

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1786 - L2 Version 5
Chandra X-Ray Center

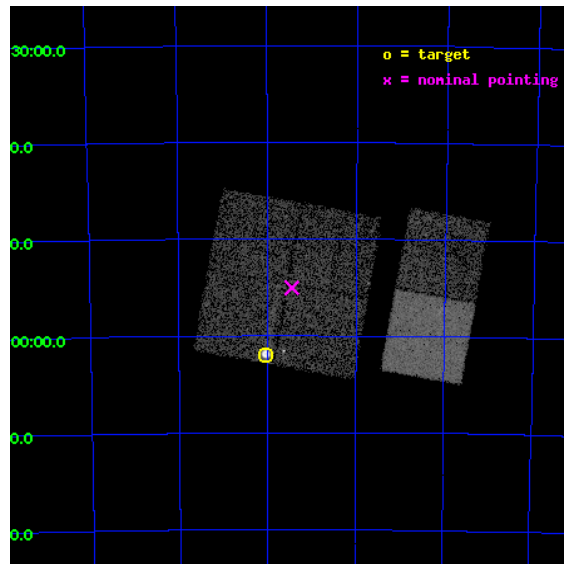
L2 Processing Date : Aug 29 2012

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1 Front

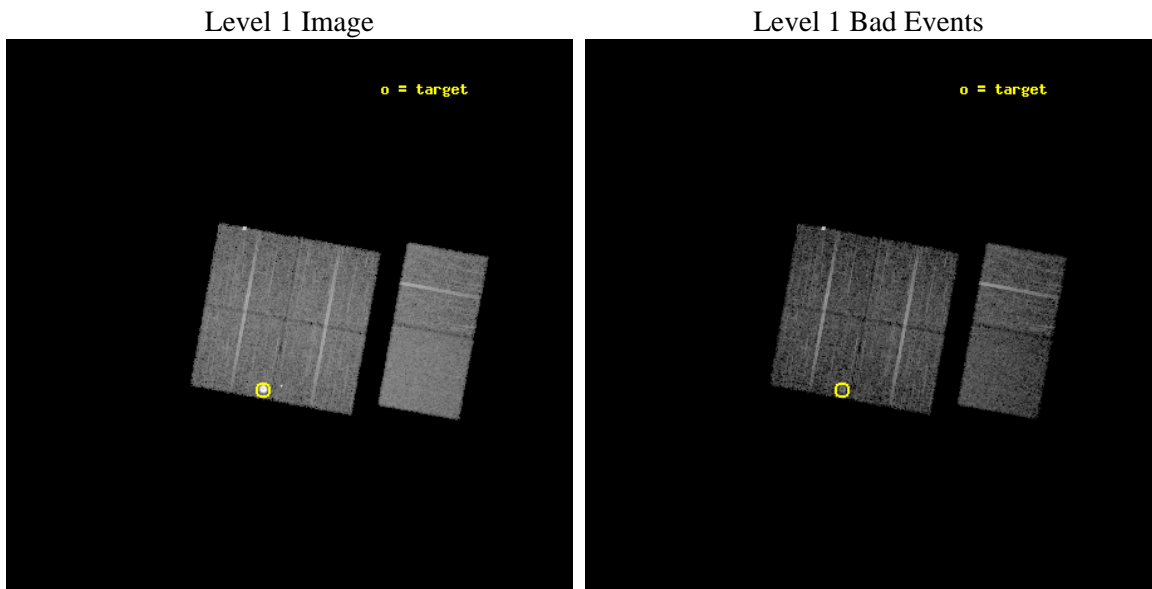
seq_num	590212	Sequence number
obs_id	1786	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip I1, T=110, Offsets=-7,-1,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	15.861463710488	Nominal RA [deg]
dec_nom	-71.917184909401	Nominal Dec [deg]
roll_nom	100.37173751674	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7680.0000071377	Sum of GTIs [s]
livetime	7582.7512227065	Livetime [s]
ontime0	7680.0000071377	Sum of GTIs [s]
ontime1	7680.0000071377	Sum of GTIs [s]
ontime2	7680.0000071377	Sum of GTIs [s]
ontime3	7676.7590468973	Sum of GTIs [s]
ontime6	7680.0000071377	Sum of GTIs [s]
ontime7	7680.0000071377	Sum of GTIs [s]
l2events	70290	Number of level 2 events



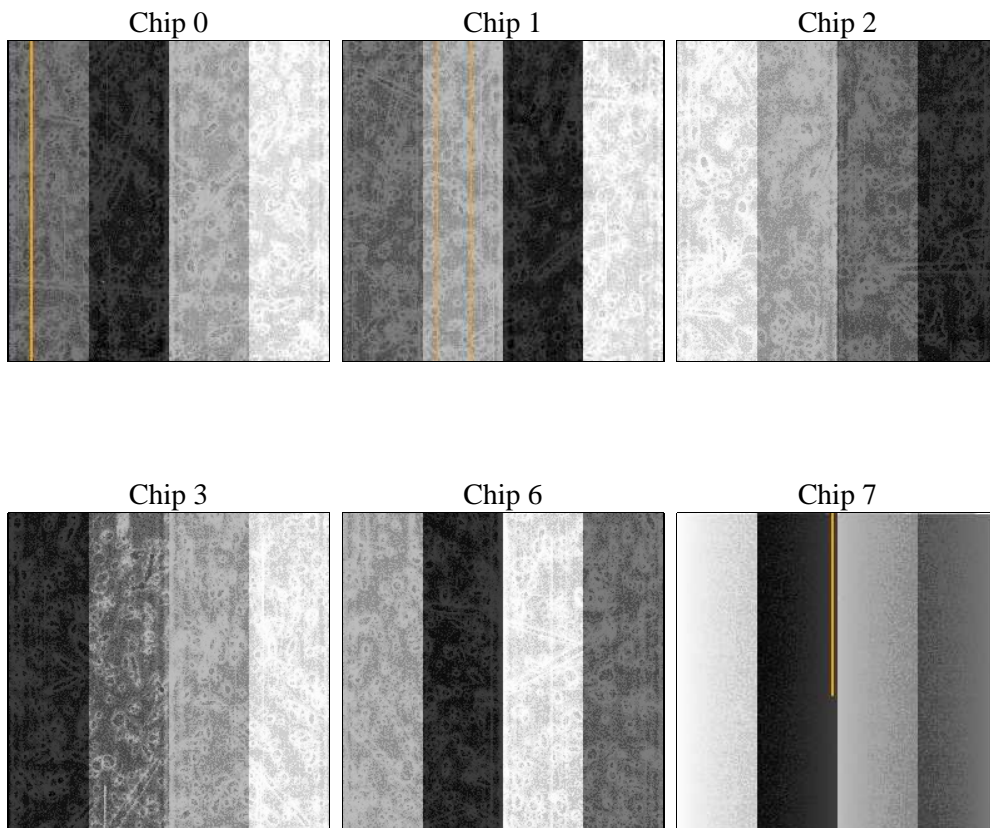
2 OBI

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	7680.0000071377	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime0	7680.0000071377	Sum of GTIs [s]
date	2012-08-30T01:16:39	Date and time of file creation	ontime1	7680.0000071377	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	7680.0000071377	Sum of GTIs [s]
			ontime3	7676.7590468973	Sum of GTIs [s]
			ontime6	7680.0000071377	Sum of GTIs [s]
			ontime7	7680.0000071377	Sum of GTIs [s]
			l1events	348472	Number of level 1 events

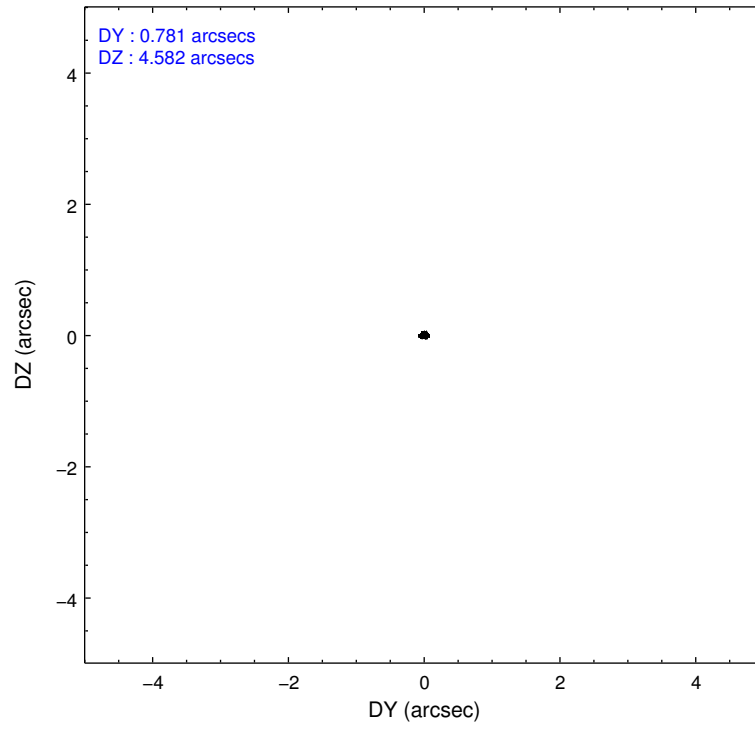
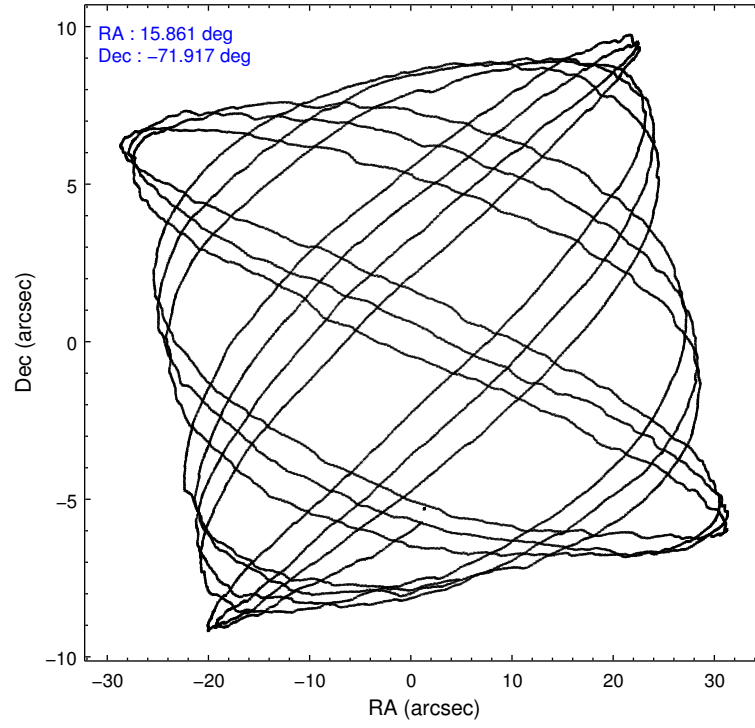
2.1.4 Events

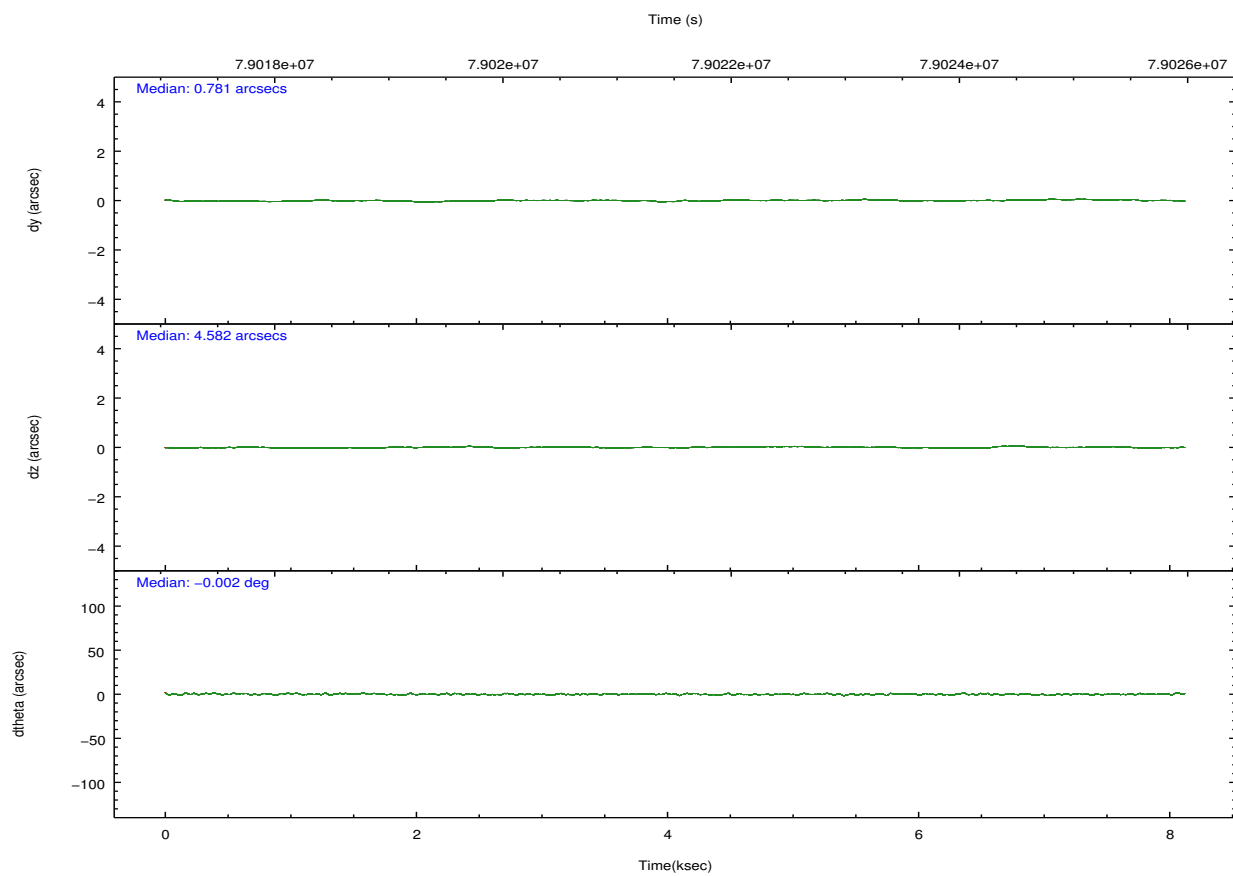
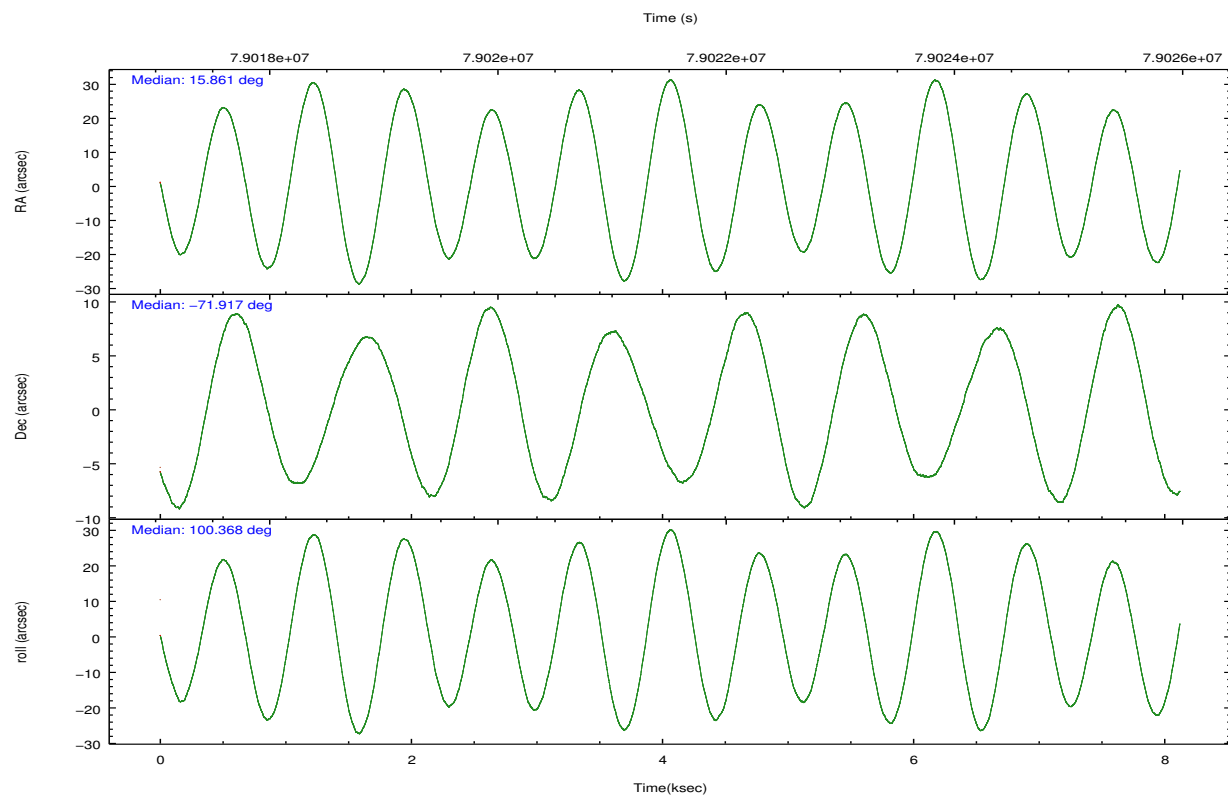
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	49850	74742	53711	53502	55494	61173	grade 0 events	1312	23355	1216	1920	1211	1712
rejected events	44476	44034	48419	47222	49873	37687		2%	31%	2%	3%	2%	2%
rejected %	89%	58%	90%	88%	89%	61%	grade 1 events	2293	166	12	16	7	25
								4%	0%	0%	0%	0%	0%
							grade 2 events	2009	3945	2094	2289	2142	5082
								4%	5%	3%	4%	3%	8%
							grade 3 events	382	927	361	350	337	1387
								0%	1%	0%	0%	0%	2%
							grade 4 events	336	835	351	332	355	1285
								0%	1%	0%	0%	0%	2%
							grade 5 events	1072	1225	1014	1156	1252	3737
								2%	1%	1%	2%	2%	6%
							grade 6 events	1339	1656	1272	1394	1578	14028
								2%	2%	2%	2%	2%	22%
							grade 7 events	41107	42633	47391	46045	48612	33917
								82%	57%	88%	86%	87%	55%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-012367	ACIS-012367	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	15.918927	15.86146371048753	Subarray requested	NONE	NONE
[deg] Pointing Dec	-71.938220	-71.91718490940141	Alternating exposures requested	N	N
[deg] Pointing Roll	100.217675	100.3717375167421	[s] Primary exposure time	0.000000	3.2
[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)	79017649.184000	79017273.185379			
Observation start date	2000-07-03T13:19:45	2000-07-03T13:14:33			
[s] Observation end time (MET)	79025569.184000	79025702.78568999			
Observation end date	2000-07-03T15:31:45	2000-07-03T15:35:02			
Read mode	TIMED	TIMED			

2.3 Aspect



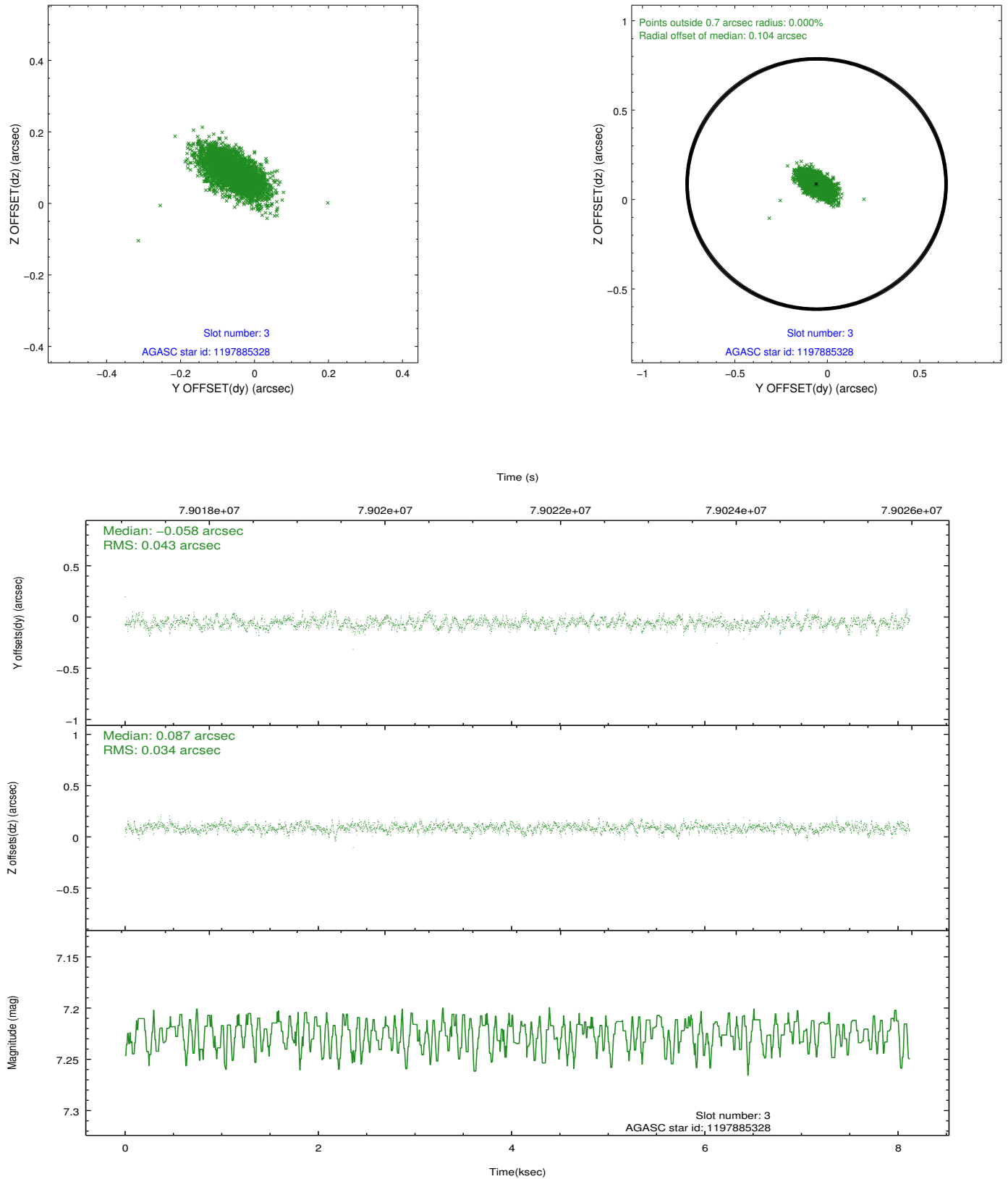


Slot Statistics

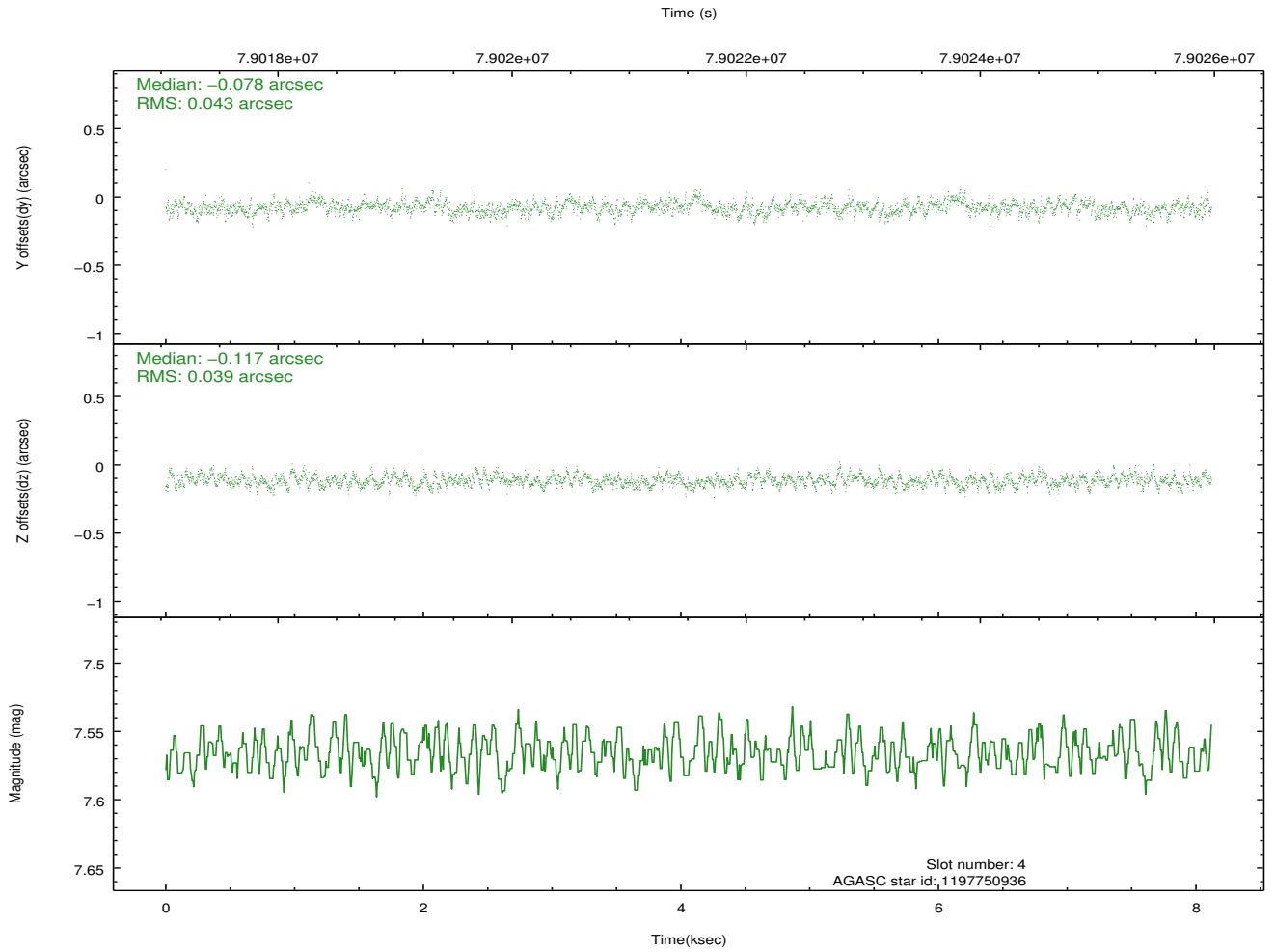
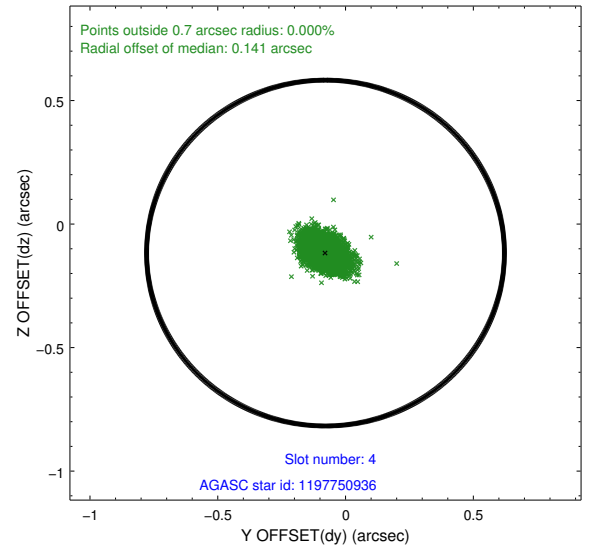
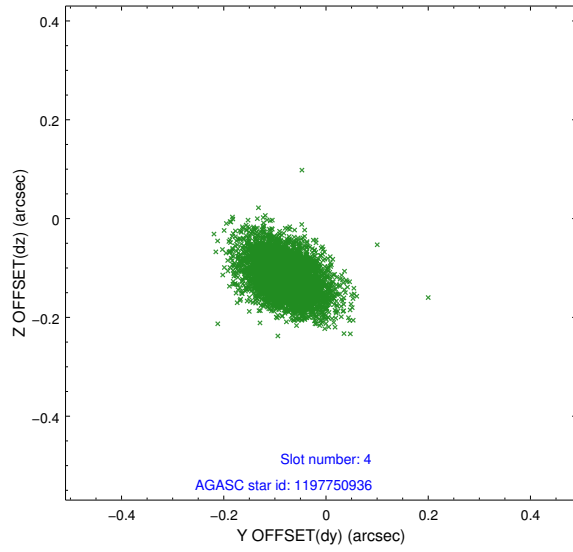
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.15	1982	-0.031	-0.025	0.009	0.014	0.000000	0.000000	-755.13	-834.30
1	FID	ACIS-I-4	7.19	1982	-0.030	0.033	0.006	0.011	0.000000	0.000000	2158.62	1071.59
2	FID	ACIS-I-5	7.23	1982	-0.040	0.061	0.008	0.013	0.000000	0.000000	-1808.08	1070.25
3	GUIDE	1197885328	7.22	3963	-0.058	0.087	0.056	0.099	16.283090	-71.733943	649.90	-535.64
4	GUIDE	1197750936	7.57	3963	-0.078	-0.117	0.060	0.102	15.387940	-71.549550	1482.06	346.38
5	GUIDE	1197750640	9.74	3963	0.105	-0.018	0.094	0.157	15.758835	-72.088048	-498.85	269.13
6	GUIDE	1197878768	9.62	3961	-0.061	0.095	0.104	0.169	16.656786	-71.304581	2088.98	-1242.54
7	GUIDE	1197749664	9.57	3962	0.092	-0.041	0.086	0.144	15.809015	-72.366369	-1494.84	389.88

2.4 Star Slots

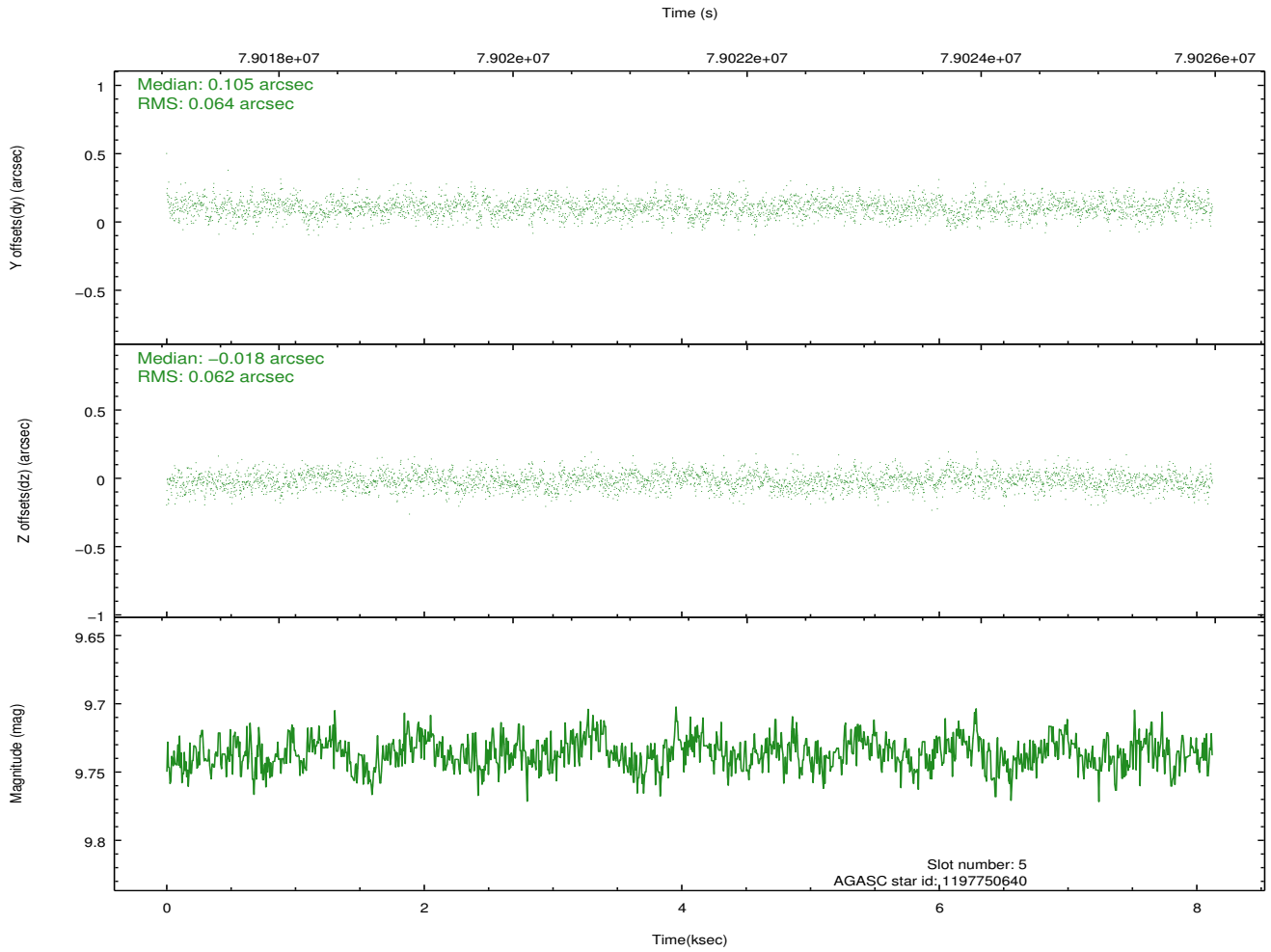
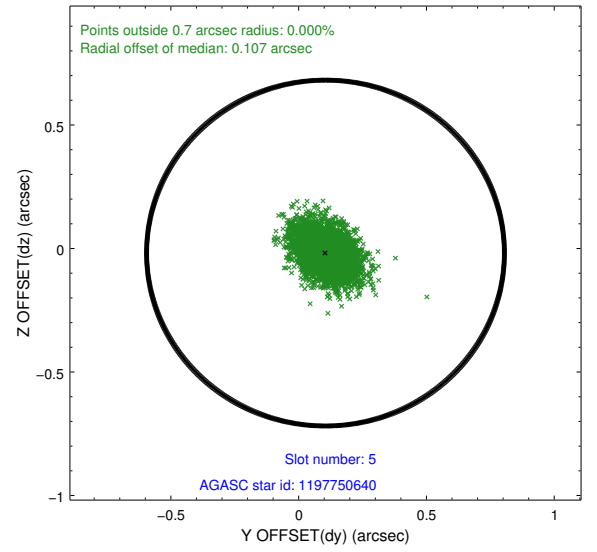
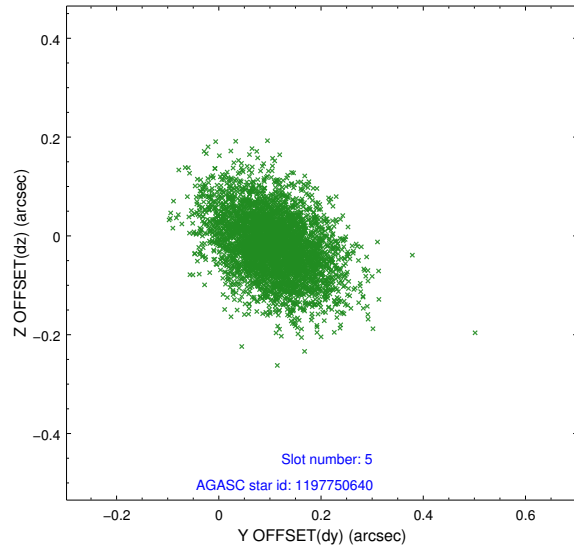
2.4.1 Slot 3



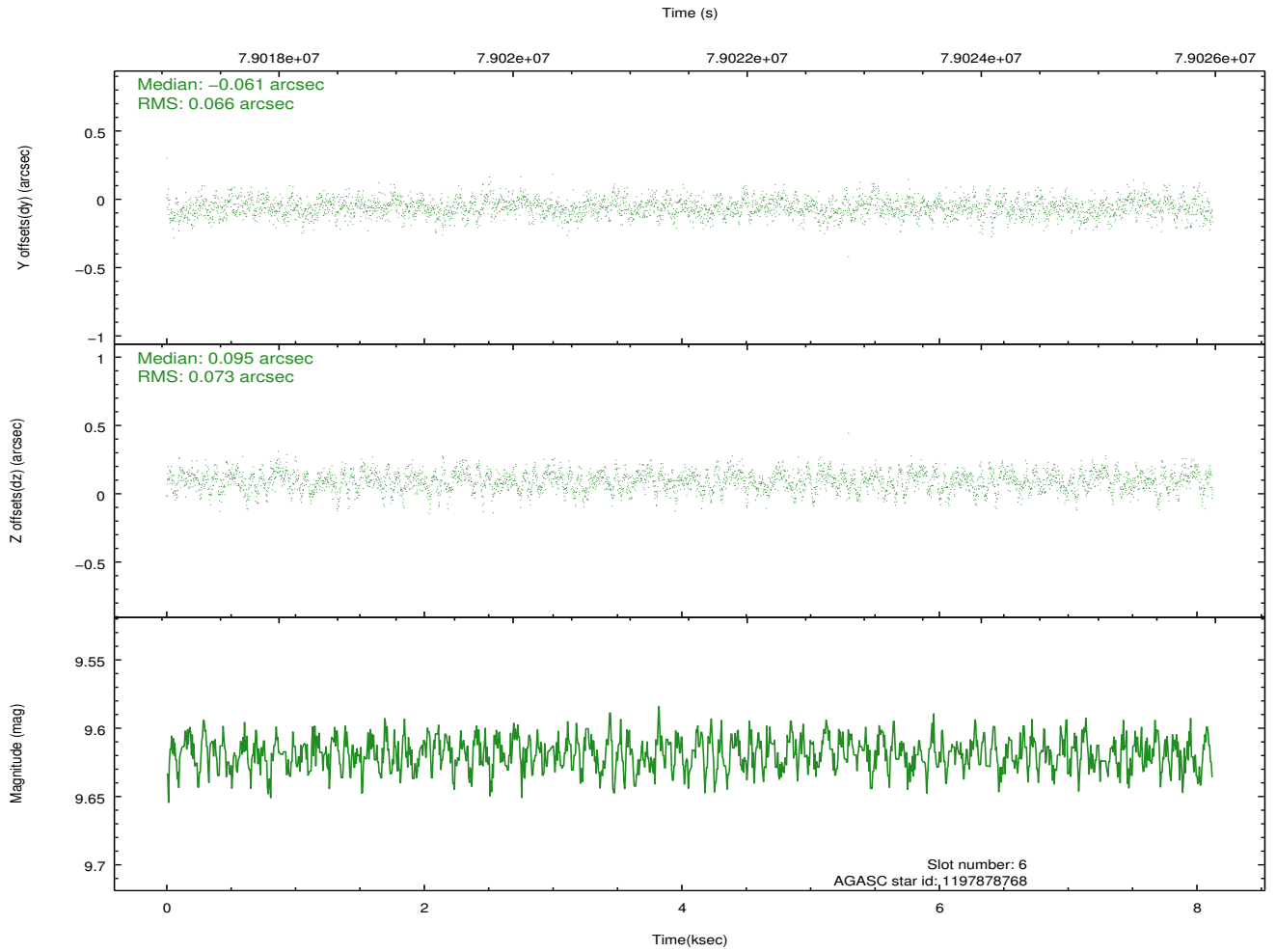
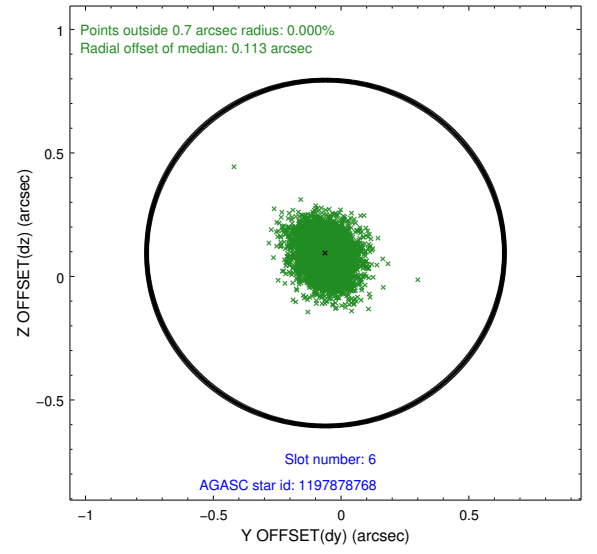
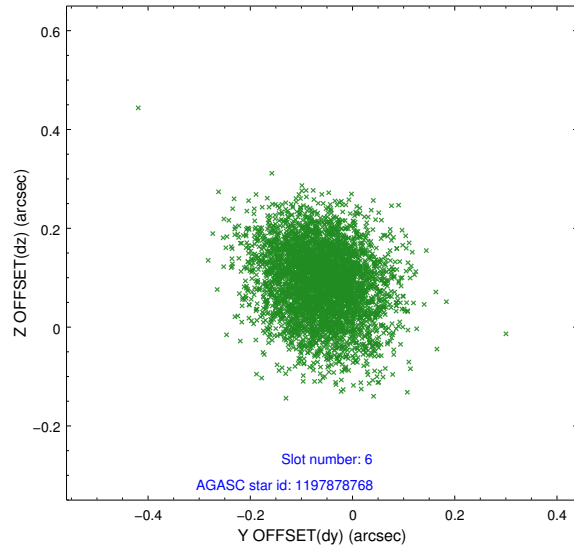
2.4.2 Slot 4



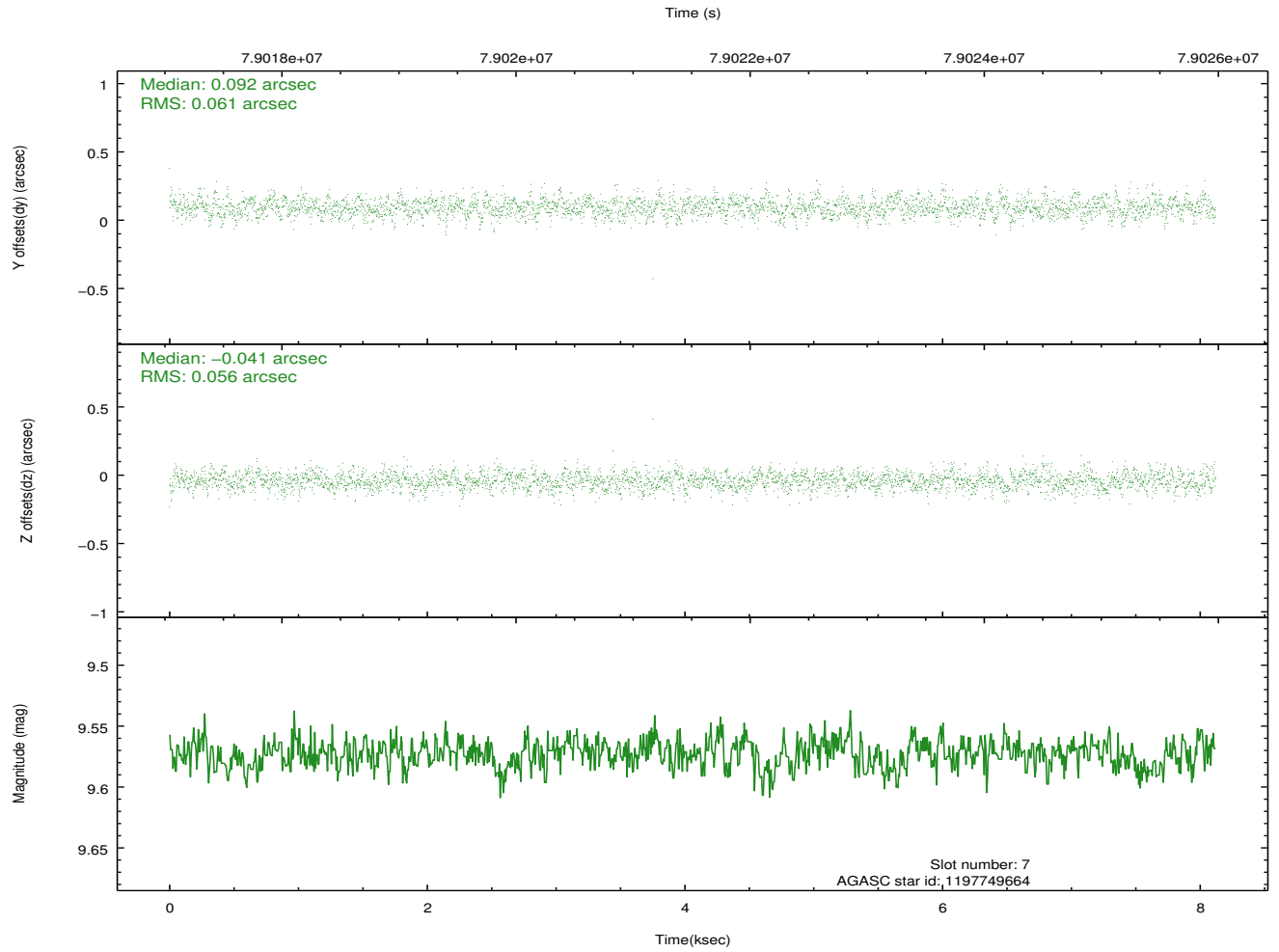
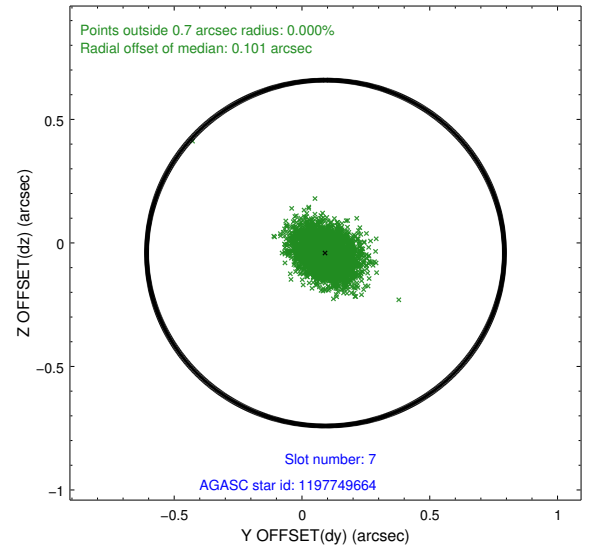
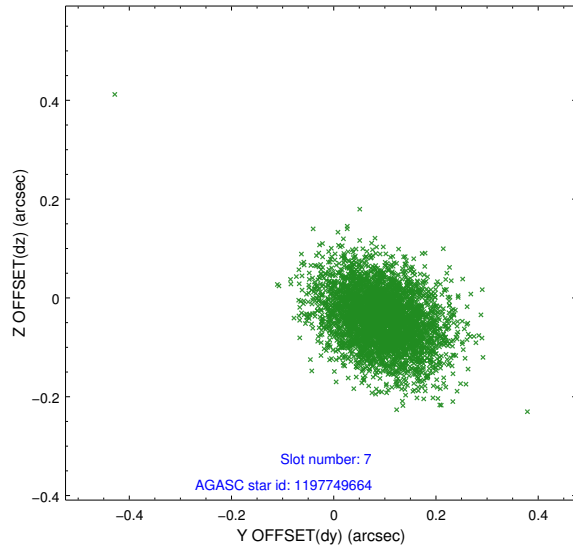
2.4.3 Slot 5



2.4.4 Slot 6

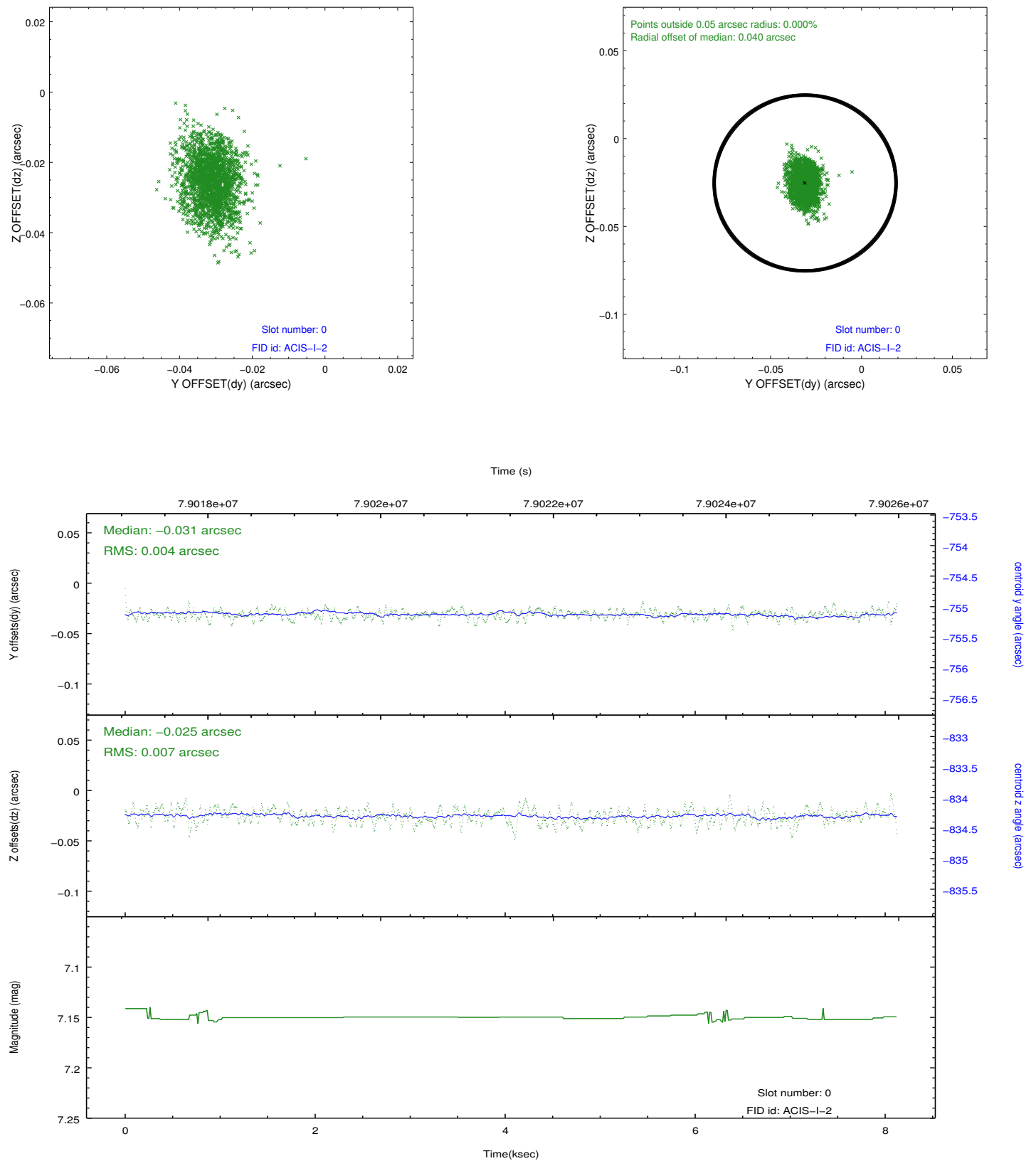


2.4.5 Slot 7

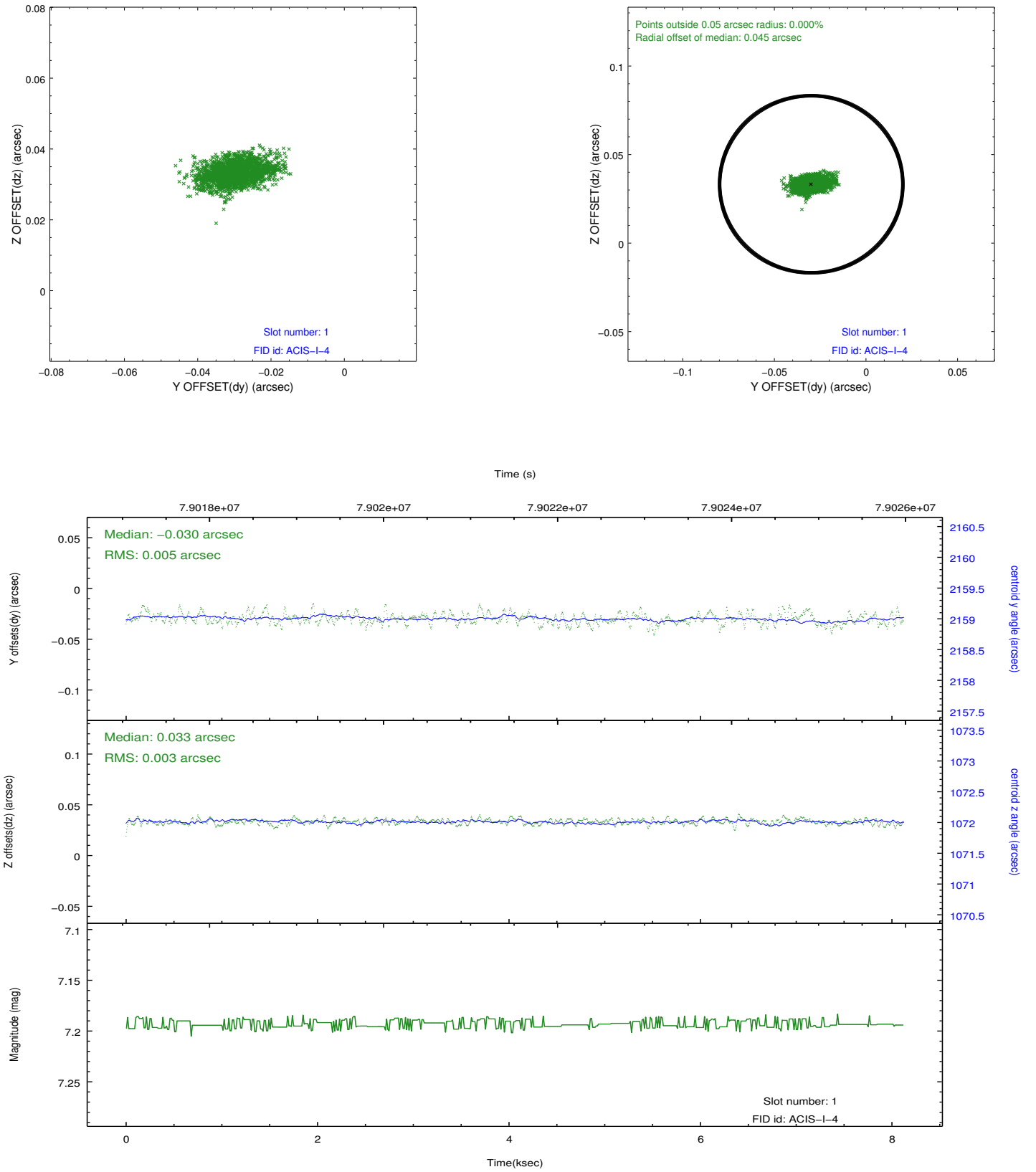


2.5 FID Slots

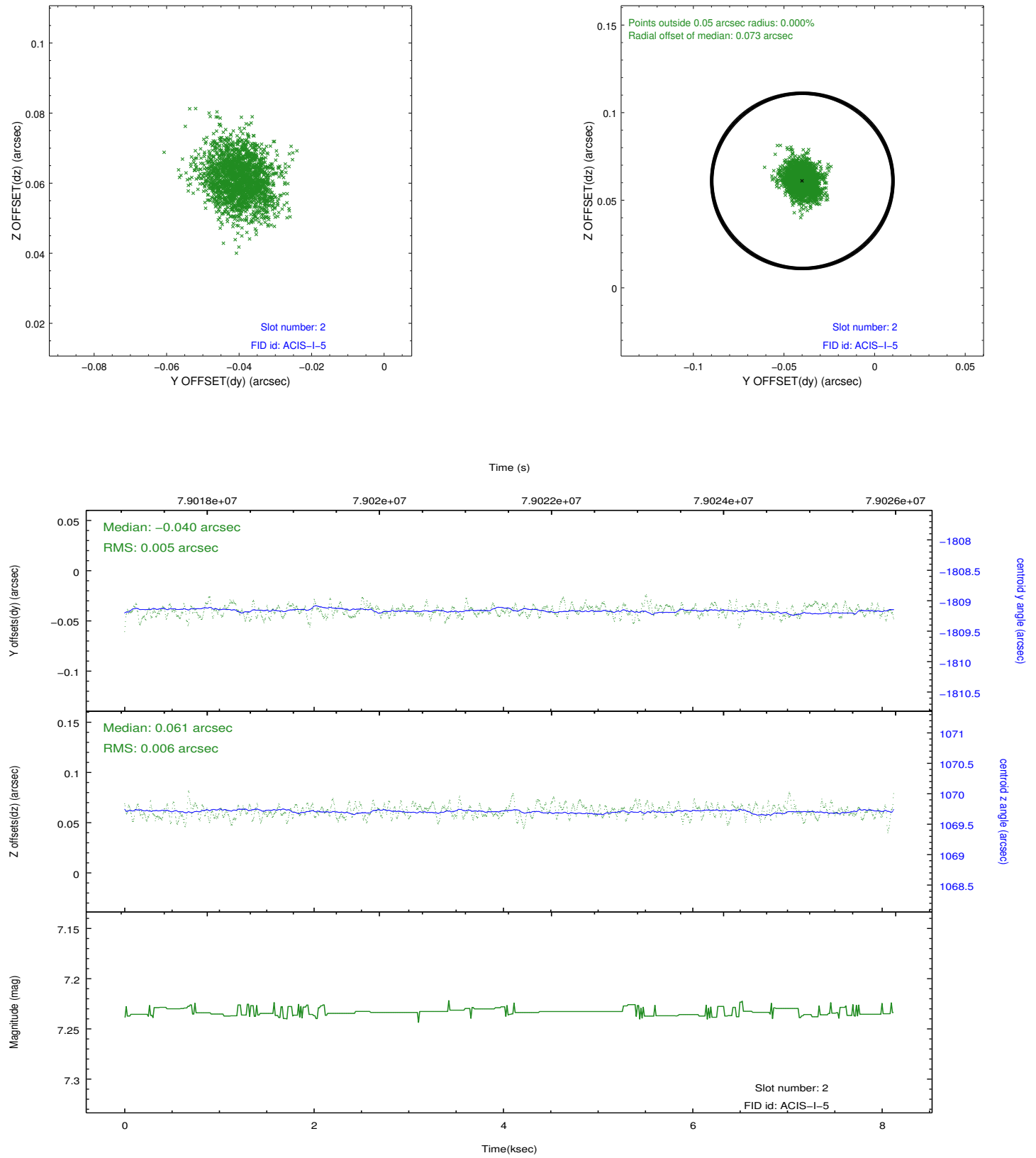
2.5.1 Slot 0



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	7.686

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.