

V&V Reference Report

L2 ASCDS Version : 10.2.1

Observation 16080 - L2 Version 2
Chandra X-Ray Center

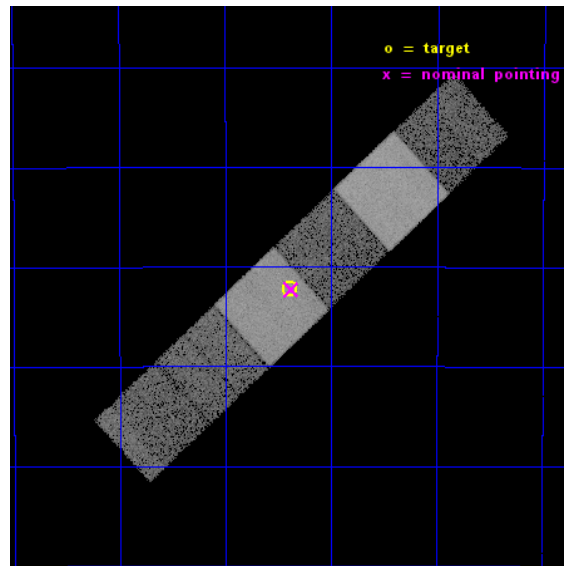
L2 Processing Date : Dec 11 2014

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1 Front

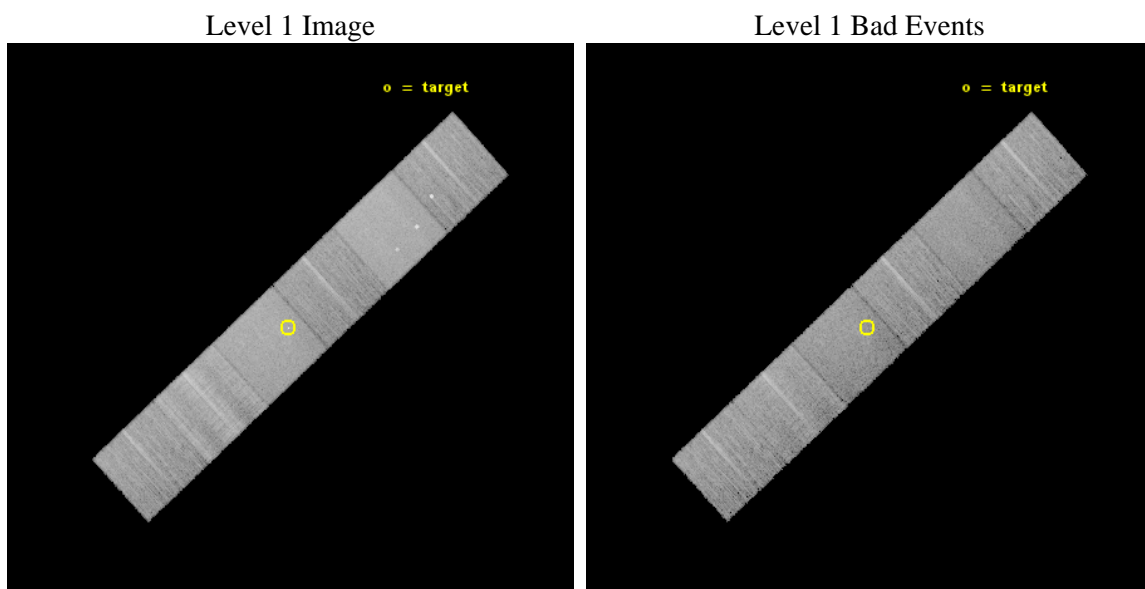
| | | |
|----------|----------------------------------------------|---------------------------------------------|
| seq_num | 702972 | Sequence number |
| obs_id | 16080 | Observation id |
| title | Probing the circumnuclear region of NGC 7582 | Proposal title |
| observer | Dr Valentina Braito | Principal investigator |
| object | NGC 7582 | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 349.597917 | Observer's specified target RA [deg] |
| dec_targ | -42.370556 | Observer's specified target Dec [deg] |
| ra_nom | 349.59395256748 | Nominal RA [deg] |
| dec_nom | -42.371345550844 | Nominal Dec [deg] |
| roll_nom | 137.16540155626 | Nominal Roll [deg] |
| revision | 2 | Processing version of data |
| ontime | 19958.399925709 | Sum of GTIs [s] |
| livetime | 19705.674648344 | Livetime [s] |
| ontime4 | 19955.158905447 | Sum of GTIs [s] |
| ontime5 | 19958.399925709 | Sum of GTIs [s] |
| ontime6 | 19958.399925709 | Sum of GTIs [s] |
| ontime7 | 19958.399925709 | Sum of GTIs [s] |
| ontime8 | 19958.399925709 | Sum of GTIs [s] |
| ontime9 | 19958.399925709 | Sum of GTIs [s] |
| l2events | 159498 | Number of level 2 events |



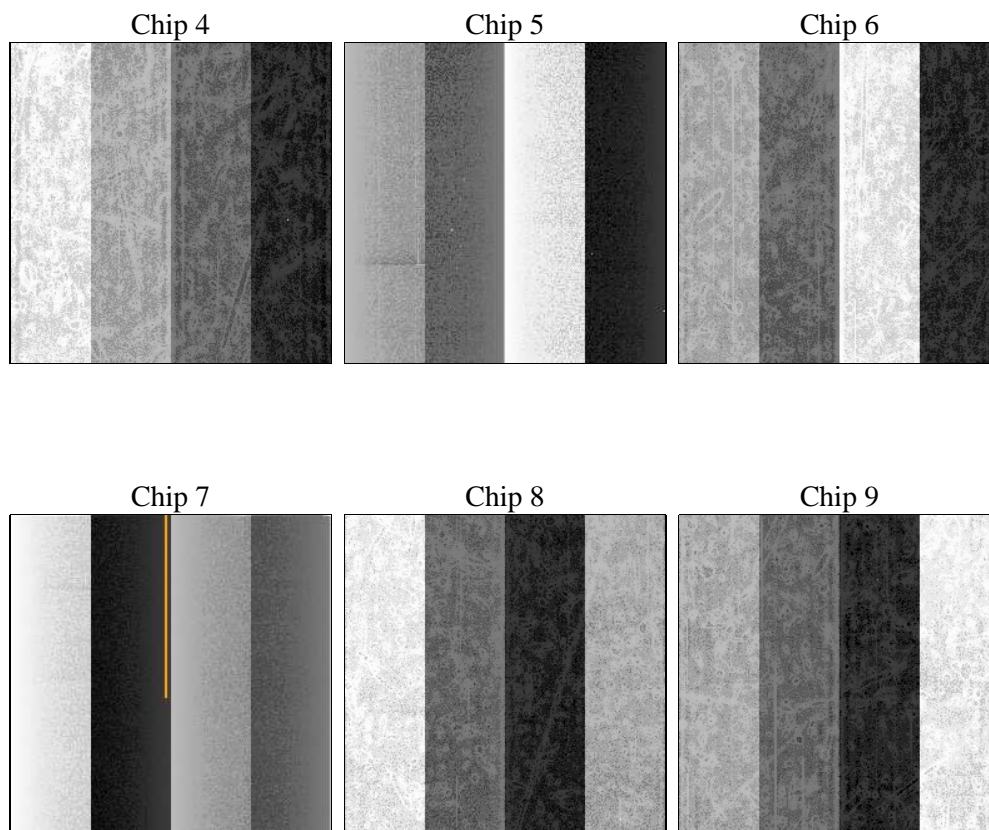
2 OBI

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 | 10.3.1 | Processing system revision | ontime | 19958.399925709 | Sum of GTIs [s] |
| caldsver | 4.6.4 | | ontime4 | 19955.158905447 | Sum of GTIs [s] |
| date | 2014-12-11T09:23:02 | Date and time of file creation | ontime5 | 19958.399925709 | Sum of GTIs [s] |
| revision | 2 | Processing version of data | ontime6 | 19958.399925709 | Sum of GTIs [s] |
| | | | ontime7 | 19958.399925709 | Sum of GTIs [s] |
| | | | ontime8 | 19958.399925709 | Sum of GTIs [s] |
| | | | ontime9 | 19958.399925709 | Sum of GTIs [s] |
| | | | l1events | 687057 | Number of level 1 events |
| | | | tgmetho | TGDETECT | Method used to create src1a file |
| | | | ra_pos | (4072.05, 4103.68) | src1a sky pixel position |

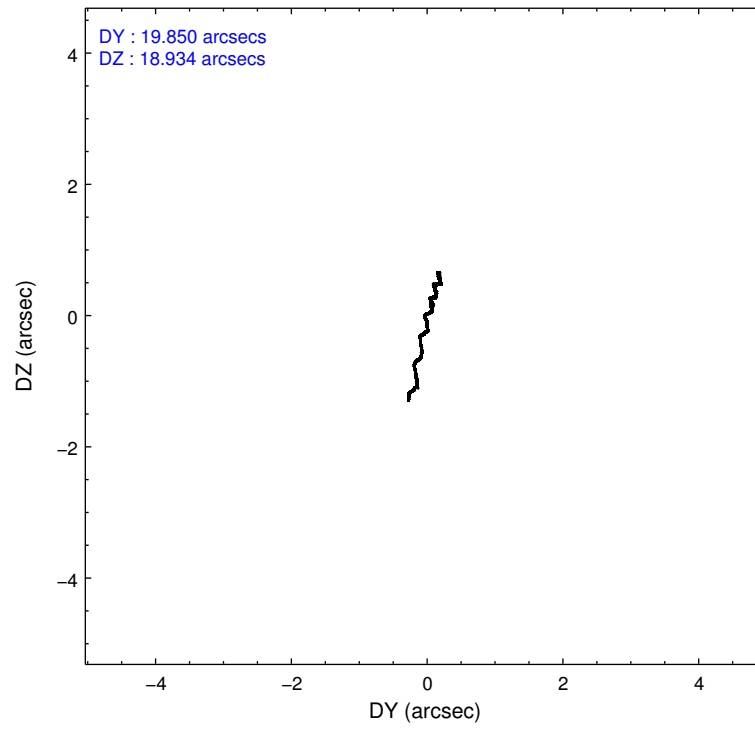
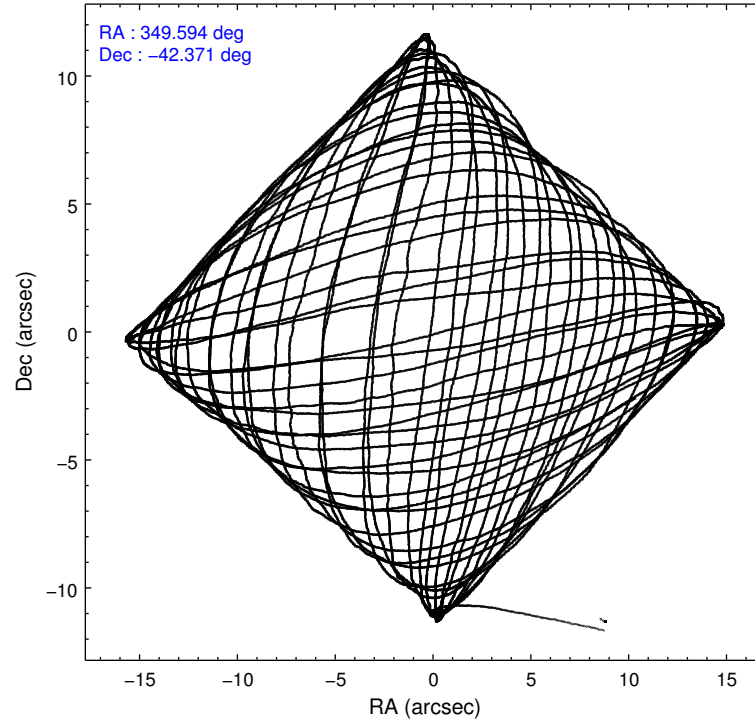
2.1.4 Events

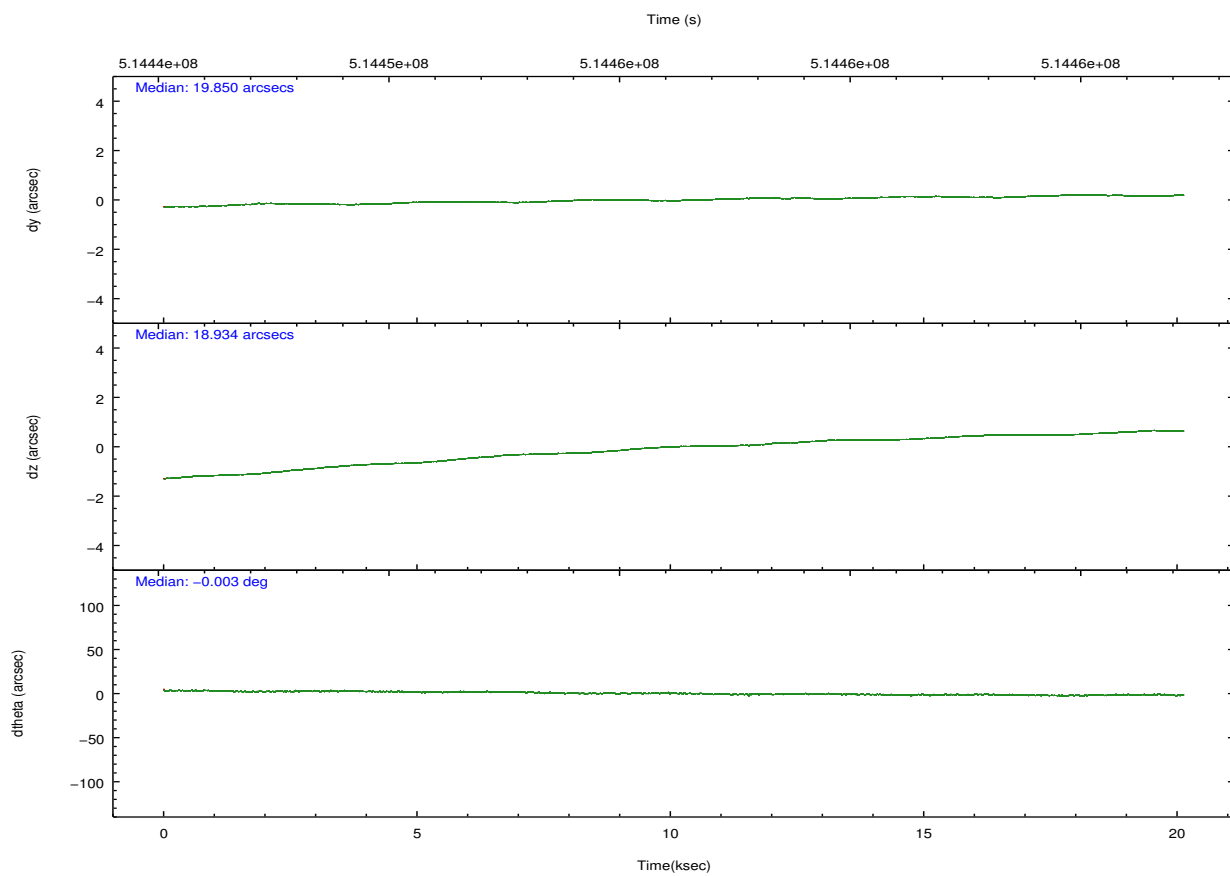
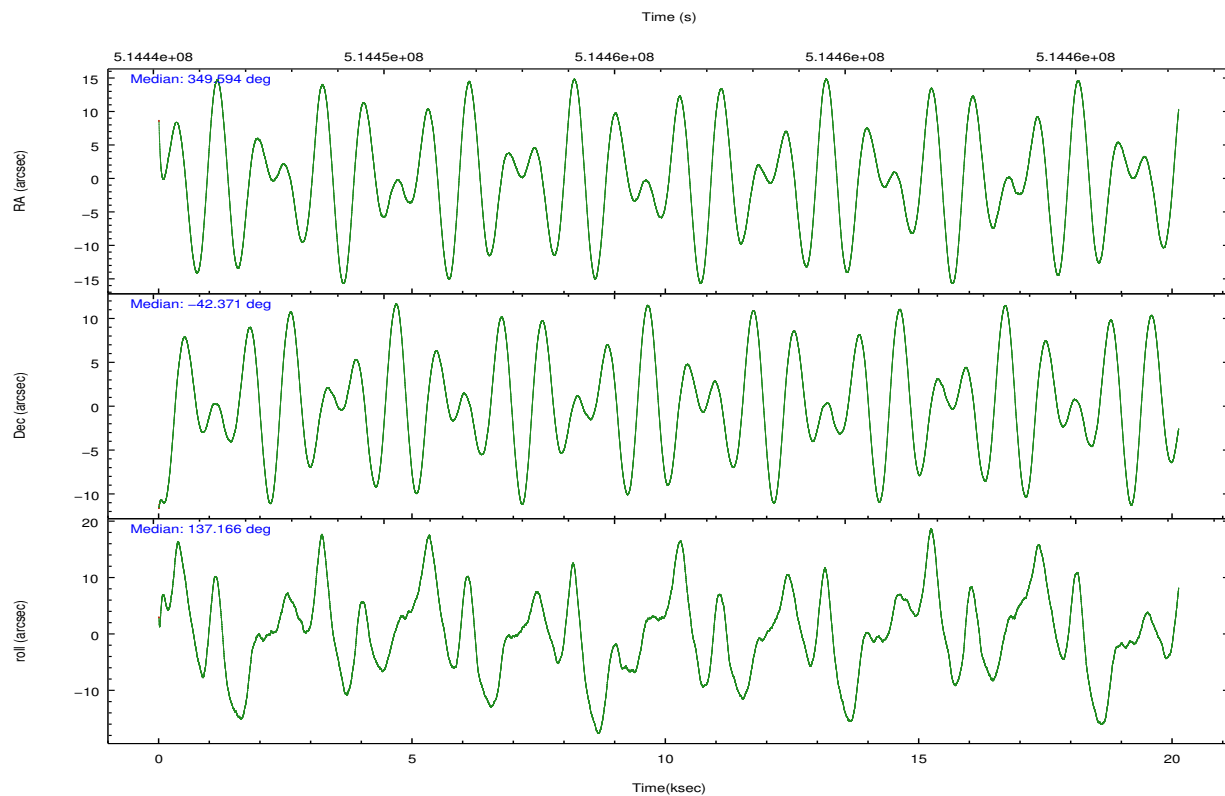
| | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 | | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|-----------------|--------|--------|-------|--------|--------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events | 101287 | 147617 | 89343 | 123406 | 132360 | 93044 | grade 0 events | 6200 | 5548 | 3822 | 4828 | 13126 | 3937 |
| rejected events | 87789 | 76862 | 78211 | 69717 | 89312 | 81470 | | 6% | 3% | 4% | 3% | 9% | 4% |
| rejected % | 86% | 52% | 87% | 56% | 67% | 87% | grade 1 events | 82 | 274 | 49 | 147 | 116 | 65 |
| | | | | | | | | 0% | 0% | 0% | 0% | 0% | 0% |
| | | | | | | | grade 2 events | 2855 | 21591 | 2600 | 11070 | 8821 | 2768 |
| | | | | | | | | 2% | 14% | 2% | 8% | 6% | 2% |
| | | | | | | | grade 3 events | 1274 | 2588 | 1111 | 4414 | 5604 | 1154 |
| | | | | | | | | 1% | 1% | 1% | 3% | 4% | 1% |
| | | | | | | | grade 4 events | 1176 | 2450 | 1117 | 4576 | 5321 | 1134 |
| | | | | | | | | 1% | 1% | 1% | 3% | 4% | 1% |
| | | | | | | | grade 5 events | 4667 | 10980 | 4668 | 12680 | 6899 | 5280 |
| | | | | | | | | 4% | 7% | 5% | 10% | 5% | 5% |
| | | | | | | | grade 6 events | 1994 | 38601 | 2488 | 28819 | 10184 | 2584 |
| | | | | | | | | 1% | 26% | 2% | 23% | 7% | 2% |
| | | | | | | | grade 7 events | 83039 | 65585 | 73488 | 56872 | 82289 | 76122 |
| | | | | | | | | 81% | 44% | 82% | 46% | 62% | 81% |

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 | CCD I0 on | N | N |
| Observation mode | POINTING | POINTING | CCD I1 on | N | N |
| [deg] Pointing RA | 349.630149 | 349.5939525674815 | CCD I2 on | N | N |
| [deg] Pointing Dec | -42.377020 | -42.37134555084445 | CCD I3 on | N | N |
| [deg] Pointing Roll | 137.033184 | 137.165401556256 | CCD S0 on | O1 | Y |
| [mm] SIM focus pos | -0.684267 | -0.6828225247311905 | CCD S1 on | Y | Y |
| [mm] SIM defocus | 0 | 0.001444936568705701 | CCD S2 on | Y | Y |
| [mm] SIM translation stage pos | -190.132523 | -190.1425803651734 | CCD S3 on | Y | Y |
| [mm] SIM translation stage offset | 0 | 0.01005778216563158 | CCD S4 on | Y | Y |
| [s] Observation start time (MET) | 514446243.184000 | 514444973.80585 | CCD S5 on | Y | Y |
| Observation start date | 2014-04-21T05:42:56 | 2014-04-21T05:22:53 | Number of optional ACIS chips dropped | 0 | 0 |
| [s] Observation end time (MET) | 514466243.184000 | 514467026.68207 | On-chip summing requested | N | N |
| Observation end date | 2014-04-21T11:16:16 | 2014-04-21T11:30:26 | Subarray requested | NONE | NONE |
| Read mode | TIMED | TIMED | Alternating exposures requested | N | N |
| | | | [s] Primary exposure time | 0.000000 | 3.2 |

2.3 Aspect



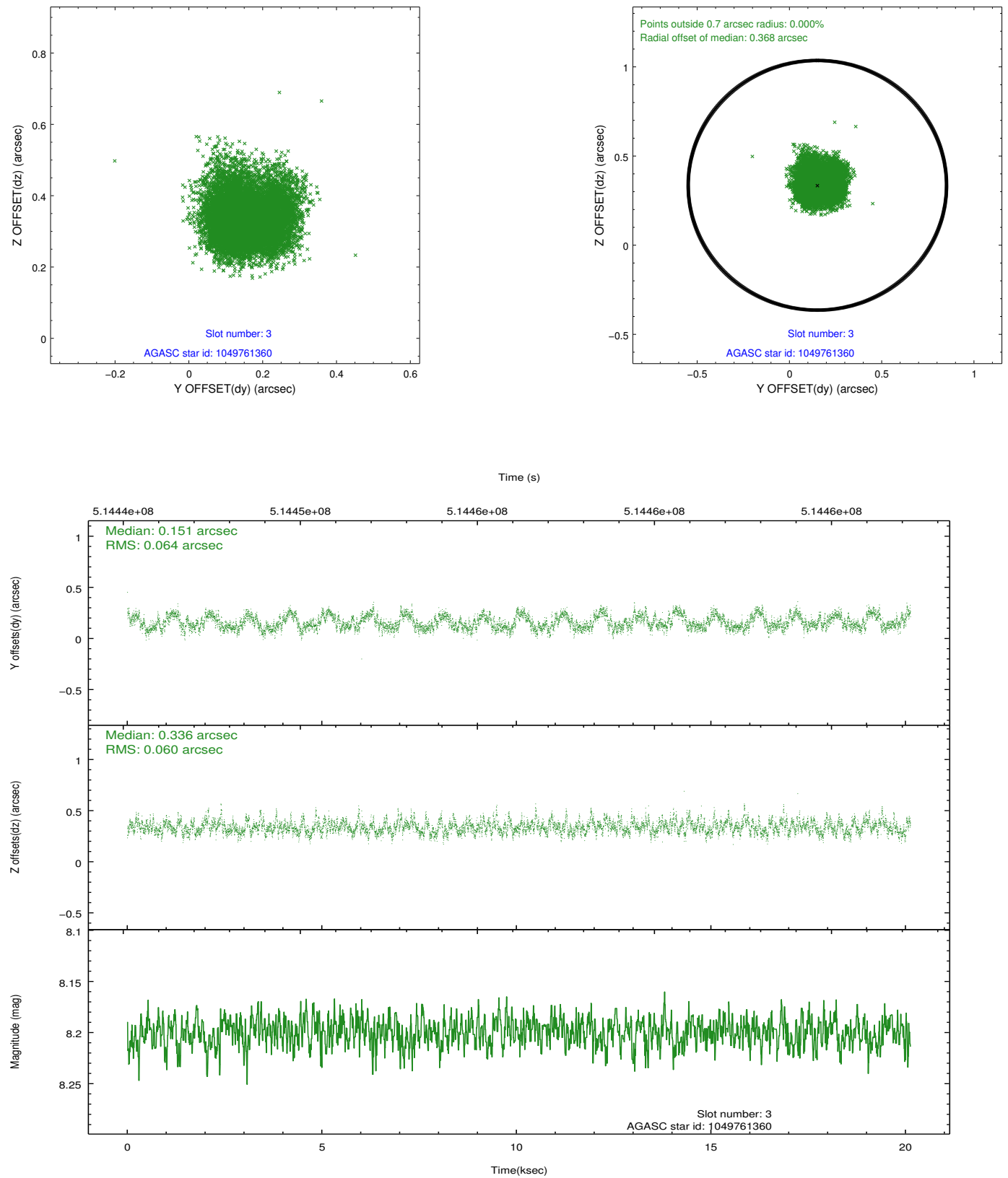


Slot Statistics

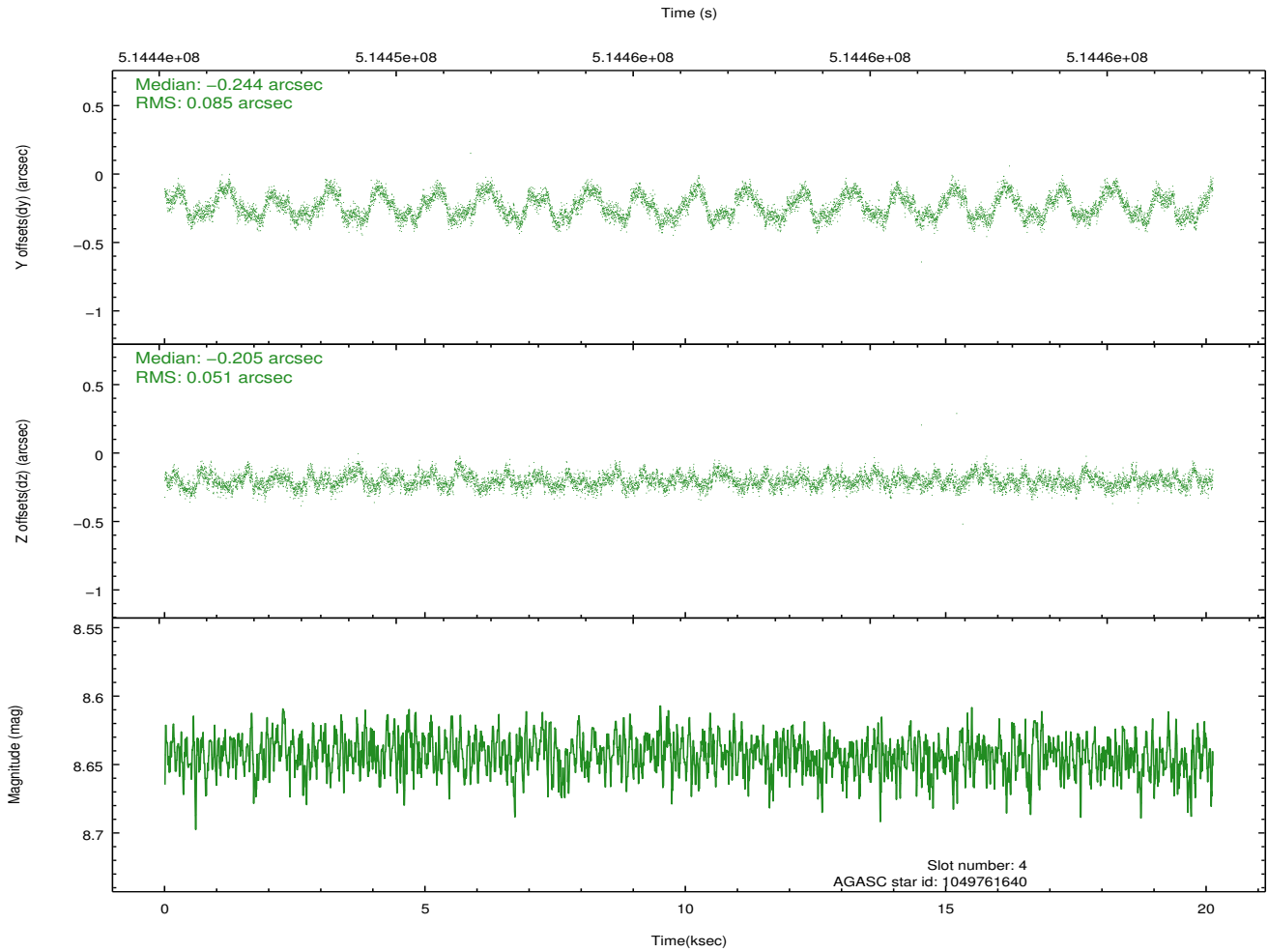
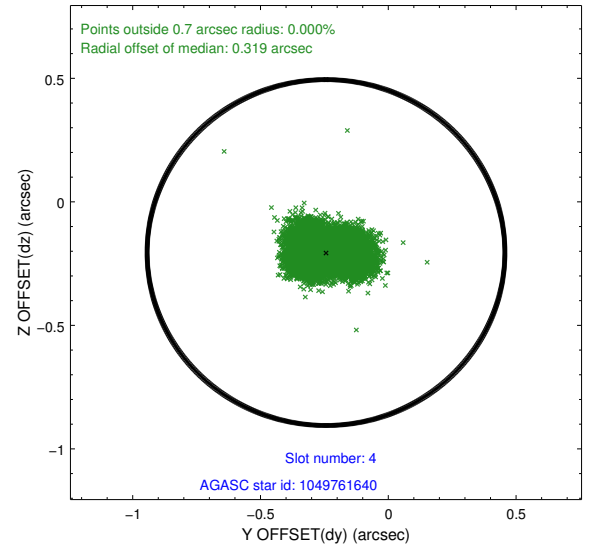
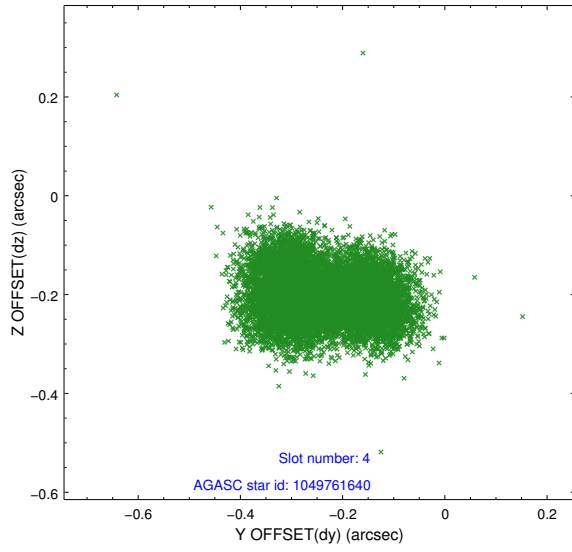
| slot | status | used | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|------|------------|-------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0 | FID | | ACIS-S-2 | 7.01 | 4909 | -0.132 | -0.042 | 0.017 | 0.025 | 0.000000 | 0.000000 | -773.10 | -1740.25 |
| 1 | FID | | ACIS-S-4 | 7.10 | 4909 | 0.272 | 0.075 | 0.006 | 0.011 | 0.000000 | 0.000000 | 2140.52 | 168.12 |
| 2 | FID | | ACIS-S-5 | 7.13 | 4909 | -0.171 | -0.025 | 0.018 | 0.026 | 0.000000 | 0.000000 | -1825.72 | 161.95 |
| 3 | GUIDE | used | 1049761360 | 8.20 | 9814 | 0.151 | 0.336 | 0.094 | 0.149 | 349.951184 | -41.963836 | 382.19 | -1672.98 |
| 4 | GUIDE | used | 1049761640 | 8.64 | 9813 | -0.244 | -0.205 | 0.109 | 0.164 | 349.142415 | -42.207499 | 1365.33 | 442.68 |
| 5 | GUIDE | used | 1050149120 | 9.13 | 9813 | -0.308 | -0.325 | 0.156 | 0.258 | 348.946168 | -42.587694 | 804.66 | 1796.25 |
| 6 | GUIDE | used | 1050153064 | 10.11 | 9766 | 0.307 | -0.418 | 0.237 | 0.370 | 349.764636 | -43.175093 | -2215.68 | 1861.65 |
| 7 | GUIDE | used | 1050681984 | 10.08 | 9759 | 0.095 | 0.623 | 0.188 | 0.294 | 350.530932 | -42.346770 | -1687.93 | -1702.67 |

2.4 Star Slots

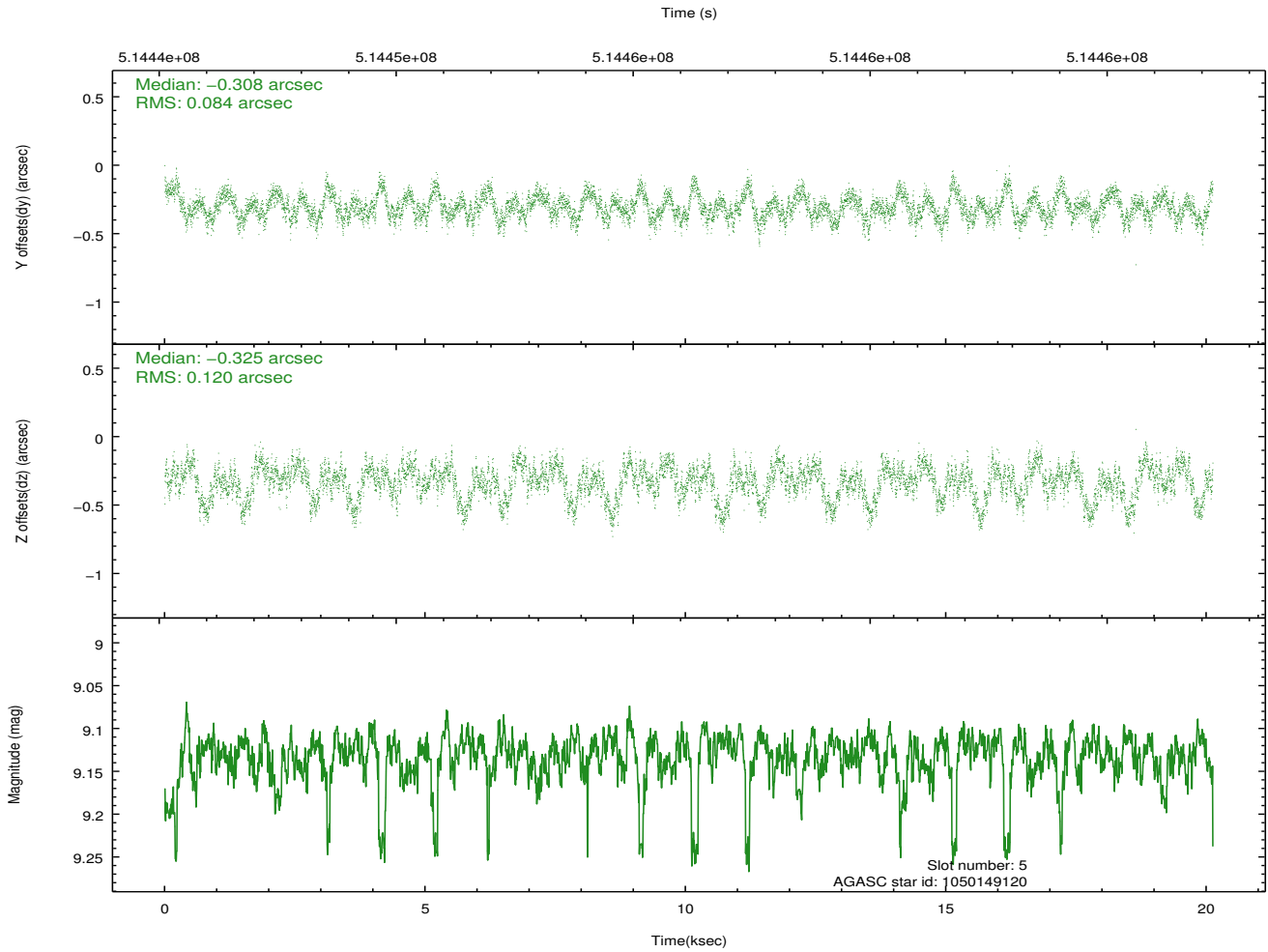
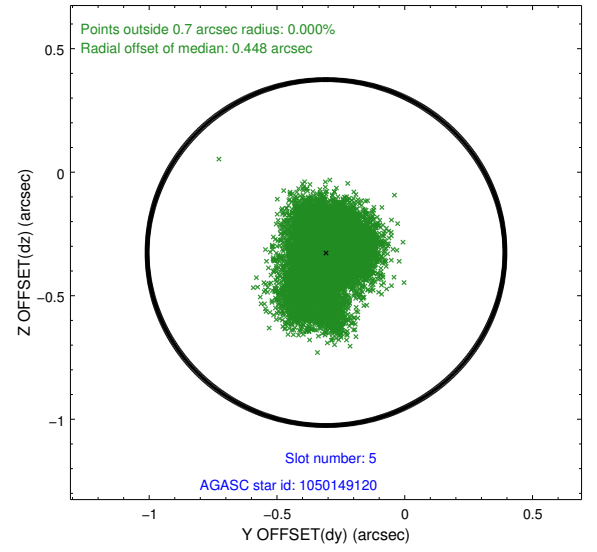
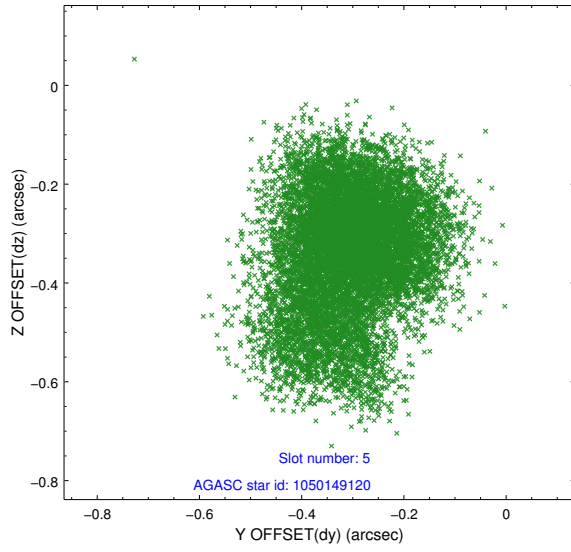
2.4.1 Slot 3



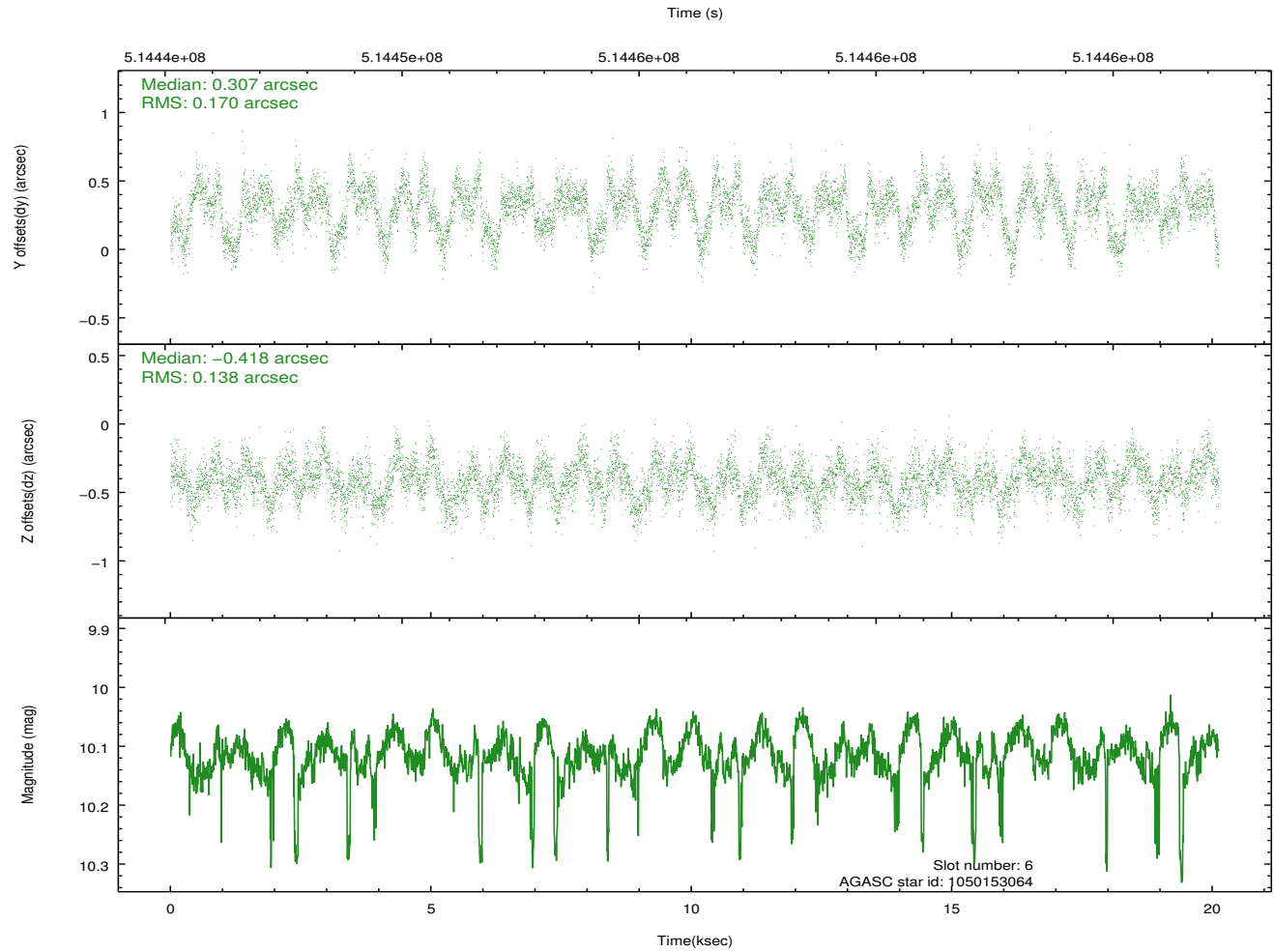
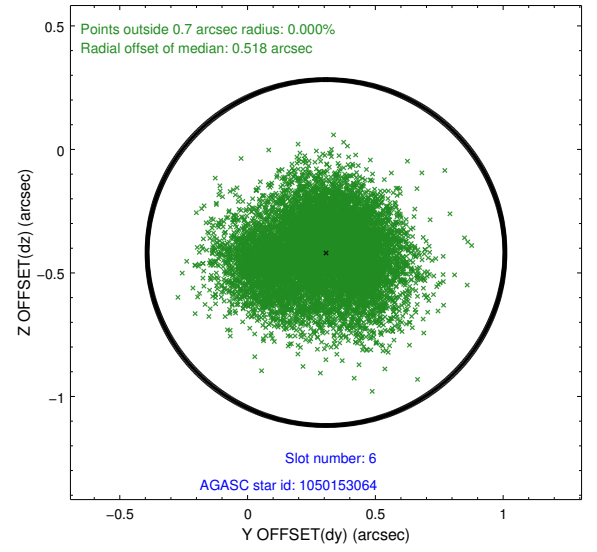
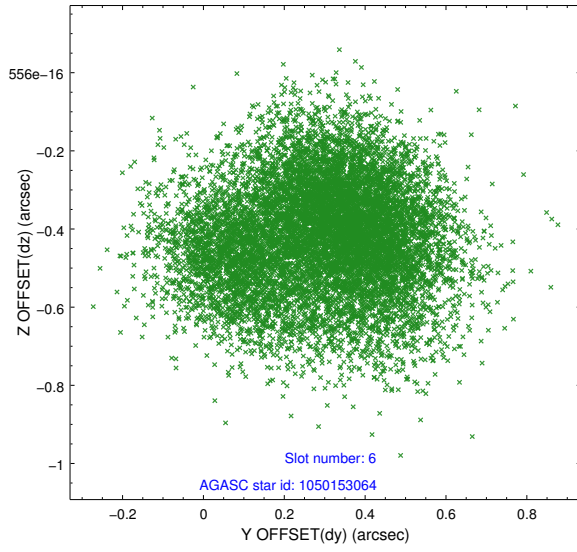
2.4.2 Slot 4



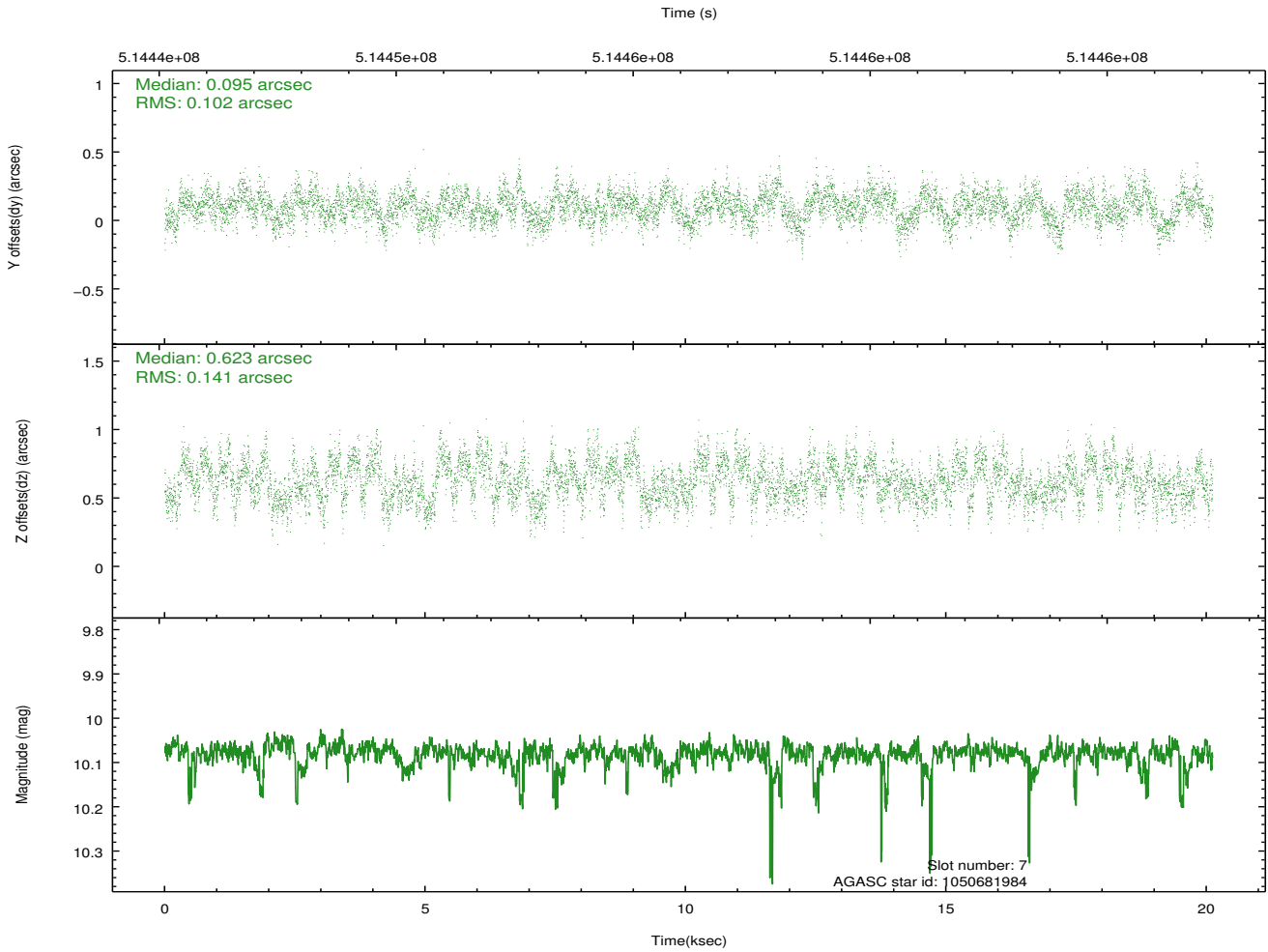
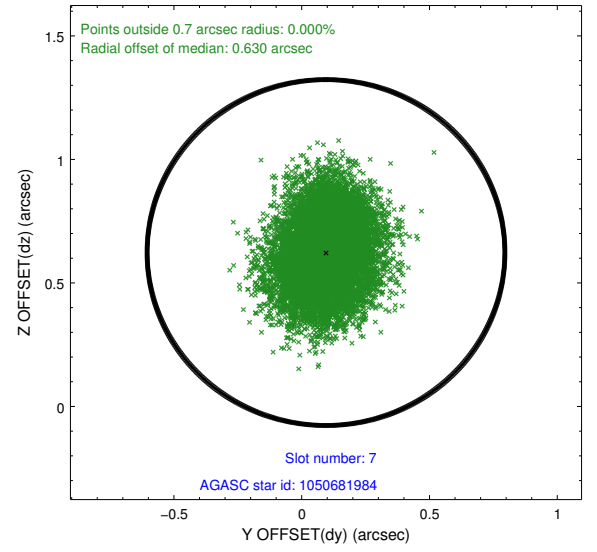
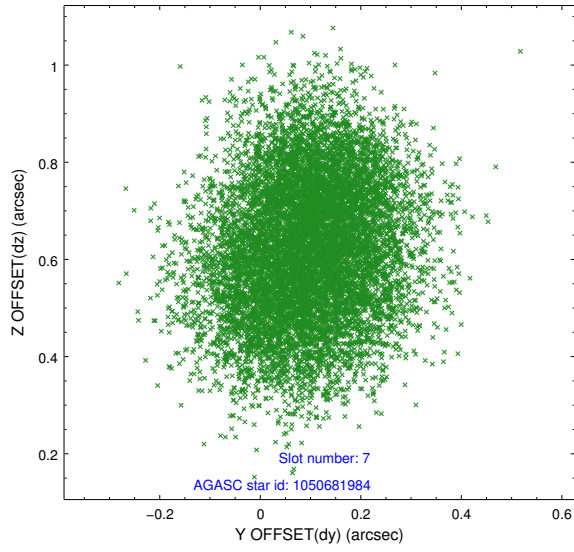
2.4.3 Slot 5



2.4.4 Slot 6

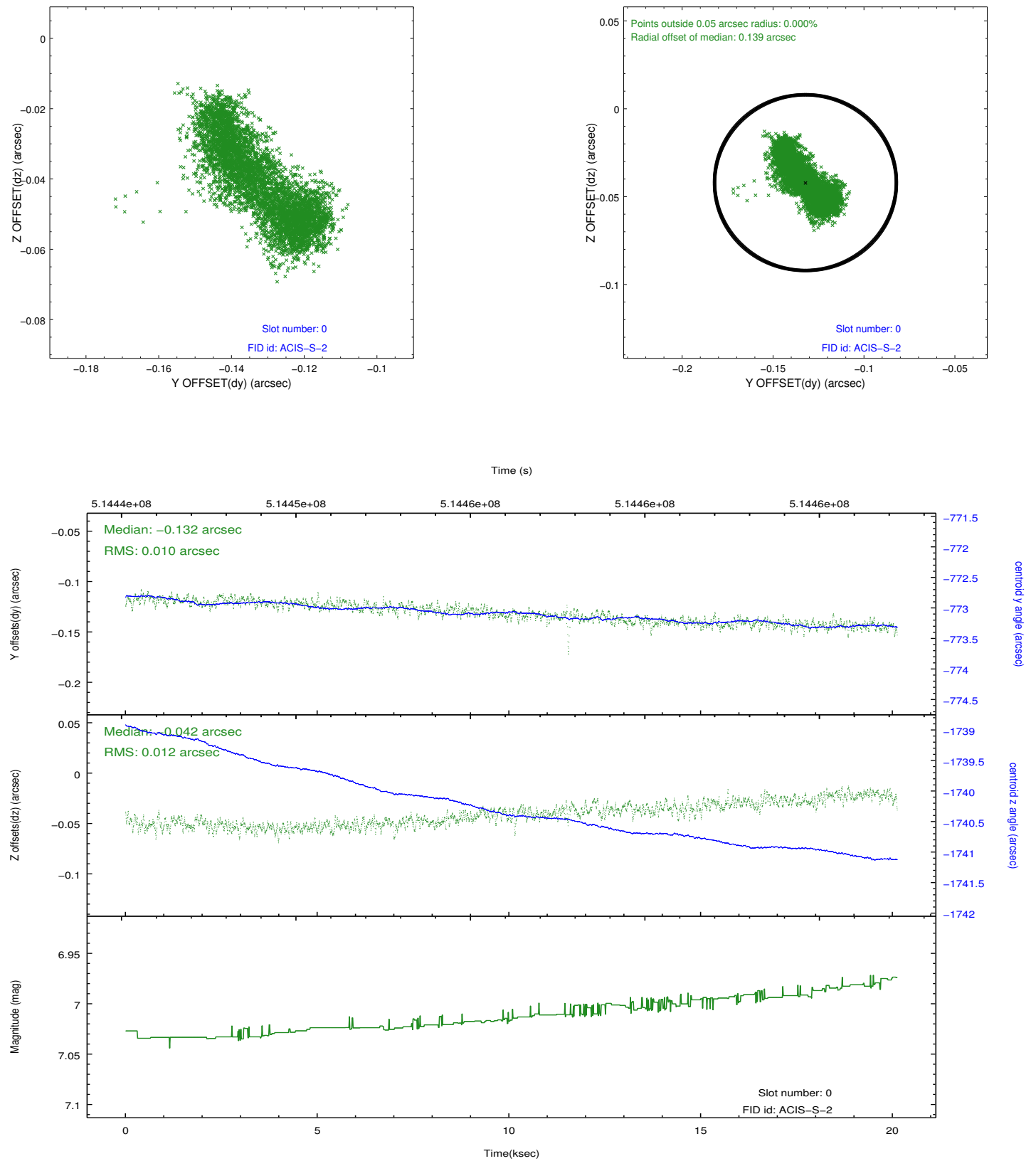


2.4.5 Slot 7

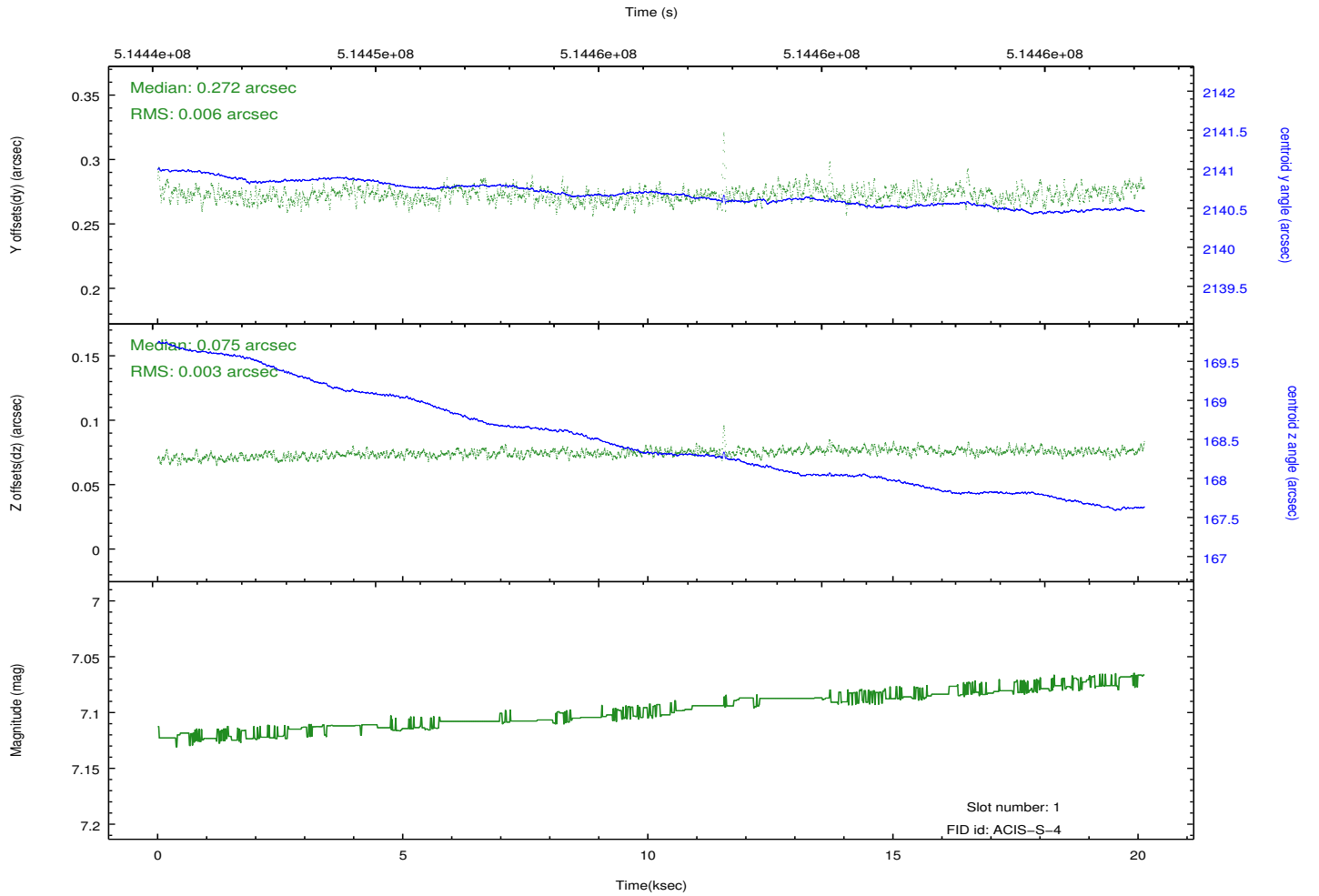
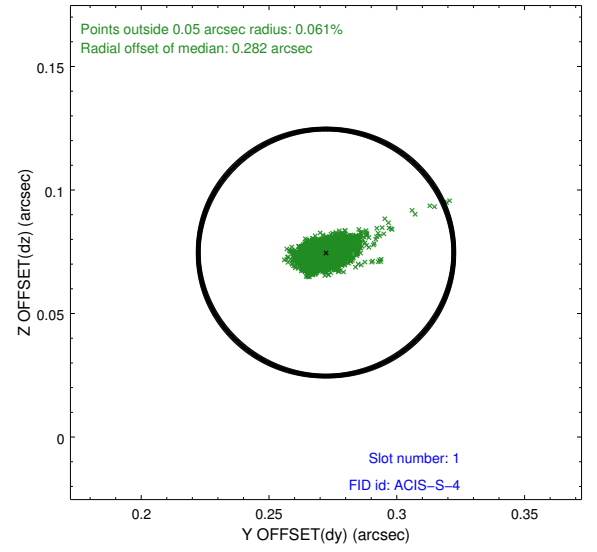
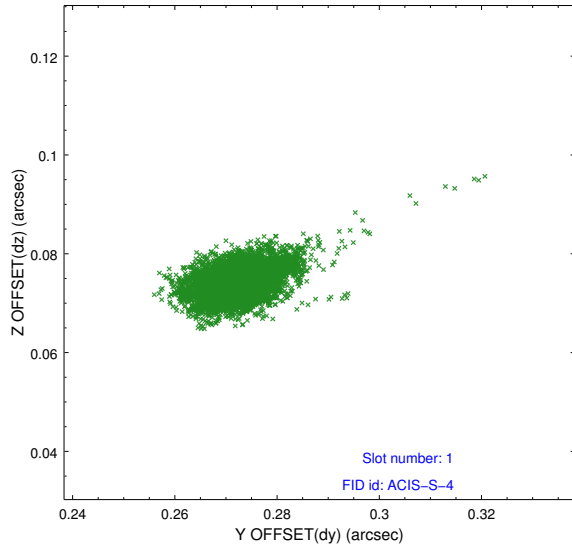


2.5 FID Slots

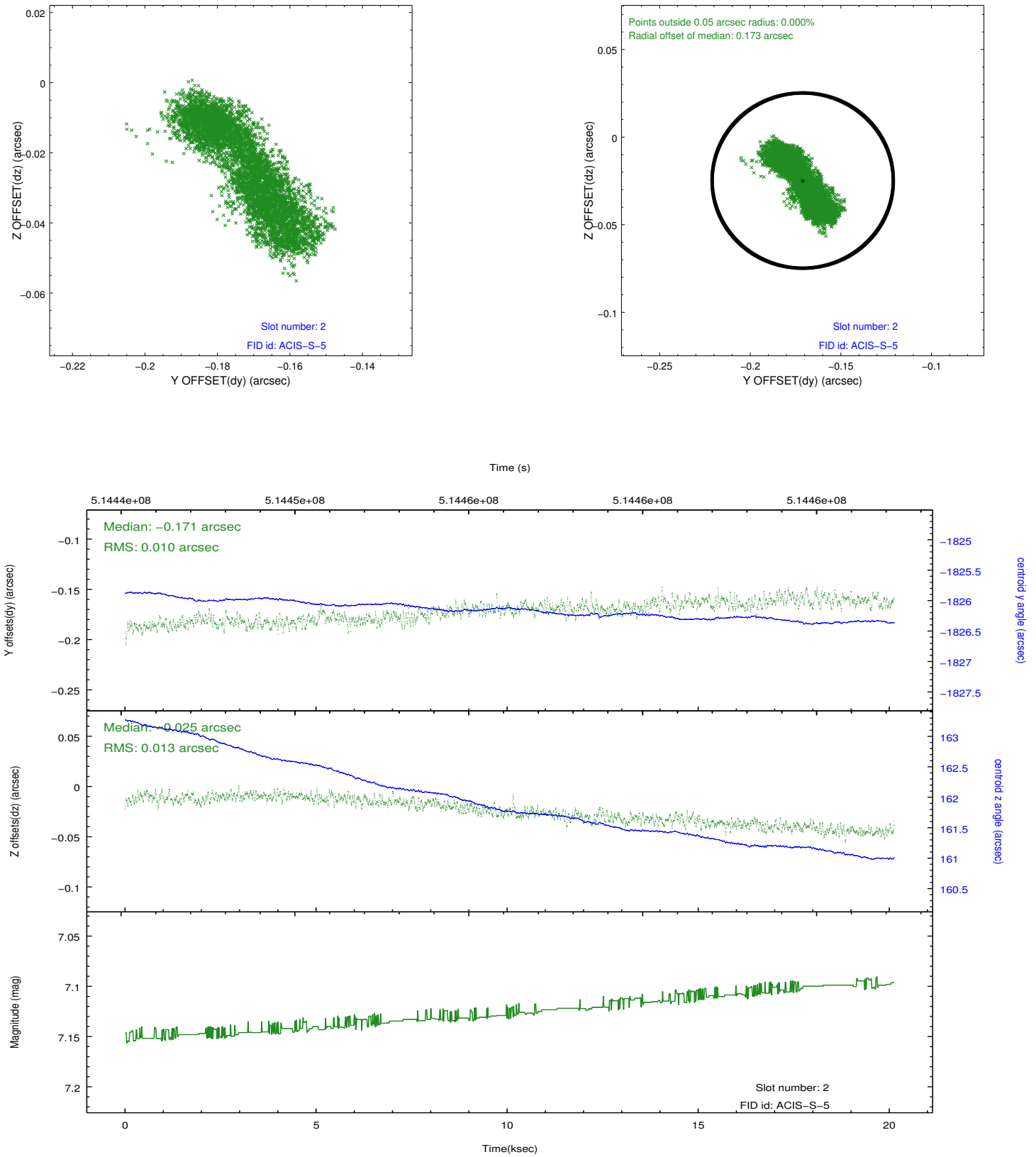
2.5.1 Slot 0



2.5.2 Slot 1

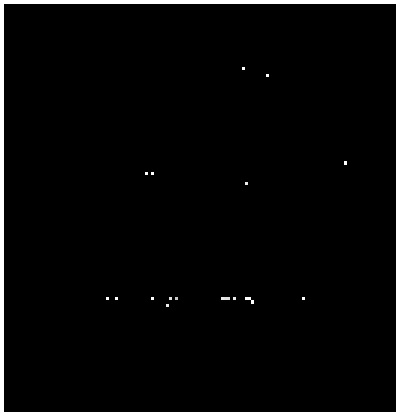


2.5.3 Slot 2

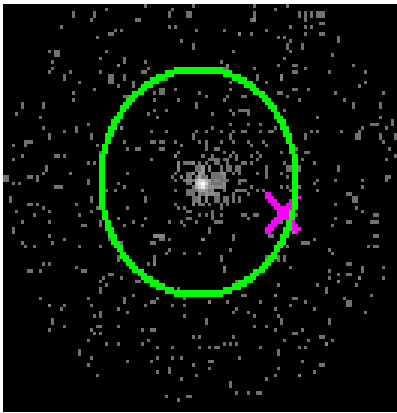


3 Gratings

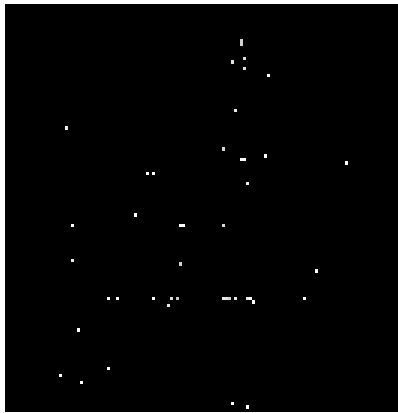
3.1 HEG Arm



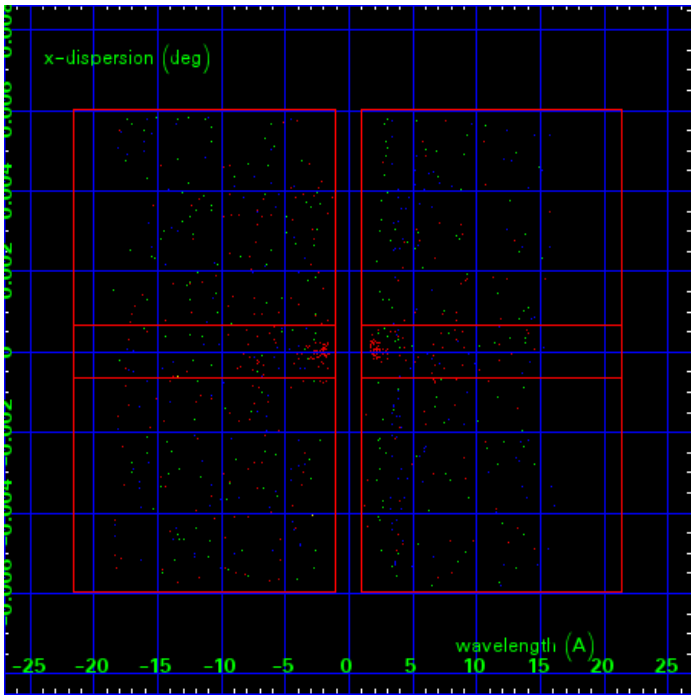
HEG Order Sort 123



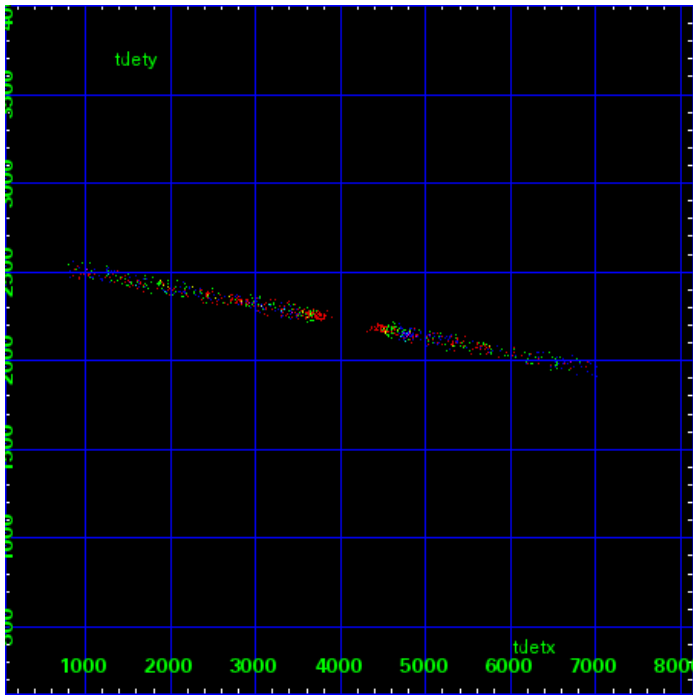
HEG Zero Order



HEG Order Sort ALL

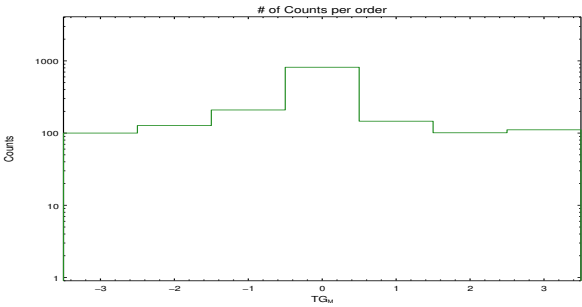


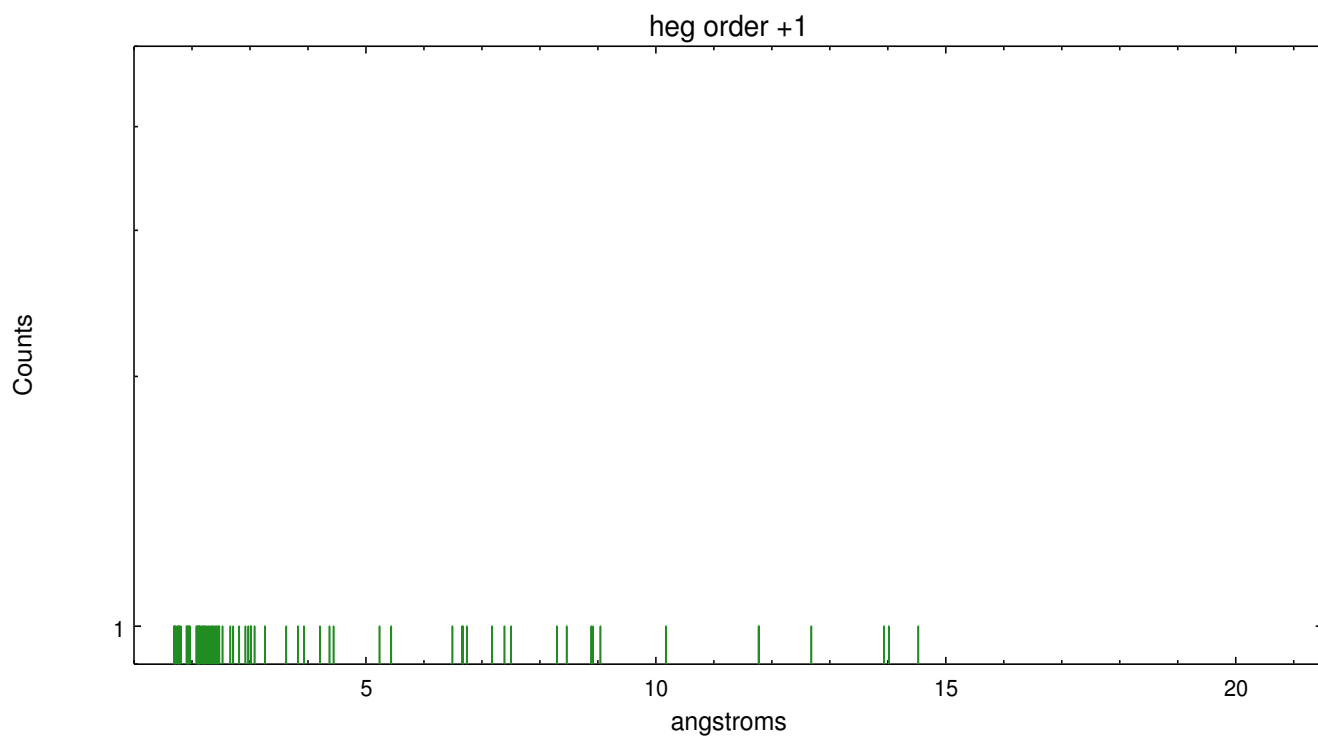
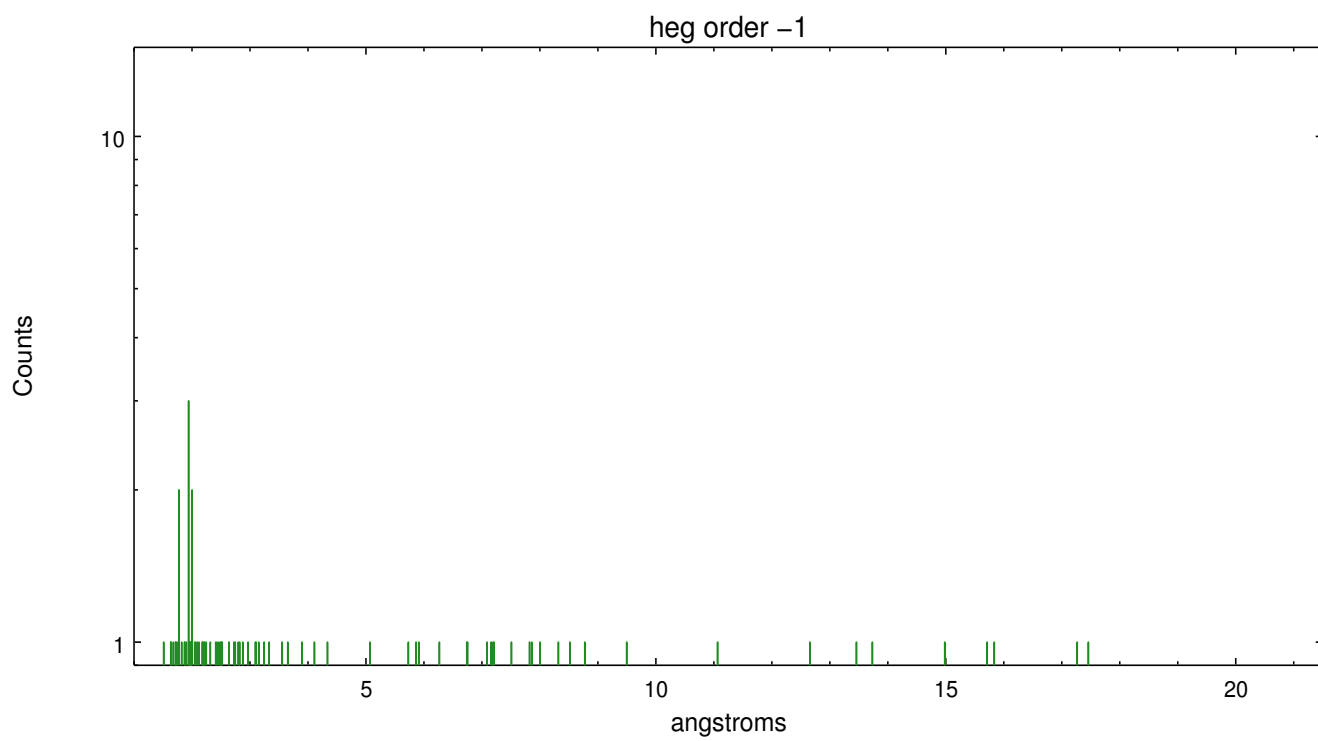
Spot Image HEG



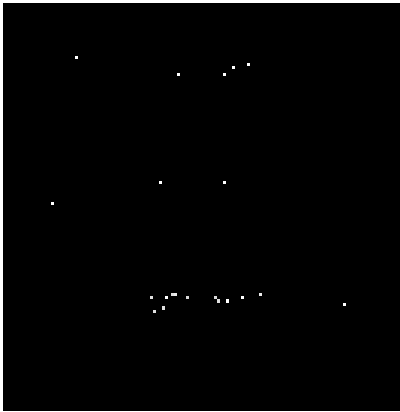
Full Detector HEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 100 | 127 | 209 | 816 | 146 | 101 | 111 |

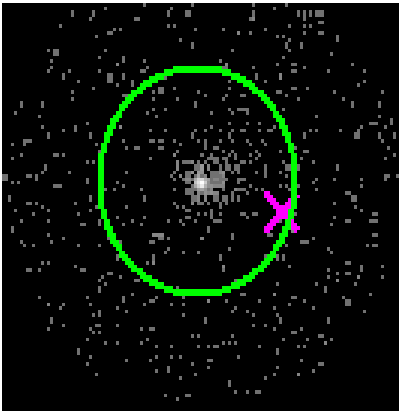




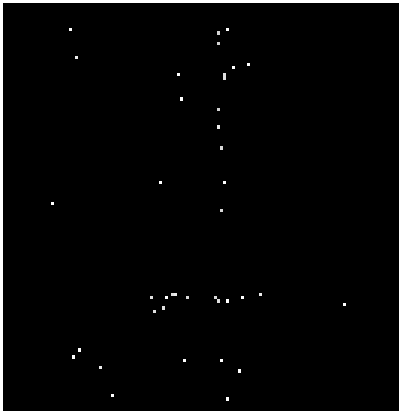
3.2 MEG Arm



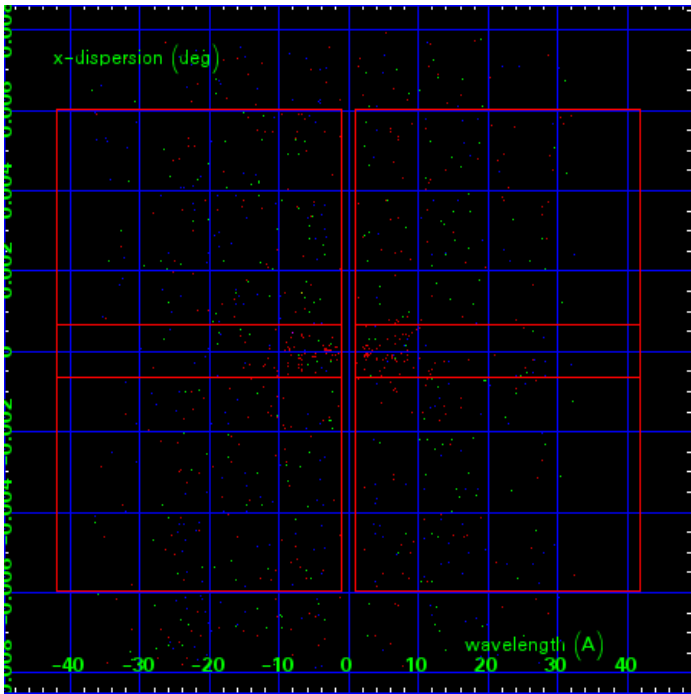
MEG Order Sort 123



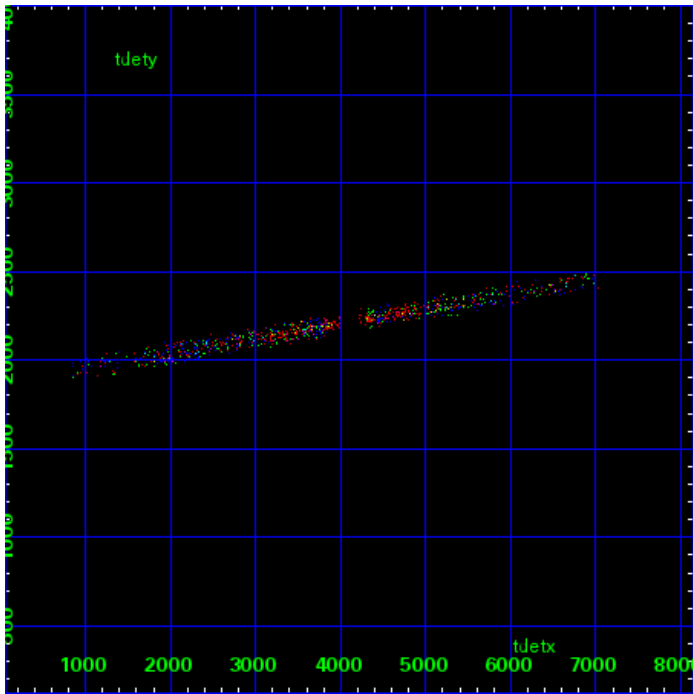
MEG Zero Order



MEG Order Sort ALL

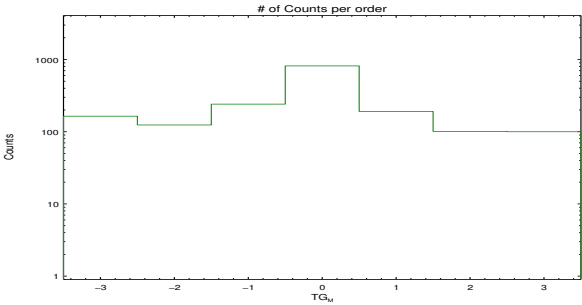


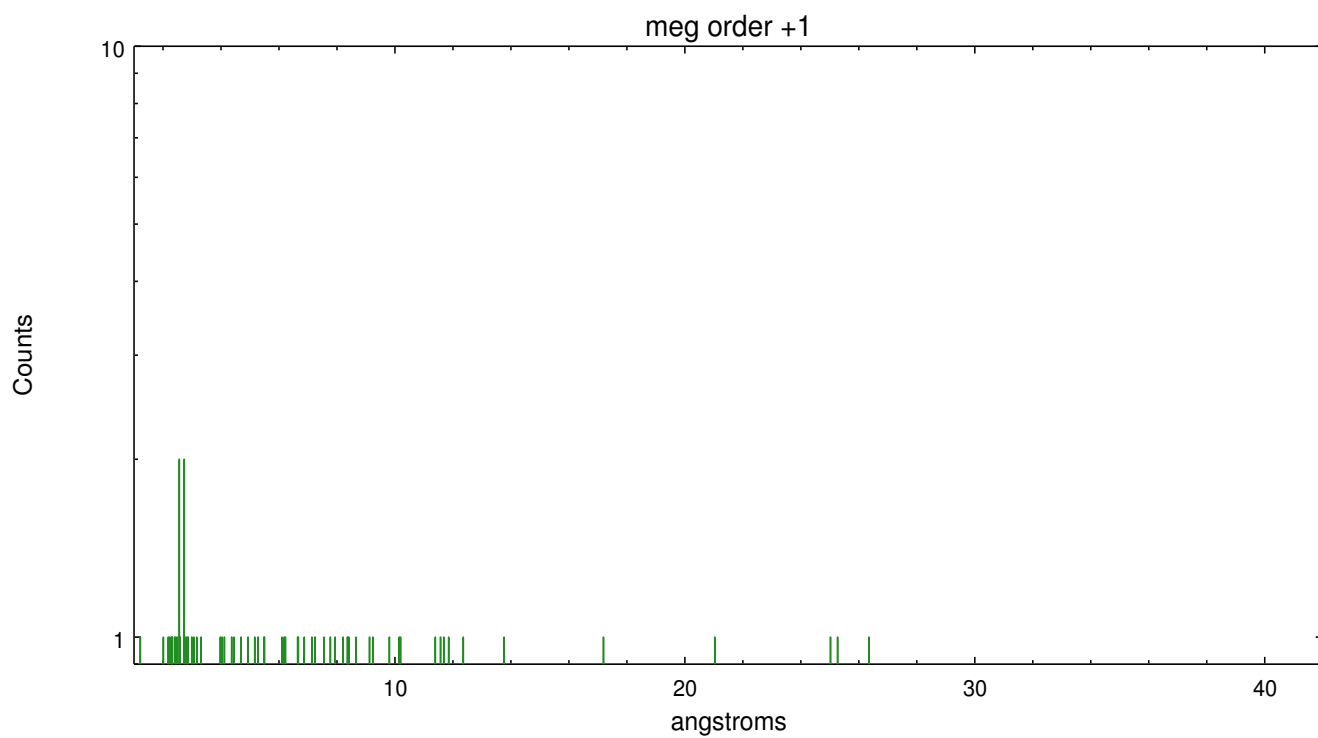
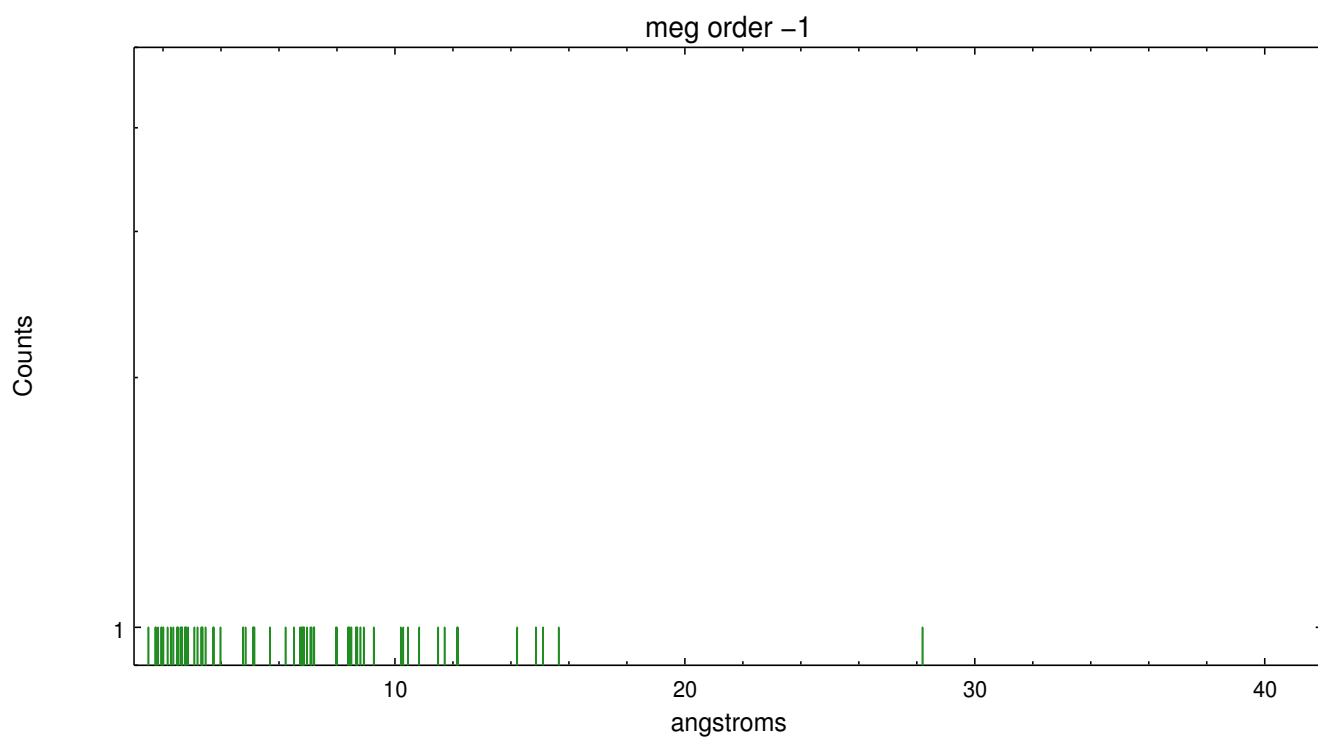
Spot Image MEG



Full Detector MEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 164 | 124 | 241 | 816 | 191 | 101 | 100 |





A Summary

A.1 Status

| | |
|----------------------------|-----------------|
| V&V Scientist | Joy Nichols |
| V&V Date (YYYY-MM-DD) | 2015.10.08 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 19.958399925709 |

A.2 Comments

These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.