

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 4681 - L2 Version 3
Chandra X-Ray Center

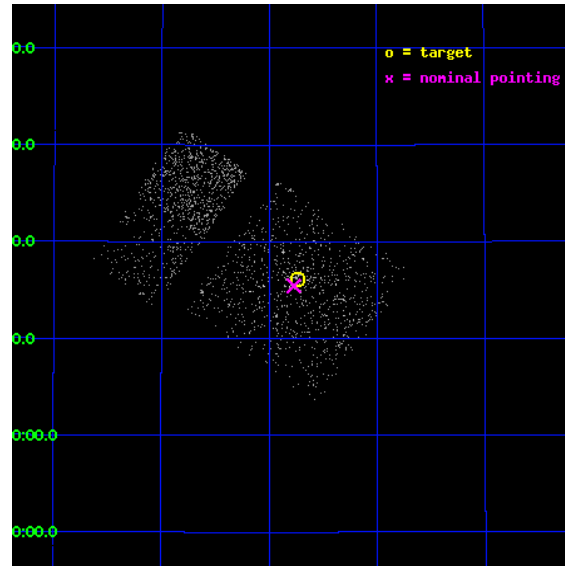
L2 Processing Date : Nov 11 2012

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1 Front

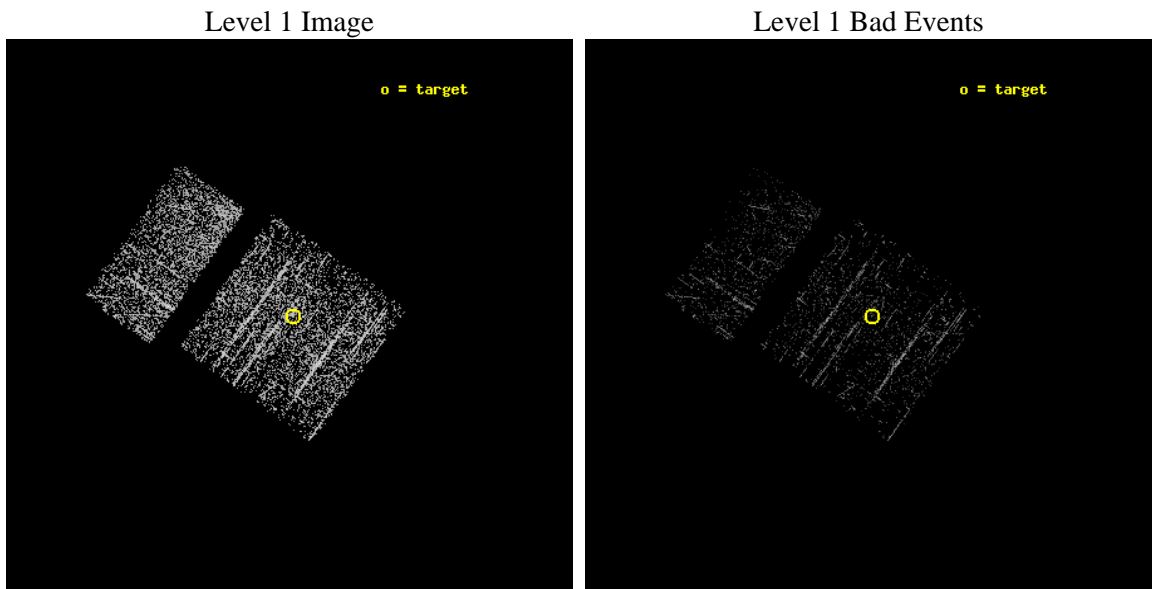
| | | |
|----------|--|---|
| seq_num | 600336 | Sequence number |
| obs_id | 4681 | Observation id |
| title | Searching for Black Hole X-ray Nova in M31 | Proposal title |
| observer | Dr. Stephen Murray | Principal investigator |
| object | M31-Center | Source name |
| dtcycle | 0 | |
| cycle | P | events are from which exps? P[primary] S[econdar |
| ra_targ | 10.685 | Observer's specified target RA [deg] |
| dec_targ | 41.268972 | Observer's specified target Dec [deg] |
| ra_nom | 10.692713968113 | Nominal RA [deg] |
| dec_nom | 41.257613443529 | Nominal Dec [deg] |
| roll_nom | 305.55058098642 | Nominal Roll [deg] |
| revision | 3 | Processing version of data |
| ontime | 973.13508662581 | Sum of GTIs [s] |
| livetime | 153.19493618432 | Livetime [s] |
| ontime0 | 973.13508662581 | Sum of GTIs [s] |
| ontime1 | 973.13508662581 | Sum of GTIs [s] |
| ontime2 | 973.13508662581 | Sum of GTIs [s] |
| ontime3 | 973.13508662581 | Sum of GTIs [s] |
| ontime6 | 973.12210425735 | Sum of GTIs [s] |
| ontime7 | 973.13508662581 | Sum of GTIs [s] |
| l2events | 2287 | Number of level 2 events |



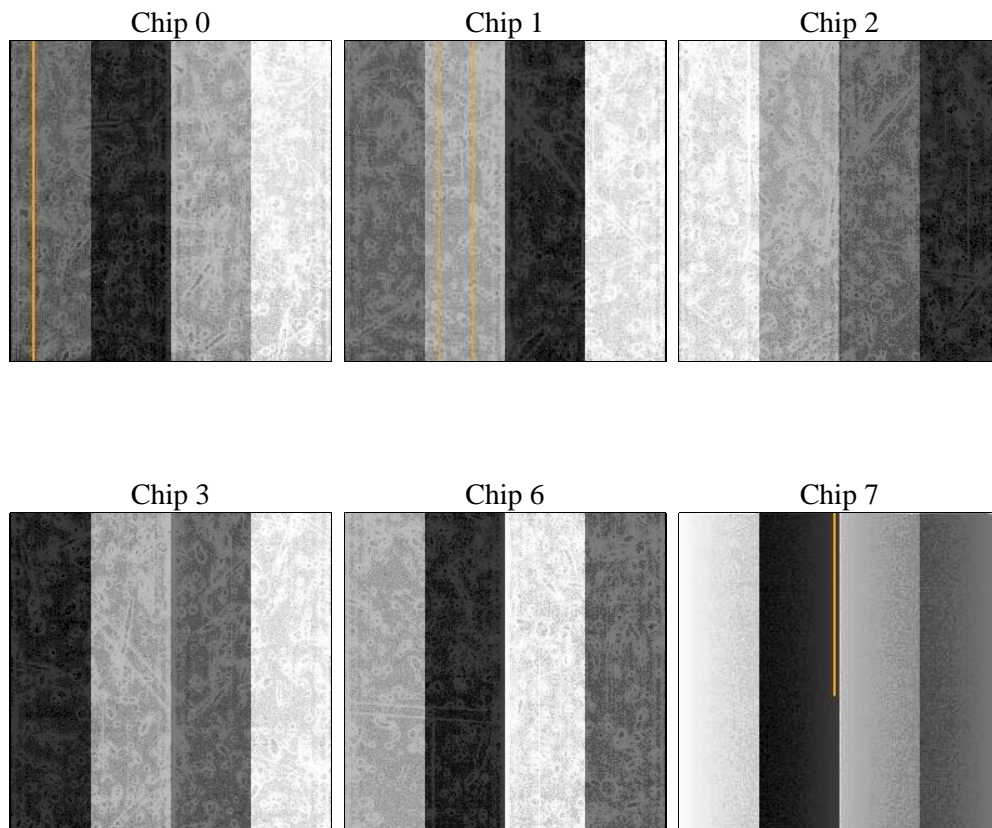
2 OBI Primary

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 5000.000000 | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5 | Processing system revision | ontime | 973.13508662581 | Sum of GTIs [s] |
| caldsver | 4.5.2 | | ontime0 | 973.13508662581 | Sum of GTIs [s] |
| date | 2012-11-11T14:29:28 | Date and time of file creation | ontime1 | 973.13508662581 | Sum of GTIs [s] |
| revision | 3 | Processing version of data | ontime2 | 973.13508662581 | Sum of GTIs [s] |
| | | | ontime3 | 973.13508662581 | Sum of GTIs [s] |
| | | | ontime6 | 973.12210425735 | Sum of GTIs [s] |
| | | | ontime7 | 973.13508662581 | Sum of GTIs [s] |
| | | | l1events | 21729 | Number of level 1 events |

2.1.4 Events

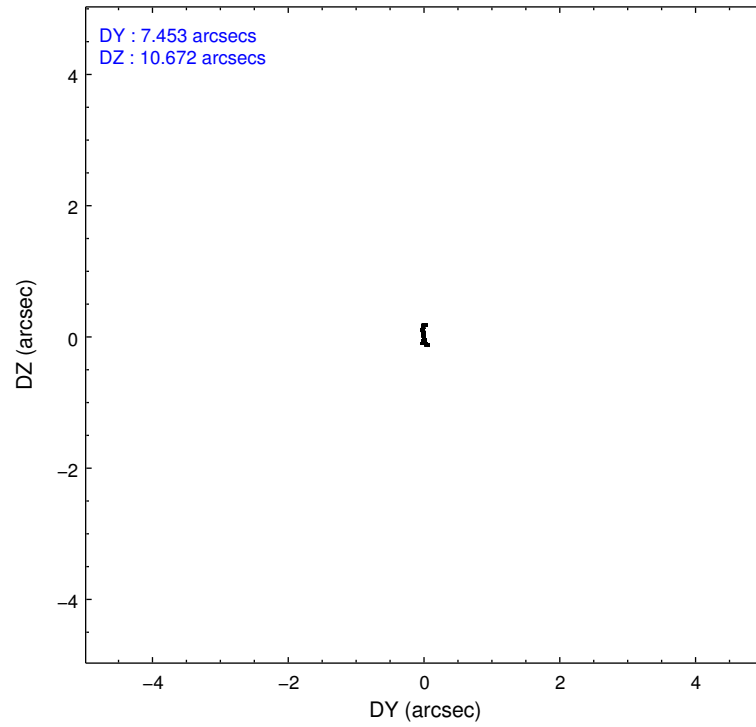
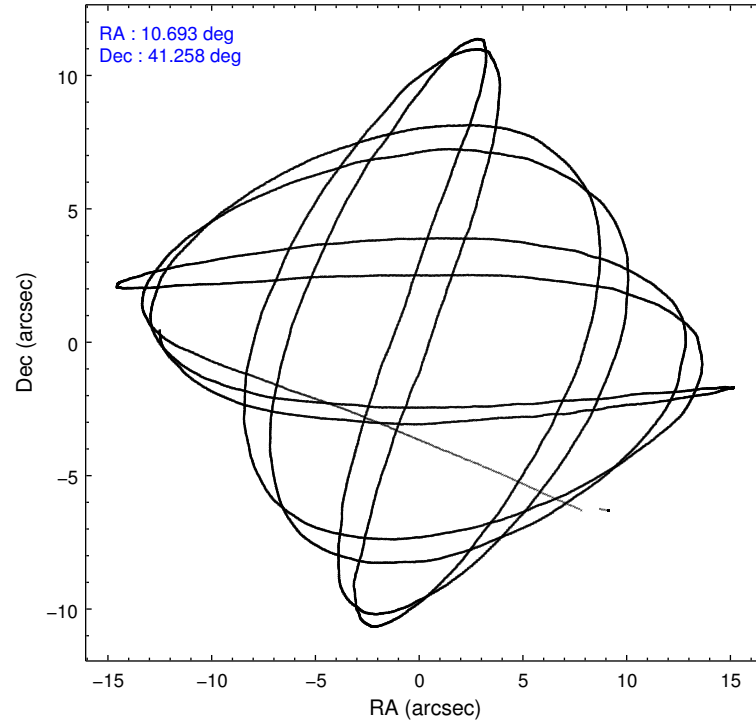
| | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 | ccd 7 |
|-----------------|-------|-------|-------|-------|-------|-------|
| level 1 events | 3313 | 3523 | 3987 | 3494 | 3766 | 3646 |
| rejected events | 3009 | 3073 | 3638 | 3116 | 3502 | 2827 |
| rejected % | 90% | 87% | 91% | 89% | 92% | 77% |

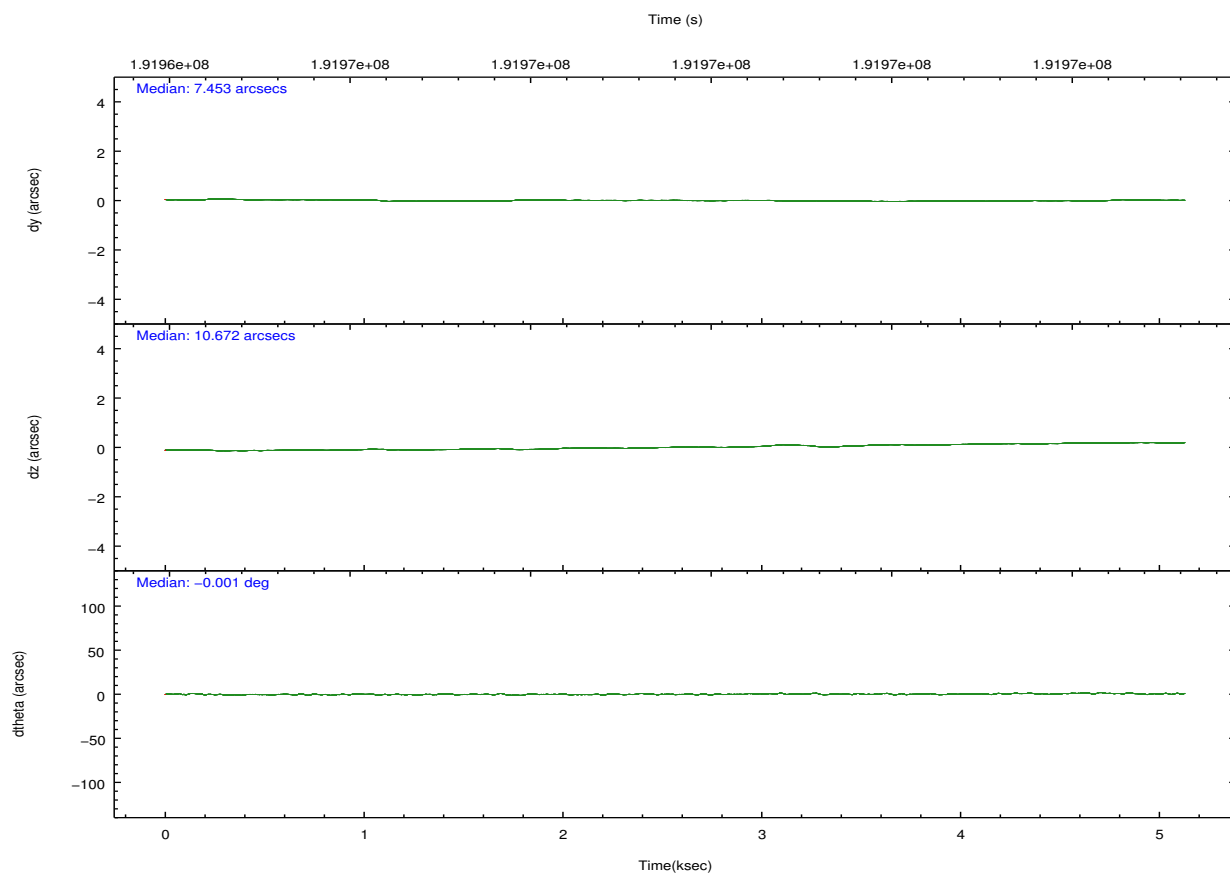
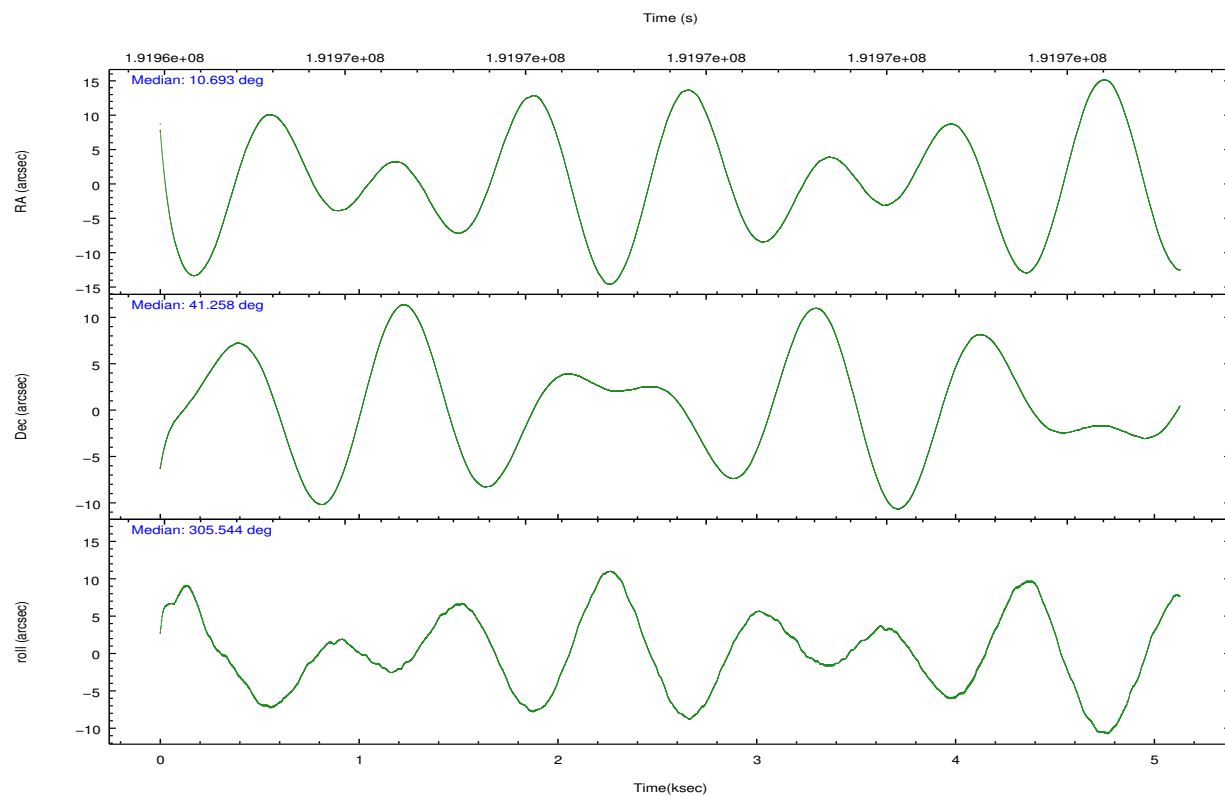
| | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 | ccd 7 |
|----------------|-------|-------|-------|-------|-------|-------|
| grade 0 events | 197 | 332 | 264 | 341 | 170 | 127 |
| | 5% | 9% | 6% | 9% | 4% | 3% |
| grade 1 events | 3 | 3 | 2 | 3 | 2 | 3 |
| | 0% | 0% | 0% | 0% | 0% | 0% |
| grade 2 events | 109 | 108 | 94 | 76 | 78 | 201 |
| | 3% | 3% | 2% | 2% | 2% | 5% |
| grade 3 events | 40 | 52 | 42 | 47 | 49 | 97 |
| | 1% | 1% | 1% | 1% | 1% | 2% |
| grade 4 events | 37 | 44 | 47 | 33 | 34 | 101 |
| | 1% | 1% | 1% | 0% | 0% | 2% |
| grade 5 events | 120 | 85 | 110 | 121 | 126 | 275 |
| | 3% | 2% | 2% | 3% | 3% | 7% |
| grade 6 events | 76 | 84 | 80 | 65 | 74 | 501 |
| | 2% | 2% | 2% | 1% | 1% | 13% |
| grade 7 events | 2731 | 2815 | 3348 | 2808 | 3233 | 2341 |
| | 82% | 79% | 83% | 80% | 85% | 64% |

2.2 Compared Parameters

| Parameter | Planned | Actual | Parameter | Planned | Actual |
|-----------------------------------|---------------------|-----------------------|---------------------------------------|-----------|---------|
| Instrument | ACIS | ACIS | Obspar format version number | 7 | 7 |
| Detector | ACIS-012367 | ACIS-012367 | Obspar file type | PREDICTED | ACTUAL |
| Grating | NONE | NONE | 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 | 10.659535 | 10.69271396811347 | Subarray requested | NONE | NONE |
| [deg] Pointing Dec | 41.268875 | 41.25761344352854 | Alternating exposures requested | Y | Y |
| [deg] Pointing Roll | 305.363759 | 305.5505809864163 | [s] Primary exposure time | 0.600000 | 0.6 |
| [s] Window start time (MET) | 191203264.184000 | 191203264.184000 | [s] Secondary exposure time | 0.000000 | 3.2 |
| [s] Window stop time (MET) | 192067264.184000 | 192067264.184000 | Duty cycle | 5 | 5 |
| [mm] SIM focus pos | -0.782348 | -0.7809083437167272 | | | |
| [mm] SIM defocus | 0 | 0.001439871863259334 | | | |
| [mm] SIM translation stage pos | -233.592463 | -233.5874344608287 | | | |
| [mm] SIM translation stage offset | 0 | -0.005018542100998502 | | | |
| [s] Observation start time (MET) | 191965362.184000 | 191963968.60148 | | | |
| Observation start date | 2004-01-31T19:41:38 | 2004-01-31T19:19:28 | | | |
| [s] Observation end time (MET) | 191970362.184000 | 191971212.27679 | | | |
| Observation end date | 2004-01-31T21:04:58 | 2004-01-31T21:20:12 | | | |
| Read mode | TIMED | TIMED | | | |

2.3 Aspect



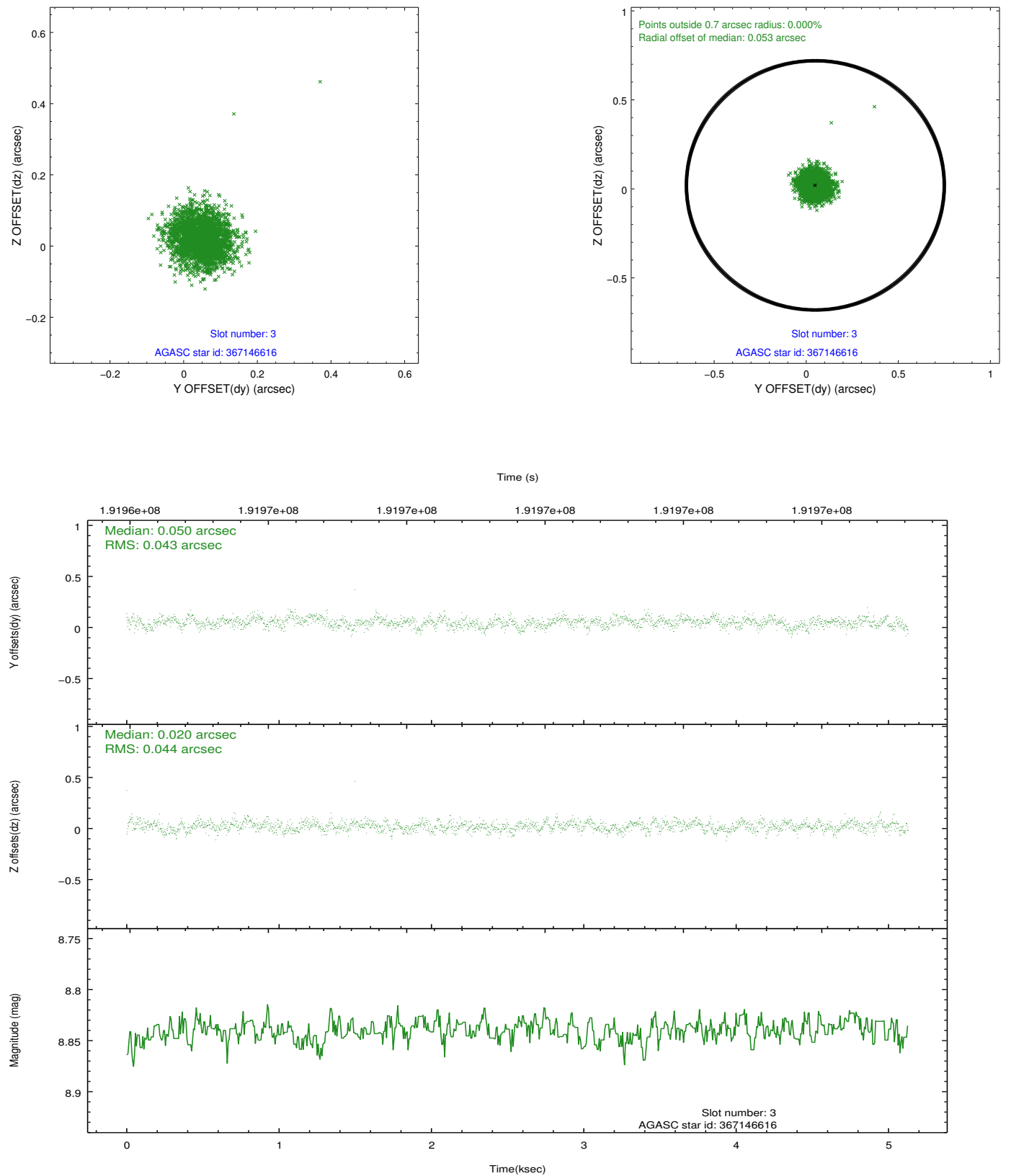


Slot Statistics

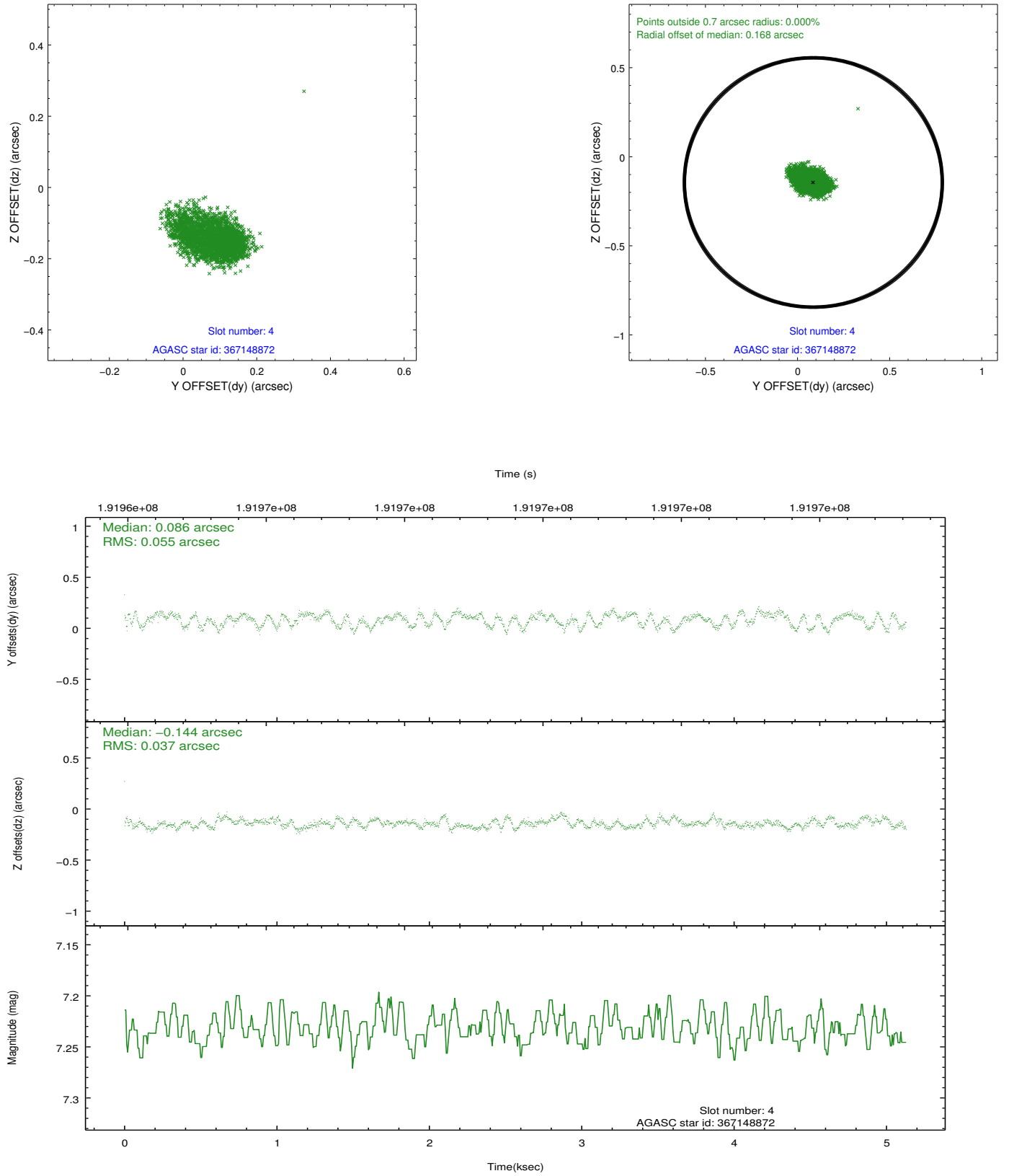
| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|-----------|------|-------|--------|--------|-------|-------|-----------|-----------|----------|----------|
| 0 | FID | ACIS-I-1 | 7.23 | 1252 | 0.022 | -0.006 | 0.008 | 0.014 | 0.000000 | 0.000000 | 932.22 | -834.19 |
| 1 | FID | ACIS-I-5 | 7.22 | 1252 | -0.160 | 0.039 | 0.007 | 0.011 | 0.000000 | 0.000000 | -1815.38 | 1062.79 |
| 2 | FID | ACIS-I-6 | 7.25 | 1251 | 0.047 | 0.038 | 0.008 | 0.013 | 0.000000 | 0.000000 | 396.54 | 1708.60 |
| 3 | GUIDE | 367146616 | 8.84 | 2503 | 0.050 | 0.020 | 0.065 | 0.102 | 11.418645 | 41.190163 | 1414.19 | 1518.71 |
| 4 | GUIDE | 367148872 | 7.23 | 2503 | 0.086 | -0.144 | 0.070 | 0.112 | 10.505940 | 40.688258 | 1462.93 | -1550.79 |
| 5 | GUIDE | 367657896 | 9.01 | 2500 | -0.009 | 0.065 | 0.089 | 0.140 | 11.197765 | 41.313576 | 708.16 | 1282.38 |
| 6 | GUIDE | 367663272 | 9.29 | 2502 | -0.097 | 0.026 | 0.072 | 0.120 | 10.656279 | 41.699429 | -1268.74 | 890.26 |
| 7 | GUIDE | 367674552 | 8.84 | 2501 | -0.019 | 0.029 | 0.075 | 0.120 | 11.016238 | 41.570845 | -332.42 | 1414.38 |

2.4 Star Slots

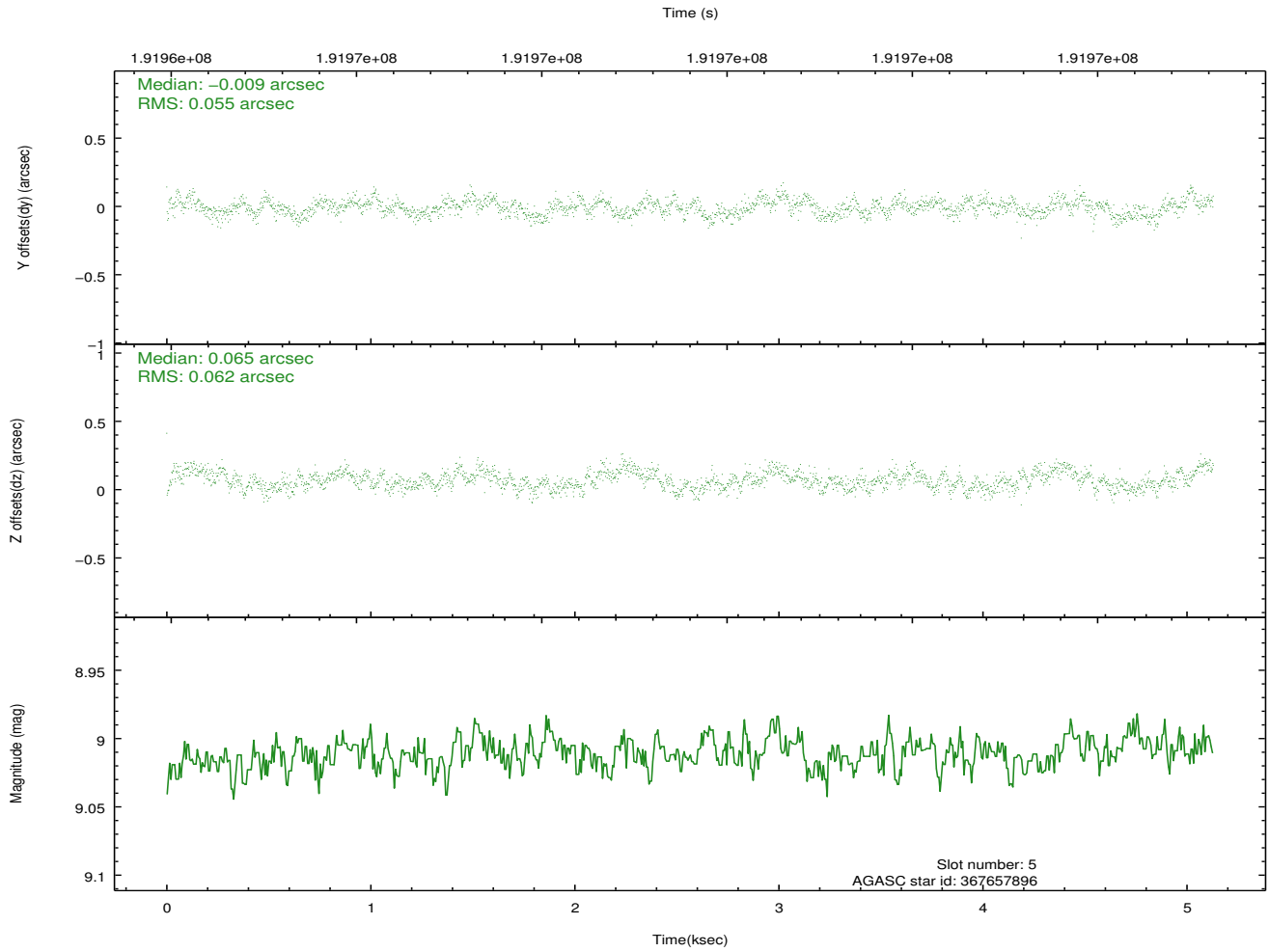
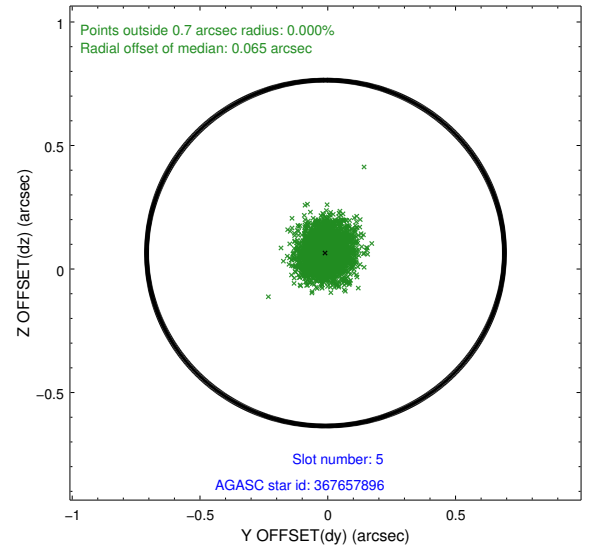
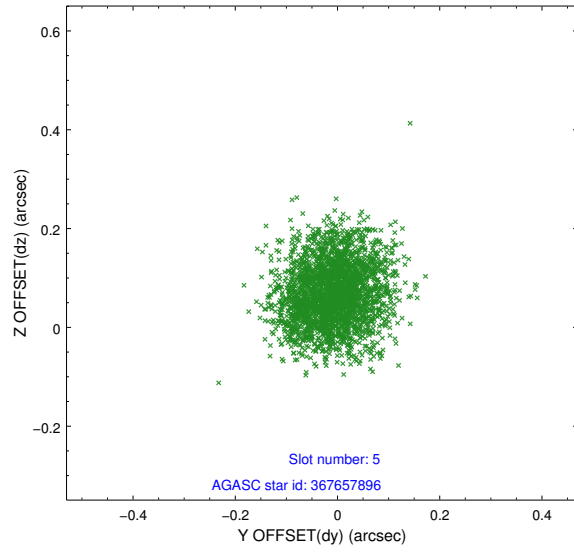
2.4.1 Slot 3



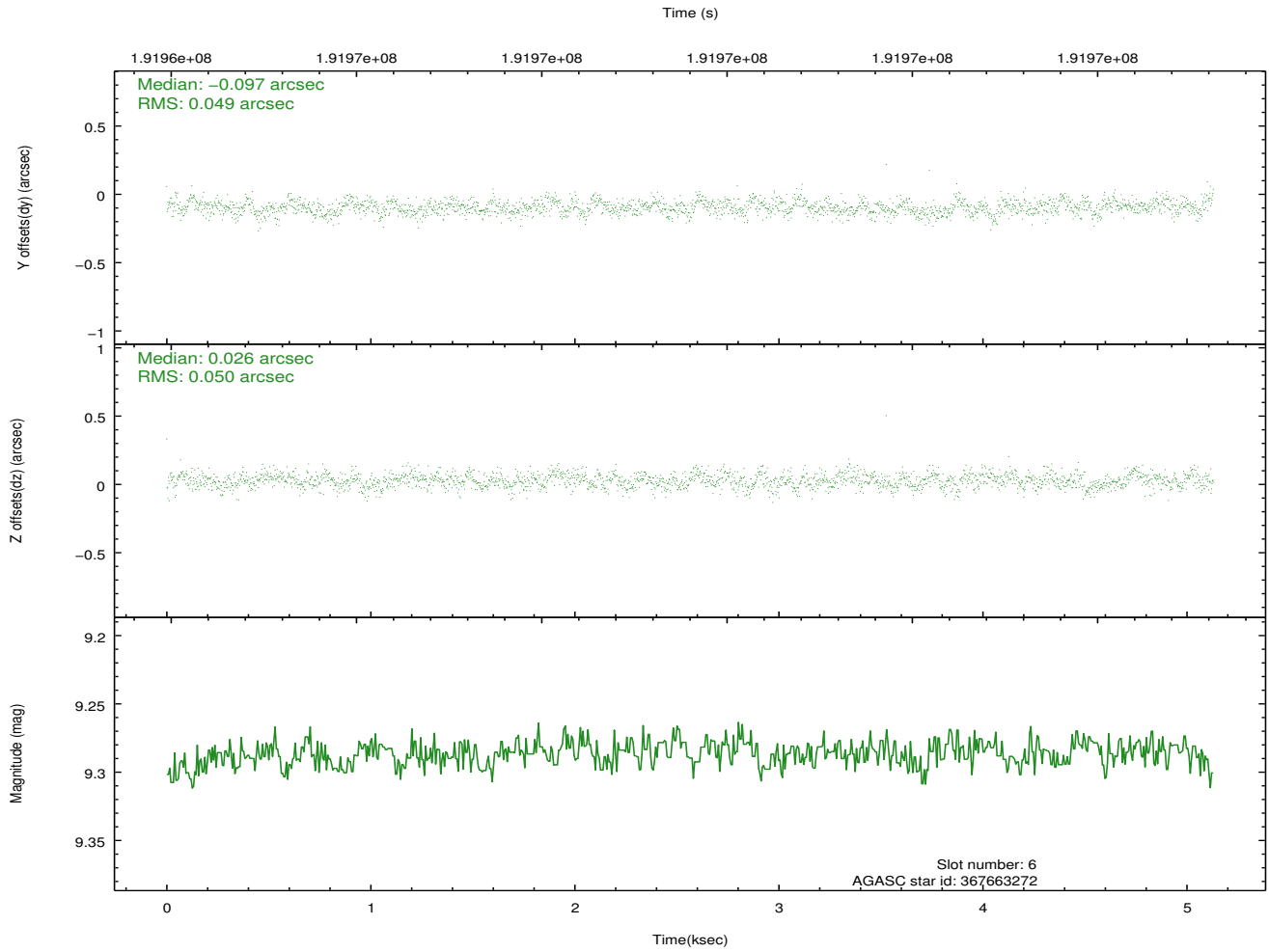
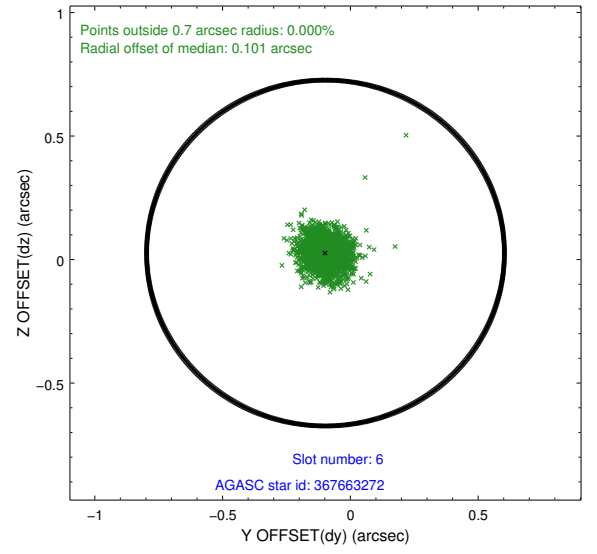
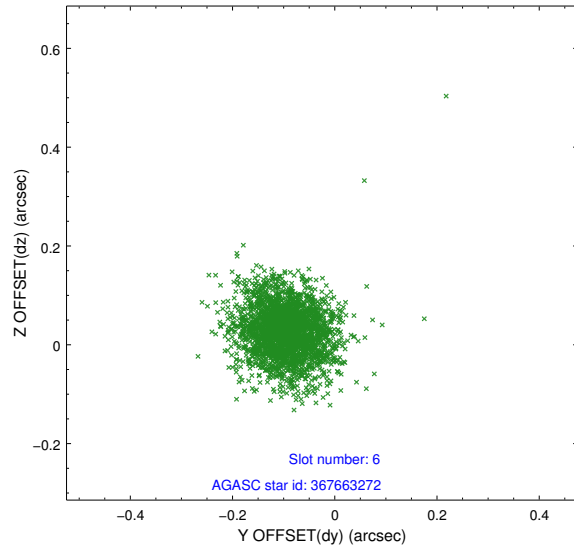
2.4.2 Slot 4



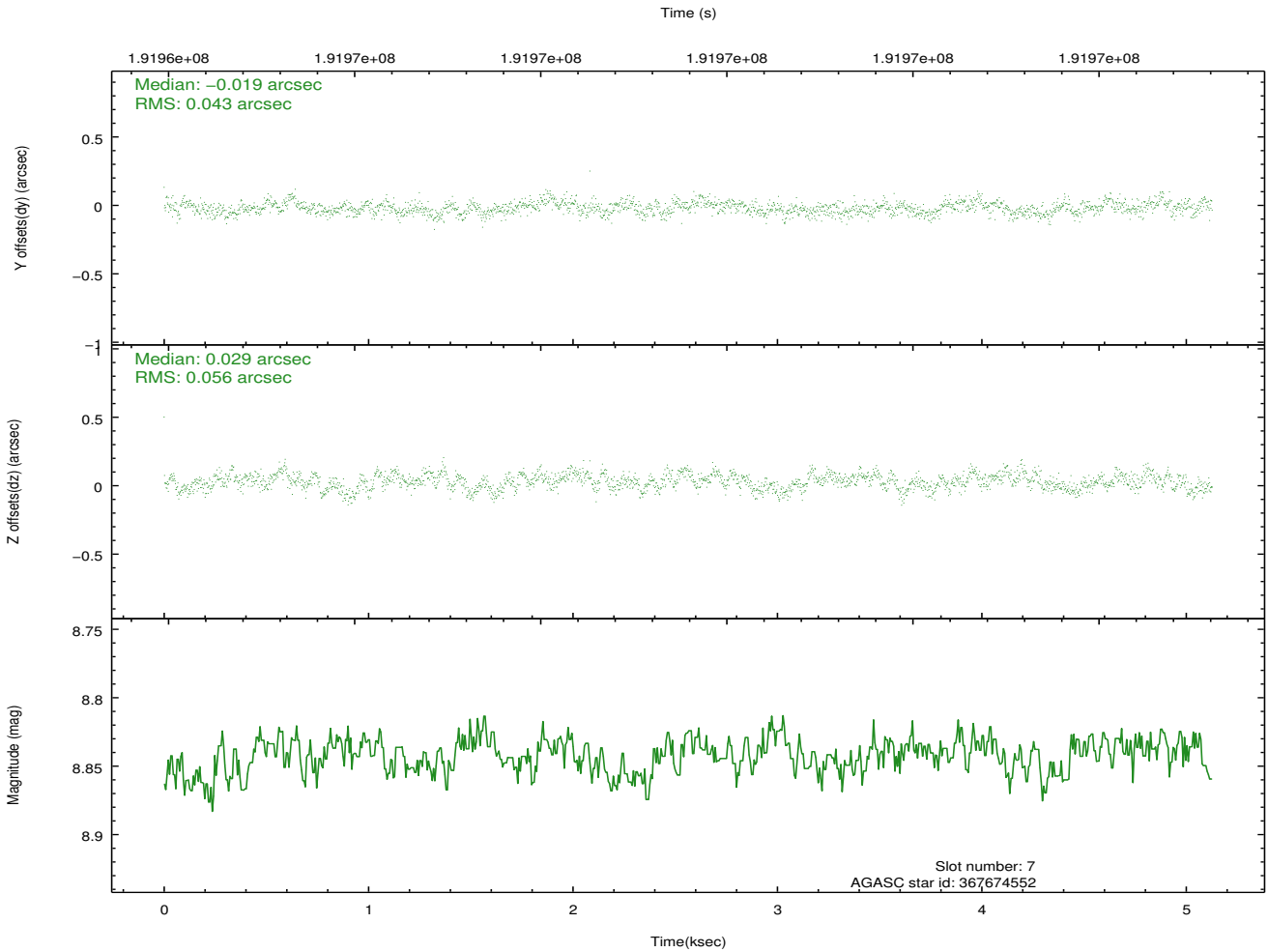
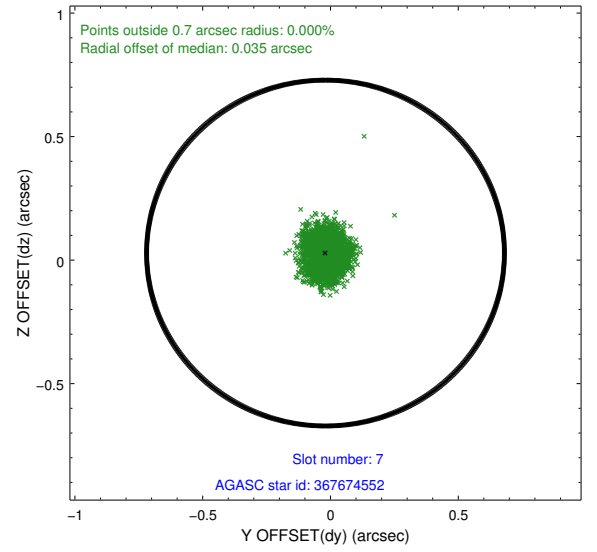
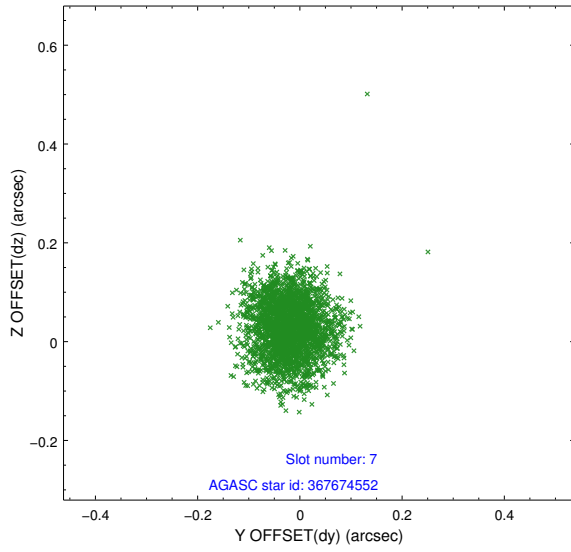
2.4.3 Slot 5



2.4.4 Slot 6

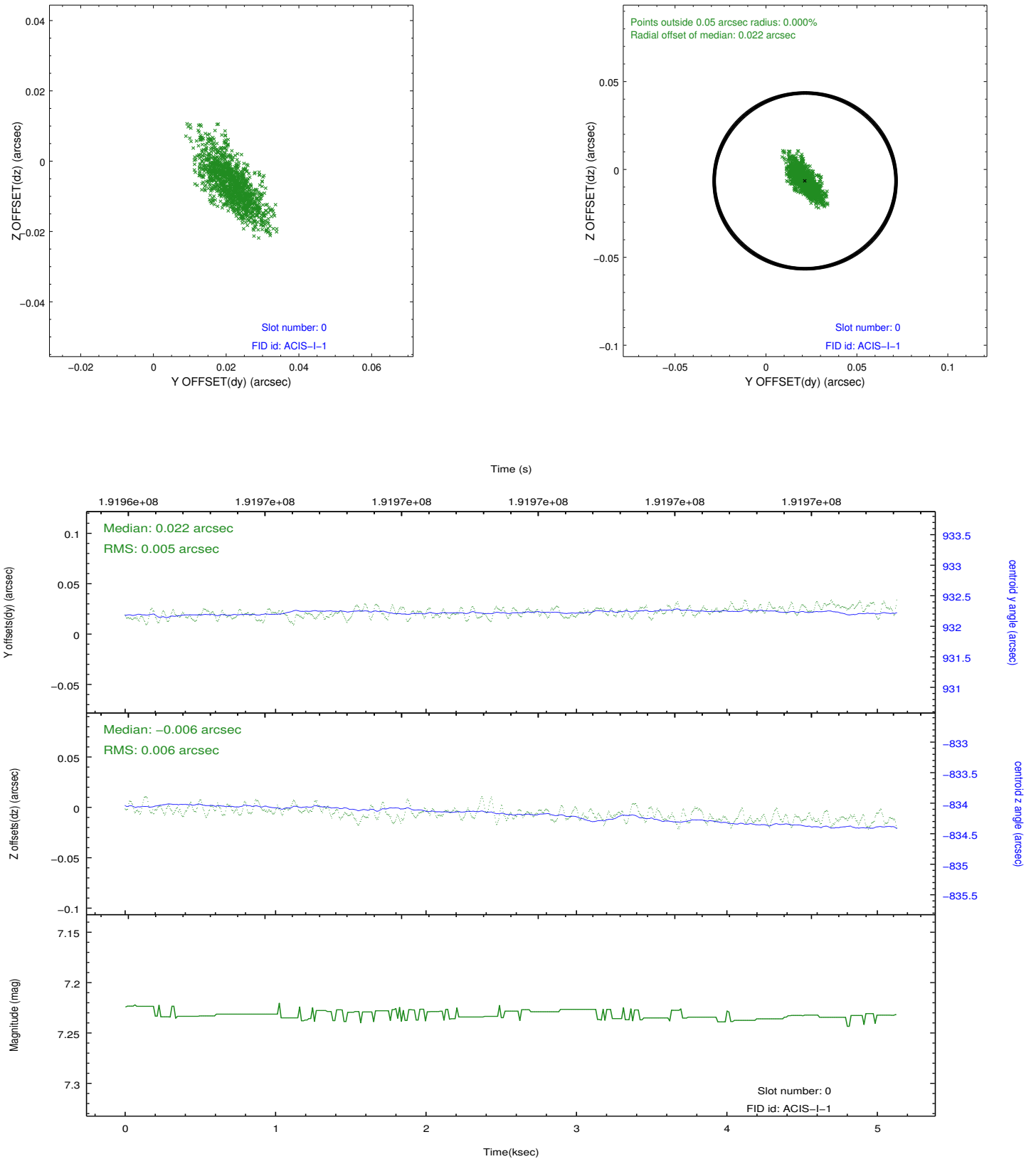


2.4.5 Slot 7

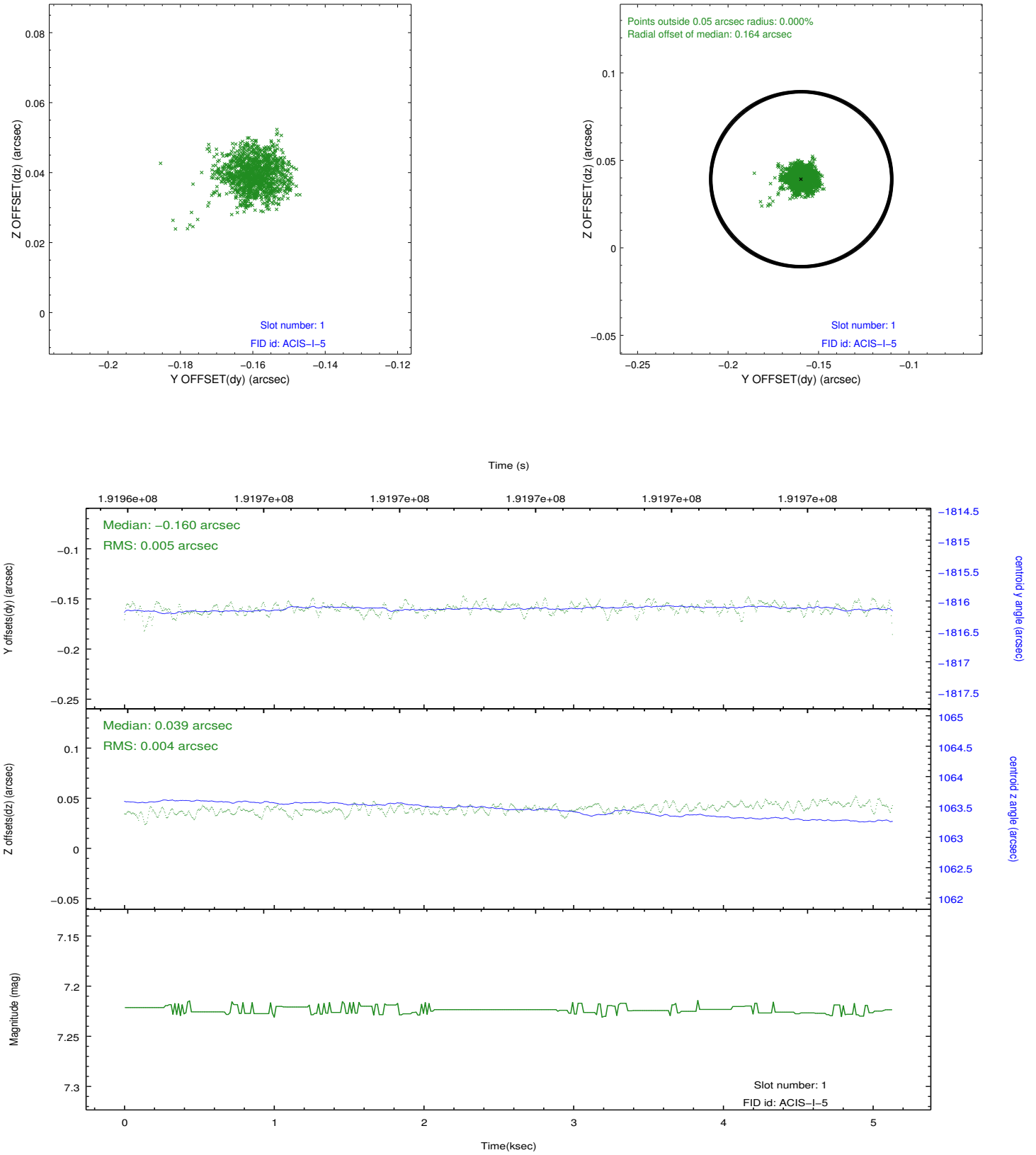


2.5 FID Slots

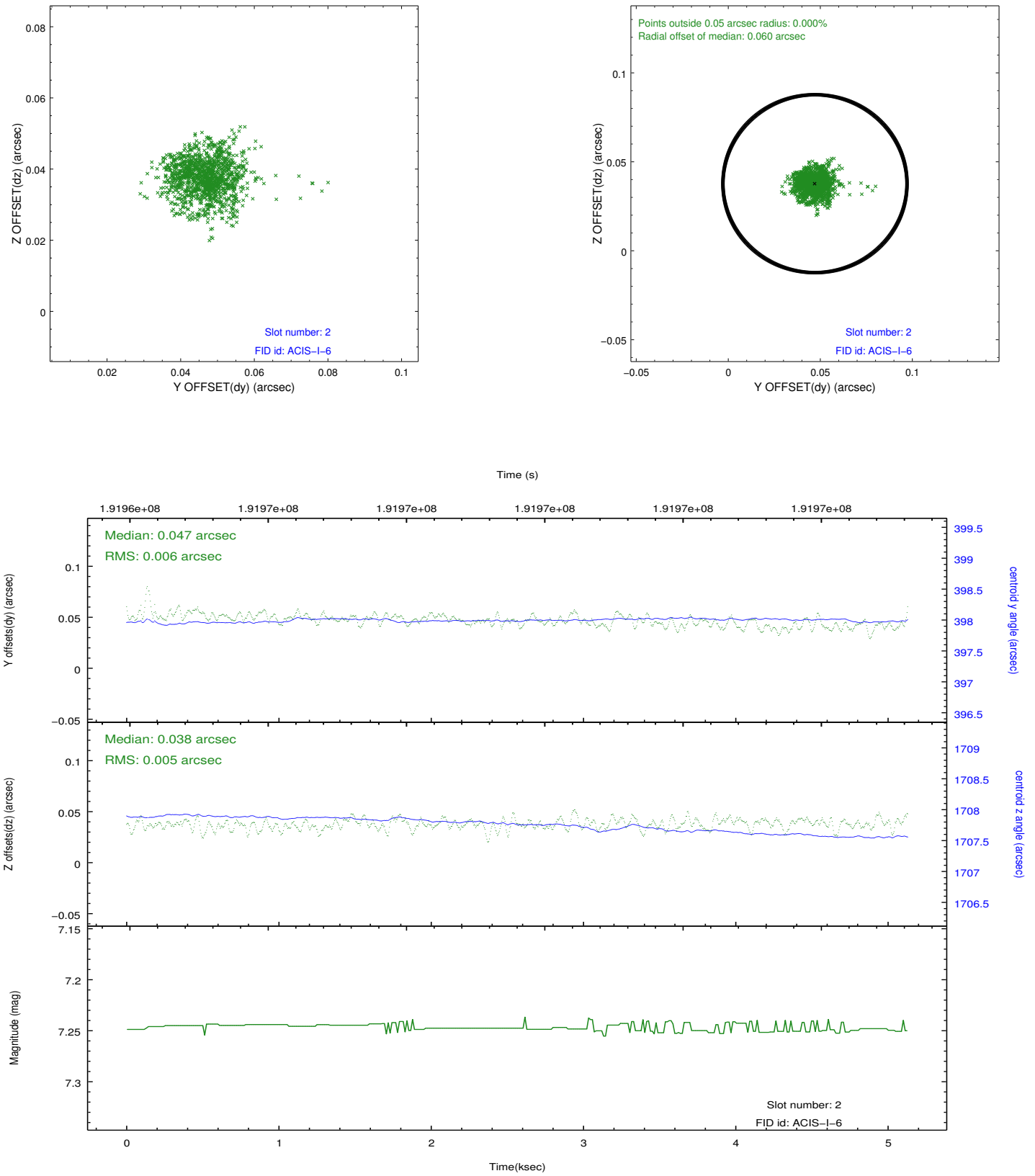
2.5.1 Slot 0



2.5.2 Slot 1



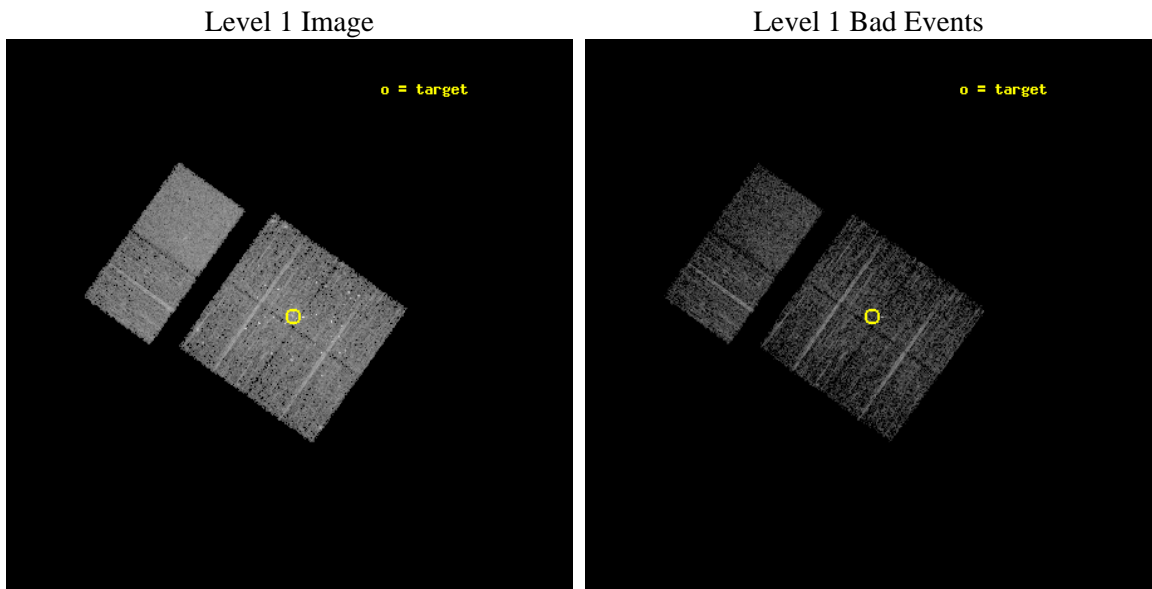
2.5.3 Slot 2



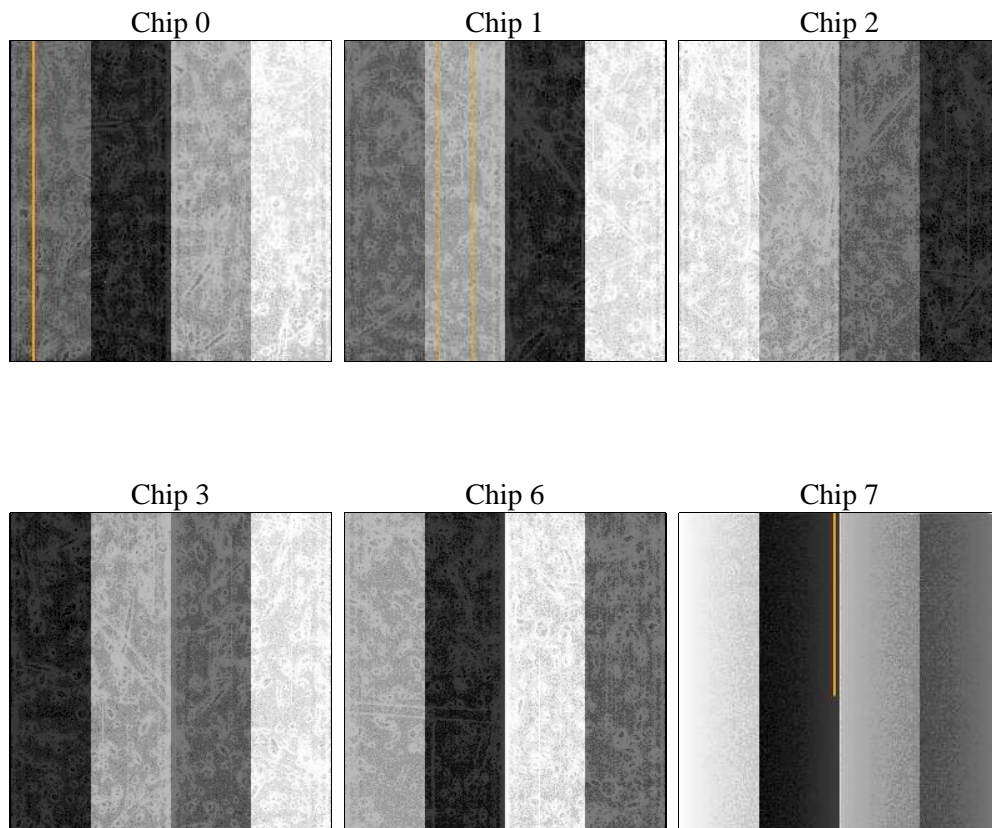
3 OBI Secondary

3.1 OBI

3.1.1 Images



3.1.2 Bias



3.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 5000.000000 | [s] Scheduled observation exposure time |
| ascdsver | 8.4.5 | Processing system revision | ontime | 4146.6171548963 | Sum of GTIs [s] |
| caldsver | 4.5.2 | | ontime0 | 4146.4943737388 | Sum of GTIs [s] |
| date | 2012-11-11T14:31:13 | Date and time of file creation | ontime1 | 4146.53532359 | Sum of GTIs [s] |
| revision | 3 | Processing version of data | ontime2 | 4143.3352540433 | Sum of GTIs [s] |
| | | | ontime3 | 4146.6171548963 | Sum of GTIs [s] |
| | | | ontime6 | 4146.6995135844 | Sum of GTIs [s] |
| | | | ontime7 | 4146.6583246887 | Sum of GTIs [s] |
| | | | l1events | 208309 | Number of level 1 events |

3.1.4 Events

| | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 | ccd 7 | | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 | ccd 7 |
|-----------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events | 29797 | 34752 | 34112 | 34475 | 33107 | 42066 | grade 0 events | 4696 | 7157 | 5780 | 7216 | 3321 | 2318 |
| rejected events | 25378 | 27108 | 28445 | 27231 | 29728 | 27479 | | 15% | 20% | 16% | 20% | 10% | 5% |
| rejected % | 85% | 78% | 83% | 78% | 89% | 65% | grade 1 events | 35 | 153 | 54 | 67 | 23 | 33 |
| | | | | | | | | 0% | 0% | 0% | 0% | 0% | 0% |
| | | | | | | | grade 2 events | 1560 | 1963 | 1524 | 1587 | 1279 | 3914 |
| | | | | | | | | 5% | 5% | 4% | 4% | 3% | 9% |
| | | | | | | | grade 3 events | 565 | 733 | 603 | 649 | 584 | 1818 |
| | | | | | | | | 1% | 2% | 1% | 1% | 1% | 4% |
| | | | | | | | grade 4 events | 626 | 734 | 624 | 629 | 563 | 1757 |
| | | | | | | | | 2% | 2% | 1% | 1% | 1% | 4% |
| | | | | | | | grade 5 events | 1228 | 1262 | 1125 | 1338 | 1397 | 3725 |
| | | | | | | | | 4% | 3% | 3% | 3% | 4% | 8% |
| | | | | | | | grade 6 events | 1198 | 1431 | 1012 | 1141 | 1208 | 9536 |
| | | | | | | | | 4% | 4% | 2% | 3% | 3% | 22% |
| | | | | | | | grade 7 events | 19889 | 21319 | 23390 | 21848 | 24732 | 18965 |
| | | | | | | | | 66% | 61% | 68% | 63% | 74% | 45% |

A Summary

A.1 Status

| | |
|----------------------------|-------------|
| V&V Scientist | Joy Nichols |
| V&V Date (YYYY-MM-DD) | 2013.01.17 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 5.129 |

A.2 Comments

Charge time for this ObsId remains at previous value of 5.129 ks, although with the current processing the charge time would be 5.120 ks. ===This is an interleave mode observation. There is a short observation of 0.6 s followed by a longer observation of 3.2 s. This cycle repeats throughout the observation. The livetime for the shorter observation, e1, is about 153.19s instead of 973.14s for each chip because the use of a 0.6 s frame time for the selection of chips and rows used during the observation is shorter than the time it takes to read out one frame of data. The frame time must be at least 0.7 s to avoid 'flushing' the detector before each frame of data is collected. The second, longer, observation does not have a short livetime because the exposure time is 3.2 s.