

V&V Reference Report

L2 ASCDS Version : 10.9.1

Observation 5821 - L2 Version 5
Chandra X-Ray Center

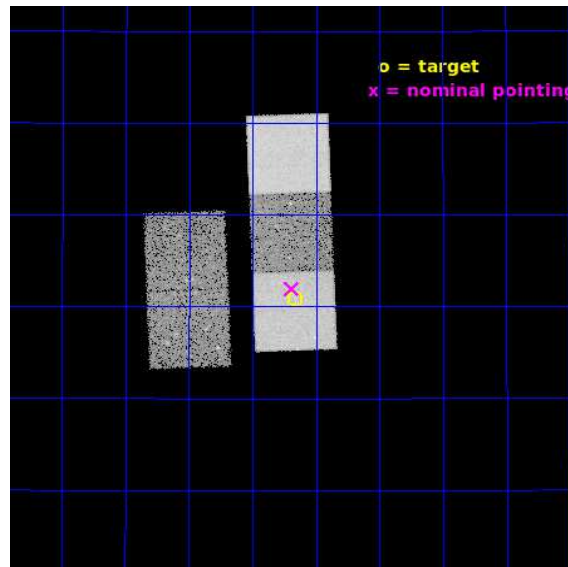
L2 Processing Date : Oct 5 2020

Contents

| | | |
|----------|-------------------------------|-----------|
| 1 | Front | 2 |
| 2 | OBI | 3 |
| 2.1 | OBI | 3 |
| 2.1.1 | Images | 3 |
| 2.1.2 | Bias | 3 |
| 2.1.3 | Parameters | 4 |
| 2.1.4 | 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

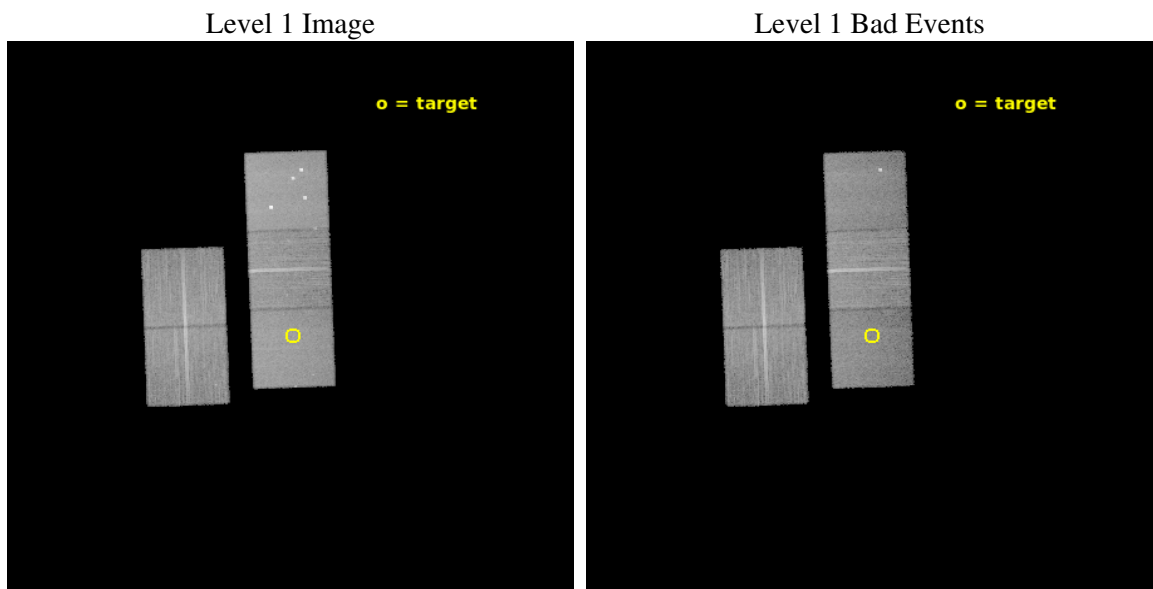
| | | |
|----------|---|---|
| seq_num | 800534 | Sequence number |
| obs_id | 5821 | Observation id |
| title | The Creation of the Intracluster Medium in High-z Galaxy Clusters | |
| observer | Spencer Stanford | Principal investigator |
| object | 3C 210 | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 134.54125 | Observer's specified target RA [deg] |
| dec_targ | 27.847778 | Observer's specified target Dec [deg] |
| ra_nom | 134.5472554259 | Nominal RA [deg] |
| dec_nom | 27.865942996253 | Nominal Dec [deg] |
| roll_nom | 87.843077830338 | Nominal Roll [deg] |
| revision | 5 | Processing version of data |
| ontime | 20837.531653285 | Sum of GTIs [s] |
| livetime | 20565.273961867 | Livetime [s] |
| ontime2 | 20837.367493272 | Sum of GTIs [s] |
| ontime3 | 20831.126552761 | Sum of GTIs [s] |
| ontime5 | 20837.490613282 | Sum of GTIs [s] |
| ontime6 | 20834.308563143 | Sum of GTIs [s] |
| ontime7 | 20837.531653285 | Sum of GTIs [s] |
| l2events | 180375 | Number of level 2 events |



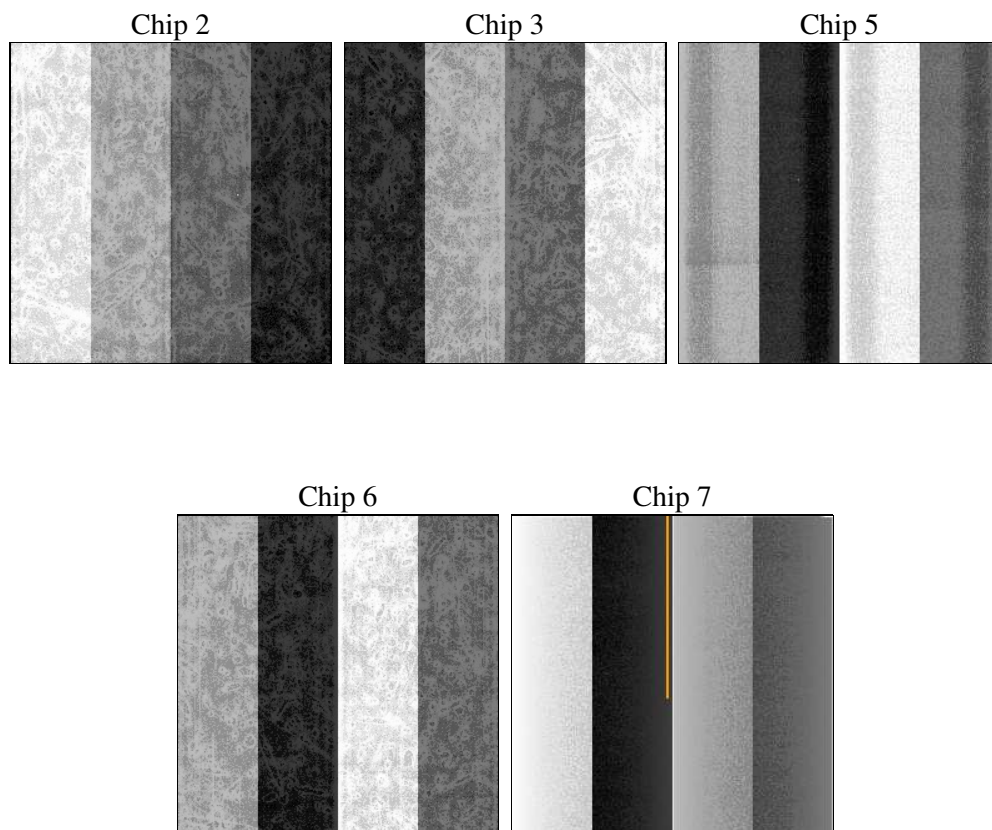
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 20800.000000 | [s] Scheduled observation exposure time |
| ascdsver | 10.9.1 | Processing system revision | ontime | 20837.531653285 | Sum of GTIs [s] |
| caldsver | 4.9.2 | | ontime2 | 20837.367493272 | Sum of GTIs [s] |
| date | 2020-10-06T00:12:50 | Date and time of file creation | ontime3 | 20831.126552761 | Sum of GTIs [s] |
| revision | 5 | Processing version of data | ontime5 | 20837.490613282 | Sum of GTIs [s] |
| | | | ontime6 | 20834.308563143 | Sum of GTIs [s] |
| | | | ontime7 | 20837.531653285 | Sum of GTIs [s] |
| | | | l1events | 750543 | Number of level 1 events |

2.1.4 Events

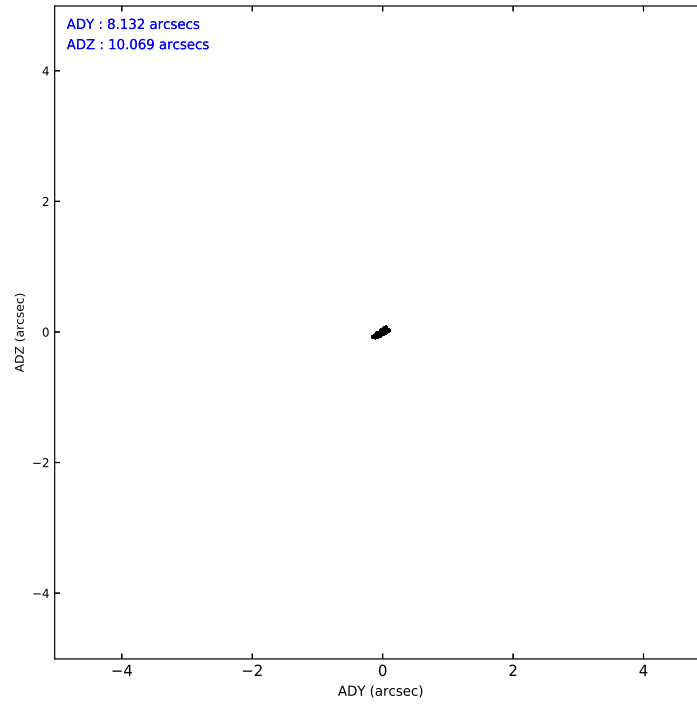
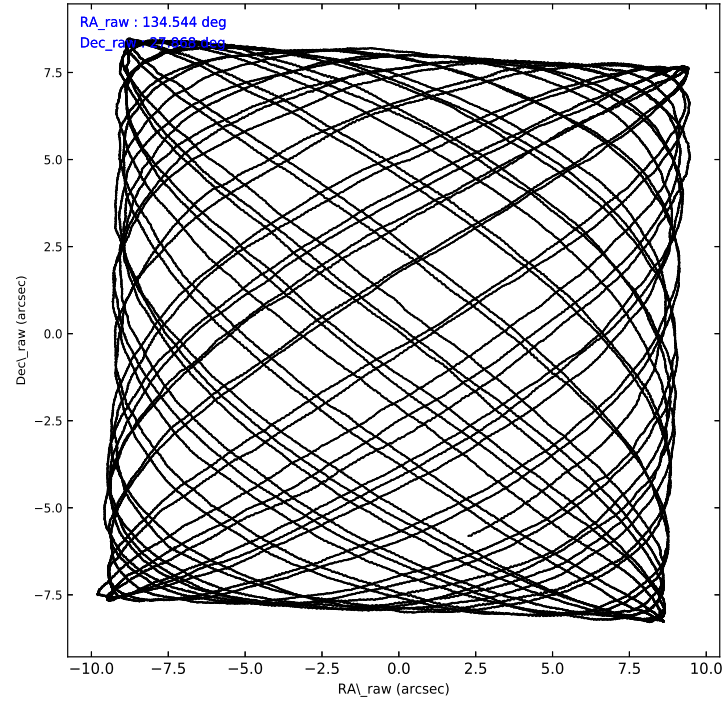
| | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 |
|-----------------|--------|--------|--------|--------|--------|
| level 1 events | 140275 | 133577 | 192259 | 136721 | 147711 |
| rejected events | 127484 | 121190 | 93774 | 122828 | 80742 |
| rejected % | 90% | 90% | 48% | 89% | 54% |

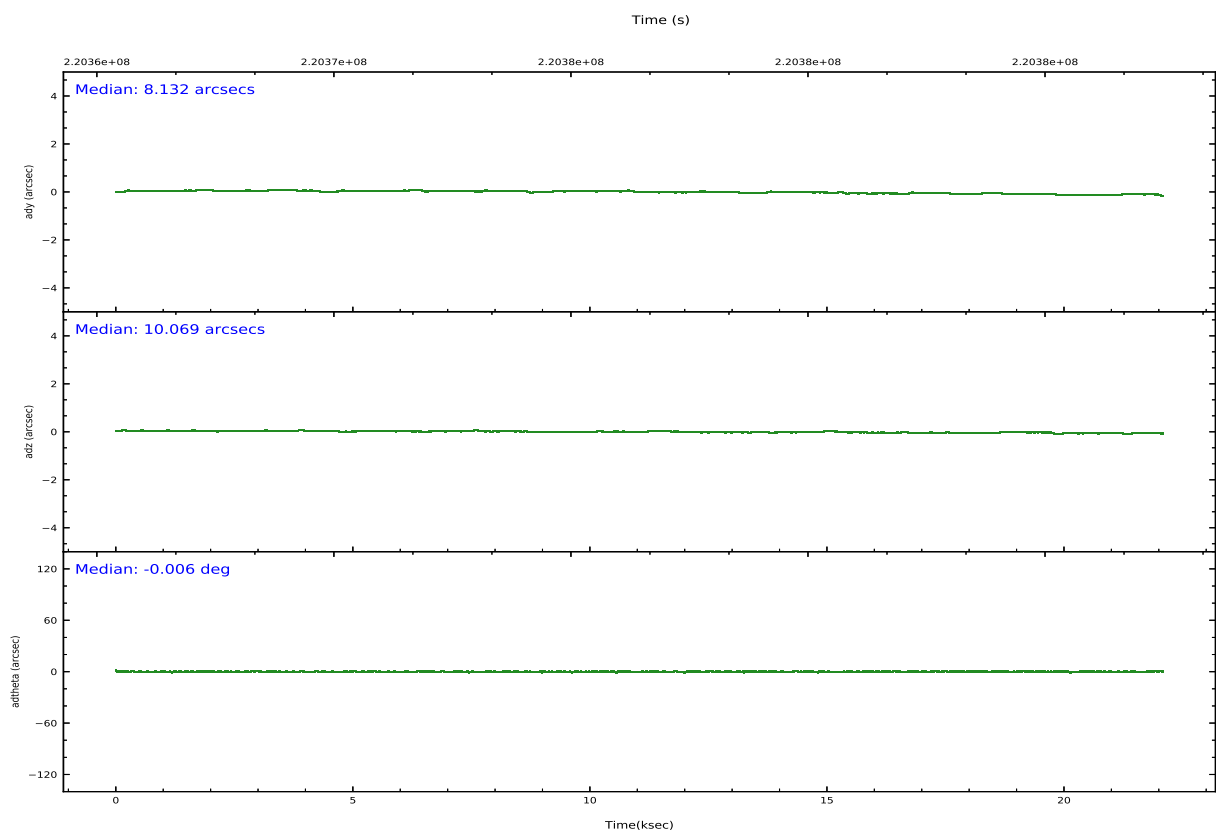
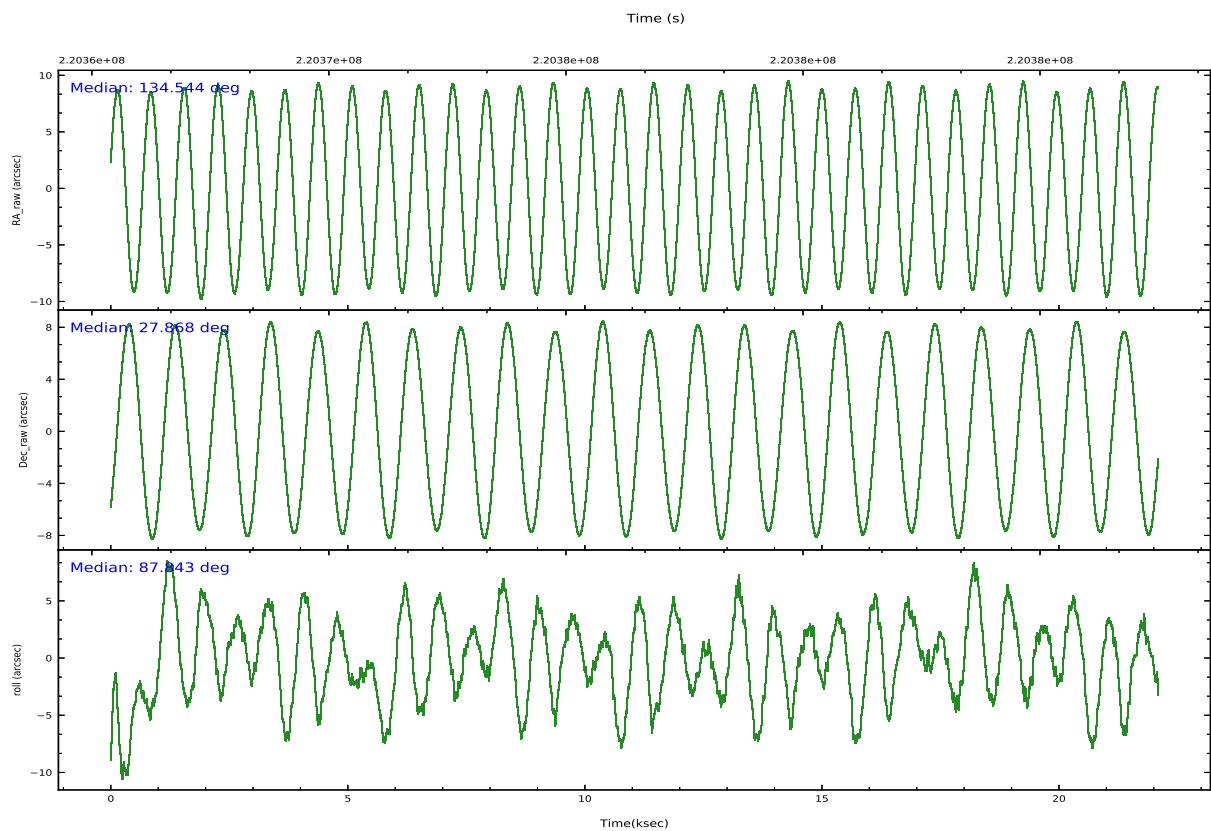
| | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 |
|----------------|--------|--------|-------|--------|-------|
| grade 0 events | 4750 | 4490 | 16785 | 4908 | 5973 |
| | 3% | 3% | 8% | 3% | 4% |
| grade 1 events | 69 | 56 | 193 | 62 | 121 |
| | 0% | 0% | 0% | 0% | 0% |
| grade 2 events | 2967 | 2643 | 27646 | 2989 | 13530 |
| | 2% | 1% | 14% | 2% | 9% |
| grade 3 events | 1389 | 1417 | 3846 | 1526 | 6264 |
| | 0% | 1% | 2% | 1% | 4% |
| grade 4 events | 1435 | 1435 | 3672 | 1505 | 6410 |
| | 1% | 1% | 1% | 1% | 4% |
| grade 5 events | 4275 | 5186 | 14469 | 5498 | 15860 |
| | 3% | 3% | 7% | 4% | 10% |
| grade 6 events | 2253 | 2405 | 46561 | 2971 | 34822 |
| | 1% | 1% | 24% | 2% | 23% |
| grade 7 events | 123137 | 115945 | 79087 | 117262 | 64731 |
| | 87% | 86% | 41% | 85% | 43% |

2.2 Compared Parameters

| Parameter | Planned | Actual | Parameter | Planned | Actual |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument | ACIS | ACIS | Obspar version number | 8 | 8 |
| Detector | ACIS-23567 | ACIS-23567 | Obspar file type | PREDICTED | ACTUAL |
| Grating | NONE | NONE | Obspar update status | NONE | UPDATED |
| Data mode | VFAINT | VFAINT | Number of optional ACIS chips dropped | 0 | 0 |
| Observation mode | POINTING | POINTING | On-chip summing requested | N | N |
| [deg] Pointing RA | 134.558825 | 134.5472554259 | Subarray requested | NONE | NONE |
| [deg] Pointing Dec | 27.844480 | 27.865942996253 | Alternating exposures requested | N | N |
| [deg] Pointing Roll | 87.678535 | 87.843077830338 | [s] Primary exposure time | 0.000000 | 3.1 |
| [mm] SIM focus pos | -0.684267 | -0.6828225247311905 | | | |
| [mm] SIM defocus | 0 | 0.001444936568705701 | | | |
| [mm] SIM translation stage pos | -190.132523 | -190.1400660498719 | | | |
| [mm] SIM translation stage offset | 0 | 0.00754346686406393 | | | |
| [s] Observation start time (MET) | 220366691.184000 | 220365209.01179 | | | |
| Observation start date | 2004-12-25T12:57:07 | 2004-12-25T12:33:29 | | | |
| [s] Observation end time (MET) | 220387491.184000 | 220388035.76282 | | | |
| Observation end date | 2004-12-25T18:43:47 | 2004-12-25T18:53:55 | | | |
| Read mode | TIMED | TIMED | | | |

2.3 Aspect



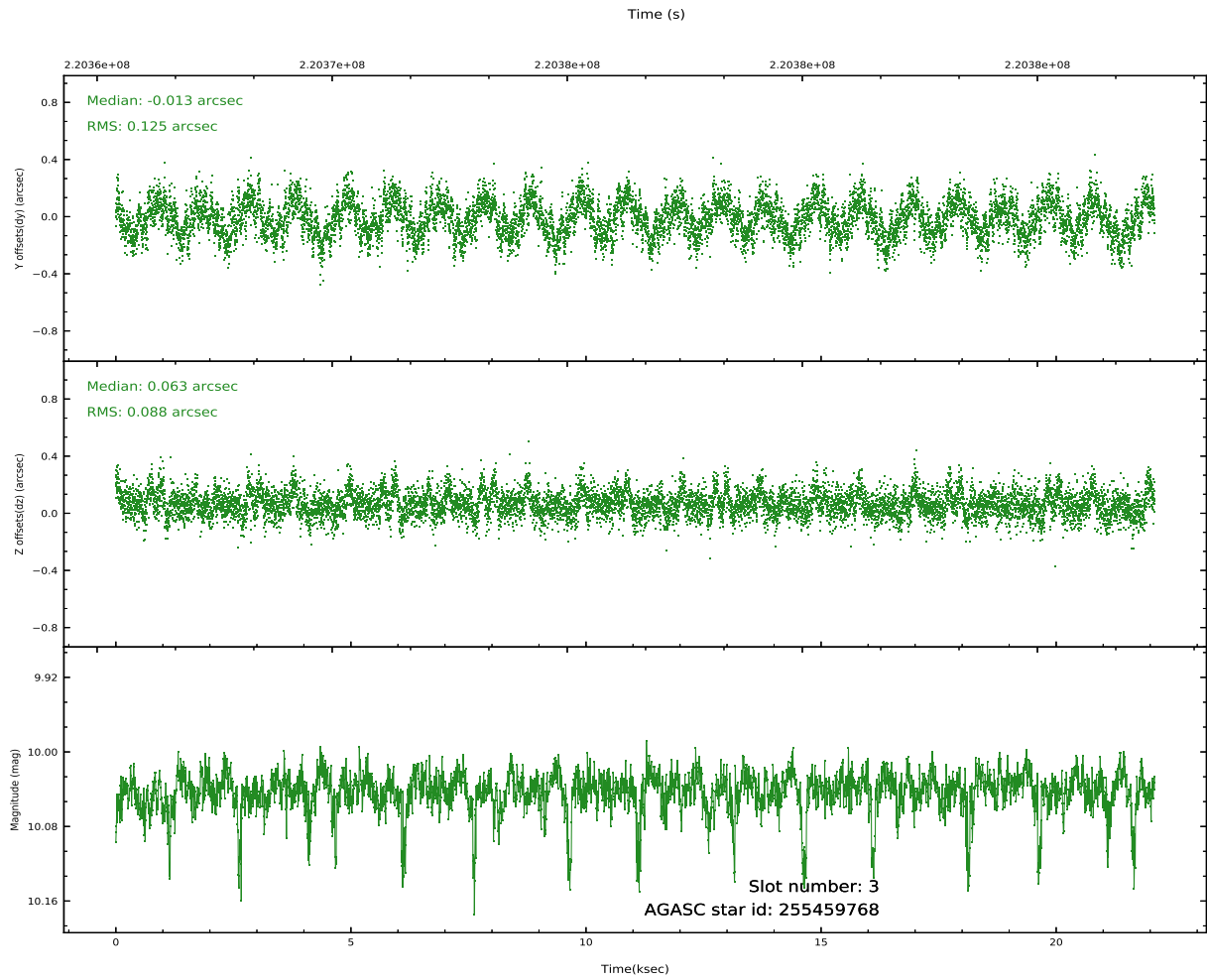
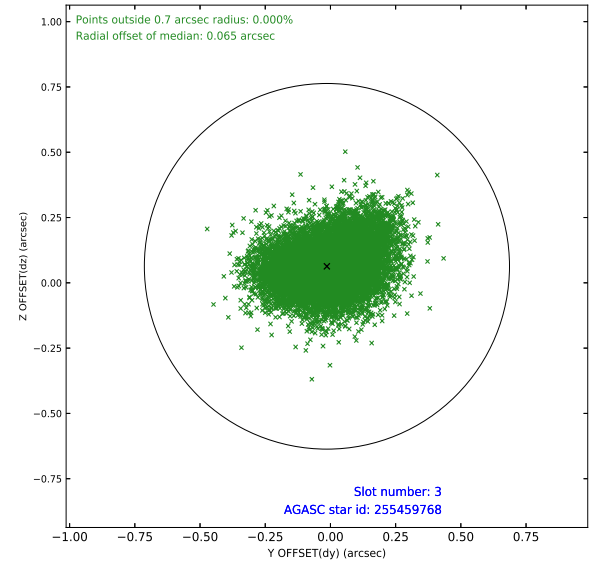
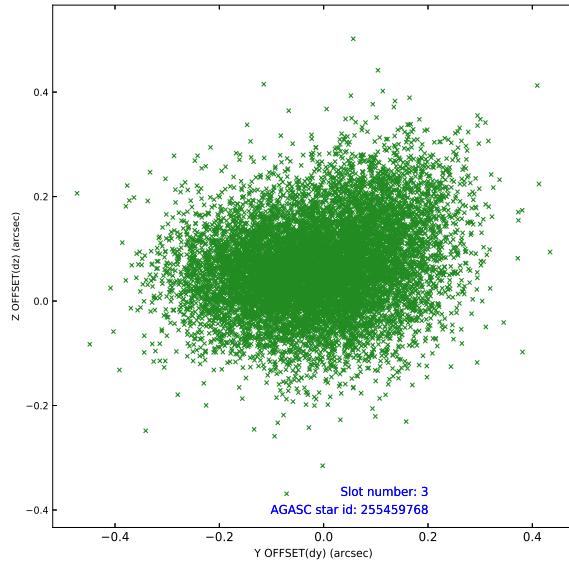


Slot Statistics

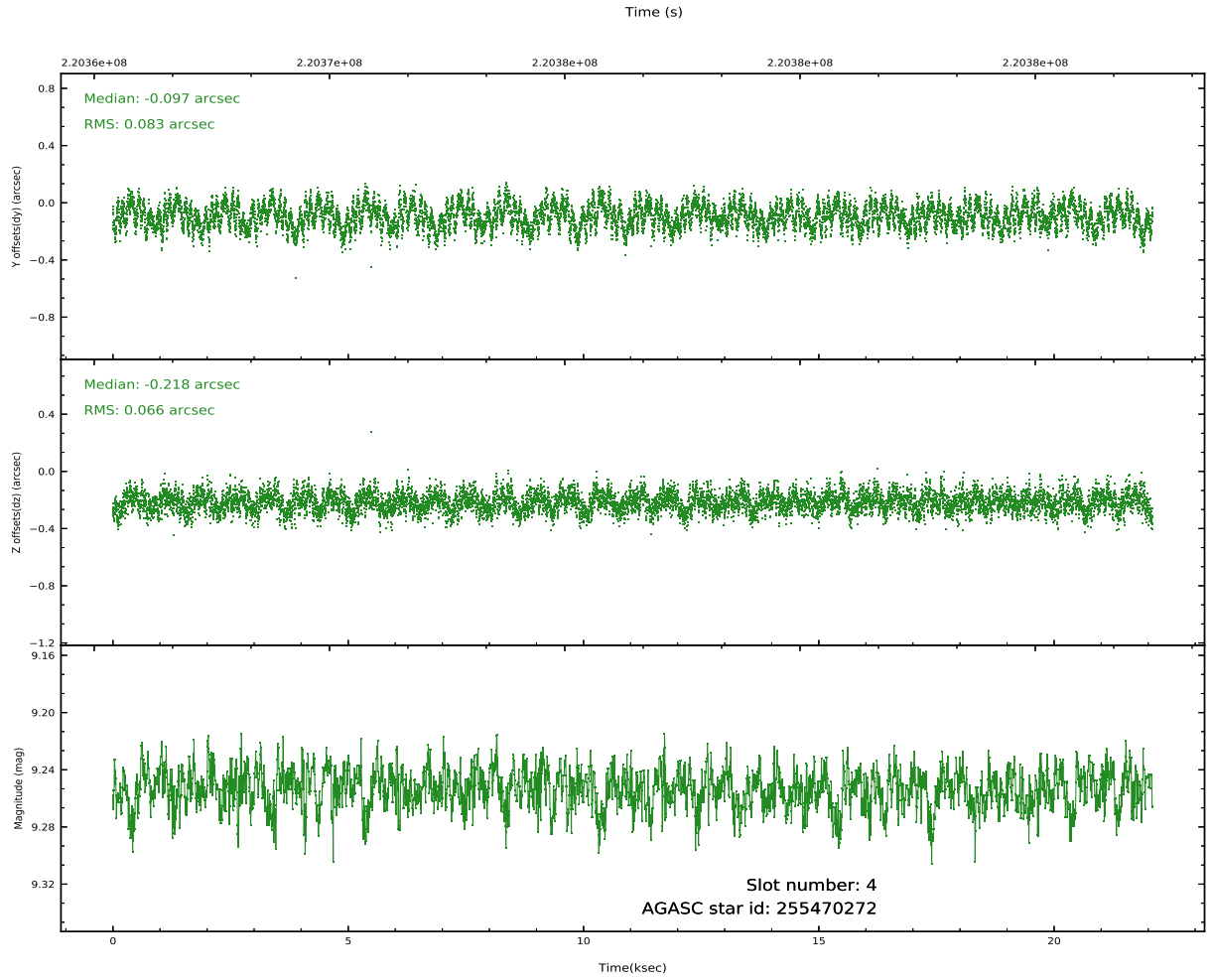
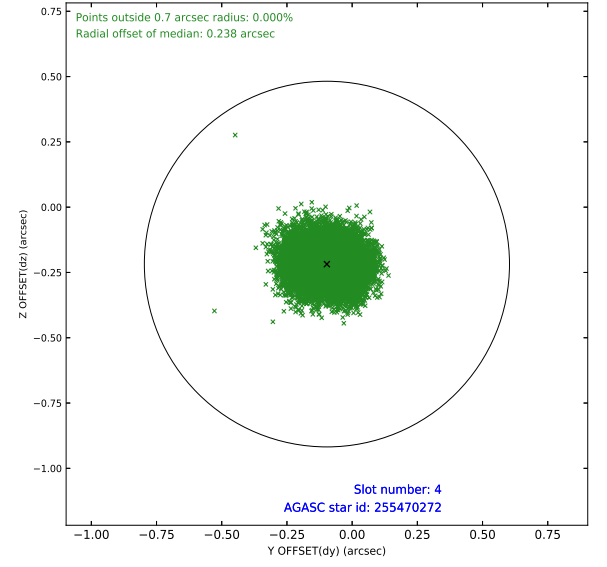
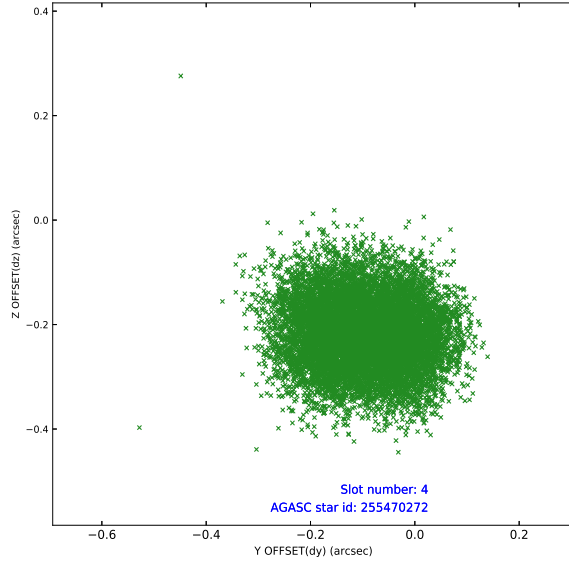
| pt | status | used | id | mag | n_pts | frac_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mea |
|----|--------|------|-----------|-------|-------|----------|--------|--------|-------|-------|------------|-----------|----------|-------|
| 0 | FID | | ACIS-S-2 | 7.10 | 5389 | 1.000 | -0.073 | -0.064 | 0.007 | 0.011 | 0.000000 | 0.000000 | -760.90 | -1731 |
| 1 | FID | | ACIS-S-4 | 7.21 | 5388 | 1.000 | 0.178 | 0.052 | 0.006 | 0.012 | 0.000000 | 0.000000 | 2152.47 | 177 |
| 2 | FID | | ACIS-S-5 | 7.23 | 5389 | 1.000 | -0.136 | 0.020 | 0.007 | 0.012 | 0.000000 | 0.000000 | -1813.69 | 170 |
| 3 | GUIDE | used | 255459768 | 10.04 | 10762 | 1.000 | -0.013 | 0.063 | 0.162 | 0.266 | 133.896950 | 28.506403 | 2301.82 | 2189 |
| 4 | GUIDE | used | 255470272 | 9.25 | 10773 | 1.000 | -0.097 | -0.218 | 0.116 | 0.177 | 133.844161 | 28.114281 | 885.09 | 2307 |
| 5 | GUIDE | used | 255984792 | 9.36 | 10773 | 1.000 | 0.117 | 0.025 | 0.088 | 0.139 | 134.698273 | 27.233445 | -2179.28 | -534 |
| 6 | GUIDE | used | 255986024 | 9.06 | 10775 | 1.000 | -0.038 | 0.066 | 0.106 | 0.164 | 135.247679 | 27.336469 | -1731.96 | -2275 |
| 7 | GUIDE | used | 256381208 | 9.28 | 10771 | 1.000 | 0.031 | 0.059 | 0.092 | 0.148 | 134.758821 | 27.635369 | -725.96 | -667 |

2.4 Star Slots

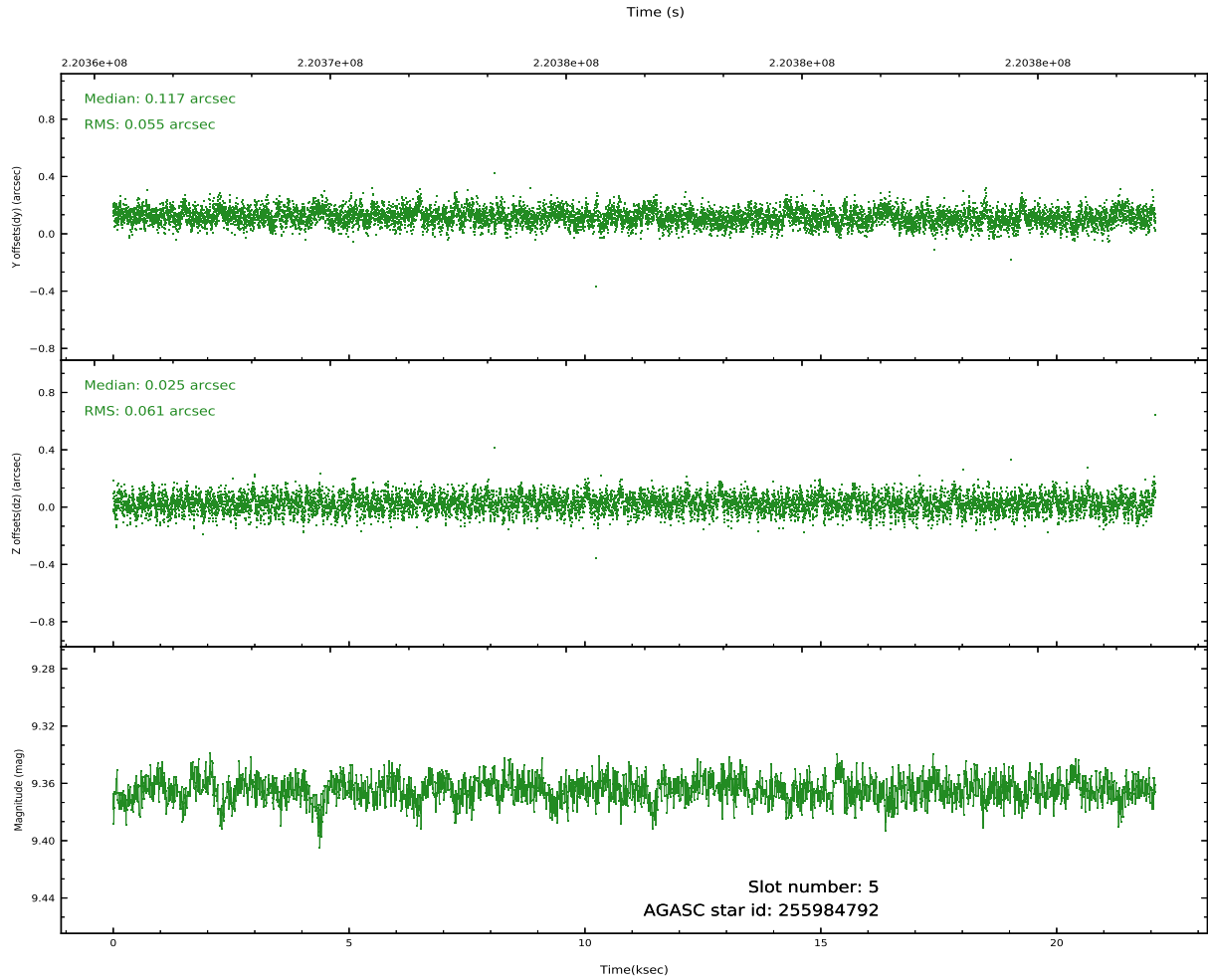
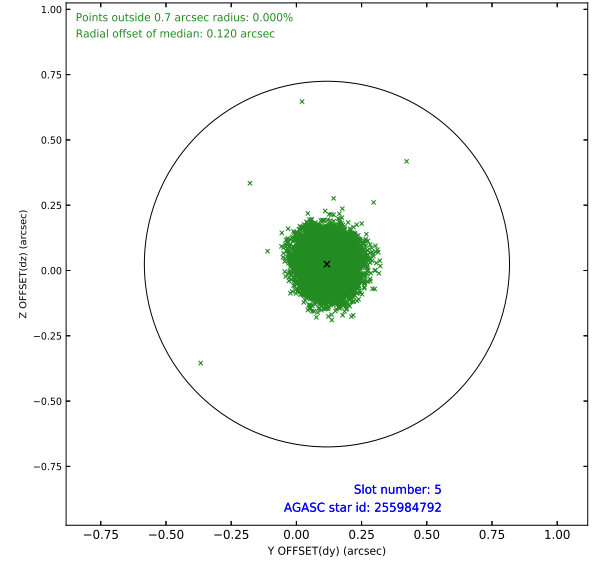
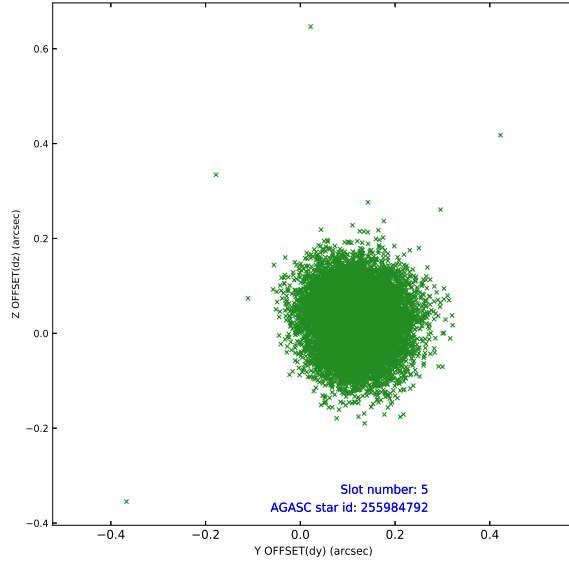
2.4.1 Slot 3



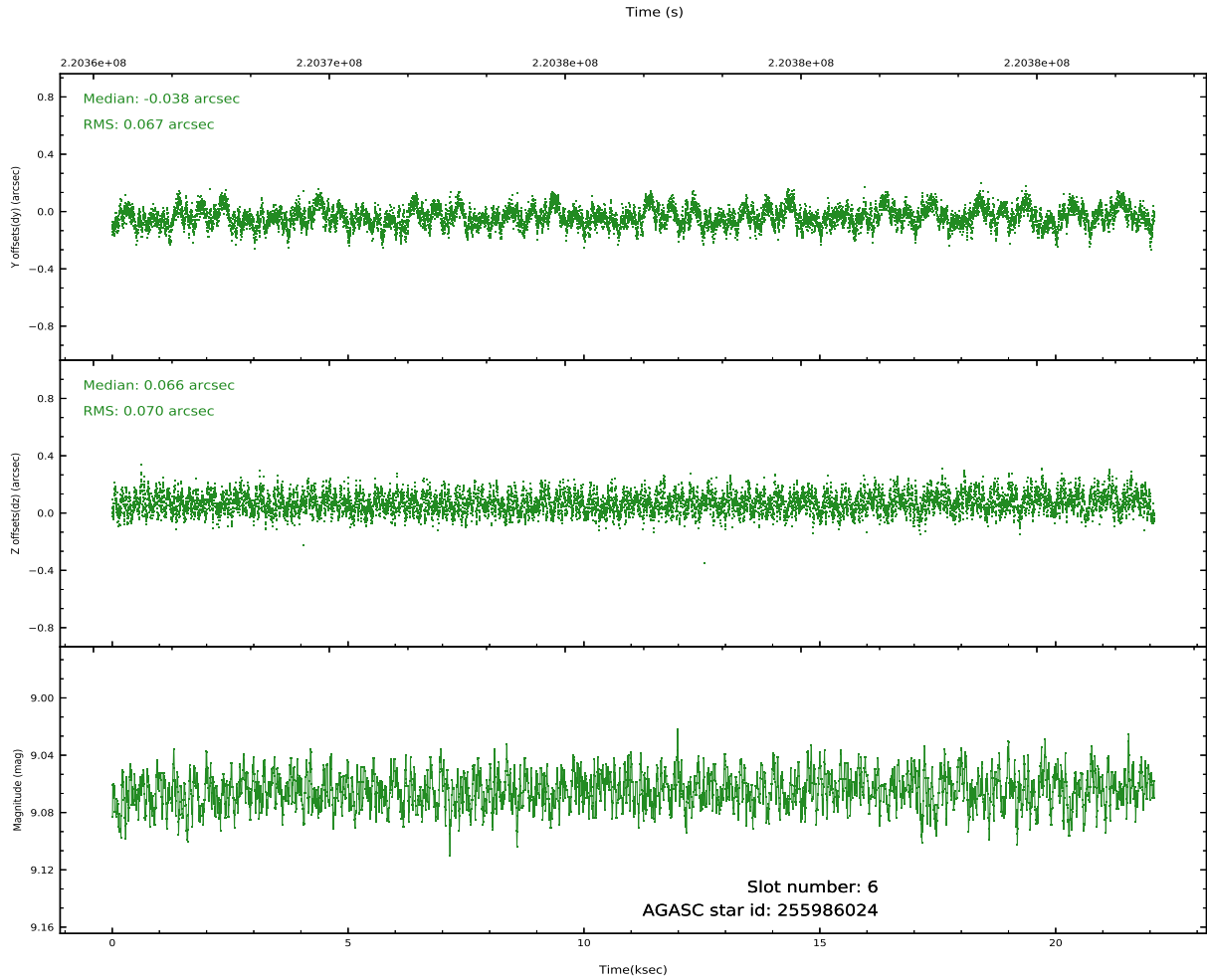
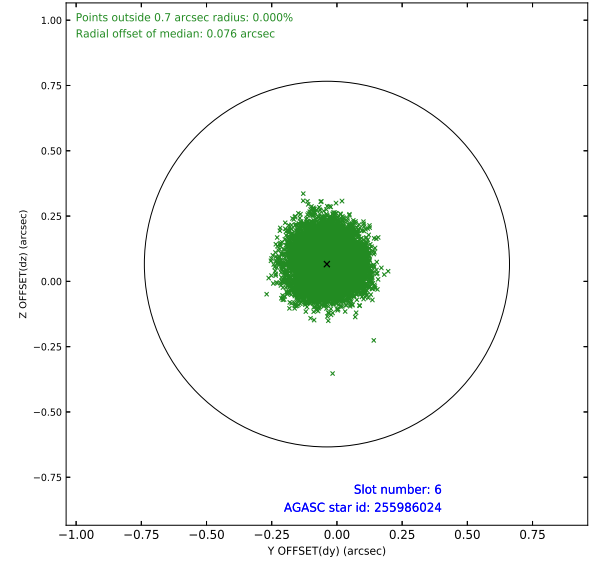
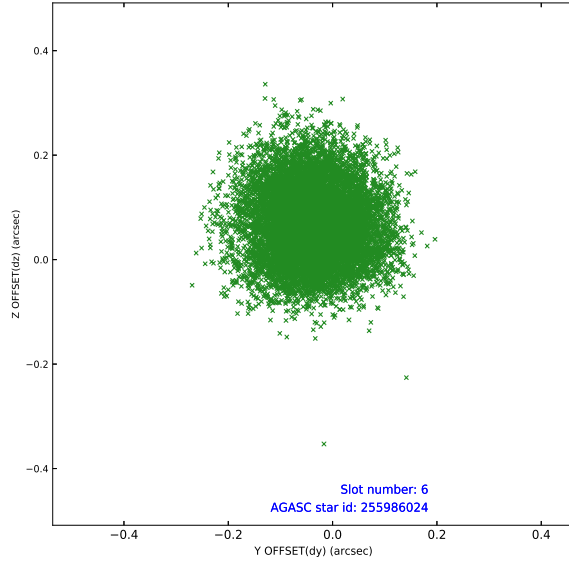
2.4.2 Slot 4



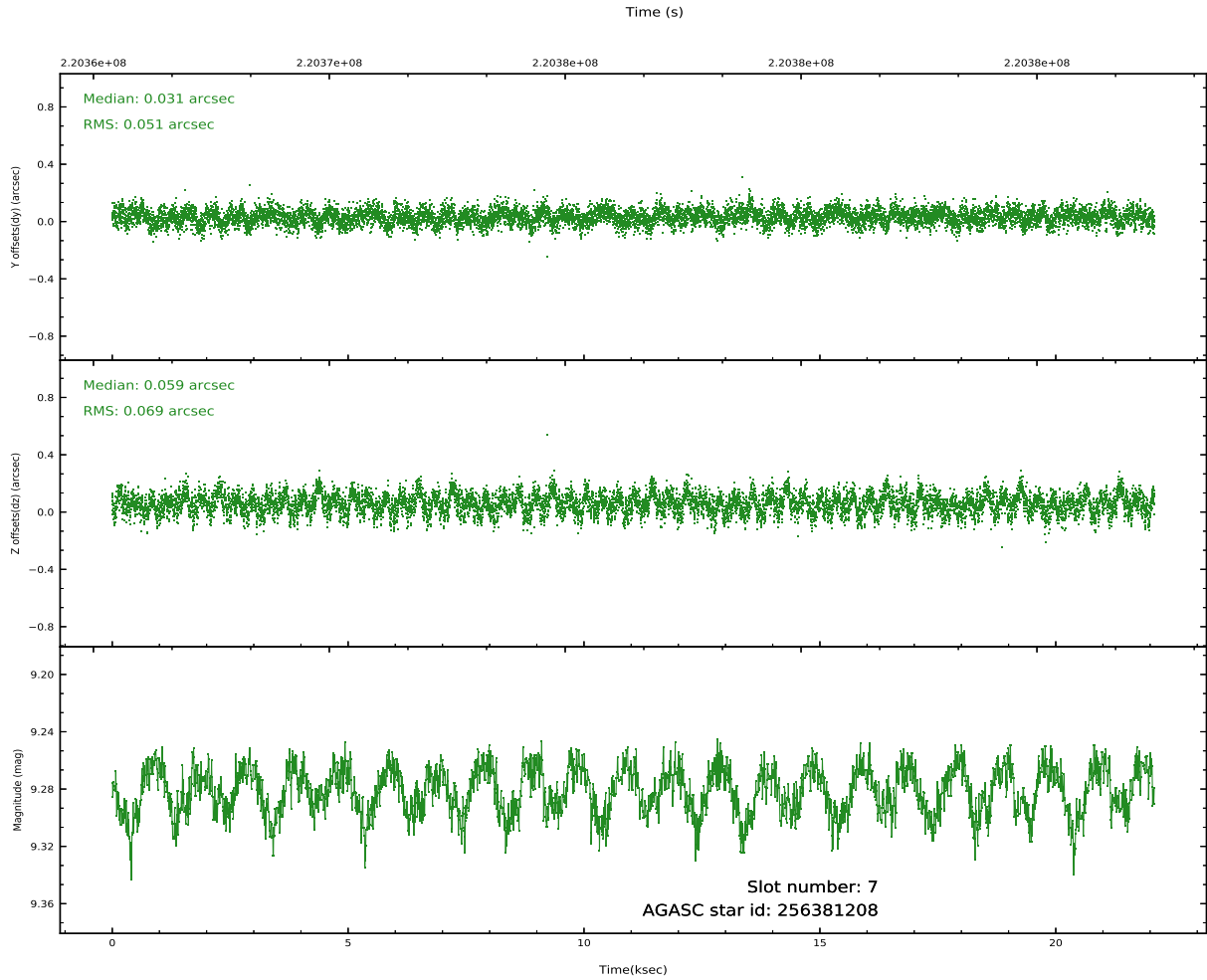
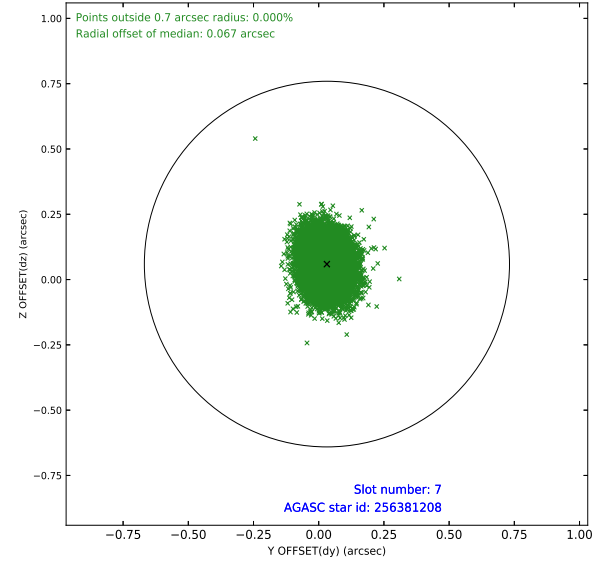
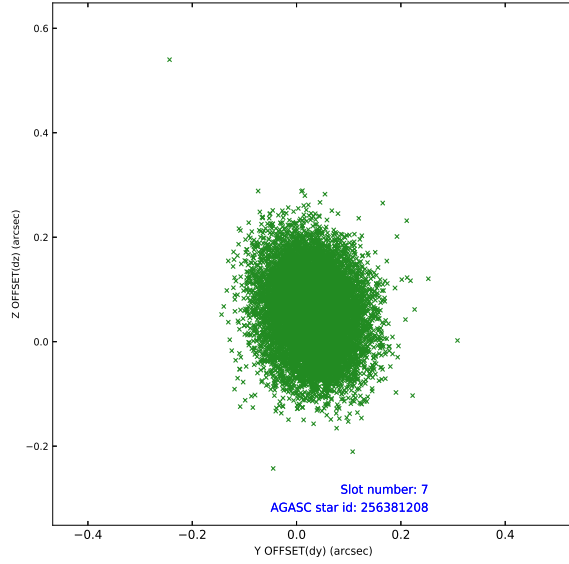
2.4.3 Slot 5



2.4.4 Slot 6

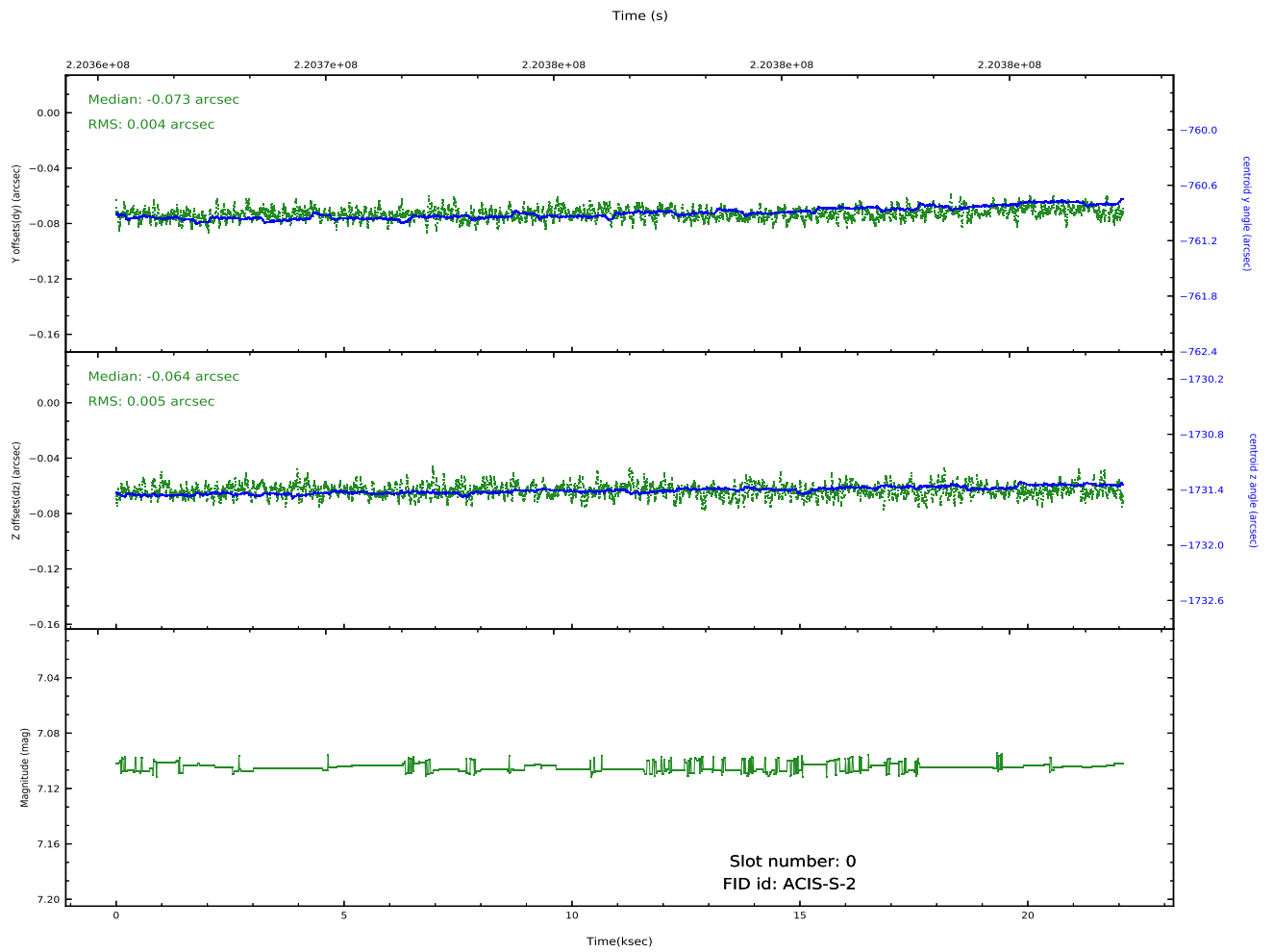
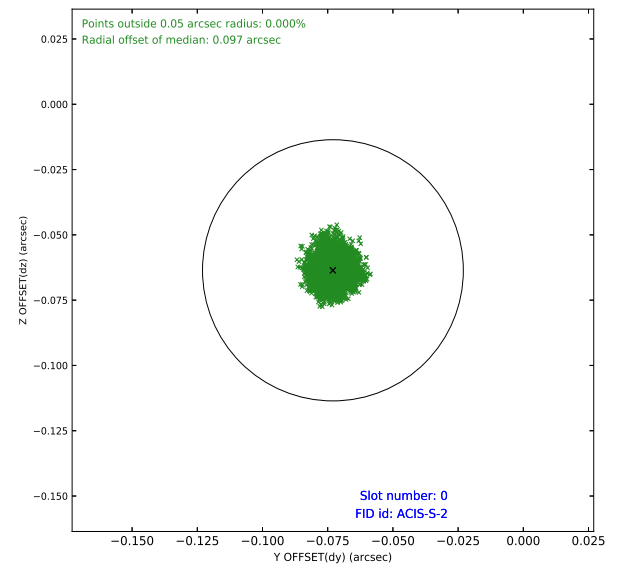
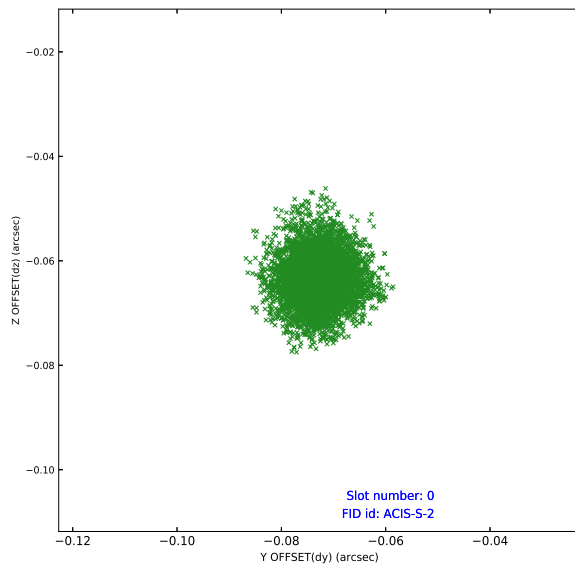


2.4.5 Slot 7

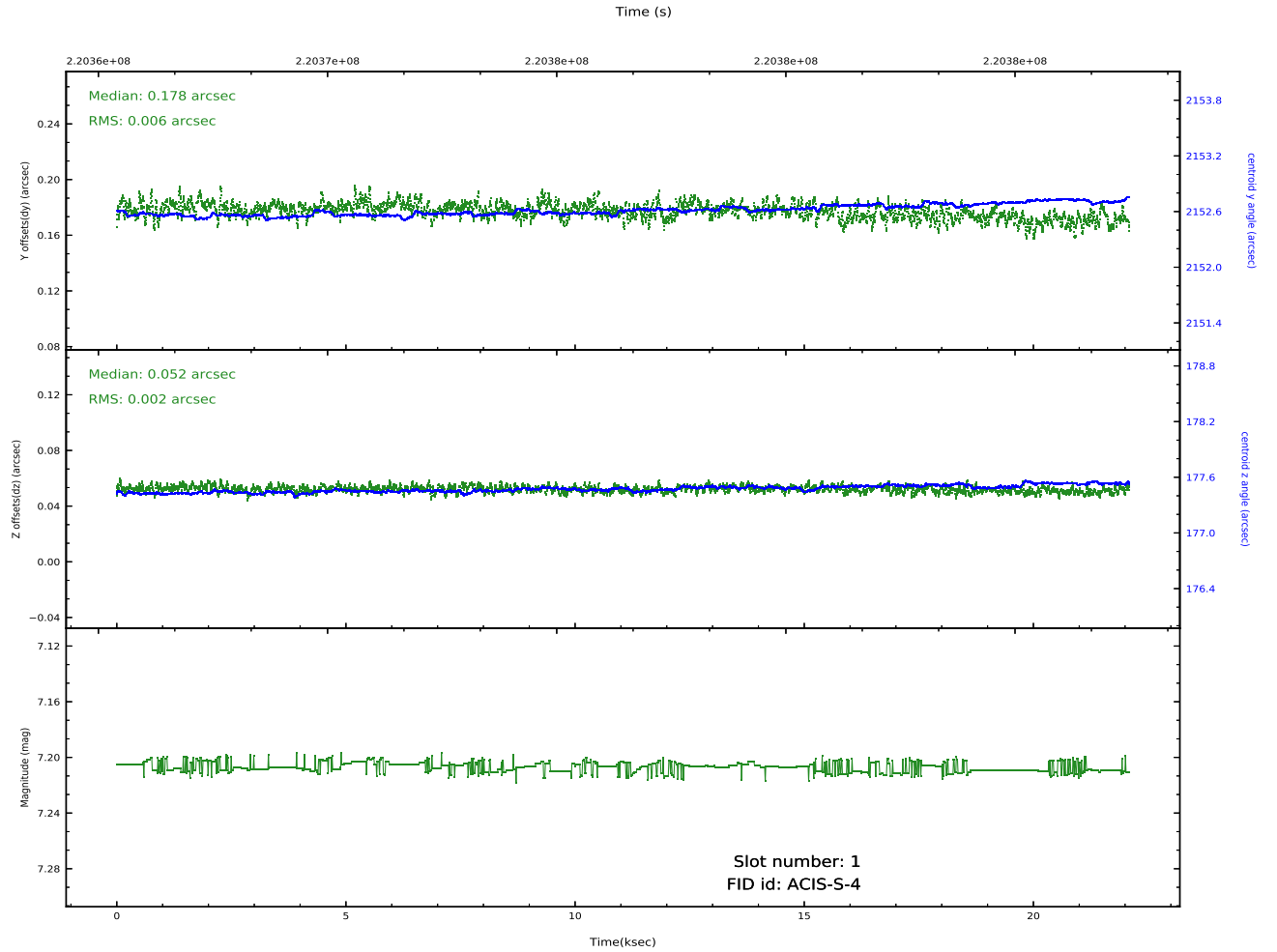
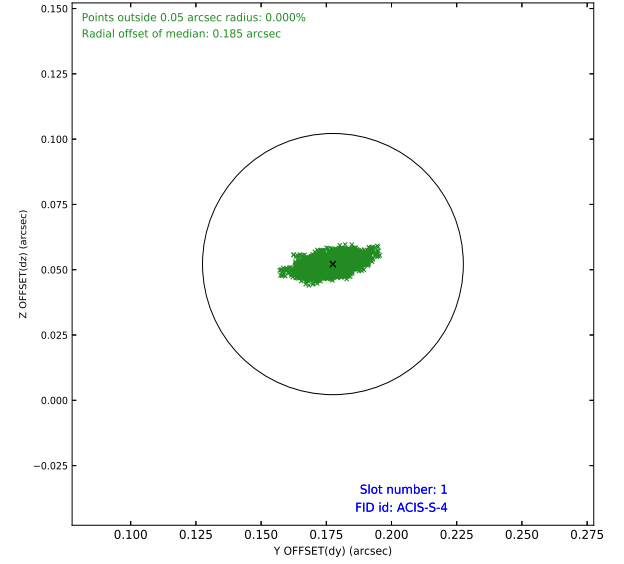
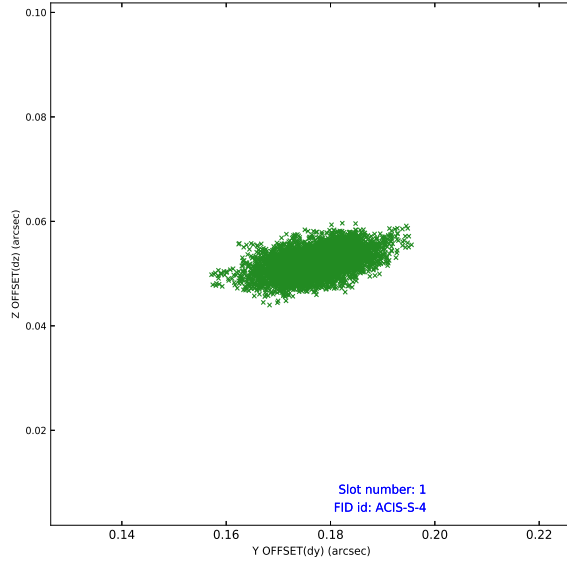


2.5 FID Slots

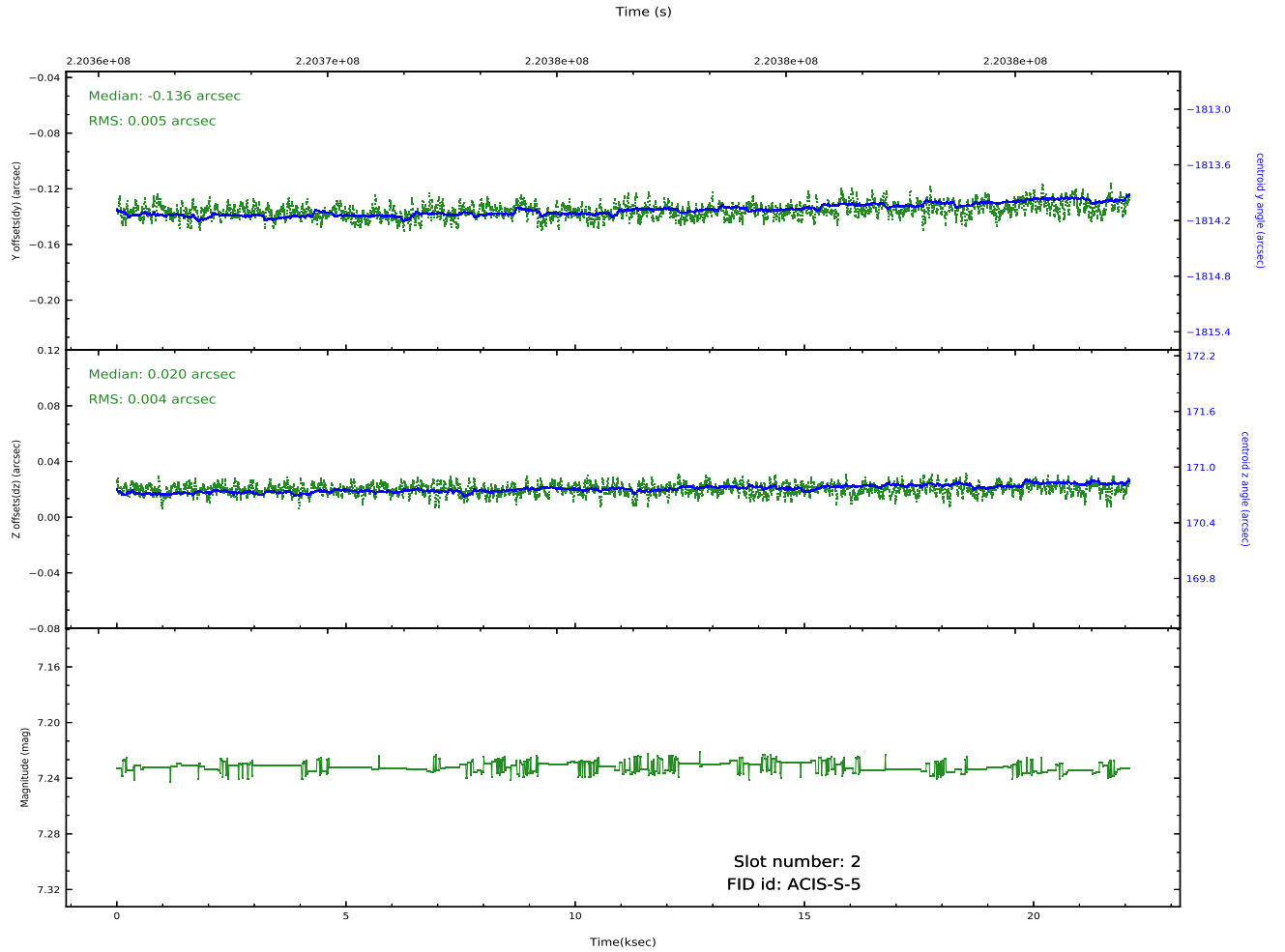
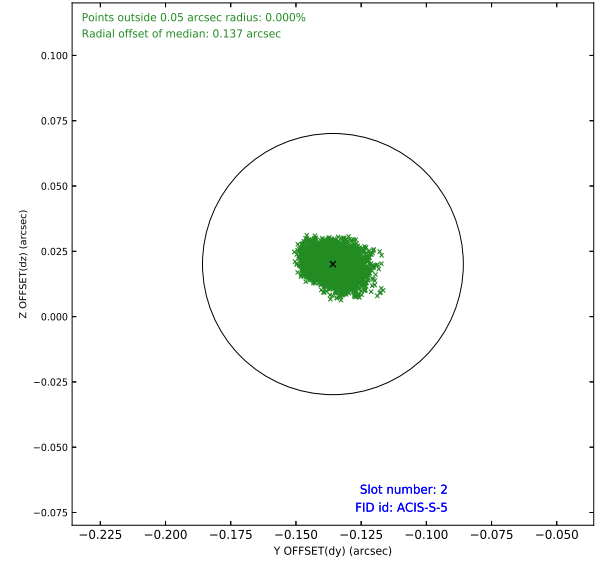
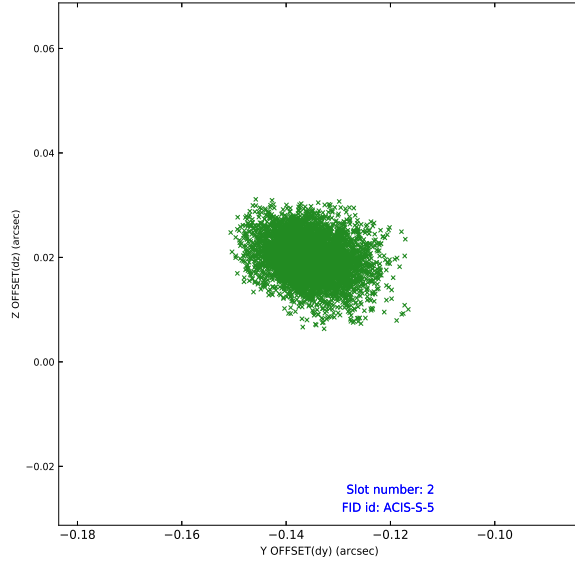
2.5.1 Slot 0



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) | 2020.10.06 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 20.83819 |

A.2 Comments

Joint proposal with XMM.

===

A spatial region of the original bias map for CCD = 2 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 = 2 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:
(134.77167,27.97230),(134.76719,27.97245),(134.76510,27.92572),(134.76957,27.92558).