

# V&V Reference Report

## L2 ASCDS Version : 10.4.3.1

Observation 17210 - L2 Version 1  
Chandra X-Ray Center

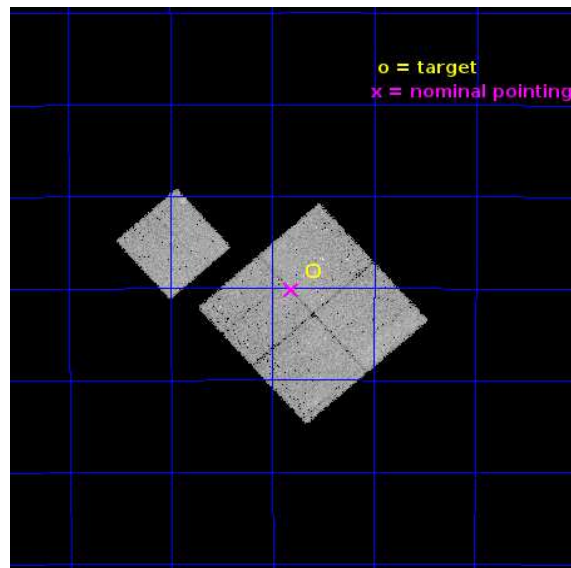
L2 Processing Date : Feb 5 2016

## 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  | 801490                                                                                                           | Sequence number                             |
| obs_id   | 17210                                                                                                            | Observation id                              |
| title    | A MASS-LIMITED SURVEY OF GALAXY CLUSTERS AT $1.2 < z < 1.7$ : PROBING THE PHYSICS OF THE ICM DURING ITS ASSEMBLY | Proposal title                              |
| observer | Dr Michael McDonald                                                                                              | Principal investigator                      |
| object   | SPT-CLJ0607-4448                                                                                                 | Source name                                 |
| dtcycle  | 0                                                                                                                | &#160                                       |
| cycle    | P                                                                                                                | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 91.898333                                                                                                        | Observer's specified target<br>RA [deg]     |
| dec_targ | -44.803306                                                                                                       | Observer's specified target<br>Dec [deg]    |
| ra_nom   | 91.953423922331                                                                                                  | Nominal RA [deg]                            |
| dec_nom  | -44.836284823832                                                                                                 | Nominal Dec [deg]                           |
| roll_nom | 318.24750927554                                                                                                  | Nominal Roll [deg]                          |
| revision | 1                                                                                                                | Processing version of data                  |
| ontime   | 37869.559261203                                                                                                  | Sum of GTIs [s]                             |
| livetime | 37374.765590291                                                                                                  | Livetime [s]                                |
| ontime0  | 37872.654777288                                                                                                  | Sum of GTIs [s]                             |
| ontime1  | 37869.554726958                                                                                                  | Sum of GTIs [s]                             |
| ontime2  | 37869.559271097                                                                                                  | Sum of GTIs [s]                             |
| ontime3  | 37869.559261203                                                                                                  | Sum of GTIs [s]                             |
| ontime6  | 37872.613737226                                                                                                  | Sum of GTIs [s]                             |
| l2events | 106916                                                                                                           | Number of level 2 events                    |

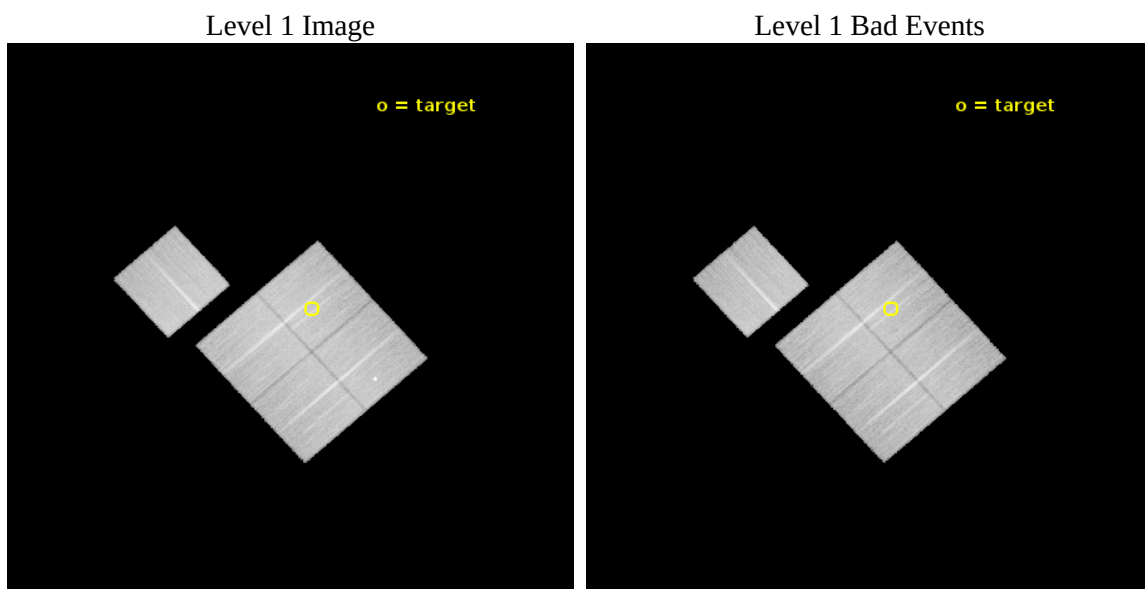




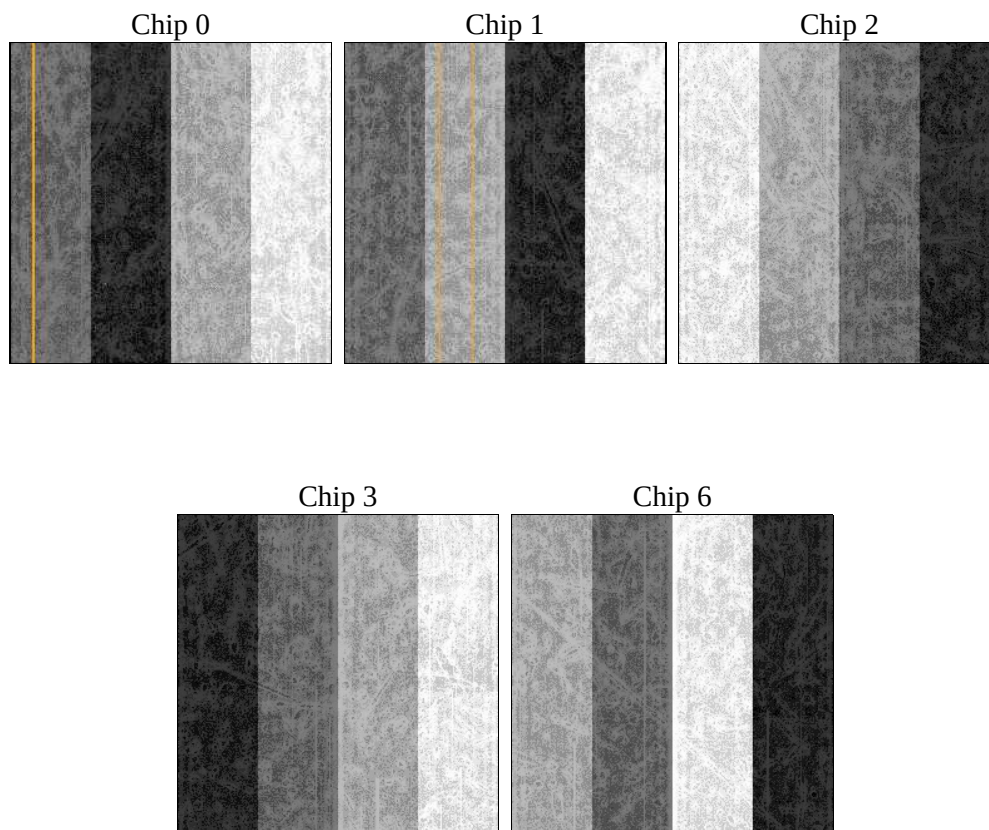
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 42000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.4.3.1            | Processing system revision     | ontime         | 37869.559261203 | Sum of GTIs [s]                         |
| caldsver | 4.7.0               | &#160                          | ontime0        | 37872.654777288 | Sum of GTIs [s]                         |
| date     | 2016-02-05T17:29:37 | Date and time of file creation | ontime1        | 37869.554726958 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime2        | 37869.559271097 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 37869.559261203 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 37872.613737226 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1121438         | Number of level 1 events                |

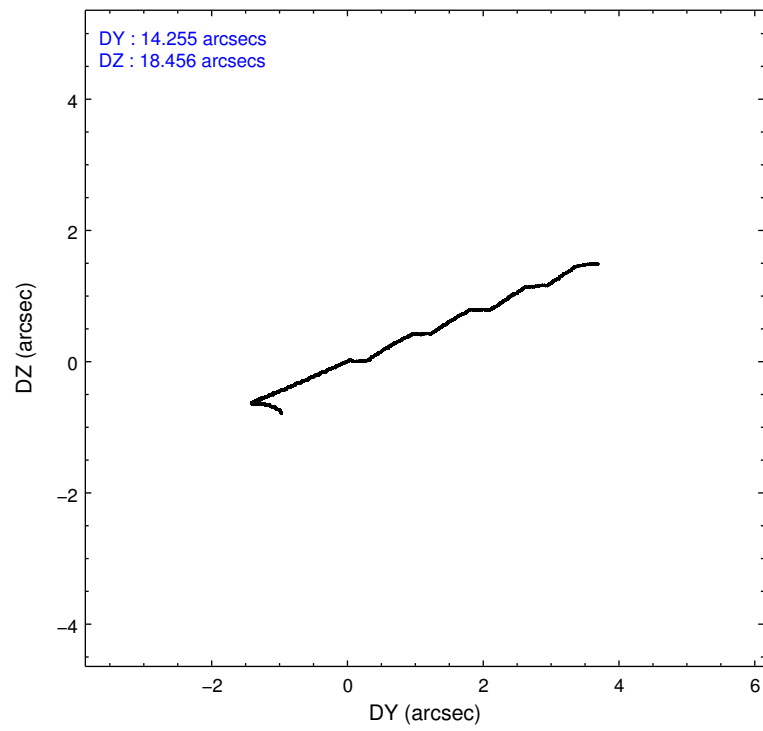
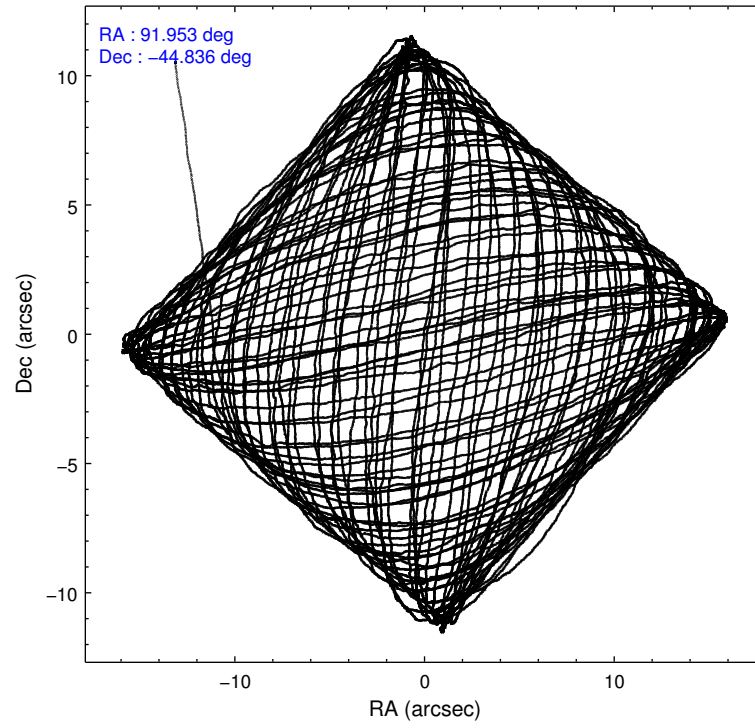
### 2.1.4 Events

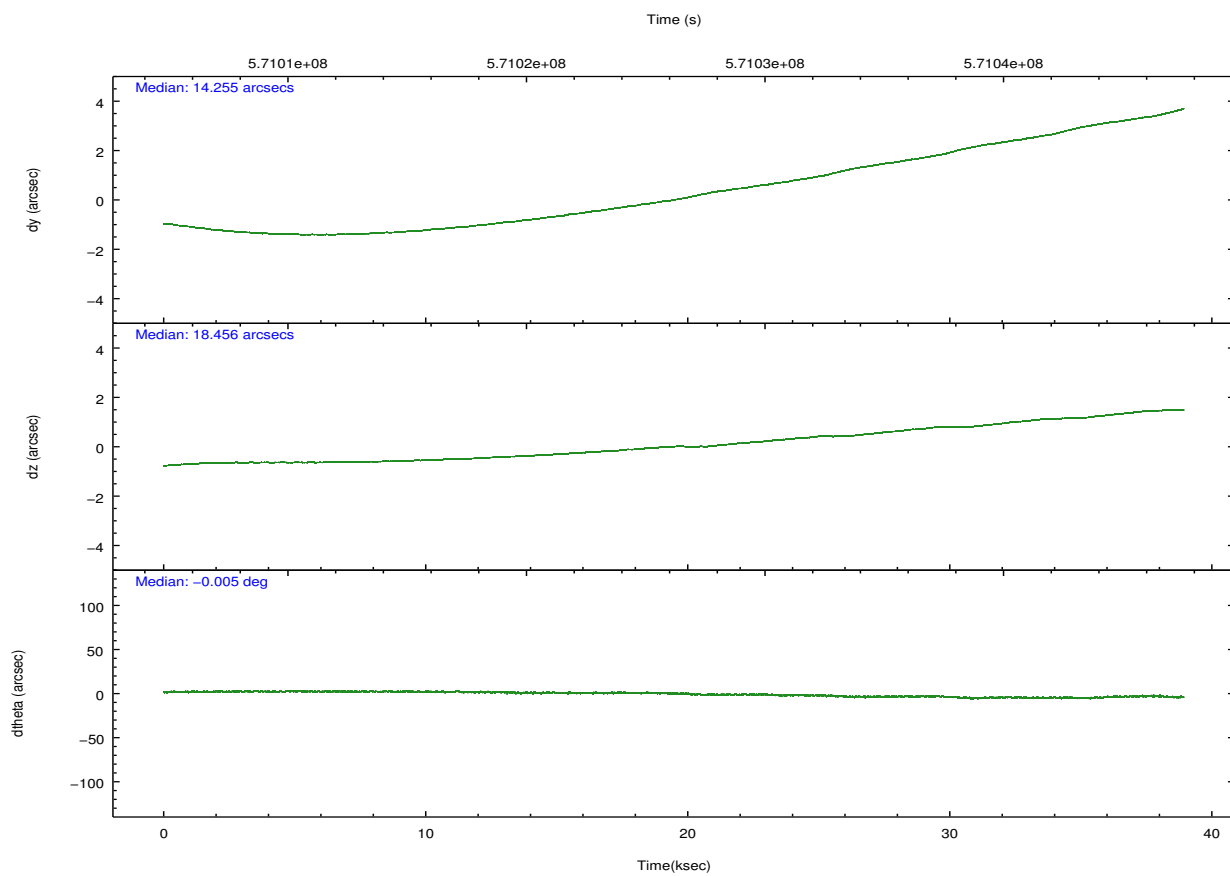
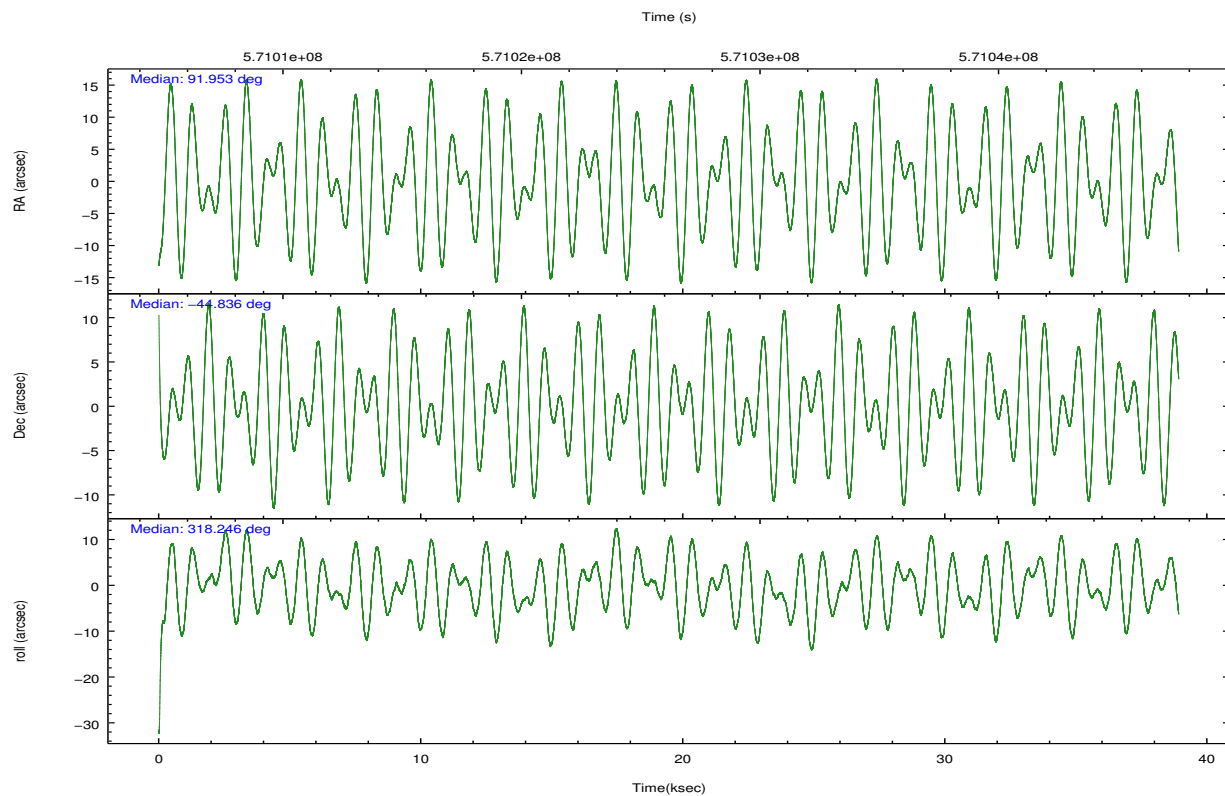
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|
| level 1 events  | 214277 | 213855 | 233597 | 225984 | 233725 | grade 0 events | 8809   | 10857  | 8423   | 8834   | 8180   |
| rejected events | 189024 | 184696 | 209871 | 201510 | 208390 |                | 4%     | 5%     | 3%     | 3%     | 3%     |
| rejected %      | 88%    | 86%    | 89%    | 89%    | 89%    | grade 1 events | 107    | 112    | 111    | 127    | 94     |
|                 |        |        |        |        |        |                | 0%     | 0%     | 0%     | 0%     | 0%     |
|                 |        |        |        |        |        | grade 2 events | 6346   | 6933   | 5827   | 5268   | 6058   |
|                 |        |        |        |        |        |                | 2%     | 3%     | 2%     | 2%     | 2%     |
|                 |        |        |        |        |        | grade 3 events | 2524   | 2606   | 2396   | 2696   | 2458   |
|                 |        |        |        |        |        |                | 1%     | 1%     | 1%     | 1%     | 1%     |
|                 |        |        |        |        |        | grade 4 events | 2447   | 2572   | 2466   | 2594   | 2441   |
|                 |        |        |        |        |        |                | 1%     | 1%     | 1%     | 1%     | 1%     |
|                 |        |        |        |        |        | grade 5 events | 9456   | 10093  | 8788   | 10967  | 10172  |
|                 |        |        |        |        |        |                | 4%     | 4%     | 3%     | 4%     | 4%     |
|                 |        |        |        |        |        | grade 6 events | 5130   | 6196   | 4615   | 5088   | 6201   |
|                 |        |        |        |        |        |                | 2%     | 2%     | 1%     | 2%     | 2%     |
|                 |        |        |        |        |        | grade 7 events | 179458 | 174486 | 200971 | 190410 | 198121 |
|                 |        |        |        |        |        |                | 83%    | 81%    | 86%    | 84%    | 84%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-01236          | ACIS-01236           | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | VFAINT              | VFAINT               | CCD I0 on                             | Y         | Y       |
| Observation mode                  | POINTING            | POINTING             | CCD I1 on                             | Y         | Y       |
| [deg] Pointing RA                 | 91.915300           | 91.95342392233067    | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | -44.830749          | -44.83628482383159   | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 318.011948          | 318.2475092755402    | CCD S0 on                             | N         | N       |
| [mm] SIM focus pos                | -0.782348           | -0.7809083437167272  | CCD S1 on                             | N         | N       |
| [mm] SIM defocus                  | 0                   | 0.001439871863259334 | CCD S2 on                             | O1        | Y       |
| [mm] SIM translation stage pos    | -225.842463         | -225.8433433320239   | CCD S3 on                             | N         | N       |
| [mm] SIM translation stage offset | -7.75               | -7.749109670905796   | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 571007646.184000    | 571005955.29843      | CCD S5 on                             | N         | N       |
| Observation start date            | 2016-02-04T21:12:58 | 2016-02-04T20:45:55  | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 571049646.184000    | 571046312.62573      | On-chip summing requested             | N         | N       |
| Observation end date              | 2016-02-05T08:52:58 | 2016-02-05T07:58:32  | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                | Alternating exposures requested       | N         | N       |
|                                   |                     |                      | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



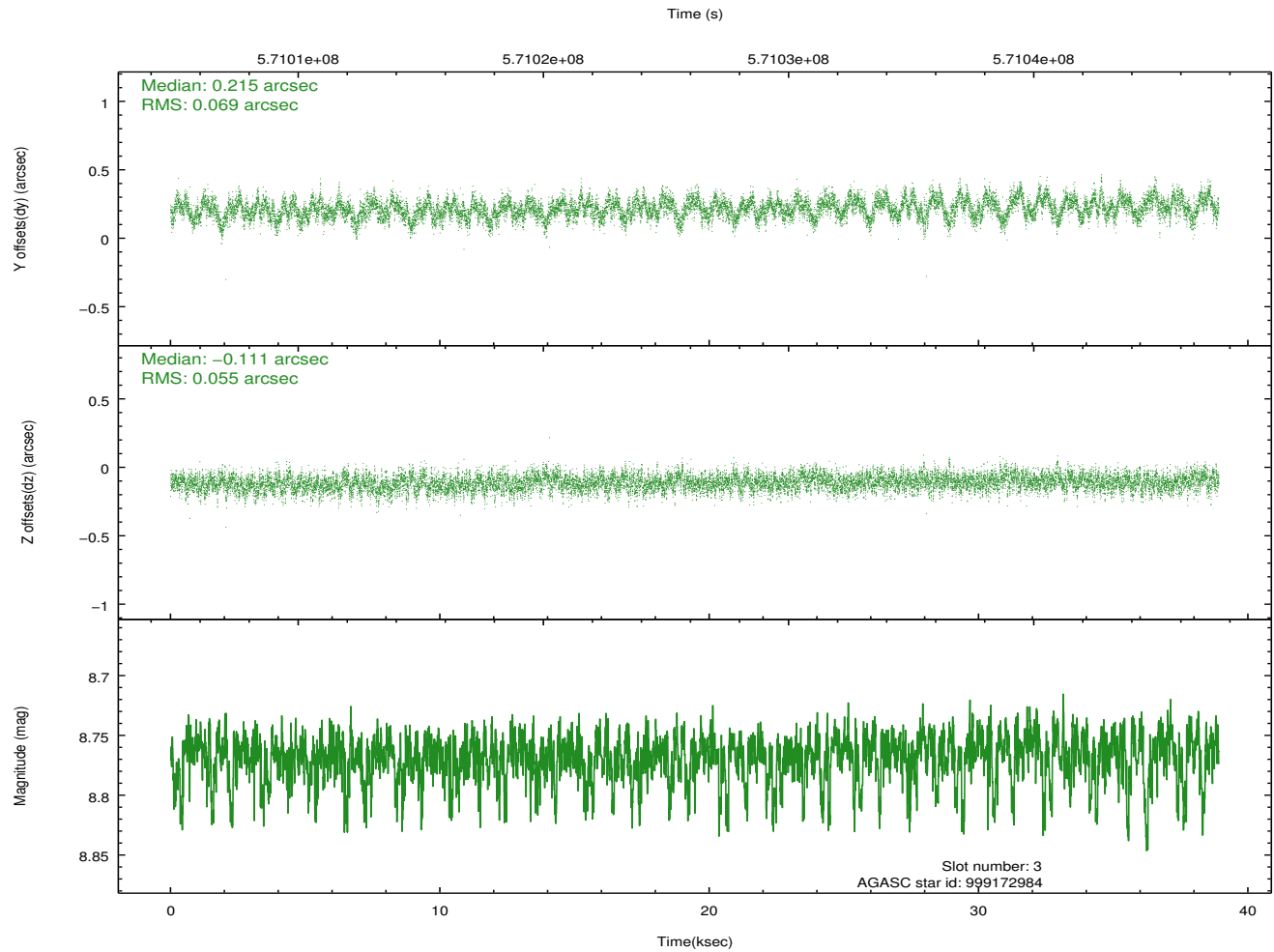
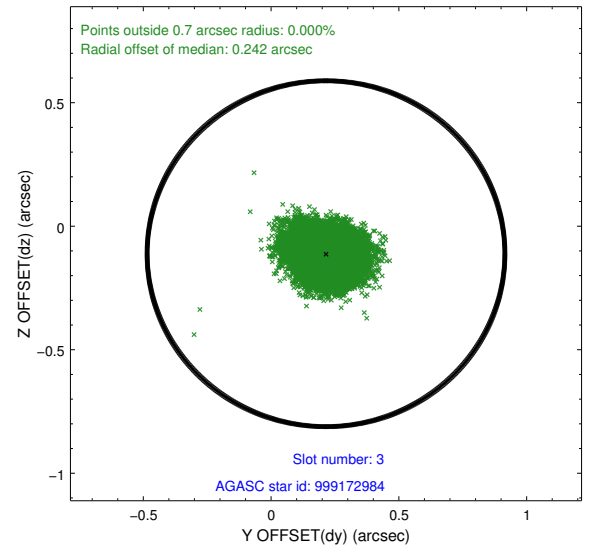
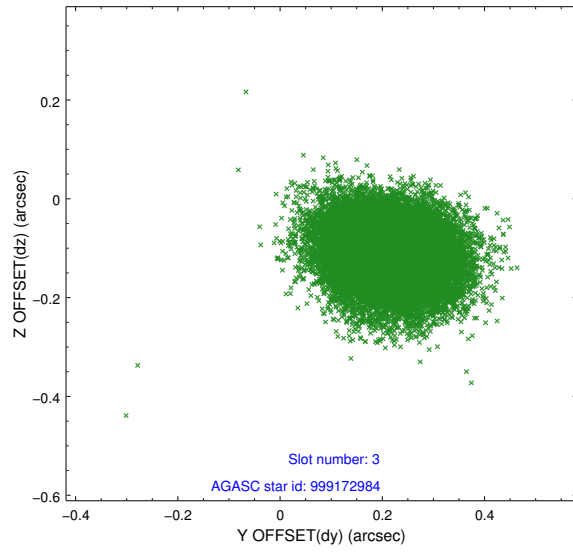


# Slot Statistics

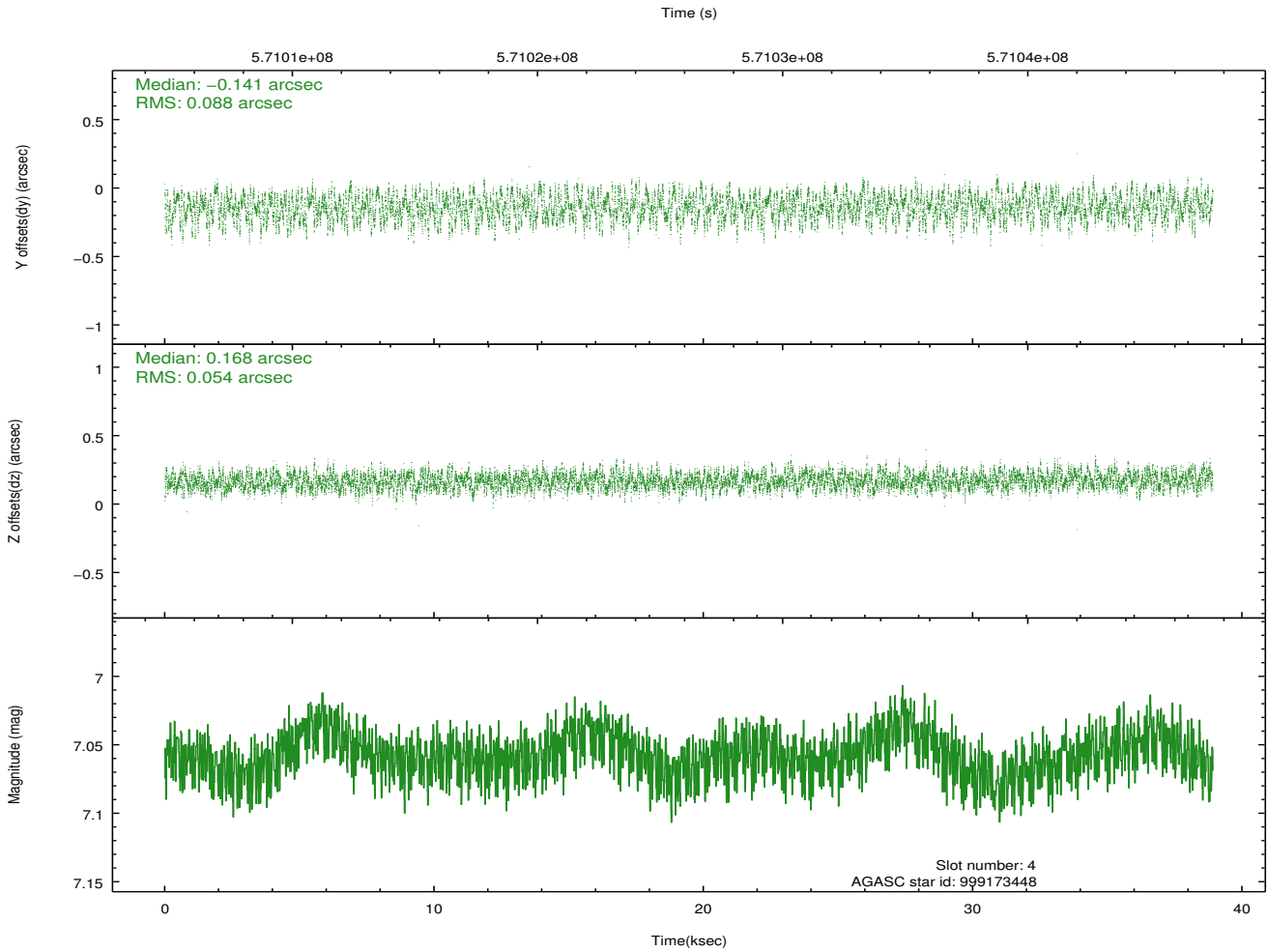
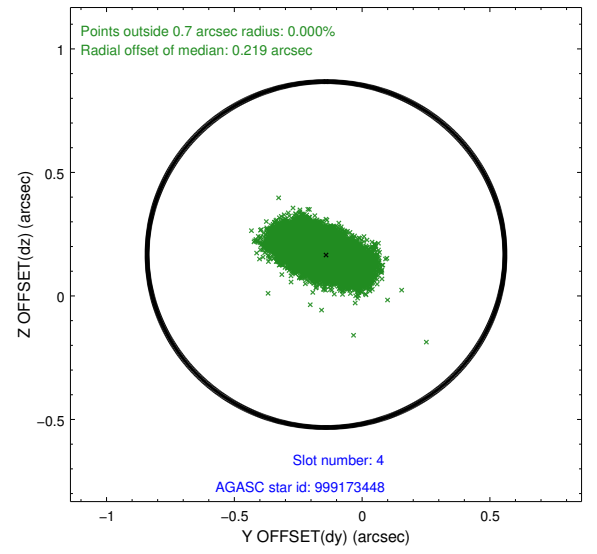
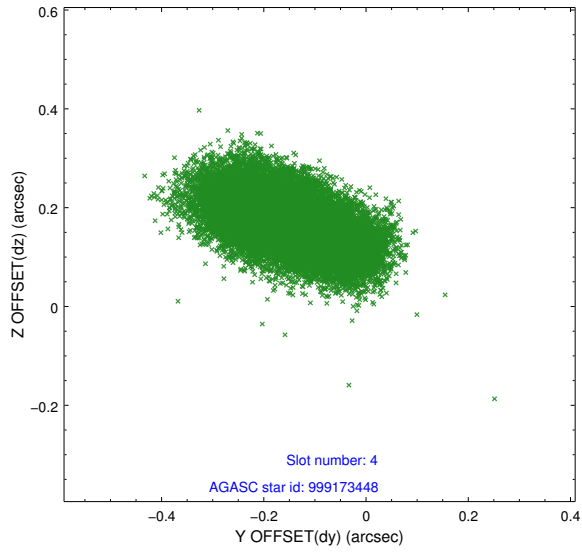
| slot | status | used | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mean_z   |
|------|--------|------|-----------|------|-------|--------|--------|-------|-------|-----------|------------|----------|----------|
| 0    | FID    |      | ACIS-I-1  | 7.25 | 9491  | 0.145  | -0.109 | 0.025 | 0.054 | 0.000000  | 0.000000   | 924.87   | -1001.42 |
| 1    | FID    |      | ACIS-I-5  | 7.25 | 9492  | -0.381 | 0.092  | 0.017 | 0.040 | 0.000000  | 0.000000   | -1823.87 | 896.08   |
| 2    | FID    |      | ACIS-I-6  | 7.27 | 9491  | 0.150  | 0.086  | 0.021 | 0.041 | 0.000000  | 0.000000   | 390.24   | 1540.75  |
| 3    | GUIDE  | used | 999172984 | 8.77 | 18973 | 0.215  | -0.111 | 0.093 | 0.151 | 91.767031 | -44.624936 | -777.44  | 296.41   |
| 4    | GUIDE  | used | 999173448 | 7.06 | 18984 | -0.141 | 0.168  | 0.111 | 0.178 | 91.945787 | -44.729319 | -186.35  | 323.95   |
| 5    | GUIDE  | used | 999174616 | 6.79 | 18984 | -0.044 | -0.020 | 0.115 | 0.179 | 92.144286 | -44.356211 | -704.32  | 1663.66  |
| 6    | GUIDE  | used | 999302088 | 8.64 | 18978 | -0.136 | 0.086  | 0.097 | 0.150 | 92.578892 | -44.925881 | 1490.89  | 872.25   |
| 7    | GUIDE  | used | 999302712 | 8.48 | 18970 | 0.110  | -0.130 | 0.082 | 0.134 | 92.766275 | -44.874060 | 1725.88  | 1328.17  |

## 2.4 Star Slots

### 2.4.1 Slot 3

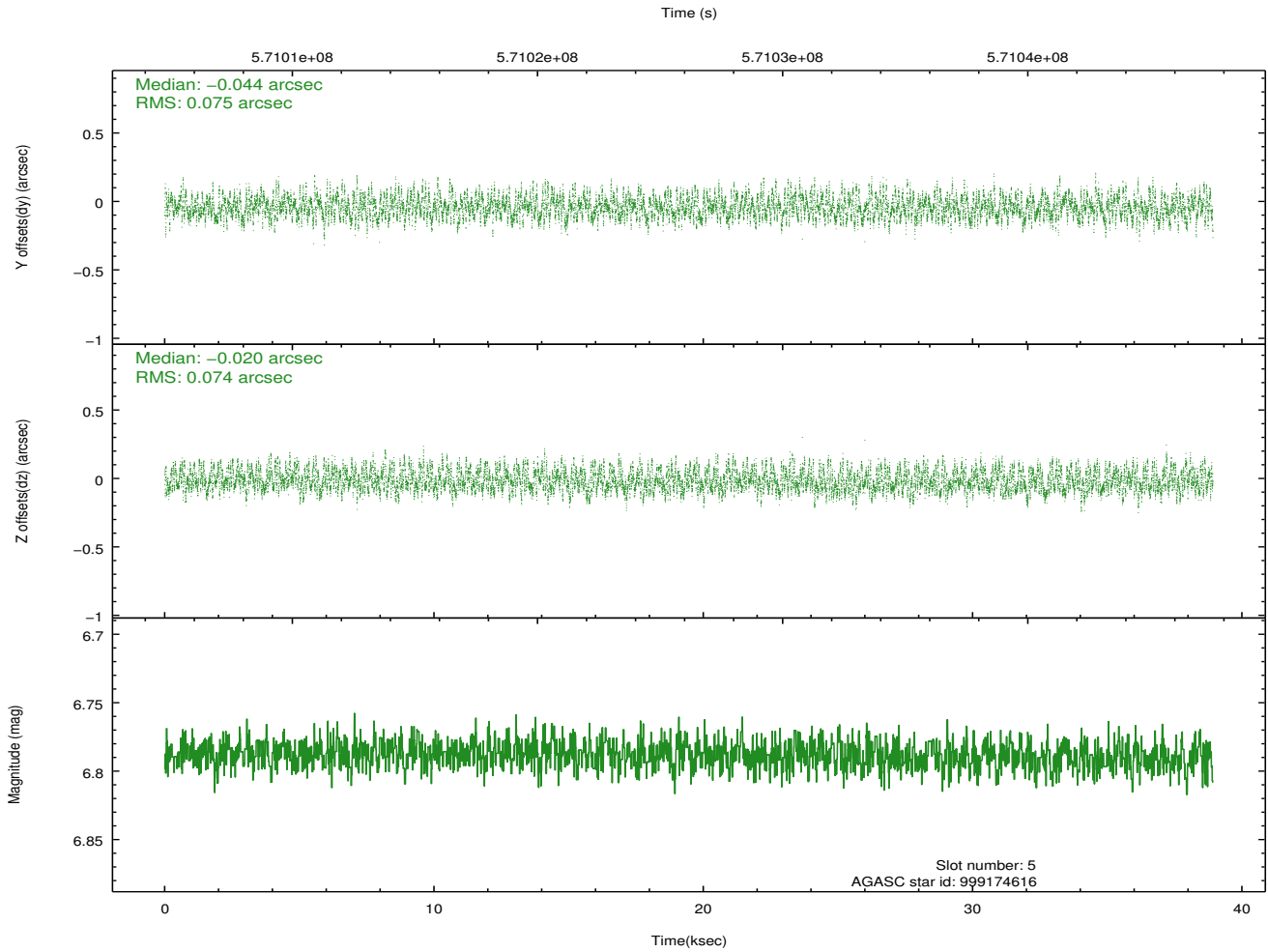
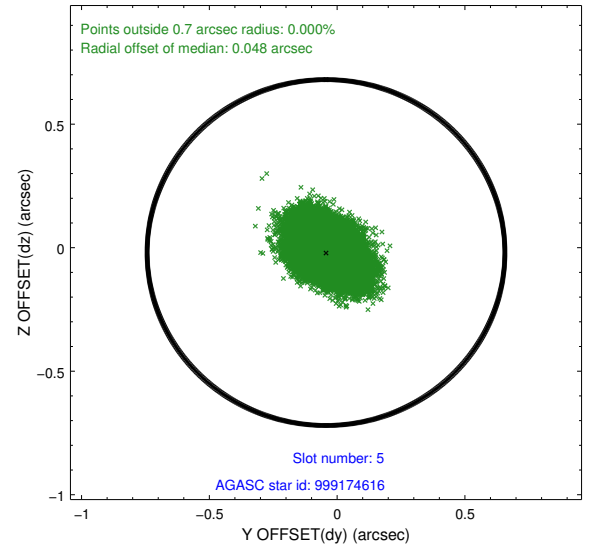
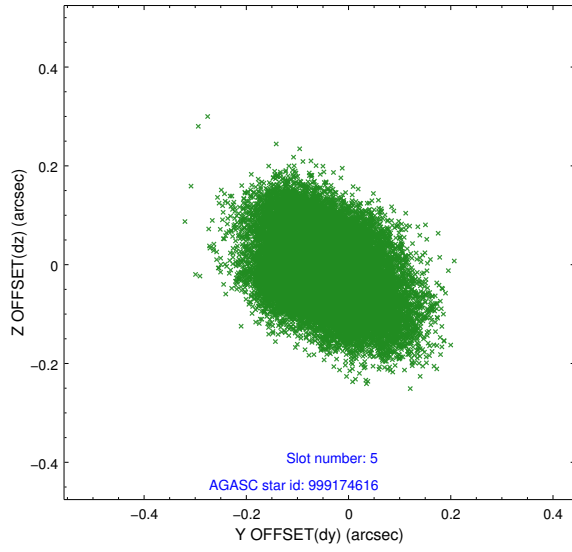


## 2.4.2 Slot 4

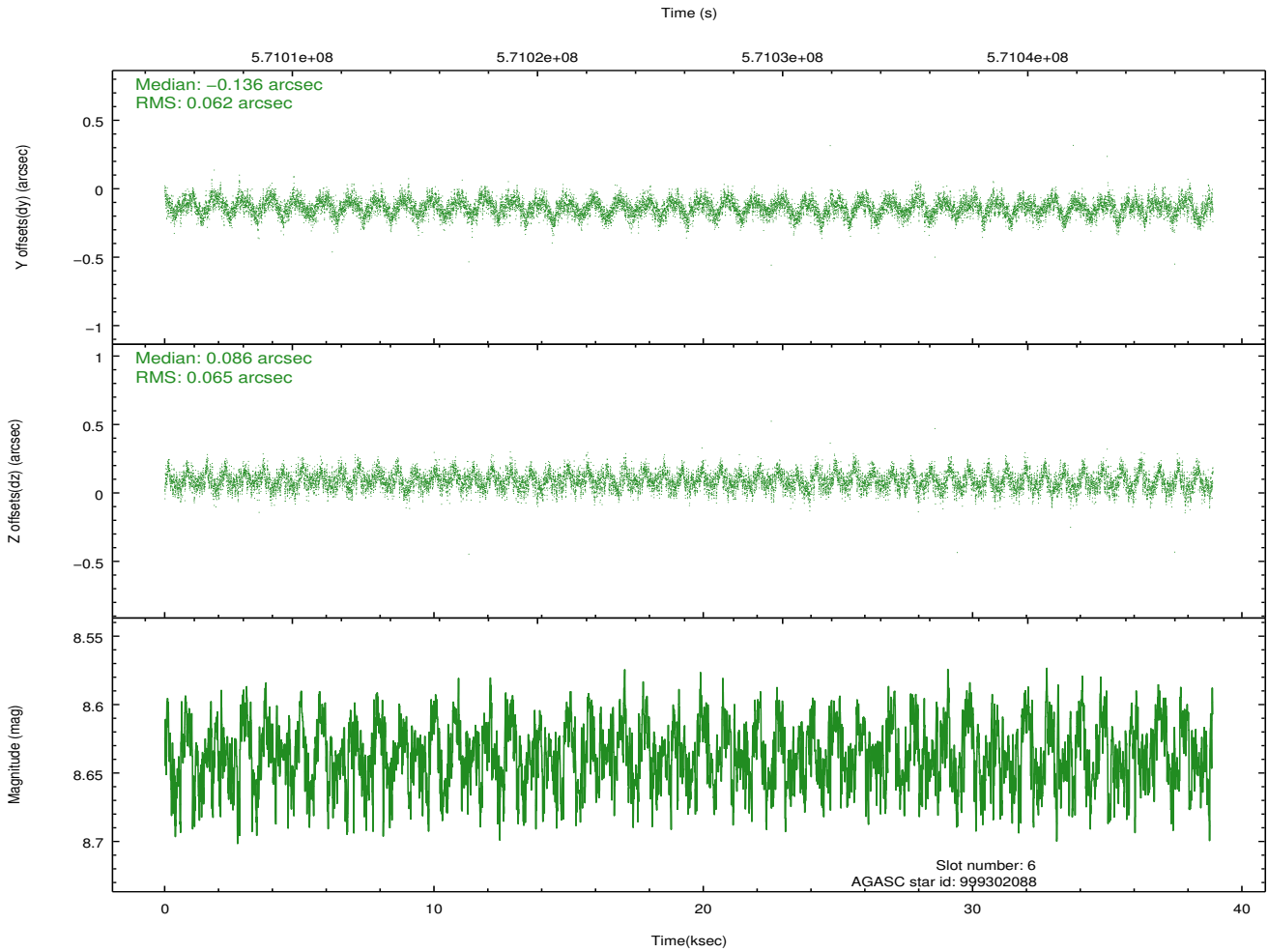
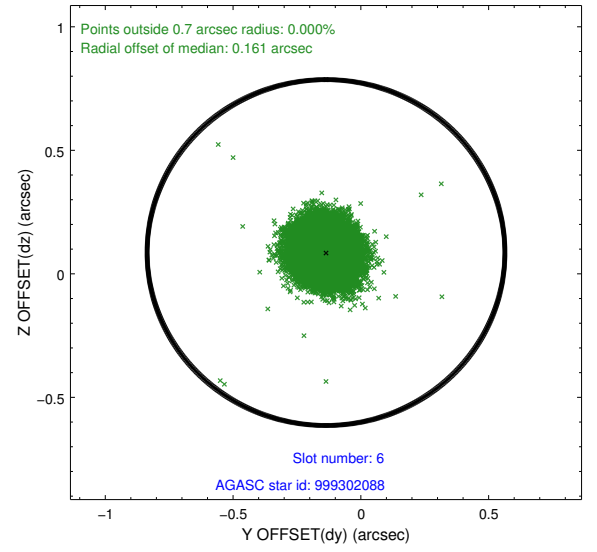
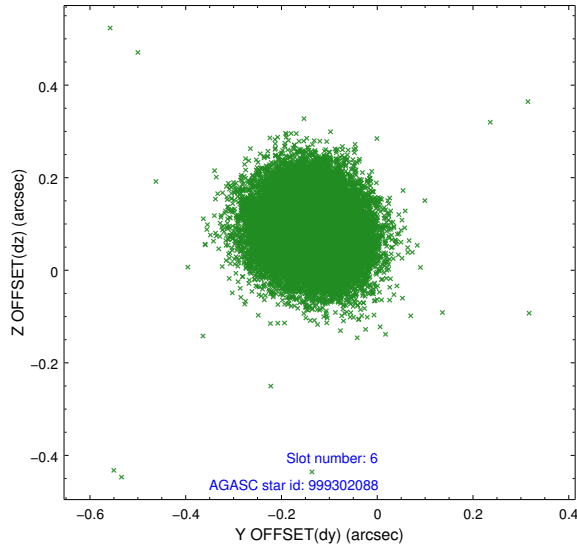




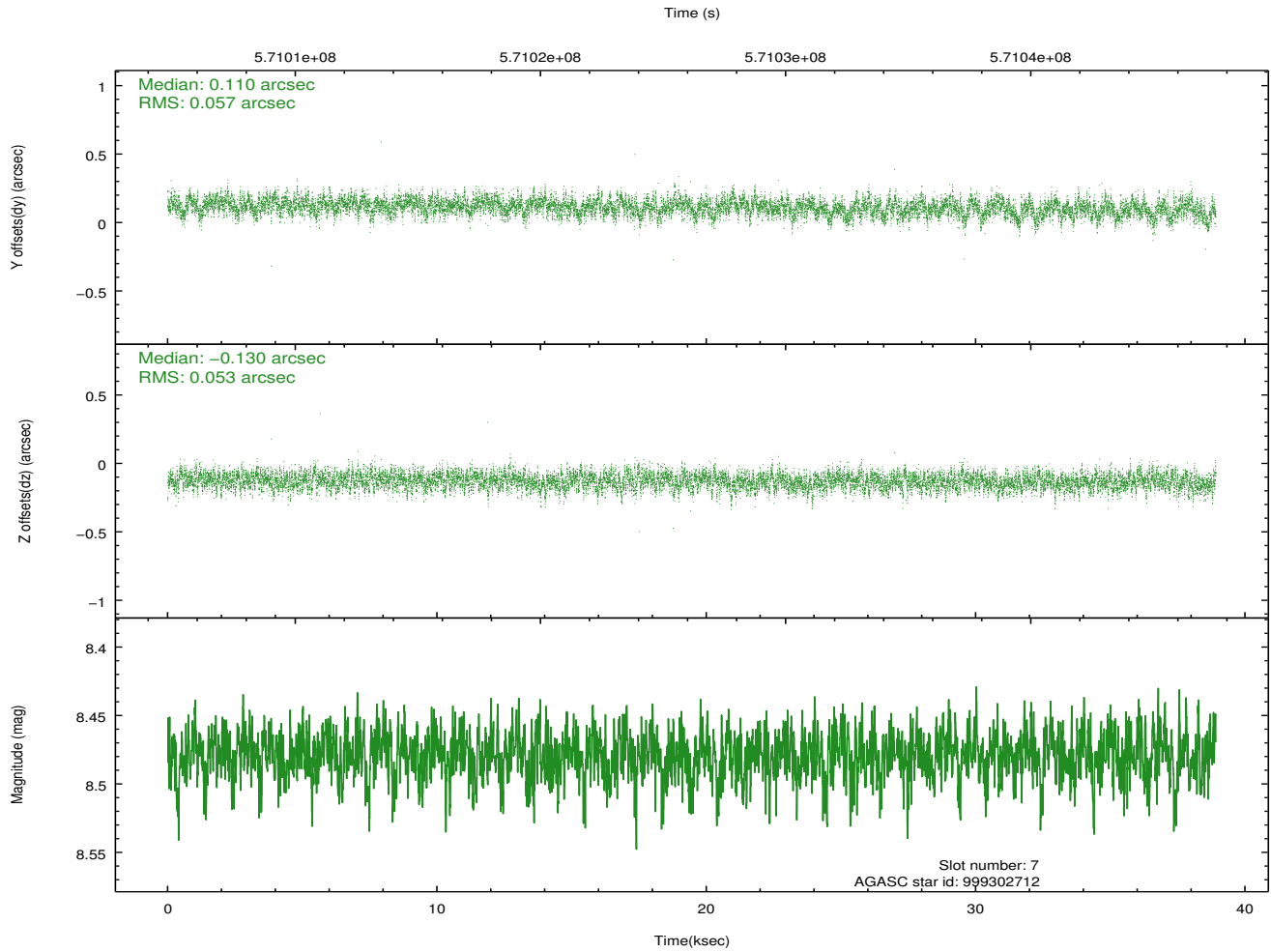
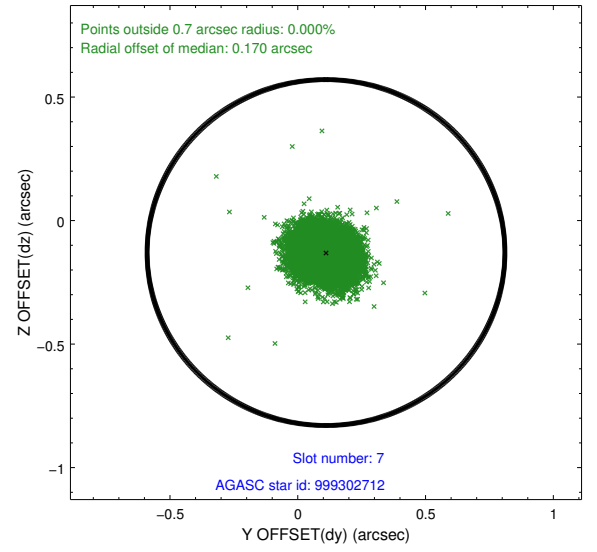
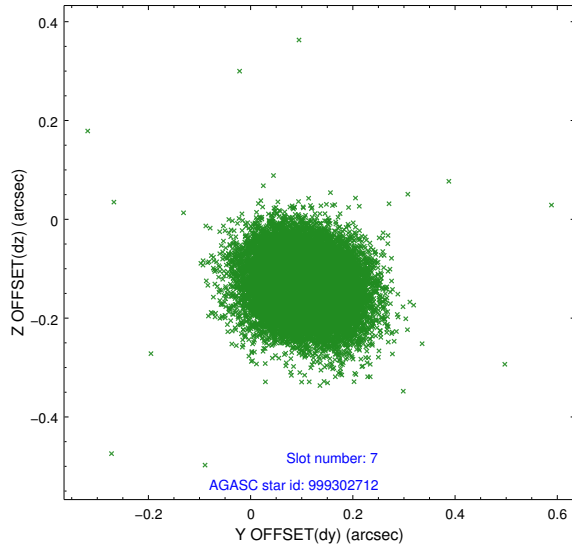
### 2.4.3 Slot 5



## 2.4.4 Slot 6

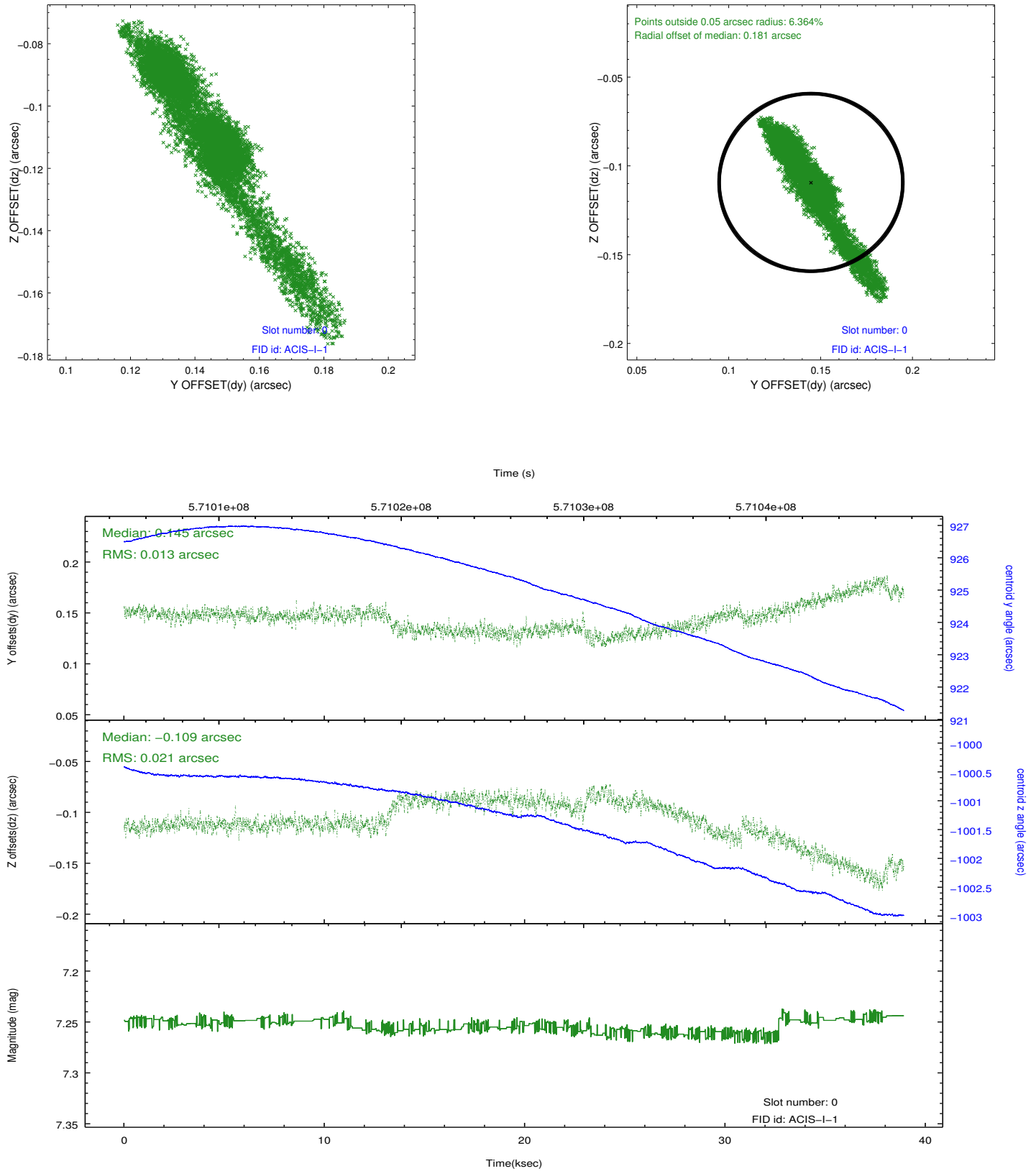


## 2.4.5 Slot 7

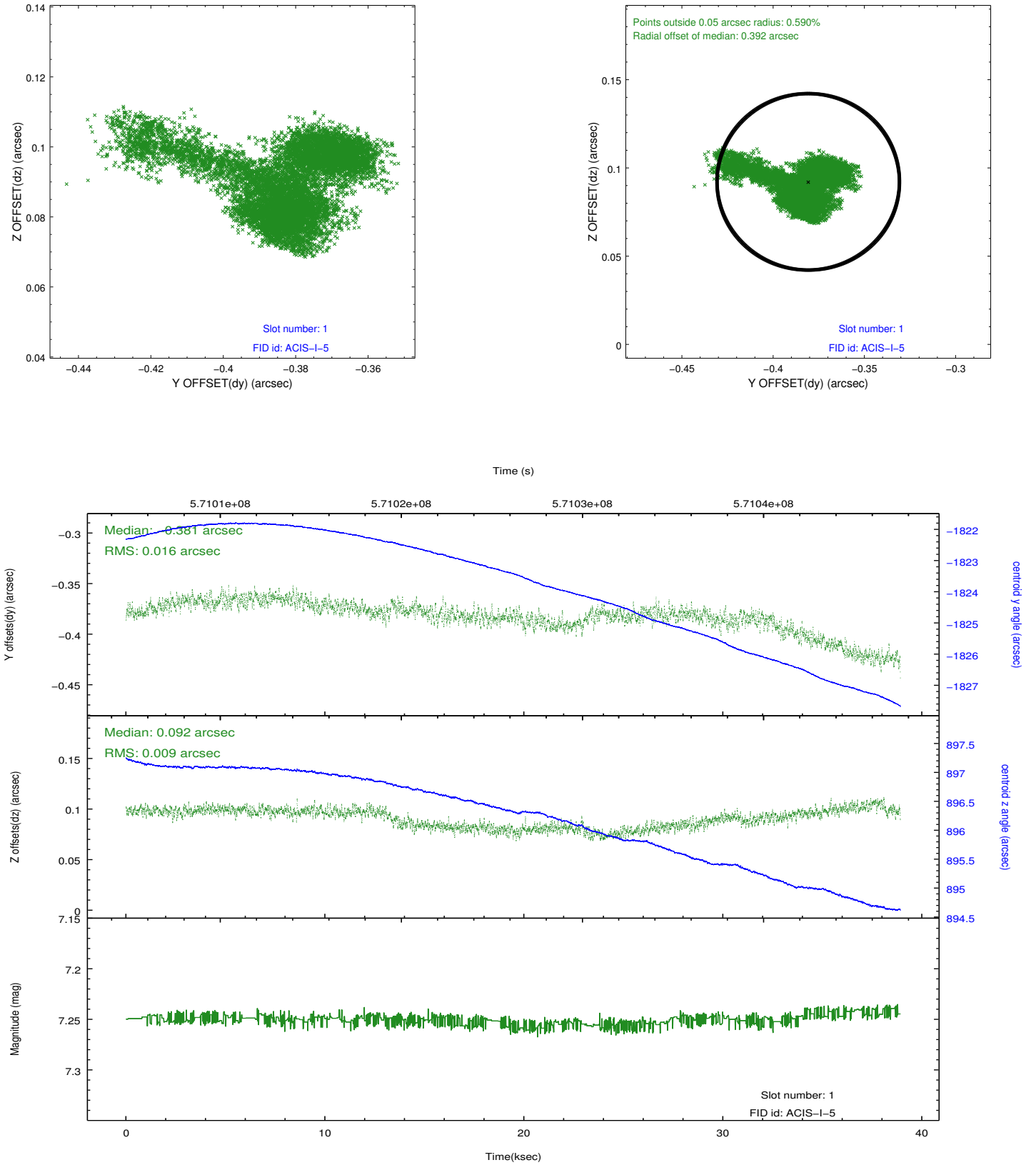


## 2.5 FID Slots

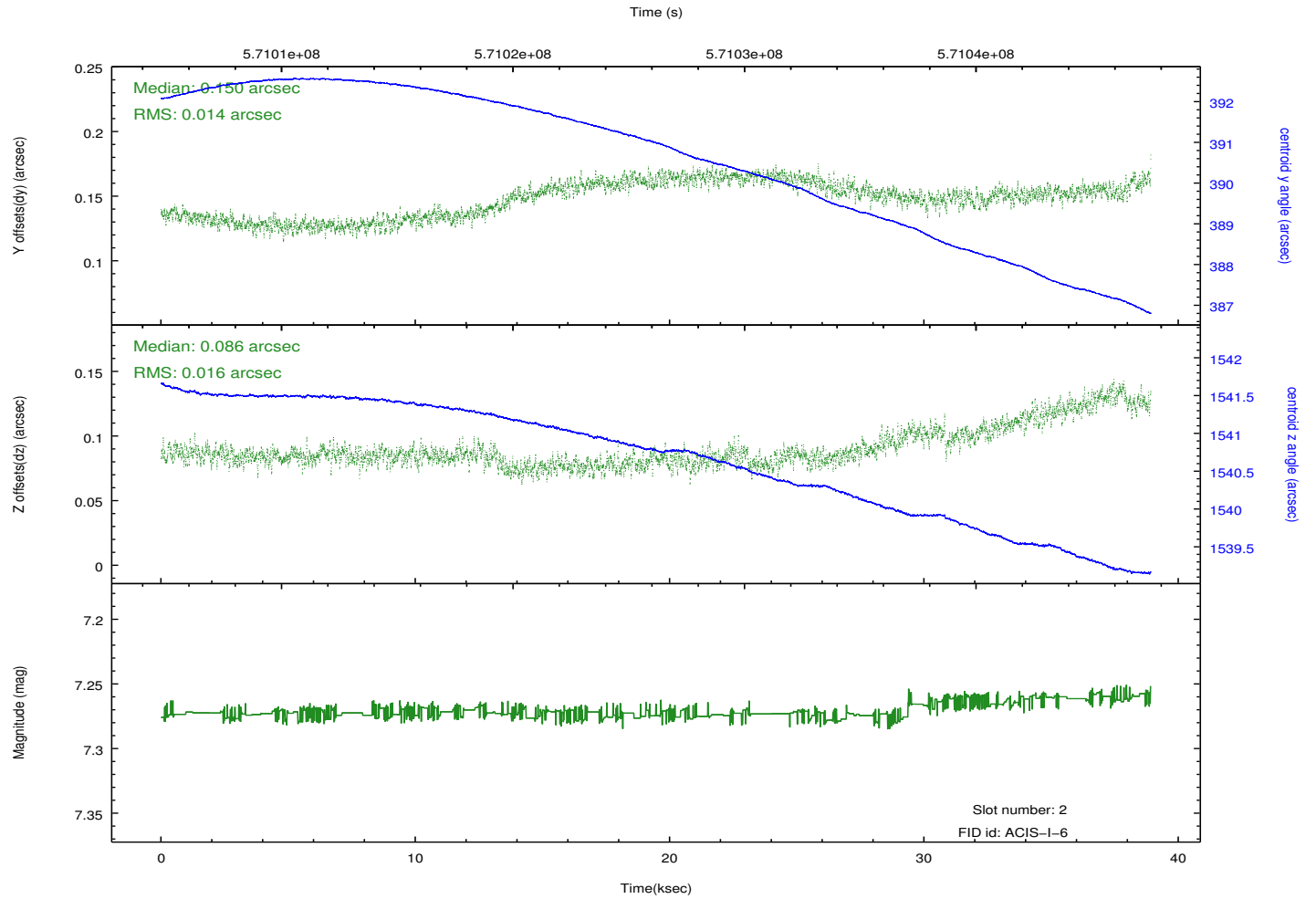
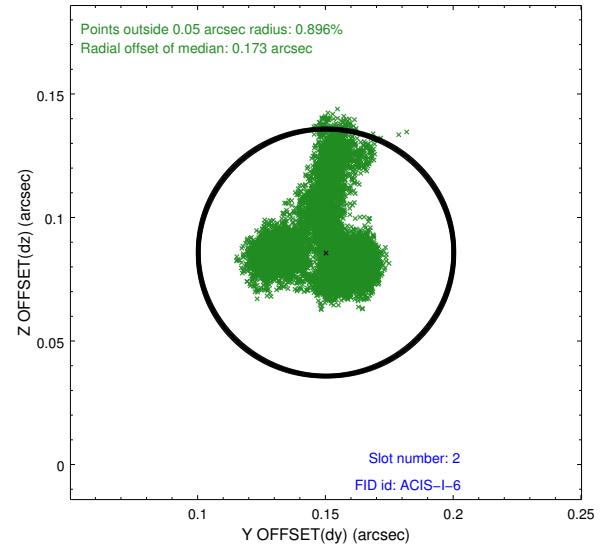
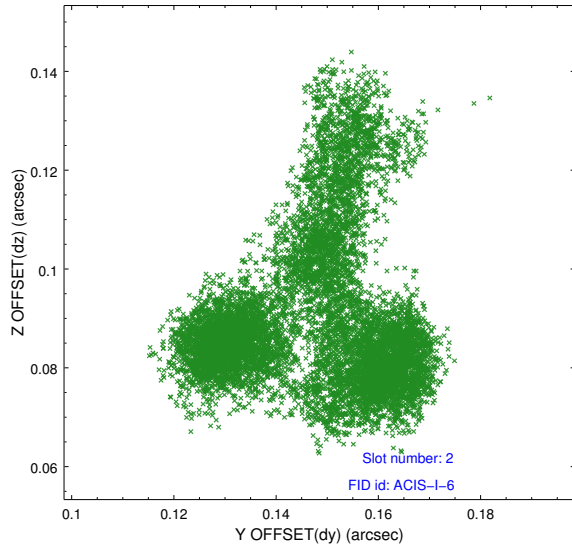
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



## A Summary

### A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Beth Sundheim   |
| V&V Date (YYYY-MM-DD)      | 2016.02.05      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 37.869559261203 |

### A.2 Comments