V&V Reference Report
L2 ASCDS Version : 8.4.5

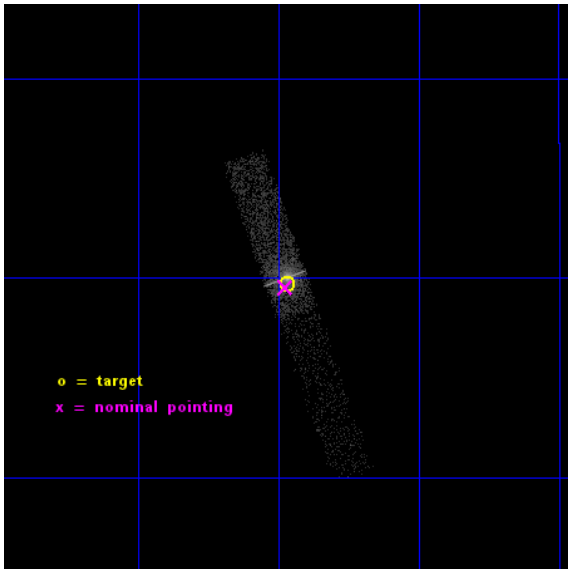
Observation 13710 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Nov 26 2014

Contents

1 Front

seq_num	401396	Sequence number
obs_id	13710	Observation id
title	The Spectral Energy Distribution of a Very Faint X-ray Transient	P
observer	Prof. Craig Heinke	Principal investigator
object	M15 X-3	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	322.492083	Observer's specified target RA [deg]
dec_targ	12.161139	Observer's specified target Dec [deg]
ra_nom	322.49390376811	Nominal RA [deg]
dec_nom	12.158701024657	Nominal Dec [deg]
roll_nom	250.15623302912	Nominal Roll [deg]
revision	2	Processing version of data
ontime	5099.2859463096	Sum of GTIs [s]
livetime	4876.8993365623	Livetime [s]
ontime6	5099.2449063063	Sum of GTIs [s]
ontime7	5099.2859463096	Sum of GTIs [s]
l2events	14801	Number of level 2 events

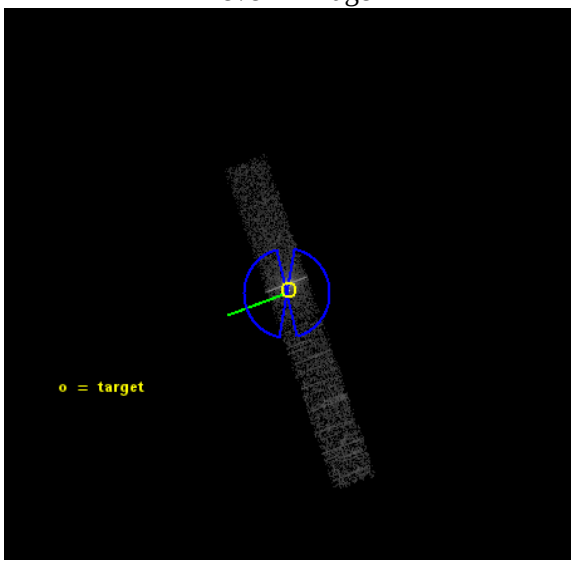


2 OBI

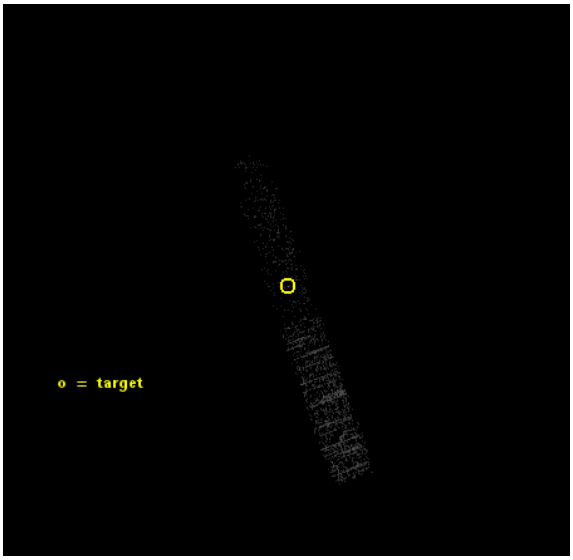
2.1 OBI

2.1.1 Images

Level 1 Image

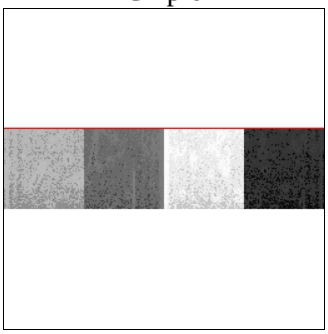


Level 1 Bad Events

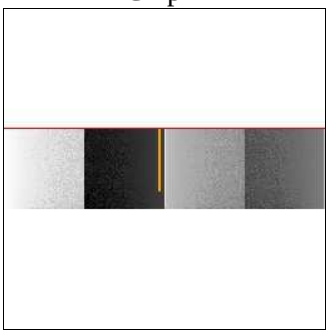


2.1.2 Bias

Chip 6



Chip 7



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.3	Processing system revision
caldbver	4.6.4	
date	2014-11-27T04:20:12	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	5000.000000	[s] Scheduled observation exposure time
ontime	5099.2859463096	Sum of GTIs [s]
ontime6	5099.2449063063	Sum of GTIs [s]
ontime7	5099.2859463096	Sum of GTIs [s]
l1events	27311	Number of level 1 events

2.1.4 Events

	ccd 6	**ccd 7**
level 1 events	6884	20427
rejected events	6037	5896
rejected %	87%	28%

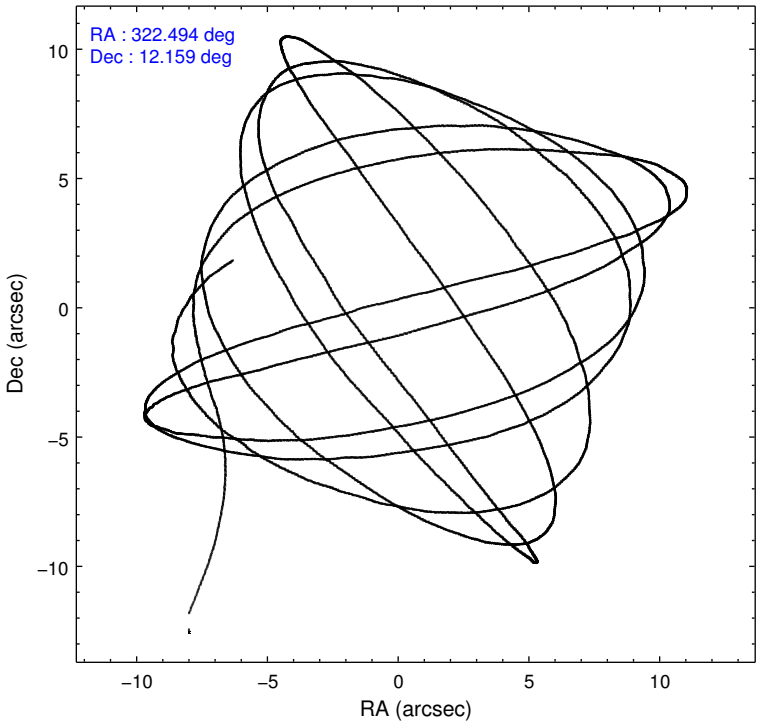
	ccd 6	**ccd 7**
grade 0 events	347	2850
	5%	13%
grade 1 events	3	286
	0%	1%
grade 2 events	144	3358
	2%	16%
grade 3 events	123	1563
	1%	7%
grade 4 events	135	1610
	1%	7%
grade 5 events	137	1621
	1%	7%
grade 6 events	98	5153
	1%	25%
grade 7 events	5897	3986
	85%	19%

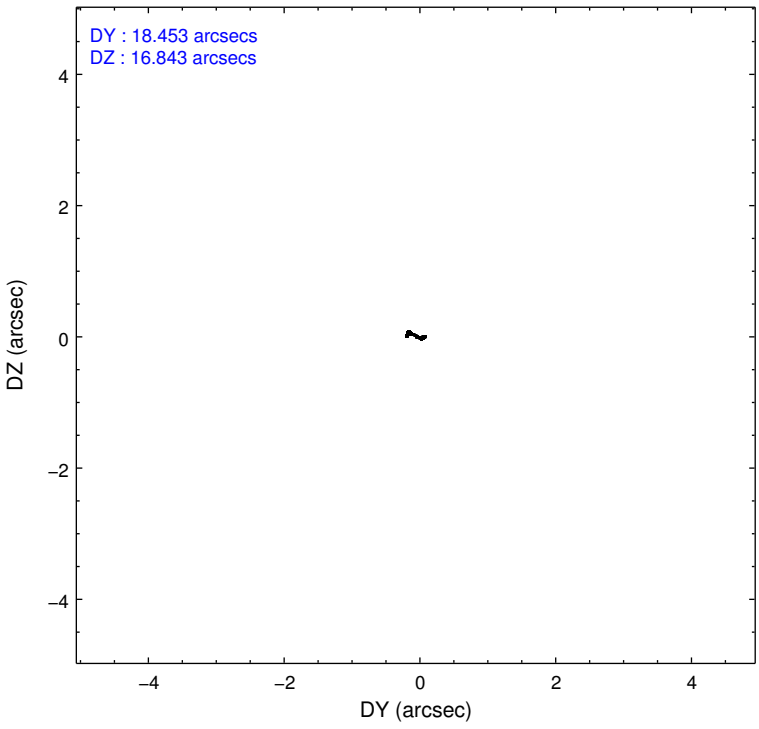
2.2 Compared Parameters

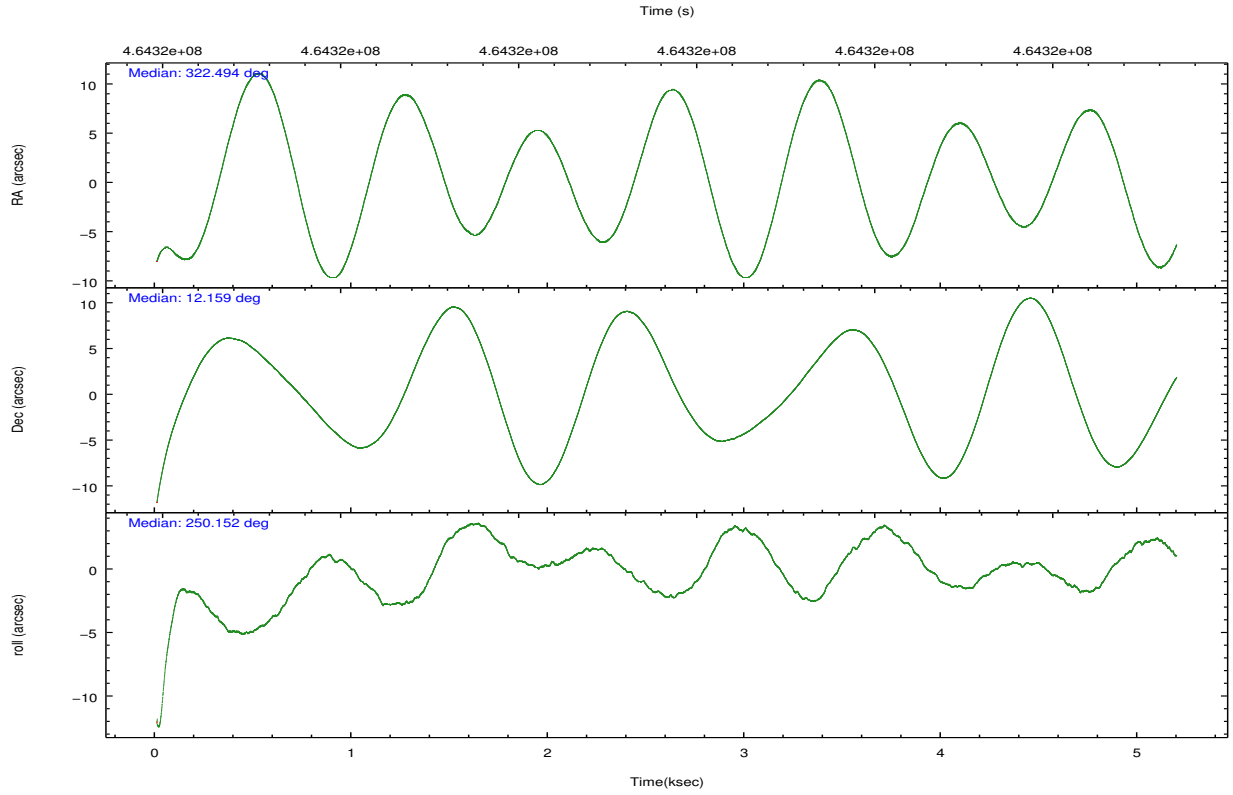
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-67	ACIS-67
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	322.488664	322.4939037681069
[deg] Pointing Dec	12.185589	12.1587010246575
[deg] Pointing Roll	250.000726	250.1562330291162
[deg] Roll angle	88.500000	88.500000
[deg] Roll tolerance	78.000000	78.000000
Roll constraint allows 180D rotation	Y	Y
[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)	464320427.184000	464319376.09137
Observation start date	2012-09-18T01:52:40	2012-09-18T01:36:16
[s] Observation end time (MET)	464325427.184000	464326740.20427
Observation end date	2012-09-18T03:16:00	2012-09-18T03:39:00
Read mode	TIMED	TIMED

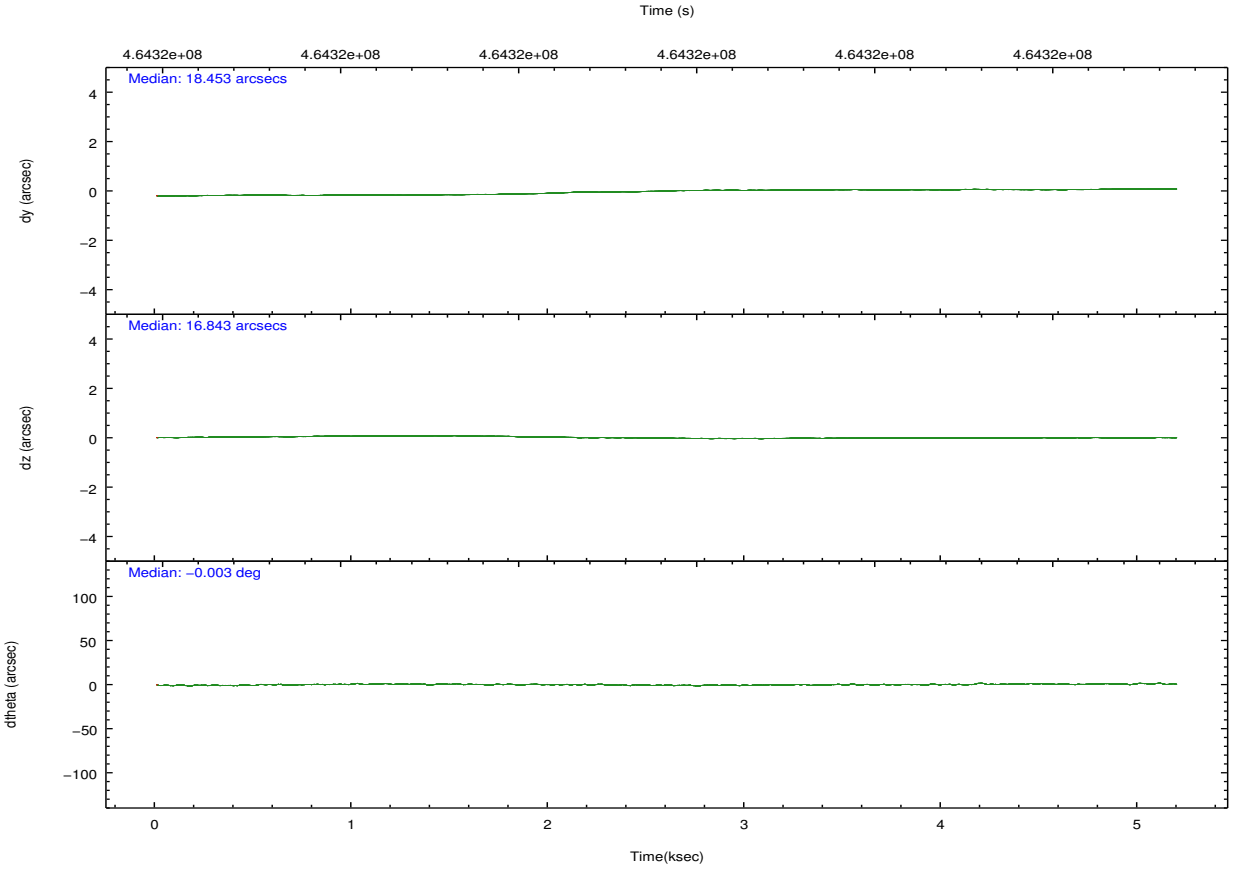
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	O1	Y
CCD S3 on	Y	Y
CCD S4 on	N	N
CCD S5 on	N	N
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/4
Subarray start row	385	385
Subarray row count	256	256
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0.9

2.3 Aspect


RA : 322.494 deg
Dec : 12.159 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 18.453 arcsecs
DZ : 16.843 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.6432e+08
4.6432e+08
4.6432e+08
4.6432e+08
4.6432e+08
4.6432e+08
Median: 322.494 deg
RA (arcsec)
Median: 12.159 deg
Dec (arcsec)
Median: 250.152 deg
roll (arcsec)
Time(ksec)

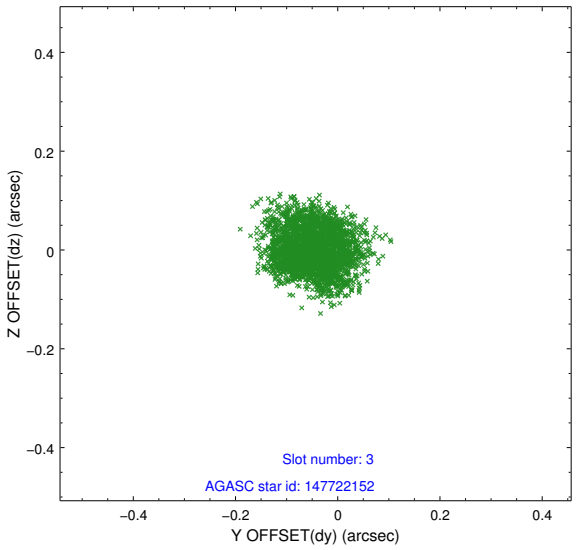

Time (s)
4.6432e+08
4.6432e+08
4.6432e+08
4.6432e+08
4.6432e+08
4.6432e+08
Median: 18.453 arcsecs
dy (arcsec)
Median: 16.843 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

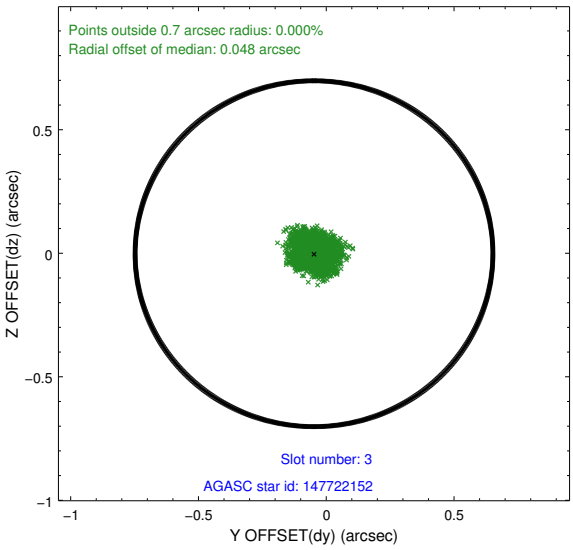
Slot Statistics

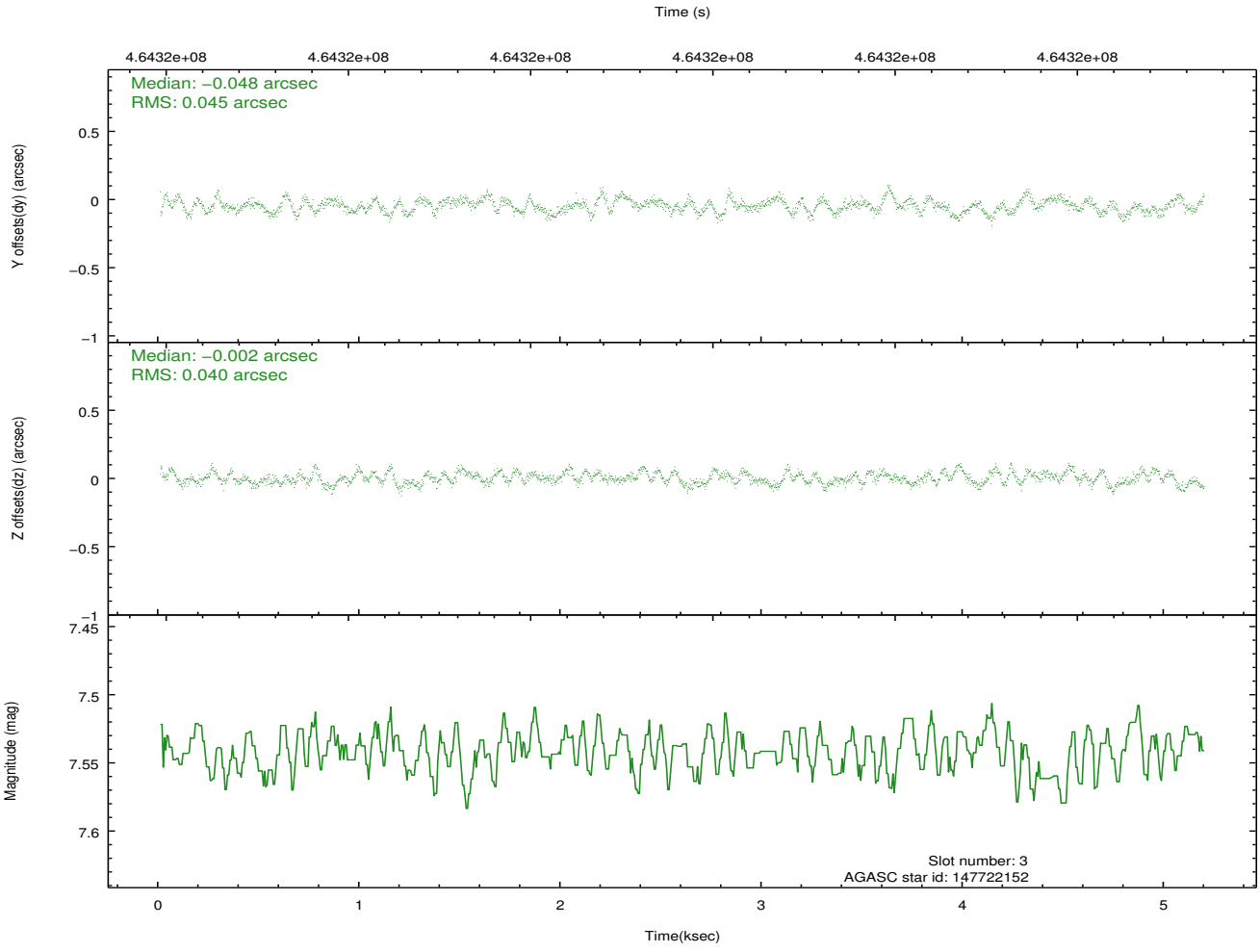
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.92	1267	-0.092	-0.022	0.006	0.010	0.000000	0.000000	-771.58	-1738.30
1	FID		ACIS-S-4	7.00	1267	0.269	0.050	0.008	0.013	0.000000	0.000000	2141.54	169.02
2	FID		ACIS-S-5	7.04	1267	-0.208	-0.019	0.007	0.011	0.000000	0.000000	-1823.03	163.98
3	GUIDE	used	147722152	7.54	2533	-0.048	-0.002	0.066	0.102	322.735072	12.555367	-1547.51	358.57
4	GUIDE	used	147724488	6.91	2533	-0.132	-0.067	0.059	0.095	323.246427	12.539602	-2112.66	2066.07
5	GUIDE	used	147735328	8.65	2521	-0.045	0.079	0.080	0.126	321.823462	12.214663	698.74	-2234.72
6	GUIDE	used	147735992	6.98	2533	0.067	0.051	0.058	0.094	322.299566	11.952911	1015.52	-338.78
7	GUIDE	used	147728240	6.98	2532	0.153	-0.065	0.066	0.103	322.758175	11.373787	2420.97	1893.76

2.4 Star Slots

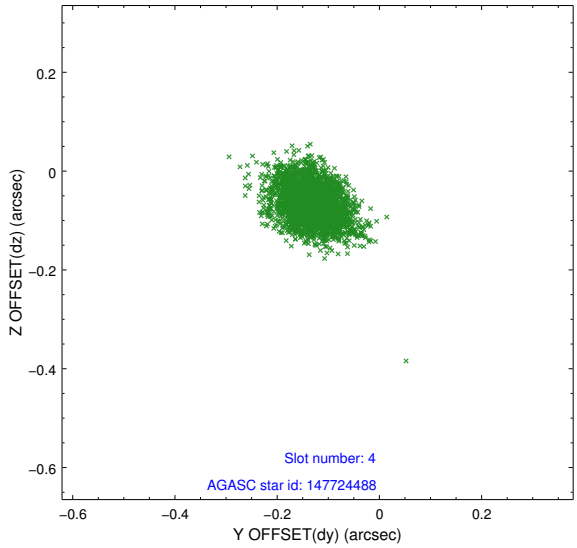
2.4.1 Slot 3

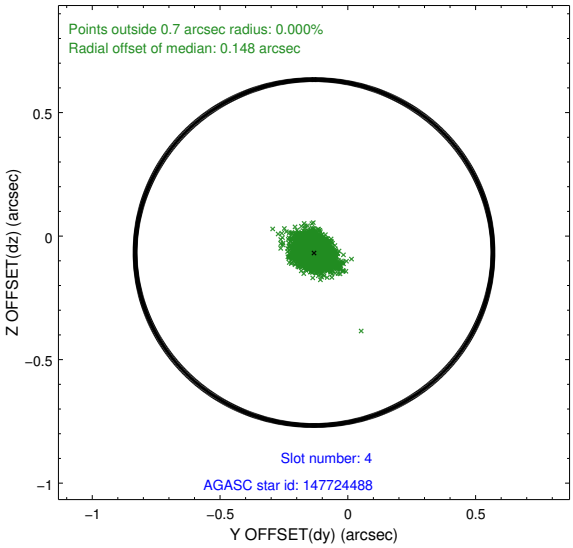


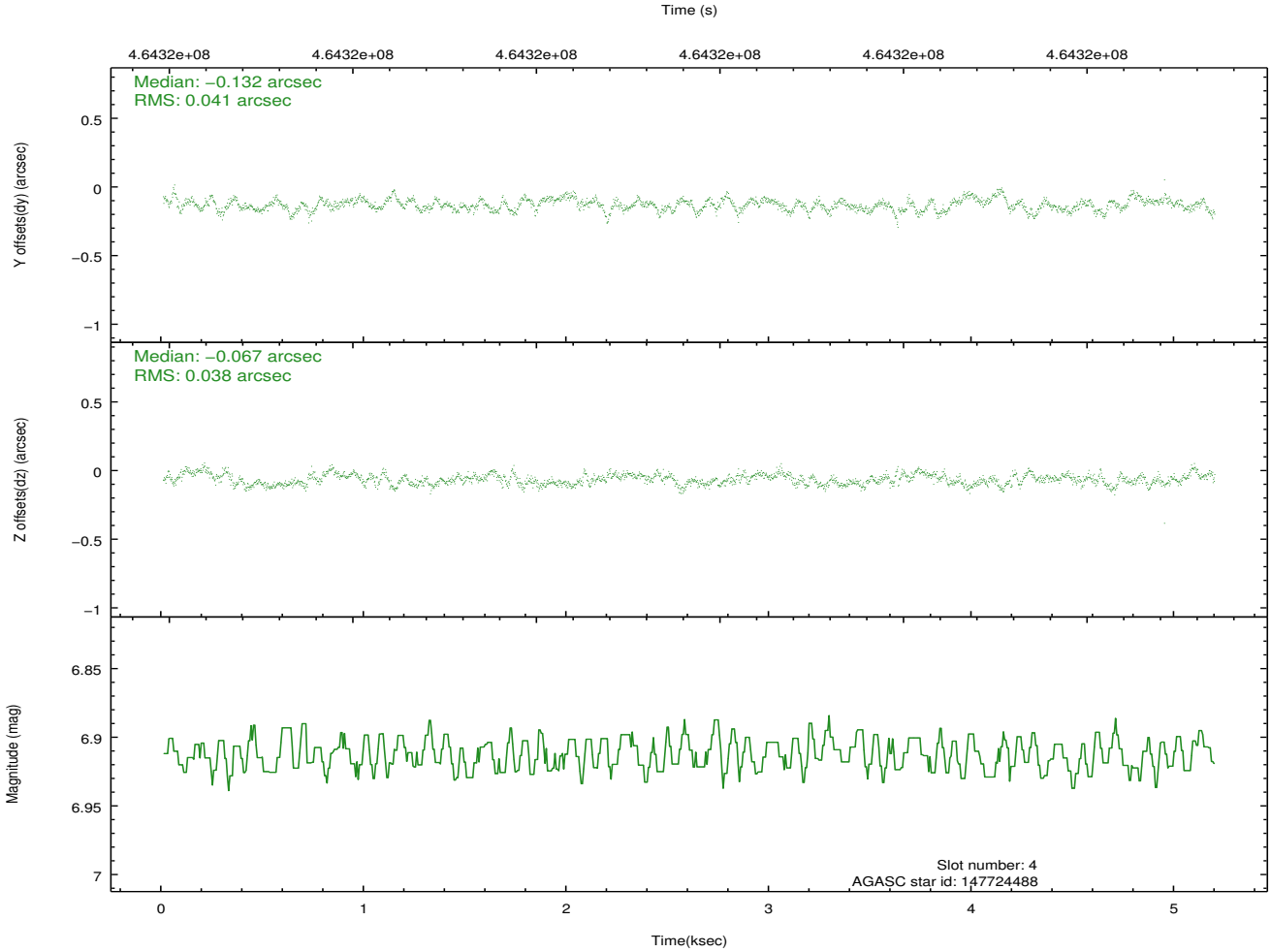




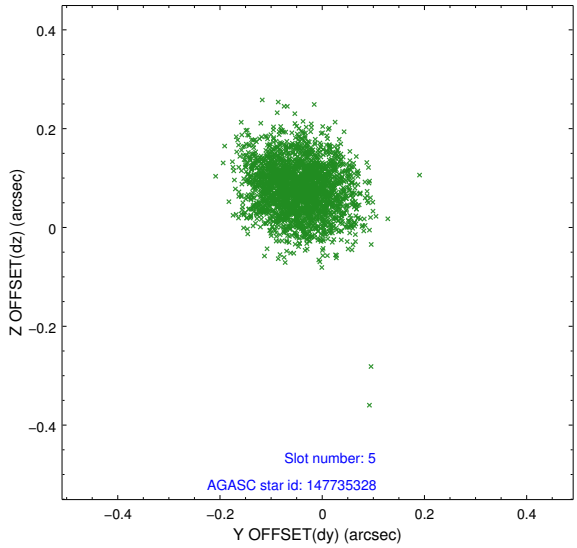
2.4.2 Slot 4

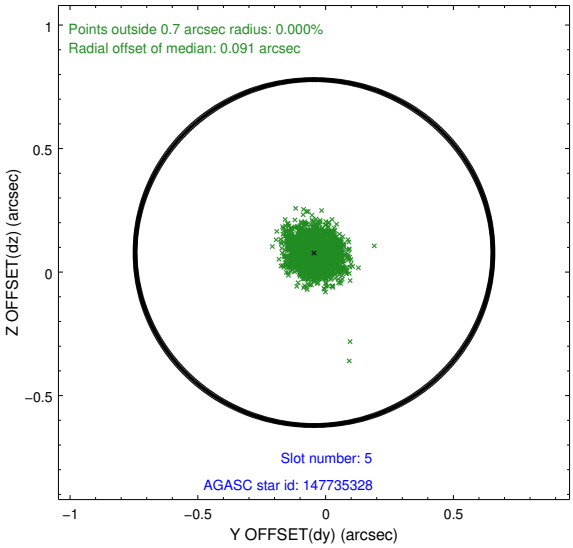

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 147724488

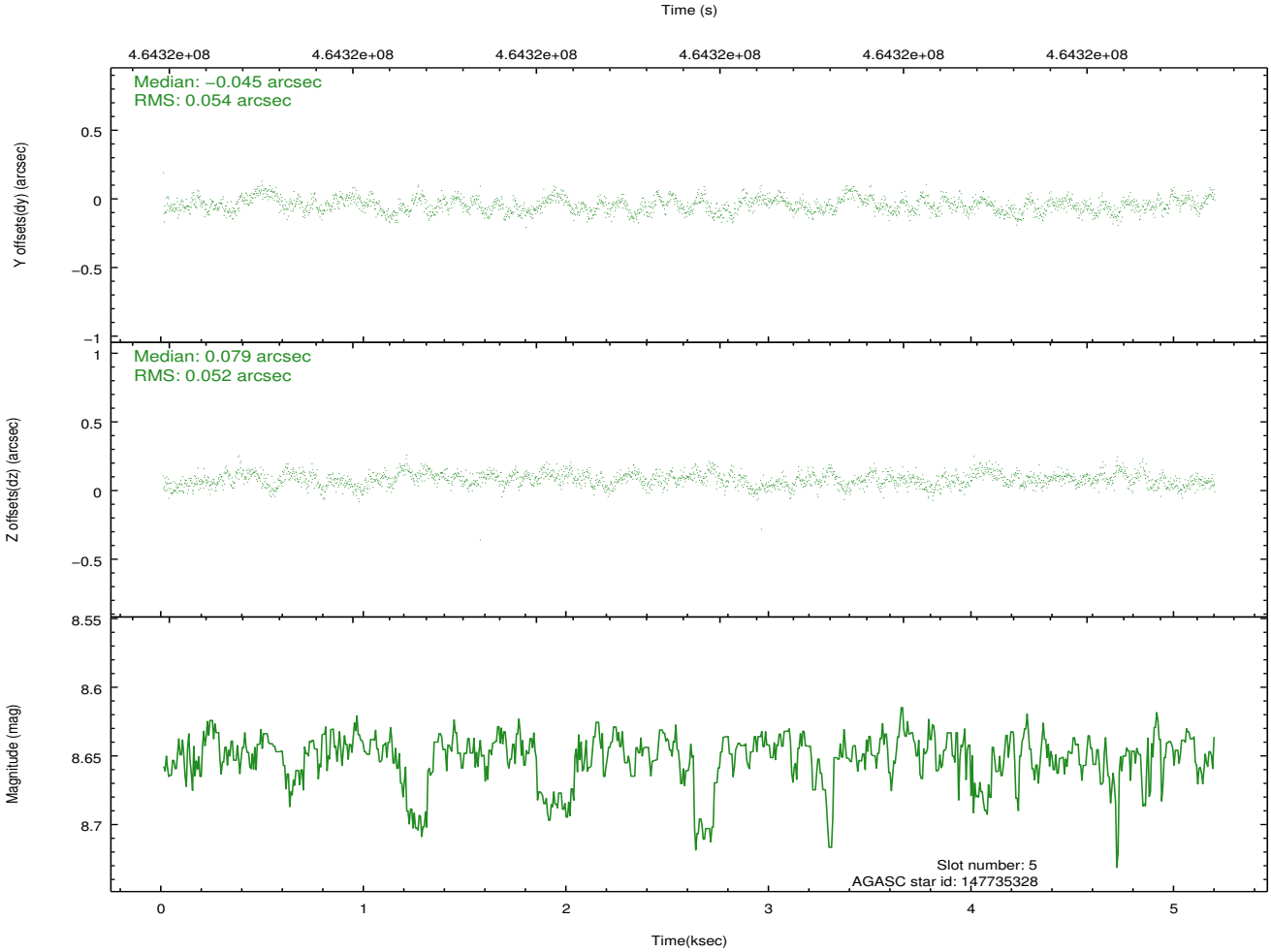

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.148 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 147724488


Time (s)
Median: −0.132 arcsec
RMS: 0.041 arcsec
Y offsets(dy) (arcsec)
Median: −0.067 arcsec
RMS: 0.038 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 147724488
Time(ksec)

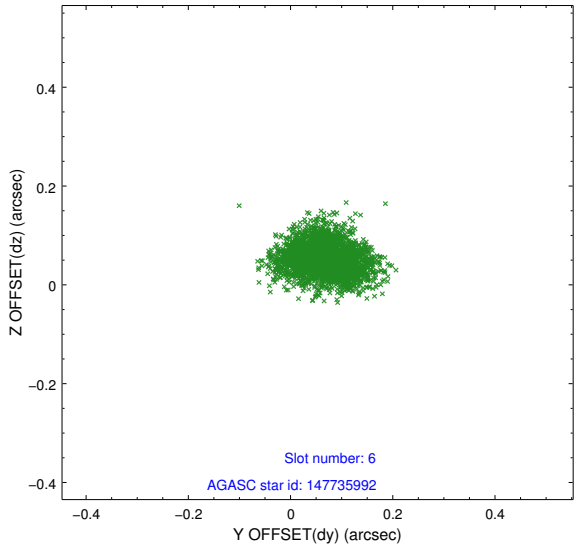
2.4.3 Slot 5

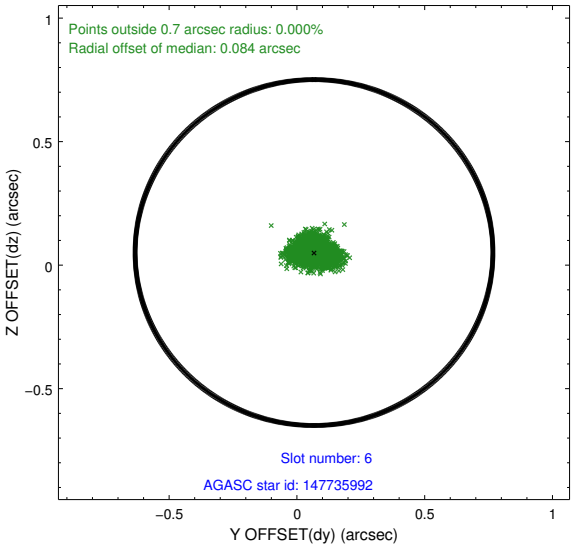

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 147735328

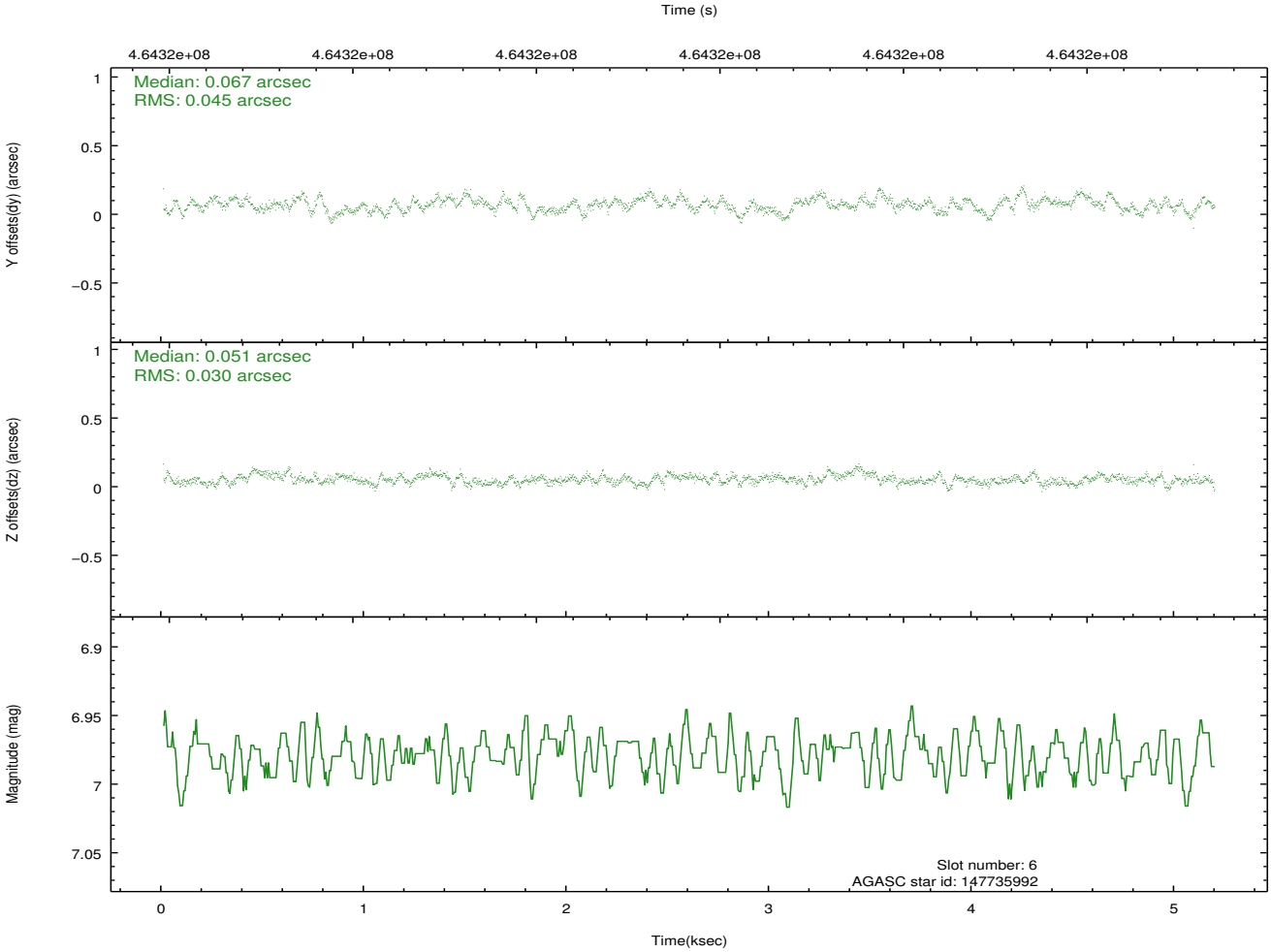

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.091 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 147735328


Time (s)
Median: −0.045 arcsec
RMS: 0.054 arcsec
Y offsets(dy) (arcsec)
Median: 0.079 arcsec
RMS: 0.052 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 147735328
Time(ksec)

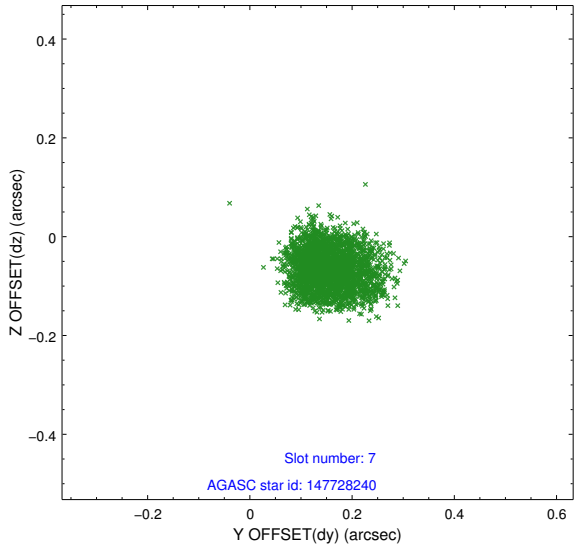
2.4.4 Slot 6

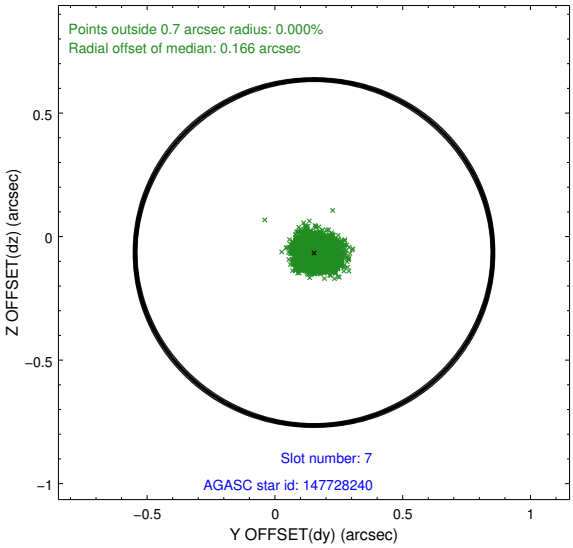

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 147735992

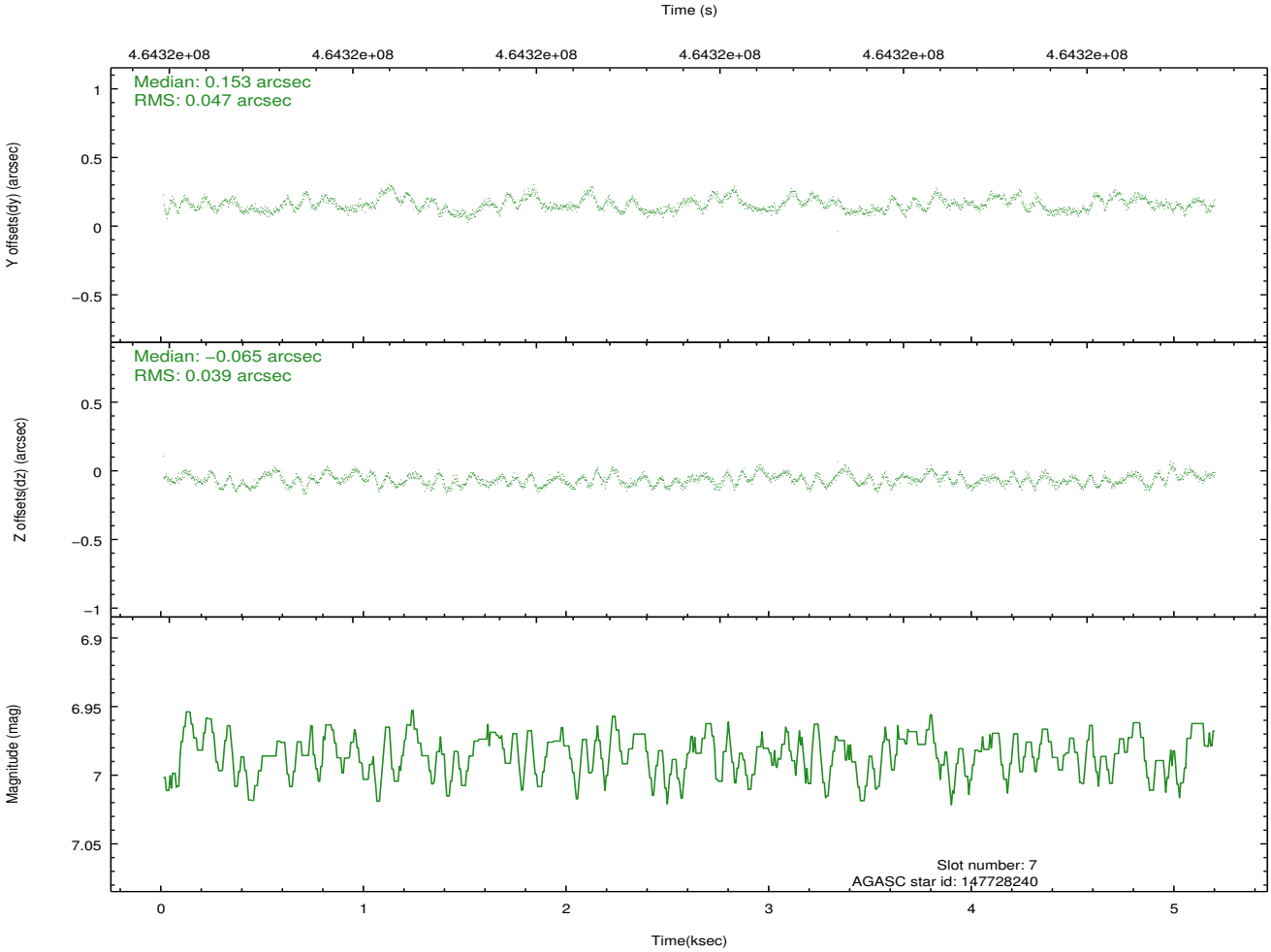

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.084 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 147735992


Time (s)
Median: 0.067 arcsec
RMS: 0.045 arcsec
Y offsets(dy) (arcsec)
Median: 0.051 arcsec
RMS: 0.030 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 147735992
Time(ksec)

2.4.5 Slot 7

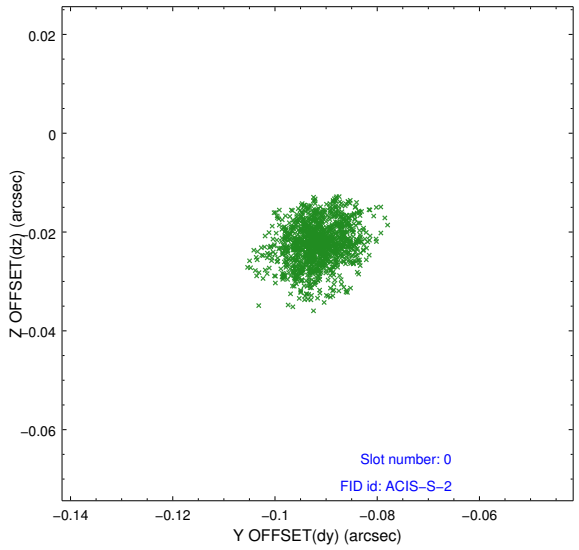

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 147728240

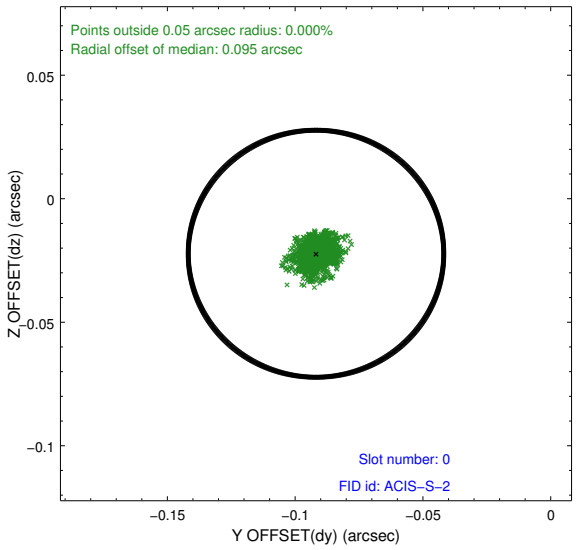

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.166 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 147728240

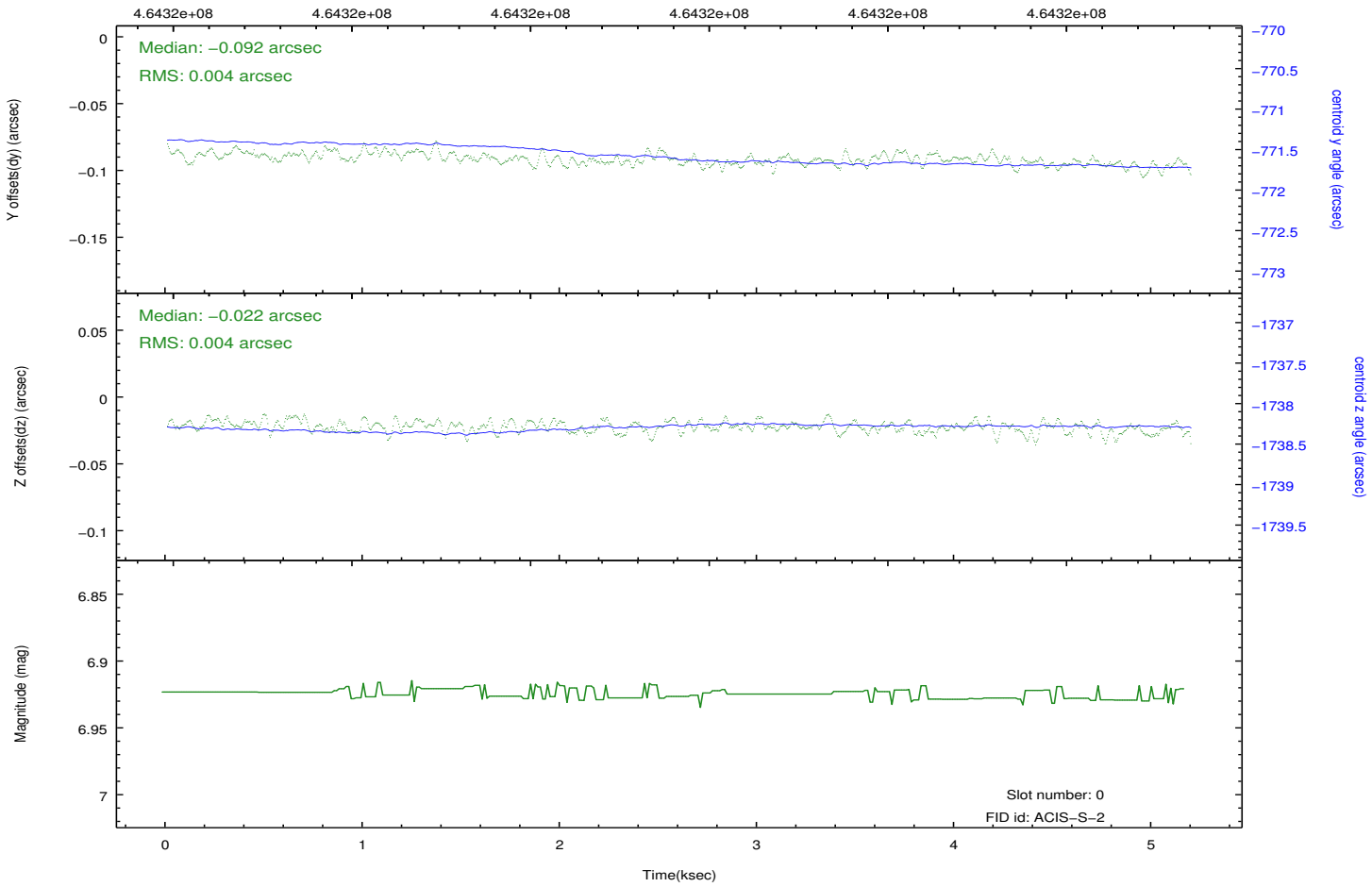

Time (s)
Median: 0.153 arcsec
RMS: 0.047 arcsec
Y offsets(dy) (arcsec)
Median: −0.065 arcsec
RMS: 0.039 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 147728240
Time(ksec)

2.5 FID Slots

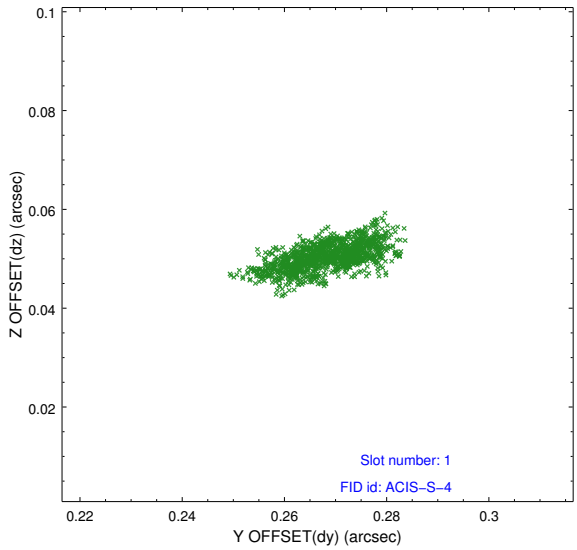
2.5.1 Slot 0

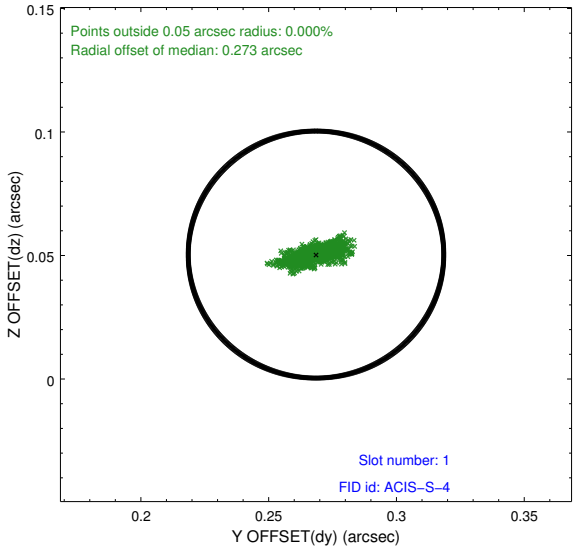


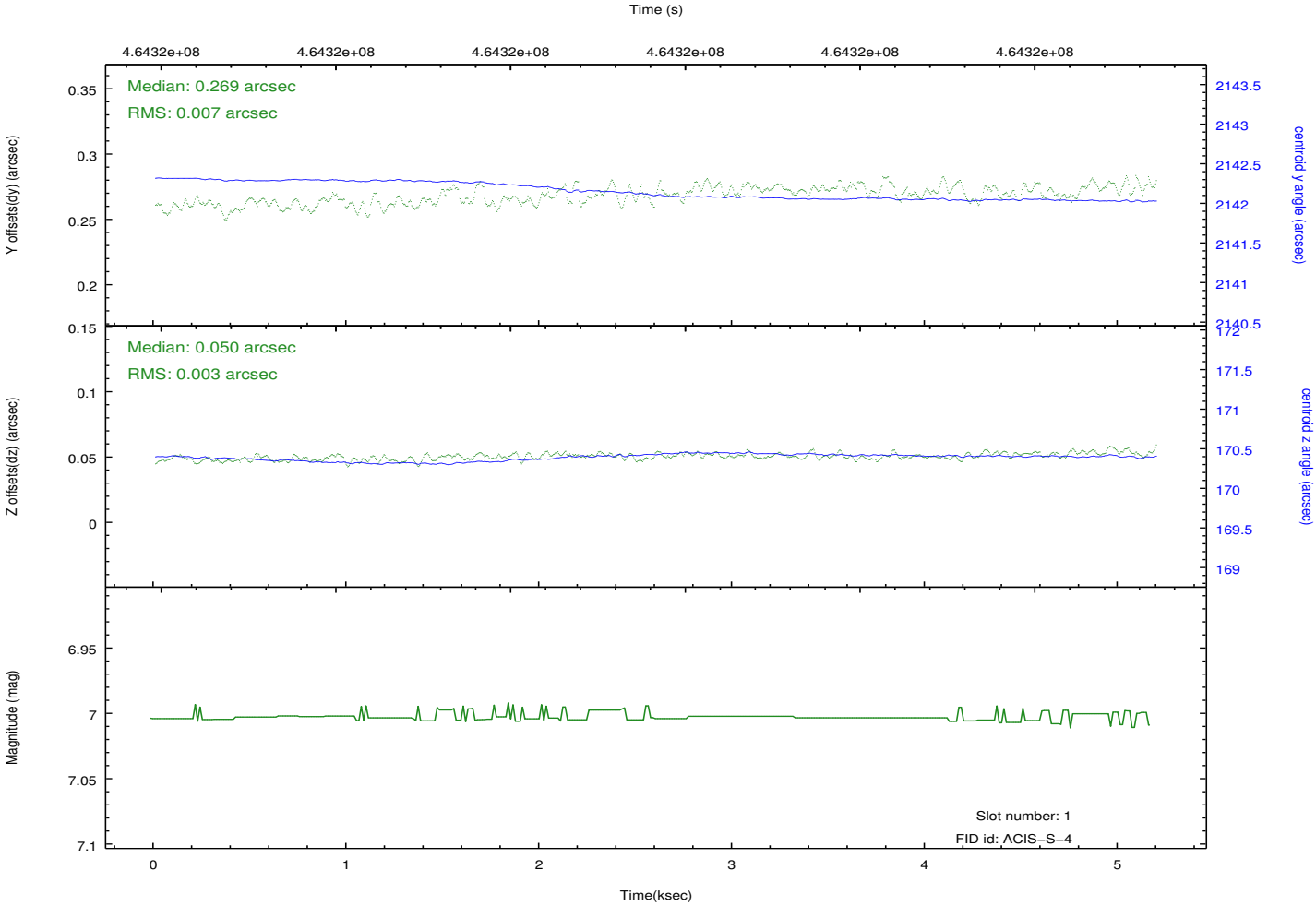




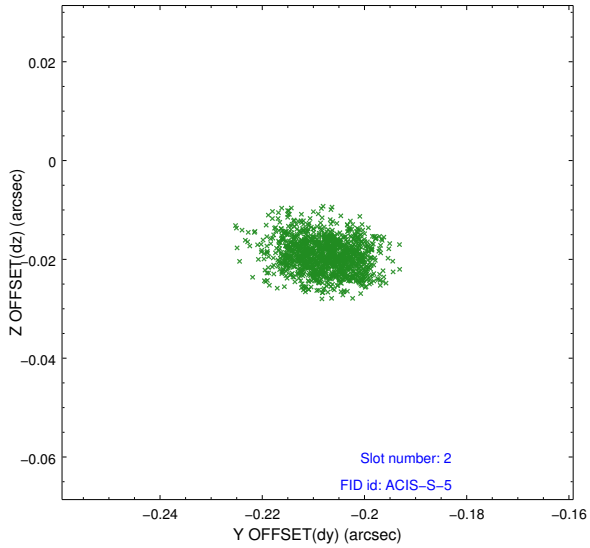
2.5.2 Slot 1

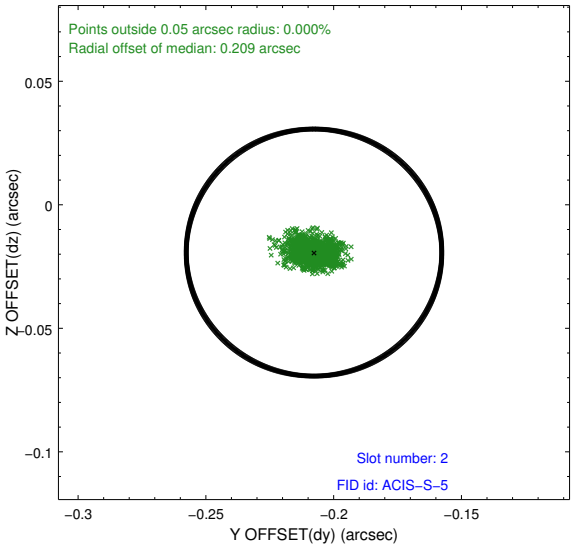

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

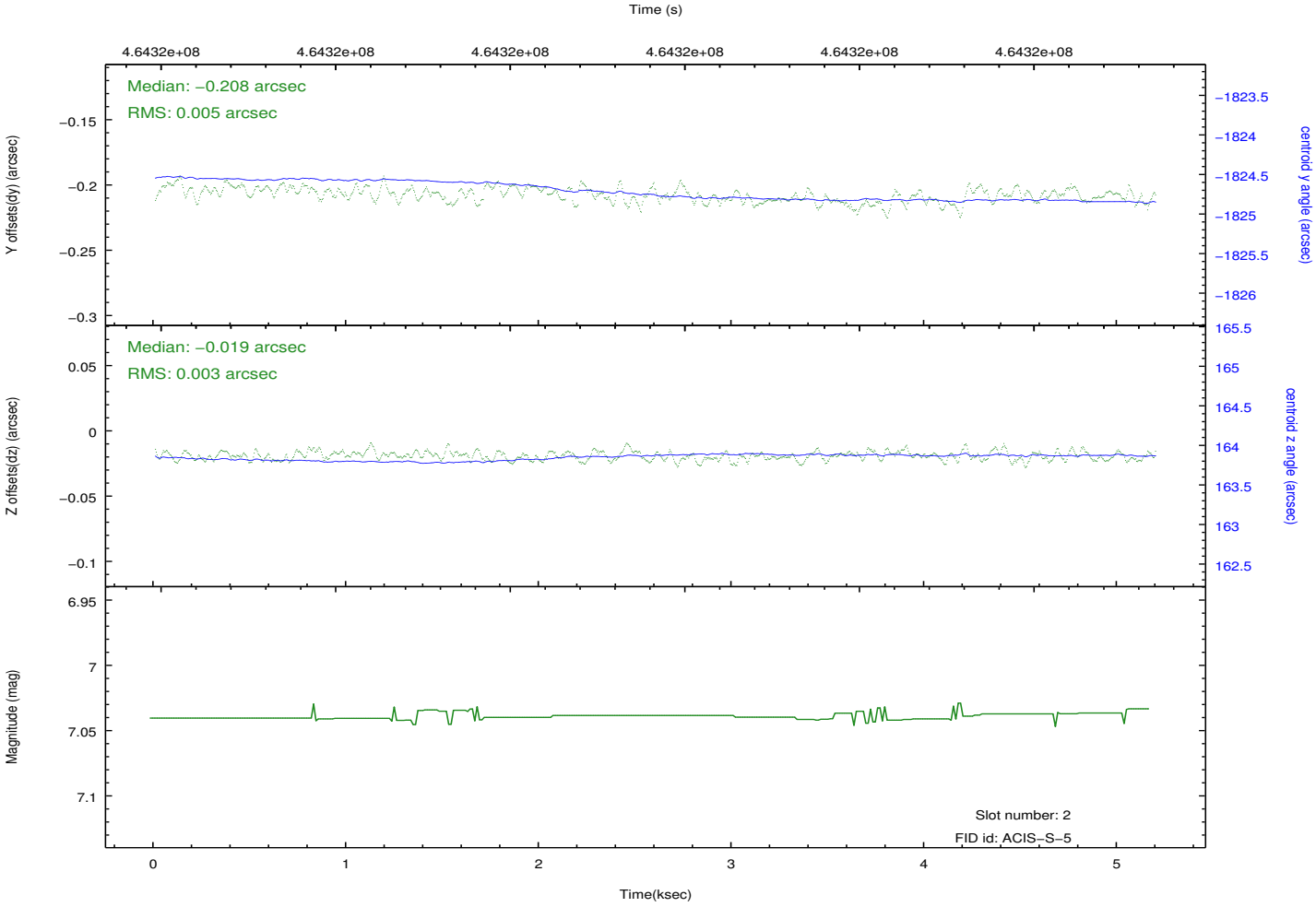

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.273 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.269 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.050 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: 0.209 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.208 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.019 arcsec
RMS: 0.003 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)	2014.12.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	5.0992859463096

A.2 Comments

```
Joint proposal with HST.
Roll preference met.
These data have been reprocessed with new aspect alignment calibration
files that correct small mean offsets (up to 0.4 arcsecs) and improve
overall astrometric accuracy. The new calibration was determined using
data from the time period being reprocessed and was performed using
cross-correlation of X-ray sources with radio and optical counterparts.
```