

# V&V Reference Report

## L2 ASCDS Version : 10.4.3.1

Observation 18804 - L2 Version 2  
Chandra X-Ray Center

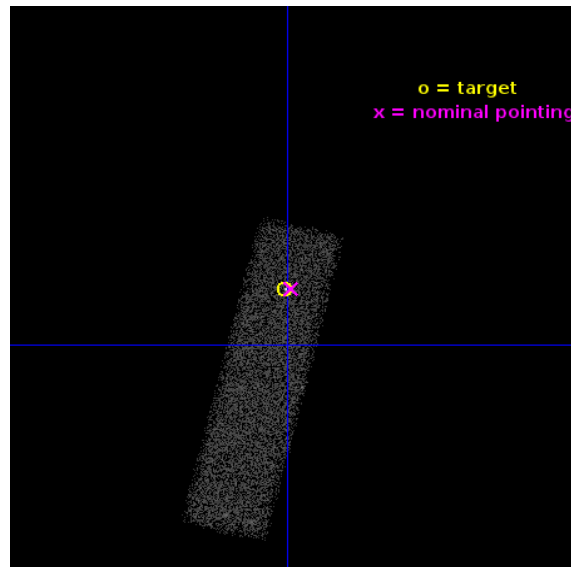
L2 Processing Date : Apr 29 2016

## 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  | 703296                                                                | Sequence number                             |
| obs_id   | 18804                                                                 | Observation id                              |
| title    | Image D Of Huchra's Lensed Quasar: Waiting For The Other Shoe To Drop | Proposal title                              |
| observer | David Pooley                                                          | Principal investigator                      |
| object   | QSO 2237+0305                                                         | Source name                                 |
| dtcycle  | 0                                                                     | &#160                                       |
| cycle    | P                                                                     | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 340.125833                                                            | Observer's specified target RA [deg]        |
| dec_targ | 3.3585                                                                | Observer's specified target Dec [deg]       |
| ra_nom   | 340.12312394229                                                       | Nominal RA [deg]                            |
| dec_nom  | 3.3586796234215                                                       | Nominal Dec [deg]                           |
| roll_nom | 103.94341129968                                                       | Nominal Roll [deg]                          |
| revision | 2                                                                     | Processing version of data                  |
| ontime   | 30062.316127896                                                       | Sum of GTIs [s]                             |
| livetime | 28595.37346894                                                        | Livetime [s]                                |
| ontime7  | 30062.316127896                                                       | Sum of GTIs [s]                             |
| l2events | 18391                                                                 | Number of level 2 events                    |

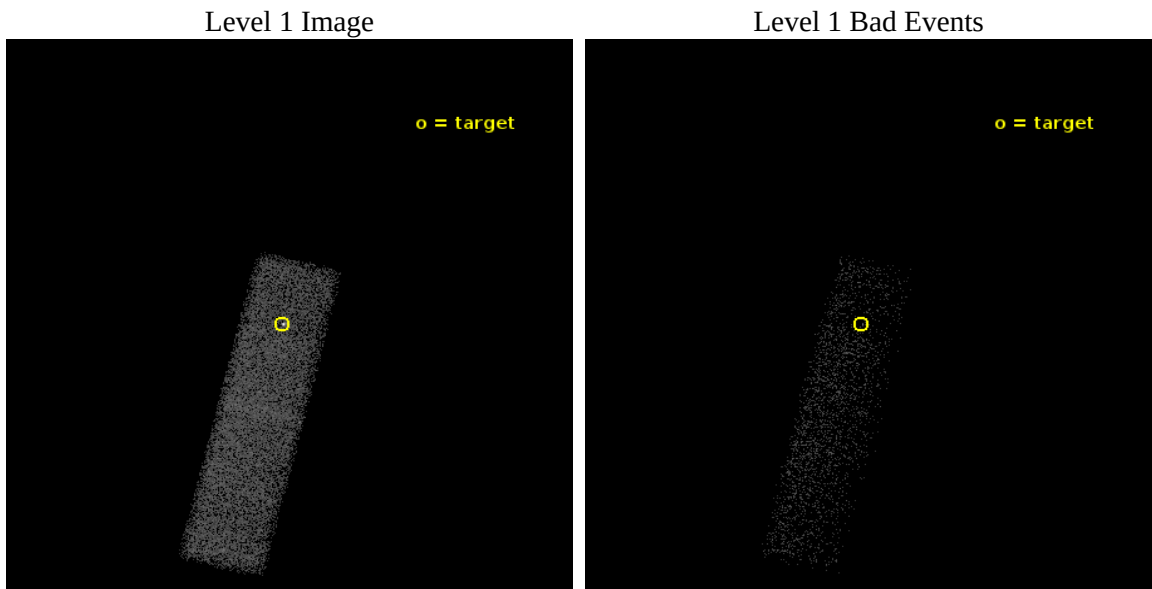




## 2 OBI

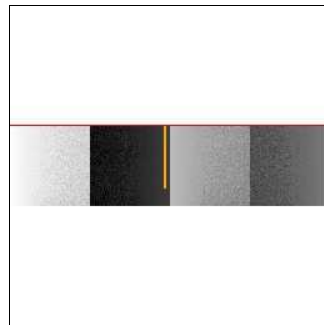
### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias

Chip 7



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 30000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 10.4.3.1            | Processing system revision     | ontime         | 30062.316127896 | Sum of GTIs [s]                         |
| caldsver | 4.7.1               | &#160                          | ontime7        | 30062.316127896 | Sum of GTIs [s]                         |
| date     | 2016-04-29T21:01:45 | Date and time of file creation | l1events       | 30327           | Number of level 1 events                |
| revision | 2                   | Processing version of data     |                |                 |                                         |

### 2.1.4 Events

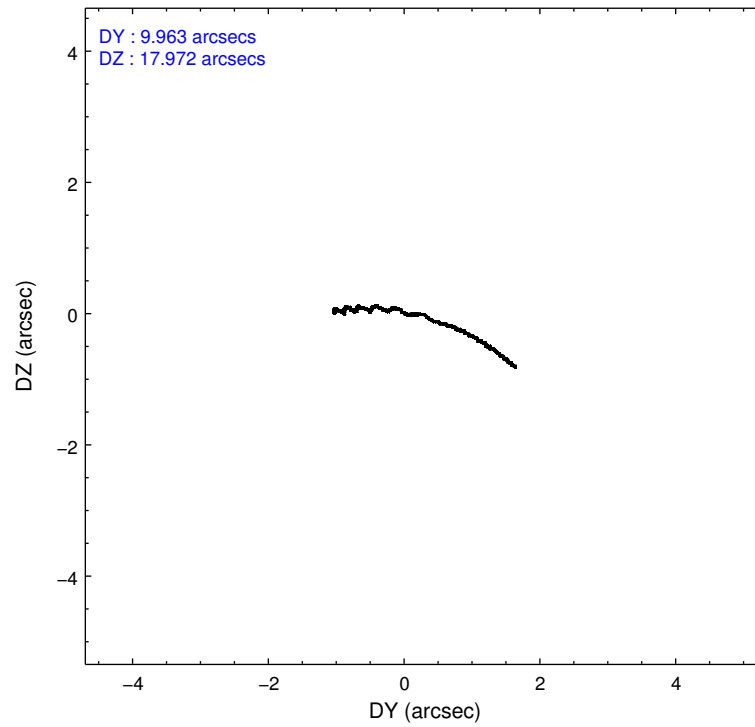
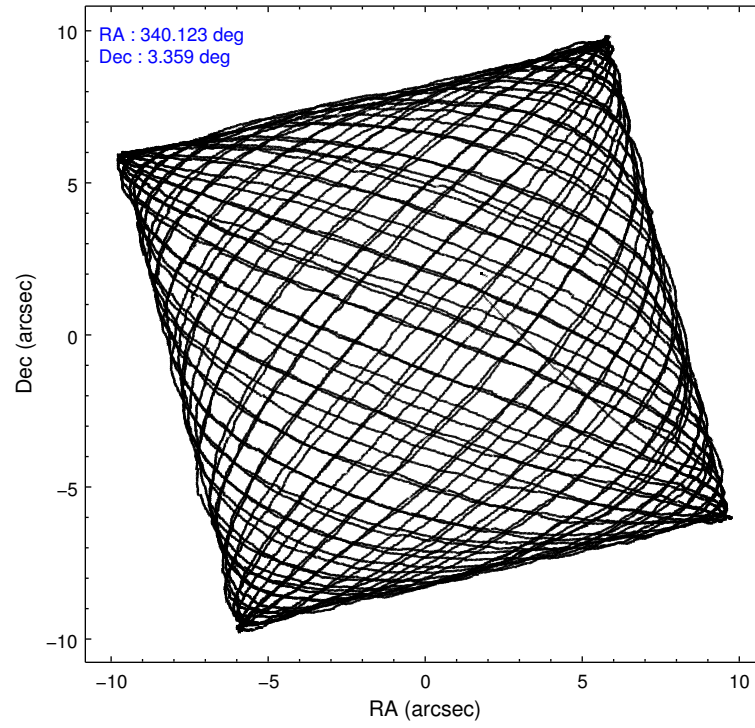
|                 |              |
|-----------------|--------------|
|                 | <b>ccd 7</b> |
| level 1 events  | 30327        |
| rejected events | 11158        |
| rejected %      | 36%          |

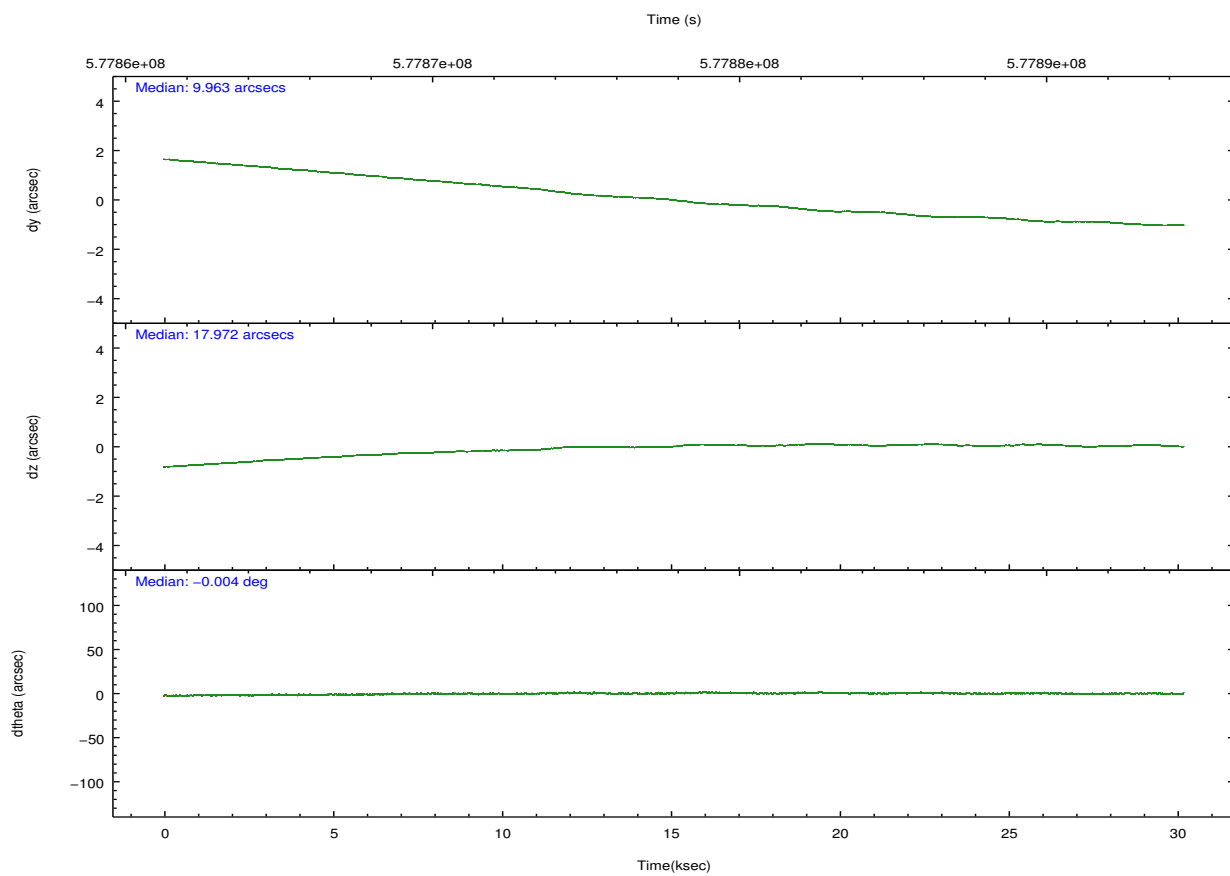
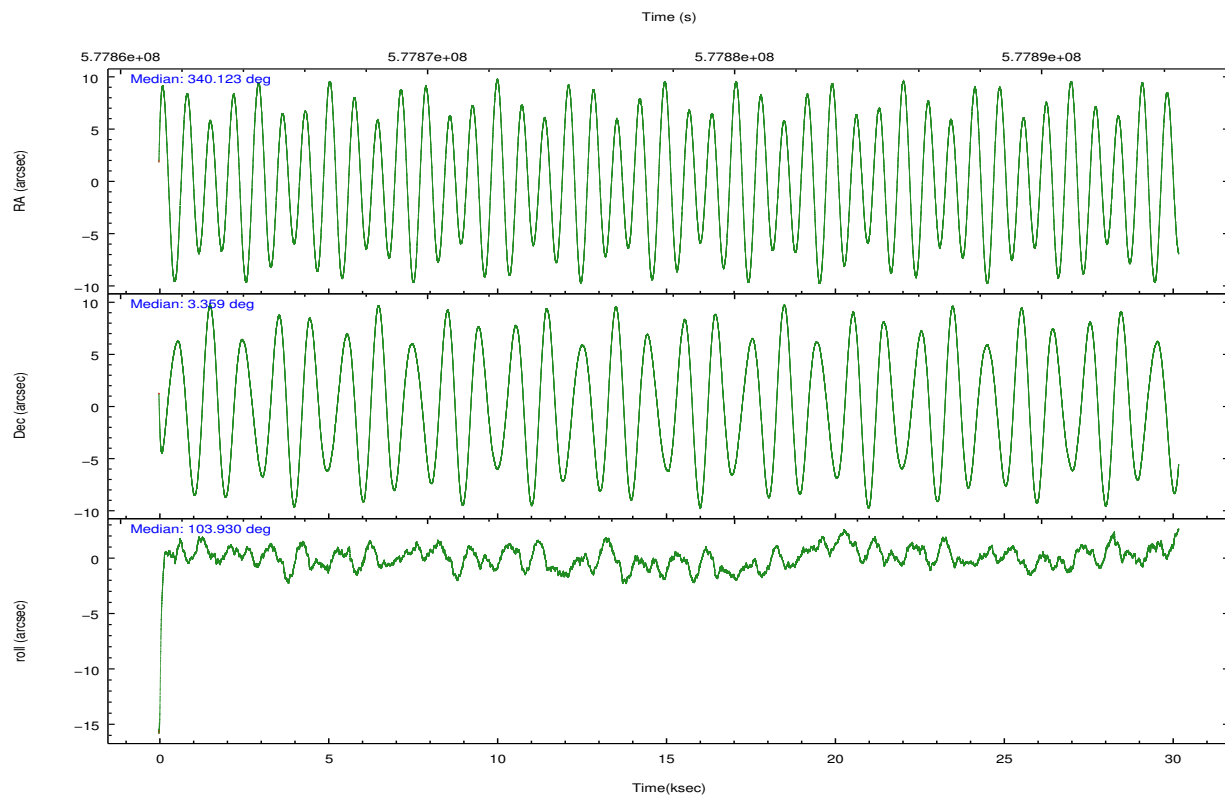
|                |              |
|----------------|--------------|
|                | <b>ccd 7</b> |
| grade 0 events | 2748         |
|                | 9%           |
| grade 1 events | 81           |
|                | 0%           |
| grade 2 events | 4509         |
|                | 14%          |
| grade 3 events | 2415         |
|                | 7%           |
| grade 4 events | 2390         |
|                | 7%           |
| grade 5 events | 2870         |
|                | 9%           |
| grade 6 events | 7107         |
|                | 23%          |
| grade 7 events | 8207         |
|                | 27%          |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-7              | ACIS-7               | 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                 | 340.142447          | 340.1231239422914    | Subarray requested                    | CUSTOM    | 1/4     |
| [deg] Pointing Dec                | 3.339179            | 3.358679623421486    | Subarray start row                    | 385       | 385     |
| [deg] Pointing Roll               | 103.785661          | 103.9434112996803    | Subarray row count                    | 256       | 256     |
| [mm] SIM focus pos                | -0.684267           | -0.6828225247311905  | Alternating exposures requested       | N         | N       |
| [mm] SIM defocus                  | 0                   | 0.001444936568705701 | [s] Primary exposure time             | 0.000000  | 0.8     |
| [mm] SIM translation stage pos    | -190.132523         | -190.1400660498719   |                                       |           |         |
| [mm] SIM translation stage offset | 0                   | 0.00754346686406393  |                                       |           |         |
| [s] Observation start time (MET)  | 577862946.184000    | 577861670.17498      |                                       |           |         |
| Observation start date            | 2016-04-24T05:27:58 | 2016-04-24T05:07:50  |                                       |           |         |
| [s] Observation end time (MET)    | 577892946.184000    | 577893500.0143       |                                       |           |         |
| Observation end date              | 2016-04-24T13:47:58 | 2016-04-24T13:58:20  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



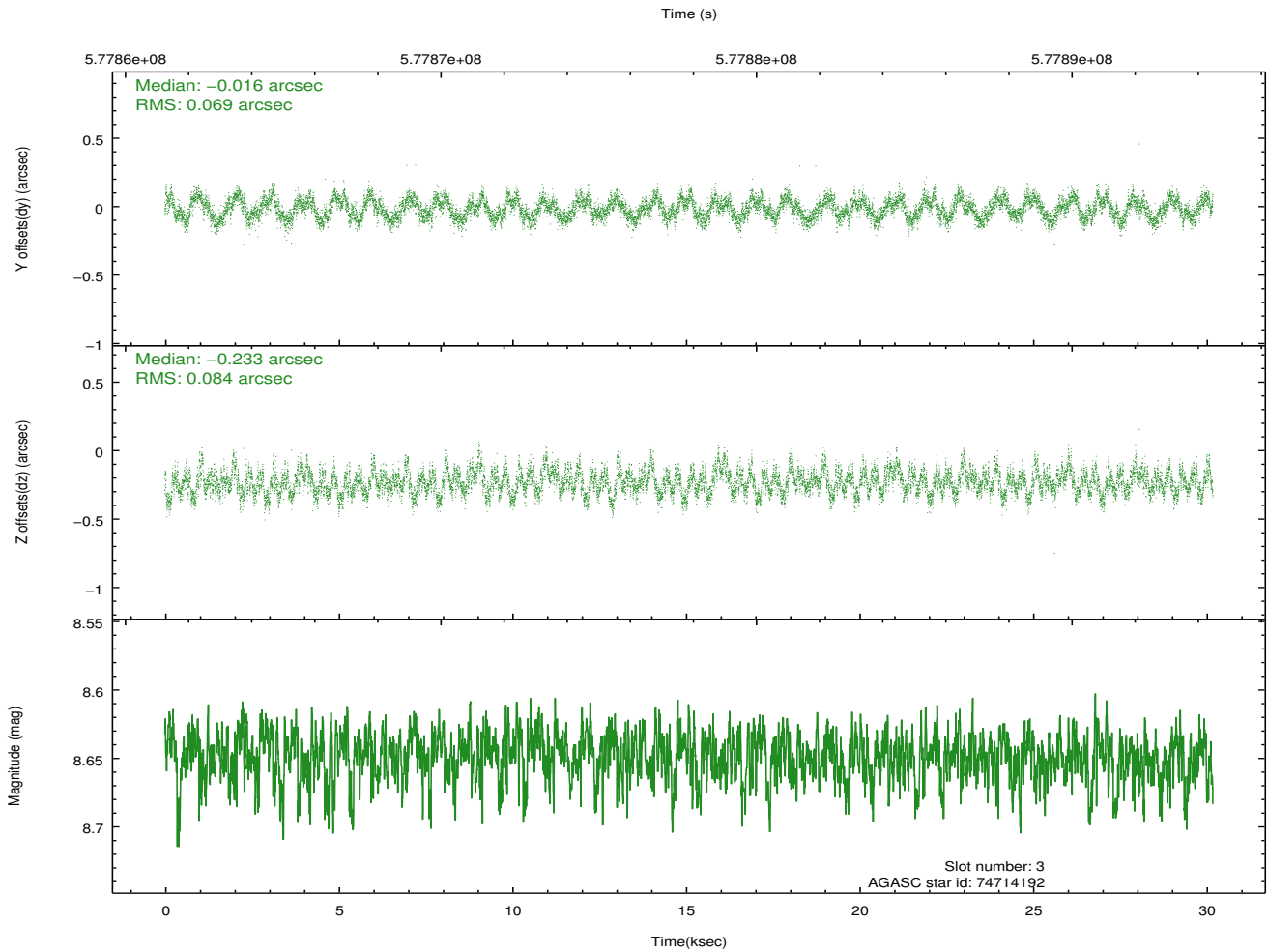
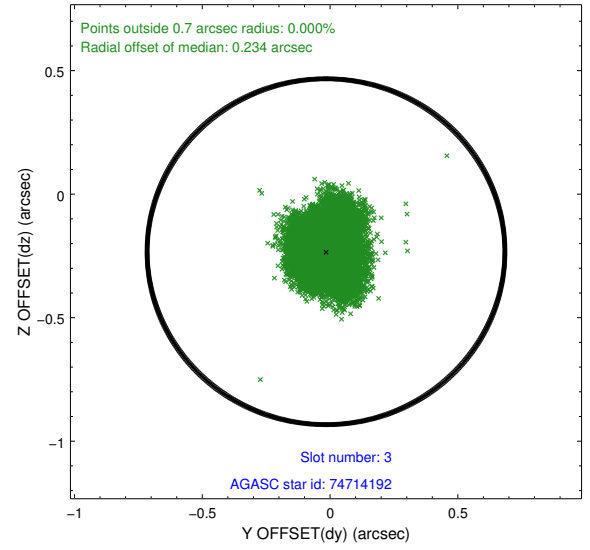
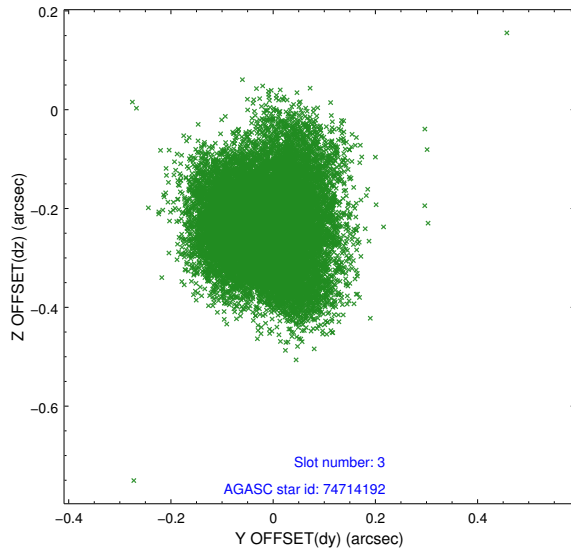


# Slot Statistics

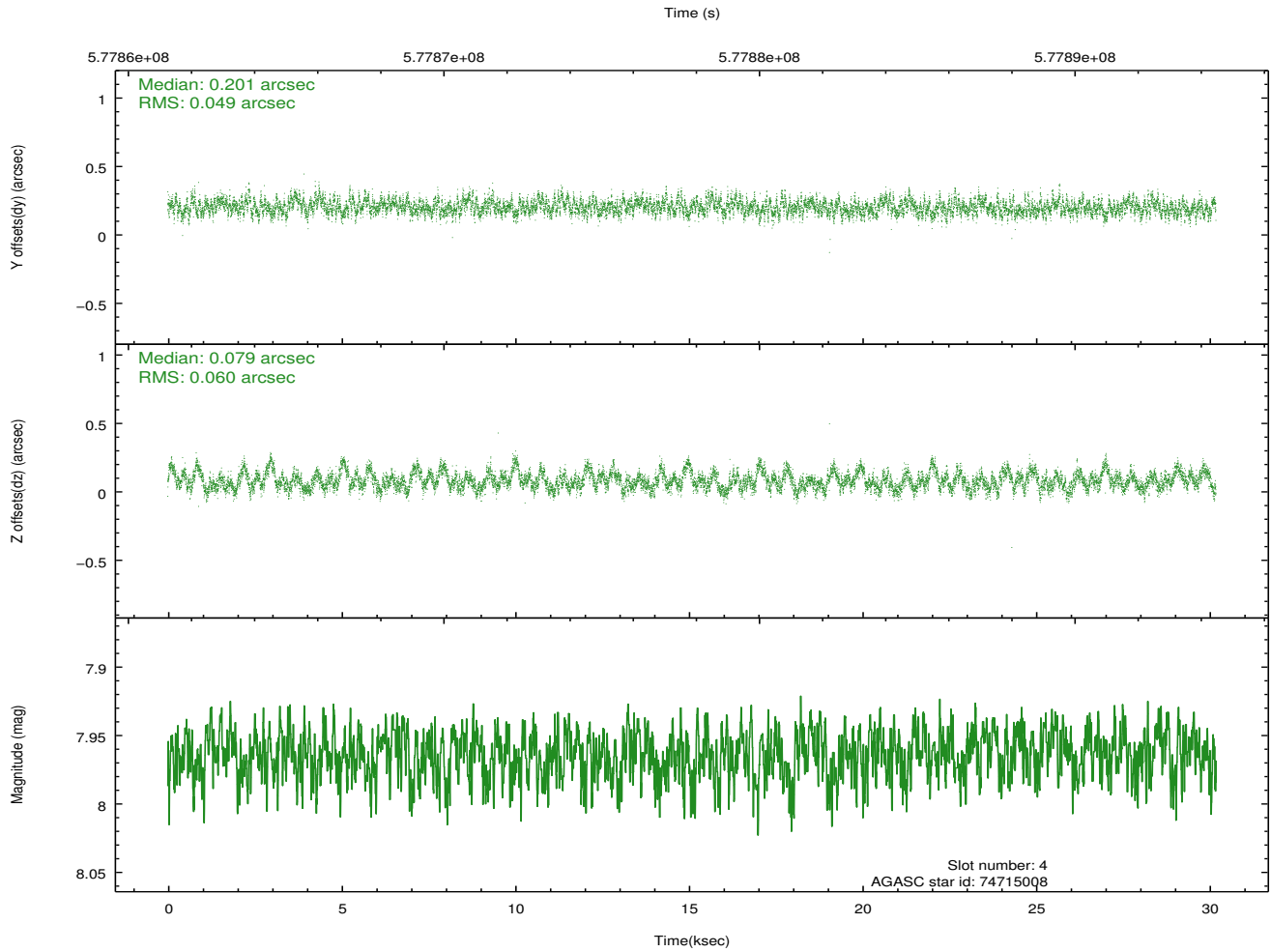
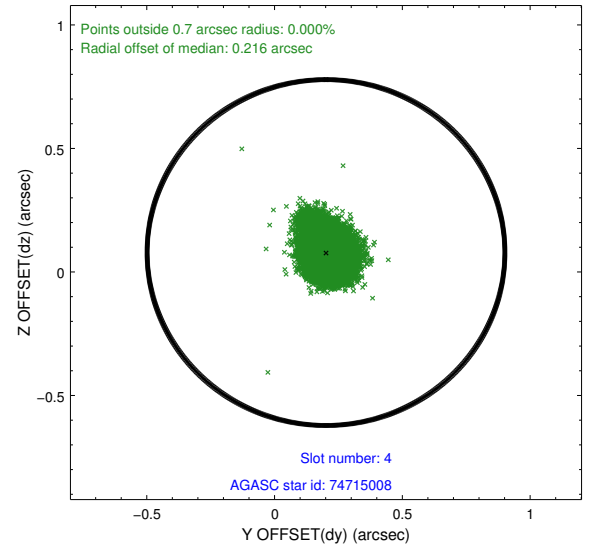
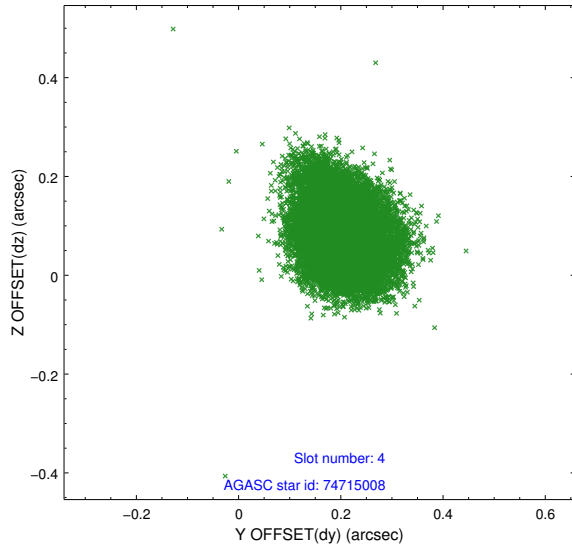
| slot | status | used | id       | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec      | mean_y   | mean_z   |
|------|--------|------|----------|------|-------|--------|--------|-------|-------|------------|----------|----------|----------|
| 0    | FID    |      | ACIS-S-2 | 7.10 | 7363  | -0.131 | -0.110 | 0.014 | 0.023 | 0.000000   | 0.000000 | -763.05  | -1739.41 |
| 1    | FID    |      | ACIS-S-4 | 7.21 | 7362  | 0.374  | 0.093  | 0.016 | 0.041 | 0.000000   | 0.000000 | 2150.71  | 169.18   |
| 2    | FID    |      | ACIS-S-5 | 7.23 | 7363  | -0.269 | 0.027  | 0.011 | 0.019 | 0.000000   | 0.000000 | -1815.92 | 162.89   |
| 3    | GUIDE  | used | 74714192 | 8.65 | 14719 | -0.016 | -0.233 | 0.116 | 0.184 | 339.623837 | 3.342441 | 455.97   | 1806.94  |
| 4    | GUIDE  | used | 74715008 | 7.96 | 14726 | 0.201  | 0.079  | 0.082 | 0.134 | 339.956848 | 3.242441 | -178.76  | 730.86   |
| 5    | GUIDE  | used | 74727584 | 6.93 | 14727 | -0.159 | -0.107 | 0.079 | 0.120 | 339.633744 | 3.463732 | 871.38   | 1668.37  |
| 6    | GUIDE  | used | 74854992 | 8.25 | 14725 | 0.030  | 0.432  | 0.072 | 0.115 | 340.342808 | 3.603730 | 753.88   | -925.12  |
| 7    | GUIDE  | used | 74855640 | 8.82 | 14650 | -0.061 | -0.173 | 0.089 | 0.146 | 340.341123 | 3.746937 | 1256.23  | -1043.10 |

## 2.4 Star Slots

### 2.4.1 Slot 3

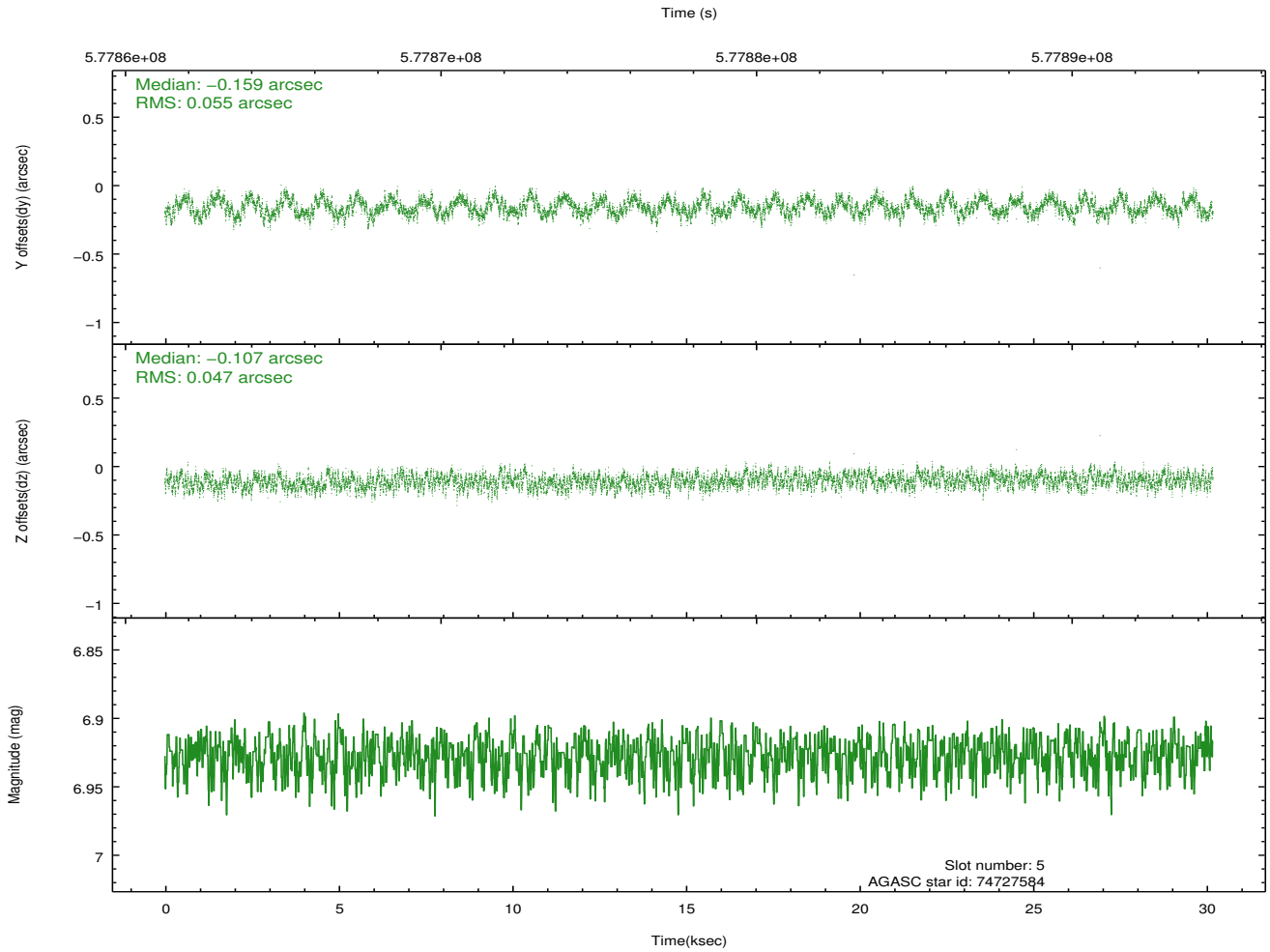
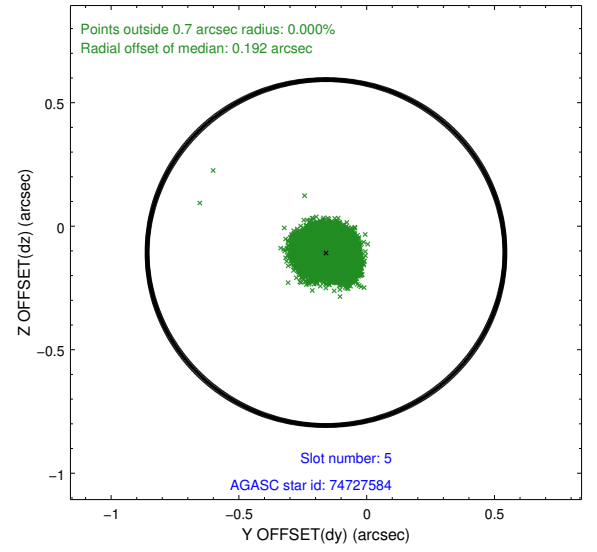
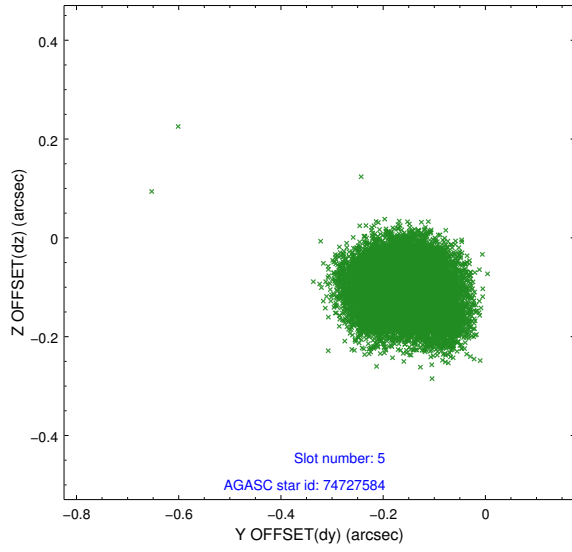


## 2.4.2 Slot 4

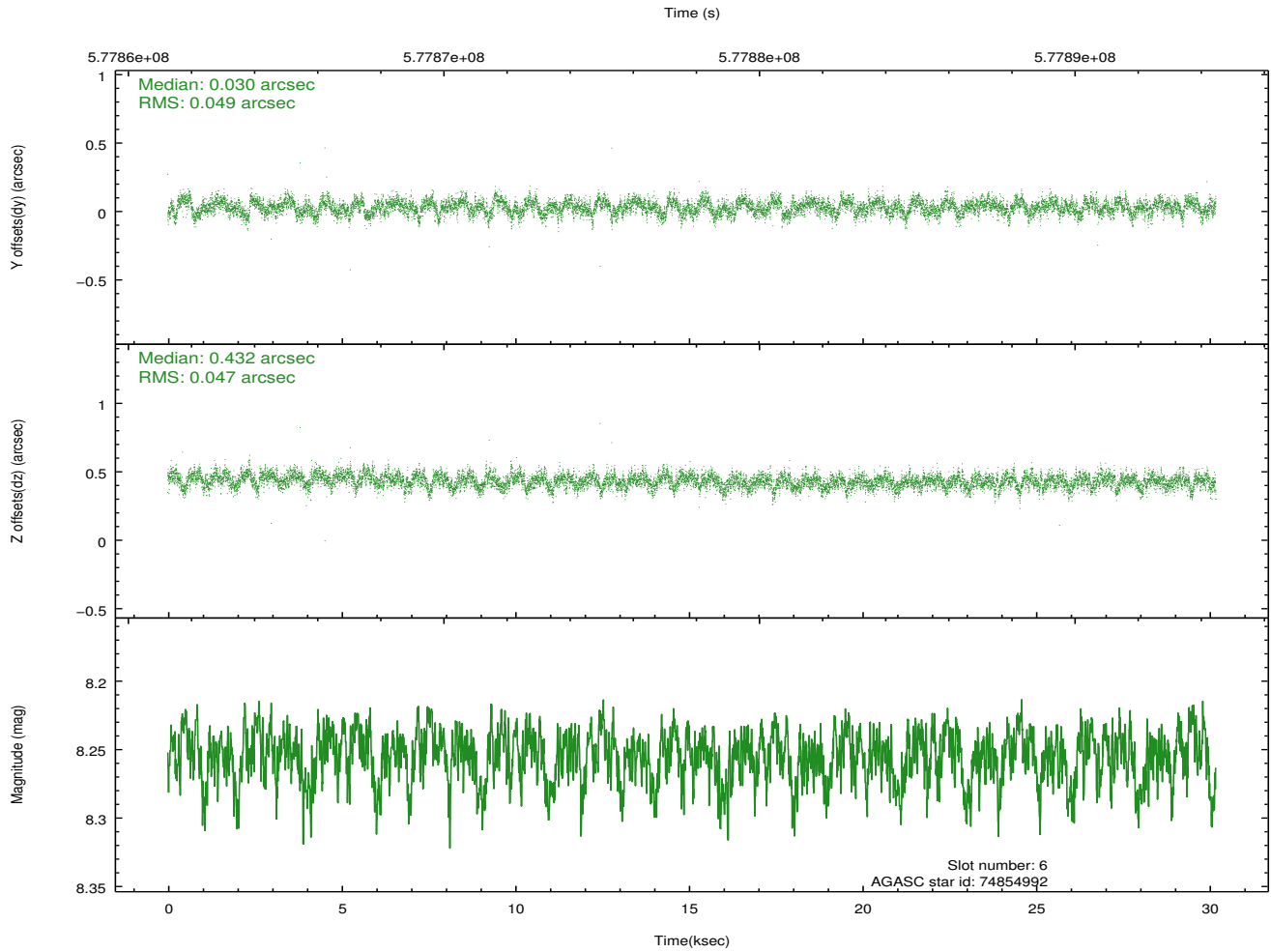
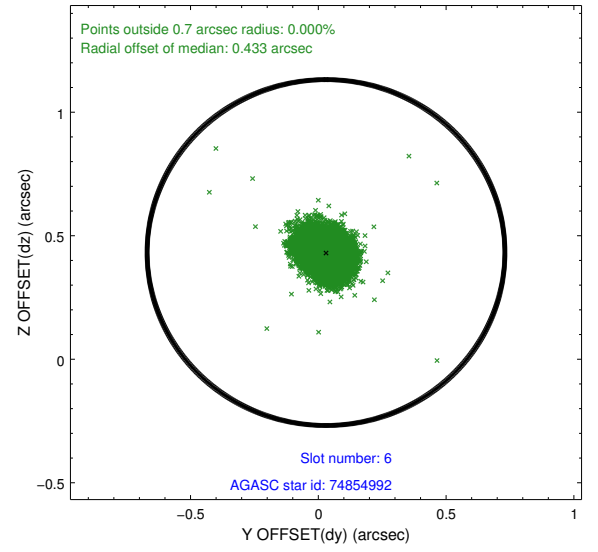
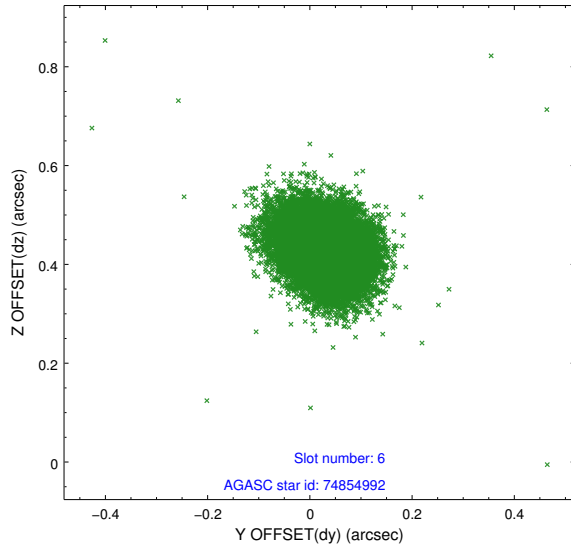




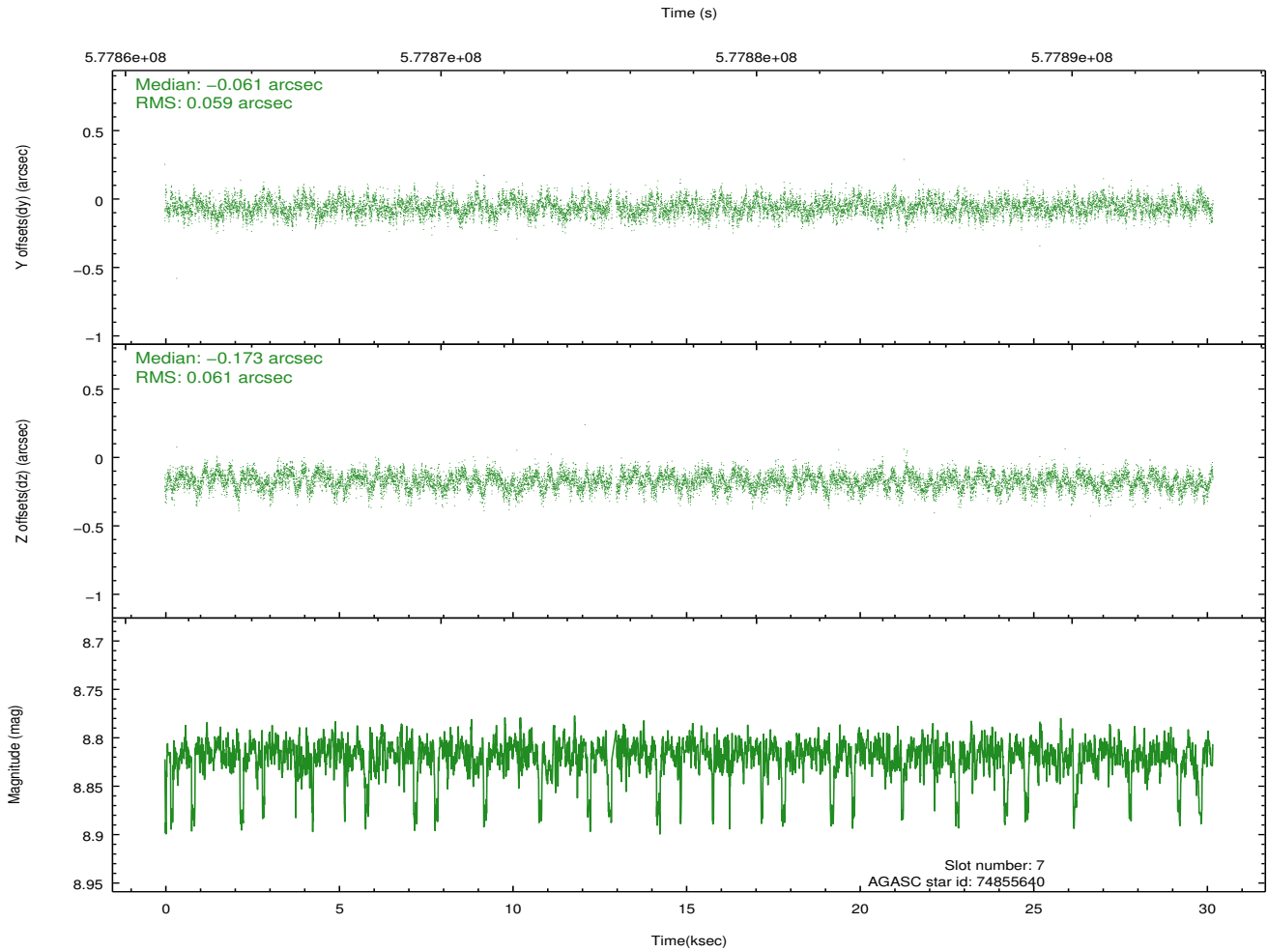
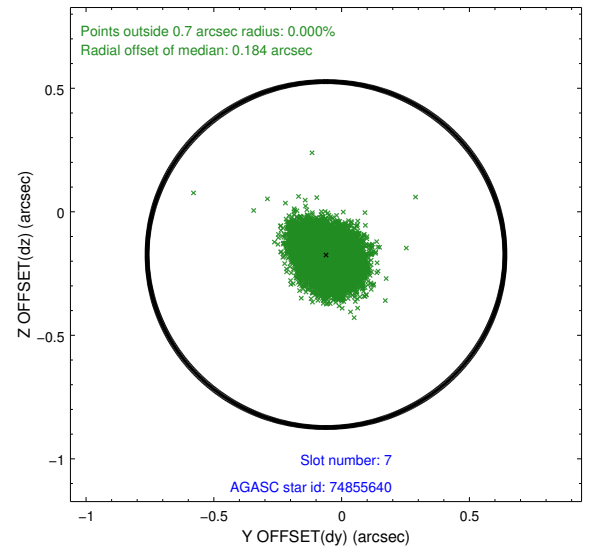
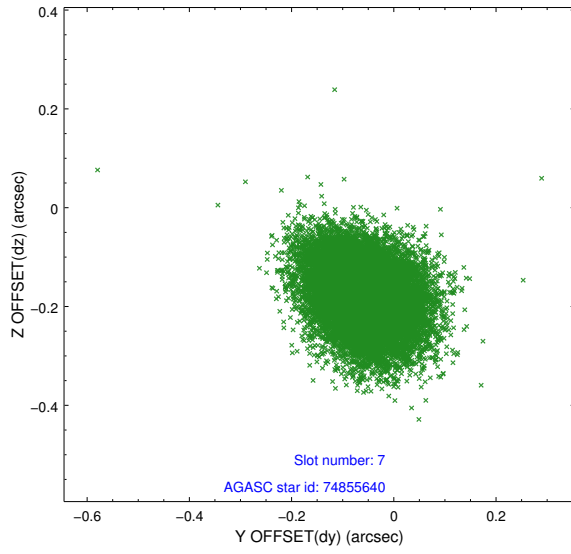
### 2.4.3 Slot 5



## 2.4.4 Slot 6

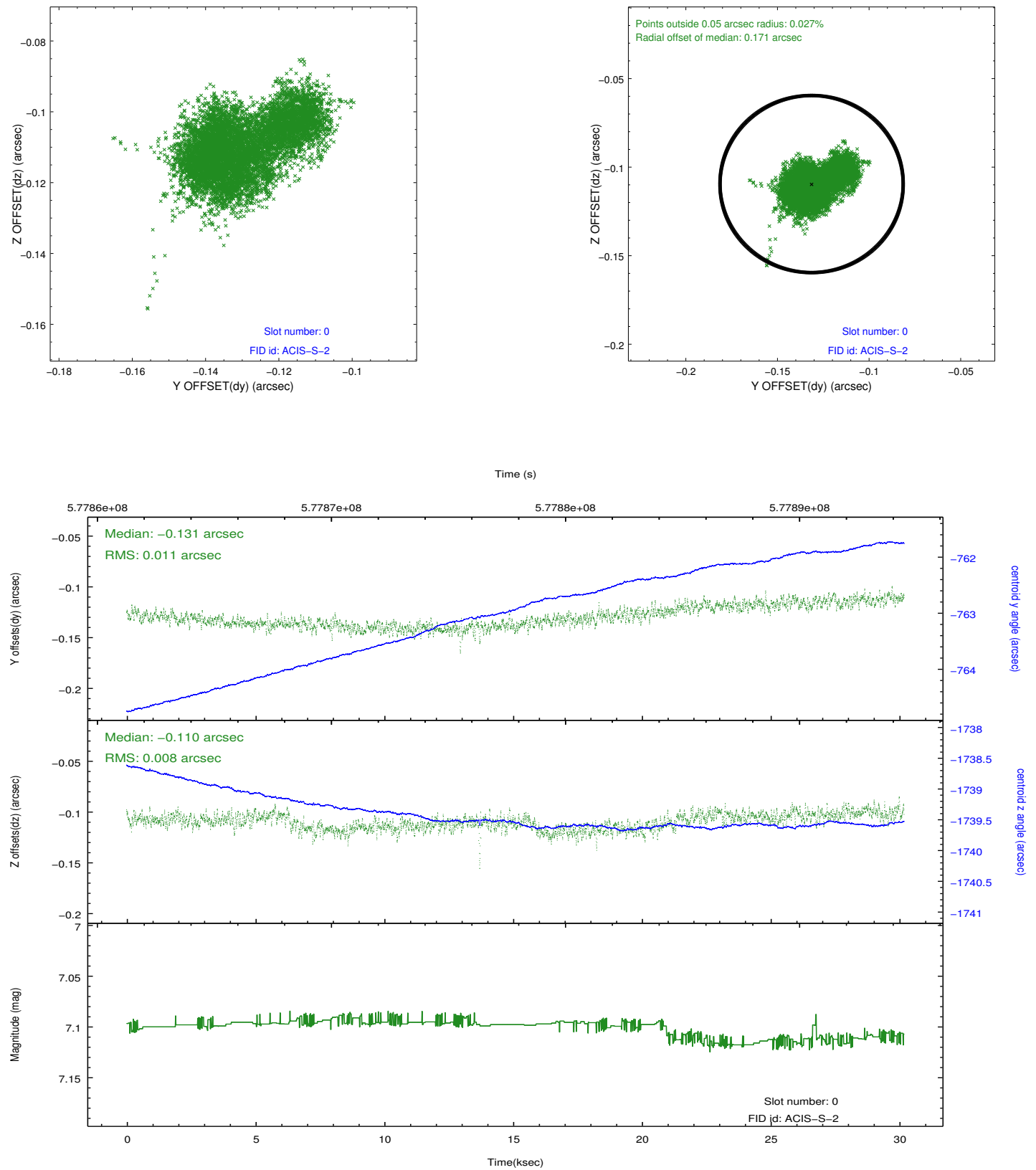


## 2.4.5 Slot 7

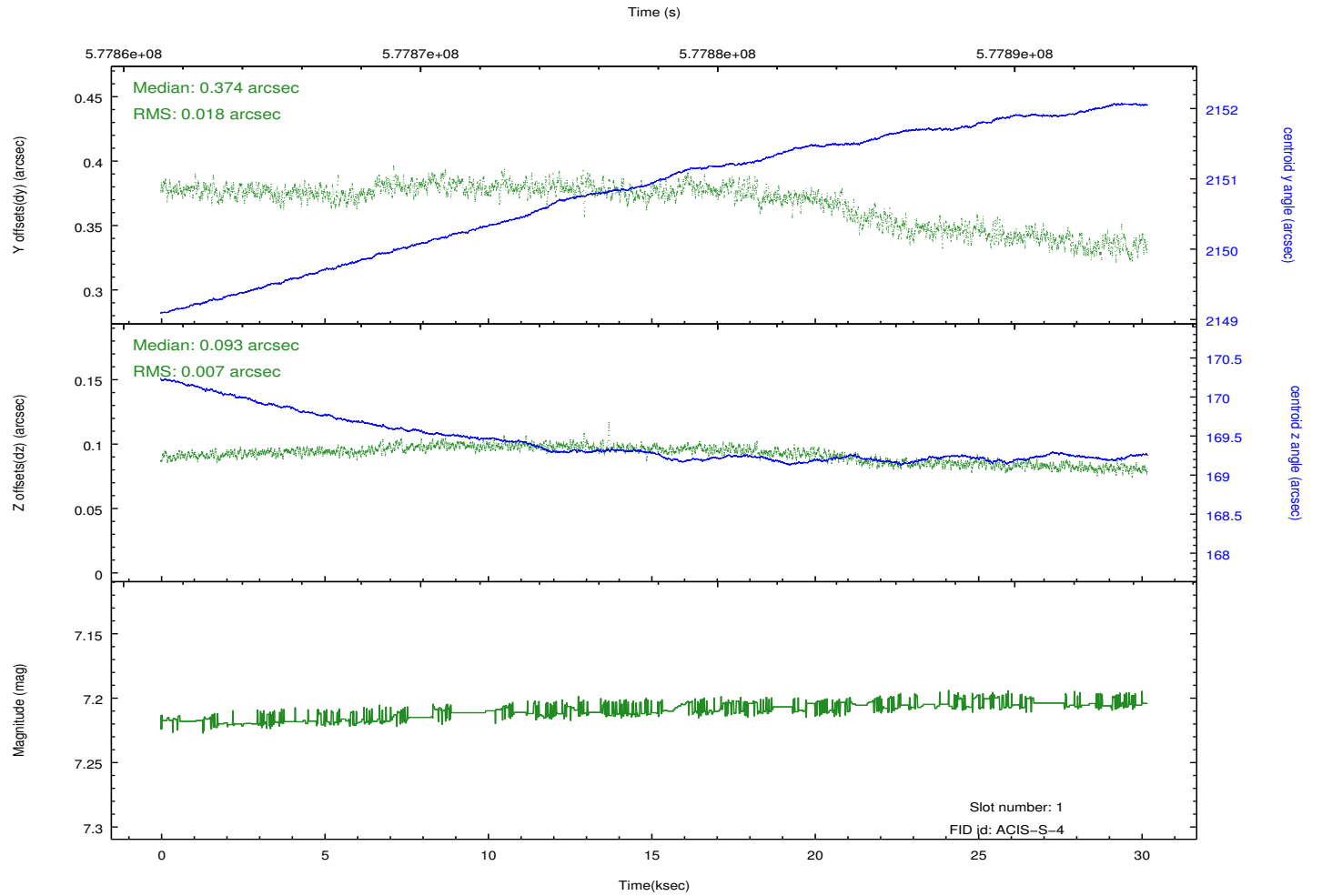
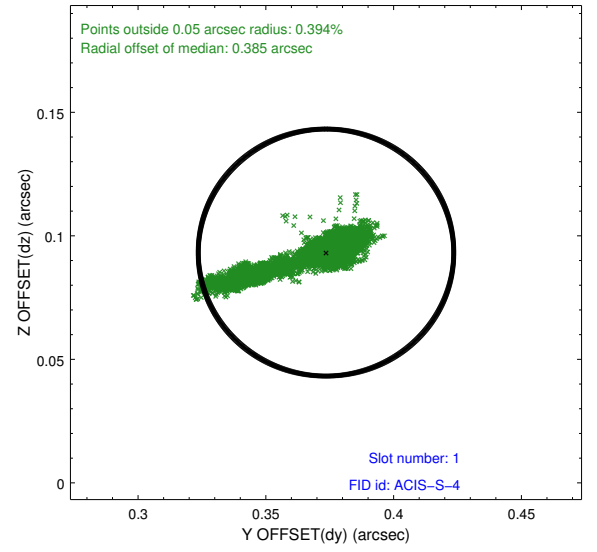
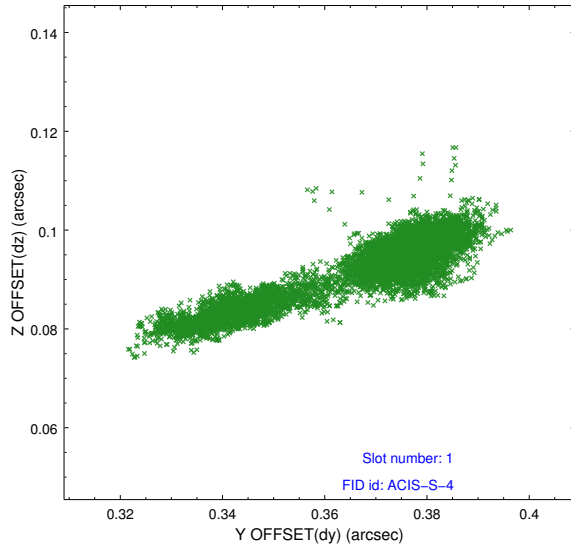


## 2.5 FID Slots

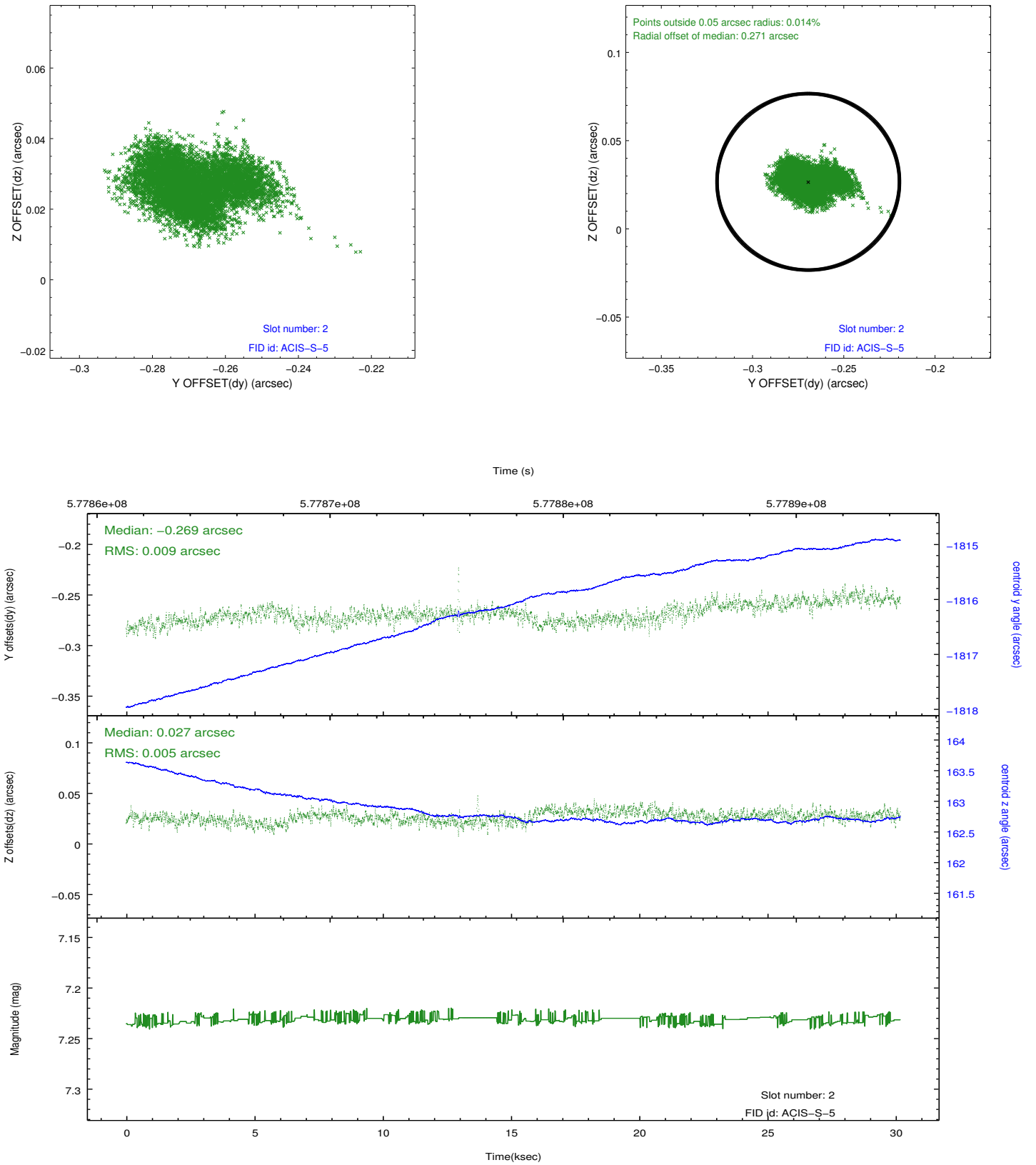
### 2.5.1 Slot 0



## 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)      | 2016.05.02      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 30.062316127896 |

### A.2 Comments

A single corrupted VCDU in the original data prevented this obsid from being processed. We have excised one second of data and reprocessed.