

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 12127 - L2 Version 2
Chandra X-Ray Center

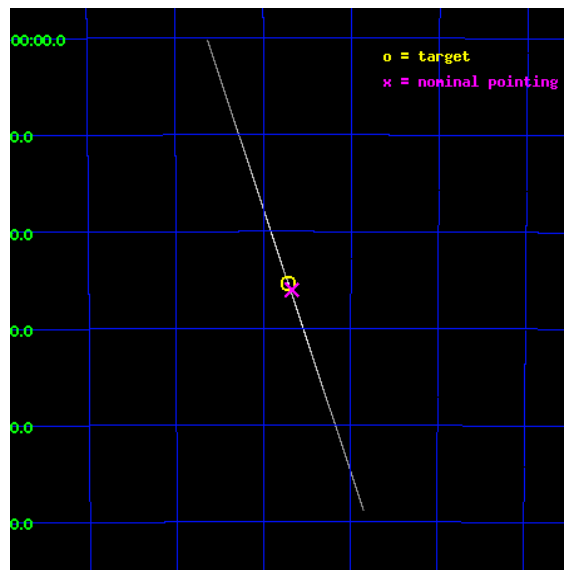
L2 Processing Date : Jun 22 2012

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1 Front

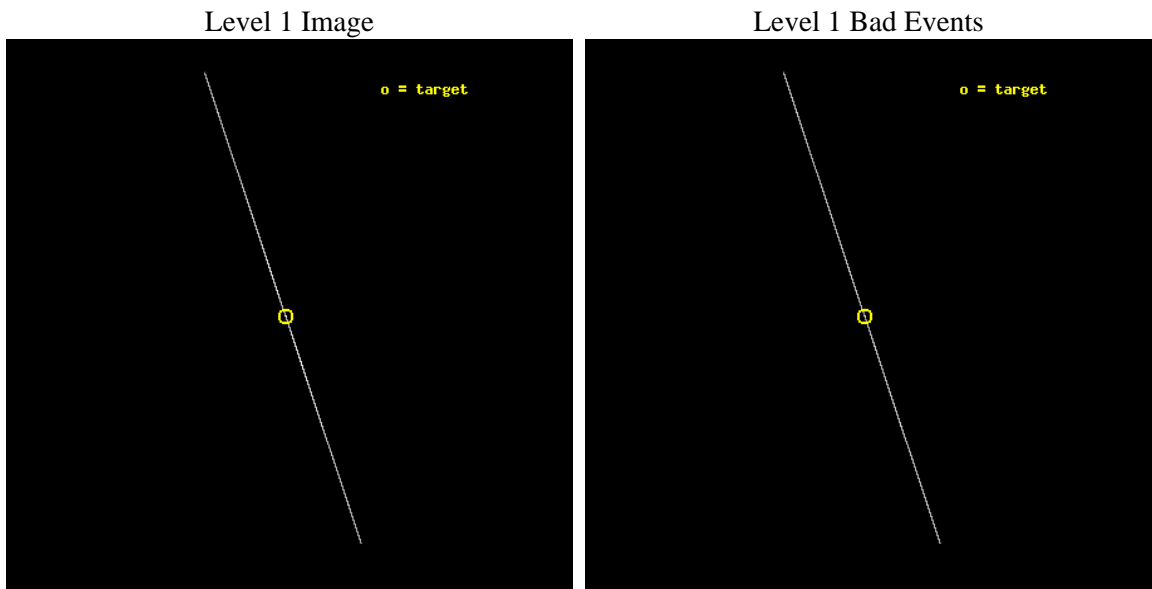
| | | |
|----------|--|---------------------------------------|
| seq_num | 401138 | Sequence number |
| obs_id | 12127 | Observation id |
| title | X-ray Column Density Towards The Low Mass X-ray Binary 4U 1608-522 | |
| observer | Prof. Feryal Ozel | Principal investigator |
| object | 4U 1608-52 | Source name |
| ra_targ | 243.179167 | Observer's specified target RA [deg] |
| dec_targ | -52.423056 | Observer's specified target Dec [deg] |
| ra_nom | 243.16856205444 | Nominal RA [deg] |
| dec_nom | -52.434106595811 | Nominal Dec [deg] |
| roll_nom | 71.371933543482 | Nominal Roll [deg] |
| revision | 2 | Processing version of data |
| ontime | 23167.75 | Sum of GTIs [s] |
| livetime | 23077.250976562 | Livetime [s] |
| ontime4 | 23167.75 | Sum of GTIs [s] |
| ontime5 | 23167.75 | Sum of GTIs [s] |
| ontime6 | 23167.75 | Sum of GTIs [s] |
| ontime7 | 23167.75 | Sum of GTIs [s] |
| ontime8 | 23167.75 | Sum of GTIs [s] |
| ontime9 | 23167.75 | Sum of GTIs [s] |
| l2events | 3102394 | 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 | 23000.000000 | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5 | Processing system revision | ontime | 23167.75 | Sum of GTIs [s] |
| caldbver | 4.4.10 | | ontime4 | 23167.75 | Sum of GTIs [s] |
| date | 2012-06-22T18:11:42 | Date and time of file creation | ontime5 | 23167.75 | Sum of GTIs [s] |
| revision | 2 | Processing version of data | ontime6 | 23167.75 | Sum of GTIs [s] |
| | | | ontime7 | 23167.75 | Sum of GTIs [s] |
| | | | ontime8 | 23167.75 | Sum of GTIs [s] |
| | | | ontime9 | 23167.75 | Sum of GTIs [s] |
| | | | l1events | 5525052 | Number of level 1 events |

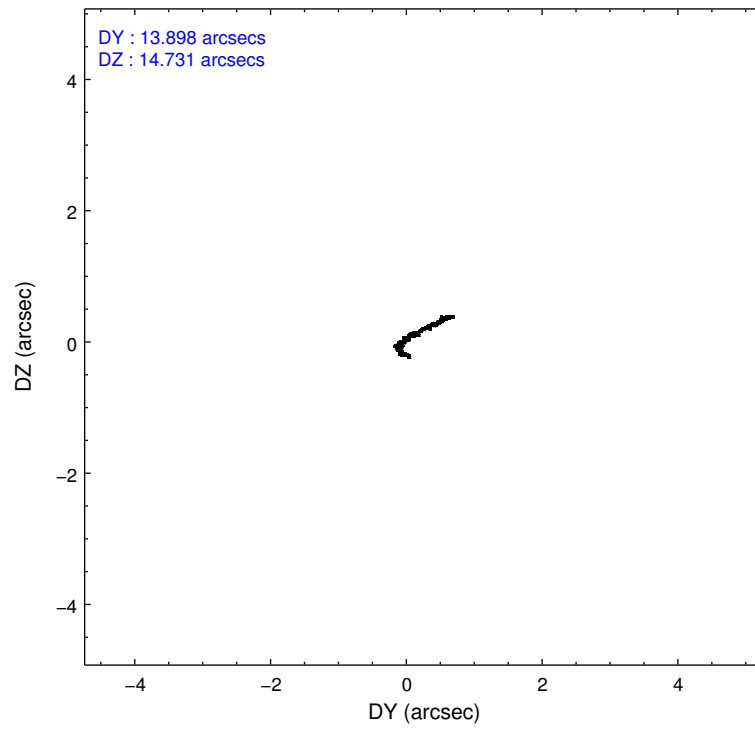
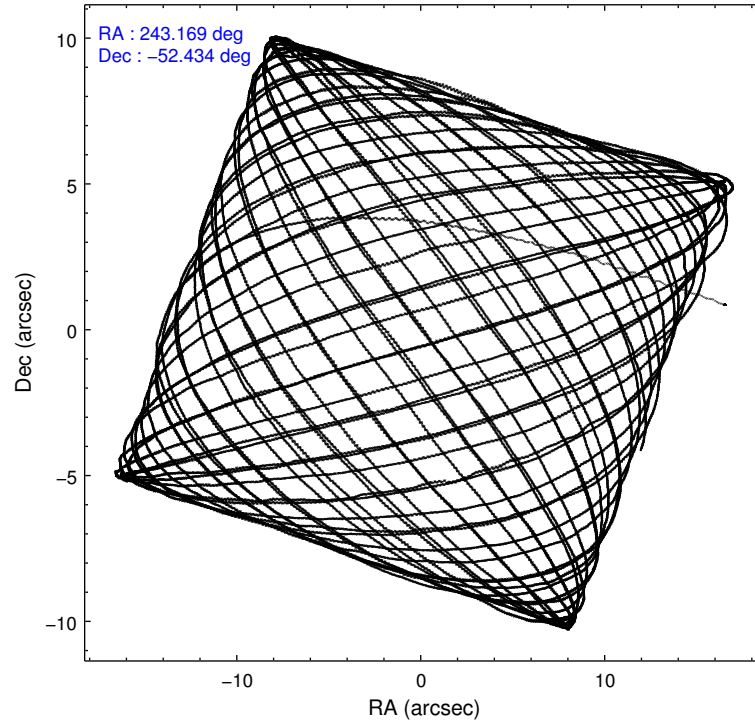
2.1.3 Events

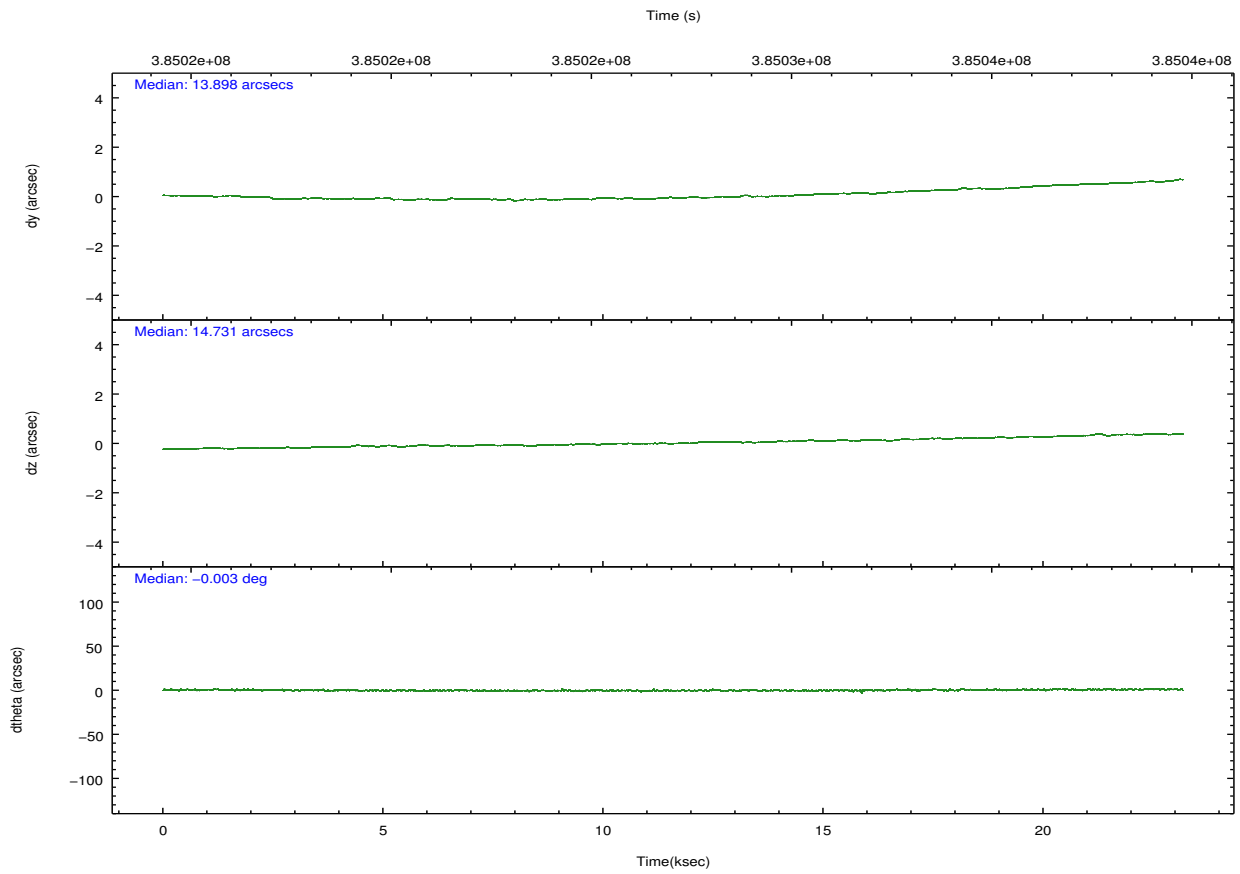
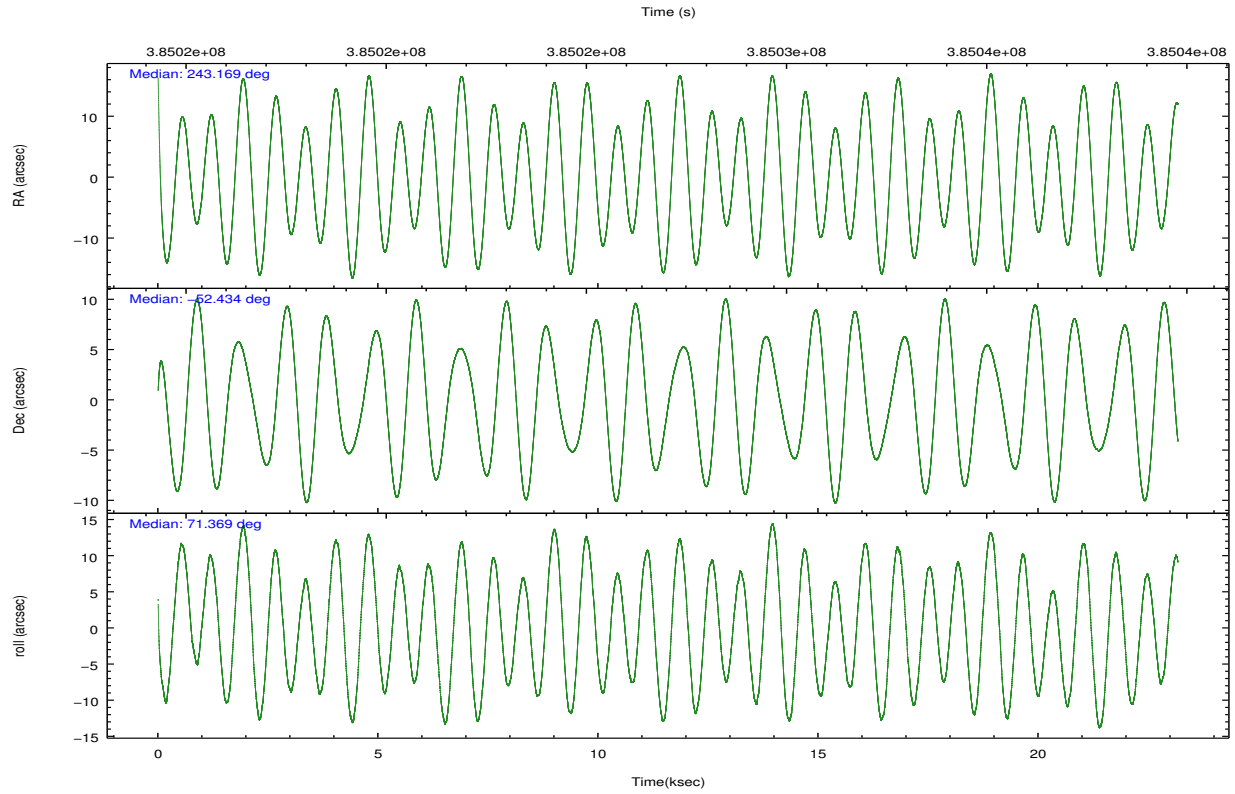
| | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 | | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|-----------------|--------|--------|---------|---------|--------|--------|----------------|--------|--------|--------|--------|--------|--------|
| level 1 events | 416810 | 660389 | 1462234 | 1733797 | 835674 | 416148 | grade 0 events | 9561 | 30838 | 35251 | 190632 | 119650 | 16815 |
| rejected events | 333679 | 289781 | 394308 | 400239 | 457818 | 320582 | | 2% | 4% | 2% | 10% | 14% | 4% |
| rejected % | 80% | 43% | 26% | 23% | 54% | 77% | grade 1 events | 125 | 280 | 209 | 1223 | 489 | 189 |
| | | | | | | | | 0% | 0% | 0% | 0% | 0% | 0% |
| | | | | | | | grade 2 events | 53676 | 174968 | 915648 | 460119 | 196677 | 57552 |
| | | | | | | | | 12% | 26% | 62% | 26% | 23% | 13% |
| | | | | | | | grade 3 events | 5104 | 9130 | 6261 | 93640 | 14680 | 4822 |
| | | | | | | | | 1% | 1% | 0% | 5% | 1% | 1% |
| | | | | | | | grade 4 events | 5158 | 8958 | 5945 | 92280 | 14370 | 5336 |
| | | | | | | | | 1% | 1% | 0% | 5% | 1% | 1% |
| | | | | | | | grade 5 events | 7511 | 18372 | 13369 | 35326 | 13612 | 9159 |
| | | | | | | | | 1% | 2% | 0% | 2% | 1% | 2% |
| | | | | | | | grade 6 events | 10900 | 154340 | 112943 | 508142 | 37626 | 12489 |
| | | | | | | | | 2% | 23% | 7% | 29% | 4% | 3% |
| | | | | | | | grade 7 events | 324775 | 263503 | 372608 | 352435 | 438570 | 309786 |
| | | | | | | | | 77% | 39% | 25% | 20% | 52% | 74% |

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 | CC33_GRADED | CC33_GRADED | Number of optional ACIS chips dropped | 0 | 0 |
| Observation mode | POINTING | POINTING | On-chip summing requested | N | N |
| [deg] Pointing RA | 243.178020 | 243.1685620544358 | Subarray requested | NONE | NONE |
| [deg] Pointing Dec | -52.460848 | -52.43410659581114 | Alternating exposures requested | N | N |
| [deg] Pointing Roll | 71.222808 | 71.37193354348238 | [s] Primary exposure time | 0.000000 | 0 |
| [mm] SIM focus pos | -0.684267 | -0.6828225247311905 | | | |
| [mm] SIM defocus | 0 | 0.001444936568705701 | | | |
| [mm] SIM translation stage pos | -186.132523 | -186.1423047203915 | | | |
| [mm] SIM translation stage offset | -4 | -3.990217862616333 | | | |
| [s] Observation start time (MET) | 385015635.184000 | 385014688.96955 | | | |
| Observation start date | 2010-03-15T04:46:09 | 2010-03-15T04:31:28 | | | |
| [s] Observation end time (MET) | 385038635.184000 | 385040054.13334 | | | |
| Observation end date | 2010-03-15T11:09:29 | 2010-03-15T11:34:14 | | | |
| Read mode | CONTINUOUS | CONTINUOUS | | | |

2.3 Aspect



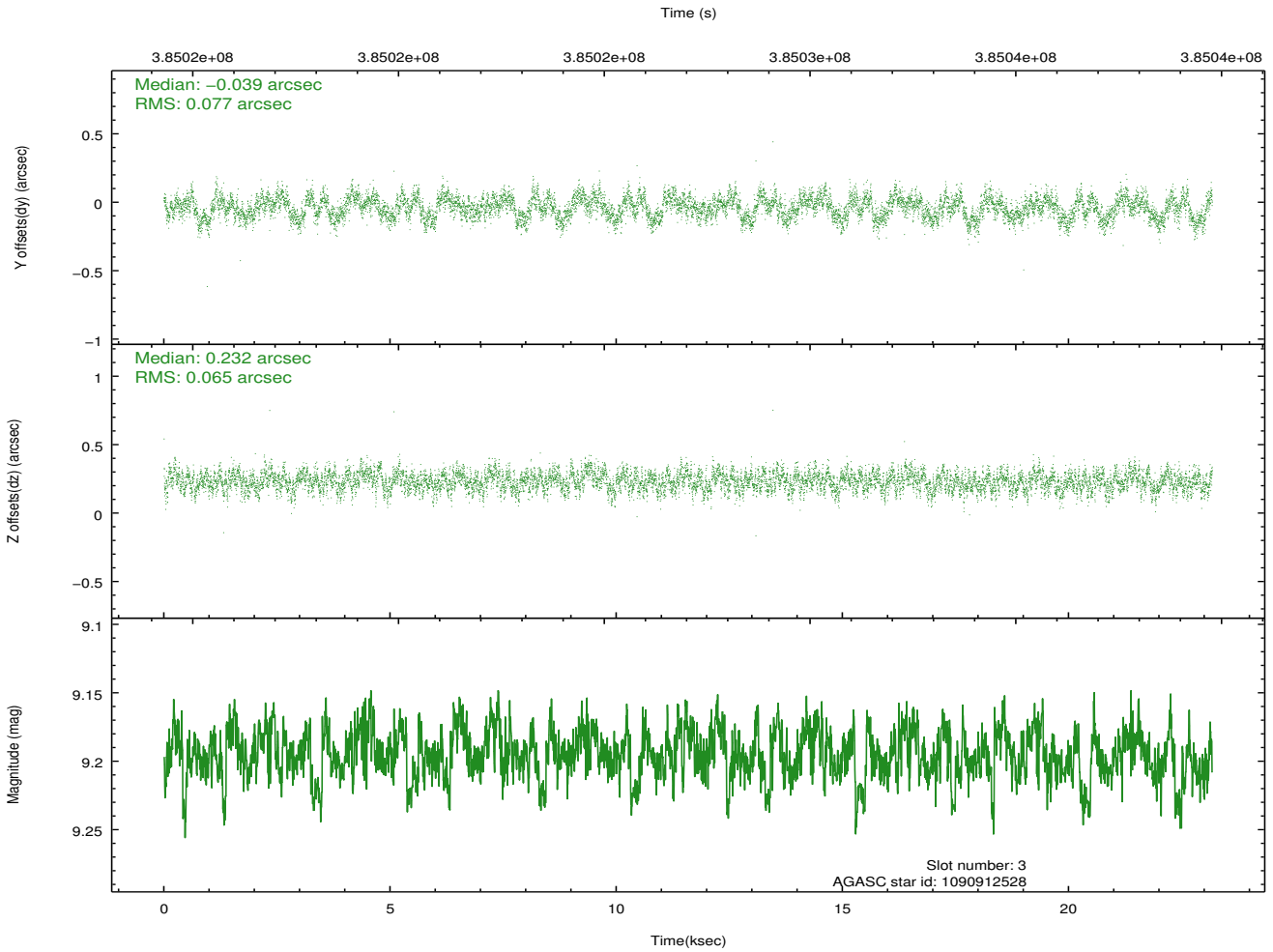
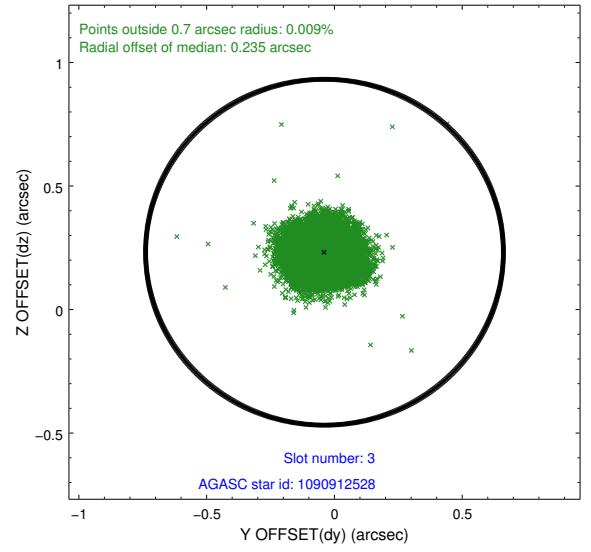
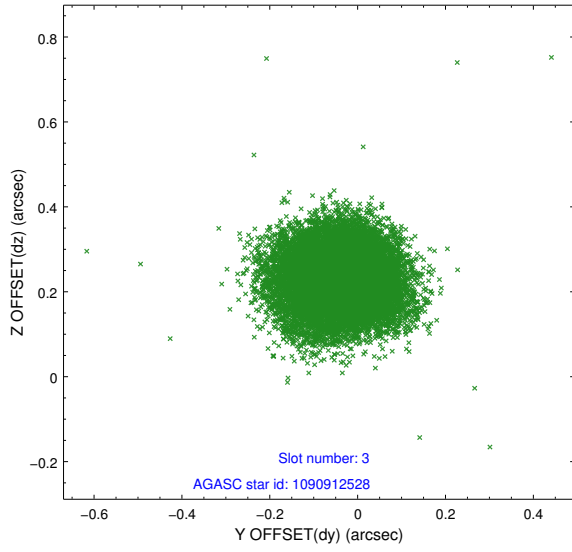


Slot Statistics

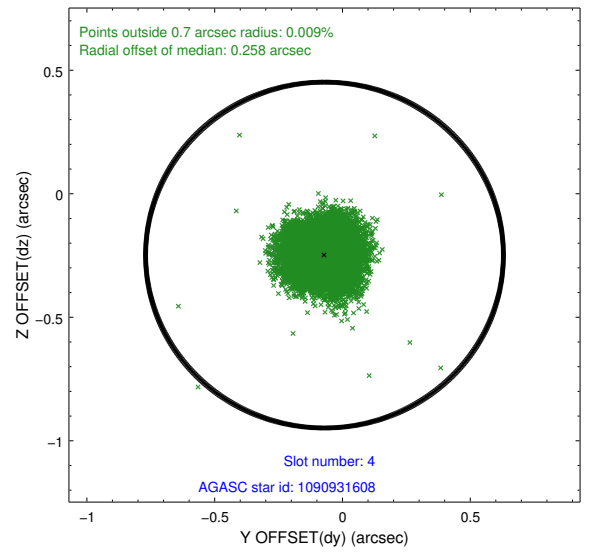
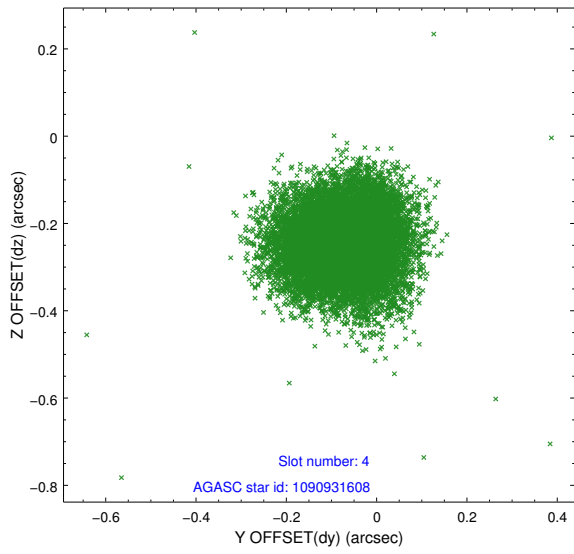
| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|------------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0 | FID | ACIS-S-2 | 6.92 | 5652 | -0.125 | -0.076 | 0.009 | 0.017 | 0.000000 | 0.000000 | -766.81 | -1818.52 |
| 1 | FID | ACIS-S-4 | 7.00 | 5652 | 0.133 | 0.070 | 0.010 | 0.016 | 0.000000 | 0.000000 | 2146.69 | 89.89 |
| 2 | FID | ACIS-S-6 | 7.18 | 5652 | -0.037 | 0.012 | 0.011 | 0.019 | 0.000000 | 0.000000 | 395.48 | 727.41 |
| 3 | GUIDE | 1090912528 | 9.20 | 11297 | -0.039 | 0.232 | 0.108 | 0.167 | 243.442083 | -52.189044 | 1113.19 | -236.82 |
| 4 | GUIDE | 1090931608 | 9.29 | 11259 | -0.070 | -0.248 | 0.110 | 0.173 | 243.085233 | -52.161901 | 953.08 | 540.20 |
| 5 | GUIDE | 1141642808 | 8.92 | 11273 | 0.201 | -0.465 | 0.076 | 0.125 | 242.344762 | -52.759774 | -1612.68 | 1368.48 |
| 6 | GUIDE | 1141772104 | 6.06 | 11305 | -0.350 | 0.319 | 0.044 | 0.070 | 244.177019 | -52.603809 | 201.30 | -2237.89 |
| 7 | GUIDE | 1141780184 | 9.22 | 11288 | 0.262 | 0.160 | 0.103 | 0.160 | 243.729951 | -53.133685 | -1913.37 | -1909.93 |

2.4 Star Slots

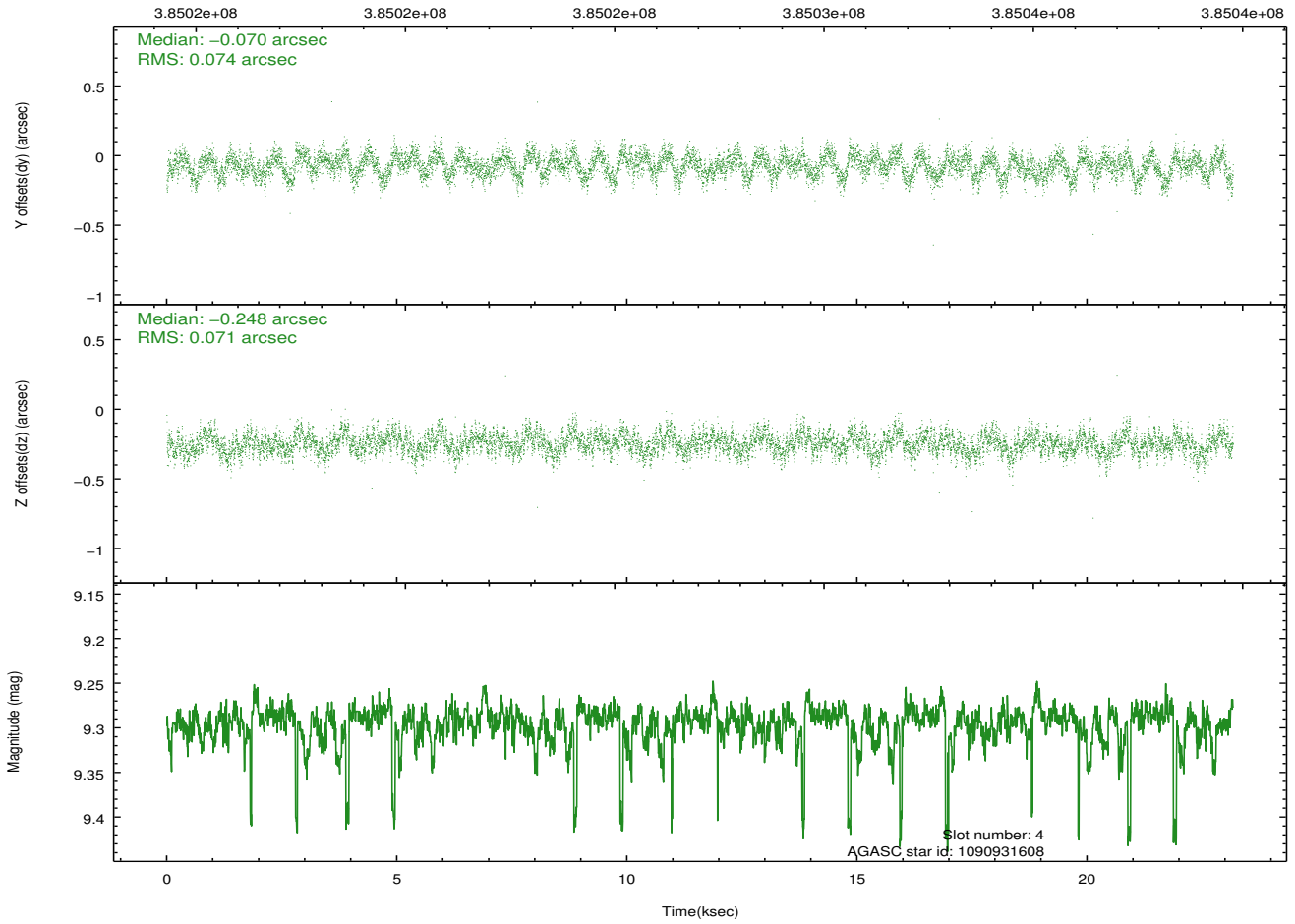
2.4.1 Slot 3



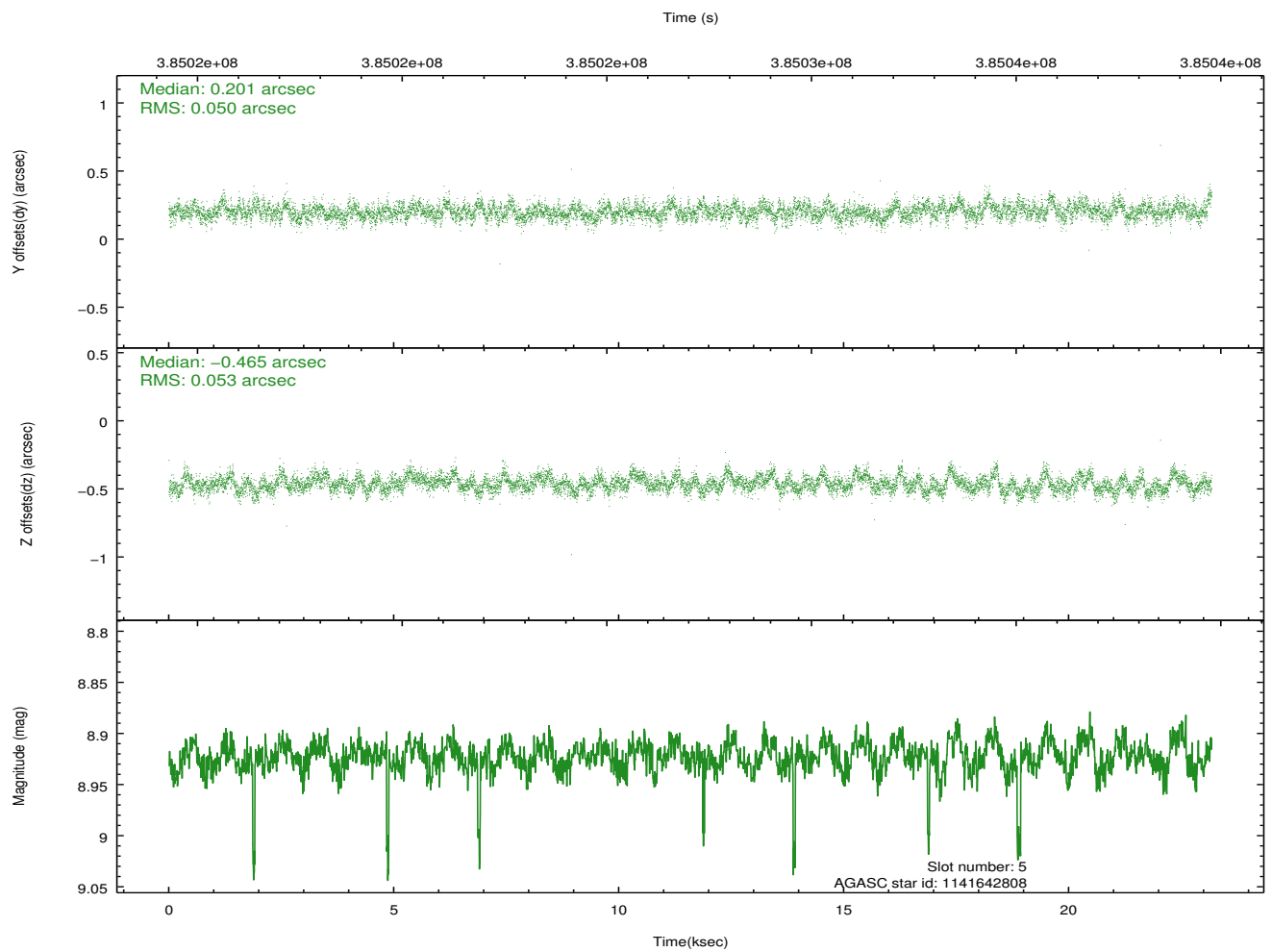
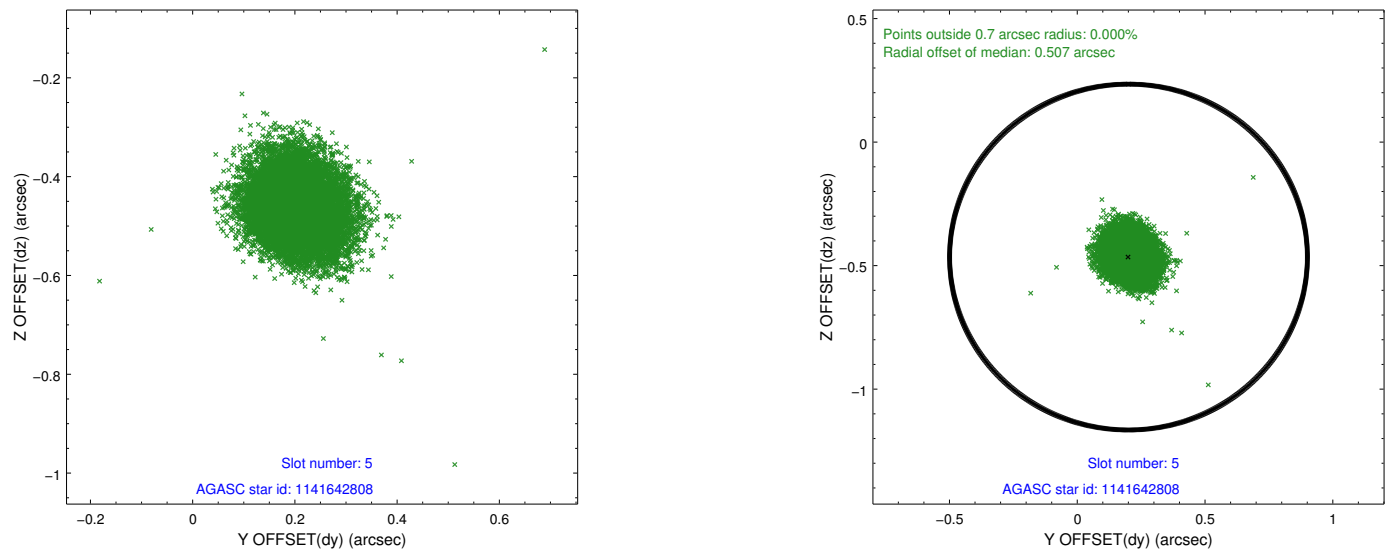
2.4.2 Slot 4



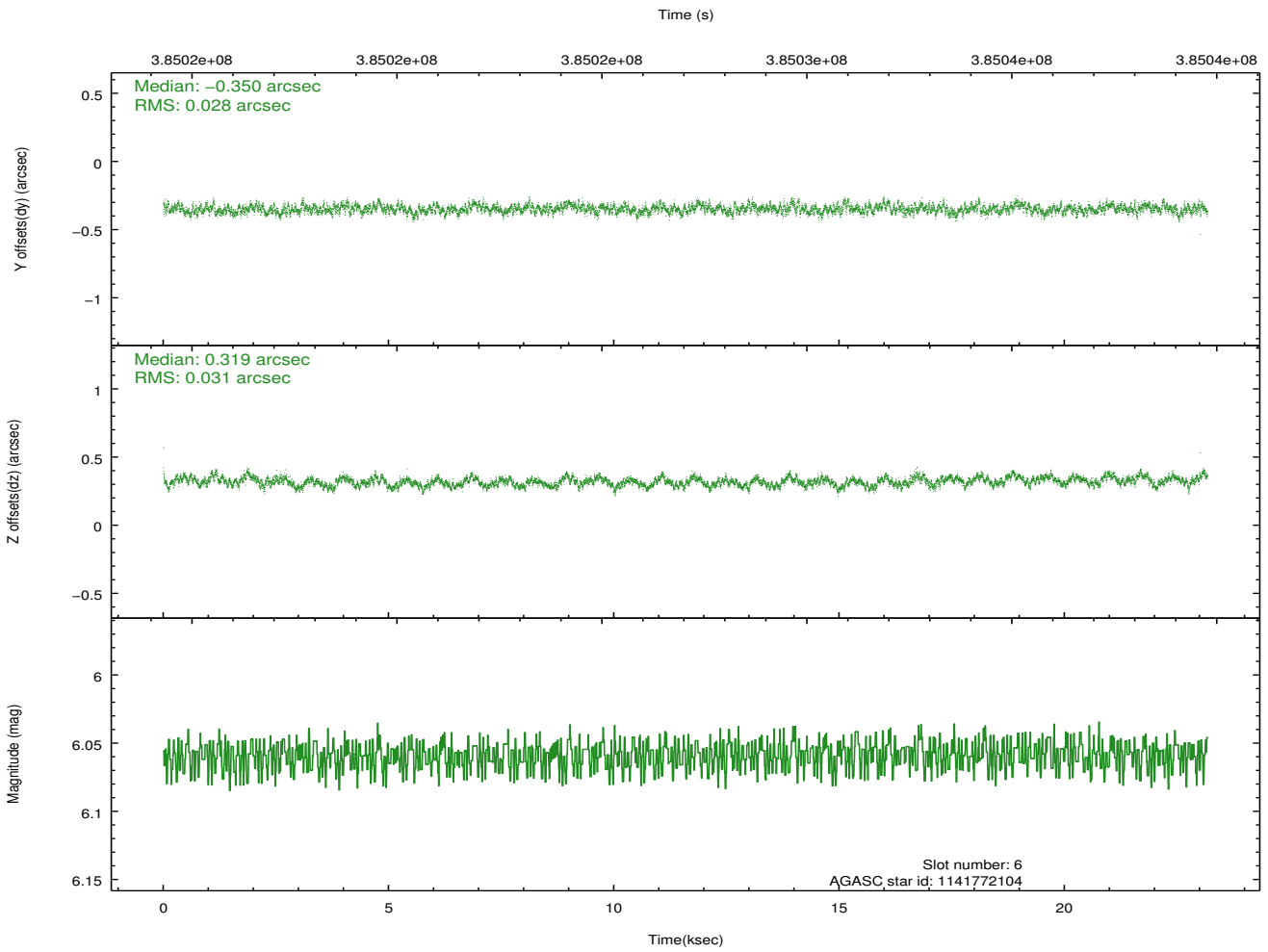
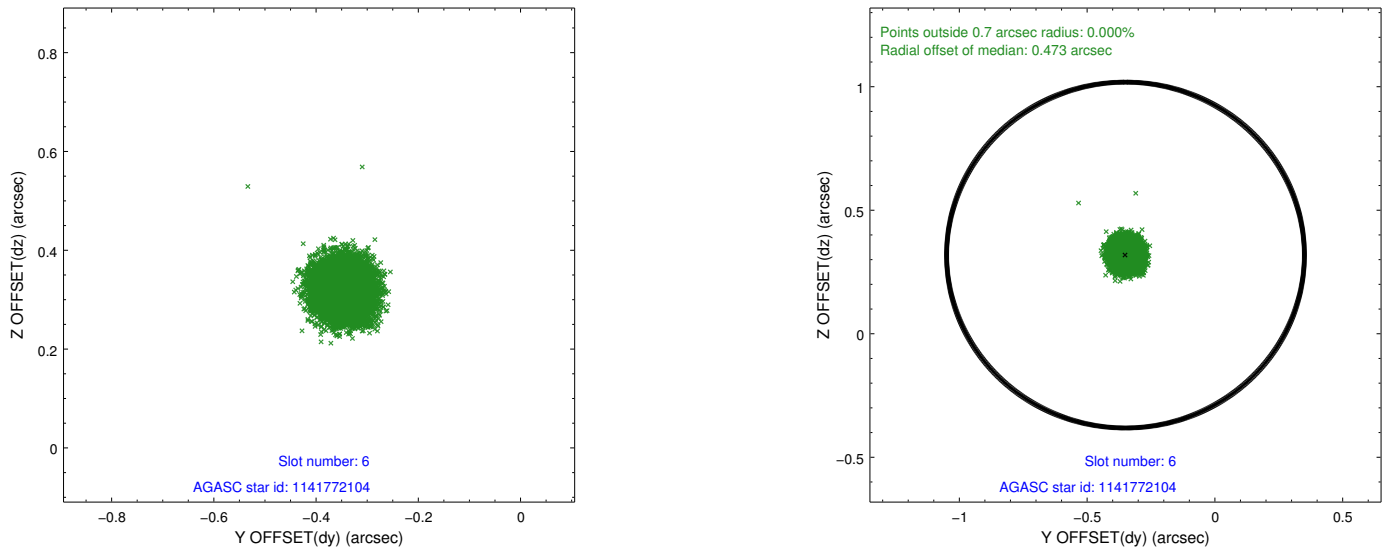
Time (s)



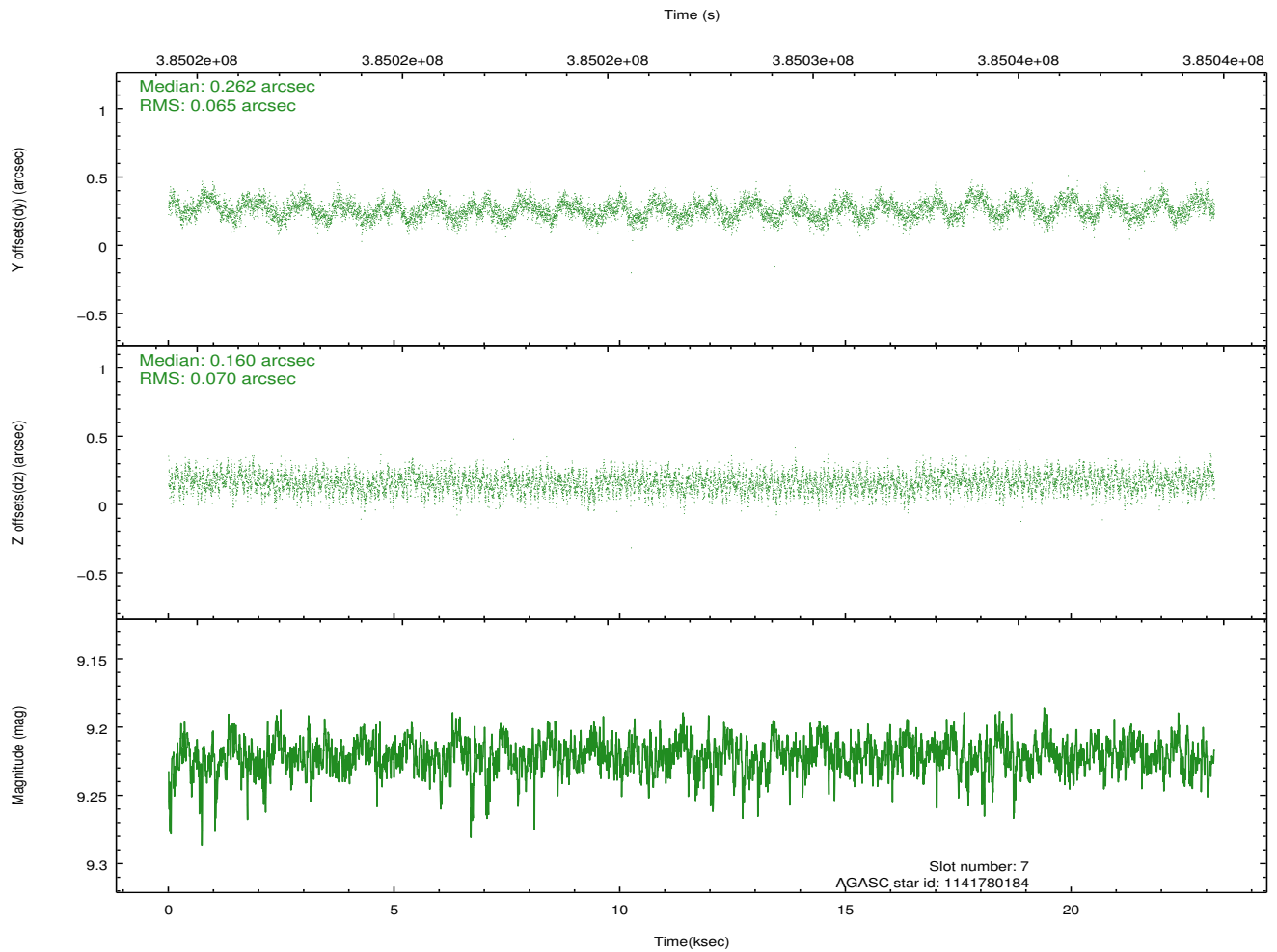
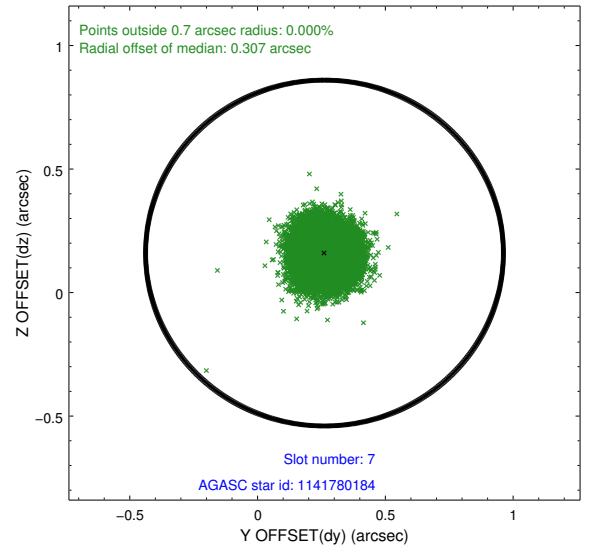
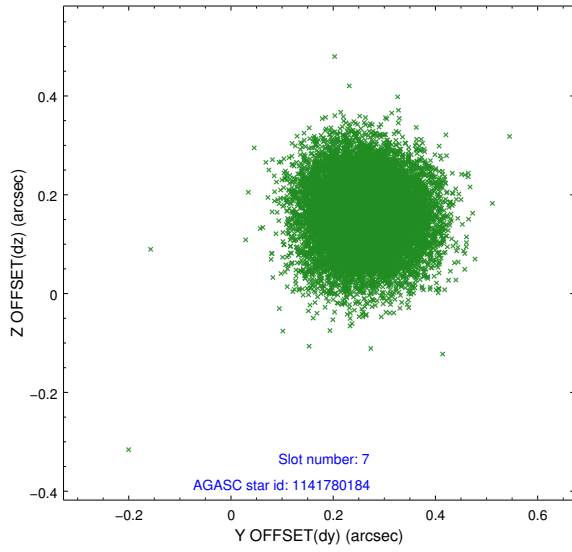
2.4.3 Slot 5



2.4.4 Slot 6

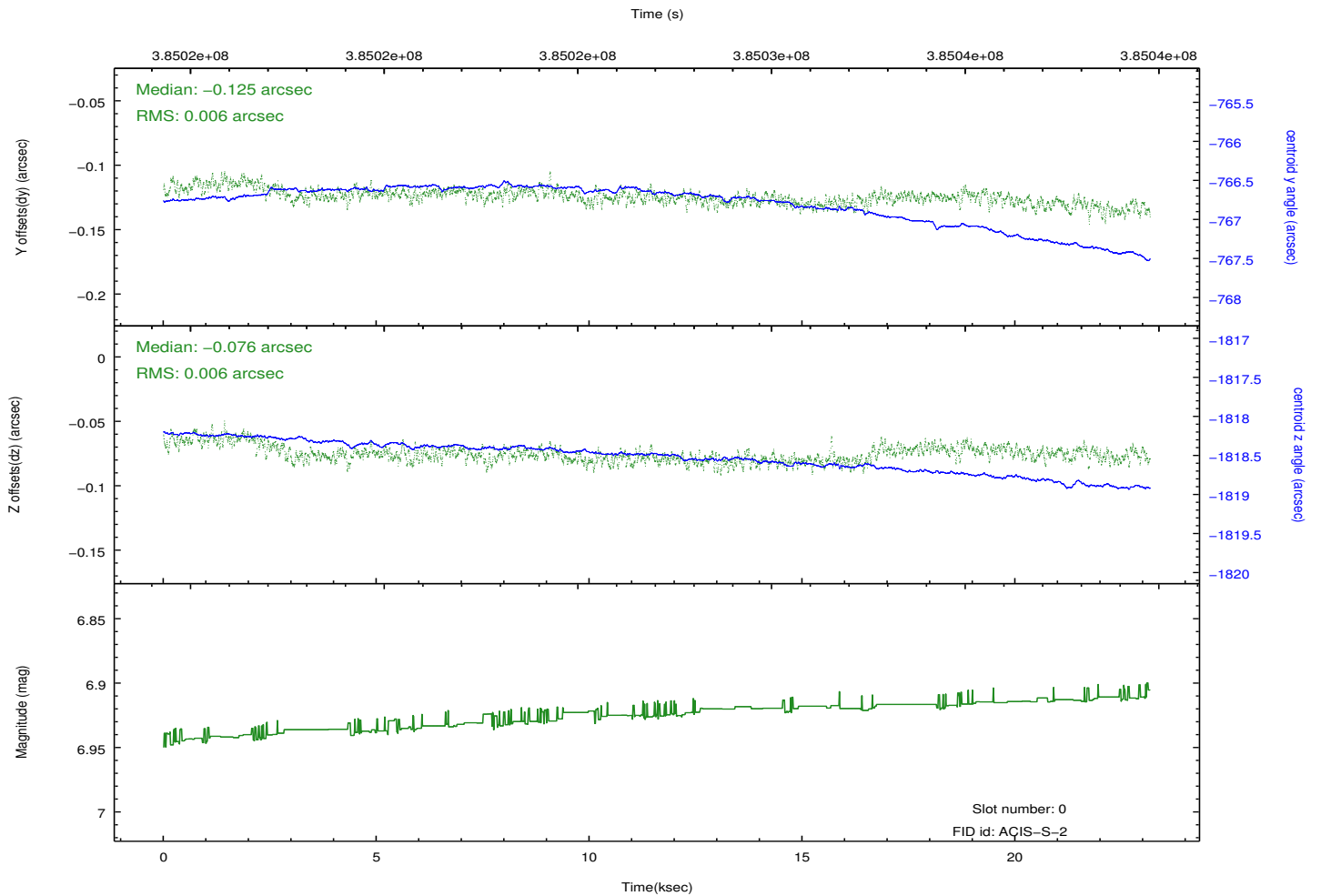
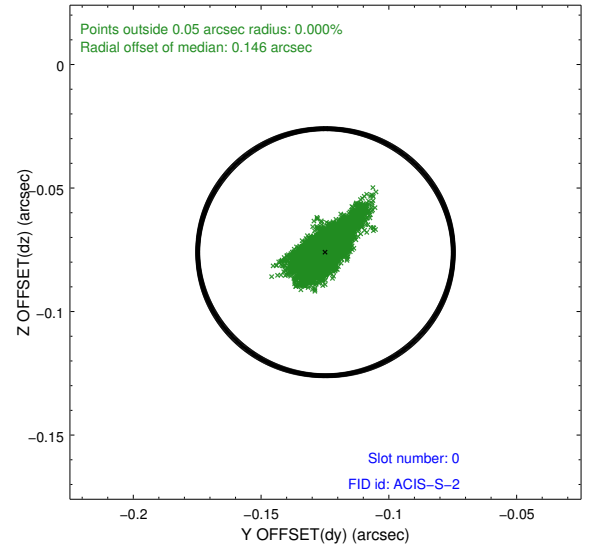
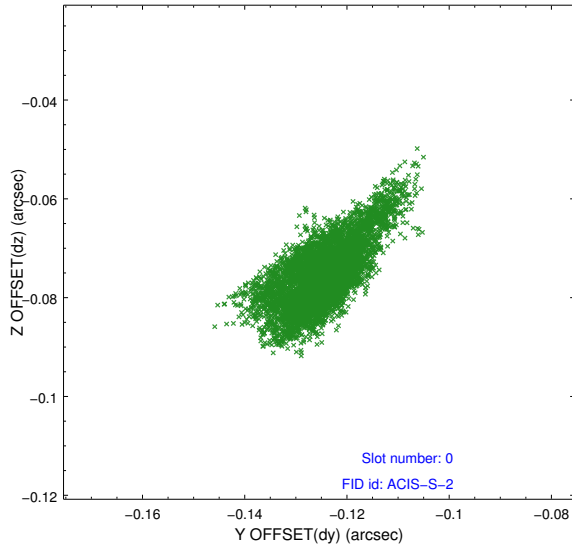


2.4.5 Slot 7

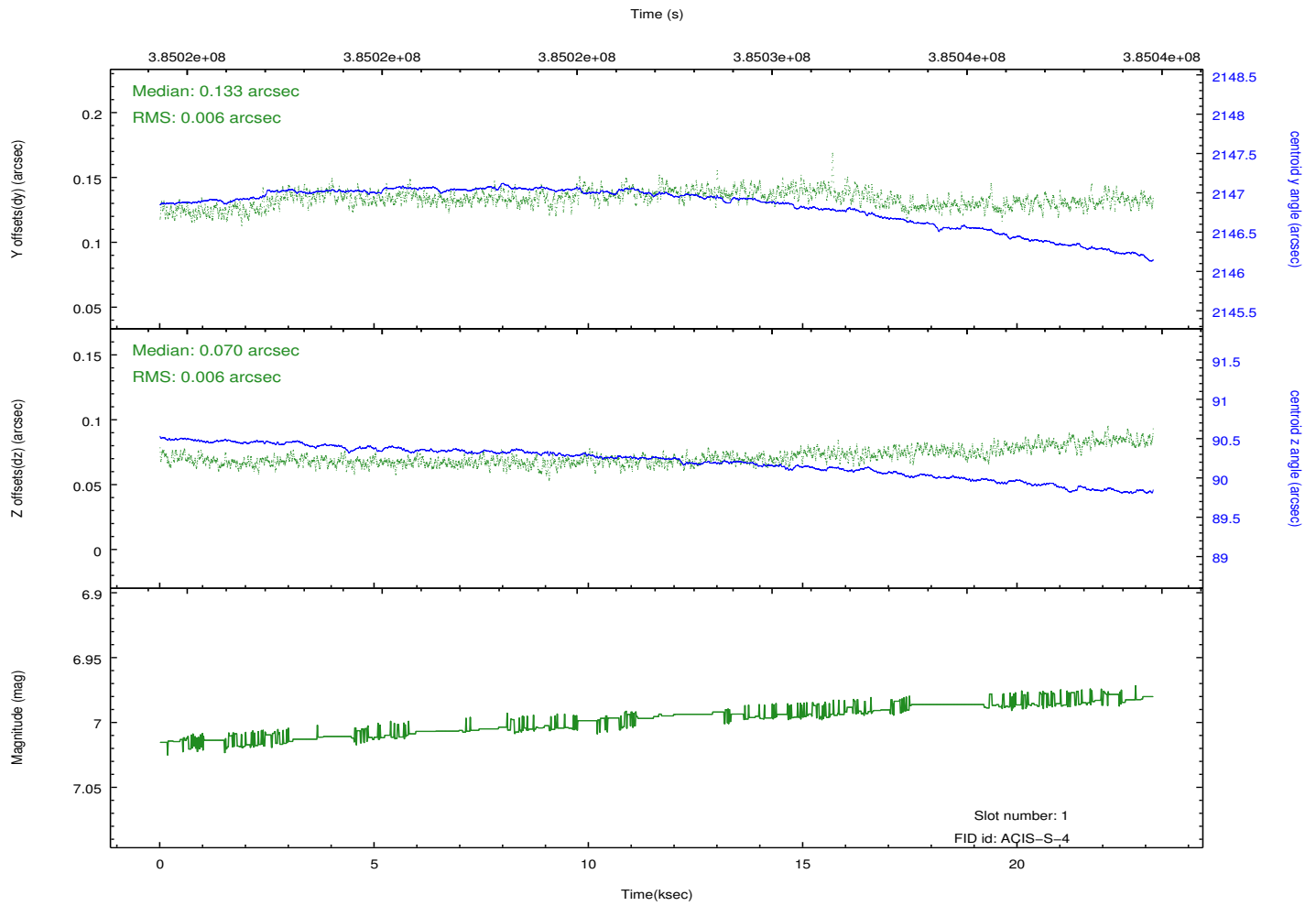
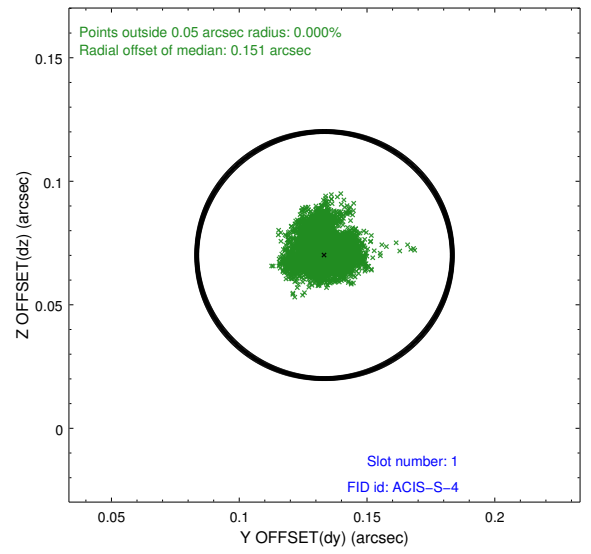
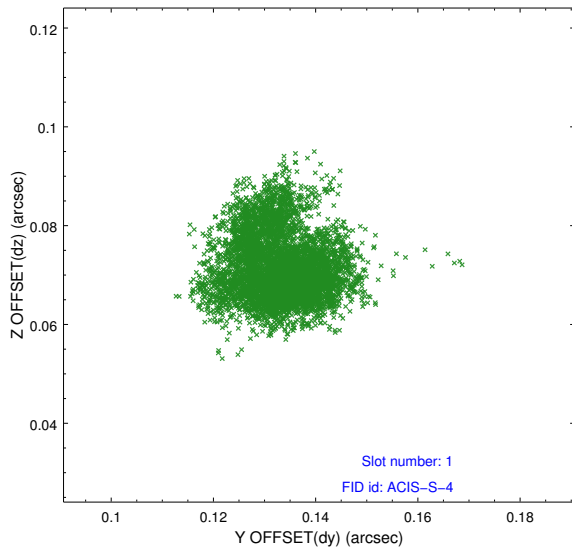


2.5 FID Slots

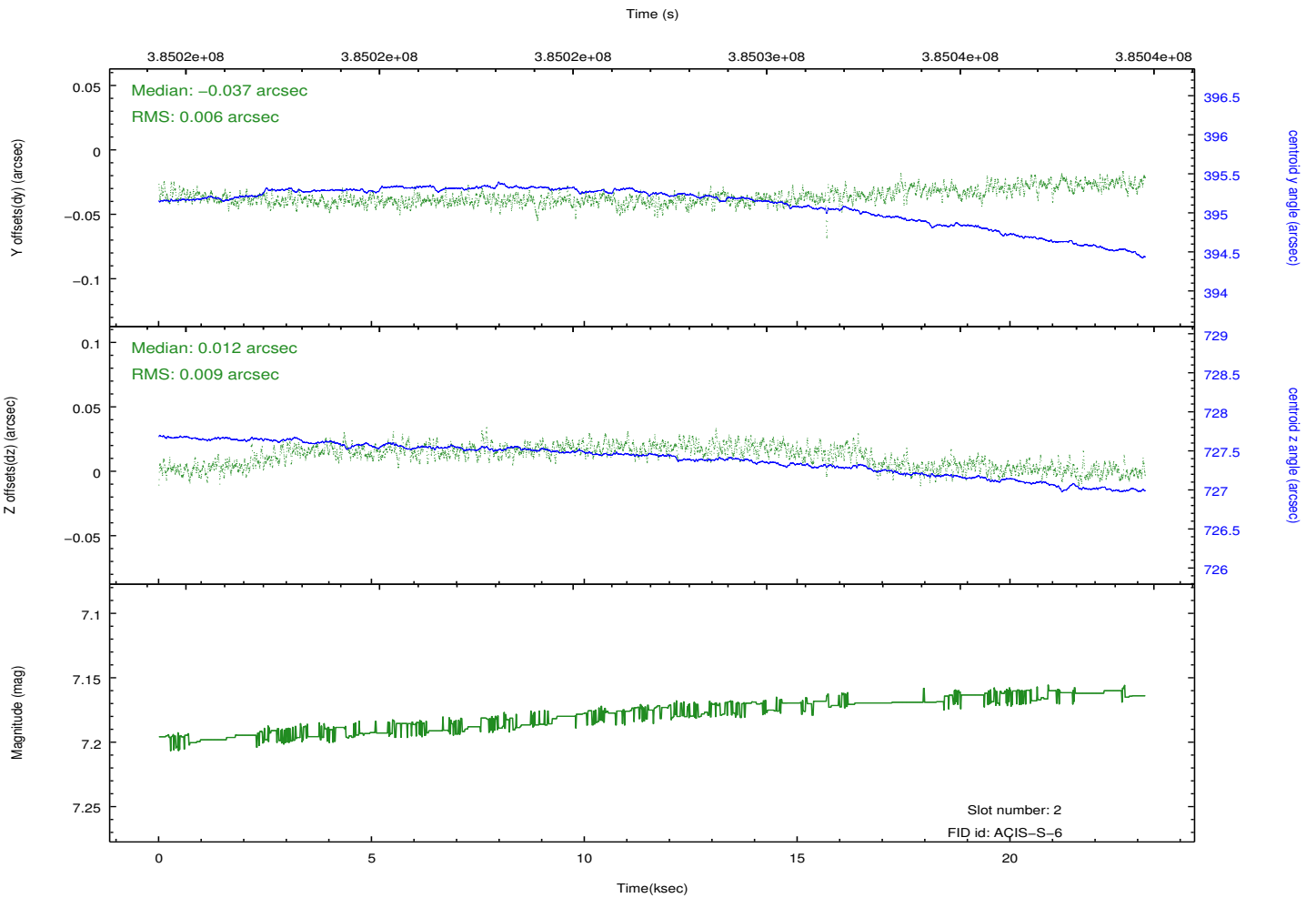
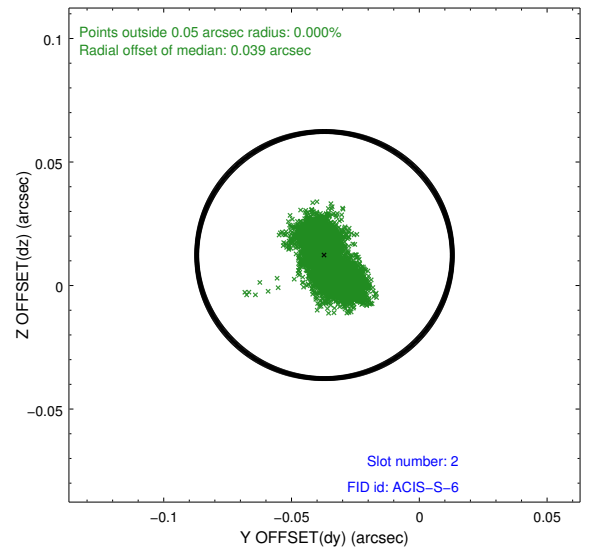
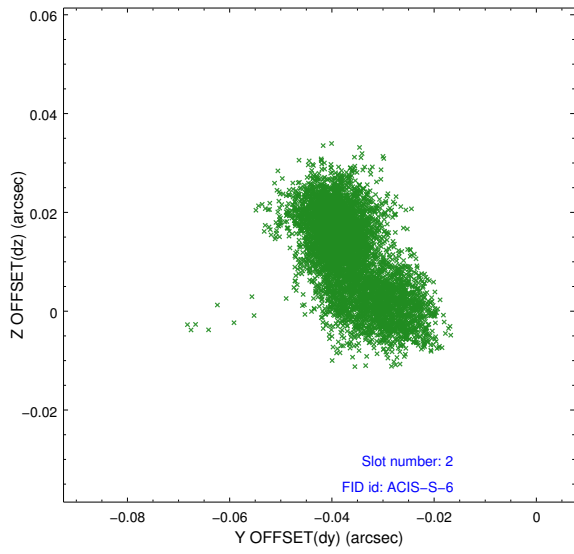
2.5.1 Slot 0



2.5.2 Slot 1

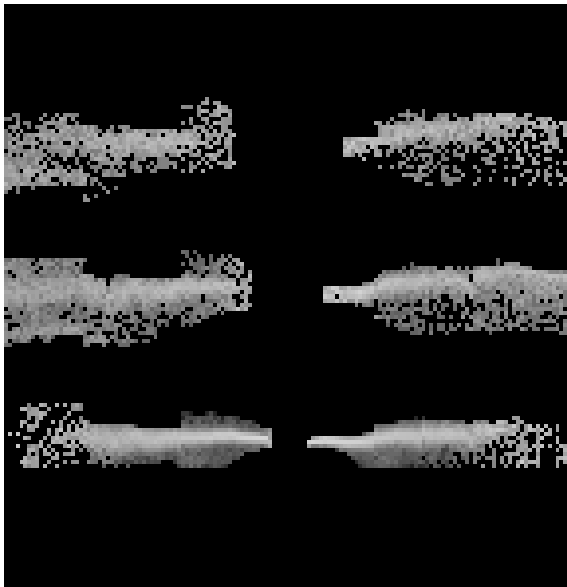


2.5.3 Slot 2

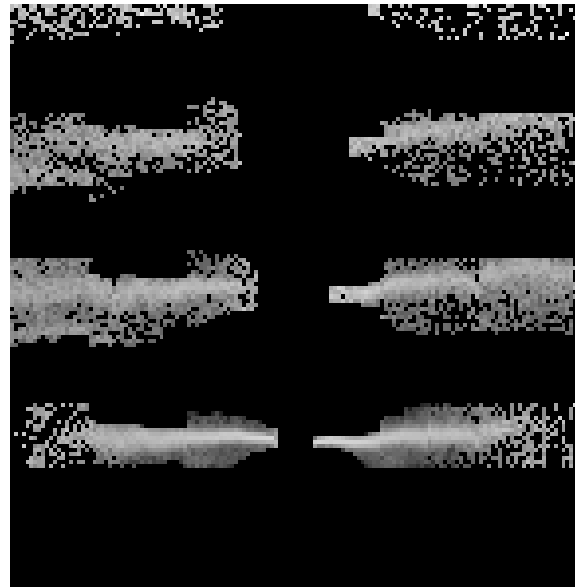


3 Gratings

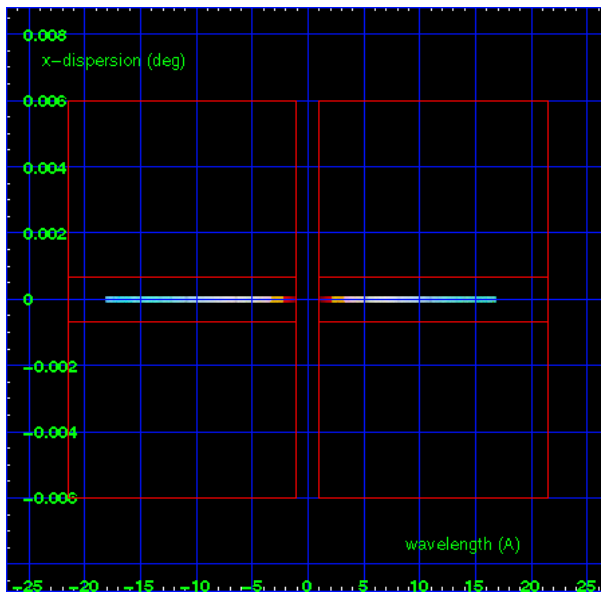
3.1 HEG Arm



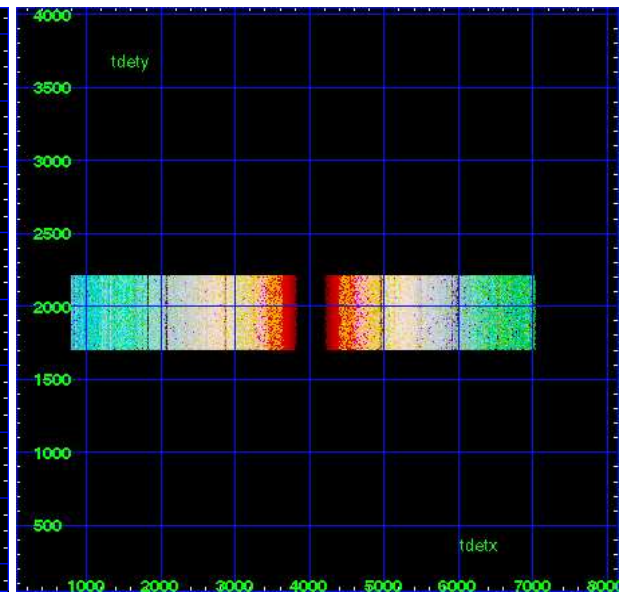
HEG Order Sort 123



HEG Order Sort ALL

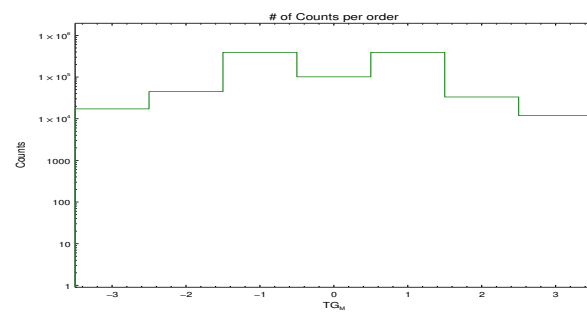


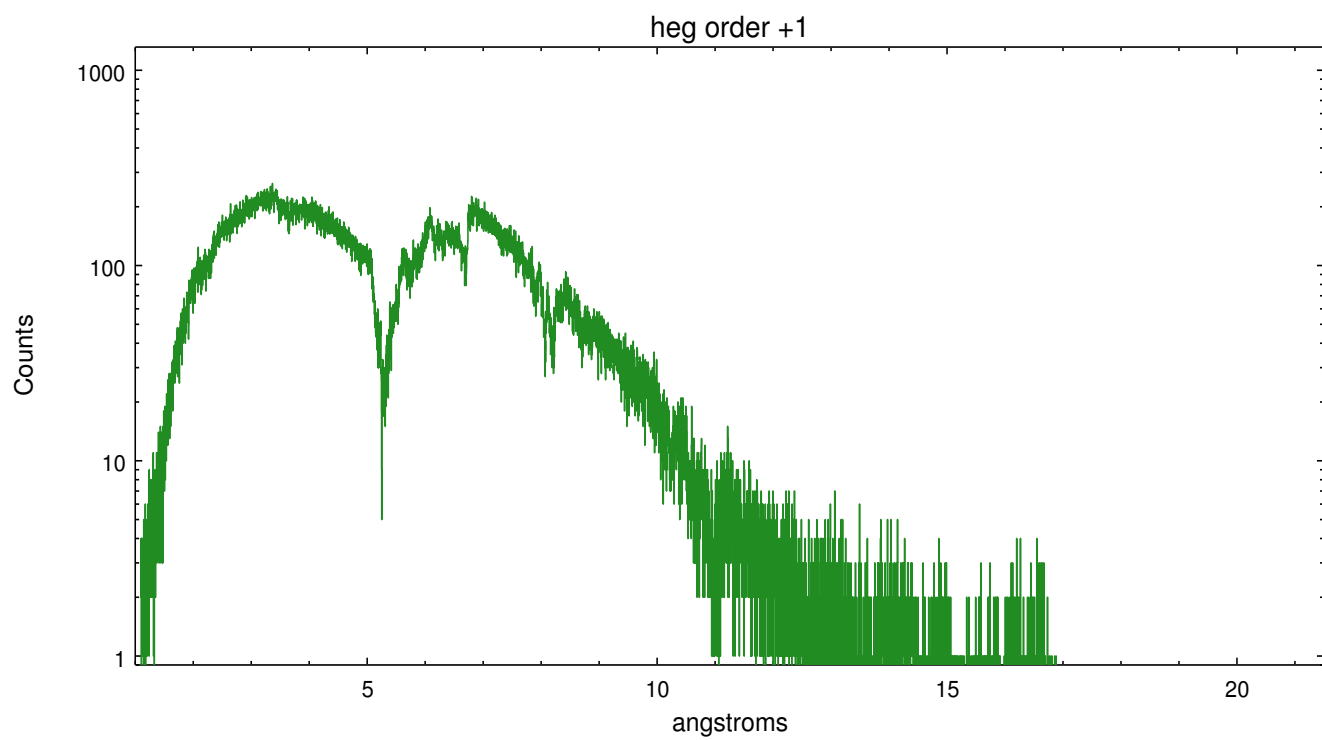
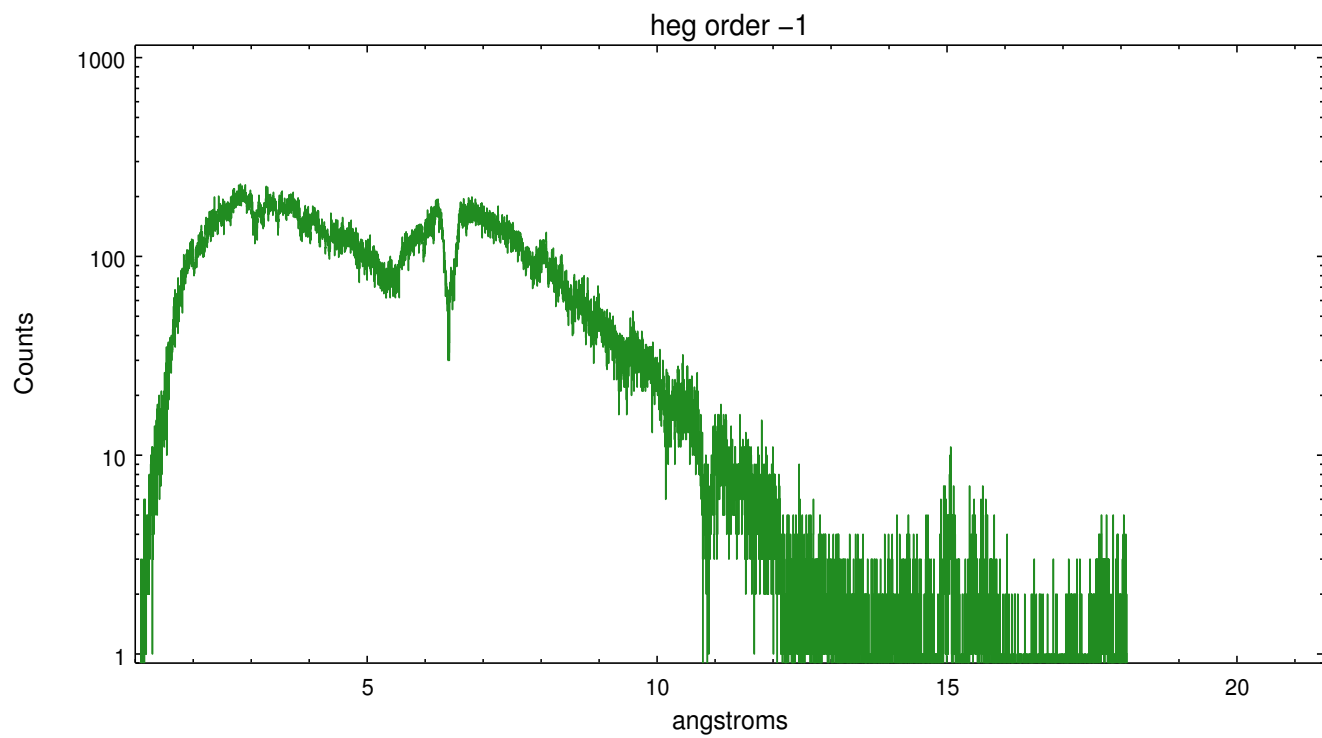
Spot Image HEG



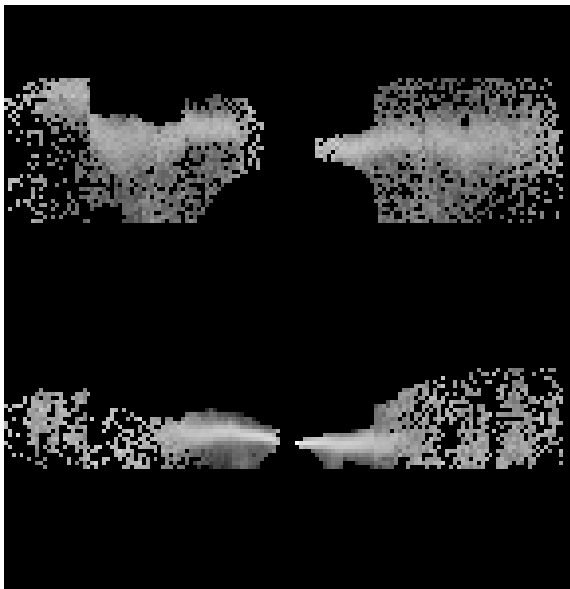
Full Detector HEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|----------|----------|----------|---------|---------|---------|---------|
| Events | 17238 | 44809 | 391872 | 101407 | 390870 | 33259 | 11939 |

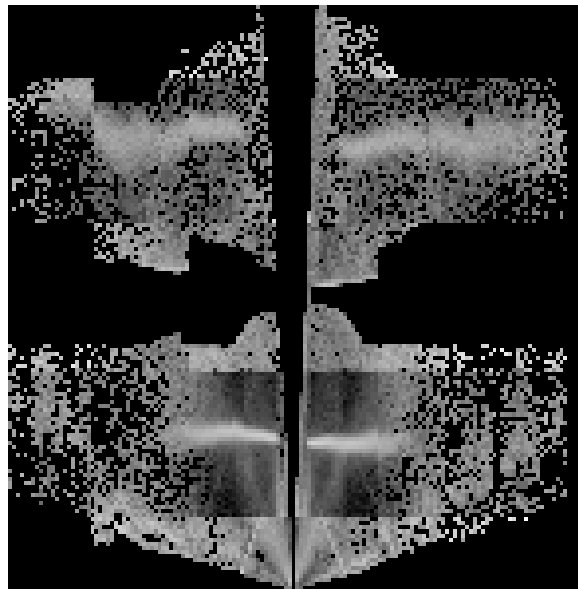




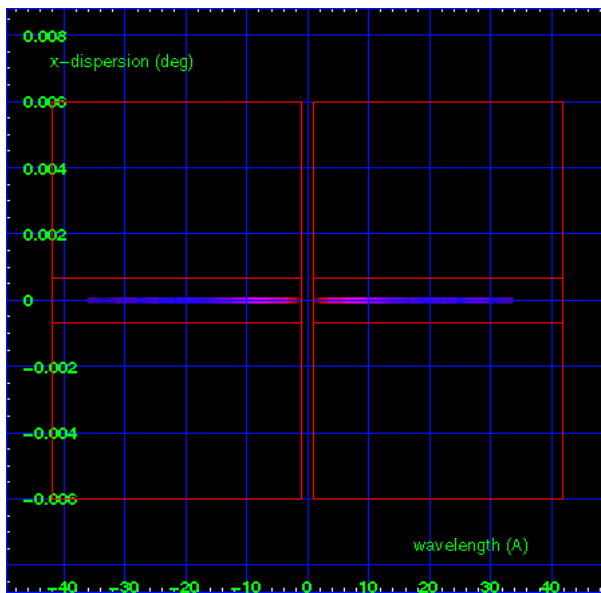
3.2 MEG Arm



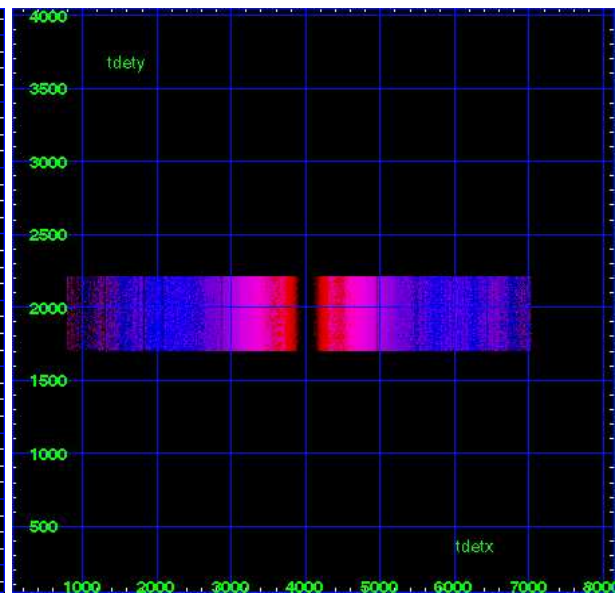
MEG Order Sort 123



MEG Order Sort ALL

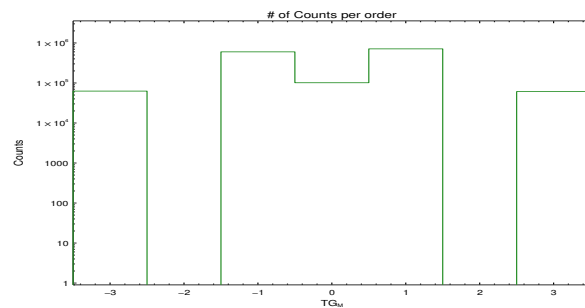


Spot Image MEG

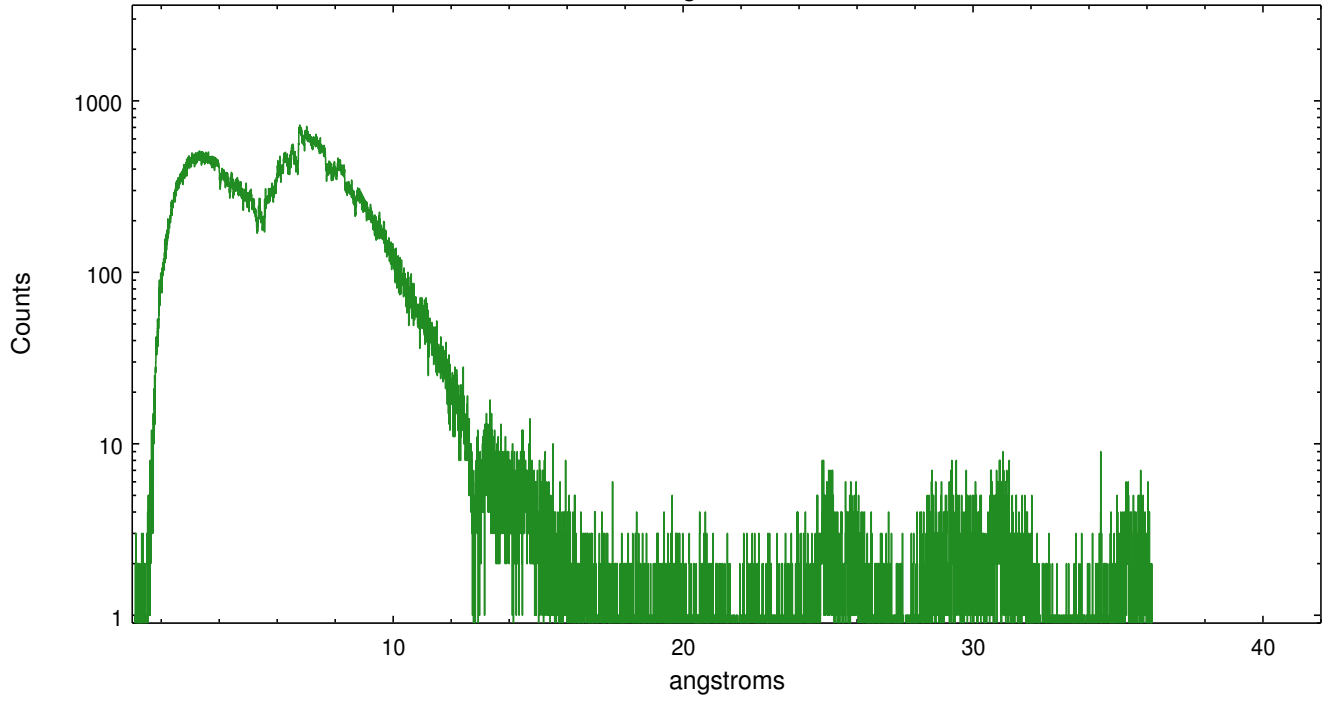


Full Detector MEG

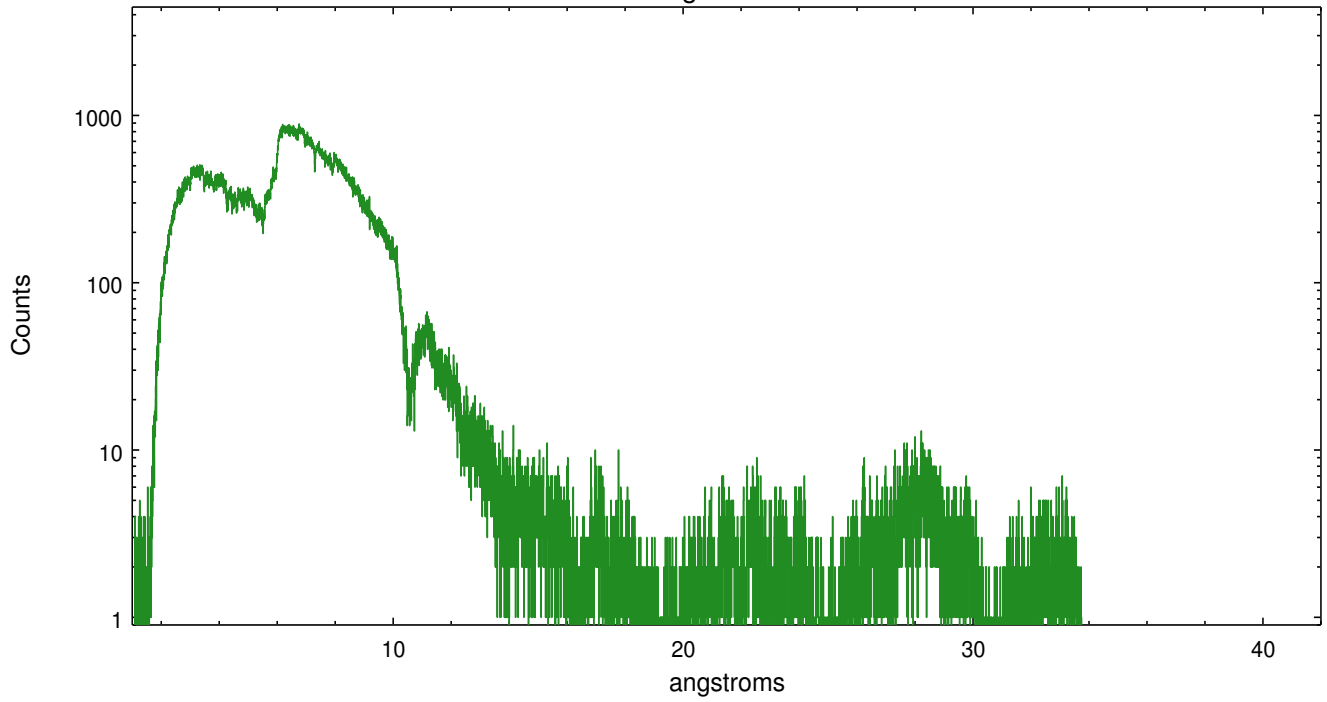
| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|----------|----------|----------|---------|---------|---------|---------|
| Events | 62653 | 0 | 599705 | 101407 | 712301 | 0 | 60887 |



meg order -1



meg order +1



A Summary

A.1 Status

| | |
|----------------------------|-------------|
| V&V Scientist | Joy Nichols |
| V&V Date (YYYY-MM-DD) | 2012.06.25 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 23.16775 |

A.2 Comments

Gain and CTI correction are not well calibrated in CC-mode. Default order sorting can clip some regions, particularly in high orders. User-specified custom processing parameters may be required in `tg_resolve_events` (`osipfile=none`, `osort_lo`, `osort_hi ~0.3`) though this can allow more zeroth order background at short wavelengths.==== For ACIS/CC-mode w/ HETG, there are no MEG even order counts. MEG even orders overlap with HEG orders in energy, but MEG even order efficiencies are very low. Since HEG and MEG cannot be spatially separated, events are preferentially assigned to HEG. (MEG odd orders can be resolved.)