

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21288 - L2 Version 1  
Chandra X-Ray Center

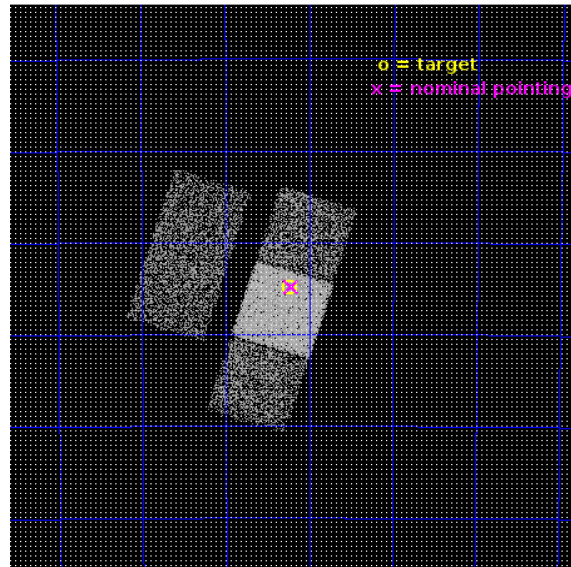
L2 Processing Date : Jan 17 2019

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# 1 Front

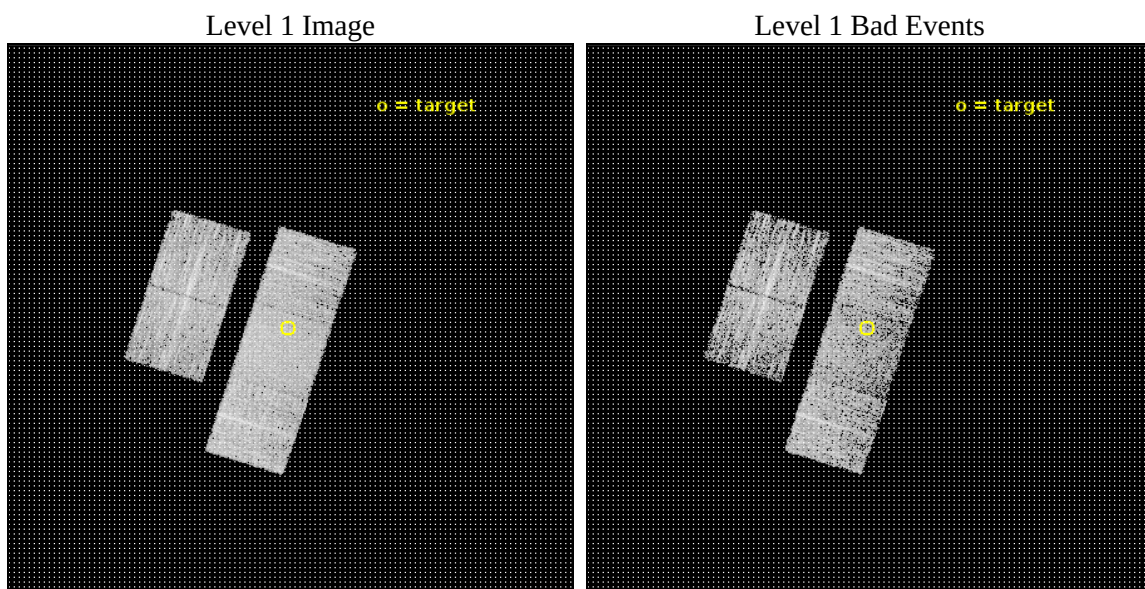
|          |                                                  |                                             |
|----------|--------------------------------------------------|---------------------------------------------|
| seq_num  | 503061                                           | Sequence number                             |
| obs_id   | 21288                                            | Observation id                              |
| title    | Where Have All the Central Compact Objects Gone? | Proposal title                              |
| observer | Eric Gotthelf                                    | Principal investigator                      |
| object   | PSR J1620-5414                                   | Source name                                 |
| dtcycle  | 0                                                | &#160                                       |
| cycle    | P                                                | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 245.06                                           | Observer's specified target RA [deg]        |
| dec_targ | -54.247694                                       | Observer's specified target Dec [deg]       |
| ra_nom   | 245.05352255028                                  | Nominal RA [deg]                            |
| dec_nom  | -54.247098431892                                 | Nominal Dec [deg]                           |
| roll_nom | 107.60848357218                                  | Nominal Roll [deg]                          |
| revision | 1                                                | Processing version of data                  |
| ontime   | 3388.3000261784                                  | Sum of GTIs [s]                             |
| livetime | 3344.0293919061                                  | Livetime [s]                                |
| ontime2  | 3388.3000261784                                  | Sum of GTIs [s]                             |
| ontime3  | 3385.1590058804                                  | Sum of GTIs [s]                             |
| ontime6  | 3388.3000261784                                  | Sum of GTIs [s]                             |
| ontime7  | 3388.3000261784                                  | Sum of GTIs [s]                             |
| ontime8  | 3378.876875639                                   | Sum of GTIs [s]                             |
| l2events | 23886                                            | Number of level 2 events                    |



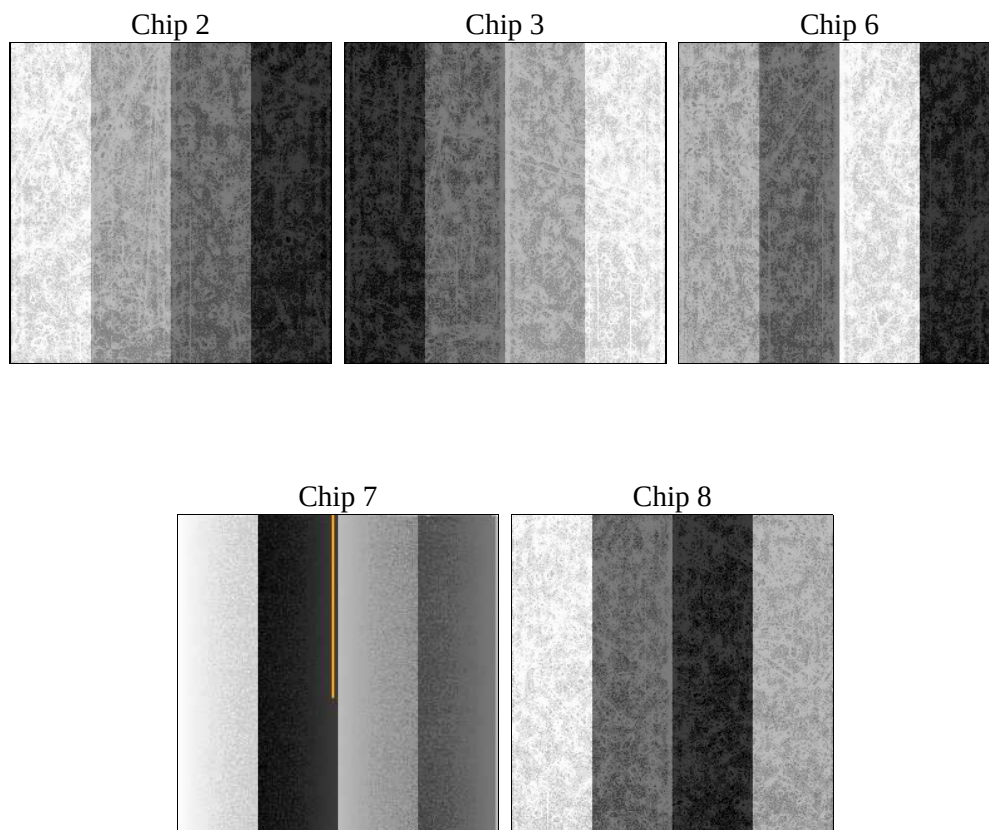
## 2 OBI

### 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         | 3388.3000261784 | Sum of GTIs [s]                         |
| caldsver | 4.8.2               | &#160                          | ontime2        | 3388.3000261784 | Sum of GTIs [s]                         |
| date     | 2019-01-18T02:10:34 | Date and time of file creation | ontime3        | 3385.1590058804 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime6        | 3388.3000261784 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 3388.3000261784 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 3378.876875639  | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 153054          | Number of level 1 events                |

### 2.1.4 Events

|                 | ccd 2 | ccd 3 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|-------|-------|-------|
| level 1 events  | 28346 | 26097 | 29147 | 33715 | 35749 |
| rejected events | 25635 | 23569 | 25955 | 19440 | 27578 |
| rejected %      | 90%   | 90%   | 89%   | 57%   | 77%   |

|                | ccd 2 | ccd 3 | ccd 6 | ccd 7 | ccd 8 |
|----------------|-------|-------|-------|-------|-------|
| grade 0 events | 1026  | 943   | 1119  | 1231  | 2292  |
|                | 3%    | 3%    | 3%    | 3%    | 6%    |
| grade 1 events | 16    | 16    | 13    | 54    | 35    |
|                | 0%    | 0%    | 0%    | 0%    | 0%    |
| grade 2 events | 608   | 551   | 783   | 2925  | 2011  |
|                | 2%    | 2%    | 2%    | 8%    | 5%    |
| grade 3 events | 284   | 207   | 263   | 1106  | 801   |
|                | 1%    | 0%    | 0%    | 3%    | 2%    |
| grade 4 events | 261   | 279   | 271   | 1093  | 747   |
|                | 0%    | 1%    | 0%    | 3%    | 2%    |
| grade 5 events | 973   | 1166  | 1152  | 3230  | 1749  |
|                | 3%    | 4%    | 3%    | 9%    | 4%    |
| grade 6 events | 539   | 556   | 761   | 7945  | 2328  |
|                | 1%    | 2%    | 2%    | 23%   | 6%    |
| grade 7 events | 24639 | 22379 | 24785 | 16131 | 25786 |
|                | 86%   | 85%   | 85%   | 47%   | 72%   |

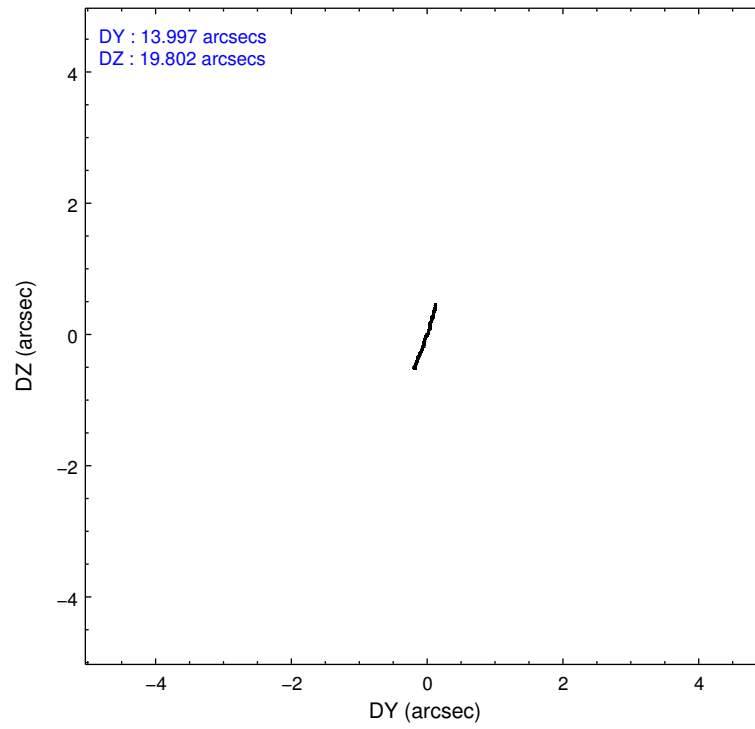
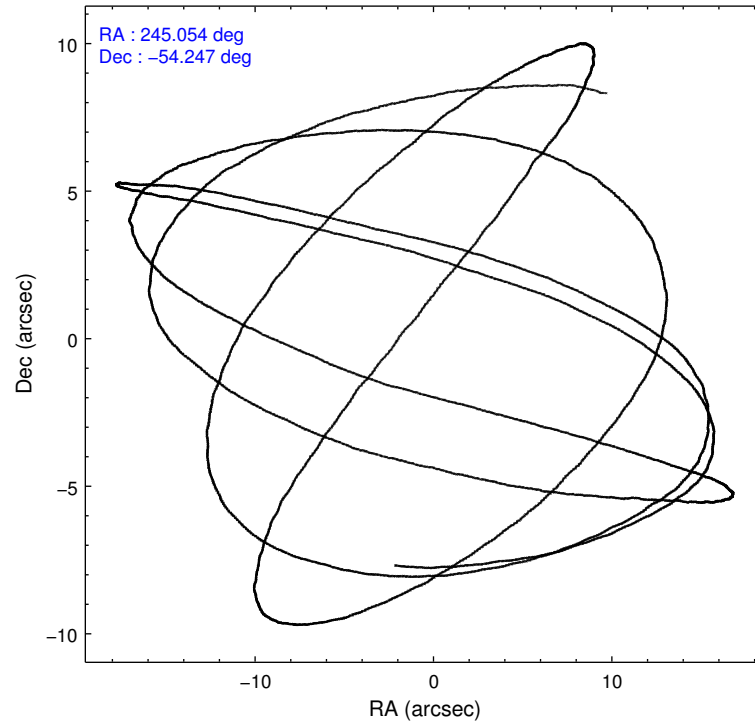


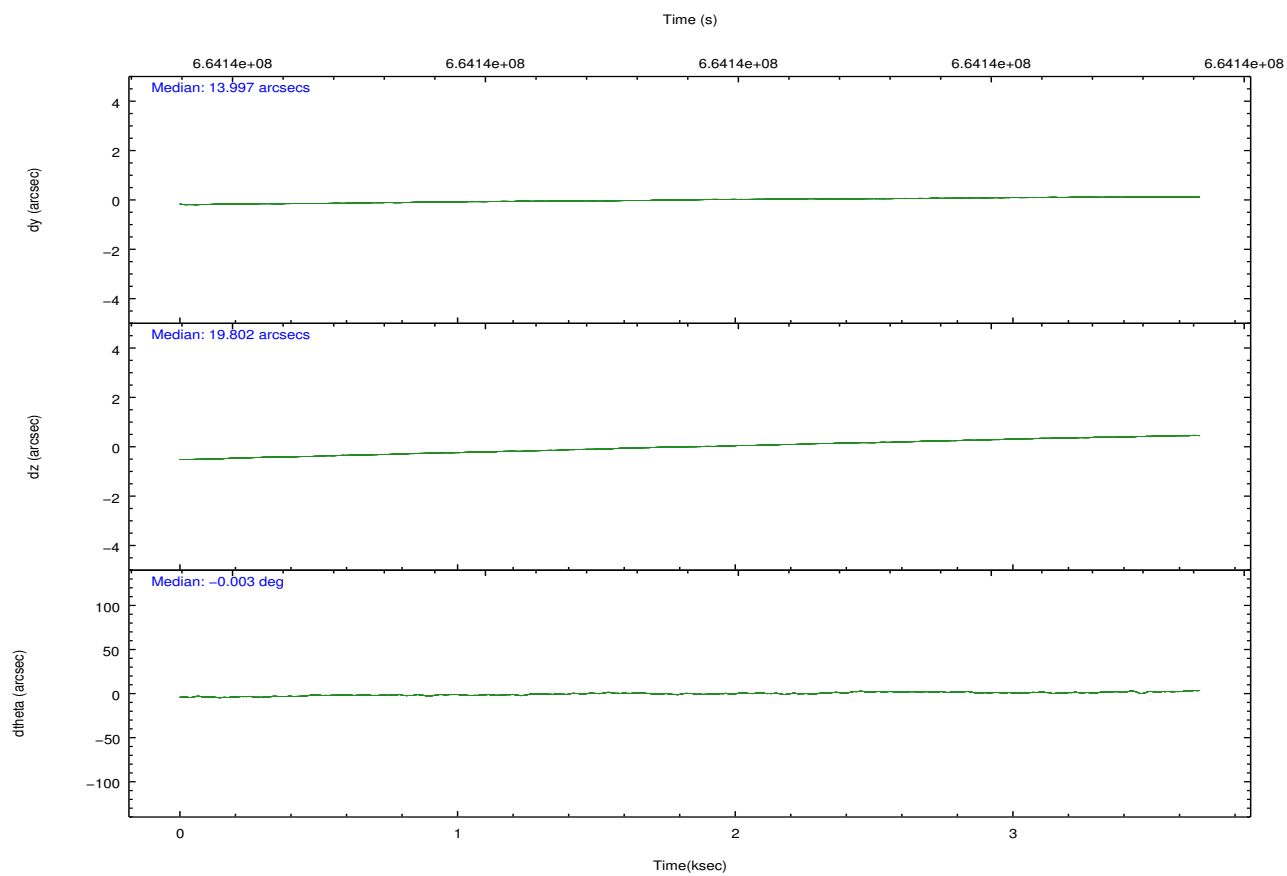
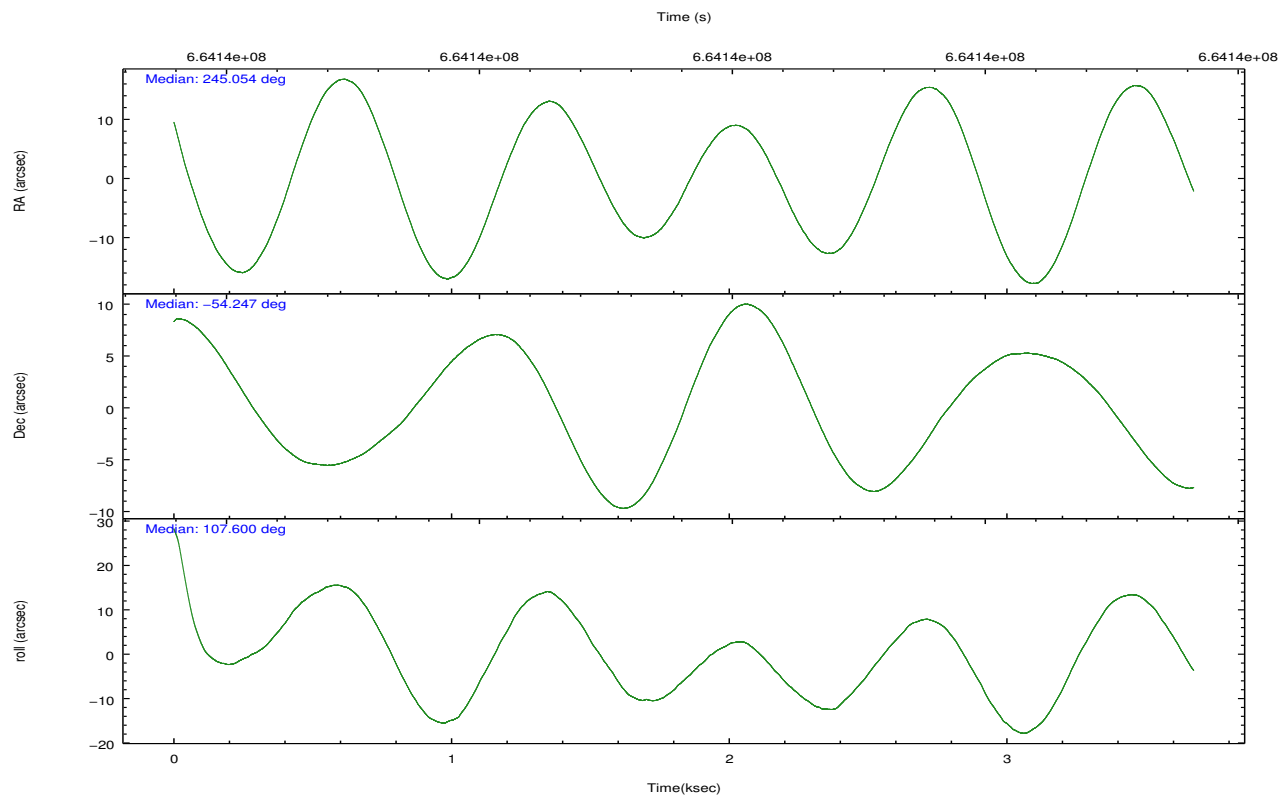
## 2.2 Compared Parameters

| 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                 | 245.088619          | 245.0535225502793    |
| [deg] Pointing Dec                | -54.265320          | -54.24709843189223   |
| [deg] Pointing Roll               | 107.480313          | 107.6084835721752    |
| [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)  | 664138128.184000    | 664137515.0736901    |
| Observation start date            | 2019-01-17T18:47:39 | 2019-01-17T18:38:35  |
| [s] Observation end time (MET)    | 664141628.184000    | 664142373.57398      |
| Observation end date              | 2019-01-17T19:45:59 | 2019-01-17T19:59:33  |
| 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



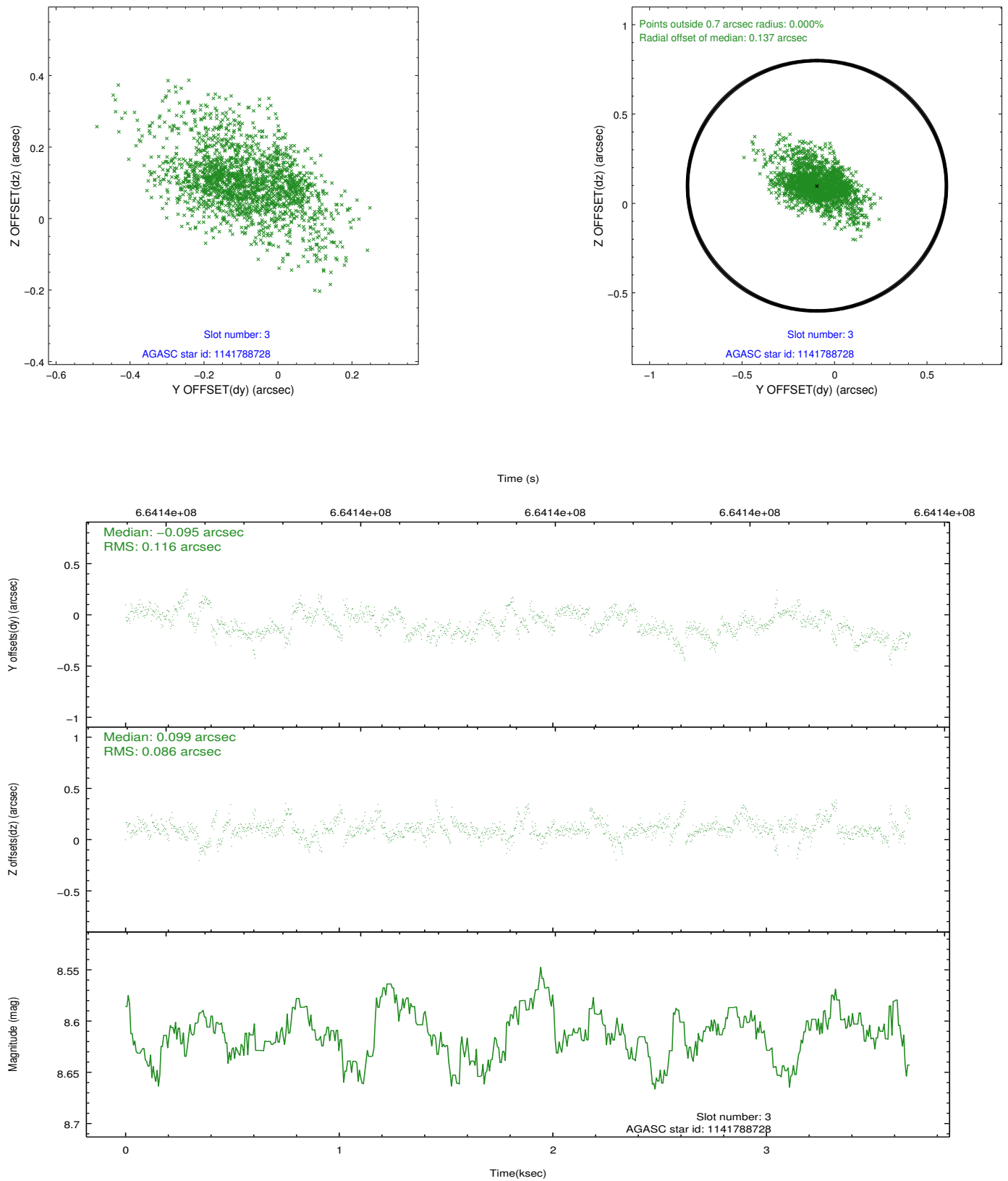


# Slot Statistics

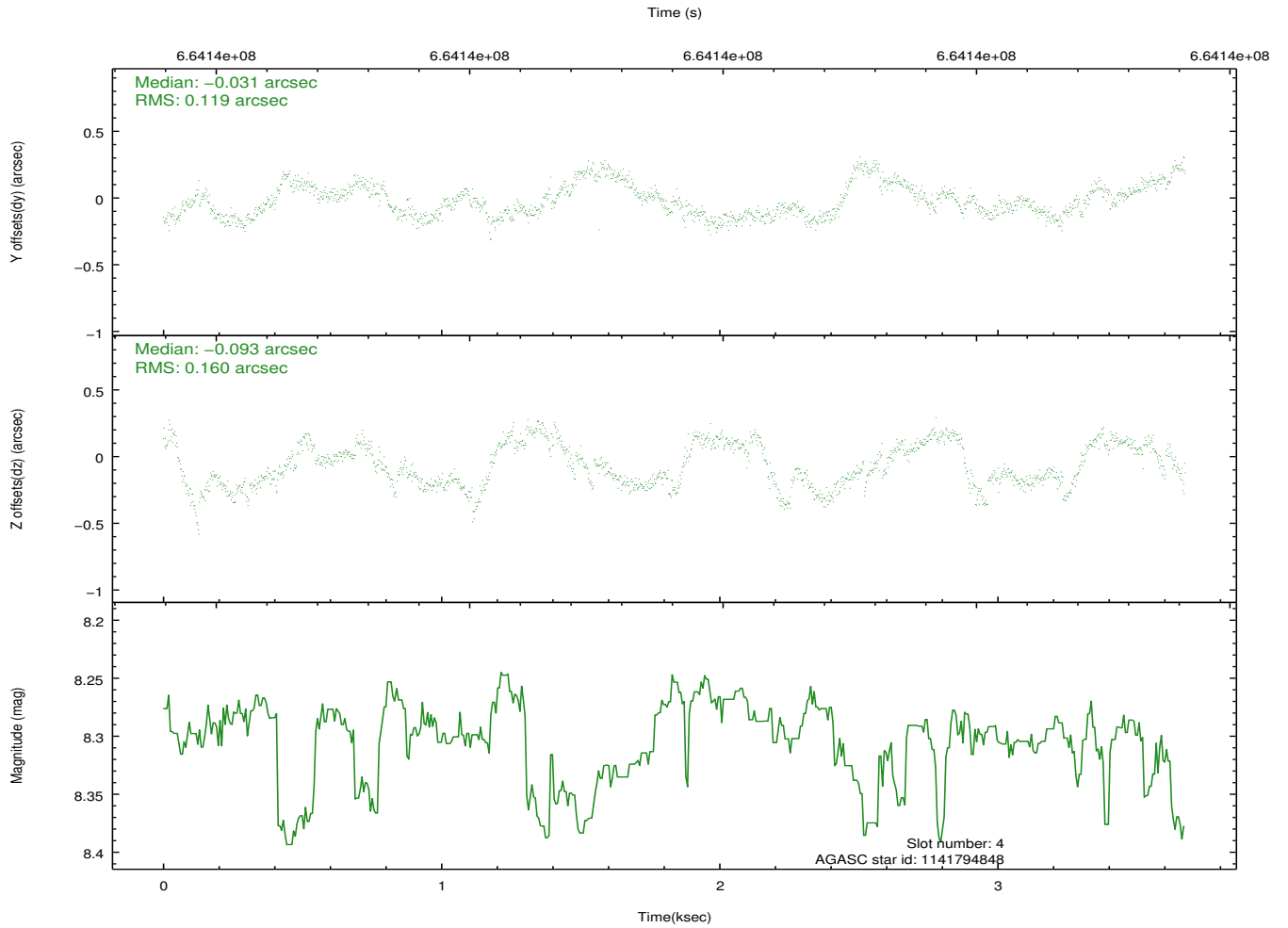
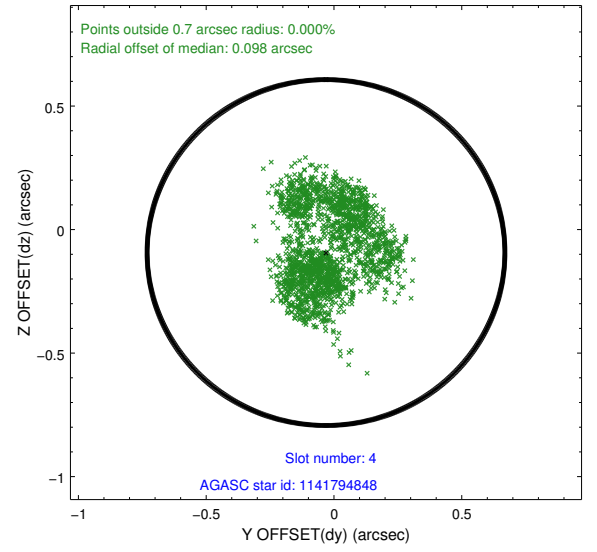
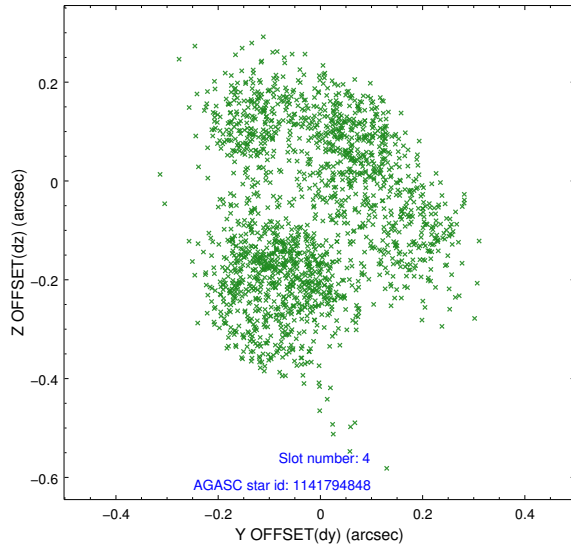
| id | status | used | mag        | n_pts | frac_pts | med_dy | med_dz | dr1    | dr2   | ra    | dec        | mean_y     | mean_x        |
|----|--------|------|------------|-------|----------|--------|--------|--------|-------|-------|------------|------------|---------------|
| 0  | FID    |      | ACIS-S-1   | 7.24  | 896      | 1.000  | 0.261  | 0.040  | 0.010 | 0.016 | 0.000000   | 0.000000   | 929.29 -1736  |
| 1  | FID    |      | ACIS-S-2   | 7.14  | 896      | 1.000  | -0.372 | -0.199 | 0.009 | 0.015 | 0.000000   | 0.000000   | -766.29 -1743 |
| 2  | FID    |      | ACIS-S-6   | 7.39  | 896      | 1.000  | 0.091  | 0.163  | 0.010 | 0.020 | 0.000000   | 0.000000   | 394.10 802    |
| 3  | GUIDE  | used | 1141788728 | 8.61  | 1789     | 1.000  | -0.095 | 0.099  | 0.147 | 0.268 | 245.747723 | -53.686361 | 1559.22 -1961 |
| 4  | GUIDE  | used | 1141794848 | 8.30  | 1792     | 1.000  | -0.031 | -0.093 | 0.225 | 0.299 | 245.642862 | -53.904276 | 884.27 -1503  |
| 5  | GUIDE  | used | 1142294744 | 8.09  | 1791     | 1.000  | -0.077 | -0.413 | 0.133 | 0.215 | 244.279496 | -54.781527 | -1276.38 2162 |
| 6  | GUIDE  | used | 1142301784 | 7.66  | 1792     | 1.000  | 0.100  | 0.621  | 0.101 | 0.163 | 245.617441 | -54.634593 | -1603.26 -647 |
| 7  | GUIDE  | used | 1142308168 | 7.71  | 1792     | 1.000  | 0.079  | -0.229 | 0.115 | 0.231 | 244.376935 | -55.019198 | -2155.01 2218 |

## 2.4 Star Slots

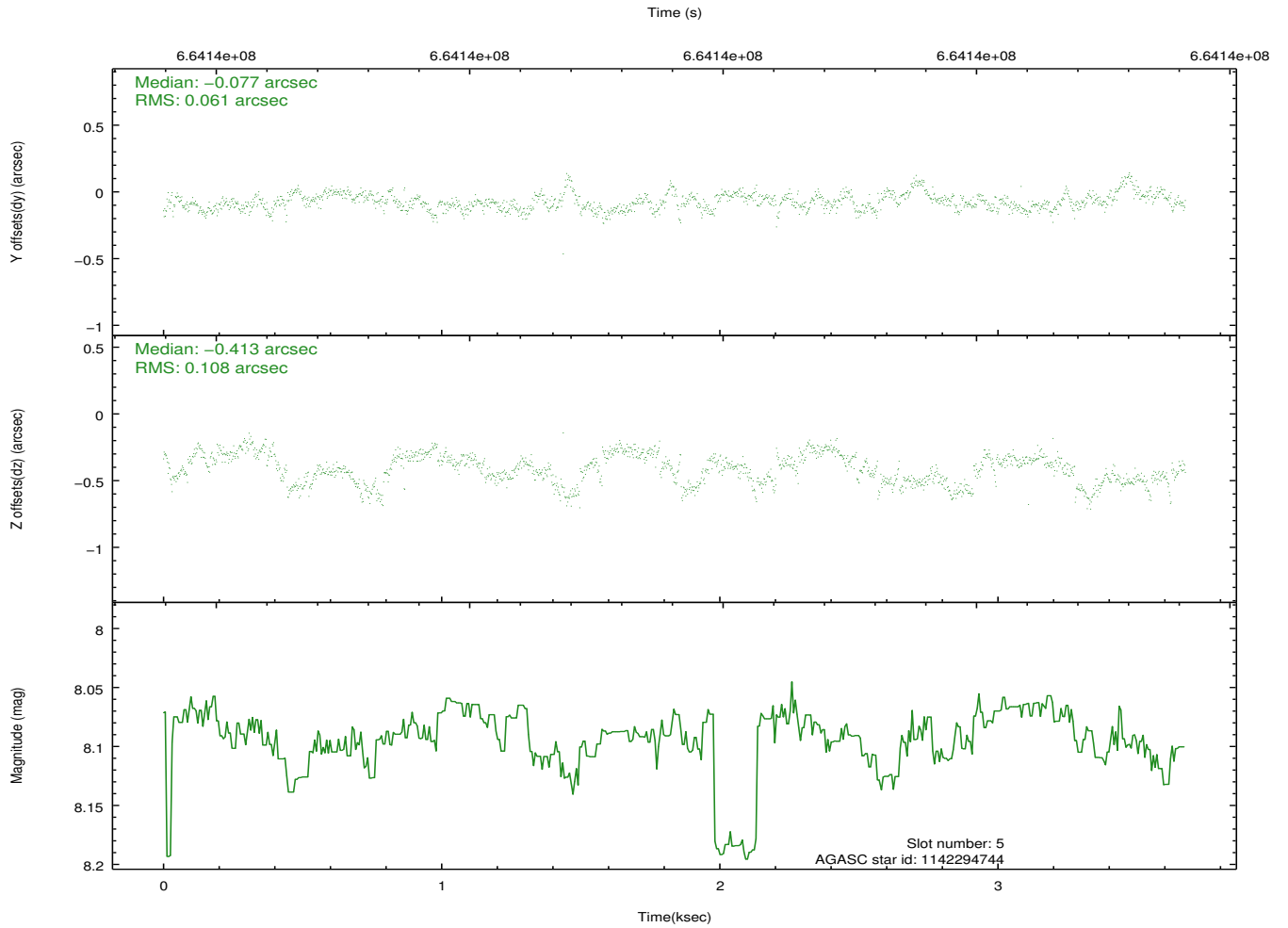
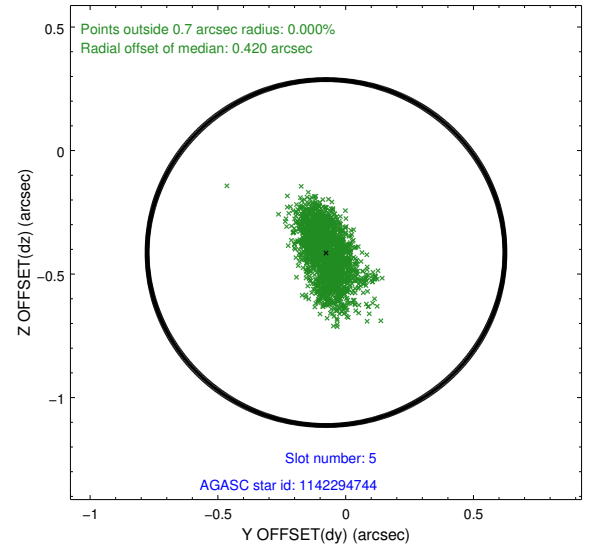
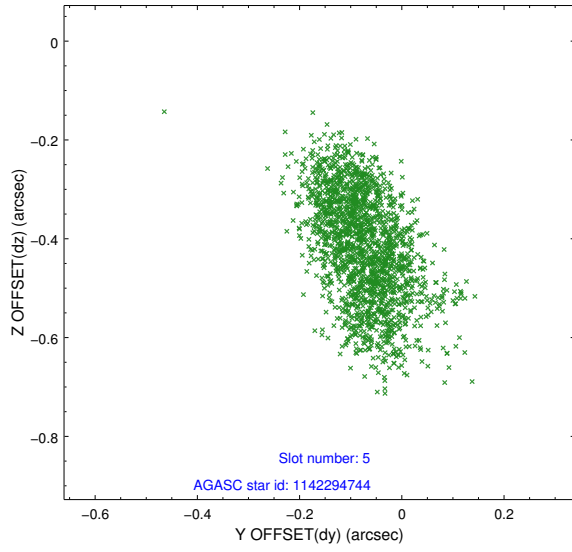
### 2.4.1 Slot 3



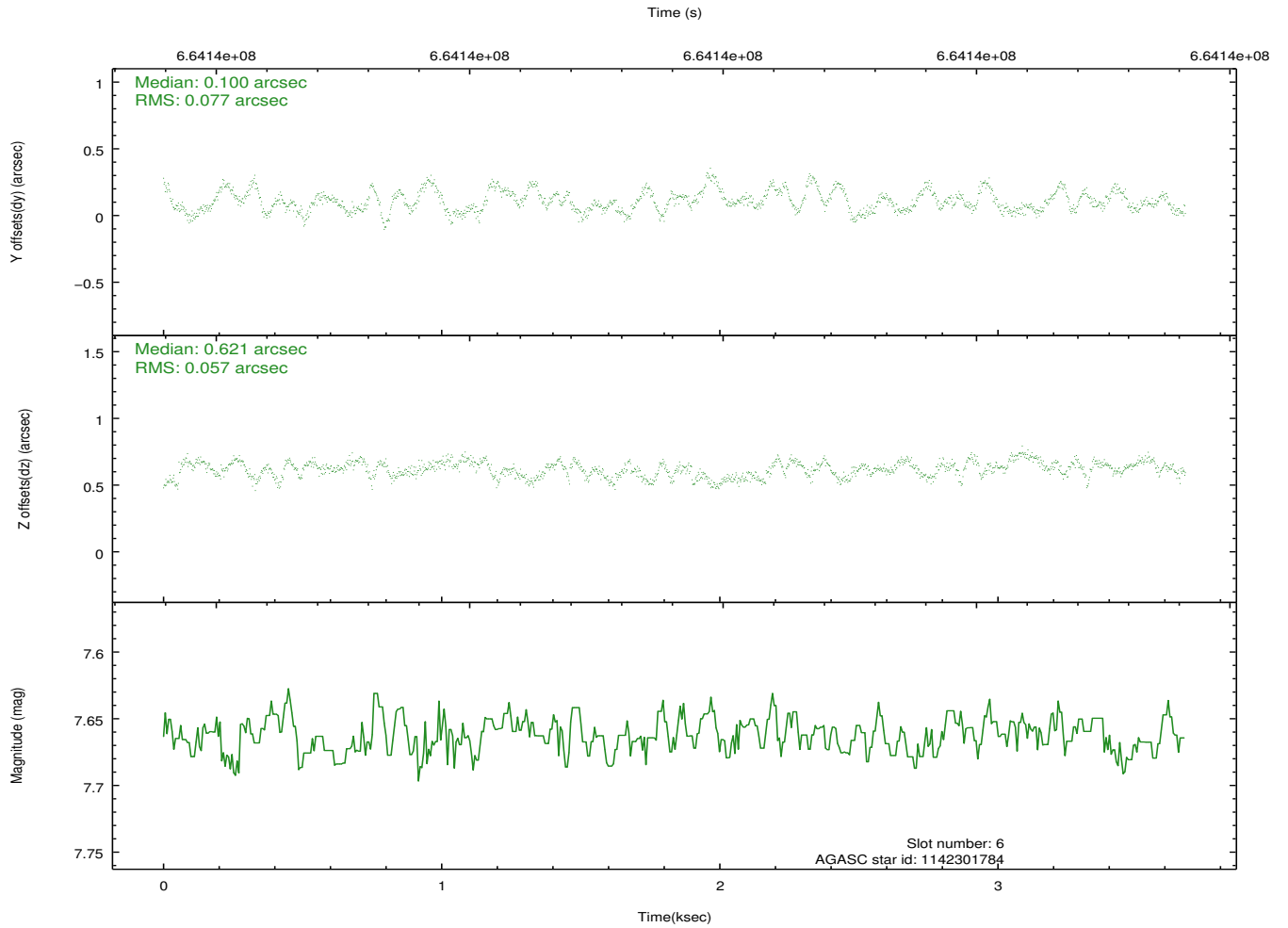
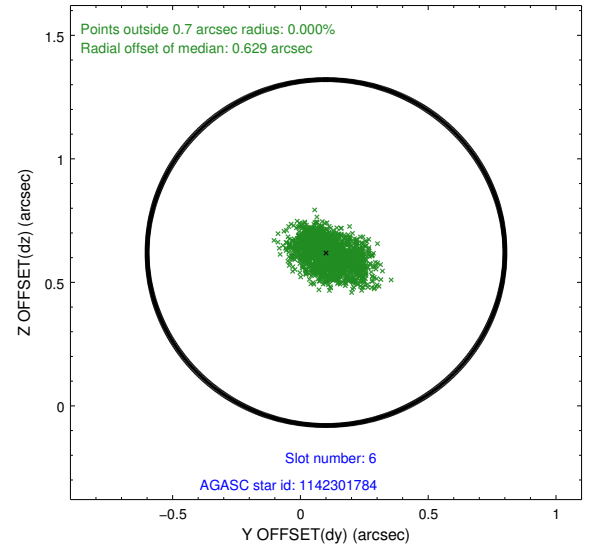
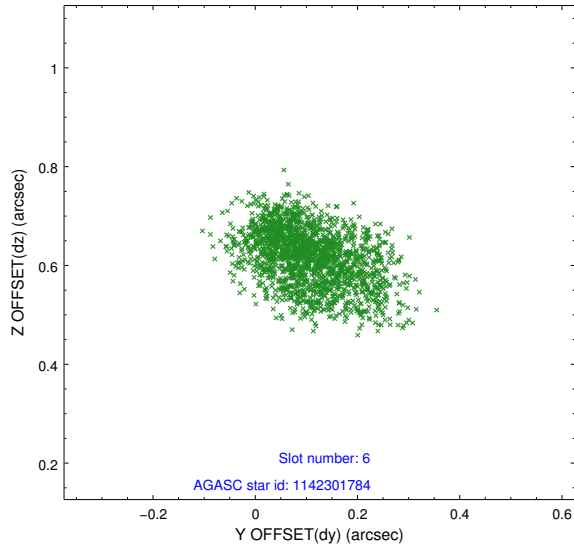
## 2.4.2 Slot 4



### 2.4.3 Slot 5

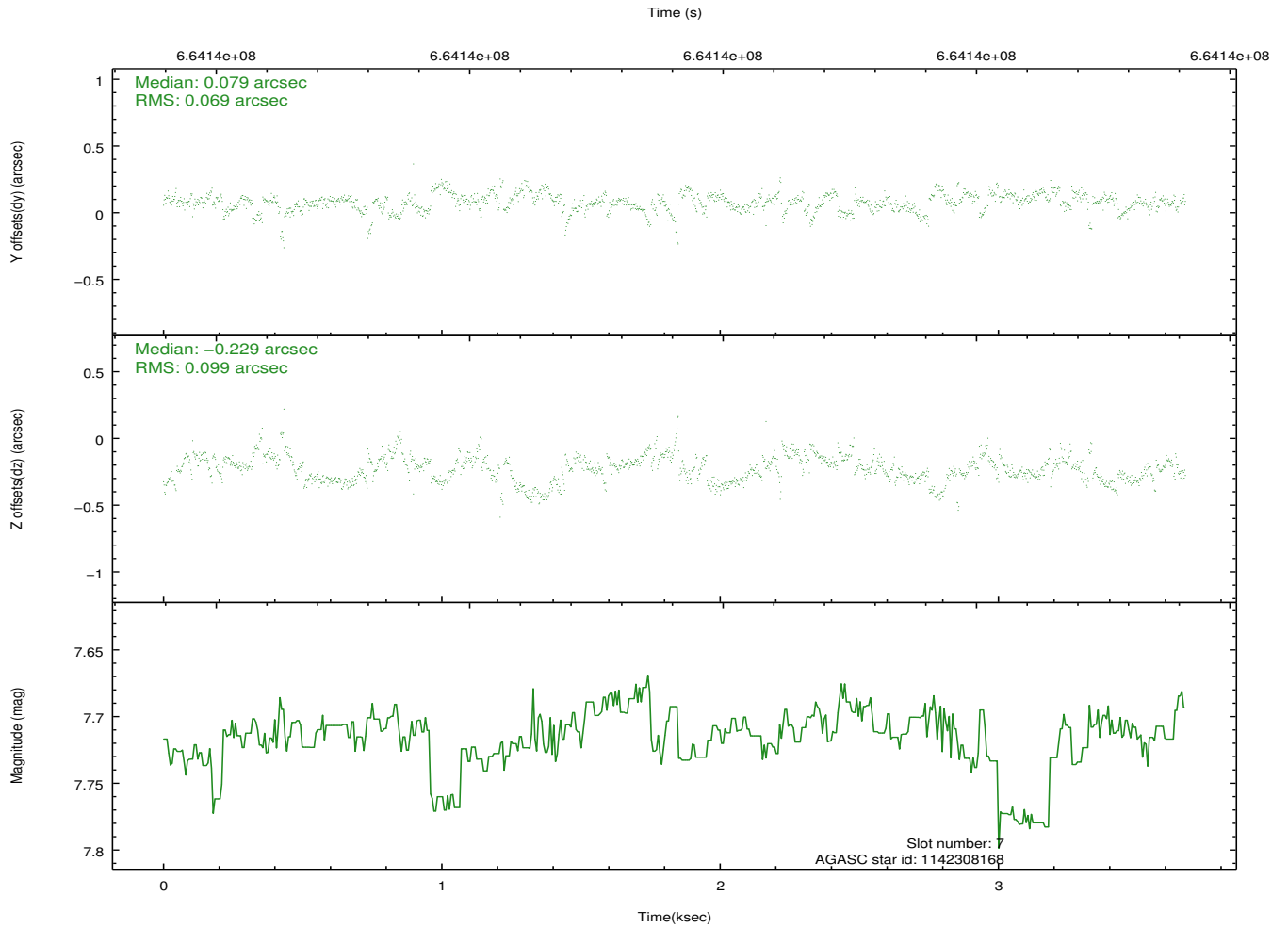
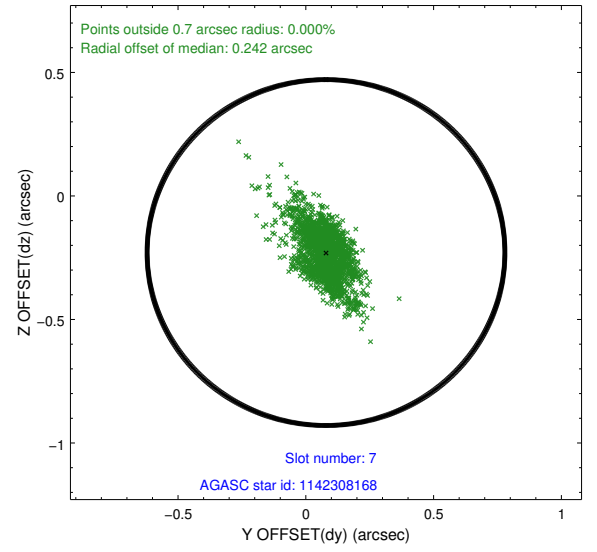
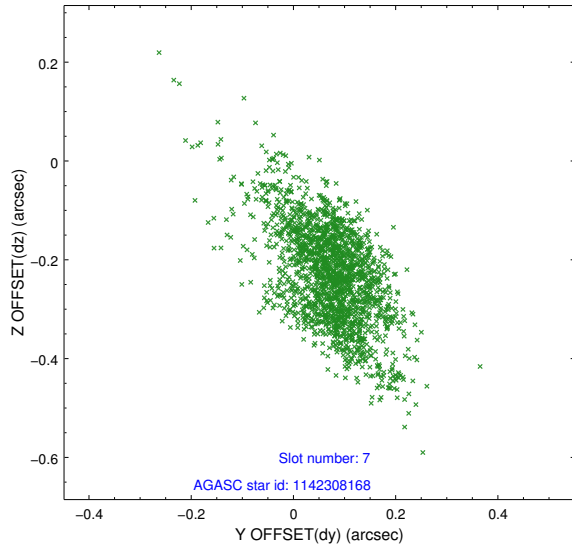


## 2.4.4 Slot 6



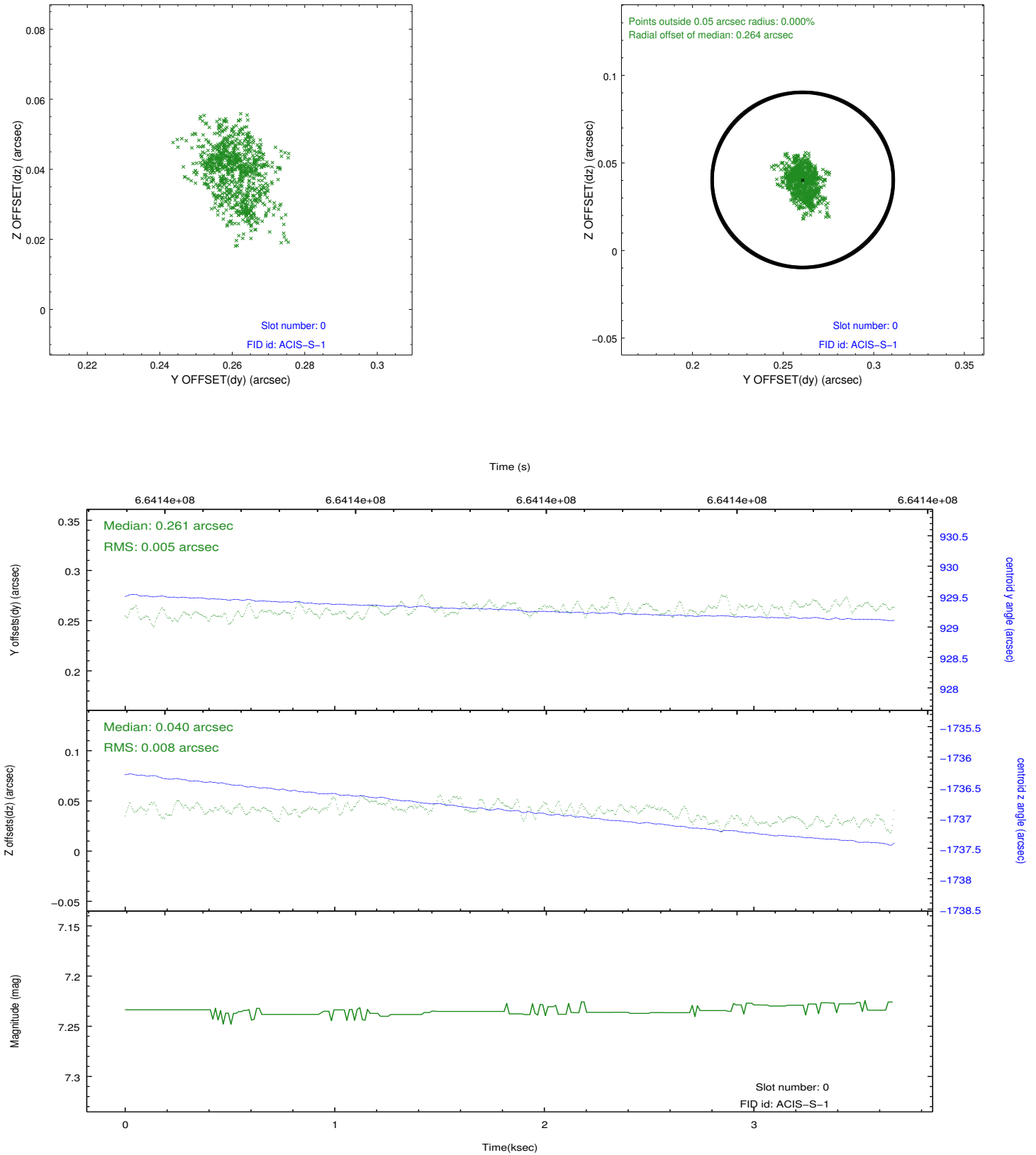


## 2.4.5 Slot 7

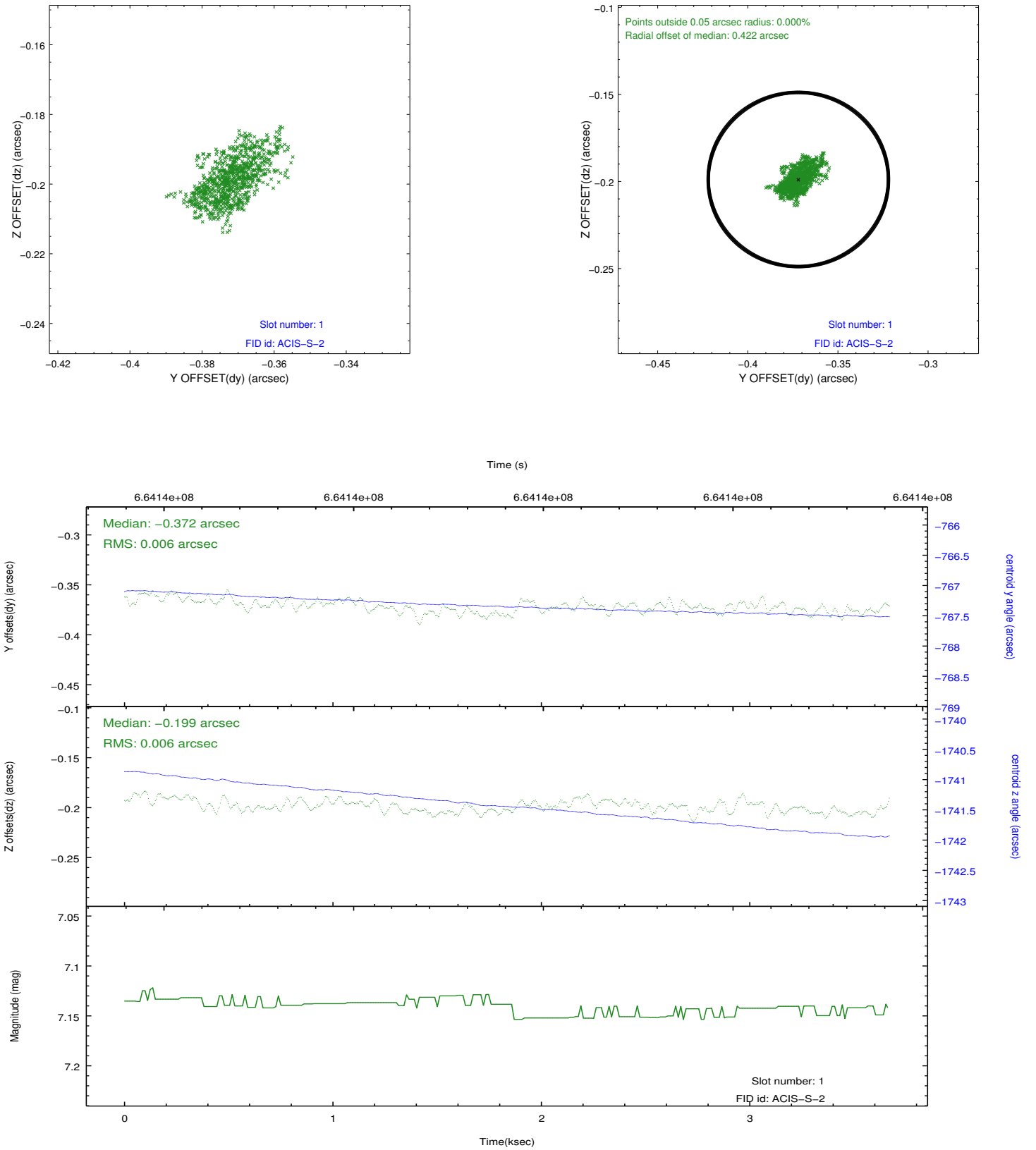


## 2.5 FID Slots

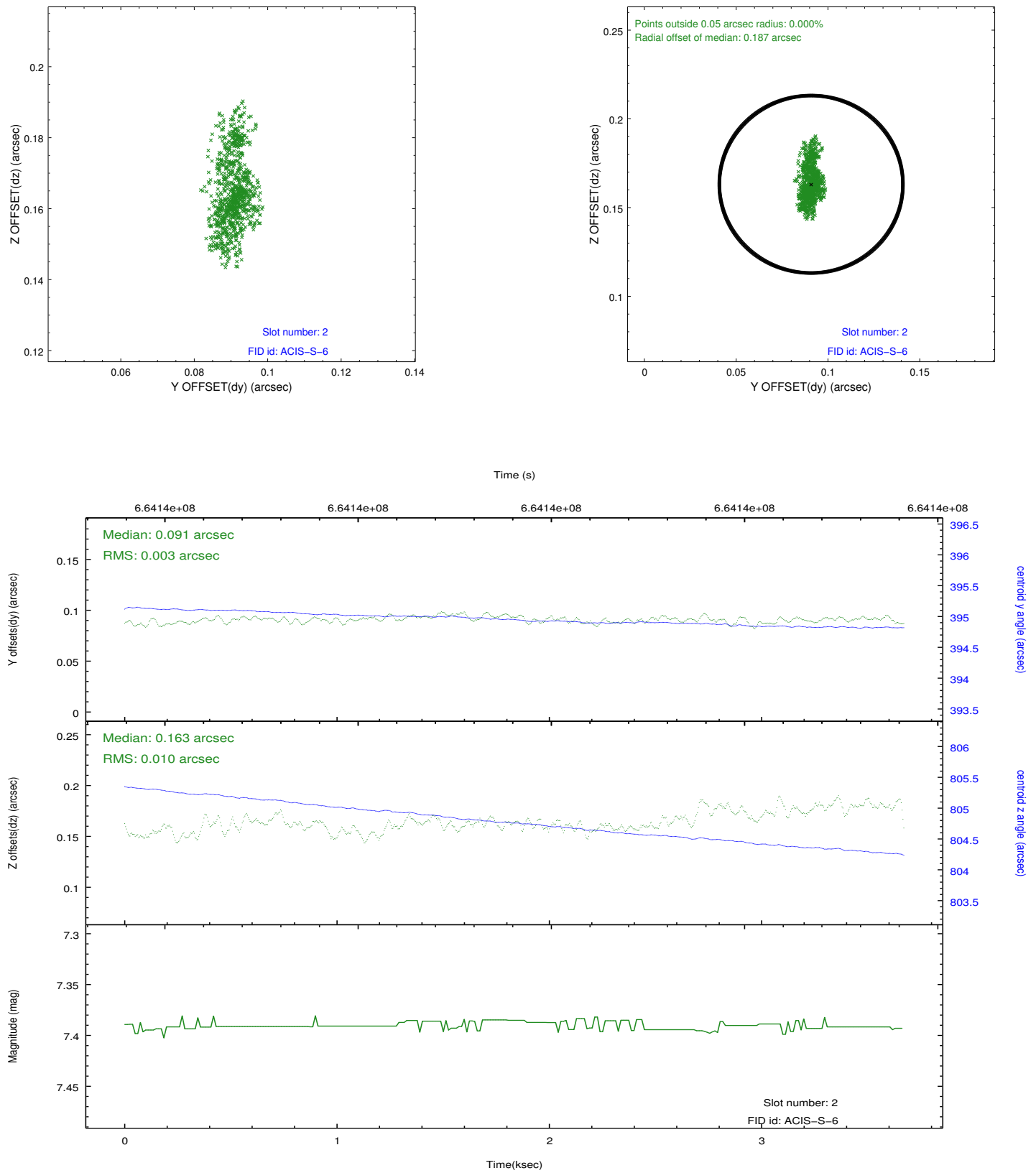
### 2.5.1 Slot 0



## 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            | 3.3883000261784 |

### A.2 Comments