

V&V Reference Report

L2 ASCDS Version : 8.5.1.1

Observation 4759 - L2 Version 5
Chandra X-Ray Center

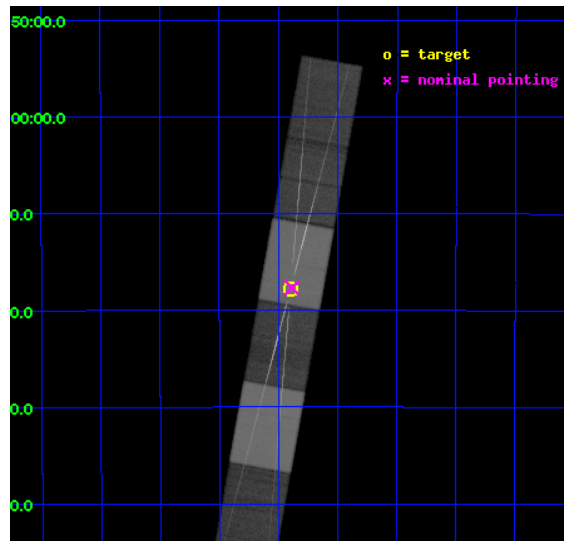
L2 Processing Date : Apr 12 2013

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1 Front

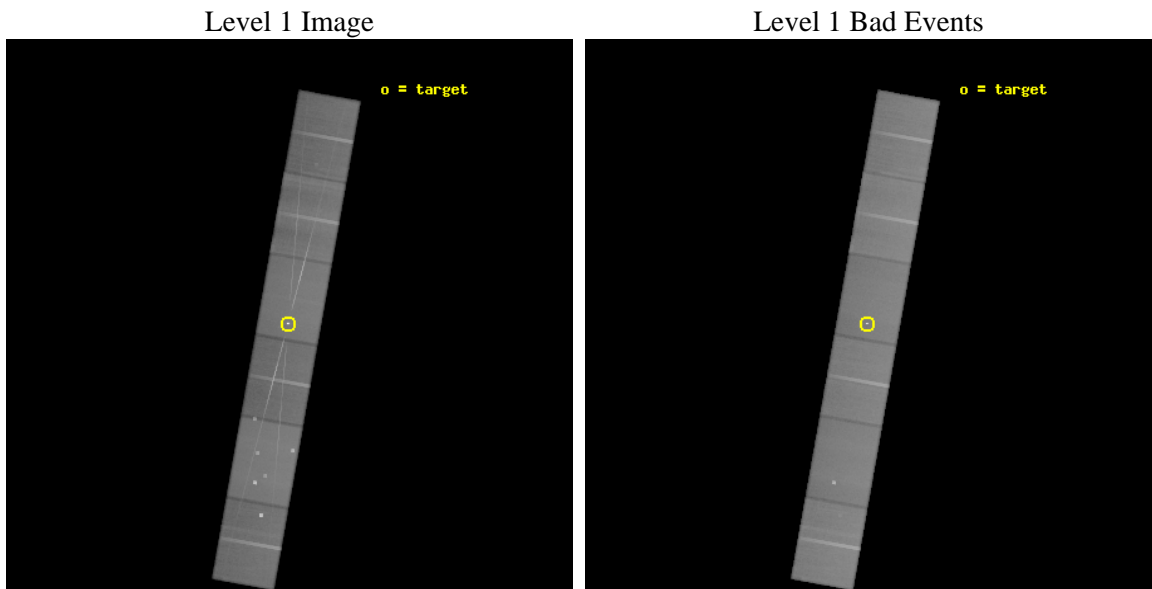
| | | |
|----------|---|---|
| seq_num | 700845 | Sequence number |
| obs_id | 4759 | Observation id |
| title | DISSECTING THE ENVIRONMENT OF MCG--6-30-15 WITH THE HETGS | Proposal |
| observer | Prof Claude Canizares | Principal investigator |
| object | MCG--6-30-15 | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 203.97375 | Observer's specified target RA [deg] |
| dec_targ | -34.295833 | Observer's specified target Dec [deg] |
| ra_nom | 203.97145424446 | Nominal RA [deg] |
| dec_nom | -34.294683684943 | Nominal Dec [deg] |
| roll_nom | 280.15533747333 | Nominal Roll [deg] |
| revision | 5 | Processing version of data |
| ontime | 161137.23913631 | Sum of GTIs [s] |
| livetime | 158534.73296004 | Livetime [s] |
| ontime4 | 161132.19815606 | Sum of GTIs [s] |
| ontime5 | 161137.19809631 | Sum of GTIs [s] |
| ontime6 | 161132.07505593 | Sum of GTIs [s] |
| ontime7 | 161137.23913631 | Sum of GTIs [s] |
| ontime8 | 161137.1160163 | Sum of GTIs [s] |
| ontime9 | 161134.53395626 | Sum of GTIs [s] |
| l2events | 1673308 | Number of level 2 events |



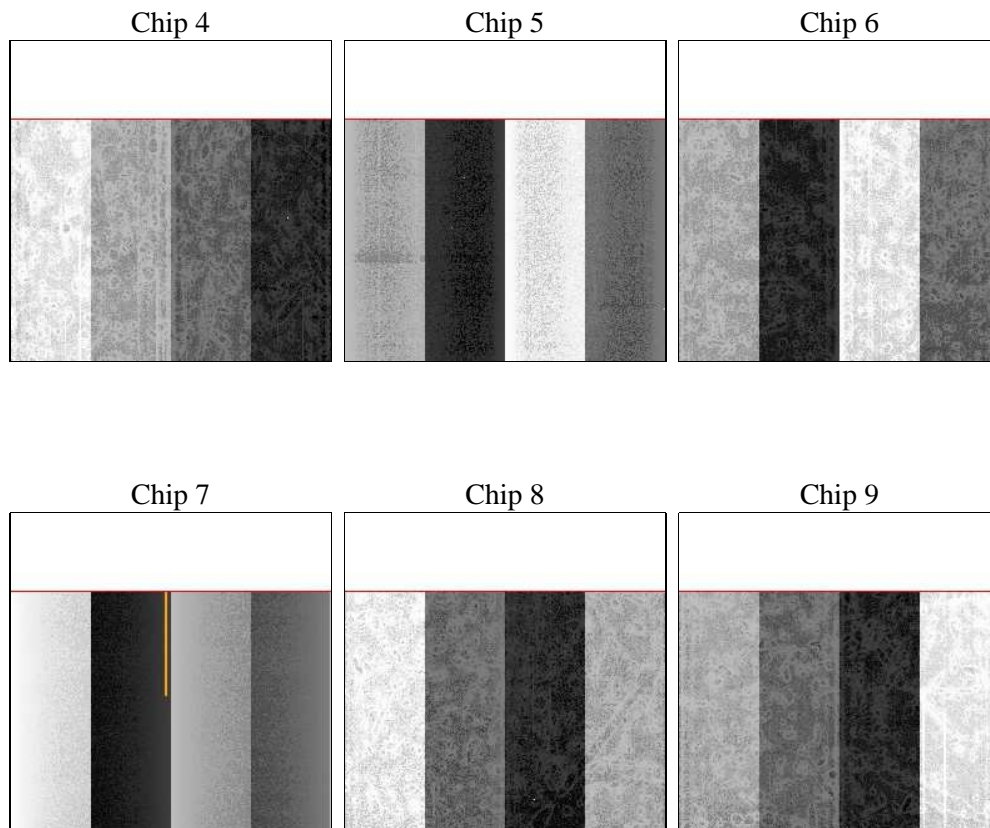
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 161092.723000 | [s] Scheduled observation exposure time |
| ascdsver | 8.5.1.1 | Processing system revision | ontime | 161137.23913631 | Sum of GTIs [s] |
| caldbver | 4.5.6 | | ontime4 | 161132.19815606 | Sum of GTIs [s] |
| date | 2013-04-12T08:04:13 | Date and time of file creation | ontime5 | 161137.19809631 | Sum of GTIs [s] |
| revision | 5 | Processing version of data | ontime6 | 161132.07505593 | Sum of GTIs [s] |
| | | | ontime7 | 161137.23913631 | Sum of GTIs [s] |
| | | | ontime8 | 161137.1160163 | Sum of GTIs [s] |
| | | | ontime9 | 161134.53395626 | Sum of GTIs [s] |
| | | | l1events | 6805929 | 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 | 1033121 | 1394537 | 982746 | 1327808 | 1169336 | 898381 | grade 0 events | 96938 | 112533 | 98261 | 67301 | 101160 | 51047 |
| rejected events | 871197 | 728449 | 803808 | 717778 | 894744 | 781270 | | 9% | 8% | 9% | 5% | 8% | 5% |
| rejected % | 84% | 52% | 81% | 54% | 76% | 86% | grade 1 events | 911 | 13575 | 567 | 2248 | 783 | 498 |
| | | | | | | | | 0% | 0% | 0% | 0% | 0% | 0% |
| | | | | | | | grade 2 events | 23981 | 178946 | 29922 | 126583 | 55764 | 21750 |
| | | | | | | | | 2% | 12% | 3% | 9% | 4% | 2% |
| | | | | | | | grade 3 events | 12017 | 30028 | 13820 | 57263 | 27144 | 11895 |
| | | | | | | | | 1% | 2% | 1% | 4% | 2% | 1% |
| | | | | | | | grade 4 events | 11323 | 28697 | 13428 | 56996 | 25450 | 11273 |
| | | | | | | | | 1% | 2% | 1% | 4% | 2% | 1% |
| | | | | | | | grade 5 events | 37775 | 101604 | 40647 | 120758 | 52718 | 42872 |
| | | | | | | | | 3% | 7% | 4% | 9% | 4% | 4% |
| | | | | | | | grade 6 events | 17667 | 315901 | 23513 | 301902 | 65077 | 21149 |
| | | | | | | | | 1% | 22% | 2% | 22% | 5% | 2% |
| | | | | | | | grade 7 events | 832509 | 613253 | 762588 | 594757 | 841240 | 737897 |
| | | | | | | | | 80% | 43% | 77% | 44% | 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 | 203.949857 | 203.9714542444561 | Subarray requested | CUSTOM | CUSTOM |
| [deg] Pointing Dec | -34.274099 | -34.29468368494329 | Subarray start row | 1 | 1 |
| [deg] Pointing Roll | 279.986545 | 280.1553374733291 | 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) | 201788688.184000 | 201787679.73313 | | | |
| Observation start date | 2004-05-24T12:23:44 | 2004-05-24T12:07:59 | | | |
| [s] Observation end time (MET) | 201949781.184000 | 201950006.4278 | | | |
| Observation end date | 2004-05-26T09:08:37 | 2004-05-26T09:13:26 | | | |
| Read mode | TIMED | TIMED | | | |

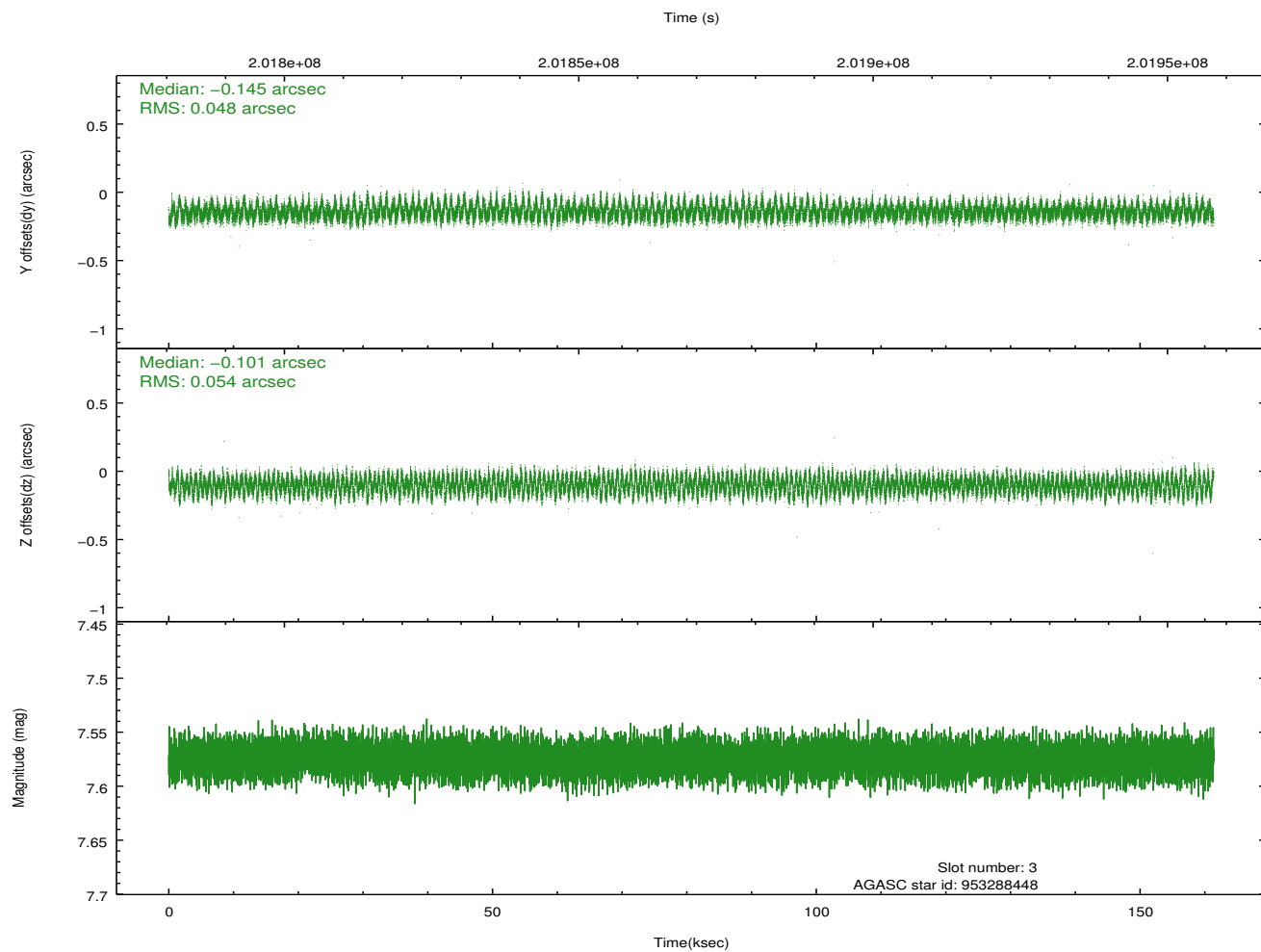
2.3 Aspect

Slot Statistics

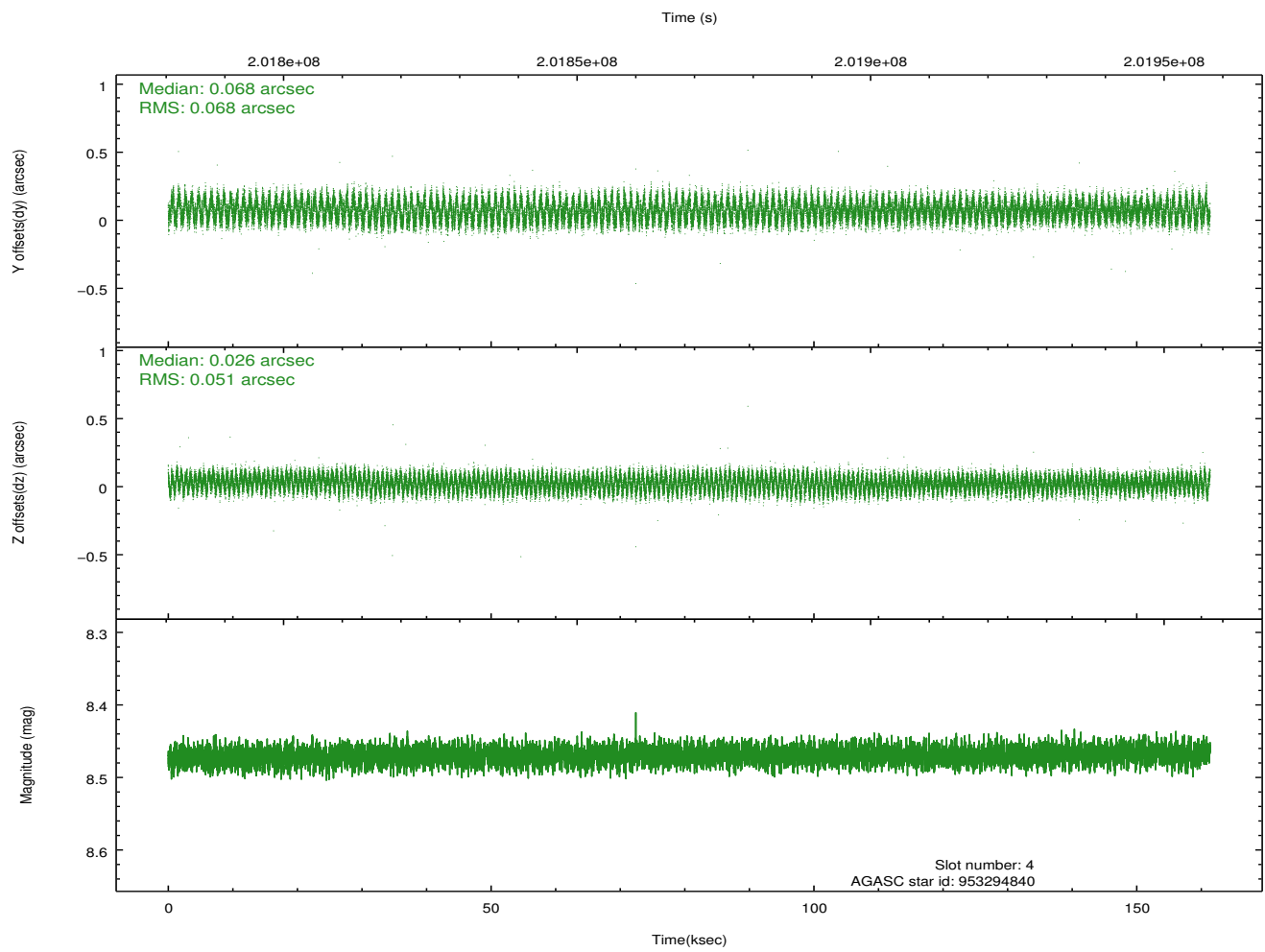
| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0 | FID | ACIS-S-2 | 7.09 | 39358 | -0.090 | -0.049 | 0.009 | 0.017 | 0.000000 | 0.000000 | -758.44 | -1792.06 |
| 1 | FID | ACIS-S-4 | 7.20 | 39356 | 0.126 | 0.056 | 0.010 | 0.038 | 0.000000 | 0.000000 | 2155.11 | 116.65 |
| 2 | FID | ACIS-S-5 | 7.23 | 39356 | -0.068 | 0.002 | 0.010 | 0.031 | 0.000000 | 0.000000 | -1811.41 | 110.12 |
| 3 | GUIDE | 953288448 | 7.57 | 78707 | -0.145 | -0.101 | 0.077 | 0.126 | 203.869544 | -34.017546 | -950.96 | -76.09 |
| 4 | GUIDE | 953294840 | 8.47 | 78696 | 0.068 | 0.026 | 0.092 | 0.136 | 204.478170 | -34.846425 | 2304.09 | 1179.42 |
| 5 | GUIDE | 953295296 | 7.43 | 78632 | -0.052 | -0.049 | 0.070 | 0.111 | 203.563852 | -34.387568 | 205.88 | -1200.68 |
| 6 | GUIDE | 953296432 | 8.99 | 78672 | 0.028 | 0.199 | 0.114 | 0.177 | 204.411860 | -34.306423 | 356.14 | 1332.22 |
| 7 | GUIDE | 953297000 | 9.46 | 78663 | 0.118 | -0.079 | 0.273 | 0.393 | 203.651481 | -34.967131 | 2306.20 | -1299.81 |

2.4 Star Slots

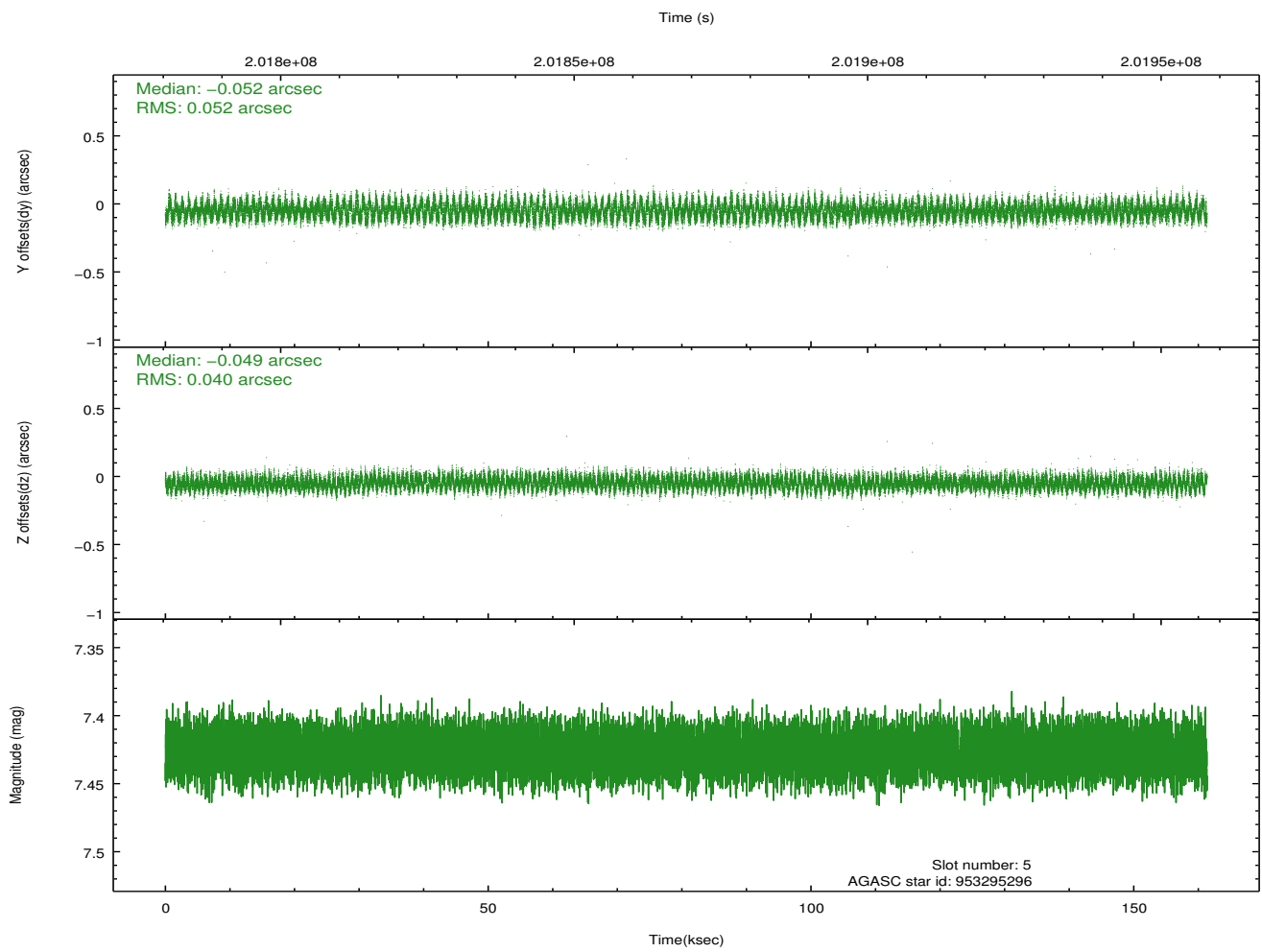
2.4.1 Slot 3



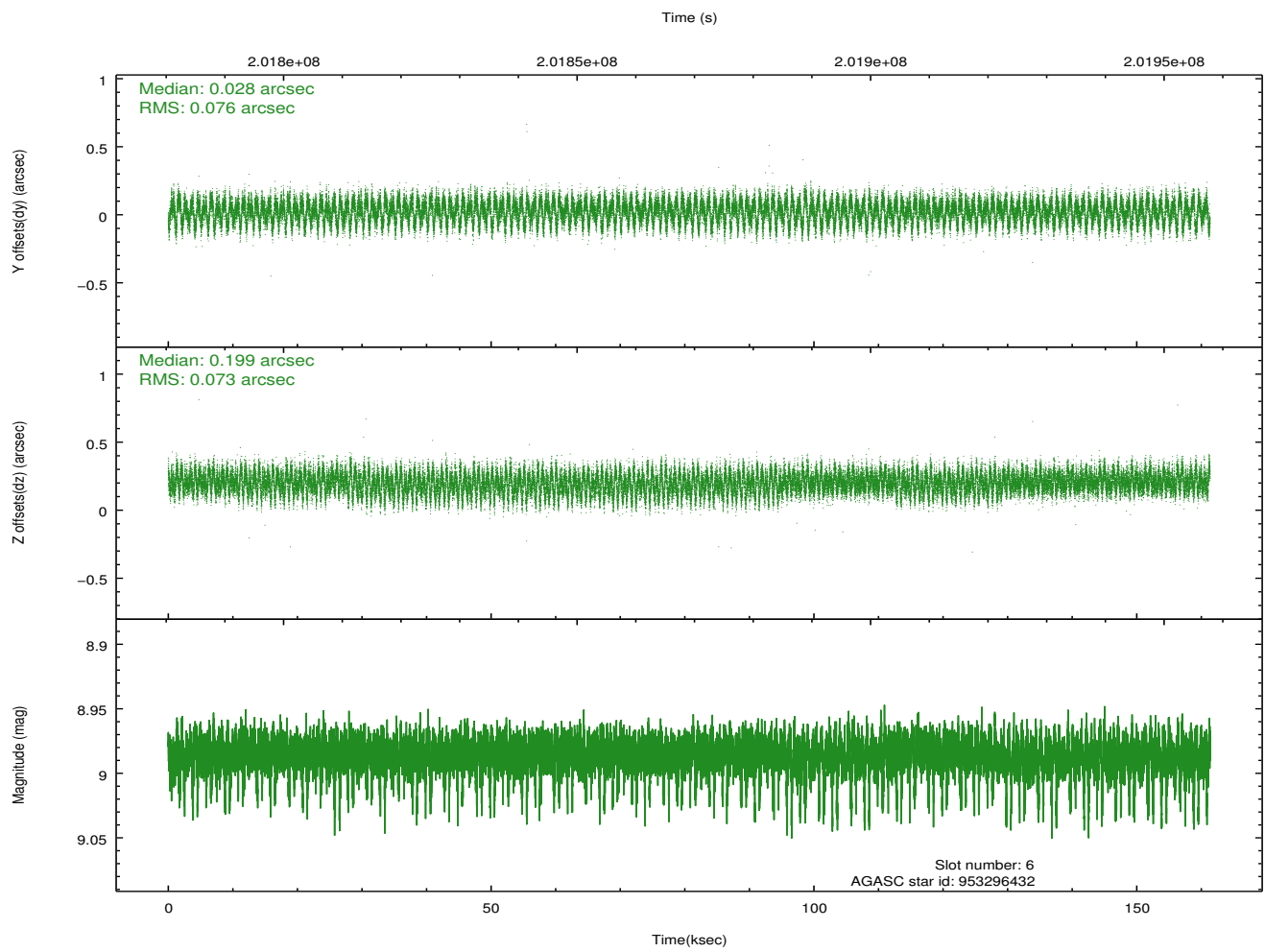
2.4.2 Slot 4



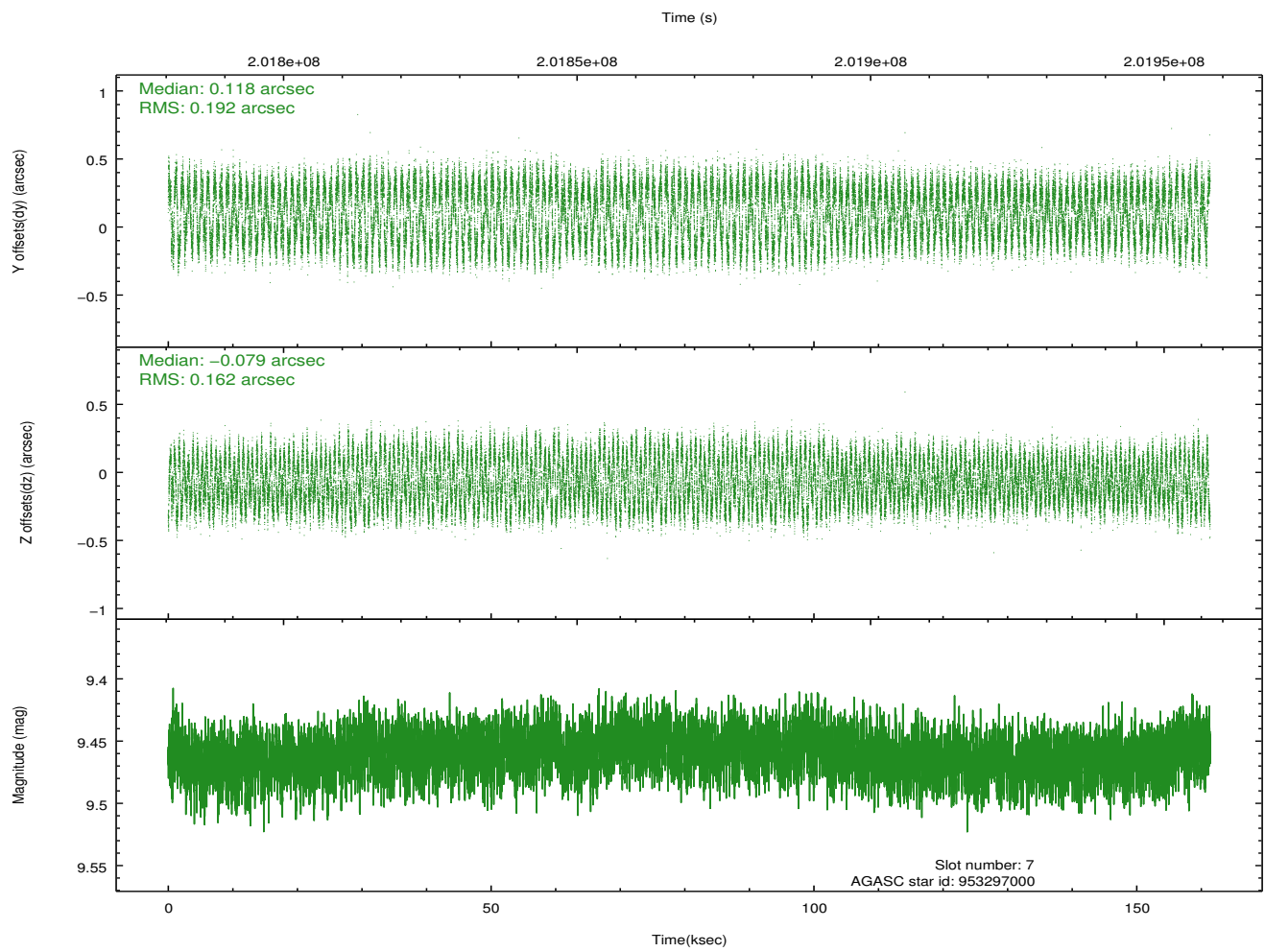
2.4.3 Slot 5



2.4.4 Slot 6

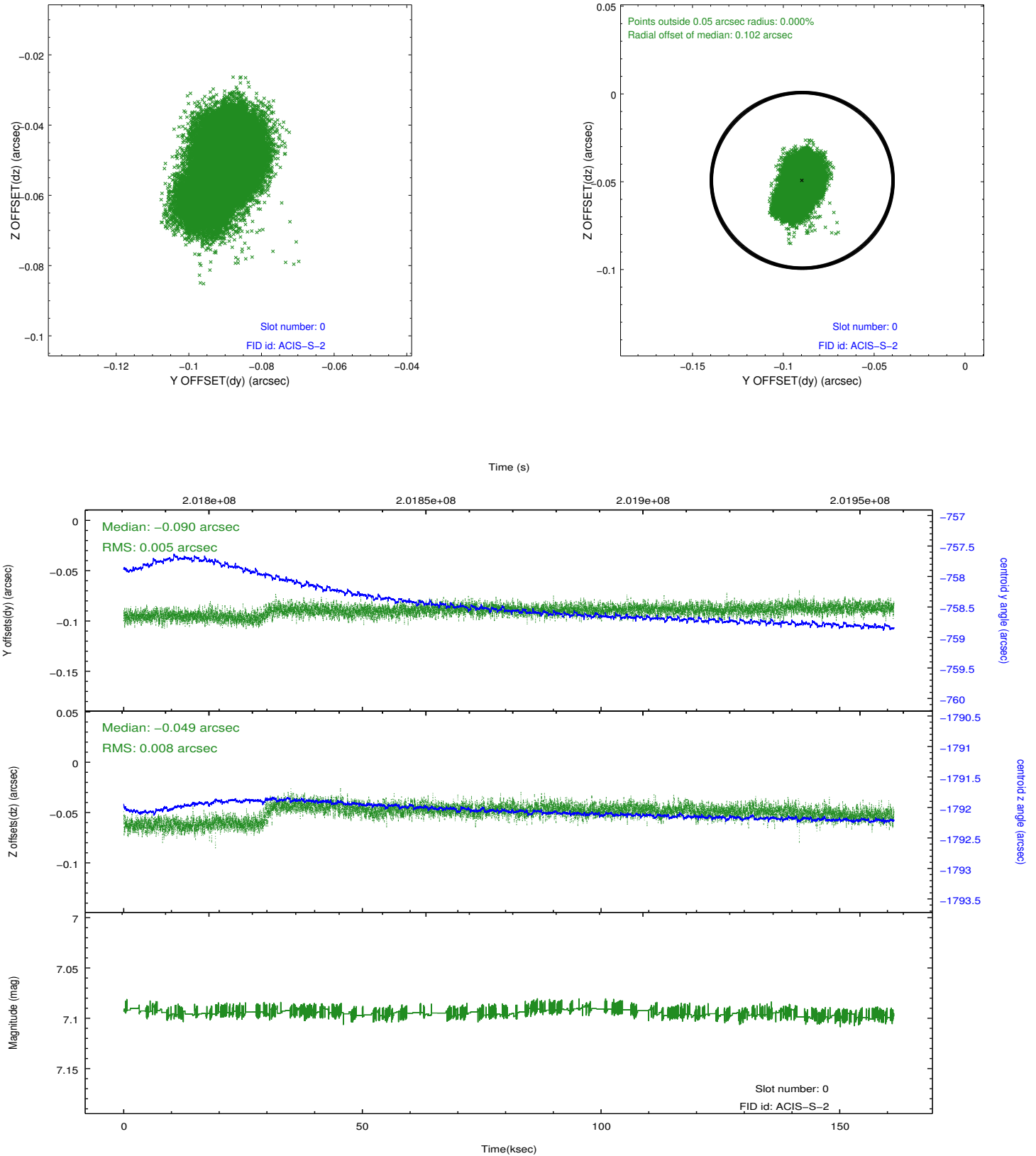


2.4.5 Slot 7

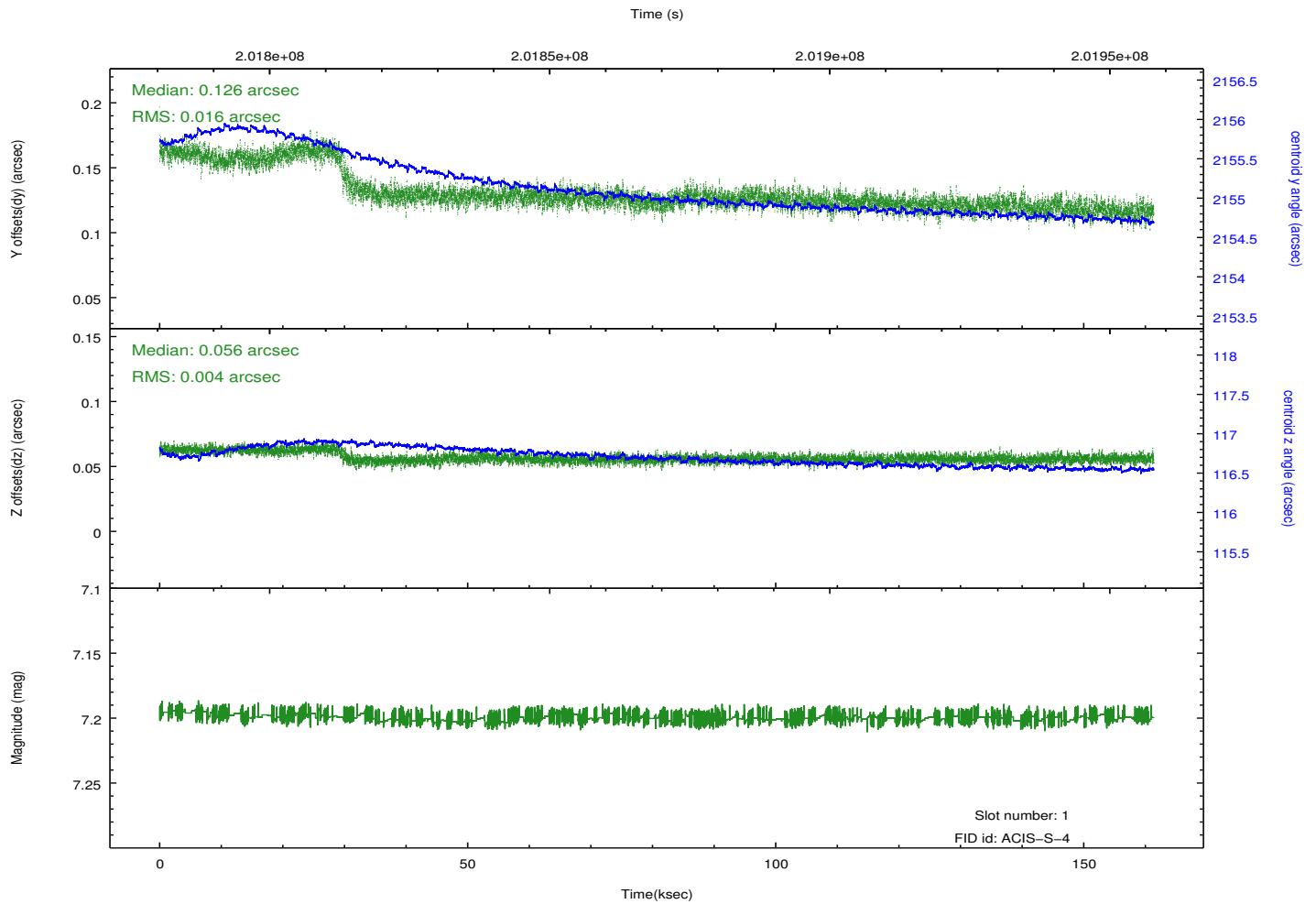
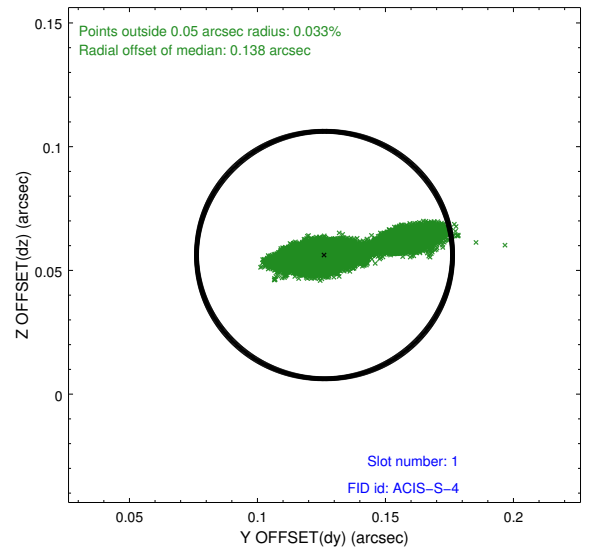
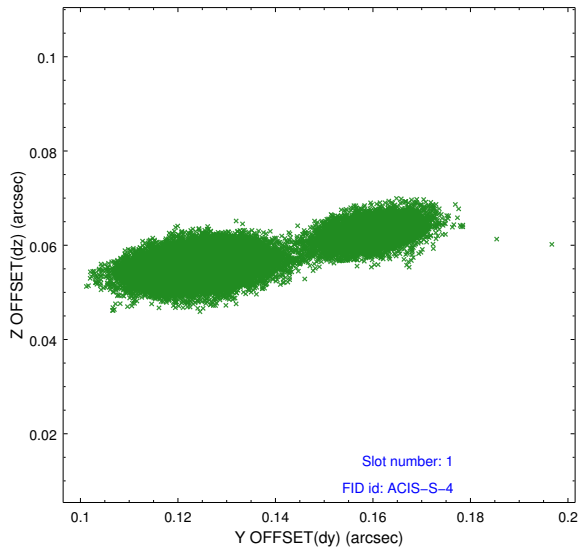


2.5 FID Slots

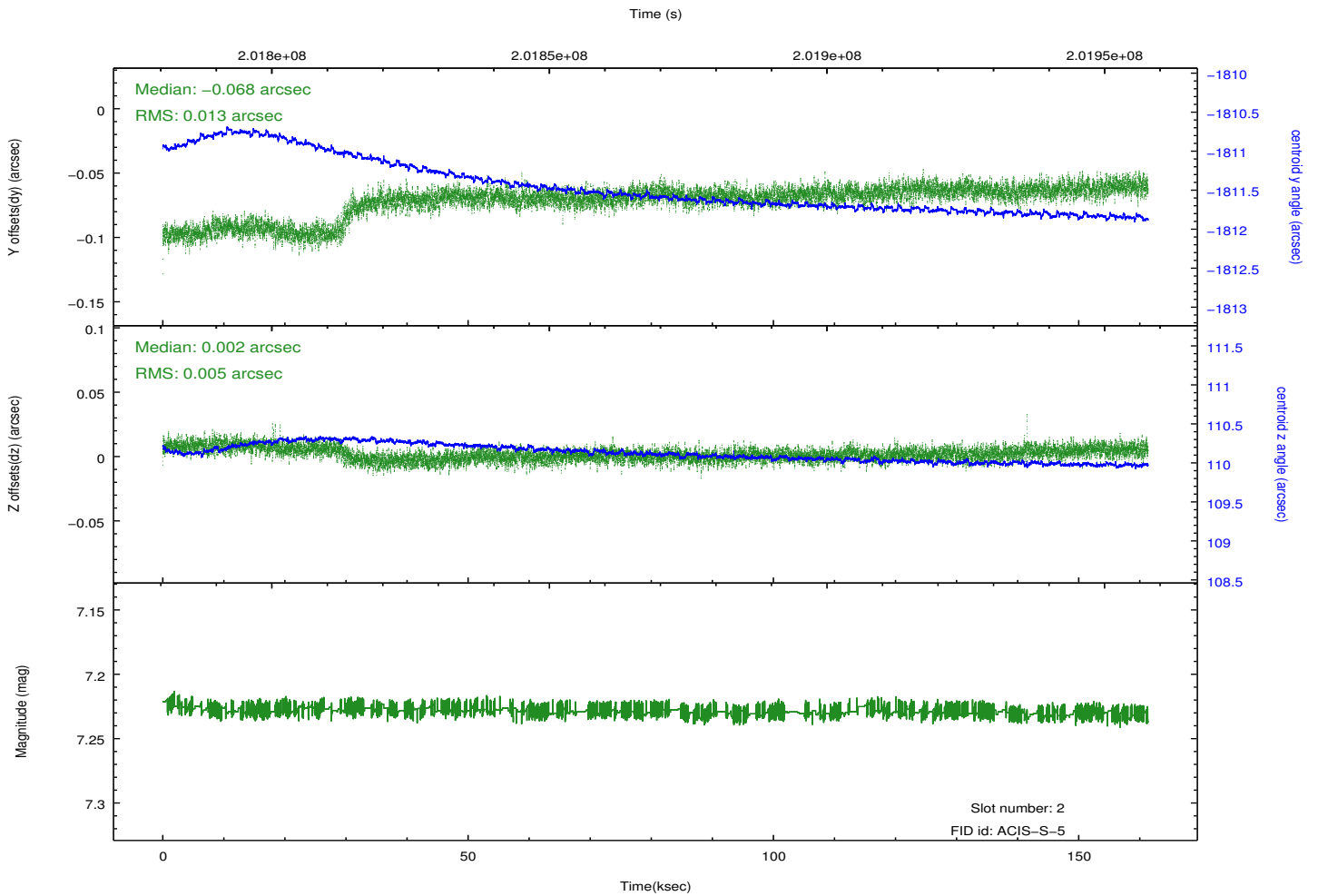
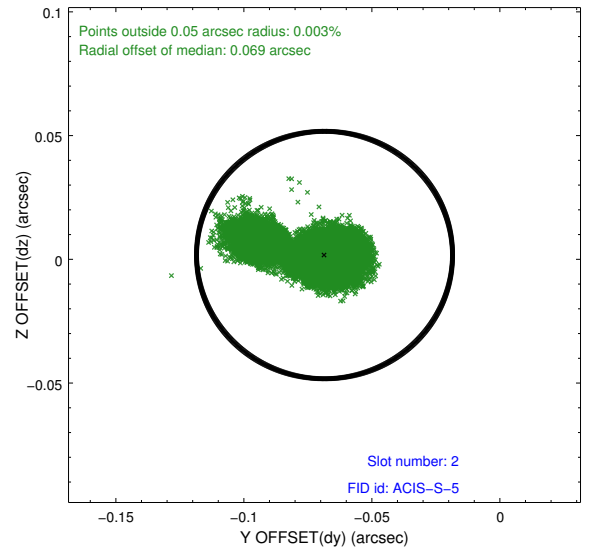
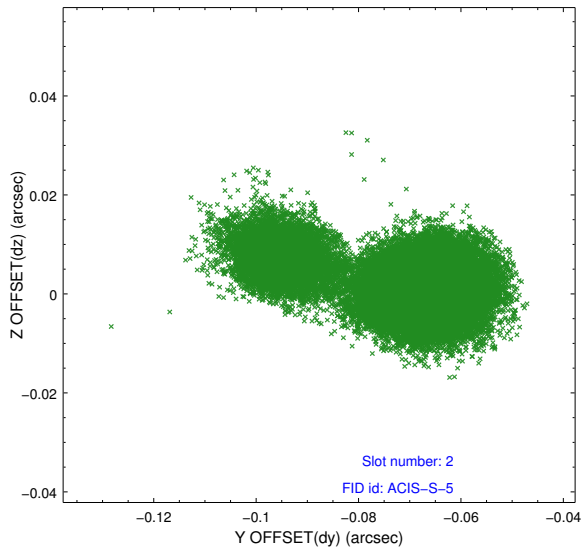
2.5.1 Slot 0



2.5.2 Slot 1

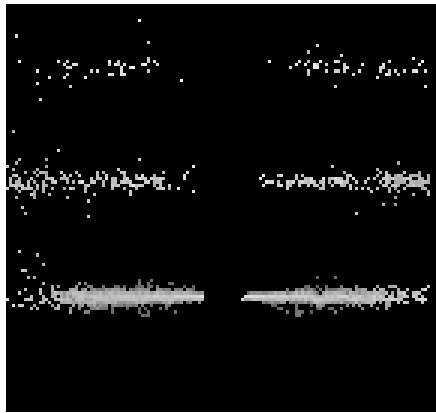


2.5.3 Slot 2

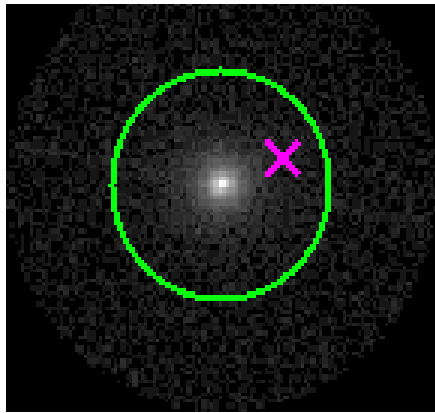


3 Gratings

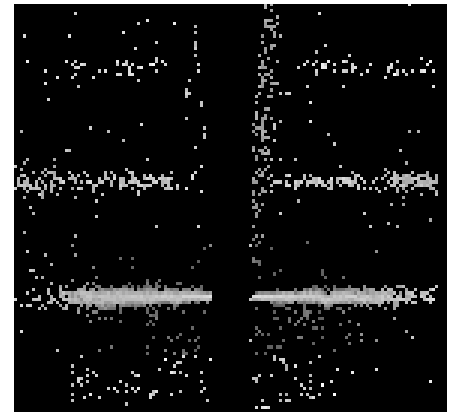
3.1 HEG Arm



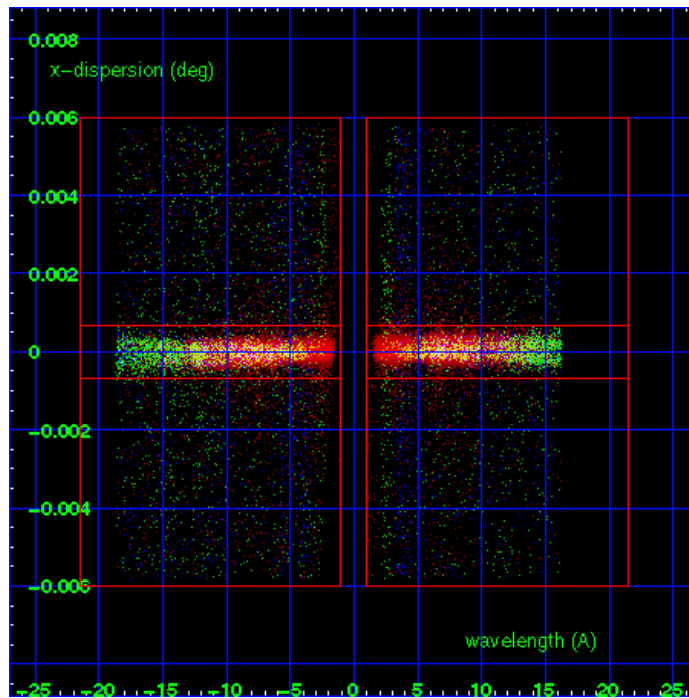
HEG Order Sort 123



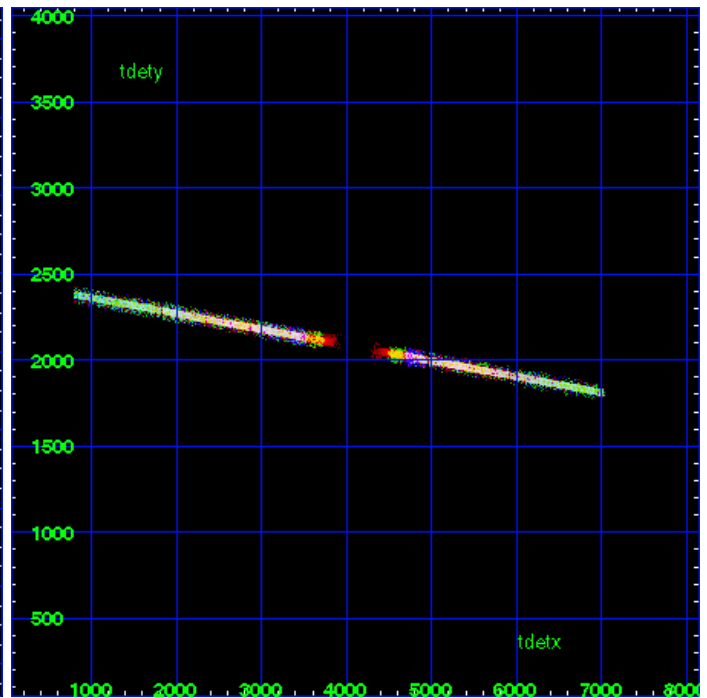
HEG Zero Order



HEG Order Sort ALL

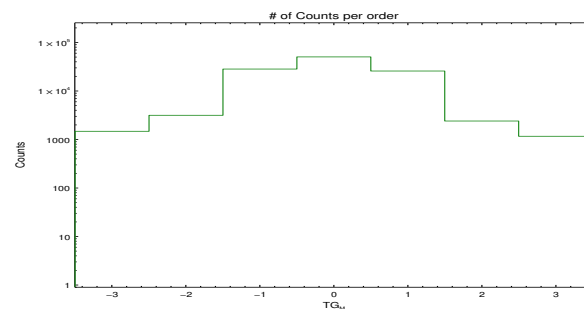


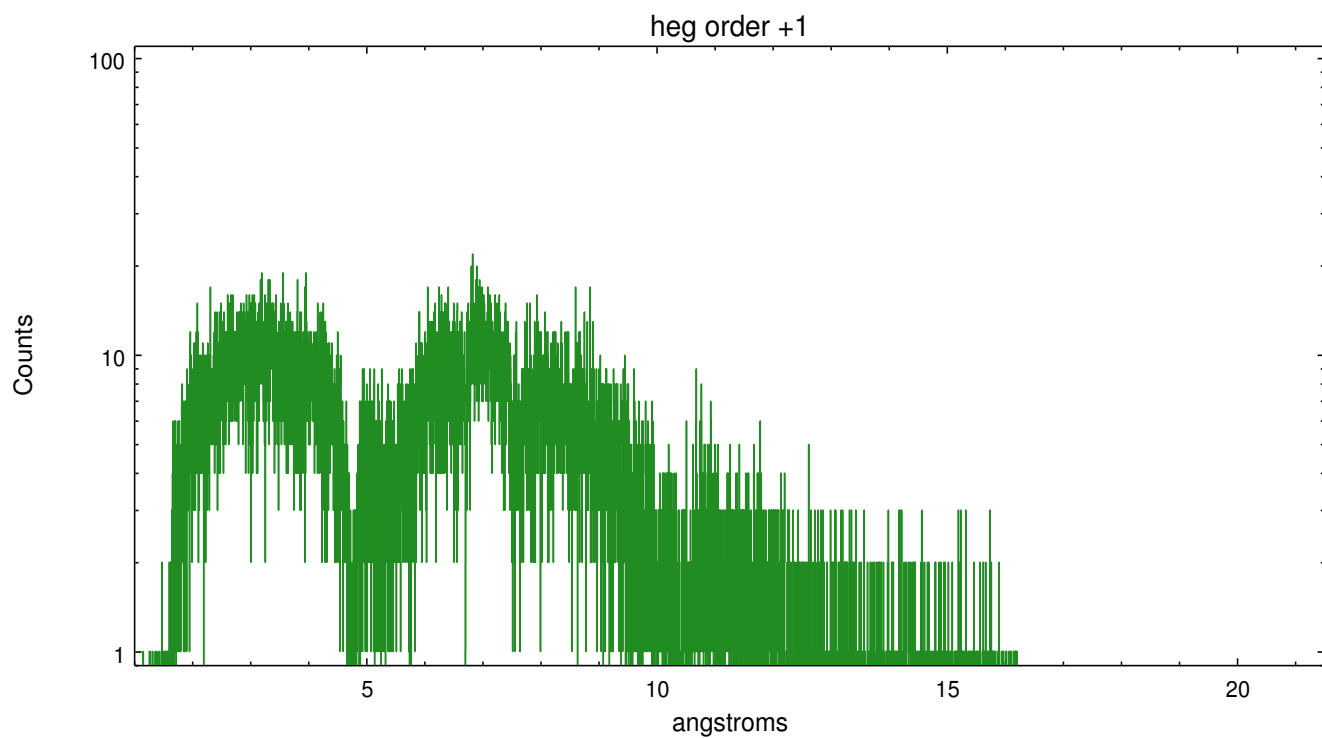
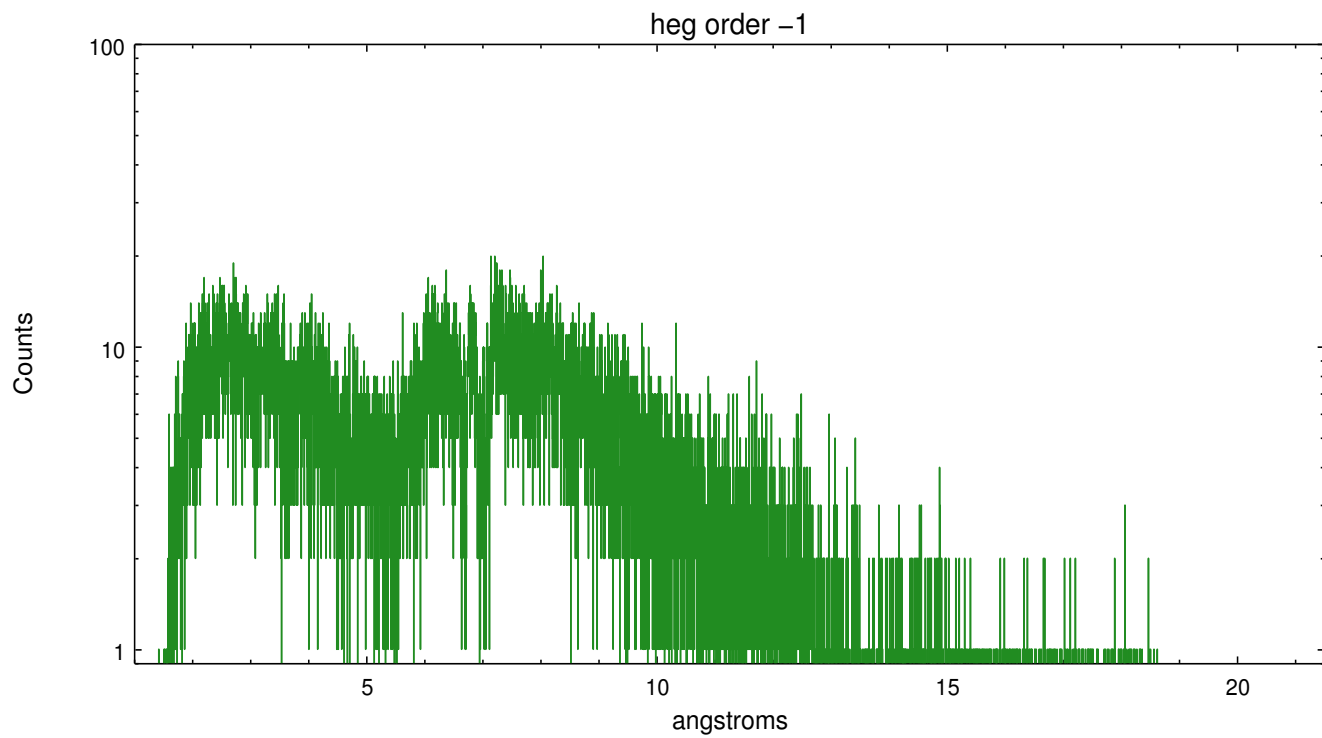
Spot Image HEG



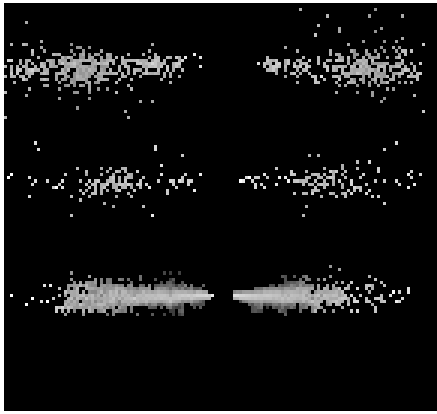
Full Detector HEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|----------|----------|----------|---------|---------|---------|---------|
| Events | 1479 | 3165 | 28536 | 50873 | 25990 | 2412 | 1167 |

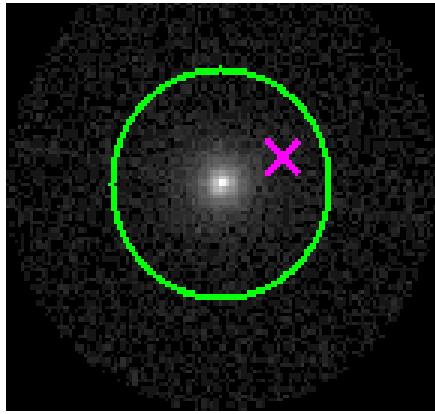




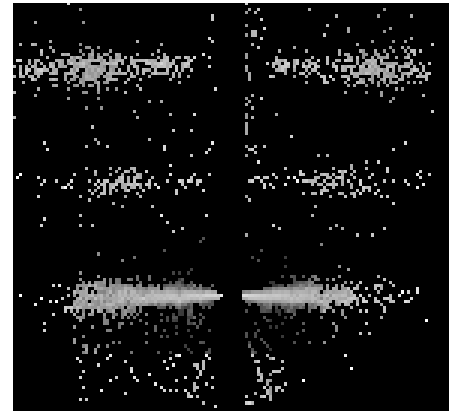
3.2 MEG Arm



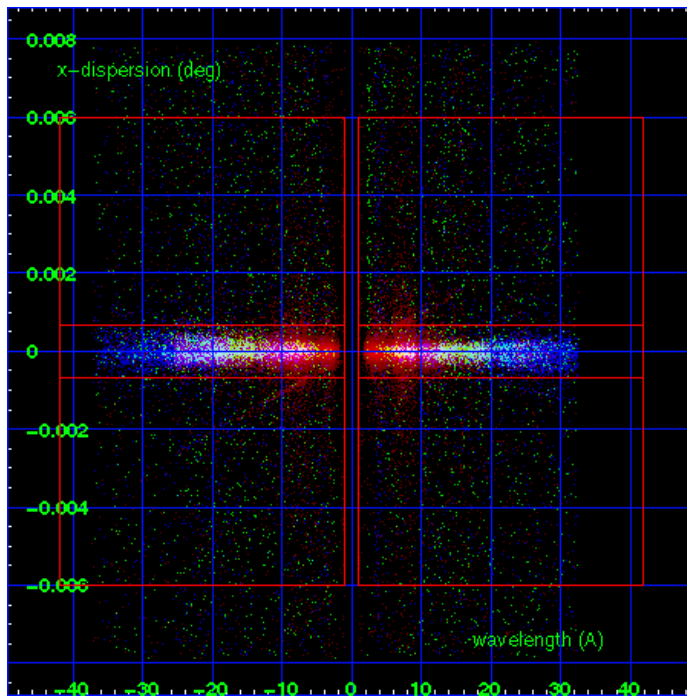
MEG Order Sort 123



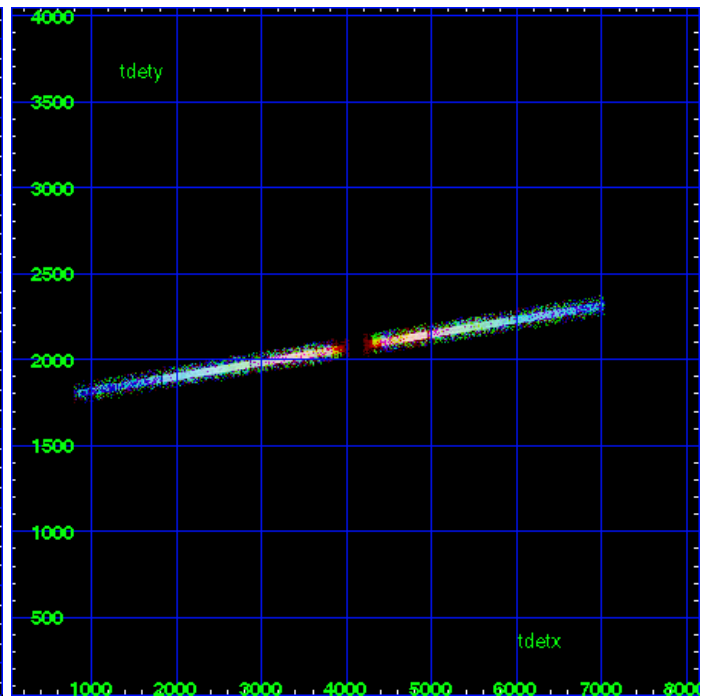
MEG Zero Order



MEG Order Sort ALL

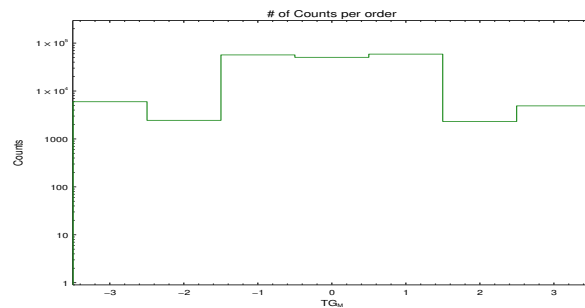


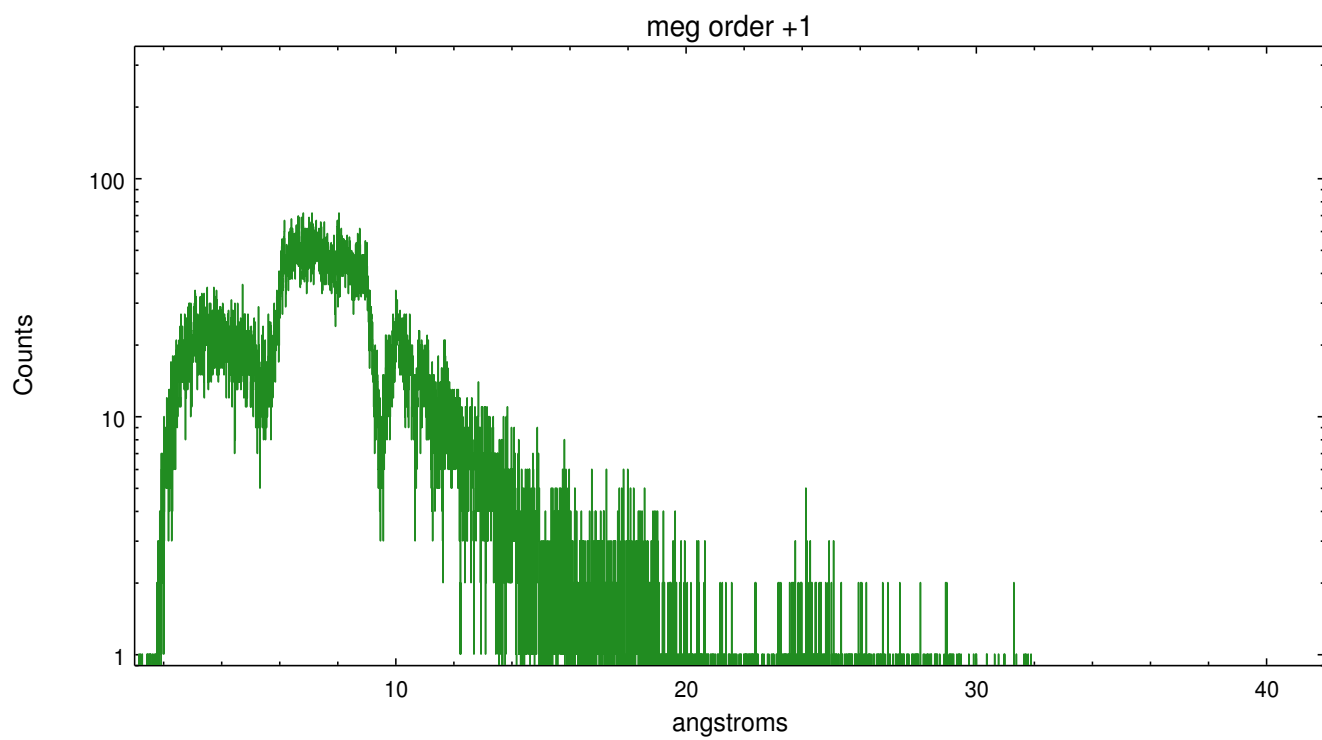
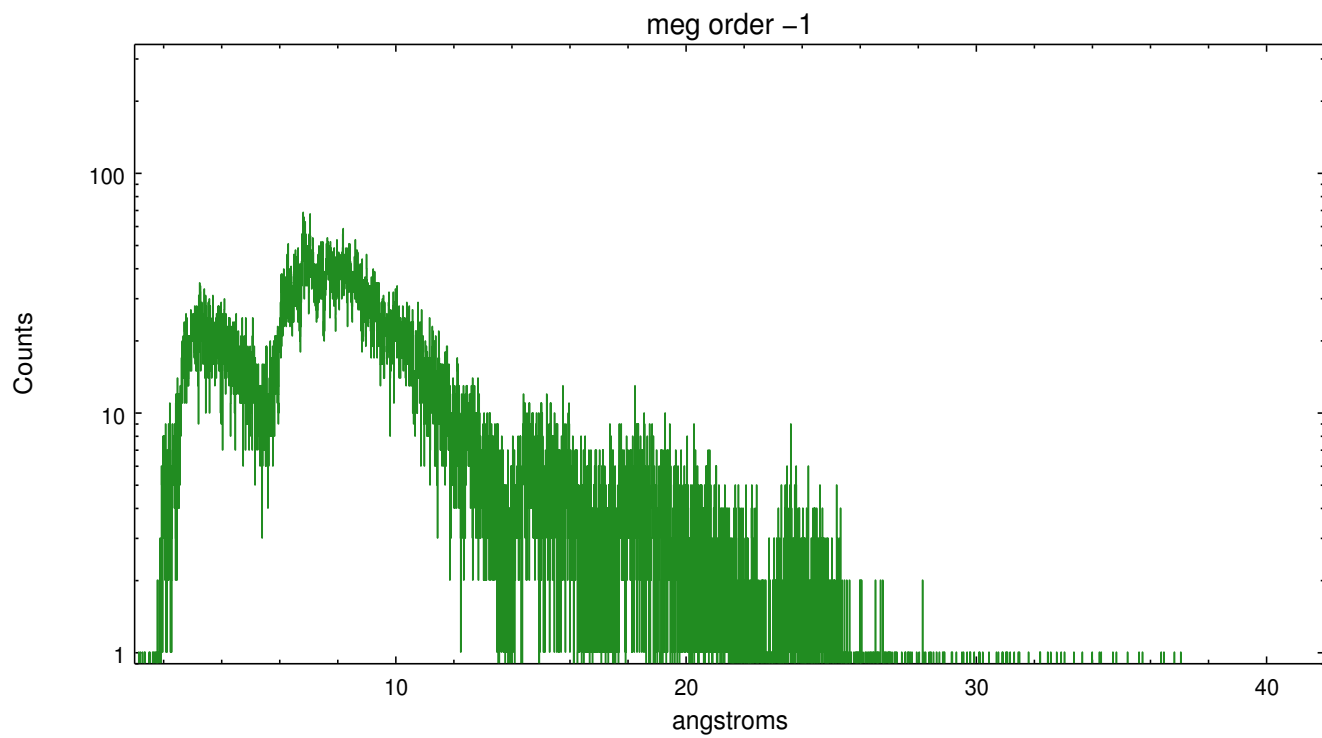
Spot Image MEG



Full Detector MEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 6008 | 2451 | 57179 | 50873 | 59380 | 2326 | 4920 |





A Summary

A.1 Status

| | |
|----------------------------|-------------|
| V&V Scientist | Joy Nichols |
| V&V Date (YYYY-MM-DD) | 2013.04.15 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 161.137 |

A.2 Comments

A spatial region of the original bias map for CCD = 6 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~ 20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 6 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords: (204.04352, -34.32706), (204.04296, -34.32451), (203.96717, -34.33580), (203.96772, -34.33836).

This region crosses the spectral arms.