

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 11991 - L2 Version 2  
Chandra X-Ray Center

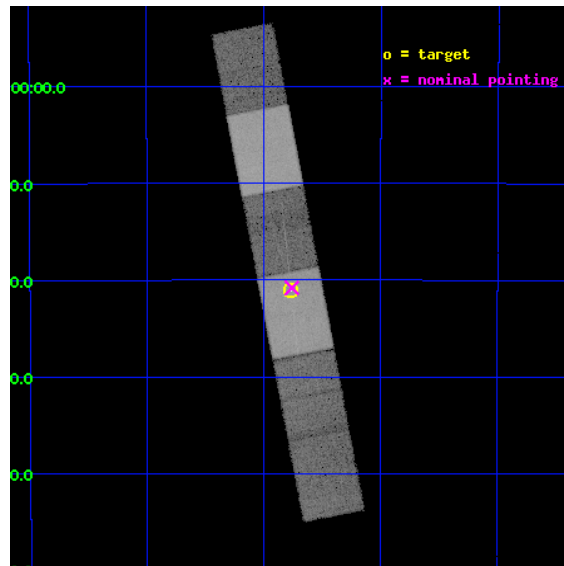
L2 Processing Date : Jun 15 2012

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# 1 Front

|          |                                                          |                                             |
|----------|----------------------------------------------------------|---------------------------------------------|
| seq_num  | 300253                                                   | Sequence number                             |
| obs_id   | 11991                                                    | Observation id                              |
| title    | CP Puppis, a template for the secular evolution of novae | Proposal                                    |
| observer | Dr Marina Orio                                           | Principal investigator                      |
| object   | CP Puppis                                                | Source name                                 |
| dtcycle  | 0                                                        | &#160                                       |
| cycle    | P                                                        | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 122.942083                                               | Observer's specified target RA [deg]        |
| dec_targ | -35.351389                                               | Observer's specified target Dec [deg]       |
| ra_nom   | 122.93997066904                                          | Nominal RA [deg]                            |
| dec_nom  | -35.34686135164                                          | Nominal Dec [deg]                           |
| roll_nom | 79.155415231349                                          | Nominal Roll [deg]                          |
| revision | 2                                                        | Processing version of data                  |
| ontime   | 20037.410557568                                          | Sum of GTIs [s]                             |
| livetime | 19713.788997387                                          | Livetime [s]                                |
| ontime4  | 20037.451597571                                          | Sum of GTIs [s]                             |
| ontime5  | 20037.369517565                                          | Sum of GTIs [s]                             |
| ontime6  | 20037.328477561                                          | Sum of GTIs [s]                             |
| ontime7  | 20037.410557568                                          | Sum of GTIs [s]                             |
| ontime8  | 20037.287437558                                          | Sum of GTIs [s]                             |
| ontime9  | 20037.246397555                                          | Sum of GTIs [s]                             |
| l2events | 276318                                                   | Number of level 2 events                    |

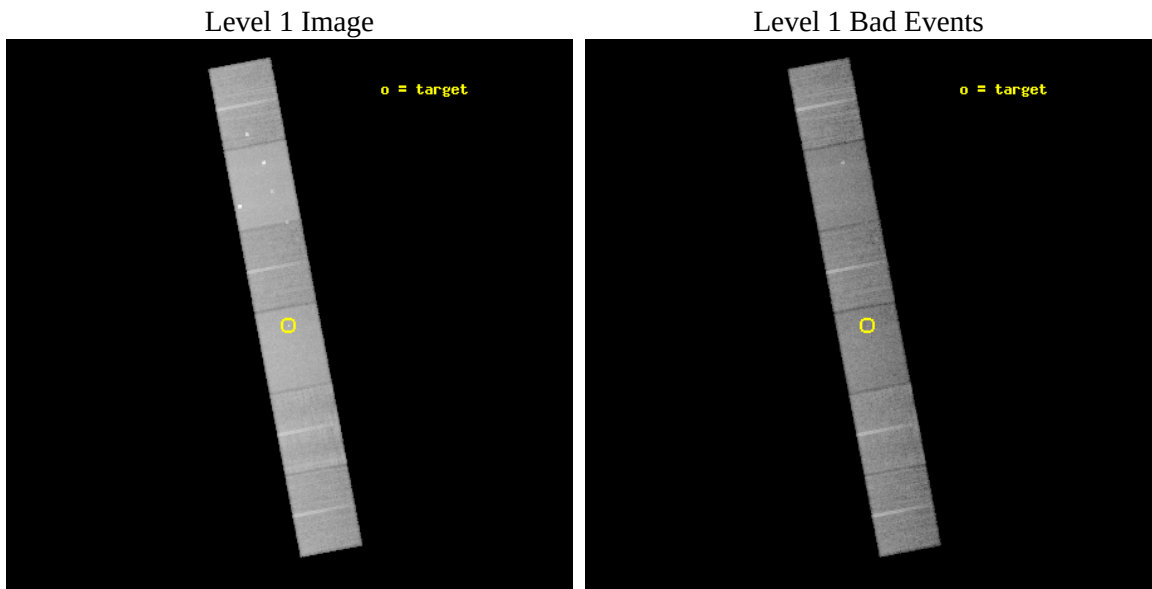




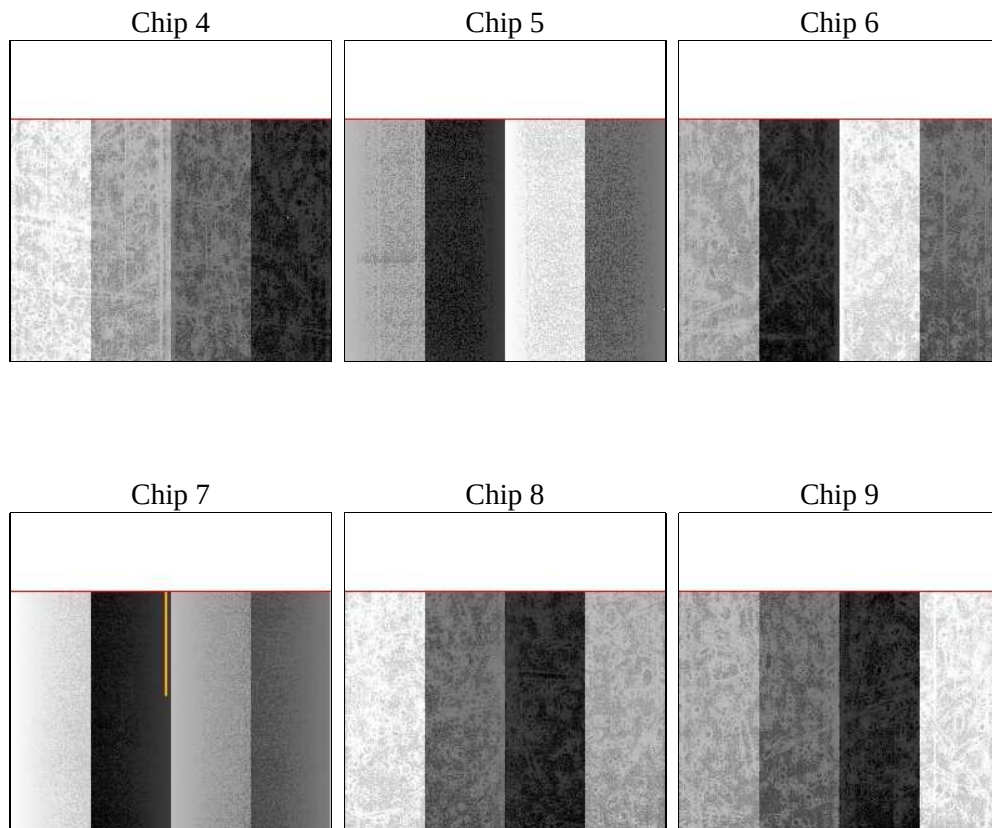
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |                                         |
|----------|---------------------|--------------------------------|----------------|-----------------|-----------------------------------------|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 20000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 20037.410557568 | Sum of GTIs [s]                         |
| caldsver | 4.4.10              | &#160                          | ontime4        | 20037.451597571 | Sum of GTIs [s]                         |
| date     | 2012-06-15T02:41:03 | Date and time of file creation | ontime5        | 20037.369517565 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime6        | 20037.328477561 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 20037.410557568 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 20037.287437558 | Sum of GTIs [s]                         |
|          |                     |                                | ontime9        | 20037.246397555 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1177994         | Number of level 1 events                |

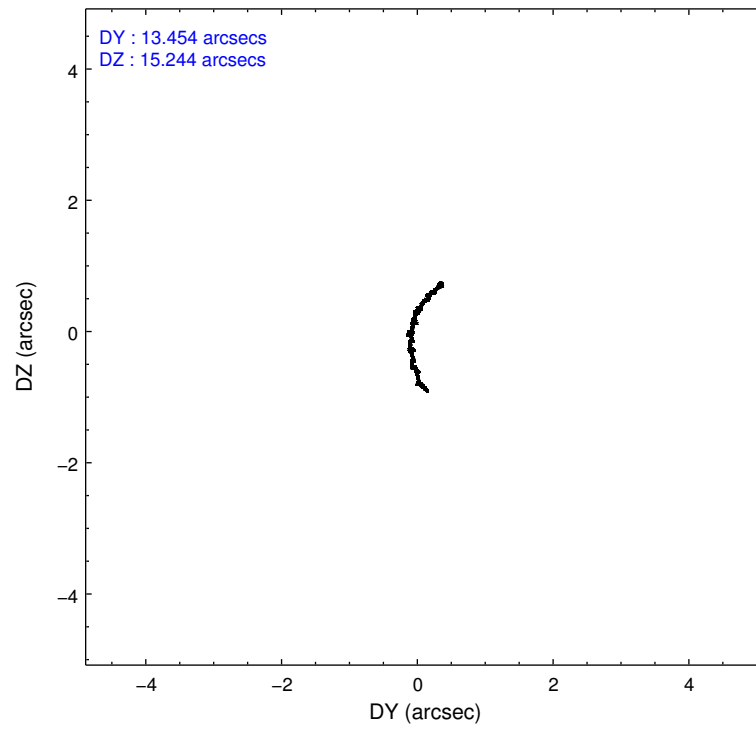
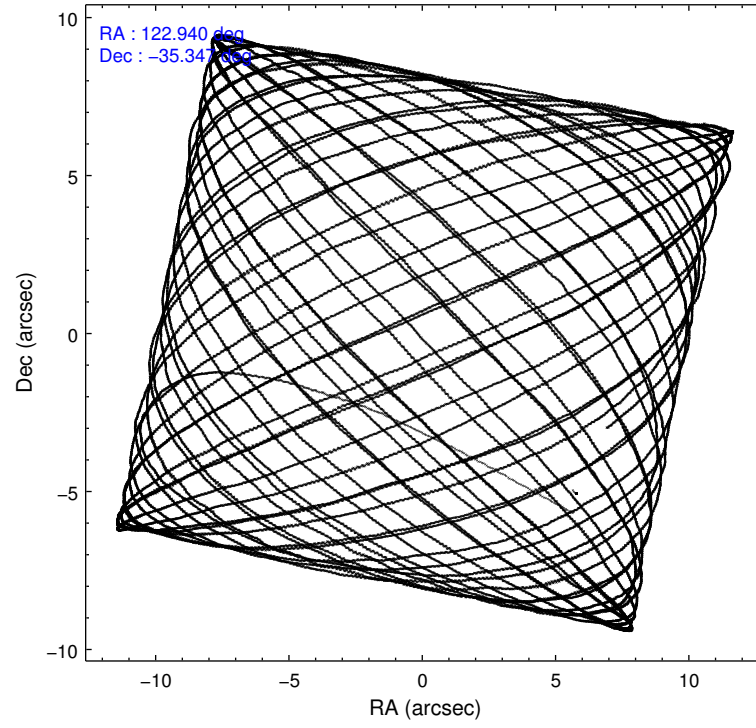
### 2.1.4 Events

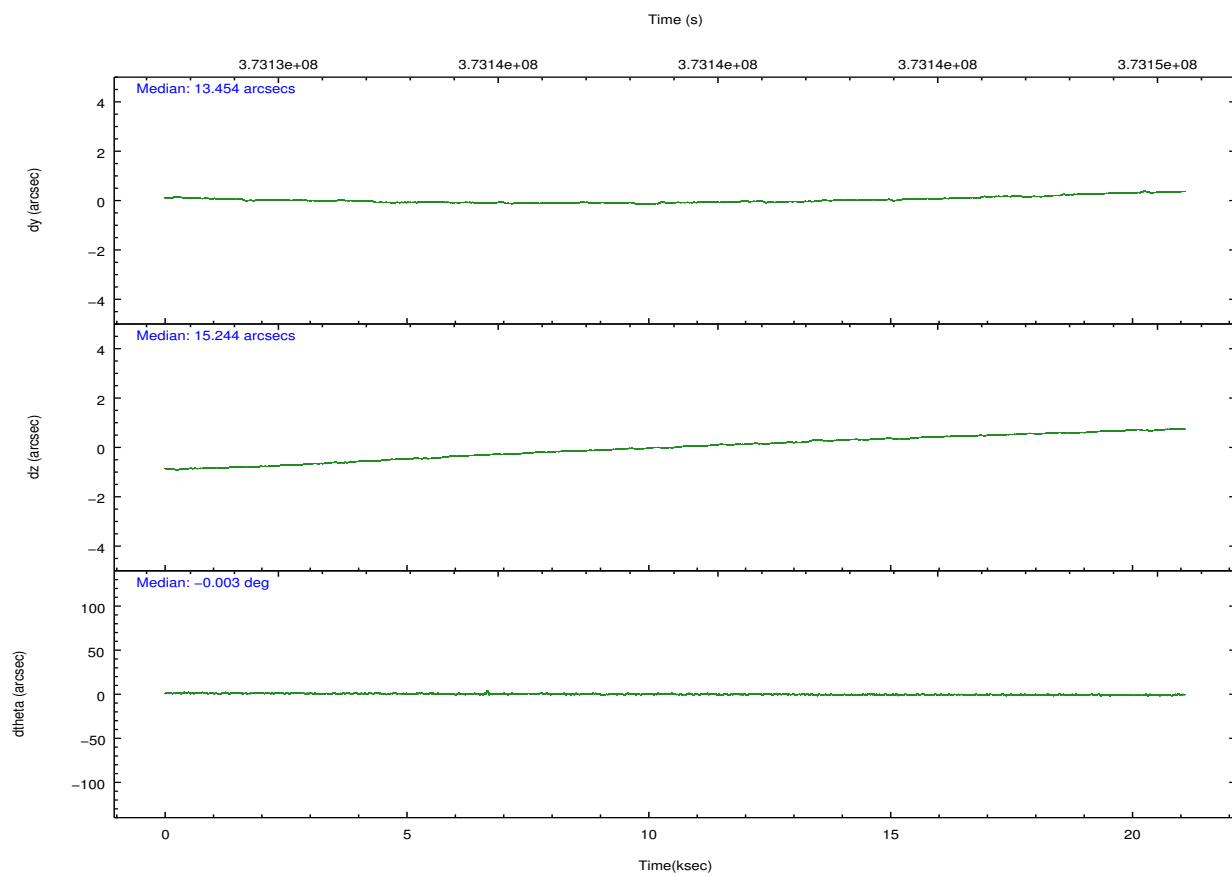
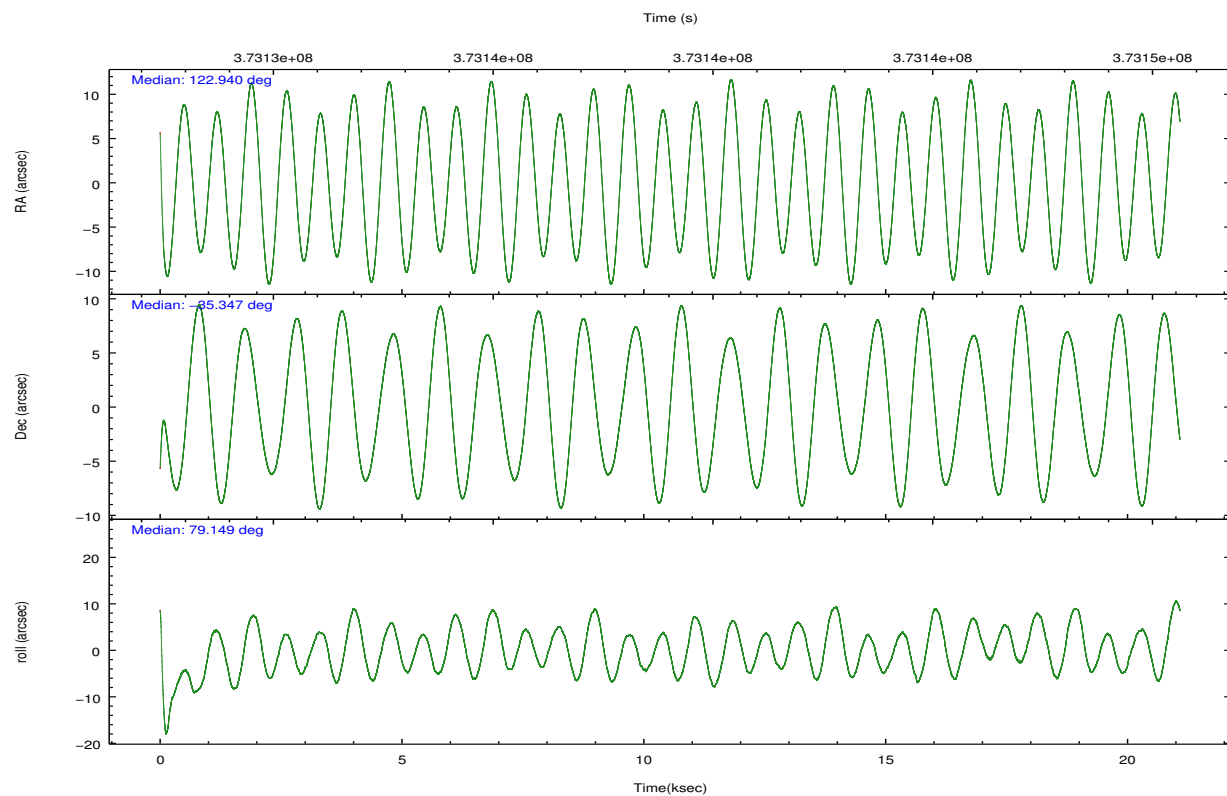
|                 | ccd 4  | ccd 5  | ccd 6  | ccd 7  | ccd 8  | ccd 9  |                | ccd 4  | ccd 5  | ccd 6  | ccd 7  | ccd 8  | ccd 9  |
|-----------------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|--------|--------|--------|
| level 1 events  | 177414 | 256715 | 158876 | 222820 | 207317 | 154852 | grade 0 events | 11419  | 16846  | 8083   | 8103   | 15375  | 8376   |
| rejected events | 153906 | 134376 | 138499 | 127409 | 156798 | 133967 |                | 6%     | 6%     | 5%     | 3%     | 7%     | 5%     |
| rejected %      | 86%    | 52%    | 87%    | 57%    | 75%    | 86%    | grade 1 events | 174    | 1039   | 79     | 235    | 133    | 100    |
|                 |        |        |        |        |        |        |                | 0%     | 0%     | 0%     | 0%     | 0%     | 0%     |
|                 |        |        |        |        |        |        | grade 2 events | 4748   | 35532  | 4373   | 19934  | 11384  | 4297   |
|                 |        |        |        |        |        |        |                | 2%     | 13%    | 2%     | 8%     | 5%     | 2%     |
|                 |        |        |        |        |        |        | grade 3 events | 2044   | 4751   | 1973   | 8236   | 5418   | 2117   |
|                 |        |        |        |        |        |        |                | 1%     | 1%     | 1%     | 3%     | 2%     | 1%     |
|                 |        |        |        |        |        |        | grade 4 events | 2001   | 4570   | 1937   | 8212   | 4976   | 1982   |
|                 |        |        |        |        |        |        |                | 1%     | 1%     | 1%     | 3%     | 2%     | 1%     |
|                 |        |        |        |        |        |        | grade 5 events | 7291   | 18324  | 7433   | 20808  | 10266  | 8294   |
|                 |        |        |        |        |        |        |                | 4%     | 7%     | 4%     | 9%     | 4%     | 5%     |
|                 |        |        |        |        |        |        | grade 6 events | 3299   | 60661  | 4014   | 50936  | 13369  | 4117   |
|                 |        |        |        |        |        |        |                | 1%     | 23%    | 2%     | 22%    | 6%     | 2%     |
|                 |        |        |        |        |        |        | grade 7 events | 146438 | 114992 | 130984 | 106356 | 146396 | 125569 |
|                 |        |        |        |        |        |        |                | 82%    | 44%    | 82%    | 47%    | 70%    | 81%    |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-456789         | ACIS-456789          | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | HETG                | HETG                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | FAINT               | FAINT                | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | POINTING            | POINTING             | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 122.951403          | 122.9399706690423    | Subarray requested                    | CUSTOM    | CUSTOM  |
| [deg] Pointing Dec                | -35.372569          | -35.34686135164048   | Subarray start row                    | 1         | 1       |
| [deg] Pointing Roll               | 79.005397           | 79.15541523134894    | Subarray row count                    | 774       | 774     |
| [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  | 2.5     |
| [mm] SIM translation stage pos    | -187.132523         | -187.1228876879999   |                                       |           |         |
| [mm] SIM translation stage offset | -3                  | -3.009634895007935   |                                       |           |         |
| [s] Observation start time (MET)  | 373129564.184000    | 373127560.41848      |                                       |           |         |
| Observation start date            | 2009-10-28T15:04:58 | 2009-10-28T14:32:40  |                                       |           |         |
| [s] Observation end time (MET)    | 373149564.184000    | 373150292.35713      |                                       |           |         |
| Observation end date              | 2009-10-28T20:38:18 | 2009-10-28T20:51:32  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



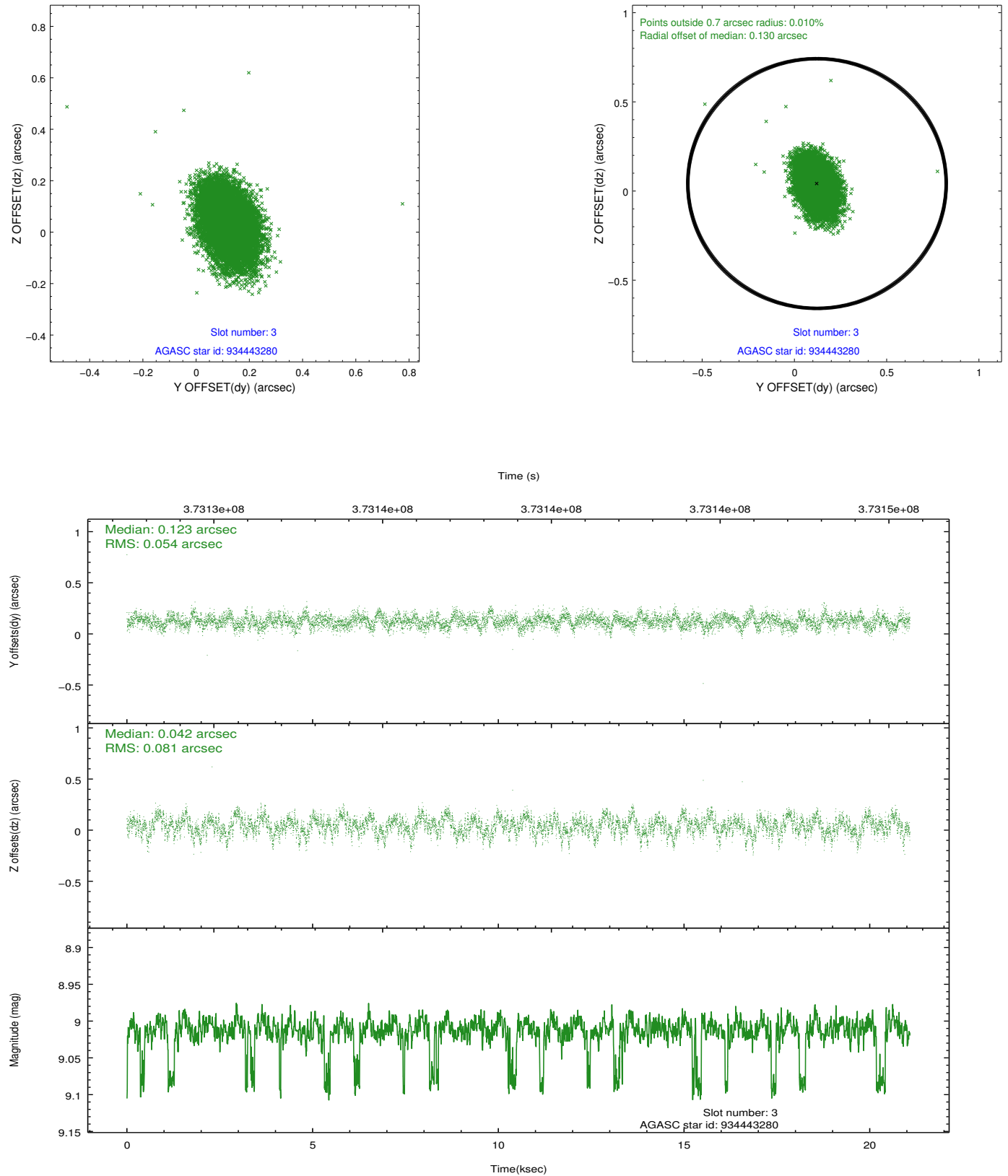


# Slot Statistics

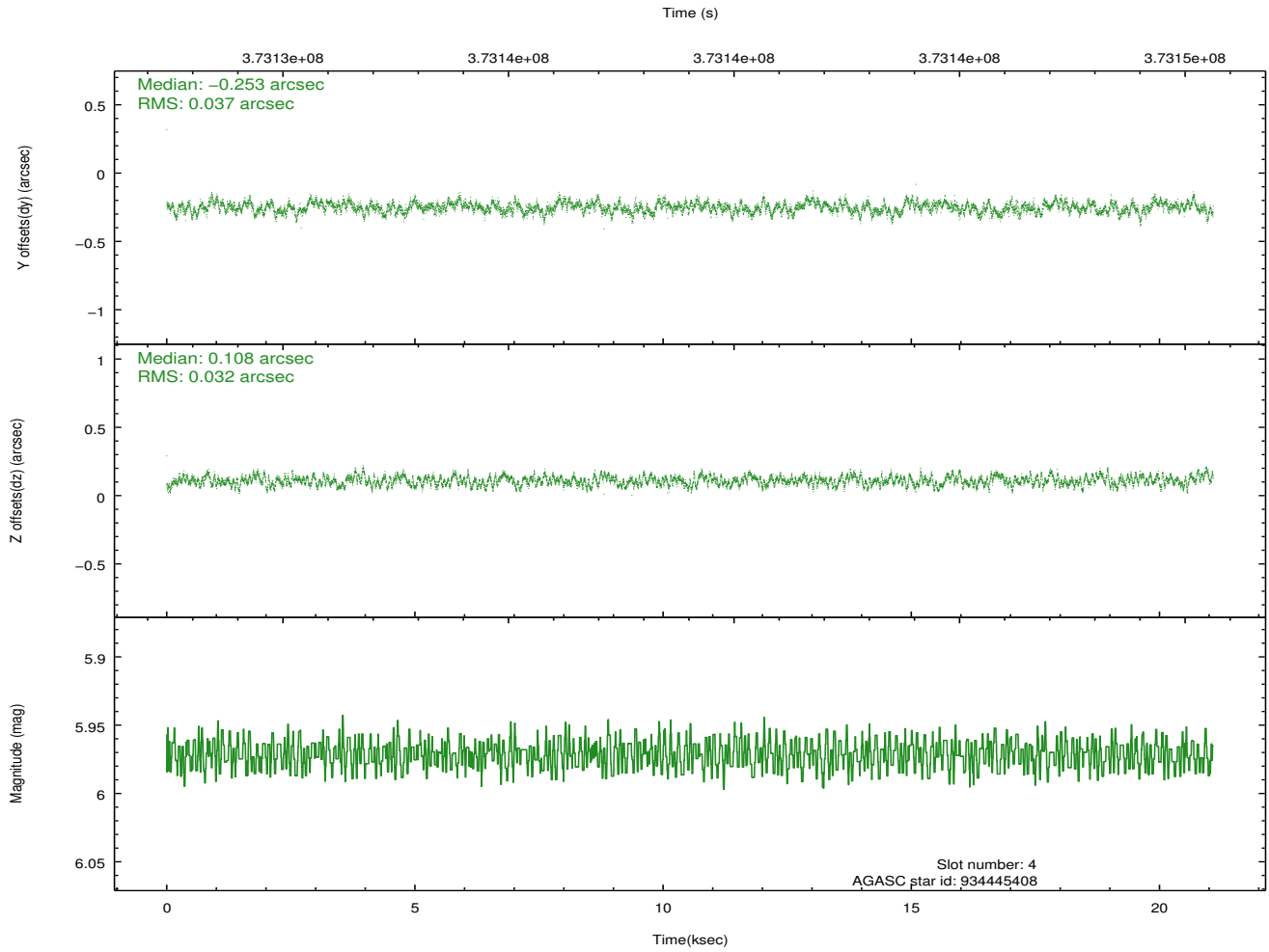
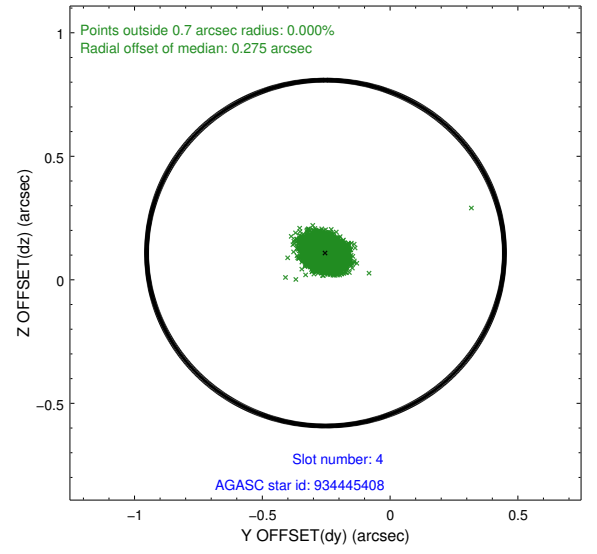
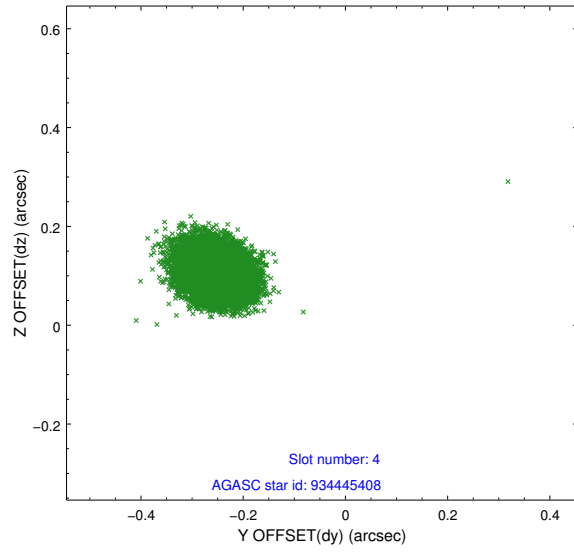
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec        | mean_y  | mean_z   |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|---------|----------|
| 0    | FID    | ACIS-S-1  | 6.96 | 5143  | 0.064  | 0.048  | 0.029 | 0.048 | 0.000000   | 0.000000   | 929.83  | -1794.36 |
| 1    | FID    | ACIS-S-2  | 6.89 | 5143  | -0.197 | -0.098 | 0.018 | 0.025 | 0.000000   | 0.000000   | -766.24 | -1799.18 |
| 2    | FID    | ACIS-S-4  | 6.96 | 5142  | 0.107  | 0.054  | 0.016 | 0.029 | 0.000000   | 0.000000   | 2147.10 | 109.58   |
| 3    | GUIDE  | 934443280 | 9.01 | 10267 | 0.123  | 0.042  | 0.101 | 0.173 | 123.348771 | -35.369207 | 232.72  | -1142.91 |
| 4    | GUIDE  | 934445408 | 5.97 | 10284 | -0.253 | 0.108  | 0.052 | 0.082 | 123.155863 | -35.146509 | 913.22  | -435.54  |
| 5    | GUIDE  | 934449128 | 9.18 | 10259 | 0.141  | -0.177 | 0.094 | 0.152 | 122.610732 | -35.593771 | -973.10 | 826.53   |
| 6    | GUIDE  | 934449184 | 6.92 | 10284 | -0.130 | -0.058 | 0.061 | 0.099 | 123.461425 | -35.208271 | 863.23  | -1360.38 |
| 7    | GUIDE  | 934448384 | 9.37 | 10271 | 0.126  | 0.082  | 0.097 | 0.157 | 123.060299 | -35.434250 | -156.63 | -355.92  |

## 2.4 Star Slots

### 2.4.1 Slot 3

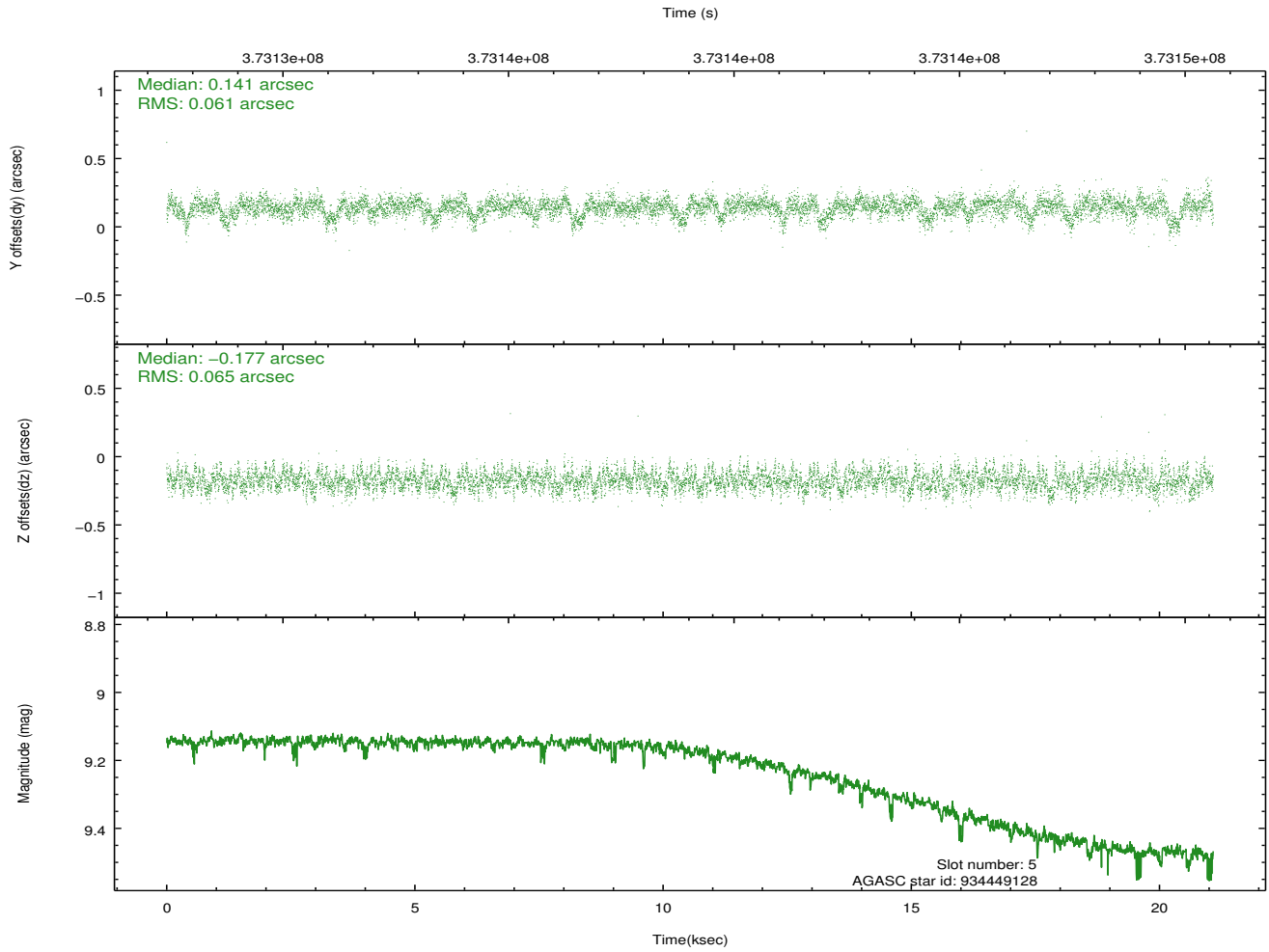
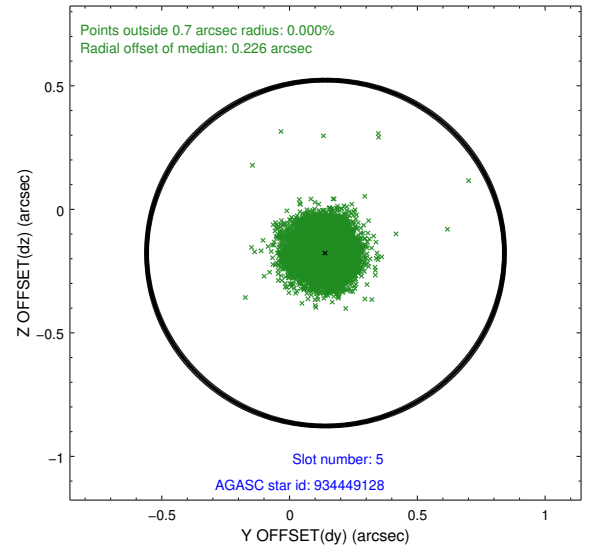
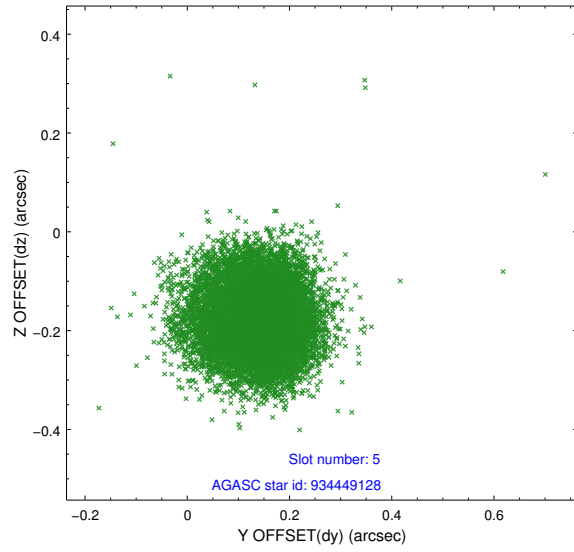


## 2.4.2 Slot 4

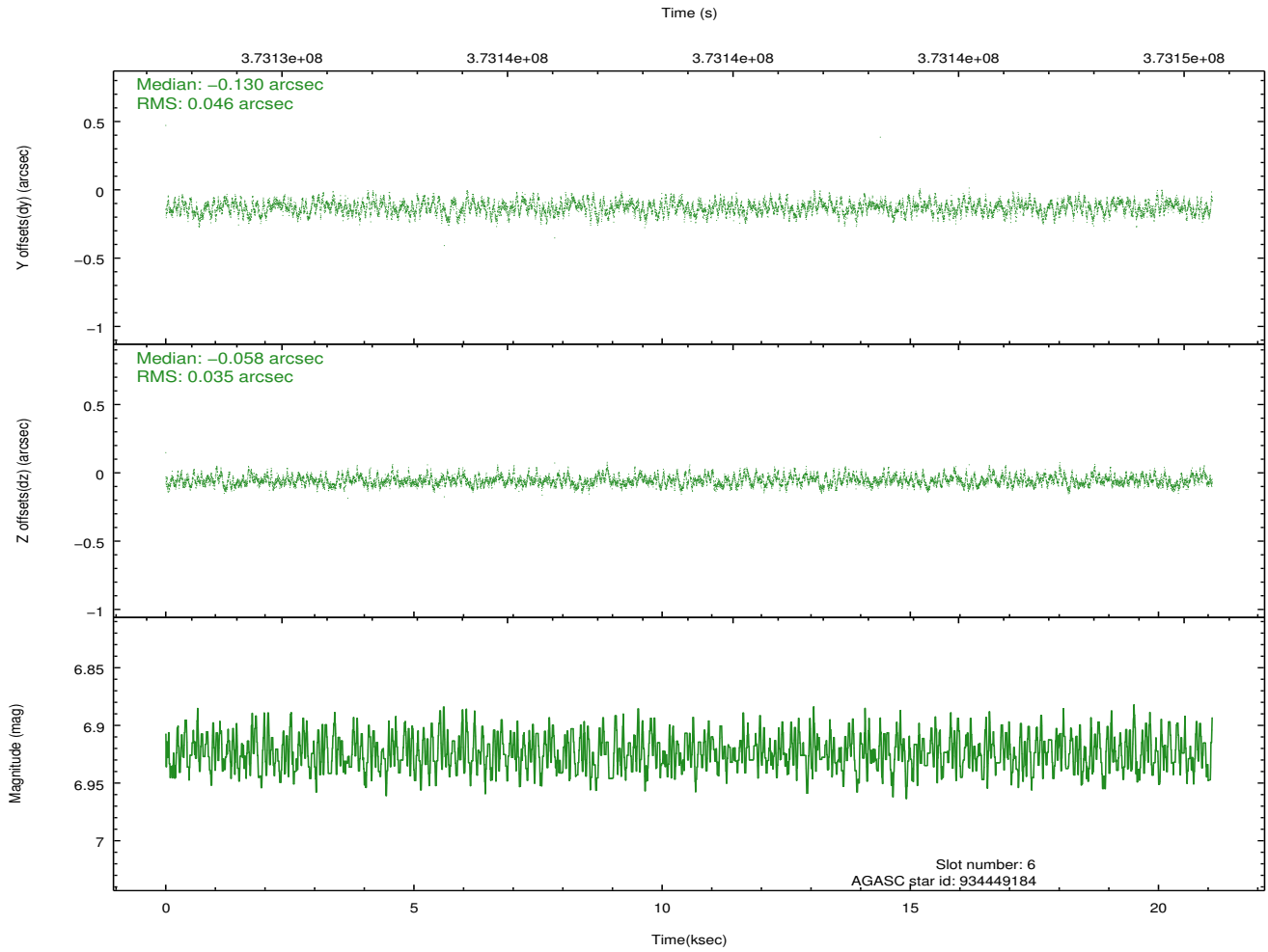
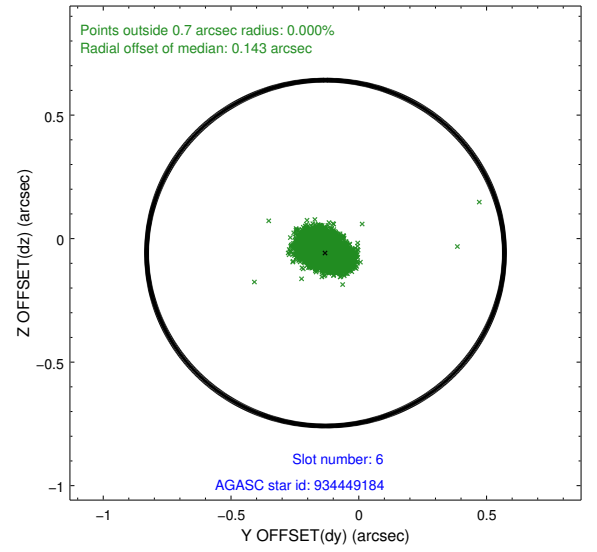
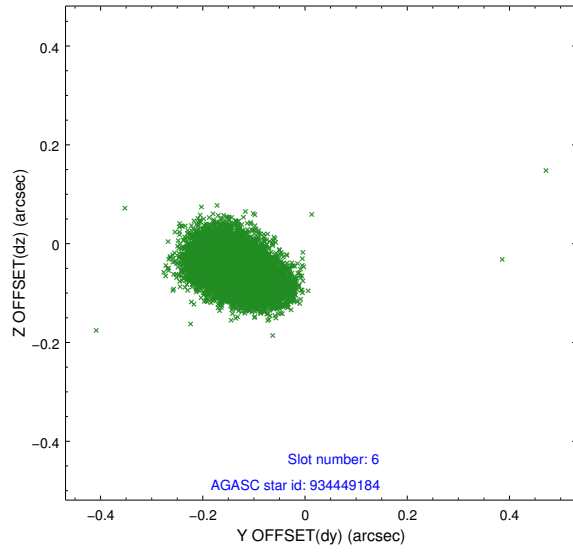




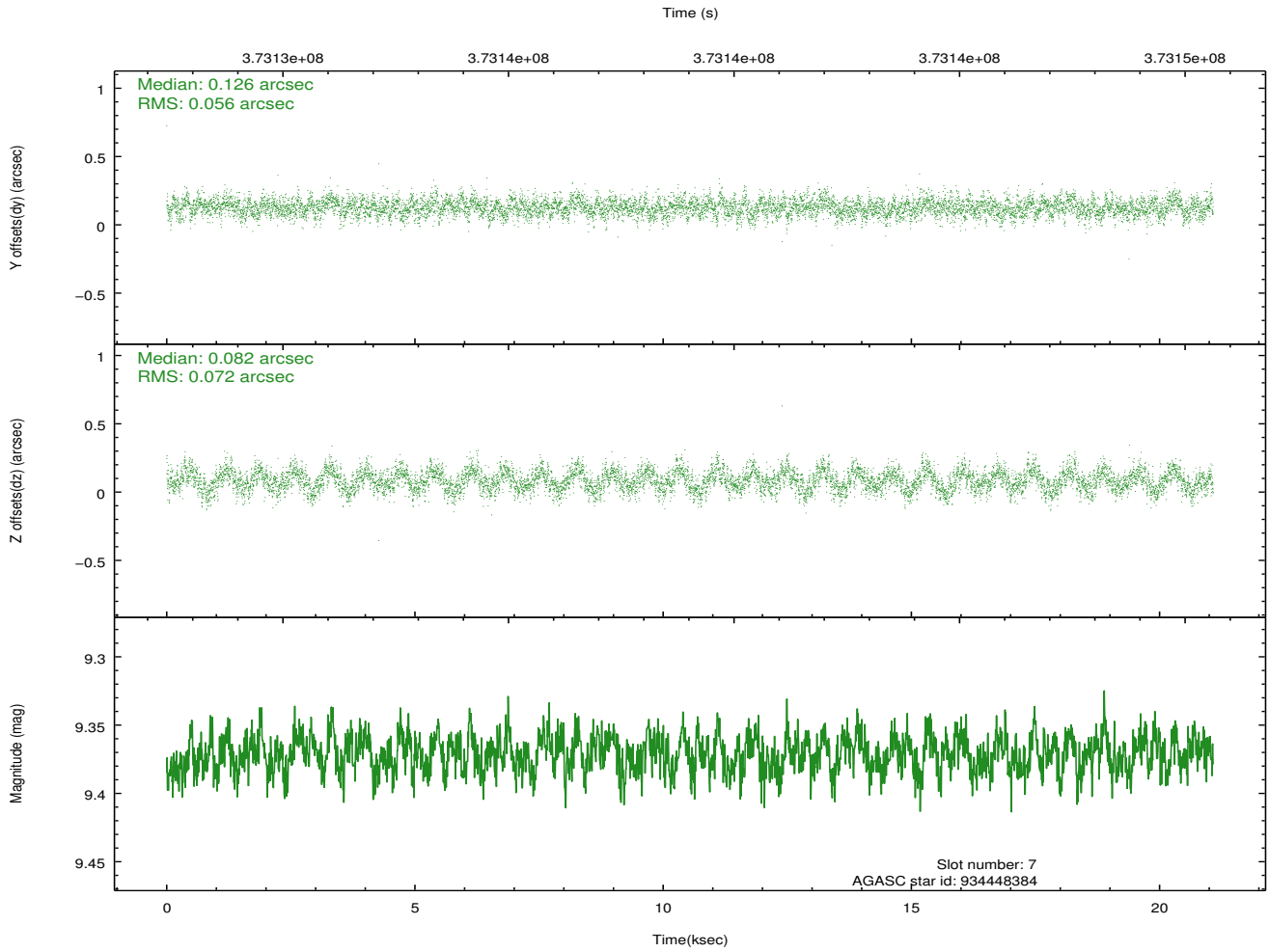
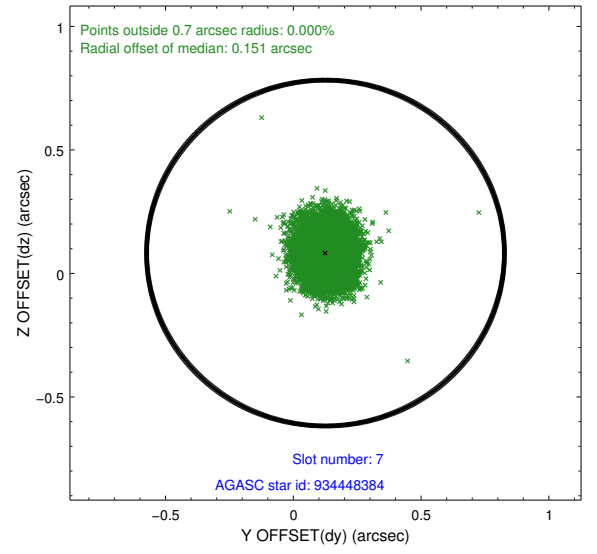
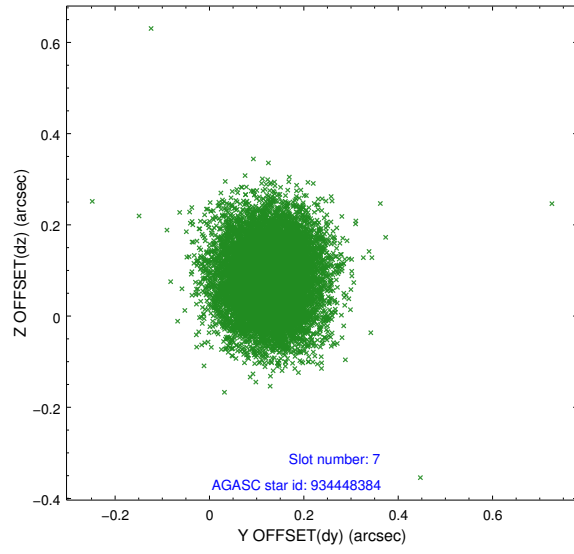
### 2.4.3 Slot 5



## 2.4.4 Slot 6

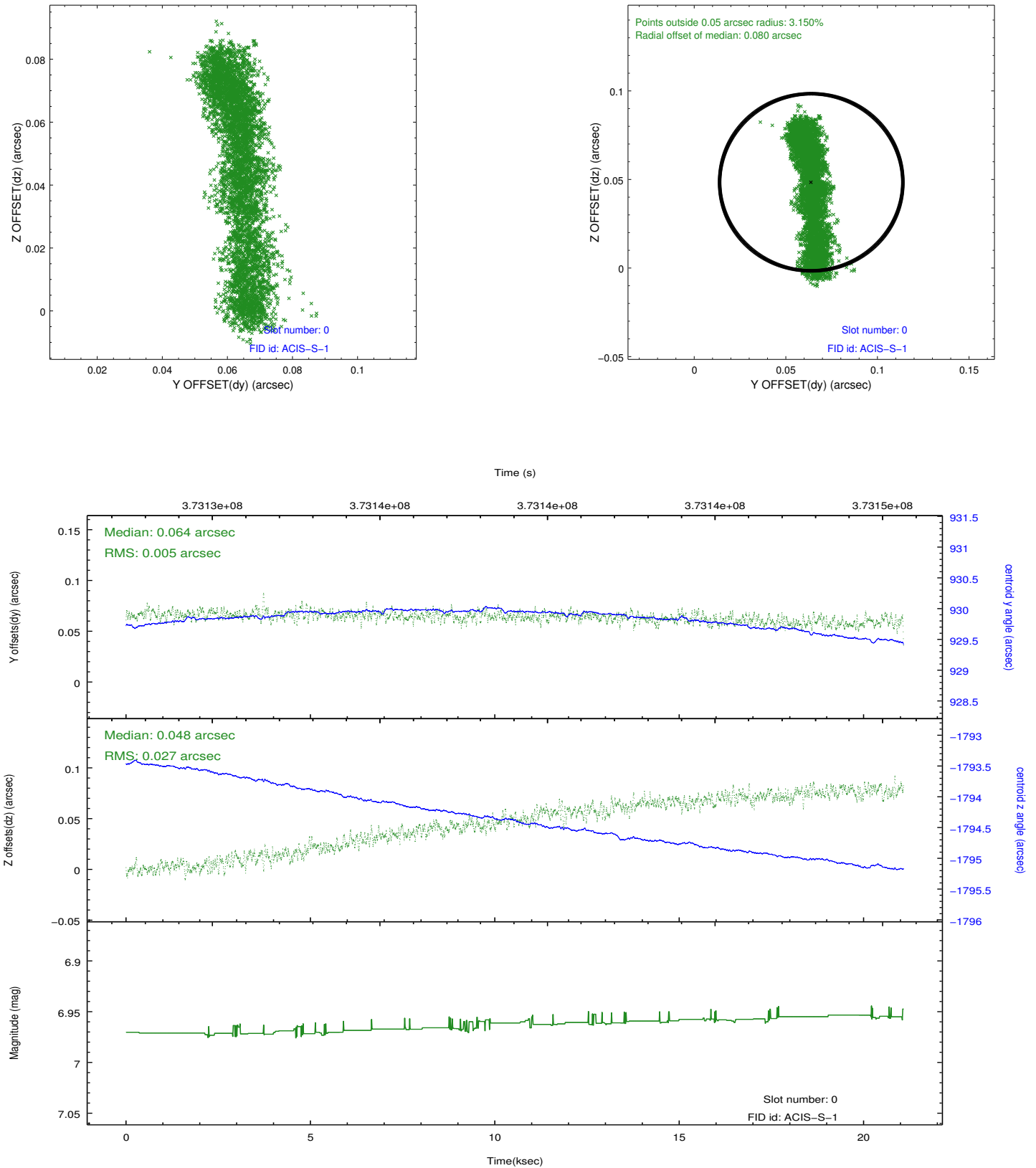


### 2.4.5 Slot 7

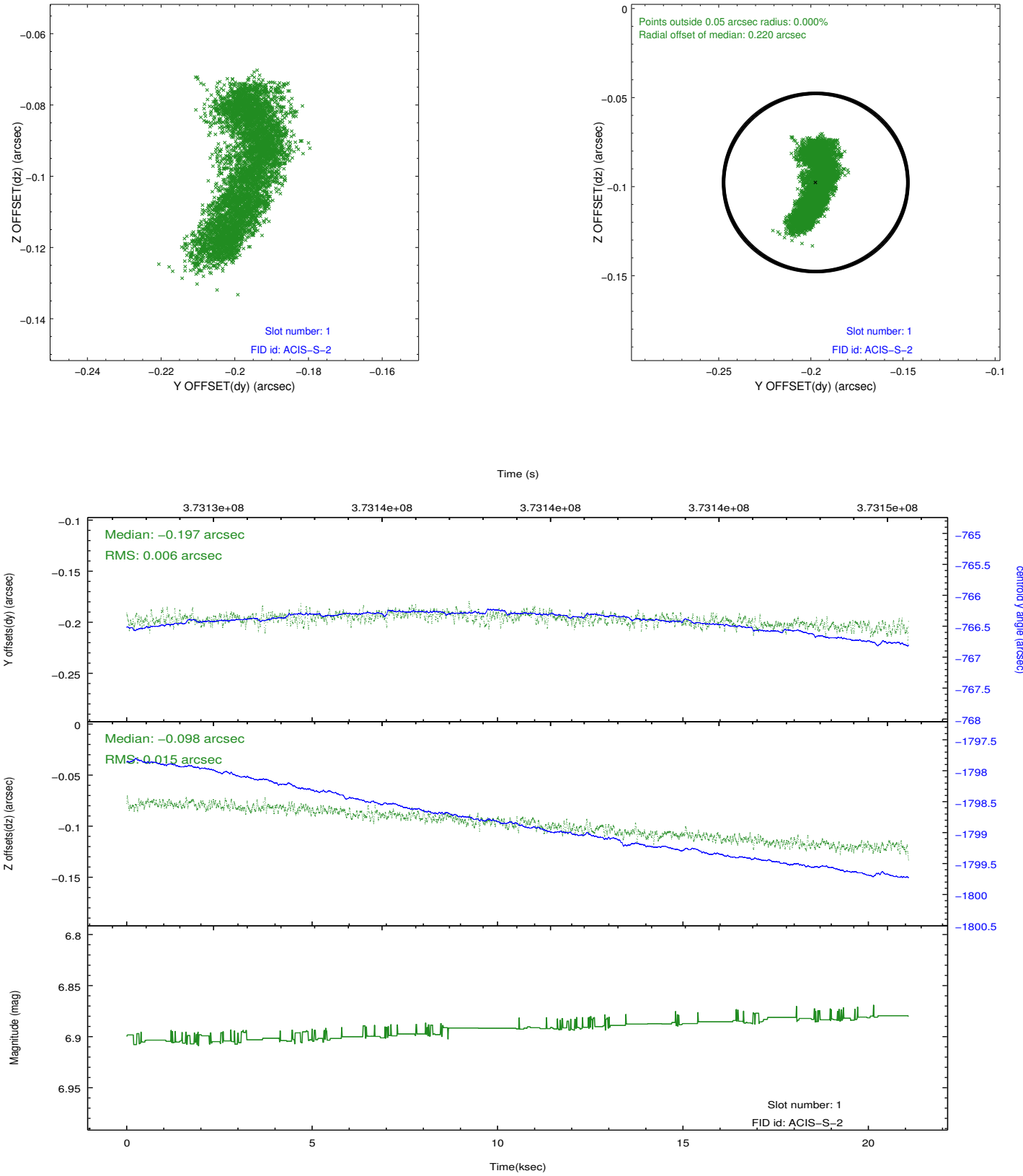


## 2.5 FID Slots

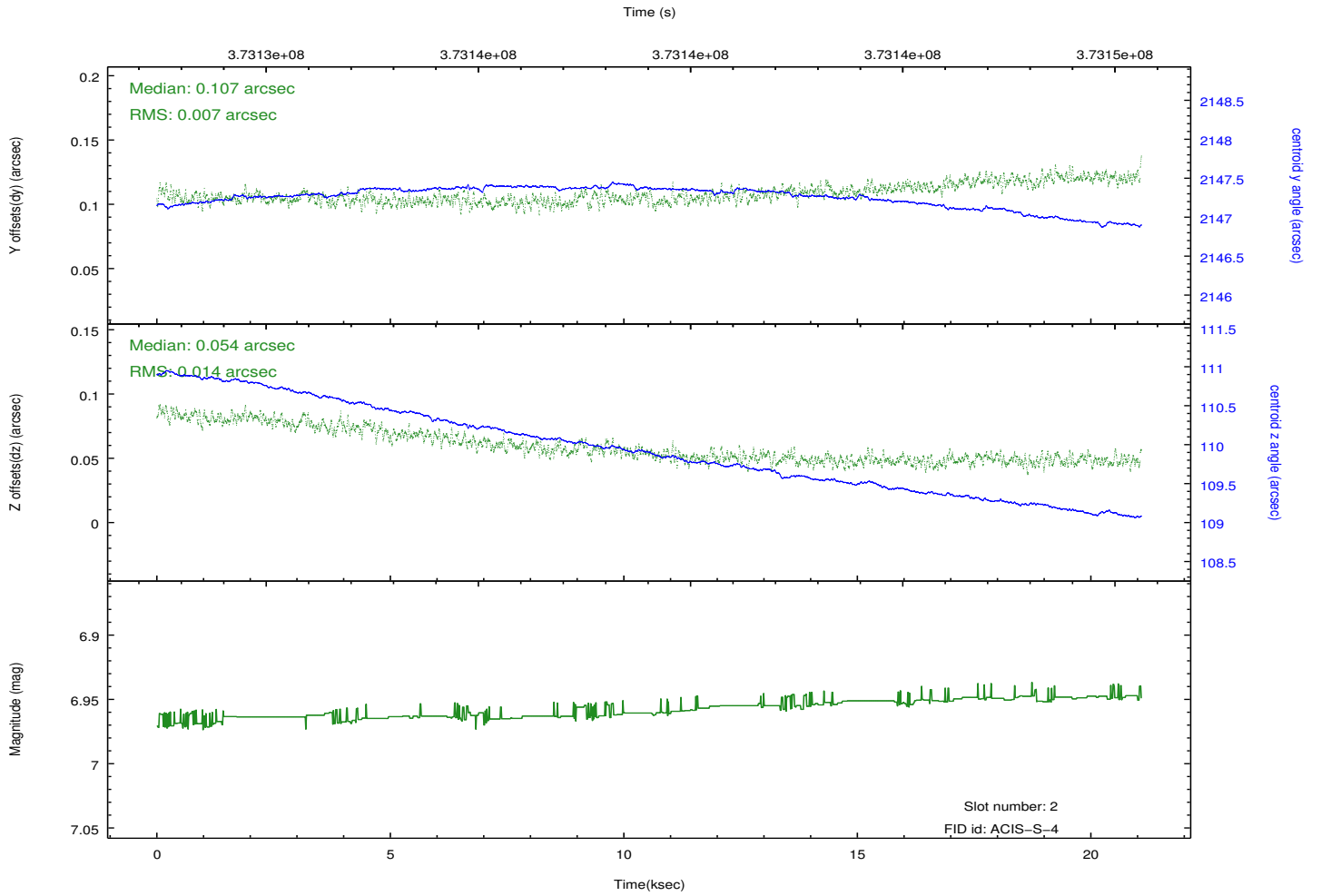
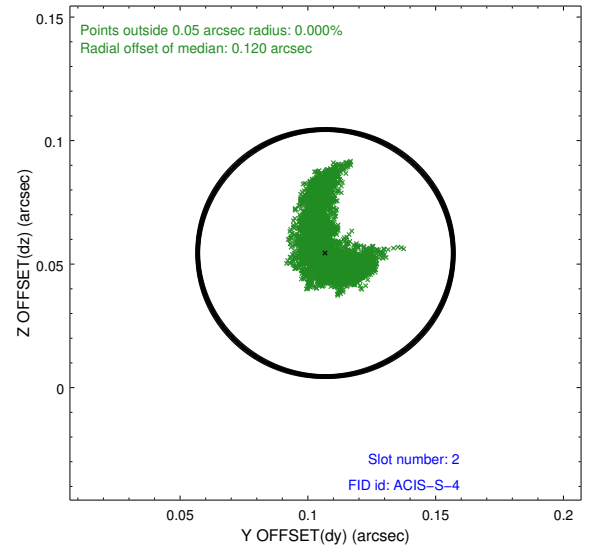
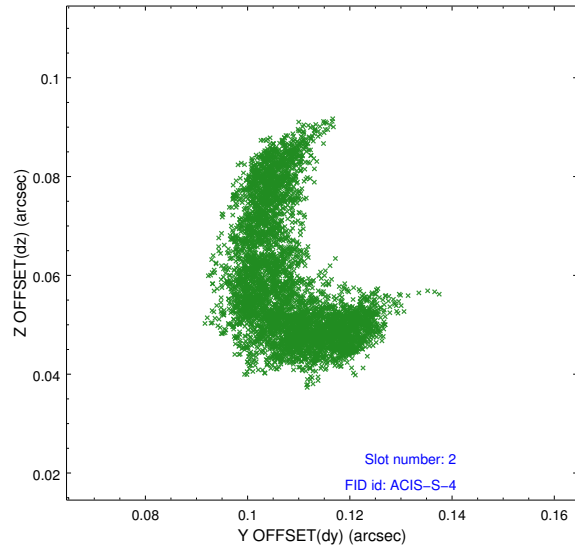
### 2.5.1 Slot 0



## 2.5.2 Slot 1

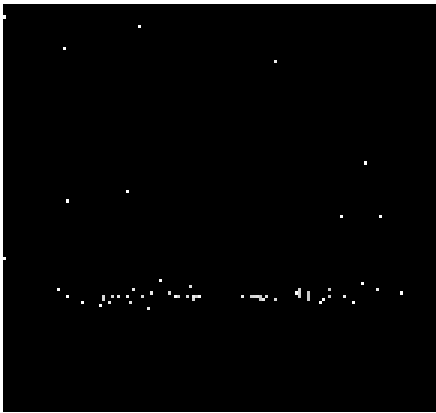


### 2.5.3 Slot 2

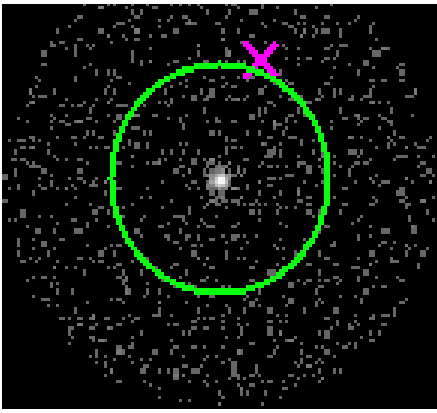


# 3 Gratings

## 3.1 HEG Arm



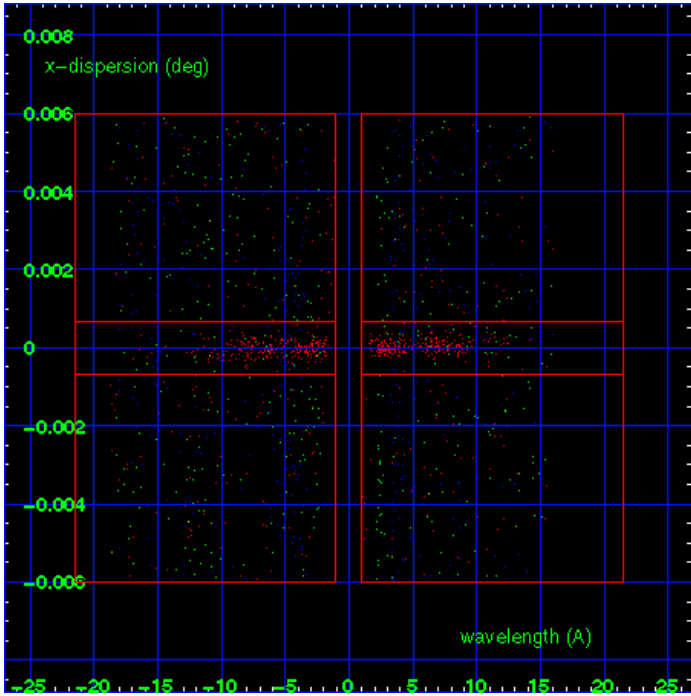
HEG Order Sort 123



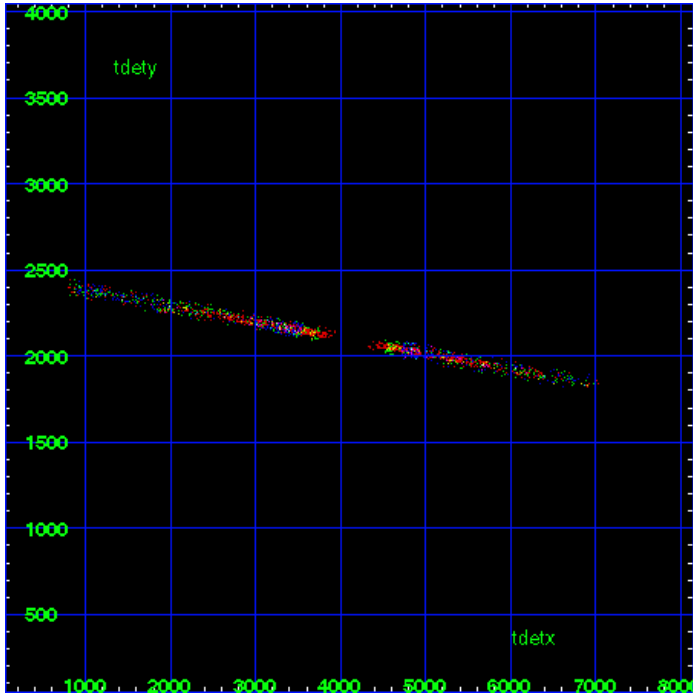
HEG Zero Order



HEG Order Sort ALL

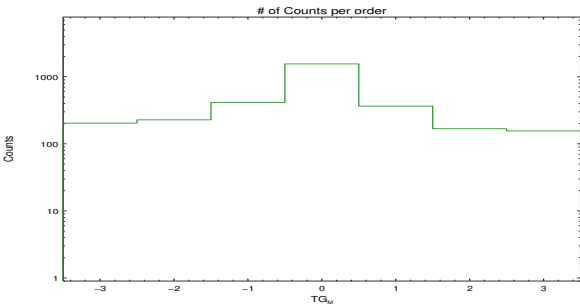


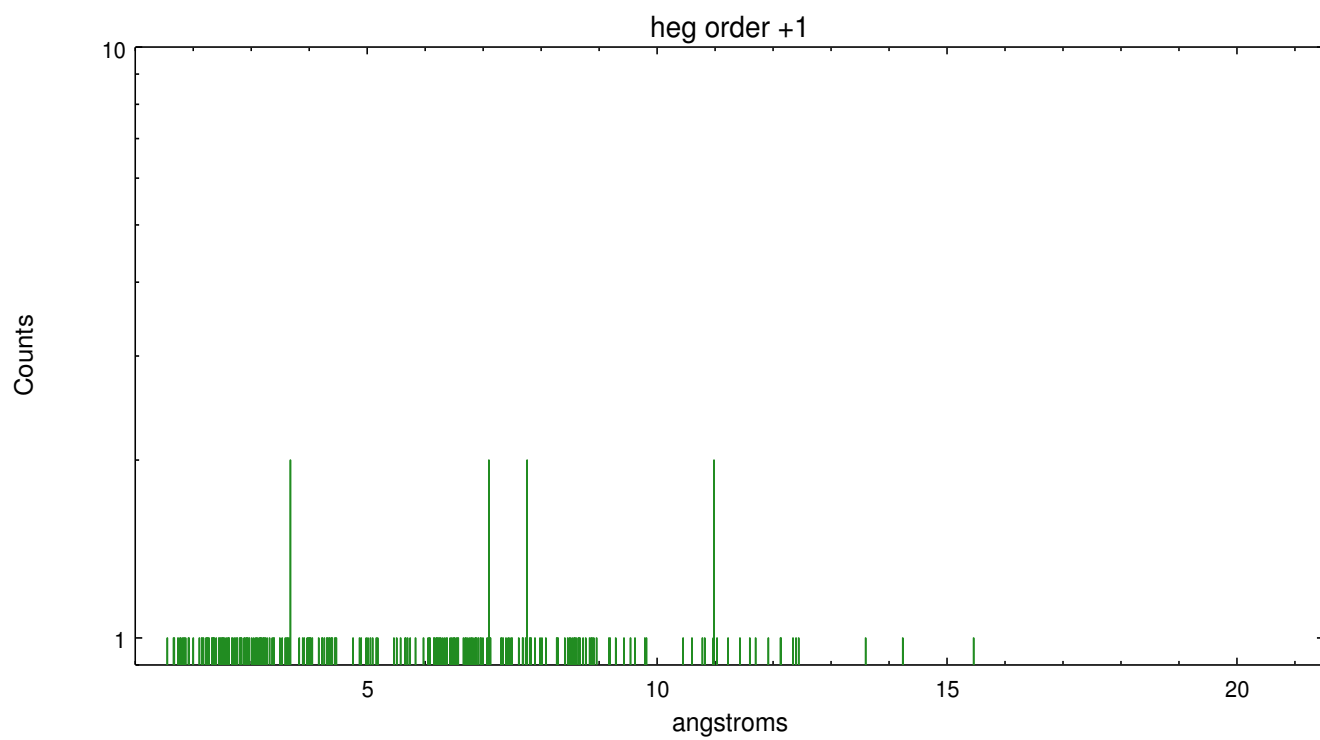
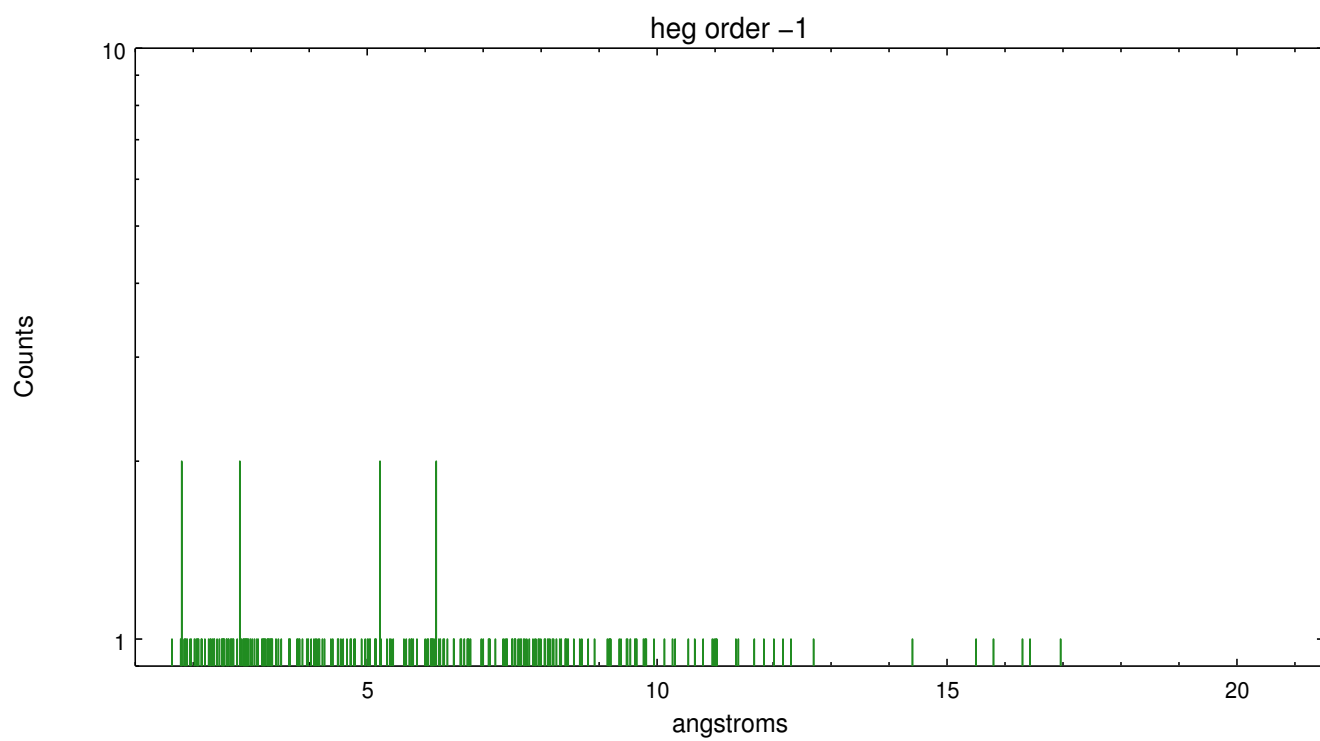
Spot Image HEG



Full Detector HEG

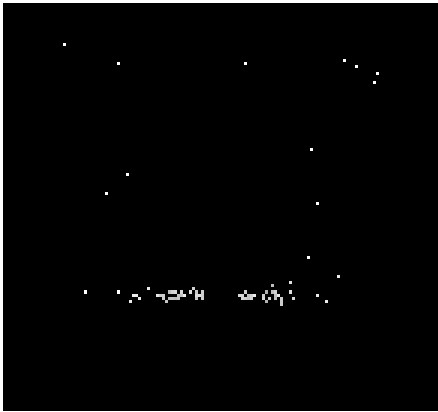
|        | order<br>-3 | order<br>-2 | order<br>-1 | order<br>0 | order<br>1 | order<br>2 | order<br>3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 204         | 228         | 414         | 1555       | 365        | 168        | 156        |



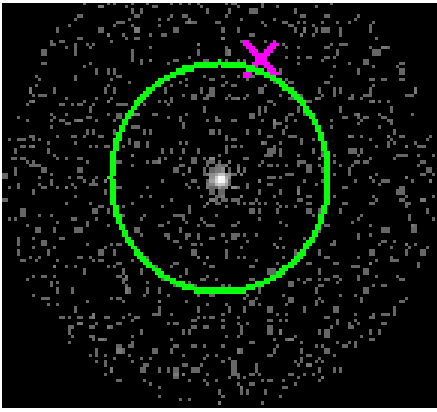




3.2 MEG Arm



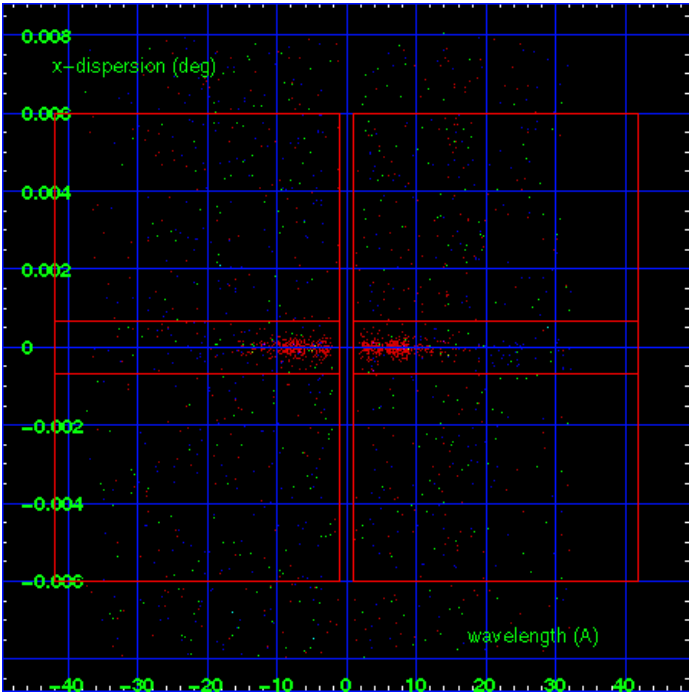
MEG Order Sort 123



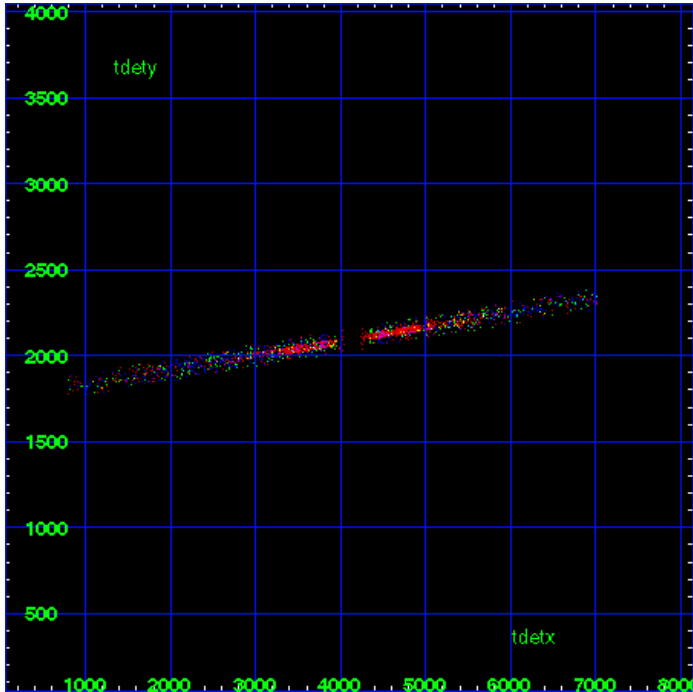
MEG Zero Order



MEG Order Sort ALL

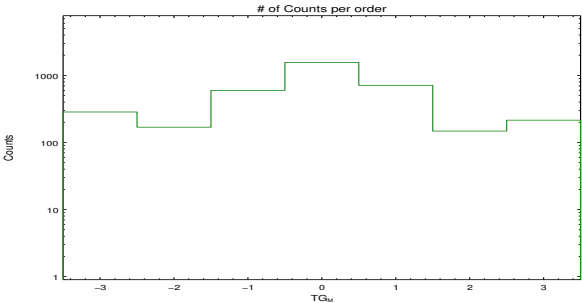


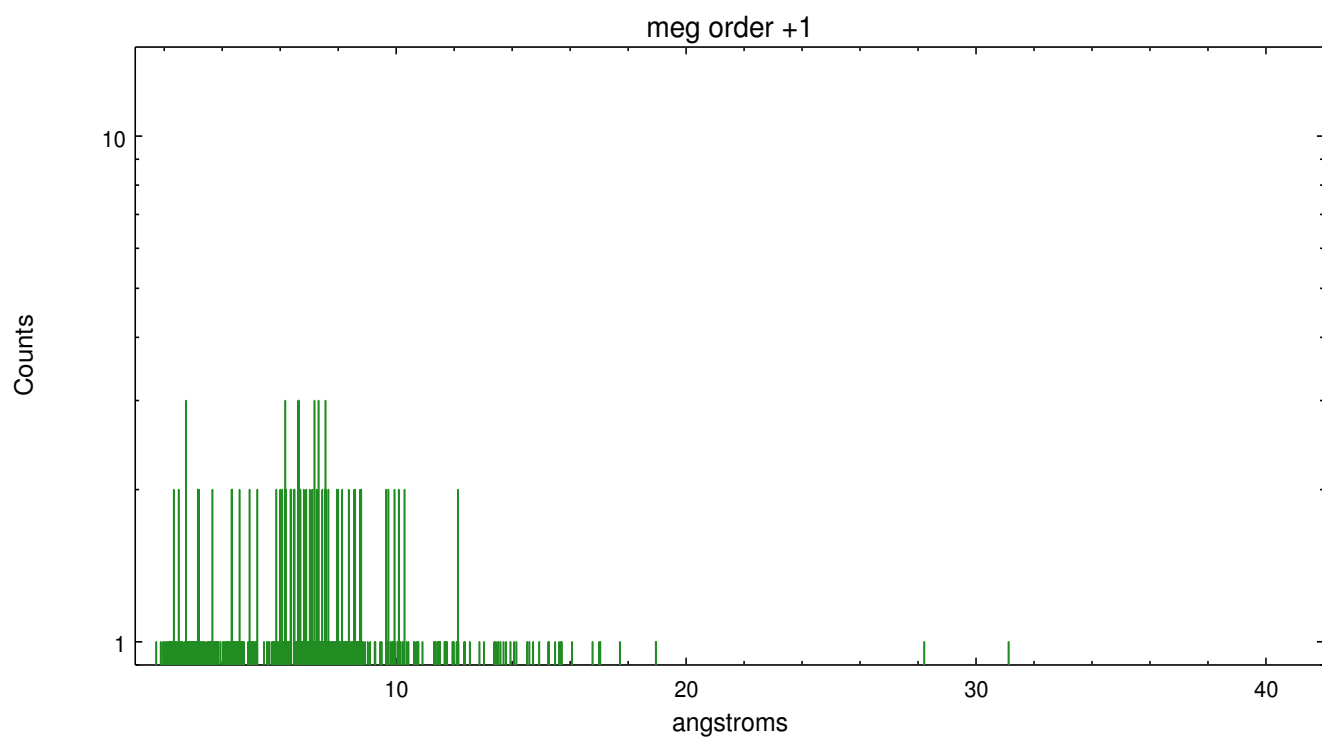
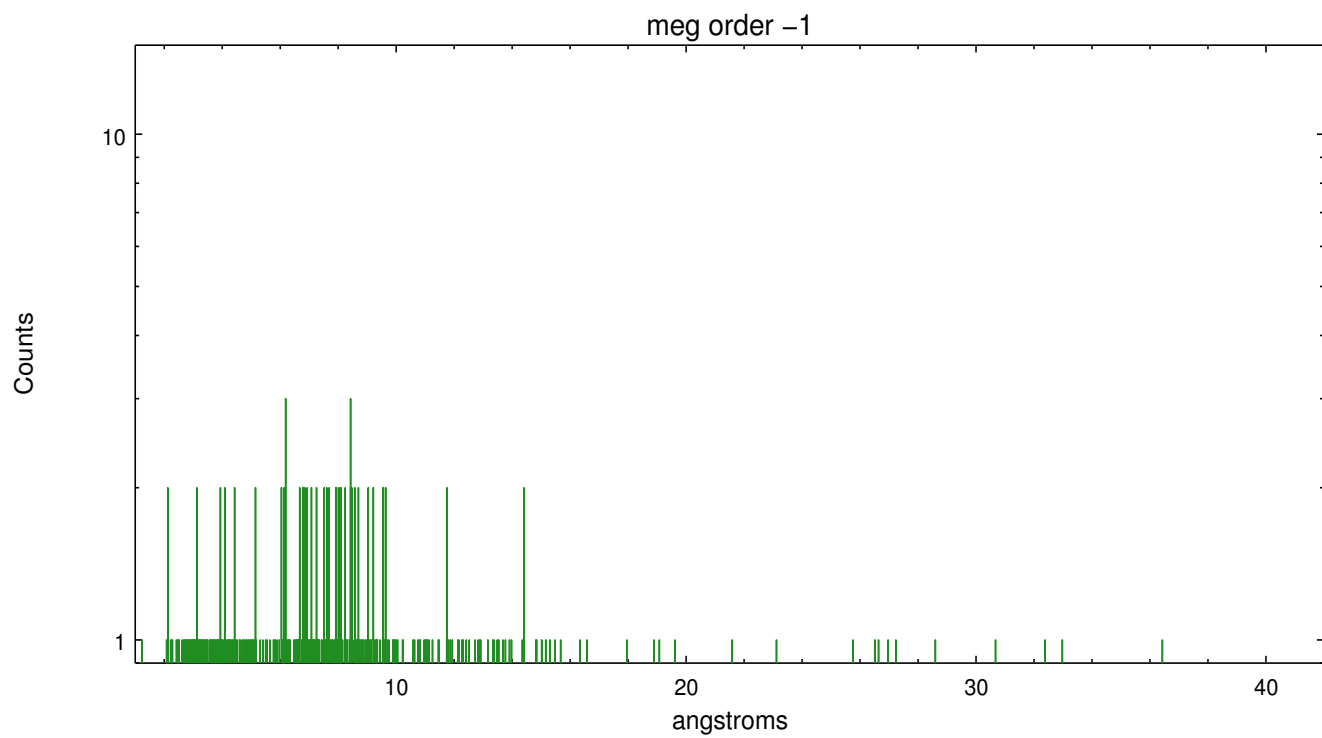
Spot Image MEG



Full Detector MEG

|        | order<br>-3 | order<br>-2 | order<br>-1 | order<br>0 | order<br>1 | order<br>2 | order<br>3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 285         | 169         | 598         | 1555       | 711        | 148        | 215        |





## A Summary

### A.1 Status

|                            |             |
|----------------------------|-------------|
| V&V Scientist              | Joy Nichols |
| V&V Date (YYYY-MM-DD)      | 2012.06.18  |
| V&V Edition                | 1           |
| V&V Disposition and Status | OK          |
| V&V Charge Time            | 20.0375     |

### A.2 Comments