

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21517 - L2 Version 1
Chandra X-Ray Center

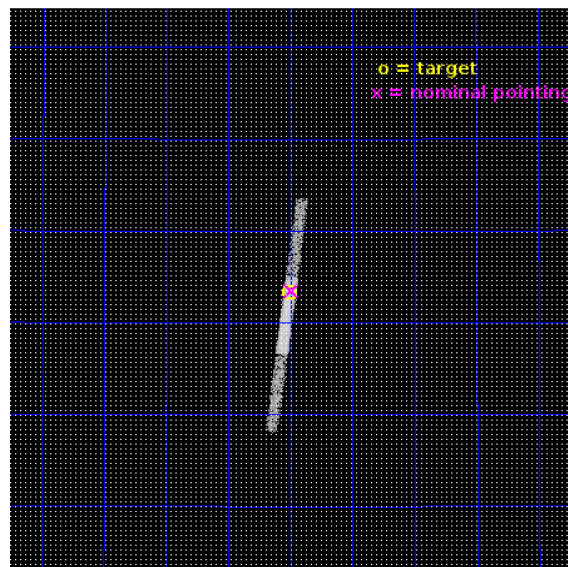
L2 Processing Date : Jan 23 2019

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1 Front

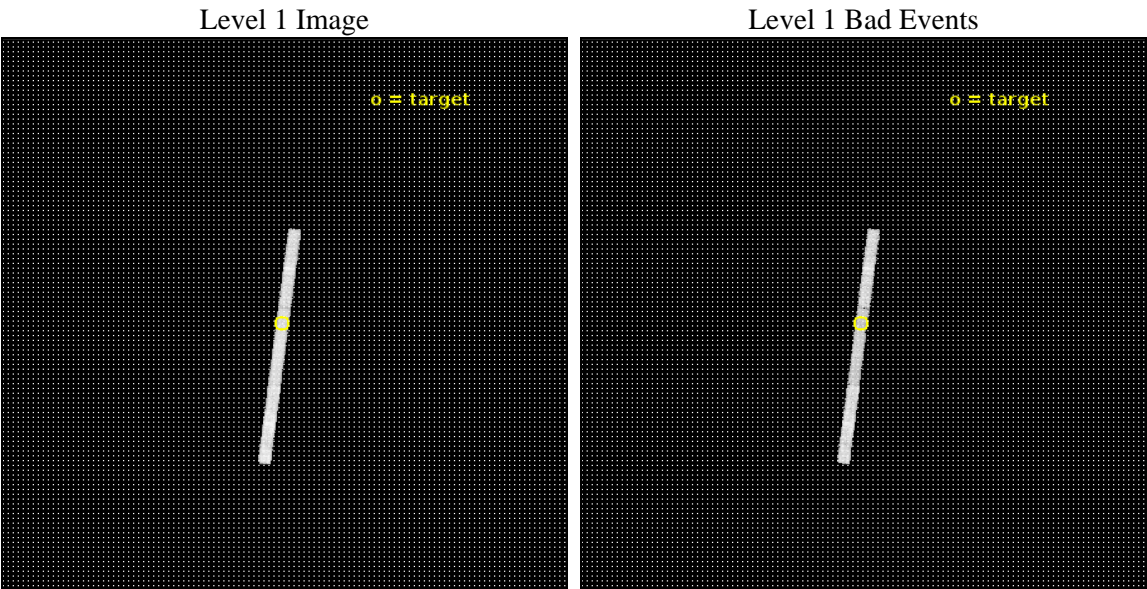
seq_num	703810	Sequence number
obs_id	21517	Observation id
title	X-ray Properties of Extreme Super Eddington Accreting Massive Black Holes	Proposal title
observer	Michael Brotherton	Principal investigator
object	SDSS J101000.68+300321.5	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	152.502917	Observer's specified target RA [deg]
dec_targ	30.055972	Observer's specified target Dec [deg]
ra_nom	152.49797023926	Nominal RA [deg]
dec_nom	30.058226071736	Nominal Dec [deg]
roll_nom	97.159159939579	Nominal Roll [deg]
revision	1	Processing version of data
ontime	10538.77240932	Sum of GTIs [s]
livetime	9864.070019955	Livetime [s]
ontime6	10538.731369376	Sum of GTIs [s]
ontime7	10538.77240932	Sum of GTIs [s]
ontime8	10538.690329313	Sum of GTIs [s]
l2events	9033	Number of level 2 events



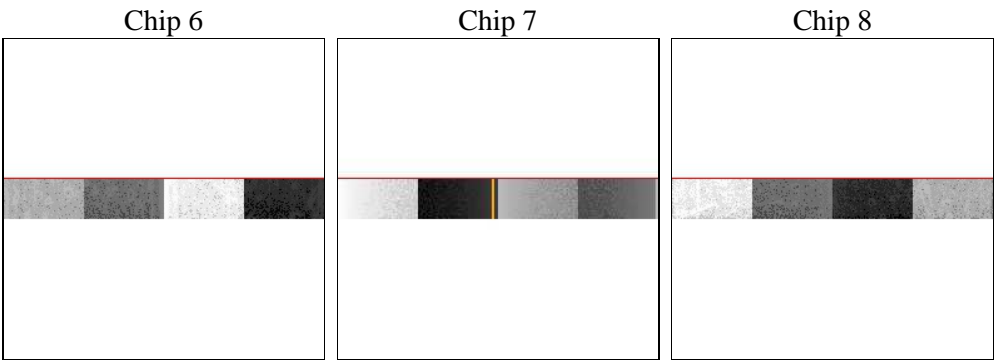
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10435.911000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	10538.77240932	Sum of GTIs [s]
caldsver	4.8.2	 	ontime6	10538.731369376	Sum of GTIs [s]
date	2019-01-23T20:27:49	Date and time of file creation	ontime7	10538.77240932	Sum of GTIs [s]
revision	1	Processing version of data	ontime8	10538.690329313	Sum of GTIs [s]
			l1events	48193	Number of level 1 events

2.1.4 Events

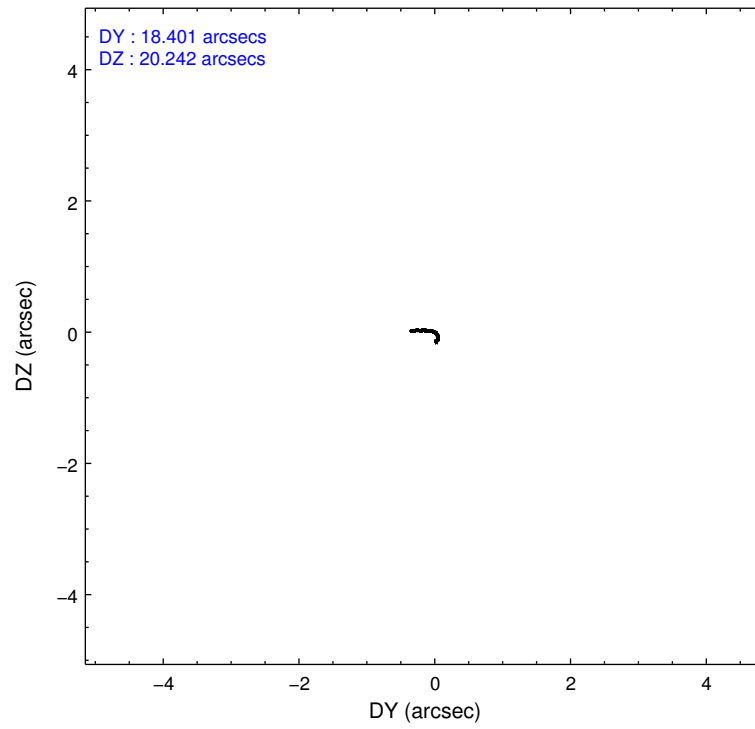
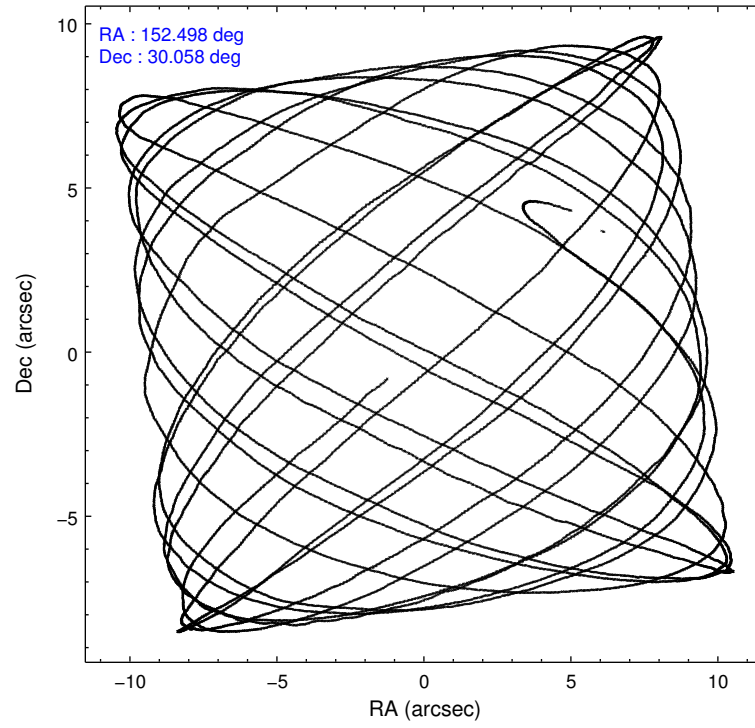
	ccd 6	ccd 7	ccd 8
level 1 events	14200	14570	19423
rejected events	12726	7738	15307
rejected %	89%	53%	78%

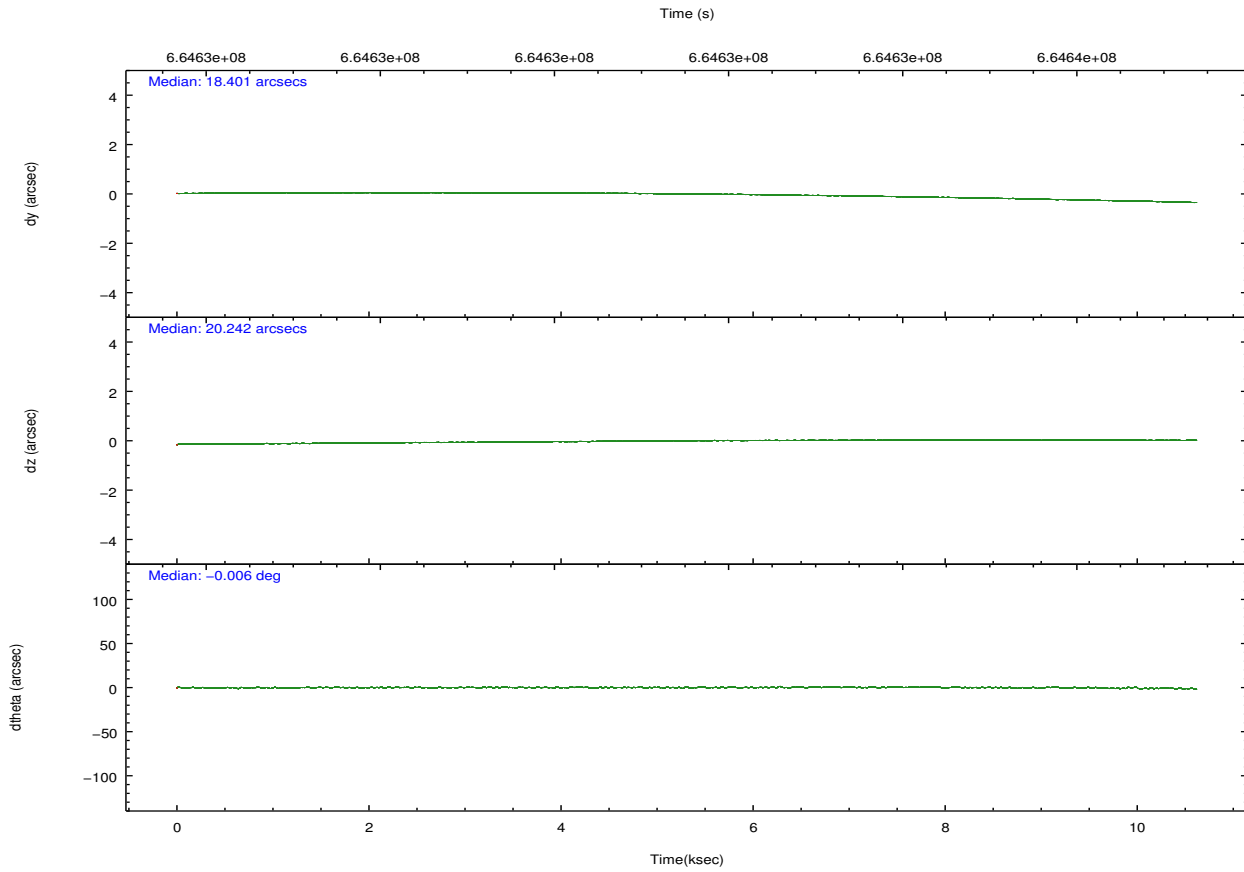
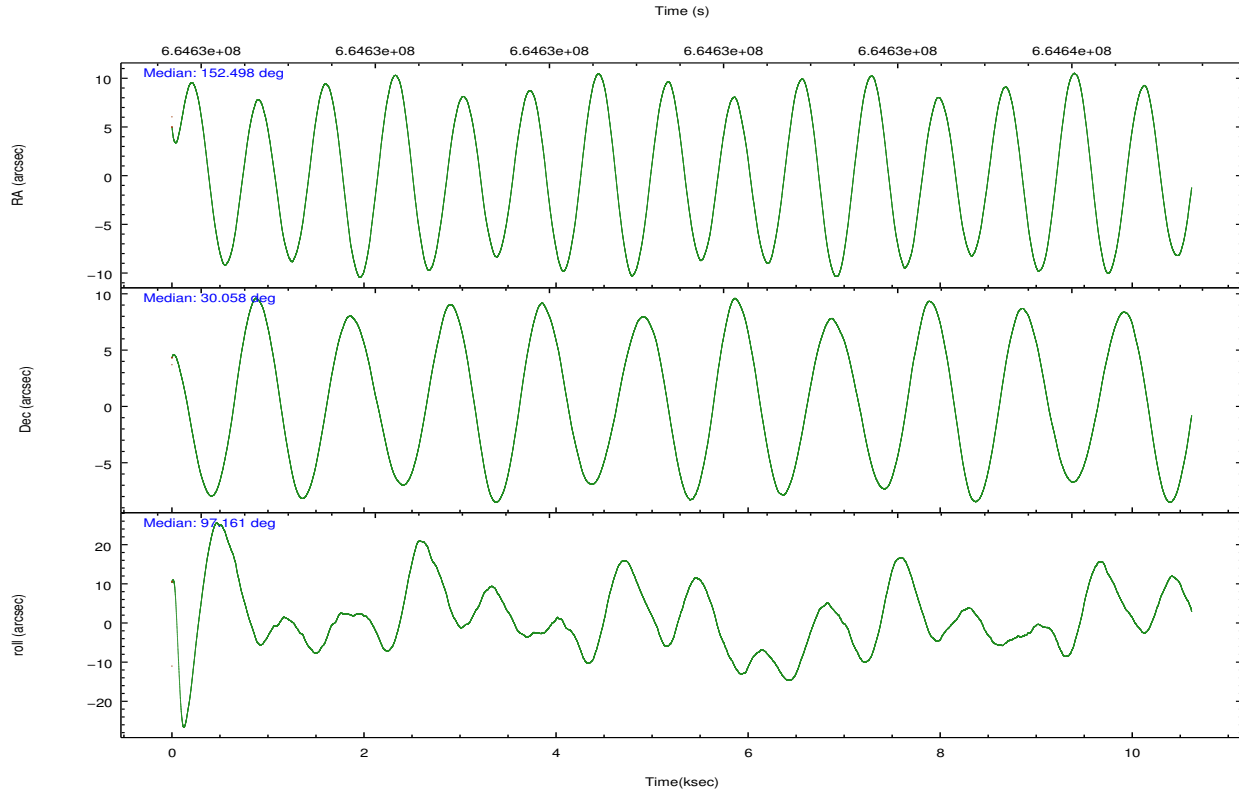
	ccd 6	ccd 7	ccd 8
grade 0 events	350	649	952
	2%	4%	4%
grade 1 events	6	20	10
	0%	0%	0%
grade 2 events	321	1303	912
	2%	8%	4%
grade 3 events	247	817	436
	1%	5%	2%
grade 4 events	233	764	464
	1%	5%	2%
grade 5 events	443	1434	683
	3%	9%	3%
grade 6 events	323	3300	1352
	2%	22%	6%
grade 7 events	12277	6283	14614
	86%	43%	75%

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	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	152.517459	152.4979702392591	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	30.036628	30.05822607173594	Subarray start row	449	449
[deg] Pointing Roll	96.992719	97.15915993957944	Subarray row count	128	128
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	0.6
[mm] SIM translation stage pos	-190.132523	-190.1400660498719			
[mm] SIM translation stage offset	0	0.00754346686406393			
[s] Observation start time (MET)	664626383.184000	664625633.94034			
Observation start date	2019-01-23T10:25:14	2019-01-23T10:13:53			
[s] Observation end time (MET)	664636819.184000	664638245.54109			
Observation end date	2019-01-23T13:19:10	2019-01-23T13:44:05			
Read mode	TIMED	TIMED			

2.3 Aspect



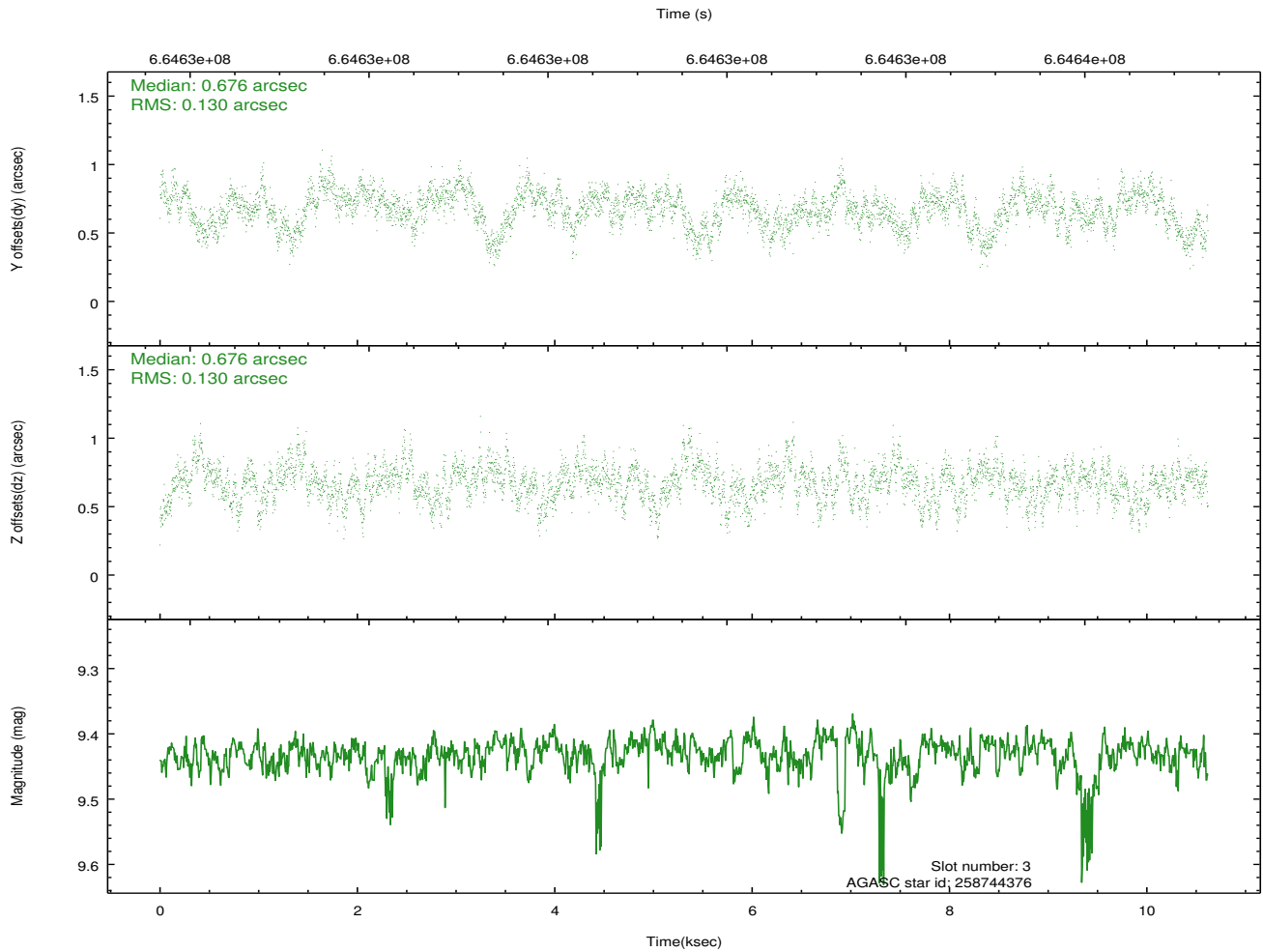
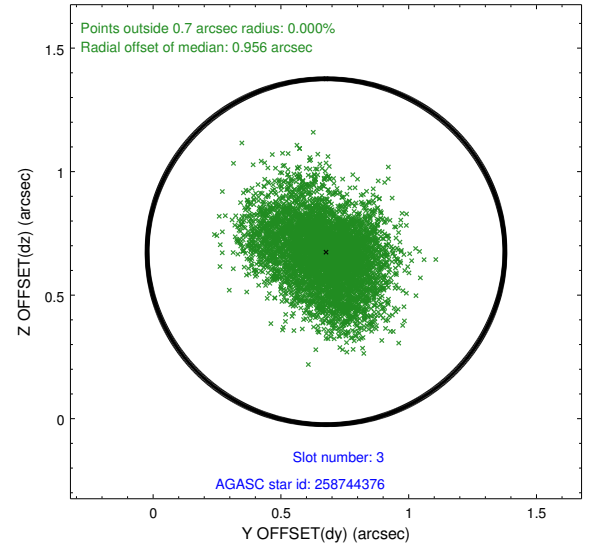
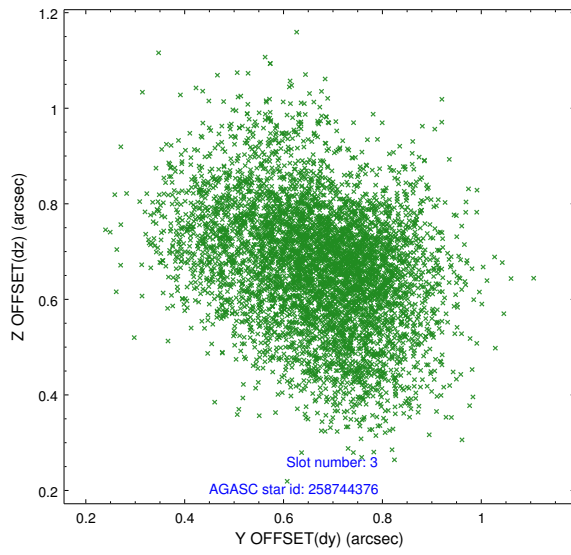


Slot Statistics

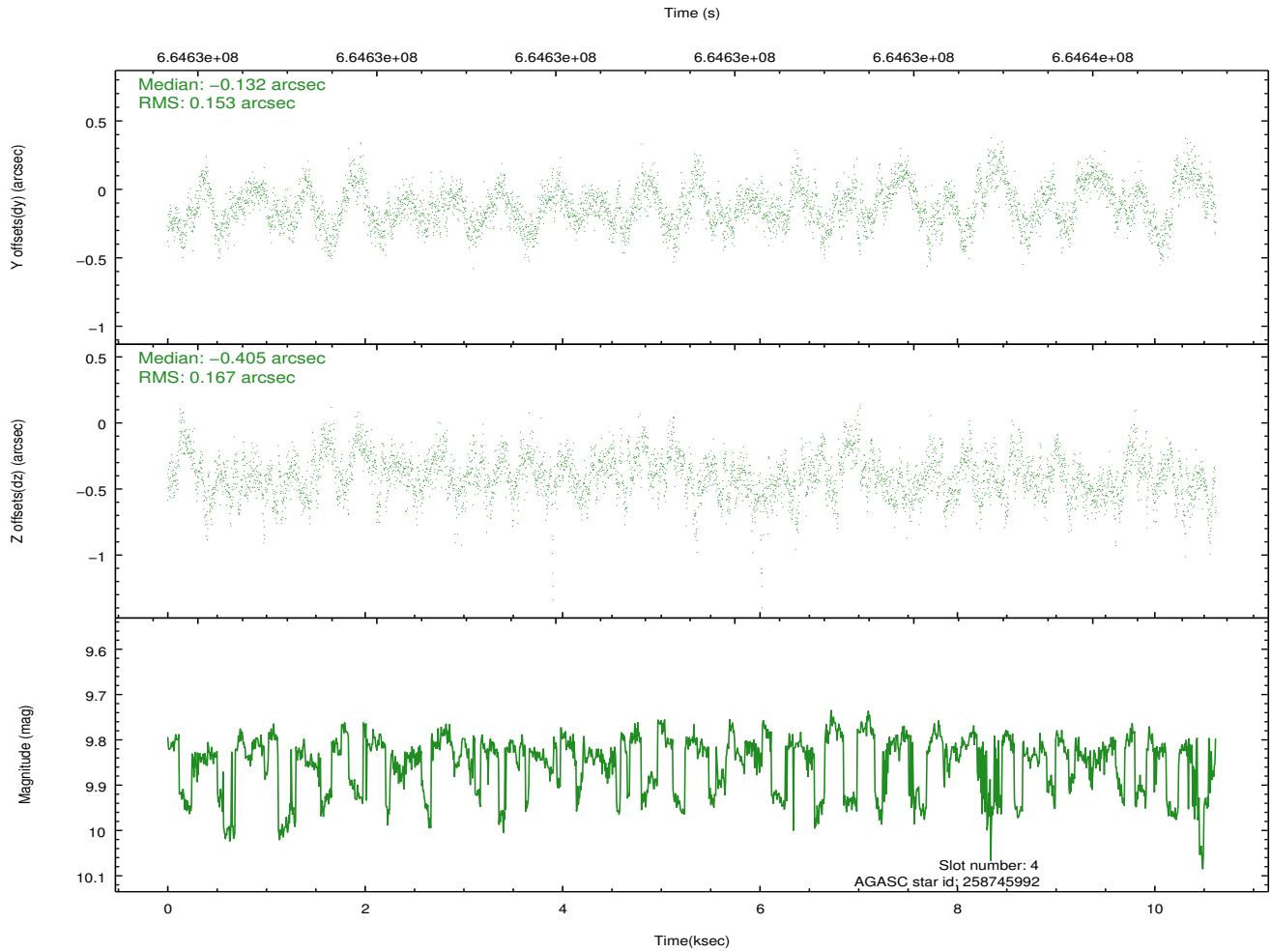
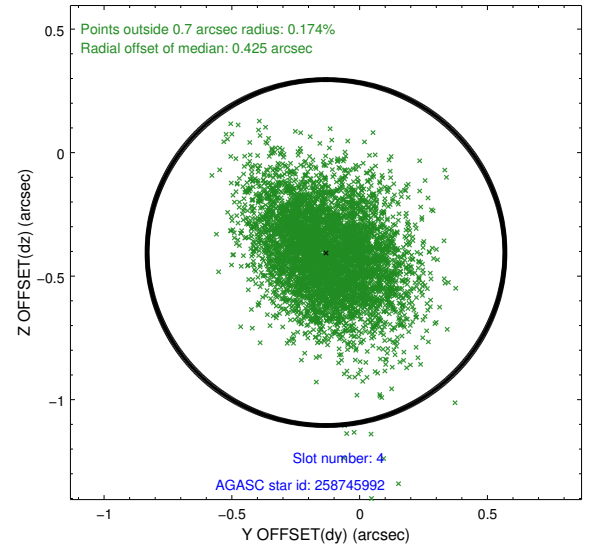
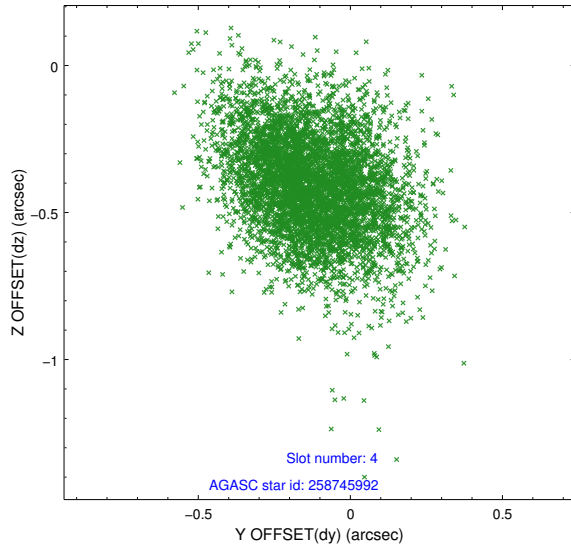
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.22	2591	1.000	-0.382	-0.300	0.009	0.014	0.000000	0.000000	-771.71	-1742
1	FID		ACIS-S-4	7.33	2590	1.000	0.882	0.264	0.006	0.012	0.000000	0.000000	2142.52	166
2	FID		ACIS-S-5	7.31	2591	1.000	-0.531	0.044	0.009	0.016	0.000000	0.000000	-1824.16	160
3	GUIDE	used	258744376	9.43	5176	1.000	0.676	0.676	0.199	0.320	152.963685	29.474975	-2173.42	-1141
4	GUIDE	used	258745992	9.83	5166	1.000	-0.132	-0.405	0.236	0.392	151.955356	29.878721	-346.32	1810
5	GUIDE	used	328081384	8.88	5176	1.000	-0.408	-0.332	0.152	0.246	152.137618	30.594353	2136.59	925
6	GUIDE	used	328085168	8.20	5178	1.000	0.221	0.378	0.145	0.220	152.940920	30.148962	244.14	-1358
7	GUIDE	used	328085184	9.36	5166	1.000	-0.359	-0.343	0.311	0.530	152.123987	30.145310	539.42	1167

2.4 Star Slots

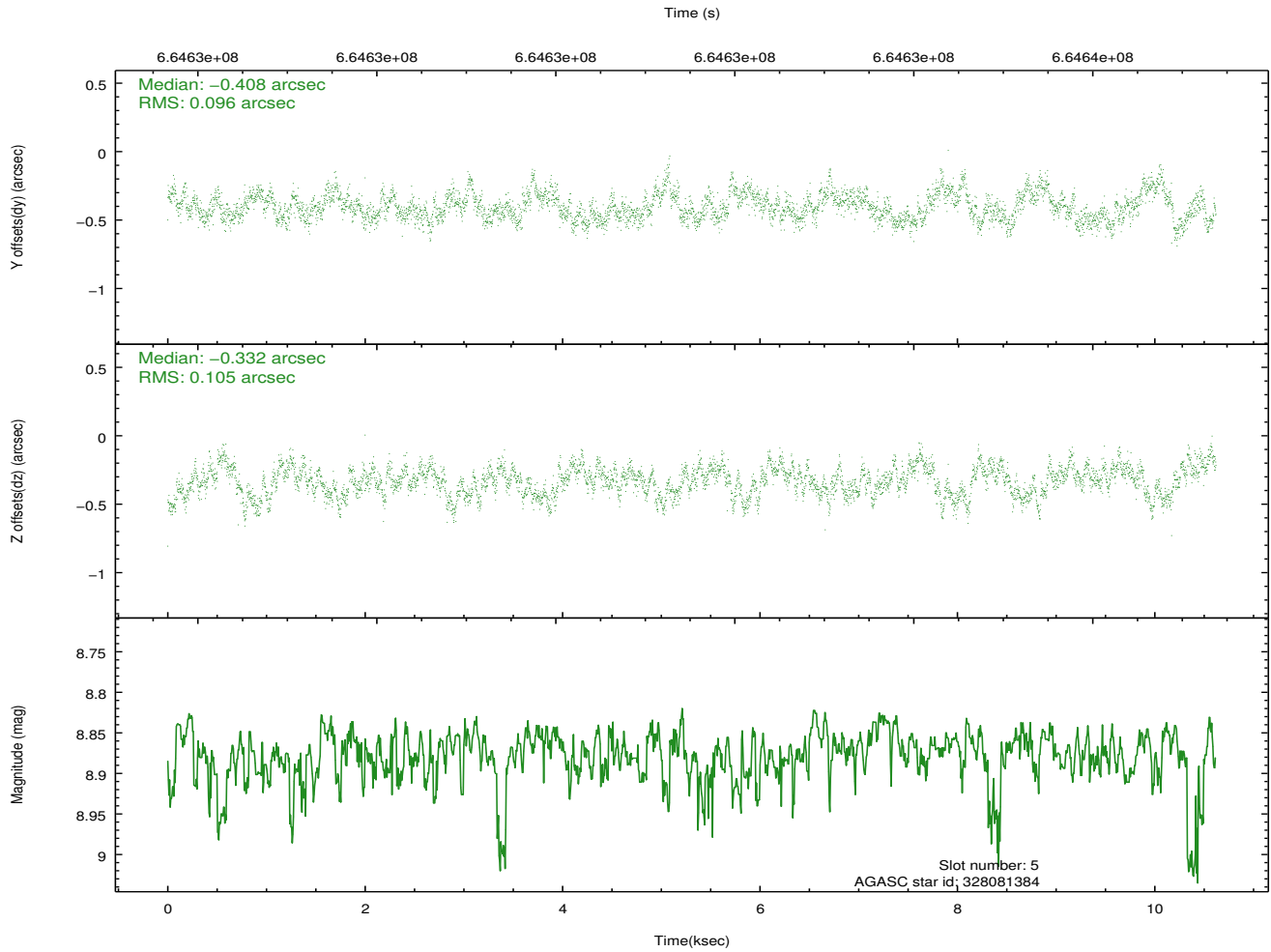
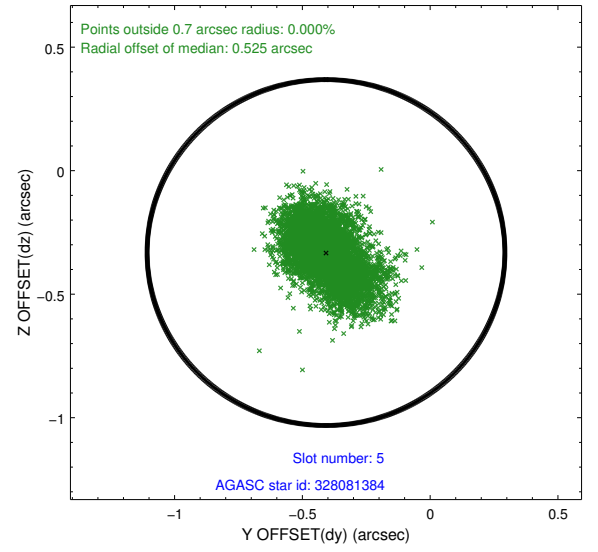
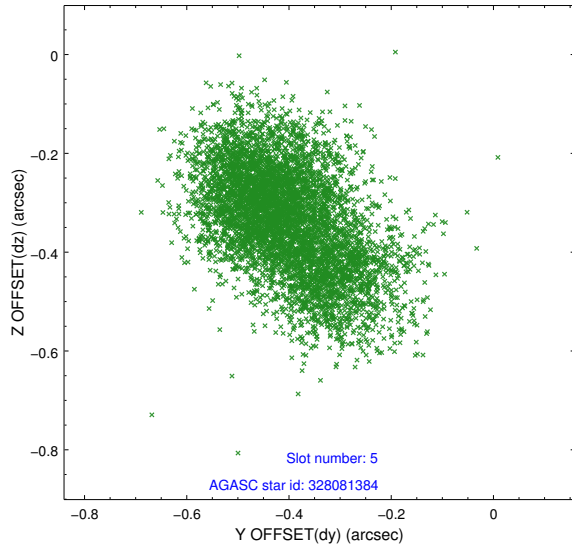
2.4.1 Slot 3



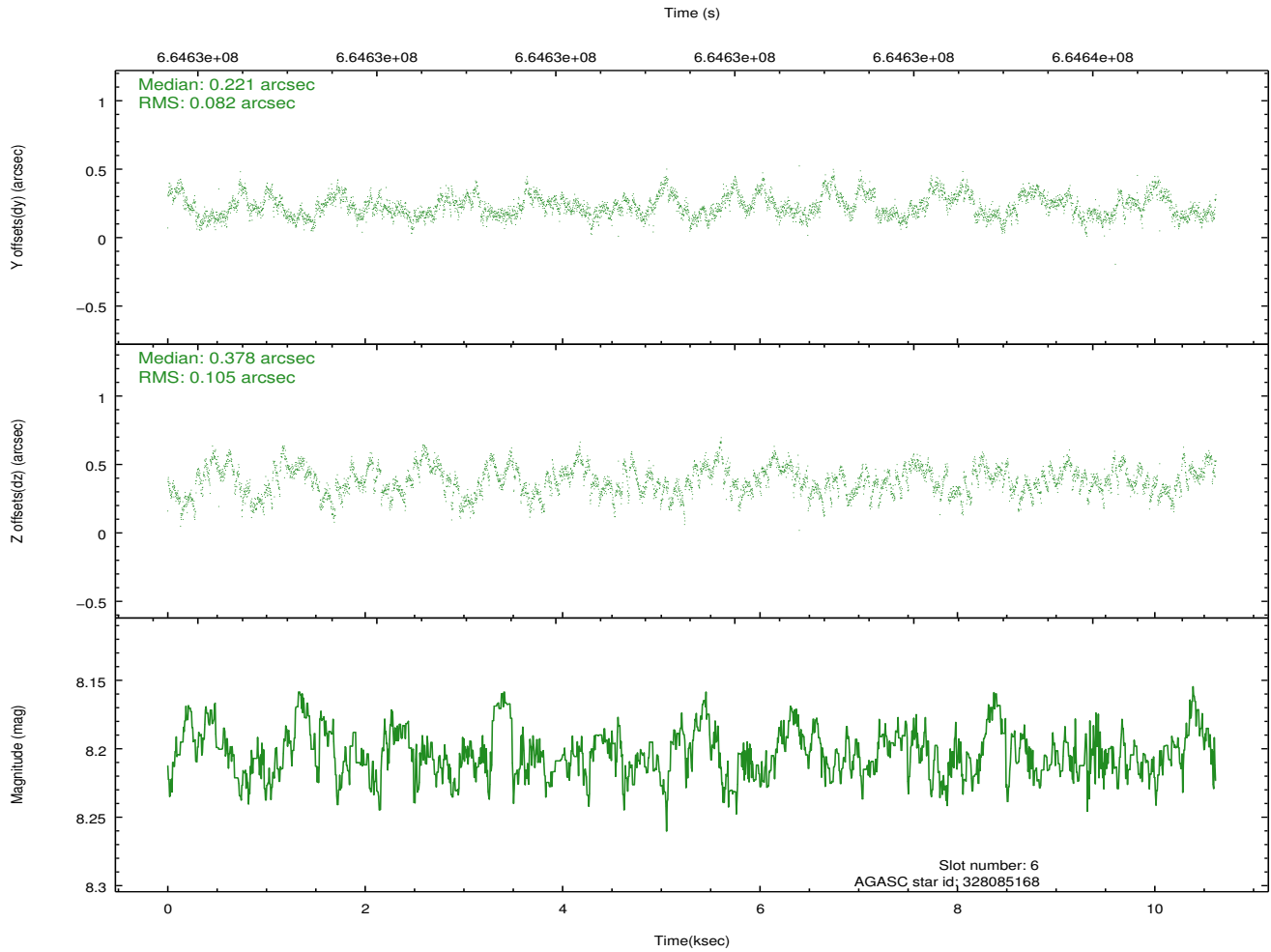
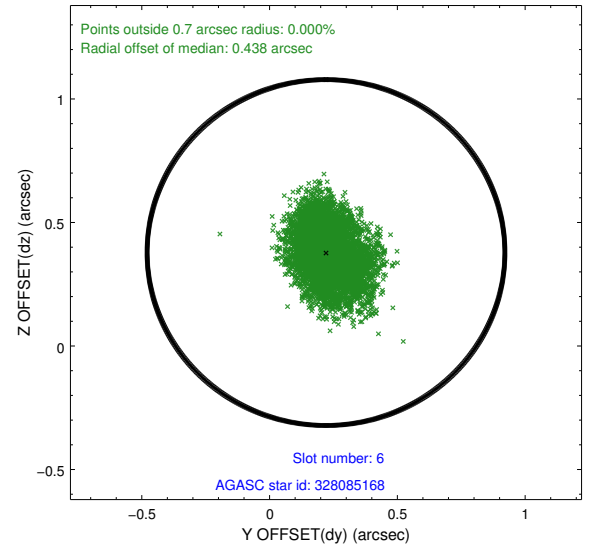
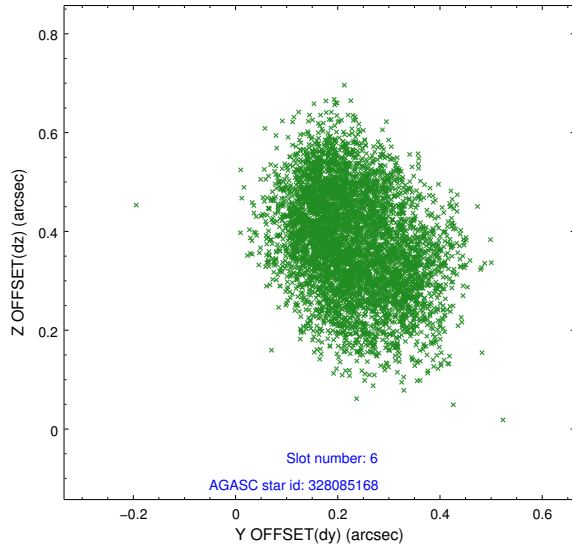
2.4.2 Slot 4



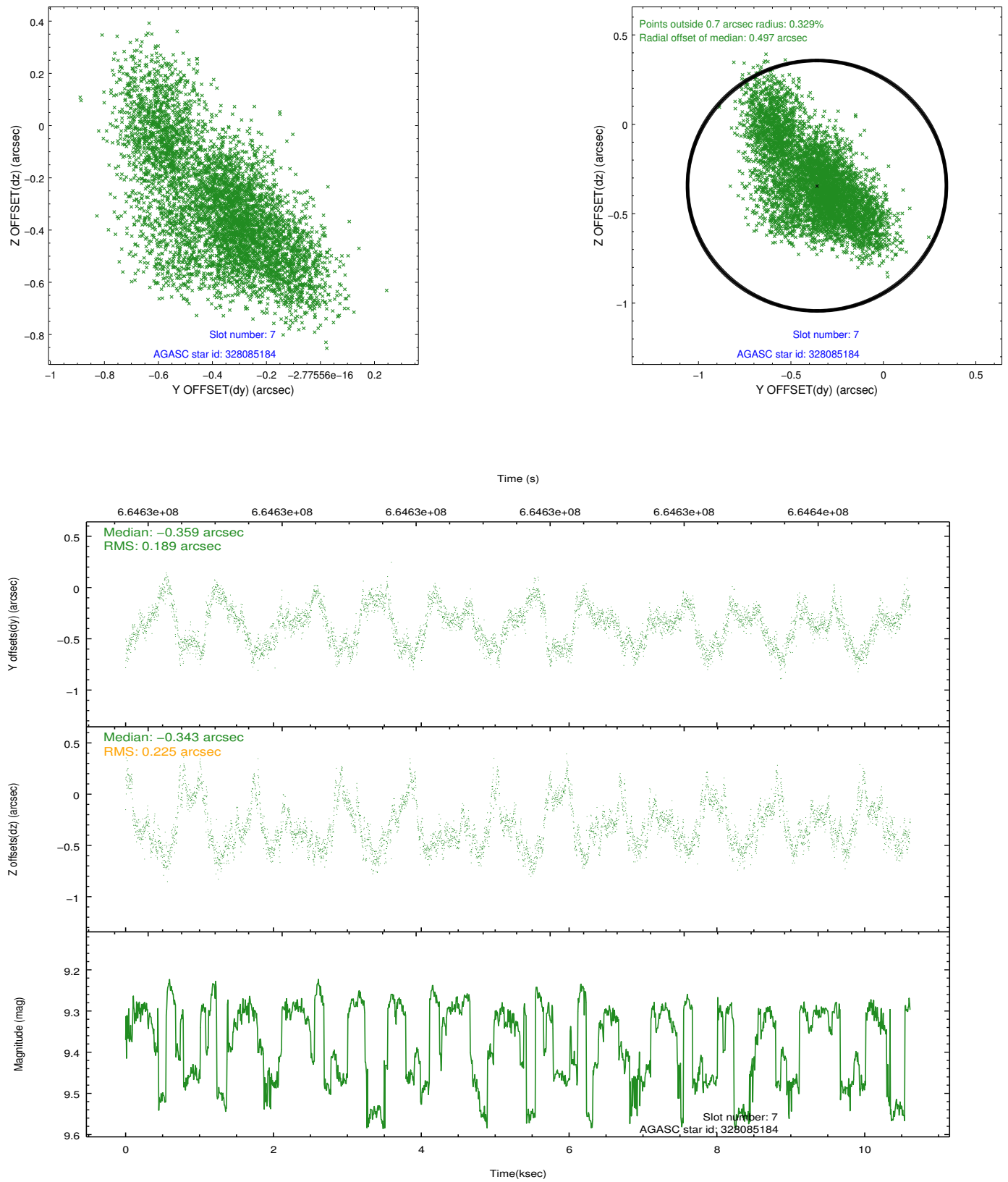
2.4.3 Slot 5



2.4.4 Slot 6

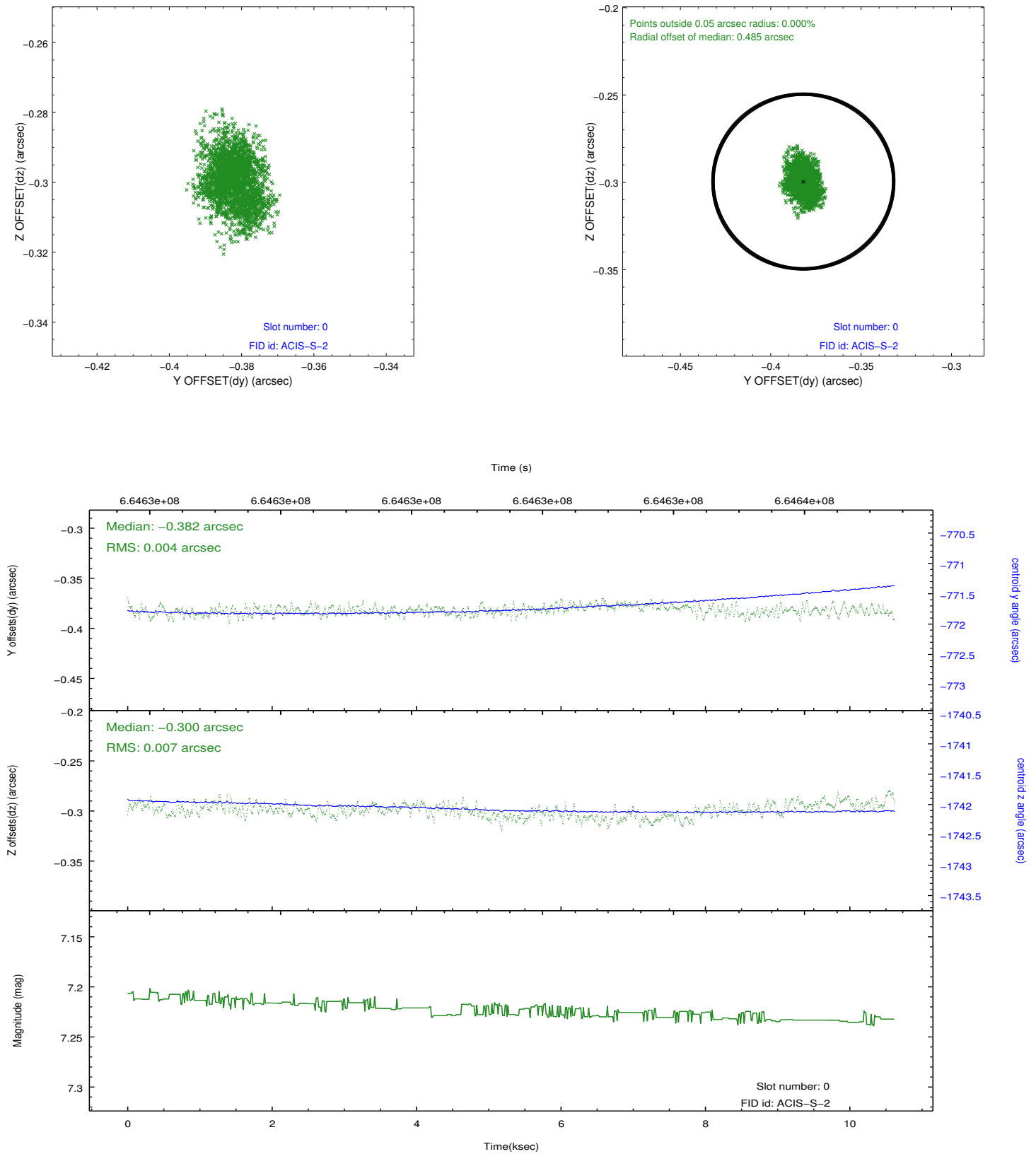


2.4.5 Slot 7

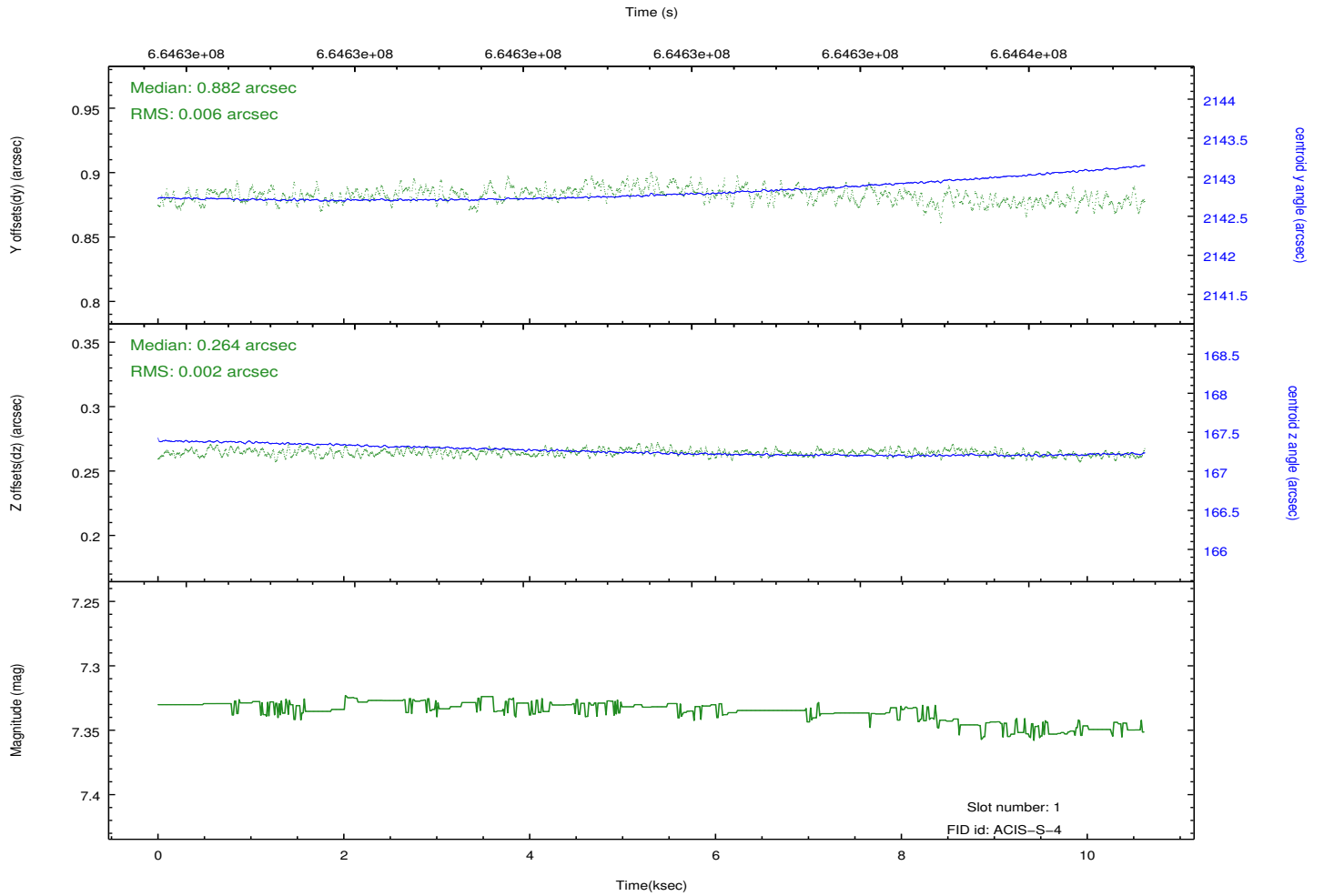
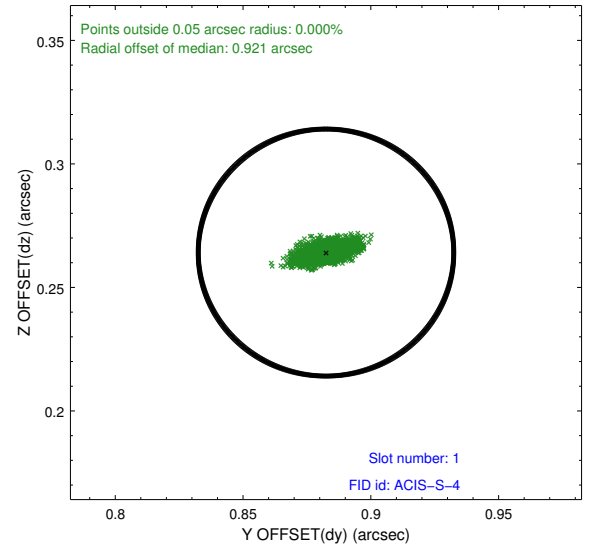
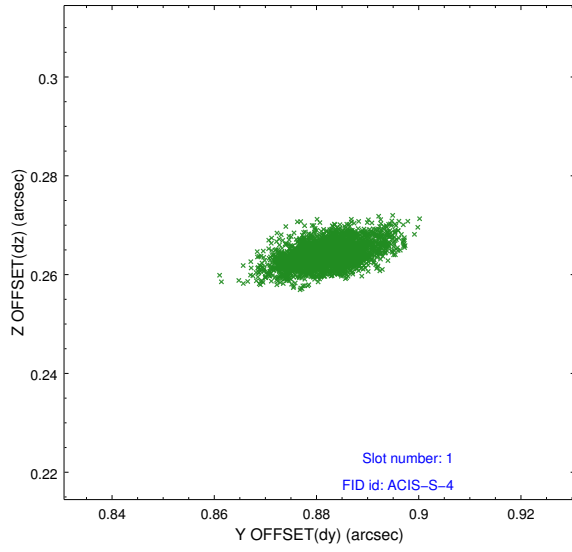


2.5 FID Slots

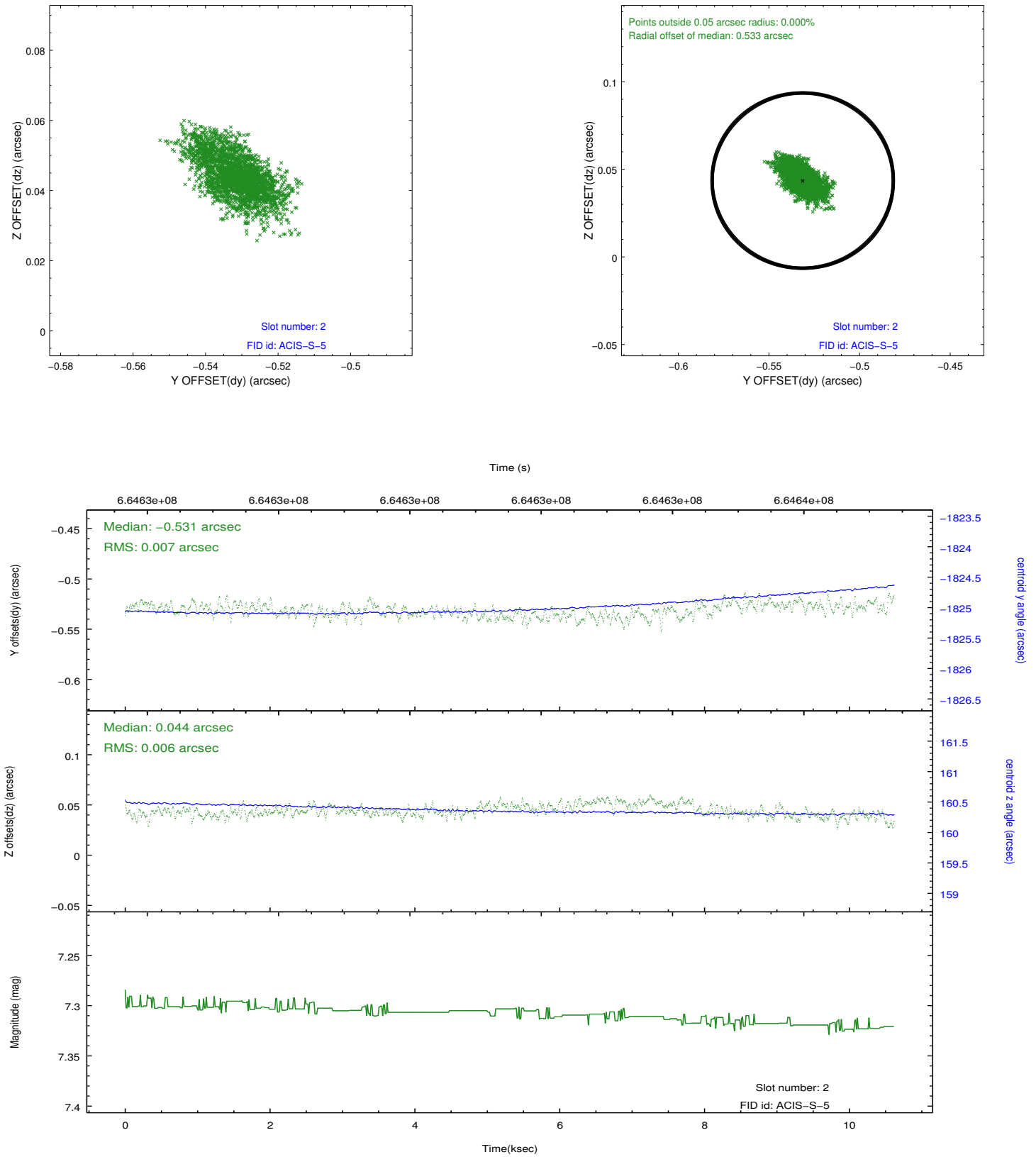
2.5.1 Slot 0



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)	2019.01.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.53877240932

A.2 Comments

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.