

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1803 - L2 Version 5
Chandra X-Ray Center

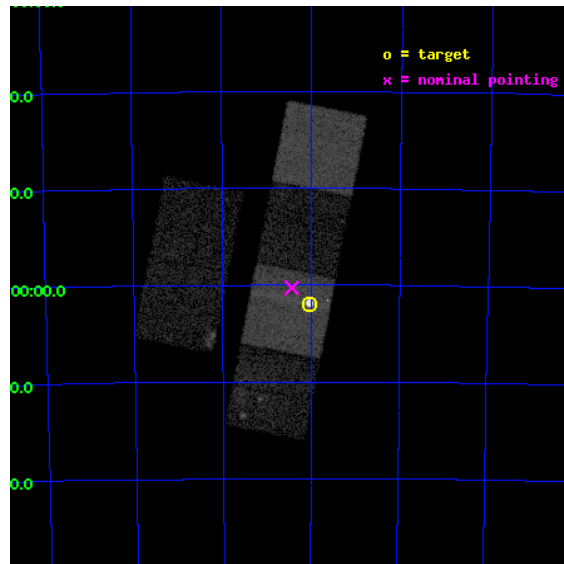
L2 Processing Date : Aug 29 2012

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1 Front

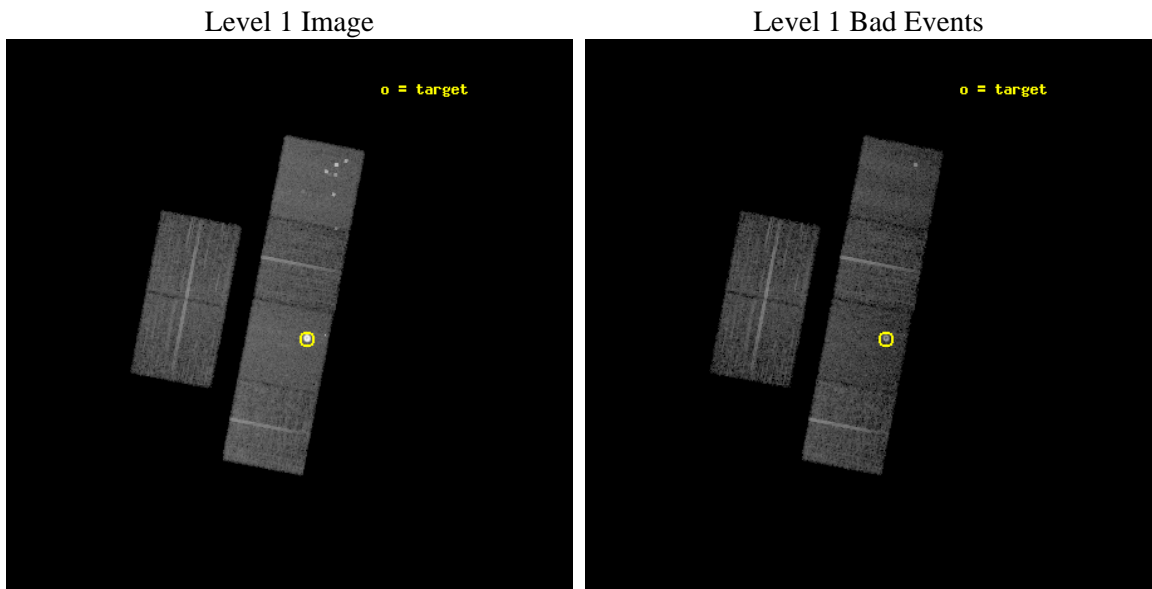
seq_num	590216	Sequence number
obs_id	1803	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip S3, T=110, Offsets=-1,2,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	16.108841744081	Nominal RA [deg]
dec_nom	-72.004842806414	Nominal Dec [deg]
roll_nom	101.04047943542	Nominal Roll [deg]
revision	5	Processing version of data
ontime	8083.2000075132	Sum of GTIs [s]
livetime	7980.8456618993	Livetime [s]
ontime2	8083.2000075132	Sum of GTIs [s]
ontime3	8083.2000075132	Sum of GTIs [s]
ontime5	8083.2000075132	Sum of GTIs [s]
ontime6	8083.2000075132	Sum of GTIs [s]
ontime7	8083.2000075132	Sum of GTIs [s]
ontime8	8083.2000075132	Sum of GTIs [s]
l2events	145171	Number of level 2 events



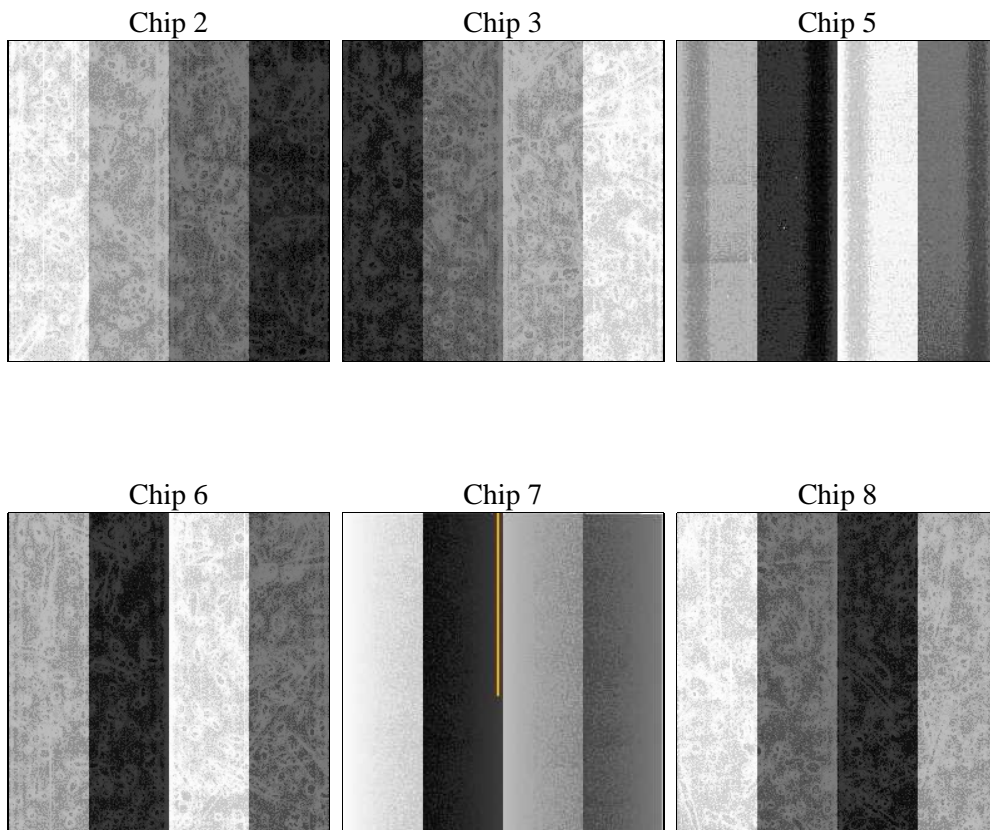
2 OBI

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	8083.2000075132	Sum of GTIs [s]
caldbver	4.5.1.1	 	ontime2	8083.2000075132	Sum of GTIs [s]
date	2012-08-30T01:15:14	Date and time of file creation	ontime3	8083.2000075132	Sum of GTIs [s]
revision	5	Processing version of data	ontime5	8083.2000075132	Sum of GTIs [s]
			ontime6	8083.2000075132	Sum of GTIs [s]
			ontime7	8083.2000075132	Sum of GTIs [s]
			ontime8	8083.2000075132	Sum of GTIs [s]
			l1events	488438	Number of level 1 events

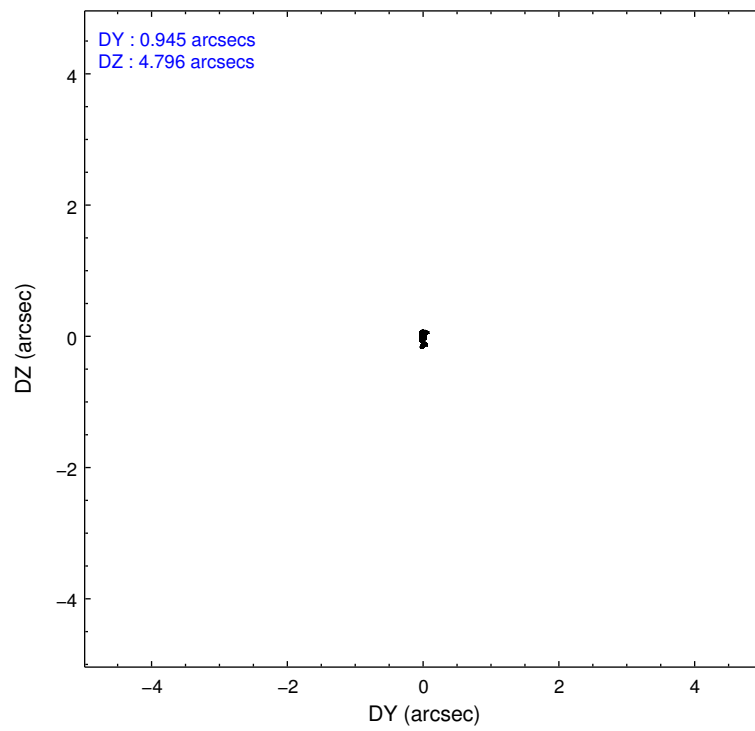
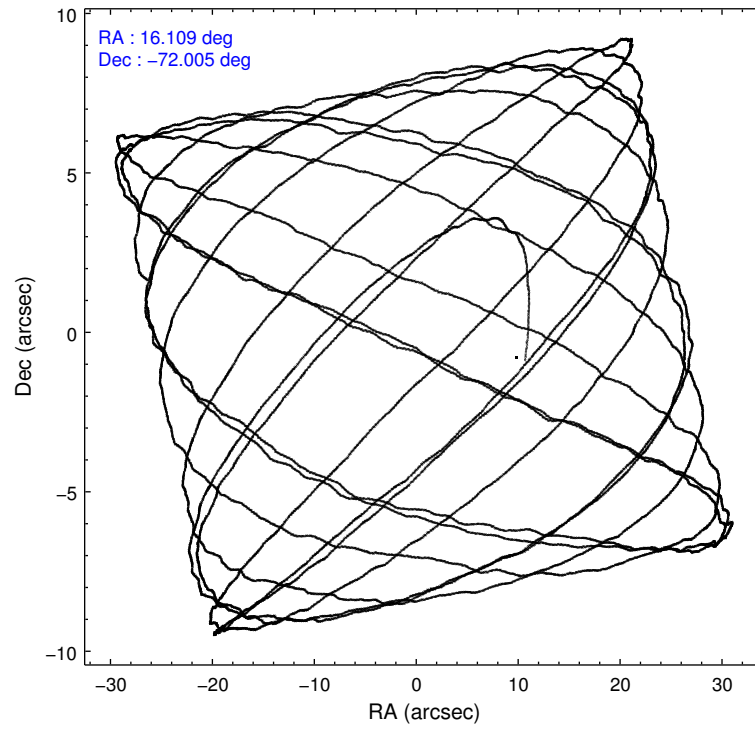
2.1.4 Events

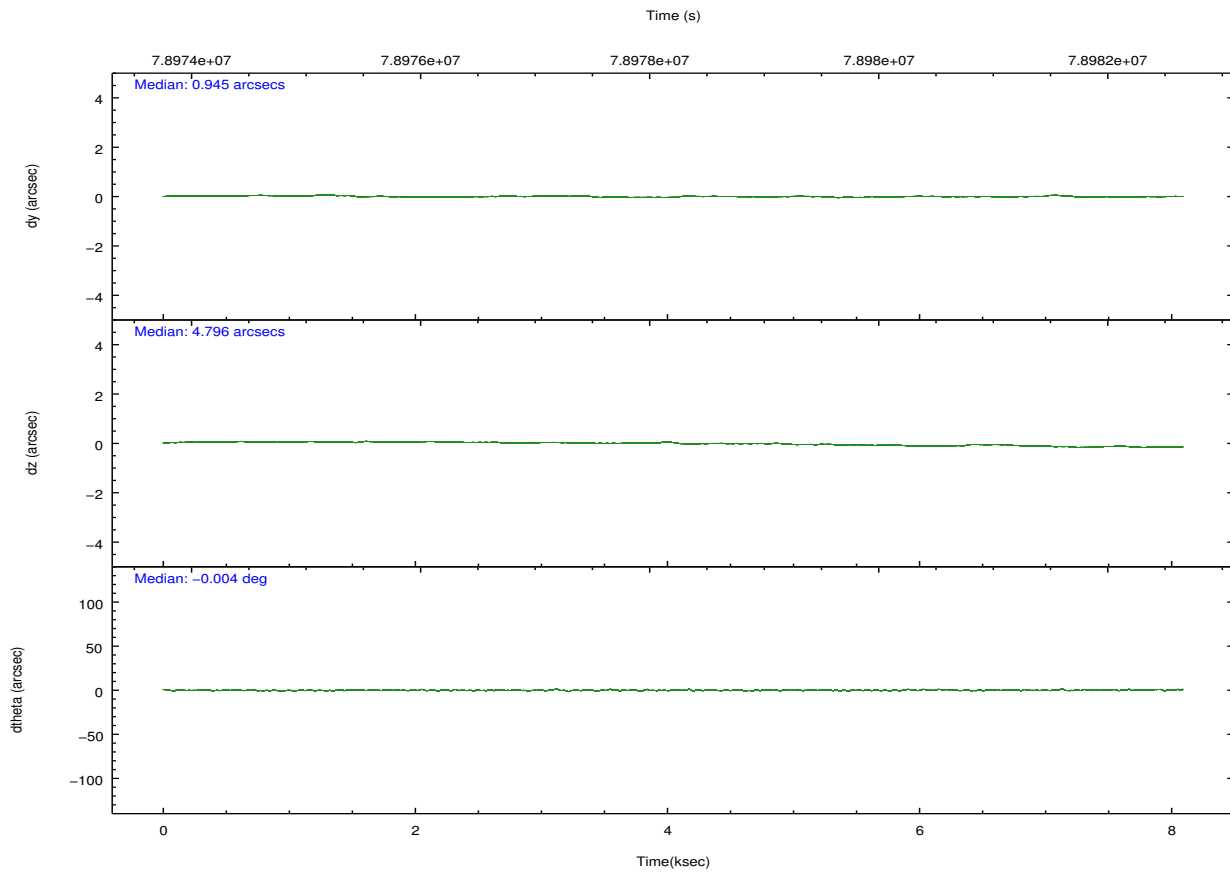
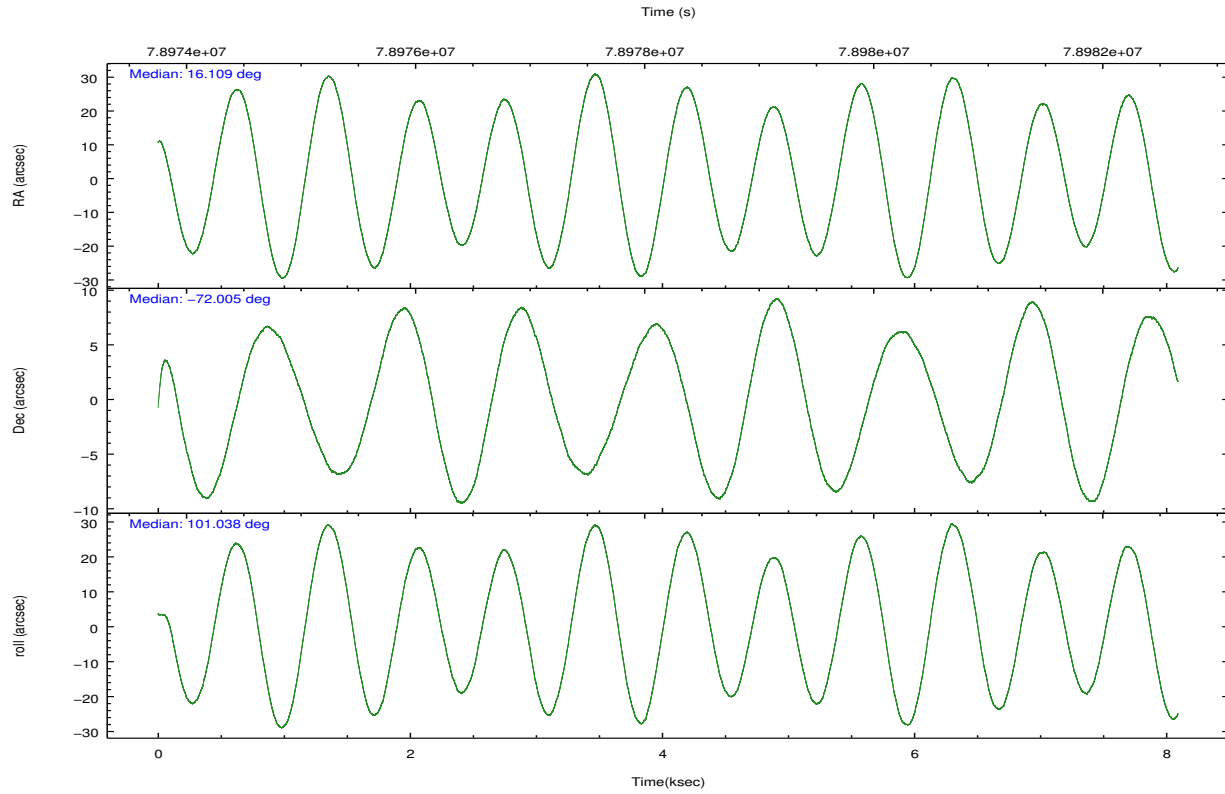
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8		ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	61907	58787	88055	59917	146410	73362	grade 0 events	1198	1556	10704	1353	26698	3494
rejected events	56605	52865	49219	54060	48554	61071		1%	2%	12%	2%	18%	4%
rejected %	91%	89%	55%	90%	33%	83%	grade 1 events	5	14	782	7	578	26
								0%	0%	0%	0%	0%	0%
							grade 2 events	2249	2384	8826	2322	25244	4147
								3%	4%	10%	3%	17%	5%
							grade 3 events	398	388	1218	387	11398	920
								0%	0%	1%	0%	7%	1%
							grade 4 events	373	384	988	415	10540	839
								0%	0%	1%	0%	7%	1%
							grade 5 events	1156	1286	3009	1362	5545	1861
								1%	2%	3%	2%	3%	2%
							grade 6 events	1435	1589	19610	1748	27112	3652
								2%	2%	22%	2%	18%	4%
							grade 7 events	55093	51186	42918	52323	39295	58423
								88%	87%	48%	87%	26%	79%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-235678	ACIS-235678	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	16.167579	16.1088417440806	Subarray requested	NONE	NONE
[deg] Pointing Dec	-72.025412	-72.00484280641427	Alternating exposures requested	N	N
[deg] Pointing Roll	100.939726	101.040479435425	[s] Primary exposure time	0.000000	3.2
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	78974329.184000	78972985.49624699			
Observation start date	2000-07-03T01:17:45	2000-07-03T00:56:25			
[s] Observation end time (MET)	78982249.184000	78982383.209093			
Observation end date	2000-07-03T03:29:45	2000-07-03T03:33:03			
Read mode	TIMED	TIMED			

2.3 Aspect



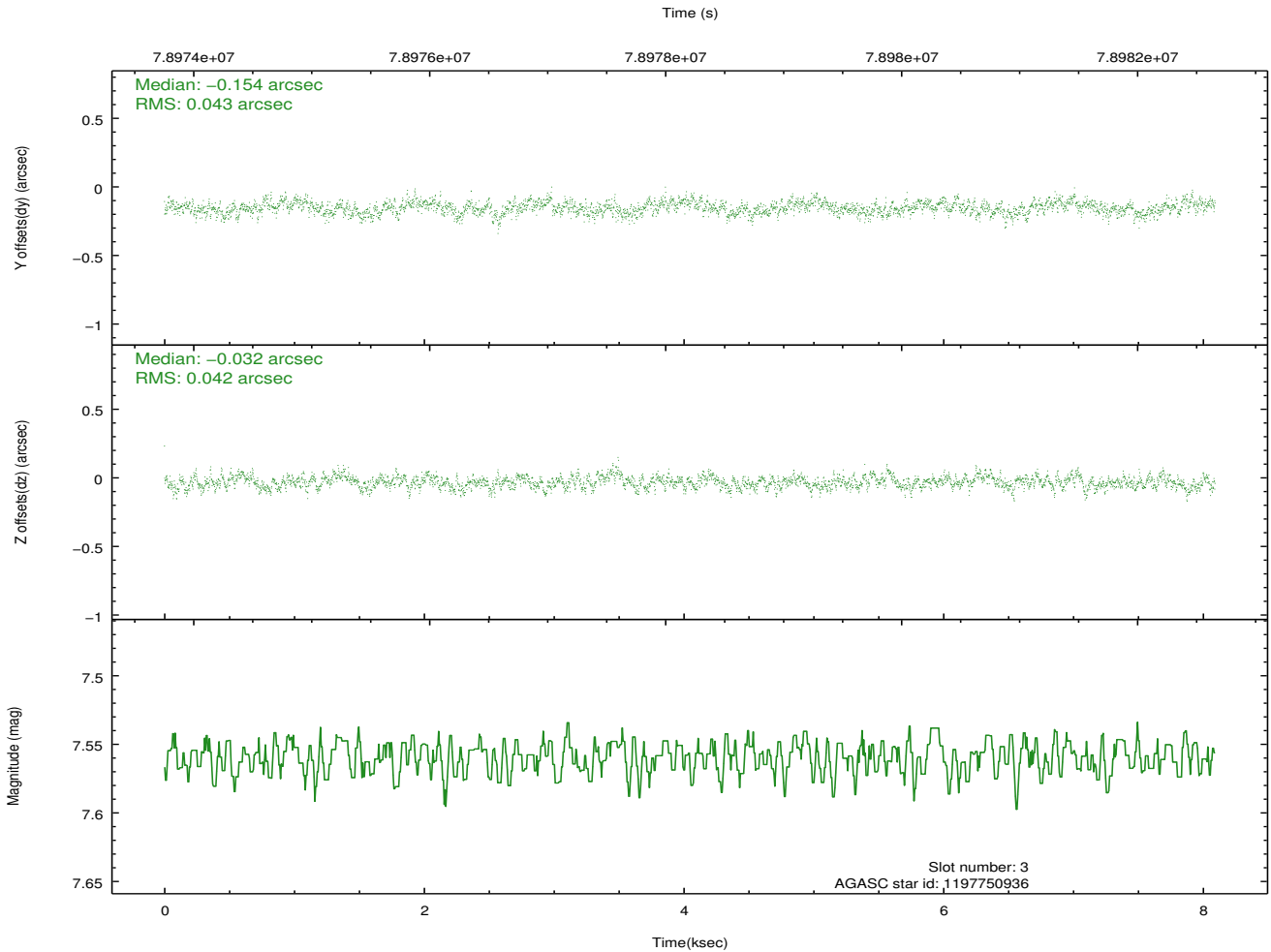
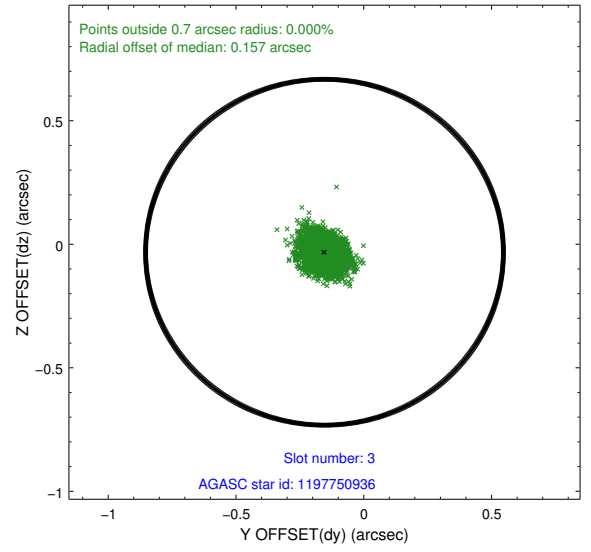
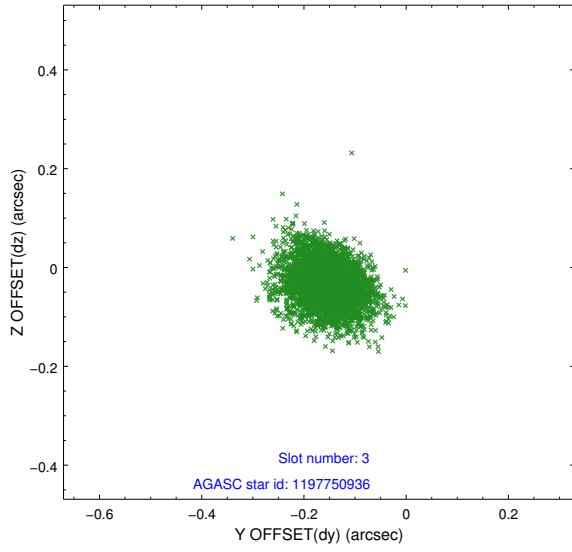


Slot Statistics

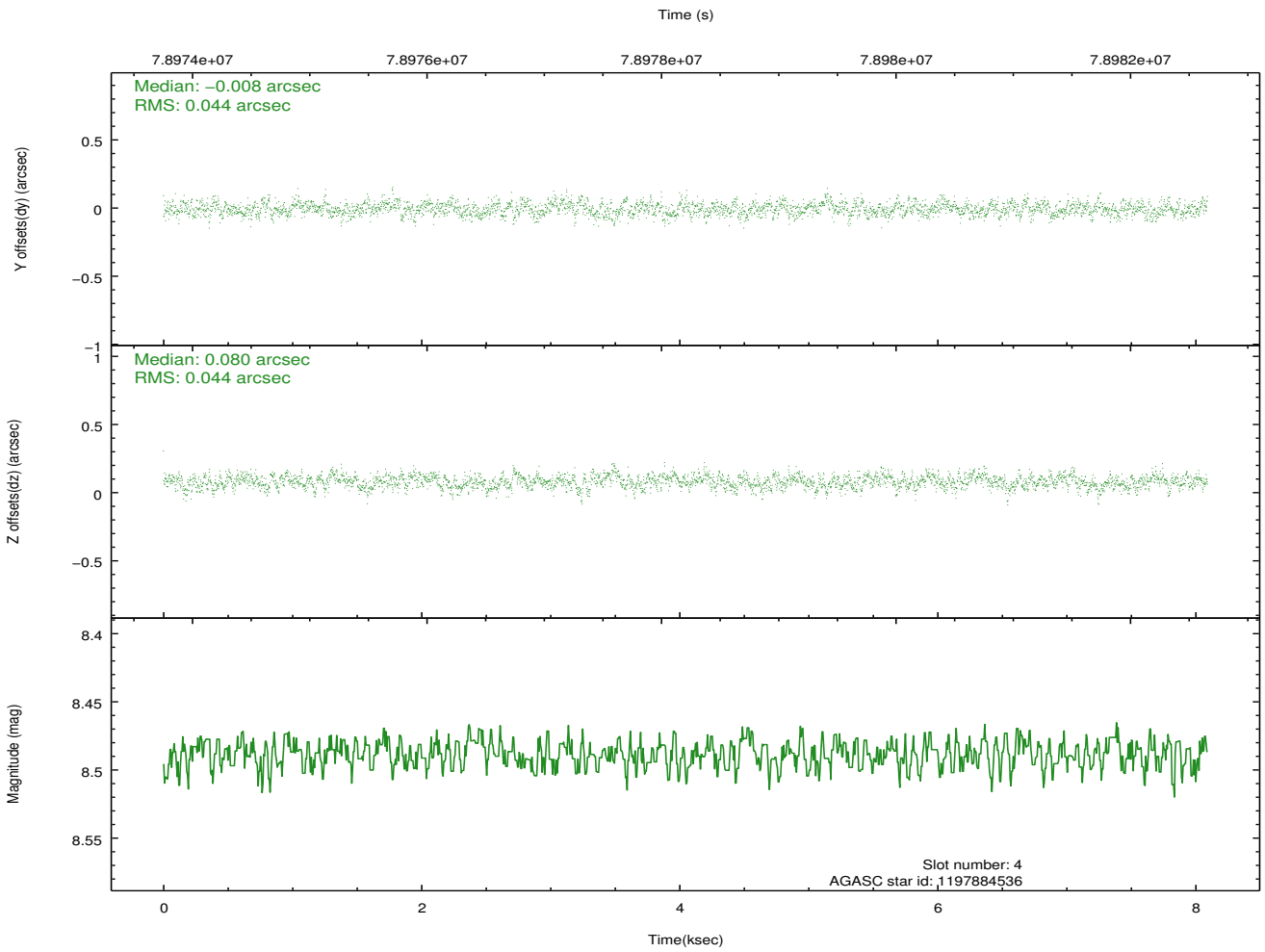
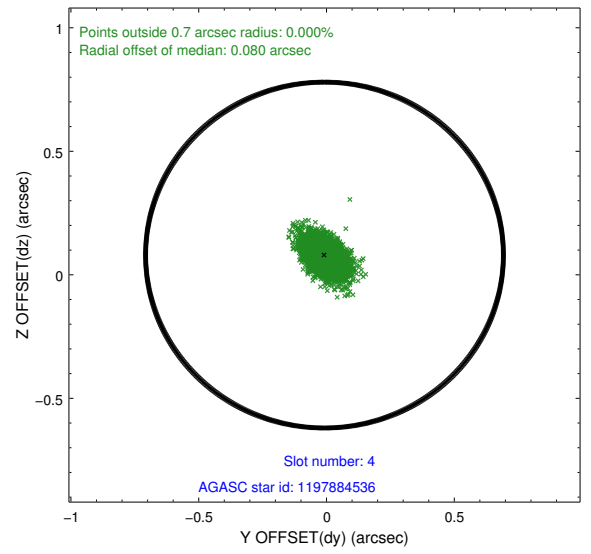
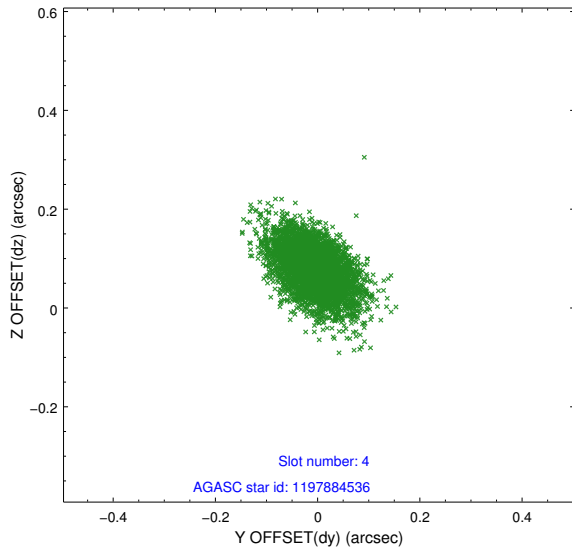
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	1973	-0.025	-0.024	0.006	0.011	0.000000	0.000000	-753.56	-1725.85
1	FID	ACIS-S-4	7.21	1973	-0.002	0.009	0.006	0.010	0.000000	0.000000	2159.43	181.94
2	FID	ACIS-S-6	7.35	1973	-0.001	0.022	0.007	0.012	0.000000	0.000000	409.35	820.14
3	GUIDE	1197750936	7.56	3947	-0.154	-0.032	0.064	0.105	15.387940	-71.549550	1845.22	547.86
4	GUIDE	1197884536	8.49	3946	-0.008	0.080	0.065	0.111	17.160729	-71.835289	452.50	-1222.52
5	GUIDE	1197884712	8.31	3945	-0.012	-0.059	0.070	0.119	16.087398	-72.252690	-786.09	240.97
6	GUIDE	1197750640	9.73	3945	0.121	0.008	0.105	0.173	15.758835	-72.088048	-136.59	487.18
7	GUIDE	1197749664	9.57	3944	0.049	0.006	0.091	0.148	15.809015	-72.366369	-1131.57	616.86

2.4 Star Slots

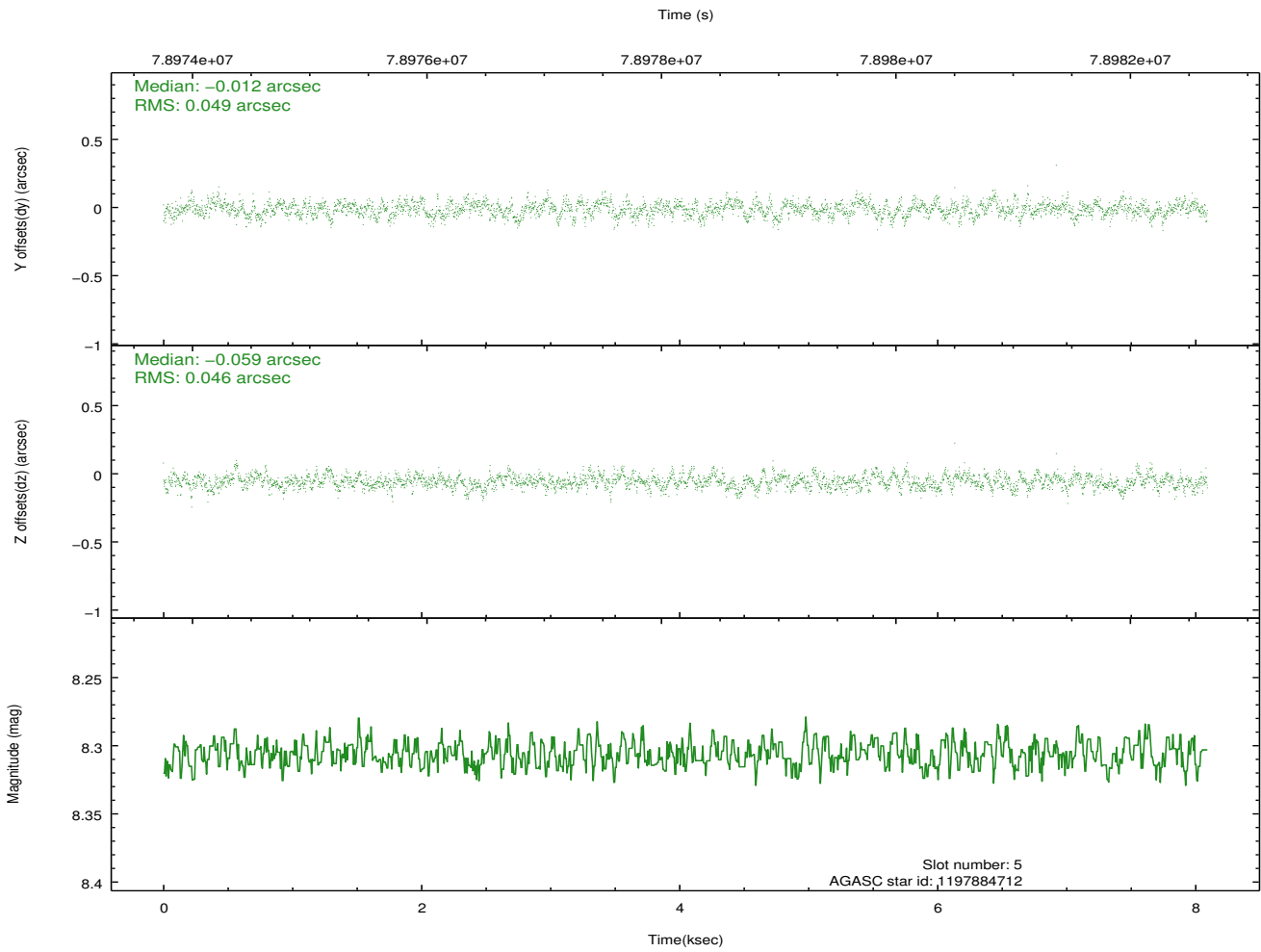
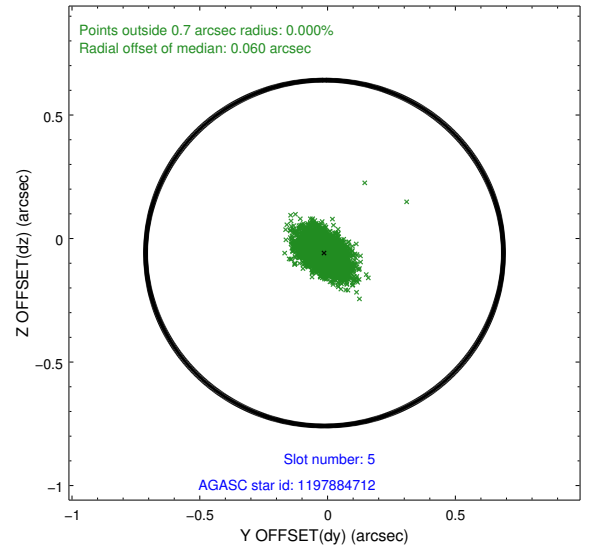
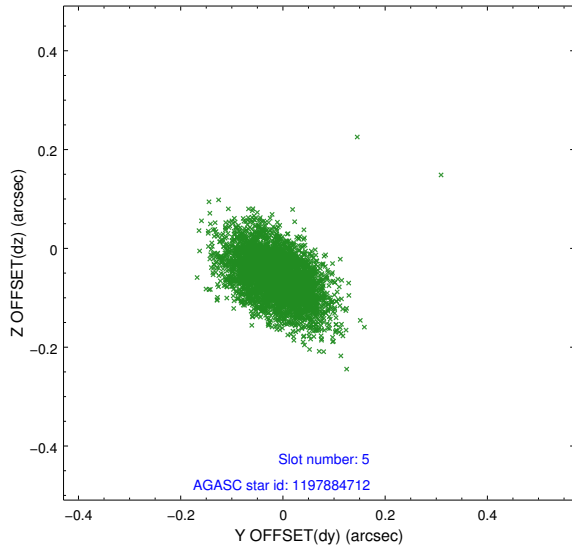
2.4.1 Slot 3



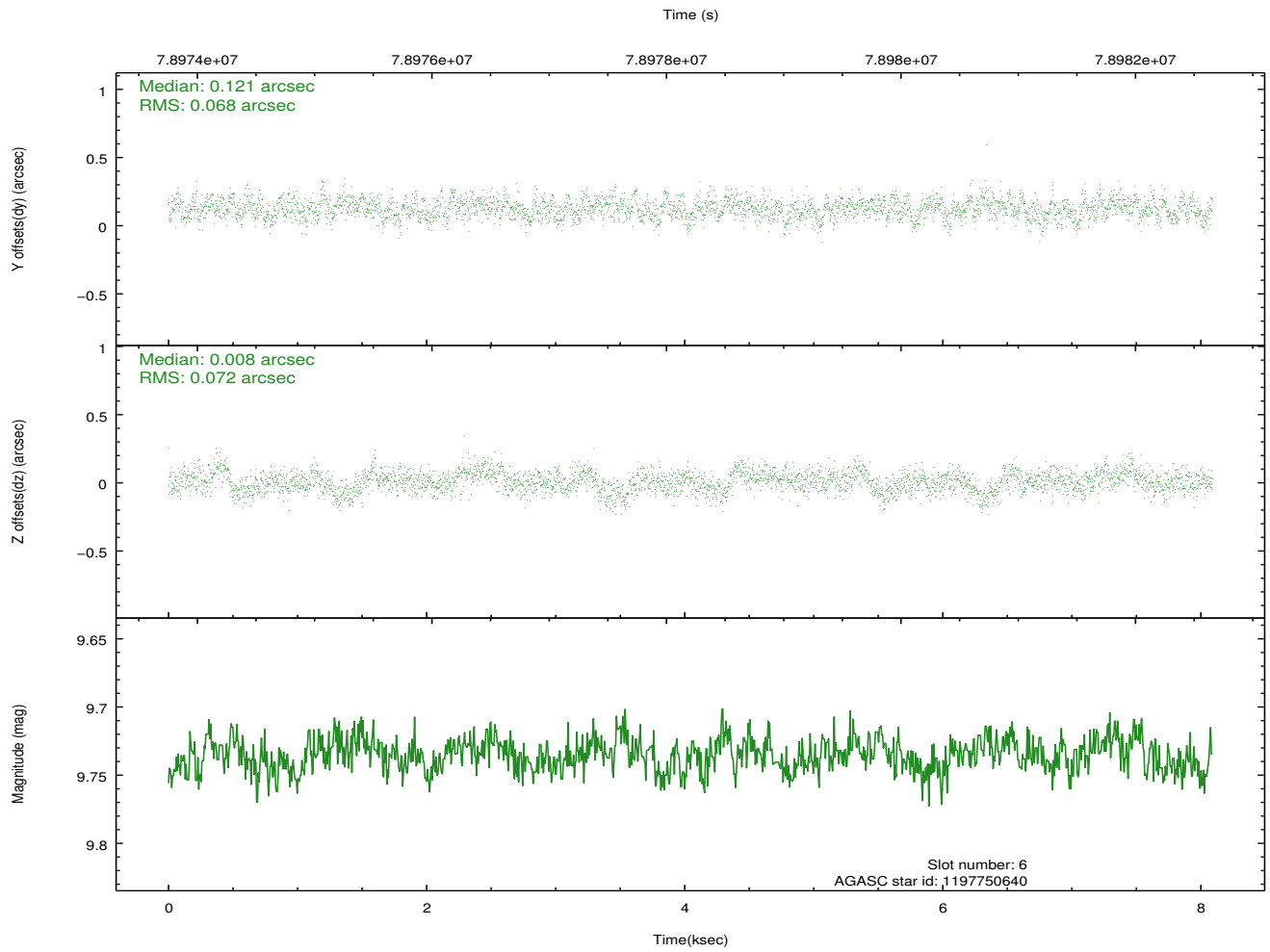
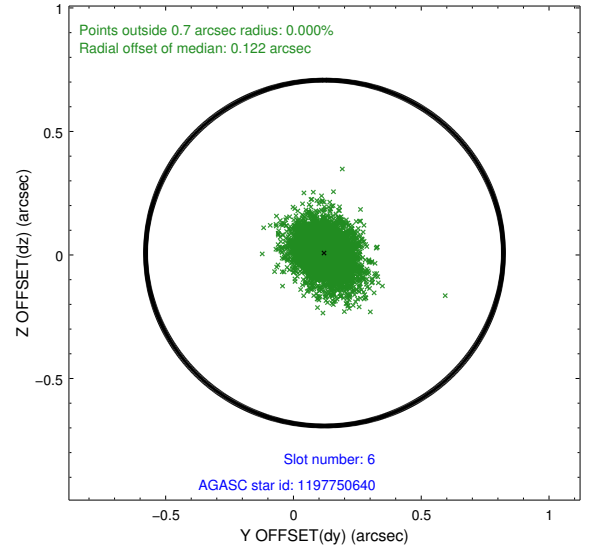
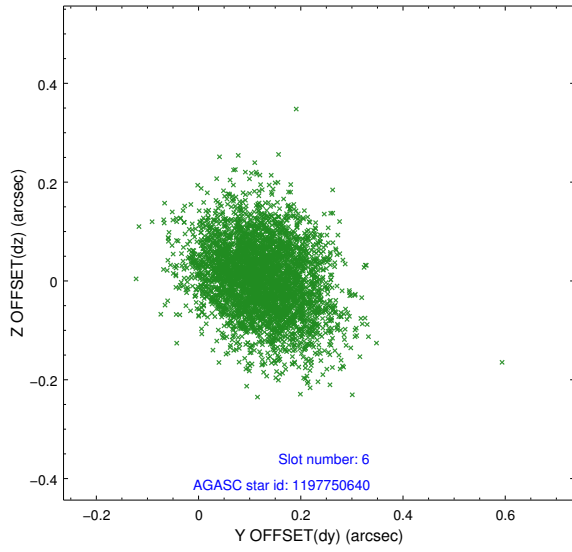
2.4.2 Slot 4



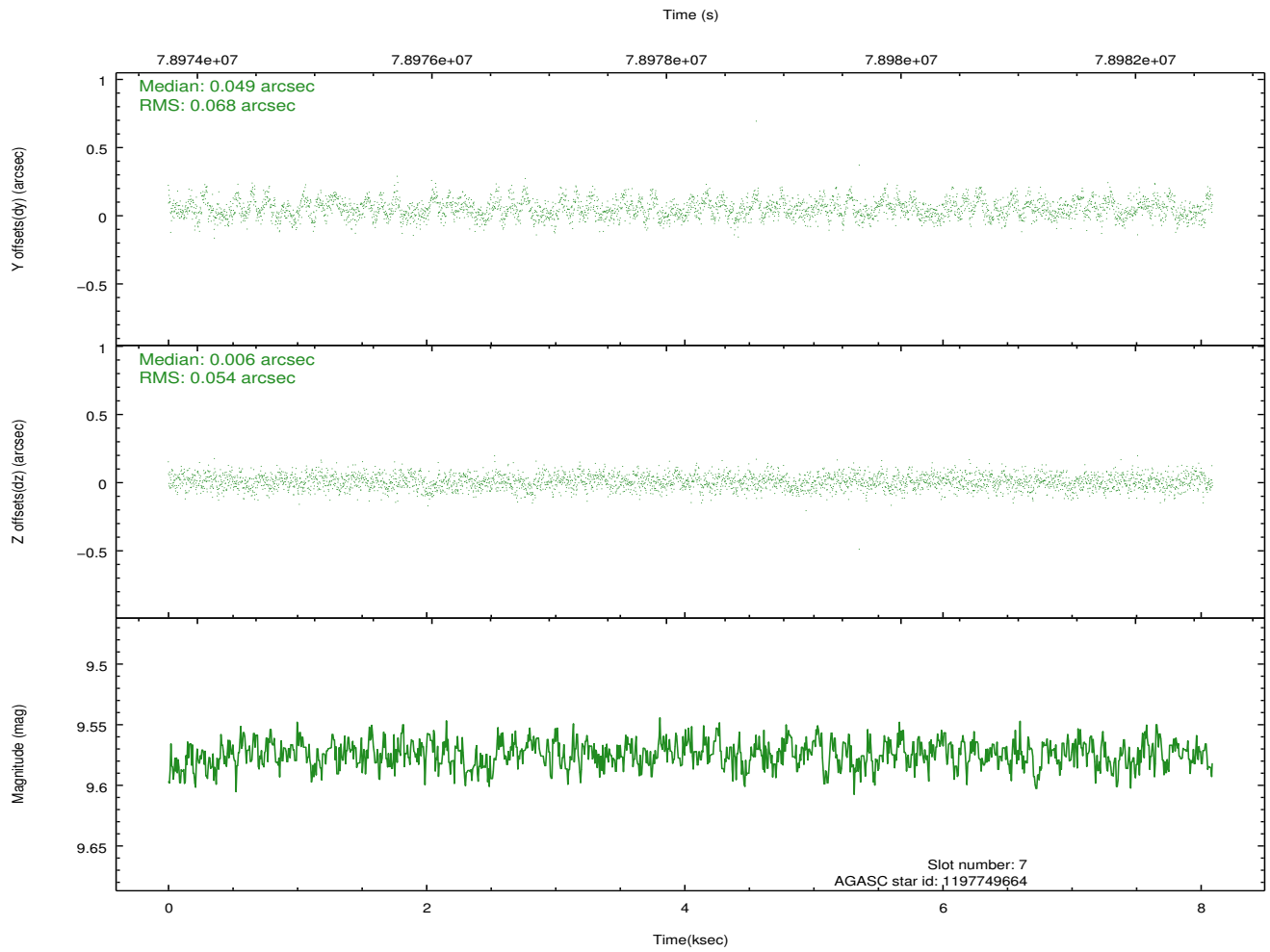
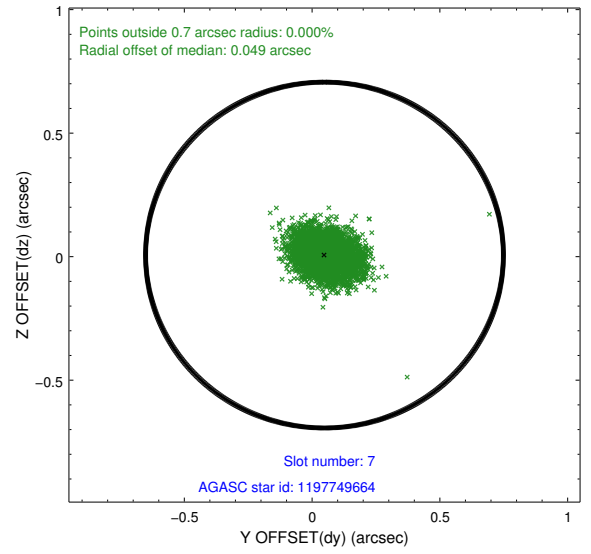
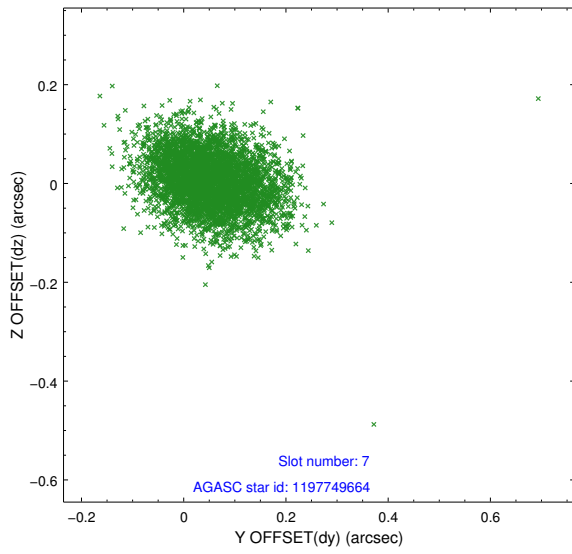
2.4.3 Slot 5



2.4.4 Slot 6

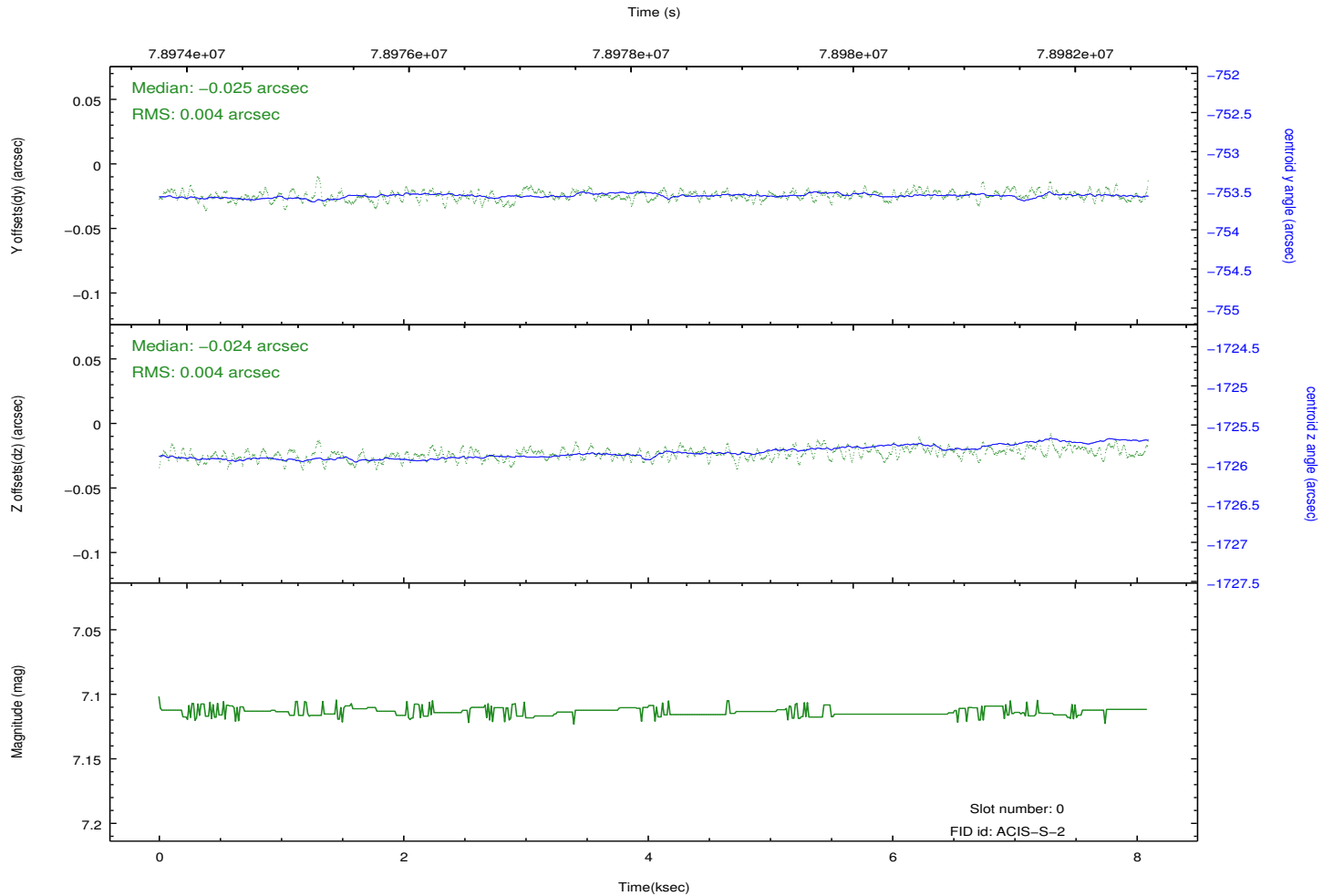
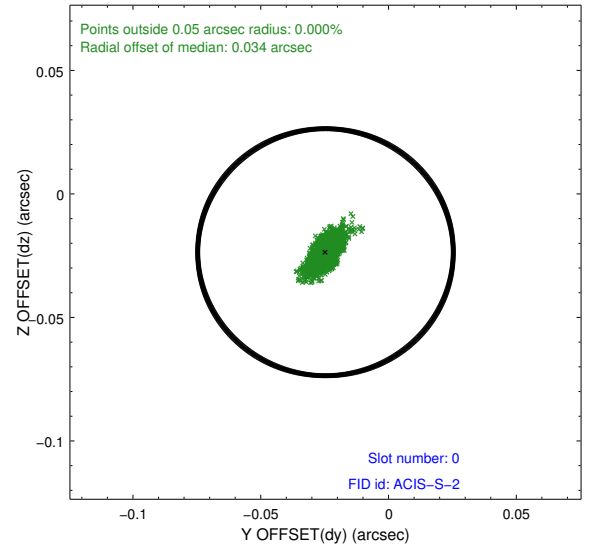
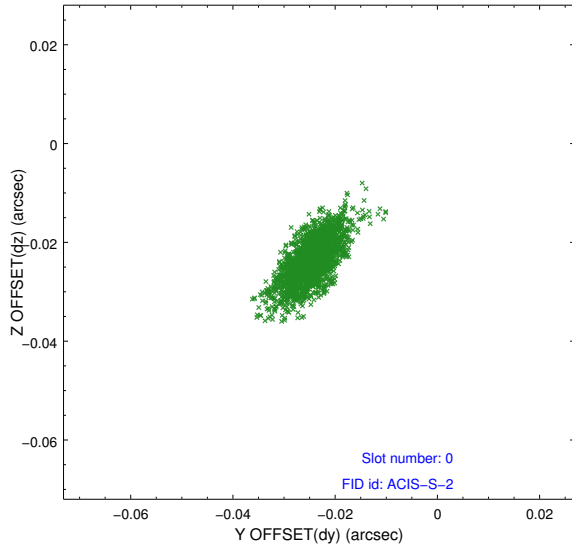


2.4.5 Slot 7

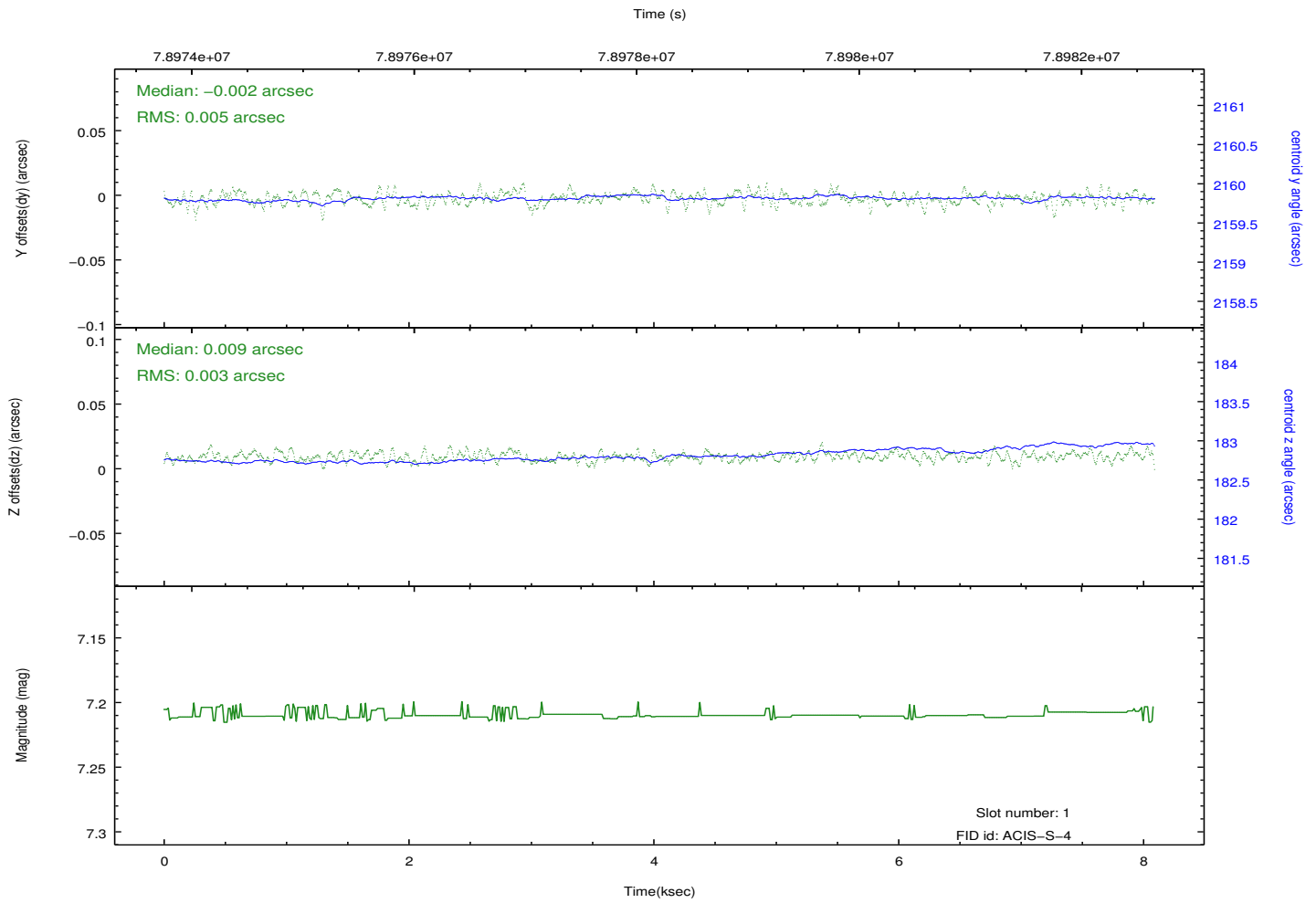
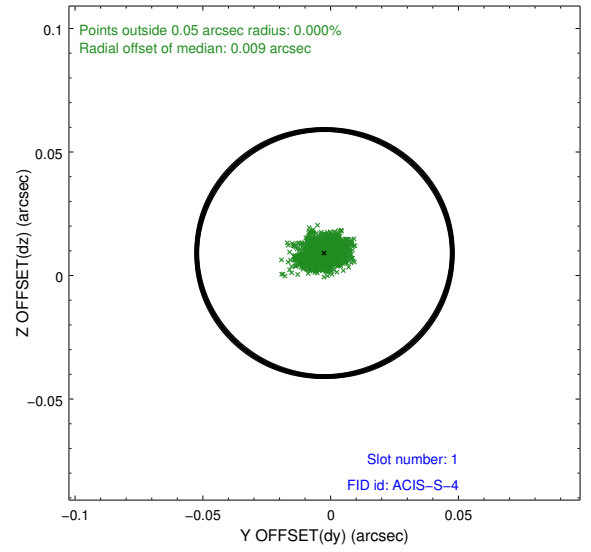
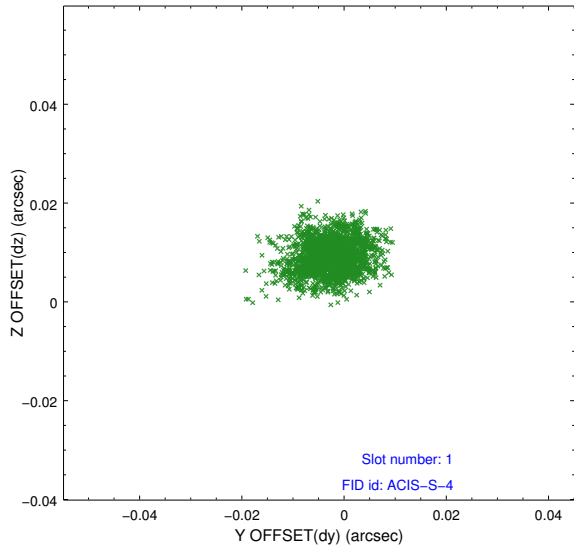


2.5 FID Slots

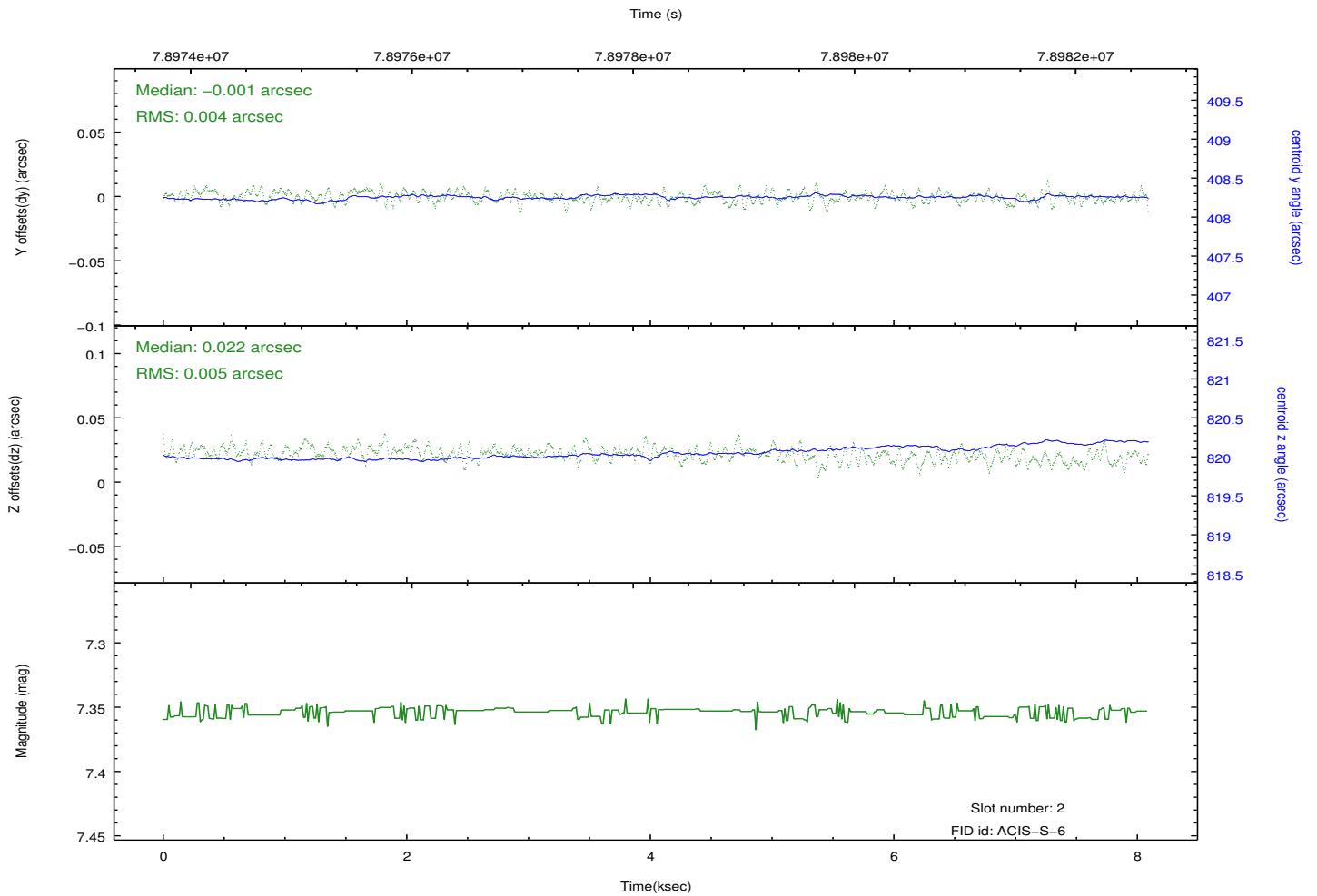
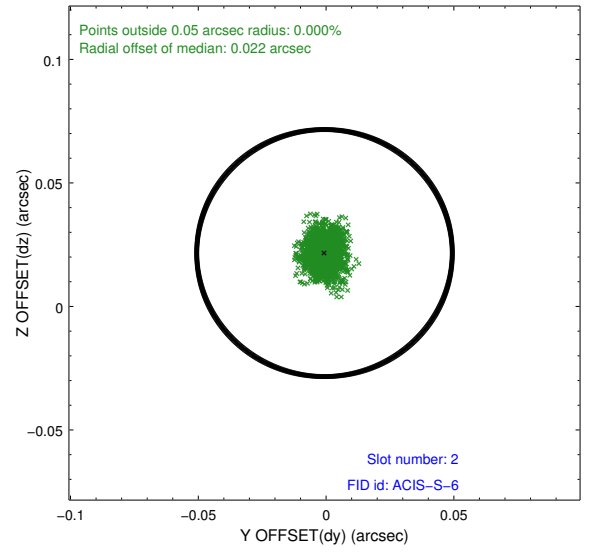
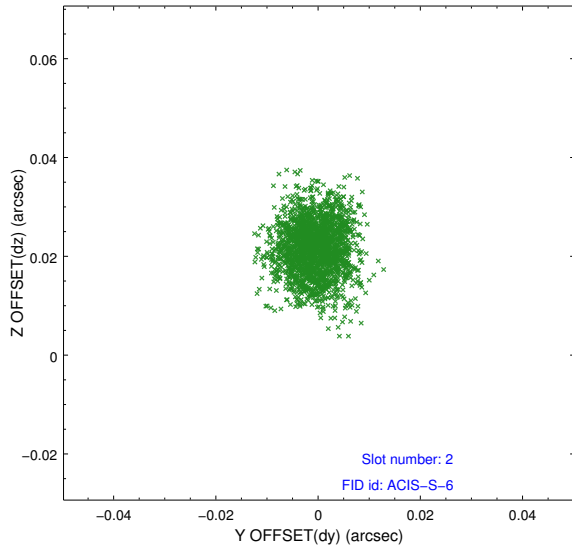
2.5.1 Slot 0



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)	2018.03.06
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	8.083

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.