

V&V Reference Report

L2 ASCDS Version : 8.4.3

Observation 13151 - L2 Version 2
Chandra X-Ray Center

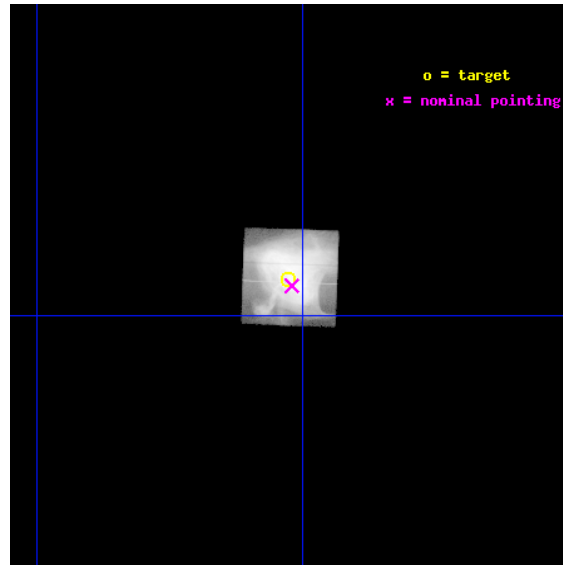
L2 Processing Date : Feb 8 2012

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

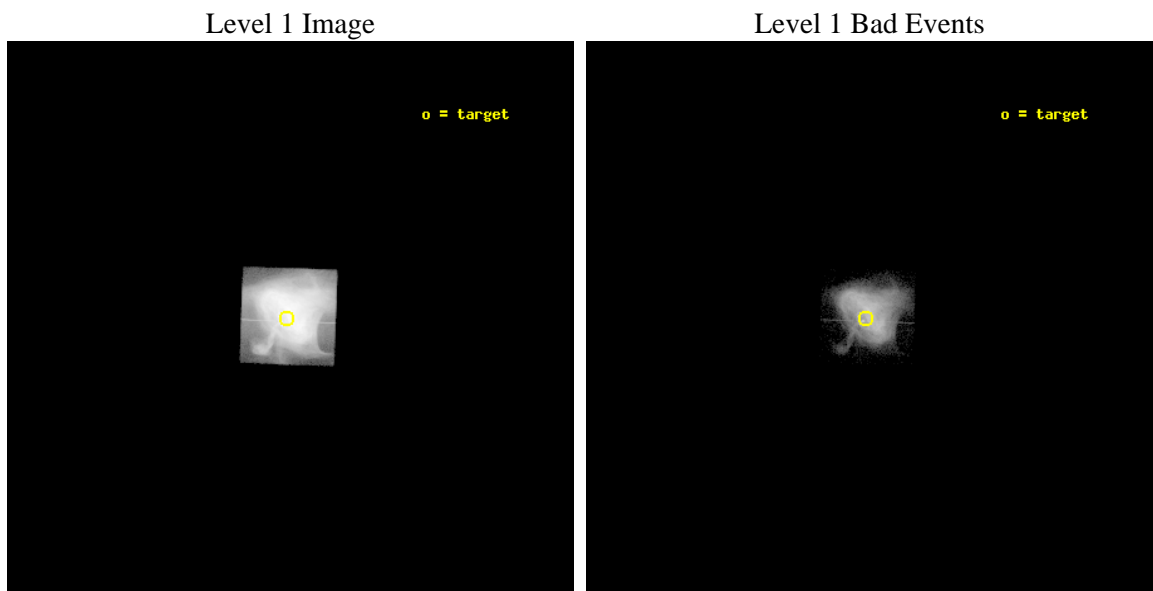
| | | |
|-----------|--|---|
| seq_num | 501537 | Sequence number |
| obs_id | 13151 | Observation id |
| title | Study of spatial structure associated with a gamma-ray enhancement of the Crab | Proposal title |
| observer | Dr. Martin Weisskopf | Principal investigator |
| object | Crab Nebula | Source 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 | 83.630032012747 | Nominal RA [deg] |
| dec_nom | 22.012833278625 | Nominal Dec [deg] |
| roll_nom | 272.00084579719 | Nominal Roll [deg] |
| revision | 2 | Processing version of data |
| ontime | 6960.9165952802 | Sum of GTIs [s] |
| liveltime | 1216.3905559152 | Livetime [s] |
| ontime7 | 6960.9165952802 | Sum of GTIs [s] |
| l2events | 3499458 | 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 | 8.4.3 | Processing system revision | ontime | 6960.9165952802 | Sum of GTIs [s] |
| caldsver | 4.4.7 | | ontime7 | 6960.9165952802 | Sum of GTIs [s] |
| date | 2012-02-08T04:08:06 | Date and time of file creation | l1events | 3890487 | Number of level 1 events |
| revision | 2 | Processing version of data | | | |

2.1.3 Events

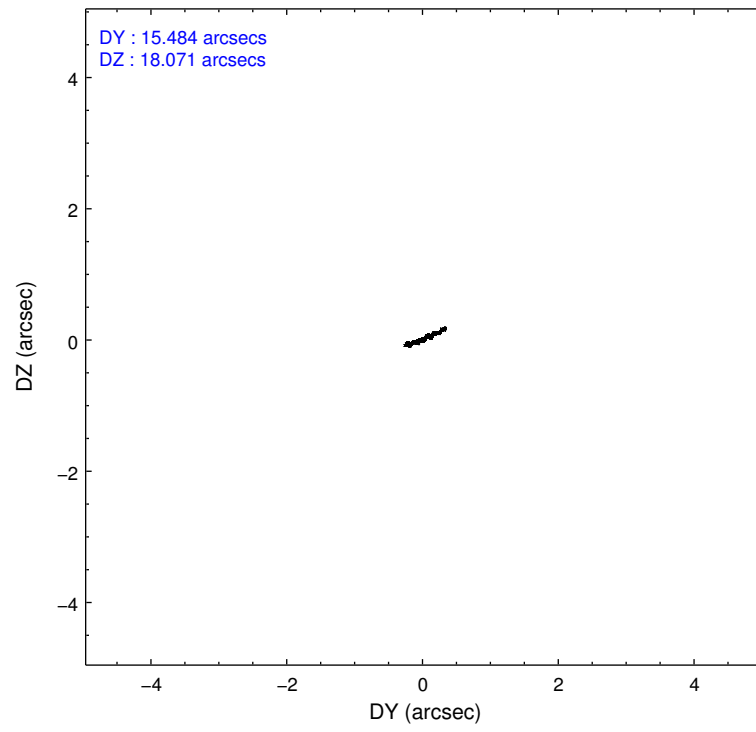
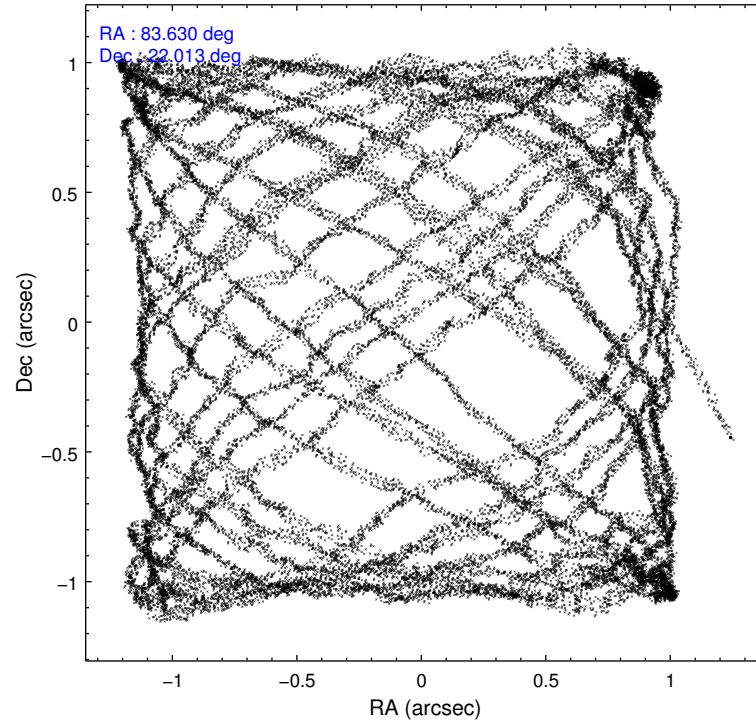
| | |
|-----------------|--------------|
| | ccd 7 |
| level 1 events | 3890487 |
| rejected events | 340637 |
| rejected % | 8% |

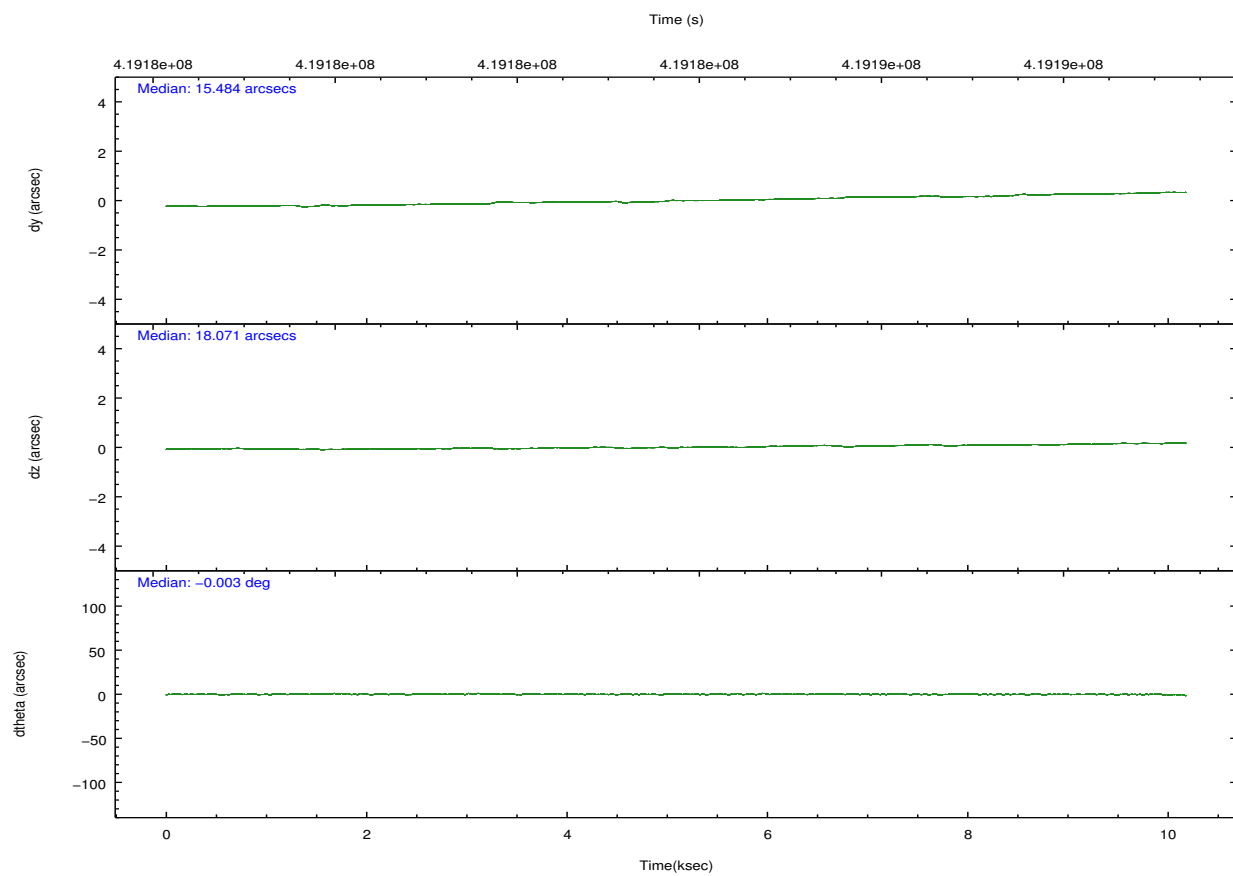
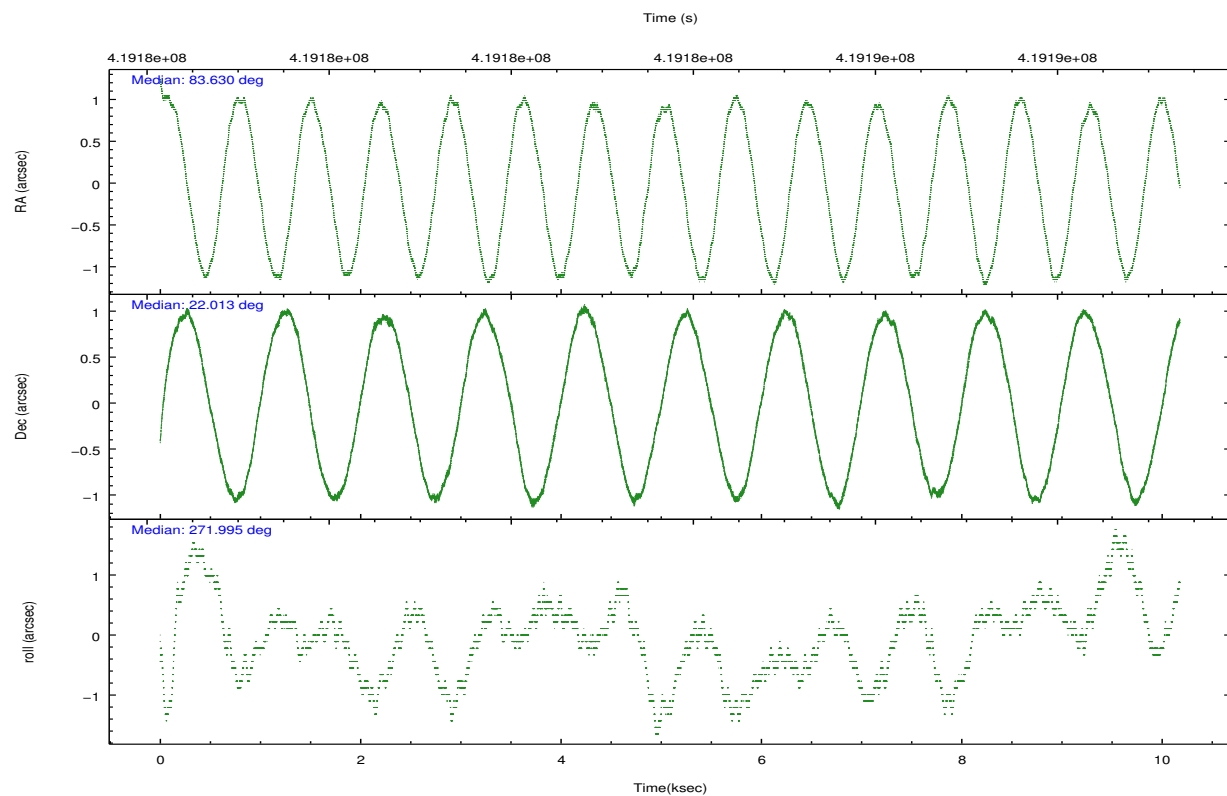
| | |
|----------------|--------------|
| | ccd 7 |
| grade 0 events | 782122 |
| | 20% |
| grade 1 events | 43678 |
| | 1% |
| grade 2 events | 951733 |
| | 24% |
| grade 3 events | 404960 |
| | 10% |
| grade 4 events | 398528 |
| | 10% |
| grade 5 events | 124597 |
| | 3% |
| grade 6 events | 1013597 |
| | 26% |
| grade 7 events | 171272 |
| | 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 | 83.614060 | 83.63003201274678 | Subarray requested | CUSTOM | CUSTOM |
| [deg] Pointing Dec | 22.035817 | 22.01283327862494 | Subarray start row | 55 | 55 |
| [deg] Pointing Roll | 271.850210 | 272.0008457971912 | 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 | -183.356523 | -183.3639863121677 | | | |
| [mm] SIM translation stage offset | -6.776 | -6.768536270840116 | | | |
| [s] Observation start time (MET) | 419178834.184000 | 419178289.73593 | | | |
| Observation start date | 2011-04-14T14:32:48 | 2011-04-14T14:24:49 | | | |
| [s] Observation end time (MET) | 419188834.184000 | 419189748.21153 | | | |
| Observation end date | 2011-04-14T17:19:28 | 2011-04-14T17:35:48 | | | |
| Read mode | TIMED | TIMED | | | |

2.3 Aspect



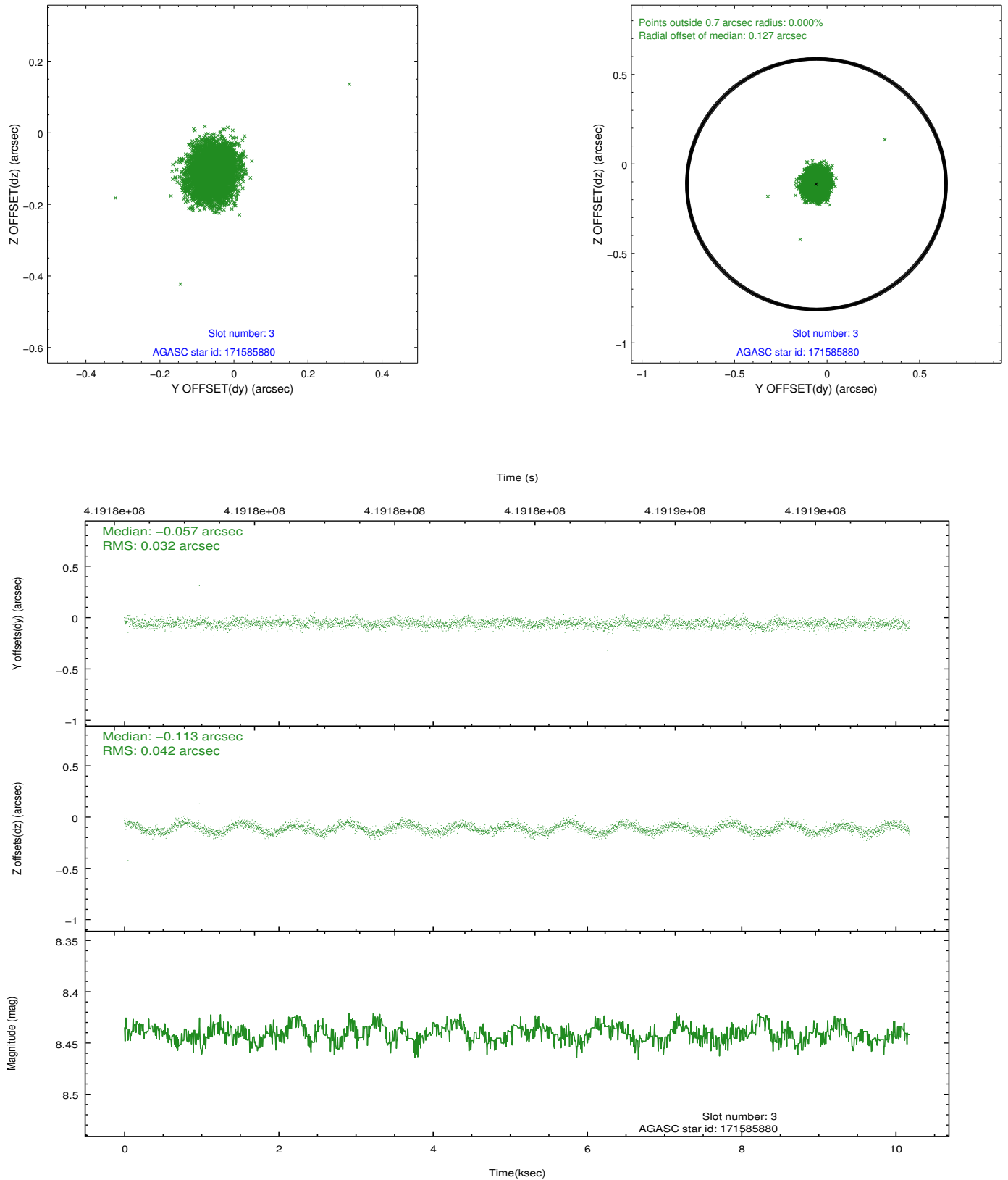


Slot Statistics

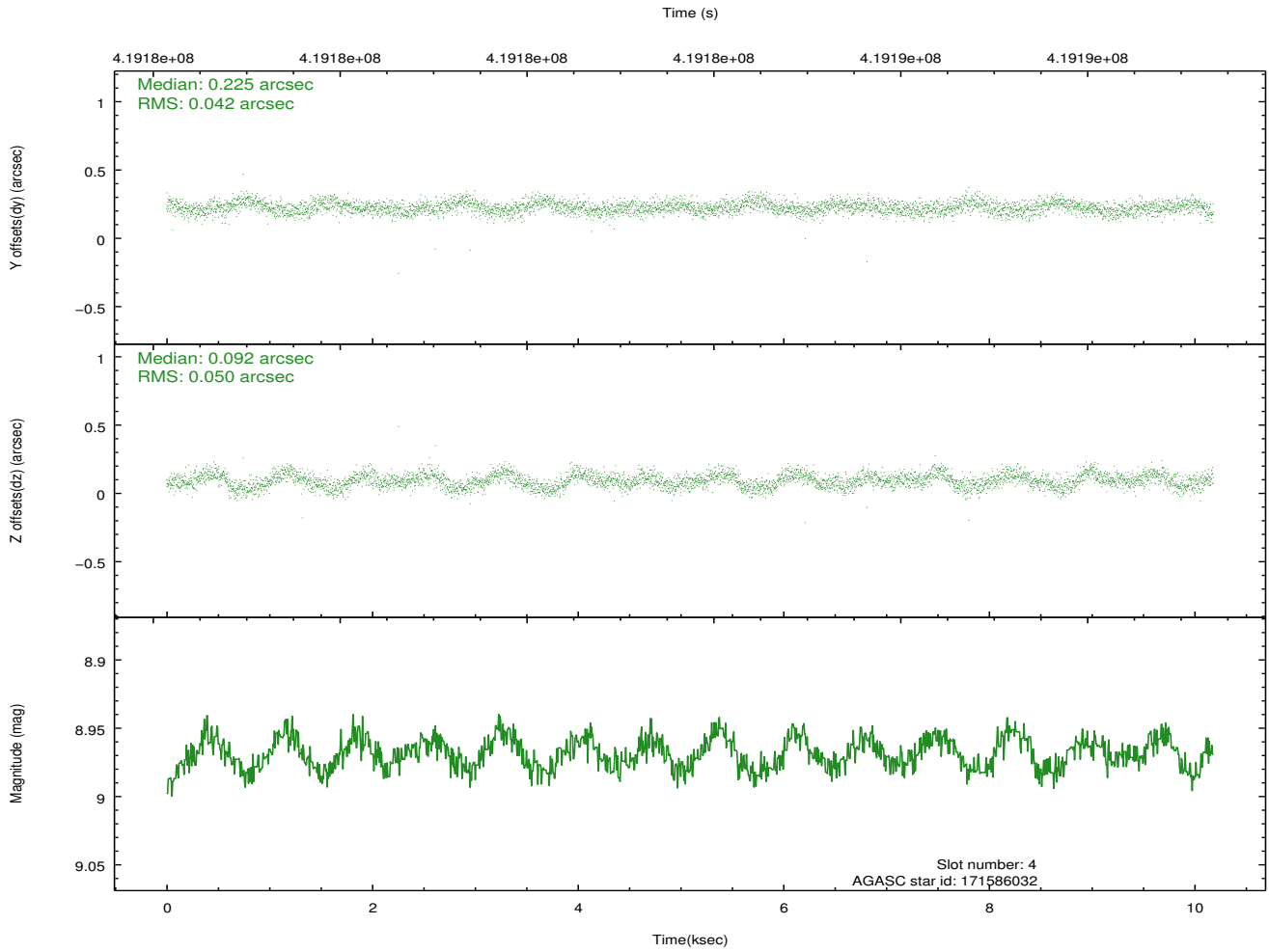
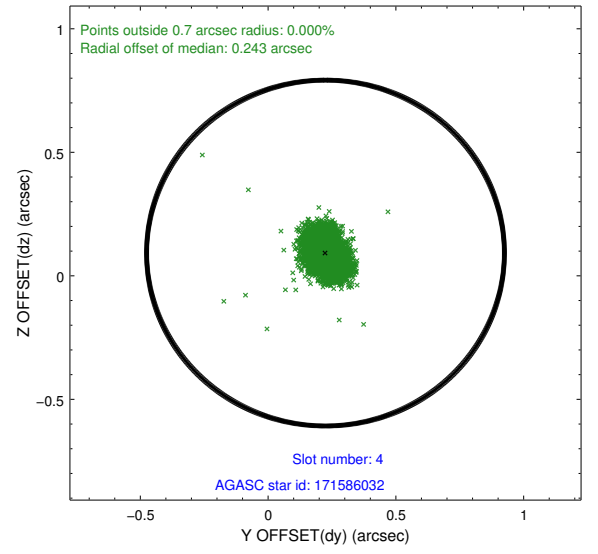
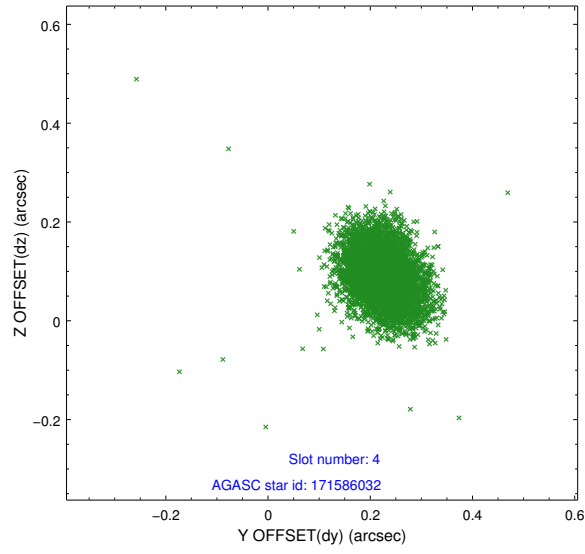
| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|------|--------|-----------|------|-------|--------|--------|-------|-------|-----------|-----------|----------|----------|
| 0 | FID | ACIS-S-2 | 6.87 | 2483 | -0.101 | -0.132 | 0.007 | 0.011 | 0.000000 | 0.000000 | -768.12 | -1879.15 |
| 1 | FID | ACIS-S-4 | 6.94 | 2483 | 0.204 | 0.084 | 0.006 | 0.012 | 0.000000 | 0.000000 | 2145.25 | 28.89 |
| 2 | FID | ACIS-S-5 | 7.00 | 2483 | -0.134 | 0.055 | 0.007 | 0.012 | 0.000000 | 0.000000 | -1820.31 | 23.19 |
| 3 | GUIDE | 171585880 | 8.44 | 4966 | -0.057 | -0.113 | 0.057 | 0.087 | 83.676260 | 22.176319 | -498.53 | 223.65 |
| 4 | GUIDE | 171586032 | 8.97 | 4965 | 0.225 | 0.092 | 0.068 | 0.112 | 83.950197 | 22.083225 | -135.16 | 1126.64 |
| 5 | GUIDE | 171721904 | 9.22 | 4965 | 0.007 | 0.092 | 0.084 | 0.139 | 84.272676 | 22.116922 | -225.46 | 2205.51 |
| 6 | GUIDE | 243941560 | 8.30 | 4963 | -0.297 | -0.016 | 0.052 | 0.085 | 83.733264 | 22.568598 | -1904.14 | 458.32 |
| 7 | GUIDE | 171597832 | 9.23 | 4964 | 0.122 | -0.052 | 0.083 | 0.135 | 83.183230 | 21.366702 | 2359.28 | -1520.92 |

2.4 Star Slots

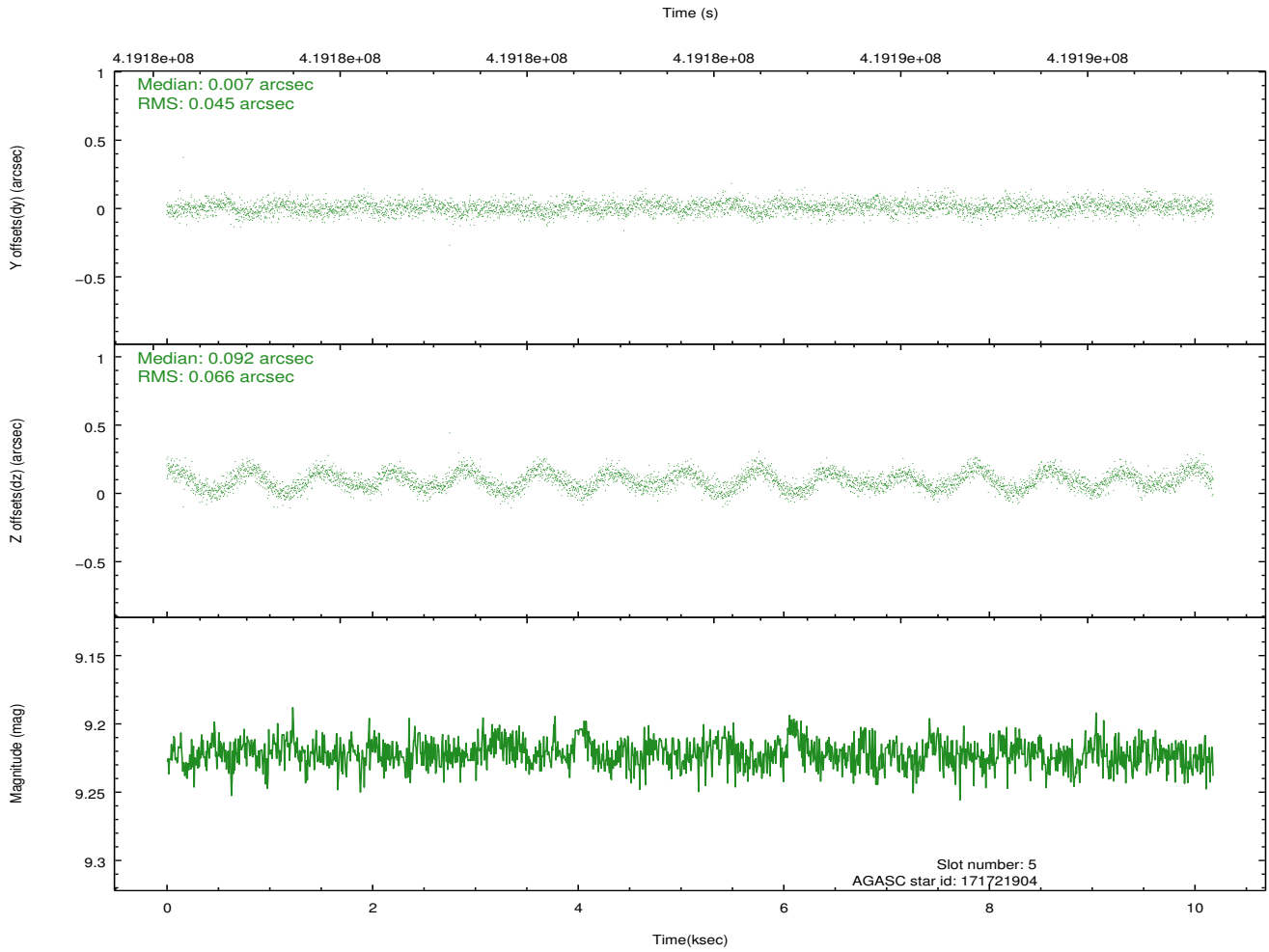
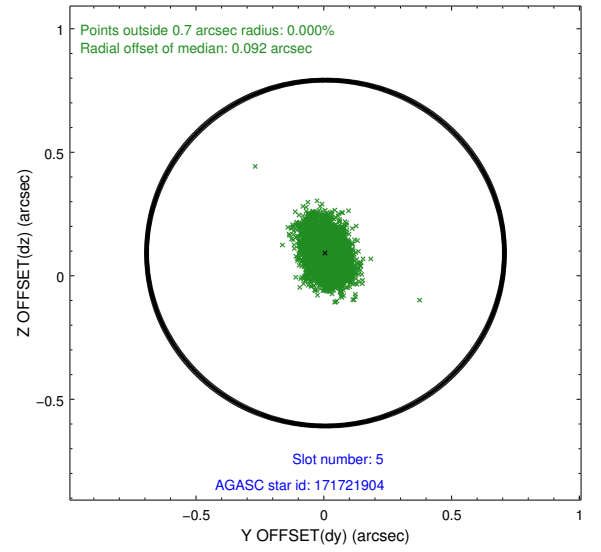
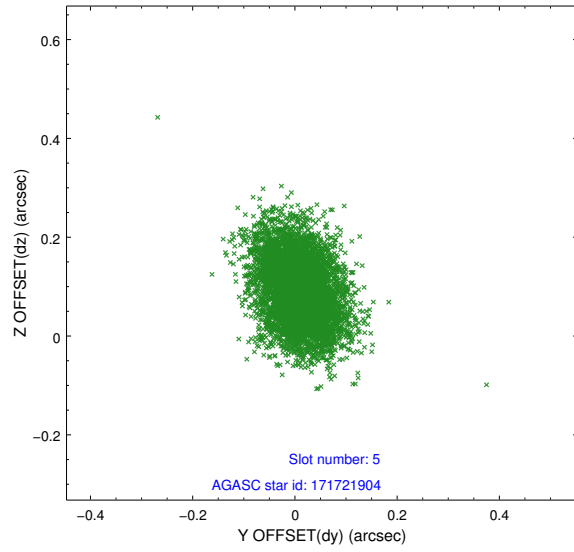
2.4.1 Slot 3



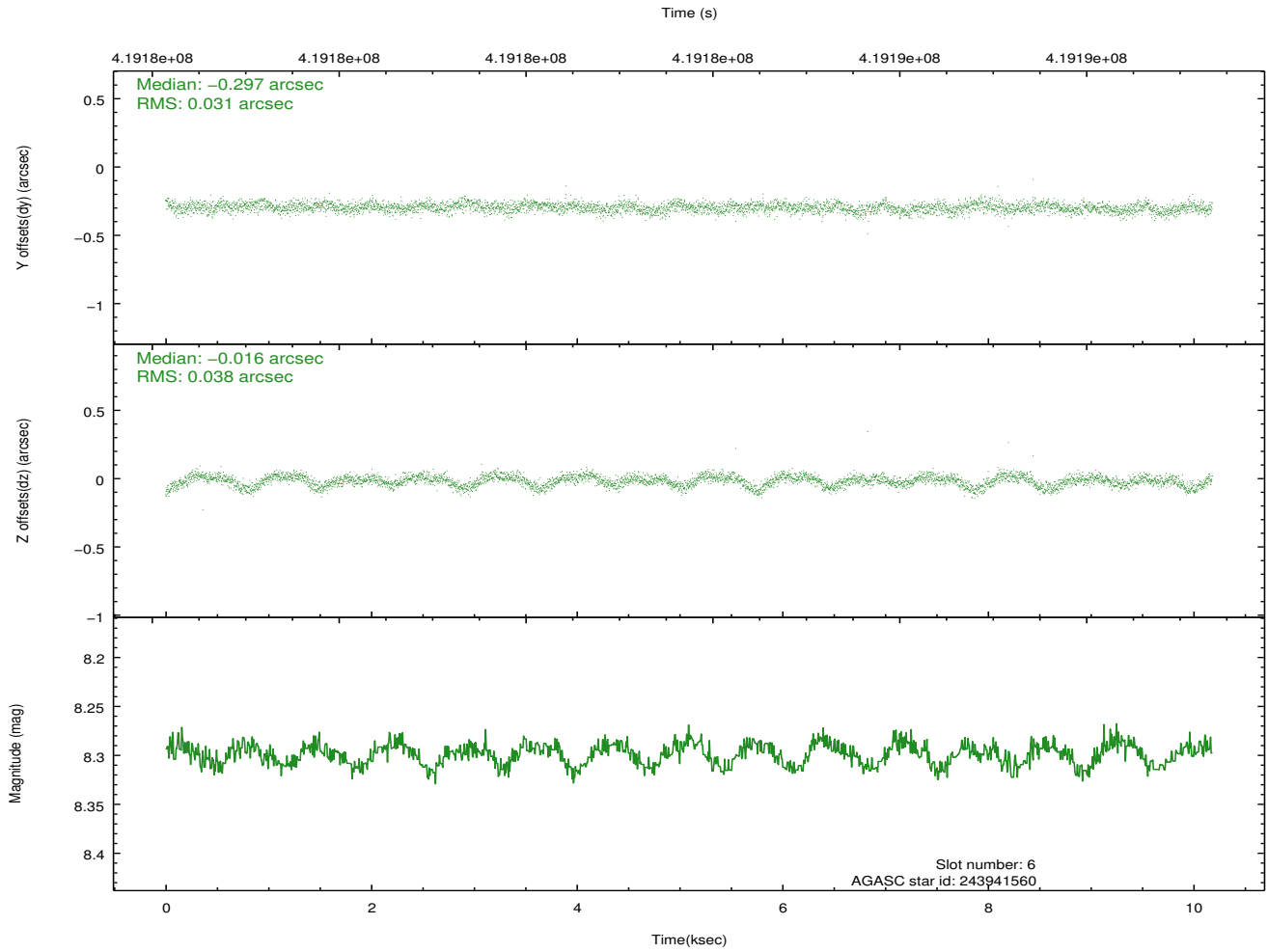
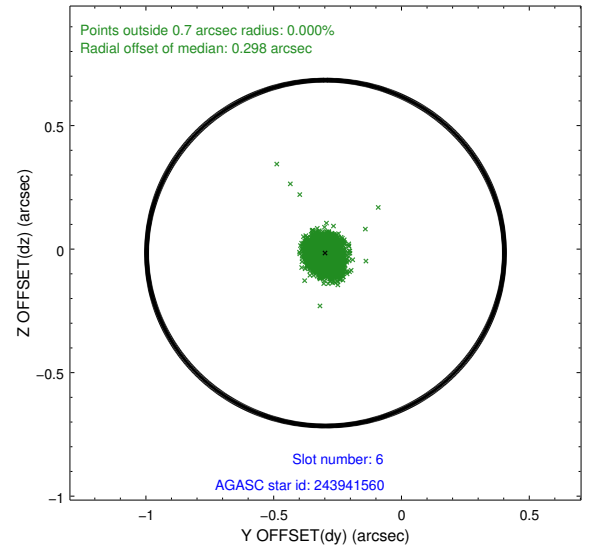
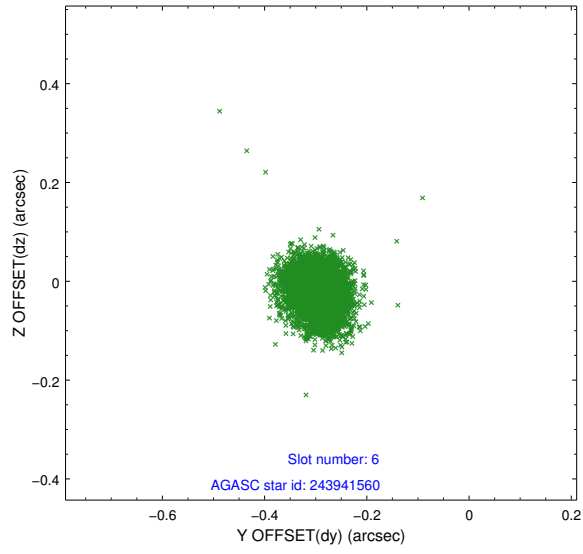
2.4.2 Slot 4



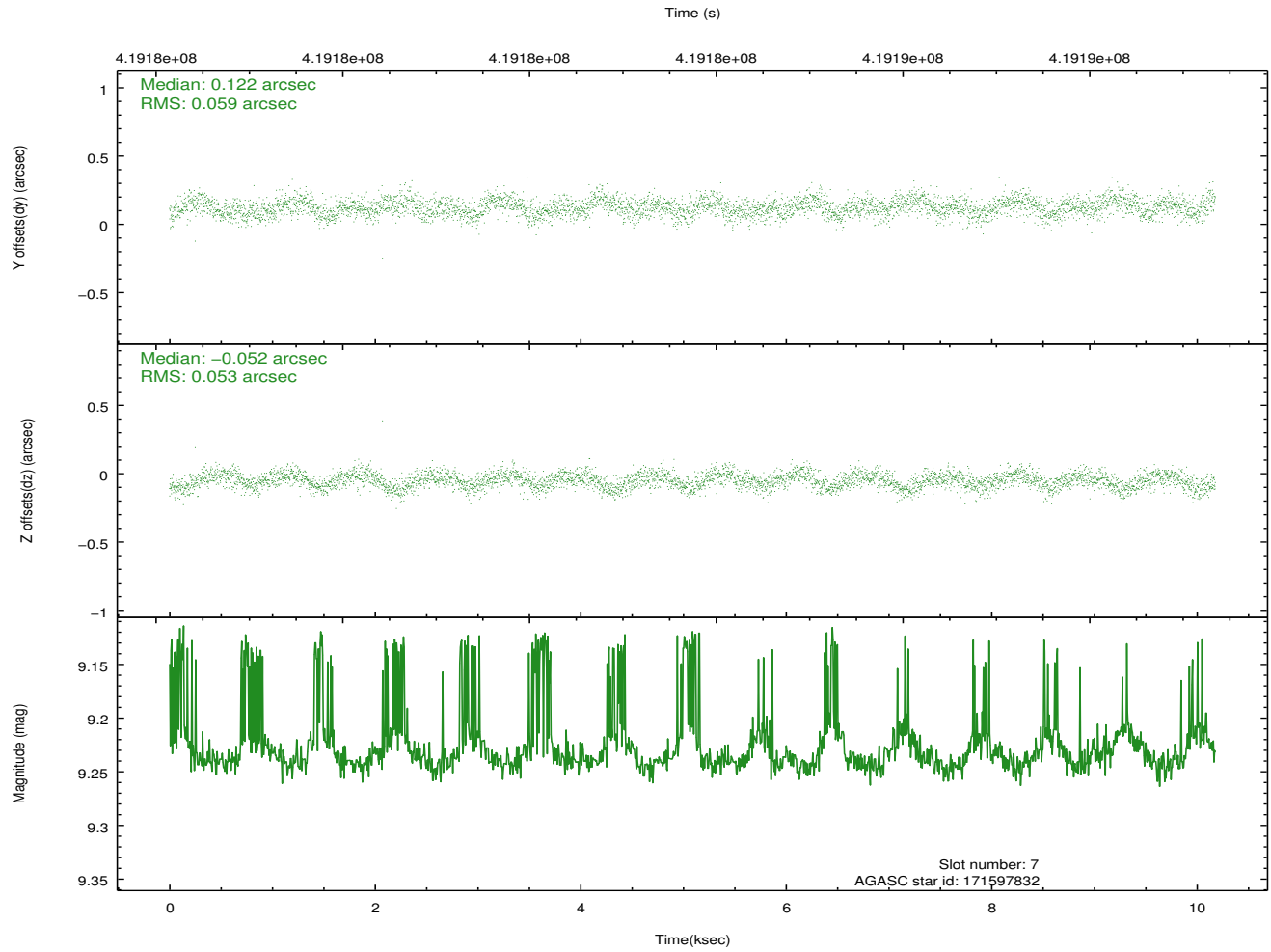
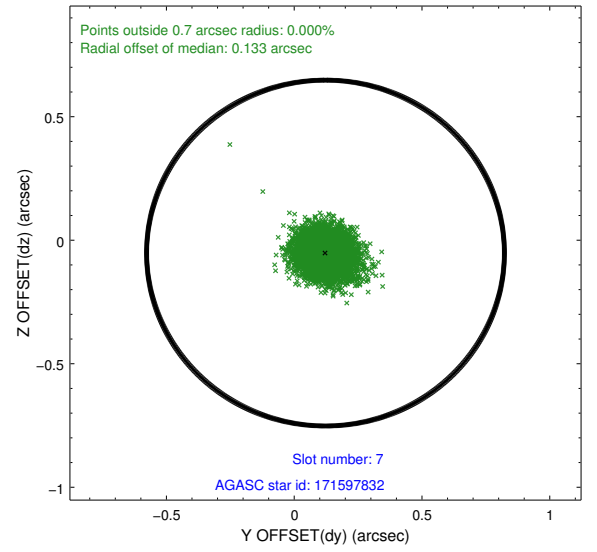
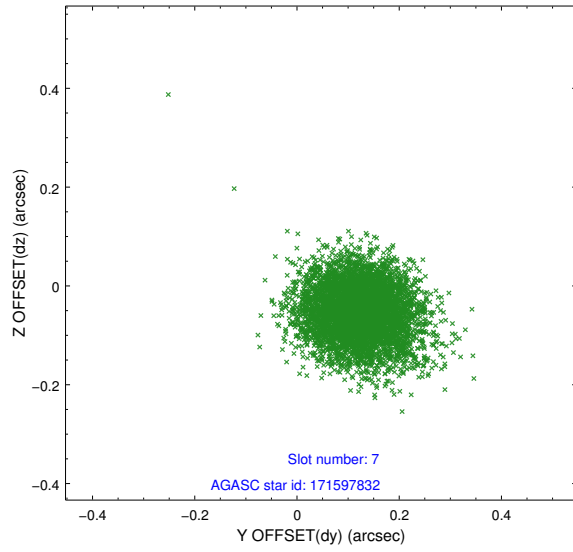
2.4.3 Slot 5



2.4.4 Slot 6

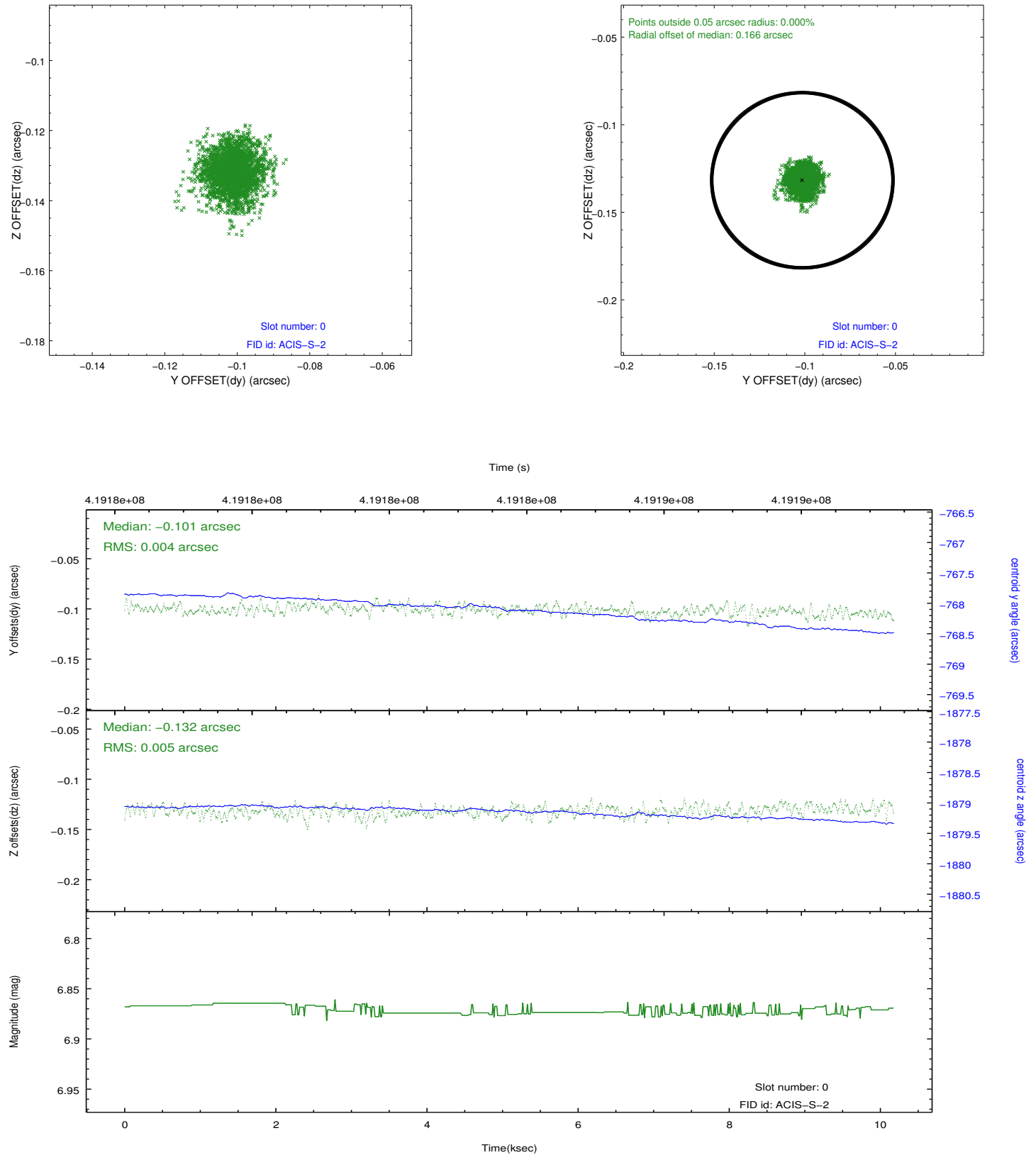


2.4.5 Slot 7

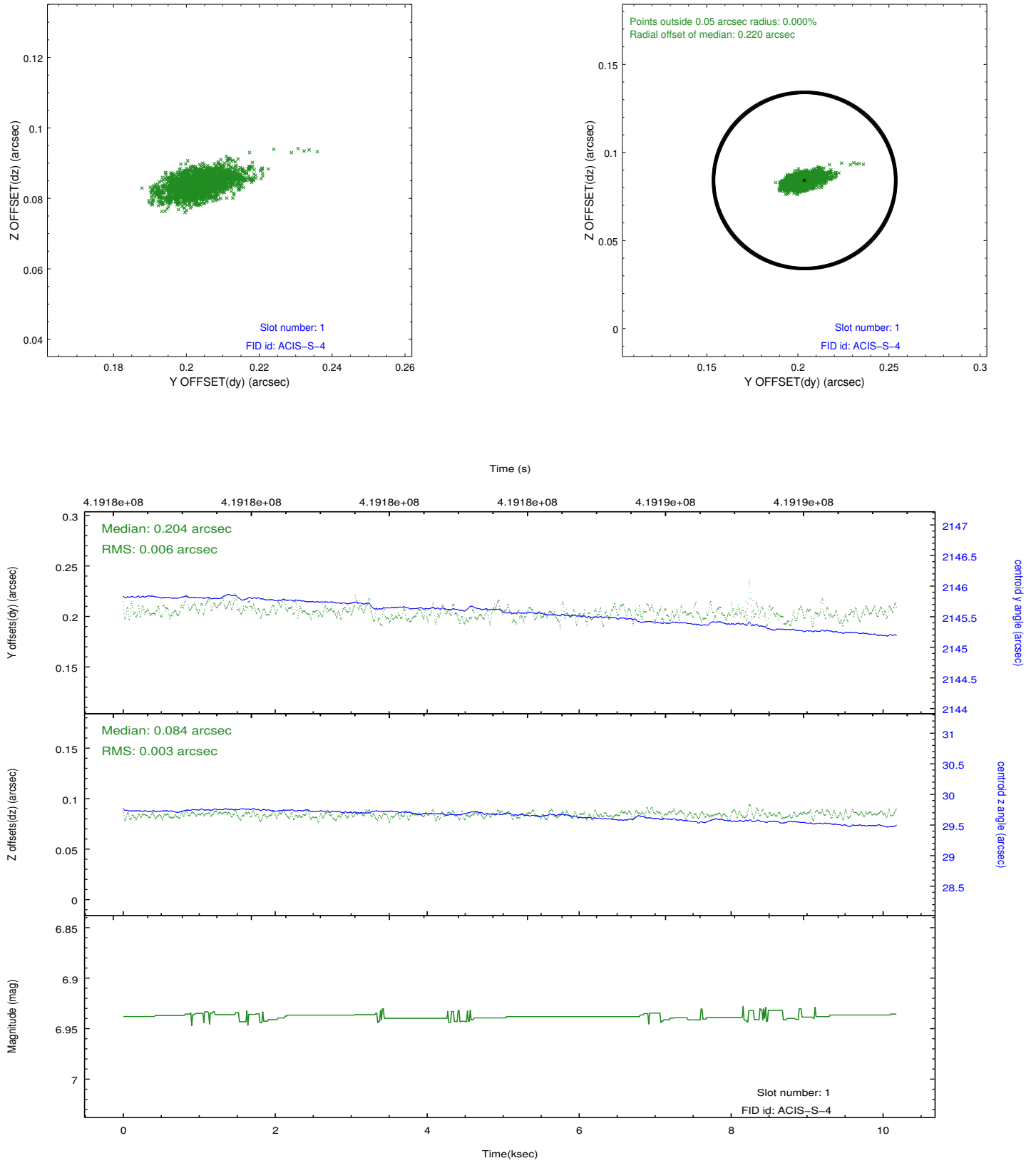


2.5 FID Slots

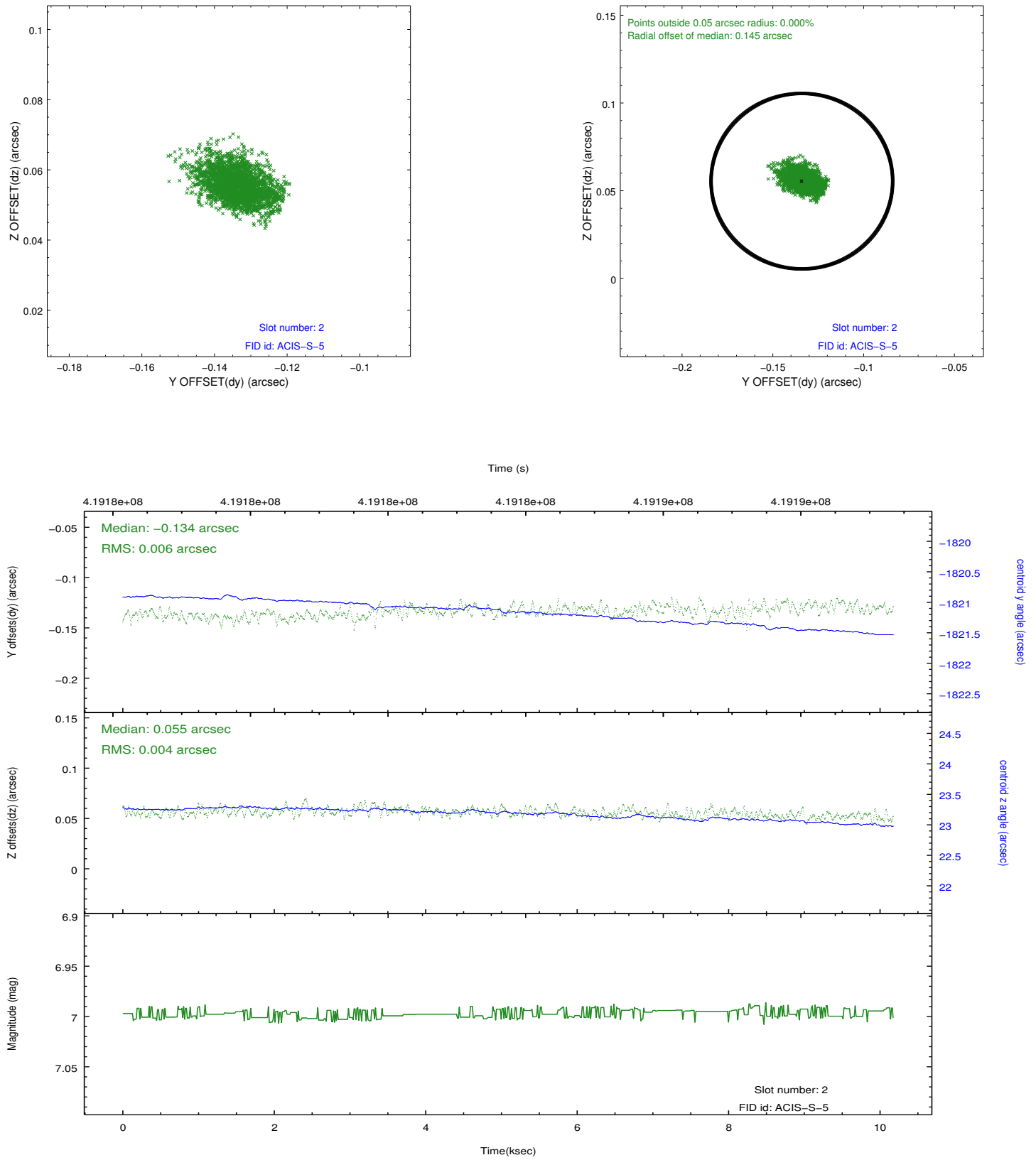
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

| | |
|----------------------------|------------|
| V&V Scientist | Jen Lauer |
| V&V Date (YYYY-MM-DD) | 2012.02.10 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 10 |

A.2 Comments

ONTIME of 6960.9165952802 seconds is less than 85% of expected scheduled time of 10000 seconds. This is due to telemetry saturation. Charge time was adjusted to the elapsed time of 10 ksec.

=====

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use `acis_process_events` to reprocess the data with the parameter `pix_adj=NONE` or `RANDOMIZE`, respectively.

=====

Monitor constraint met.