

# V&V Reference Report

## L2 ASCDS Version : 10.5

Observation 18875 - L2 Version 1  
Chandra X-Ray Center

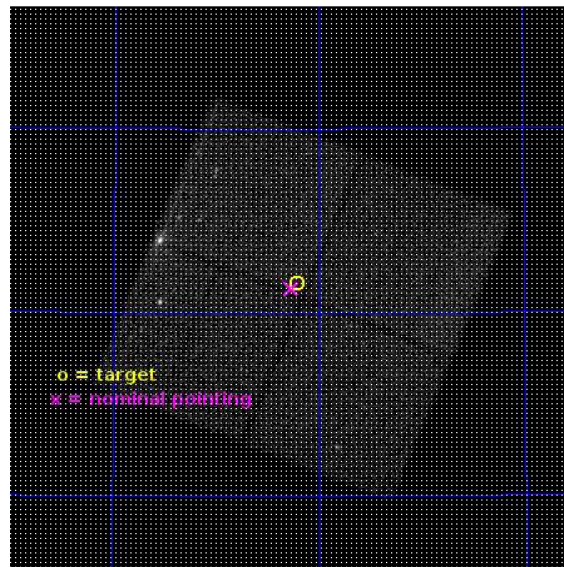
L2 Processing Date : Jun 25 2016

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# 1 Front

|          |                                                                        |                                             |
|----------|------------------------------------------------------------------------|---------------------------------------------|
| seq_num  | 601236                                                                 | Sequence number                             |
| obs_id   | 18875                                                                  | 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 W                                                                  | Source name                                 |
| dtcycle  | 0                                                                      | &#160                                       |
| cycle    | P                                                                      | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 148.552917                                                             | Observer's specified target RA [deg]        |
| dec_targ | 69.026889                                                              | Observer's specified target Dec [deg]       |
| ra_nom   | 148.56672418372                                                        | Nominal RA [deg]                            |
| dec_nom  | 69.021517950323                                                        | Nominal Dec [deg]                           |
| roll_nom | 292.19578826812                                                        | Nominal Roll [deg]                          |
| revision | 1                                                                      | Processing version of data                  |
| ontime   | 32785.559282064                                                        | Sum of GTIs [s]                             |
| livetime | 32357.191813667                                                        | Livetime [s]                                |
| ontime0  | 32779.277421117                                                        | Sum of GTIs [s]                             |
| ontime1  | 32785.559272051                                                        | Sum of GTIs [s]                             |
| ontime2  | 32788.700252295                                                        | Sum of GTIs [s]                             |
| ontime3  | 32785.559282064                                                        | Sum of GTIs [s]                             |
| l2events | 104708                                                                 | Number of level 2 events                    |

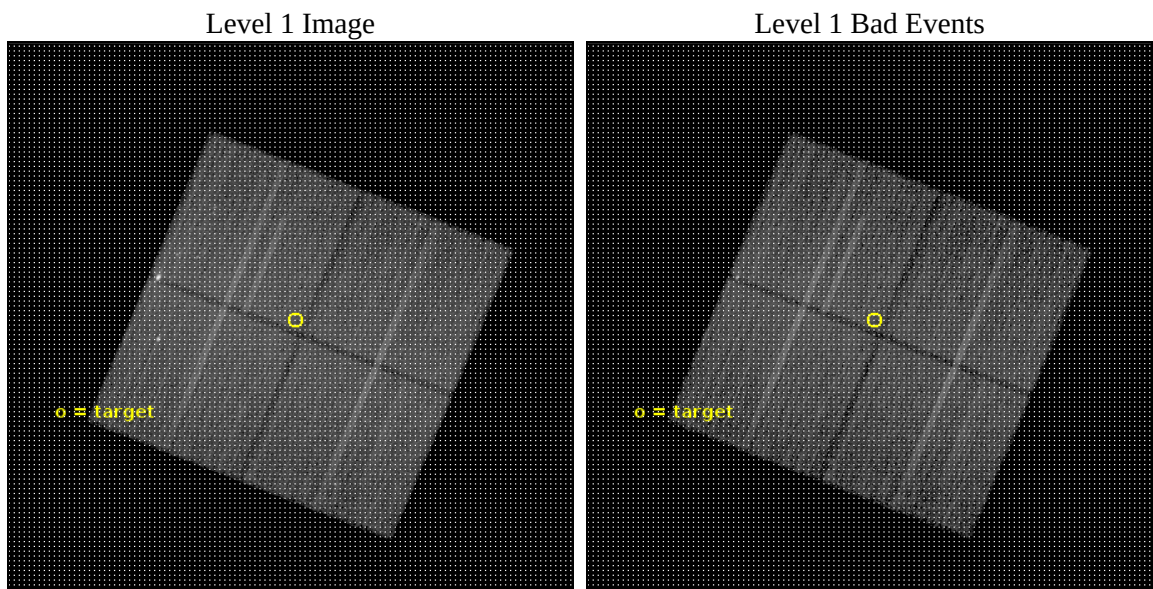




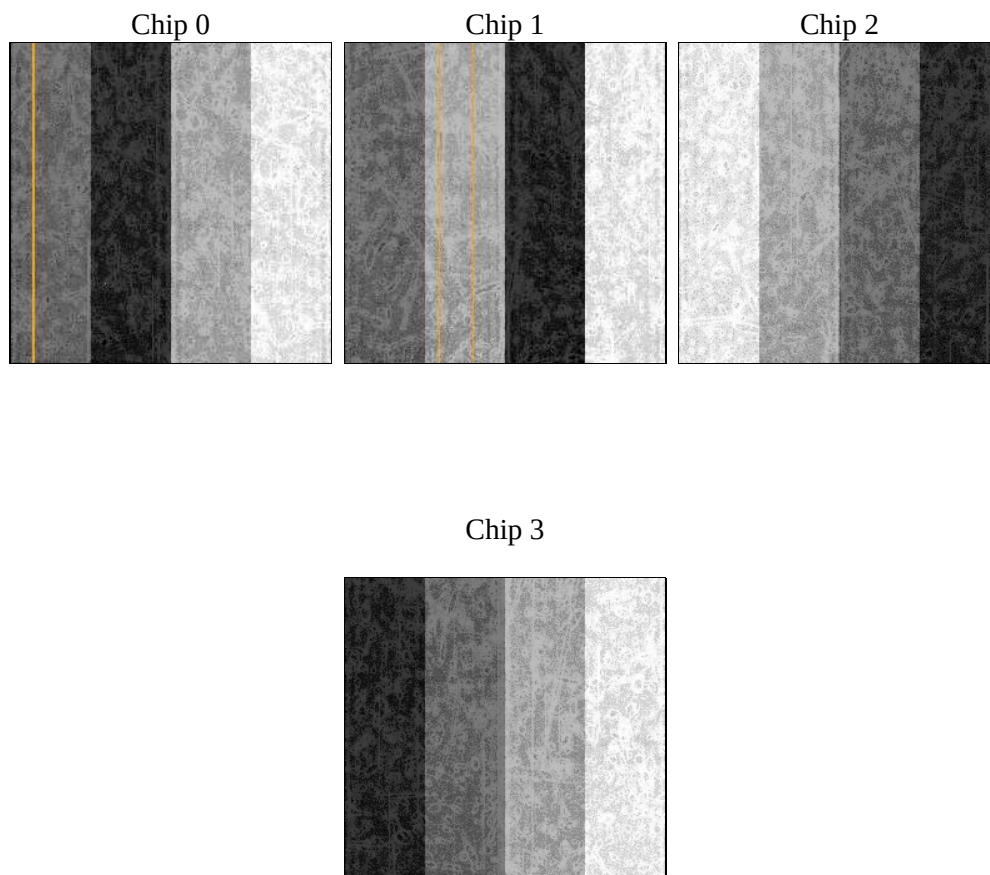
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 33000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.5                | Processing system revision     | ontime         | 32785.559282064 | Sum of GTIs [s]                         |
| caldsver | 4.7.2               | &#160                          | ontime0        | 32779.277421117 | Sum of GTIs [s]                         |
| date     | 2016-06-25T13:35:21 | Date and time of file creation | ontime1        | 32785.559272051 | Sum of GTIs [s]                         |
| revision | 1                   | Processing version of data     | ontime2        | 32788.700252295 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 32785.559282064 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 795207          | Number of level 1 events                |

### 2.1.4 Events

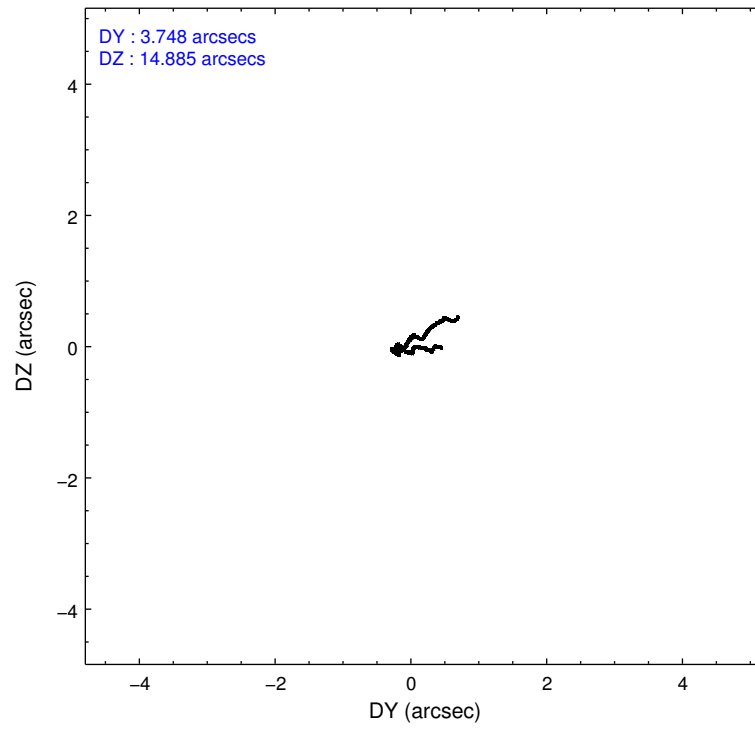
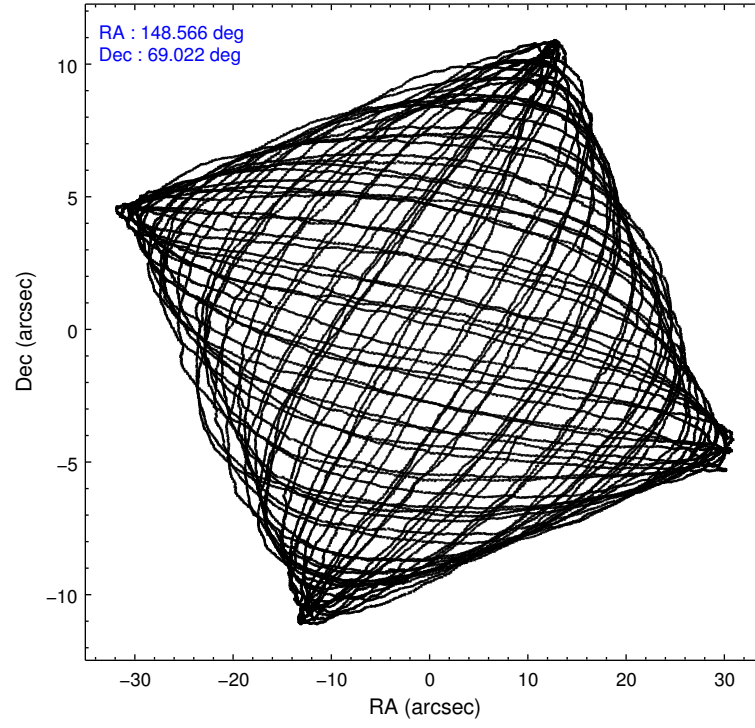
|                 | ccd 0  | ccd 1  | ccd 2  | ccd 3  |
|-----------------|--------|--------|--------|--------|
| level 1 events  | 181276 | 184249 | 208214 | 221468 |
| rejected events | 158288 | 158503 | 178796 | 178219 |
| rejected %      | 87%    | 86%    | 85%    | 80%    |

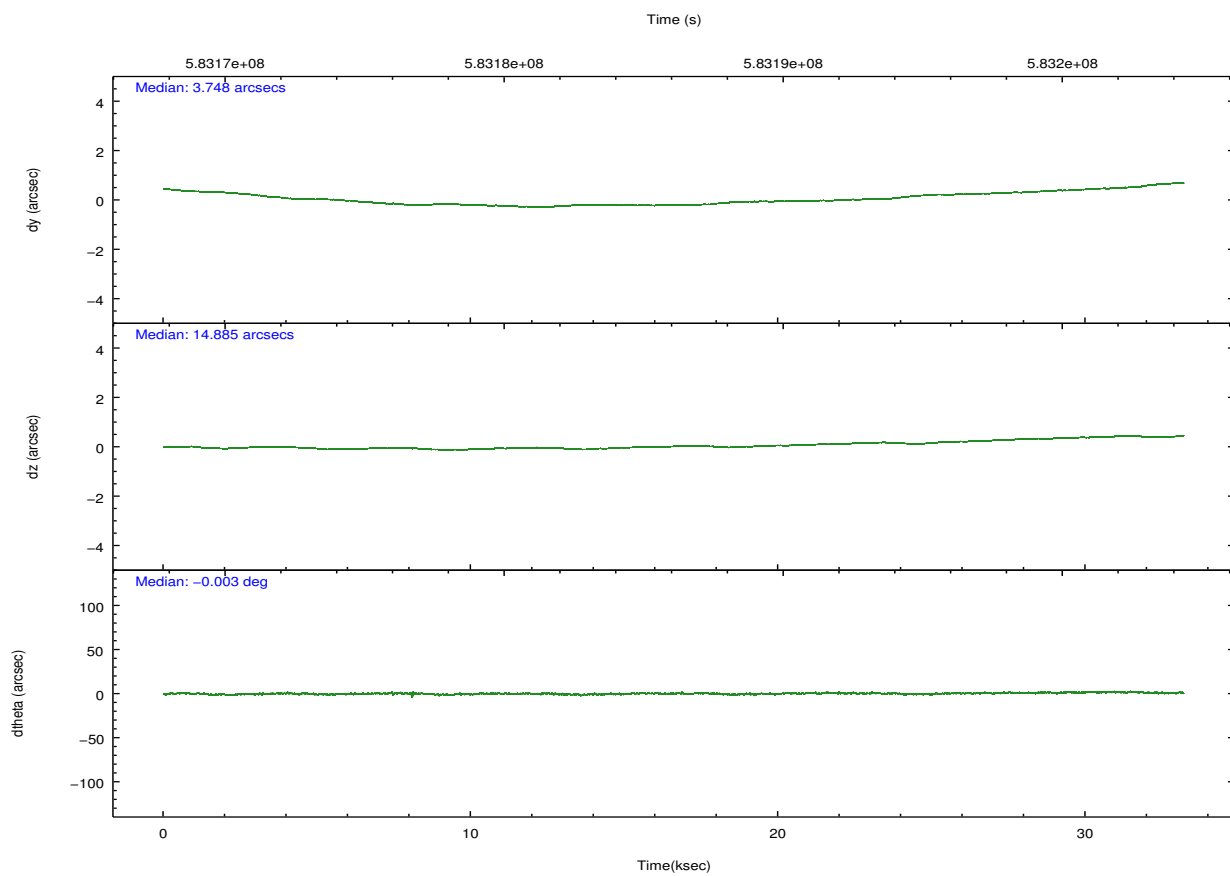
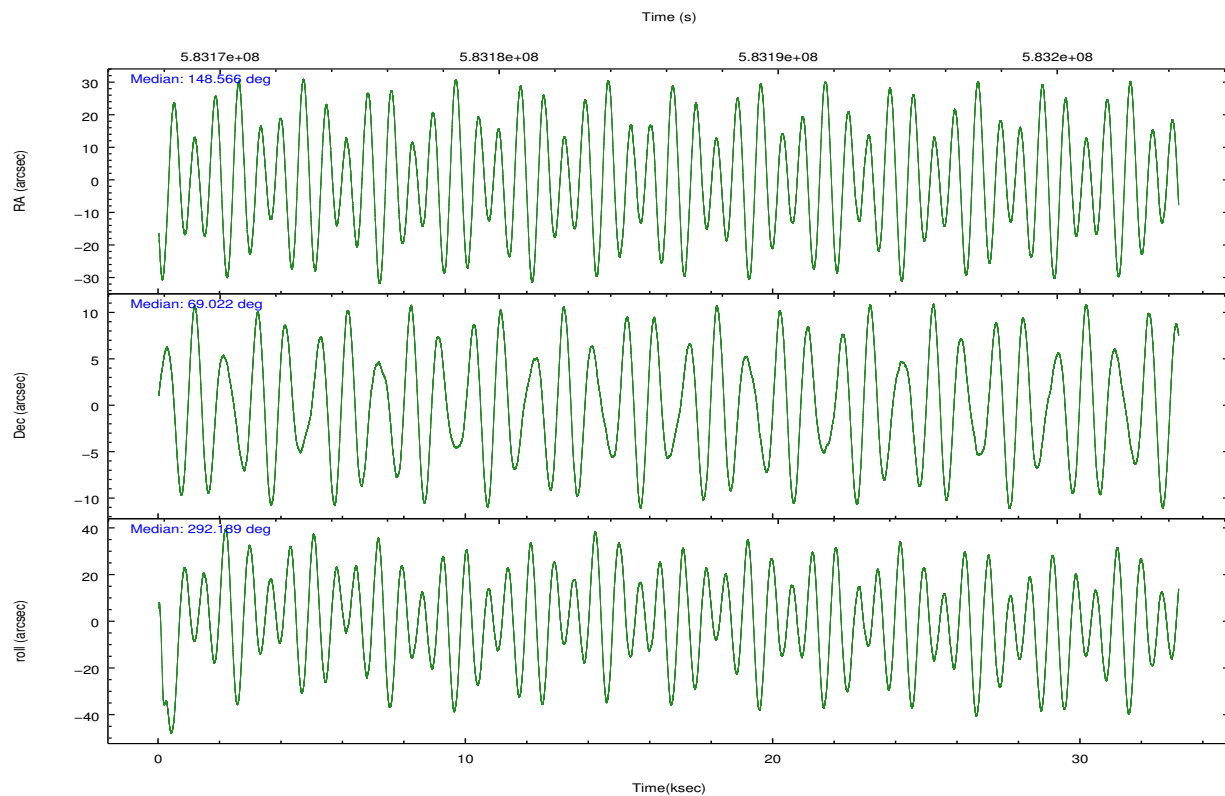
|                | ccd 0  | ccd 1  | ccd 2  | ccd 3  |
|----------------|--------|--------|--------|--------|
| grade 0 events | 8004   | 8821   | 13553  | 24396  |
|                | 4%     | 4%     | 6%     | 11%    |
| grade 1 events | 83     | 95     | 185    | 789    |
|                | 0%     | 0%     | 0%     | 0%     |
| grade 2 events | 5832   | 6403   | 6399   | 7399   |
|                | 3%     | 3%     | 3%     | 3%     |
| grade 3 events | 2326   | 2491   | 2395   | 3057   |
|                | 1%     | 1%     | 1%     | 1%     |
| grade 4 events | 2171   | 2562   | 2477   | 3079   |
|                | 1%     | 1%     | 1%     | 1%     |
| grade 5 events | 8772   | 9369   | 8223   | 10158  |
|                | 4%     | 5%     | 3%     | 4%     |
| grade 6 events | 4660   | 5474   | 4604   | 5324   |
|                | 2%     | 2%     | 2%     | 2%     |
| grade 7 events | 149428 | 149034 | 170378 | 167266 |
|                | 82%    | 80%    | 81%    | 75%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual                | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|-----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                  | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-0123           | ACIS-0123             | 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                 | 148.505606          | 148.5667241837201     | CCD I2 on                             | Y         | Y       |
| [deg] Pointing Dec                | 69.038339           | 69.02151795032317     | CCD I3 on                             | Y         | Y       |
| [deg] Pointing Roll               | 292.044176          | 292.1957882681193     | 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        | N       |
| [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)  | 583169685.184000    | 583168868.84121       | CCD S5 on                             | N         | N       |
| Observation start date            | 2016-06-24T15:33:37 | 2016-06-24T15:21:08   | Number of optional ACIS chips dropped | 1         | 1       |
| [s] Observation end time (MET)    | 583202685.184000    | 583204204.18074       | On-chip summing requested             | N         | N       |
| Observation end date              | 2016-06-25T00:43:37 | 2016-06-25T01:10:04   | Subarray requested                    | NONE      | NONE    |
| Read mode                         | TIMED               | TIMED                 | Alternating exposures requested       | N         | N       |
|                                   |                     |                       | [s] Primary exposure time             | 0.000000  | 3.1     |

## 2.3 Aspect



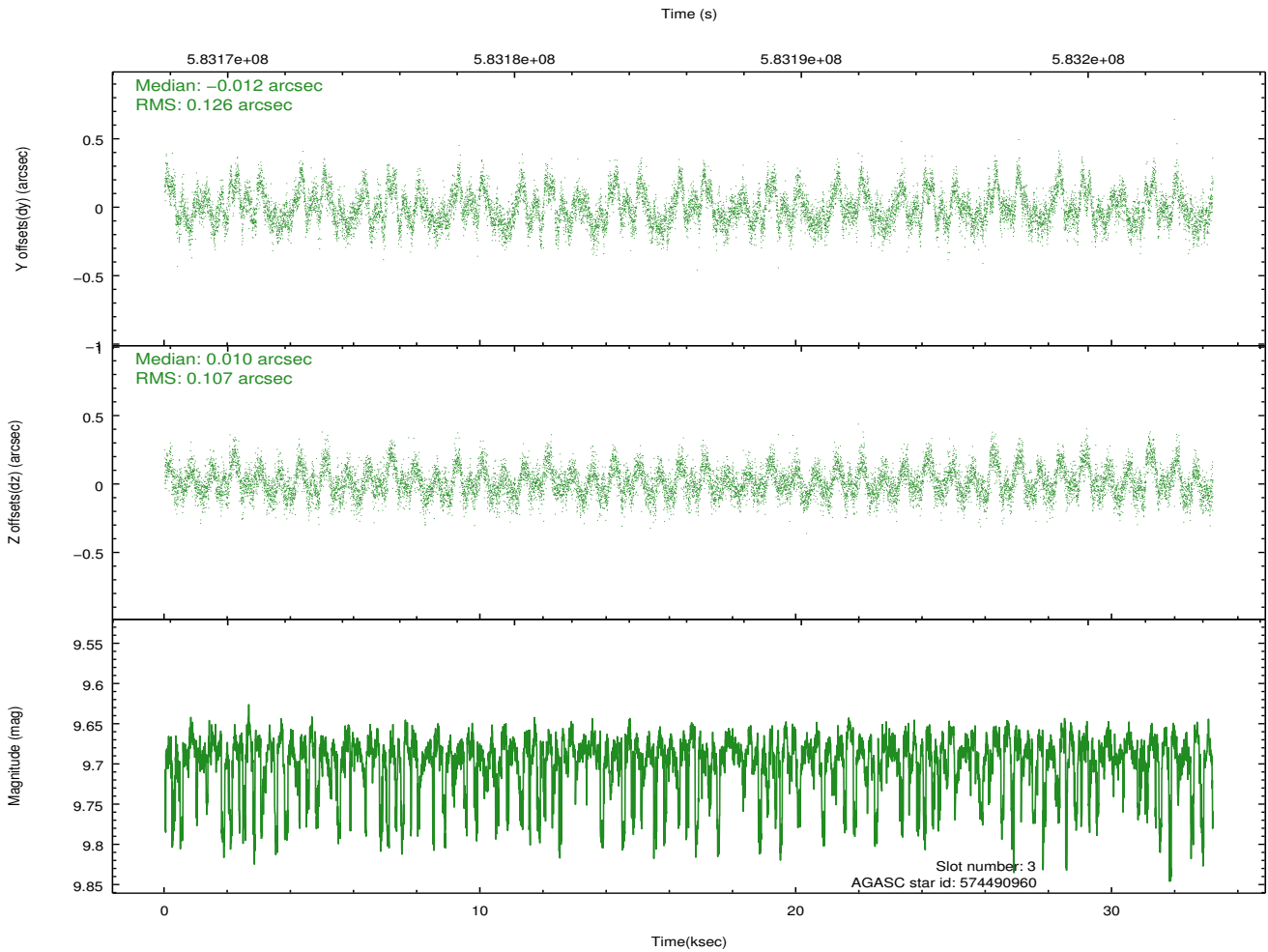
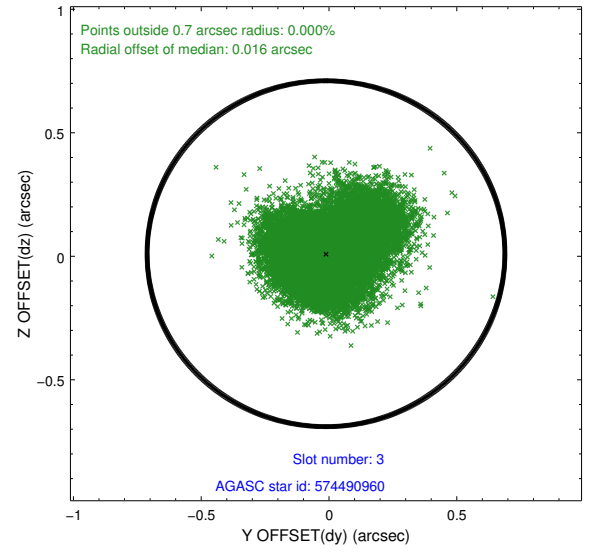
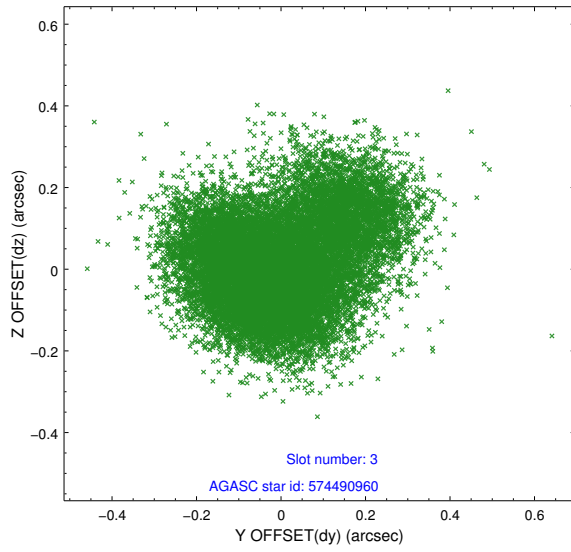


# Slot Statistics

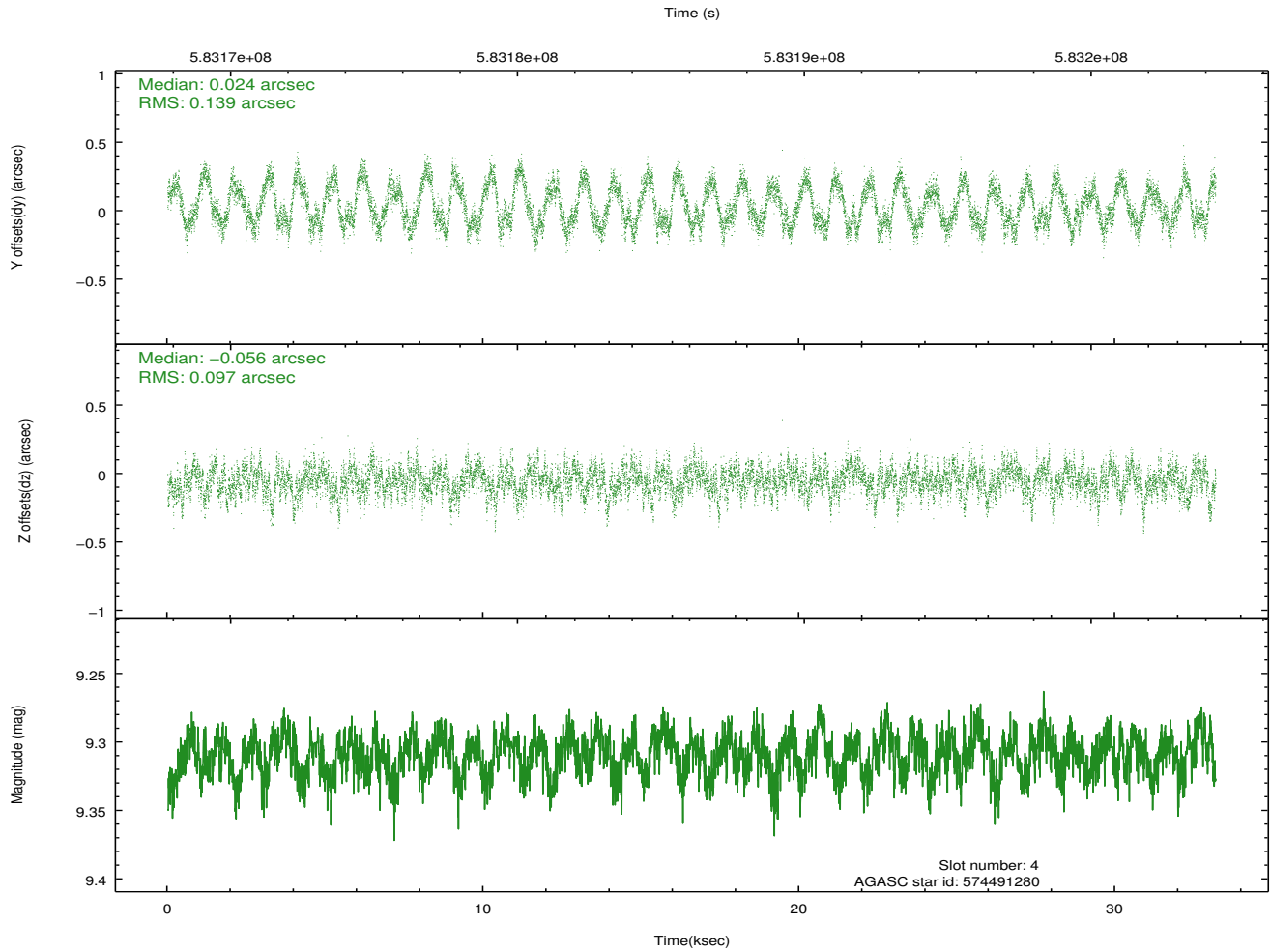
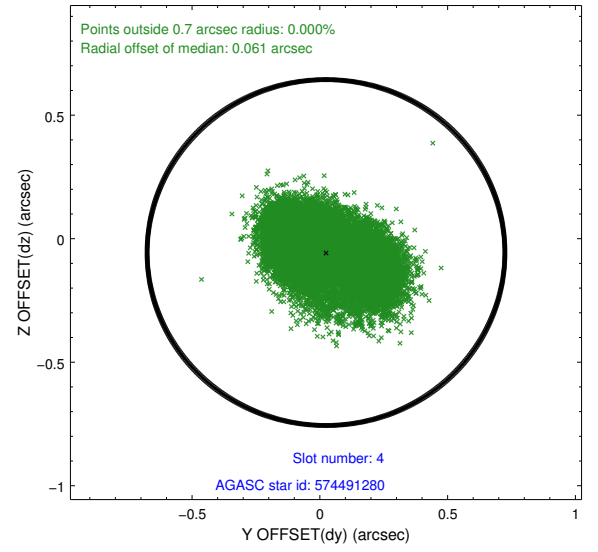
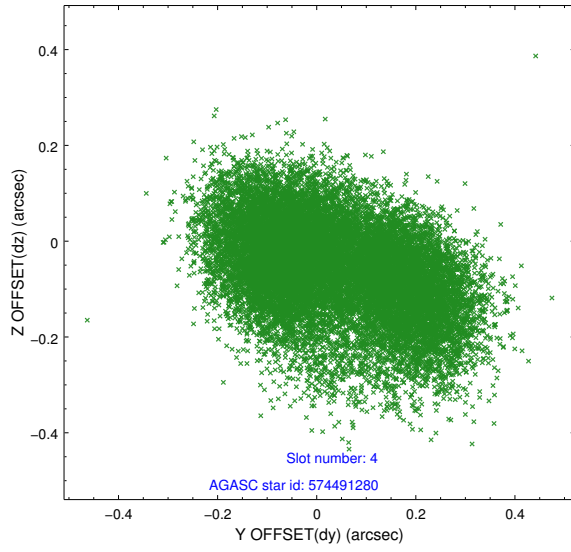
| slot | status | used | id        | mag   | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|------|-----------|-------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    |      | ACIS-I-1  | 7.24  | 8094  | 0.111  | -0.061 | 0.011 | 0.019 | 0.000000   | 0.000000  | 936.08   | -838.61  |
| 1    | FID    |      | ACIS-I-5  | 7.22  | 8094  | -0.268 | 0.097  | 0.008 | 0.014 | 0.000000   | 0.000000  | -1812.41 | 1058.96  |
| 2    | FID    |      | ACIS-I-6  | 7.23  | 8093  | 0.066  | 0.034  | 0.010 | 0.020 | 0.000000   | 0.000000  | 401.48   | 1703.50  |
| 3    | GUIDE  | used | 574490960 | 9.69  | 16159 | -0.012 | 0.010  | 0.175 | 0.290 | 148.185918 | 69.658768 | -2220.36 | 467.63   |
| 4    | GUIDE  | used | 574491280 | 9.31  | 16177 | 0.024  | -0.056 | 0.184 | 0.282 | 148.611567 | 69.450135 | -1322.59 | 678.40   |
| 5    | GUIDE  | used | 574496080 | 9.84  | 16164 | -0.131 | 0.128  | 0.261 | 0.417 | 149.336129 | 69.802025 | -2165.81 | 1991.04  |
| 6    | GUIDE  | used | 574500920 | 10.03 | 16149 | -0.110 | 0.004  | 0.294 | 0.432 | 147.014605 | 68.742334 | 236.27   | -2194.05 |
| 7    | GUIDE  | used | 574497600 | 10.39 | 16155 | 0.196  | -0.087 | 0.292 | 0.460 | 147.824120 | 68.451903 | 1615.23  | -1625.80 |

## 2.4 Star Slots

### 2.4.1 Slot 3

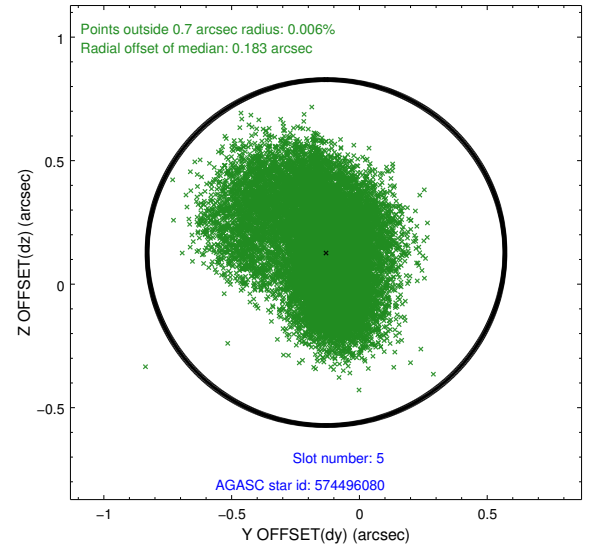
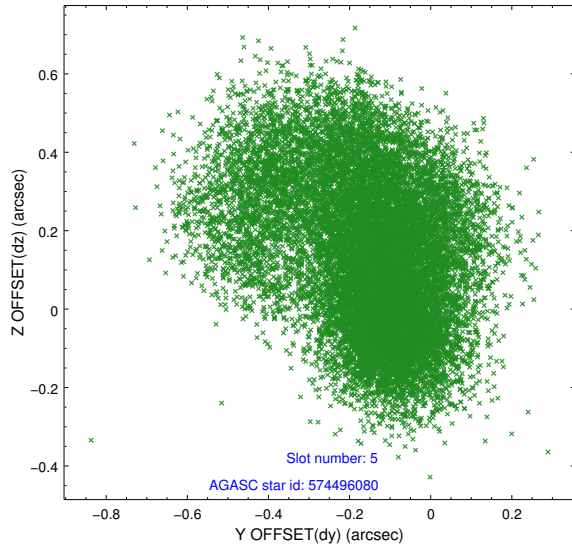


## 2.4.2 Slot 4

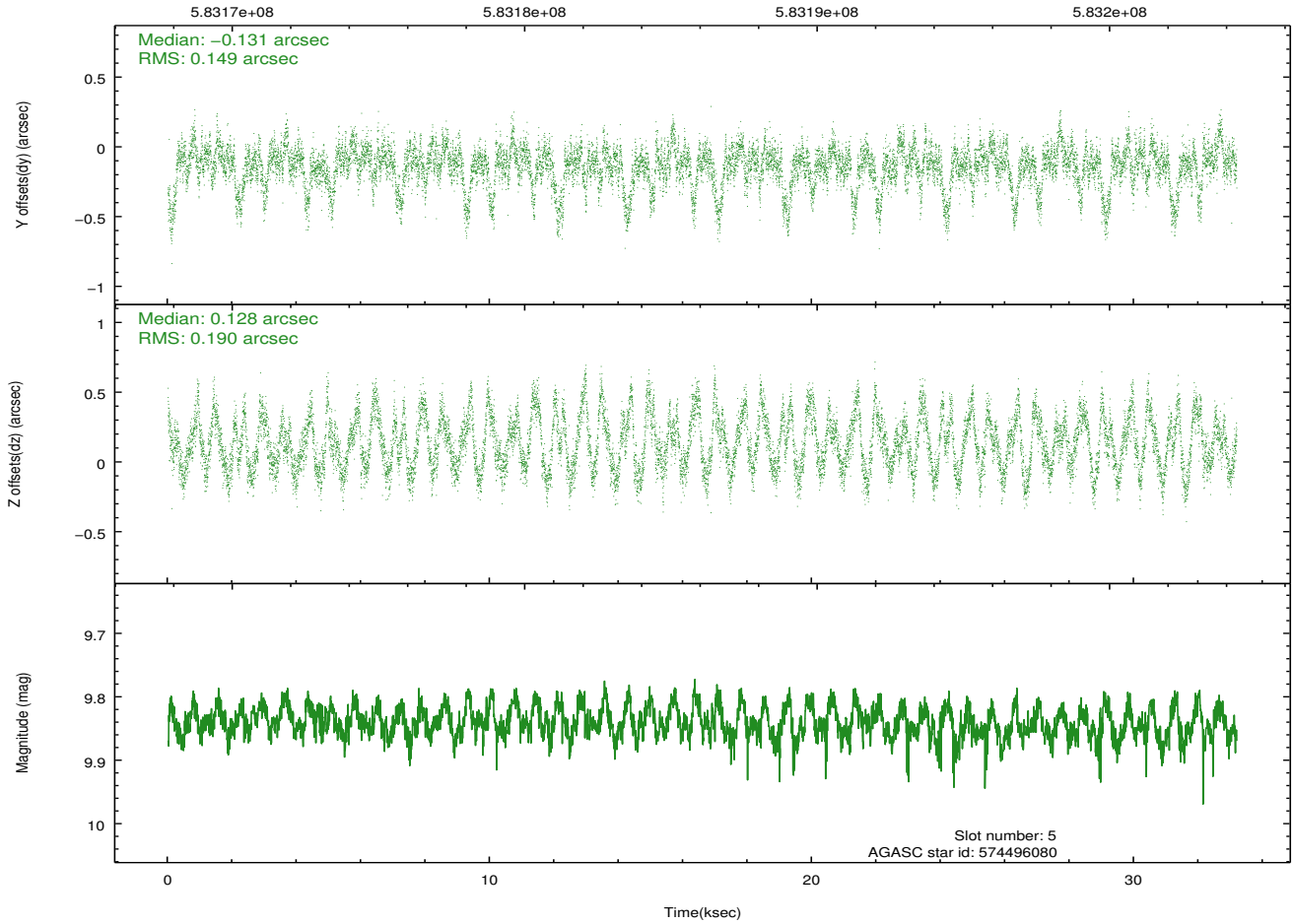




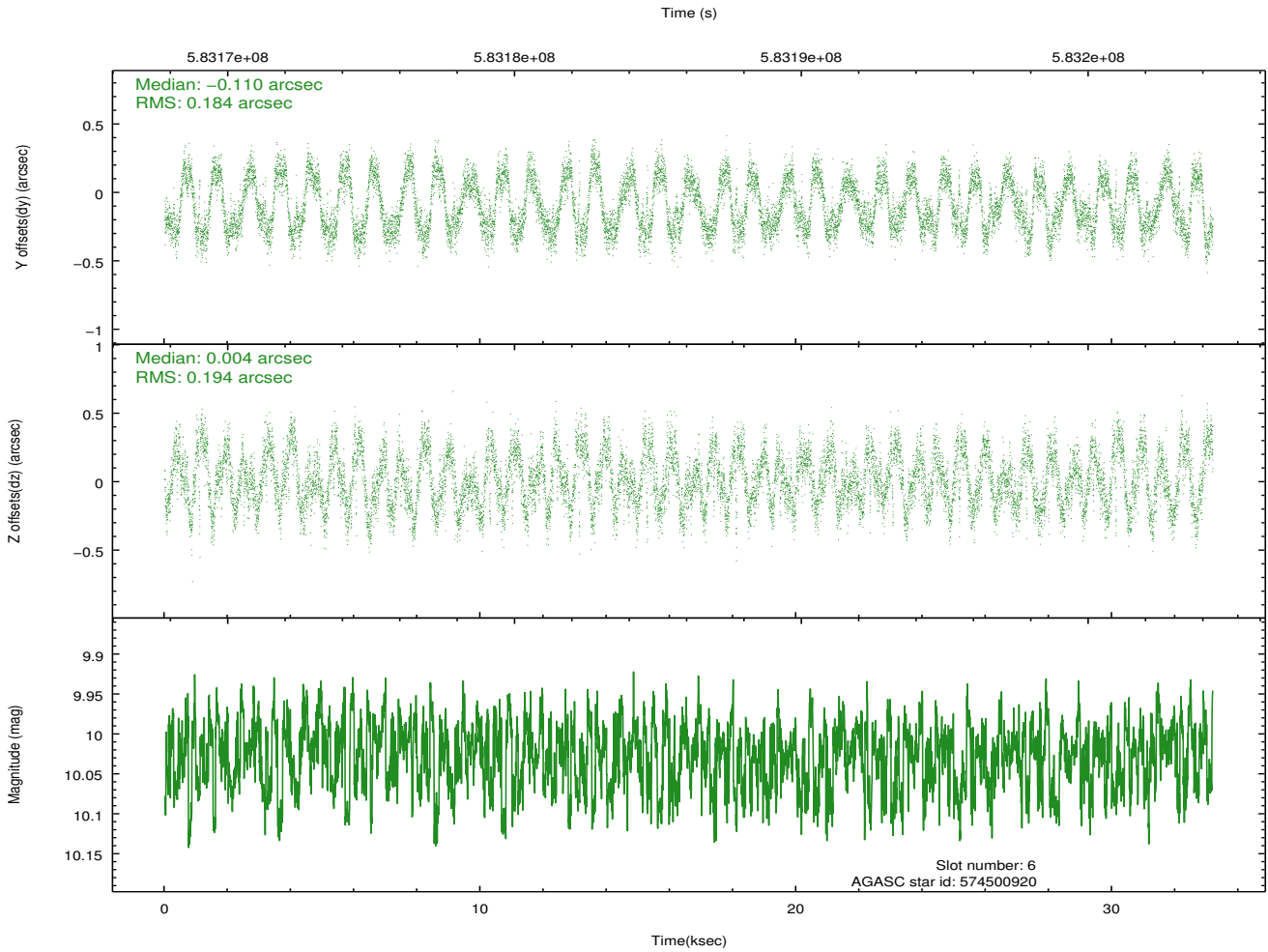
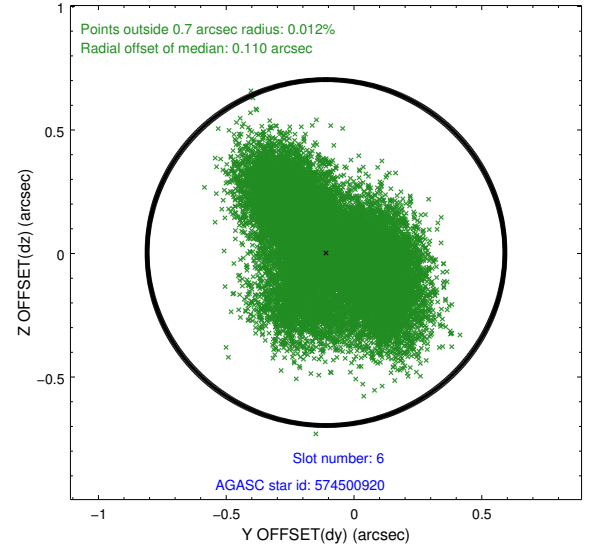
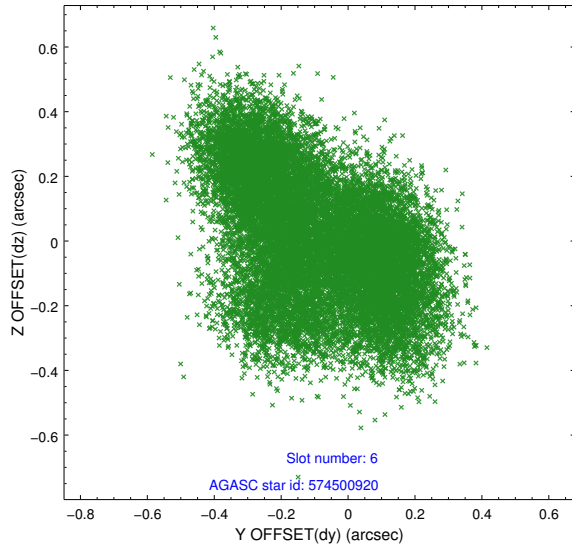
### 2.4.3 Slot 5



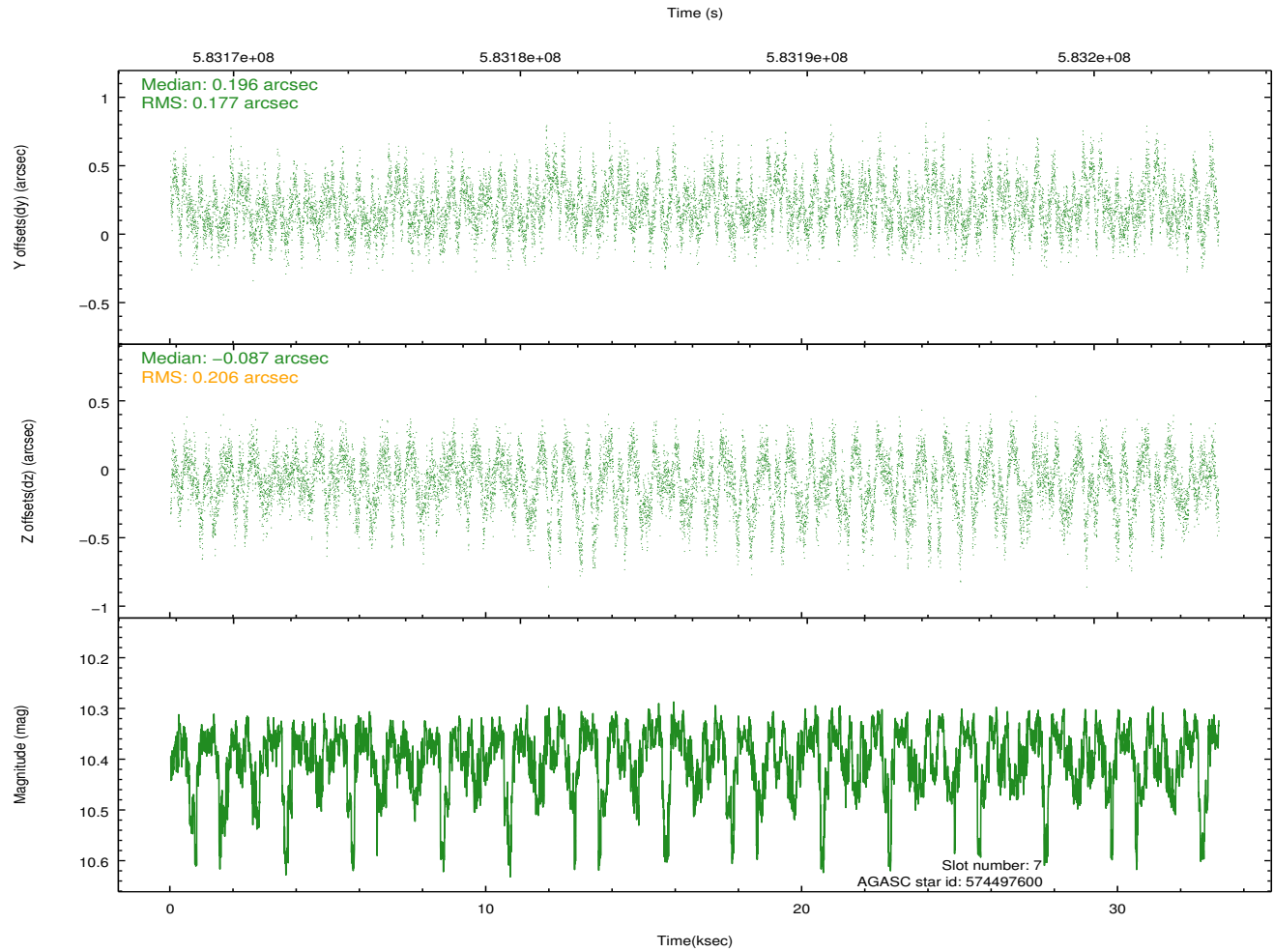
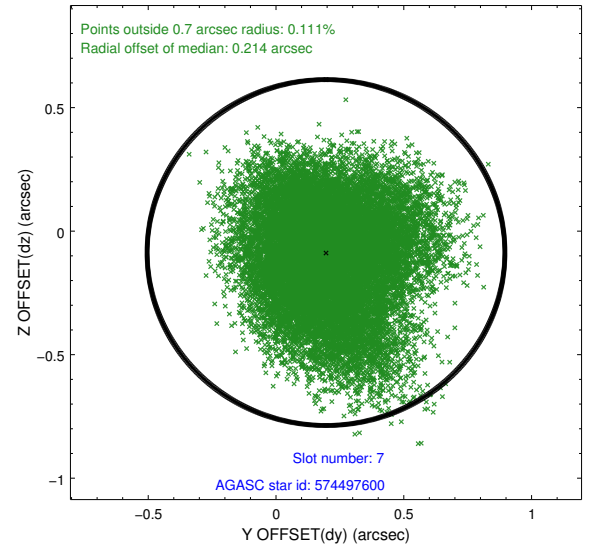
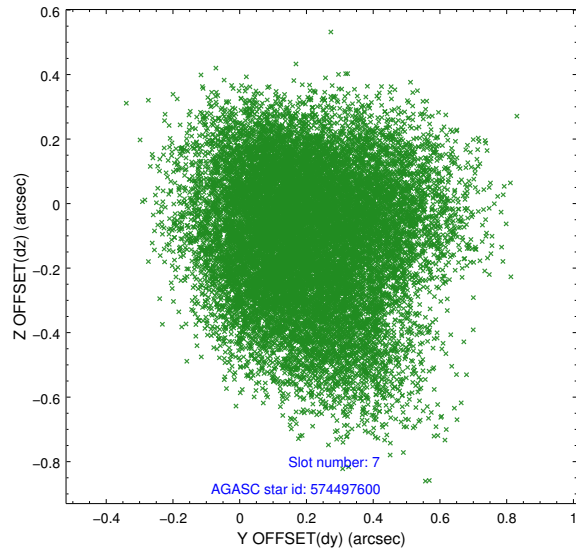
Time (s)



## 2.4.4 Slot 6

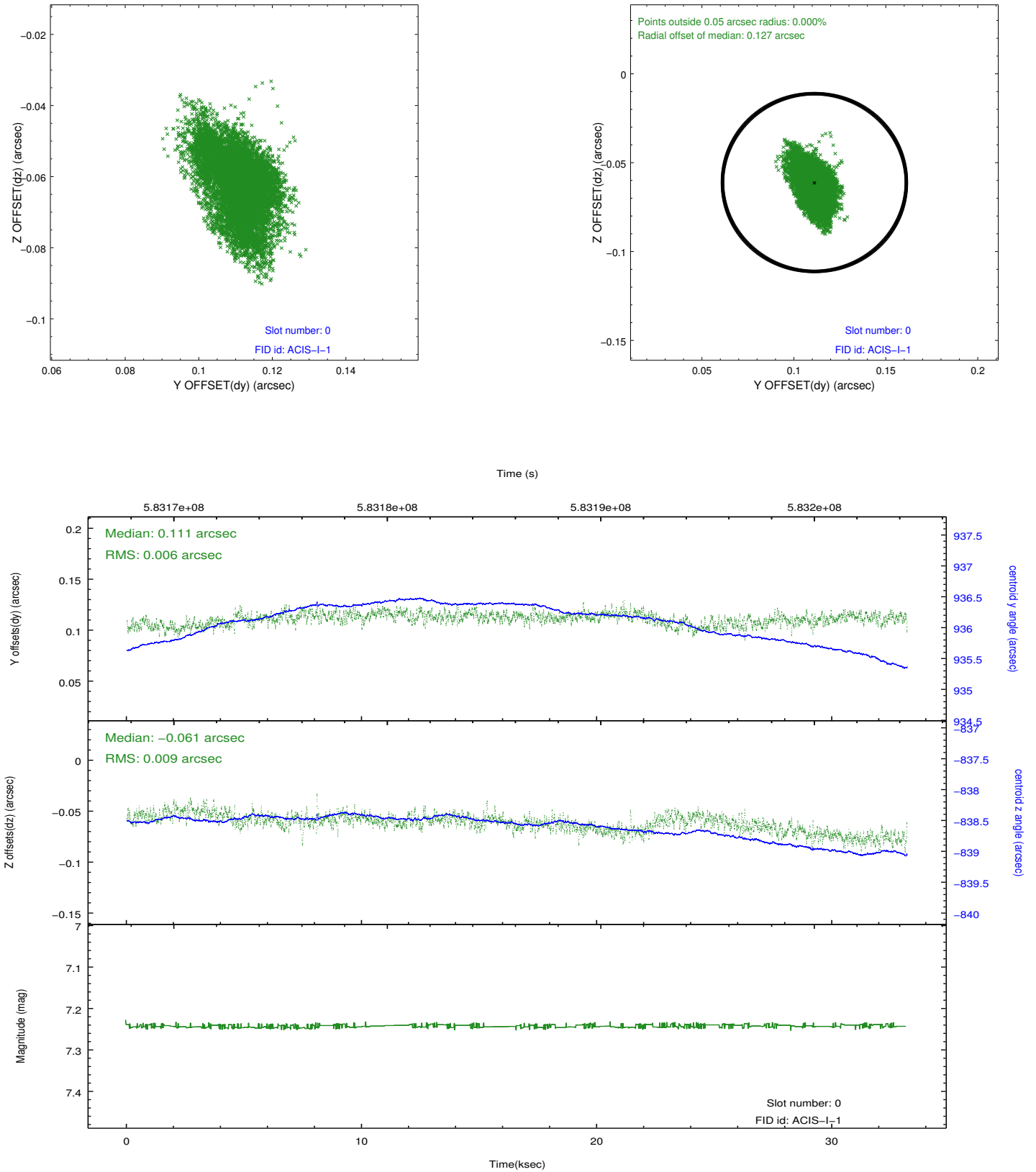


## 2.4.5 Slot 7

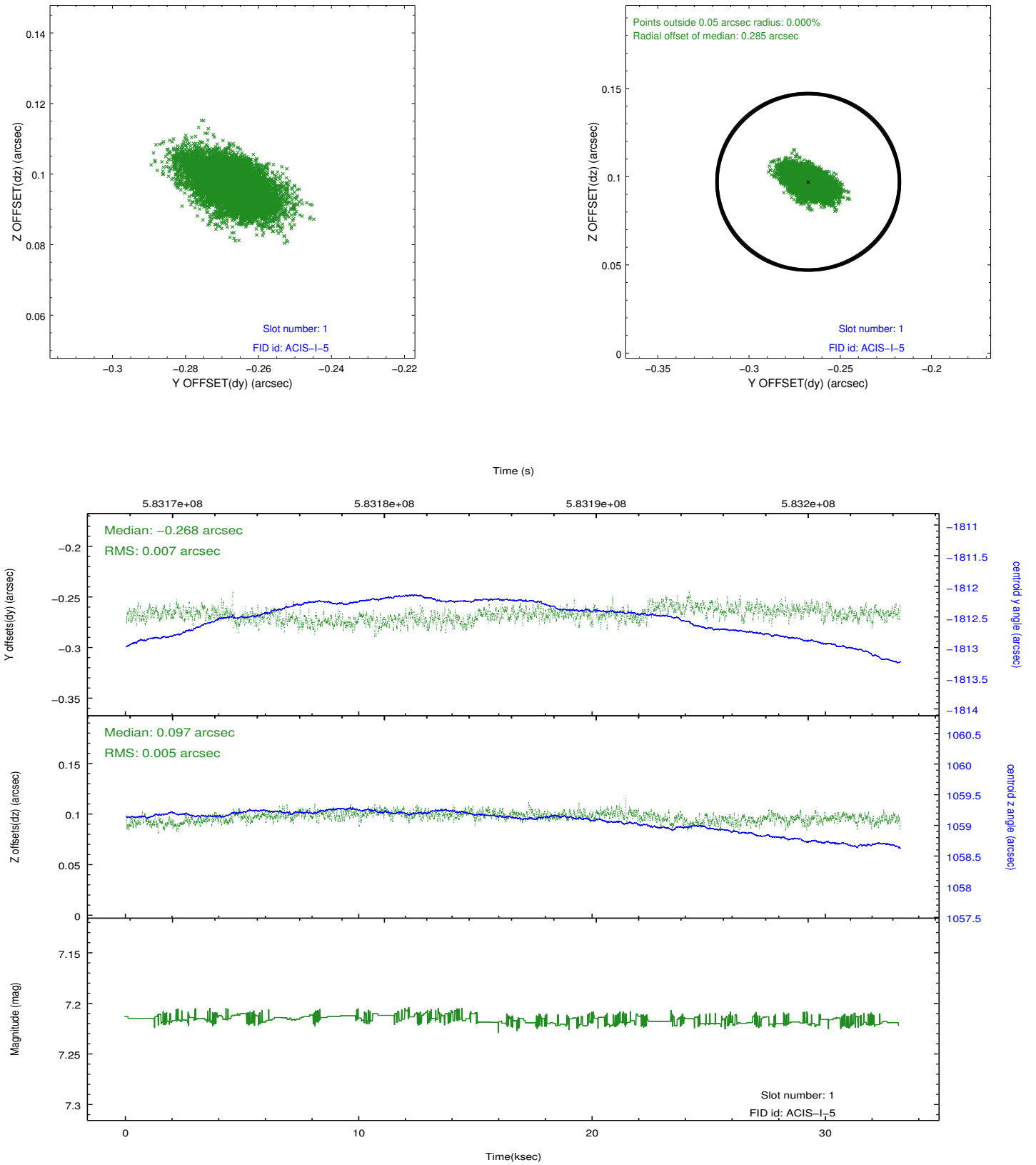


## 2.5 FID Slots

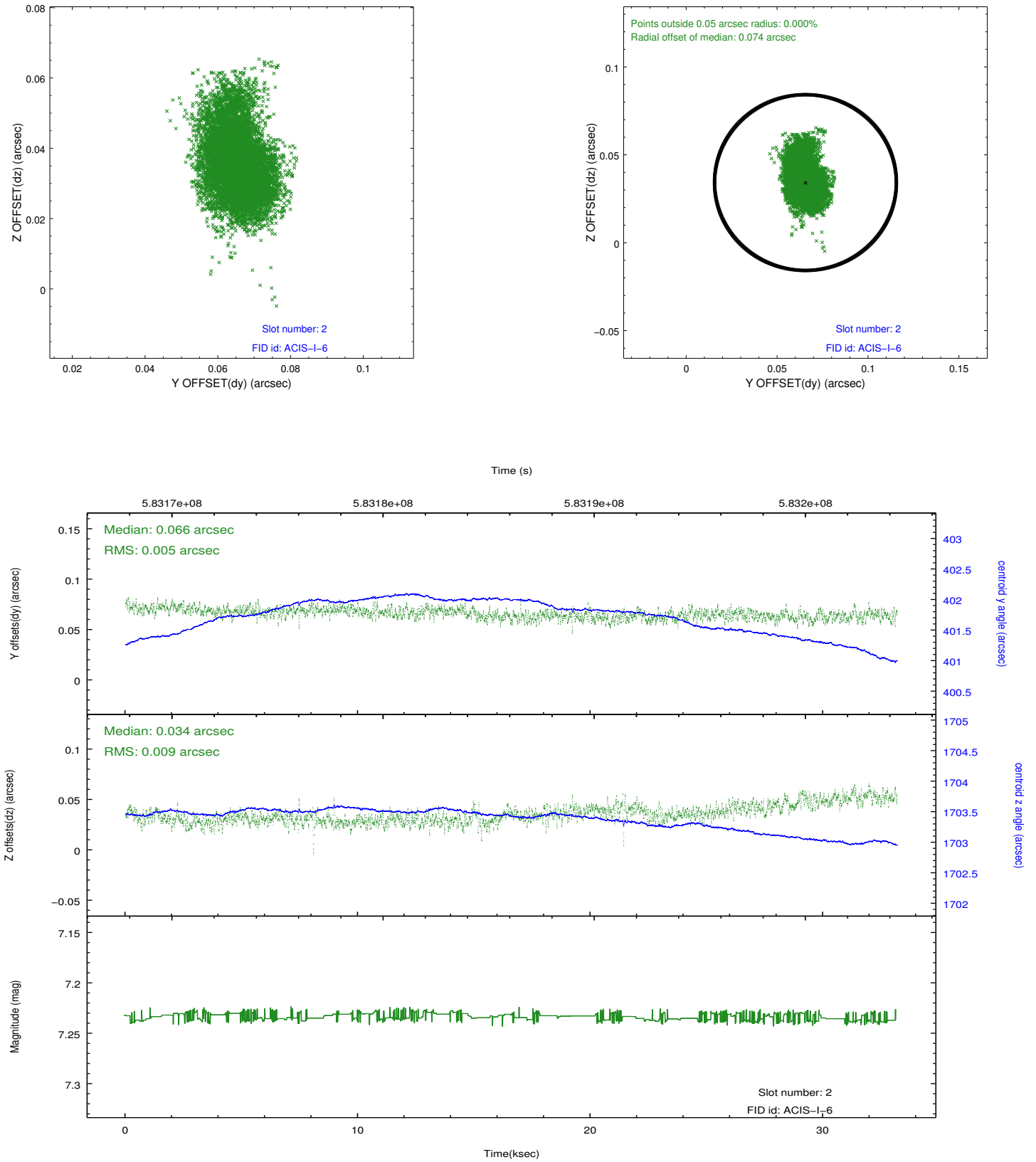
### 2.5.1 Slot 0



## 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)      | 2016.06.27      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 32.785559282064 |

### A.2 Comments