

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21568 - L2 Version 1
Chandra X-Ray Center

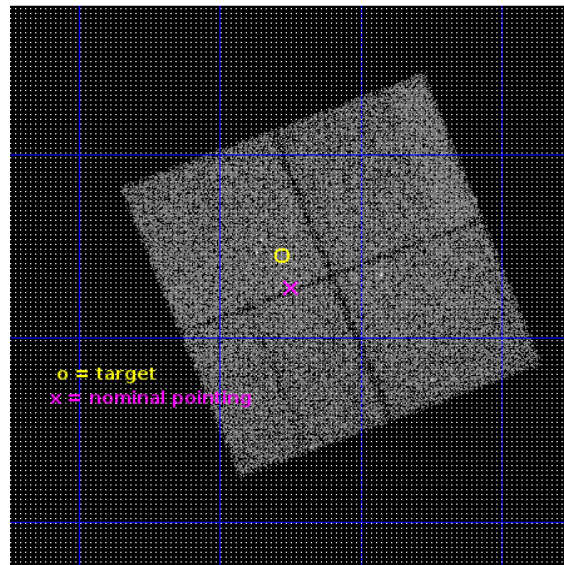
L2 Processing Date : May 12 2019

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1 Front

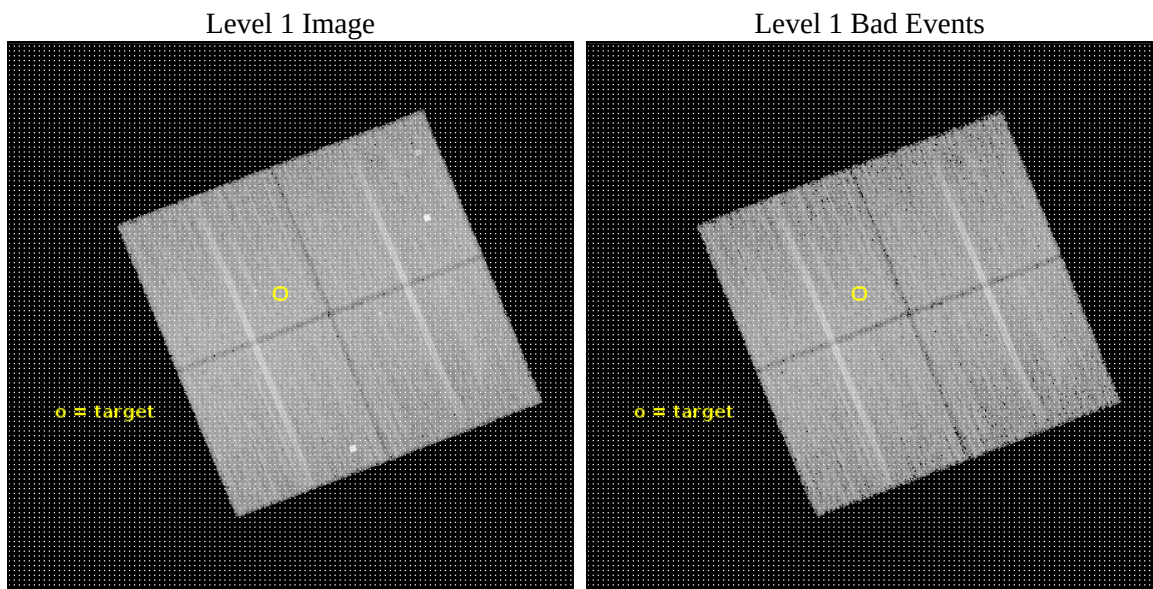
seq_num	801846	Sequence number
obs_id	21568	Observation id
title	Characterizing the most X-ray luminous galaxy clusters at z=0.5-1	
observer	Harald Ebeling	Principal investigator
object	eMACSJ1350.7-1055	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	207.694167	Observer's specified target RA [deg]
dec_targ	-10.925556	Observer's specified target Dec [deg]
ra_nom	207.68629650706	Nominal RA [deg]
dec_nom	-10.954555142216	Nominal Dec [deg]
roll_nom	248.56373268131	Nominal Roll [deg]
revision	1	Processing version of data
ontime	33080.039383769	Sum of GTIs [s]
livetime	32647.824316049	Livetime [s]
ontime0	33083.057344079	Sum of GTIs [s]
ontime1	33083.098384023	Sum of GTIs [s]
ontime2	33083.139424086	Sum of GTIs [s]
ontime3	33080.039383769	Sum of GTIs [s]
l2events	89116	Number of level 2 events



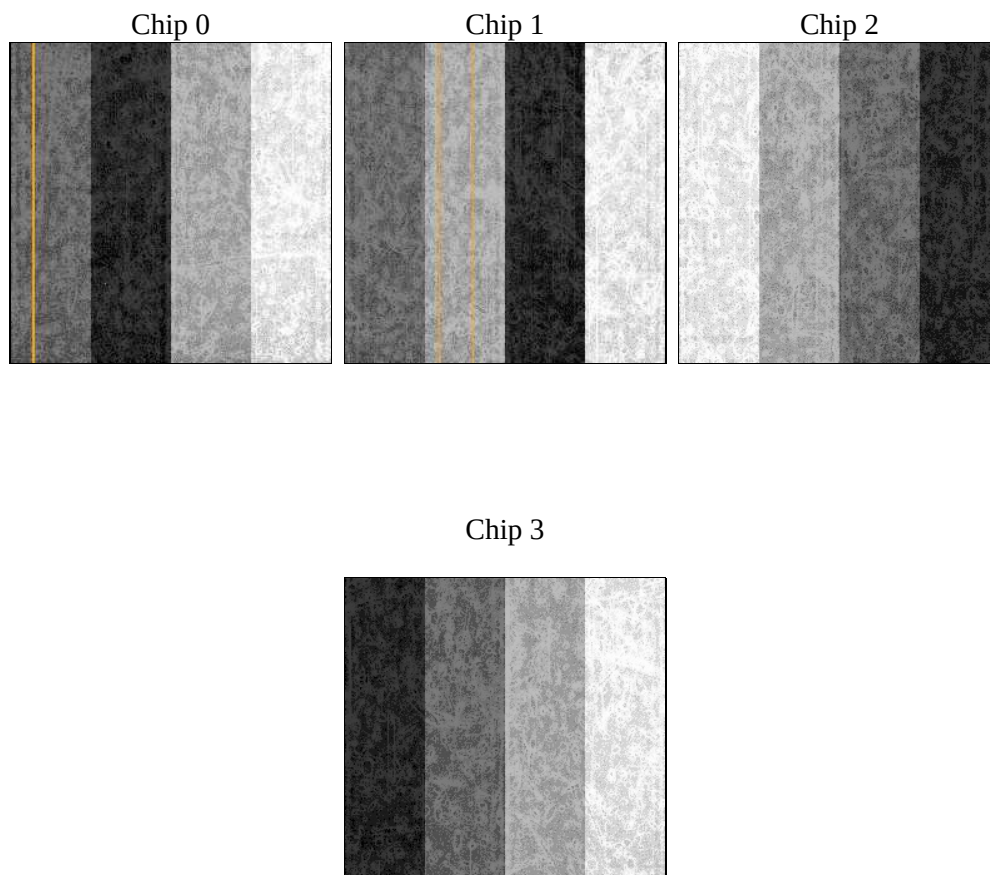
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	33000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	33080.039383769	Sum of GTIs [s]
caldsver	4.8.2	 	ontime0	33083.057344079	Sum of GTIs [s]
date	2019-05-12T05:58:54	Date and time of file creation	ontime1	33083.098384023	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	33083.139424086	Sum of GTIs [s]
			ontime3	33080.039383769	Sum of GTIs [s]
			l1events	919533	Number of level 1 events

2.1.4 Events

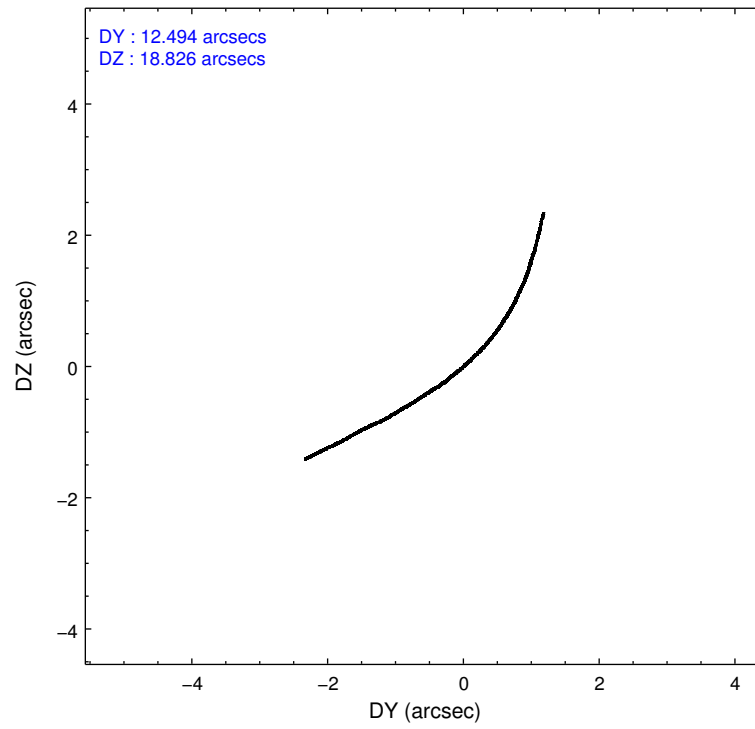
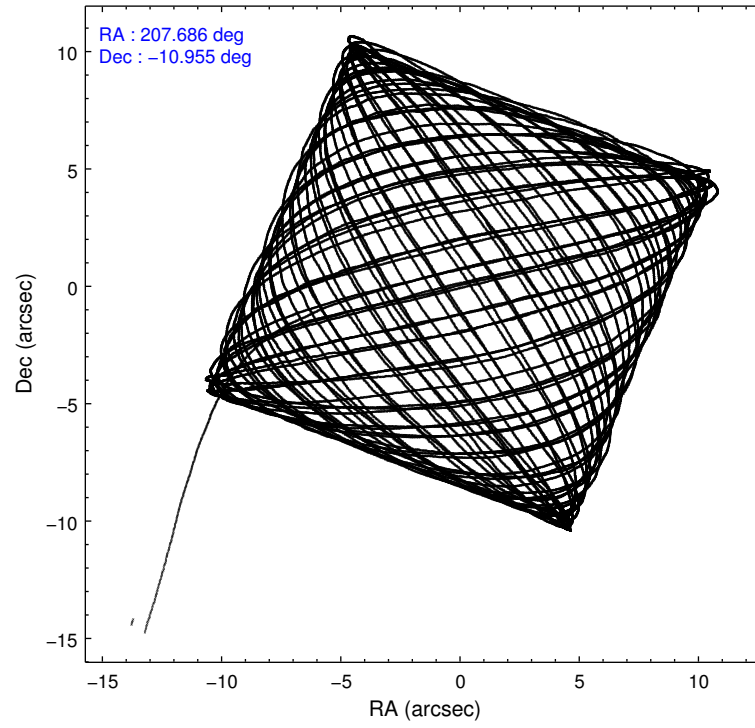
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	218510	225183	242109	233731
rejected events	191251	191943	213386	208306
rejected %	87%	85%	88%	89%

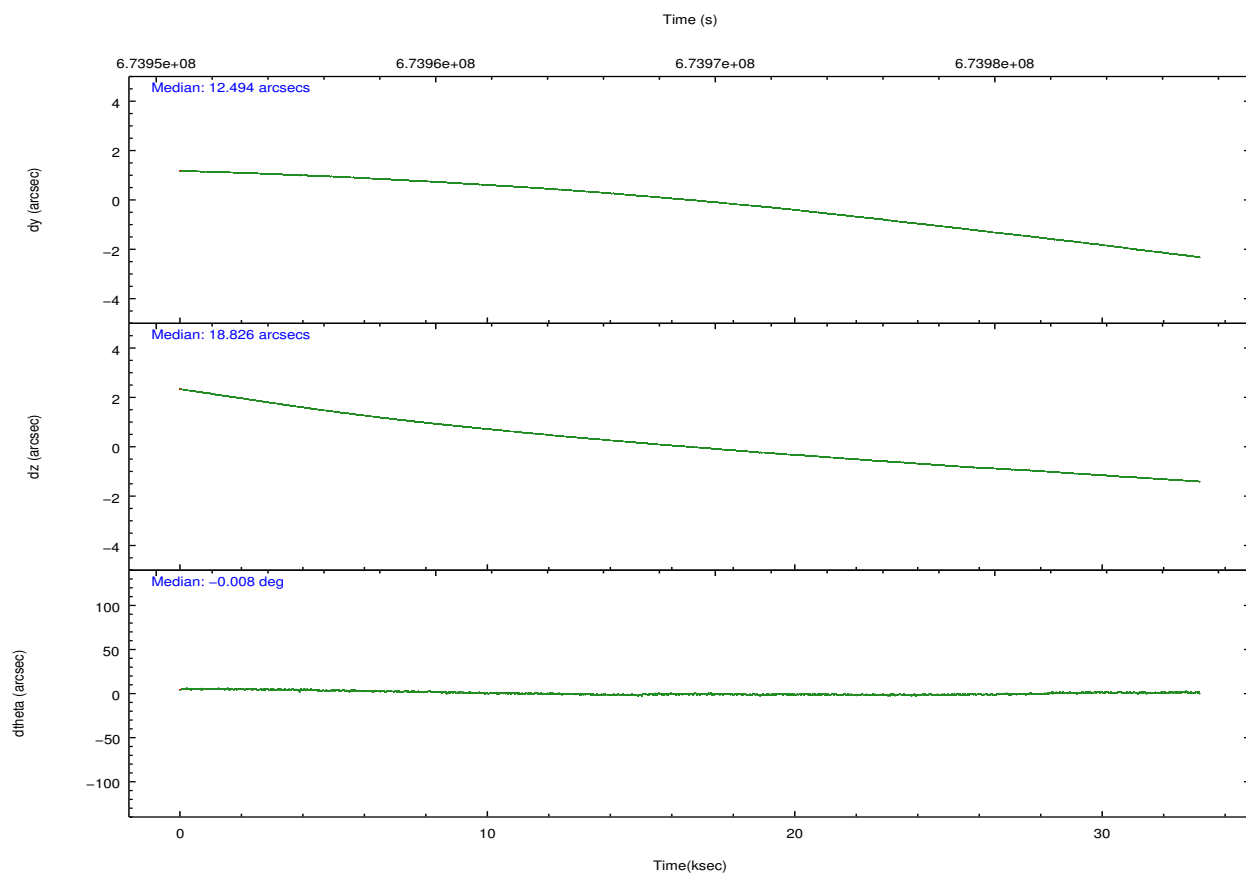
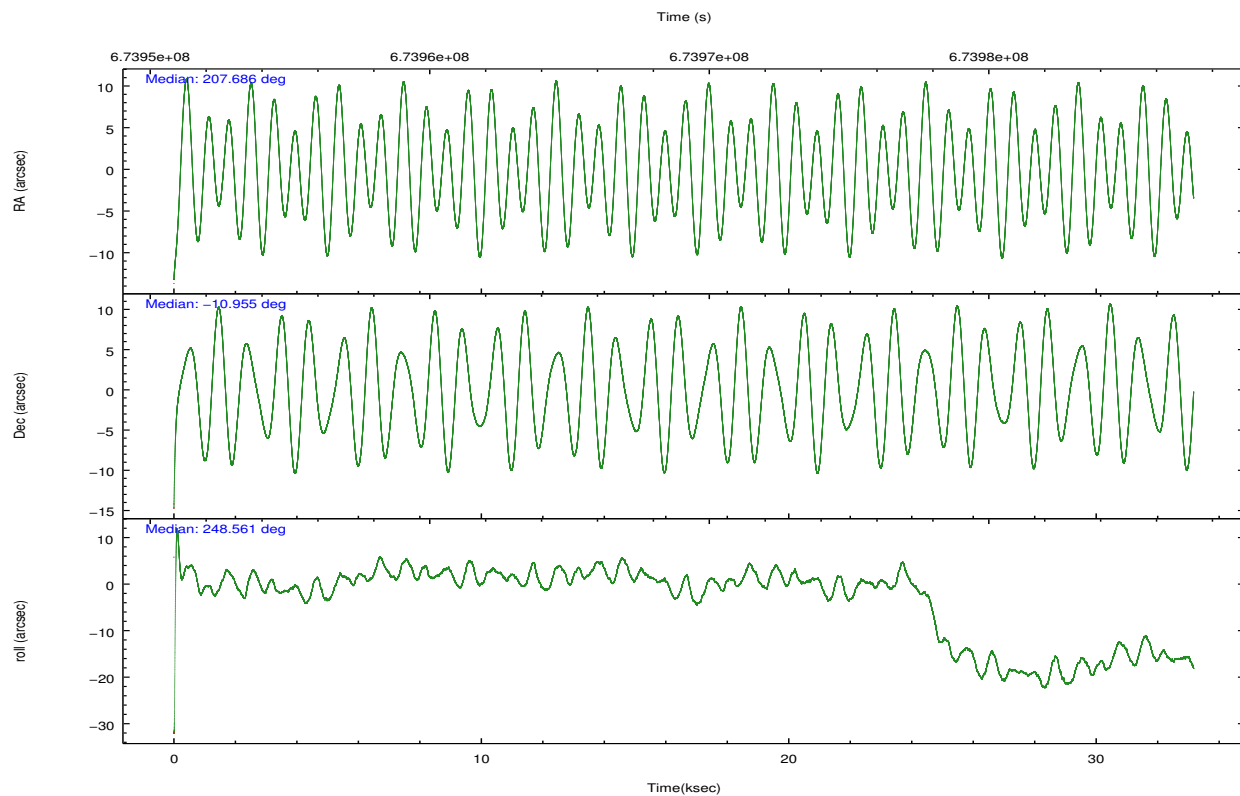
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	9359	14063	12260	9173
	4%	6%	5%	3%
grade 1 events	124	137	163	147
	0%	0%	0%	0%
grade 2 events	6775	7436	6097	5528
	3%	3%	2%	2%
grade 3 events	2701	2555	2536	2546
	1%	1%	1%	1%
grade 4 events	2559	2572	2490	2621
	1%	1%	1%	1%
grade 5 events	10175	10365	9632	11601
	4%	4%	3%	4%
grade 6 events	5871	6621	5342	5559
	2%	2%	2%	2%
grade 7 events	180946	181434	203589	196556
	82%	80%	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	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	207.682003	207.686296507063	Subarray requested	NONE	NONE
[deg] Pointing Dec	-10.927261	-10.95455514221556	Alternating exposures requested	N	N
[deg] Pointing Roll	248.354250	248.5637326813077	[s] Primary exposure time	0.000000	3.1
[mm] SIM focus pos	-0.782348	-0.7809083437167272			
[mm] SIM defocus	0	0.001439871863259334			
[mm] SIM translation stage pos	-229.442463	-229.4438428438578			
[mm] SIM translation stage offset	-4.15	-4.148610159071865			
[s] Observation start time (MET)	673952665.184000	673951203.39815			
Observation start date	2019-05-11T09:03:16	2019-05-11T08:40:03			
[s] Observation end time (MET)	673985665.184000	673986833.42528			
Observation end date	2019-05-11T18:13:16	2019-05-11T18:33:53			
Read mode	TIMED	TIMED			

2.3 Aspect



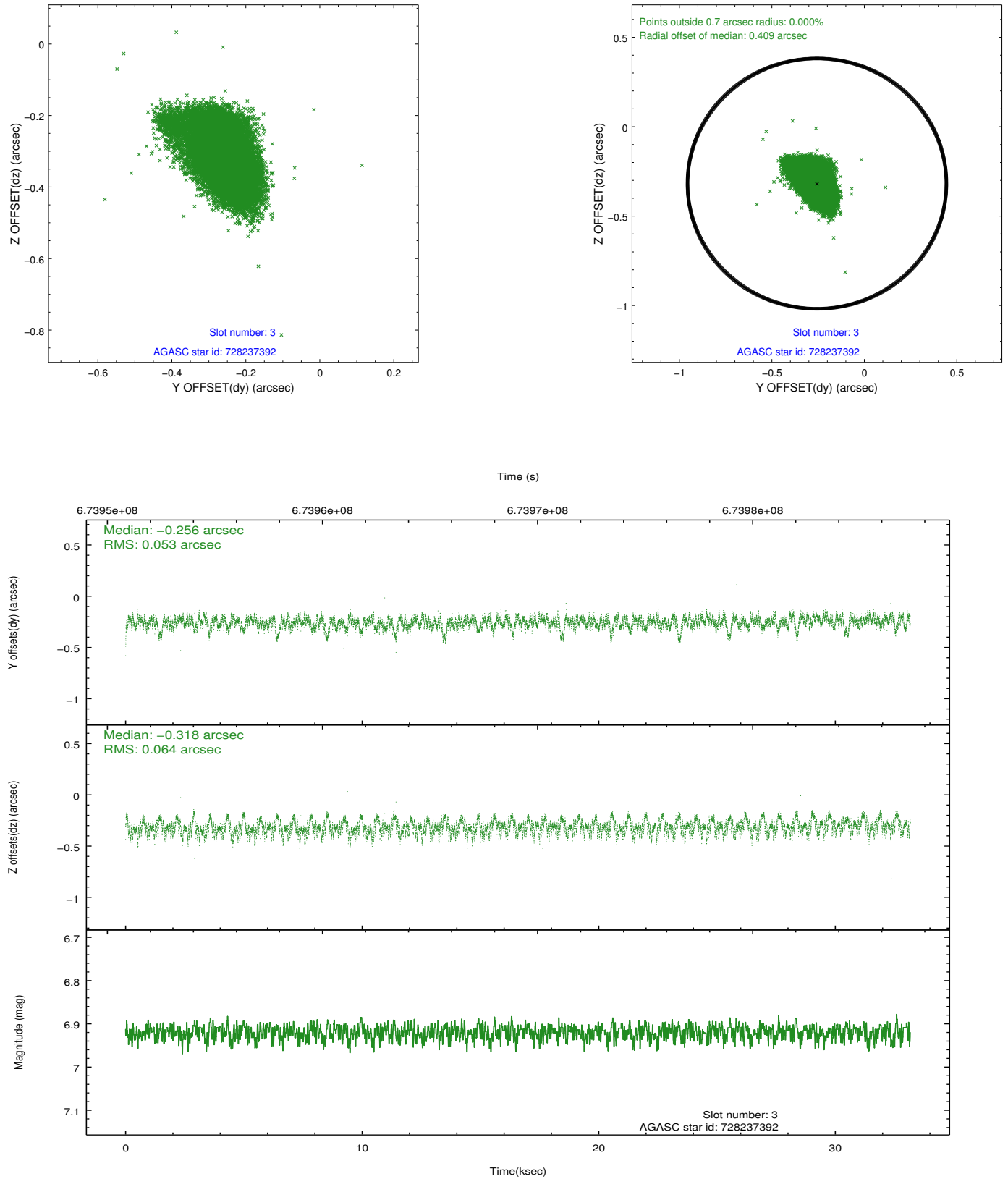


Slot Statistics

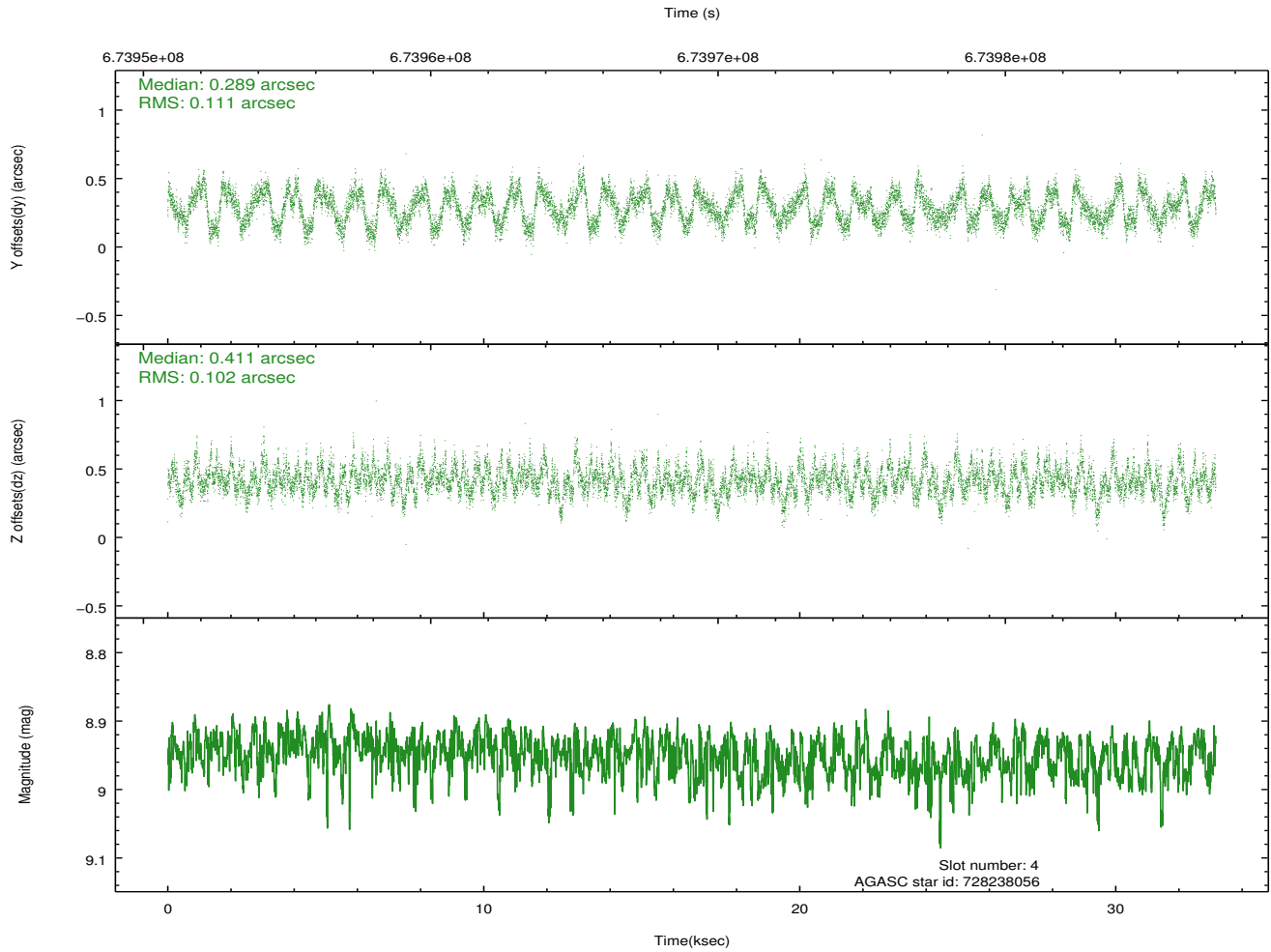
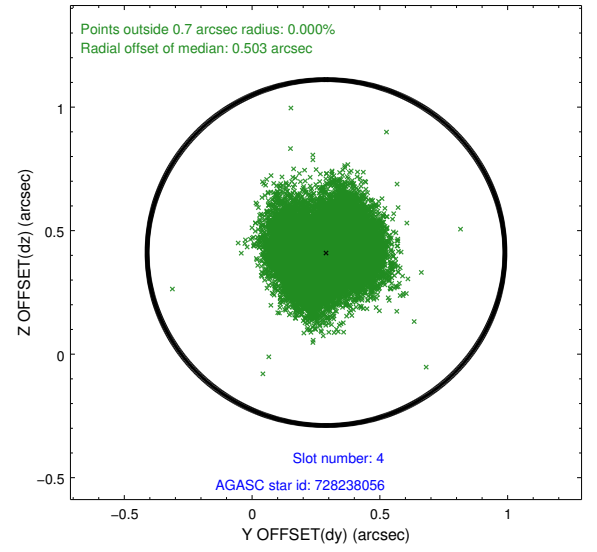
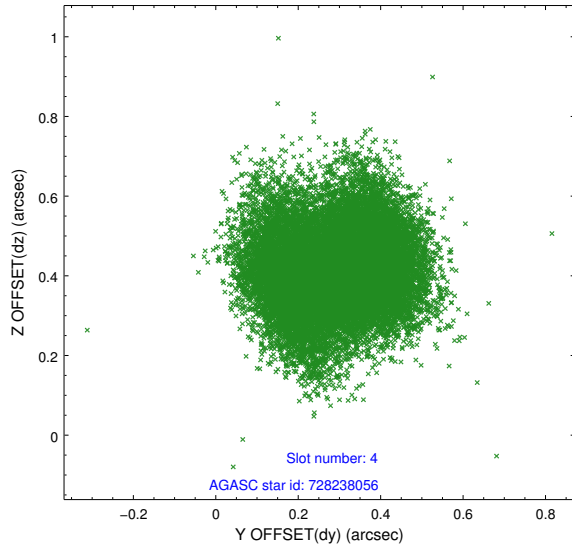
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-1	7.18	8091	1.000	0.147	-0.115	0.032	0.066	0.000000	0.000000	927.41	-927
1	FID		ACIS-I-5	7.18	8091	1.000	-0.506	0.056	0.017	0.028	0.000000	0.000000	-1821.51	969
2	FID		ACIS-I-6	7.21	8091	1.000	0.266	0.131	0.032	0.045	0.000000	0.000000	392.76	1614
3	GUIDE	used	728237392	6.92	16182	1.000	-0.256	-0.318	0.086	0.151	207.704489	-11.358782	1414.42	646
4	GUIDE	used	728238056	8.95	16169	1.000	0.289	0.411	0.164	0.245	207.632737	-10.784075	-414.10	-351
5	GUIDE	used	728240184	7.51	16180	1.000	-0.112	0.089	0.127	0.206	208.224030	-10.682597	-1523.81	1457
6	GUIDE	used	728242024	8.44	16166	1.000	-0.159	-0.263	0.095	0.153	207.746757	-11.418672	1560.04	865
7	GUIDE	used	728245744	8.67	16165	1.000	0.236	0.074	0.141	0.265	206.959040	-11.284446	2140.43	-1896

2.4 Star Slots

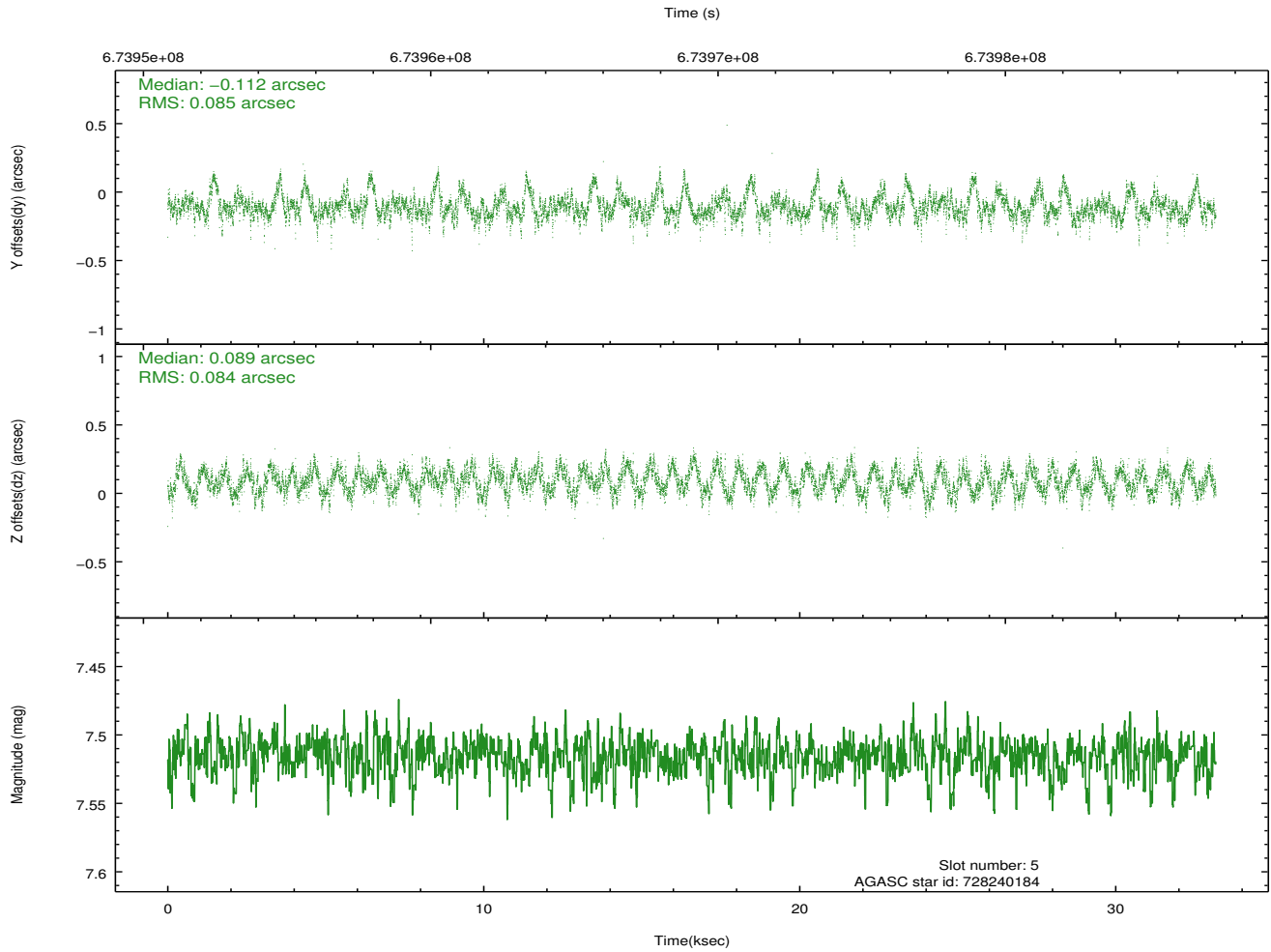
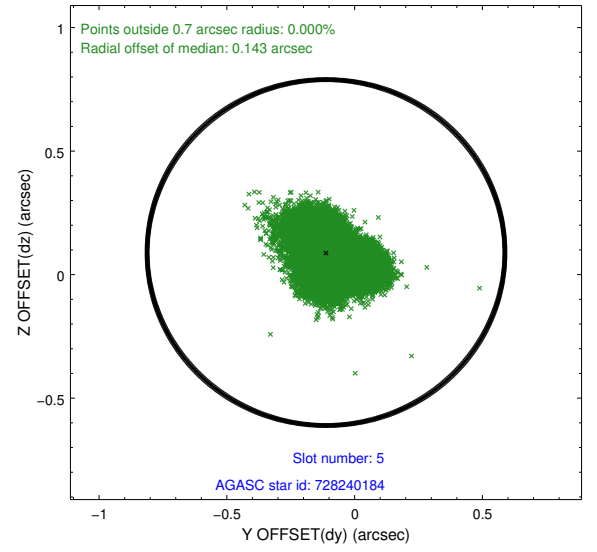
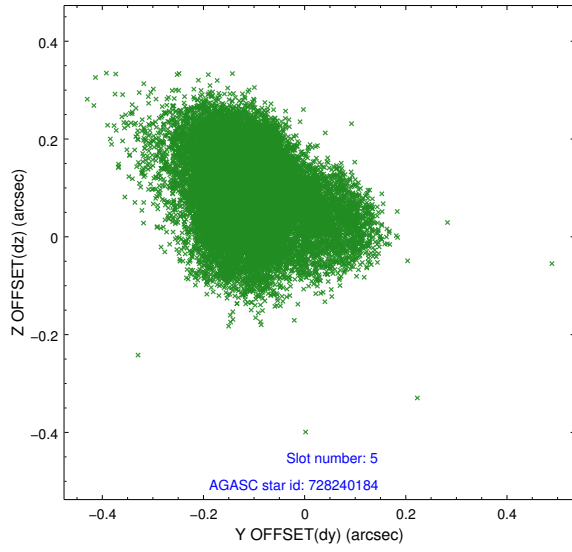
2.4.1 Slot 3



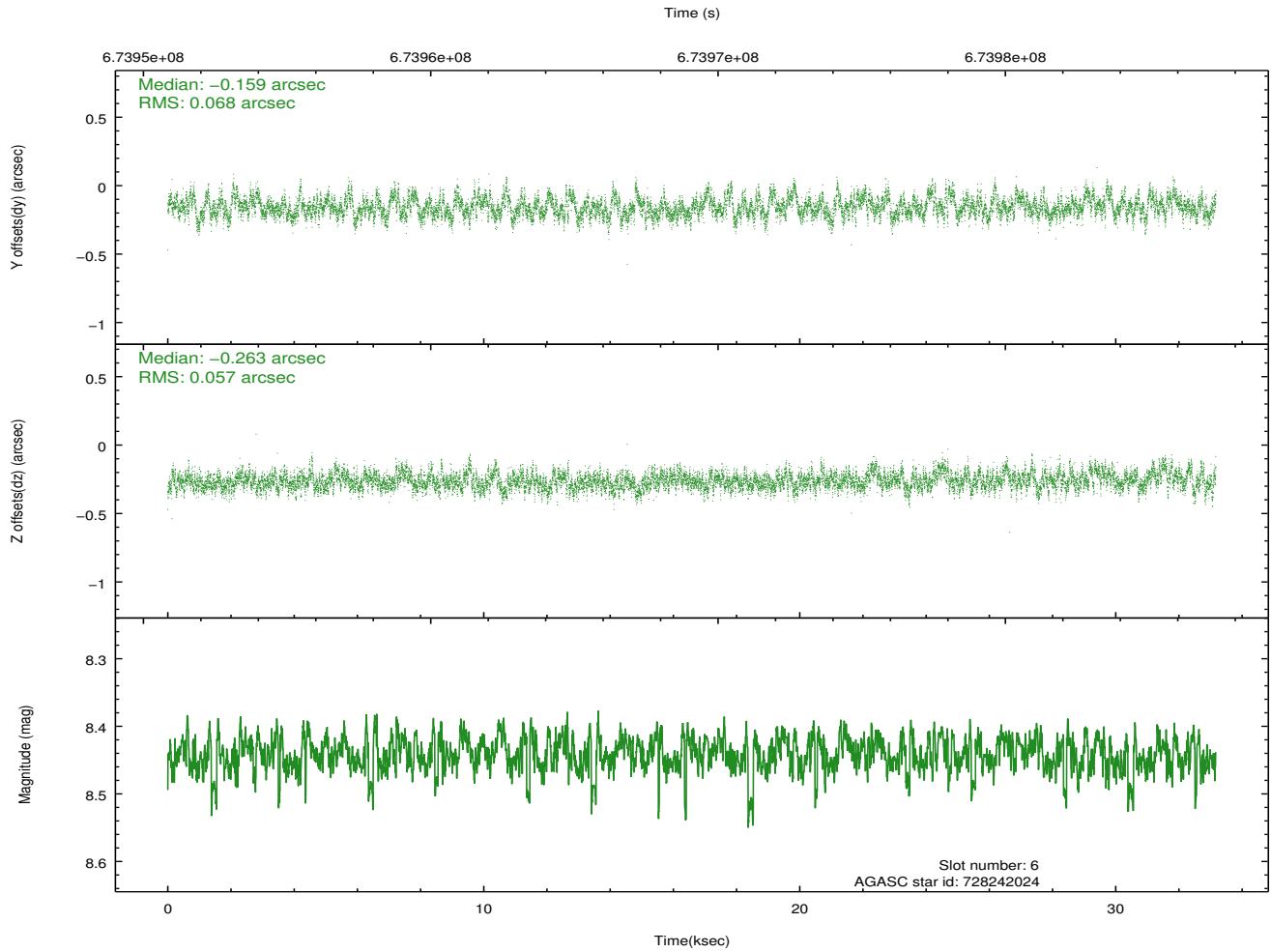
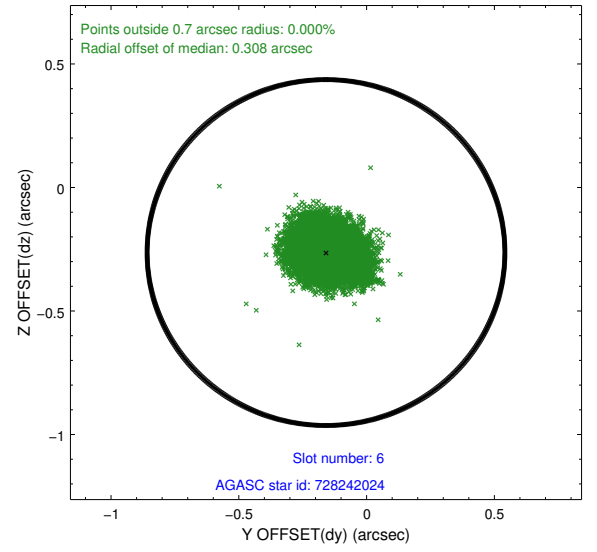
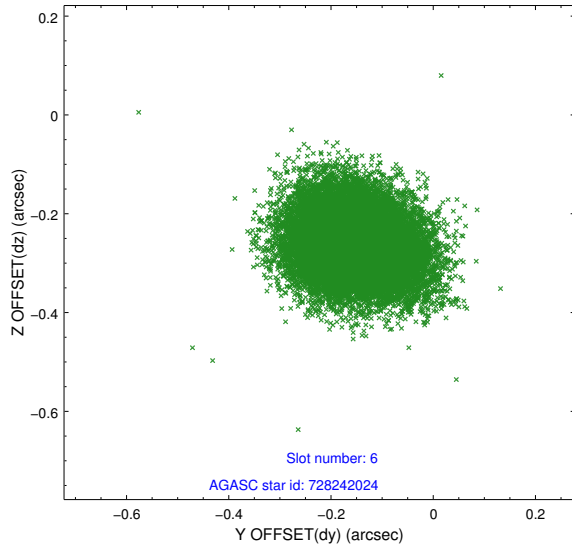
2.4.2 Slot 4



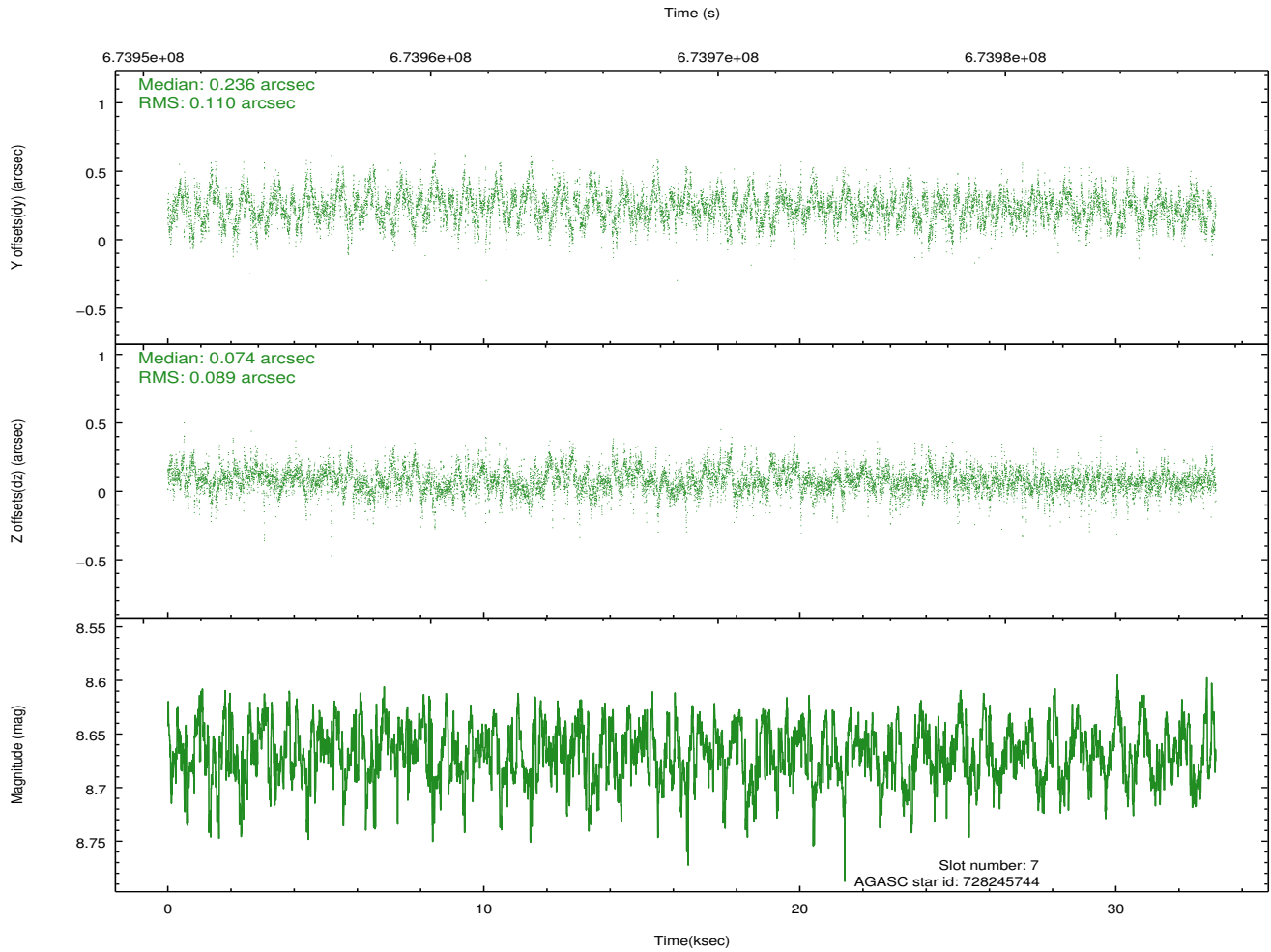
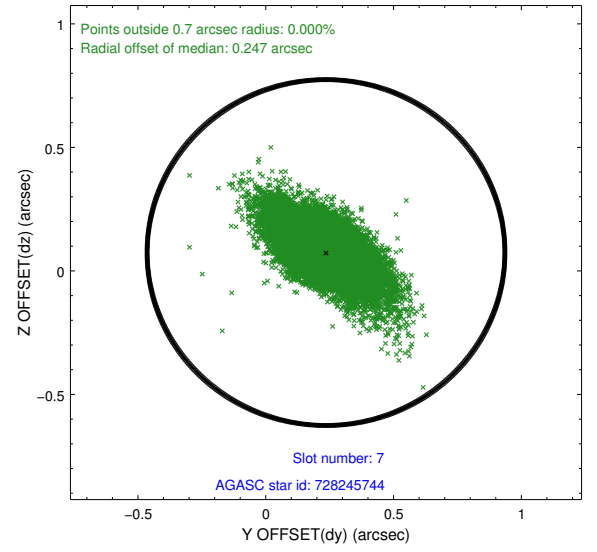
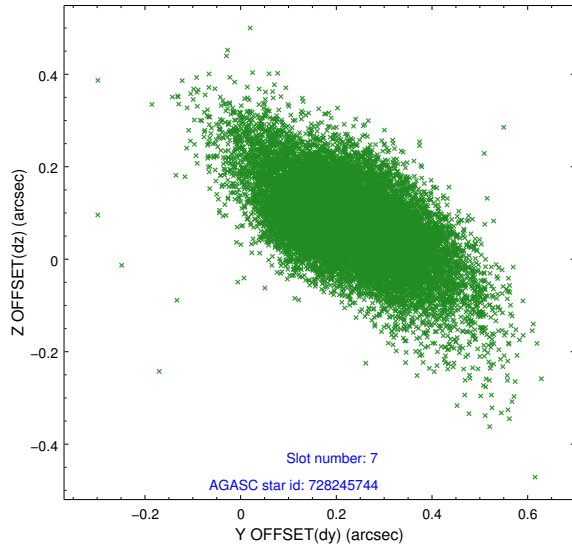
2.4.3 Slot 5



2.4.4 Slot 6

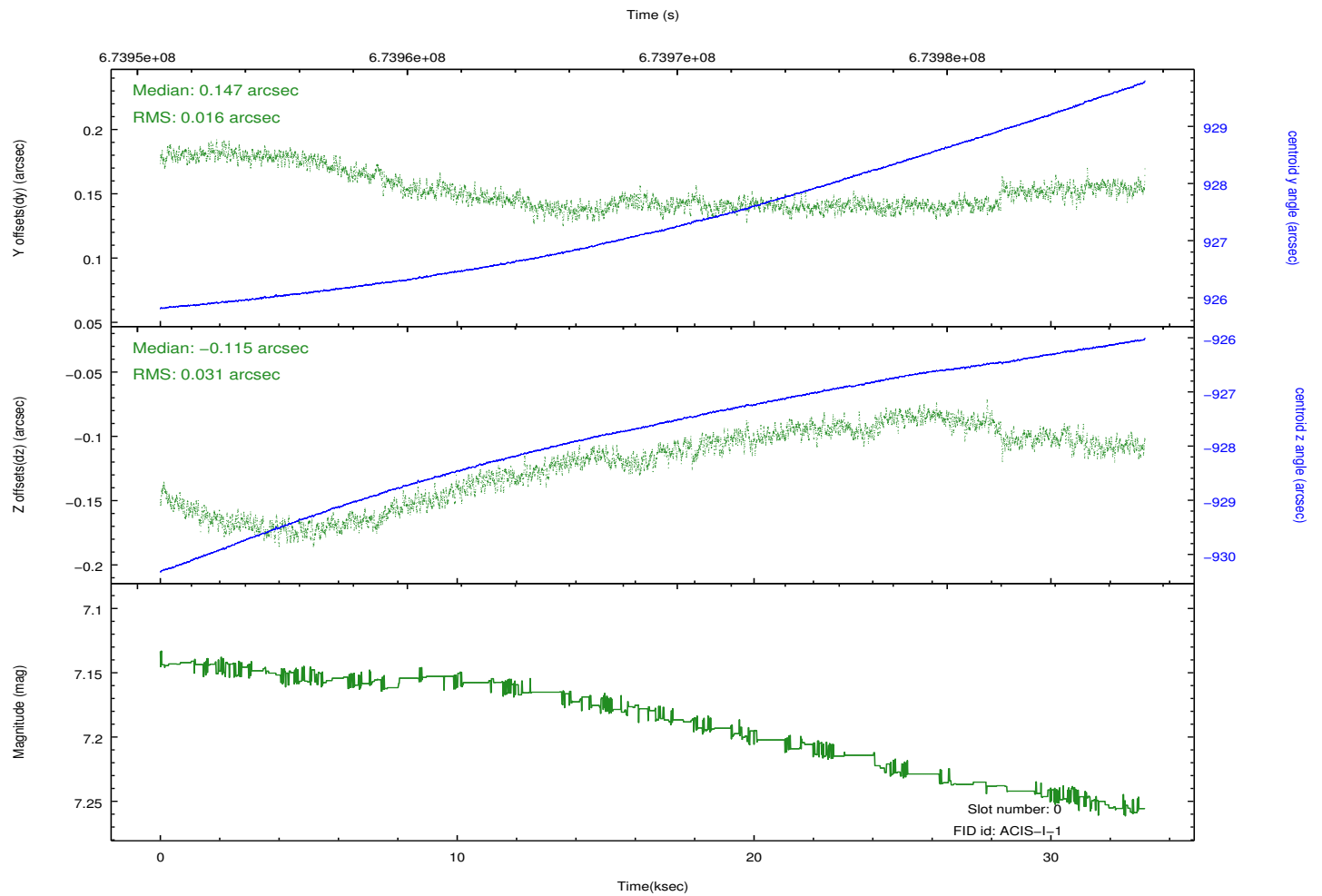
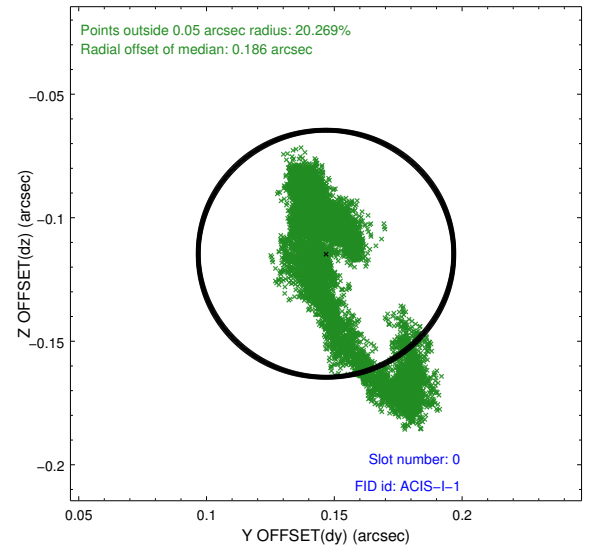
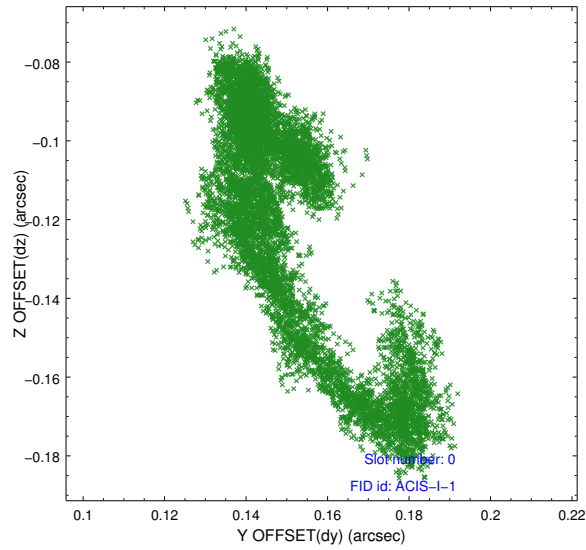


2.4.5 Slot 7

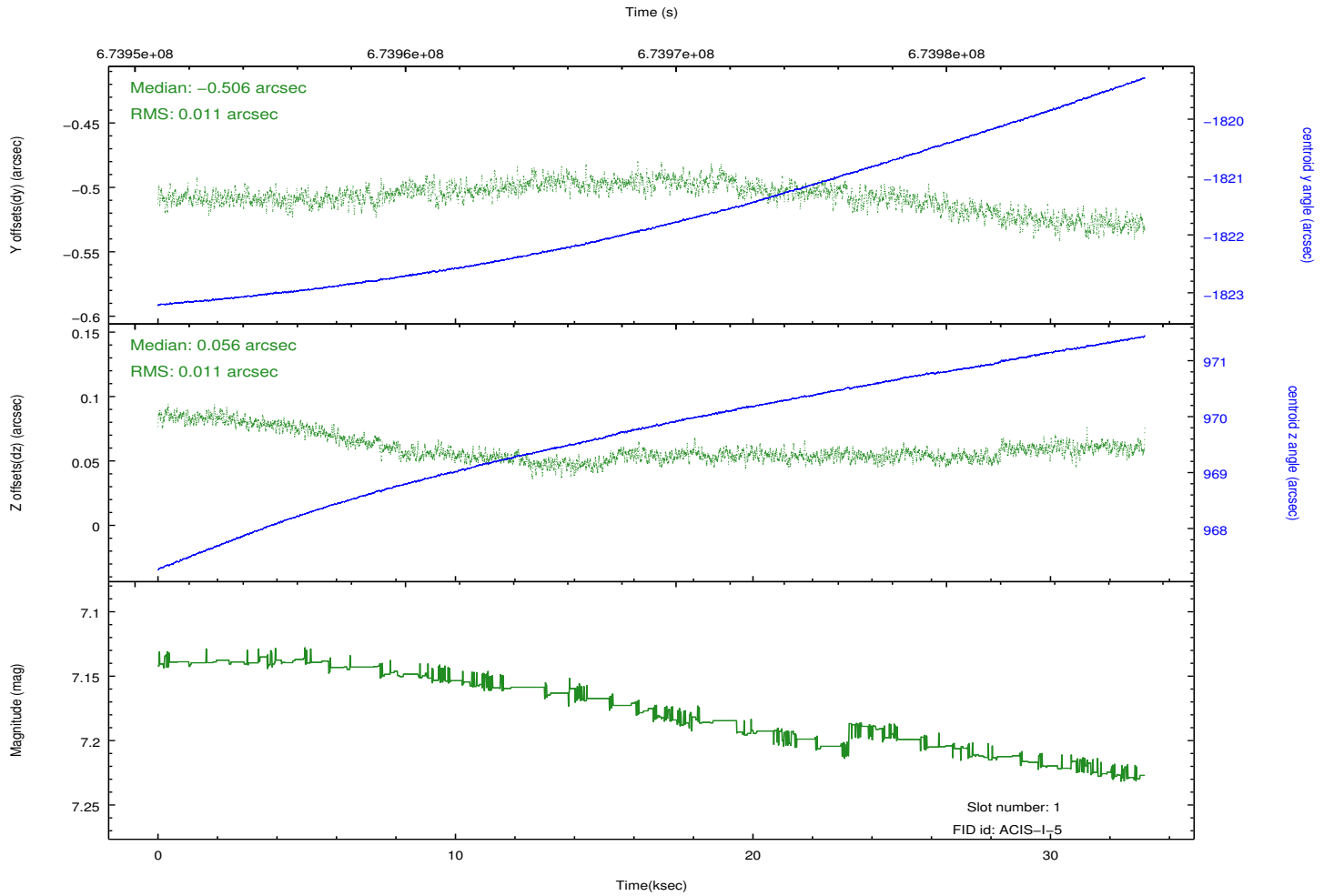
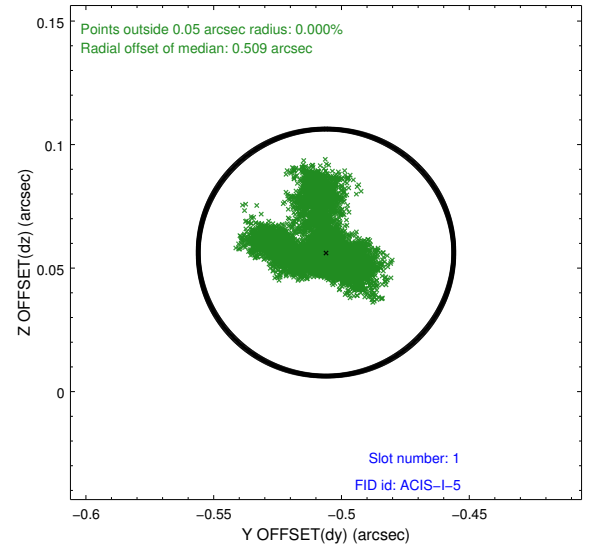
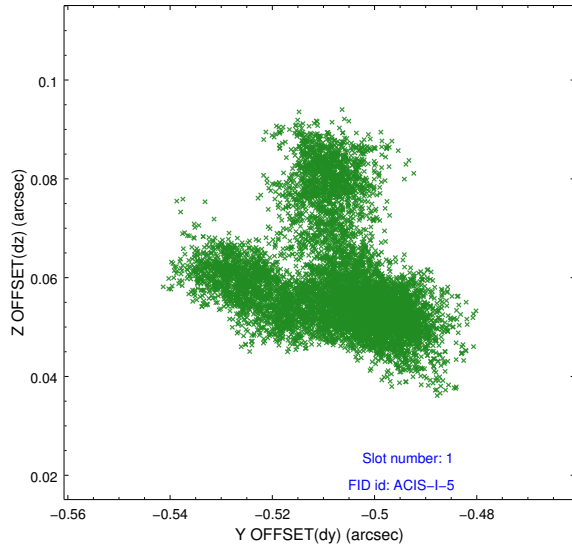


2.5 FID Slots

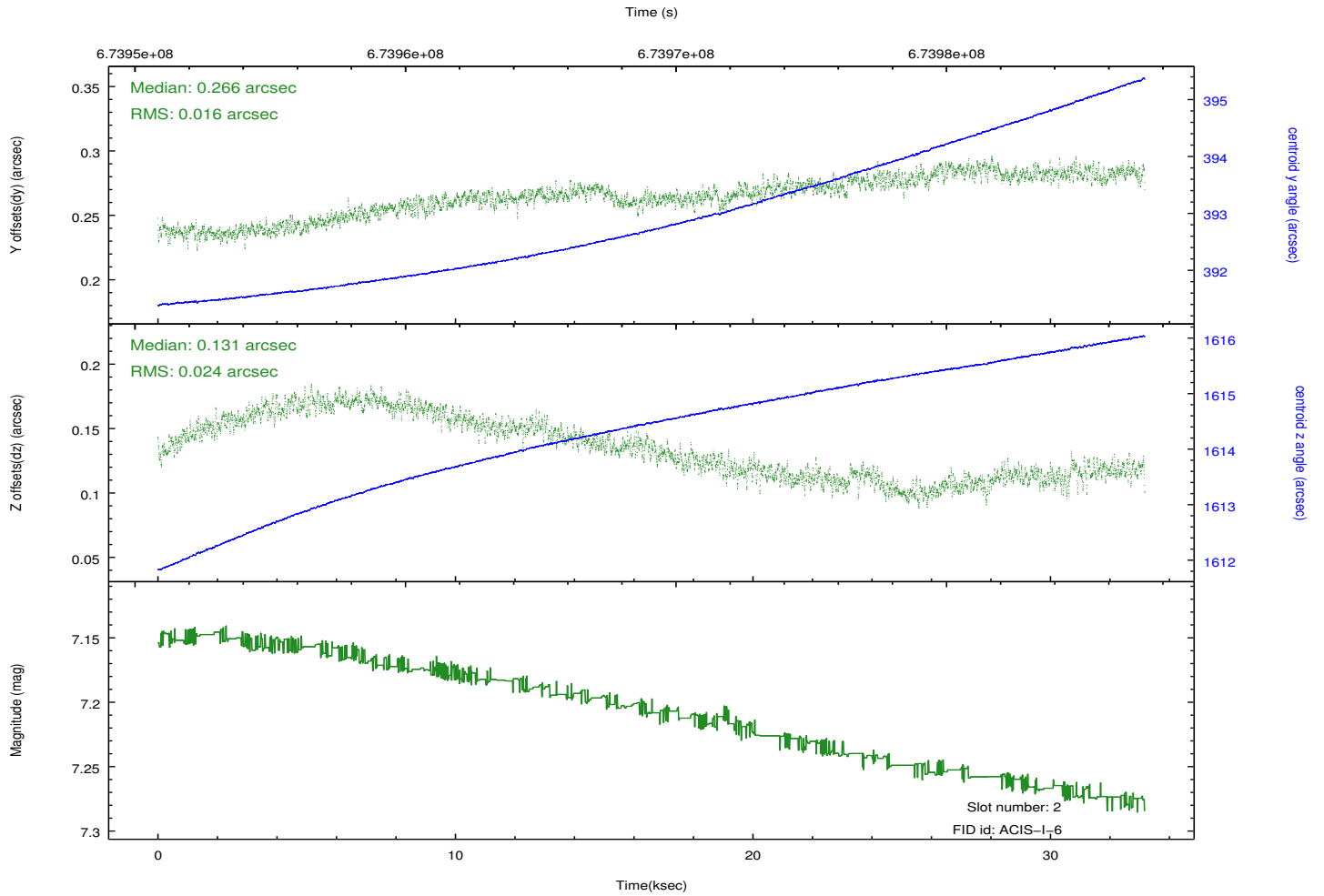
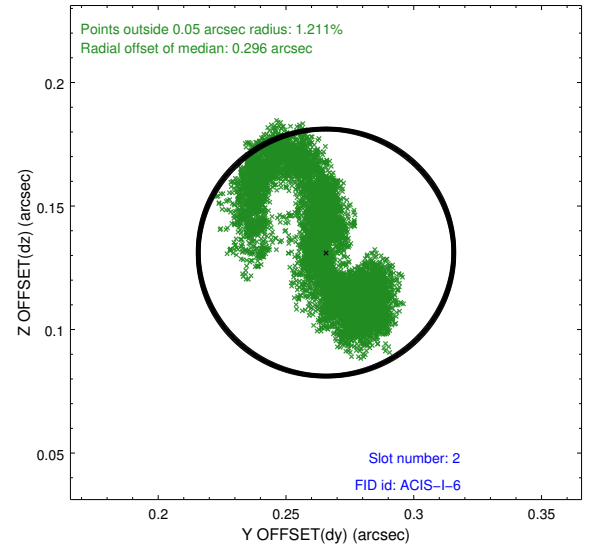
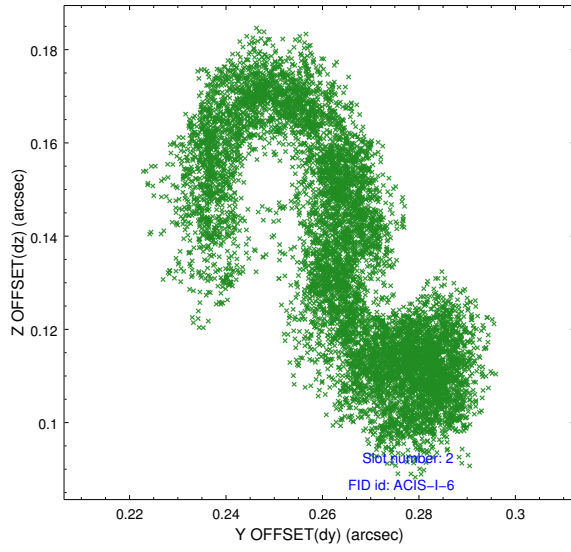
2.5.1 Slot 0



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)	2019.05.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	33.080039383769

A.2 Comments

Joint Proposal: HST

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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/A_CIS_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.