

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1779 - L2 Version 5
Chandra X-Ray Center

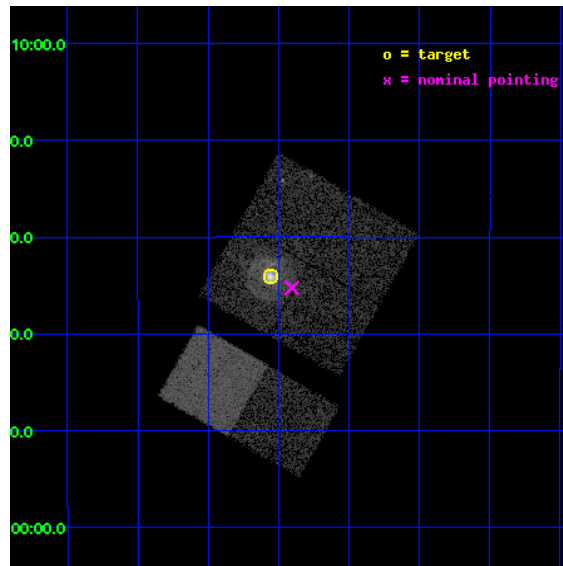
L2 Processing Date : Aug 30 2012

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1 Front

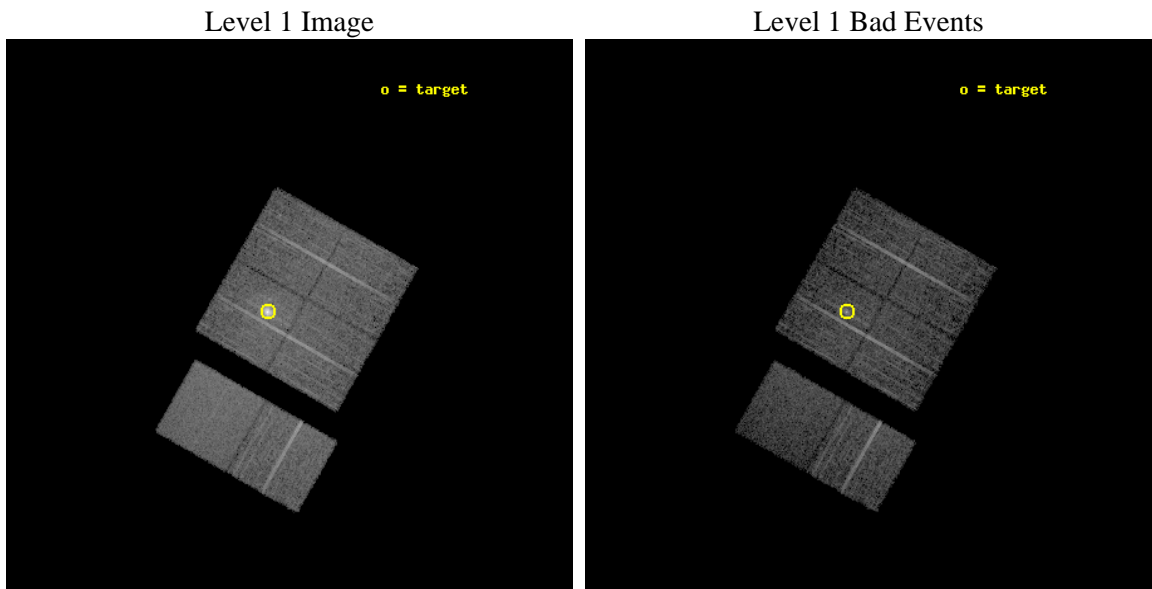
seq_num	590205	Sequence number
obs_id	1779	Observation id
title	HRC RESPONSE TO CONTINUUM SOURCE.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	G21.5-0.9 [Chip I3, T=110, Offsets=-2,0,2]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.389583	Observer's specified target RA [deg]
dec_targ	-10.568528	Observer's specified target Dec [deg]
ra_nom	278.35140547657	Nominal RA [deg]
dec_nom	-10.587560319824	Nominal Dec [deg]
roll_nom	209.6965087231	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	64738	Number of level 2 events



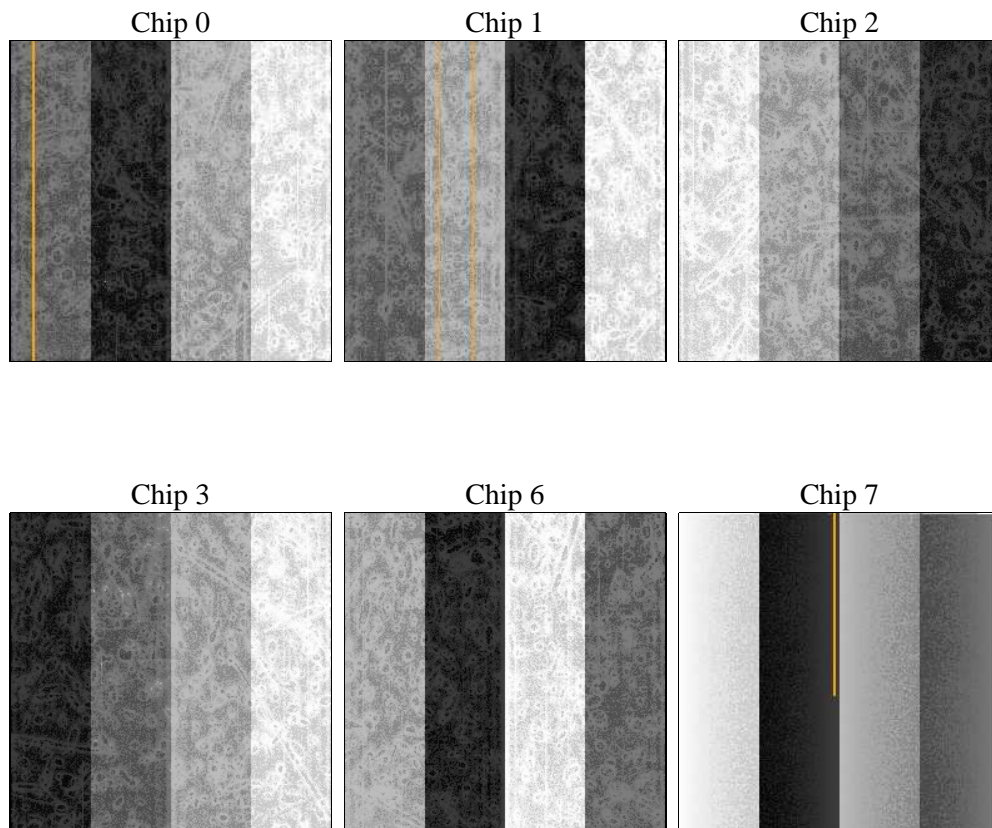
2 OBI

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	2012-08-30T03:57:34	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	329789	Number of level 1 events

2.1.4 Events

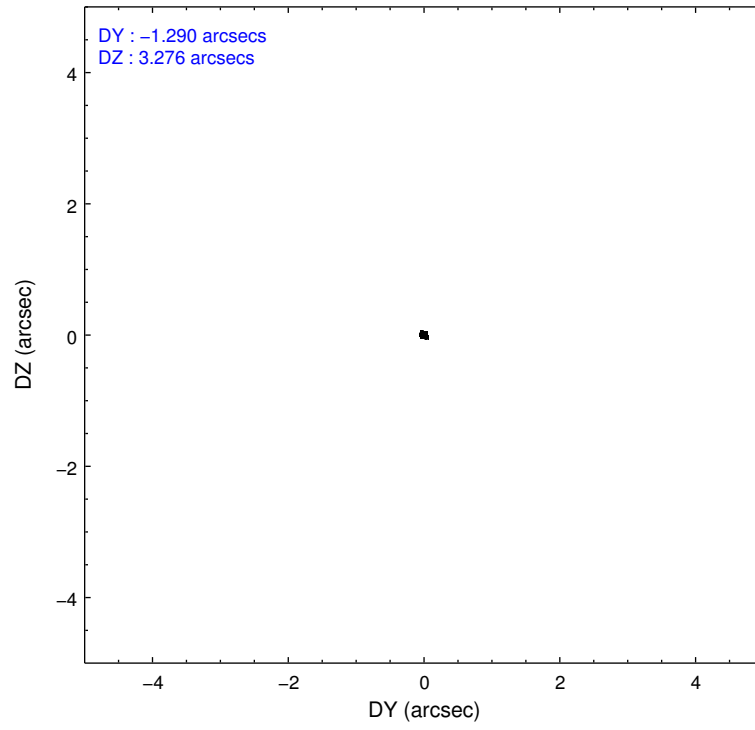
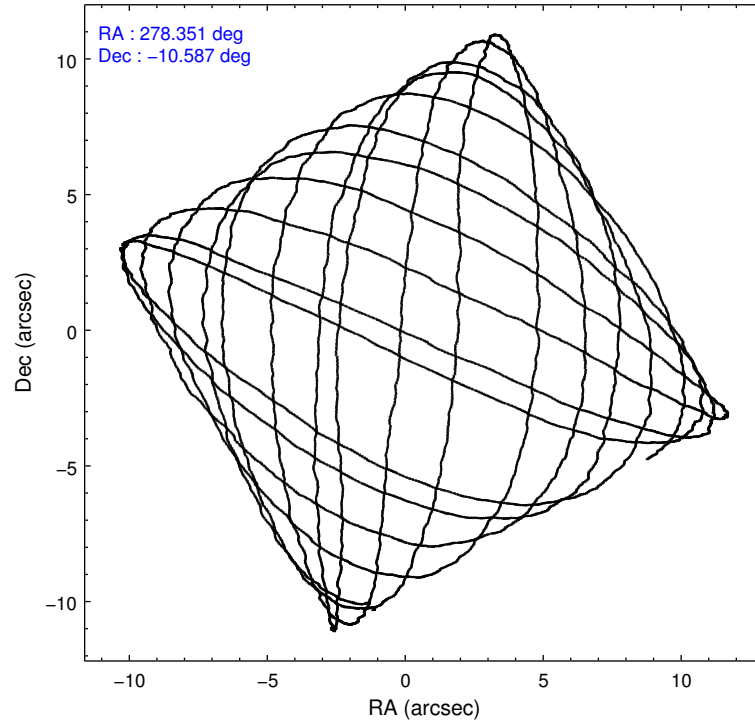
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	47478	46966	51634	73410	53517	56784	grade 0 events	1394	1772	1231	8482	1055	1238
rejected events	41987	40794	46467	46606	48177	35251		2%	3%	2%	11%	1%	2%
rejected %	88%	86%	89%	63%	90%	62%	grade 1 events	10	9	11	65	14	29
								0%	0%	0%	0%	0%	0%
							grade 2 events	2132	2097	2020	13940	2099	4611
								4%	4%	3%	18%	3%	8%
							grade 3 events	352	447	327	682	337	1250
								0%	0%	0%	0%	0%	2%
							grade 4 events	364	438	332	639	358	1178
								0%	0%	0%	0%	0%	2%
							grade 5 events	992	1074	968	1270	1180	3392
								2%	2%	1%	1%	2%	5%
							grade 6 events	1250	1423	1258	3083	1498	13273
								2%	3%	2%	4%	2%	23%
							grade 7 events	40984	39706	45487	45249	46976	31813
								86%	84%	88%	61%	87%	56%

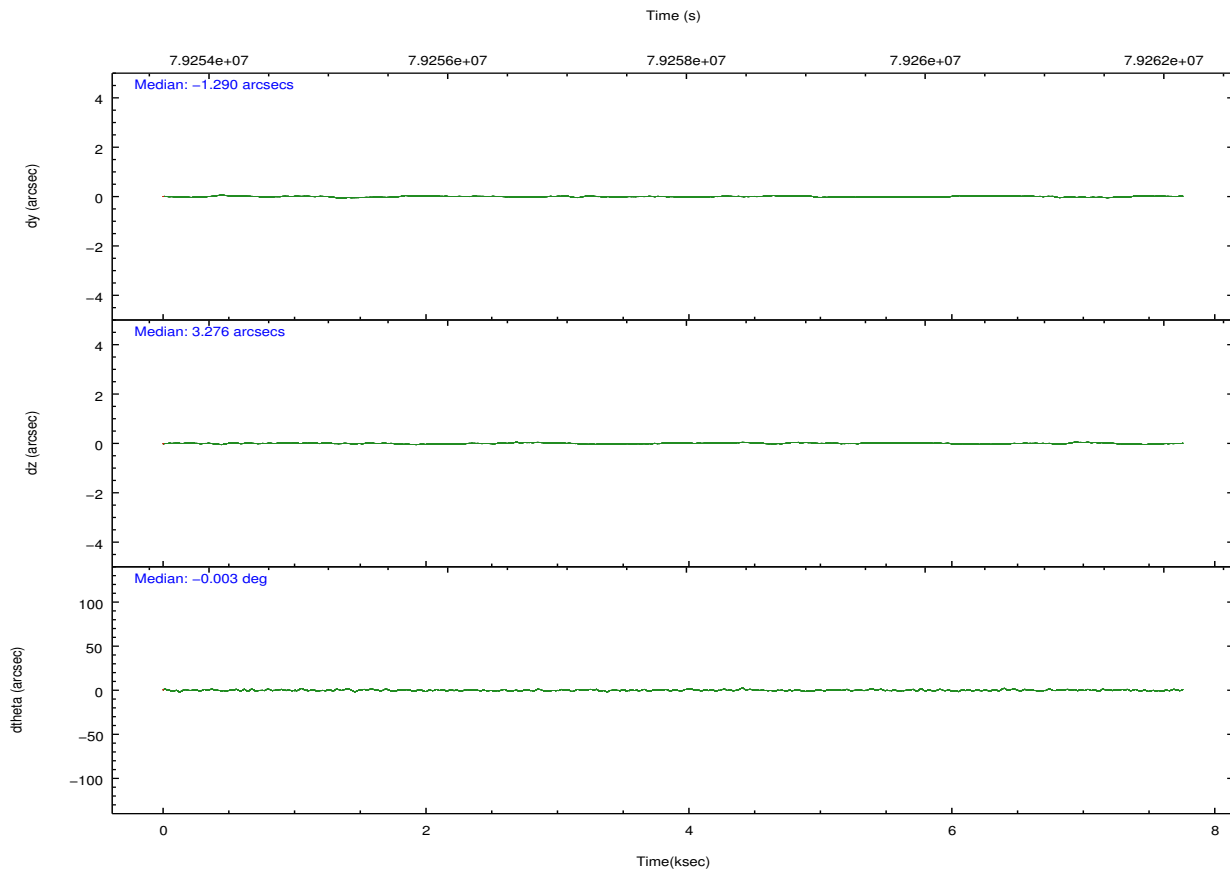
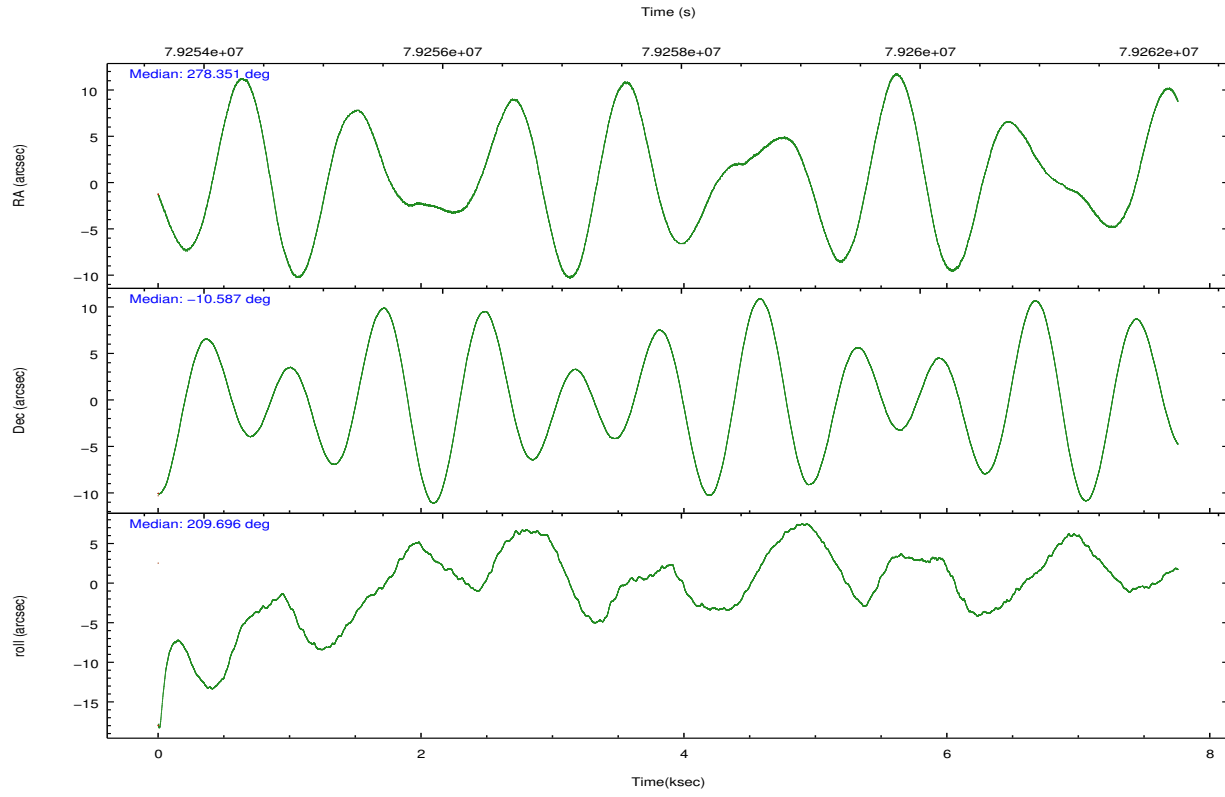
2.2 Compared Parameters

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	278.365655	278.351405476571
[deg] Pointing Dec	-10.563830	-10.58756031982445
[deg] Pointing Roll	209.490441	209.696508723096
[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)	79254206.184000	79253829.86909799
Observation start date	2000-07-06T07:02:22	2000-07-06T06:57:09
[s] Observation end time (MET)	79261766.184000	79262433.71941499
Observation end date	2000-07-06T09:08:22	2000-07-06T09:20:33
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



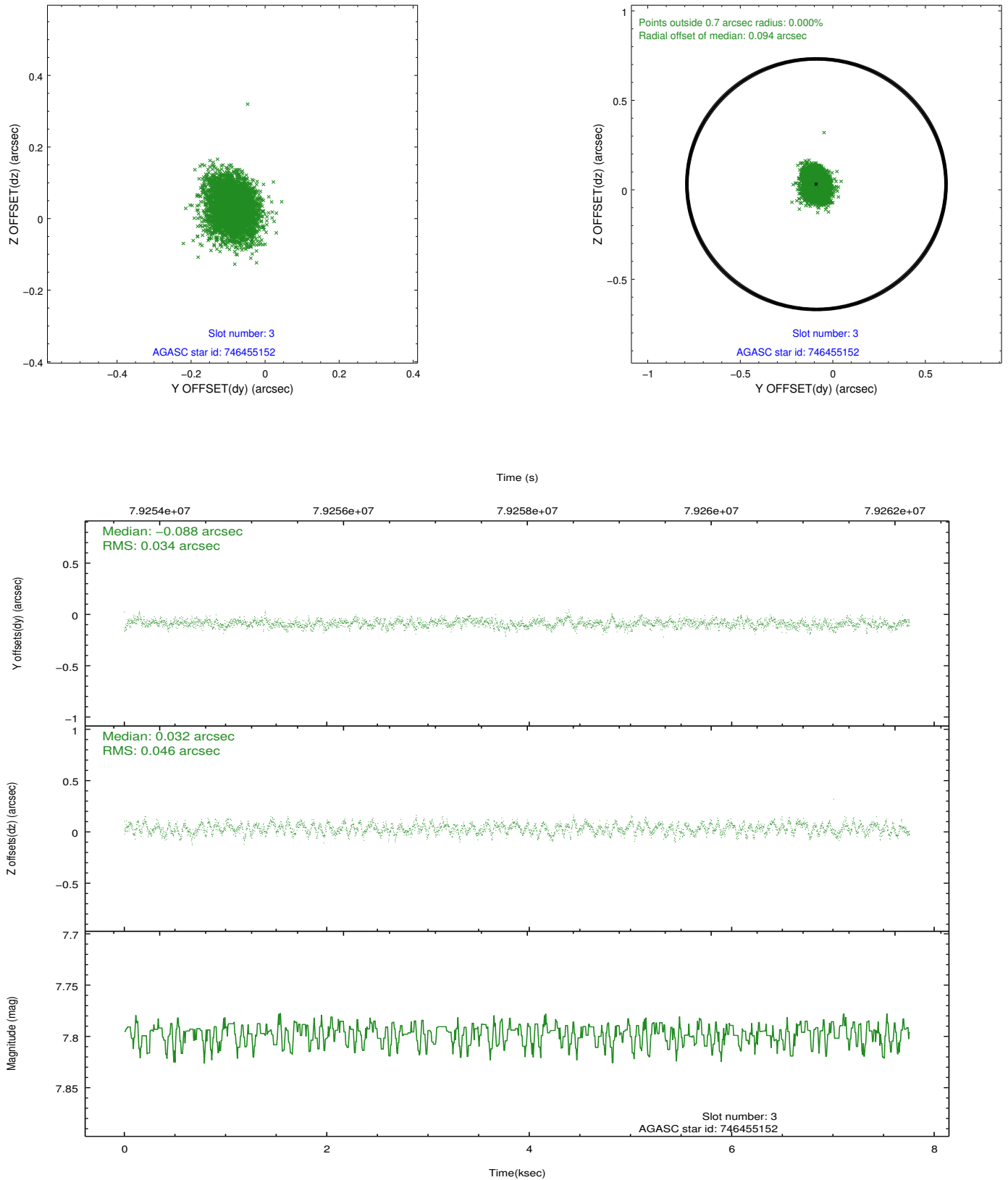


Slot Statistics

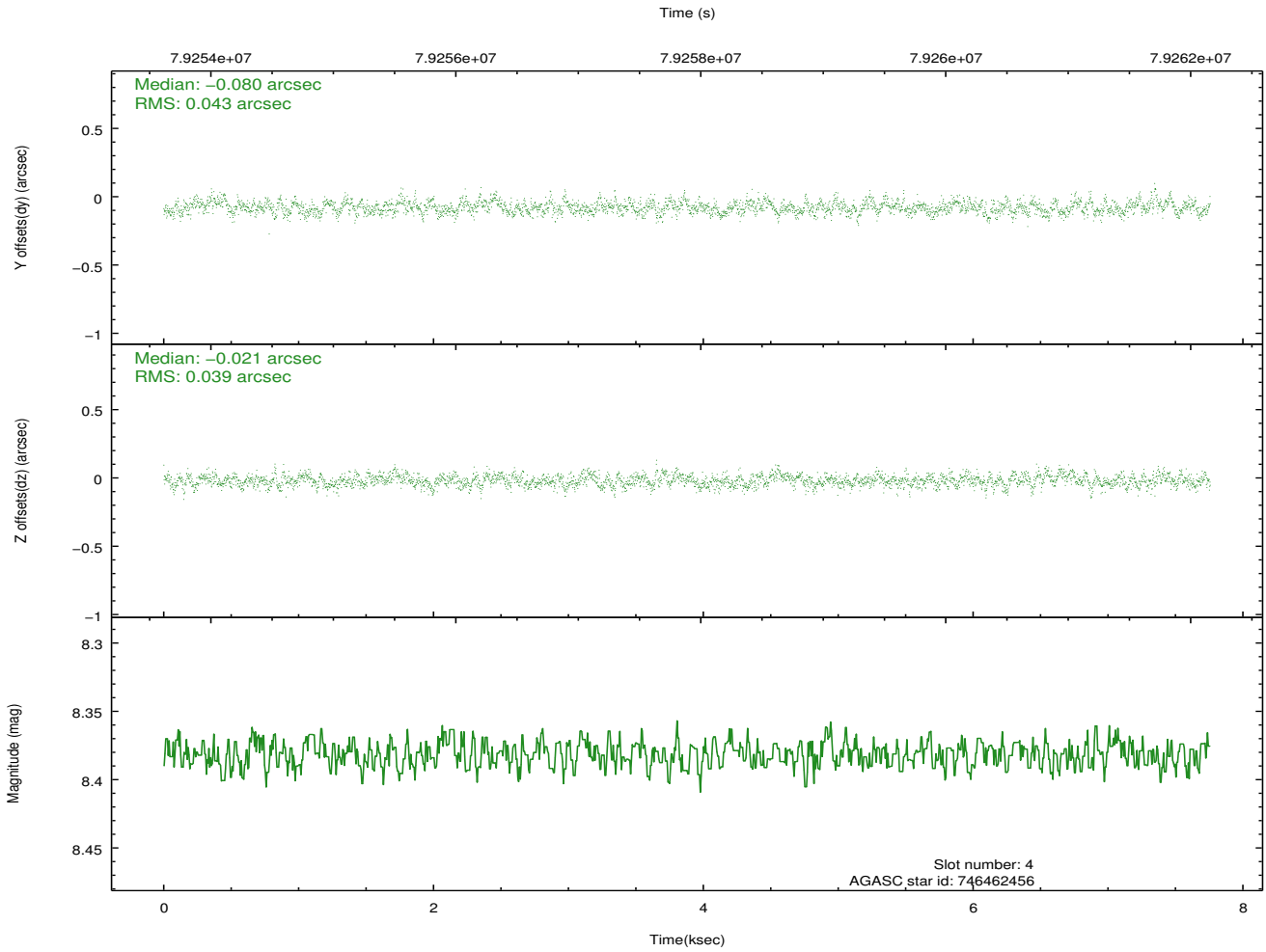
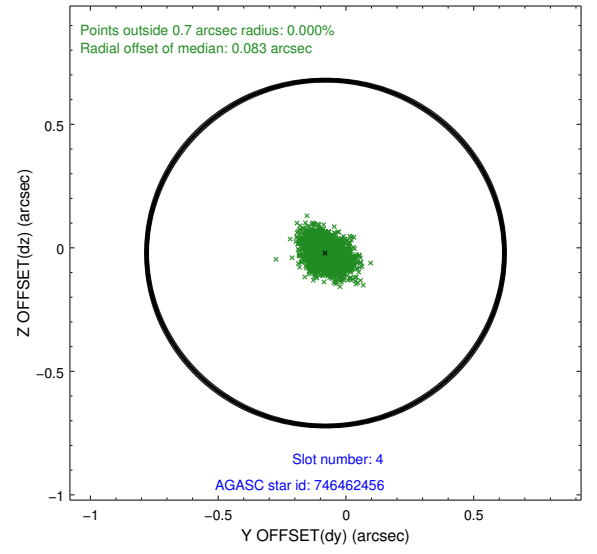
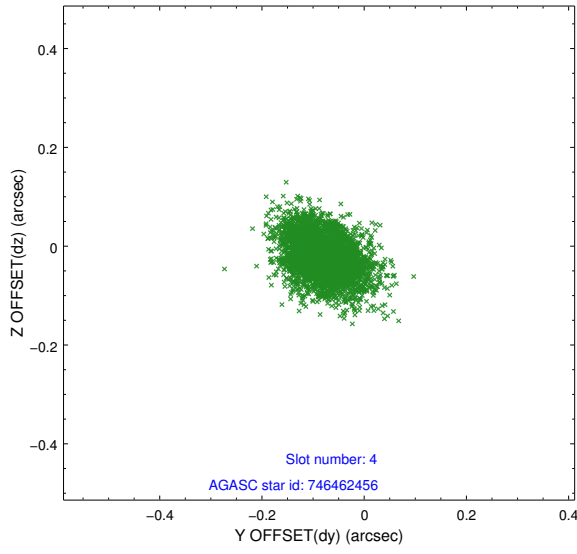
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.17	1893	-0.063	-0.061	0.009	0.015	0.000000	0.000000	-753.53	-982.39
1	FID	ACIS-I-4	7.15	1889	-0.005	0.058	0.006	0.011	0.000000	0.000000	2160.19	923.47
2	FID	ACIS-I-5	7.23	1892	-0.034	0.072	0.009	0.014	0.000000	0.000000	-1806.04	921.16
3	GUIDE	746455152	7.80	3784	-0.088	0.032	0.061	0.099	278.447893	-9.976732	-1293.78	-1695.23
4	GUIDE	746462456	8.38	3780	-0.080	-0.021	0.061	0.102	278.652171	-10.530173	-941.96	394.67
5	GUIDE	746455112	8.93	3782	0.200	-0.116	0.069	0.115	278.266531	-10.703234	552.76	265.20
6	GUIDE	746460328	9.81	3771	0.007	0.016	0.094	0.151	278.603974	-9.898096	-1914.63	-1668.81
7	GUIDE	746995400	9.48	3781	-0.034	0.091	0.098	0.159	278.078957	-11.289885	2168.01	1777.98

2.4 Star Slots

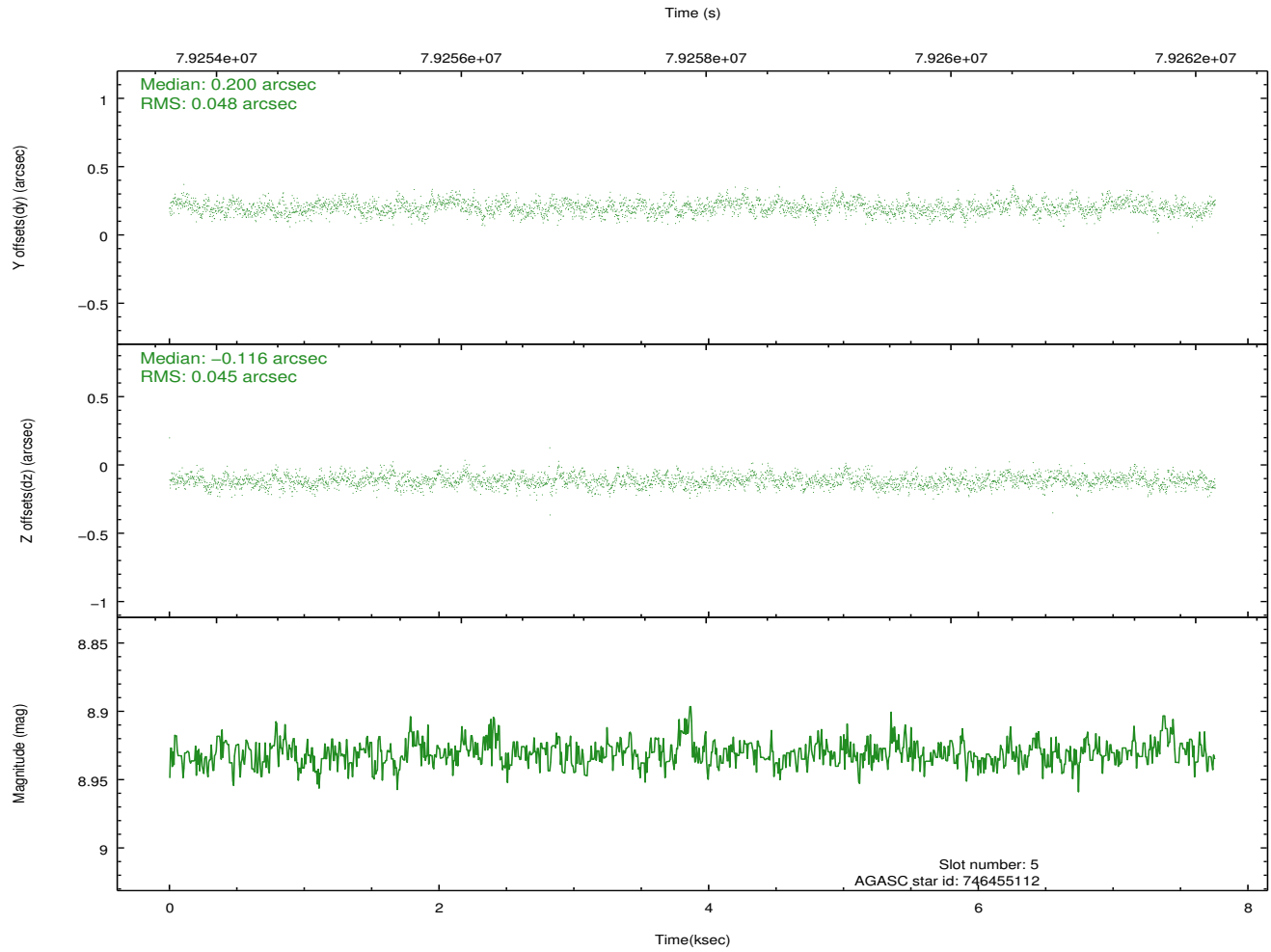
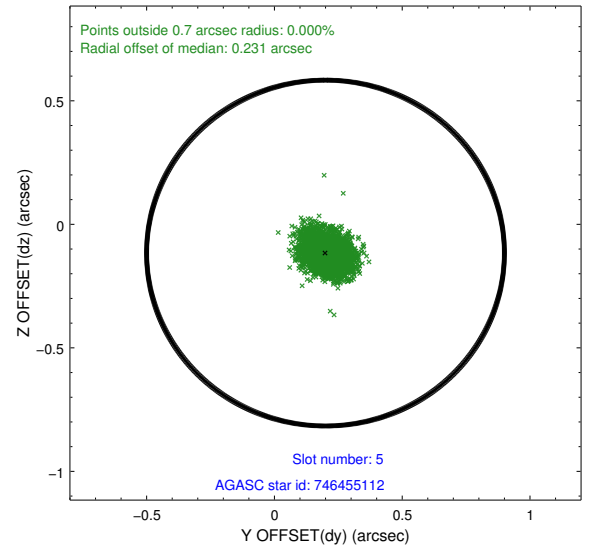
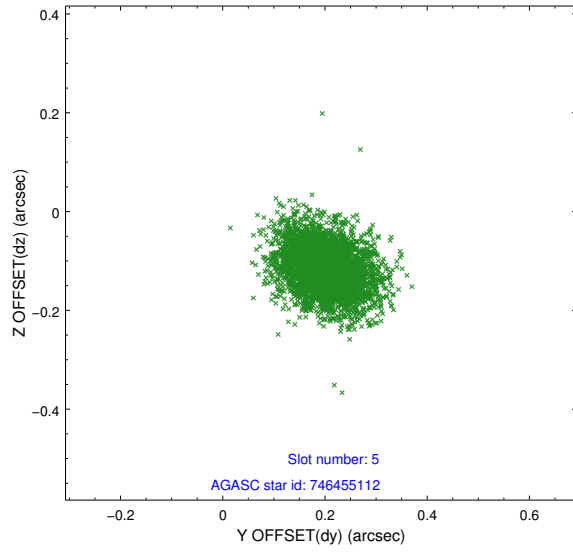
2.4.1 Slot 3



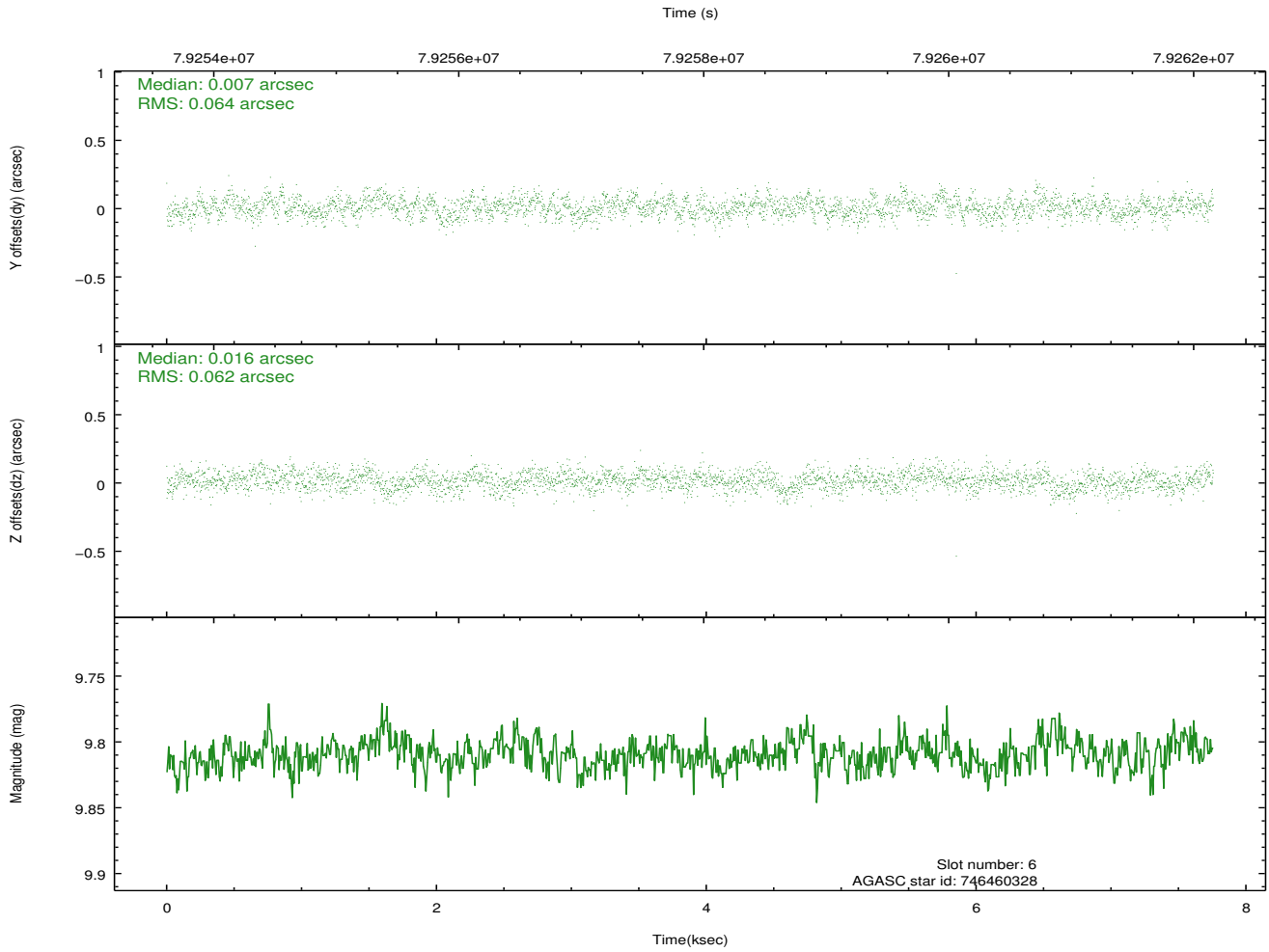
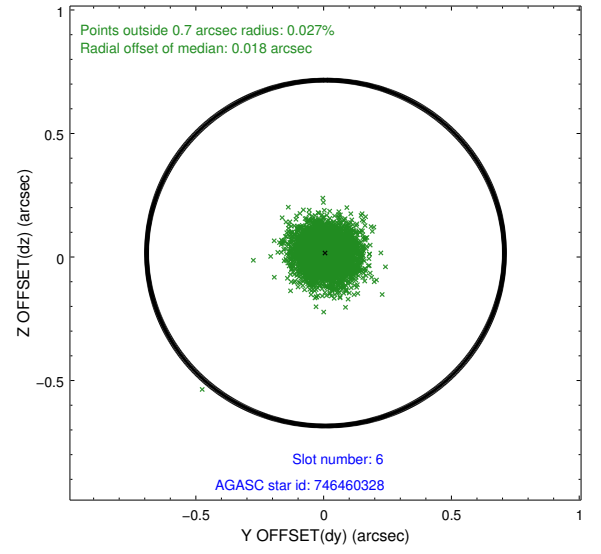
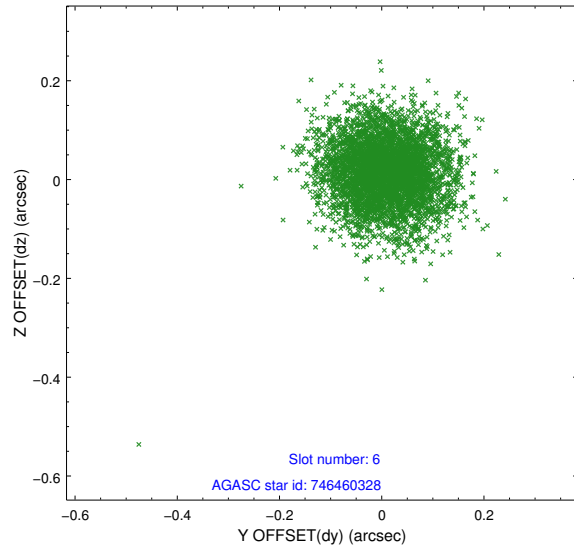
2.4.2 Slot 4



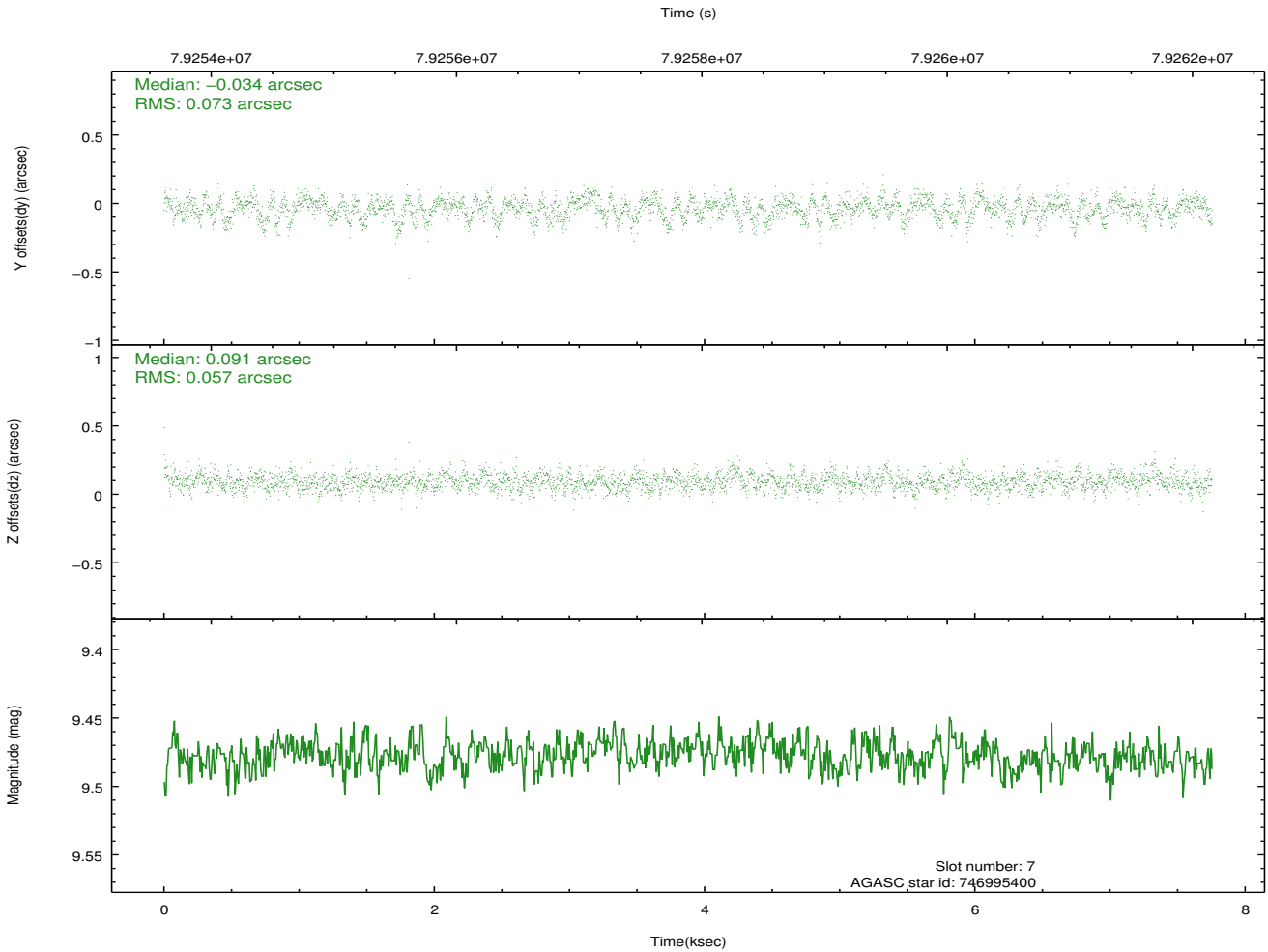
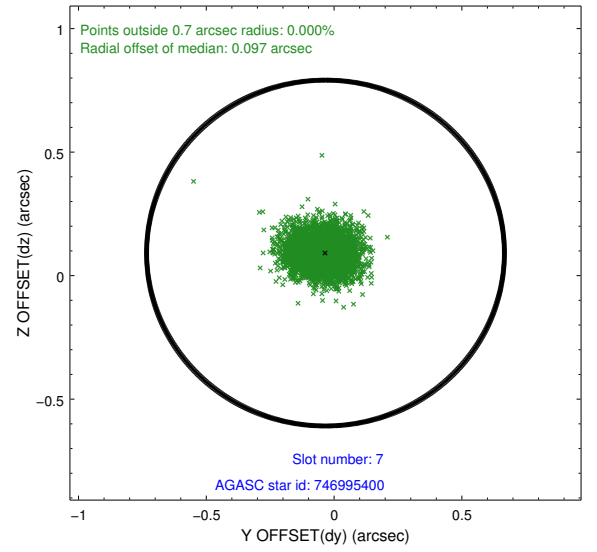
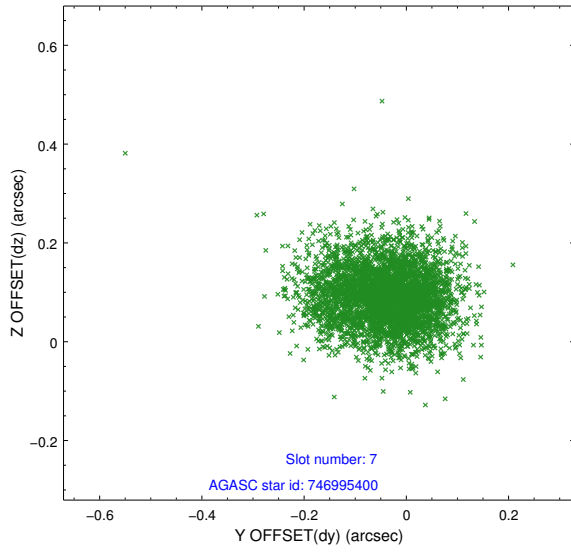
2.4.3 Slot 5



2.4.4 Slot 6

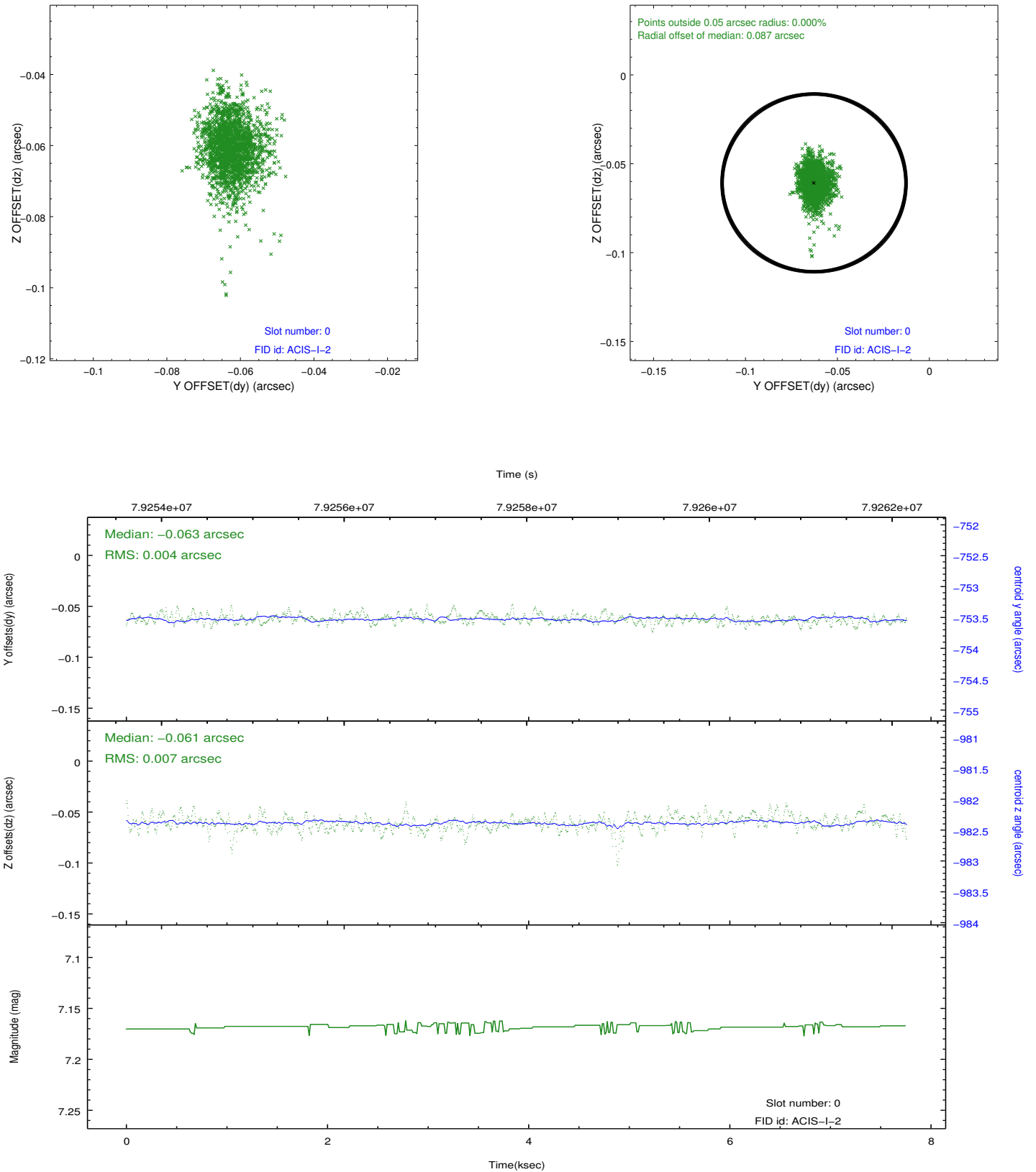


2.4.5 Slot 7

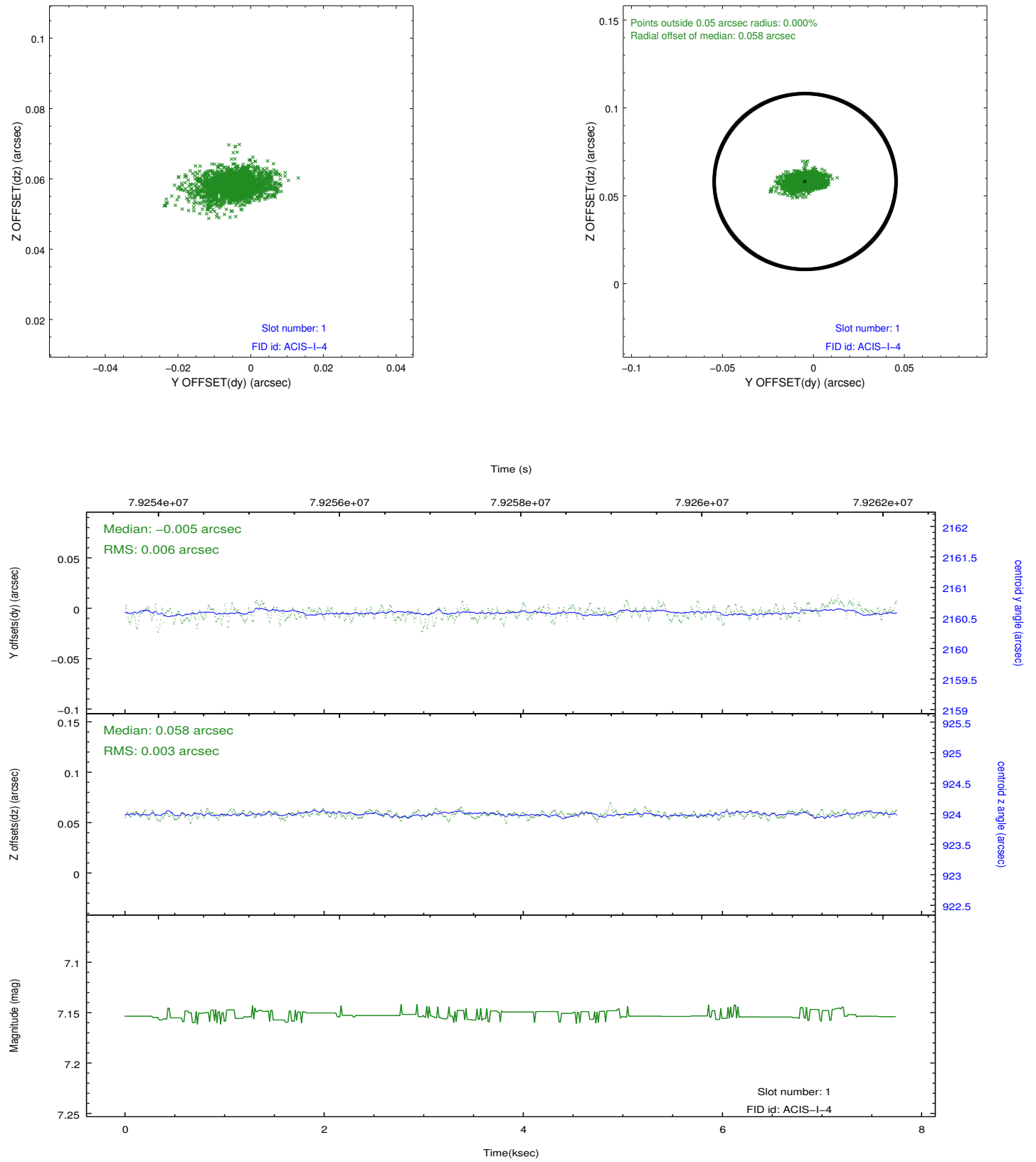


2.5 FID Slots

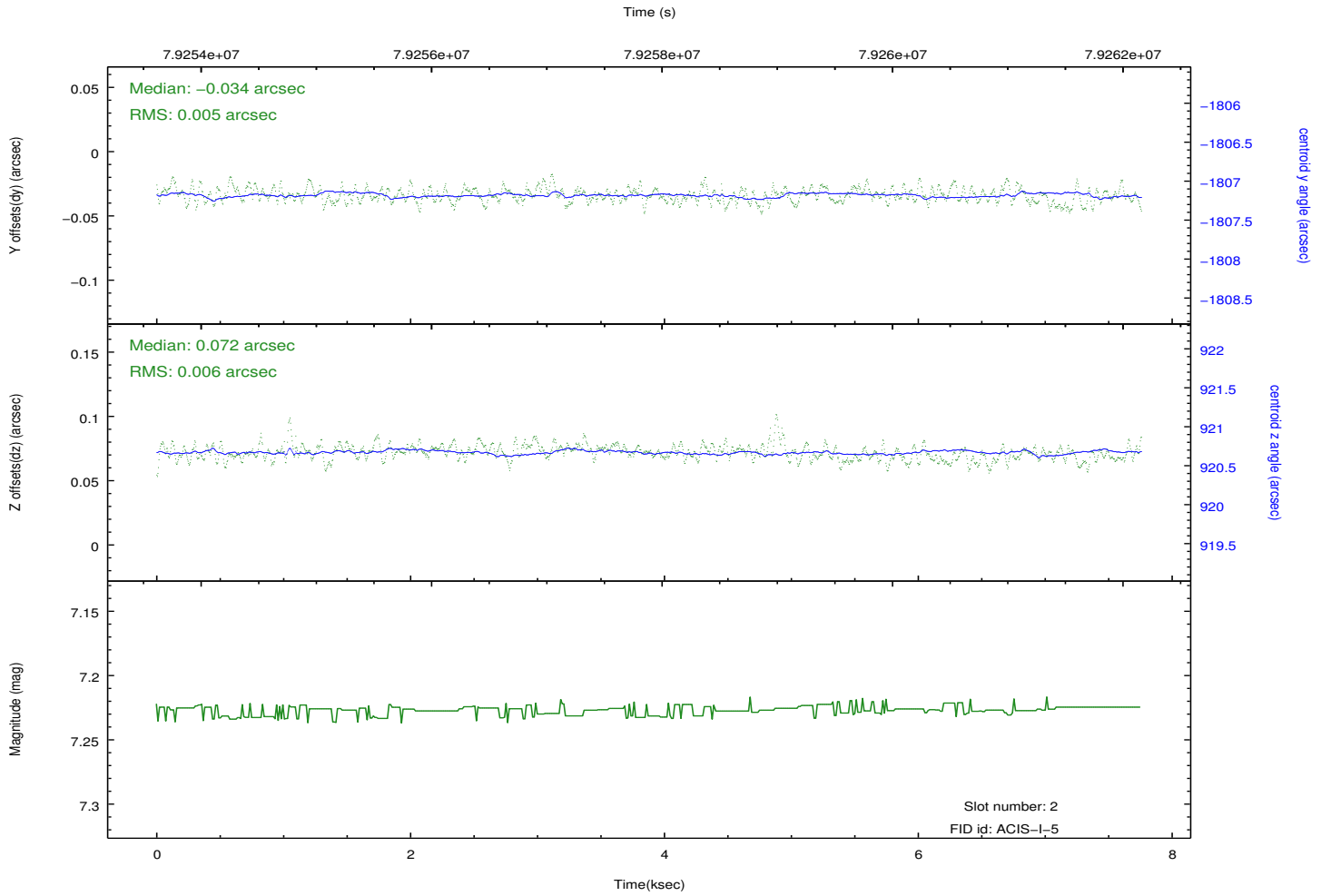
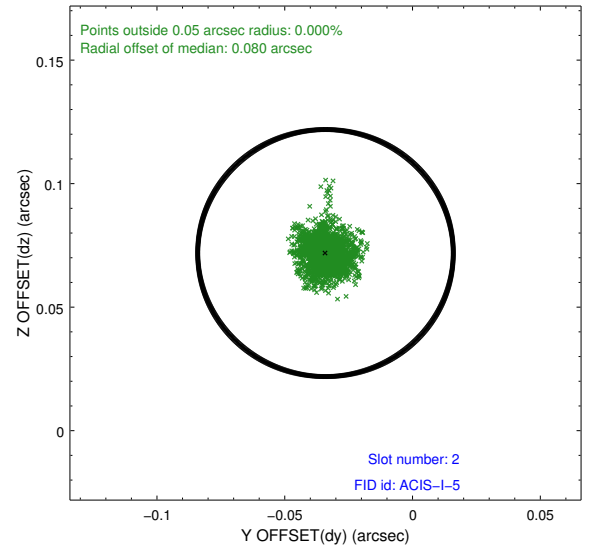
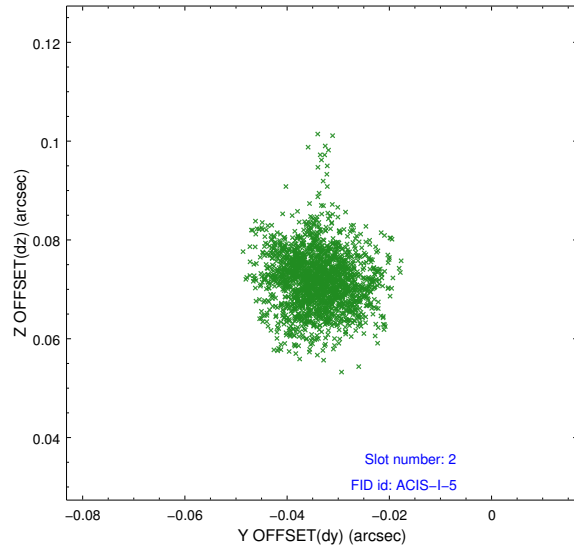
2.5.1 Slot 0



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.