | used | 727320712 | 10.43 | 5350  | 1.000    | 0.175  | 0.379  | 0.202 | 0.326 | 204.468965 | -10.254166 | 2071.24  | 1073  |

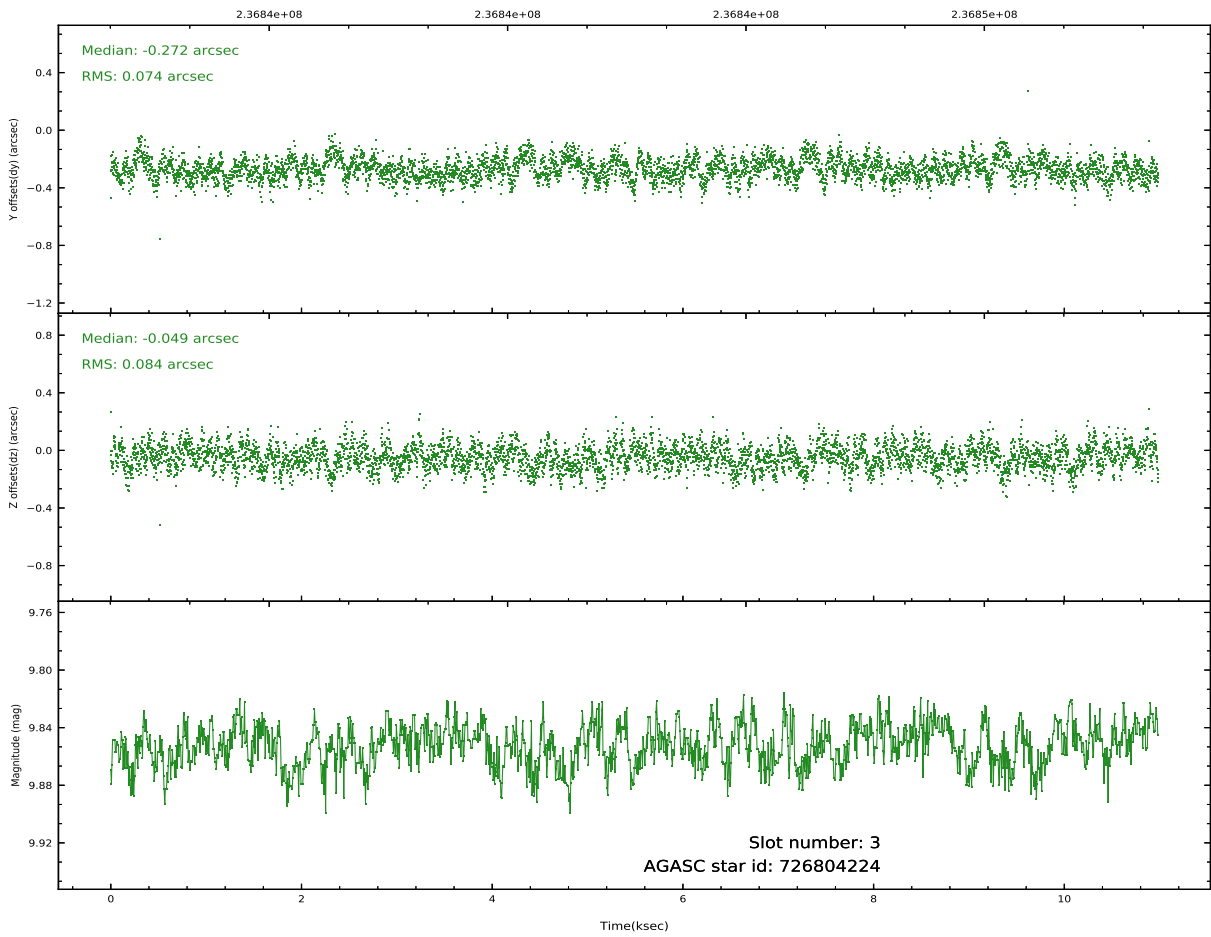
∞

## 2.4 Star Slots

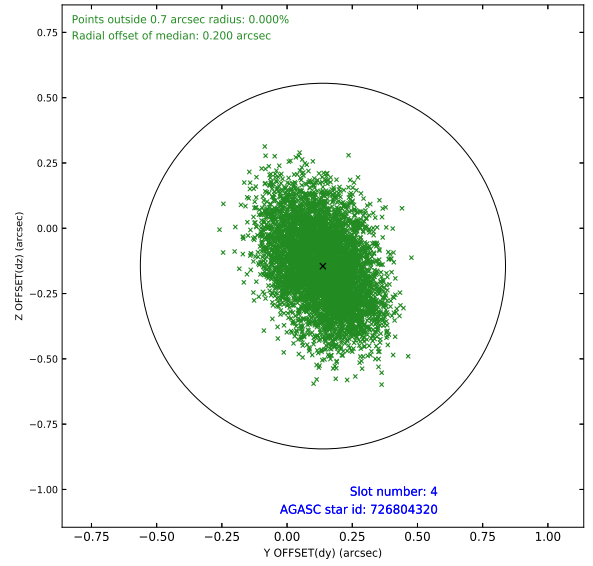
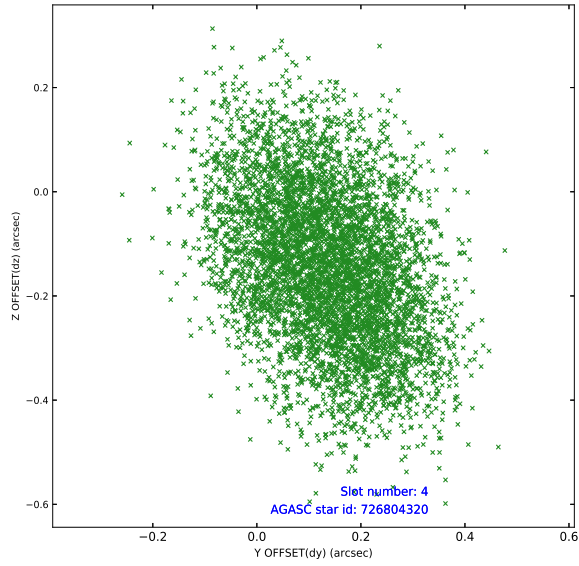
### 2.4.1 Slot 3



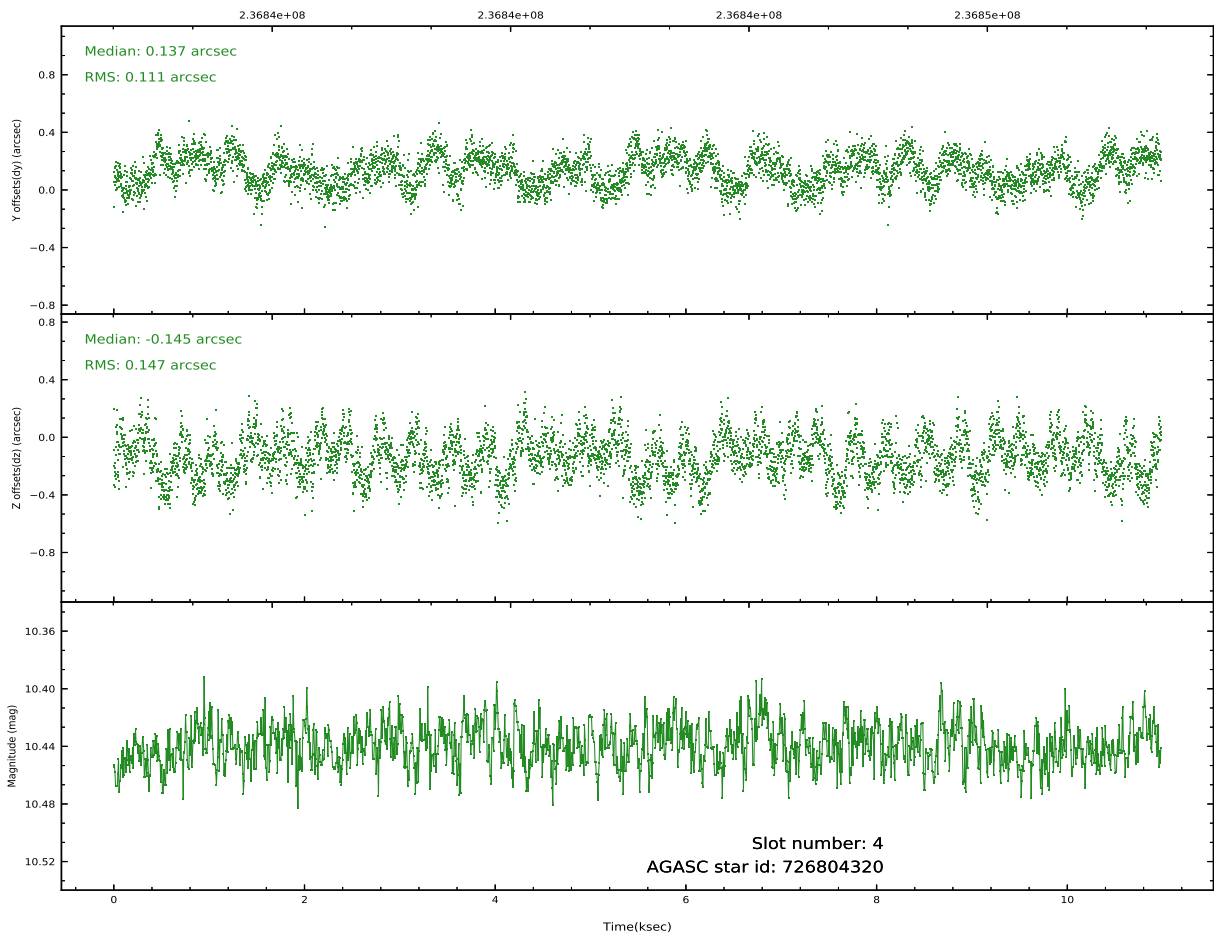
Time (s)



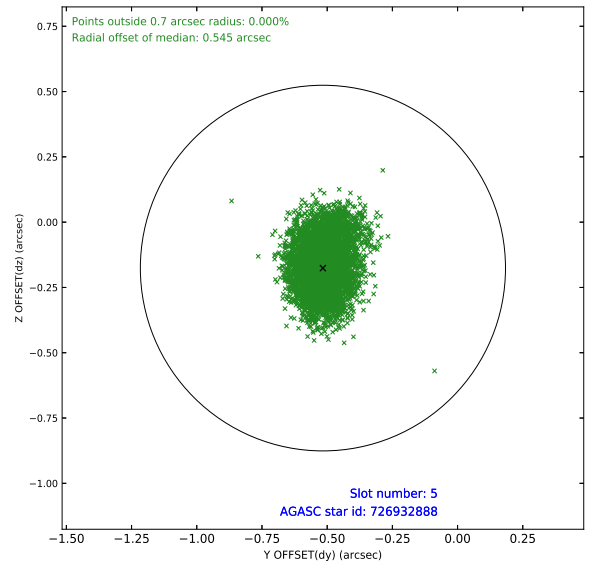
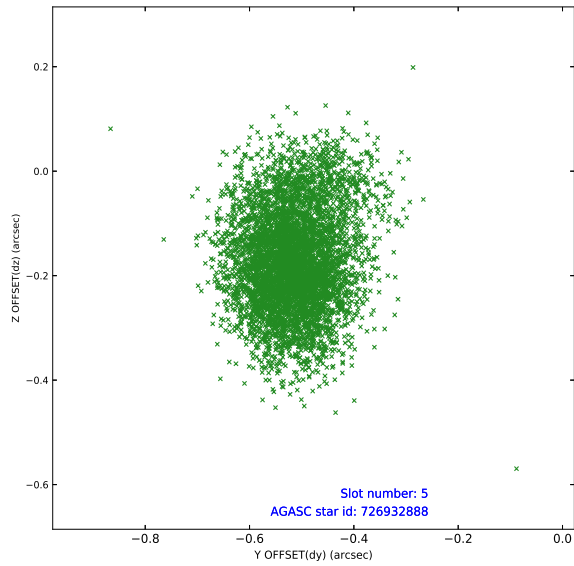
## 2.4.2 Slot 4



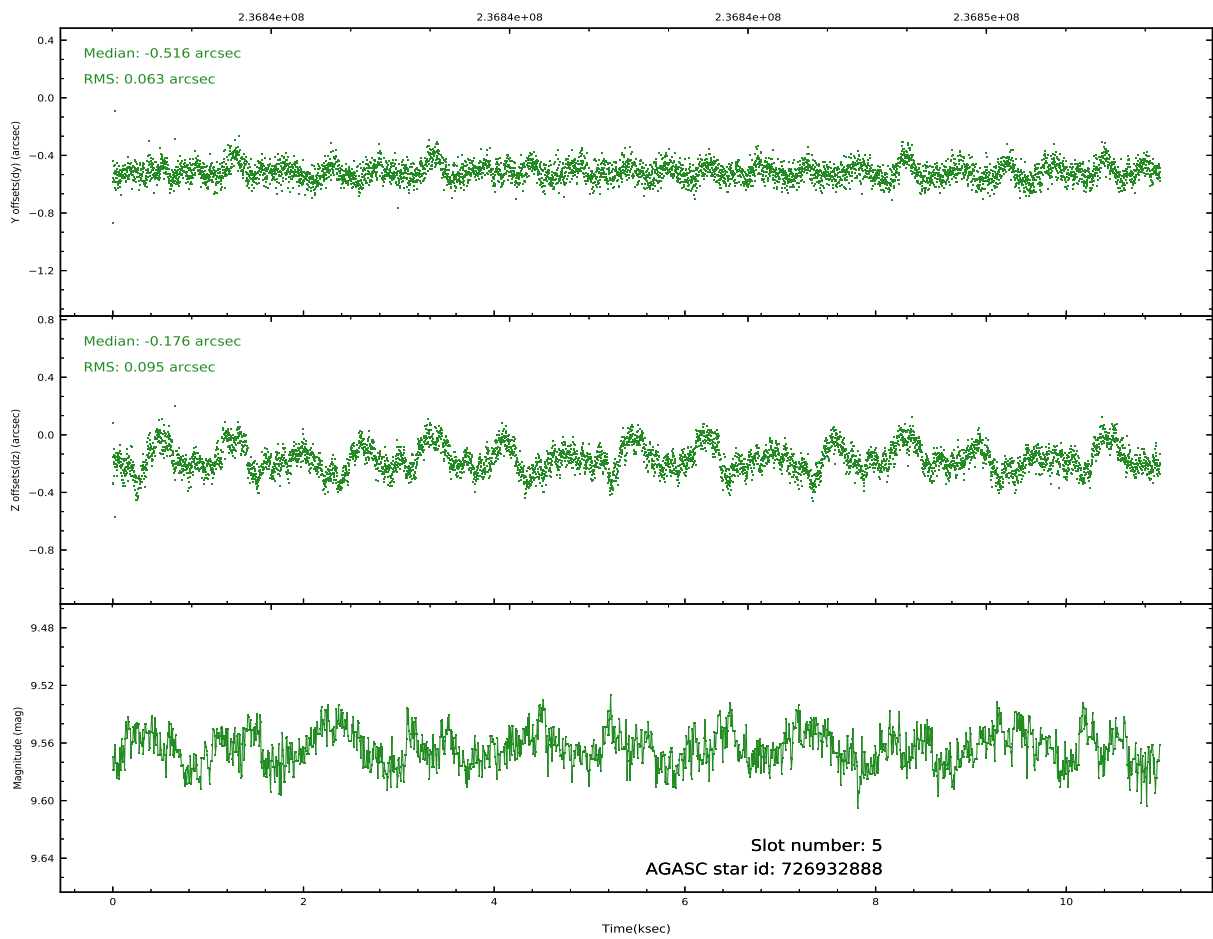
Time (s)



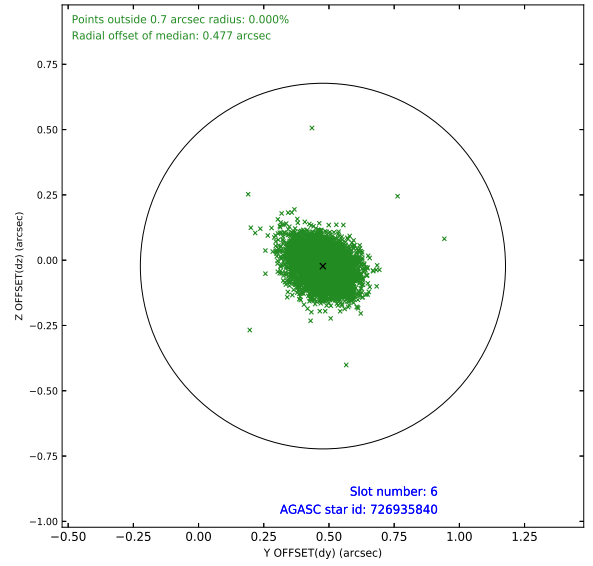
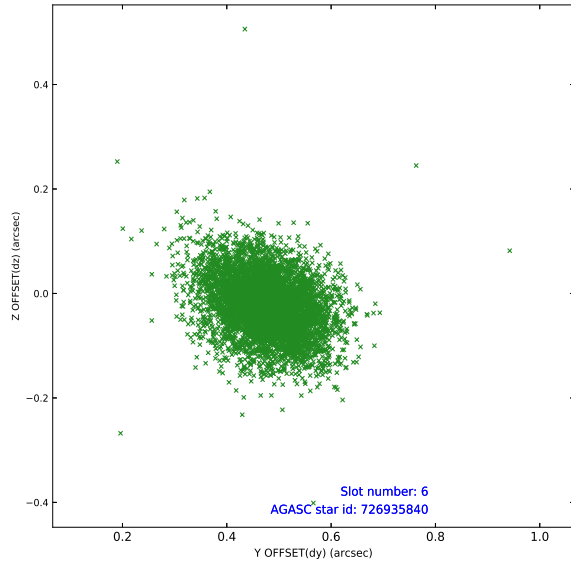
### 2.4.3 Slot 5



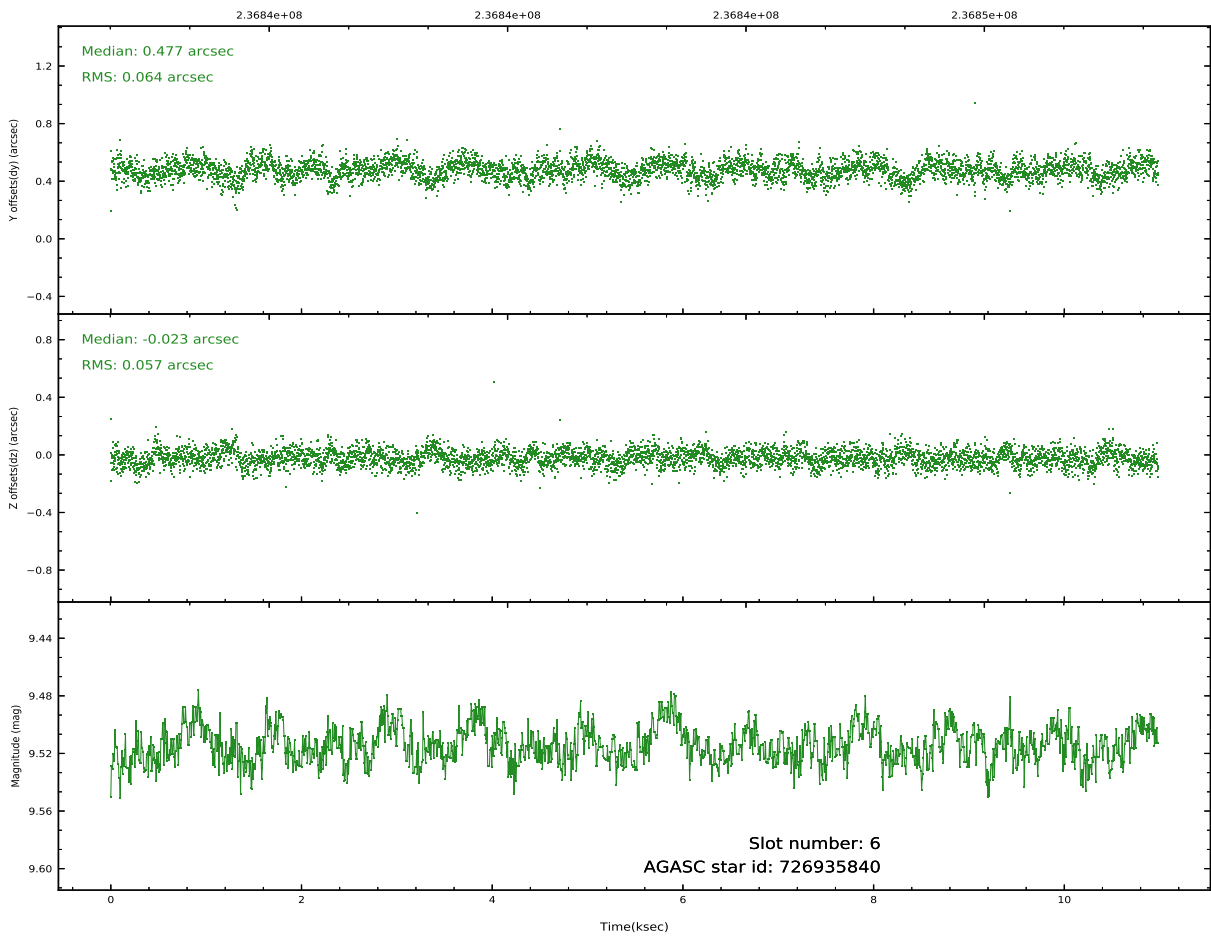
Time (s)



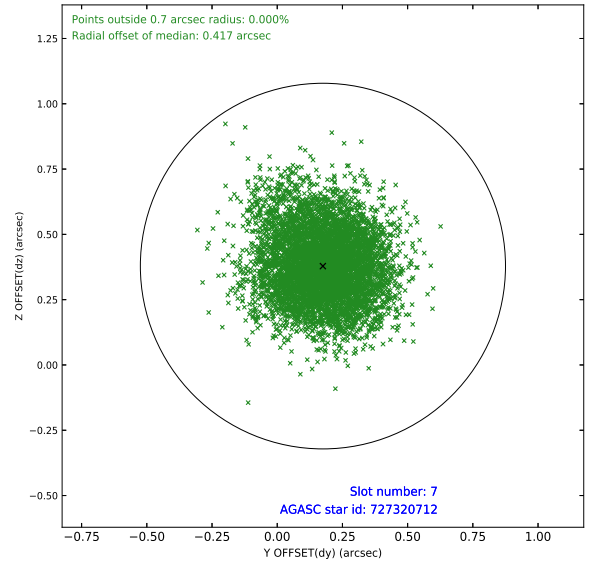
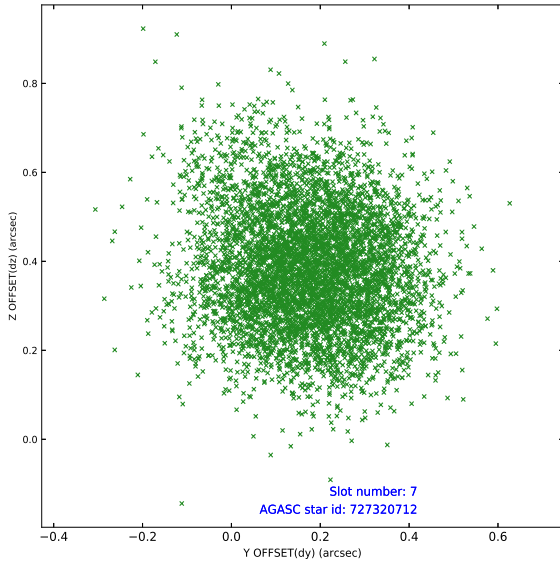
## 2.4.4 Slot 6



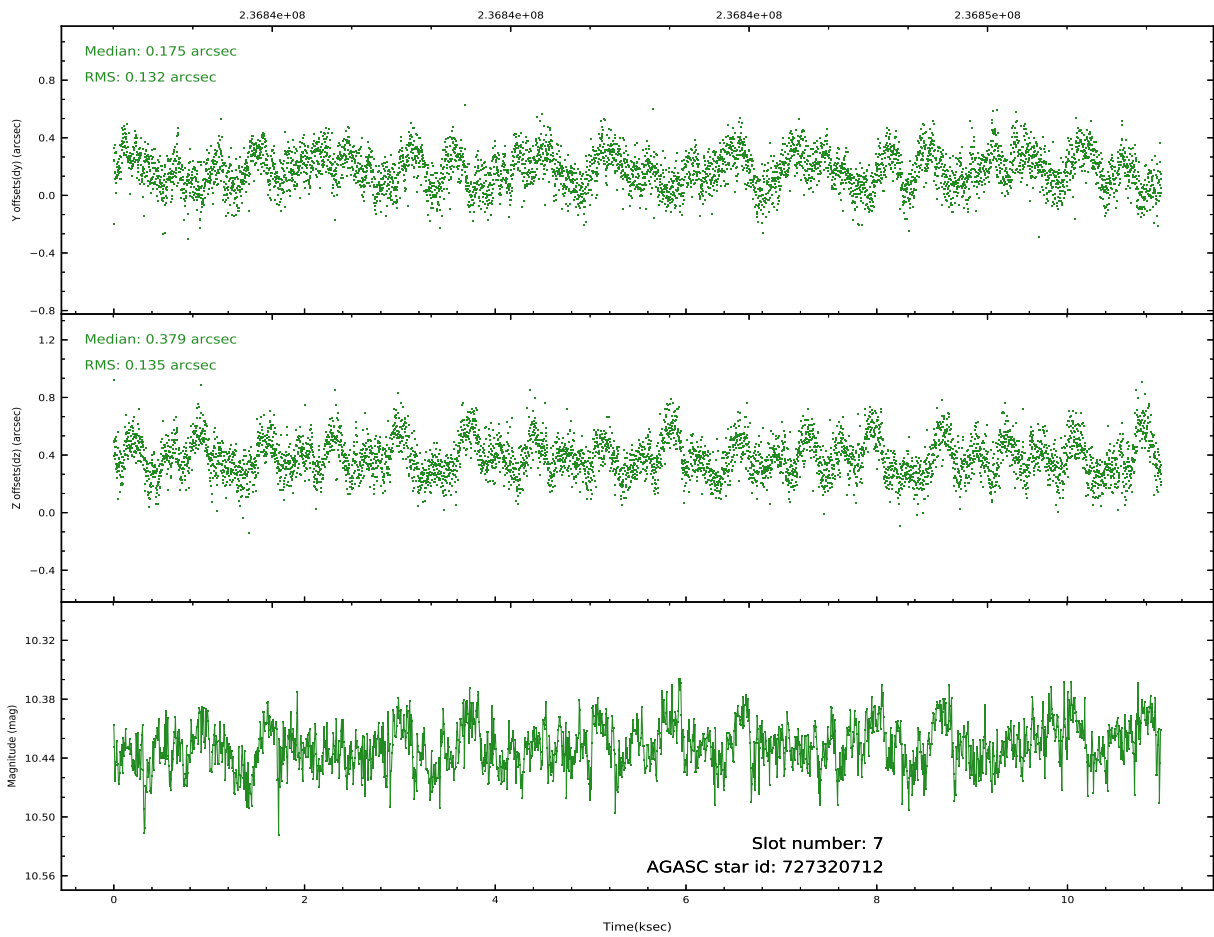
Time (s)



## 2.4.5 Slot 7

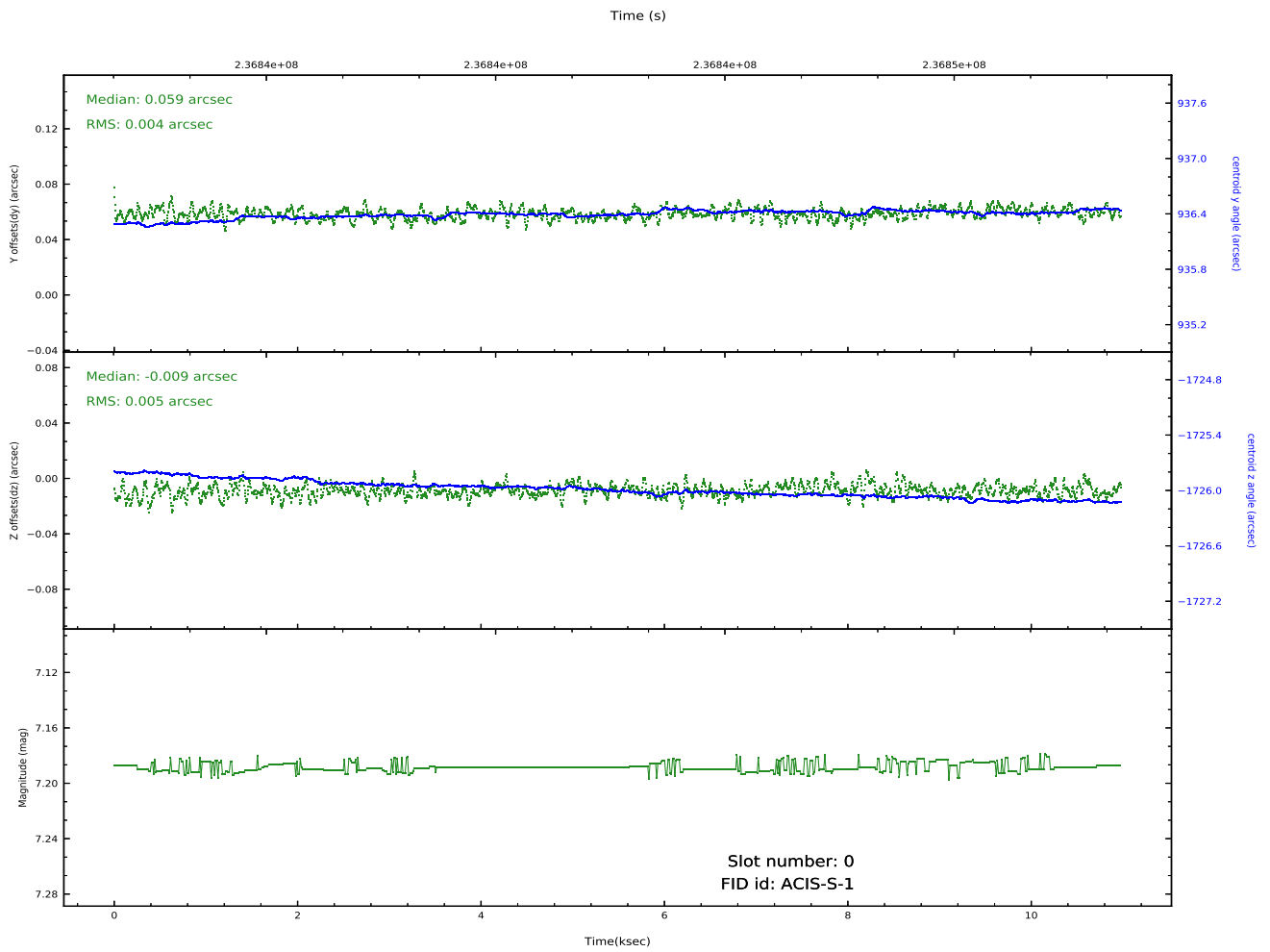
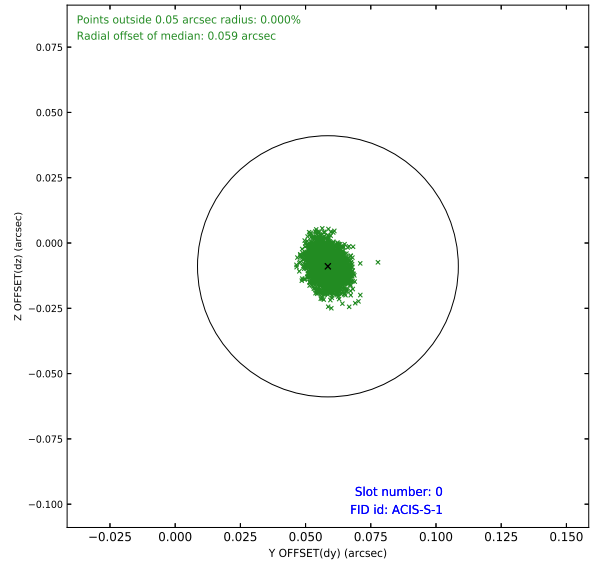
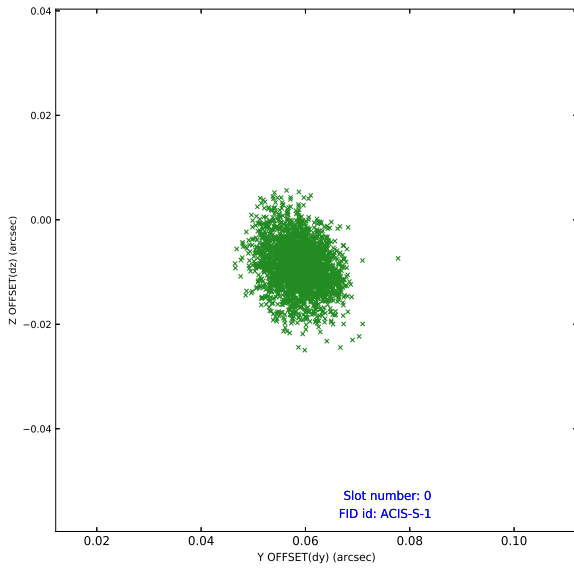


Time (s)

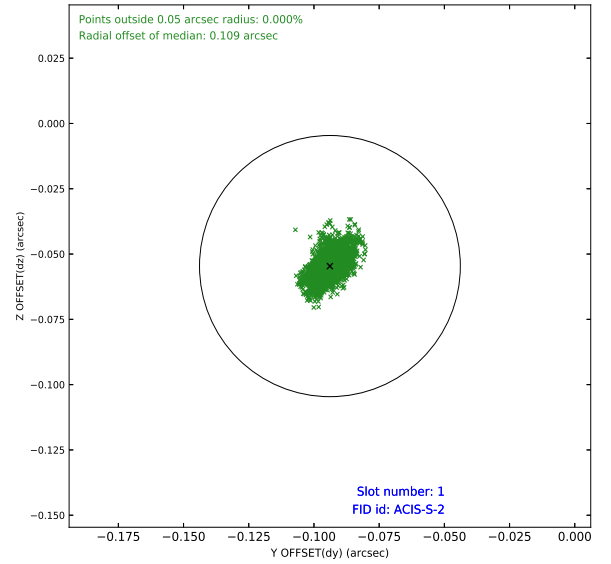
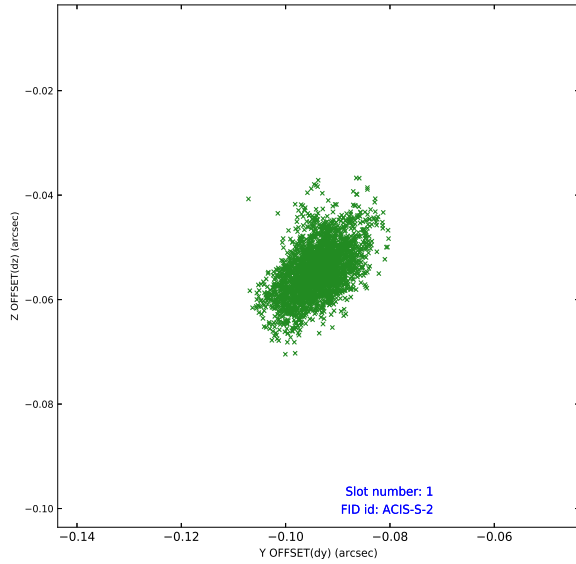


## 2.5 FID Slots

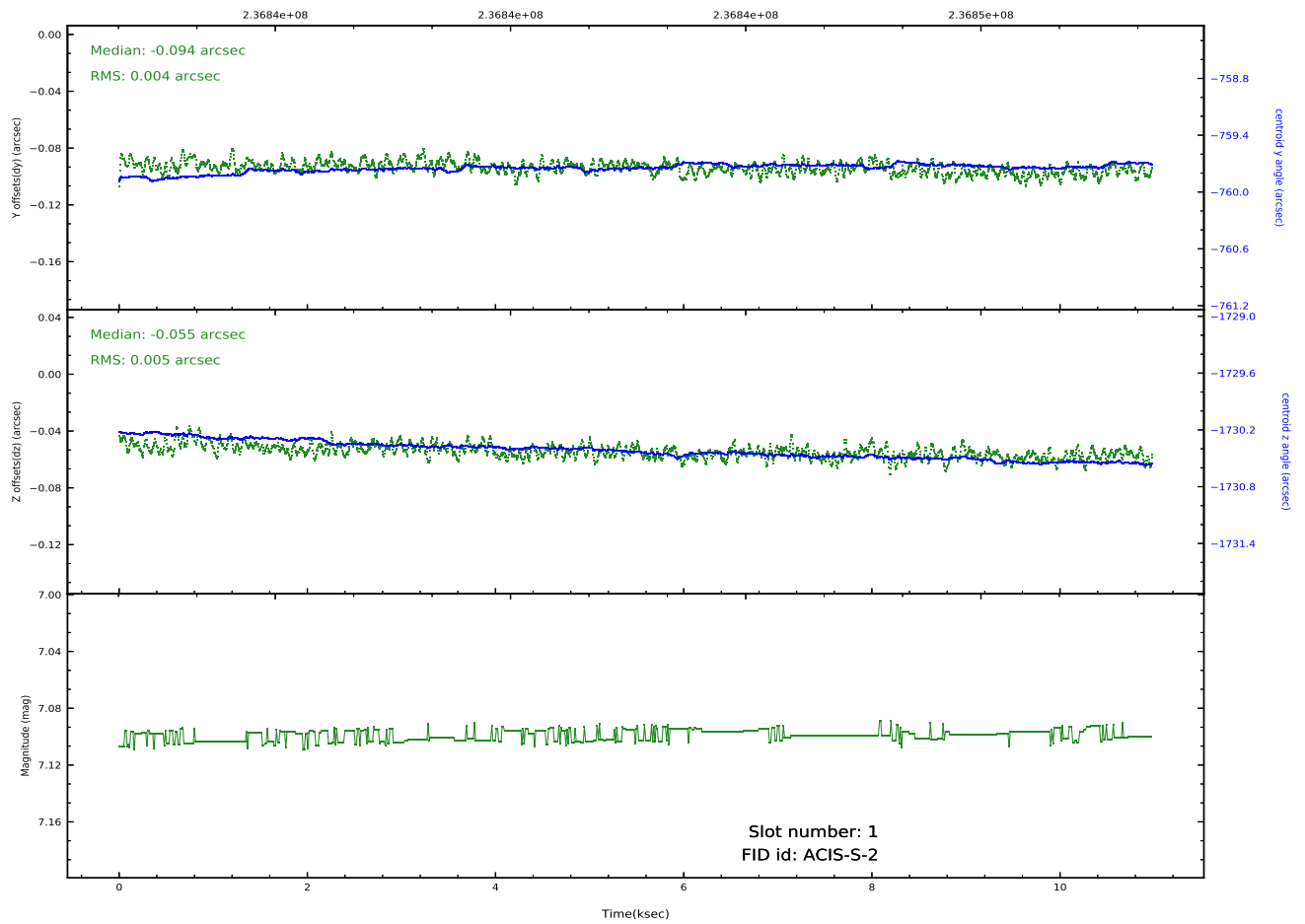
### 2.5.1 Slot 0



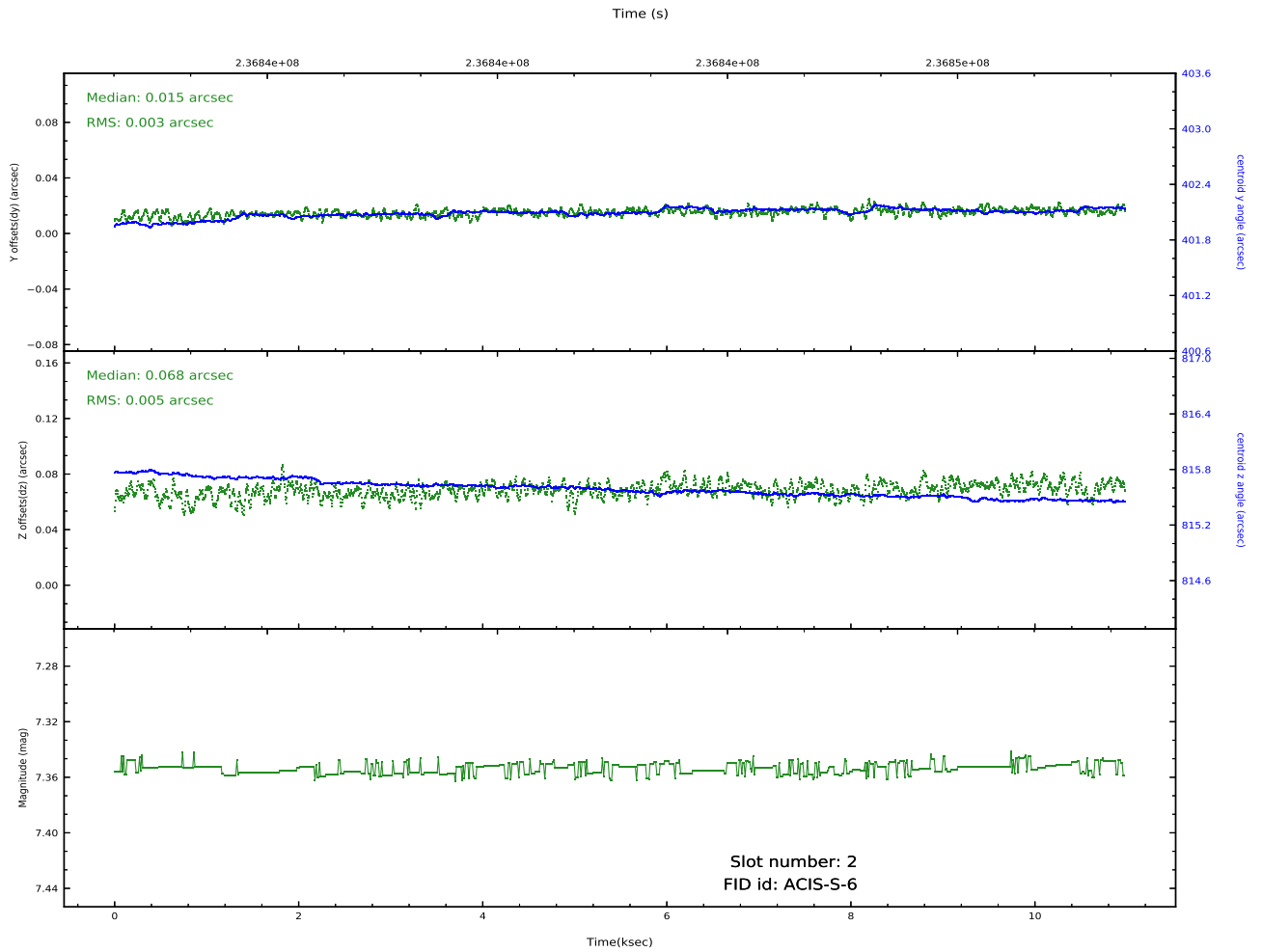
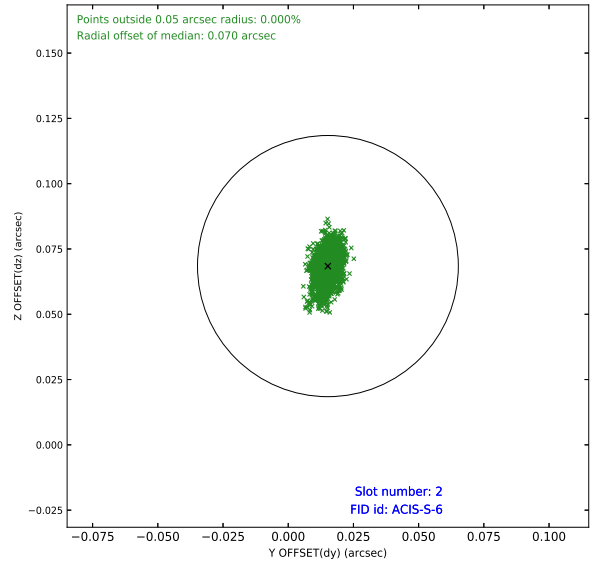
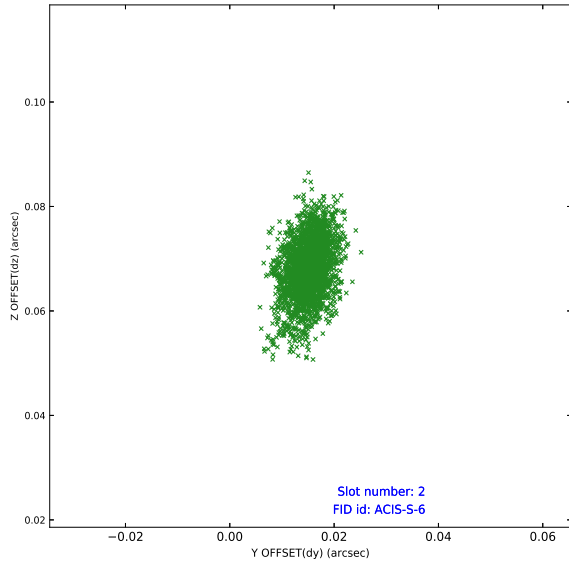
## 2.5.2 Slot 1



Time (s)



### 2.5.3 Slot 2



# A Summary

## A.1 Status

|                            |            |
|----------------------------|------------|
| V&V Scientist              | Jen Lauer  |
| V&V Date (YYYY-MM-DD)      | 2020.10.13 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 10.80639   |

## A.2 Comments

This is a moving target. Users will need to run `sso_freeze` or similar software to position the events in the reference frame of the target.