

V&V Reference Report

L2 ASCDS Version : 8.4.4

Observation 6569 - L2 Version 3
Chandra X-Ray Center

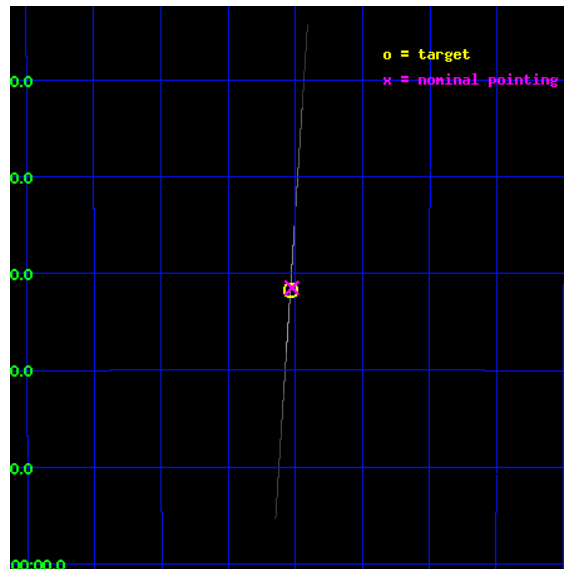
L2 Processing Date : Apr 26 2012

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

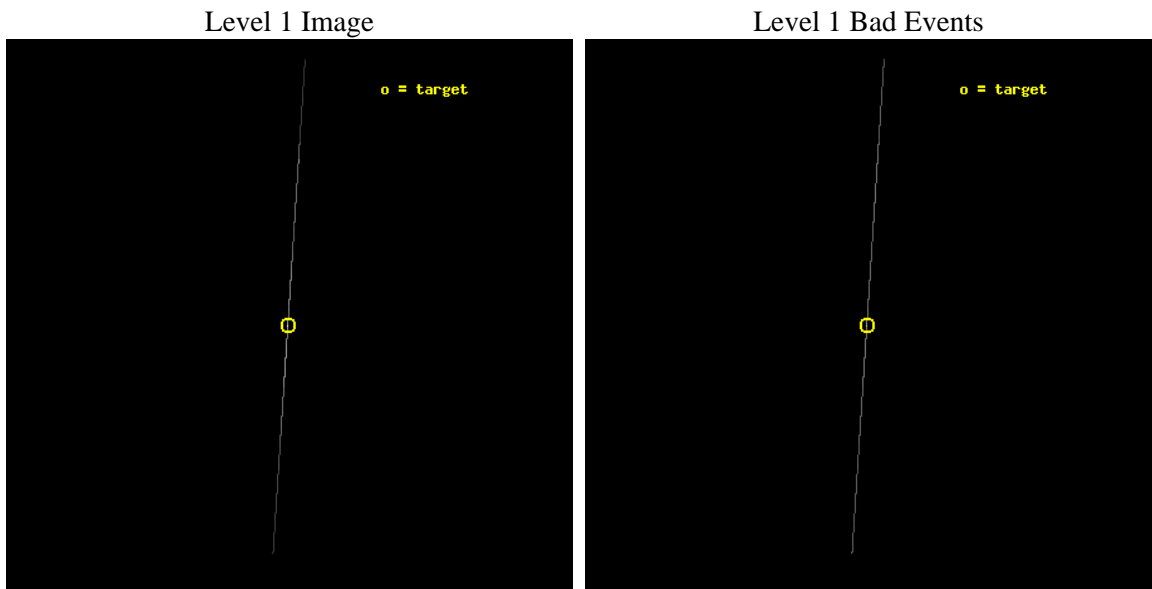
| | | |
|----------|--|---------------------------------------|
| seq_num | 400474 | Sequence number |
| obs_id | 6569 | Observation id |
| title | The chemistry of Interstellar Dust through the X-ray Absorption fine Structures (XAFS) in GX 9+1 | Proposal title |
| observer | Prof Mariano Mendez | Principal investigator |
| object | GX 9+1 | Source name |
| ra_targ | 270.384583 | Observer's specified target RA [deg] |
| dec_targ | -20.528889 | Observer's specified target Dec [deg] |
| ra_nom | 270.38157574183 | Nominal RA [deg] |
| dec_nom | -20.524937760912 | Nominal Dec [deg] |
| roll_nom | 93.711557886629 | Nominal Roll [deg] |
| revision | 3 | Processing version of data |
| ontime | 36888.395138502 | Sum of GTIs [s] |
| livetime | 36744.299844992 | Livetime [s] |
| ontime4 | 28592.85477519 | Sum of GTIs [s] |
| ontime5 | 49182.0 | Sum of GTIs [s] |
| ontime6 | 25779.56807512 | Sum of GTIs [s] |
| ontime7 | 36888.395138502 | Sum of GTIs [s] |
| ontime8 | 30702.814712346 | Sum of GTIs [s] |
| ontime9 | 31261.79722631 | Sum of GTIs [s] |
| l2events | 7360963 | Number of level 2 events |



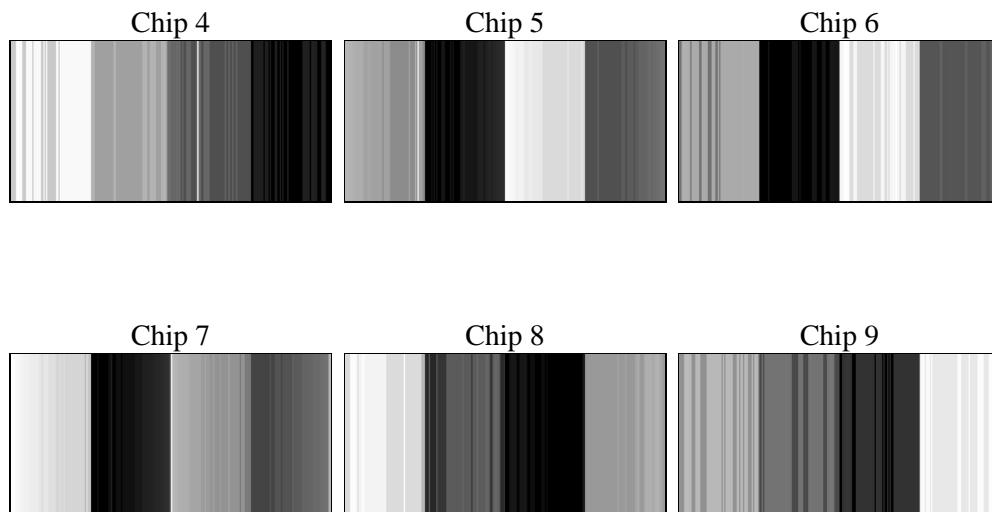
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 49000.000000 | [s] Scheduled observation exposure time |
| ascdsver | 8.4.4 | Processing system revision | ontime | 36888.395138502 | Sum of GTIs [s] |
| caldbver | 4.4.9 | | ontime4 | 28592.85477519 | Sum of GTIs [s] |
| date | 2012-04-24T23:12:36 | Date and time of file creation | ontime5 | 49182.0 | Sum of GTIs [s] |
| revision | 3 | Processing version of data | ontime6 | 25779.56807512 | Sum of GTIs [s] |
| | | | ontime7 | 36888.395138502 | Sum of GTIs [s] |
| | | | ontime8 | 30702.814712346 | Sum of GTIs [s] |
| | | | ontime9 | 31261.79722631 | Sum of GTIs [s] |
| | | | l1events | 8455826 | Number of level 1 events |

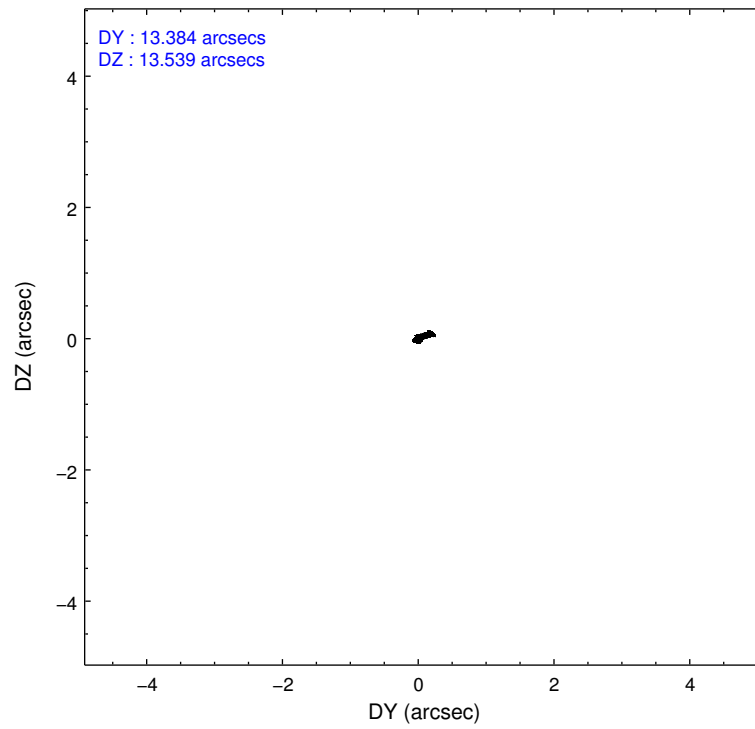
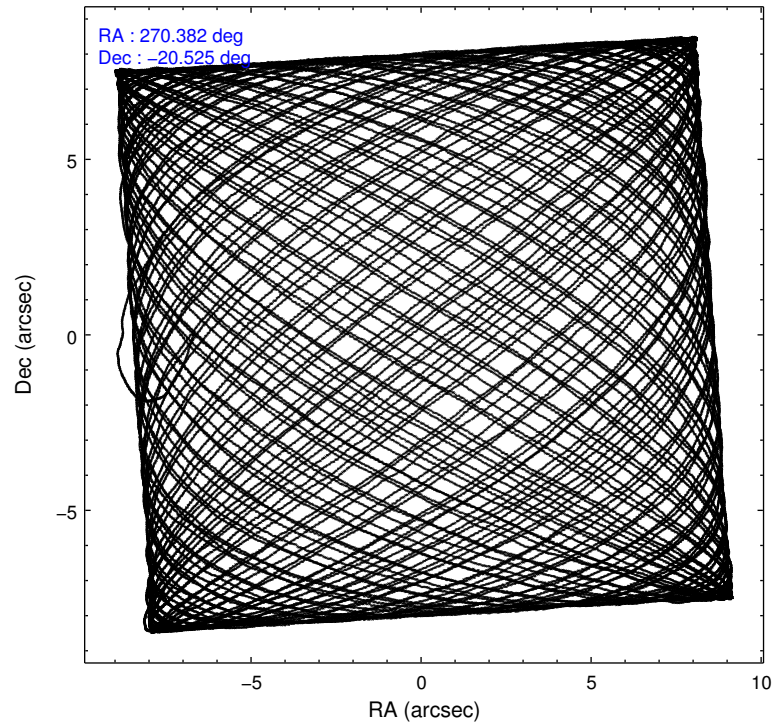
2.1.4 Events

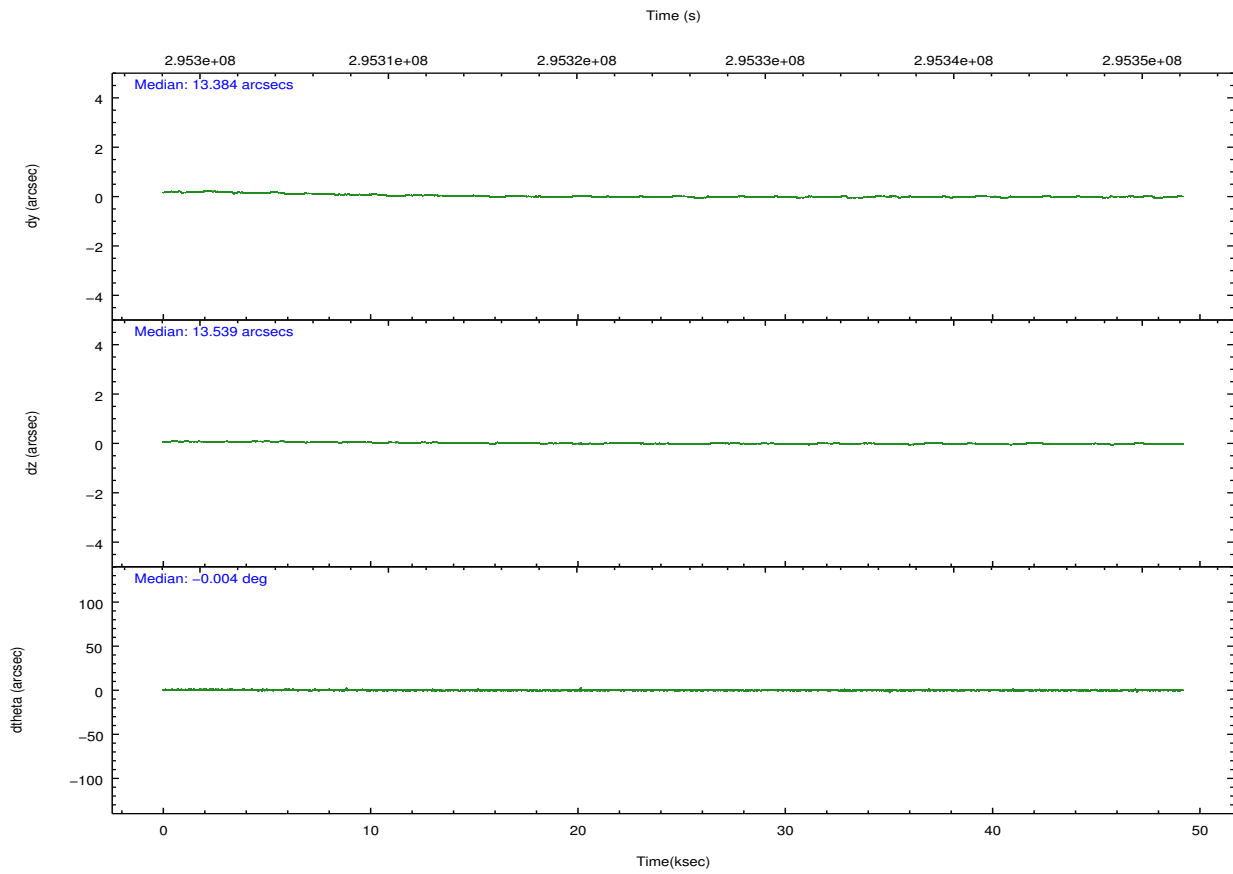
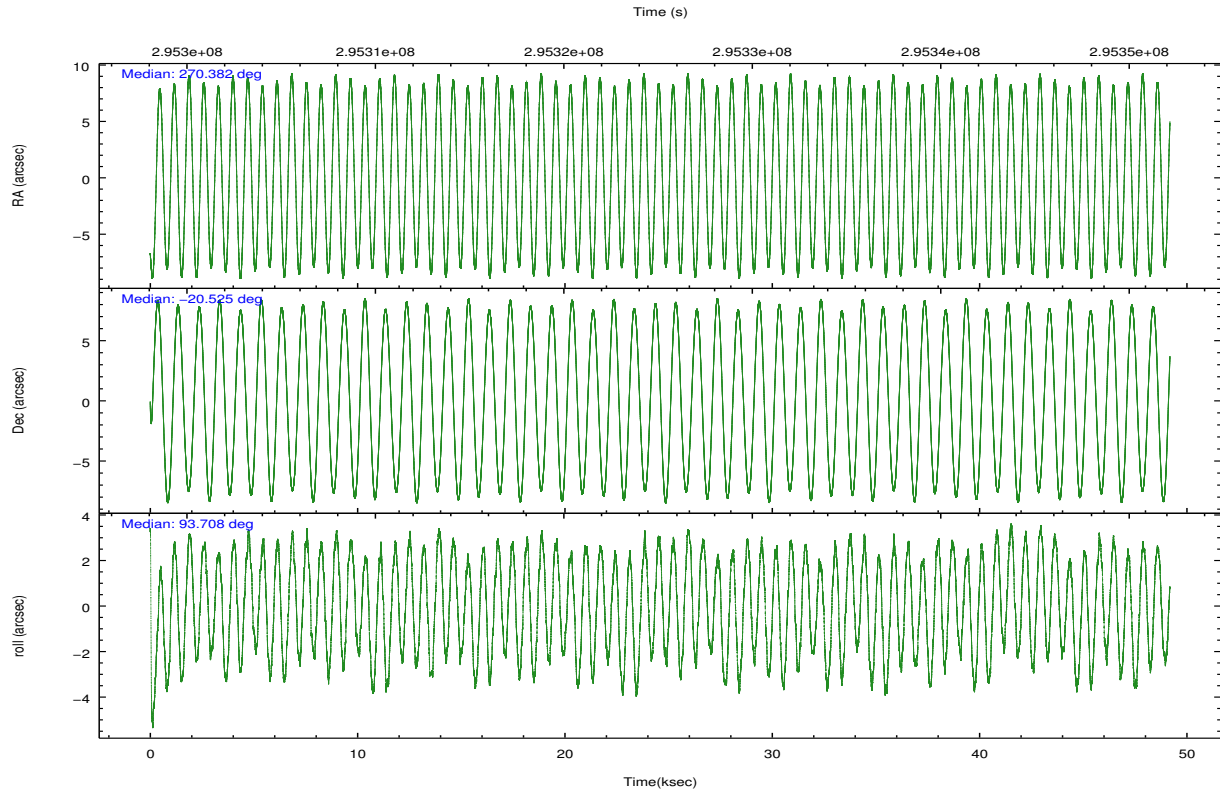
| | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 | | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|-----------------|--------|--------|---------|---------|--------|--------|----------------|-------|--------|---------|---------|--------|-------|
| level 1 events | 117167 | 968243 | 1439080 | 5173987 | 596309 | 161040 | grade 0 events | 18889 | 259651 | 40057 | 875491 | 147544 | 26286 |
| rejected events | 14780 | 60421 | 33241 | 375236 | 25145 | 16345 | | 16% | 26% | 2% | 16% | 24% | 16% |
| rejected % | 12% | 6% | 2% | 7% | 4% | 10% | grade 1 events | 298 | 849 | 362 | 64371 | 810 | 304 |
| | | | | | | | | 0% | 0% | 0% | 1% | 0% | 0% |
| | | | | | | | grade 2 events | 58196 | 324168 | 1202486 | 1274486 | 331662 | 83896 |
| | | | | | | | | 49% | 33% | 83% | 24% | 55% | 52% |
| | | | | | | | grade 3 events | 7235 | 25103 | 7799 | 463793 | 19012 | 7531 |
| | | | | | | | | 6% | 2% | 0% | 8% | 3% | 4% |
| | | | | | | | grade 4 events | 7432 | 24699 | 7383 | 460264 | 18553 | 8089 |
| | | | | | | | | 6% | 2% | 0% | 8% | 3% | 5% |
| | | | | | | | grade 5 events | 11259 | 49798 | 18309 | 289799 | 20537 | 14650 |
| | | | | | | | | 9% | 5% | 1% | 5% | 3% | 9% |
| | | | | | | | grade 6 events | 13858 | 283975 | 162684 | 1745783 | 58191 | 20284 |
| | | | | | | | | 11% | 29% | 11% | 33% | 9% | 12% |
| | | | | | | | grade 7 events | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | 0% | 0% | 0% | 0% | 0% | 0% |

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_FAINT | CC33_FAINT | Number of optional ACIS chips dropped | 0 | 0 |
| Observation mode | POINTING | POINTING | On-chip summing requested | N | N |
| [deg] Pointing RA | 270.398119 | 270.381575741828 | Subarray requested | NONE | NONE |
| [deg] Pointing Dec | -20.547476 | -20.52493776091228 | Alternating exposures requested | N | N |
| [deg] Pointing Roll | 93.560737 | 93.71155788662936 | [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 | -187.132523 | -187.1254020033014 | | | |
| [mm] SIM translation stage offset | -3 | -3.007120579706367 | | | |
| [s] Observation start time (MET) | 295300691.184000 | 295299761.41756 | | | |
| Observation start date | 2007-05-11T19:57:06 | 2007-05-11T19:42:41 | | | |
| [s] Observation end time (MET) | 295349691.184000 | 295350999.63251 | | | |
| Observation end date | 2007-05-12T09:33:46 | 2007-05-12T09:56:39 | | | |
| Read mode | CONTINUOUS | CONTINUOUS | | | |

2.3 Aspect





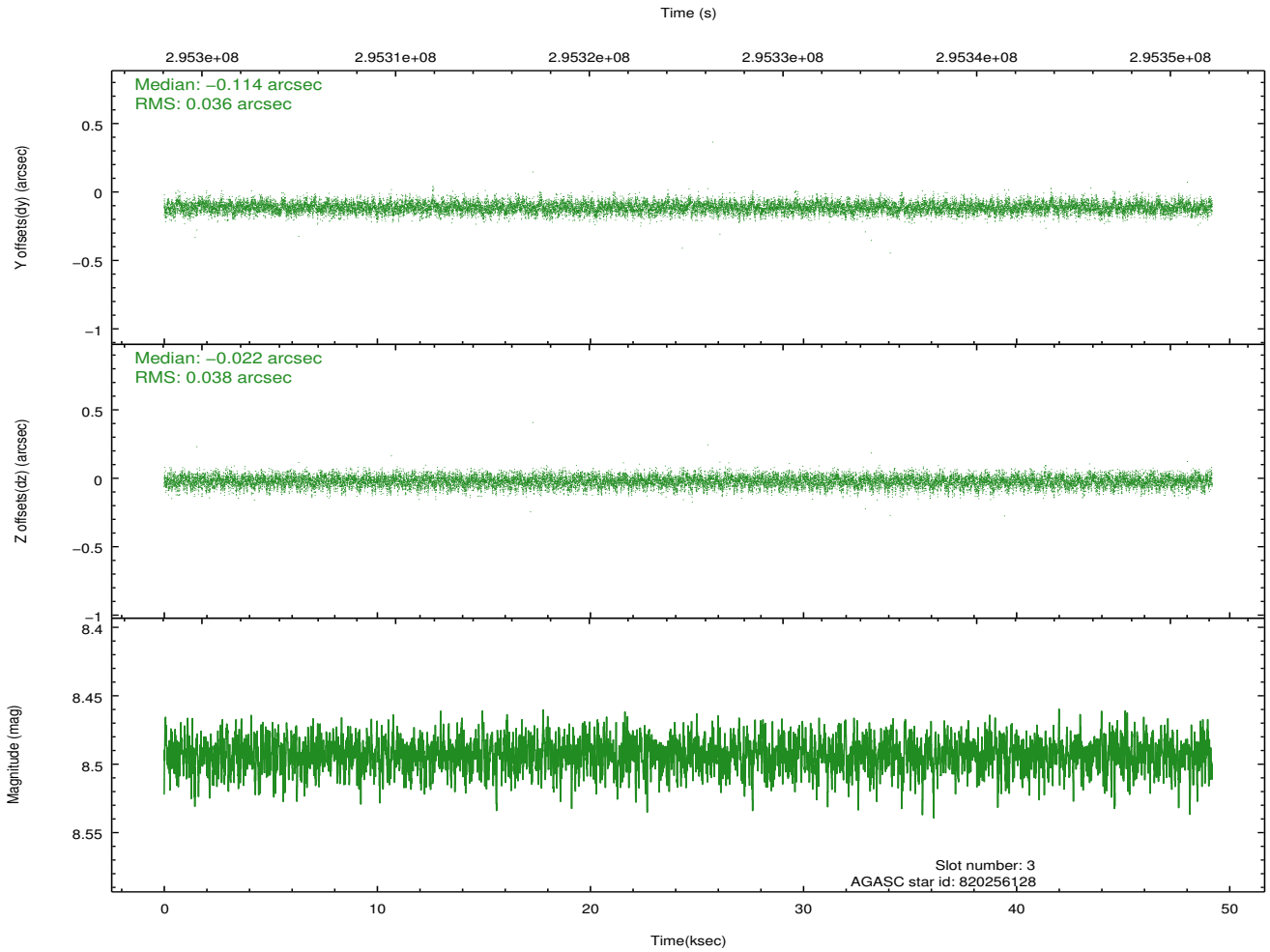
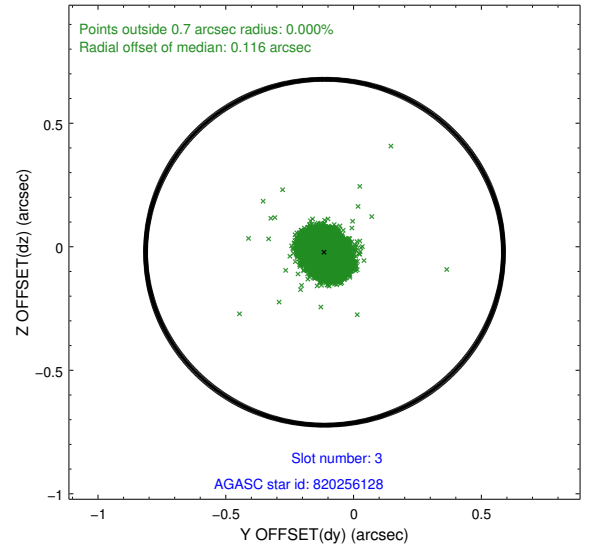
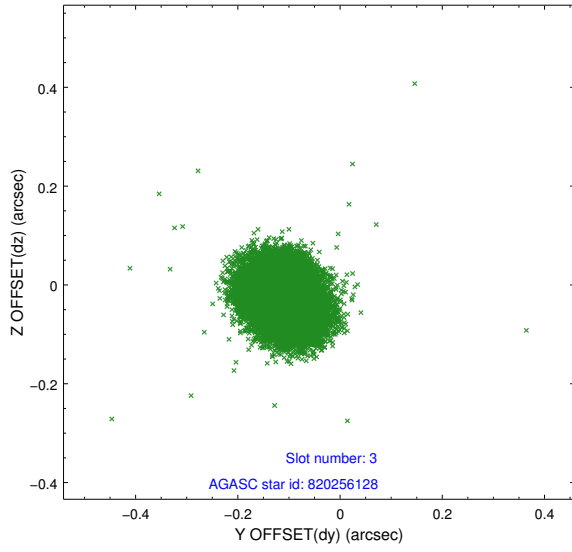
Slot Statistics

| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0 | FID | ACIS-S-2 | 7.10 | 11997 | -0.103 | -0.078 | 0.007 | 0.012 | 0.000000 | 0.000000 | -766.22 | -1797.05 |
| 1 | FID | ACIS-S-4 | 7.19 | 11995 | 0.235 | 0.070 | 0.007 | 0.015 | 0.000000 | 0.000000 | 2147.39 | 111.60 |
| 2 | FID | ACIS-S-5 | 7.23 | 11994 | -0.164 | 0.016 | 0.007 | 0.014 | 0.000000 | 0.000000 | -1819.15 | 105.18 |
| 3 | GUIDE | 820256128 | 8.49 | 23986 | -0.114 | -0.022 | 0.055 | 0.090 | 269.765287 | -20.062383 | 1871.53 | 2027.88 |
| 4 | GUIDE | 820380720 | 9.34 | 23965 | -0.162 | -0.041 | 0.096 | 0.157 | 270.209065 | -19.908428 | 2335.35 | 496.15 |
| 5 | GUIDE | 820776344 | 7.33 | 23992 | 0.175 | -0.119 | 0.053 | 0.088 | 269.882096 | -21.045657 | -1685.05 | 1841.87 |
| 6 | GUIDE | 820905280 | 8.74 | 23978 | -0.002 | 0.023 | 0.067 | 0.110 | 270.011615 | -20.706033 | -490.62 | 1334.74 |
| 7 | GUIDE | 820927824 | 7.13 | 23993 | 0.095 | 0.157 | 0.072 | 0.116 | 270.655496 | -20.737630 | -737.65 | -822.04 |

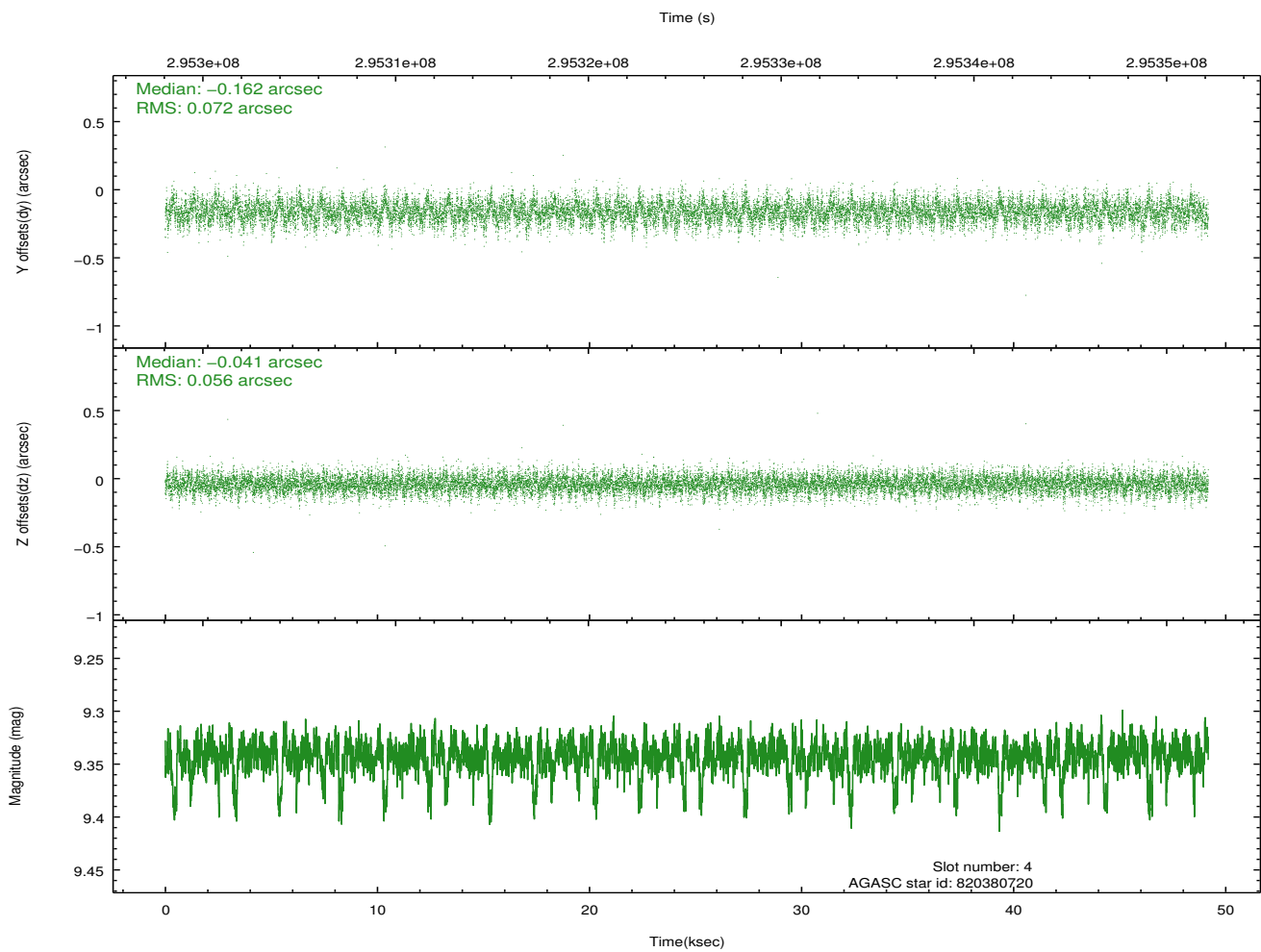
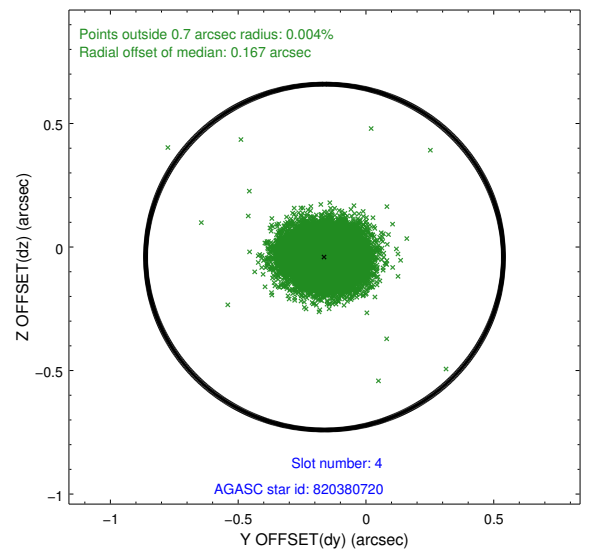
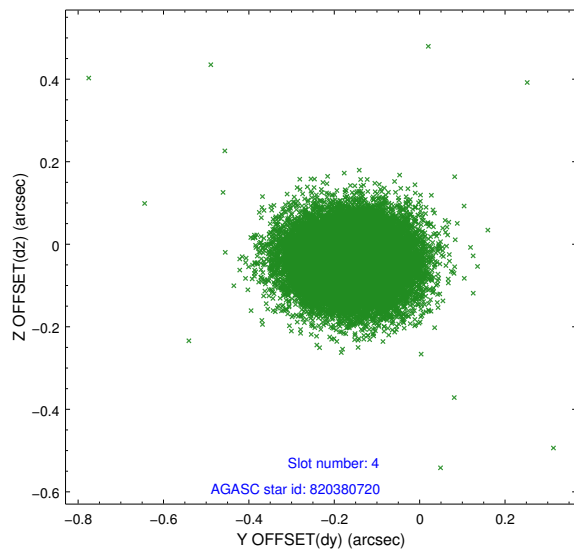
∞

2.4 Star Slots

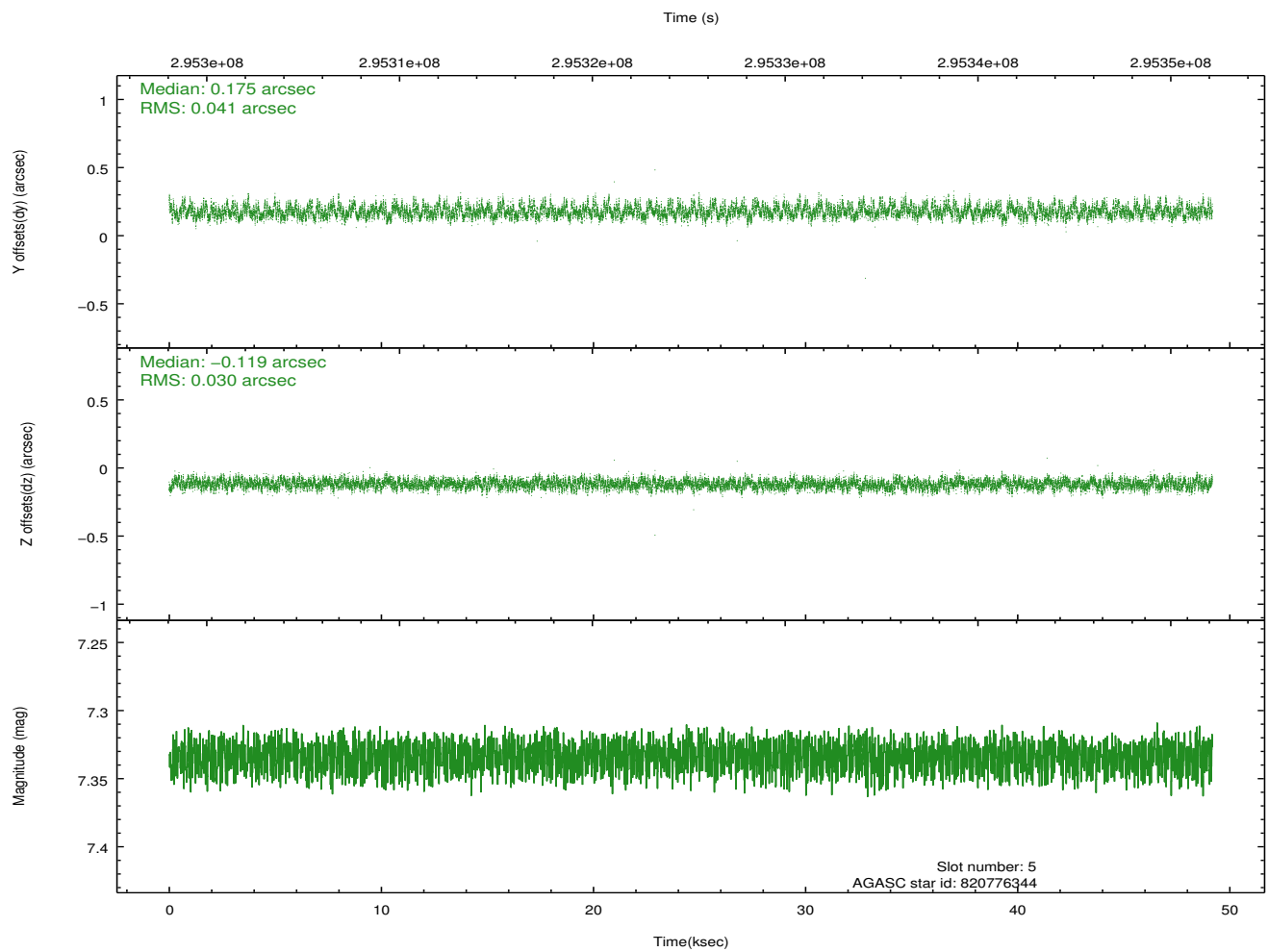
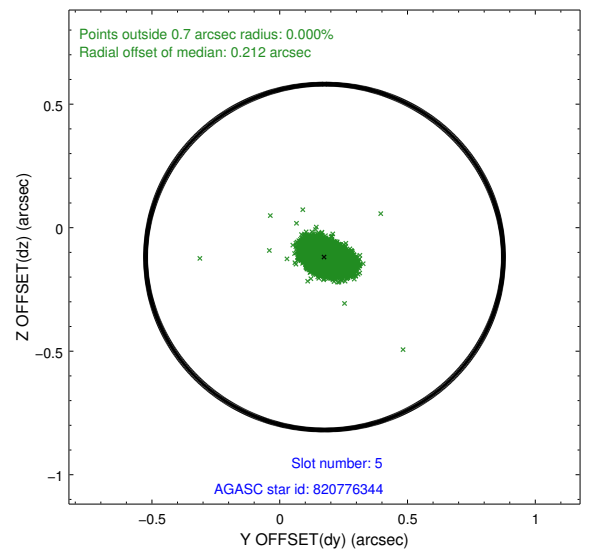
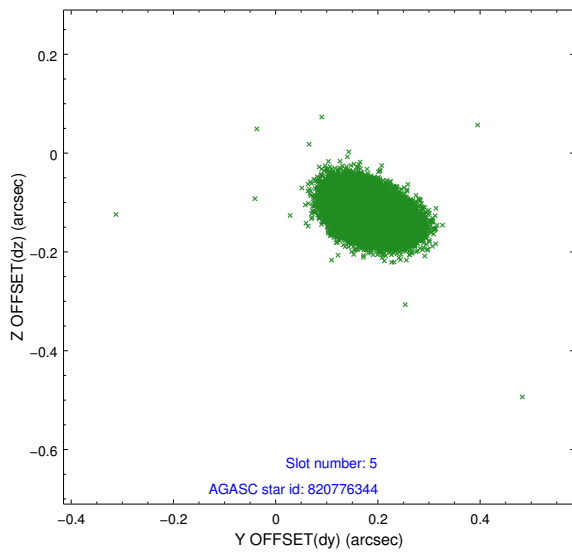
2.4.1 Slot 3



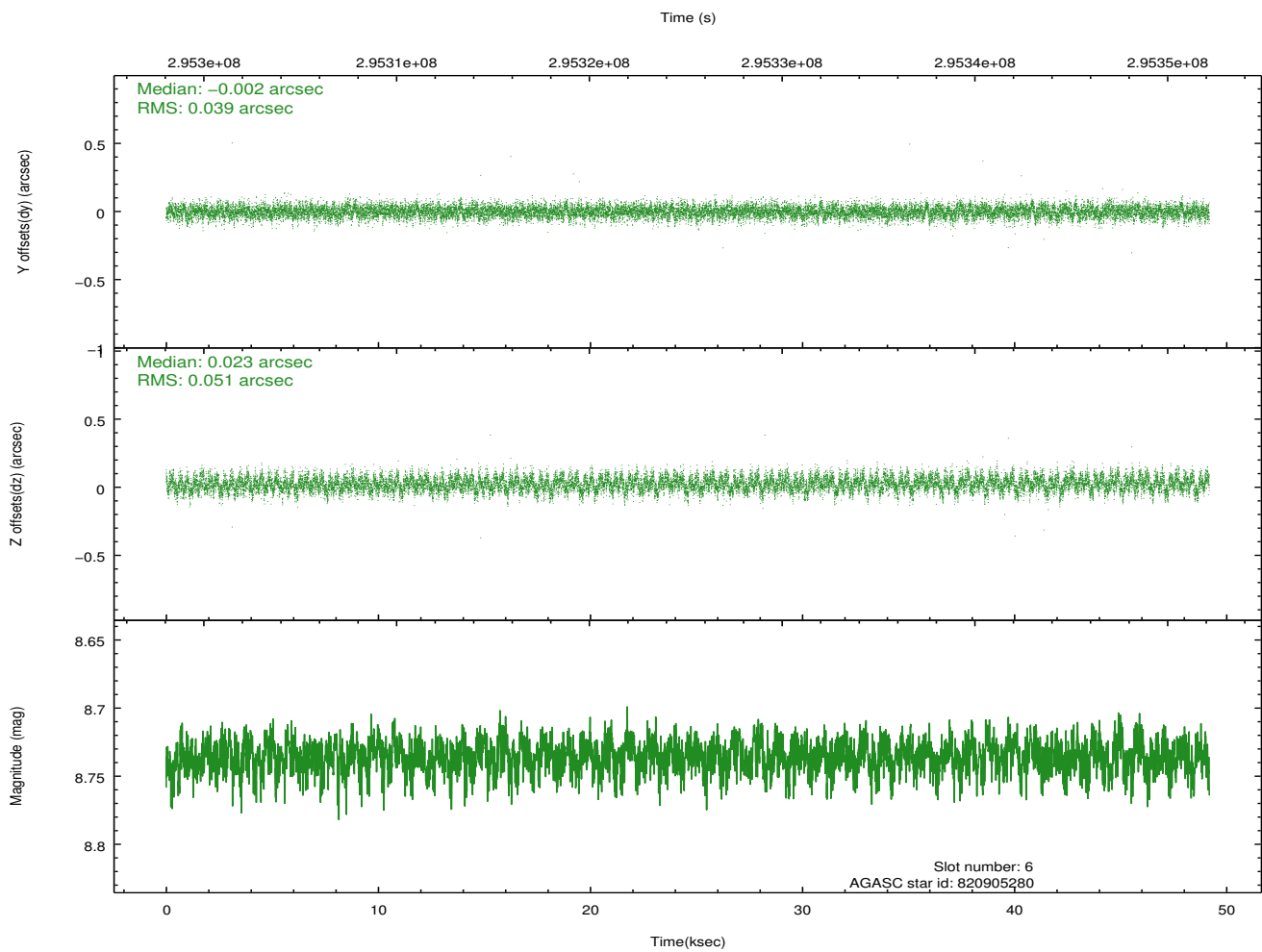
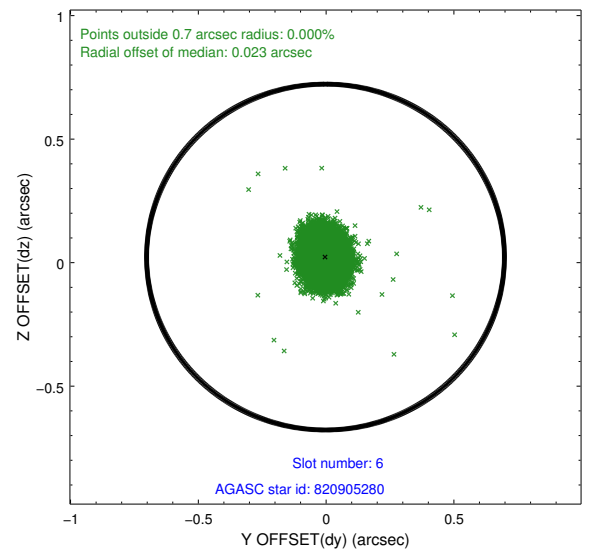
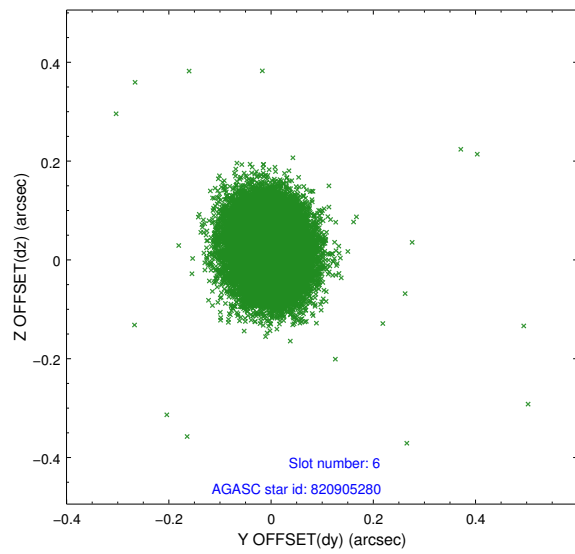
2.4.2 Slot 4



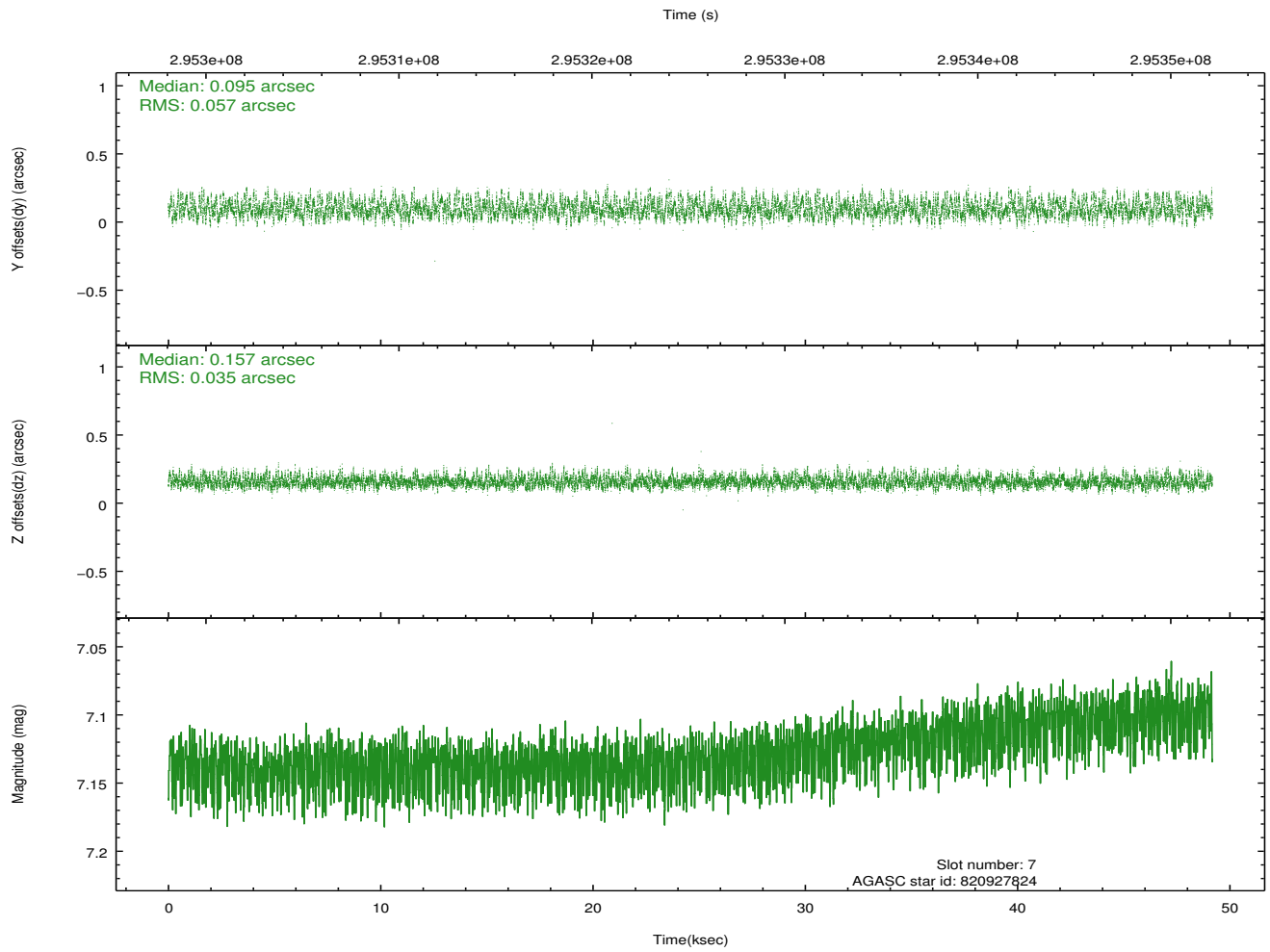
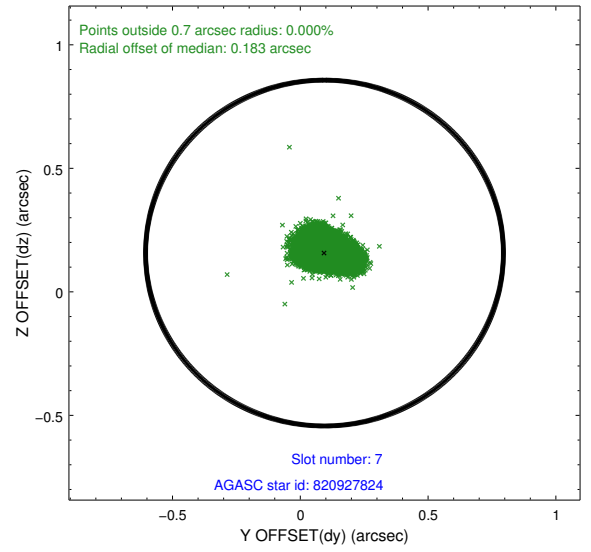
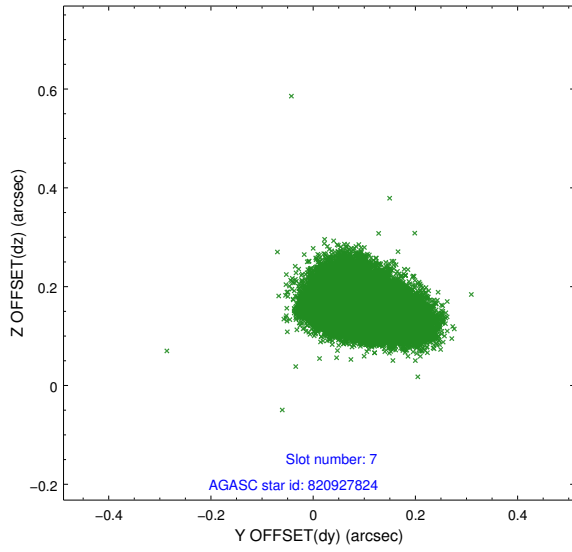
2.4.3 Slot 5



2.4.4 Slot 6

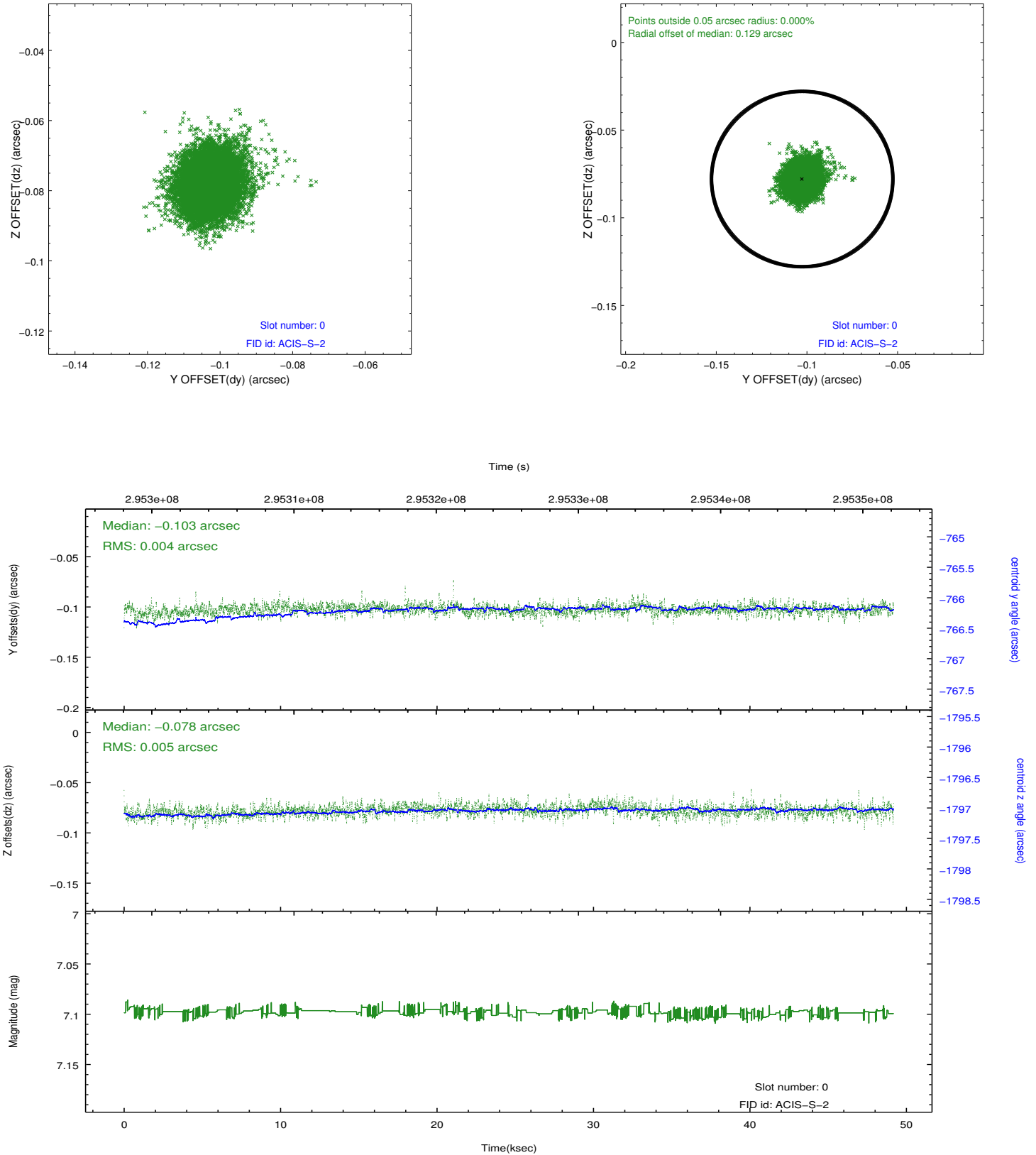


2.4.5 Slot 7

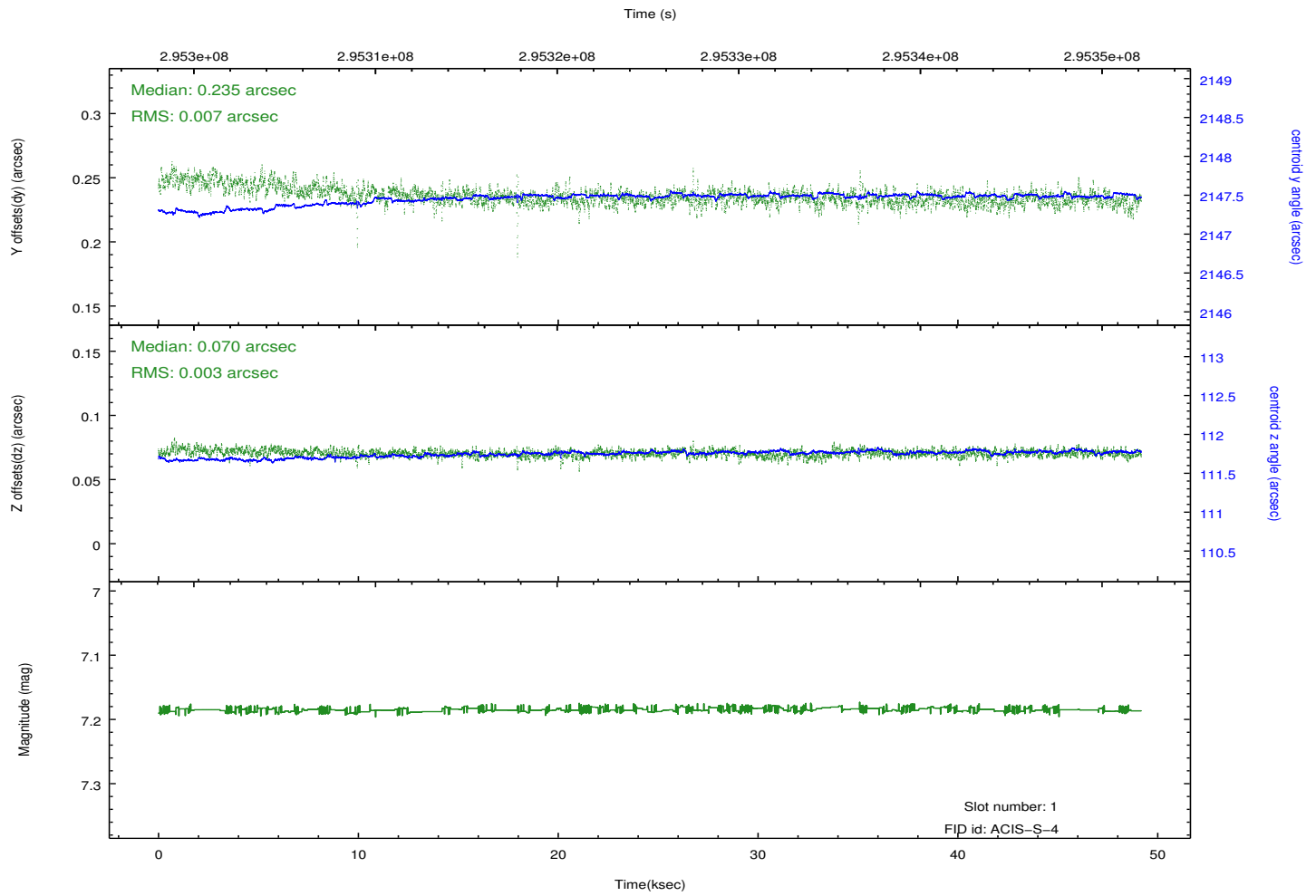
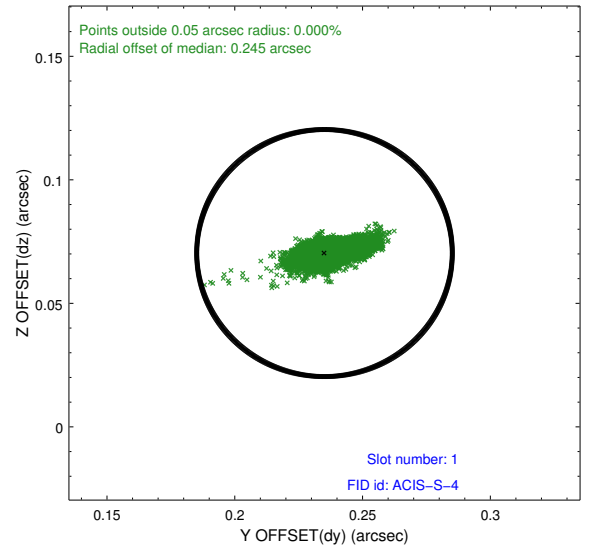
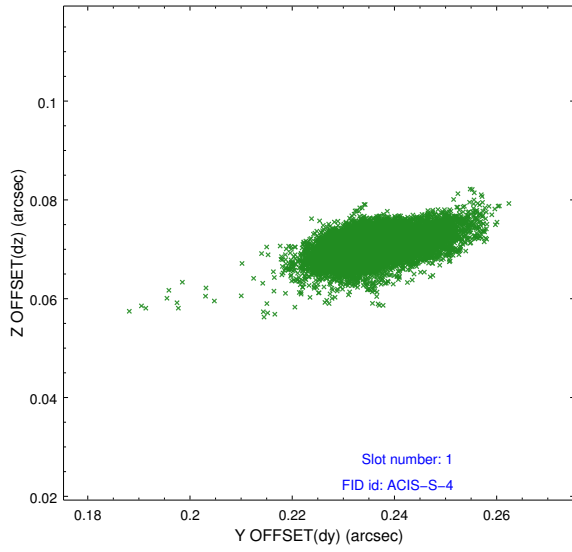


2.5 FID Slots

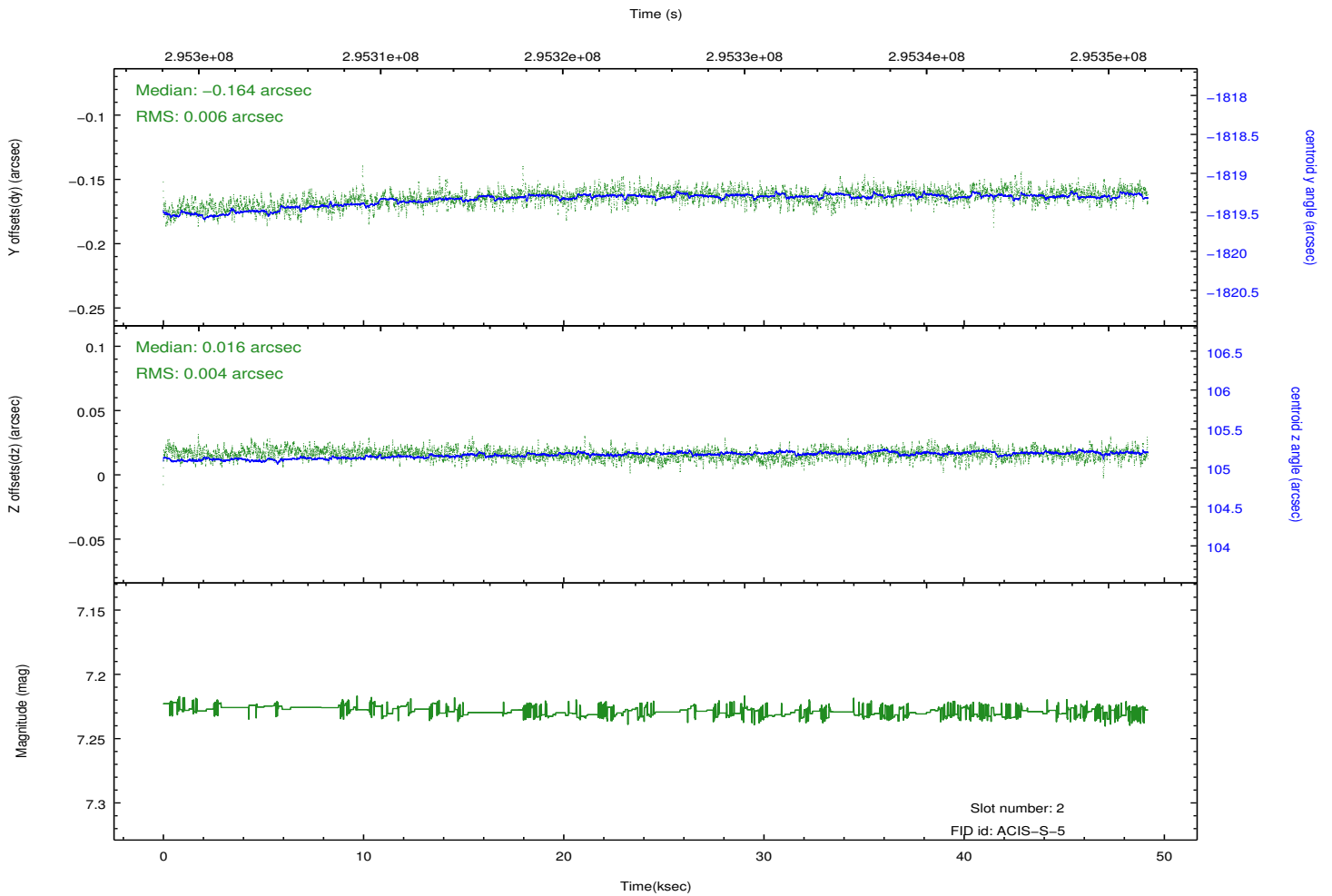
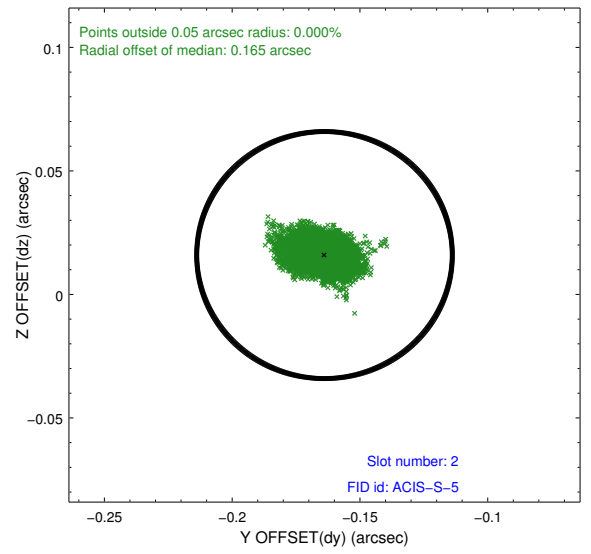
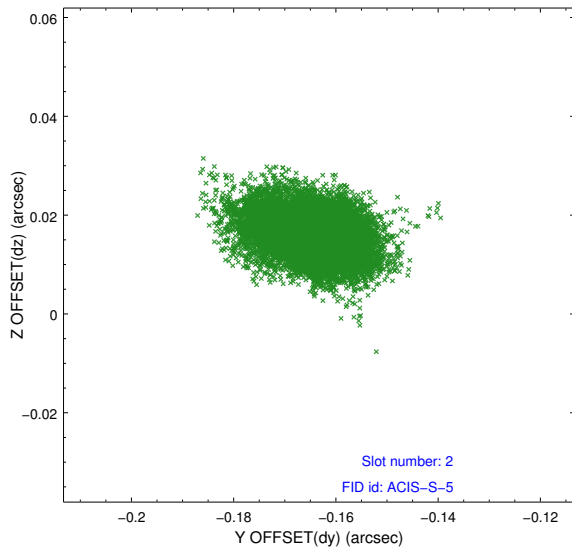
2.5.1 Slot 0



2.5.2 Slot 1

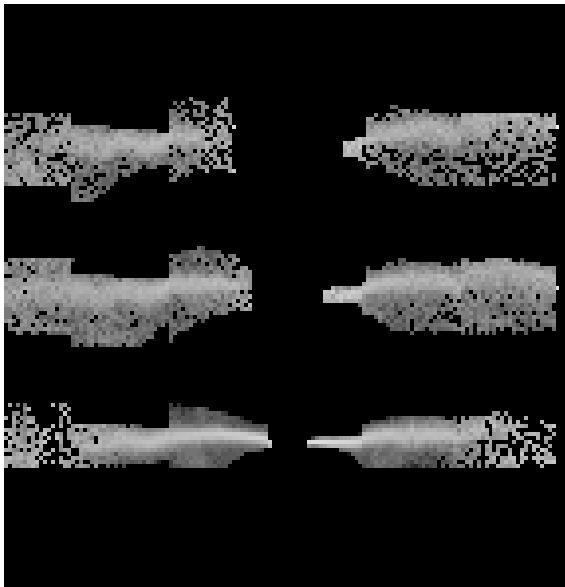


2.5.3 Slot 2



3 Gratings

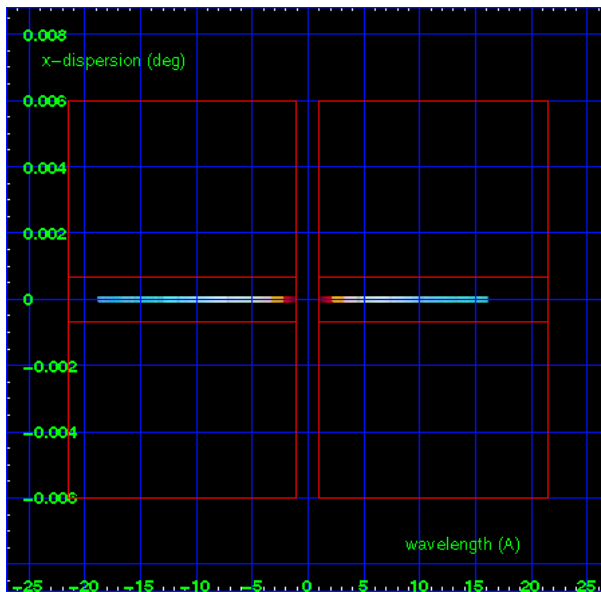
3.1 HEG Arm



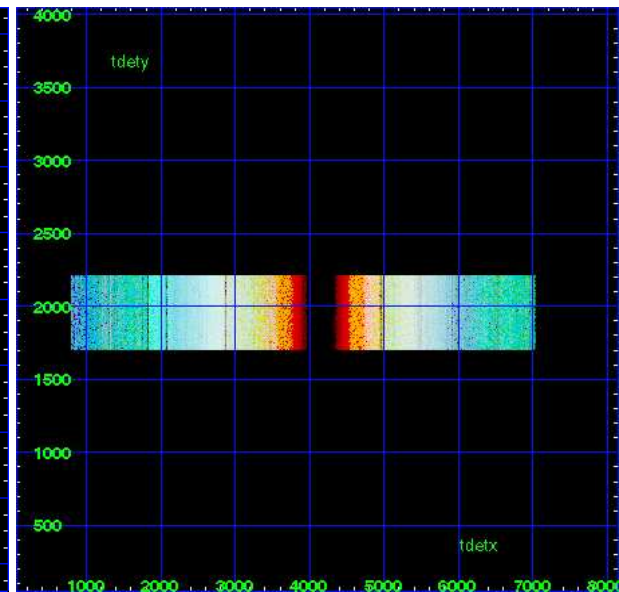
HEG Order Sort 123



HEG Order Sort ALL

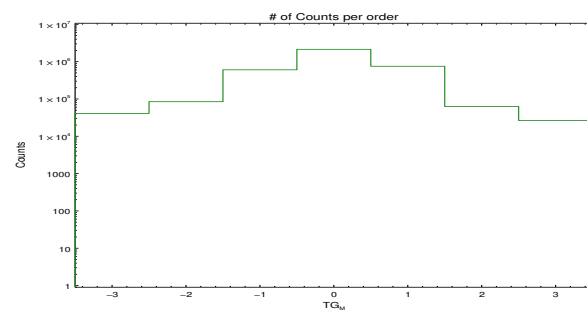


Spot Image HEG

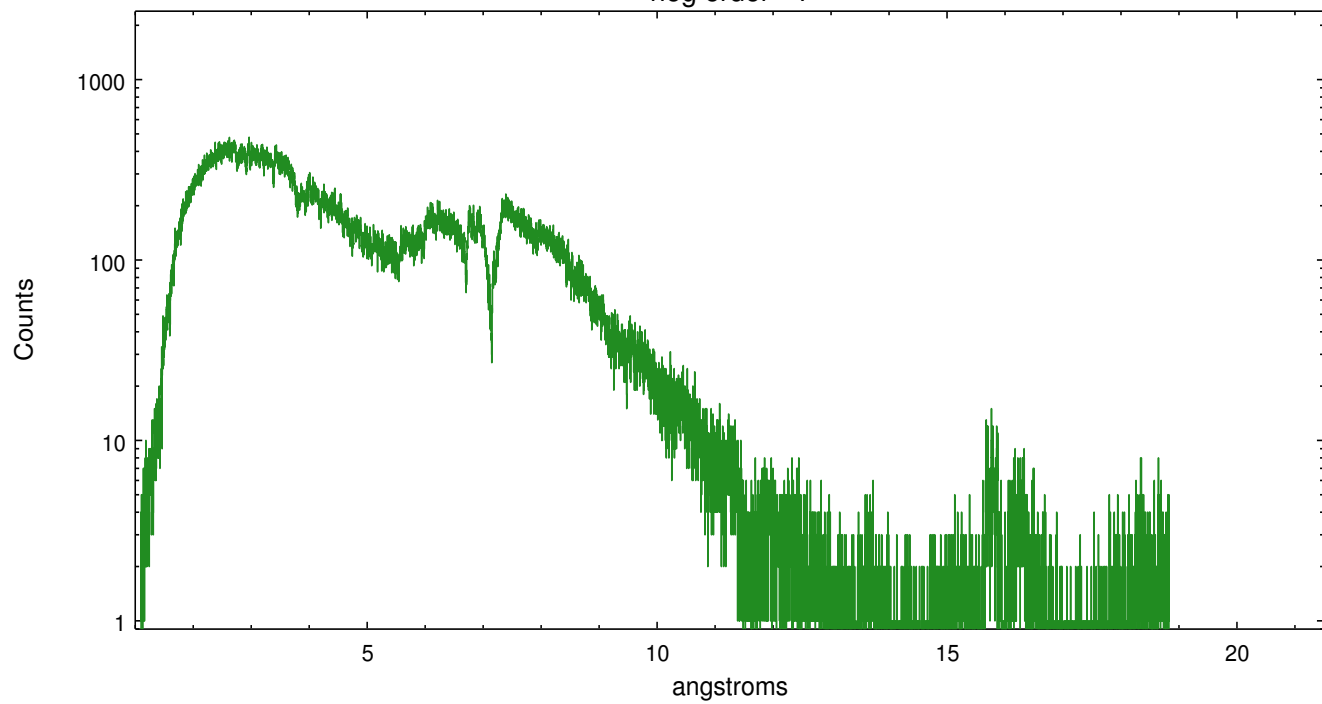


Full Detector HEG

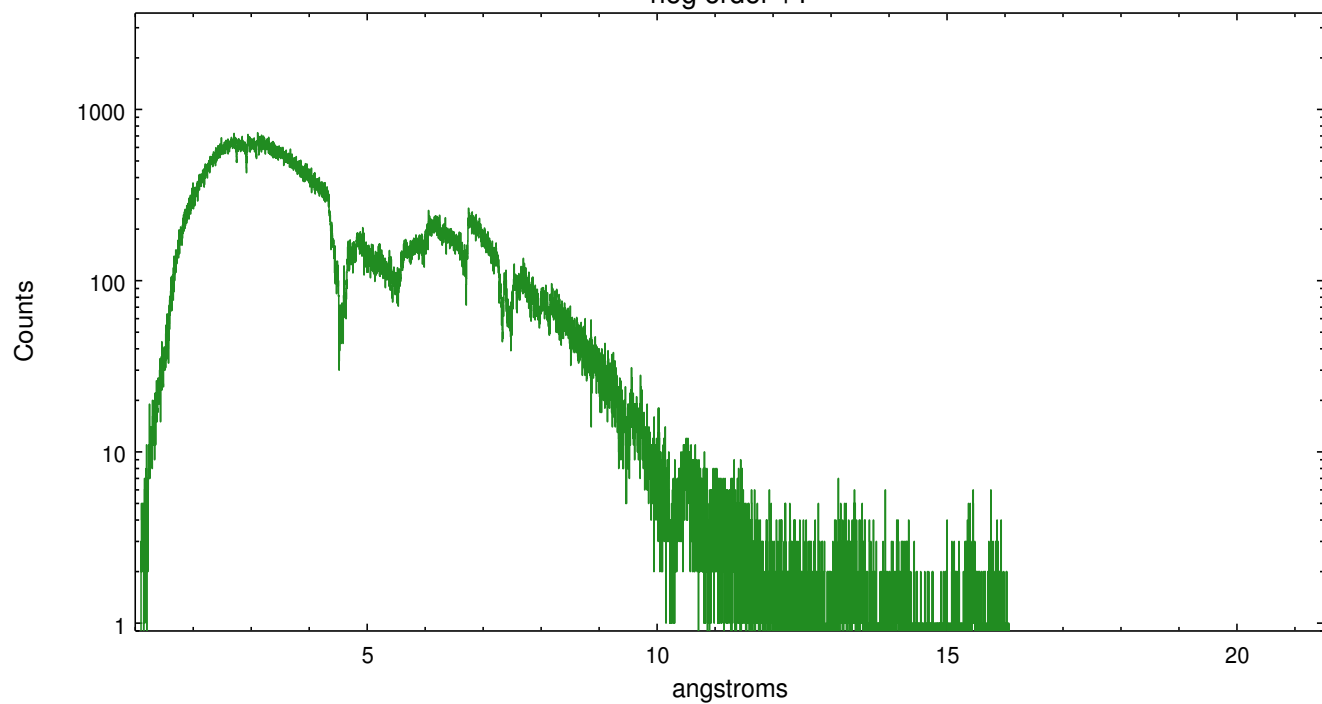
| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|----------|----------|----------|---------|---------|---------|---------|
| Events | 41029 | 84668 | 605154 | 2139428 | 751627 | 62880 | 26509 |



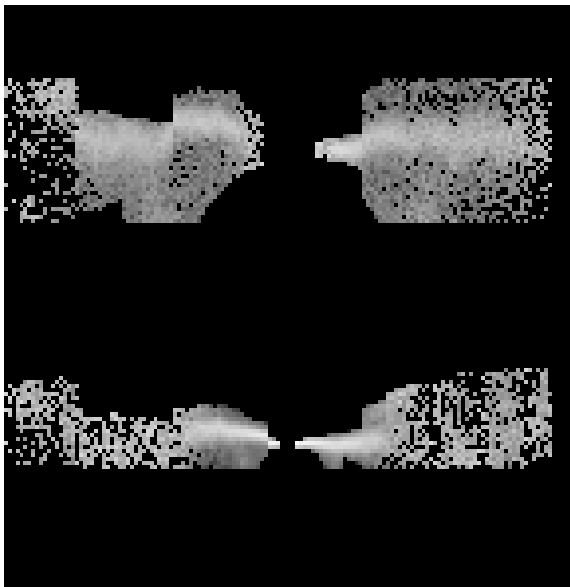
heg order -1



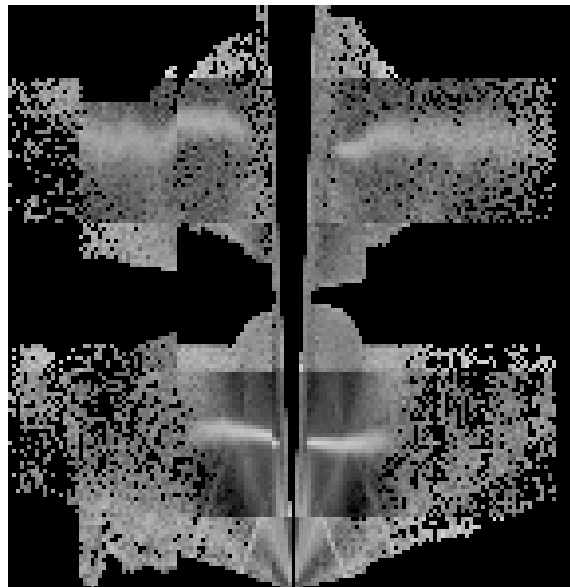
heg order +1



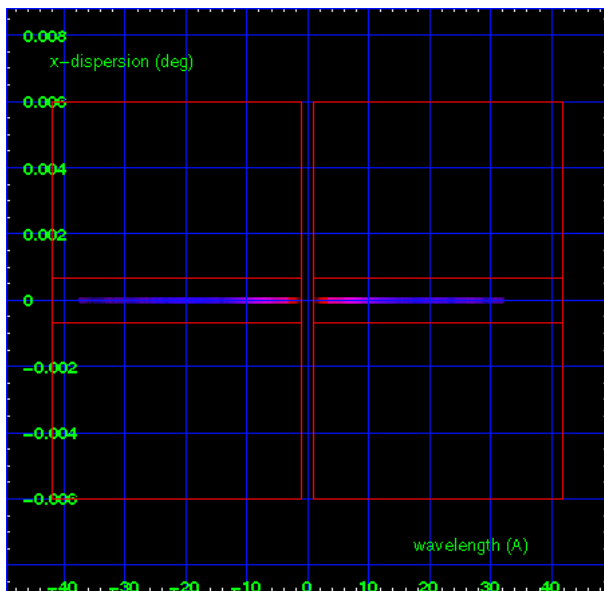
3.2 MEG Arm



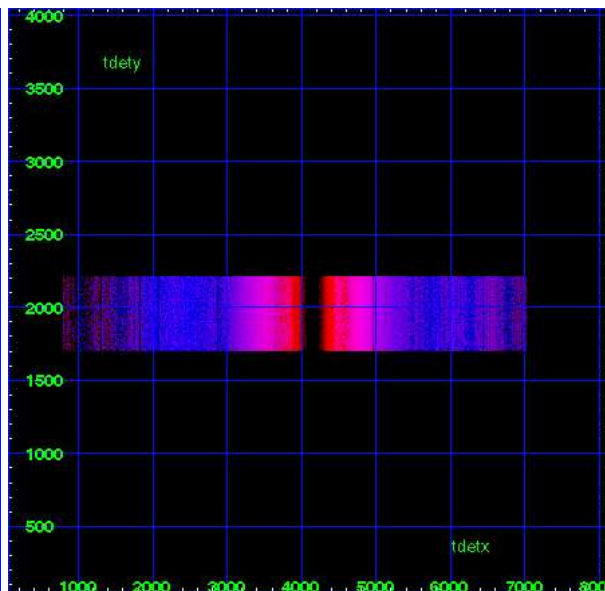
MEG Order Sort 123



MEG Order Sort ALL

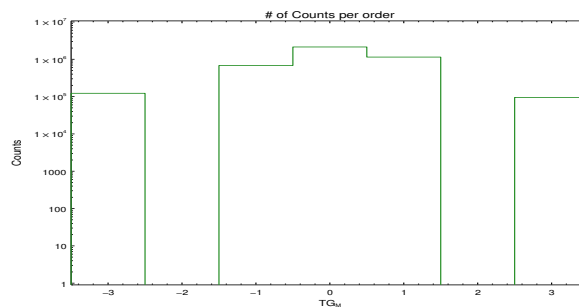


Spot Image MEG

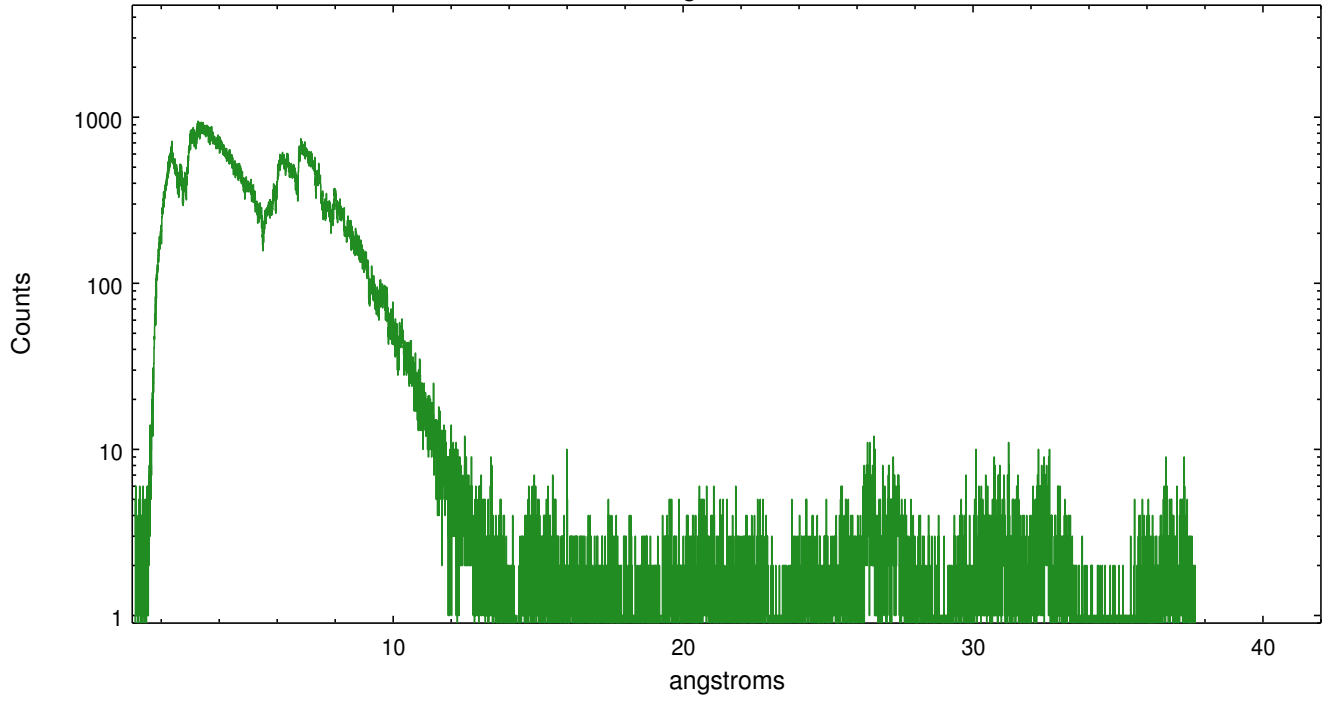


Full Detector MEG

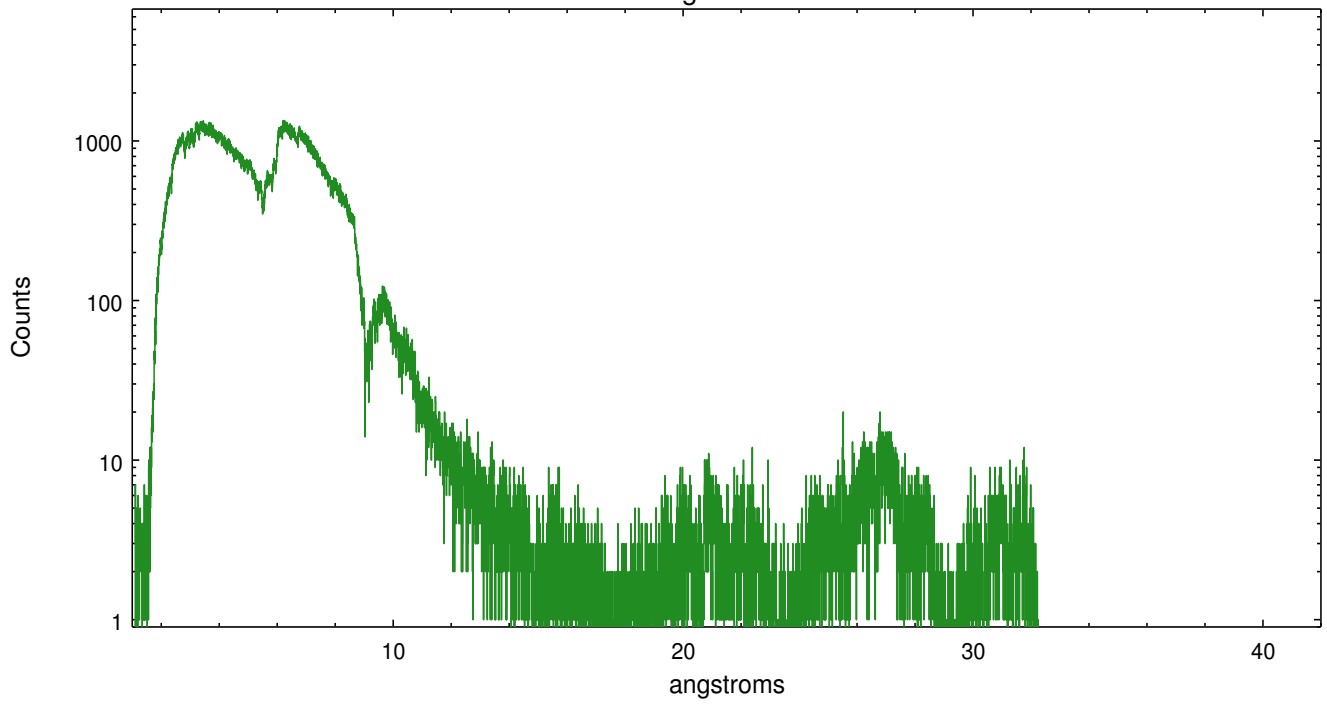
| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|----------|----------|----------|---------|---------|---------|---------|
| Events | 122572 | 0 | 681433 | 2139428 | 1145923 | 0 | 95112 |



meg order -1



meg order +1



A Summary

A.1 Status

| | |
|----------------------------|--------------------|
| V&V Scientist | David Huenemoerder |
| V&V Date (YYYY-MM-DD) | 2012.04.30 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 49 |

A.2 Comments