V&V Reference Report
L2 ASCDS Version : 8.4.3

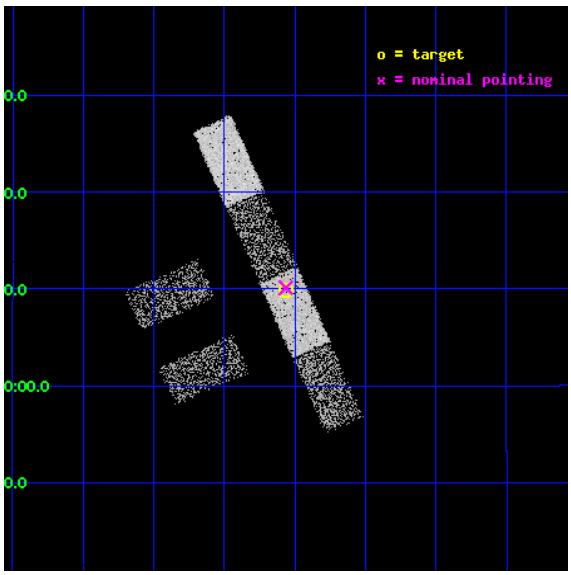
Observation 12706 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Feb 1 2012

Contents

1 Front

seq_num	702342	Sequence number
obs_id	12706	Observation id
title	The Nature of Weak-Line Quasars at Low Redshift	Proposal title
observer	Prof. William Brandt	Principal investigator
object	SDSS J0945+1009	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	146.391667	Observer's specified target RA [deg]
dec_targ	10.163917	Observer's specified target Dec [deg]
ra_nom	146.39076594969	Nominal RA [deg]
dec_nom	10.168743433805	Nominal Dec [deg]
roll_nom	65.989568391775	Nominal Roll [deg]
revision	2	Processing version of data
ontime	3096.0000204444	Sum of GTIs [s]
livetime	3026.9847677399	Livetime [s]
ontime2	3096.0000204444	Sum of GTIs [s]
ontime3	3096.0000204444	Sum of GTIs [s]
ontime5	3096.0000204444	Sum of GTIs [s]
ontime6	3096.0000204444	Sum of GTIs [s]
ontime7	3096.0000204444	Sum of GTIs [s]
ontime8	3096.0000204444	Sum of GTIs [s]
l2events	19242	Number of level 2 events

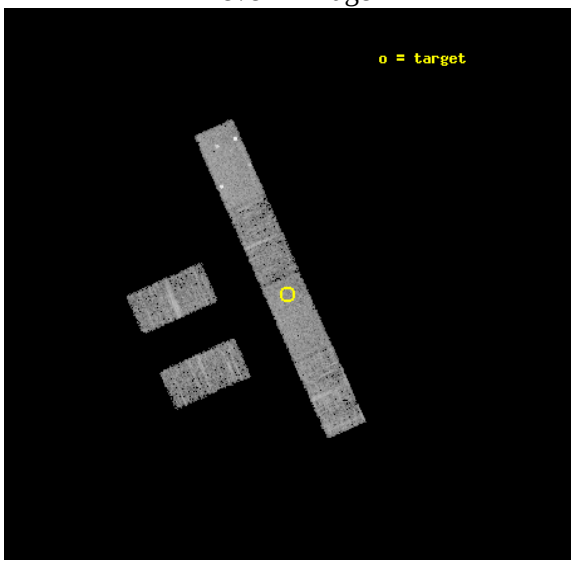


2 OBI

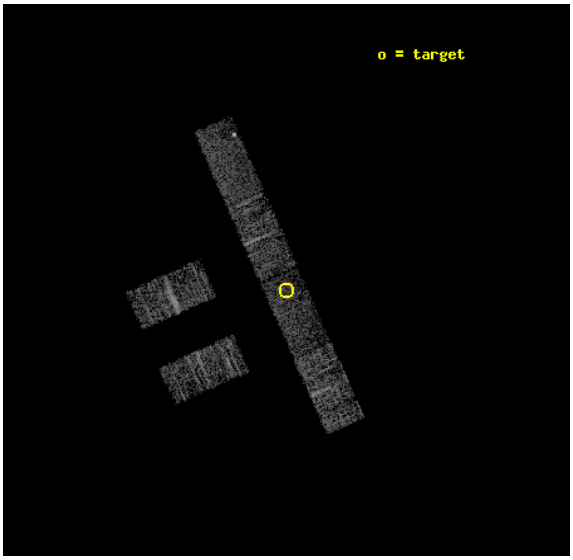
2.1 OBI

2.1.1 Images

Level 1 Image

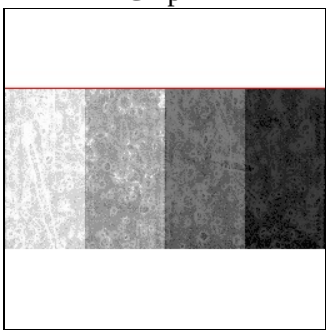


Level 1 Bad Events

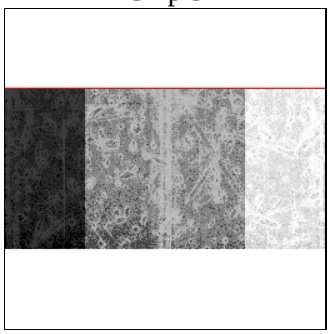


2.1.2 Bias

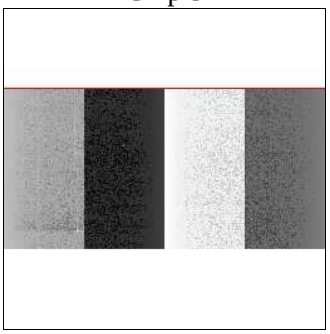
Chip 2



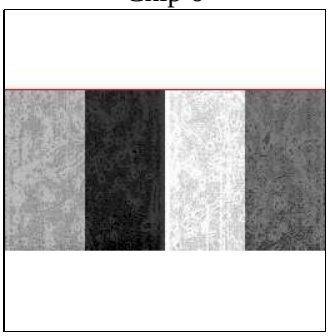
Chip 3



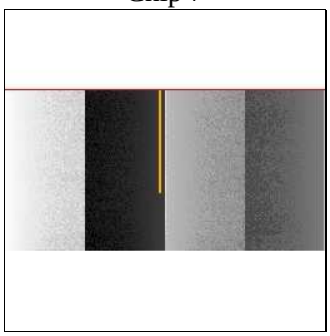
Chip 5



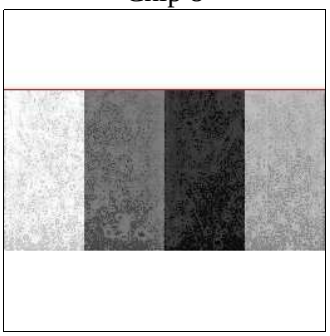
Chip 6



Chip 7



Chip 8



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.4.3	Processing system revision
caldbver	4.4.7	
date	2012-02-02T03:19:56	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	3000.000000	[s] Scheduled observation exposure time
ontime	3096.0000204444	Sum of GTIs [s]
ontime2	3096.0000204444	Sum of GTIs [s]
ontime3	3096.0000204444	Sum of GTIs [s]
ontime5	3096.0000204444	Sum of GTIs [s]
ontime6	3096.0000204444	Sum of GTIs [s]
ontime7	3096.0000204444	Sum of GTIs [s]
ontime8	3096.0000204444	Sum of GTIs [s]
l1events	83641	Number of level 1 events

2.1.4 Events

	ccd 2	**ccd 3**	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
level 1 events	11854	10855	20486	11303	14103	15040
rejected events	10545	9719	9257	9937	7506	11454
rejected %	88%	89%	45%	87%	53%	76%

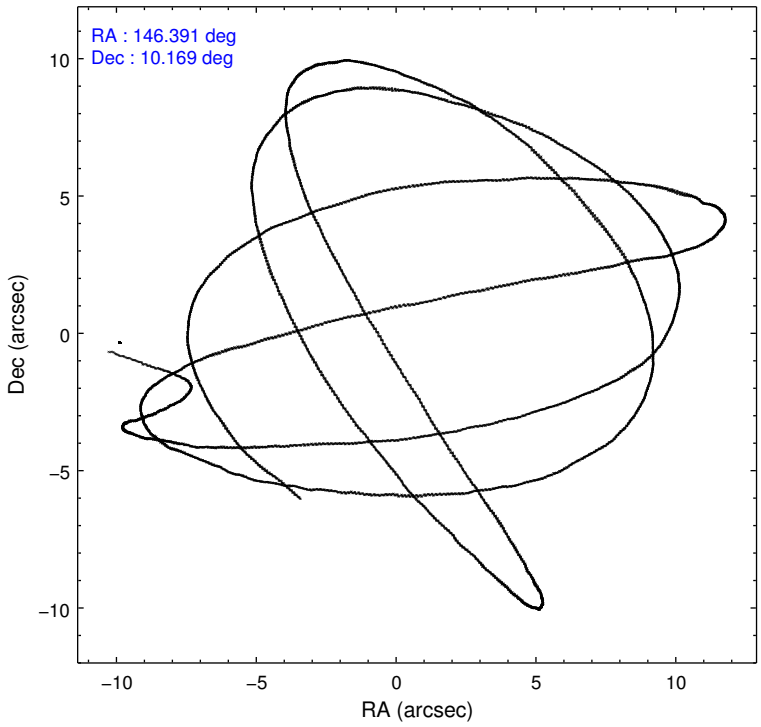
	ccd 2	**ccd 3**	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
grade 0 events	401	383	2490	446	606	1039
	3%	3%	12%	3%	4%	6%
grade 1 events	7	6	84	3	19	10
	0%	0%	0%	0%	0%	0%
grade 2 events	294	259	3547	300	1385	838
	2%	2%	17%	2%	9%	5%
grade 3 events	166	142	409	171	697	368
	1%	1%	1%	1%	4%	2%
grade 4 events	170	126	411	179	654	378
	1%	1%	2%	1%	4%	2%
grade 5 events	458	472	1526	565	1567	728
	3%	4%	7%	4%	11%	4%
grade 6 events	278	226	4385	272	3267	967
	2%	2%	21%	2%	23%	6%
grade 7 events	10080	9241	7634	9367	5908	10712
	85%	85%	37%	82%	41%	71%

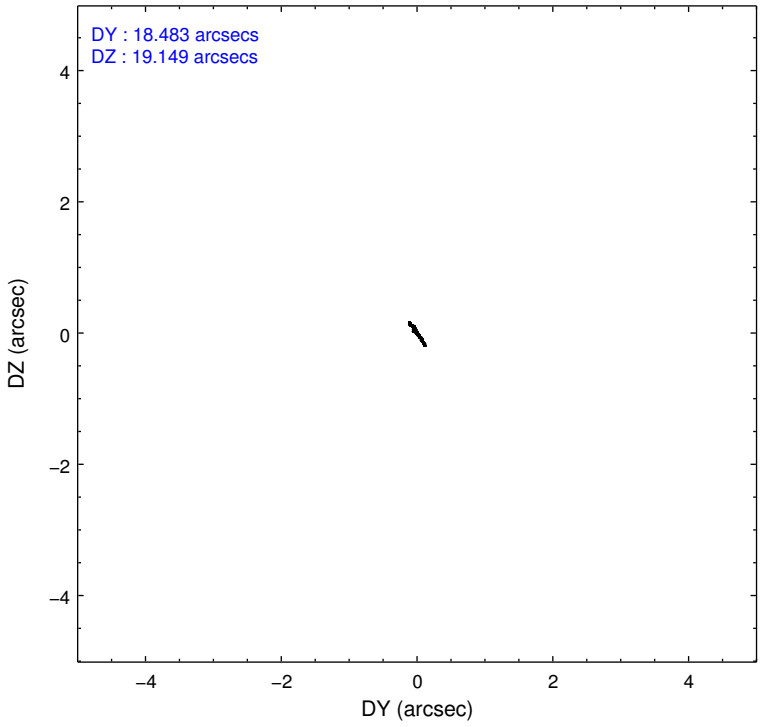
2.2 Compared Parameters

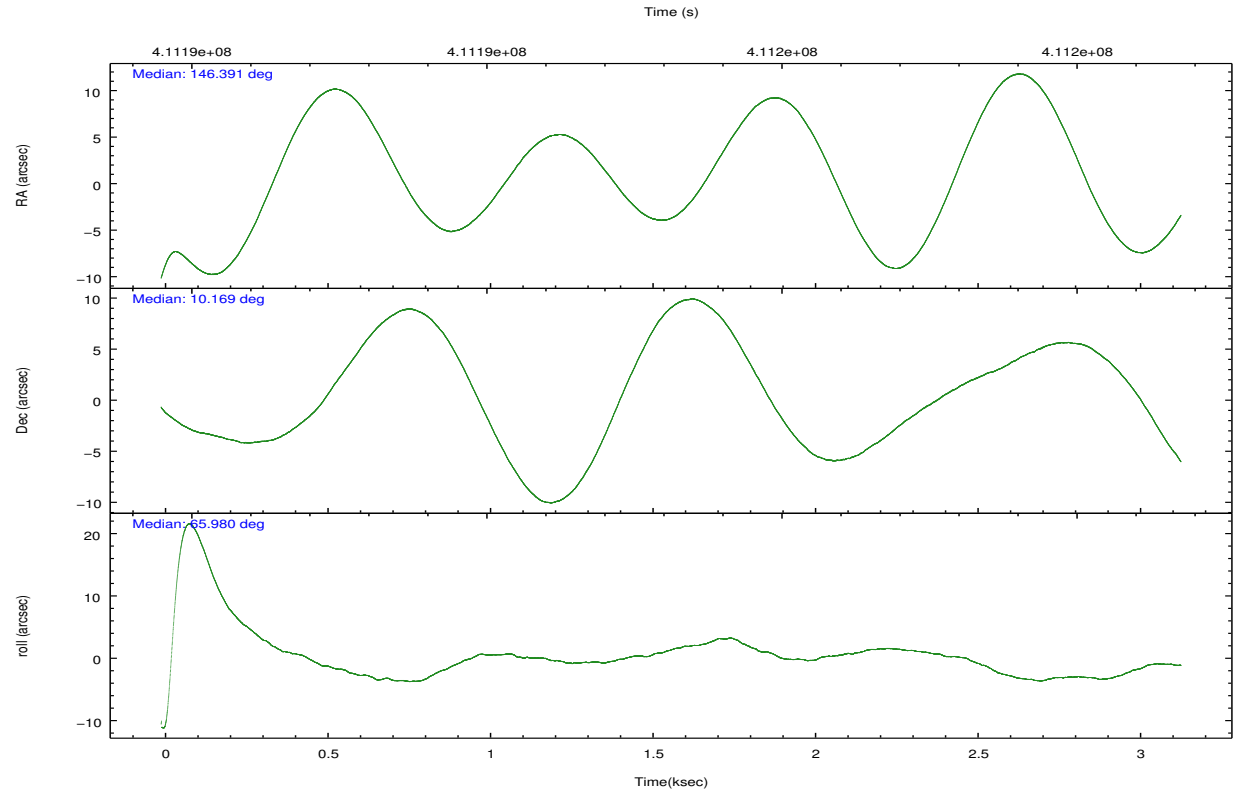
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-235678	ACIS-235678
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	146.394281	146.3907659496858
[deg] Pointing Dec	10.141569	10.16874343380548
[deg] Pointing Roll	65.832461	65.98956839177468
[mm] 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)	411193180.184000	411192070.49743
Observation start date	2011-01-12T04:18:34	2011-01-12T04:01:10
[s] Observation end time (MET)	411196180.184000	411196669.67267
Observation end date	2011-01-12T05:08:34	2011-01-12T05:17:49
Read mode	TIMED	TIMED

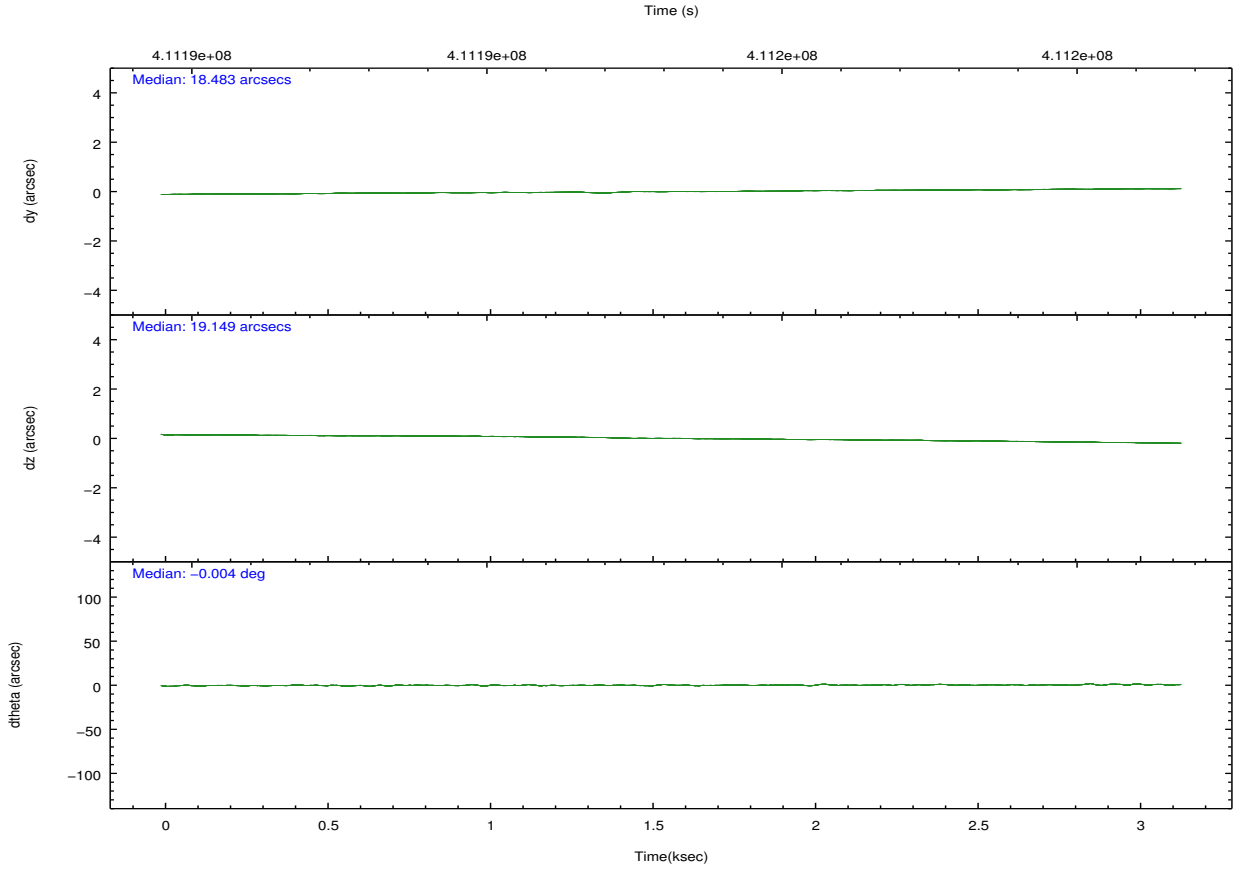
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	O2	Y
CCD I3 on	O1	Y
CCD S0 on	N	N
CCD S1 on	O3	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	N	N
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/2
Subarray start row	257	257
Subarray row count	512	512
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	1.8

2.3 Aspect


RA : 146.391 deg
Dec : 10.169 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 18.483 arcsecs
DZ : 19.149 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.1119e+08
4.1119e+08
4.112e+08
4.112e+08
Median: 146.391 deg
RA (arcsec)
Median: 10.169 deg
Dec (arcsec)
Median: 65.980 deg
roll (arcsec)
Time(ksec)

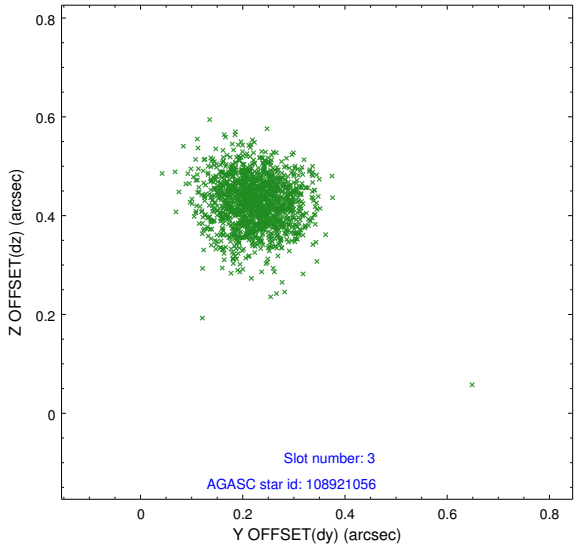

Time (s)
4.1119e+08
4.1119e+08
4.112e+08
4.112e+08
Median: 18.483 arcsecs
dy (arcsec)
Median: 19.149 arcsecs
dz (arcsec)
Median: −0.004 deg
dtheta (arcsec)
Time(ksec)

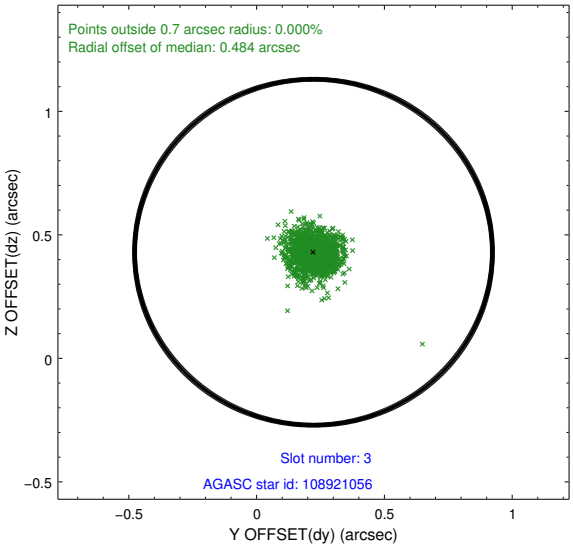
Slot Statistics

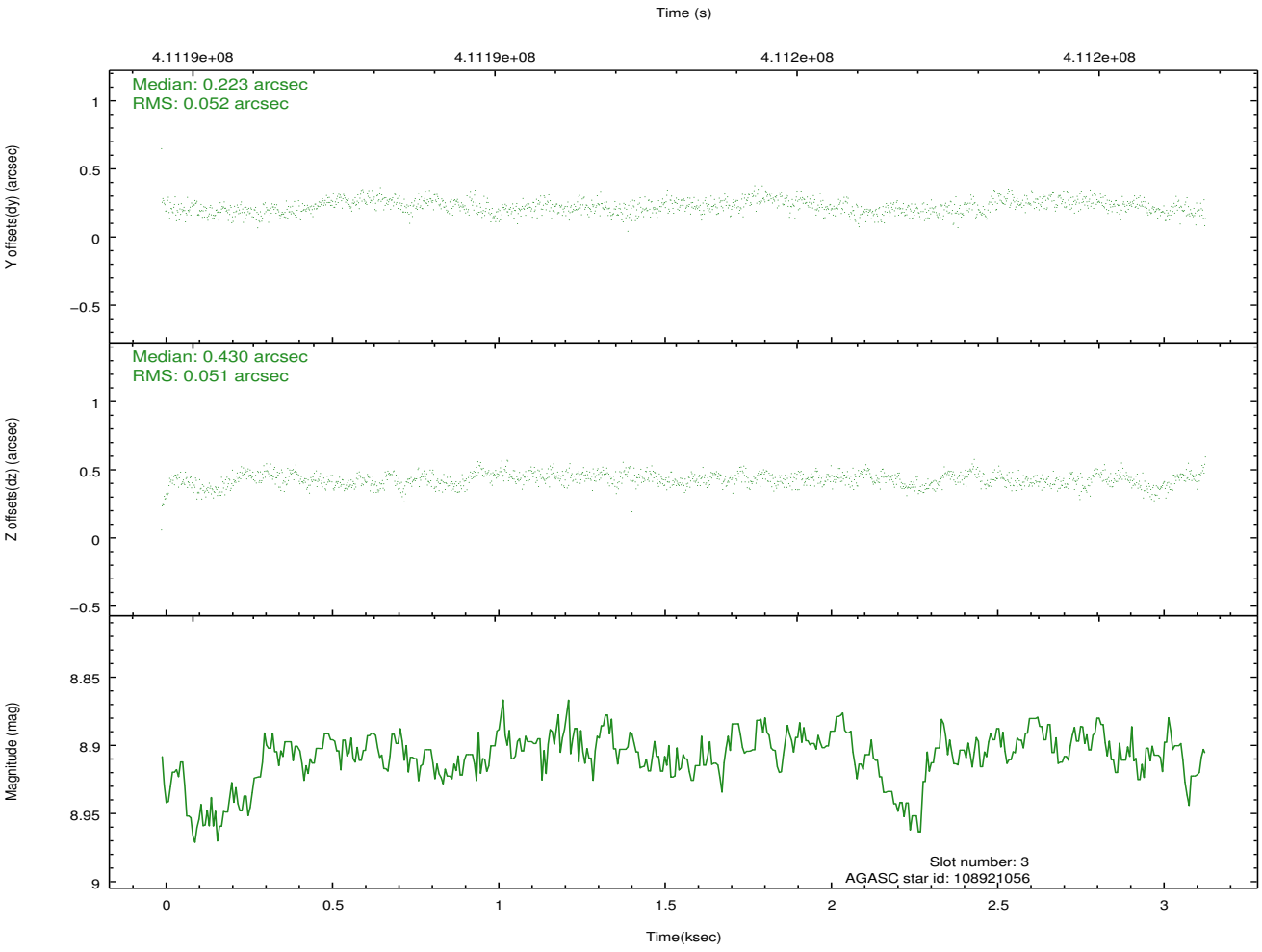
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.90	766	-0.091	-0.048	0.007	0.011	0.000000	0.000000	-771.65	-1740.63
1	FID	ACIS-S-4	6.98	766	0.229	0.057	0.005	0.009	0.000000	0.000000	2141.02	165.83
2	FID	ACIS-S-5	7.01	766	-0.169	-0.000	0.007	0.011	0.000000	0.000000	-1821.96	161.78
3	GUIDE	108921056	8.90	1529	0.223	0.430	0.075	0.122	146.524966	10.064292	-63.26	-537.06
4	GUIDE	108924512	7.16	1532	-0.005	-0.207	0.062	0.105	145.897030	10.518871	518.96	2160.02
5	GUIDE	108925040	8.88	1531	-0.038	0.022	0.080	0.127	146.011922	10.743635	1425.06	2122.25
6	GUIDE	108927488	9.56	1530	0.092	-0.080	0.107	0.174	146.388281	10.581133	1436.34	667.88
7	GUIDE	108930080	7.77	1531	-0.264	-0.174	0.097	0.145	146.251657	10.802296	1964.73	1433.66

2.4 Star Slots

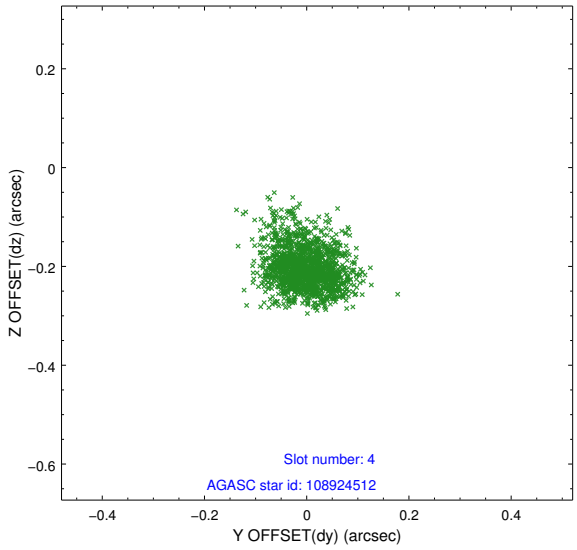
2.4.1 Slot 3

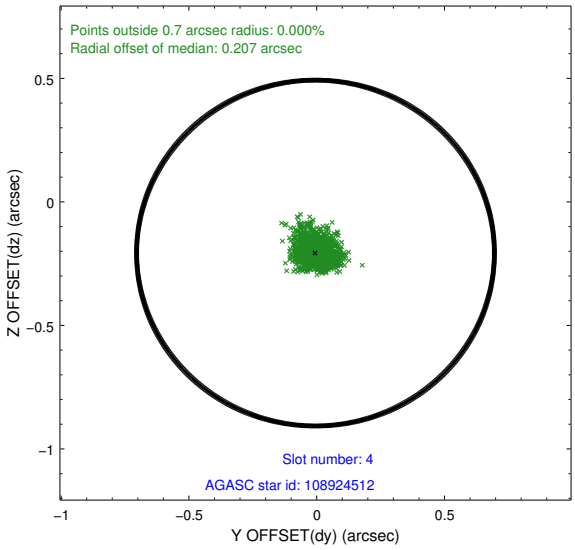


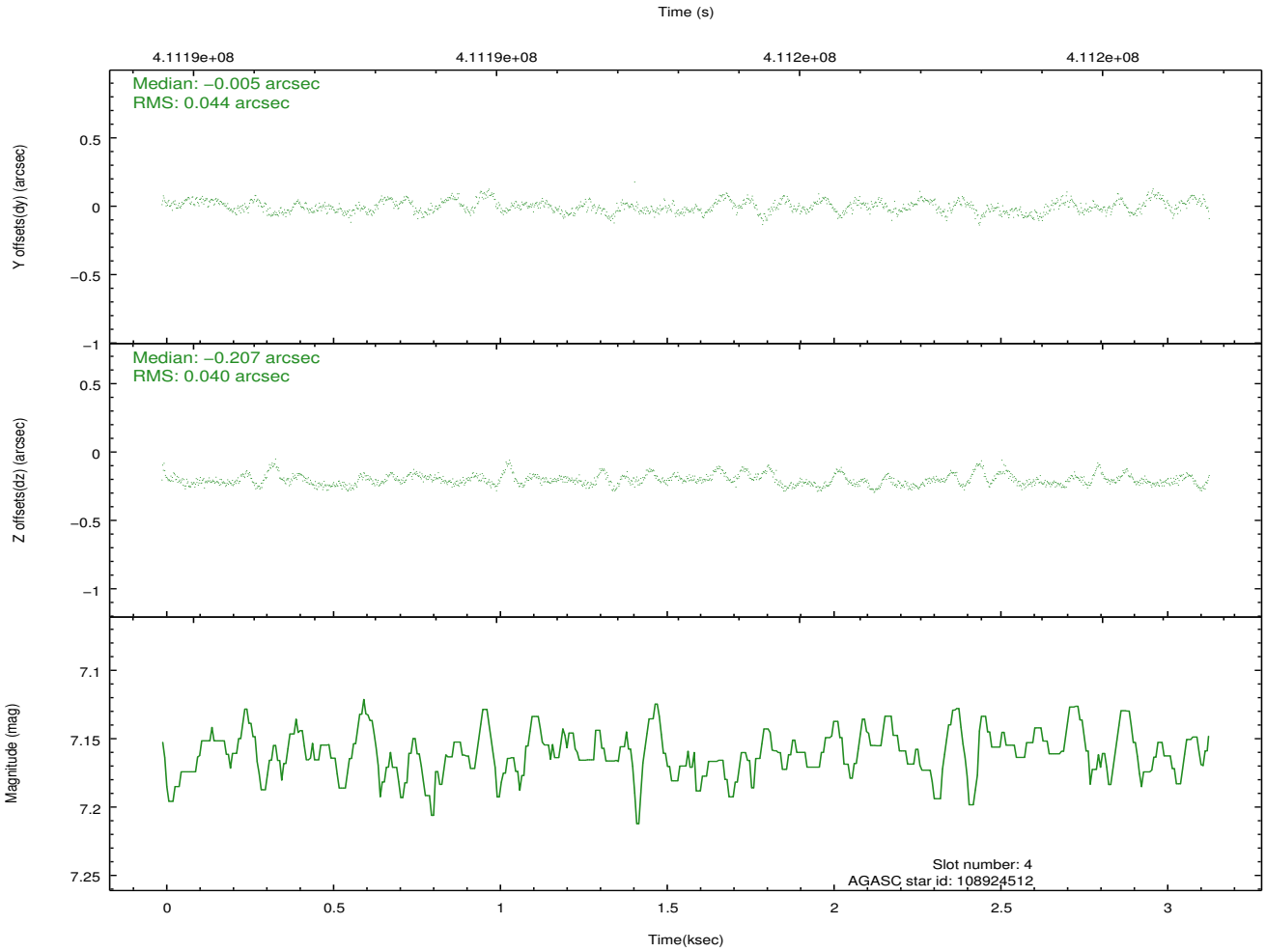




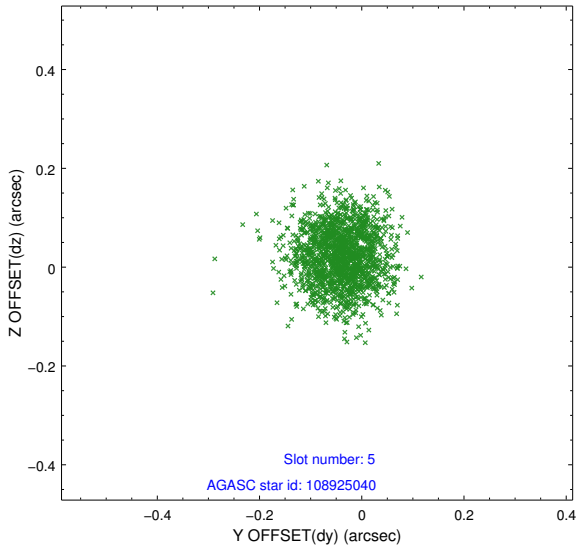
2.4.2 Slot 4

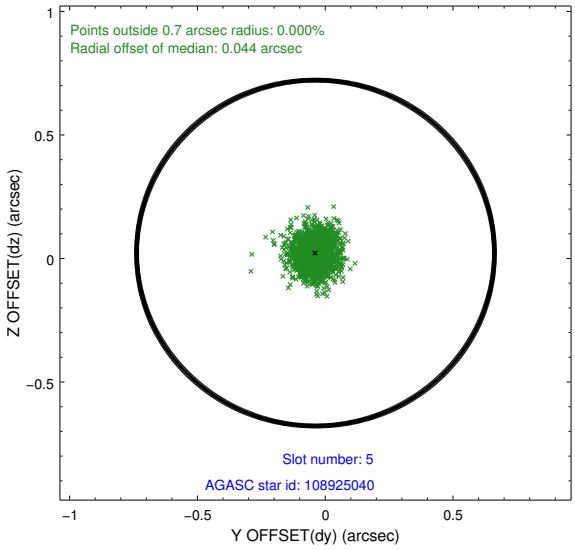

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 108924512

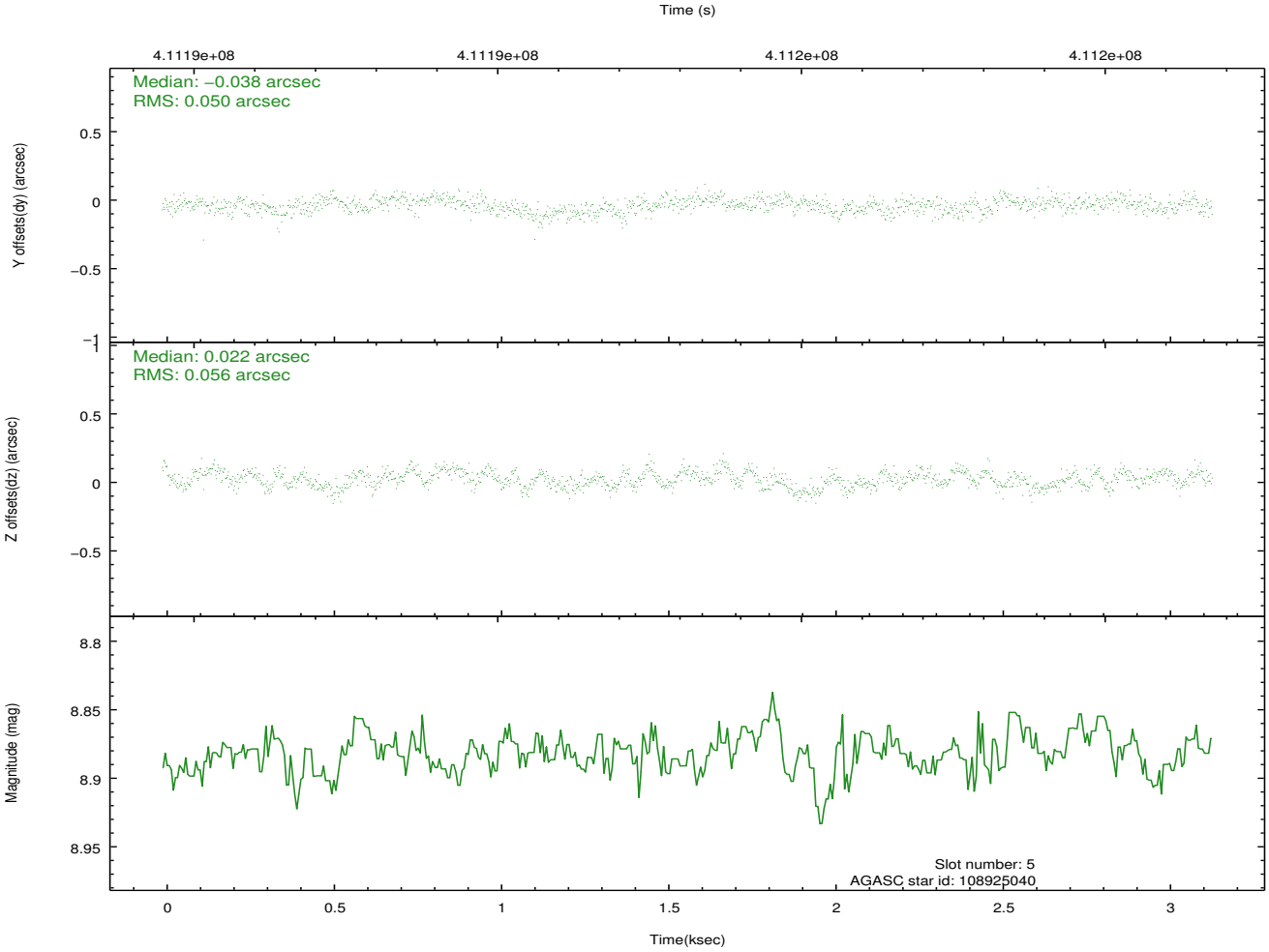

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.207 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 108924512


Time (s)
4.1119e+08
4.1119e+08
4.112e+08
4.112e+08
Median: −0.005 arcsec
RMS: 0.044 arcsec
Y offsets(dy) (arcsec)
Median: −0.207 arcsec
RMS: 0.040 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 108924512
Time(ksec)

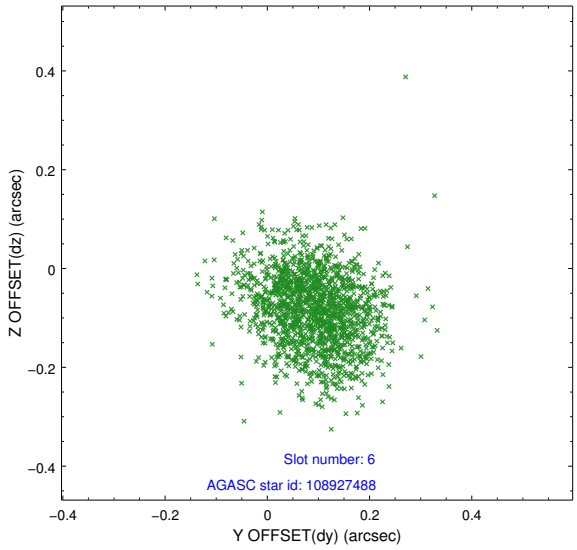
2.4.3 Slot 5

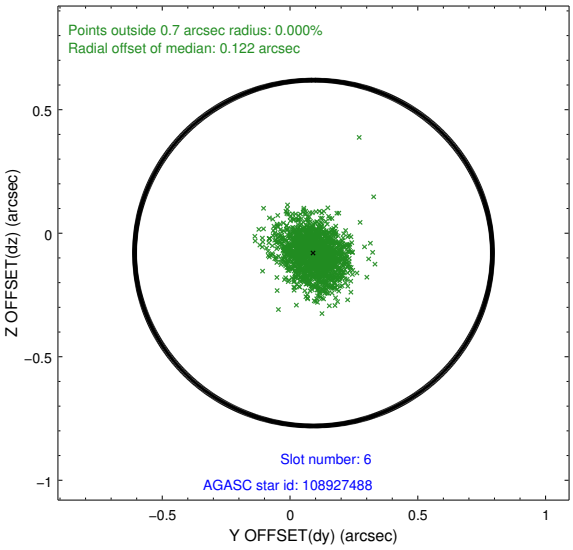

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 108925040

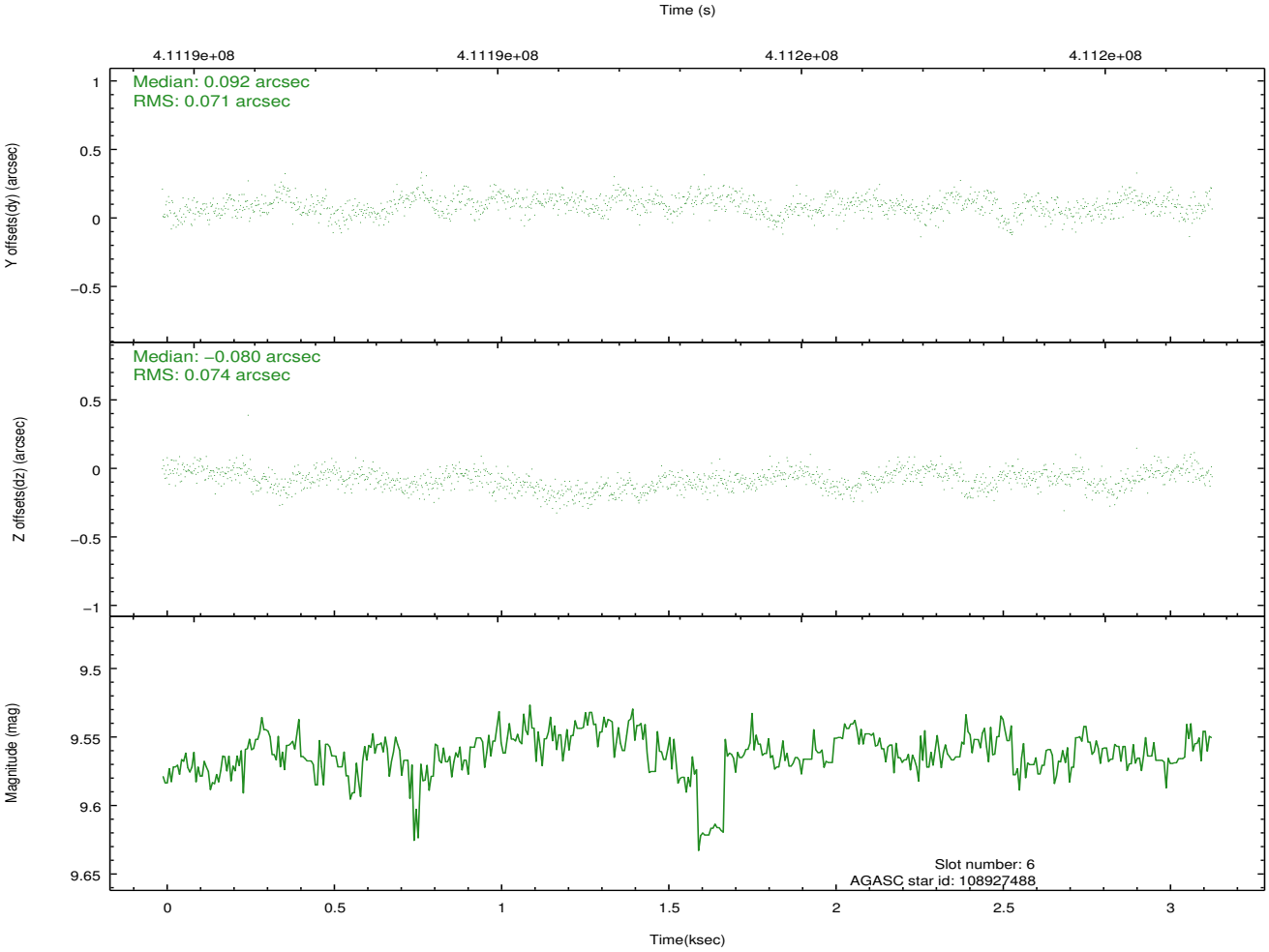

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.044 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 108925040


Time (s)
4.1119e+08
4.1119e+08
4.112e+08
4.112e+08
Median: −0.038 arcsec
RMS: 0.050 arcsec
Y offsets(dy) (arcsec)
Median: 0.022 arcsec
RMS: 0.056 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 108925040
Time(ksec)

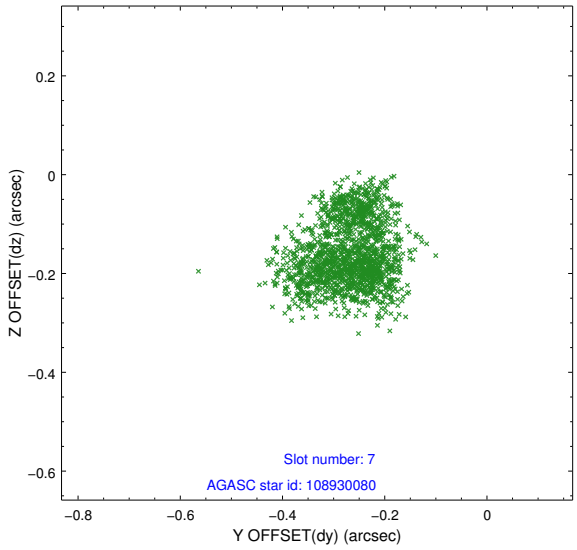
2.4.4 Slot 6

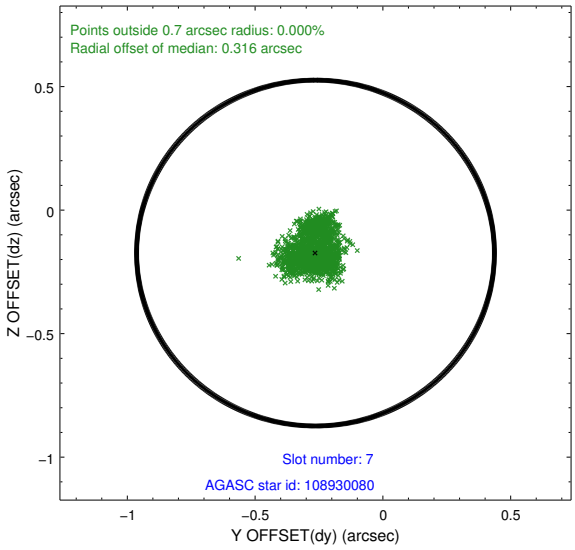

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 108927488

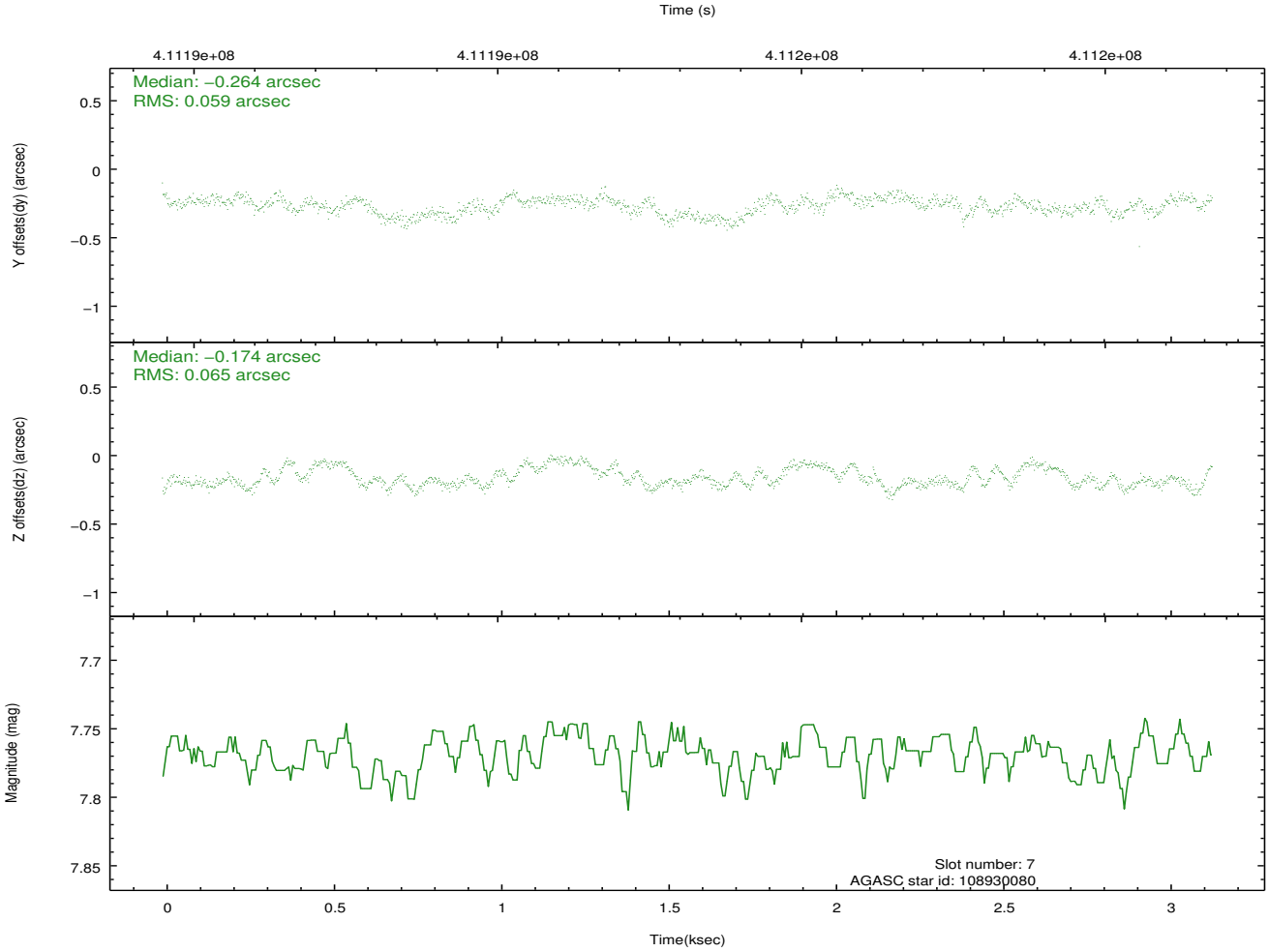

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.122 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 108927488


Time (s)
4.1119e+08
4.1119e+08
4.112e+08
4.112e+08
Median: 0.092 arcsec
RMS: 0.071 arcsec
Y offsets(dy) (arcsec)
Median: −0.080 arcsec
RMS: 0.074 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 108927488
Time(ksec)

2.4.5 Slot 7

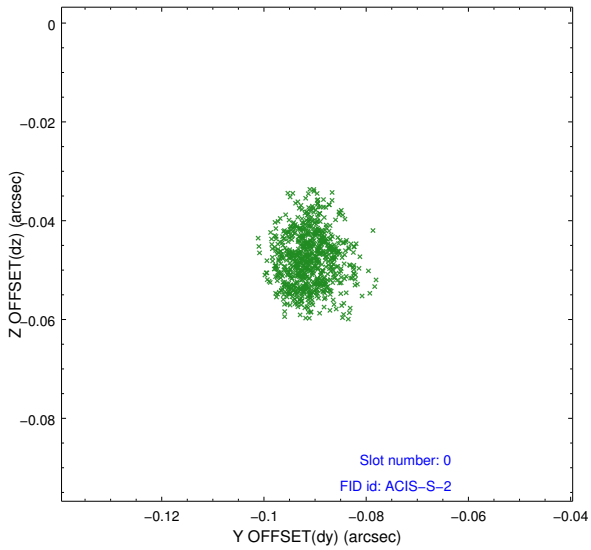

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 108930080

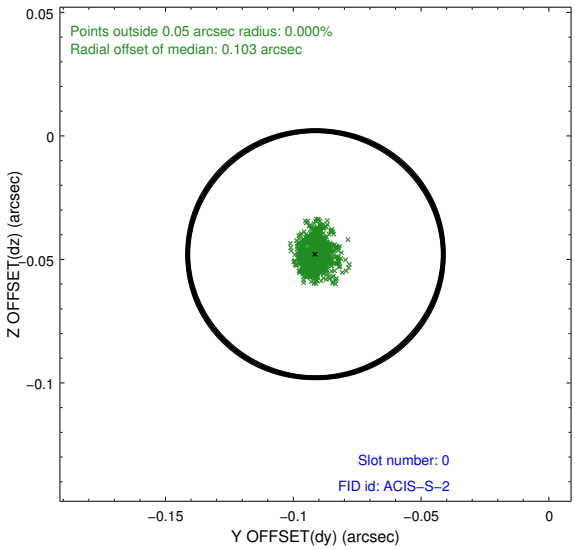

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.316 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 108930080

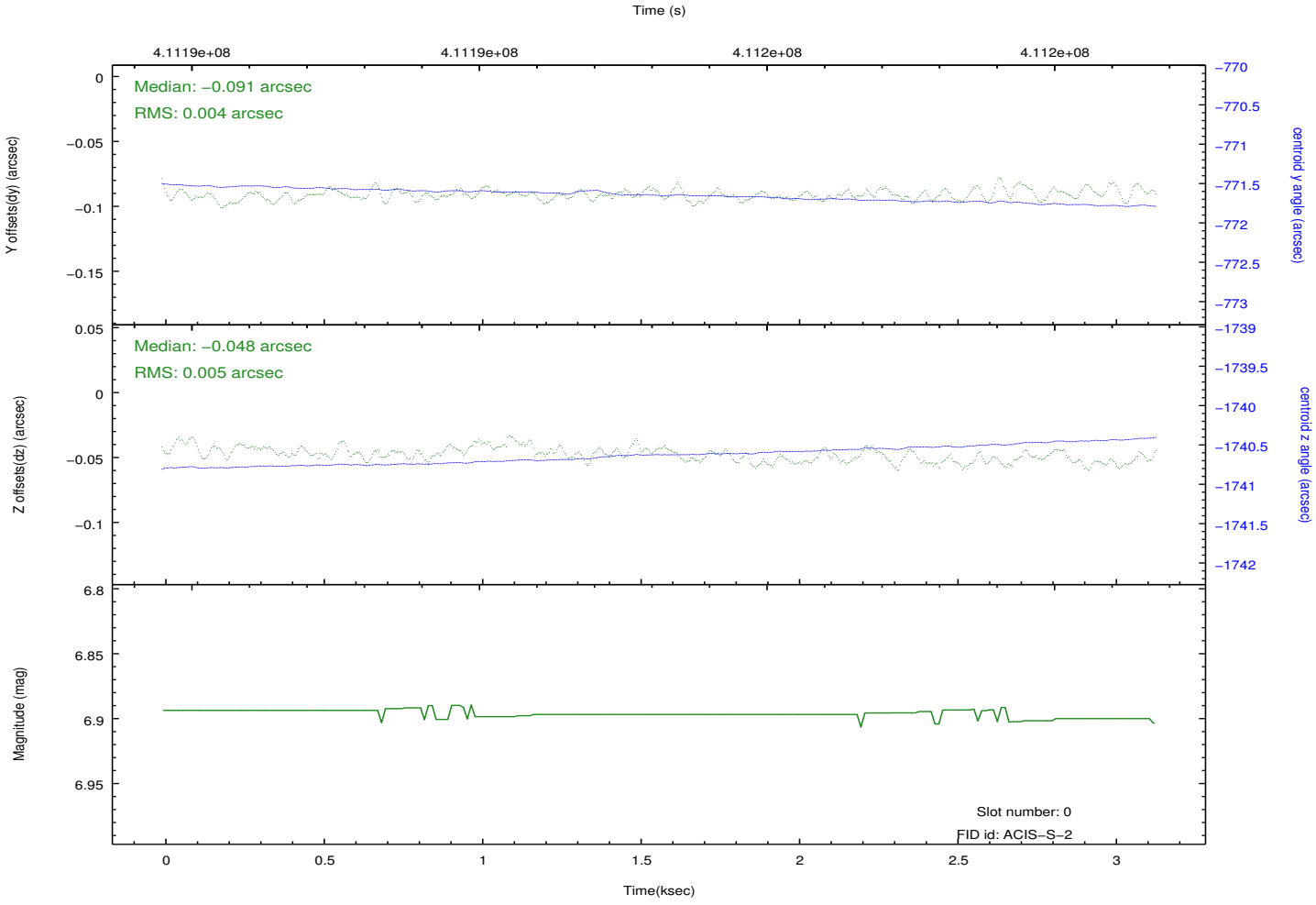

Time (s)
4.1119e+08
4.1119e+08
4.112e+08
4.112e+08
Median: −0.264 arcsec
RMS: 0.059 arcsec
Y offsets(dy) (arcsec)
Median: −0.174 arcsec
RMS: 0.065 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 108930080
Time(ksec)

2.5 FID Slots

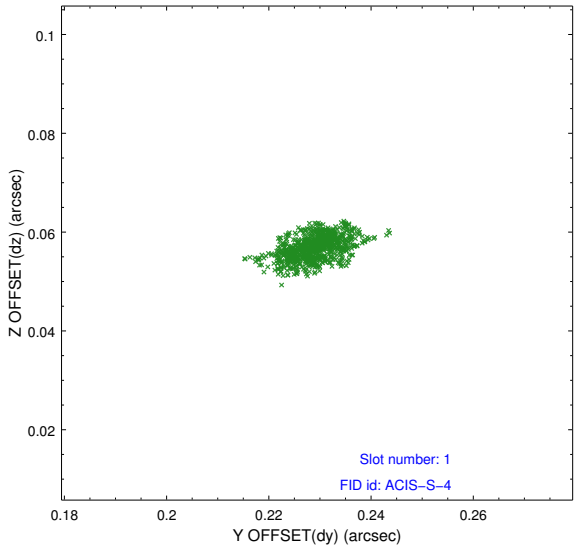
2.5.1 Slot 0

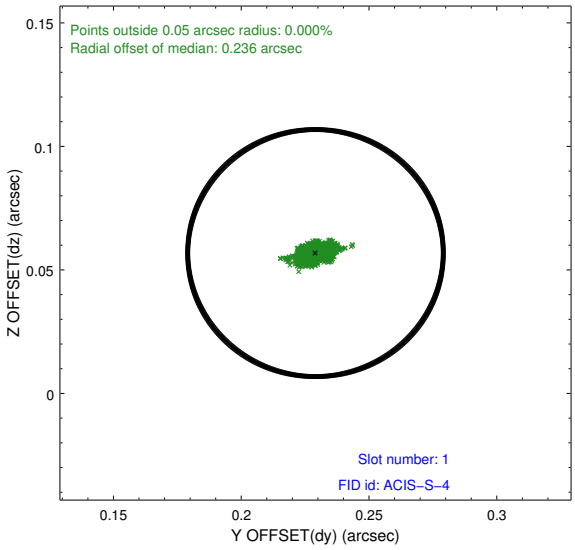


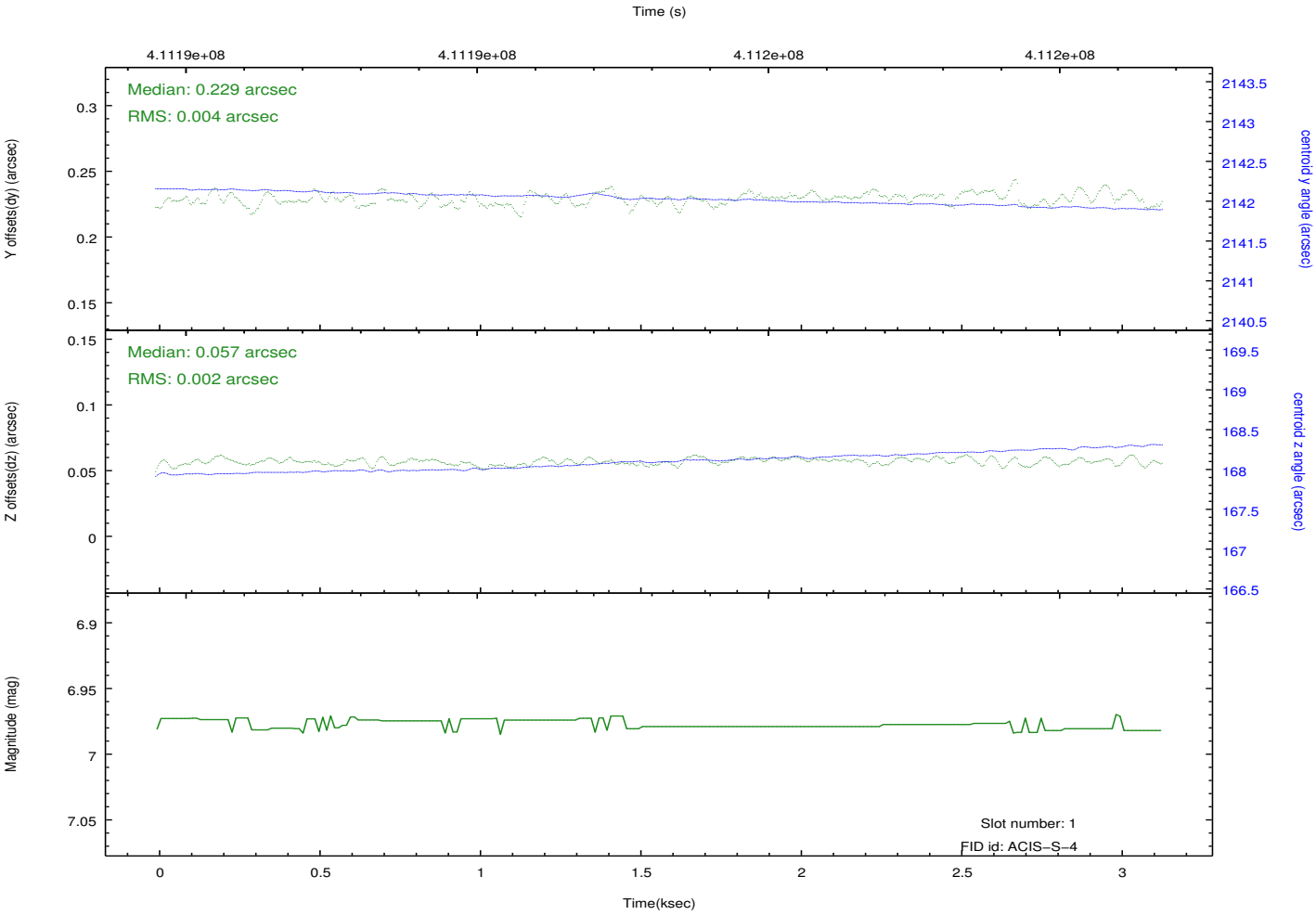




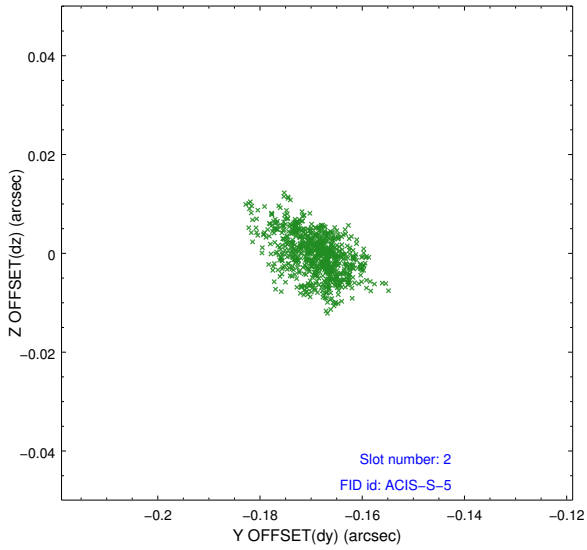
2.5.2 Slot 1

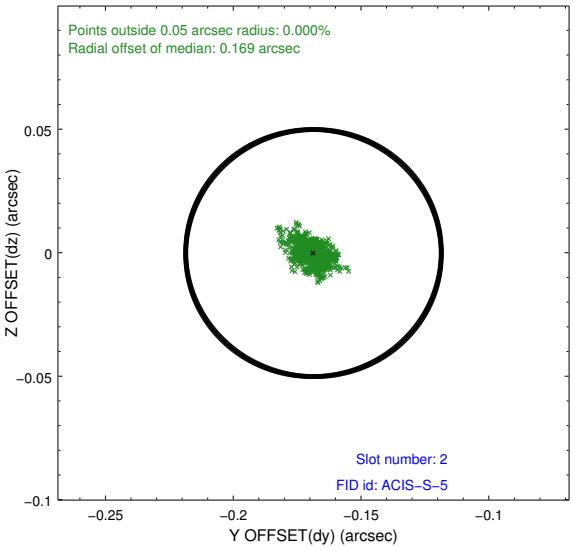

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

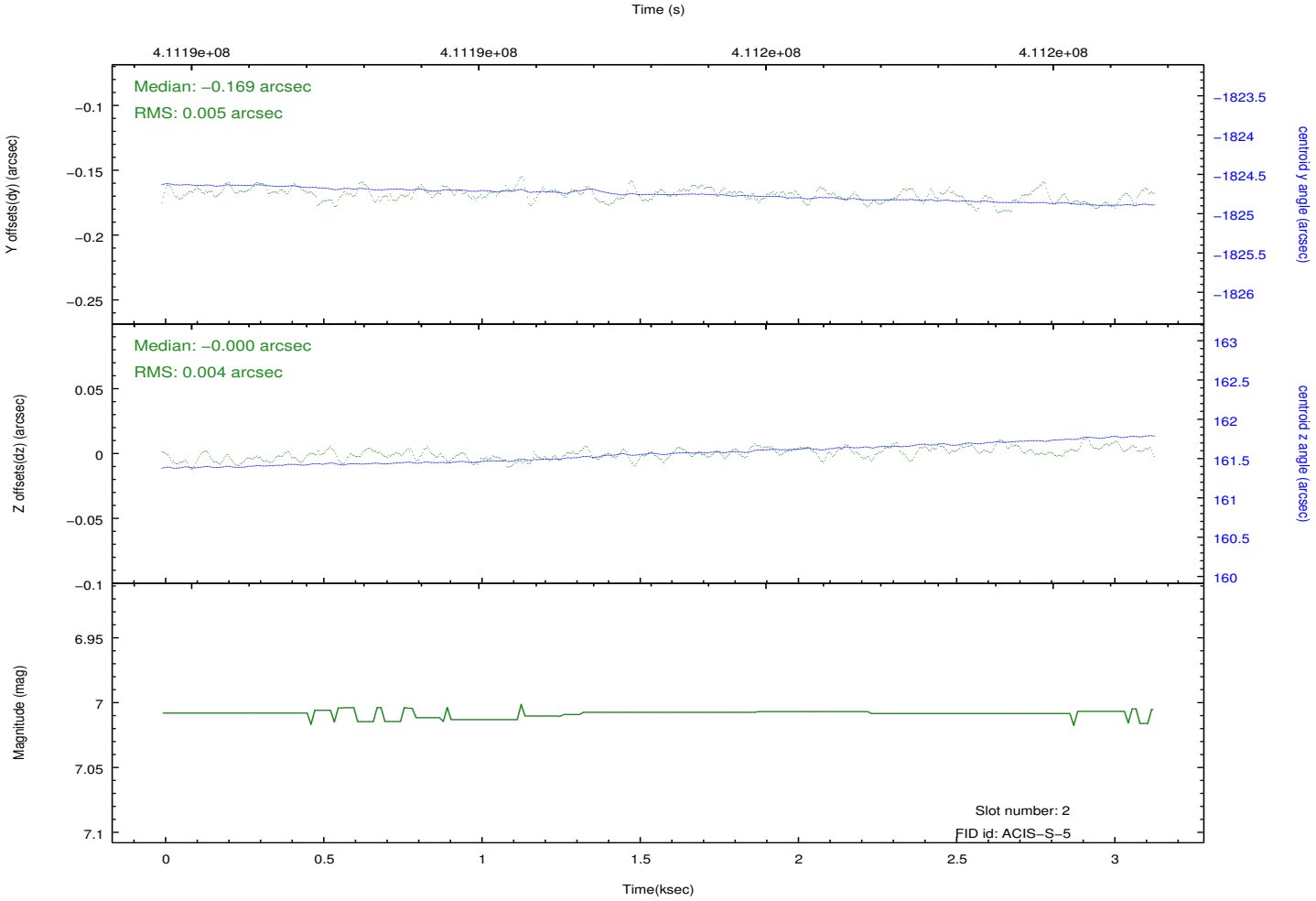

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.236 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.229 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.057 arcsec
RMS: 0.002 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: 0.169 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.169 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.000 arcsec
RMS: 0.004 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	David Huenemoerder
V&V Date (YYYY-MM-DD)	2012.02.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	3.0960000204444

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.