

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1784 - L2 Version 5
Chandra X-Ray Center

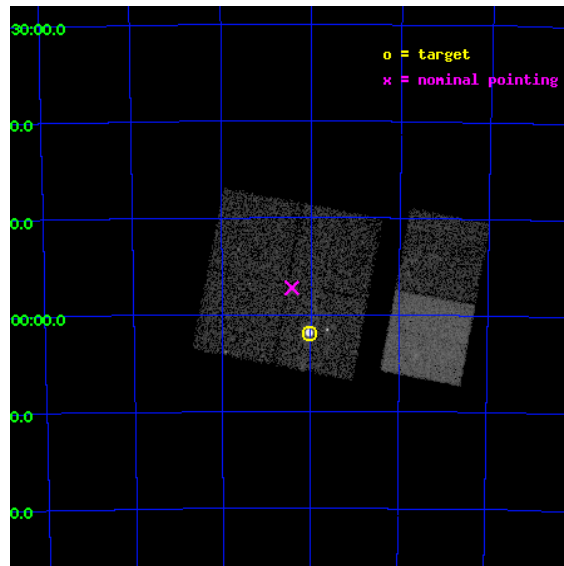
L2 Processing Date : Aug 29 2012

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1 Front

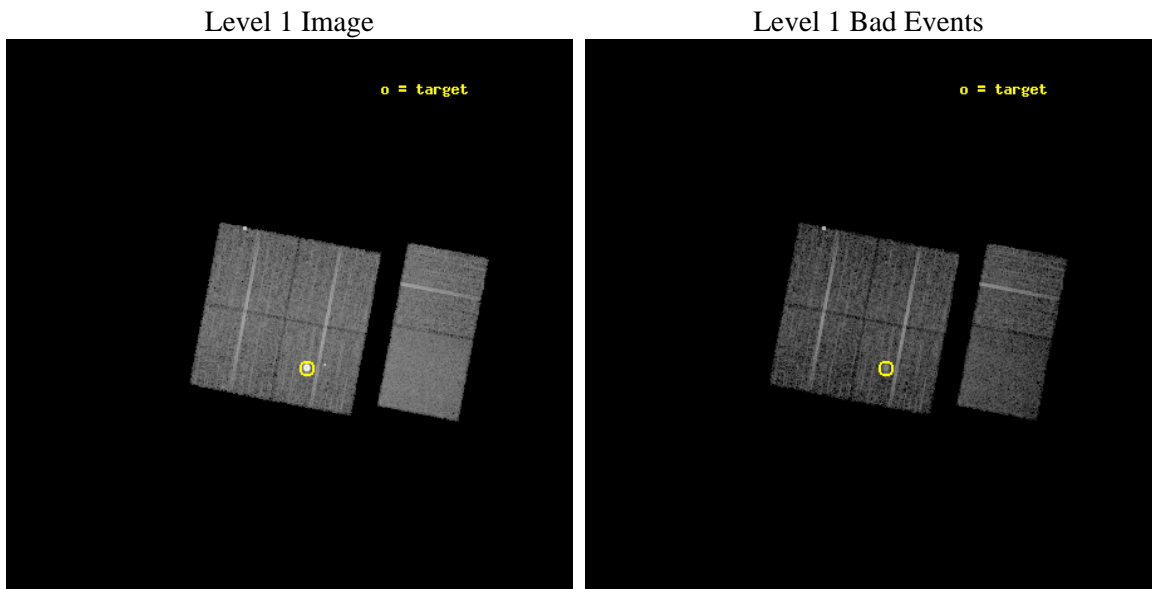
seq_num	590210	Sequence number
obs_id	1784	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip I3, T=110, Offsets=-4,2,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	16.106422735885	Nominal RA [deg]
dec_nom	-71.954086948479	Nominal Dec [deg]
roll_nom	100.77967516565	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7673.5208449215	Sum of GTIs [s]
livetime	7576.3541035435	Livetime [s]
ontime0	7673.3977249265	Sum of GTIs [s]
ontime1	7673.4387649298	Sum of GTIs [s]
ontime2	7673.4798049331	Sum of GTIs [s]
ontime3	7673.5208449215	Sum of GTIs [s]
ontime6	7673.6000071317	Sum of GTIs [s]
ontime7	7673.5618849248	Sum of GTIs [s]
l2events	74294	Number of level 2 events



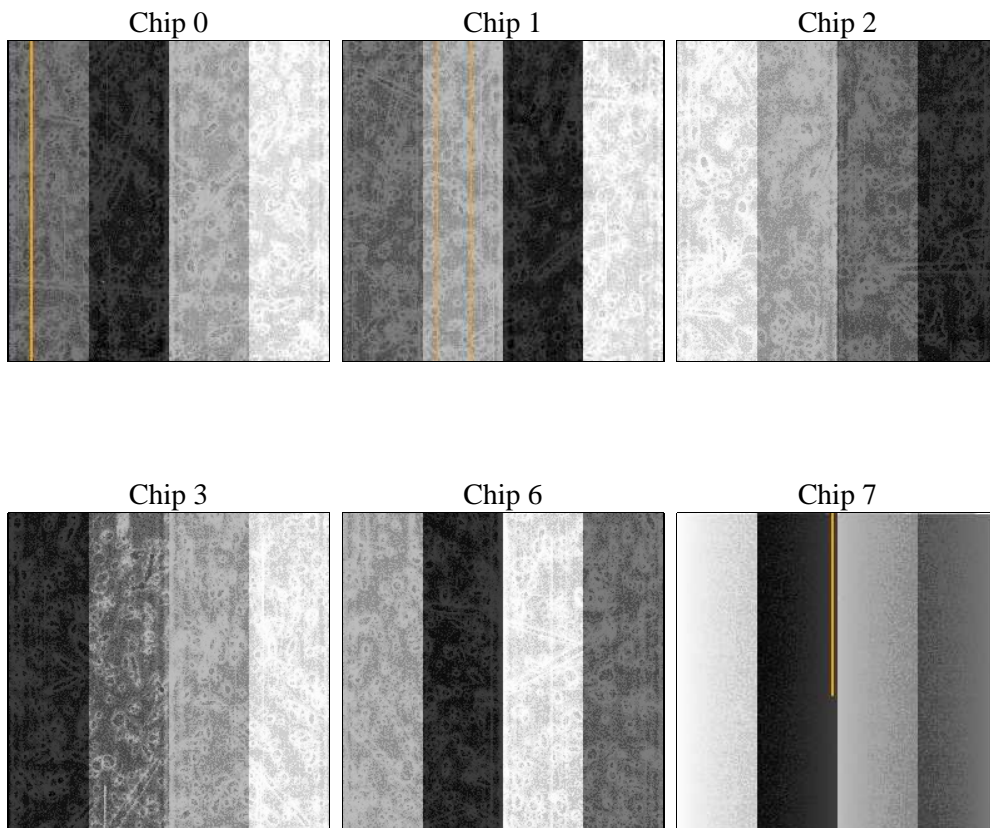
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	7920.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7673.5208449215	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime0	7673.3977249265	Sum of GTIs [s]
date	2012-08-30T01:14:42	Date and time of file creation	ontime1	7673.4387649298	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	7673.4798049331	Sum of GTIs [s]
			ontime3	7673.5208449215	Sum of GTIs [s]
			ontime6	7673.6000071317	Sum of GTIs [s]
			ontime7	7673.5618849248	Sum of GTIs [s]
			l1events	356902	Number of level 1 events

2.1.4 Events

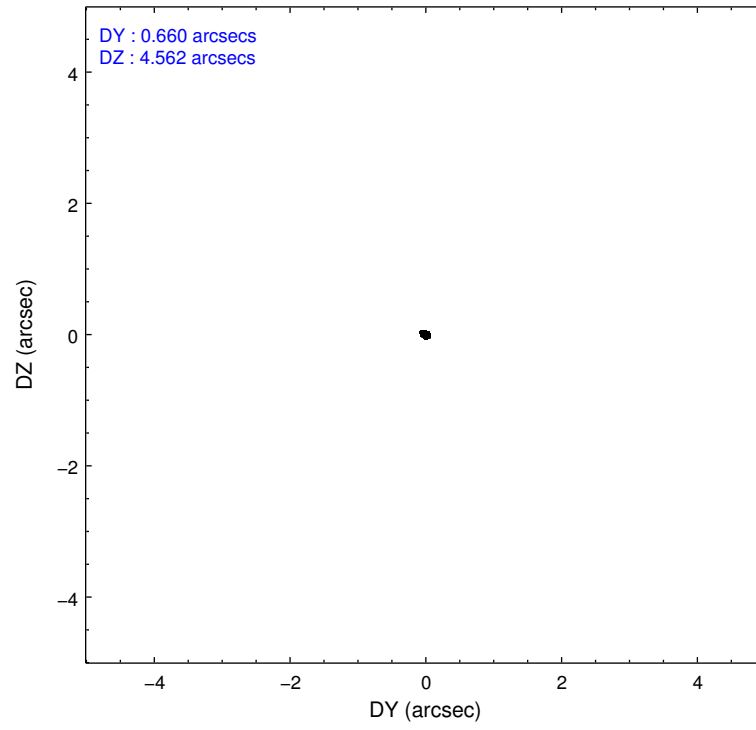
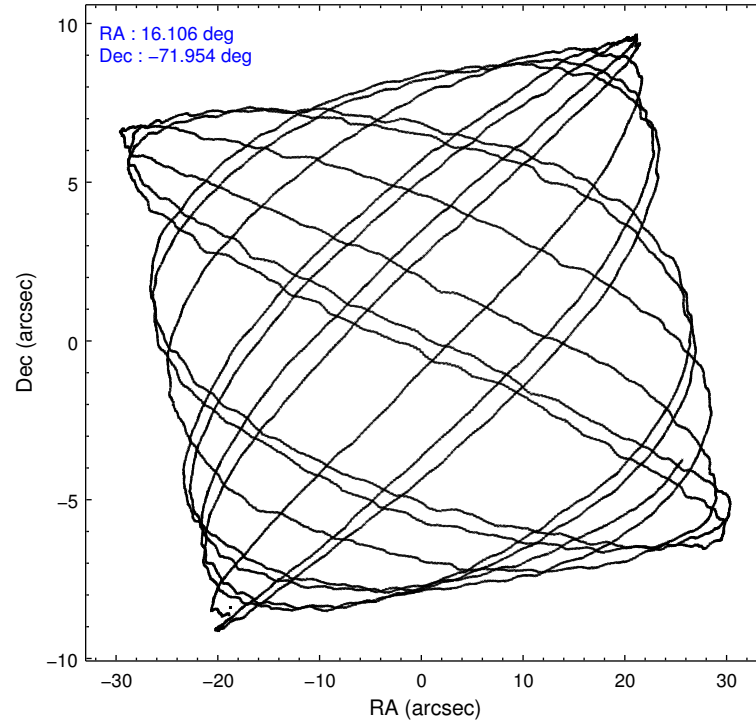
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	52809	49843	54376	82887	55657	61330	grade 0 events	1261	1552	1293	26373	1247	1702
rejected events	47466	43811	49076	47822	50045	37948		2%	3%	2%	31%	2%	2%
rejected %	89%	87%	90%	57%	89%	61%	grade 1 events	2308	18	6	224	9	33
								4%	0%	0%	0%	0%	0%
							grade 2 events	2058	2132	2096	5523	2101	5036
								3%	4%	3%	6%	3%	8%
							grade 3 events	410	445	335	760	347	1477
								0%	0%	0%	0%	0%	2%
							grade 4 events	387	448	324	785	364	1267
								0%	0%	0%	0%	0%	2%
							grade 5 events	1139	1122	972	1204	1234	3694
								2%	2%	1%	1%	2%	6%
							grade 6 events	1228	1459	1255	1637	1559	13906
								2%	2%	2%	1%	2%	22%
							grade 7 events	44018	42667	48095	46381	48796	34215
								83%	85%	88%	55%	87%	55%

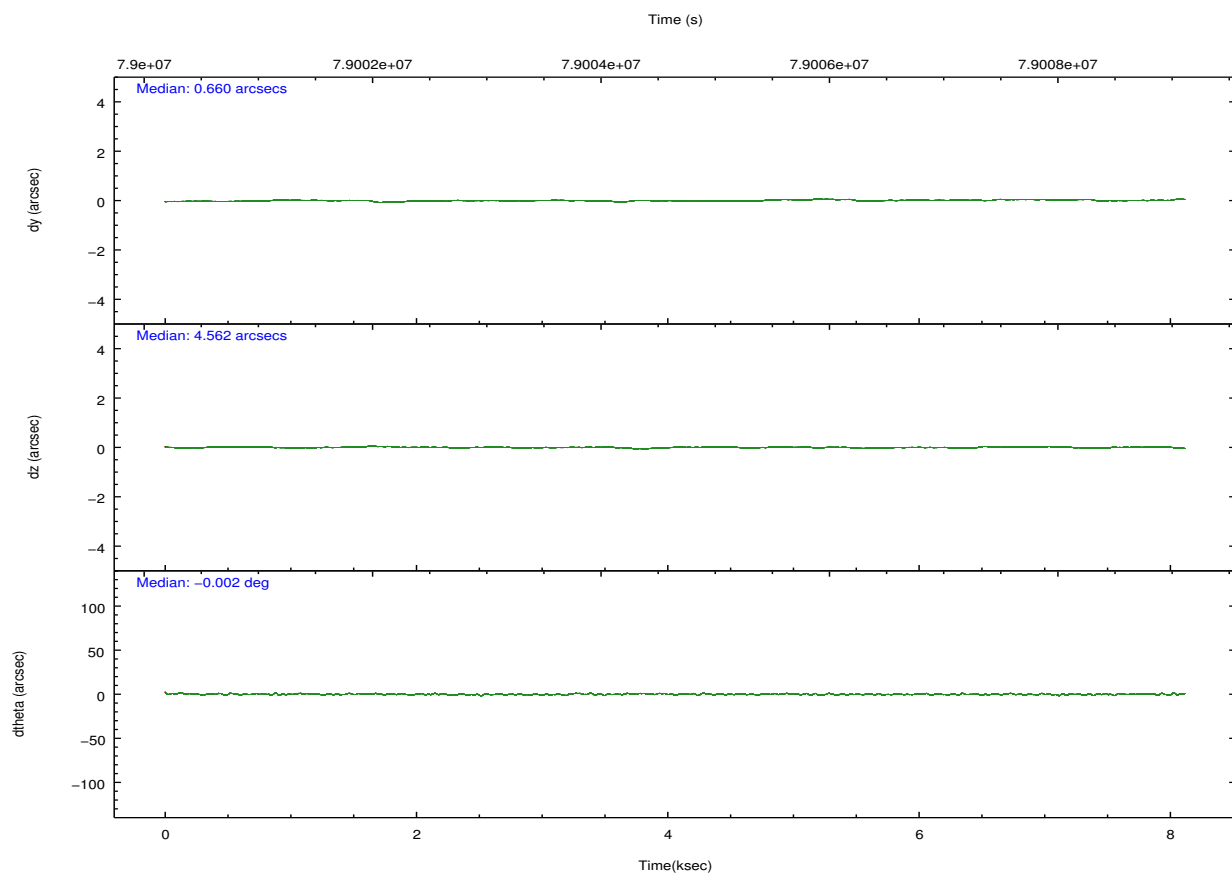
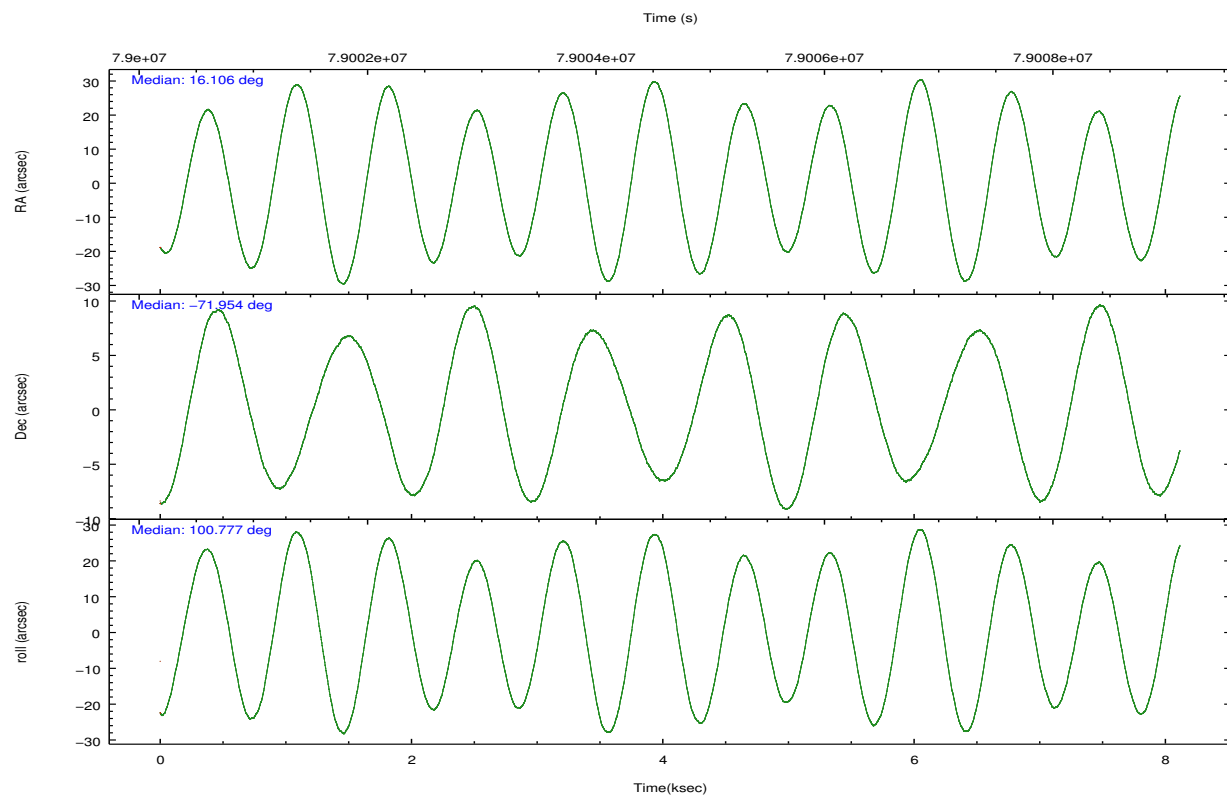
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	16.164370	16.10642273588452
[deg] Pointing Dec	-71.974998	-71.95408694847902
[deg] Pointing Roll	100.626084	100.7796751656465
[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)	79000789.184000	79000412.959758
Observation start date	2000-07-03T08:38:45	2000-07-03T08:33:32
[s] Observation end time (MET)	79008709.184000	79008843.072569
Observation end date	2000-07-03T10:50:45	2000-07-03T10:54:03
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
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	3.2

2.3 Aspect



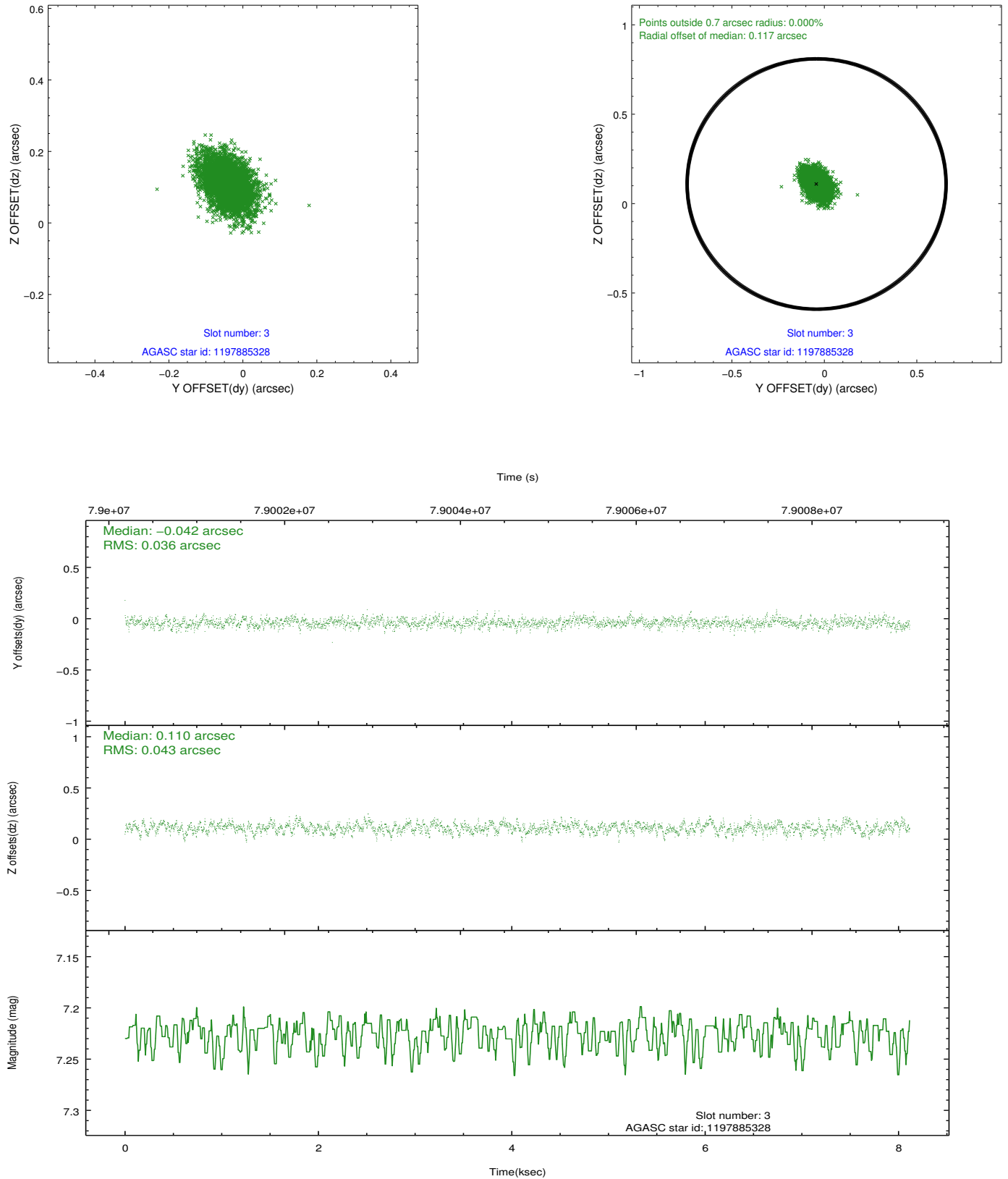


Slot Statistics

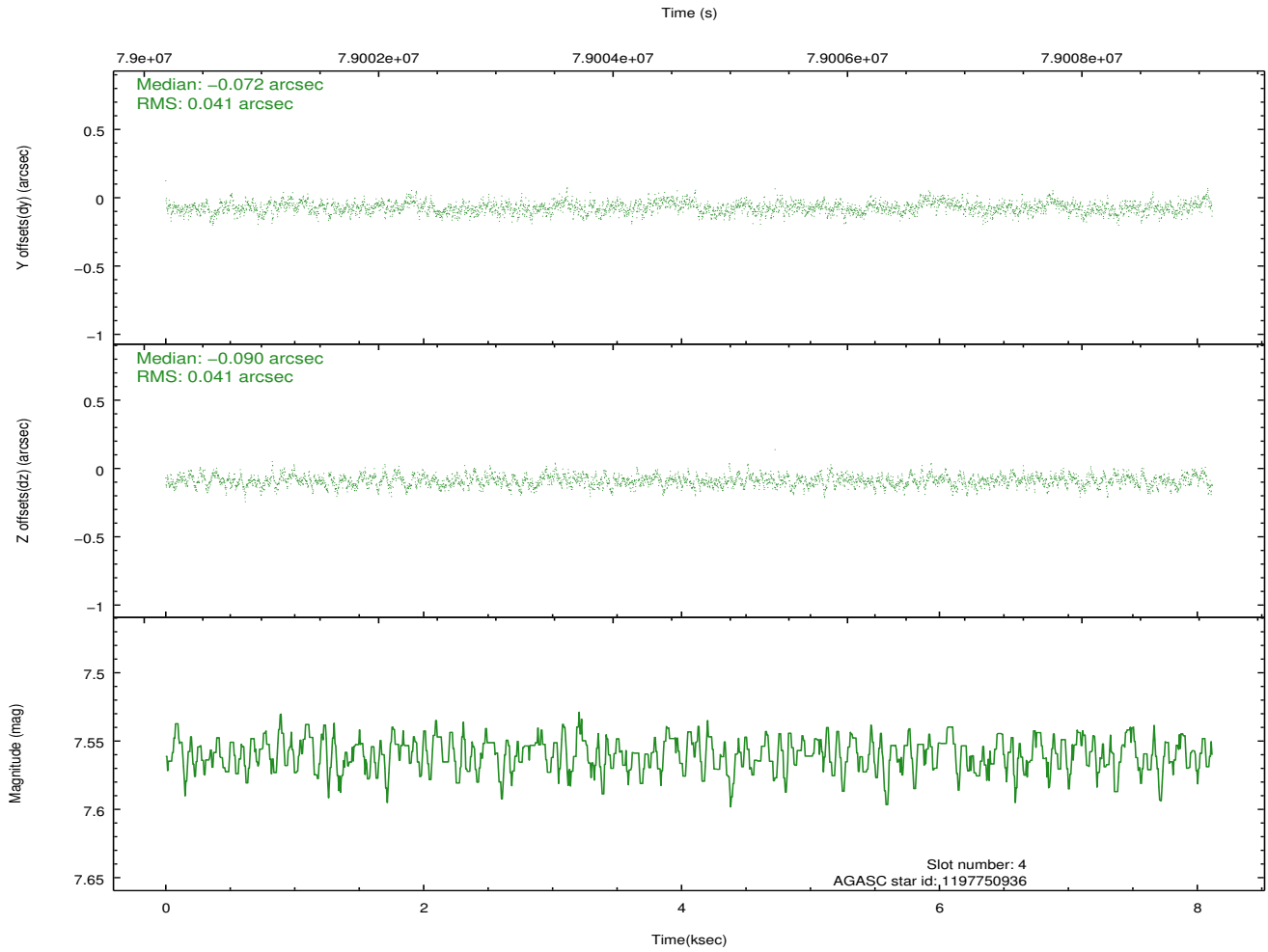
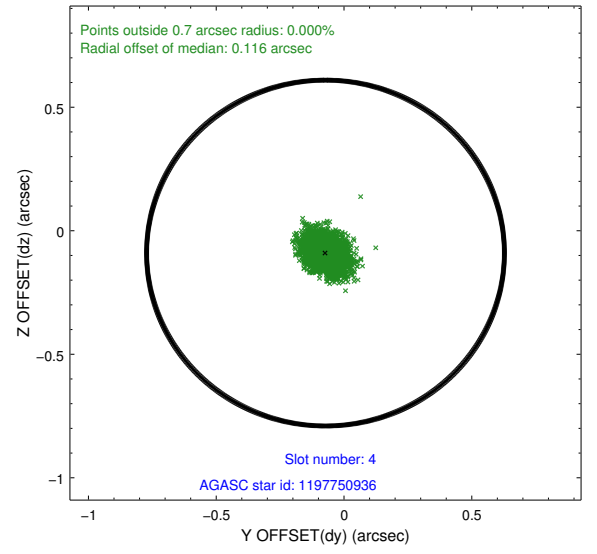
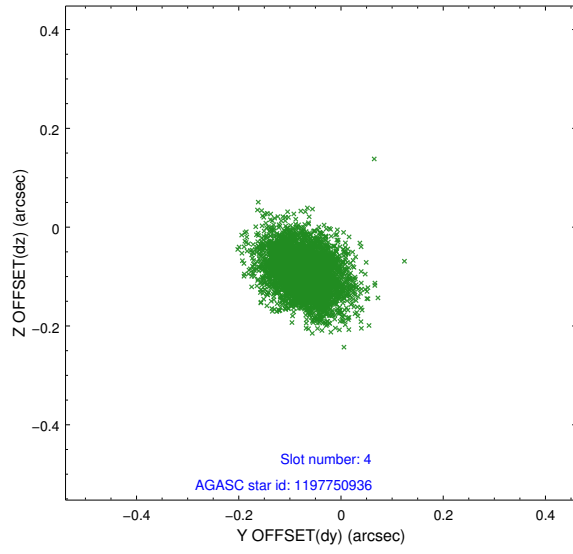
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.15	1980	-0.032	-0.020	0.009	0.015	0.000000	0.000000	-755.01	-834.27
1	FID	ACIS-I-4	7.20	1980	-0.027	0.032	0.005	0.010	0.000000	0.000000	2158.75	1071.61
2	FID	ACIS-I-5	7.23	1980	-0.042	0.057	0.008	0.014	0.000000	0.000000	-1807.95	1070.27
3	GUIDE	1197885328	7.22	3960	-0.042	0.110	0.059	0.100	16.283090	-71.733943	828.55	-292.27
4	GUIDE	1197750936	7.56	3960	-0.072	-0.090	0.062	0.101	15.387940	-71.549550	1663.44	587.28
5	GUIDE	1197884536	8.49	3960	0.017	0.039	0.070	0.118	17.160729	-71.835289	280.03	-1190.53
6	GUIDE	1197884712	8.30	3959	-0.008	-0.054	0.062	0.106	16.087398	-72.252690	-966.50	266.27
7	GUIDE	1197750640	9.74	3955	0.103	-0.002	0.095	0.154	15.758835	-72.088048	-318.38	515.98

2.4 Star Slots

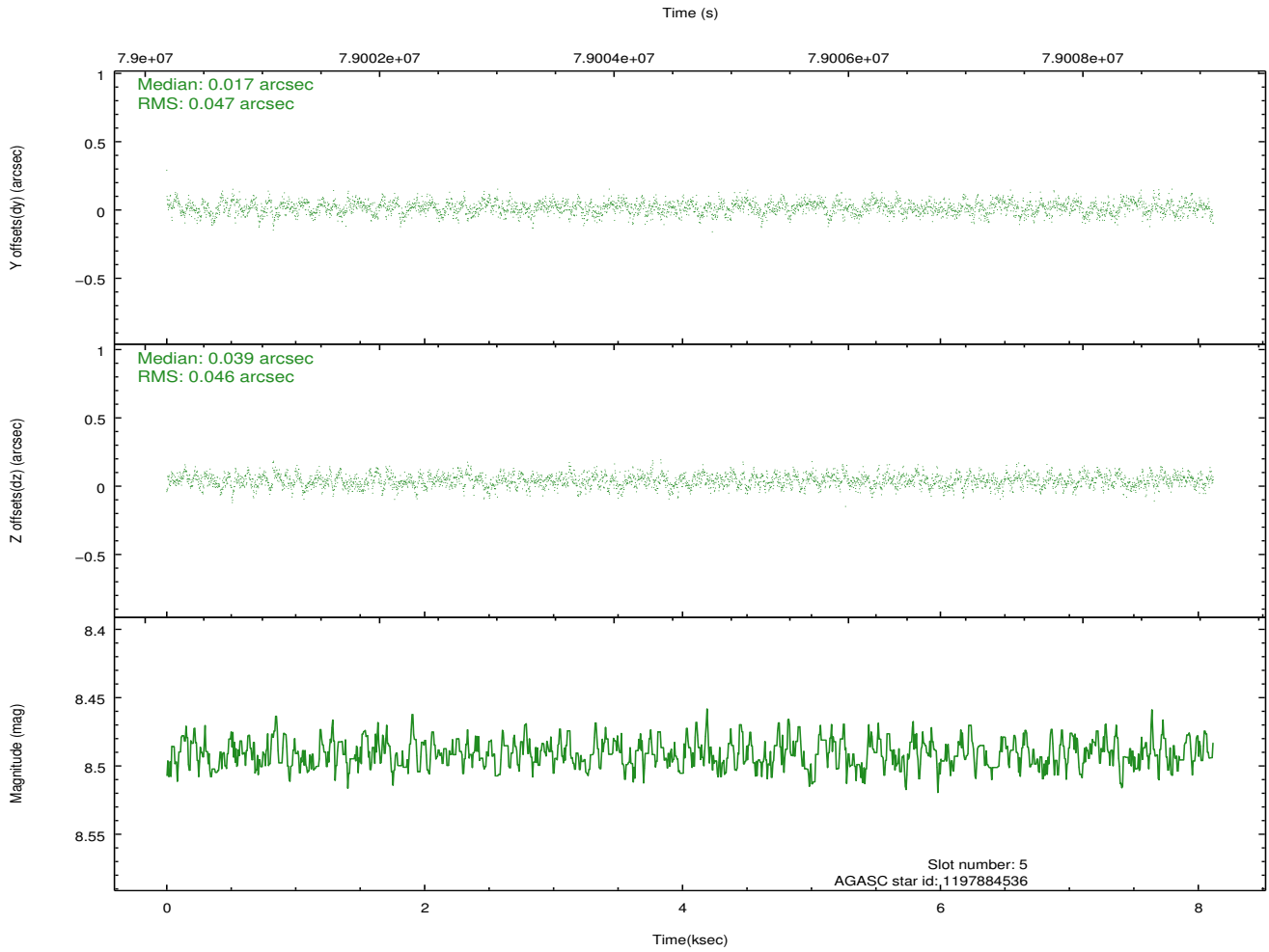
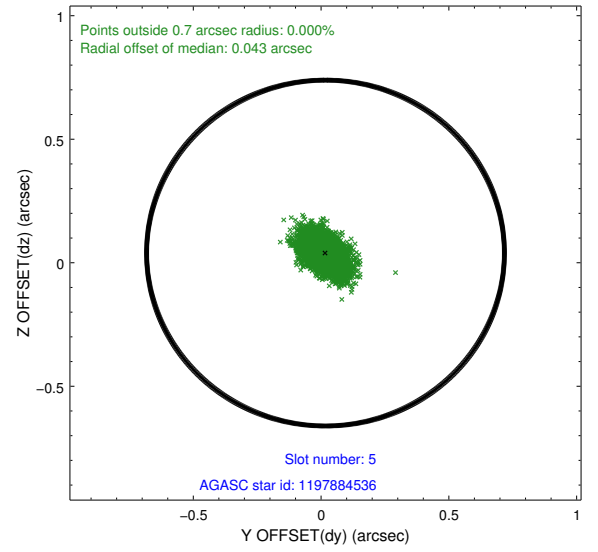
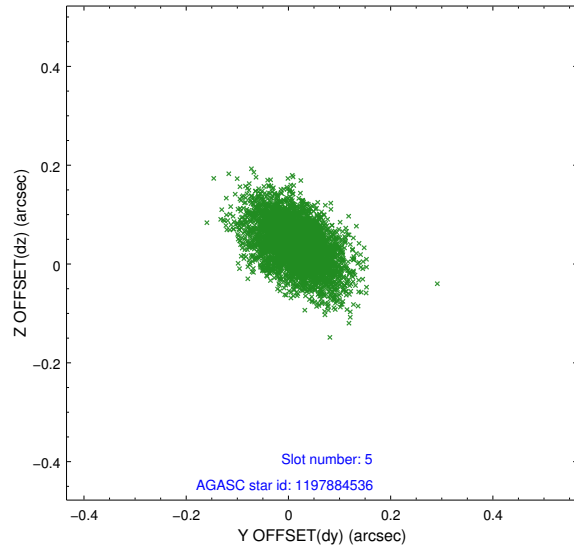
2.4.1 Slot 3



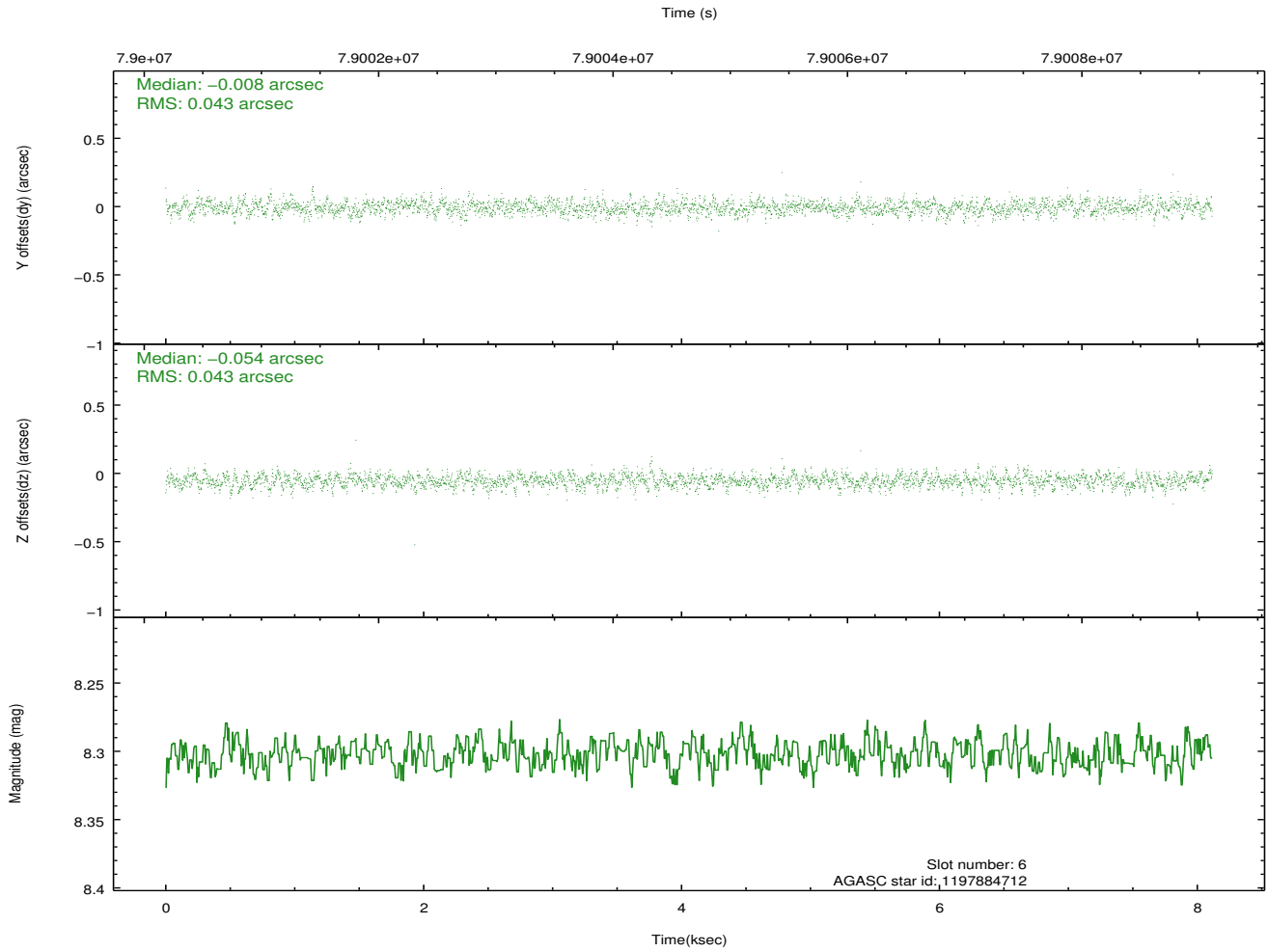
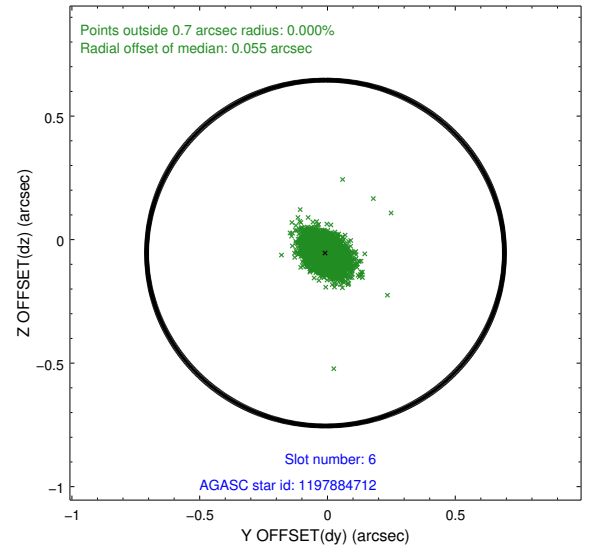
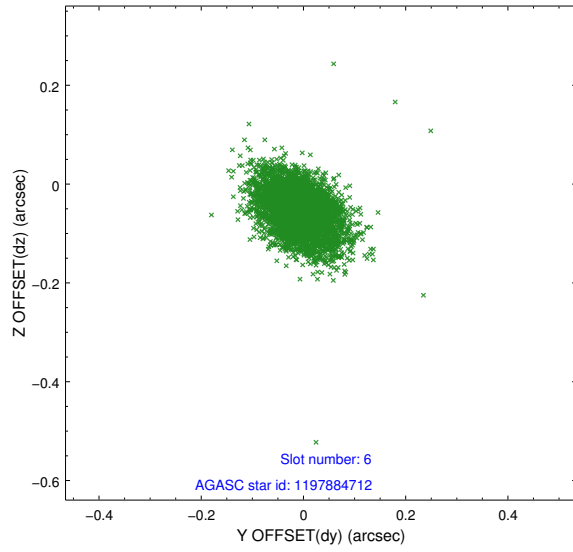
2.4.2 Slot 4



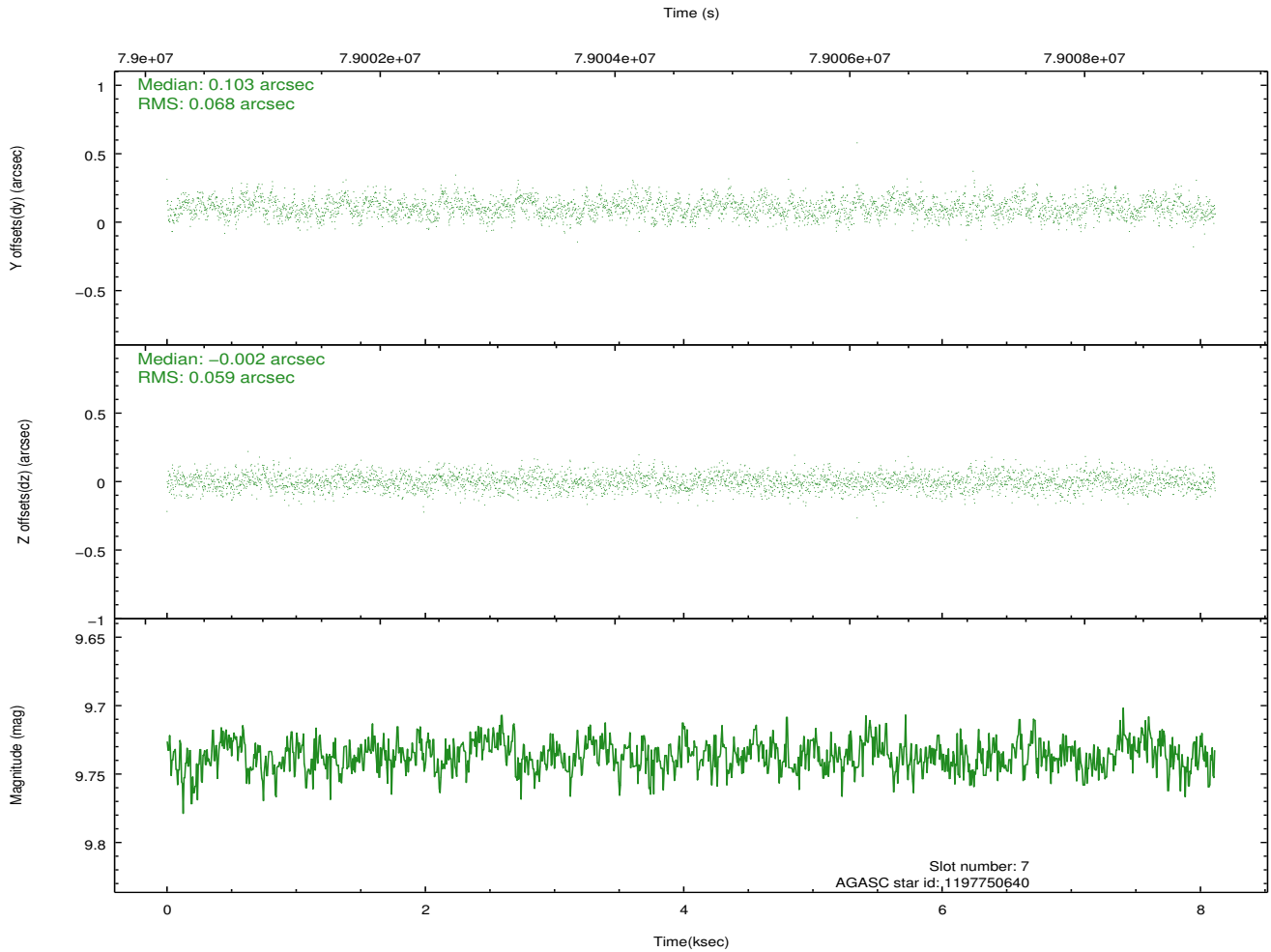
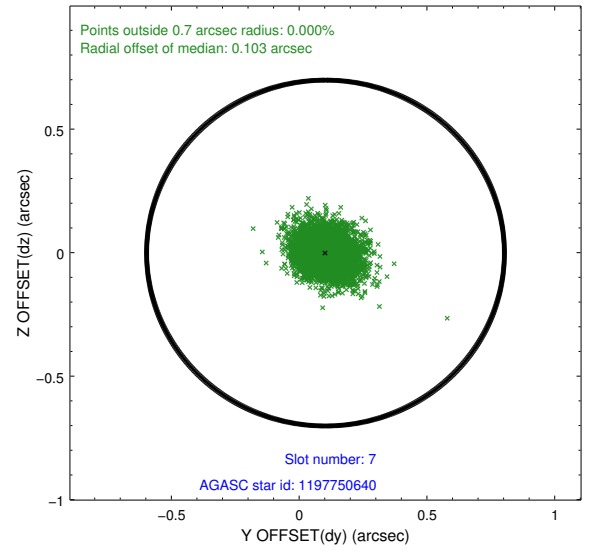
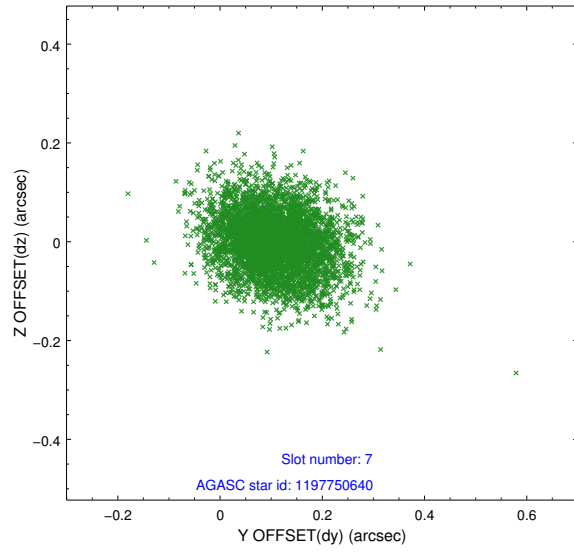
2.4.3 Slot 5



2.4.4 Slot 6

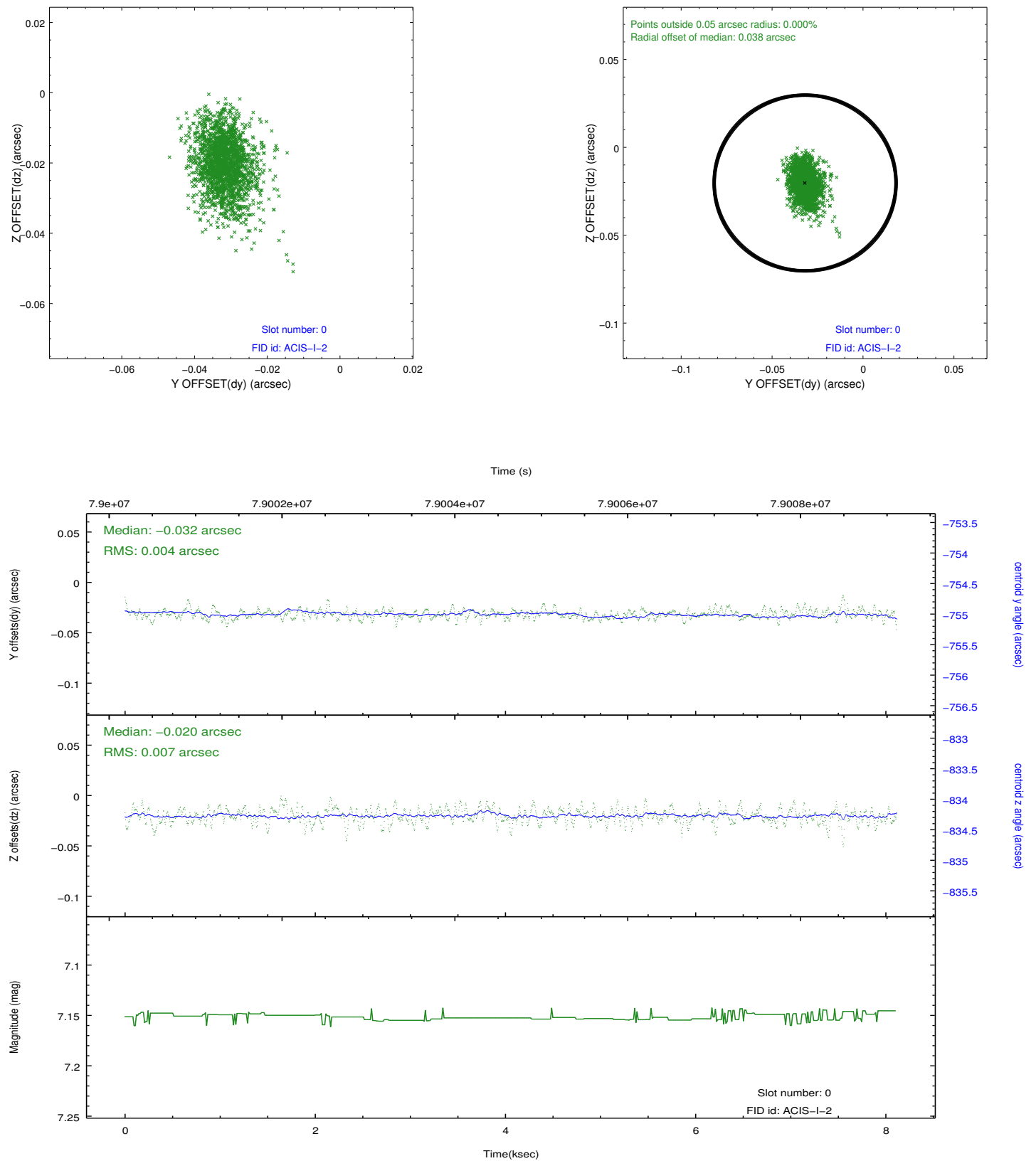


2.4.5 Slot 7

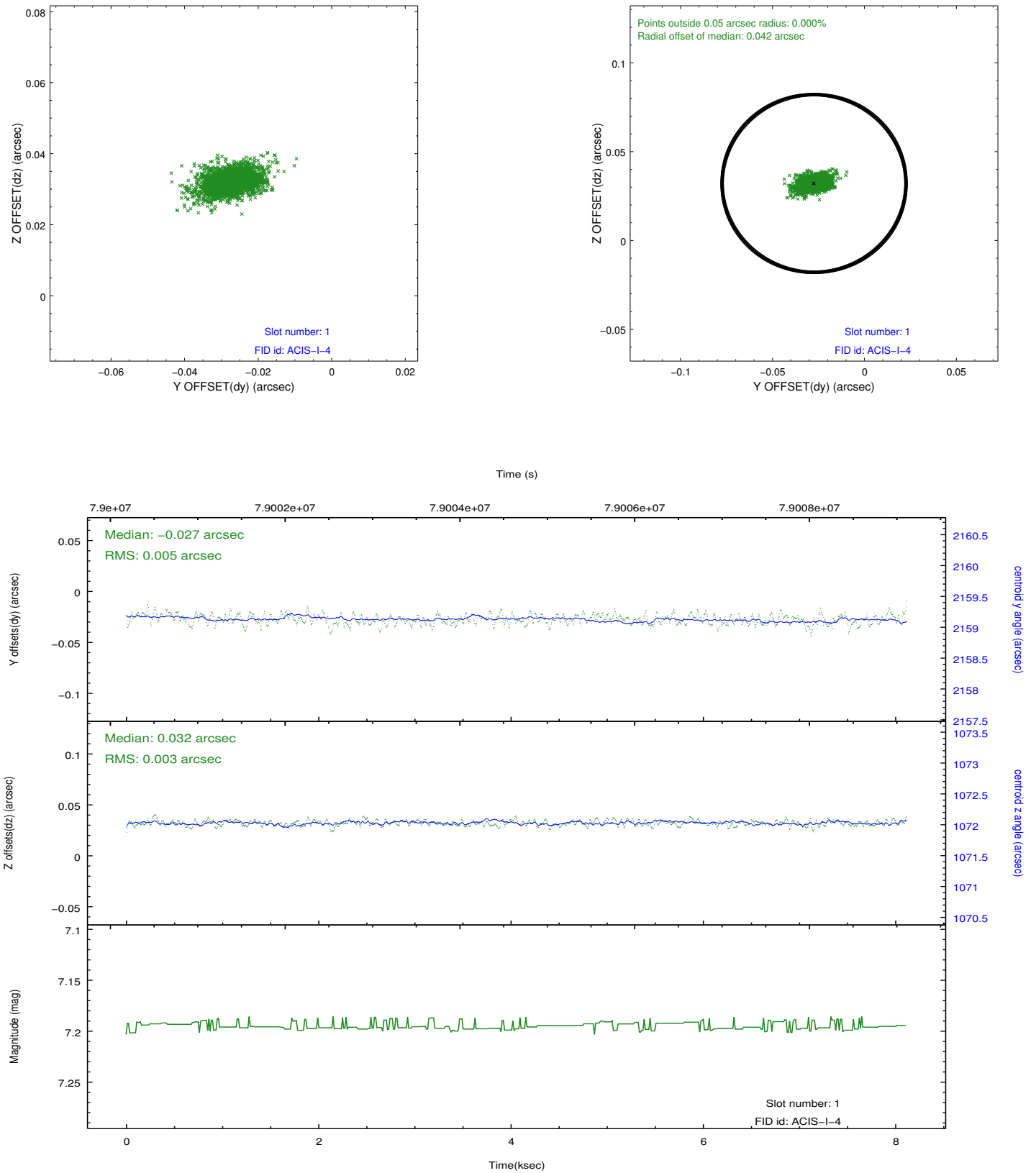


2.5 FID Slots

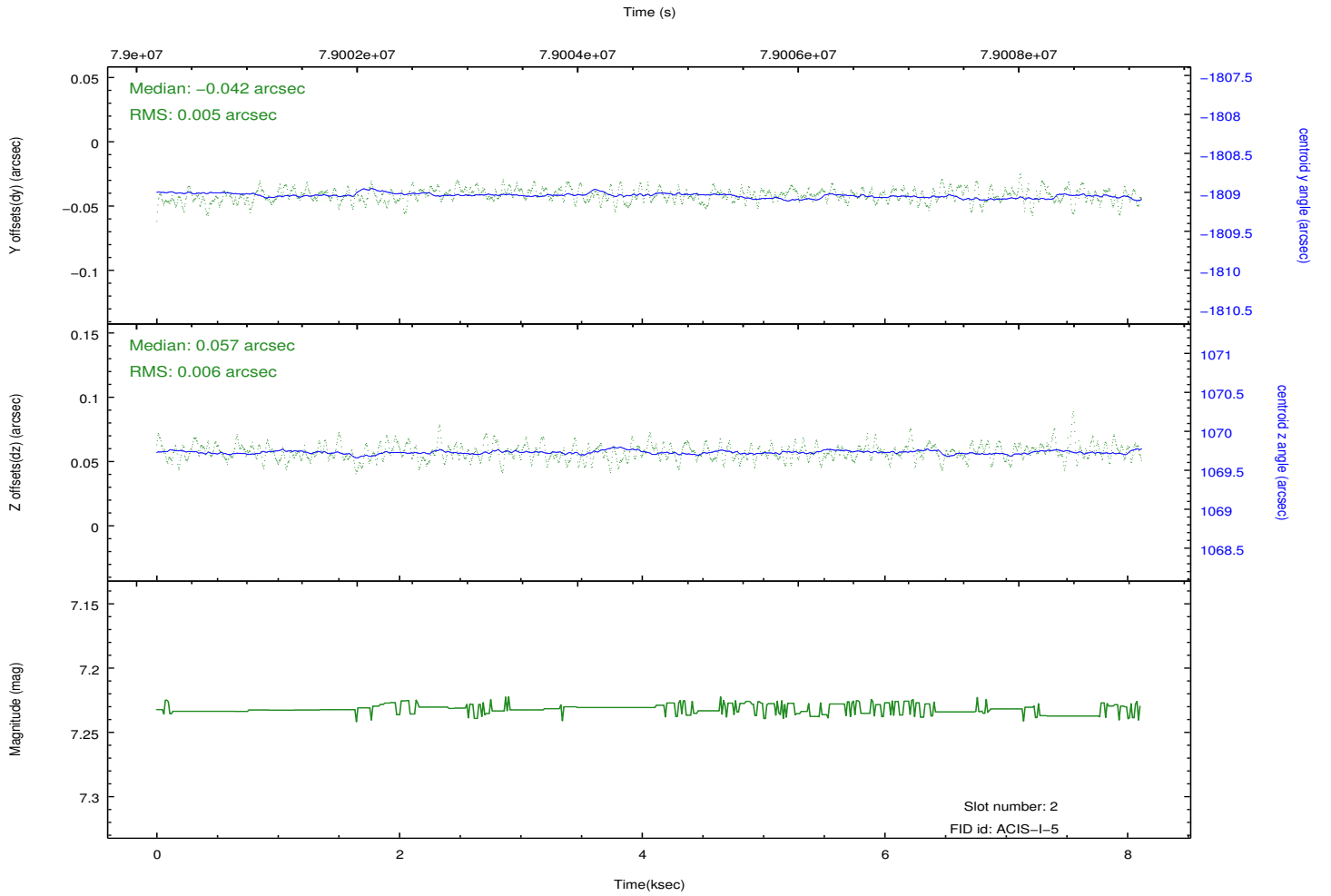
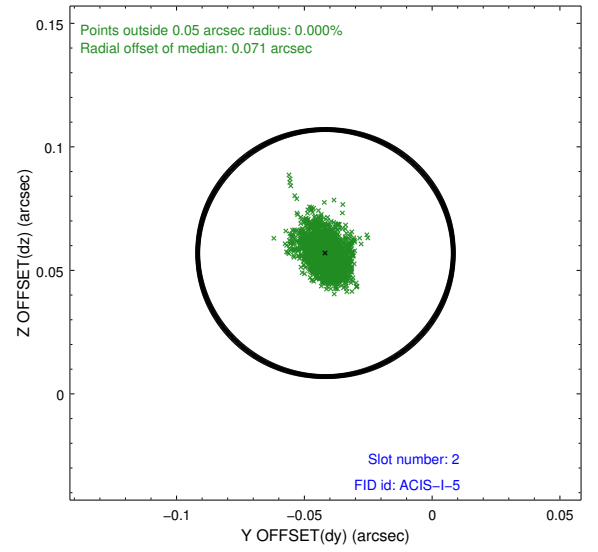
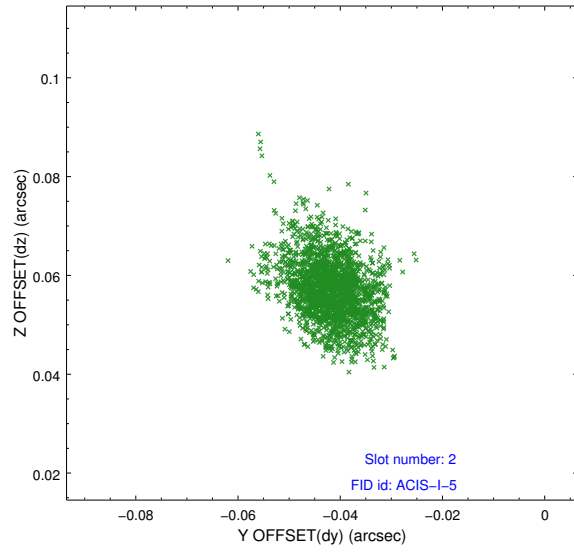
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.05
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	7.676

A.2 Comments

The focal plane temperature during part of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -114.0 C for ACIS-I and -112.0 C for ACIS-S).

The Chandra calibration team calibrates the ACIS gain and spectral resolution using data from the external calibration source (ECS). ECS data show that the frontside-illuminated (FI) CCDs are more temperature sensitive than the backside-illuminated (BI) CCDs.

A summary of the current calibration status of the ACIS gain and spectral resolution can be found at:

http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/ACIS_response_summary.html

The main points are:

- 1) The gain on BI chips remains within 0.3% (i.e., the systematic uncertainty in the ACIS gain quoted on the Chandra Calibration Status Summary web page) at all measured temperatures.
 - 2) The gain on FI chips remains within 0.3% below row 600 at all measured temperatures.
 - 3) The gain on FI chips above row 600 can be underestimated by as much as 1% for focal plane temperatures exceeding -116 C.
 - 4) The spectral resolution (i.e., FWHM) on BI chips is insensitive to the focal plane temperature.
 - 5) Warmer focal plane temperatures increase the FWHM on FI chips by up to 30 eV near row 512 and by up to 70 eV near the top of the chips.
- In summary, the user should be cautious in the spectral analysis of high S/N emission lines detected on the top half of FI chips in this observation. Default processing with the current version of the CALDB will underestimate photon energies by up to 1% and broaden emission lines by up to 70 eV.