

V&V Reference Report

L2 ASCDS Version : 10.8.4

Observation 22917 - L2 Version 1
Chandra X-Ray Center

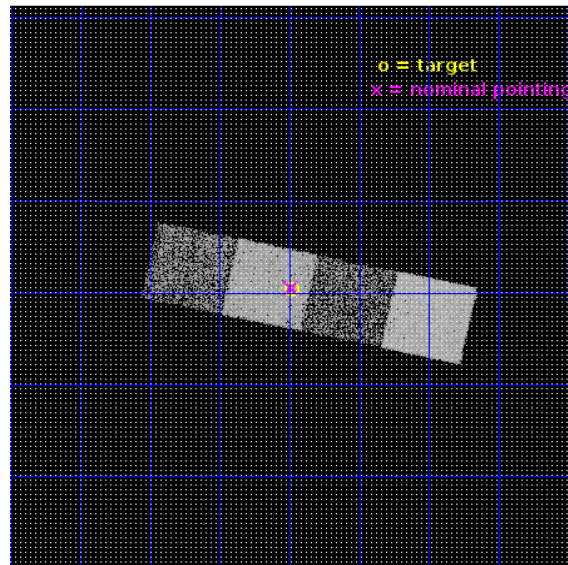
L2 Processing Date : May 4 2020

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1 Front

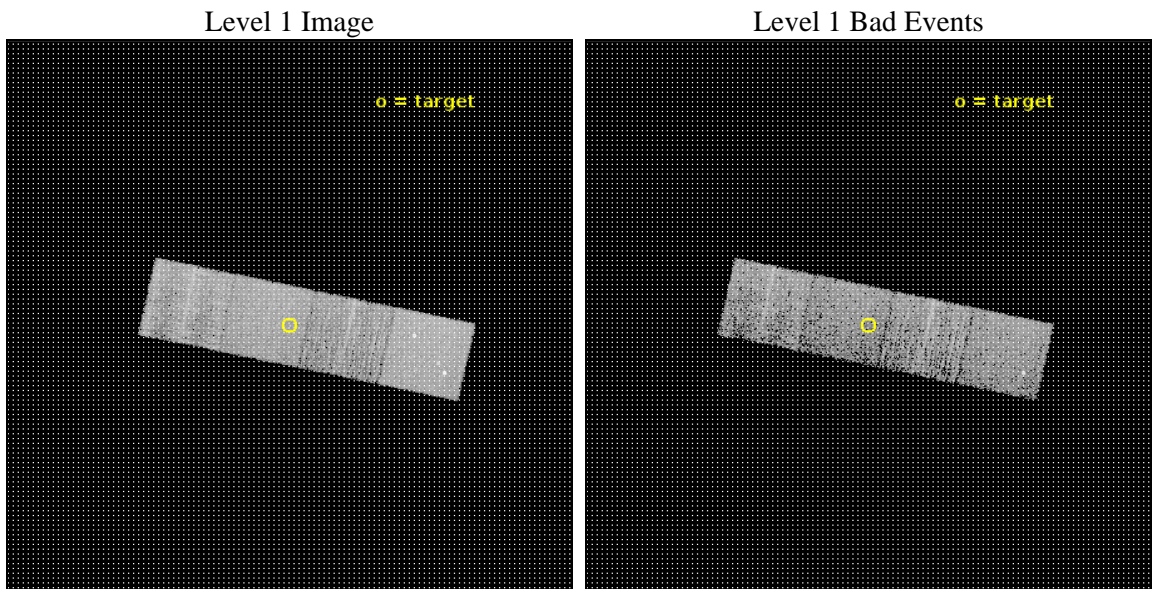
| | | |
|----------|--|---|
| seq_num | 704028 | Sequence number |
| obs_id | 22917 | Observation id |
| title | Gravitational millilensing as a tool for studying the microarcsec-scale structure in PKS1413+135 | Proposal title |
| observer | Ioannis Liodakis | Principal investigator |
| object | PKS 1413+135 | Source name |
| dtcycle | 0 | |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 213.995 | Observer's specified target RA [deg] |
| dec_targ | 13.339917 | Observer's specified target Dec [deg] |
| ra_nom | 213.996606878 | Nominal RA [deg] |
| dec_nom | 13.3427416424 | Nominal Dec [deg] |
| roll_nom | 192.157871112 | Nominal Roll [deg] |
| revision | 1 | Processing version of data |
| ontime | 4063.4250651598 | Sum of GTIs [s] |
| livetime | 4010.3334252335 | Livetime [s] |
| ontime5 | 4063.3840252161 | Sum of GTIs [s] |
| ontime6 | 4063.3429851532 | Sum of GTIs [s] |
| ontime7 | 4063.4250651598 | Sum of GTIs [s] |
| ontime8 | 4063.3019452095 | Sum of GTIs [s] |
| l2events | 47414 | Number of level 2 events |



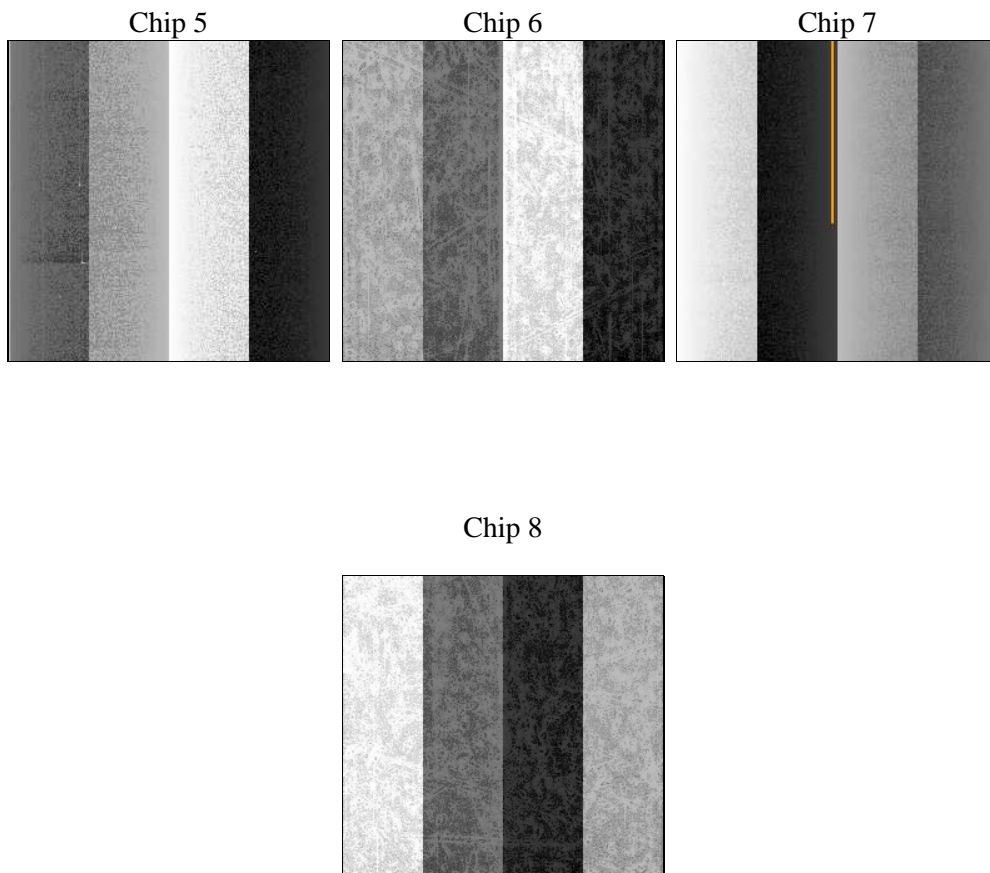
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

| | | | | | |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num | 0 | Obi number | sched_exp_time | 4000.000000 | [s] Scheduled observation exposure time |
| ascdsver | 10.8.4 | Processing system revision | ontime | 4063.4250651598 | Sum of GTIs [s] |
| caldsver | 4.9.1 | | ontime5 | 4063.3840252161 | Sum of GTIs [s] |
| date | 2020-05-04T13:33:09 | Date and time of file creation | ontime6 | 4063.3429851532 | Sum of GTIs [s] |
| revision | 1 | Processing version of data | ontime7 | 4063.4250651598 | Sum of GTIs [s] |
| | | | ontime8 | 4063.3019452095 | Sum of GTIs [s] |
| | | | l1events | 166118 | Number of level 1 events |

2.1.4 Events

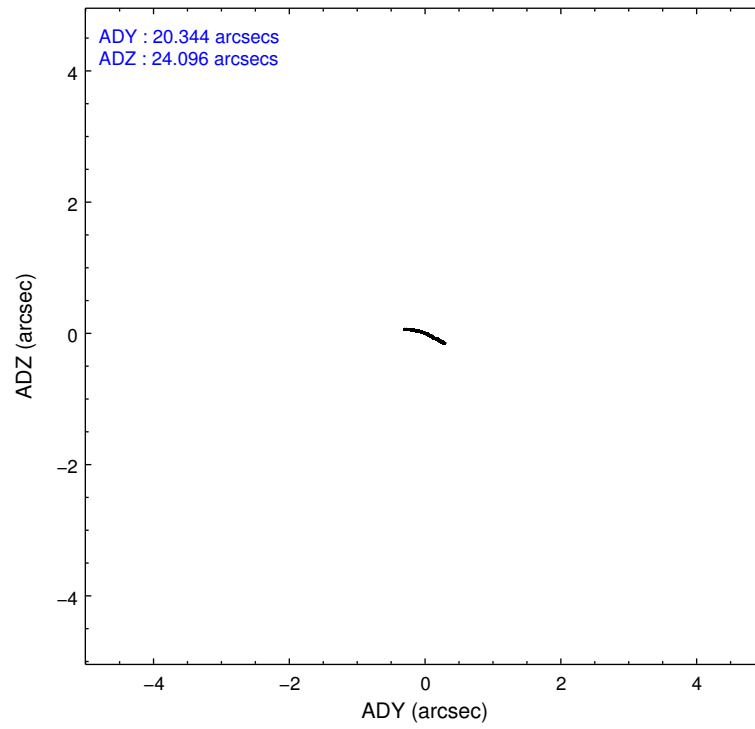
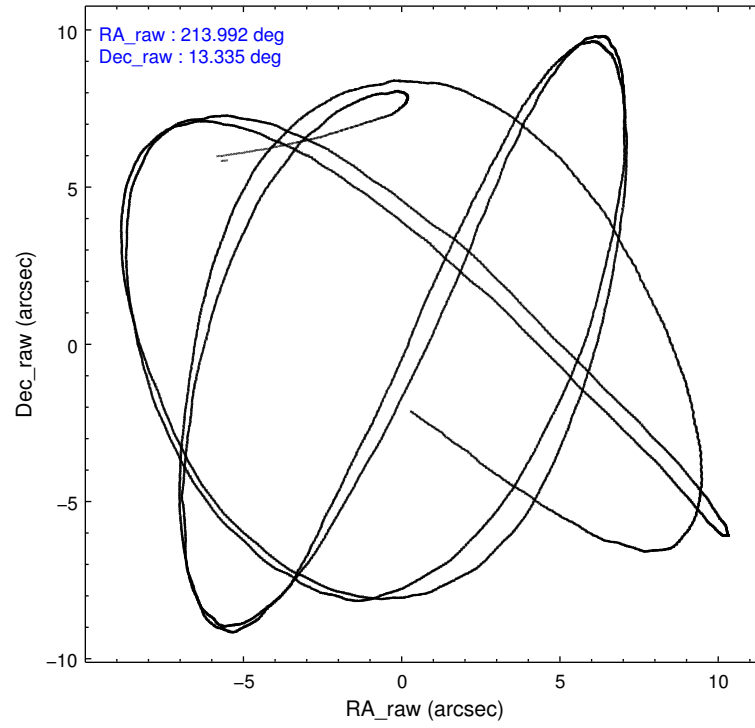
| | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|-----------------|-------|-------|-------|-------|
| level 1 events | 52152 | 31511 | 40913 | 41542 |
| rejected events | 26621 | 27932 | 23223 | 29373 |
| rejected % | 51% | 88% | 56% | 70% |

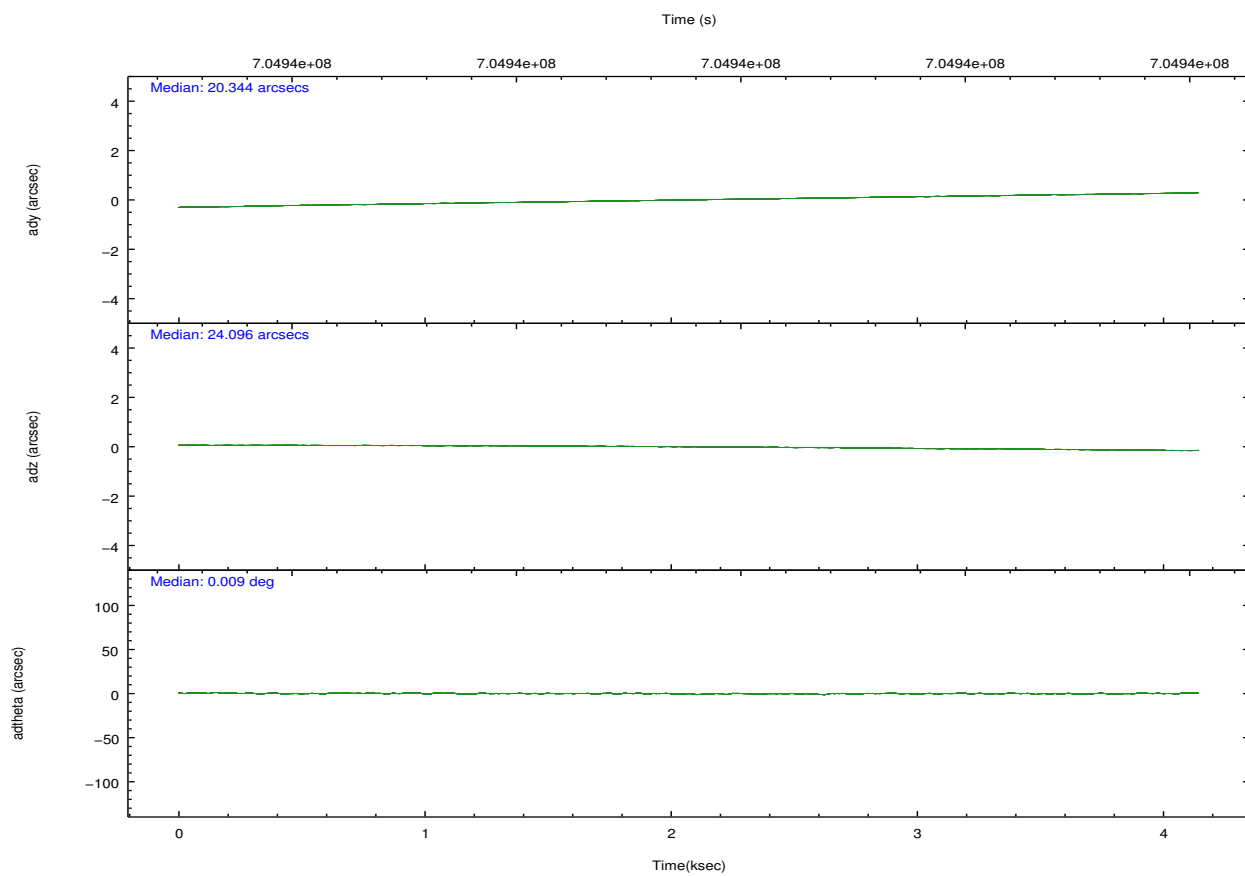
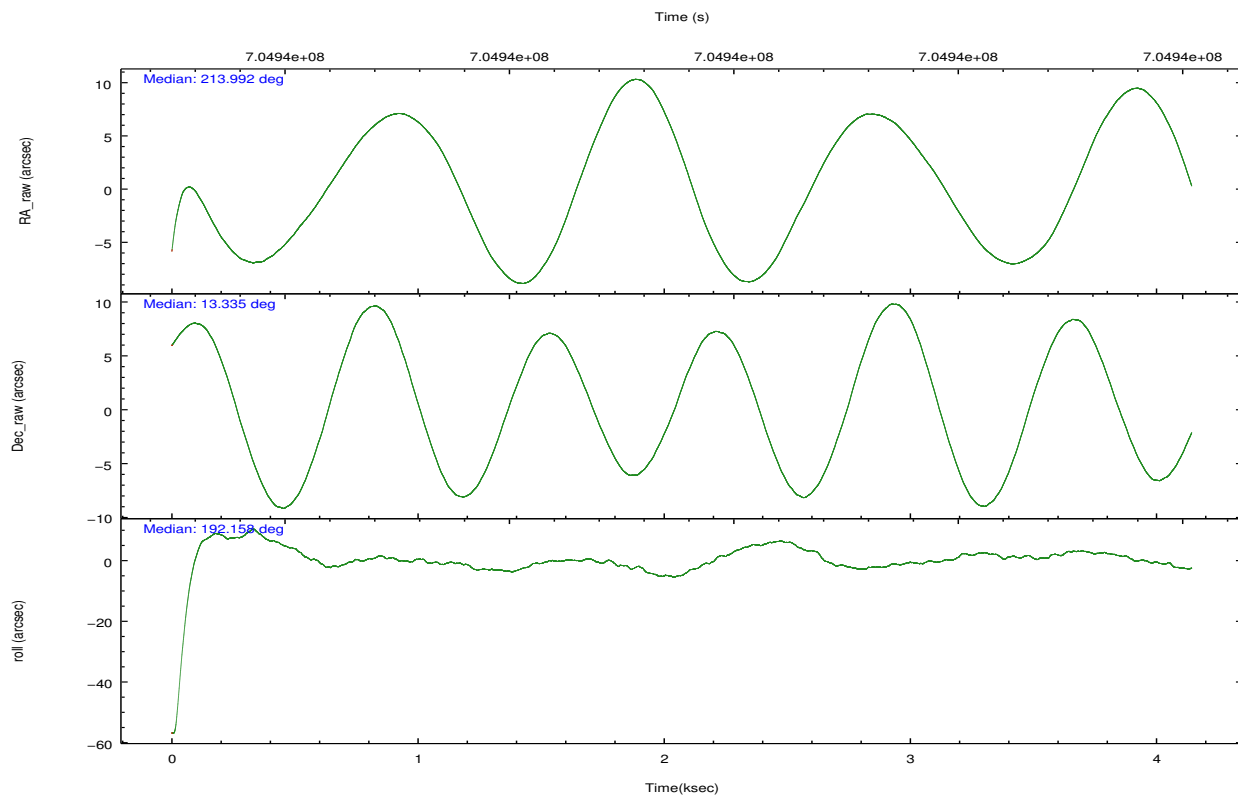
| | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|----------------|-------|-------|-------|-------|
| grade 0 events | 2584 | 1160 | 1486 | 3383 |
| | 4% | 3% | 3% | 8% |
| grade 1 events | 95 | 14 | 70 | 46 |
| | 0% | 0% | 0% | 0% |
| grade 2 events | 8309 | 849 | 3847 | 3051 |
| | 15% | 2% | 9% | 7% |
| grade 3 events | 787 | 360 | 1411 | 1099 |
| | 1% | 1% | 3% | 2% |
| grade 4 events | 687 | 368 | 1407 | 1072 |
| | 1% | 1% | 3% | 2% |
| grade 5 events | 3667 | 1454 | 4094 | 2267 |
| | 7% | 4% | 10% | 5% |
| grade 6 events | 13184 | 844 | 9552 | 3568 |
| | 25% | 2% | 23% | 8% |
| grade 7 events | 22839 | 26462 | 19046 | 27056 |
| | 43% | 83% | 46% | 65% |

2.2 Compared Parameters

| Parameter | Planned | Actual | Parameter | Planned | Actual |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument | ACIS | ACIS | Obspar version number | 8 | 8 |
| Detector | ACIS-5678 | ACIS-5678 | Obspar file type | PREDICTED | ACTUAL |
| Grating | NONE | NONE | Obspar update status | NONE | UPDATED |
| Data mode | FAINT | FAINT | CCD I0 on | N | N |
| Observation mode | POINTING | POINTING | CCD I1 on | N | N |
| [deg] Pointing RA | 214.012867 | 213.996606878 | CCD I2 on | N | N |
| [deg] Pointing Dec | 13.353399 | 13.3427416424 | CCD I3 on | N | N |
| [deg] Pointing Roll | 191.995878 | 192.157871112 | CCD S0 on | N | N |
| [mm] SIM focus pos | -0.684267 | -0.6828225247311905 | CCD S1 on | Y | Y |
| [mm] SIM defocus | 0 | 0.001444936568705701 | CCD S2 on | O2 | Y |
| [mm] SIM translation stage pos | -190.132523 | -190.1425803651734 | CCD S3 on | Y | Y |
| [mm] SIM translation stage offset | 0 | 0.01005778216563158 | CCD S4 on | O1 | Y |
| [s] Observation start time (MET) | 704938840.184000 | 704937717.35464 | CCD S5 on | N | N |
| Observation start date | 2020-05-04T00:19:31 | 2020-05-04T00:01:57 | Number of optional ACIS chips dropped | 0 | 0 |
| [s] Observation end time (MET) | 704942840.184000 | 704944075.43003 | On-chip summing requested | N | N |
| Observation end date | 2020-05-04T01:26:11 | 2020-05-04T01:47:55 | Subarray requested | NONE | NONE |
| Read mode | TIMED | TIMED | Alternating exposures requested | N | N |
| | | | [s] Primary exposure time | 0.000000 | 3.1 |

2.3 Aspect



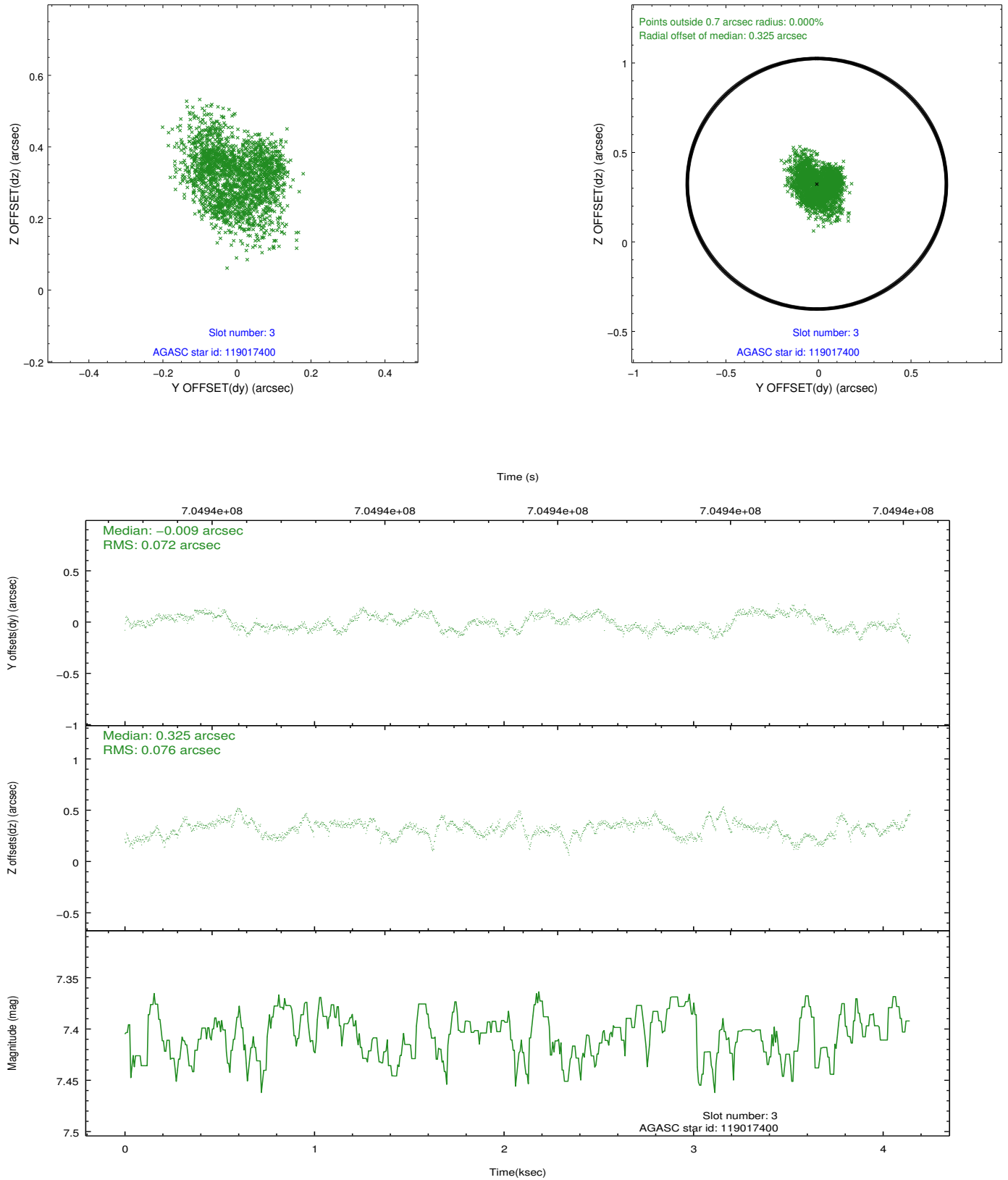


Slot Statistics

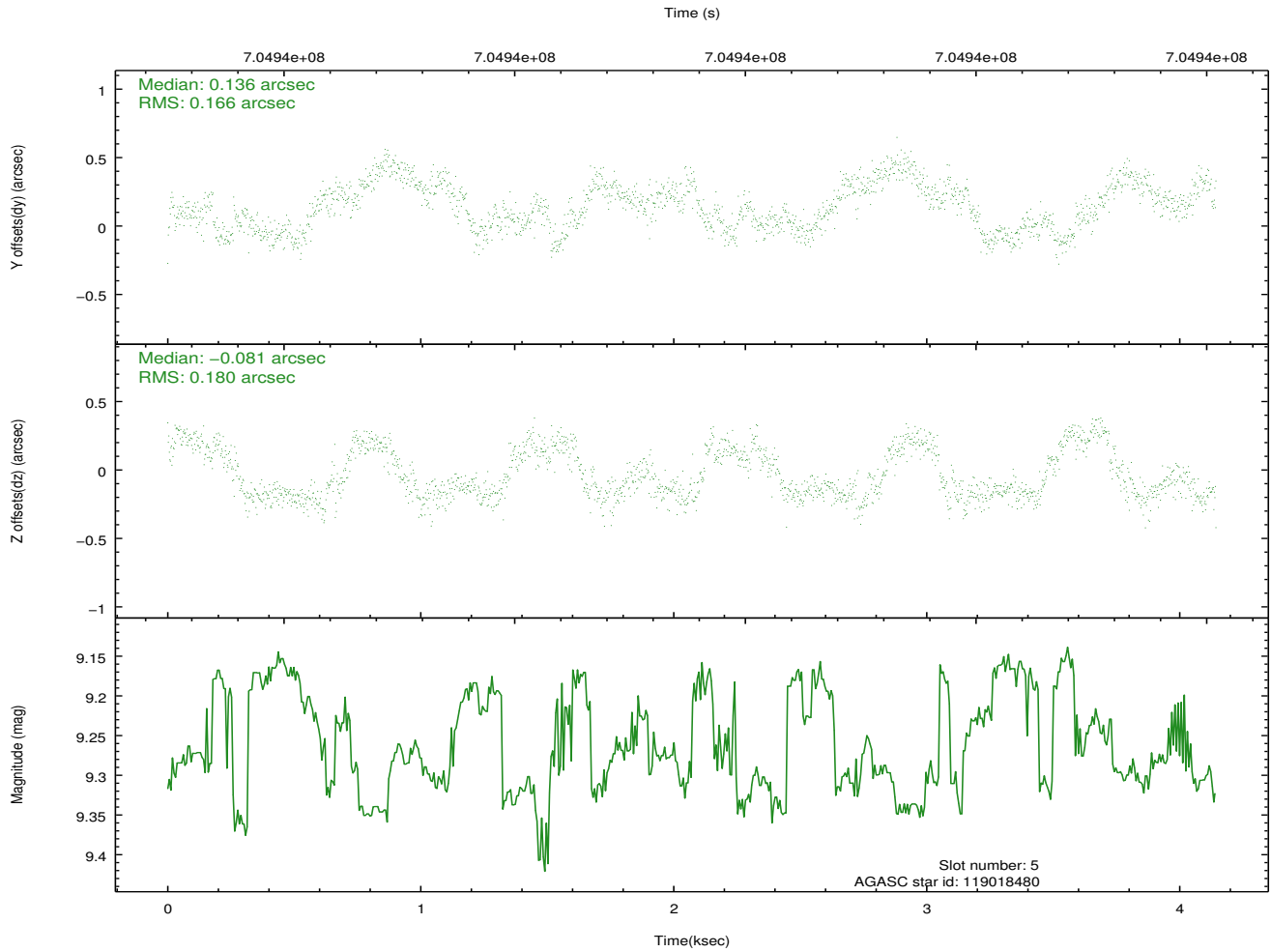
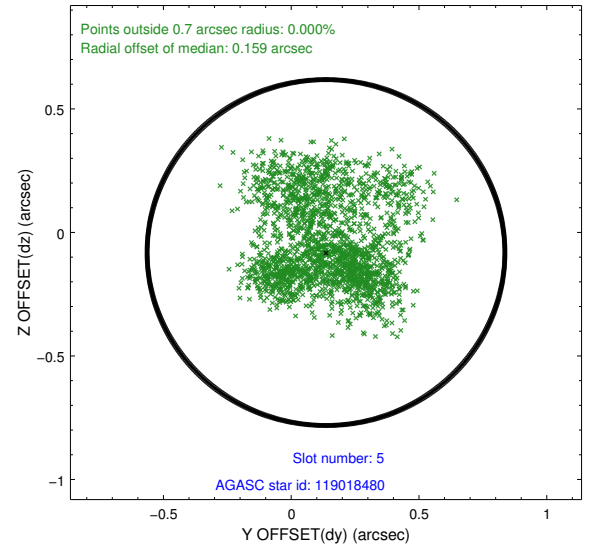
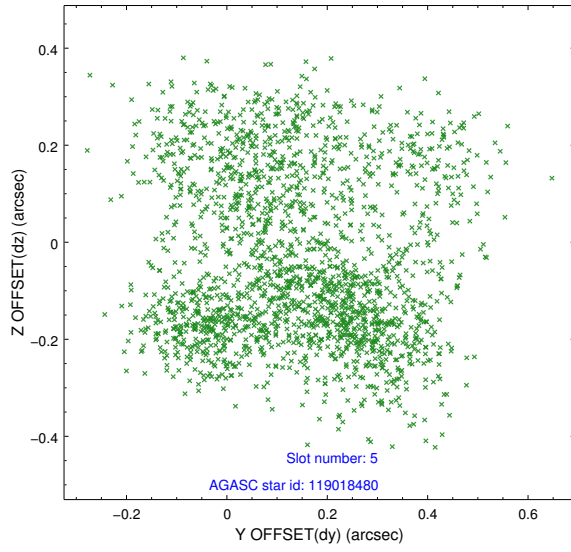
| pt | status | used | id | mag | n_pts | frac_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mea |
|----|---------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|-----------|----------|-------|
| 0 | FID | | ACIS-S-2 | 7.05 | 1011 | 1.000 | 0.253 | -0.078 | 0.009 | 0.015 | 0.000000 | 0.000000 | -773.61 | -1745 |
| 1 | FID | | ACIS-S-4 | 7.14 | 1011 | 1.000 | -0.005 | -0.101 | 0.007 | 0.013 | 0.000000 | 0.000000 | 2139.15 | 160 |
| 2 | FID | | ACIS-S-5 | 7.11 | 1011 | 1.000 | -0.279 | 0.187 | 0.009 | 0.016 | 0.000000 | 0.000000 | -1824.64 | 157 |
| 3 | GUIDE | used | 119017400 | 7.40 | 2022 | 1.000 | -0.009 | 0.325 | 0.112 | 0.172 | 214.458443 | 13.903952 | -1935.29 | -1615 |
| 4 | OMITTED | | | 0.00 | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000000 | 0.000000 | 0.00 | 0 |
| 5 | GUIDE | used | 119018480 | 9.27 | 2021 | 1.000 | 0.136 | -0.081 | 0.271 | 0.403 | 213.620759 | 13.541196 | 1201.47 | -948 |
| 6 | GUIDE | used | 119020736 | 8.62 | 2018 | 1.000 | 0.201 | 0.028 | 0.169 | 0.254 | 213.541794 | 13.318952 | 1640.77 | -223 |
| 7 | GUIDE | used | 119021632 | 7.92 | 2020 | 1.000 | -0.321 | -0.295 | 0.091 | 0.144 | 213.945008 | 12.750388 | 685.48 | 2074 |

2.4 Star Slots

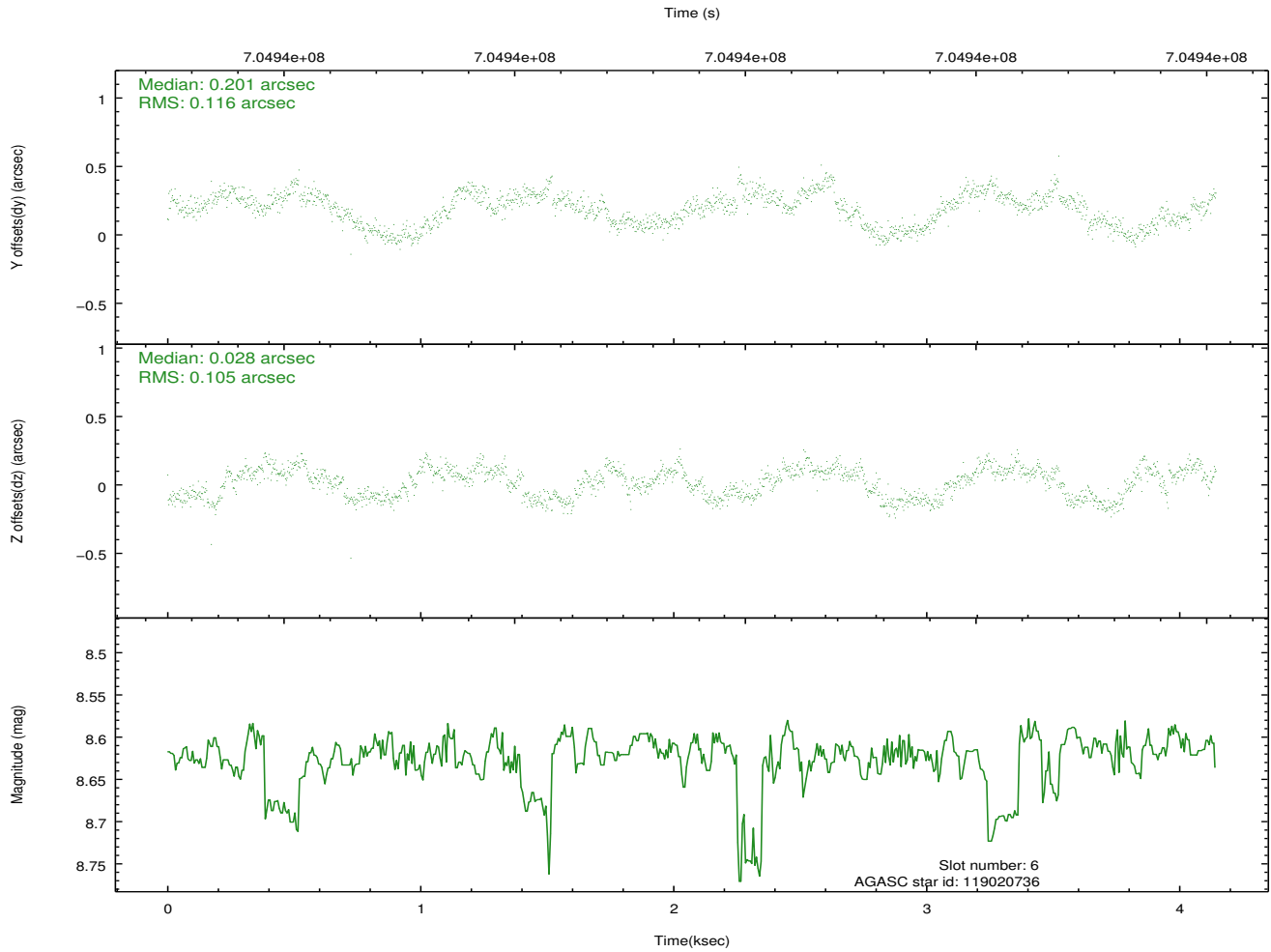
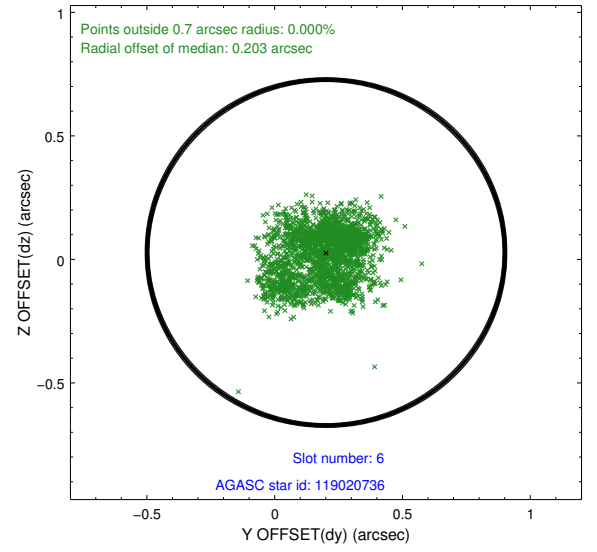
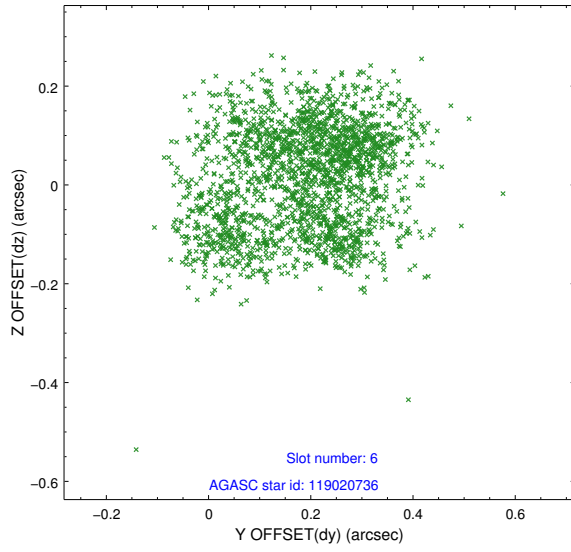
2.4.1 Slot 3



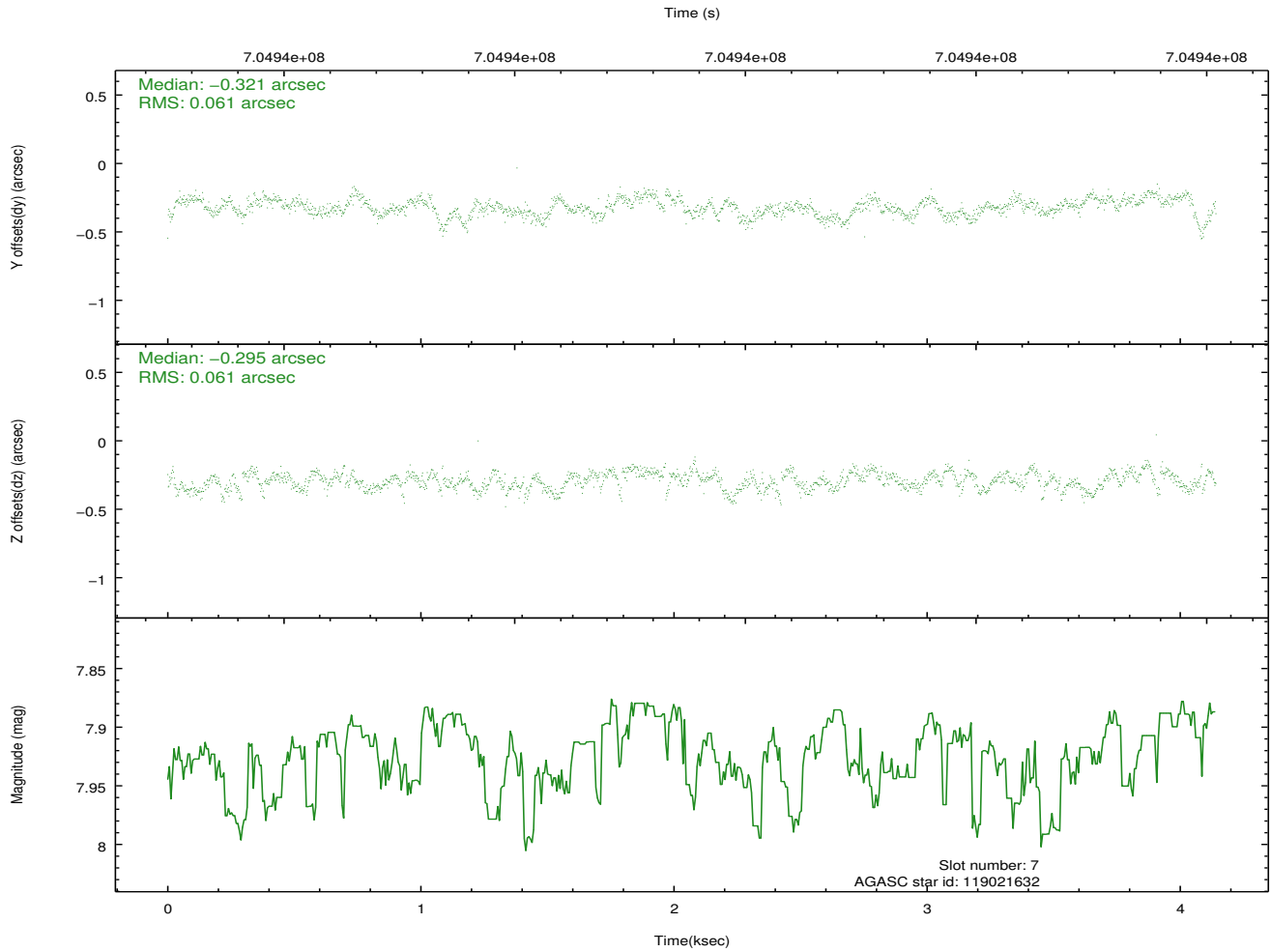
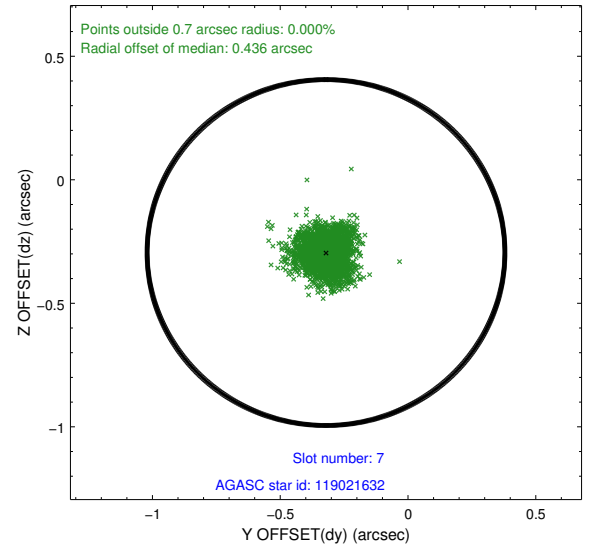
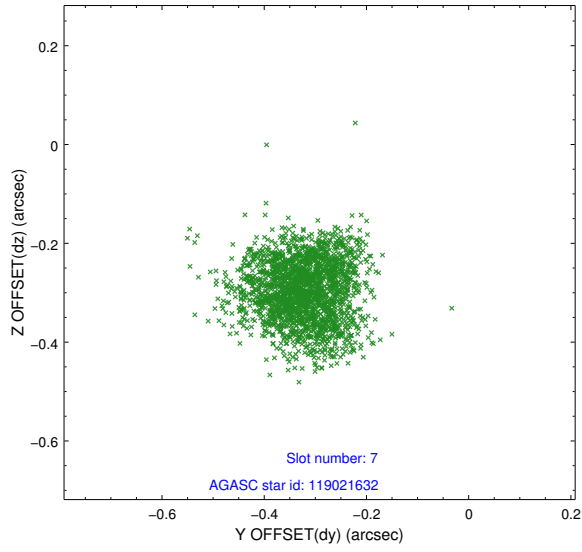
2.4.2 Slot 5



2.4.3 Slot 6

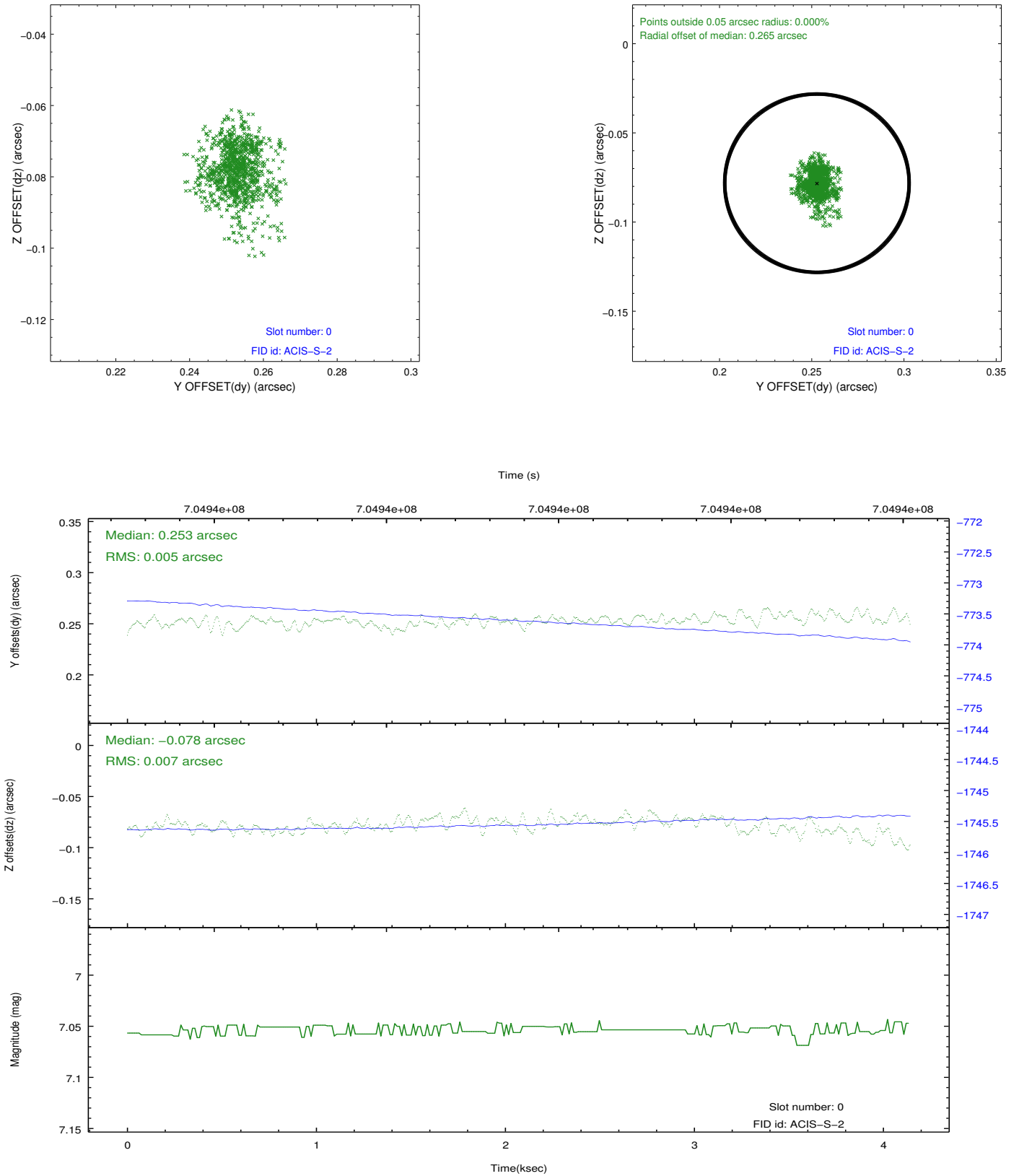


2.4.4 Slot 7

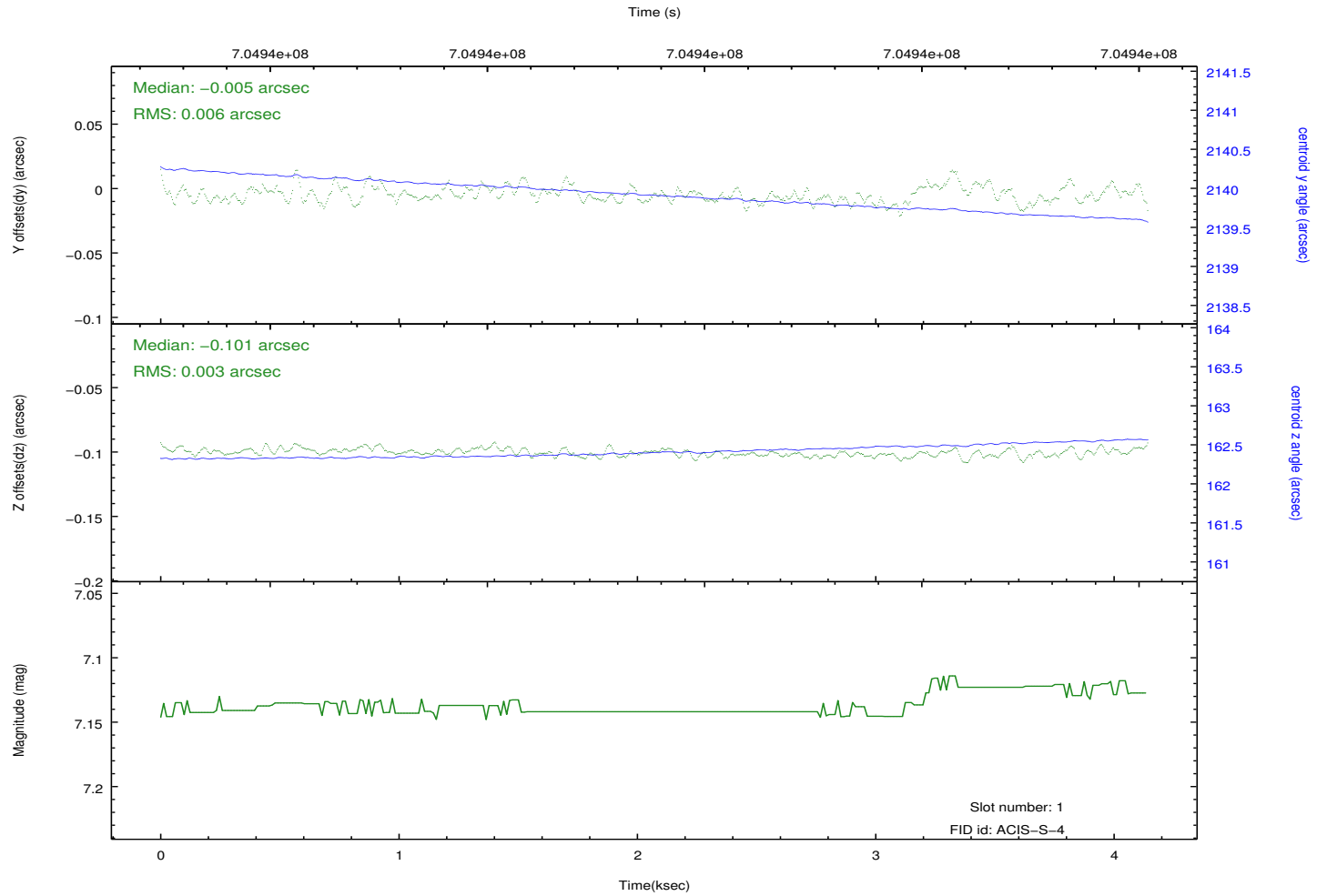
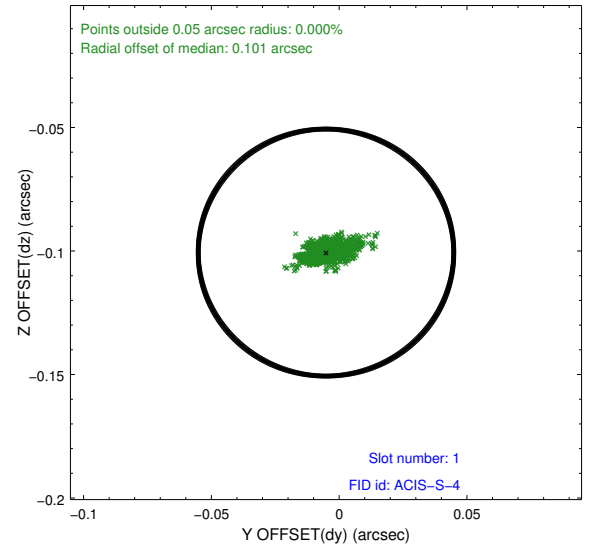
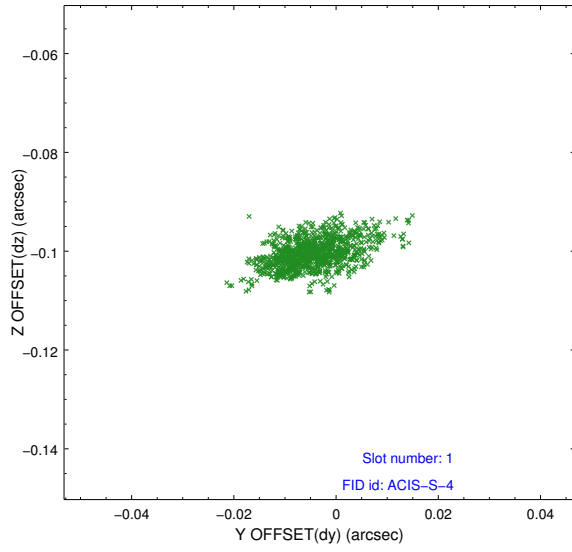


2.5 FID Slots

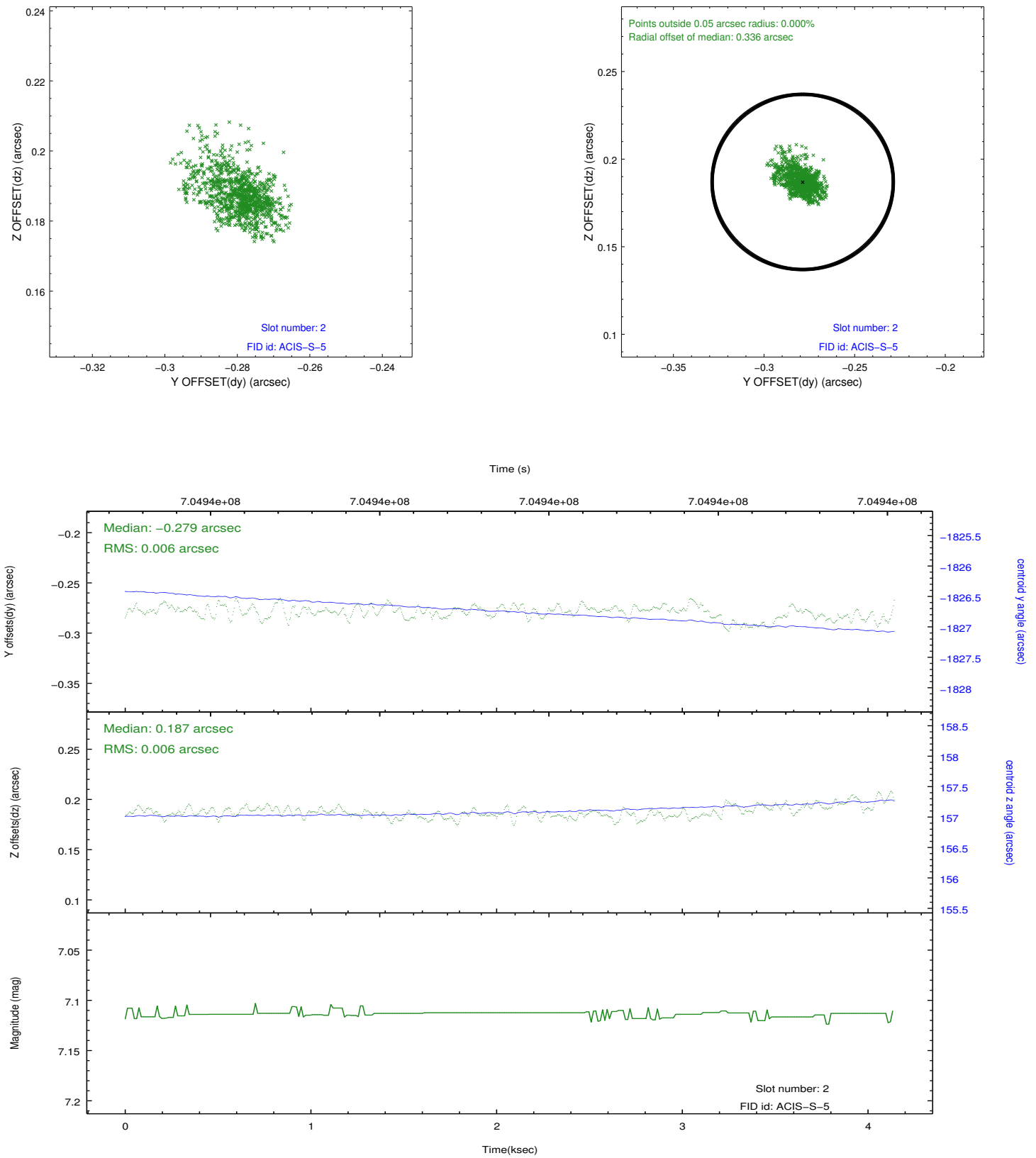
2.5.1 Slot 0



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) | 2020.05.04 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 4.0634250651598 |

A.2 Comments

The guide star in slot 4 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.