

V&V Reference Report

L2 ASCDS Version : 10.8.1

Observation 22870 - L2 Version 1
Chandra X-Ray Center

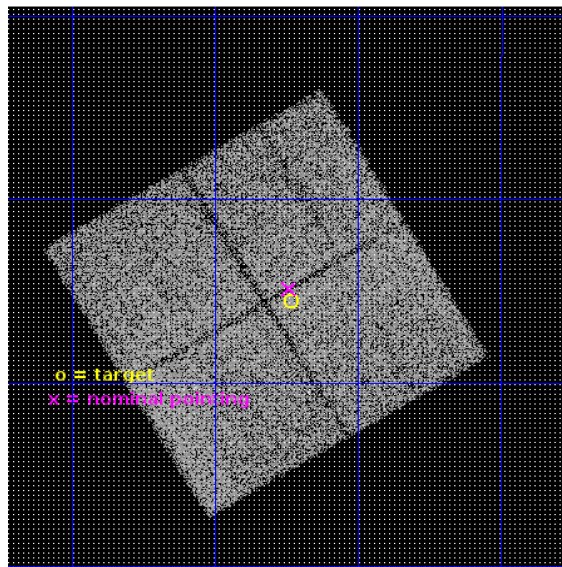
L2 Processing Date : Oct 14 2019

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1 Front

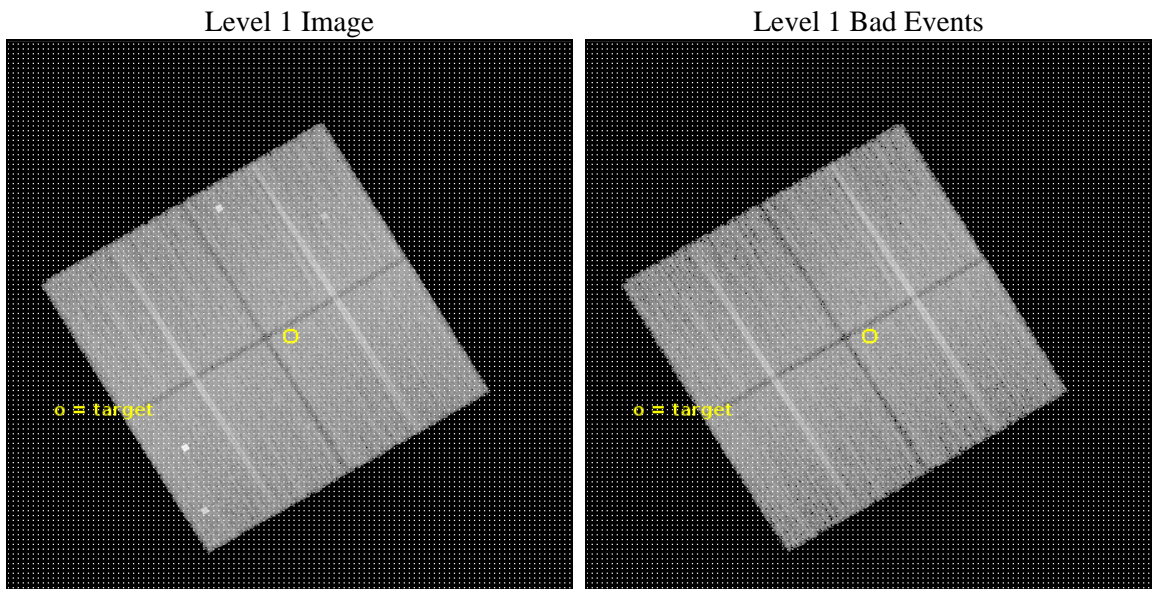
seq_num	703950	Sequence number
obs_id	22870	Observation id
title	Unveiling the AGN population in the highest redshift, mature, massive galaxy cluster	Proposal title
observer	Emil Noordeh	Principal investigator
object	XLSSC 122	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	34.433	Observer's specified target RA [deg]
dec_targ	-3.759	Observer's specified target Dec [deg]
ra_nom	34.435113488118	Nominal RA [deg]
dec_nom	-3.747940874457	Nominal Dec [deg]
roll_nom	59.20879562664	Nominal Roll [deg]
revision	1	Processing version of data
ontime	32236.031610727	Sum of GTIs [s]
livetime	31814.844125912	Livetime [s]
ontime0	32235.908490777	Sum of GTIs [s]
ontime1	32229.667289495	Sum of GTIs [s]
ontime2	32235.990570784	Sum of GTIs [s]
ontime3	32236.031610727	Sum of GTIs [s]
l2events	92258	Number of level 2 events



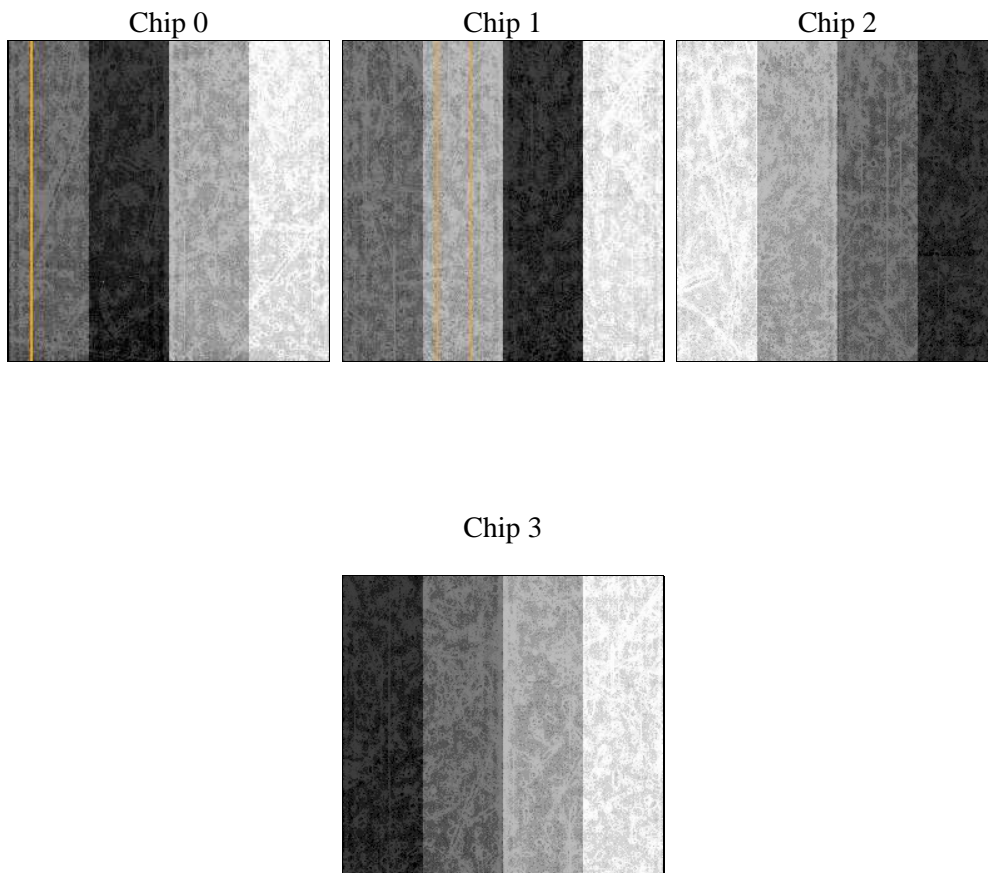
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	32154.000000	[s] Scheduled observation exposure time
ascdsver	10.8.1	Processing system revision	ontime	32236.031610727	Sum of GTIs [s]
caldbver	4.8.4.2	 	ontime0	32235.908490777	Sum of GTIs [s]
date	2019-10-14T13:07:42	Date and time of file creation	ontime1	32229.667289495	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	32235.990570784	Sum of GTIs [s]
			ontime3	32236.031610727	Sum of GTIs [s]
			l1events	983635	Number of level 1 events

2.1.4 Events

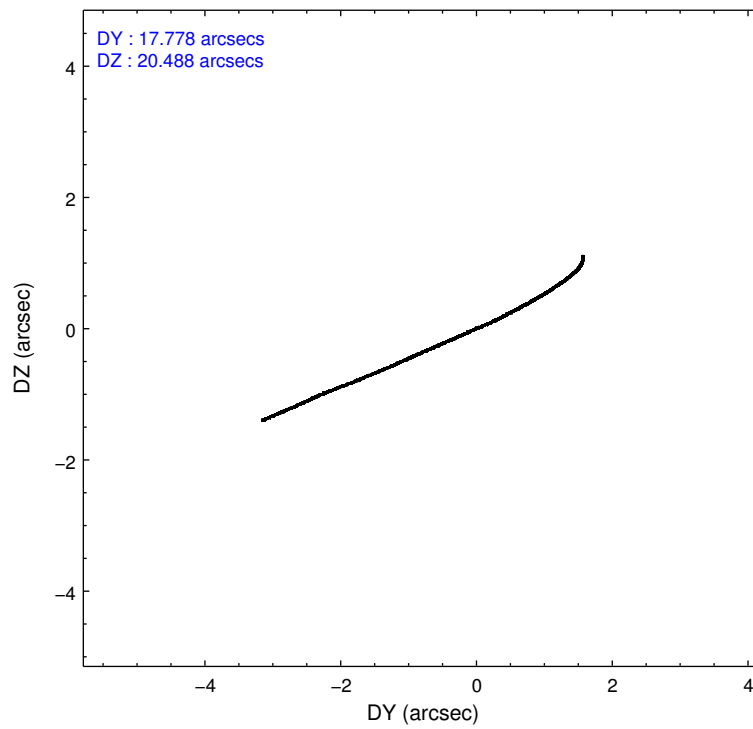
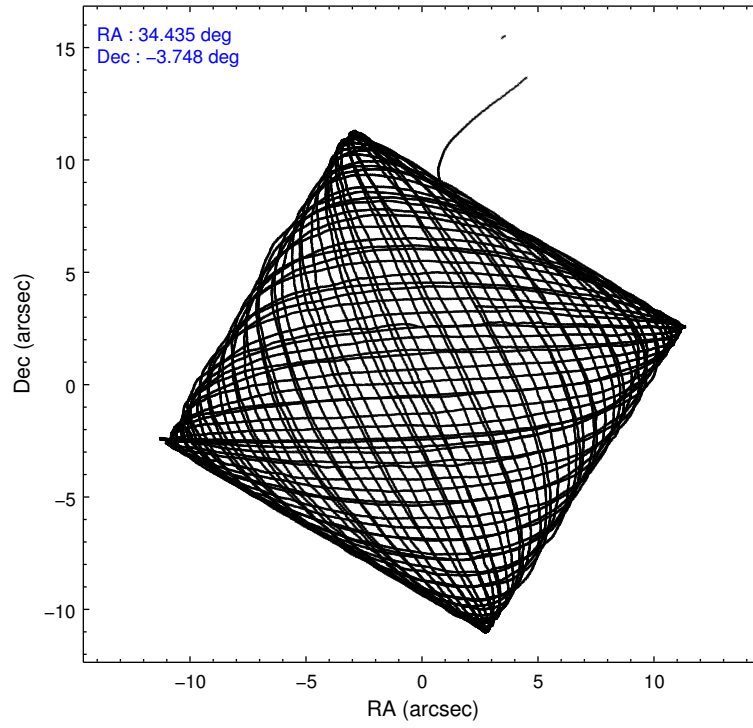
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	235483	245990	259294	242868
rejected events	207882	207324	228717	217222
rejected %	88%	84%	88%	89%

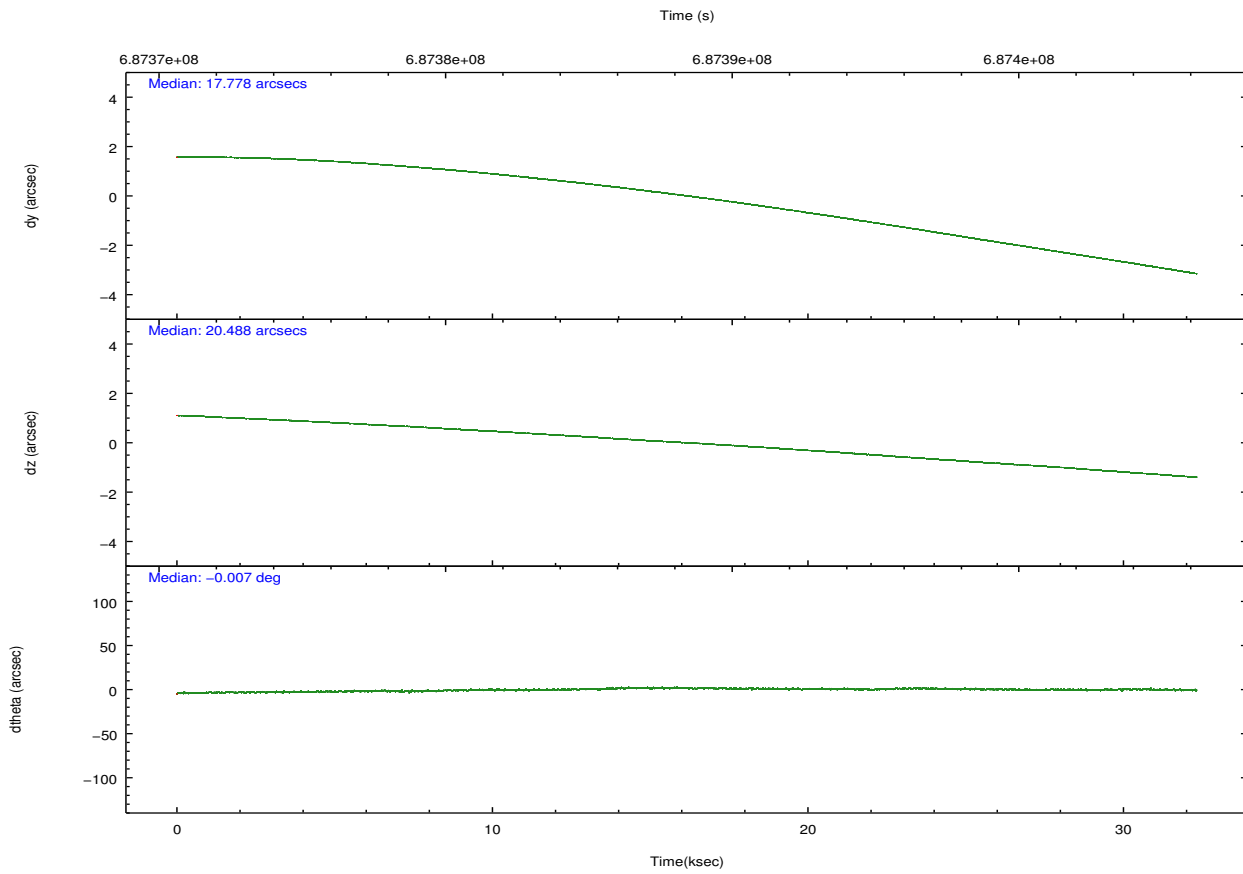
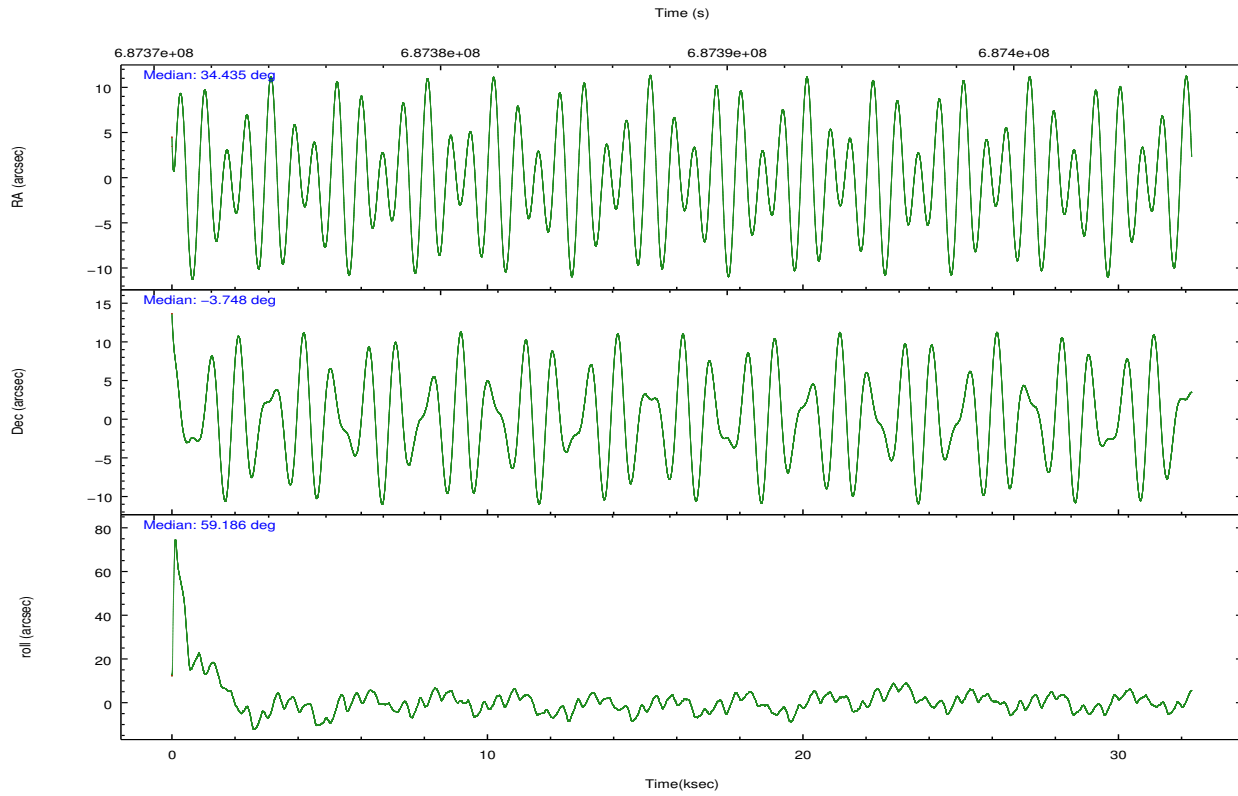
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	9112	18009	13150	8807
	3%	7%	5%	3%
grade 1 events	140	166	152	131
	0%	0%	0%	0%
grade 2 events	7092	8168	6590	5752
	3%	3%	2%	2%
grade 3 events	2758	2698	2623	2692
	1%	1%	1%	1%
grade 4 events	2418	2561	2714	2671
	1%	1%	1%	1%
grade 5 events	10359	10468	9899	11656
	4%	4%	3%	4%
grade 6 events	6226	7236	5504	5726
	2%	2%	2%	2%
grade 7 events	197378	196684	218662	205433
	83%	79%	84%	84%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-0123	ACIS-0123	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	34.434815	34.43511348811772	CCD I2 on	Y	Y
[deg] Pointing Dec	-3.775554	-3.747940874456968	CCD I3 on	Y	Y
[deg] Pointing Roll	59.000120	59.20879562663958	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	N
[mm] SIM translation stage pos	-231.592463	-231.5960967419932	CCD S3 on	N	N
[mm] SIM translation stage offset	-2	-1.996356260936523	CCD S4 on	N	N
[s] Observation start time (MET)	687372438.184000	687371208.892	CCD S5 on	N	N
Observation start date	2019-10-13T16:46:09	2019-10-13T16:26:48	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	687404592.184000	687405269.13155	On-chip summing requested	N	N
Observation end date	2019-10-14T01:42:03	2019-10-14T01:54:29	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect





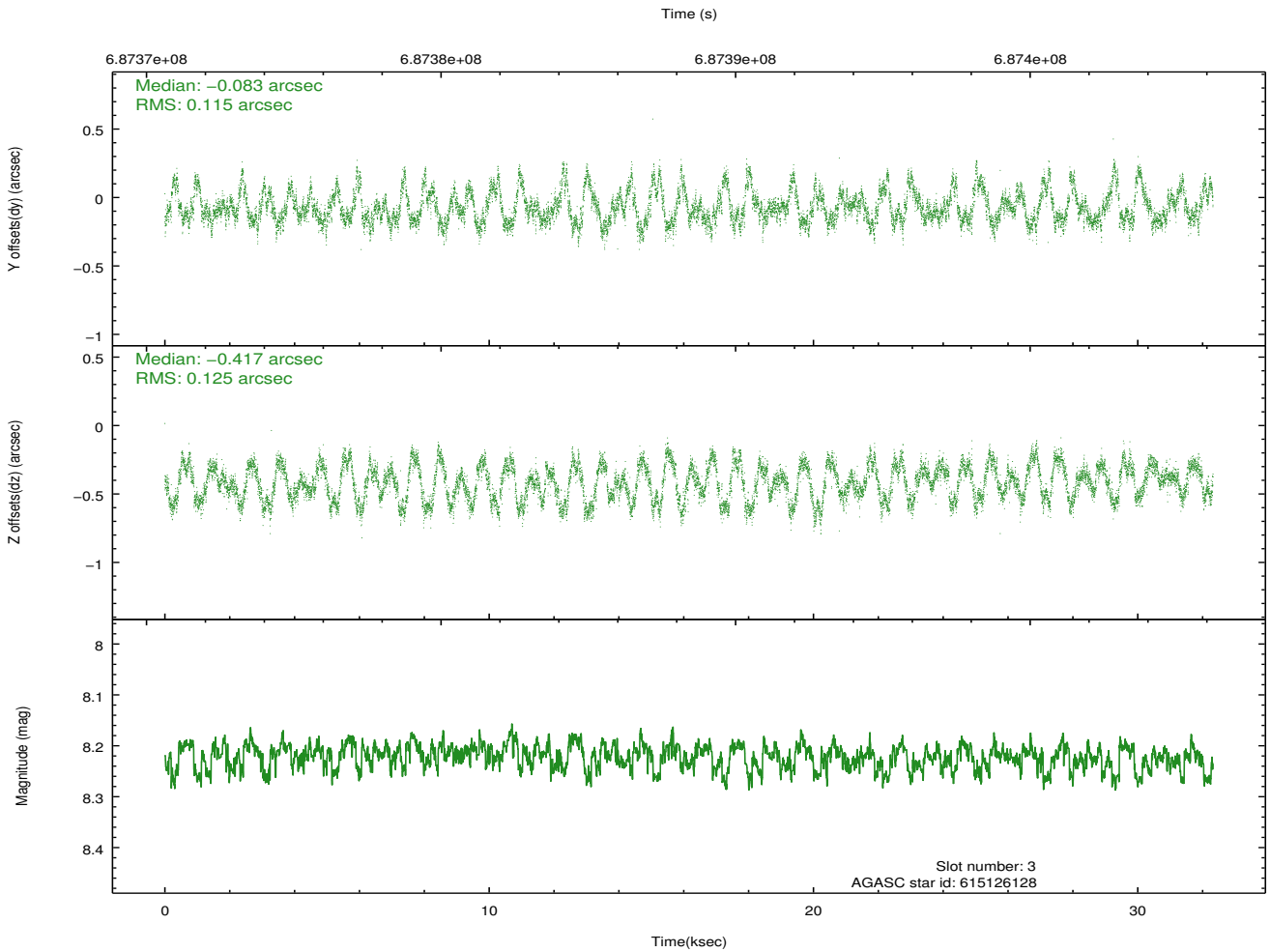
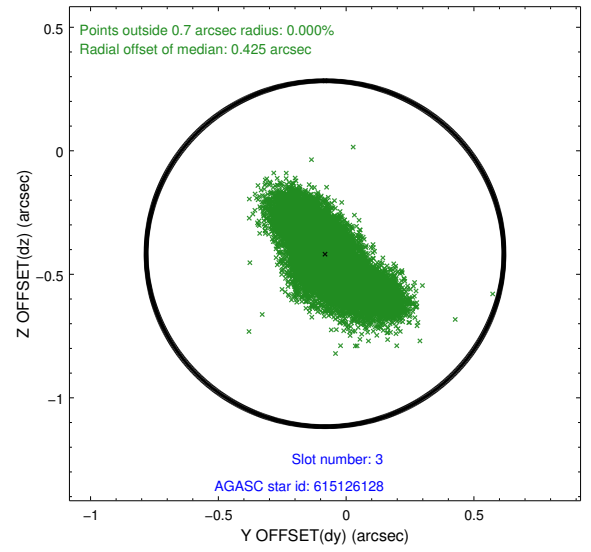
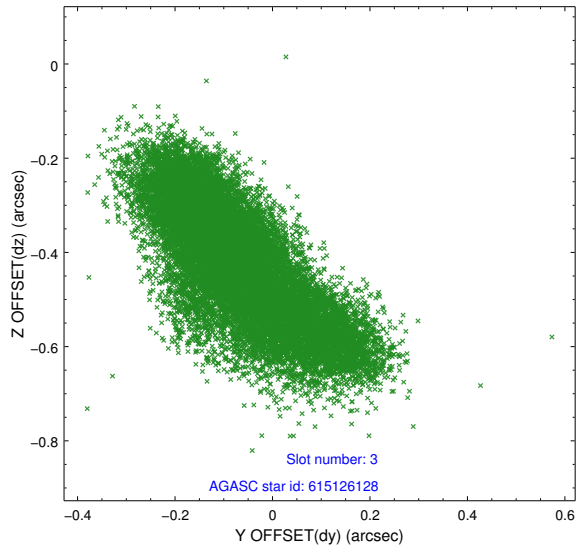
Slot Statistics

slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-1	7.20	7883	1.000	0.118	-0.143	0.033	0.061	0.000000	0.000000	922.03	-885
1	FID		ACIS-I-5	7.17	7884	1.000	-0.554	0.009	0.014	0.043	0.000000	0.000000	-1826.87	1012
2	FID		ACIS-I-6	7.21	7884	1.000	0.334	0.204	0.030	0.061	0.000000	0.000000	387.51	1657
3	GUIDE	used	615126128	8.22	15754	1.000	-0.083	-0.417	0.182	0.303	34.026050	-3.868420	-1042.36	1086
4	GUIDE	used	615128304	8.56	15750	1.000	0.065	-0.041	0.146	0.224	34.566287	-4.097564	-747.46	-1001
5	GUIDE	used	615129592	8.86	15748	1.000	0.023	0.375	0.178	0.290	34.607456	-4.334536	-1404.32	-1567
6	GUIDE	used	615129680	8.98	15747	1.000	-0.007	0.305	0.231	0.364	34.462822	-4.356201	-1738.42	-1161
7	GUIDE	used	615129992	8.39	15751	1.000	-0.022	-0.218	0.146	0.232	33.989595	-4.095121	-1808.06	774

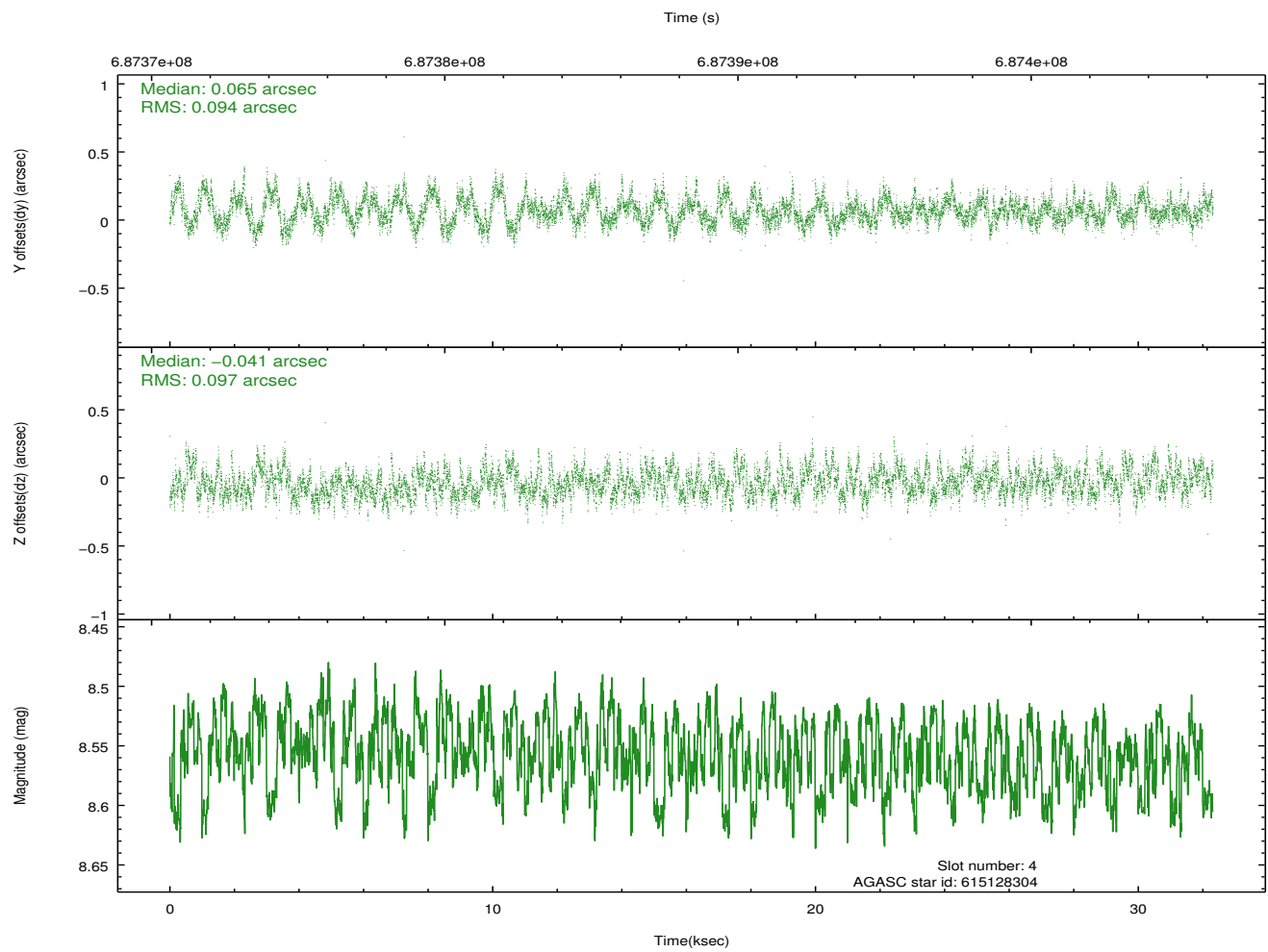
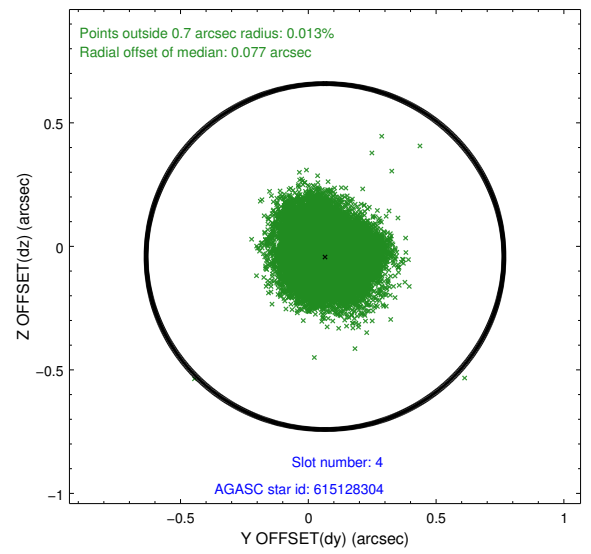
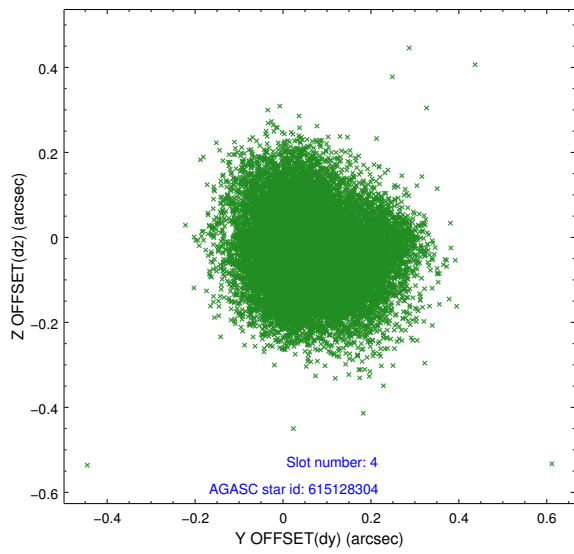
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2.4 Star Slots

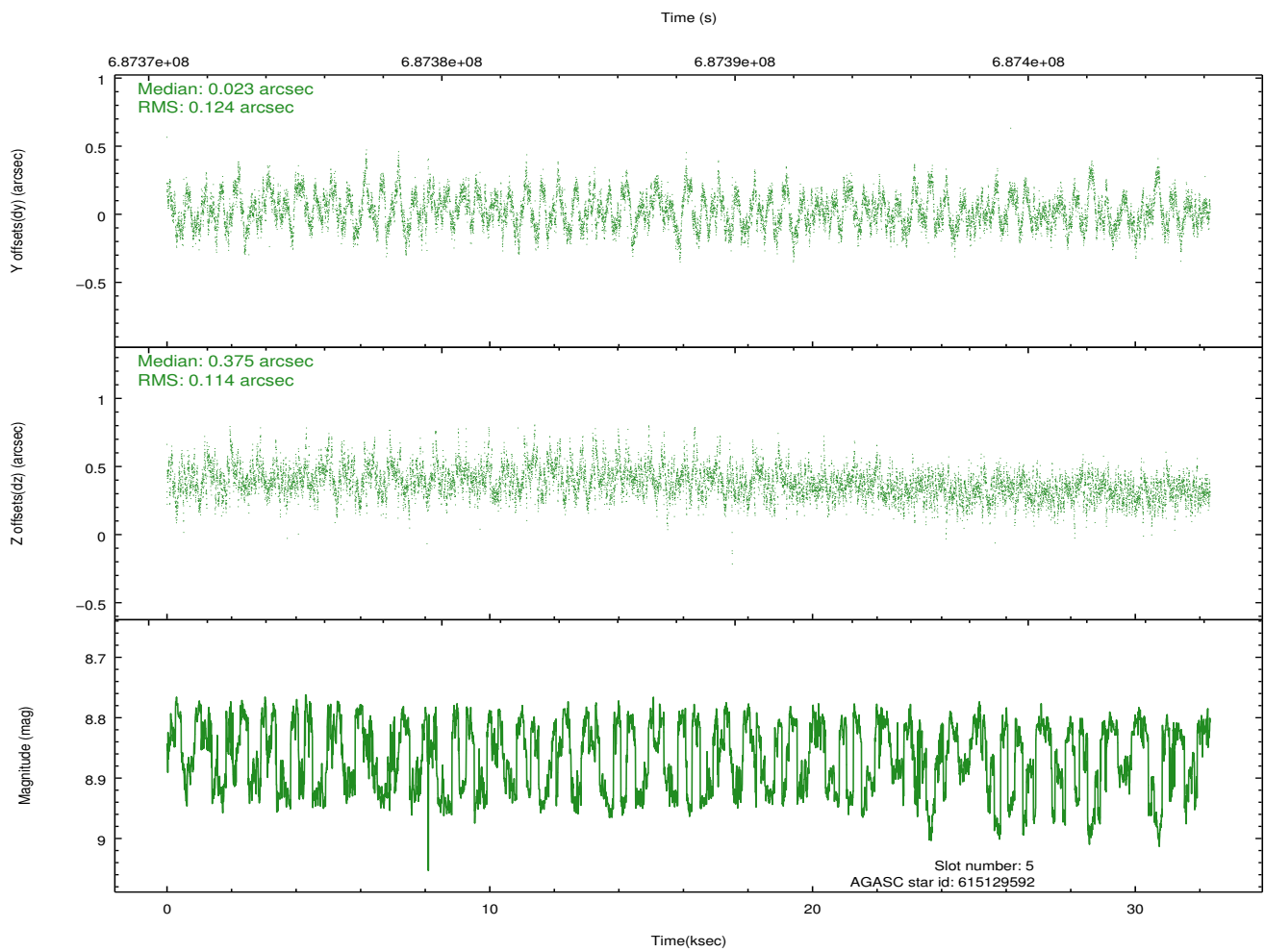
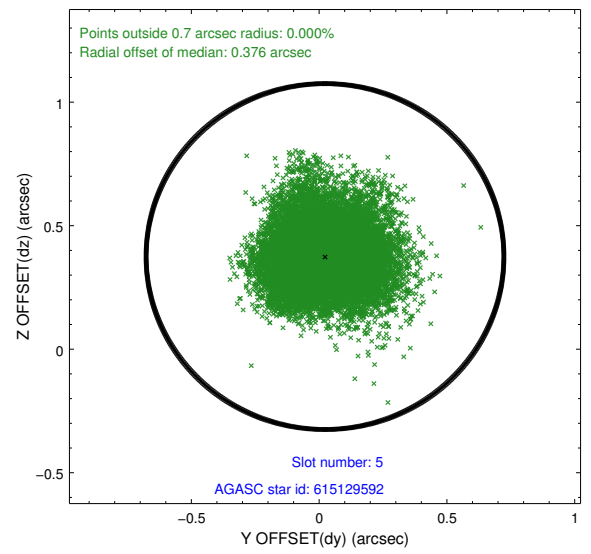
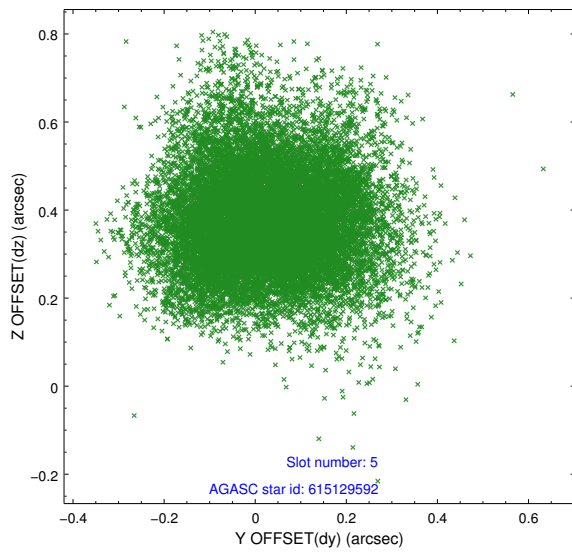
2.4.1 Slot 3



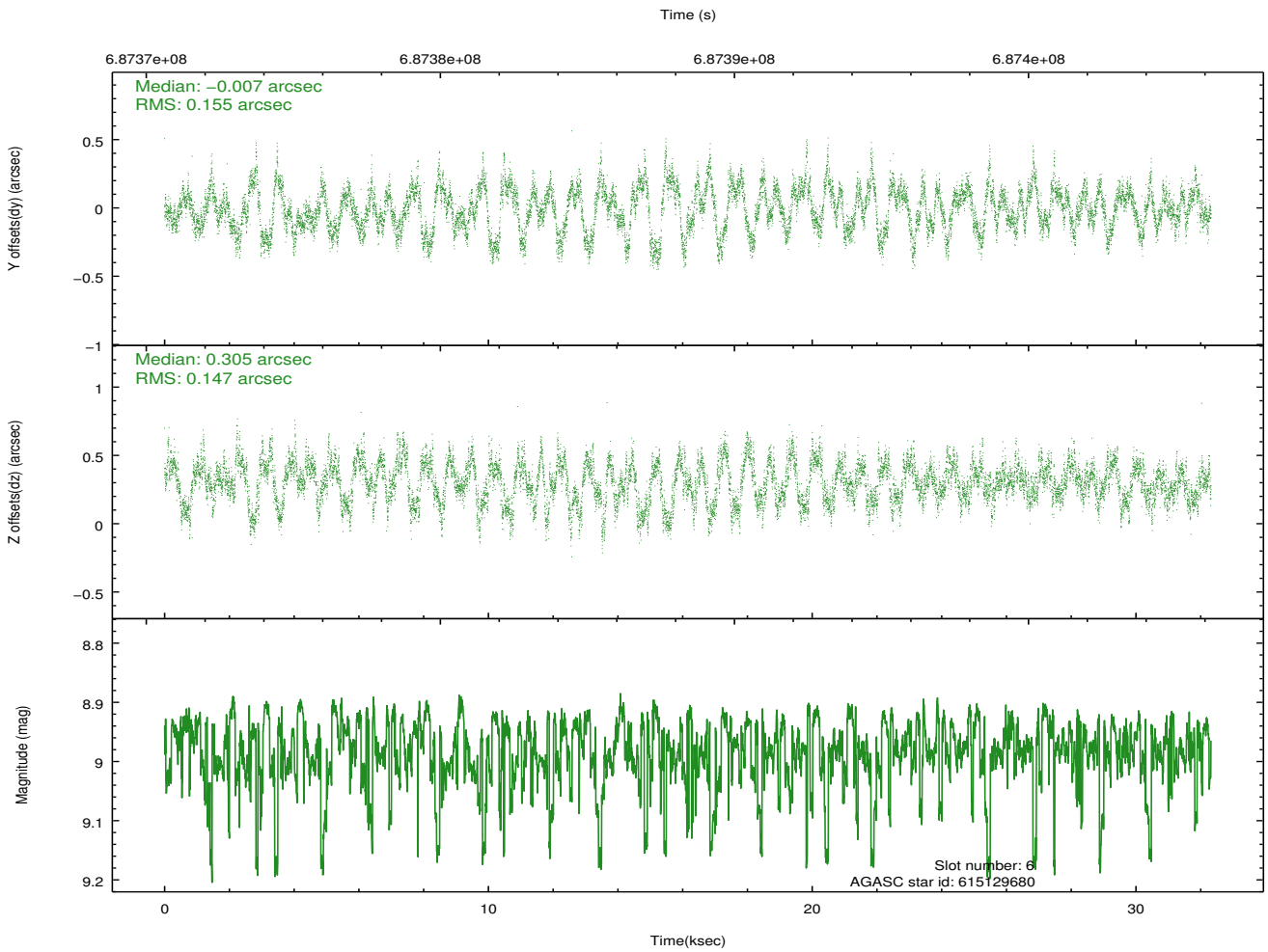
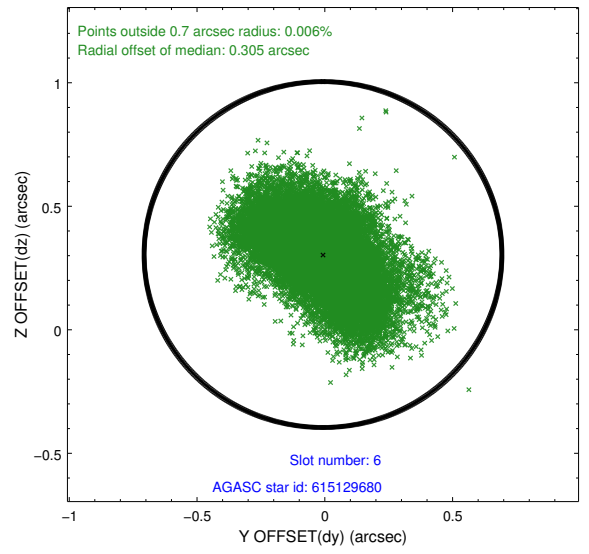
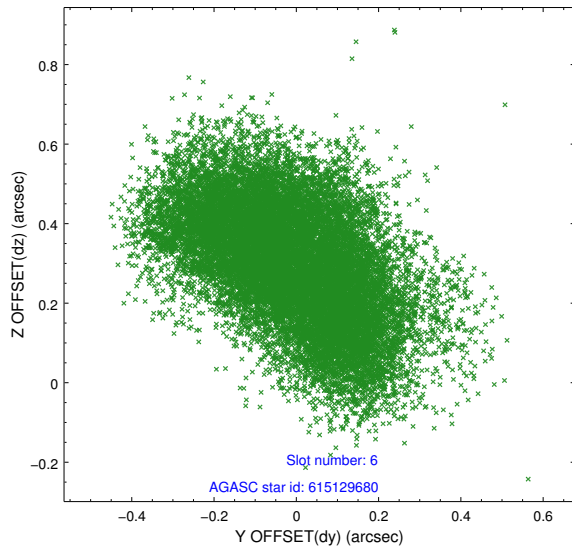
2.4.2 Slot 4



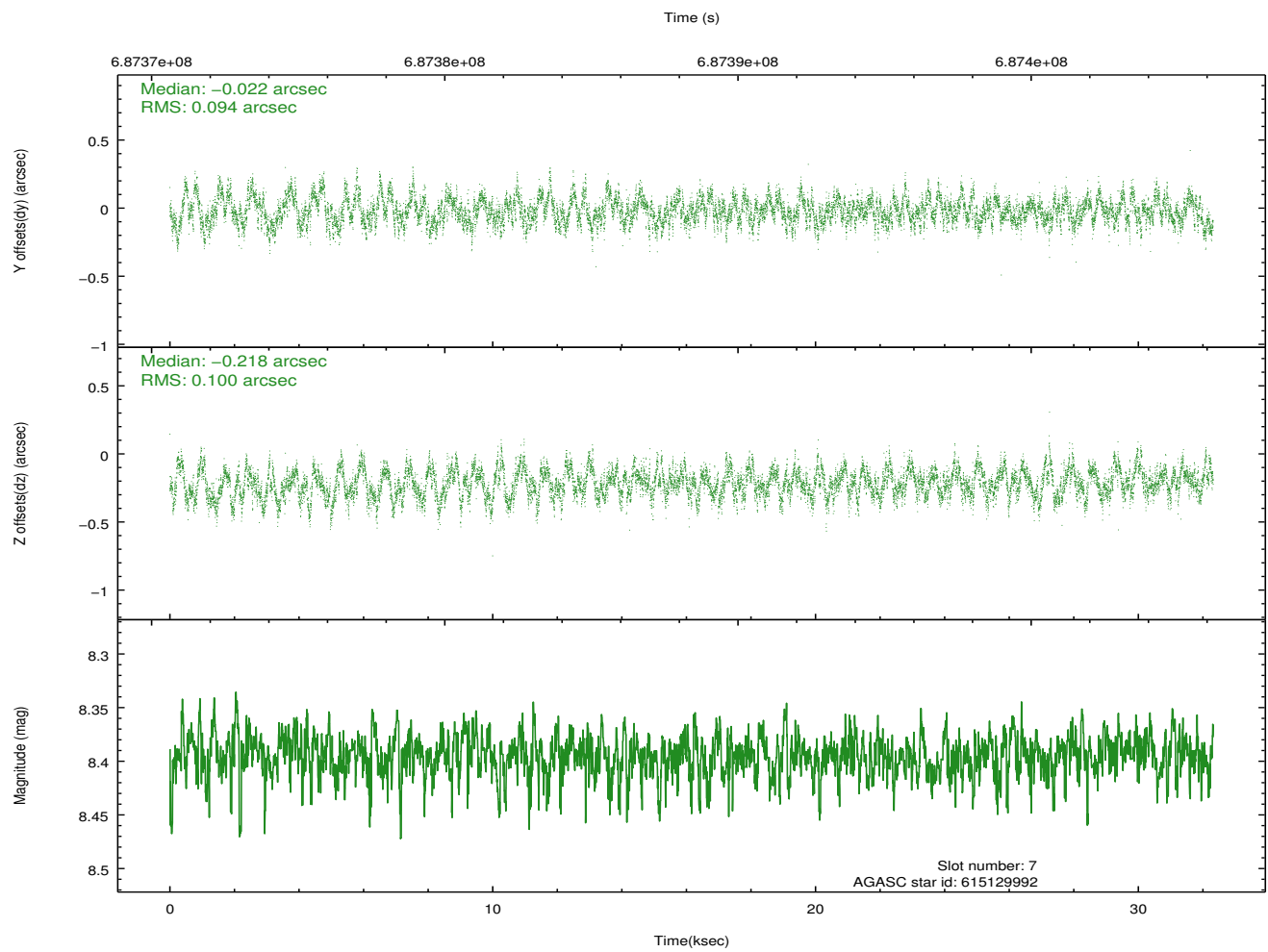
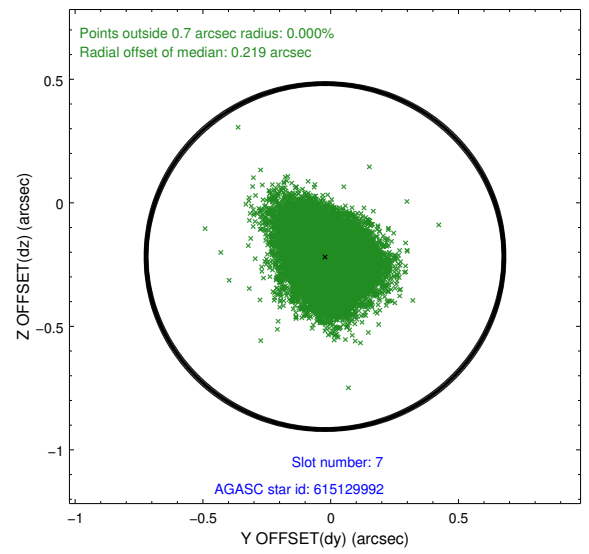
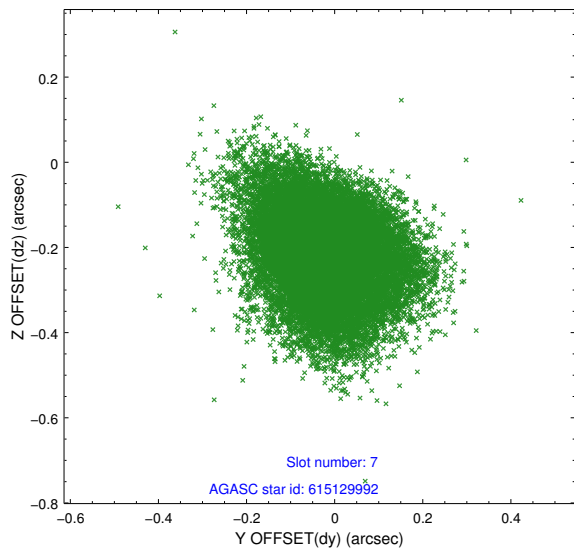
2.4.3 Slot 5



2.4.4 Slot 6

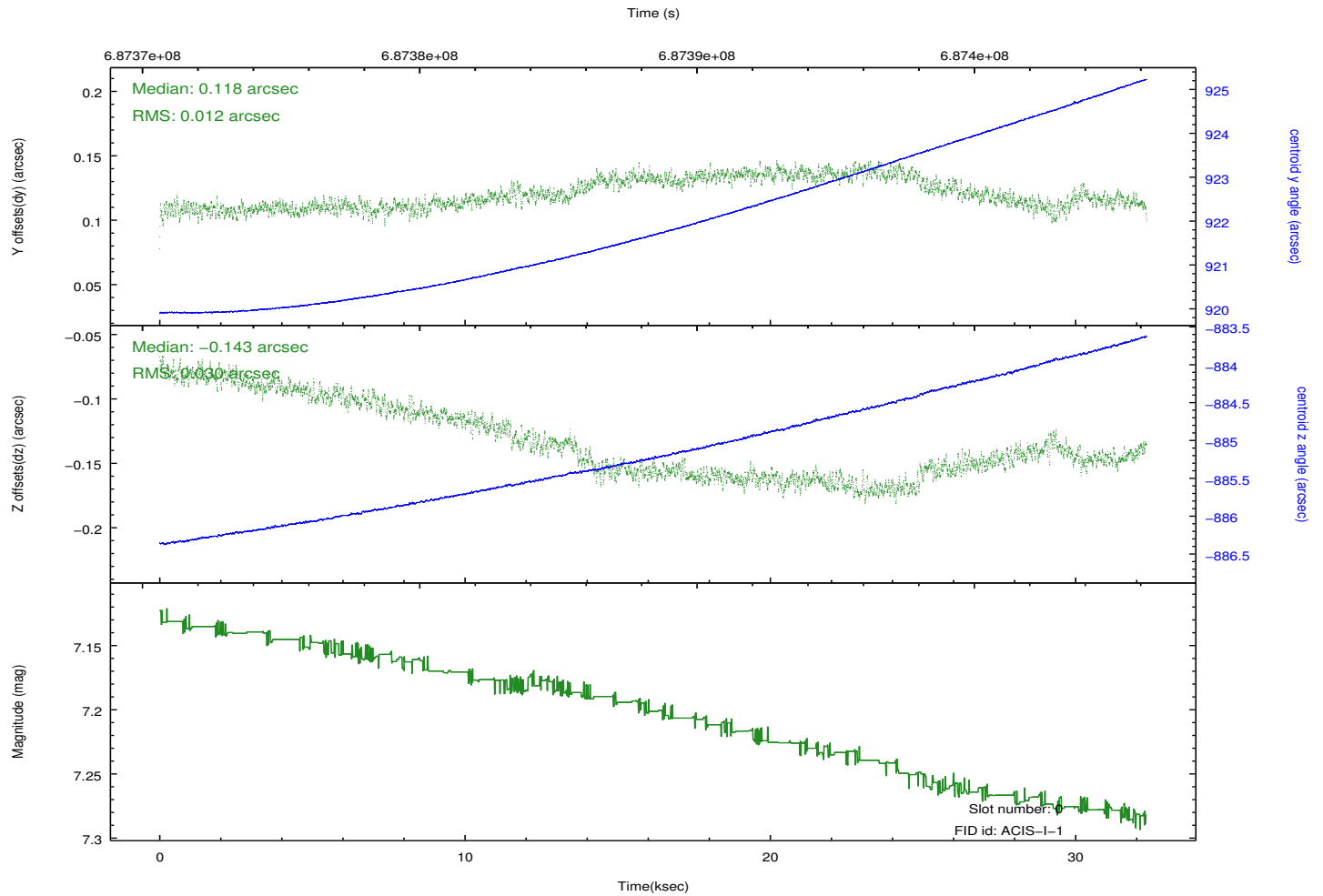
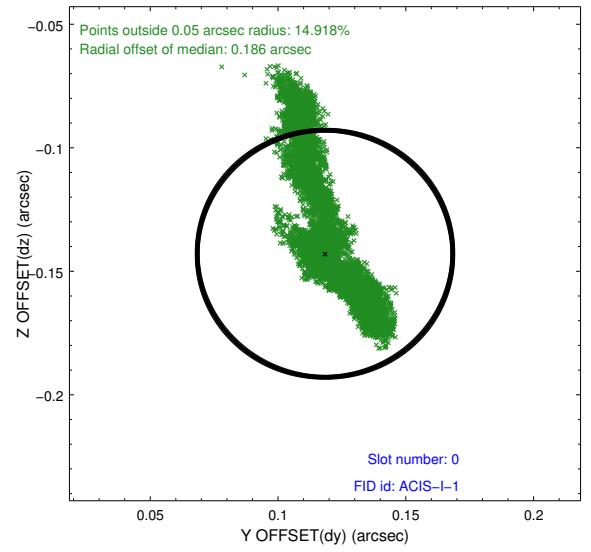
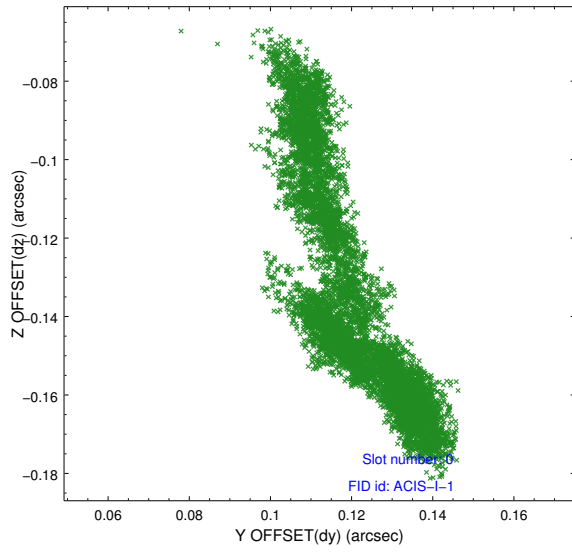


2.4.5 Slot 7

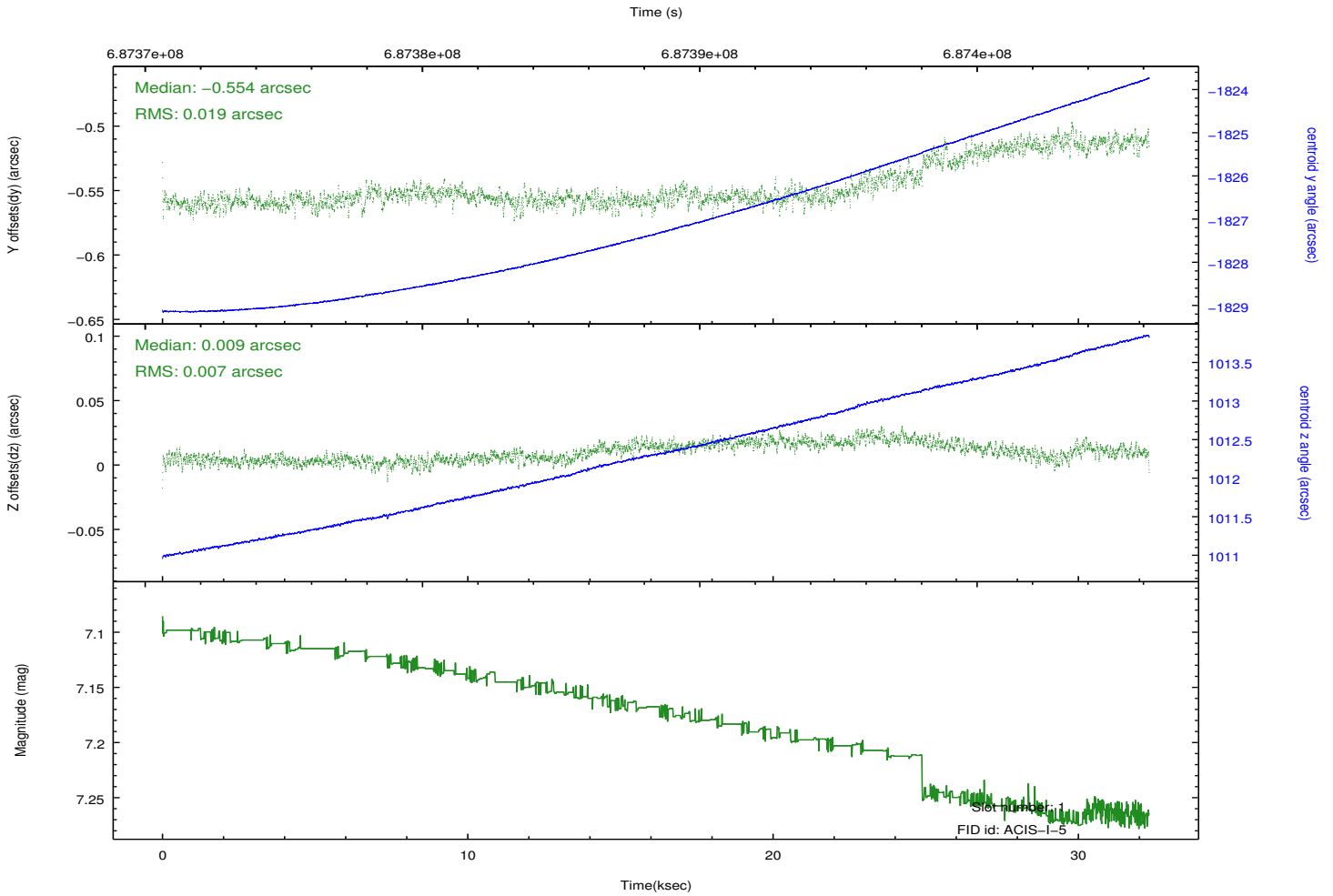
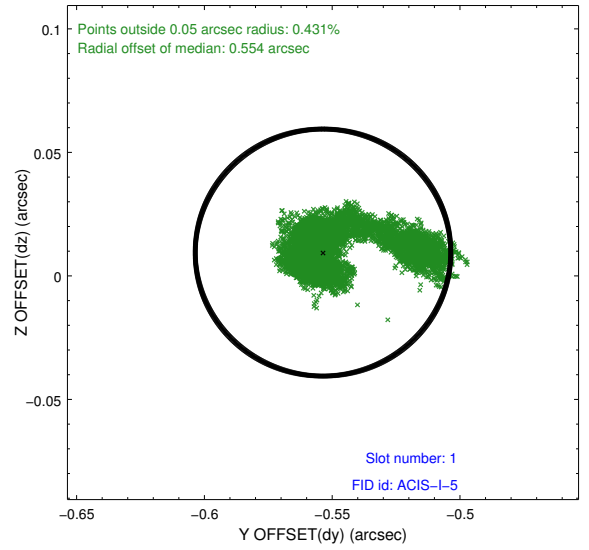
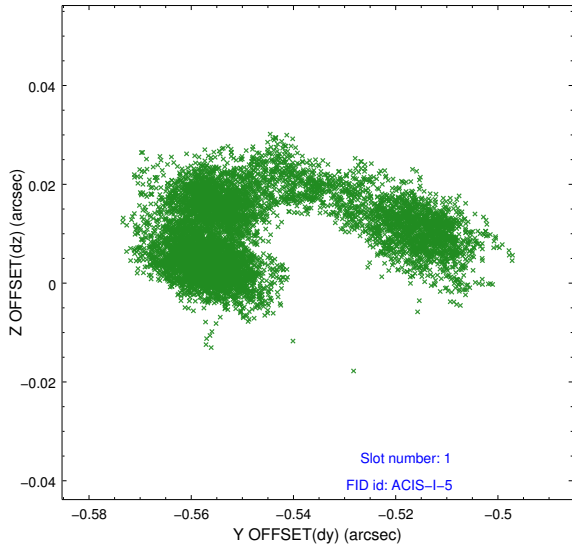


2.5 FID Slots

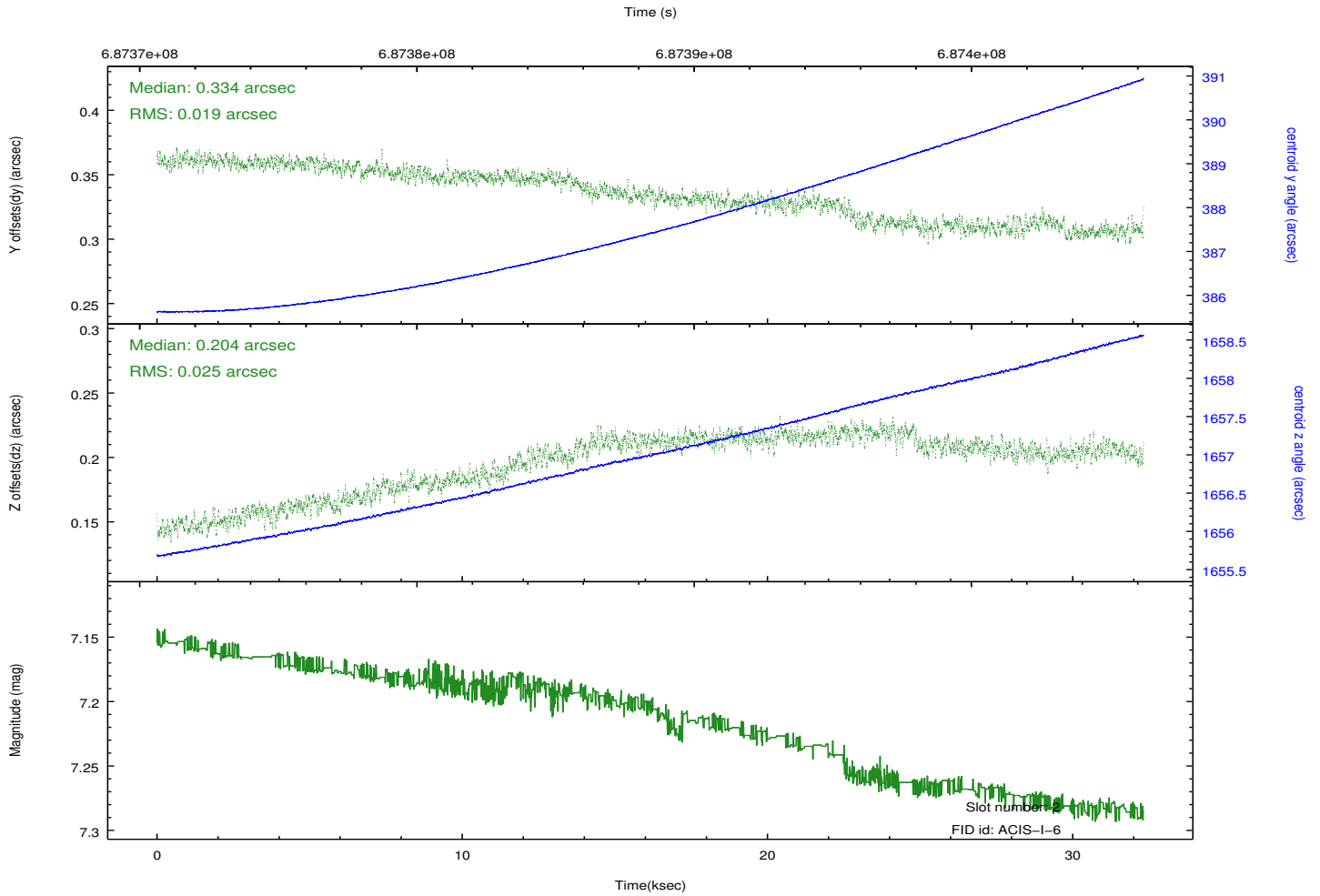
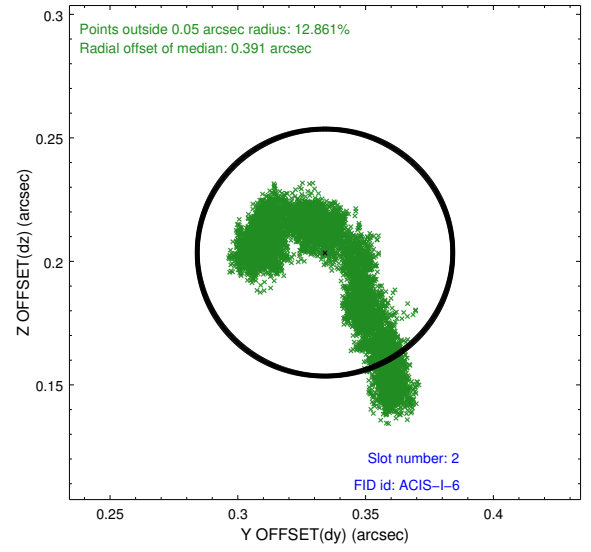
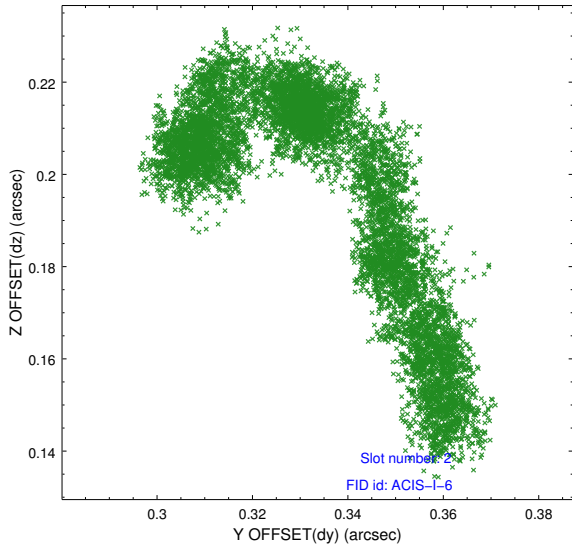
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2019.10.15
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	32.236031610727

A.2 Comments

Optional chip S2 not included

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Comment for FP temp violation

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The focal plane temperature during the interval 687402898.64 - 687404585.04 (MET s) of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -112.0 C for ACIS-I).

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.

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