

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 2410 - L2 Version 3  
Chandra X-Ray Center

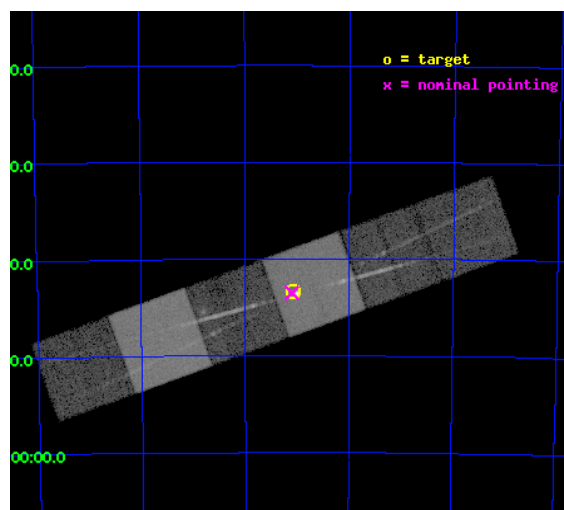
L2 Processing Date : Oct 24 2012

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# 1 Front

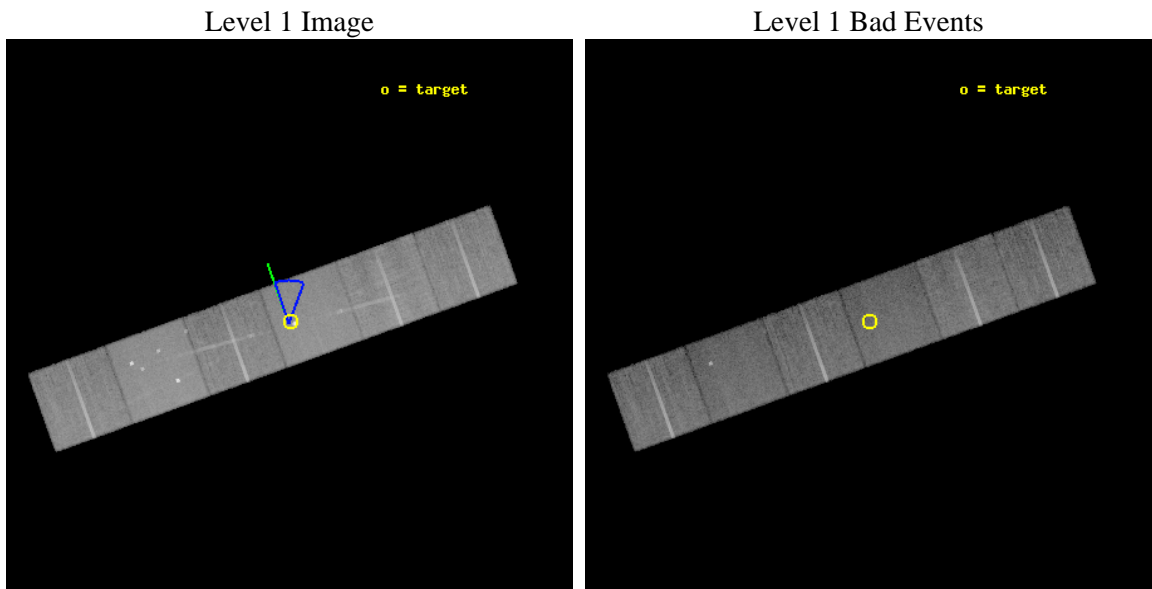
|          |   |   |
|----------|---|---|
| seq_num  | 500111  | Sequence number                             |
| obs_id   | 2410  | Observation id                              |
| title    | HIGH RESOLUTION SPECTRA OF YOUNG SUPERNOVA REMNANTS | Proposal title                              |
| observer | Prof Claude Canizares                               | Principal investigator                      |
| object   | N103B   | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 77.26625  | Observer's specified<br>target RA [deg]     |
| dec_targ | -68.721944  | Observer's specified<br>target Dec [deg]    |
| ra_nom   | 77.275393079599                                     | Nominal RA [deg]                            |
| dec_nom  | -68.725001902931                                    | Nominal Dec [deg]                           |
| roll_nom | 340.10470113724                                     | Nominal Roll [deg]                          |
| revision | 3   | Processing version of<br>data               |
| ontime   | 25756.800023973                                     | Sum of GTIs [s]                             |
| livetime | 25430.651913186                                     | Livetime [s]                                |
| ontime4  | 25753.559063733                                     | Sum of GTIs [s]                             |
| ontime5  | 25756.800023973                                     | Sum of GTIs [s]                             |
| ontime6  | 25756.800023973                                     | Sum of GTIs [s]                             |
| ontime7  | 25756.800023973                                     | Sum of GTIs [s]                             |
| ontime8  | 25756.800023973                                     | Sum of GTIs [s]                             |
| ontime9  | 25756.800023973                                     | Sum of GTIs [s]                             |
| l2events | 258952  | Number of level 2 events                    |



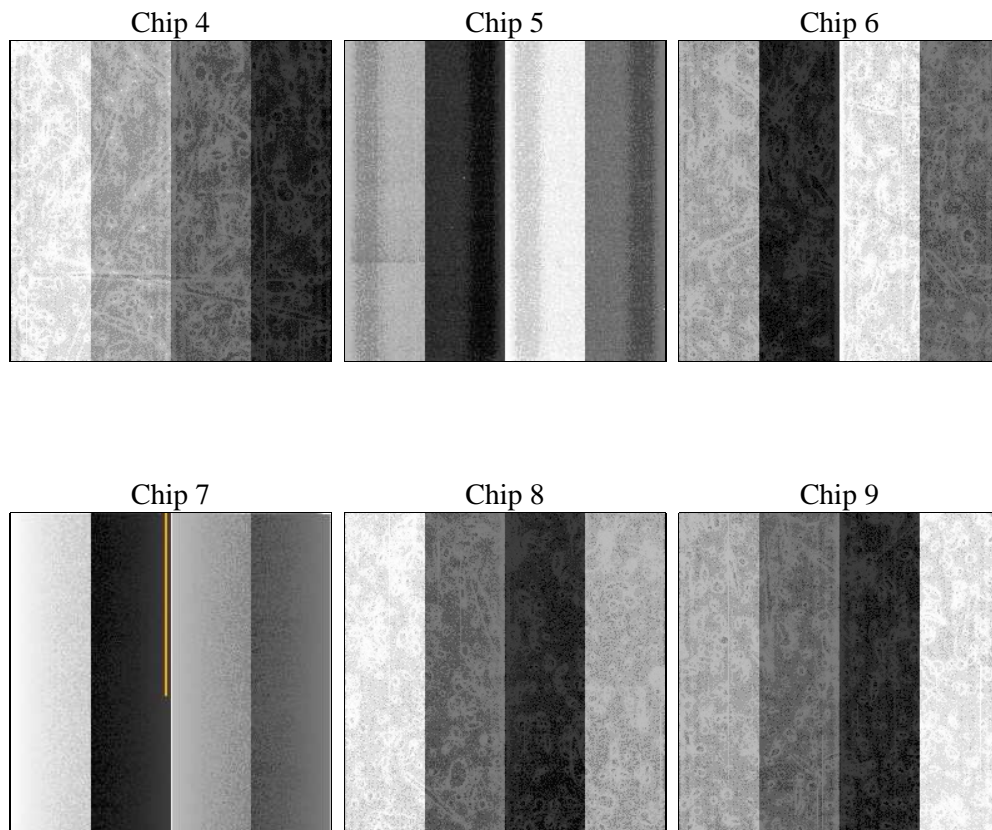
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 26000.000000    | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5               | Processing system revision     | ontime         | 25756.800023973 | Sum of GTIs [s]                         |
| caldbver | 4.5.1.1             | &#160                          | ontime4        | 25753.559063733 | Sum of GTIs [s]                         |
| date     | 2012-09-06T09:26:18 | Date and time of file creation | ontime5        | 25756.800023973 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime6        | 25756.800023973 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 25756.800023973 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 25756.800023973 | Sum of GTIs [s]                         |
|          |                     |                                | ontime9        | 25756.800023973 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1114859         | Number of level 1 events                |

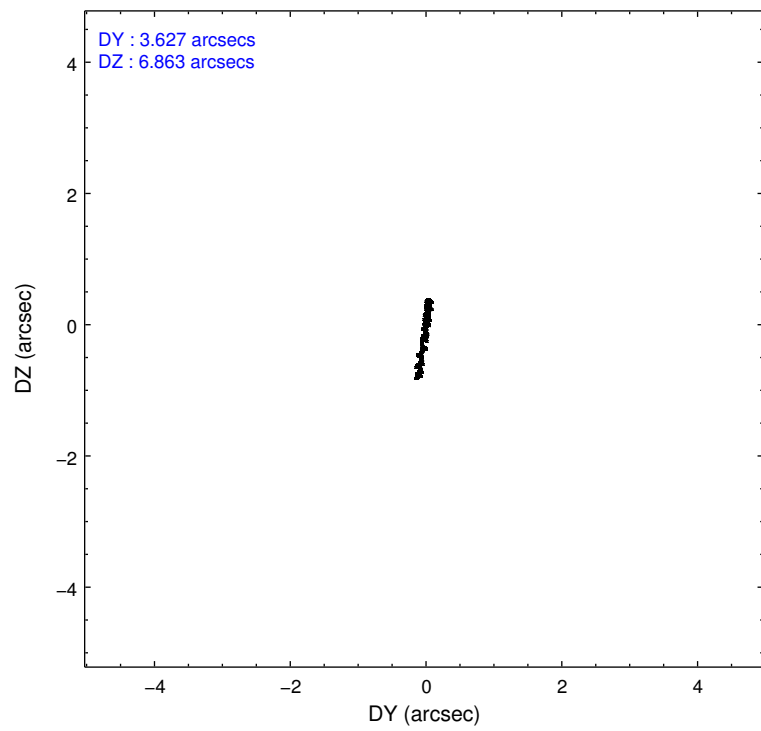
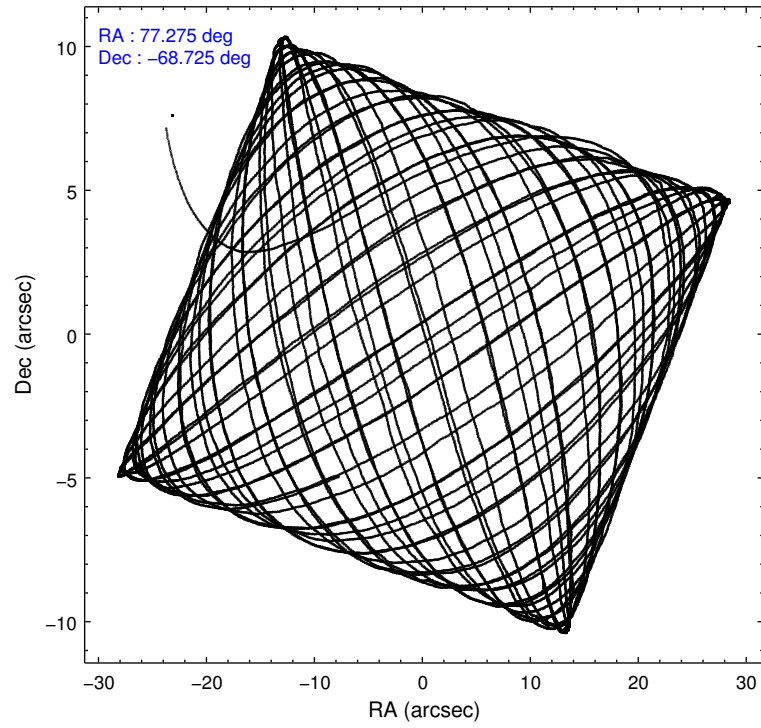
### 2.1.4 Events

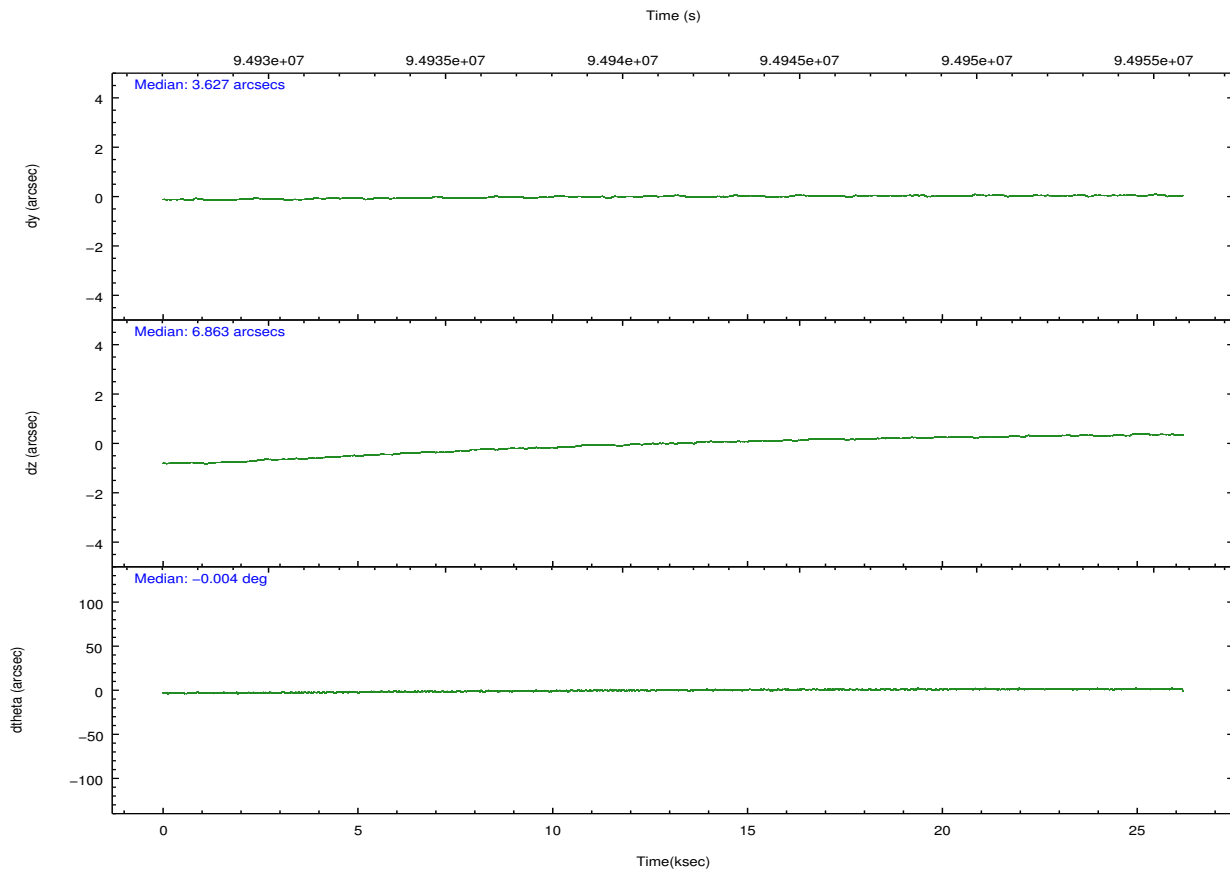
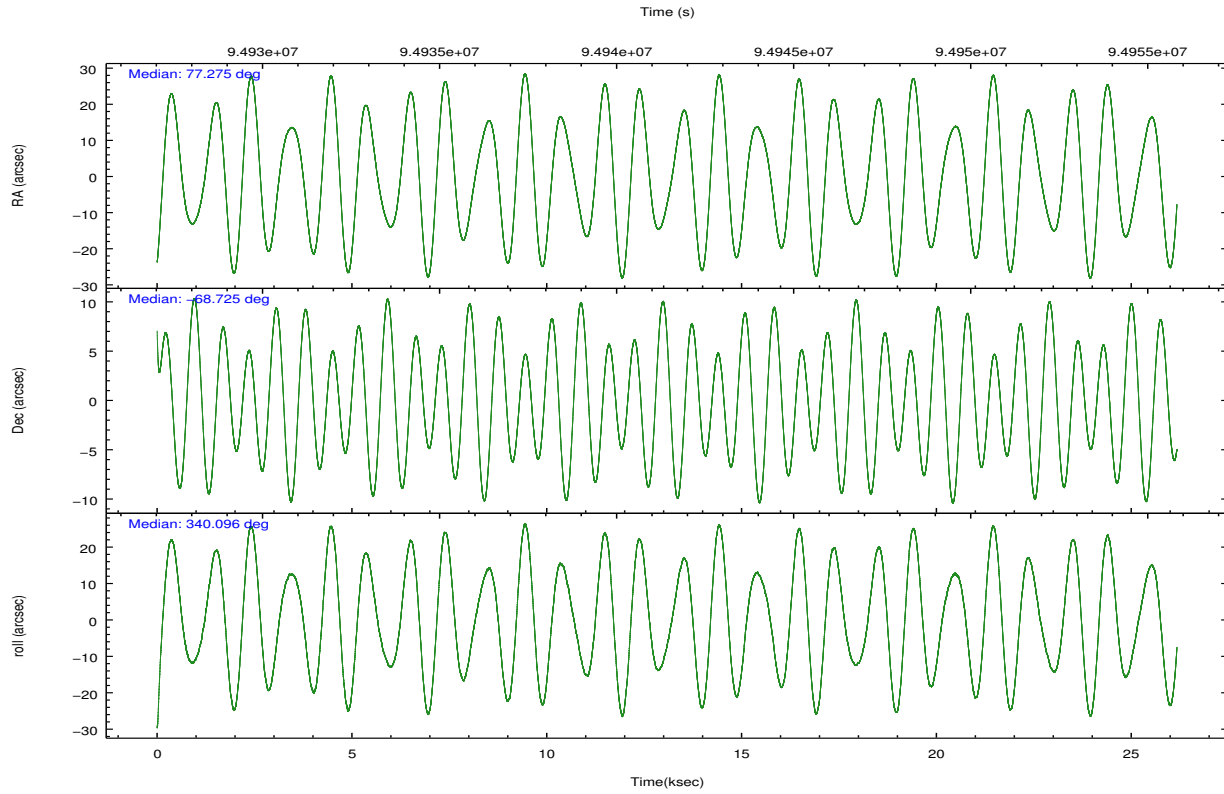
|                 | ccd 4  | ccd 5  | ccd 6  | ccd 7  | ccd 8  | ccd 9  |                | ccd 4  | ccd 5  | ccd 6  | ccd 7 | ccd 8  | ccd 9  |
|-----------------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|-------|--------|--------|
| level 1 events  | 168889 | 223280 | 159333 | 210276 | 199581 | 153500 | grade 0 events | 8044   | 16351  | 12954  | 12265 | 15988  | 7883   |
| rejected events | 149913 | 117003 | 134942 | 114678 | 157457 | 134973 |                | 4%     | 7%     | 8%     | 5%    | 8%     | 5%     |
| rejected %      | 88%    | 52%    | 84%    | 54%    | 78%    | 87%    | grade 1 events | 77     | 290    | 89     | 220   | 112    | 66     |
|                 |        |        |        |        |        |        |                | 0%     | 0%     | 0%     | 0%    | 0%     | 0%     |
|                 |        |        |        |        |        |        | grade 2 events | 4354   | 31022  | 4169   | 19719 | 8351   | 3666   |
|                 |        |        |        |        |        |        |                | 2%     | 13%    | 2%     | 9%    | 4%     | 2%     |
|                 |        |        |        |        |        |        | grade 3 events | 1710   | 4479   | 1927   | 9188  | 4054   | 1737   |
|                 |        |        |        |        |        |        |                | 1%     | 2%     | 1%     | 4%    | 2%     | 1%     |
|                 |        |        |        |        |        |        | grade 4 events | 1676   | 4093   | 1895   | 9048  | 3891   | 1791   |
|                 |        |        |        |        |        |        |                | 0%     | 1%     | 1%     | 4%    | 1%     | 1%     |
|                 |        |        |        |        |        |        | grade 5 events | 5490   | 16561  | 6293   | 18930 | 7935   | 6552   |
|                 |        |        |        |        |        |        |                | 3%     | 7%     | 3%     | 9%    | 3%     | 4%     |
|                 |        |        |        |        |        |        | grade 6 events | 3197   | 50360  | 3449   | 45397 | 9847   | 3459   |
|                 |        |        |        |        |        |        |                | 1%     | 22%    | 2%     | 21%   | 4%     | 2%     |
|                 |        |        |        |        |        |        | grade 7 events | 144341 | 100124 | 128557 | 95509 | 149403 | 128346 |
|                 |        |        |        |        |        |        |                | 85%    | 44%    | 80%    | 45%   | 74%    | 83%    |

## 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                    | 77.201357           | 77.27539307959916    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                   | -68.730022          | -68.72500190293069   | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll                  | 339.879085          | 340.1047011372355    | [s] Primary exposure time             | 0.000000  | 3.2     |
| [deg] Roll angle                     | 0.000000            | 0.000000             |                                       |           |         |
| [deg] Roll tolerance                 | 20.000000           | 20.000000            |                                       |           |         |
| Roll constraint allows 180D rotation | N                   | N                    |                                       |           |         |
| [mm] SIM focus pos                   | -0.684267           | -0.6828225247311905  |                                       |           |         |
| [mm] SIM defocus                     | 0                   | 0.001444936568705701 |                                       |           |         |
| [mm] SIM translation stage pos       | -190.132523         | -190.1400660498719   |                                       |           |         |
| [mm] SIM translation stage offset    | 0                   | 0.00754346686406393  |                                       |           |         |
| [s] Observation start time (MET)     | 94928509.184000     | 94927569.785208      |                                       |           |         |
| Observation start date               | 2001-01-03T17:00:45 | 2001-01-03T16:46:09  |                                       |           |         |
| [s] Observation end time (MET)       | 94954509.184000     | 94955323.711272      |                                       |           |         |
| Observation end date                 | 2001-01-04T00:14:05 | 2001-01-04T00:28:43  |                                       |           |         |
| Read mode                            | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



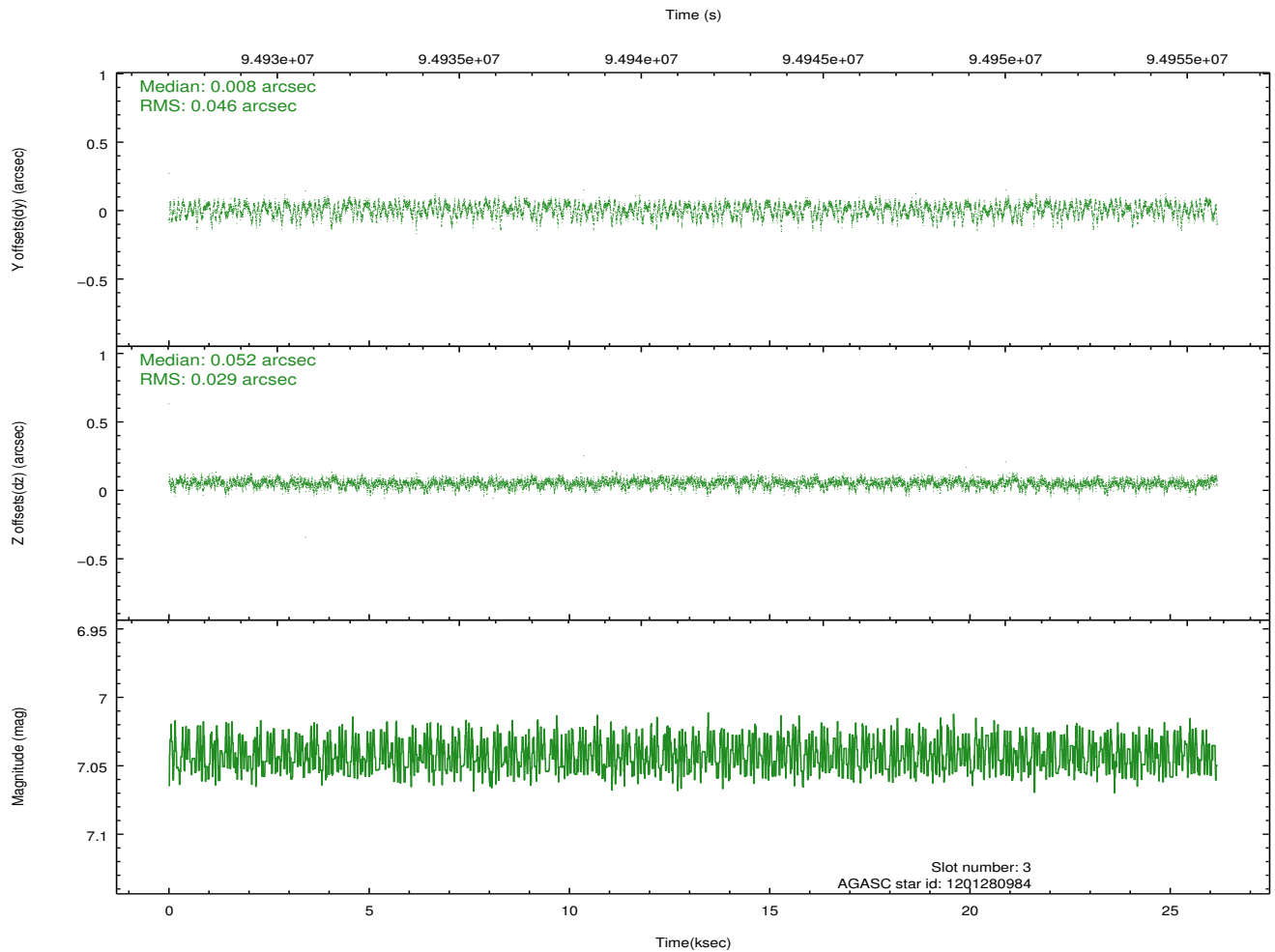
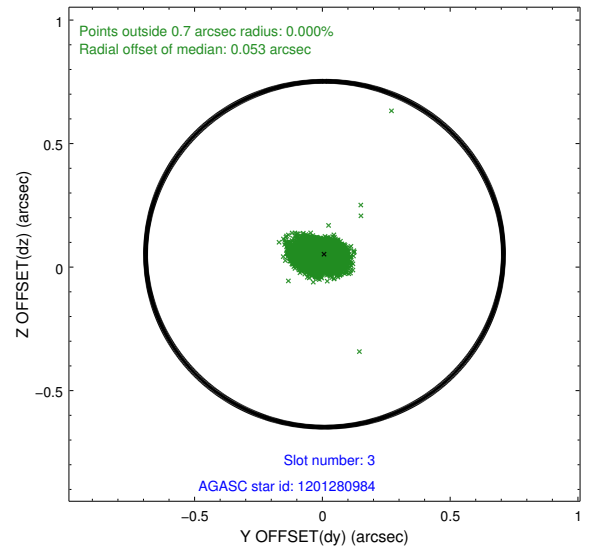
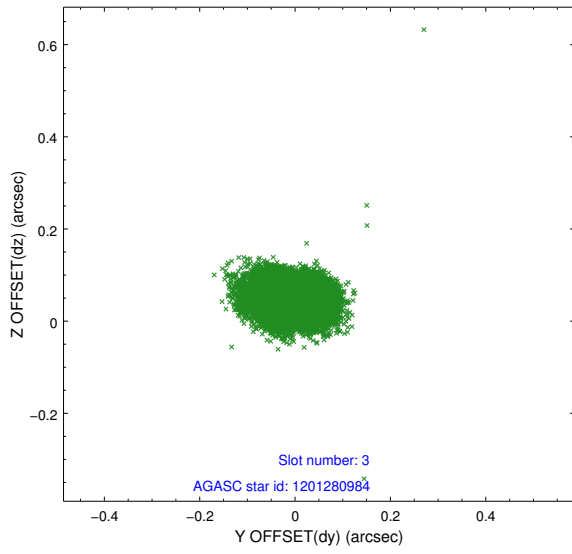


### Slot Statistics

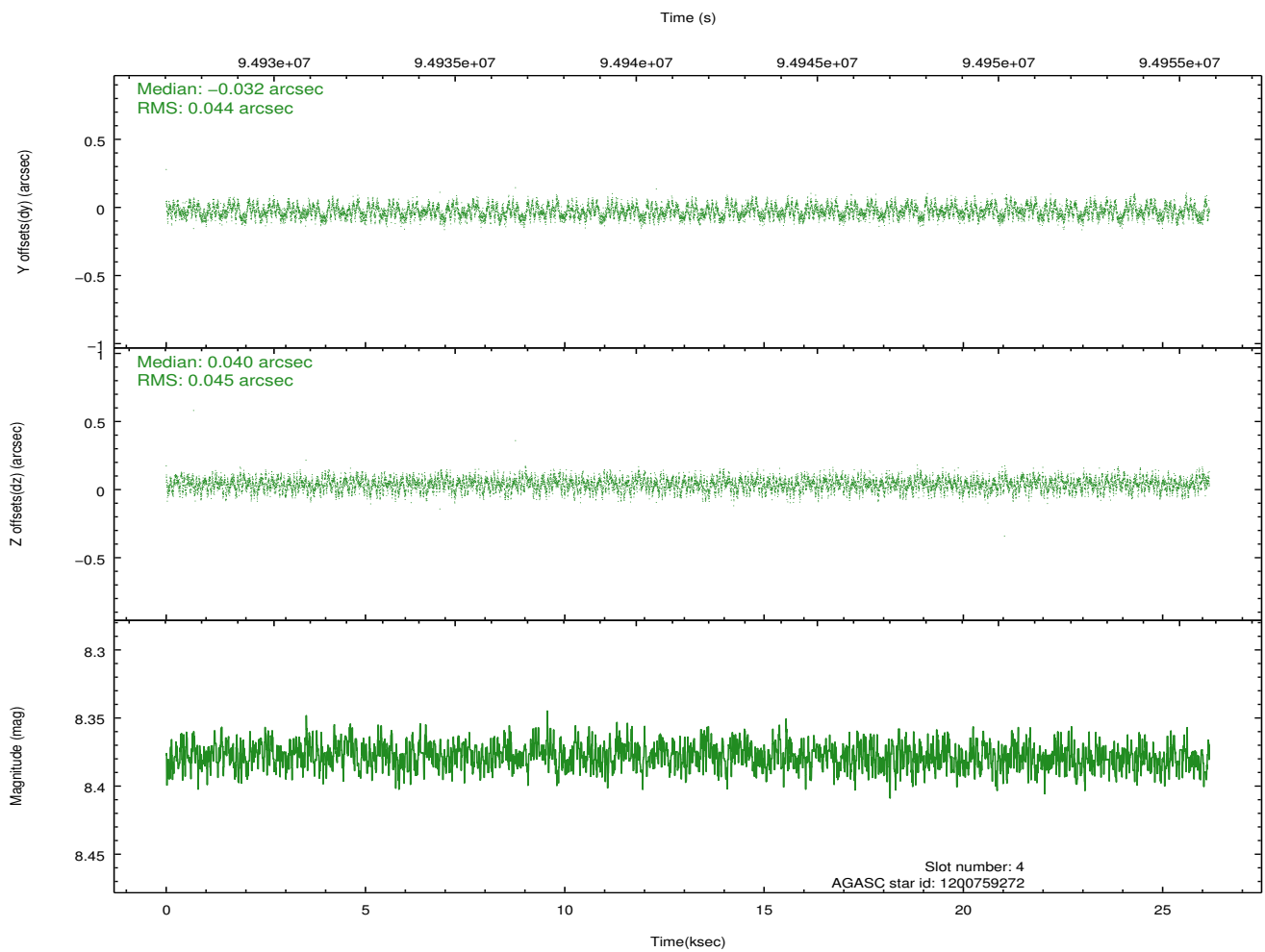
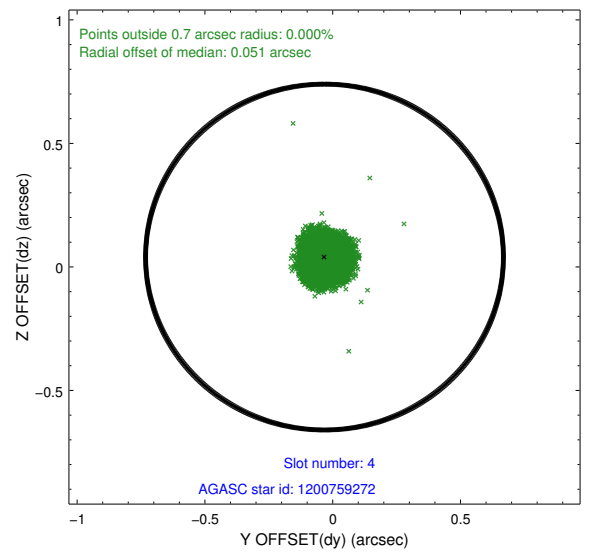
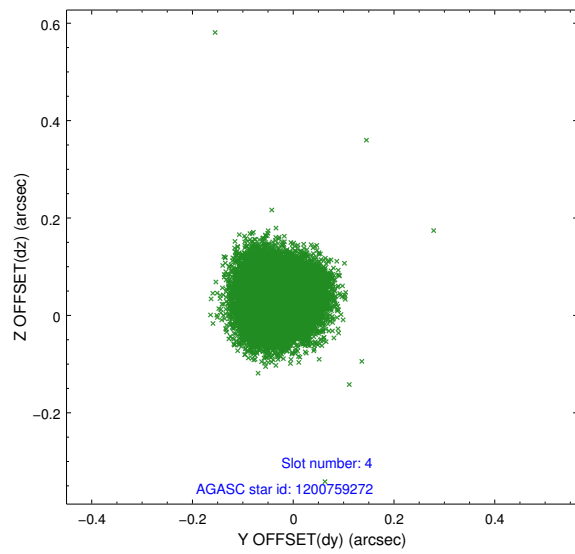
| slot | status | id         | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra        | dec        | mean_y   | mean_z   |
|------|--------|------------|------|-------|--------|--------|-------|-------|-----------|------------|----------|----------|
| 0    | FID    | ACIS-S-2   | 7.12 | 6382  | -0.012 | 0.009  | 0.012 | 0.018 | 0.000000  | 0.000000   | -756.29  | -1727.92 |
| 1    | FID    | ACIS-S-4   | 7.20 | 6380  | -0.005 | 0.004  | 0.008 | 0.015 | 0.000000  | 0.000000   | 2156.95  | 180.44   |
| 2    | FID    | ACIS-S-5   | 7.24 | 6382  | -0.014 | -0.003 | 0.009 | 0.016 | 0.000000  | 0.000000   | -1808.99 | 174.24   |
| 3    | GUIDE  | 1201280984 | 7.04 | 12764 | 0.008  | 0.052  | 0.057 | 0.094 | 77.867422 | -69.546090 | 1799.30  | -2474.18 |
| 4    | GUIDE  | 1200759272 | 8.38 | 12766 | -0.032 | 0.040  | 0.069 | 0.103 | 75.444915 | -68.988718 | -1796.85 | -1685.05 |
| 5    | GUIDE  | 1200758760 | 8.31 | 12765 | 0.068  | -0.036 | 0.074 | 0.122 | 76.277764 | -68.086435 | -1959.50 | 1739.62  |
| 6    | GUIDE  | 1200760024 | 8.47 | 12767 | -0.023 | 0.010  | 0.053 | 0.087 | 77.625244 | -69.320410 | 1237.78  | -1811.61 |
| 7    | GUIDE  | 1200757184 | 8.26 | 12763 | -0.018 | -0.064 | 0.068 | 0.111 | 76.495289 | -68.416644 | -1264.37 | 732.41   |

## 2.4 Star Slots

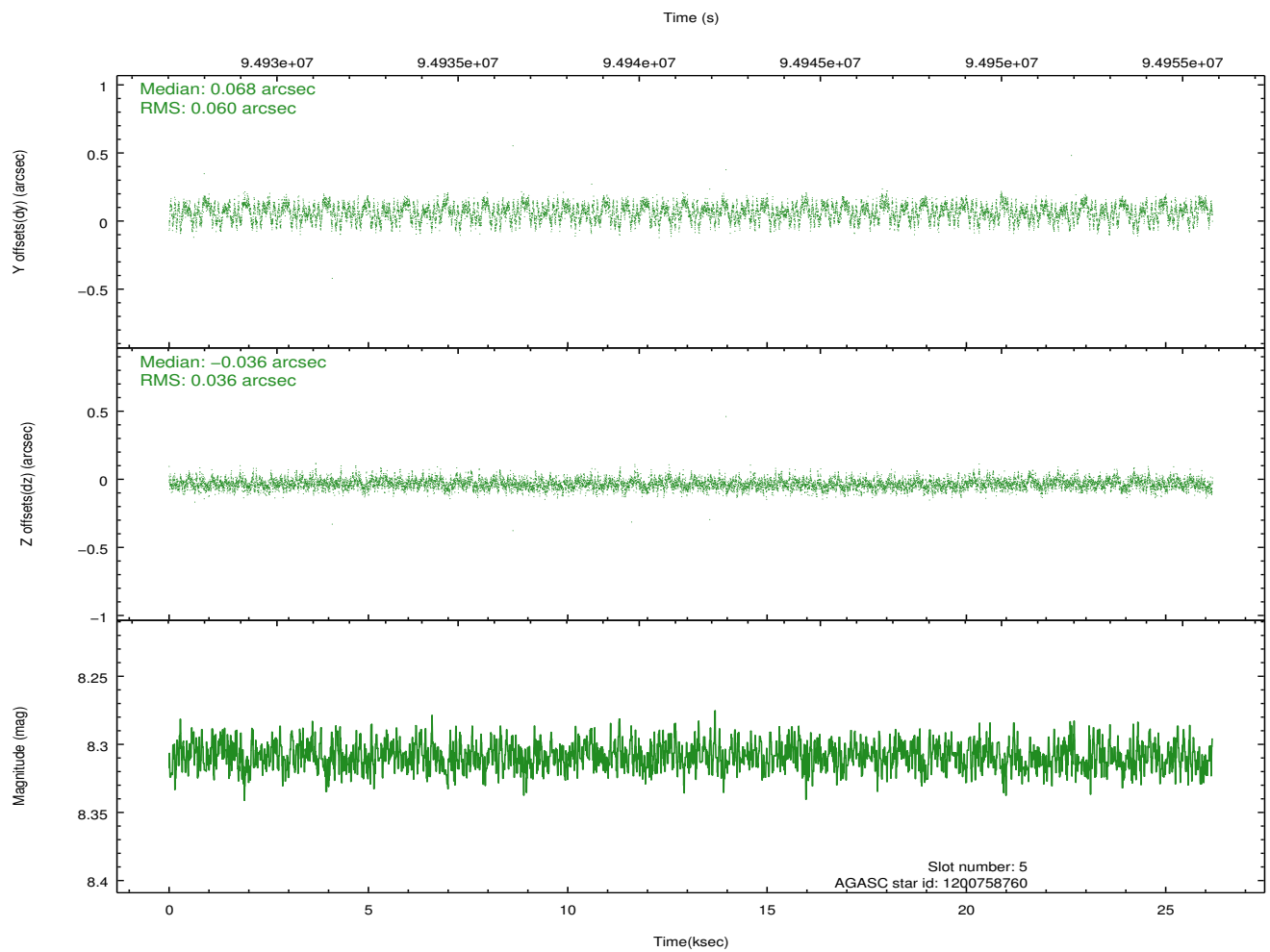
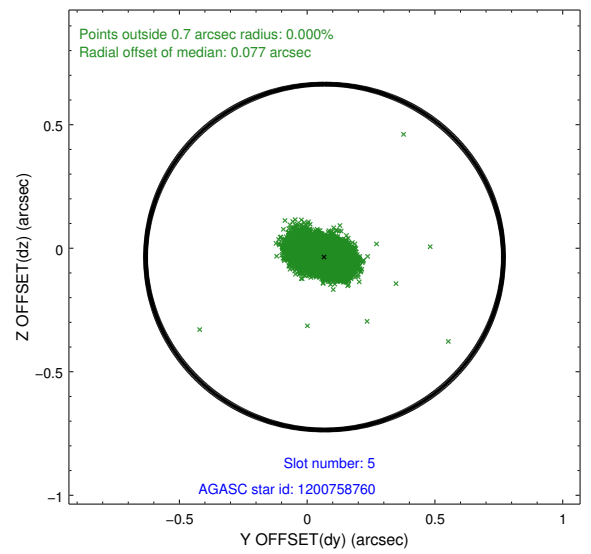
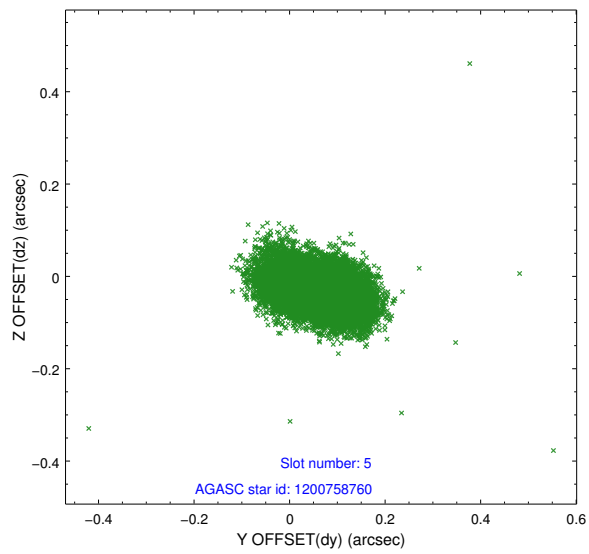
### 2.4.1 Slot 3



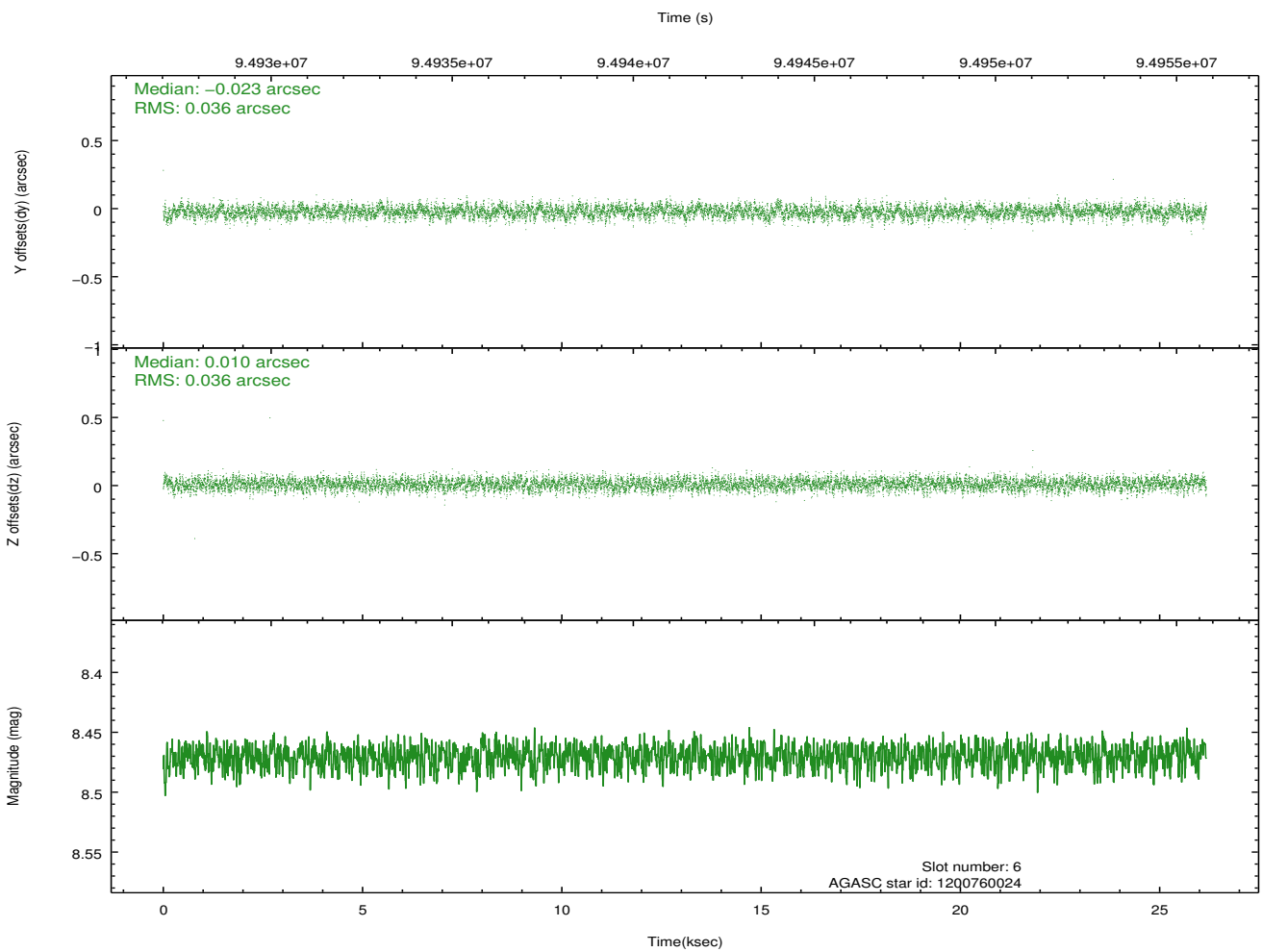
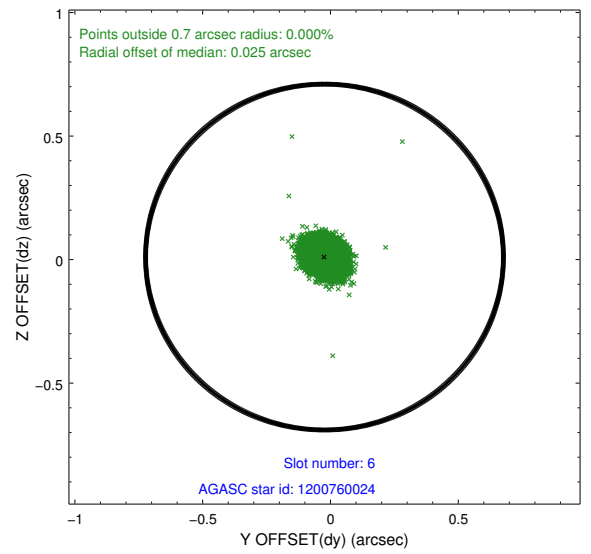
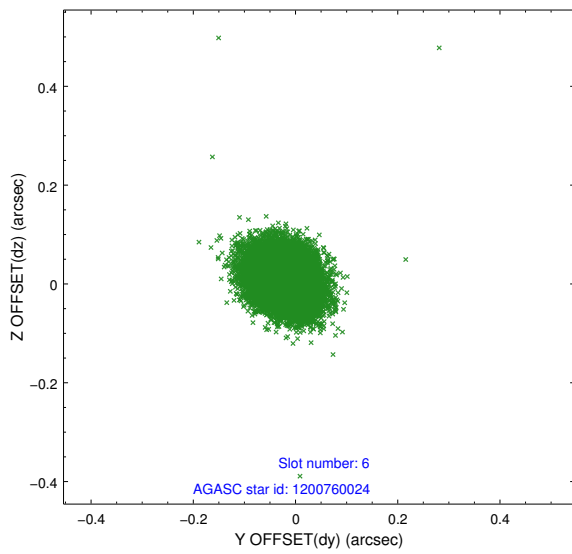
## 2.4.2 Slot 4



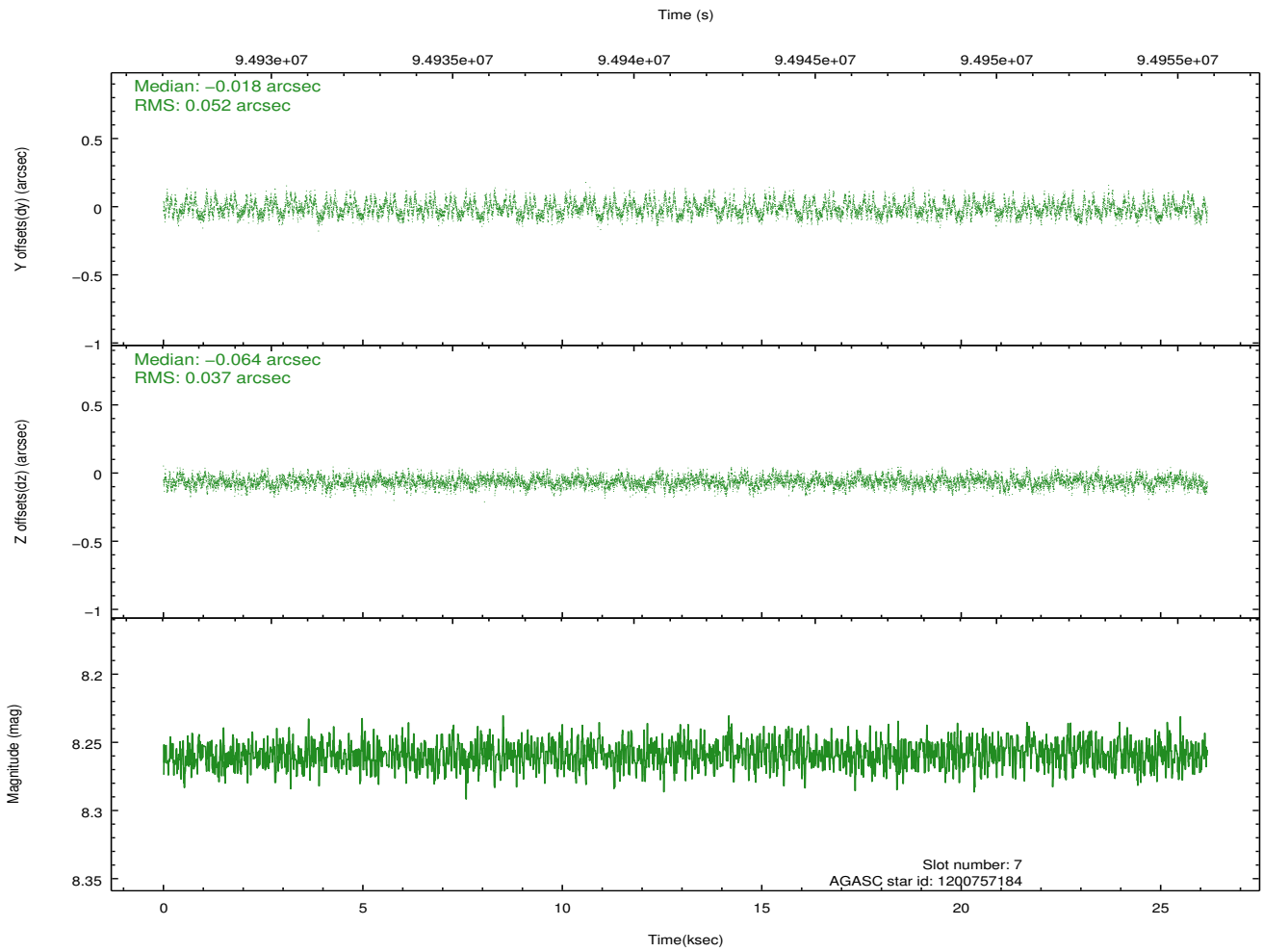
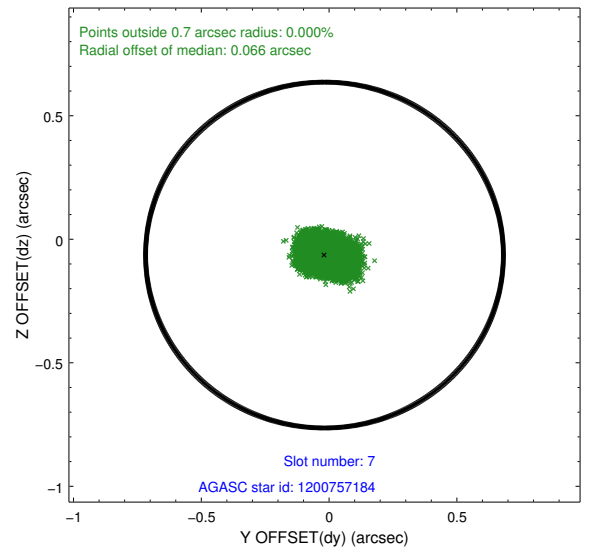
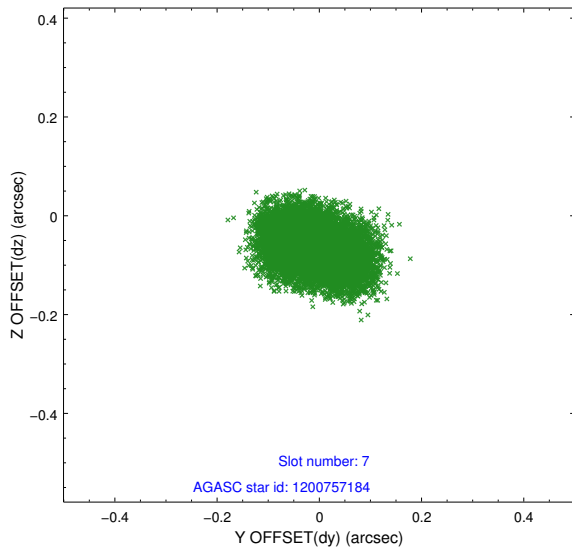
### 2.4.3 Slot 5



### 2.4.4 Slot 6

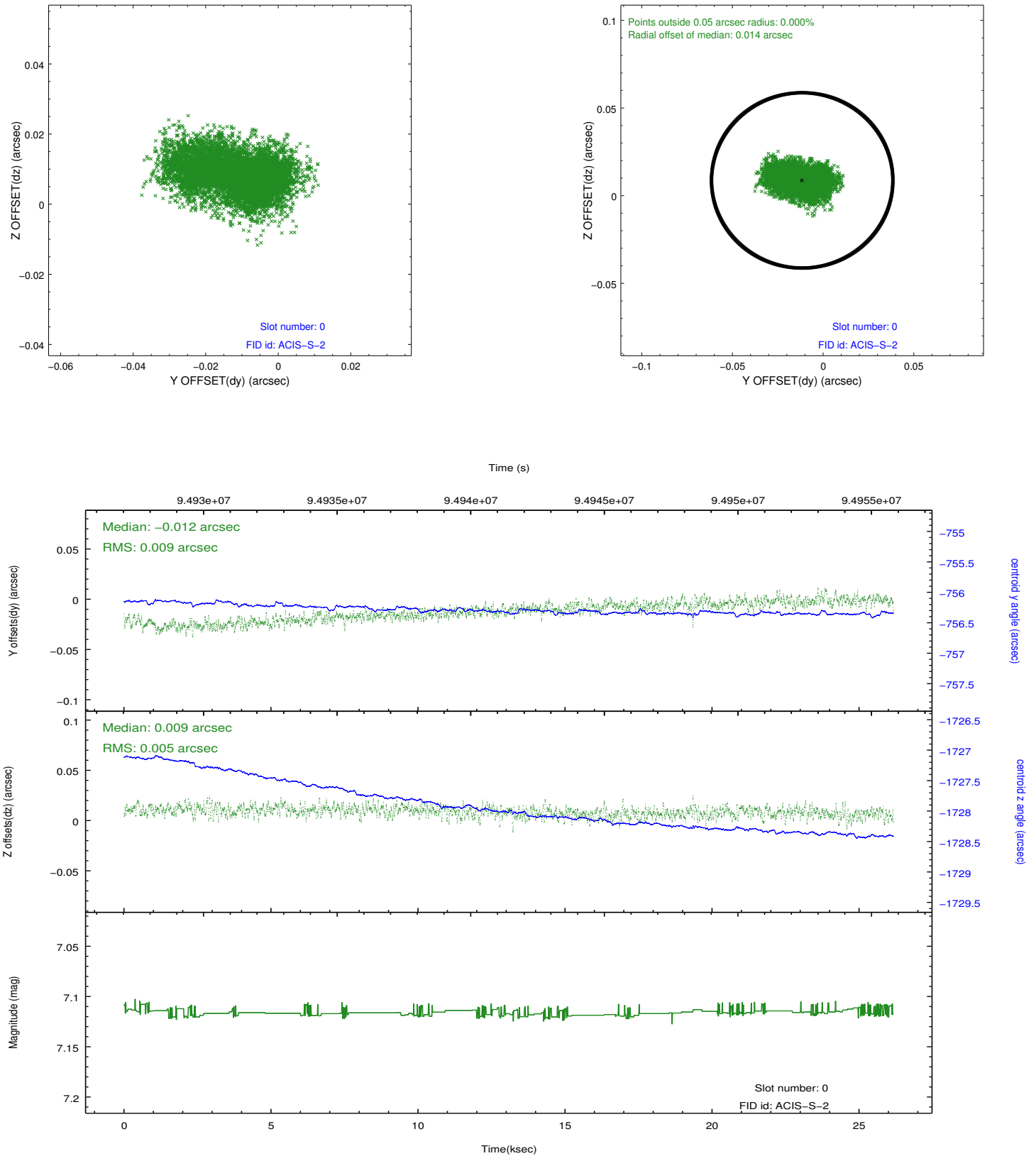


## 2.4.5 Slot 7

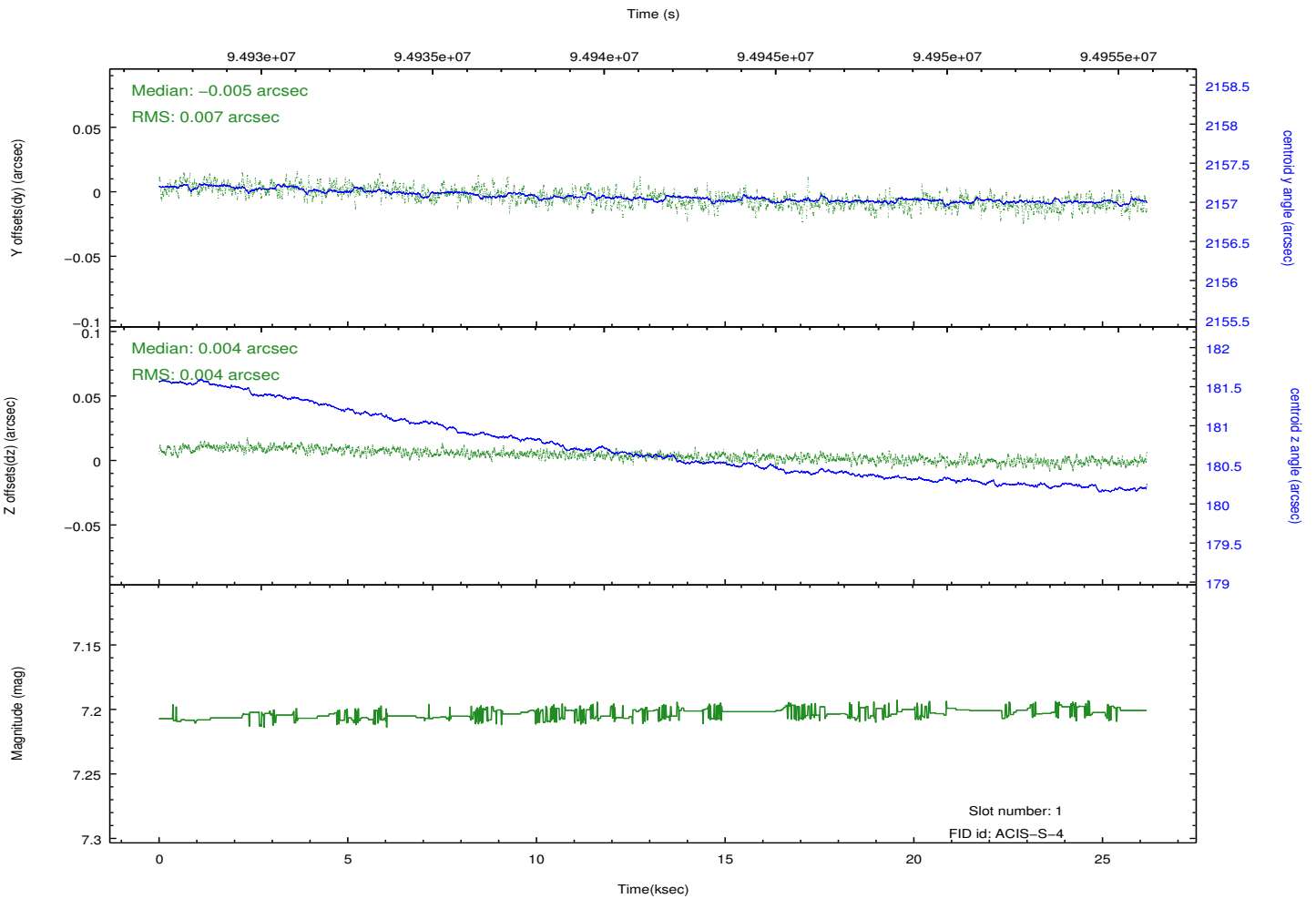
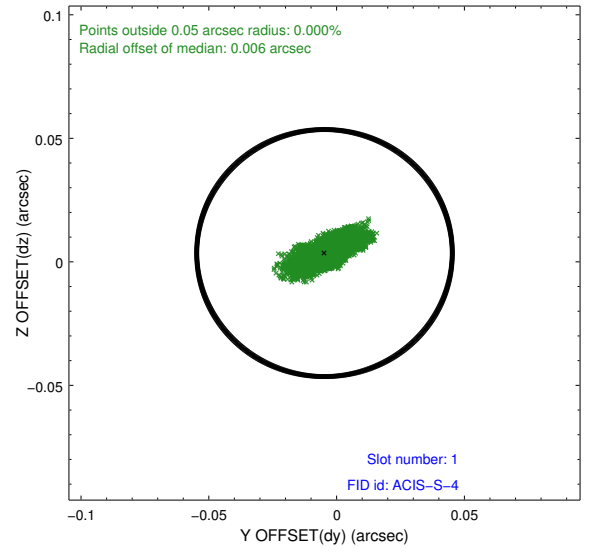
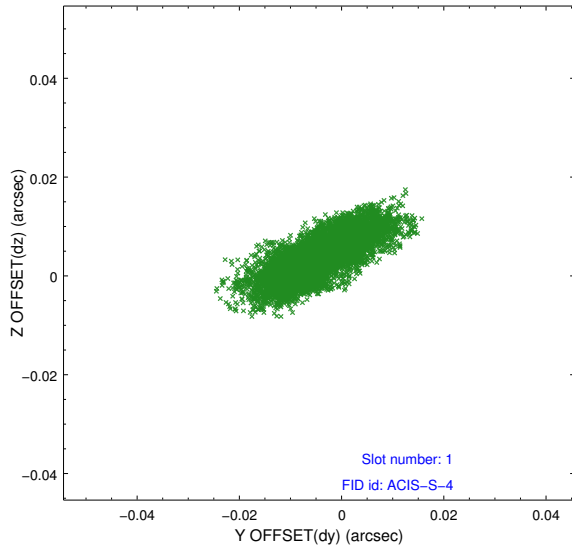


## 2.5 FID Slots

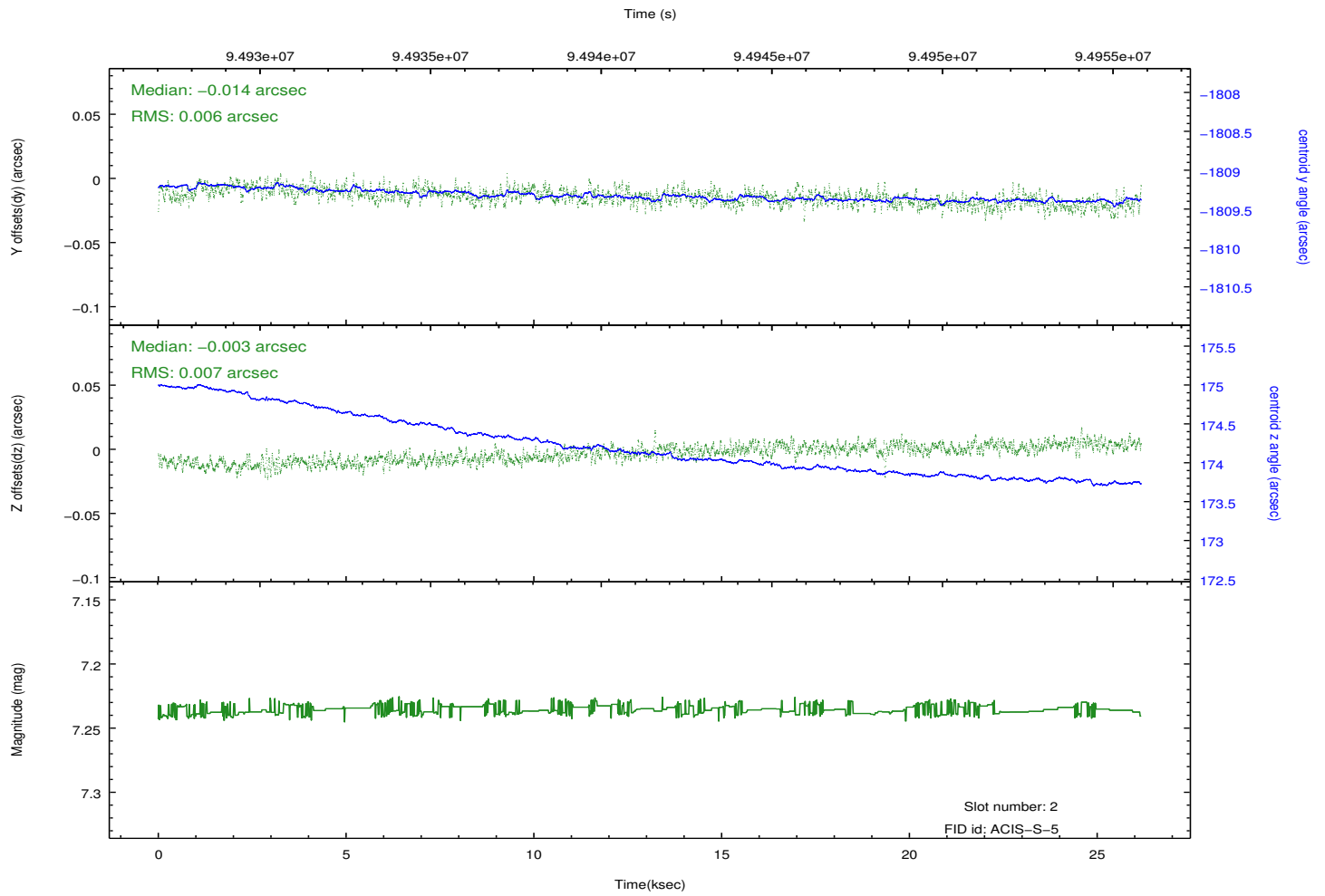
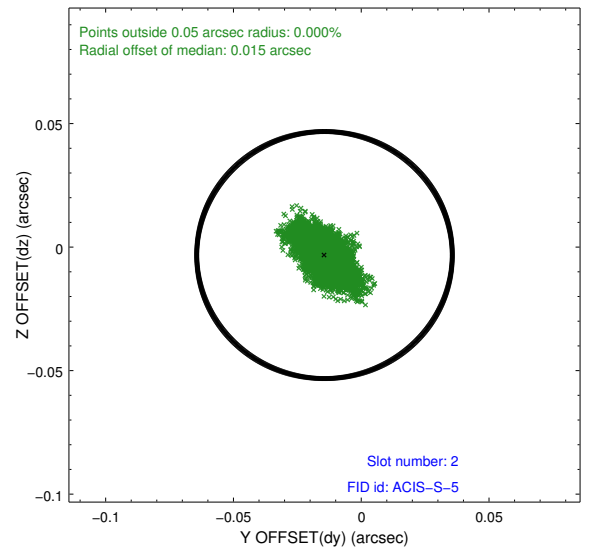
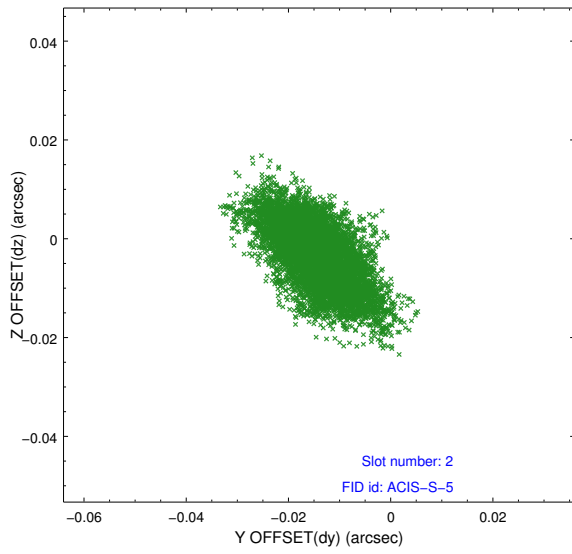
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

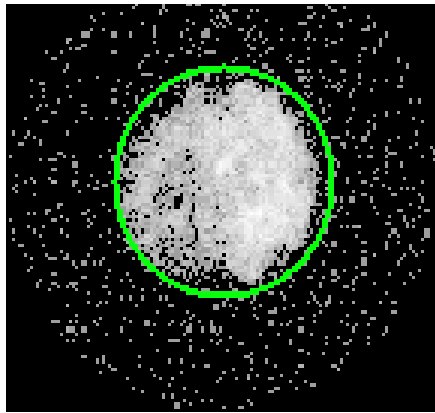


### 3 Gratings

#### 3.1 HEG Arm



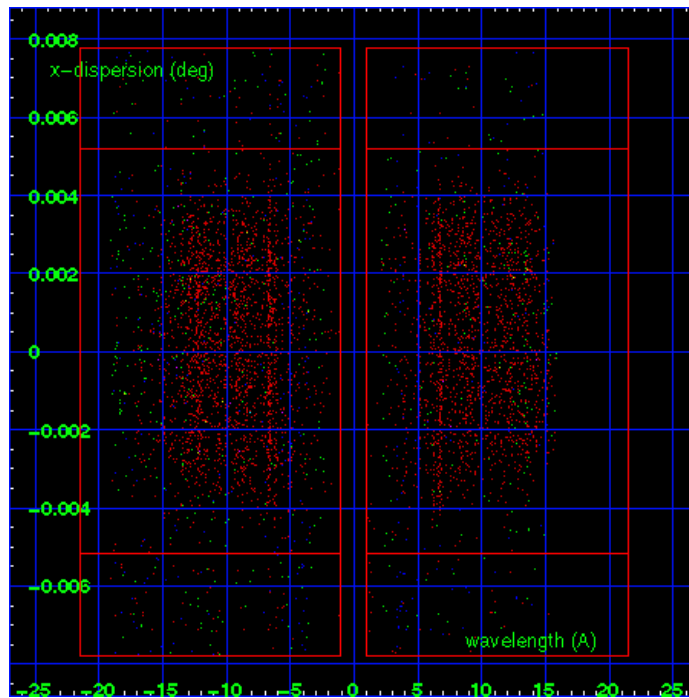
HEG Order Sort 123



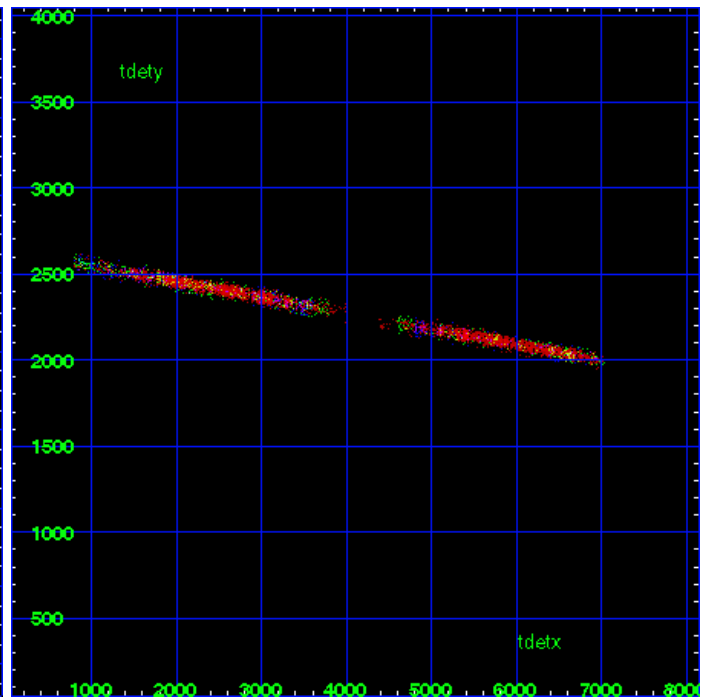
HEG Zero Order



HEG Order Sort ALL

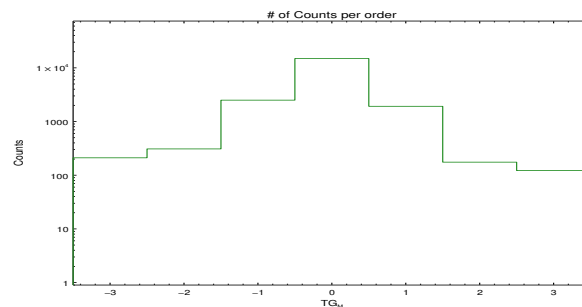


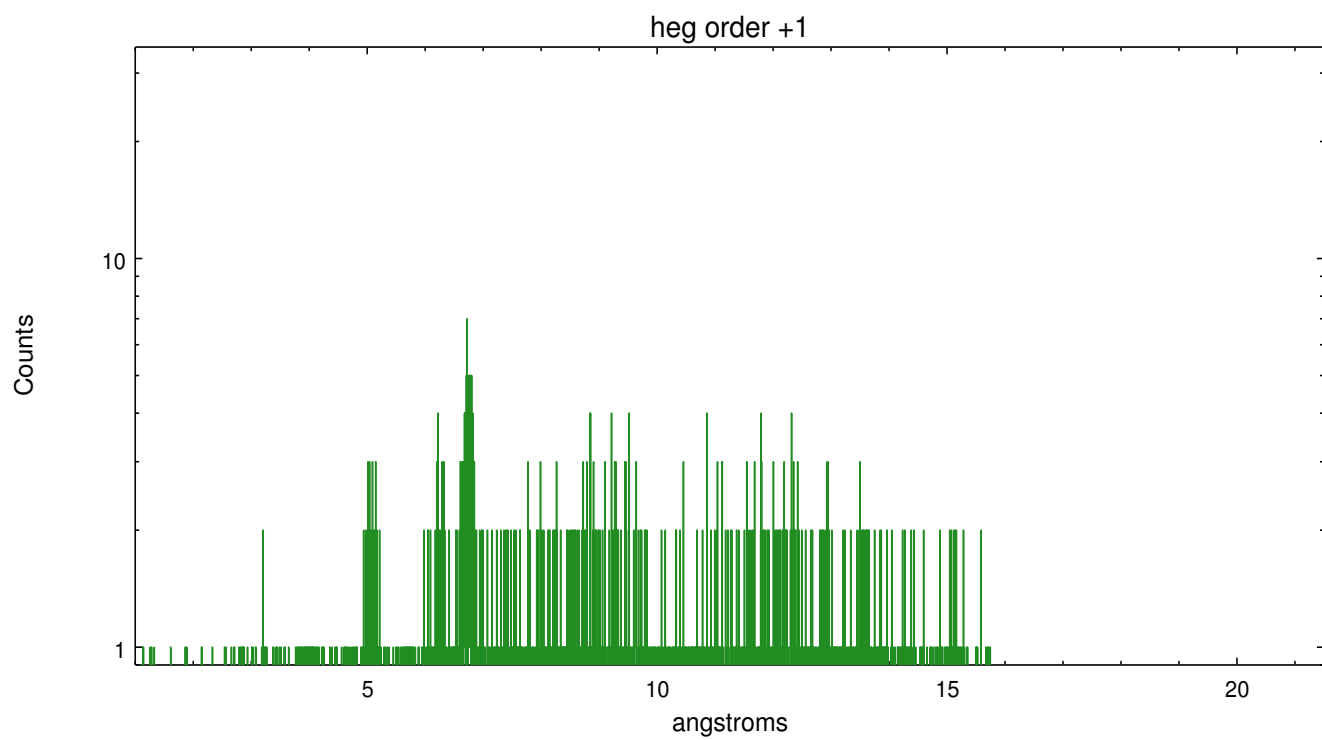
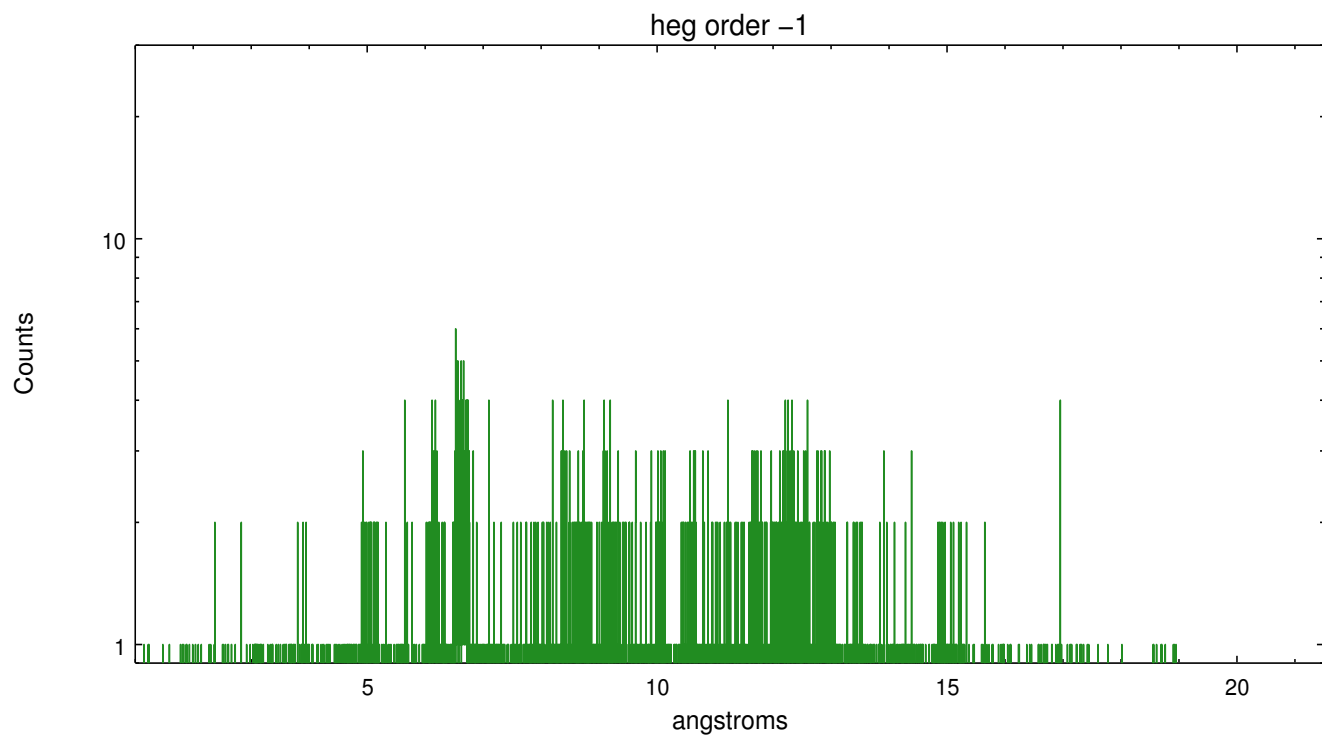
Spot Image HEG



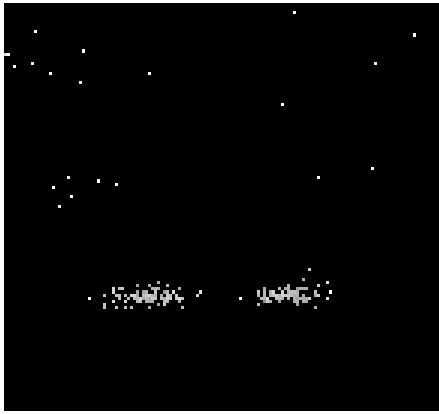
Full Detector HEG

|        | order<br>-3 | order<br>-2 | order<br>-1 | order<br>0 | order<br>1 | order<br>2 | order<br>3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 211         | 309         | 2500        | 14880      | 1920       | 175        | 122        |

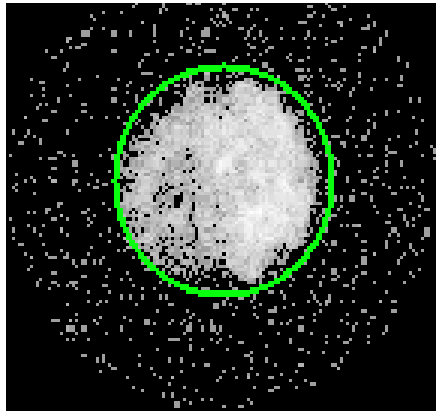




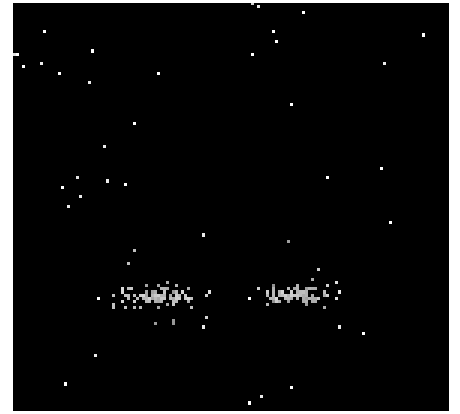
### 3.2 MEG Arm



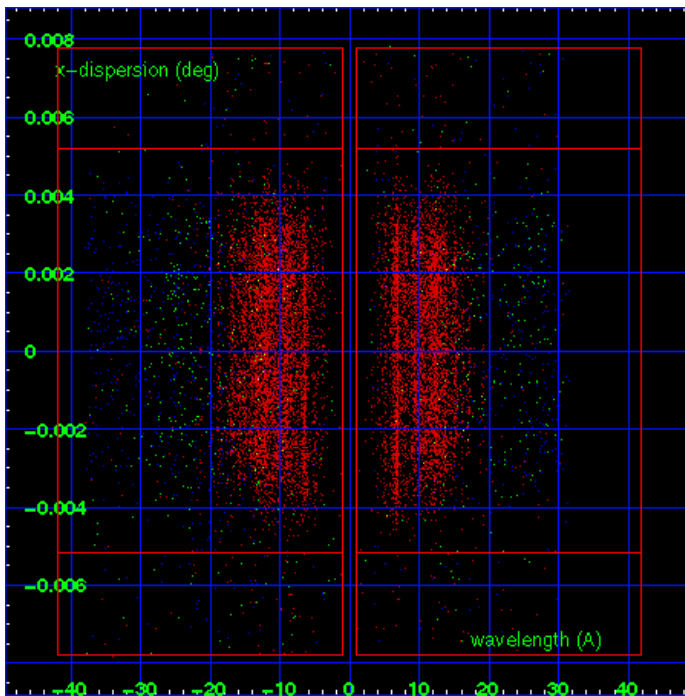
MEG Order Sort 123



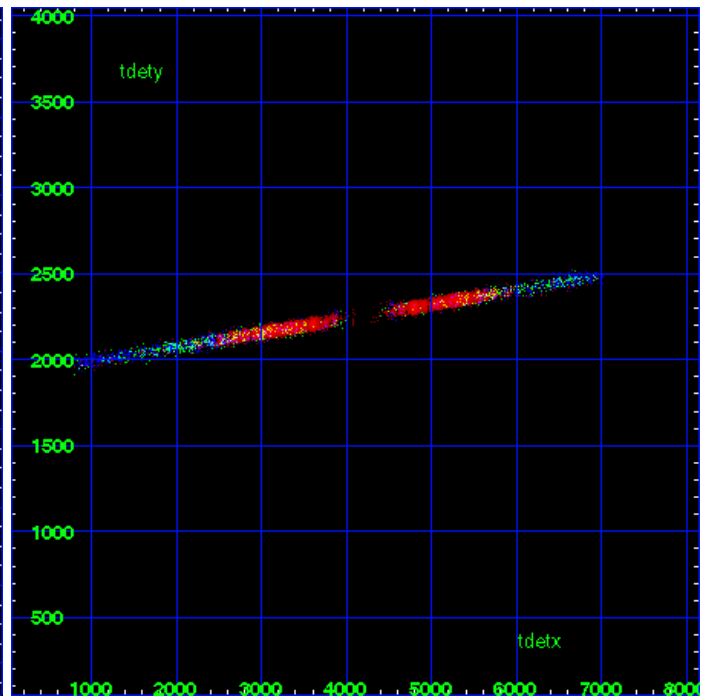
MEG Zero Order



MEG Order Sort ALL

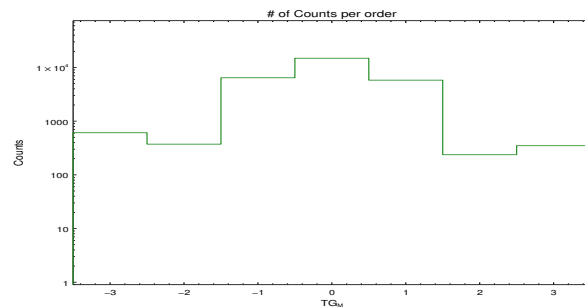


Spot Image MEG

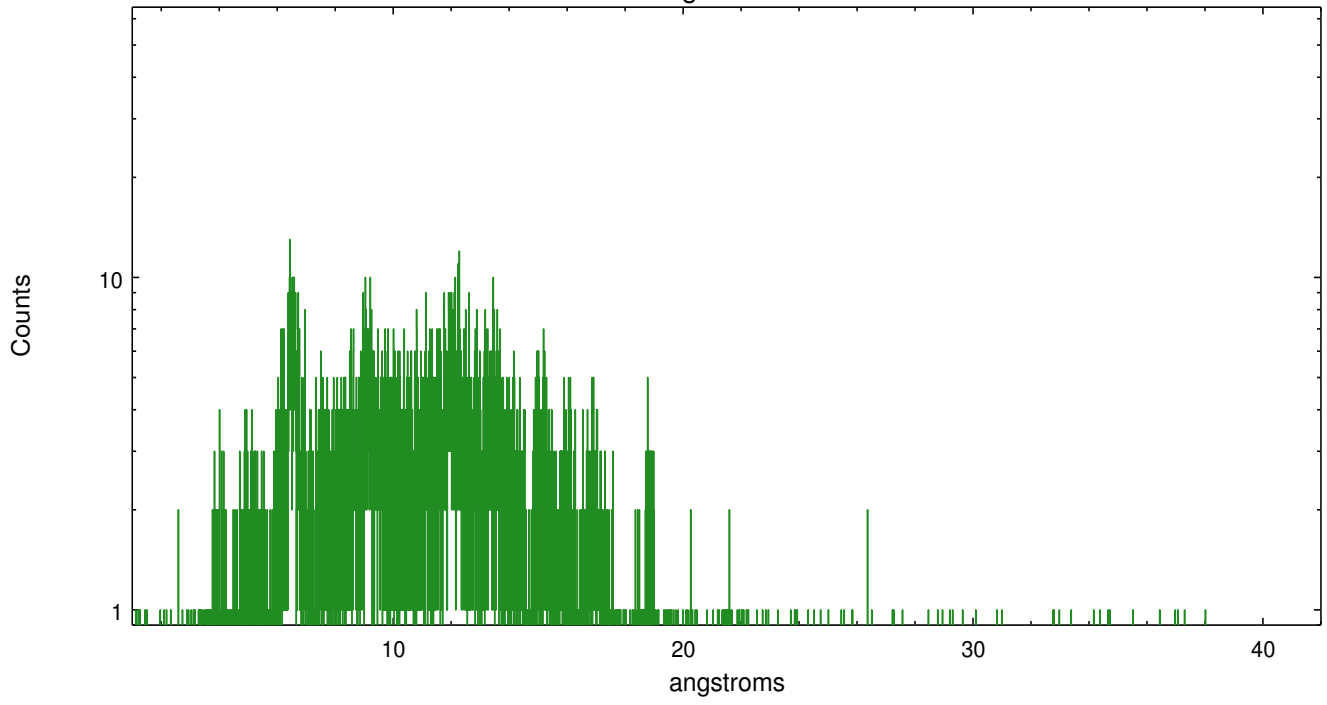


Full Detector MEG

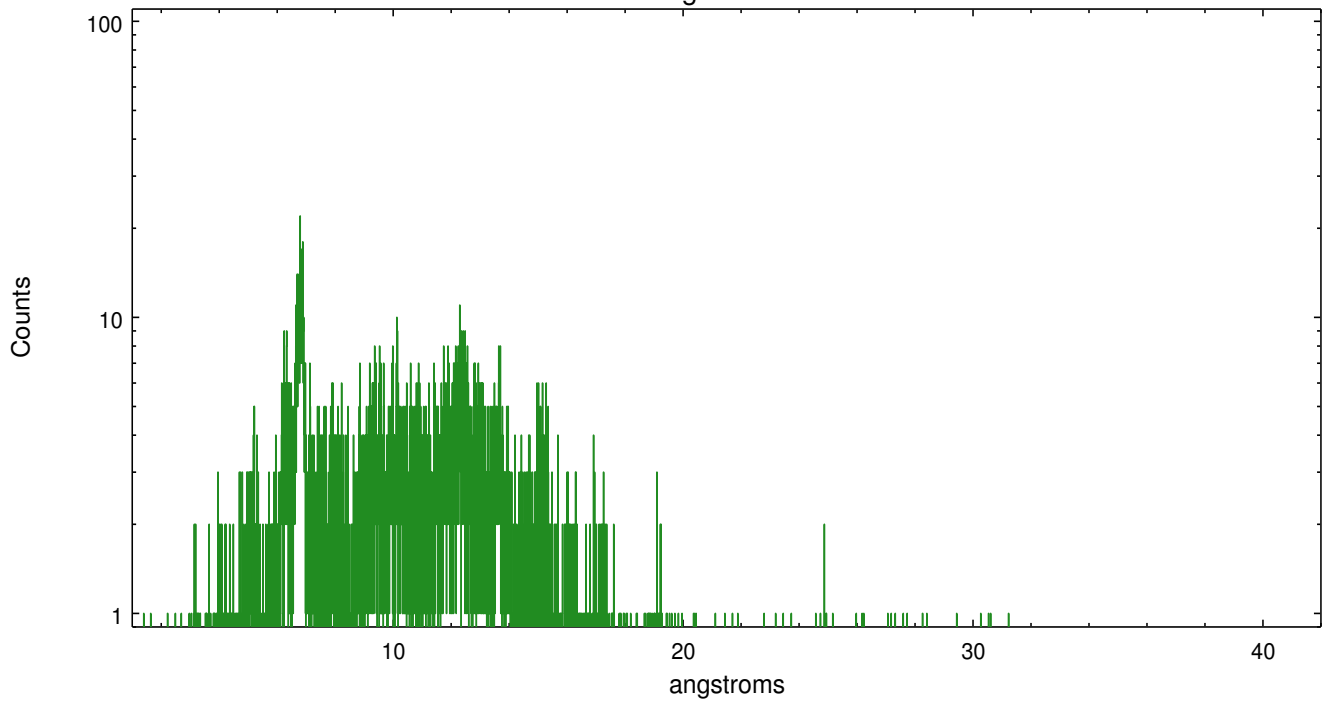
|        | order<br>-3 | order<br>-2 | order<br>-1 | order<br>0 | order<br>1 | order<br>2 | order<br>3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 609         | 373         | 6428        | 14880      | 5805       | 237        | 349        |



meg order -1



meg order +1



# A Summary

## A.1 Status

|                            |                    |
|----------------------------|--------------------|
| V&V Scientist              | David Huenemoerder |
| V&V Date (YYYY-MM-DD)      | 2012.10.25         |
| V&V Edition                | 1                  |
| V&V Disposition and Status | OK                 |
| V&V Charge Time            | 25.76              |

## A.2 Comments

NOTE: extended source --- used custom enlarged extraction regions; wavelengths will not map uniquely to position; there are no line-response calibrations (RMF) for extended sources.