# V&V Reference Report
# L2 ASCDS Version : 8.4.4

Observation 7913 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : May 9 2012

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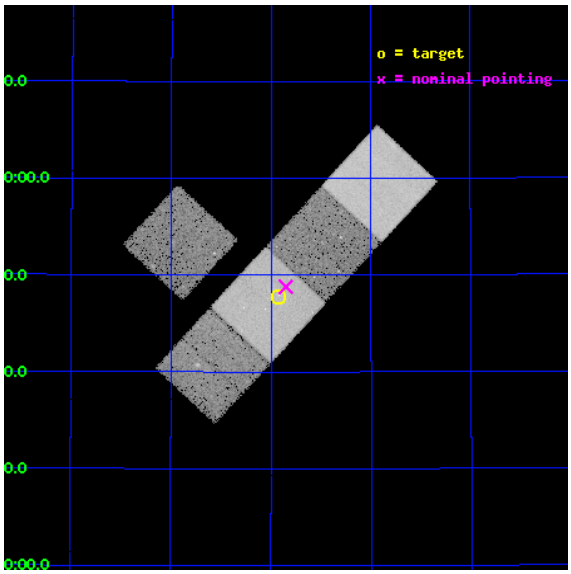
# 1 Front

| | | |
|---|---|---|
| seq_num | 800631 | Sequence number |
| obs_id | 7913 | Observation id |
| title | A search for clusters around luminous radio-quiet FRI quasars | Prop |
| observer | Professor Andrew Fabian | Principal investigator |
| object | 7C1052+4547 | Source name |
| dtycycle | 0 |   |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 163.23125 | Observer's specified target RA [deg] |
| dec_targ | 45.796972 | Observer's specified target Dec [deg] |
| ra_nom | 163.21270669077 | Nominal RA [deg] |
| dec_nom | 45.813365960369 | Nominal Dec [deg] |
| roll_nom | 132.84527169481 | Nominal Roll [deg] |
| revision | 2 | Processing version of data |
| ontime | 19672.559161007 | Sum of GTIs [s] |
| livetime | 19415.522692841 | Livetime [s] |
| ontime3 | 19675.700151324 | Sum of GTIs [s] |
| ontime5 | 19675.700151324 | Sum of GTIs [s] |
| ontime6 | 19672.559141099 | Sum of GTIs [s] |
| ontime7 | 19672.559161007 | Sum of GTIs [s] |
| ontime8 | 19675.700151324 | Sum of GTIs [s] |
| l2events | 228831 | Number of level 2 events |

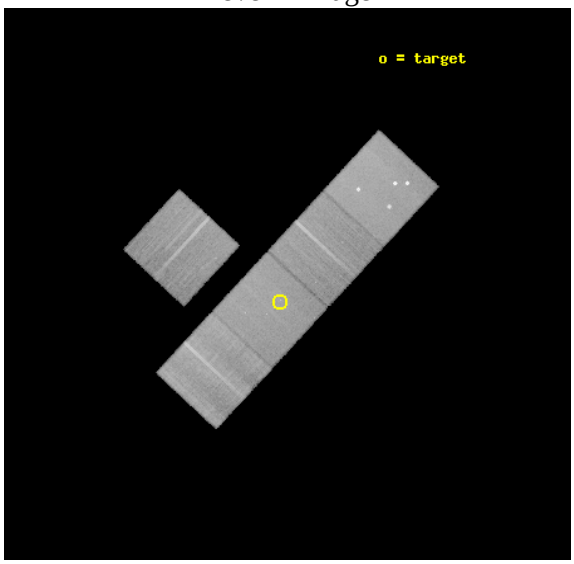


# 2 OBI

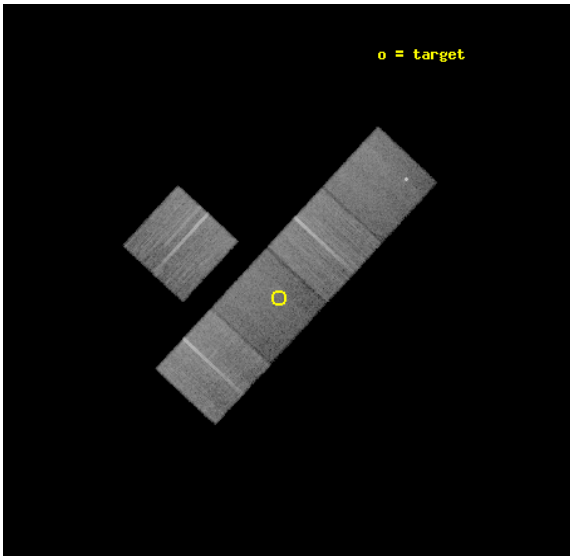
## 2.1 OBI

### 2.1.1 Images

Level 1 Image

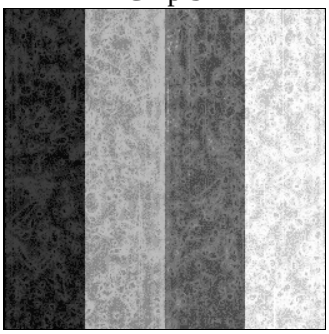



Level 1 Bad Events

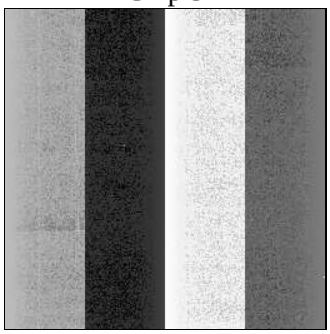



### 2.1.2 Bias

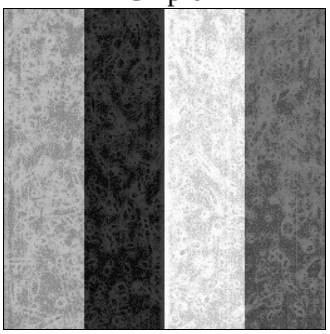
Chip 3



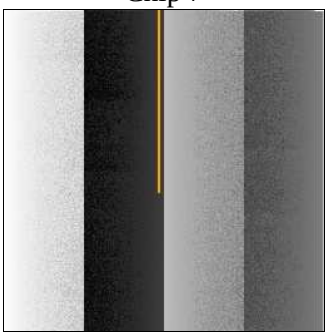
Chip 5



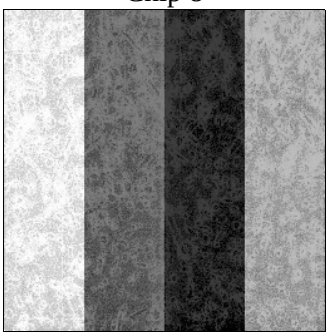
Chip 6



Chip 7



Chip 8



### 2.1.3 Parameters

| | | |
|---|---|---|
| obi_num | 0 | Obi number |
| ascdsver | 8.4.4 | Processing system revision |
| caldbver | 4.4.9 |   |
| date | 2012-05-09T03:00:08 | Date and time of file creation |
| revision | 2 | Processing version of data |

| | | |
|---|---|---|
| sched_exp_time | 19500.000000 | [s] Scheduled observation exposure time |
| ontime | 19672.559161007 | Sum of GTIs [s] |
| ontime3 | 19675.700151324 | Sum of GTIs [s] |
| ontime5 | 19675.700151324 | Sum of GTIs [s] |
| ontime6 | 19672.559141099 | Sum of GTIs [s] |
| ontime7 | 19672.559161007 | Sum of GTIs [s] |
| ontime8 | 19675.700151324 | Sum of GTIs [s] |
| l1events | 964973 | Number of level 1 events |

### 2.1.4 Events

| | **ccd 3** | **ccd 5** | **ccd 6** | **ccd 7** | **ccd 8** |
|---|---|---|---|---|---|
| level 1 events | 159215 | 242038 | 167179 | 184658 | 211883 |
| rejected events | 144215 | 120124 | 150196 | 102632 | 160948 |
| rejected % | 90% | 49% | 89% | 55% | 75% |

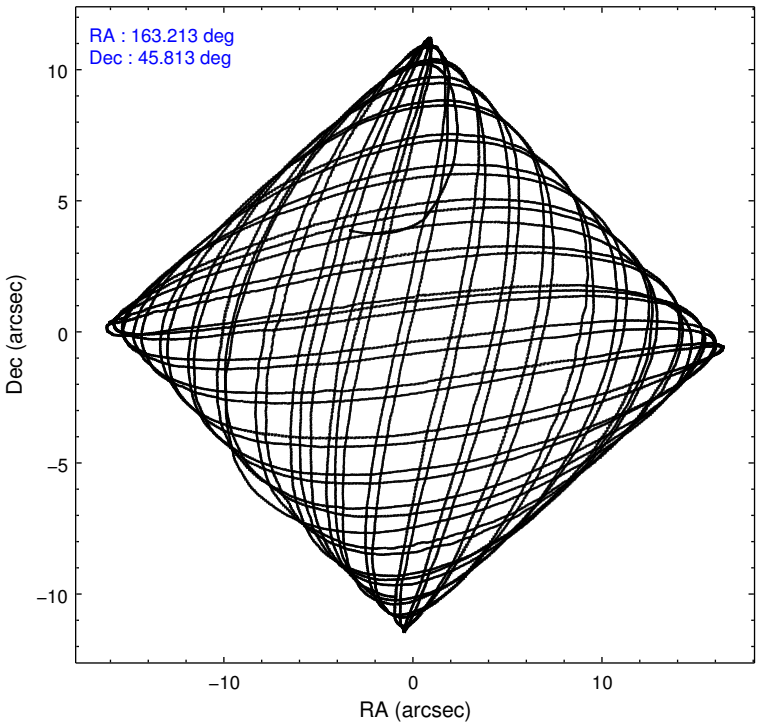
| | **ccd 3** | **ccd 5** | **ccd 6** | **ccd 7** | **ccd 8** |
|---|---|---|---|---|---|
| grade 0 events | 5444 | 21768 | 6153 | 8054 | 15312 |
| | 3% | 8% | 3% | 4% | 7% |
| grade 1 events | 75 | 519 | 92 | 204 | 163 |
| | 0% | 0% | 0% | 0% | 0% |
| grade 2 events | 3295 | 35613 | 3932 | 16928 | 12060 |
| | 2% | 14% | 2% | 9% | 5% |
| grade 3 events | 1780 | 4779 | 1855 | 7768 | 5550 |
| | 1% | 1% | 1% | 4% | 2% |
| grade 4 events | 1772 | 4743 | 1831 | 7707 | 5192 |
| | 1% | 1% | 1% | 4% | 2% |
| grade 5 events | 6715 | 18398 | 6517 | 19286 | 9657 |
| | 4% | 7% | 3% | 10% | 4% |
| grade 6 events | 3169 | 58620 | 3712 | 43893 | 14403 |
| | 1% | 24% | 2% | 23% | 6% |
| grade 7 events | 136965 | 97598 | 143087 | 80818 | 149546 |
| | 86% | 40% | 85% | 43% | 70% |

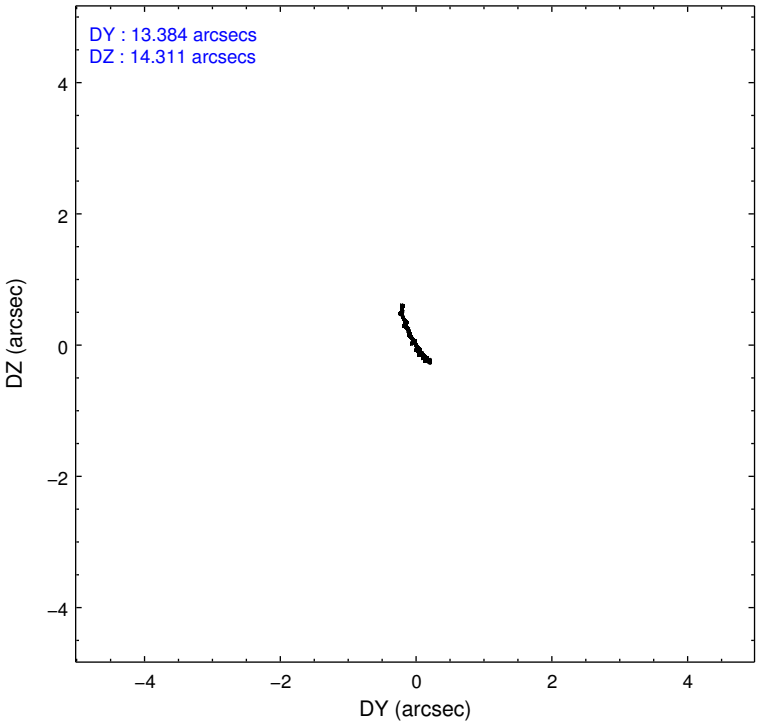
## 2.2 Compared Parameters

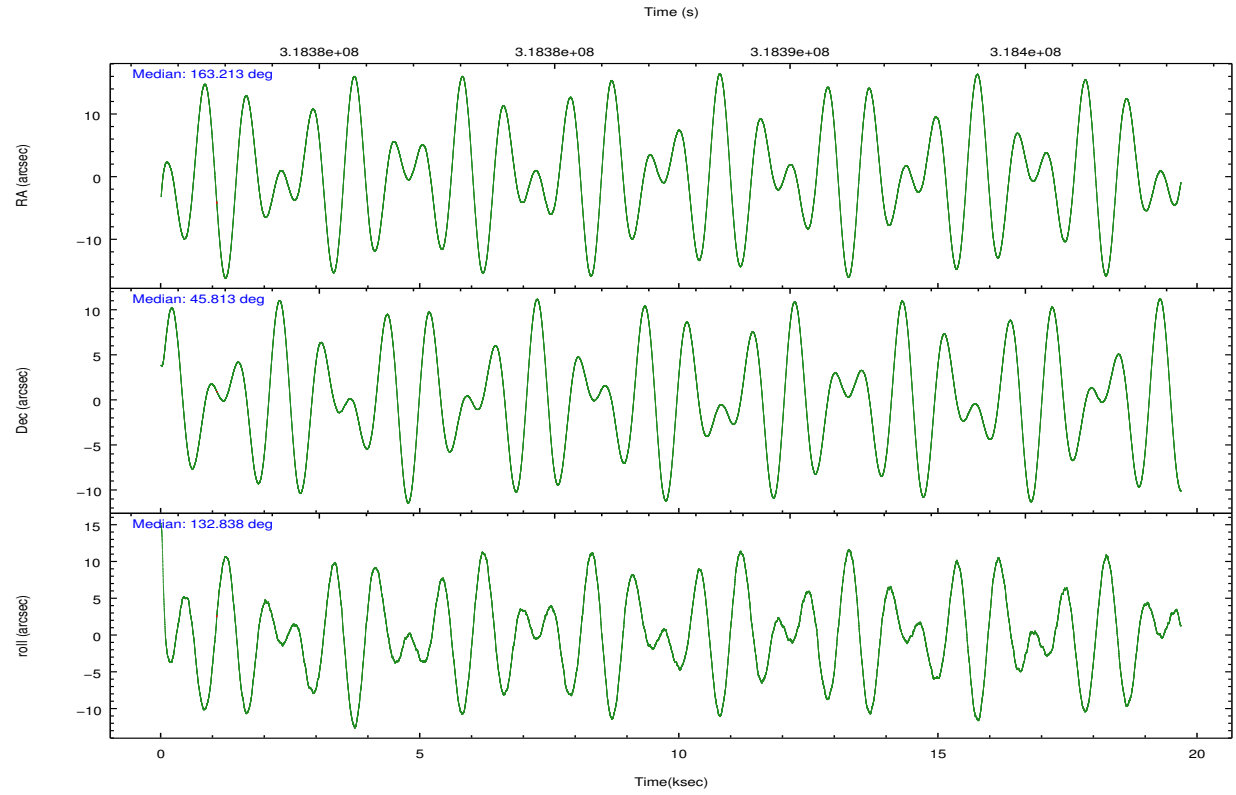
| Parameter | Planned | Actual |
|---|---|---|
| Instrument | ACIS | ACIS |
| Detector | ACIS-35678 | ACIS-35678 |
| Grating | NONE | NONE |
| Data mode | VFAINT | VFAINT |
| Observation mode | POINTING | POINTING |
| [deg] Pointing RA | 163.250361 | 163.2127066907657 |
| [deg] Pointing Dec | 45.805628 | 45.81336596036891 |
| [deg] Pointing Roll | 132.661634 | 132.8452716948138 |
| [mm] SIM focus pos | -0.684267 | -0.6828225247311905 |
| [mm] SIM defocus | 0 | 0.001444936568705701 |
| [mm] SIM translation stage pos | -190.132523 | -190.1425803651734 |
| [mm] SIM translation stage offset | 0 | 0.01005778216563158 |
| [s] Observation start time (MET) | 318377821.184000 | 318376533.0907 |
| Observation start date | 2008-02-02T22:15:56 | 2008-02-02T21:55:33 |
| [s] Observation end time (MET) | 318397321.184000 | 318398194.41675 |
| Observation end date | 2008-02-03T03:40:56 | 2008-02-03T03:56:34 |
| Read mode | TIMED | TIMED |

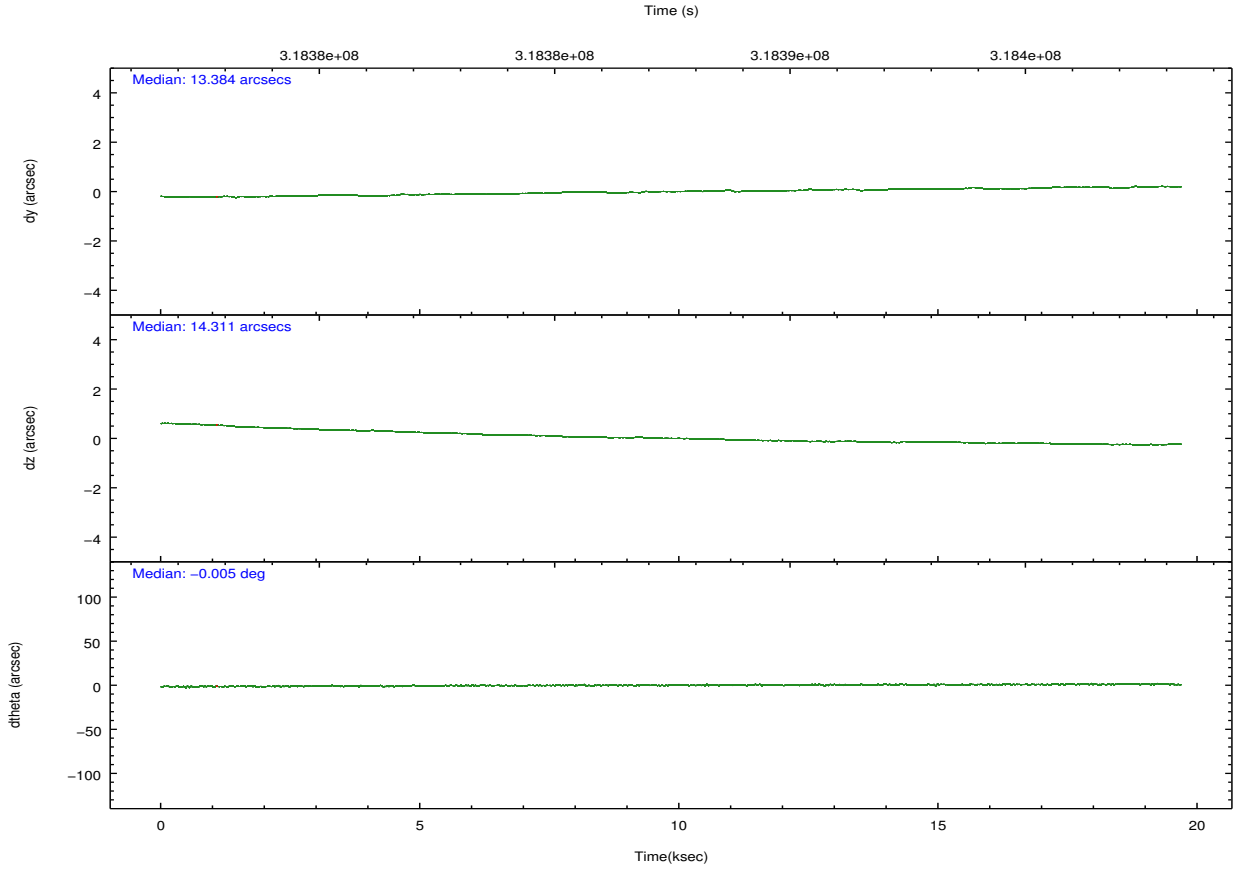
| Parameter | Planned | Actual |
|---|---|---|
| Obspar format version number | 7 | 7 |
| Obspar file type | PREDICTED | ACTUAL |
| Obspar update status | NONE | UPDATED |
| Number of optional ACIS chips dropped | 0 | 0 |
| On-chip summing requested | N | N |
| Subarray requested | NONE | NONE |
| Alternating exposures requested | N | N |
| [s] Primary exposure time | 0.000000 | 3.1 |

## 2.3 Aspect


RA : 163.213 deg
Dec : 45.813 deg
10
5
0
−5
−10
Dec (arcsec)
−10
0
10
RA (arcsec)


DY : 13.384 arcsecs
DZ : 14.311 arcsecs
4
2
0
−2
−4
DZ (arcsec)
−4
−2
0
2
4
DY (arcsec)


Time (s)
3.1838e+08
3.1838e+08
3.1839e+08
3.184e+08
Median: 163.213 deg
RA (arcsec)
Median: 45.813 deg
Dec (arcsec)
Median: 132.838 deg
roll (arcsec)
Time(ksec)

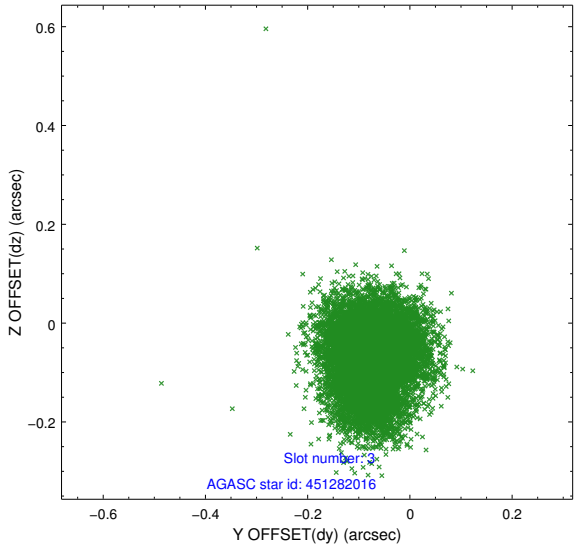

Time (s)
3.1838e+08
3.1838e+08
3.1839e+08
3.184e+08
Median: 13.384 arcsecs
dy (arcsec)
Median: 14.311 arcsecs
dz (arcsec)
Median: −0.005 deg
dtheta (arcsec)
Time(ksec)

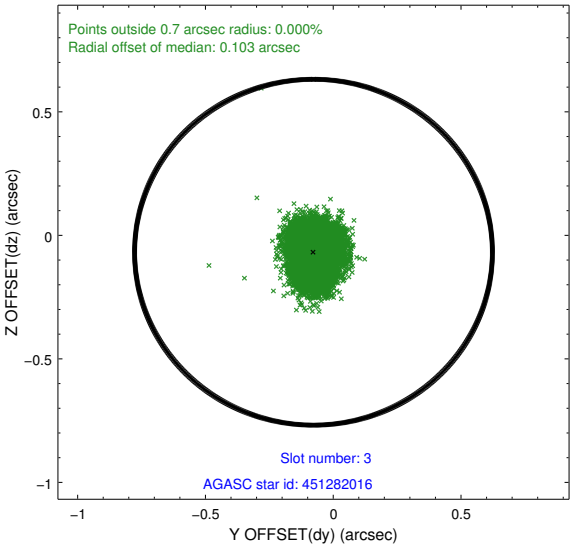
Slot Statistics

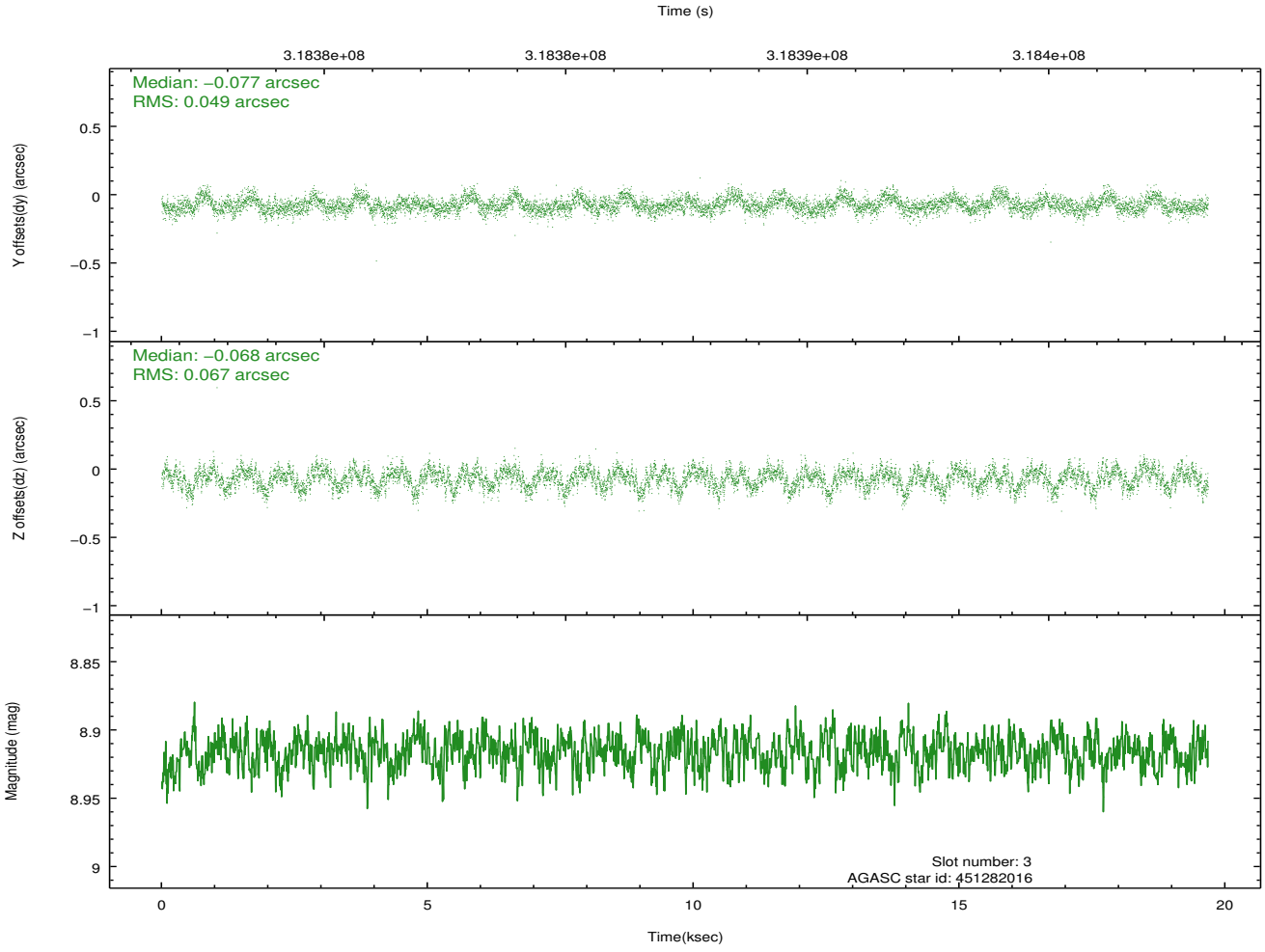
| slot | status | id | mag | n_pts | med_dy | med_dz | dr1 | dr2 | ra | dec | mean_y | mean_z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | FID | ACIS-S-2 | 7.10 | 4798 | -0.051 | -0.050 | 0.011 | 0.018 | 0.000000 | 0.000000 | -766.33 | -1735.74 |
| 1 | FID | ACIS-S-4 | 7.19 | 4791 | 0.176 | 0.038 | 0.008 | 0.015 | 0.000000 | 0.000000 | 2147.07 | 172.67 |
| 2 | FID | ACIS-S-5 | 7.22 | 4794 | -0.157 | 0.021 | 0.011 | 0.018 | 0.000000 | 0.000000 | -1819.05 | 166.50 |
| 3 | GUIDE | 451282016 | 8.92 | 9584 | -0.077 | -0.068 | 0.088 | 0.141 | 163.460275 | 46.155726 | 572.81 | -1239.38 |
| 4 | GUIDE | 451286232 | 8.13 | 9592 | -0.012 | 0.108 | 0.061 | 0.096 | 164.063215 | 45.770459 | -1468.11 | -1422.21 |
| 5 | GUIDE | 451287144 | 9.42 | 9572 | 0.067 | 0.143 | 0.113 | 0.183 | 162.898016 | 46.292040 | 1883.13 | -542.91 |
| 6 | GUIDE | 451288920 | 8.26 | 9592 | -0.008 | -0.015 | 0.069 | 0.111 | 163.134420 | 45.286972 | -1173.51 | 1481.66 |
| 7 | GUIDE | 451290040 | 7.86 | 9592 | 0.025 | -0.159 | 0.074 | 0.118 | 163.136471 | 45.777840 | 120.38 | 278.09 |

## 2.4 Star Slots

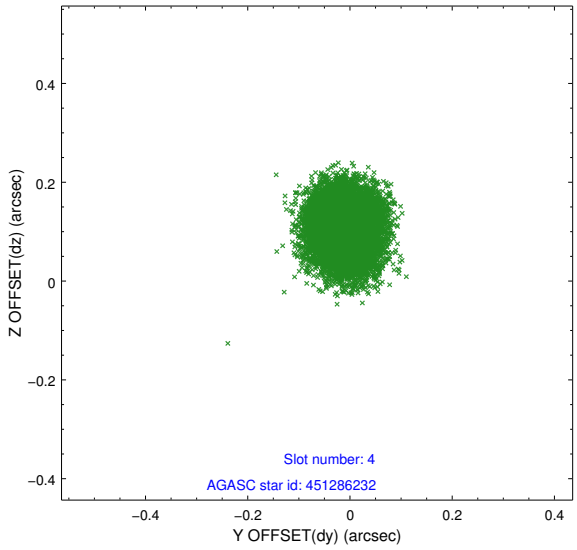
### 2.4.1 Slot 3

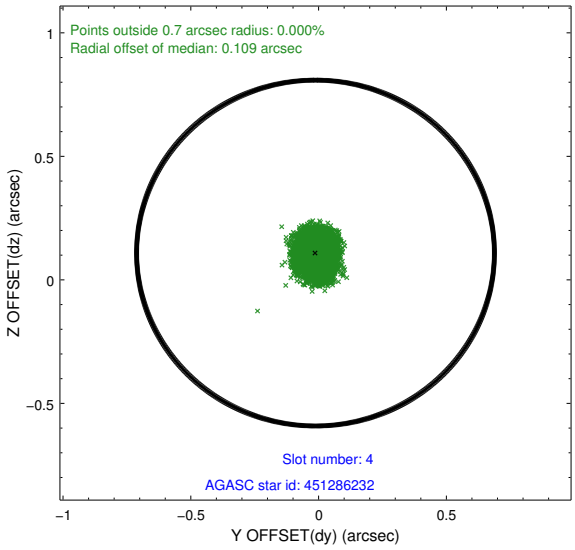


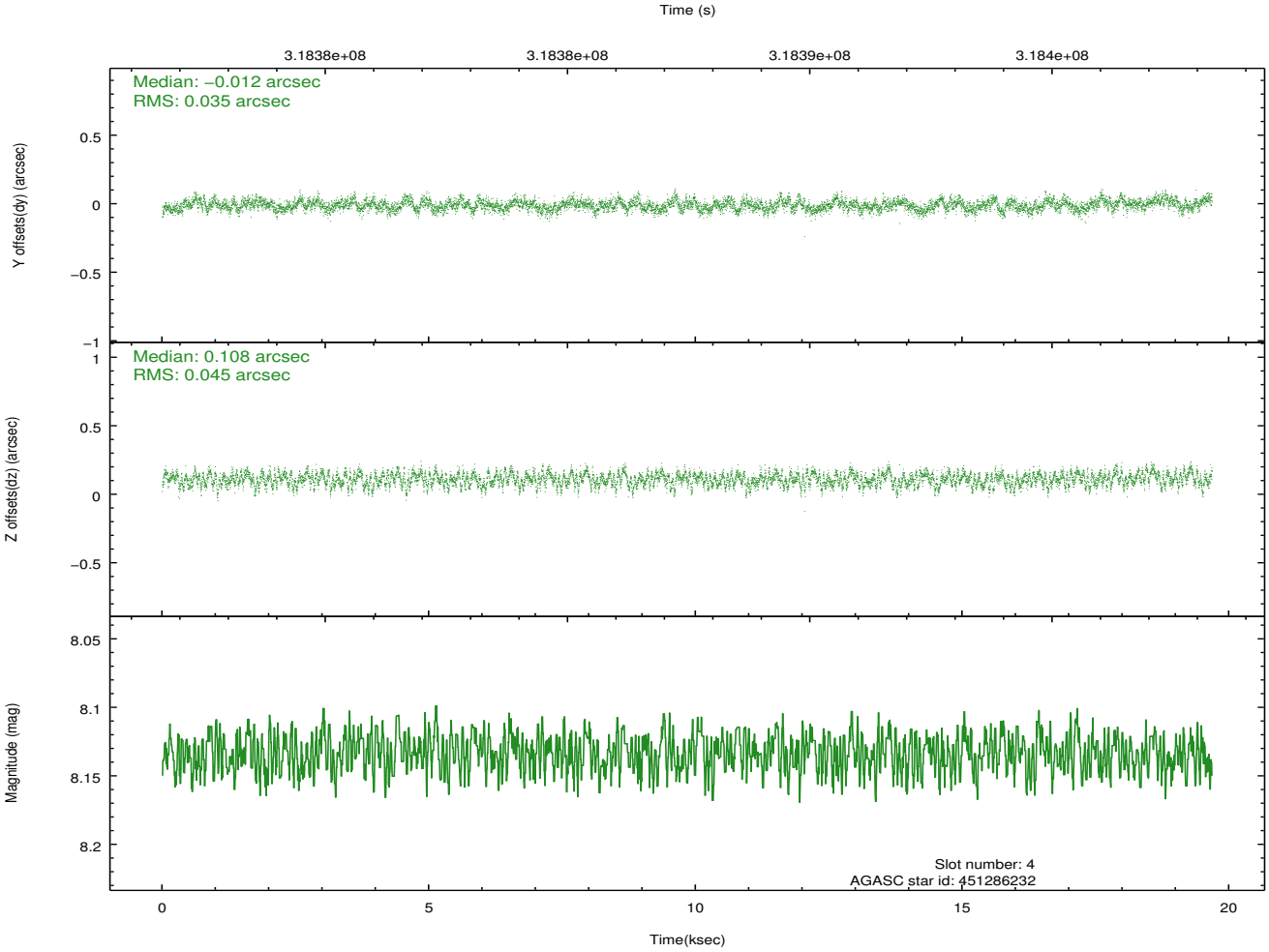



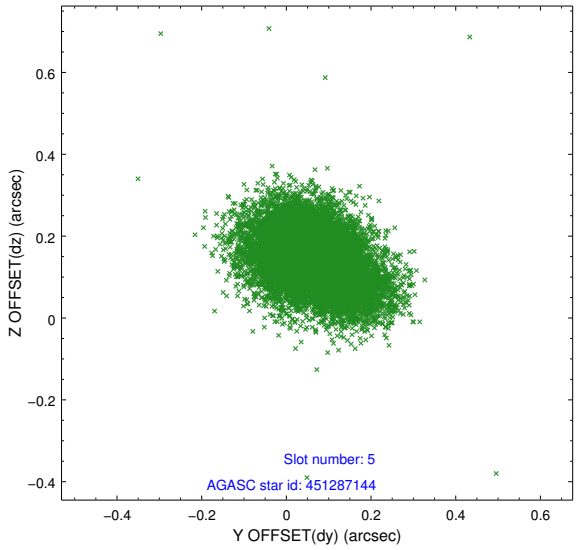
### 2.4.2 Slot 4

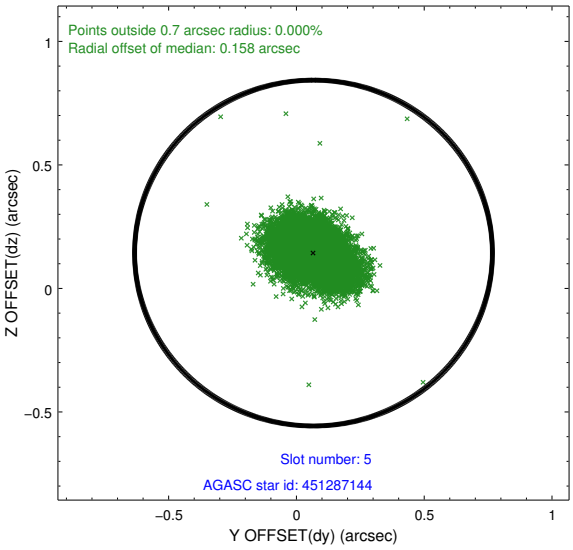

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 451286232

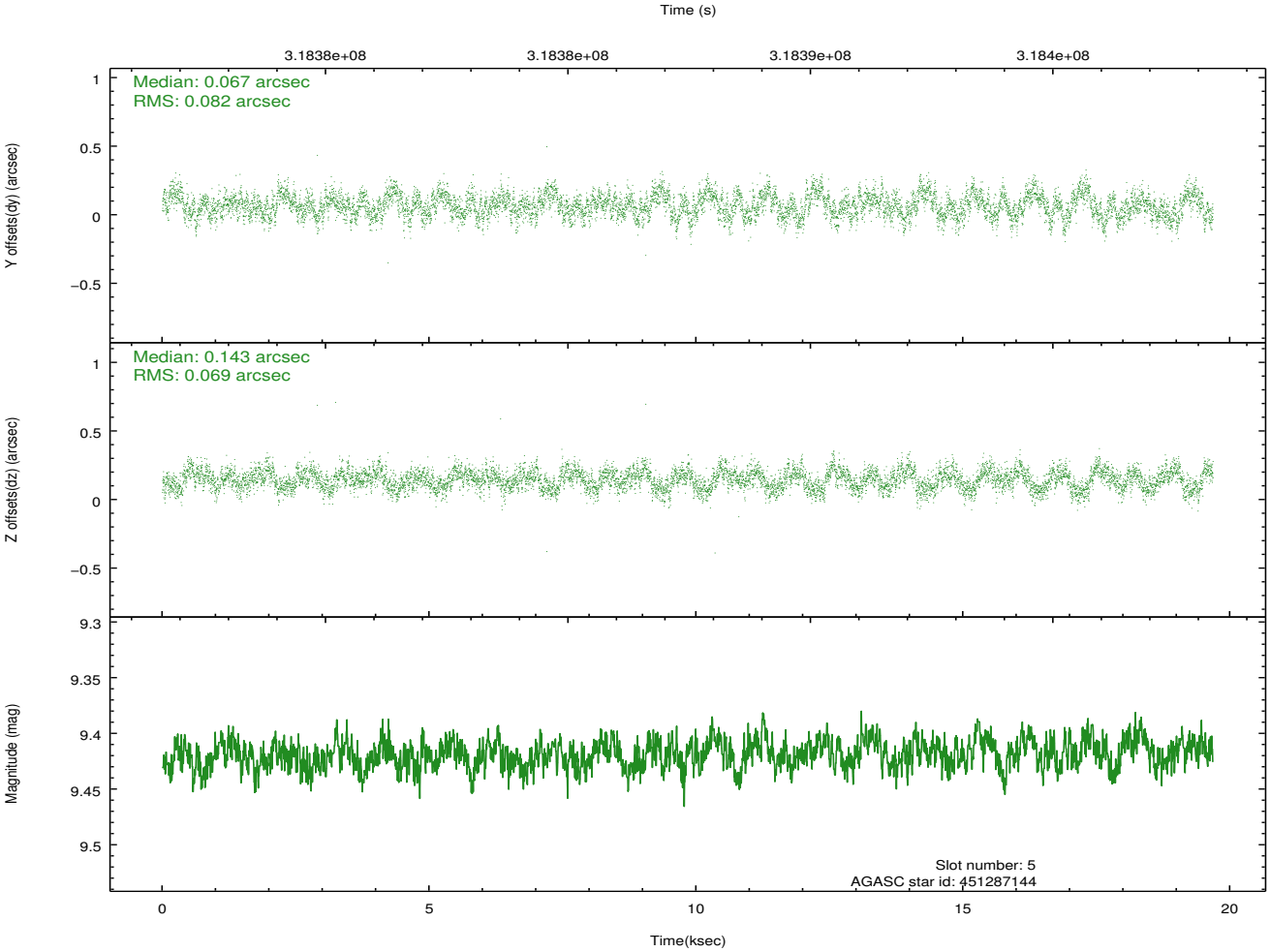

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.109 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 451286232


Time (s)
3.1838e+08
3.1838e+08
3.1839e+08
3.184e+08
Median: −0.012 arcsec
RMS: 0.035 arcsec
Y offsets(dy) (arcsec)
Median: 0.108 arcsec
RMS: 0.045 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 451286232
Time(ksec)

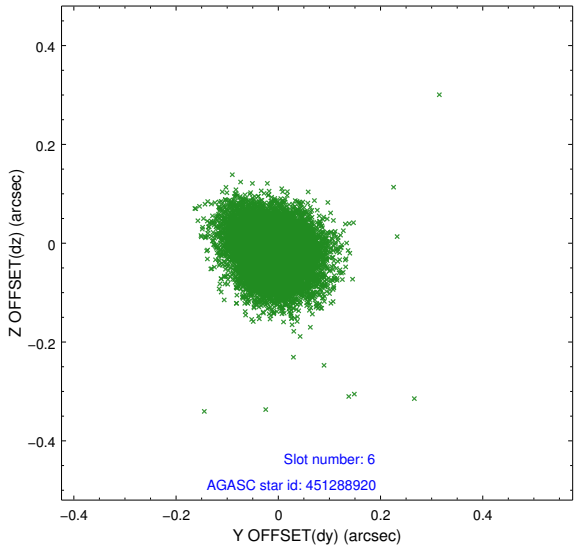
### 2.4.3 Slot 5

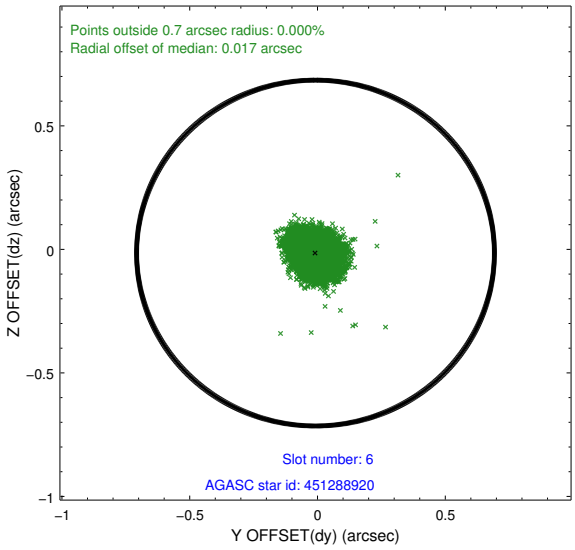

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 451287144

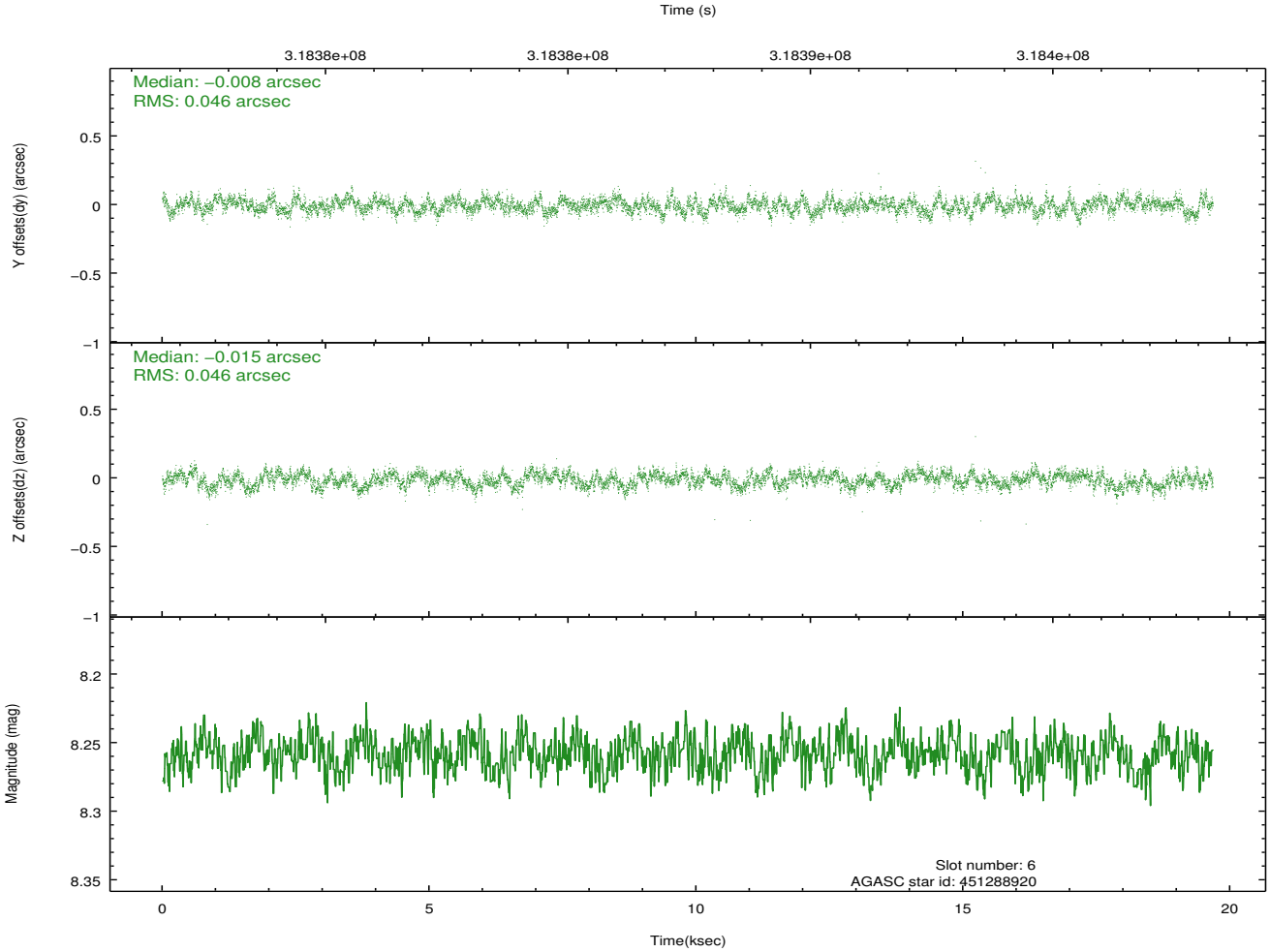

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.158 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 451287144


Time (s)
3.1838e+08
3.1838e+08
3.1839e+08
3.184e+08
Median: 0.067 arcsec
RMS: 0.082 arcsec
Y offsets(dy) (arcsec)
Median: 0.143 arcsec
RMS: 0.069 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 451287144
Time(ksec)

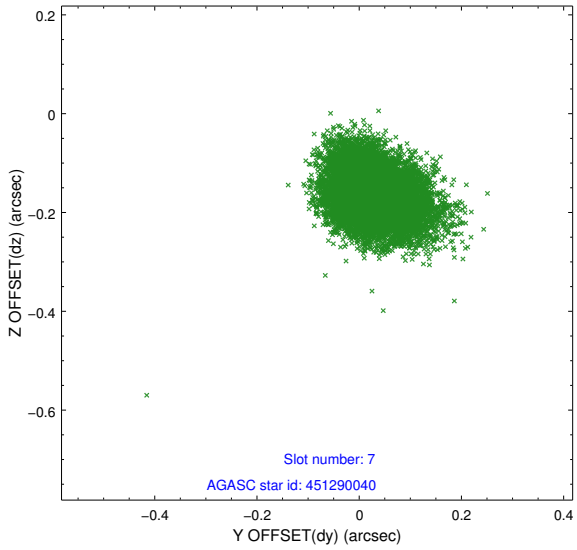
### 2.4.4 Slot 6

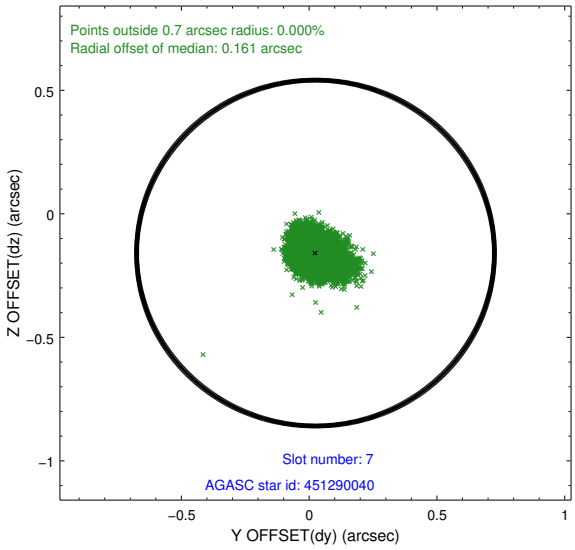

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 451288920

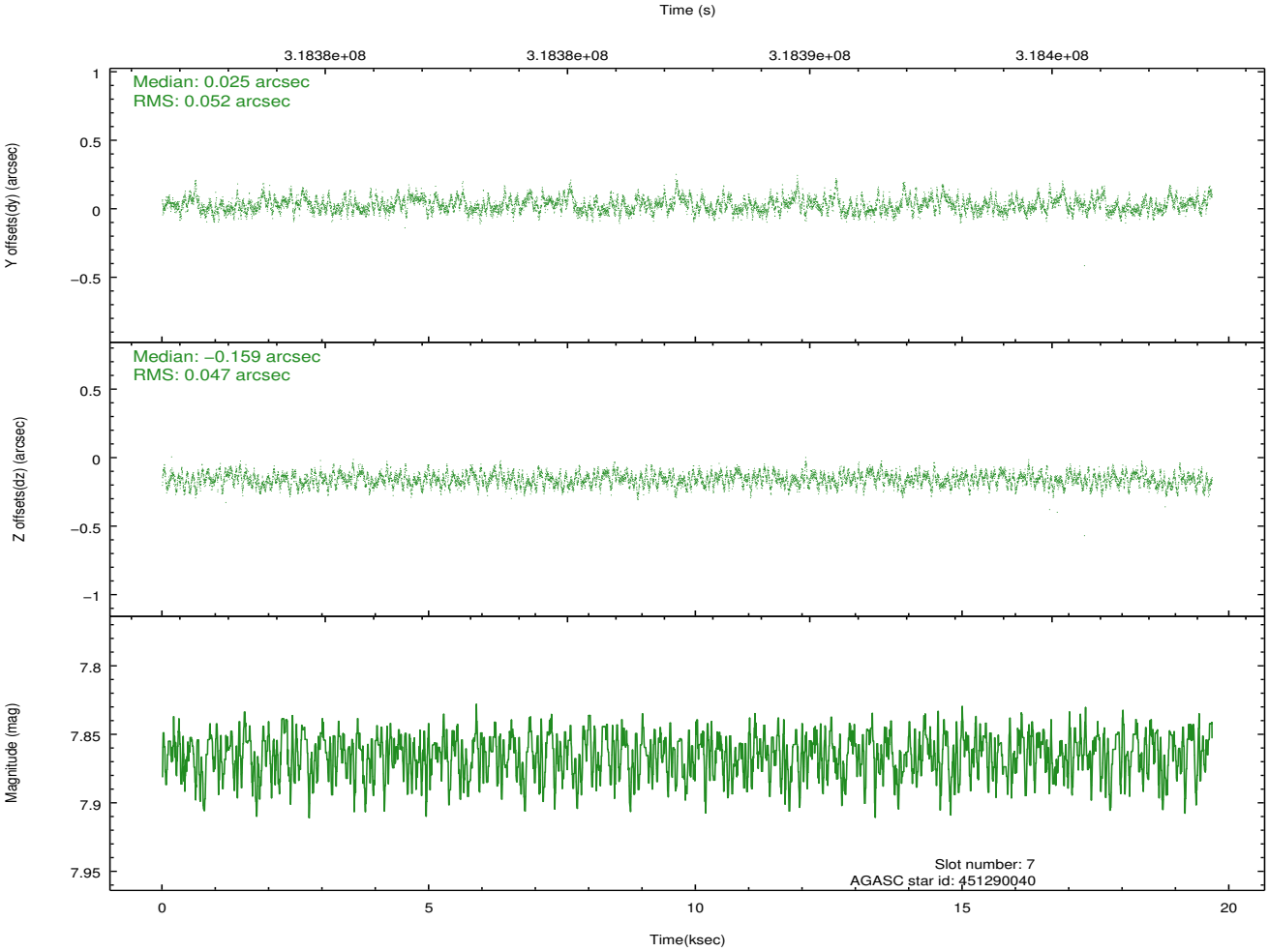

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.017 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 451288920


Time (s)
3.1838e+08
3.1838e+08
3.1839e+08
3.184e+08
Median: –0.008 arcsec
RMS: 0.046 arcsec
Y offsets(dy) (arcsec)
Median: –0.015 arcsec
RMS: 0.046 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 451288920
Time(ksec)

### 2.4.5 Slot 7

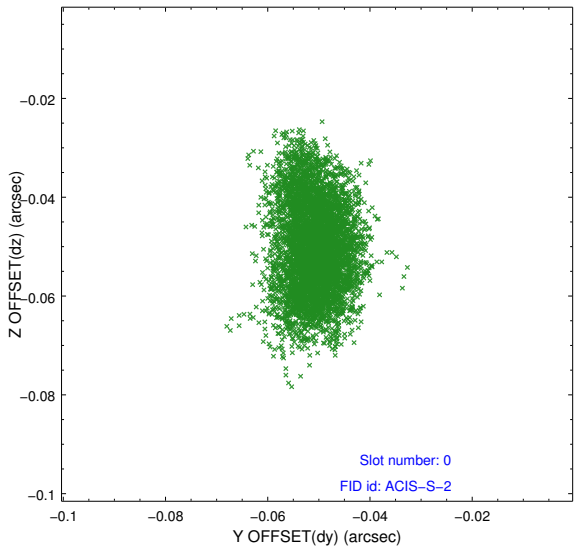

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 451290040

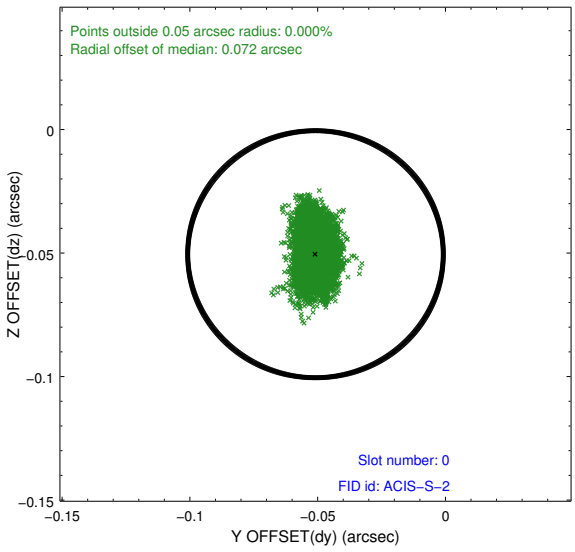

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.161 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 451290040

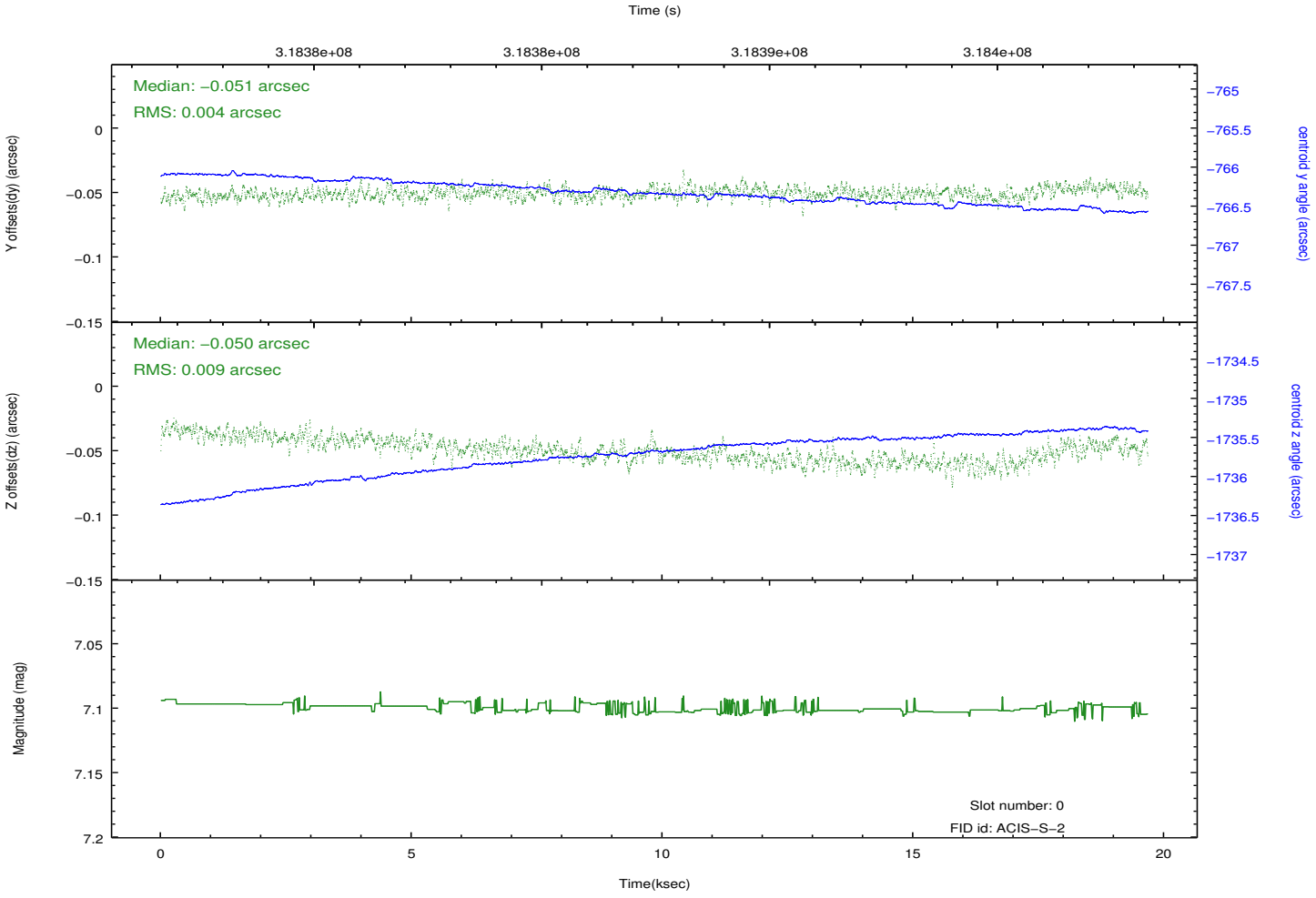

Time (s)
3.1838e+08
3.1838e+08
3.1839e+08
3.184e+08
Median: 0.025 arcsec
RMS: 0.052 arcsec
Y offsets(dy) (arcsec)
Median: −0.159 arcsec
RMS: 0.047 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 451290040
Time(ksec)

## 2.5 FID Slots

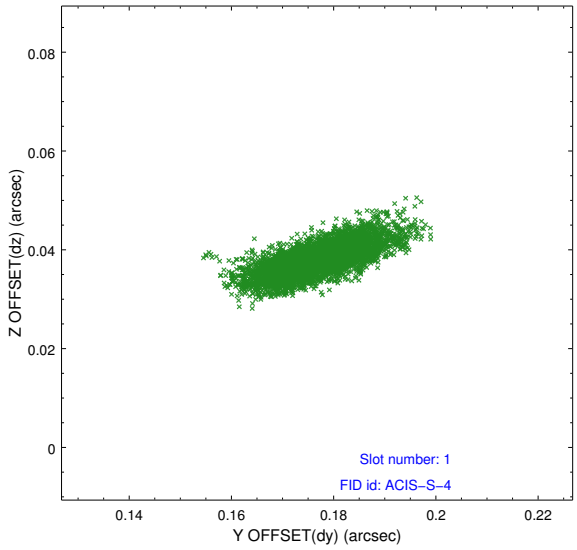
### 2.5.1 Slot 0

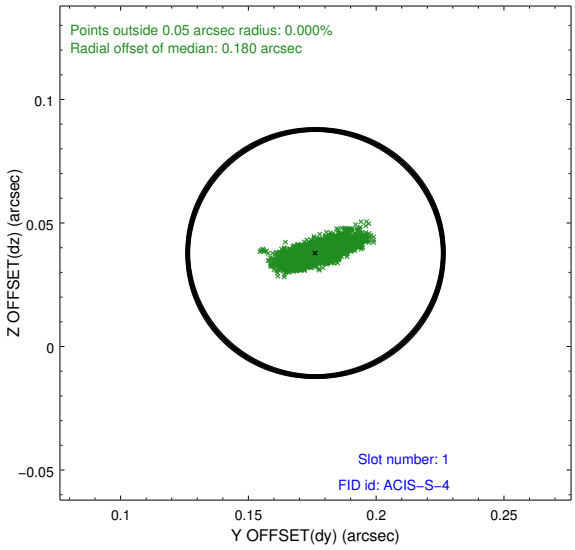


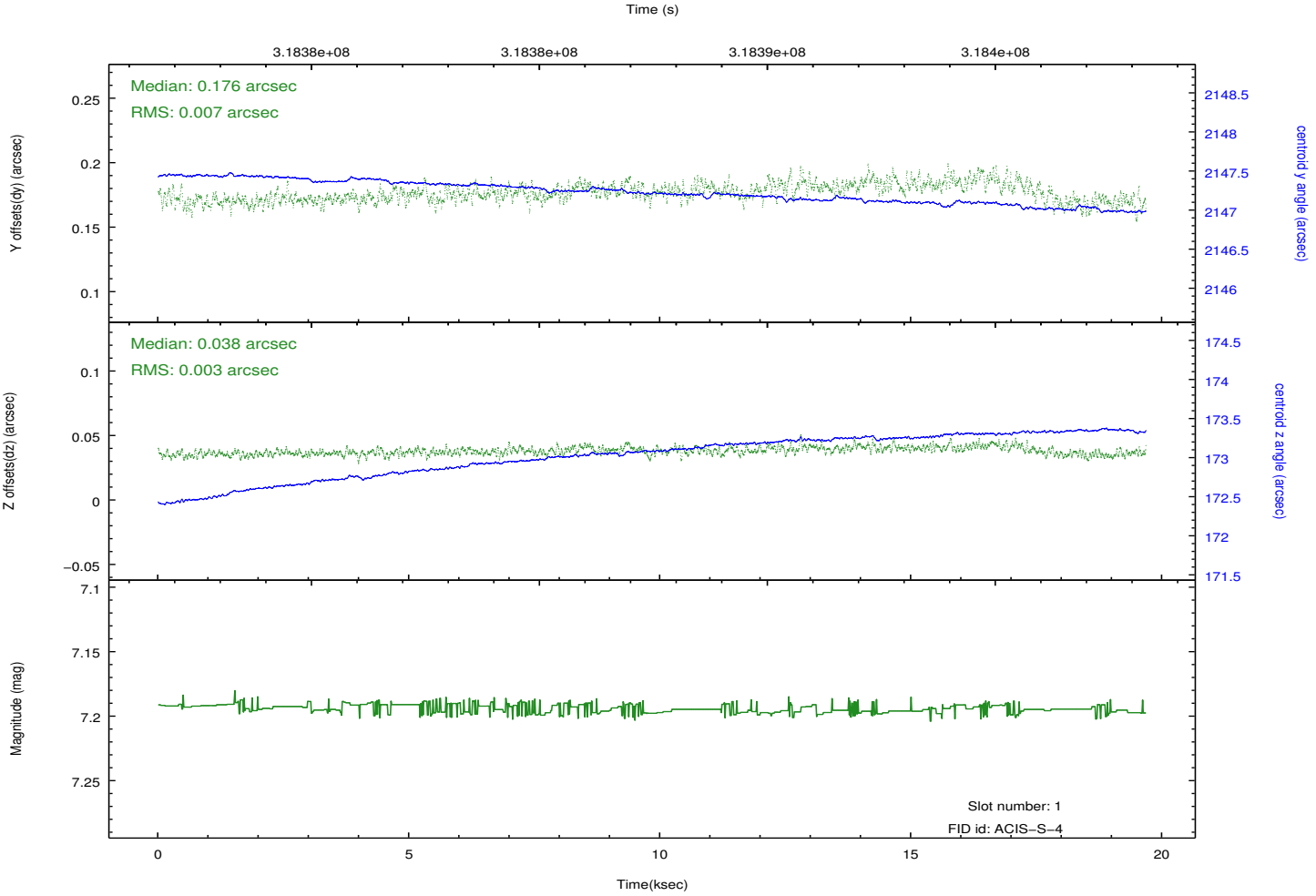



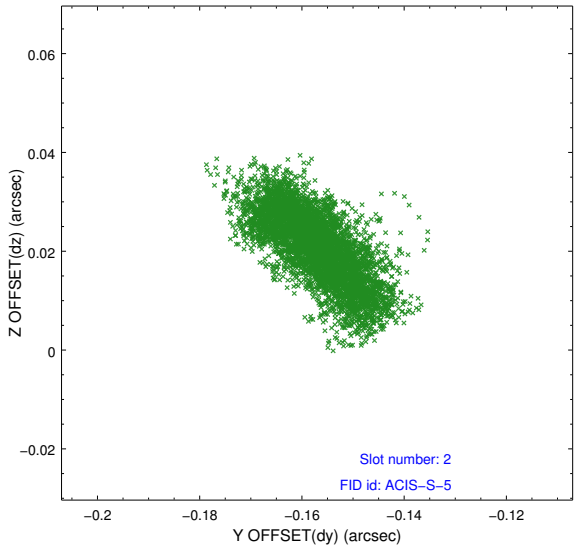
### 2.5.2 Slot 1

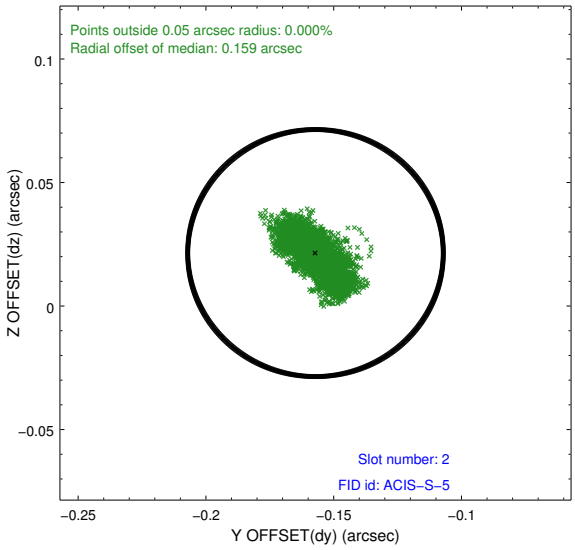

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

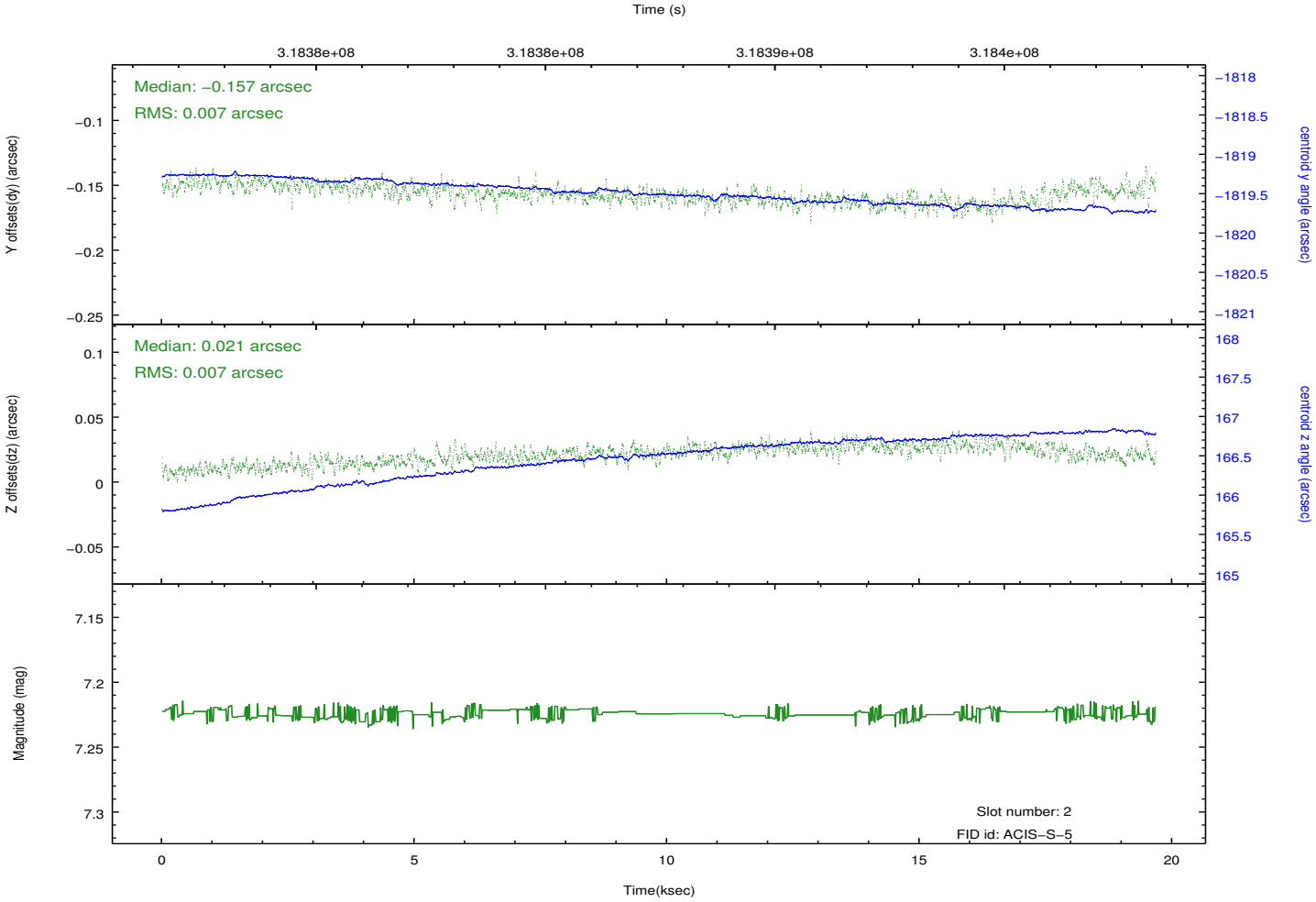

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.180 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.176 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.038 arcsec
RMS: 0.003 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


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


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.159 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.157 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.021 arcsec
RMS: 0.007 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 | Beth Sundheim |
| V&V Date (YYYY-MM-DD) | 2012.05.11 |
| V&V Edition | 1 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 19.6725591 |

## A.2 Comments