

V&V Reference Report

L2 ASCDS Version : 8.4.4

Observation 9704 - L2 Version 3
Chandra X-Ray Center

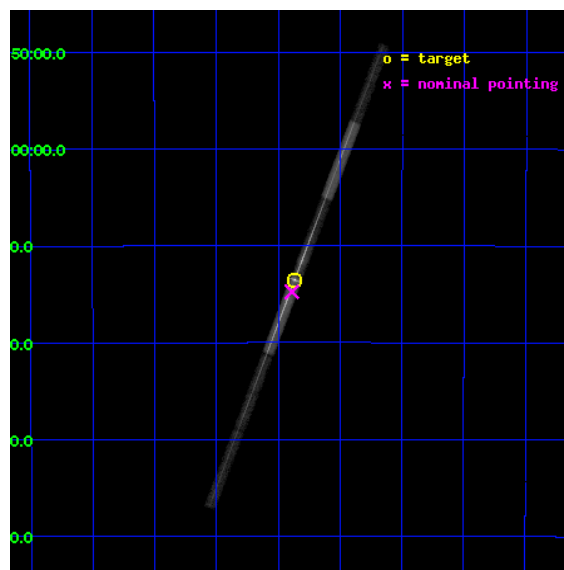
L2 Processing Date : May 15 2012

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1 Front

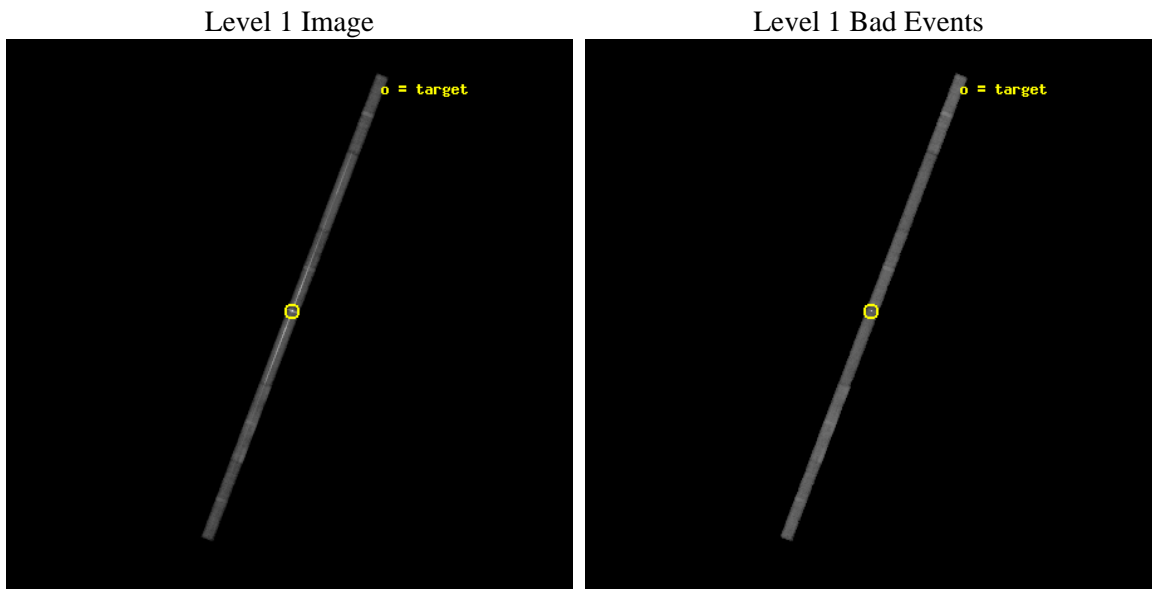
| | | |
|----------|---|---|
| seq_num | 790181 | Sequence number |
| obs_id | 9704 | Observation id |
| title | AO9 Calibration Observations of PKS2155-304 | Proposal title |
| observer | Dr. CXC Calibration | Principal investigator |
| object | PKS2155-304 | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 329.716667 | Observer's specified target RA [deg] |
| dec_targ | -30.225556 | Observer's specified target Dec [deg] |
| ra_nom | 329.72248151512 | Nominal RA [deg] |
| dec_nom | -30.246008340828 | Nominal Dec [deg] |
| roll_nom | 110.92641474988 | Nominal Roll [deg] |
| revision | 3 | Processing version of data |
| ontime | 29395.099499345 | Sum of GTIs [s] |
| livetime | 27767.151097837 | Livetime [s] |
| ontime4 | 29394.358459353 | Sum of GTIs [s] |
| ontime5 | 29395.099499345 | Sum of GTIs [s] |
| ontime6 | 29395.099499345 | Sum of GTIs [s] |
| ontime7 | 29395.099499345 | Sum of GTIs [s] |
| ontime8 | 29394.358459353 | Sum of GTIs [s] |
| ontime9 | 29395.099499345 | Sum of GTIs [s] |
| l2events | 237104 | Number of level 2 events |



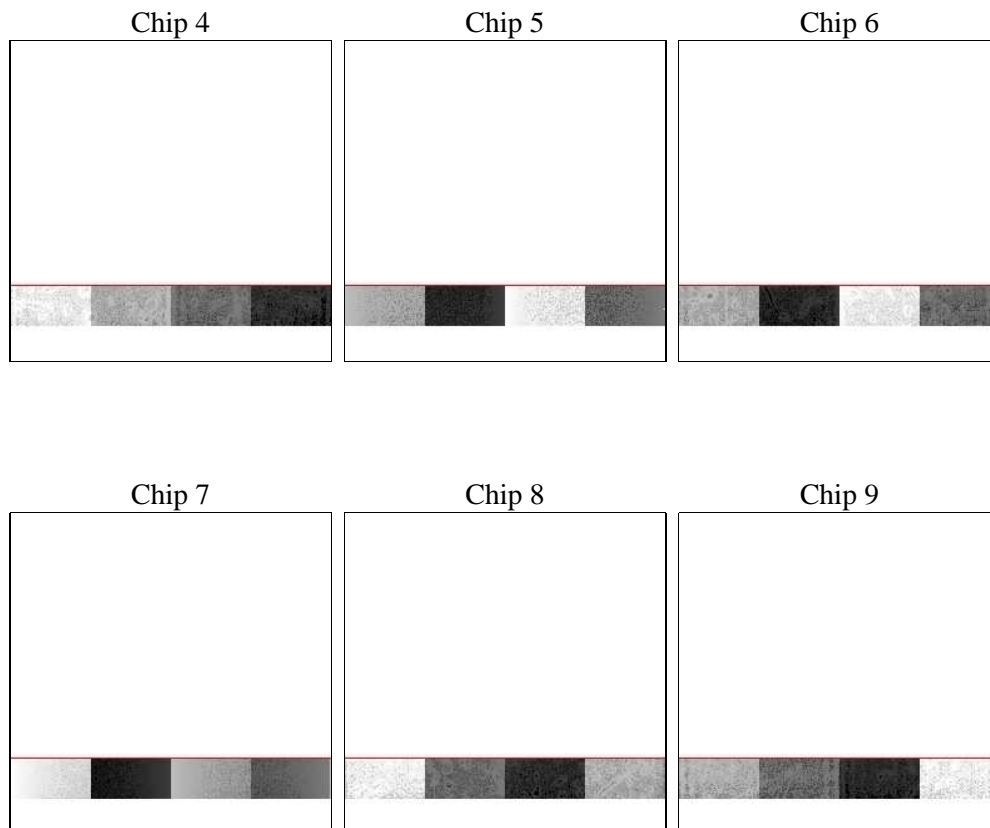
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 29232.000000 | [s] Scheduled observation exposure time |
| ascdsver | 8.4.4 | Processing system revision | ontime | 29395.099499345 | Sum of GTIs [s] |
| caldbver | 4.4.9 | | ontime4 | 29394.358459353 | Sum of GTIs [s] |
| date | 2012-05-14T23:30:22 | Date and time of file creation | ontime5 | 29395.099499345 | Sum of GTIs [s] |
| revision | 2 | Processing version of data | ontime6 | 29395.099499345 | Sum of GTIs [s] |
| | | | ontime7 | 29395.099499345 | Sum of GTIs [s] |
| | | | ontime8 | 29394.358459353 | Sum of GTIs [s] |
| | | | ontime9 | 29395.099499345 | Sum of GTIs [s] |
| | | | l1events | 503291 | Number of level 1 events |

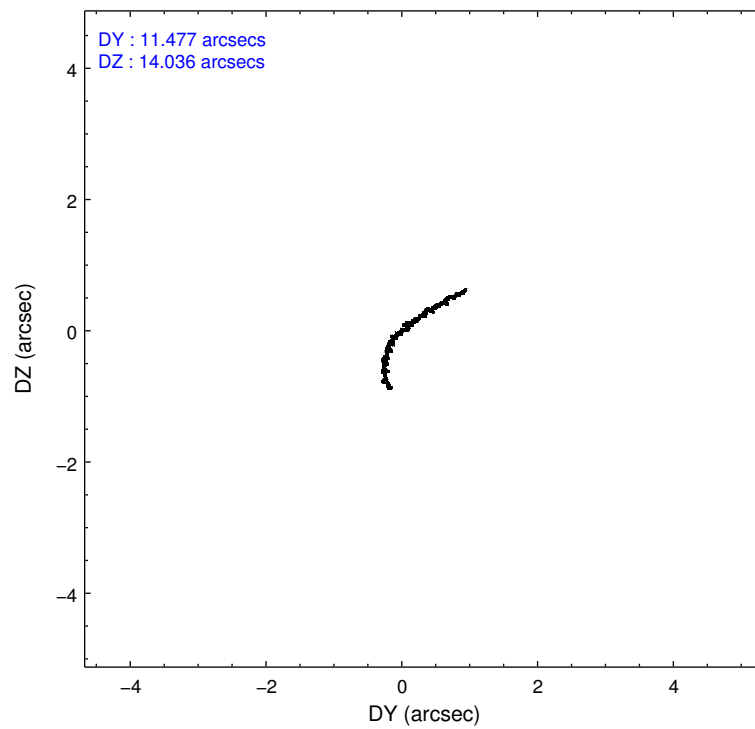
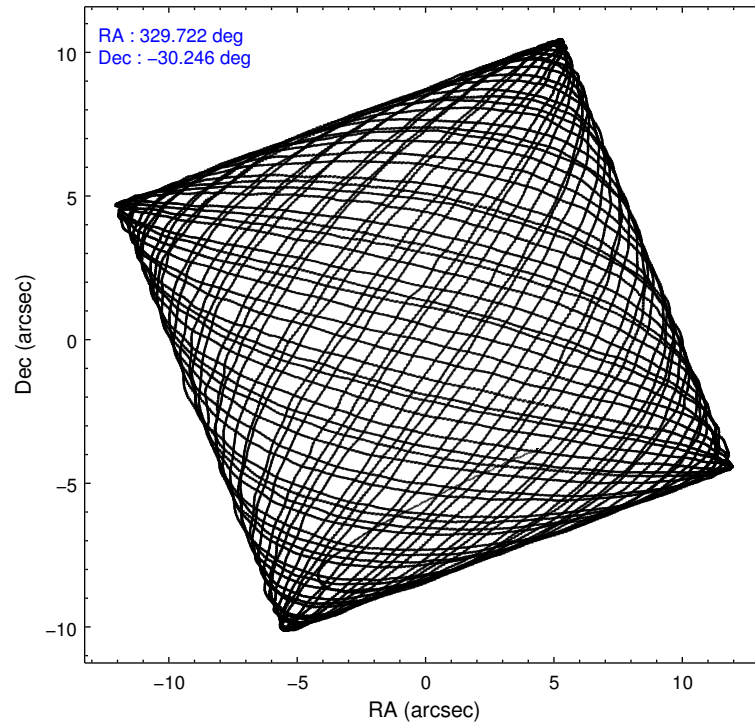
2.1.4 Events

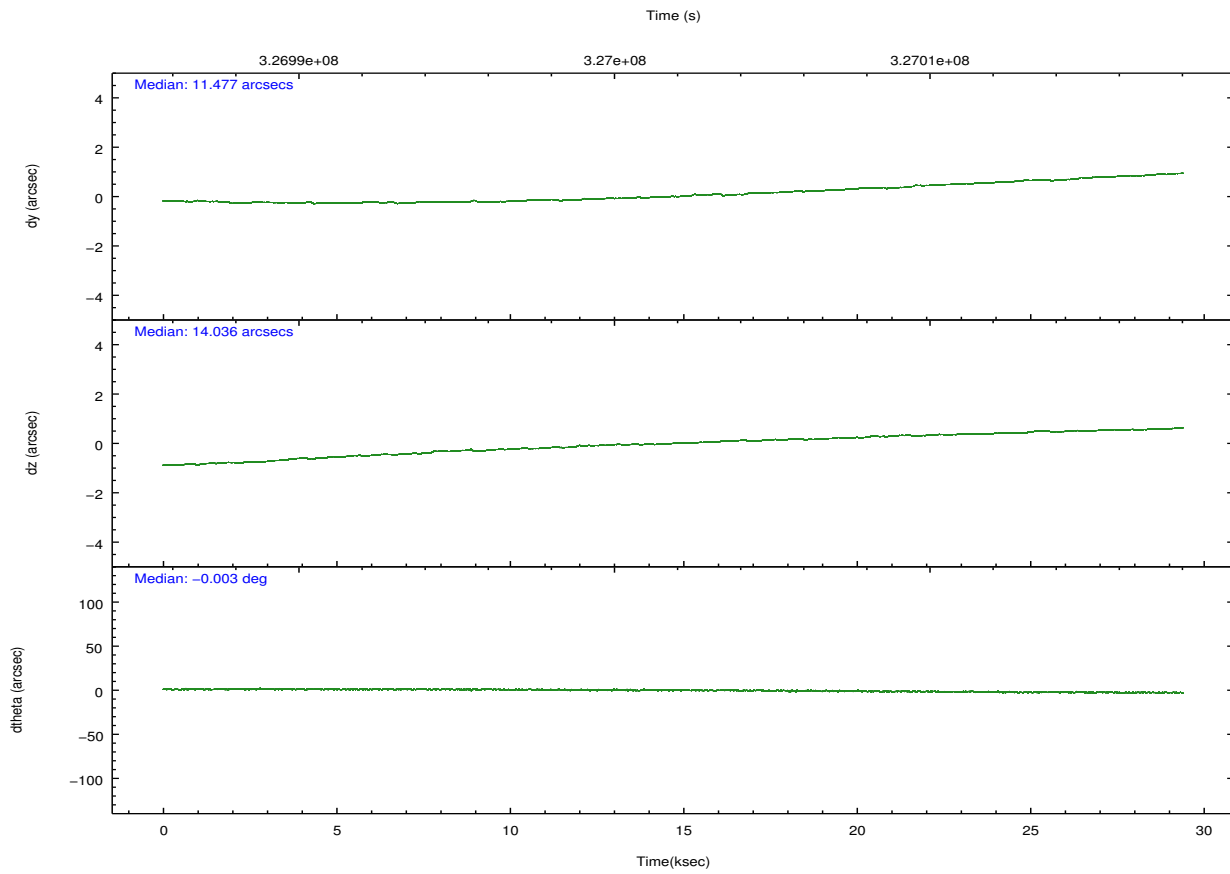
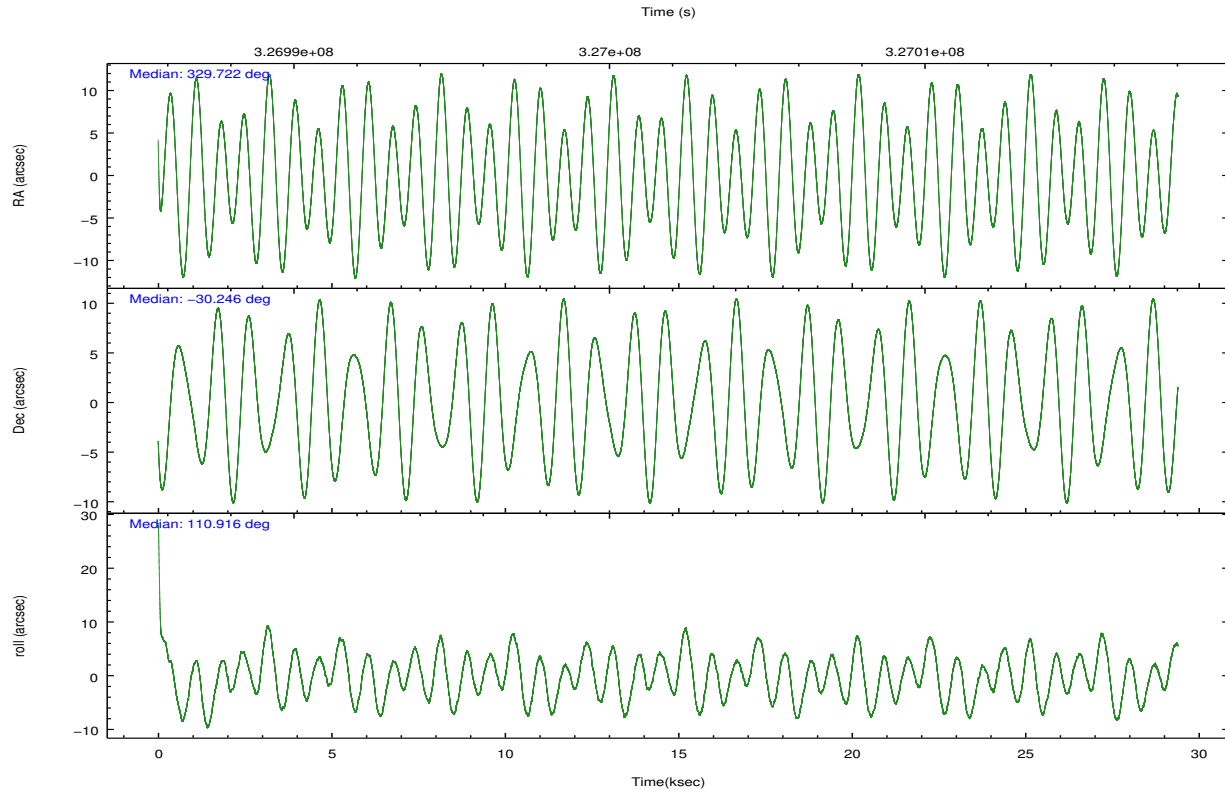
| | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 | | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|-----------------|-------|-------|-------|--------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events | 51854 | 71820 | 89272 | 180124 | 68518 | 41703 | grade 0 events | 3348 | 12817 | 39068 | 32497 | 7123 | 3218 |
| rejected events | 44502 | 30059 | 39033 | 50213 | 50870 | 34785 | | 6% | 17% | 43% | 18% | 10% | 7% |
| rejected % | 85% | 41% | 43% | 27% | 74% | 83% | grade 1 events | 24 | 134 | 94 | 1625 | 24 | 15 |
| | | | | | | | | 0% | 0% | 0% | 0% | 0% | 0% |
| | | | | | | | grade 2 events | 1382 | 9777 | 5324 | 31465 | 3118 | 1079 |
| | | | | | | | | 2% | 13% | 5% | 17% | 4% | 2% |
| | | | | | | | grade 3 events | 892 | 2925 | 2102 | 14401 | 1734 | 900 |
| | | | | | | | | 1% | 4% | 2% | 7% | 2% | 2% |
| | | | | | | | grade 4 events | 811 | 2826 | 2099 | 14346 | 1592 | 860 |
| | | | | | | | | 1% | 3% | 2% | 7% | 2% | 2% |
| | | | | | | | grade 5 events | 1613 | 4977 | 1724 | 10850 | 2263 | 1633 |
| | | | | | | | | 3% | 6% | 1% | 6% | 3% | 3% |
| | | | | | | | grade 6 events | 966 | 13924 | 1910 | 37875 | 4258 | 925 |
| | | | | | | | | 1% | 19% | 2% | 21% | 6% | 2% |
| | | | | | | | grade 7 events | 42818 | 24440 | 36951 | 37065 | 48406 | 33073 |
| | | | | | | | | 82% | 34% | 41% | 20% | 70% | 79% |

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 | LETG | LETG | 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 | 329.747312 | 329.7224815151221 | CCD I2 on | N | N |
| [deg] Pointing Dec | -30.262929 | -30.24600834082771 | CCD I3 on | N | N |
| [deg] Pointing Roll | 110.782288 | 110.9264147498793 | CCD S0 on | O1 | Y |
| [s] Window start time (MET) | 323395265.184000 | 323395265.184000 | CCD S1 on | Y | Y |
| [s] Window stop time (MET) | 328579265.184000 | 328579265.184000 | CCD S2 on | Y | Y |
| [mm] SIM focus pos | -0.684267 | -0.6828225247311905 | CCD S3 on | Y | Y |
| [mm] SIM defocus | 0 | 0.001444936568705701 | CCD S4 on | Y | Y |
| [mm] SIM translation stage pos | -182.132523 | -182.1344861297048 | CCD S5 on | Y | Y |
| [mm] SIM translation stage offset | -8 | -7.998036453302973 | Number of optional ACIS chips dropped | 0 | 0 |
| [s] Observation start time (MET) | 326987323.184000 | 326986325.94697 | On-chip summing requested | N | N |
| Observation start date | 2008-05-12T13:47:38 | 2008-05-12T13:32:05 | Subarray requested | CUSTOM | 1/8 |
| [s] Observation end time (MET) | 327016555.184000 | 327017249.17347 | Subarray start row | 113 | 113 |
| Observation end date | 2008-05-12T21:54:50 | 2008-05-12T22:07:29 | Subarray row count | 128 | 128 |
| Read mode | TIMED | TIMED | Alternating exposures requested | N | N |
| | | | [s] Primary exposure time | 0.000000 | 0.7 |

2.3 Aspect



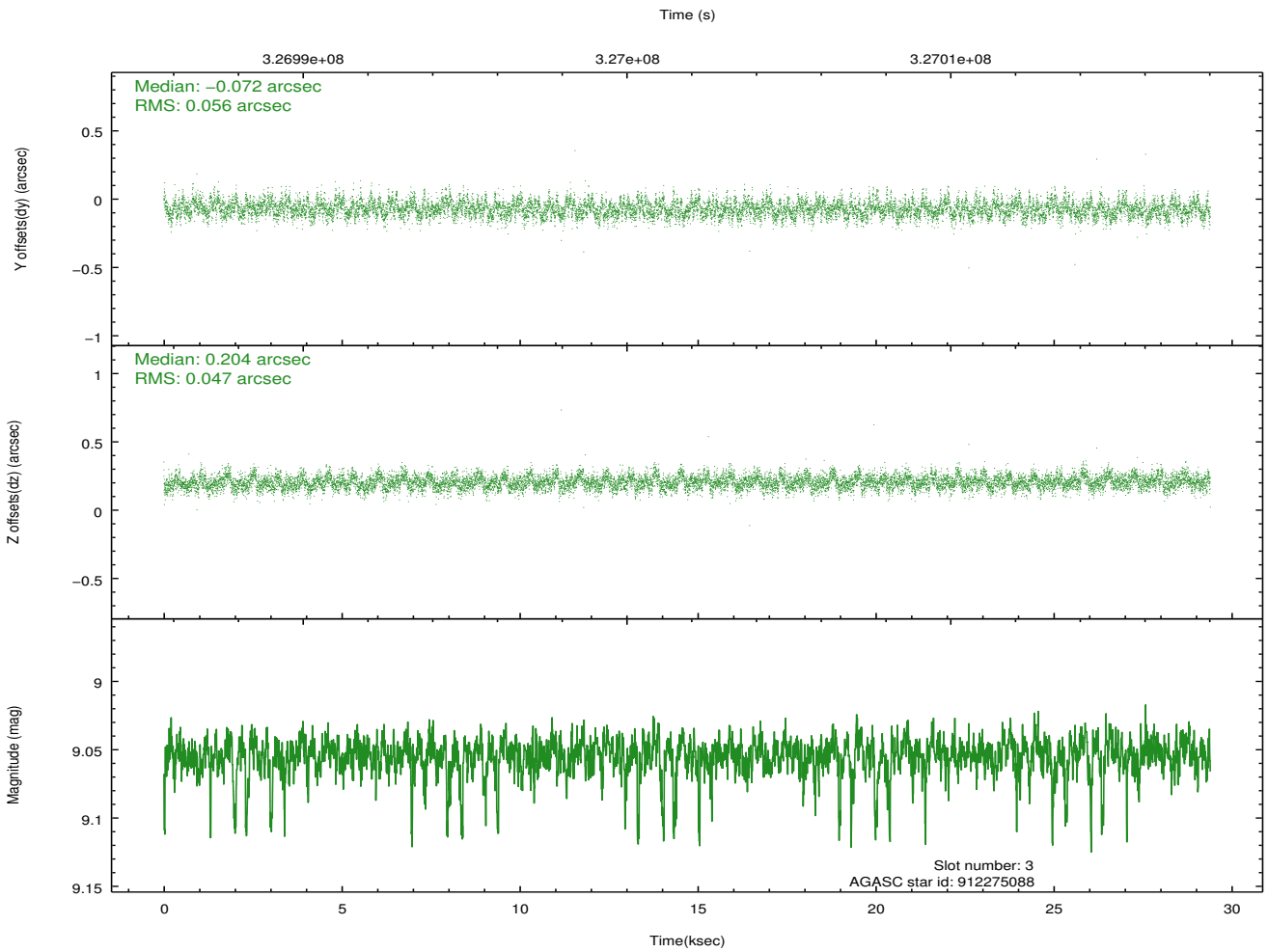
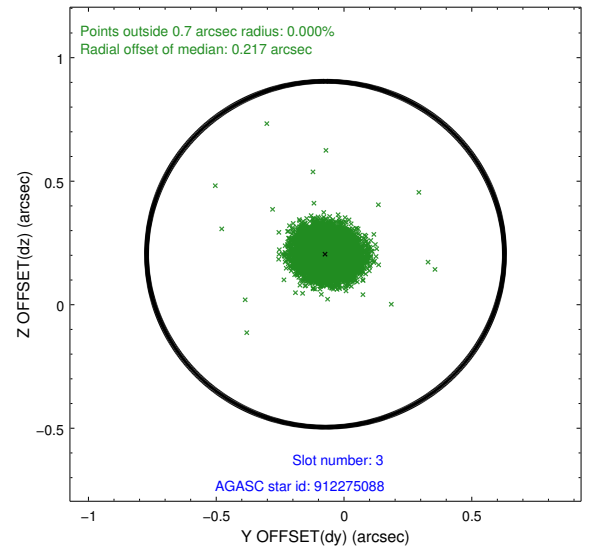
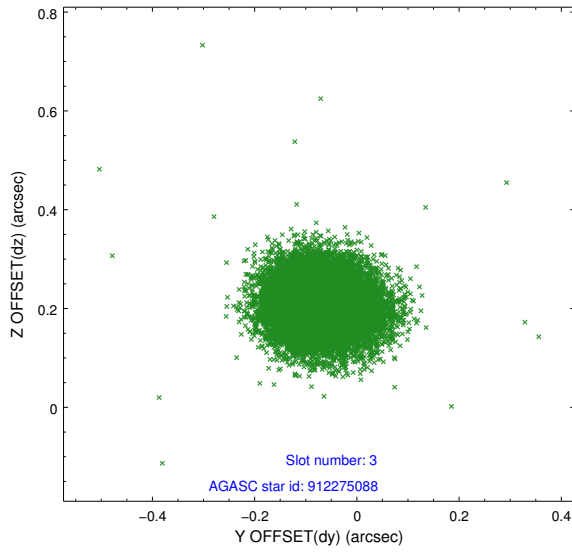


Slot Statistics

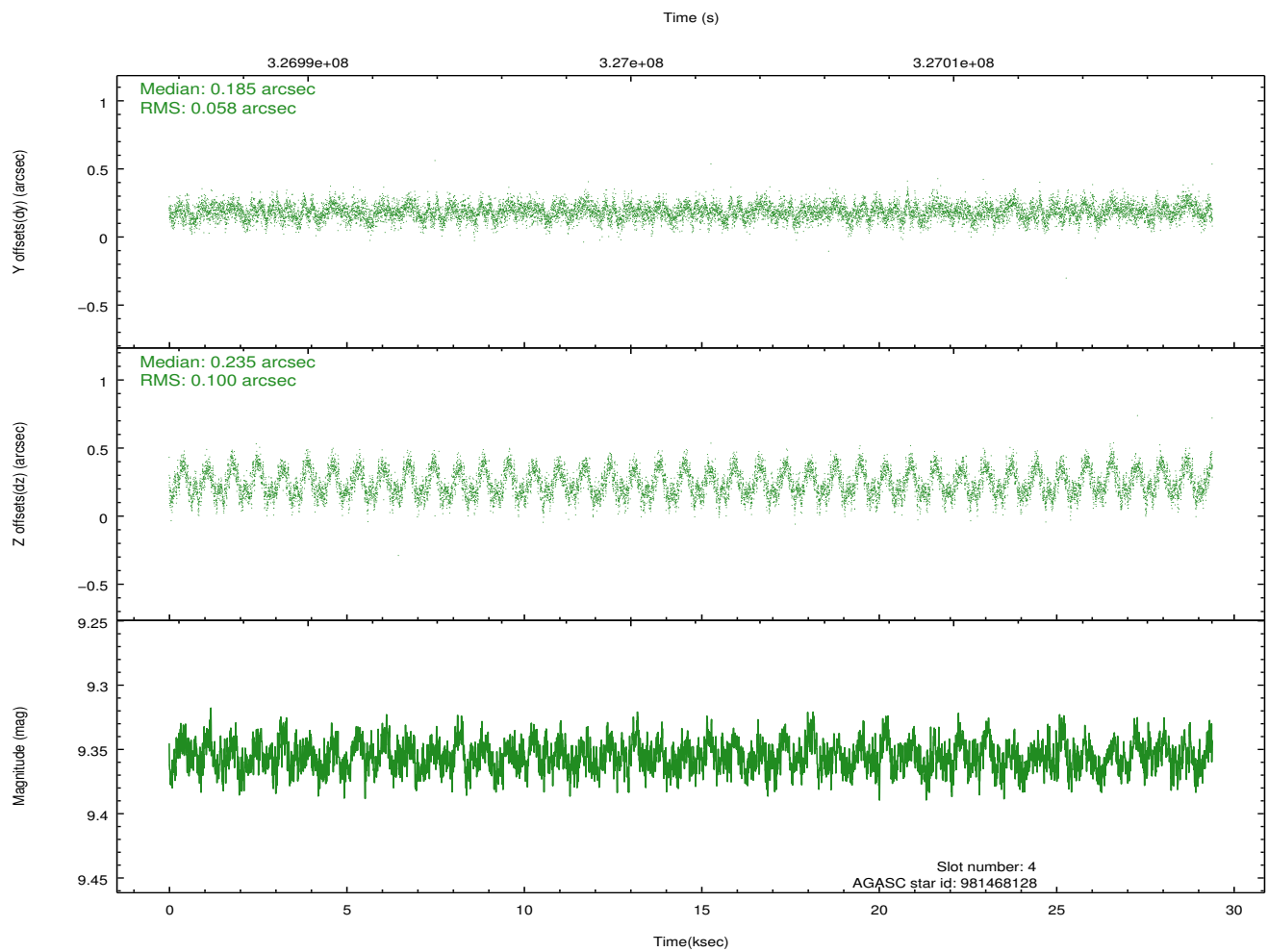
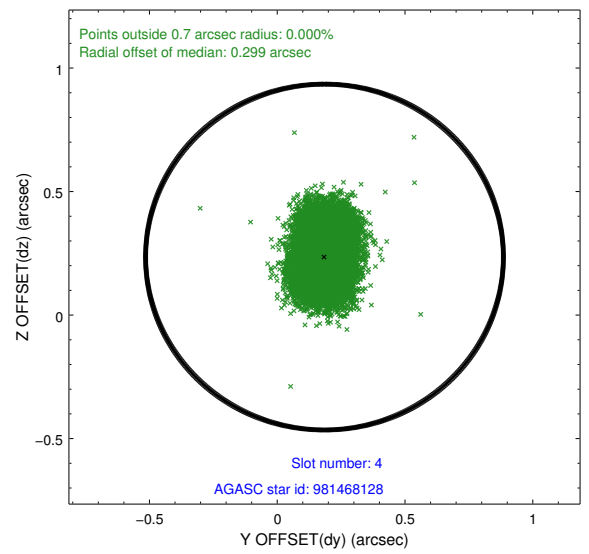
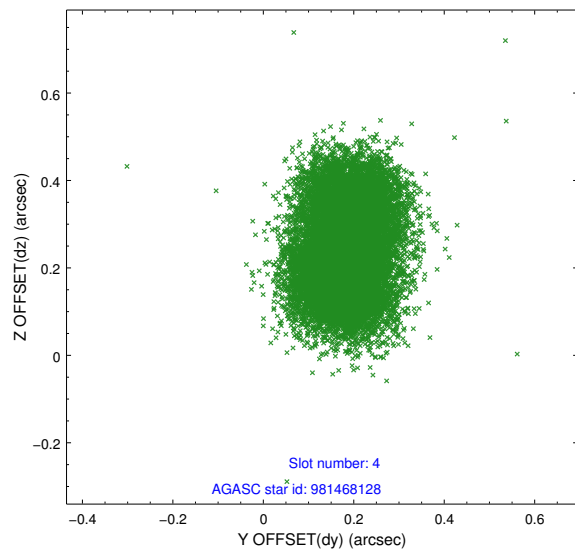
| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|-----------|------|-------|--------|--------|-------|-------|------------|------------|---------|----------|
| 0 | FID | ACIS-S-2 | 6.87 | 7169 | -0.127 | -0.087 | 0.011 | 0.035 | 0.000000 | 0.000000 | -764.06 | -1900.18 |
| 1 | FID | ACIS-S-4 | 6.94 | 7169 | 0.085 | 0.084 | 0.008 | 0.016 | 0.000000 | 0.000000 | 2149.41 | 8.32 |
| 2 | FID | ACIS-S-6 | 7.16 | 7169 | 0.015 | 0.009 | 0.013 | 0.023 | 0.000000 | 0.000000 | 398.19 | 645.75 |
| 3 | GUIDE | 912275088 | 9.05 | 14306 | -0.072 | 0.204 | 0.077 | 0.124 | 329.619228 | -29.738698 | 1906.61 | -294.85 |
| 4 | GUIDE | 981468128 | 9.36 | 14327 | 0.185 | 0.235 | 0.125 | 0.195 | 329.756350 | -30.158334 | 342.56 | -159.90 |
| 5 | GUIDE | 981469488 | 9.55 | 14327 | -0.175 | -0.117 | 0.128 | 0.199 | 329.261199 | -30.045155 | 1267.46 | 1139.22 |
| 6 | GUIDE | 981478152 | 9.38 | 14324 | 0.058 | -0.154 | 0.119 | 0.191 | 329.415589 | -30.057192 | 1058.17 | 704.06 |
| 7 | GUIDE | 981468016 | 9.01 | 14327 | 0.010 | -0.180 | 0.089 | 0.140 | 328.842457 | -30.034984 | 1757.33 | 2349.39 |

2.4 Star Slots

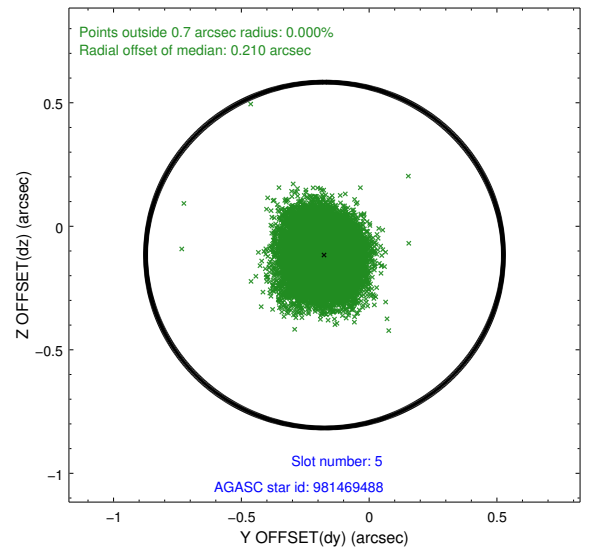
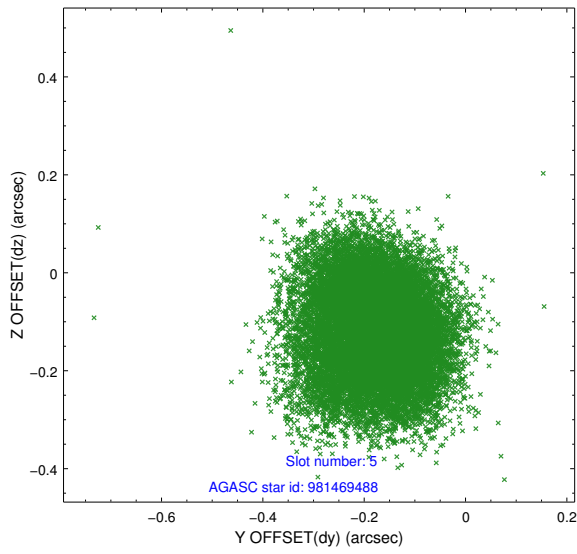
2.4.1 Slot 3



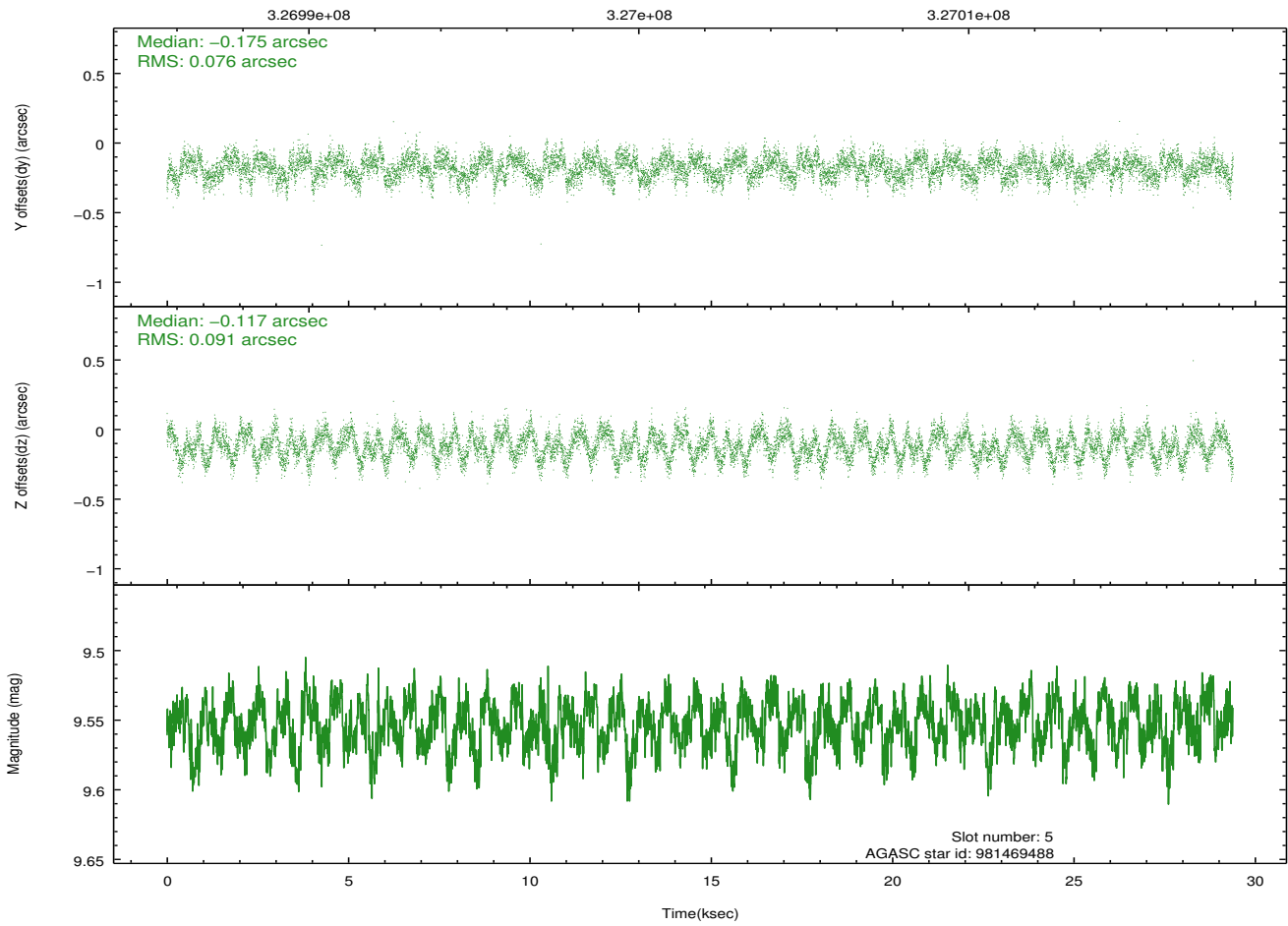
2.4.2 Slot 4



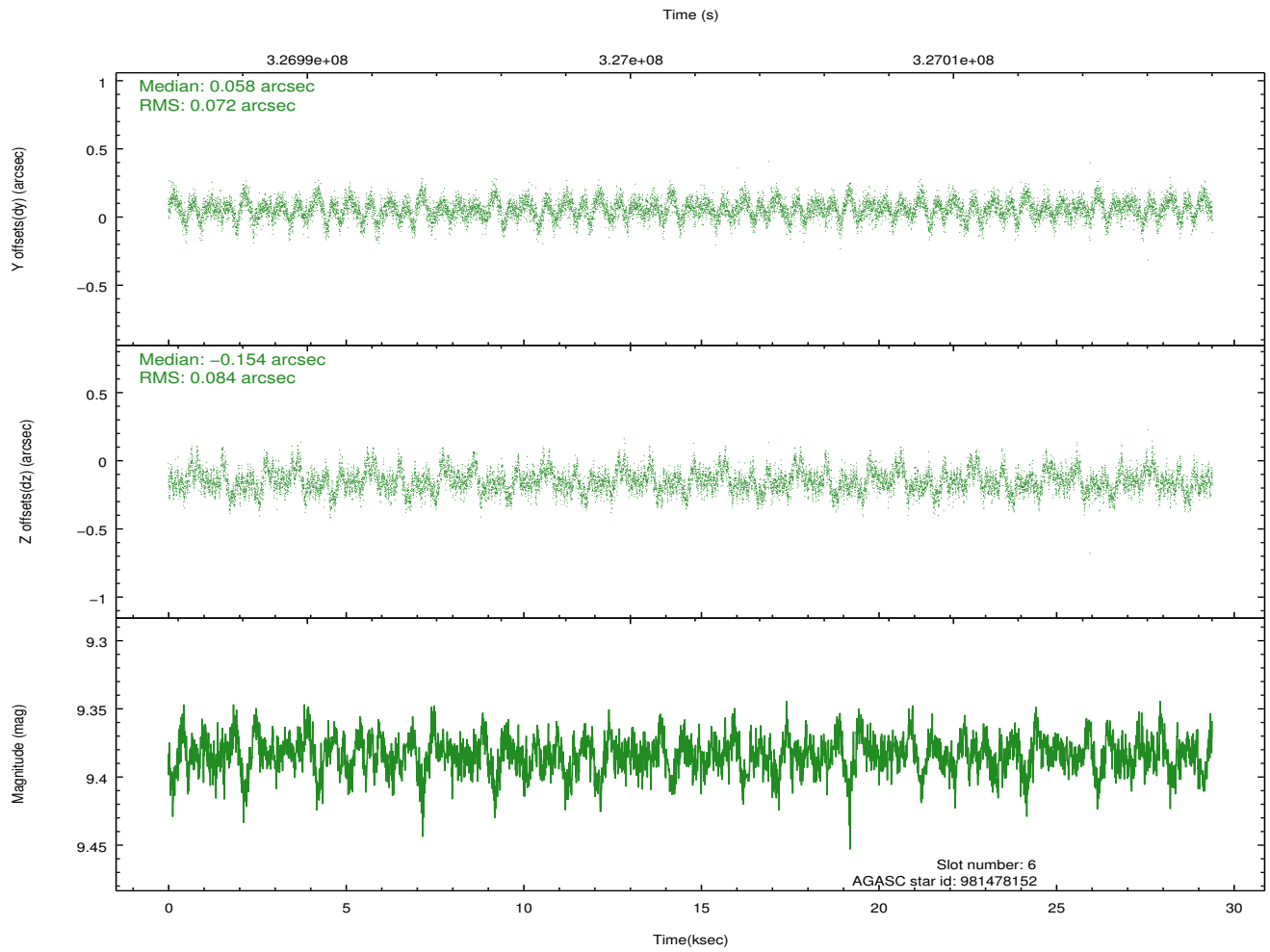
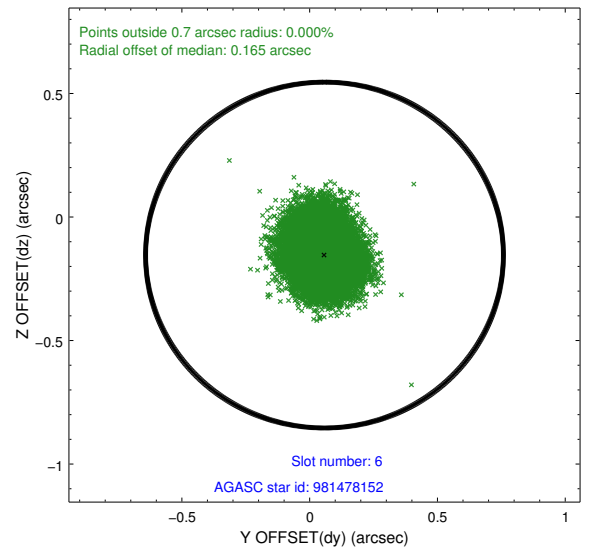
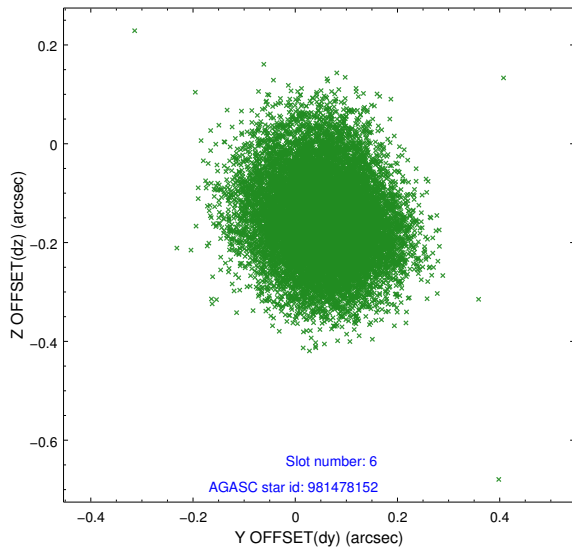
2.4.3 Slot 5



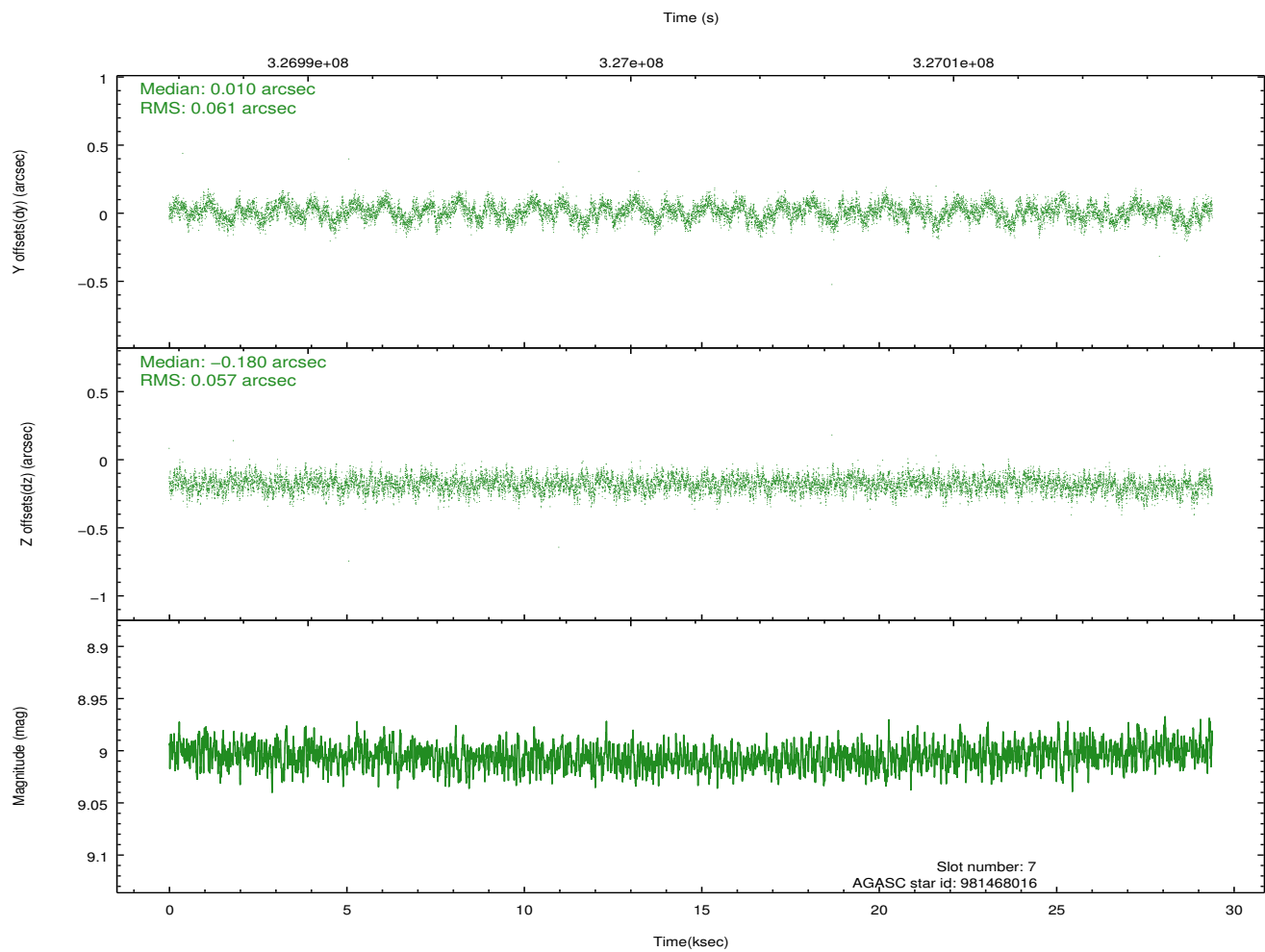
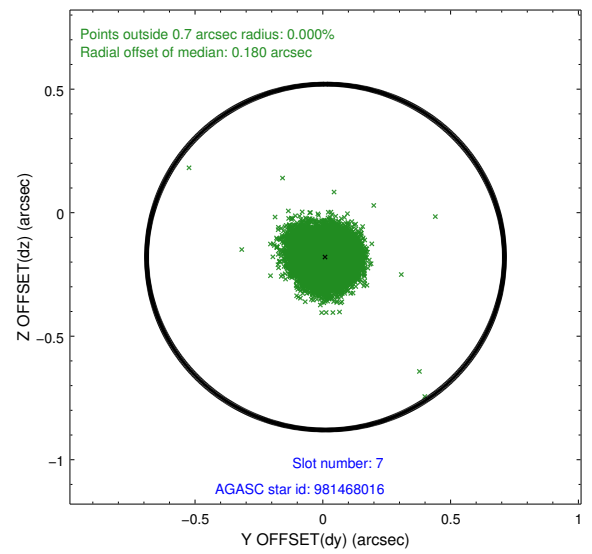
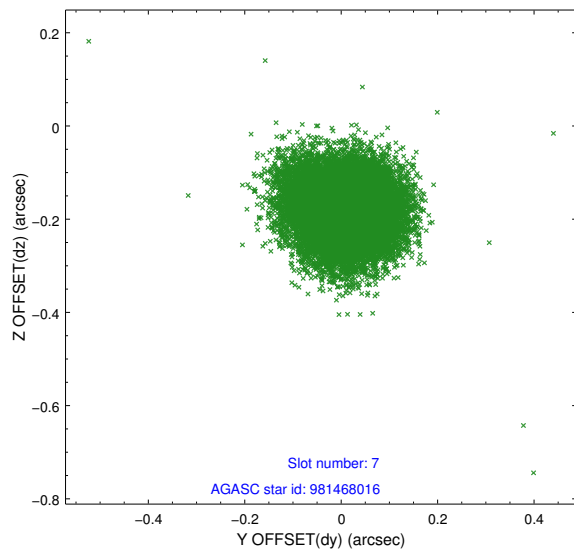
Time (s)



2.4.4 Slot 6

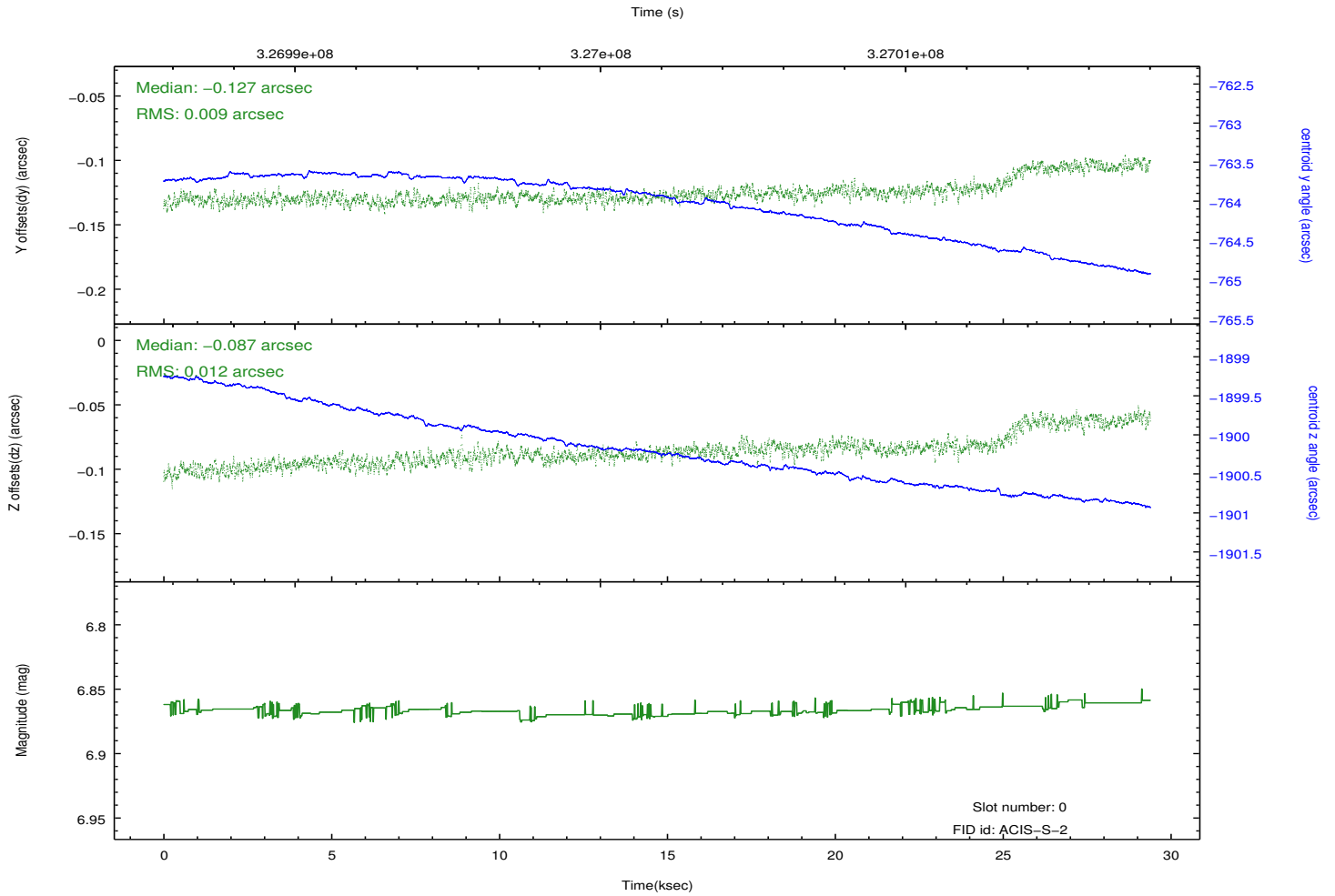
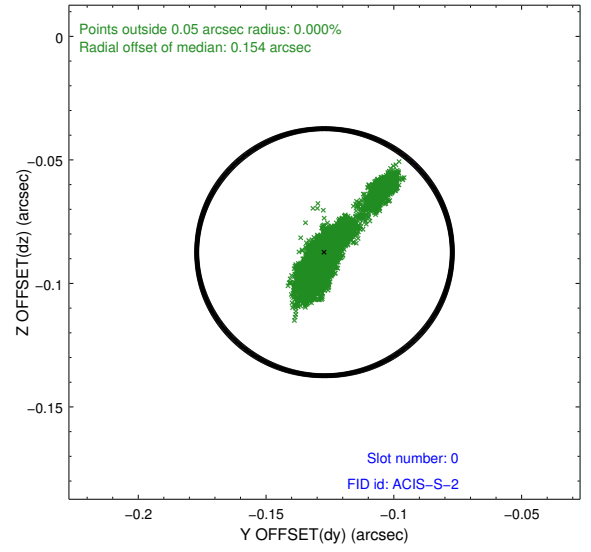
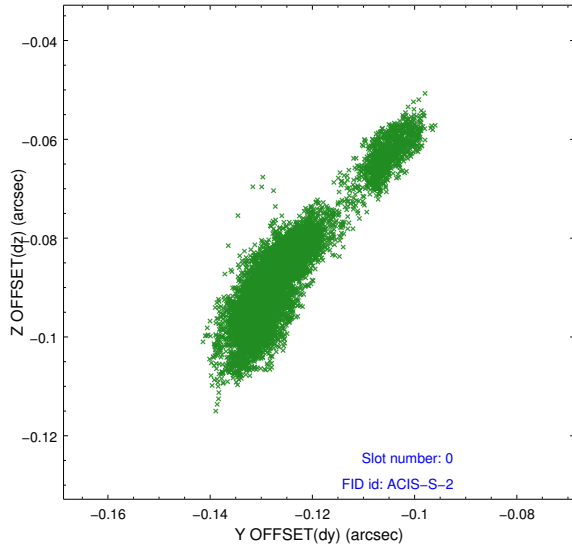


2.4.5 Slot 7

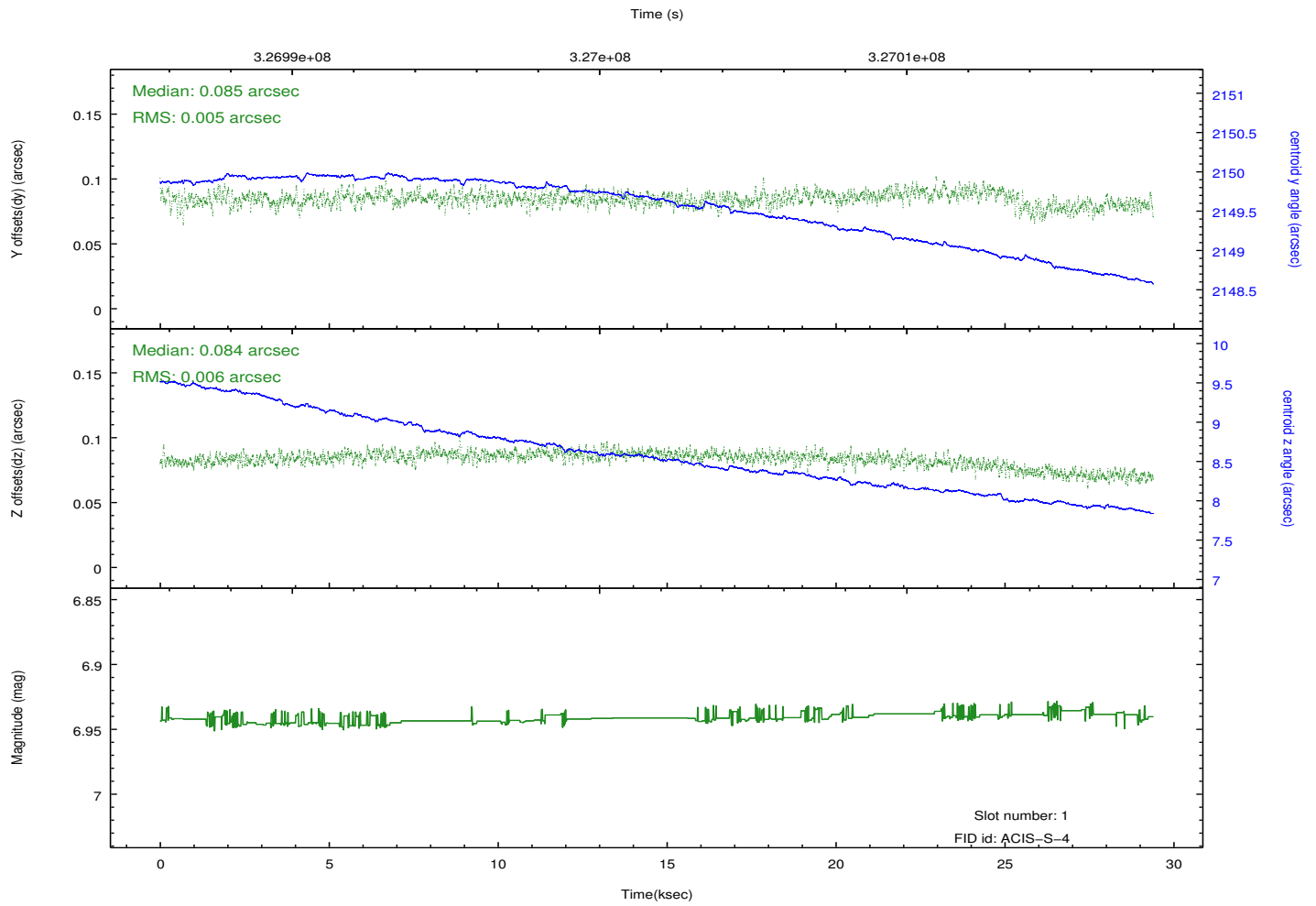
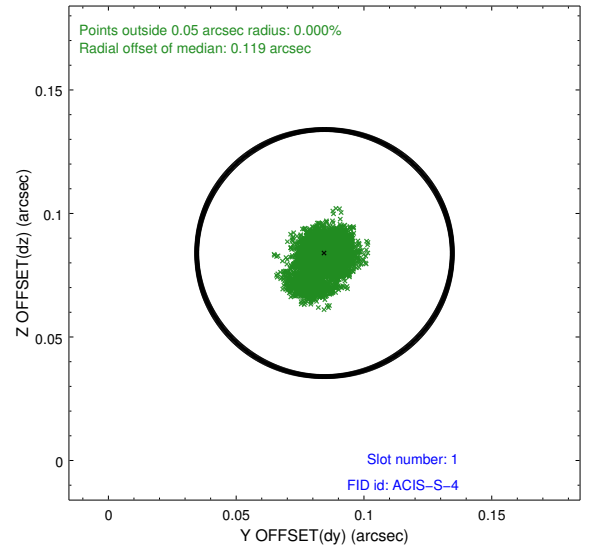
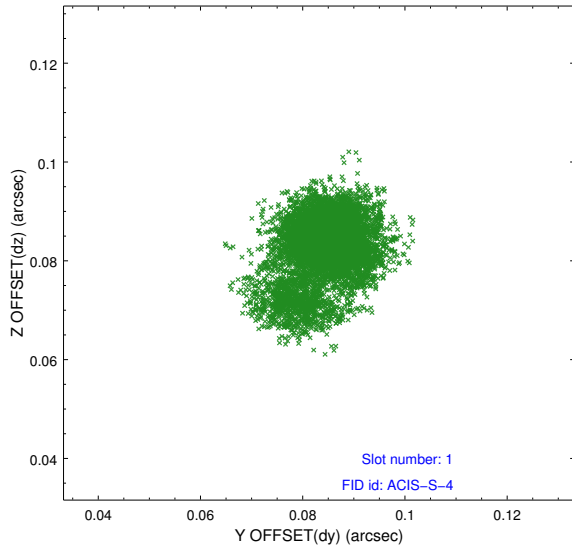


2.5 FID Slots

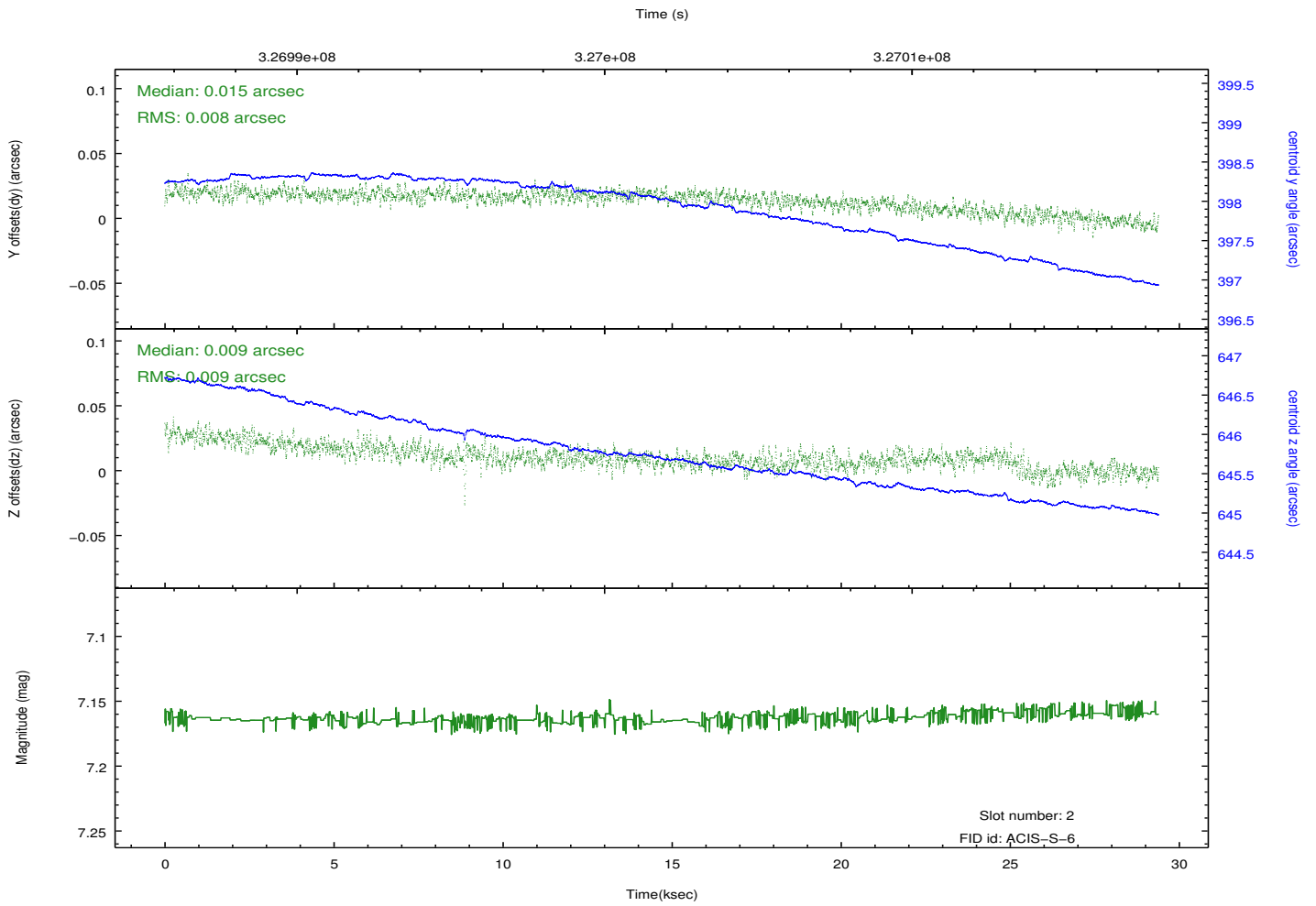
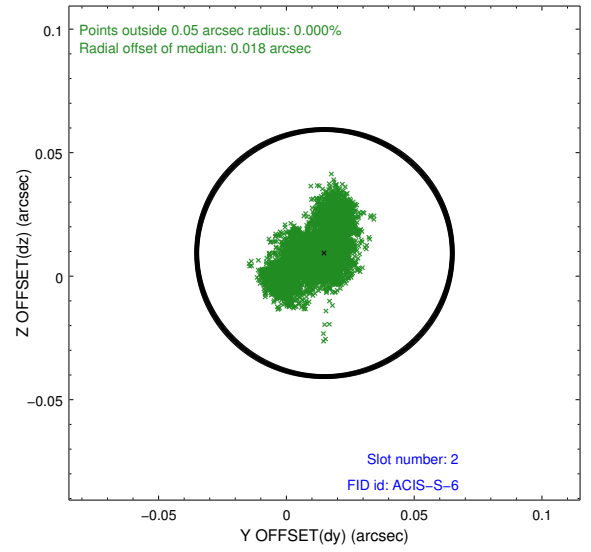
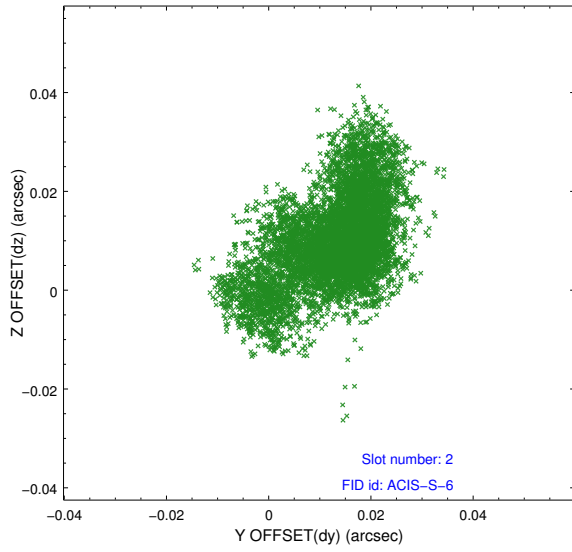
2.5.1 Slot 0



2.5.2 Slot 1

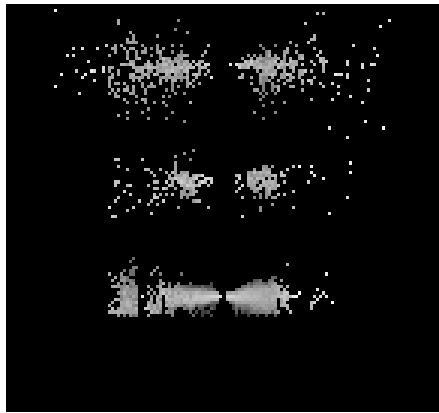


2.5.3 Slot 2

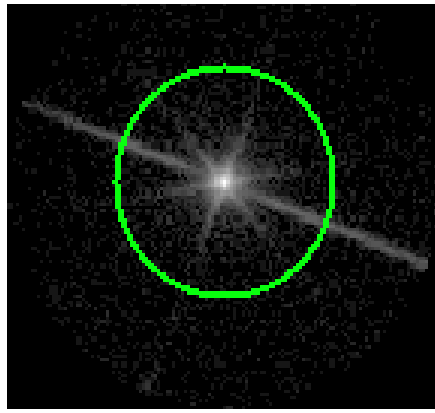


3 Gratings

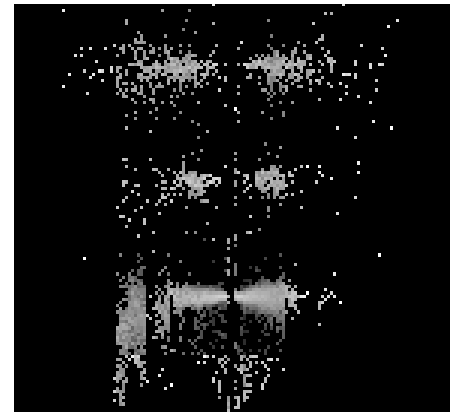
3.1 LETG Arm



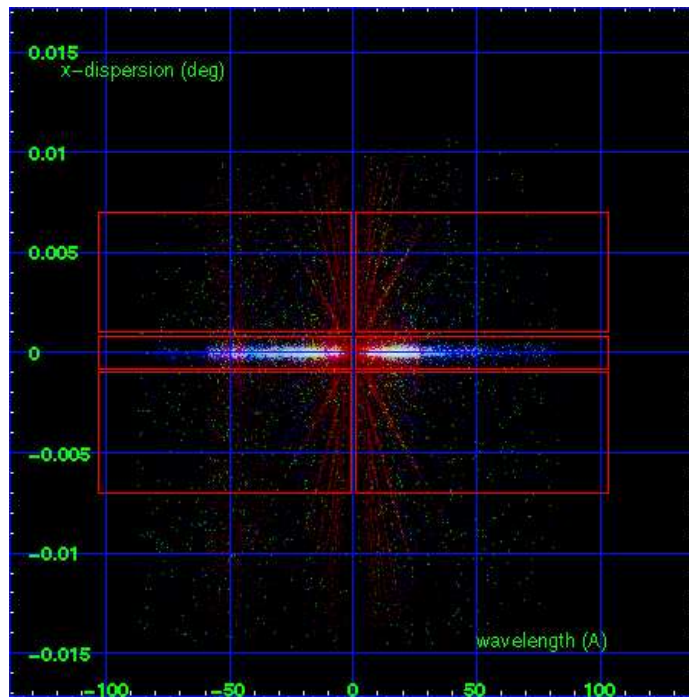
LETG Order Sort 123



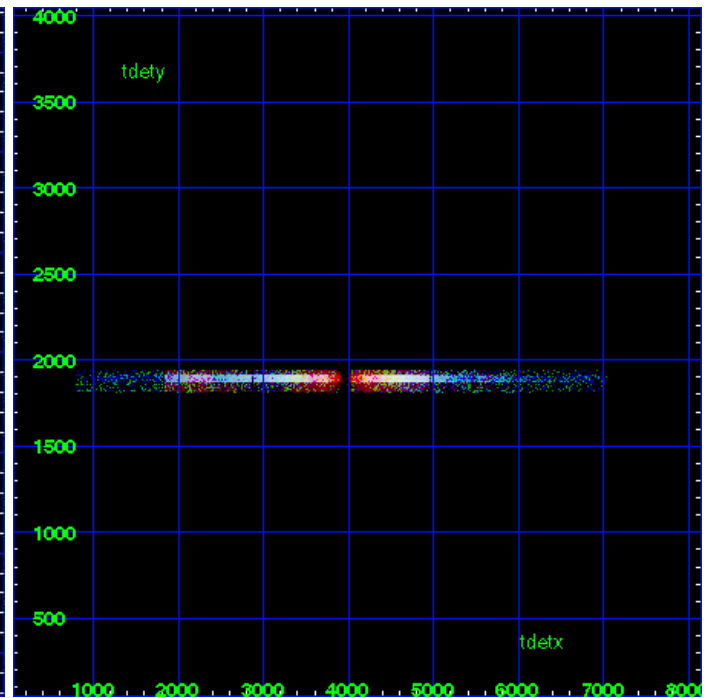
LETG Zero Order



LETG Order Sort ALL

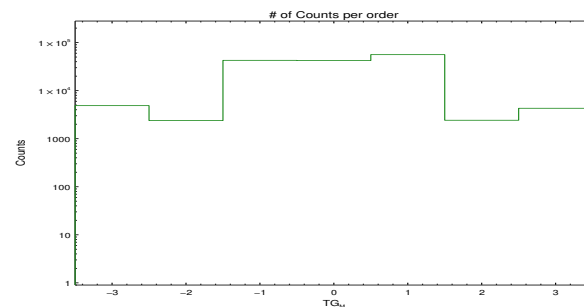


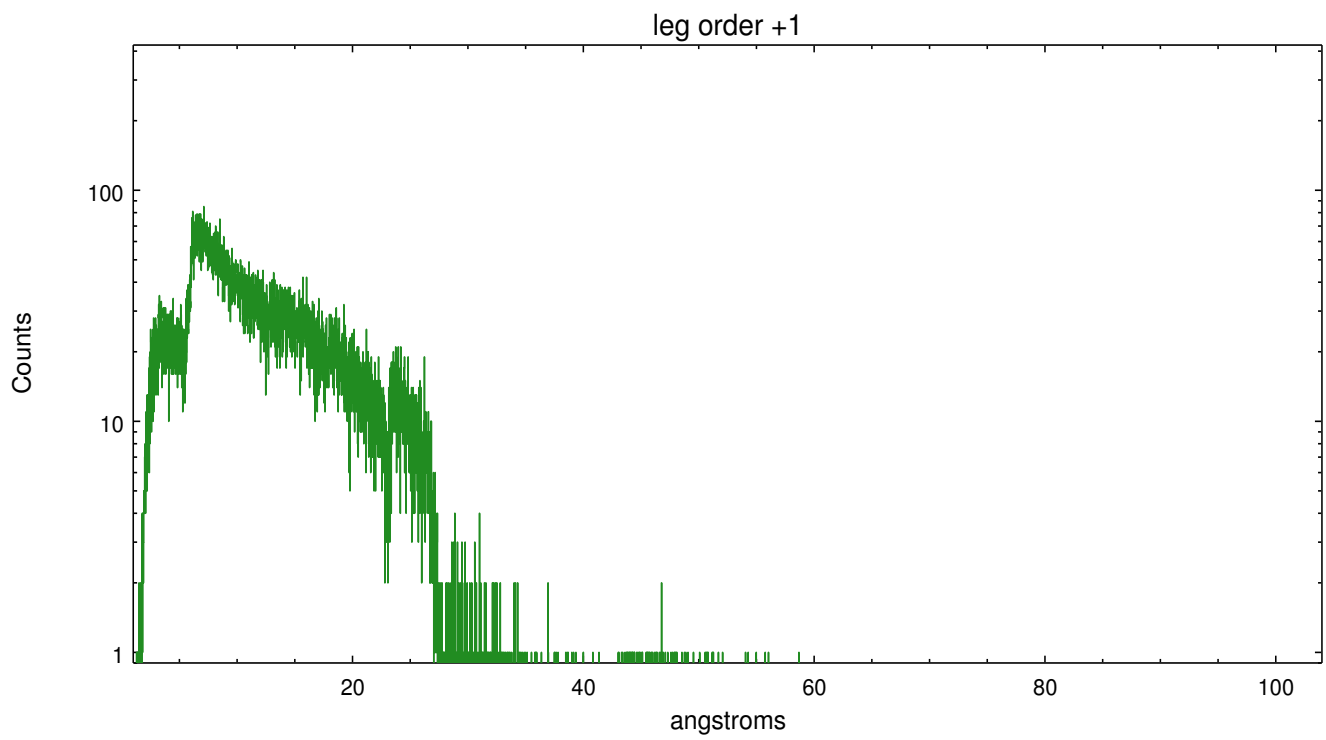
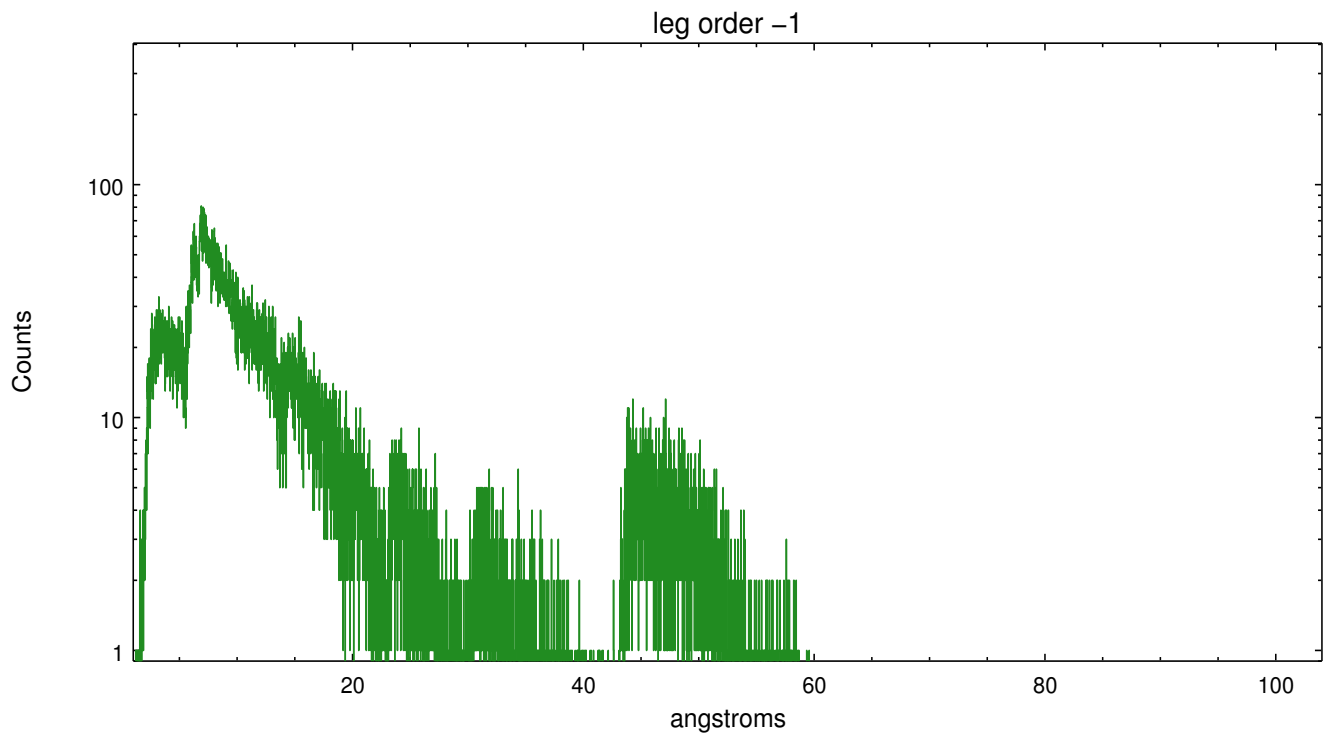
Spot Image LETG



Full Detector LETG

| | order -3 | order -2 | order -1 | order 0 | order 1 | order 2 | order 3 |
|--------|-------------|-------------|-------------|------------|------------|------------|------------|
| Events | 4875 | 2382 | 42668 | 42317 | 56114 | 2417 | 4291 |





A Summary

A.1 Status

| | |
|----------------------------|-------------|
| V&V Scientist | Joy Nichols |
| V&V Date (YYYY-MM-DD) | 2012.05.17 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 29.3950994 |

A.2 Comments

Gain and CTI correction are not well calibrated on CCD_ID 5 (ACIS-S1). Default order sorting can clip some regions, particularly longward of 30A (first order). User-specified custom processing parameters may be required in `tg_resolve_events` (`osipfile=None`, `osort_lo`, `osort_hi ~0.5`) though this can allow more zeroth order background at short wavelengths.

===Source is piled up, but software tool `tgdetect` did a good job of finding the zeroth order position.