

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21150 - L2 Version 2
Chandra X-Ray Center

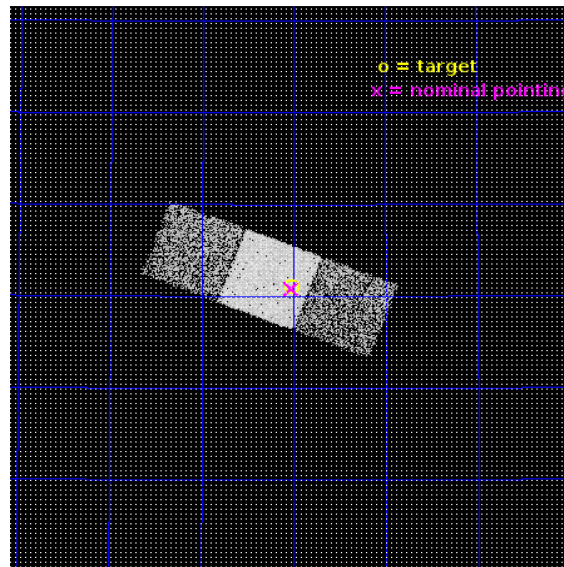
L2 Processing Date : Mar 6 2019

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1 Front

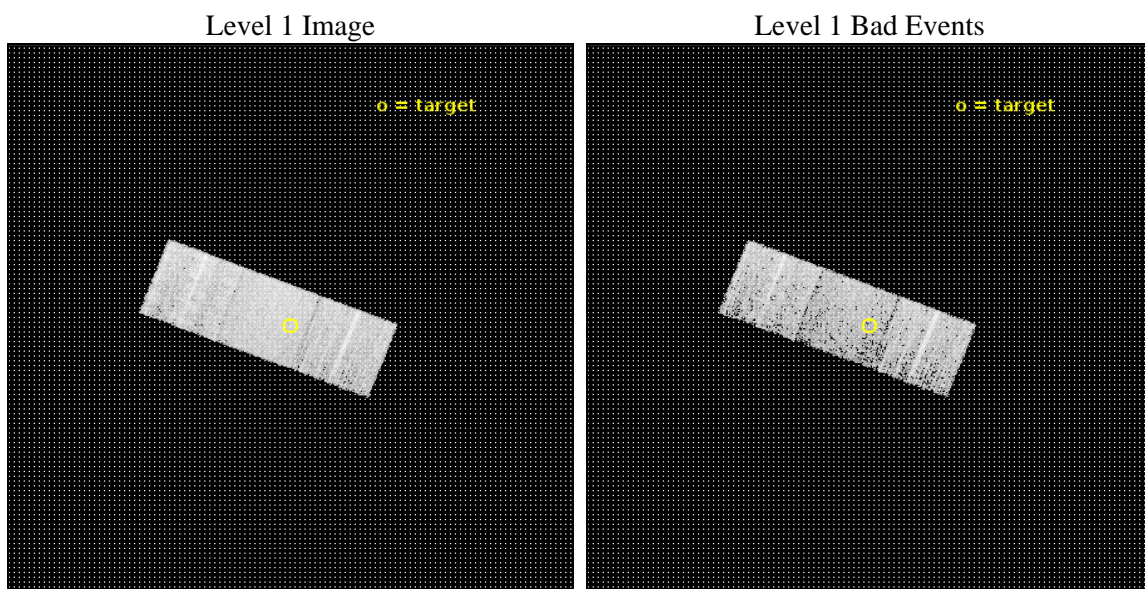
seq_num	703690	Sequence number
obs_id	21150	Observation id
title	A Chandra view of Eddington-limited accretion in DOGs	Proposal tit
observer	Dr. Gordon Garmire	Principal investigator
object	J1028+5011	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	157.00625	Observer's specified target RA [deg]
dec_targ	50.184028	Observer's specified target Dec [deg]
ra_nom	157.00651702707	Nominal RA [deg]
dec_nom	50.180508097357	Nominal Dec [deg]
roll_nom	201.15646681071	Nominal Roll [deg]
revision	2	Processing version of data
ontime	4407.1190252304	Sum of GTIs [s]
livetime	4349.5367706919	Livetime [s]
ontime6	4407.0779852867	Sum of GTIs [s]
ontime7	4407.1190252304	Sum of GTIs [s]
ontime8	4407.0369452238	Sum of GTIs [s]
l2events	25616	Number of level 2 events



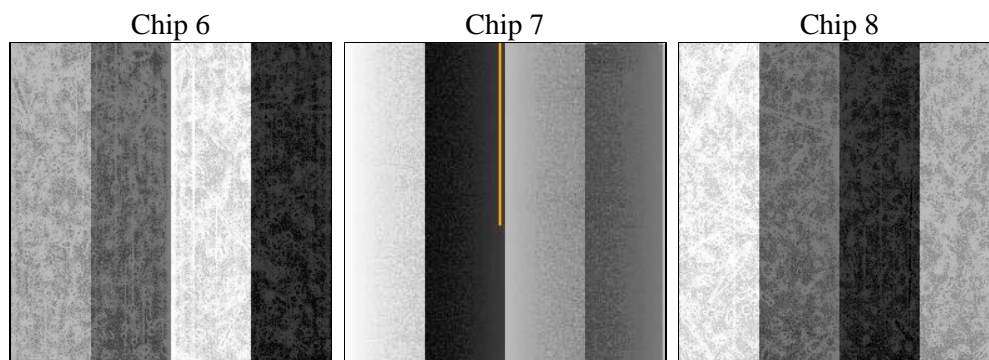
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	4300.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	4407.1190252304	Sum of GTIs [s]
caldsver	4.8.2	 	ontime6	4407.0779852867	Sum of GTIs [s]
date	2019-03-06T23:34:49	Date and time of file creation	ontime7	4407.1190252304	Sum of GTIs [s]
revision	2	Processing version of data	ontime8	4407.0369452238	Sum of GTIs [s]
			l1events	125942	Number of level 1 events

2.1.4 Events

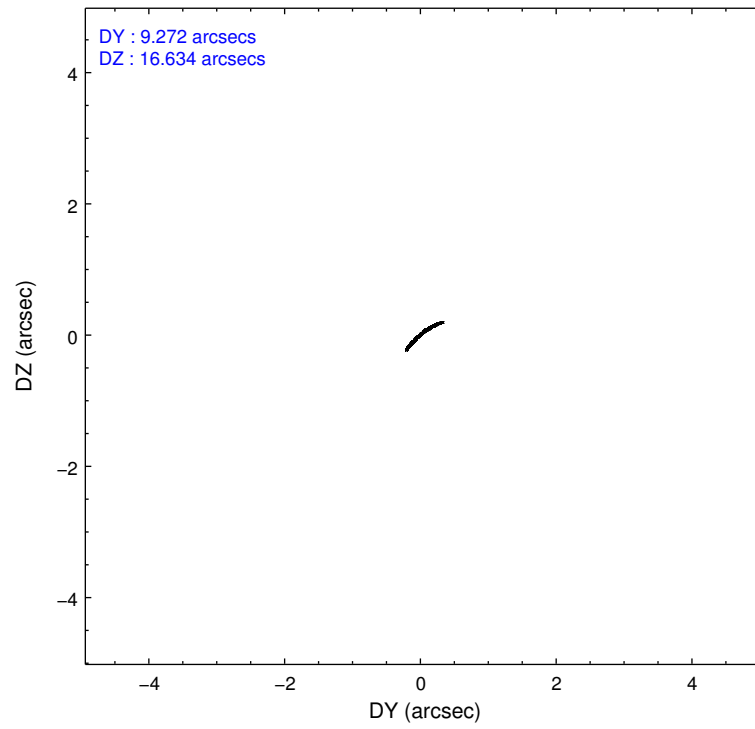
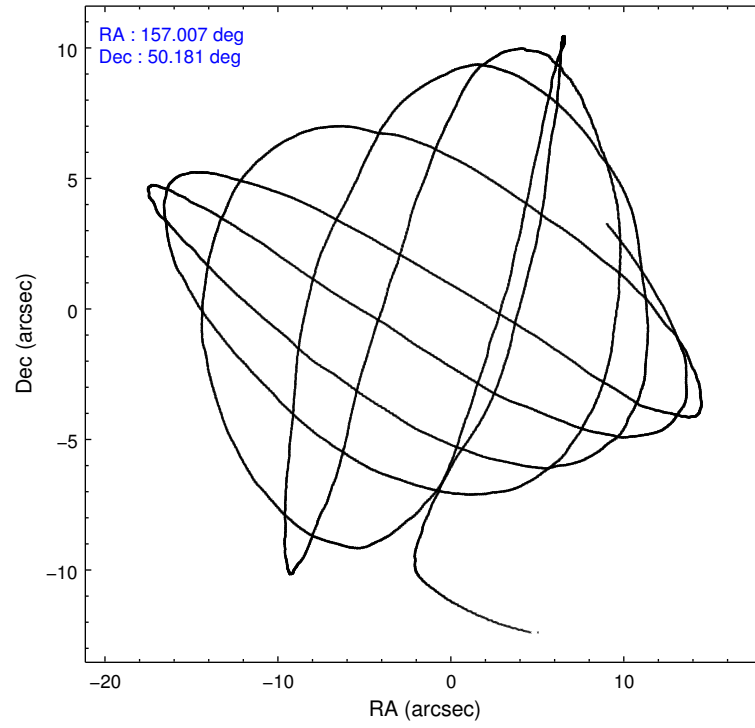
	ccd 6	ccd 7	ccd 8
level 1 events	36585	44019	45338
rejected events	32683	25150	34308
rejected %	89%	57%	75%

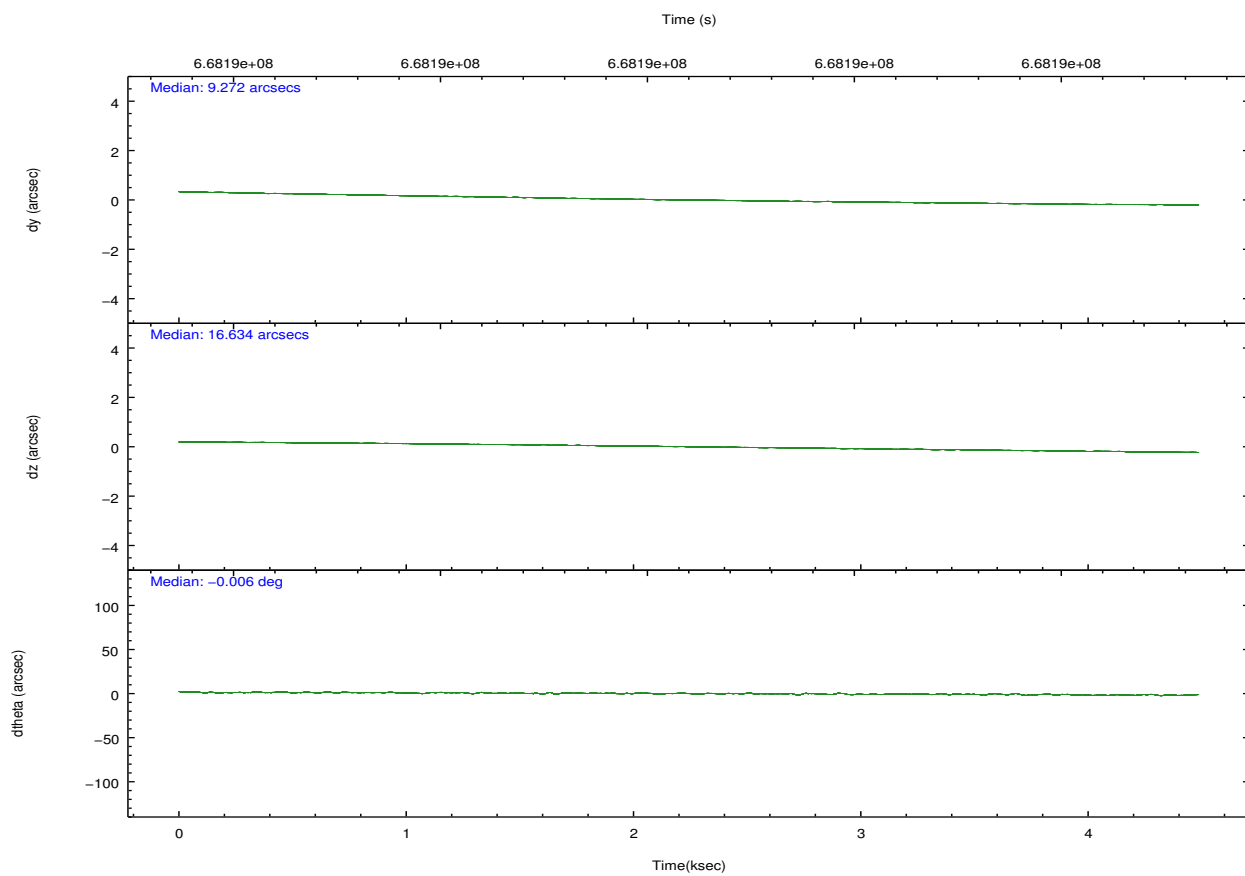
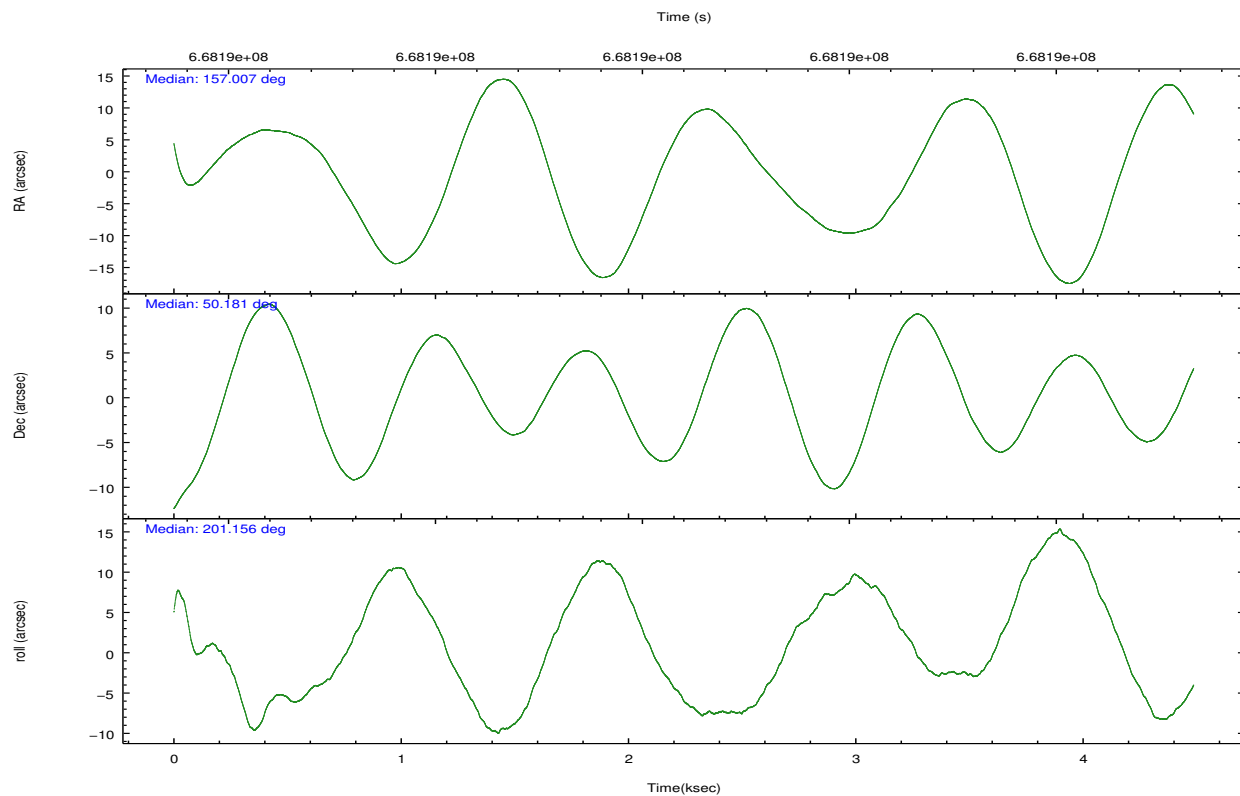
	ccd 6	ccd 7	ccd 8
grade 0 events	1046	1517	3079
	2%	3%	6%
grade 1 events	16	65	32
	0%	0%	0%
grade 2 events	1162	3991	2821
	3%	9%	6%
grade 3 events	276	1458	1022
	0%	3%	2%
grade 4 events	299	1440	946
	0%	3%	2%
grade 5 events	1339	4244	2202
	3%	9%	4%
grade 6 events	1124	10499	3168
	3%	23%	6%
grade 7 events	31323	20805	32068
	85%	47%	70%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-678	ACIS-678	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	157.032767	157.0065170270742	Subarray requested	NONE	NONE
[deg] Pointing Dec	50.202196	50.18050809735711	Alternating exposures requested	N	N
[deg] Pointing Roll	200.979628	201.1564668107134	[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)	668189163.184000	668188193.85322			
Observation start date	2019-03-05T16:04:54	2019-03-05T15:49:53			
[s] Observation end time (MET)	668193463.184000	668194574.99111			
Observation end date	2019-03-05T17:16:34	2019-03-05T17:36:14			
Read mode	TIMED	TIMED			

2.3 Aspect



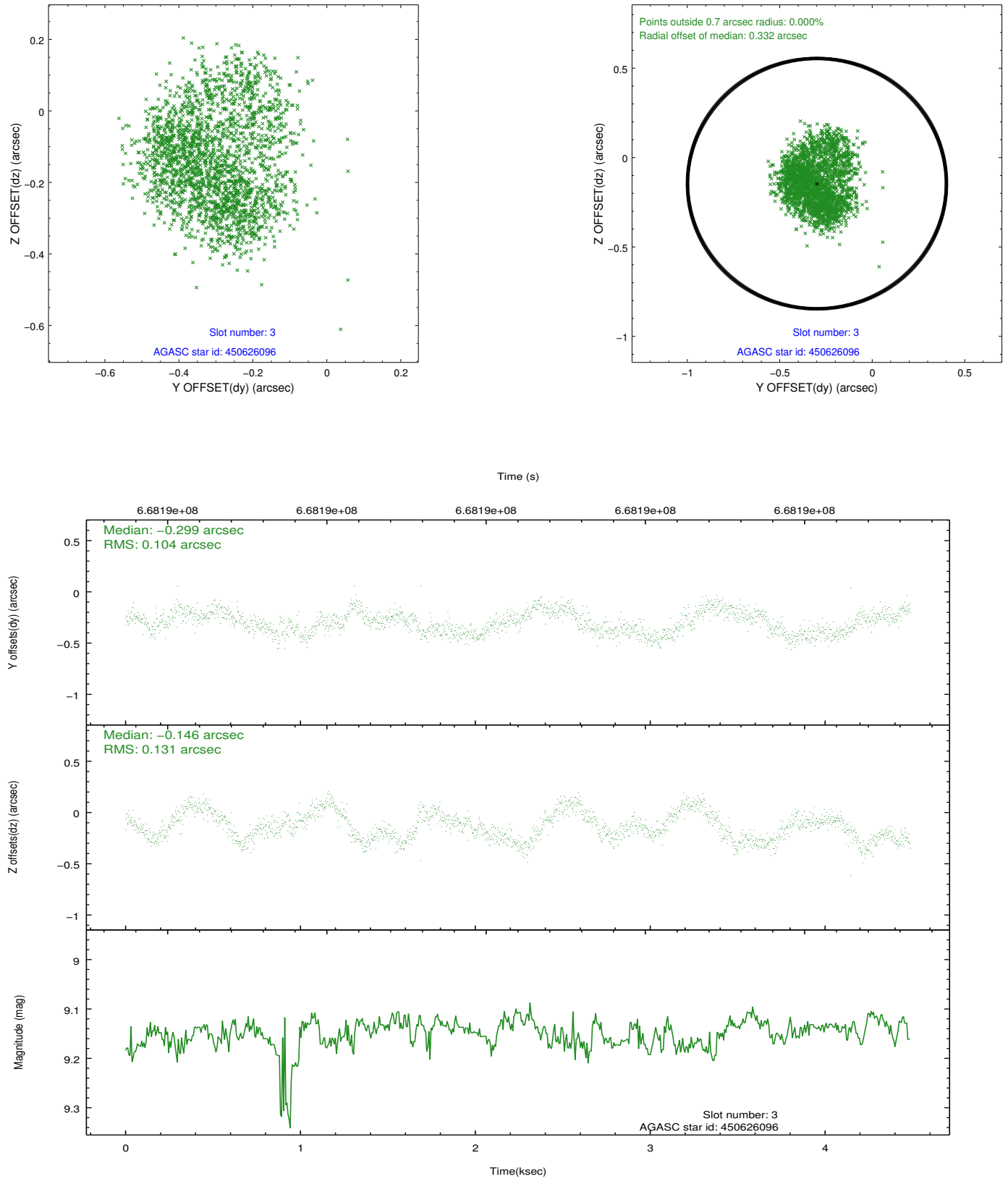


Slot Statistics

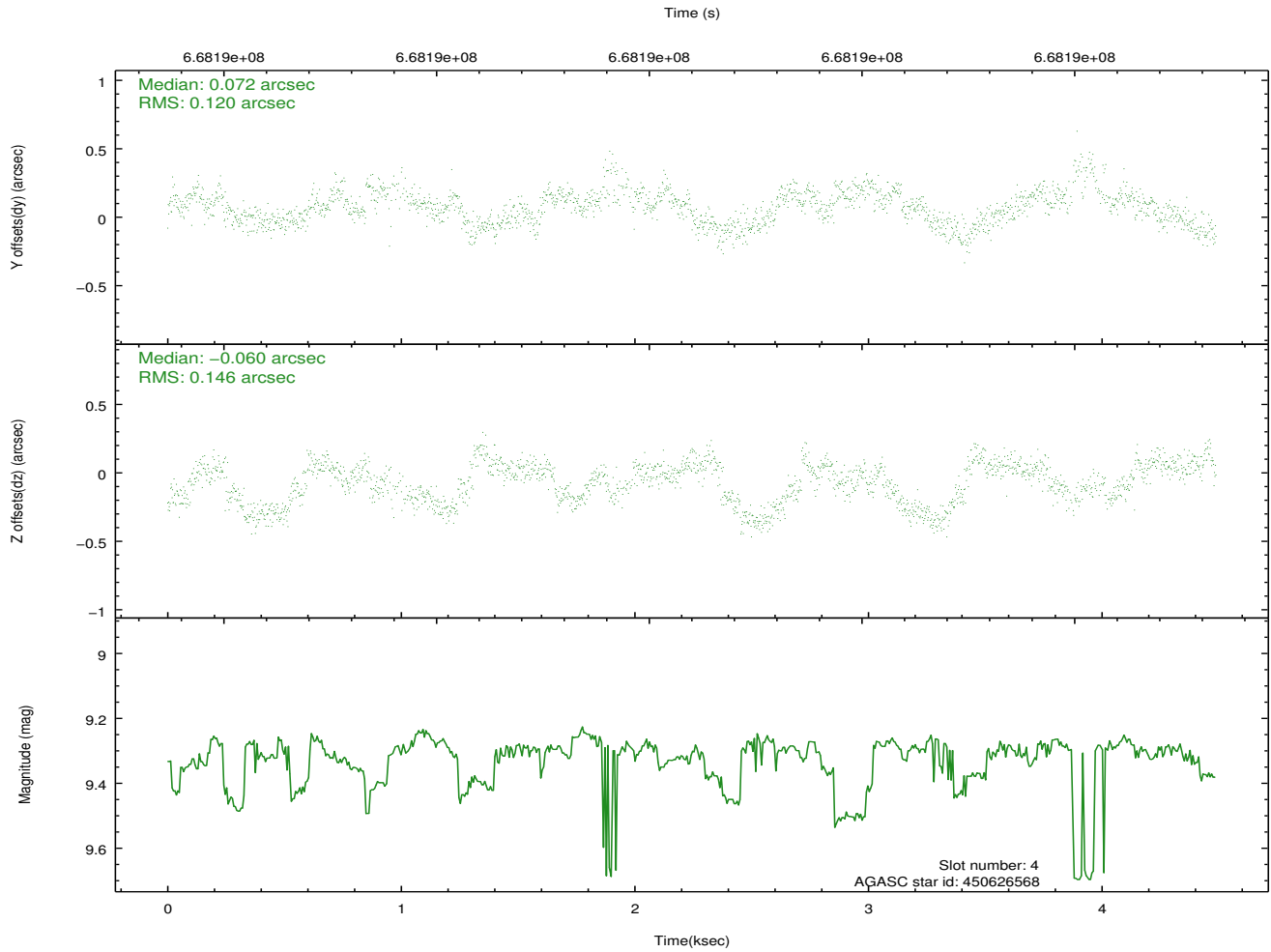
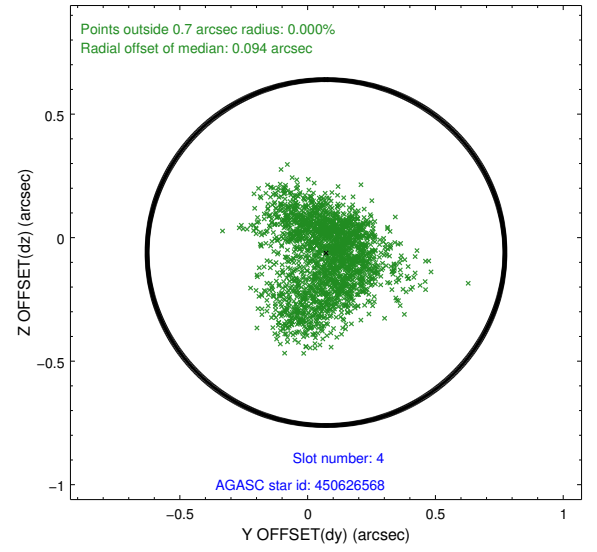
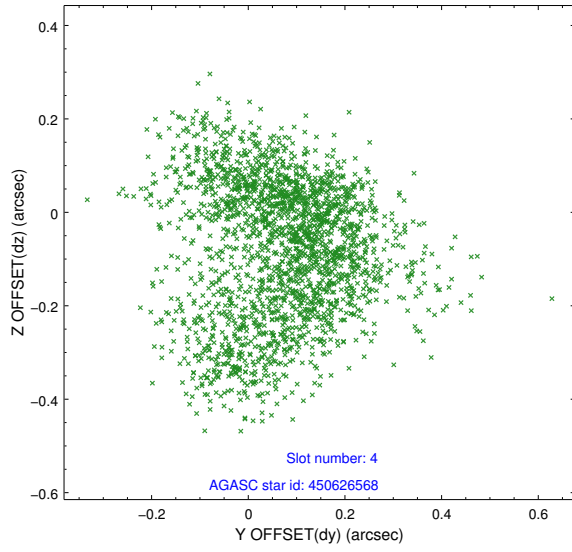
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.14	1094	1.000	-0.281	-0.152	0.010	0.016	0.000000	0.000000	-762.34	-1738
1	FID		ACIS-S-4	7.28	1095	1.000	0.683	0.176	0.009	0.016	0.000000	0.000000	2151.22	169
2	FID		ACIS-S-5	7.25	1094	1.000	-0.433	-0.015	0.013	0.020	0.000000	0.000000	-1813.62	164
3	GUIDE	used	450626096	9.15	2189	1.000	-0.299	-0.146	0.182	0.267	156.369448	49.410795	2468.77	2097
4	GUIDE	used	450626568	9.31	2128	1.000	0.072	-0.060	0.202	0.323	156.450342	49.999401	1520.27	195
5	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0
6	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0
7	GUIDE	used	451946208	6.96	2187	1.000	0.230	0.216	0.097	0.150	157.563600	50.569125	-1606.13	-801

2.4 Star Slots

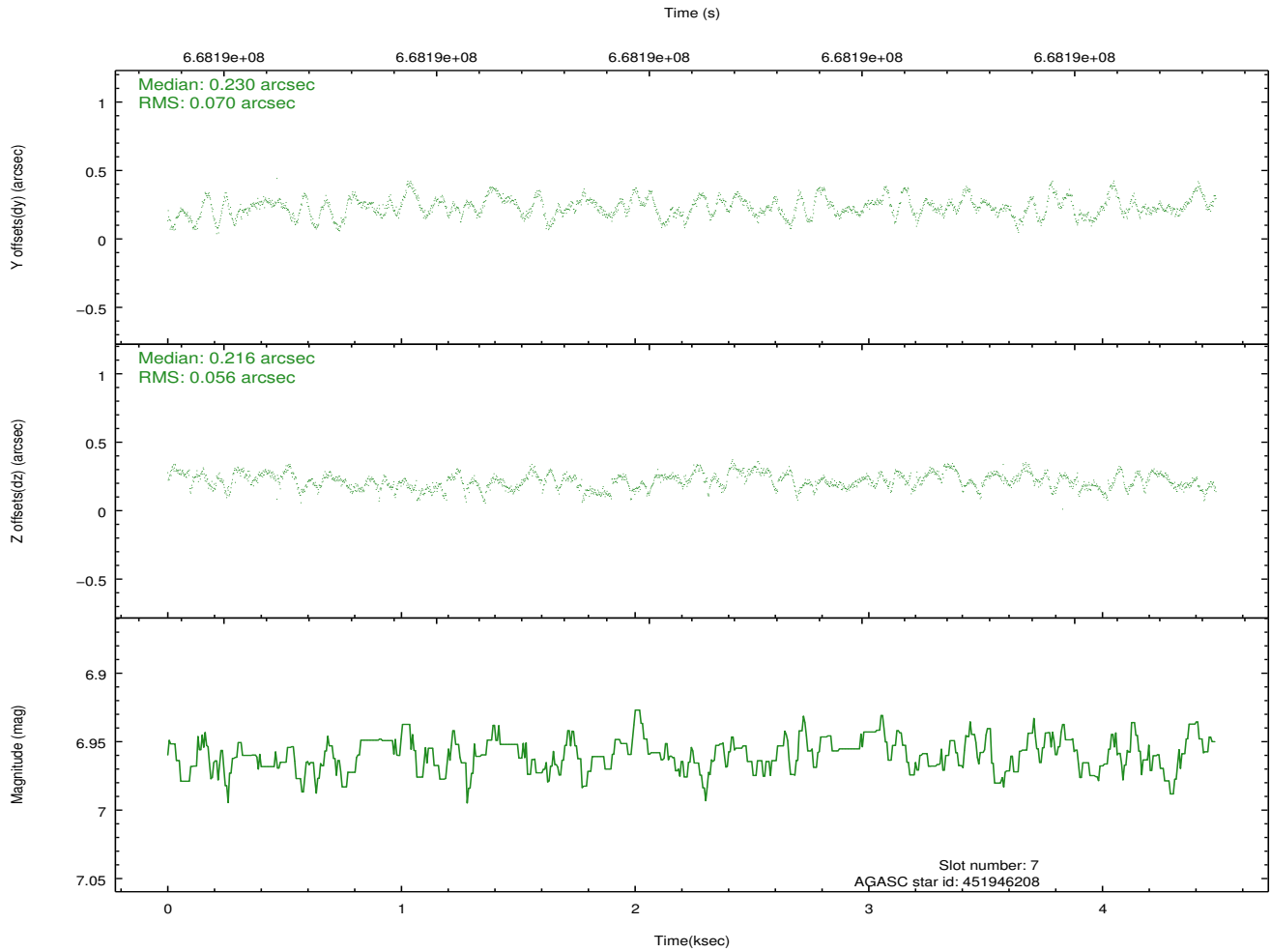
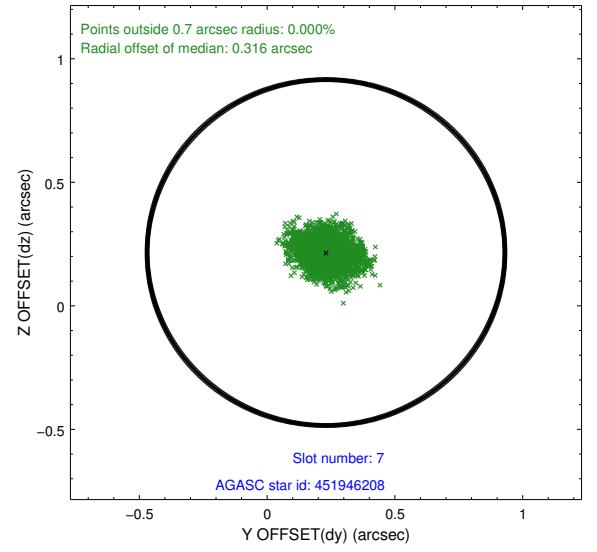
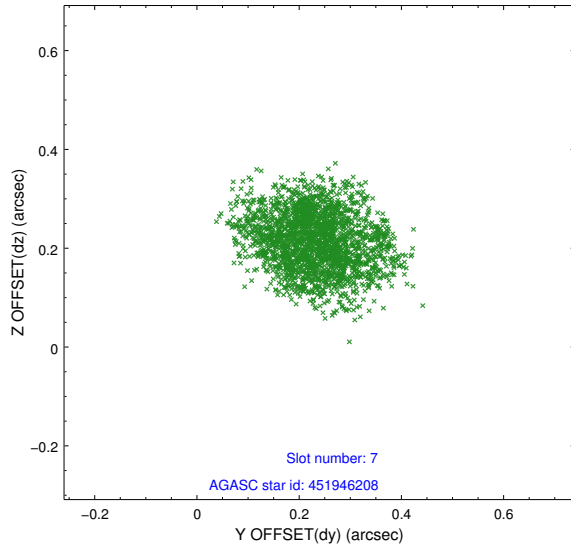
2.4.1 Slot 3



2.4.2 Slot 4

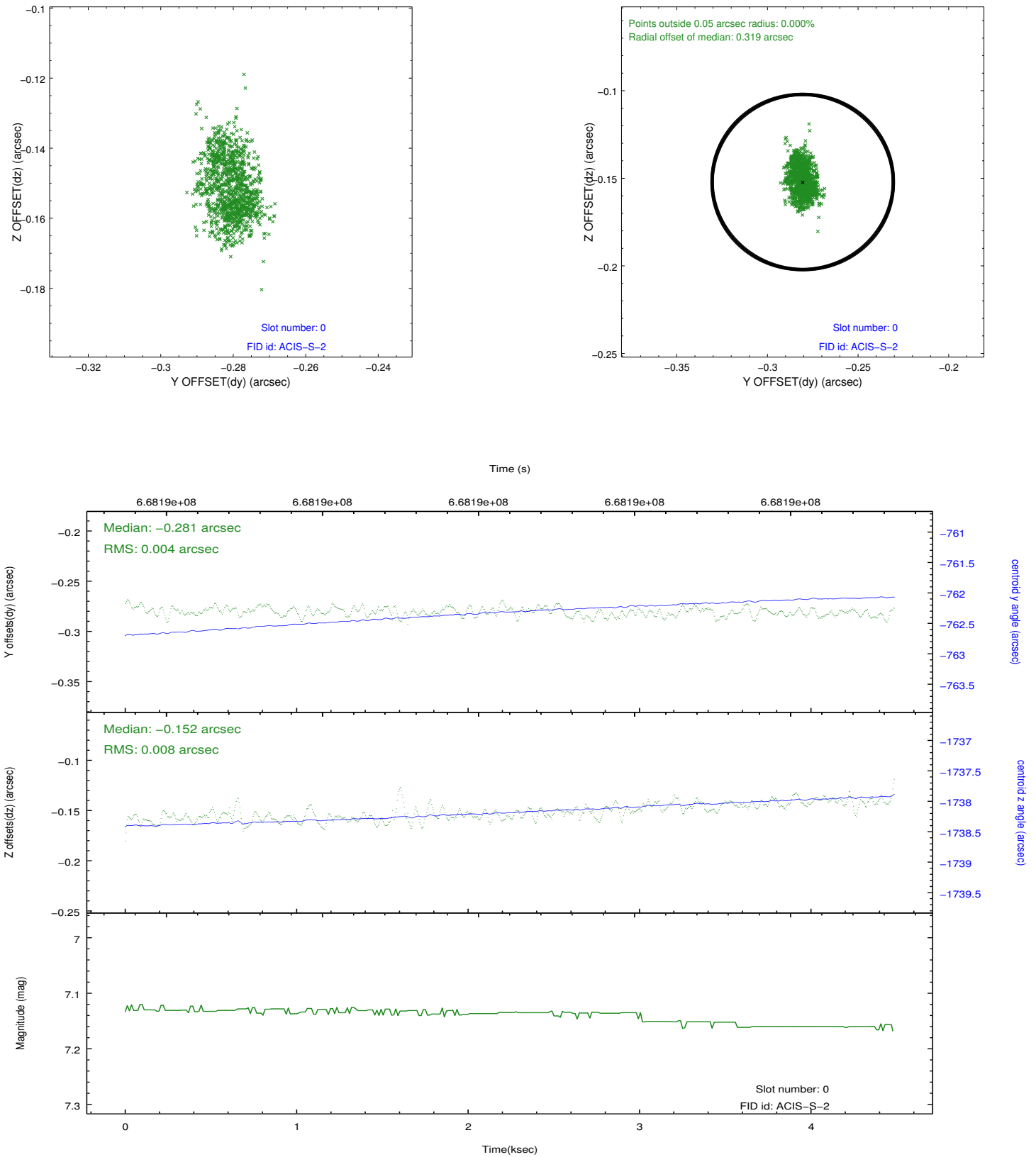


2.4.3 Slot 7

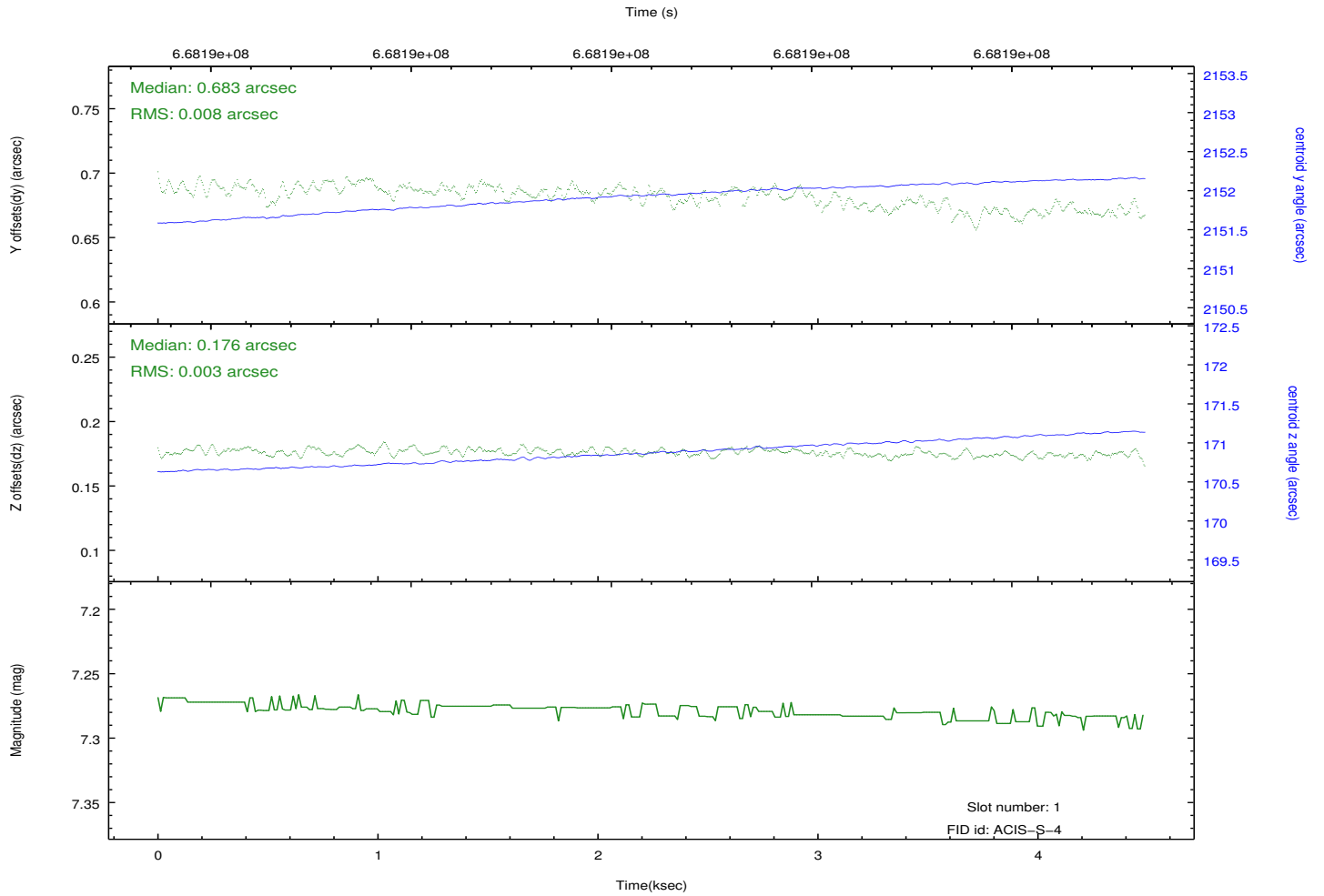
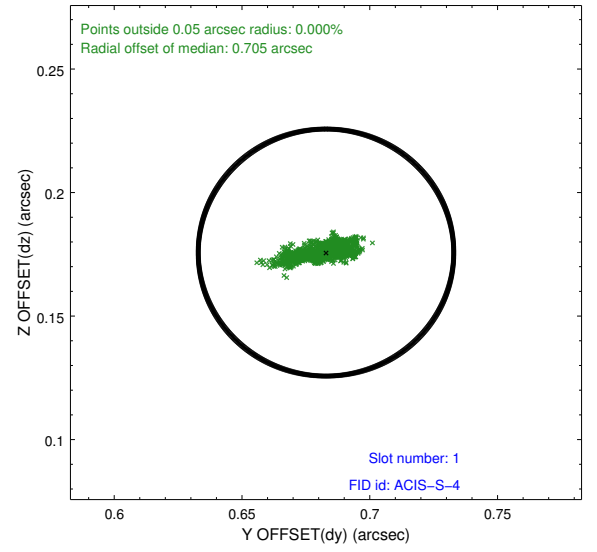
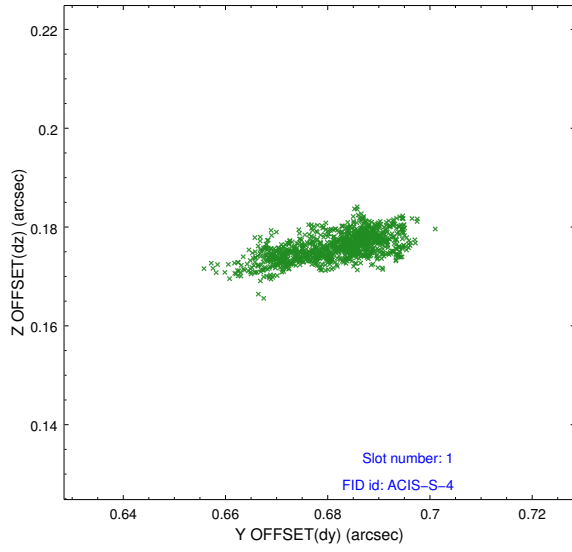


2.5 FID Slots

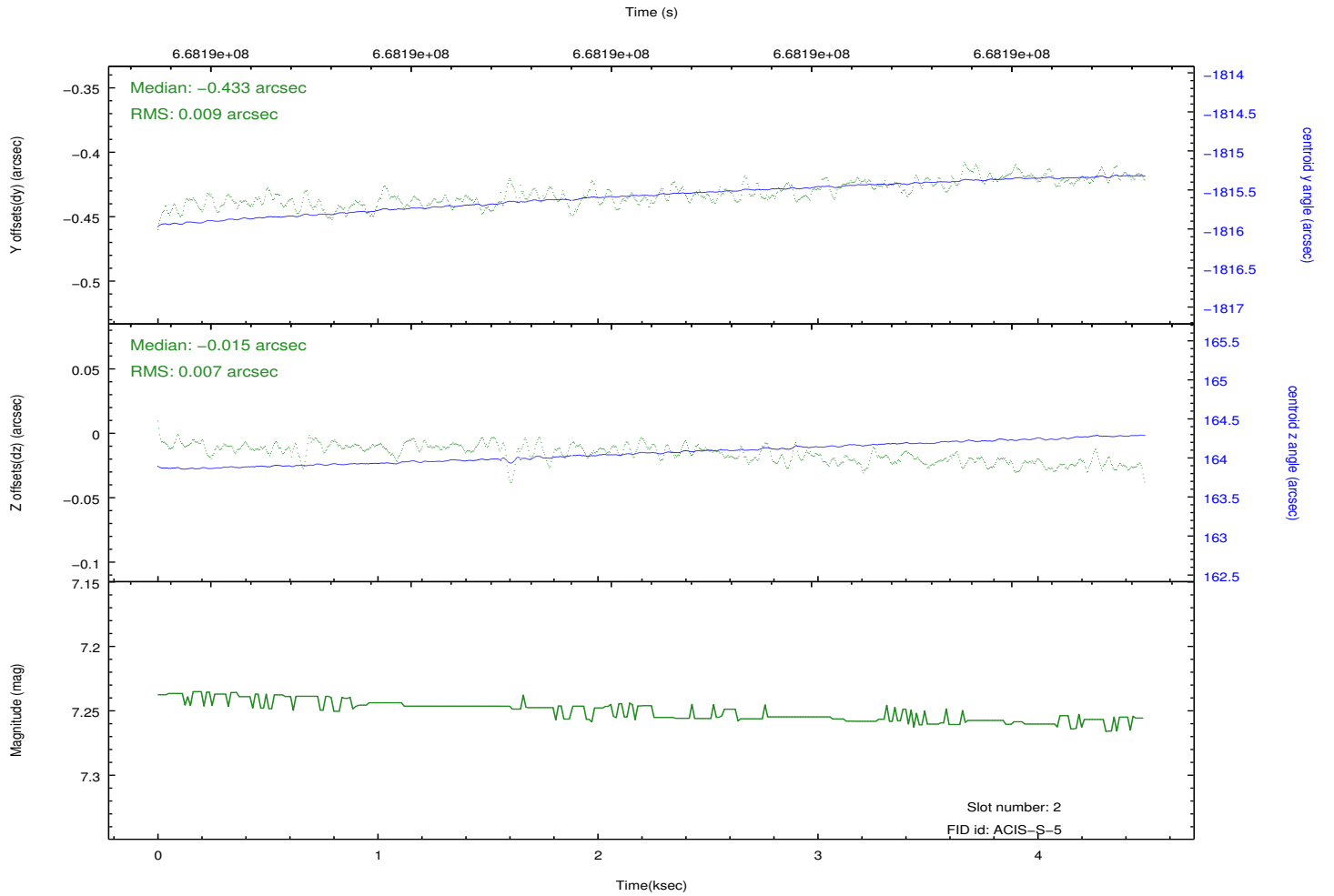
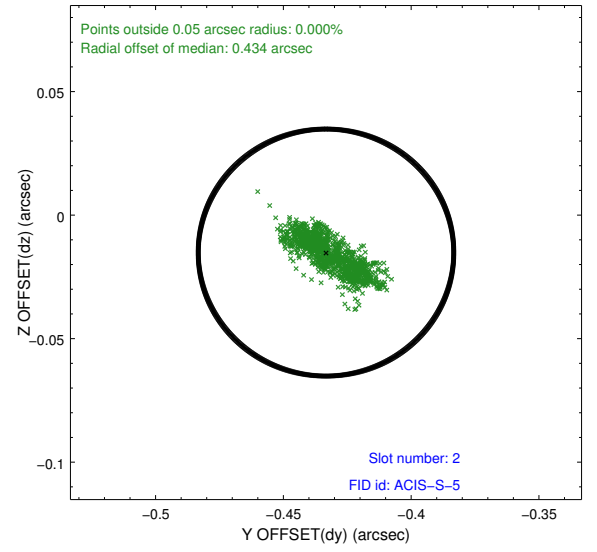
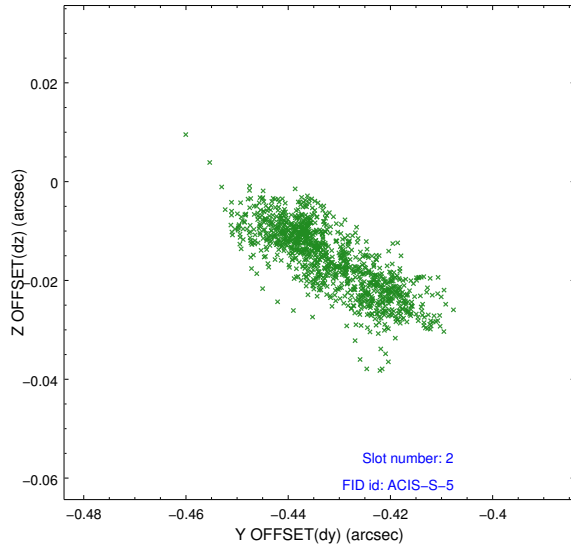
2.5.1 Slot 0



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)	2019.03.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	4.4071190252304

A.2 Comments

The guide stars in slots 5 and 6 were removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of these guide stars from the solution.

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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/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.