V&V Reference Report
L2 ASCDS Version : 10.1.1

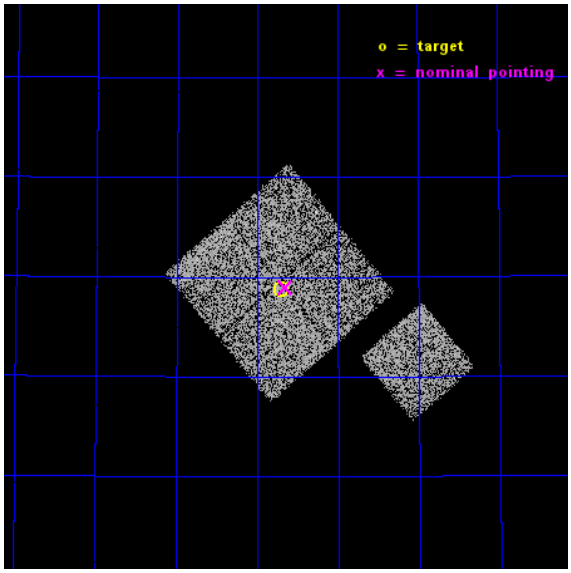
Observation 16131 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Dec 8 2014

Contents

1 Front

seq_num	801385	Sequence number
obs_id	16131	Observation id
title	TO THE VIRIAL RADIUS OF THE MOST LUMINOUS LOCAL GALAXY GROUP: UGC03957	Proposal title
observer	Dr. Lorenzo Lovisari	Principal investigator
object	UGC 03957 NORTH	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	114.92625	Observer's specified target RA [deg]
dec_targ	55.813	Observer's specified target Dec [deg]
ra_nom	114.91297092488	Nominal RA [deg]
dec_nom	55.816180661501	Nominal Dec [deg]
roll_nom	139.51376343226	Nominal Roll [deg]
revision	2	Processing version of data
ontime	10084.300077558	Sum of GTIs [s]
livetime	9952.5412730906	Livetime [s]
ontime0	10084.300077558	Sum of GTIs [s]
ontime1	10084.300077558	Sum of GTIs [s]
ontime2	10078.018086851	Sum of GTIs [s]
ontime3	10084.300077558	Sum of GTIs [s]
ontime6	10084.300077558	Sum of GTIs [s]
l2events	24662	Number of level 2 events

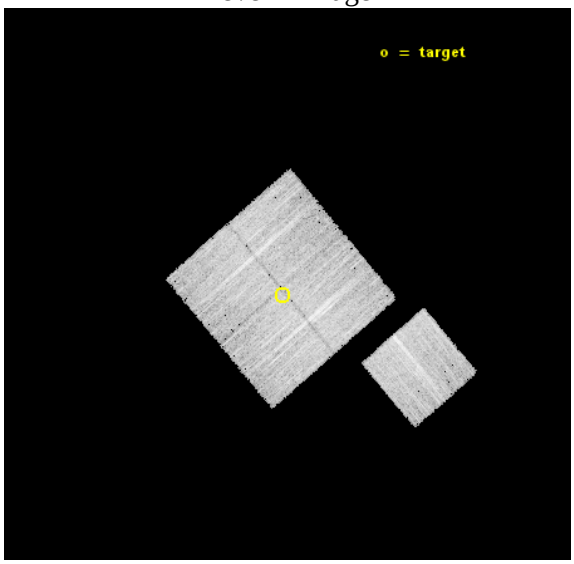


2 OBI

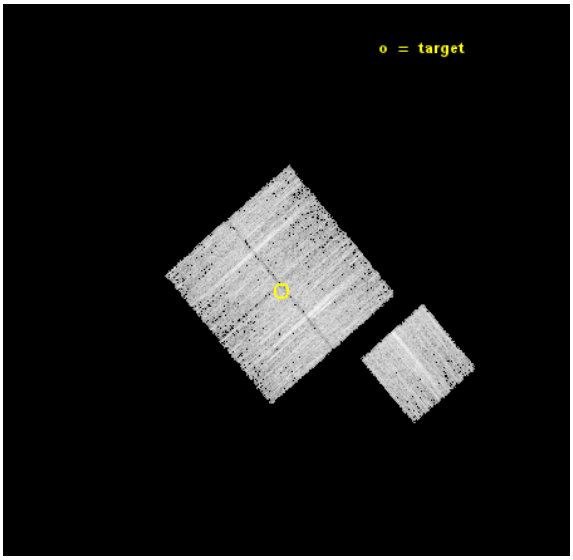
2.1 OBI

2.1.1 Images

Level 1 Image

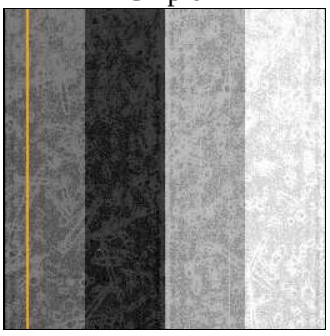


Level 1 Bad Events

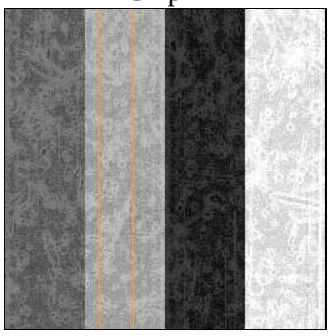


2.1.2 Bias

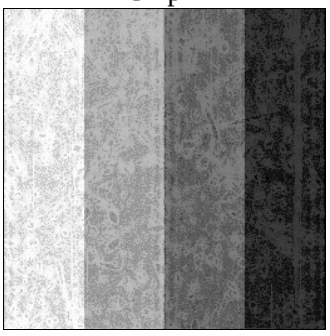
Chip 0



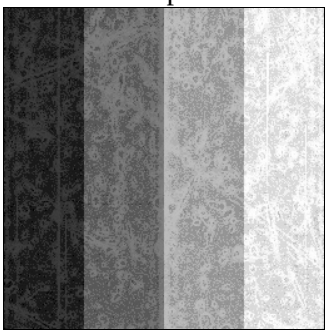
Chip 1



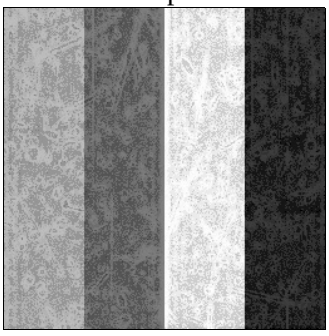
Chip 2



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	2014-12-08T12:52:34	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	9998.000000	[s] Scheduled observation exposure time
ontime	10084.300077558	Sum of GTIs [s]
ontime0	10084.300077558	Sum of GTIs [s]
ontime1	10084.300077558	Sum of GTIs [s]
ontime2	10078.018086851	Sum of GTIs [s]
ontime3	10084.300077558	Sum of GTIs [s]
ontime6	10084.300077558	Sum of GTIs [s]
l1events	232075	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
level 1 events	44014	44572	48168	47224	48097
rejected events	38118	38269	42578	41666	42277
rejected %	86%	85%	88%	88%	87%

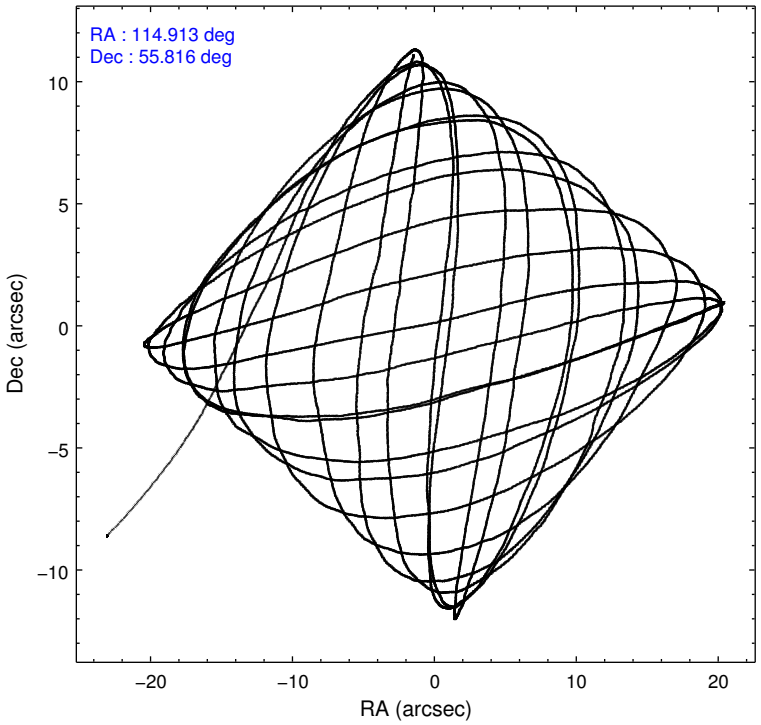
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
grade 0 events	2005	2227	1967	1927	1886
	4%	4%	4%	4%	3%
grade 1 events	27	31	30	36	17
	0%	0%	0%	0%	0%
grade 2 events	1556	1523	1373	1275	1328
	3%	3%	2%	2%	2%
grade 3 events	623	594	544	612	605
	1%	1%	1%	1%	1%
grade 4 events	538	630	531	624	589
	1%	1%	1%	1%	1%
grade 5 events	2354	2413	2165	2642	2441
	5%	5%	4%	5%	5%
grade 6 events	1174	1331	1176	1123	1418
	2%	2%	2%	2%	2%
grade 7 events	35737	35823	40382	38985	39813
	81%	80%	83%	82%	82%

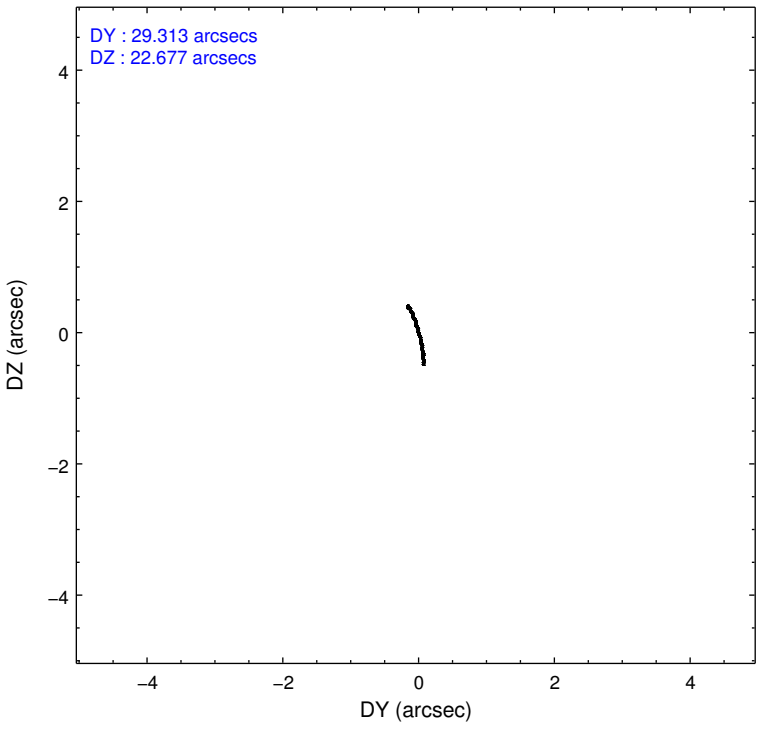
2.2 Compared Parameters

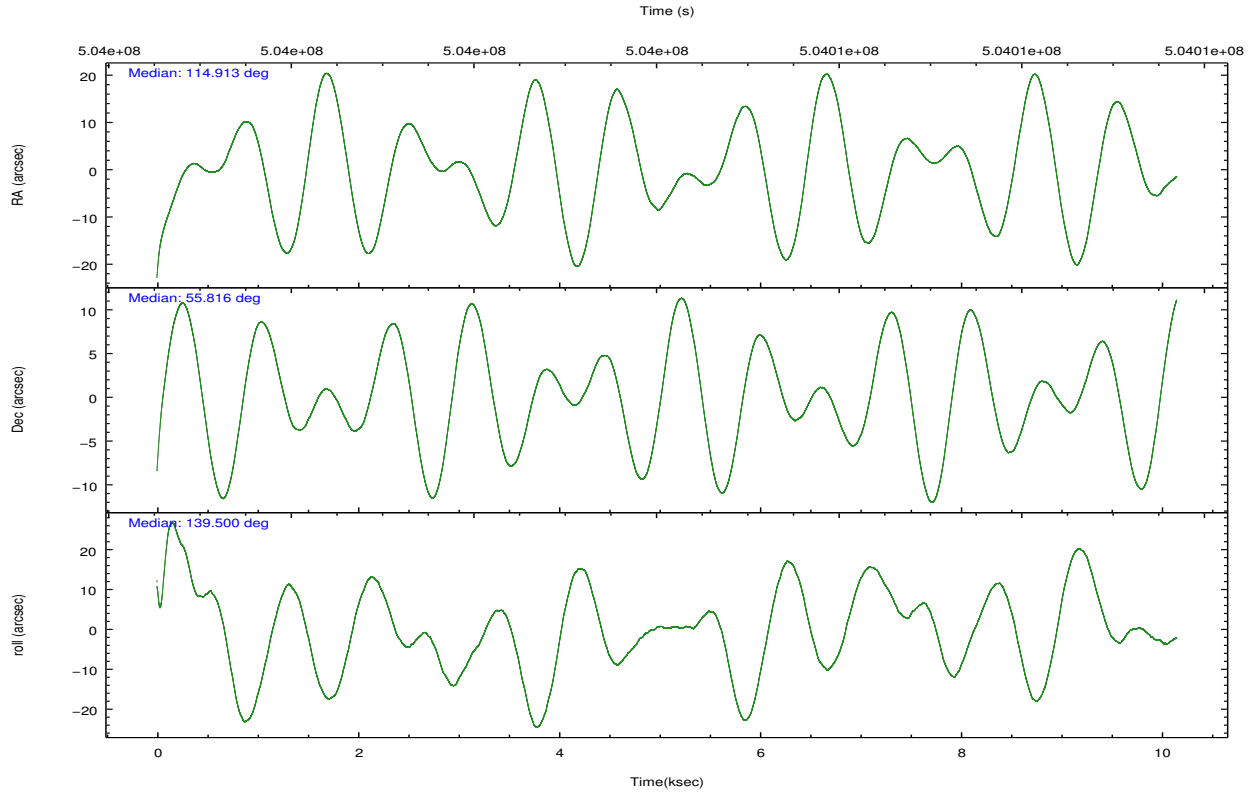
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-01236	ACIS-01236
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	114.961175	114.9129709248766
[deg] Pointing Dec	55.811278	55.81618066150094
[deg] Pointing Roll	139.265231	139.5137634322559
[mm] 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)	503999183.184000	503998061.50576
Observation start date	2013-12-21T07:45:16	2013-12-21T07:27:41
[s] Observation end time (MET)	504009181.184000	504009417.99389
Observation end date	2013-12-21T10:31:54	2013-12-21T10:36:57
Read mode	TIMED	TIMED

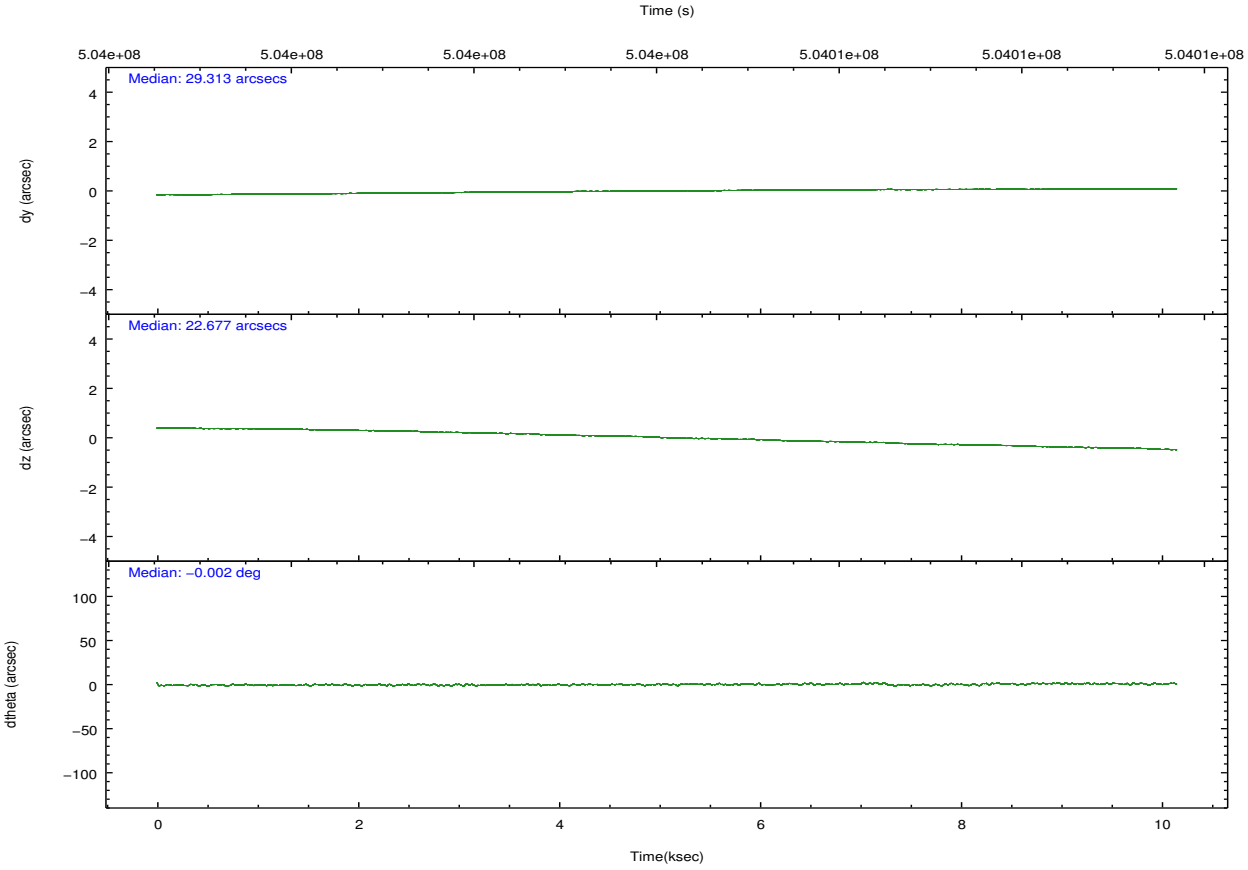
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	Y	Y
CCD I1 on	Y	Y
CCD I2 on	Y	Y
CCD I3 on	Y	Y
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	O1	Y
CCD S3 on	N	N
CCD S4 on	N	N
CCD S5 on	N	N
Number of optional ACIS chips dropped	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 : 114.913 deg
Dec : 55.816 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−20
−10
0
10
20


DY : 29.313 arcsecs
DZ : 22.677 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
5.04e+08
5.04e+08
5.04e+08
5.04e+08
5.0401e+08
5.0401e+08
5.0401e+08
Median: 114.913 deg
RA (arcsec)
Median: 55.816 deg
Dec (arcsec)
Median: 139.500 deg
roll (arcsec)
Time(ksec)

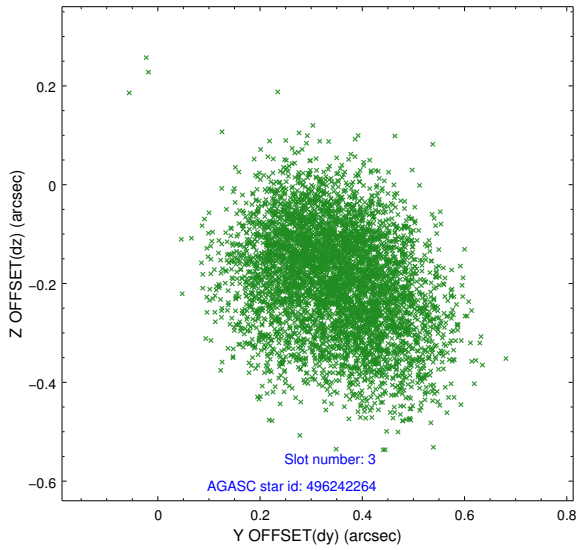

Time (s)
5.04e+08
5.04e+08
5.04e+08
5.04e+08
5.0401e+08
5.0401e+08
5.0401e+08
Median: 29.313 arcsecs
dy (arcsec)
Median: 22.677 arcsecs
dz (arcsec)
Median: −0.002 deg
dtheta (arcsec)
Time(ksec)

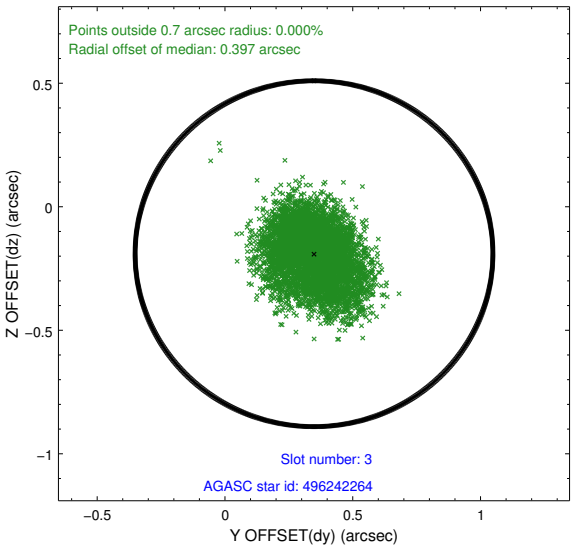
Slot Statistics

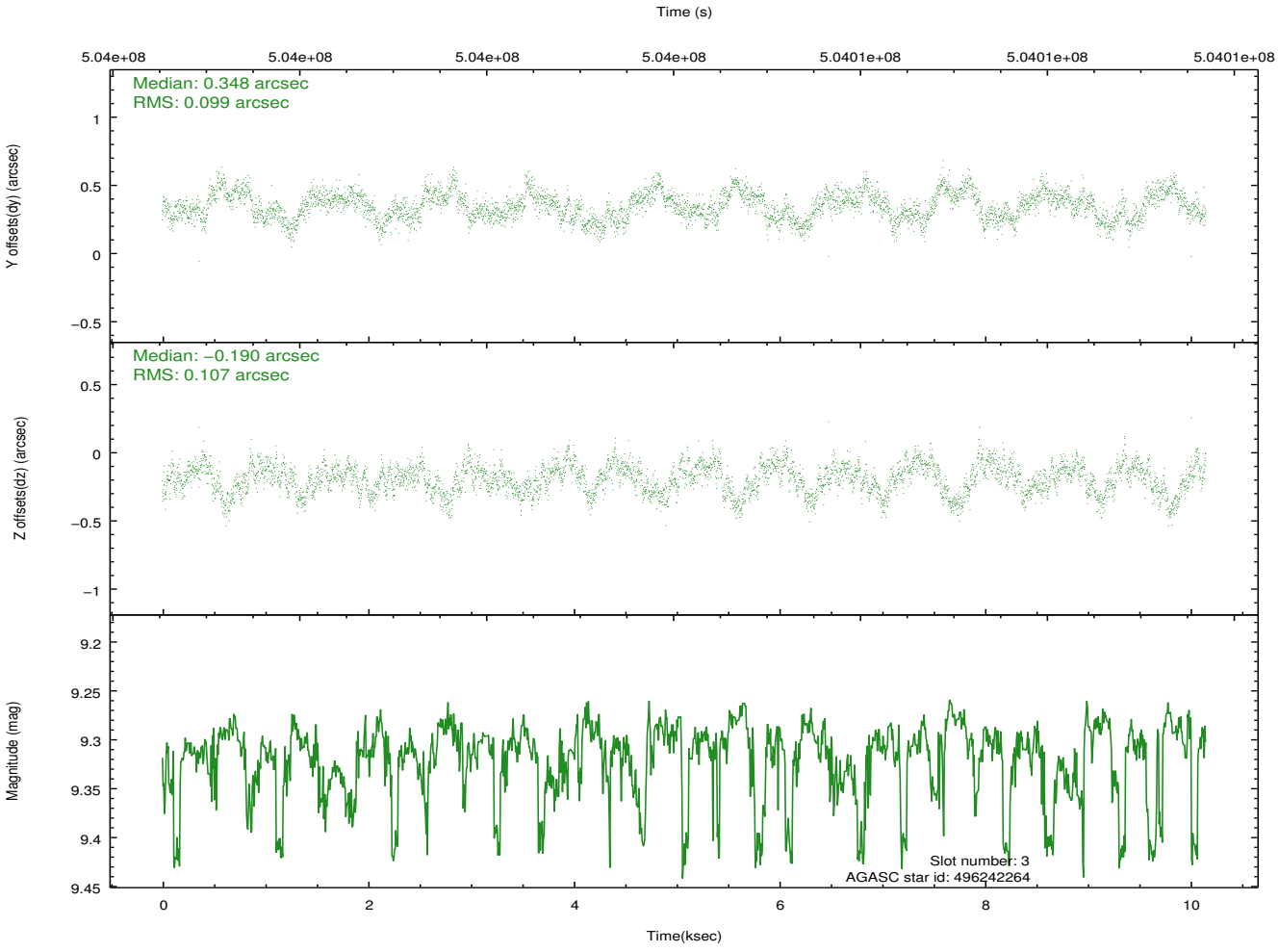
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-2	6.98	2475	-0.199	-0.072	0.014	0.024	0.000000	0.000000	-784.61	-852.91
1	FID		ACIS-I-4	7.06	2476	0.397	0.126	0.009	0.018	0.000000	0.000000	2129.81	1053.20
2	FID		ACIS-I-5	7.06	2477	-0.299	0.015	0.012	0.020	0.000000	0.000000	-1837.87	1051.53
3	GUIDE	used	496242264	9.31	4948	0.348	-0.190	0.157	0.246	115.334729	55.945747	-252.84	-859.31
4	GUIDE	used	496245160	9.76	4931	0.110	0.046	0.184	0.304	115.939927	55.955073	-1146.90	-1689.65
5	GUIDE	used	496249752	8.15	4952	-0.362	-0.098	0.154	0.228	114.583542	55.205517	-835.00	2157.15
6	GUIDE	used	496775176	9.52	4950	-0.186	-0.194	0.371	0.553	115.253567	56.473691	1116.63	-2186.12
7	GUIDE	used	496238840	9.62	4944	0.086	0.465	0.196	0.305	116.460872	55.942590	-1960.20	-2355.70

2.4 Star Slots

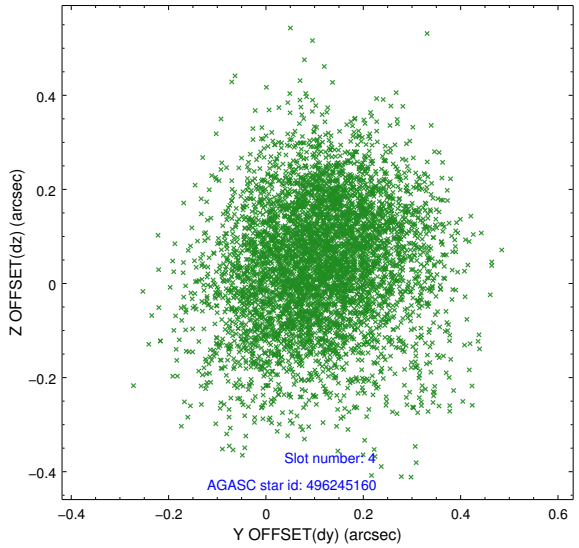
2.4.1 Slot 3

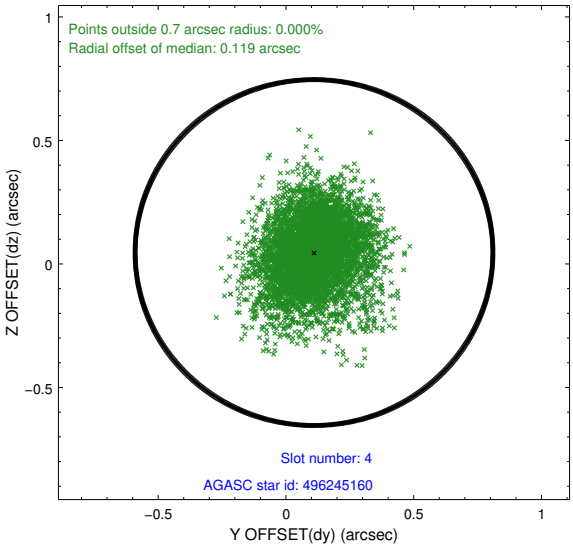


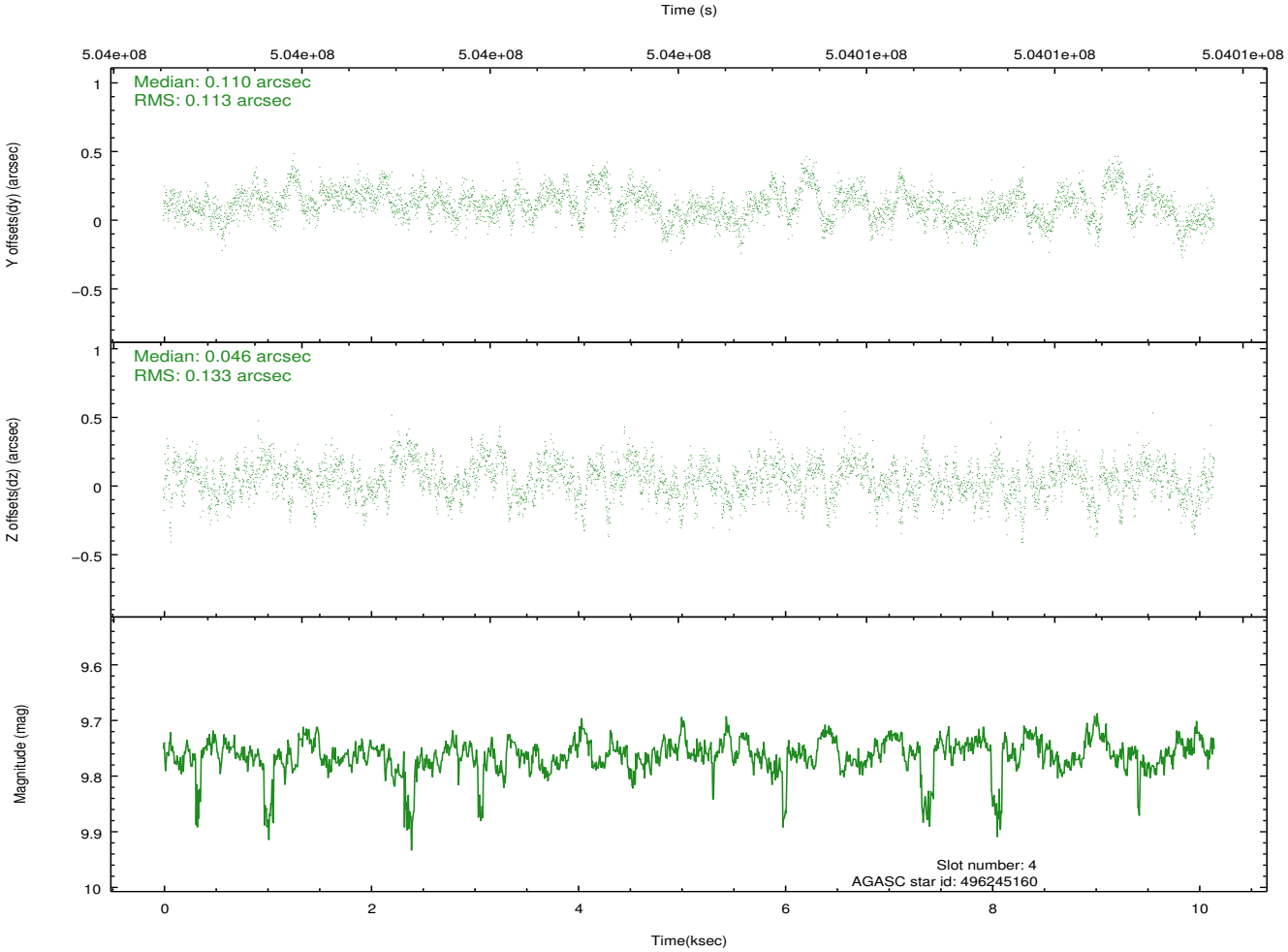




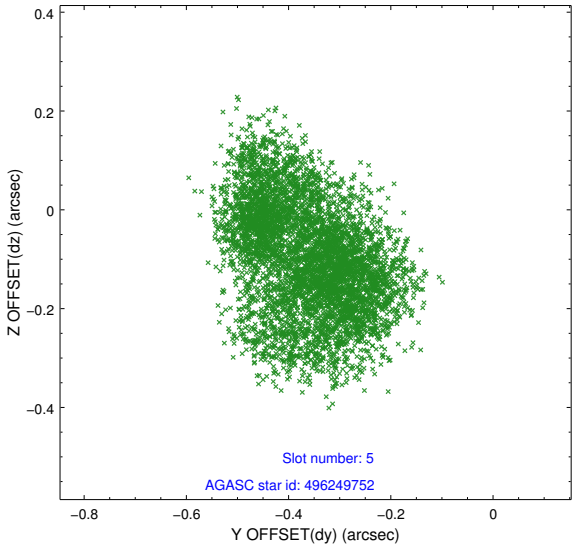
2.4.2 Slot 4

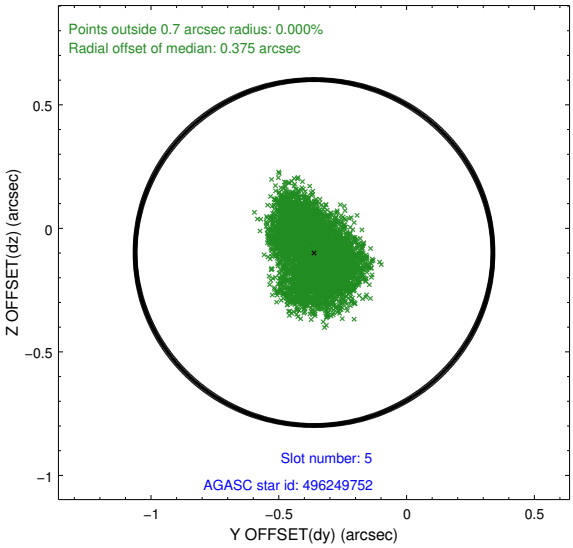

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 496245160

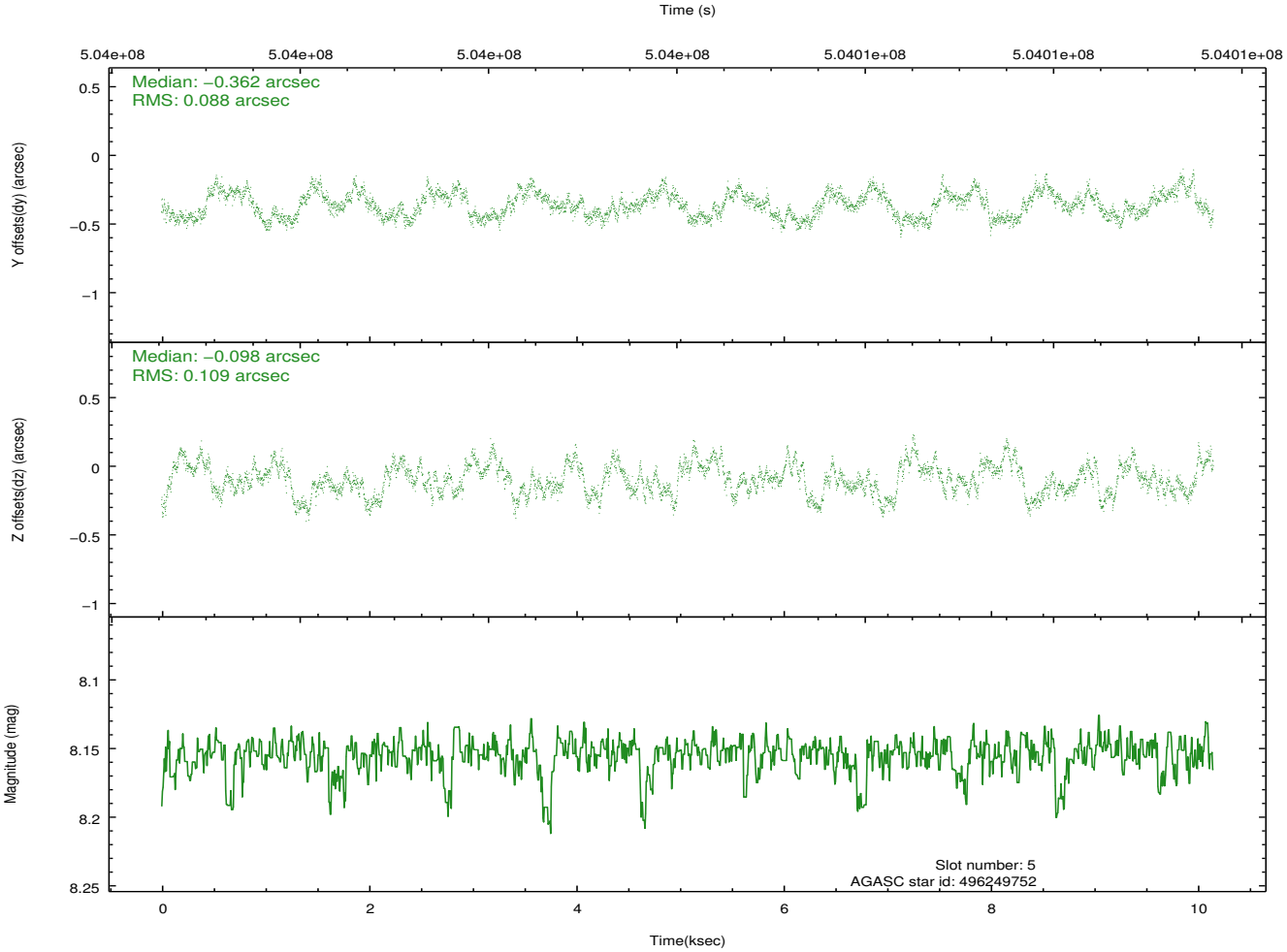

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.119 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 496245160


Time (s)
Median: 0.110 arcsec
RMS: 0.113 arcsec
Y offsets(dy) (arcsec)
Median: 0.046 arcsec
RMS: 0.133 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 496245160
Time(ksec)

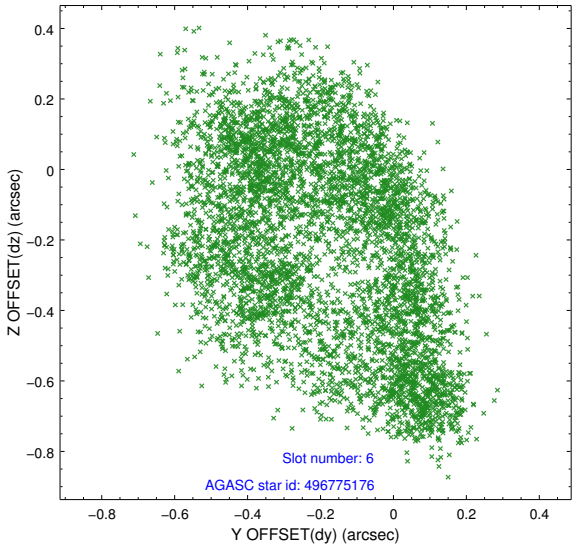
2.4.3 Slot 5

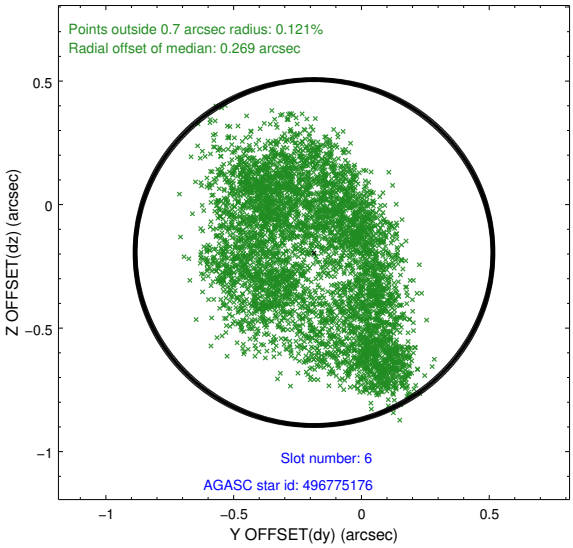

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 496249752

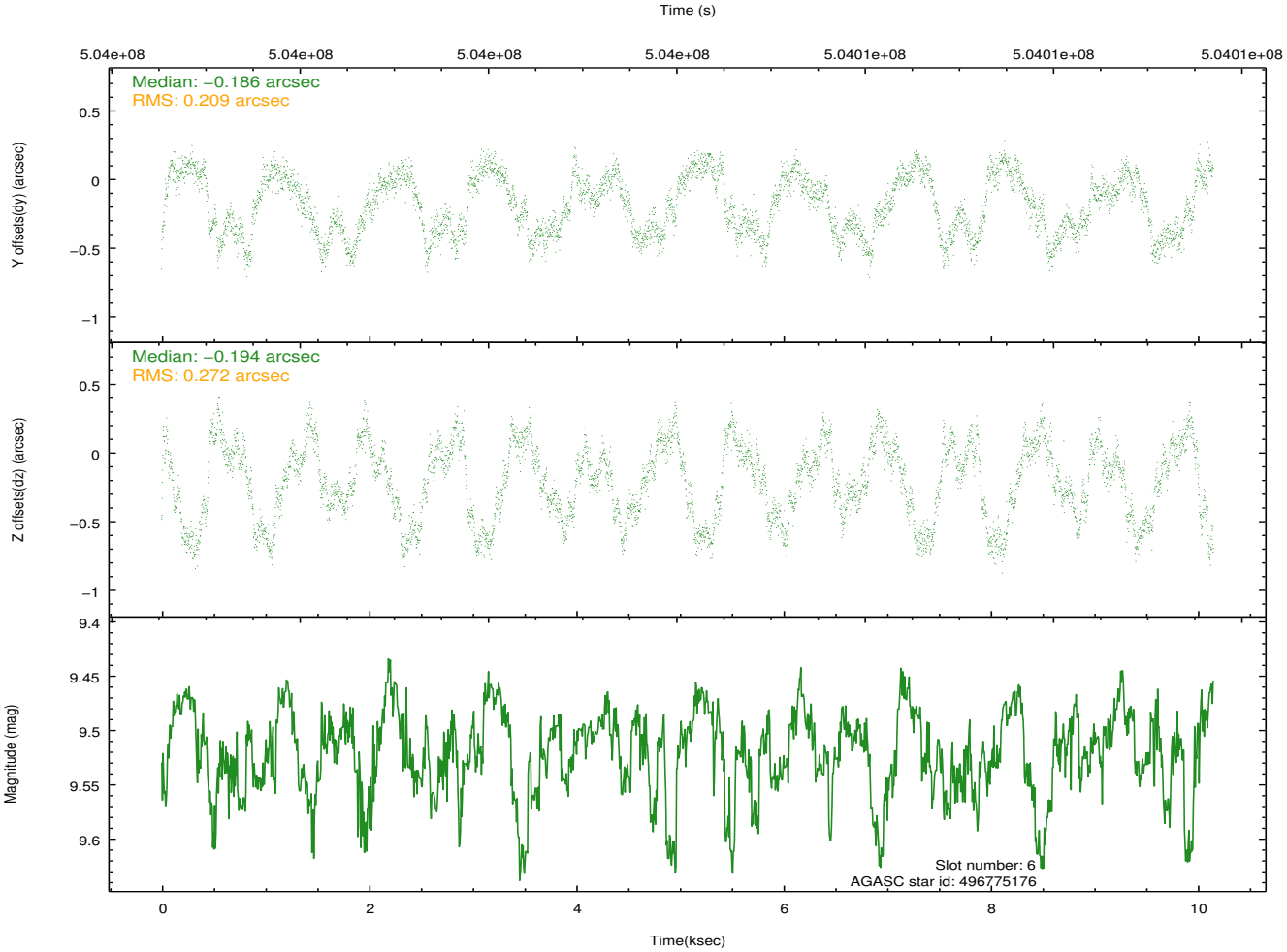

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.375 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 496249752


Time (s)
Median: −0.362 arcsec
RMS: 0.088 arcsec
Y offsets(dy) (arcsec)
Median: −0.098 arcsec
RMS: 0.109 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 496249752
Time(ksec)

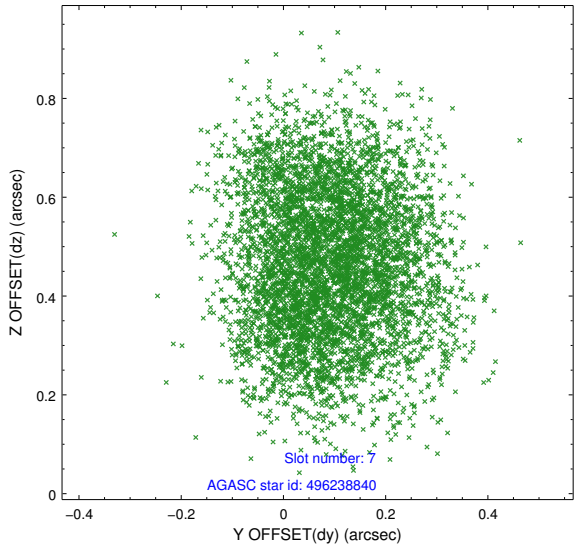
2.4.4 Slot 6

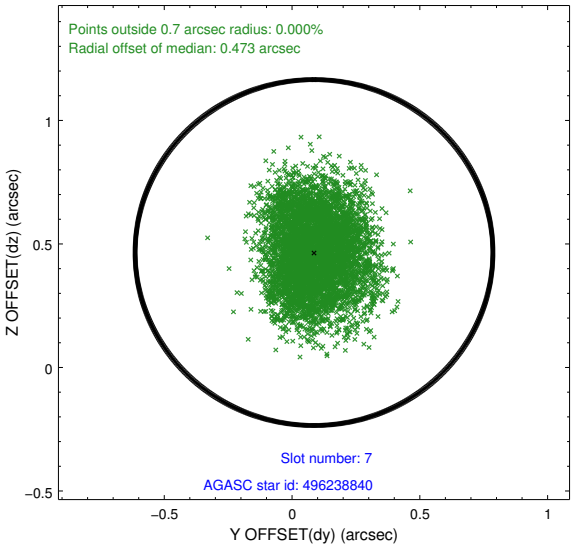

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 496775176

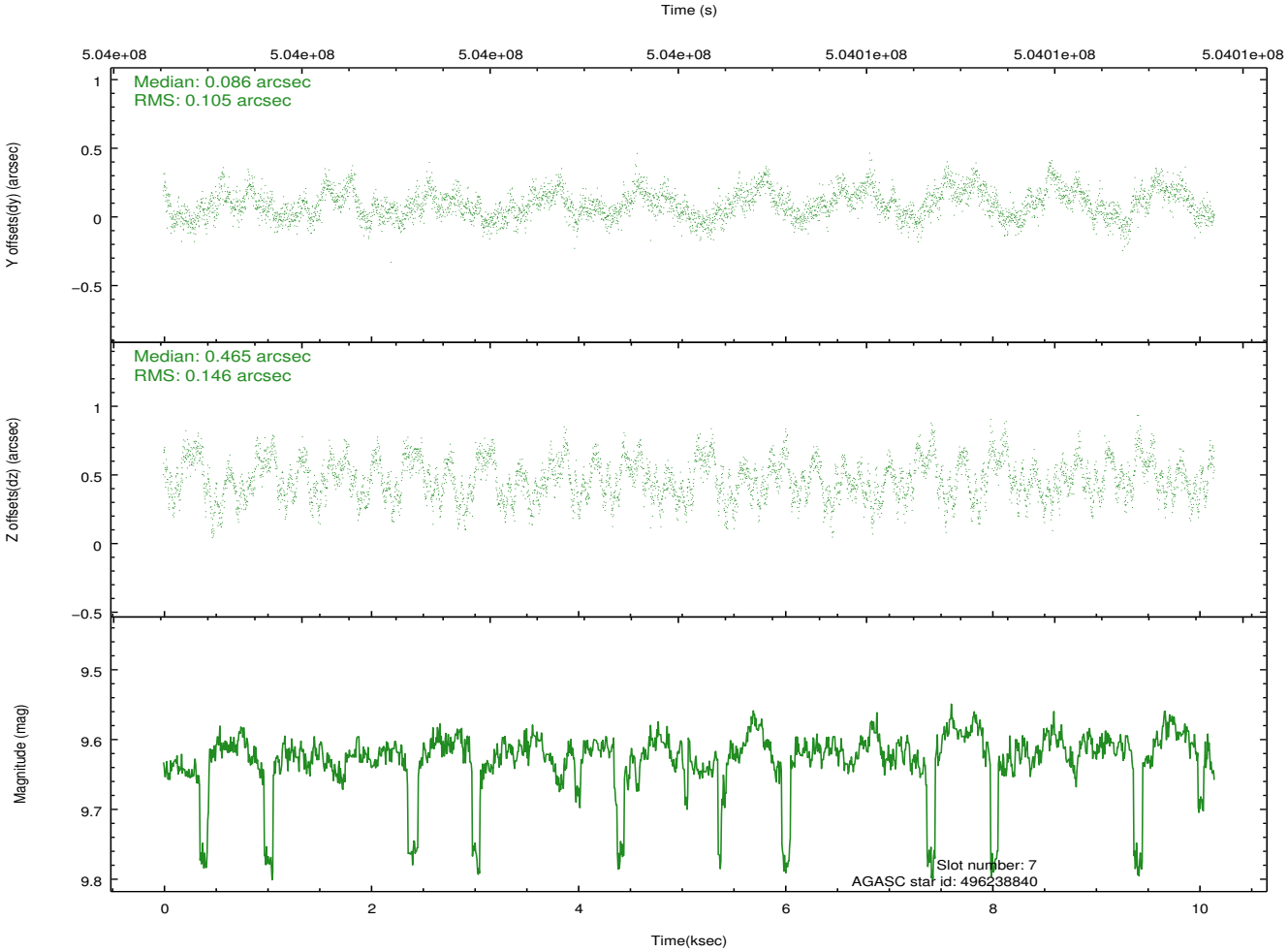

Points outside 0.7 arcsec radius: 0.121%
Radial offset of median: 0.269 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 496775176


Time (s)
Median: −0.186 arcsec
RMS: 0.209 arcsec
Y offsets(dy) (arcsec)
Median: −0.194 arcsec
RMS: 0.272 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 496775176
Time(ksec)

2.4.5 Slot 7

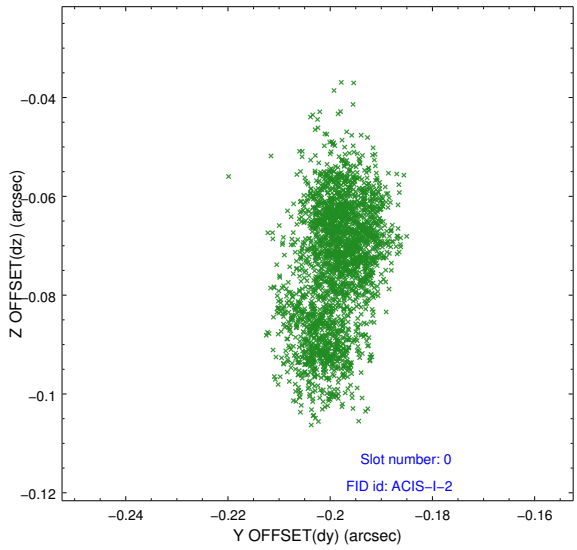

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 496238840

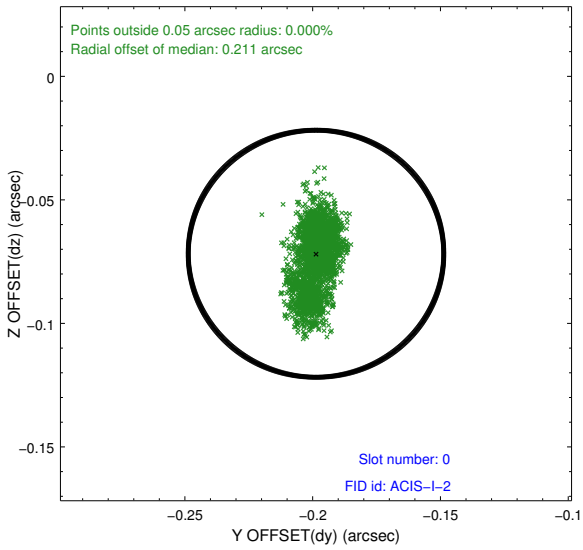

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.473 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 496238840

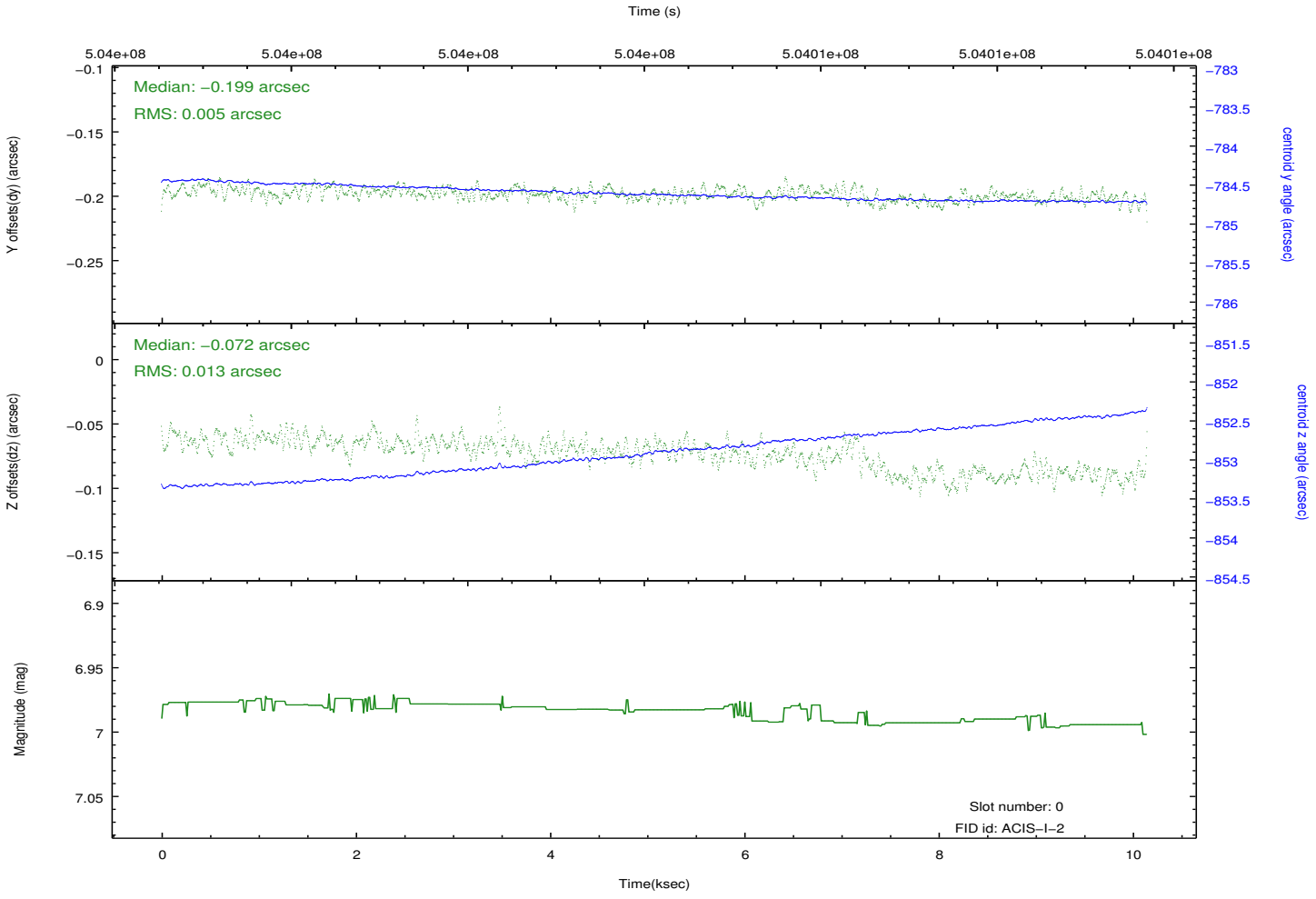

Time (s)
Median: 0.086 arcsec
RMS: 0.105 arcsec
Y offsets(dy) (arcsec)
Median: 0.465 arcsec
RMS: 0.146 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 496238840
Time(ksec)

2.5 FID Slots

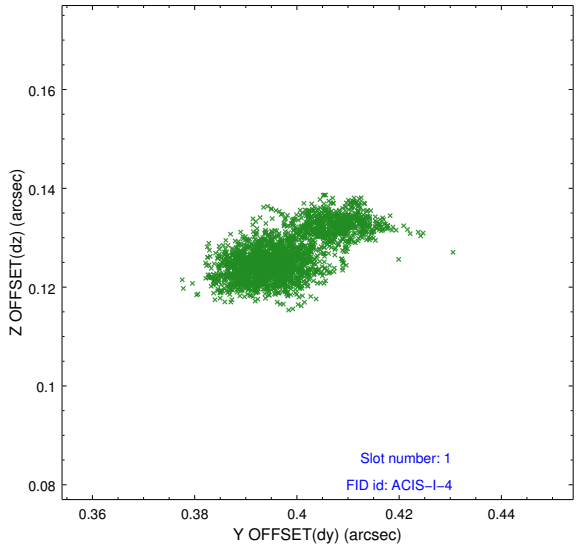
2.5.1 Slot 0

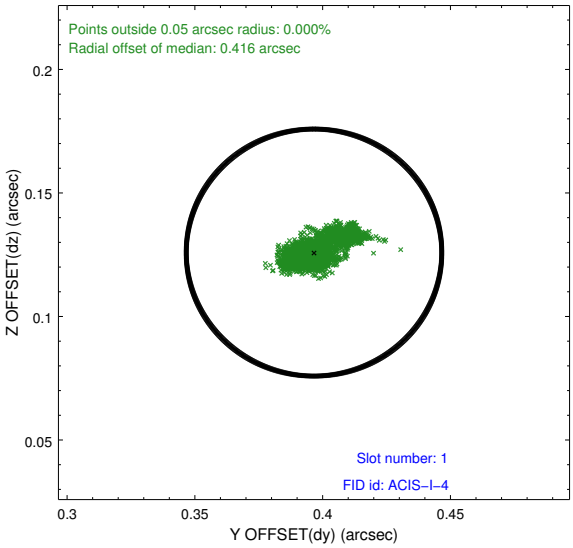


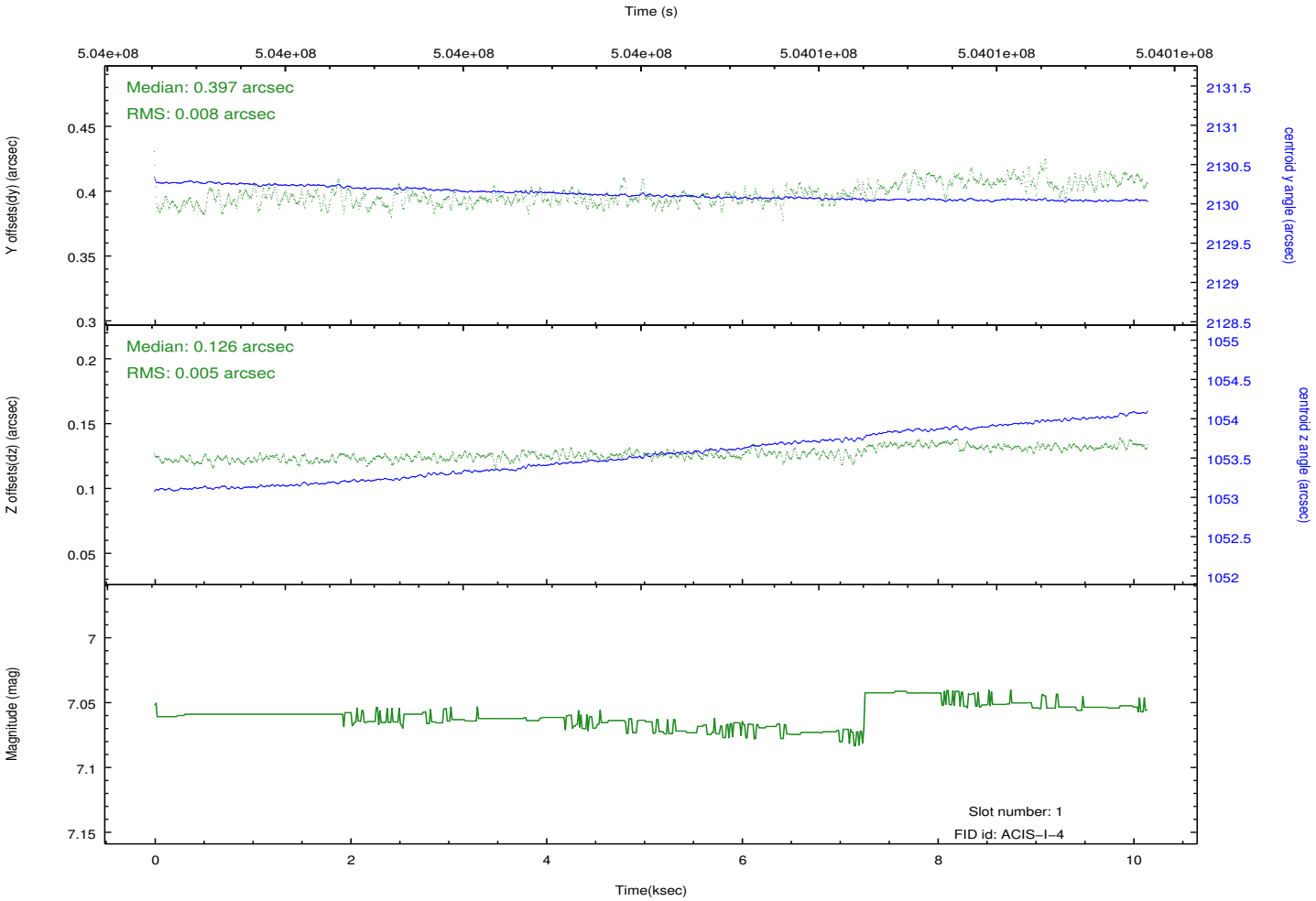




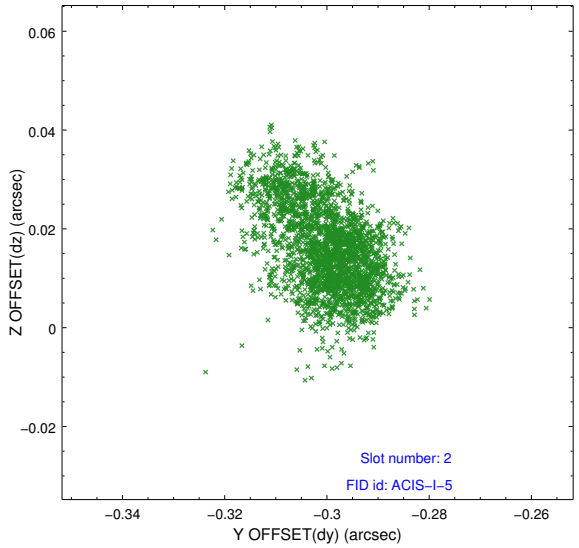
2.5.2 Slot 1

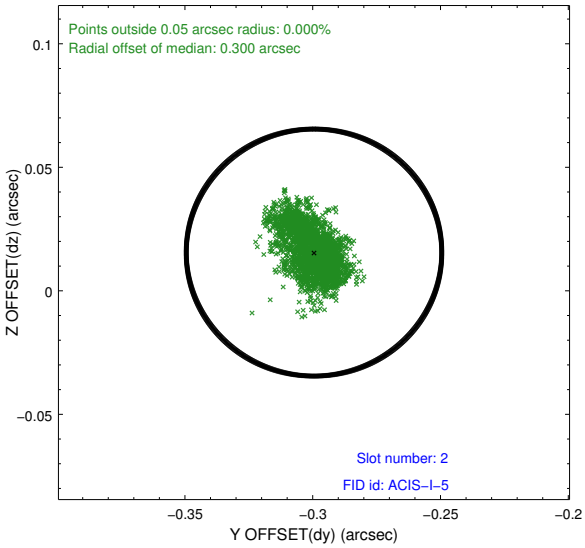

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS–I–4

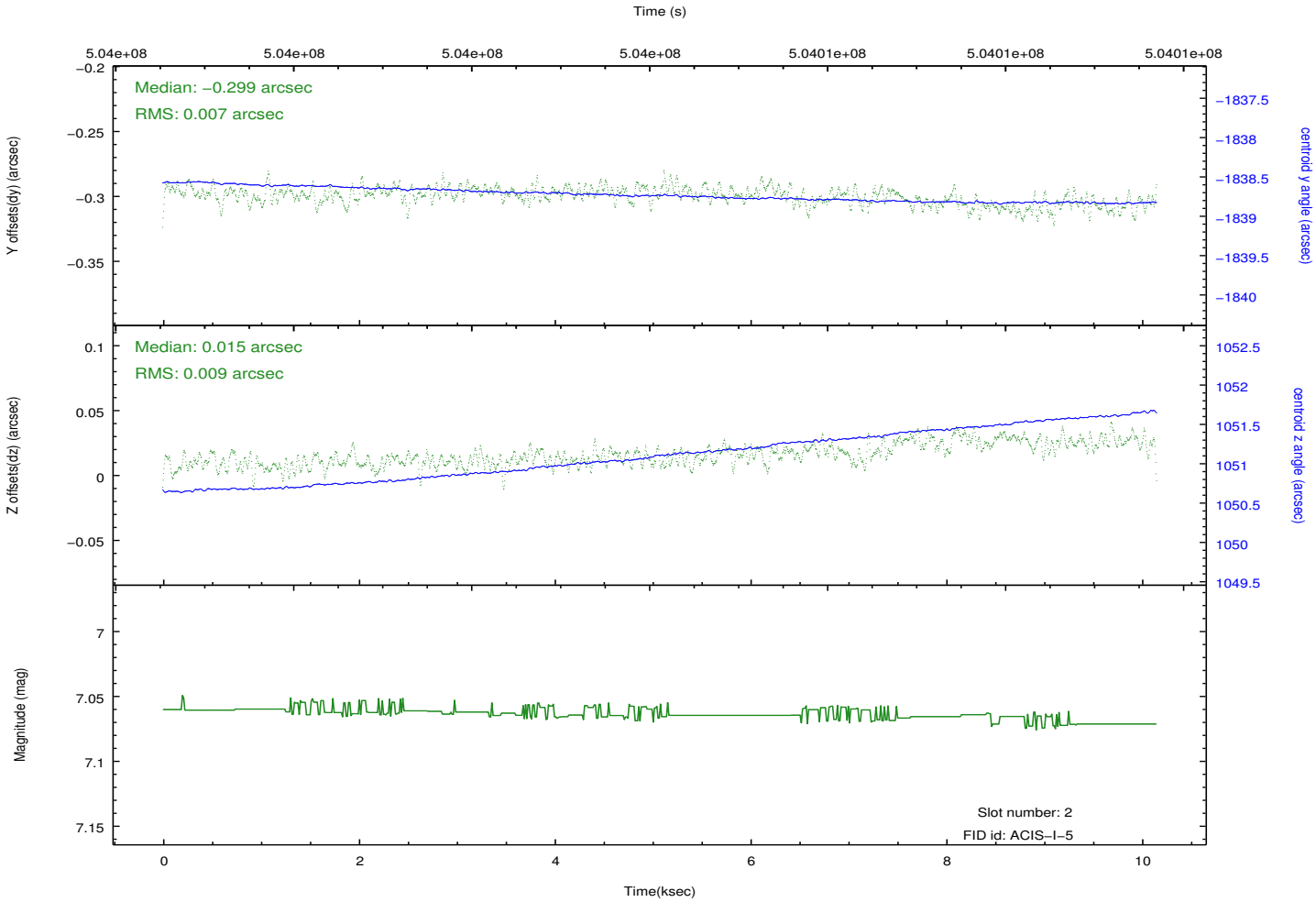

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.416 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS–I–4


Time (s)
Median: 0.397 arcsec
RMS: 0.008 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.126 arcsec
RMS: 0.005 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: 0.300 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS–I–5


Time (s)
Median: –0.299 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.015 arcsec
RMS: 0.009 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	Jen Lauer
V&V Date (YYYY-MM-DD)	2014.12.16
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.084300077558

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.
```