

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21287 - L2 Version 1  
Chandra X-Ray Center

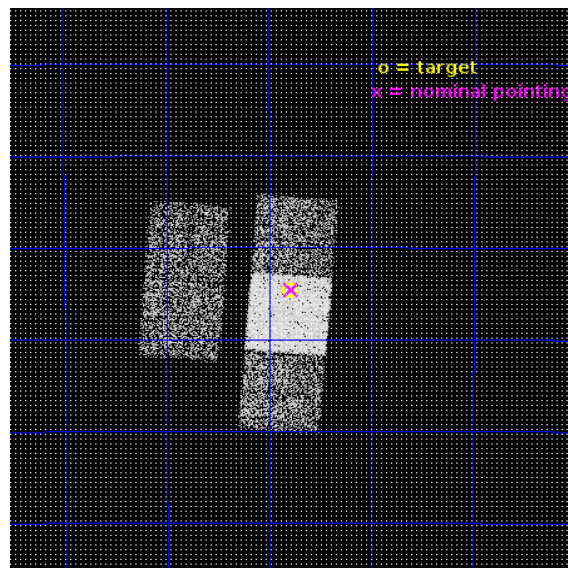
L2 Processing Date : Jan 17 2019

## 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

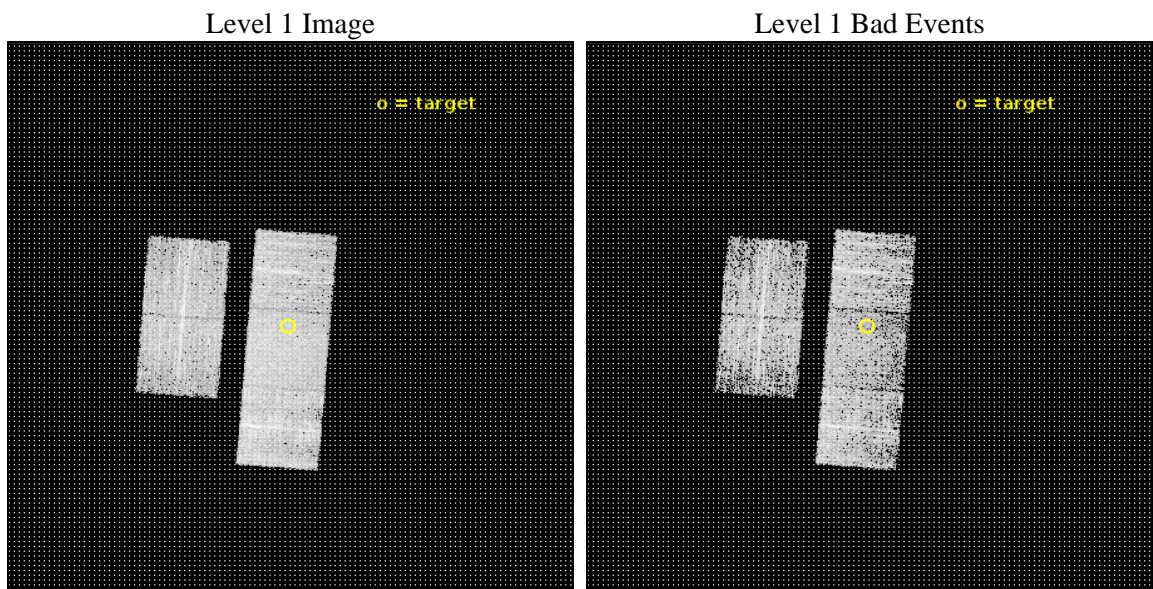
|          |                                                  |                                             |
|----------|--------------------------------------------------|---------------------------------------------|
| seq_num  | 503060                                           | Sequence number                             |
| obs_id   | 21287                                            | Observation id                              |
| title    | Where Have All the Central Compact Objects Gone? | Proposal title                              |
| observer | Eric Gotthelf                                    | Principal investigator                      |
| object   | PSR J1551-4424                                   | Source name                                 |
| dtcycle  | 0                                                | &#160                                       |
| cycle    | P                                                | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 237.95                                           | Observer's specified<br>target RA [deg]     |
| dec_targ | -44.411667                                       | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 237.94518504047                                  | Nominal RA [deg]                            |
| dec_nom  | -44.41031232791                                  | Nominal Dec [deg]                           |
| roll_nom | 94.518779150512                                  | Nominal Roll [deg]                          |
| revision | 1                                                | Processing version of data                  |
| ontime   | 3551.1909037828                                  | Sum of GTIs [s]                             |
| livetime | 3504.7919802762                                  | Livetime [s]                                |
| ontime2  | 3551.0267437696                                  | Sum of GTIs [s]                             |
| ontime3  | 3551.1088237762                                  | Sum of GTIs [s]                             |
| ontime6  | 3551.1498638391                                  | Sum of GTIs [s]                             |
| ontime7  | 3551.1909037828                                  | Sum of GTIs [s]                             |
| ontime8  | 3551.0677838326                                  | Sum of GTIs [s]                             |
| l2events | 24843                                            | Number of level 2 events                    |



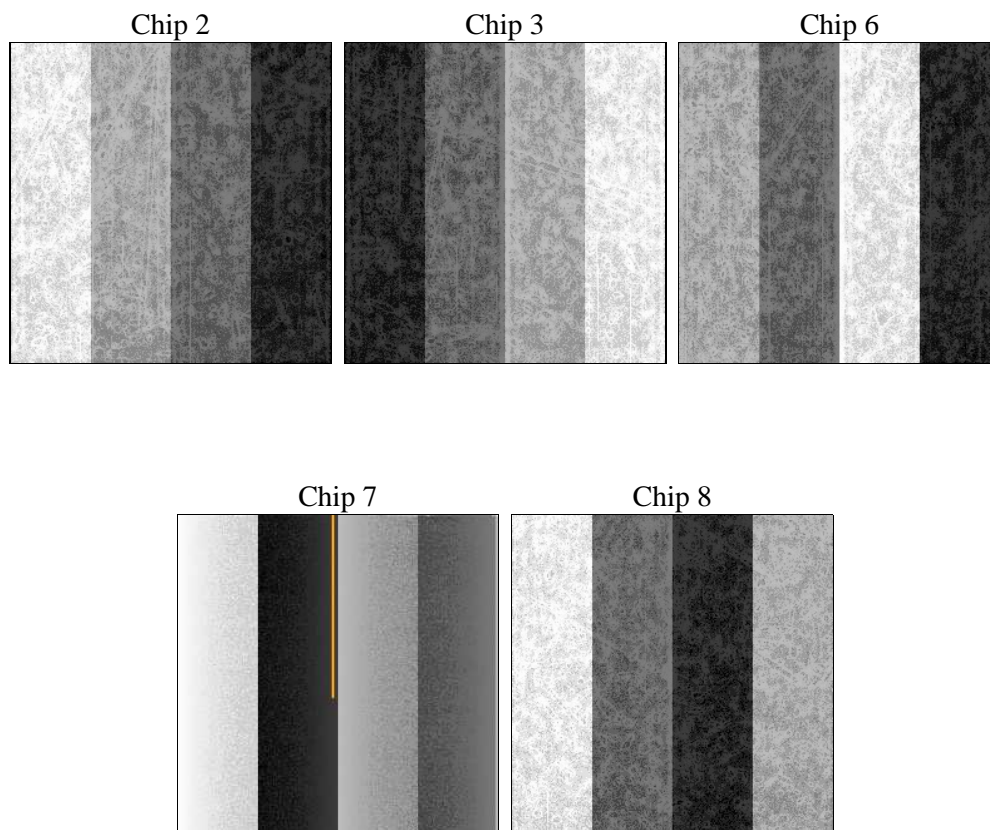
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 3500.000000     | [s] Scheduled observation exposure time |
| ascdsver | 10.7.1              | Processing system revision     | ontime         | 3551.1909037828 | Sum of GTIs [s]                         |
| caldsver | 4.8.2               | &#160                          | ontime2        | 3551.0267437696 | Sum of GTIs [s]                         |
| date     | 2019-01-18T02:10:32 | Date and time of file creation | ontime3        | 3551.1088237762 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime6        | 3551.1498638391 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 3551.1909037828 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 3551.0677838326 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 154100          | Number of level 1 events                |

### 2.1.4 Events

|                 | ccd 2 | ccd 3 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|-------|-------|-------|
| level 1 events  | 26032 | 26655 | 29359 | 34974 | 37080 |
| rejected events | 23294 | 23892 | 26257 | 19908 | 27997 |
| rejected %      | 89%   | 89%   | 89%   | 56%   | 75%   |

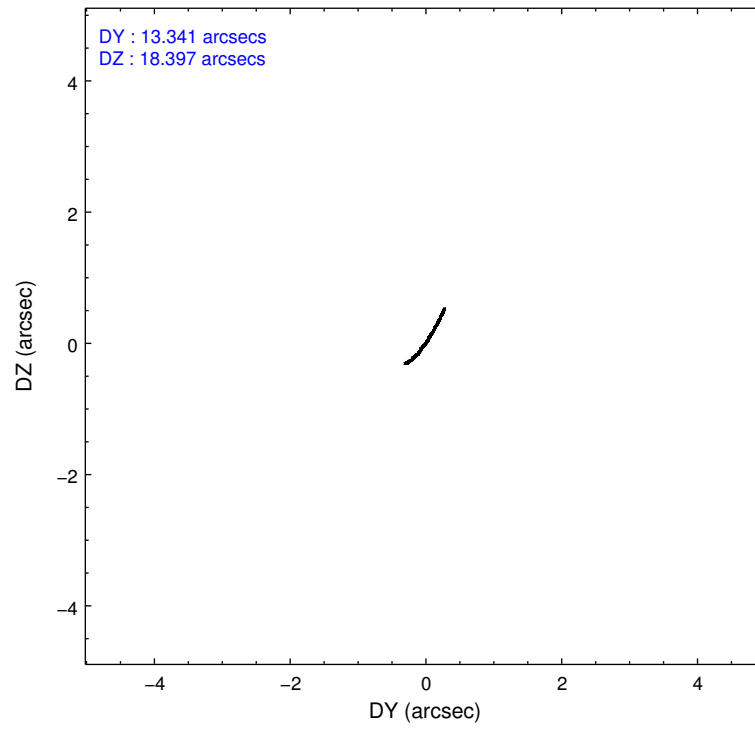
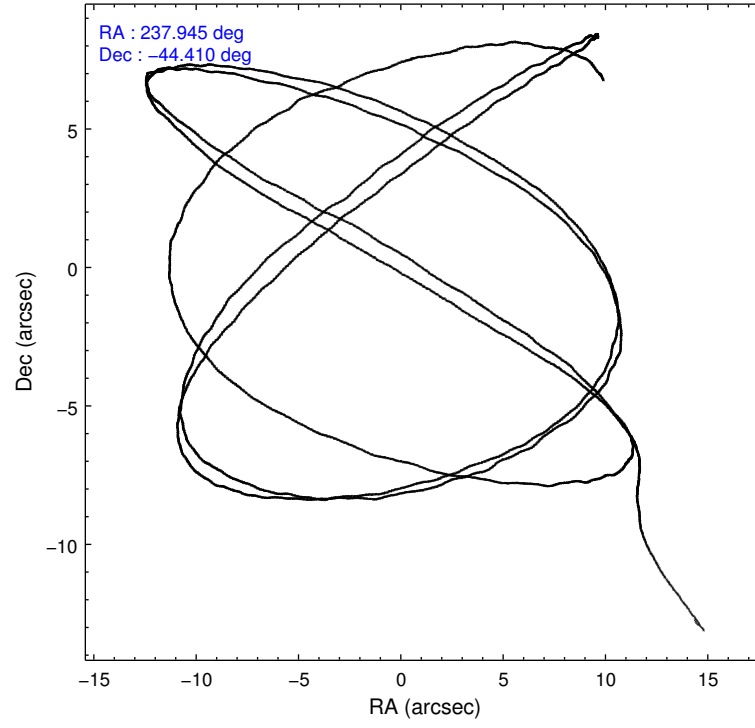
|                | ccd 2 | ccd 3 | ccd 6 | ccd 7 | ccd 8 |
|----------------|-------|-------|-------|-------|-------|
| grade 0 events | 984   | 939   | 988   | 1294  | 2419  |
|                | 3%    | 3%    | 3%    | 3%    | 6%    |
| grade 1 events | 16    | 12    | 19    | 48    | 23    |
|                | 0%    | 0%    | 0%    | 0%    | 0%    |
| grade 2 events | 645   | 591   | 767   | 3134  | 2348  |
|                | 2%    | 2%    | 2%    | 8%    | 6%    |
| grade 3 events | 308   | 258   | 245   | 1193  | 891   |
|                | 1%    | 0%    | 0%    | 3%    | 2%    |
| grade 4 events | 281   | 303   | 290   | 1178  | 820   |
|                | 1%    | 1%    | 0%    | 3%    | 2%    |
| grade 5 events | 975   | 1261  | 1191  | 3348  | 1904  |
|                | 3%    | 4%    | 4%    | 9%    | 5%    |
| grade 6 events | 525   | 677   | 817   | 8283  | 2612  |
|                | 2%    | 2%    | 2%    | 23%   | 7%    |
| grade 7 events | 22298 | 22614 | 25042 | 16496 | 26063 |
|                | 85%   | 84%   | 85%   | 47%   | 70%   |

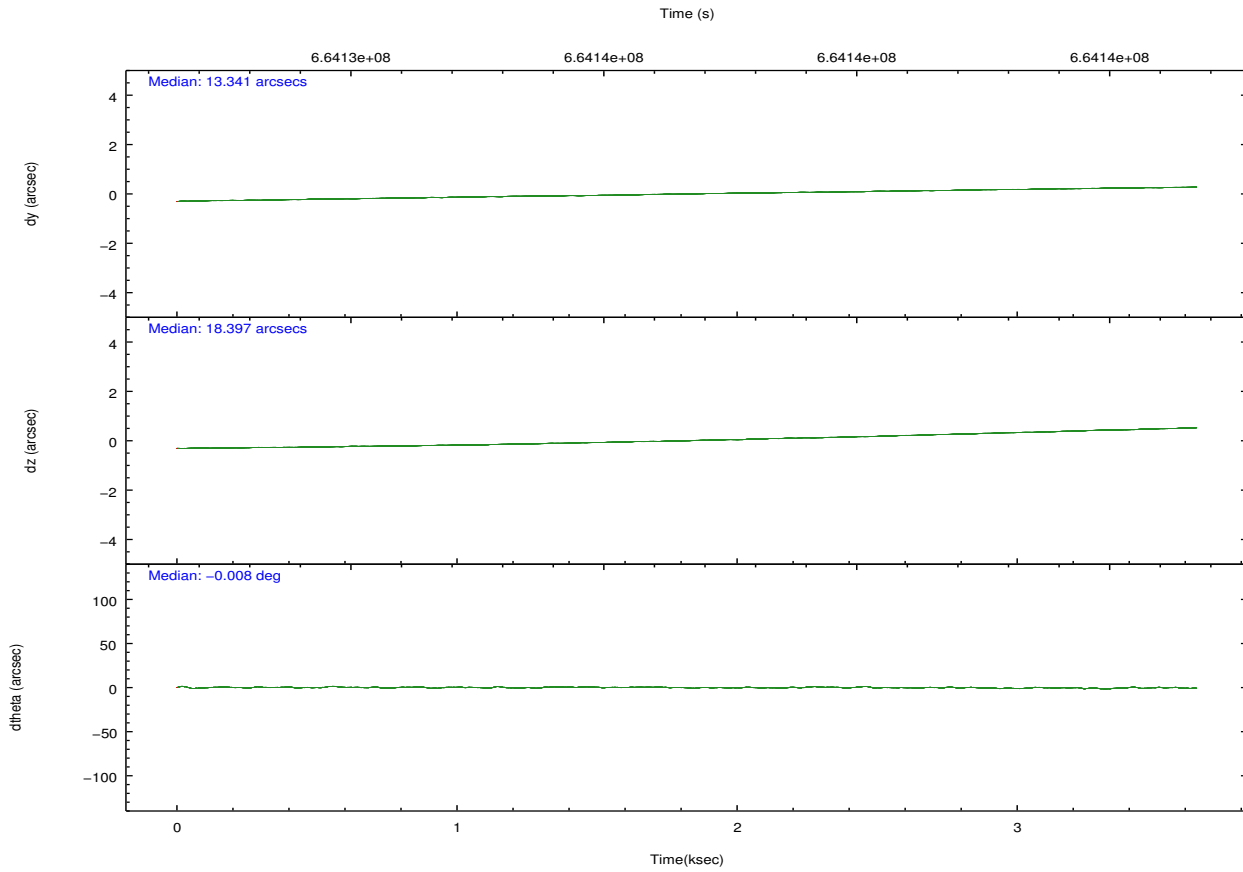
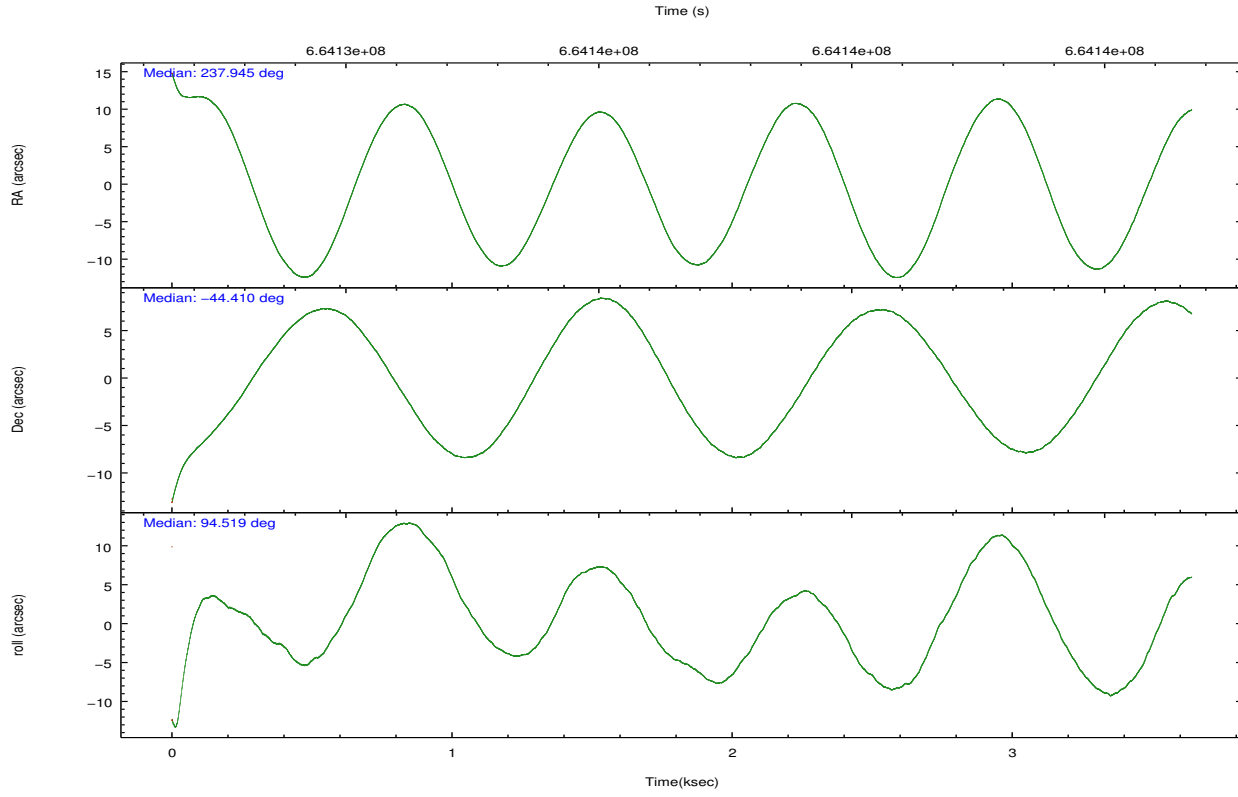
## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               |
|-----------------------------------|---------------------|----------------------|
| Instrument                        | ACIS                | ACIS                 |
| Detector                          | ACIS-23678          | ACIS-23678           |
| Grating                           | NONE                | NONE                 |
| Data mode                         | VFAINT              | VFAINT               |
| Observation mode                  | POINTING            | POINTING             |
| [deg] Pointing RA                 | 237.967289          | 237.9451850404694    |
| [deg] Pointing Dec                | -44.432744          | -44.41031232791018   |
| [deg] Pointing Roll               | 94.377699           | 94.5187791505123     |
| [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)  | 664133643.184000    | 664132504.87339      |
| Observation start date            | 2019-01-17T17:32:54 | 2019-01-17T17:15:04  |
| [s] Observation end time (MET)    | 664137143.184000    | 664137515.0736901    |
| Observation end date              | 2019-01-17T18:31:14 | 2019-01-17T18:38:35  |
| Read mode                         | TIMED               | TIMED                |

| Parameter                             | Planned   | Actual  |
|---------------------------------------|-----------|---------|
| Obspar format version number          | 7         | 7       |
| Obspar file type                      | PREDICTED | ACTUAL  |
| Obspar update status                  | NONE      | UPDATED |
| CCD I0 on                             | N         | N       |
| CCD I1 on                             | N         | N       |
| CCD I2 on                             | O1        | Y       |
| CCD I3 on                             | O2        | Y       |
| CCD S0 on                             | N         | N       |
| CCD S1 on                             | N         | N       |
| CCD S2 on                             | Y         | Y       |
| CCD S3 on                             | Y         | Y       |
| CCD S4 on                             | Y         | Y       |
| CCD S5 on                             | N         | N       |
| Number of optional ACIS chips dropped | 0         | 0       |
| On-chip summing requested             | N         | N       |
| Subarray requested                    | NONE      | NONE    |
| Alternating exposures requested       | N         | N       |
| [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



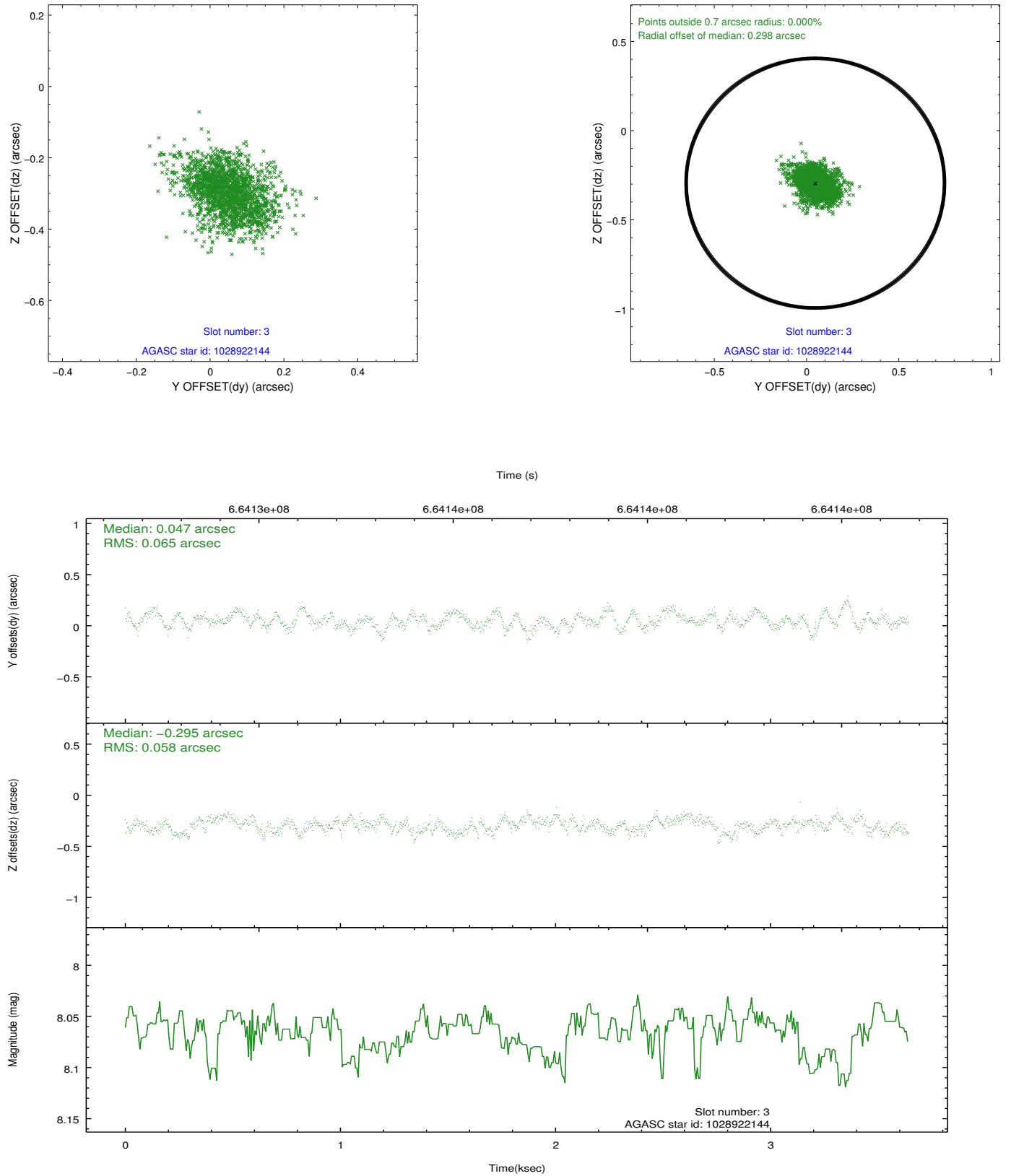


Slot Statistics

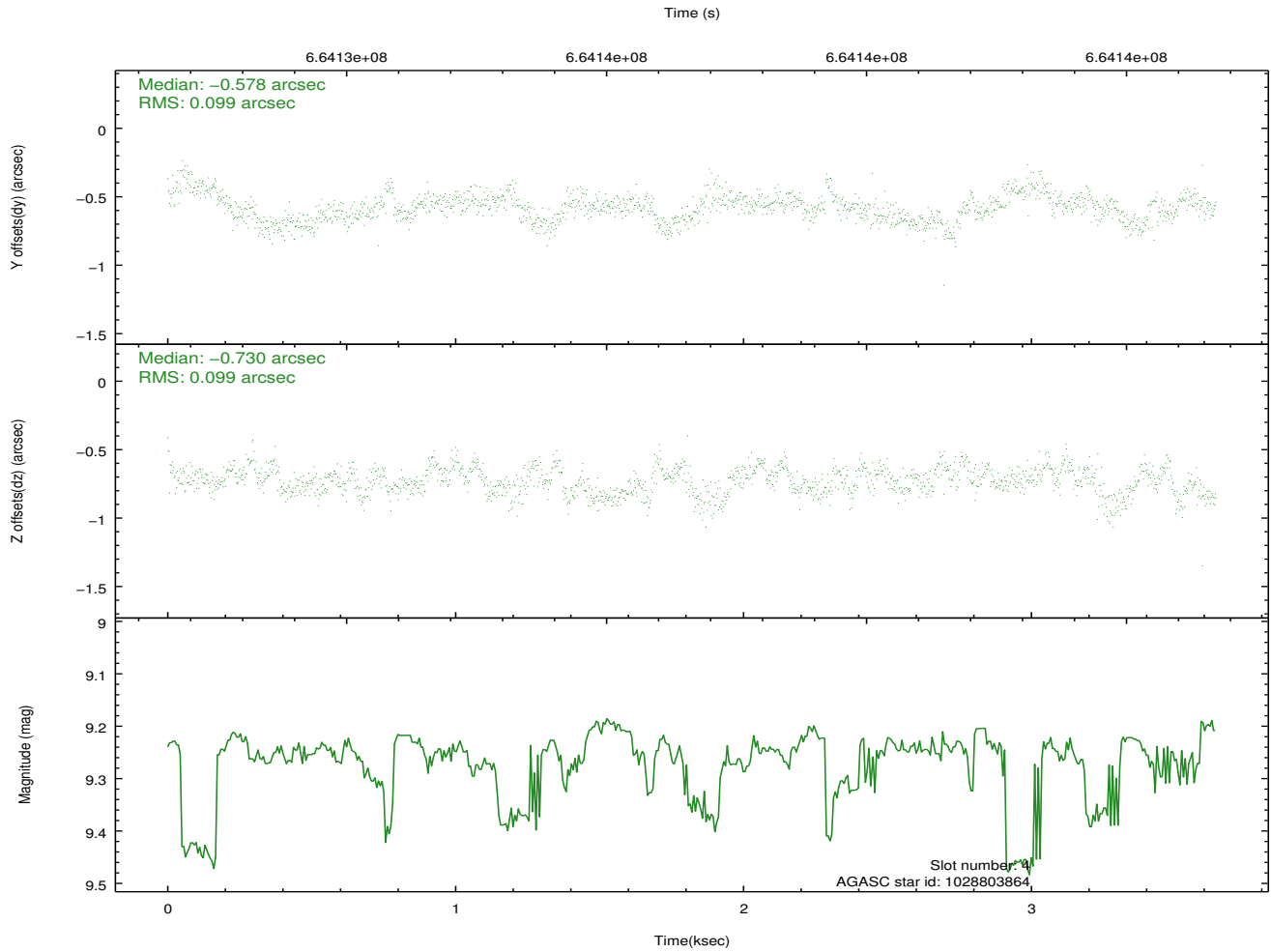
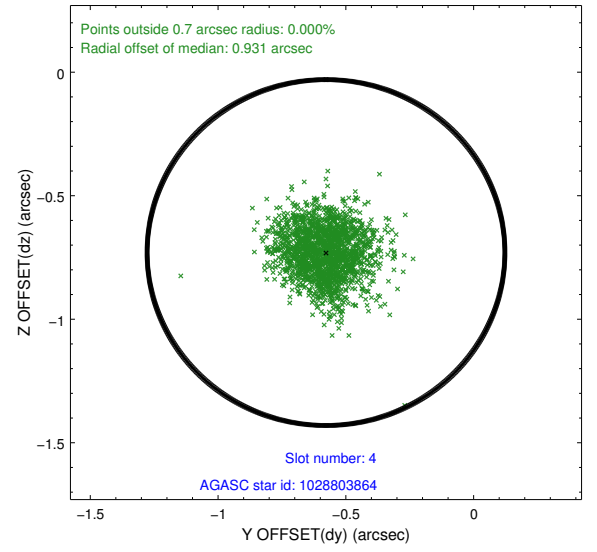
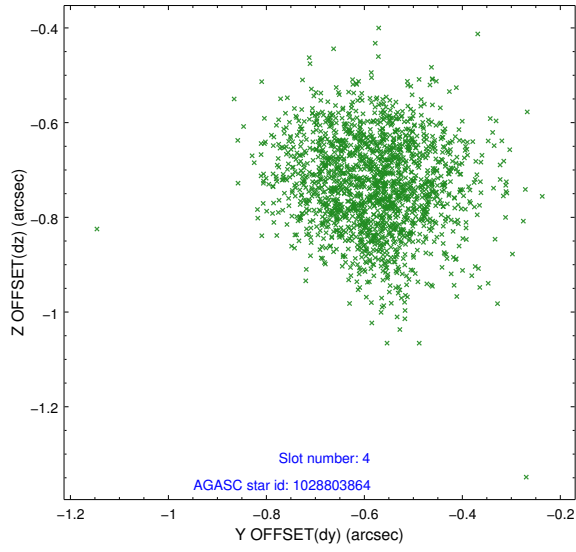
| pt | status | used | id         | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mea   |
|----|--------|------|------------|------|-------|----------|--------|--------|-------|-------|------------|------------|----------|-------|
| 0  | FID    |      | ACIS-S-1   | 7.24 | 889   | 1.000    | 0.082  | -0.088 | 0.011 | 0.018 | 0.000000   | 0.000000   | 929.95   | -1735 |
| 1  | FID    |      | ACIS-S-4   | 7.26 | 889   | 1.000    | 0.581  | 0.027  | 0.013 | 0.023 | 0.000000   | 0.000000   | 2148.70  | 167   |
| 2  | FID    |      | ACIS-S-5   | 7.23 | 888   | 1.000    | -0.689 | 0.074  | 0.009 | 0.018 | 0.000000   | 0.000000   | -1817.58 | 162   |
| 3  | GUIDE  | used | 1028922144 | 8.06 | 1776  | 1.000    | 0.047  | -0.295 | 0.093 | 0.153 | 237.642743 | -44.565101 | -413.19  | 867   |
| 4  | GUIDE  | used | 1028803864 | 9.25 | 1775  | 1.000    | -0.578 | -0.730 | 0.147 | 0.240 | 237.283185 | -44.081942 | 1386.67  | 1668  |
| 5  | GUIDE  | used | 1028922680 | 8.27 | 1775  | 1.000    | -0.050 | 0.188  | 0.144 | 0.225 | 238.857613 | -43.973830 | 1460.08  | -2423 |
| 6  | GUIDE  | used | 1028928088 | 7.28 | 1777  | 1.000    | 0.250  | 0.679  | 0.128 | 0.213 | 238.929546 | -44.532406 | -559.40  | -2433 |
| 7  | GUIDE  | used | 1089085224 | 8.59 | 1774  | 1.000    | 0.333  | 0.158  | 0.093 | 0.150 | 237.980210 | -45.089603 | -2359.91 | 147   |

## 2.4 Star Slots

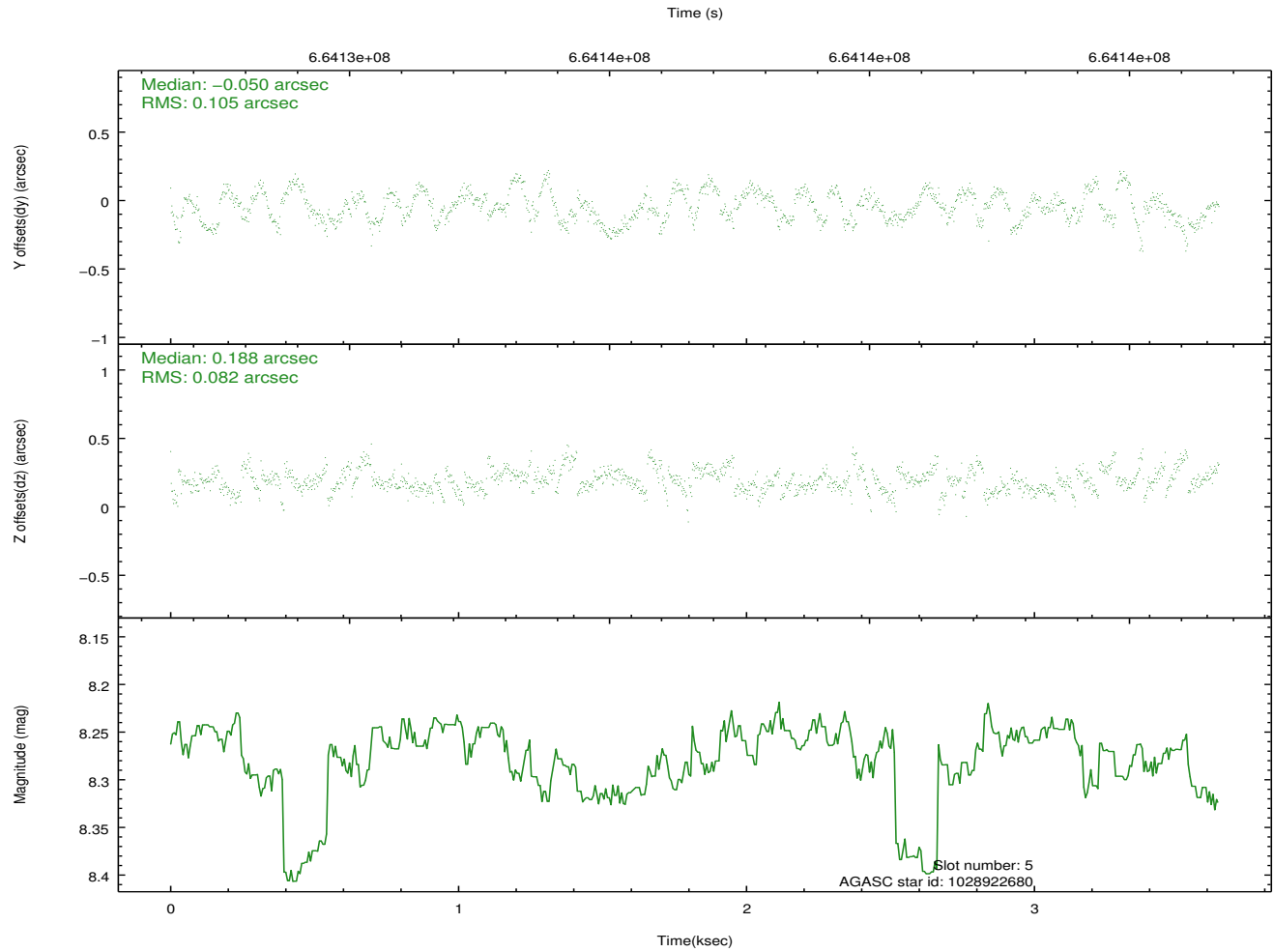
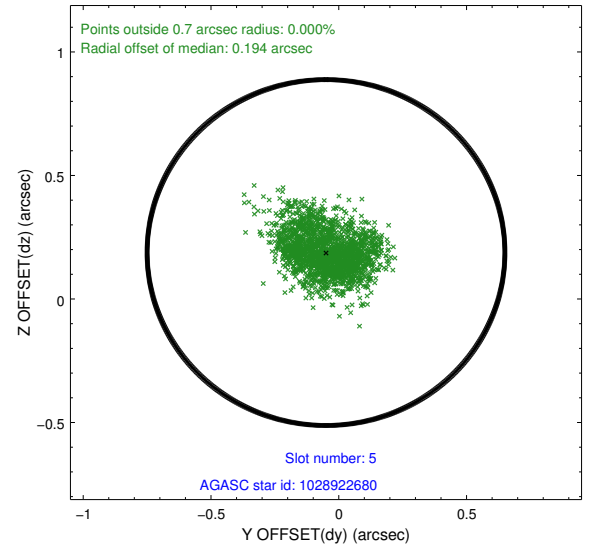
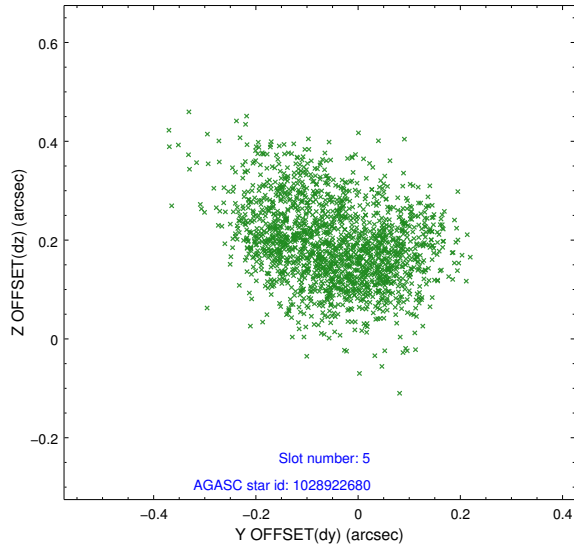
### 2.4.1 Slot 3



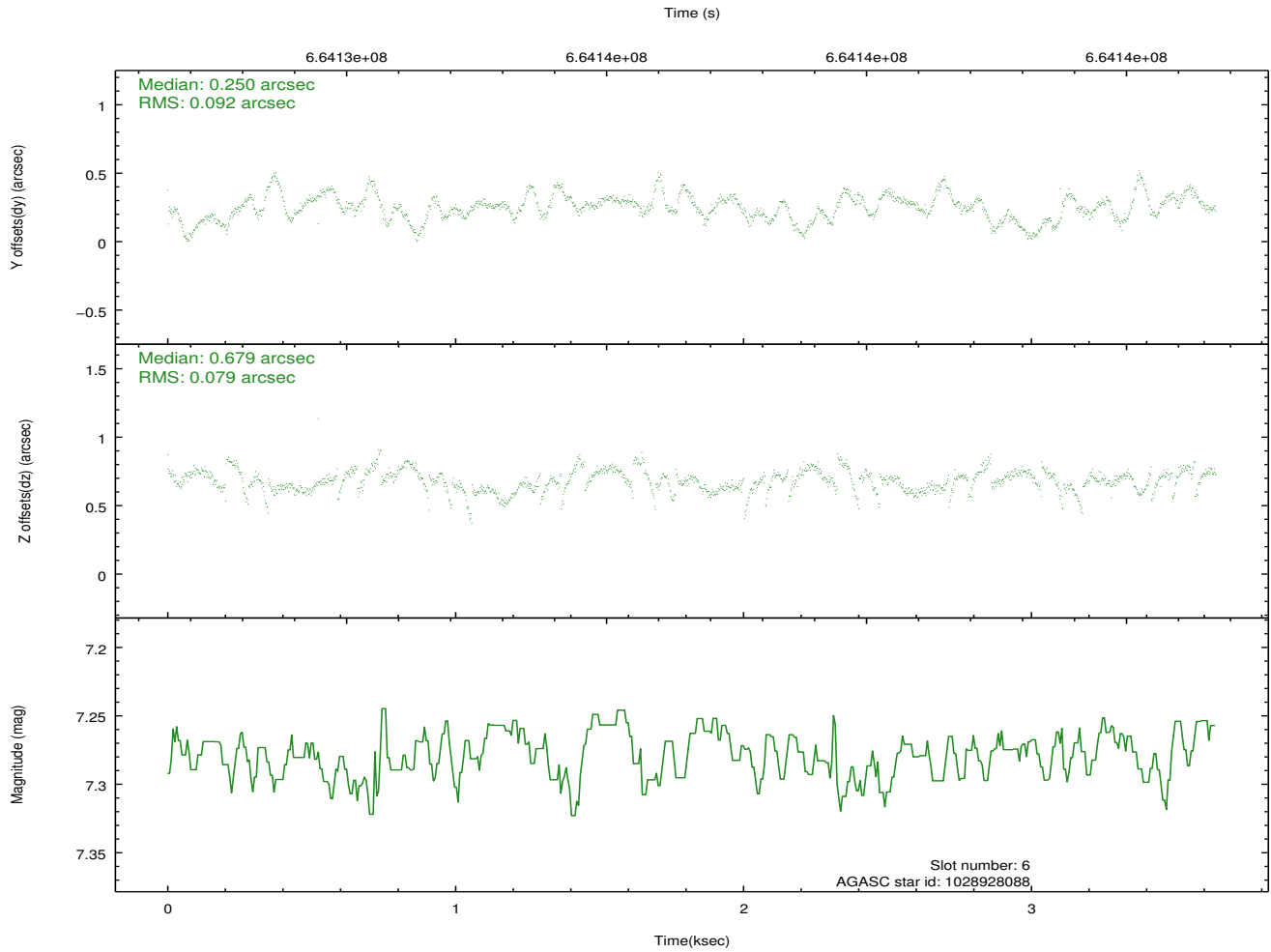
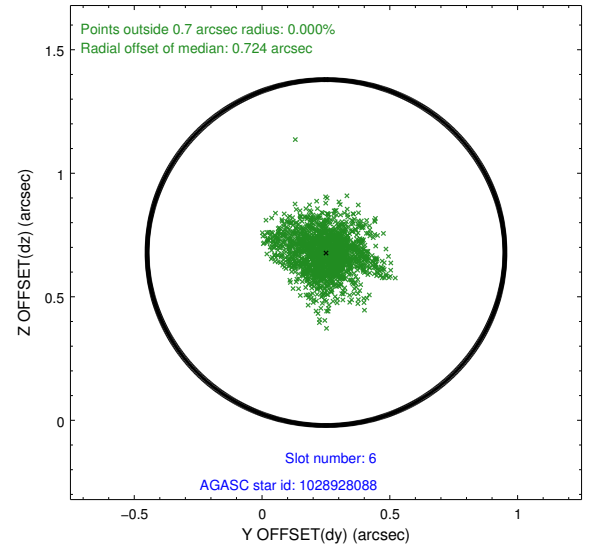
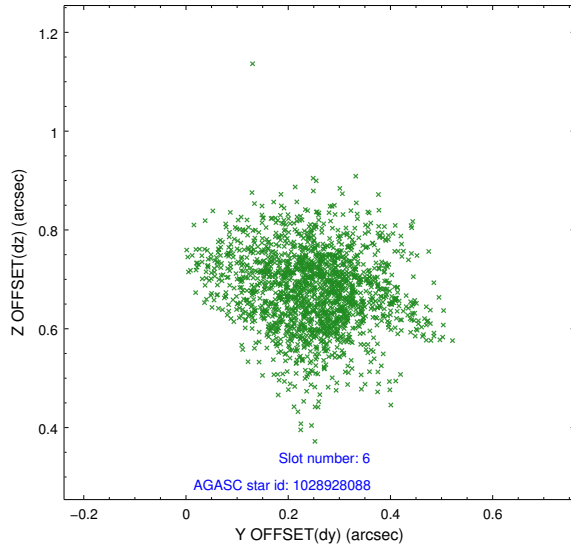
## 2.4.2 Slot 4



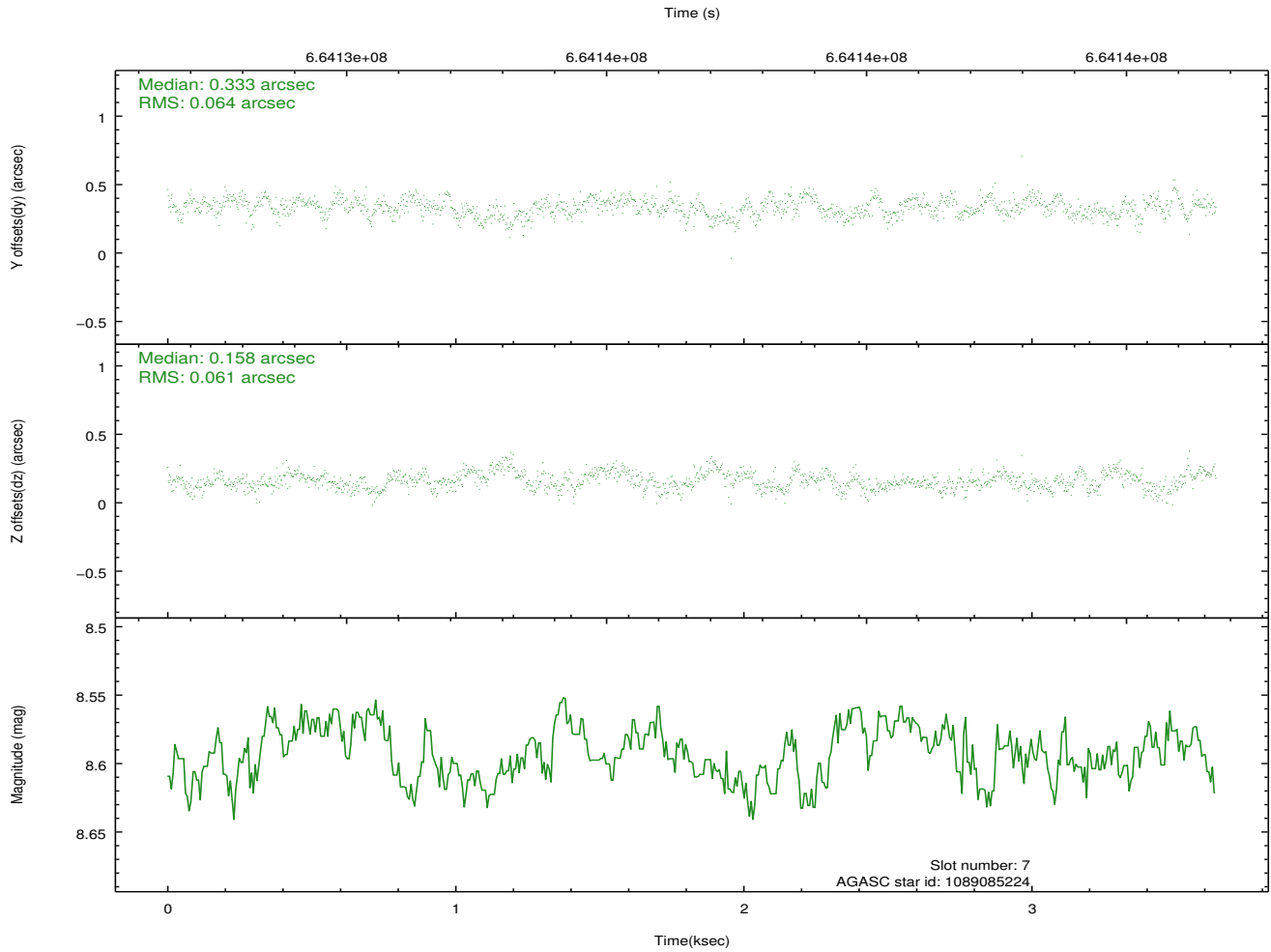
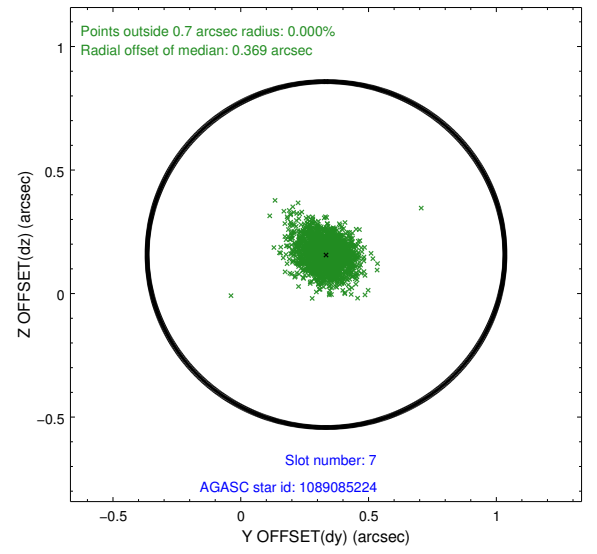
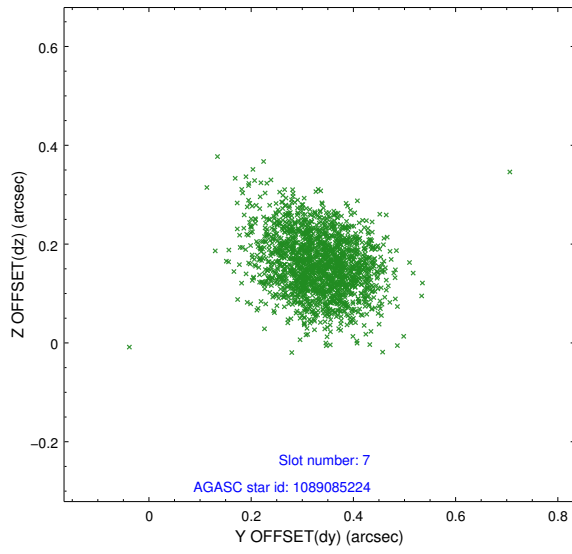
### 2.4.3 Slot 5



## 2.4.4 Slot 6

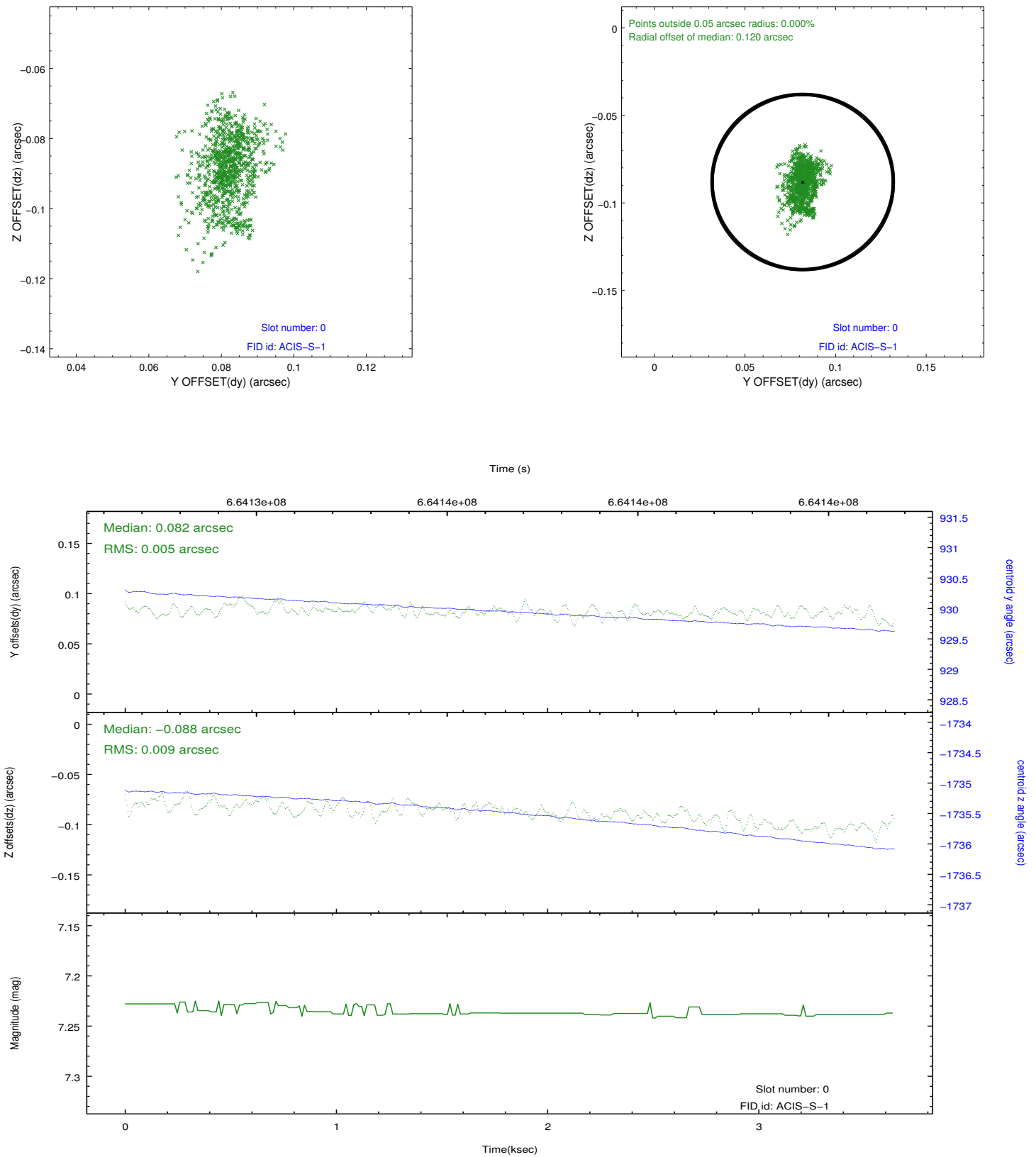


## 2.4.5 Slot 7

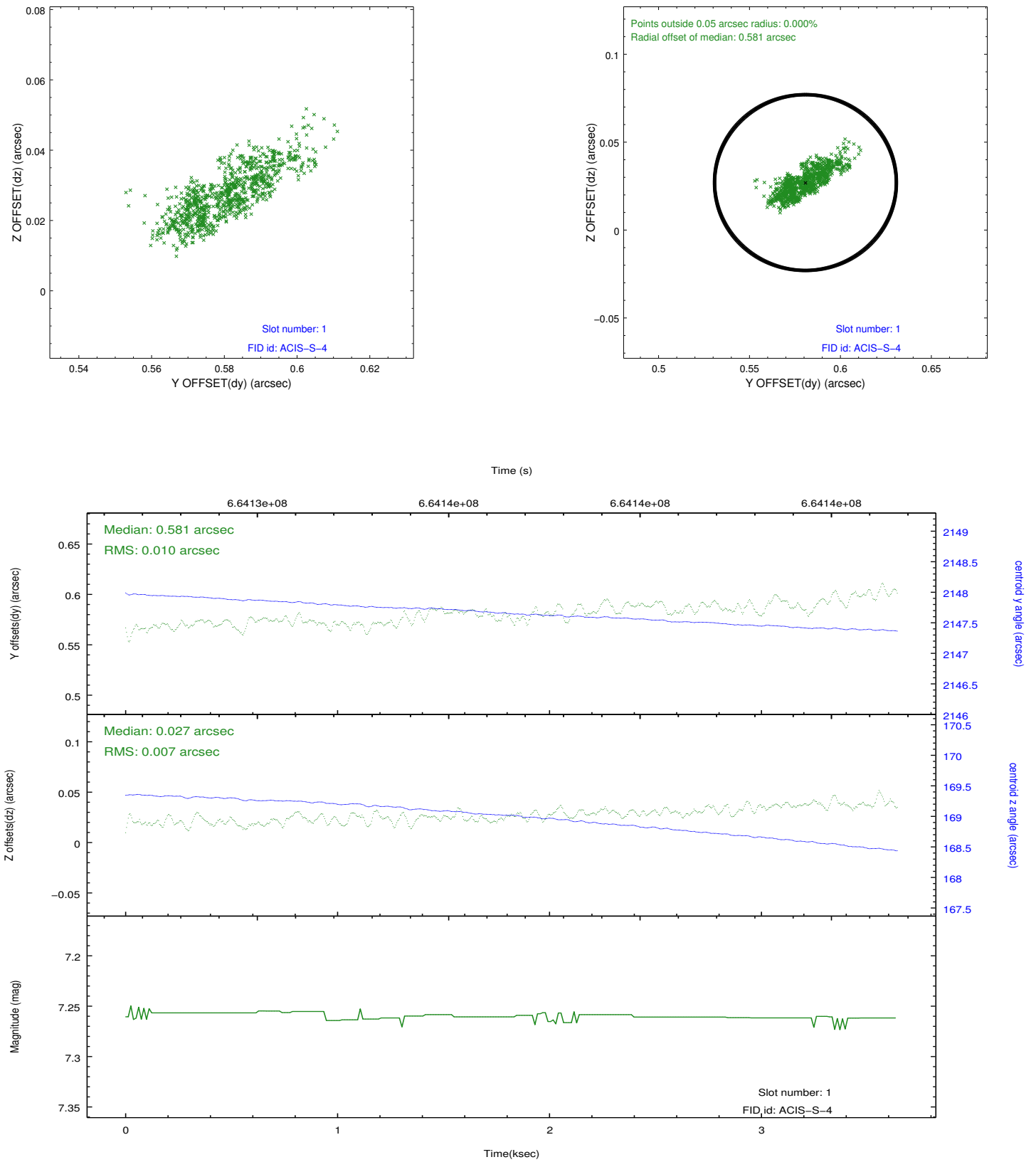


## 2.5 FID Slots

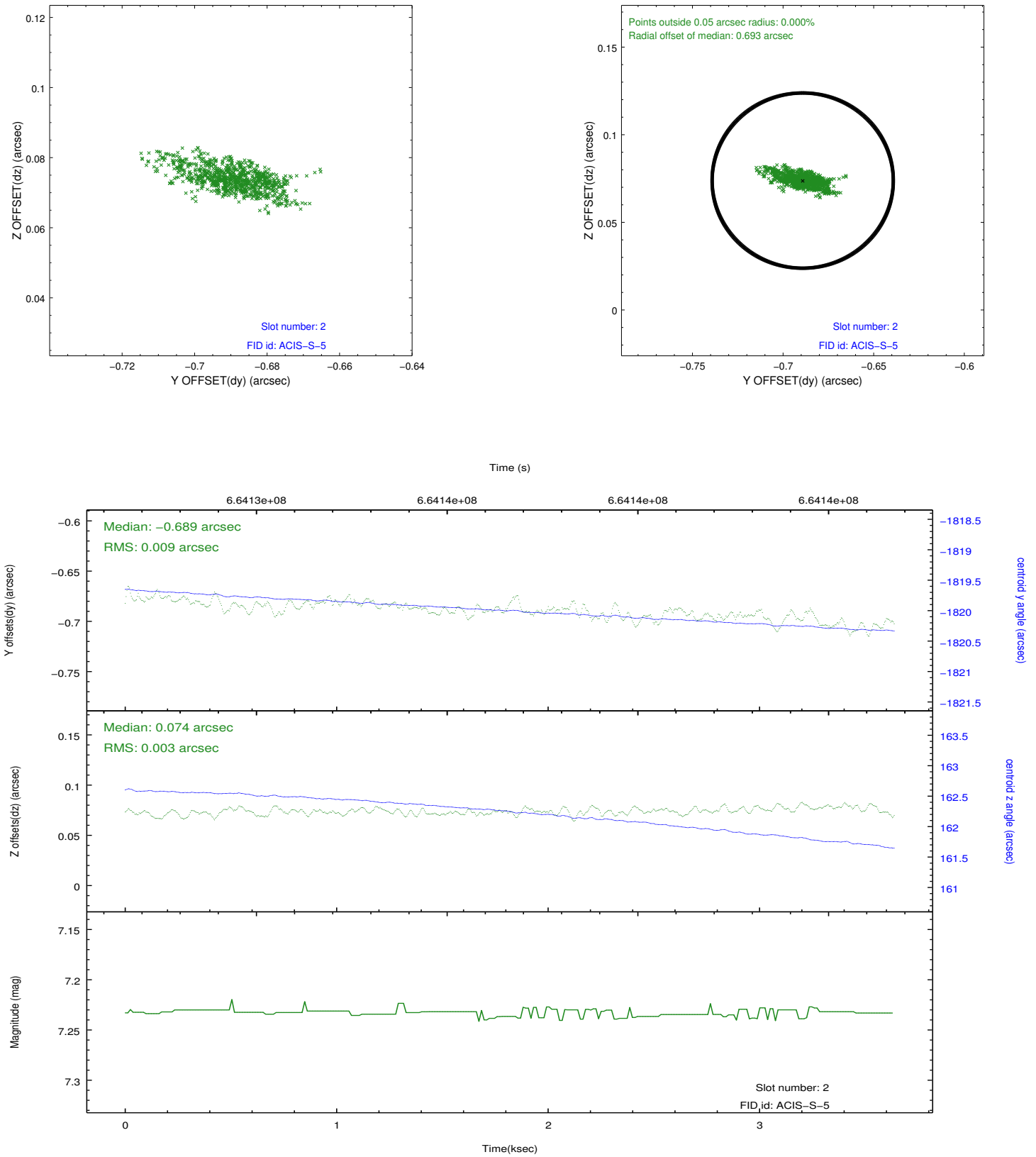
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Joy Nichols     |
| V&V Date (YYYY-MM-DD)      | 2019.01.18      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 3.5511909037828 |

### A.2 Comments