

# V&V Reference Report

## L2 ASCDS Version : 8.4.3.1

Observation 8452 - L2 Version 2  
Chandra X-Ray Center

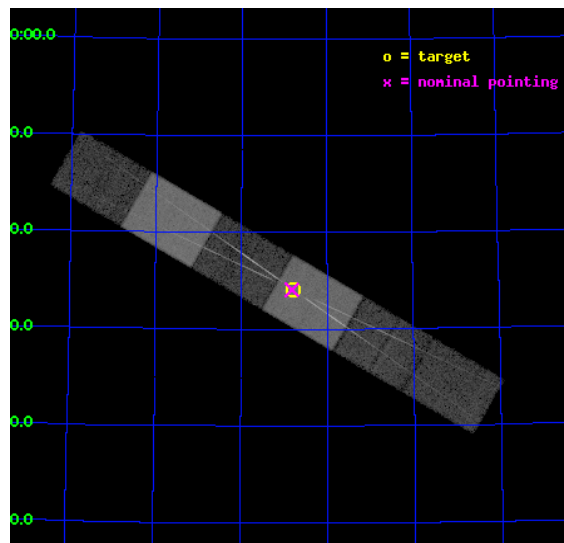
L2 Processing Date : Apr 11 2012

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# 1 Front

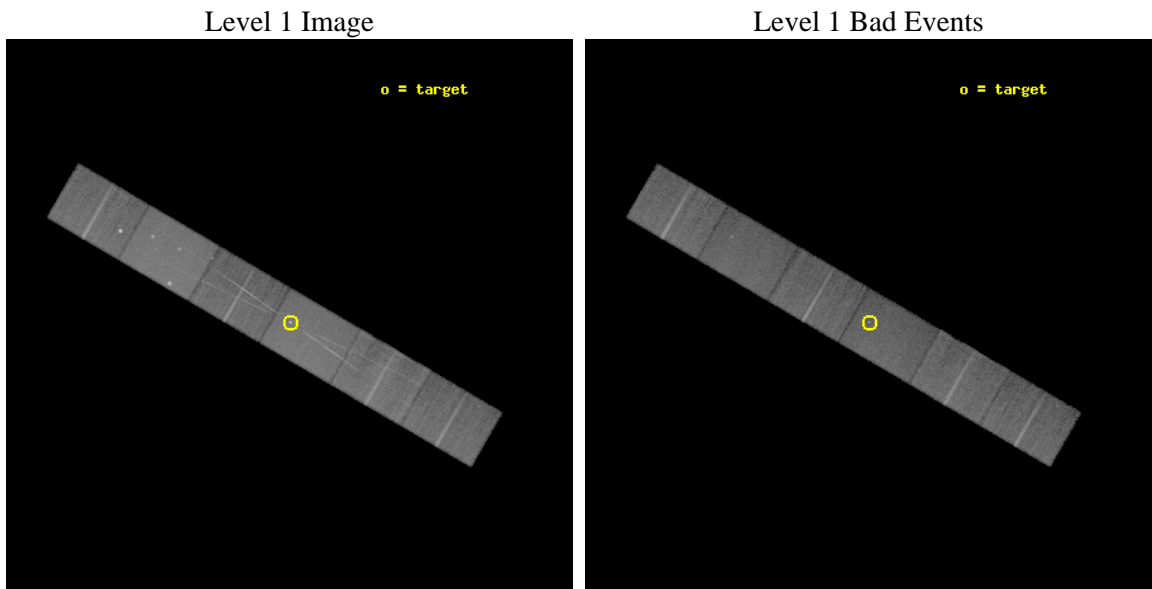
|          |   |   |
|----------|---|---|
| seq_num  | 701337  | Sequence number                             |
| obs_id   | 8452  | Observation id                              |
| title    | NGC 3516: Disk Diagnostics from a Windy BLSy1 in a High-State | Prop  |
| observer | Dr Tracey Turner  | Principal investigator                      |
| object   | NGC 3516  | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>Prim/Second/Both |
| ra_targ  | 166.698333  | Observer's specified target RA [deg]        |
| dec_targ | 72.568972   | Observer's specified target Dec [deg]       |
| ra_nom   | 166.70472154225   | Nominal RA [deg]                            |
| dec_nom  | 72.568131963522   | Nominal Dec [deg]                           |
| roll_nom | 30.150526567823   | Nominal Roll [deg]                          |
| revision | 2   | Processing version of data                  |
| ontime   | 20157.5   | Sum of GTIs [s]                             |
| livetime | 19831.938891163   | Livetime [s]                                |
| ontime4  | 20157.5   | Sum of GTIs [s]                             |
| ontime5  | 20157.5   | Sum of GTIs [s]                             |
| ontime6  | 20157.5   | Sum of GTIs [s]                             |
| ontime7  | 20157.5   | Sum of GTIs [s]                             |
| ontime8  | 20154.959009707   | Sum of GTIs [s]                             |
| ontime9  | 20157.5   | Sum of GTIs [s]                             |
| l2events | 260658  | Number of level 2 events                    |



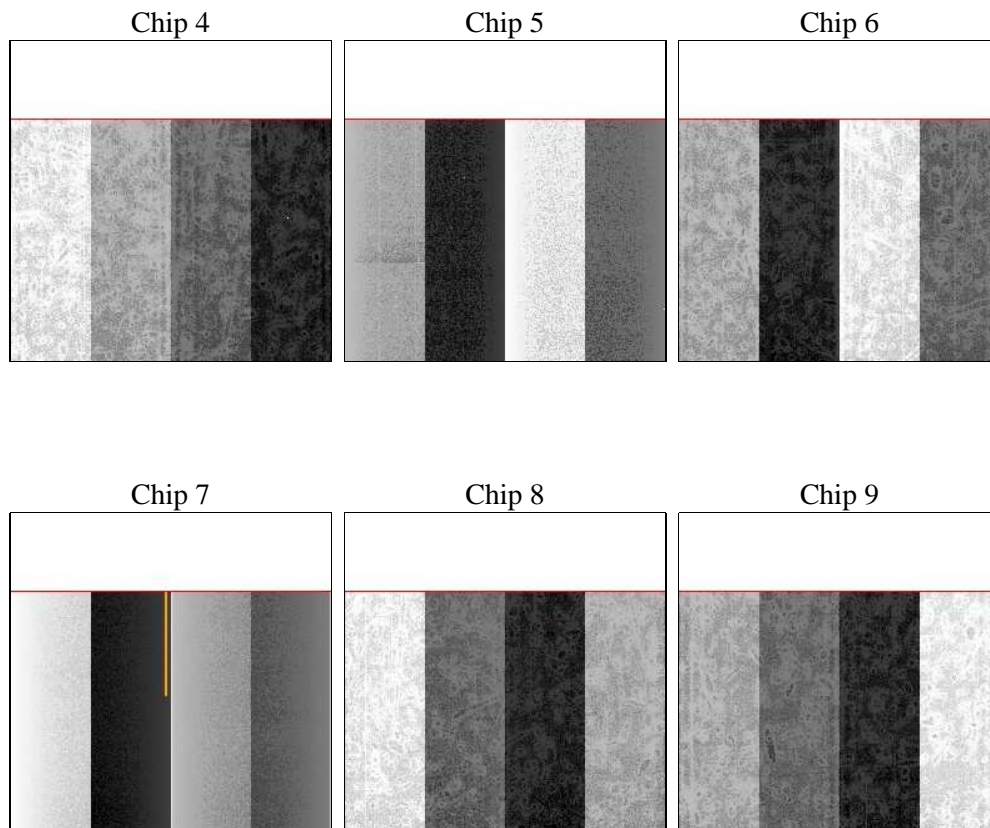
## 2 OBI

### 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 | 8.4.3.1             | Processing system revision     | ontime         | 20157.5         | Sum of GTIs [s]                         |
| caldbver | 4.4.9               | &#160                          | ontime4        | 20157.5         | Sum of GTIs [s]                         |
| date     | 2012-04-11T01:35:27 | Date and time of file creation | ontime5        | 20157.5         | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime6        | 20157.5         | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 20157.5         | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 20154.959009707 | Sum of GTIs [s]                         |
|          |                     |                                | ontime9        | 20157.5         | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 1105062         | Number of level 1 events                |

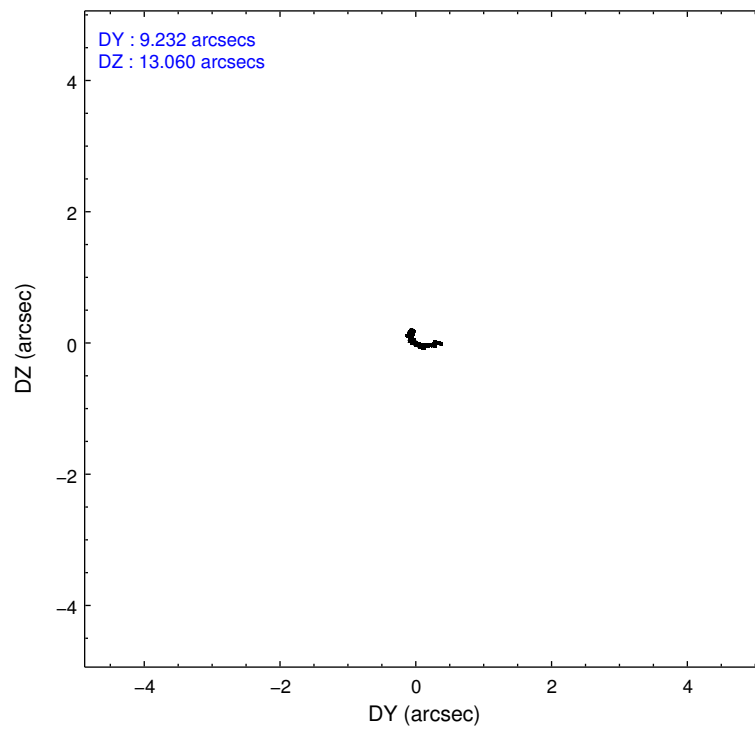
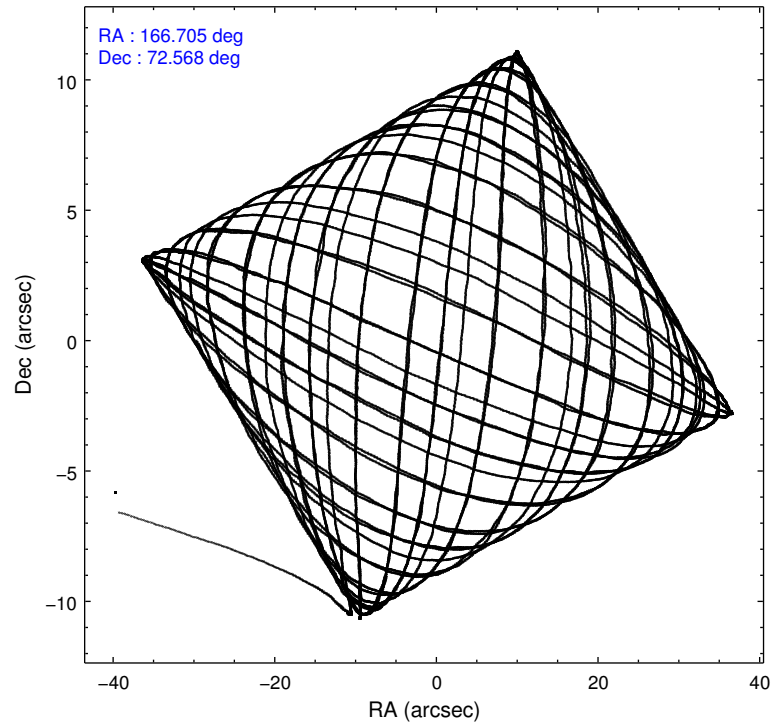
### 2.1.4 Events

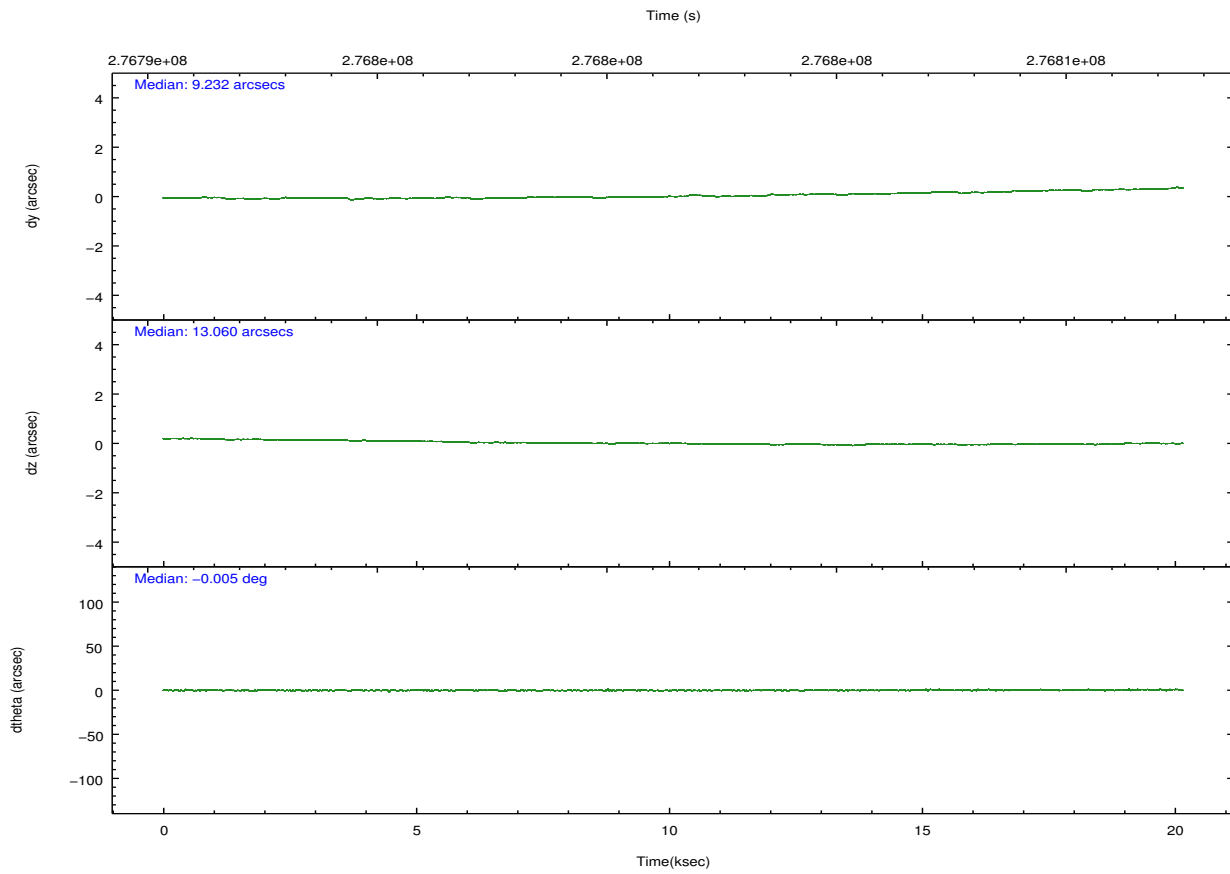
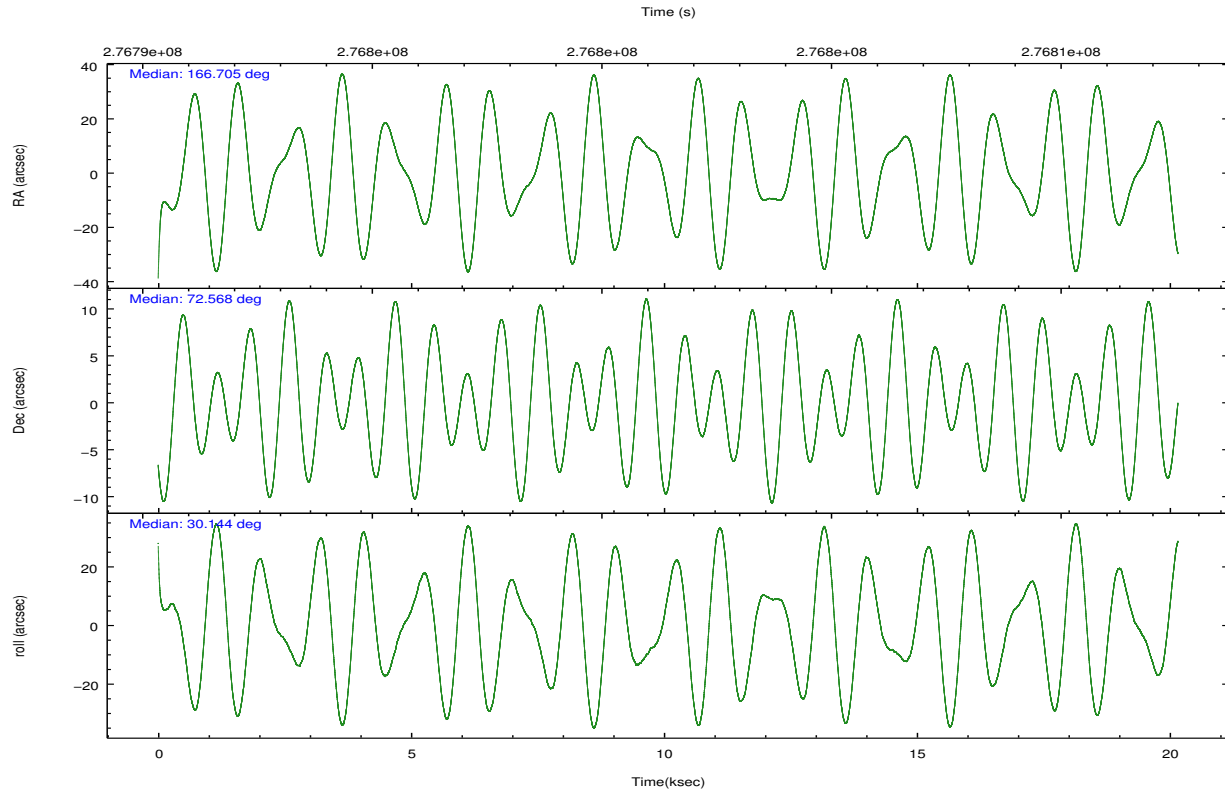
|                 | ccd 4  | ccd 5  | ccd 6  | ccd 7  | ccd 8  | ccd 9  |                | ccd 4  | ccd 5  | ccd 6  | ccd 7 | ccd 8  | ccd 9  |
|-----------------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|-------|--------|--------|
| level 1 events  | 169549 | 225822 | 153497 | 216601 | 191478 | 148115 | grade 0 events | 14485  | 14665  | 13499  | 10150 | 15479  | 7919   |
| rejected events | 145244 | 122369 | 128068 | 121998 | 148717 | 129923 |                | 8%     | 6%     | 8%     | 4%    | 8%     | 5%     |
| rejected %      | 85%    | 54%    | 83%    | 56%    | 77%    | 87%    | grade 1 events | 171    | 640    | 89     | 365   | 113    | 82     |
|                 |        |        |        |        |        |        |                | 0%     | 0%     | 0%     | 0%    | 0%     | 0%     |
|                 |        |        |        |        |        |        | grade 2 events | 4065   | 30645  | 4578   | 20374 | 9465   | 3792   |
|                 |        |        |        |        |        |        |                | 2%     | 13%    | 2%     | 9%    | 4%     | 2%     |
|                 |        |        |        |        |        |        | grade 3 events | 1987   | 4892   | 2154   | 9026  | 4579   | 1916   |
|                 |        |        |        |        |        |        |                | 1%     | 2%     | 1%     | 4%    | 2%     | 1%     |
|                 |        |        |        |        |        |        | grade 4 events | 1901   | 4666   | 2105   | 8882  | 4264   | 1903   |
|                 |        |        |        |        |        |        |                | 1%     | 2%     | 1%     | 4%    | 2%     | 1%     |
|                 |        |        |        |        |        |        | grade 5 events | 6404   | 16818  | 6719   | 19773 | 9112   | 7151   |
|                 |        |        |        |        |        |        |                | 3%     | 7%     | 4%     | 9%    | 4%     | 4%     |
|                 |        |        |        |        |        |        | grade 6 events | 3009   | 53429  | 3920   | 50068 | 10959  | 3448   |
|                 |        |        |        |        |        |        |                | 1%     | 23%    | 2%     | 23%   | 5%     | 2%     |
|                 |        |        |        |        |        |        | grade 7 events | 137527 | 100067 | 120433 | 97963 | 137507 | 121904 |
|                 |        |        |        |        |        |        |                | 81%    | 44%    | 78%    | 45%   | 71%    | 82%    |

## 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                 | 166.660615          | 166.7047215422481    | Subarray requested                    | CUSTOM    | CUSTOM  |
| [deg] Pointing Dec                | 72.544351           | 72.56813196352186    | Subarray start row                    | 1         | 1       |
| [deg] Pointing Roll               | 30.035981           | 30.15052656782279    | 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         | -187.1254020033014   |                                       |           |         |
| [mm] SIM translation stage offset | -3                  | -3.007120579706367   |                                       |           |         |
| [s] Observation start time (MET)  | 276791510.184000    | 276789936.41462      |                                       |           |         |
| Observation start date            | 2006-10-09T14:30:45 | 2006-10-09T14:05:36  |                                       |           |         |
| [s] Observation end time (MET)    | 276811510.184000    | 276812296.79068      |                                       |           |         |
| Observation end date              | 2006-10-09T20:04:05 | 2006-10-09T20:18:16  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## 2.3 Aspect



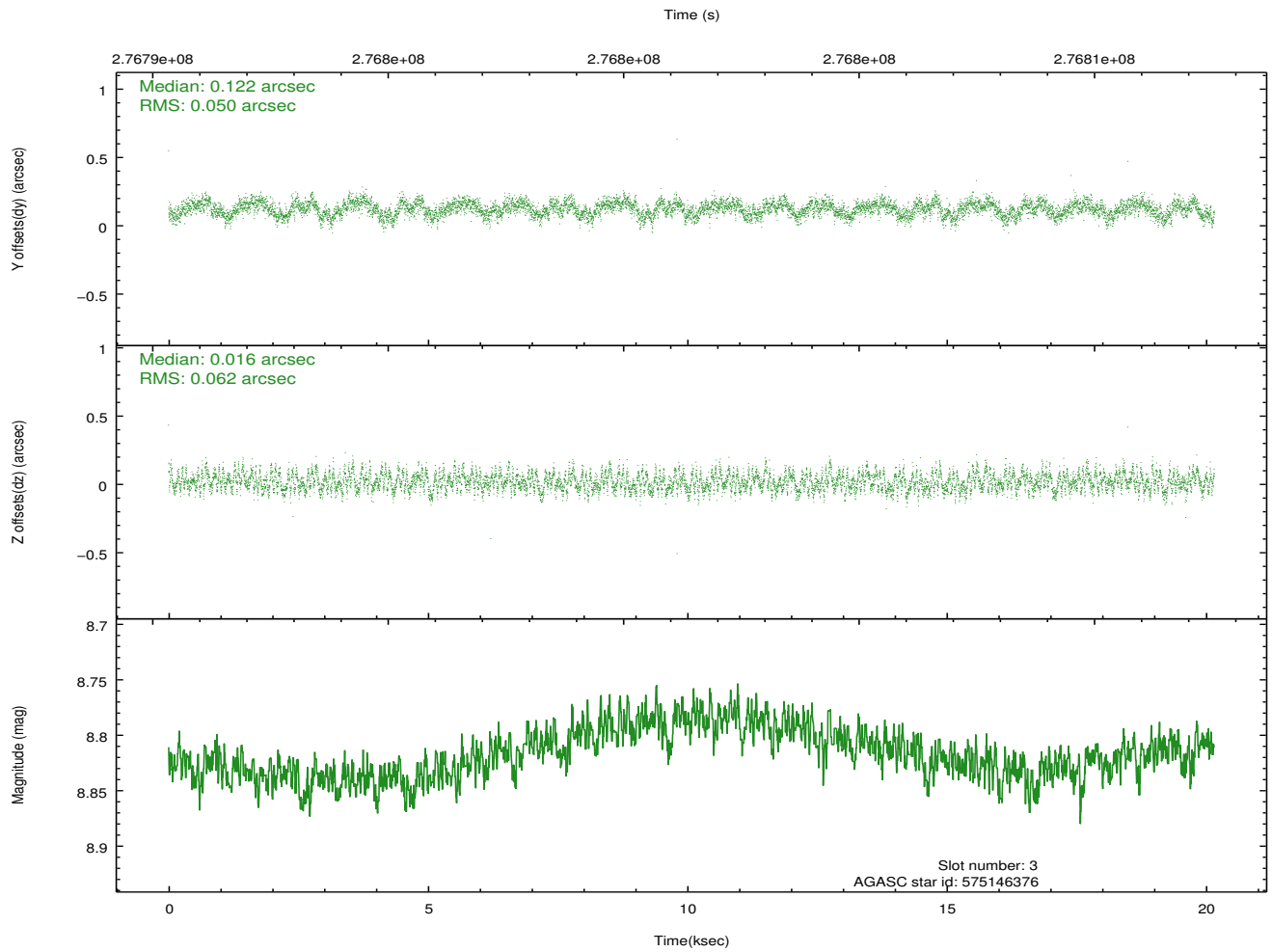
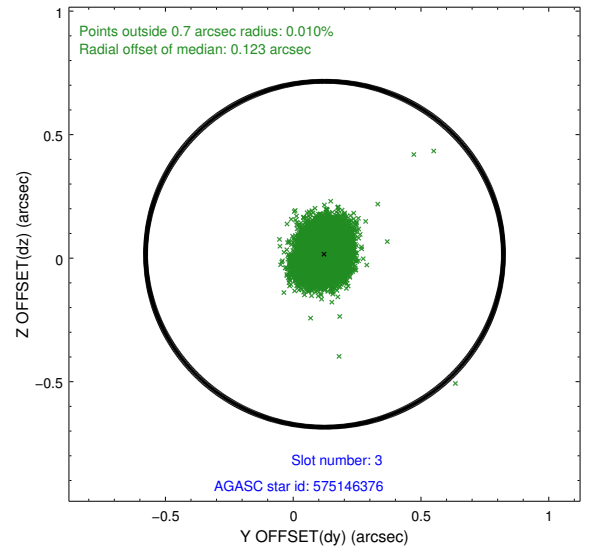
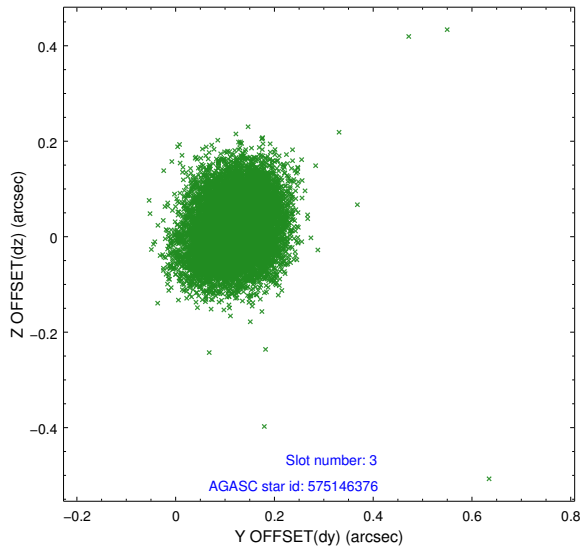


### Slot Statistics

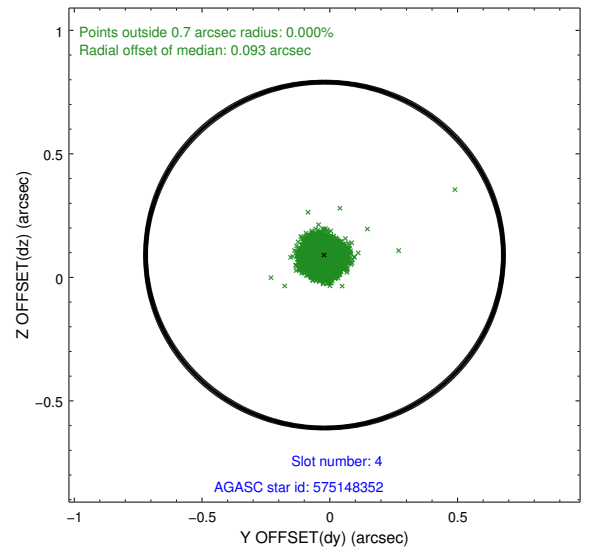
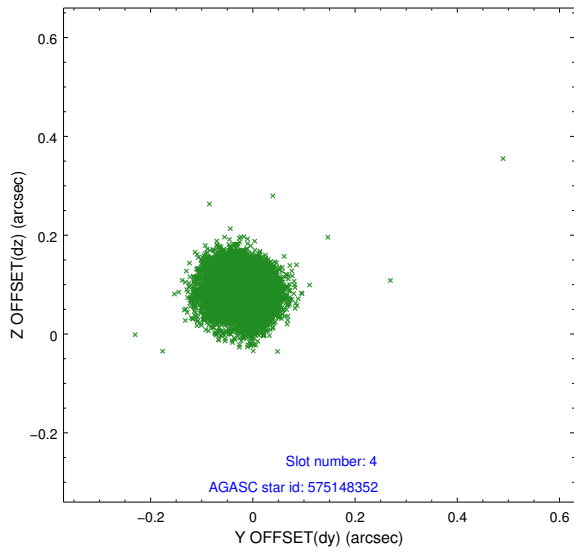
| slot | status | id        | mag  | n_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mean_z   |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0    | FID    | ACIS-S-2  | 7.10 | 4917  | -0.089 | -0.071 | 0.007 | 0.012 | 0.000000   | 0.000000  | -761.96  | -1796.58 |
| 1    | FID    | ACIS-S-4  | 7.20 | 4918  | 0.195  | 0.062  | 0.007 | 0.013 | 0.000000   | 0.000000  | 2151.50  | 111.86   |
| 2    | FID    | ACIS-S-5  | 7.23 | 4918  | -0.137 | 0.017  | 0.007 | 0.011 | 0.000000   | 0.000000  | -1814.63 | 105.65   |
| 3    | GUIDE  | 575146376 | 8.82 | 9829  | 0.122  | 0.016  | 0.085 | 0.133 | 166.888472 | 72.124920 | -536.89  | -1432.48 |
| 4    | GUIDE  | 575148352 | 7.32 | 9833  | -0.021 | 0.090  | 0.053 | 0.084 | 167.090916 | 71.958979 | -638.27  | -2062.80 |
| 5    | GUIDE  | 575150616 | 8.22 | 9834  | 0.010  | 0.111  | 0.064 | 0.107 | 167.218511 | 72.045663 | -360.58  | -1861.25 |
| 6    | GUIDE  | 575541080 | 8.95 | 9826  | -0.367 | 0.034  | 0.080 | 0.133 | 167.870403 | 73.115273 | 2130.10  | 1157.72  |
| 7    | GUIDE  | 575541344 | 9.38 | 9825  | 0.261  | -0.249 | 0.083 | 0.136 | 166.947366 | 72.953762 | 1000.85  | 1125.47  |

## 2.4 Star Slots

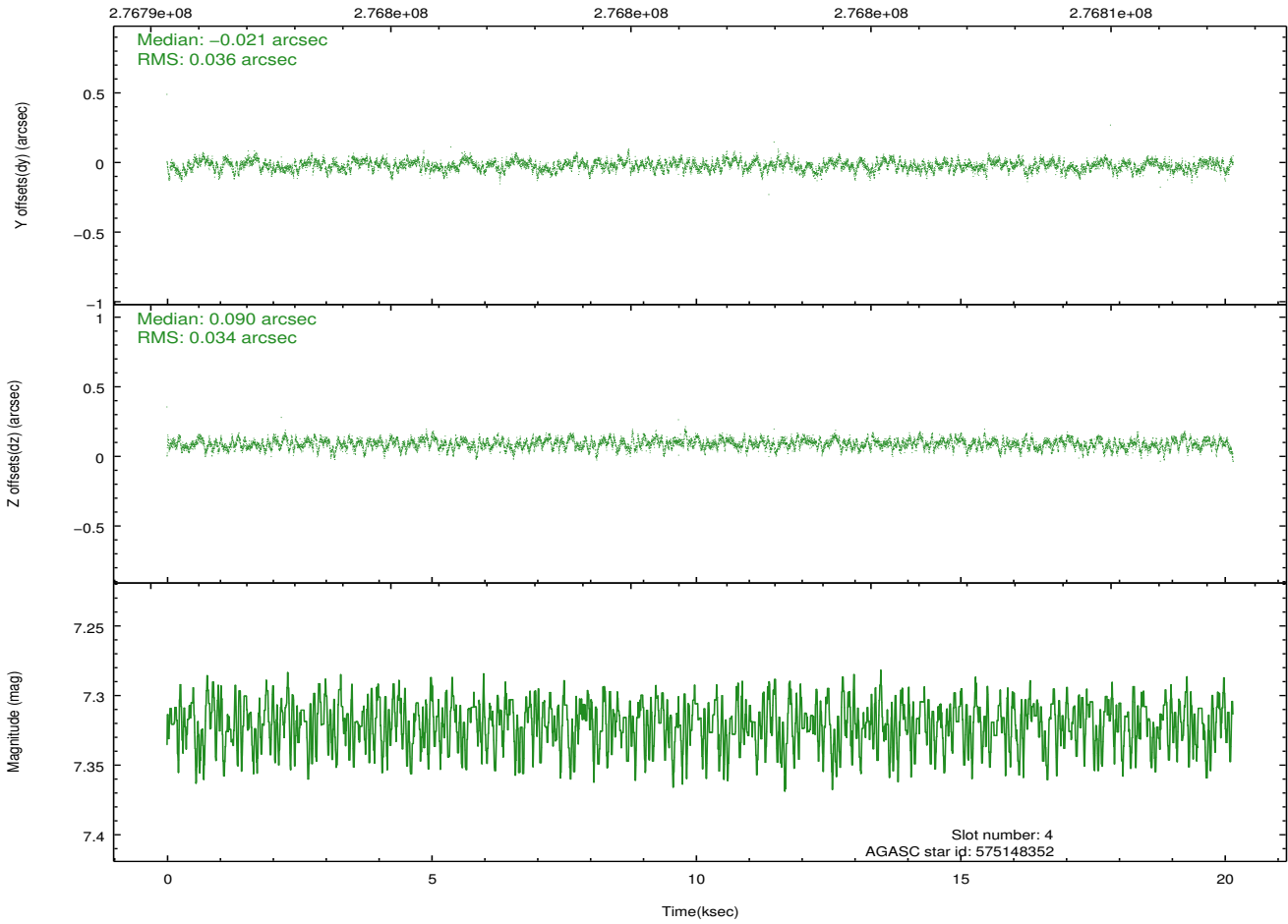
### 2.4.1 Slot 3



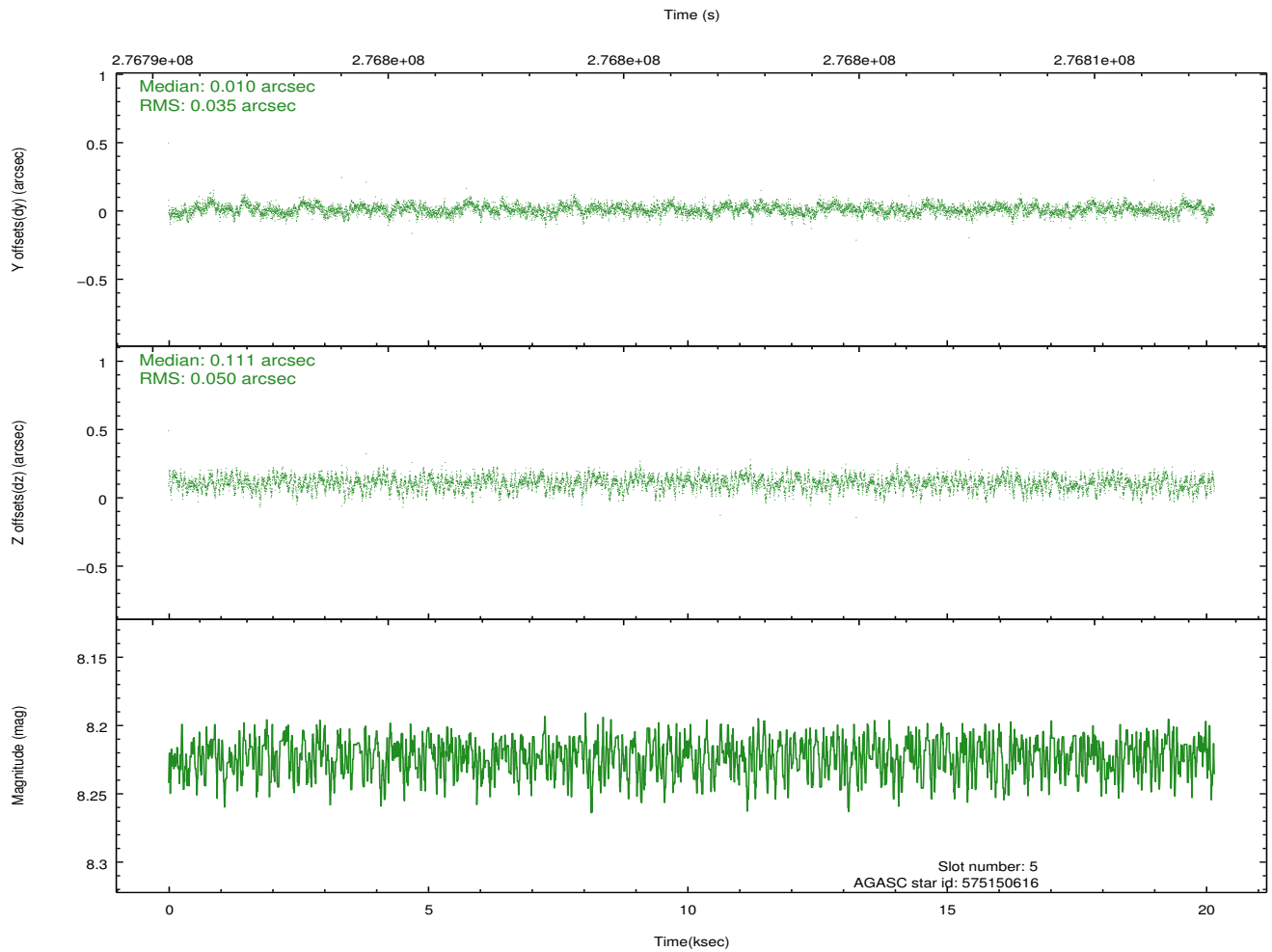
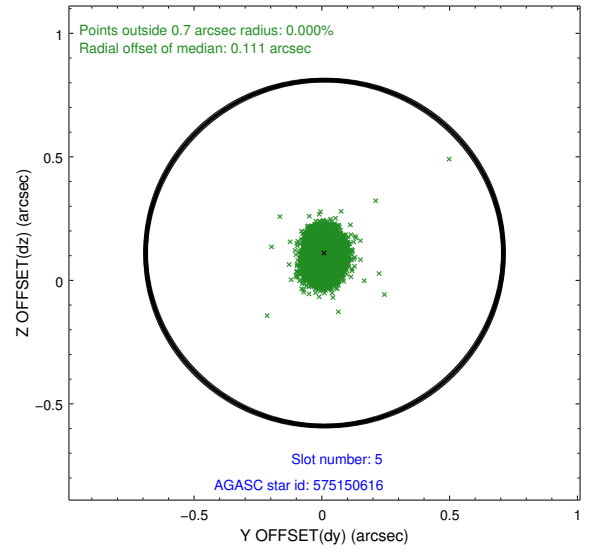
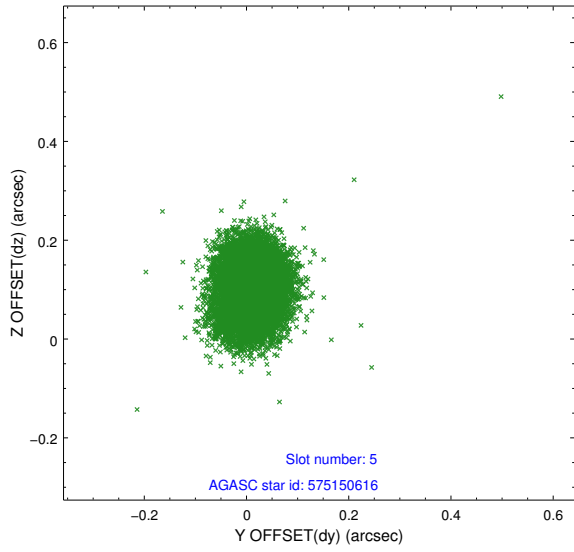
### 2.4.2 Slot 4



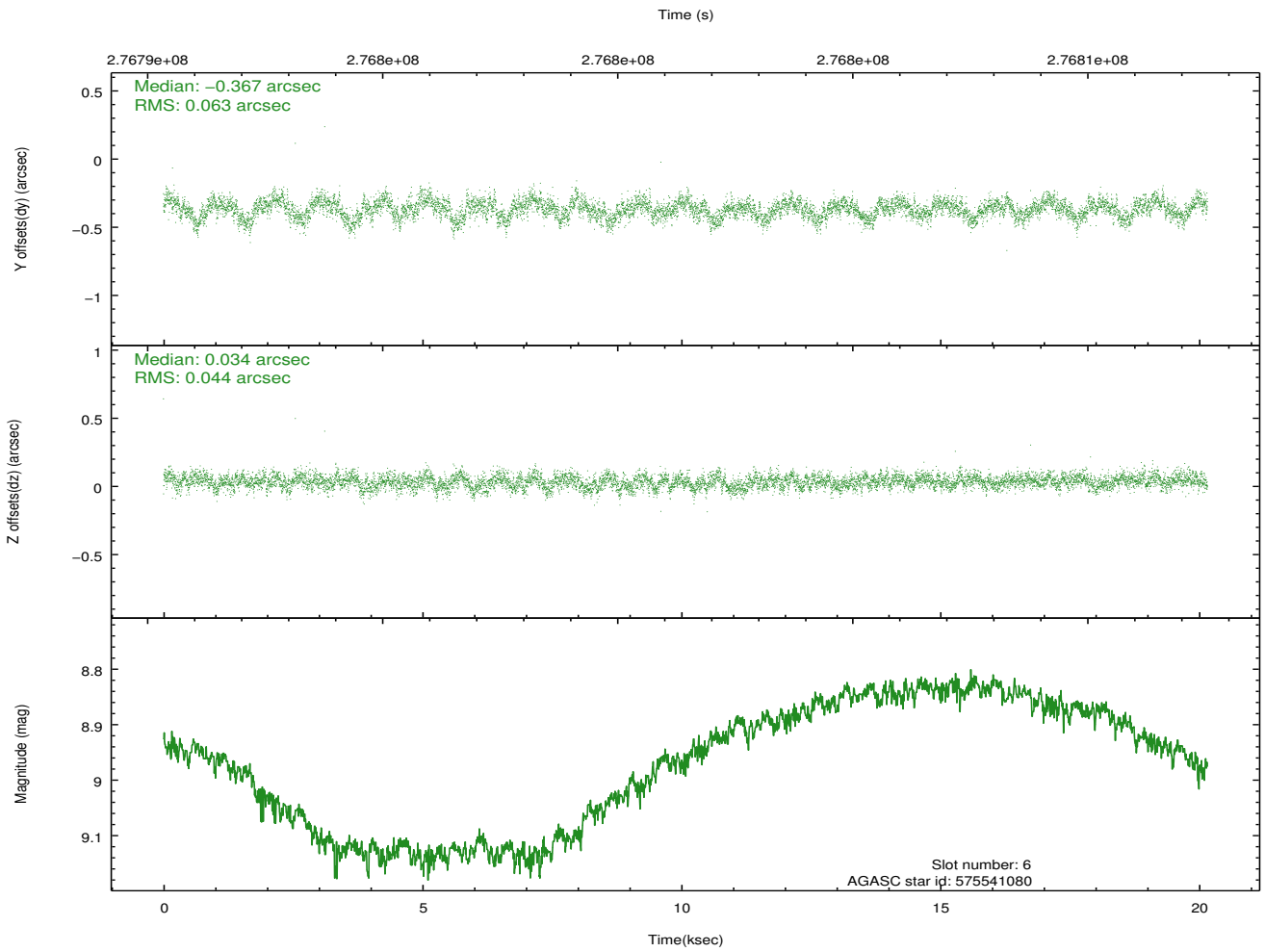
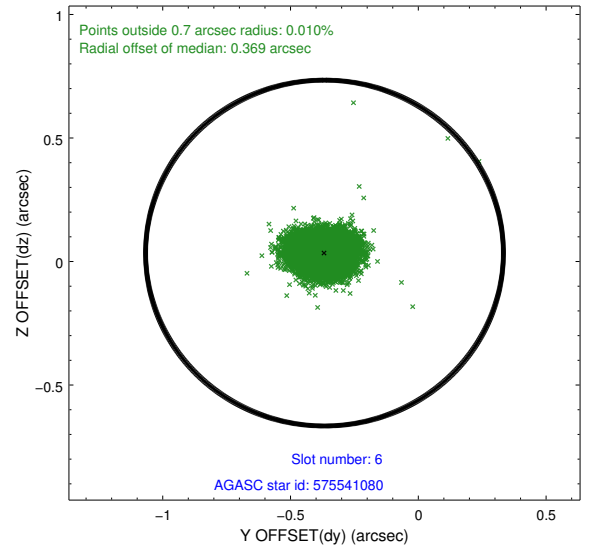
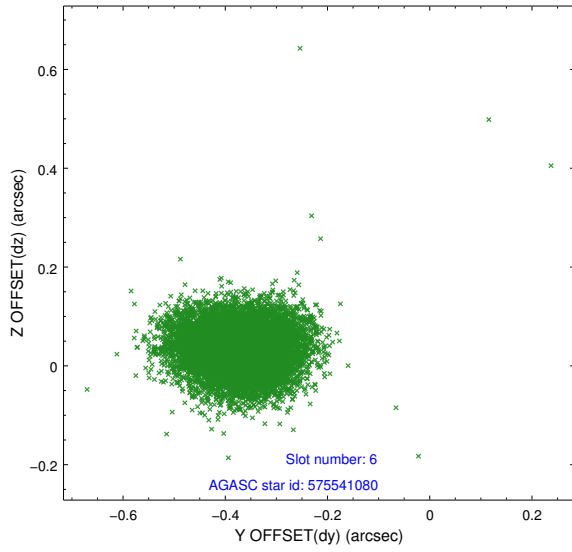
Time (s)



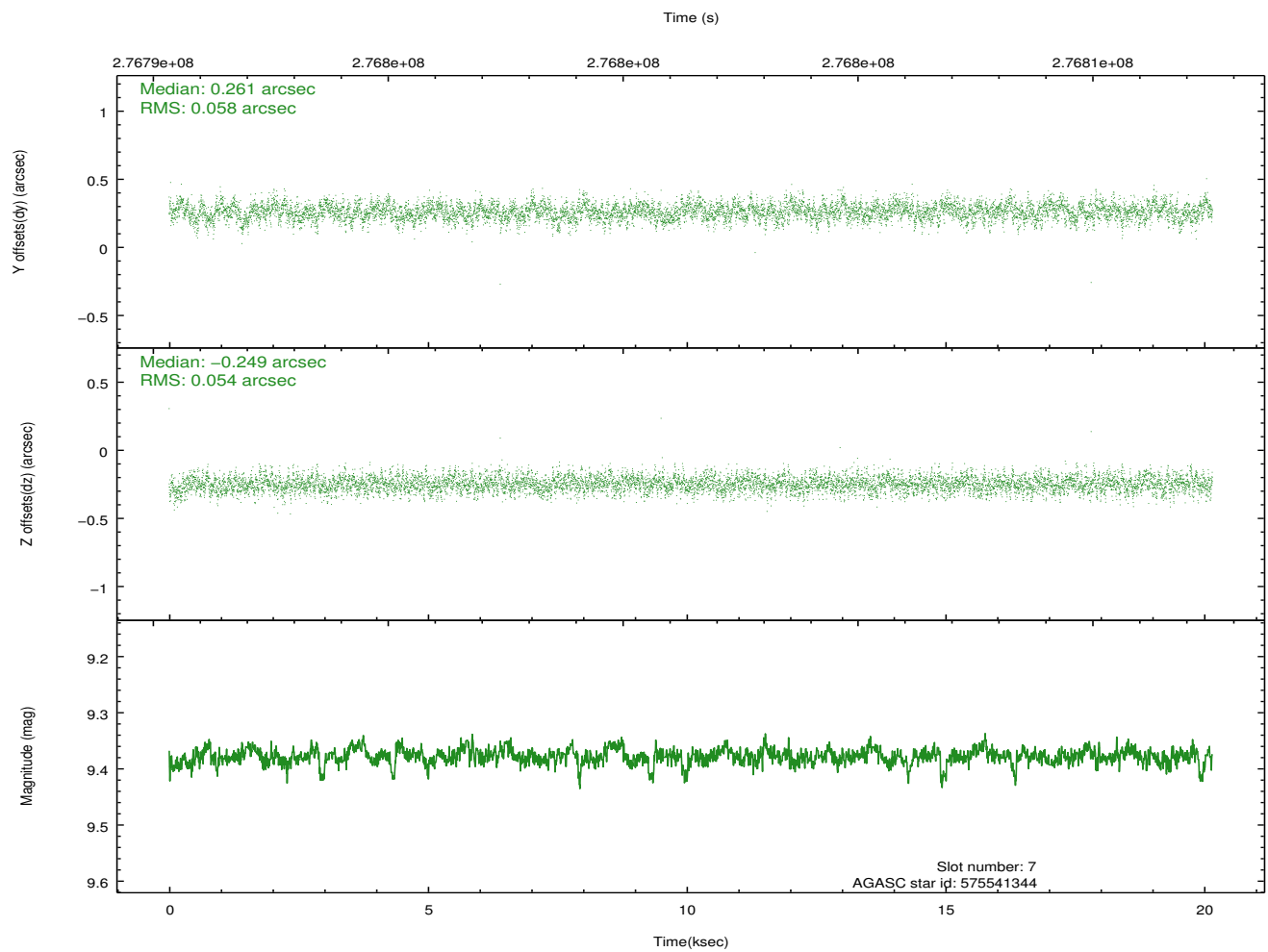
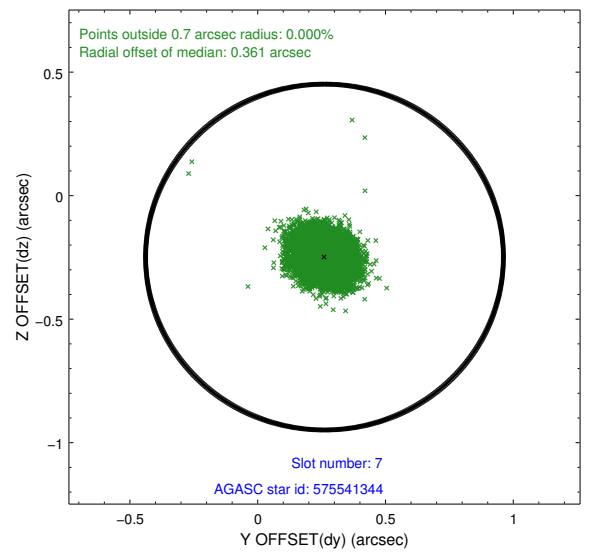
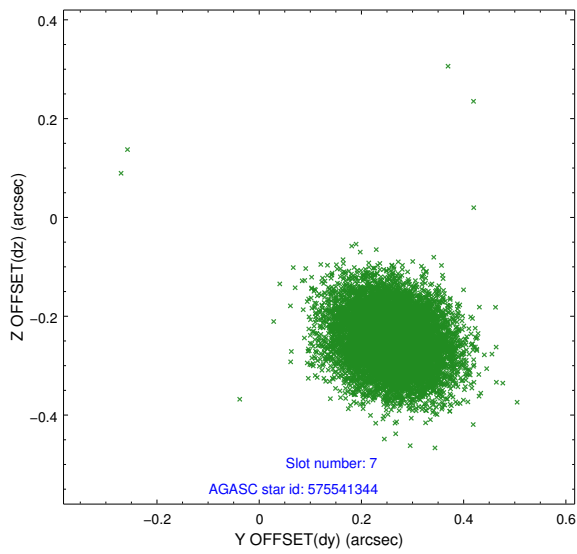
### 2.4.3 Slot 5



### 2.4.4 Slot 6

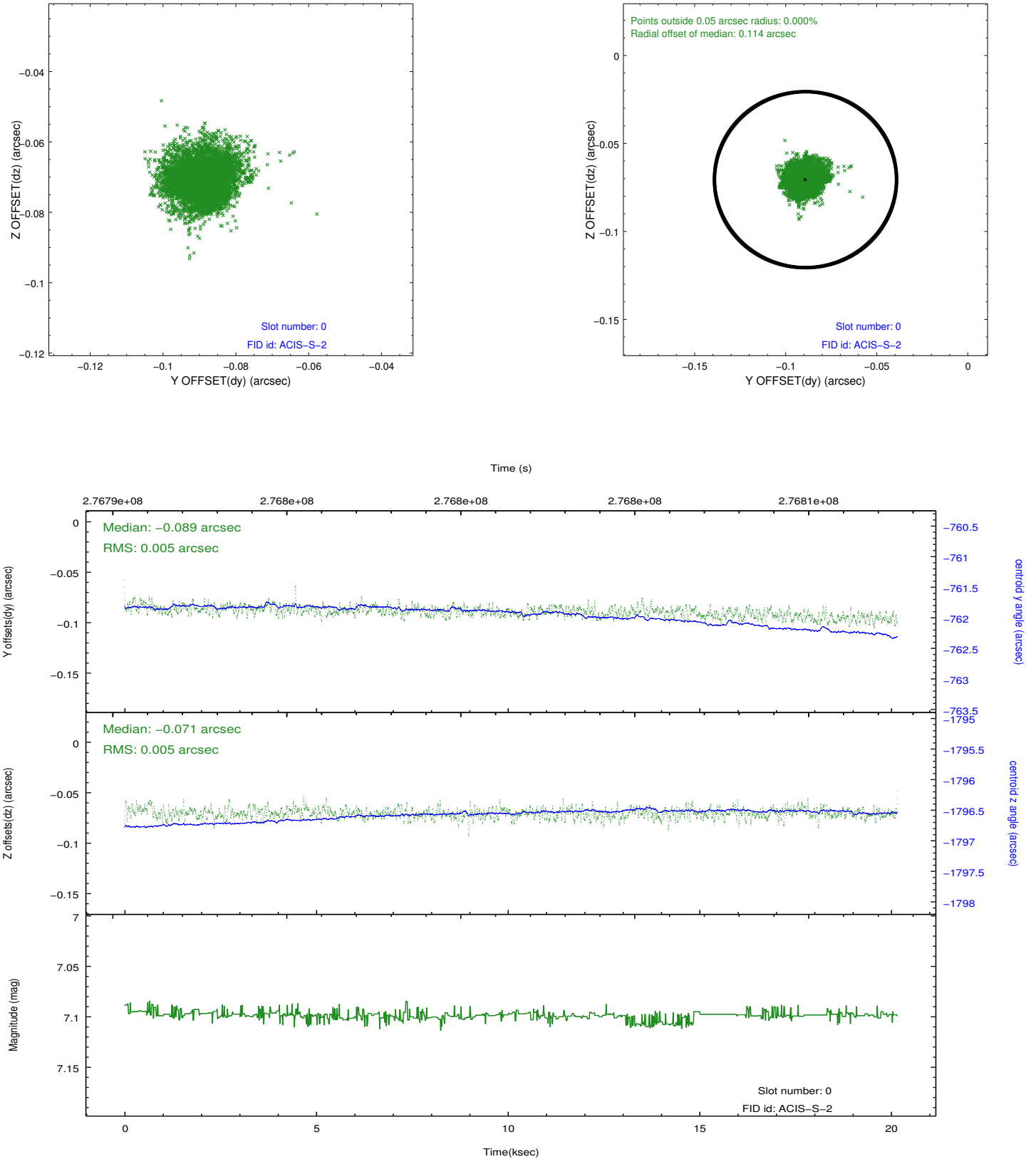


### 2.4.5 Slot 7

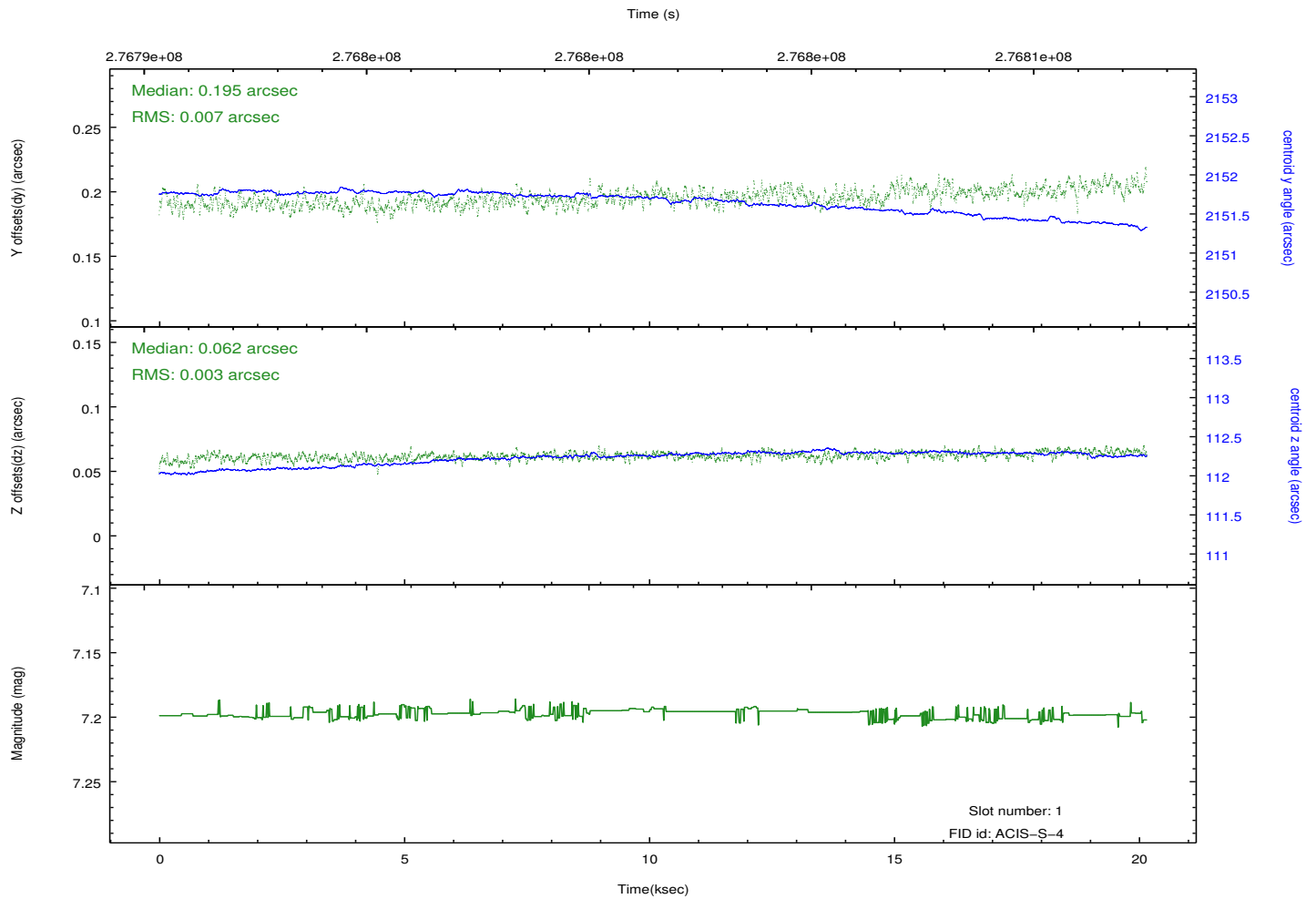
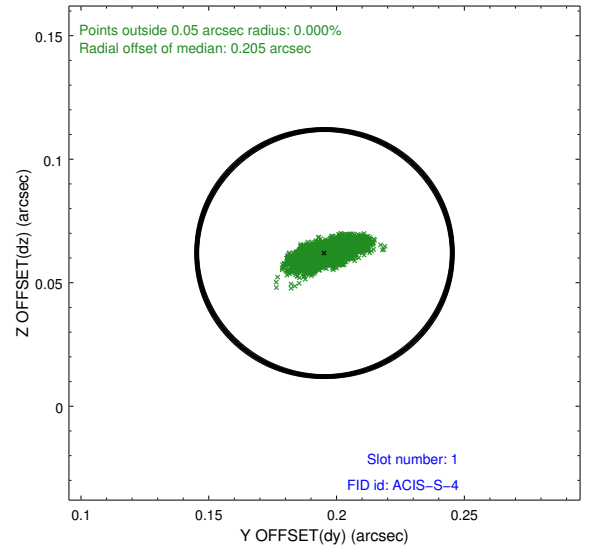
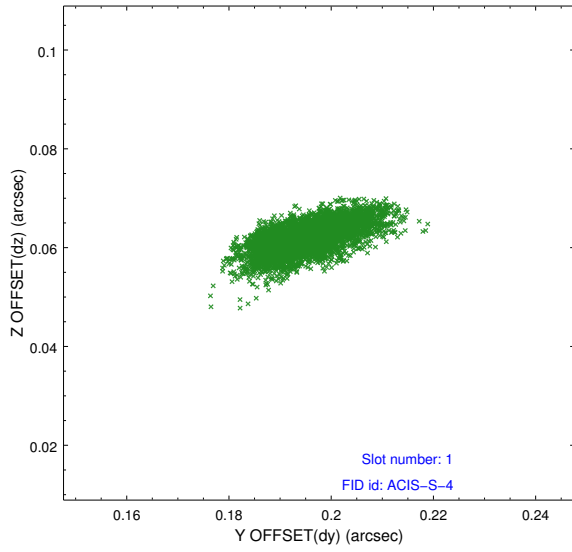


## 2.5 FID Slots

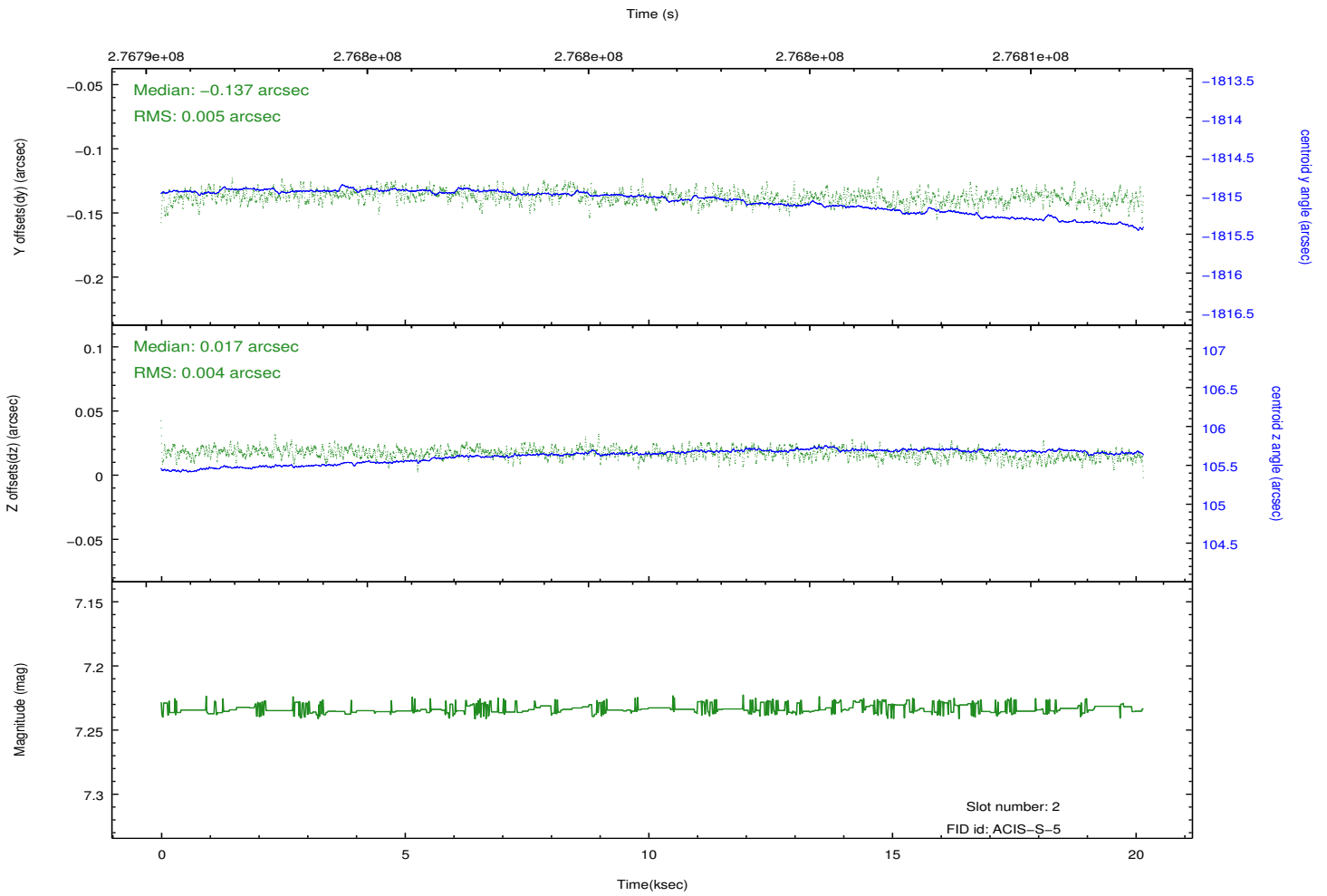
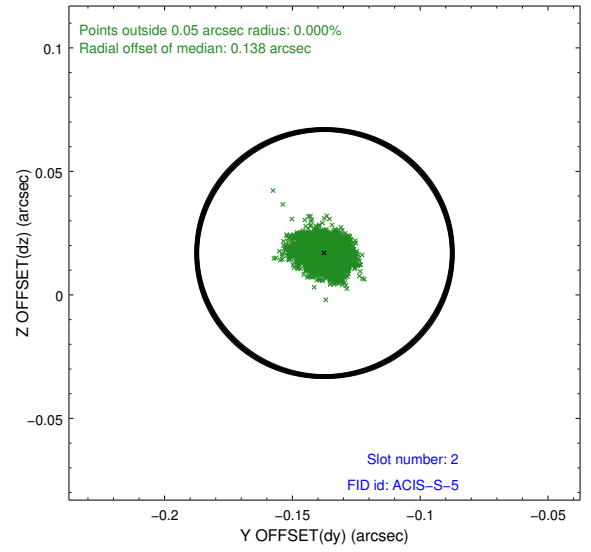
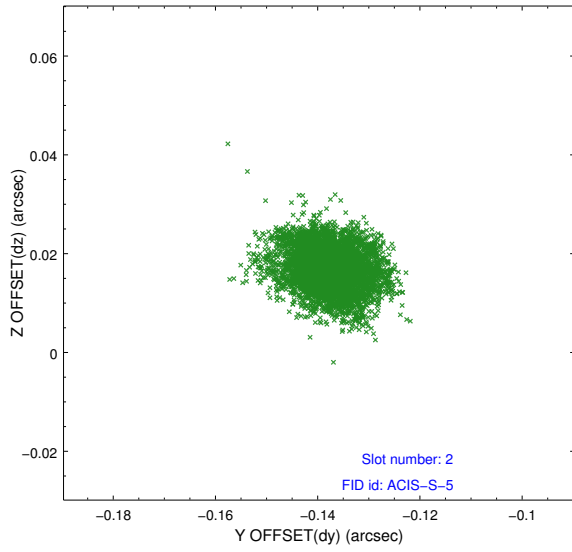
### 2.5.1 Slot 0



## 2.5.2 Slot 1

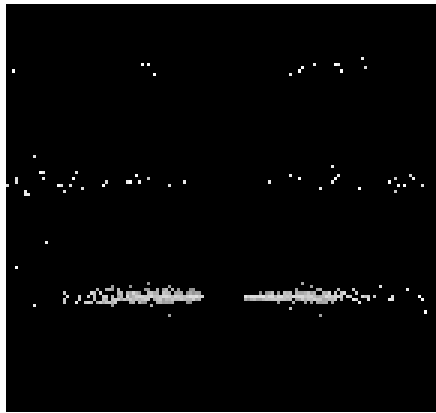


### 2.5.3 Slot 2

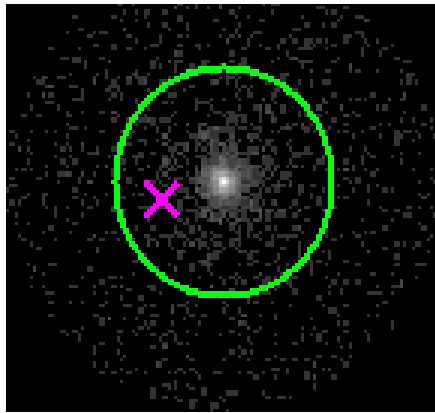


### 3 Gratings

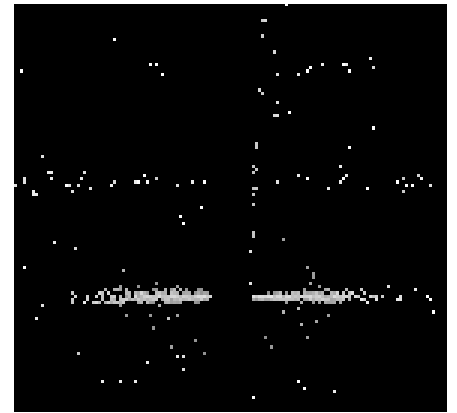
#### 3.1 HEG Arm



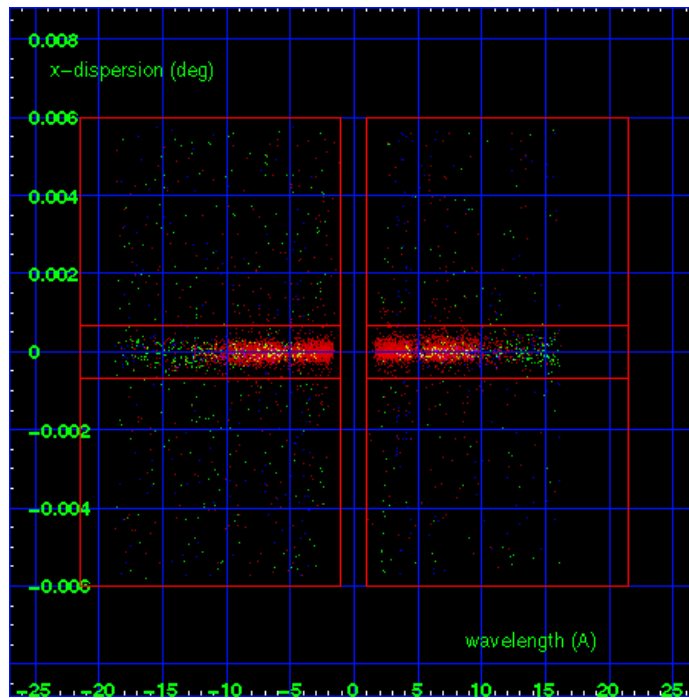
HEG Order Sort 123



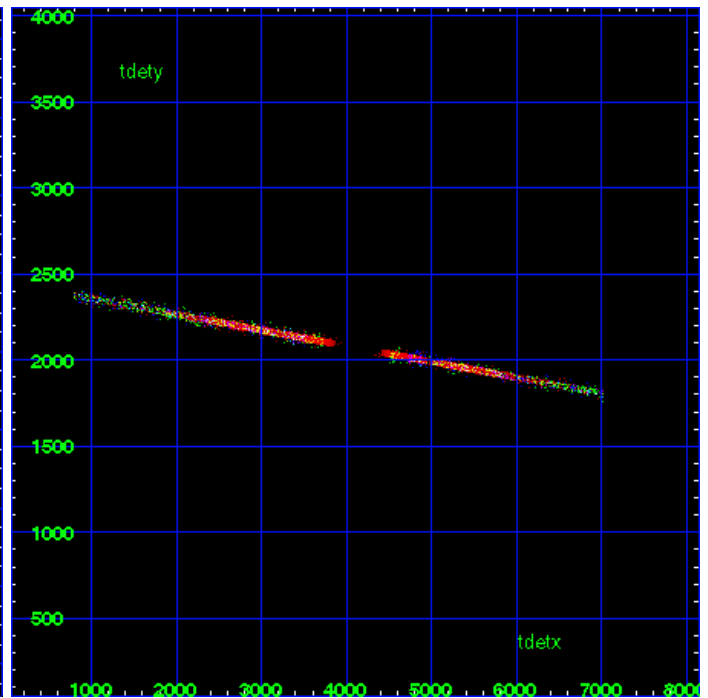
HEG Zero Order



HEG Order Sort ALL

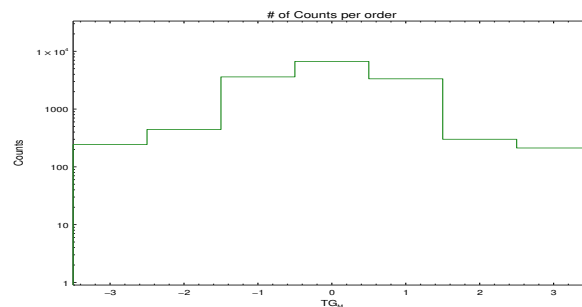


Spot Image HEG

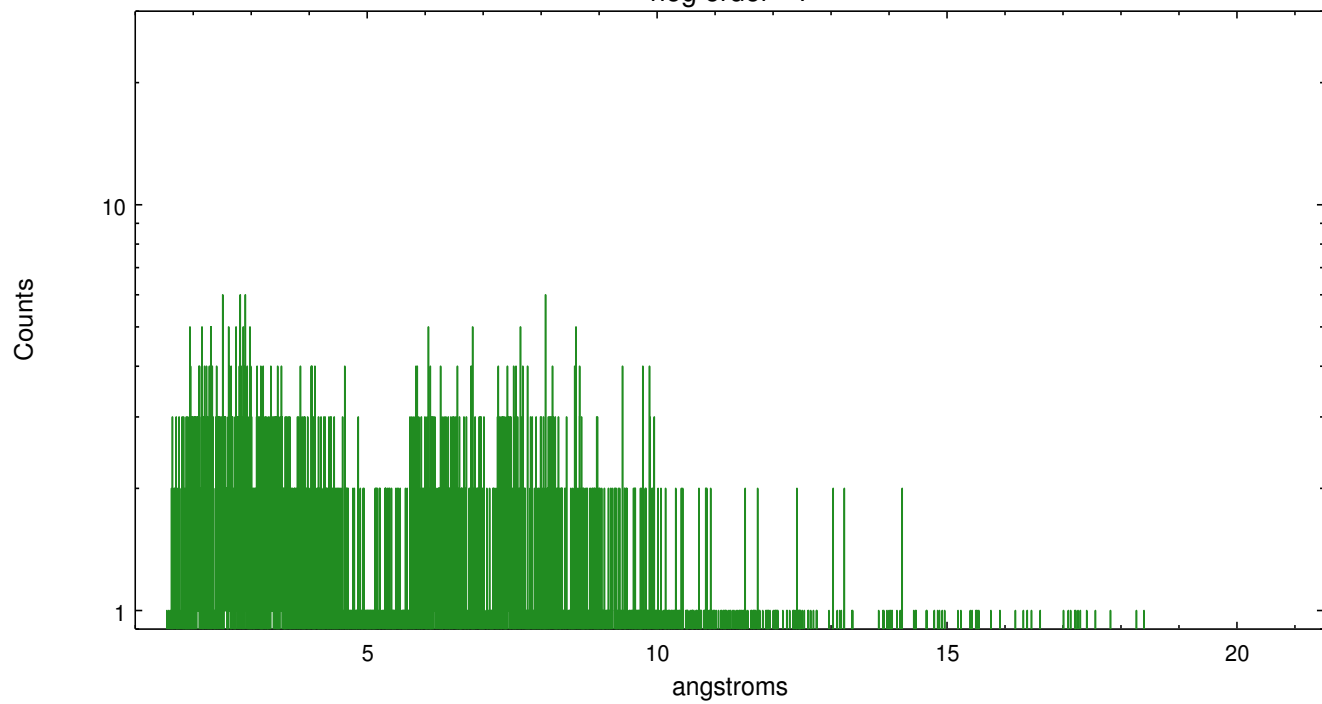


Full Detector HEG

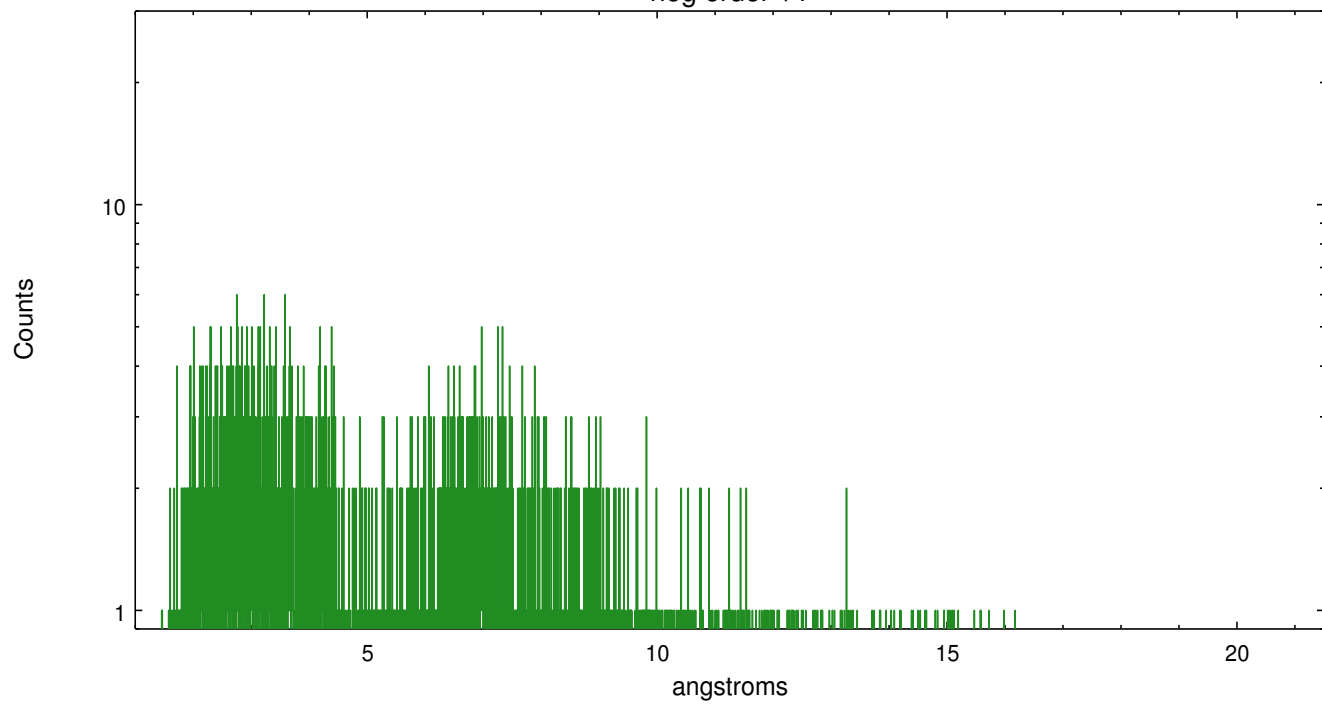
|        | order<br>-3 | order<br>-2 | order<br>-1 | order<br>0 | order<br>1 | order<br>2 | order<br>3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 243         | 443         | 3606        | 6677       | 3341       | 300        | 212        |



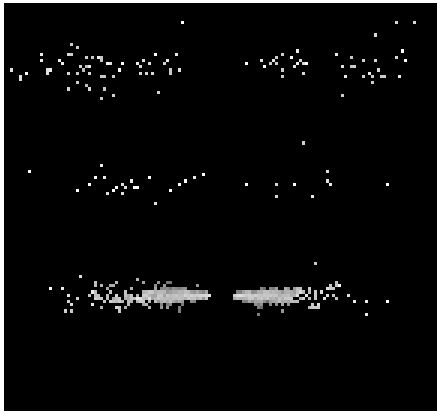
heg order -1



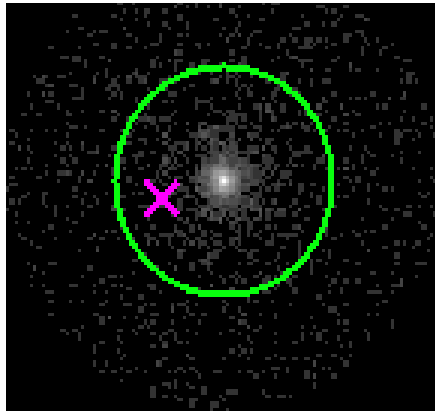
heg order +1



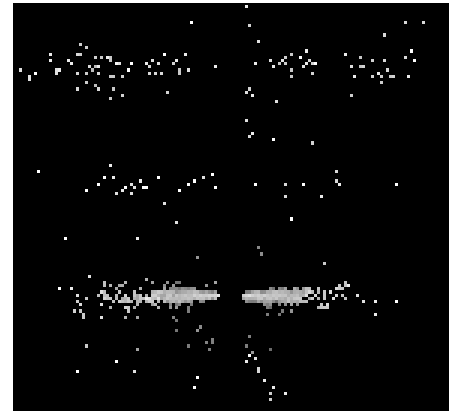
### 3.2 MEG Arm



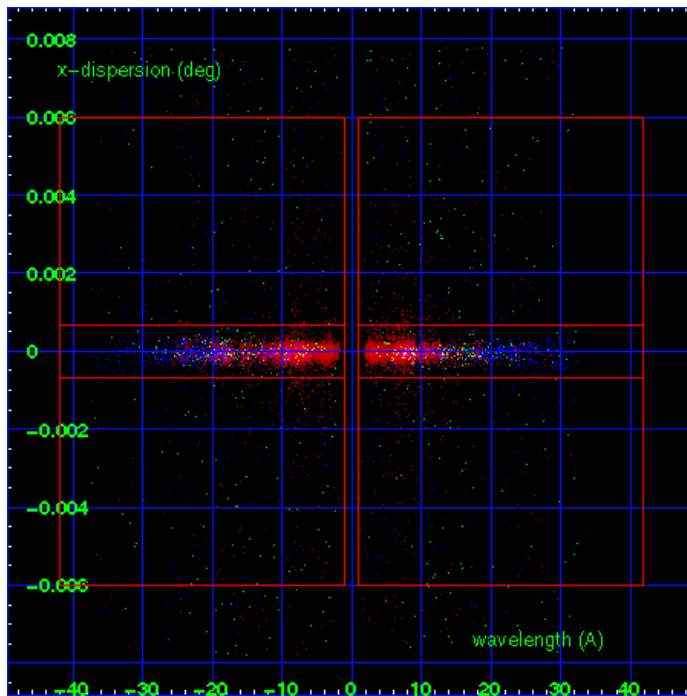
MEG Order Sort 123



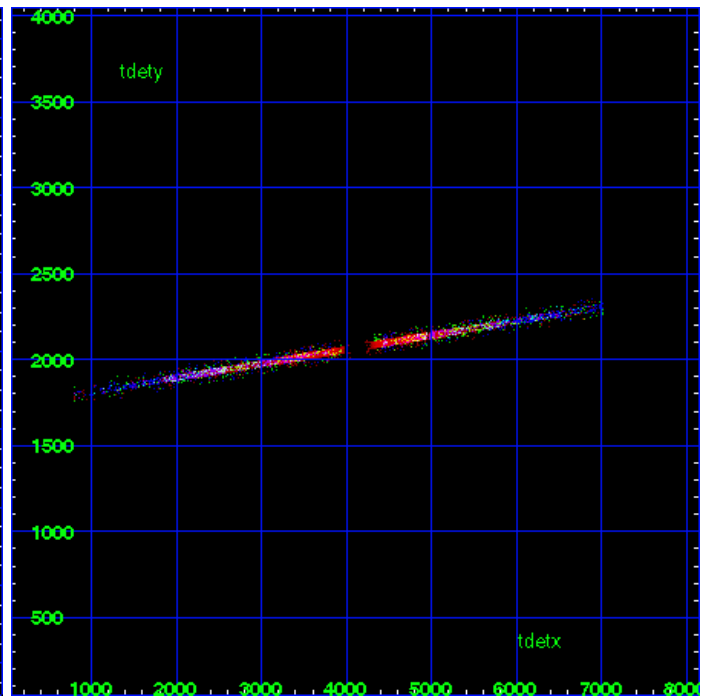
MEG Zero Order



MEG Order Sort ALL

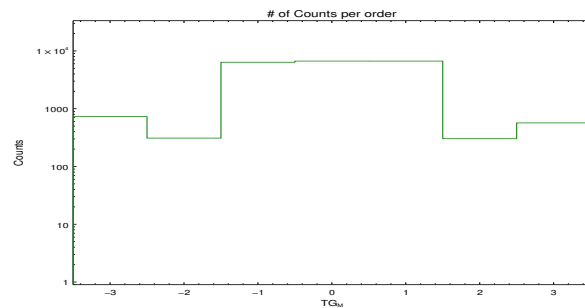


Spot Image MEG

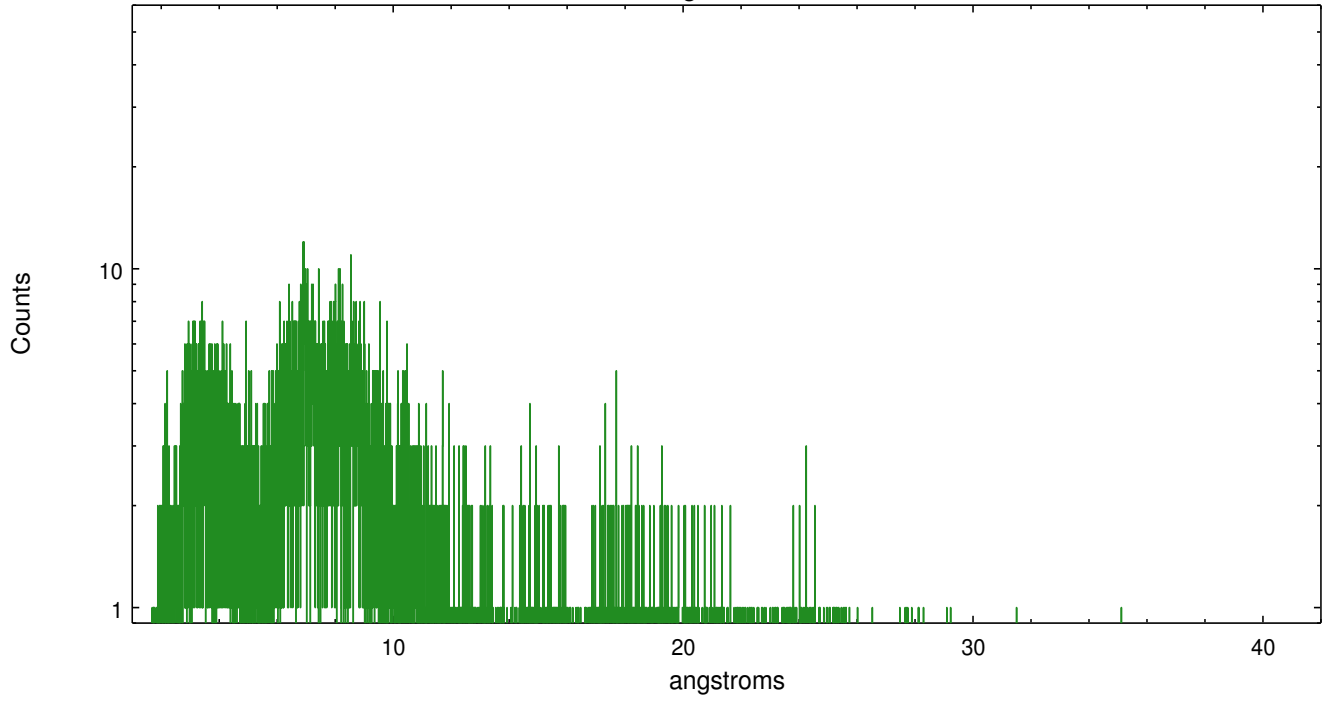


Full Detector MEG

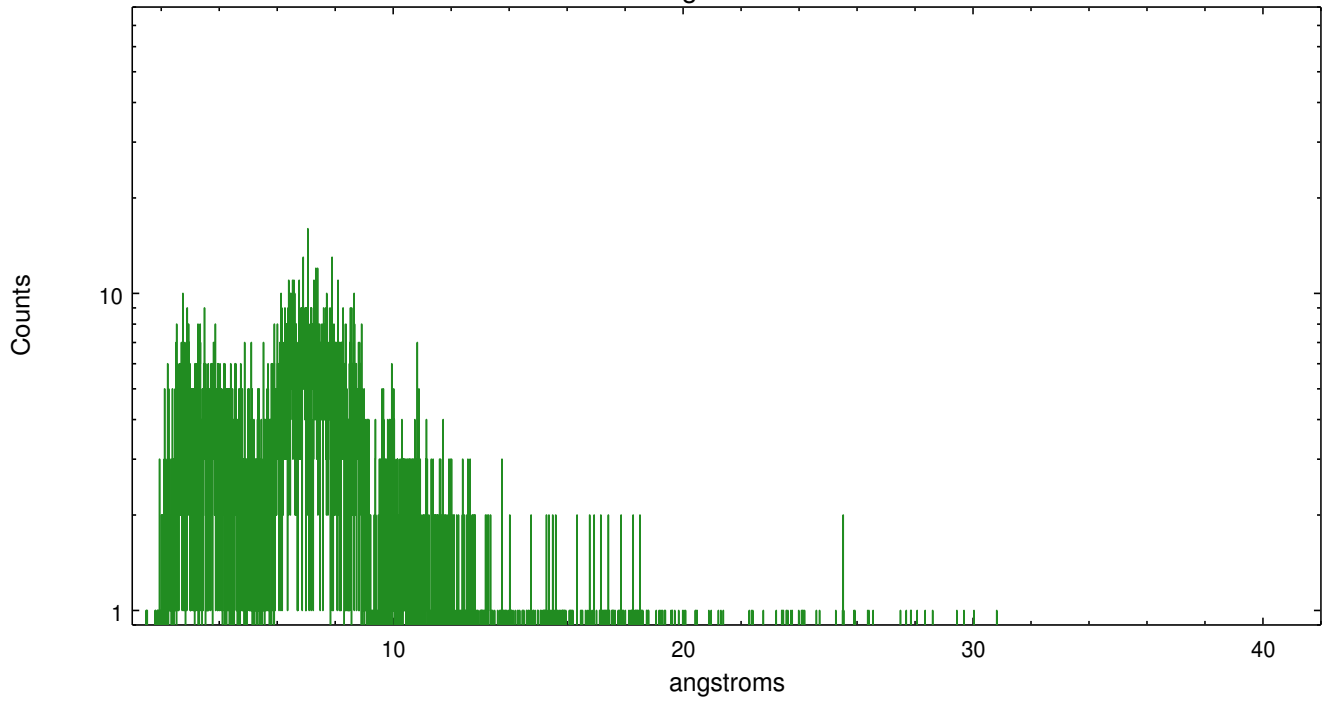
|        | order<br>-3 | order<br>-2 | order<br>-1 | order<br>0 | order<br>1 | order<br>2 | order<br>3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 730         | 310         | 6369        | 6677       | 6670       | 303        | 568        |



meg order -1



meg order +1



## A Summary

### A.1 Status

|                            |             |
|----------------------------|-------------|
| V&V Scientist              | Joy Nichols |
| V&V Date (YYYY-MM-DD)      | 2012.04.11  |
| V&V Edition                | 1           |
| V&V Disposition and Status | OK          |
| V&V Charge Time            | 20.1575     |

### A.2 Comments