# V&V Reference Report
# L2 ASCDS Version : 10.9.1

Observation 4548 - L2 Version 4
Chandra X-Ray Center

L2 Processing Date : Sep 26 2020

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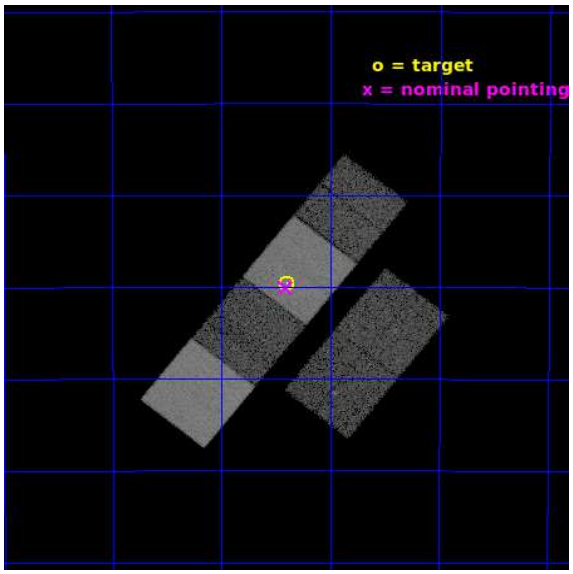
# 1 Front

| | | |
|---|---|---|
| seq_num | 400331 | Sequence number |
| obs_id | 4548 | Observation id |
| title | Low-luminosity X-ray binaries | Proposal title |
| observer | Prof Mariano Mendez | Principal investigator |
| object | RXJ1718.4-4029 | Source name |
| dtycycle | 0 |   |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 259.60125 | Observer's specified target RA [deg] |
| dec_targ | -40.492778 | Observer's specified target Dec [deg] |
| ra_nom | 259.60224230655 | Nominal RA [deg] |
| dec_nom | -40.501363706297 | Nominal Dec [deg] |
| roll_nom | 308.50713937159 | Nominal Roll [deg] |
| revision | 4 | Processing version of data |
| ontime | 14956.799944282 | Sum of GTIs [s] |
| livetime | 14767.407937483 | Livetime [s] |
| ontime2 | 14956.799944282 | Sum of GTIs [s] |
| ontime3 | 14956.799944282 | Sum of GTIs [s] |
| ontime5 | 14956.799944282 | Sum of GTIs [s] |
| ontime6 | 14956.799944282 | Sum of GTIs [s] |
| ontime7 | 14956.799944282 | Sum of GTIs [s] |
| ontime8 | 14956.799944282 | Sum of GTIs [s] |
| l2events | 183875 | Number of level 2 events |

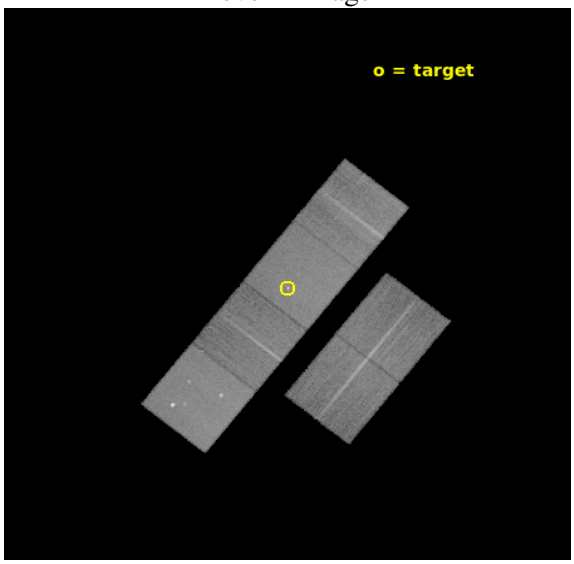


# 2 OBI

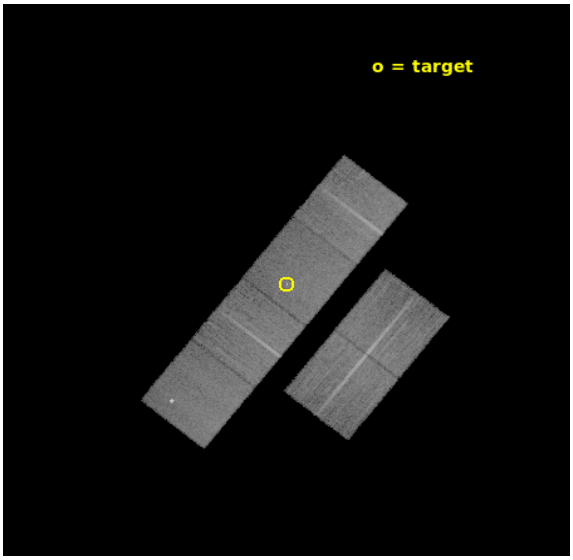
## 2.1 OBI

### 2.1.1 Images

Level 1 Image

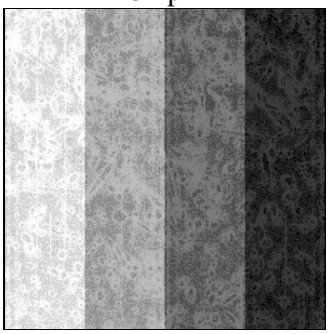



Level 1 Bad Events

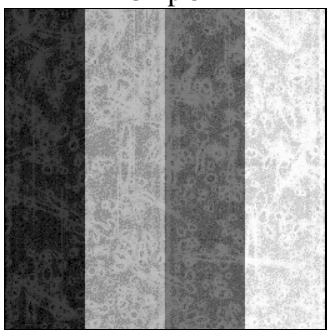



### 2.1.2 Bias

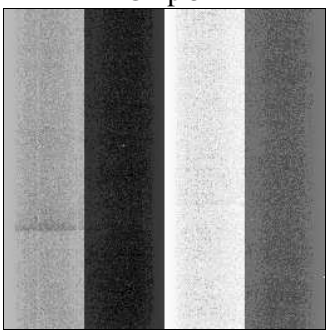
Chip 2



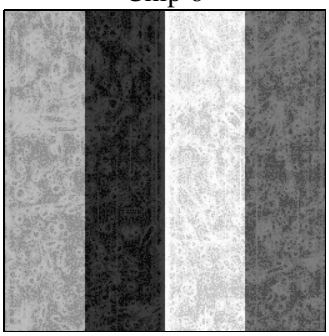
Chip 3



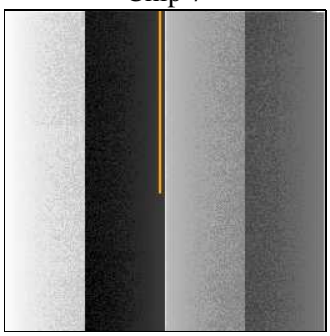
Chip 5



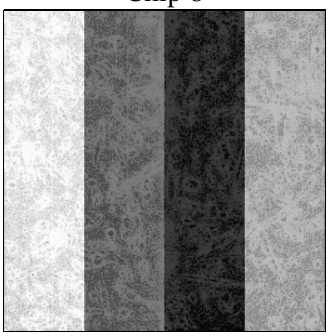
Chip 6



Chip 7



Chip 8



### 2.1.3 Parameters

| | | |
|---|---|---|
| obi_num | 1 | Obi number |
| ascdsver | 10.9.1 | Processing system revision |
| caldbver | 4.9.2 |   |
| date | 2020-09-27T03:31:58 | Date and time of file creation |
| revision | 4 | Processing version of data |

| | | |
|---|---|---|
| sched_exp_time | 15000.000000 | [s] Scheduled observation exposure time |
| ontime | 14956.799944282 | Sum of GTIs [s] |
| ontime2 | 14956.799944282 | Sum of GTIs [s] |
| ontime3 | 14956.799944282 | Sum of GTIs [s] |
| ontime5 | 14956.799944282 | Sum of GTIs [s] |
| ontime6 | 14956.799944282 | Sum of GTIs [s] |
| ontime7 | 14956.799944282 | Sum of GTIs [s] |
| ontime8 | 14956.799944282 | Sum of GTIs [s] |
| l1events | 802673 | Number of level 1 events |

### 2.1.4 Events

| | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|---|---|---|---|---|---|---|
| level 1 events | 111456 | 111124 | 169243 | 114176 | 155158 | 141516 |
| rejected events | 97928 | 97703 | 92191 | 100212 | 88941 | 110928 |
| rejected % | 87% | 87% | 54% | 87% | 57% | 78% |

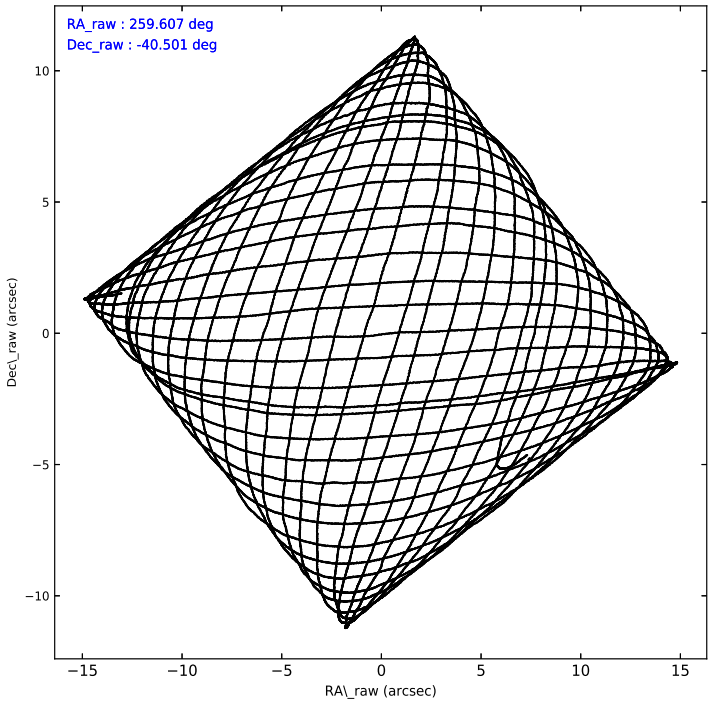
| | ccd 2 | ccd 3 | ccd 5 | ccd 6 | ccd 7 | ccd 8 |
|---|---|---|---|---|---|---|
| grade 0 events | 6038 | 6090 | 7567 | 5781 | 6480 | 10092 |
| | 5% | 5% | 4% | 5% | 4% | 7% |
| grade 1 events | 83 | 72 | 185 | 64 | 198 | 100 |
| | 0% | 0% | 0% | 0% | 0% | 0% |
| grade 2 events | 2774 | 2406 | 23742 | 2882 | 13508 | 6532 |
| | 2% | 2% | 14% | 2% | 8% | 4% |
| grade 3 events | 1266 | 1309 | 3043 | 1280 | 5972 | 3229 |
| | 1% | 1% | 1% | 1% | 3% | 2% |
| grade 4 events | 1303 | 1369 | 3060 | 1291 | 5843 | 2986 |
| | 1% | 1% | 1% | 1% | 3% | 2% |
| grade 5 events | 4411 | 4803 | 12298 | 5110 | 14618 | 6699 |
| | 3% | 4% | 7% | 4% | 9% | 4% |
| grade 6 events | 2152 | 2248 | 39671 | 2734 | 34437 | 7755 |
| | 1% | 2% | 23% | 2% | 22% | 5% |
| grade 7 events | 93429 | 92827 | 79677 | 95034 | 74102 | 104123 |
| | 83% | 83% | 47% | 83% | 47% | 73% |

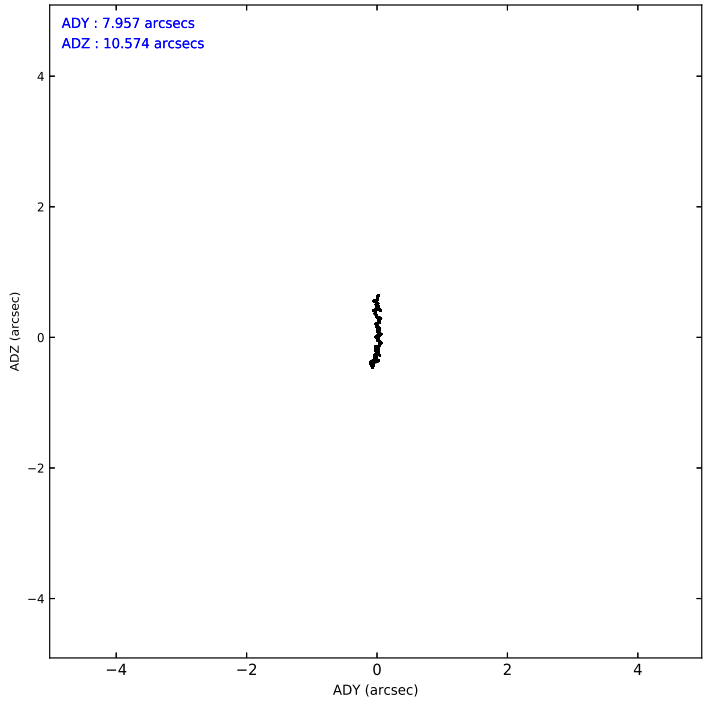
## 2.2 Compared Parameters

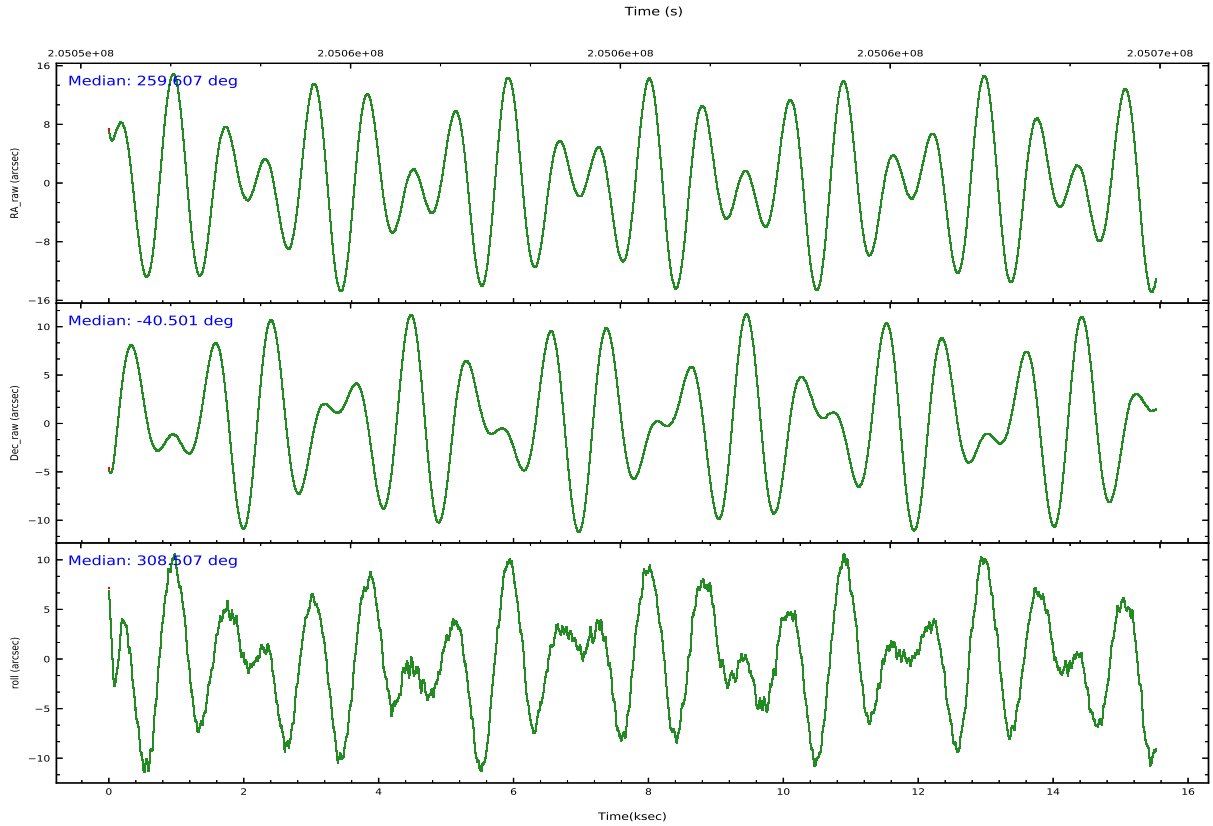
| Parameter | Planned | Actual |
|---|---|---|
| Instrument | ACIS | ACIS |
| Detector | ACIS-235678 | ACIS-235678 |
| Grating | NONE | NONE |
| Data mode | FAINT | FAINT |
| Observation mode | POINTING | POINTING |
| [deg] Pointing RA | 259.573804 | 259.60224230655 |
| [deg] Pointing Dec | -40.491639 | -40.501363706297 |
| [deg] Pointing Roll | 308.328323 | 308.50713937159 |
| [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) | 205052943.184000 | 205051759.57753 |
| Observation start date | 2004-07-01T07:07:59 | 2004-07-01T06:49:19 |
| [s] Observation end time (MET) | 205067943.184000 | 205068980.0908 |
| Observation end date | 2004-07-01T11:17:59 | 2004-07-01T11:36:20 |
| Read mode | TIMED | TIMED |

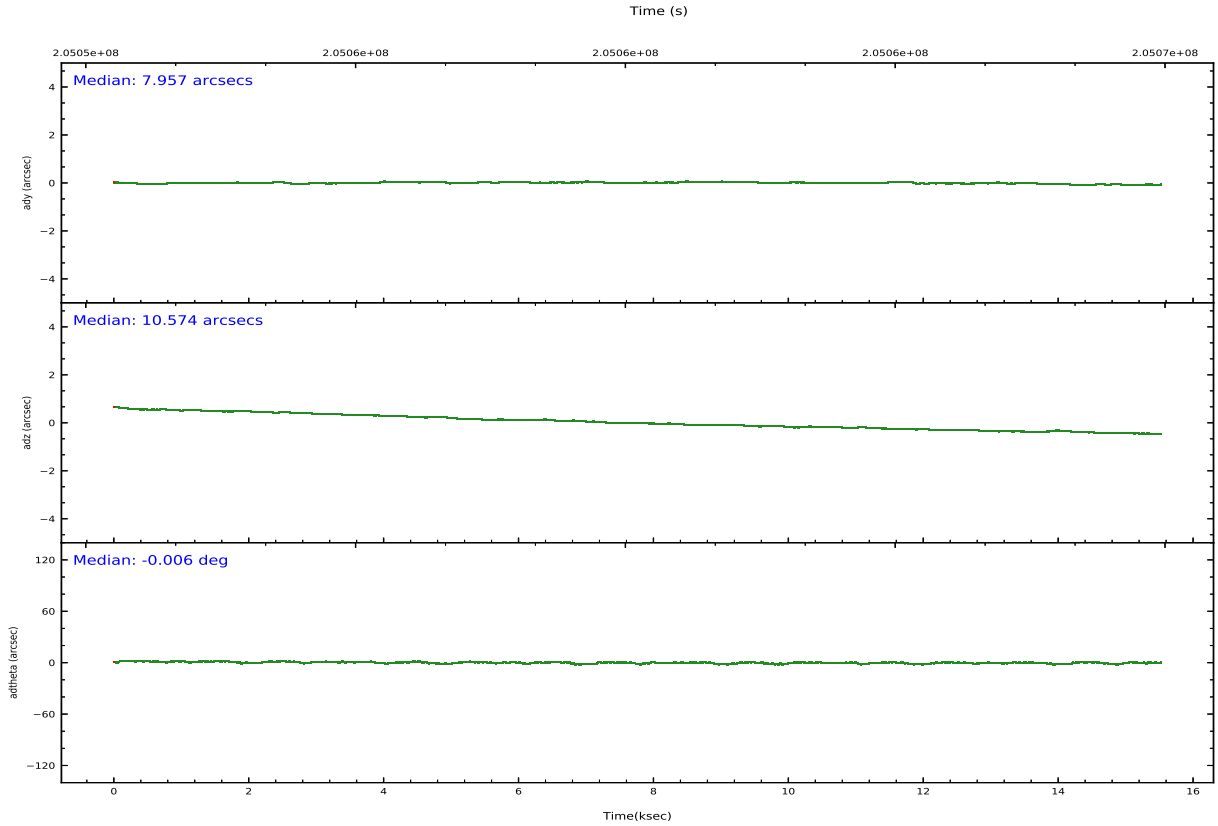
| Parameter | Planned | Actual |
|---|---|---|
| Obspar version number | 8 | 8 |
| Obspar file type | PREDICTED | ACTUAL |
| Obspar update status | NONE | UPDATED |
| Number of optional ACIS chips dropped | 0 | 0 |
| On-chip summing requested | N | N |
| Subarray requested | NONE | NONE |
| Alternating exposures requested | N | N |
| [s] Primary exposure time | 0.000000 | 3.2 |

## 2.3 Aspect


RA_raw : 259.607 deg
Dec_raw : -40.501 deg
Dec_raw (arcsec)
RA_raw (arcsec)


ADY : 7.957 arcsecs
ADZ : 10.574 arcsecs
ADZ (arcsec)
ADY (arcsec)


Time (s)
2.0505e+08
2.0506e+08
2.0506e+08
2.0506e+08
2.0507e+08
Median: 259.607 deg
RA_raw (arcsec)
Median: -40.501 deg
Dec_raw (arcsec)
Median: 308.507 deg
roll (arcsec)
Time(ksec)

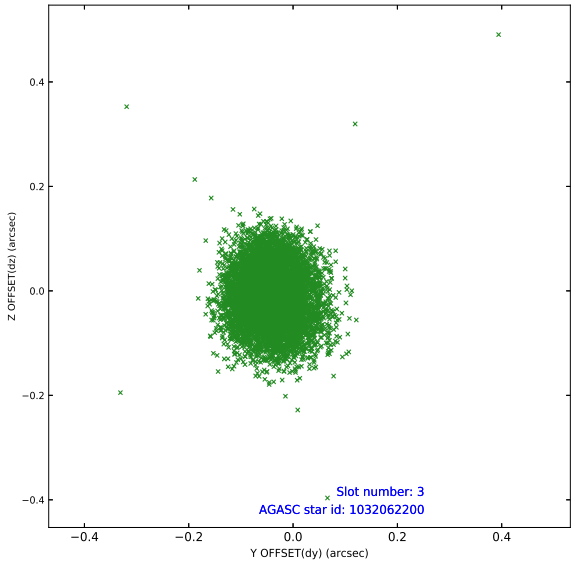

Time (s)
2.0505e+08
2.0506e+08
2.0506e+08
2.0506e+08
2.0507e+08
Median: 7.957 arcsecs
ady (arcsec)
Median: 10.574 arcsecs
adz (arcsec)
Median: -0.006 deg
adtheta (arcsec)
Time(ksec)

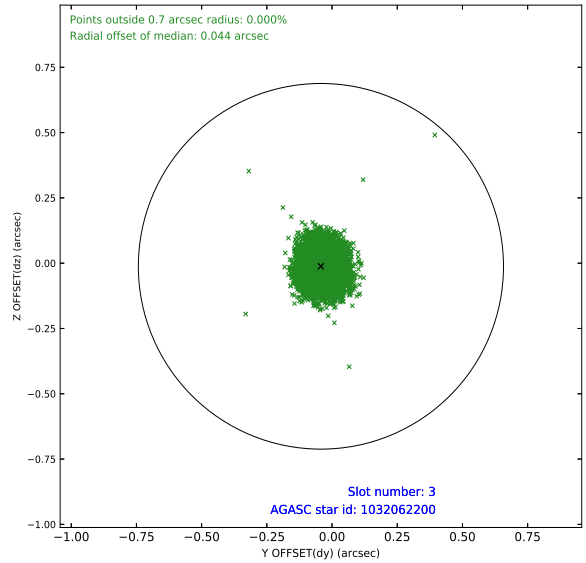
Slot Statistics

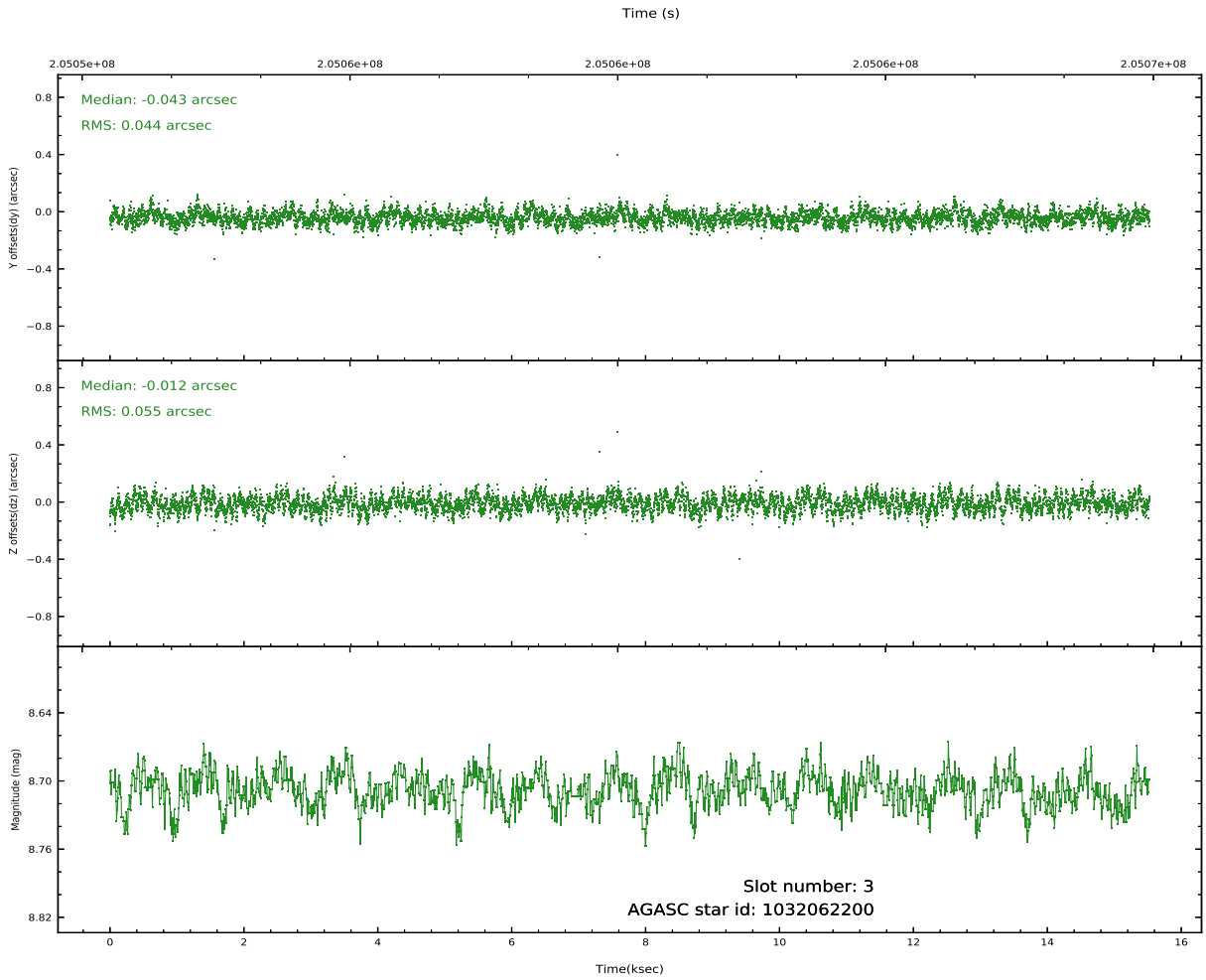
| ot | status | used | id | mag | n_pts | frac_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | FID | | ACIS-S-2 | 7.10 | 3788 | 1.000 | -0.070 | -0.037 | 0.014 | 0.021 | 0.000000 | 0.000000 | -760.73 | -1731 |
| 1 | FID | | ACIS-S-4 | 7.20 | 3787 | 1.000 | 0.148 | 0.044 | 0.009 | 0.018 | 0.000000 | 0.000000 | 2152.56 | 176 |
| 2 | FID | | ACIS-S-5 | 7.23 | 3788 | 1.000 | -0.111 | 0.003 | 0.014 | 0.023 | 0.000000 | 0.000000 | -1813.32 | 170 |
| 3 | GUIDE | used | 1032062200 | 8.71 | 7575 | 1.000 | -0.043 | -0.012 | 0.074 | 0.119 | 259.162367 | -40.866249 | 365.74 | -1716 |
| 4 | GUIDE | used | 1032064856 | 9.21 | 7570 | 1.000 | 0.000 | -0.018 | 0.093 | 0.147 | 258.958011 | -40.551517 | -870.27 | -1459 |
| 5 | GUIDE | used | 1032069472 | 8.06 | 7574 | 1.000 | -0.042 | -0.006 | 0.050 | 0.080 | 259.731127 | -39.838834 | -1573.72 | 1798 |
| 6 | GUIDE | used | 1033770424 | 8.24 | 7574 | 1.000 | -0.040 | -0.016 | 0.061 | 0.099 | 260.243465 | -40.286835 | 567.39 | 1895 |
| 7 | GUIDE | used | 1033777192 | 9.18 | 7567 | 1.000 | 0.127 | 0.051 | 0.073 | 0.120 | 260.370115 | -40.603373 | 1673.41 | 1452 |

## 2.4 Star Slots

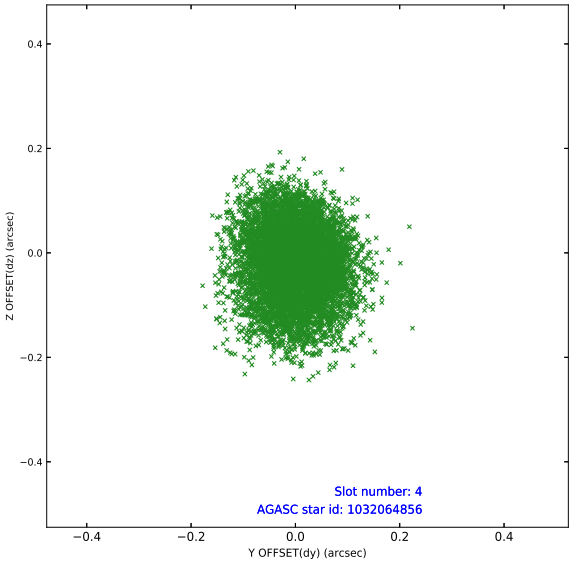
### 2.4.1 Slot 3

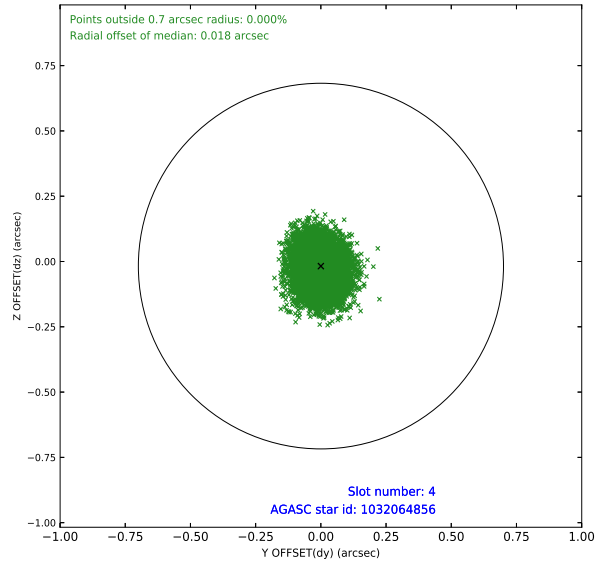


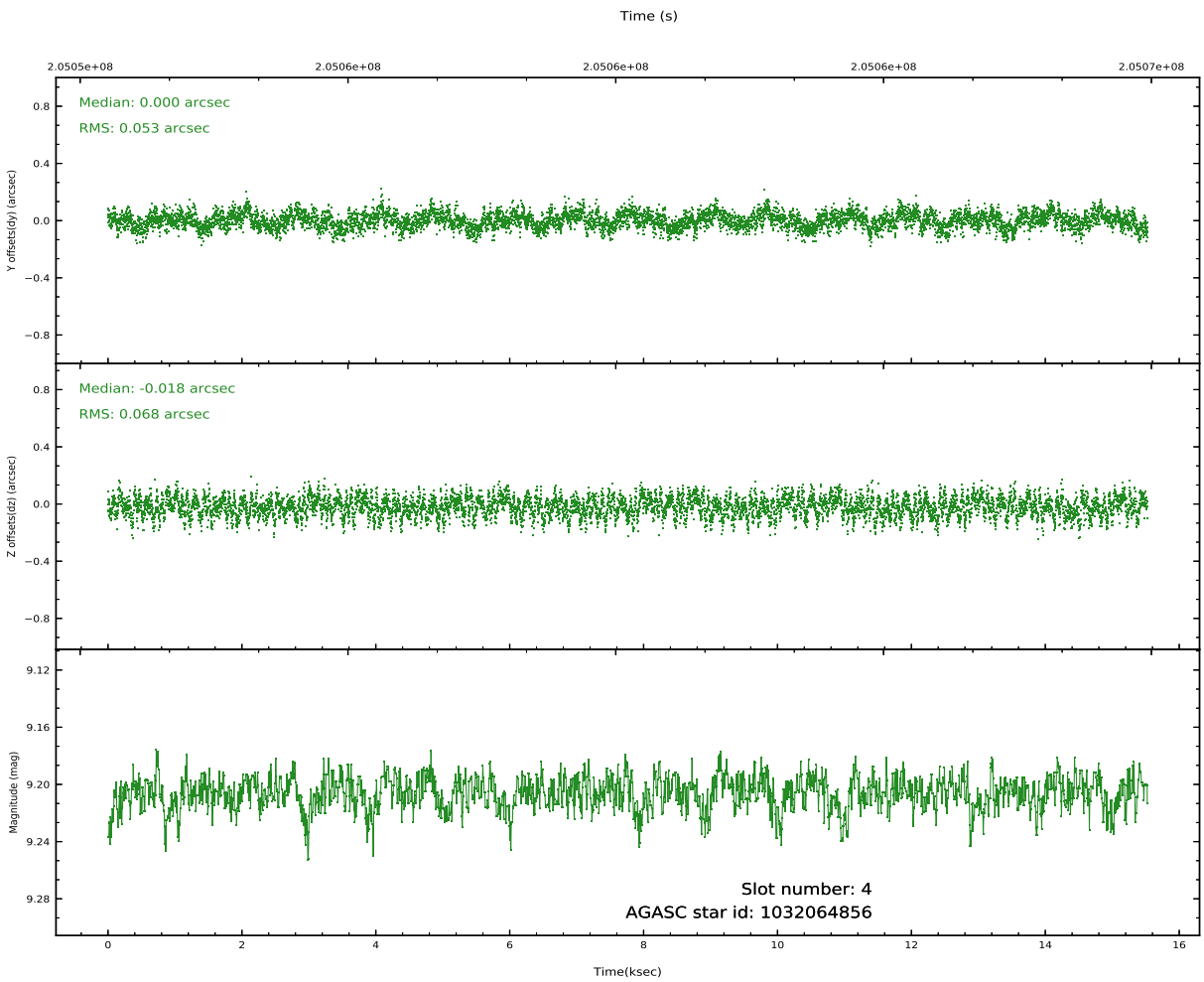



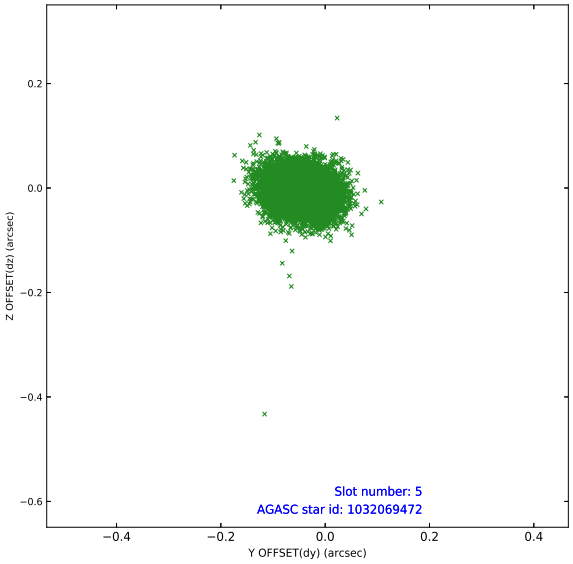
### 2.4.2 Slot 4

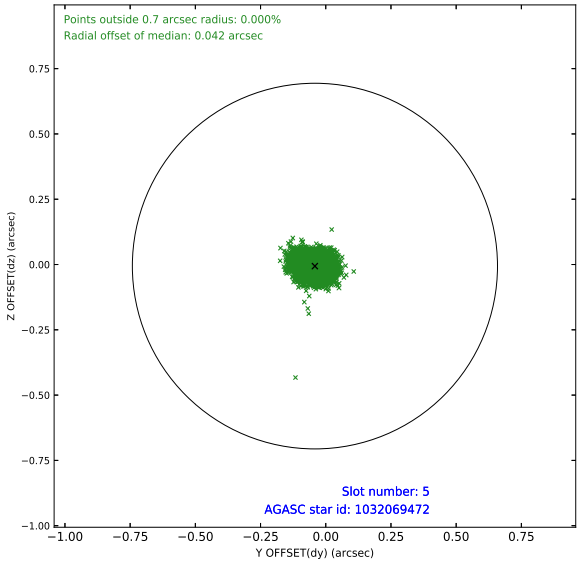

Slot number: 4
AGASC star id: 1032064856
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

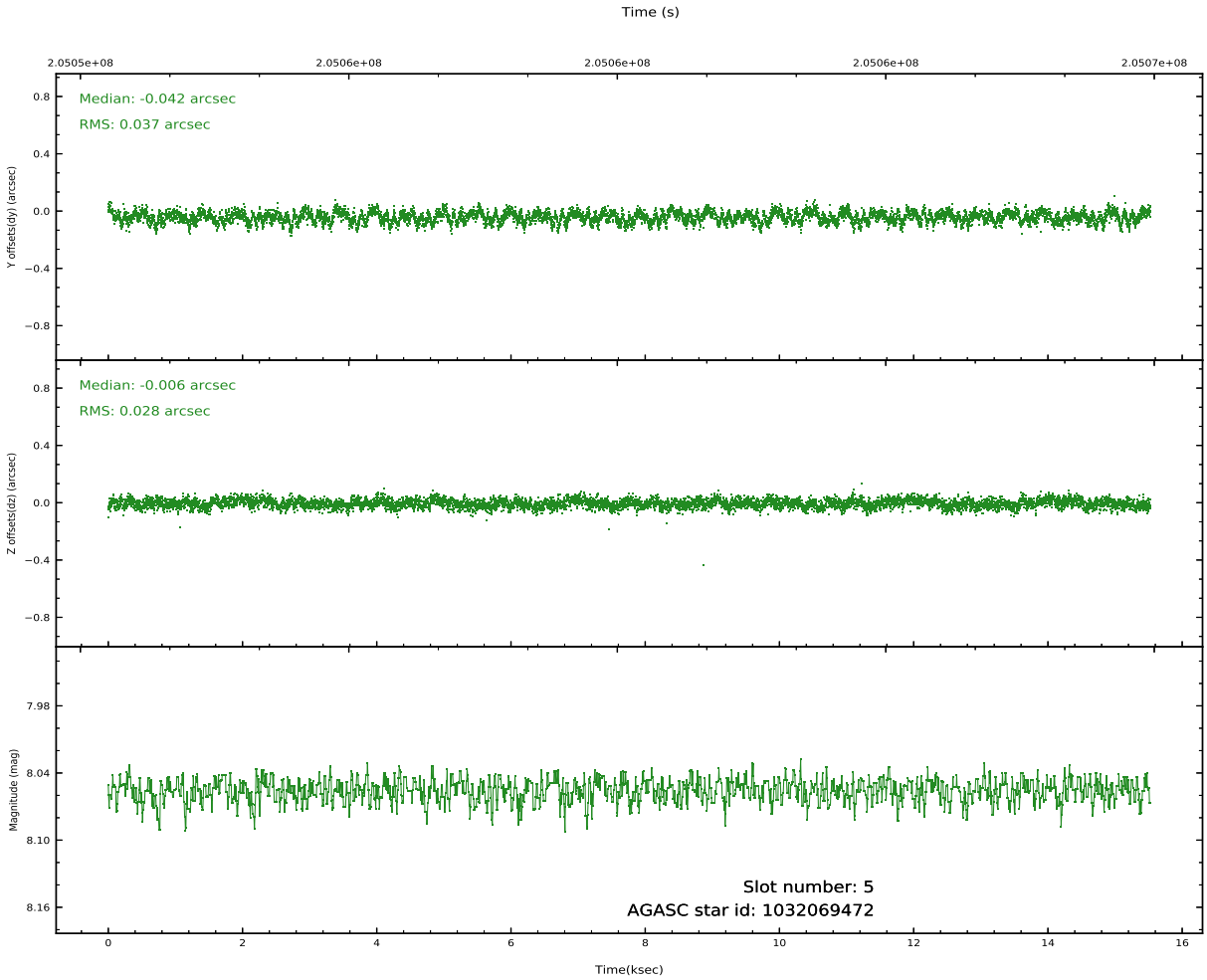

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.018 arcsec
Slot number: 4
AGASC star id: 1032064856
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: 0.000 arcsec
RMS: 0.053 arcsec
Y offsets(dy) (arcsec)
Median: -0.018 arcsec
RMS: 0.068 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 1032064856
Time(ksec)

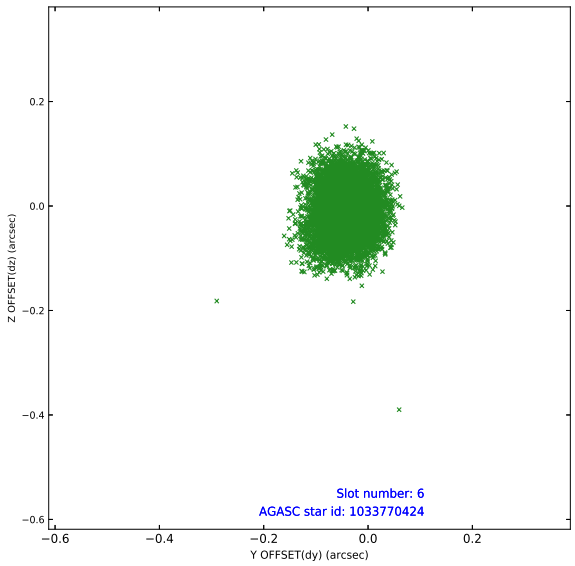
### 2.4.3 Slot 5

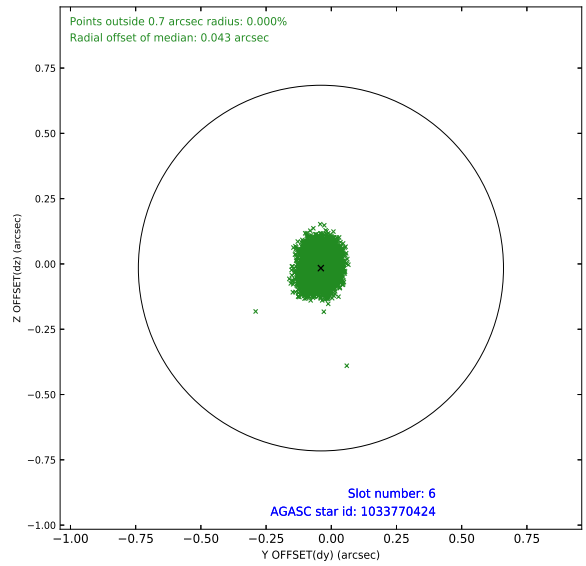

Slot number: 5
AGASC star id: 1032069472
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

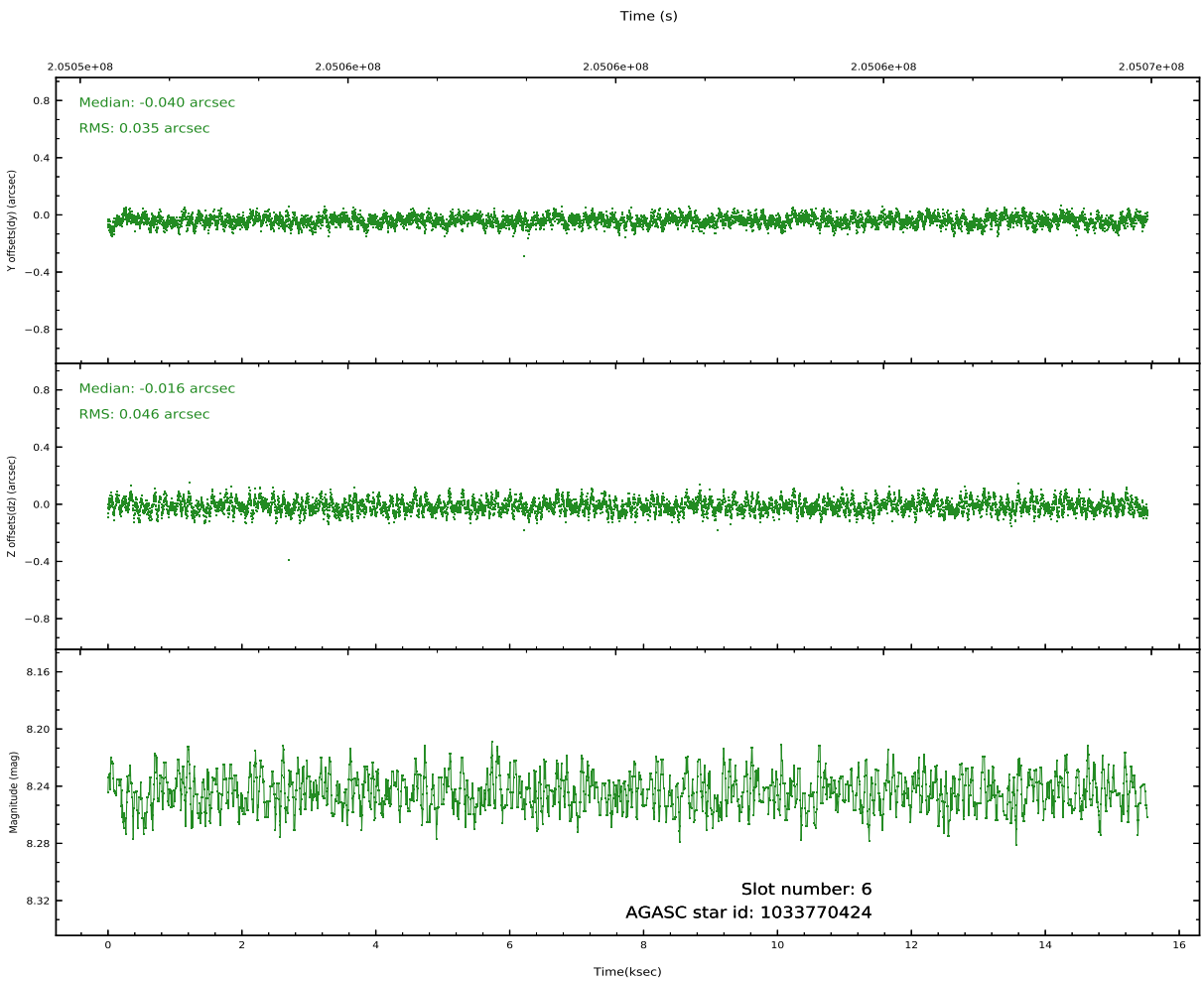

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.042 arcsec
Slot number: 5
AGASC star id: 1032069472
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: -0.042 arcsec
RMS: 0.037 arcsec
Y offsets(dy) (arcsec)
Median: -0.006 arcsec
RMS: 0.028 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 1032069472
Time(ksec)

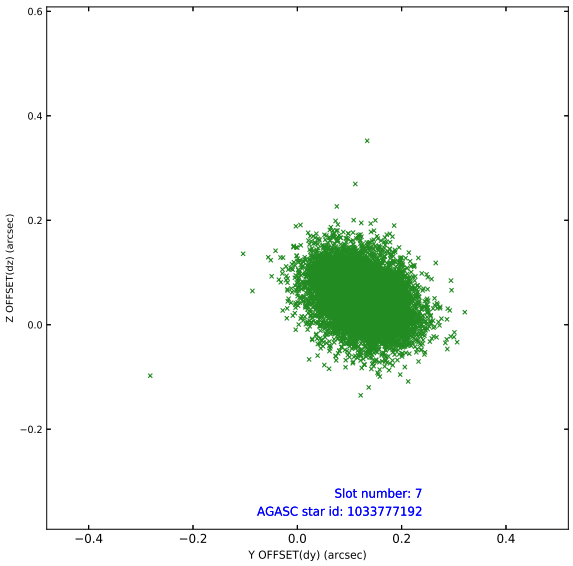
### 2.4.4 Slot 6

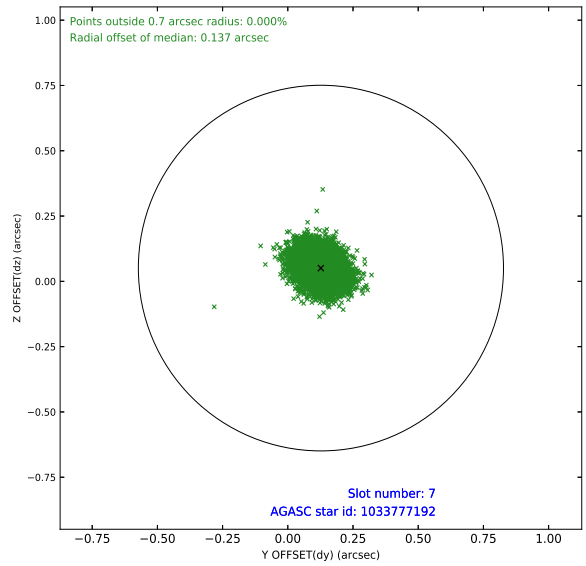

Slot number: 6
AGASC star id: 1033770424
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

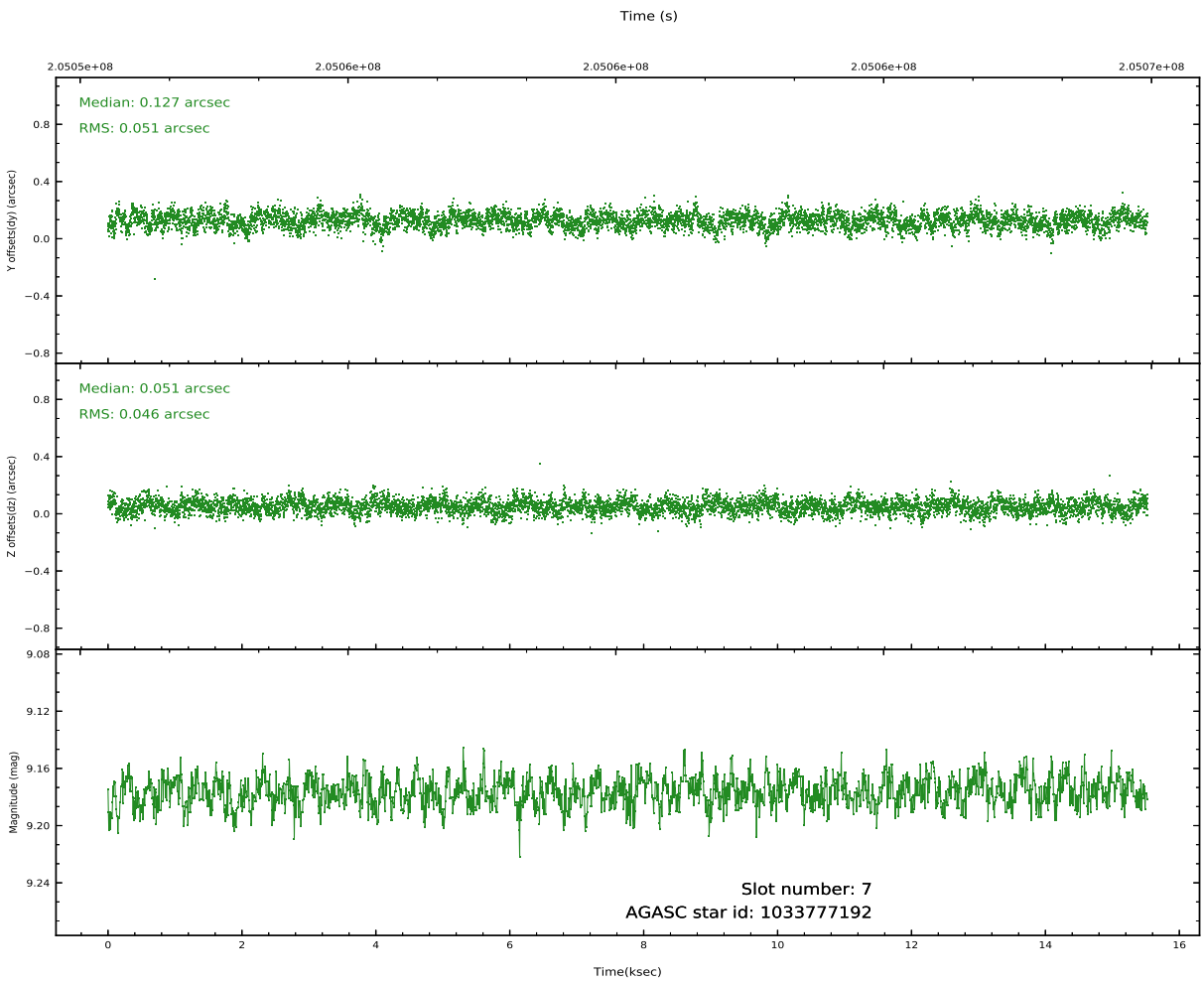

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.043 arcsec
Slot number: 6
AGASC star id: 1033770424
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: -0.040 arcsec
RMS: 0.035 arcsec
Y offsets(dy) (arcsec)
Median: -0.016 arcsec
RMS: 0.046 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 1033770424
Time(ksec)

### 2.4.5 Slot 7

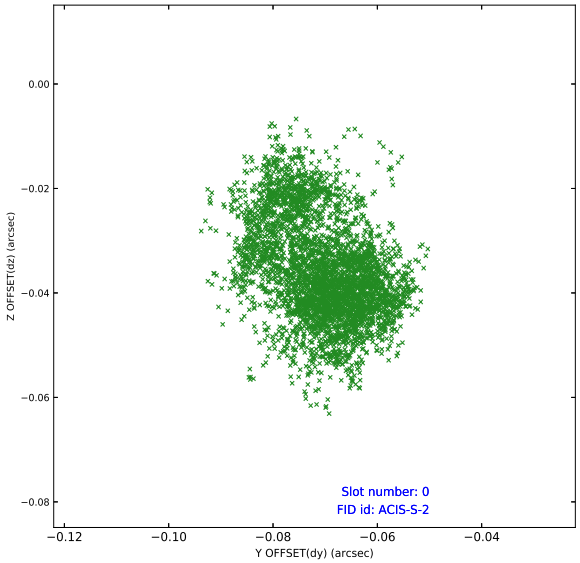

Slot number: 7
AGASC star id: 1033777192
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

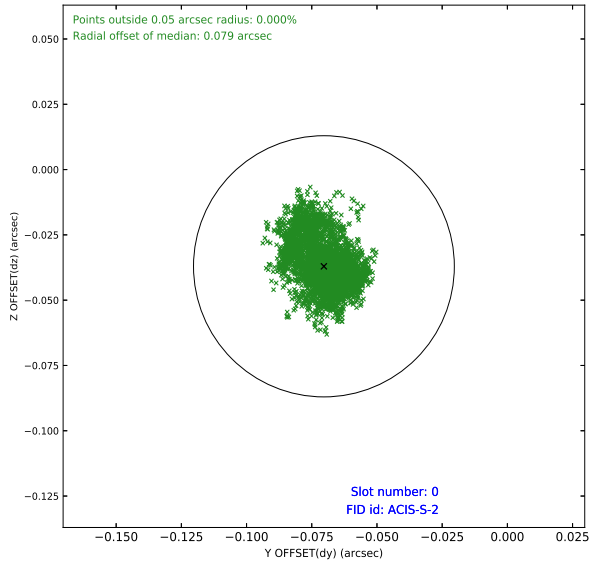

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.137 arcsec
Slot number: 7
AGASC star id: 1033777192
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

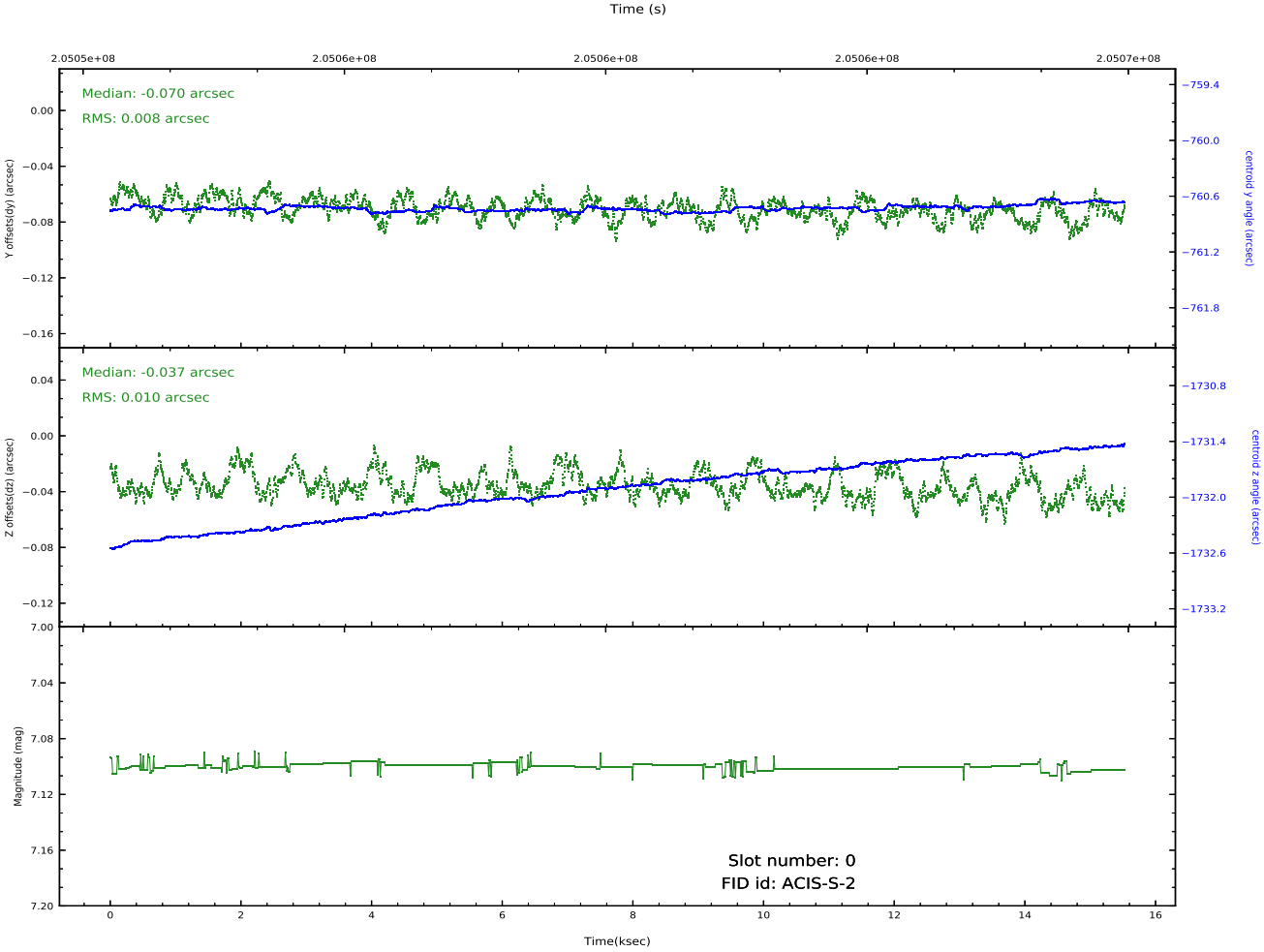

Time (s)
Median: 0.127 arcsec
RMS: 0.051 arcsec
Y offsets(dy) (arcsec)
Median: 0.051 arcsec
RMS: 0.046 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 1033777192
Time(ksec)

## 2.5 FID Slots

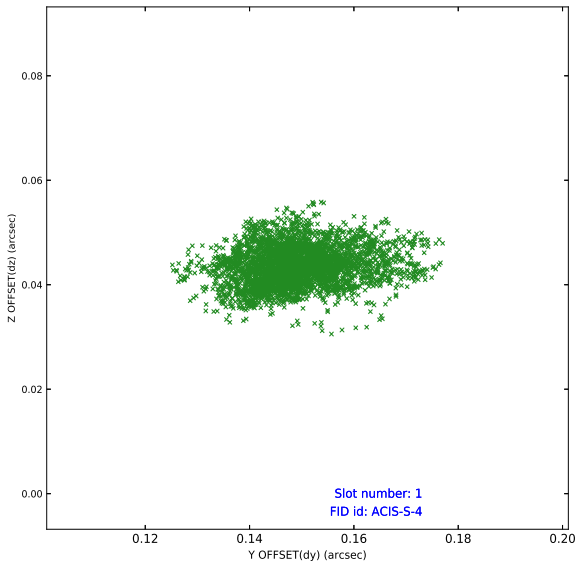
### 2.5.1 Slot 0

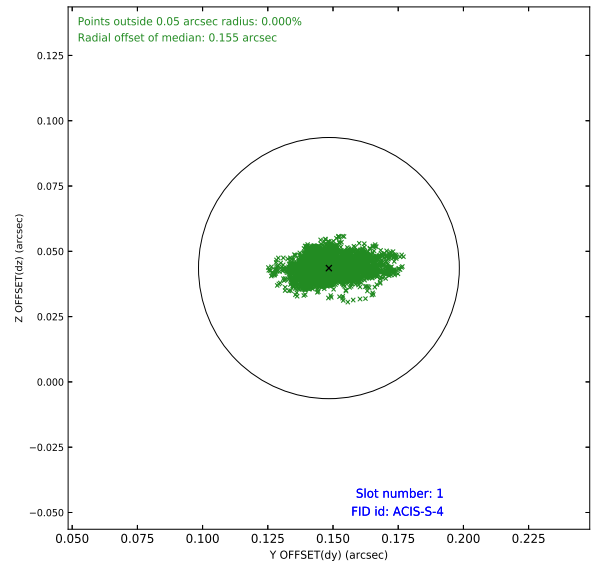


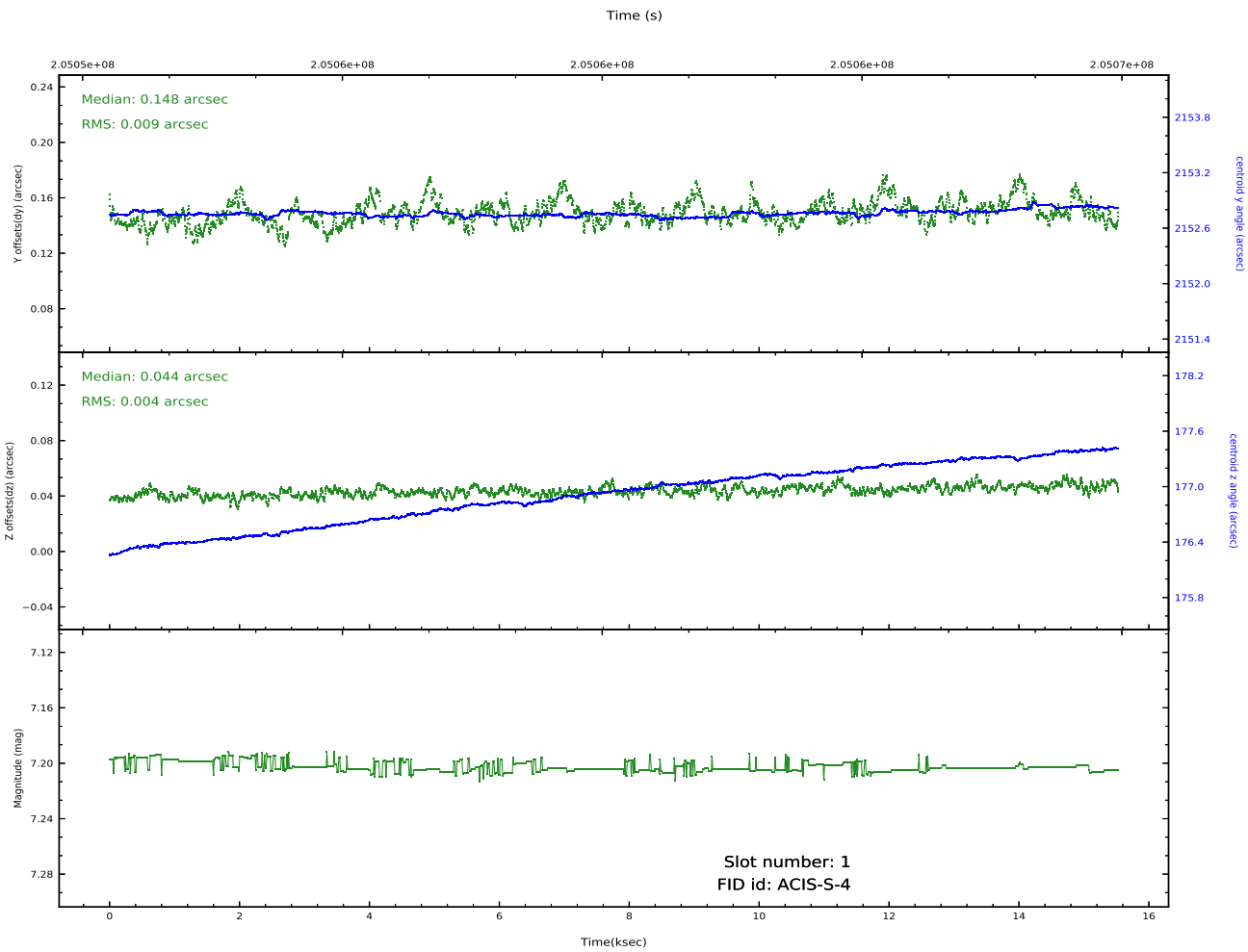



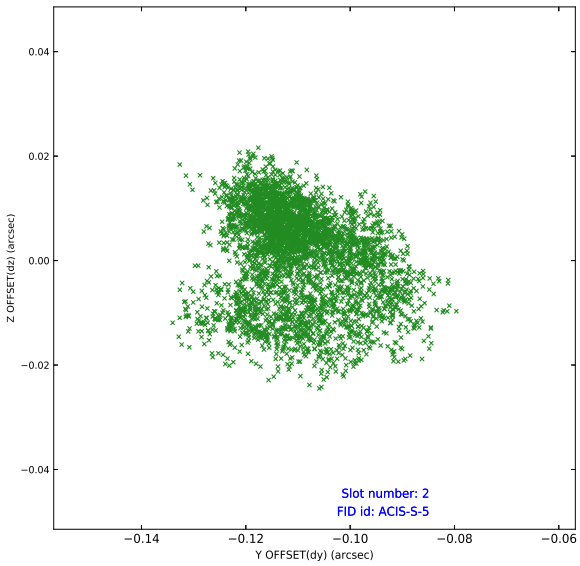
### 2.5.2 Slot 1

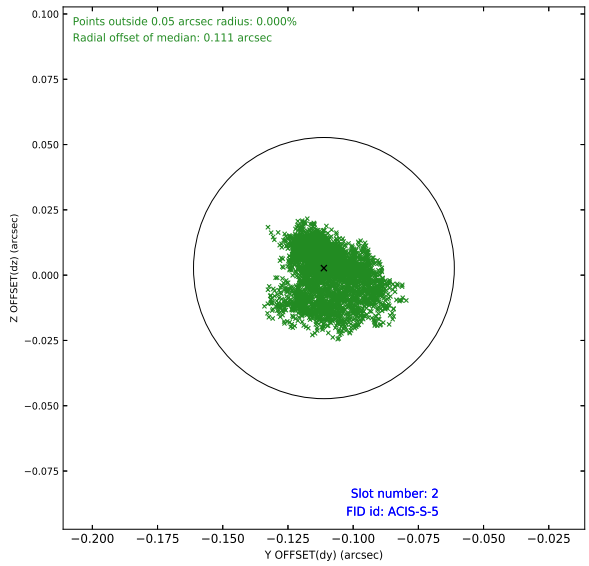

Slot number: 1
FID id: ACIS-S-4
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

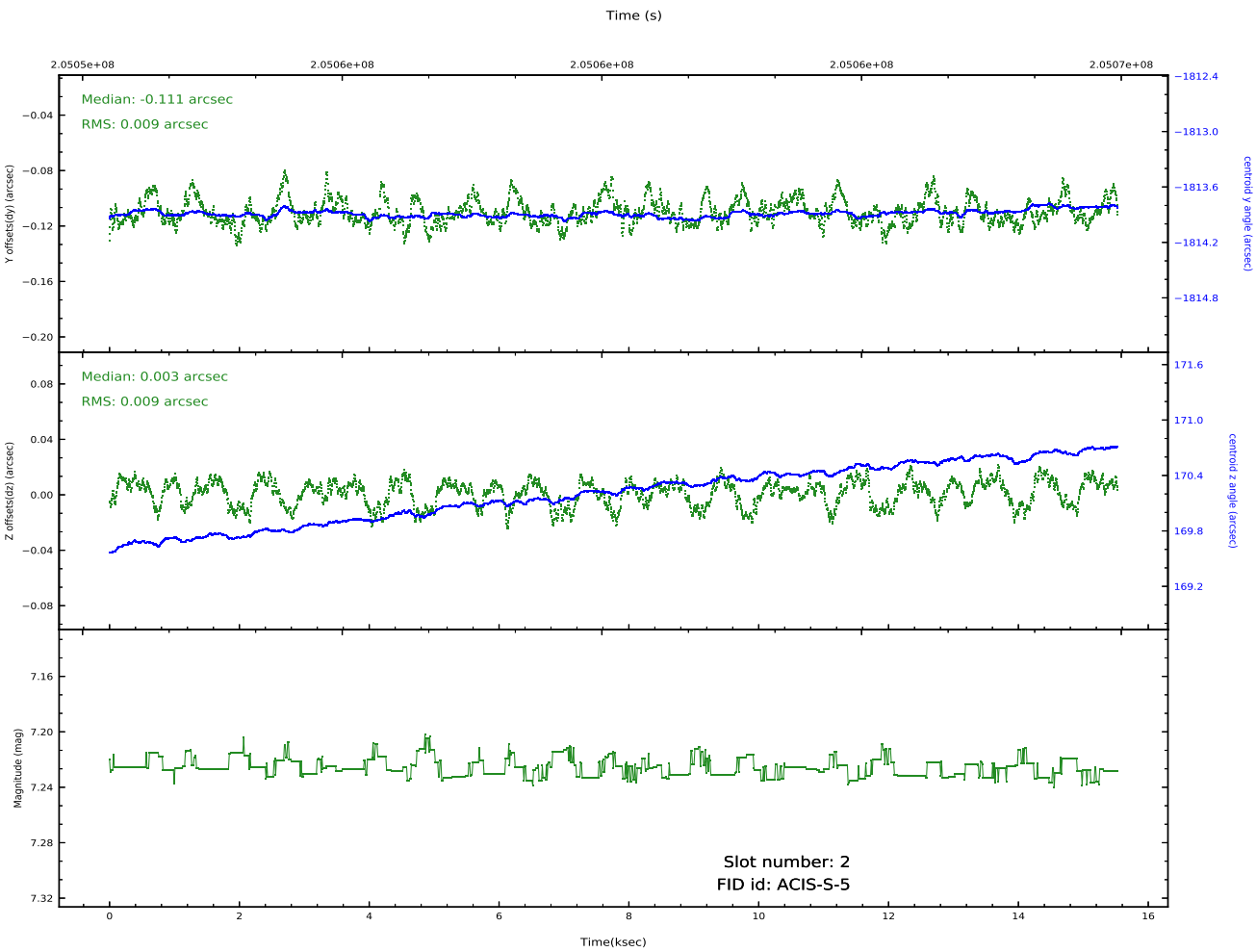

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.155 arcsec
Slot number: 1
FID id: ACIS-S-4
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: 0.148 arcsec
RMS: 0.009 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.044 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS-S-4
Time(ksec)

### 2.5.3 Slot 2


Slot number: 2
FID id: ACIS-S-5
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.111 arcsec
Slot number: 2
FID id: ACIS-S-5
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: -0.111 arcsec
RMS: 0.009 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.003 arcsec
RMS: 0.009 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS-S-5
Time(ksec)

# A Summary

## A.1 Status

| | |
|---|---|
| V&V Scientist | Francesca Civano |
| V&V Date (YYYY-MM-DD) | 2020.09.28 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 14.956 |

## A.2 Comments