V&V Reference Report
L2 ASCDS Version : 10.1.1

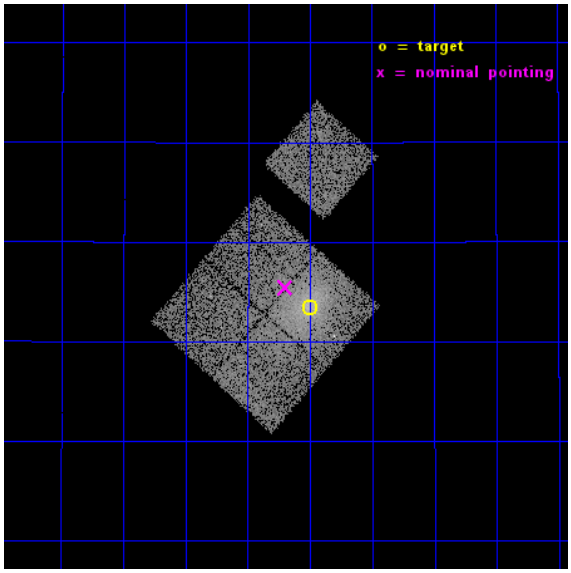
Observation 15305 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Dec 9 2014

Contents

1 Front

seq_num	801338	Sequence number
obs_id	15305	Observation id
title	Characterizing the Most Massive Clusters in the z	Proposal title
observer	Dr Stephen Murray	Principal investigator
object	G049.33+44.38	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	245.125833	Observer's specified target RA [deg]
dec_targ	29.889667	Observer's specified target Dec [deg]
ra_nom	245.17436621095	Nominal RA [deg]
dec_nom	29.92414455664	Nominal Dec [deg]
roll_nom	41.357360071836	Nominal Roll [deg]
revision	2	Processing version of data
ontime	12085.67338872	Sum of GTIs [s]
livetime	11927.765168553	Livetime [s]
ontime0	12079.268248081	Sum of GTIs [s]
ontime1	12085.591308713	Sum of GTIs [s]
ontime2	12082.491348326	Sum of GTIs [s]
ontime3	12085.67338872	Sum of GTIs [s]
ontime6	12079.227248073	Sum of GTIs [s]
l2events	39532	Number of level 2 events

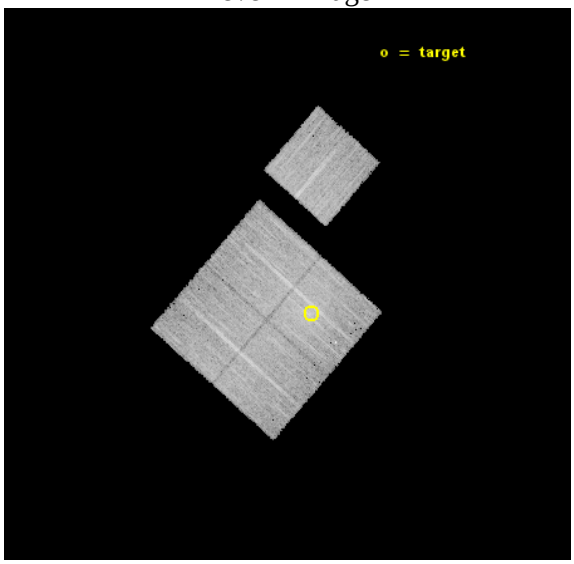


2 OBI

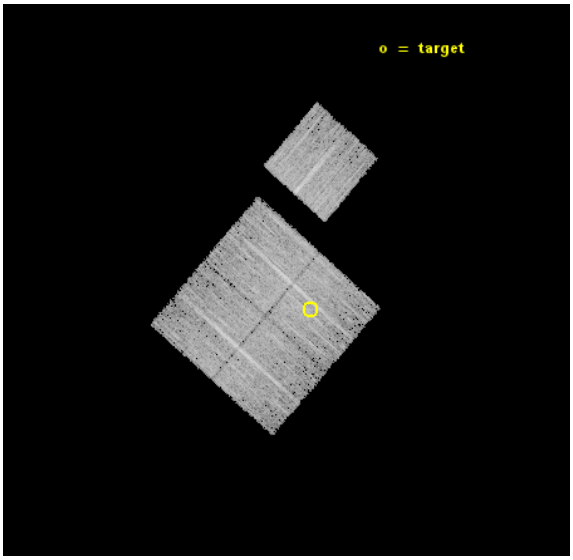
2.1 OBI

2.1.1 Images

Level 1 Image

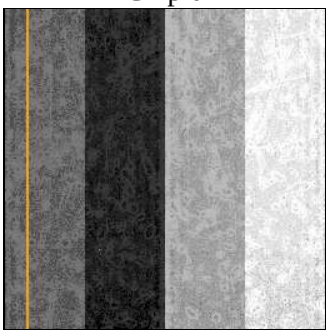


Level 1 Bad Events

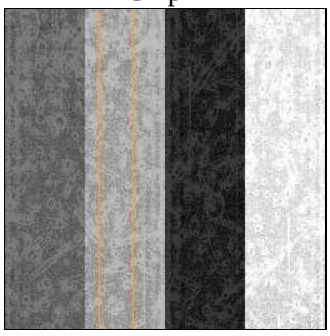


2.1.2 Bias

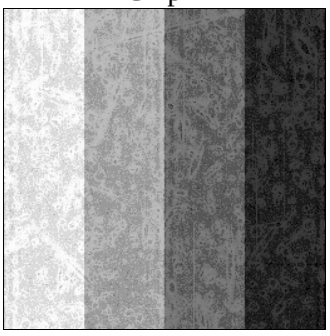
Chip 0



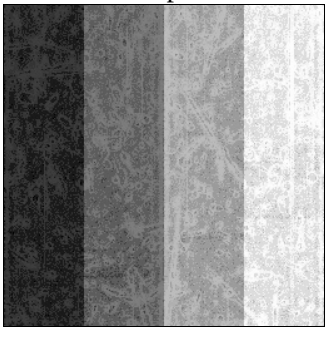
Chip 1



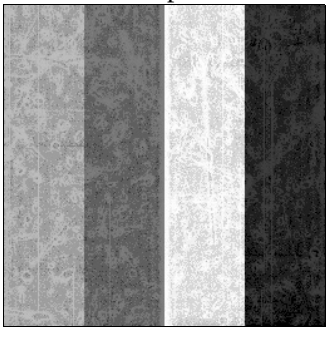
Chip 2



Chip 3



Chip 6



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.3.1	Processing system revision
caldbver	4.6.4	
date	2014-12-09T21:48:09	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	12000.000000	[s] Scheduled observation exposure time
ontime	12085.67338872	Sum of GTIs [s]
ontime0	12079.268248081	Sum of GTIs [s]
ontime1	12085.591308713	Sum of GTIs [s]
ontime2	12082.491348326	Sum of GTIs [s]
ontime3	12085.67338872	Sum of GTIs [s]
ontime6	12079.227248073	Sum of GTIs [s]
l1events	284356	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
level 1 events	51911	53037	59113	63196	57099
rejected events	44849	44455	51448	48440	49960
rejected %	86%	83%	87%	76%	87%

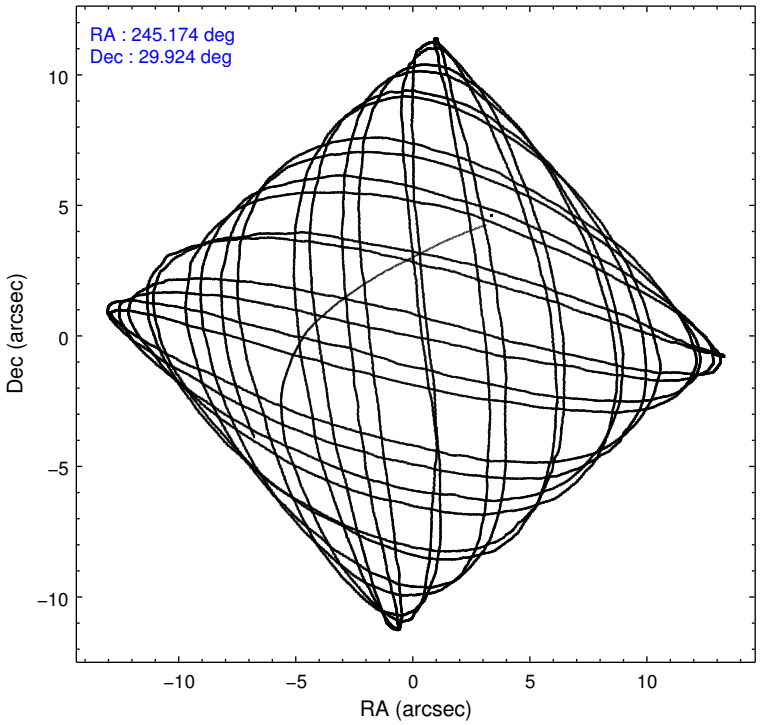
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
grade 0 events	2476	3398	3139	9034	2445
	4%	6%	5%	14%	4%
grade 1 events	27	41	34	47	24
	0%	0%	0%	0%	0%
grade 2 events	1762	1967	1686	2260	1561
	3%	3%	2%	3%	2%
grade 3 events	742	730	721	921	741
	1%	1%	1%	1%	1%
grade 4 events	676	738	720	974	719
	1%	1%	1%	1%	1%
grade 5 events	2807	3034	2623	3182	2983
	5%	5%	4%	5%	5%
grade 6 events	1413	1753	1403	1573	1676
	2%	3%	2%	2%	2%
grade 7 events	42008	41376	48787	45205	46950
	80%	78%	82%	71%	82%

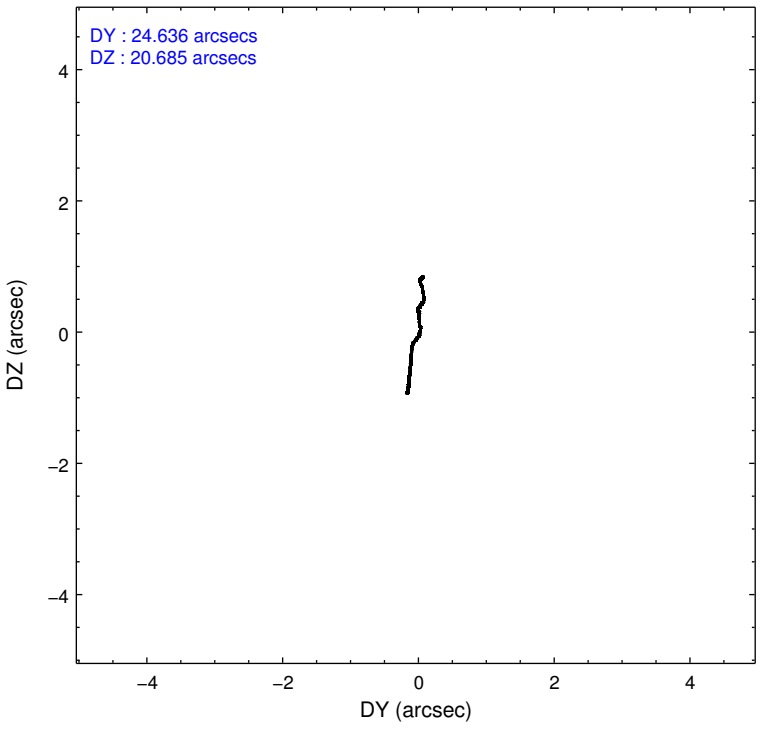
2.2 Compared Parameters

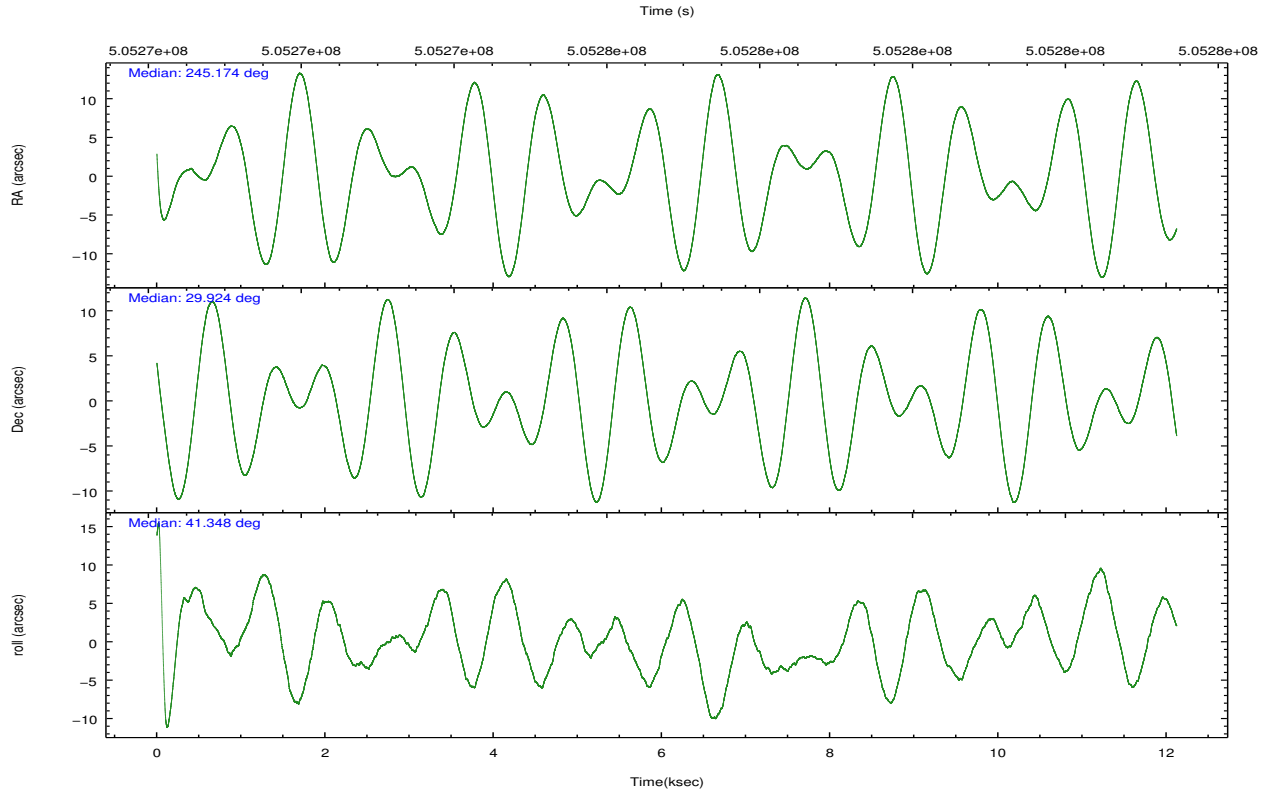
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-01236	ACIS-01236
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	245.164358	245.1743662109469
[deg] Pointing Dec	29.898057	29.9241445566402
[deg] Pointing Roll	41.153629	41.35736007183581
[mm] SIM focus pos	-0.782348	-0.7809083437167272
[mm] SIM defocus	0	0.001439871863259334
[mm] SIM translation stage pos	-225.840463	-225.8458576473255
[mm] SIM translation stage offset	-7.752	-7.746595355604228
[s] Observation start time (MET)	505270846.184000	505269635.57562
Observation start date	2014-01-05T00:59:39	2014-01-05T00:40:35
[s] Observation end time (MET)	505282846.184000	505284291.02643
Observation end date	2014-01-05T04:19:39	2014-01-05T04:44:51
Read mode	TIMED	TIMED

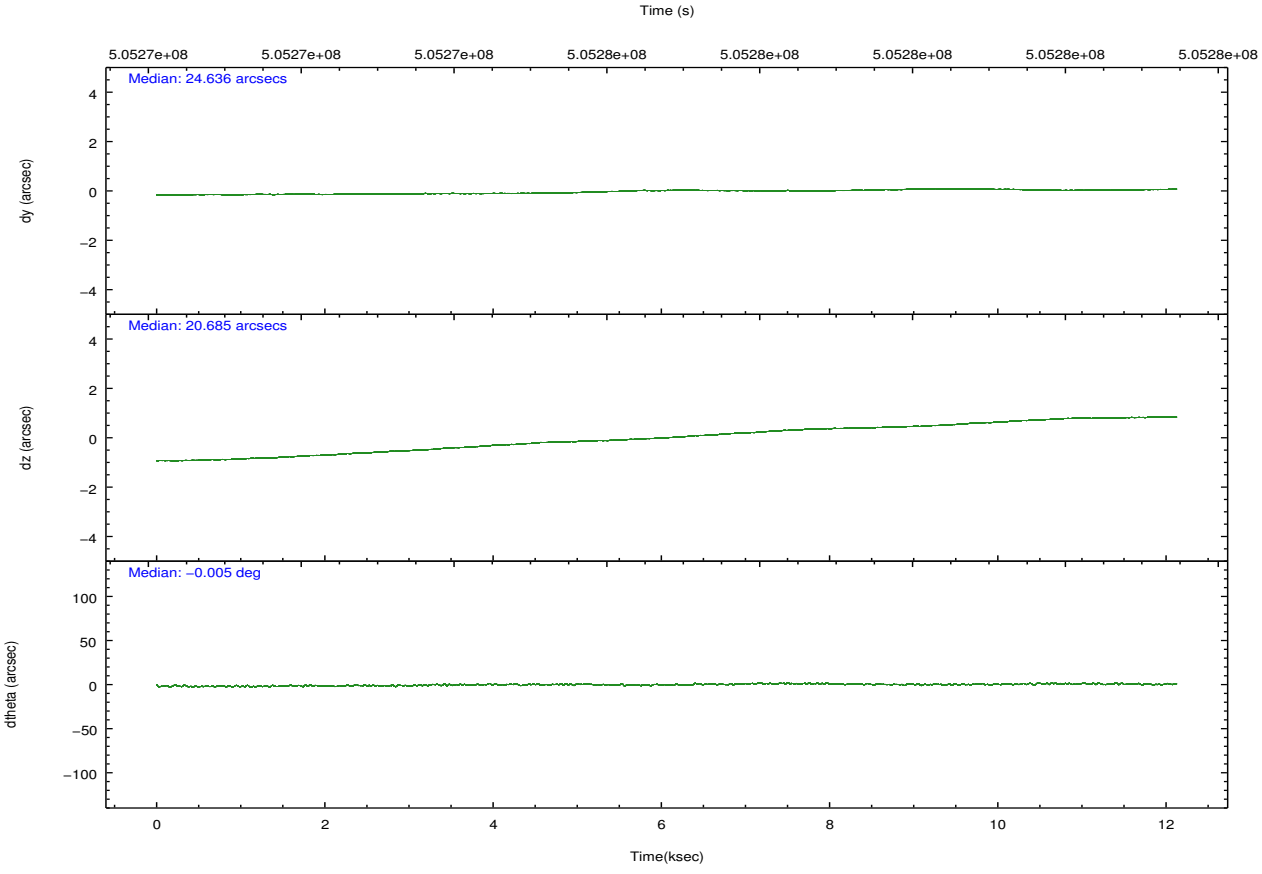
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	Y	Y
CCD I1 on	Y	Y
CCD I2 on	Y	Y
CCD I3 on	Y	Y
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	O1	Y
CCD S3 on	N	N
CCD S4 on	N	N
CCD S5 on	N	N
Number of optional ACIS chips dropped	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 : 245.174 deg
Dec : 29.924 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 24.636 arcsecs
DZ : 20.685 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
5.0527e+08
5.0527e+08
5.0527e+08
5.0528e+08
5.0528e+08
5.0528e+08
5.0528e+08
5.0528e+08
Median: 245.174 deg
RA (arcsec)
Median: 29.924 deg
Dec (arcsec)
Median: 41.348 deg
roll (arcsec)
Time(ksec)

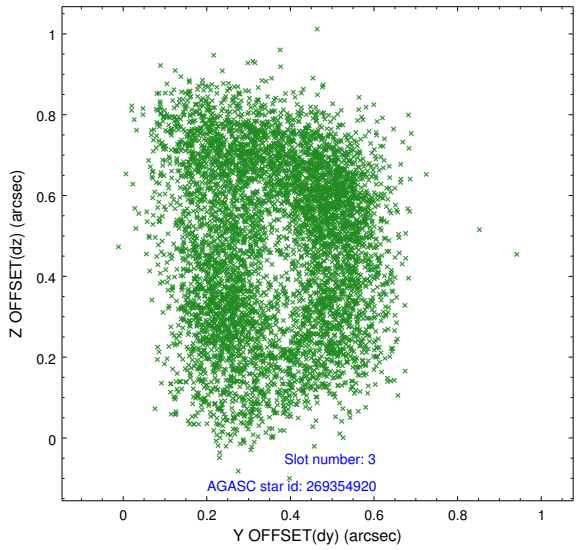

Time (s)
5.0527e+08
5.0527e+08
5.0527e+08
5.0528e+08
5.0528e+08
5.0528e+08
5.0528e+08
5.0528e+08
Median: 24.636 arcsecs
dy (arcsec)
Median: 20.685 arcsecs
dz (arcsec)
Median: −0.005 deg
dtheta (arcsec)
Time(ksec)

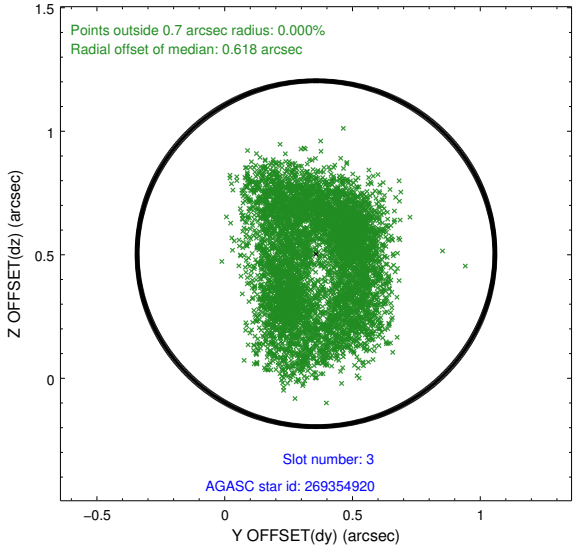
Slot Statistics

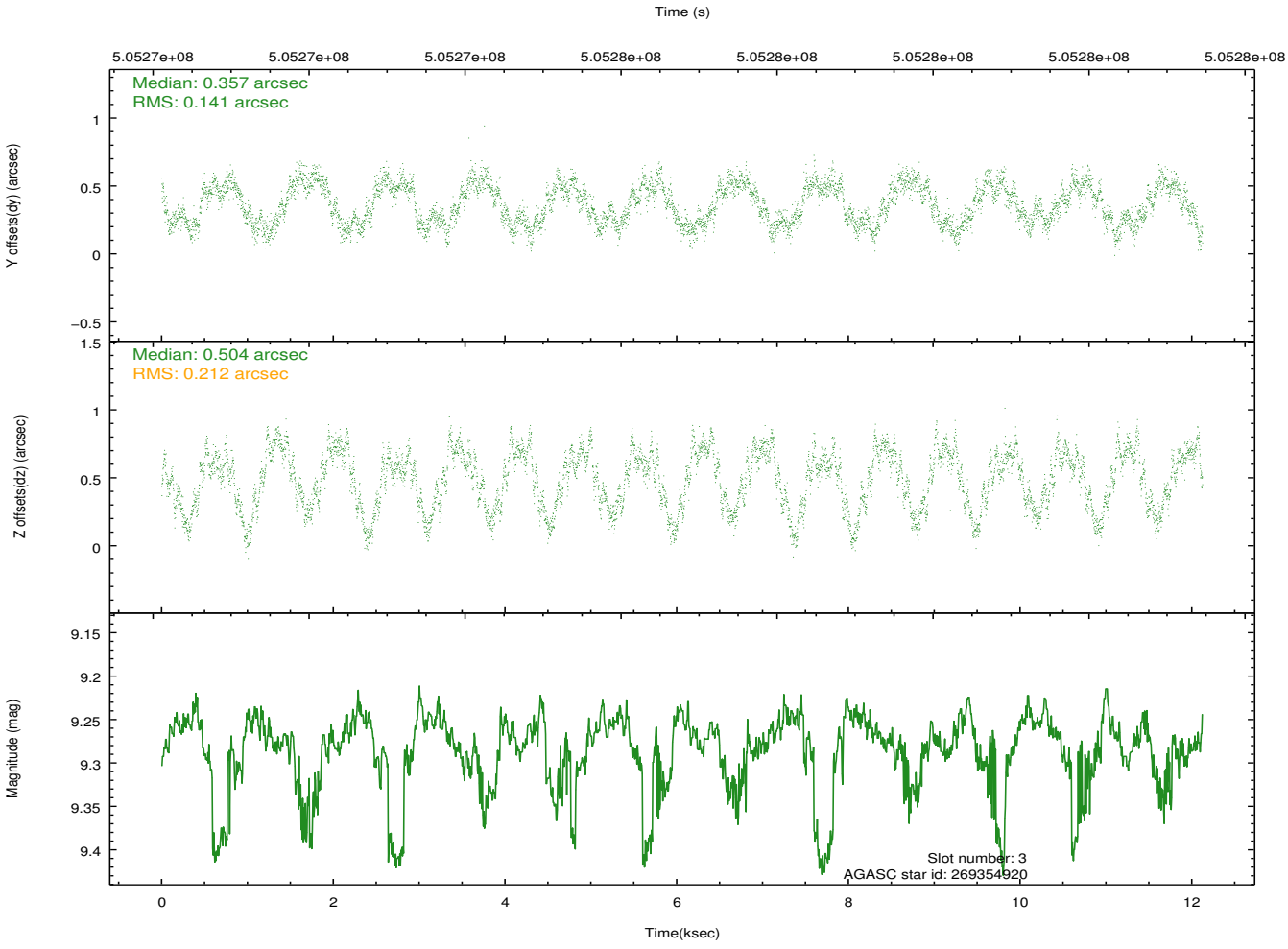
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.14	2956	0.069	-0.132	0.023	0.046	0.000000	0.000000	914.57	-1003.53
1	FID		ACIS-I-4	7.03	2957	0.233	0.082	0.015	0.026	0.000000	0.000000	2134.47	897.24
2	FID		ACIS-I-5	7.13	2957	-0.399	0.121	0.012	0.021	0.000000	0.000000	-1833.46	894.44
3	GUIDE	used	269354920	9.28	5911	0.357	0.504	0.272	0.411	245.289727	29.523415	-590.82	-1273.10
4	GUIDE	used	269361128	8.86	5914	-0.045	0.253	0.140	0.208	245.711822	29.831818	1133.74	-1301.26
5	GUIDE	used	338167568	8.92	5912	-0.071	-0.101	0.156	0.242	244.905272	30.231000	182.88	1433.27
6	GUIDE	used	338168432	9.16	5911	0.005	-0.269	0.145	0.211	245.396298	30.350910	1616.00	753.31
7	GUIDE	used	338174224	8.36	5911	-0.250	-0.398	0.110	0.171	245.105599	30.509619	1311.26	1778.77

2.4 Star Slots

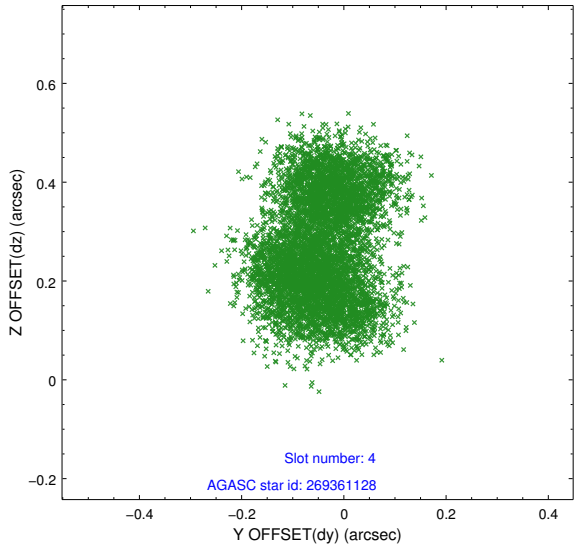
2.4.1 Slot 3

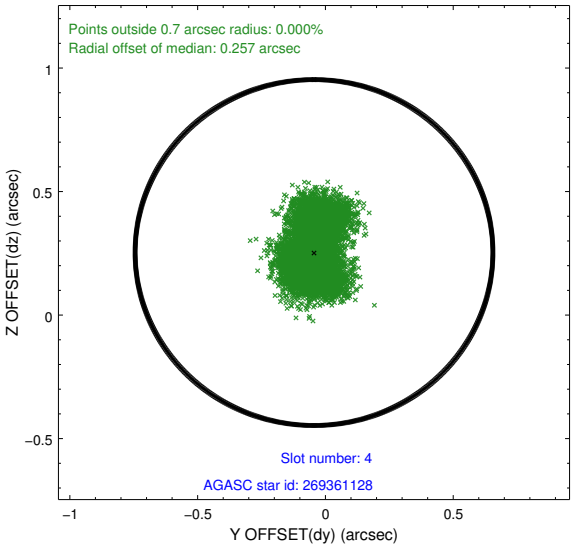


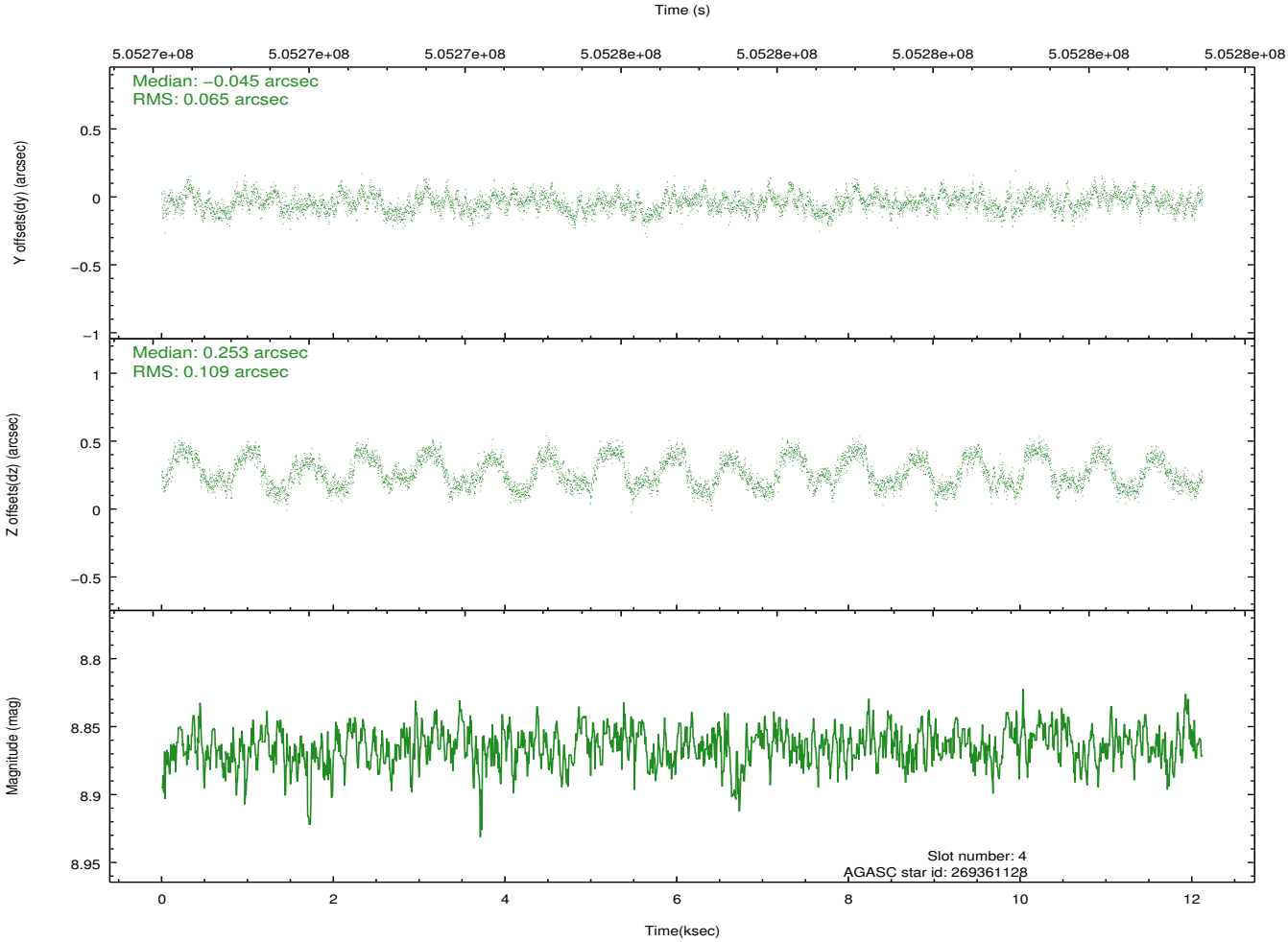




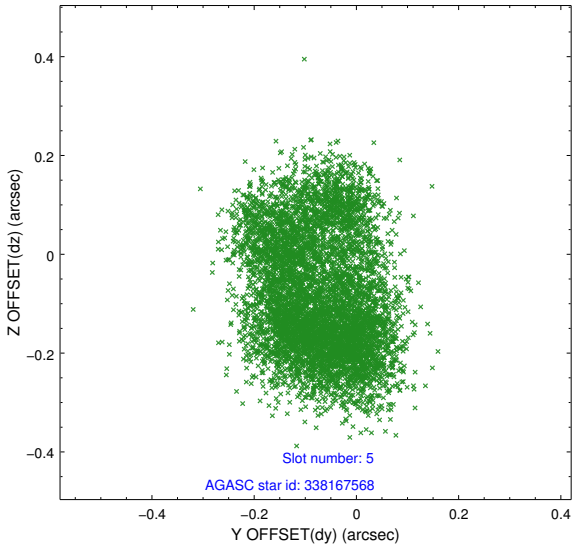
2.4.2 Slot 4

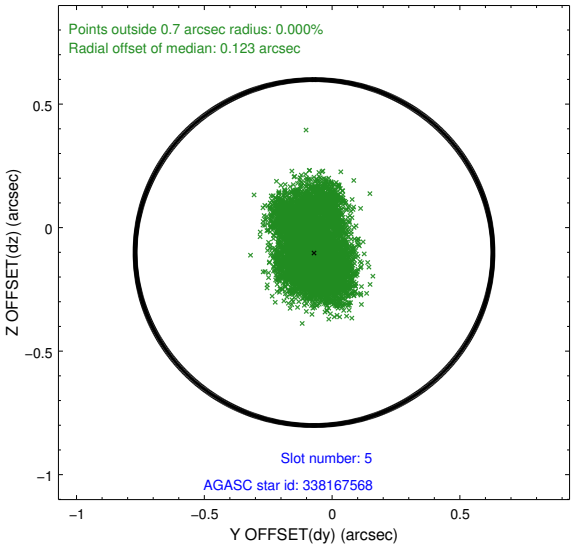

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 269361128

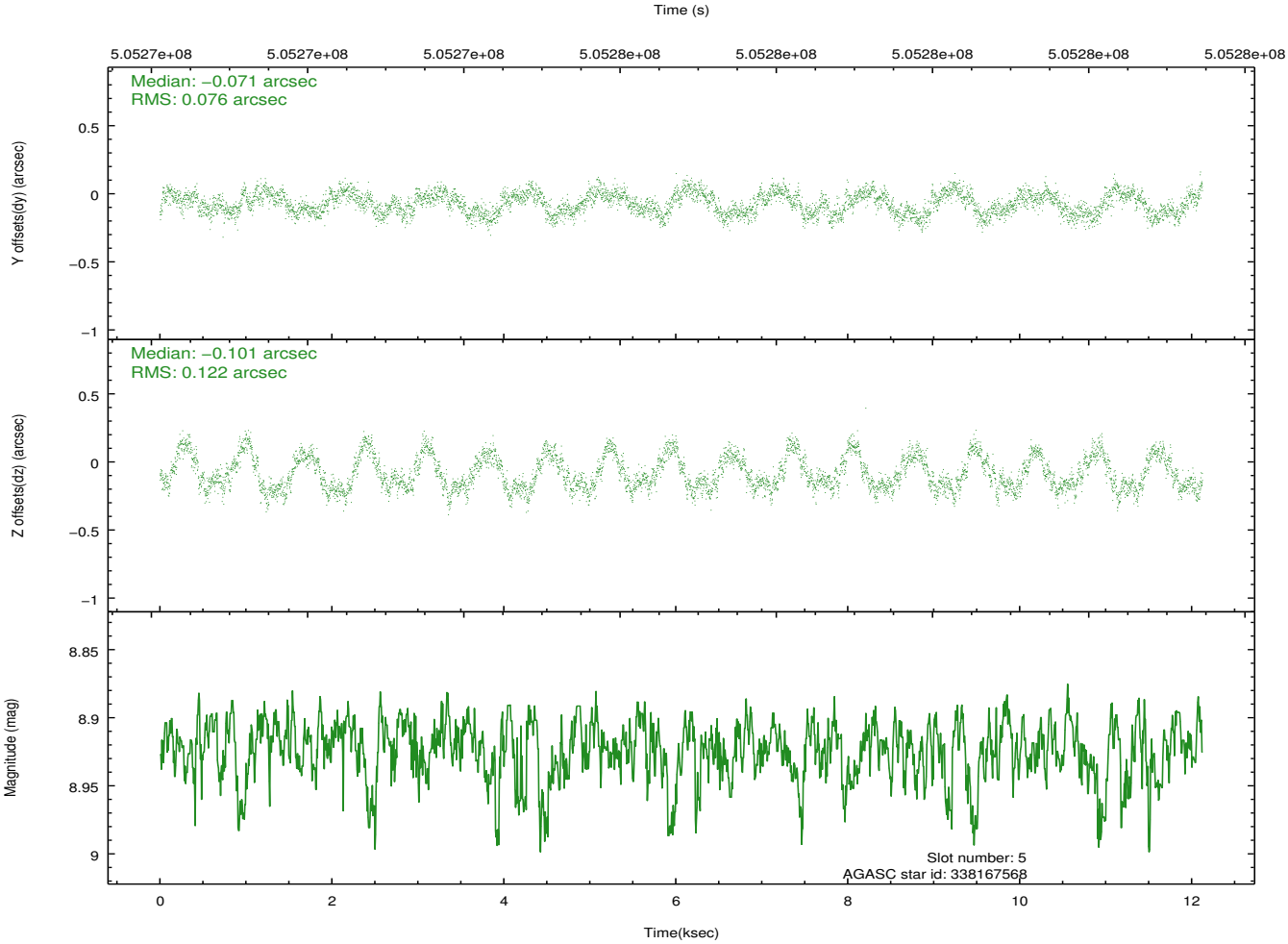

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.257 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 269361128


Time (s)
Median: −0.045 arcsec
RMS: 0.065 arcsec
Y offsets(dy) (arcsec)
Median: 0.253 arcsec
RMS: 0.109 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 269361128
Time(ksec)

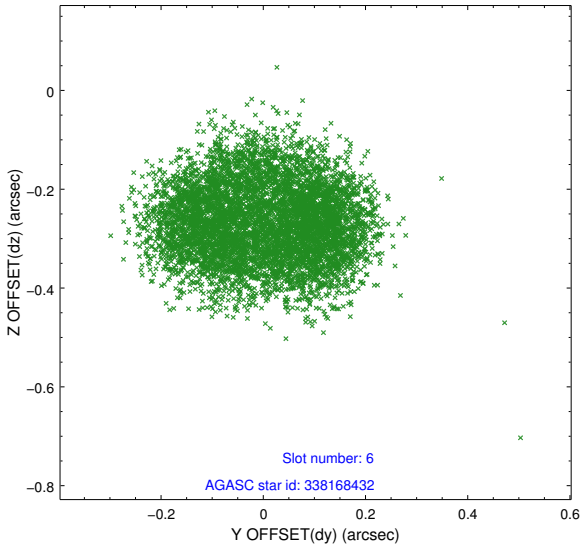
2.4.3 Slot 5

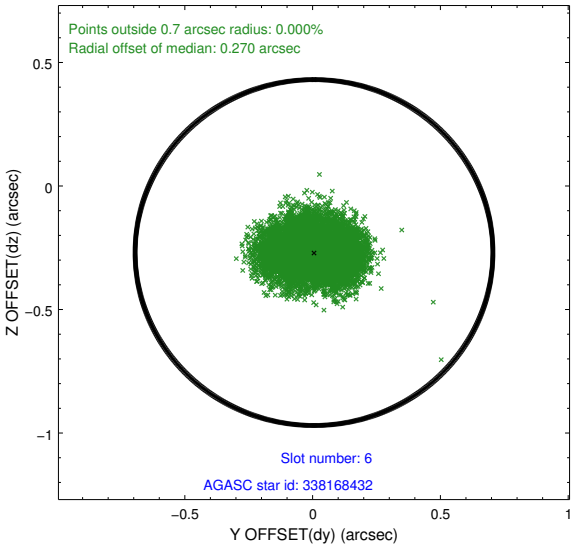

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 338167568

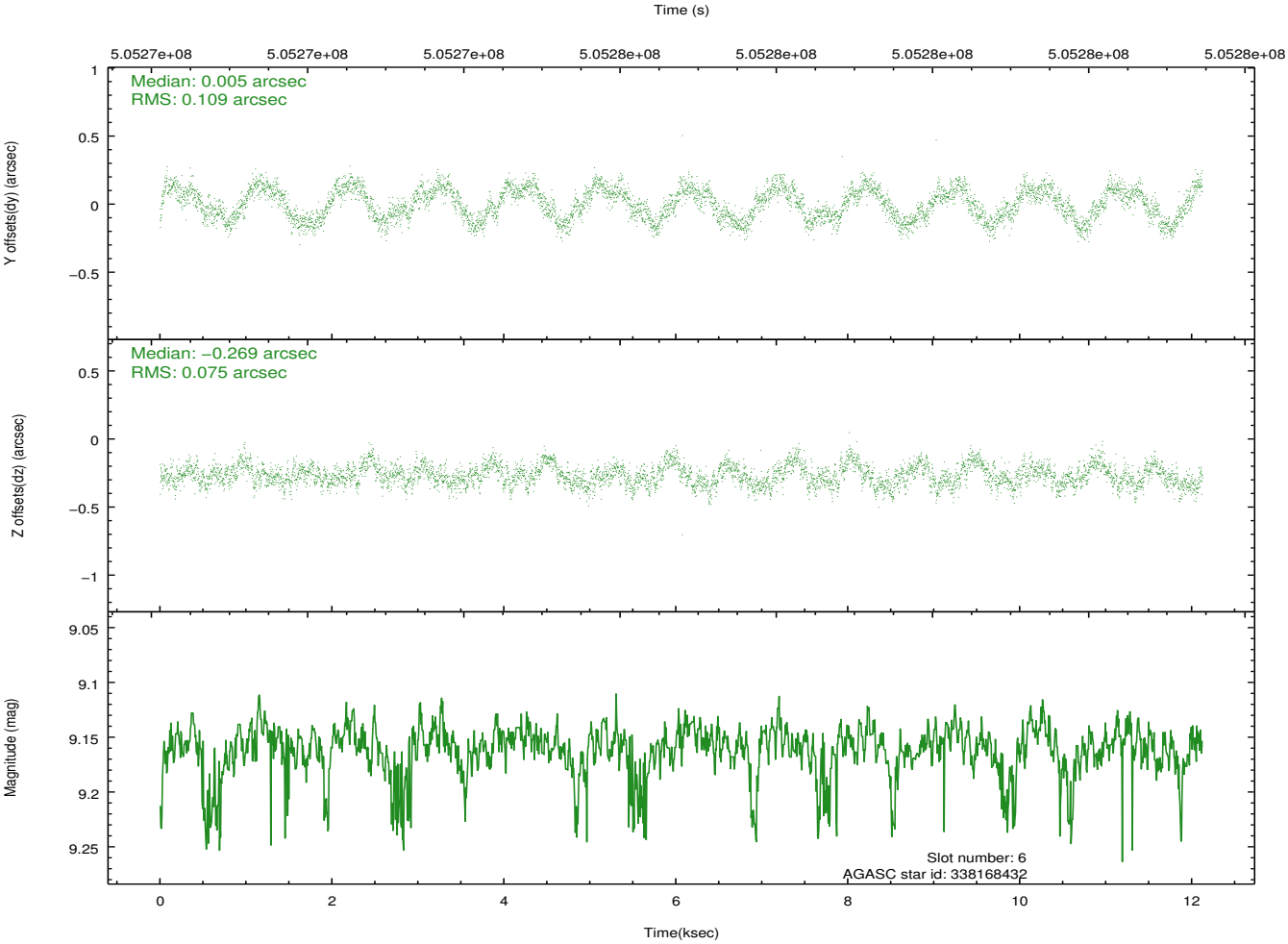

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.123 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 338167568


Time (s)
Median: −0.071 arcsec
RMS: 0.076 arcsec
Y offsets(dy) (arcsec)
Median: −0.101 arcsec
RMS: 0.122 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 338167568
Time(ksec)

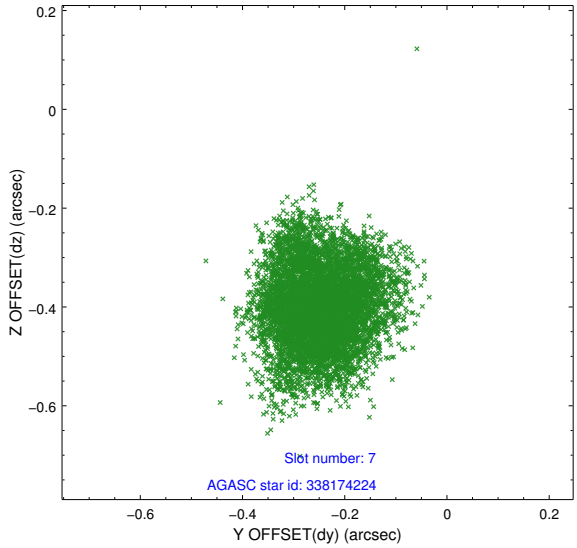
2.4.4 Slot 6

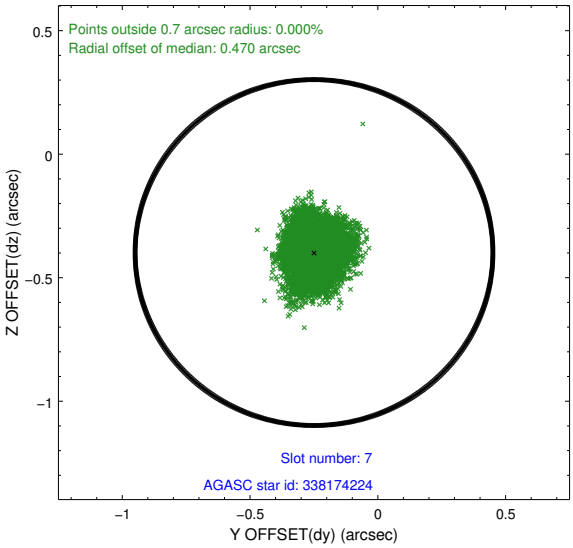

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 338168432

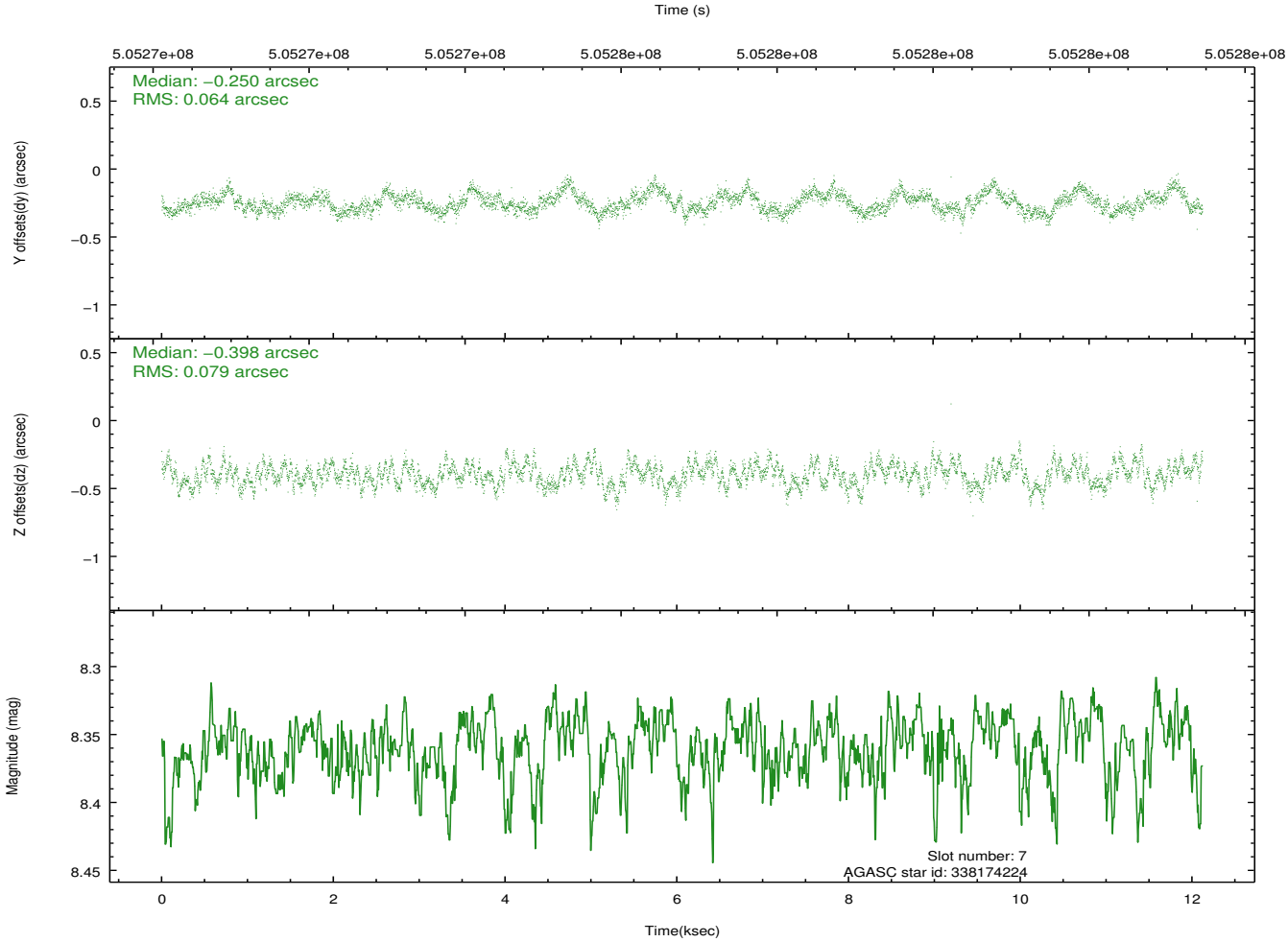

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.270 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 338168432


Time (s)
Median: 0.005 arcsec
RMS: 0.109 arcsec
Y offsets(dy) (arcsec)
Median: −0.269 arcsec
RMS: 0.075 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 338168432
Time(ksec)

2.4.5 Slot 7

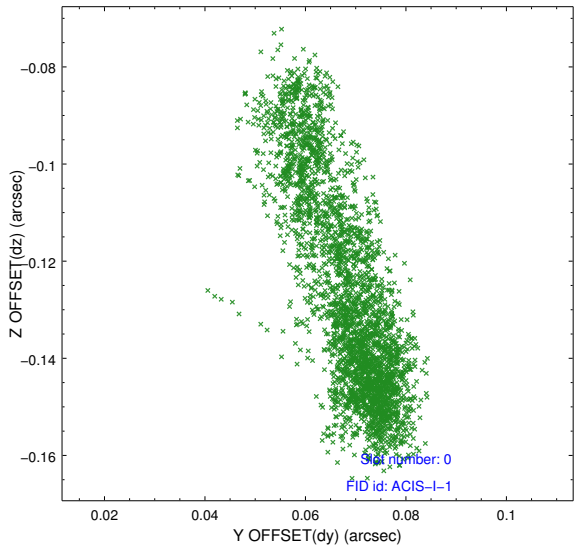

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 338174224

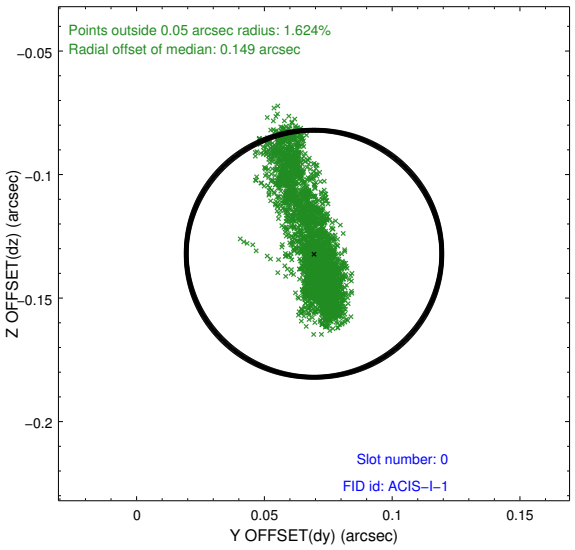

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.470 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 338174224

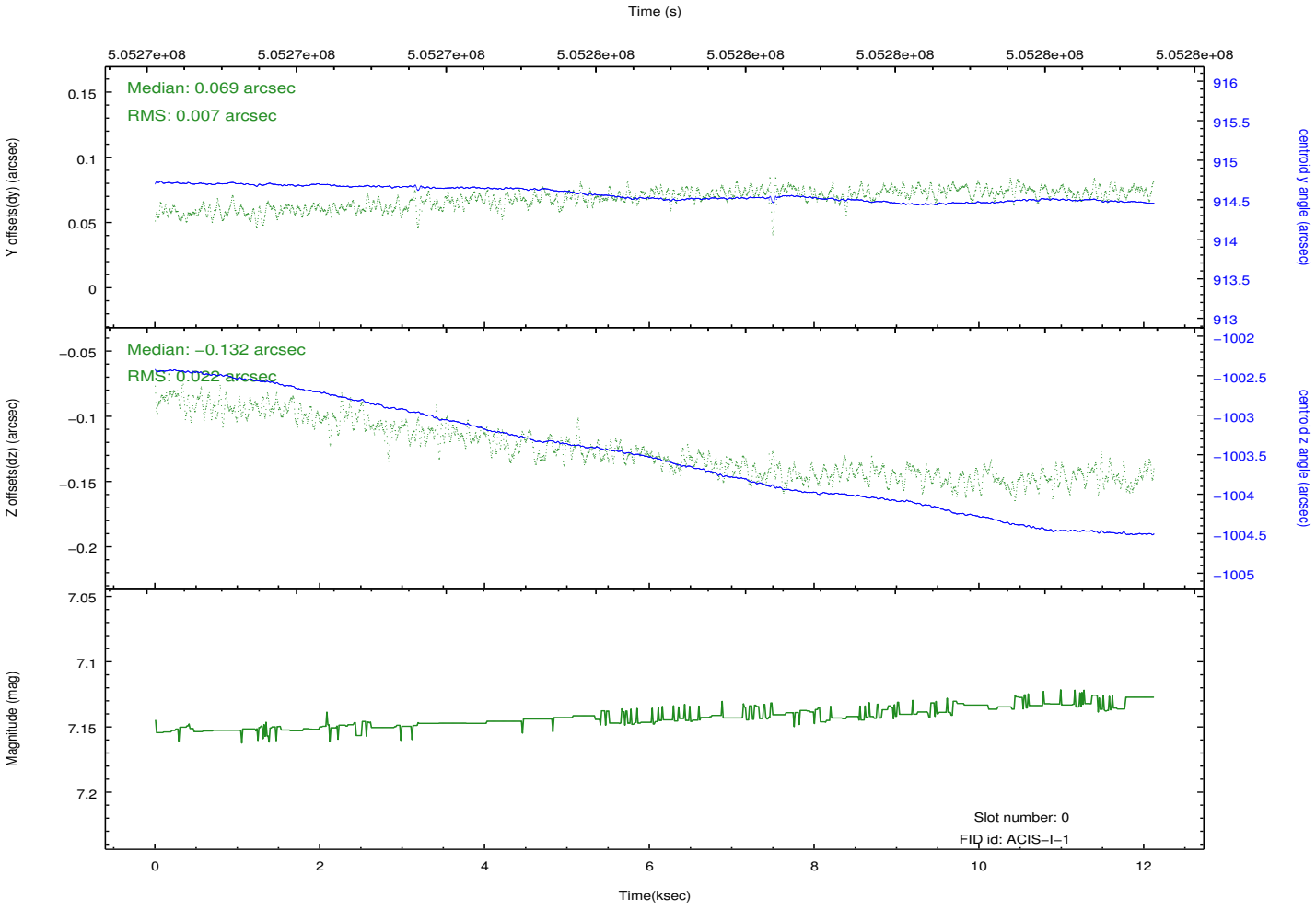

Time (s)
Median: −0.250 arcsec
RMS: 0.064 arcsec
Y offsets(dy) (arcsec)
Median: −0.398 arcsec
RMS: 0.079 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 338174224
Time(ksec)

2.5 FID Slots

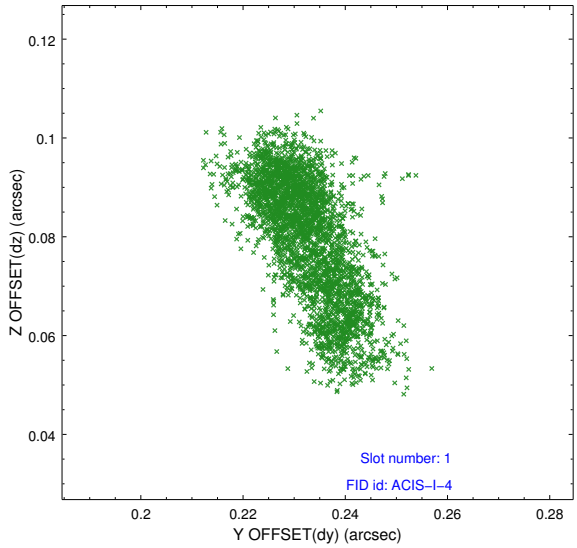
2.5.1 Slot 0

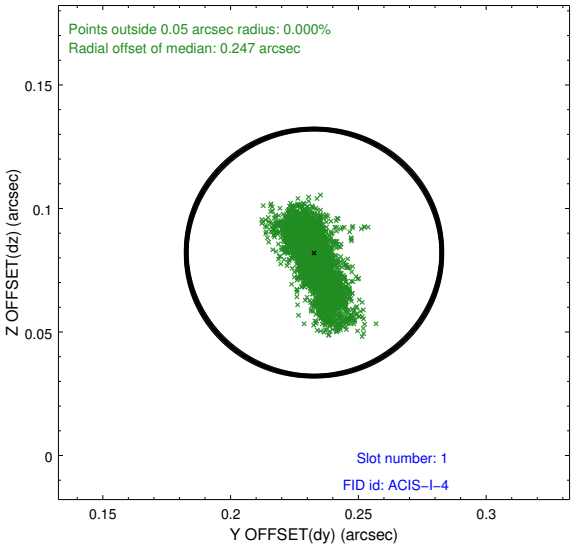


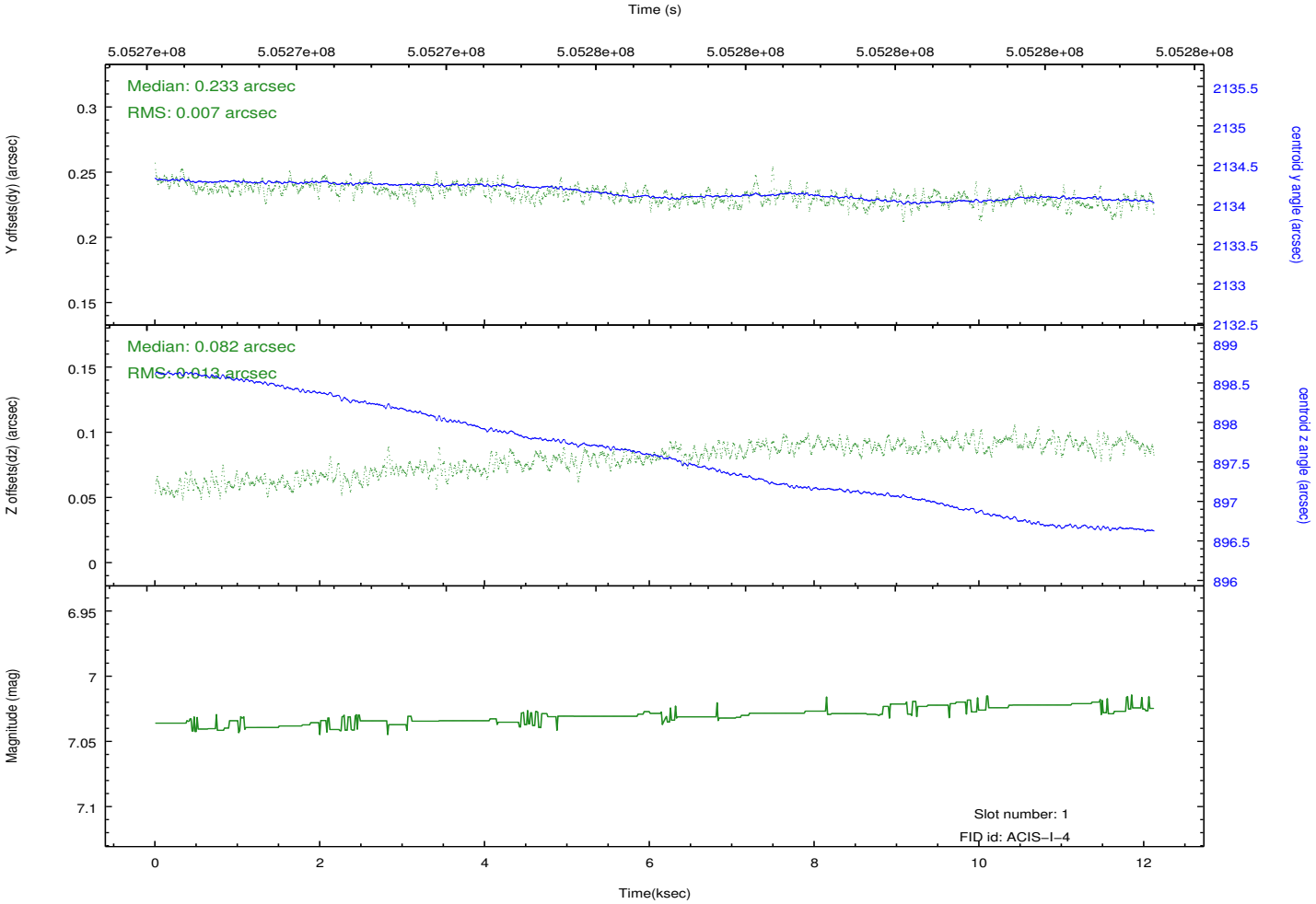




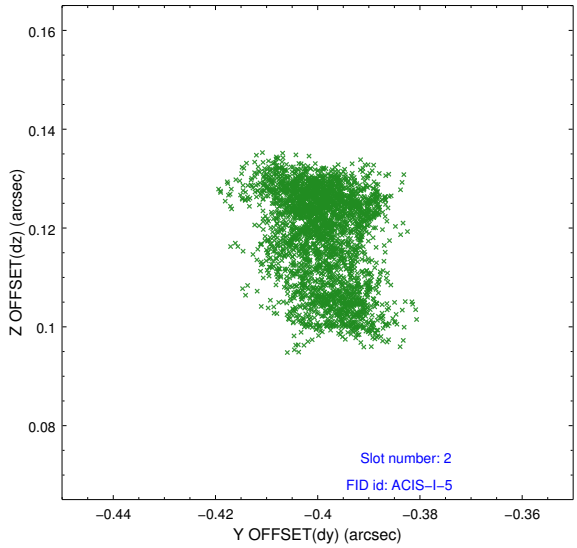
2.5.2 Slot 1

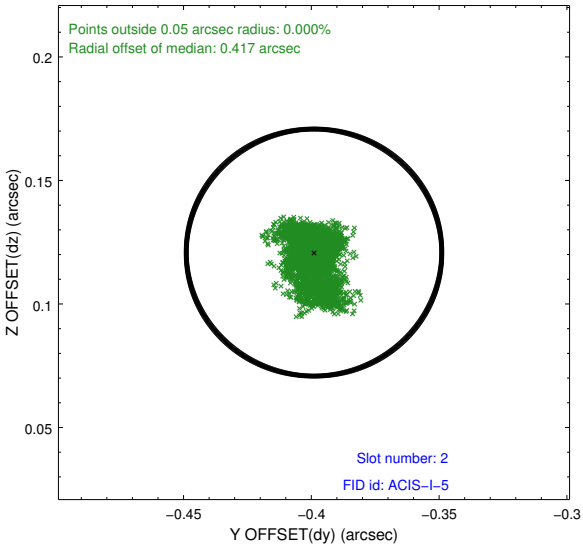

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS–I–4

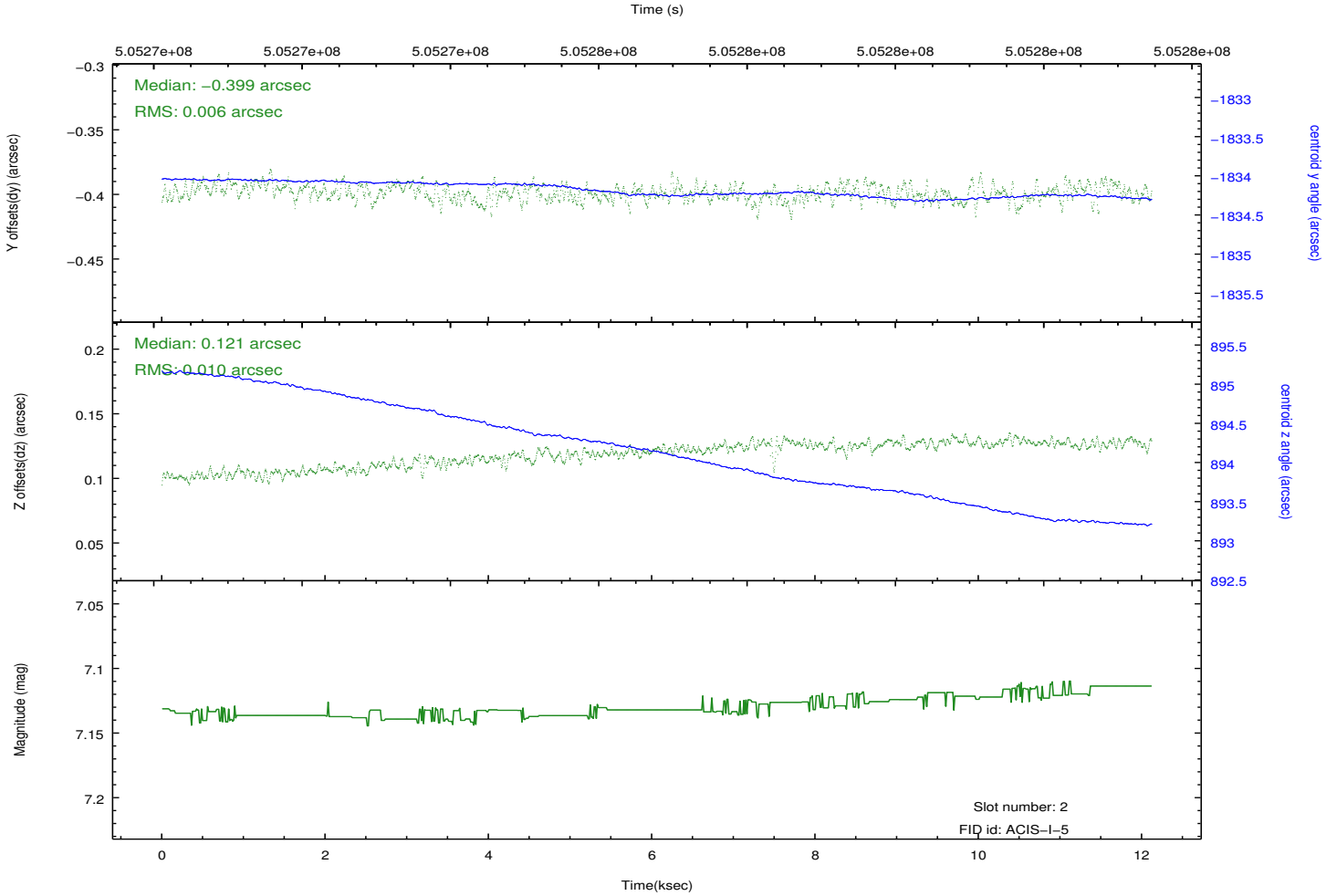

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.247 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS–I–4


Time (s)
Median: 0.233 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.082 arcsec
RMS: 0.013 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS–I–4
Time(ksec)

2.5.3 Slot 2


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


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.417 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−5


Time (s)
Median: −0.399 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.121 arcsec
RMS: 0.010 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−5
Time(ksec)

A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2014.12.15
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	12.08567338872

A.2 Comments

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.