V&V Reference Report
L2 ASCDS Version : 8.4.3

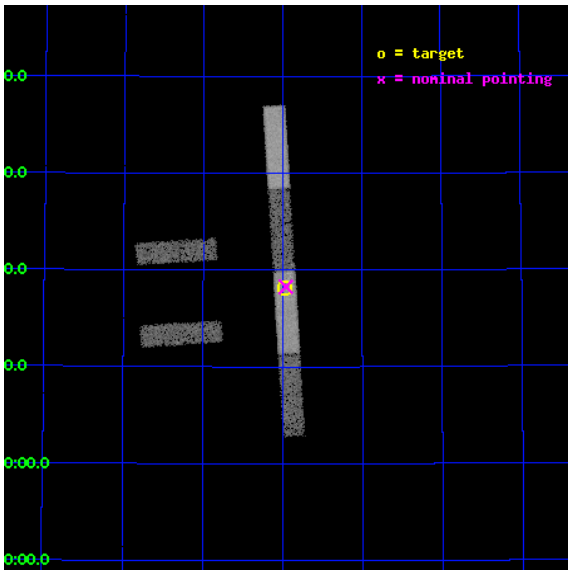
Observation 12987 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Feb 12 2012

Contents

1 Front

seq_num	600955	Sequence number
obs_id	12987	Observation id
title	The most luminous ULXs	Proposal title
observer	Mr. Andrew Sutton	Principal investigator
object	2XMM J151558.6+561810	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	228.994583	Observer's specified target RA [deg]
dec_targ	56.303028	Observer's specified target Dec [deg]
ra_nom	228.99018041219	Nominal RA [deg]
dec_nom	56.304796503609	Nominal Dec [deg]
roll_nom	86.460300484795	Nominal Roll [deg]
revision	1	Processing version of data
ontime	16573.27950865	Sum of GTIs [s]
livetime	15977.185251626	Livetime [s]
ontime2	16573.320548654	Sum of GTIs [s]
ontime3	16573.15638864	Sum of GTIs [s]
ontime5	16573.238468647	Sum of GTIs [s]
ontime6	16573.197428644	Sum of GTIs [s]
ontime7	16573.27950865	Sum of GTIs [s]
ontime8	16573.115348637	Sum of GTIs [s]
l2events	48007	Number of level 2 events

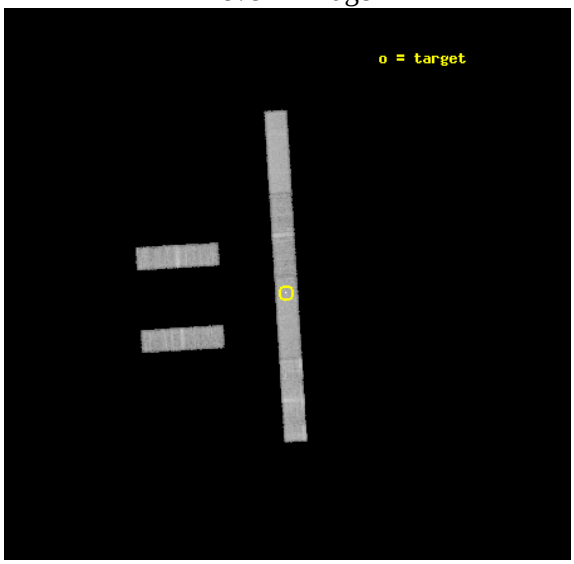


2 OBI

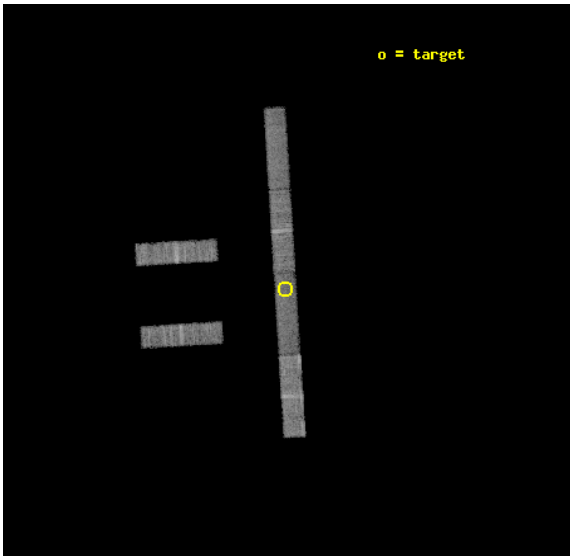
2.1 OBI

2.1.1 Images

Level 1 Image

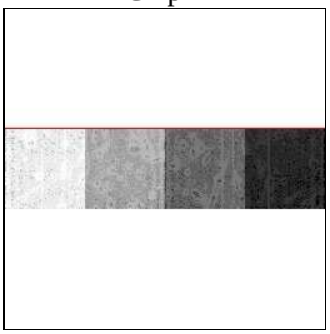


Level 1 Bad Events

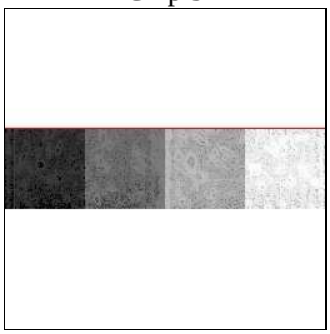


2.1.2 Bias

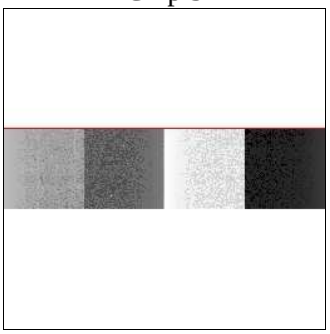
Chip 2



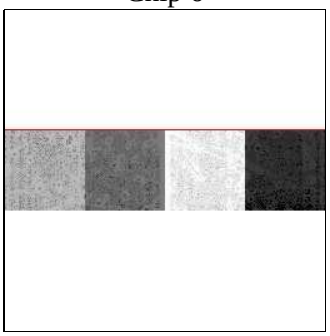
Chip 3



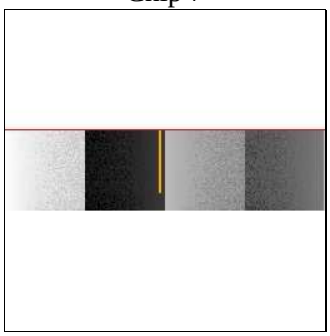
Chip 5



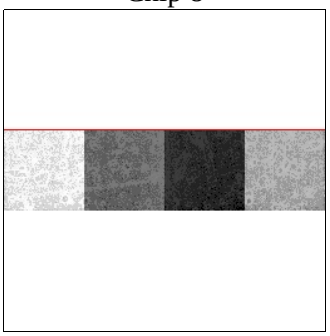
Chip 6



Chip 7



Chip 8



2.1.3 Parameters

obi_num	3	Obi number
ascdsver	8.4.3	Processing system revision
caldbver	4.4.7	
date	2012-02-12T11:36:49	Date and time of file creation
revision	1	Processing version of data

sched_exp_time	16500.000000	[s] Scheduled observation exposure time
ontime	16573.27950865	Sum of GTIs [s]
ontime2	16573.320548654	Sum of GTIs [s]
ontime3	16573.15638864	Sum of GTIs [s]
ontime5	16573.238468647	Sum of GTIs [s]
ontime6	16573.197428644	Sum of GTIs [s]
ontime7	16573.27950865	Sum of GTIs [s]
ontime8	16573.115348637	Sum of GTIs [s]
l1events	210116	Number of level 1 events

2.1.4 Events

	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	32157	28037	41625	29801	36212	42284
rejected events	28687	24841	21535	26359	18912	32402
rejected %	89%	88%	51%	88%	52%	76%

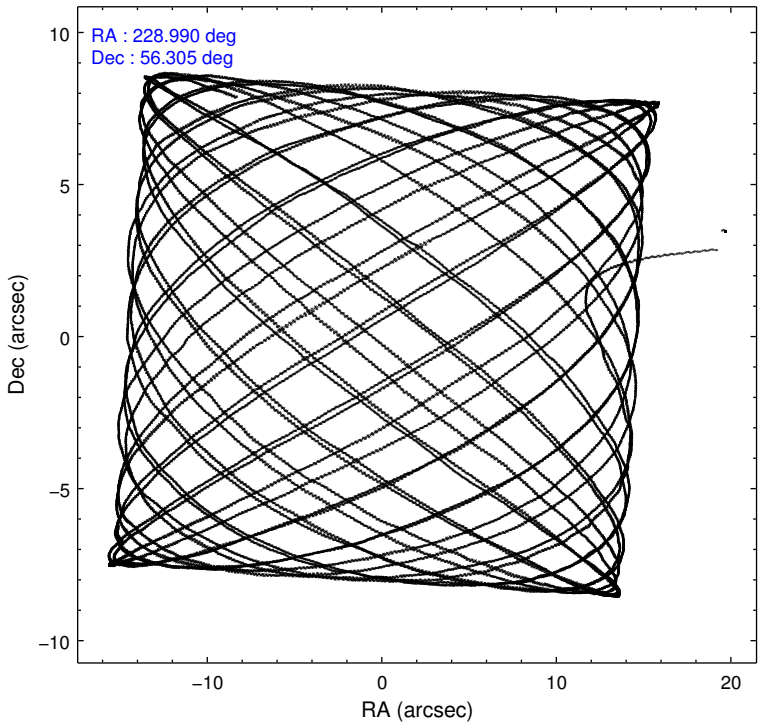
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	1035	1000	1451	1100	1888	2664
	3%	3%	3%	3%	5%	6%
grade 1 events	15	9	87	10	55	14
	0%	0%	0%	0%	0%	0%
grade 2 events	799	645	6108	672	3614	2189
	2%	2%	14%	2%	9%	5%
grade 3 events	464	516	1040	470	1820	1122
	1%	1%	2%	1%	5%	2%
grade 4 events	495	443	970	485	1774	1068
	1%	1%	2%	1%	4%	2%
grade 5 events	1245	1298	3333	1304	3777	1856
	3%	4%	8%	4%	10%	4%
grade 6 events	677	592	10527	715	8207	2839
	2%	2%	25%	2%	22%	6%
grade 7 events	27427	23534	18109	25045	15077	30532
	85%	83%	43%	84%	41%	72%

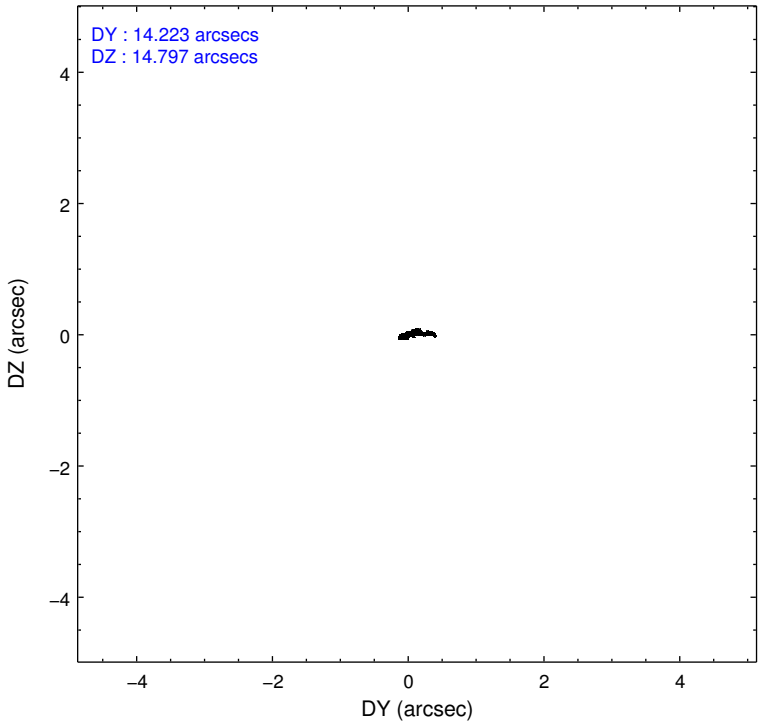
2.2 Compared Parameters

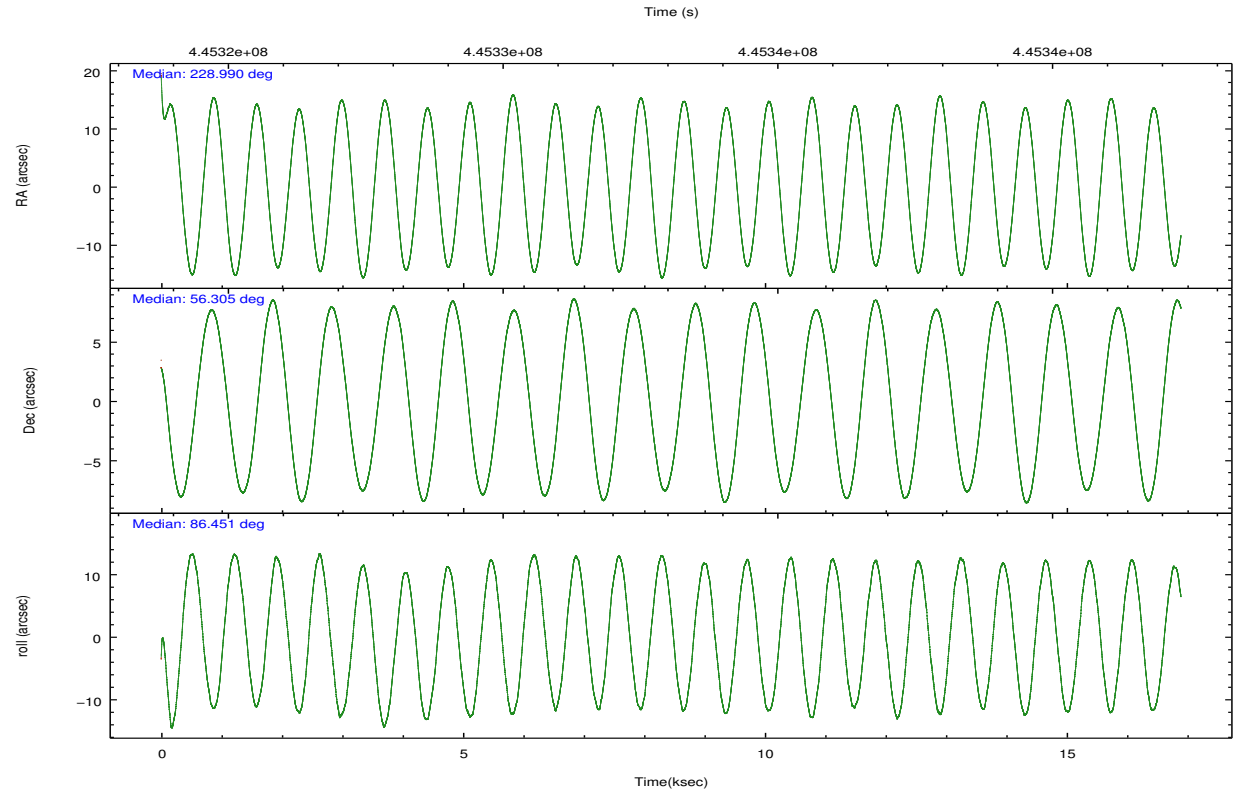
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-235678	ACIS-235678
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	229.012708	228.9901804121948
[deg] Pointing Dec	56.280492	56.30479650360903
[deg] Pointing Roll	86.284924	86.46030048479504
[mm] 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)	445324989.184000	445323729.14657
Observation start date	2012-02-11T05:22:03	2012-02-11T05:02:09
[s] Observation end time (MET)	445341489.184000	445342448.72256
Observation end date	2012-02-11T09:57:03	2012-02-11T10:14:08
Read mode	TIMED	TIMED

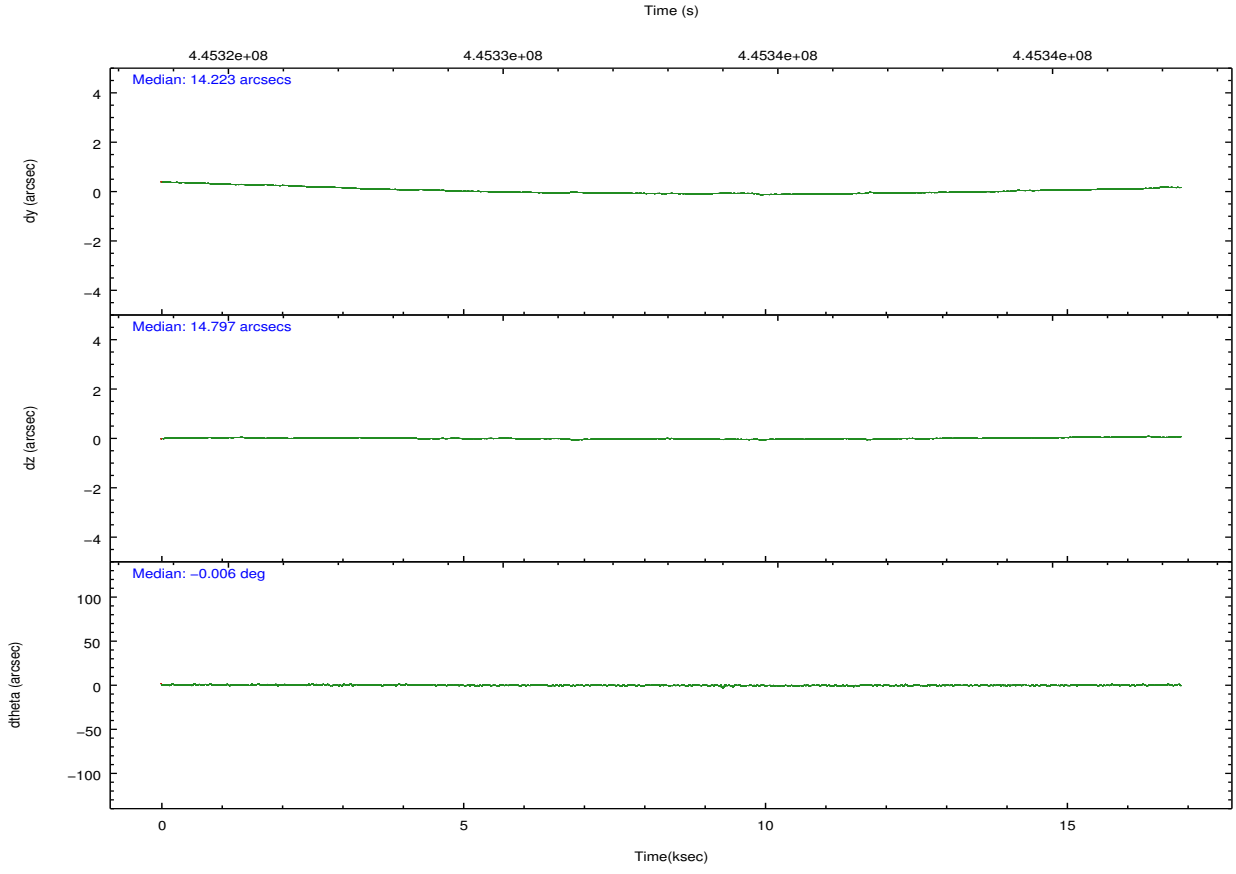
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	O3	Y
CCD I3 on	O2	Y
CCD S0 on	N	N
CCD S1 on	O4	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	O1	Y
CCD S5 on	N	N
Number of optional ACIS chips dropped	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	1.1

2.3 Aspect


RA : 228.990 deg
Dec : 56.305 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
0
10
20


DY : 14.223 arcsecs
DZ : 14.797 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.4532e+08
4.4533e+08
4.4534e+08
4.4534e+08
Median: 228.990 deg
RA (arcsec)
Median: 56.305 deg
Dec (arcsec)
Median: 86.451 deg
roll (arcsec)
Time(ksec)

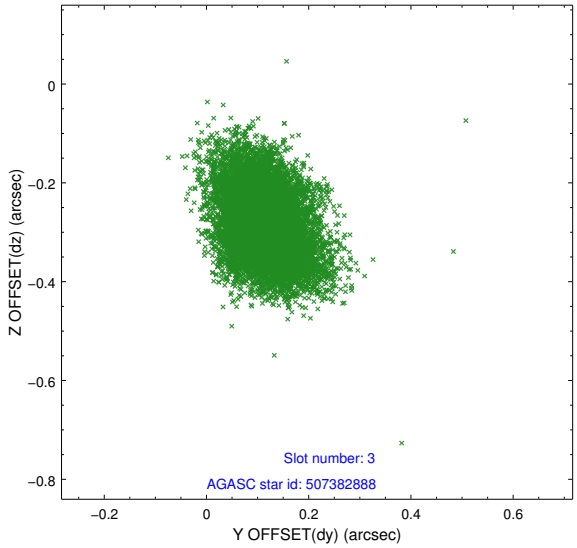

Time (s)
4.4532e+08
4.4533e+08
4.4534e+08
4.4534e+08
Median: 14.223 arcsecs
dy (arcsec)
Median: 14.797 arcsecs
dz (arcsec)
Median: −0.006 deg
dtheta (arcsec)
Time(ksec)

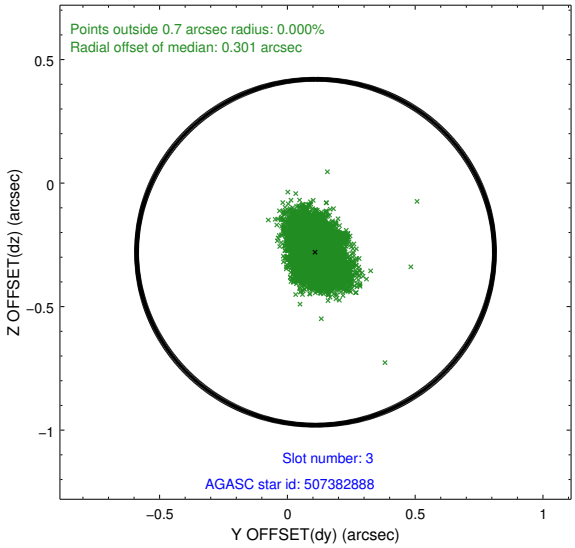
Slot Statistics

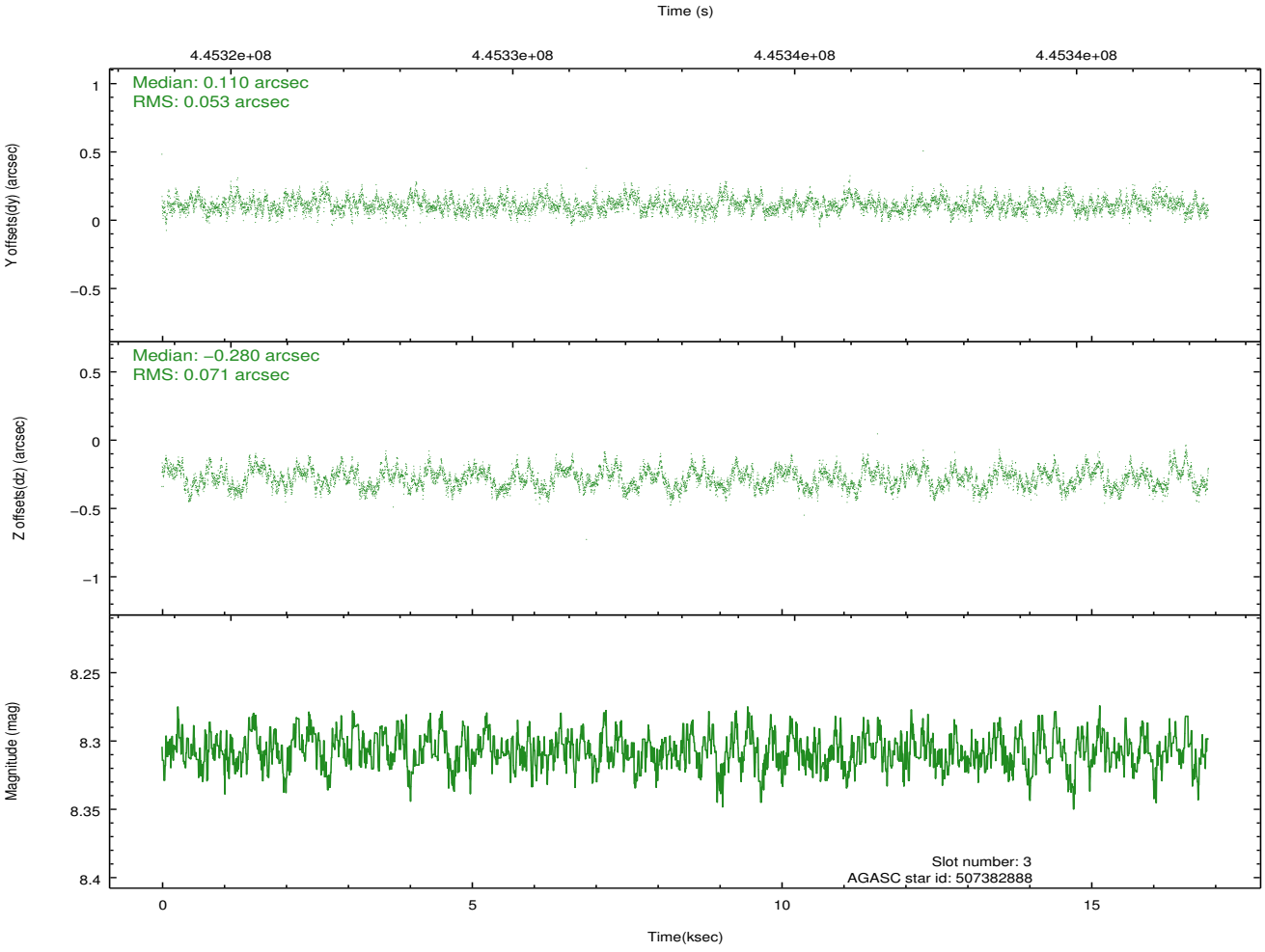
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.07	4119	0.081	-0.053	0.006	0.011	0.000000	0.000000	928.93	-1731.84
1	FID	ACIS-S-5	7.11	4121	-0.181	0.041	0.006	0.010	0.000000	0.000000	-1820.22	165.51
2	FID	ACIS-S-6	7.20	4121	0.078	0.024	0.007	0.012	0.000000	0.000000	394.17	809.77
3	GUIDE	507382888	8.31	8239	0.110	-0.280	0.094	0.152	227.987228	56.025159	-1035.60	1999.80
4	GUIDE	507383608	8.39	8239	0.058	0.009	0.095	0.161	228.419739	56.118692	-653.40	1150.23
5	GUIDE	507384816	10.02	8227	-0.085	0.157	0.185	0.300	230.143276	56.438347	732.05	-2206.48
6	GUIDE	507387752	8.39	8238	-0.074	0.025	0.107	0.174	230.184127	56.785522	1984.00	-2185.68
7	GUIDE	507388336	9.27	8165	-0.013	0.100	0.129	0.217	229.367625	56.897463	2264.07	-551.96

2.4 Star Slots

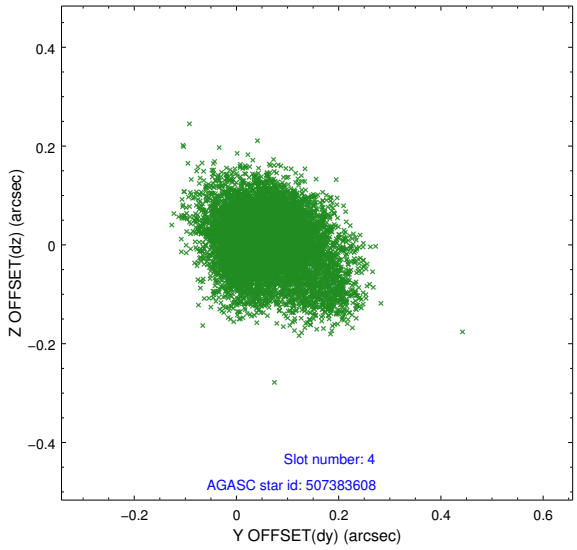
2.4.1 Slot 3

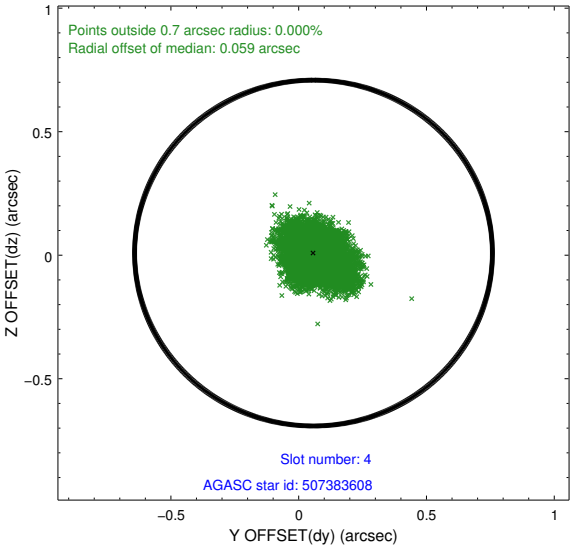


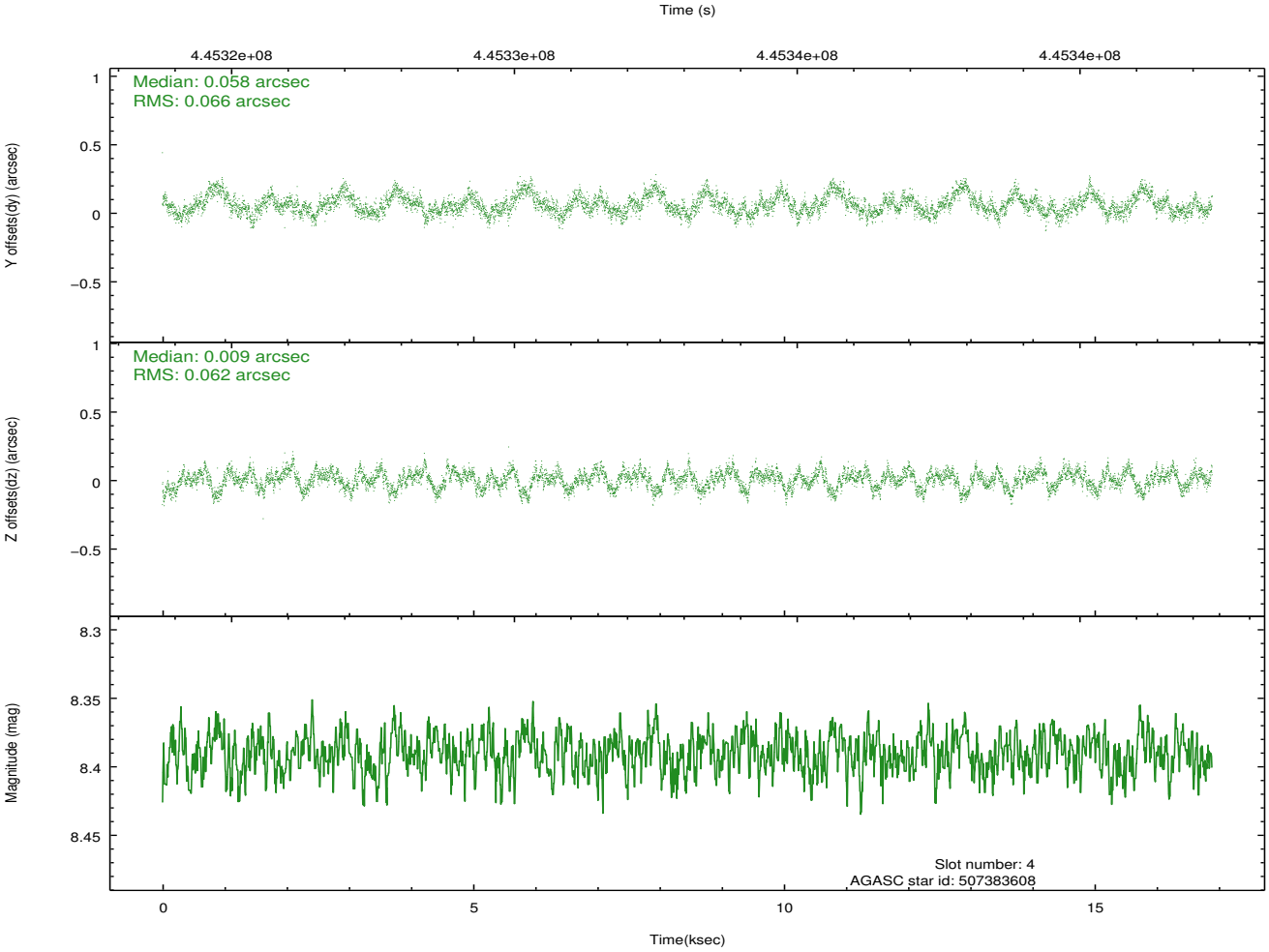




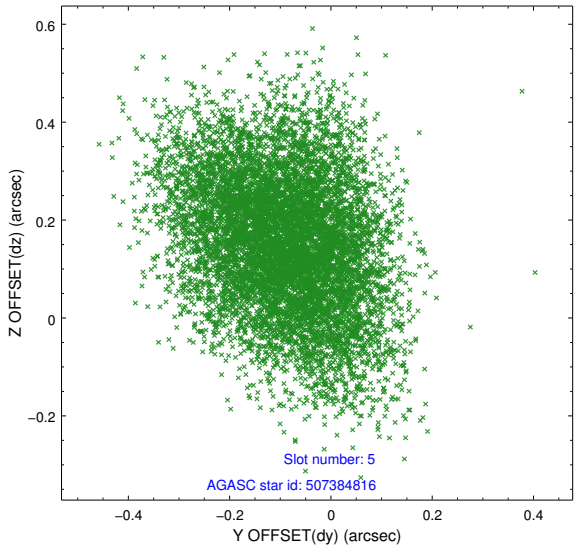
2.4.2 Slot 4

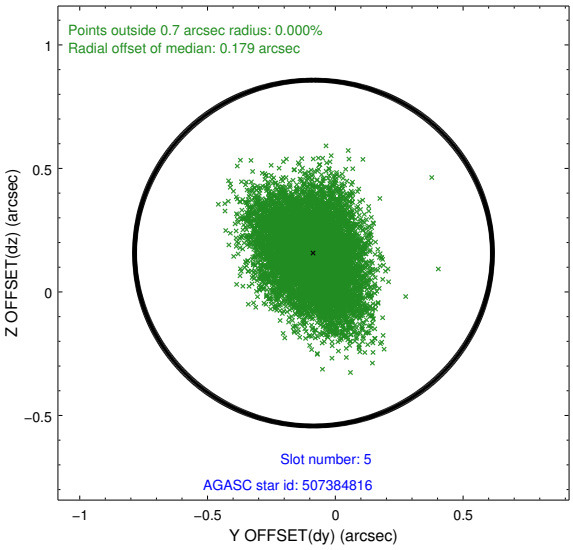

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 507383608

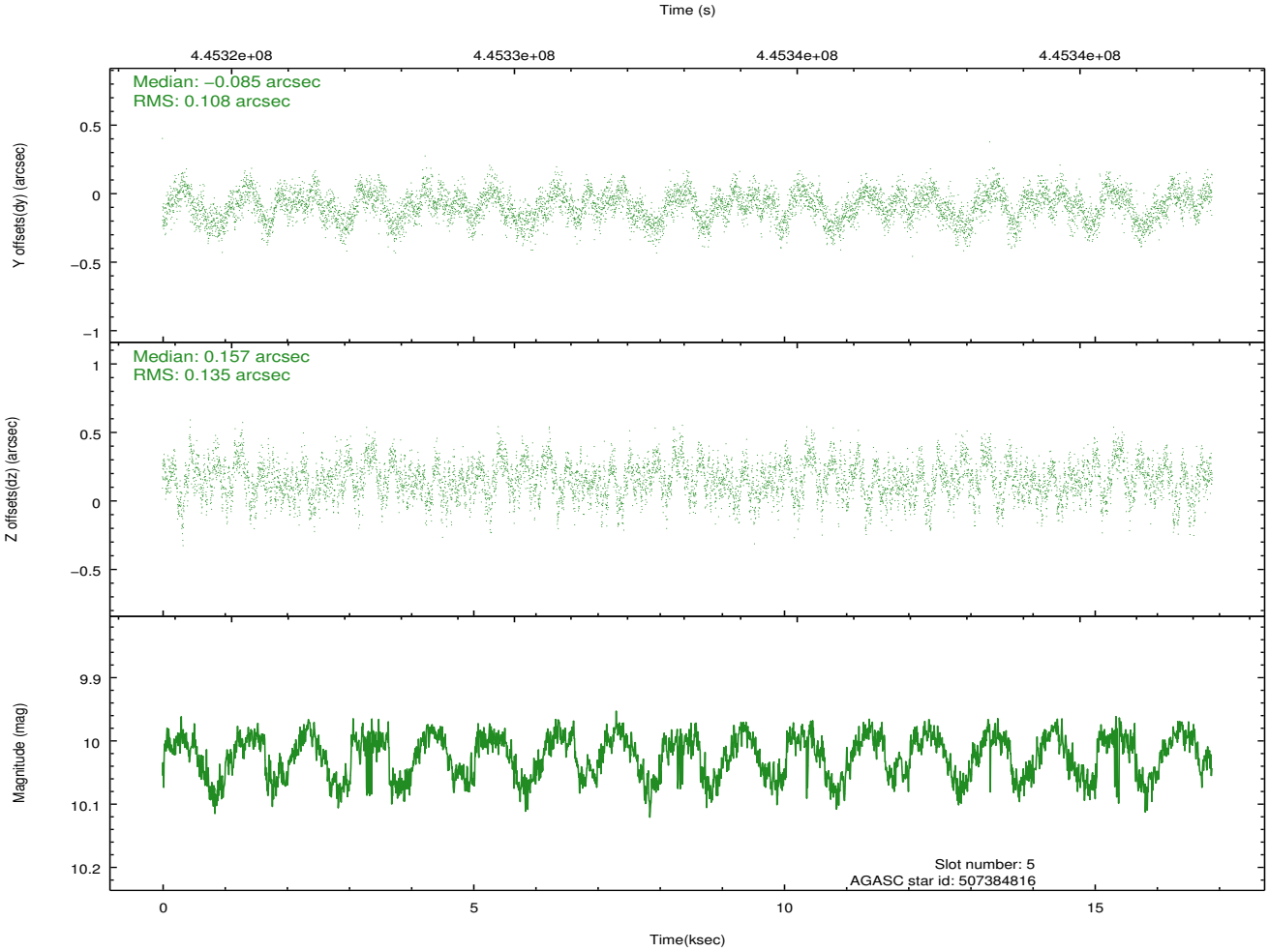

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.059 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 507383608


Time (s)
4.4532e+08
4.4533e+08
4.4534e+08
4.4534e+08
Median: 0.058 arcsec
RMS: 0.066 arcsec
Y offsets(dy) (arcsec)
Median: 0.009 arcsec
RMS: 0.062 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 507383608
Time(ksec)

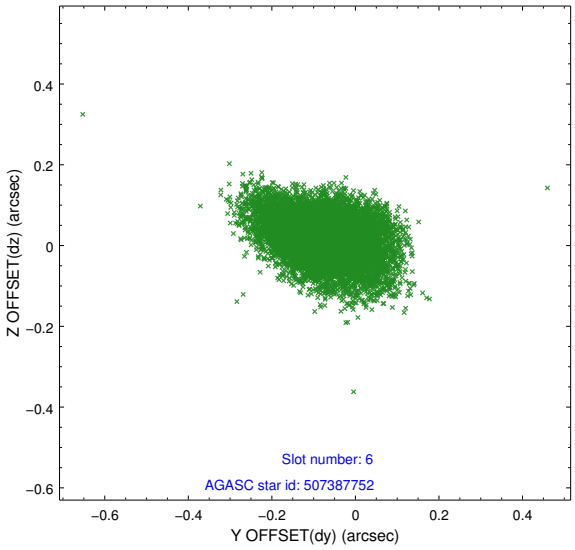
2.4.3 Slot 5

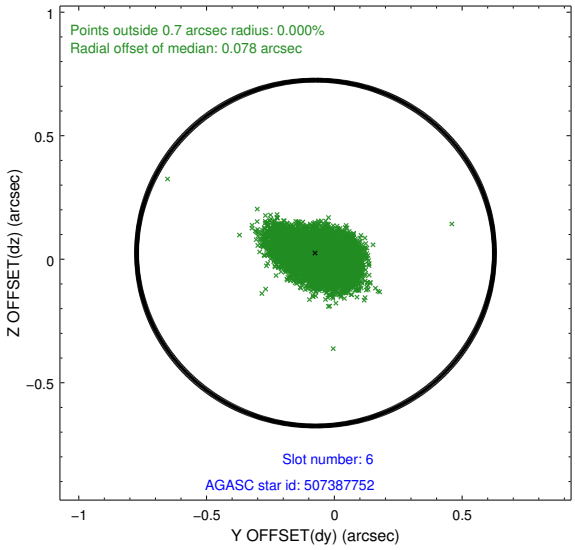

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 507384816

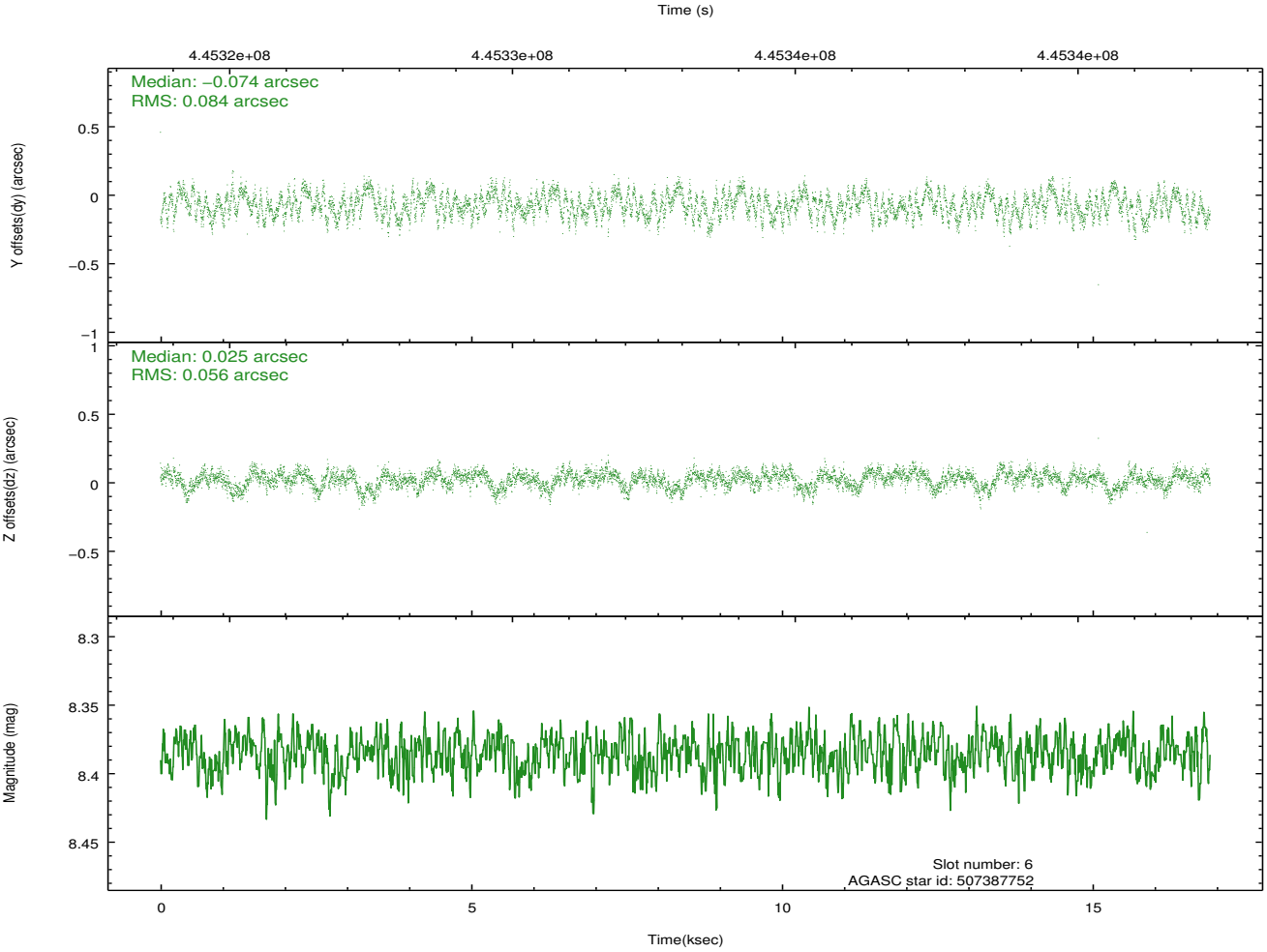

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.179 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 507384816


Time (s)
4.4532e+08
4.4533e+08
4.4534e+08
4.4534e+08
Median: –0.085 arcsec
RMS: 0.108 arcsec
Y offsets(dy) (arcsec)
Median: 0.157 arcsec
RMS: 0.135 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 507384816
Time(ksec)

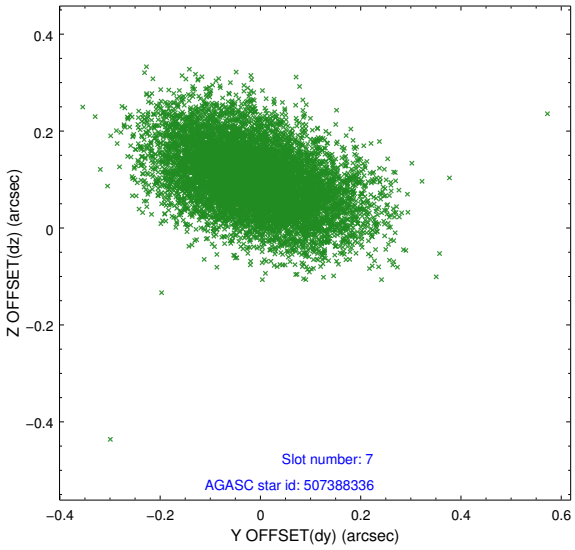
2.4.4 Slot 6

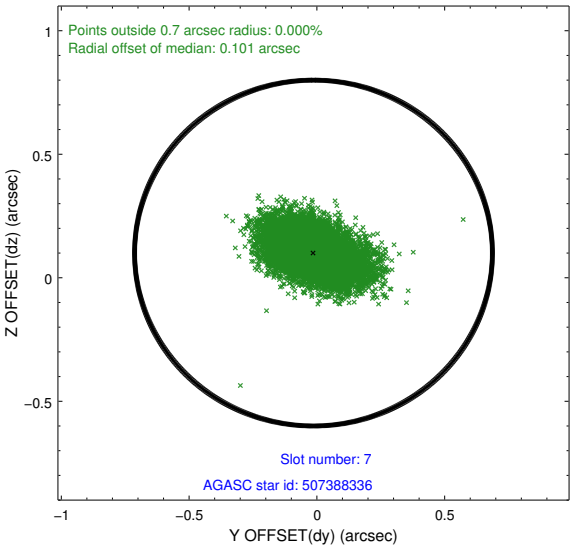

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 507387752

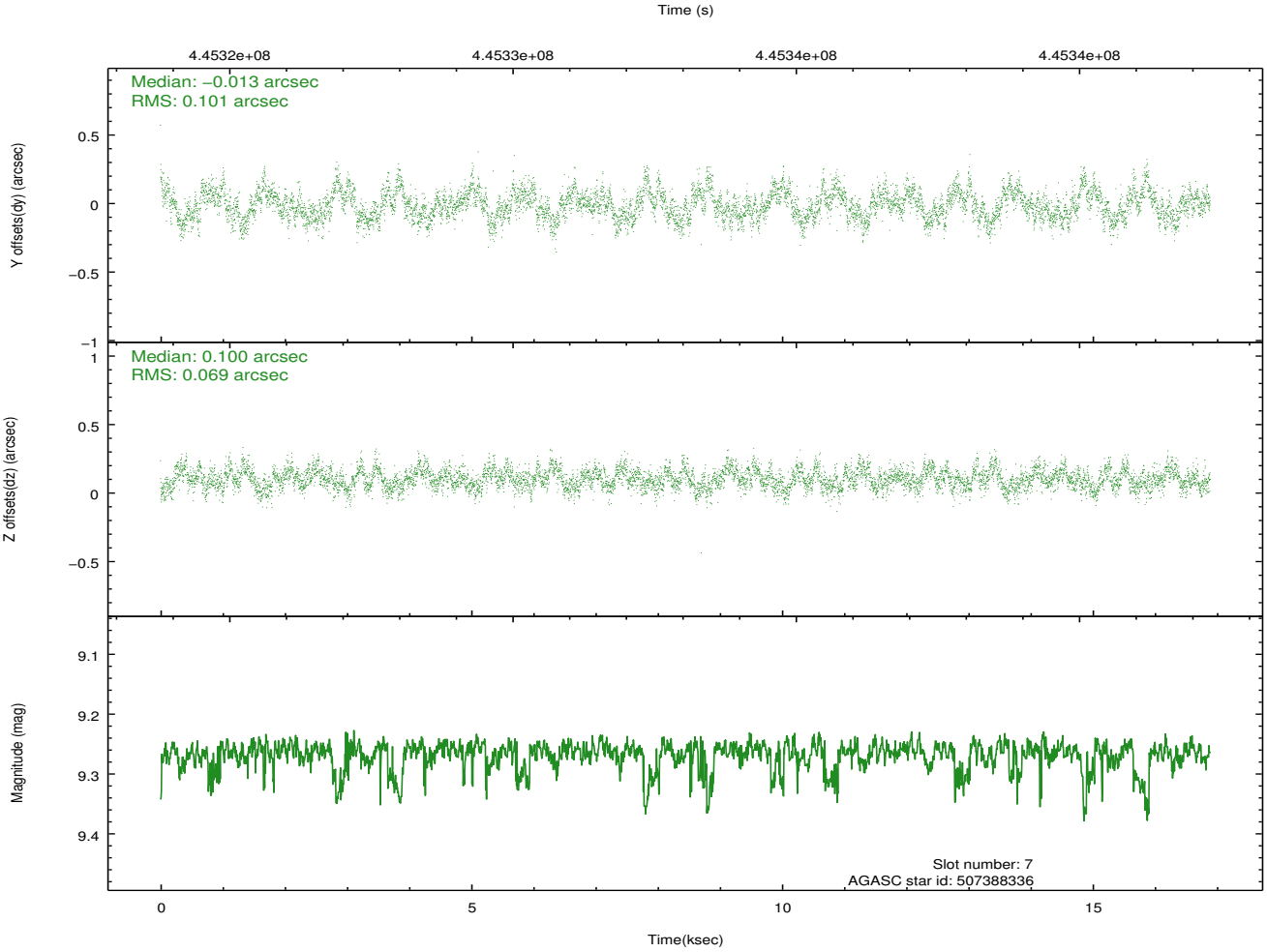

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.078 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 507387752


Time (s)
Median: −0.074 arcsec
RMS: 0.084 arcsec
Y offsets(dy) (arcsec)
Median: 0.025 arcsec
RMS: 0.056 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 507387752
Time(ksec)

2.4.5 Slot 7

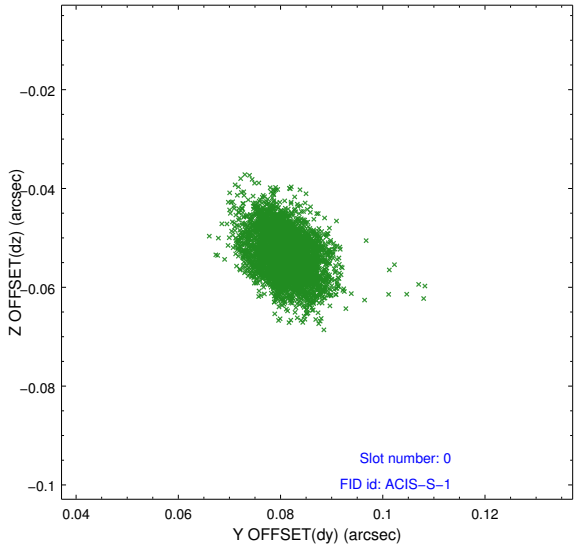

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 507388336

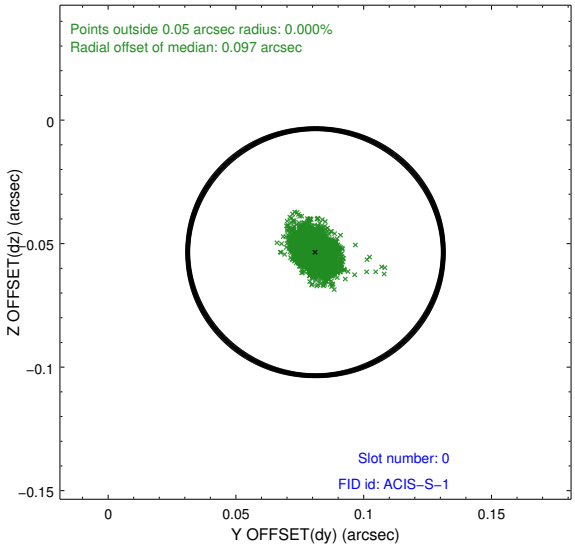

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.101 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 507388336

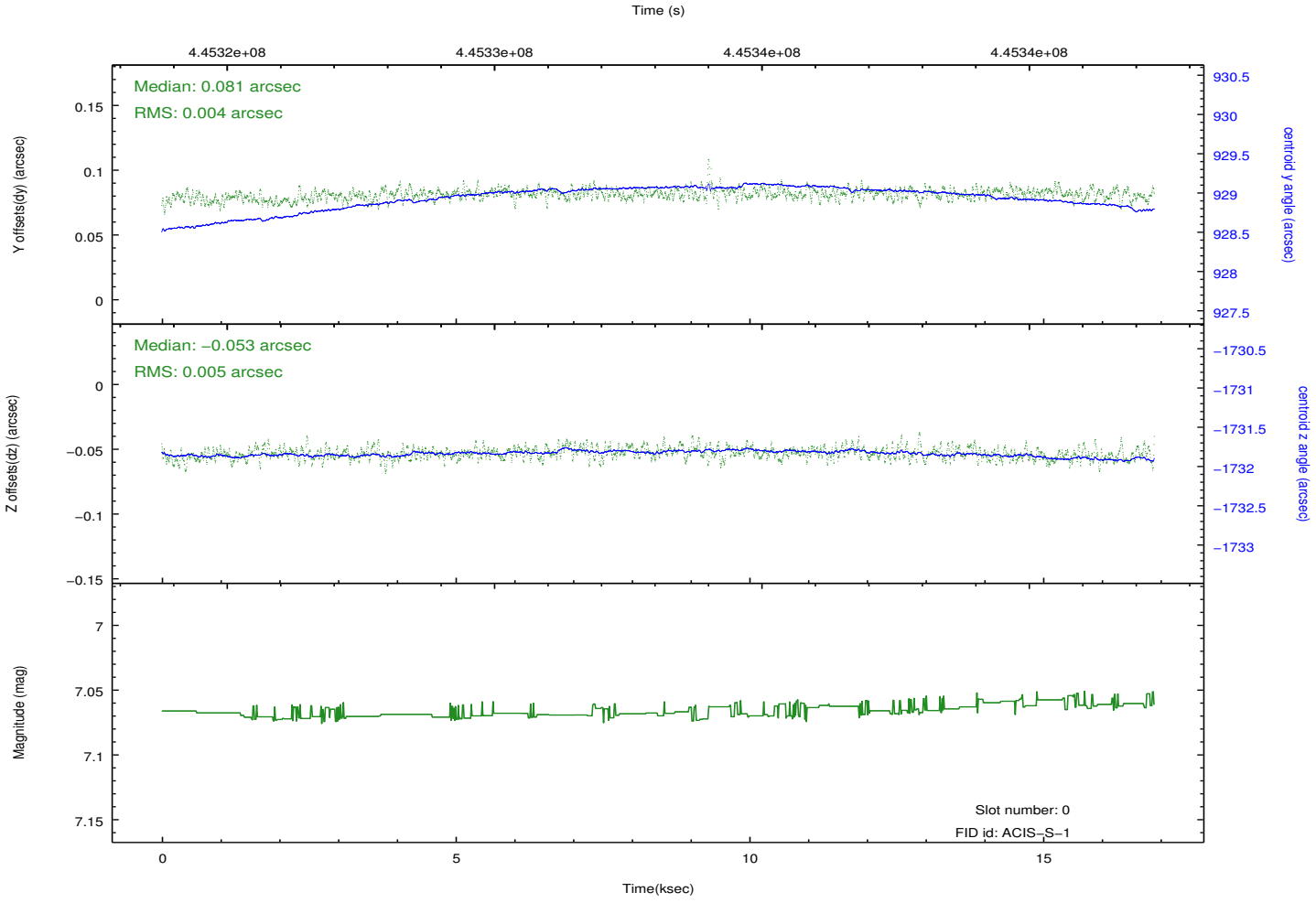

Time (s)
Median: –0.013 arcsec
RMS: 0.101 arcsec
Y offsets(dy) (arcsec)
Median: 0.100 arcsec
RMS: 0.069 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 507388336
Time(ksec)

2.5 FID Slots

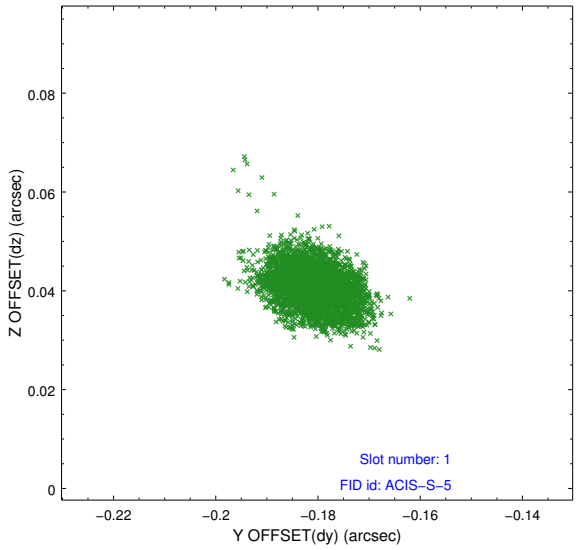
2.5.1 Slot 0

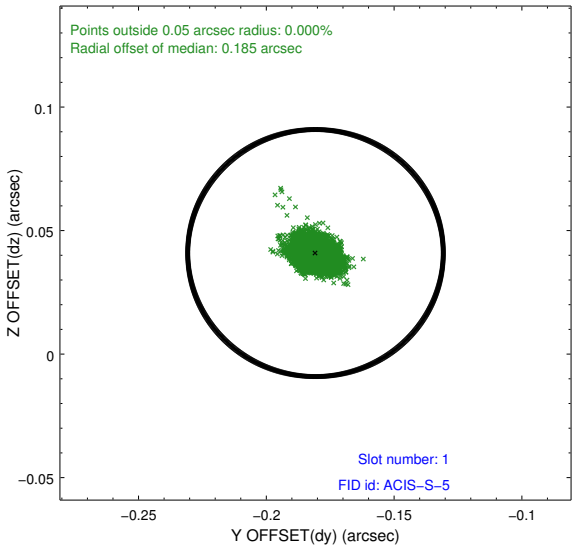


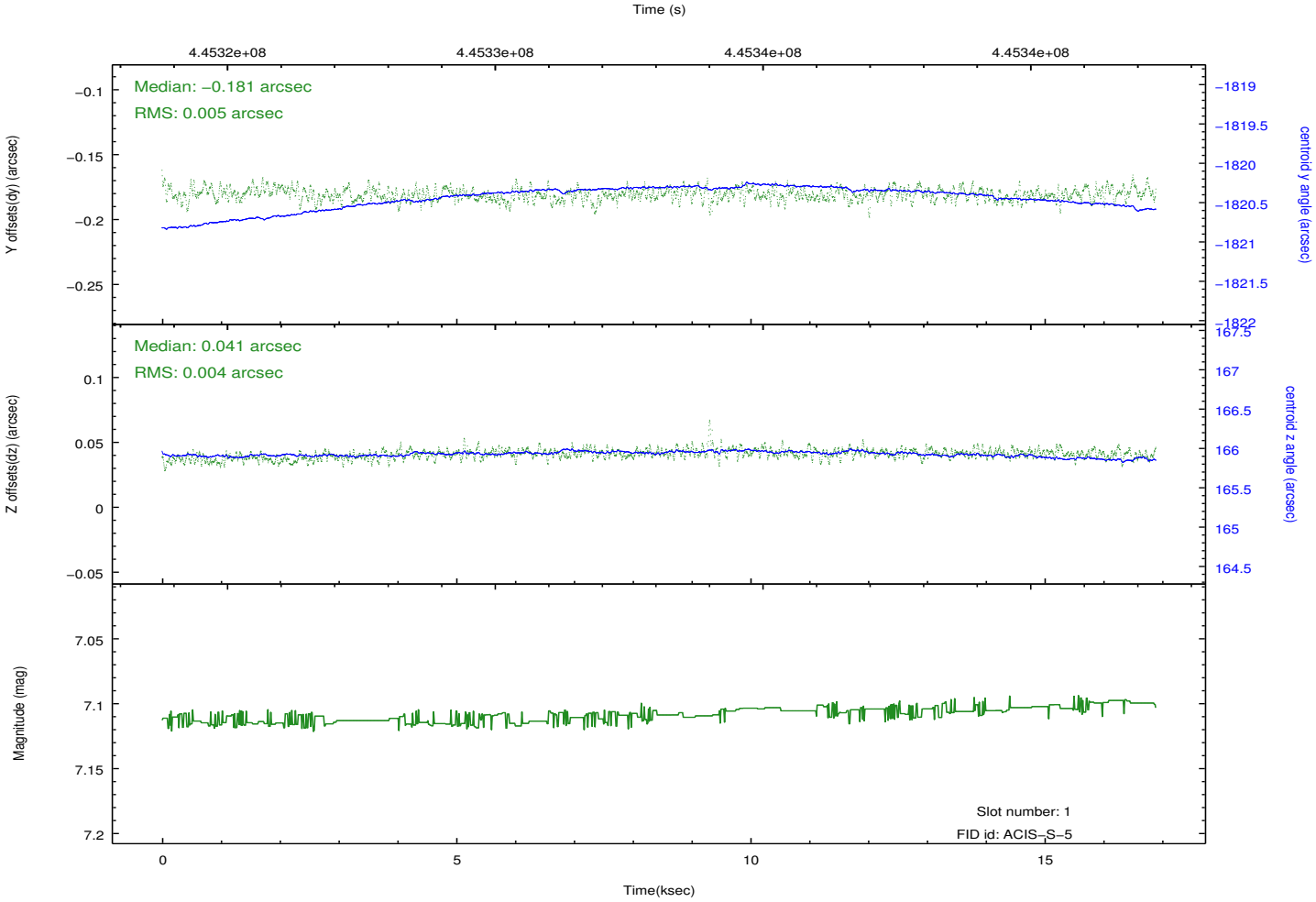




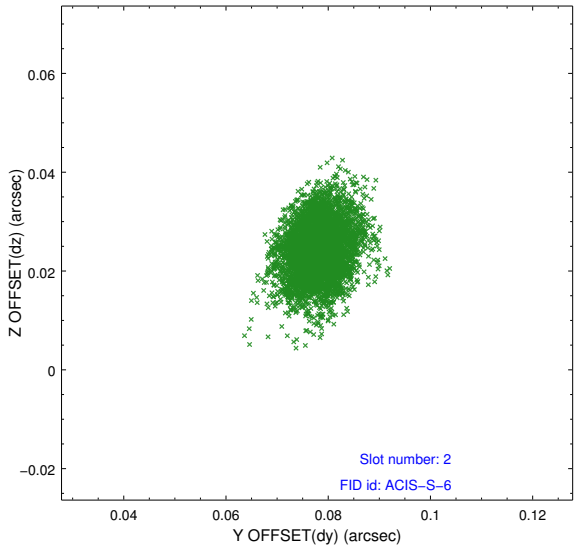
2.5.2 Slot 1

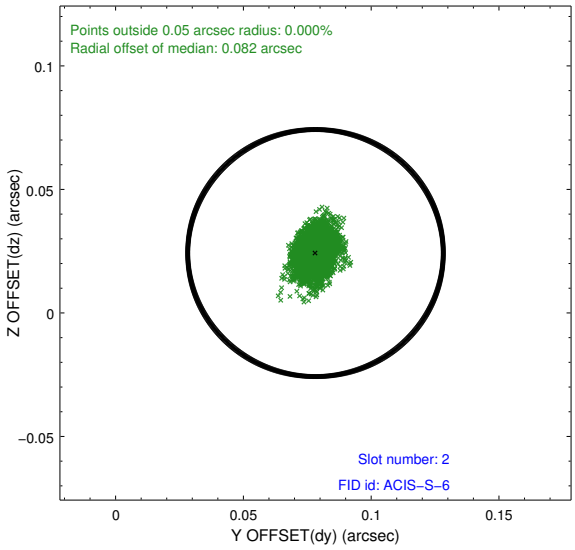

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5

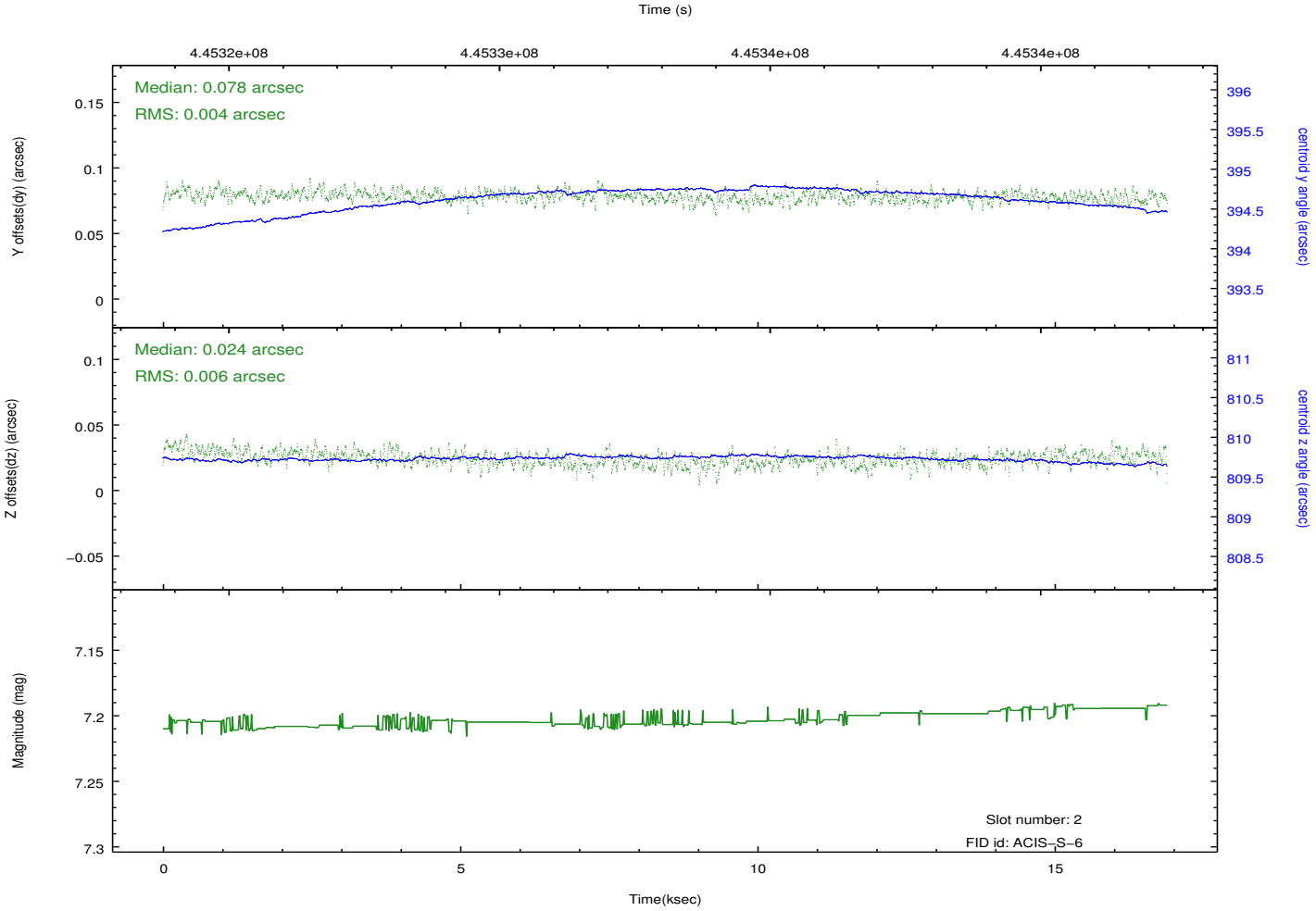

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.185 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5


Time (s)
Median: −0.181 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.041 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−S−5
Time(ksec)

2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−6


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.082 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−6


Time (s)
Median: 0.078 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.024 arcsec
RMS: 0.006 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−6
Time(ksec)

A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2012.02.12
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	16.57327950865

A.2 Comments

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use acis_process_events to reprocess the data with the parameter pix_adj=NONE or RANDOMIZE, respectively.