

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1777 - L2 Version 5
Chandra X-Ray Center

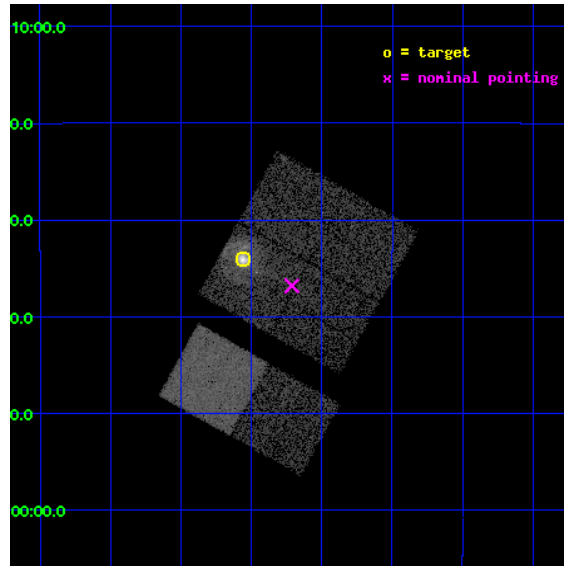
L2 Processing Date : Aug 30 2012

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1 Front

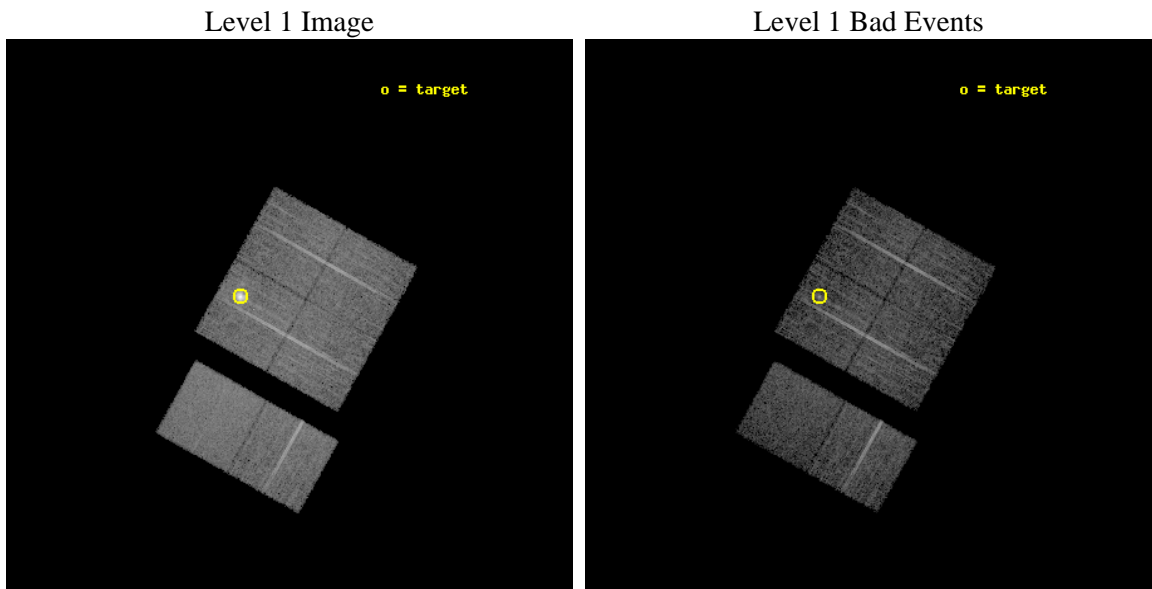
seq_num	590203	Sequence number
obs_id	1777	Observation id
title	HRC RESPONSE TO CONTINUUM SOURCE.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	G21.5-0.9 [Chip I3, T=110, Offsets=-5,0,2]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.389583	Observer's specified target RA [deg]
dec_targ	-10.568528	Observer's specified target Dec [deg]
ra_nom	278.30303335742	Nominal RA [deg]
dec_nom	-10.613583737937	Nominal Dec [deg]
roll_nom	209.24165637729	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	7318.4000068009	Sum of GTIs [s]
ontime2	7315.1590365618	Sum of GTIs [s]
ontime3	7318.4000068009	Sum of GTIs [s]
ontime6	7315.1590365618	Sum of GTIs [s]
ontime7	7318.4000068009	Sum of GTIs [s]
l2events	65595	Number of level 2 events



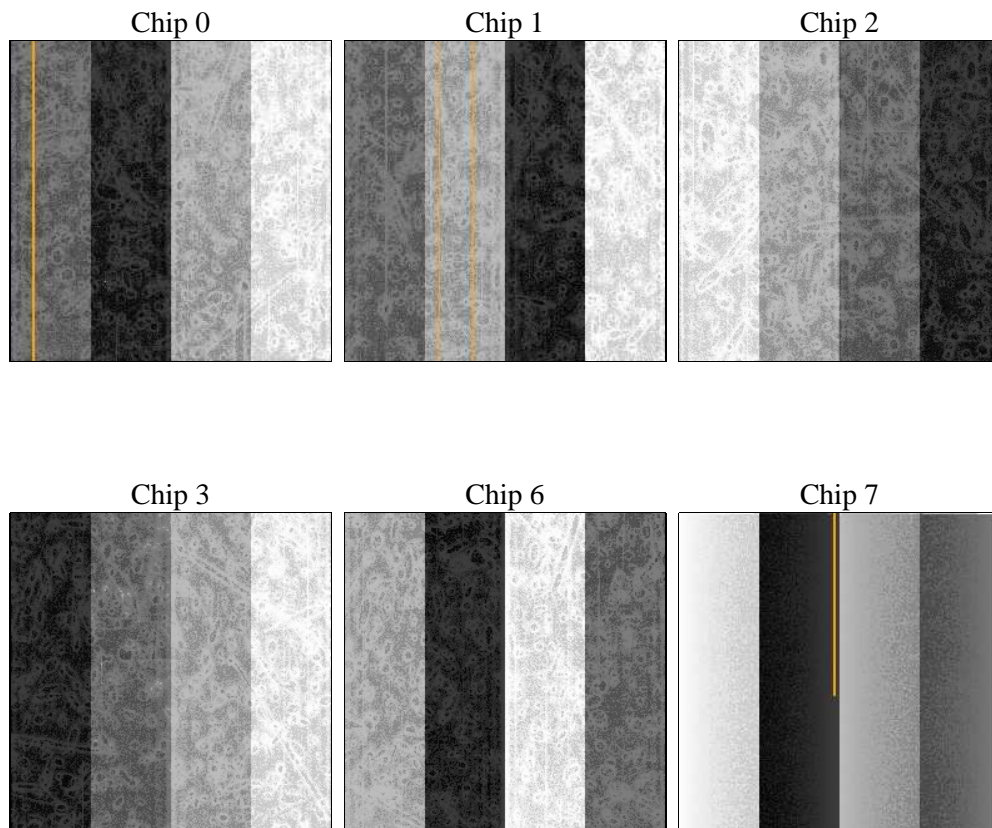
2 OBI

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]
caldsver	4.5.1.1	 	ontime0	7318.4000068009	Sum of GTIs [s]
date	2012-08-30T04:09:18	Date and time of file creation	ontime1	7318.4000068009	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	7315.1590365618	Sum of GTIs [s]
			ontime3	7318.4000068009	Sum of GTIs [s]
			ontime6	7315.1590365618	Sum of GTIs [s]
			ontime7	7318.4000068009	Sum of GTIs [s]
			l1events	324389	Number of level 1 events

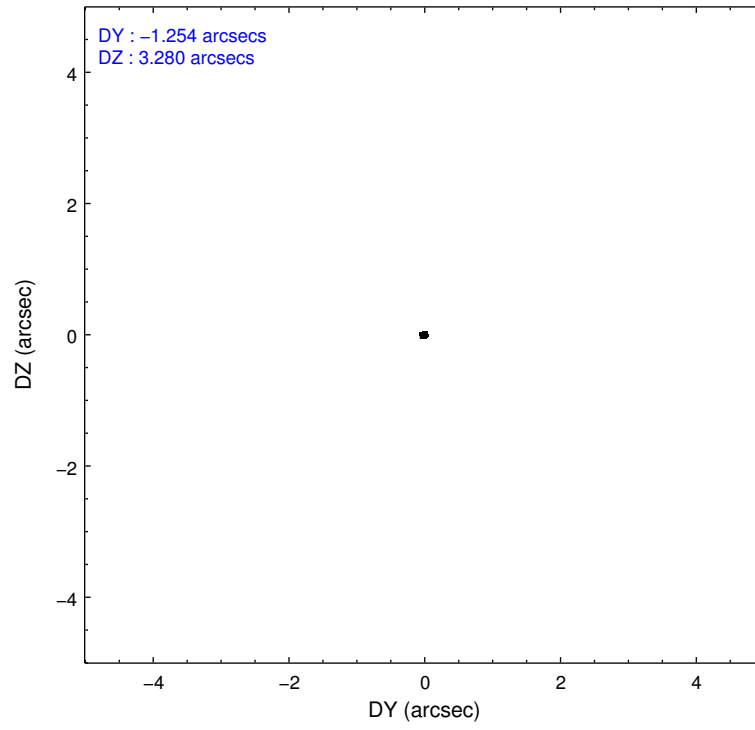
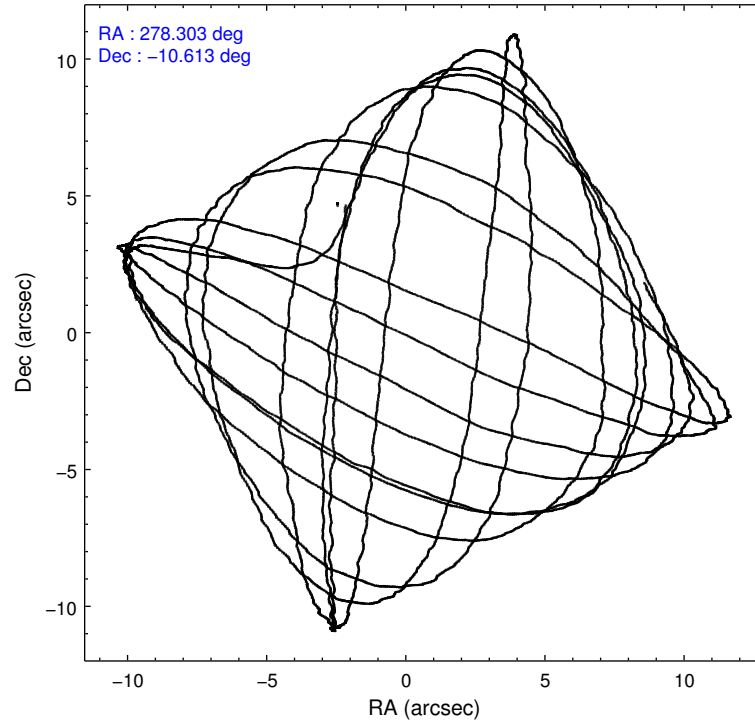
2.1.4 Events

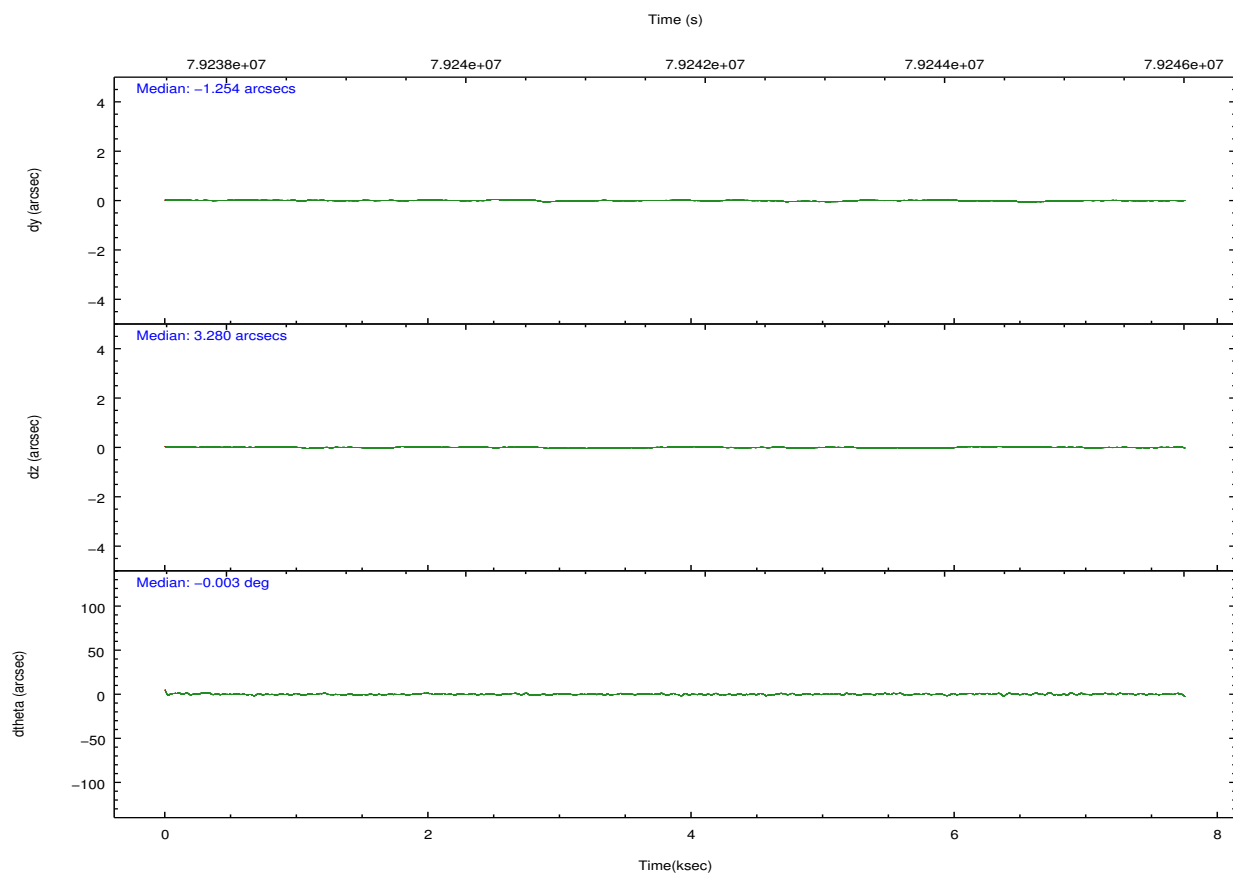
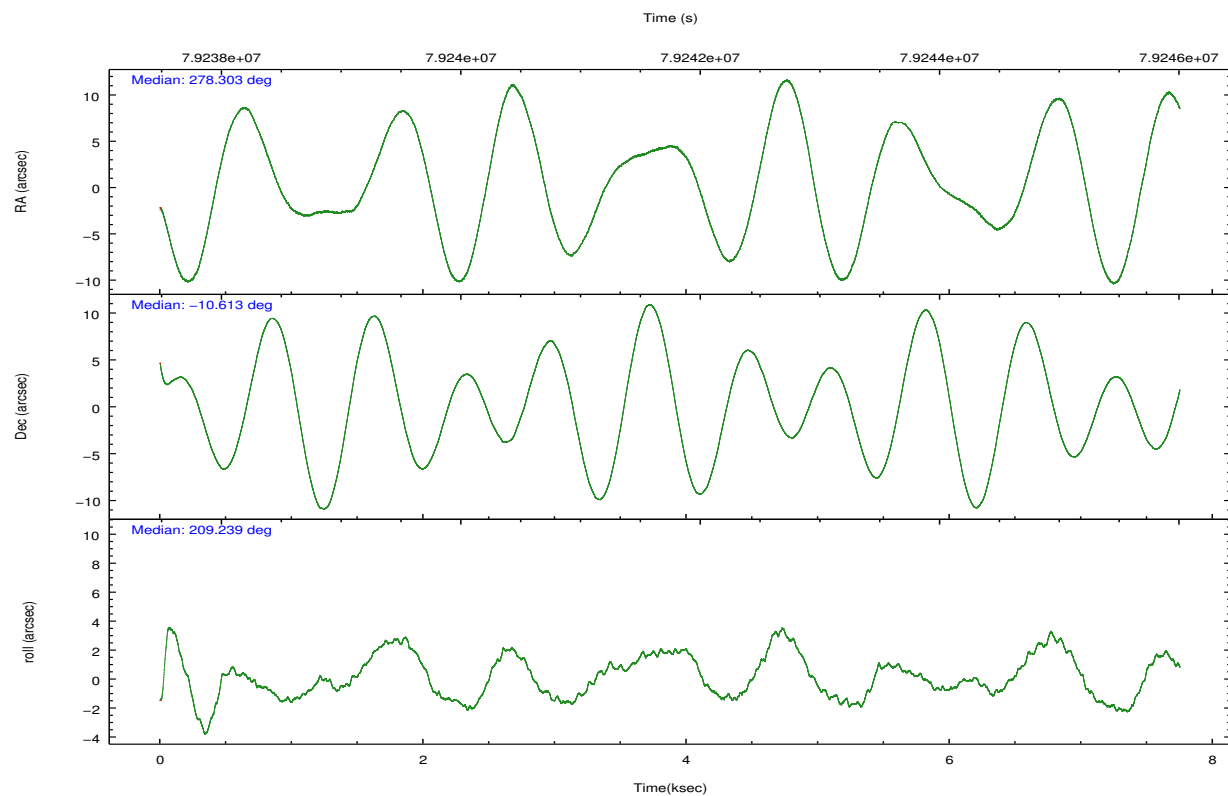
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	46402	46442	51871	71179	51271	57224	grade 0 events	1504	1587	1162	16084	1079	1275
rejected events	40758	40351	46875	44484	46064	35674		3%	3%	2%	22%	2%	2%
rejected %	87%	86%	90%	62%	89%	62%	grade 1 events	9	10	6	111	12	24
								0%	0%	0%	0%	0%	0%
							grade 2 events	2078	2175	2004	5827	1999	4587
								4%	4%	3%	8%	3%	8%
							grade 3 events	412	440	316	1143	312	1300
								0%	0%	0%	1%	0%	2%
							grade 4 events	382	418	280	1152	343	1141
								0%	0%	0%	1%	0%	1%
							grade 5 events	1044	1114	911	1183	1188	3534
								2%	2%	1%	1%	2%	6%
							grade 6 events	1274	1478	1236	2507	1480	13266
								2%	3%	2%	3%	2%	23%
							grade 7 events	39699	39220	45956	43172	44858	32097
								85%	84%	88%	60%	87%	56%

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	278.317516	278.3030333574219	Subarray requested	NONE	NONE
[deg] Pointing Dec	-10.589946	-10.61358373793717	Alternating exposures requested	N	N
[deg] Pointing Roll	209.035629	209.2416563772852	[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	-226.272463	-226.2682626179875			
[mm] SIM translation stage offset	-7.32	-7.32419038494217			
[s] Observation start time (MET)	79238066.184000	79237693.293503			
Observation start date	2000-07-06T02:33:22	2000-07-06T02:28:13			
[s] Observation end time (MET)	79245626.184000	79245760.04380099			
Observation end date	2000-07-06T04:39:22	2000-07-06T04:42:40			
Read mode	TIMED	TIMED			

2.3 Aspect



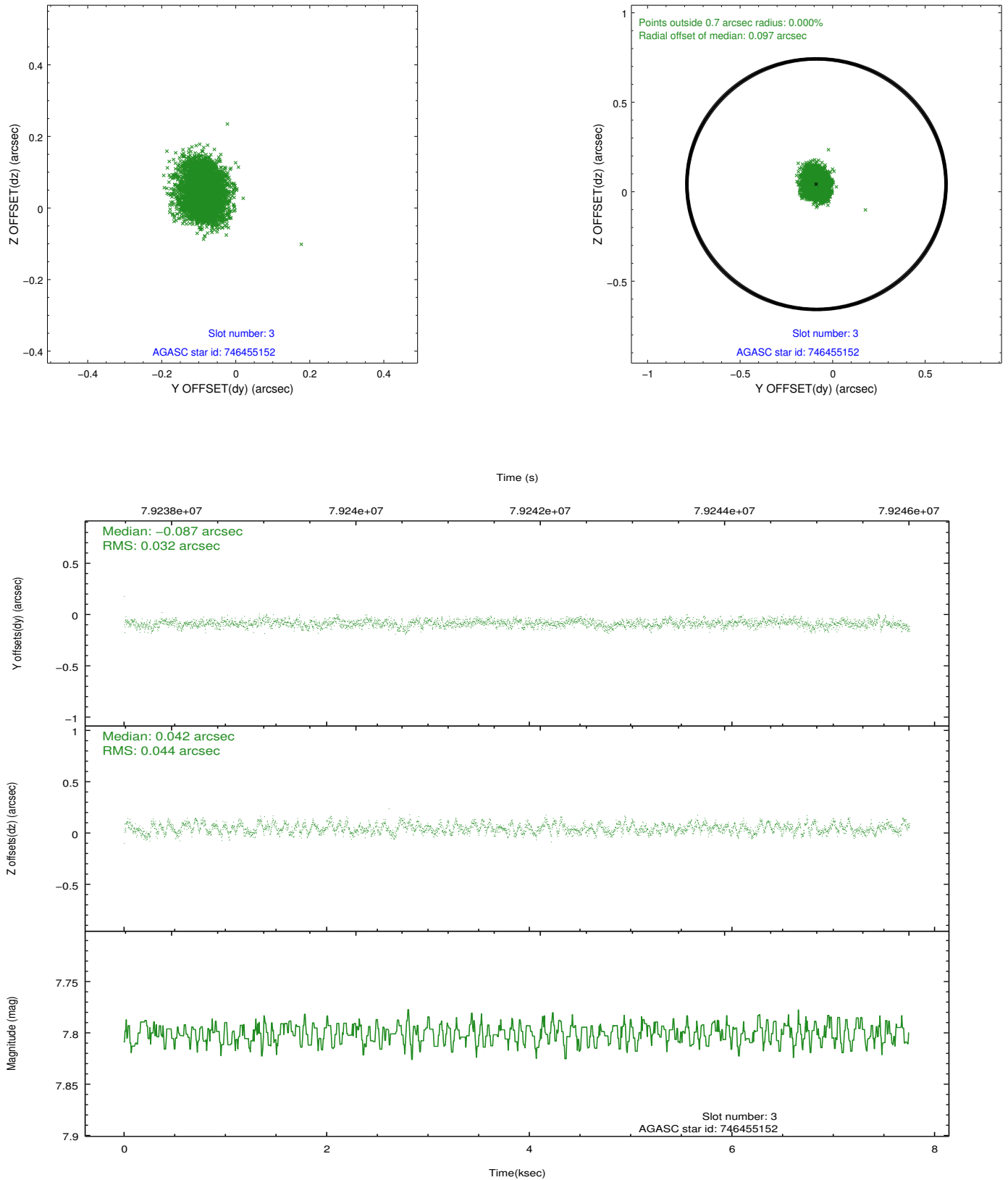


Slot Statistics

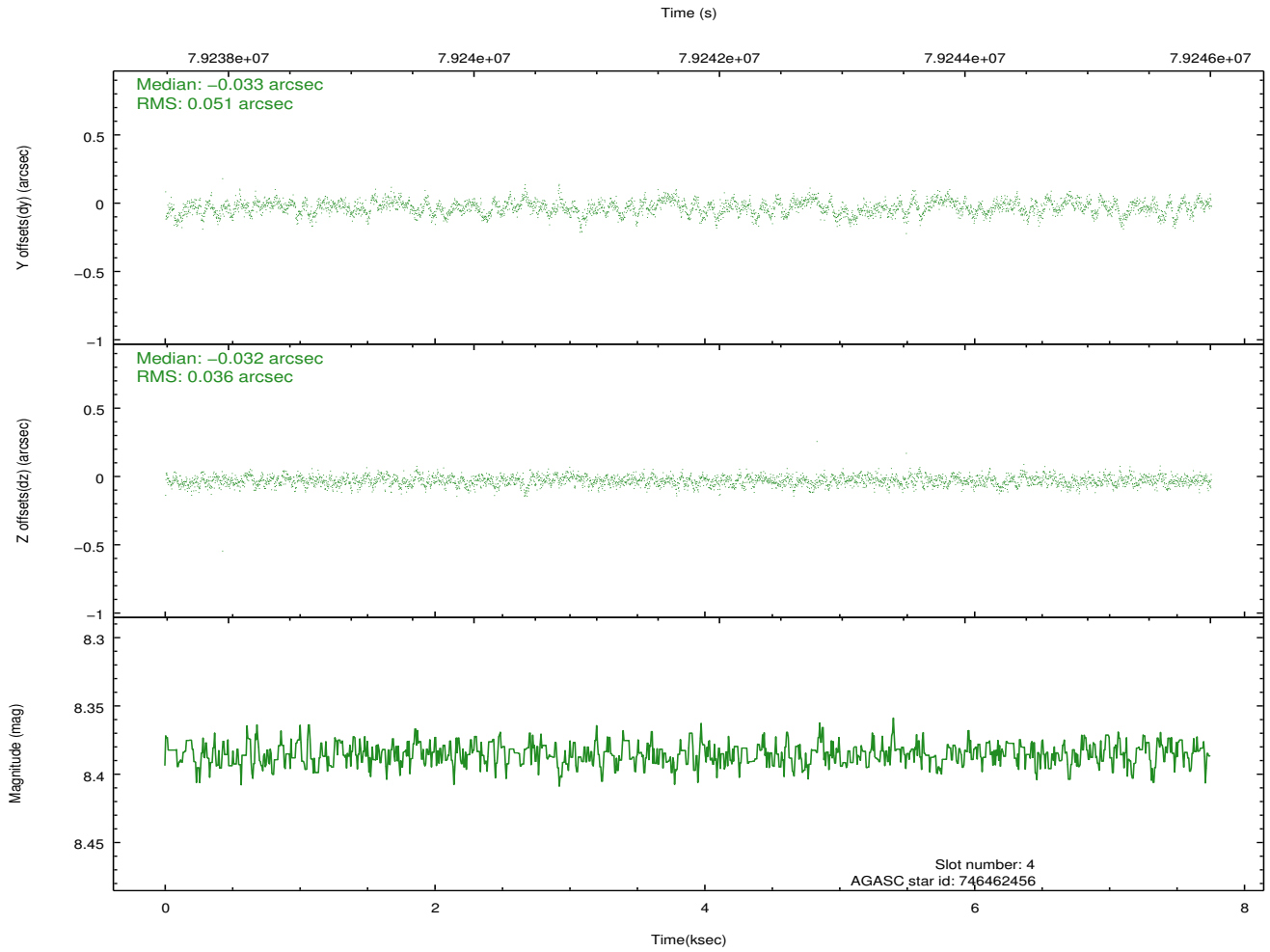
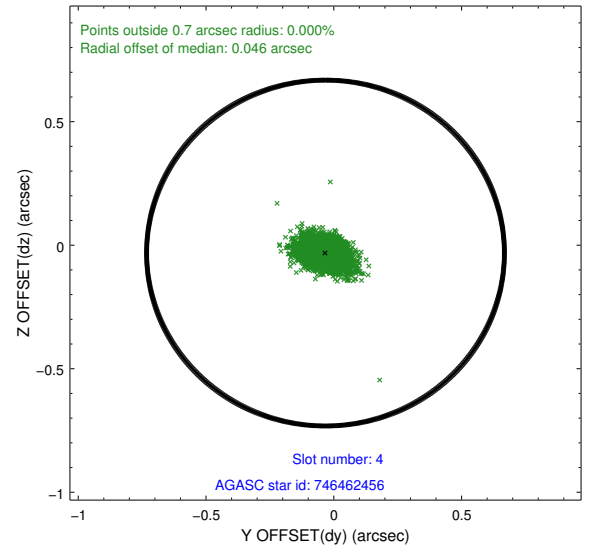
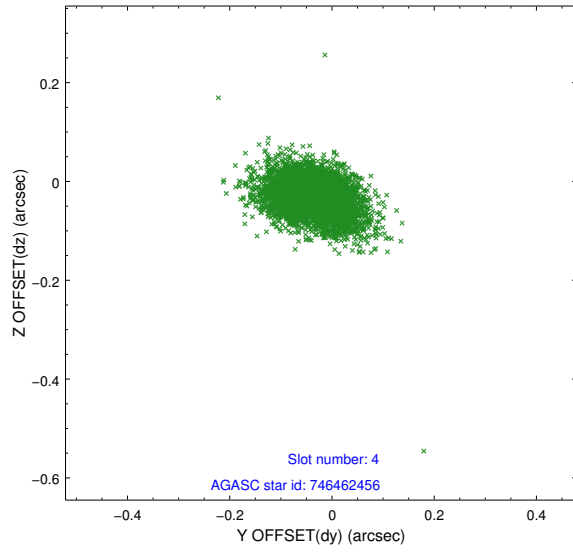
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.17	1891	-0.063	-0.059	0.008	0.015	0.000000	0.000000	-753.57	-982.39
1	FID	ACIS-I-4	7.15	1891	-0.006	0.058	0.006	0.010	0.000000	0.000000	2160.15	923.47
2	FID	ACIS-I-5	7.23	1891	-0.032	0.070	0.009	0.015	0.000000	0.000000	-1806.07	921.15
3	GUIDE	746455152	7.80	3780	-0.087	0.042	0.059	0.092	278.447893	-9.976732	-1475.39	-1704.90
4	GUIDE	746462456	8.39	3779	-0.033	-0.032	0.065	0.108	278.652171	-10.530173	-1139.95	387.66
5	GUIDE	746455112	8.93	3780	0.223	-0.111	0.069	0.117	278.266531	-10.703234	355.72	269.90
6	GUIDE	746460328	9.81	3778	-0.004	0.024	0.092	0.155	278.603974	-9.898096	-2096.50	-1683.36
7	GUIDE	746995400	9.48	3780	-0.099	0.074	0.096	0.155	278.078957	-11.289885	1959.01	1795.23

2.4 Star Slots

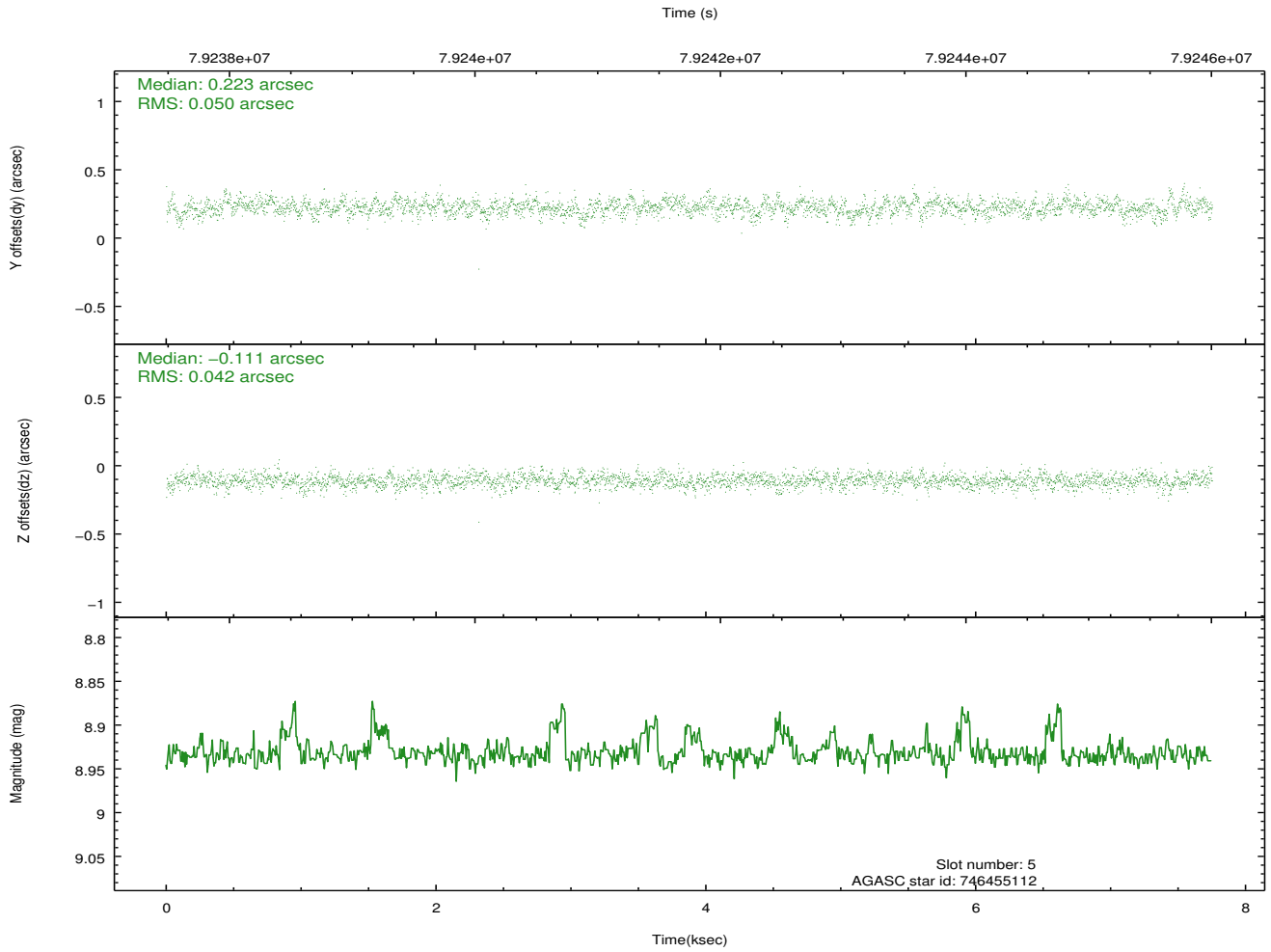
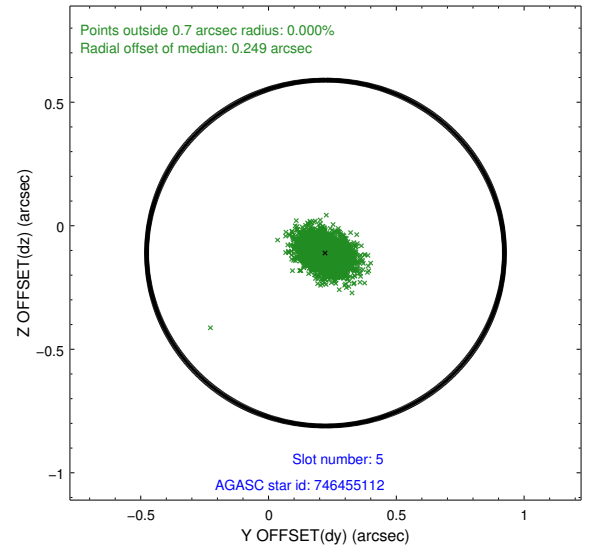
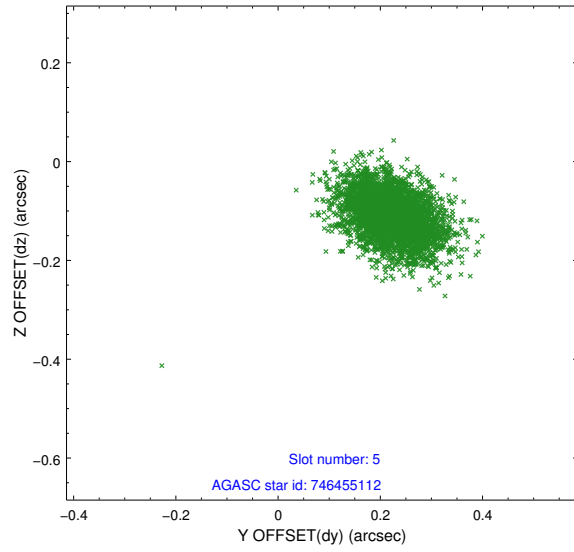
2.4.1 Slot 3



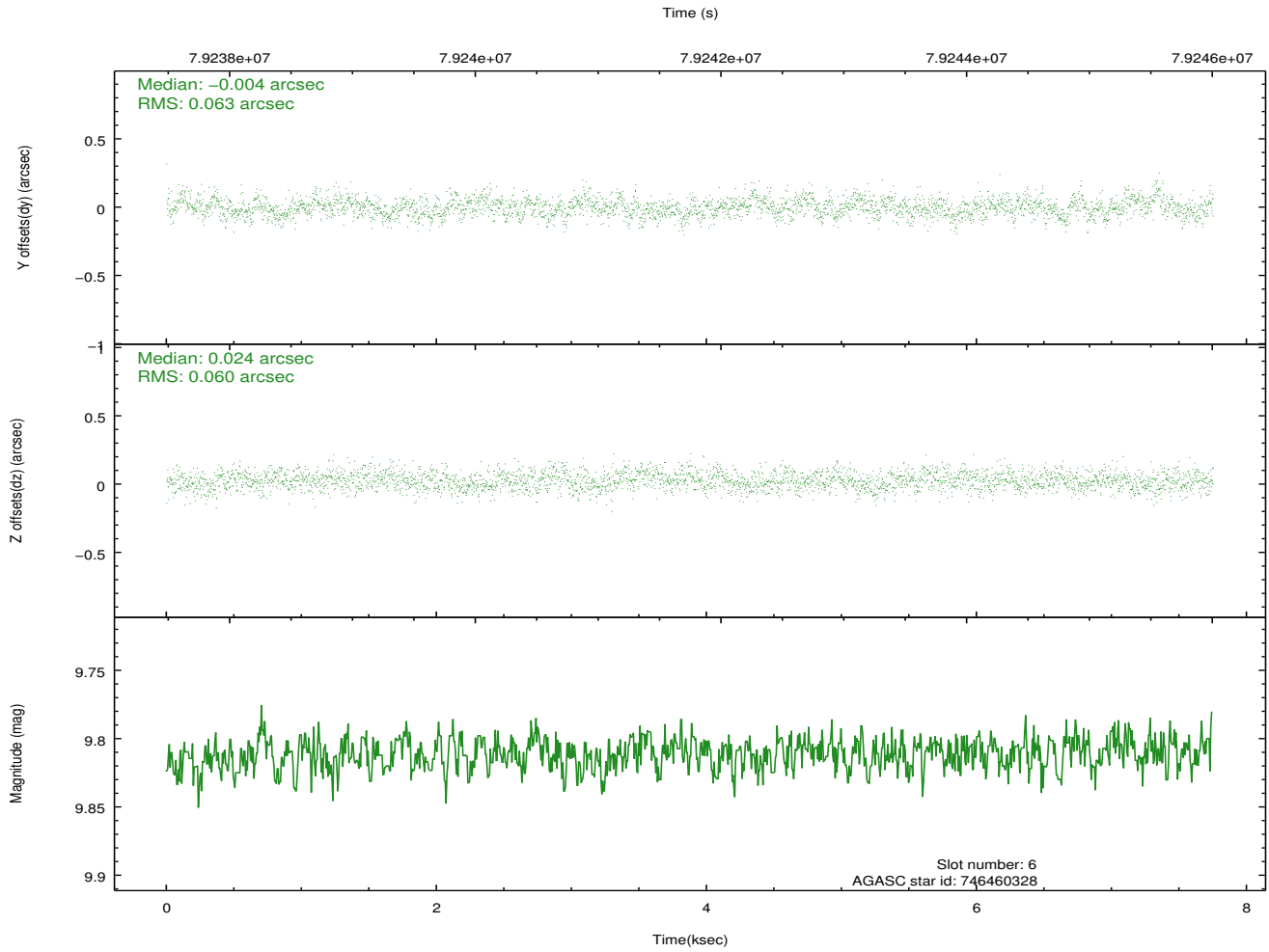
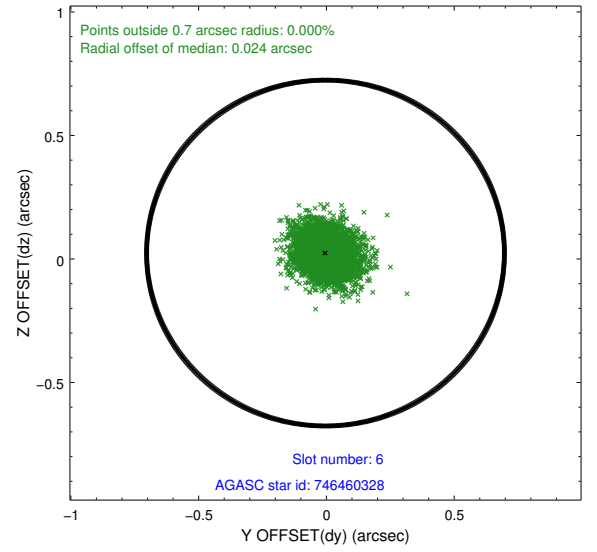
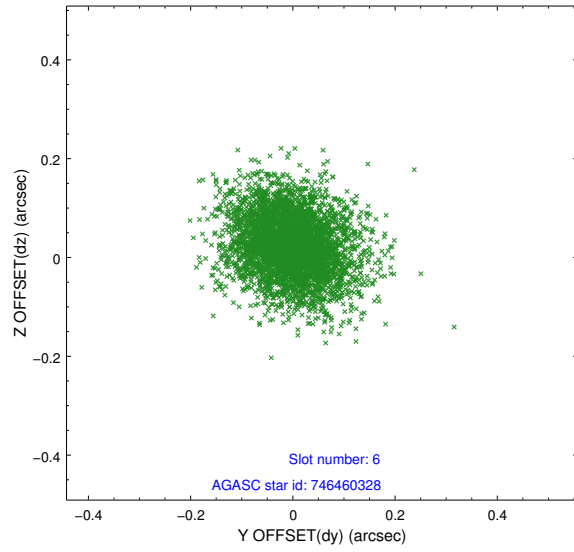
2.4.2 Slot 4



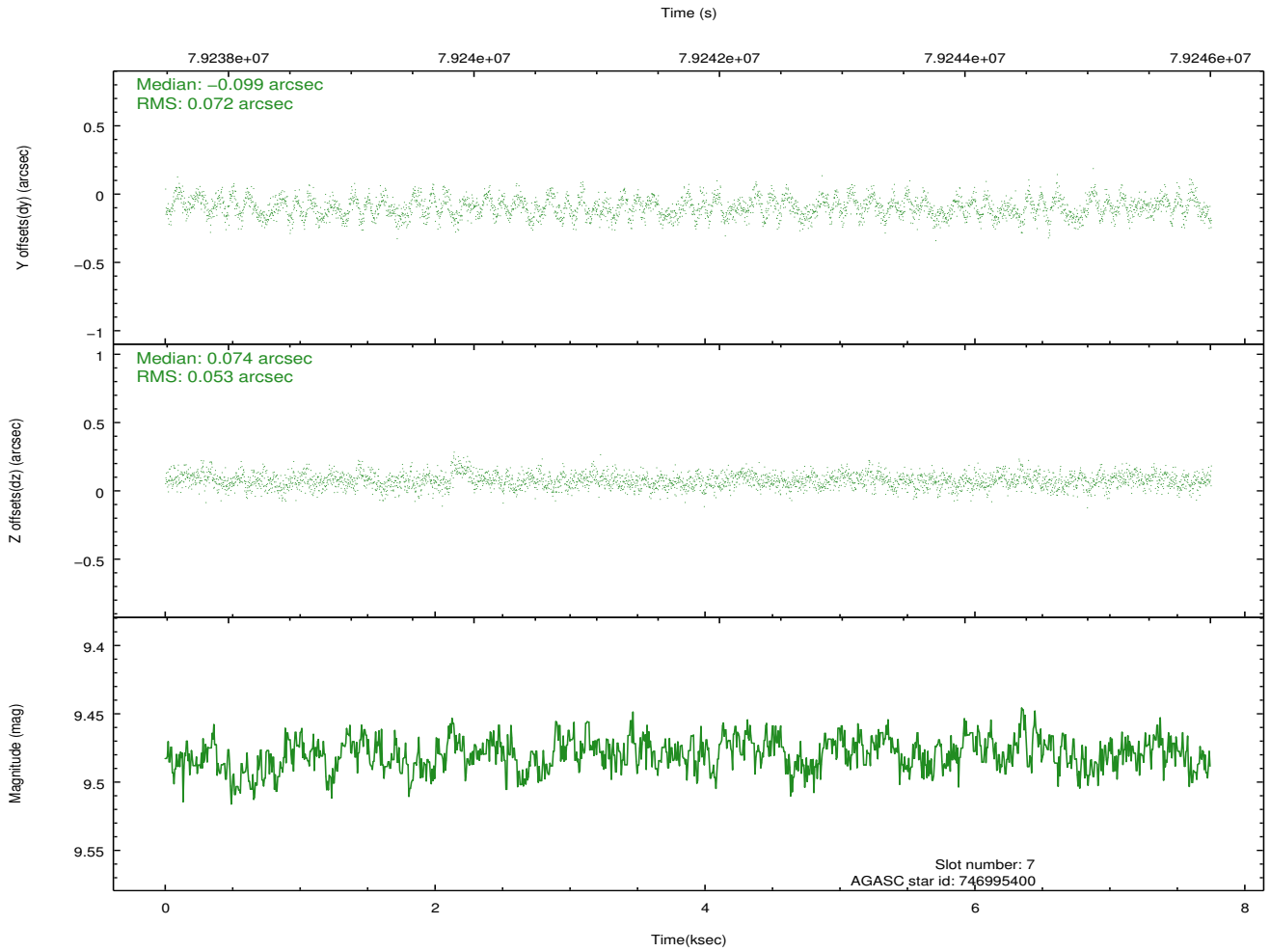
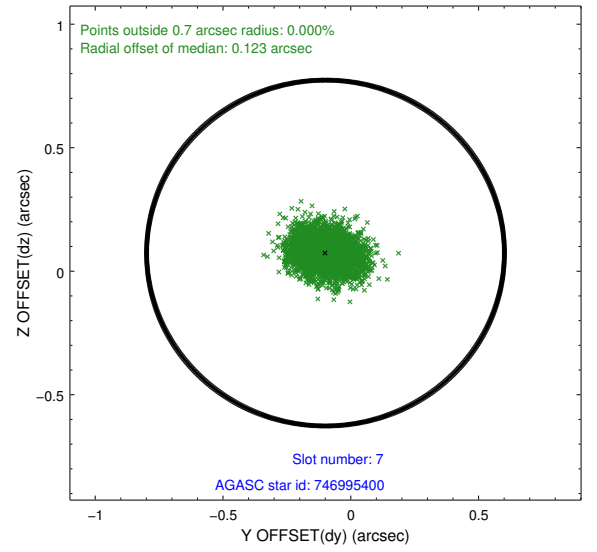
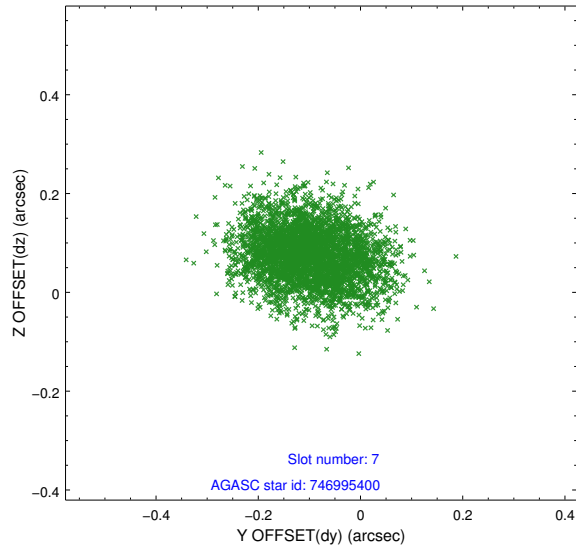
2.4.3 Slot 5



2.4.4 Slot 6

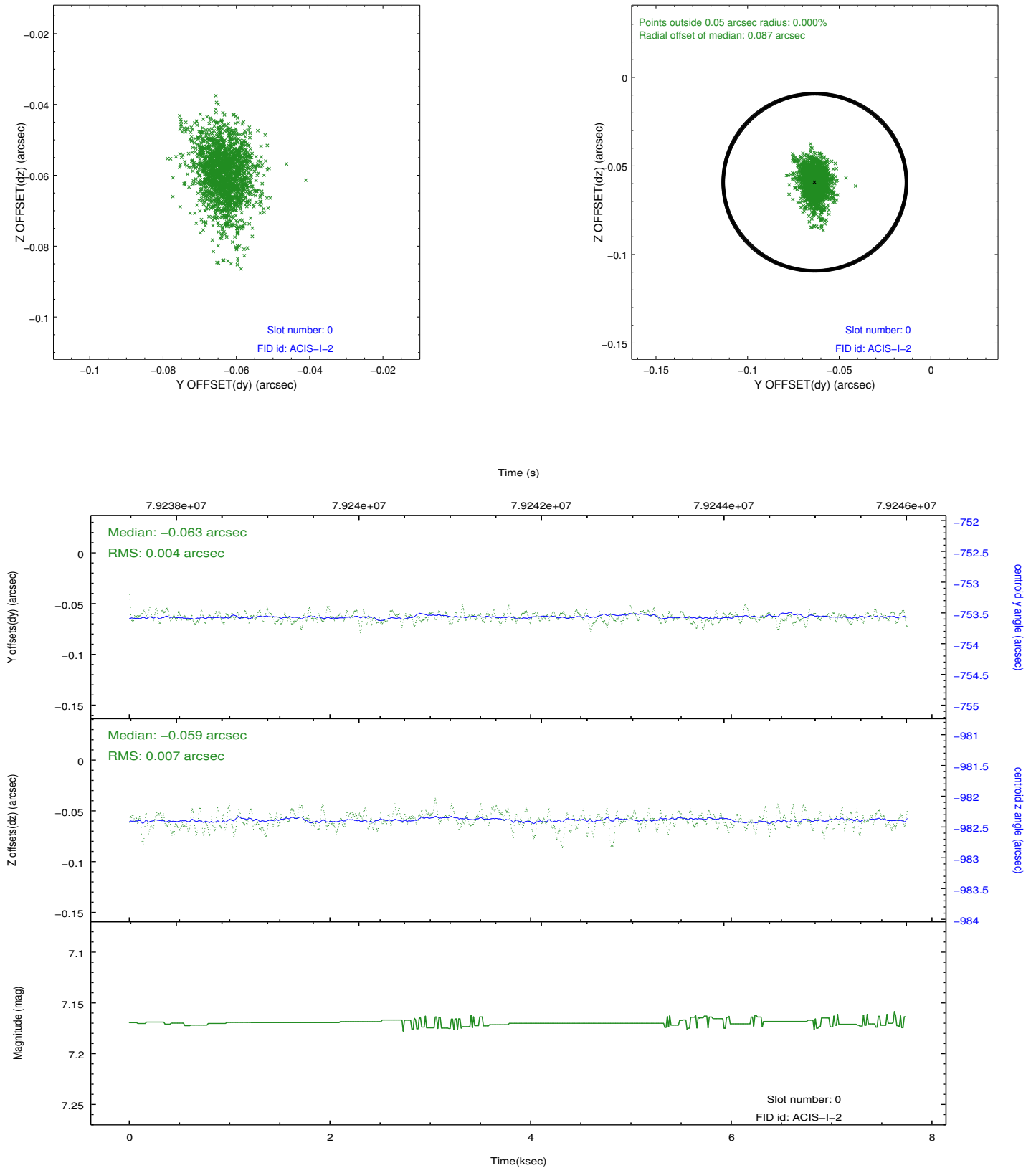


2.4.5 Slot 7

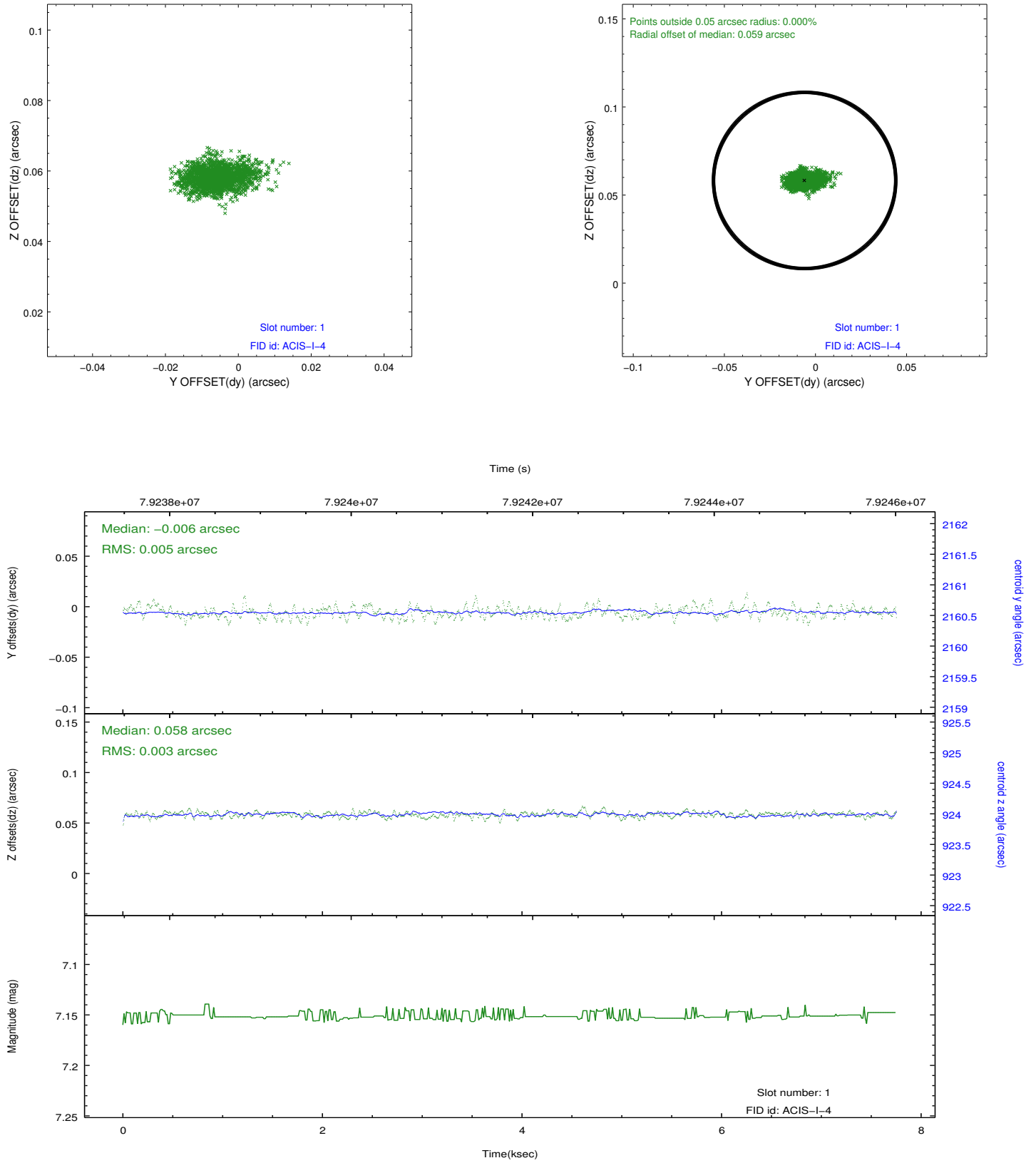


2.5 FID Slots

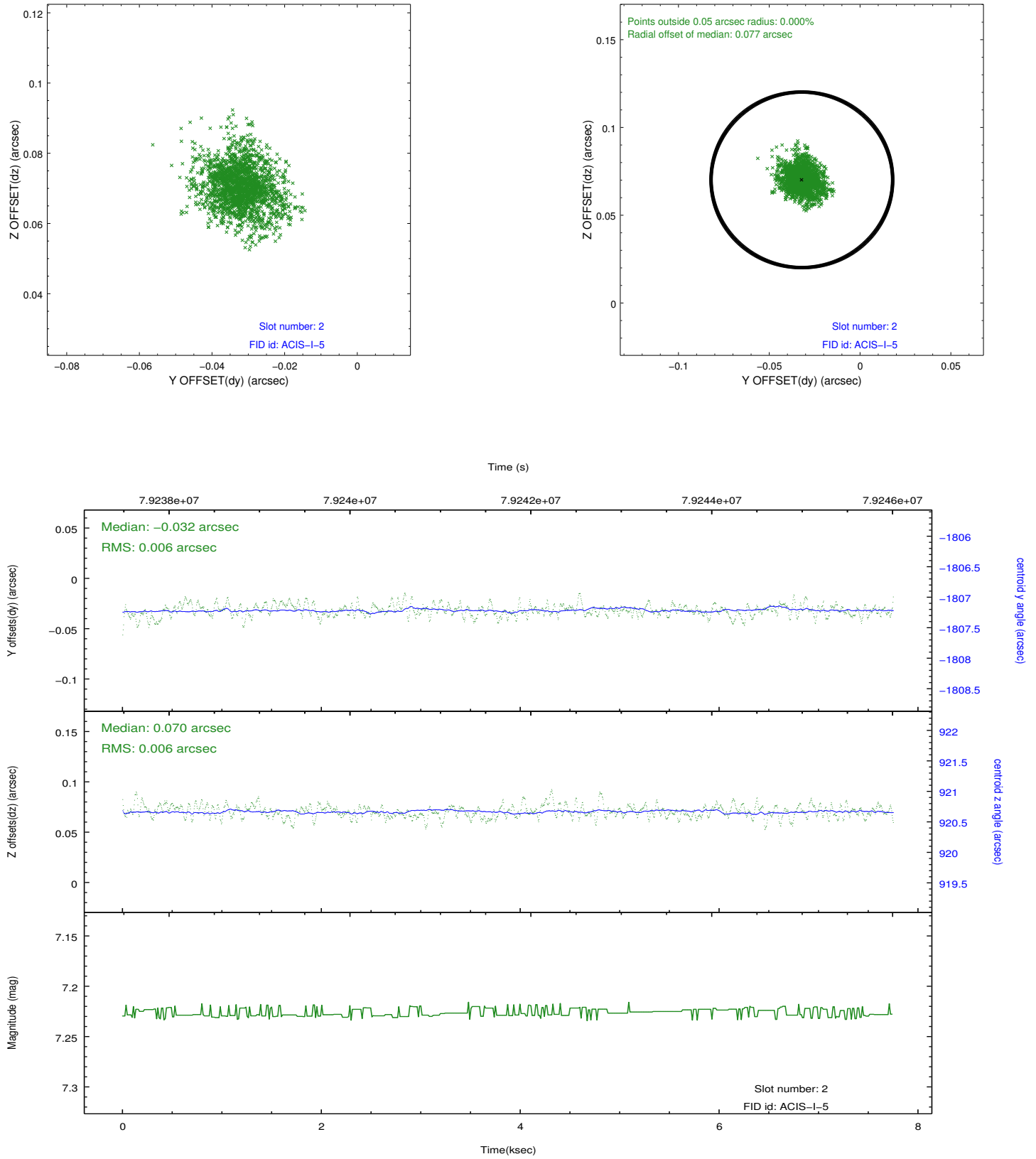
2.5.1 Slot 0



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	7.321

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.