

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1778 - L2 Version 5
Chandra X-Ray Center

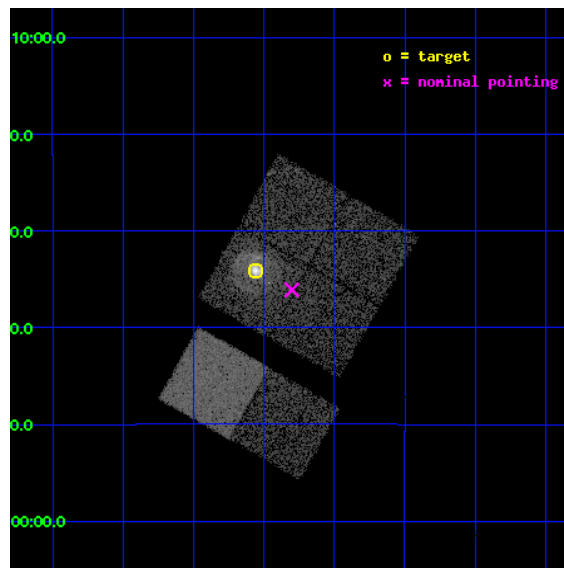
L2 Processing Date : Aug 30 2012

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1 Front

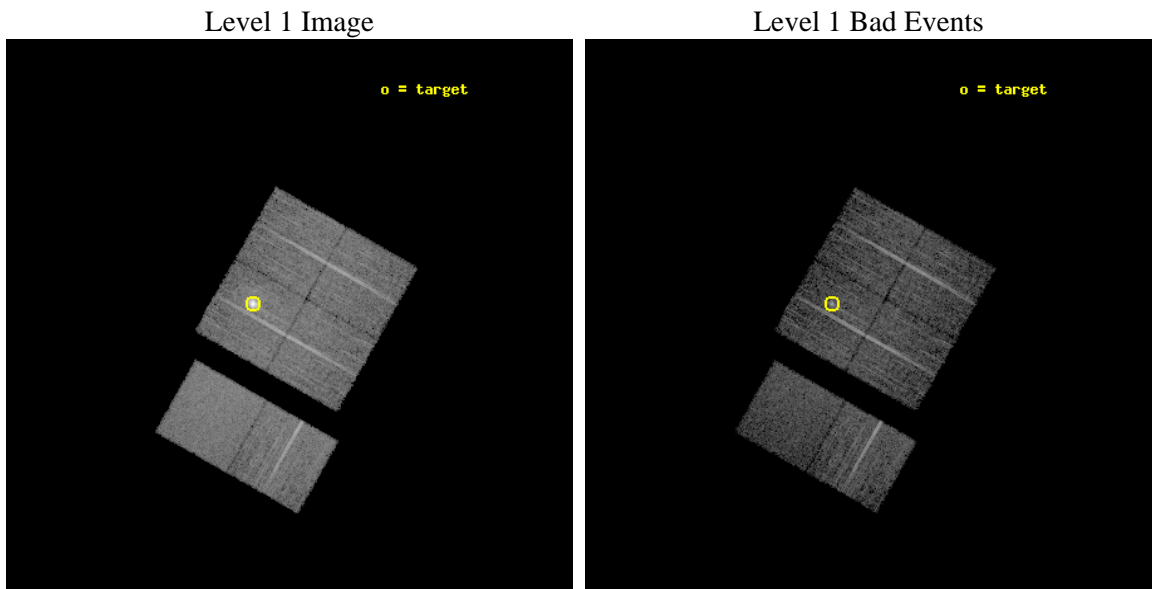
seq_num	590204	Sequence number
obs_id	1778	Observation id
title	HRC RESPONSE TO CONTINUUM SOURCE.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	G21.5-0.9 [Chip I3, T=110, Offsets=-4,0,2]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.389583	Observer's specified target RA [deg]
dec_targ	-10.568528	Observer's specified target Dec [deg]
ra_nom	278.32543314432	Nominal RA [deg]
dec_nom	-10.60170458846	Nominal Dec [deg]
roll_nom	209.47887781055	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	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	65086	Number of level 2 events



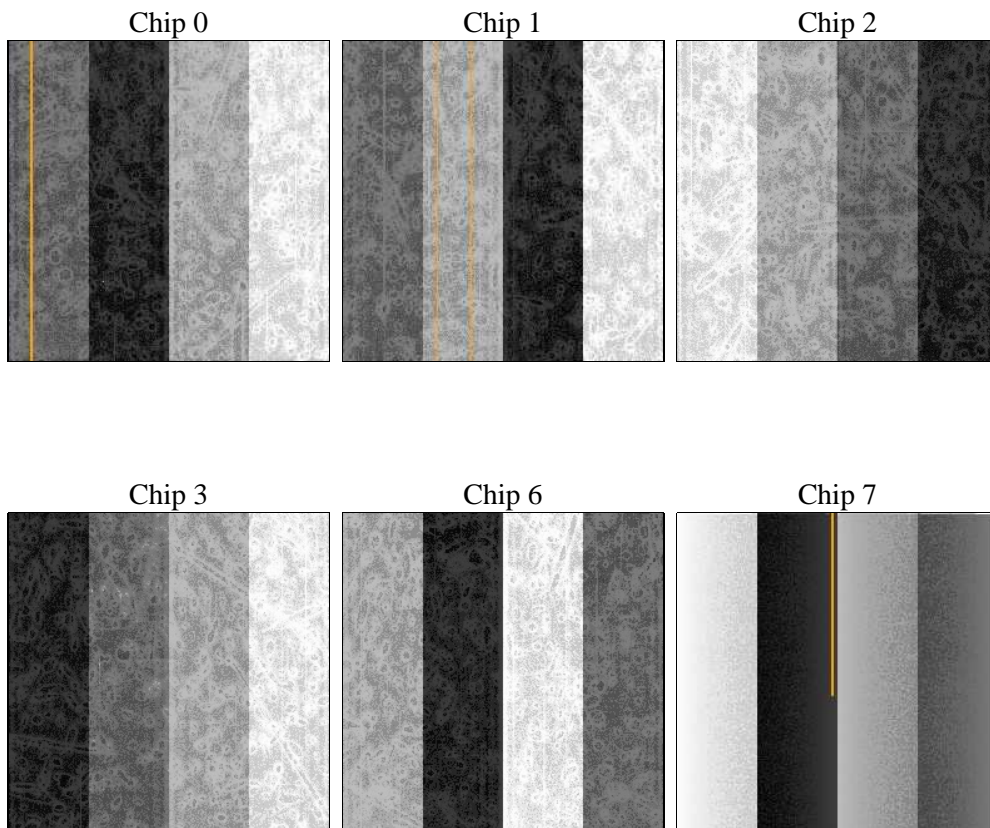
2 OBI

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	2012-08-30T03:42:05	Date and time of file creation	ontime1	7318.4000068009	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	333340	Number of level 1 events

2.1.4 Events

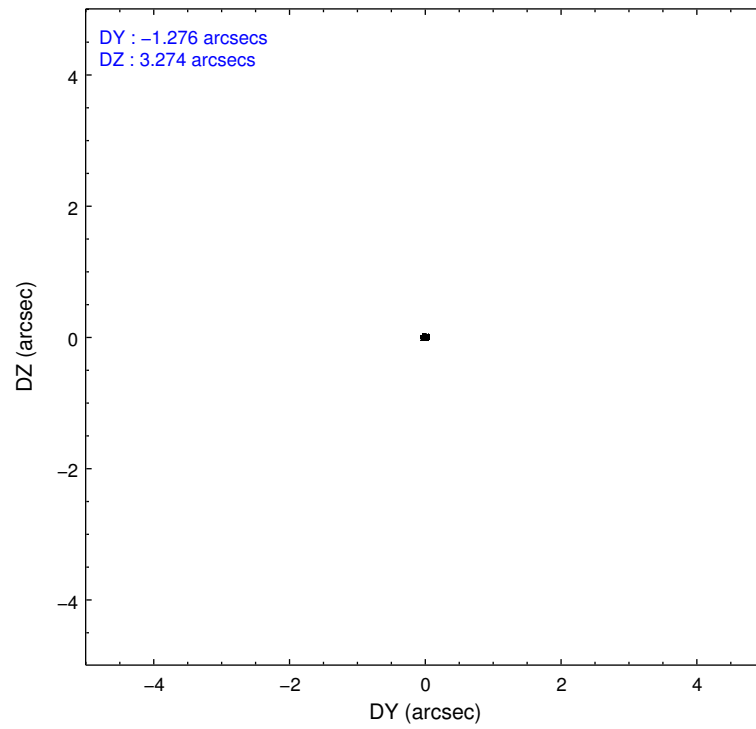
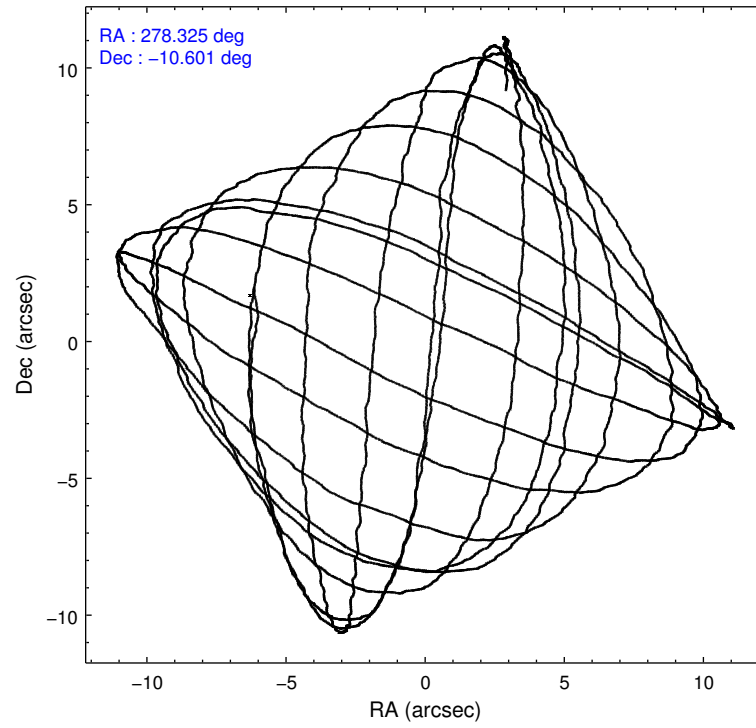
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	48099	48870	51866	73576	53824	57105	grade 0 events	1456	1679	1164	13410	988	1217
rejected events	42668	42738	46712	46470	48533	35559		3%	3%	2%	18%	1%	2%
rejected %	88%	87%	90%	63%	90%	62%	grade 1 events	13	13	6	88	19	25
								0%	0%	0%	0%	0%	0%
							grade 2 events	2043	2145	2110	8955	2147	4584
								4%	4%	4%	12%	3%	8%
							grade 3 events	357	457	317	1031	330	1278
								0%	0%	0%	1%	0%	2%
							grade 4 events	332	424	361	920	307	1153
								0%	0%	0%	1%	0%	2%
							grade 5 events	1002	1046	938	1255	1154	3522
								2%	2%	1%	1%	2%	6%
							grade 6 events	1247	1432	1204	2817	1521	13332
								2%	2%	2%	3%	2%	23%
							grade 7 events	41649	41674	45766	45100	47358	31994
								86%	85%	88%	61%	87%	56%

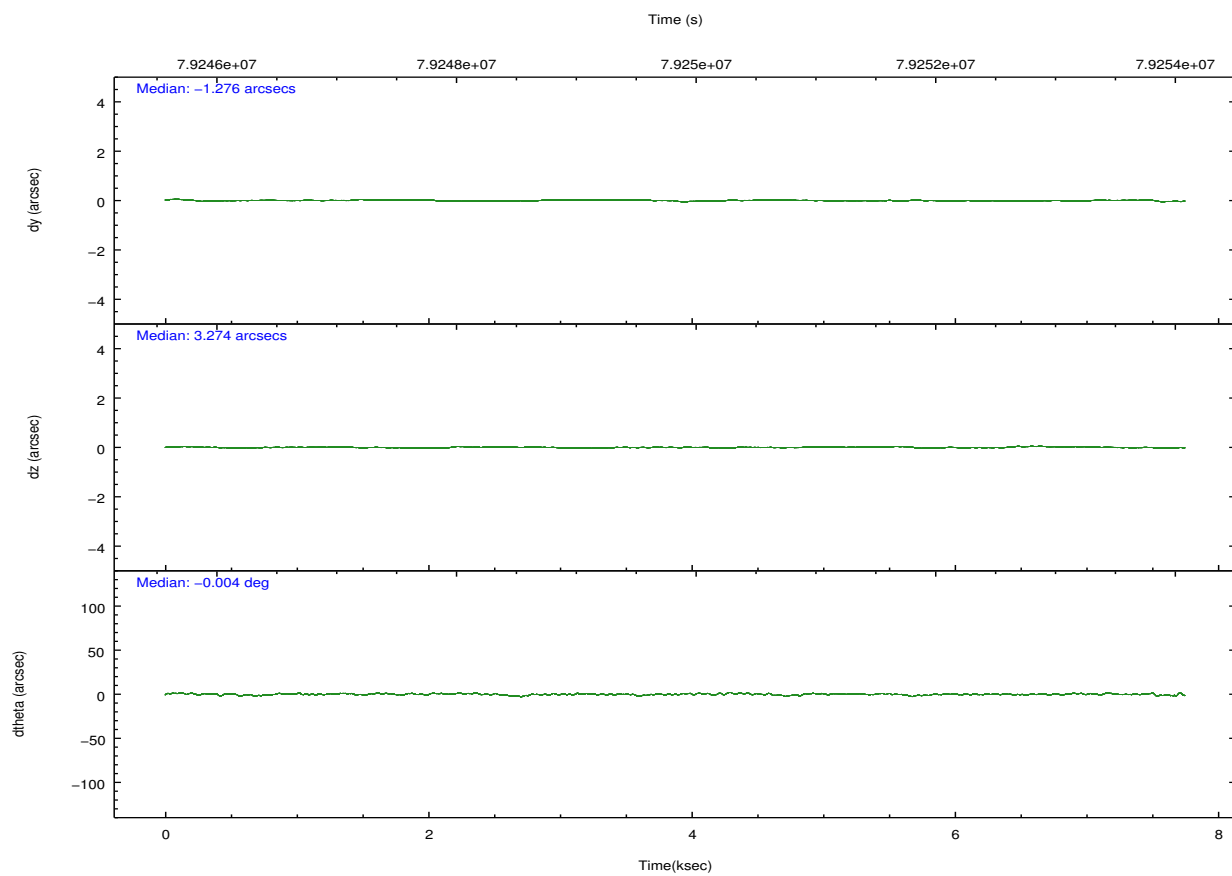
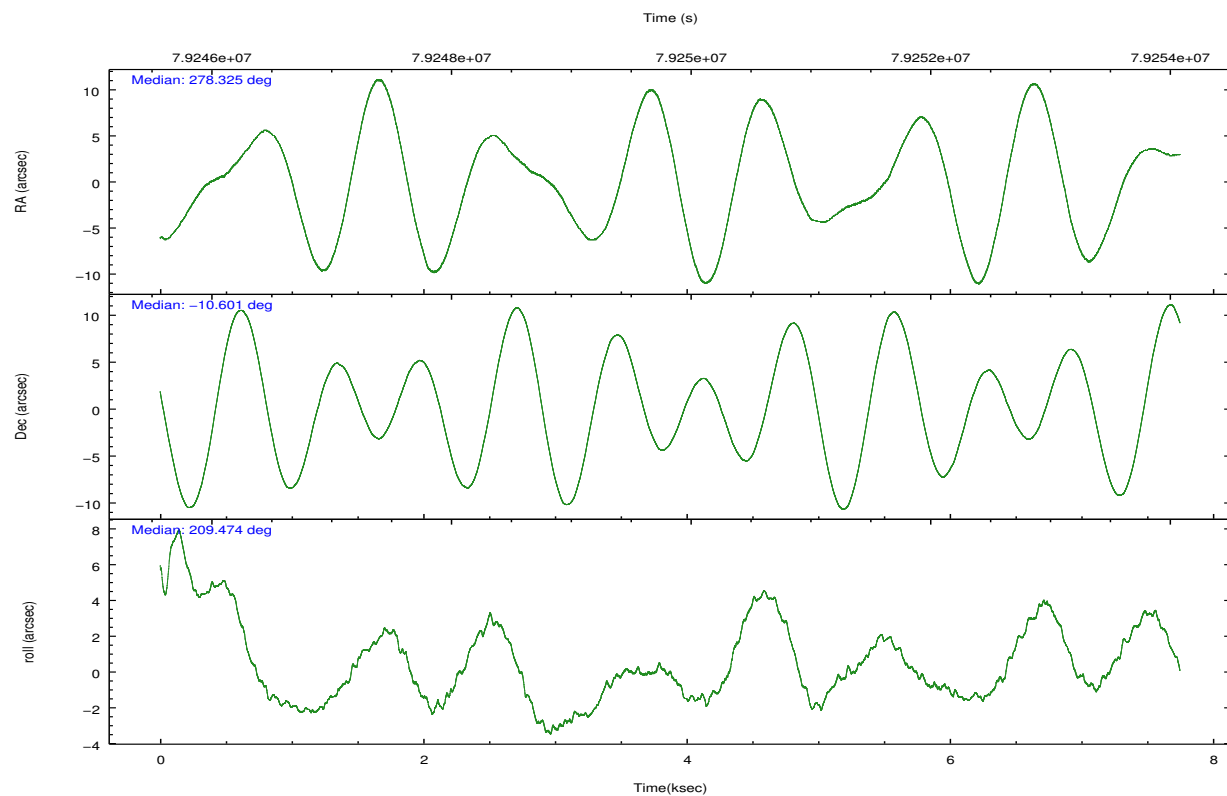
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	278.339785	278.3254331443204
[deg] Pointing Dec	-10.578014	-10.60170458846044
[deg] Pointing Roll	209.272820	209.4788778105514
[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)	79246136.184000	79245760.04380099
Observation start date	2000-07-06T04:47:52	2000-07-06T04:42:40
[s] Observation end time (MET)	79253696.184000	79253829.86909799
Observation end date	2000-07-06T06:53:52	2000-07-06T06:57:09
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.2

2.3 Aspect



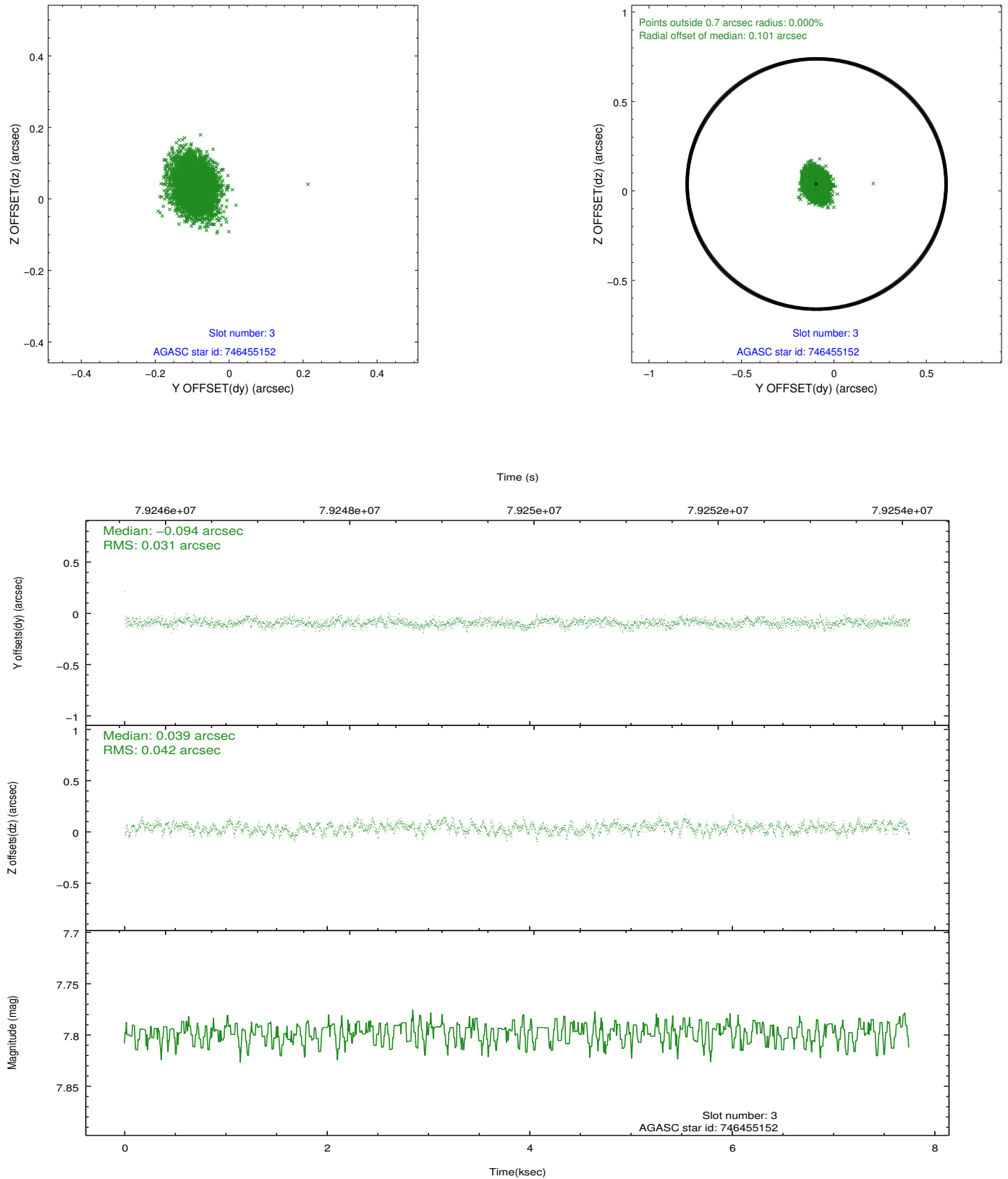


Slot Statistics

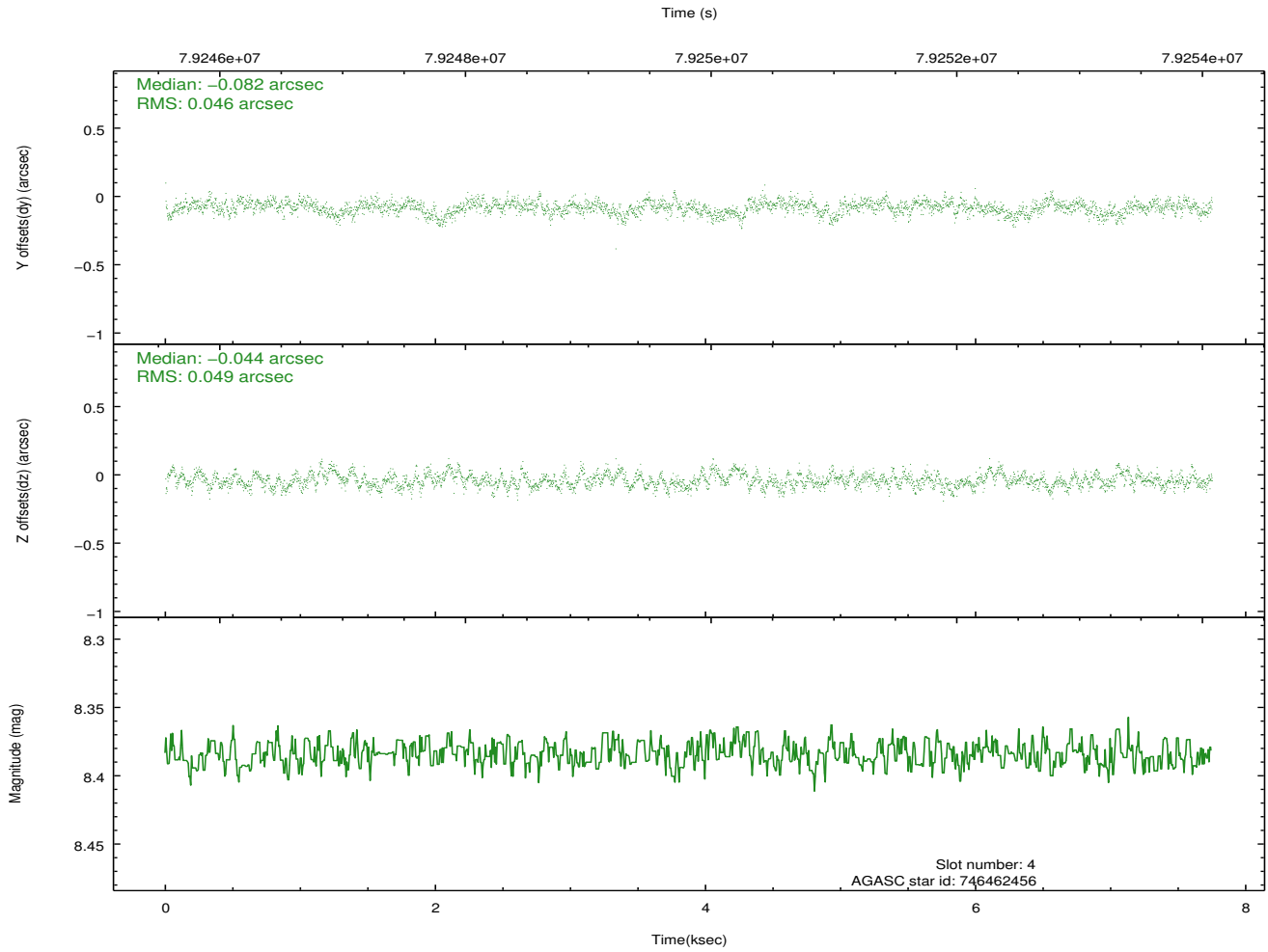
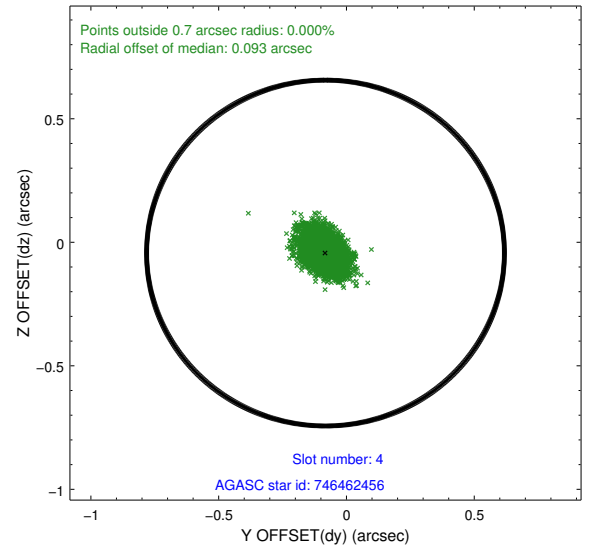
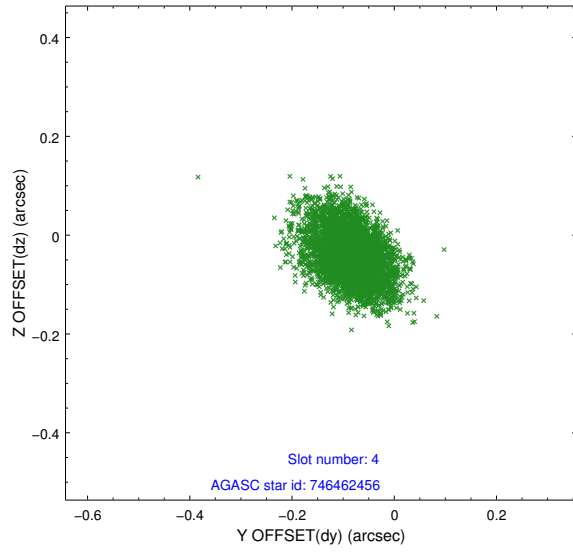
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.17	1889	-0.064	-0.061	0.009	0.016	0.000000	0.000000	-753.55	-982.39
1	FID	ACIS-I-4	7.15	1890	-0.009	0.059	0.006	0.011	0.000000	0.000000	2160.16	923.48
2	FID	ACIS-I-5	7.23	1890	-0.028	0.071	0.009	0.014	0.000000	0.000000	-1806.05	921.15
3	GUIDE	746455152	7.80	3780	-0.094	0.039	0.055	0.090	278.447893	-9.976732	-1392.32	-1699.97
4	GUIDE	746462456	8.38	3781	-0.082	-0.044	0.070	0.118	278.652171	-10.530173	-1048.43	391.22
5	GUIDE	746455112	8.93	3780	0.209	-0.111	0.063	0.107	278.266531	-10.703234	446.79	267.42
6	GUIDE	746460328	9.80	3779	0.008	0.023	0.119	0.197	278.603974	-9.898096	-2013.28	-1675.90
7	GUIDE	746995400	9.48	3777	-0.041	0.091	0.092	0.150	278.078957	-11.289885	2056.31	1786.27

2.4 Star Slots

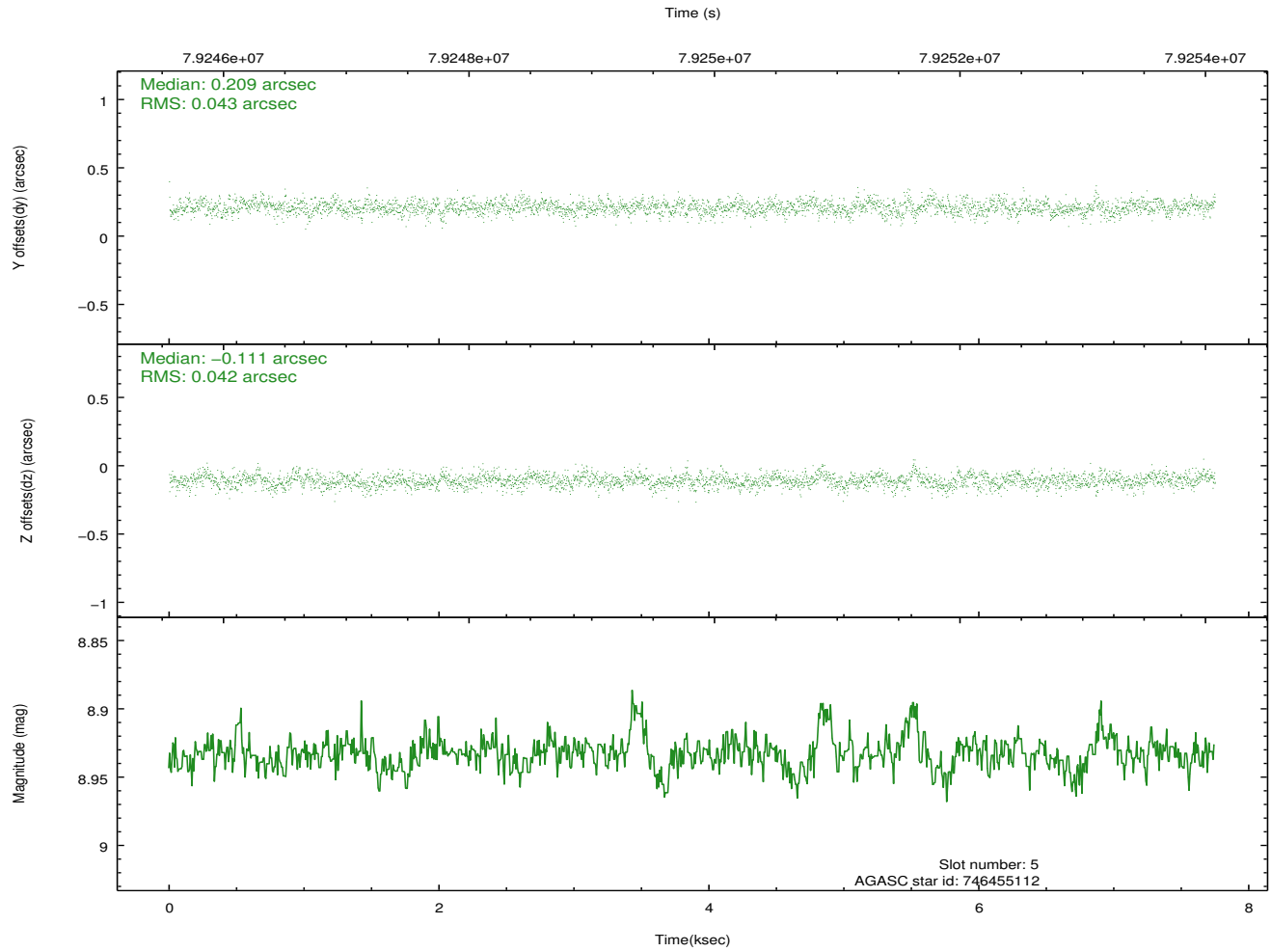
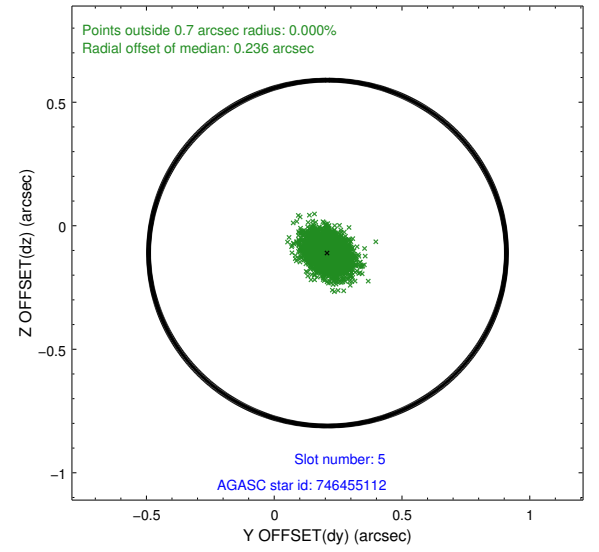
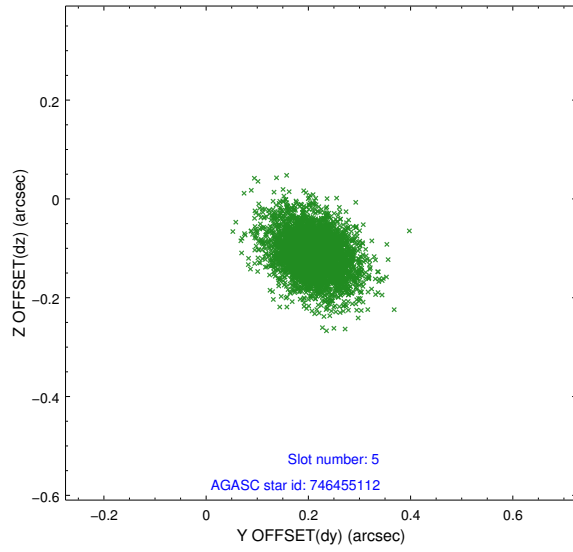
2.4.1 Slot 3



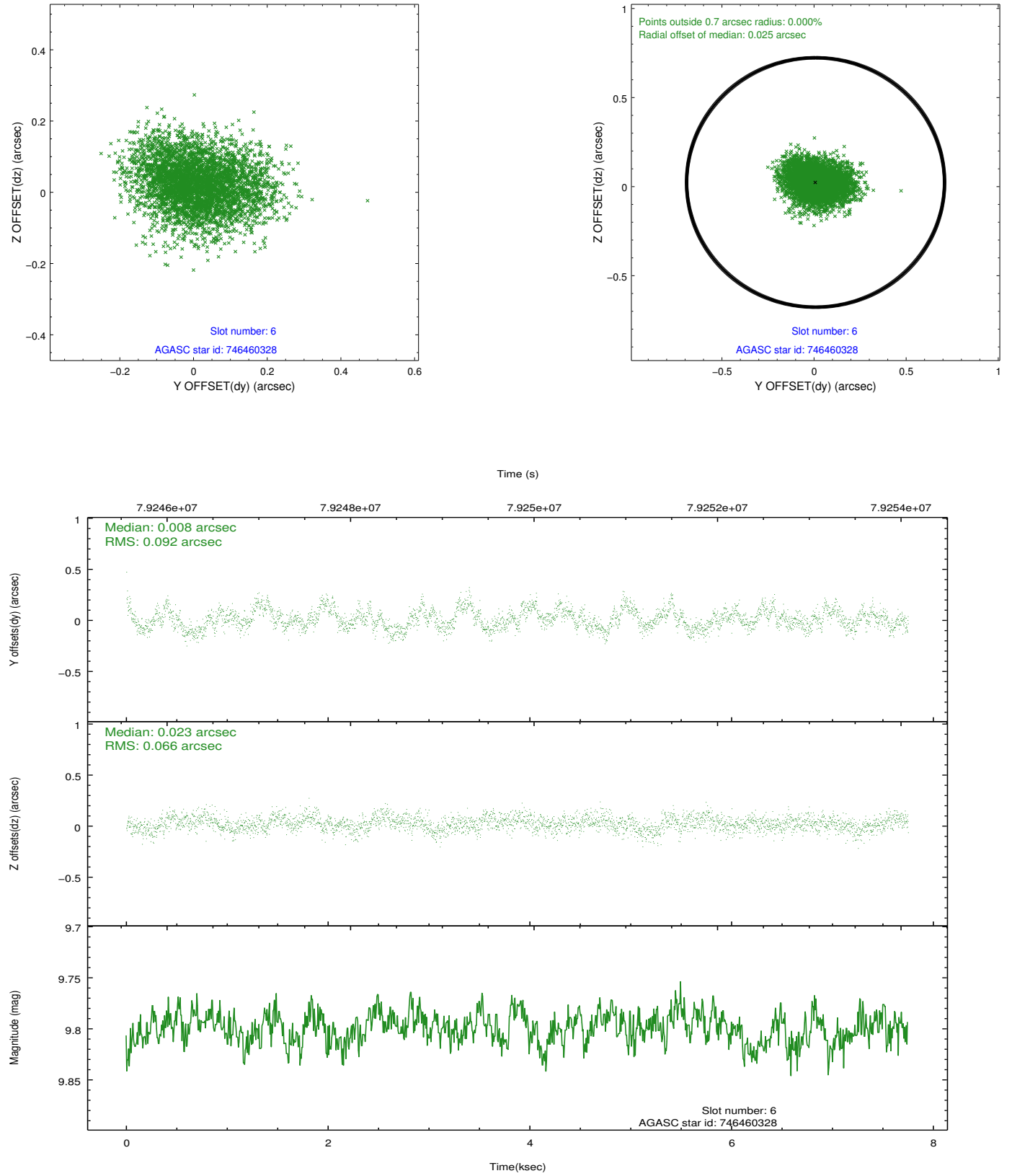
2.4.2 Slot 4



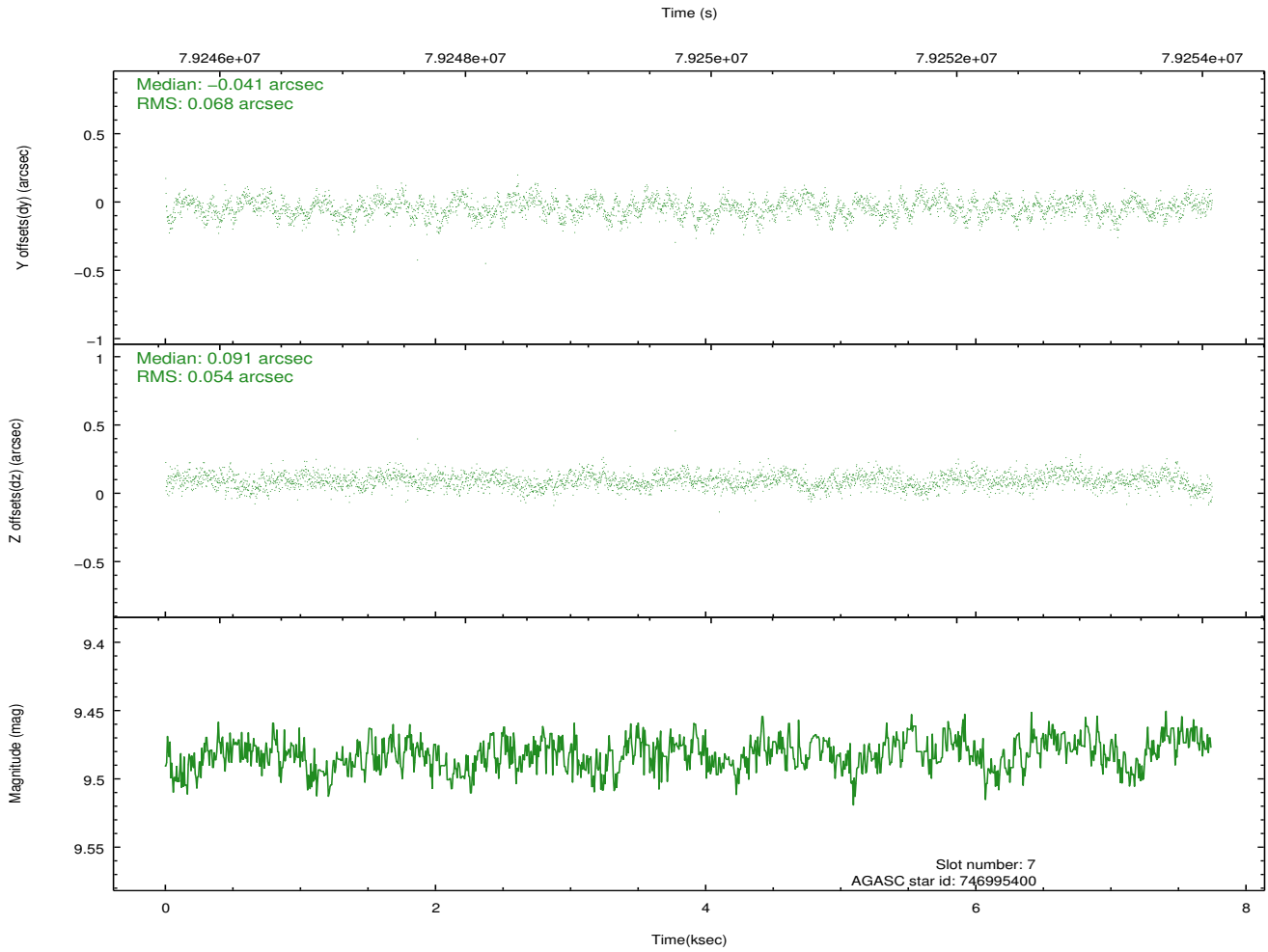
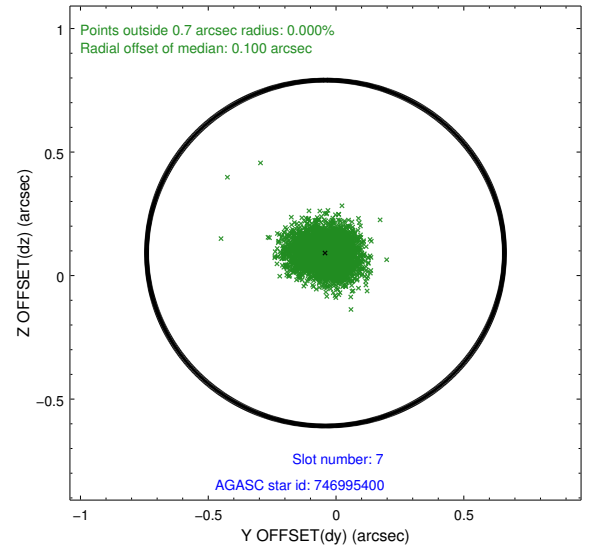
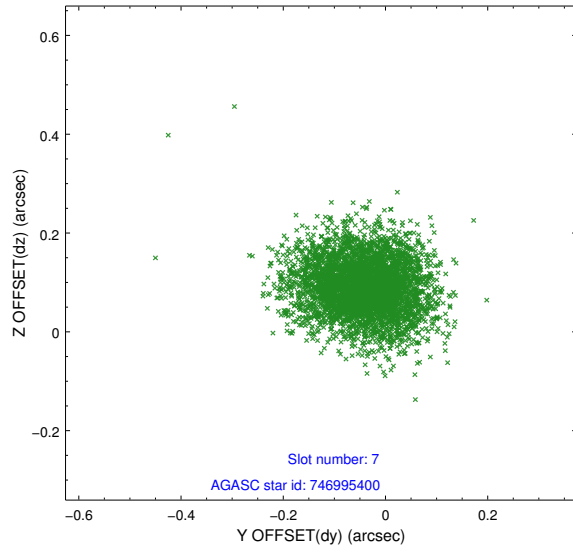
2.4.3 Slot 5



2.4.4 Slot 6

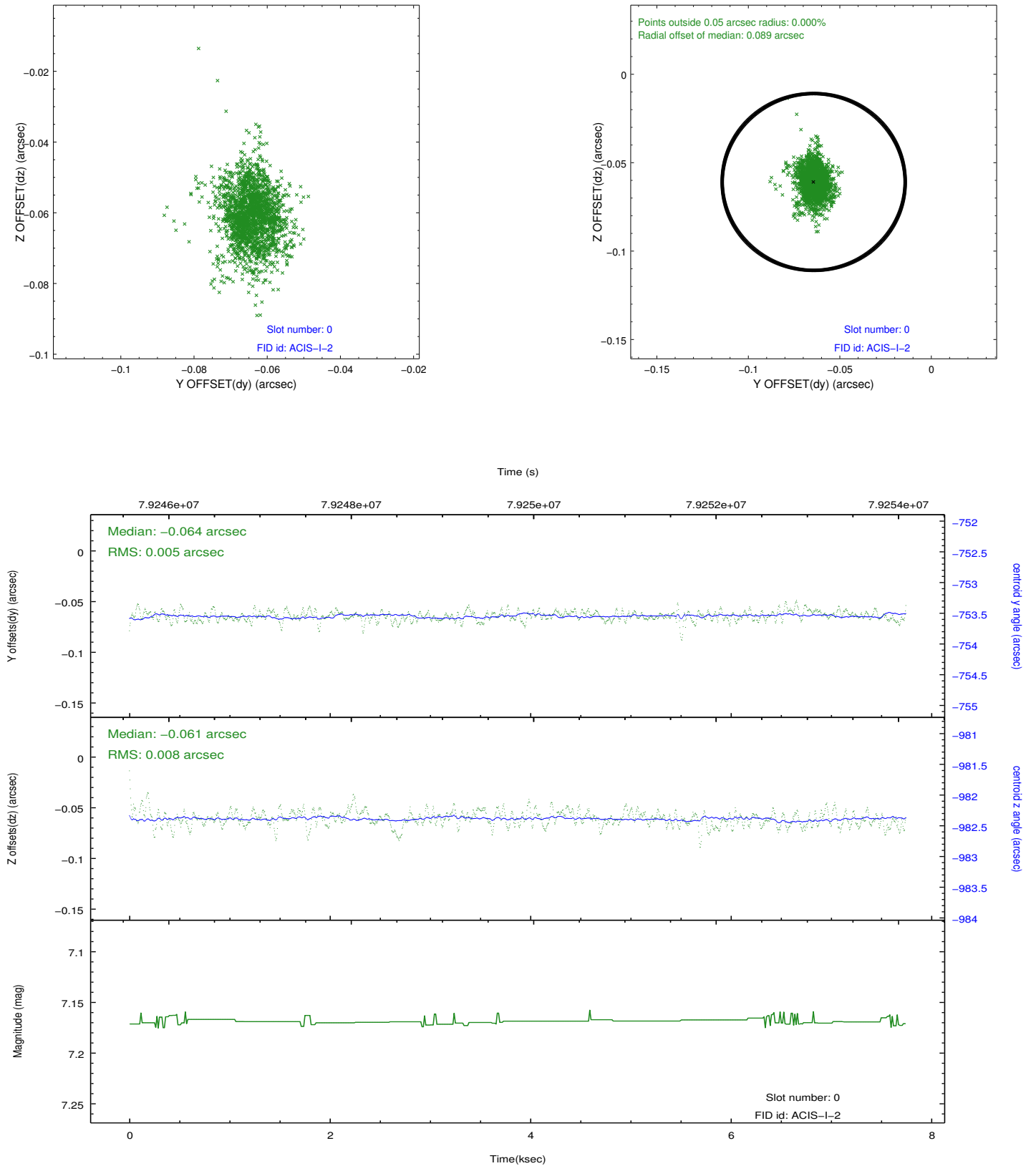


2.4.5 Slot 7

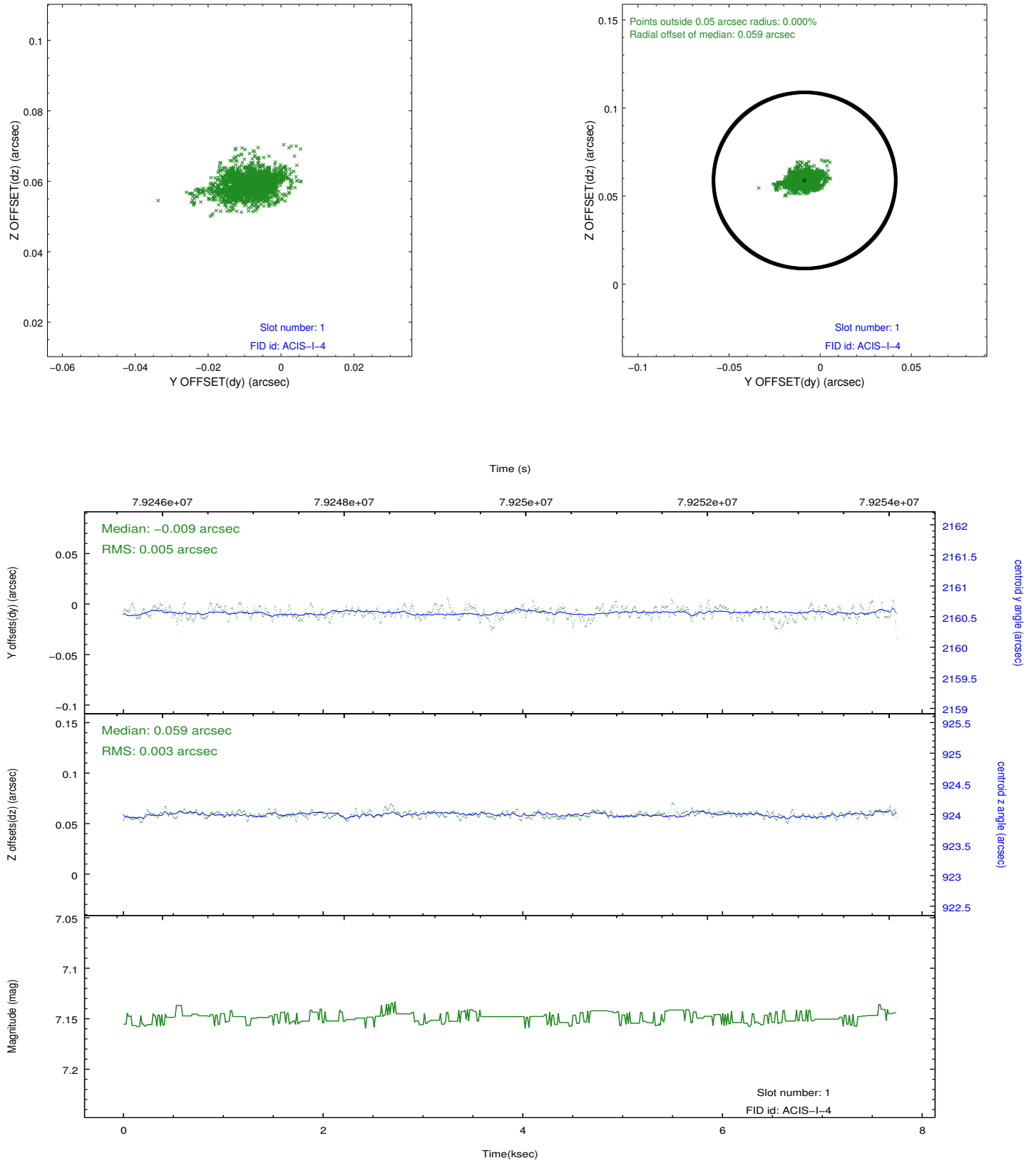


2.5 FID Slots

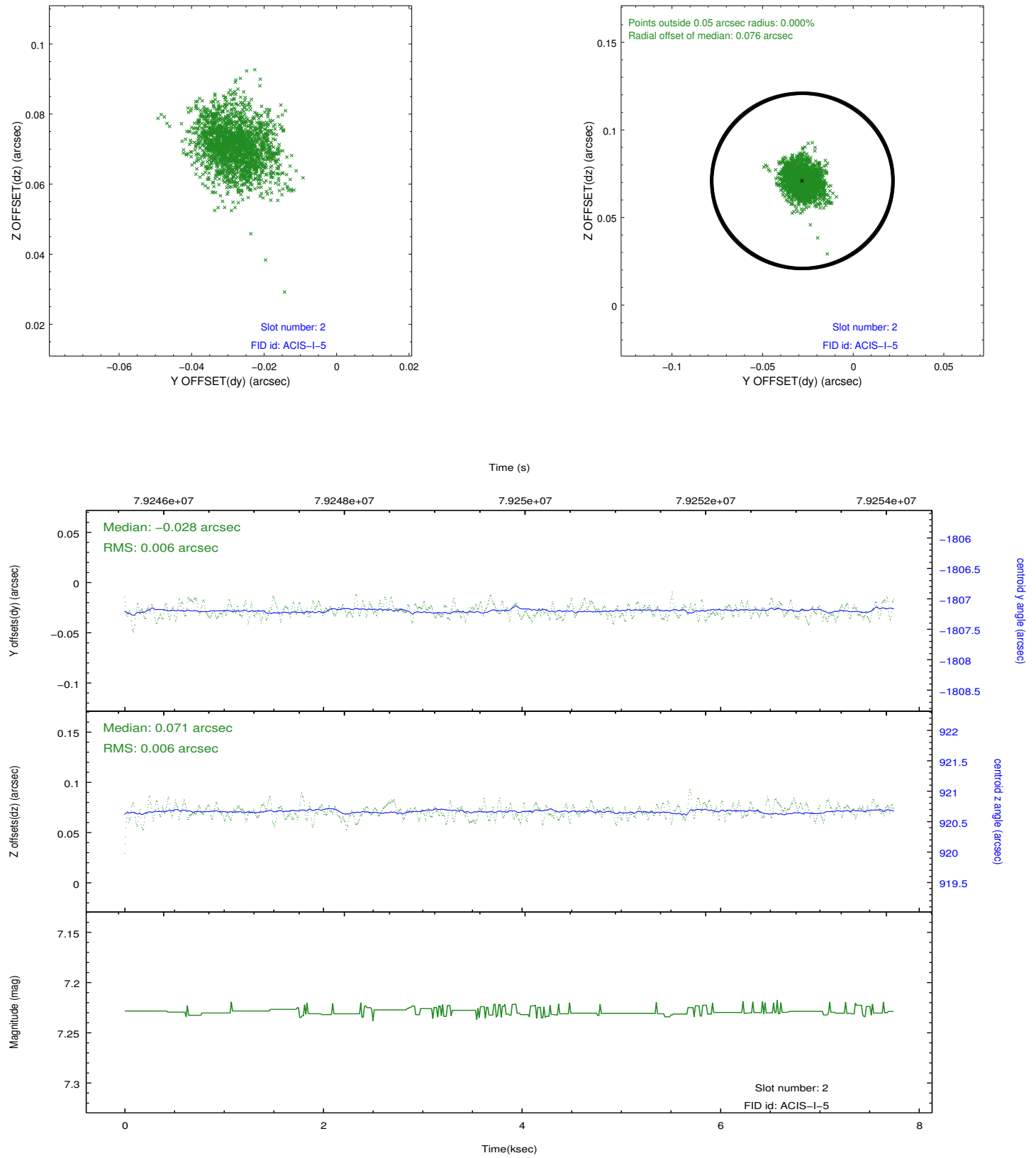
2.5.1 Slot 0



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.