

V&V Reference Report

L2 ASCDS Version : 10.9.2

Observation 20564 - L2 Version 3
Chandra X-Ray Center

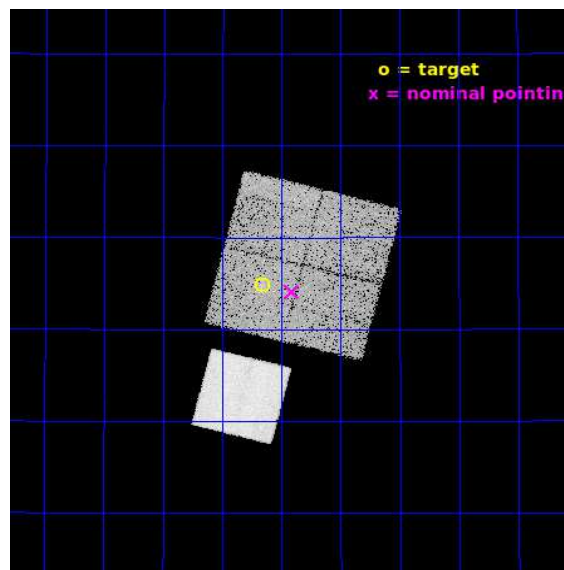
L2 Processing Date : Oct 26 2020

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1 Front

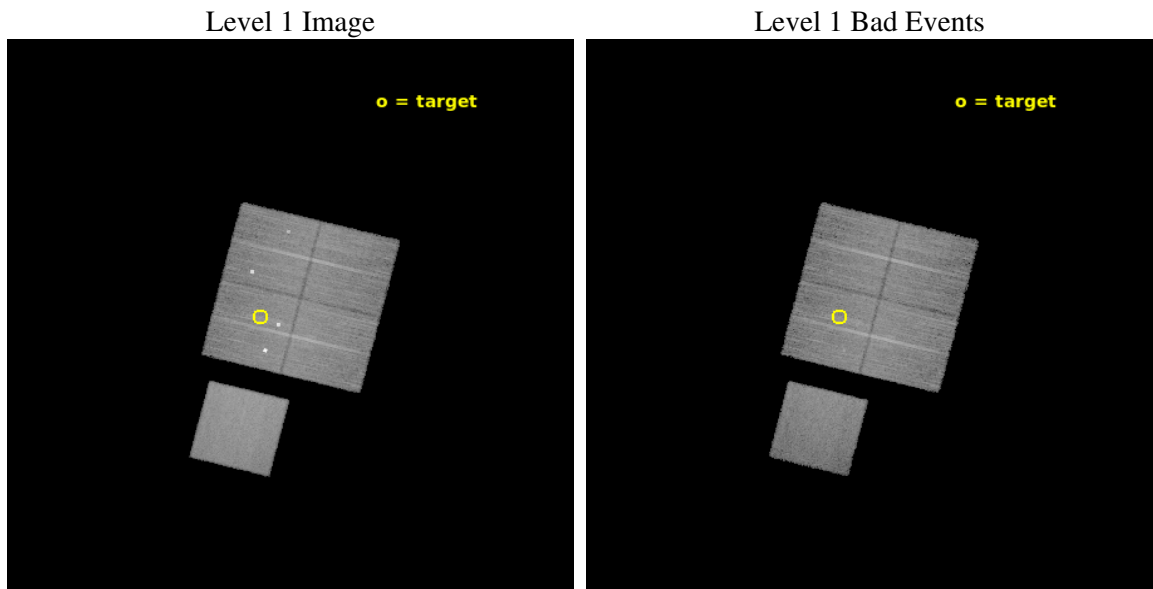
| | | |
|----------|--|---|
| seq_num | 801763 | Sequence number |
| obs_id | 20564 | Observation id |
| title | The Chandra Strong Lens Sample: Revealing Baryonic Physics In Strong Lensing Selected Clusters | Proposal title |
| observer | Matthew Bayliss | Principal investigator |
| object | SDSSJ0952+3434 | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 148.166667 | Observer's specified target RA [deg] |
| dec_targ | 34.579722 | Observer's specified target Dec [deg] |
| ra_nom | 148.10301276757 | Nominal RA [deg] |
| dec_nom | 34.568336747565 | Nominal Dec [deg] |
| roll_nom | 194.23231185206 | Nominal Roll [deg] |
| revision | 3 | Processing version of data |
| ontime | 16550.745202661 | Sum of GTIs [s] |
| livetime | 16334.497532106 | Livetime [s] |
| ontime0 | 16553.763123035 | Sum of GTIs [s] |
| ontime1 | 16550.663132668 | Sum of GTIs [s] |
| ontime2 | 16553.845203042 | Sum of GTIs [s] |
| ontime3 | 16550.745202661 | Sum of GTIs [s] |
| ontime7 | 16553.927283049 | Sum of GTIs [s] |
| l2events | 108856 | Number of level 2 events |



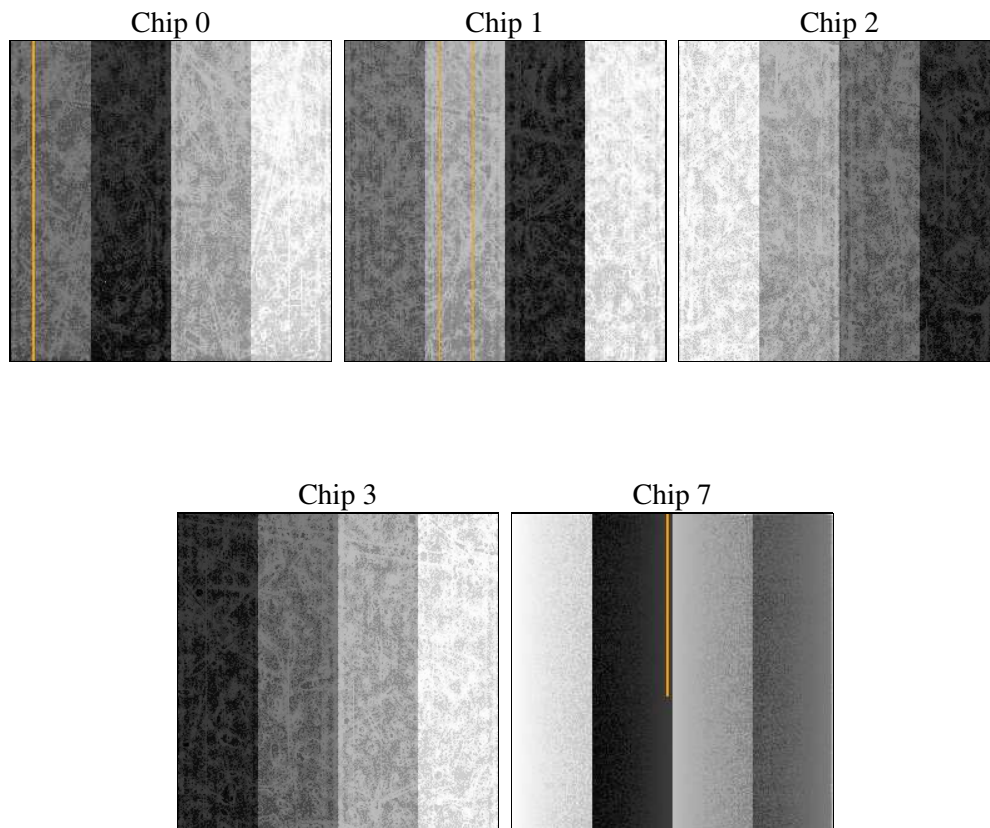
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 16500.000000 | [s] Scheduled observation exposure time |
| ascdsver | 10.9.2 | Processing system revision | ontime | 16550.745202661 | Sum of GTIs [s] |
| caldbver | 4.9.3 | | ontime0 | 16553.763123035 | Sum of GTIs [s] |
| date | 2020-10-27T00:14:30 | Date and time of file creation | ontime1 | 16550.663132668 | Sum of GTIs [s] |
| revision | 3 | Processing version of data | ontime2 | 16553.845203042 | Sum of GTIs [s] |
| | | | ontime3 | 16550.745202661 | Sum of GTIs [s] |
| | | | ontime7 | 16553.927283049 | Sum of GTIs [s] |
| | | | l1events | 650920 | Number of level 1 events |

2.1.4 Events

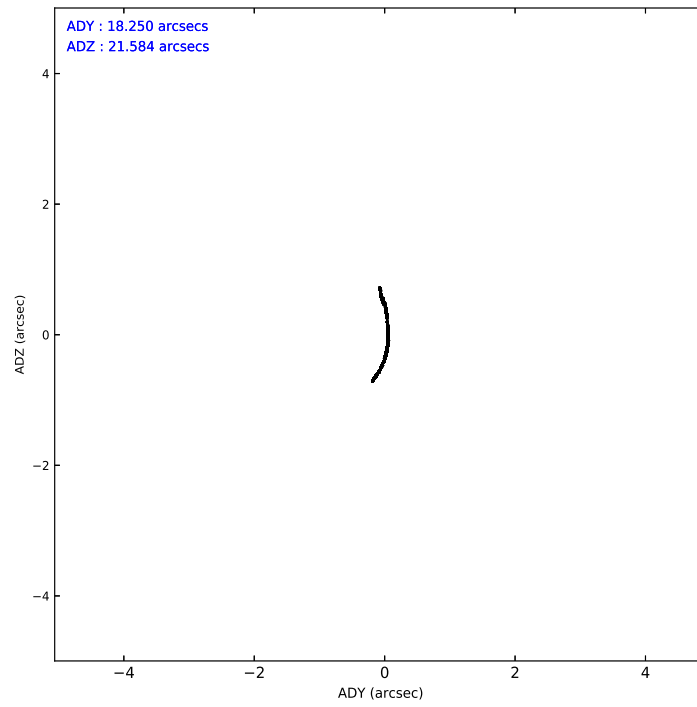
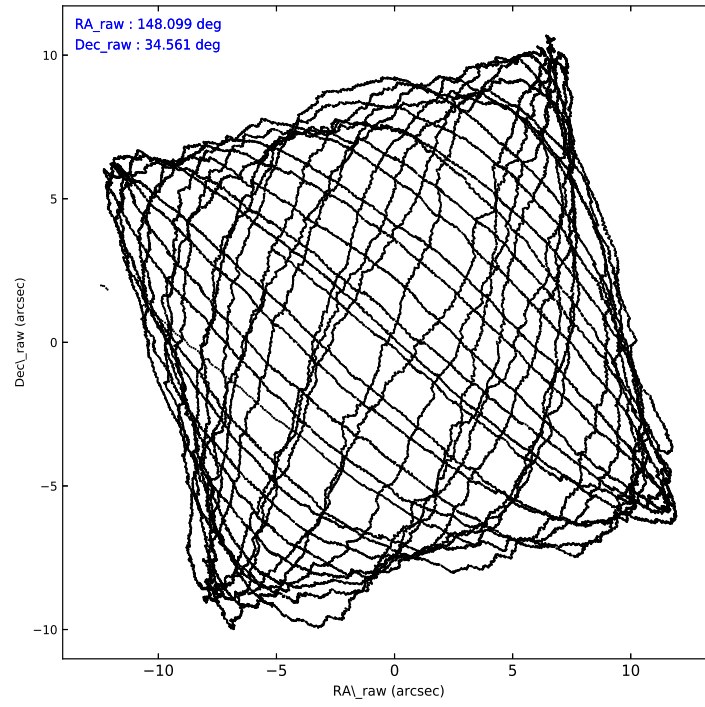
| | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 7 |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events | 111331 | 120851 | 127089 | 135582 | 156067 |
| rejected events | 98340 | 101408 | 114542 | 107728 | 89154 |
| rejected % | 88% | 83% | 90% | 79% | 57% |

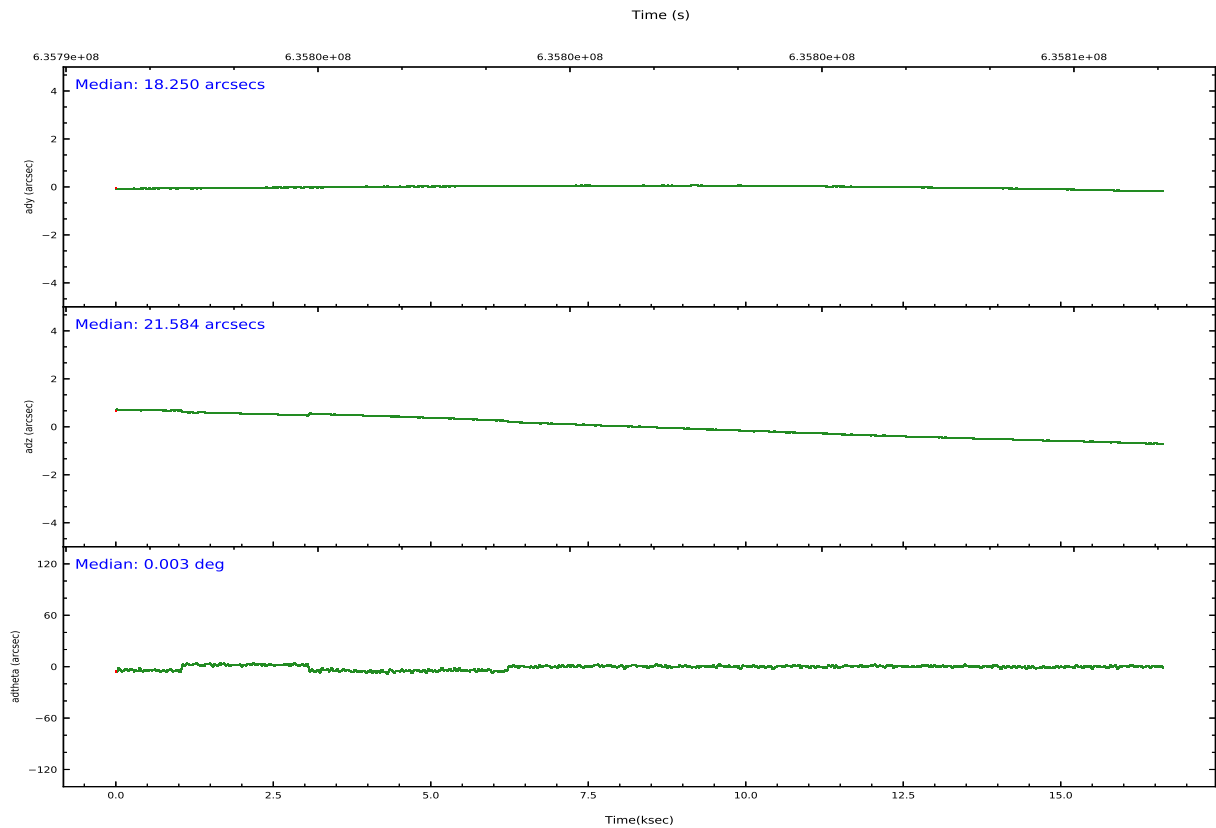
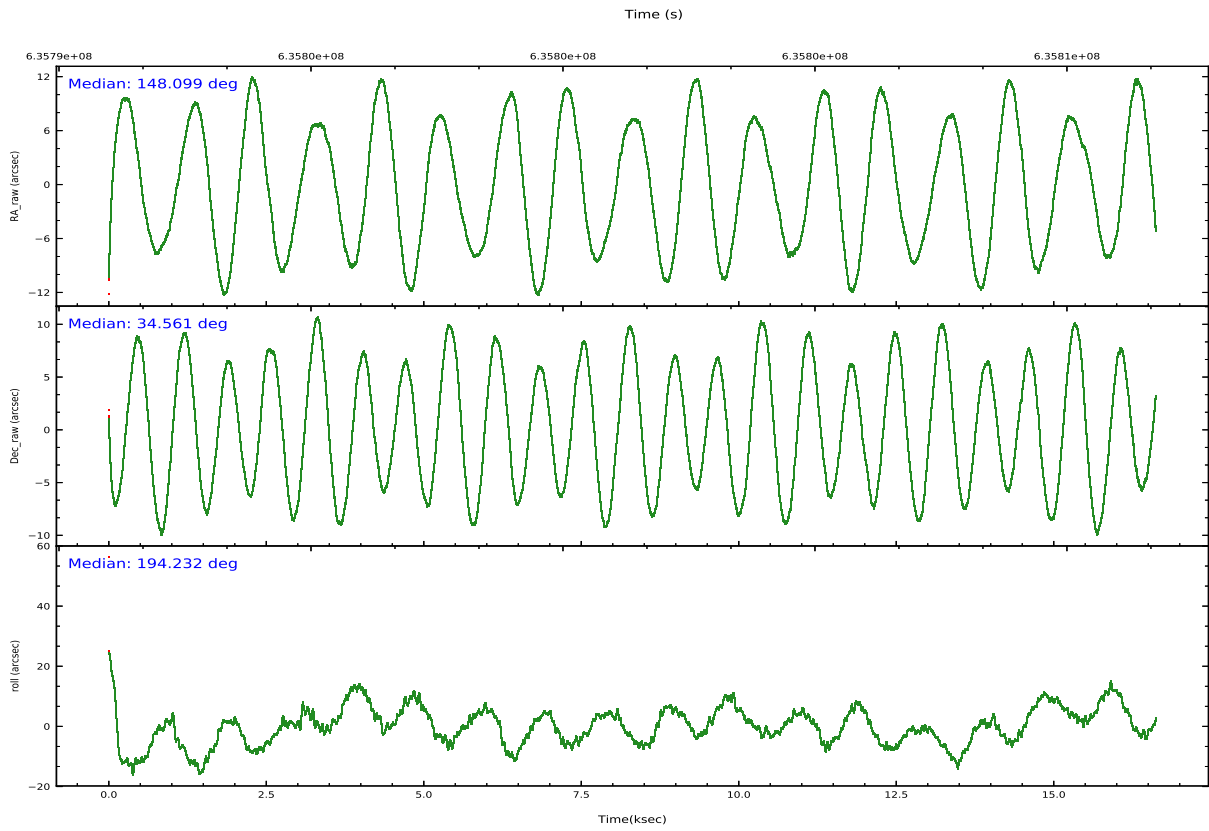
| | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 7 |
|----------------|-------|-------|--------|--------|-------|
| grade 0 events | 4364 | 9613 | 4415 | 19507 | 5664 |
| | 3% | 7% | 3% | 14% | 3% |
| grade 1 events | 52 | 102 | 73 | 179 | 235 |
| | 0% | 0% | 0% | 0% | 0% |
| grade 2 events | 3271 | 3766 | 3091 | 2872 | 13841 |
| | 2% | 3% | 2% | 2% | 8% |
| grade 3 events | 1278 | 1345 | 1224 | 1392 | 5381 |
| | 1% | 1% | 0% | 1% | 3% |
| grade 4 events | 1250 | 1316 | 1293 | 1351 | 5378 |
| | 1% | 1% | 1% | 0% | 3% |
| grade 5 events | 4928 | 5051 | 4596 | 5668 | 15519 |
| | 4% | 4% | 3% | 4% | 9% |
| grade 6 events | 2830 | 3412 | 2527 | 2743 | 36676 |
| | 2% | 2% | 1% | 2% | 23% |
| grade 7 events | 93358 | 96246 | 109870 | 101870 | 73373 |
| | 83% | 79% | 86% | 75% | 47% |

2.2 Compared Parameters

| Parameter | Planned | Actual | Parameter | Planned | Actual |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument | ACIS | ACIS | Obspar version number | 8 | 8 |
| Detector | ACIS-01237 | ACIS-01237 | 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 | 148.122548 | 148.10301276757 | CCD I2 on | Y | Y |
| [deg] Pointing Dec | 34.580345 | 34.568336747565 | CCD I3 on | Y | Y |
| [deg] Pointing Roll | 194.025029 | 194.23231185206 | 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 | N |
| [mm] SIM translation stage pos | -225.840463 | -225.8433433320239 | CCD S3 on | O2 | Y |
| [mm] SIM translation stage offset | -7.752 | -7.749109670905796 | CCD S4 on | N | N |
| [s] Observation start time (MET) | 635792916.184000 | 635791601.61268 | CCD S5 on | N | N |
| Observation start date | 2018-02-23T17:07:27 | 2018-02-23T16:46:41 | Number of optional ACIS chips dropped | 1 | 1 |
| [s] Observation end time (MET) | 635809416.184000 | 635810110.55127 | On-chip summing requested | N | N |
| Observation end date | 2018-02-23T21:42:27 | 2018-02-23T21:55:10 | Subarray requested | NONE | NONE |
| Read mode | TIMED | TIMED | Alternating exposures requested | N | N |
| | | | [s] Primary exposure time | 0.000000 | 3.1 |

2.3 Aspect





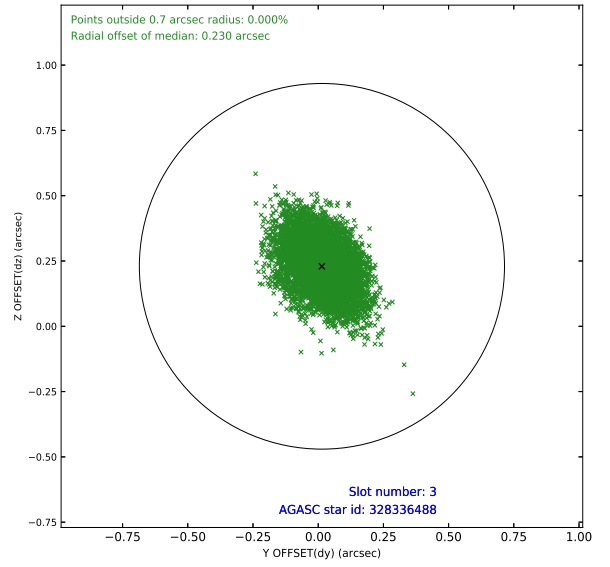
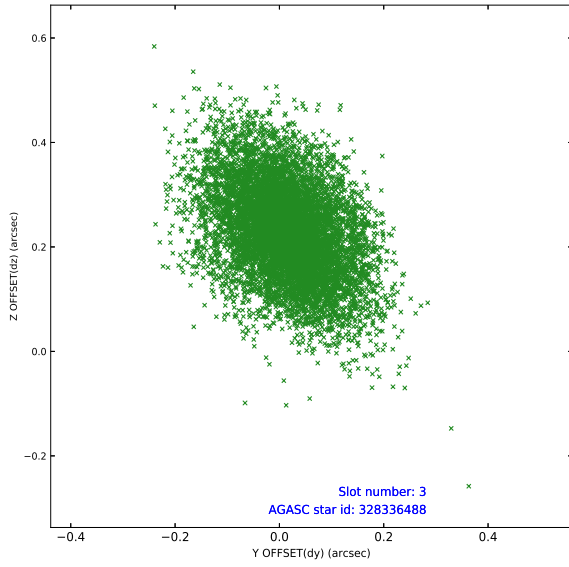
Slot Statistics

| pt | status | used | id | mag | n_pts | frac_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mea |
|----|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|-----------|----------|-------|
| 0 | FID | | ACIS-I-1 | 7.24 | 4056 | 1.000 | 0.204 | -0.133 | 0.024 | 0.056 | 0.000000 | 0.000000 | 921.10 | -1004 |
| 1 | FID | | ACIS-I-2 | 7.21 | 4055 | 1.000 | -0.192 | 0.134 | 0.024 | 0.044 | 0.000000 | 0.000000 | -773.64 | -1009 |
| 2 | FID | | ACIS-I-4 | 7.14 | 4052 | 1.000 | -0.109 | 0.066 | 0.020 | 0.041 | 0.000000 | 0.000000 | 2140.28 | 896 |
| 3 | GUIDE | used | 328336488 | 7.97 | 8107 | 1.000 | 0.014 | 0.230 | 0.125 | 0.207 | 148.615981 | 34.772004 | -1583.07 | -319 |
| 4 | GUIDE | used | 328337024 | 7.70 | 8108 | 1.000 | -0.111 | 0.176 | 0.112 | 0.193 | 148.429866 | 34.926488 | -1182.03 | -990 |
| 5 | GUIDE | used | 328337336 | 6.50 | 8109 | 1.000 | 0.018 | -0.069 | 0.134 | 0.232 | 148.404202 | 34.983812 | -1157.35 | -1209 |
| 6 | GUIDE | used | 328339200 | 8.79 | 8109 | 1.000 | -0.132 | -0.159 | 0.157 | 0.255 | 148.038611 | 34.083152 | 676.38 | 1675 |
| 7 | GUIDE | used | 328738624 | 8.30 | 8108 | 1.000 | 0.206 | -0.166 | 0.124 | 0.204 | 148.160528 | 35.111650 | -574.91 | -1824 |

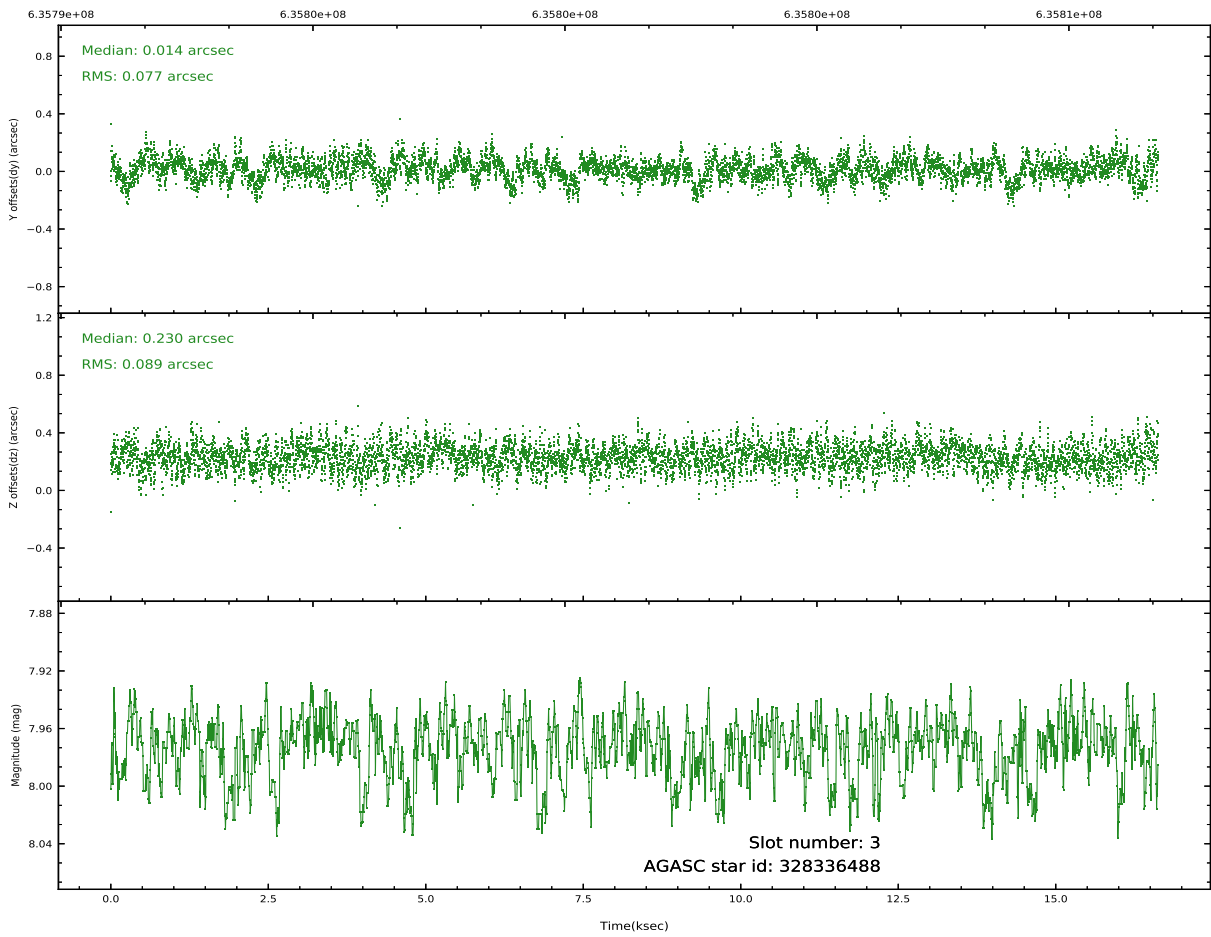
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2.4 Star Slots

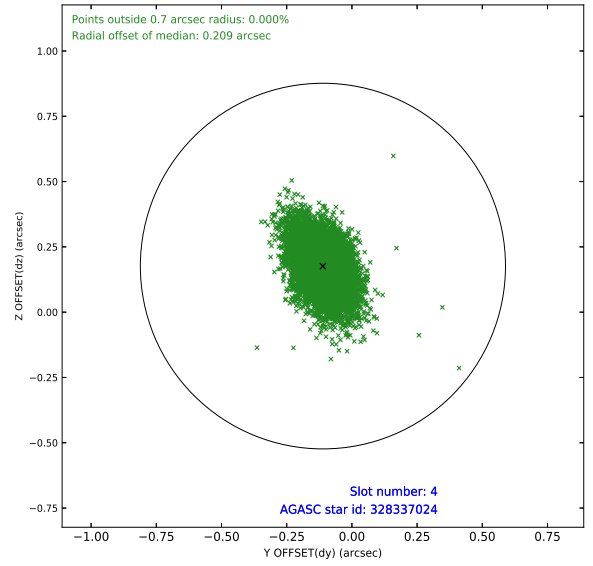
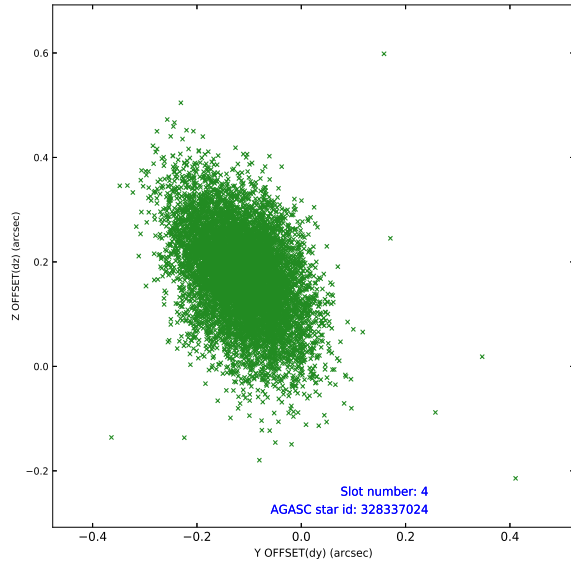
2.4.1 Slot 3



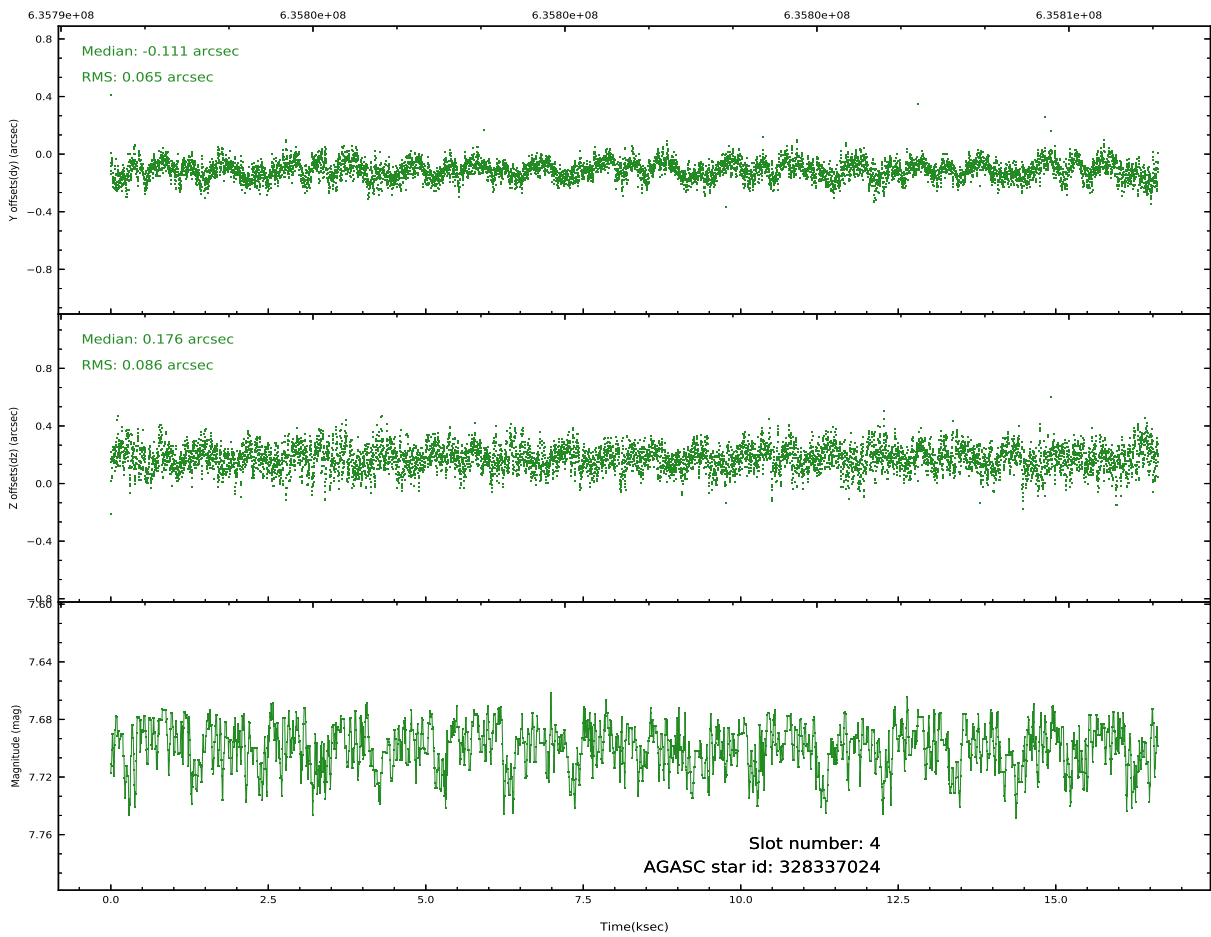
Time (s)



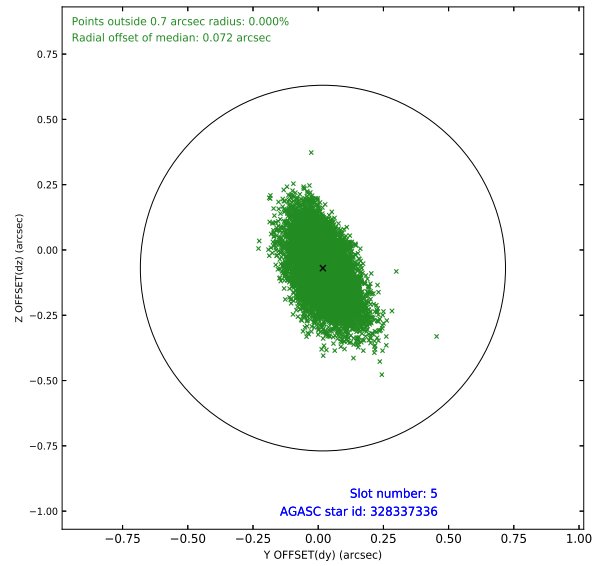
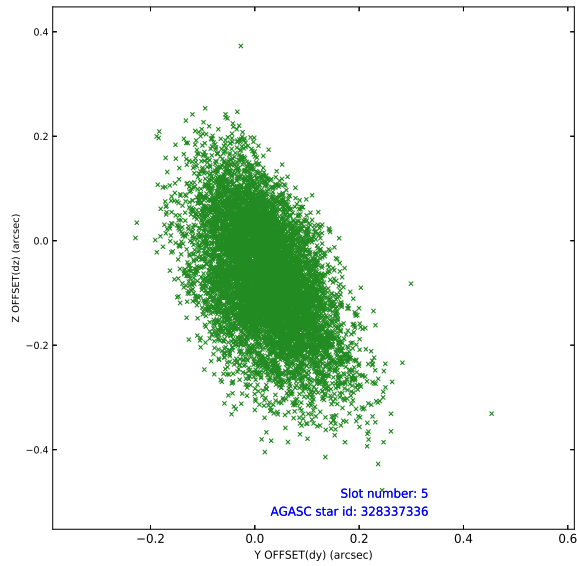
2.4.2 Slot 4



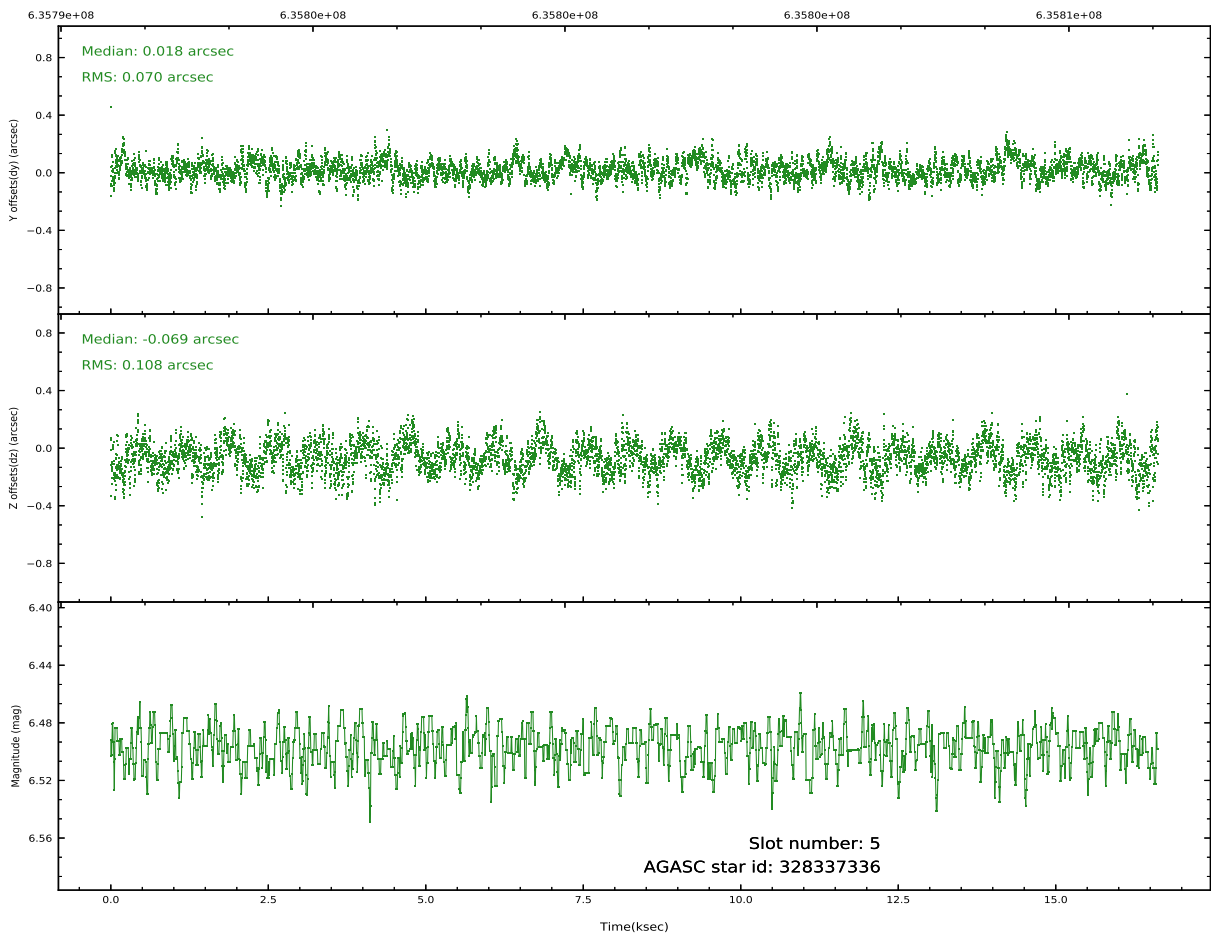
Time (s)



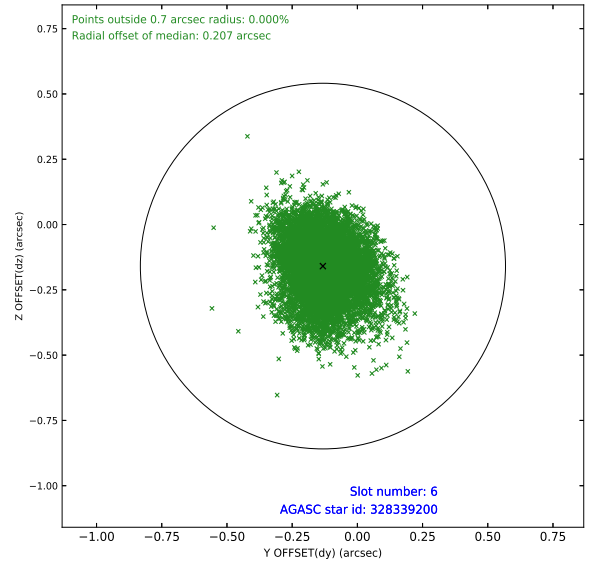
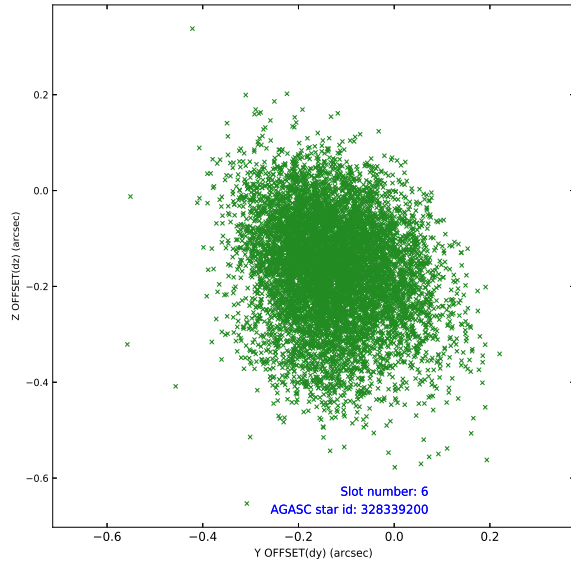
2.4.3 Slot 5



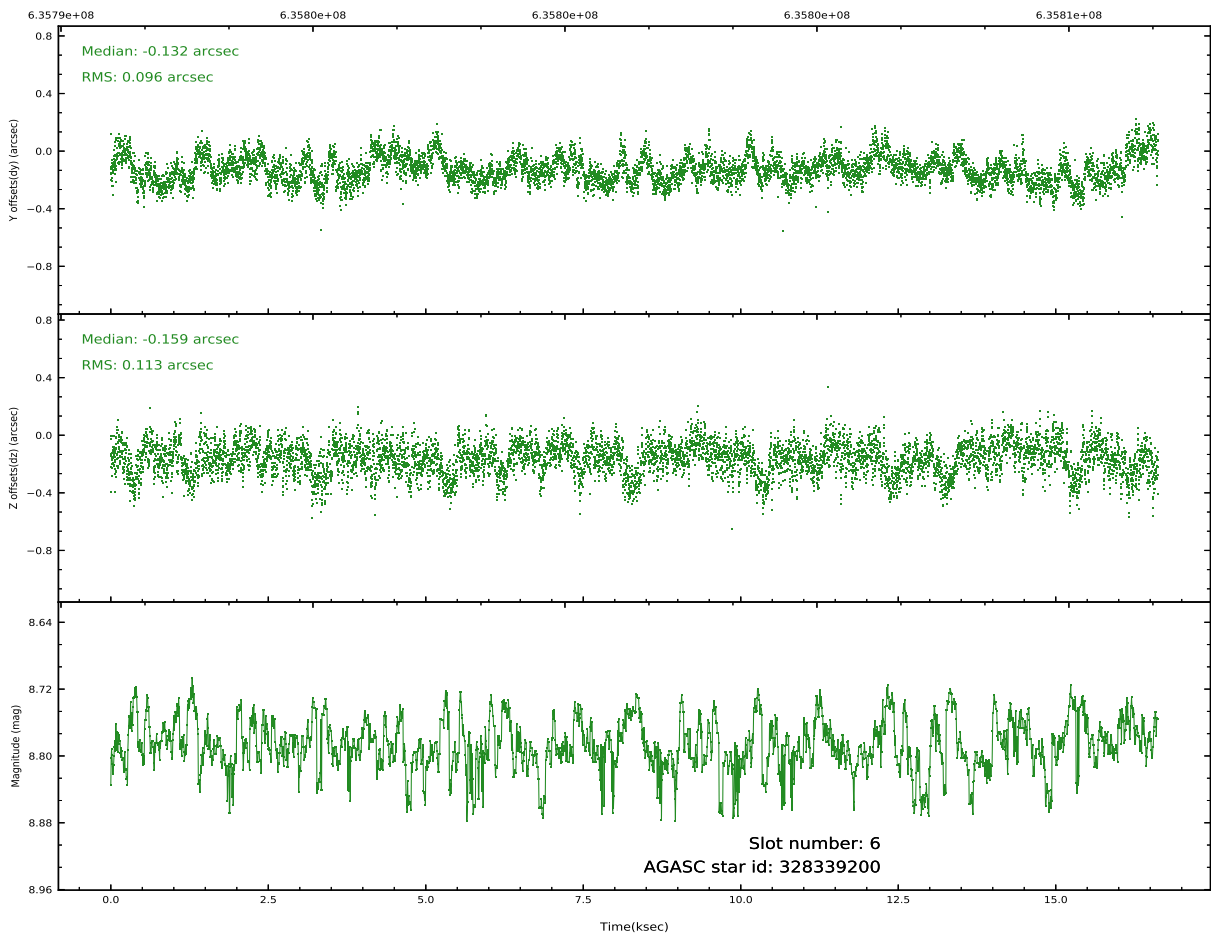
Time (s)



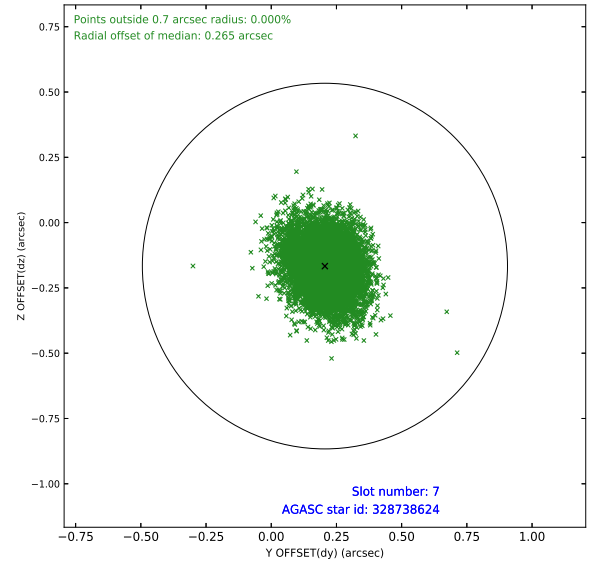
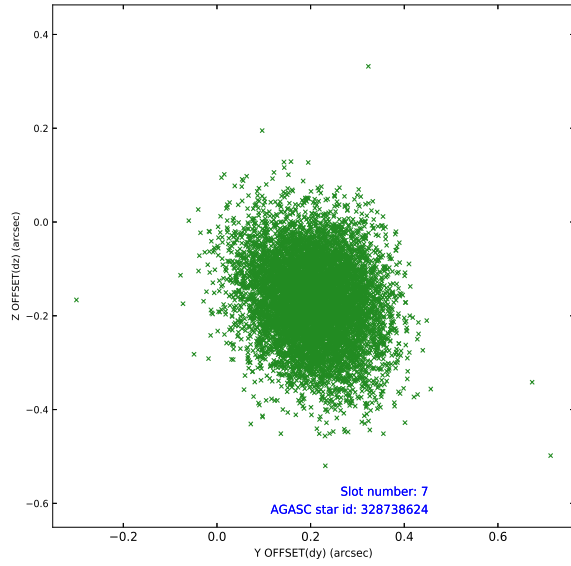
2.4.4 Slot 6



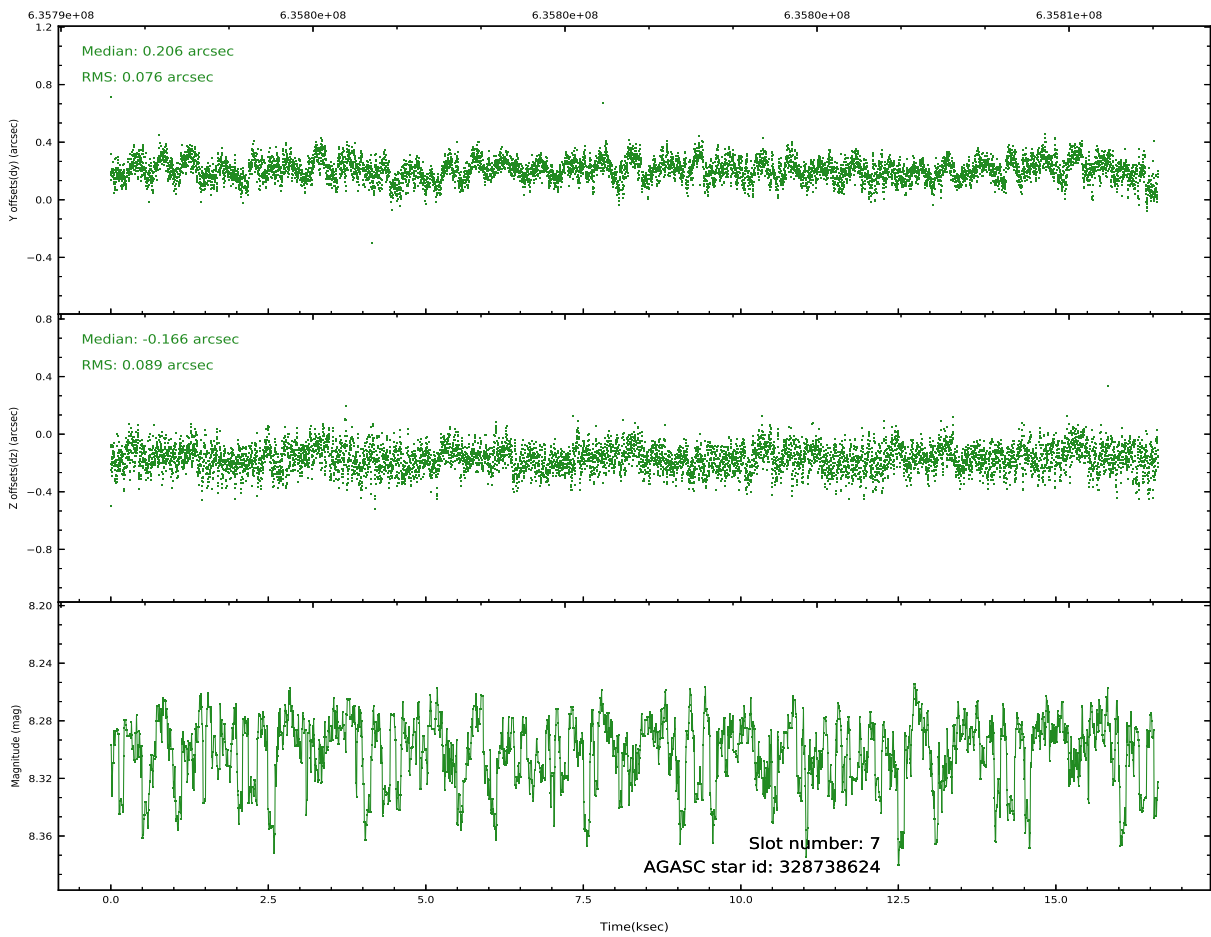
Time (s)



2.4.5 Slot 7

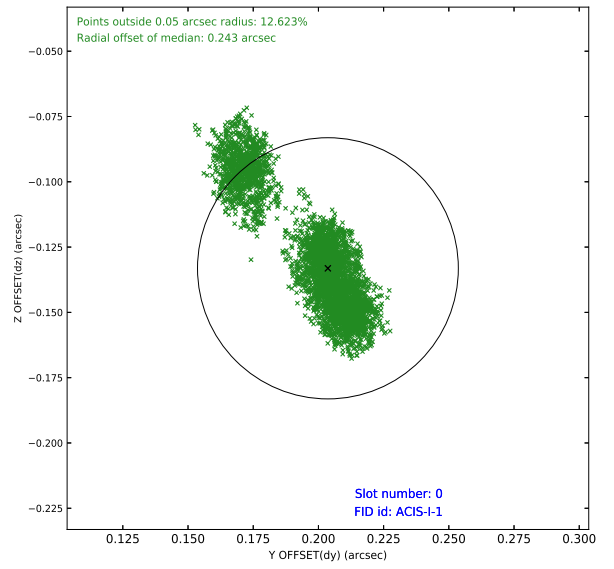
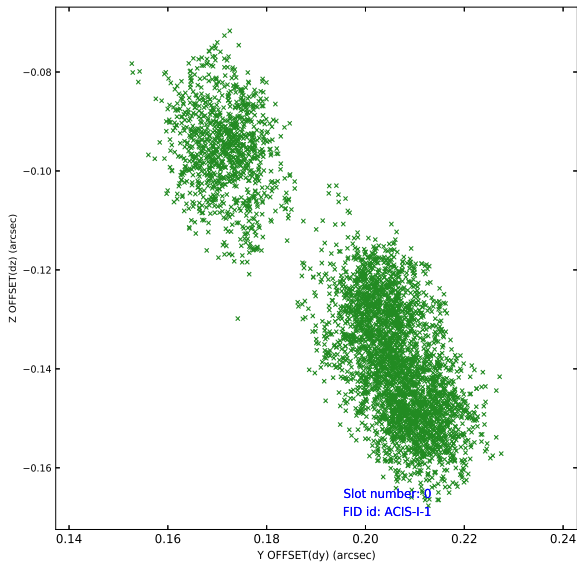


Time (s)

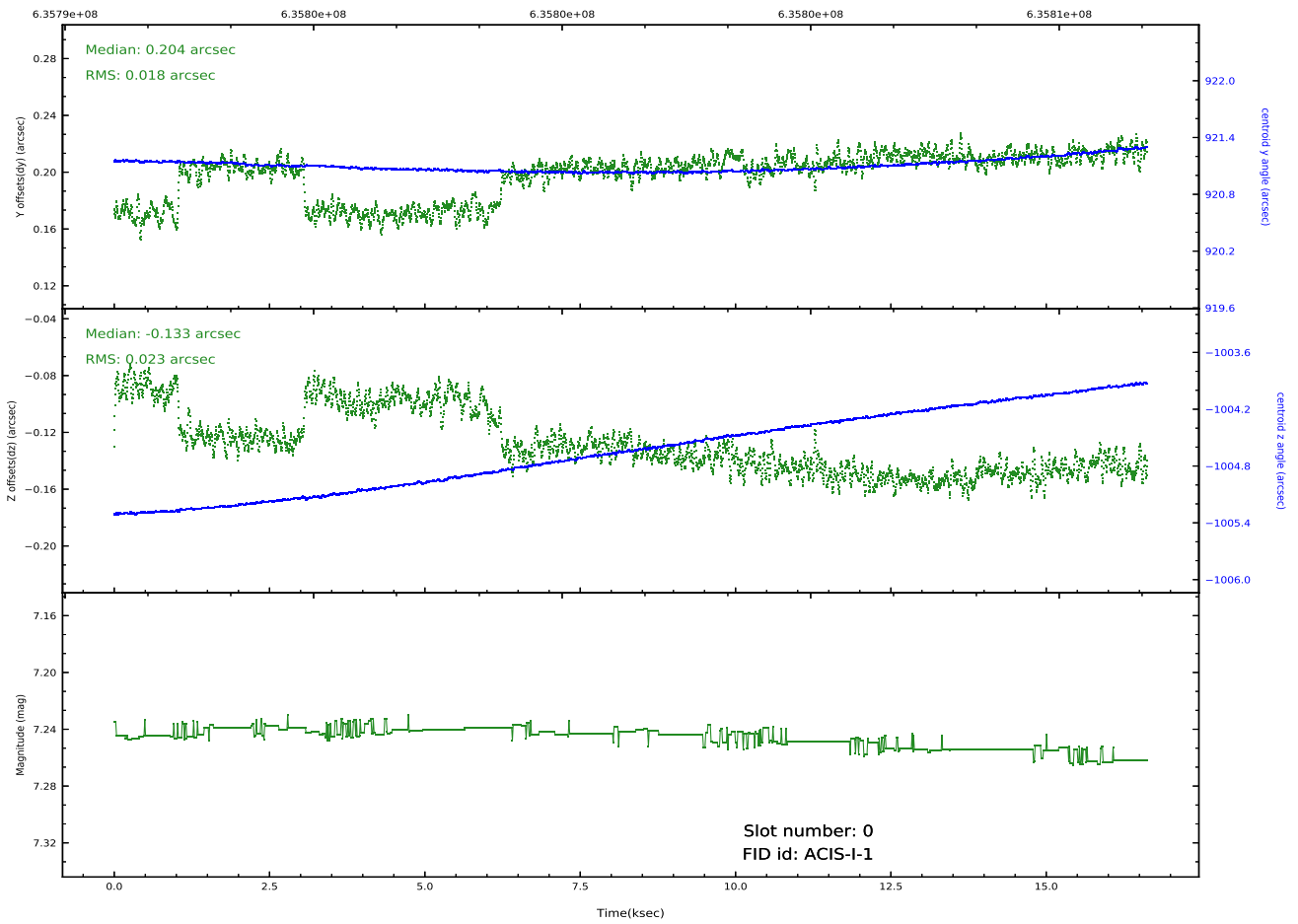


2.5 FID Slots

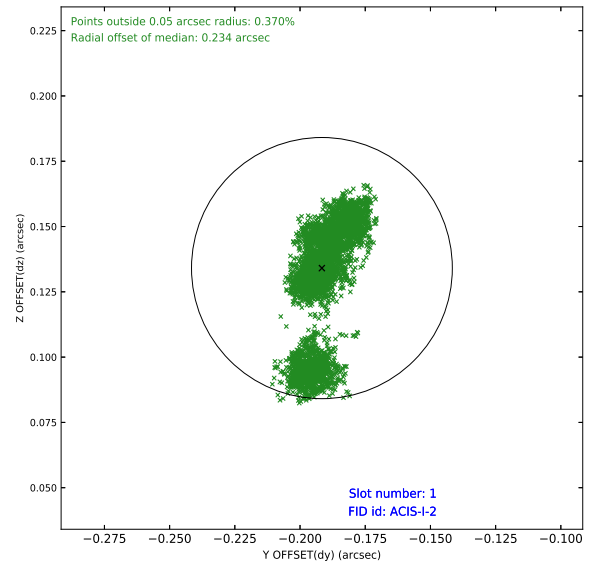
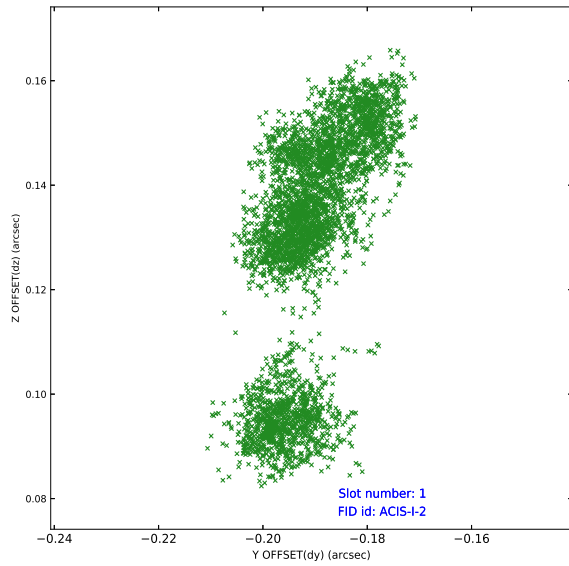
2.5.1 Slot 0



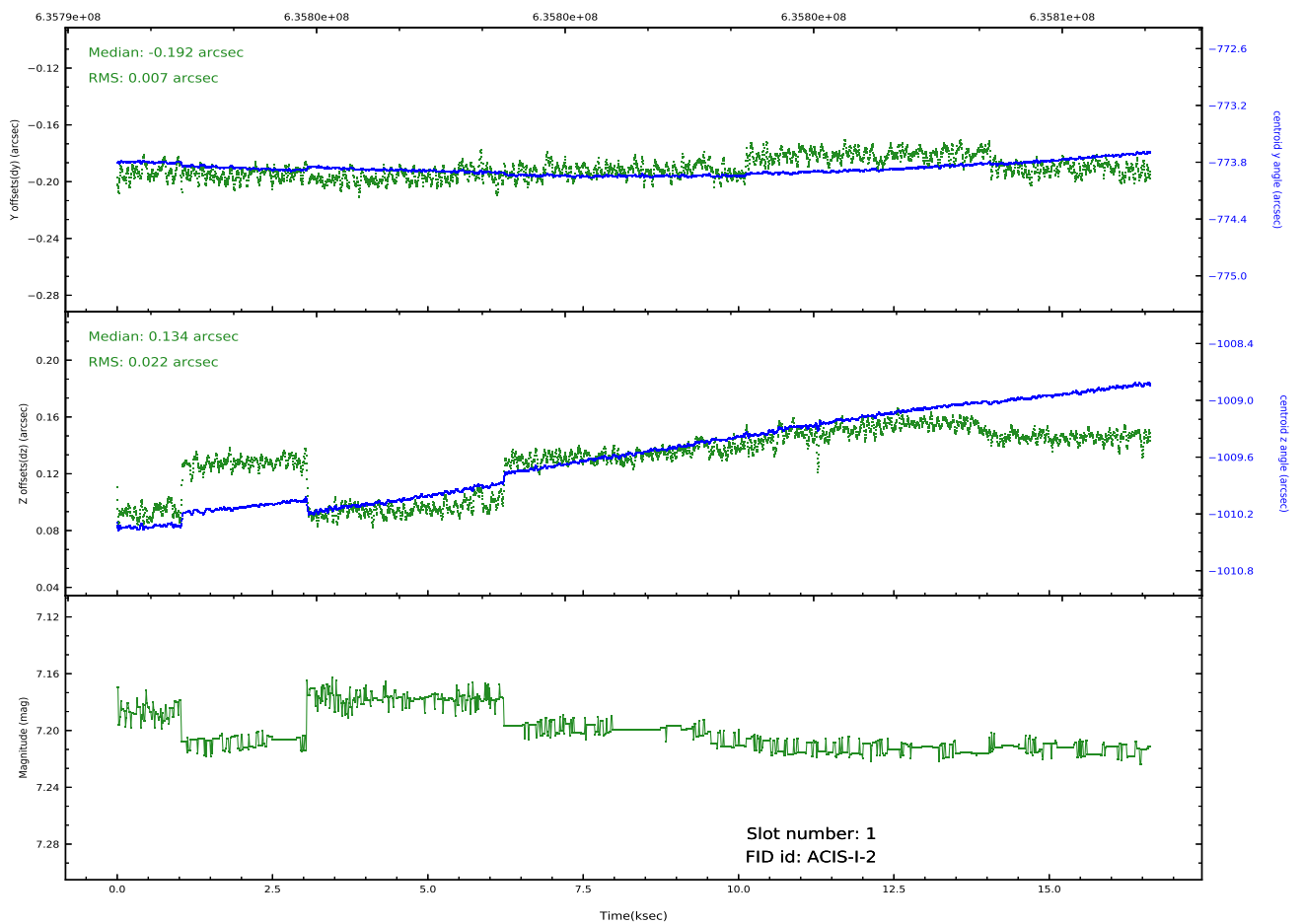
Time (s)



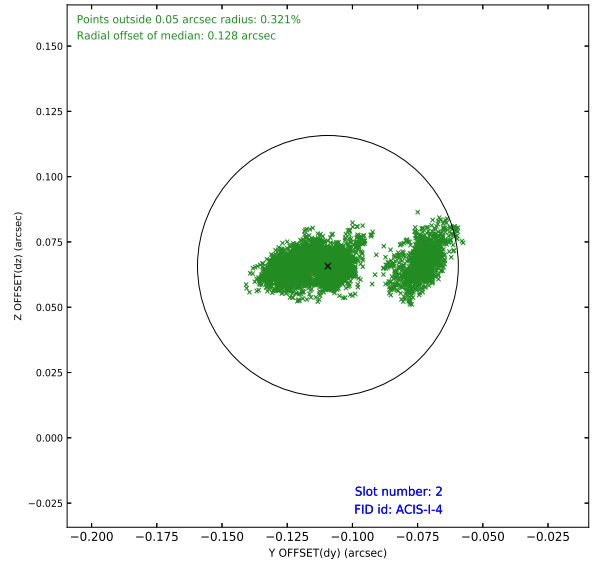
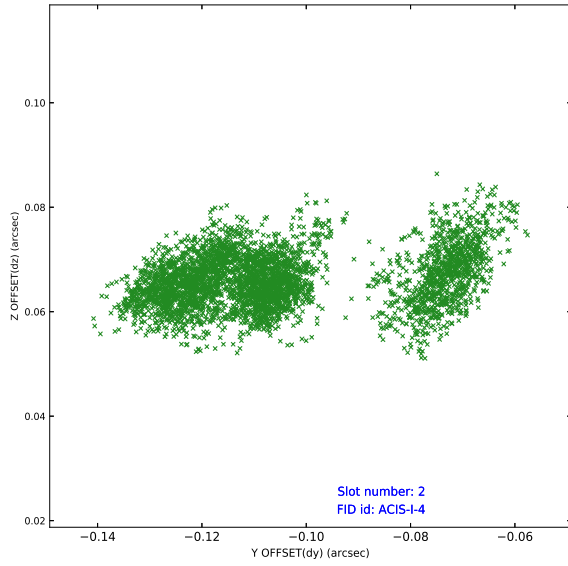
2.5.2 Slot 1



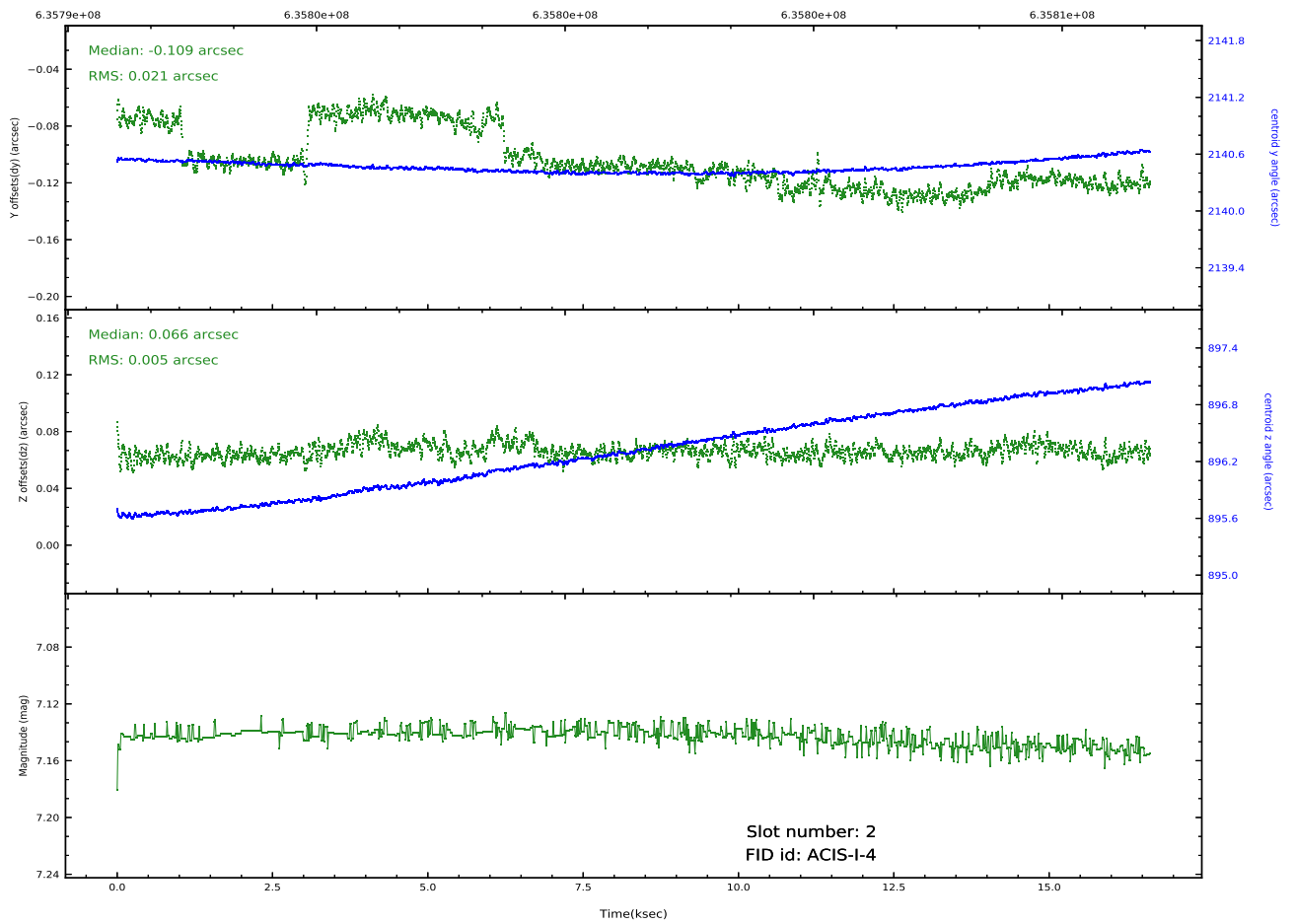
Time (s)



2.5.3 Slot 2



Time (s)



A Summary

A.1 Status

| | |
|----------------------------|-----------------|
| V&V Scientist | Beth Sundheim |
| V&V Date (YYYY-MM-DD) | 2020.10.28 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 16.550745204806 |

A.2 Comments

Joint proposal with HST.

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One optional chip was dropped.

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A spatial region of the original bias map for CCD = 1 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 = 1 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: (148.20877,34.77521), (148.20791,34.77798), (148.15143,34.76623), (148.15294,34.76359).