

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1780 - L2 Version 5
Chandra X-Ray Center

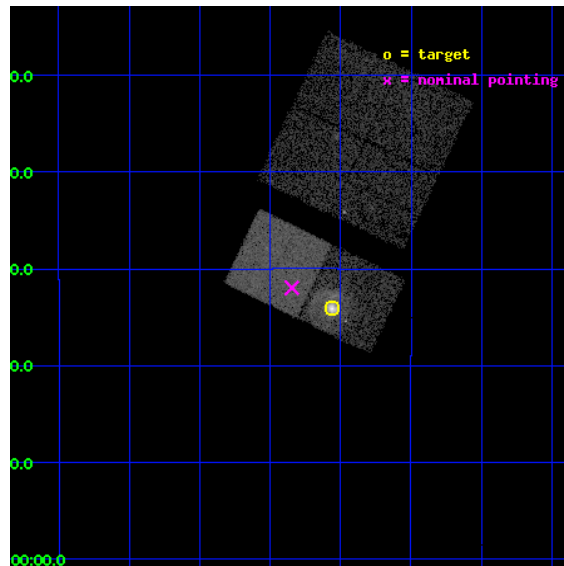
L2 Processing Date : Aug 30 2012

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1 Front

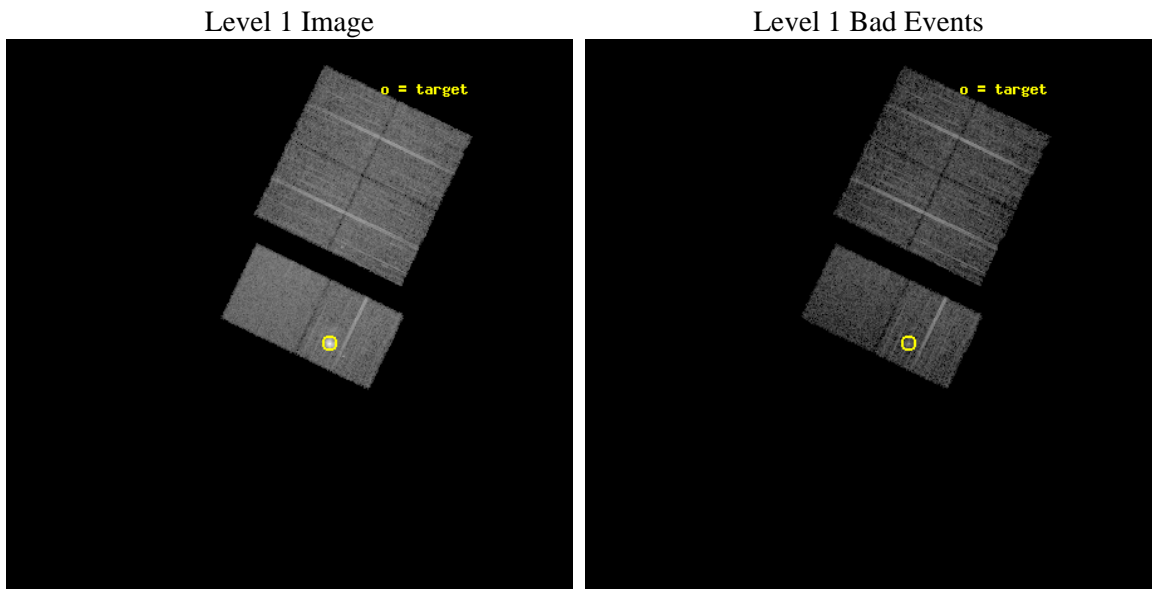
seq_num	590206	Sequence number
obs_id	1780	Observation id
title	HRC RESPONSE TO CONTINUUM SOURCE.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	G21.5-0.9 [Chip S2, T=110, Offsets=5,0,1]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.389583	Observer's specified target RA [deg]
dec_targ	-10.568528	Observer's specified target Dec [deg]
ra_nom	278.4614298576	Nominal RA [deg]
dec_nom	-10.532877922371	Nominal Dec [deg]
roll_nom	205.65699308243	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7318.4000068009	Sum of GTIs [s]
livetime	7225.7300193033	Livetime [s]
ontime0	7318.4000068009	Sum of GTIs [s]
ontime1	7315.1590365618	Sum of GTIs [s]
ontime2	7318.4000068009	Sum of GTIs [s]
ontime3	7318.4000068009	Sum of GTIs [s]
ontime6	7318.4000068009	Sum of GTIs [s]
ontime7	7318.4000068009	Sum of GTIs [s]
l2events	66421	Number of level 2 events



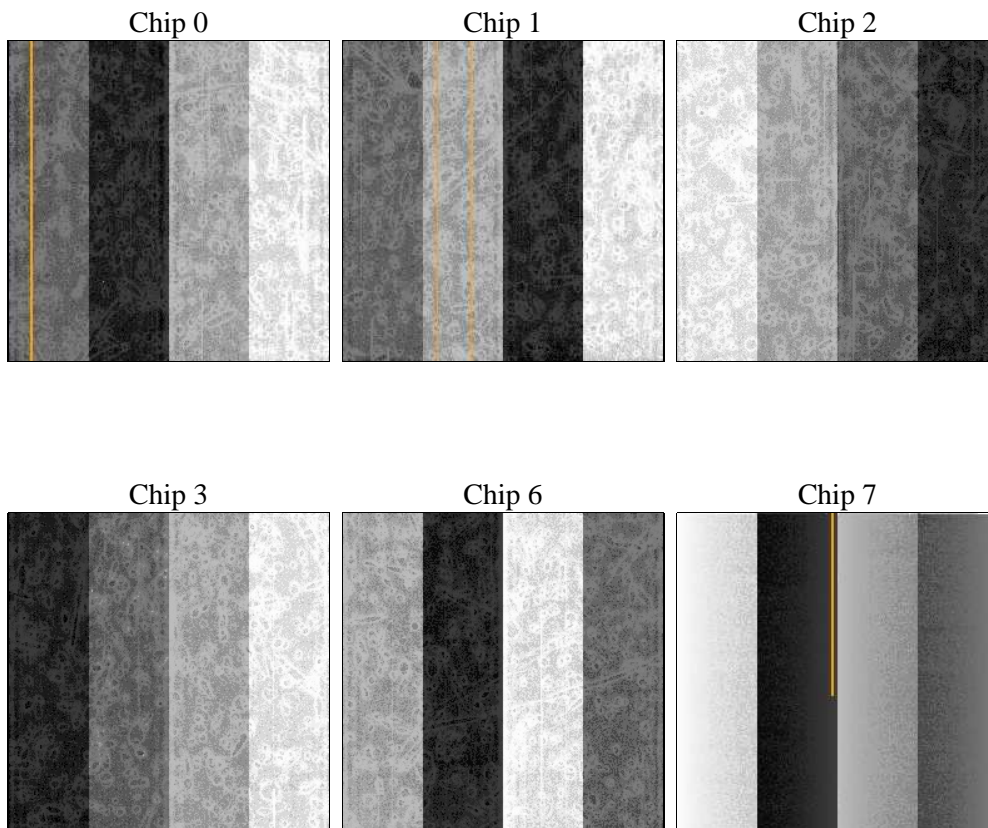
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	7560.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7318.4000068009	Sum of GTIs [s]
caldbver	4.5.1.1	 	ontime0	7318.4000068009	Sum of GTIs [s]
date	2012-08-30T03:41:03	Date and time of file creation	ontime1	7315.1590365618	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	7318.4000068009	Sum of GTIs [s]
			ontime3	7318.4000068009	Sum of GTIs [s]
			ontime6	7318.4000068009	Sum of GTIs [s]
			ontime7	7318.4000068009	Sum of GTIs [s]
			l1events	331503	Number of level 1 events

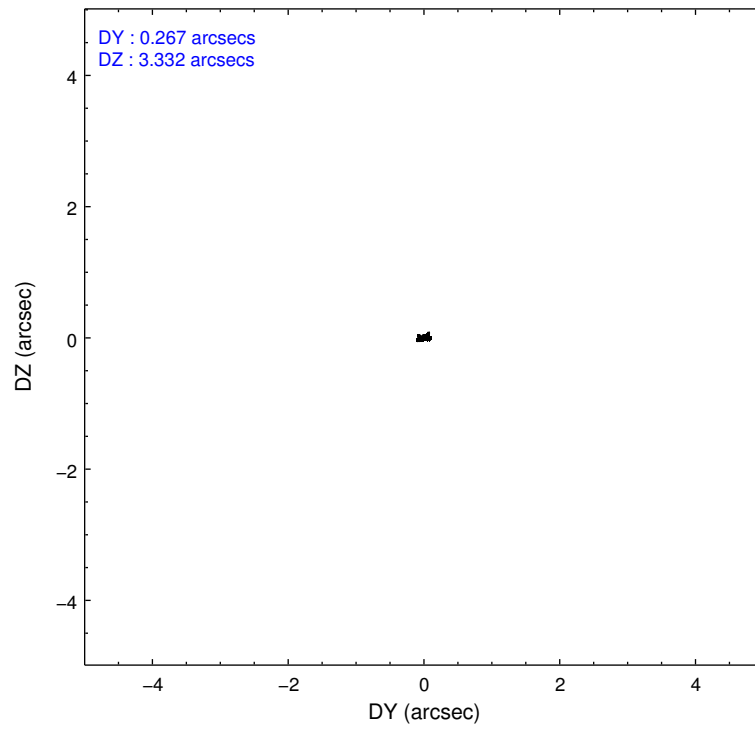
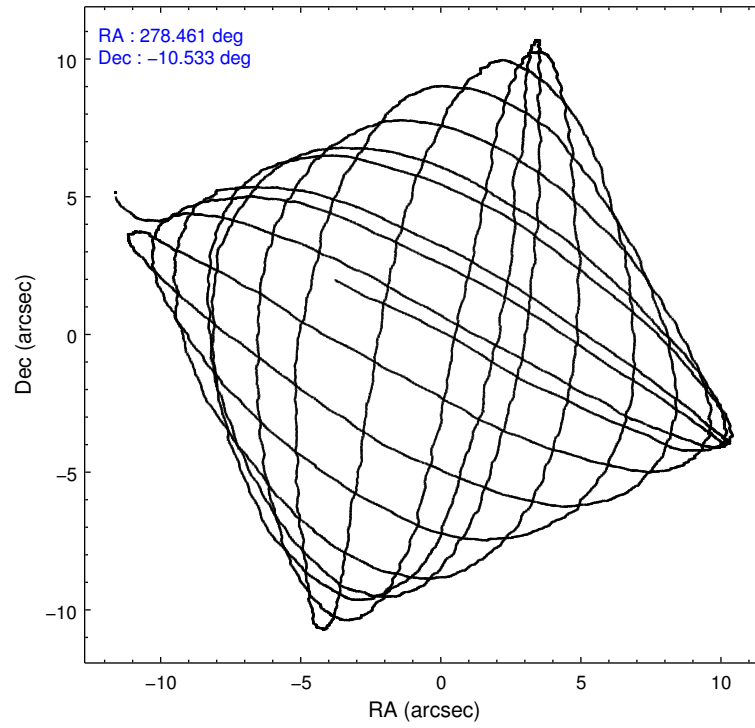
2.1.4 Events

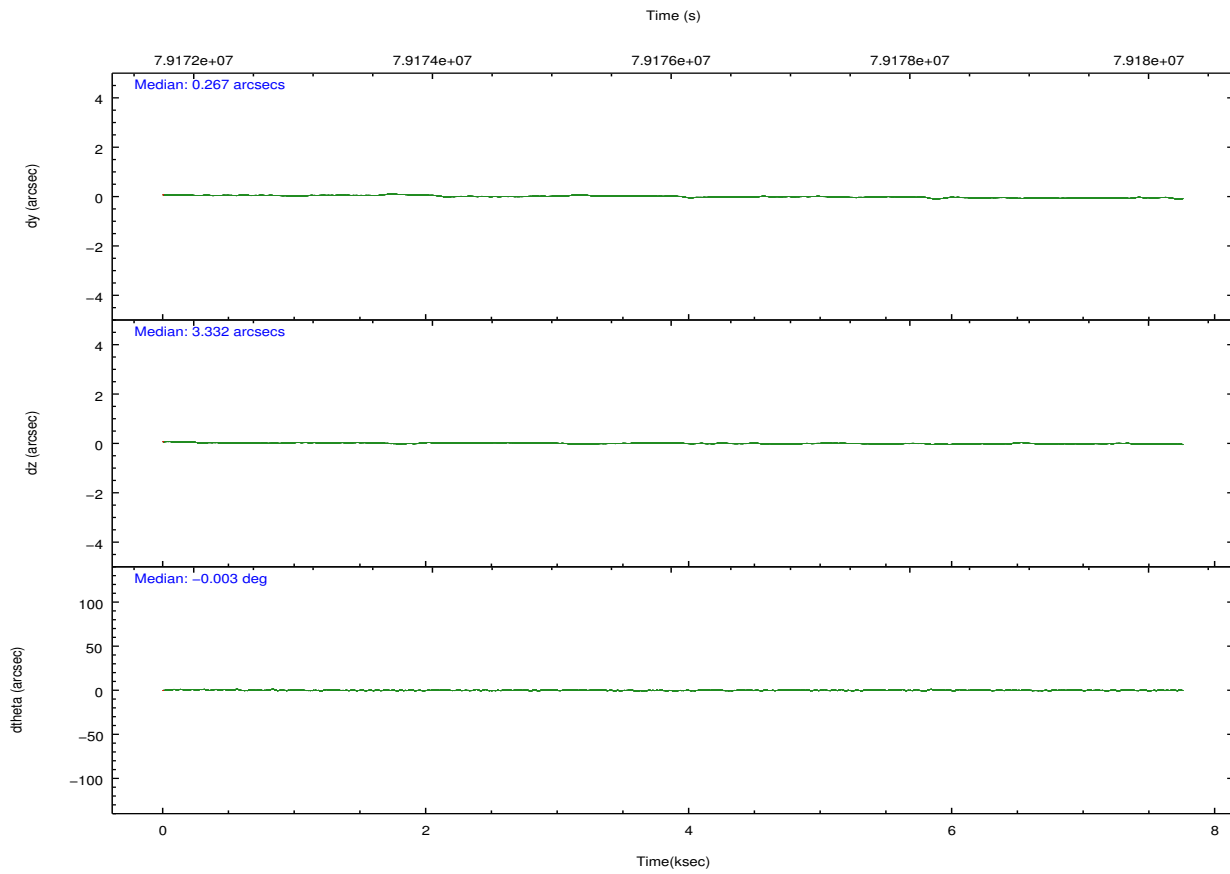
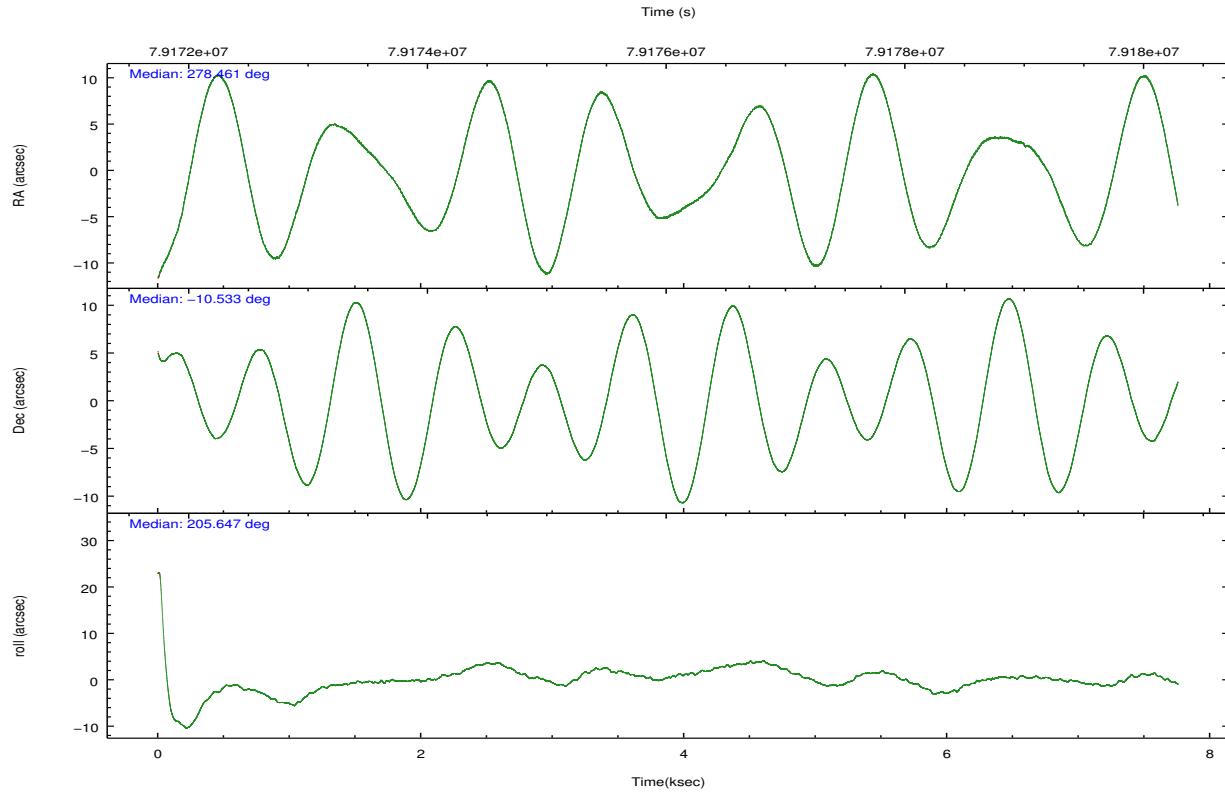
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	49572	45546	52277	49962	76346	57800	grade 0 events	1506	1327	1191	1192	15803	1401
rejected events	43876	40058	46955	44677	48245	35479		3%	2%	2%	2%	20%	2%
rejected %	88%	87%	89%	89%	63%	61%	grade 1 events	11	8	5	13	97	20
								0%	0%	0%	0%	0%	0%
							grade 2 events	2154	2032	2224	2111	6949	4833
								4%	4%	4%	4%	9%	8%
							grade 3 events	393	408	331	308	1168	1346
								0%	0%	0%	0%	1%	2%
							grade 4 events	356	414	319	337	1186	1239
								0%	0%	0%	0%	1%	2%
							grade 5 events	1116	1118	867	1036	1256	3538
								2%	2%	1%	2%	1%	6%
							grade 6 events	1290	1315	1260	1343	3021	13521
								2%	2%	2%	2%	3%	23%
							grade 7 events	42746	38924	46080	43622	46866	31902
								86%	85%	88%	87%	61%	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	278.476986	278.4614298576047	Subarray requested	NONE	NONE
[deg] Pointing Dec	-10.510193	-10.53287792237117	Alternating exposures requested	N	N
[deg] Pointing Roll	205.503144	205.6569930824348	[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	-185.067123	-185.0737207172285			
[mm] SIM translation stage offset	-5.0654	-5.058801865779316			
[s] Observation start time (MET)	79172336.184000	79171960.041081			
Observation start date	2000-07-05T08:17:52	2000-07-05T08:12:40			
[s] Observation end time (MET)	79179896.184000	79180029.86637799			
Observation end date	2000-07-05T10:23:52	2000-07-05T10:27:09			
Read mode	TIMED	TIMED			

2.3 Aspect



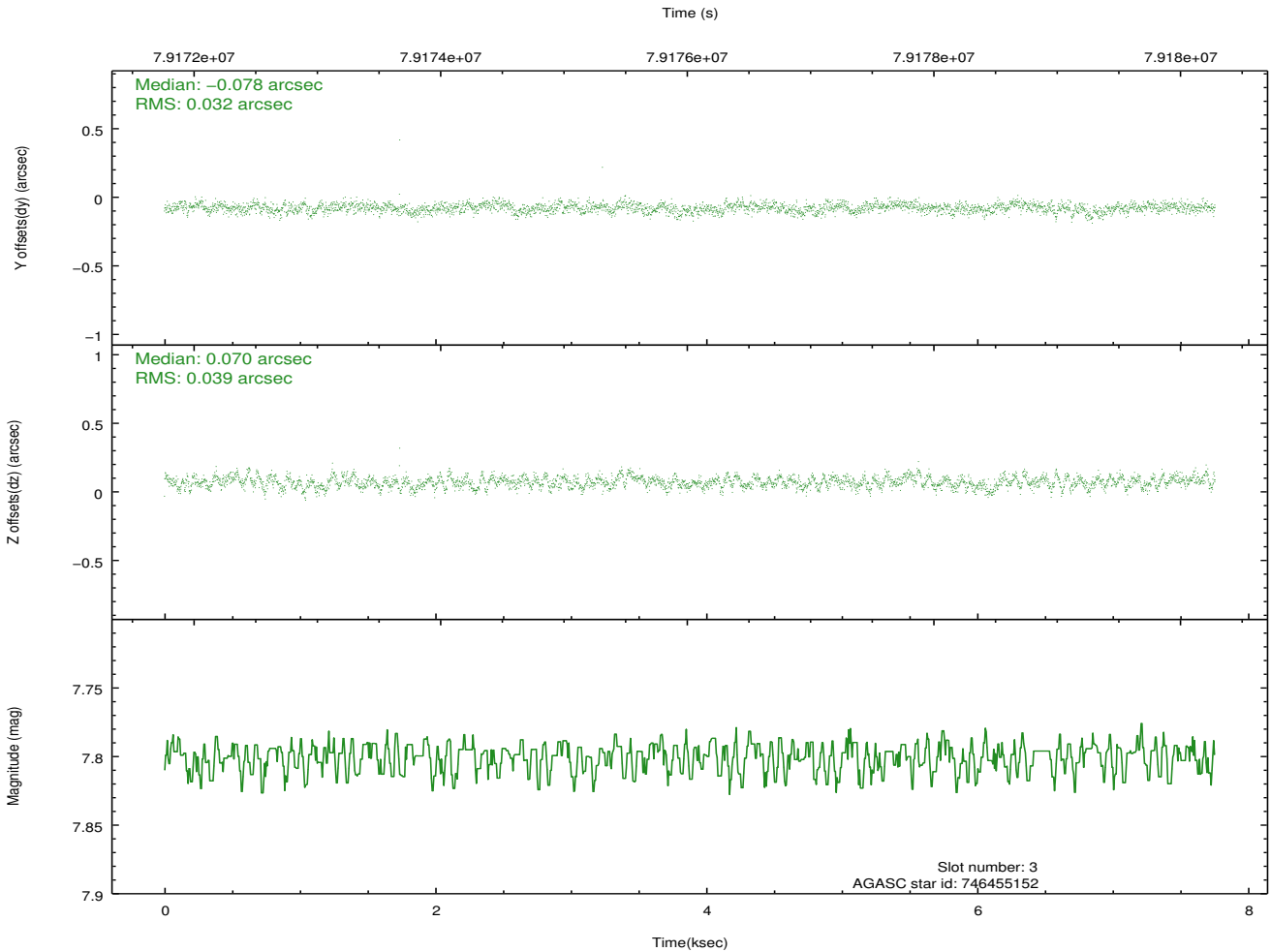
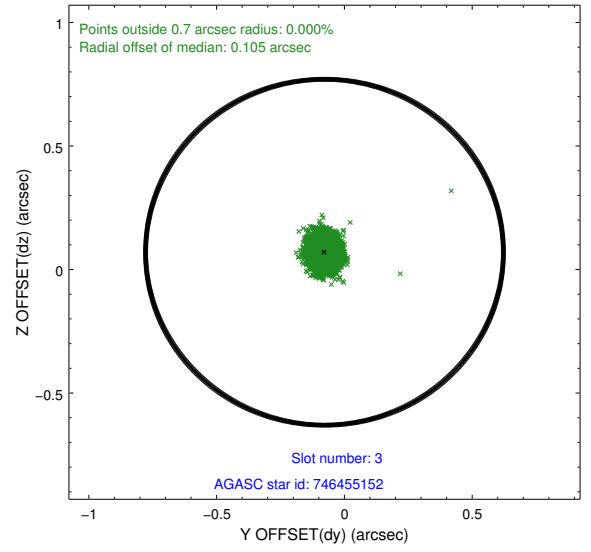
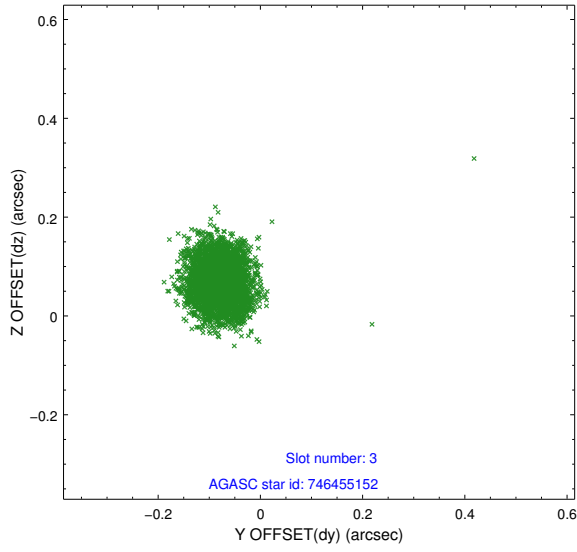


Slot Statistics

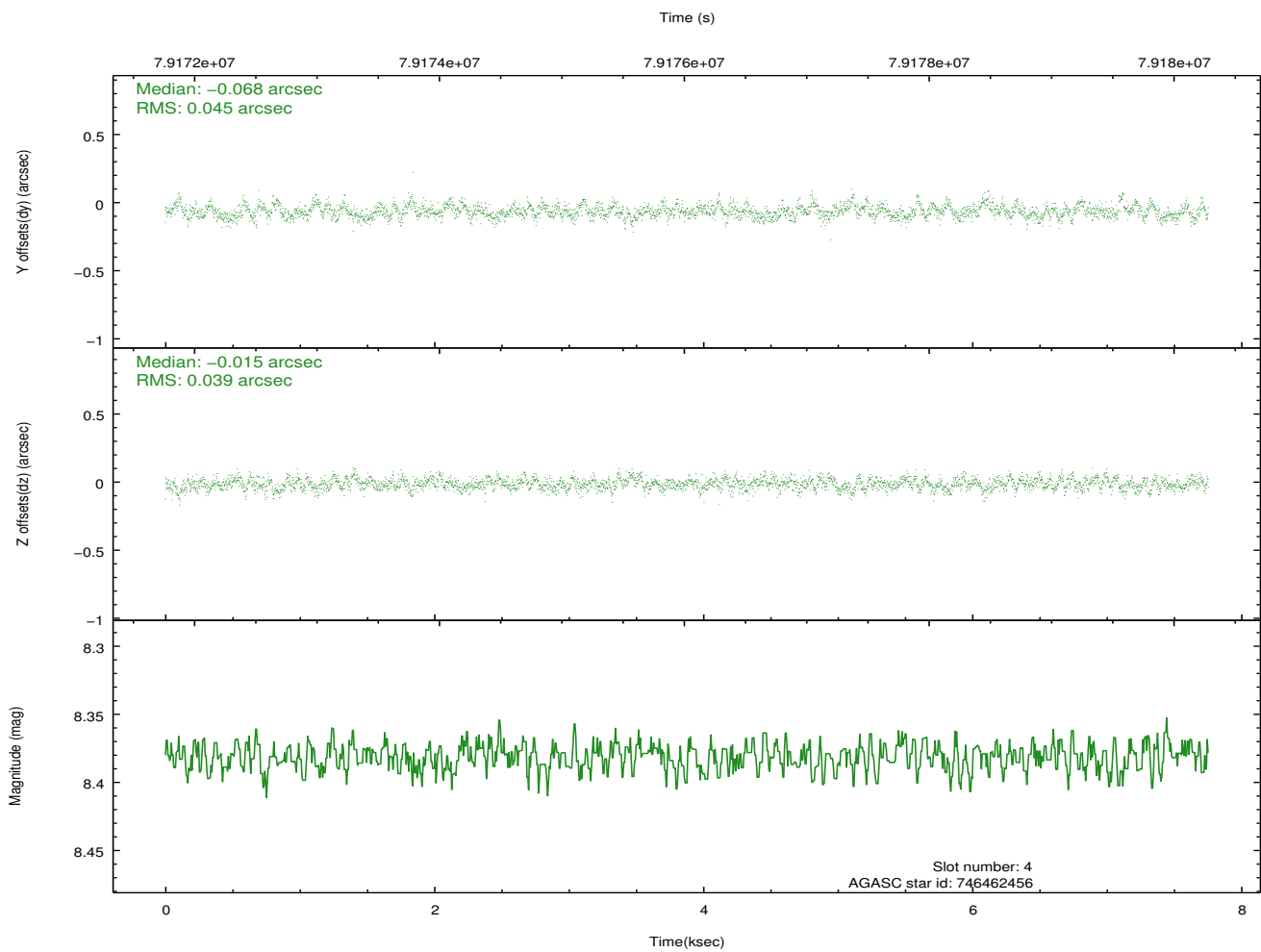
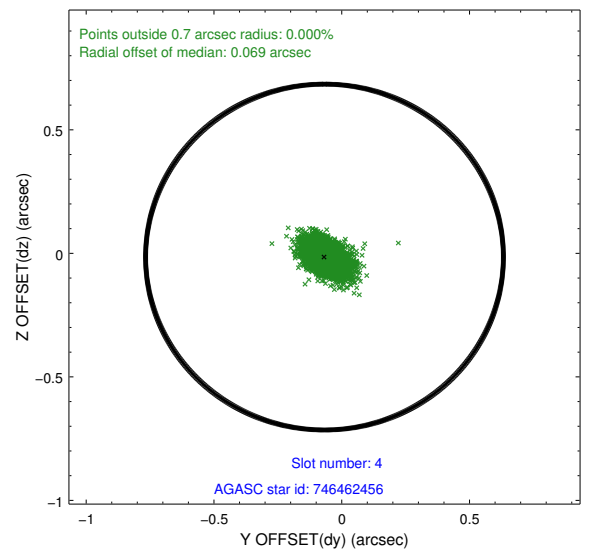
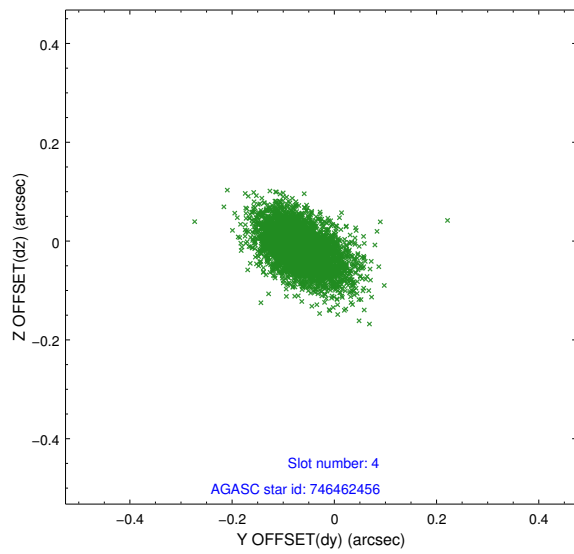
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.20	1892	0.034	0.084	0.006	0.010	0.000000	0.000000	943.52	-1824.29
1	FID	ACIS-S-4	7.19	1892	0.044	-0.070	0.006	0.010	0.000000	0.000000	2161.41	78.87
2	FID	ACIS-S-5	7.23	1892	-0.104	-0.001	0.006	0.010	0.000000	0.000000	-1804.48	73.48
3	GUIDE	746455152	7.80	3784	-0.078	0.070	0.052	0.084	278.447893	-9.976732	-733.56	-1777.34
4	GUIDE	746462456	8.38	3783	-0.068	-0.015	0.062	0.107	278.652171	-10.530173	-528.88	332.01
5	GUIDE	746462392	8.55	3783	-0.068	-0.070	0.087	0.150	279.038421	-10.890715	-1201.43	2093.01
6	GUIDE	746455112	8.94	3782	0.198	-0.018	0.068	0.113	278.266531	-10.703234	971.04	308.10
7	GUIDE	746460328	9.80	3780	0.021	0.030	0.093	0.154	278.603974	-9.898096	-1354.62	-1794.50

2.4 Star Slots

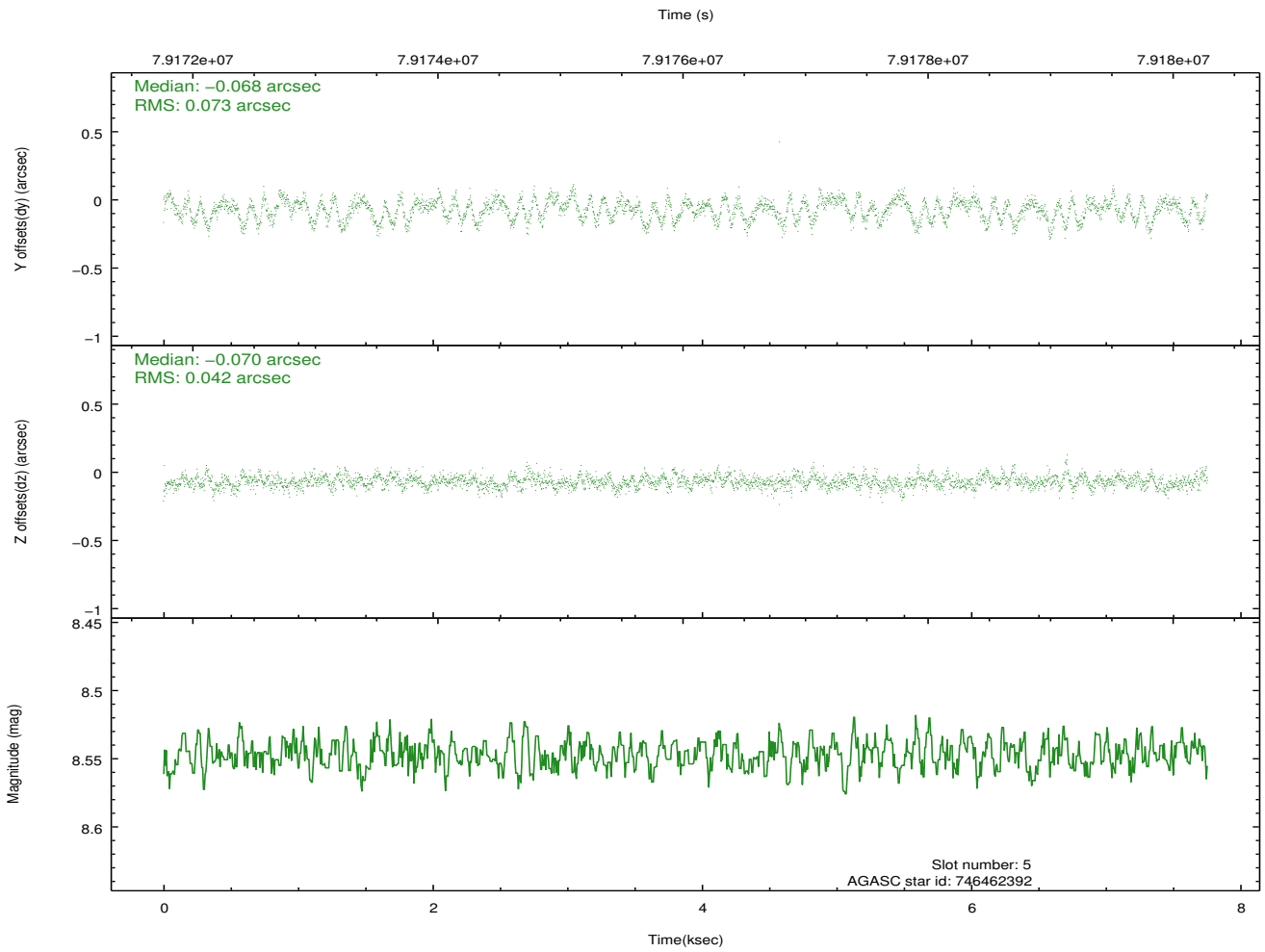
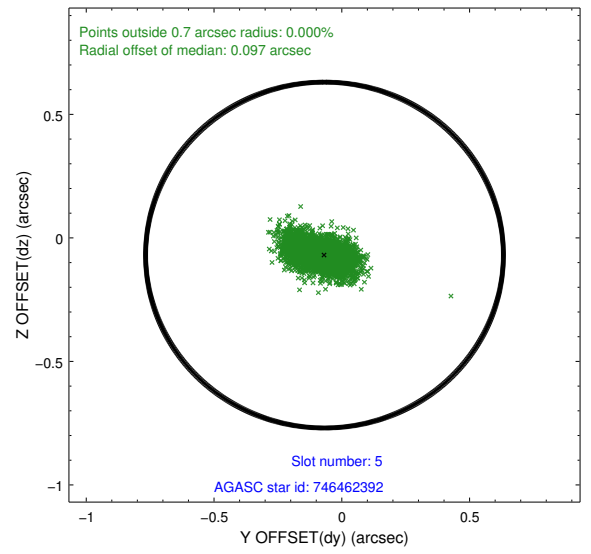
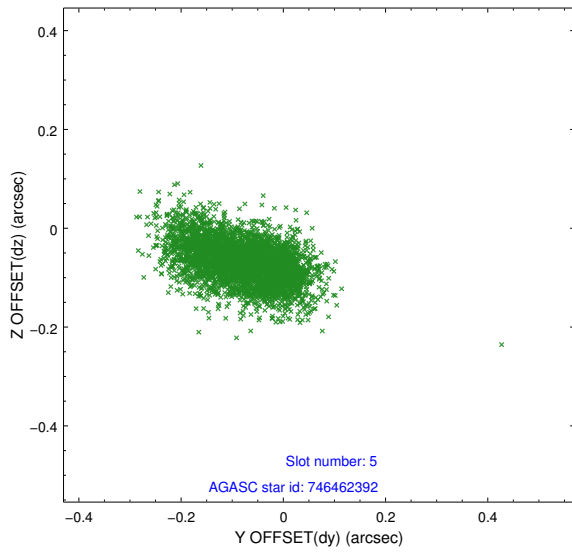
2.4.1 Slot 3



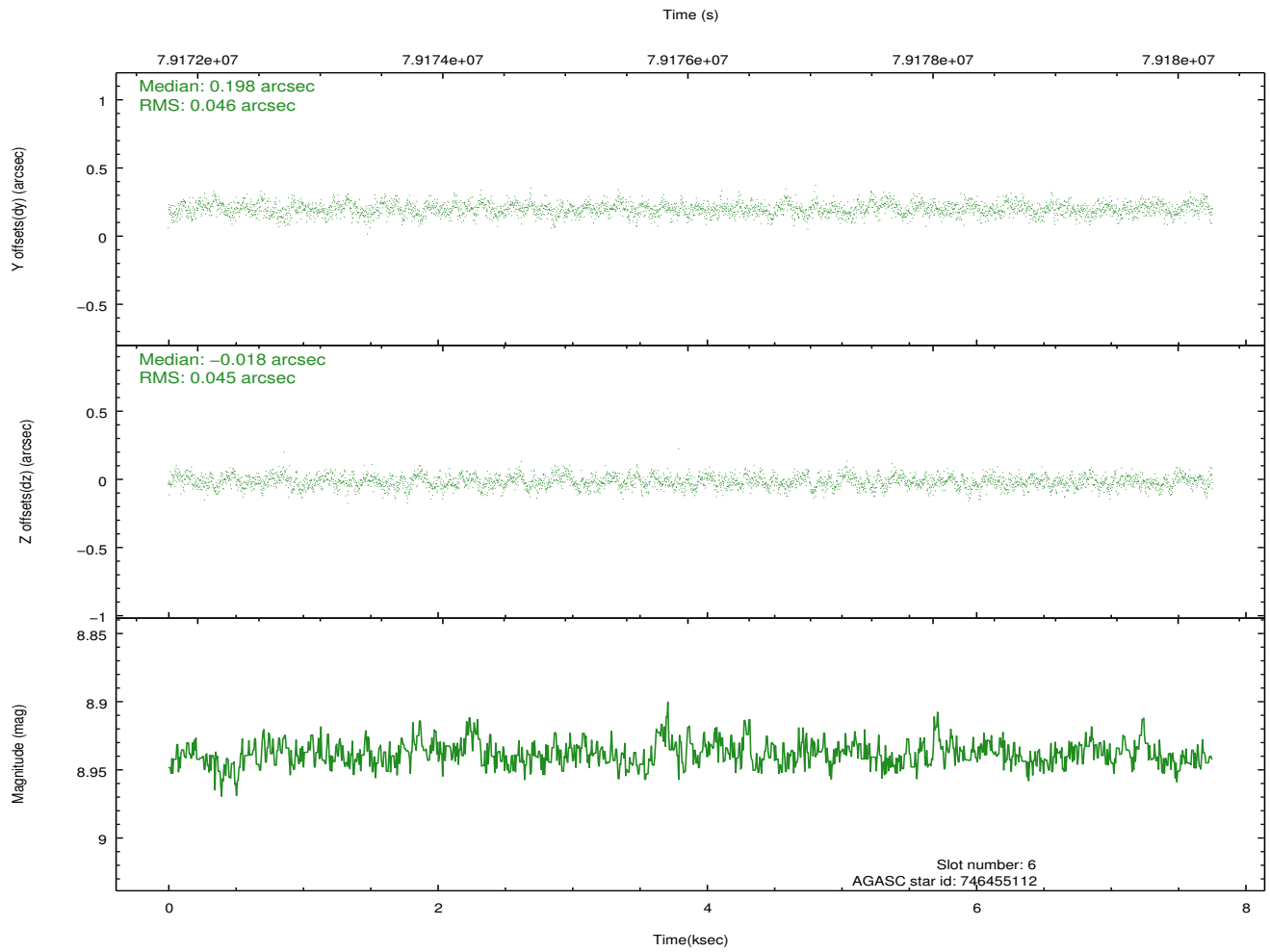
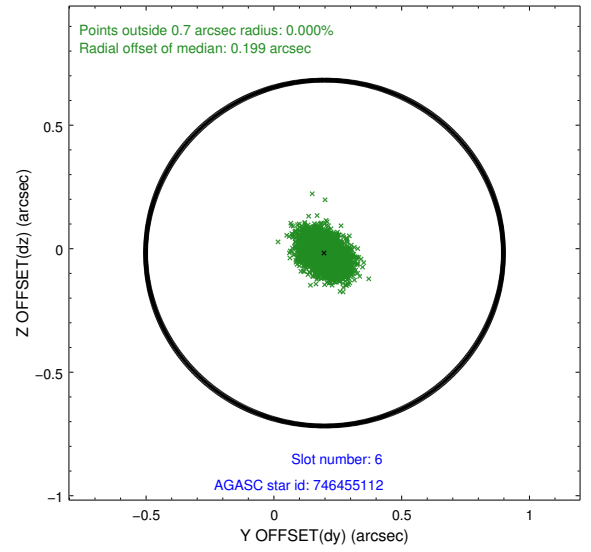
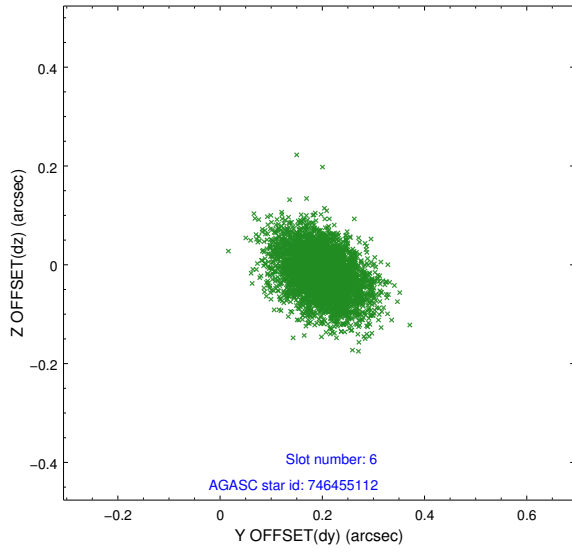
2.4.2 Slot 4



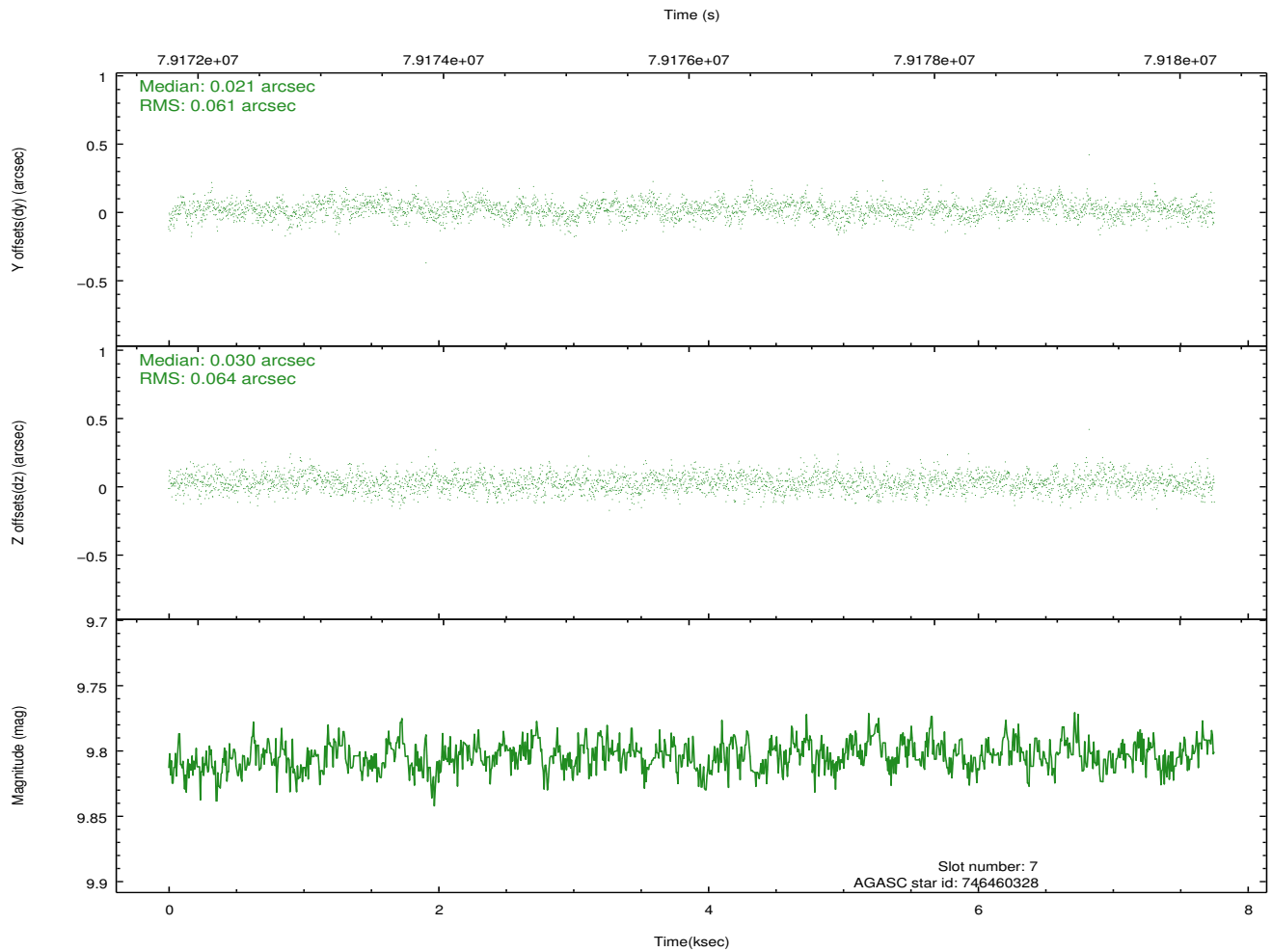
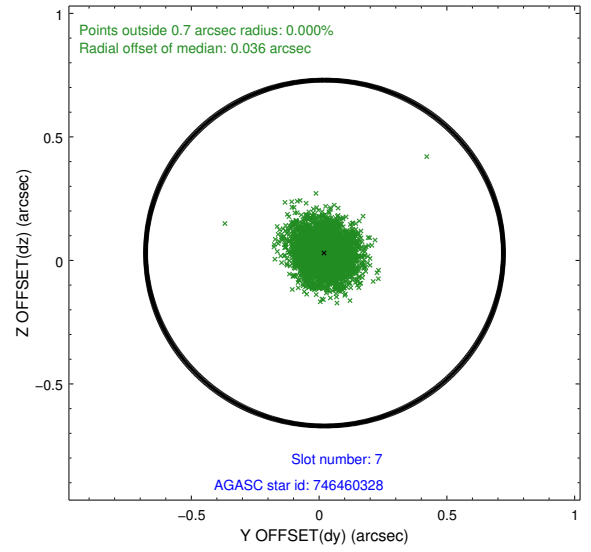
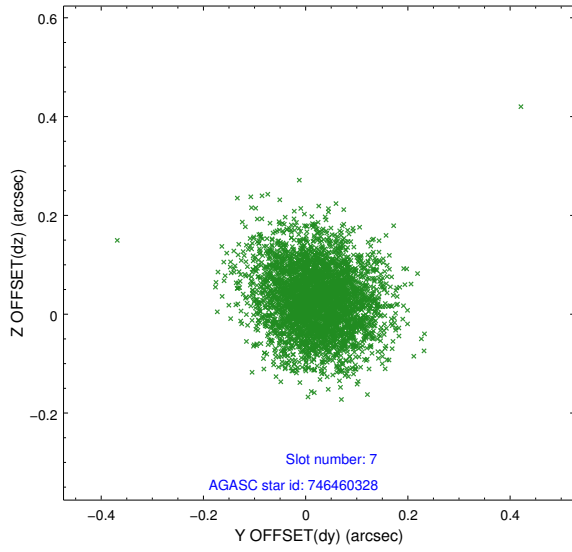
2.4.3 Slot 5



2.4.4 Slot 6

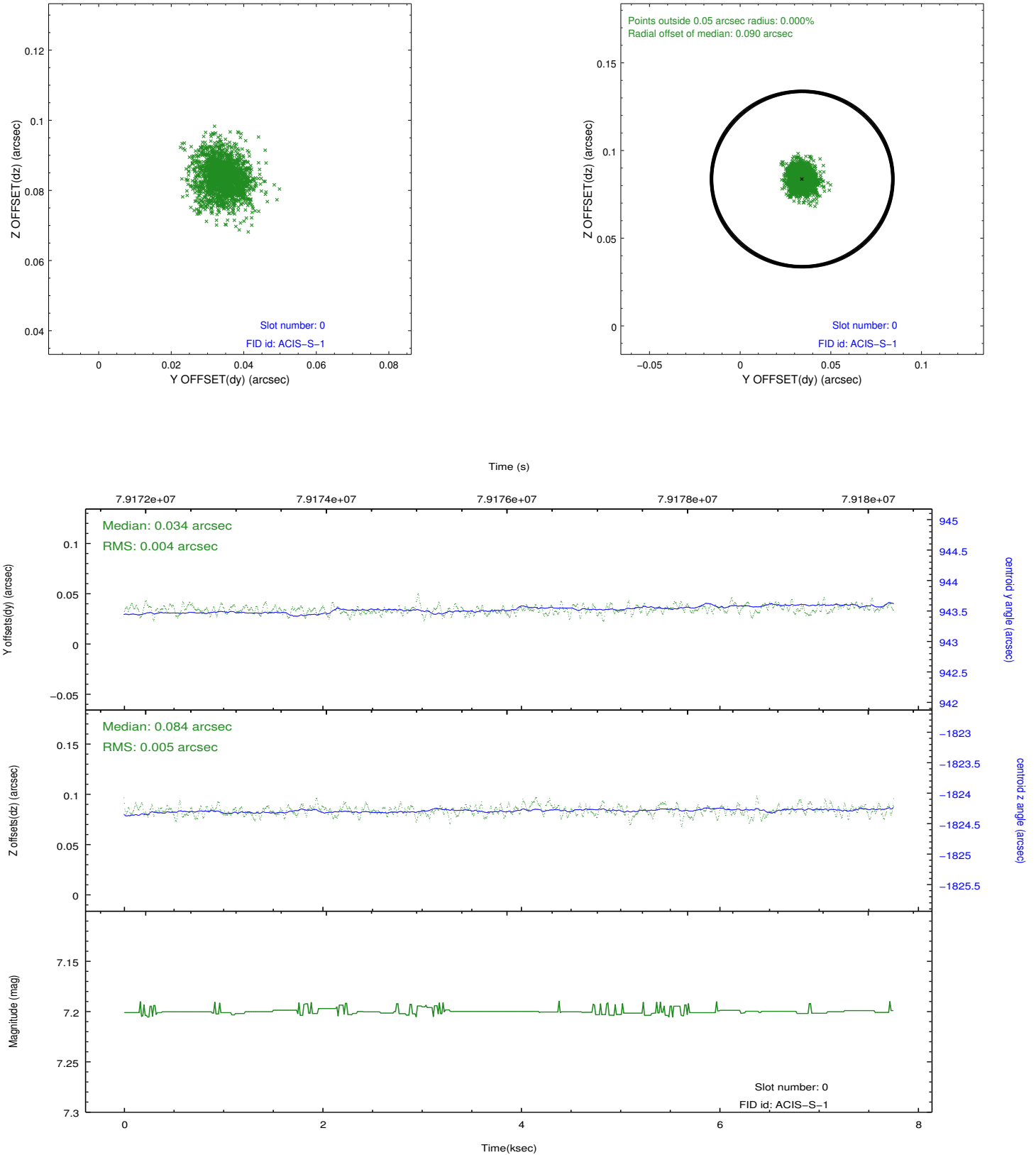


2.4.5 Slot 7

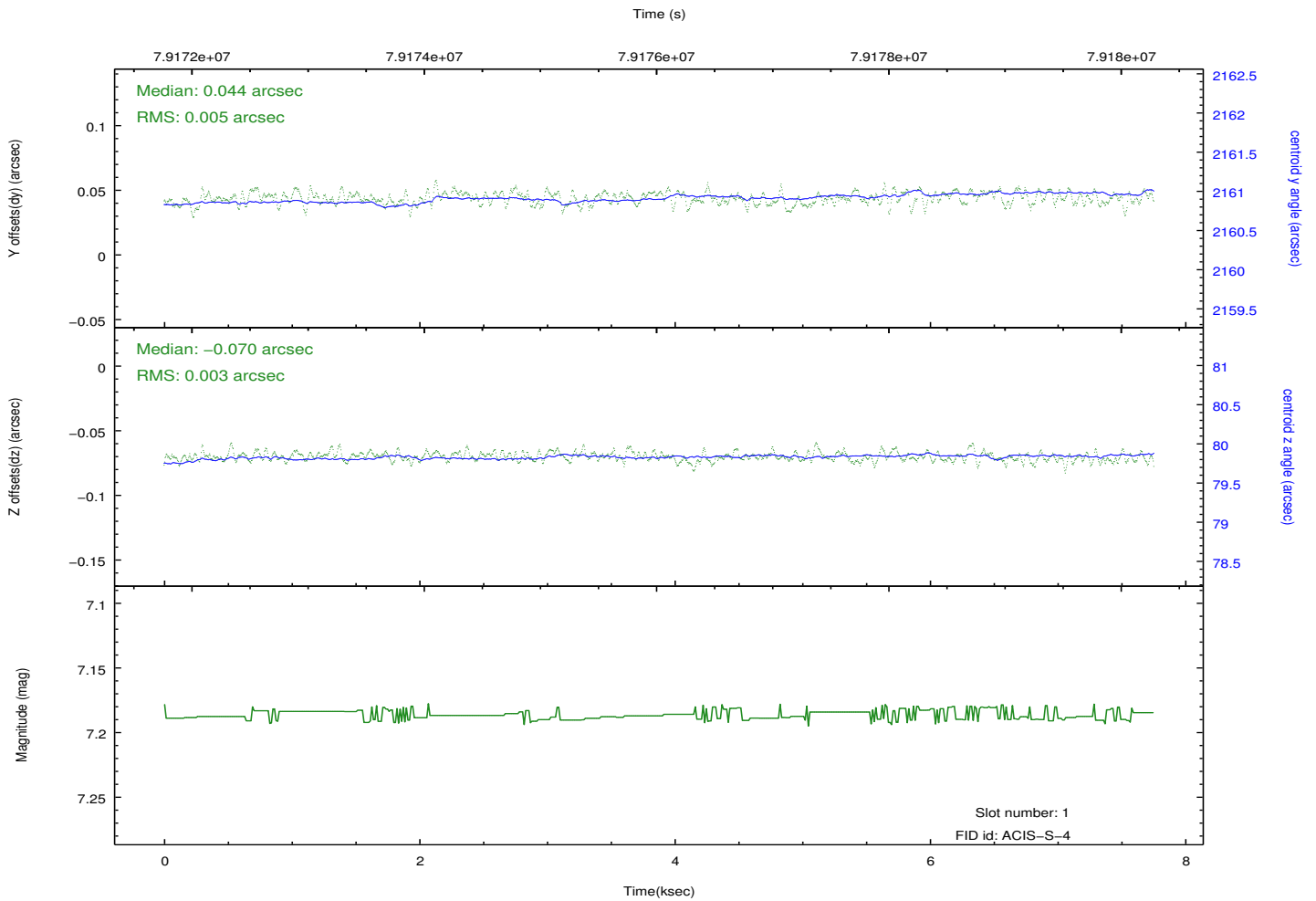
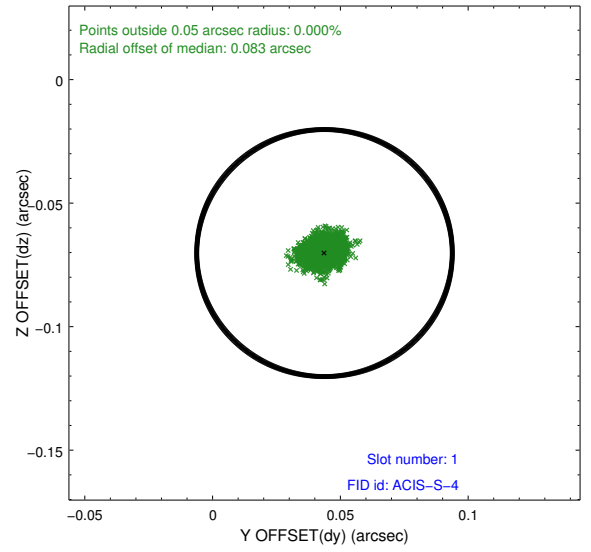
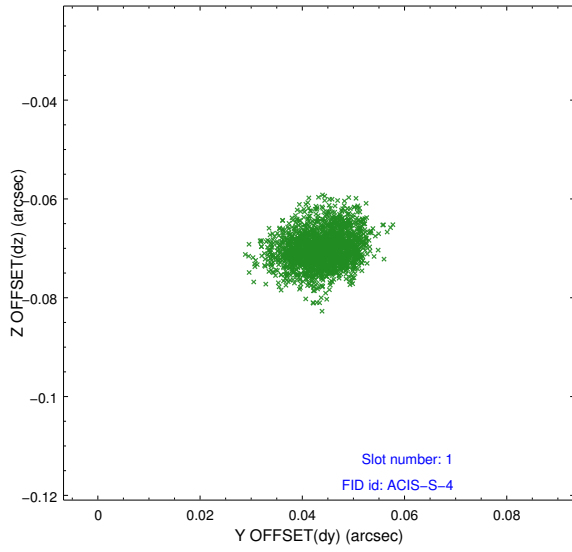


2.5 FID Slots

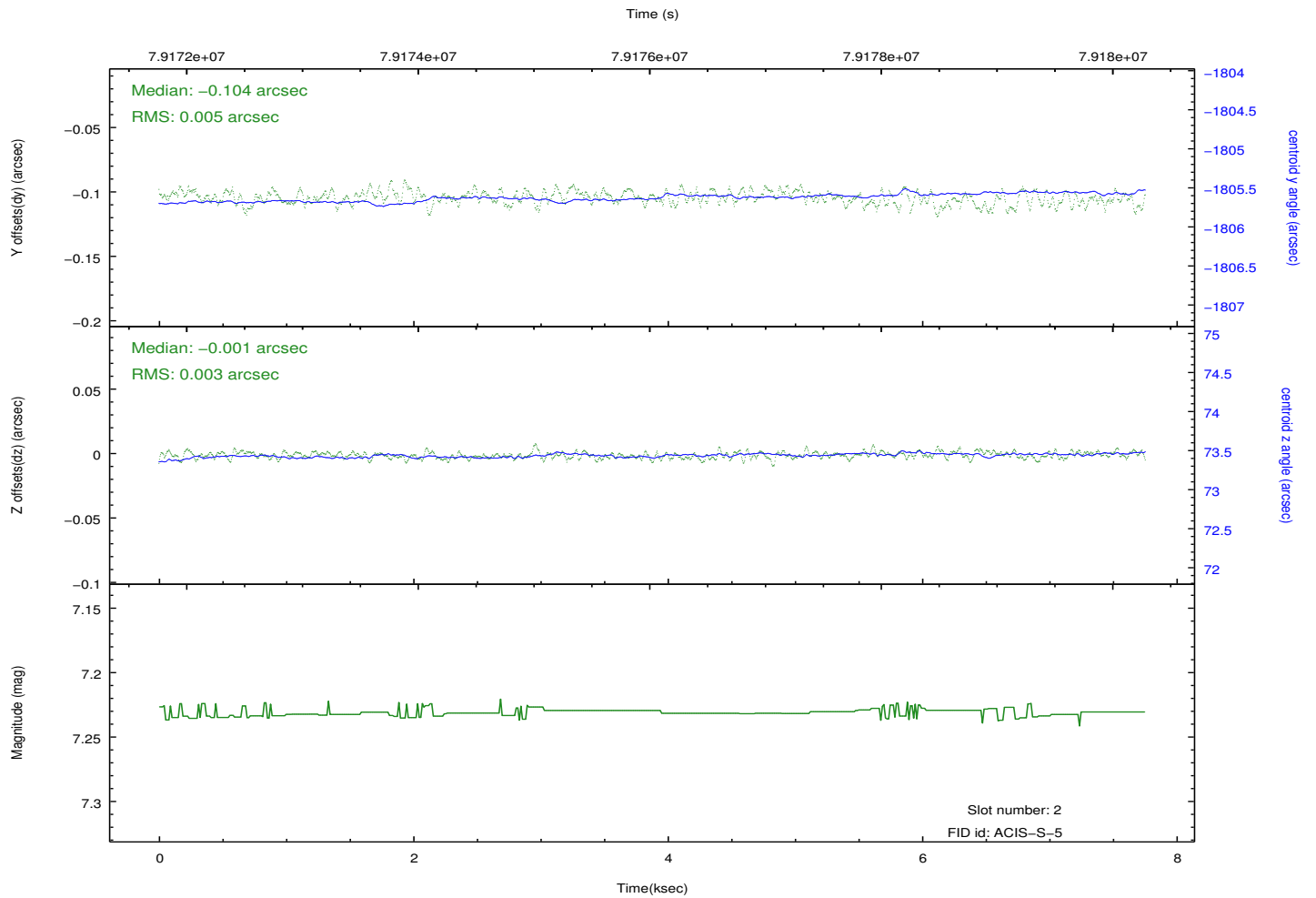
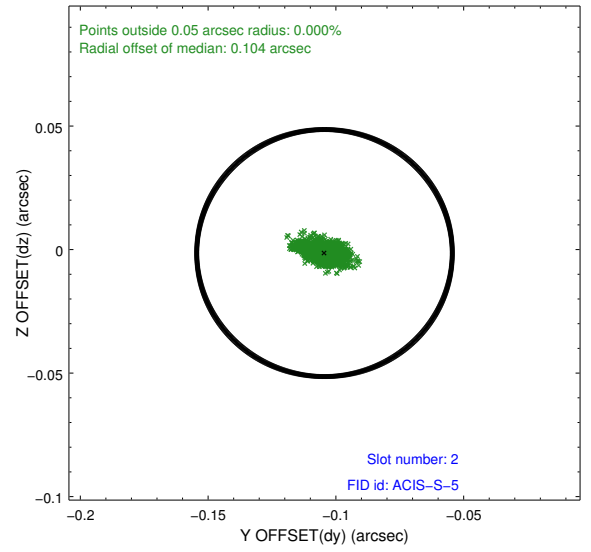
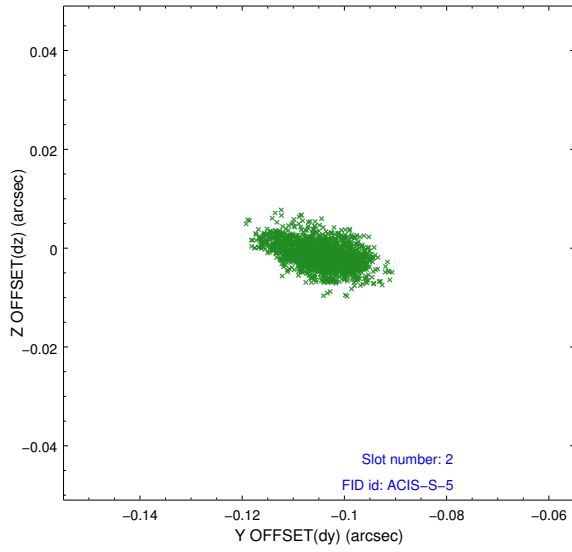
2.5.1 Slot 0



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	7.324

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.