

V&V Reference Report

L2 ASCDS Version : 8.5.1.1

Observation 6360 - L2 Version 3
Chandra X-Ray Center

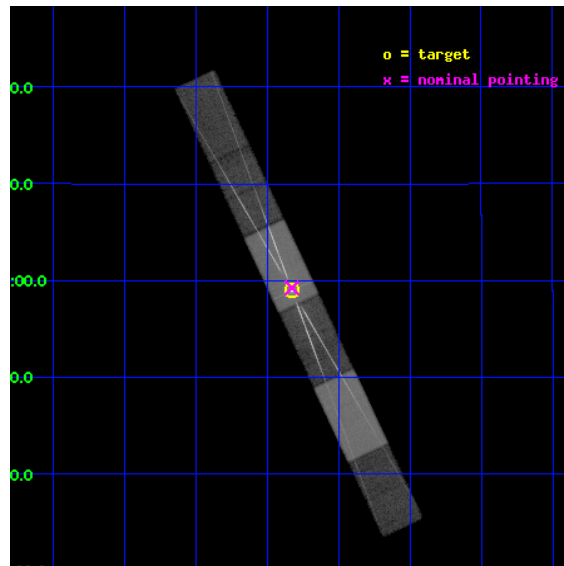
L2 Processing Date : Dec 28 2012

Contents

| | | |
|----------|-------------------------------|-----------|
| 1 | Front | 2 |
| 2 | OBI | 3 |
| 2.1 | OBI | 3 |
| 2.1.1 | Images | 3 |
| 2.1.2 | Bias | 3 |
| 2.1.3 | Parameters | 4 |
| 2.1.4 | Events | 4 |
| 2.2 | Compared Parameters | 5 |
| 2.3 | Aspect | 6 |
| 2.4 | Star Slots | 9 |
| 2.4.1 | Slot 3 | 9 |
| 2.4.2 | Slot 4 | 10 |
| 2.4.3 | Slot 5 | 11 |
| 2.4.4 | Slot 6 | 12 |
| 2.4.5 | Slot 7 | 13 |
| 2.5 | FID Slots | 14 |
| 2.5.1 | Slot 0 | 14 |
| 2.5.2 | Slot 1 | 15 |
| 2.5.3 | Slot 2 | 16 |
| 3 | Gratings | 17 |
| 3.1 | HEG Arm | 17 |
| 3.2 | MEG Arm | 19 |
| A | Summary | 21 |
| A.1 | Status | 21 |
| A.2 | Comments | 21 |

1 Front

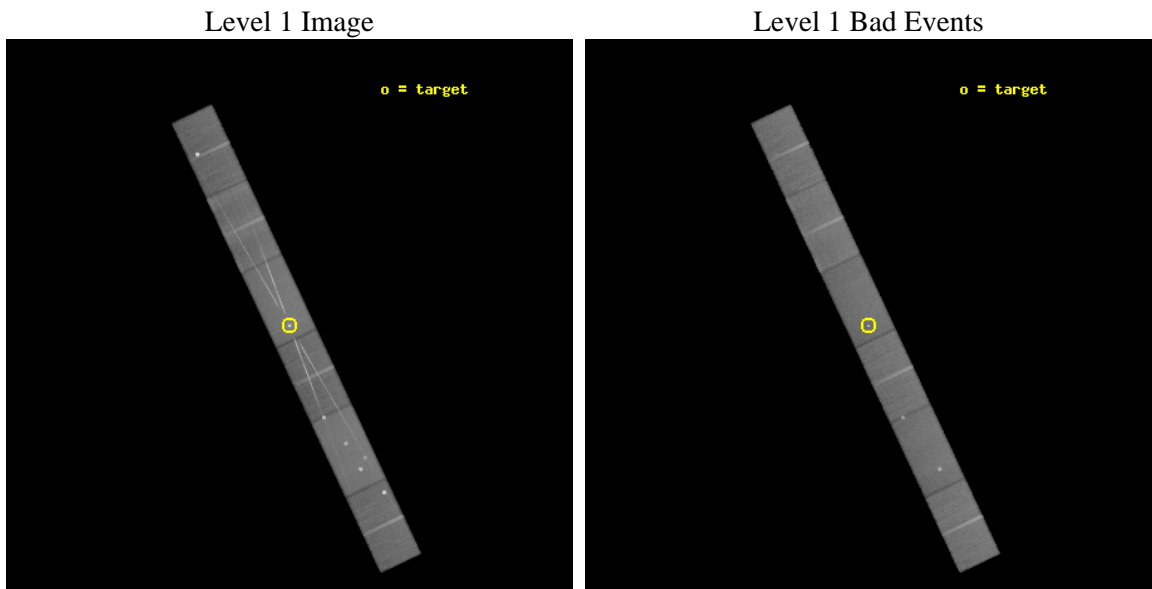
| | | |
|----------|--|---|
| seq_num | 400444 | Sequence number |
| obs_id | 6360 | Observation id |
| title | Detailed Studies of the Jets in SS 433 | Proposal title |
| observer | Prof Claude Canizares | Principal investigator |
| object | SS 433 | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 287.95625 | Observer's specified target RA [deg] |
| dec_targ | 4.982778 | Observer's specified target Dec [deg] |
| ra_nom | 287.95659430471 | Nominal RA [deg] |
| dec_nom | 4.9873819552369 | Nominal Dec [deg] |
| roll_nom | 244.75658840078 | Nominal Roll [deg] |
| revision | 3 | Processing version of data |
| ontime | 58656.600388467 | Sum of GTIs [s] |
| livetime | 57349.042225721 | Livetime [s] |
| ontime4 | 58654.759378314 | Sum of GTIs [s] |
| ontime5 | 58656.600388467 | Sum of GTIs [s] |
| ontime6 | 58656.600388467 | Sum of GTIs [s] |
| ontime7 | 58656.600388467 | Sum of GTIs [s] |
| ontime8 | 58656.600388467 | Sum of GTIs [s] |
| ontime9 | 58656.600388467 | Sum of GTIs [s] |
| l2events | 591299 | Number of level 2 events |



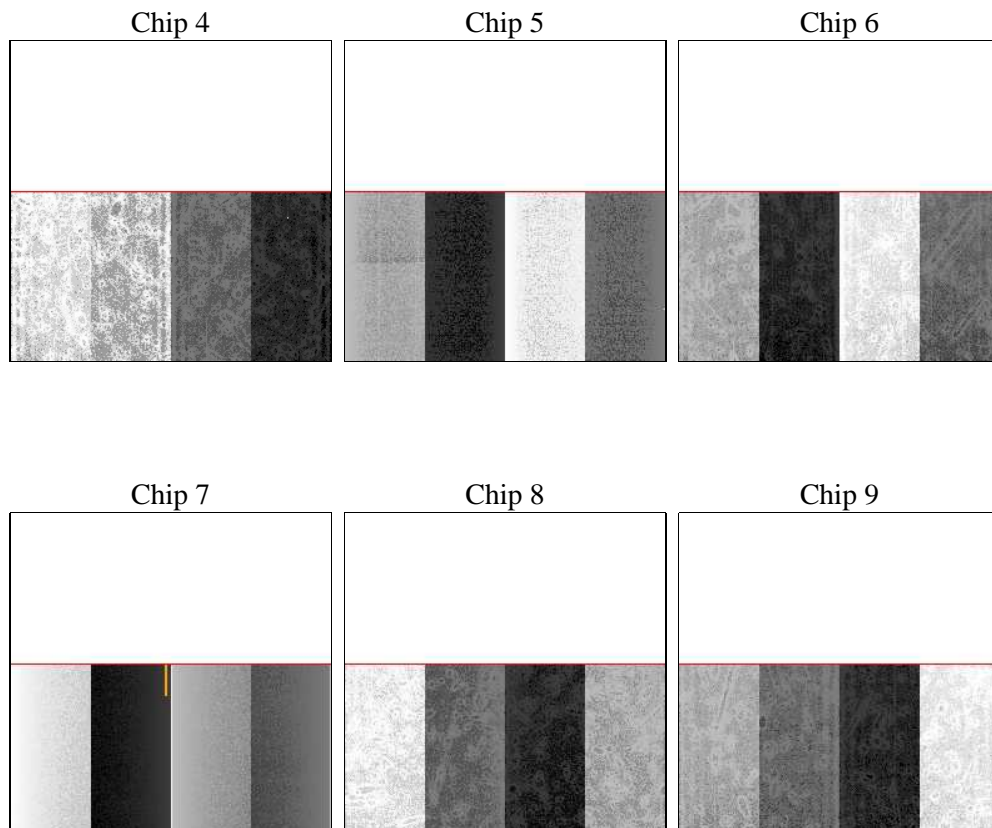
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 58500.000000 | [s] Scheduled observation exposure time |
| ascdsver | 8.5.1.1 | Processing system revision | ontime | 58656.600388467 | Sum of GTIs [s] |
| caldbver | 4.5.5 | | ontime4 | 58654.759378314 | Sum of GTIs [s] |
| date | 2012-12-27T23:05:21 | Date and time of file creation | ontime5 | 58656.600388467 | Sum of GTIs [s] |
| revision | 3 | Processing version of data | ontime6 | 58656.600388467 | Sum of GTIs [s] |
| | | | ontime7 | 58656.600388467 | Sum of GTIs [s] |
| | | | ontime8 | 58656.600388467 | Sum of GTIs [s] |
| | | | ontime9 | 58656.600388467 | Sum of GTIs [s] |
| | | | l1events | 2123086 | 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 | 312194 | 409481 | 322973 | 449041 | 343144 | 286253 | grade 0 events | 44419 | 33557 | 60814 | 32825 | 35752 | 40004 |
| rejected events | 249550 | 212709 | 225260 | 211053 | 256108 | 221135 | | 14% | 8% | 18% | 7% | 10% | 13% |
| rejected % | 79% | 51% | 69% | 47% | 74% | 77% | grade 1 events | 249 | 2434 | 283 | 1075 | 217 | 158 |
| | | | | | | | | 0% | 0% | 0% | 0% | 0% | 0% |
| | | | | | | | grade 2 events | 7276 | 56777 | 15192 | 52150 | 17294 | 11080 |
| | | | | | | | | 2% | 13% | 4% | 11% | 5% | 3% |
| | | | | | | | grade 3 events | 3732 | 12215 | 6479 | 23487 | 8499 | 3589 |
| | | | | | | | | 1% | 2% | 2% | 5% | 2% | 1% |
| | | | | | | | grade 4 events | 3604 | 10306 | 6260 | 23358 | 7955 | 5430 |
| | | | | | | | | 1% | 2% | 1% | 5% | 2% | 1% |
| | | | | | | | grade 5 events | 10307 | 34769 | 11263 | 35684 | 14199 | 11710 |
| | | | | | | | | 3% | 8% | 3% | 7% | 4% | 4% |
| | | | | | | | grade 6 events | 5328 | 89304 | 10152 | 110400 | 19737 | 6848 |
| | | | | | | | | 1% | 21% | 3% | 24% | 5% | 2% |
| | | | | | | | grade 7 events | 237279 | 170119 | 212530 | 170062 | 239491 | 207434 |
| | | | | | | | | 76% | 41% | 65% | 37% | 69% | 72% |

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 | 287.953957 | 287.9565943047081 | Subarray requested | CUSTOM | CUSTOM |
| [deg] Pointing Dec | 5.014495 | 4.987381955236865 | Subarray start row | 1 | 1 |
| [deg] Pointing Roll | 244.600205 | 244.7565884007838 | Subarray row count | 542 | 542 |
| [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 | 1.8 |
| [mm] SIM translation stage pos | -184.532523 | -184.5306286120915 | | | |
| [mm] SIM translation stage offset | -5.6 | -5.601893970916279 | | | |
| Phase constraints | Y | Y | | | |
| [d] Phase period | 13.082110 | 13.082110 | | | |
| [d] Phase epoch (MJD) | 52377.900000 | 52377.900000 | | | |
| Phase start | 0.200000 | 0.200000 | | | |
| Phase end | 0.800000 | 0.800000 | | | |
| Phase start error | 0.050000 | 0.050000 | | | |
| Phase end error | 0.050000 | 0.050000 | | | |
| [s] Observation start time (MET) | 240707681.184000 | 240705777.33665 | | | |
| Observation start date | 2005-08-17T23:13:37 | 2005-08-17T22:42:57 | | | |
| [s] Observation end time (MET) | 240766181.184000 | 240767756.52699 | | | |
| Observation end date | 2005-08-18T15:28:37 | 2005-08-18T15:55:56 | | | |
| Read mode | TIMED | TIMED | | | |

2.3 Aspect

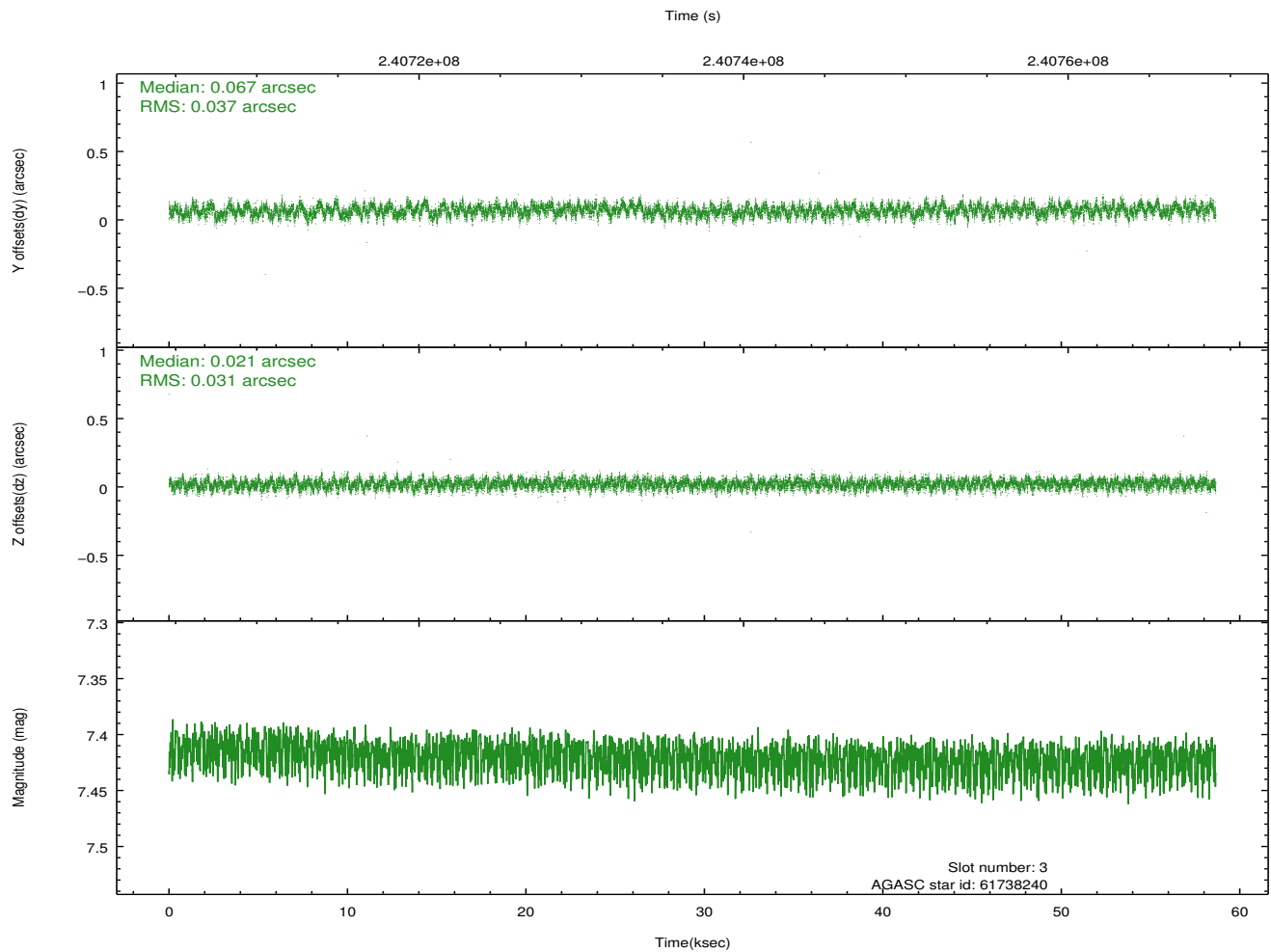
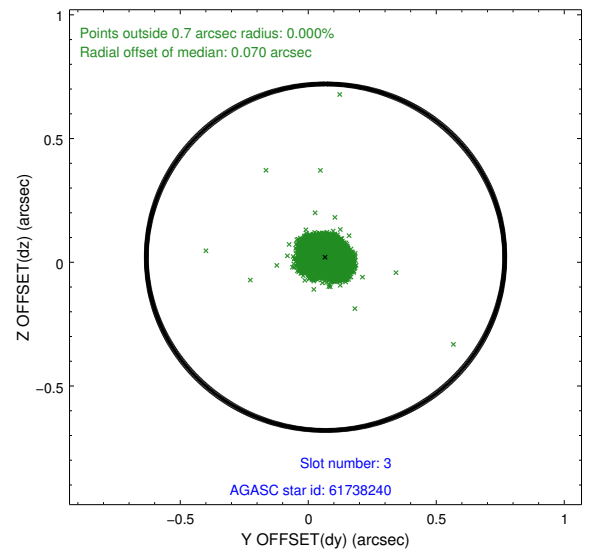
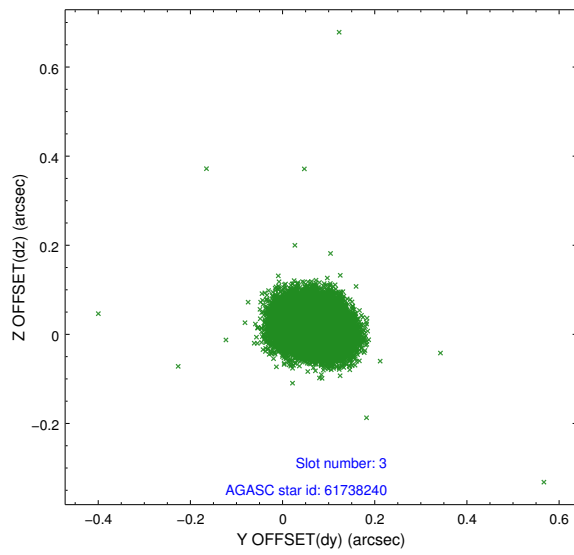
Slot Statistics

| 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 | 14308 | -0.068 | -0.119 | 0.013 | 0.036 | 0.000000 | 0.000000 | -760.05 | -1847.38 |
| 1 | FID | ACIS-S-4 | 7.19 | 14307 | 0.118 | 0.065 | 0.013 | 0.020 | 0.000000 | 0.000000 | 2153.43 | 61.30 |
| 2 | FID | ACIS-S-5 | 7.22 | 14307 | -0.081 | 0.062 | 0.017 | 0.030 | 0.000000 | 0.000000 | -1812.95 | 54.94 |
| 3 | GUIDE | 61738240 | 7.42 | 28611 | 0.067 | 0.021 | 0.051 | 0.082 | 287.996556 | 4.354861 | 2079.69 | 1156.89 |
| 4 | GUIDE | 61743800 | 7.49 | 28614 | 0.035 | -0.031 | 0.053 | 0.089 | 287.776811 | 5.274666 | -573.60 | -975.31 |
| 5 | GUIDE | 61744976 | 7.59 | 28614 | -0.036 | 0.103 | 0.048 | 0.079 | 288.430364 | 5.306675 | -1683.26 | 1091.40 |
| 6 | GUIDE | 61745024 | 7.60 | 28606 | -0.258 | -0.170 | 0.065 | 0.102 | 288.156168 | 5.297362 | -1231.16 | 217.92 |
| 7 | GUIDE | 61745016 | 8.64 | 28606 | 0.187 | 0.075 | 0.055 | 0.089 | 288.113628 | 4.368816 | 1854.13 | 1515.25 |

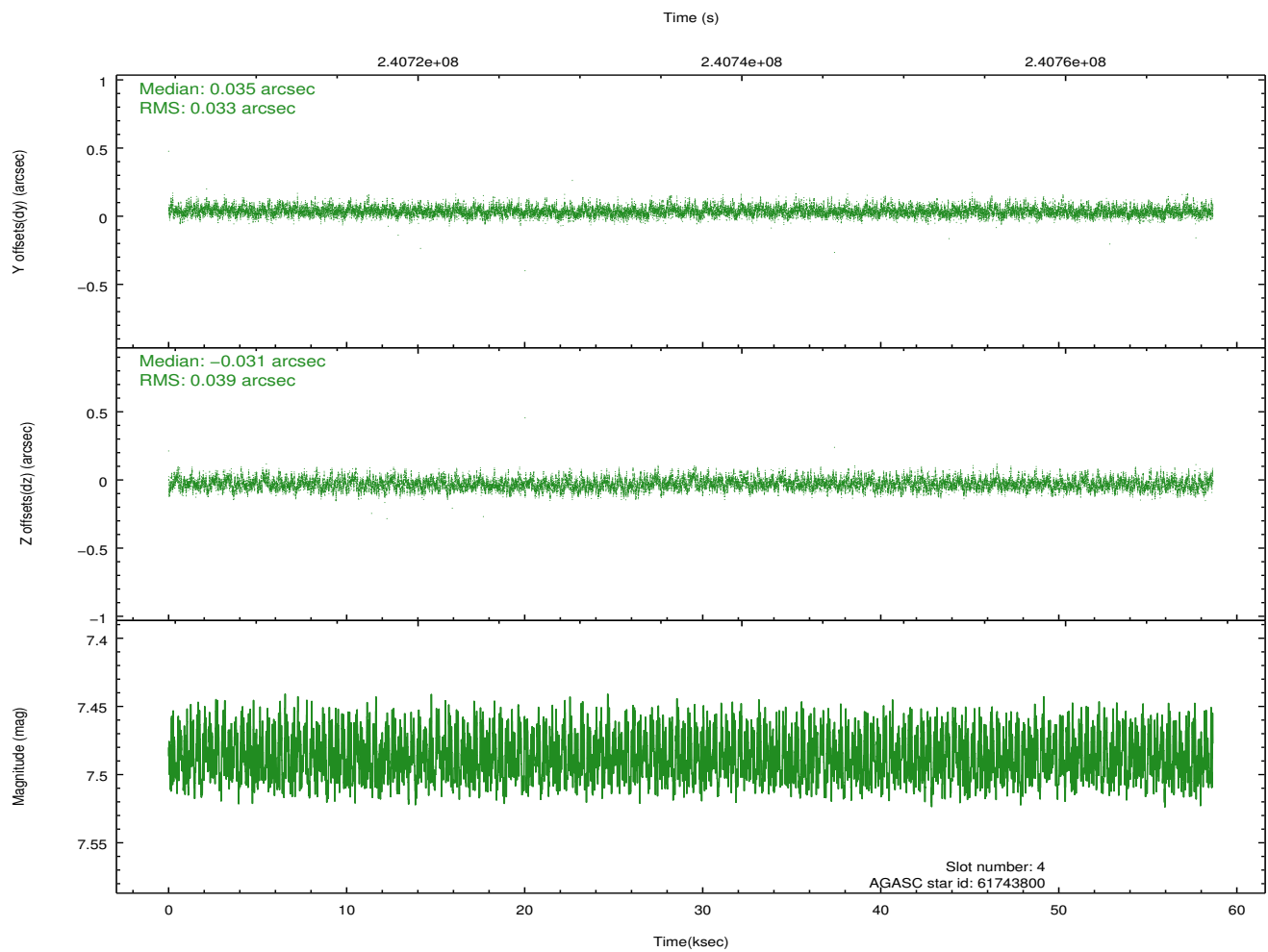
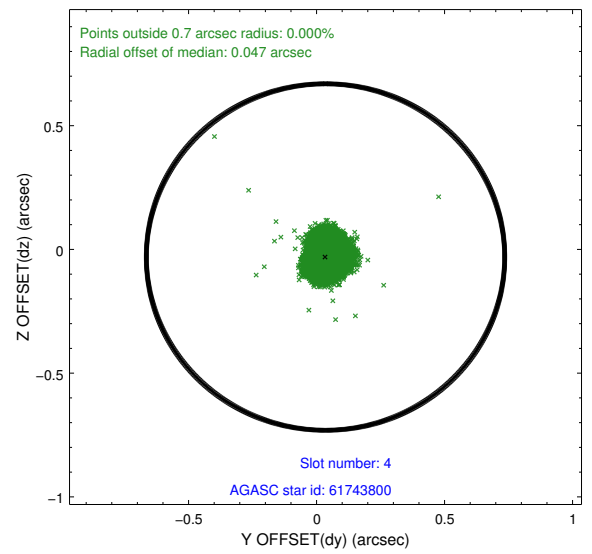
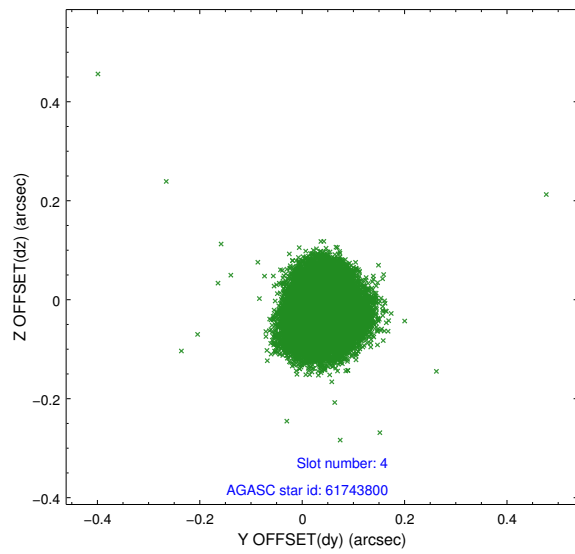
∞

2.4 Star Slots

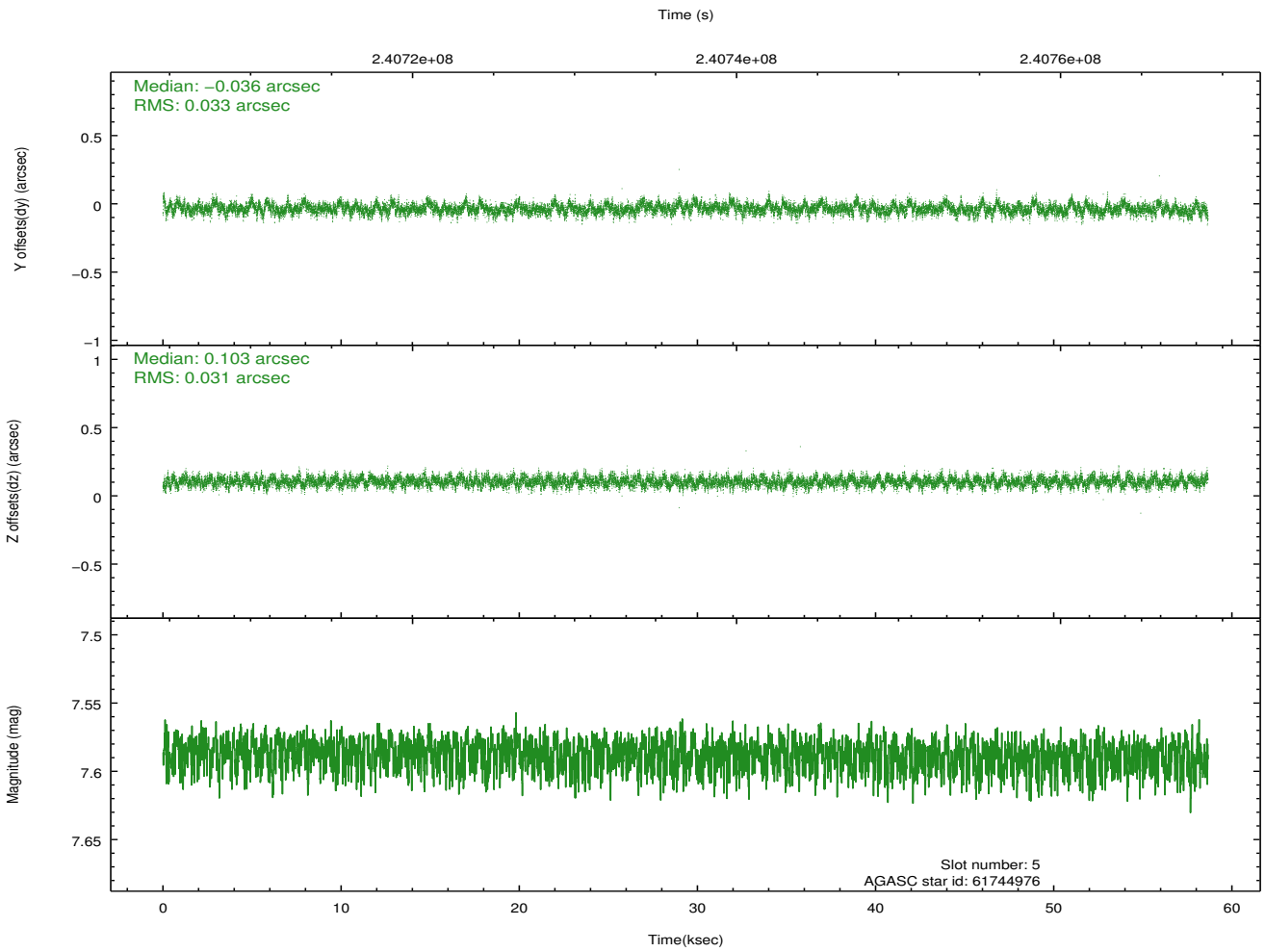
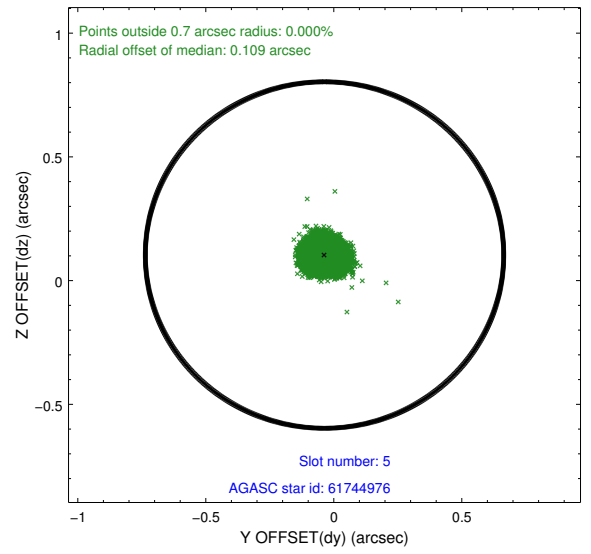
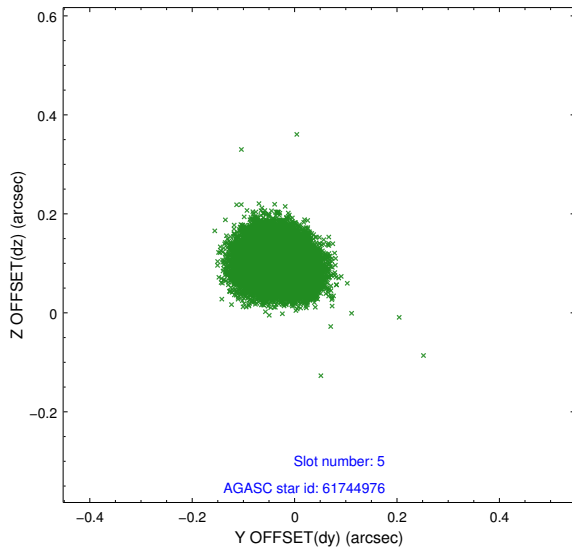
2.4.1 Slot 3



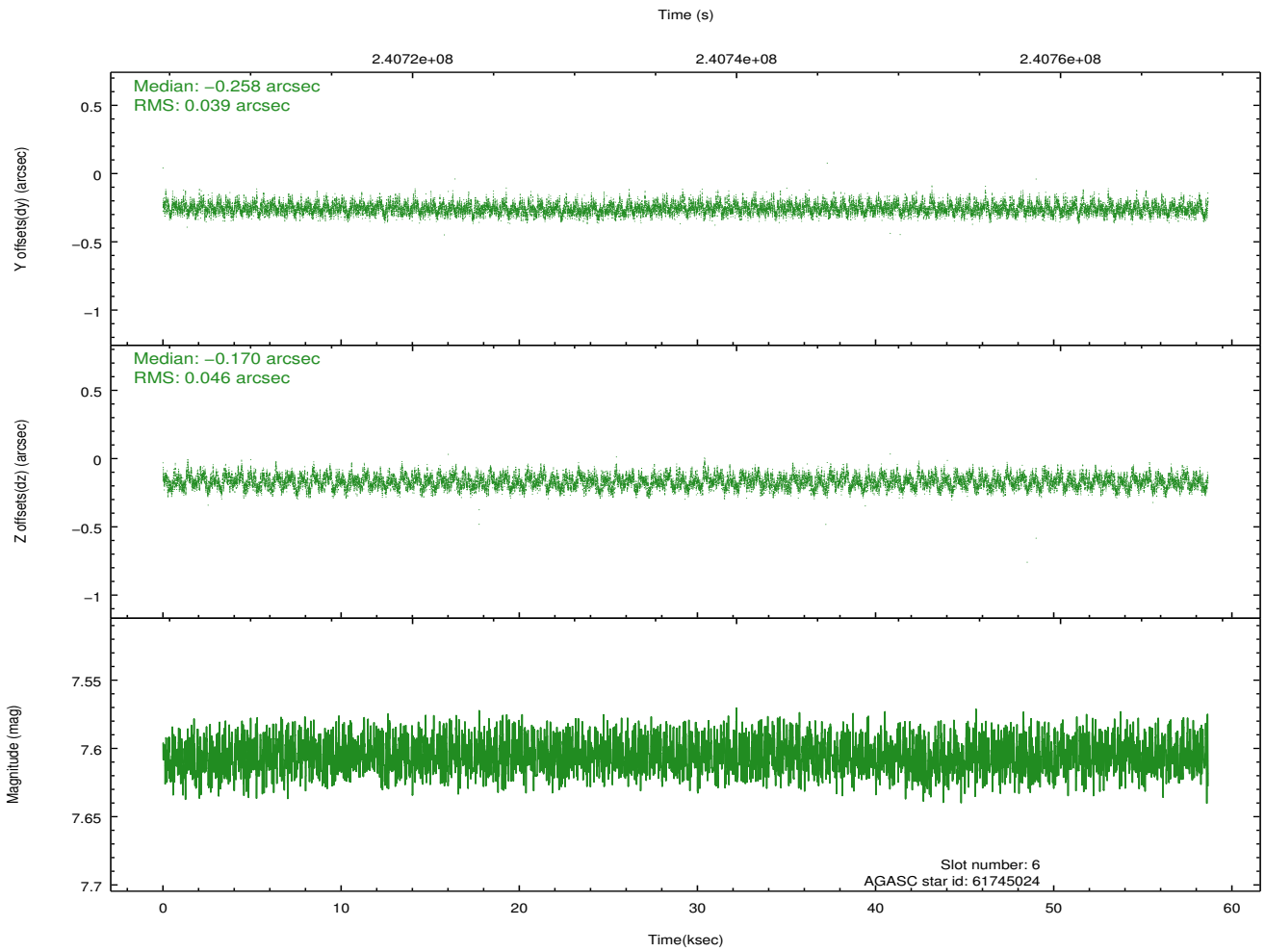
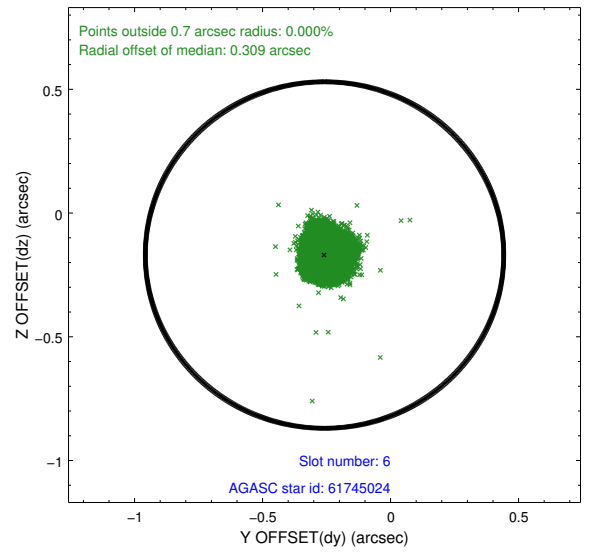
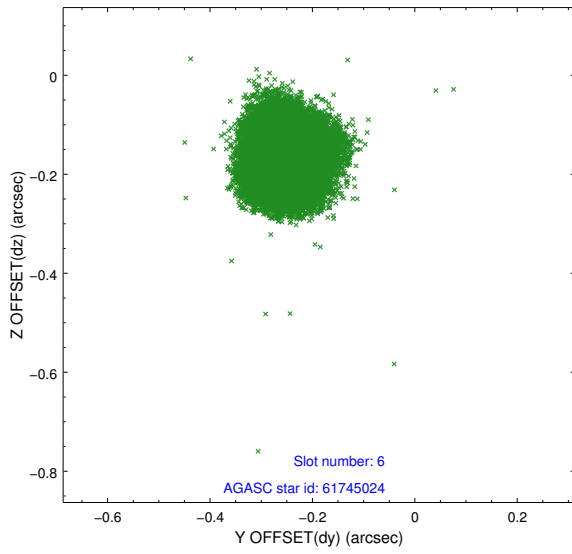
2.4.2 Slot 4



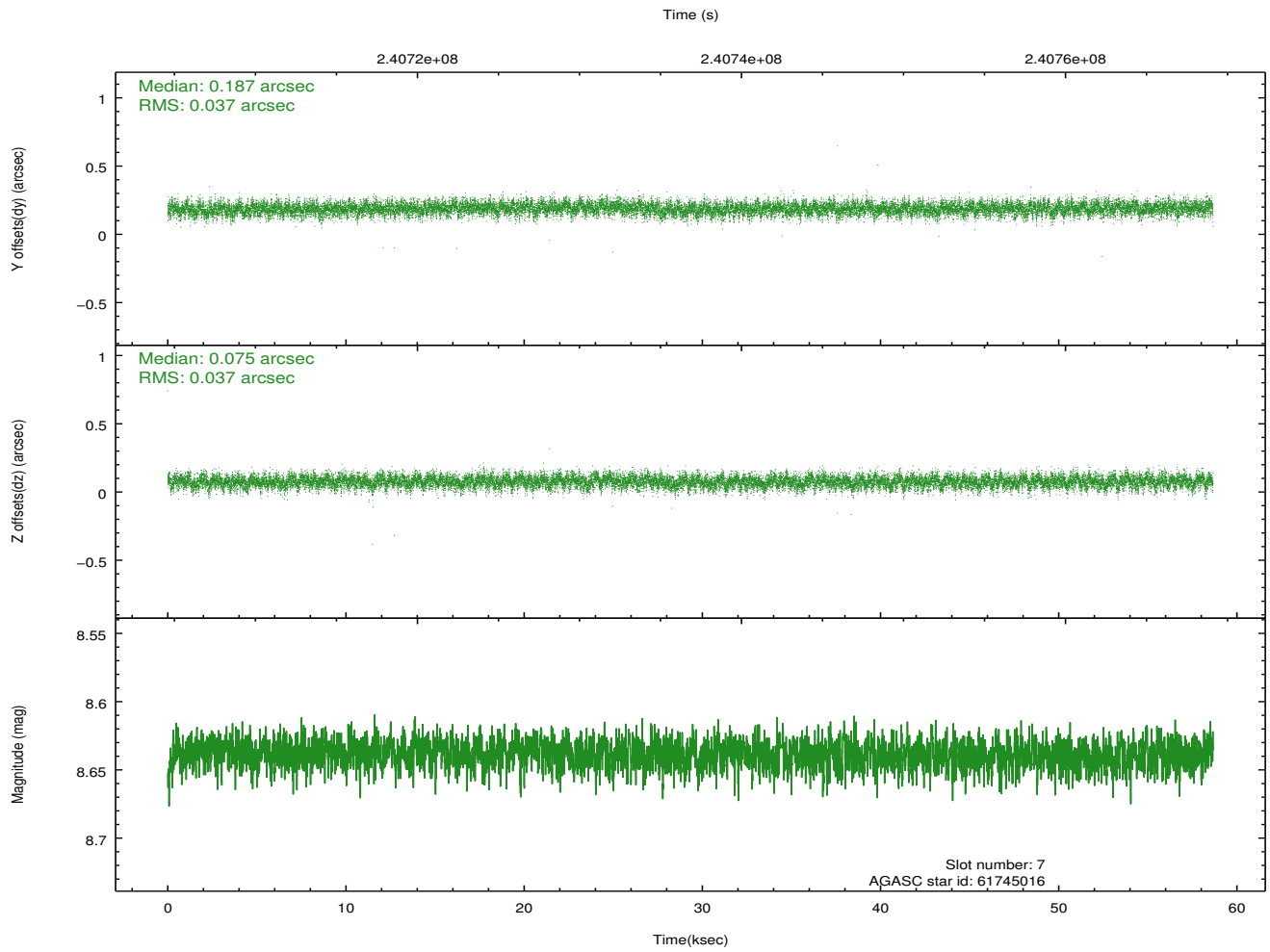
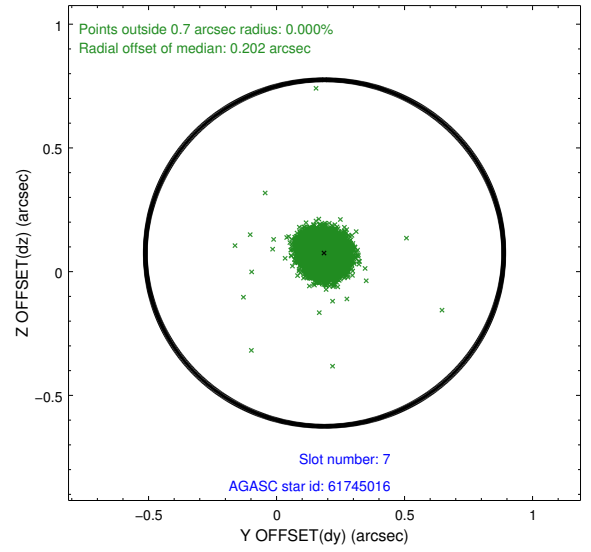
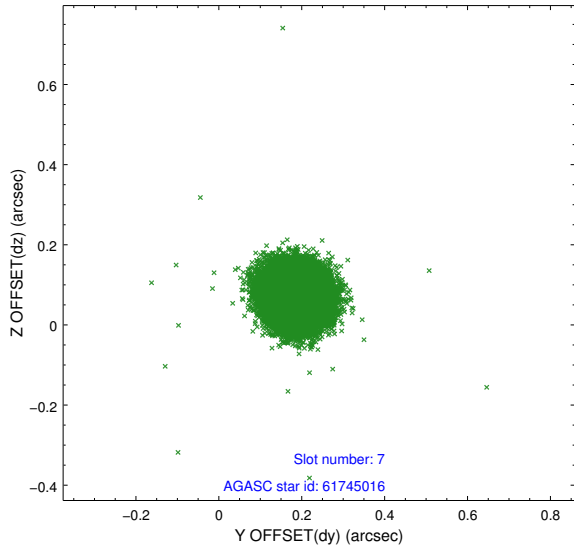
2.4.3 Slot 5



2.4.4 Slot 6

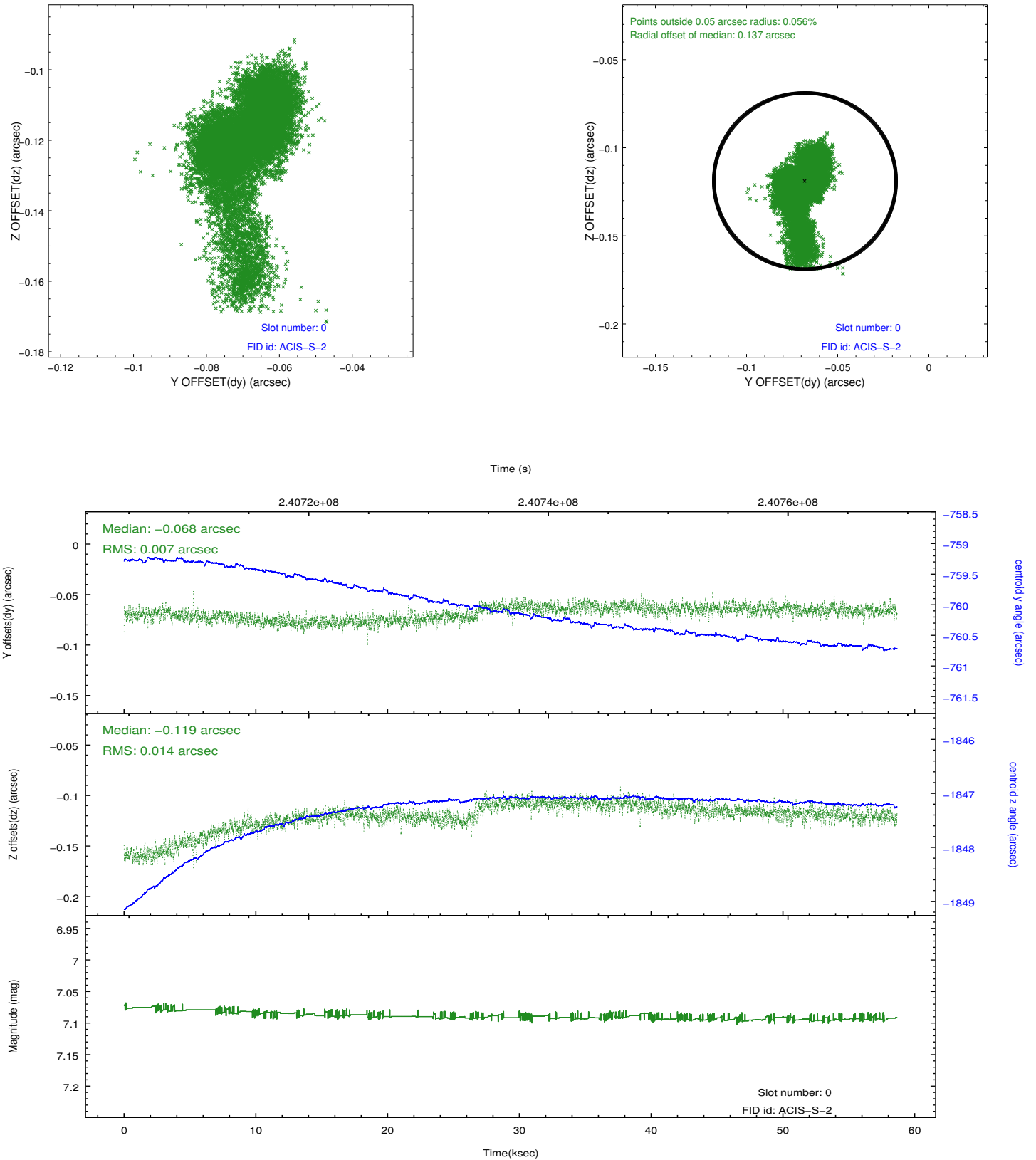


2.4.5 Slot 7

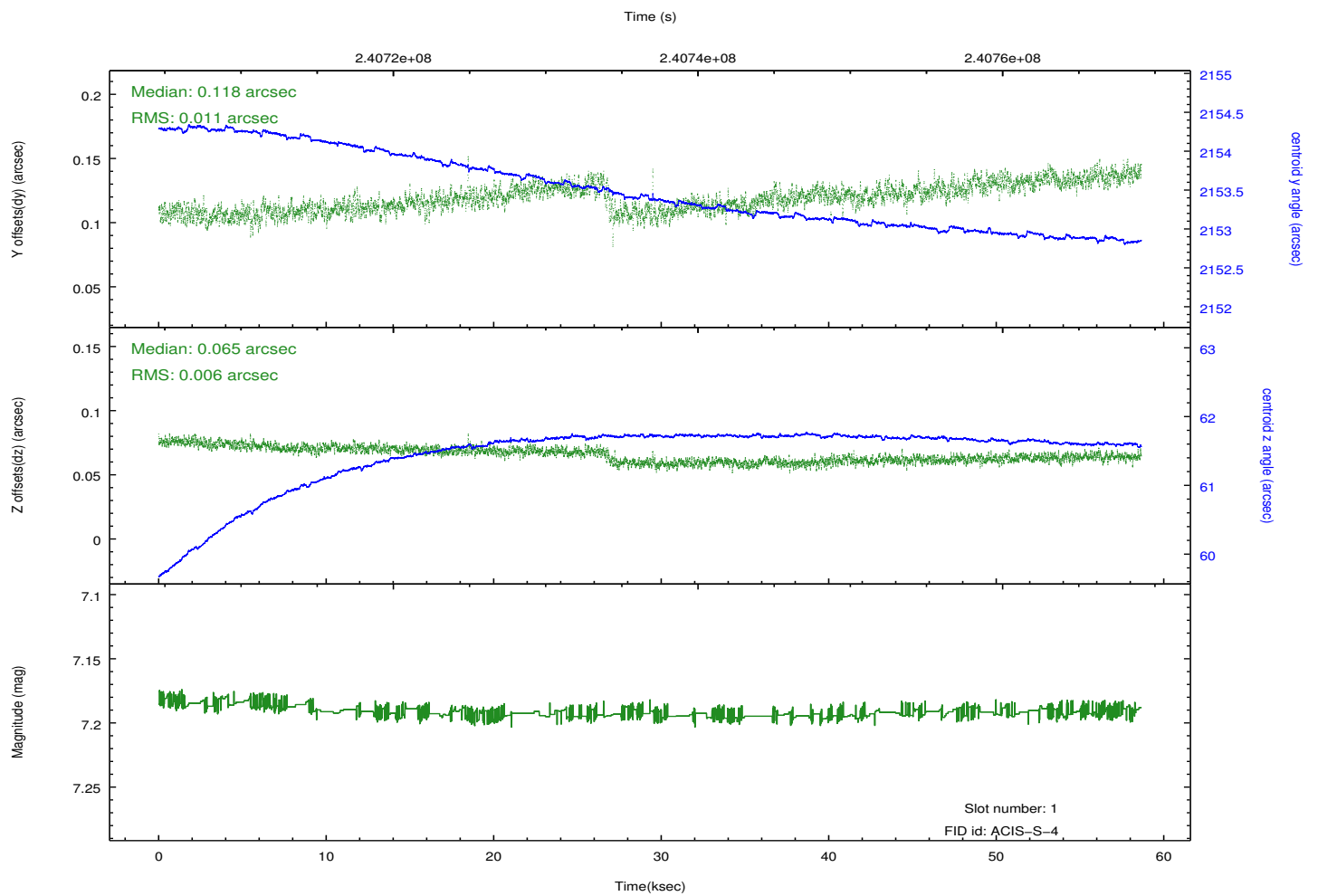
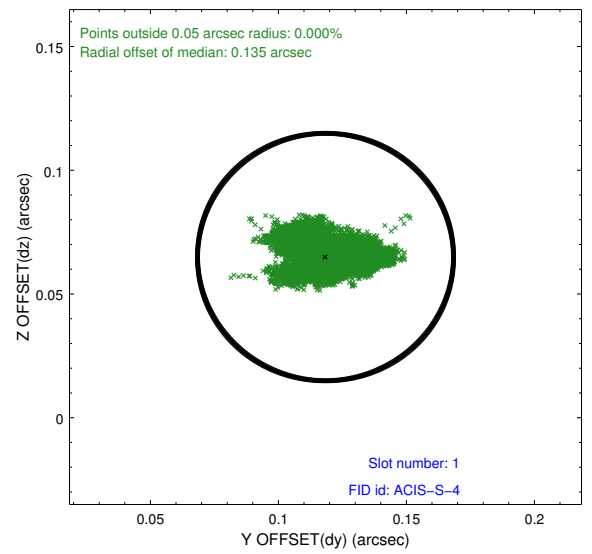
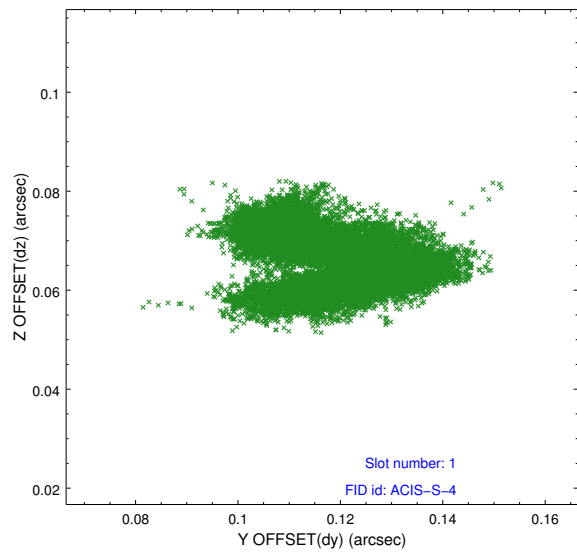


2.5 FID Slots

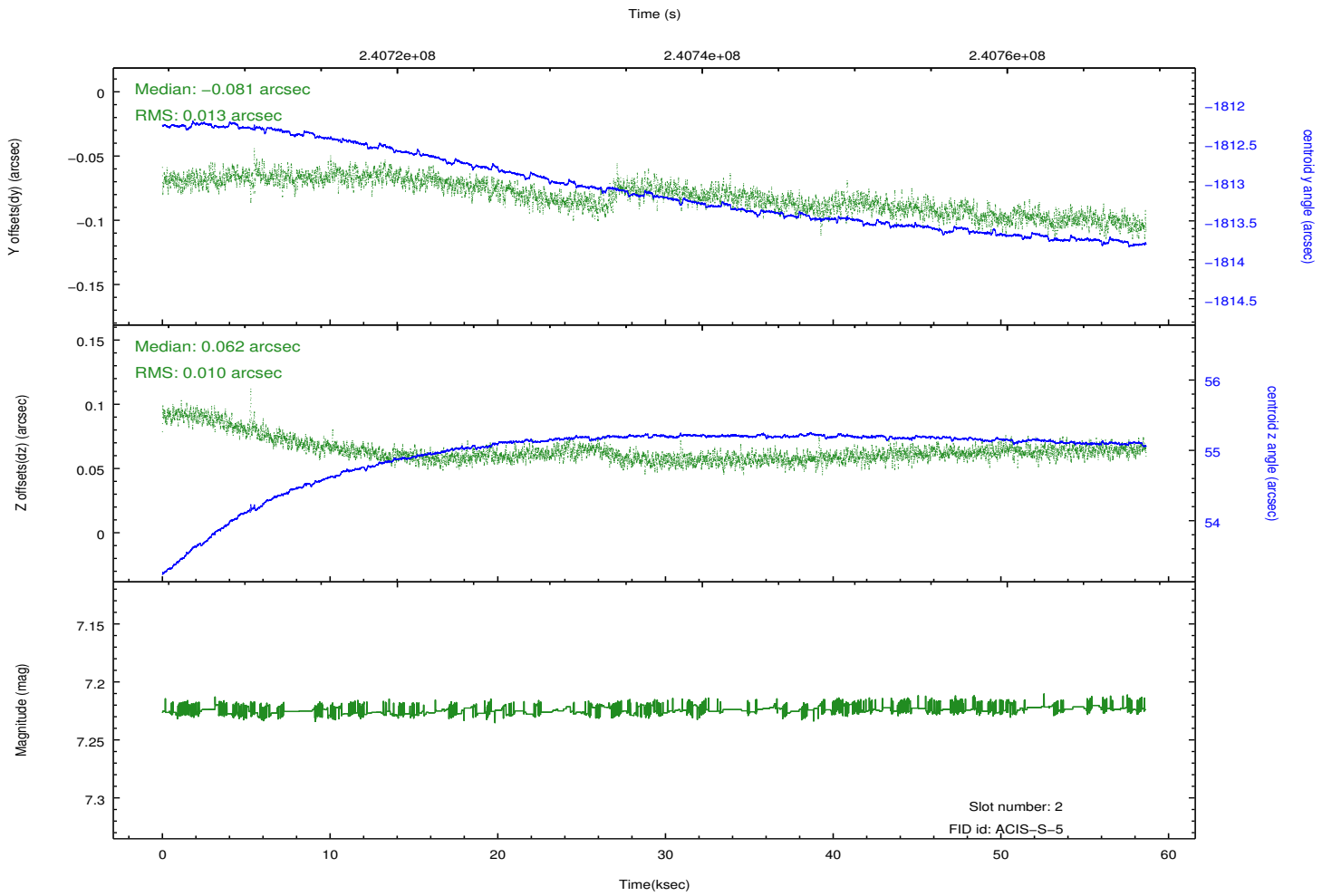
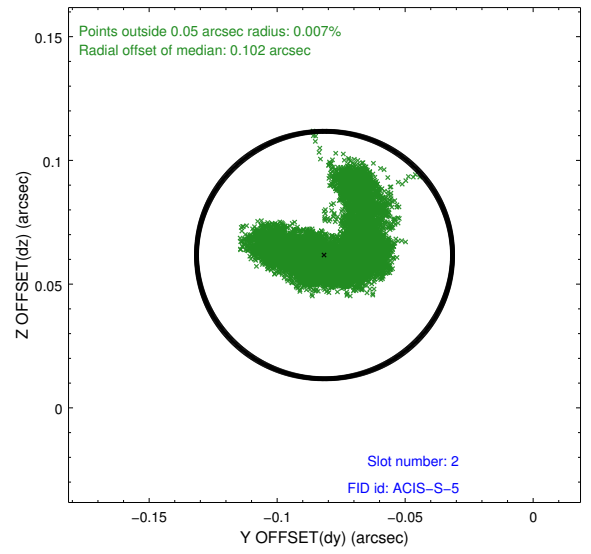
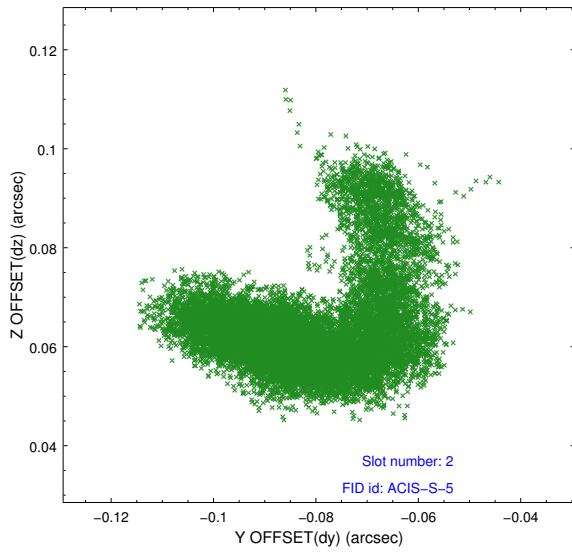
2.5.1 Slot 0



2.5.2 Slot 1

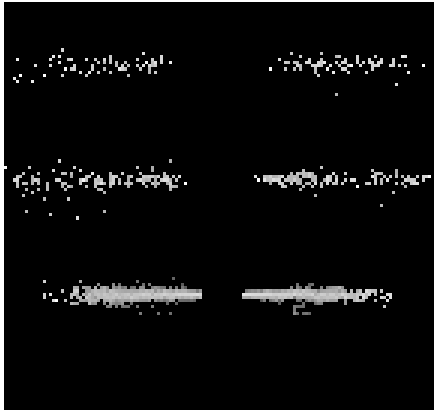


2.5.3 Slot 2

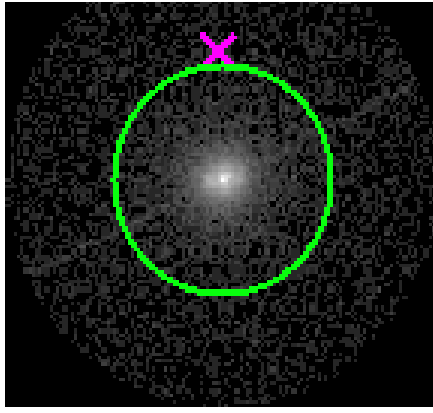


3 Gratings

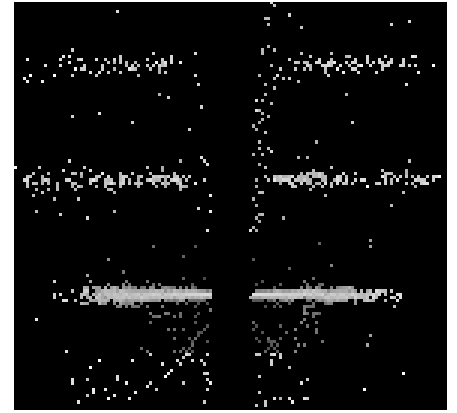
3.1 HEG Arm



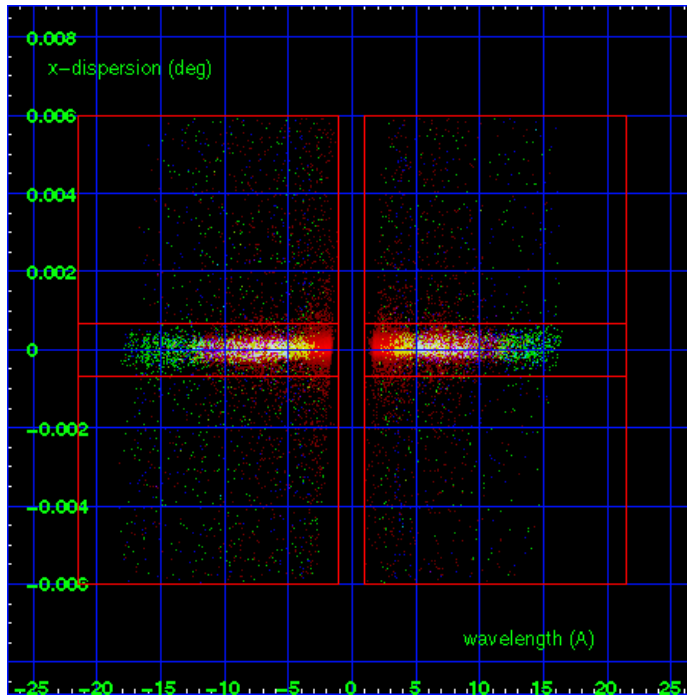
HEG Order Sort 123



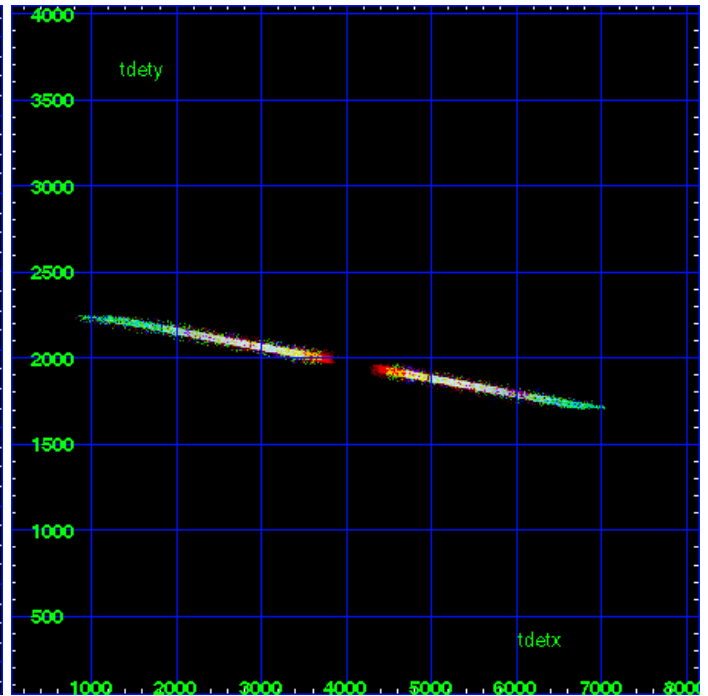
HEG Zero Order



HEG Order Sort ALL

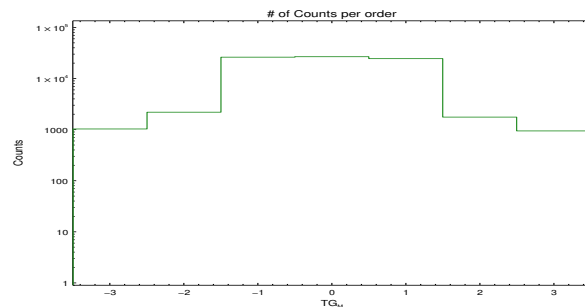


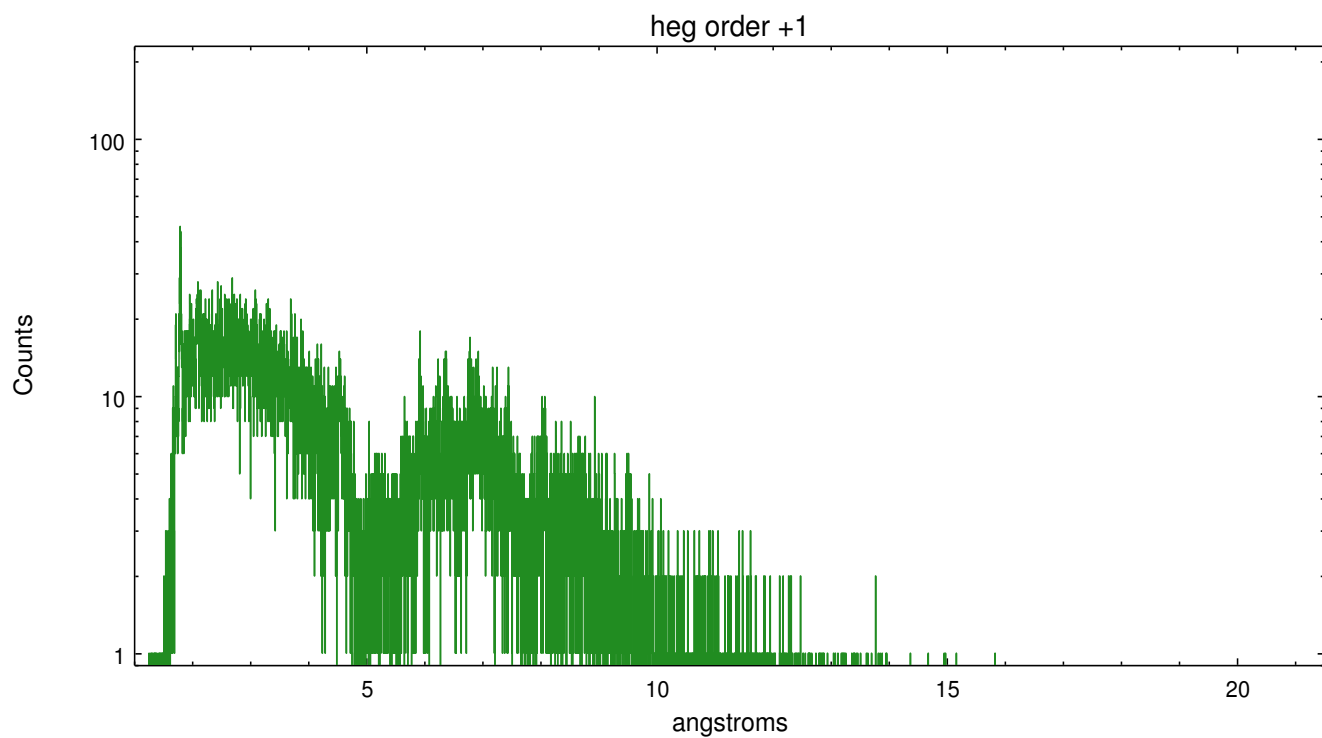
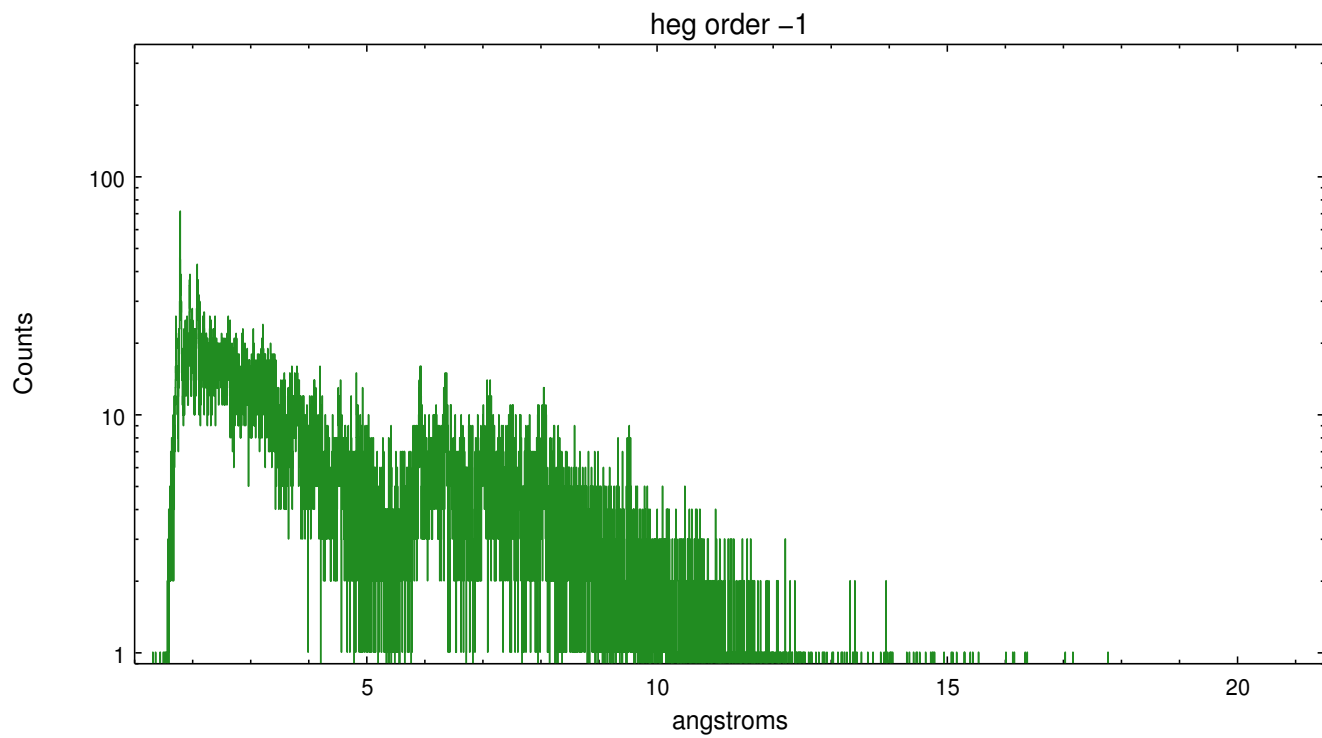
Spot Image HEG



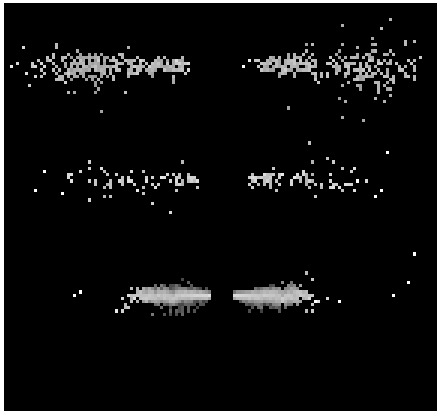
Full Detector HEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|----------|----------|----------|---------|---------|---------|---------|
| Events | 1033 | 2201 | 26393 | 26966 | 24711 | 1764 | 946 |

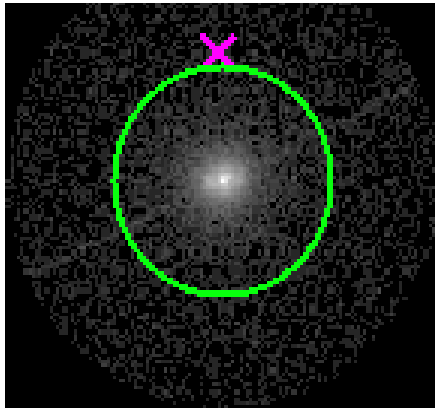




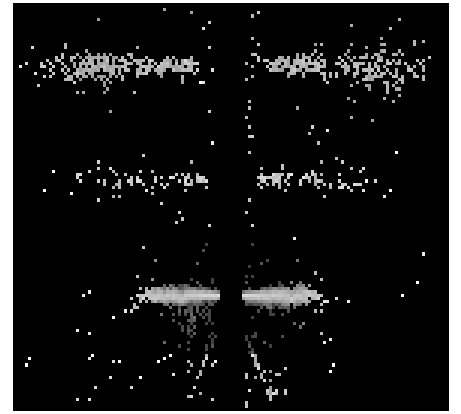
3.2 MEG Arm



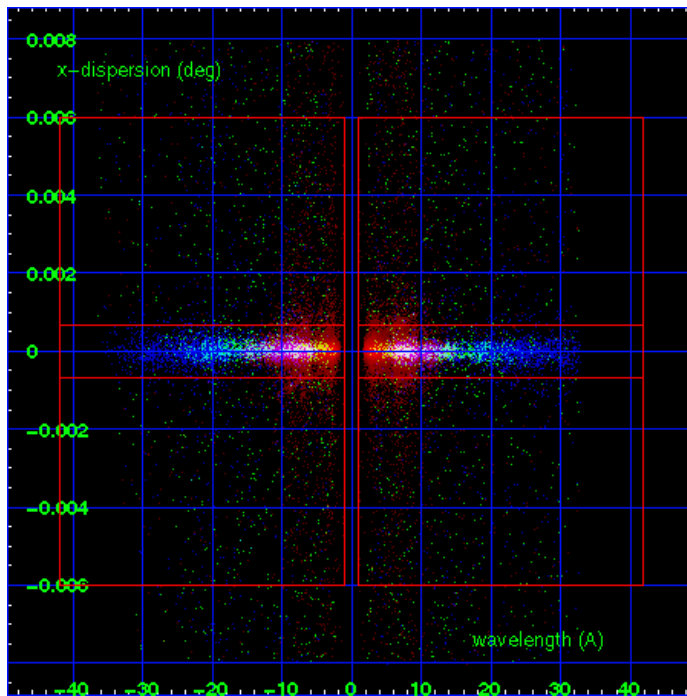
MEG Order Sort 123



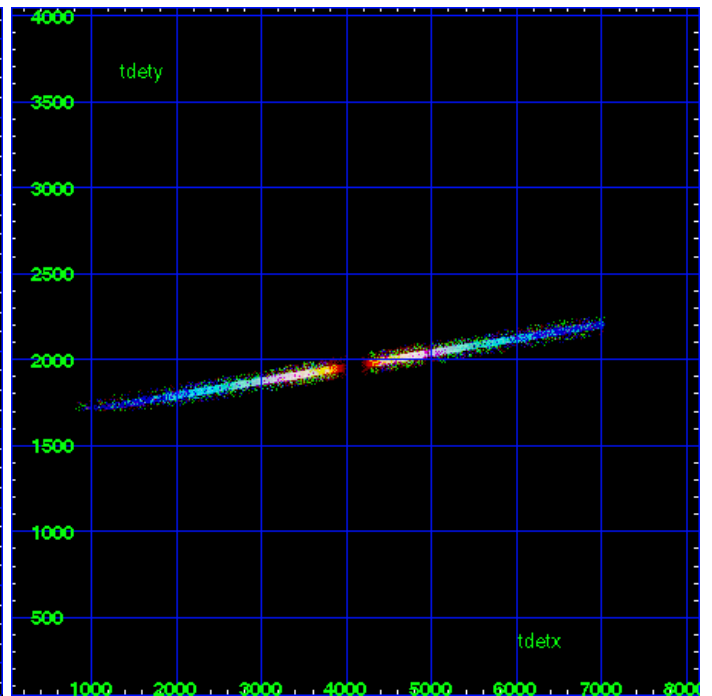
MEG Zero Order



MEG Order Sort ALL

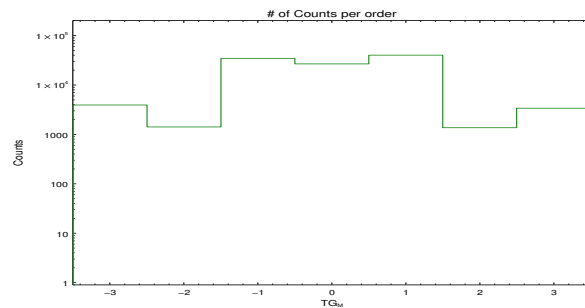


Spot Image MEG

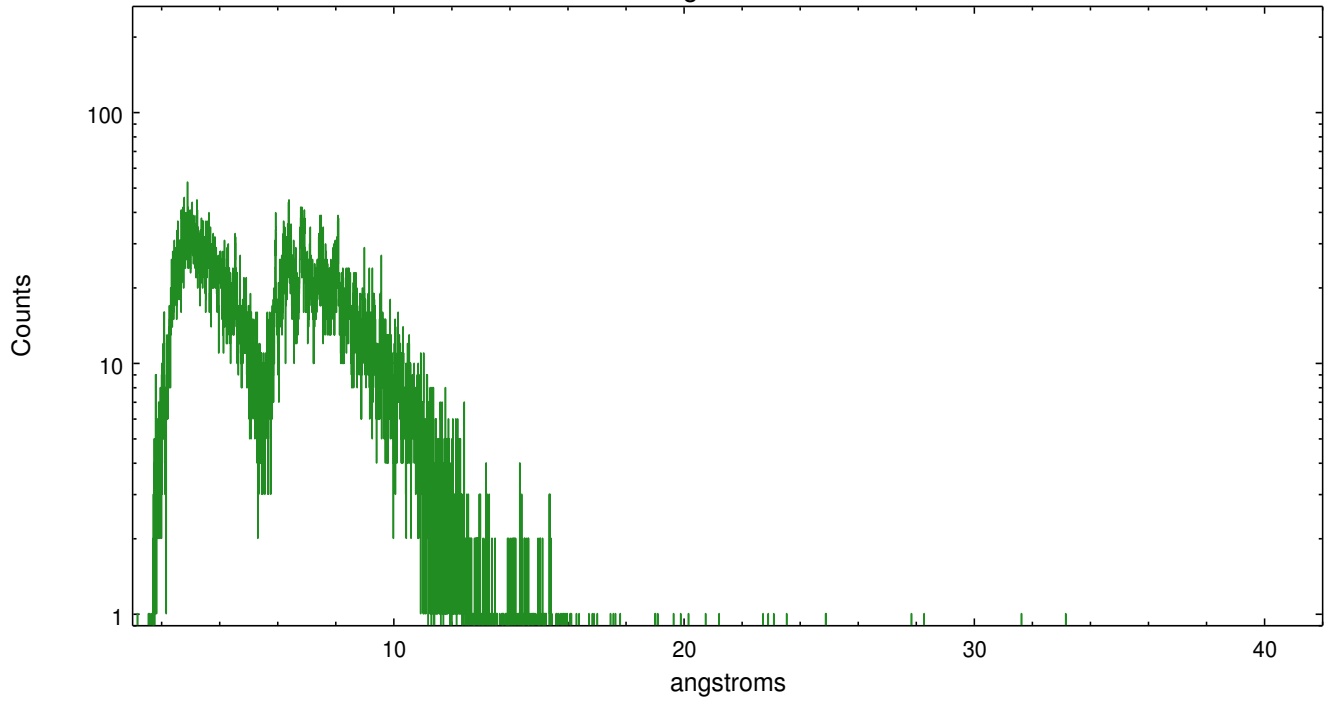


Full Detector MEG

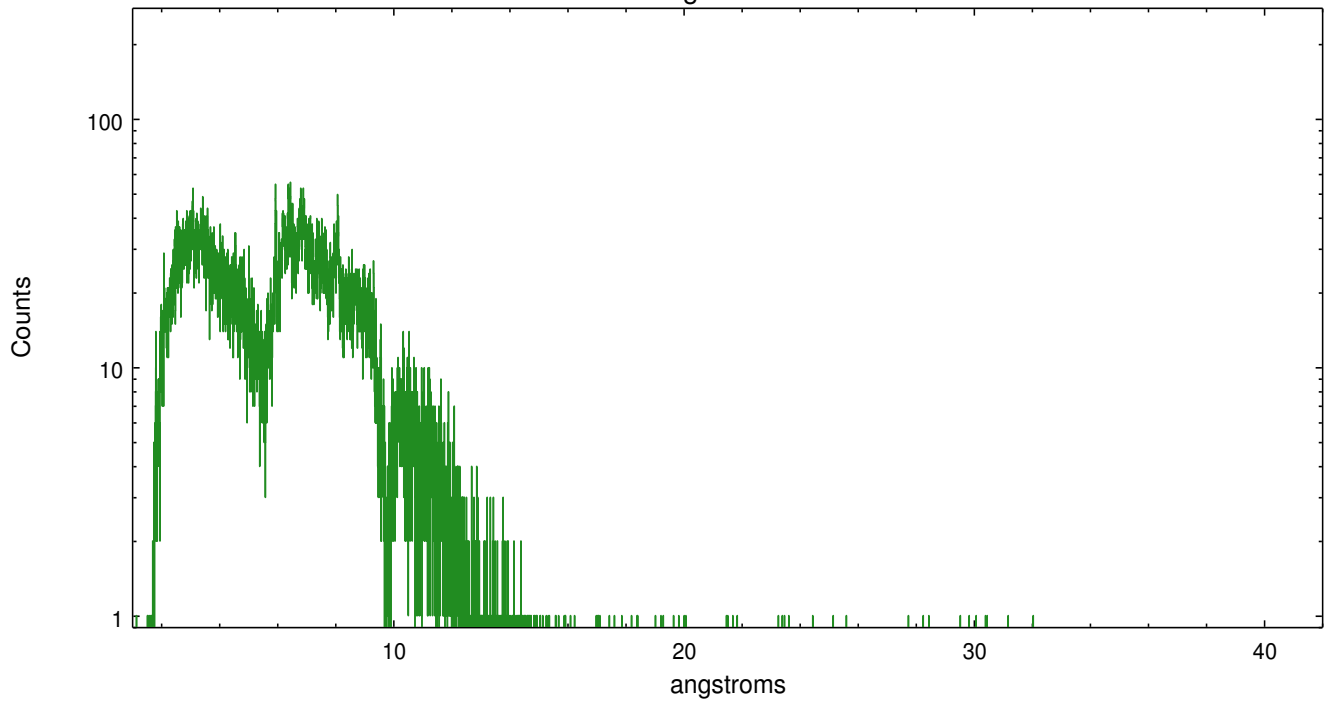
| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 3954 | 1419 | 34877 | 26966 | 40509 | 1370 | 3404 |



meg order -1



meg order +1



A Summary

A.1 Status

| | |
|----------------------------|-------------|
| V&V Scientist | Joy Nichols |
| V&V Date (YYYY-MM-DD) | 2013.01.23 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 58.6566 |

A.2 Comments

Comment: Mildly extended source ~5 arcsec

===

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates (x=4097.17, y=4062.14) into the *src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called tg_findzo, available in CIAO. The tool calculates the point of intersection of the readout streak and the meg arm. The zeroth order source position determined by the standard pipeline processing using the tool tgdetect was not used in this processing. The newly determined zeroth order coordinates have been placed in the *src1a.fits file, replacing the coordinates determined by tgdetect. Note that these corrected coordinates of the zeroth order cannot be reproduced by running tgdetect on the data.