

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1785 - L2 Version 5
Chandra X-Ray Center

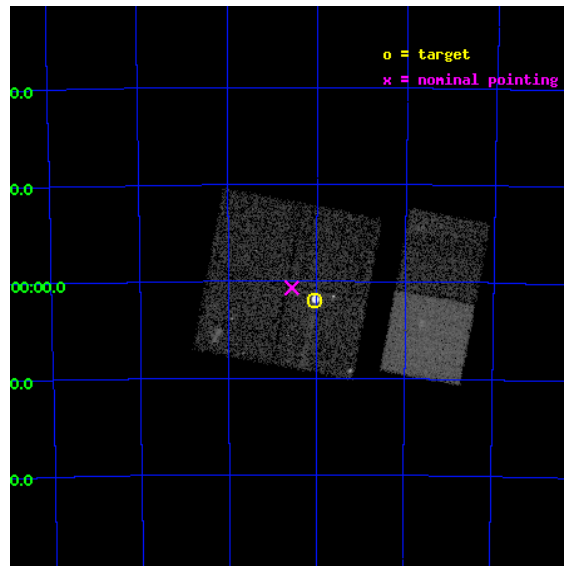
L2 Processing Date : Aug 29 2012

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1 Front

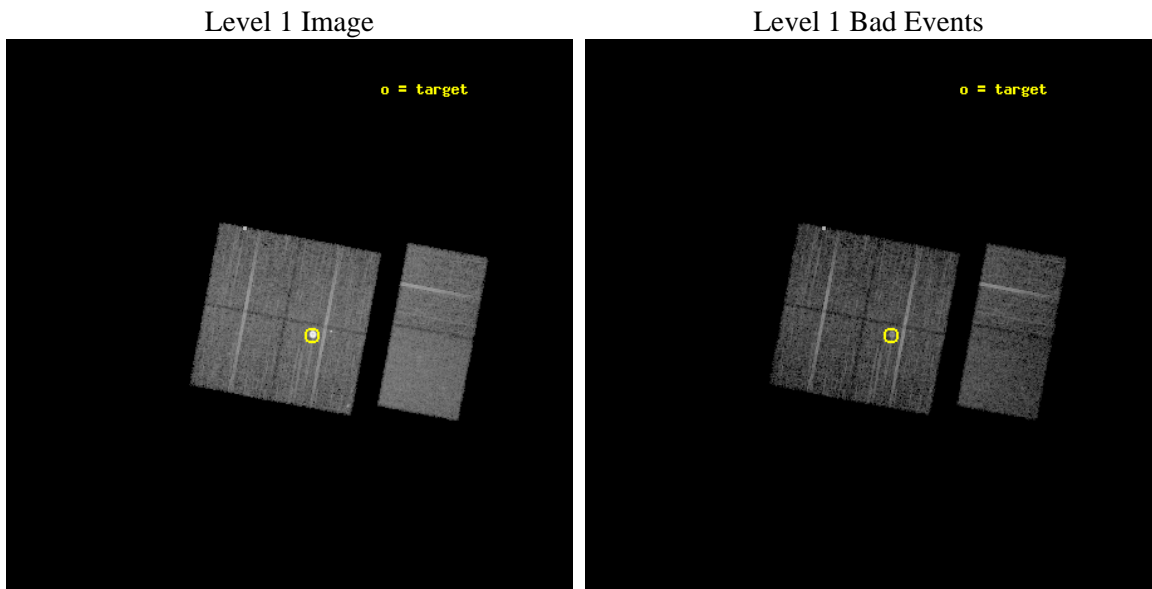
seq_num	590211	Sequence number
obs_id	1785	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip I3, T=110, Offsets=-0,2,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	16.14109576993	Nominal RA [deg]
dec_nom	-72.011459299592	Nominal Dec [deg]
roll_nom	100.69340480459	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	7680.0000071377	Sum of GTIs [s]
ontime6	7676.7590169758	Sum of GTIs [s]
ontime7	7680.0000071377	Sum of GTIs [s]
l2events	76363	Number of level 2 events



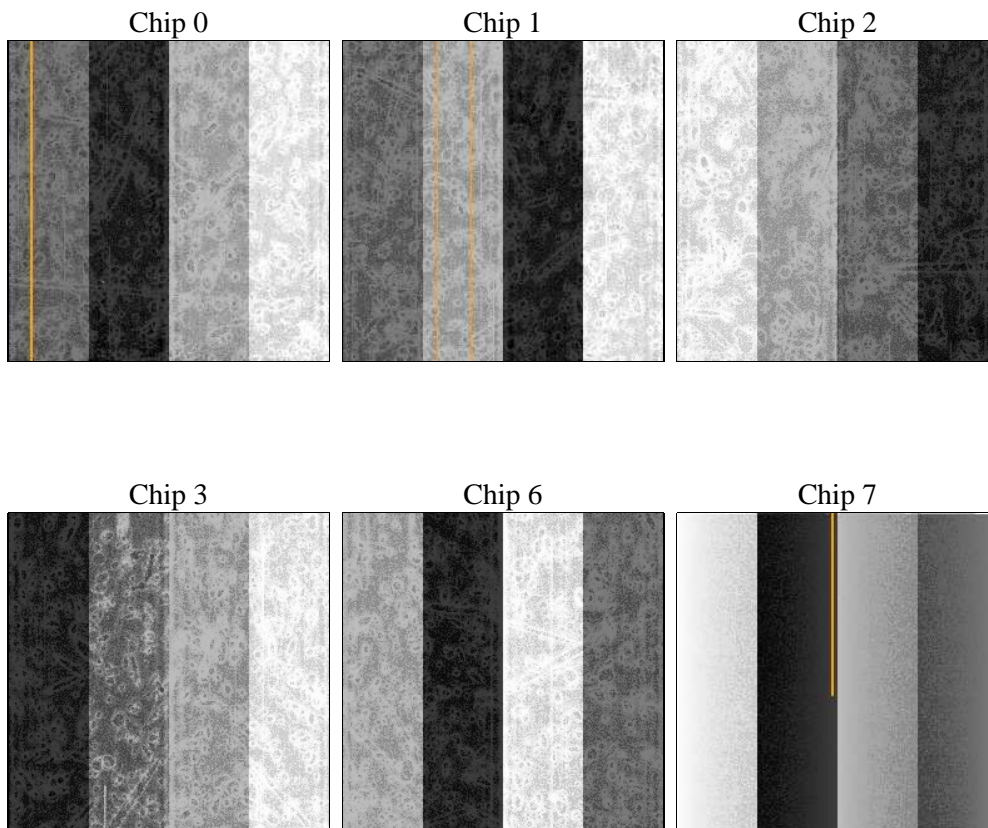
2 OBI

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]
caldbver	4.5.1.1	 	ontime0	7680.0000071377	Sum of GTIs [s]
date	2012-08-30T01:15:56	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	7680.0000071377	Sum of GTIs [s]
			ontime6	7676.7590169758	Sum of GTIs [s]
			ontime7	7680.0000071377	Sum of GTIs [s]
			l1events	361916	Number of level 1 events

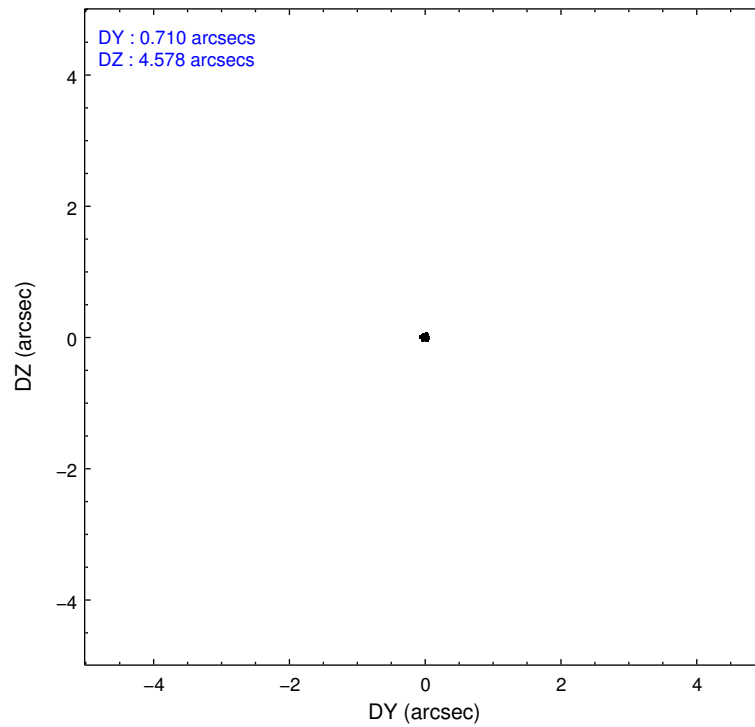
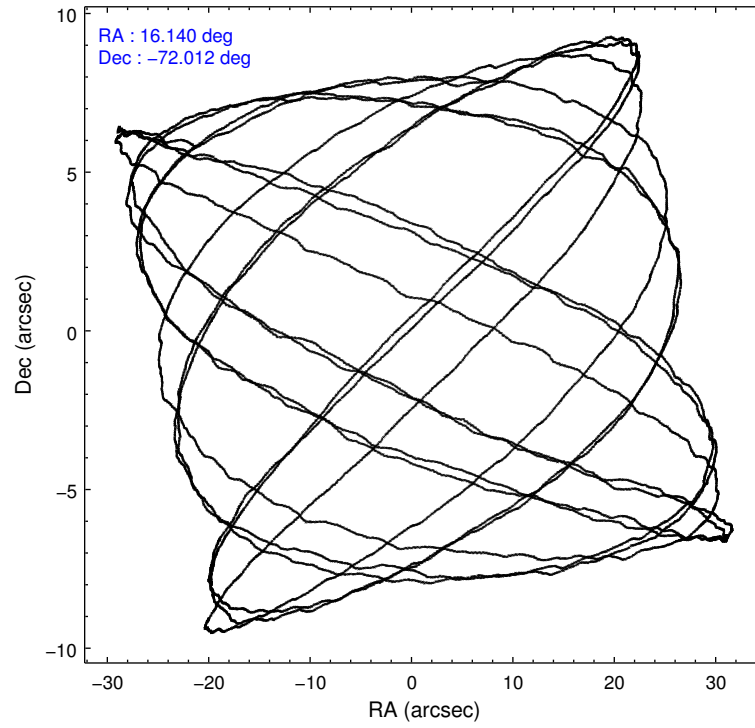
2.1.4 Events

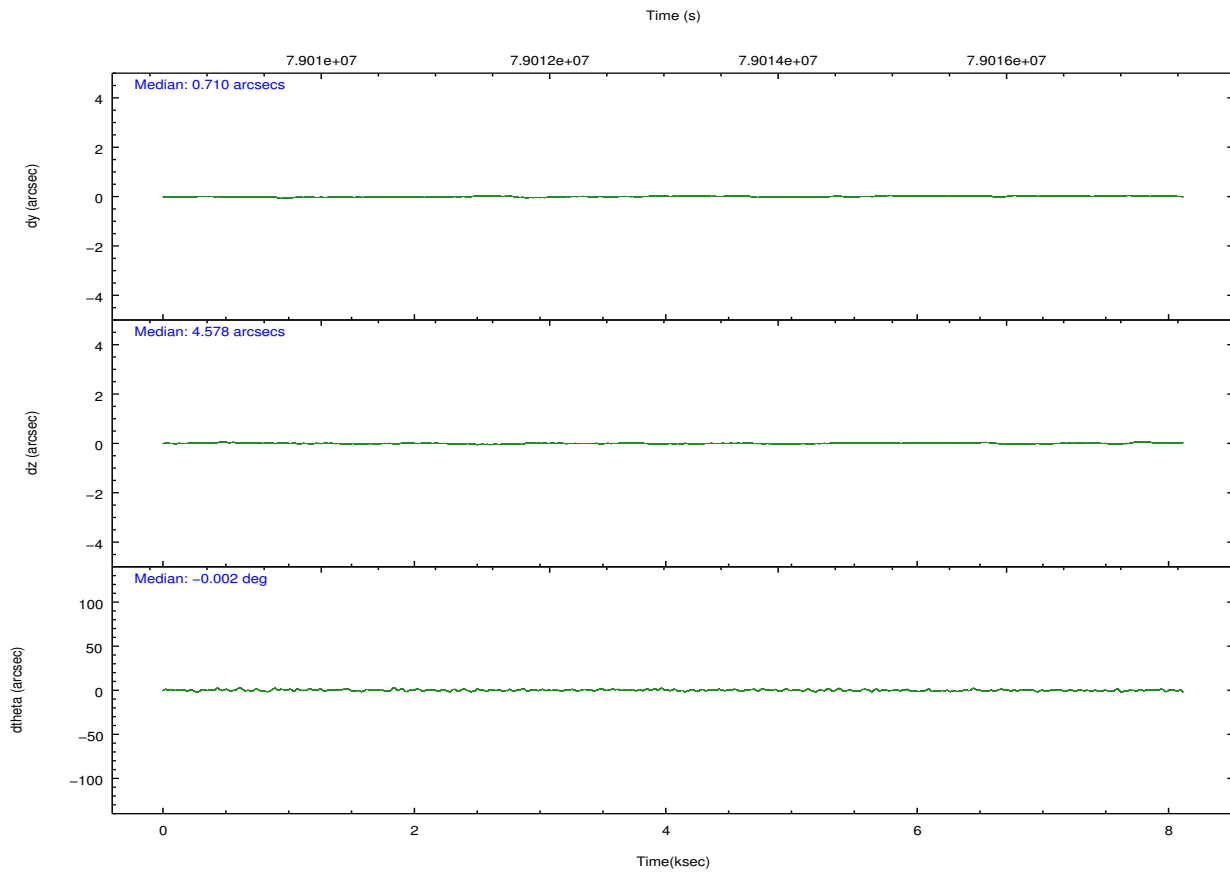
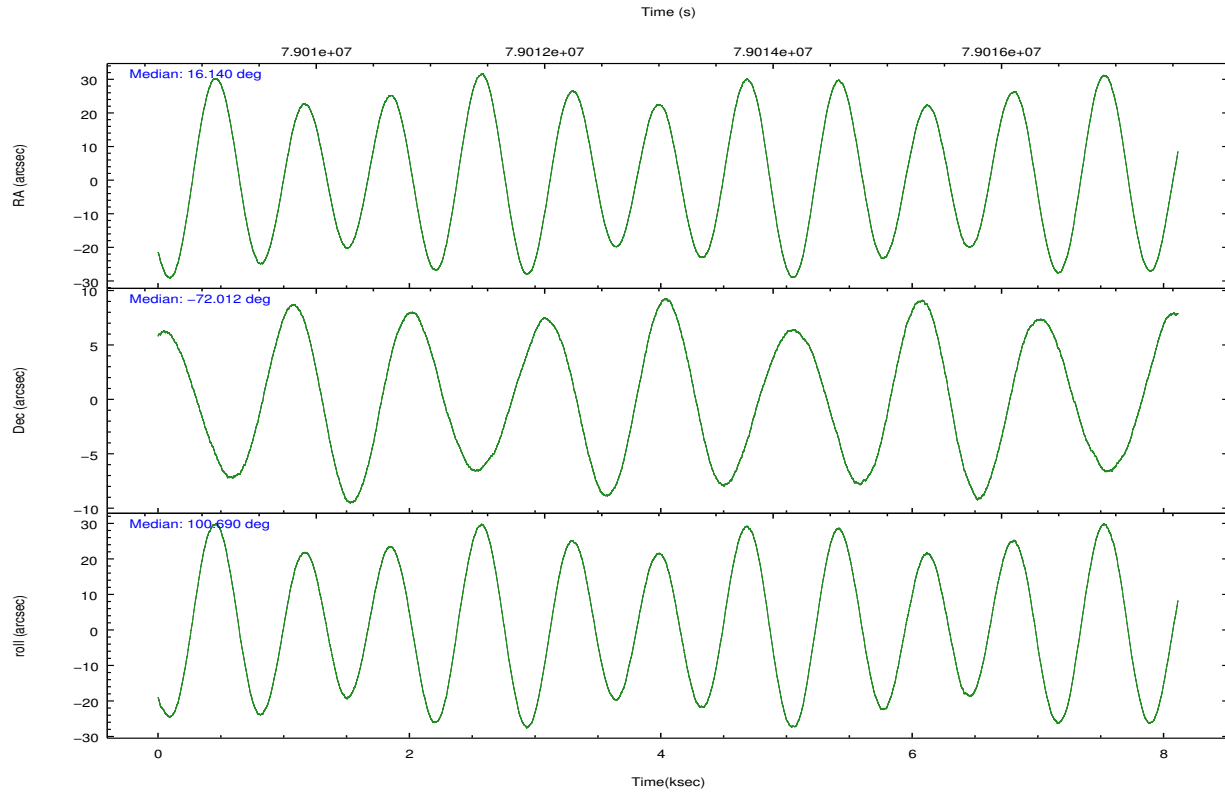
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	53448	50043	54492	85860	56562	61511	grade 0 events	1277	1938	1274	22140	1295	1632
rejected events	47912	43666	49245	49712	50731	37936		2%	3%	2%	25%	2%	2%
rejected %	89%	87%	90%	57%	89%	61%	grade 1 events	2290	10	13	241	12	31
								4%	0%	0%	0%	0%	0%
							grade 2 events	2153	2120	1995	10962	2242	5112
								4%	4%	3%	12%	3%	8%
							grade 3 events	409	470	342	645	326	1440
								0%	0%	0%	0%	0%	2%
							grade 4 events	378	443	339	629	336	1208
								0%	0%	0%	0%	0%	1%
							grade 5 events	1034	1118	973	1343	1200	3623
								1%	2%	1%	1%	2%	5%
							grade 6 events	1323	1407	1300	1787	1634	14197
								2%	2%	2%	2%	2%	23%
							grade 7 events	44584	42537	48256	48113	49517	34268
								83%	85%	88%	56%	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	16.199252	16.14109576992955	Subarray requested	NONE	NONE
[deg] Pointing Dec	-72.032462	-72.01145929959235	Alternating exposures requested	N	N
[deg] Pointing Roll	100.540032	100.6934048045916	[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)	79009219.184000	79008843.072569			
Observation start date	2000-07-03T10:59:15	2000-07-03T10:54:03			
[s] Observation end time (MET)	79017139.184000	79017273.185379			
Observation end date	2000-07-03T13:11:15	2000-07-03T13:14:33			
Read mode	TIMED	TIMED			

2.3 Aspect



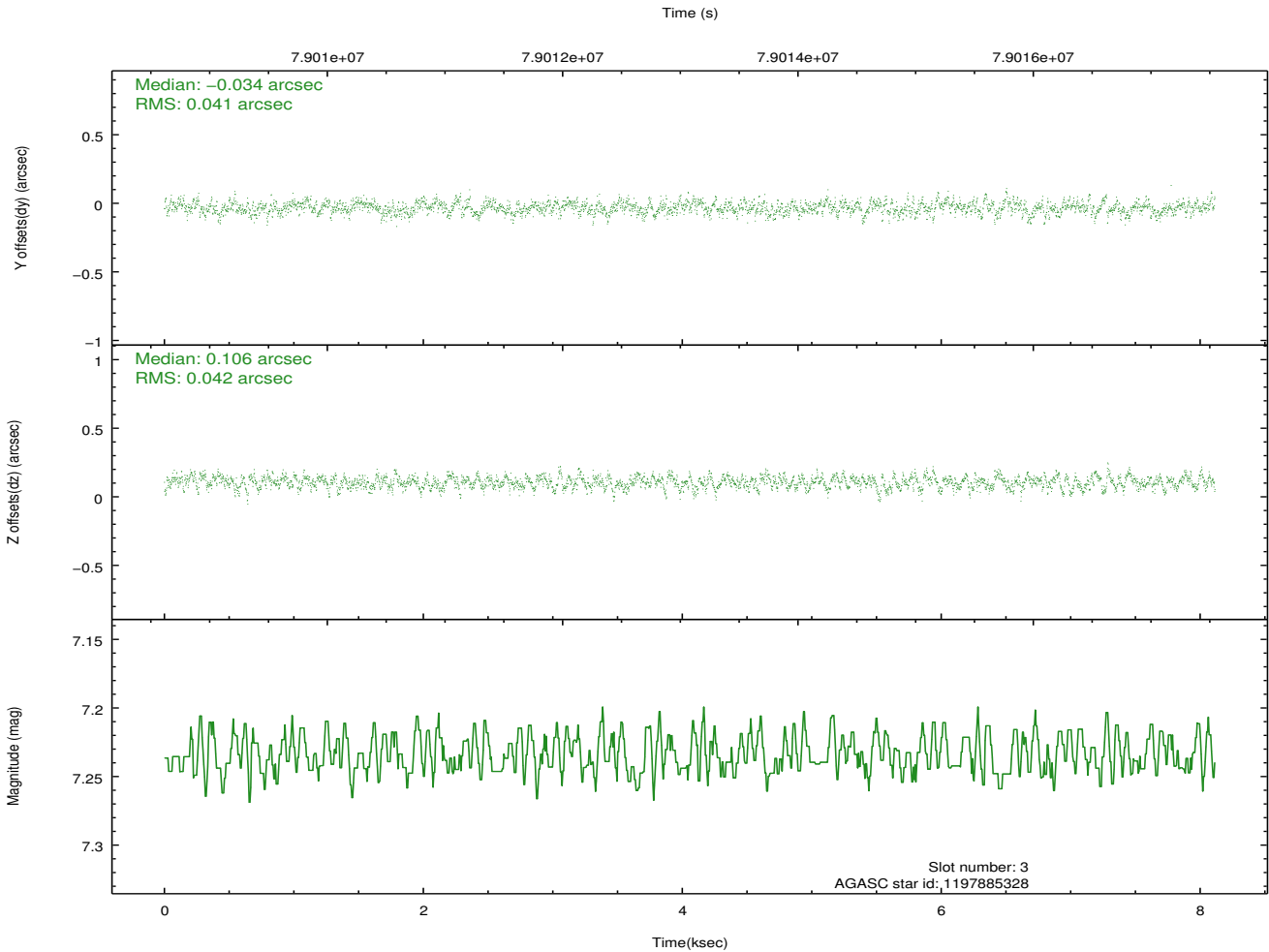
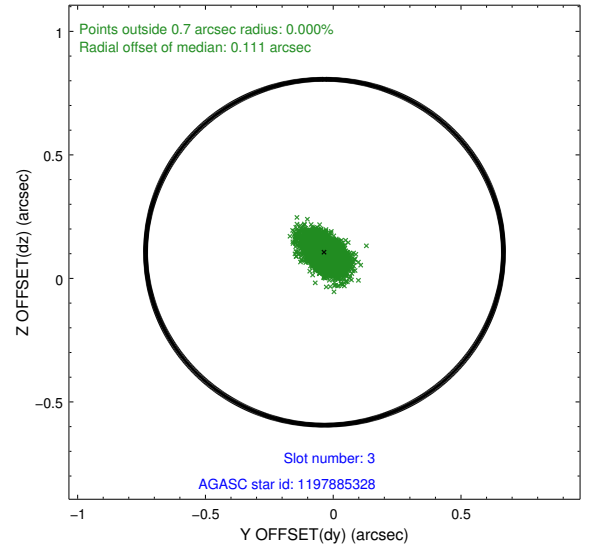
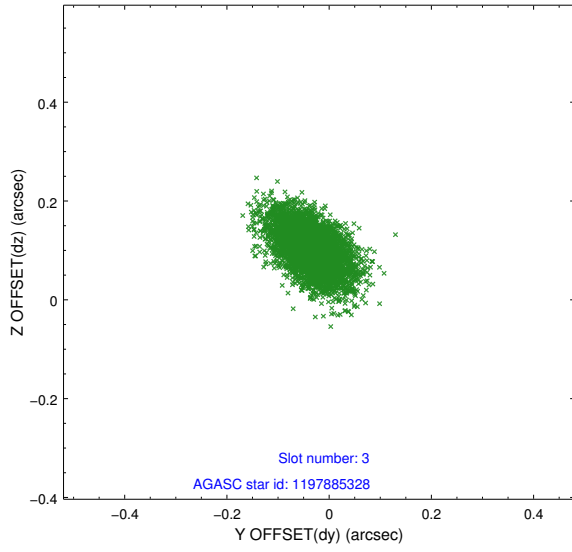


Slot Statistics

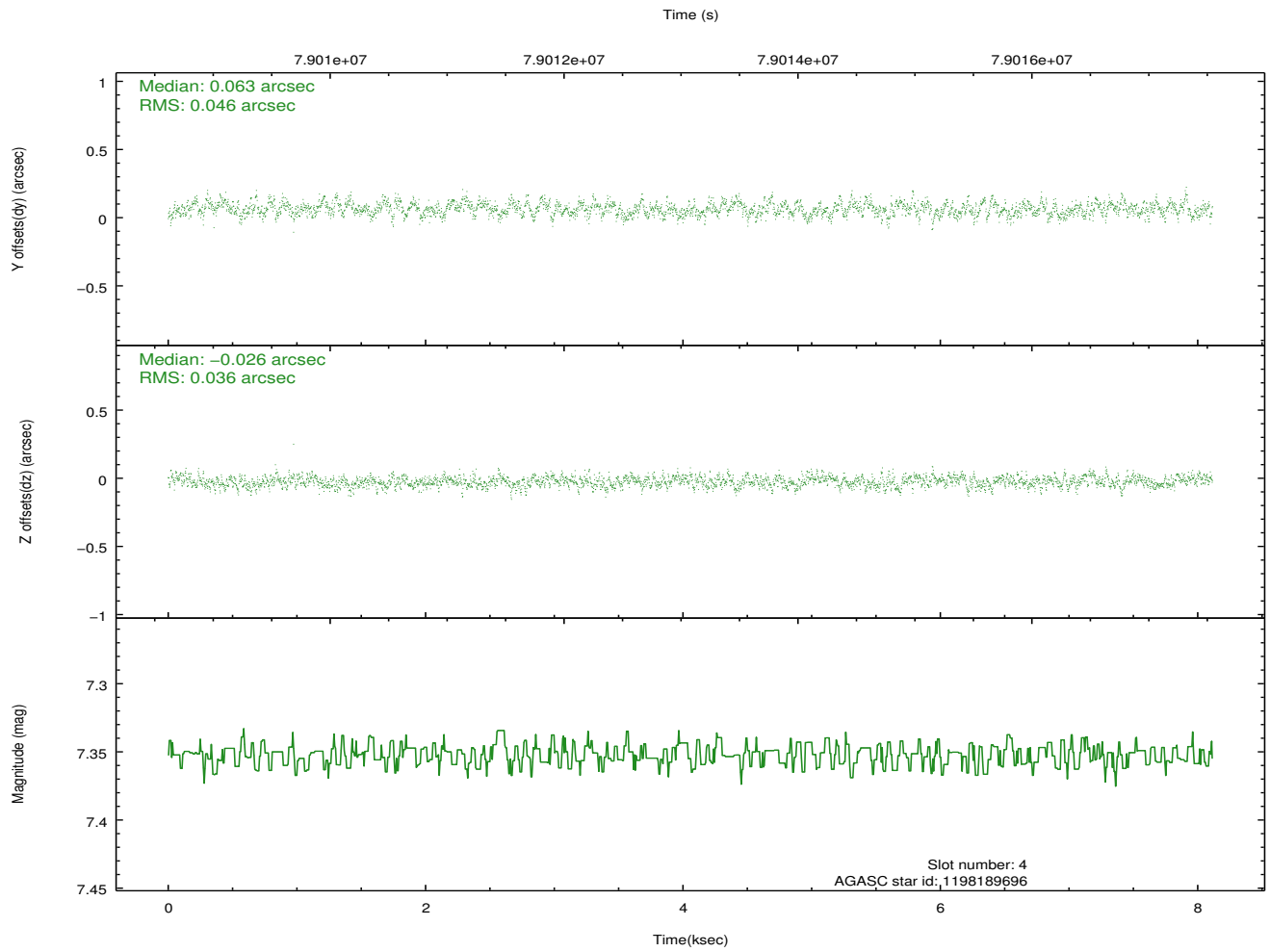
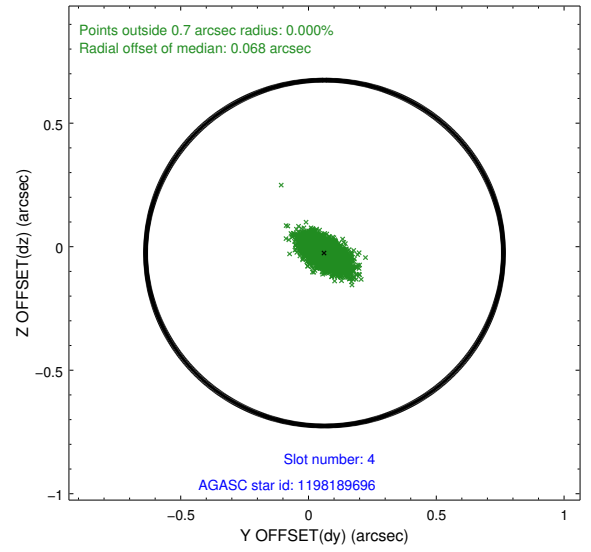
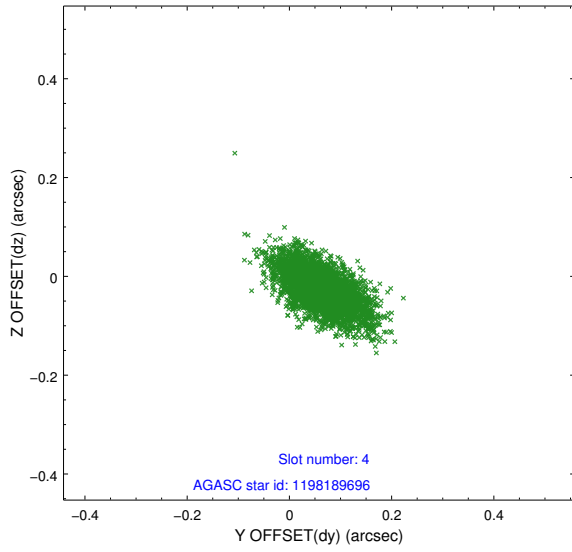
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.15	1979	-0.054	-0.005	0.006	0.011	0.000000	0.000000	-755.07	-834.28
1	FID	ACIS-I-4	7.19	1979	-0.045	0.038	0.007	0.011	0.000000	0.000000	2158.67	1071.60
2	FID	ACIS-I-6	7.27	1979	-0.001	0.030	0.009	0.014	0.000000	0.000000	405.94	1714.56
3	GUIDE	1197885328	7.24	3957	-0.034	0.106	0.061	0.104	16.283090	-71.733943	1039.08	-290.35
4	GUIDE	1198189696	7.35	3956	0.063	-0.026	0.061	0.106	15.223750	-72.697522	-2170.94	1465.33
5	GUIDE	1197750936	7.57	3958	-0.128	-0.078	0.059	0.097	15.387940	-71.549550	1871.33	591.40
6	GUIDE	1197884536	8.49	3958	0.003	0.043	0.062	0.108	17.160729	-71.835289	492.46	-1189.73
7	GUIDE	1197749664	9.57	3958	0.095	-0.042	0.086	0.143	15.809015	-72.366369	-1105.17	637.28

2.4 Star Slots

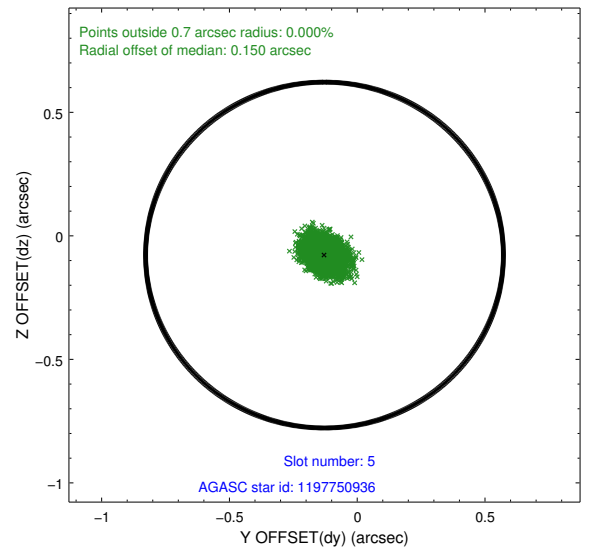
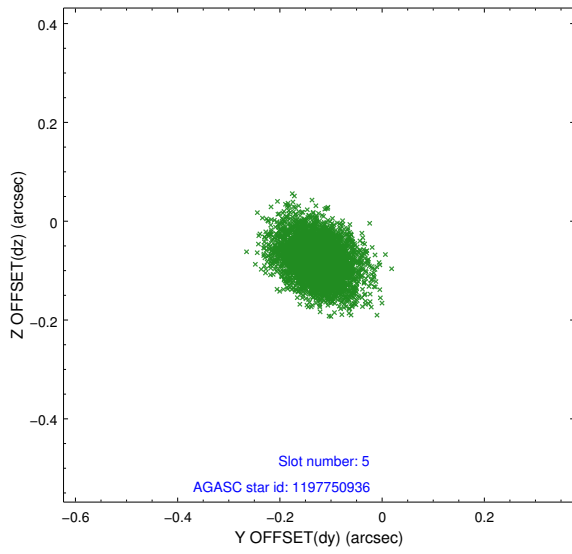
2.4.1 Slot 3



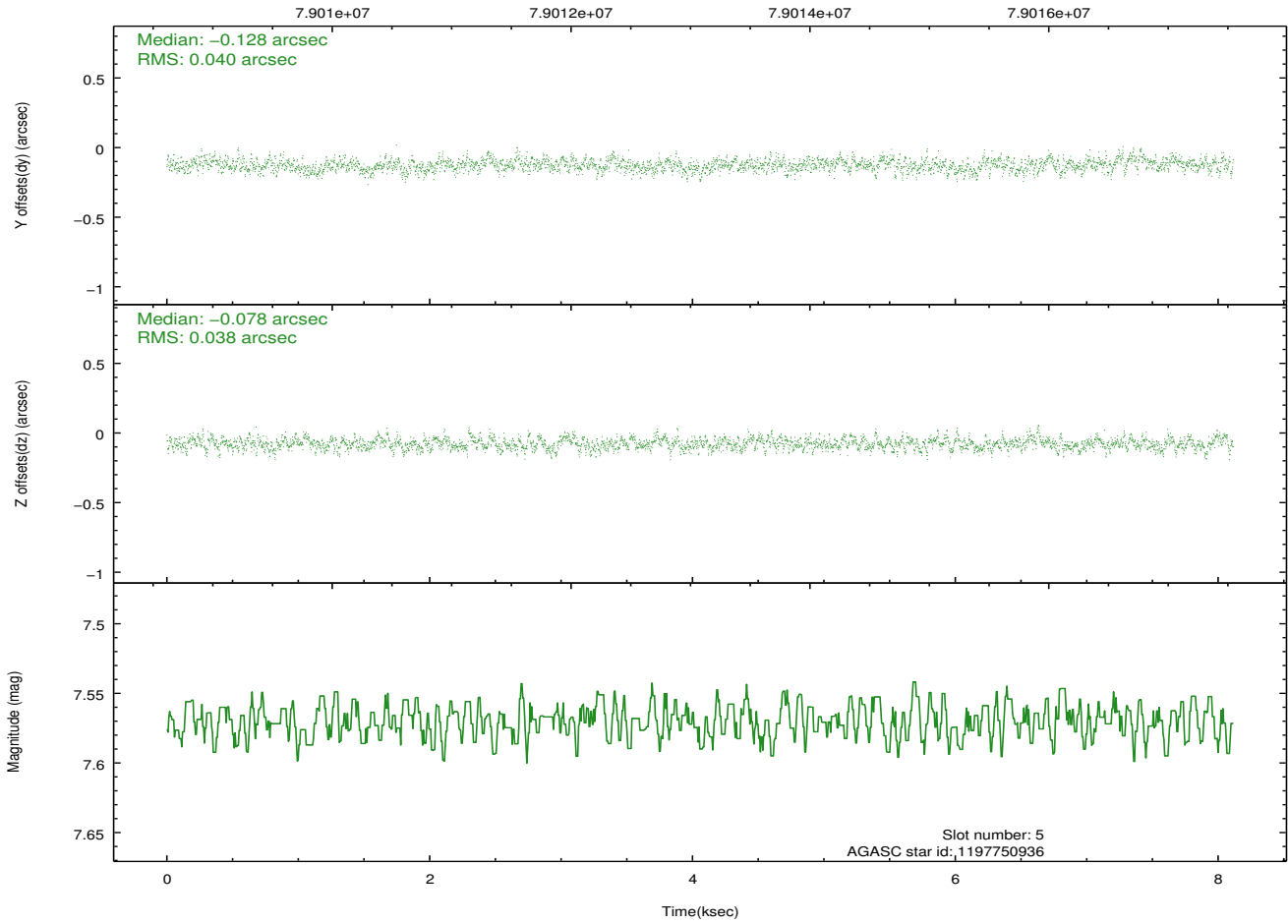
2.4.2 Slot 4



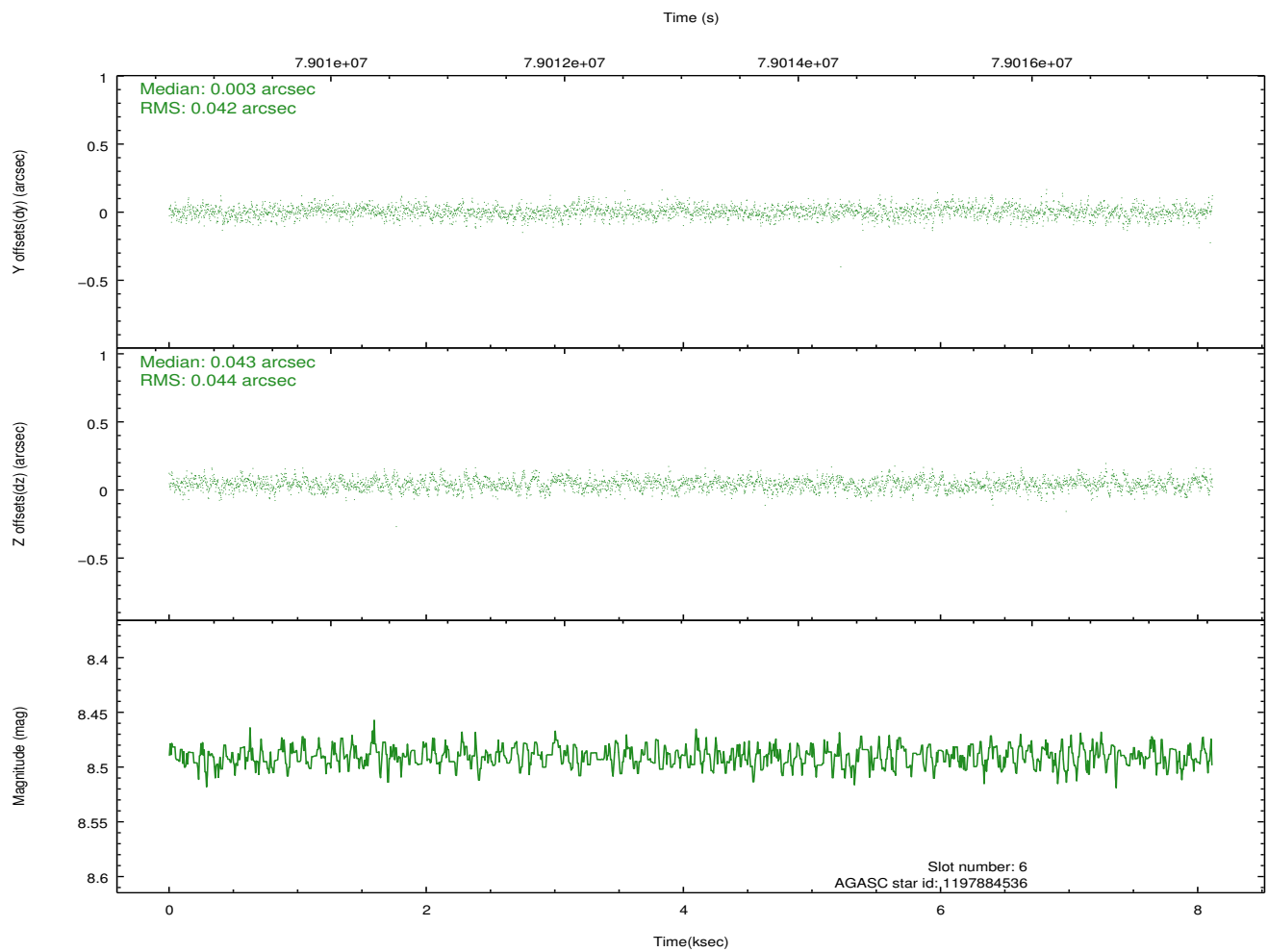
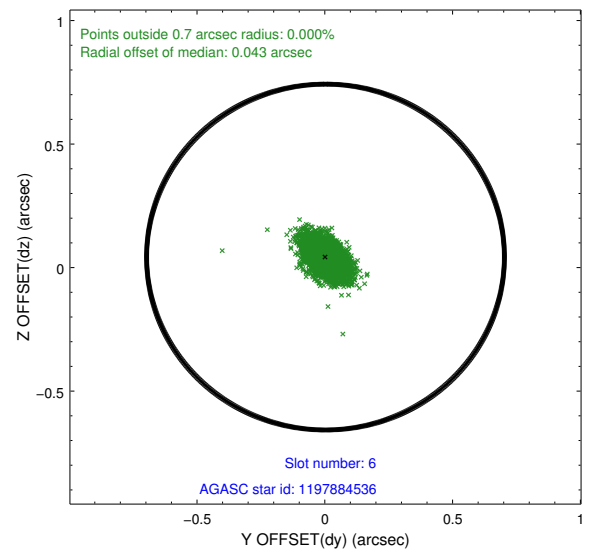
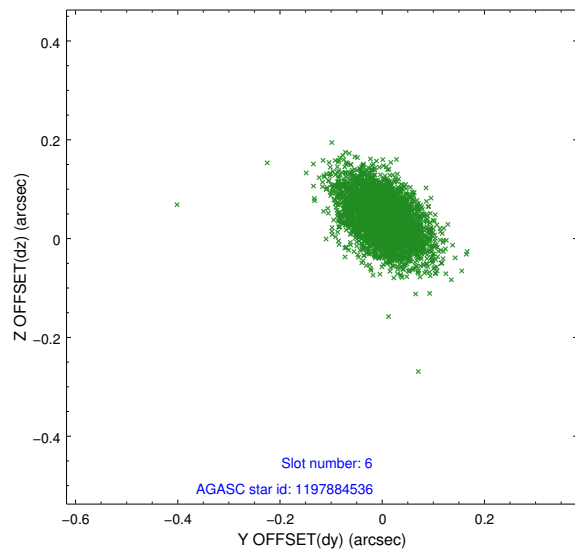
2.4.3 Slot 5



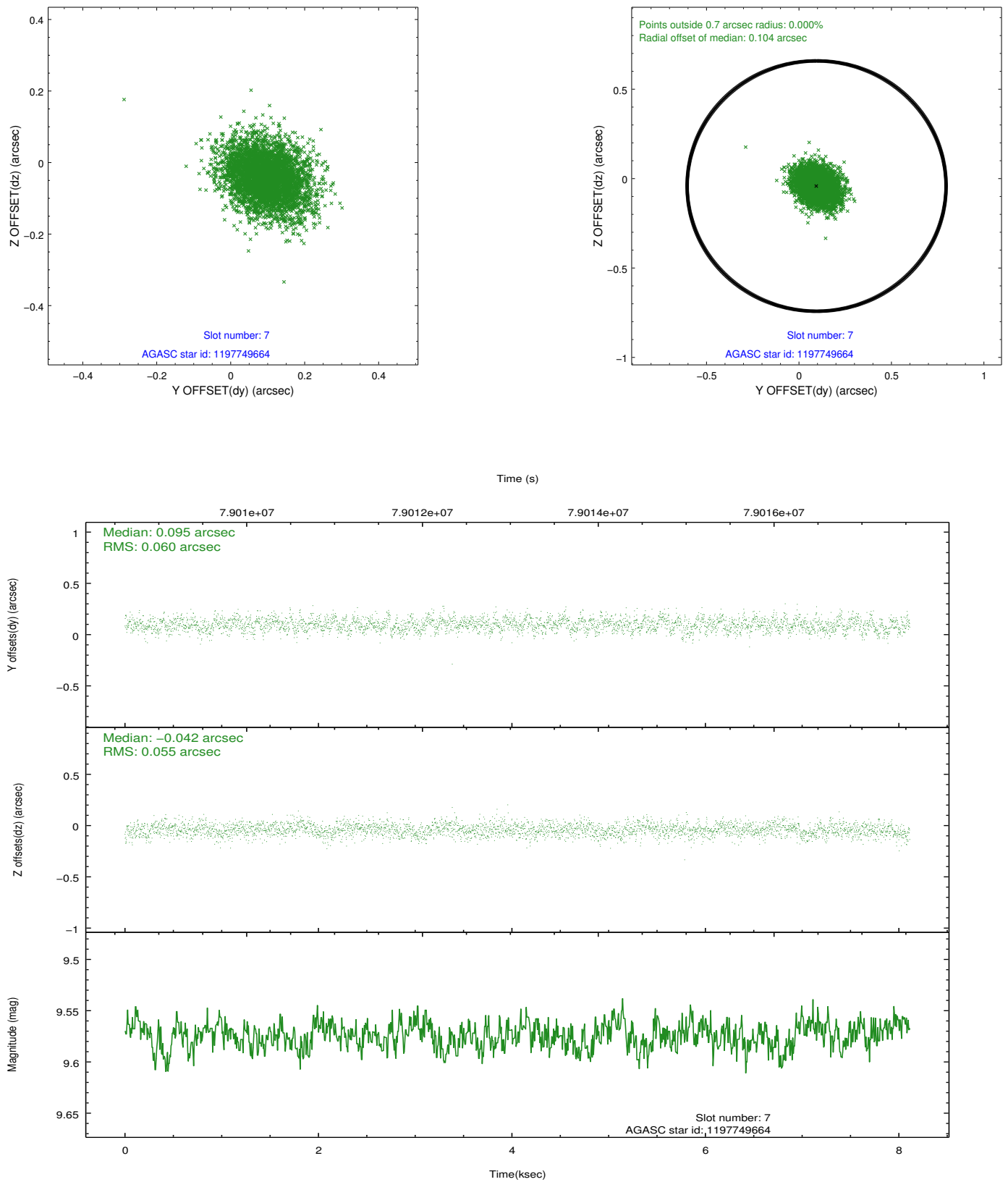
Time (s)



2.4.4 Slot 6

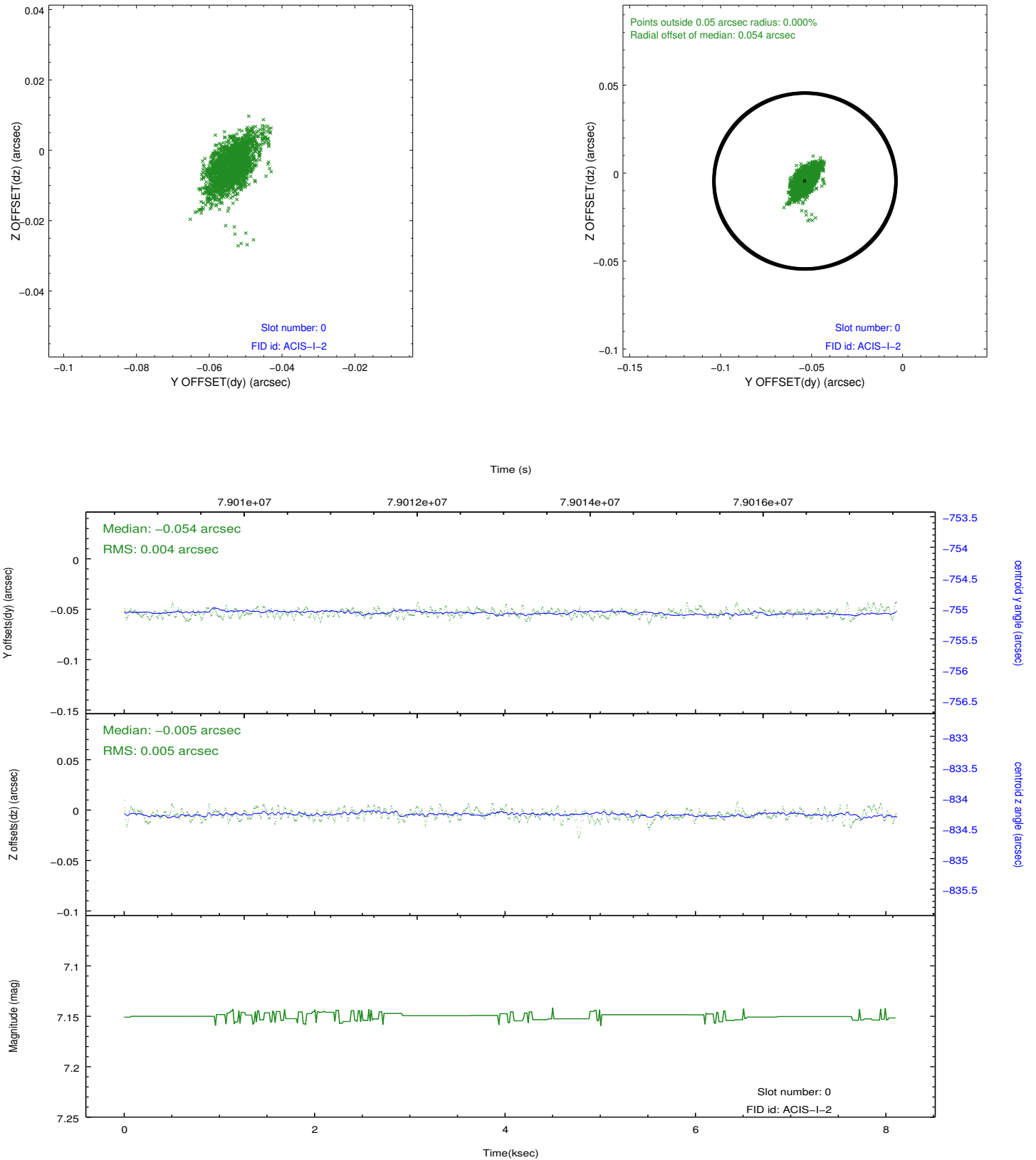


2.4.5 Slot 7

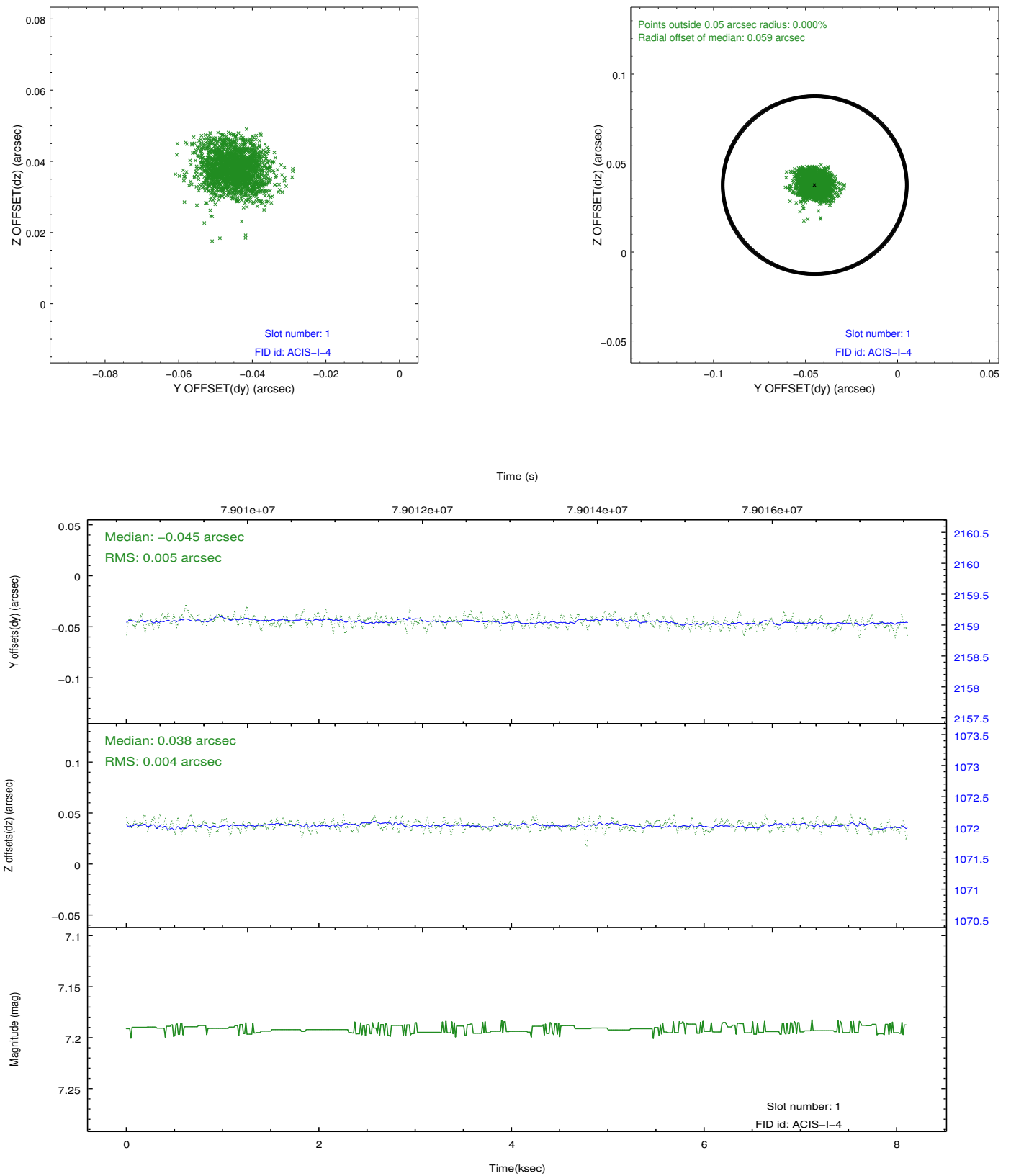


2.5 FID Slots

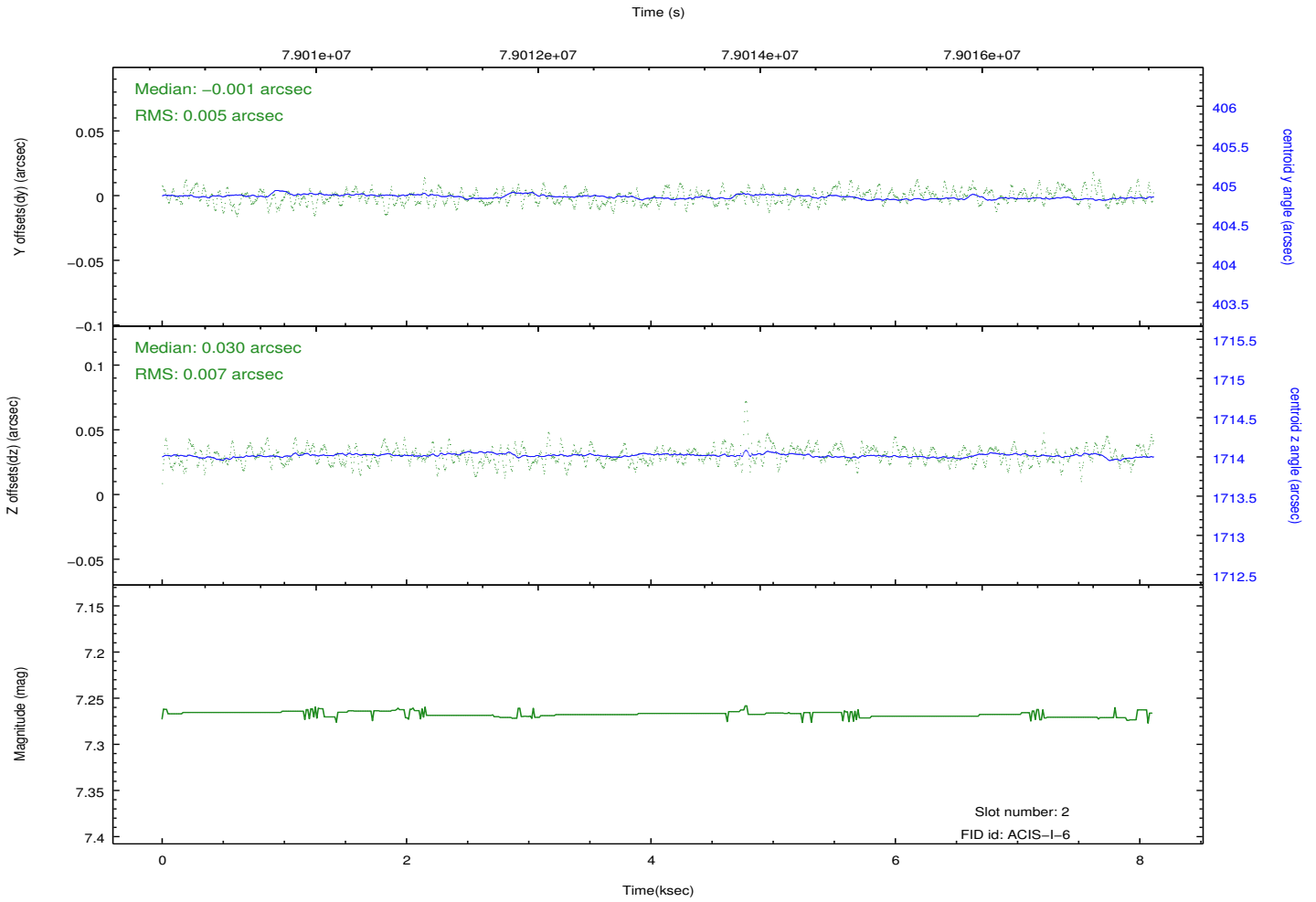
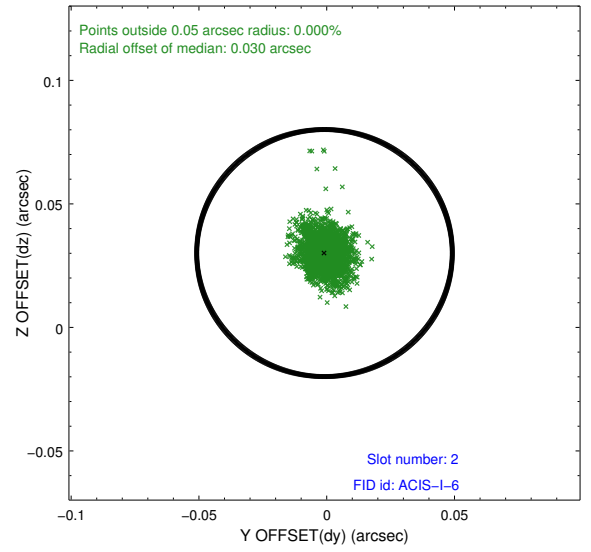
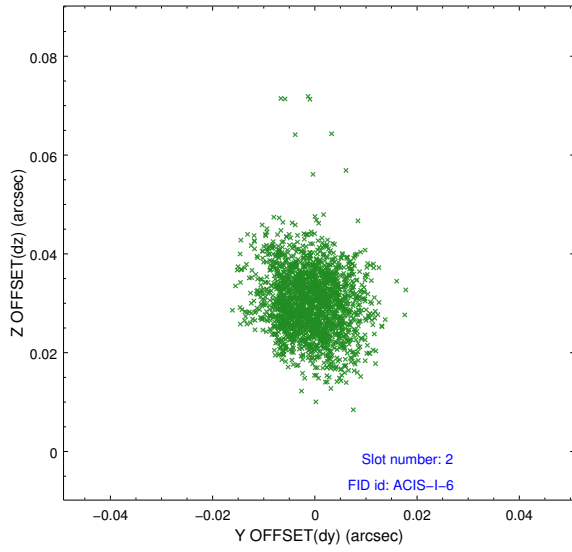
2.5.1 Slot 0



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.