

V&V Reference Report

L2 ASCDS Version : 10.4.3.1

Observation 18861 - L2 Version 2
Chandra X-Ray Center

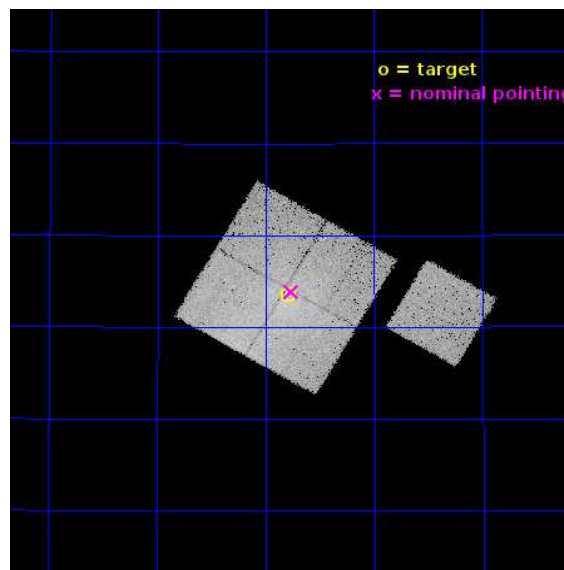
L2 Processing Date : Jun 6 2016

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1 Front

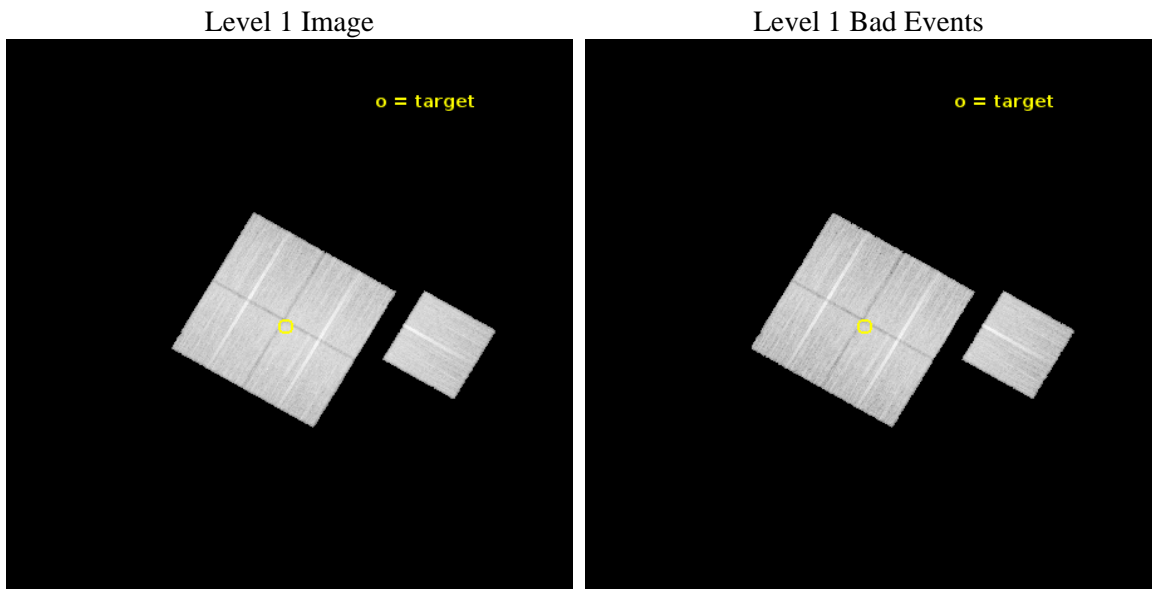
| | | |
|----------|---|---|
| seq_num | 703135 | Sequence number |
| obs_id | 18861 | Observation id |
| title | The Rise to Power: Half a Billion Years of Intense AGN Activity in the Merging Cluster Cygnus A | Proposal title |
| observer | Dr. Michael Wise | Principal investigator |
| object | Cygnus A - NW Subcluster | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 299.698333 | Observer's specified target RA [deg] |
| dec_targ | 40.893111 | Observer's specified target Dec [deg] |
| ra_nom | 299.6907659276 | Nominal RA [deg] |
| dec_nom | 40.897855732705 | Nominal Dec [deg] |
| roll_nom | 120.21361874644 | Nominal Roll [deg] |
| revision | 2 | Processing version of data |
| ontime | 24297.793923855 | Sum of GTIs [s] |
| livetime | 23980.325358464 | Livetime [s] |
| ontime0 | 24294.529803514 | Sum of GTIs [s] |
| ontime1 | 24294.57085371 | Sum of GTIs [s] |
| ontime2 | 24294.611863732 | Sum of GTIs [s] |
| ontime3 | 24297.793923855 | Sum of GTIs [s] |
| ontime6 | 24297.629763842 | Sum of GTIs [s] |
| l2events | 112771 | Number of level 2 events |



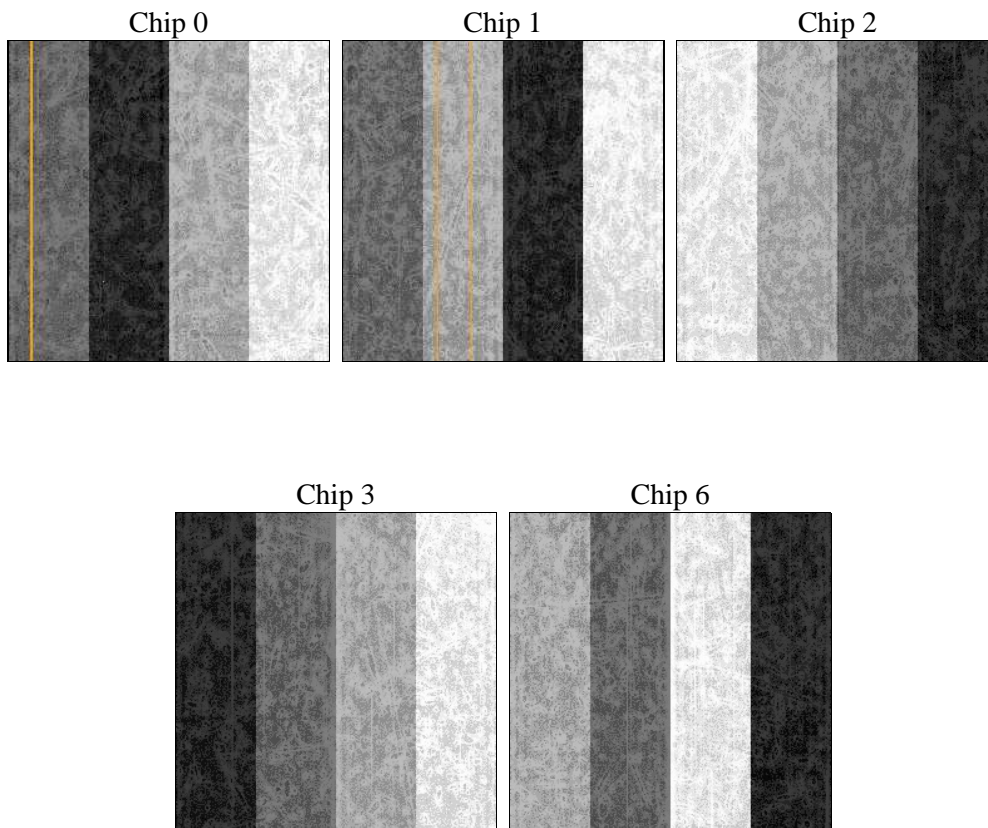
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 24226.928000 | [s] Scheduled observation exposure time |
| ascdsver | 10.4.3.1 | Processing system revision | ontime | 24297.793923855 | Sum of GTIs [s] |
| caldbver | 4.7.2 | | ontime0 | 24294.529803514 | Sum of GTIs [s] |
| date | 2016-06-06T20:43:31 | Date and time of file creation | ontime1 | 24294.57085371 | Sum of GTIs [s] |
| revision | 2 | Processing version of data | ontime2 | 24294.611863732 | Sum of GTIs [s] |
| | | | ontime3 | 24297.793923855 | Sum of GTIs [s] |
| | | | ontime6 | 24297.629763842 | Sum of GTIs [s] |
| | | | l1events | 845330 | Number of level 1 events |

2.1.4 Events

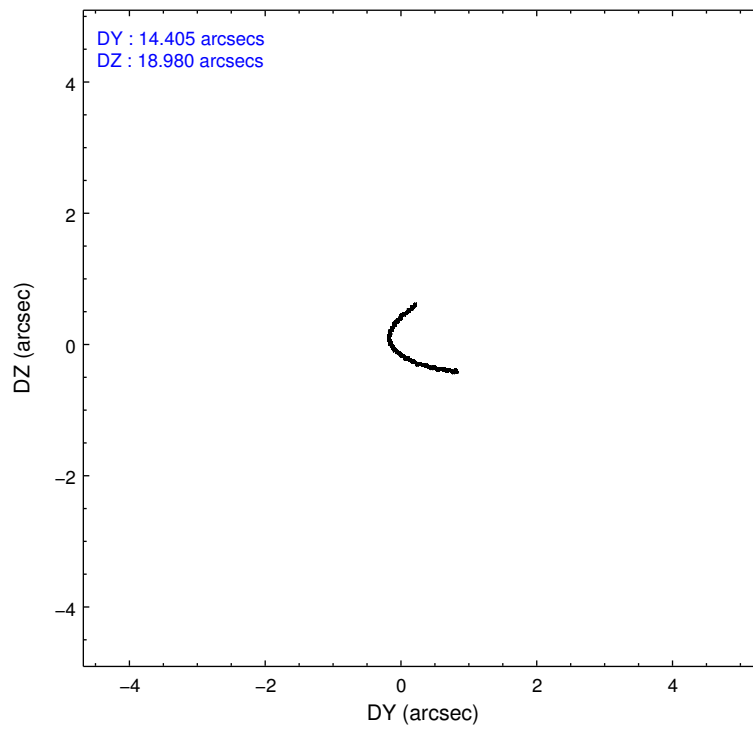
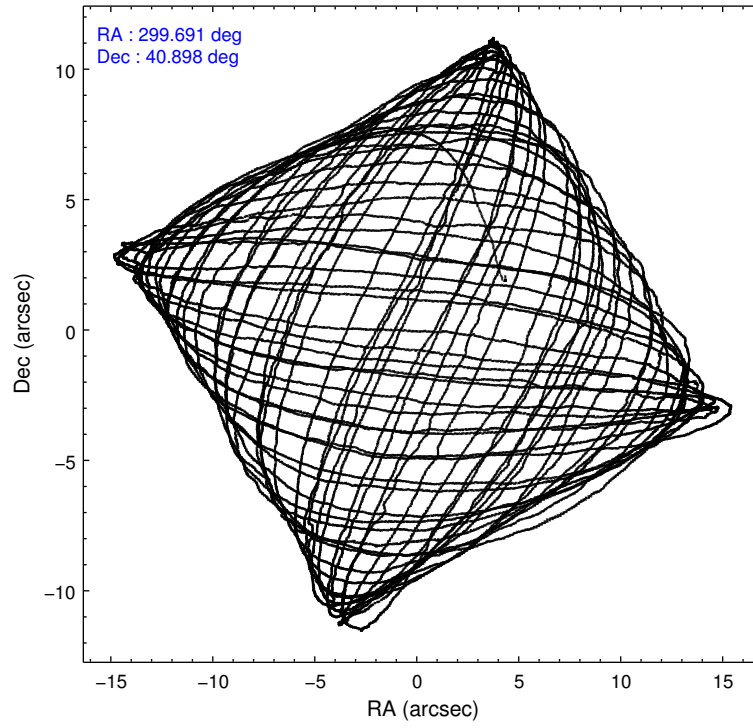
| | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events | 158009 | 169161 | 173864 | 176914 | 167382 |
| rejected events | 136474 | 134798 | 150811 | 146497 | 148698 |
| rejected % | 86% | 79% | 86% | 82% | 88% |

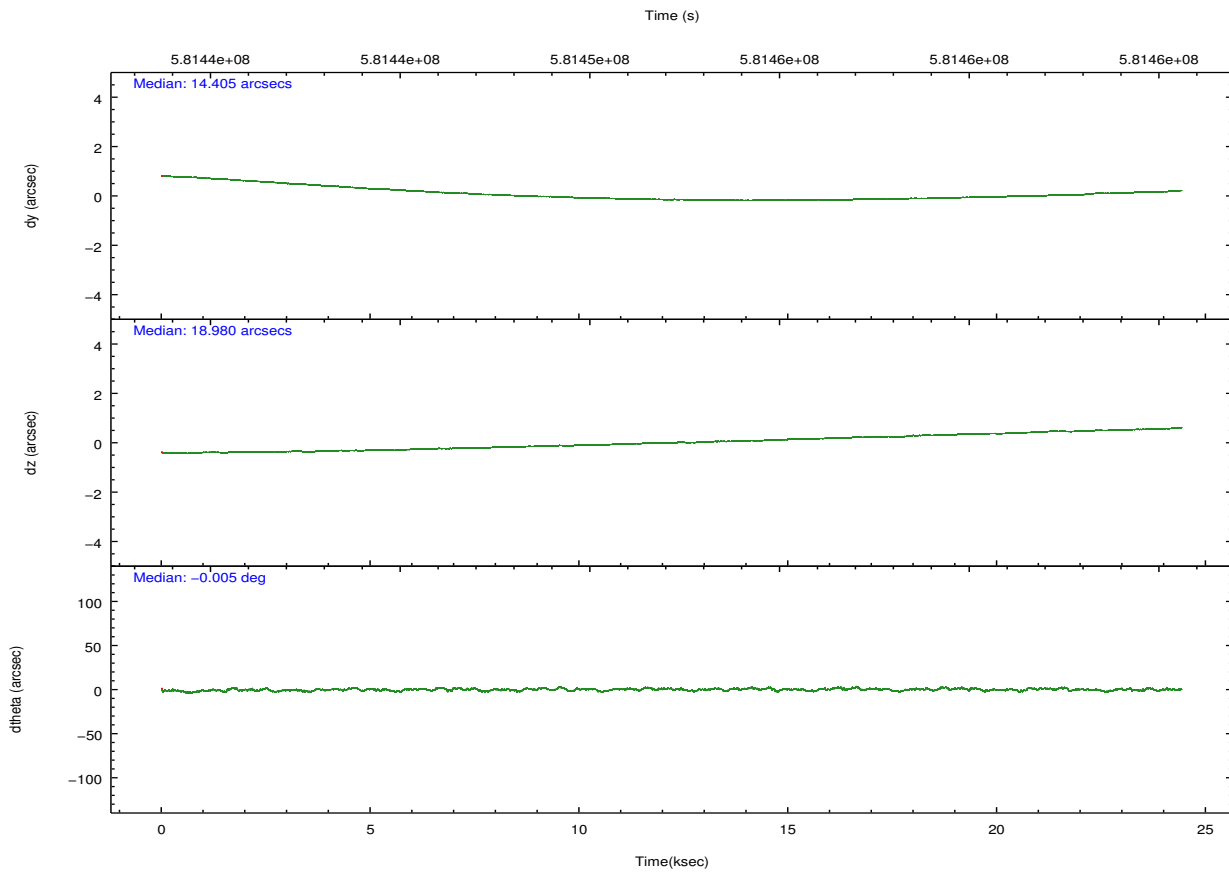
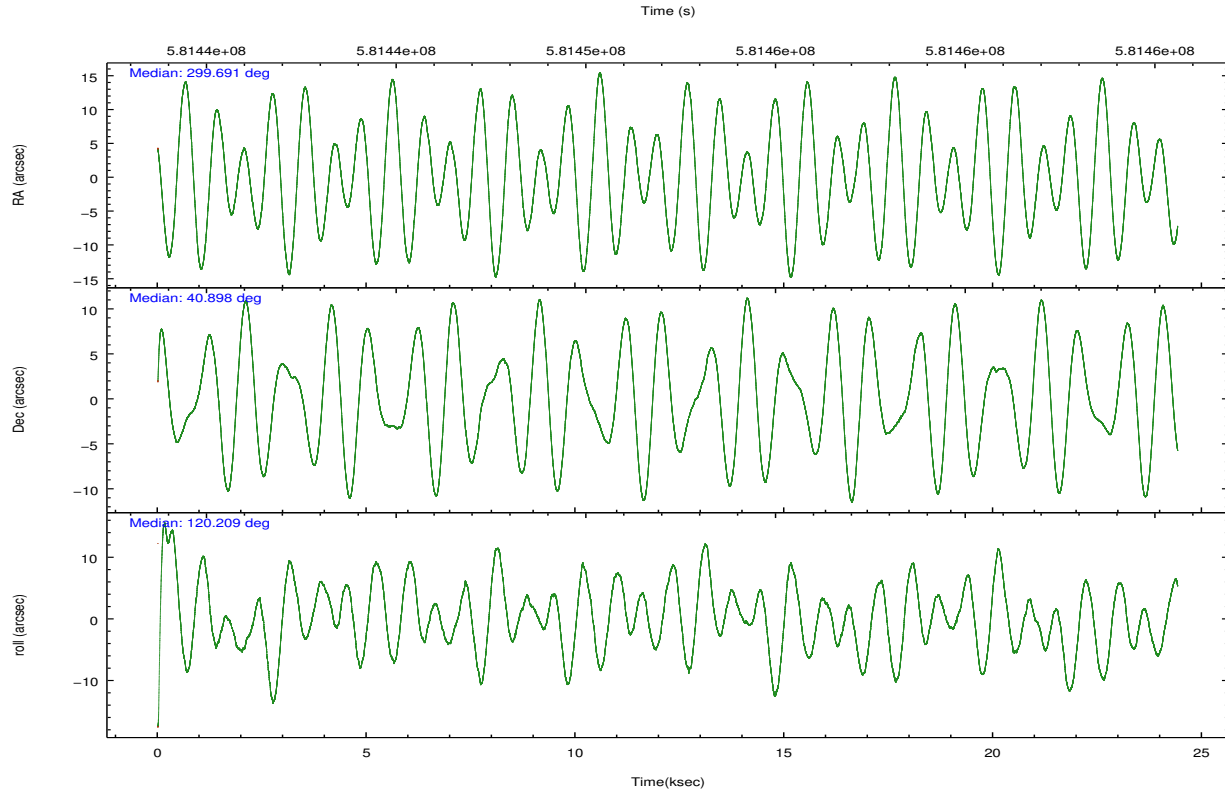
| | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 6 |
|----------------|--------|--------|--------|--------|--------|
| grade 0 events | 9015 | 17768 | 10976 | 16721 | 6305 |
| | 5% | 10% | 6% | 9% | 3% |
| grade 1 events | 90 | 125 | 121 | 171 | 51 |
| | 0% | 0% | 0% | 0% | 0% |
| grade 2 events | 4823 | 6937 | 4590 | 5183 | 4435 |
| | 3% | 4% | 2% | 2% | 2% |
| grade 3 events | 1994 | 2302 | 1969 | 2223 | 1725 |
| | 1% | 1% | 1% | 1% | 1% |
| grade 4 events | 1816 | 2305 | 1860 | 2202 | 1717 |
| | 1% | 1% | 1% | 1% | 1% |
| grade 5 events | 6770 | 7028 | 6425 | 7795 | 7314 |
| | 4% | 4% | 3% | 4% | 4% |
| grade 6 events | 3891 | 5069 | 3660 | 4090 | 4508 |
| | 2% | 2% | 2% | 2% | 2% |
| grade 7 events | 129610 | 127627 | 144263 | 138529 | 141327 |
| | 82% | 75% | 82% | 78% | 84% |

2.2 Compared Parameters

| Parameter | Planned | Actual | Parameter | Planned | Actual |
|-----------------------------------|---------------------|-----------------------|---------------------------------------|-----------|---------|
| Instrument | ACIS | ACIS | Obspar format version number | 7 | 7 |
| Detector | ACIS-01236 | ACIS-01236 | Obspar file type | PREDICTED | ACTUAL |
| Grating | NONE | NONE | Obspar update status | NONE | UPDATED |
| Data mode | VFAINT | VFAINT | CCD I0 on | Y | Y |
| Observation mode | POINTING | POINTING | CCD I1 on | Y | Y |
| [deg] Pointing RA | 299.722539 | 299.6907659276047 | CCD I2 on | Y | Y |
| [deg] Pointing Dec | 40.884202 | 40.89785573270512 | CCD I3 on | Y | Y |
| [deg] Pointing Roll | 119.984158 | 120.2136187464448 | CCD S0 on | N | N |
| [mm] SIM focus pos | -0.782348 | -0.7809083437167272 | CCD S1 on | N | N |
| [mm] SIM defocus | 0 | 0.001439871863259334 | CCD S2 on | O1 | Y |
| [mm] SIM translation stage pos | -233.592463 | -233.5874344608287 | CCD S3 on | N | N |
| [mm] SIM translation stage offset | 0 | -0.005018542100998502 | CCD S4 on | N | N |
| [s] Observation start time (MET) | 581440142.184000 | 581439188.9296401 | CCD S5 on | N | N |
| Observation start date | 2016-06-04T15:07:54 | 2016-06-04T14:53:08 | Number of optional ACIS chips dropped | 0 | 0 |
| [s] Observation end time (MET) | 581464369.184000 | 581464606.36859 | On-chip summing requested | N | N |
| Observation end date | 2016-06-04T21:51:41 | 2016-06-04T21:56:46 | Subarray requested | NONE | NONE |
| Read mode | TIMED | TIMED | Alternating exposures requested | N | N |
| | | | [s] Primary exposure time | 0.000000 | 3.1 |

2.3 Aspect





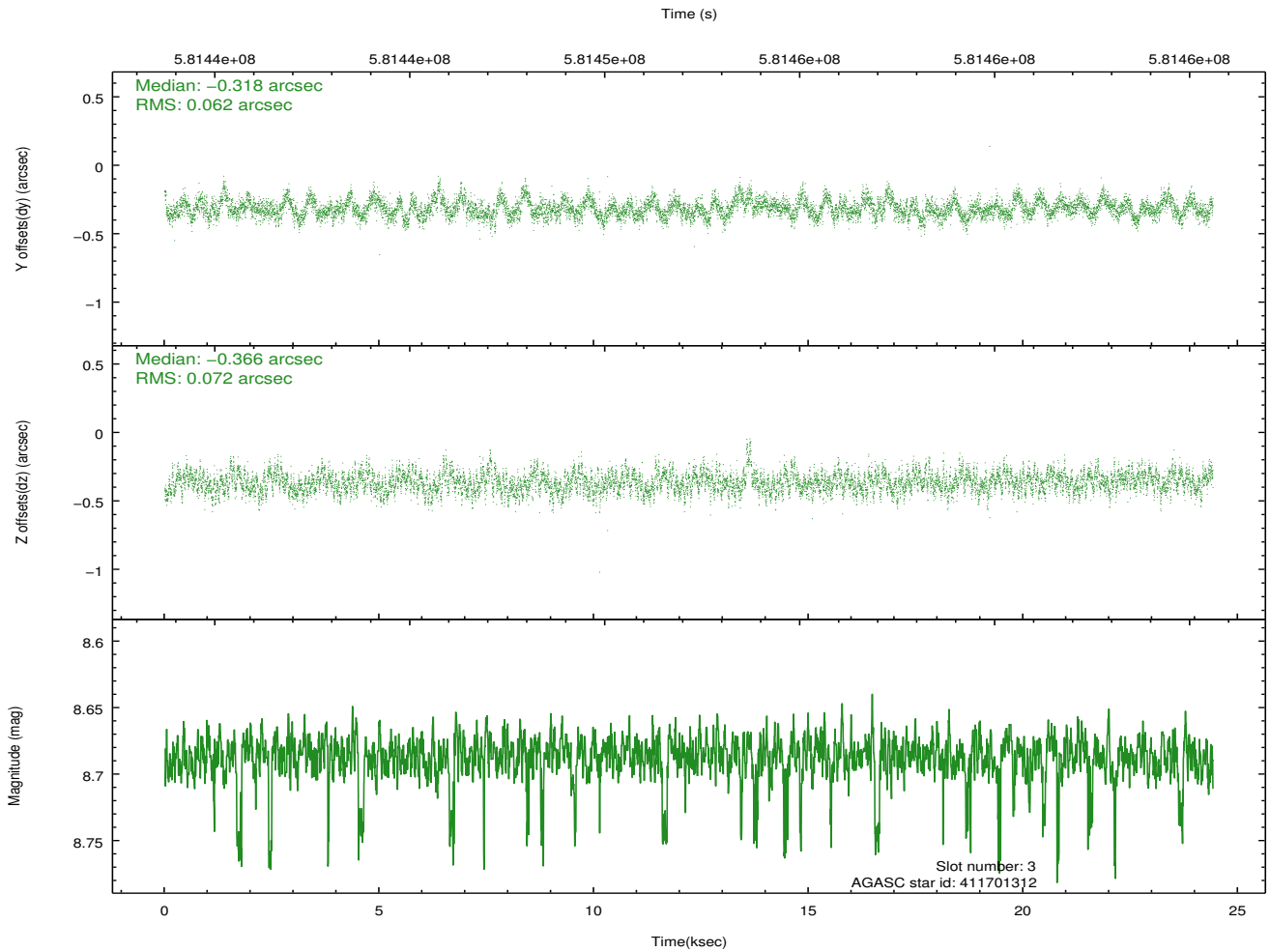
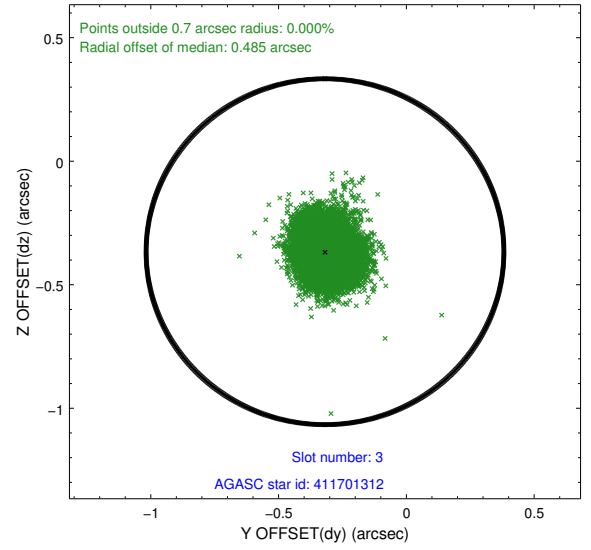
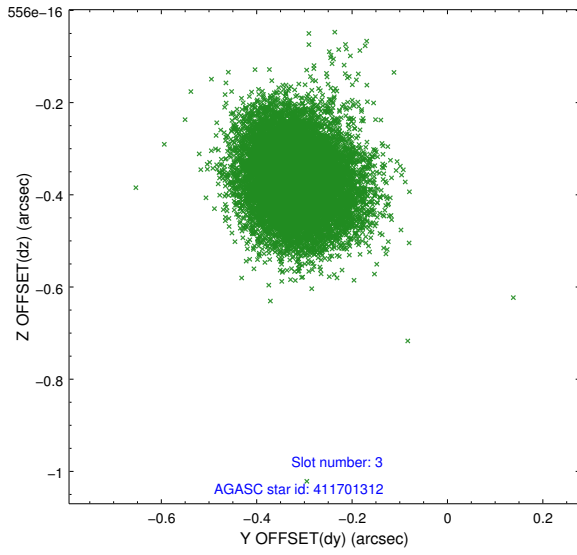
Slot Statistics

| slot | status | used | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|------|-----------|------|-------|--------|--------|-------|-------|------------|-----------|----------|----------|
| 0 | FID | | ACIS-I-1 | 7.25 | 5956 | -0.055 | -0.034 | 0.018 | 0.033 | 0.000000 | 0.000000 | 924.96 | -842.70 |
| 1 | FID | | ACIS-I-4 | 7.19 | 5954 | 0.351 | 0.073 | 0.015 | 0.027 | 0.000000 | 0.000000 | 2145.38 | 1057.22 |
| 2 | FID | | ACIS-I-5 | 7.25 | 5955 | -0.394 | 0.031 | 0.011 | 0.019 | 0.000000 | 0.000000 | -1823.31 | 1054.96 |
| 3 | GUIDE | used | 411701312 | 8.69 | 11901 | -0.318 | -0.366 | 0.100 | 0.162 | 298.889956 | 40.820220 | 943.31 | 2074.09 |
| 4 | GUIDE | used | 411707968 | 7.25 | 11910 | -0.073 | -0.418 | 0.102 | 0.174 | 299.509933 | 40.926839 | 422.95 | 423.60 |
| 5 | GUIDE | used | 412240768 | 8.26 | 11905 | -0.259 | -0.039 | 0.096 | 0.156 | 299.999696 | 41.280279 | 861.50 | -1362.36 |
| 6 | GUIDE | used | 413405352 | 8.35 | 11907 | 0.182 | 0.214 | 0.089 | 0.147 | 300.290830 | 41.091941 | -117.93 | -1711.44 |
| 7 | GUIDE | used | 413418680 | 9.23 | 11832 | 0.472 | 0.608 | 0.133 | 0.218 | 300.860298 | 40.740057 | -1982.46 | -2437.27 |

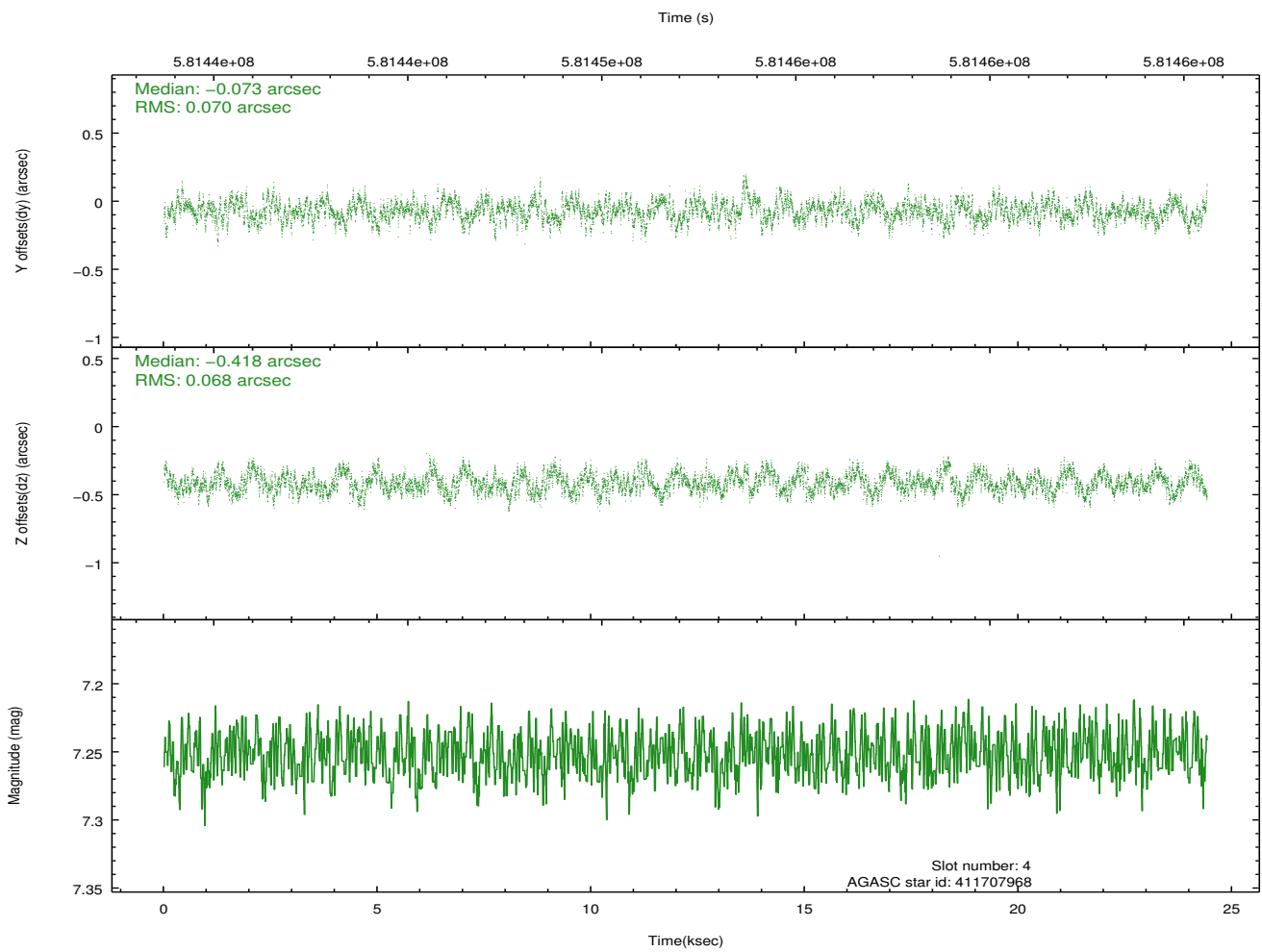
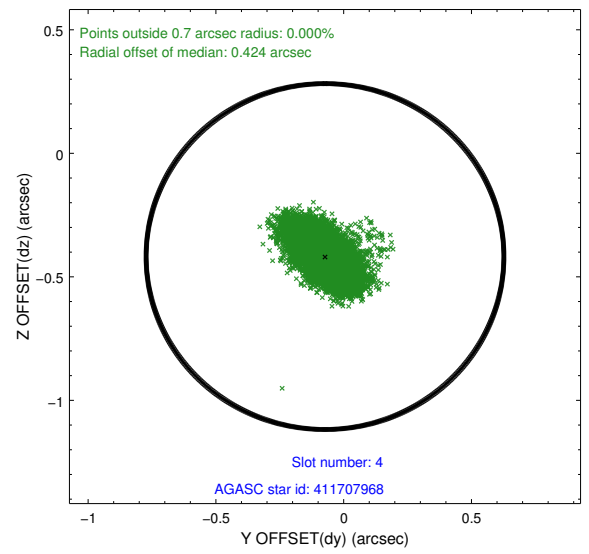
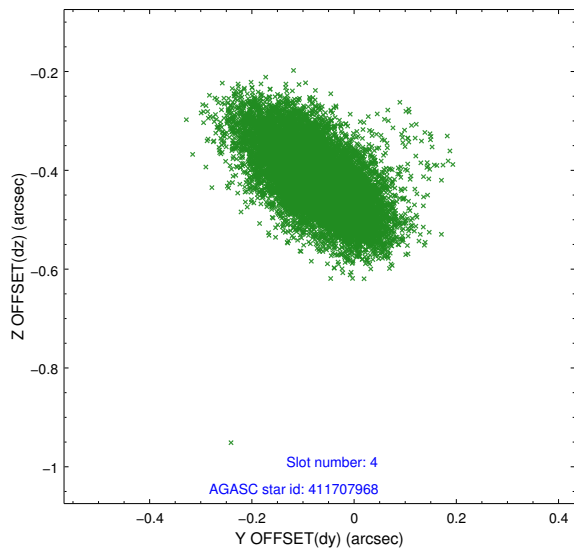
∞

2.4 Star Slots

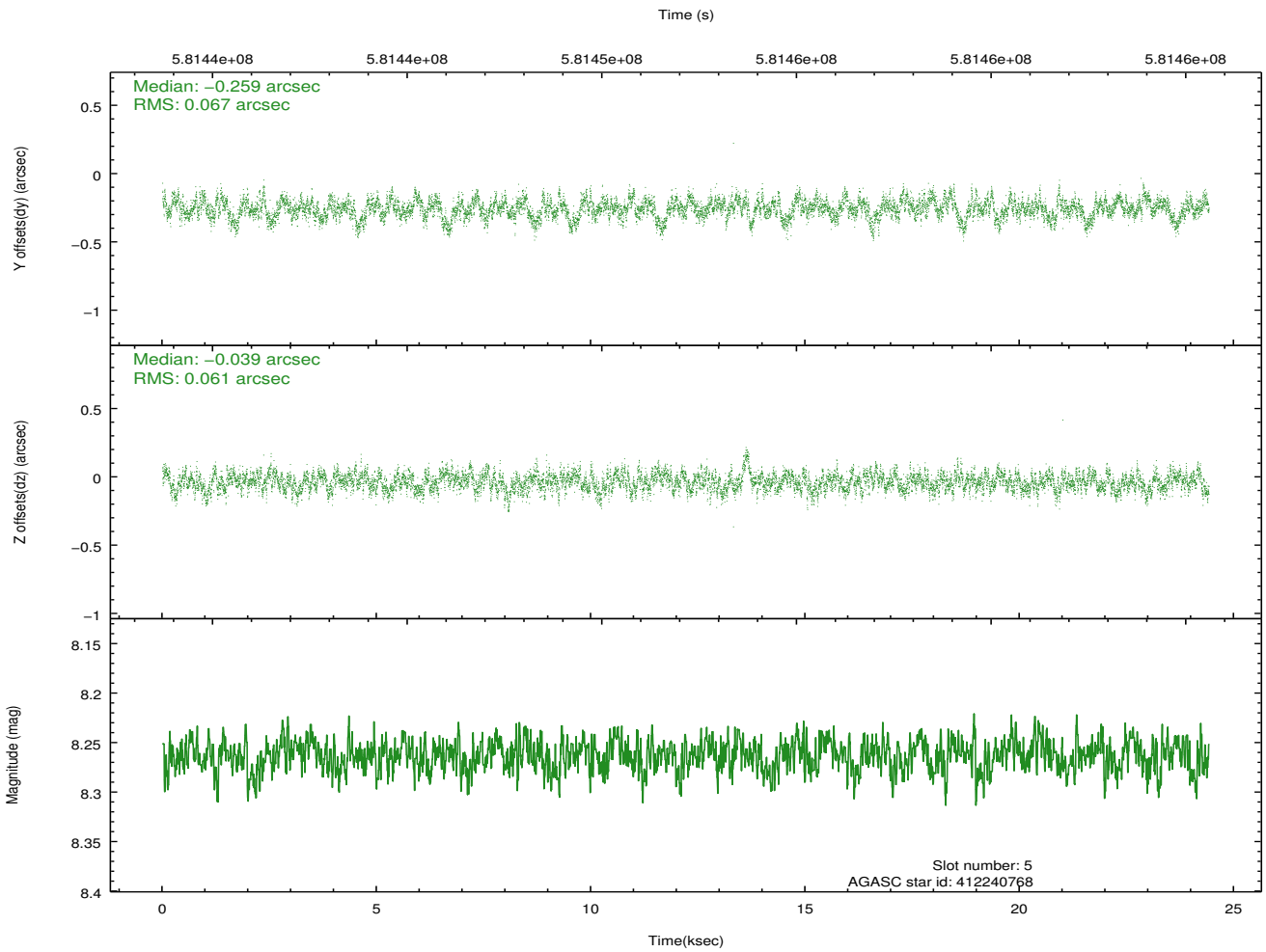
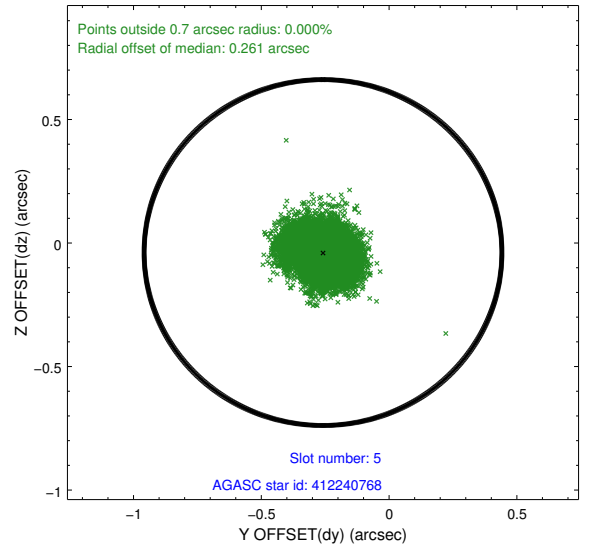
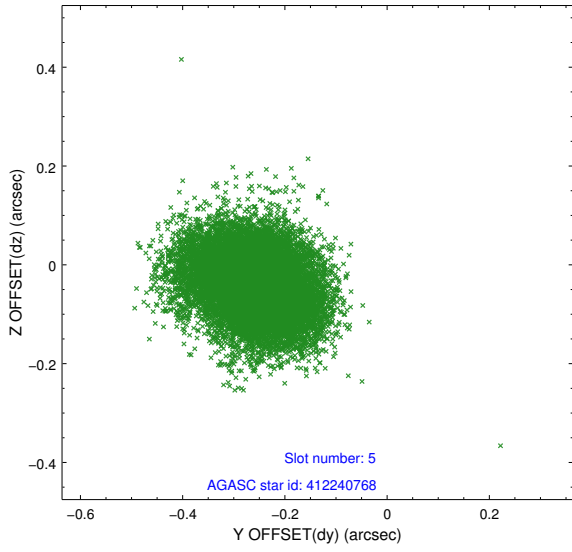
2.4.1 Slot 3



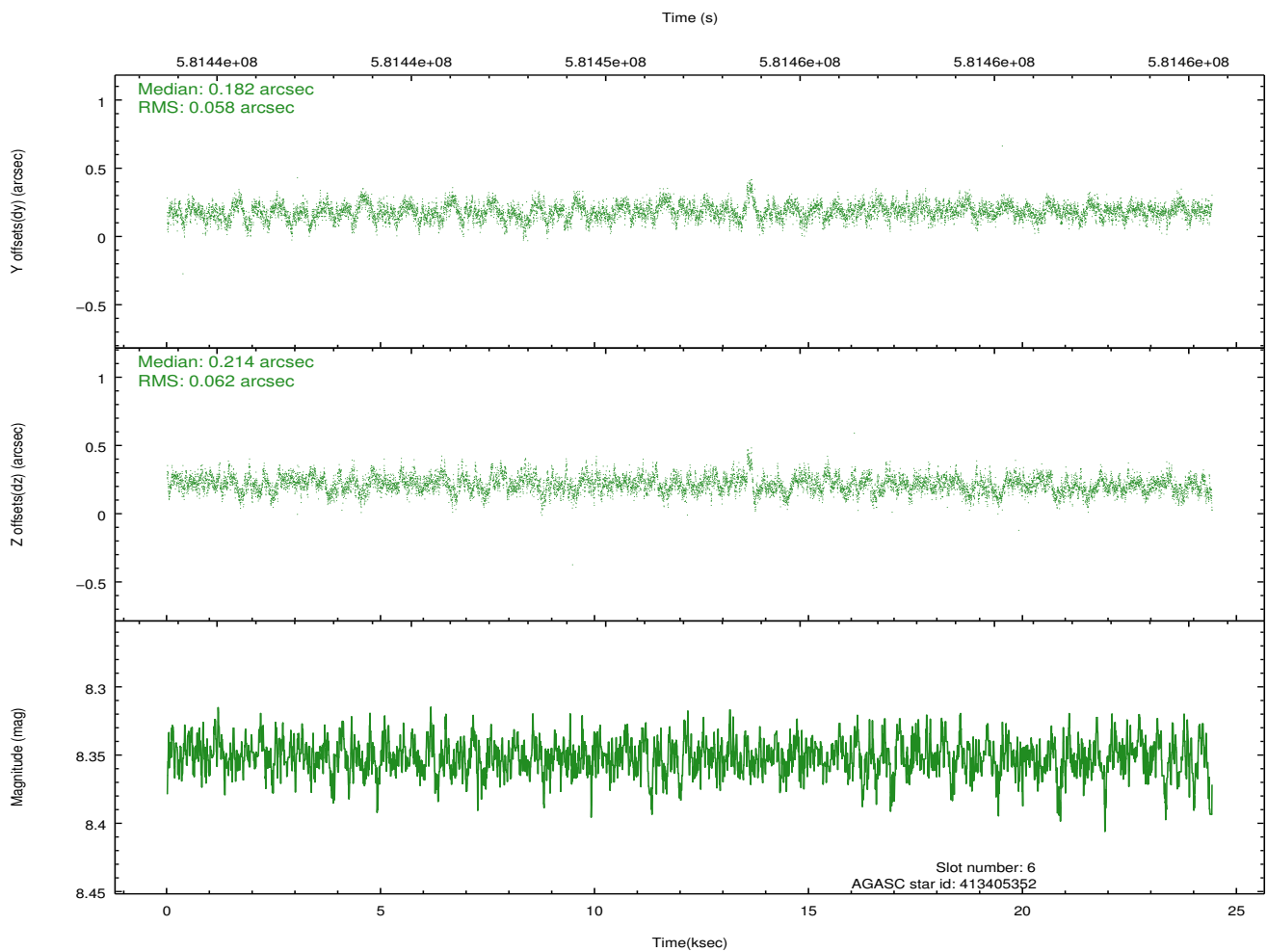
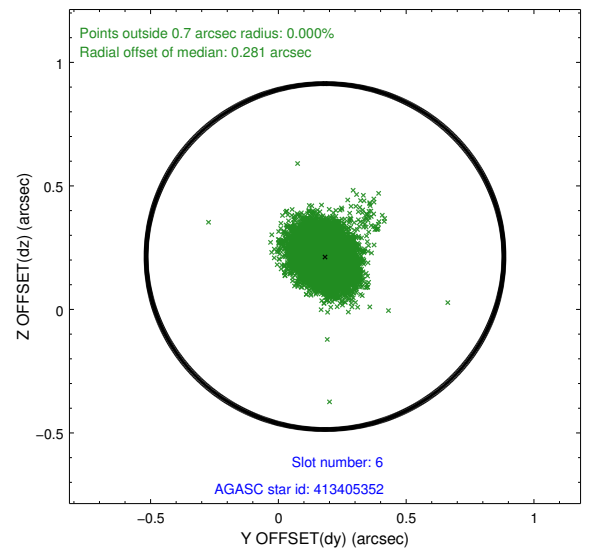
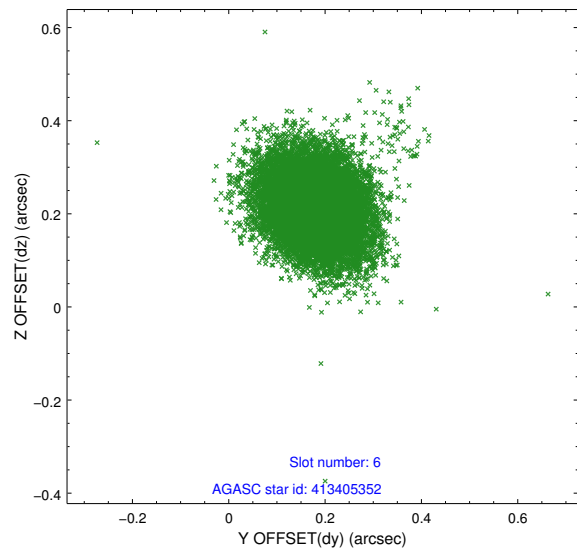
2.4.2 Slot 4



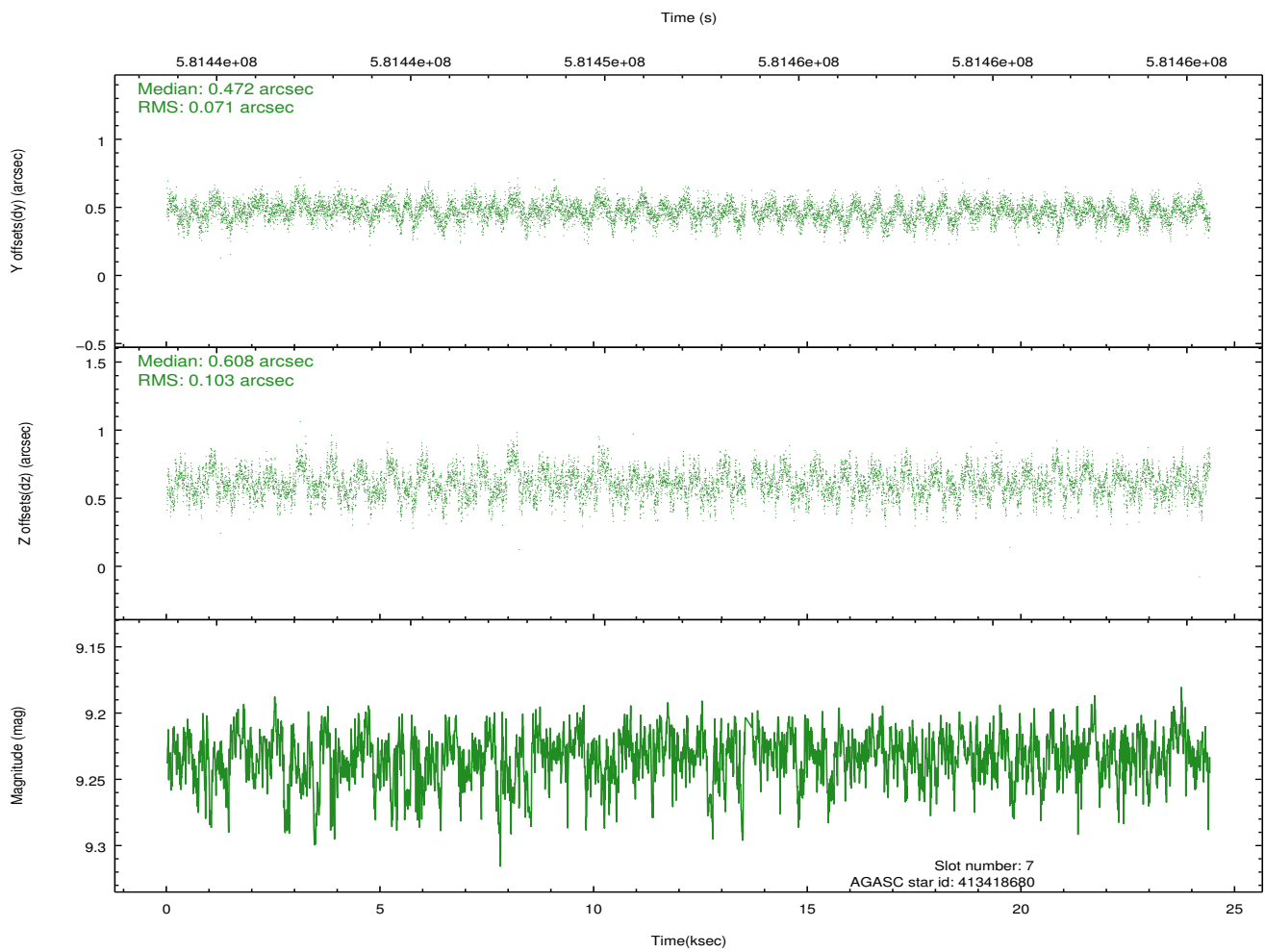
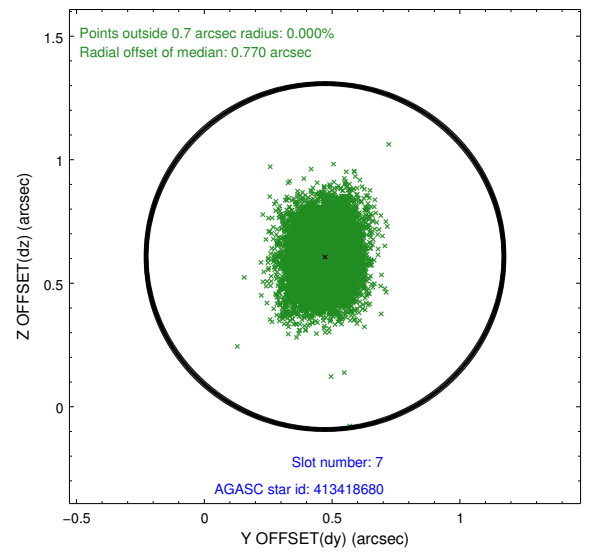
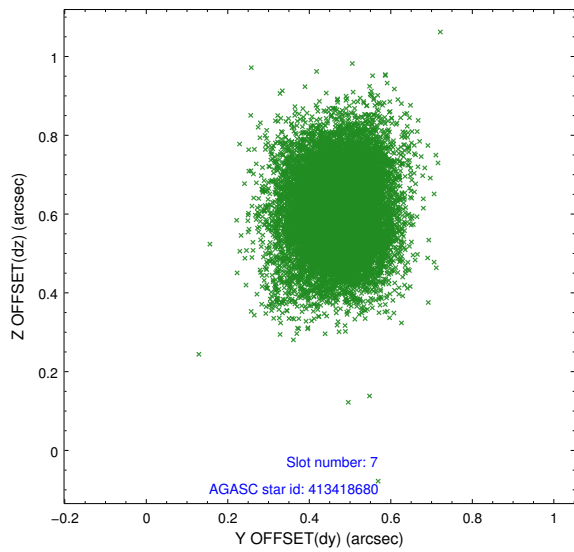
2.4.3 Slot 5



2.4.4 Slot 6

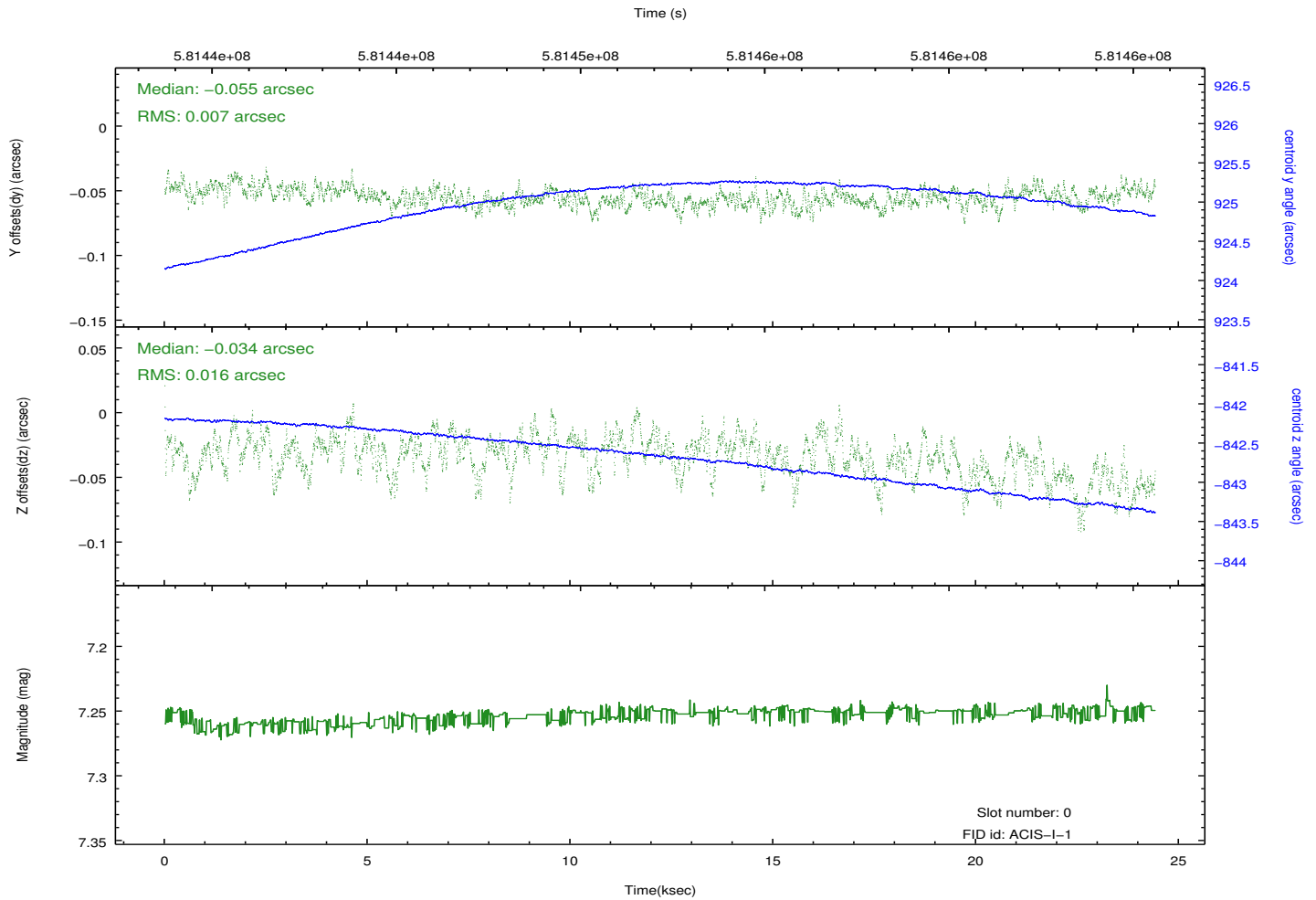
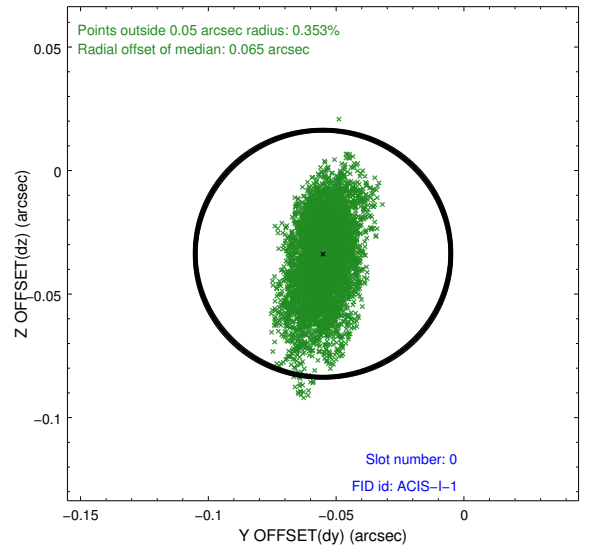
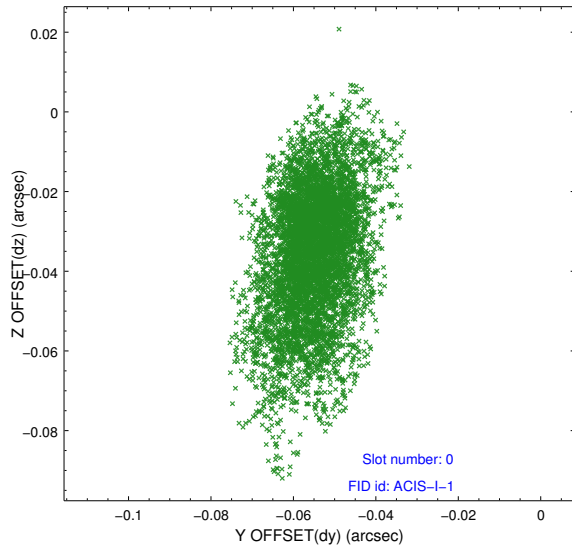


2.4.5 Slot 7

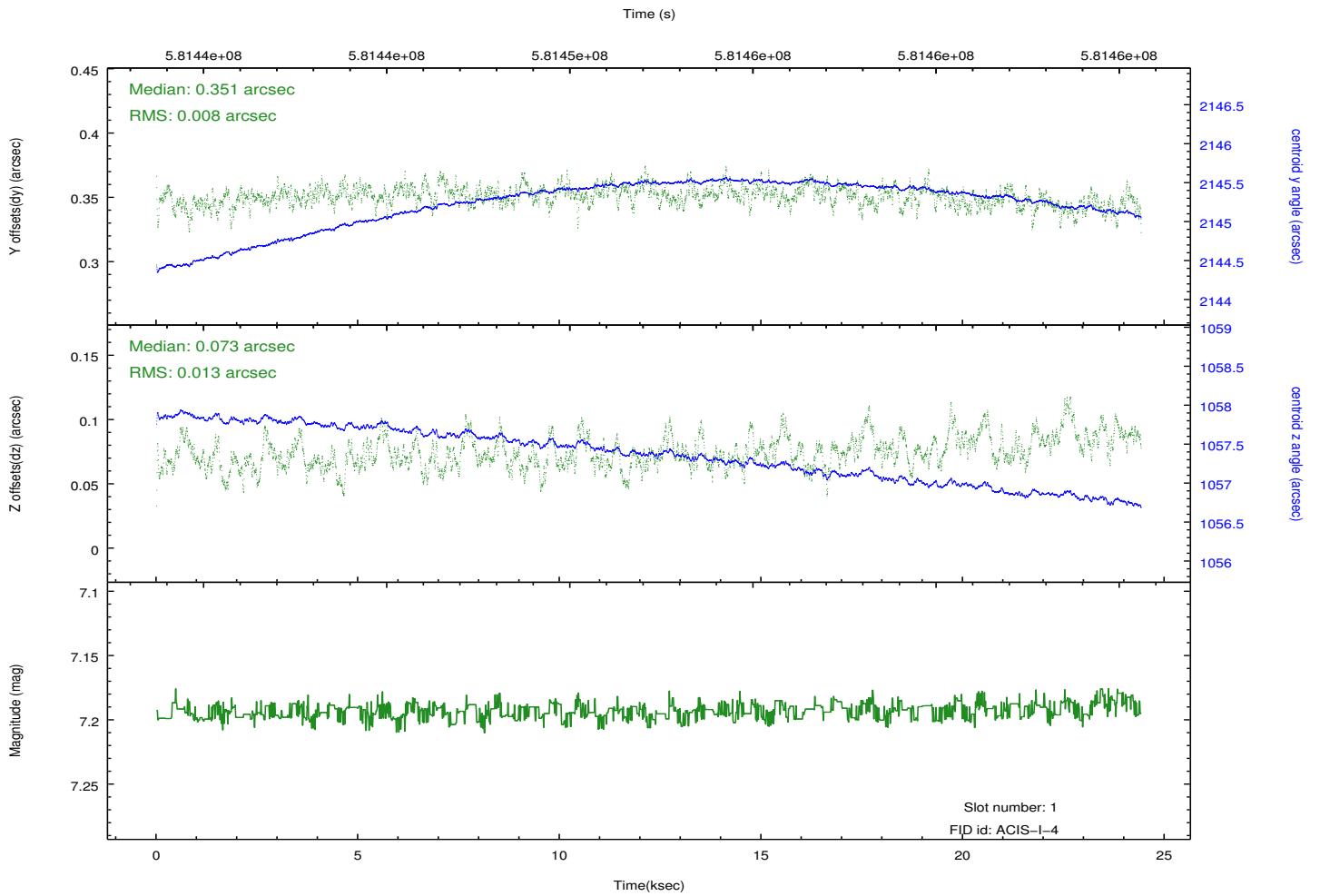
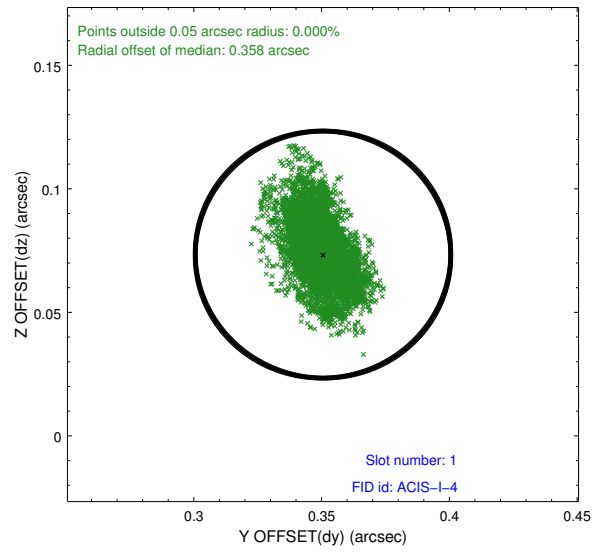
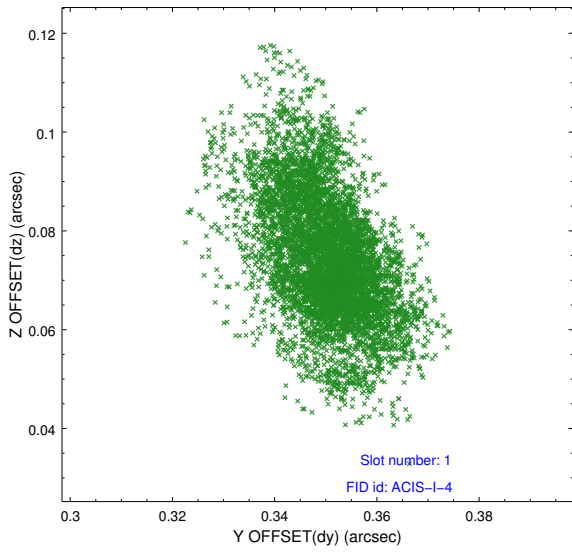


2.5 FID Slots

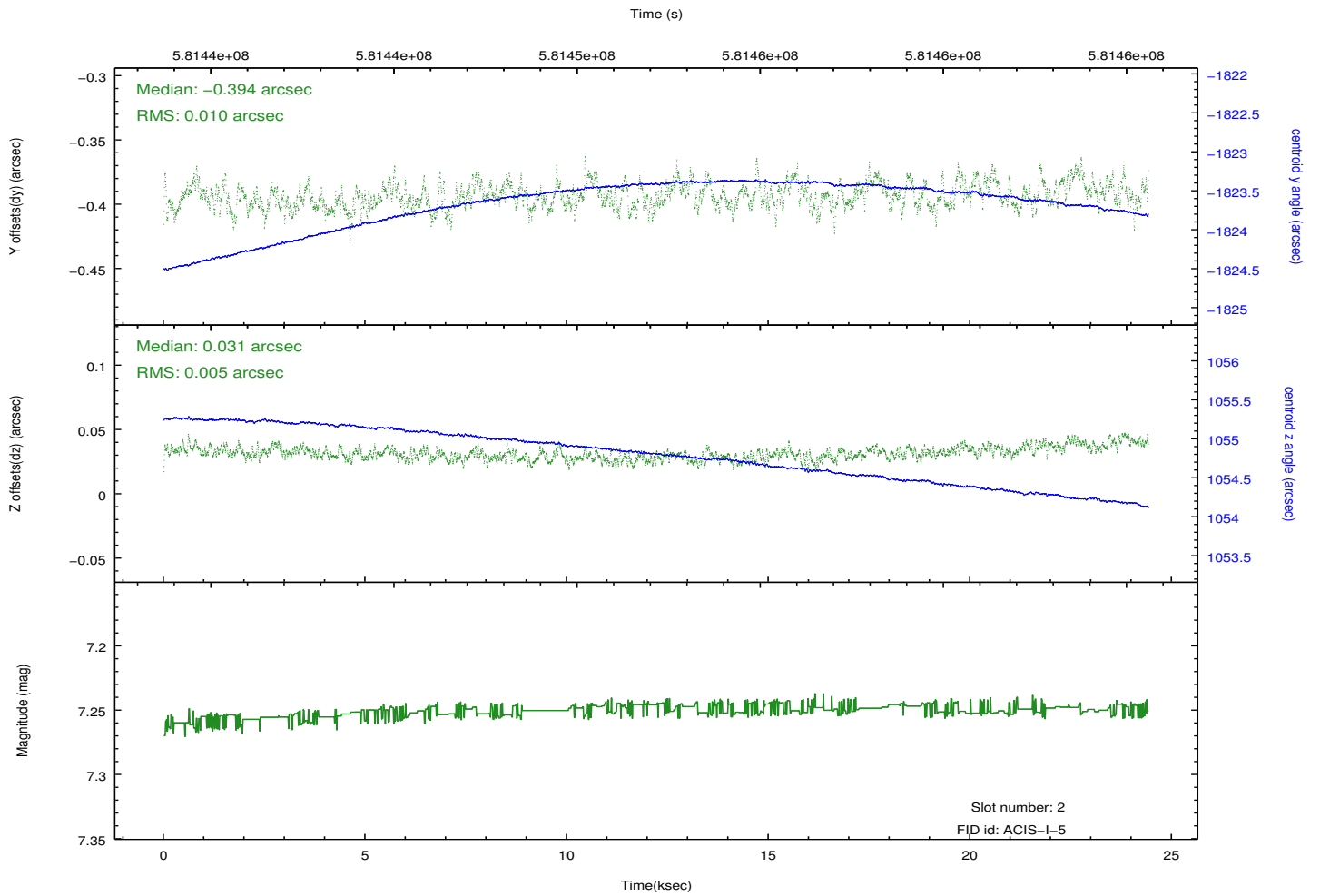
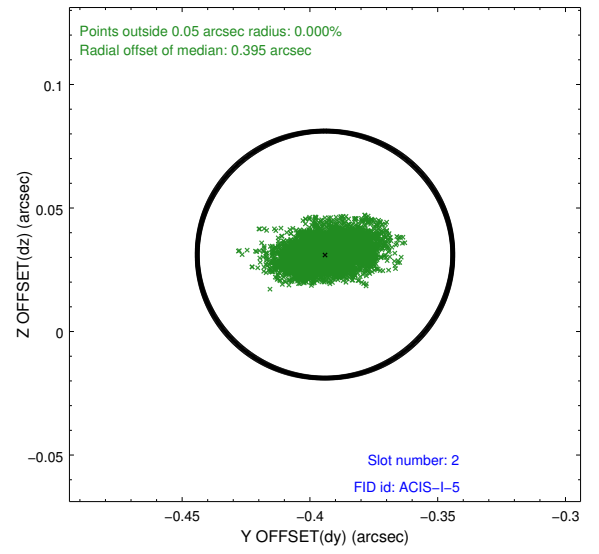
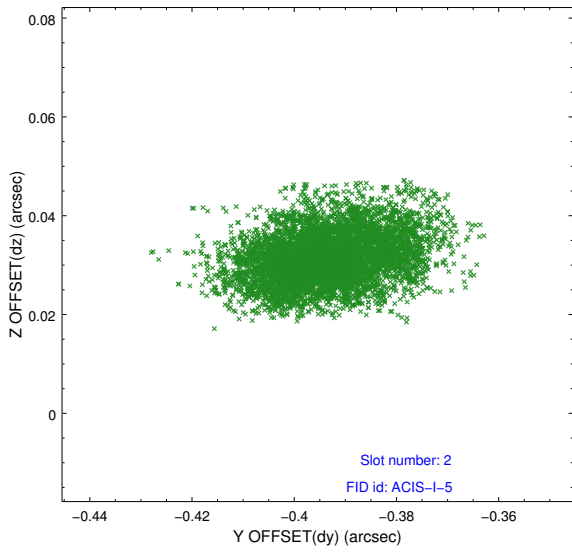
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

| | |
|----------------------------|-----------------|
| V&V Scientist | Beth Sundheim |
| V&V Date (YYYY-MM-DD) | 2016.06.07 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 24.297793923855 |

A.2 Comments

A spatial region of the original bias map for CCD = 0 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~ 20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 0 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords: (299.63613,41.03879), (299.63237,41.03715), (299.72536,40.91665), (299.72911,40.91829).