

V&V Reference Report

L2 ASCDS Version : 7.6.9

Observation 2417 - L2 Version 001
Chandra X-Ray Center

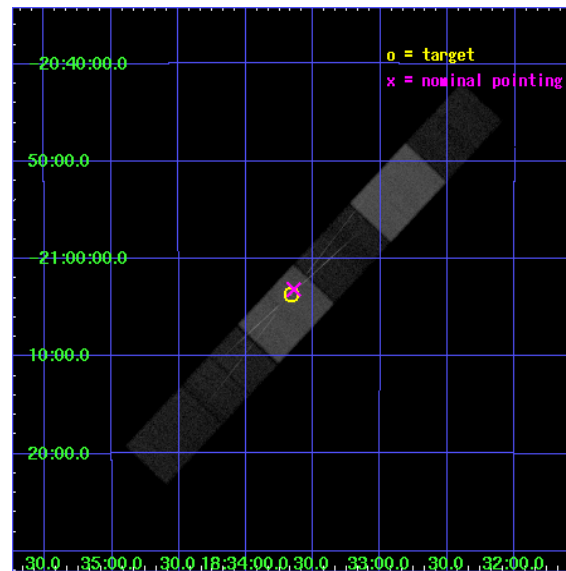
L2 Processing Date : Dec 8 2006

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1 Front

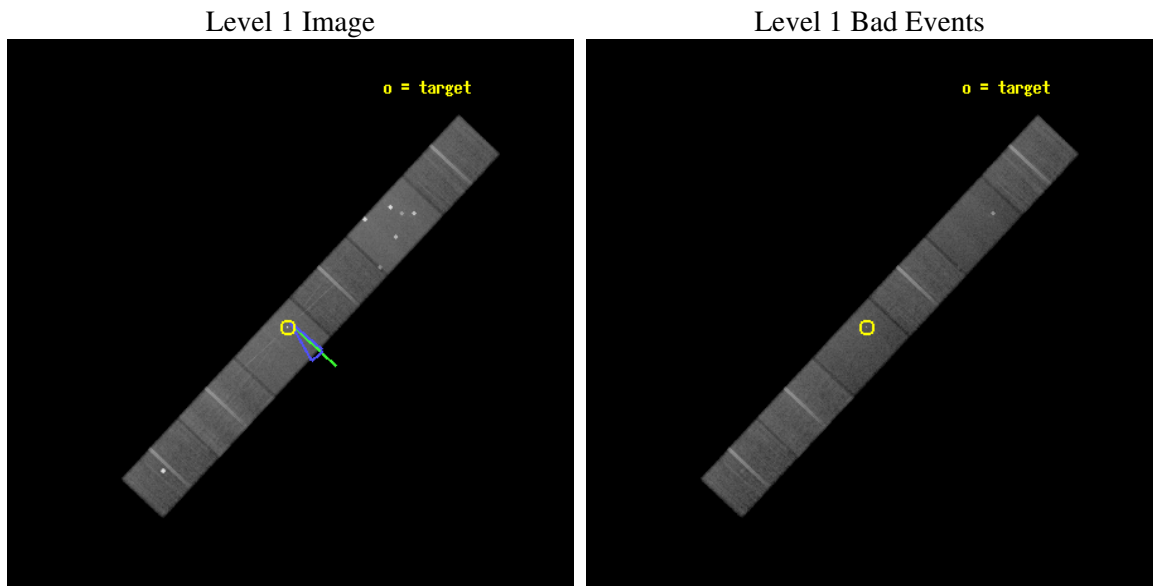
| | |
|----------|--|
| seq_num | 700392 |
| obs_id | 2417 |
| title | ACIS STUDY OF GRAVITATIONALLY LENSED QUASARS |
| observer | Professor Gordon Garmire |
| object | PKS 1830-211 |
| dtcycle | 0 |
| cycle | P |
| ra_targ | 278.416417 |
| dec_targ | -21.061028 |
| ra_nom | 278.41072928127 |
| dec_nom | -21.052832468668 |
| roll_nom | 133.15358260963 |
| revision | 2 |
| ontime | 52094.236108929 |
| livetime | 51218.401444233 |
| ontime4 | 52094.236108929 |
| ontime5 | 52094.236108929 |
| ontime6 | 52094.236108929 |
| ontime7 | 52094.236108929 |
| ontime8 | 52094.236108929 |
| ontime9 | 52094.236108929 |
| l2events | 358792 |



2 OBI

2.1 OBI

2.1.1 Images

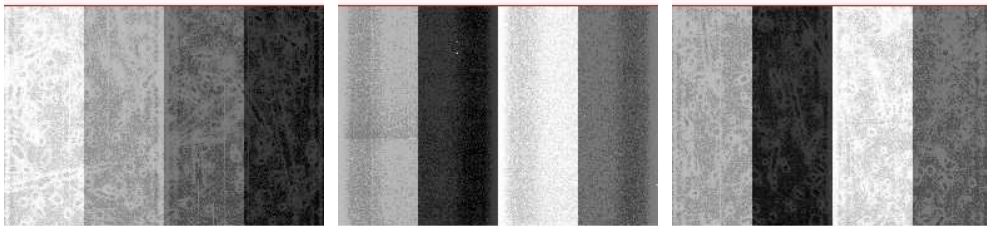


2.1.2 Bias

Chip 4

Chip 5

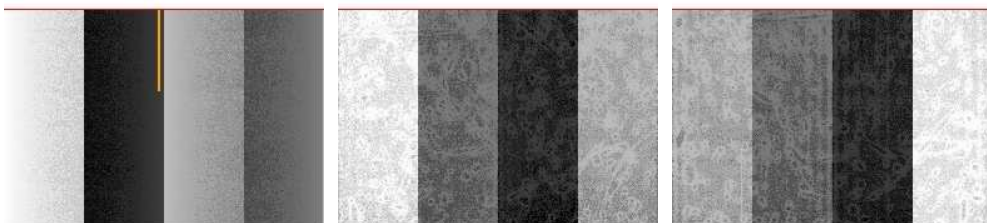
Chip 6



Chip 7

Chip 8

Chip 9



2.1.3 Parameters

| | |
|----------|---------------------|
| obi_num | 0 |
| ascdsver | 7.6.9 |
| caldsver | 3.2.4 |
| date | 2006-12-08T14:38:21 |
| revision | 2 |

| | |
|----------------|-----------------|
| sched_exp_time | 51901.081000 |
| ontime | 52098.497943103 |
| ontime4 | 52098.497943103 |
| ontime5 | 52098.497943103 |
| ontime6 | 52098.497943103 |
| ontime7 | 52098.497943103 |
| ontime8 | 52098.497943103 |
| ontime9 | 52098.497943103 |
| l1events | 1749966 |

2.1.4 Events

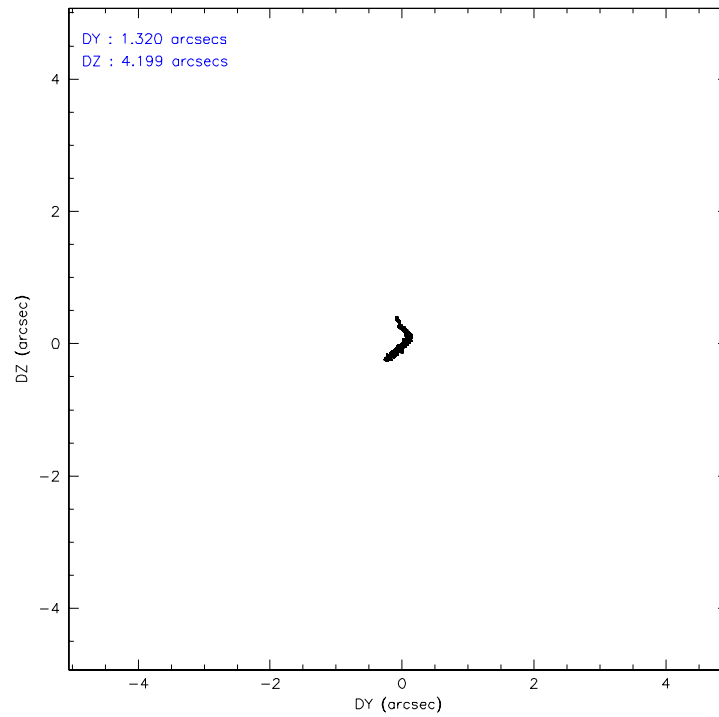
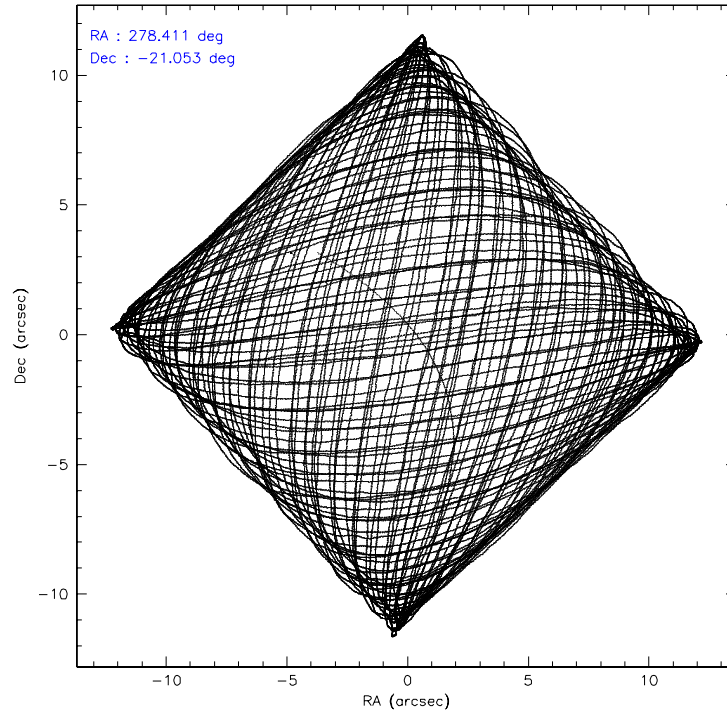
| | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|-----------------|--------|--------|--------|--------|--------|--------|
| level 1 events | 265354 | 375439 | 246217 | 302333 | 304814 | 255809 |
| rejected events | 236559 | 180936 | 216206 | 175748 | 243938 | 207296 |
| rejected % | 89% | 48% | 87% | 58% | 80% | 81% |

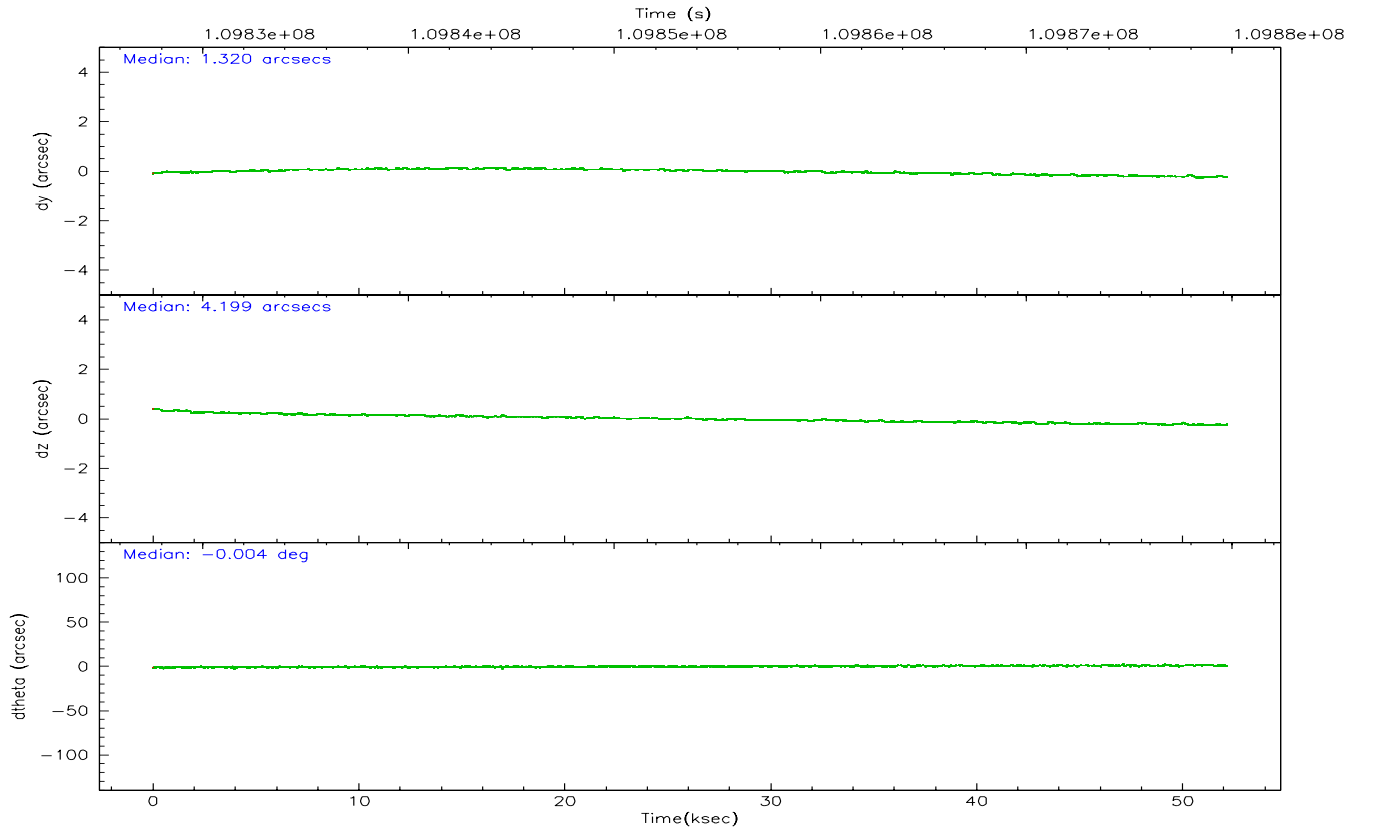
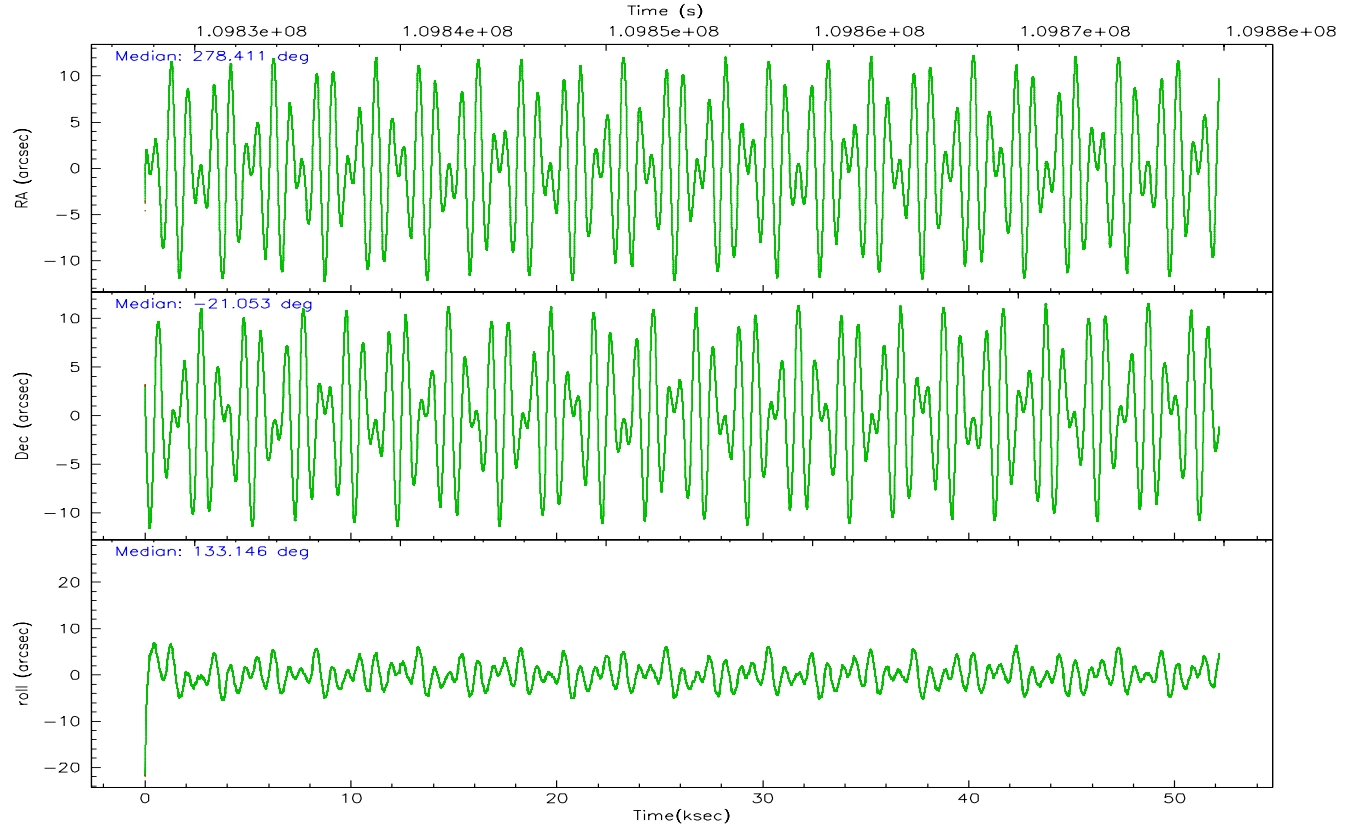
| | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|----------------|--------|--------|--------|--------|--------|--------|
| grade 0 events | 11798 | 61400 | 12944 | 9120 | 19296 | 31629 |
| | 4% | 16% | 5% | 3% | 6% | 12% |
| grade 1 events | 85 | 2750 | 96 | 214 | 141 | 174 |
| | 0% | 0% | 0% | 0% | 0% | 0% |
| grade 2 events | 6533 | 44088 | 5669 | 30741 | 12871 | 5485 |
| | 2% | 11% | 2% | 10% | 4% | 2% |
| grade 3 events | 2963 | 4103 | 3050 | 8321 | 6568 | 3069 |
| | 1% | 1% | 1% | 2% | 2% | 1% |
| grade 4 events | 2777 | 3895 | 2950 | 8149 | 6146 | 2973 |
| | 1% | 1% | 1% | 2% | 2% | 1% |
| grade 5 events | 8322 | 16566 | 9470 | 21443 | 12202 | 9710 |
| | 3% | 4% | 3% | 7% | 4% | 3% |
| grade 6 events | 4728 | 81041 | 5403 | 70259 | 16000 | 5359 |
| | 1% | 21% | 2% | 23% | 5% | 2% |
| grade 7 events | 228148 | 161596 | 206635 | 154086 | 231590 | 197410 |
| | 85% | 43% | 83% | 50% | 75% | 77% |

2.2 Compared Parameters

| Parameter | Planned | Actual | Parameter | Planned | Actual |
|--------------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument | ACIS | ACIS | Obspar format version number | 6 | 6 |
| 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 |
| Pointing RA | 278.438804 | 278.4107292812655 | Subarray requested | CUSTOM | CUSTOM |
| Pointing Dec | -21.060458 | -21.05283246866846 | Subarray start row | 37 | 37 |
| Pointing Roll | 133.007046 | 133.1535826096288 | Subarray row count | 700 | 700 |
| Roll angle | 140.000000 | 140.000000 | Alternating exposures requested | N | N |
| Roll tolerance | 10.000000 | 10.000000 | Primary exposure time | 0.000000 | 2.4 |
| Roll constraint allows 180D rotation | N | N | | | |
| SIM focus pos (mm) | -0.684267 | -0.6828225247311905 | | | |
| SIM defocus (mm) | 0 | 0.001444936568705701 | | | |
| SIM translation stage pos (mm) | -190.132523 | -190.1400660498719 | | | |
| SIM translation stage offset (mm) | 0 | 0.00754346686406393 | | | |
| Observation start time | 109827855.184000 | 109826836.08692 | | | |
| Observation start date | 2001-06-25T03:43:11 | 2001-06-25T03:27:16 | | | |
| Observation end time | 109879756.184000 | 109880070.489 | | | |
| Observation end date | 2001-06-25T18:08:12 | 2001-06-25T18:14:30 | | | |
| Read mode | TIMED | TIMED | | | |

2.3 Aspect



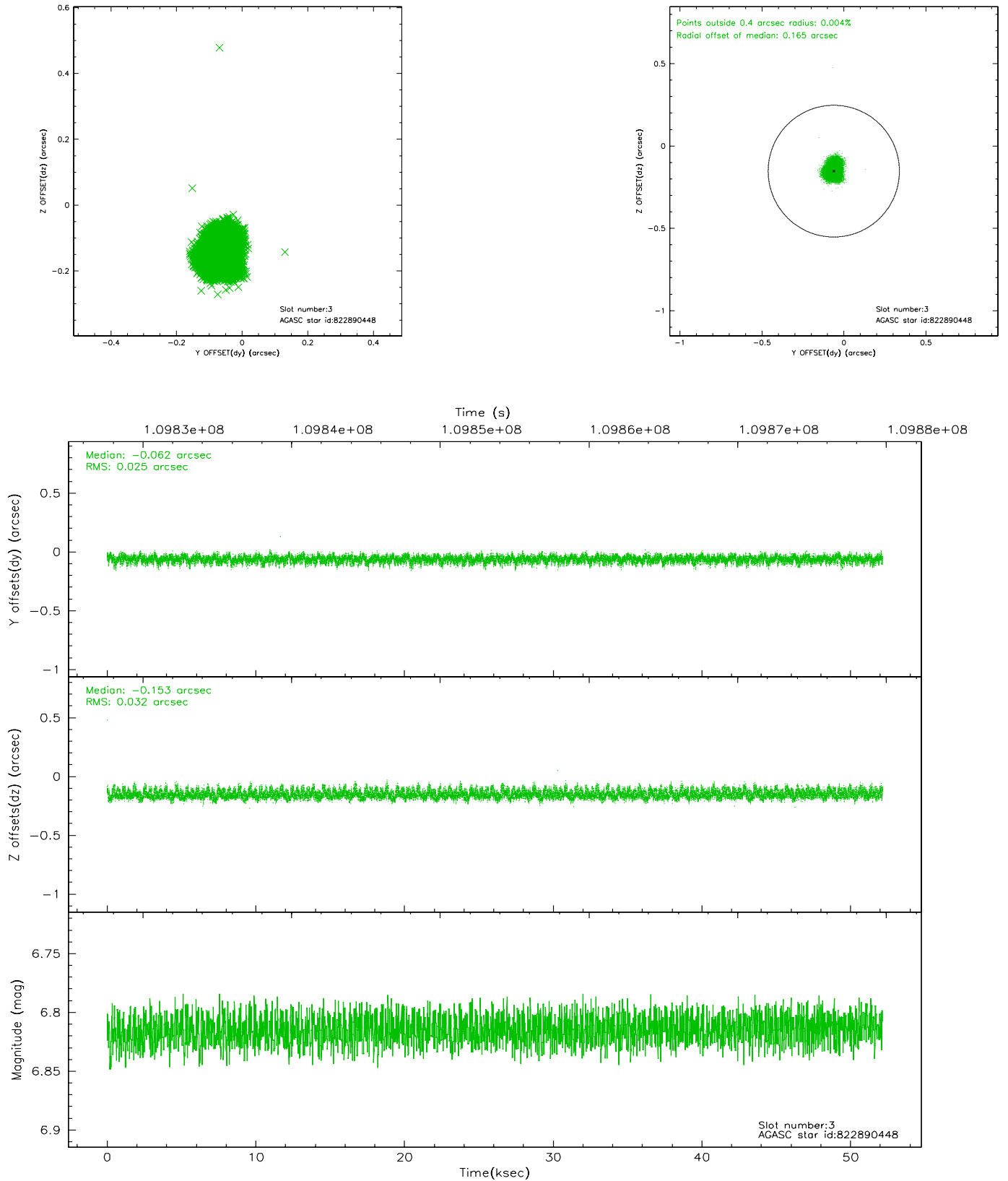


Slot Statistics

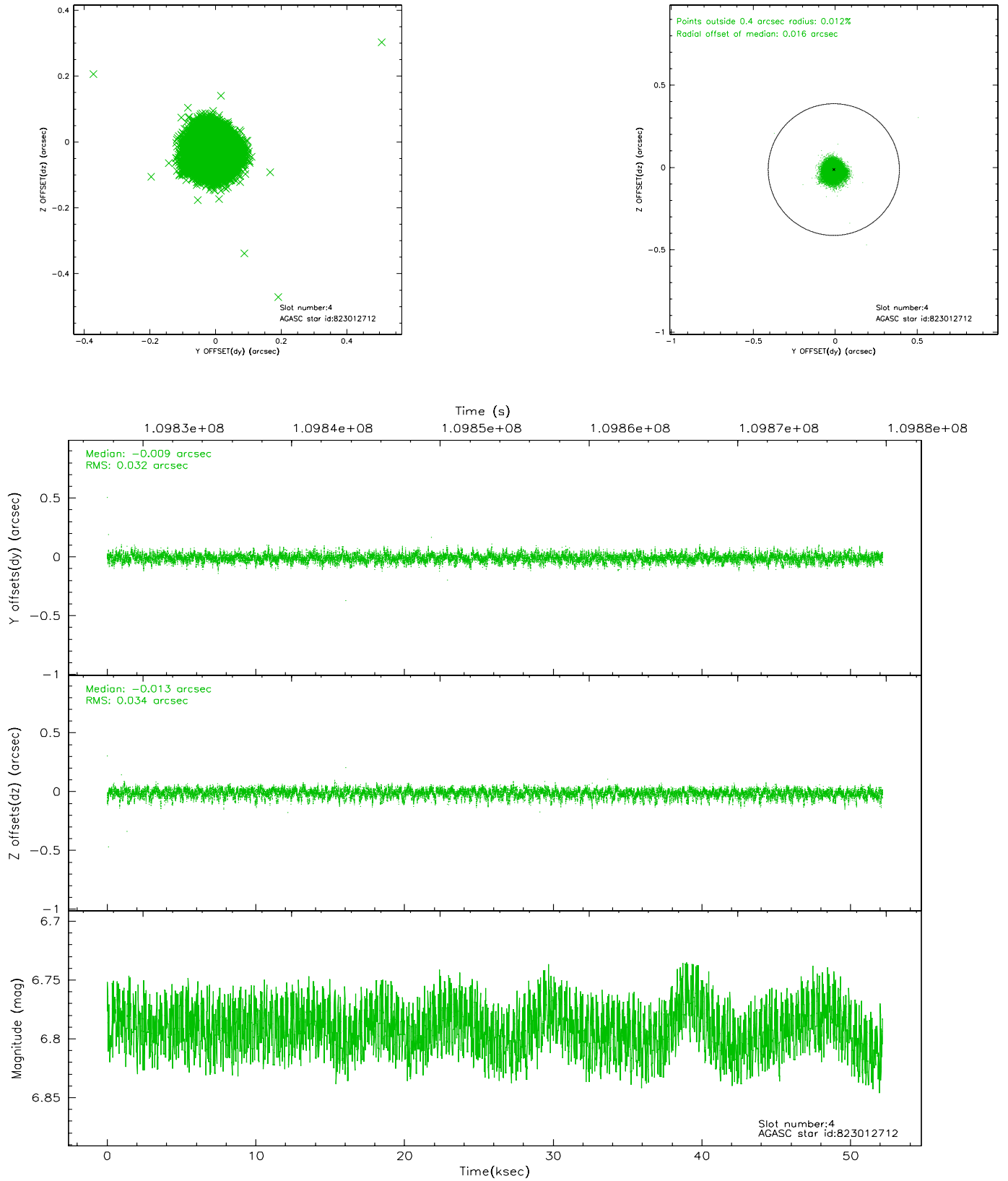
| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|----------|----------|
| 0 | FID | ACIS-S-2 | 7.11 | 12720 | -0.015 | 0.000 | 0.010 | 0.016 | 0.000000 | 0.000000 | -753.90 | -1725.30 |
| 1 | FID | ACIS-S-4 | 7.20 | 12720 | -0.056 | 0.007 | 0.007 | 0.012 | 0.000000 | 0.000000 | 2159.34 | 183.24 |
| 2 | FID | ACIS-S-5 | 7.24 | 12718 | 0.040 | 0.001 | 0.009 | 0.015 | 0.000000 | 0.000000 | -1806.73 | 176.85 |
| 3 | GUIDE | 822890448 | 6.81 | 25440 | -0.062 | -0.153 | 0.043 | 0.070 | 277.870792 | -21.249416 | 799.00 | 1860.21 |
| 4 | GUIDE | 823012712 | 6.79 | 25438 | -0.009 | -0.013 | 0.047 | 0.082 | 278.838881 | -20.840446 | -340.63 | -1523.15 |
| 5 | GUIDE | 822483224 | 8.96 | 25430 | 0.052 | 0.040 | 0.063 | 0.103 | 278.385695 | -20.623462 | 1271.93 | -941.77 |
| 6 | GUIDE | 823010144 | 8.04 | 25440 | -0.042 | 0.001 | 0.043 | 0.068 | 278.155693 | -21.242957 | 166.04 | 1143.65 |
| 7 | GUIDE | 823010976 | 8.87 | 25430 | 0.062 | 0.125 | 0.058 | 0.093 | 278.877543 | -21.223974 | -1436.75 | -673.55 |

2.4 Star Slots

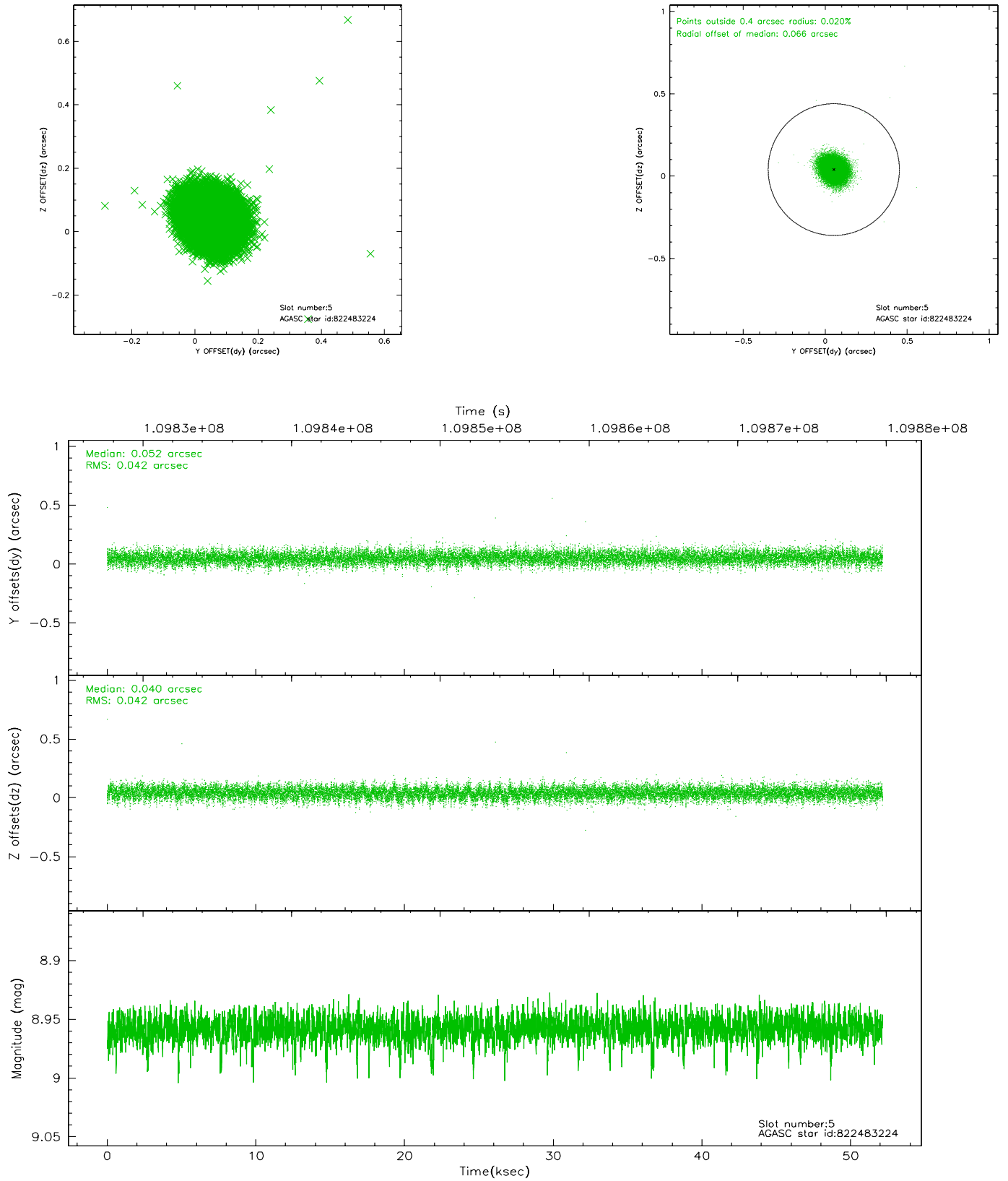
2.4.1 Slot 3



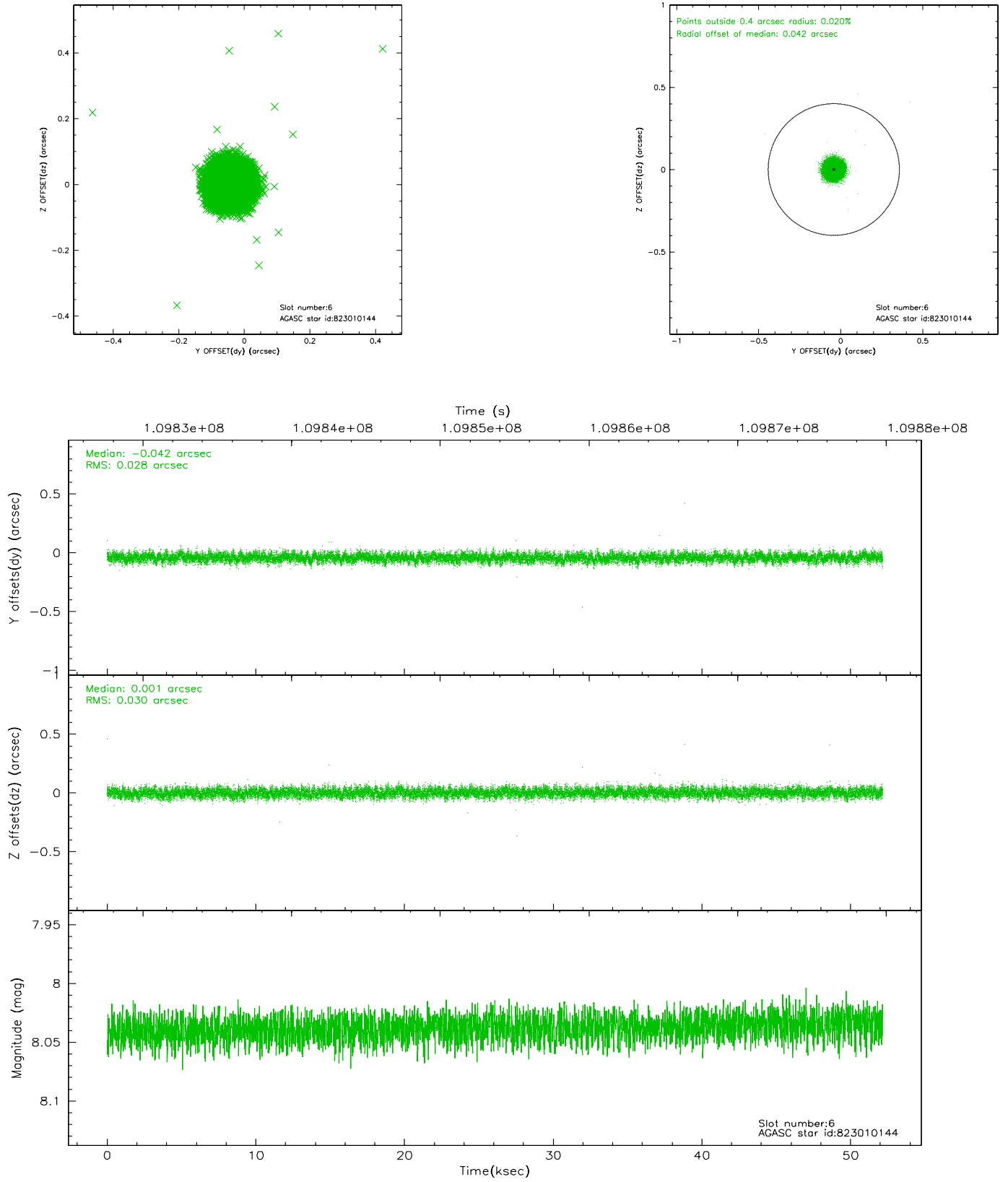
2.4.2 Slot 4



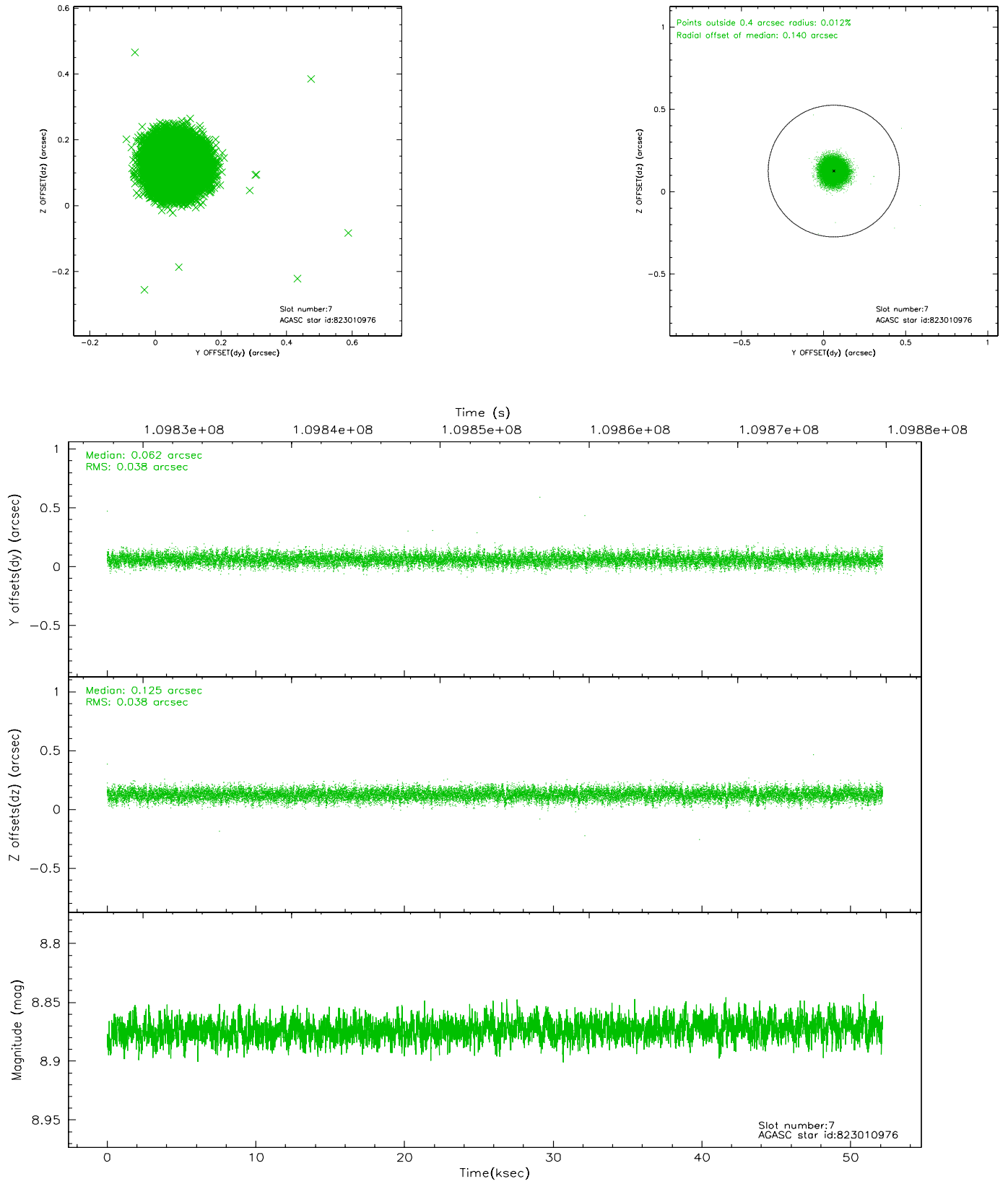
2.4.3 Slot 5



2.4.4 Slot 6

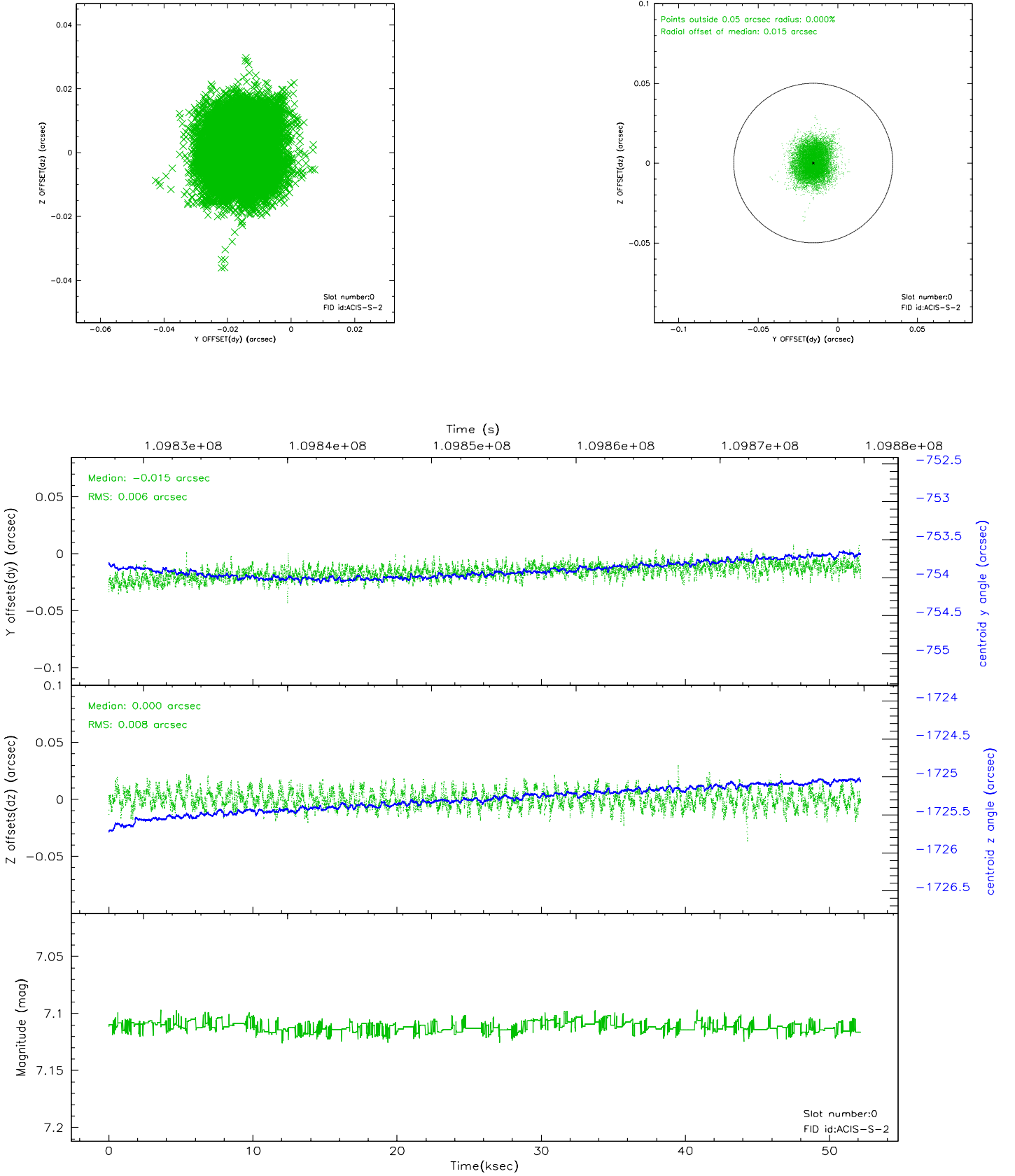


2.4.5 Slot 7

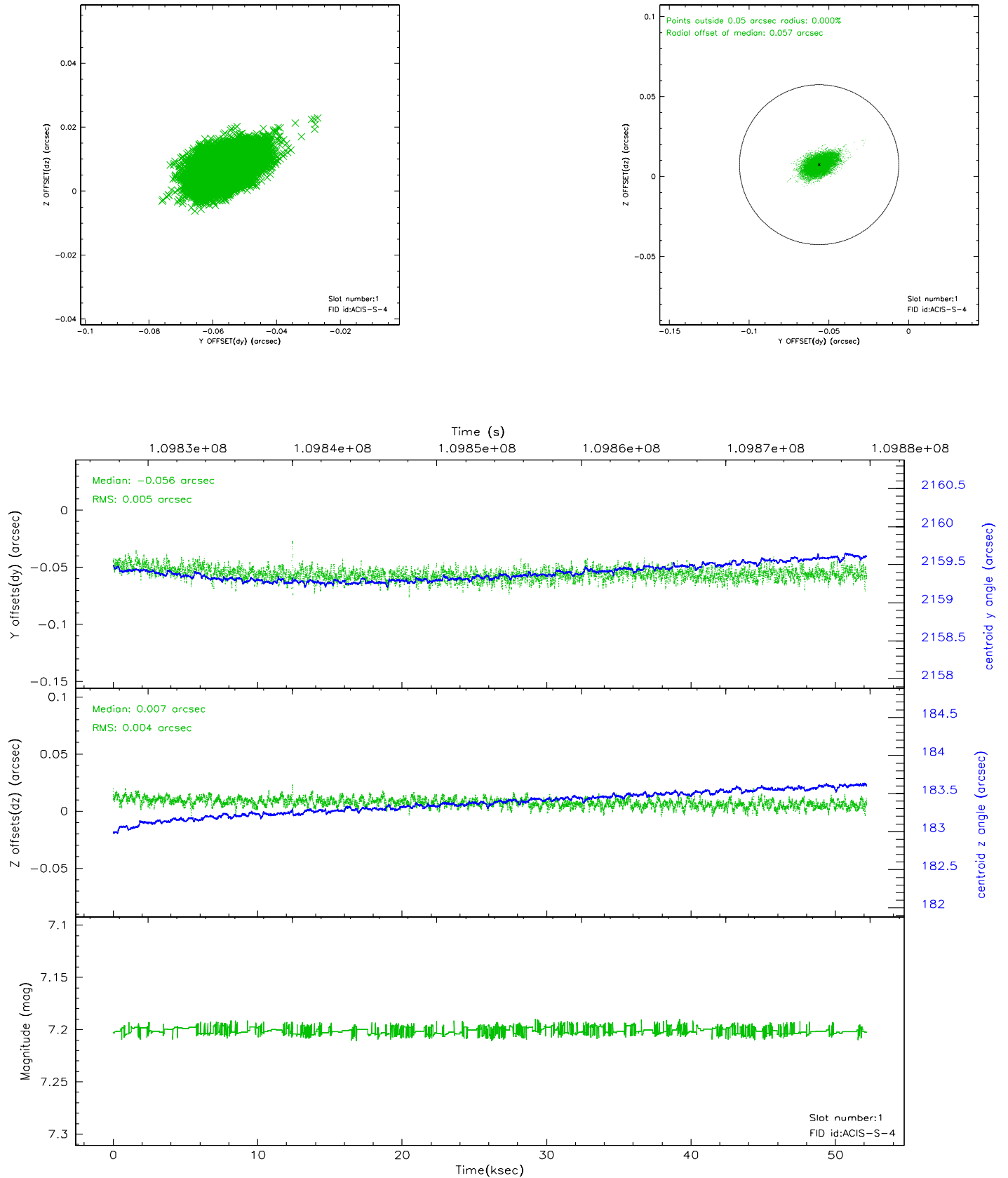


2.5 FID Slots

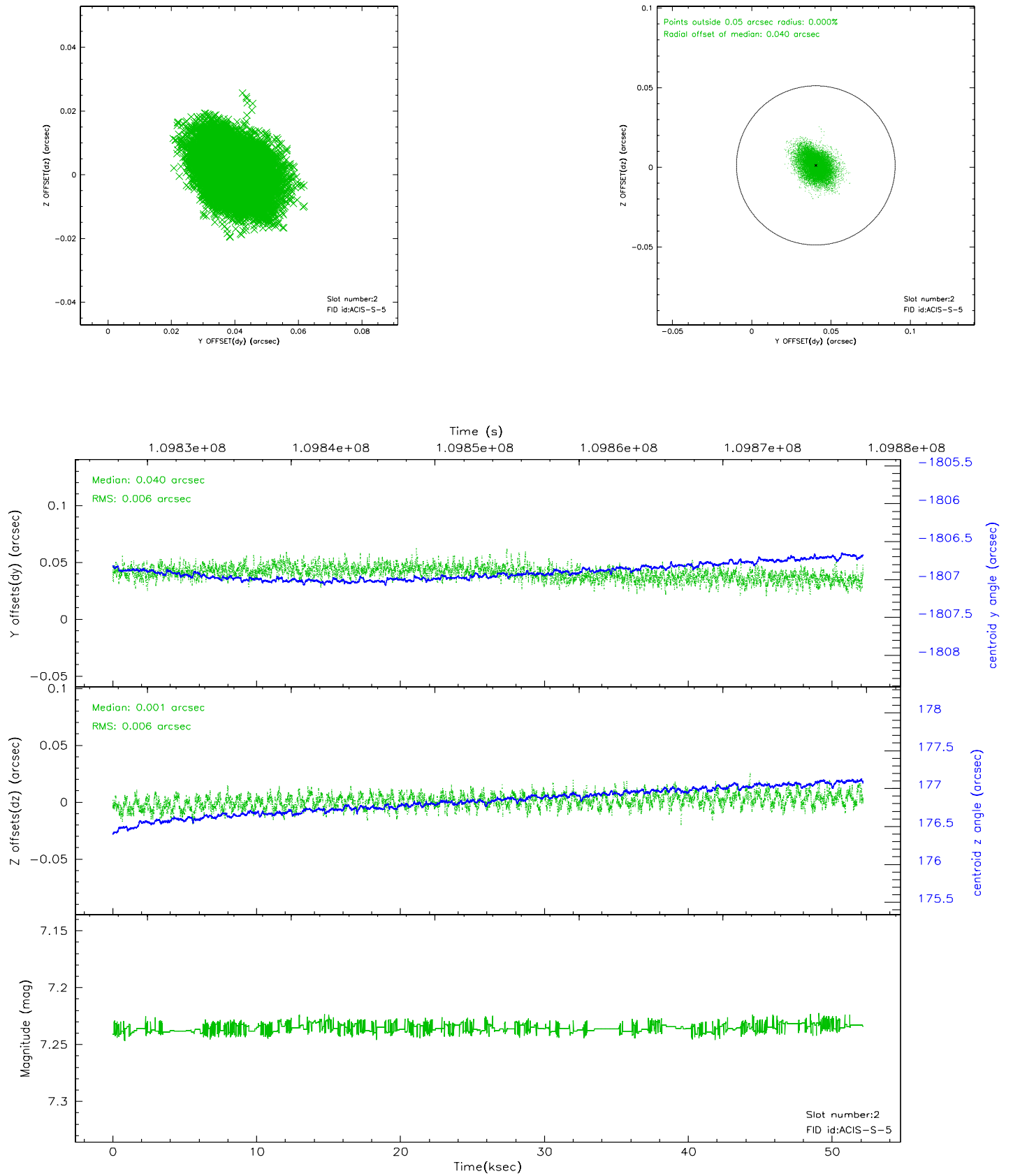
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

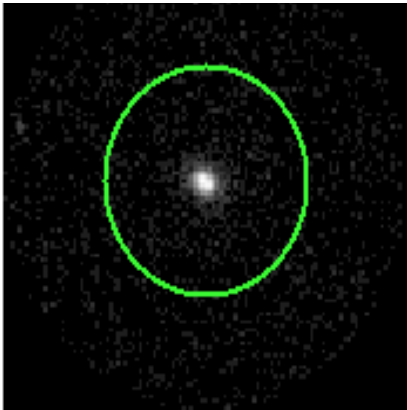


3 Gratings

3.1 HEG Arm



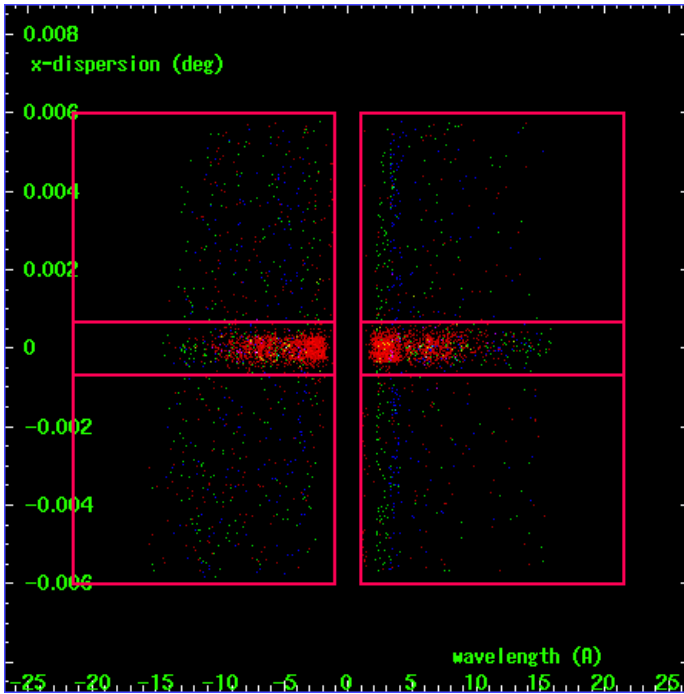
HEG Order Sort 123



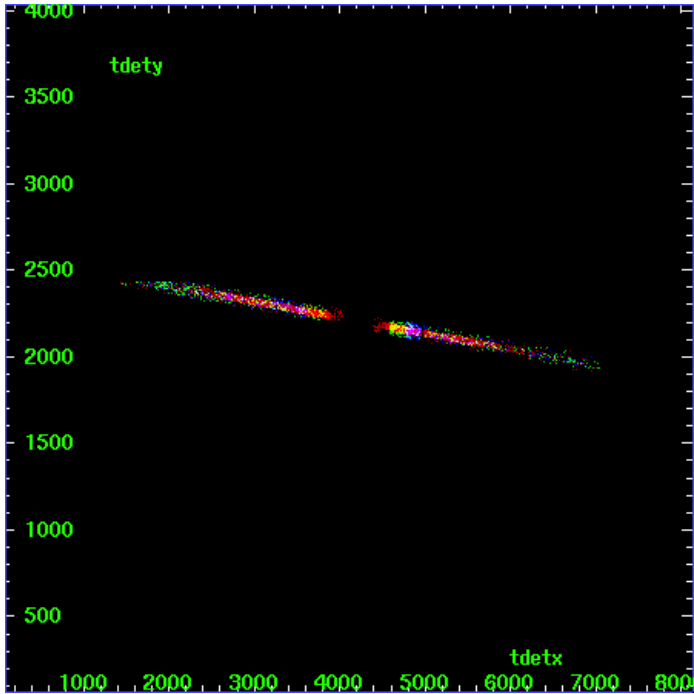
HEG Zero Order



HEG Order Sort ALL

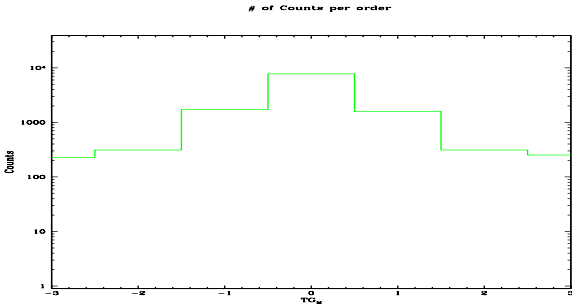


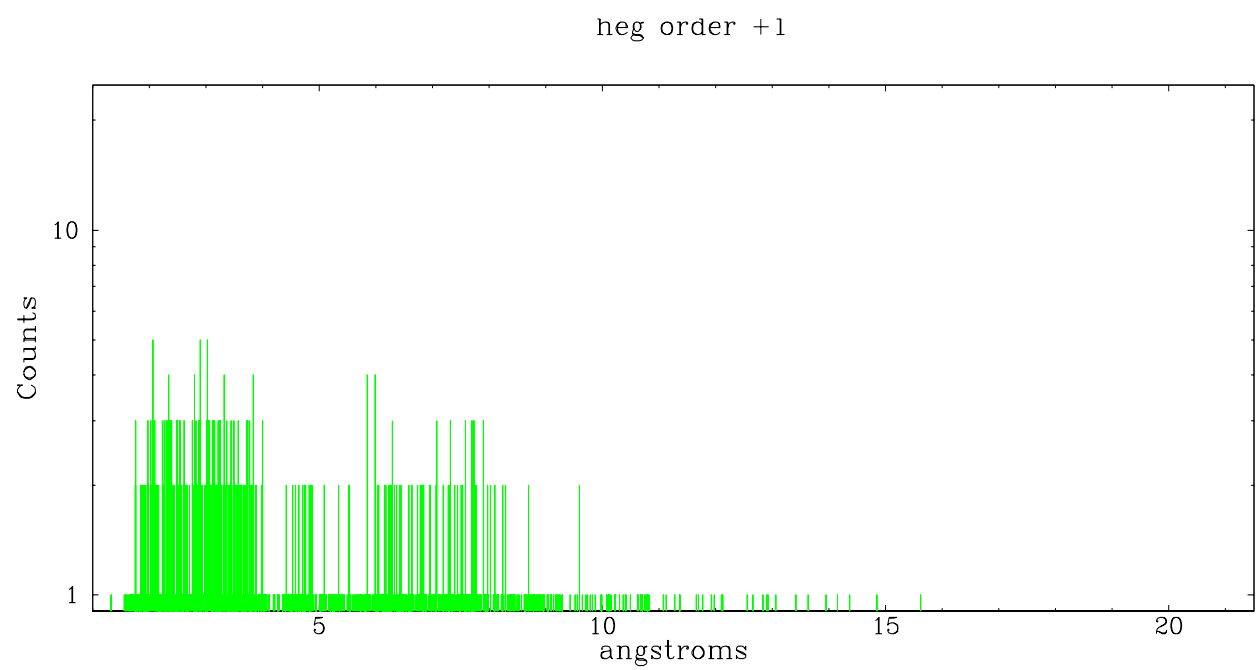
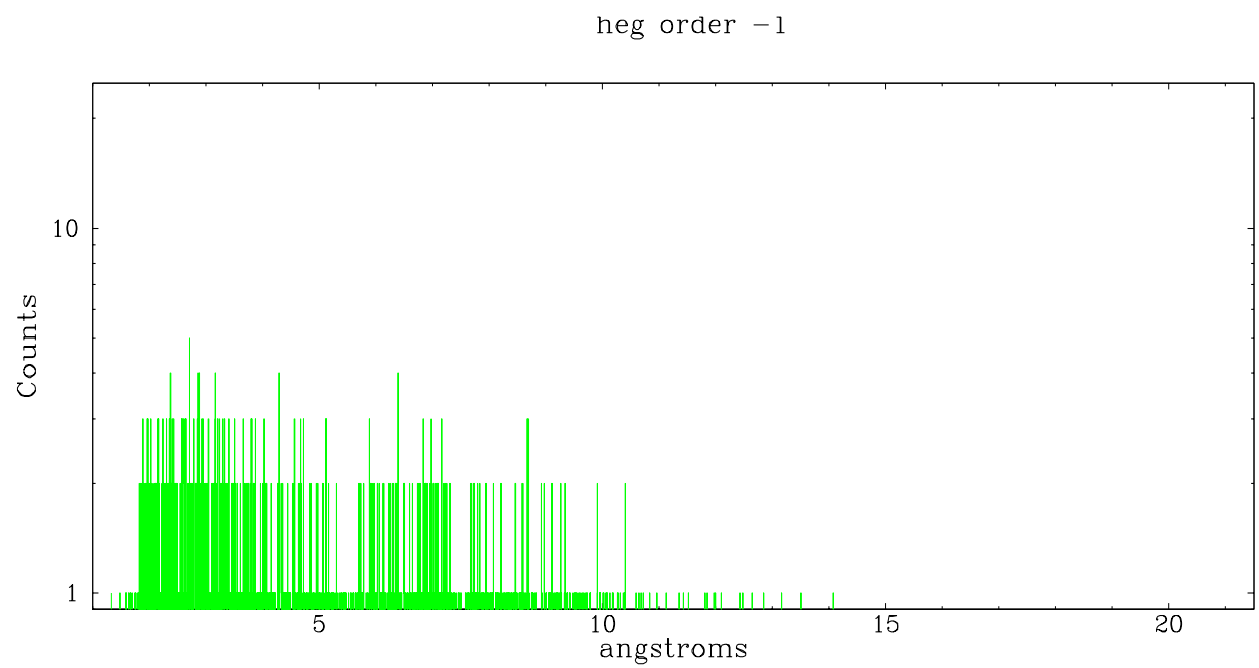
Spot Image HEG



Full Detector HEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 227 | 311 | 1724 | 7761 | 1583 | 312 | 253 |

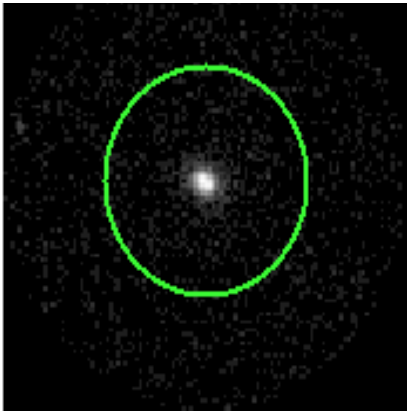




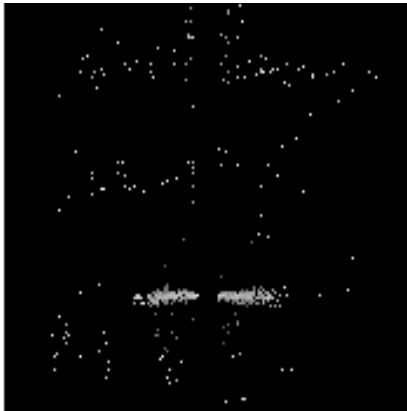
3.2 MEG Arm



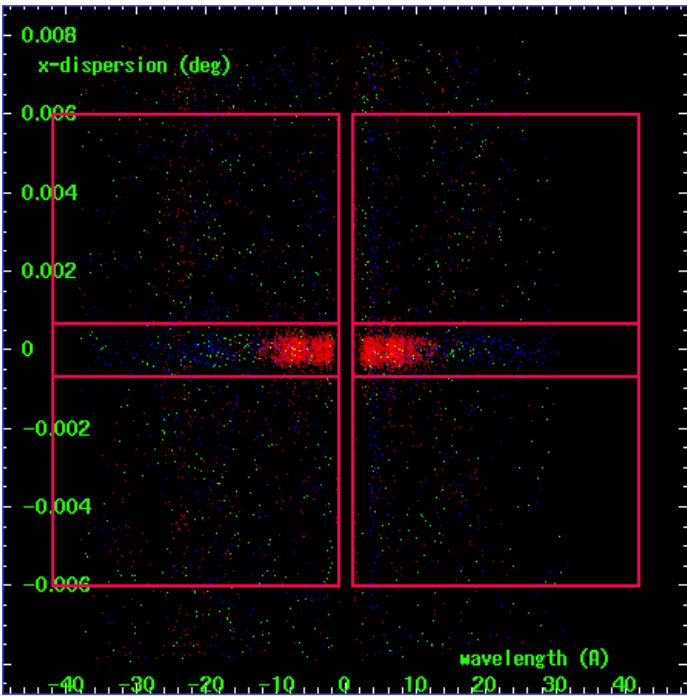
MEG Order Sort 123



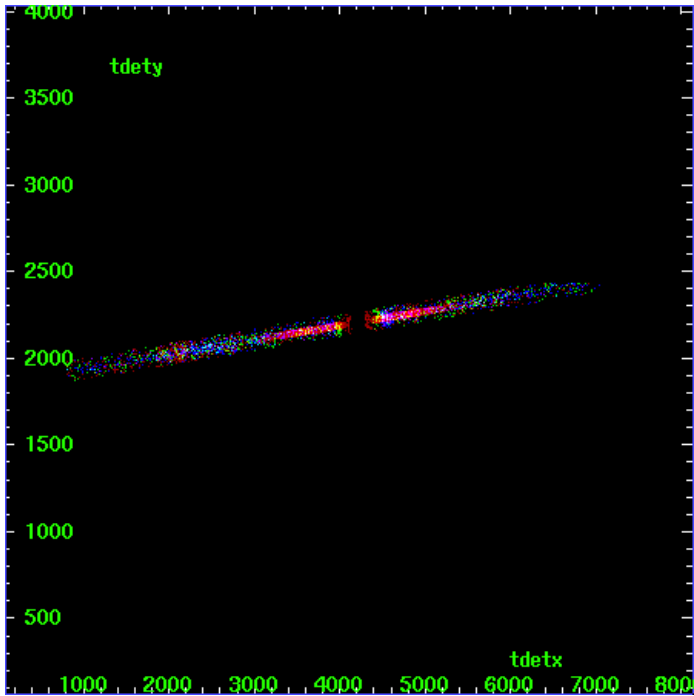
MEG Zero Order



MEG Order Sort ALL

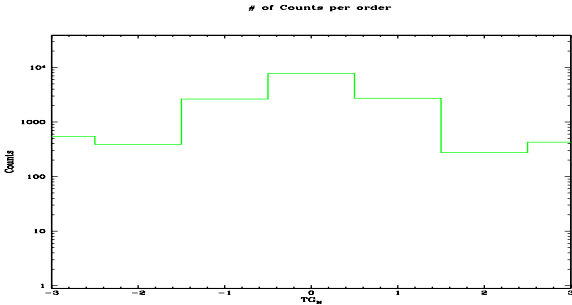


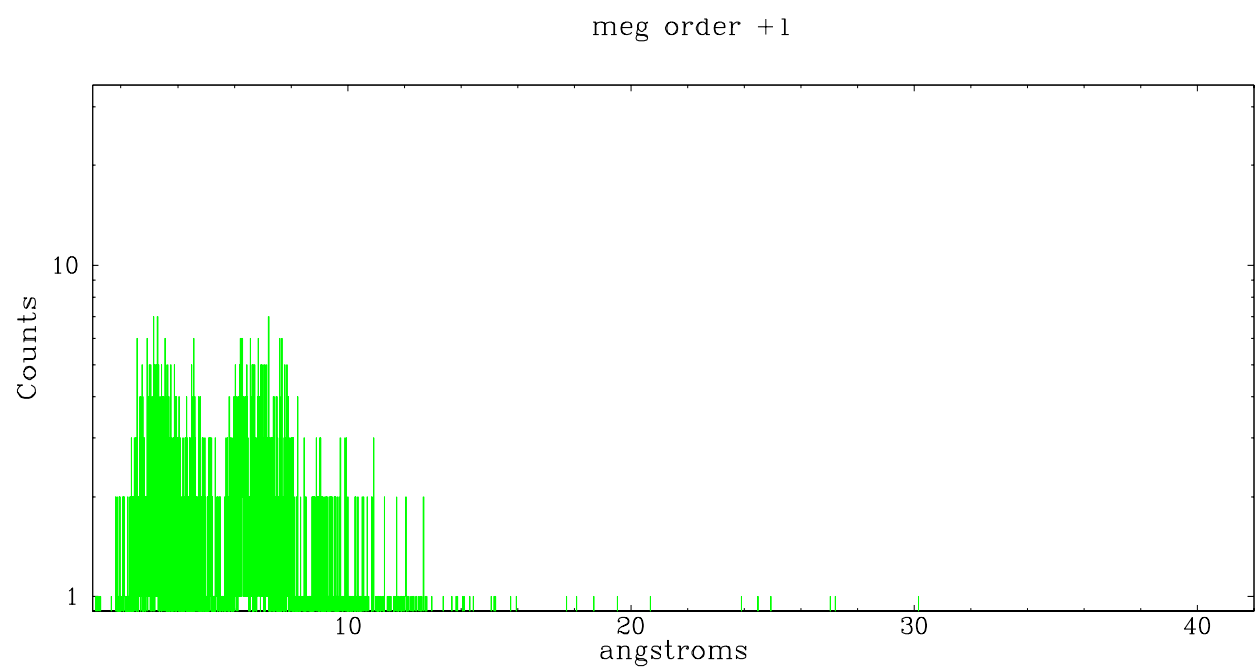
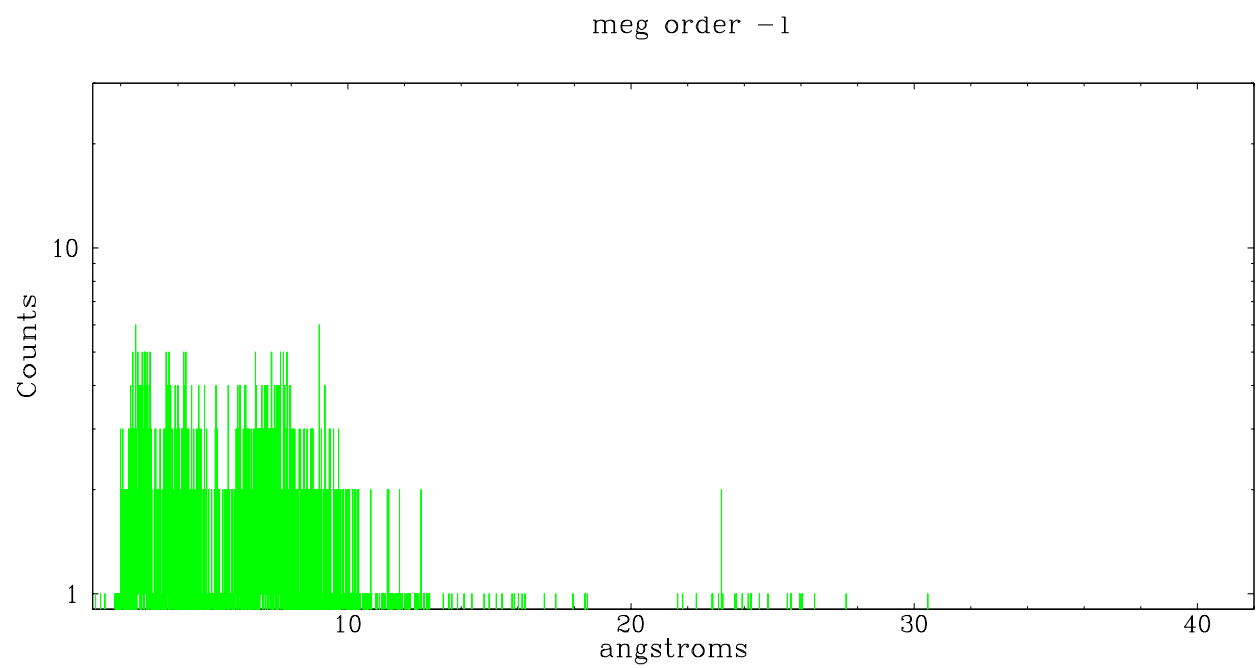
Spot Image MEG



Full Detector MEG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 546 | 388 | 2630 | 7761 | 2718 | 276 | 428 |





A Summary

A.1 Status

| | |
|----------------------------|-------------|
| V&V Scientist | Joy Nichols |
| V&V Date (YYYY-MM-DD) | 2007.01.11 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 52.094 |

A.2 Comments

Roll constraint met. Roll angle has been selected such that images A and B of the lensed quasar are appropriately aligned to maximize the separation of the two dispersed spectra. Zeroth order position is positioned between images A and B for the spectral extract of this data processing. The -20 arcsec offset allows the zero order of PKS1830-211 to fall only on amp 1 of CCD S3.