

# V&V Reference Report

## L2 ASCDS Version : 10.4.3.1

Observation 17898 - L2 Version 1  
Chandra X-Ray Center

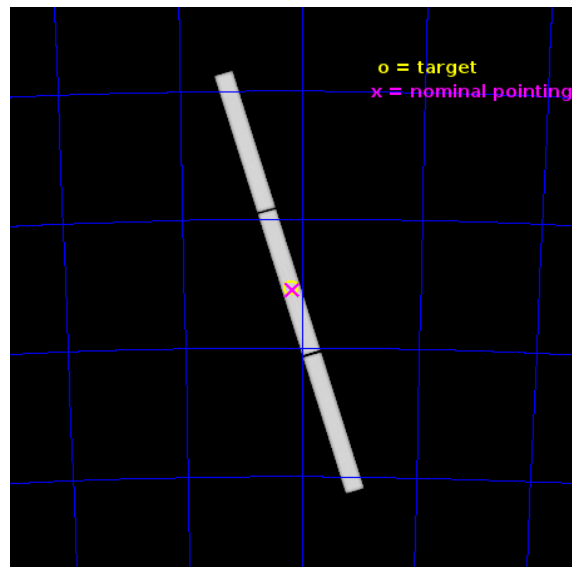
L2 Processing Date : Mar 29 2016

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# 1 Front

|          |                                                              |                                       |
|----------|--------------------------------------------------------------|---------------------------------------|
| seq_num  | 502517                                                       | Sequence number                       |
| obs_id   | 17898                                                        | Observation id                        |
| title    | CHANDRA CYCLE 17 SPATIAL AND SPECTRAL MONITORING OF SN 1987A | Propo                                 |
| observer | David Burrows                                                | Principal investigator                |
| object   | SNR 1987A                                                    | Source name                           |
| ra_targ  | 83.866667                                                    | Observer's specified target RA [deg]  |
| dec_targ | -69.26975                                                    | Observer's specified target Dec [deg] |
| ra_nom   | 83.862573115256                                              | Nominal RA [deg]                      |
| dec_nom  | -69.274456765641                                             | Nominal Dec [deg]                     |
| roll_nom | 253.06349967851                                              | Nominal Roll [deg]                    |
| revision | 1                                                            | Processing version of data            |
| ontime   | 39166.533453345                                              | [s]                                   |
| livetime | 38801.036274133                                              | Ontime multiplied by DTCOR            |
| l2events | 3232435                                                      | Number of level 2 events              |

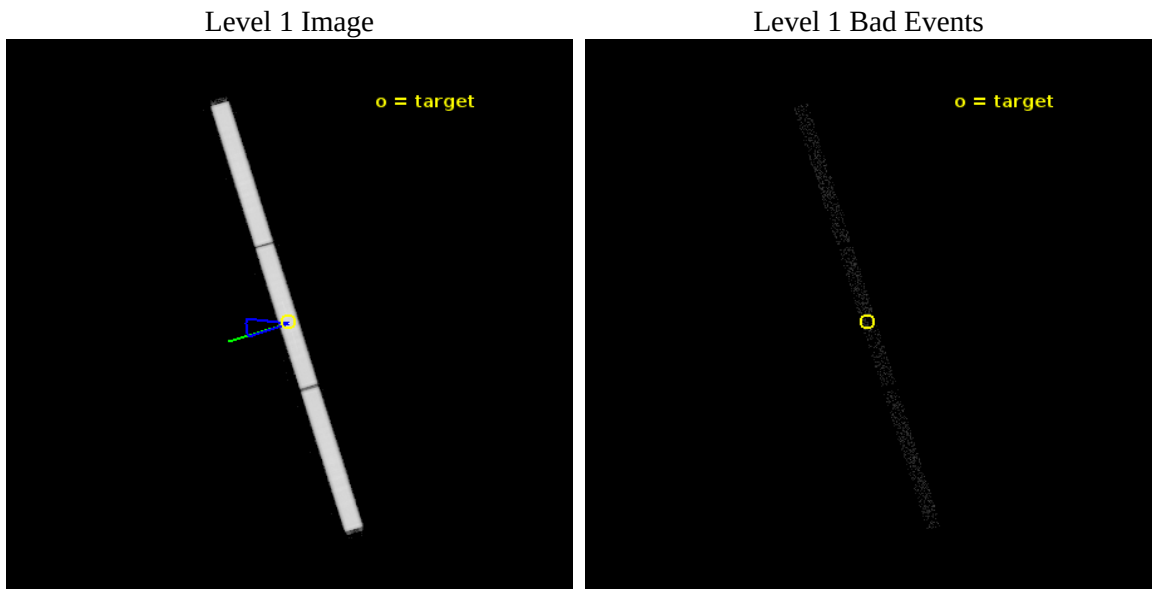




## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

|          |                     |                                |                |                      |                                         |
|----------|---------------------|--------------------------------|----------------|----------------------|-----------------------------------------|
| obi_num  | 1                   | Obi number                     | sched_exp_time | 39000.000000         | [s] Scheduled observation exposure time |
| ascdsver | 10.4.3.1            | Processing system revision     | ontime         | 39166.533453345      | [s]                                     |
| caldbver | 4.7.1               | &#160                          | l1events       | 4010902              | Number of level 1 events                |
| date     | 2016-03-29T20:21:58 | Date and time of file creation | tgmethod       | TGDETECT             | Method used to create src1a file        |
| revision | 1                   | Processing version of data     | zo_pos         | (32730.24, 32895.42) | src1a sky pixel position                |

### 2.1.3 Events

Level 1 Events

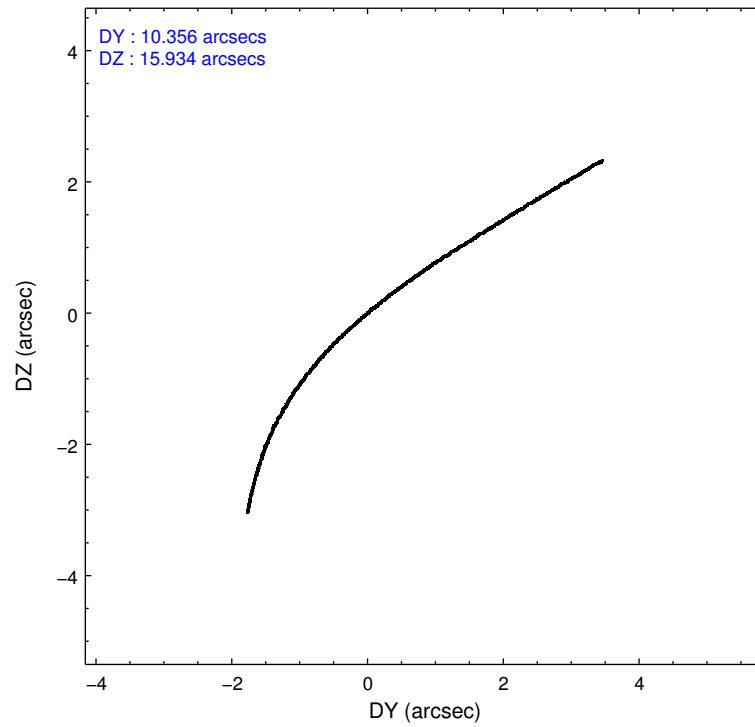
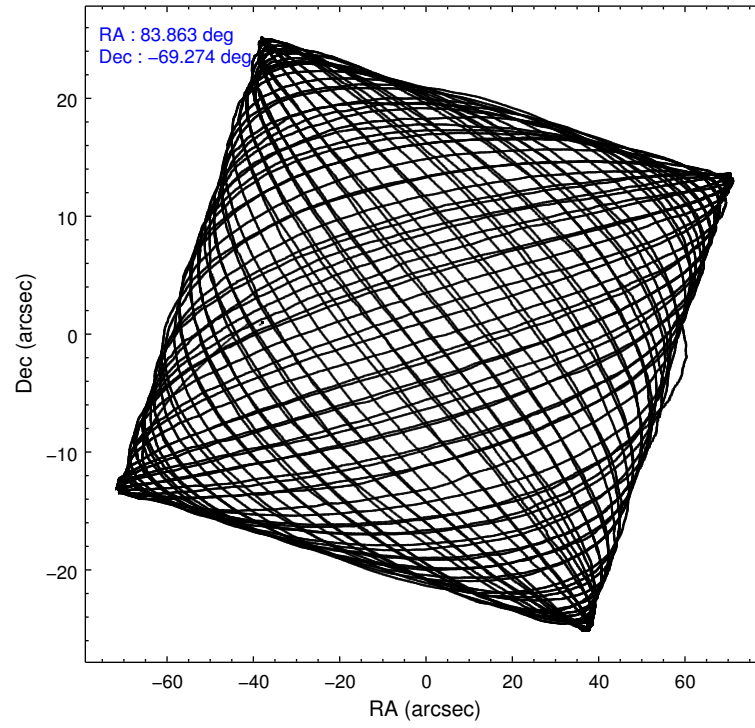
|                 | <b>segment<br/>1</b> | <b>segment<br/>2</b> | <b>segment<br/>3</b> |
|-----------------|----------------------|----------------------|----------------------|
| level 1 events  | 1358510              | 1329585              | 1322807              |
| rejected events | 20887                | 20740                | 20998                |
| rejected %      | 1%                   | 1%                   | 1%                   |

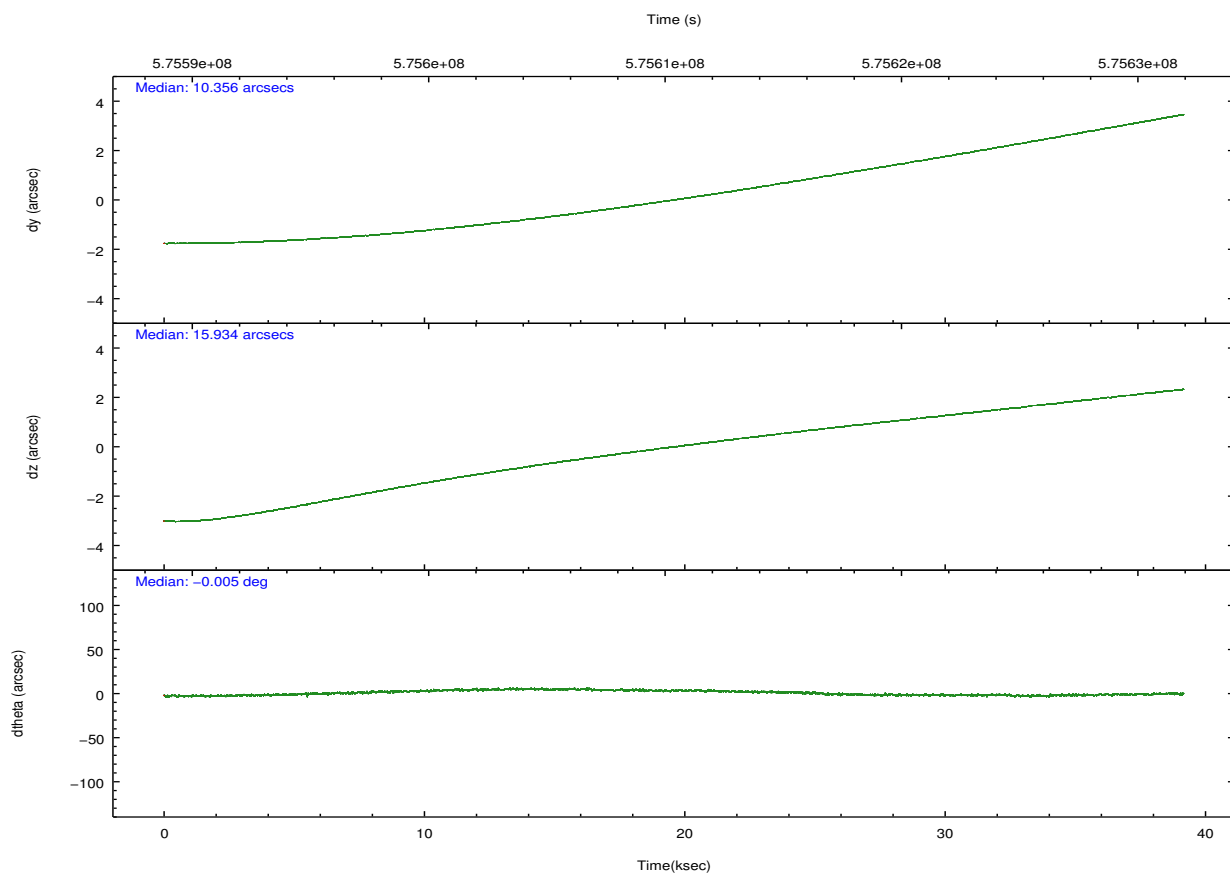
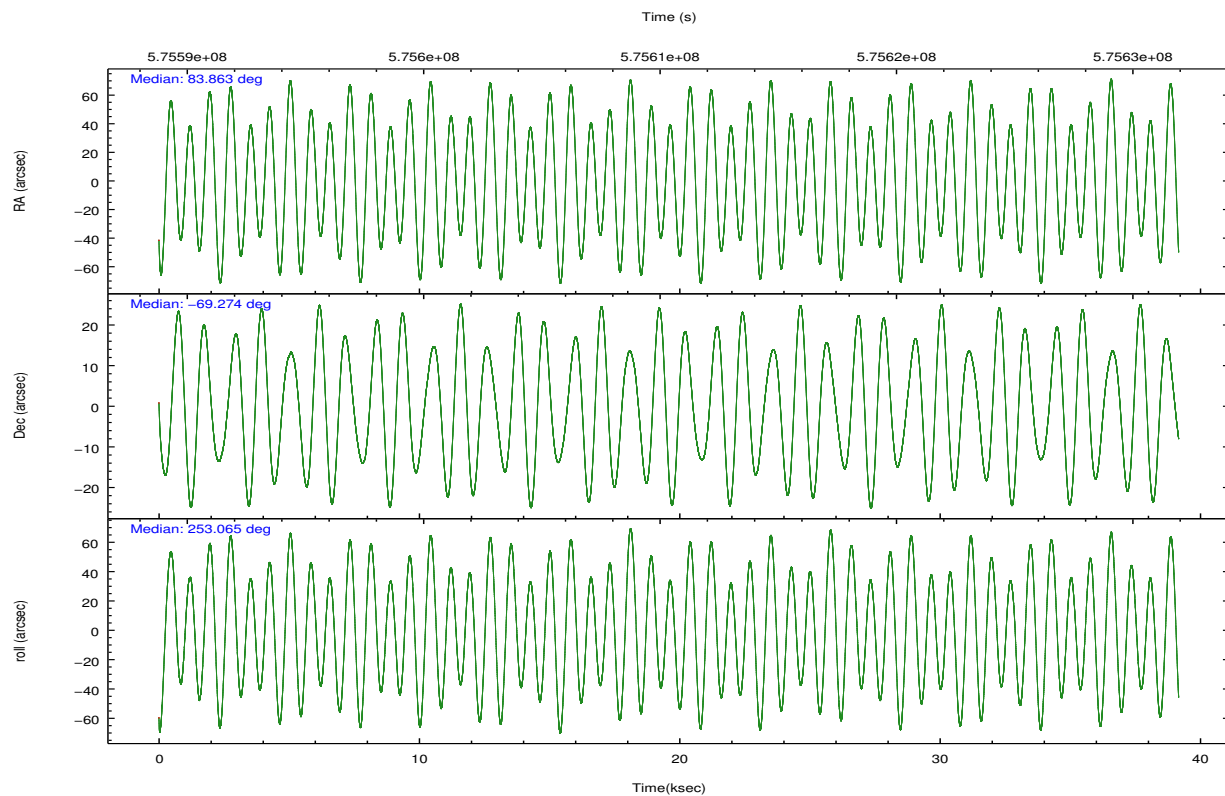
## 2.2 Compared Parameters

| Parameter                            | Planned             | Actual               |
|--------------------------------------|---------------------|----------------------|
| Instrument                           | HRC                 | HRC                  |
| Detector                             | HRC-S               | HRC-S                |
| Grating                              | LETG                | LETG                 |
| Data mode                            | OBSERVING           | OBSERVING            |
| Observation mode                     | POINTING            | POINTING             |
| [deg] Pointing RA                    | 83.840343           | 83.86257311525583    |
| [deg] Pointing Dec                   | -69.246688          | -69.27445676564081   |
| [deg] Pointing Roll                  | 252.975386          | 253.0634996785127    |
| [deg] Roll angle                     | 264.000000          | 264.000000           |
| [deg] Roll tolerance                 | 12.000000           | 12.000000            |
| Roll constraint allows 180D rotation | N                   | N                    |
| [s] Window start time (MET)          | 573868868.184000    | 573868868.184000     |
| [s] Window stop time (MET)           | 575856068.184000    | 575856068.184000     |
| [mm] SIM focus pos                   | -1.429586           | -1.428180813131781   |
| [mm] SIM defocus                     | 0.1037507710433287  | 0.1051558262725154   |
| [mm] SIM translation stage pos       | 250.455976          | 250.466033080201     |
| [mm] SIM translation stage offset    | 0                   | -0.01005468664627074 |
| [s] Observation start time (MET)     | 575590945.184000    | 575590026.6077501    |
| Observation start date               | 2016-03-28T22:21:17 | 2016-03-28T22:07:06  |
| [s] Observation end time (MET)       | 575629945.184000    | 575630891.8225501    |
| Observation end date                 | 2016-03-29T09:11:17 | 2016-03-29T09:28:11  |

| Parameter                    | Planned   | Actual  |
|------------------------------|-----------|---------|
| Obspar format version number | 7         | 7       |
| Obspar file type             | PREDICTED | ACTUAL  |
| Obspar update status         | NONE      | UPDATED |

## 2.3 Aspect



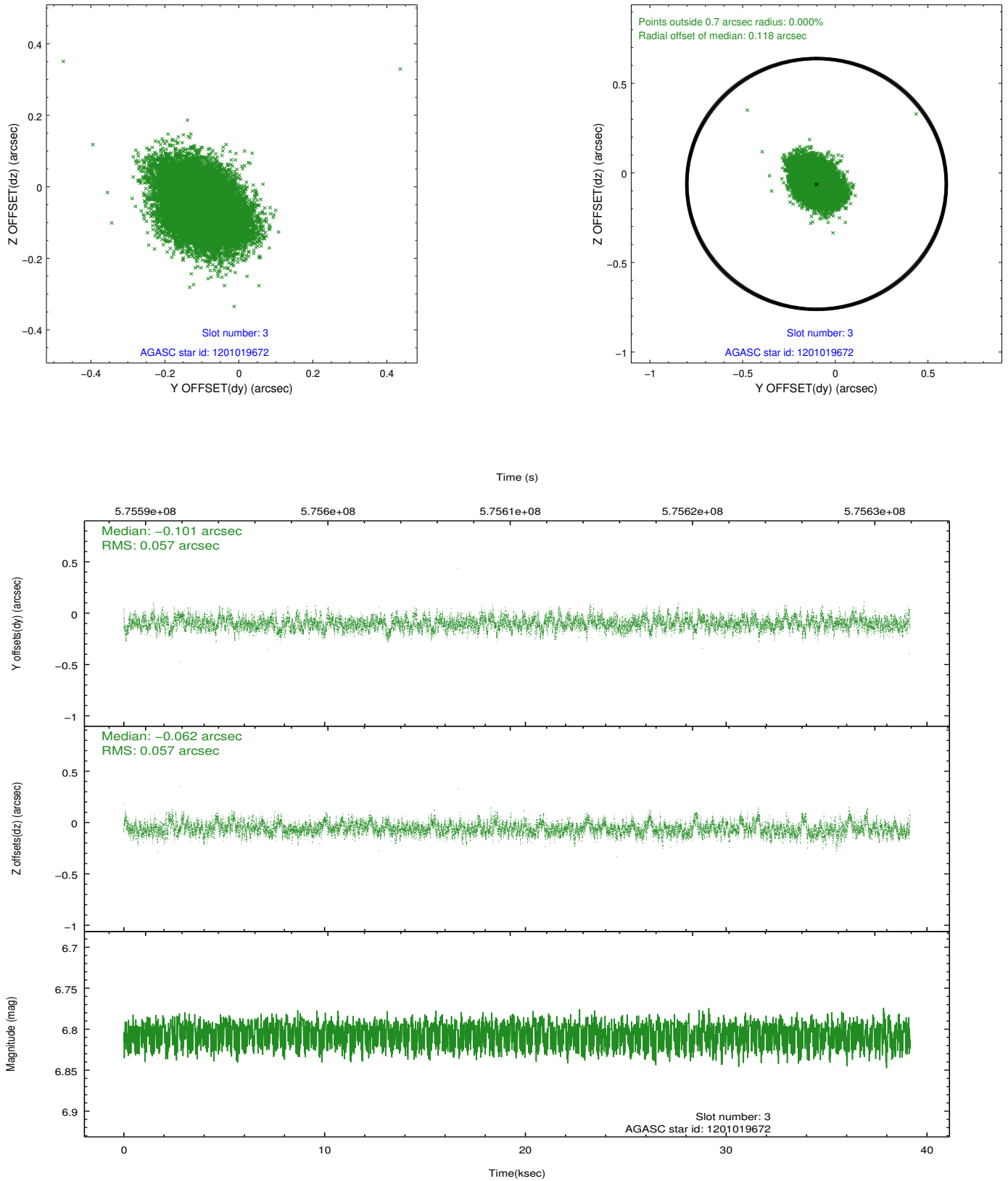


# Slot Statistics

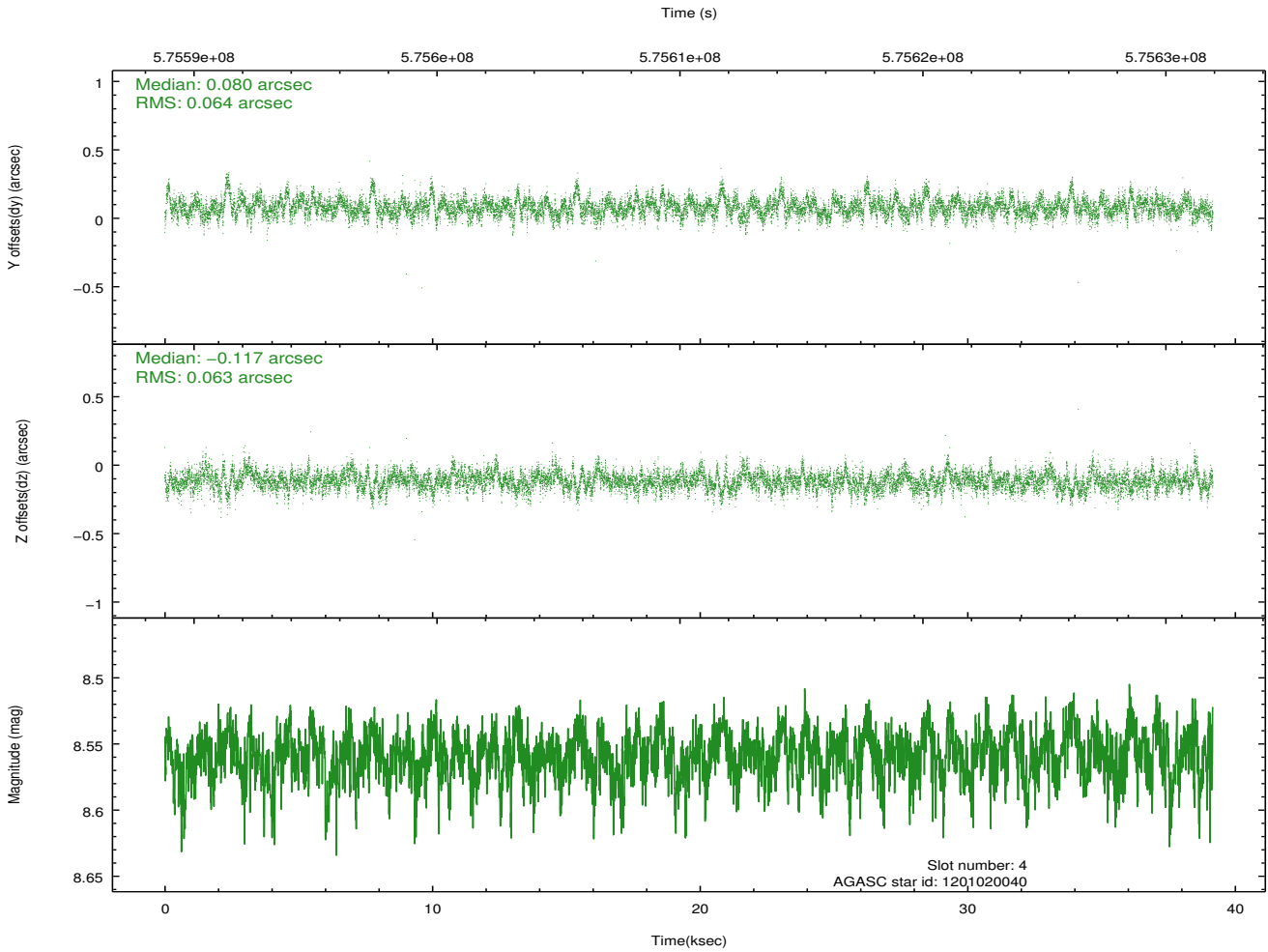
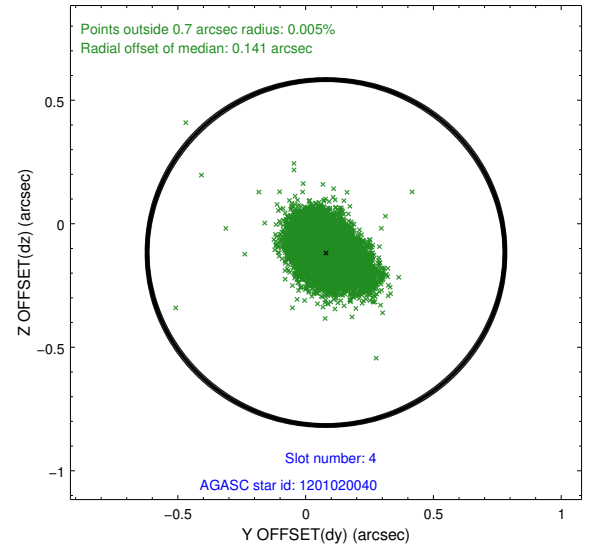
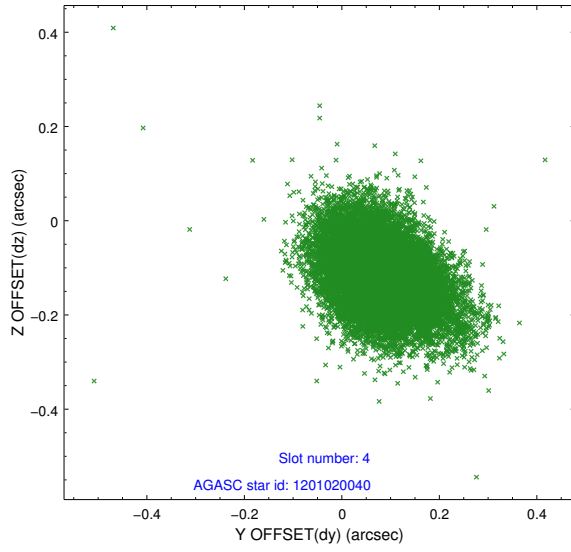
| slot | status | used | id         | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mean_z   |
|------|--------|------|------------|------|-------|--------|--------|-------|-------|-----------|------------|----------|----------|
| 0    | FID    |      | HRC-S-1    | 7.03 | 9552  | 0.013  | -0.173 | 0.047 | 0.059 | 0.000000  | 0.000000   | -1164.95 | -464.66  |
| 1    | FID    |      | HRC-S-2    | 7.01 | 9554  | 0.325  | -0.135 | 0.035 | 0.050 | 0.000000  | 0.000000   | 1234.92  | -457.23  |
| 2    | FID    |      | HRC-S-3    | 7.03 | 9554  | 0.048  | 0.004  | 0.032 | 0.052 | 0.000000  | 0.000000   | -1167.54 | 565.00   |
| 3    | GUIDE  | used | 1201019672 | 6.81 | 19106 | -0.101 | -0.062 | 0.084 | 0.141 | 85.312192 | -68.770187 | -2179.90 | 1339.05  |
| 4    | GUIDE  | used | 1201020040 | 8.56 | 19100 | 0.080  | -0.117 | 0.091 | 0.158 | 85.379163 | -68.879396 | -1824.64 | 1528.78  |
| 5    | GUIDE  | used | 1201410616 | 9.31 | 19084 | -0.120 | 0.113  | 0.142 | 0.241 | 82.516808 | -69.784406 | 2349.91  | -1002.11 |
| 6    | GUIDE  | used | 1201542672 | 8.17 | 19104 | -0.205 | -0.186 | 0.092 | 0.158 | 84.492488 | -69.957531 | 2212.67  | 1519.71  |
| 7    | GUIDE  | used | 1200884248 | 9.42 | 19009 | 0.340  | 0.254  | 0.153 | 0.258 | 83.880915 | -68.565170 | -2361.53 | -666.54  |

## 2.4 Star Slots

### 2.4.1 Slot 3

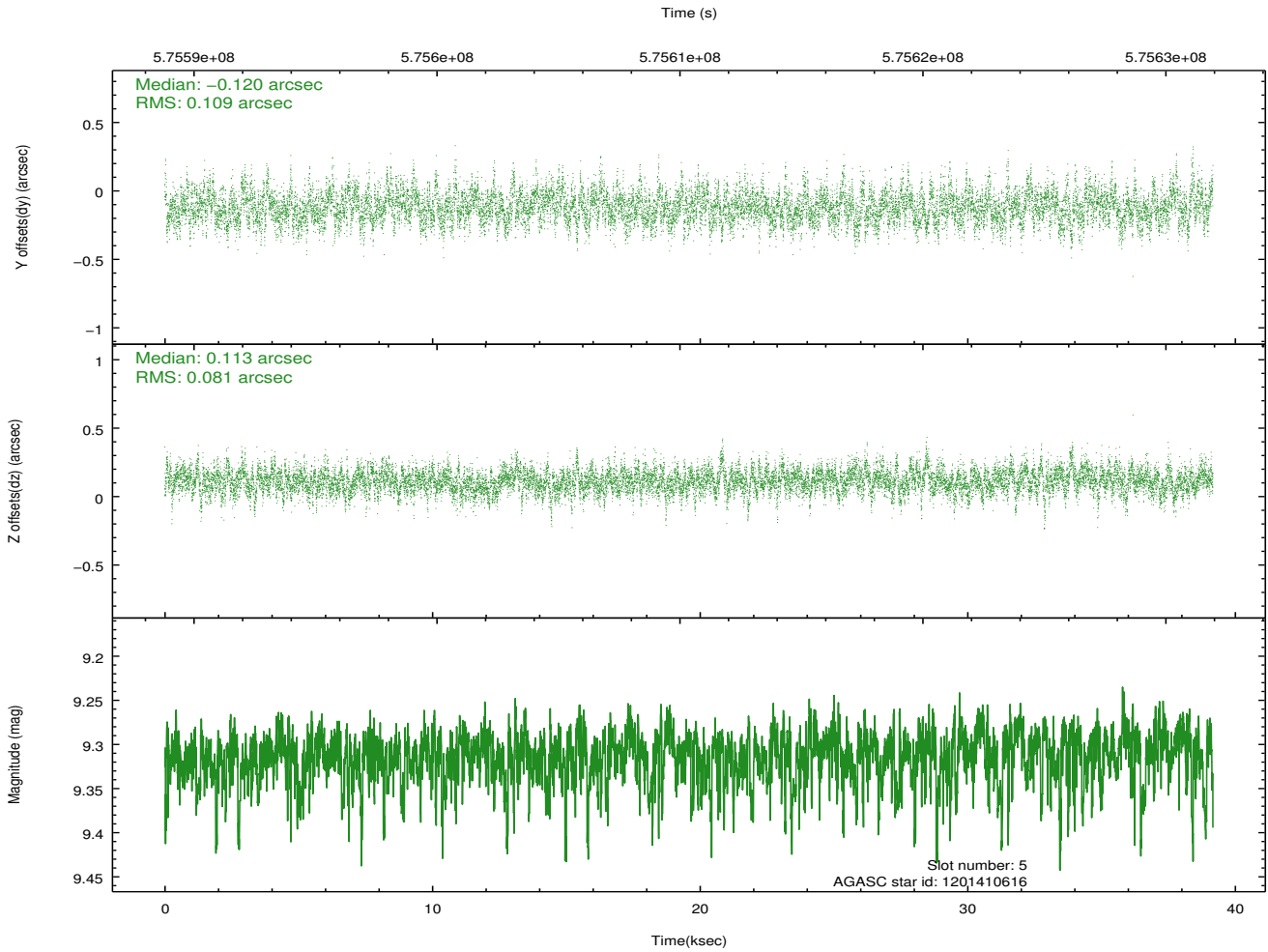
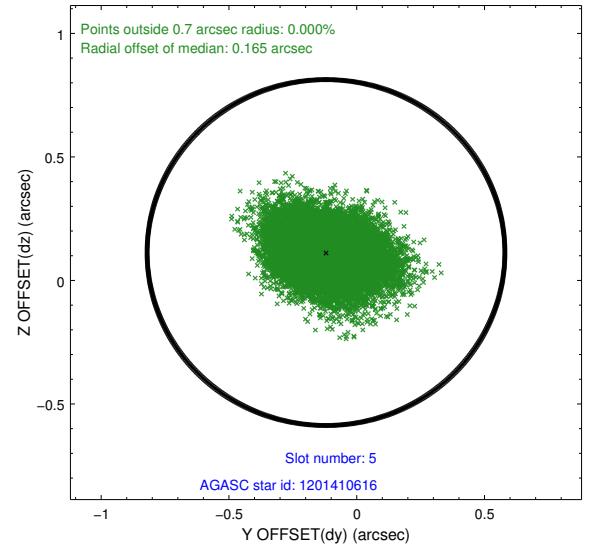
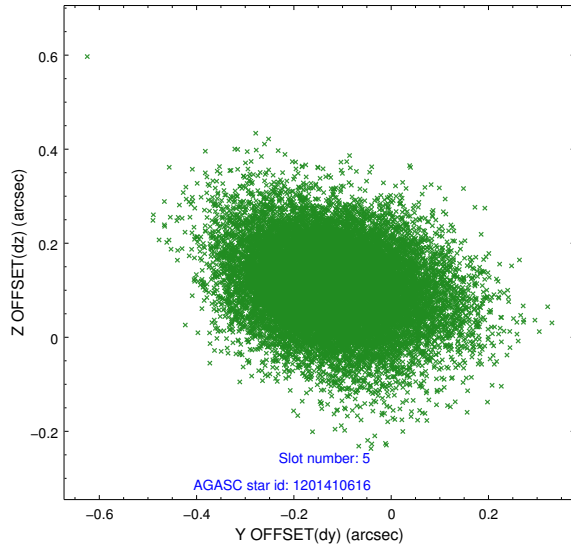


## 2.4.2 Slot 4

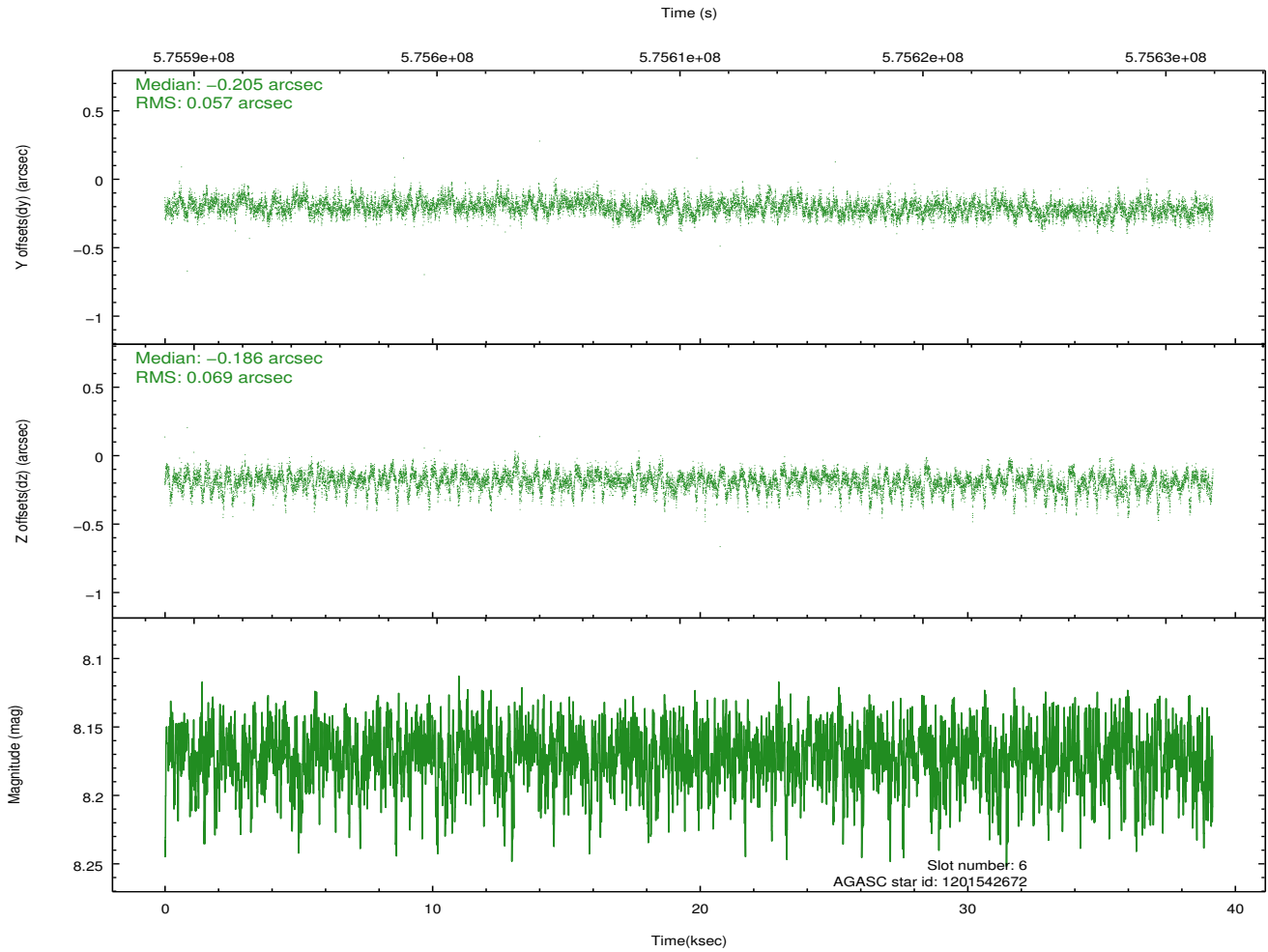
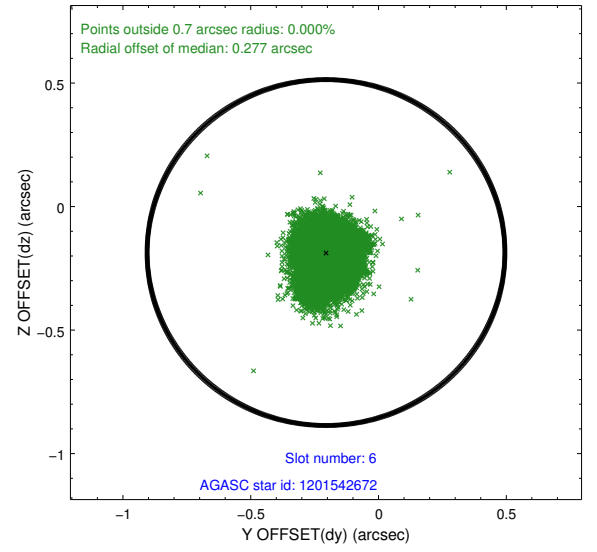
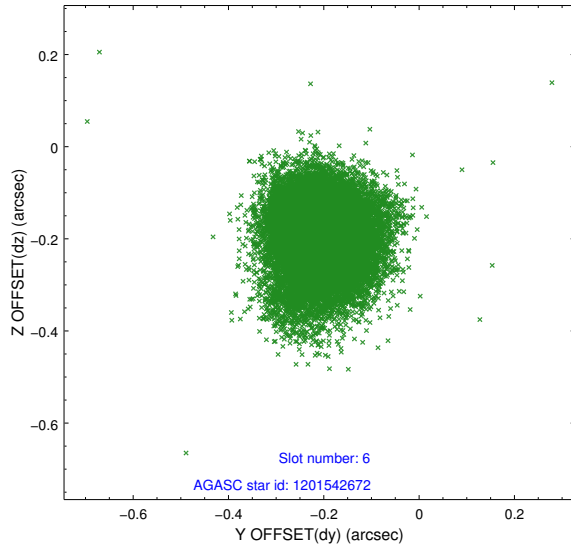




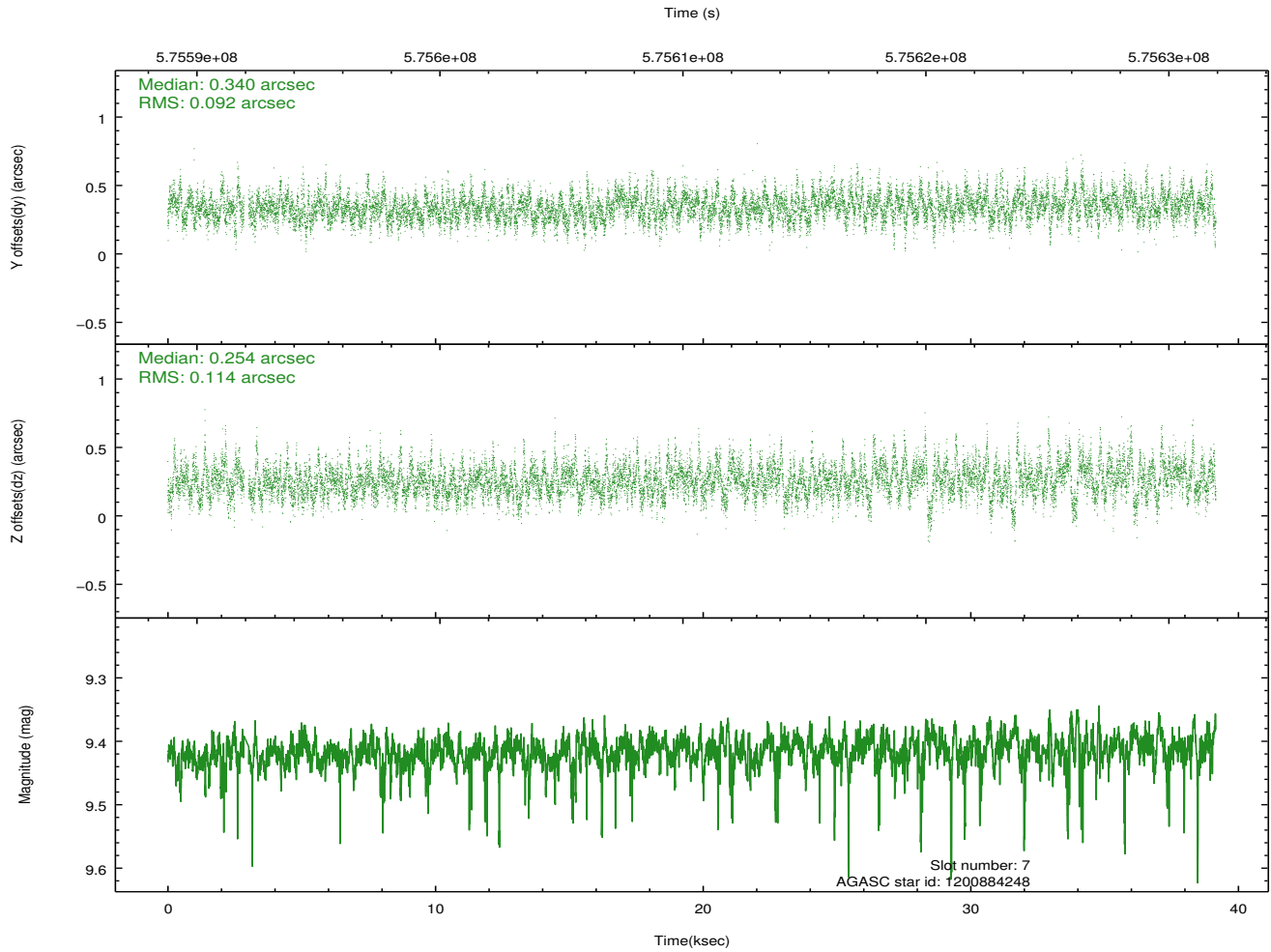
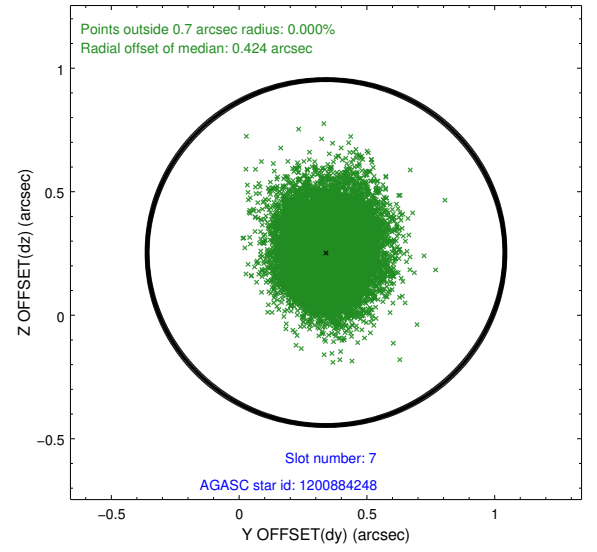
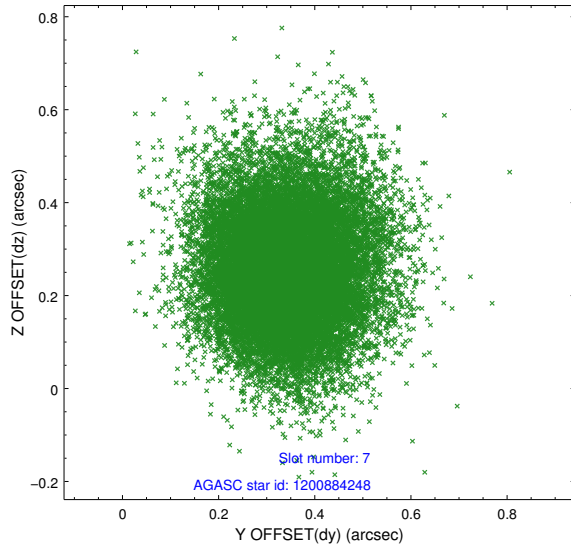
### 2.4.3 Slot 5



## 2.4.4 Slot 6

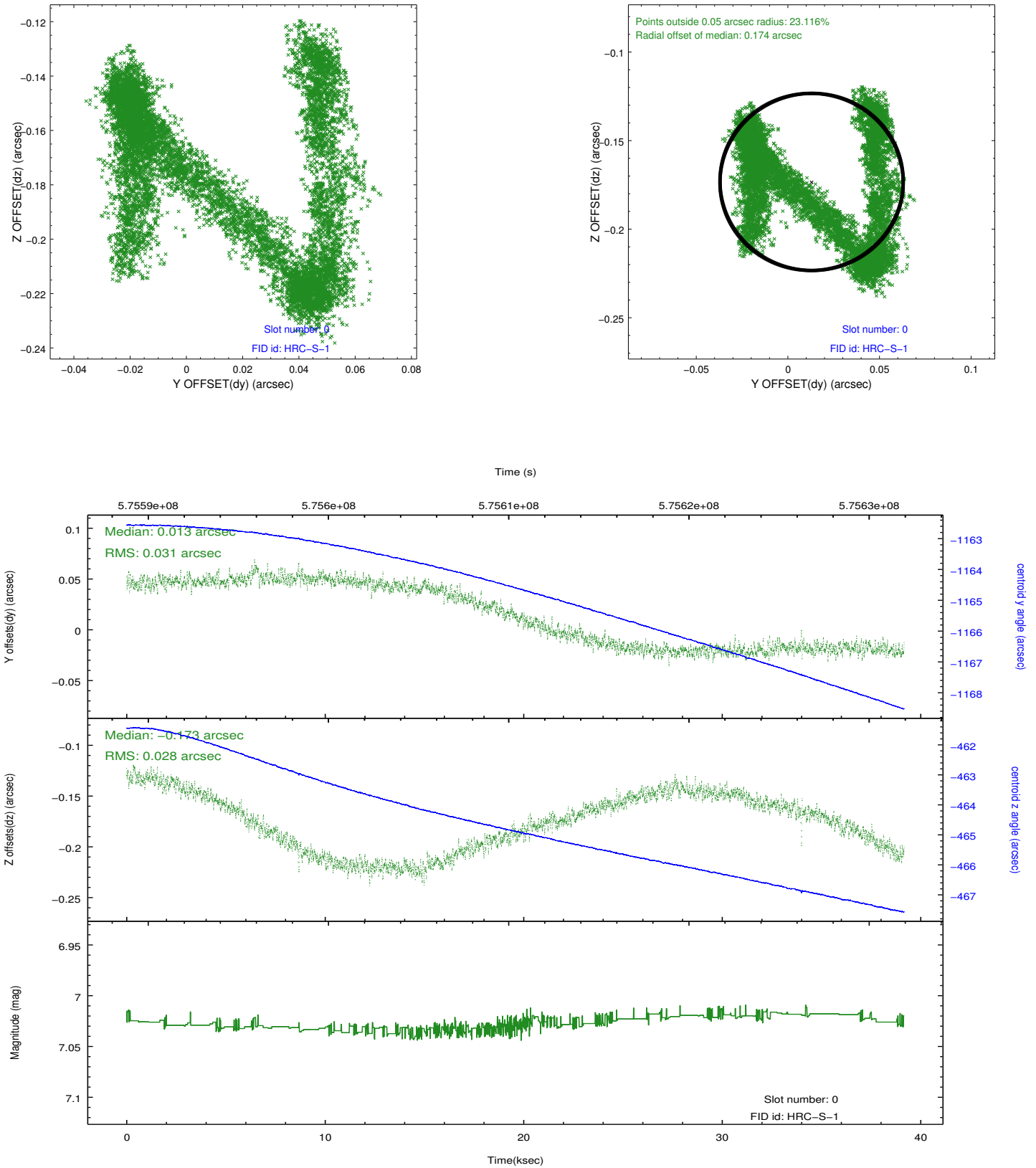


## 2.4.5 Slot 7

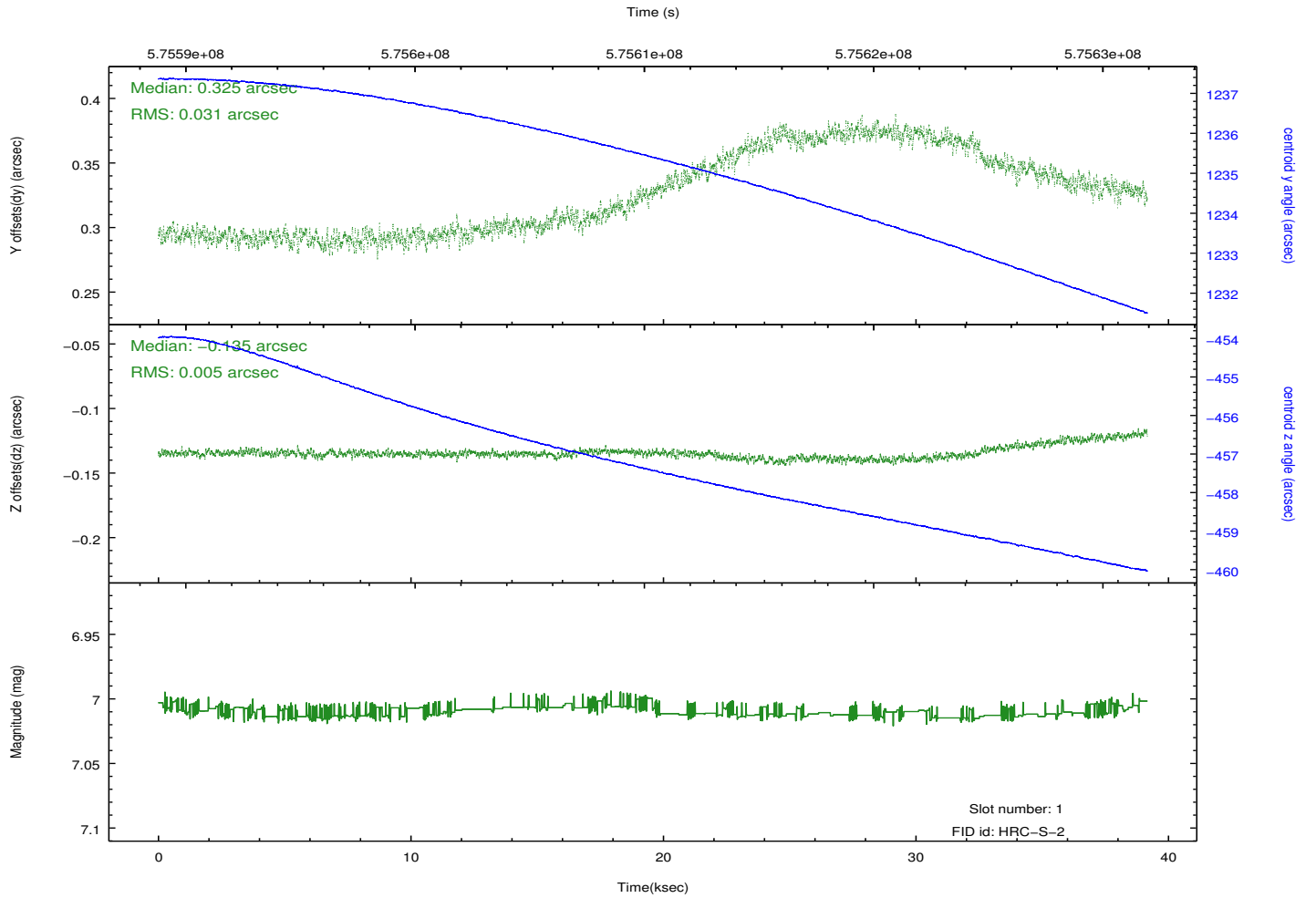
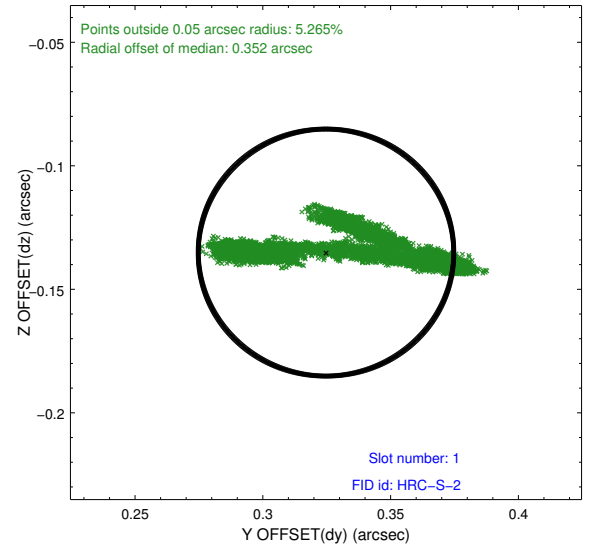
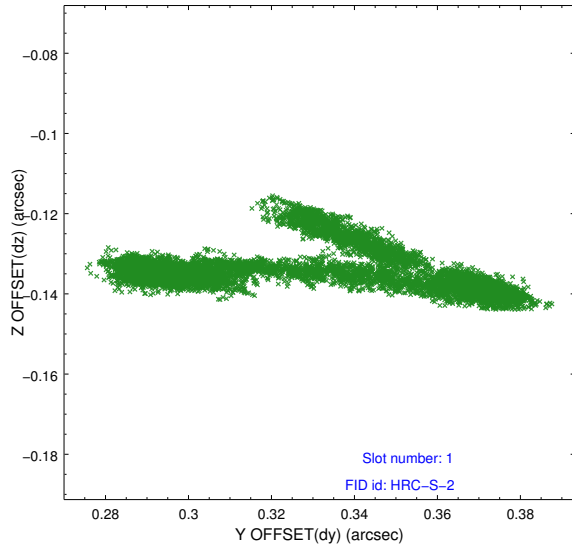


## 2.5 FID Slots

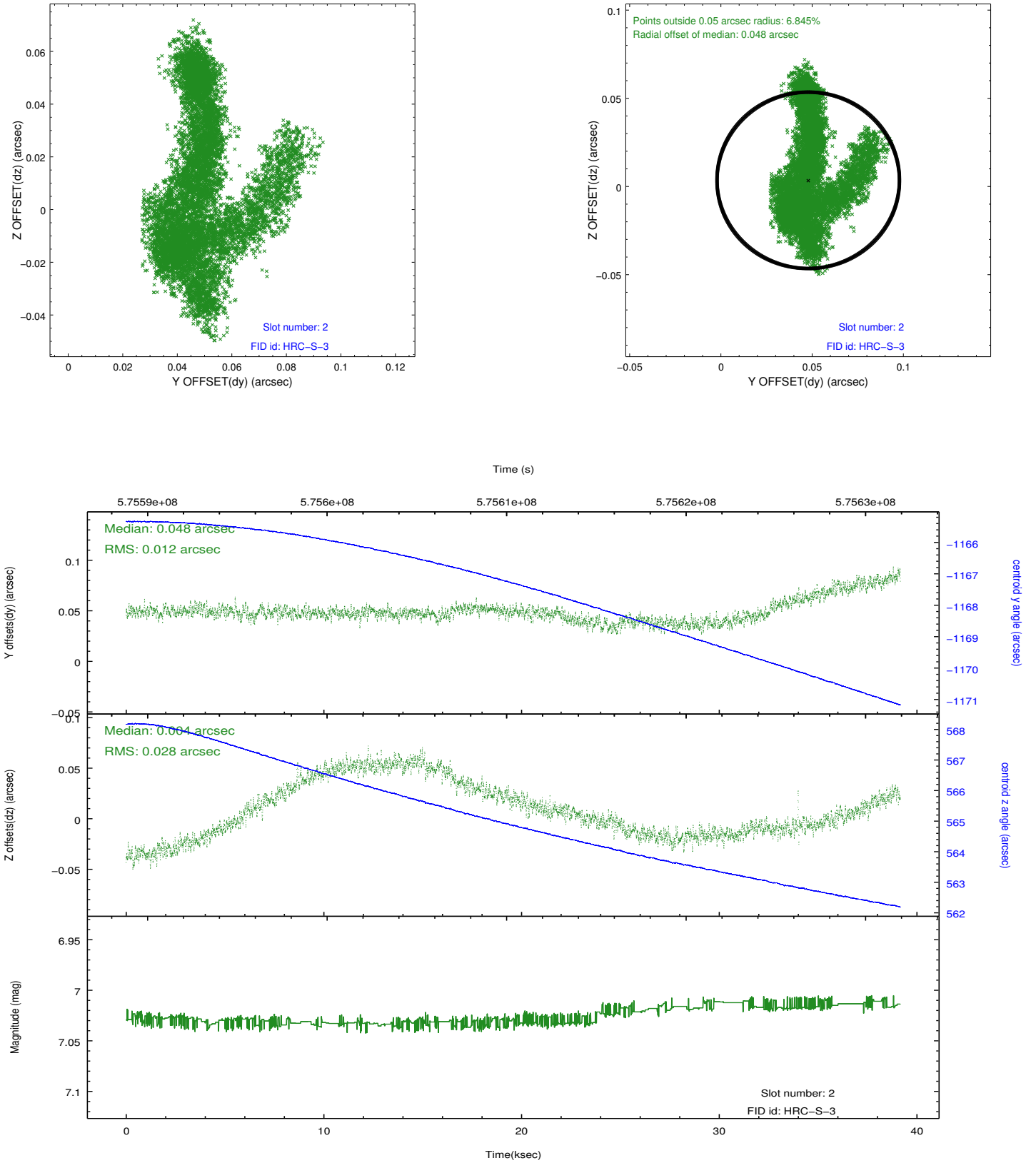
### 2.5.1 Slot 0



## 2.5.2 Slot 1

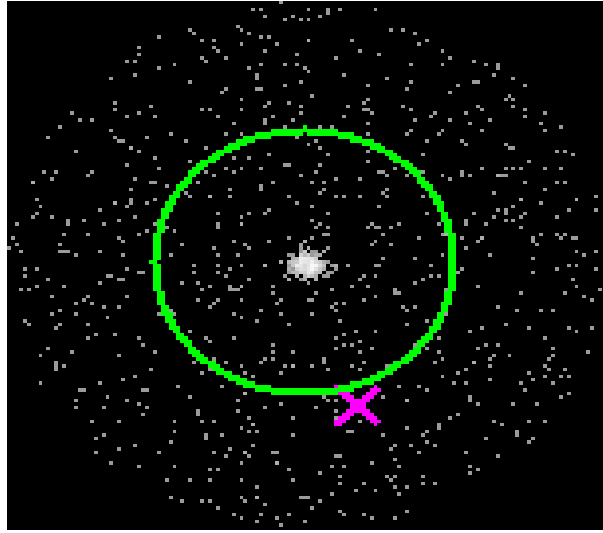


### 2.5.3 Slot 2

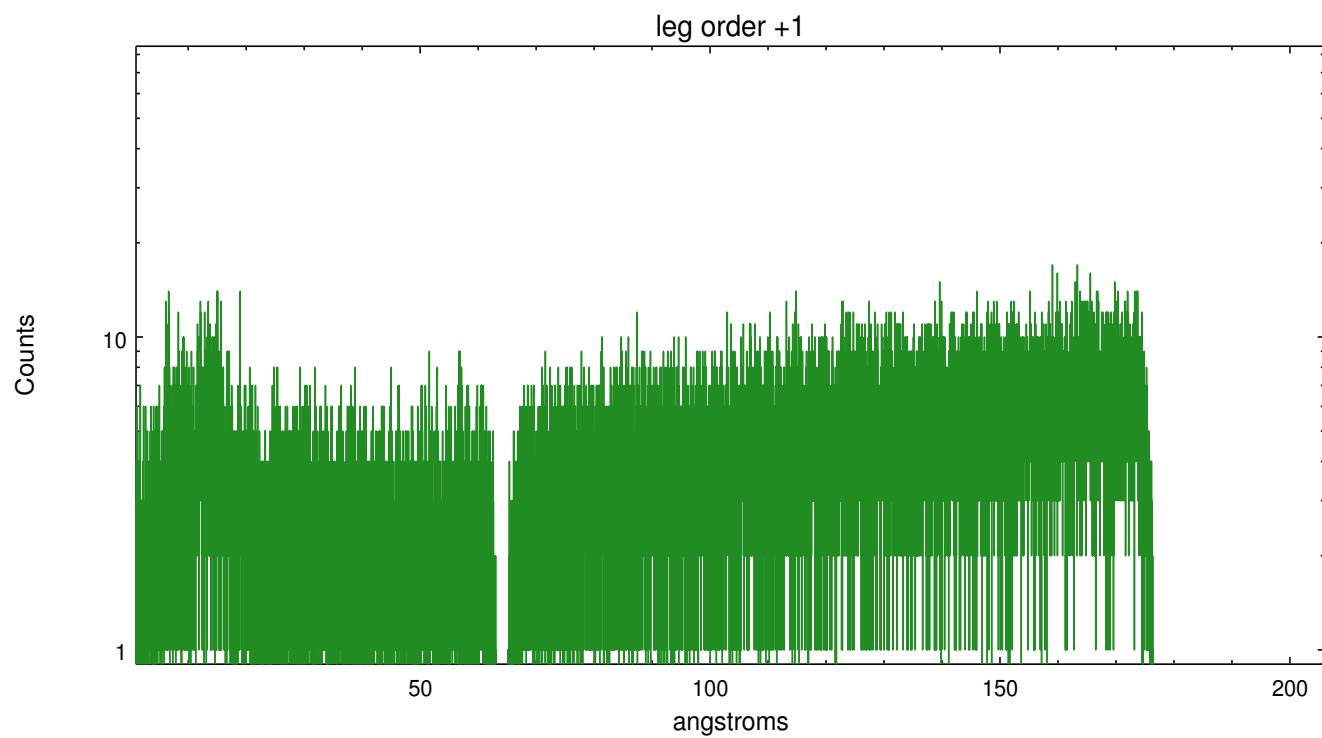
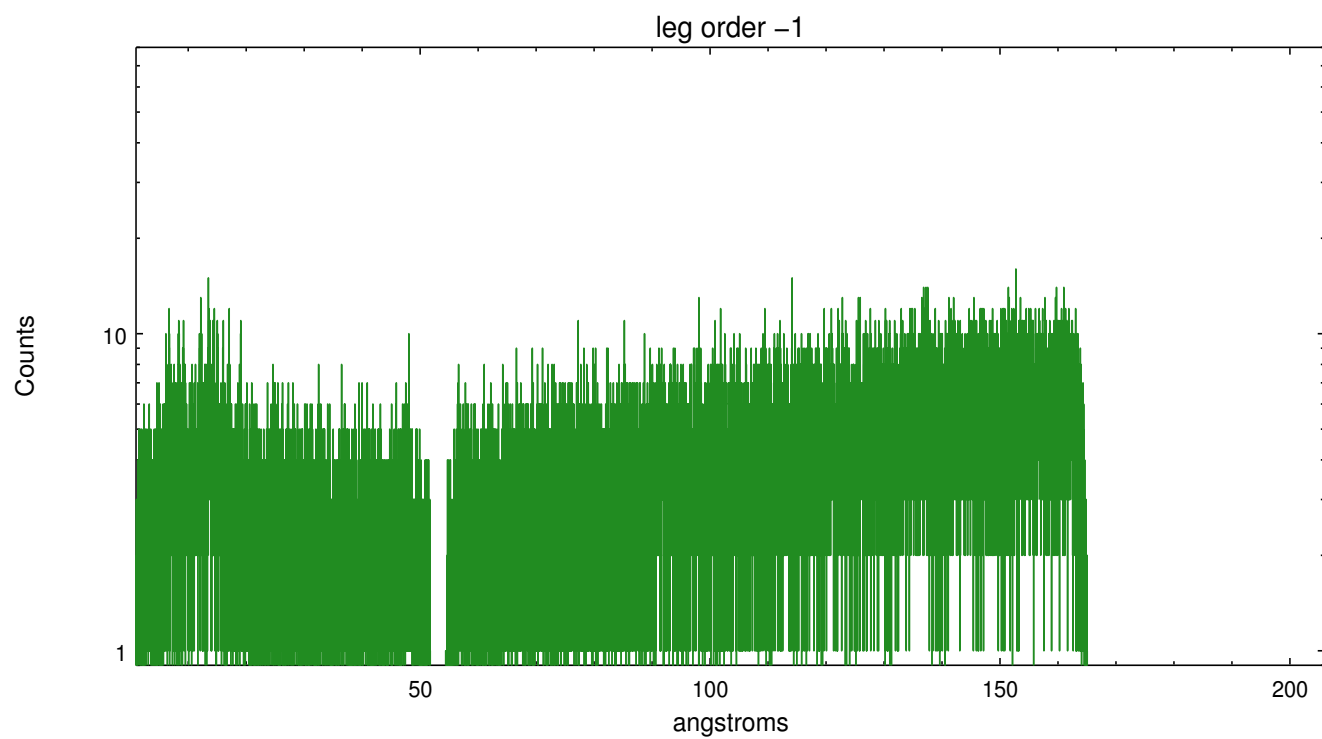


## 3 Gratings

### 3.1 LETG Arm



LETG Zero Order





# A Summary

## A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Joy Nichols     |
| V&V Date (YYYY-MM-DD)      | 2016.03.30      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 39.166533453345 |

## A.2 Comments

Roll constraint met.

=== WARNING: Zeroth order selected by pipeline tools is a weighted centroid near the center of the supernova remnant but is not at the position(s) of brightest emission. The user may want to select a region or source of interest, then use software tools such as CIAO to specify the coordinates of the zeroth order source of interest before running the tools to resolve the dispersed events.

WARNING: there are no standard ciao tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle.