

V&V Reference Report

L2 ASCDS Version : 10.1

Observation 16245 - L2 Version 2
Chandra X-Ray Center

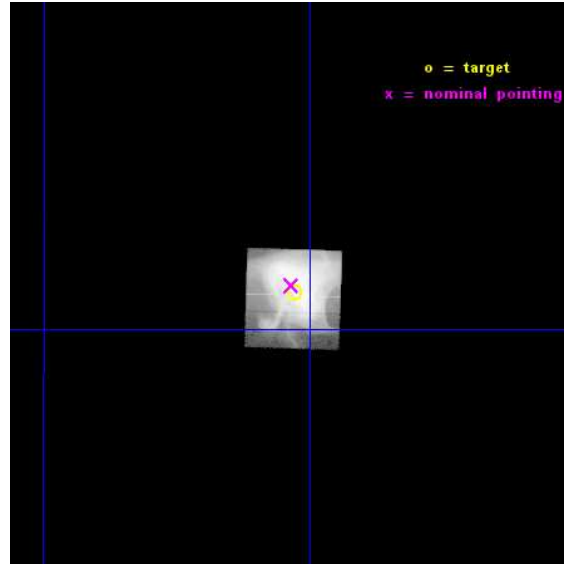
L2 Processing Date : Dec 9 2014

Contents

| | | |
|----------|-------------------------------|-----------|
| 1 | Front | 2 |
| 2 | OBI | 3 |
| 2.1 | OBI | 3 |
| 2.1.1 | Images | 3 |
| 2.1.2 | Parameters | 4 |
| 2.1.3 | 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 |
| A | Summary | 17 |
| A.1 | Status | 17 |
| A.2 | Comments | 17 |

1 Front

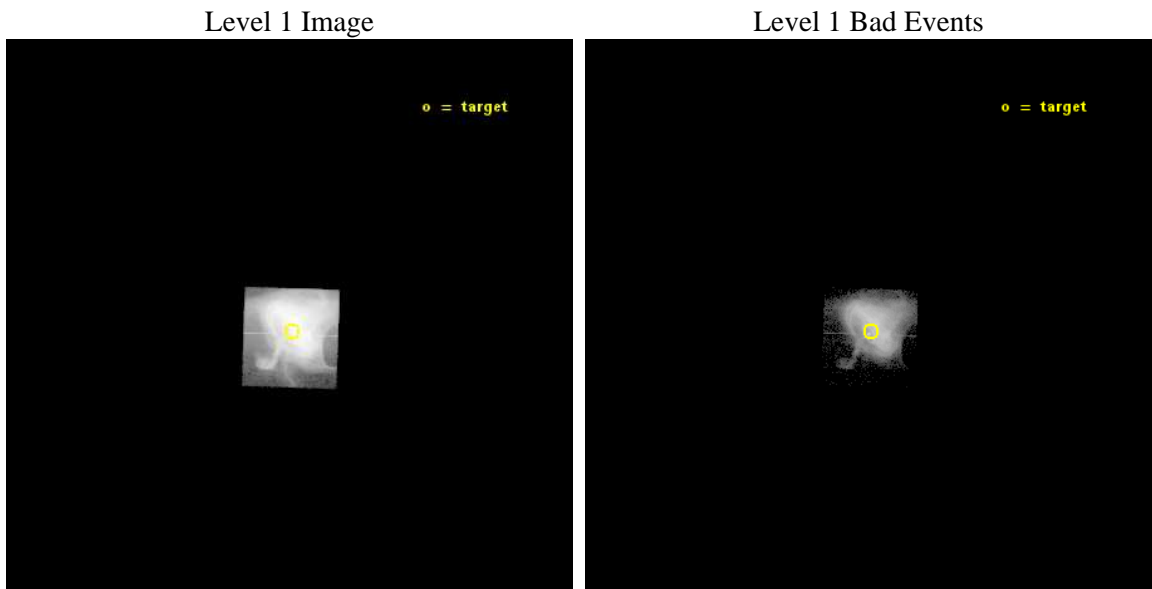
| | | |
|----------|---|---|
| seq_num | 502245 | Sequence number |
| obs_id | 16245 | Observation id |
| title | Pre-Planned Target of Opportunity (ToO) Observations of the Crab Nebula upon the Occurrence of the Next Gamma-Ray Flare | Proposal titl |
| observer | Dr. Martin Weisskopf | Principal investigator |
| object | Crab | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 83.631667 | Observer's specified target RA [deg] |
| dec_targ | 22.015667 | Observer's specified target Dec [deg] |
| ra_nom | 83.633309826801 | Nominal RA [deg] |
| dec_nom | 22.018495616794 | Nominal Dec [deg] |
| roll_nom | 91.806538621165 | Nominal Roll [deg] |
| revision | 2 | Processing version of data |
| ontime | 7427.9354381561 | Sum of GTIs [s] |
| livetime | 1289.4378082416 | Livetime [s] |
| ontime7 | 7427.9354381561 | Sum of GTIs [s] |
| l2events | 3531048 | Number of level 2 events |



2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 10000.000000 | [s] Scheduled observation exposure time |
| ascdsver | 10.3.1 | Processing system revision | ontime | 7427.9354381561 | Sum of GTIs [s] |
| caldsver | 4.6.4 | | ontime7 | 7427.9354381561 | Sum of GTIs [s] |
| date | 2014-12-09T04:23:28 | Date and time of file creation | l1events | 3888208 | Number of level 1 events |
| revision | 2 | Processing version of data | | | |

2.1.3 Events

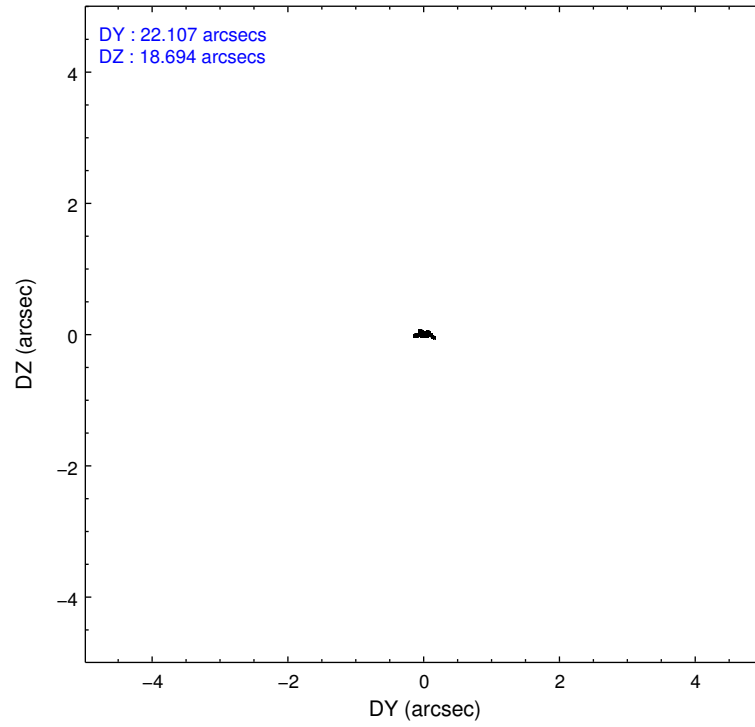
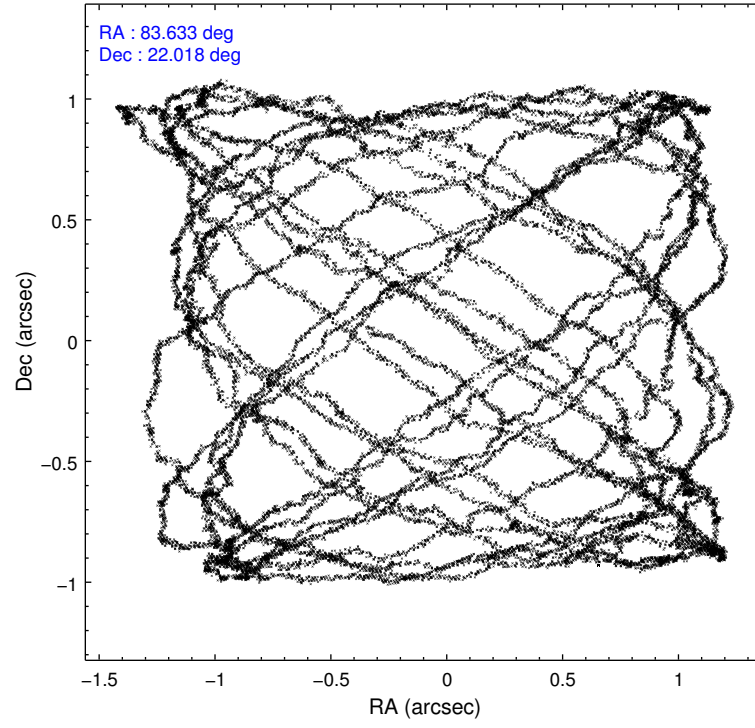
| | |
|-----------------|--------------|
| | ccd 7 |
| level 1 events | 3888208 |
| rejected events | 338007 |
| rejected % | 8% |

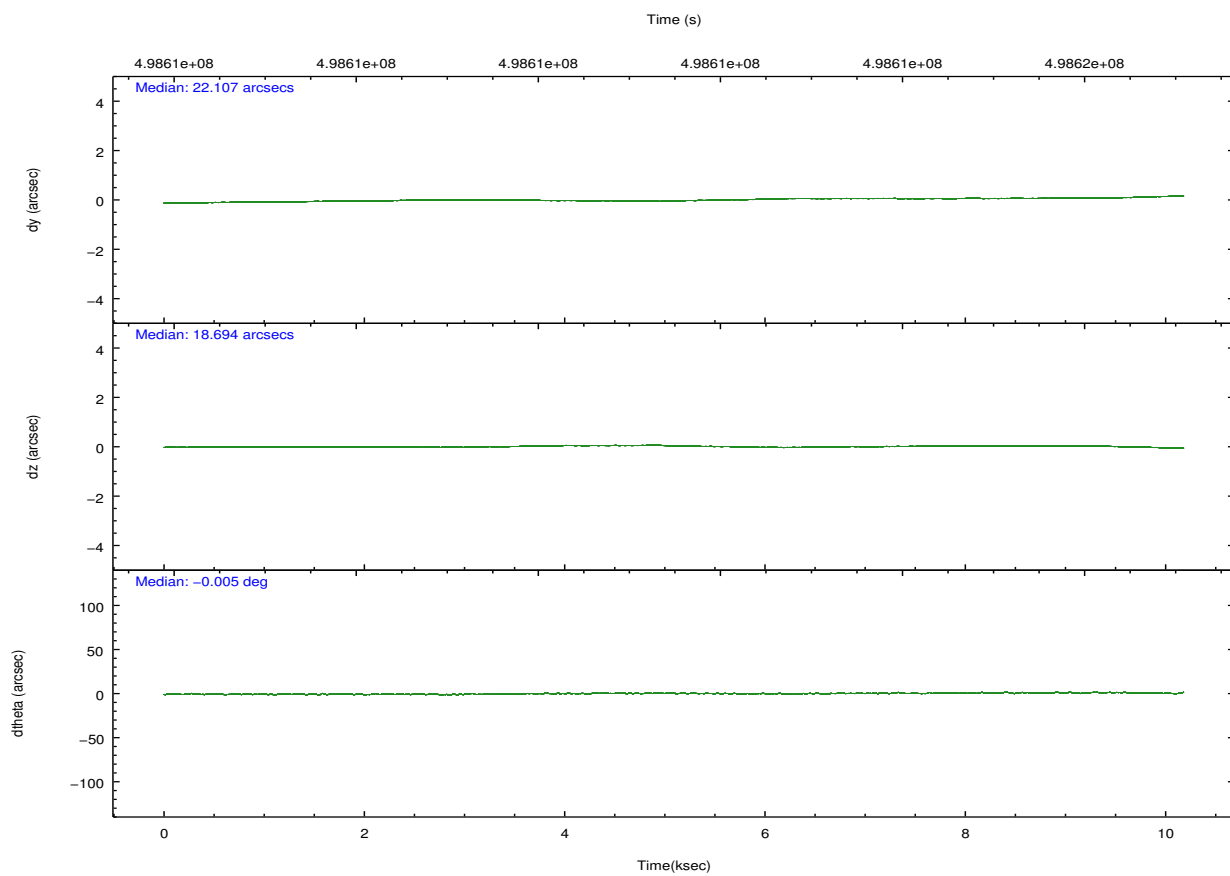
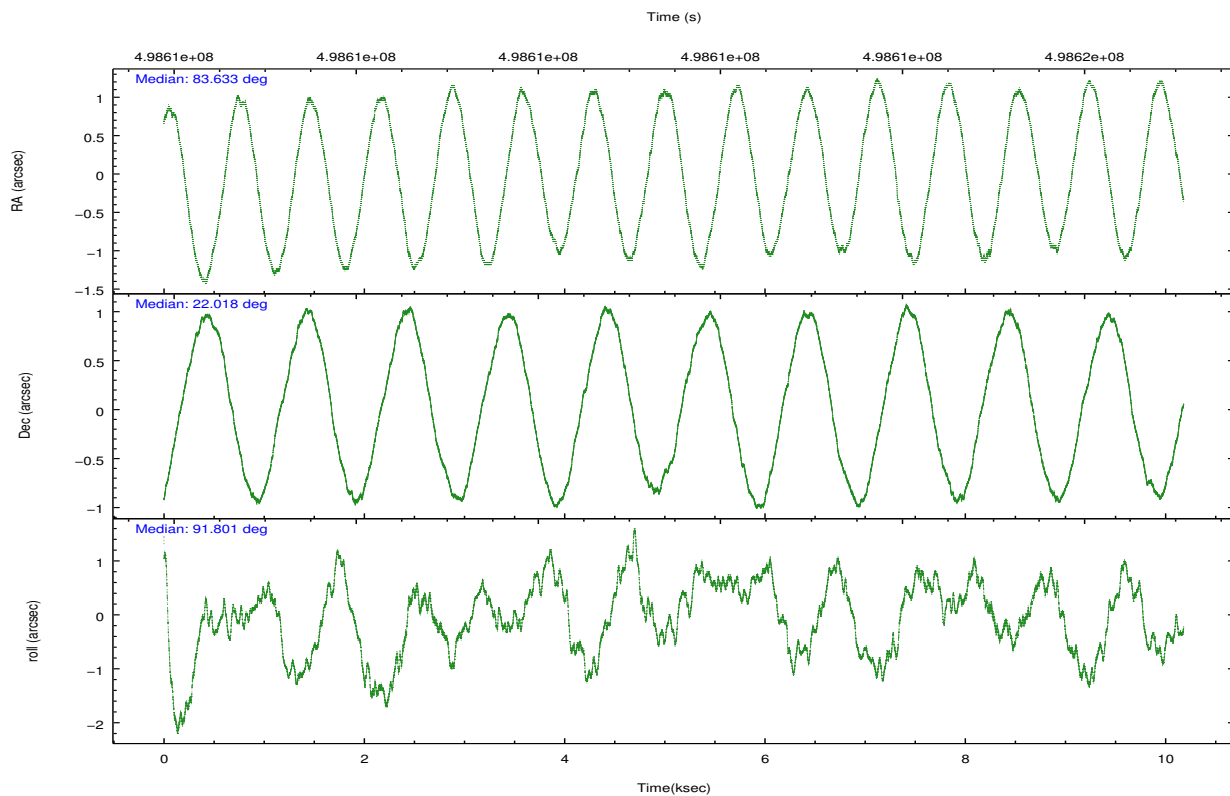
| | |
|----------------|--------------|
| | ccd 7 |
| grade 0 events | 771421 |
| | 19% |
| grade 1 events | 42130 |
| | 1% |
| grade 2 events | 980570 |
| | 25% |
| grade 3 events | 390833 |
| | 10% |
| grade 4 events | 388457 |
| | 9% |
| grade 5 events | 123338 |
| | 3% |
| grade 6 events | 1019492 |
| | 26% |
| grade 7 events | 171967 |
| | 4% |

2.2 Compared Parameters

| Parameter | Planned | Actual | Parameter | Planned | Actual |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument | ACIS | ACIS | Obspar format version number | 7 | 7 |
| Detector | ACIS-7 | ACIS-7 | Obspar file type | PREDICTED | ACTUAL |
| Grating | NONE | NONE | Obspar update status | NONE | UPDATED |
| Data mode | GRADED | GRADED | Number of optional ACIS chips dropped | 0 | 0 |
| Observation mode | POINTING | POINTING | On-chip summing requested | N | N |
| [deg] Pointing RA | 83.649199 | 83.63330982680088 | Subarray requested | CUSTOM | CUSTOM |
| [deg] Pointing Dec | 21.995465 | 22.01849561679422 | Subarray start row | 245 | 245 |
| [deg] Pointing Roll | 91.643952 | 91.80653862116488 | Subarray row count | 300 | 300 |
| [mm] SIM focus pos | -0.684267 | -0.6828225247311905 | Alternating exposures requested | N | N |
| [mm] SIM defocus | 0 | 0.001444936568705701 | [s] Primary exposure time | 0.000000 | 0.2 |
| [mm] SIM translation stage pos | -187.916523 | -187.9073540620866 | | | |
| [mm] SIM translation stage offset | -2.216 | -2.225168520921216 | | | |
| [s] Observation start time (MET) | 498606580.184000 | 498606073.82277 | | | |
| Observation start date | 2013-10-19T21:48:33 | 2013-10-19T21:41:13 | | | |
| [s] Observation end time (MET) | 498616580.184000 | 498617284.24839 | | | |
| Observation end date | 2013-10-20T00:35:13 | 2013-10-20T00:48:04 | | | |
| Read mode | TIMED | TIMED | | | |

2.3 Aspect



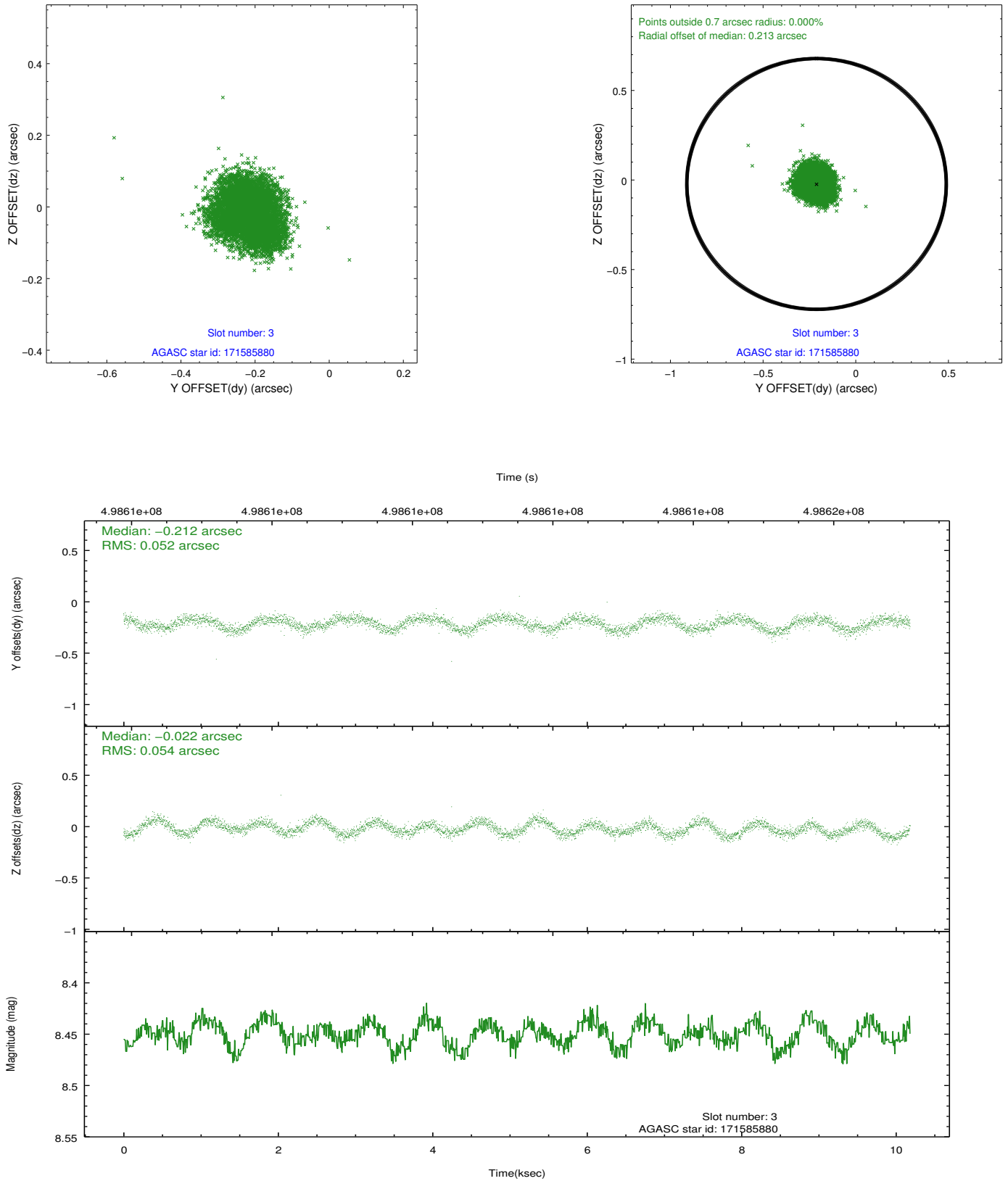


Slot Statistics

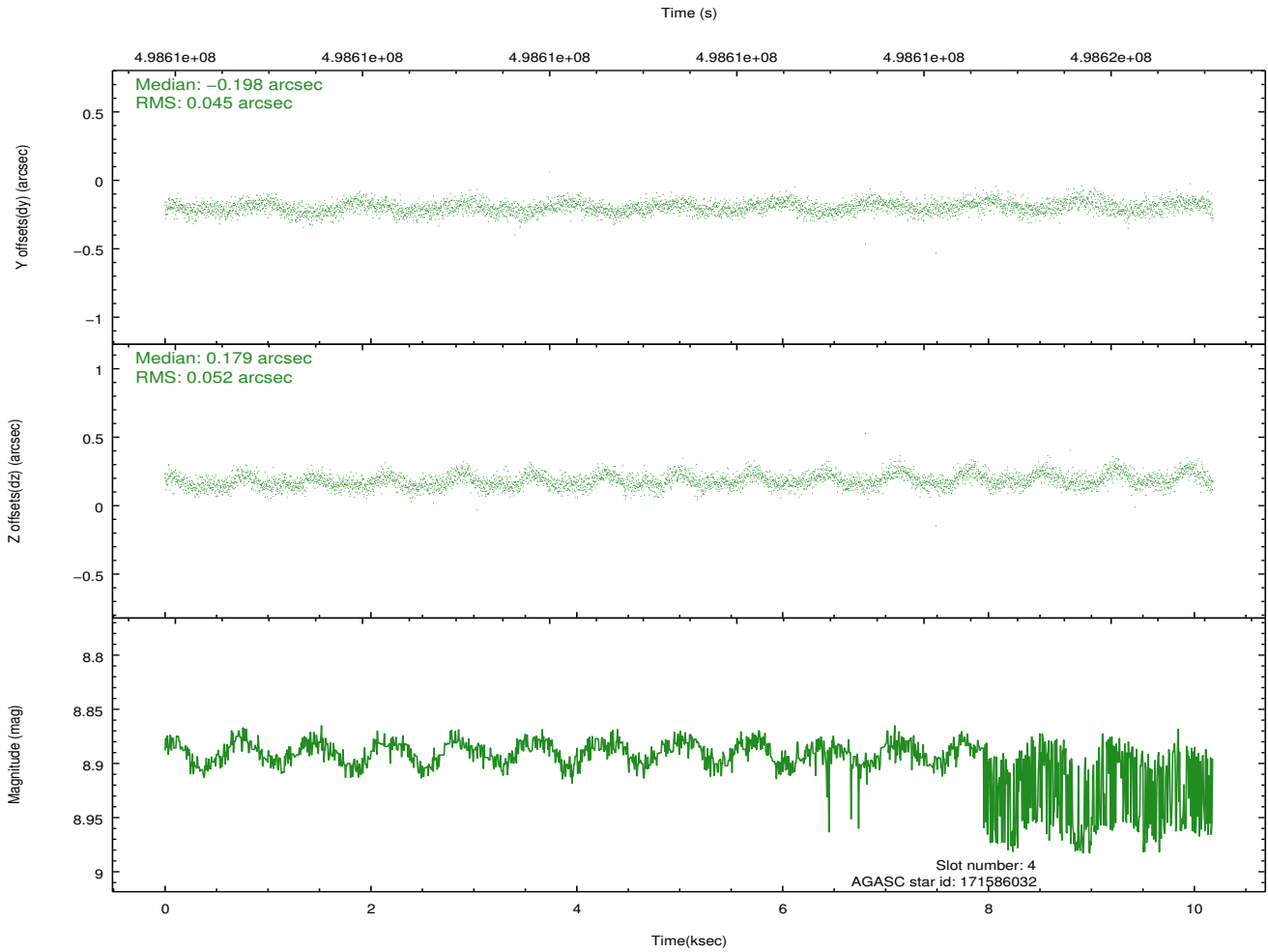
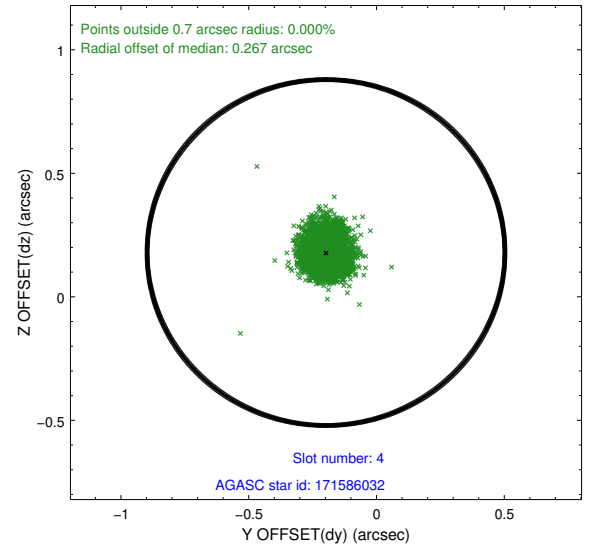
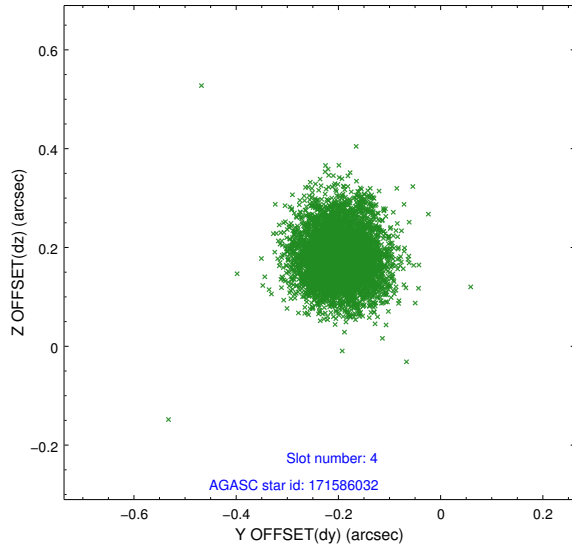
| slot | status | used | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|------|-----------|------|-------|--------|--------|-------|-------|-----------|-----------|----------|----------|
| 0 | FID | | ACIS-S-2 | 6.98 | 2484 | -0.169 | 0.069 | 0.006 | 0.011 | 0.000000 | 0.000000 | -775.27 | -1786.11 |
| 1 | FID | | ACIS-S-4 | 7.07 | 2484 | 0.310 | 0.063 | 0.006 | 0.012 | 0.000000 | 0.000000 | 2138.22 | 121.85 |
| 2 | FID | | ACIS-S-5 | 7.11 | 2484 | -0.173 | -0.124 | 0.007 | 0.012 | 0.000000 | 0.000000 | -1827.48 | 115.87 |
| 3 | GUIDE | used | 171585880 | 8.45 | 4965 | -0.212 | -0.022 | 0.082 | 0.119 | 83.676260 | 22.176319 | 648.51 | -108.53 |
| 4 | GUIDE | used | 171586032 | 8.89 | 4963 | -0.198 | 0.179 | 0.072 | 0.118 | 83.950197 | 22.083225 | 288.50 | -1012.30 |
| 5 | GUIDE | used | 171597832 | 9.14 | 4965 | 0.230 | -0.412 | 0.074 | 0.129 | 83.183230 | 21.366702 | -2214.86 | 1625.99 |
| 6 | GUIDE | used | 171721904 | 9.27 | 4965 | -0.026 | 0.528 | 0.079 | 0.130 | 84.272676 | 22.116922 | 381.86 | -2089.99 |
| 7 | GUIDE | used | 243941560 | 8.44 | 4965 | 0.214 | -0.279 | 0.073 | 0.116 | 83.733264 | 22.568598 | 2055.06 | -338.60 |

2.4 Star Slots

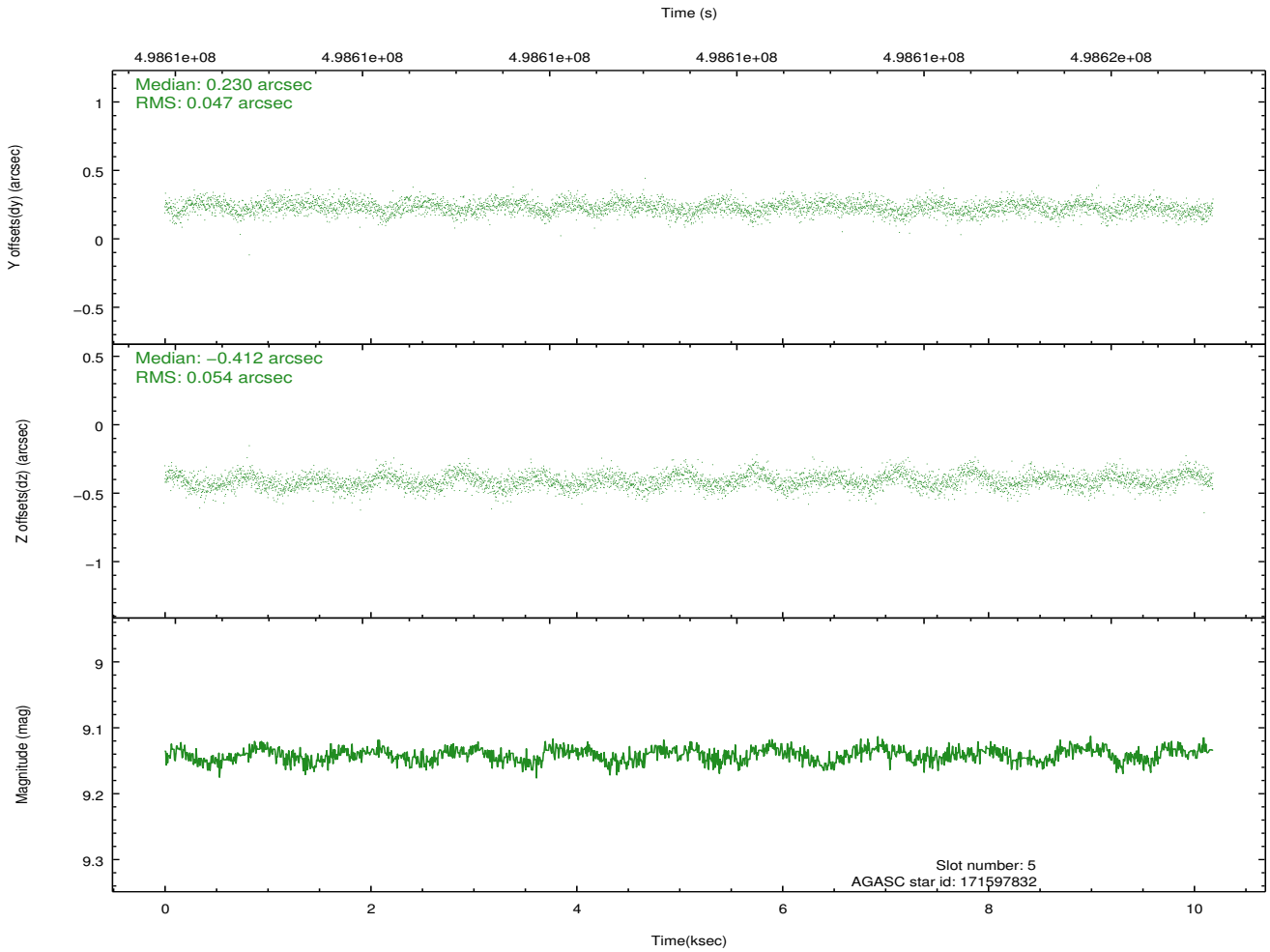
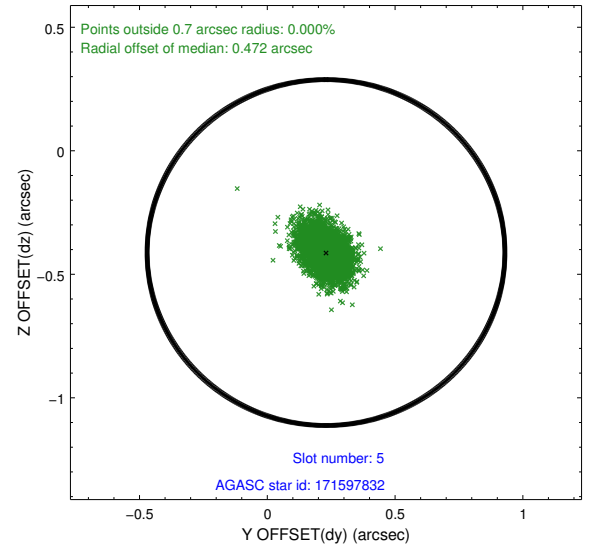
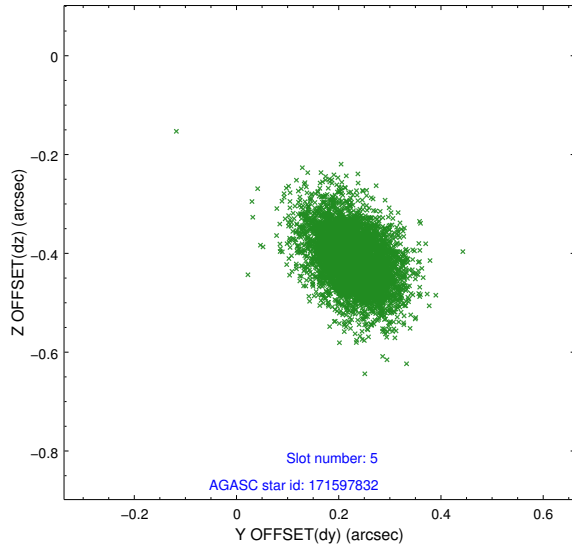
2.4.1 Slot 3



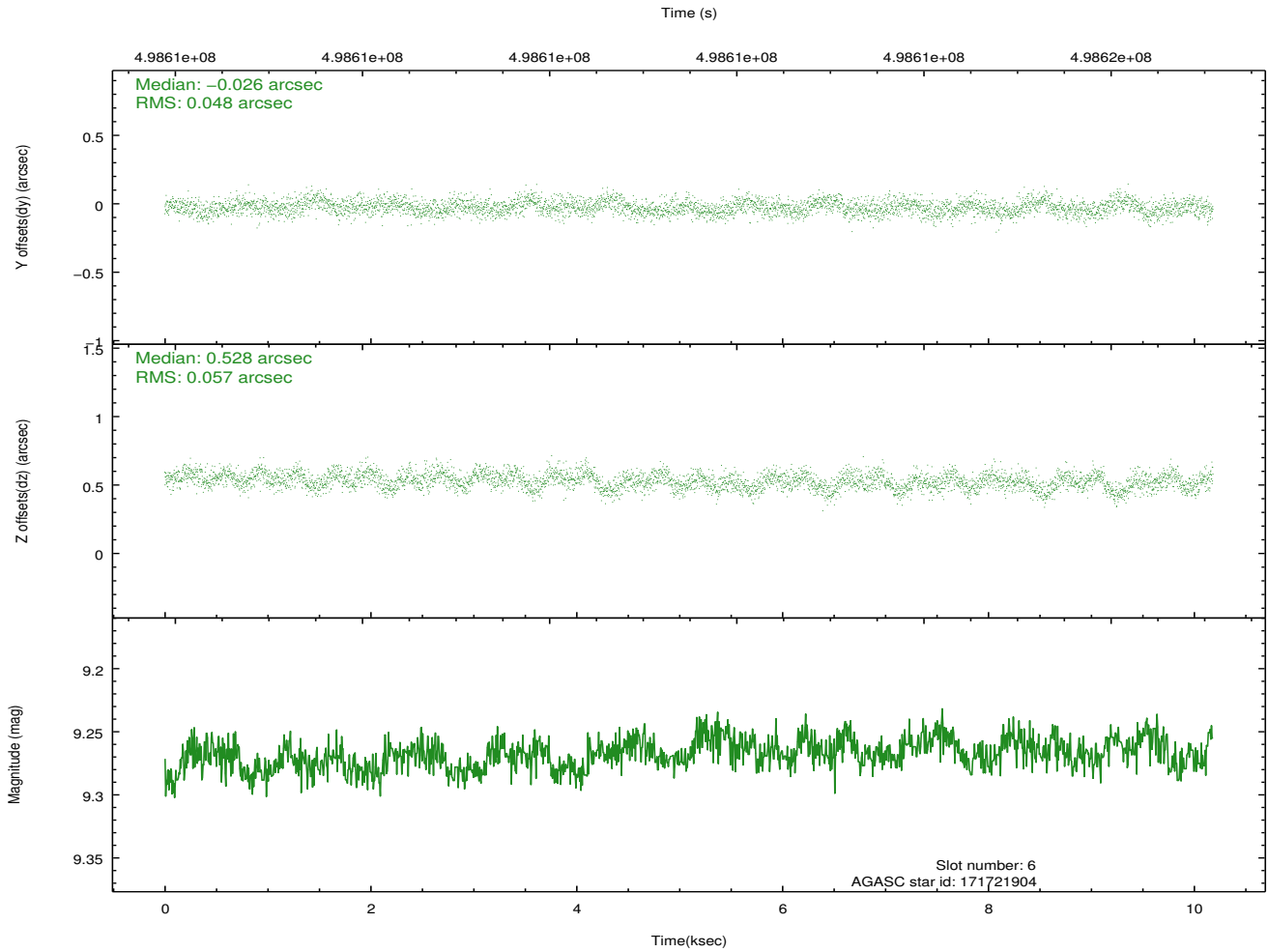
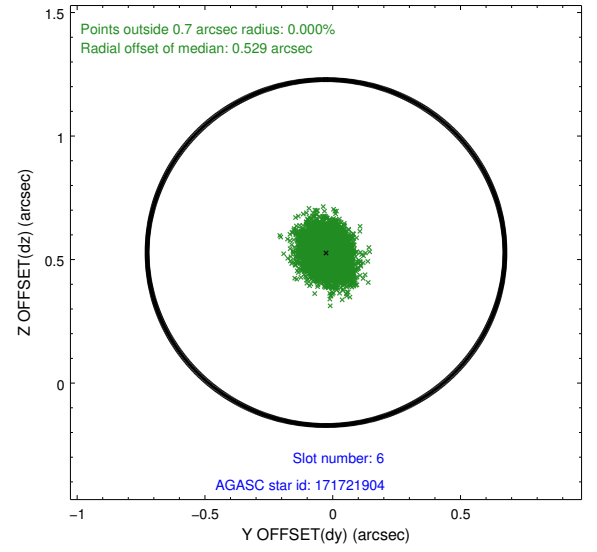
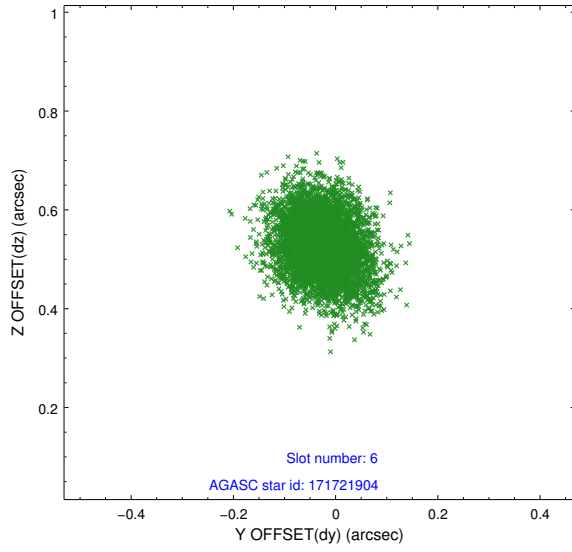
2.4.2 Slot 4



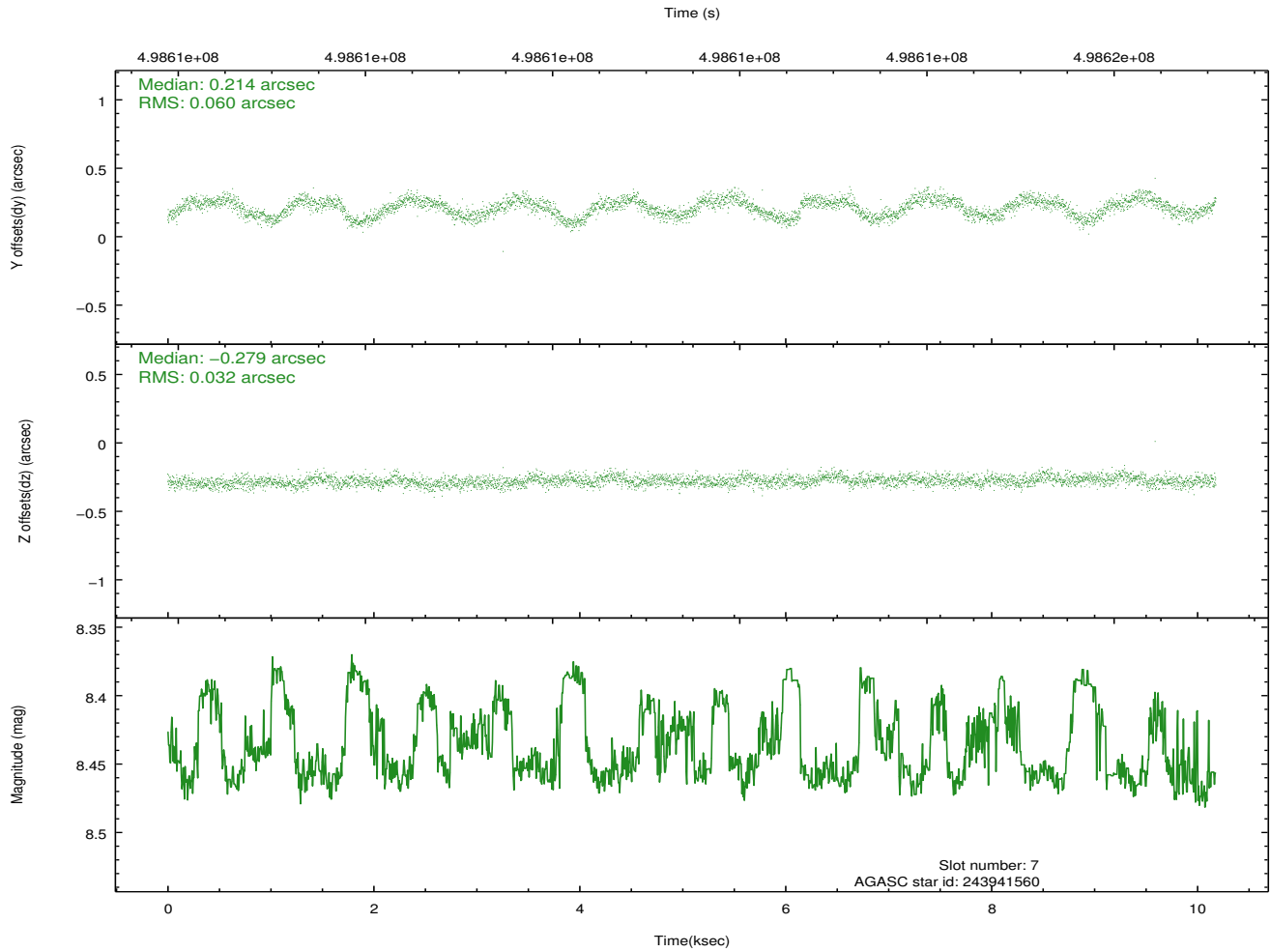
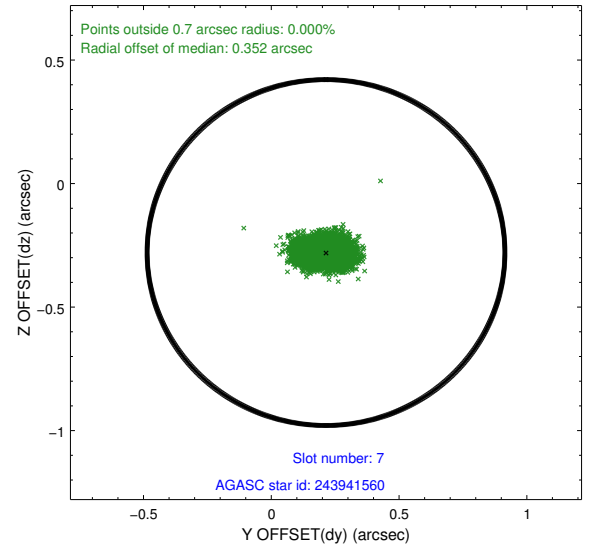
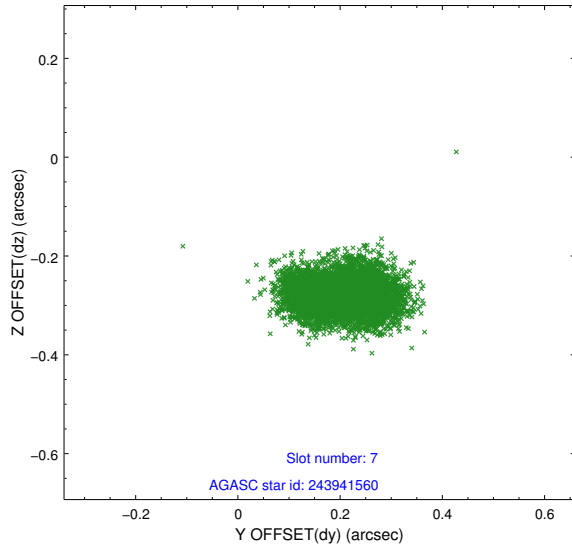
2.4.3 Slot 5



2.4.4 Slot 6

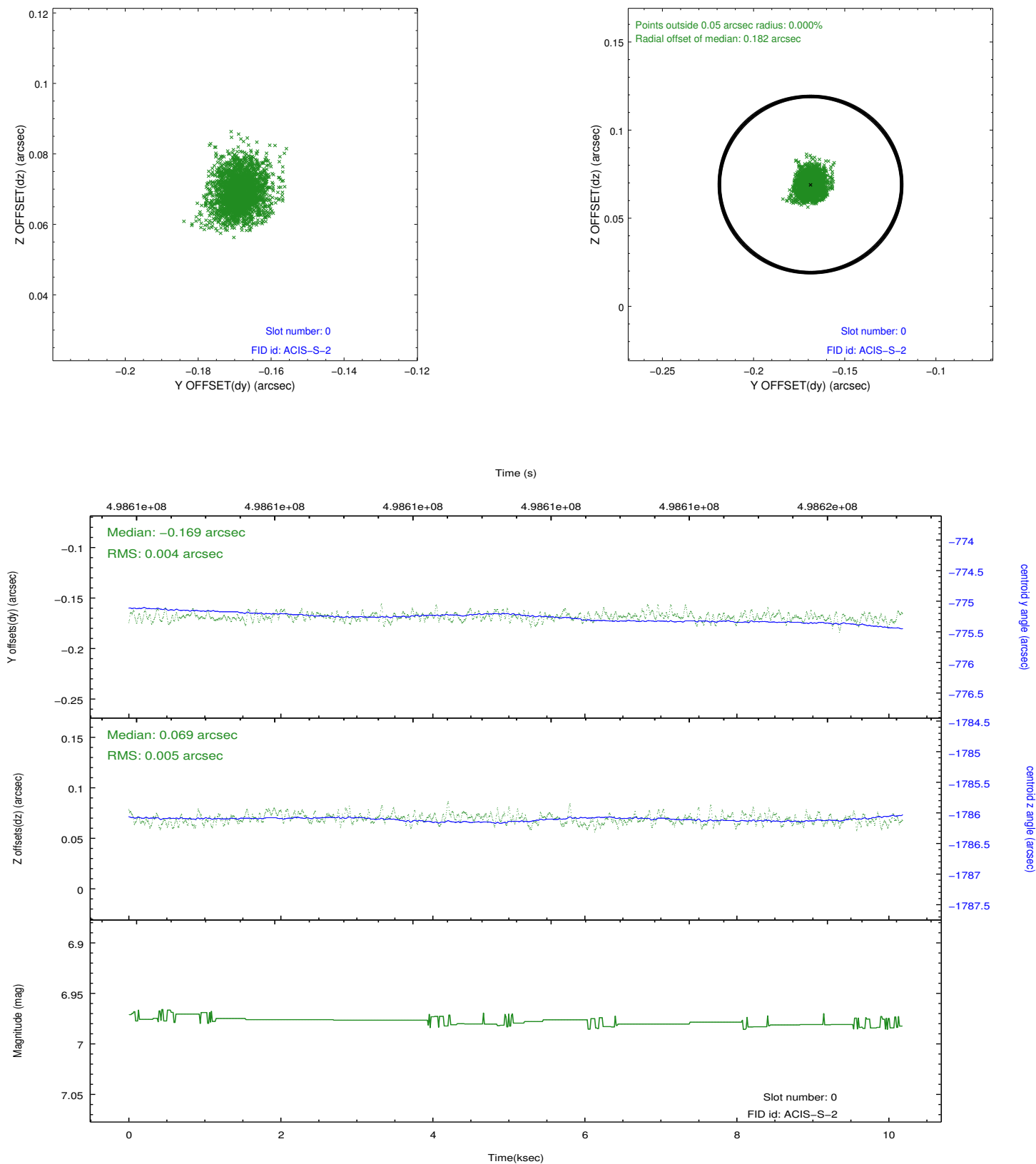


2.4.5 Slot 7

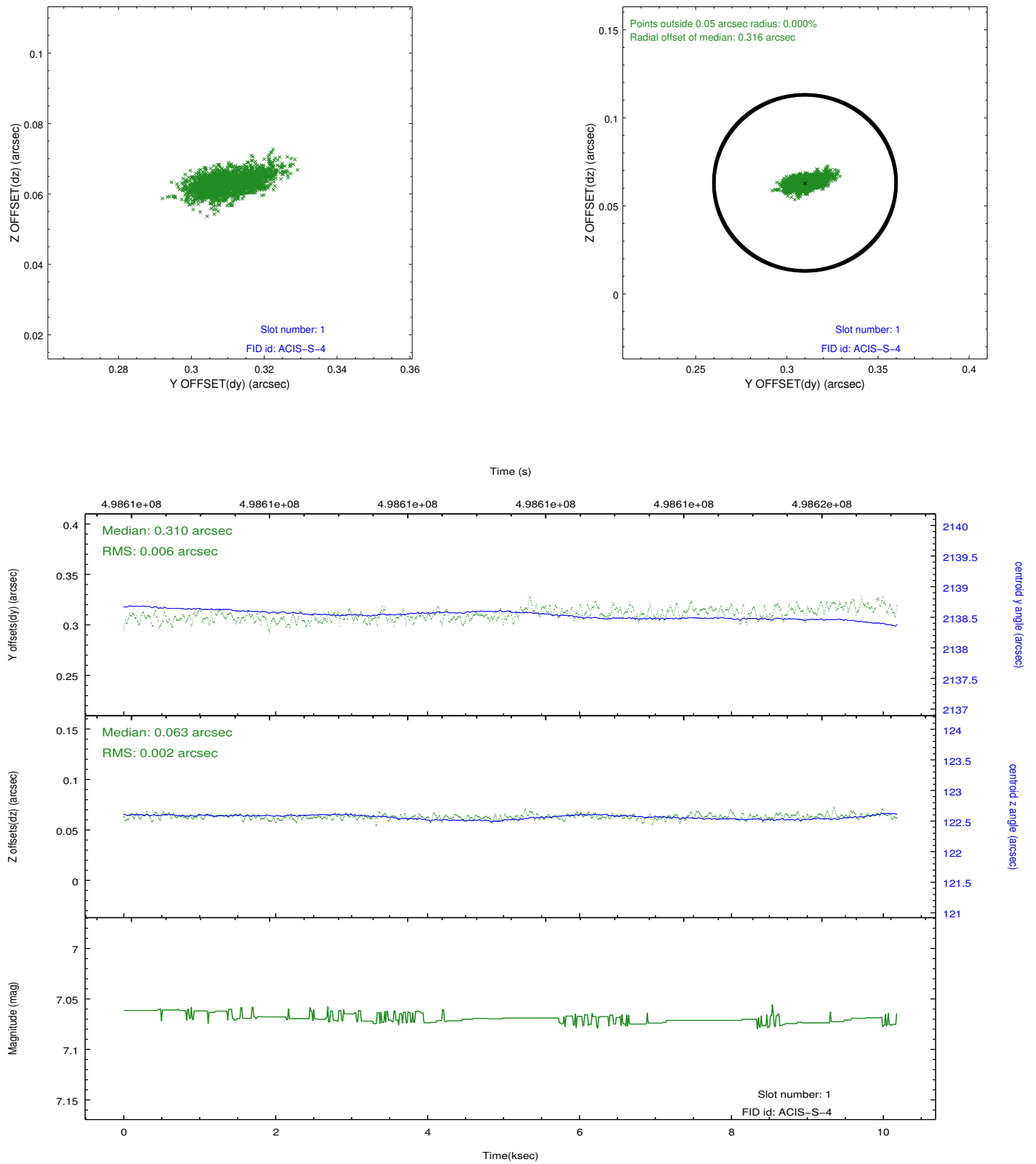


2.5 FID Slots

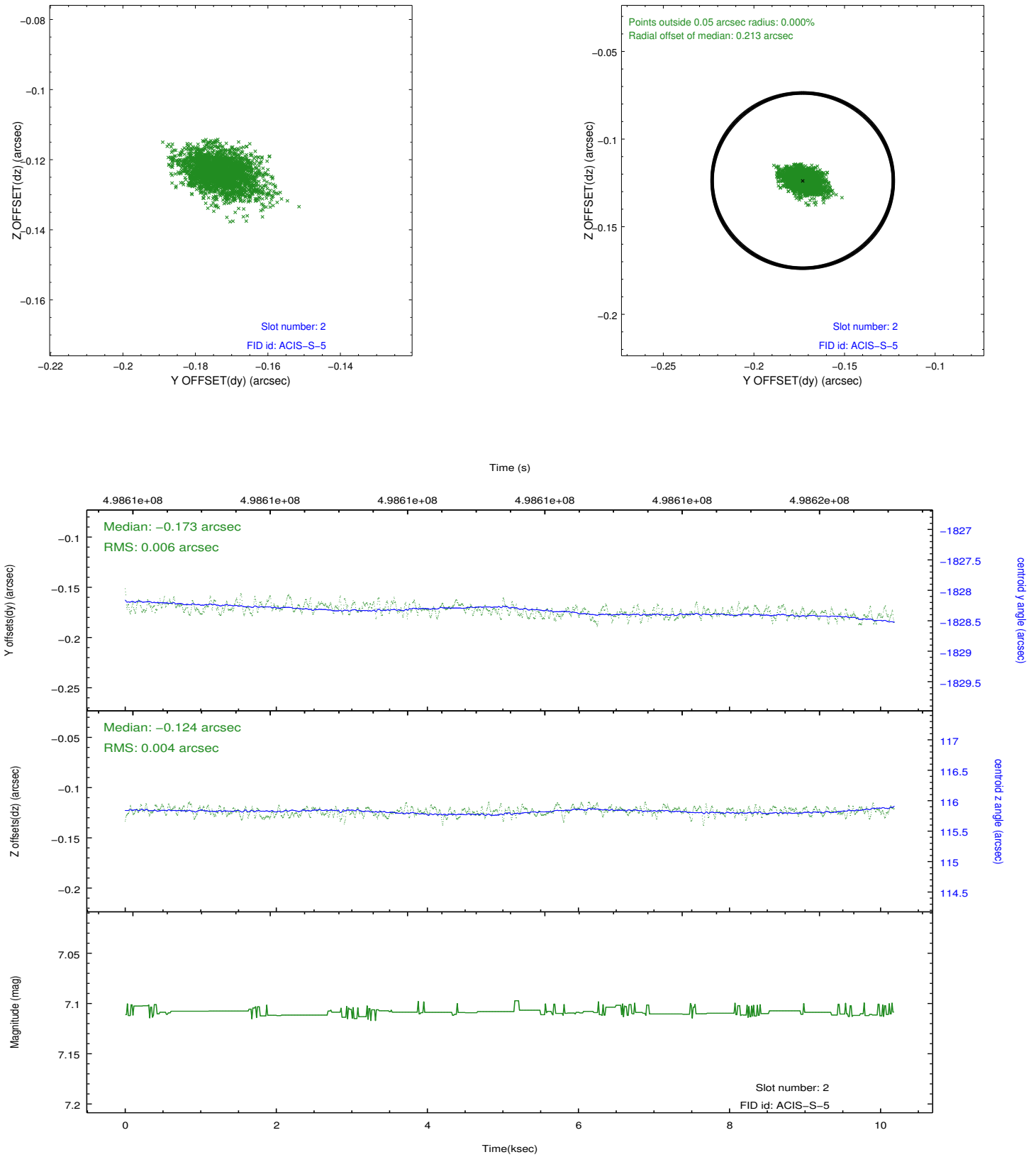
2.5.1 Slot 0



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) | 2014.12.16 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 10 |

A.2 Comments

A non-standard dither was used for this observation.

Charge time is set to the scheduled time for this observation, although the ontime

is lower due to telemetry saturation. In addition, the livetime of the detector is

about 1289 s, significantly shorter than the ontime value of 7428 s.

This is because

the frame time of 0.2 s is shorter than the minimum time that it takes to read out

the detector (about 0.9 s) in the specified configuration. Therefore, there is a

flush of 0.9 s preceding each frame. This flush time is dead time.

These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.