

V&V Reference Report

L2 ASCDS Version : 10.6

Observation 19448 - L2 Version 1
Chandra X-Ray Center

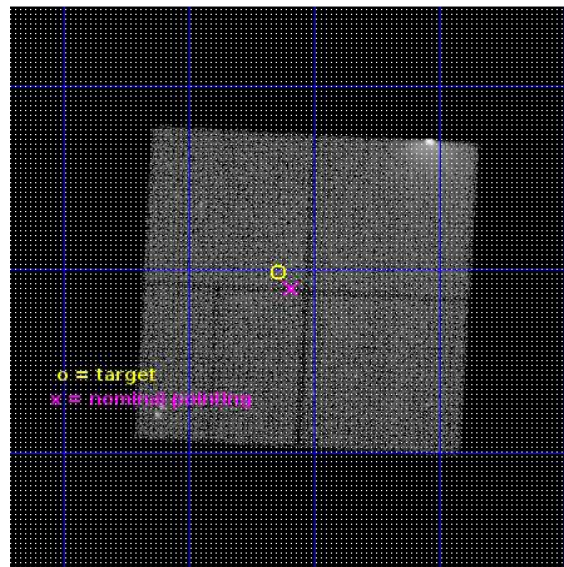
L2 Processing Date : Jul 13 2017

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1 Front

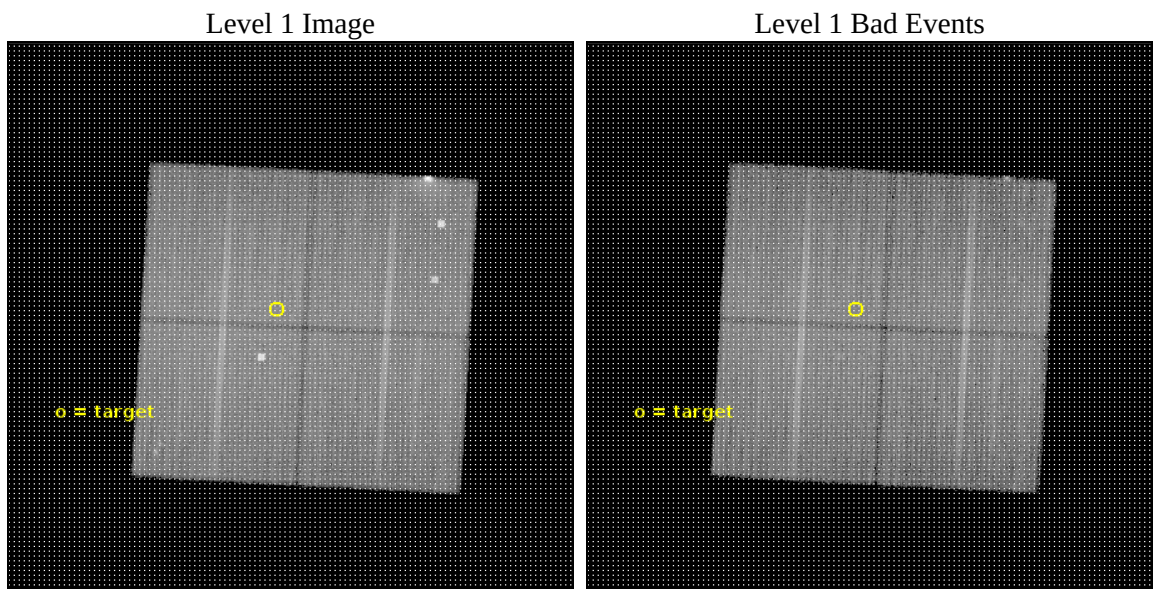
seq_num	901346	Sequence number
obs_id	19448	Observation id
title	A Magnetic X-ray Filament near the Galactic Center: Seeking the Energy Source	Proposal title
observer	Mark Morris	Principal investigator
object	XMM J0.173-0.413	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	266.911125	Observer's specified target RA [deg]
dec_targ	-29.00275	Observer's specified target Dec [deg]
ra_nom	266.8979682689	Nominal RA [deg]
dec_nom	-29.017845613561	Nominal Dec [deg]
roll_nom	273.20229350902	Nominal Roll [deg]
revision	1	Processing version of data
ontime	45080.200346828	Sum of GTIs [s]
livetime	44491.194341736	Livetime [s]
ontime0	45077.059266448	Sum of GTIs [s]
ontime1	45077.059266567	Sum of GTIs [s]
ontime2	45080.200346828	Sum of GTIs [s]
ontime3	45080.200346828	Sum of GTIs [s]
l2events	176141	Number of level 2 events



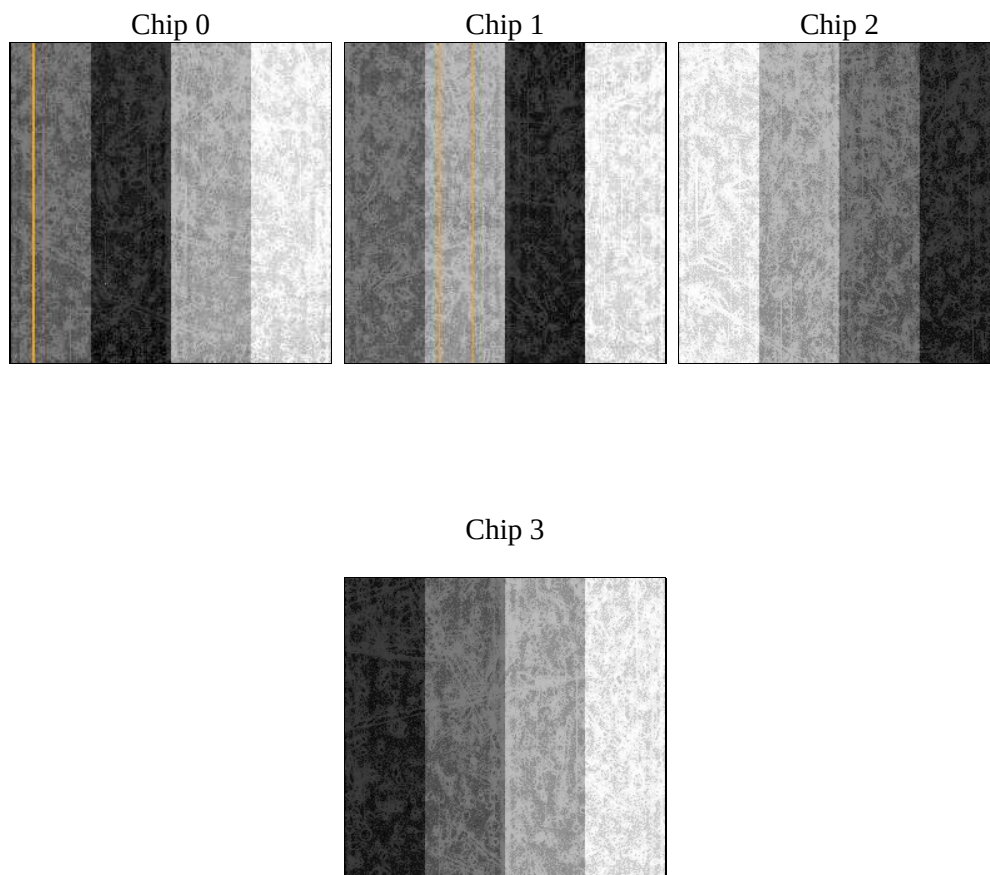
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	45000.000000	[s] Scheduled observation exposure time
ascdsver	10.6	Processing system revision	ontime	45080.200346828	Sum of GTIs [s]
caldsver	4.7.5	 	ontime0	45077.059266448	Sum of GTIs [s]
date	2017-07-13T21:38:06	Date and time of file creation	ontime1	45077.059266567	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	45080.200346828	Sum of GTIs [s]
			ontime3	45080.200346828	Sum of GTIs [s]
			l1events	1394177	Number of level 1 events

2.1.4 Events

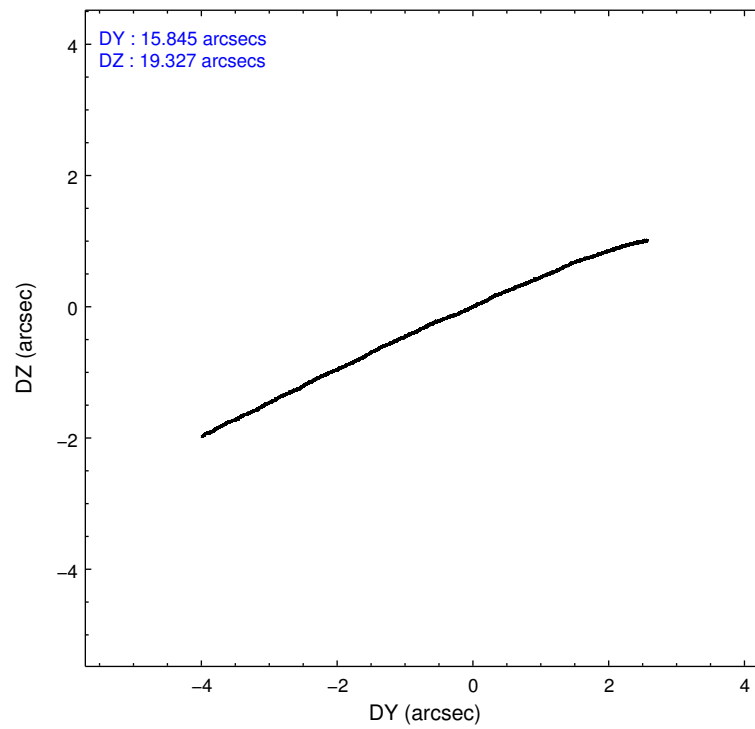
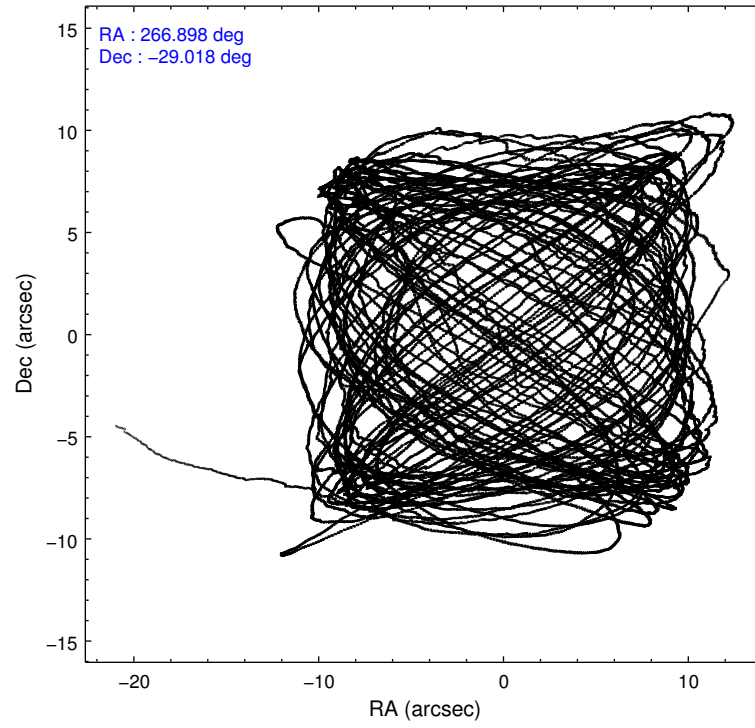
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	315985	375055	365303	337834
rejected events	272801	277220	311326	297149
rejected %	86%	73%	85%	87%

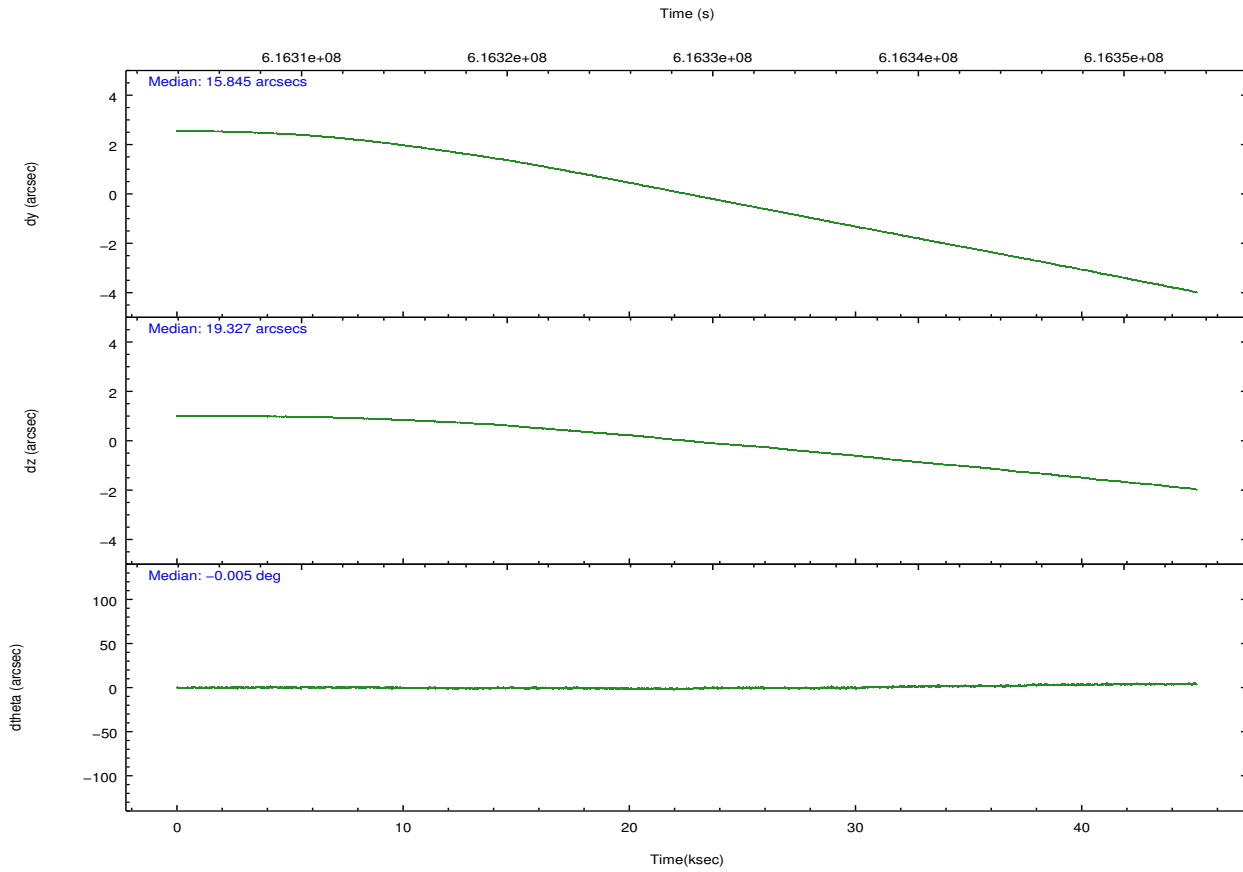
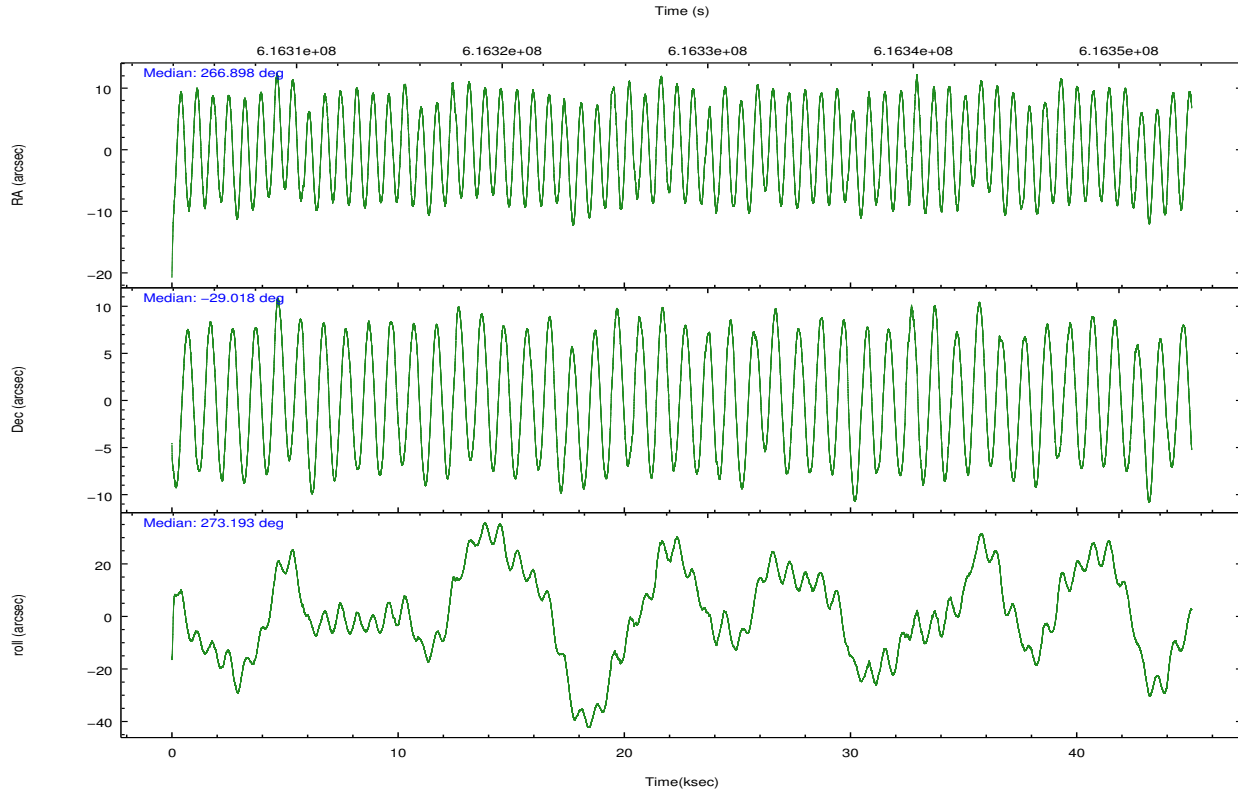
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	17321	57476	30145	16681
	5%	15%	8%	4%
grade 1 events	173	510	306	186
	0%	0%	0%	0%
grade 2 events	9892	16045	8894	8212
	3%	4%	2%	2%
grade 3 events	3896	5695	3917	3991
	1%	1%	1%	1%
grade 4 events	3616	5713	3728	3925
	1%	1%	1%	1%
grade 5 events	13341	13997	12604	15204
	4%	3%	3%	4%
grade 6 events	8464	12908	7295	7878
	2%	3%	1%	2%
grade 7 events	259282	262711	298414	281757
	82%	70%	81%	83%

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	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	266.880597	266.8979682689029	Subarray requested	NONE	NONE
[deg] Pointing Dec	-28.994806	-29.01784561356137	Alternating exposures requested	N	N
[deg] Pointing Roll	272.985196	273.202293509018	[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	-233.592463	-233.5874344608287			
[mm] SIM translation stage offset	0	-0.005018542100998502			
[s] Observation start time (MET)	616306281.184000	616305024.12002			
Observation start date	2017-07-13T04:10:12	2017-07-13T03:50:24			
[s] Observation end time (MET)	616351281.184000	616352368.87277			
Observation end date	2017-07-13T16:40:12	2017-07-13T16:59:28			
Read mode	TIMED	TIMED			

2.3 Aspect



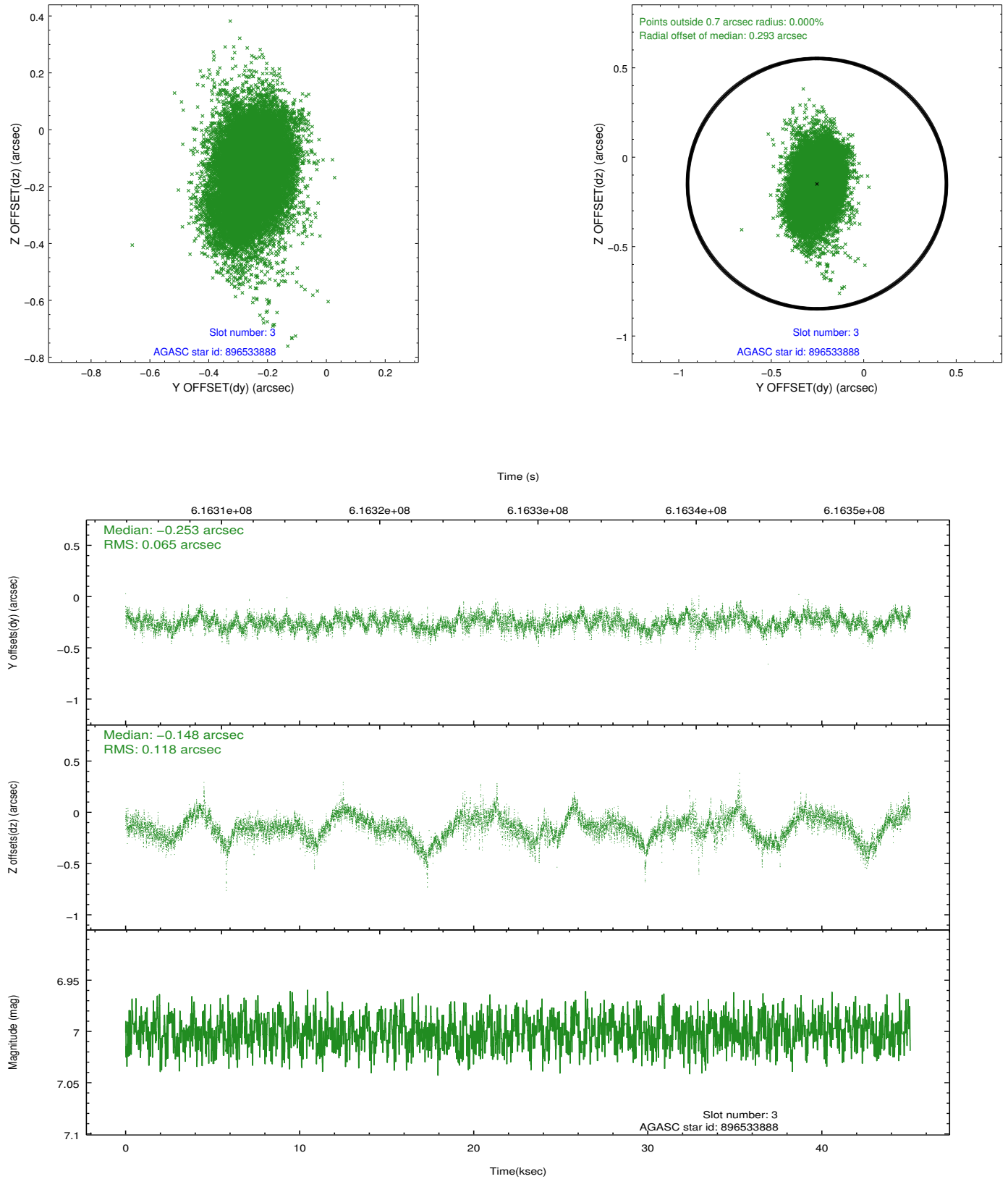


Slot Statistics

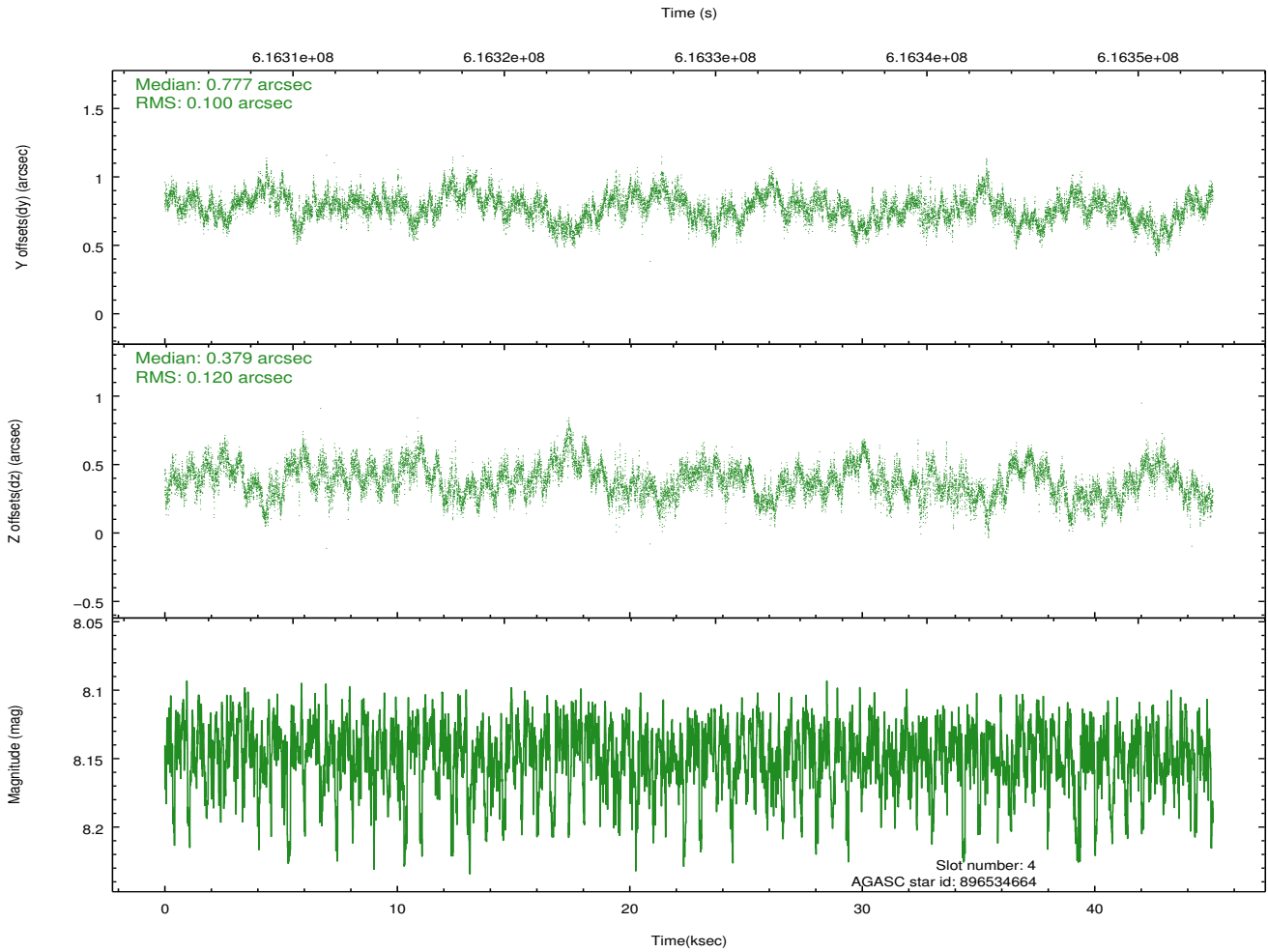
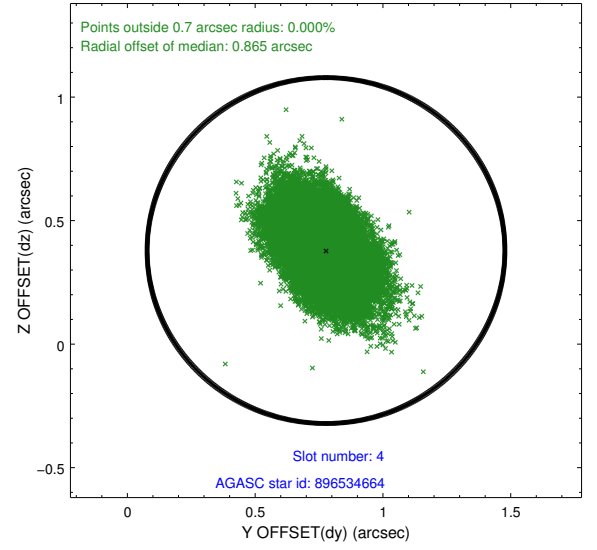
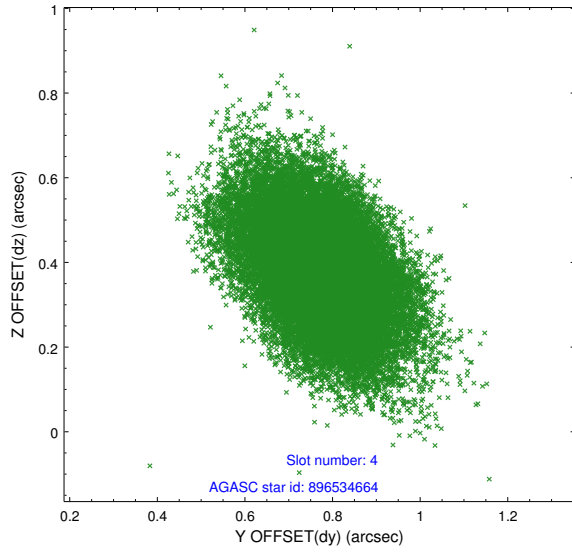
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.26	10995	0.072	-0.048	0.028	0.039	0.000000	0.000000	923.88	-842.91
1	FID		ACIS-I-5	7.27	10996	-0.385	0.018	0.025	0.041	0.000000	0.000000	-1824.78	1054.51
2	FID		ACIS-I-6	7.27	10995	0.229	0.085	0.044	0.053	0.000000	0.000000	389.45	1699.20
3	GUIDE	used	896533888	7.00	21992	-0.253	-0.148	0.138	0.242	266.666434	-29.392757	1396.71	-745.21
4	GUIDE	used	896534664	8.15	21984	0.777	0.379	0.165	0.273	266.405570	-28.407461	-2185.36	-1392.04
5	GUIDE	used	896537176	8.00	21949	0.010	0.253	0.117	0.197	266.498272	-28.678259	-1198.35	-1146.45
6	GUIDE	used	896540528	8.23	21979	-0.256	-0.417	0.166	0.309	267.368305	-29.314773	1233.53	1469.38
7	GUIDE	used	896537488	8.81	21961	-0.280	-0.059	0.173	0.292	267.422655	-28.504114	-1670.90	1804.34

2.4 Star Slots

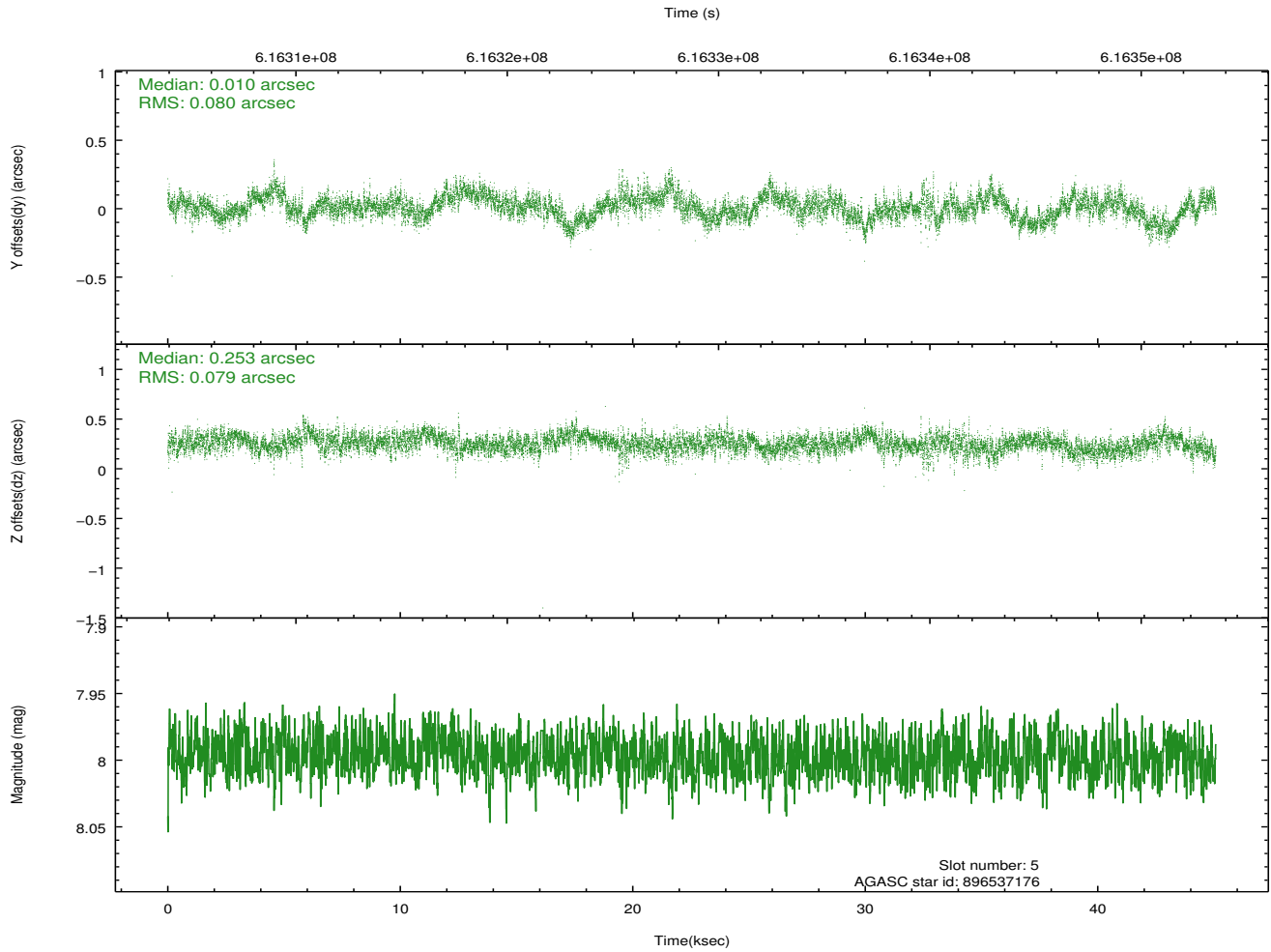
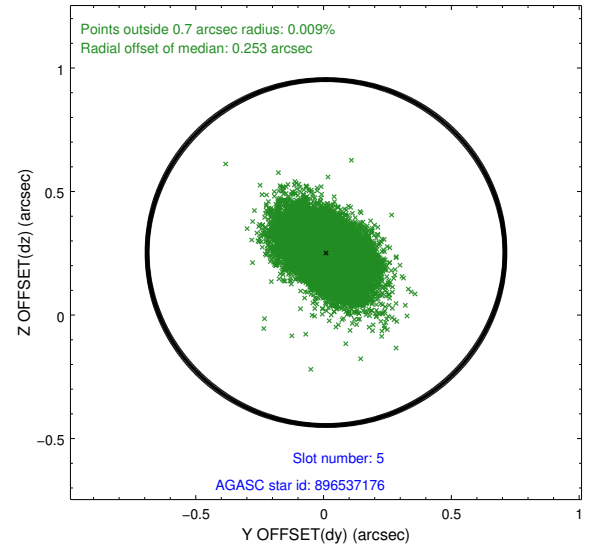
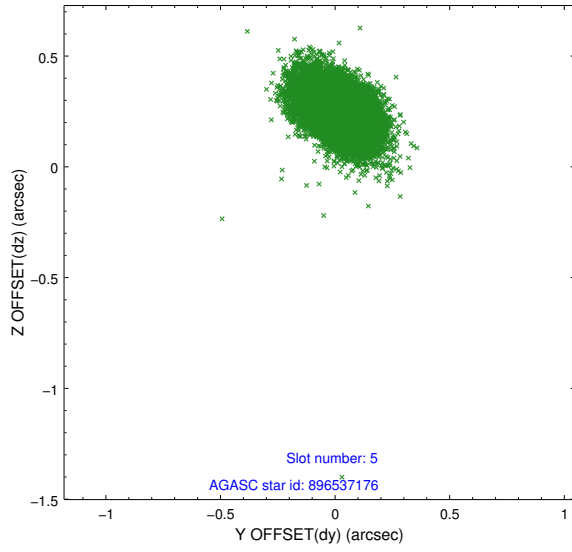
2.4.1 Slot 3



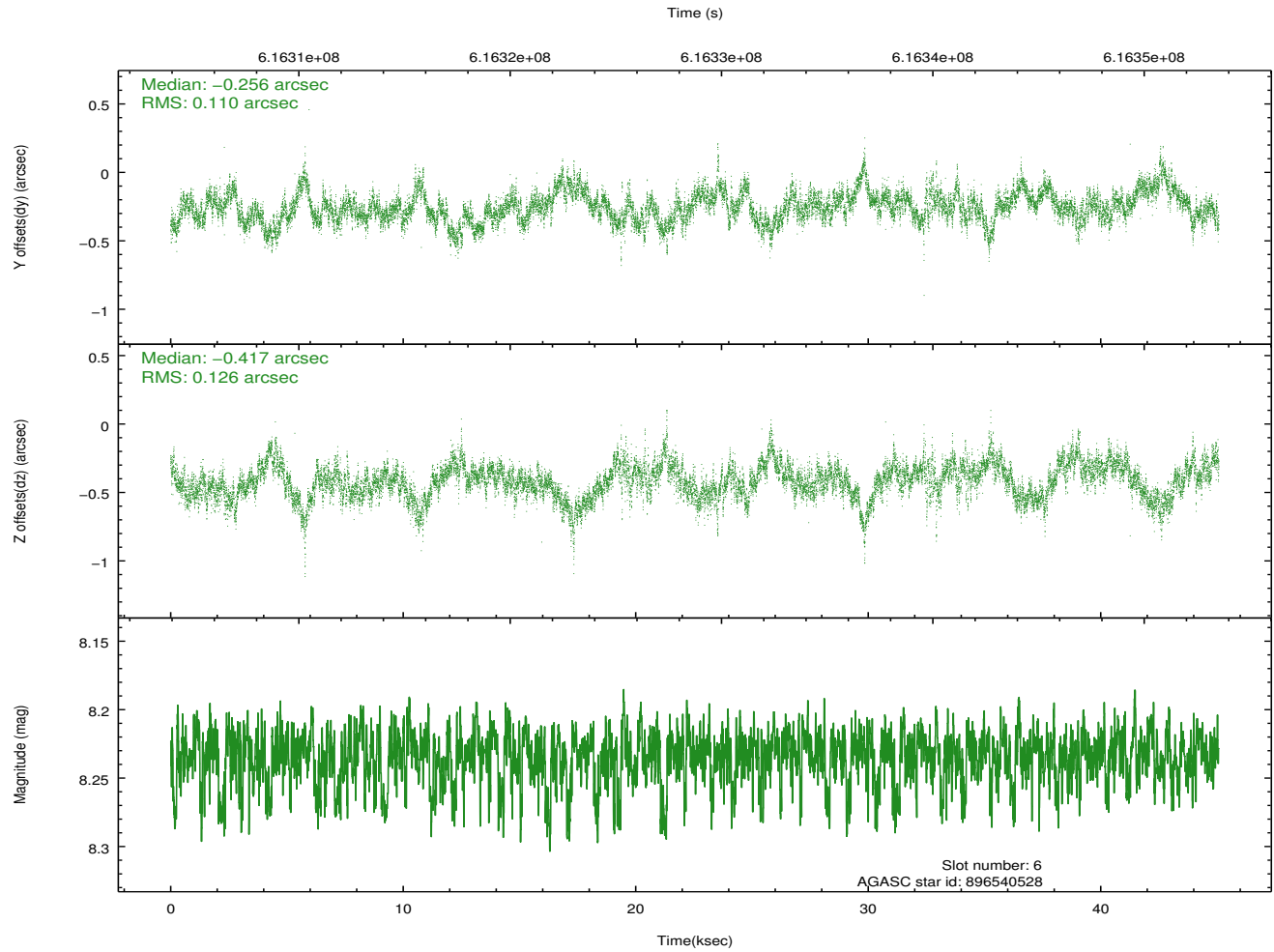
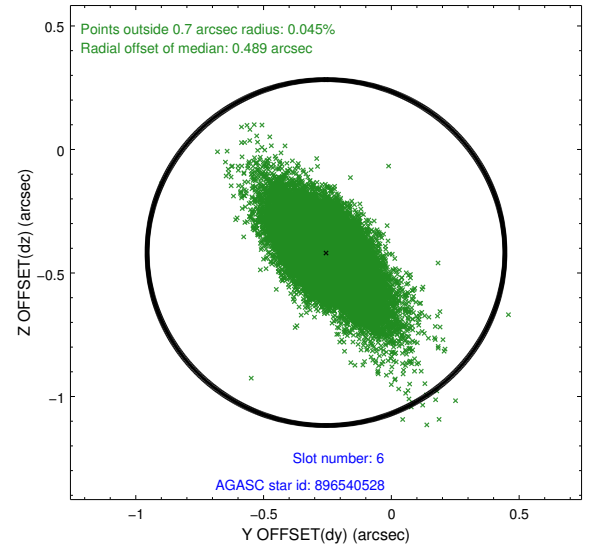
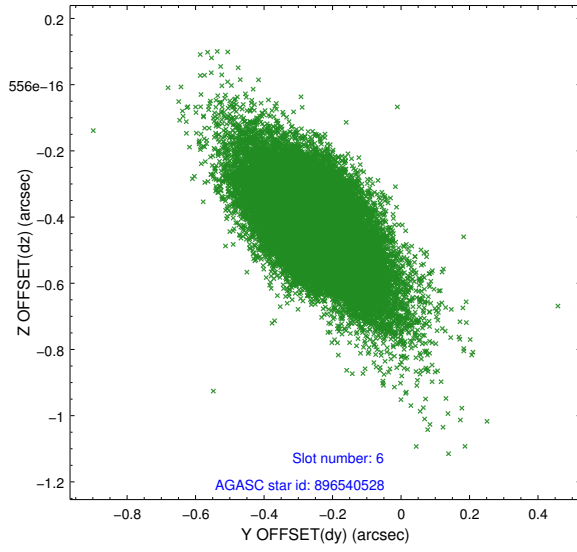
2.4.2 Slot 4



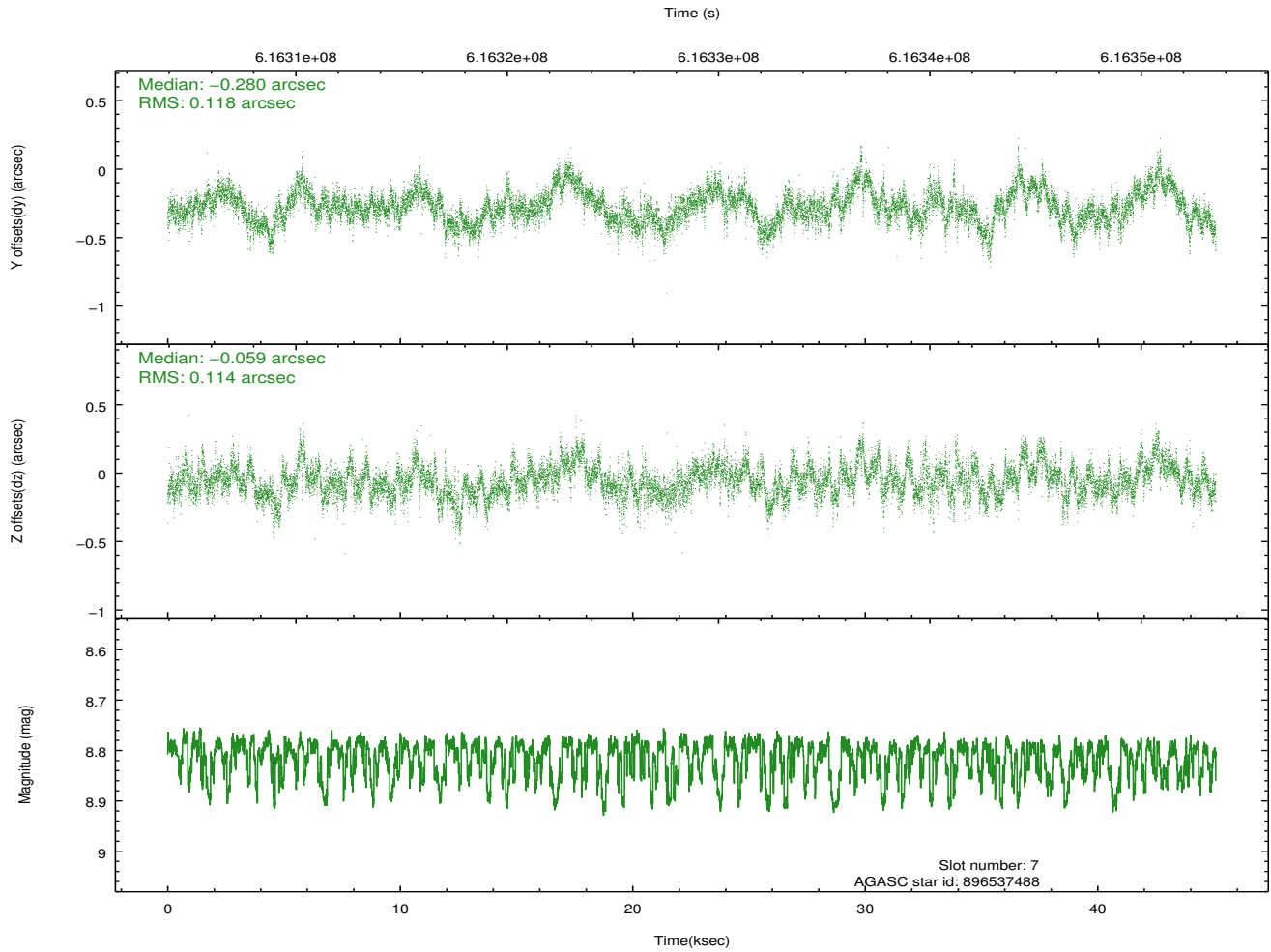
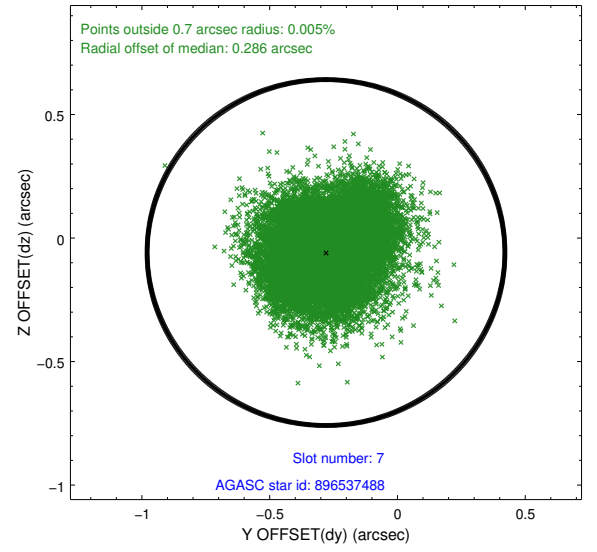
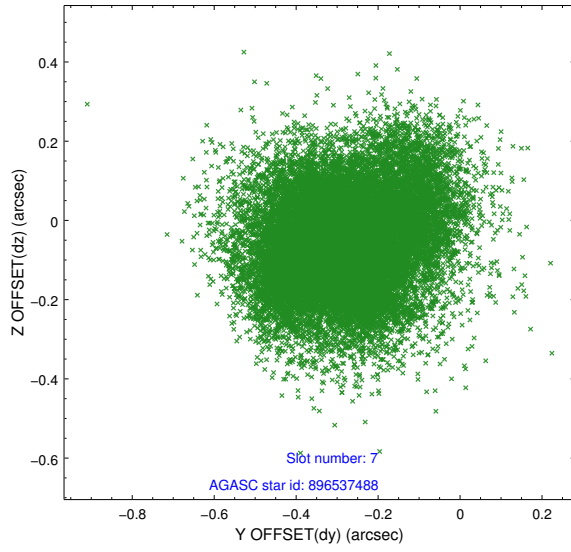
2.4.3 Slot 5



2.4.4 Slot 6

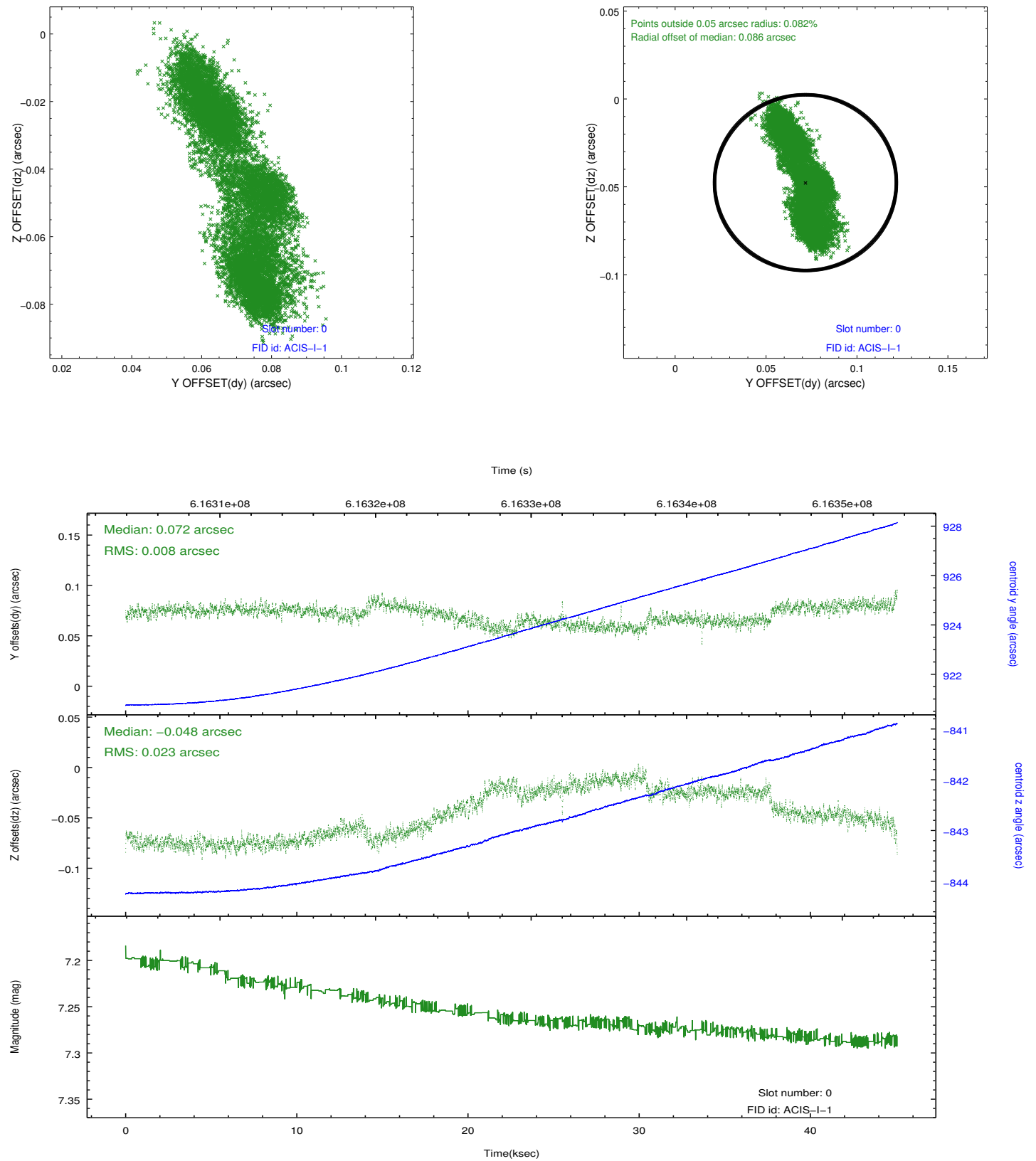


2.4.5 Slot 7

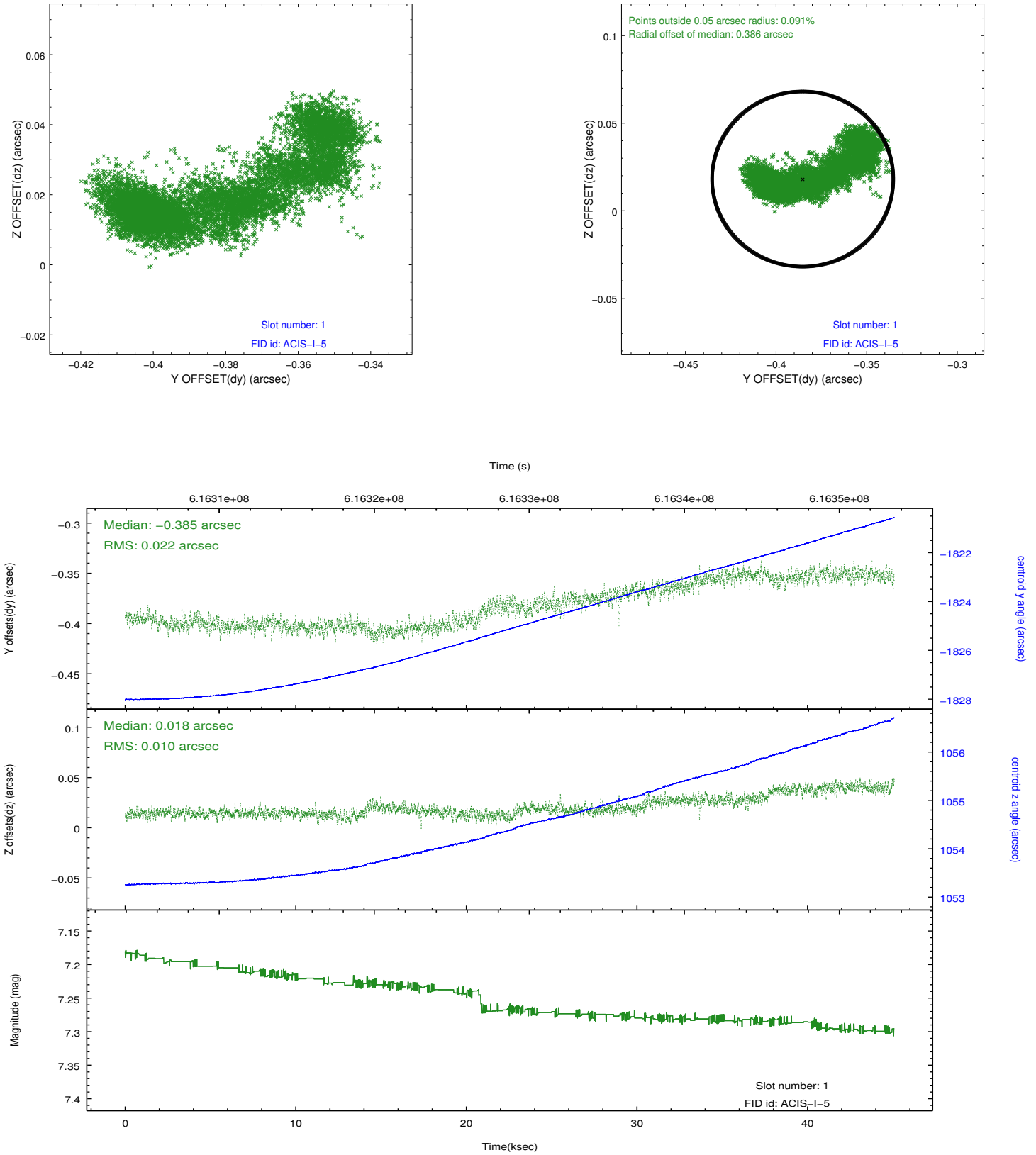


2.5 FID Slots

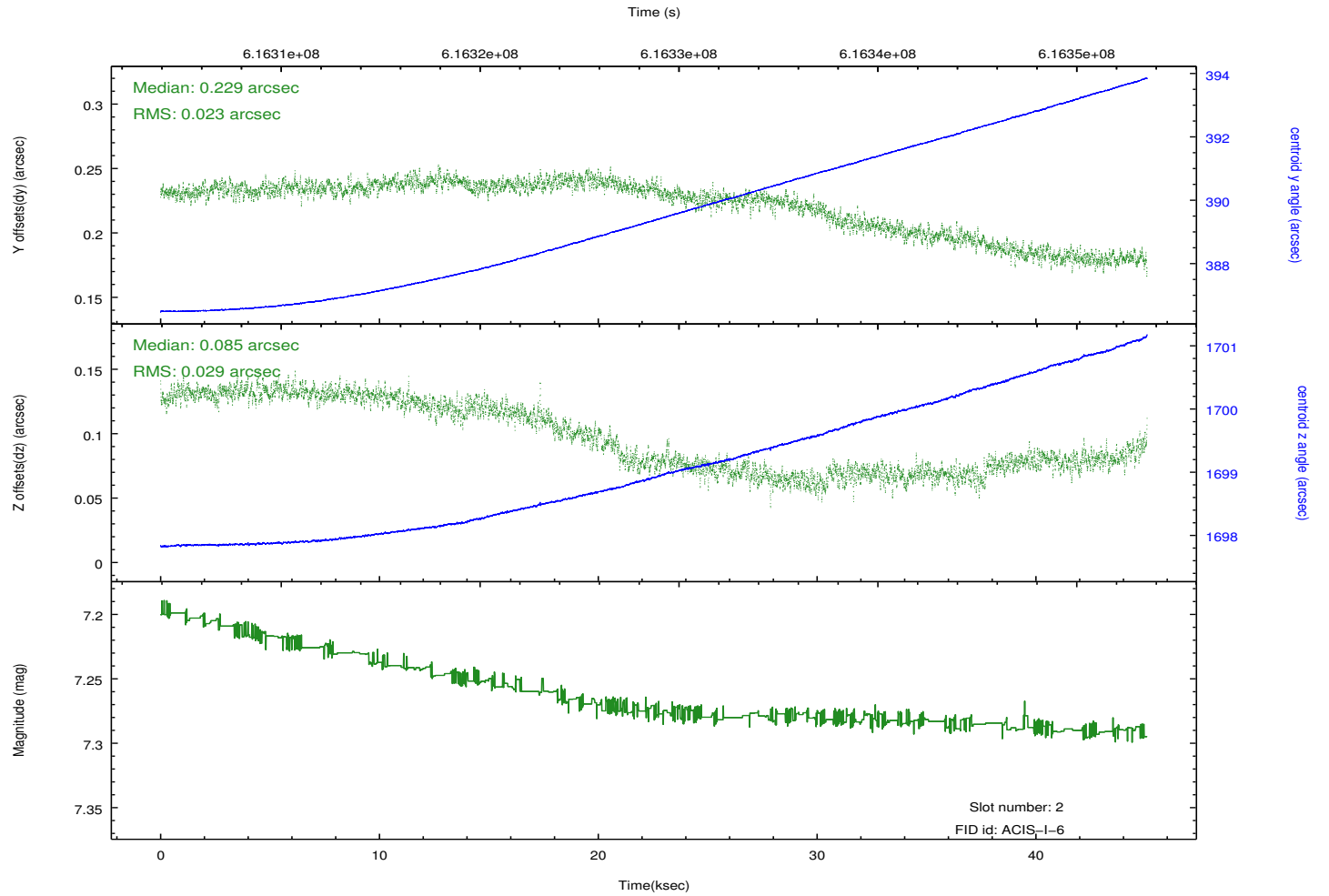
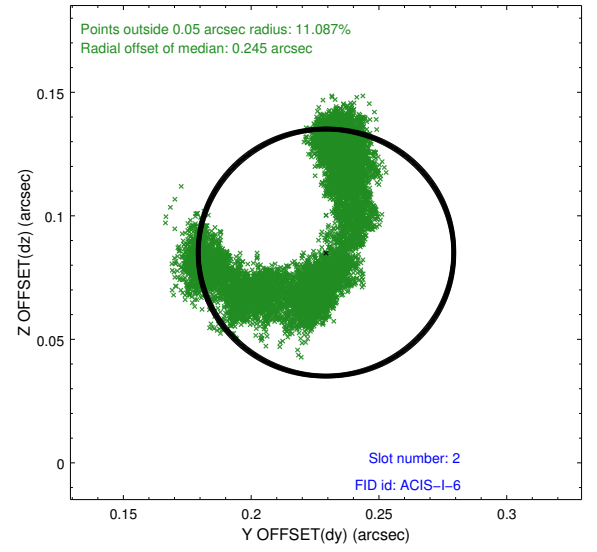
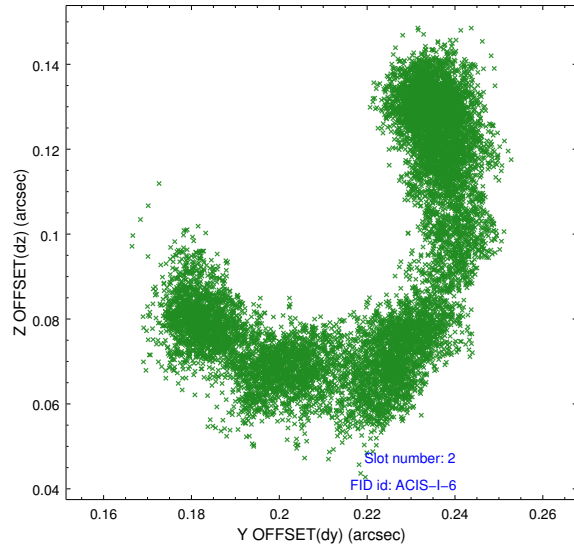
2.5.1 Slot 0



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)	2018.03.07
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	45.080200346828

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.