

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 62687 - L2 Version 4  
Chandra X-Ray Center

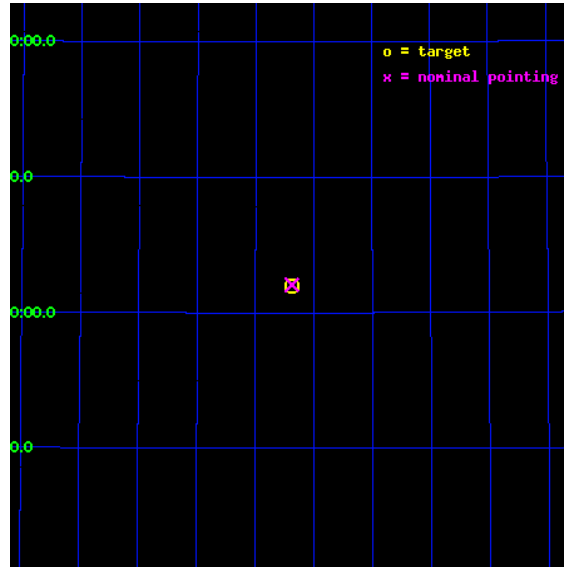
L2 Processing Date : Aug 10 2012

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# 1 Front

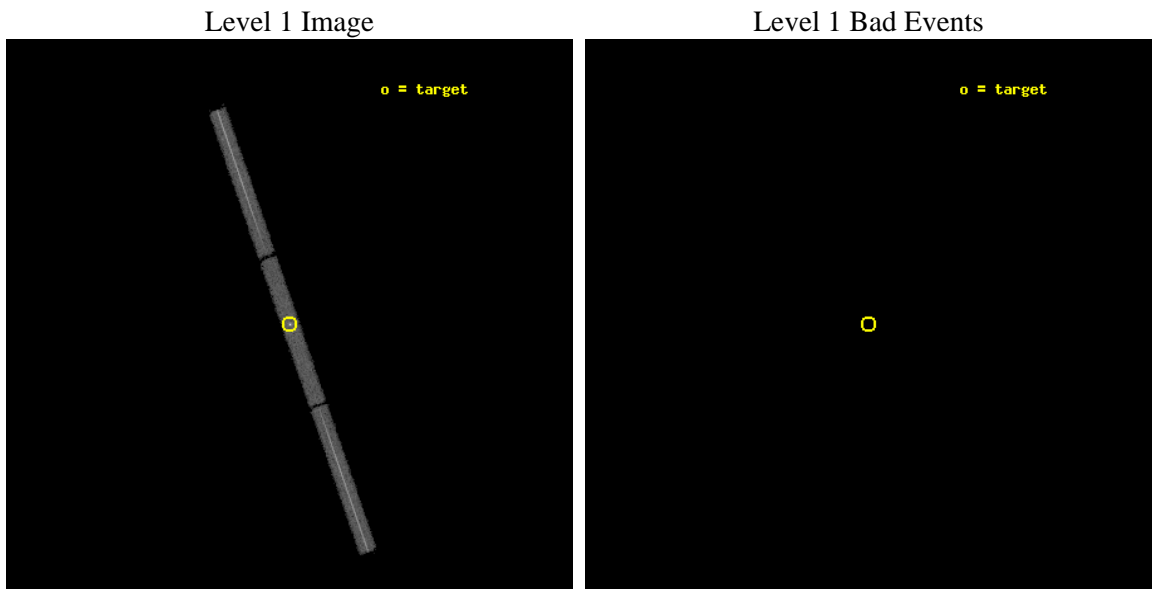
|          |   |                                       |
|----------|---|---------------------------------------|
| seq_num  | 0   | Sequence number                       |
| obs_id   | 62687                                     | Observation id                        |
| title    | Determination of HRC-S MCP HV step change | Proposal title                        |
| observer | CXC Calibration                           | Principal investigator                |
| object   | HZ43                                      | Source name                           |
| ra_targ  | 199.092083                                | Observer's specified target RA [deg]  |
| dec_targ | 29.099                                    | Observer's specified target Dec [deg] |
| ra_nom   | 199.09418255173                           | Nominal RA [deg]                      |
| dec_nom  | 29.103806326206                           | Nominal Dec [deg]                     |
| roll_nom | 70.84410091887                            | Nominal Roll [deg]                    |
| revision | 4   | Processing version of data            |
| ontime   | 0.0                                       | [s]                                   |
| livetime | 0.0                                       | Ontime multiplied by DTCOR            |
| l2events | 0   | Number of level 2 events              |



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

|          |                     |                                |                |             |   |
|----------|---------------------|--------------------------------|----------------|-------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 4800.000000 | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 0.0         | [s]                                     |
| caldbver | 4.5.1.1             | &#160                          | l1events       | 68858       | Number of level 1 events                |
| date     | 2012-08-10T05:06:04 | Date and time of file creation |                |             |   |
| revision | 4                   | Processing version of data     |                |             |   |

### 2.1.3 Events

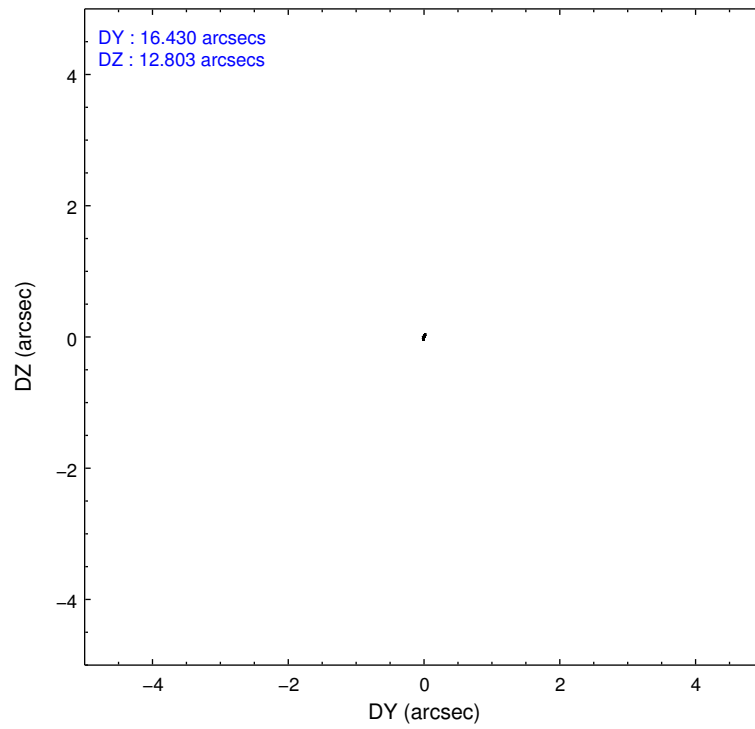
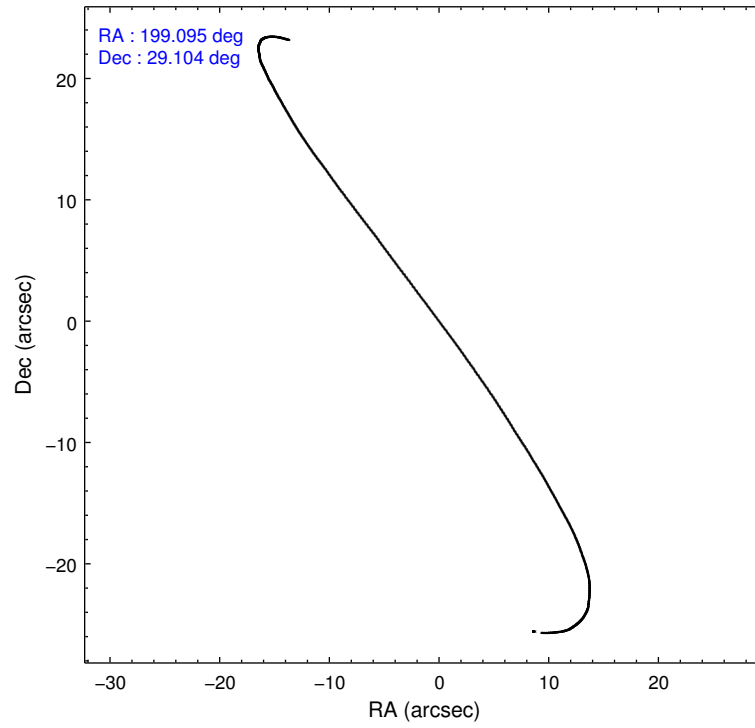
Level 1 Events

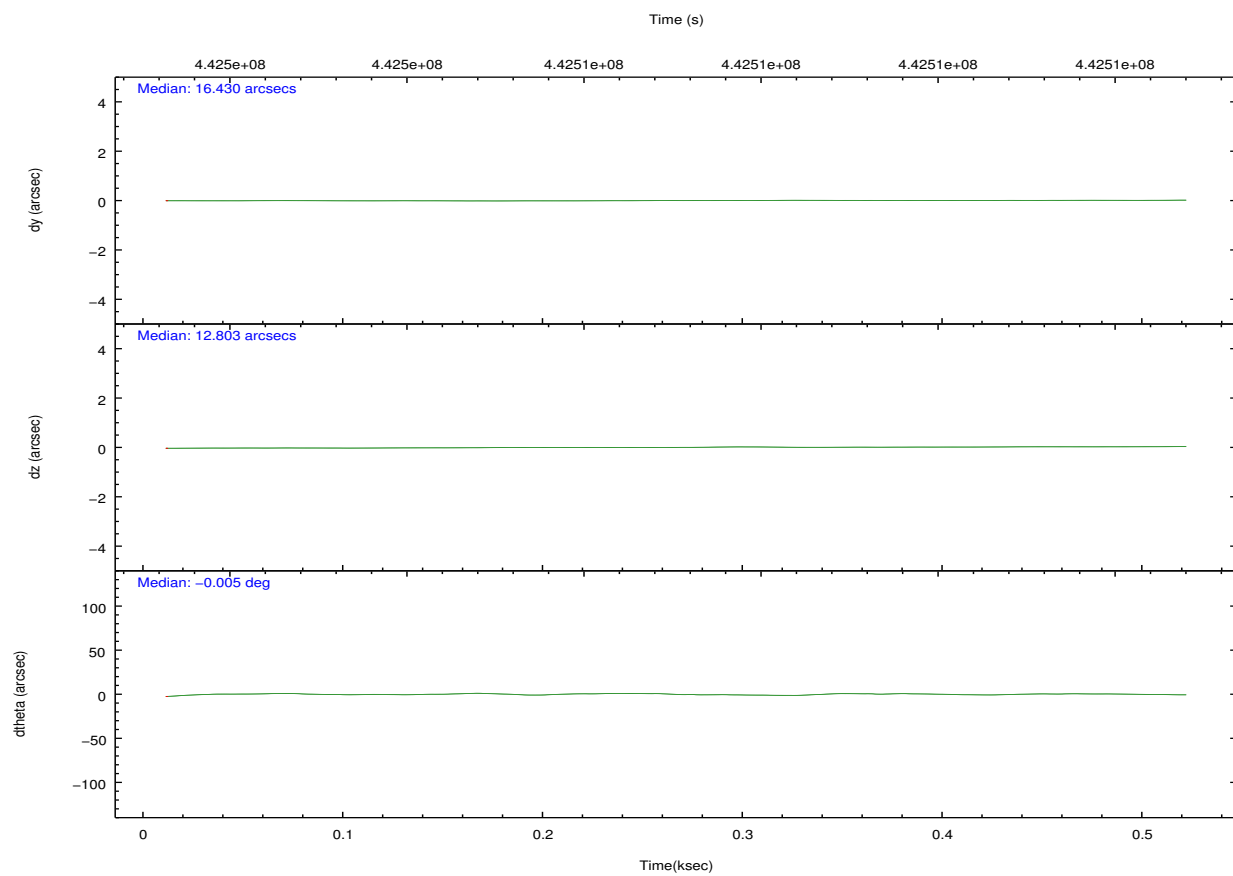
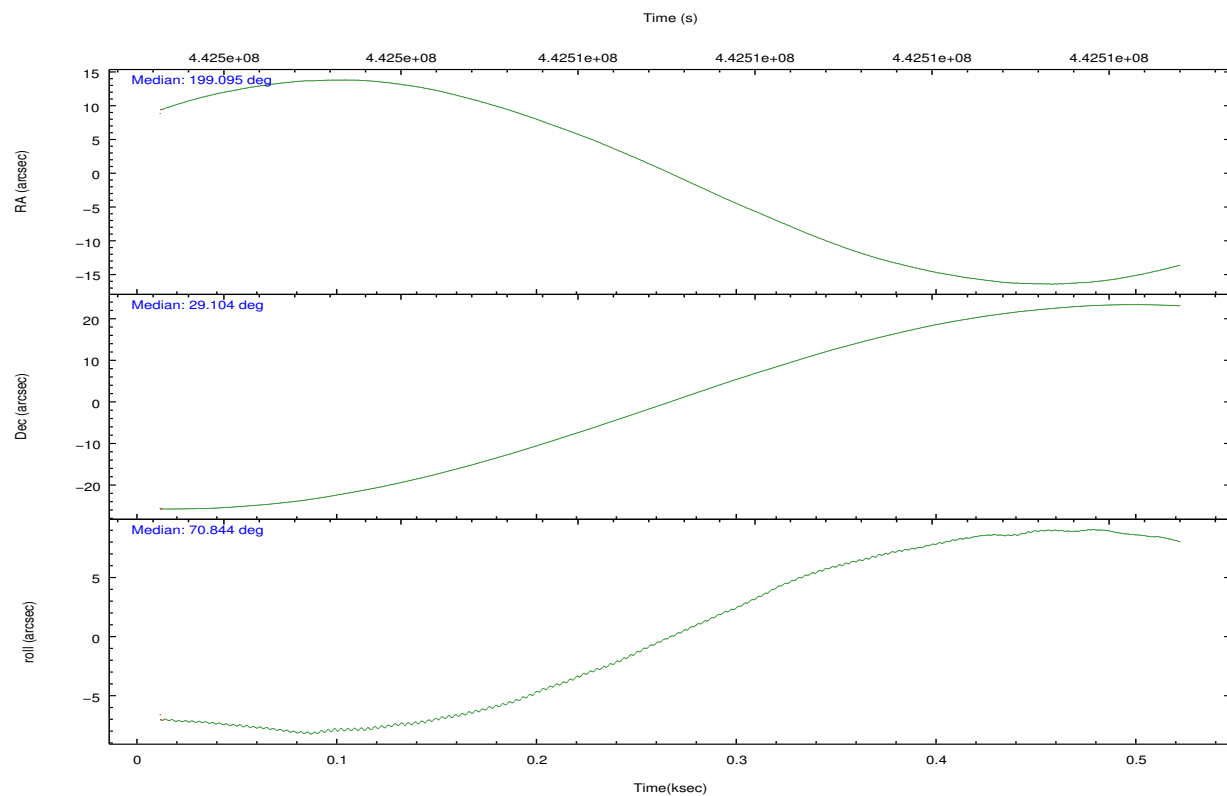
|                 | <b>segment<br/>1</b> | <b>segment<br/>2</b> | <b>segment<br/>3</b> |
|-----------------|----------------------|----------------------|----------------------|
| level 1 events  | 23810                | 21099                | 23949                |
| rejected events | 0                    | 0                    | 0                    |
| rejected %      | 0%                   | 0%                   | 0%                   |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                    | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|------------------------------|-----------|---------|
| Instrument                        | HRC                 | HRC                  | Obspar format version number | 7         | 7       |
| Detector                          | HRC-S               | HRC-S                | Obspar file type             | PREDICTED | ACTUAL  |
| Grating                           | LETG                | LETG                 | Obspar update status         | NONE      | UPDATED |
| Data mode                         | OBSERVING           | OBSERVING            |                              |           |         |
| Observation mode                  | POINTING            | POINTING             |                              |           |         |
| [deg] Pointing RA                 | 199.101721          | 199.0941825517271    |                              |           |         |
| [deg] Pointing Dec                | 29.075585           | 29.10380632620603    |                              |           |         |
| [deg] Pointing Roll               | 70.773153           | 70.8441009188697     |                              |           |         |
| [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)  | 442504907.760014    | 442504906.73501      |                              |           |         |
| Observation start date            | 2012-01-09T13:14:59 | 2012-01-09T14:01:46  |                              |           |         |
| [s] Observation end time (MET)    | 442505420.260041    | 442505419.23504      |                              |           |         |
| Observation end date              | 2012-01-09T14:34:59 | 2012-01-09T14:10:19  |                              |           |         |

## 2.3 Aspect





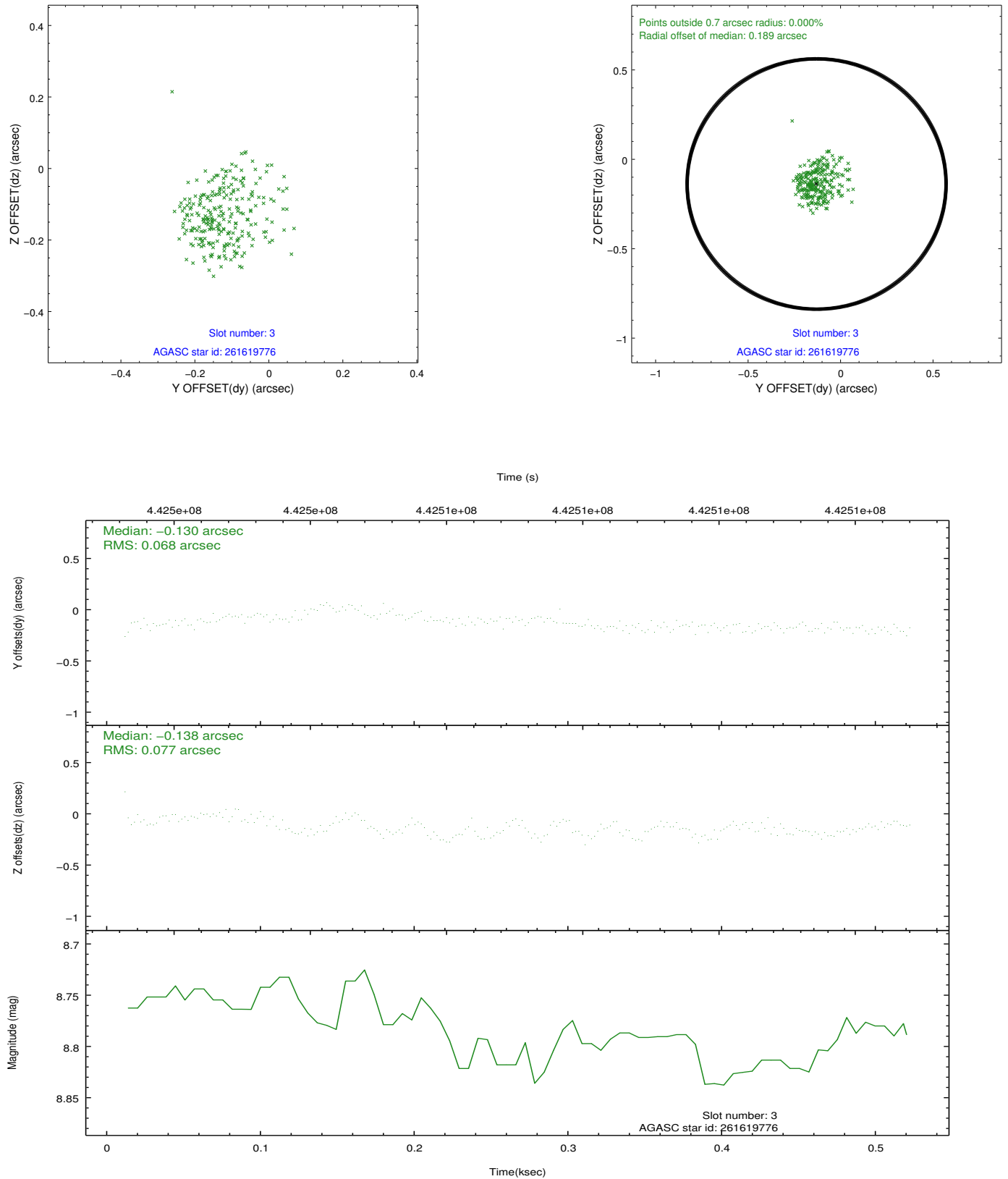
Slot Statistics

| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    | HRC-S-1   | 6.98 | 125   | 0.024  | -0.118 | 0.006 | 0.008 | 0.000000   | 0.000000  | -1170.92 | -461.59  |
| 1    | FID    | HRC-S-2   | 6.96 | 125   | 0.305  | -0.129 | 0.005 | 0.011 | 0.000000   | 0.000000  | 1219.67  | -457.88  |
| 2    | FID    | HRC-S-3   | 6.99 | 125   | 0.062  | -0.055 | 0.007 | 0.012 | 0.000000   | 0.000000  | -1163.87 | 564.34   |
| 3    | GUIDE  | 261619776 | 8.79 | 250   | -0.130 | -0.138 | 0.108 | 0.180 | 198.654383 | 29.401174 | 645.47   | 1711.32  |
| 4    | GUIDE  | 261619992 | 9.29 | 250   | 0.161  | -0.341 | 0.145 | 0.251 | 198.395553 | 28.647634 | -2181.78 | 1608.57  |
| 5    | GUIDE  | 261621400 | 6.98 | 250   | 0.085  | -0.203 | 0.079 | 0.144 | 198.901600 | 28.741982 | -1351.61 | 208.37   |
| 6    | GUIDE  | 261623040 | 9.10 | 250   | -0.377 | -0.245 | 0.116 | 0.214 | 198.792686 | 29.757643 | 1994.45  | 1722.20  |
| 7    | GUIDE  | 261623624 | 9.09 | 245   | 0.195  | 0.910  | 0.121 | 0.197 | 199.611555 | 28.454113 | -1570.83 | -2250.69 |

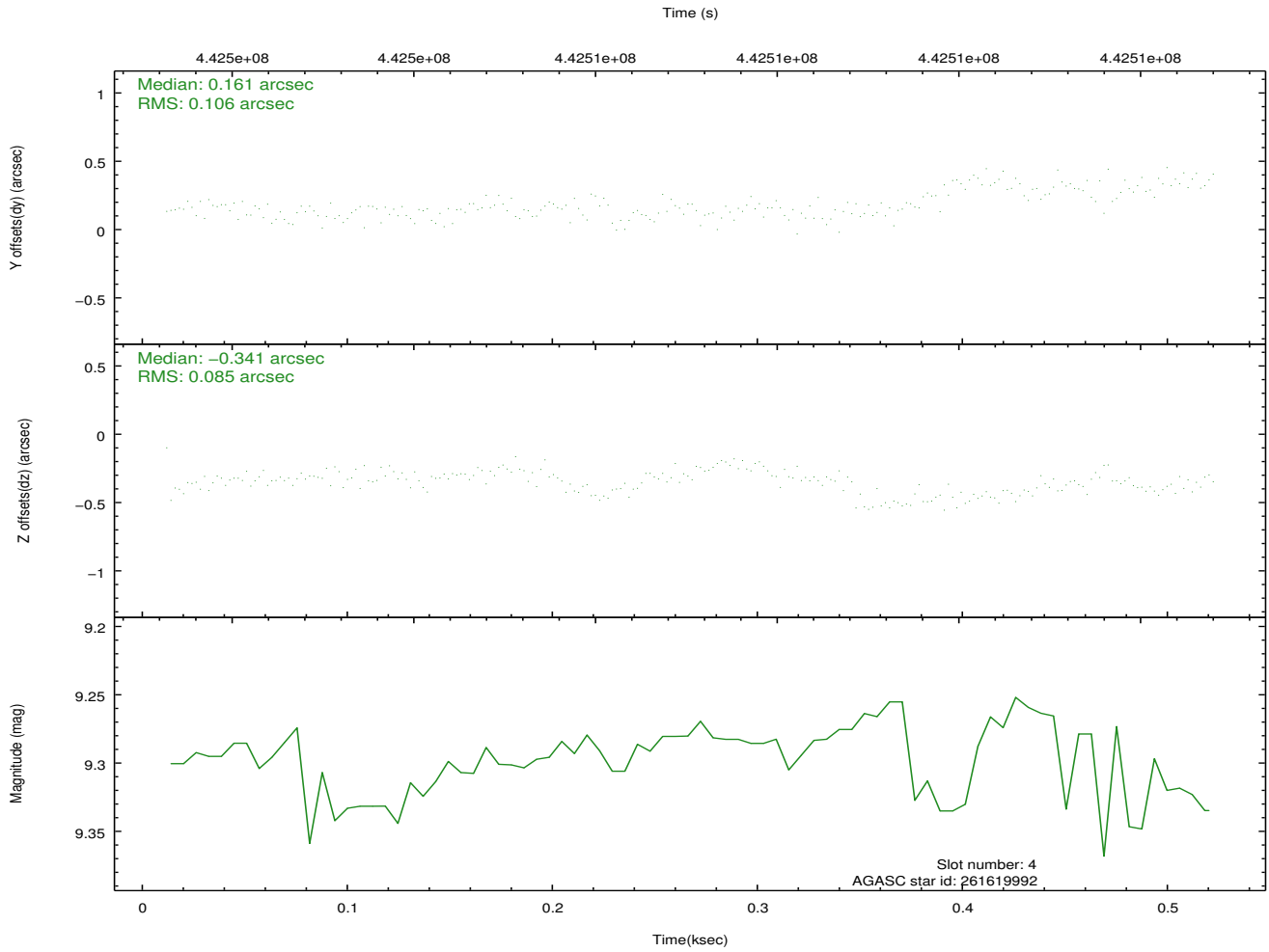
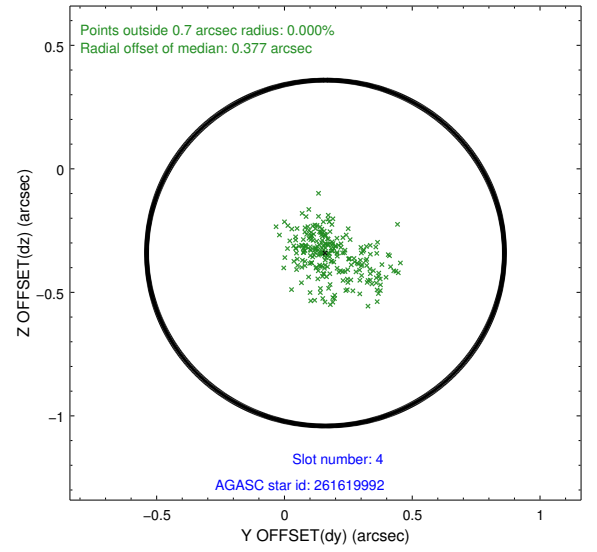
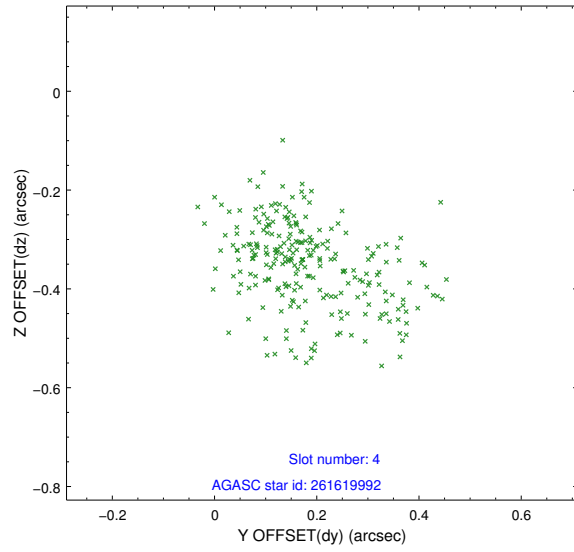


## 2.4 Star Slots

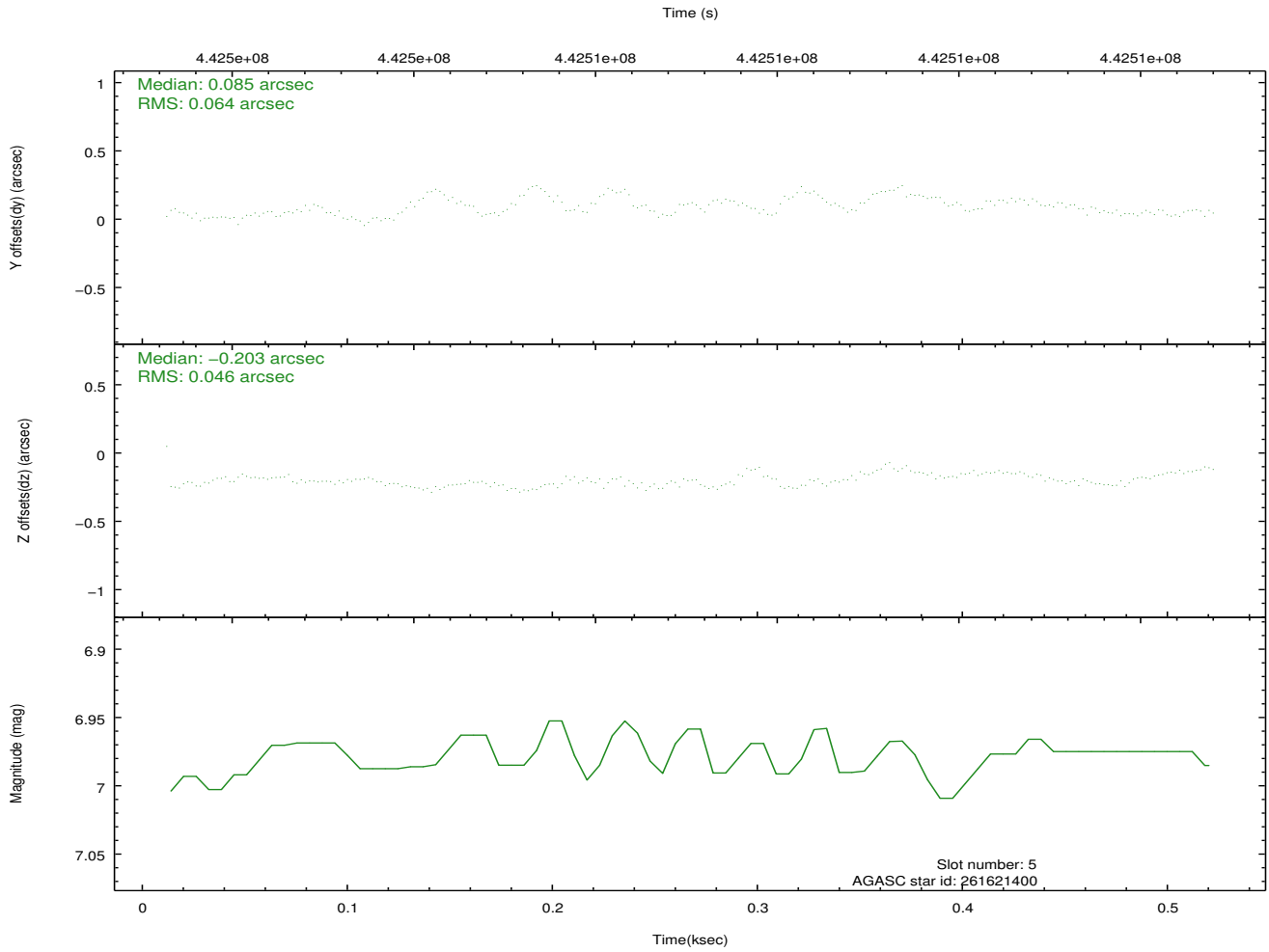
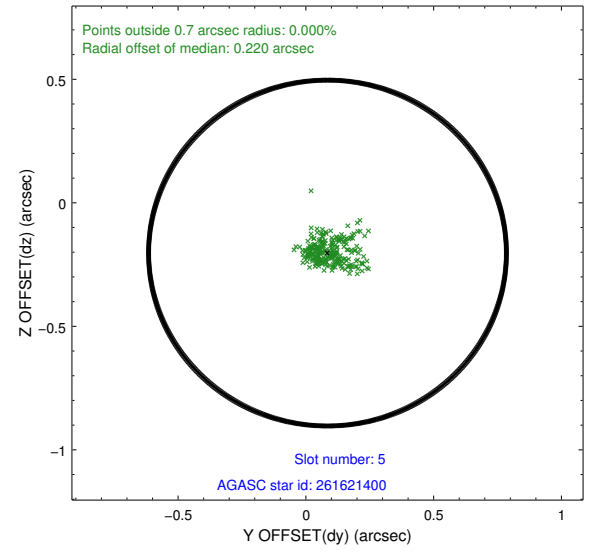
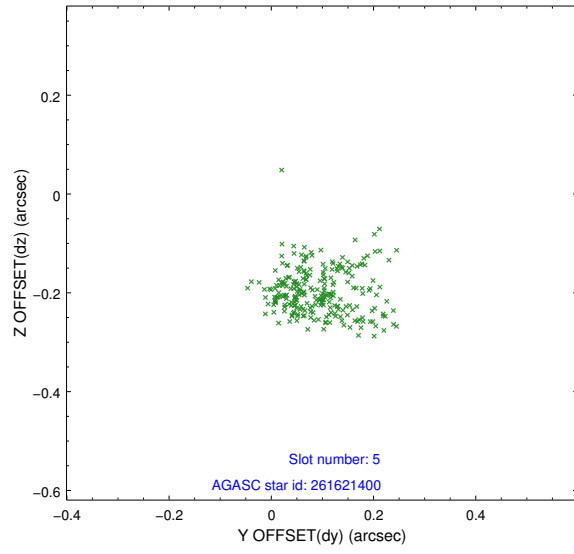
### 2.4.1 Slot 3



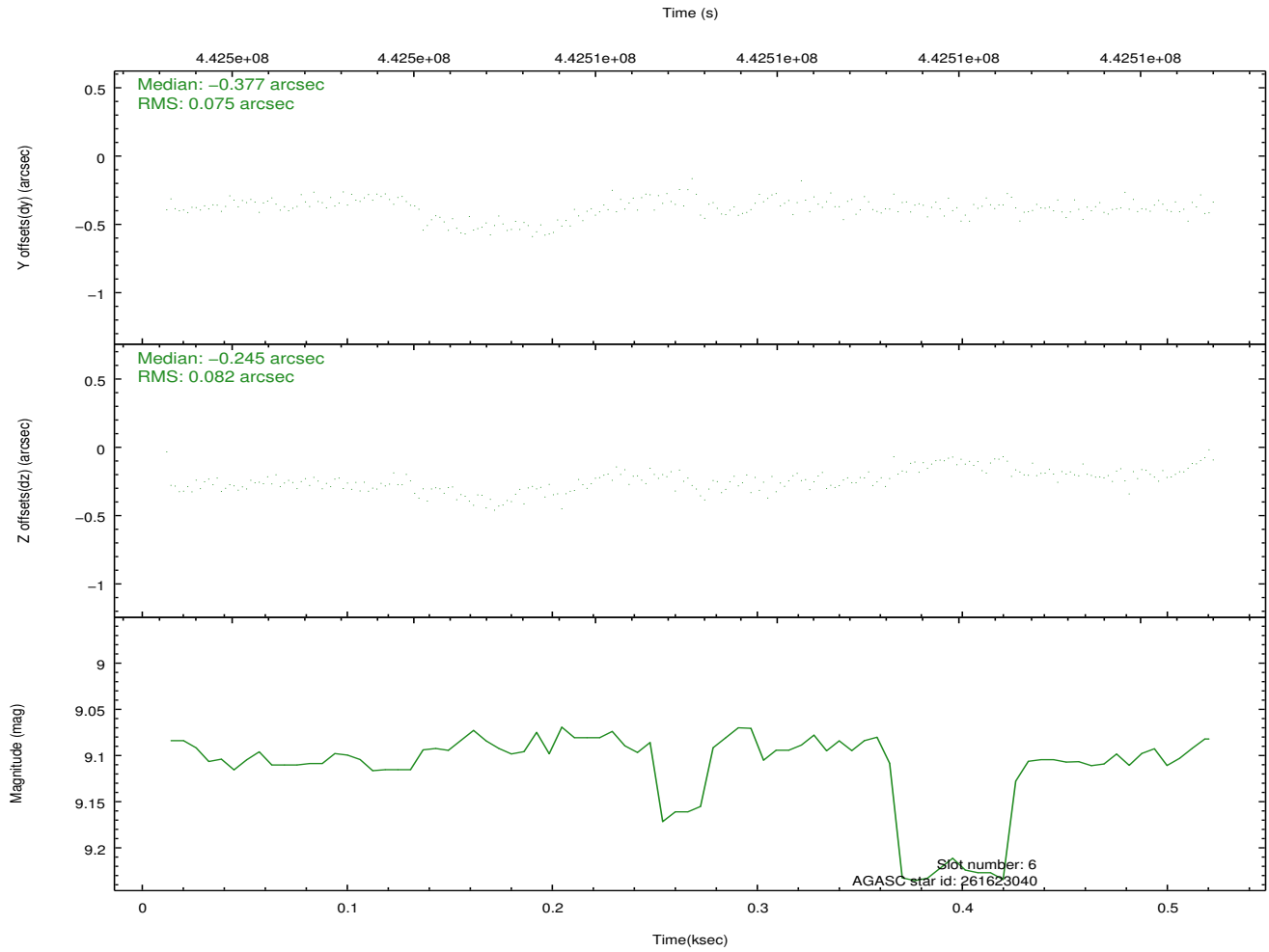
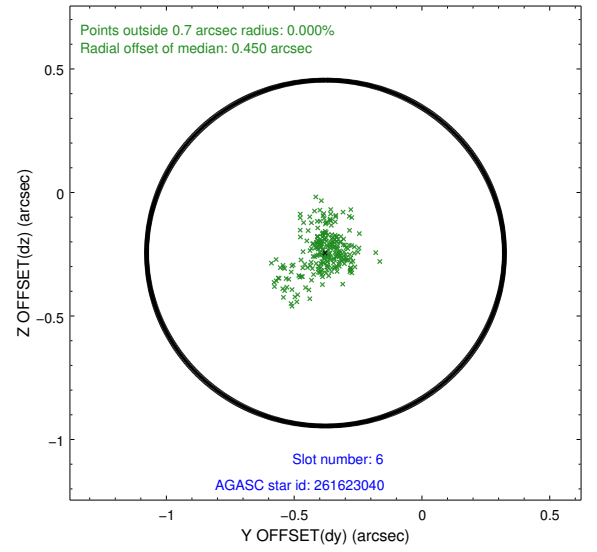
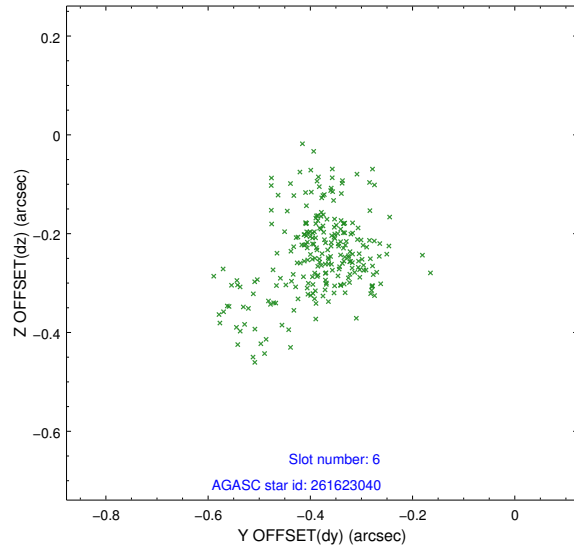
## 2.4.2 Slot 4



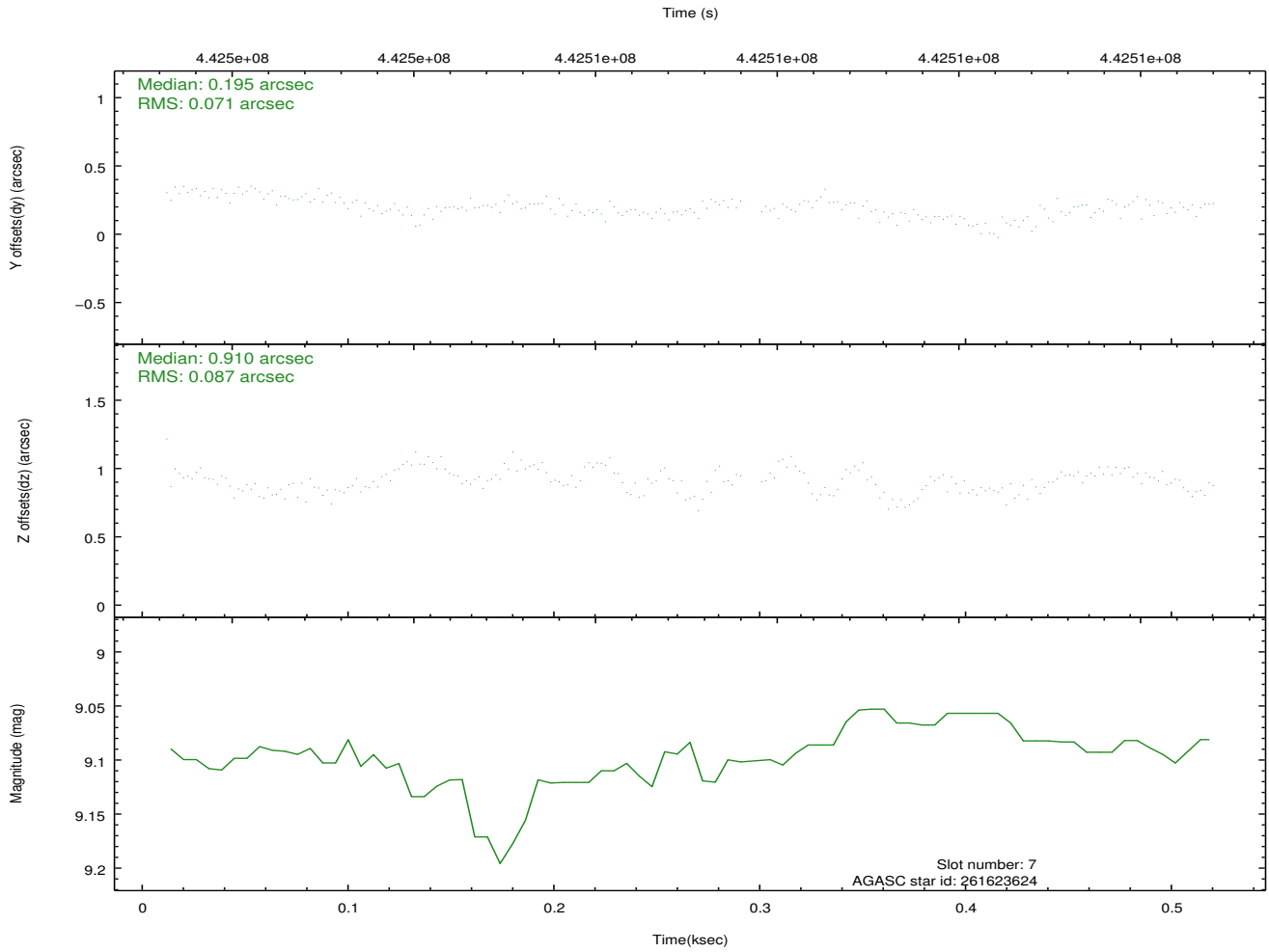
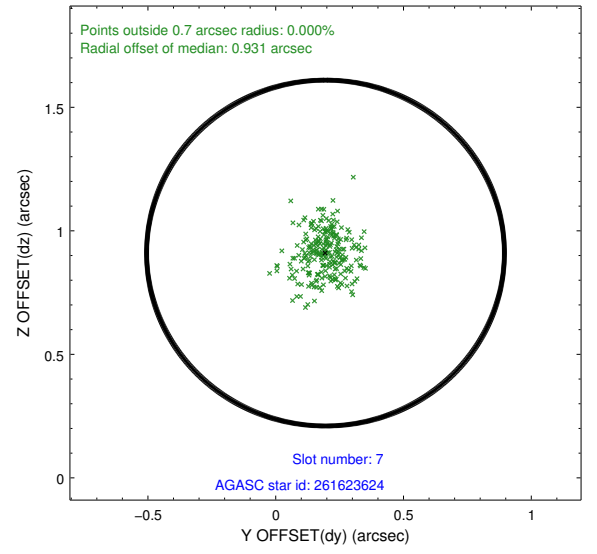
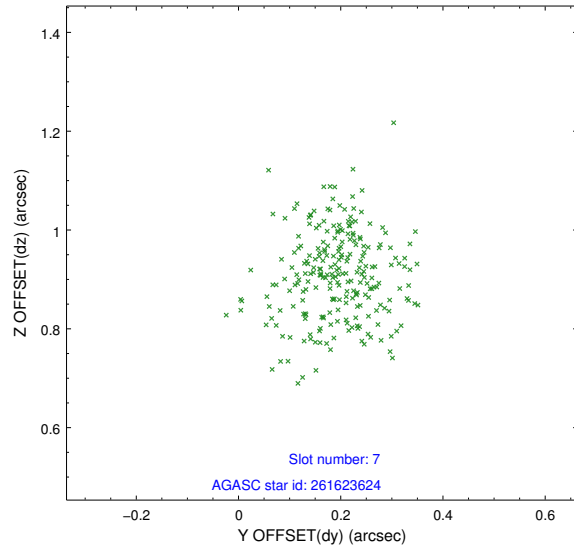
### 2.4.3 Slot 5



## 2.4.4 Slot 6

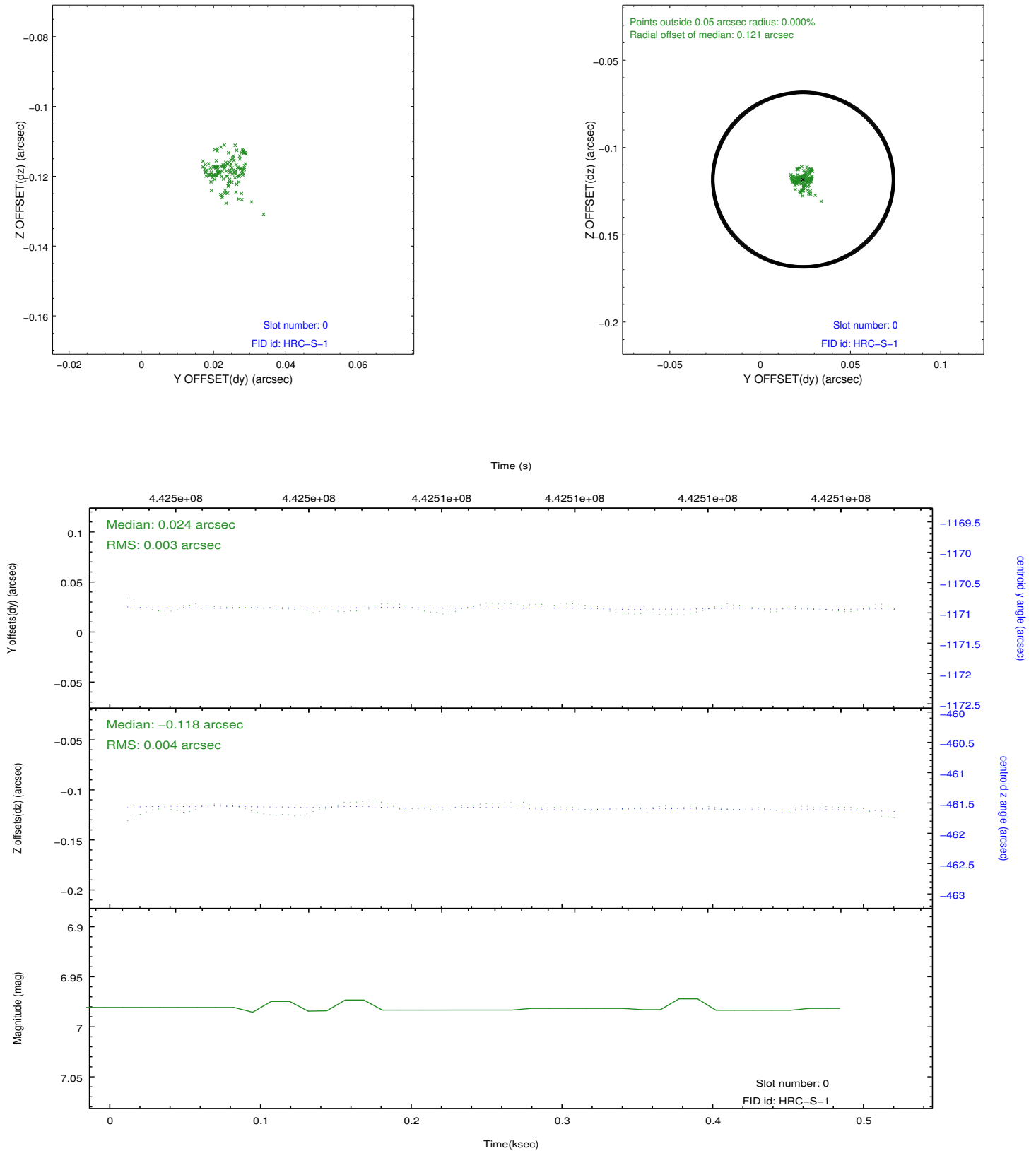


## 2.4.5 Slot 7

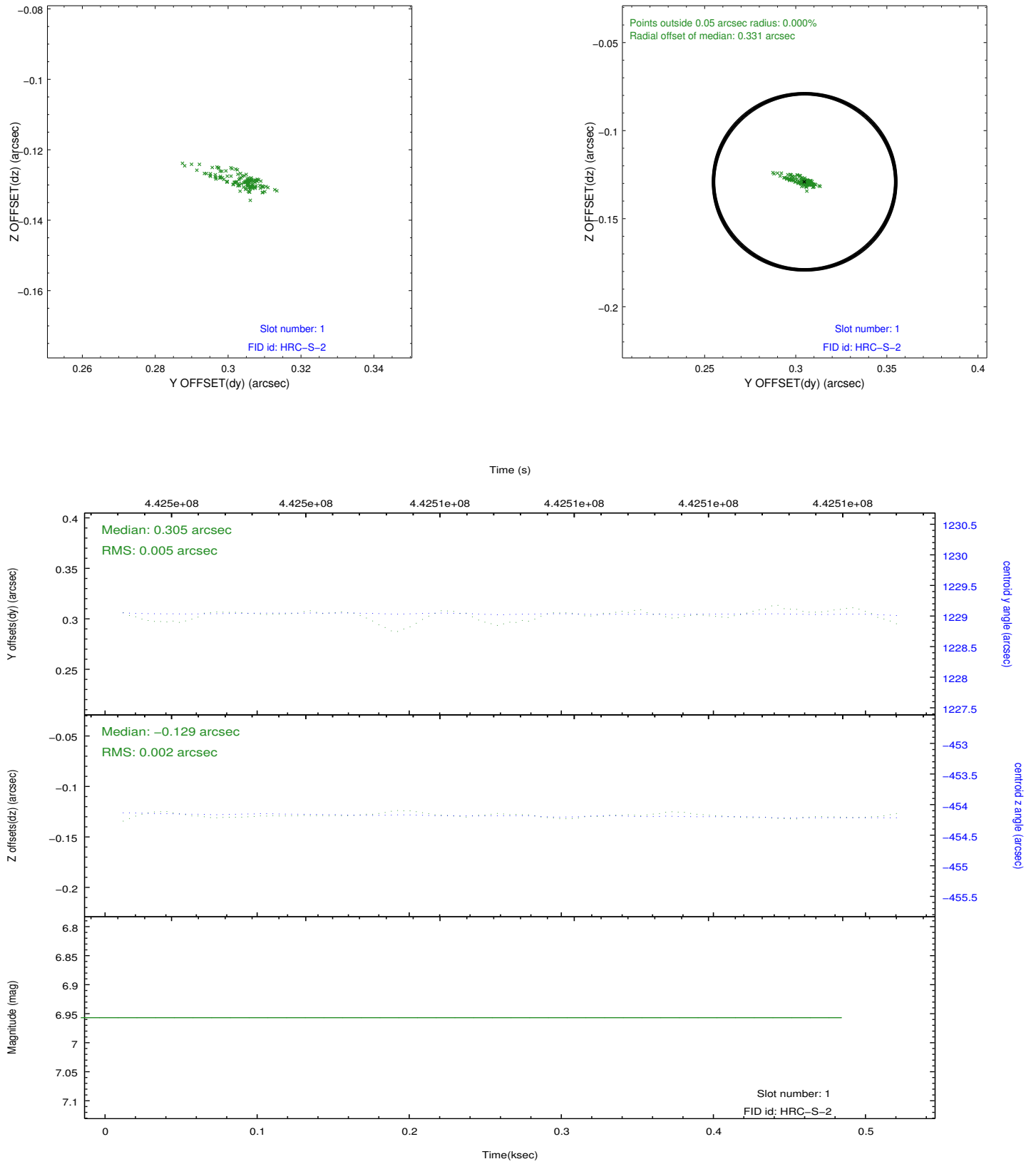


## 2.5 FID Slots

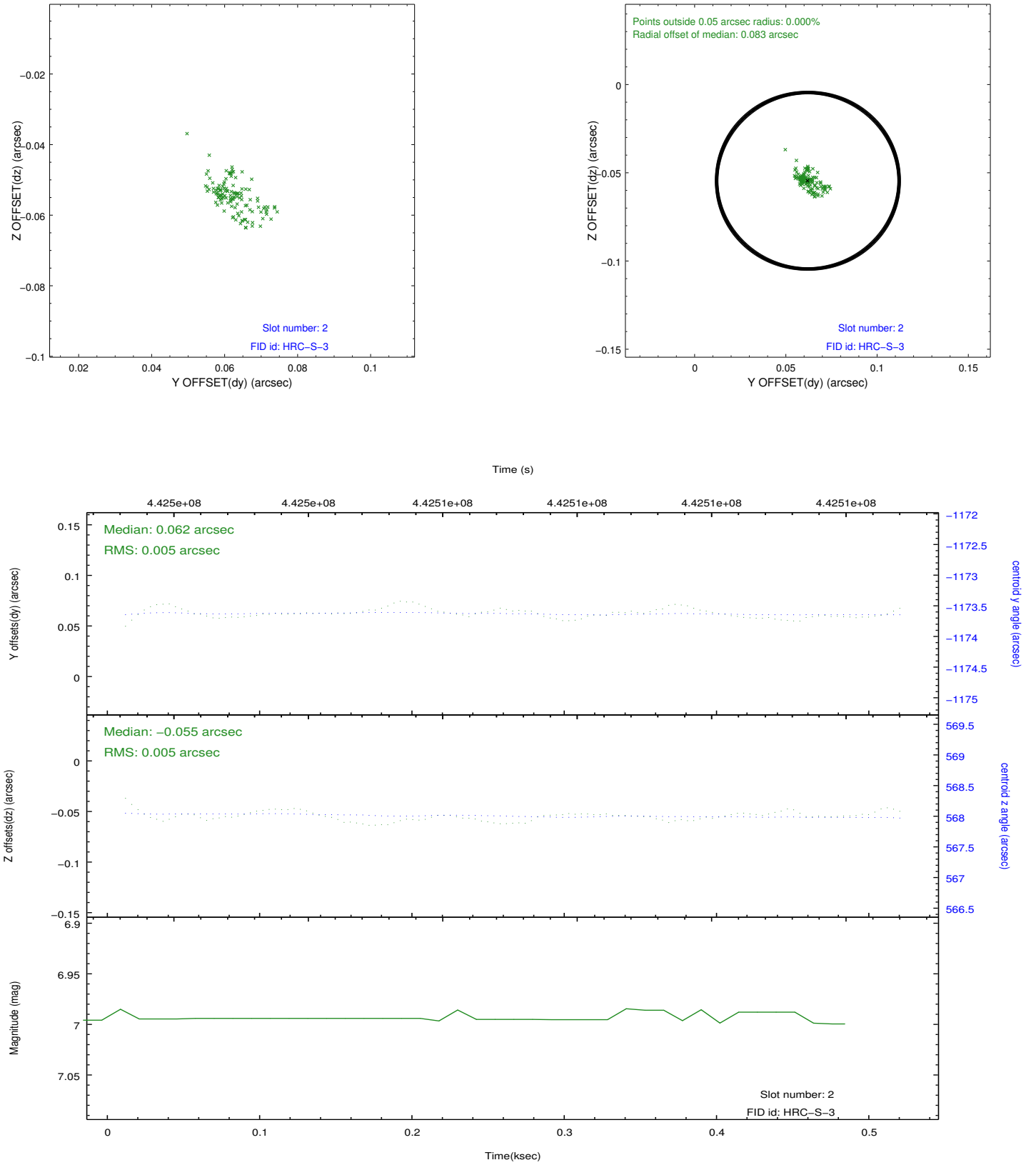
### 2.5.1 Slot 0



## 2.5.2 Slot 1



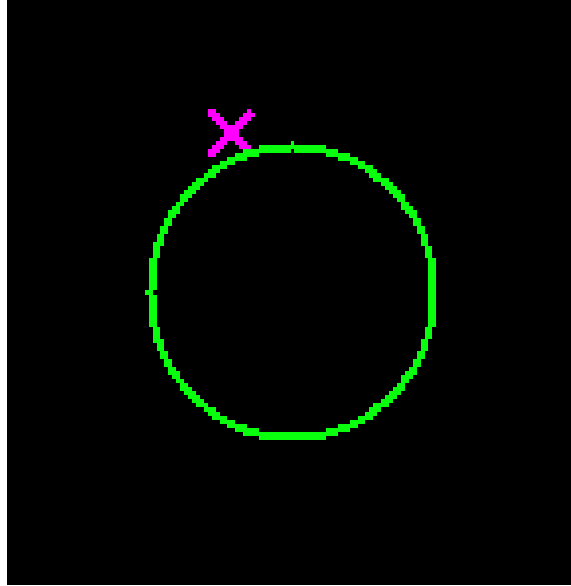
### 2.5.3 Slot 2



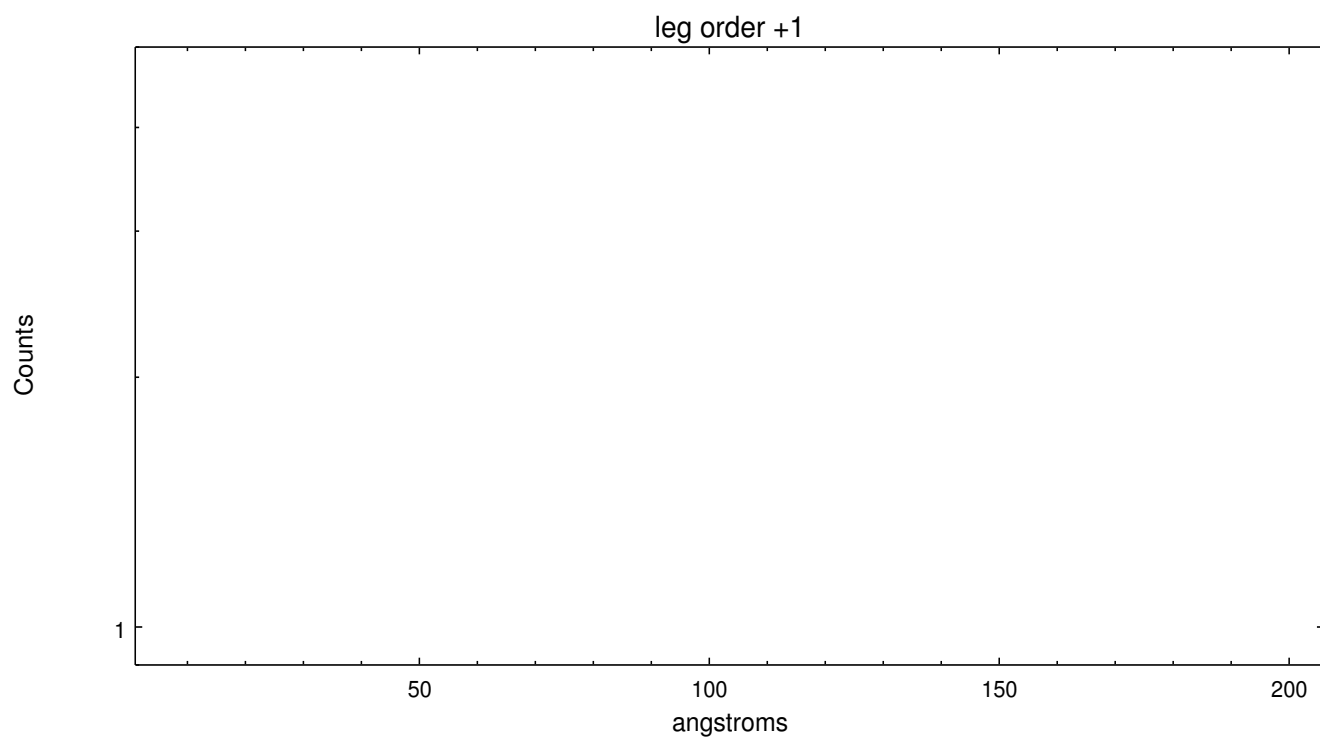
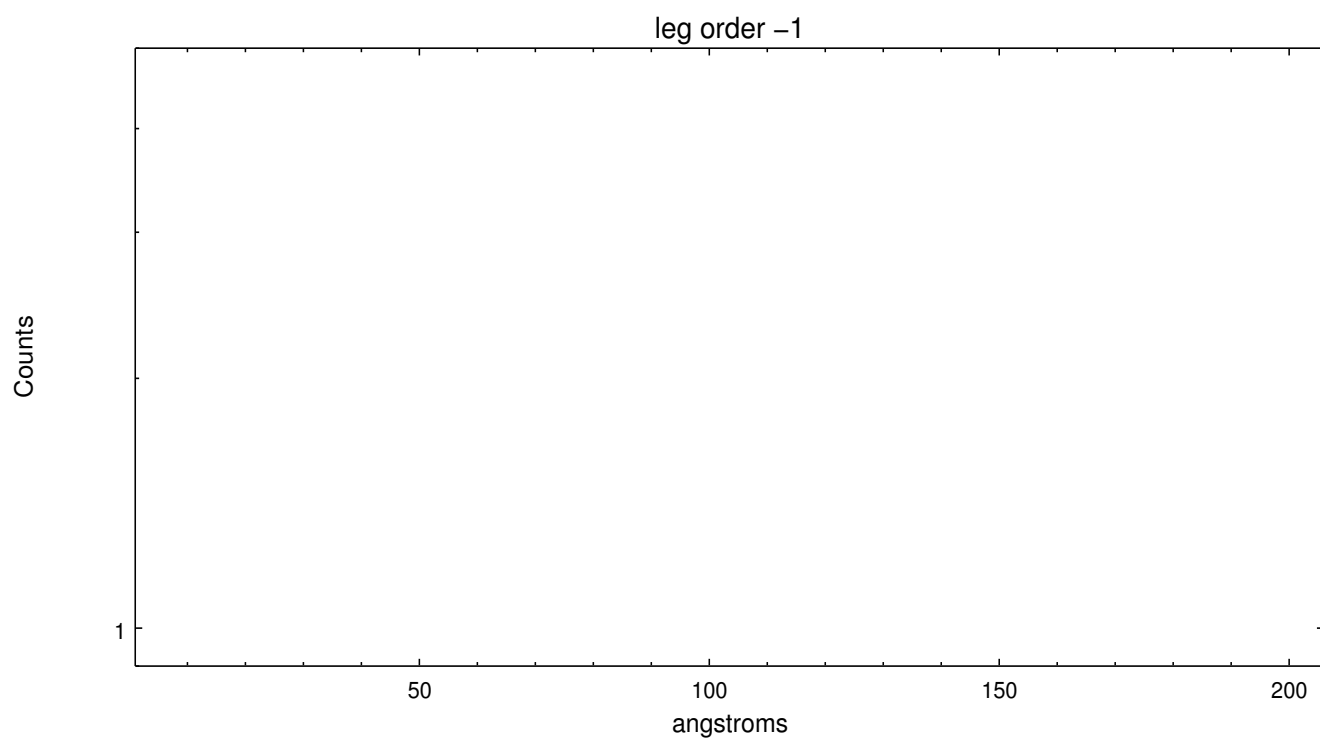


## 3 Gratings

### 3.1 LETG Arm



LETG Zero Order



# A Summary

## A.1 Status

|                            |                  |
|----------------------------|------------------|
| V&V Scientist              | Joy Nichols      |
| V&V Date (YYYY-MM-DD)      | 2012.08.17       |
| V&V Edition                | 2                |
| V&V Disposition and Status | OK               |
| V&V Charge Time            | 0.45920002424717 |

## A.2 Comments

Processed with custom gti-limit parameters to allow events from non-standard voltages to be included in gti. During the HRC-S/LETG observation of HZ43 both the bottom and top MCP HV were adjusted up gradually in steps. For each setting we updated the ObsID prior to changing the HV step. Below is a table of the ObsID/HV-step configurations. =====

ObsID Bottom Top Start (approx.)

-----

```
14370 102 90 2012:009:13:10:30 (nominal steps) 62692 103 90
2012:009:13:20:00 62691 103 91 2012:009:13:27:45 62690 104 91
2012:009:13:36:00 62689 104 92 2012:009:13:44:20 62688 105 92
2012:009:13:52:45 62687 105 93 2012:009:14:01:30 62686 106 93
2012:009:14:10:45 62685 106 94 2012:009:14:18:15 62684 102 90
2012:009:14:30:00 (nominal steps)
```