V&V Reference Report
L2 ASCDS Version : 10.2.2

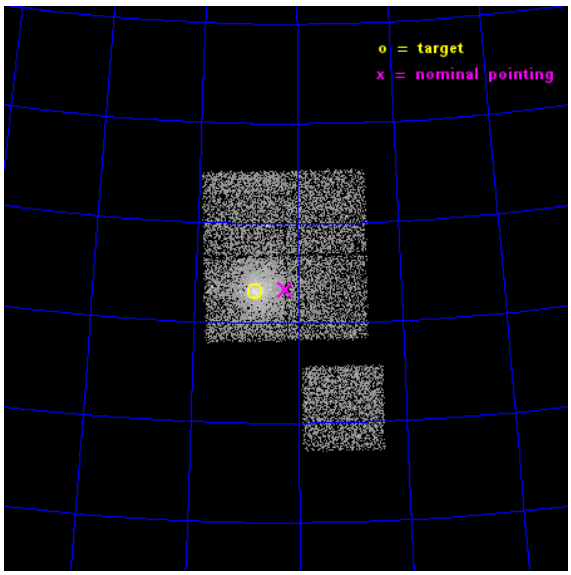
Observation 16284 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Dec 11 2014

Contents

1 Front

seq_num	801426	Sequence number
obs_id	16284	Observation id
title	Chandra observations of the Planck ESZ Cluster Sample	Proposal tit
observer	Dr. Stephen Murray	Principal investigator
object	G118.60+28.55	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	261.062917	Observer's specified target RA [deg]
dec_targ	85.886694	Observer's specified target Dec [deg]
ra_nom	260.30585209672	Nominal RA [deg]
dec_nom	85.89000818695	Nominal Dec [deg]
roll_nom	178.92114541988	Nominal Roll [deg]
revision	2	Processing version of data
ontime	7083.5000544786	Sum of GTIs [s]
livetime	6990.94891147	Livetime [s]
ontime0	7083.5000544786	Sum of GTIs [s]
ontime1	7080.3590841293	Sum of GTIs [s]
ontime2	7083.5000544786	Sum of GTIs [s]
ontime3	7083.5000544786	Sum of GTIs [s]
ontime6	7083.5000544786	Sum of GTIs [s]
l2events	23077	Number of level 2 events

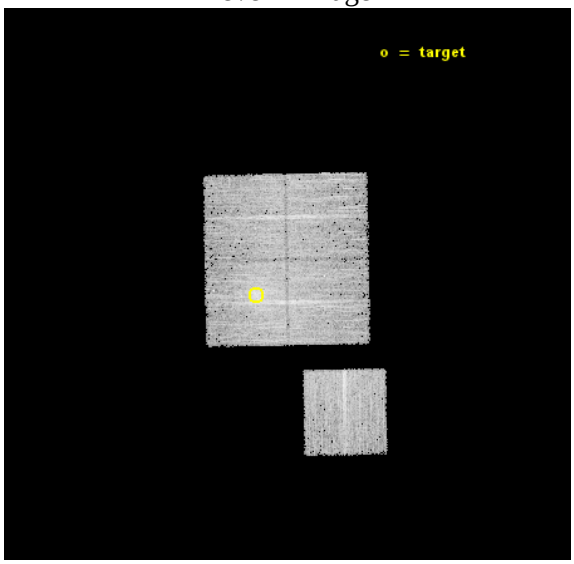


2 OBI

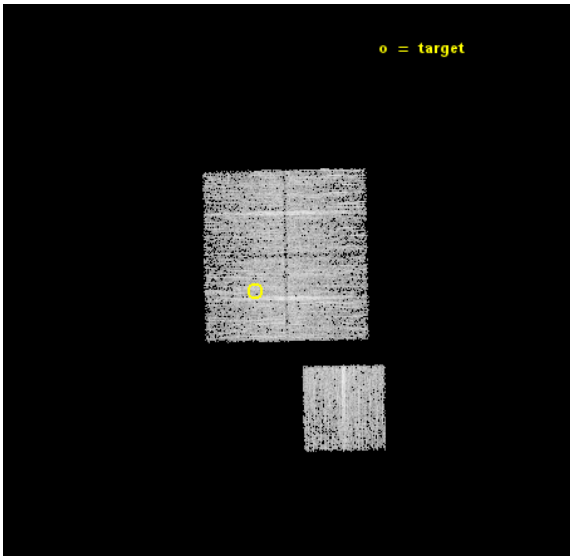
2.1 OBI

2.1.1 Images

Level 1 Image

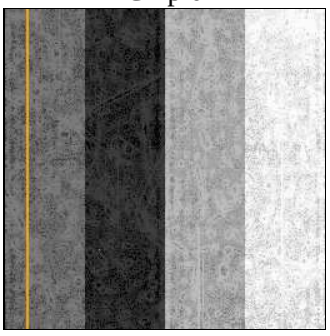


Level 1 Bad Events

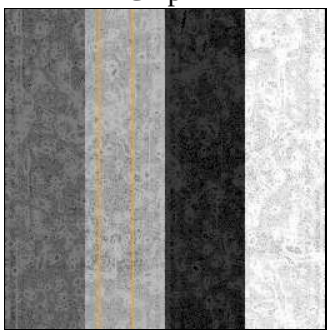


2.1.2 Bias

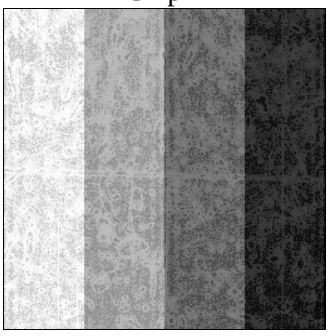
Chip 0



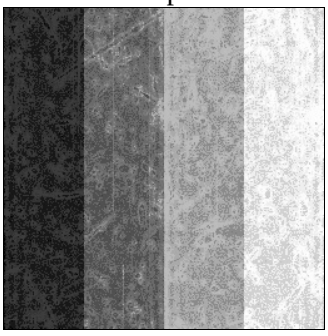
Chip 1



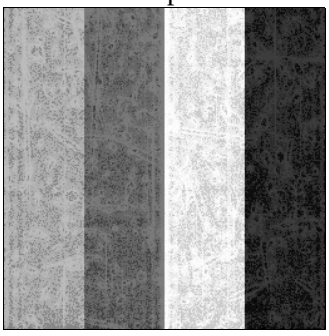
Chip 2



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	2014-12-12T02:49:41	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	7000.000000	[s] Scheduled observation exposure time
ontime	7083.5000544786	Sum of GTIs [s]
ontime0	7083.5000544786	Sum of GTIs [s]
ontime1	7080.3590841293	Sum of GTIs [s]
ontime2	7083.5000544786	Sum of GTIs [s]
ontime3	7083.5000544786	Sum of GTIs [s]
ontime6	7083.5000544786	Sum of GTIs [s]
l1events	170752	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
level 1 events	32368	31341	33648	38600	34795
rejected events	28286	26711	29243	29331	30699
rejected %	87%	85%	86%	75%	88%

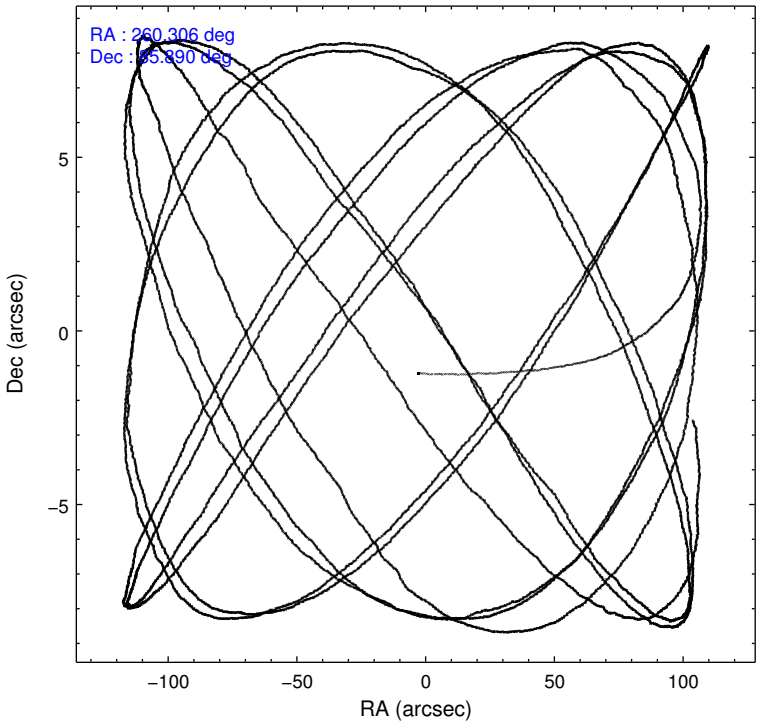
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
grade 0 events	1427	1653	1784	5536	1408
	4%	5%	5%	14%	4%
grade 1 events	14	23	19	39	13
	0%	0%	0%	0%	0%
grade 2 events	1005	1083	1030	1497	893
	3%	3%	3%	3%	2%
grade 3 events	404	447	401	598	383
	1%	1%	1%	1%	1%
grade 4 events	419	465	436	626	434
	1%	1%	1%	1%	1%
grade 5 events	1597	1783	1491	1892	1804
	4%	5%	4%	4%	5%
grade 6 events	833	985	756	1016	981
	2%	3%	2%	2%	2%
grade 7 events	26669	24902	27731	27396	28879
	82%	79%	82%	70%	82%

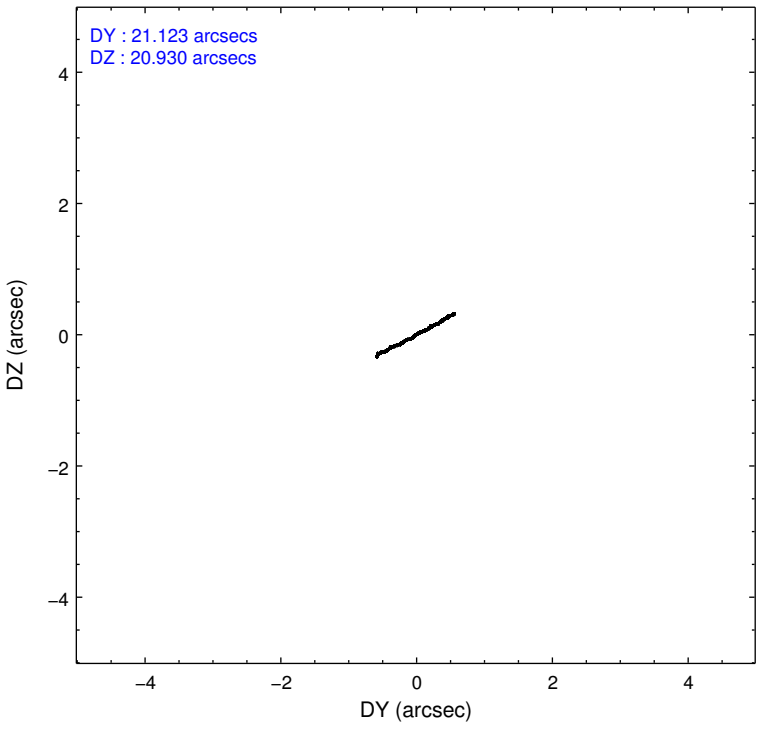
2.2 Compared Parameters

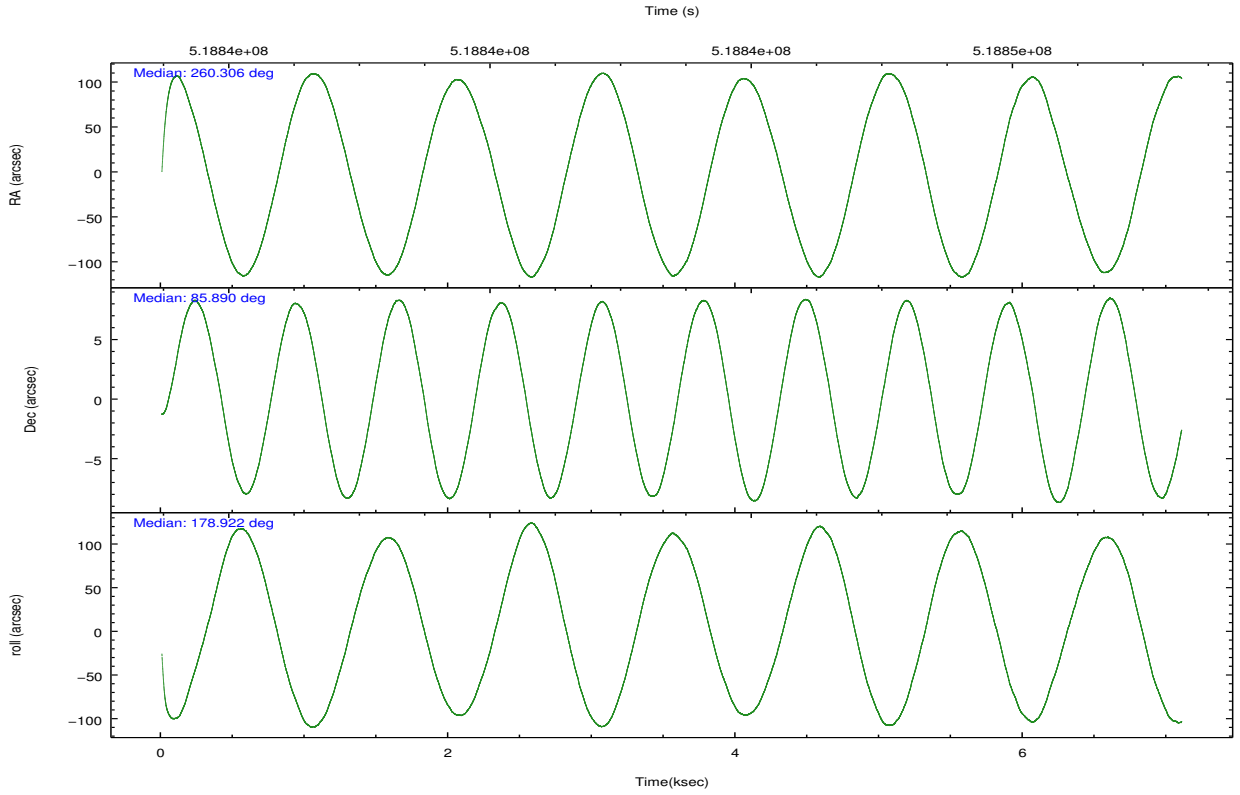
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-01236	ACIS-01236
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	260.641736	260.3058520967174
[deg] Pointing Dec	85.903359	85.89000818695
[deg] Pointing Roll	178.377497	178.9211454198827
[mm] SIM focus pos	-0.782348	-0.7809083437167272
[mm] SIM defocus	0	0.001439871863259334
[mm] SIM translation stage pos	-225.840463	-225.8433433320239
[mm] SIM translation stage offset	-7.752	-7.749109670905796
[s] Observation start time (MET)	518839952.184000	518838392.08599
Observation start date	2014-06-11T02:11:25	2014-06-11T01:46:32
[s] Observation end time (MET)	518846952.184000	518847564.299
Observation end date	2014-06-11T04:08:05	2014-06-11T04:19:24
Read mode	TIMED	TIMED

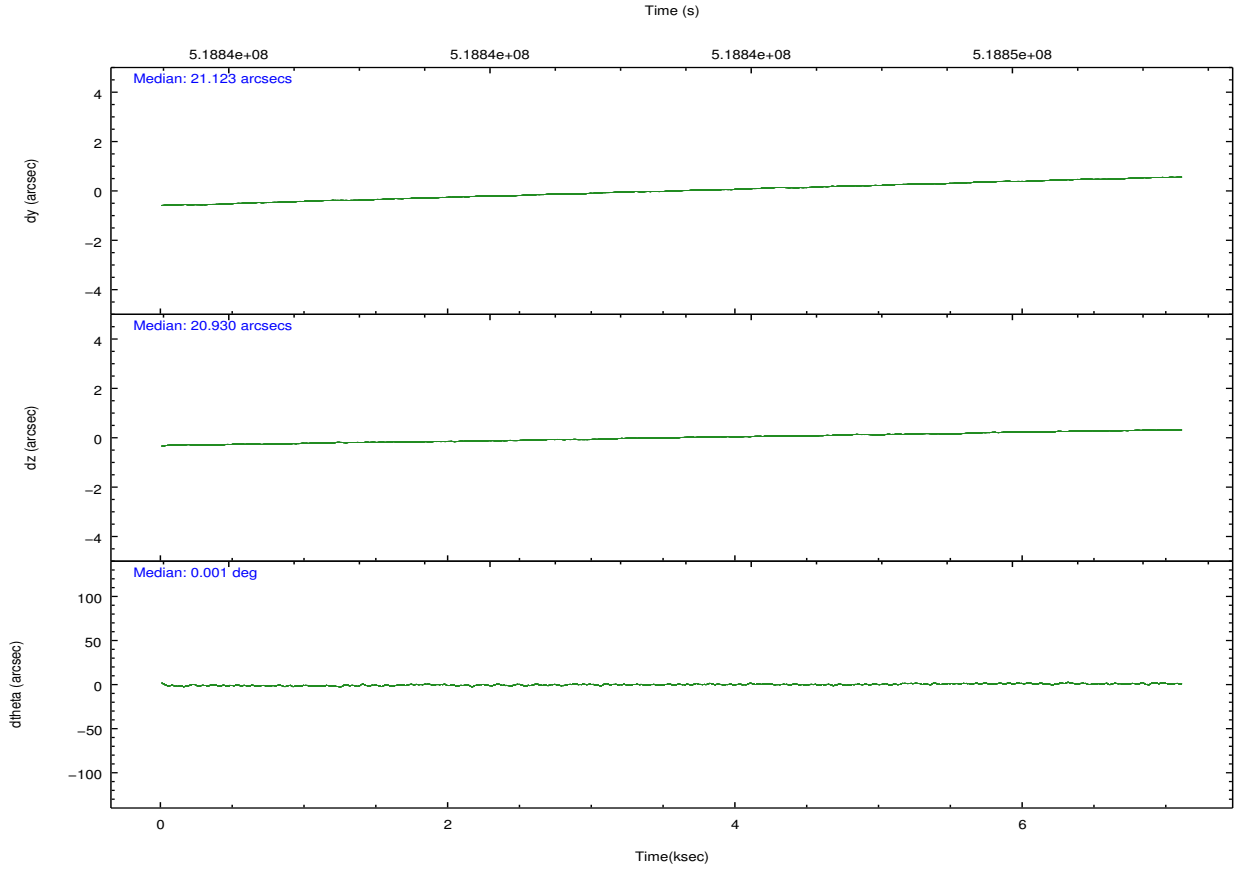
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	Y	Y
CCD I1 on	Y	Y
CCD I2 on	Y	Y
CCD I3 on	Y	Y
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	O1	Y
CCD S3 on	N	N
CCD S4 on	N	N
CCD S5 on	N	N
Number of optional ACIS chips dropped	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 : 260.306 deg
Dec : 65.890 deg
Dec (arcsec)
RA (arcsec)
5
0
−5
−100
−50
0
50
100


DY : 21.123 arcsecs
DZ : 20.930 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
5.1884e+08
5.1884e+08
5.1884e+08
5.1885e+08
Median: 260.306 deg
RA (arcsec)
Median: 85.890 deg
Dec (arcsec)
Median: 178.922 deg
roll (arcsec)
Time(ksec)

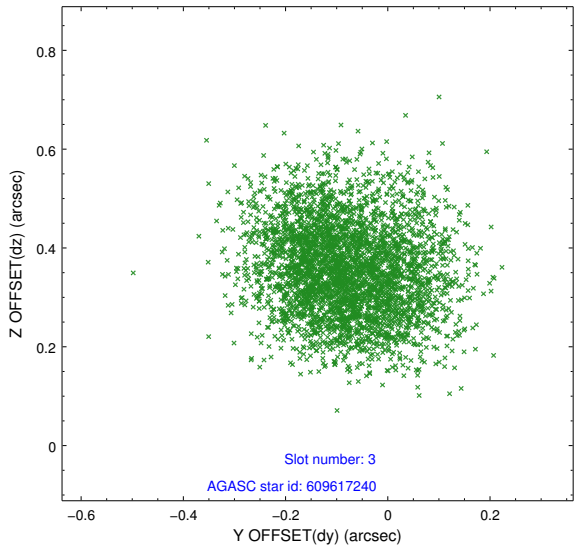

Time (s)
5.1884e+08
5.1884e+08
5.1884e+08
5.1885e+08
Median: 21.123 arcsecs
dy (arcsec)
Median: 20.930 arcsecs
dz (arcsec)
Median: 0.001 deg
dtheta (arcsec)
Time(ksec)

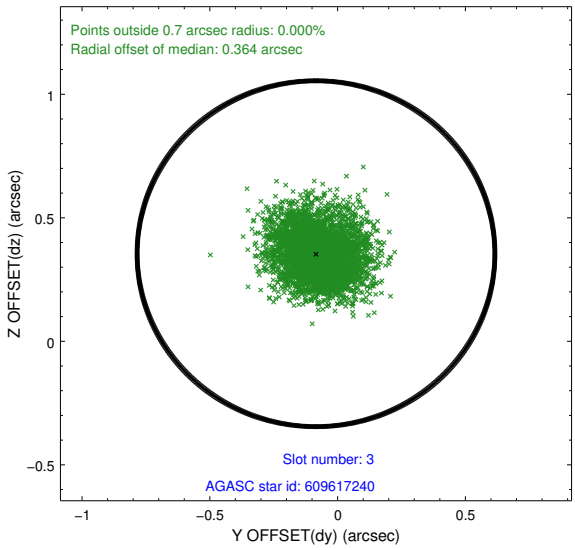
Slot Statistics

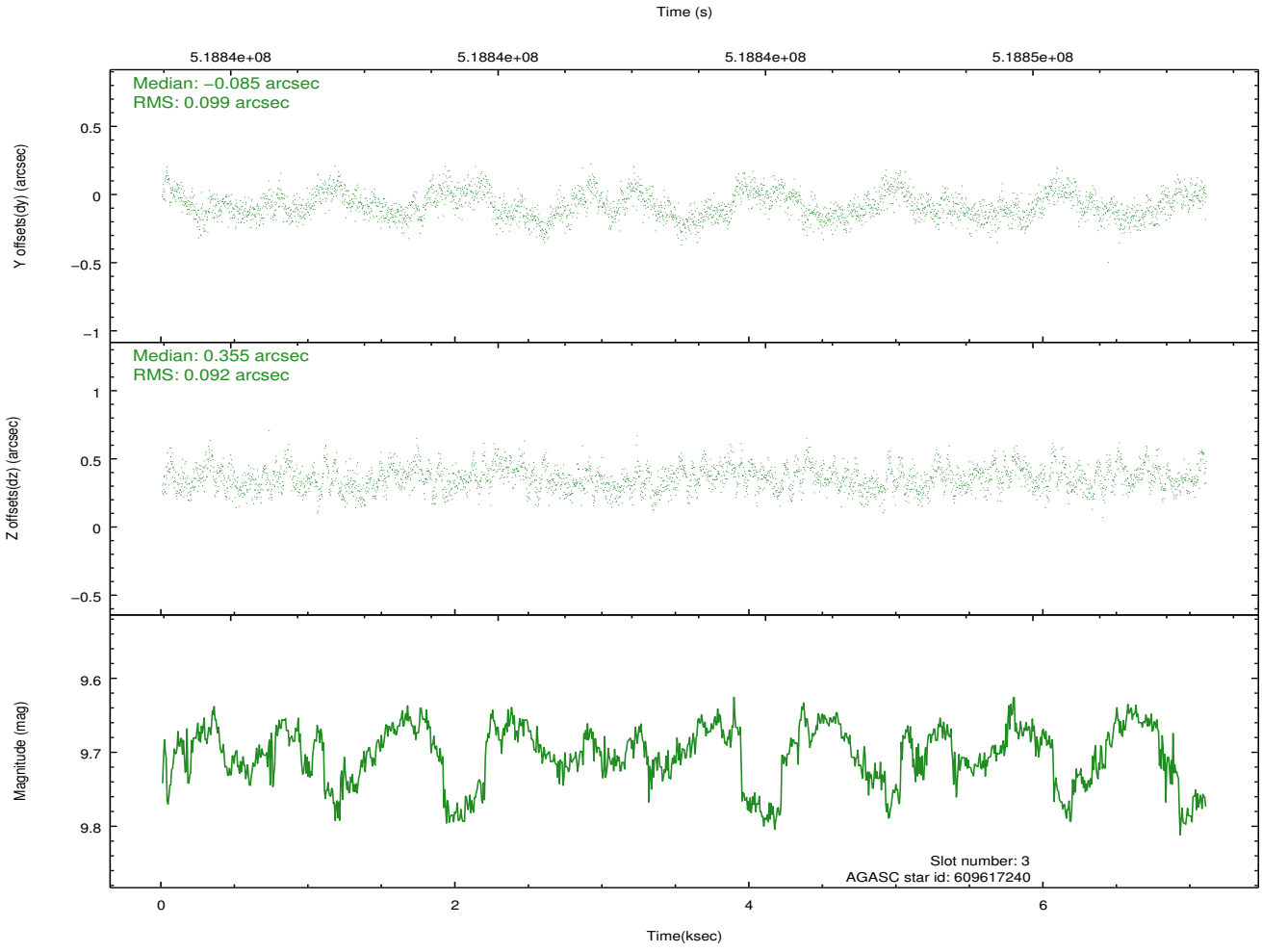
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.07	1732	0.196	-0.053	0.009	0.014	0.000000	0.000000	918.18	-1003.86
1	FID		ACIS-I-2	7.03	1732	-0.245	0.011	0.009	0.015	0.000000	0.000000	-776.32	-1009.62
2	FID		ACIS-I-6	7.07	1732	-0.042	0.111	0.010	0.018	0.000000	0.000000	383.32	1537.65
3	GUIDE	used	609617240	9.70	3463	-0.085	0.355	0.146	0.229	259.760586	86.198015	240.54	-1055.55
4	GUIDE	used	609618888	8.92	3465	-0.082	-0.200	0.082	0.128	253.783495	85.619583	1855.12	961.65
5	GUIDE	used	609622344	10.25	3446	0.154	-0.182	0.202	0.329	267.962037	85.528585	-2081.69	1160.24
6	GUIDE	used	609628696	9.24	3460	-0.020	-0.008	0.165	0.266	263.115679	85.534122	-730.28	1294.34
7	GUIDE	used	609615896	8.12	3464	0.018	0.034	0.080	0.141	251.317191	86.069850	2312.57	-720.75

2.4 Star Slots

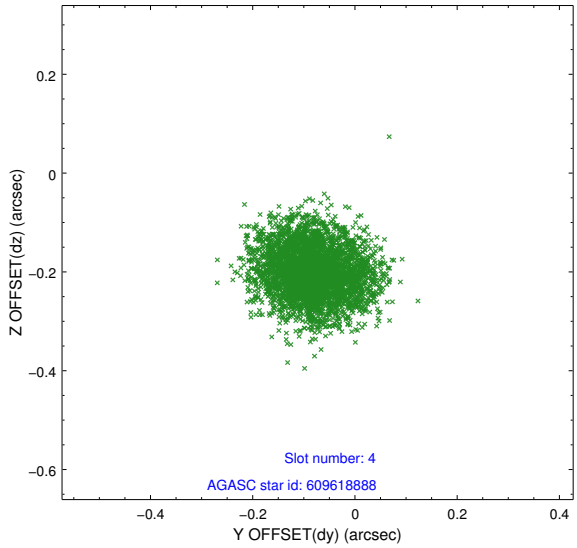
2.4.1 Slot 3

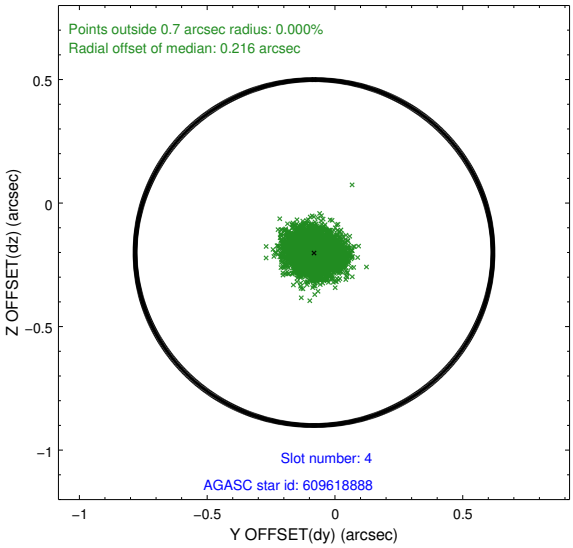


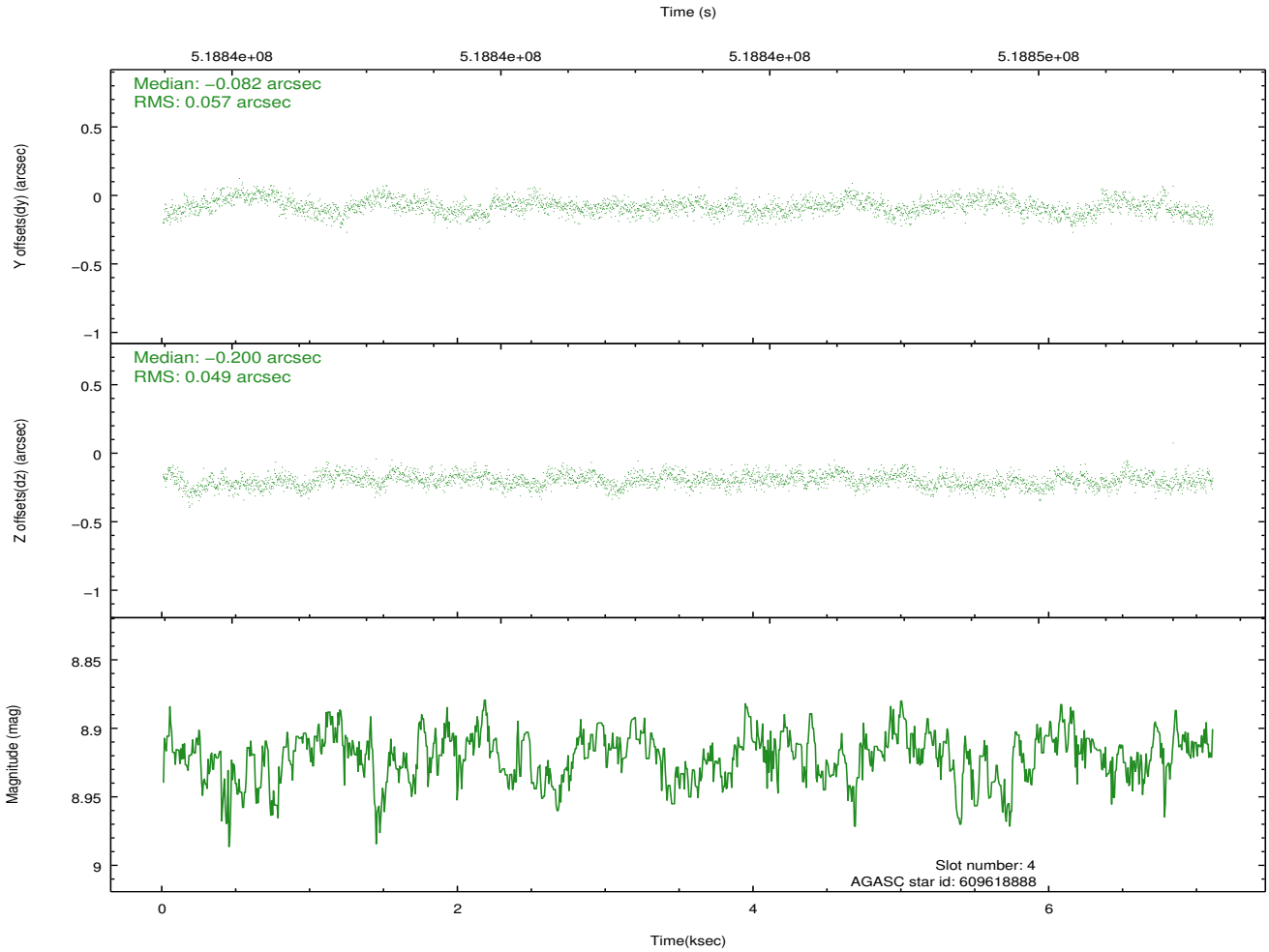




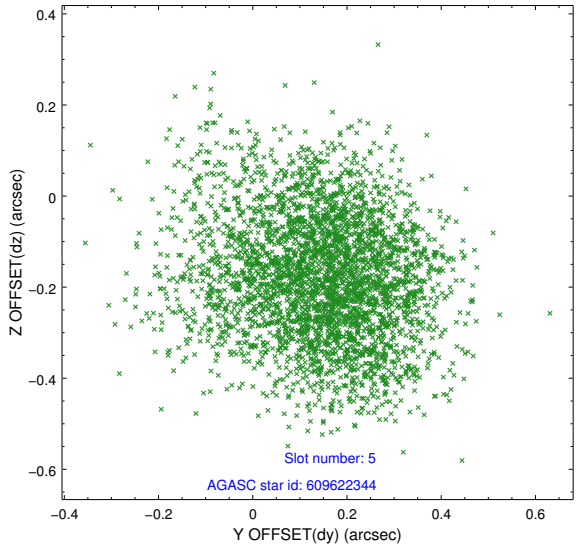
2.4.2 Slot 4

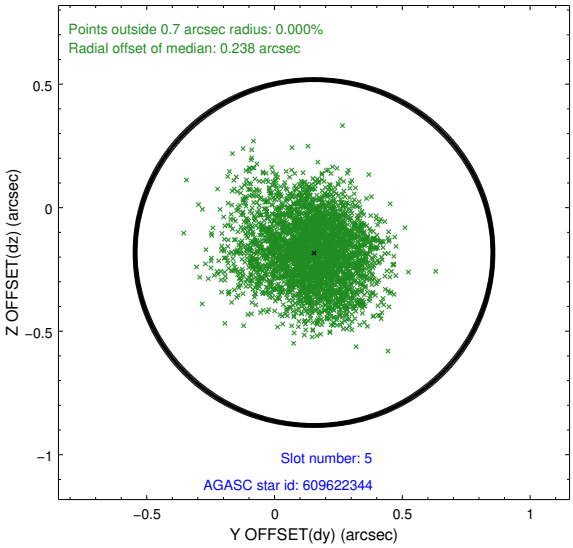

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 609618888

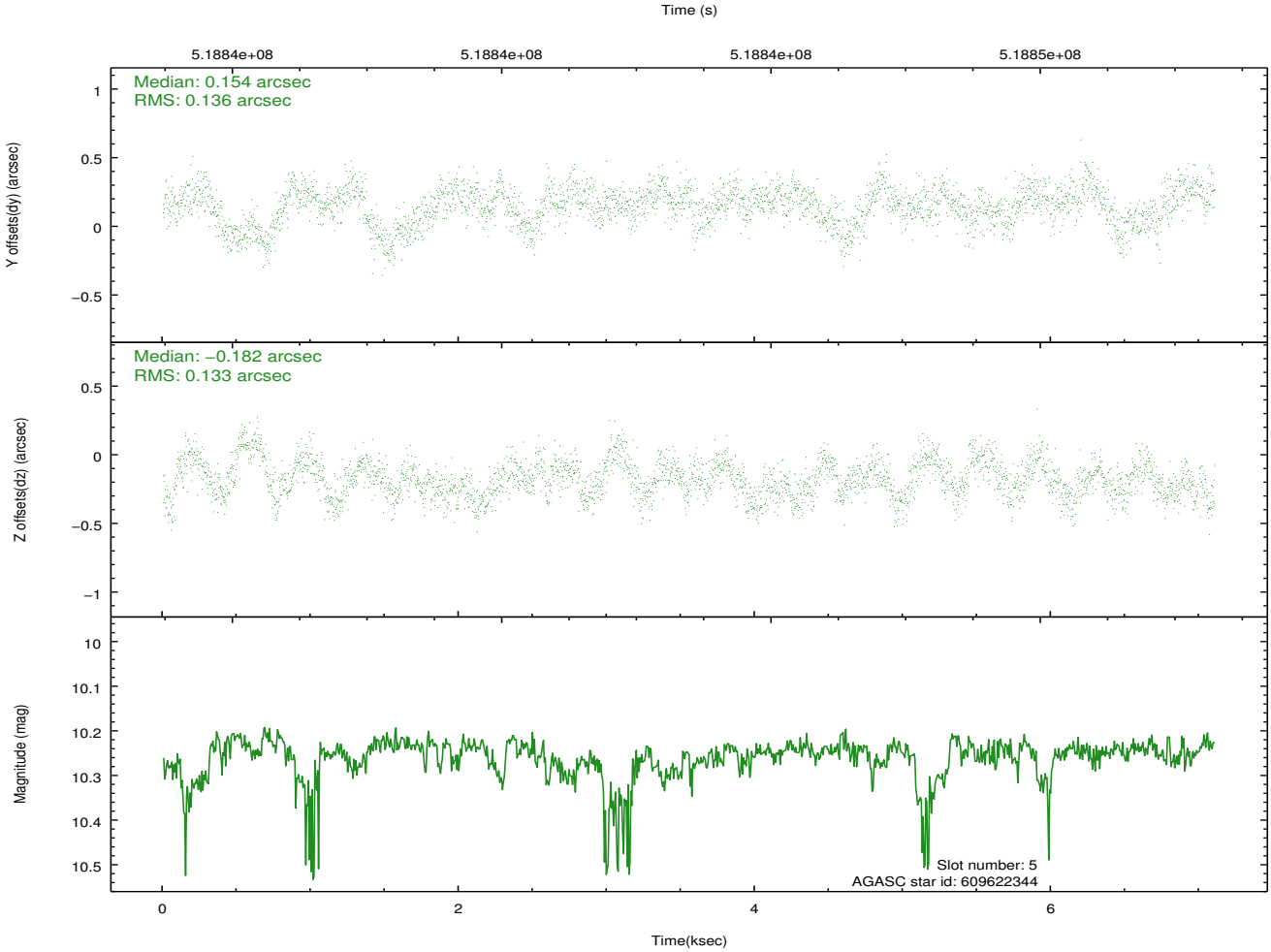

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.216 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 609618888


Time (s)
Median: −0.082 arcsec
RMS: 0.057 arcsec
Y offsets(dy) (arcsec)
Median: −0.200 arcsec
RMS: 0.049 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 609618888
Time(ksec)

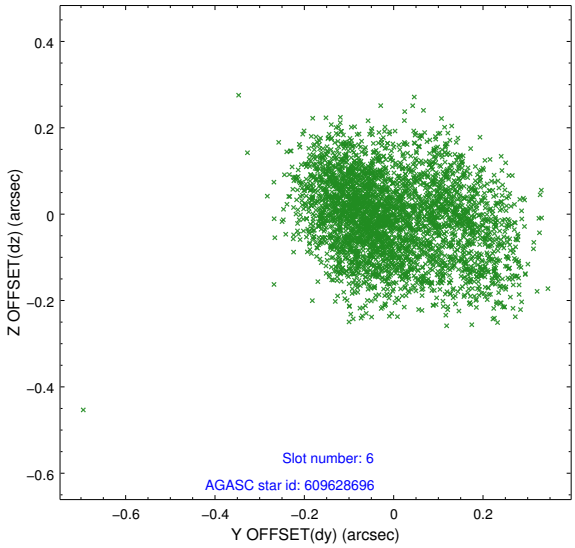
2.4.3 Slot 5

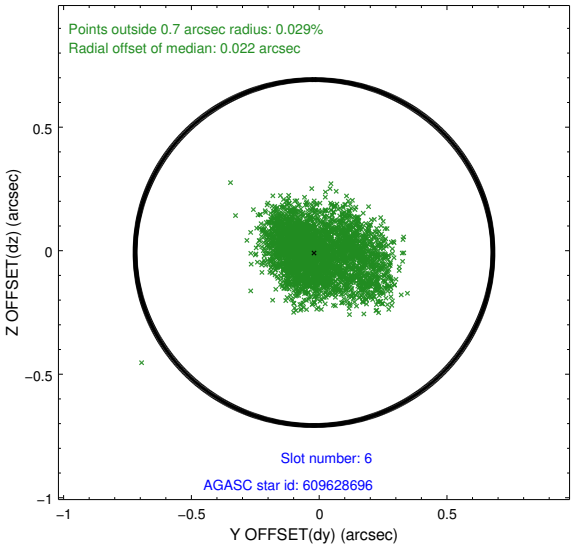

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 609622344

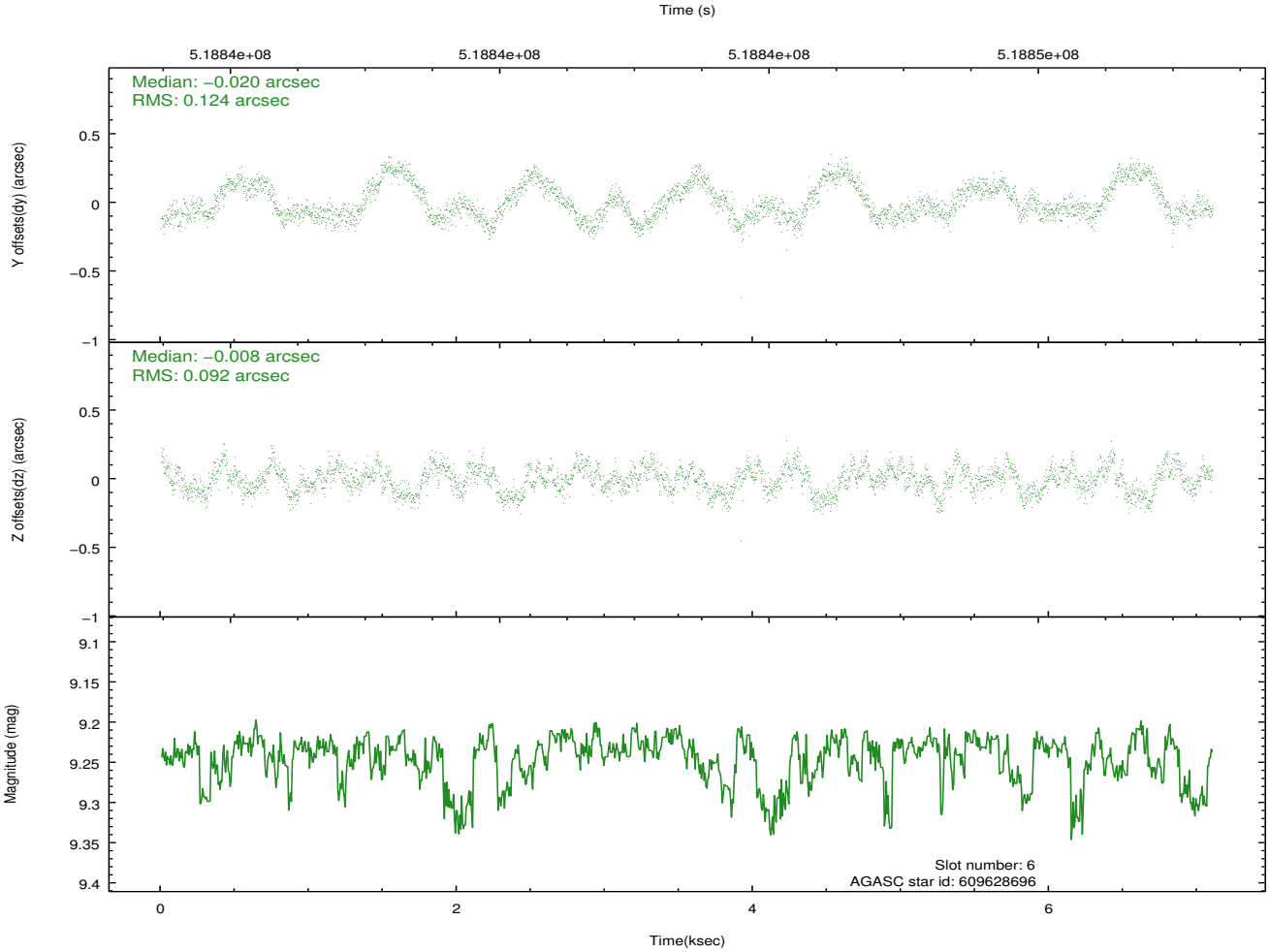

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.238 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 609622344


Time (s)
5.1884e+08
5.1884e+08
5.1884e+08
5.1885e+08
Median: 0.154 arcsec
RMS: 0.136 arcsec
Y offsets(dy) (arcsec)
Median: −0.182 arcsec
RMS: 0.133 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 609622344
Time(ksec)

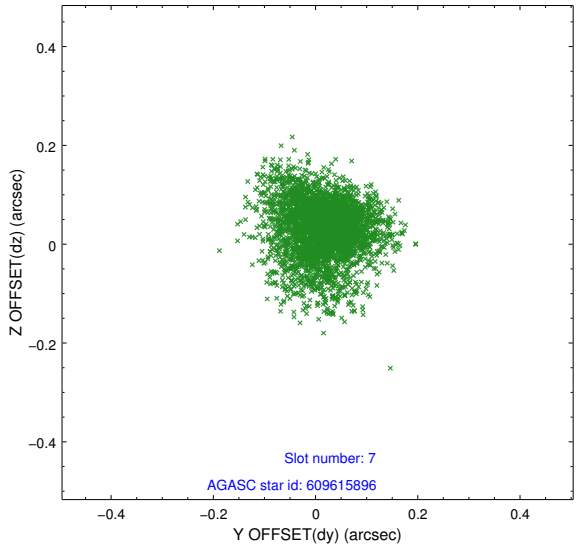
2.4.4 Slot 6

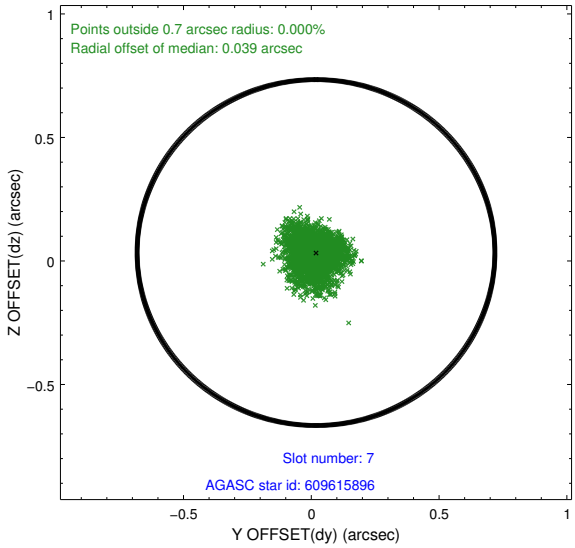

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 609628696

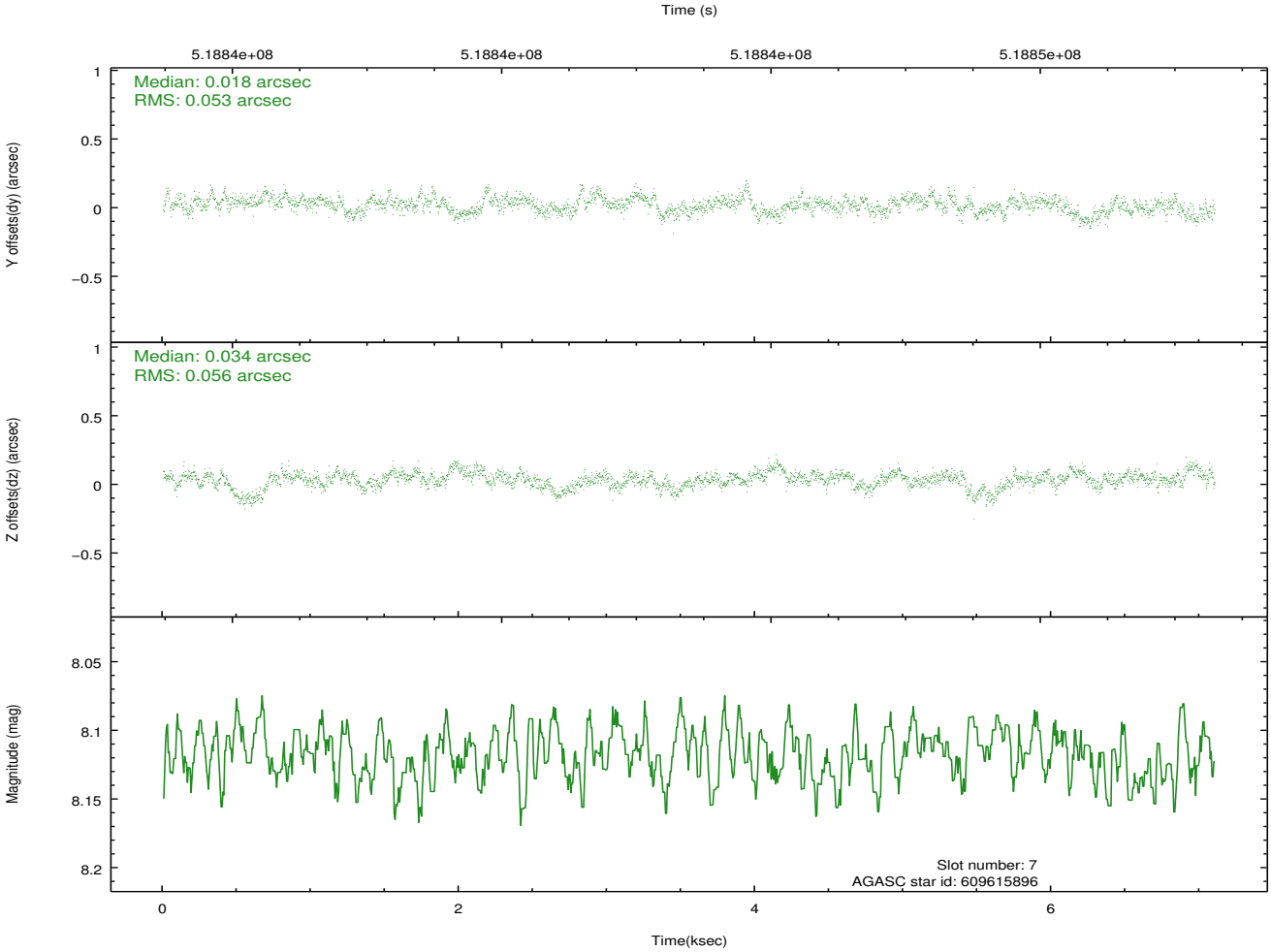

Points outside 0.7 arcsec radius: 0.029%
Radial offset of median: 0.022 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 609628696


Time (s)
5.1884e+08
5.1884e+08
5.1884e+08
5.1885e+08
Median: −0.020 arcsec
RMS: 0.124 arcsec
Y offsets(dy) (arcsec)
Median: −0.008 arcsec
RMS: 0.092 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 609628696
Time(ksec)

2.4.5 Slot 7

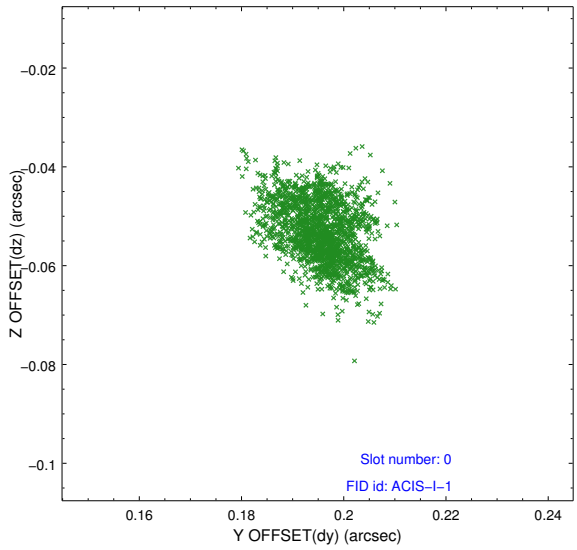

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 609615896

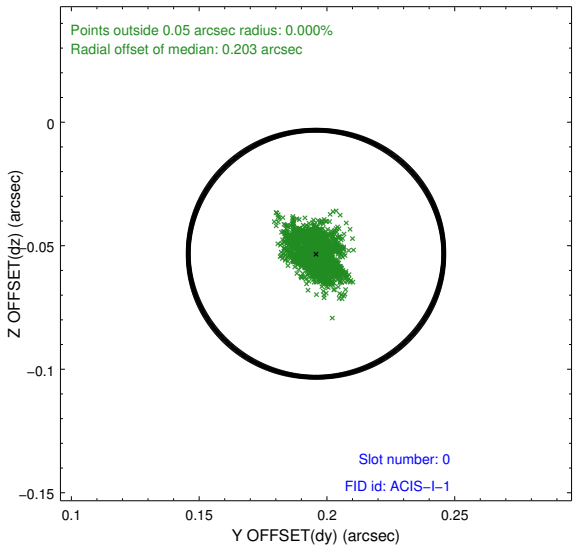

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.039 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 609615896

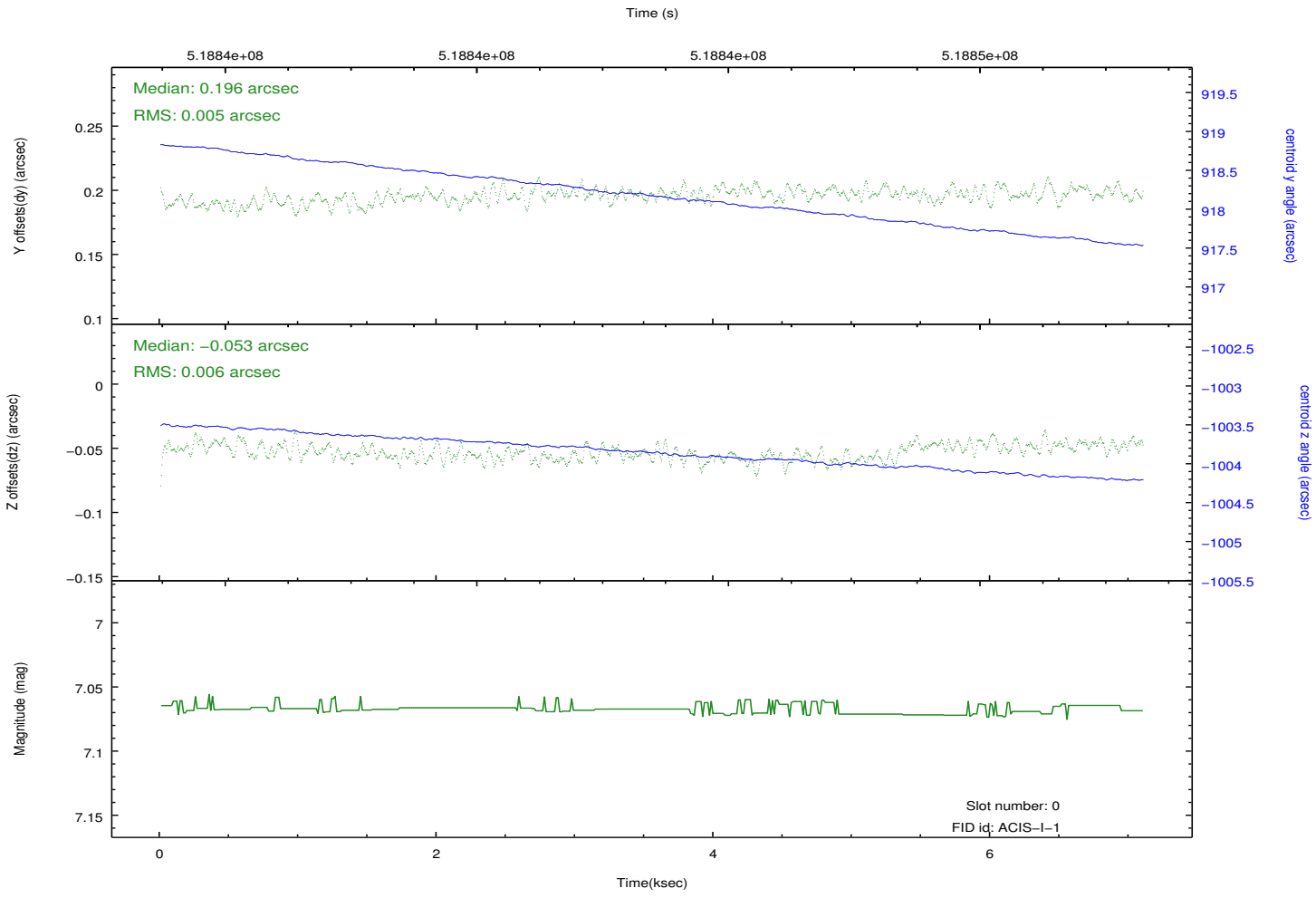

Time (s)
5.1884e+08
5.1884e+08
5.1884e+08
5.1885e+08
Median: 0.018 arcsec
RMS: 0.053 arcsec
Y offsets(dy) (arcsec)
Median: 0.034 arcsec
RMS: 0.056 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 609615896
Time(ksec)

2.5 FID Slots

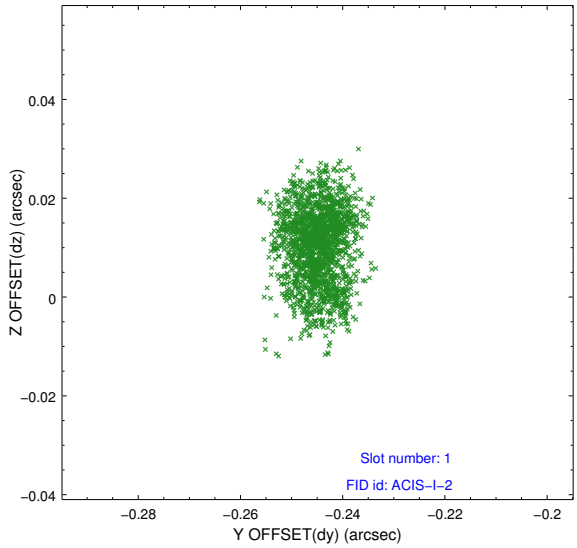
2.5.1 Slot 0

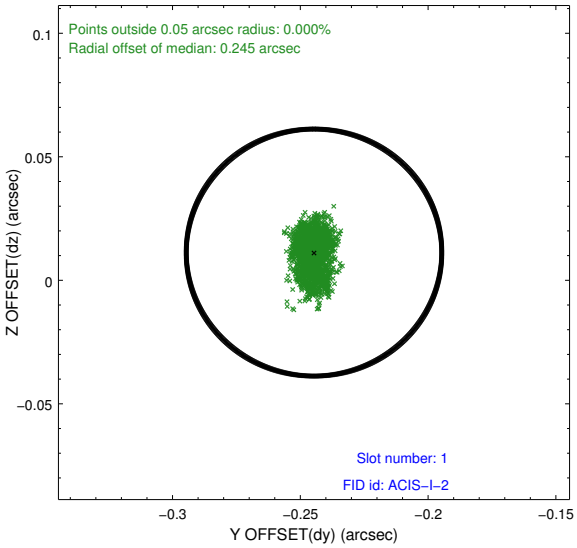


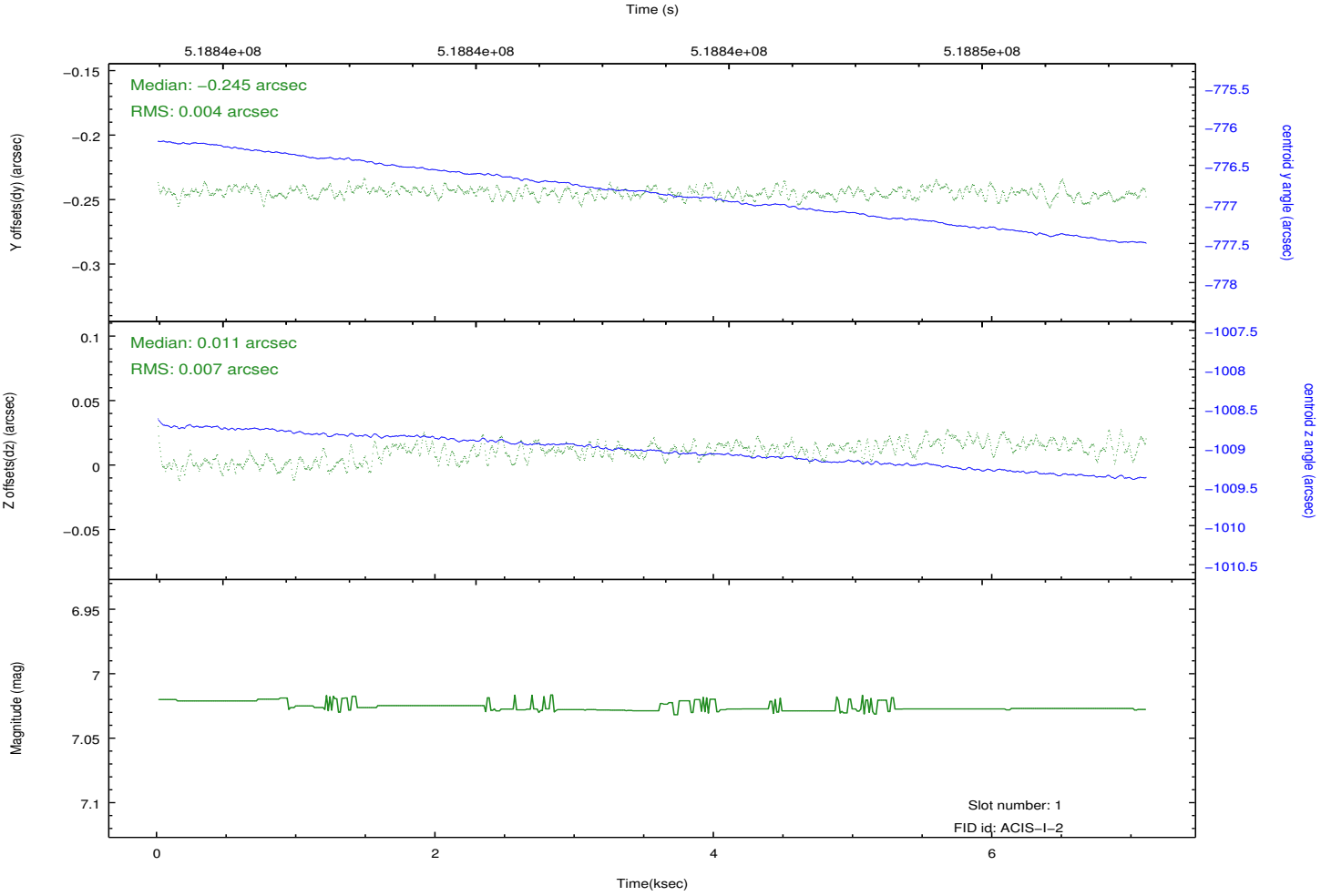




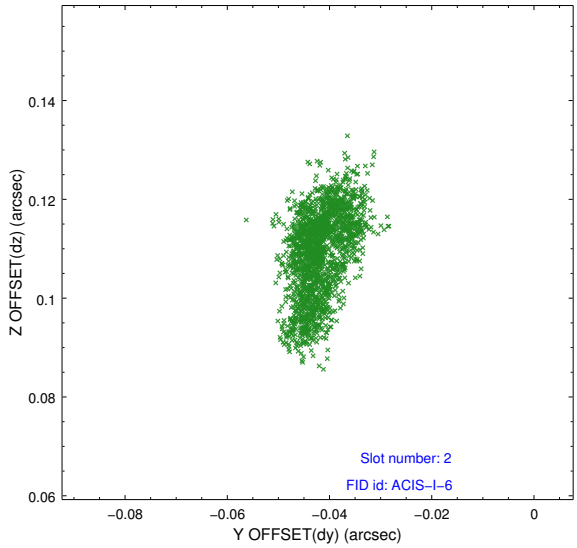
2.5.2 Slot 1

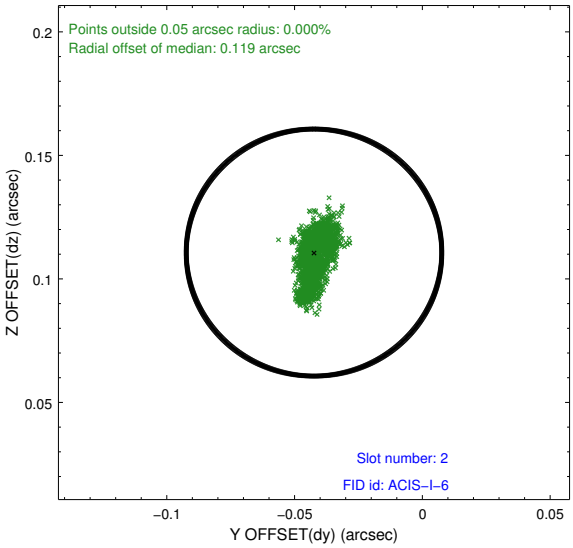

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−2

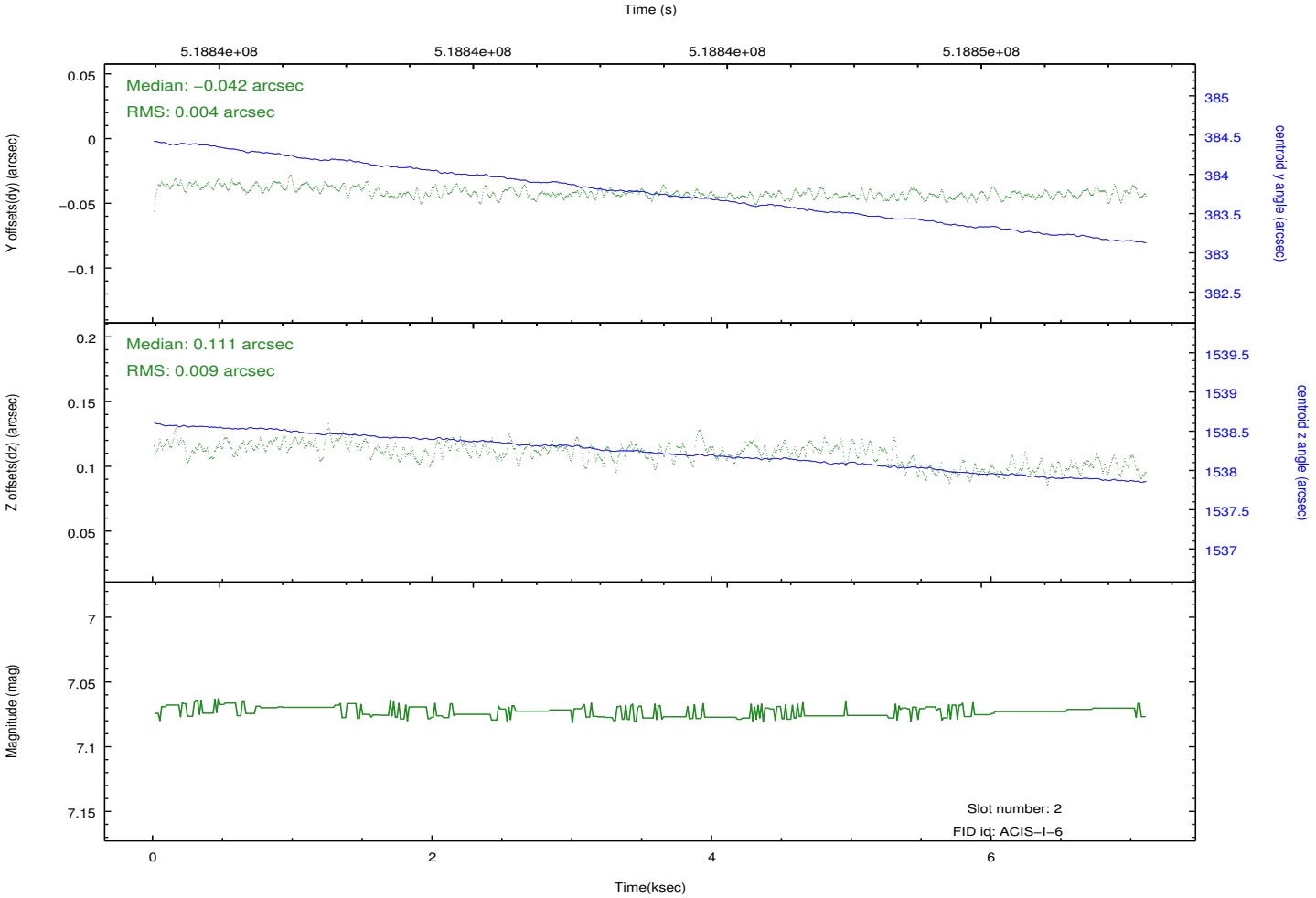

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.245 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−2


Time (s)
Median: −0.245 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.011 arcsec
RMS: 0.007 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−I−2
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: 0.119 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS–I–6


Time (s)
Median: –0.042 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.111 arcsec
RMS: 0.009 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	Jen Lauer
V&V Date (YYYY-MM-DD)	2014.12.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	7.0835000544786

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.