

V&V Reference Report

L2 ASCDS Version : 10.8.3

Observation 23209 - L2 Version 1
Chandra X-Ray Center

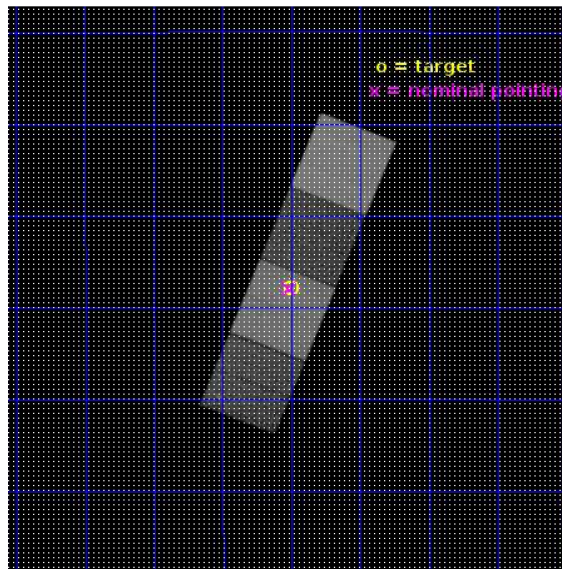
L2 Processing Date : Apr 3 2020

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1 Front

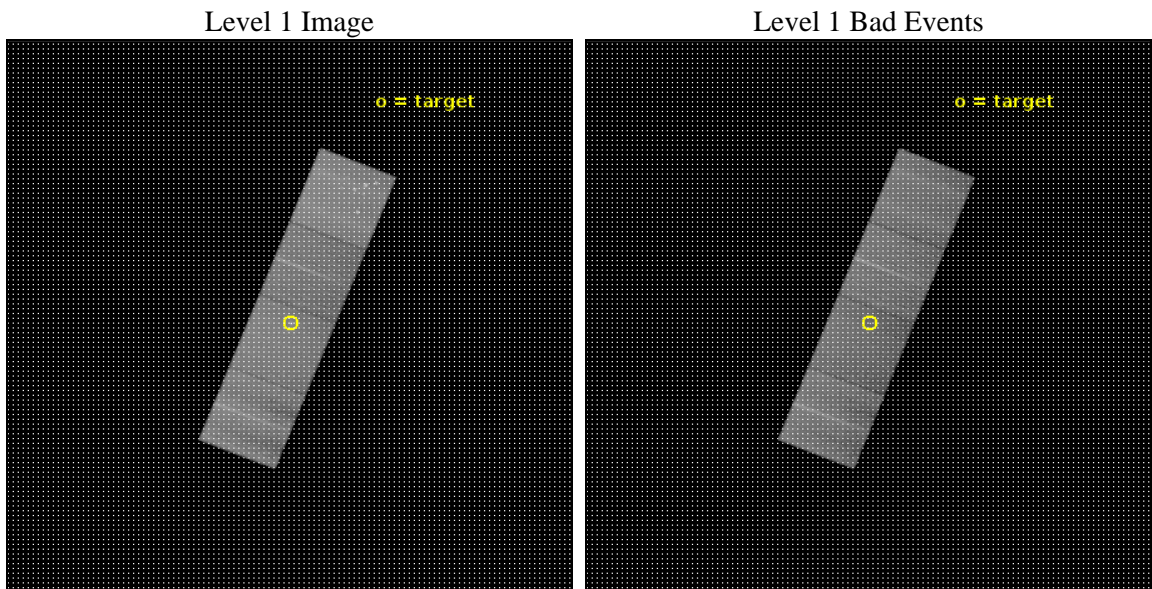
seq_num	503203	Sequence number
obs_id	23209	Observation id
title	Chandra observations of the newly discovered magnetar Swift J1818.0-1607	Proposal title
observer	Harsha Blumer	Principal investigator
object	J1818-1607	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	274.500958	Observer's specified target RA [deg]
dec_targ	-16.130944	Observer's specified target Dec [deg]
ra_nom	274.504083901	Nominal RA [deg]
dec_nom	-16.1325128807	Nominal Dec [deg]
roll_nom	111.751135287	Nominal Roll [deg]
revision	1	Processing version of data
ontime	30059.560504436	Sum of GTIs [s]
livetime	29666.81021692	Livetime [s]
ontime5	30059.519464493	Sum of GTIs [s]
ontime6	30059.47842443	Sum of GTIs [s]
ontime7	30059.560504436	Sum of GTIs [s]
ontime8	30059.437384486	Sum of GTIs [s]
l2events	365942	Number of level 2 events



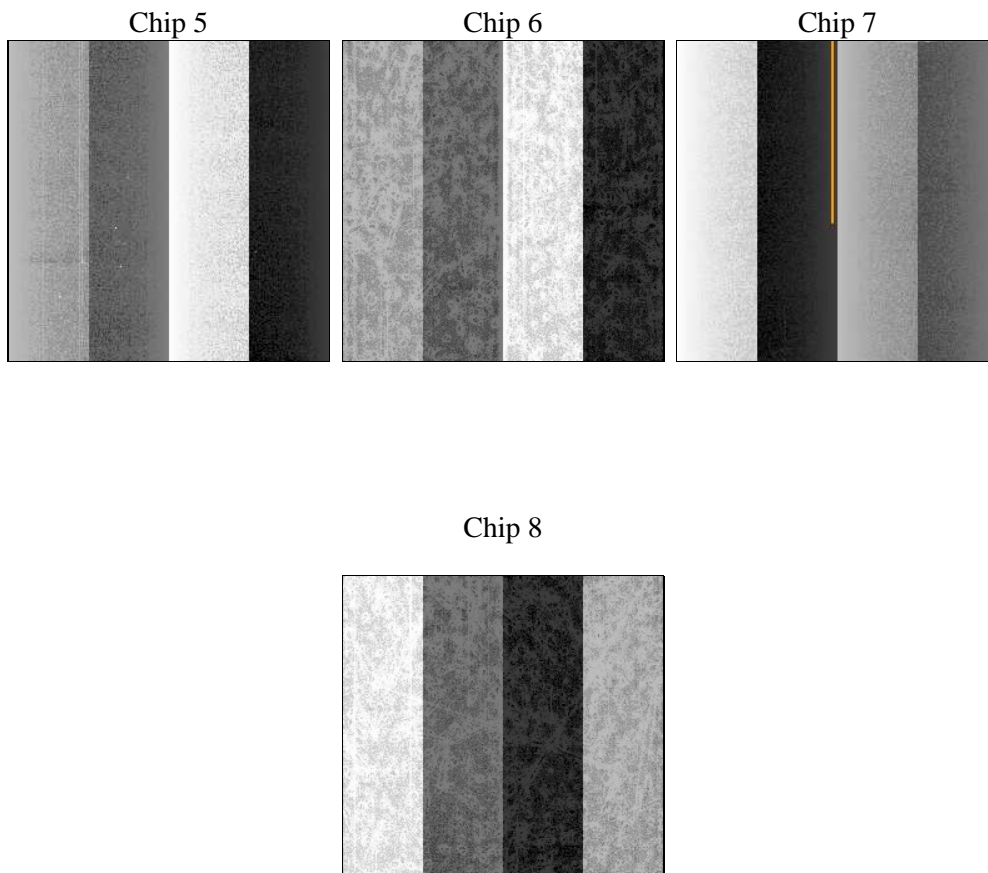
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	10.8.3	Processing system revision	ontime	30059.560504436	Sum of GTIs [s]
caldsver	4.9.1	 	ontime5	30059.519464493	Sum of GTIs [s]
date	2020-04-03T21:04:40	Date and time of file creation	ontime6	30059.47842443	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	30059.560504436	Sum of GTIs [s]
			ontime8	30059.437384486	Sum of GTIs [s]
			l1events	1274509	Number of level 1 events

2.1.4 Events

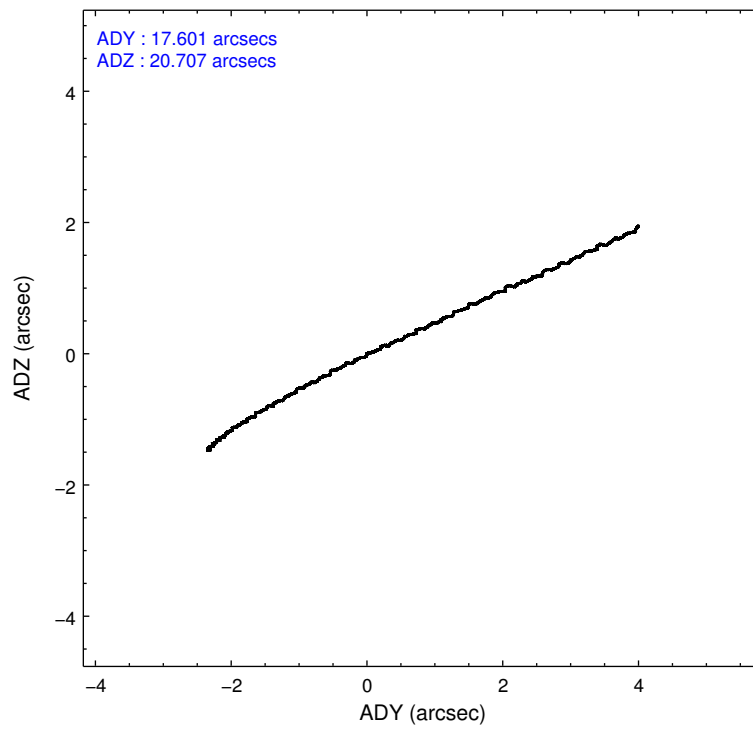
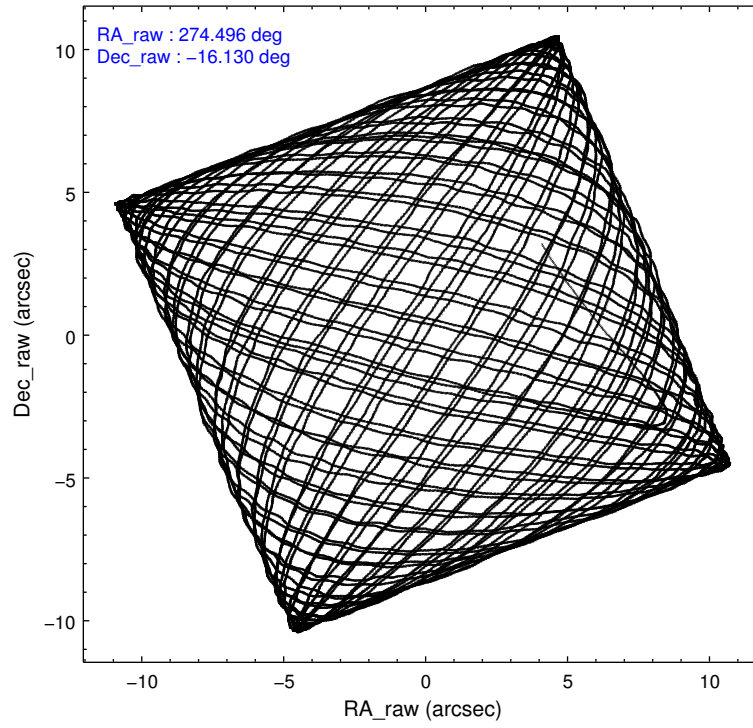
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	390721	255583	320634	307571
rejected events	202190	226335	176322	226522
rejected %	51%	88%	54%	73%

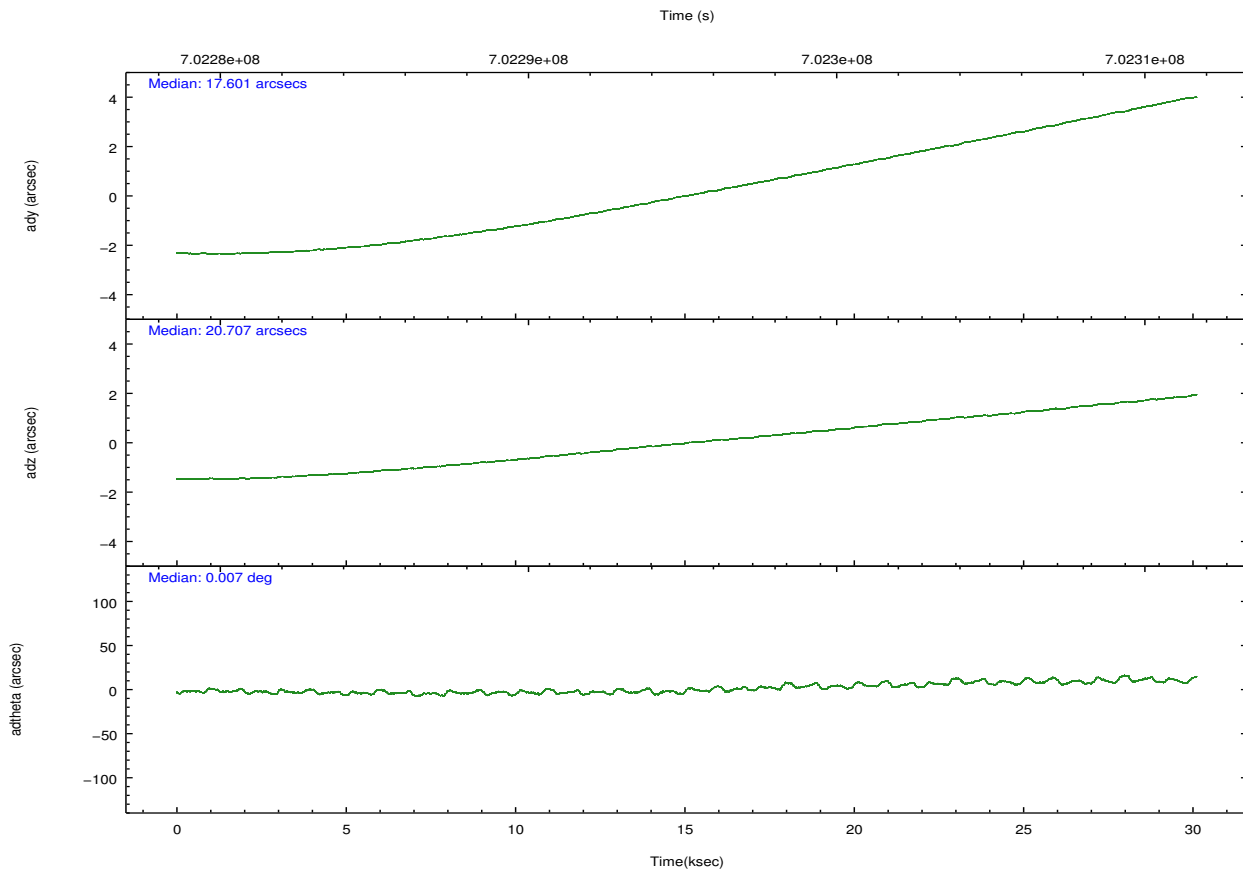
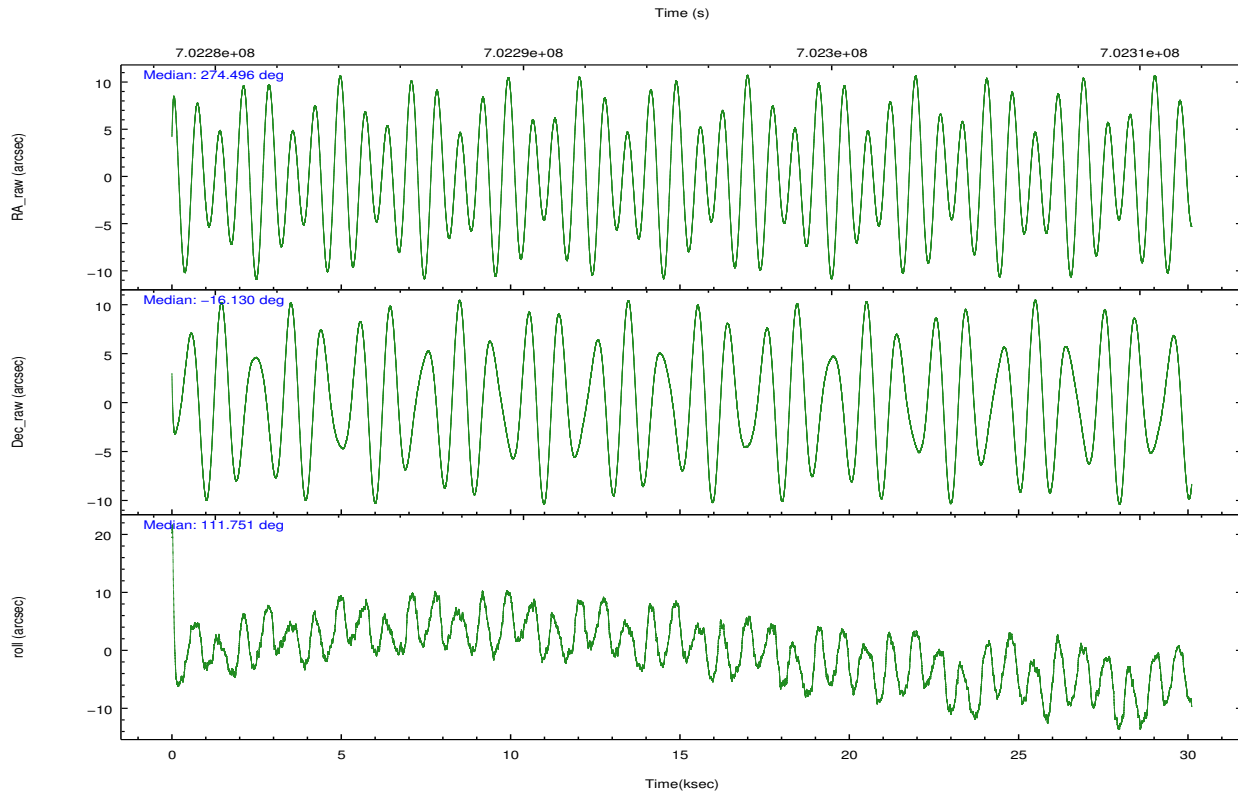
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	18305	8908	13012	23040
	4%	3%	4%	7%
grade 1 events	1230	100	649	228
	0%	0%	0%	0%
grade 2 events	56778	8178	30879	20272
	14%	3%	9%	6%
grade 3 events	5578	2271	11324	7698
	1%	0%	3%	2%
grade 4 events	5298	2209	11089	7359
	1%	0%	3%	2%
grade 5 events	23836	9455	29453	15377
	6%	3%	9%	4%
grade 6 events	102609	7685	78026	22711
	26%	3%	24%	7%
grade 7 events	177087	216777	146202	210886
	45%	84%	45%	68%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-5678	ACIS-5678	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	274.518583	274.504083901	Subarray requested	NONE	NONE
[deg] Pointing Dec	-16.146508	-16.1325128807	Alternating exposures requested	N	N
[deg] Pointing Roll	111.604899	111.751135287	[s] Primary exposure time	0.000000	3.1
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	702280202.184000	702278767.76827			
Observation start date	2020-04-03T05:48:53	2020-04-03T05:26:07			
[s] Observation end time (MET)	702310202.184000	702311394.03275			
Observation end date	2020-04-03T14:08:53	2020-04-03T14:29:54			
Read mode	TIMED	TIMED			

2.3 Aspect





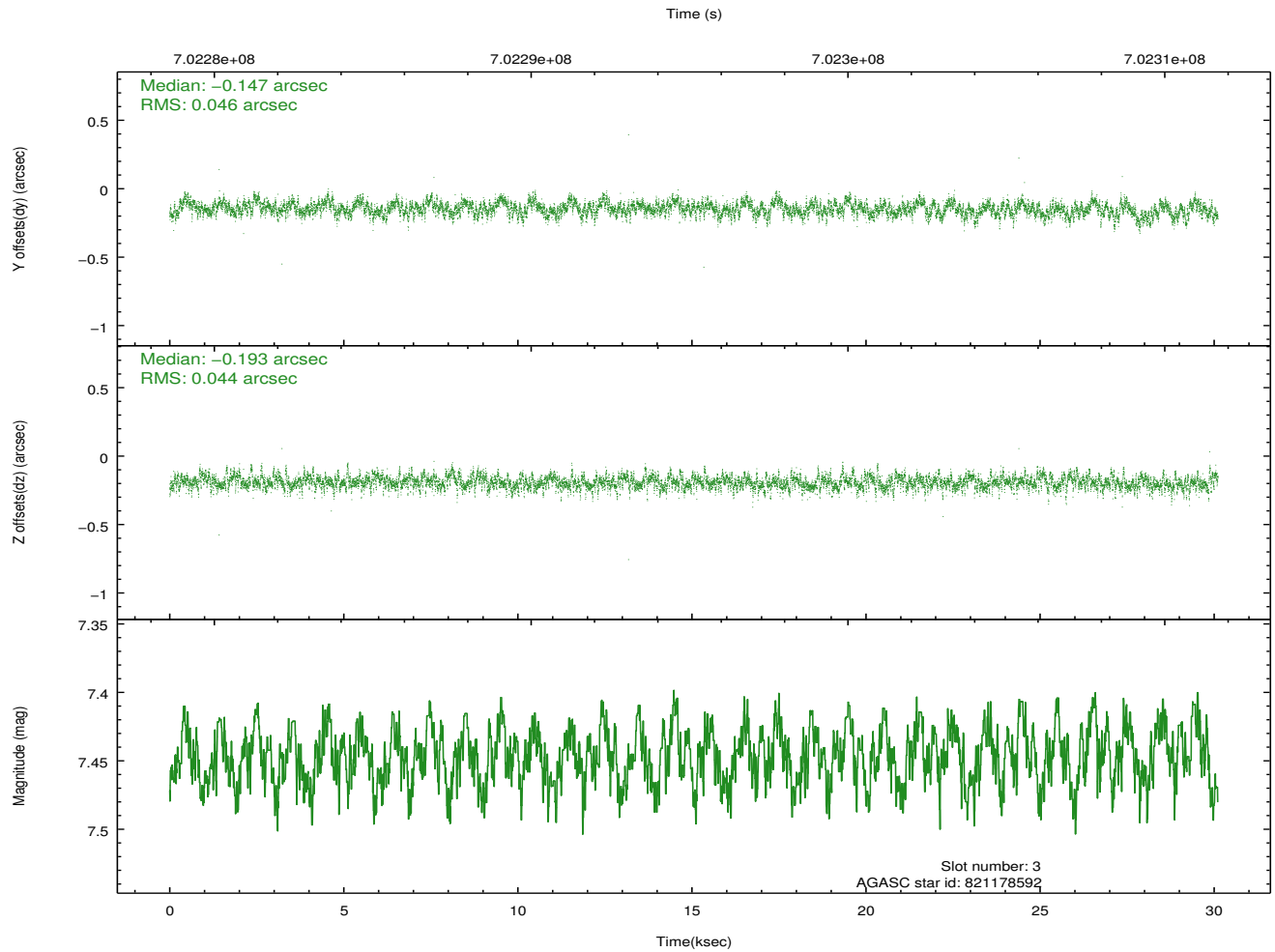
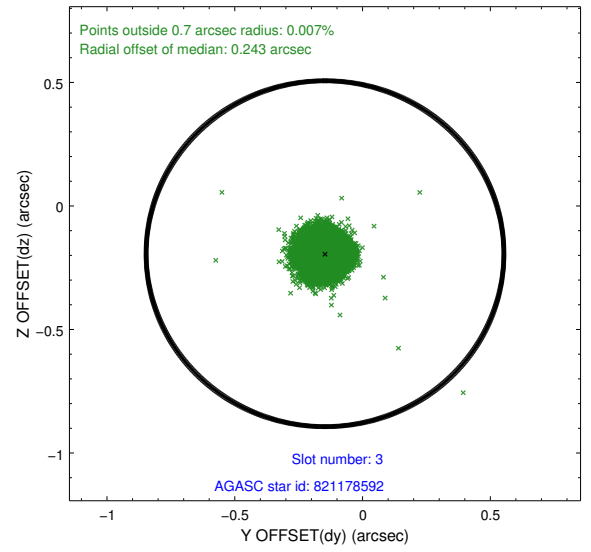
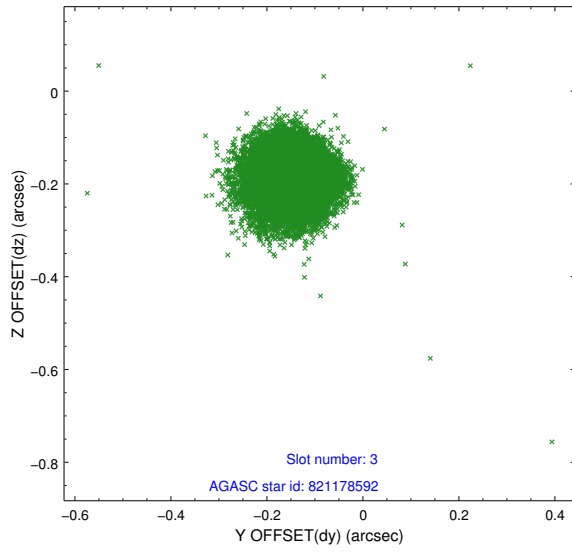
Slot Statistics

slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-3	7.43	7344	1.000	0.284	-0.218	0.034	0.068	0.000000	0.000000	42.22	-1871
1	FID		ACIS-S-4	7.31	7343	1.000	0.072	-0.040	0.075	0.126	0.000000	0.000000	2142.56	165
2	FID		ACIS-S-5	7.28	7344	1.000	-0.374	0.270	0.050	0.079	0.000000	0.000000	-1823.98	160
3	GUIDE	used	821178592	7.45	14684	1.000	-0.147	-0.193	0.067	0.108	274.768757	-16.375672	-1084.60	-498
4	GUIDE	used	821179256	7.37	14687	1.000	-0.144	-0.124	0.122	0.207	274.840900	-15.612800	1375.05	-1745
5	GUIDE	used	821186736	7.93	14688	1.000	-0.105	0.030	0.081	0.135	274.765126	-16.656680	-2019.97	-112
6	GUIDE	used	821169272	7.35	14684	1.000	0.213	0.137	0.067	0.112	275.312025	-16.375484	-1779.27	-2240
7	GUIDE	used	821181752	7.50	14685	1.000	0.180	0.160	0.084	0.140	275.331456	-16.373905	-1798.98	-2305

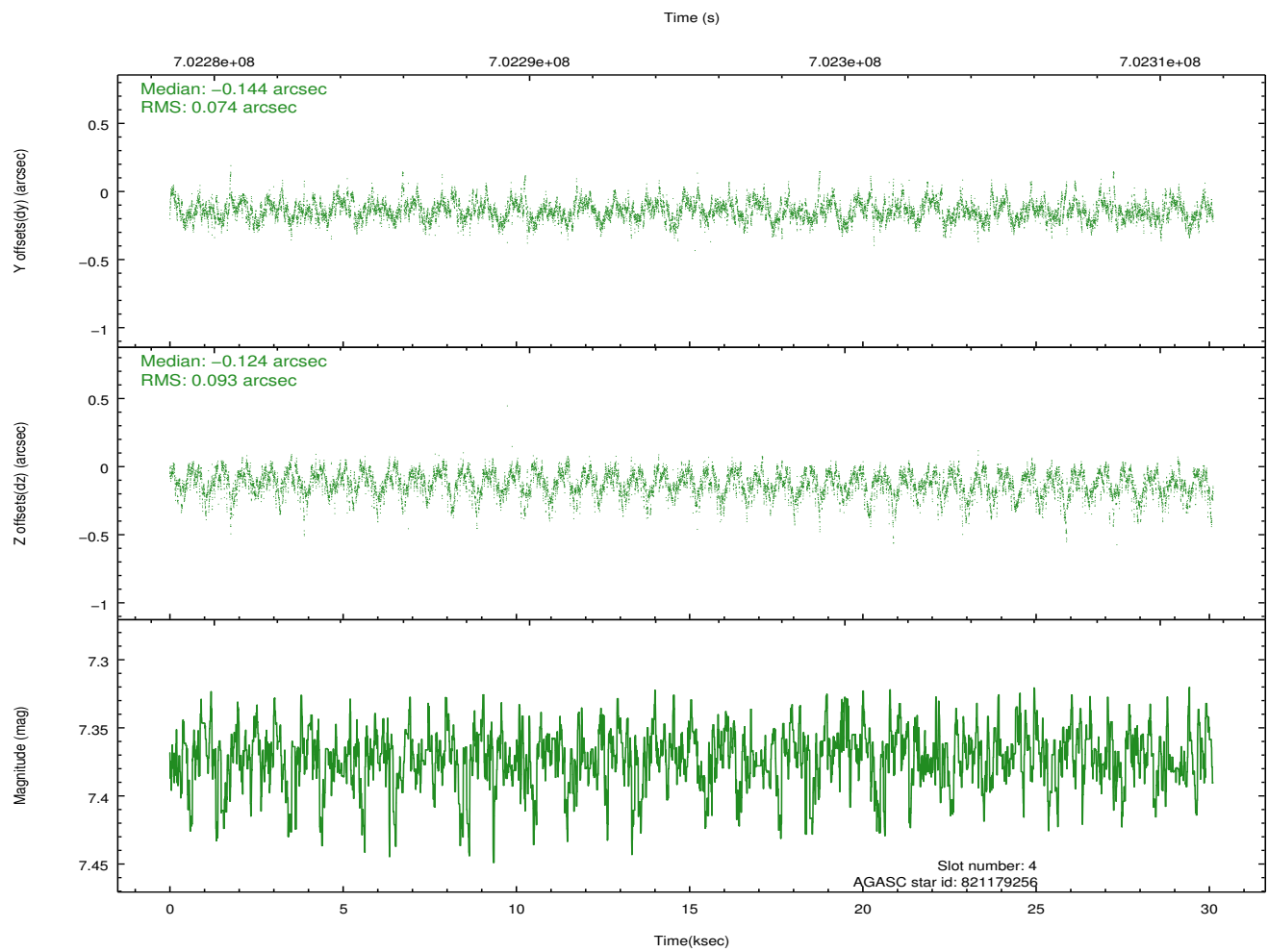
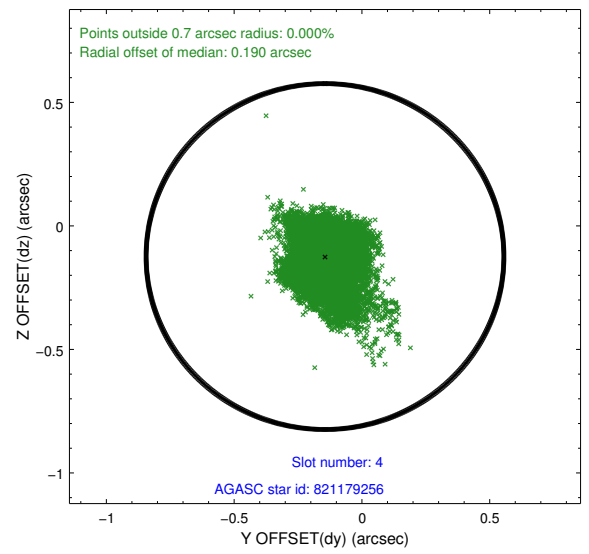
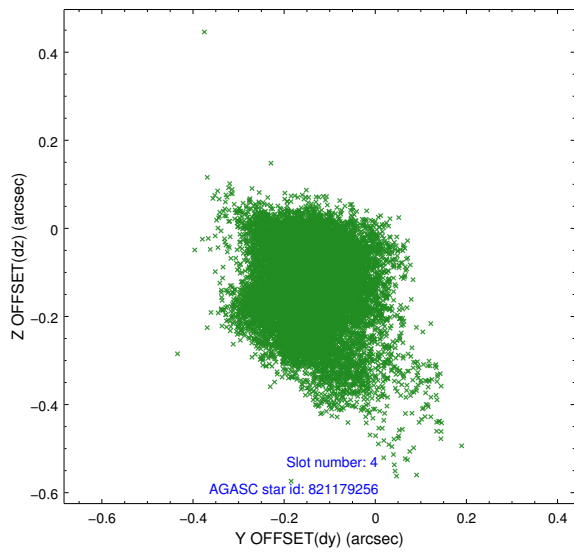
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2.4 Star Slots

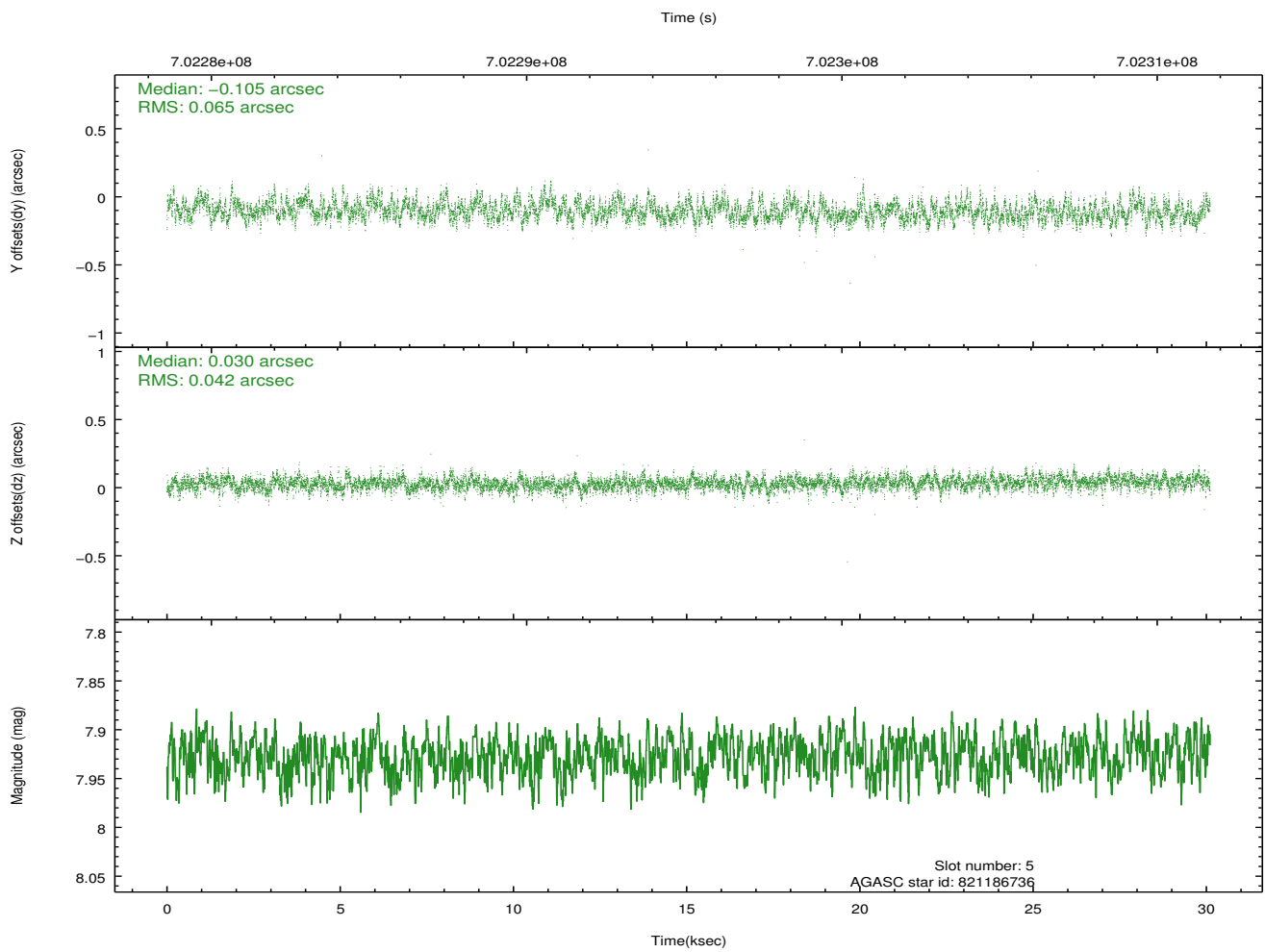
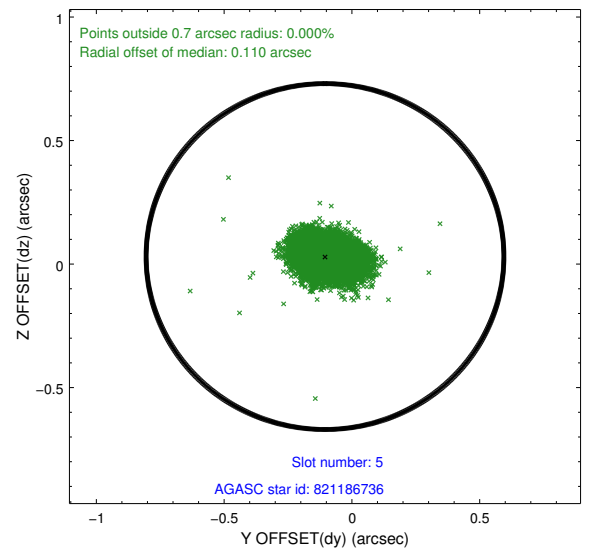
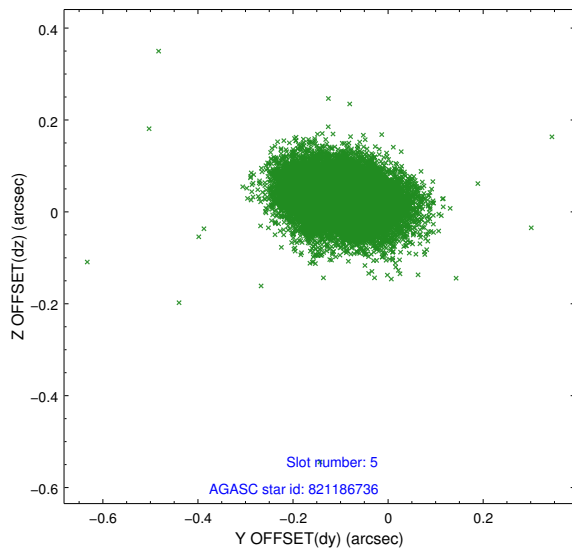
2.4.1 Slot 3



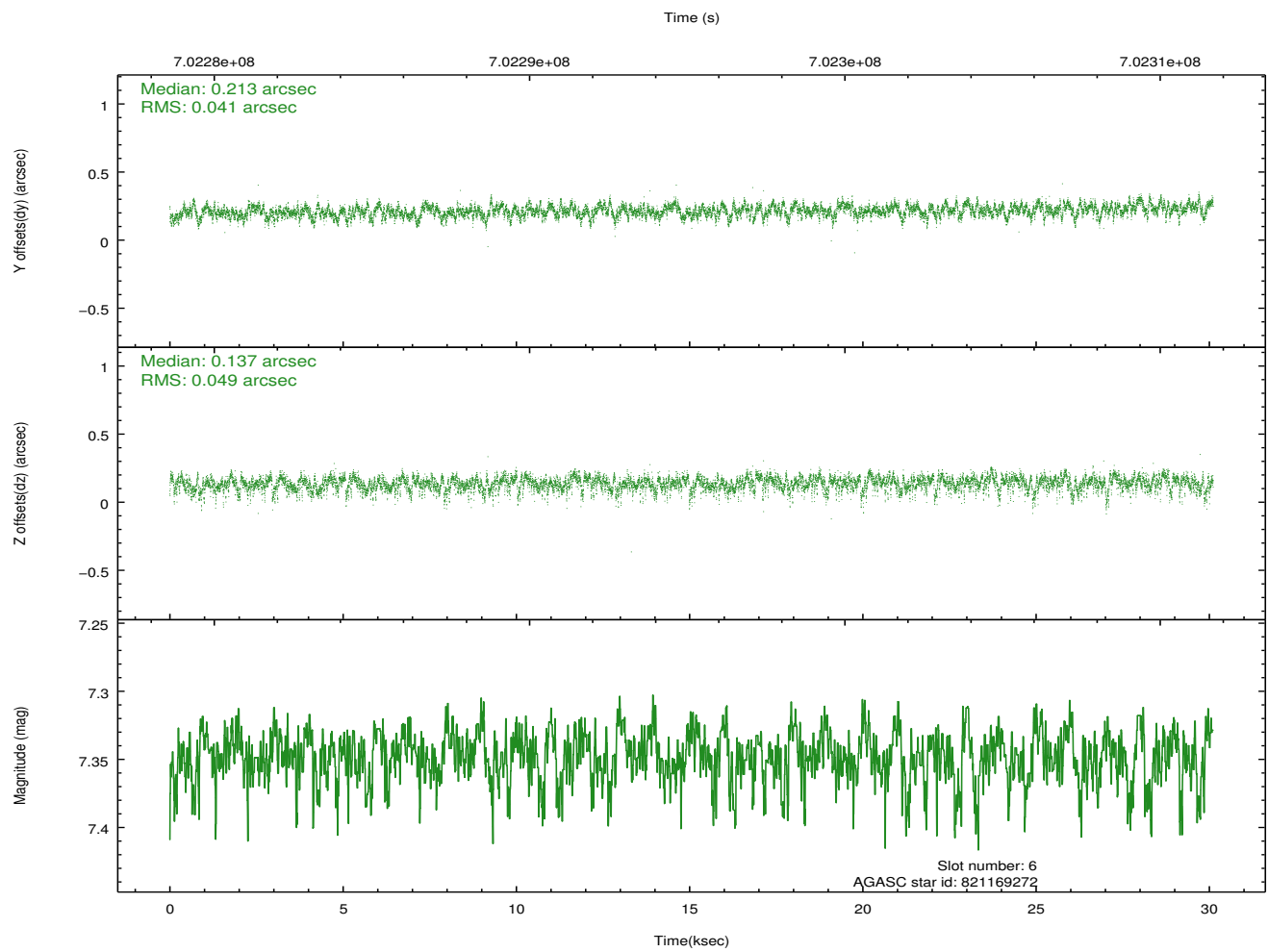
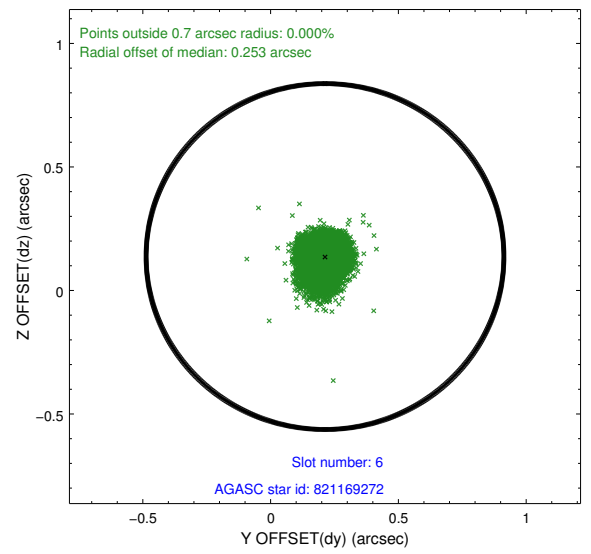
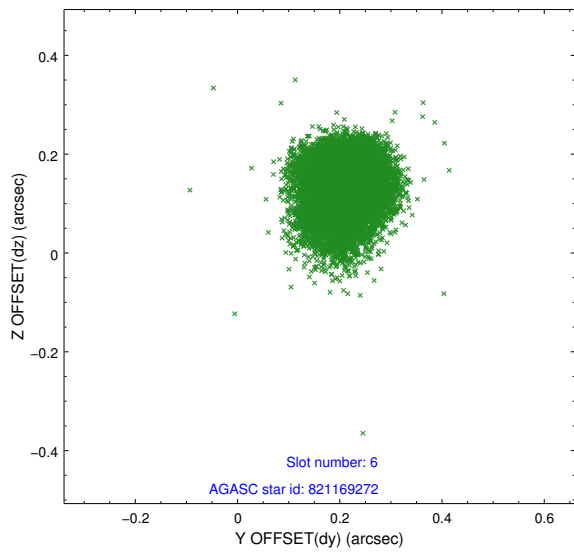
2.4.2 Slot 4



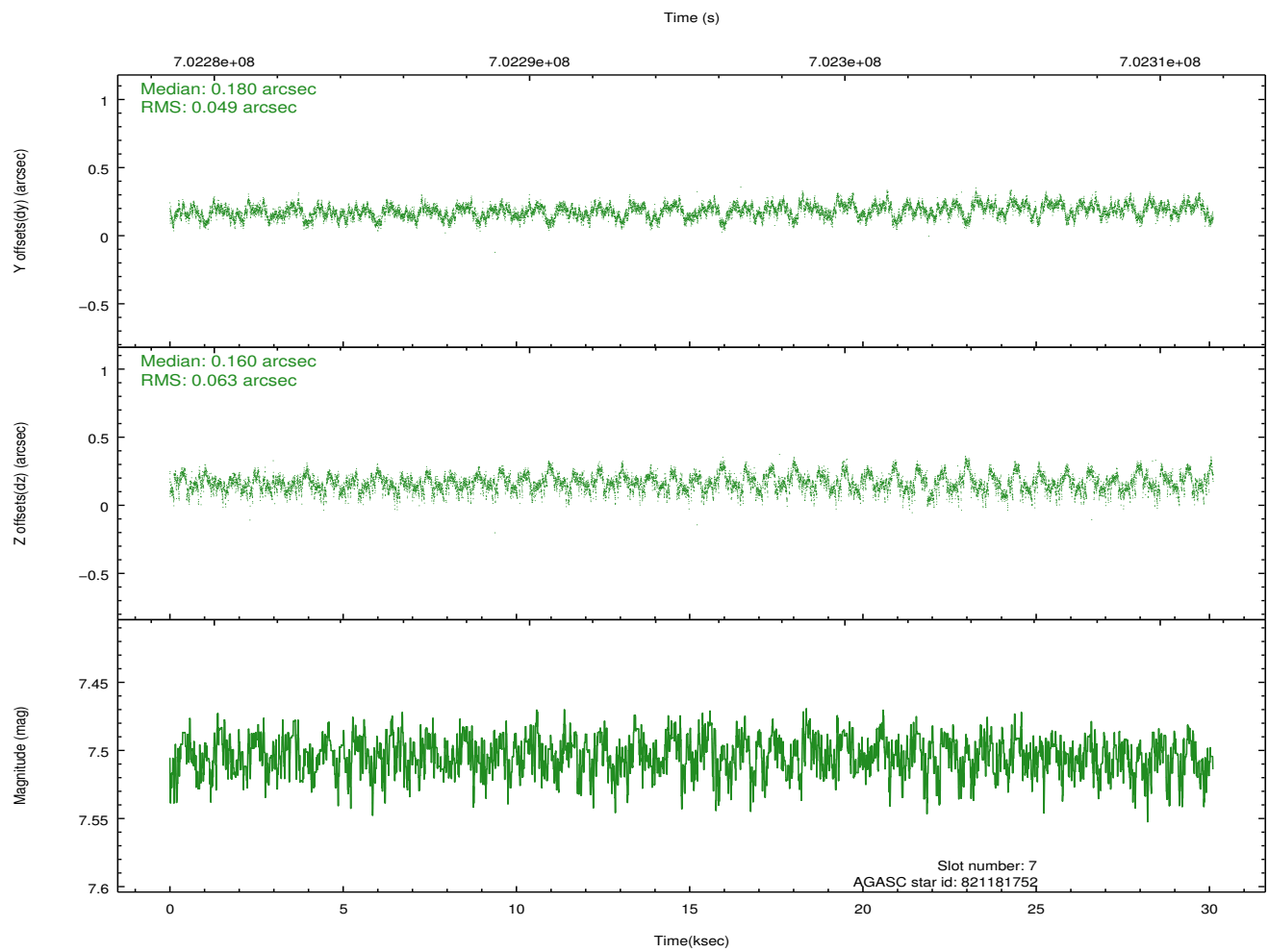
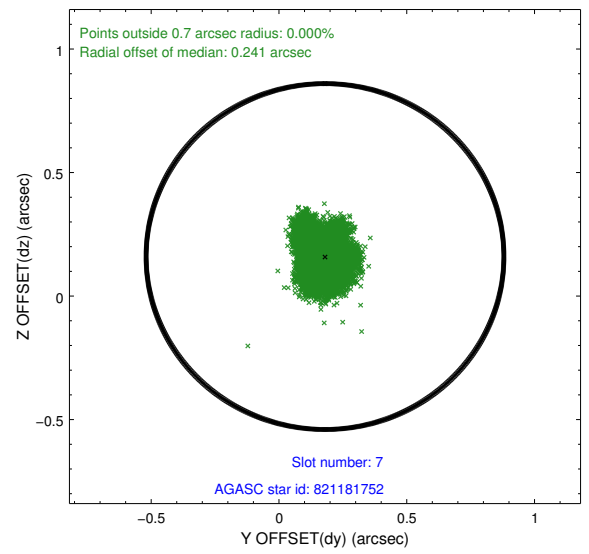
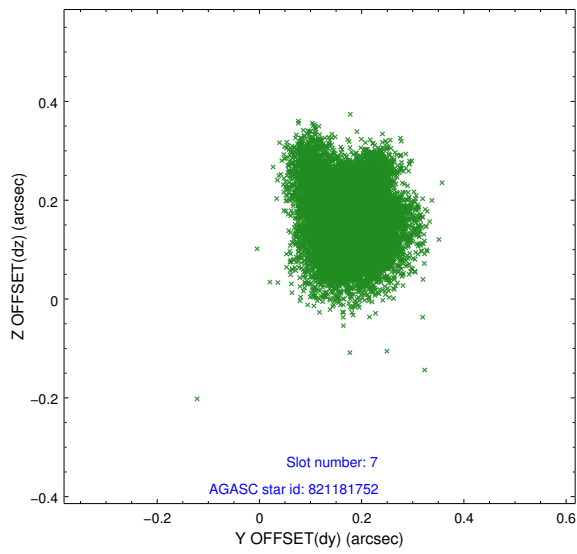
2.4.3 Slot 5



2.4.4 Slot 6

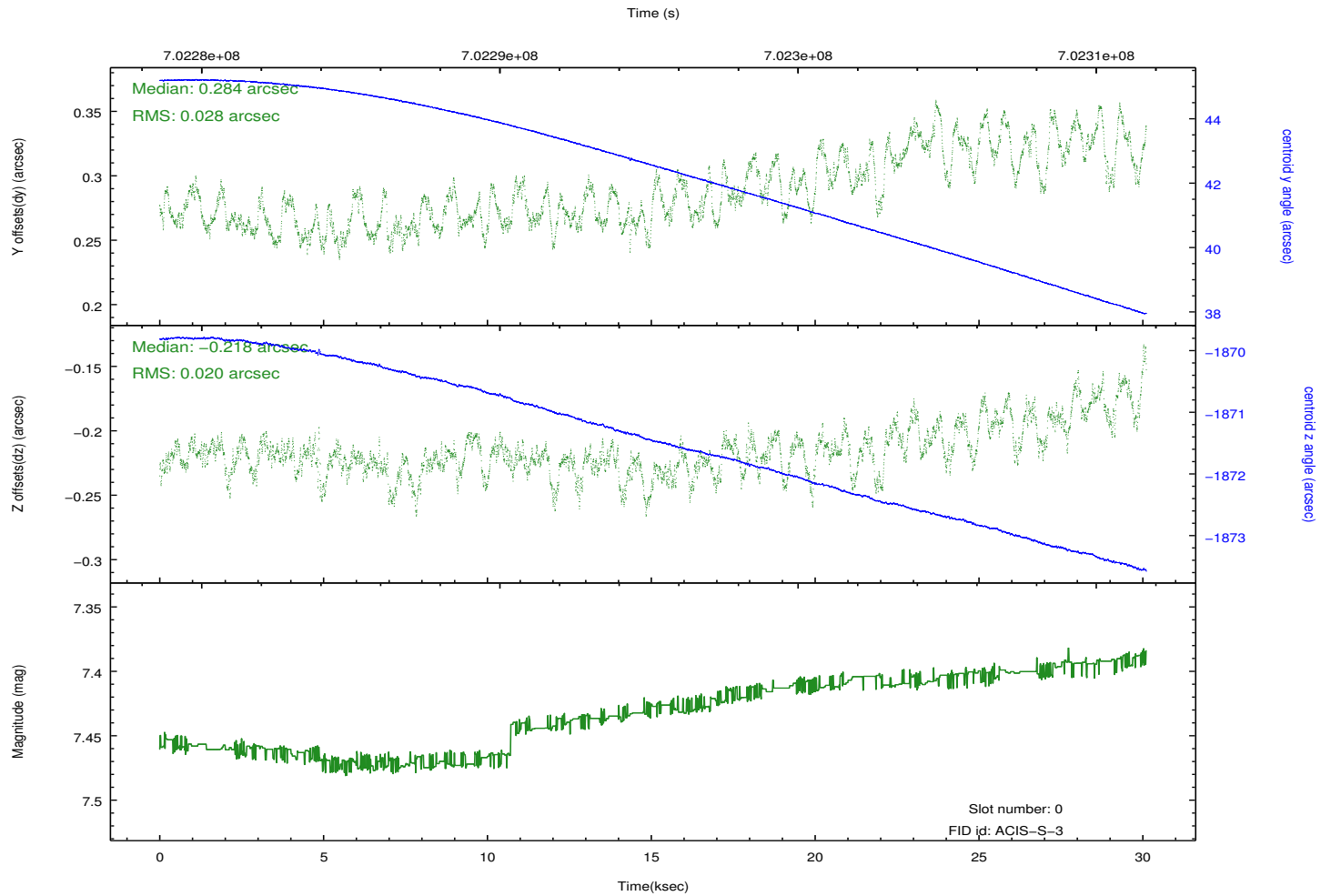
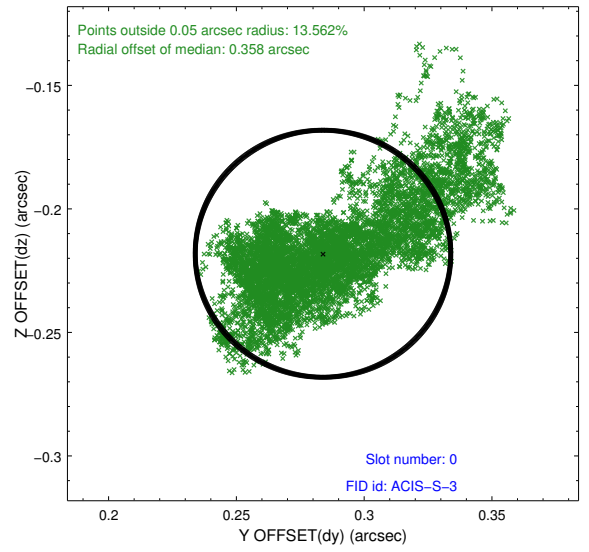
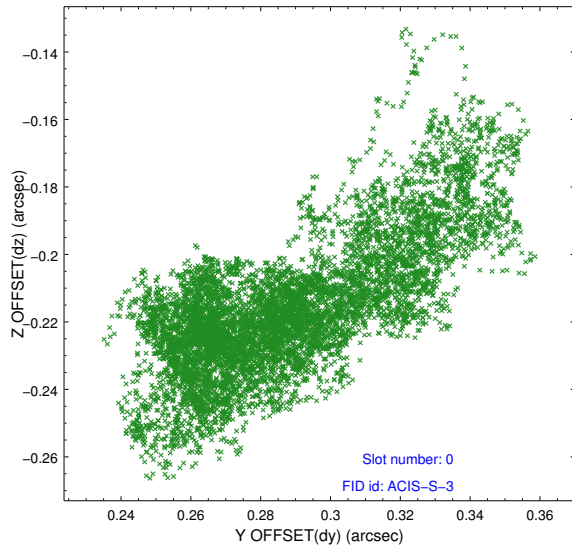


2.4.5 Slot 7

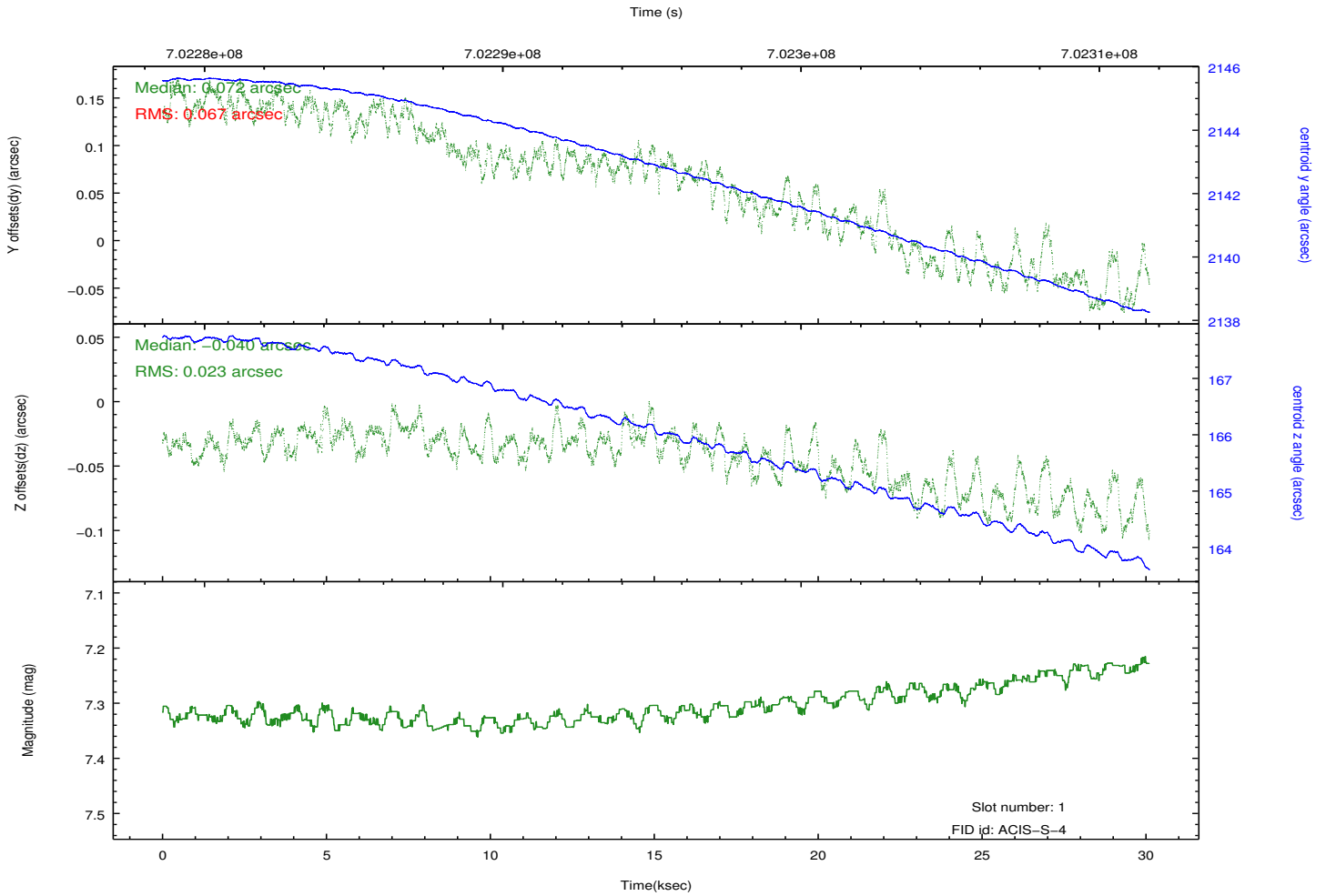
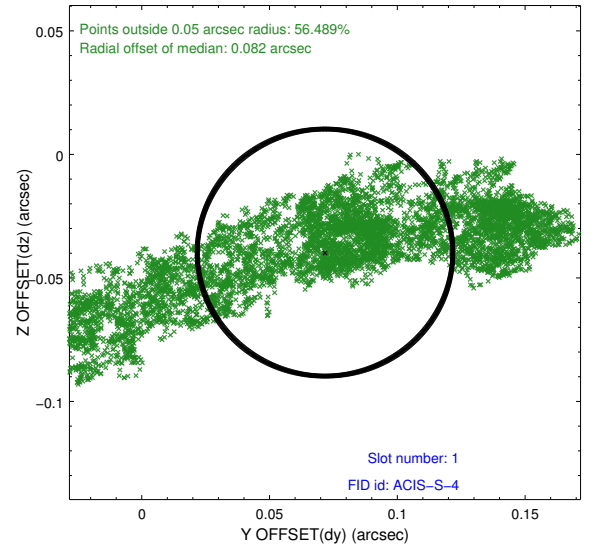
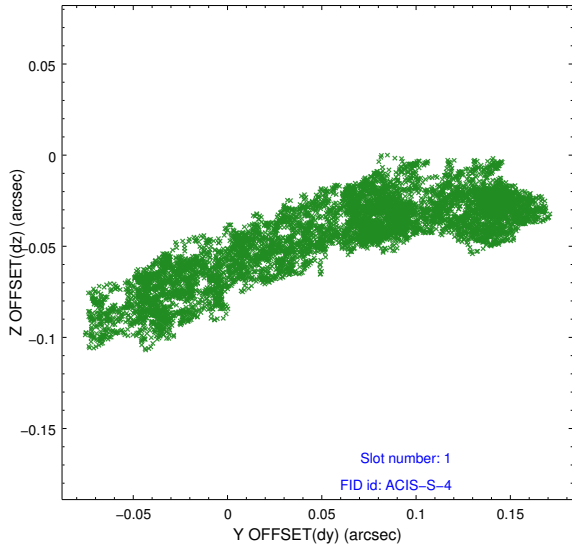


2.5 FID Slots

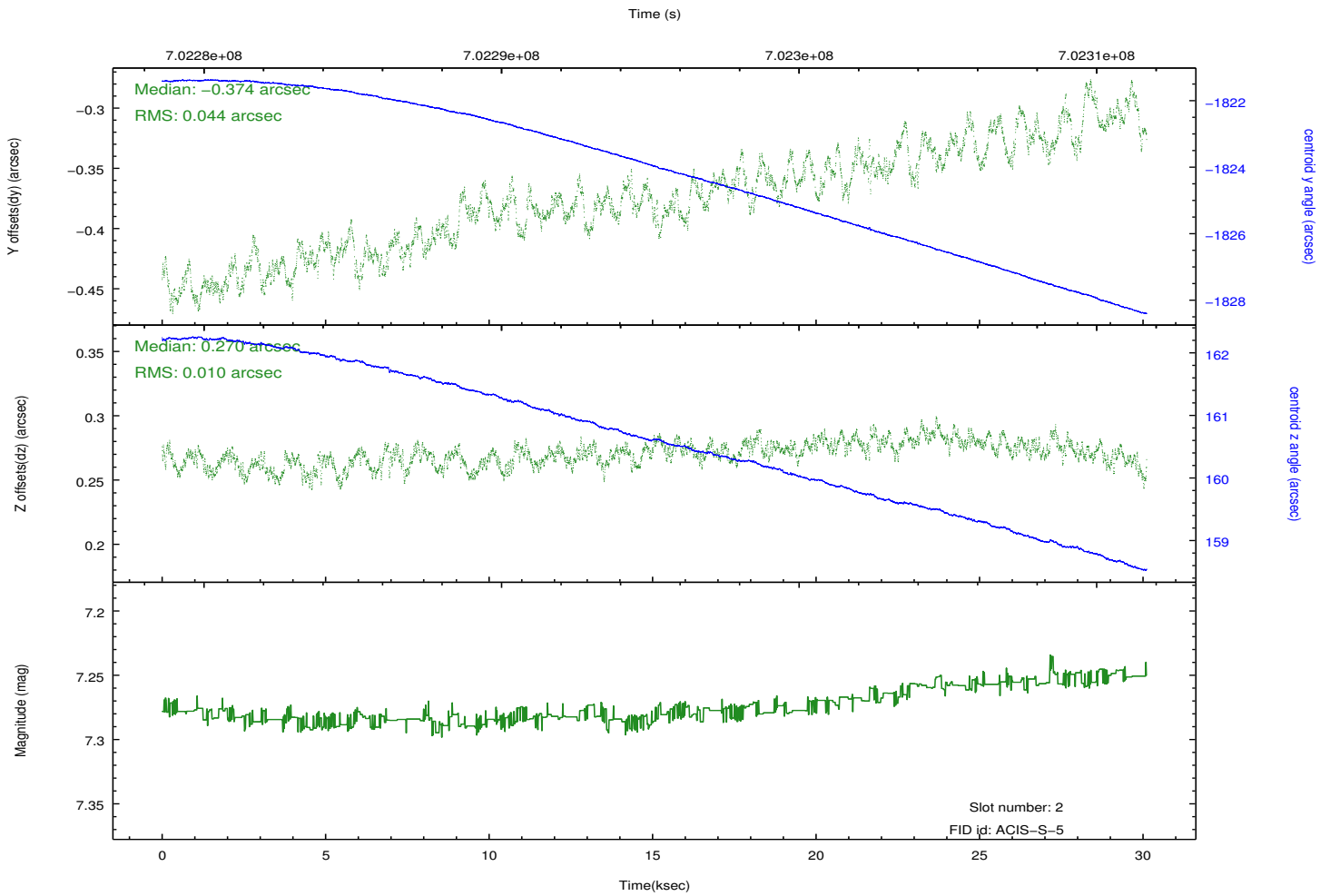
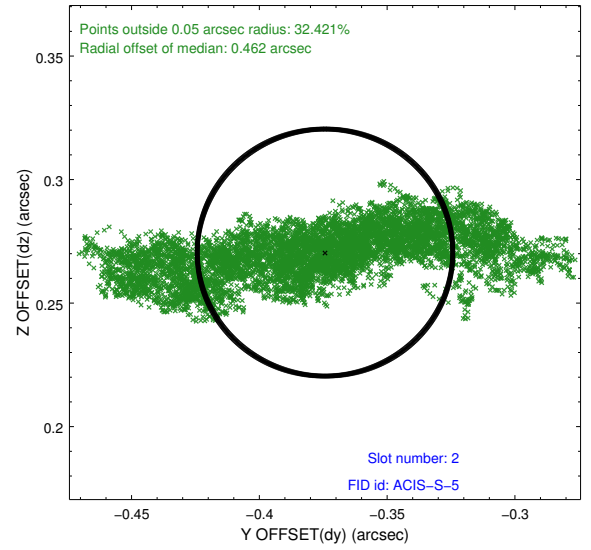
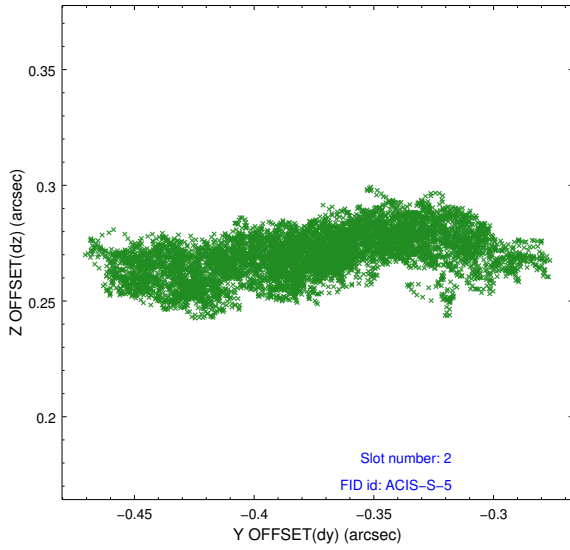
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2020.04.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.059560504436

A.2 Comments

The focal plane temperature during the interval 702280136.42 - 702287157.92 (MET s) of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -111.0 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.