

# V&V Reference Report

## L2 ASCDS Version : 8.5.1

Observation 6077 - L2 Version 3  
Chandra X-Ray Center

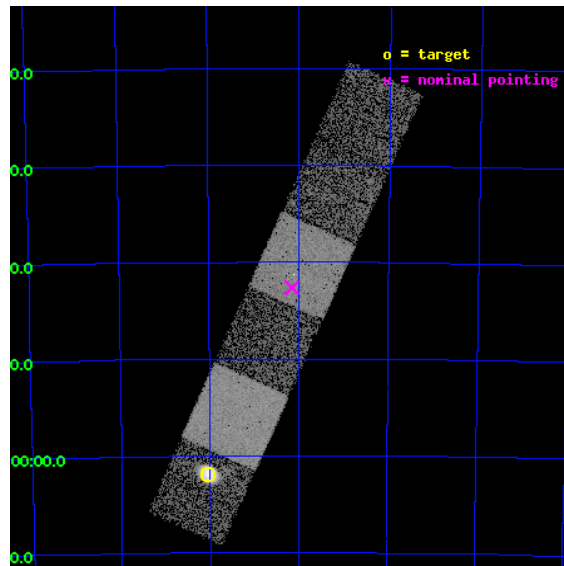
L2 Processing Date : Dec 14 2012

## 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 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

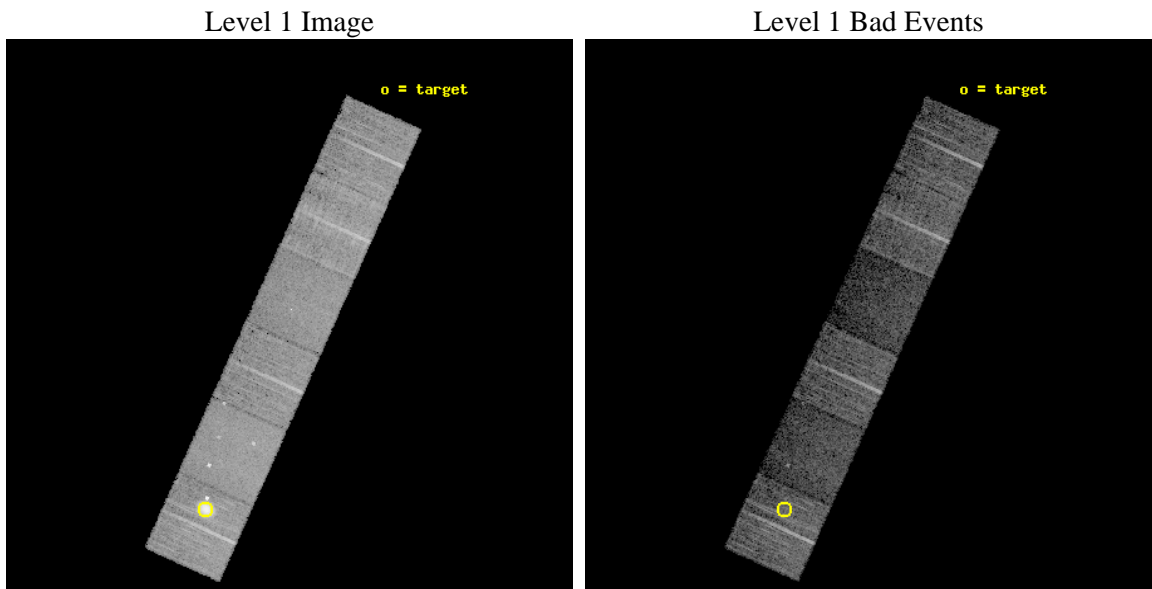
|          |  |   |
|----------|--|---|
| seq_num  | 590404   | Sequence number                             |
| obs_id   | 6077   | Observation id                              |
| title    | AO6A ACIS-S Calibration Observations of E0102-72 | Proposal title                              |
| observer | Dr. CXC Calibration                              | Principal investigator                      |
| object   | E0102-72[S0,-120,21.44,0,0]                      | Source name                                 |
| dtcycle  | 0  | &#160                                       |
| cycle    | P  | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 16.01  | Observer's specified target RA [deg]        |
| dec_targ | -72.032028                                       | Observer's specified target Dec [deg]       |
| ra_nom   | 15.537488572008                                  | Nominal RA [deg]                            |
| dec_nom  | -71.710819588105                                 | Nominal Dec [deg]                           |
| roll_nom | 294.25673471418                                  | Nominal Roll [deg]                          |
| revision | 3  | Processing version of data                  |
| ontime   | 7753.5999711156                                  | Sum of GTIs [s]                             |
| livetime | 7655.4192196239                                  | Livetime [s]                                |
| ontime4  | 7753.5999711156                                  | Sum of GTIs [s]                             |
| ontime5  | 7753.5458036959                                  | Sum of GTIs [s]                             |
| ontime6  | 7753.5047636926                                  | Sum of GTIs [s]                             |
| ontime7  | 7753.5868436992                                  | Sum of GTIs [s]                             |
| ontime8  | 7750.2227534056                                  | Sum of GTIs [s]                             |
| ontime9  | 7753.4226837158                                  | Sum of GTIs [s]                             |
| l2events | 82020  | Number of level 2 events                    |



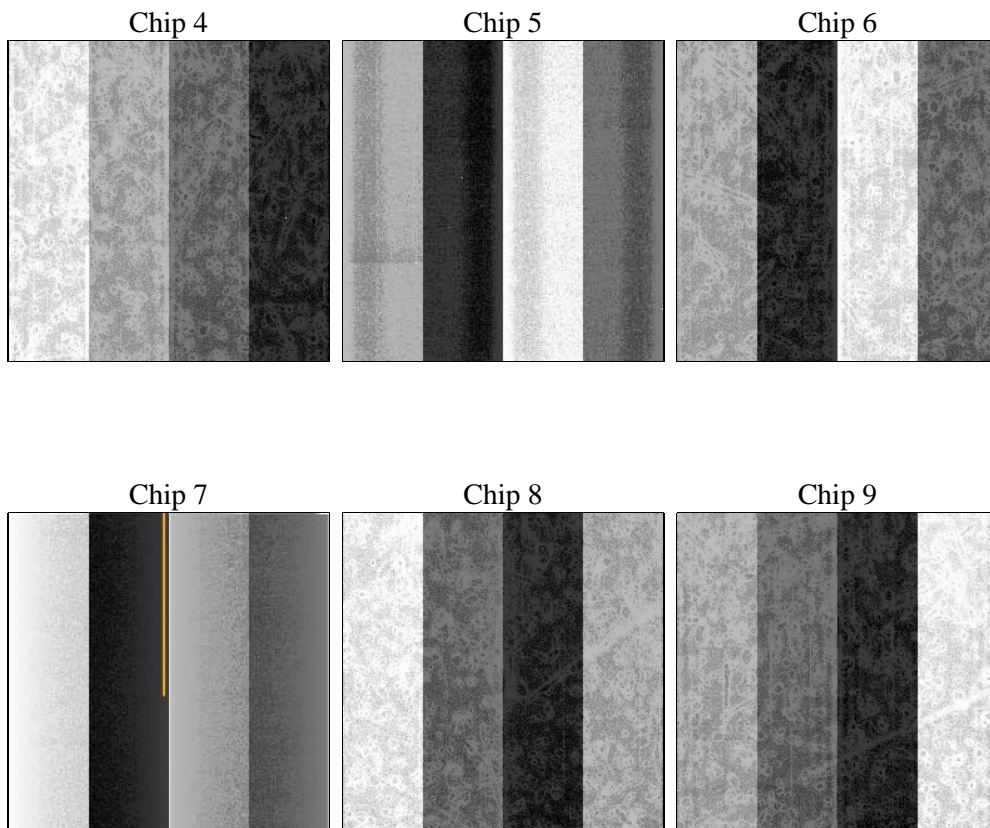
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 1                   | Obi number                     | sched_exp_time | 8000.000000     | [s] Scheduled observation exposure time |
| ascdsver | 8.5.1               | Processing system revision     | ontime         | 7753.5999711156 | Sum of GTIs [s]                         |
| caldsver | 4.5.5               | &#160                          | ontime4        | 7753.5999711156 | Sum of GTIs [s]                         |
| date     | 2012-12-14T20:38:34 | Date and time of file creation | ontime5        | 7753.5458036959 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime6        | 7753.5047636926 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 7753.5868436992 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 7750.2227534056 | Sum of GTIs [s]                         |
|          |                     |                                | ontime9        | 7753.4226837158 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 334949          | Number of level 1 events                |

### 2.1.4 Events

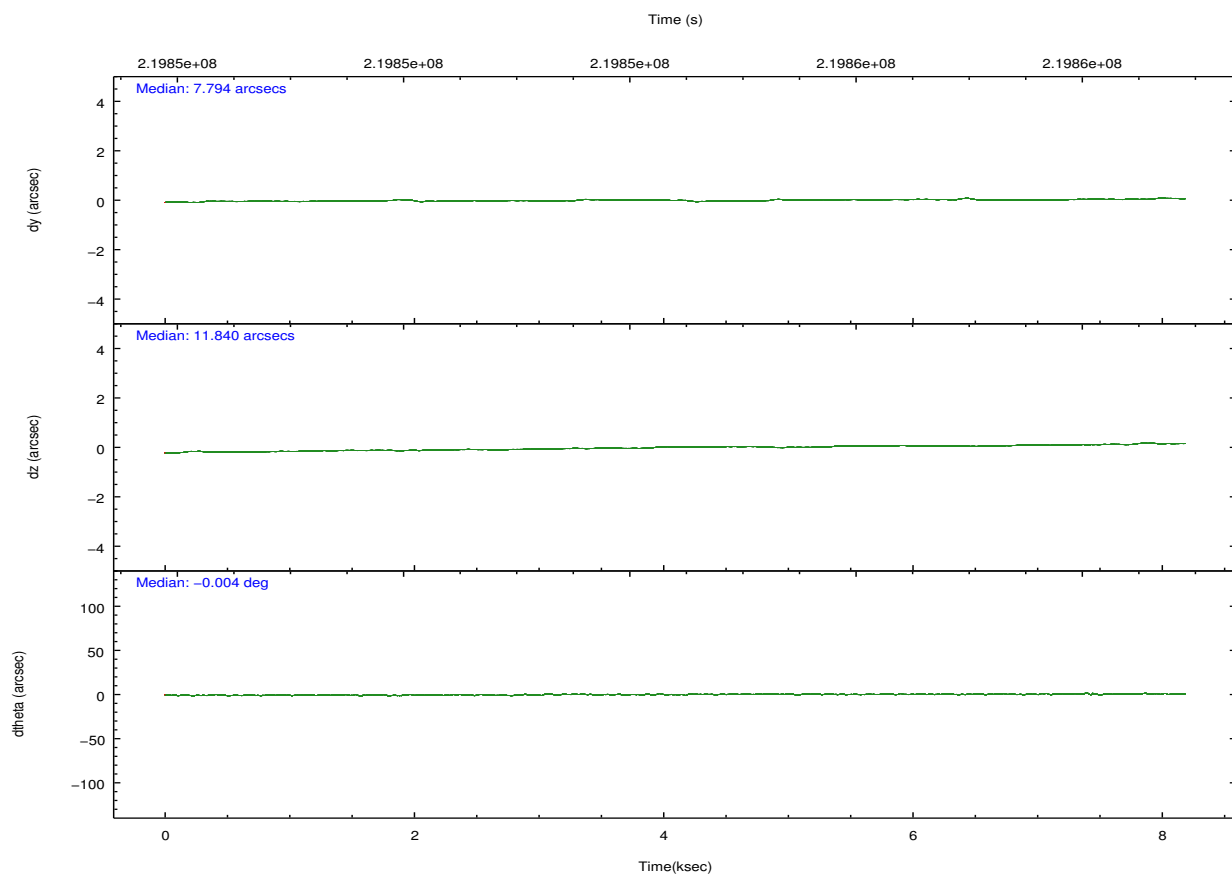
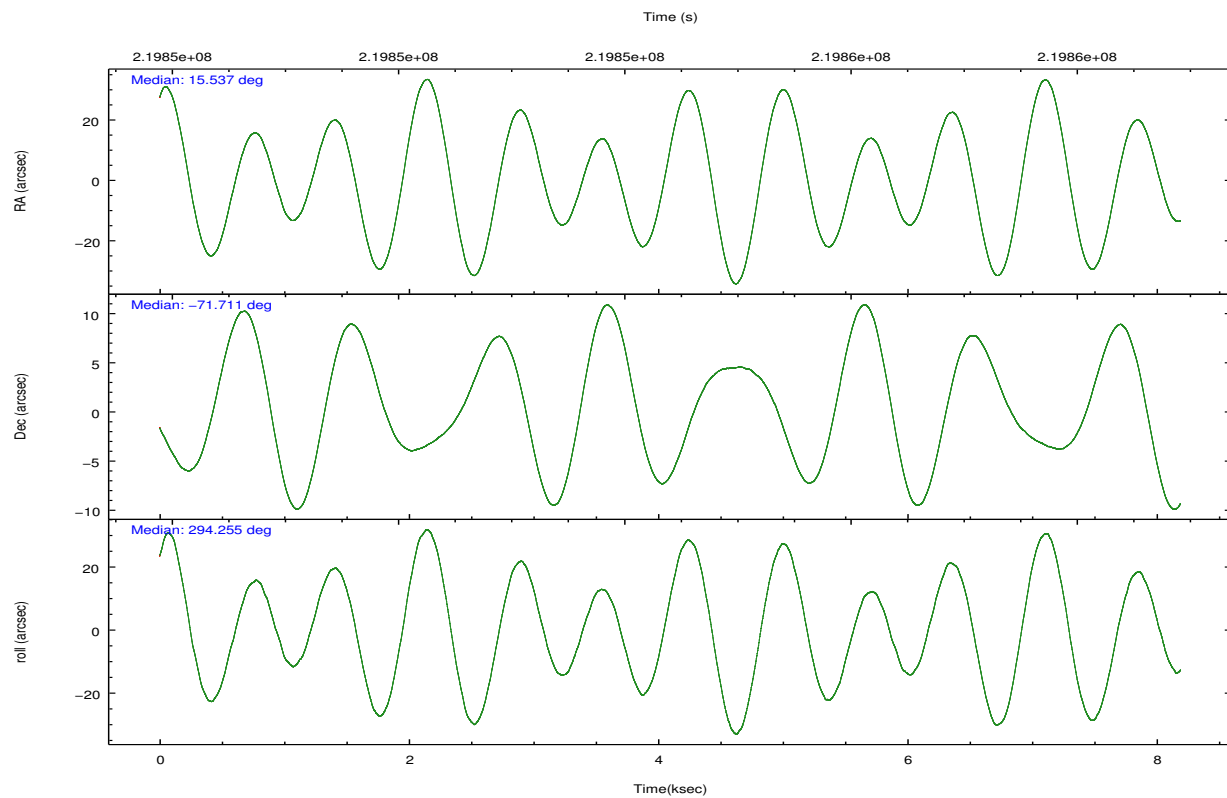
|                 | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |                | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|-----------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 76166 | 58491 | 48099 | 44872 | 60481 | 46840 | grade 0 events | 19776 | 3774  | 1742  | 2305  | 3804  | 1653  |
| rejected events | 51638 | 27304 | 43299 | 22619 | 46855 | 42198 |                | 25%   | 6%    | 3%    | 5%    | 6%    | 3%    |
| rejected %      | 67%   | 46%   | 90%   | 50%   | 77%   | 90%   | grade 1 events | 173   | 264   | 28    | 54    | 46    | 22    |
|                 |       |       |       |       |       |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |       |       |       |       |       |       | grade 2 events | 2297  | 9295  | 1075  | 4749  | 3007  | 980   |
|                 |       |       |       |       |       |       |                | 3%    | 15%   | 2%    | 10%   | 4%    | 2%    |
|                 |       |       |       |       |       |       | grade 3 events | 824   | 1497  | 481   | 2104  | 1658  | 518   |
|                 |       |       |       |       |       |       |                | 1%    | 2%    | 1%    | 4%    | 2%    | 1%    |
|                 |       |       |       |       |       |       | grade 4 events | 762   | 1559  | 539   | 2111  | 1481  | 528   |
|                 |       |       |       |       |       |       |                | 1%    | 2%    | 1%    | 4%    | 2%    | 1%    |
|                 |       |       |       |       |       |       | grade 5 events | 1645  | 4984  | 1619  | 4689  | 2474  | 1785  |
|                 |       |       |       |       |       |       |                | 2%    | 8%    | 3%    | 10%   | 4%    | 3%    |
|                 |       |       |       |       |       |       | grade 6 events | 890   | 15093 | 970   | 11000 | 3679  | 965   |
|                 |       |       |       |       |       |       |                | 1%    | 25%   | 2%    | 24%   | 6%    | 2%    |
|                 |       |       |       |       |       |       | grade 7 events | 49799 | 22025 | 41645 | 17860 | 44332 | 40389 |
|                 |       |       |       |       |       |       |                | 65%   | 37%   | 86%   | 39%   | 73%   | 86%   |



## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-456789         | ACIS-456789          | 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                 | 15.466325           | 15.53748857200818    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | -71.695159          | -71.71081958810475   | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 294.032547          | 294.2567347141787    | [s] Primary exposure time             | 0.000000  | 3.2     |
| [s] Window start time (MET)       | 215654464.184000    | 215654464.184000     |                                       |           |         |
| [s] Window stop time (MET)        | 220838464.184000    | 220838464.184000     |                                       |           |         |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos    | -190.132523         | -190.1400660498719   |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.00754346686406393  |                                       |           |         |
| [s] Observation start time (MET)  | 219850490.184000    | 219850114.20109      |                                       |           |         |
| Observation start date            | 2004-12-19T13:33:46 | 2004-12-19T13:28:34  |                                       |           |         |
| [s] Observation end time (MET)    | 219858490.184000    | 219858624.77647      |                                       |           |         |
| Observation end date              | 2004-12-19T15:47:06 | 2004-12-19T15:50:24  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect

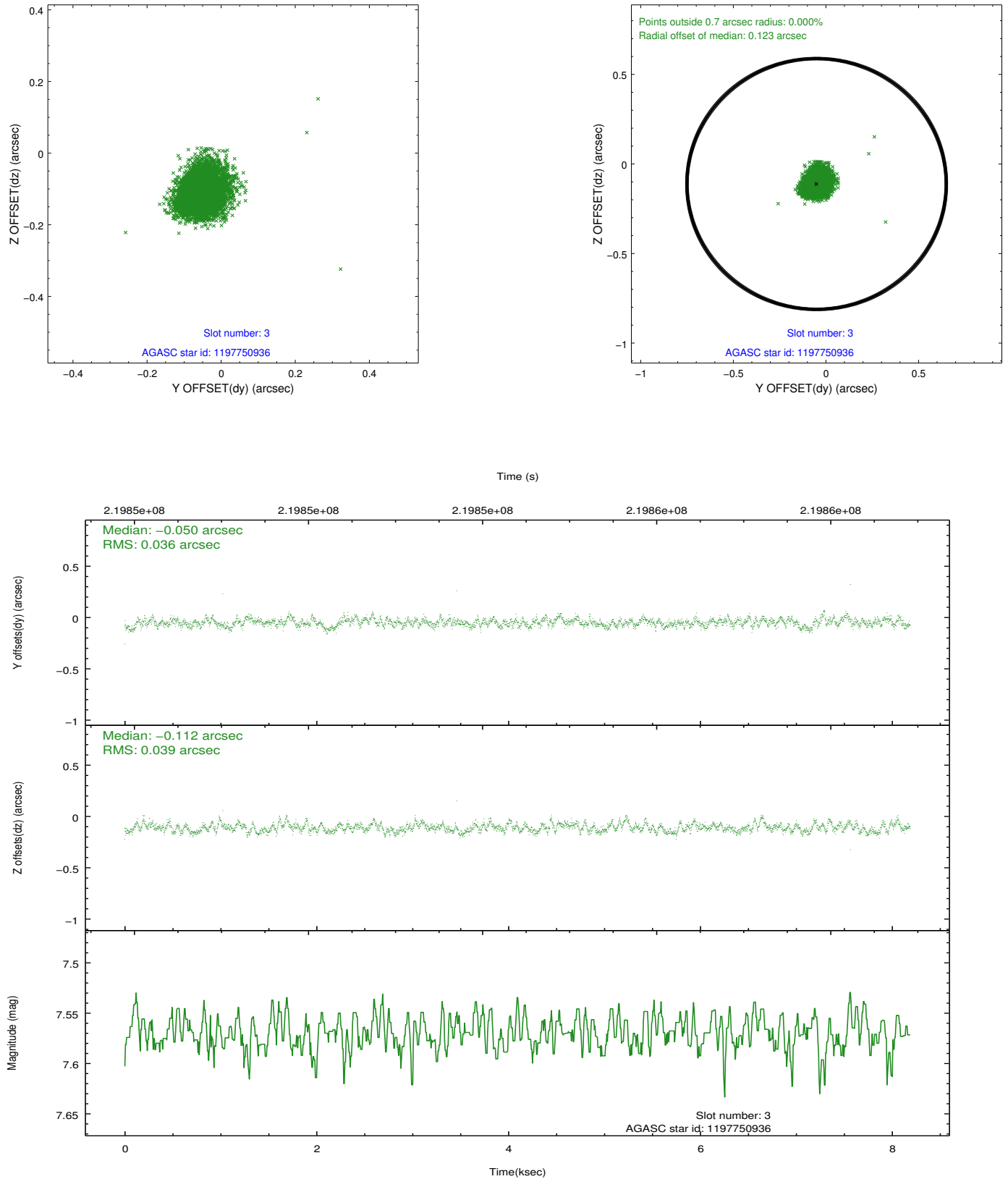


### Slot Statistics

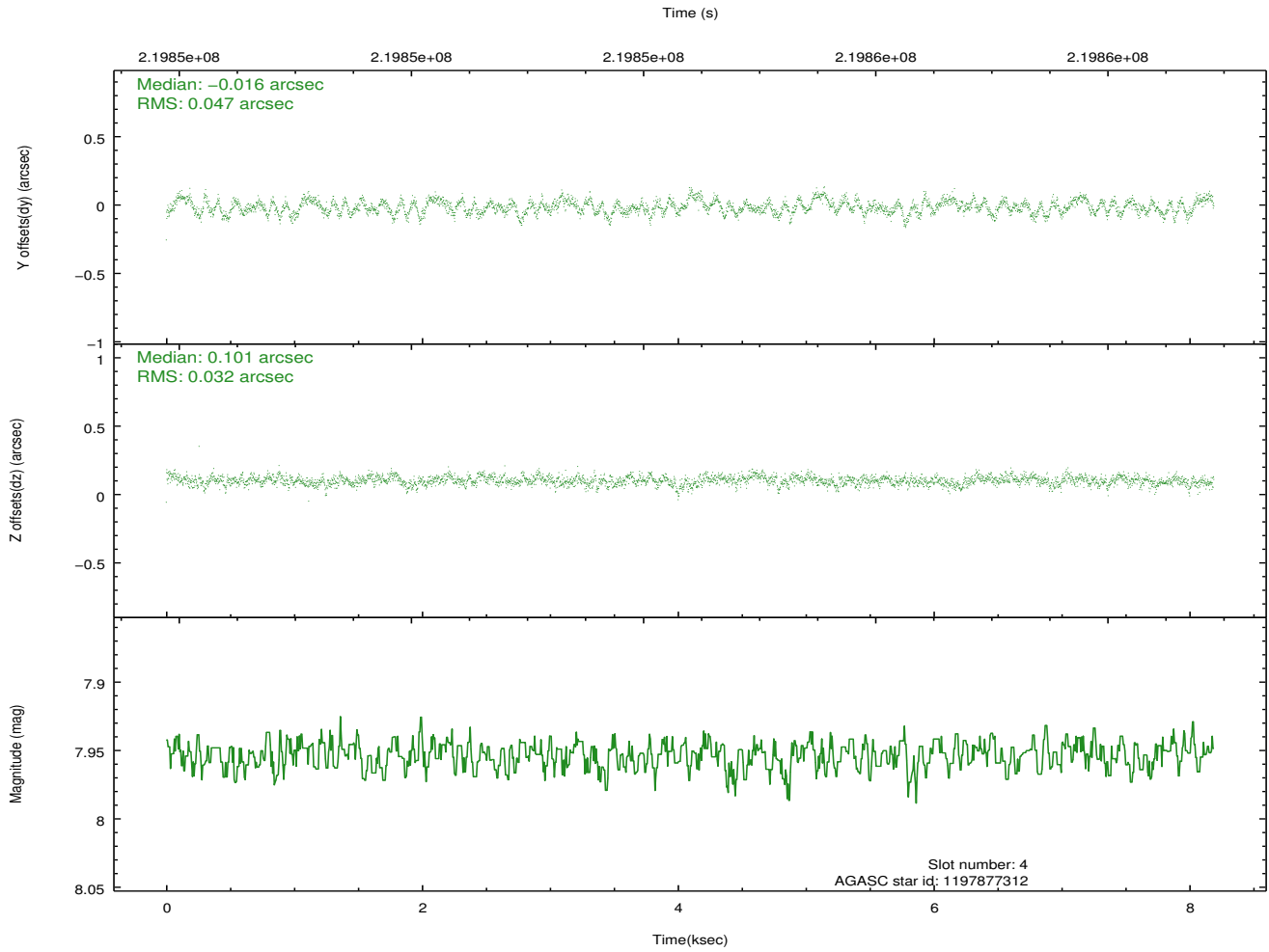
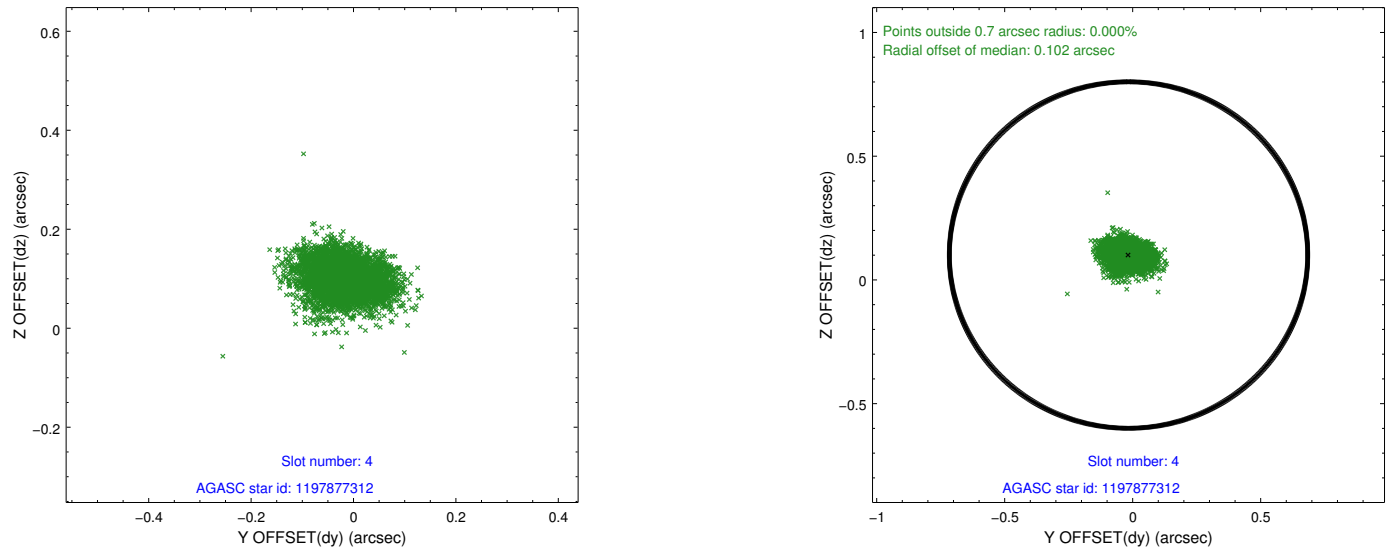
| slot | status | id         | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mean_z   |
|------|--------|------------|------|-------|--------|--------|-------|-------|-----------|------------|----------|----------|
| 0    | FID    | ACIS-S-2   | 7.10 | 1998  | -0.013 | -0.011 | 0.007 | 0.012 | 0.000000  | 0.000000   | -760.57  | -1733.12 |
| 1    | FID    | ACIS-S-4   | 7.20 | 1998  | 0.069  | 0.009  | 0.005 | 0.010 | 0.000000  | 0.000000   | 2152.47  | 174.68   |
| 2    | FID    | ACIS-S-5   | 7.23 | 1998  | -0.087 | 0.010  | 0.007 | 0.012 | 0.000000  | 0.000000   | -1812.61 | 169.12   |
| 3    | GUIDE  | 1197750936 | 7.57 | 3996  | -0.050 | -0.112 | 0.056 | 0.089 | 15.387940 | -71.549550 | -514.97  | 131.72   |
| 4    | GUIDE  | 1197877312 | 7.95 | 3995  | -0.016 | 0.101  | 0.060 | 0.099 | 16.362782 | -70.933298 | -2068.81 | 2076.77  |
| 5    | GUIDE  | 1197884536 | 8.49 | 3994  | 0.037  | 0.027  | 0.064 | 0.100 | 17.160729 | -71.835289 | 1258.90  | 1520.83  |
| 6    | GUIDE  | 1197884712 | 8.32 | 3995  | 0.016  | 0.093  | 0.064 | 0.105 | 16.087398 | -72.252690 | 2114.20  | -195.85  |
| 7    | GUIDE  | 1197885328 | 7.23 | 3995  | 0.013  | -0.112 | 0.048 | 0.081 | 16.283090 | -71.733943 | 508.99   | 782.69   |

## 2.4 Star Slots

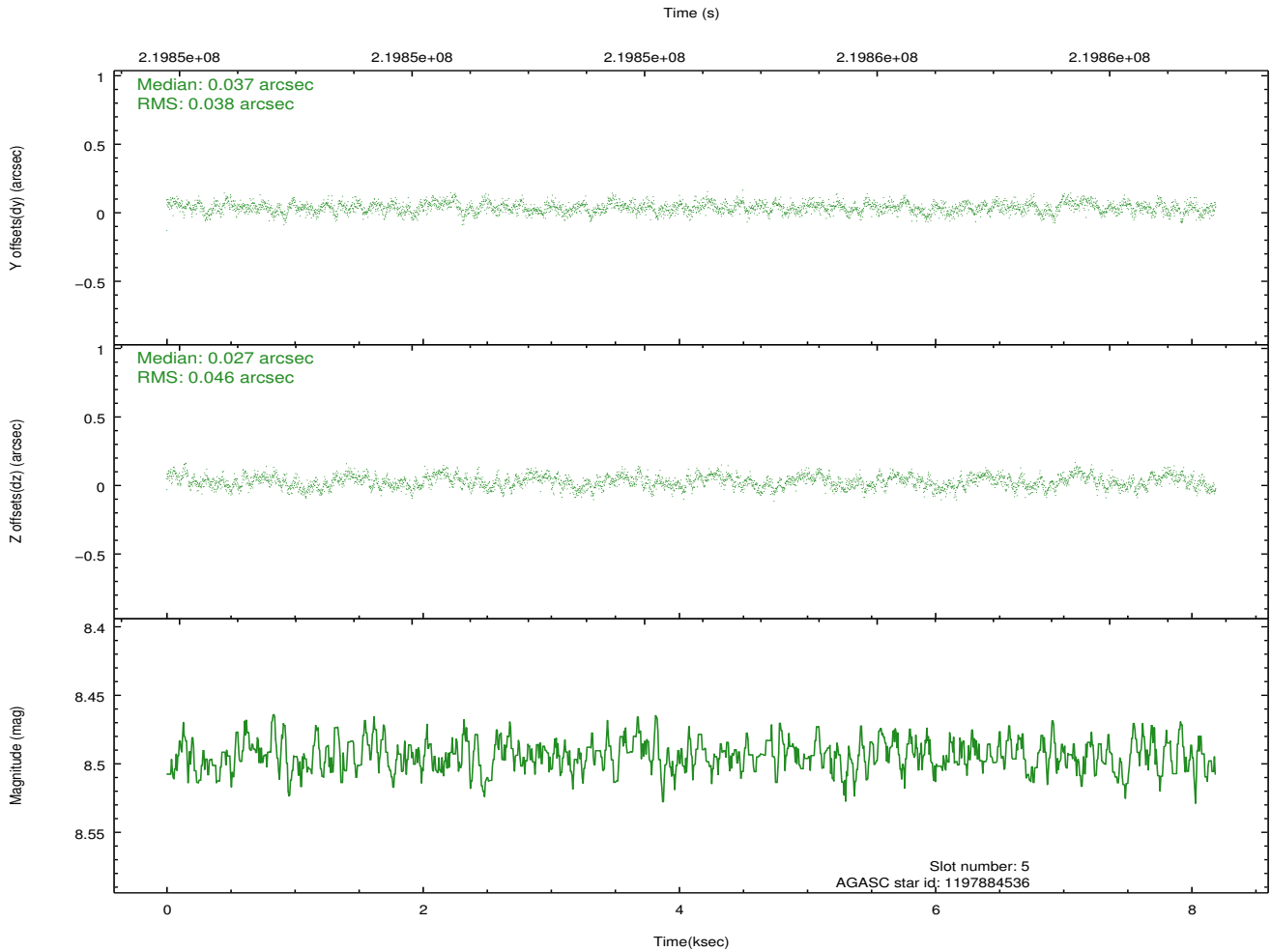
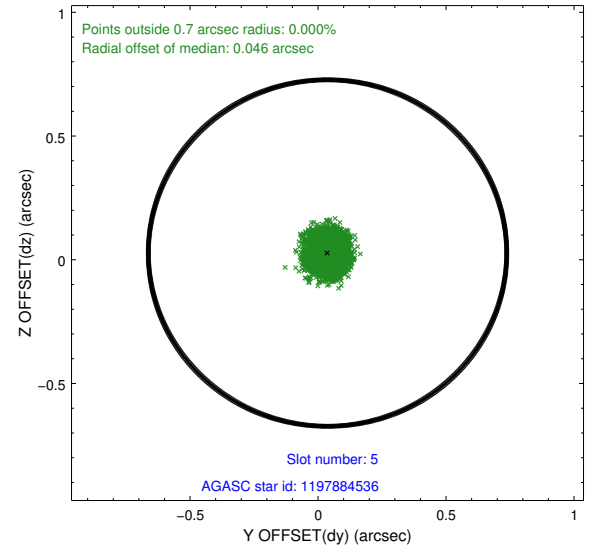
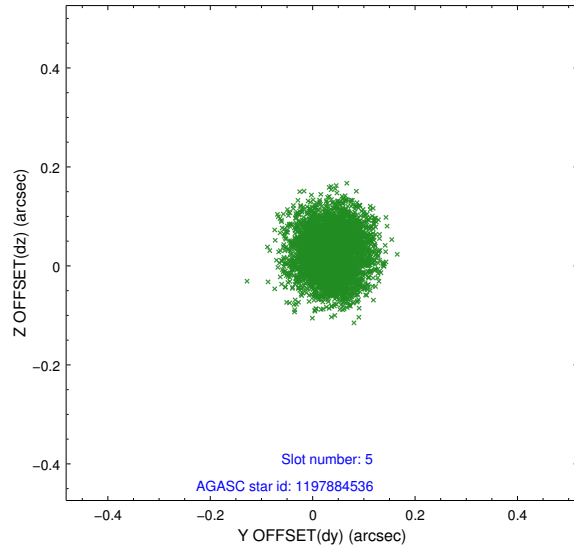
### 2.4.1 Slot 3



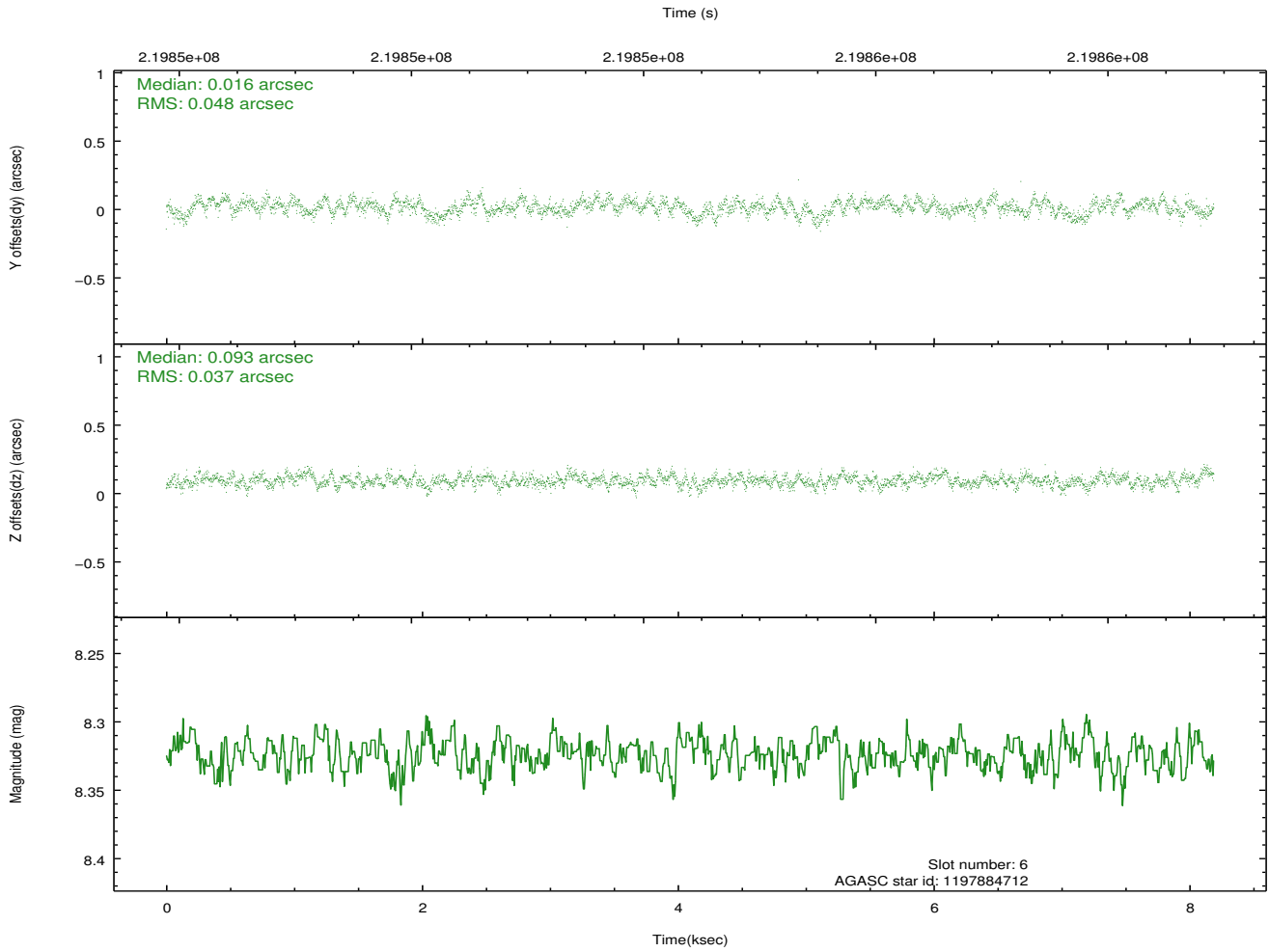
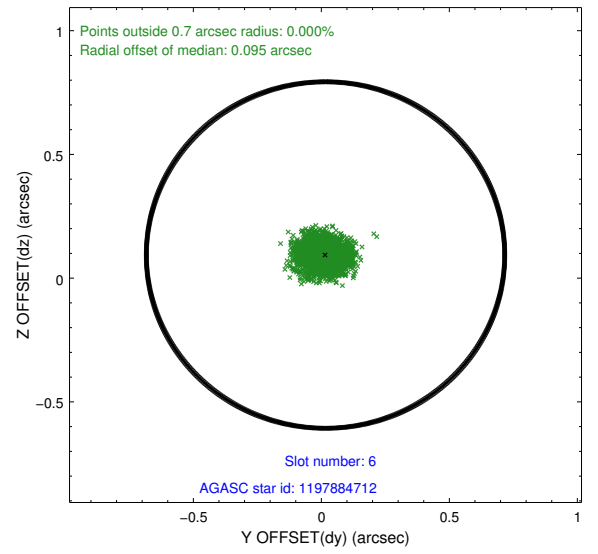
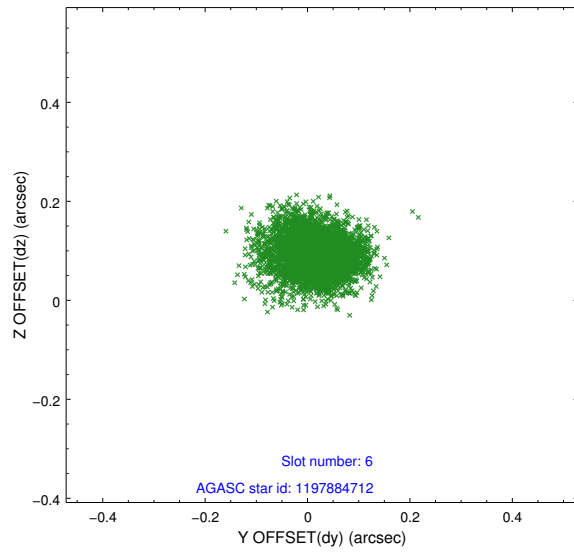
## 2.4.2 Slot 4



### 2.4.3 Slot 5

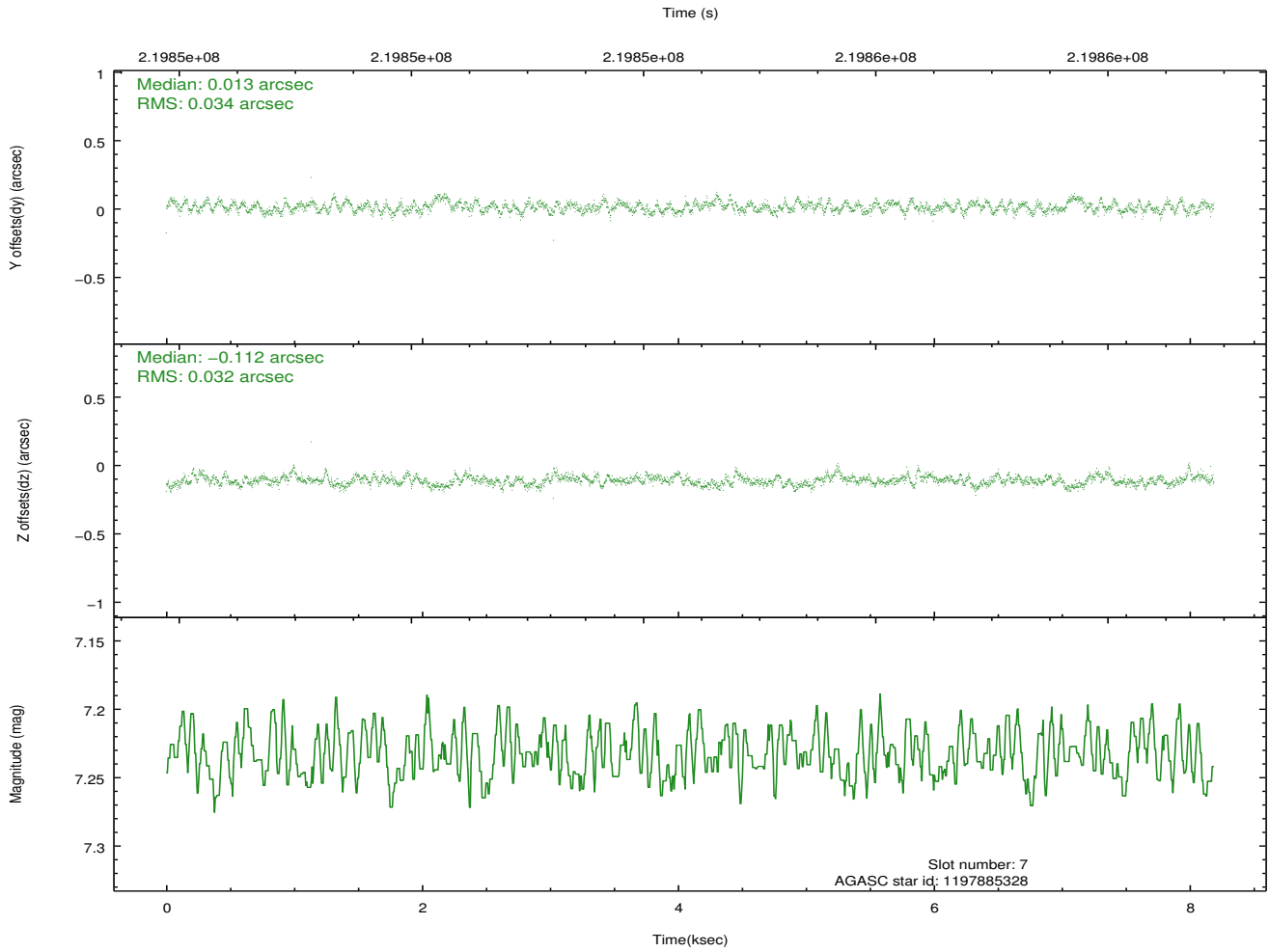
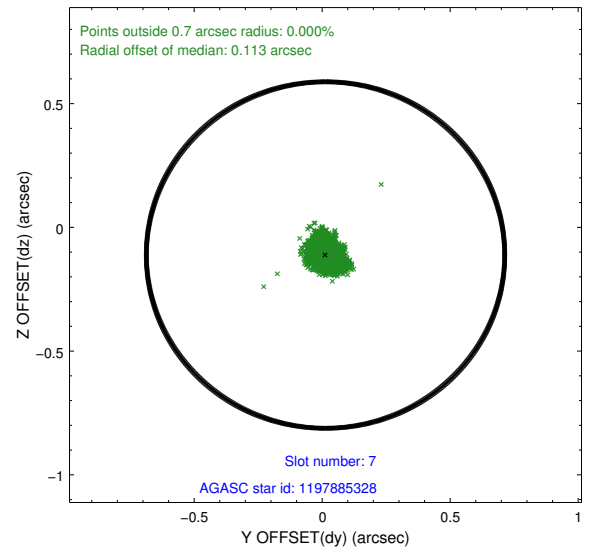
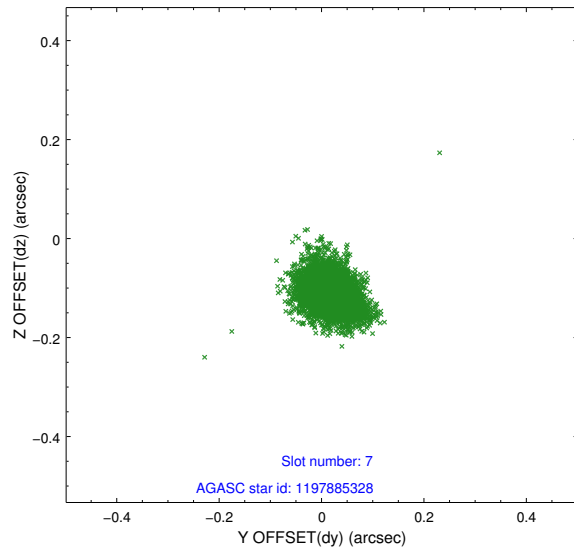


## 2.4.4 Slot 6



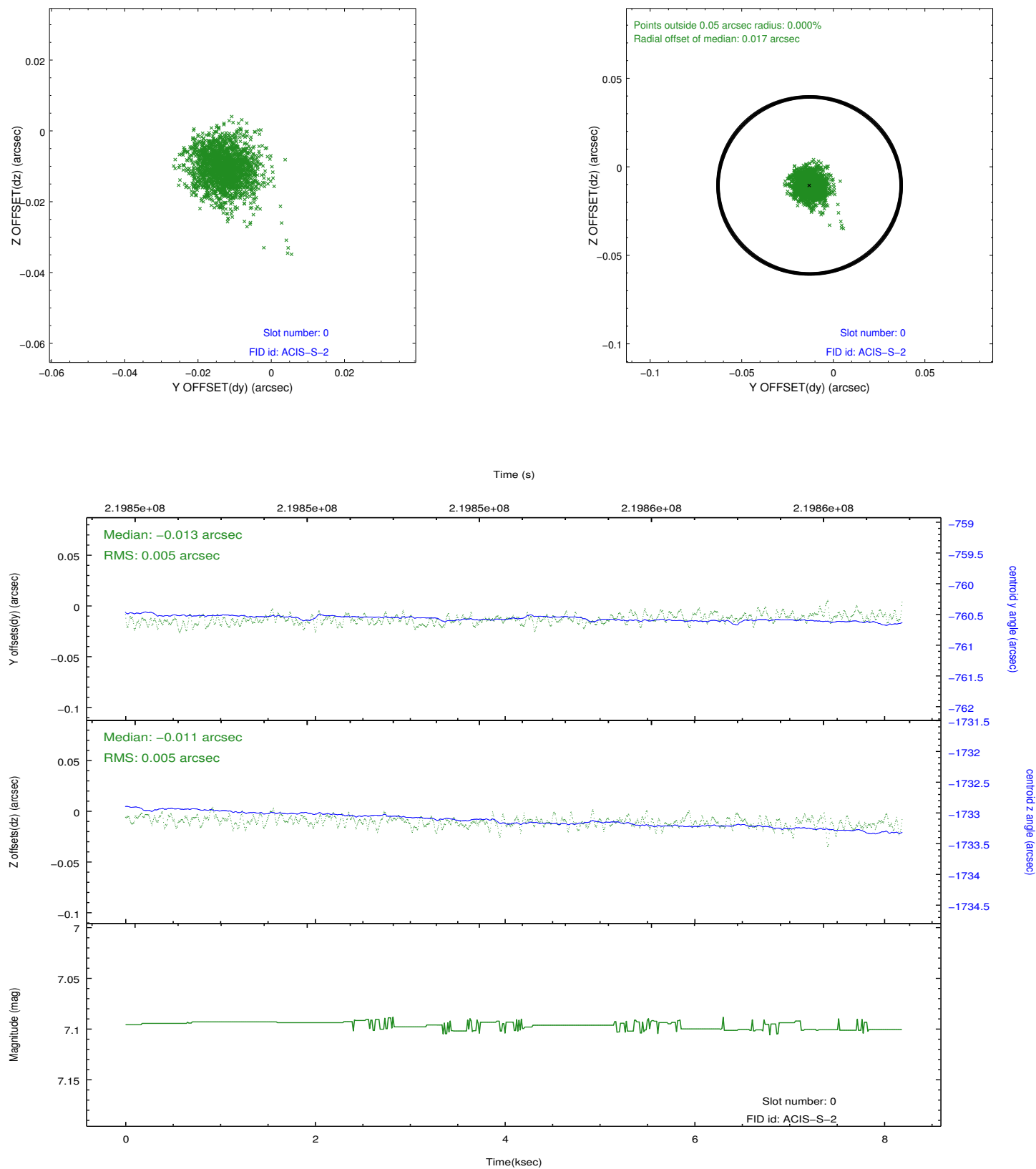


## 2.4.5 Slot 7

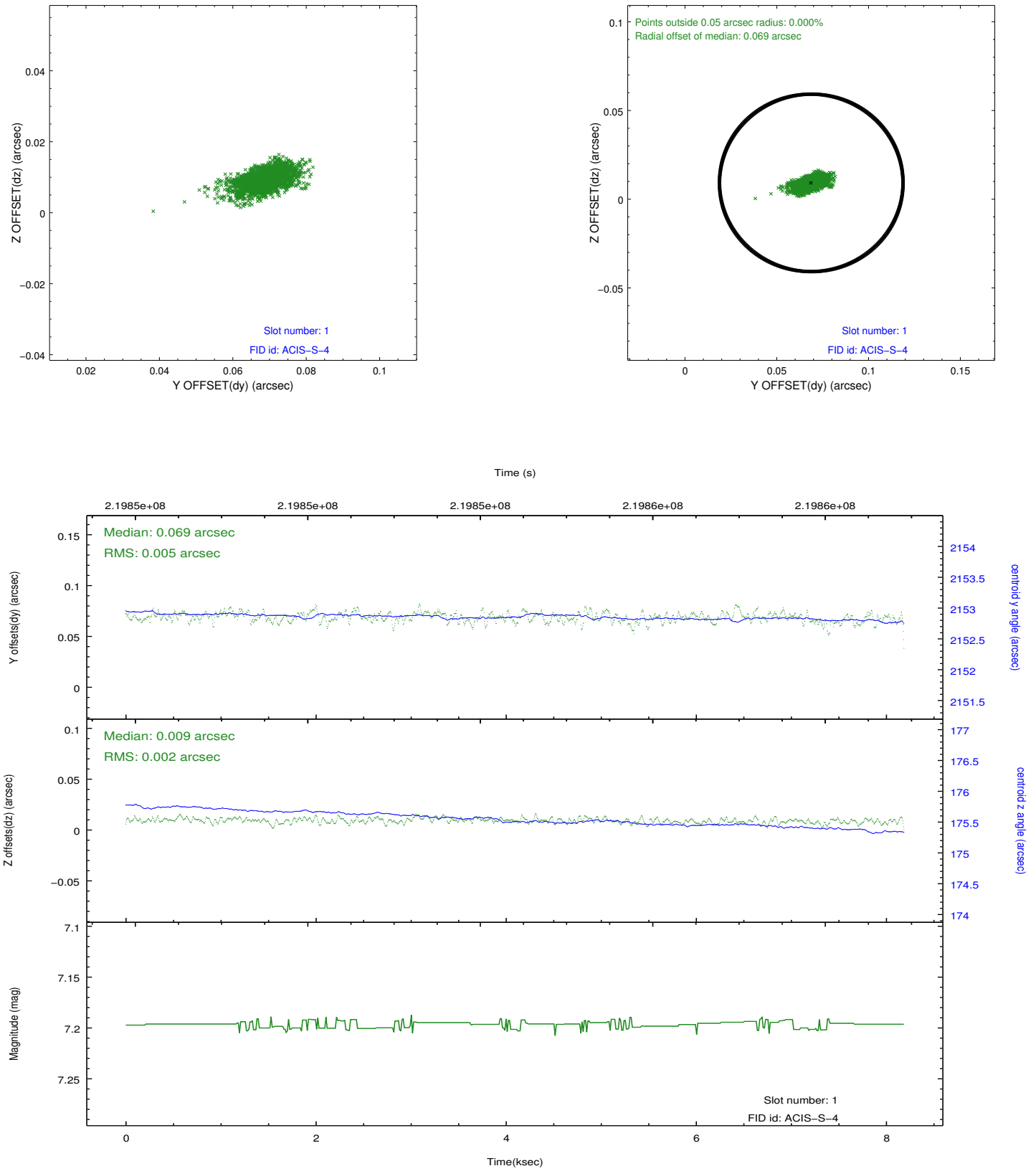


## 2.5 FID Slots

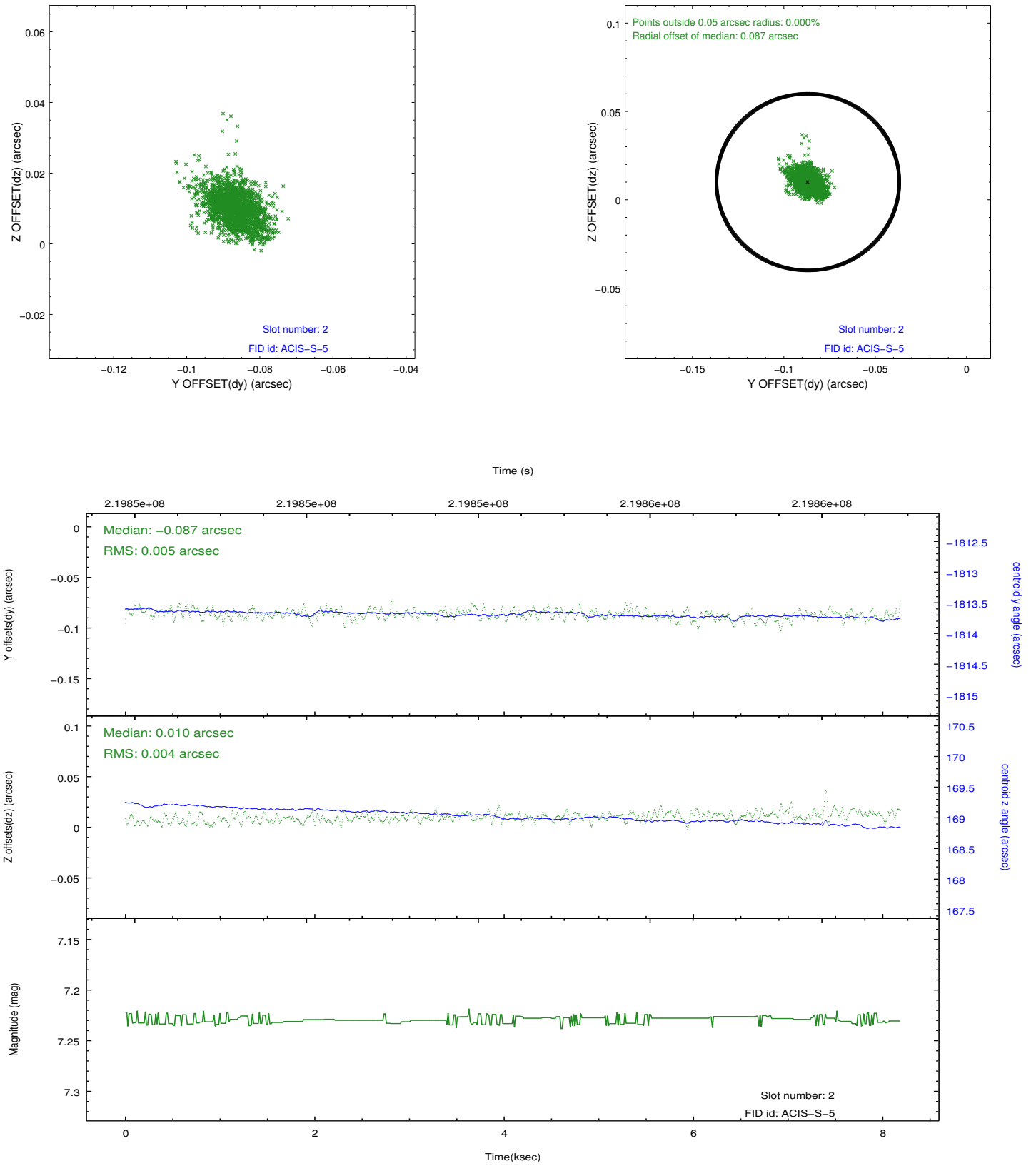
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |            |
|----------------------------|------------|
| V&V Scientist              | Jen Lauer  |
| V&V Date (YYYY-MM-DD)      | 2013.01.04 |
| V&V Edition                | 1          |
| V&V Disposition and Status | OK         |
| V&V Charge Time            | 7.753599   |

### A.2 Comments

Window constraint satisfied.