

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21412 - L2 Version 1
Chandra X-Ray Center

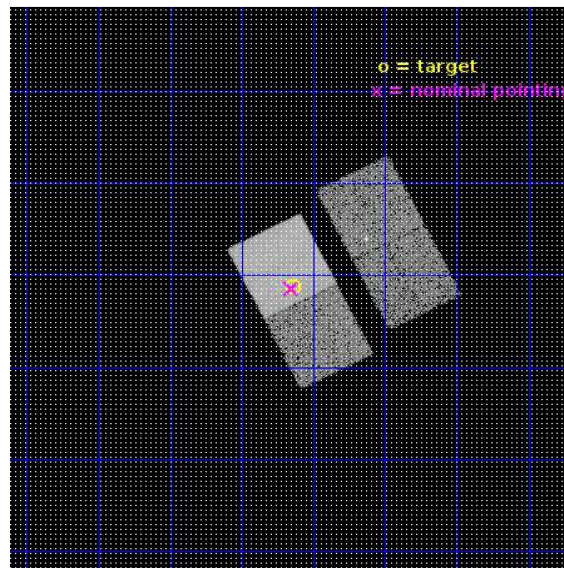
L2 Processing Date : May 3 2019

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1 Front

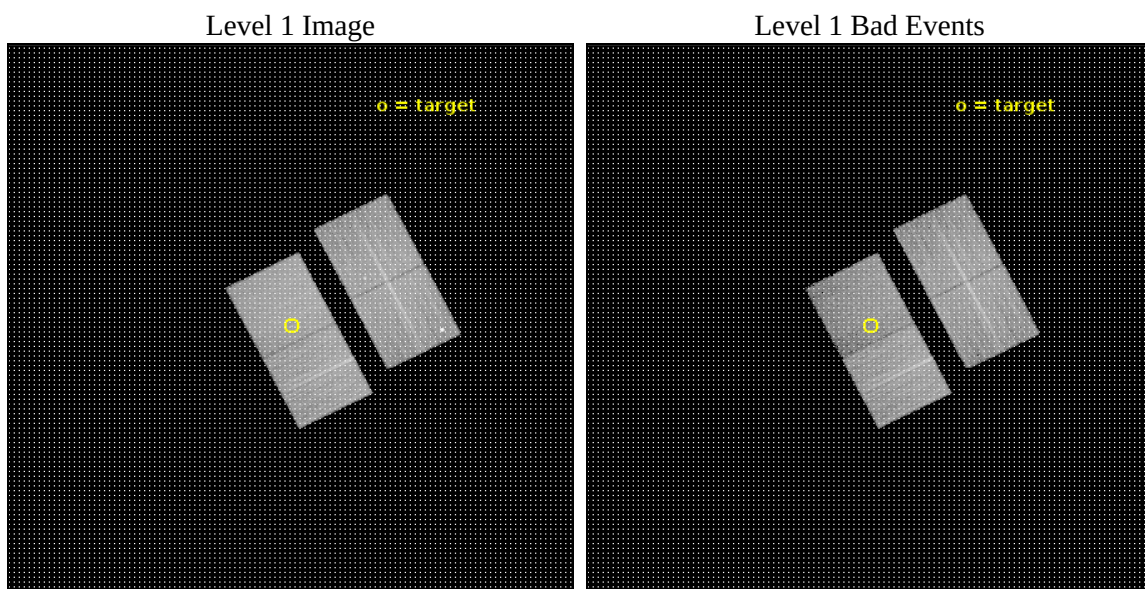
seq_num	703710	Sequence number
obs_id	21412	Observation id
title	Changing-Look Quasars: Radical Changes in Accretion Rate?	Proposal
observer	Paul Green	Principal investigator
object	SDSS J1226-0011	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	186.66112	Observer's specified target RA [deg]
dec_targ	-0.18725	Observer's specified target Dec [deg]
ra_nom	186.66342036861	Nominal RA [deg]
dec_nom	-0.19103600240693	Nominal Dec [deg]
roll_nom	243.15664233058	Nominal Roll [deg]
revision	1	Processing version of data
ontime	17064.641243458	Sum of GTIs [s]
livetime	16841.679142806	Livetime [s]
ontime2	17064.518123507	Sum of GTIs [s]
ontime3	17064.559163451	Sum of GTIs [s]
ontime6	17064.600203514	Sum of GTIs [s]
ontime7	17064.641243458	Sum of GTIs [s]
l2events	93795	Number of level 2 events



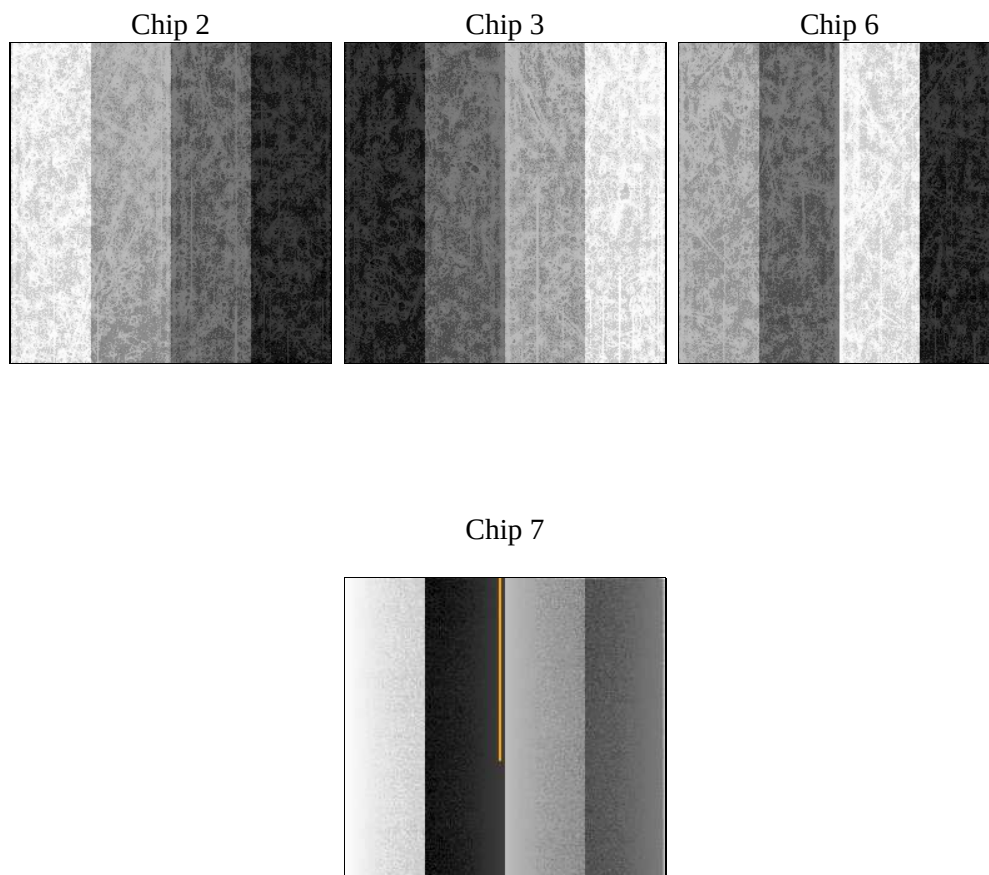
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	17000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	17064.641243458	Sum of GTIs [s]
caldsver	4.8.2	 	ontime2	17064.518123507	Sum of GTIs [s]
date	2019-05-03T22:25:18	Date and time of file creation	ontime3	17064.559163451	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	17064.600203514	Sum of GTIs [s]
			ontime7	17064.641243458	Sum of GTIs [s]
			l1events	520998	Number of level 1 events

2.1.4 Events

	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	130799	122188	133112	134899
rejected events	113713	109810	119592	72131
rejected %	86%	89%	89%	53%

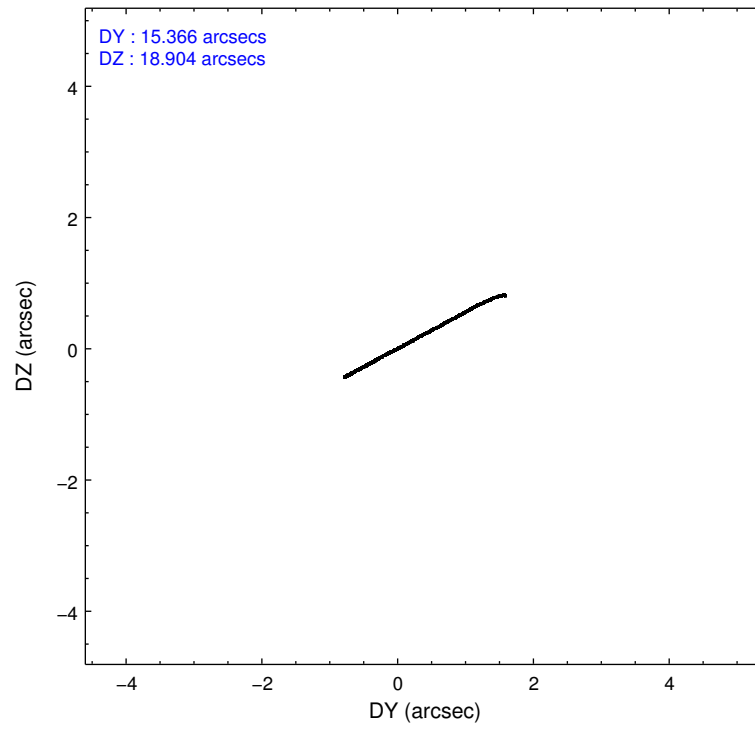
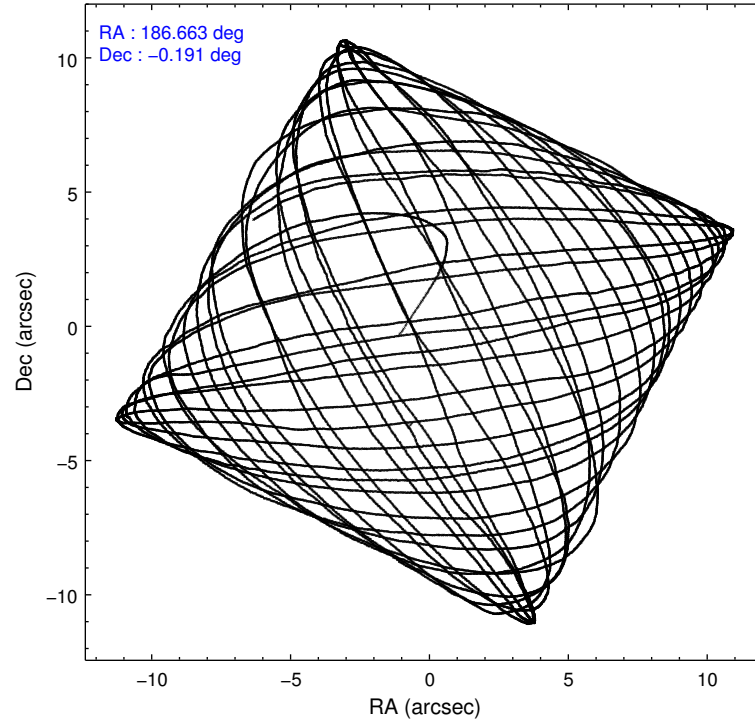
	ccd 2	ccd 3	ccd 6	ccd 7
grade 0 events	9476	4732	4057	5838
	7%	3%	3%	4%
grade 1 events	85	61	58	236
	0%	0%	0%	0%
grade 2 events	2813	2679	3823	13666
	2%	2%	2%	10%
grade 3 events	1225	1263	1132	5066
	0%	1%	0%	3%
grade 4 events	1199	1211	1065	4846
	0%	0%	0%	3%
grade 5 events	3819	4566	4295	13358
	2%	3%	3%	9%
grade 6 events	2375	2493	3445	33361
	1%	2%	2%	24%
grade 7 events	109807	105183	115237	58528
	83%	86%	86%	43%

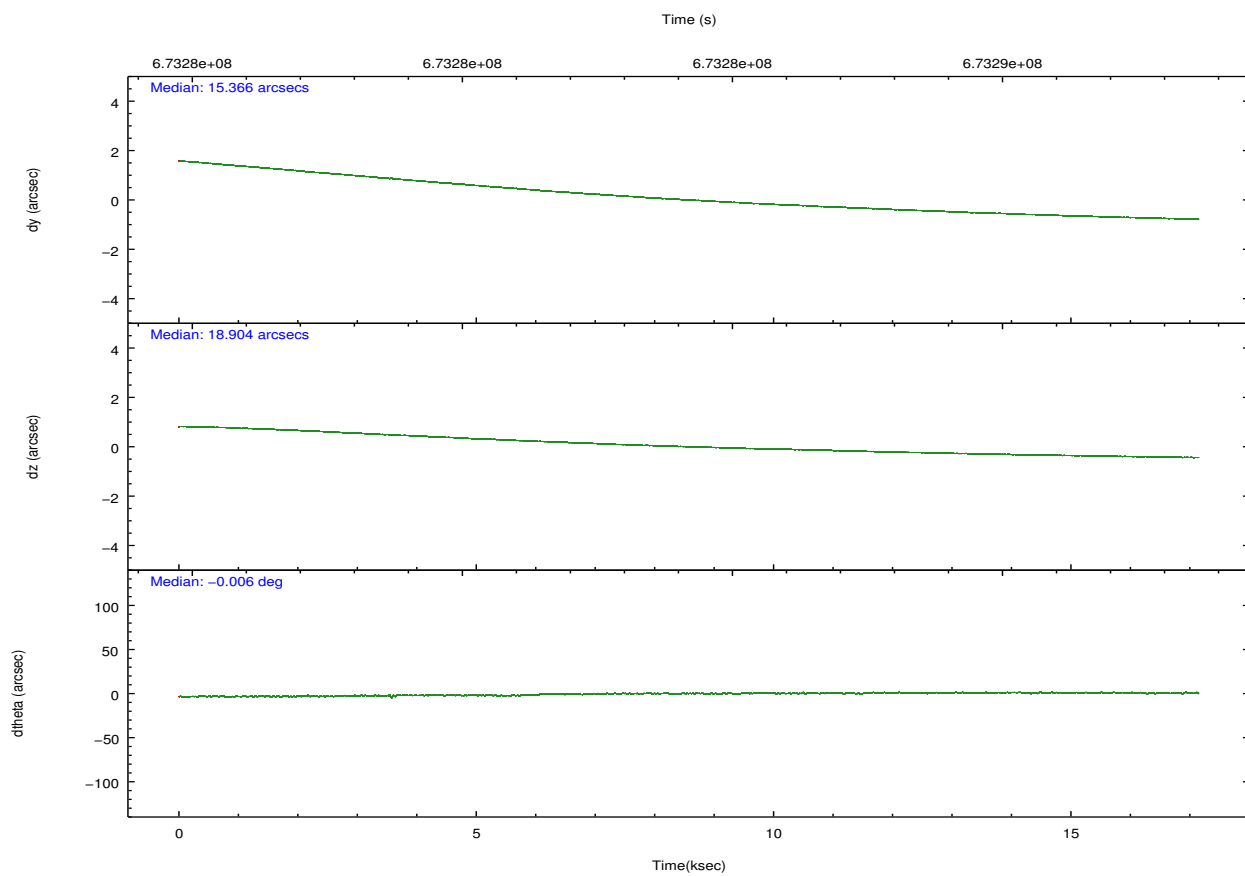
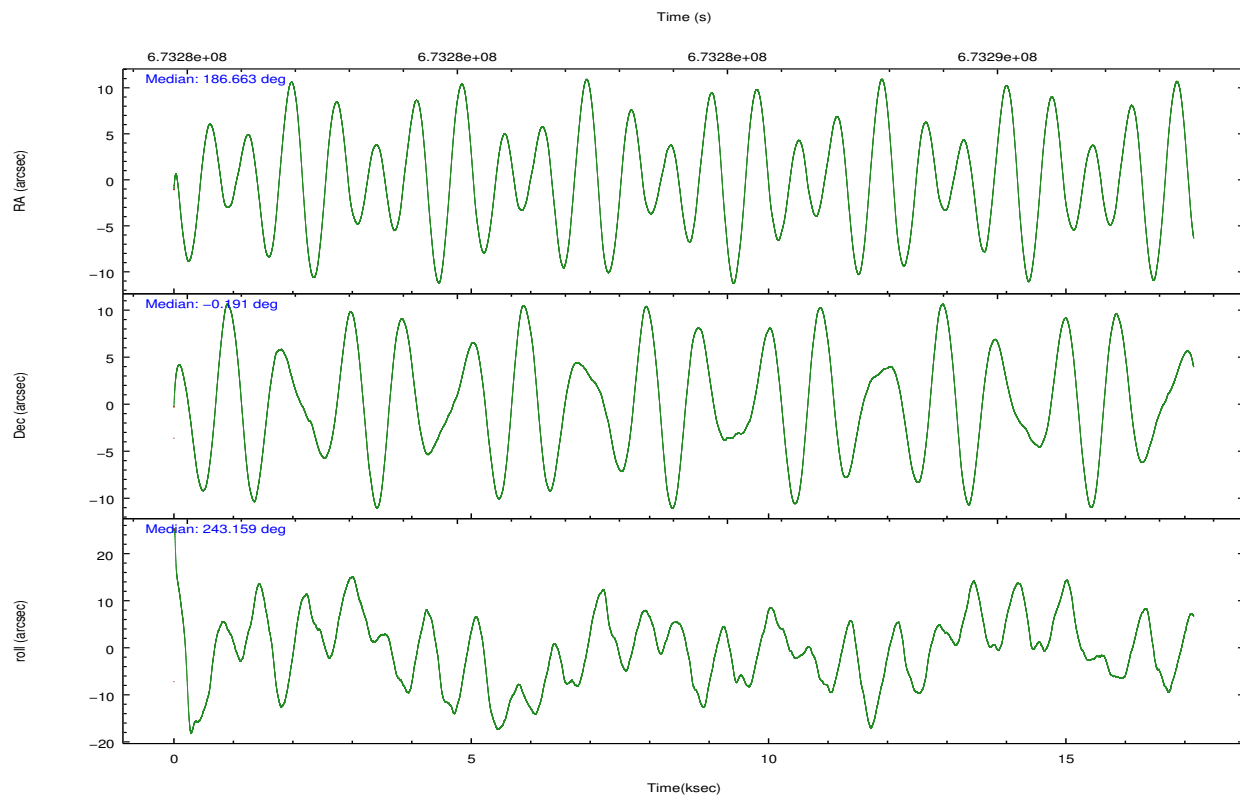
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-2367	ACIS-2367
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	186.661538	186.6634203686059
[deg] Pointing Dec	-0.163660	-0.191036002406929
[deg] Pointing Roll	243.000007	243.156642330575
[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)	673275765.184000	673274759.22012
Observation start date	2019-05-03T13:01:36	2019-05-03T12:45:59
[s] Observation end time (MET)	673292765.184000	673293891.8712699
Observation end date	2019-05-03T17:44:56	2019-05-03T18:04:51
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	3.1

2.3 Aspect



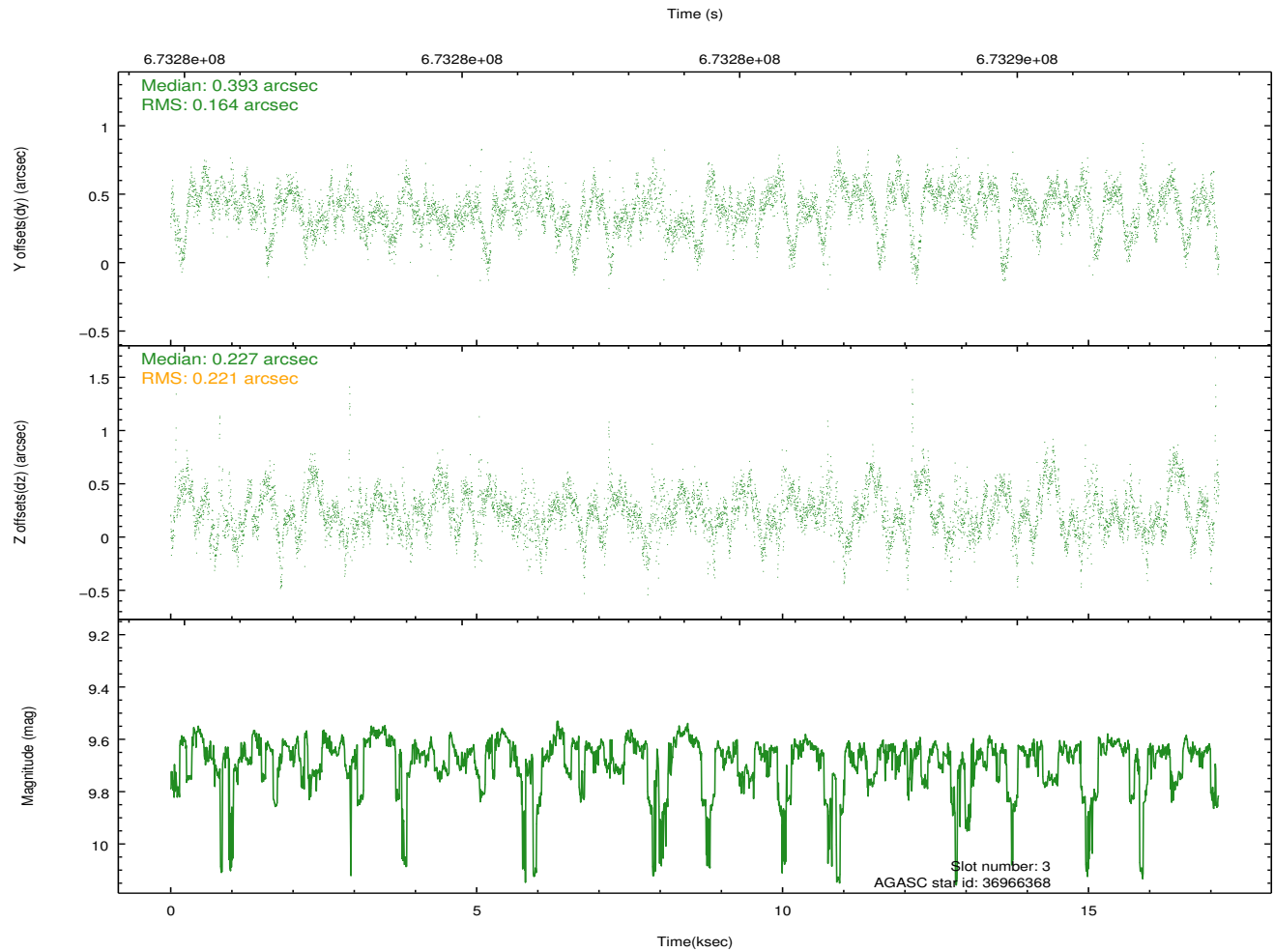
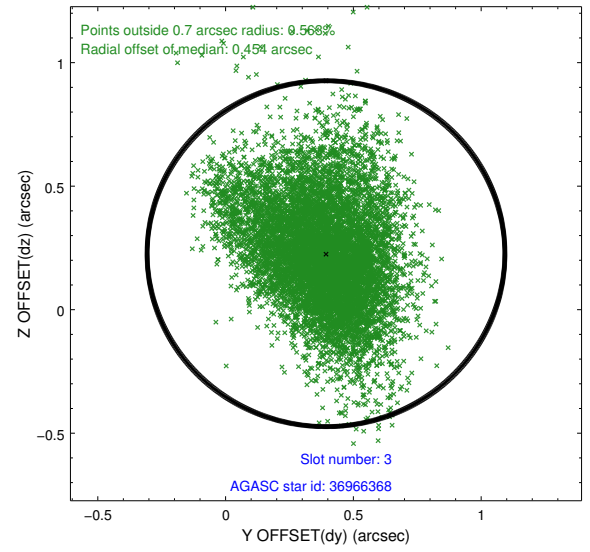
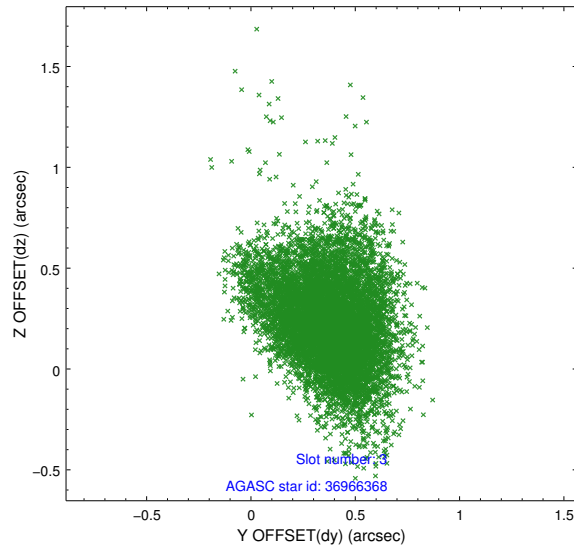


Slot Statistics

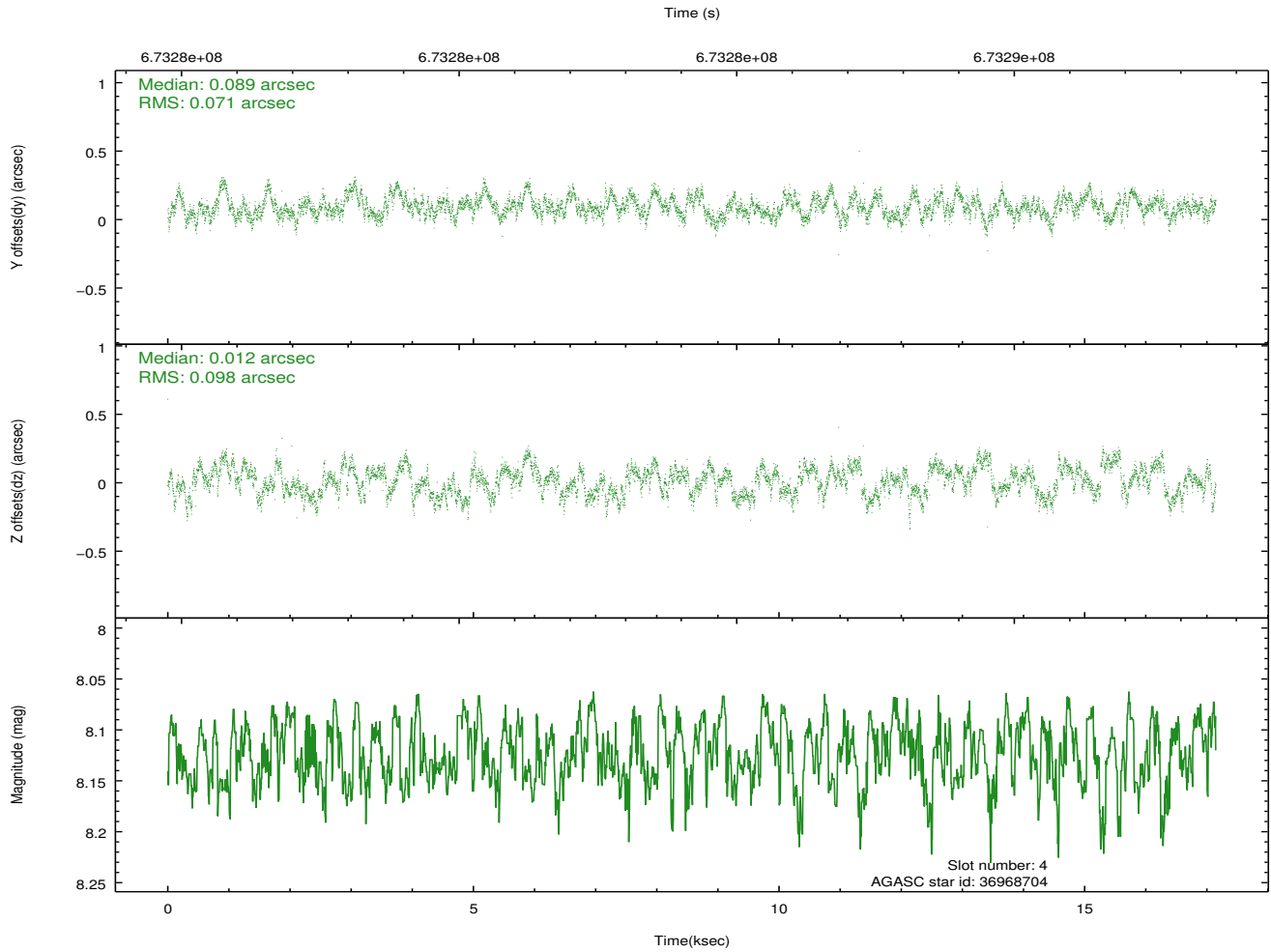
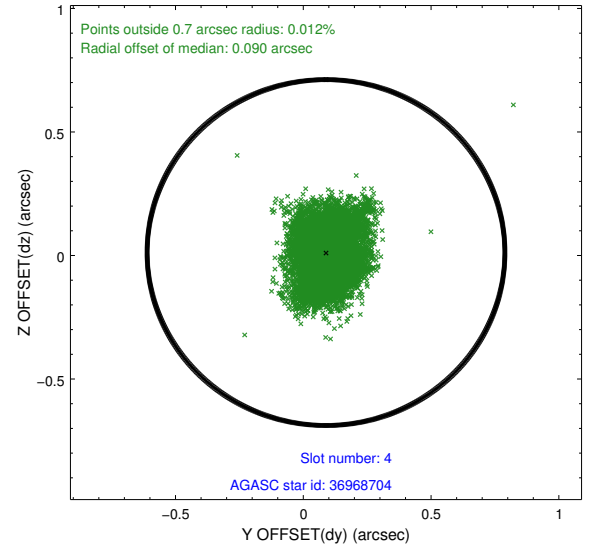
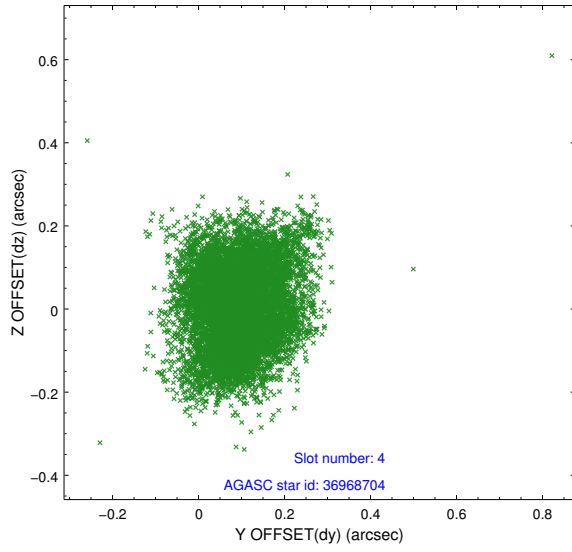
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.13	4183	1.000	-0.339	-0.238	0.014	0.028	0.000000	0.000000	-768.77	-1740
1	FID		ACIS-S-4	7.26	4182	1.000	0.838	0.226	0.009	0.016	0.000000	0.000000	2145.50	168
2	FID		ACIS-S-5	7.22	4182	1.000	-0.533	0.019	0.015	0.025	0.000000	0.000000	-1821.57	161
3	GUIDE	used	36966368	9.66	8175	1.000	0.393	0.227	0.280	0.483	186.269790	0.401316	-1171.32	-2179
4	GUIDE	used	36968704	8.12	8363	1.000	0.089	0.012	0.129	0.203	186.570138	0.514751	-2025.41	-1401
5	GUIDE	used	36969392	8.76	8361	1.000	0.289	0.269	0.133	0.205	186.429114	0.515782	-1798.32	-1854
6	GUIDE	used	36970160	8.84	8360	1.000	-0.197	0.037	0.130	0.215	186.752121	0.119529	-1055.41	-171
7	GUIDE	used	647630192	9.97	8333	1.000	-0.553	-0.535	0.263	0.447	186.668487	-0.921355	2419.30	1260

2.4 Star Slots

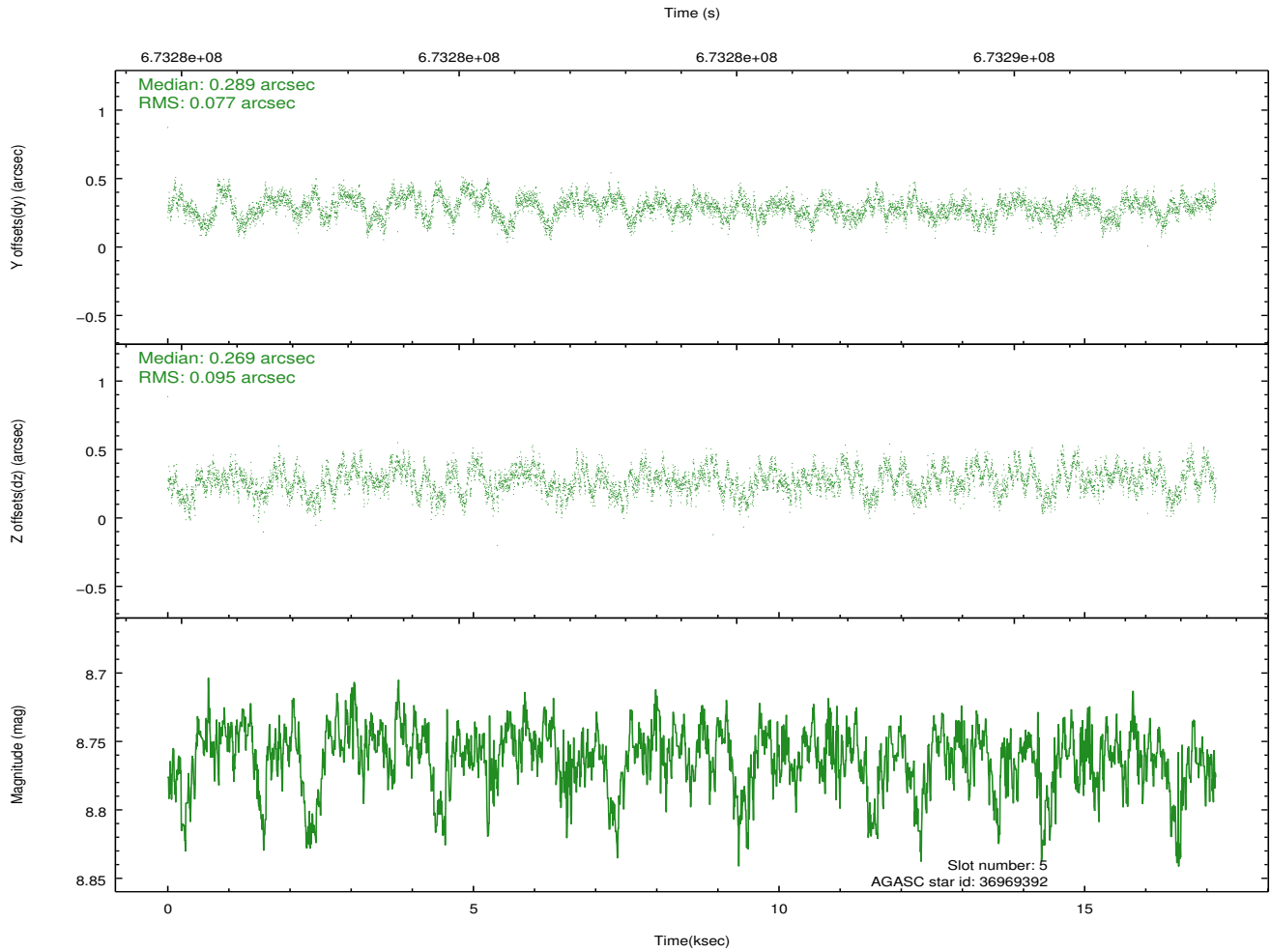
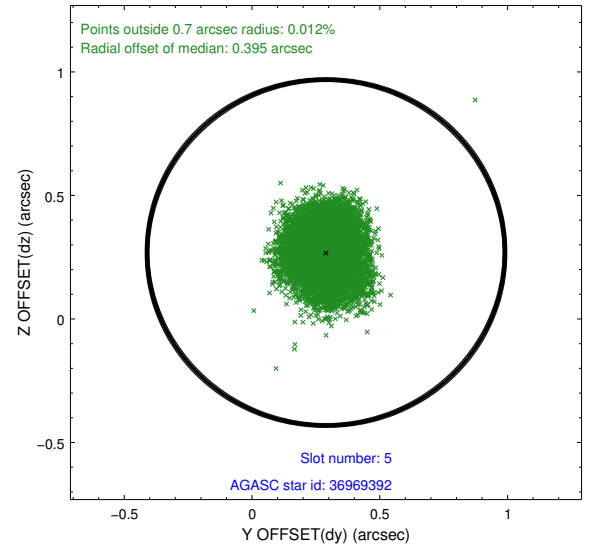
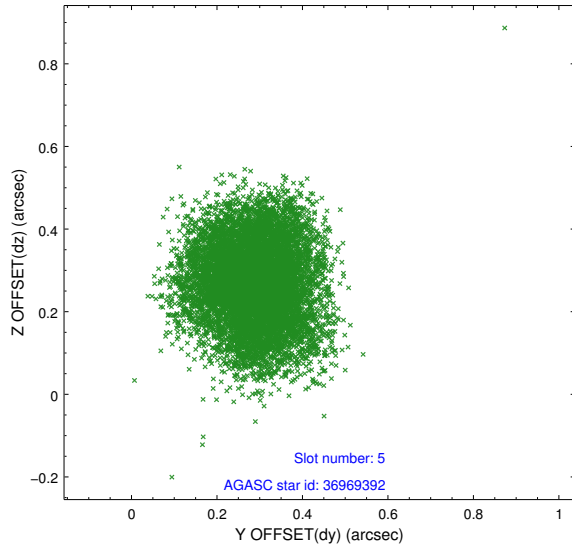
2.4.1 Slot 3



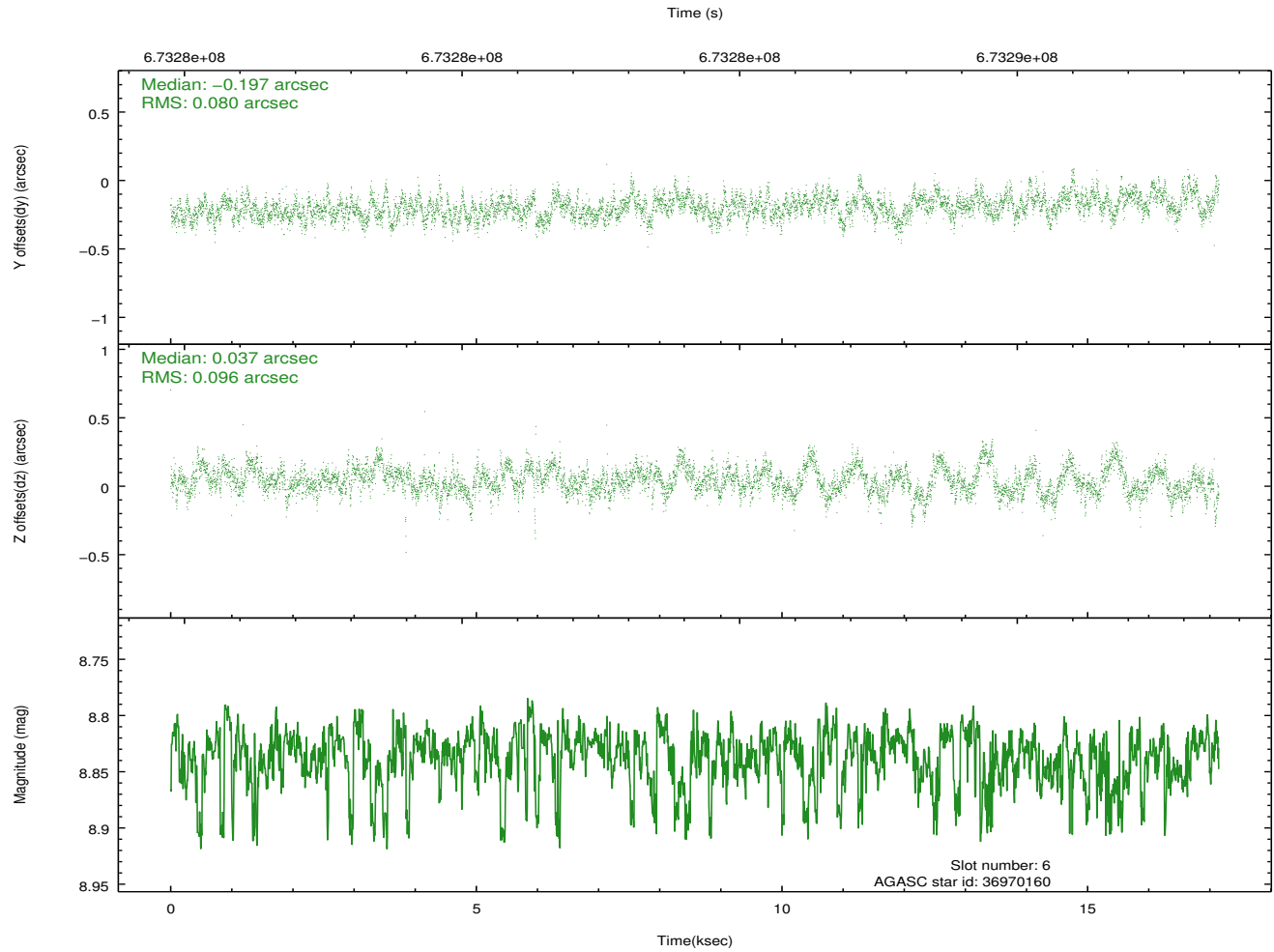
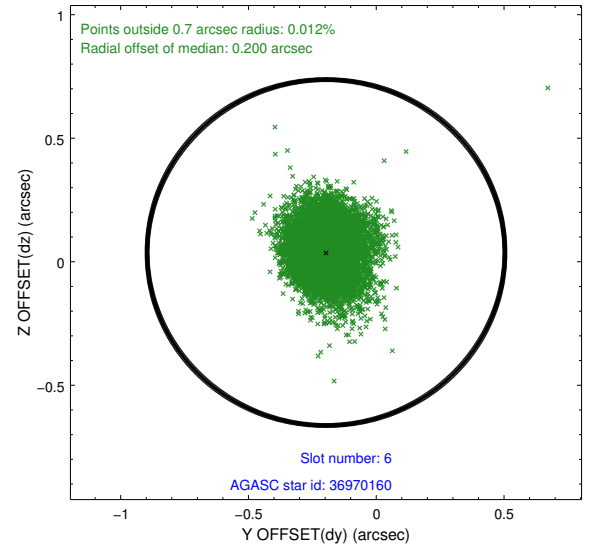
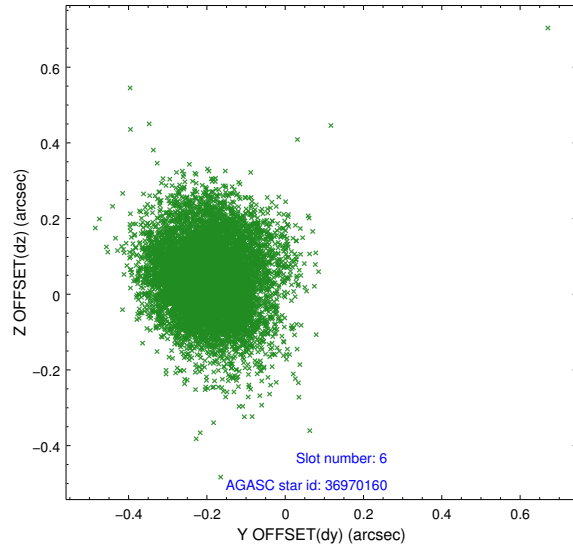
2.4.2 Slot 4



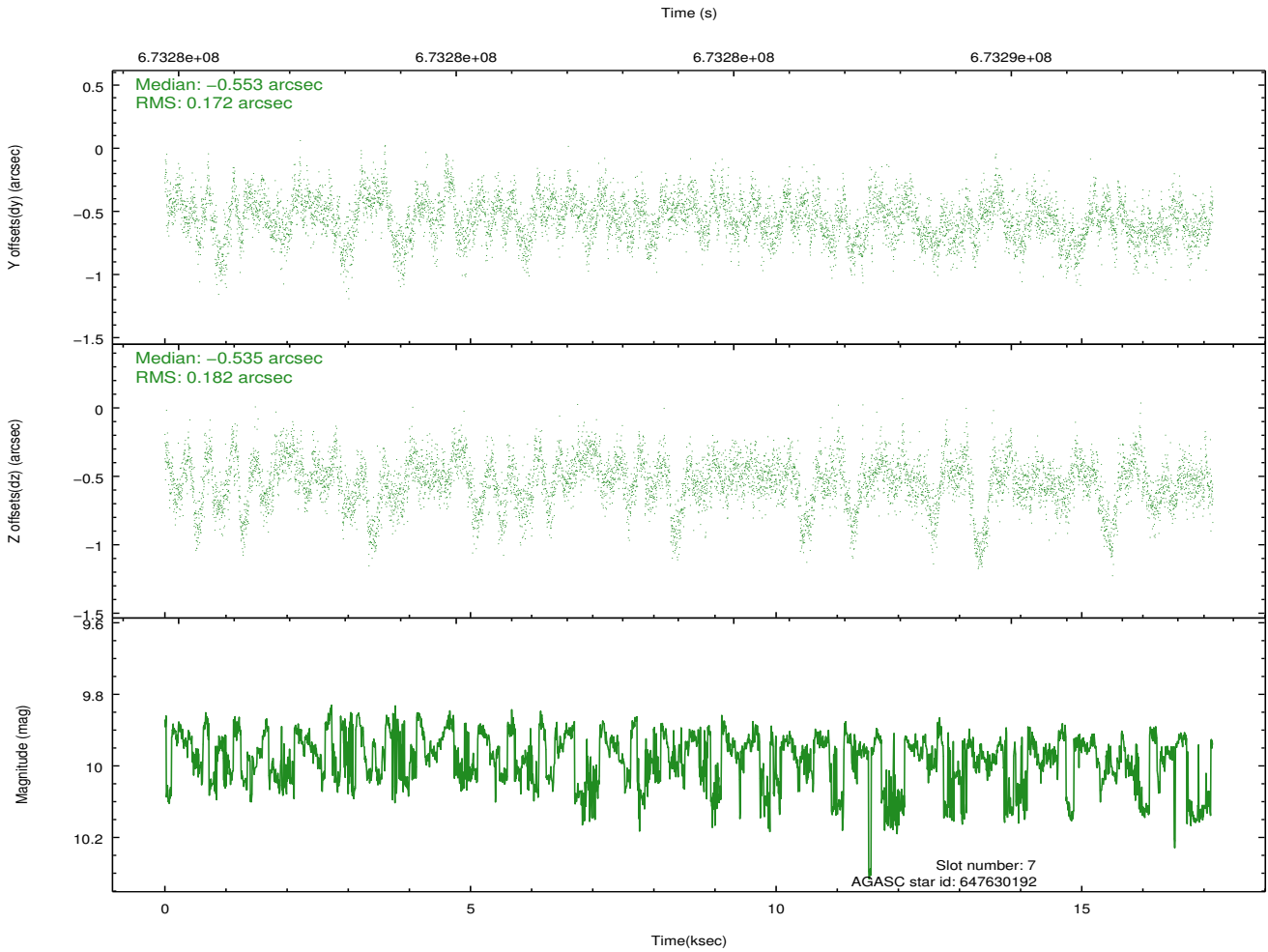
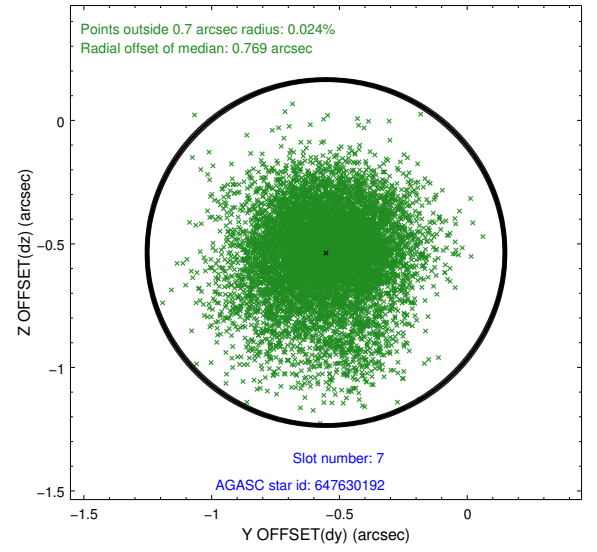
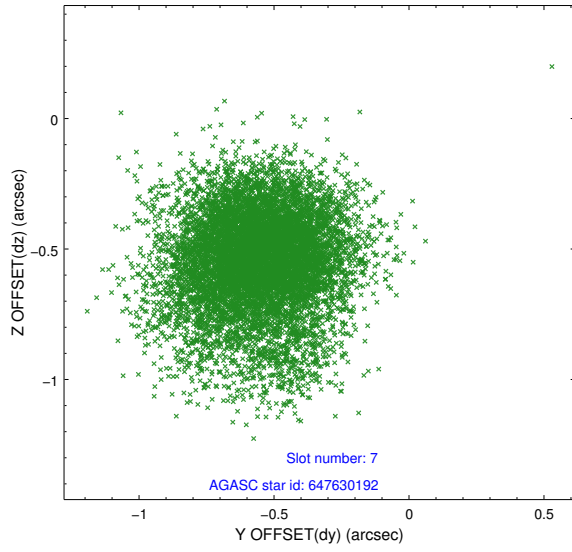
2.4.3 Slot 5



2.4.4 Slot 6

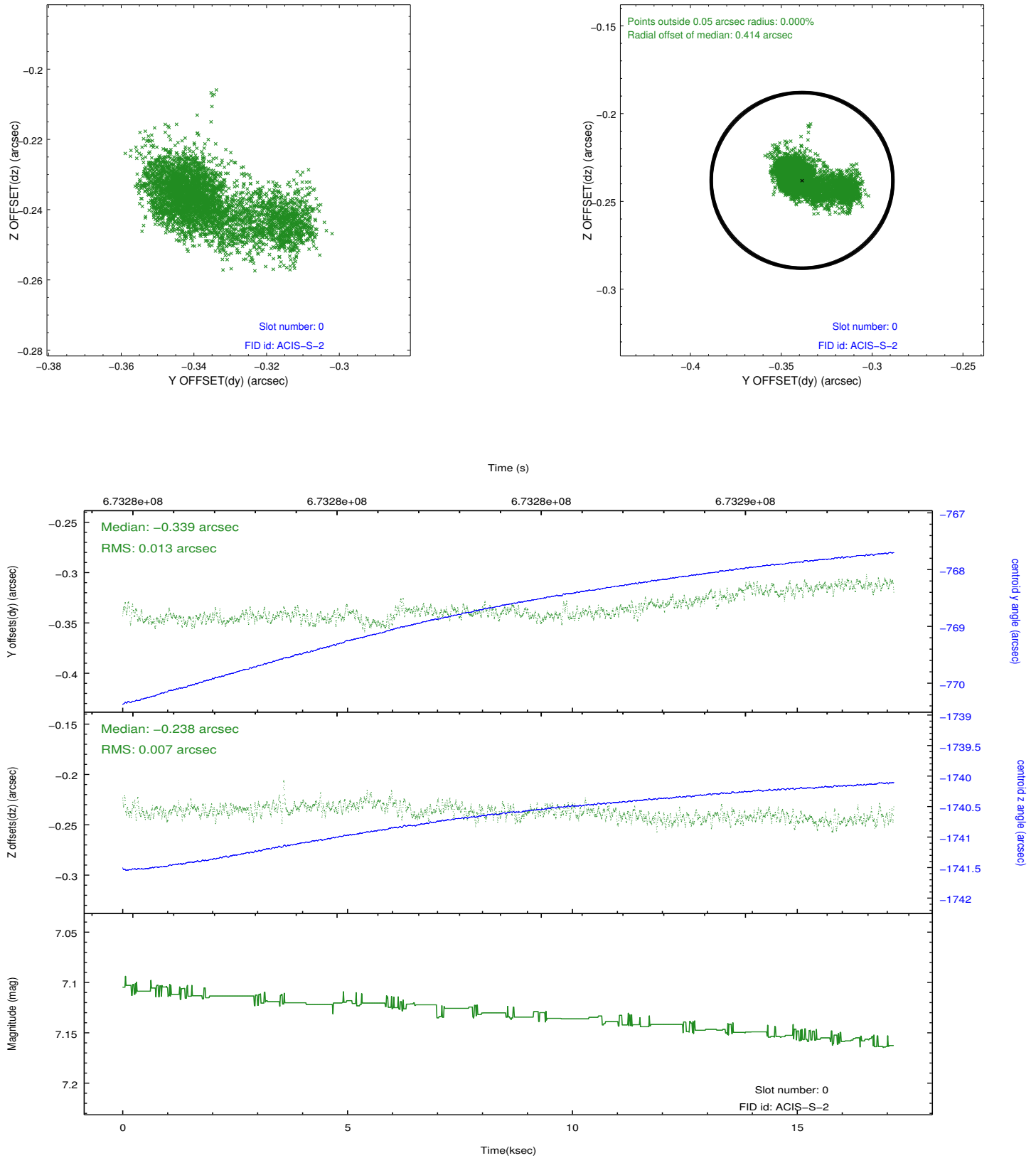


2.4.5 Slot 7

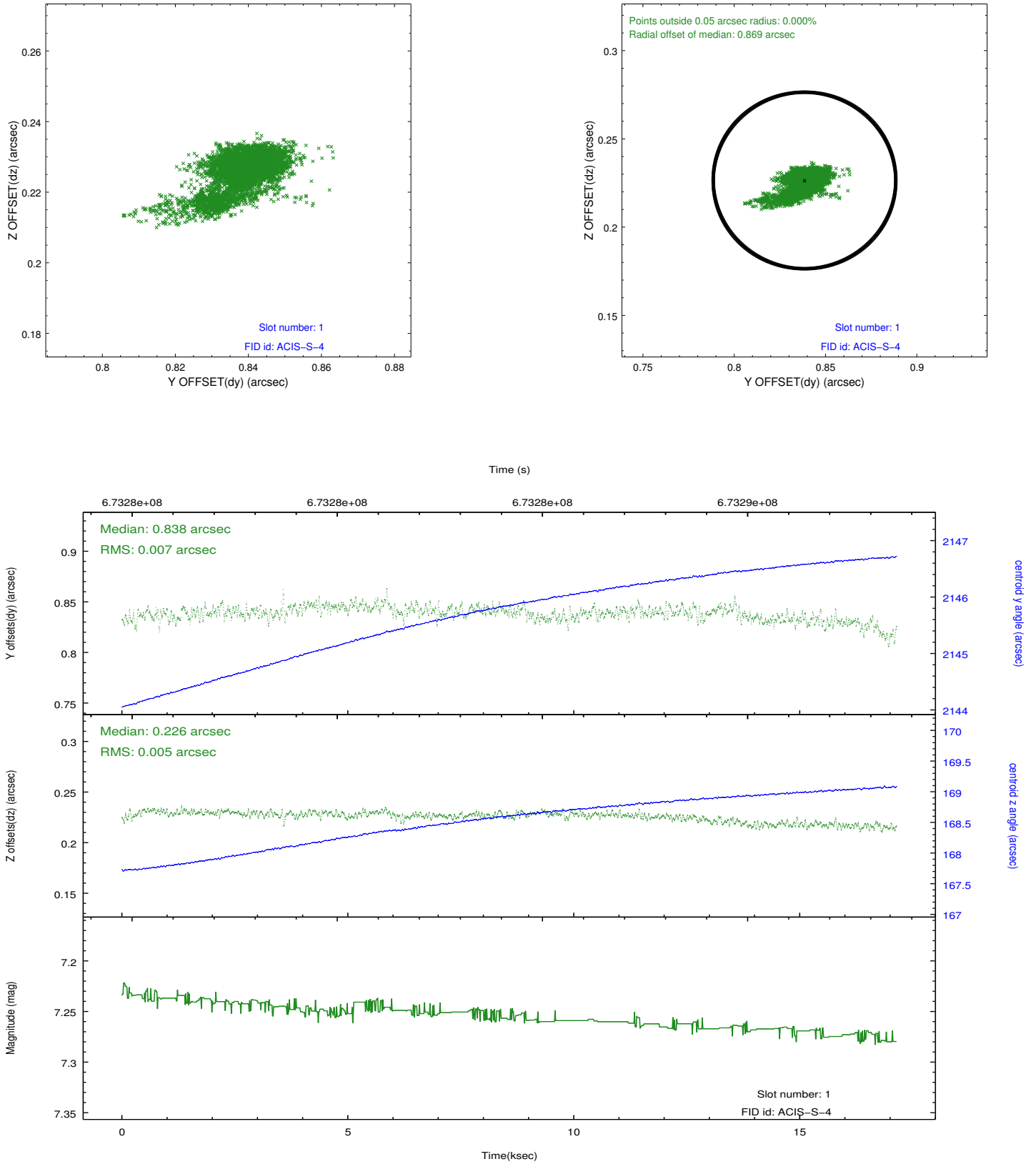


2.5 FID Slots

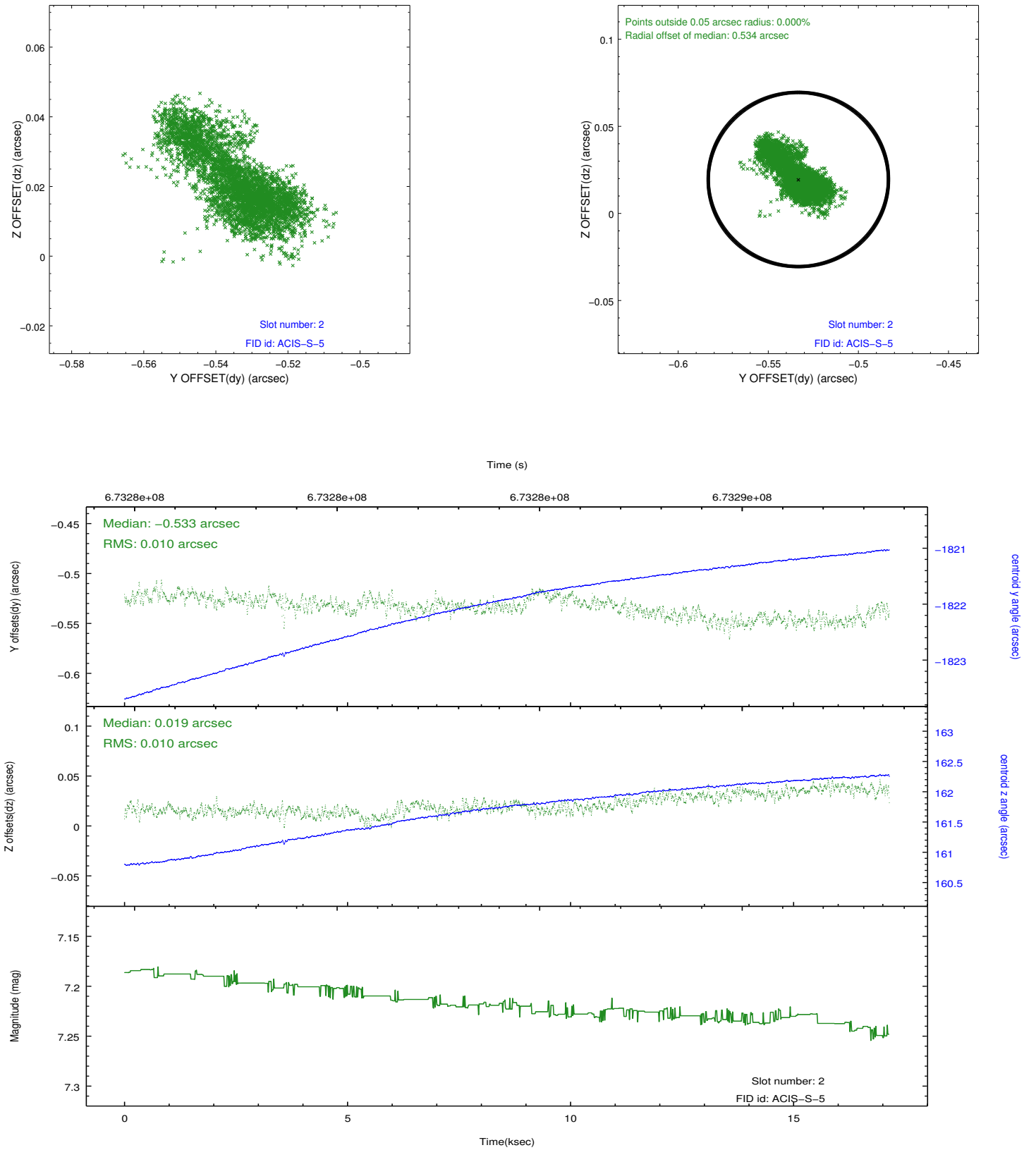
2.5.1 Slot 0



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)	2019.05.05
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	17.064641243458

A.2 Comments

Joint proposal with NRAO and NOAO.

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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.