V&V Reference Report
L2 ASCDS Version : 8.4.3

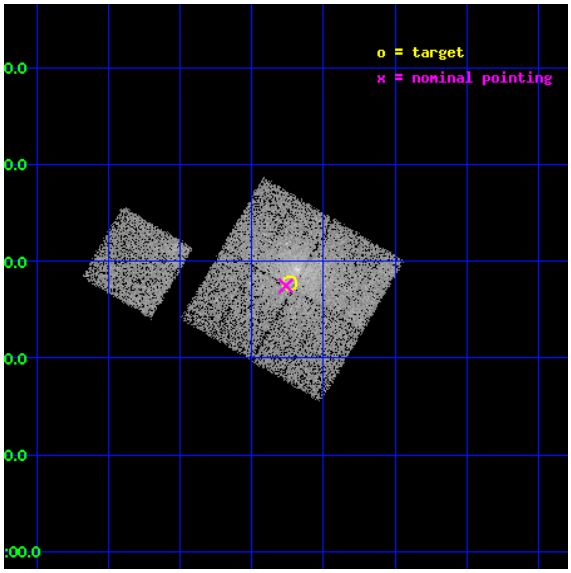
Observation 12276 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Feb 2 2012

Contents

1 Front

seq_num	800995	Sequence number
obs_id	12276	Observation id
title	A 'CENTENNIAL' SAMPLE OF THE 100 X-RAY BRIGHTEST GALAXY CLUSTERS	
observer	Dr. Alexey Vikhlinin	Principal investigator
object	A2457	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	338.934583	Observer's specified target RA [deg]
dec_targ	1.463083	Observer's specified target Dec [deg]
ra_nom	338.94059124405	Nominal RA [deg]
dec_nom	1.4576264896719	Nominal Dec [deg]
roll_nom	300.4996954195	Nominal Roll [deg]
revision	2	Processing version of data
ontime	10053.187558055	Sum of GTIs [s]
livetime	9921.8352615599	Livetime [s]
ontime0	10053.064438045	Sum of GTIs [s]
ontime1	10053.105478048	Sum of GTIs [s]
ontime2	10050.005557656	Sum of GTIs [s]
ontime3	10053.187558055	Sum of GTIs [s]
ontime6	10053.023398042	Sum of GTIs [s]
l2events	44039	Number of level 2 events

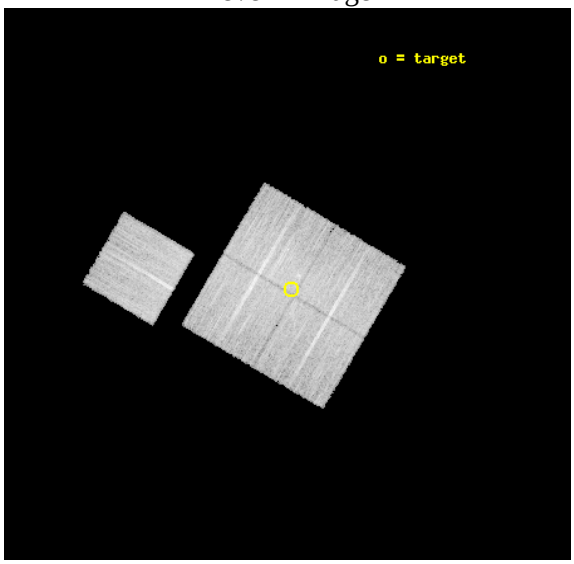


2 OBI

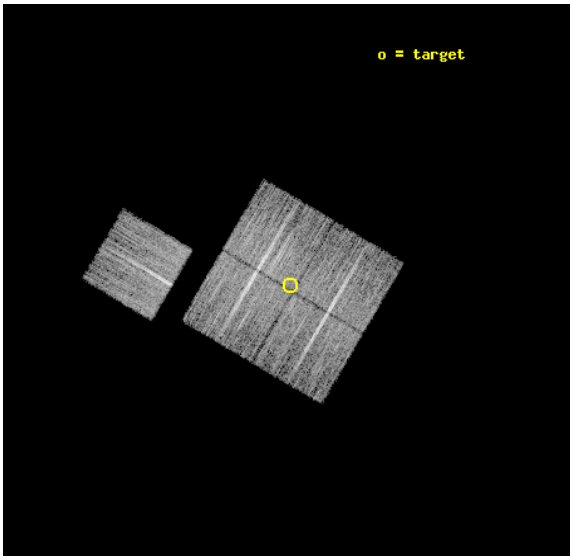
2.1 OBI

2.1.1 Images

Level 1 Image

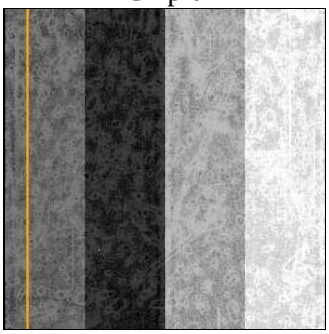


Level 1 Bad Events

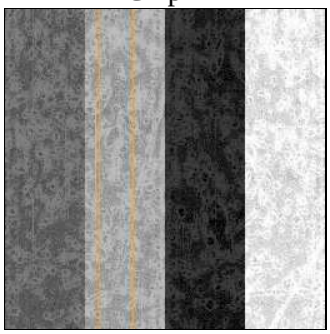


2.1.2 Bias

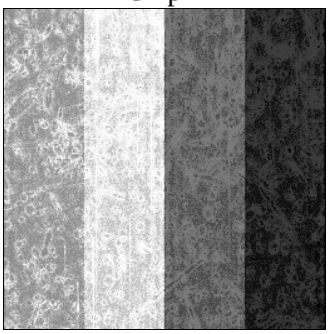
Chip 0



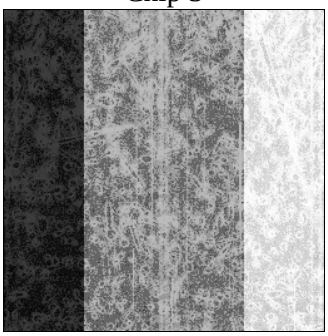
Chip 1



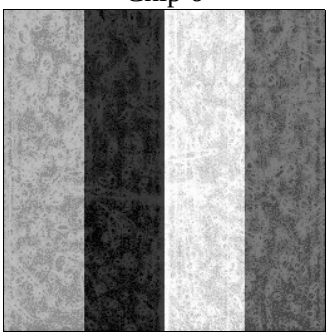
Chip 2



Chip 3



Chip 6



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.4.3	Processing system revision
caldbver	4.4.7	
date	2012-02-02T03:32:43	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ontime	10053.187558055	Sum of GTIs [s]
ontime0	10053.064438045	Sum of GTIs [s]
ontime1	10053.105478048	Sum of GTIs [s]
ontime2	10050.005557656	Sum of GTIs [s]
ontime3	10053.187558055	Sum of GTIs [s]
ontime6	10053.023398042	Sum of GTIs [s]
l1events	364860	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
level 1 events	65780	71344	75514	77818	74404
rejected events	56784	58557	66254	65985	66103
rejected %	86%	82%	87%	84%	88%

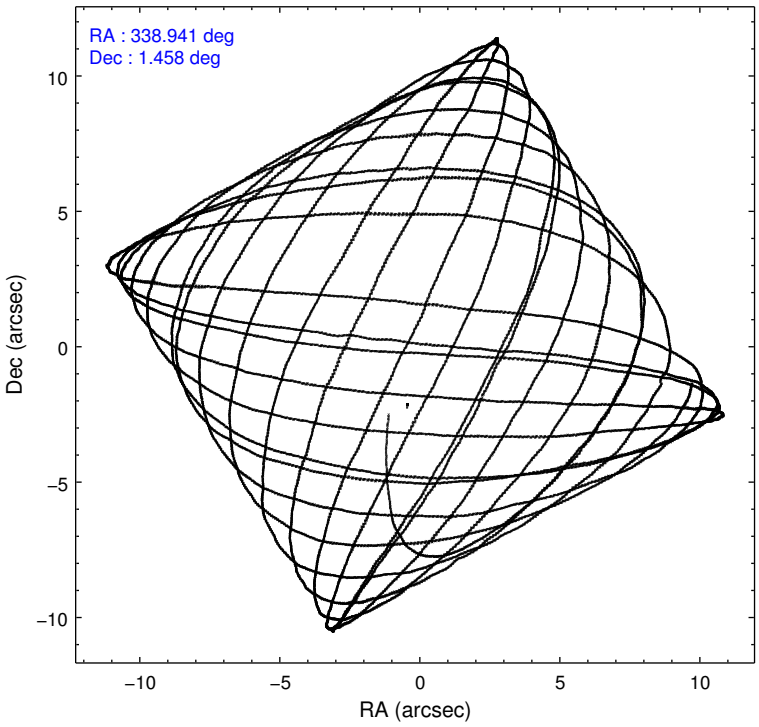
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
grade 0 events	3508	6312	3999	6272	2978
	5%	8%	5%	8%	4%
grade 1 events	44	57	47	62	33
	0%	0%	0%	0%	0%
grade 2 events	2058	2537	2038	2098	1938
	3%	3%	2%	2%	2%
grade 3 events	928	970	887	953	844
	1%	1%	1%	1%	1%
grade 4 events	853	984	864	953	761
	1%	1%	1%	1%	1%
grade 5 events	3034	3245	2919	3339	3283
	4%	4%	3%	4%	4%
grade 6 events	1652	1990	1476	1559	1786
	2%	2%	1%	2%	2%
grade 7 events	53703	55249	63284	62582	62781
	81%	77%	83%	80%	84%

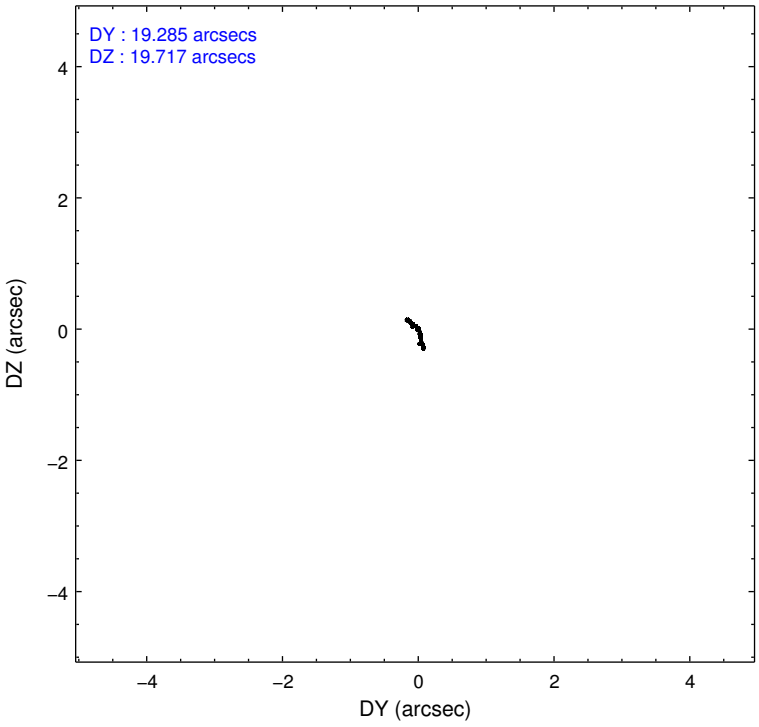
2.2 Compared Parameters

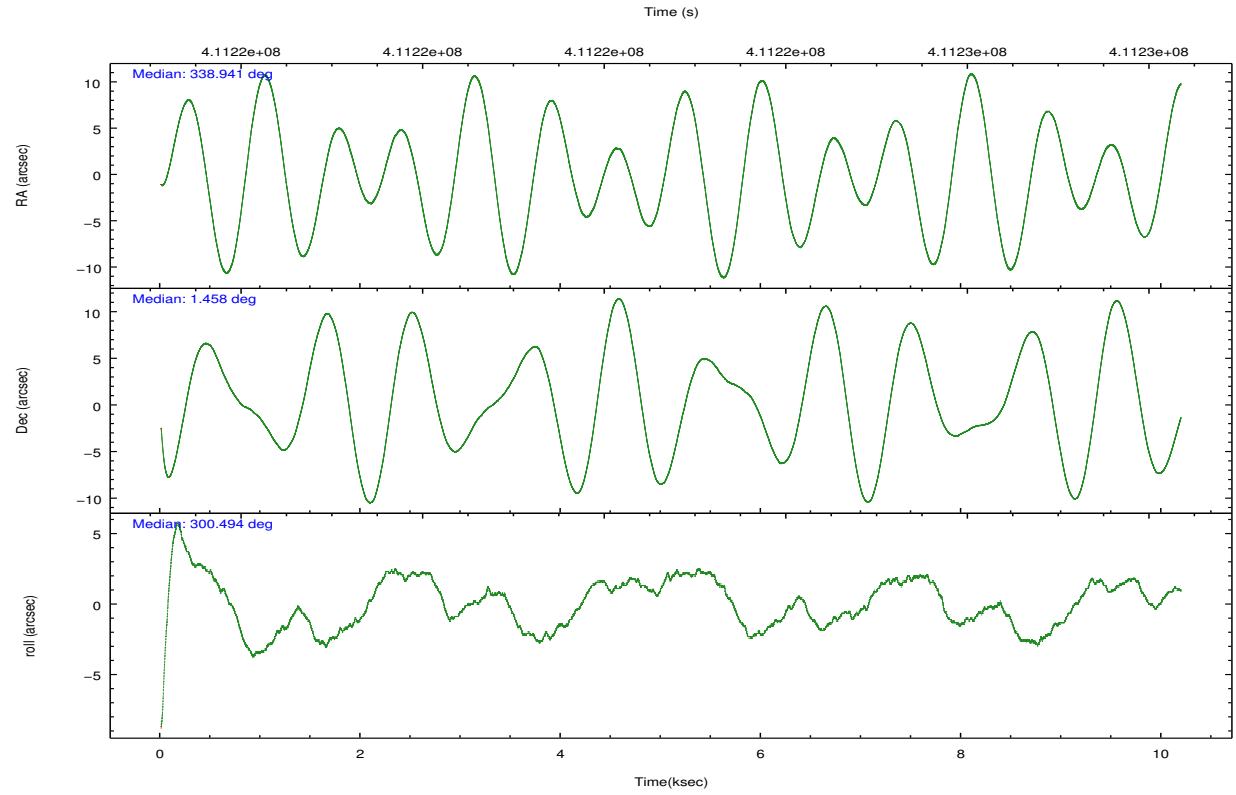
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-01236	ACIS-01236
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	338.916578	338.9405912440463
[deg] Pointing Dec	1.471097	1.457626489671922
[deg] Pointing Roll	300.291645	300.4996954195033
[mm] SIM focus pos	-0.782348	-0.7809083437167272
[mm] SIM defocus	0	0.001439871863259334
[mm] SIM translation stage pos	-233.592463	-233.5874344608287
[mm] SIM translation stage offset	0	-0.005018542100998502
[s] Observation start time (MET)	411217833.184000	411216354.79869
Observation start date	2011-01-12T11:09:27	2011-01-12T10:45:54
[s] Observation end time (MET)	411227833.184000	411228790.61183
Observation end date	2011-01-12T13:56:07	2011-01-12T14:13:10
Read mode	TIMED	TIMED

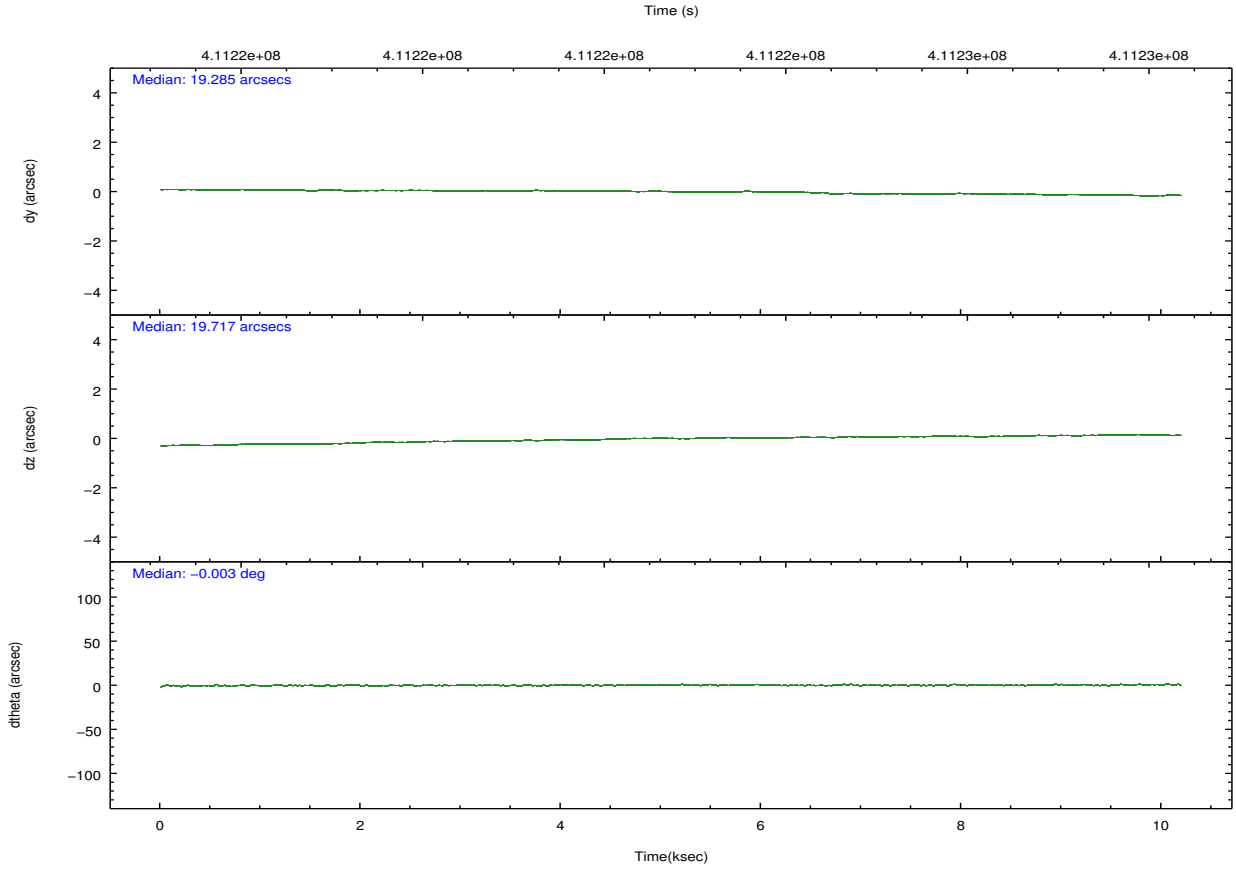
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	Y	Y
CCD I1 on	Y	Y
CCD I2 on	Y	Y
CCD I3 on	Y	Y
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	O1	Y
CCD S3 on	N	N
CCD S4 on	N	N
CCD S5 on	N	N
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.1

2.3 Aspect


RA : 338.941 deg
Dec : 1.458 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 19.285 arcsecs
DZ : 19.717 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.1122e+08
4.1122e+08
4.1122e+08
4.1122e+08
4.1123e+08
4.1123e+08
Median: 338.941 deg
RA (arcsec)
Median: 1.458 deg
Dec (arcsec)
Median: 300.494 deg
roll (arcsec)
Time(ksec)

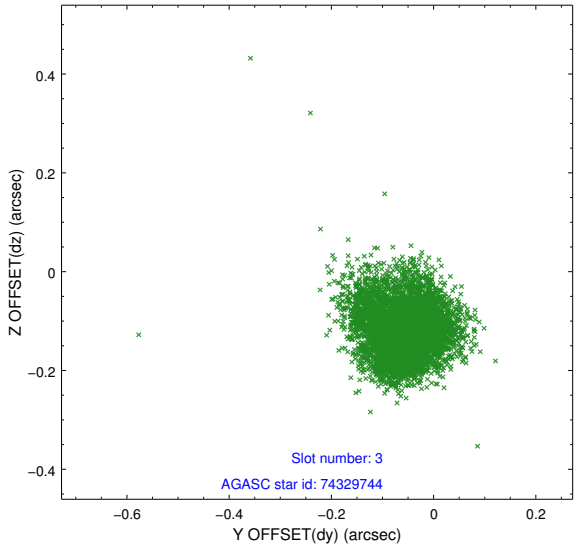

Time (s)
4.1122e+08
4.1122e+08
4.1122e+08
4.1122e+08
4.1123e+08
4.1123e+08
Median: 19.285 arcsecs
dy (arcsec)
Median: 19.717 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

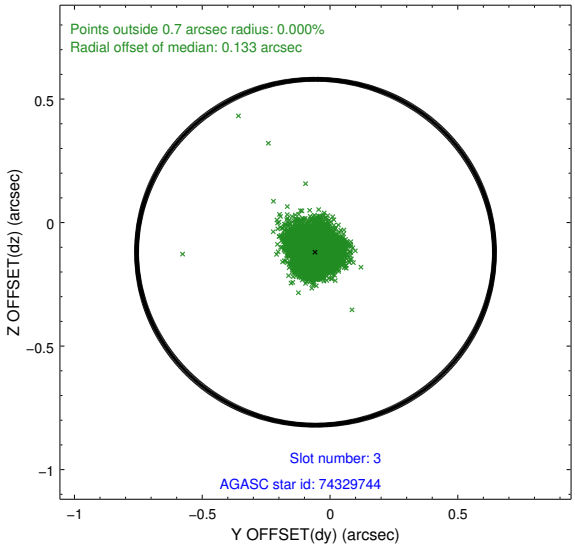
Slot Statistics

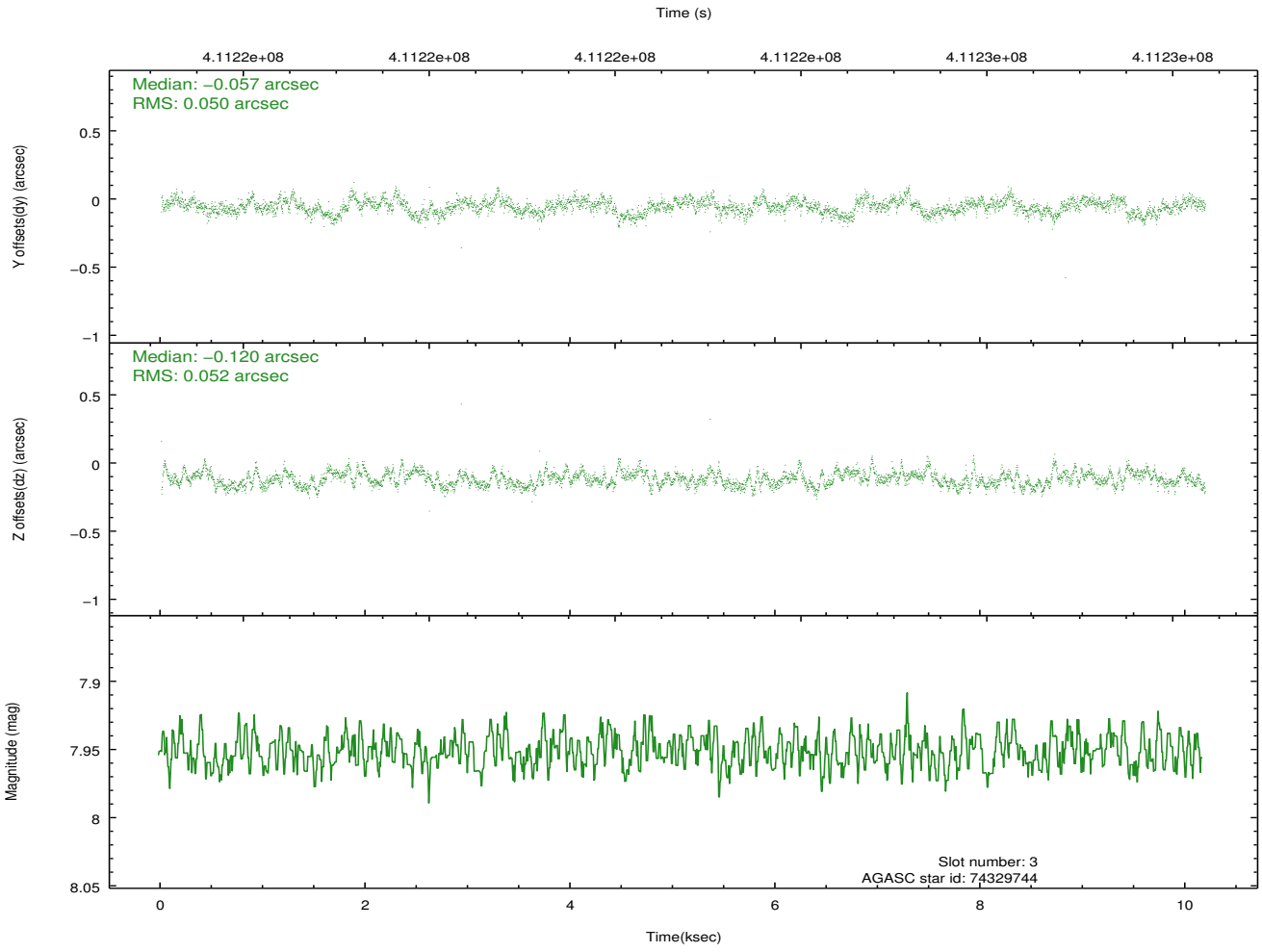
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.03	2484	0.032	0.019	0.008	0.014	0.000000	0.000000	920.12	-843.37
1	FID	ACIS-I-5	7.02	2485	-0.232	0.036	0.006	0.010	0.000000	0.000000	-1828.00	1053.83
2	FID	ACIS-I-6	7.04	2485	0.109	0.015	0.009	0.014	0.000000	0.000000	385.13	1698.94
3	GUIDE	74329744	7.95	4970	-0.057	-0.120	0.075	0.120	339.319229	1.924931	-680.08	2074.83
4	GUIDE	74331712	8.93	4965	0.052	0.078	0.093	0.152	338.164116	1.490106	-1425.22	-2302.94
5	GUIDE	74332456	8.76	4966	-0.070	-0.009	0.069	0.109	338.791017	2.094043	-2164.39	740.80
6	GUIDE	74333128	8.06	4969	-0.076	-0.006	0.067	0.108	338.135945	1.582458	-1763.00	-2222.78
7	GUIDE	74324248	8.76	4963	0.150	0.054	0.083	0.136	339.650753	1.135445	2375.83	1672.67

2.4 Star Slots

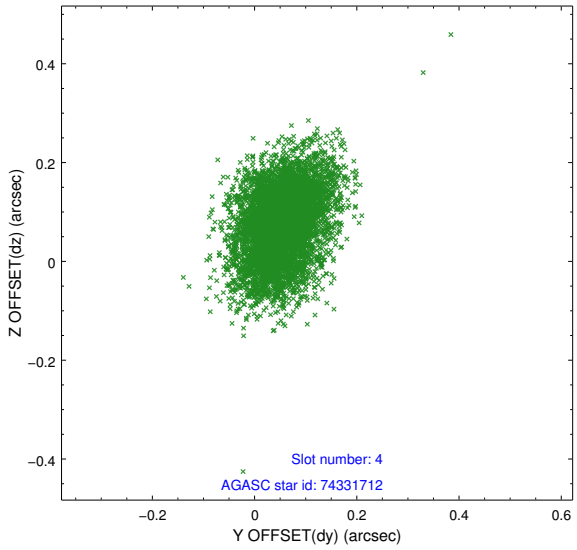
2.4.1 Slot 3

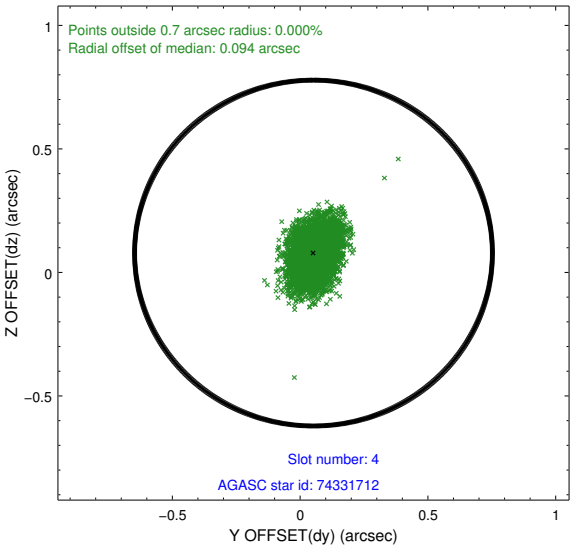


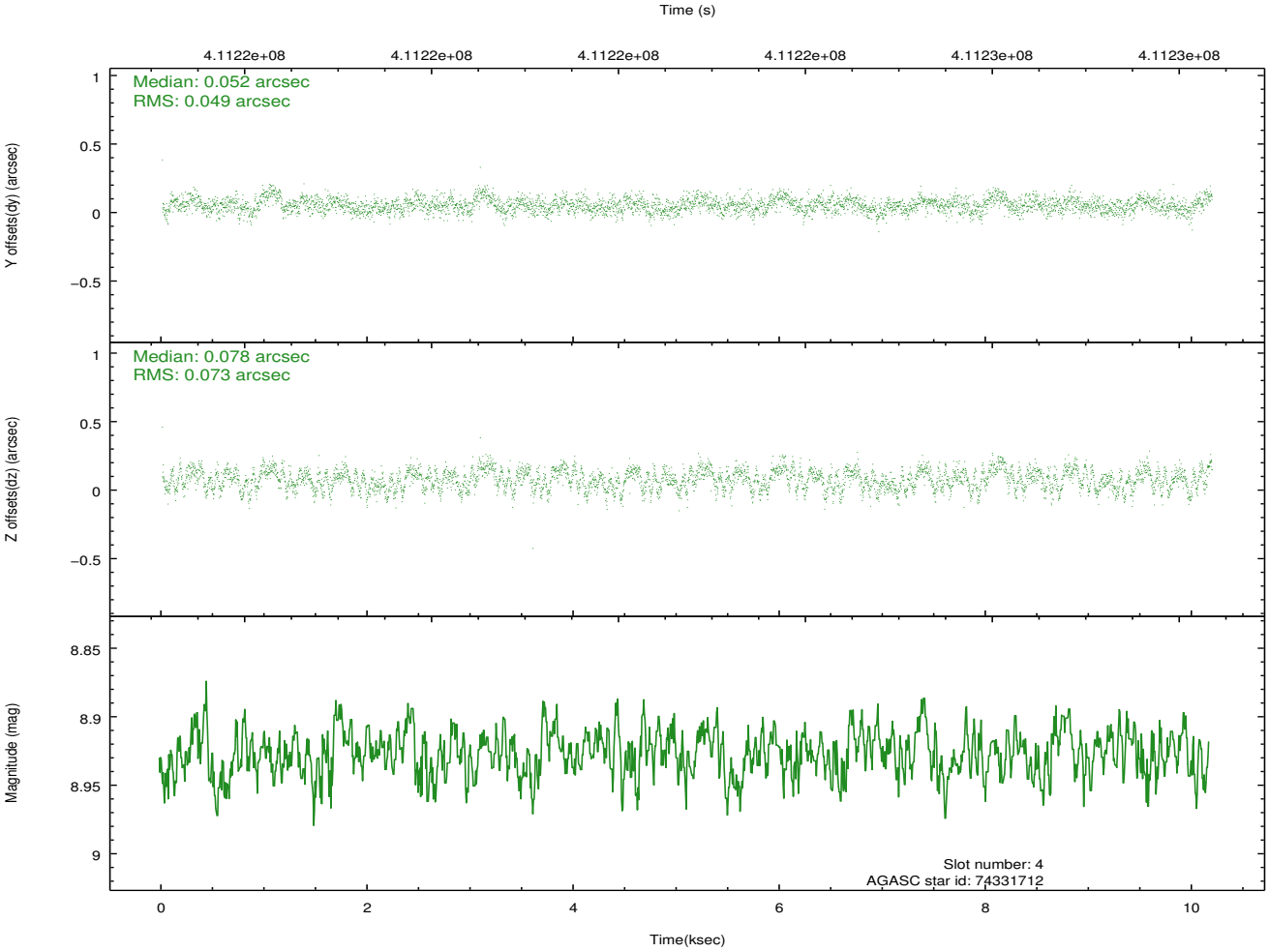




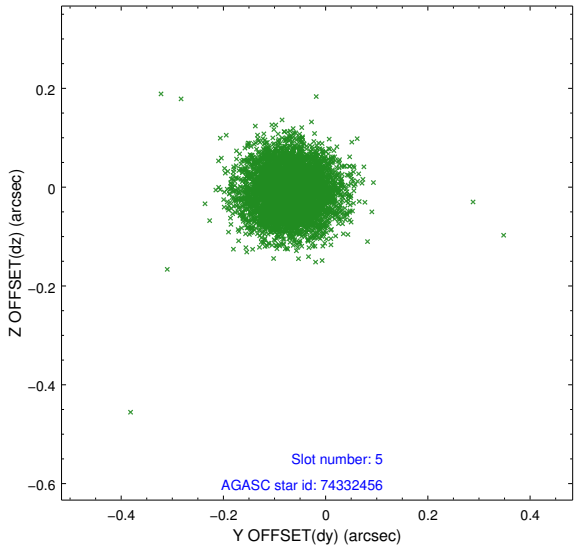
2.4.2 Slot 4

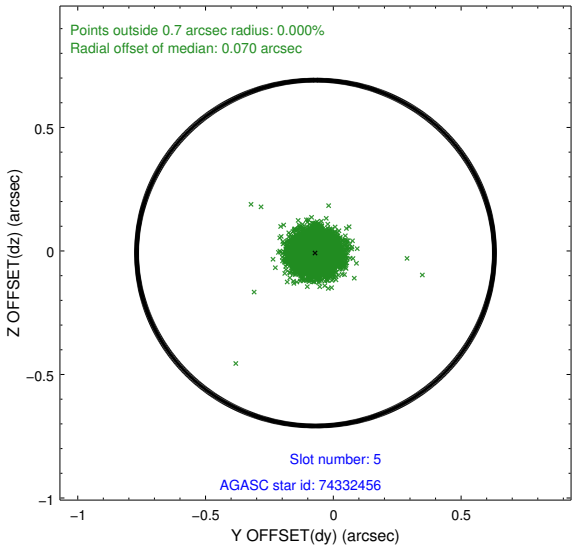

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 74331712

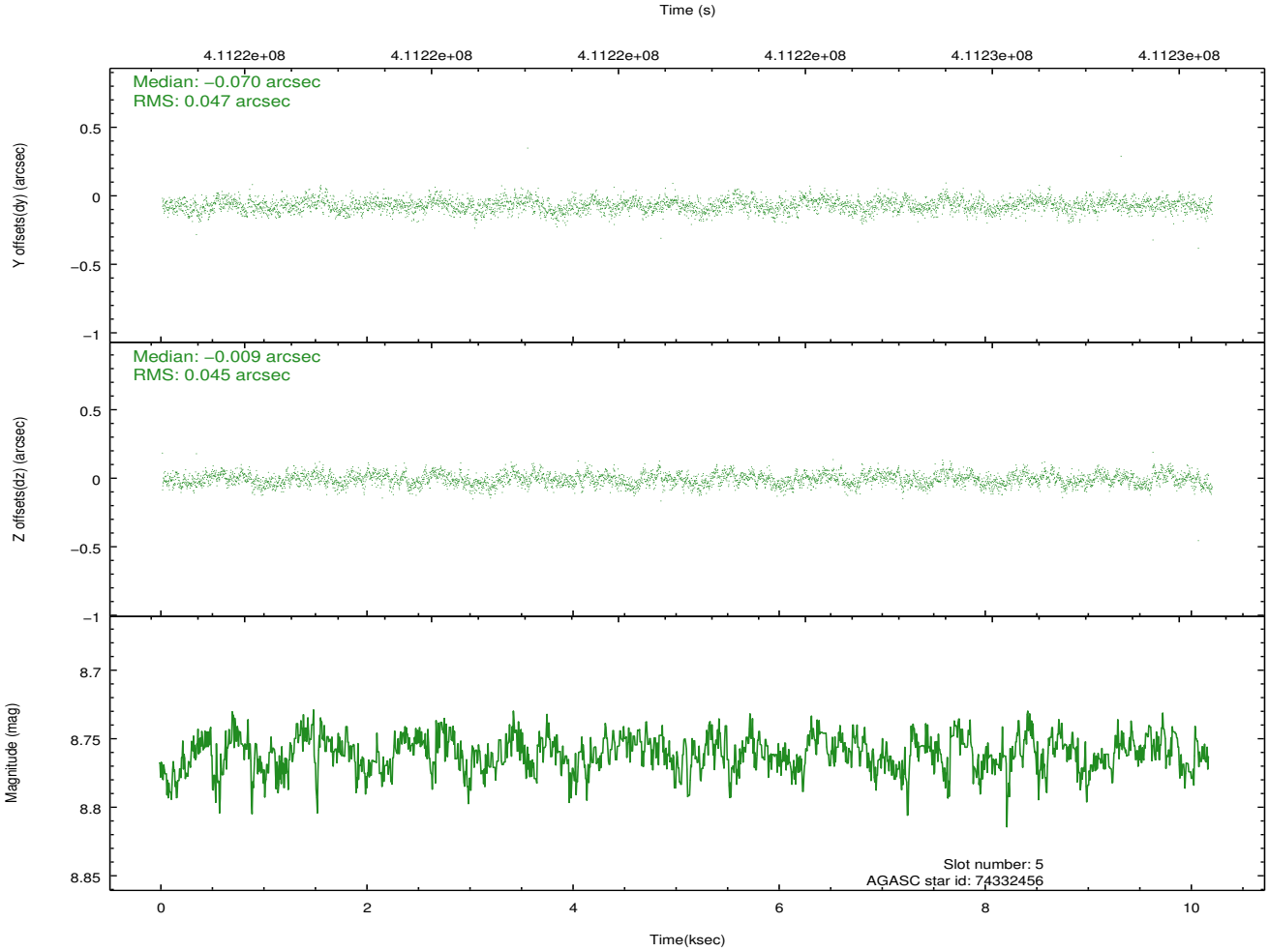

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.094 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 74331712


Time (s)
Median: 0.052 arcsec
RMS: 0.049 arcsec
Y offsets(dy) (arcsec)
Median: 0.078 arcsec
RMS: 0.073 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 74331712
Time(ksec)

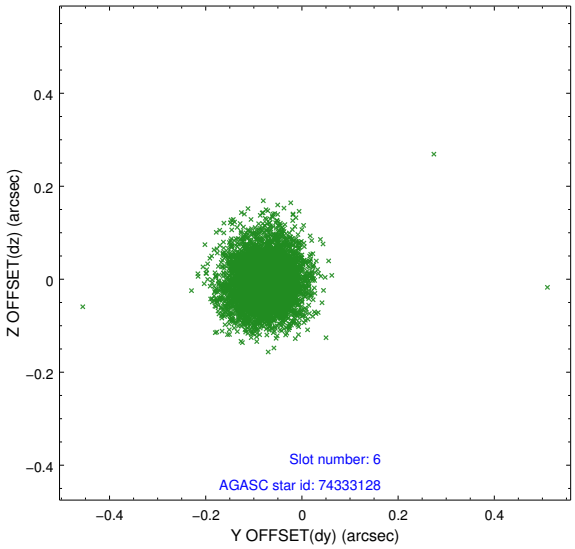
2.4.3 Slot 5

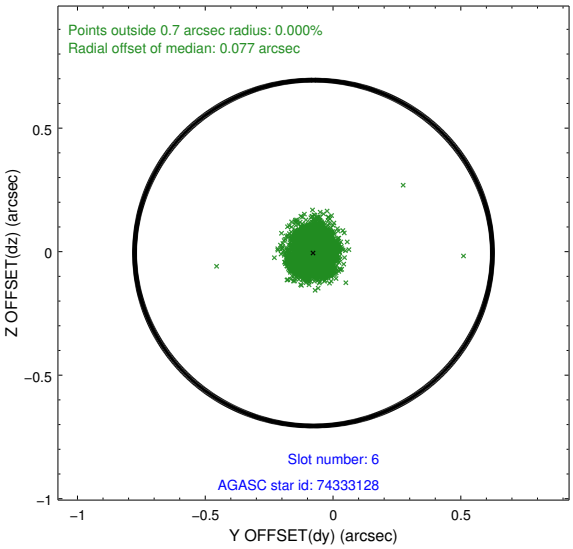

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 74332456

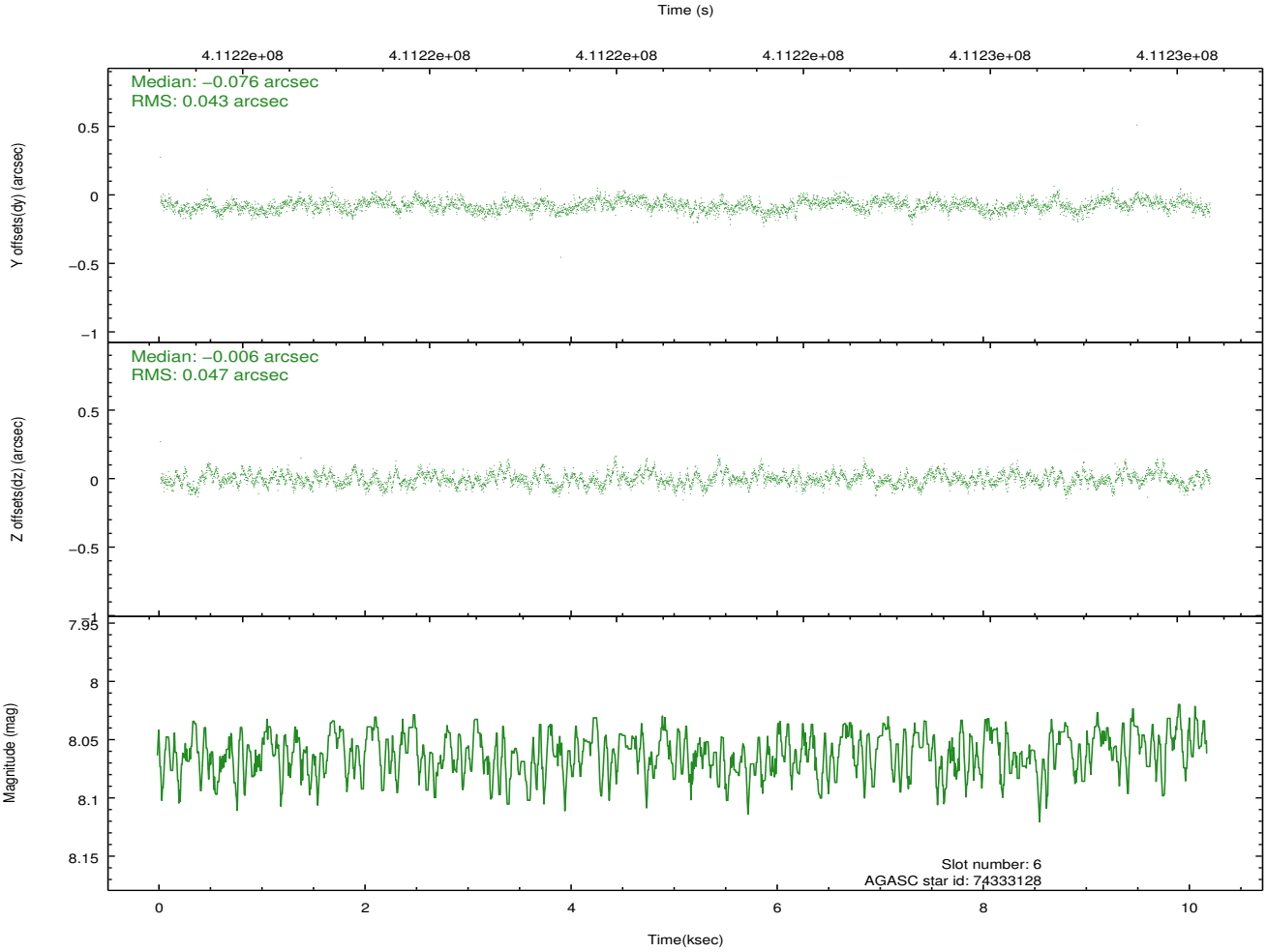

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.070 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 74332456


Time (s)
Median: −0.070 arcsec
RMS: 0.047 arcsec
Y offsets(dy) (arcsec)
Median: −0.009 arcsec
RMS: 0.045 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 74332456
Time(ksec)

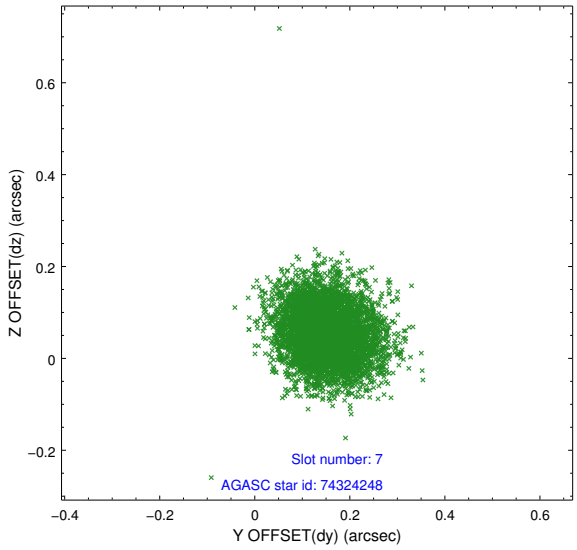
2.4.4 Slot 6

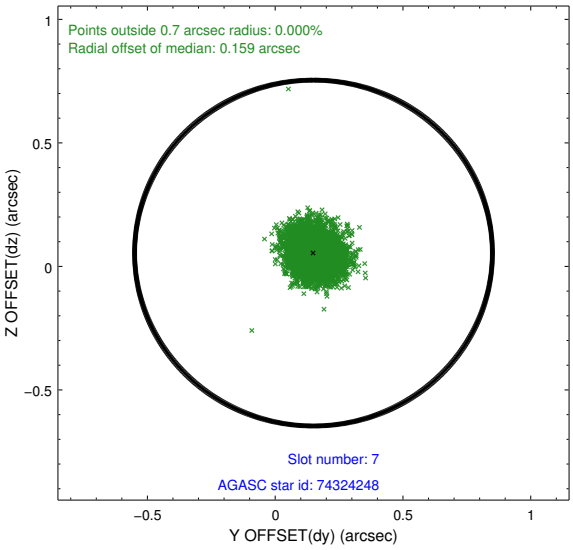

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 74333128

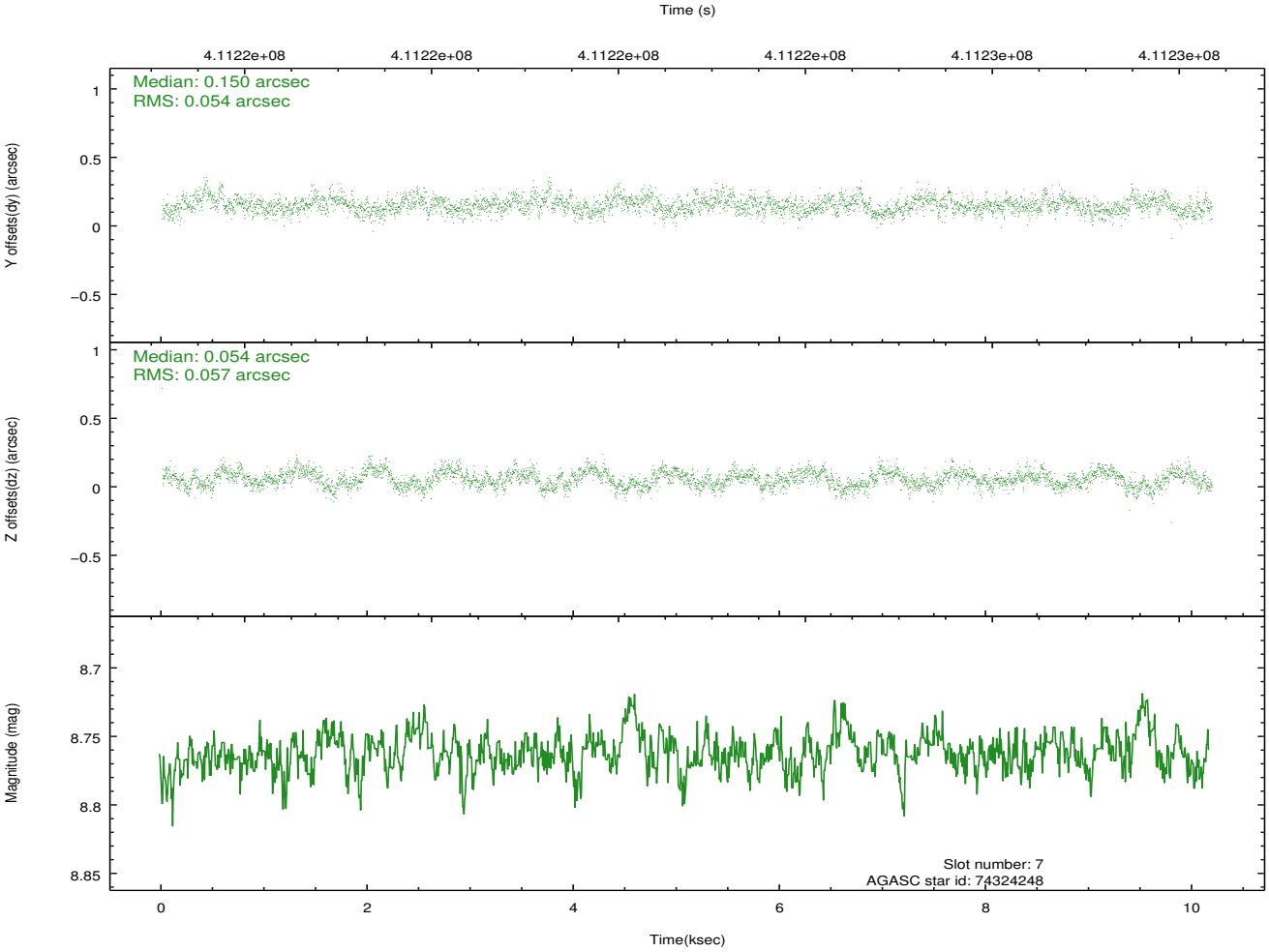

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.077 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 74333128


Time (s)
Median: −0.076 arcsec
RMS: 0.043 arcsec
Y offsets(dy) (arcsec)
Median: −0.006 arcsec
RMS: 0.047 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 74333128
Time(ksec)

2.4.5 Slot 7

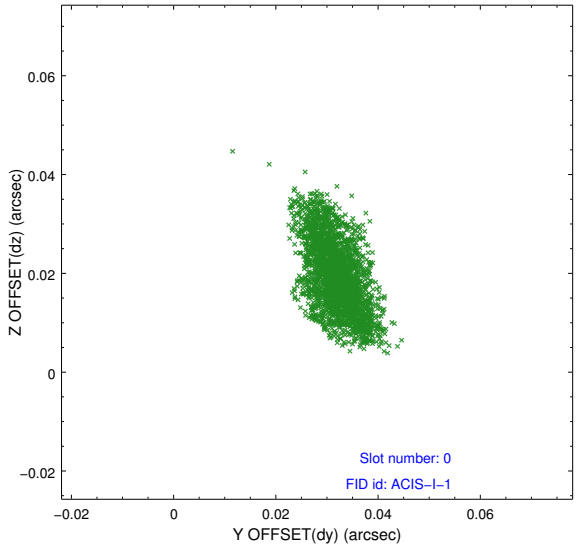

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 74324248

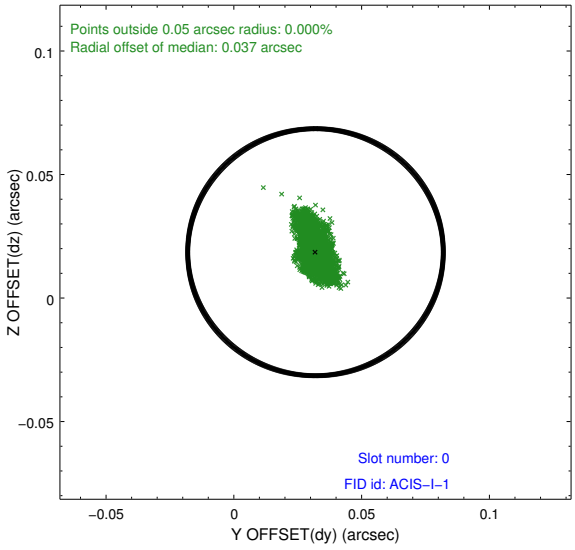

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.159 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 74324248

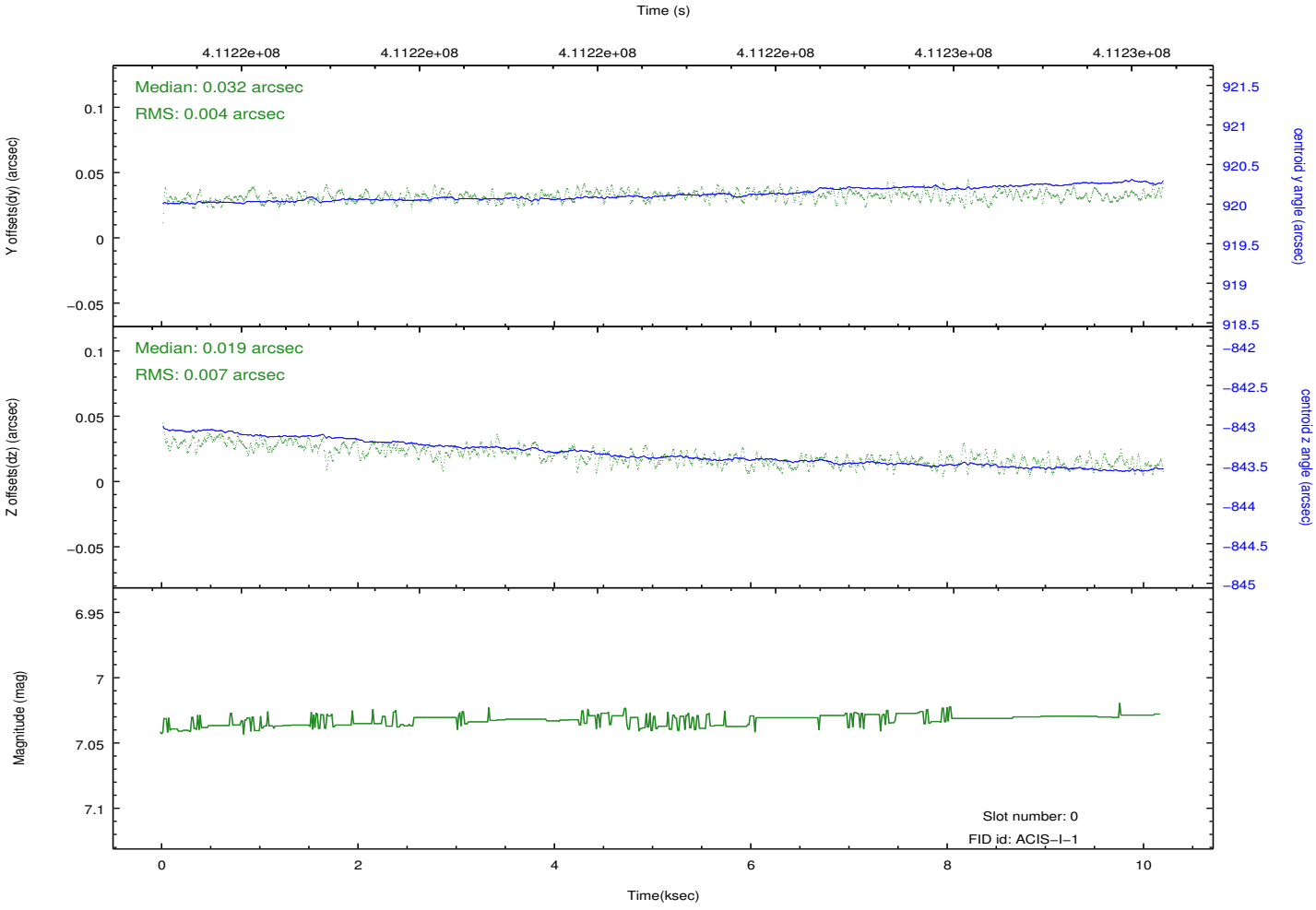

Time (s)
Median: 0.150 arcsec
RMS: 0.054 arcsec
Y offsets(dy) (arcsec)
Median: 0.054 arcsec
RMS: 0.057 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 74324248
Time(ksec)

2.5 FID Slots

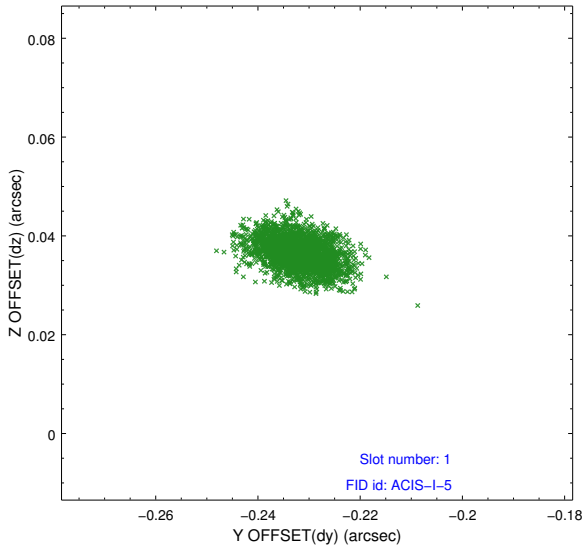
2.5.1 Slot 0

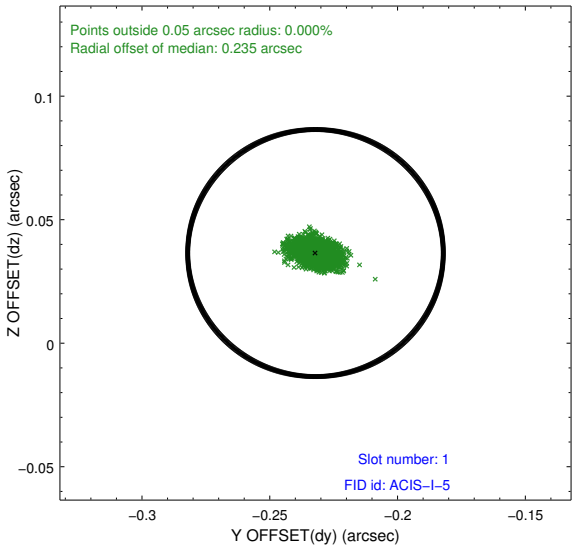


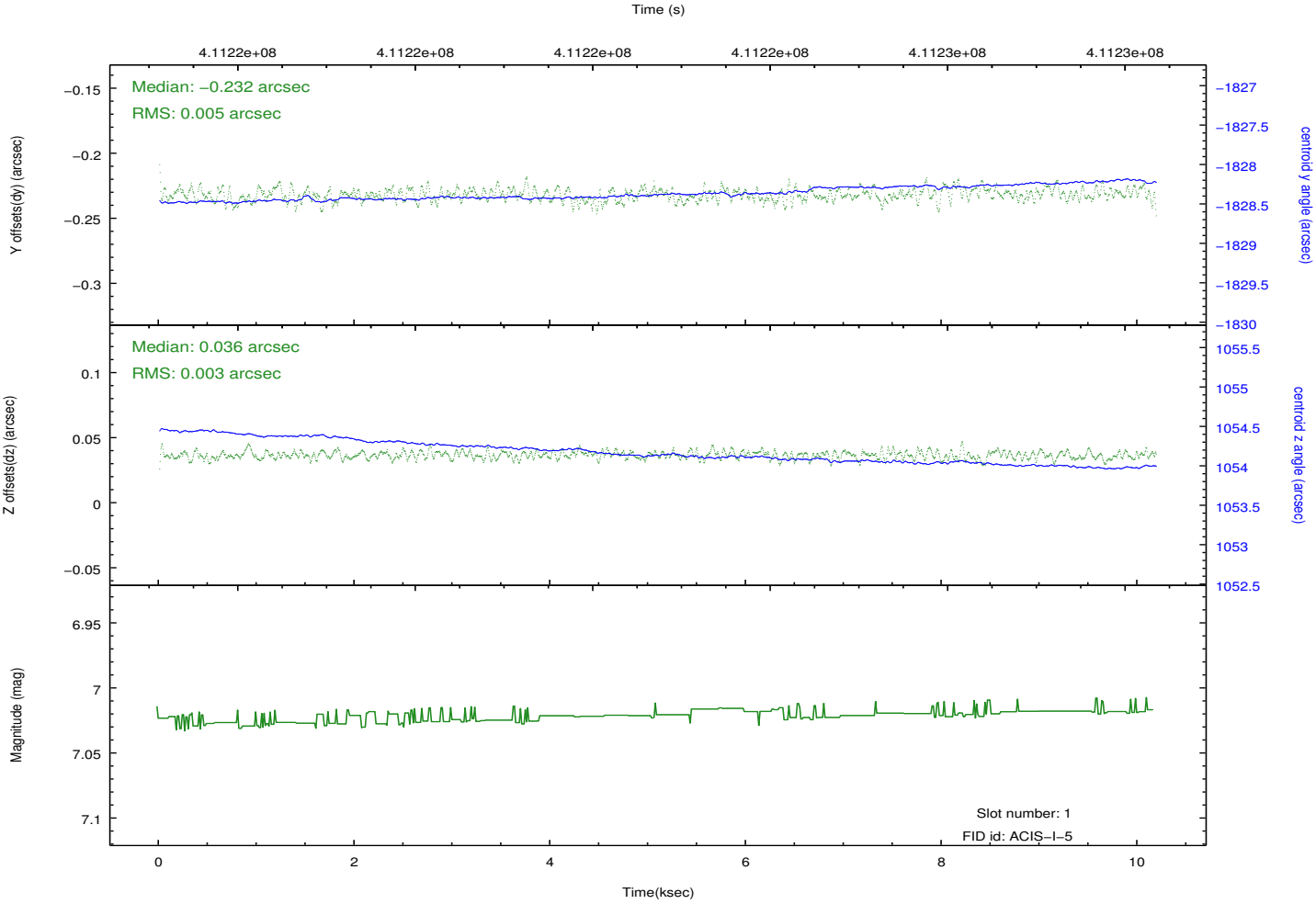




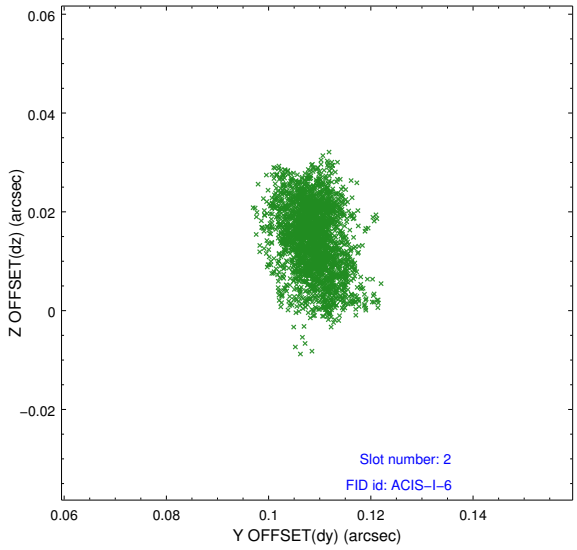
2.5.2 Slot 1

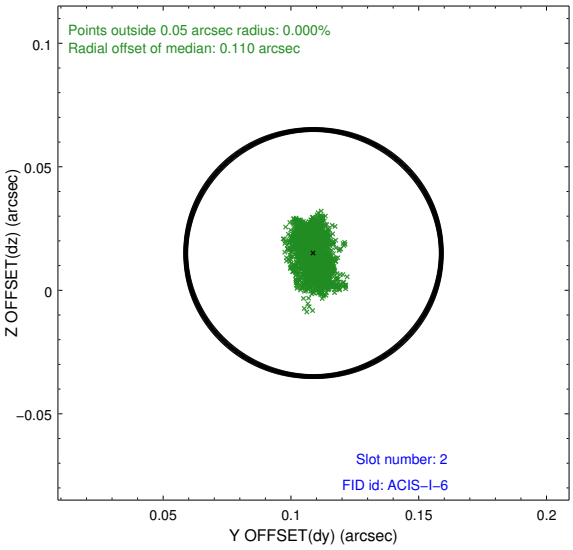

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−5

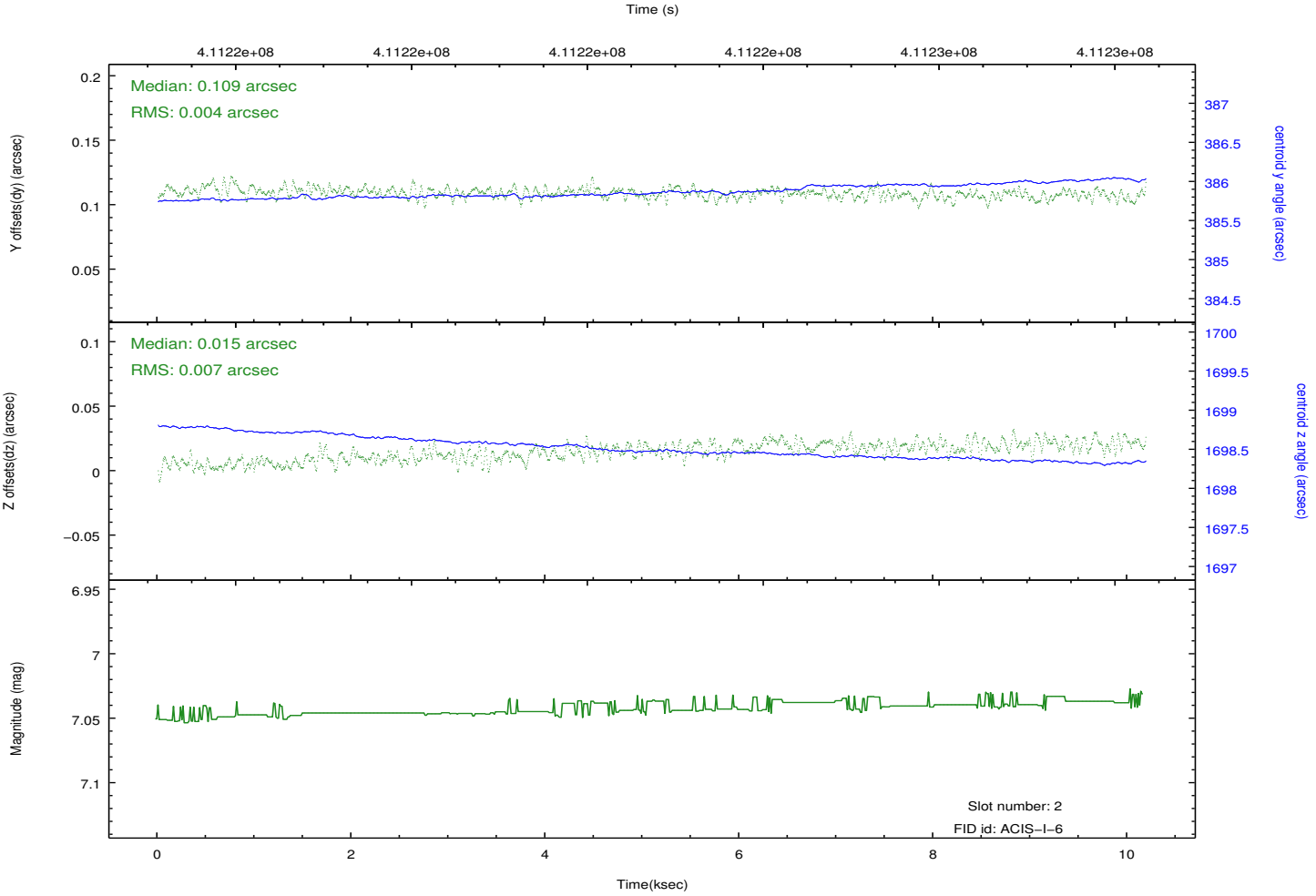

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.235 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−5


Time (s)
Median: −0.232 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.036 arcsec
RMS: 0.003 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−I−5
Time(ksec)

2.5.3 Slot 2


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


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.110 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−6


Time (s)
Median: 0.109 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.015 arcsec
RMS: 0.007 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−6
Time(ksec)

A Summary

A.1 Status

V&V Scientist	Mike Nowak
V&V Date (YYYY-MM-DD)	2012.02.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.053187550128

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.