

# V&V Reference Report

## L2 ASCDS Version : 10.5

Observation 18817 - L2 Version 1  
Chandra X-Ray Center

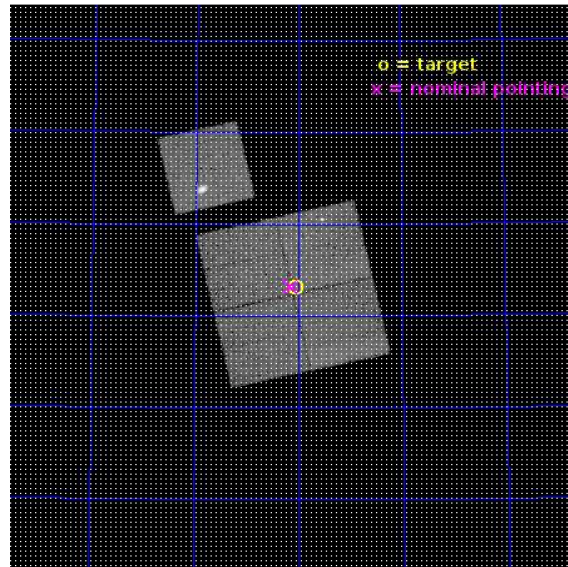
L2 Processing Date : Aug 8 2016

## 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  | 601235                                                                 | Sequence number                             |
| obs_id   | 18817                                                                  | Observation id                              |
| title    | To the Edge and Beyond: A Legacy Survey of the Grand Design Spiral M81 | Proposal title                              |
| observer | Douglas Swartz                                                         | Principal investigator                      |
| object   | M81 S                                                                  | Source name                                 |
| dtcycle  | 0                                                                      | &#160                                       |
| cycle    | P                                                                      | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 149.015833                                                             | Observer's specified target RA [deg]        |
| dec_targ | 68.885694                                                              | Observer's specified target Dec [deg]       |
| ra_nom   | 149.03444588978                                                        | Nominal RA [deg]                            |
| dec_nom  | 68.886761991071                                                        | Nominal Dec [deg]                           |
| roll_nom | 347.19130817743                                                        | Nominal Roll [deg]                          |
| revision | 1                                                                      | Processing version of data                  |
| ontime   | 40073.700308323                                                        | Sum of GTIs [s]                             |
| livetime | 39550.107911966                                                        | Livetime [s]                                |
| ontime0  | 40073.700308323                                                        | Sum of GTIs [s]                             |
| ontime1  | 40067.418347955                                                        | Sum of GTIs [s]                             |
| ontime2  | 40073.700308323                                                        | Sum of GTIs [s]                             |
| ontime3  | 40073.700308323                                                        | Sum of GTIs [s]                             |
| ontime6  | 40073.700308323                                                        | Sum of GTIs [s]                             |
| l2events | 137451                                                                 | Number of level 2 events                    |

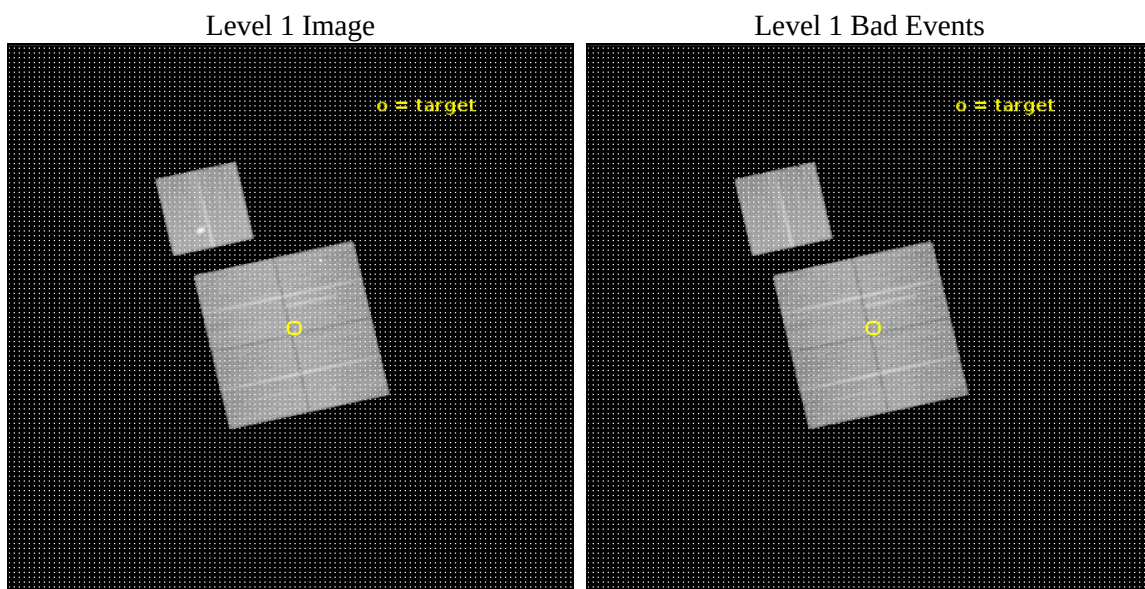




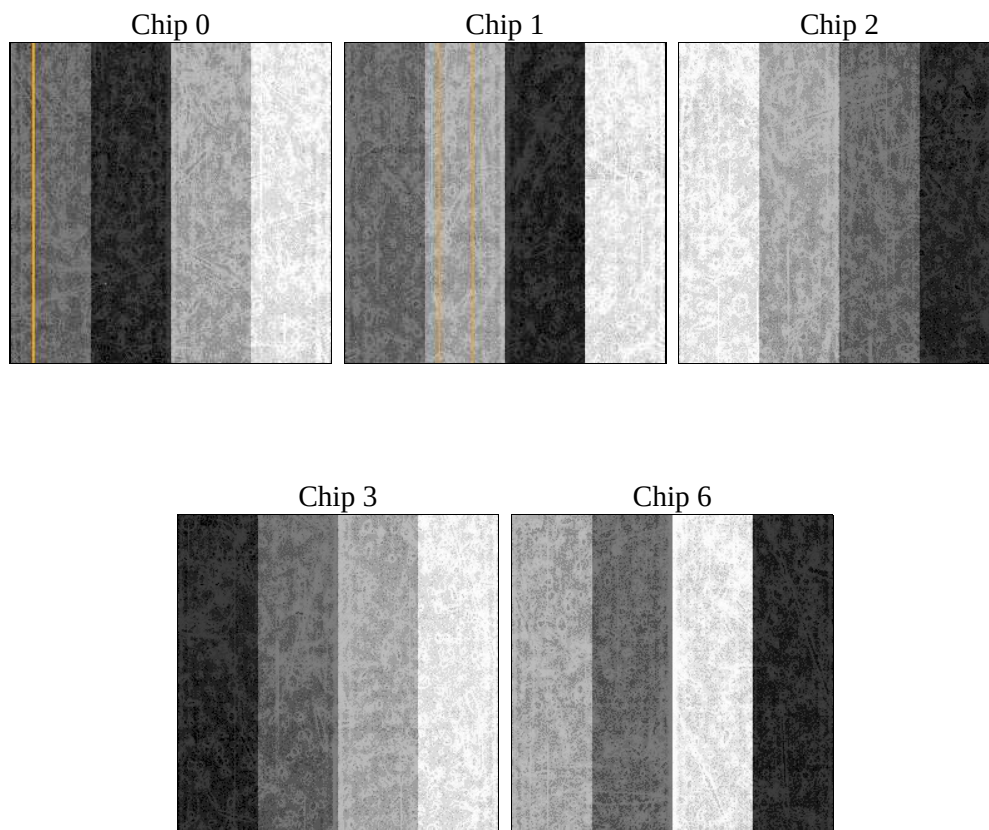
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 40000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.5                | Processing system revision     | ontime         | 40073.700308323 | Sum of GTIs [s]                         |
| caldsver | 4.7.2               | &#160                          | ontime0        | 40073.700308323 | Sum of GTIs [s]                         |
| date     | 2016-08-09T03:03:12 | Date and time of file creation | ontime1        | 40067.418347955 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime2        | 40073.700308323 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 40073.700308323 | Sum of GTIs [s]                         |
|          |                     |                                | ontime6        | 40073.700308323 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1230141         | Number of level 1 events                |

### 2.1.4 Events

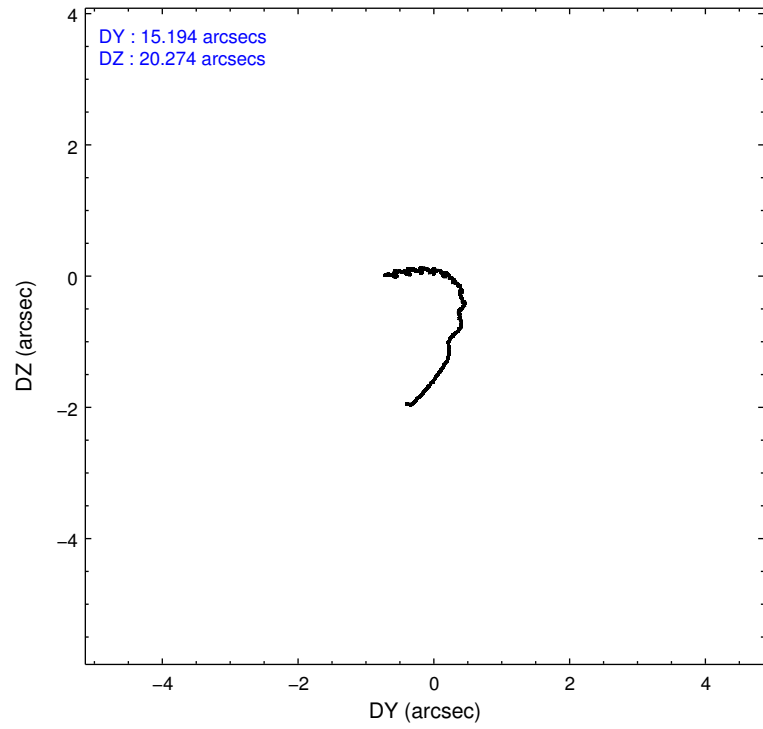
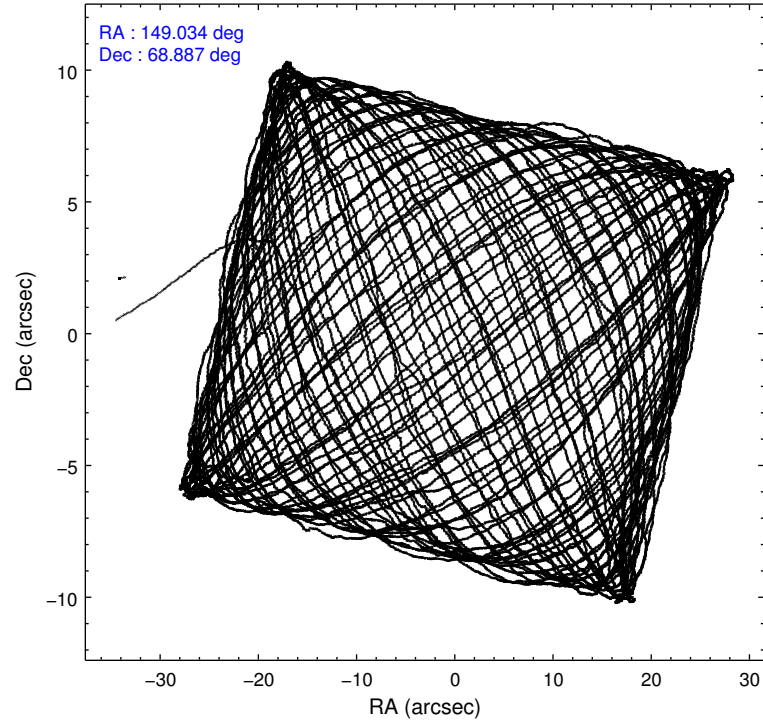
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events  | 227874 | 234041 | 252846 | 247902 | 267478 |
| rejected events | 199598 | 202473 | 224636 | 216438 | 224794 |
| rejected %      | 87%    | 86%    | 88%    | 87%    | 84%    |

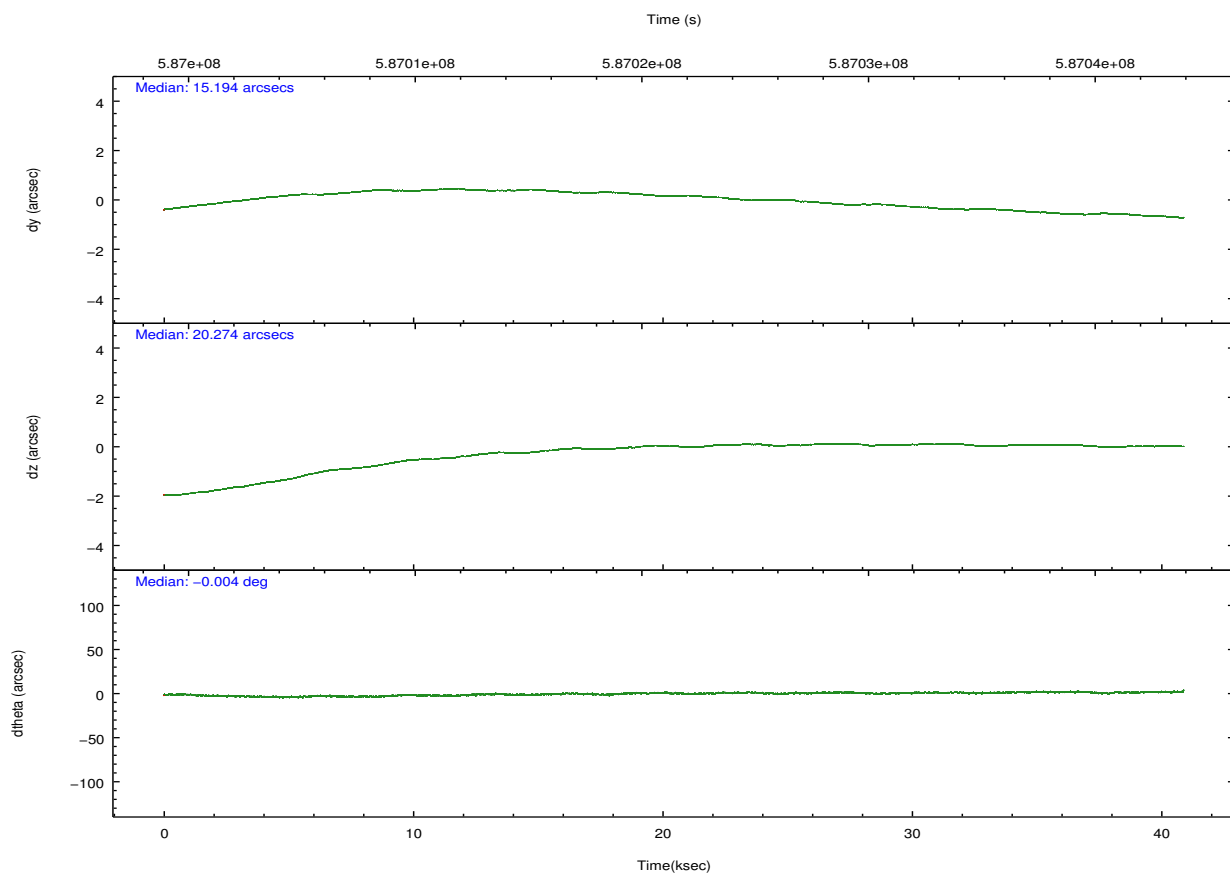
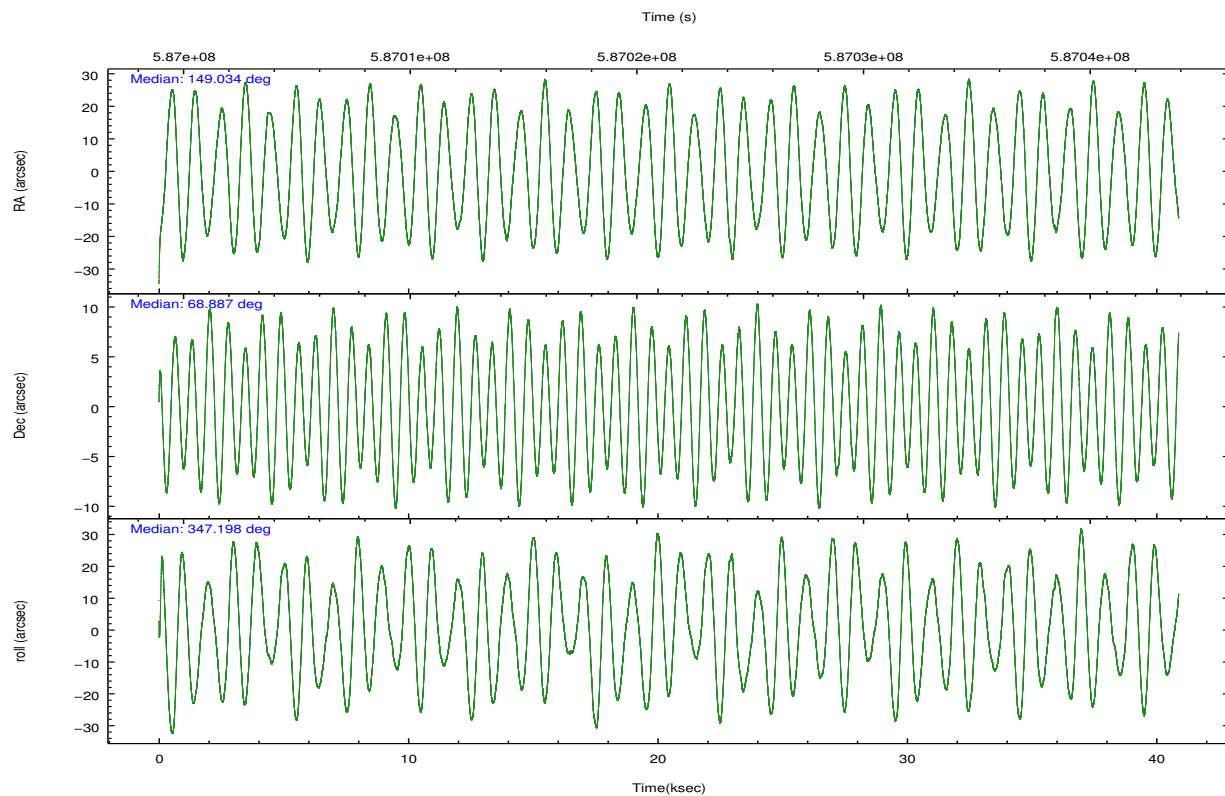
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  | ccd 6  |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 9537   | 10950  | 10072  | 13359  | 20449  |
|                | 4%     | 4%     | 3%     | 5%     | 7%     |
| grade 1 events | 132    | 115    | 127    | 160    | 156    |
|                | 0%     | 0%     | 0%     | 0%     | 0%     |
| grade 2 events | 7376   | 7792   | 7138   | 6411   | 8339   |
|                | 3%     | 3%     | 2%     | 2%     | 3%     |
| grade 3 events | 2865   | 2981   | 2636   | 2963   | 3399   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 4 events | 2800   | 3042   | 2892   | 2976   | 3418   |
|                | 1%     | 1%     | 1%     | 1%     | 1%     |
| grade 5 events | 10994  | 11628  | 10311  | 12378  | 12219  |
|                | 4%     | 4%     | 4%     | 4%     | 4%     |
| grade 6 events | 5702   | 6808   | 5473   | 5757   | 7082   |
|                | 2%     | 2%     | 2%     | 2%     | 2%     |
| grade 7 events | 188468 | 190725 | 214197 | 203898 | 212416 |
|                | 82%    | 81%    | 84%    | 82%    | 79%    |

## 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                 | 148.961346          | 149.0344458897785     | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | 68.878510           | 68.88676199107054     | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 347.050831          | 347.1913081774291     | 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    | -233.592463         | -233.5874344608287    | CCD S3 on                             | N         | N       |
| [mm] SIM translation stage offset | 0                   | -0.005018542100998502 | CCD S4 on                             | N         | N       |
| [s] Observation start time (MET)  | 587001837.184000    | 586999800.41106       | CCD S5 on                             | N         | N       |
| Observation start date            | 2016-08-08T00:02:49 | 2016-08-07T23:30:00   | Number of optional ACIS chips dropped | 0         | 0       |
| [s] Observation end time (MET)    | 587041837.184000    | 587042494.73851       | On-chip summing requested             | N         | N       |
| Observation end date              | 2016-08-08T11:09:29 | 2016-08-08T11:21:34   | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                 | Alternating exposures requested       | N         | N       |
|                                   |                     |                       | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



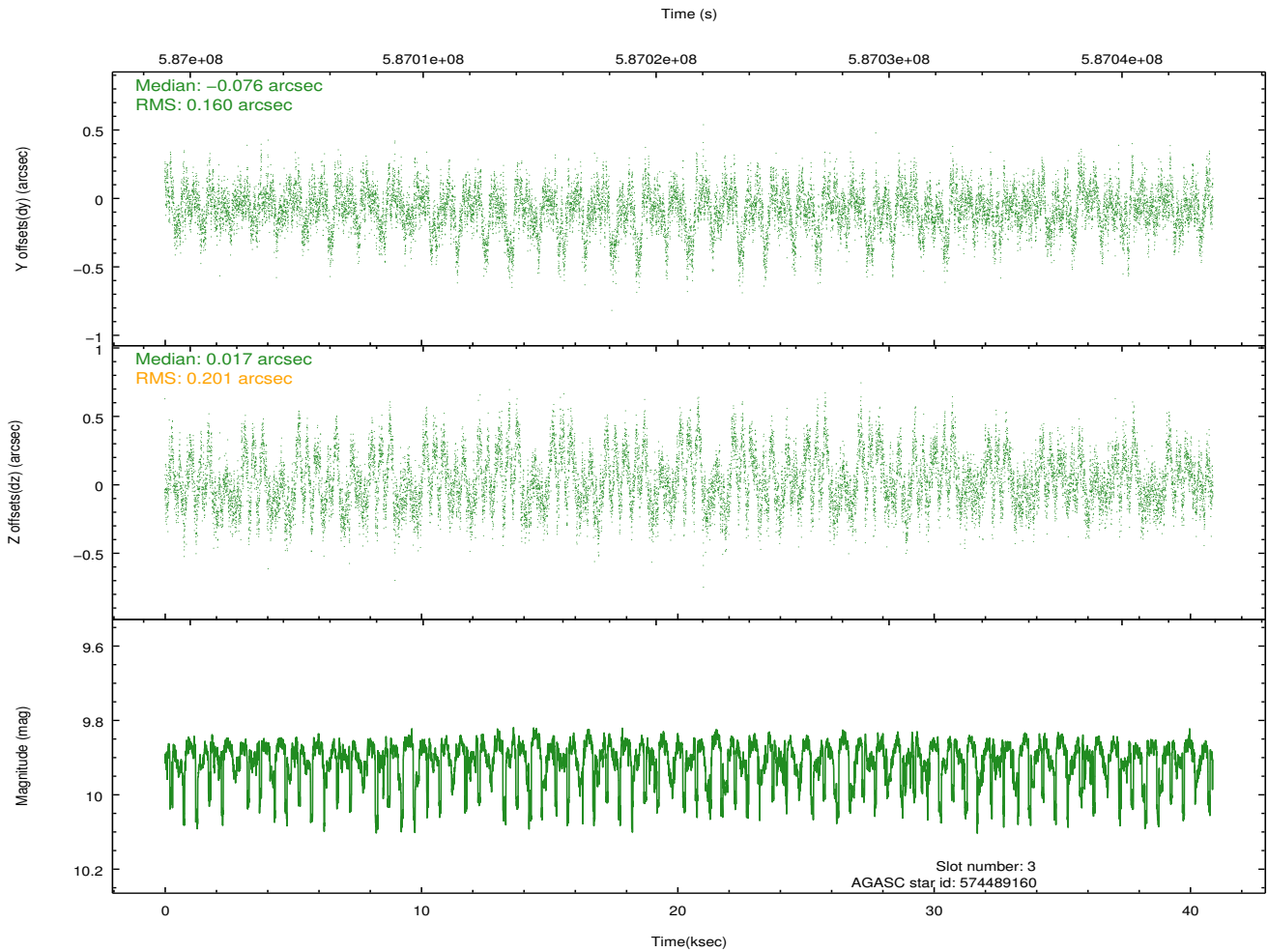
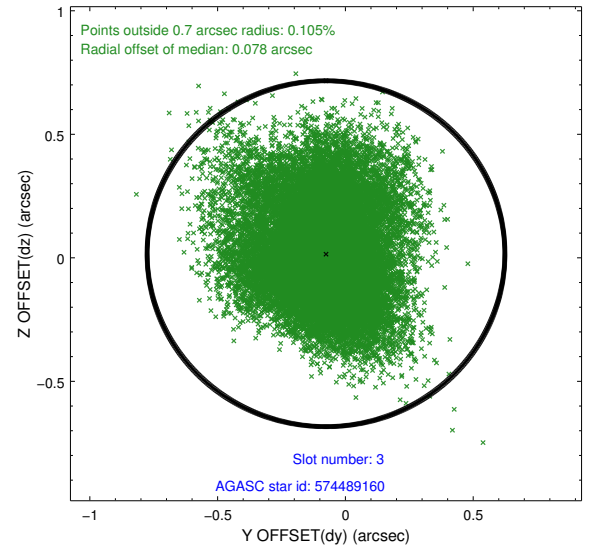
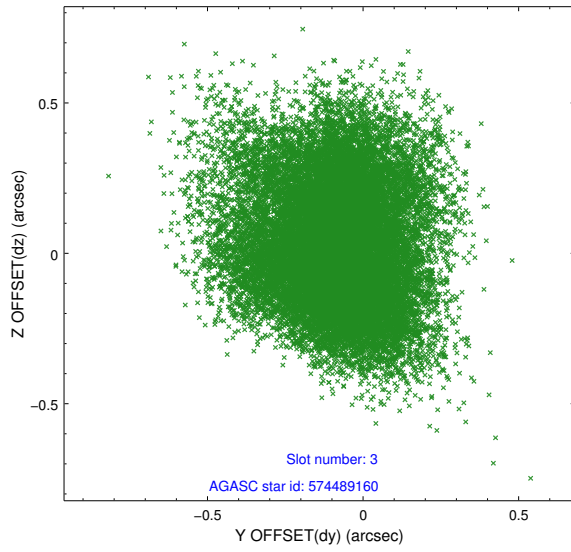


# Slot Statistics

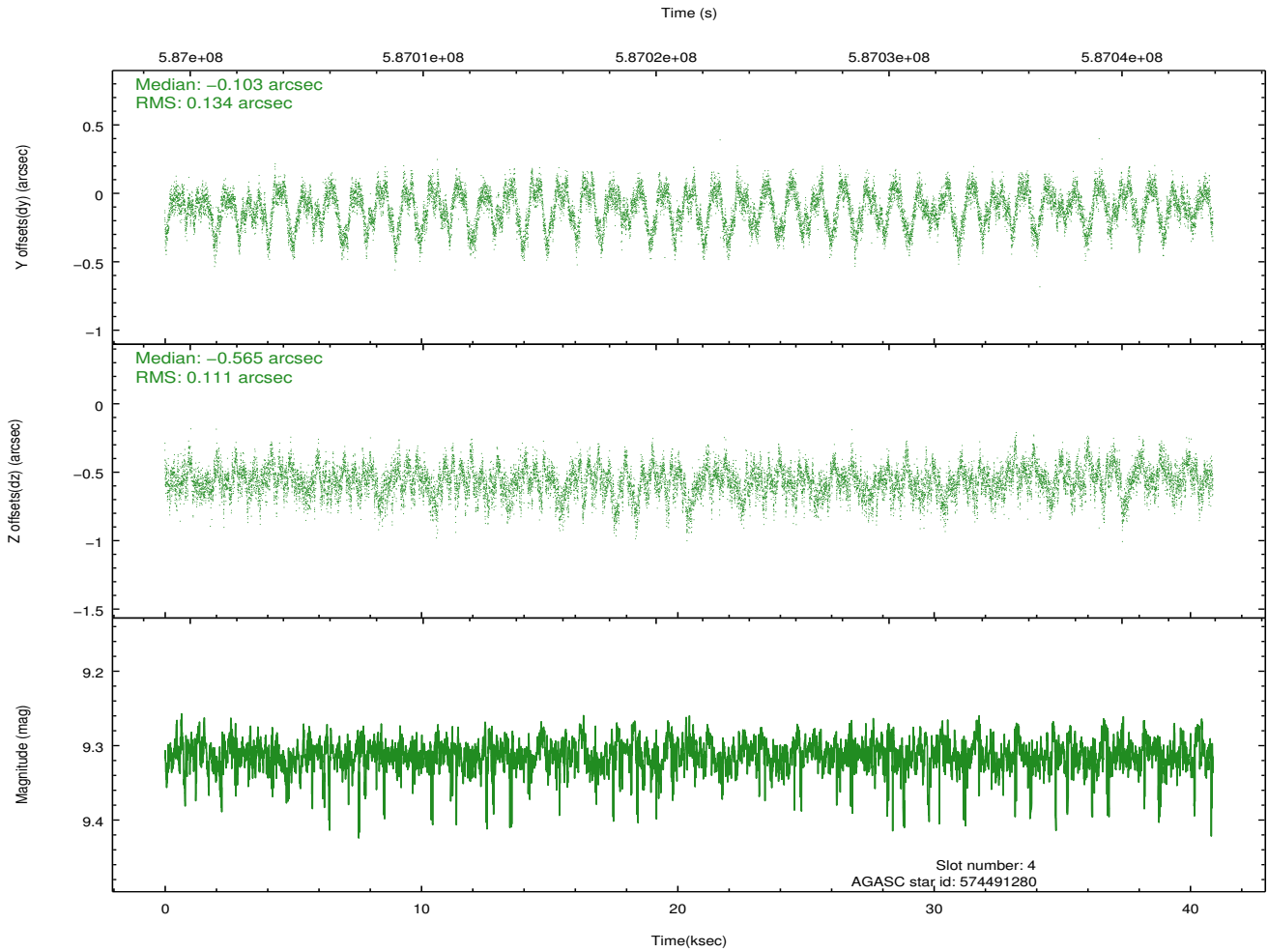
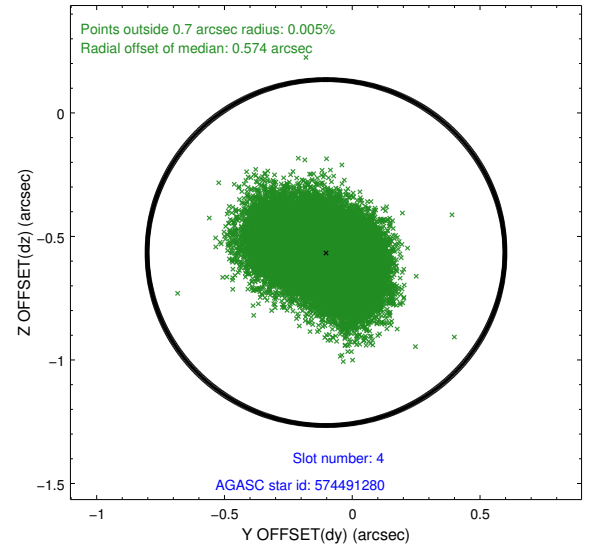
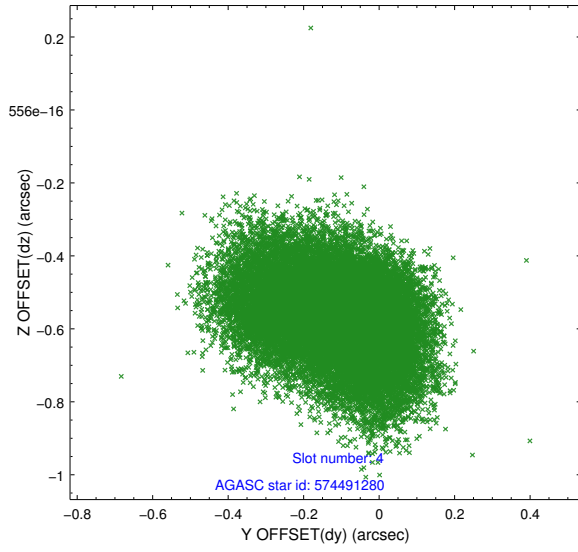
| slot | status | used | id        | mag   | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|------|-----------|-------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    |      | ACIS-I-1  | 7.03  | 9974  | 0.043  | -0.011 | 0.018 | 0.040 | 0.000000   | 0.000000  | 924.37   | -843.64  |
| 1    | FID    |      | ACIS-I-5  | 7.03  | 9974  | -0.305 | 0.021  | 0.009 | 0.015 | 0.000000   | 0.000000  | -1824.16 | 1053.76  |
| 2    | FID    |      | ACIS-I-6  | 7.03  | 9974  | 0.170  | 0.059  | 0.014 | 0.037 | 0.000000   | 0.000000  | 389.92   | 1698.40  |
| 3    | GUIDE  | used | 574489160 | 9.90  | 19913 | -0.076 | 0.017  | 0.275 | 0.442 | 149.677320 | 68.172146 | 1503.48  | -2258.20 |
| 4    | GUIDE  | used | 574491280 | 9.31  | 19929 | -0.103 | -0.565 | 0.186 | 0.296 | 148.611567 | 69.450135 | -892.77  | 1905.22  |
| 5    | GUIDE  | used | 574492024 | 10.26 | 19874 | -0.502 | 0.071  | 0.241 | 0.412 | 150.357664 | 68.367540 | 2213.60  | -1356.93 |
| 6    | GUIDE  | used | 574498696 | 9.00  | 19930 | 0.343  | 0.307  | 0.157 | 0.247 | 146.881317 | 68.486979 | -2369.28 | -1942.81 |
| 7    | GUIDE  | used | 574500920 | 10.01 | 19906 | 0.357  | 0.143  | 0.206 | 0.338 | 147.014605 | 68.742334 | -2374.06 | -1007.38 |

## 2.4 Star Slots

### 2.4.1 Slot 3

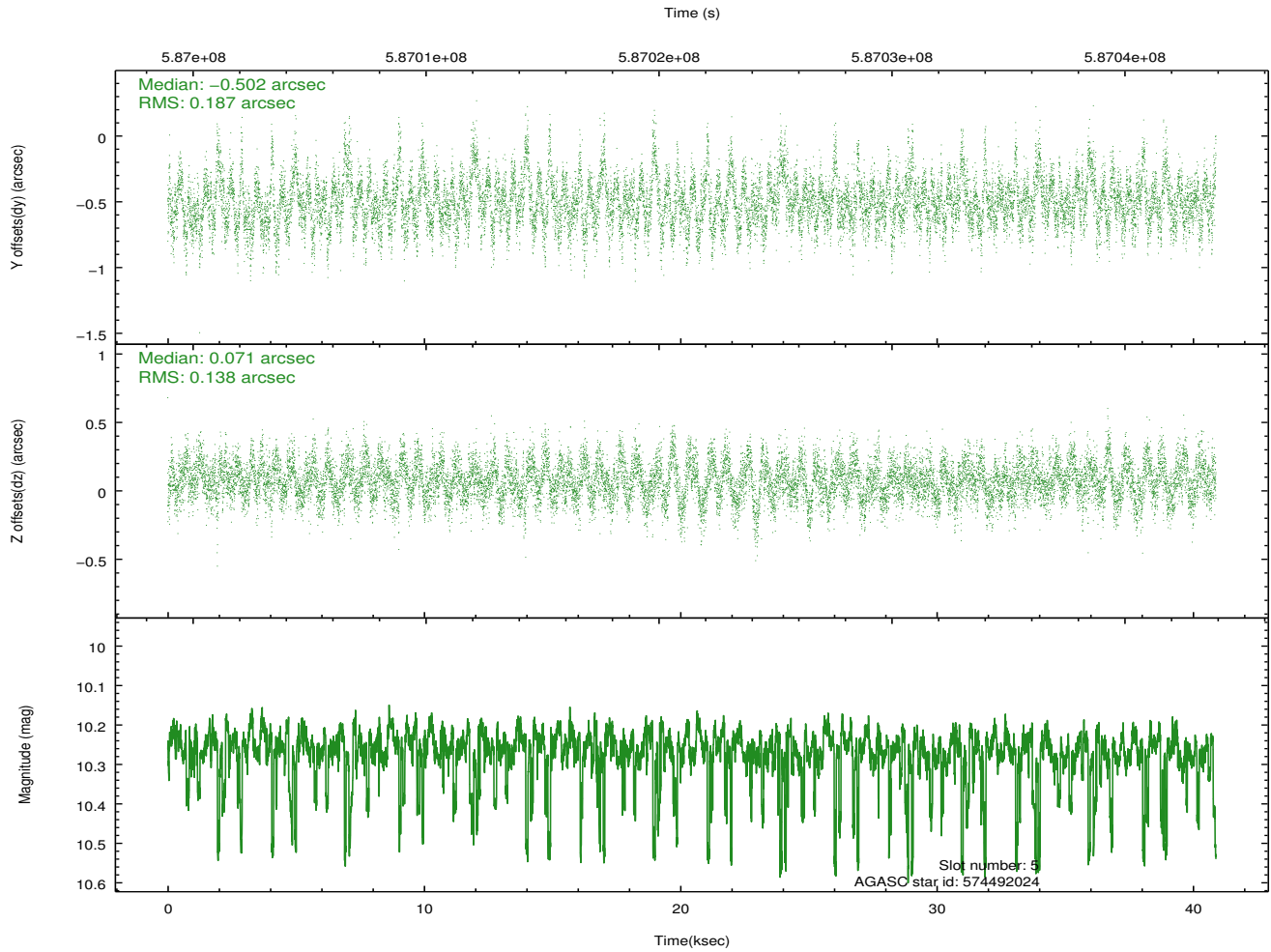
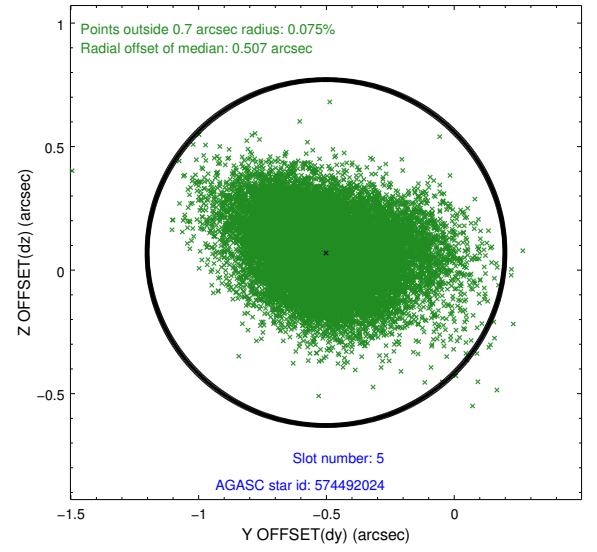
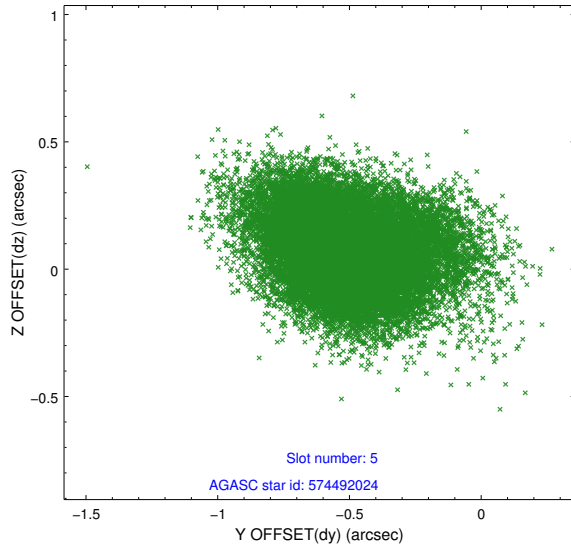


## 2.4.2 Slot 4

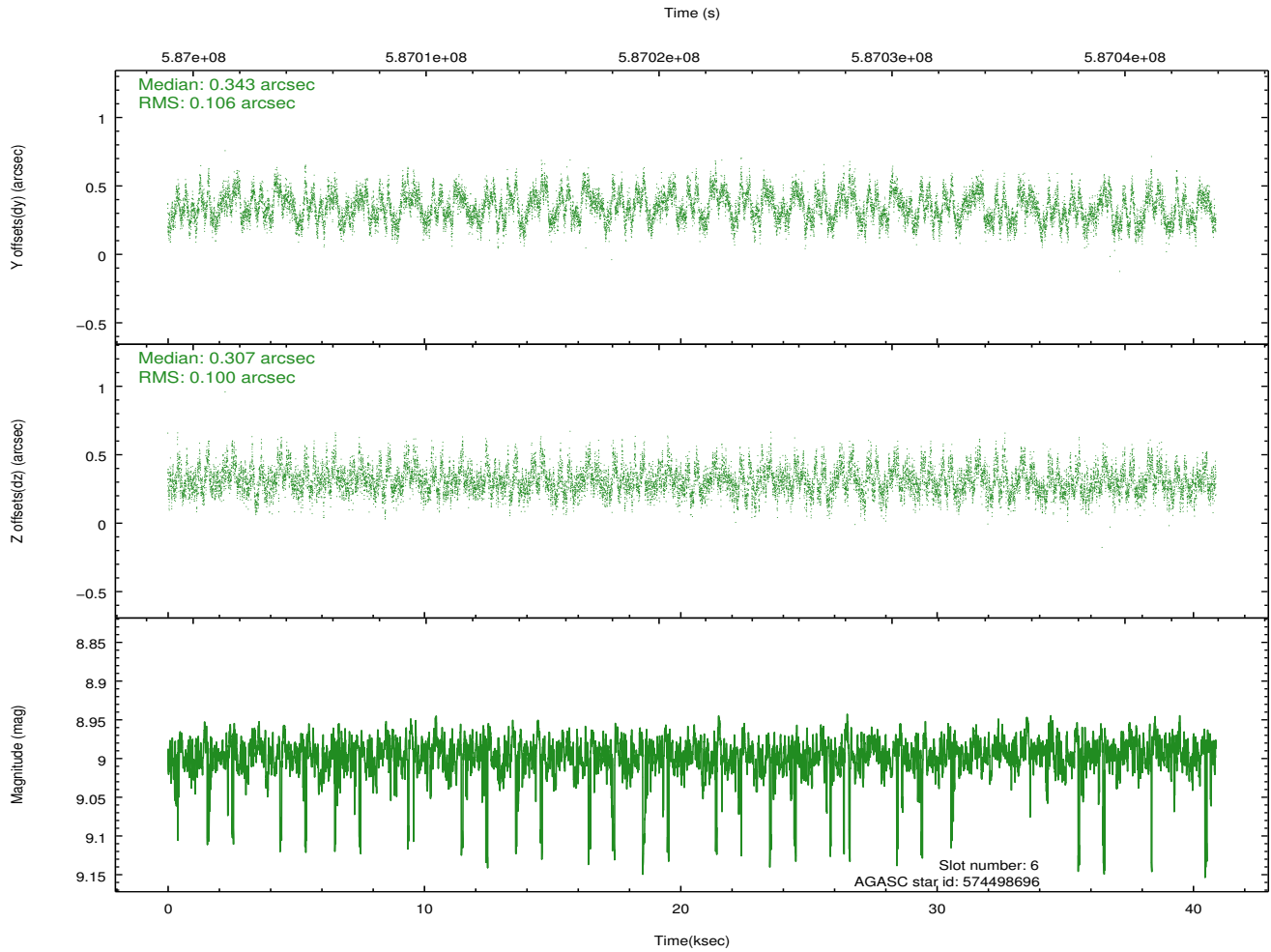
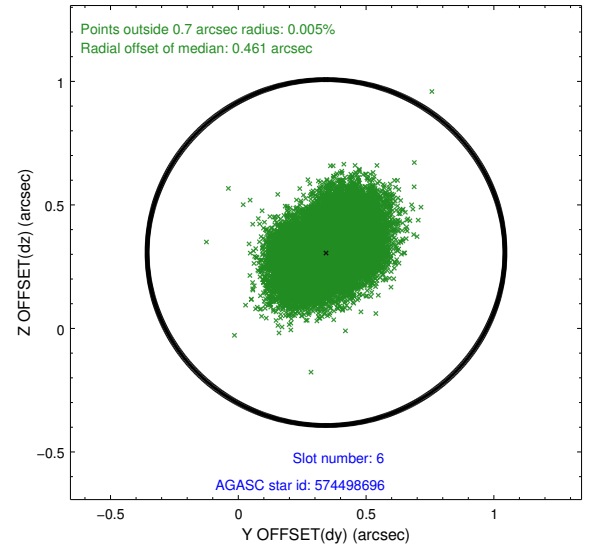
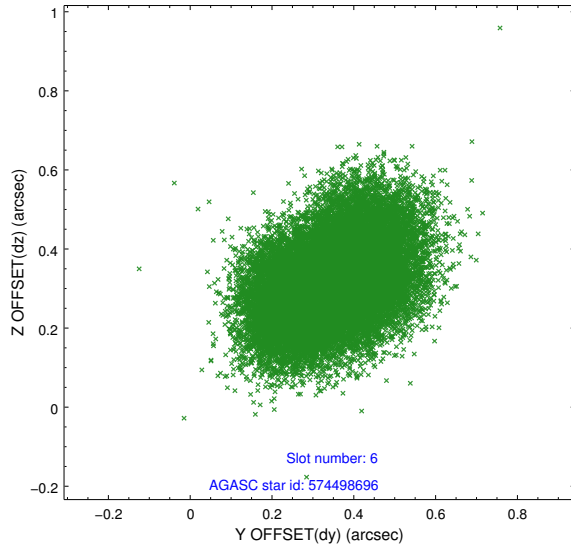




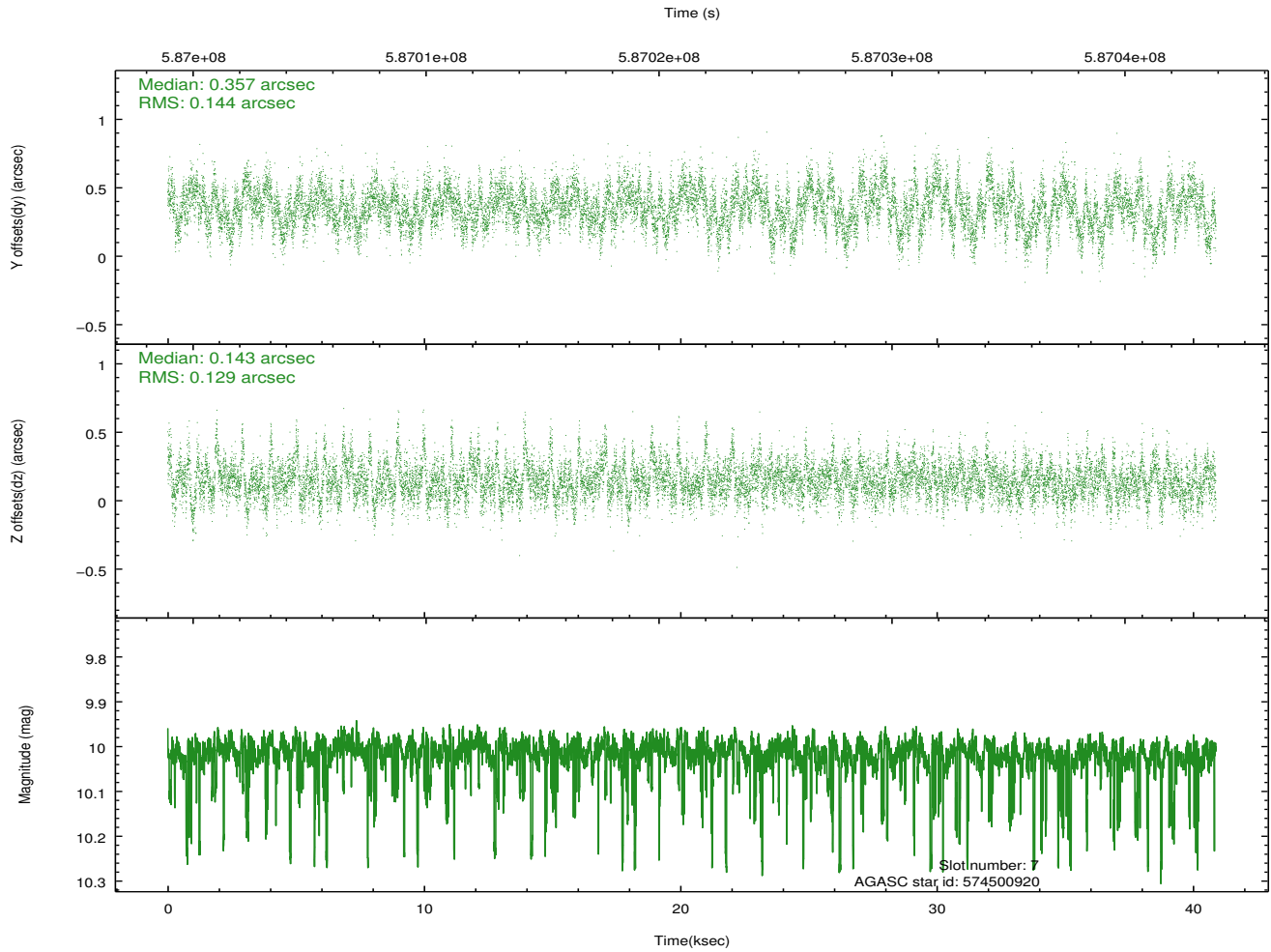
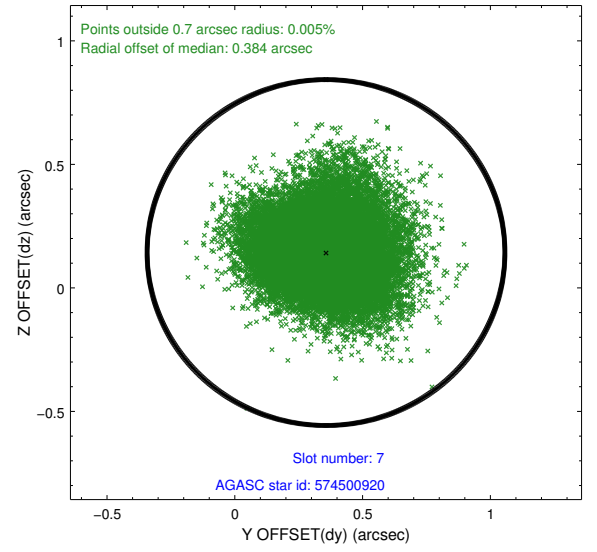
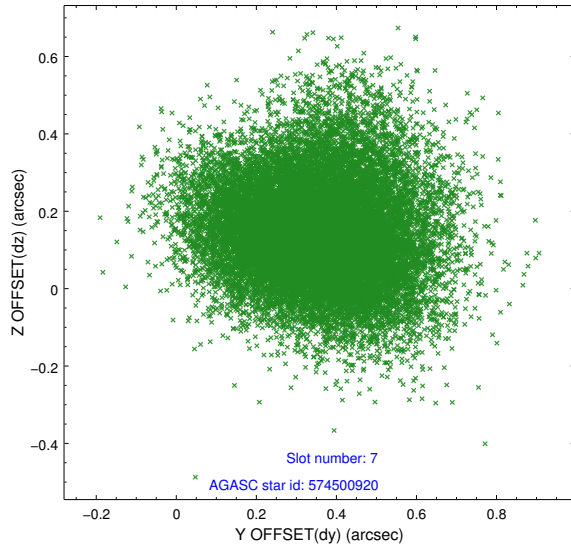
### 2.4.3 Slot 5



## 2.4.4 Slot 6

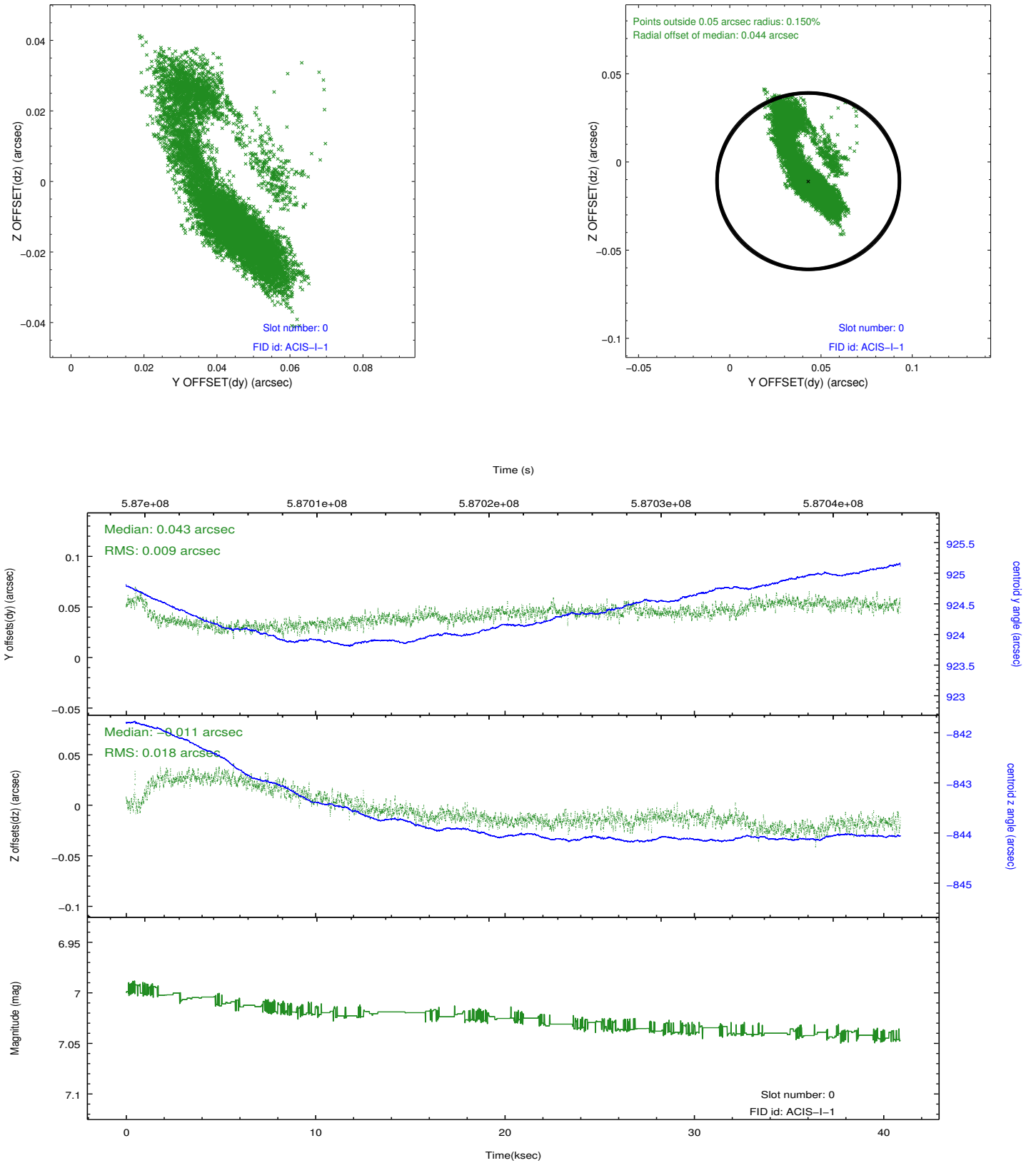


## 2.4.5 Slot 7

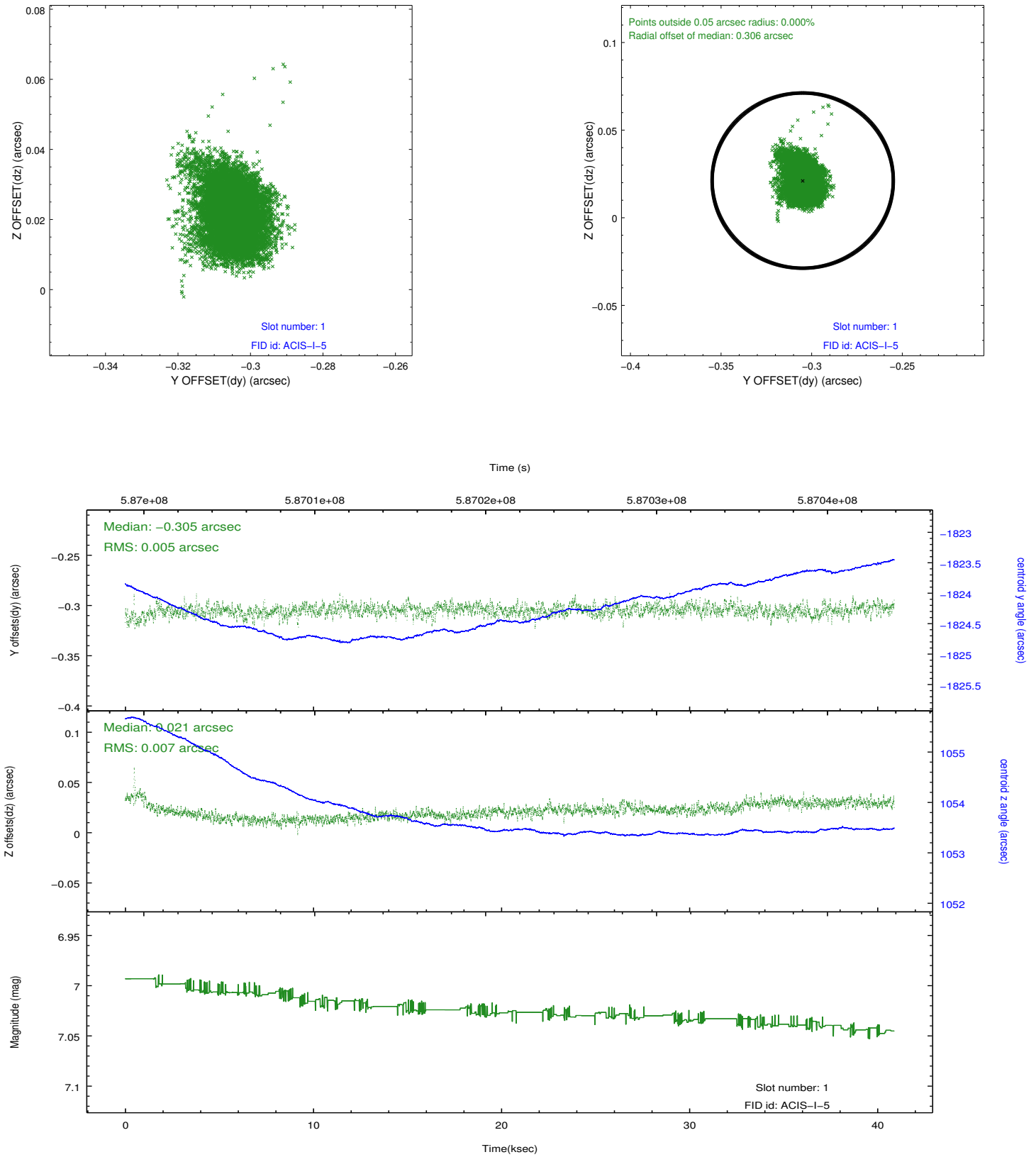


## 2.5 FID Slots

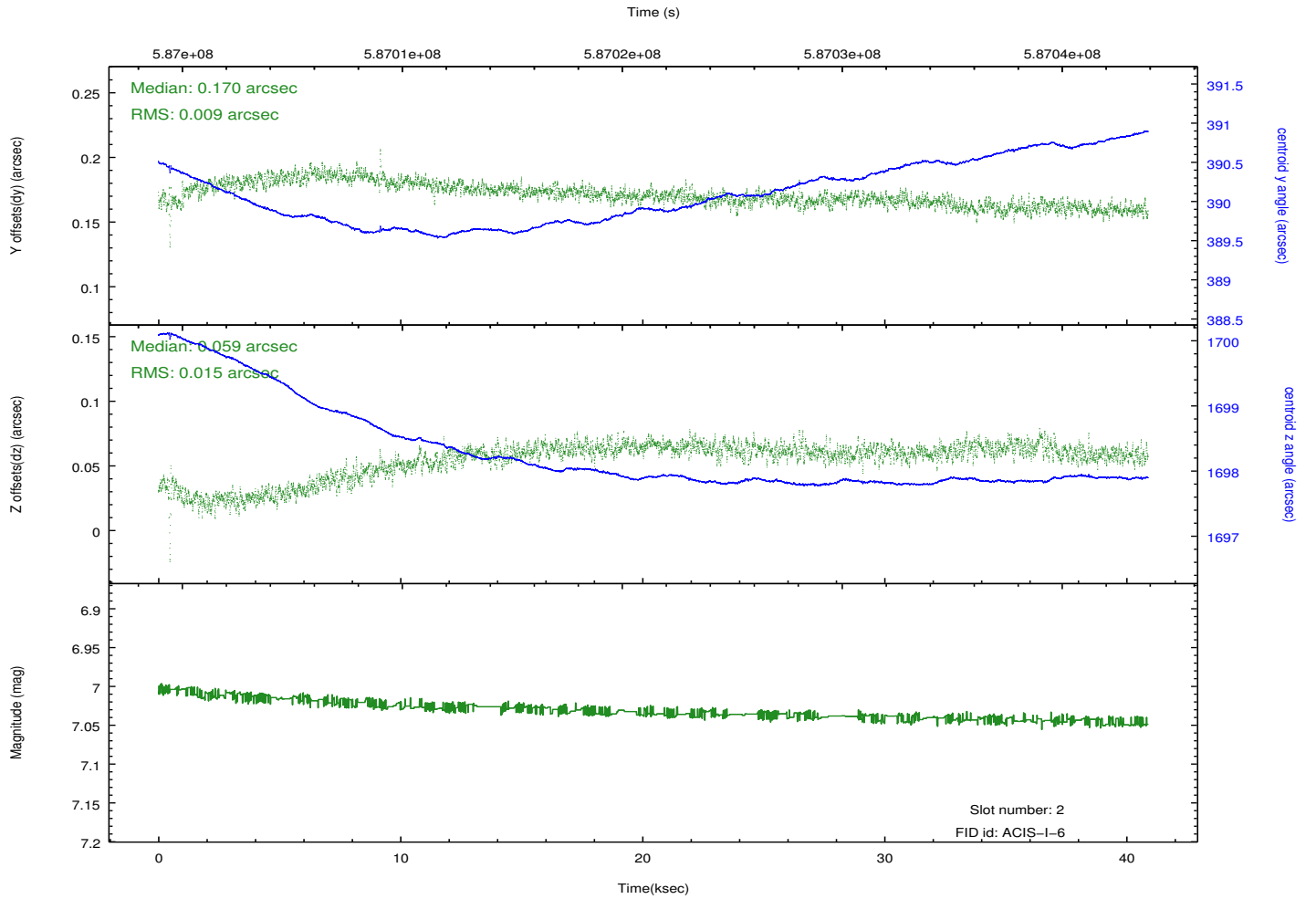
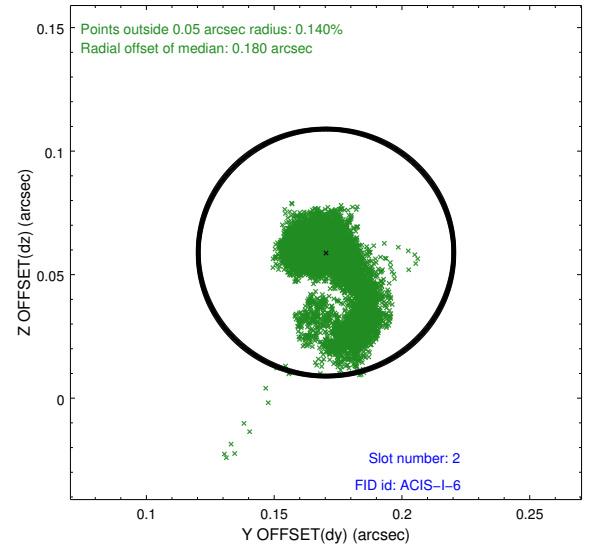
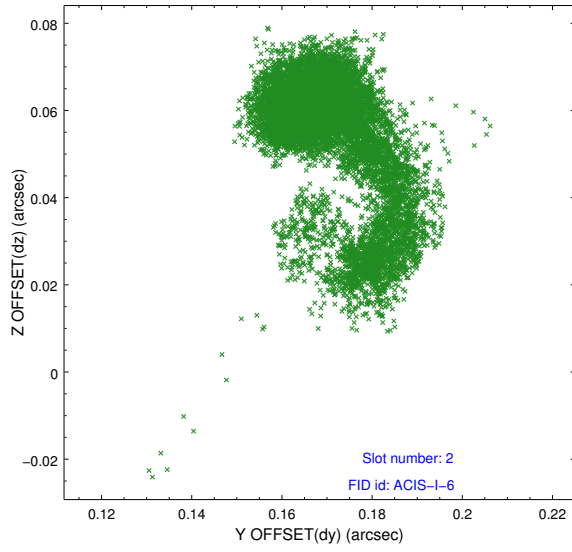
### 2.5.1 Slot 0



## 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)      | 2016.08.09      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 40.073700308323 |

### **A.2 Comments**