

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 7313 - L2 Version 2  
Chandra X-Ray Center

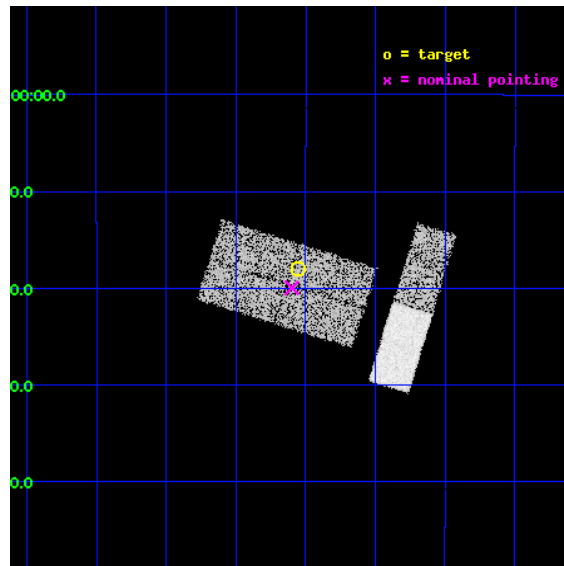
L2 Processing Date : Mar 28 2012

## 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 2 . . . . .              | 9         |
| 2.4.2    | Slot 3 . . . . .              | 10        |
| 2.4.3    | Slot 4 . . . . .              | 11        |
| 2.4.4    | Slot 5 . . . . .              | 12        |
| 2.4.5    | Slot 6 . . . . .              | 13        |
| 2.5      | FID Slots . . . . .           | 14        |
| 2.5.1    | Slot 0 . . . . .              | 14        |
| 2.5.2    | Slot 1 . . . . .              | 15        |
| <b>A</b> | <b>Summary</b>                | <b>16</b> |
| A.1      | Status . . . . .              | 16        |
| A.2      | Comments . . . . .            | 16        |

# 1 Front

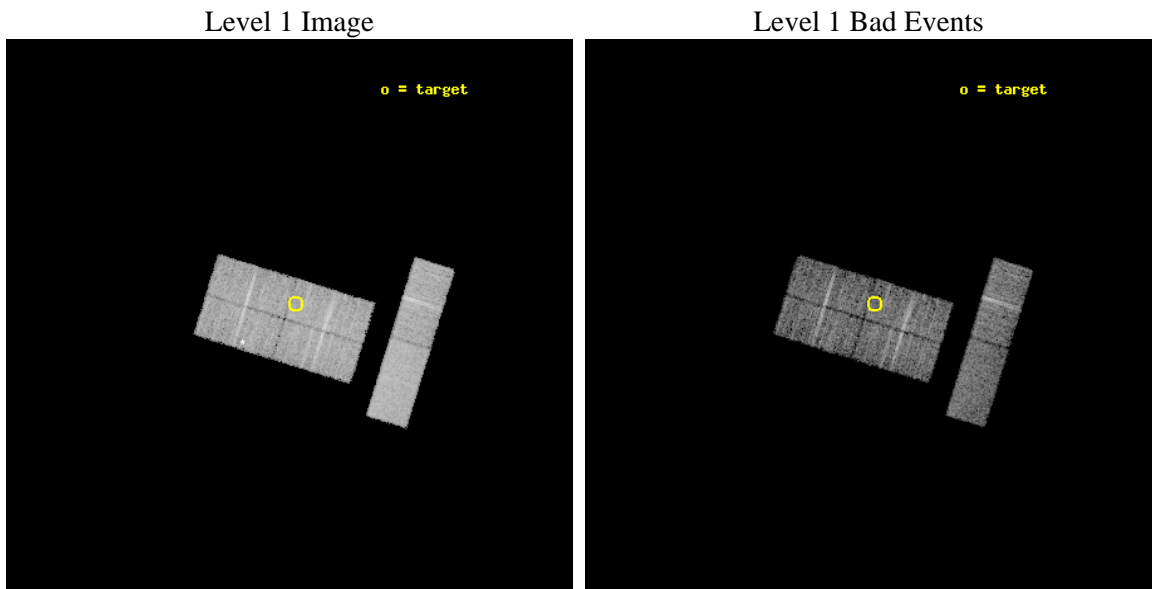
|          |   |   |
|----------|---|---|
| seq_num  | 100062  | Sequence number                             |
| obs_id   | 7313  | Observation id                              |
| title    | Search for charge exchange induced X-ray emission in the Venusian exosphere | Proposal title                              |
| observer | Dr. Peter Predehl   | Principal investigator                      |
| object   | Venus   | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 322.387644  | Observer's specified target RA [deg]        |
| dec_targ | -13.300384  | Observer's specified target Dec [deg]       |
| ra_nom   | 322.39975967488   | Nominal RA [deg]                            |
| dec_nom  | -13.332796155433  | Nominal Dec [deg]                           |
| roll_nom | 107.21173194006   | Nominal Roll [deg]                          |
| revision | 2   | Processing version of data                  |
| ontime   | 6391.8000423312   | Sum of GTIs [s]                             |
| livetime | 6249.3156456113   | Livetime [s]                                |
| ontime0  | 6391.8000423312   | Sum of GTIs [s]                             |
| ontime1  | 6391.8000423312   | Sum of GTIs [s]                             |
| ontime2  | 6391.8000423312   | Sum of GTIs [s]                             |
| ontime3  | 6391.8000423312   | Sum of GTIs [s]                             |
| ontime6  | 6391.8000423312   | Sum of GTIs [s]                             |
| ontime7  | 6391.8000423312   | Sum of GTIs [s]                             |
| l2events | 31170   | Number of level 2 events                    |



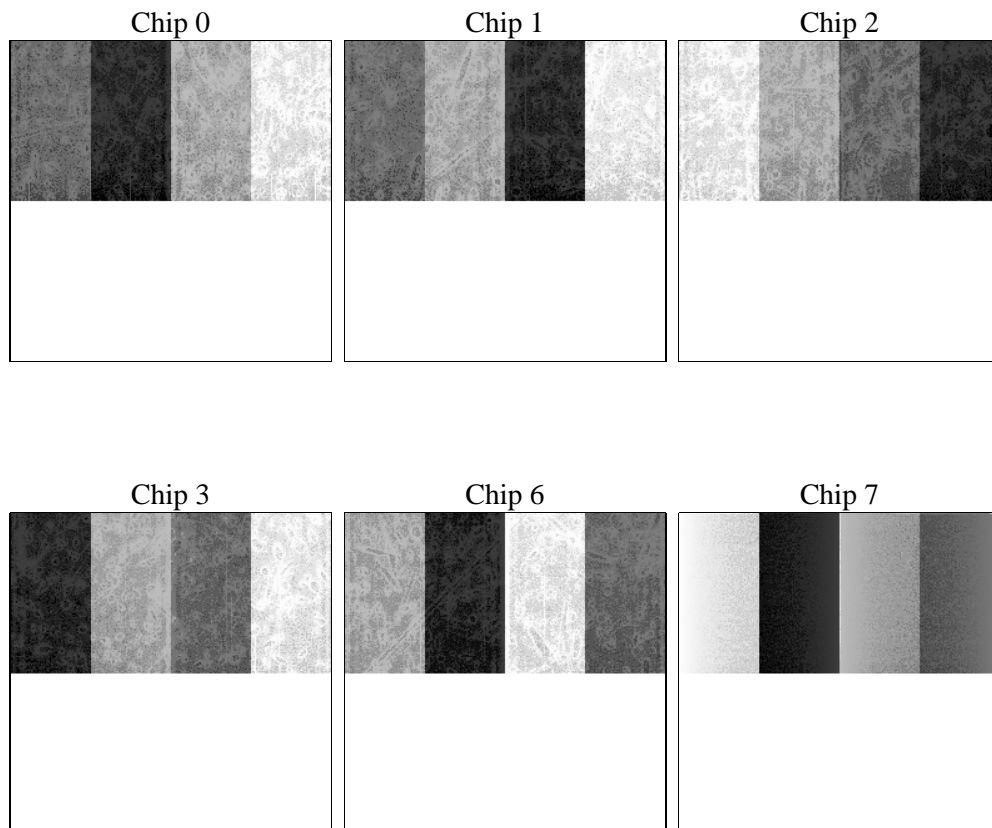
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 6200.000000     | [s] Scheduled observation exposure time |
| ascdsver | 8.4.3               | Processing system revision     | ontime         | 6391.8000423312 | Sum of GTIs [s]                         |
| caldsver | 4.4.8               | &#160                          | ontime0        | 6391.8000423312 | Sum of GTIs [s]                         |
| date     | 2012-03-28T21:23:16 | Date and time of file creation | ontime1        | 6391.8000423312 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime2        | 6391.8000423312 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 6391.8000423312 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 6391.8000423312 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 6391.8000423312 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 202667          | Number of level 1 events                |

### 2.1.4 Events

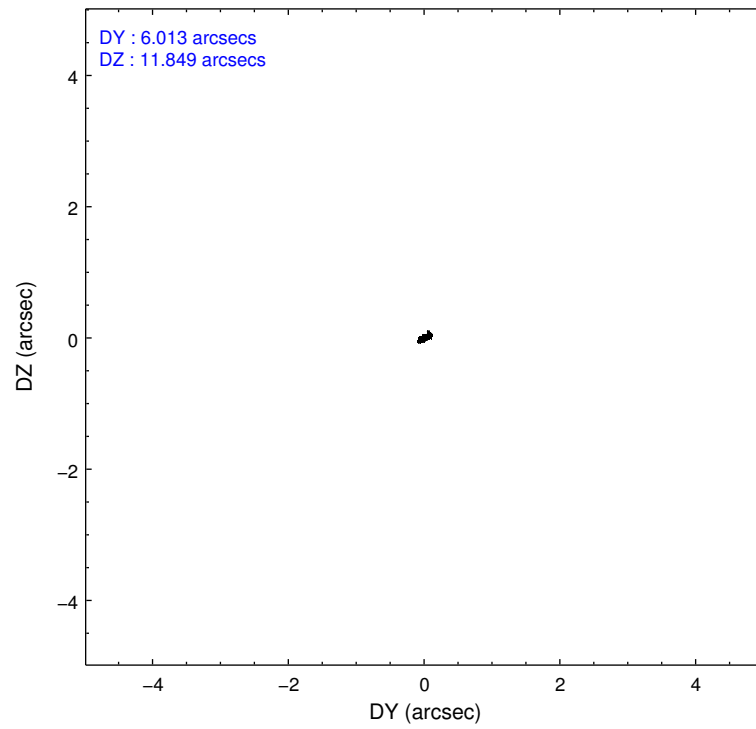
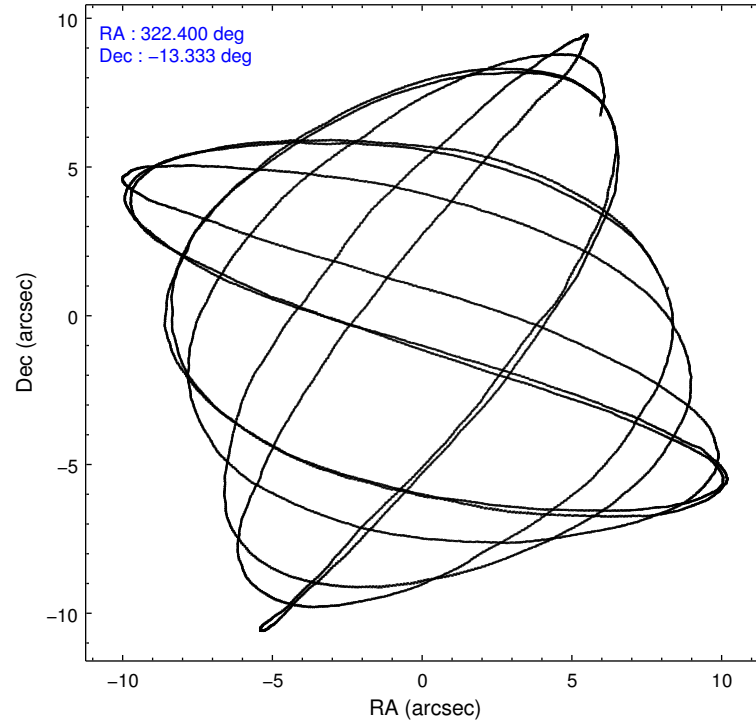
|                 | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 | ccd 7 |                | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 | ccd 7 |
|-----------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 29245 | 31140 | 33727 | 31707 | 35172 | 41676 | grade 0 events | 1588  | 2693  | 1687  | 1512  | 1442  | 1682  |
| rejected events | 25673 | 26343 | 30004 | 28315 | 31481 | 25301 |                | 5%    | 8%    | 5%    | 4%    | 4%    | 4%    |
| rejected %      | 87%   | 84%   | 88%   | 89%   | 89%   | 60%   | grade 1 events | 23    | 20    | 14    | 18    | 13    | 53    |
|                 |       |       |       |       |       |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |       |       |       |       |       |       | grade 2 events | 749   | 843   | 744   | 658   | 747   | 3346  |
|                 |       |       |       |       |       |       |                | 2%    | 2%    | 2%    | 2%    | 2%    | 8%    |
|                 |       |       |       |       |       |       | grade 3 events | 429   | 380   | 400   | 403   | 433   | 1710  |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 1%    | 1%    | 1%    | 4%    |
|                 |       |       |       |       |       |       | grade 4 events | 388   | 398   | 438   | 381   | 456   | 1663  |
|                 |       |       |       |       |       |       |                | 1%    | 1%    | 1%    | 1%    | 1%    | 3%    |
|                 |       |       |       |       |       |       | grade 5 events | 1290  | 1307  | 1240  | 1434  | 1478  | 4015  |
|                 |       |       |       |       |       |       |                | 4%    | 4%    | 3%    | 4%    | 4%    | 9%    |
|                 |       |       |       |       |       |       | grade 6 events | 601   | 707   | 631   | 625   | 796   | 8870  |
|                 |       |       |       |       |       |       |                | 2%    | 2%    | 1%    | 1%    | 2%    | 21%   |
|                 |       |       |       |       |       |       | grade 7 events | 24177 | 24792 | 28573 | 26676 | 29807 | 20337 |
|                 |       |       |       |       |       |       |                | 82%   | 79%   | 84%   | 84%   | 84%   | 48%   |

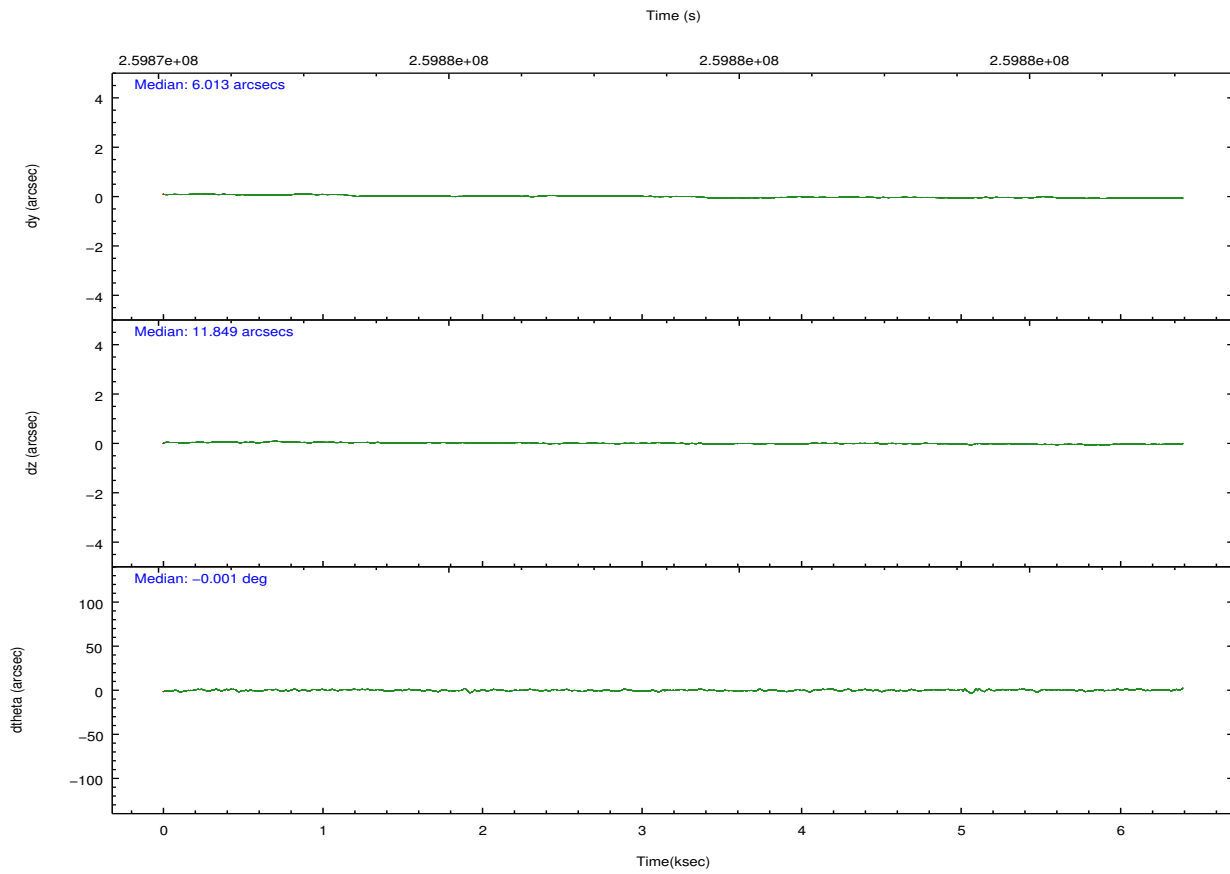
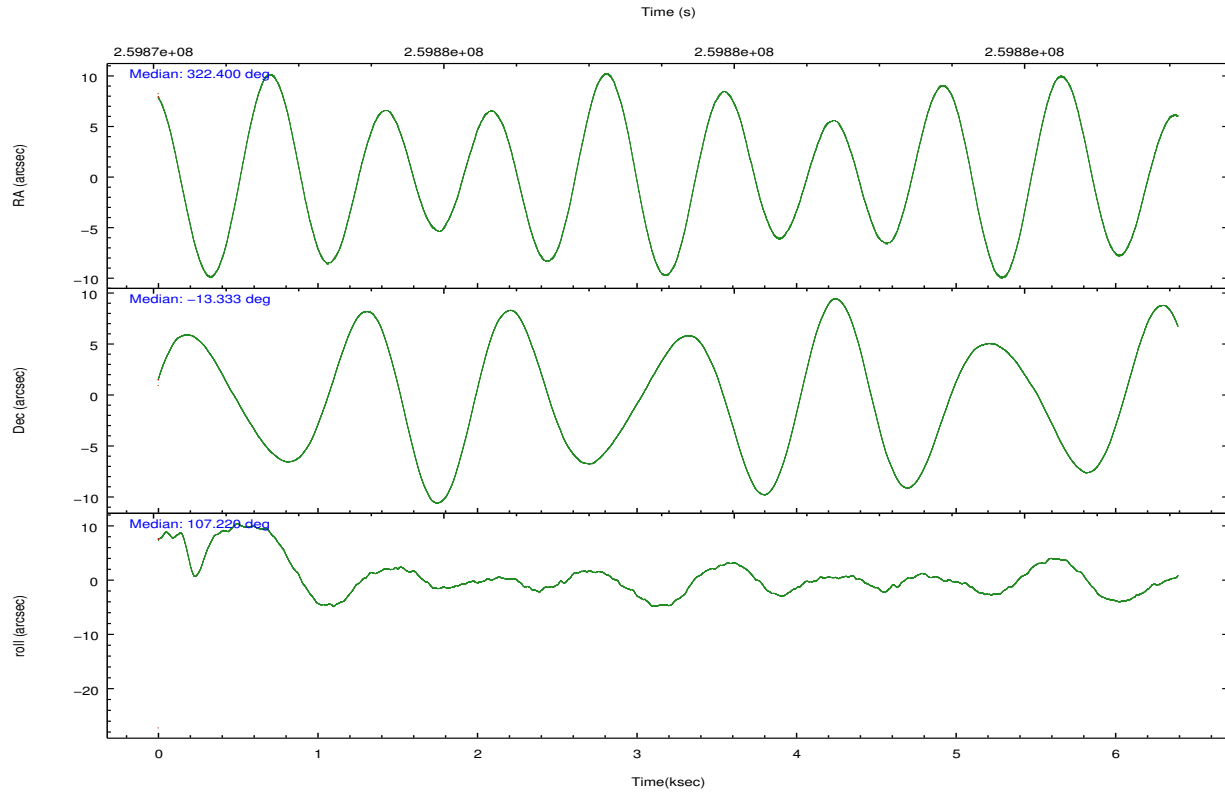


## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual                | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|-----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                  | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-012367         | ACIS-012367           | 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                 | 322.420518          | 322.3997596748843     | Subarray requested                    | CUSTOM    | 1/2     |
| [deg] Pointing Dec                | -13.351418          | -13.33279615543274    | Subarray start row                    | 513       | 513     |
| [deg] Pointing Roll               | 107.007849          | 107.211731940064      | Subarray row count                    | 512       | 512     |
| [s] Window start time (MET)       | 258076865.184000    | 258076865.184000      | Alternating exposures requested       | N         | N       |
| [s] Window stop time (MET)        | 261705665.184000    | 261705665.184000      | [s] Primary exposure time             | 0.000000  | 1.8     |
| [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)  | 259874542.184000    | 259874166.38517       |                                       |           |         |
| Observation start date            | 2006-03-27T19:21:17 | 2006-03-27T19:16:06   |                                       |           |         |
| [s] Observation end time (MET)    | 259880742.184000    | 259880876.03548       |                                       |           |         |
| Observation end date              | 2006-03-27T21:04:37 | 2006-03-27T21:07:56   |                                       |           |         |
| Read mode                         | TIMED               | TIMED                 |                                       |           |         |

## 2.3 Aspect



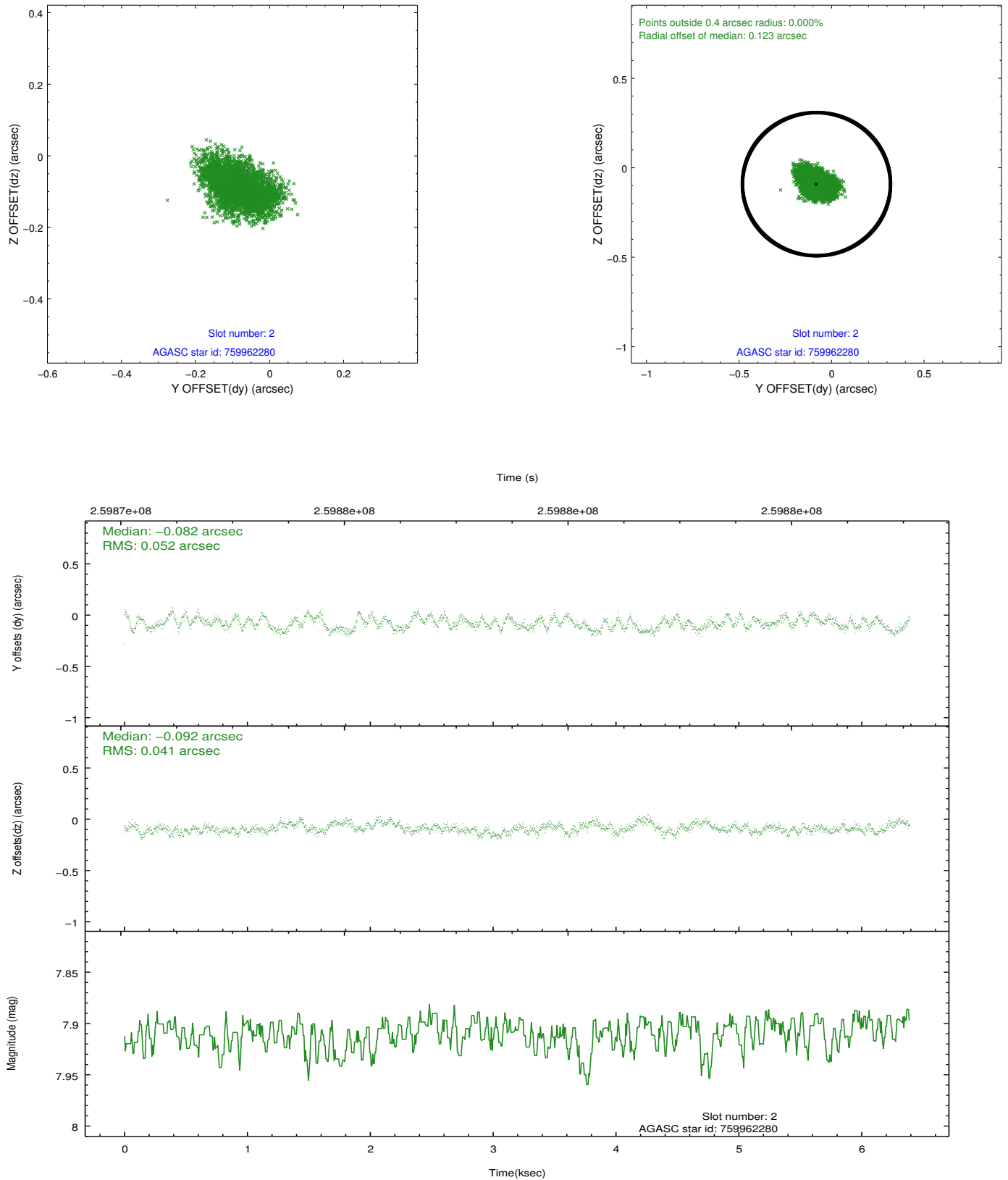


### Slot Statistics

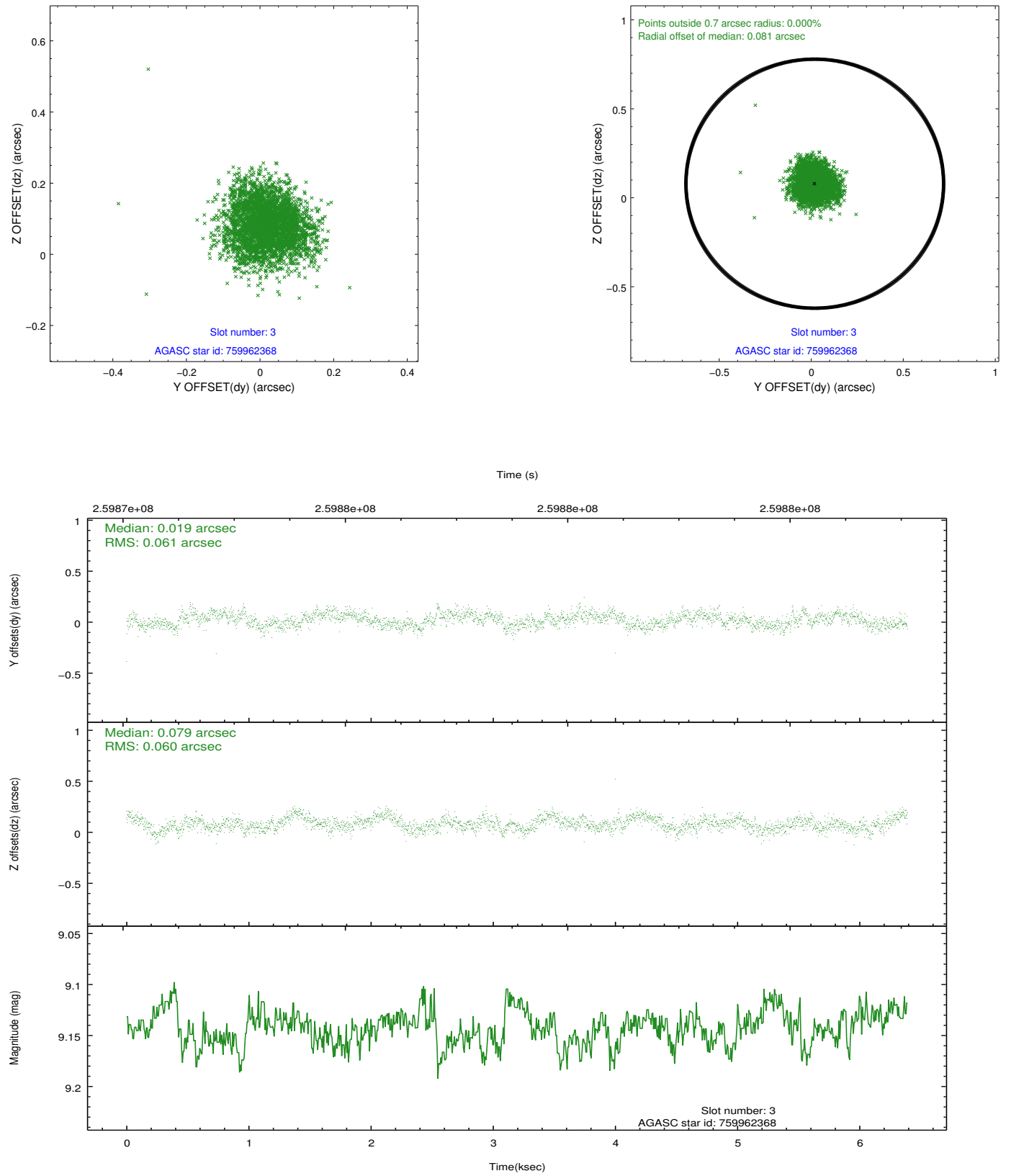
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y   | mean_z  |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|----------|---------|
| 0    | FID    | ACIS-I-2  | 7.15 | 1560  | 0.018  | -0.068 | 0.009 | 0.017 | 0.000000   | 0.000000   | -760.48  | -841.78 |
| 1    | FID    | ACIS-I-5  | 7.23 | 1560  | -0.082 | 0.116  | 0.009 | 0.017 | 0.000000   | 0.000000   | -1815.05 | 1061.81 |
| 2    | GUIDE  | 759962280 | 7.91 | 3118  | -0.082 | -0.092 | 0.072 | 0.113 | 322.001957 | -13.698366 | -768.17  | 1765.81 |
| 3    | GUIDE  | 759962368 | 9.14 | 3119  | 0.019  | 0.079  | 0.090 | 0.144 | 322.267195 | -13.797795 | -1380.79 | 983.52  |
| 4    | GUIDE  | 759962544 | 9.38 | 3114  | 0.186  | -0.050 | 0.086 | 0.143 | 322.119077 | -13.952845 | -1763.63 | 1641.08 |
| 5    | GUIDE  | 759962960 | 8.45 | 3117  | -0.189 | -0.062 | 0.069 | 0.112 | 321.922663 | -13.562736 | -220.58  | 1889.53 |
| 6    | GUIDE  | 759963784 | 9.88 | 3114  | 0.060  | 0.133  | 0.167 | 0.275 | 322.079300 | -13.771695 | -1099.01 | 1584.50 |
| 7    | UNUSED |           | 0.00 | 0     | 0.000  | 0.000  | 0.000 | 0.000 | 0.000000   | 0.000000   | 0.00     | 0.00    |

## 2.4 Star Slots

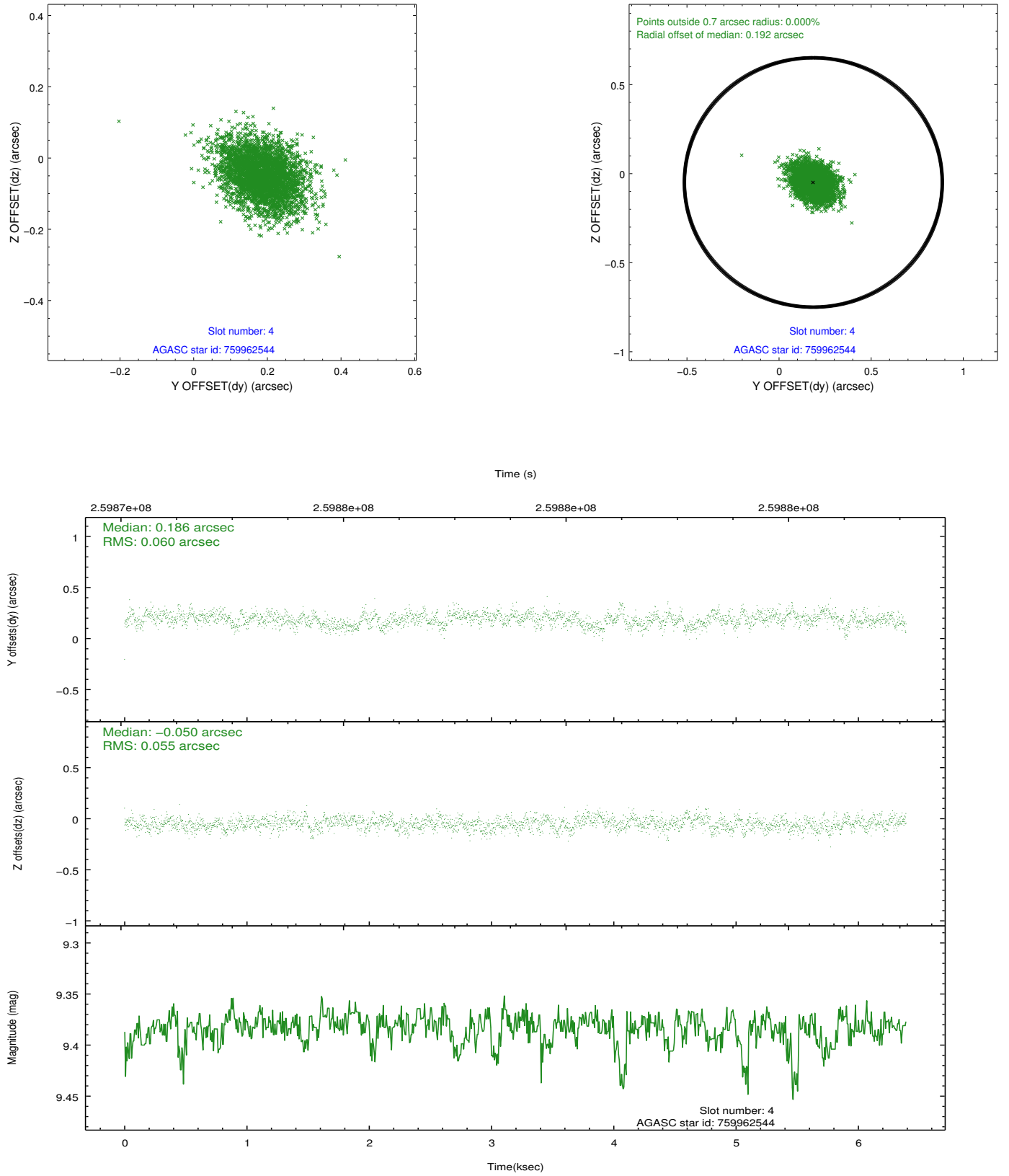
### 2.4.1 Slot 2



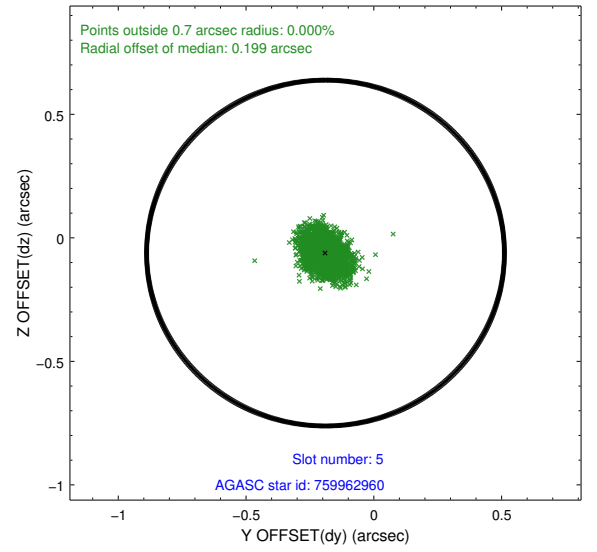
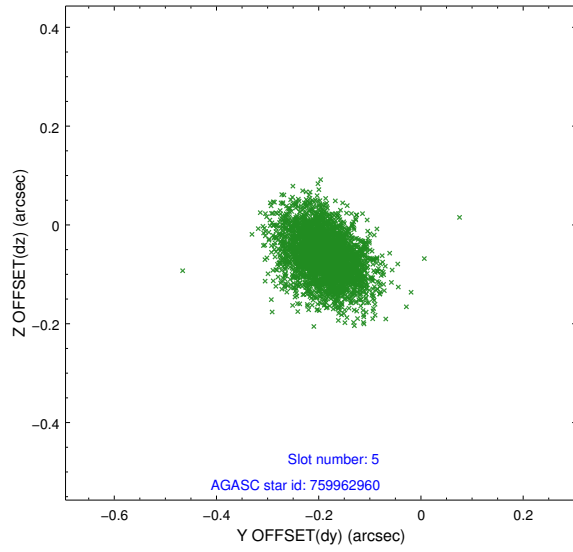
## 2.4.2 Slot 3



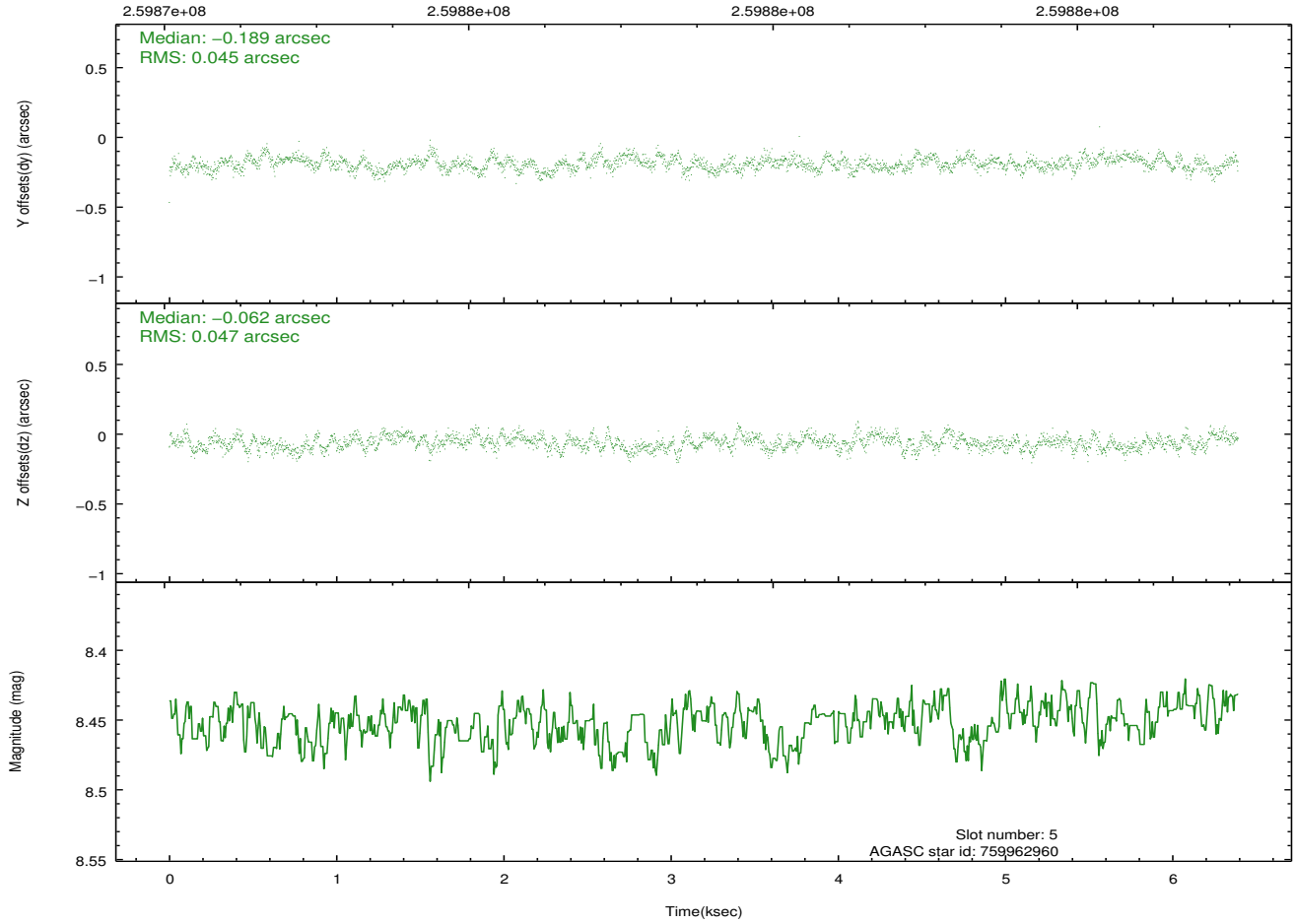
### 2.4.3 Slot 4



## 2.4.4 Slot 5

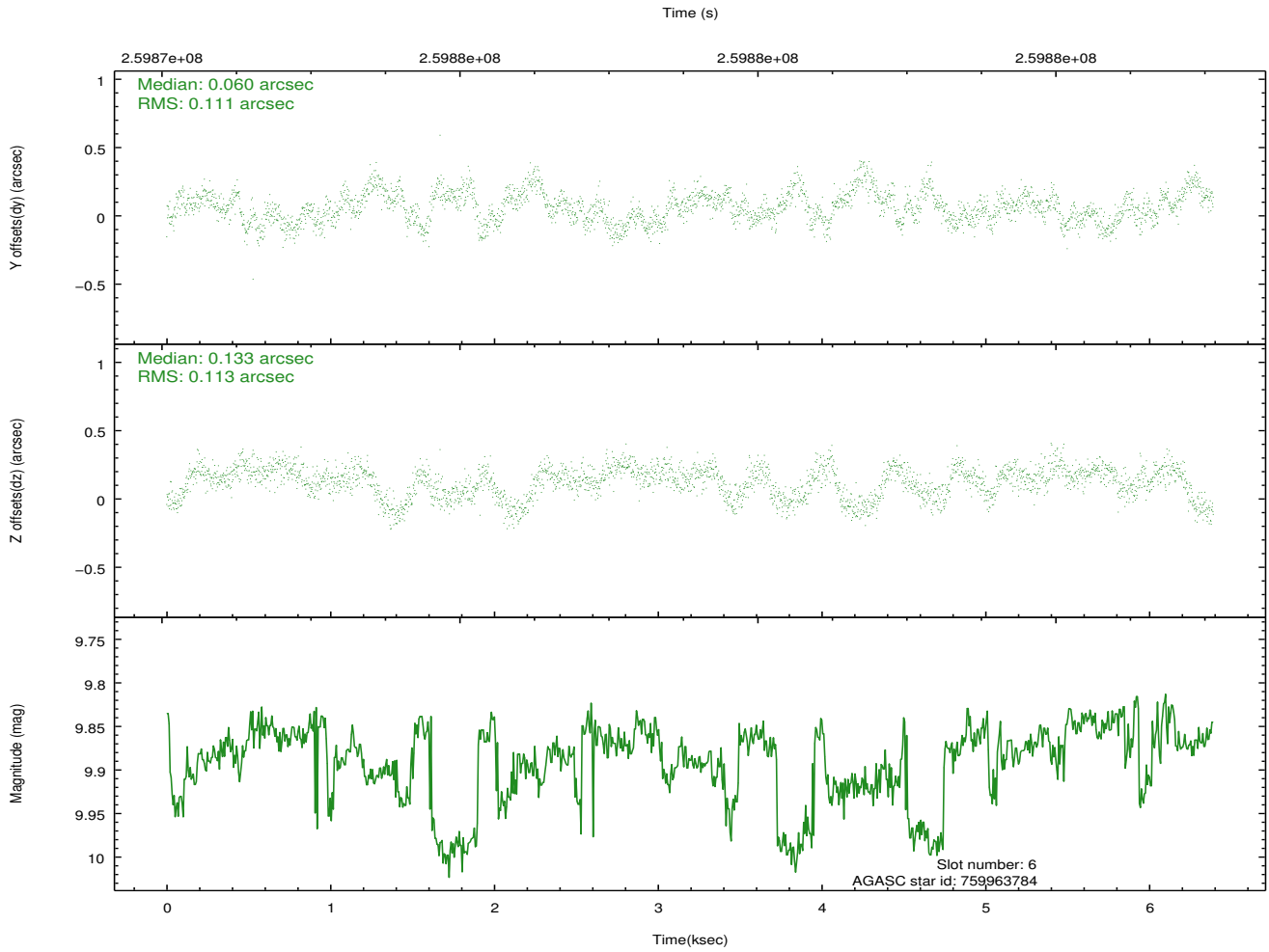
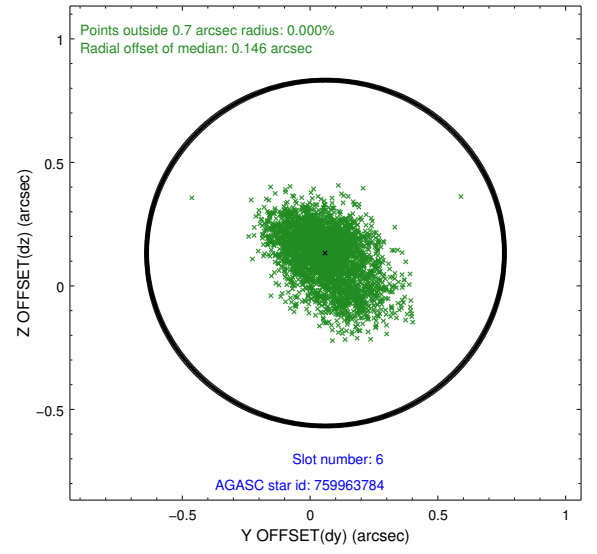
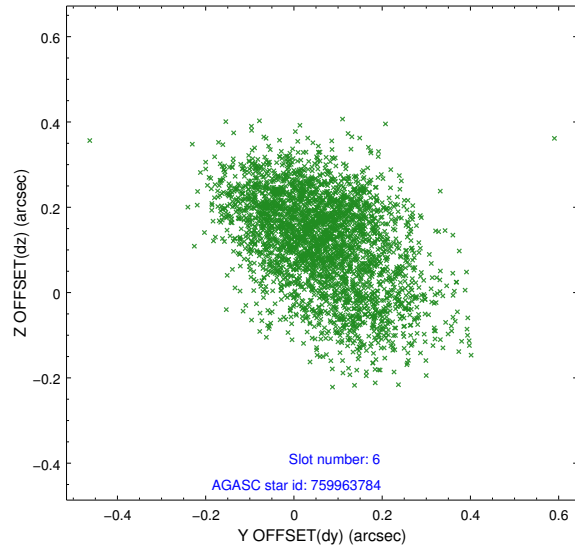


Time (s)



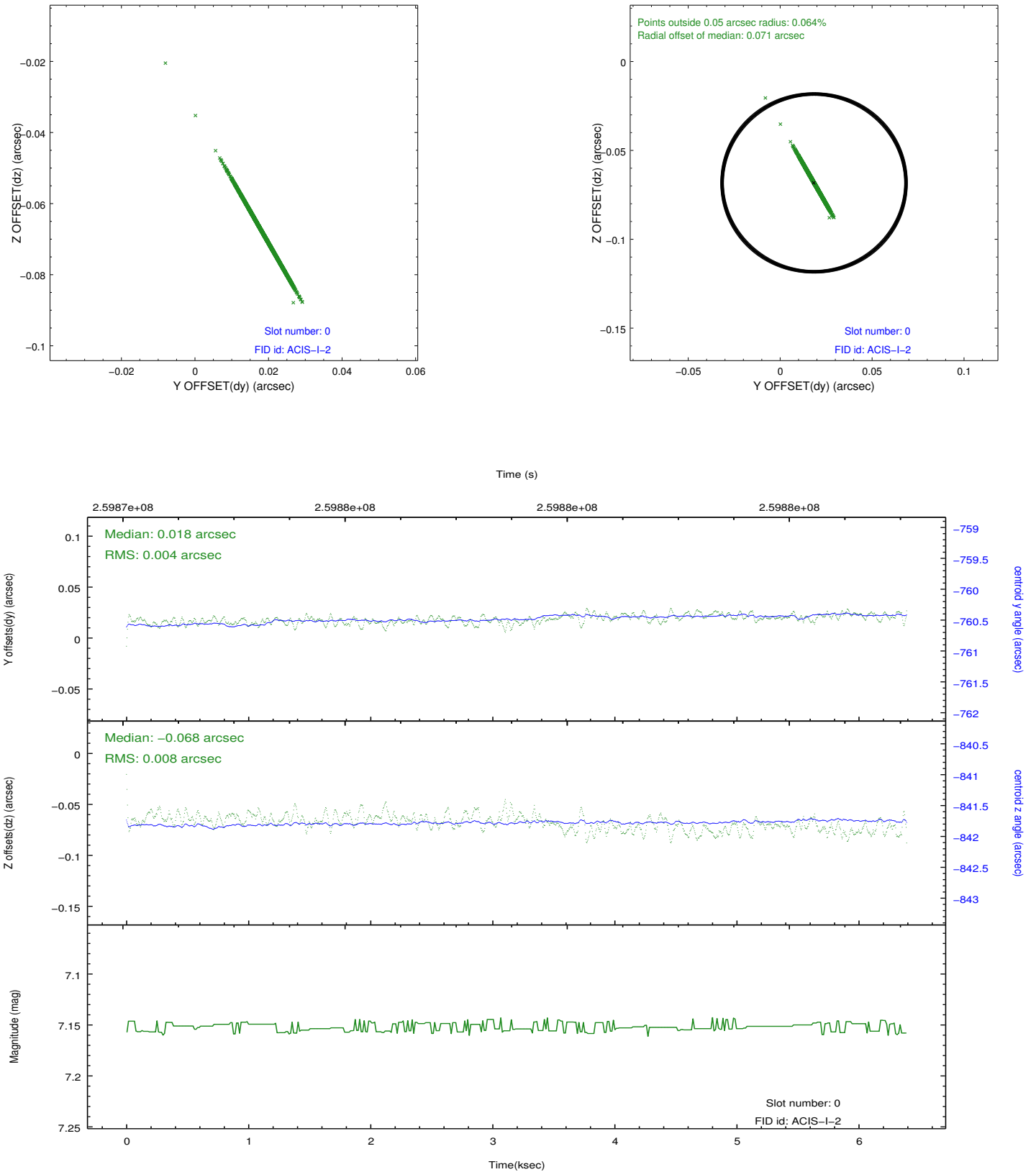


## 2.4.5 Slot 6

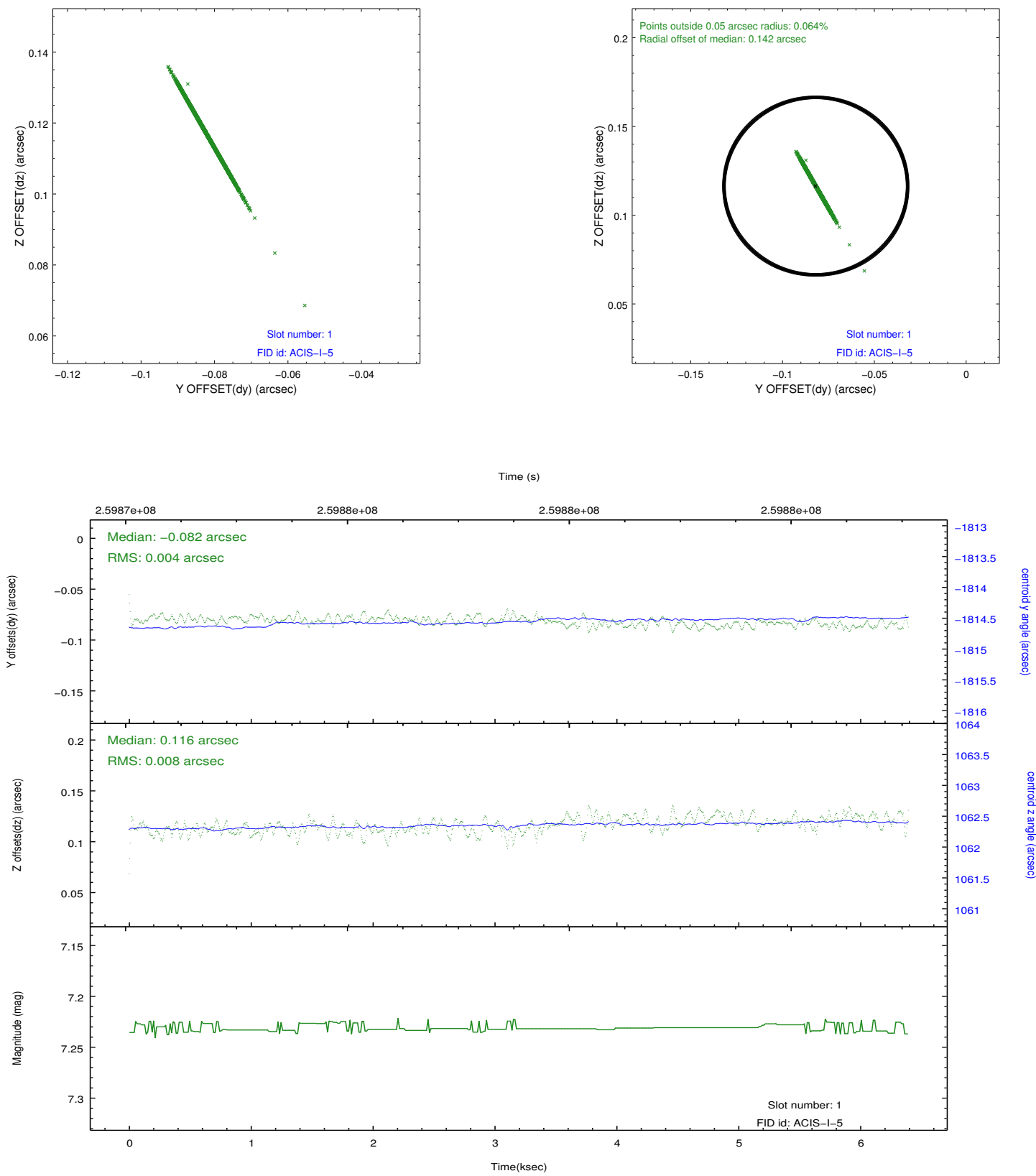


## 2.5 FID Slots

### 2.5.1 Slot 0



2.5.2 Slot 1



## A Summary

### A.1 Status

|                            |               |
|----------------------------|---------------|
| V&V Scientist              | Beth Sundheim |
| V&V Date (YYYY-MM-DD)      | 2012.03.29    |
| V&V Edition                | 1             |
| V&V Disposition and Status | OK            |
| V&V Charge Time            | 6.39180004    |

### A.2 Comments

Window preference met.

Slot 7 was not utilized in this observation.