

V&V Reference Report

L2 ASCDS Version : 10.6.4.1

Observation 21545 - L2 Version 1
Chandra X-Ray Center

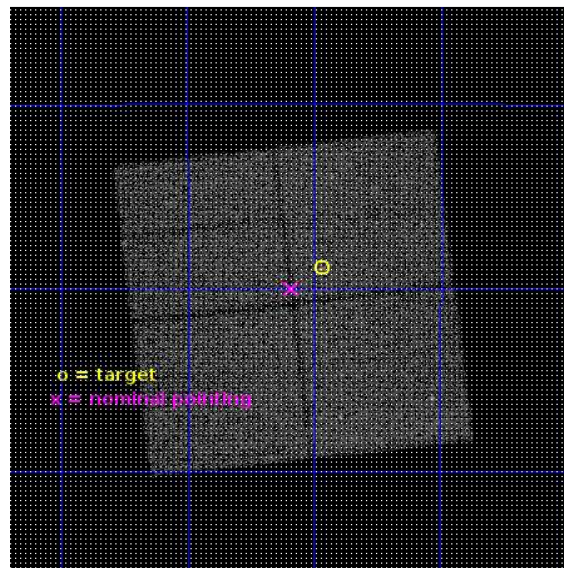
L2 Processing Date : Sep 25 2018

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1 Front

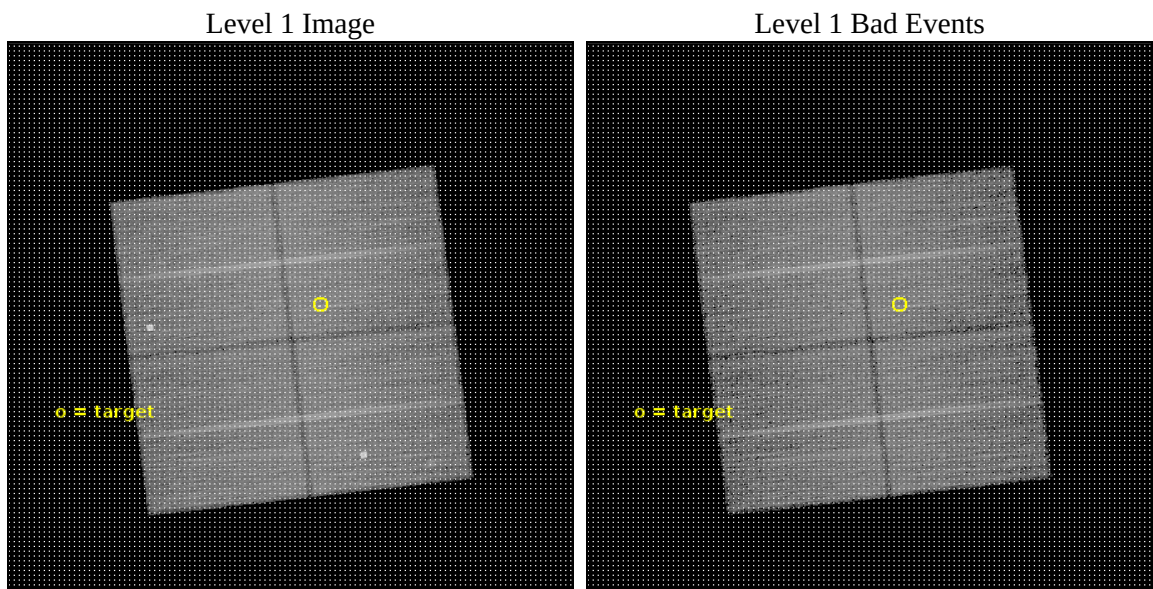
seq_num	801827	Sequence number
obs_id	21545	Observation id
title	A Unique Sample of Extreme-BCG Clusters at $0.2 < z < 0.6$	Proposal
observer	Michael McDonald	Principal investigator
object	CHIPS0005-2758	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	1.4925	Observer's specified target RA [deg]
dec_targ	-27.981806	Observer's specified target Dec [deg]
ra_nom	1.5223259395515	Nominal RA [deg]
dec_nom	-28.000757778904	Nominal Dec [deg]
roll_nom	353.22267780568	Nominal Roll [deg]
revision	1	Processing version of data
ontime	32577.859210491	Sum of GTIs [s]
livetime	32152.205496435	Livetime [s]
ontime0	32574.718079925	Sum of GTIs [s]
ontime1	32577.859190464	Sum of GTIs [s]
ontime2	32577.859190464	Sum of GTIs [s]
ontime3	32577.859210491	Sum of GTIs [s]
l2events	91066	Number of level 2 events



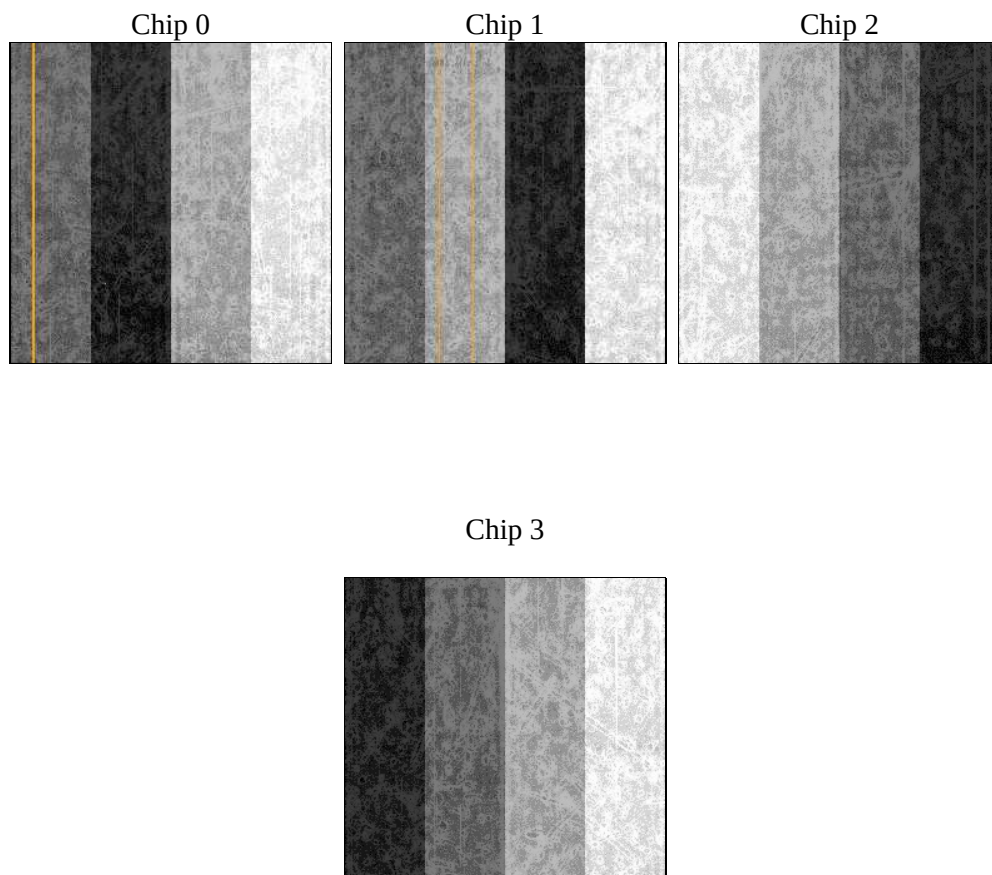
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	32500.000000	[s] Scheduled observation exposure time
ascdsver	10.6.4.1	Processing system revision	ontime	32577.859210491	Sum of GTIs [s]
caldsver	4.8.0	 	ontime0	32574.718079925	Sum of GTIs [s]
date	2018-09-25T16:26:17	Date and time of file creation	ontime1	32577.859190464	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	32577.859190464	Sum of GTIs [s]
			ontime3	32577.859210491	Sum of GTIs [s]
			l1events	948647	Number of level 1 events

2.1.4 Events

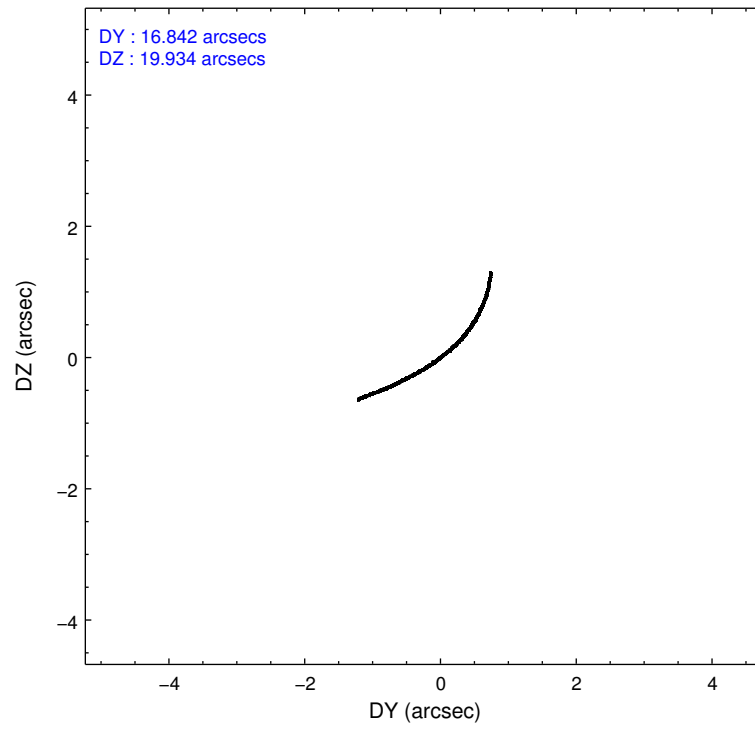
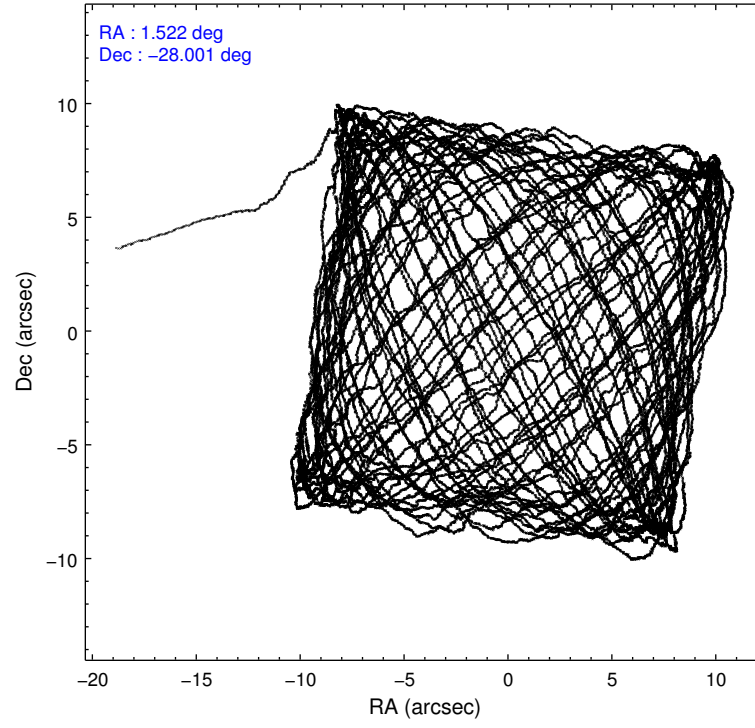
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	220577	236698	253969	237403
rejected events	194025	202023	222456	210140
rejected %	87%	85%	87%	88%

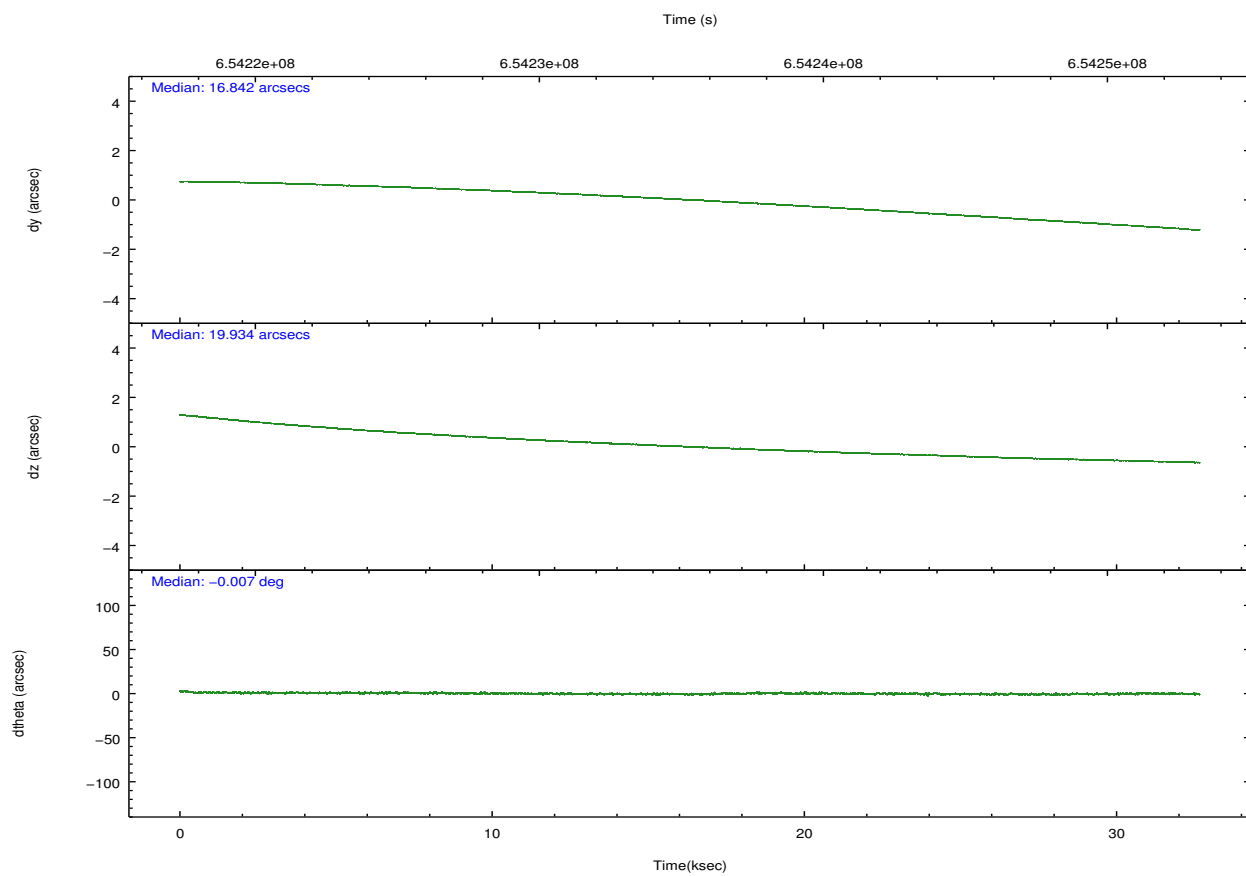
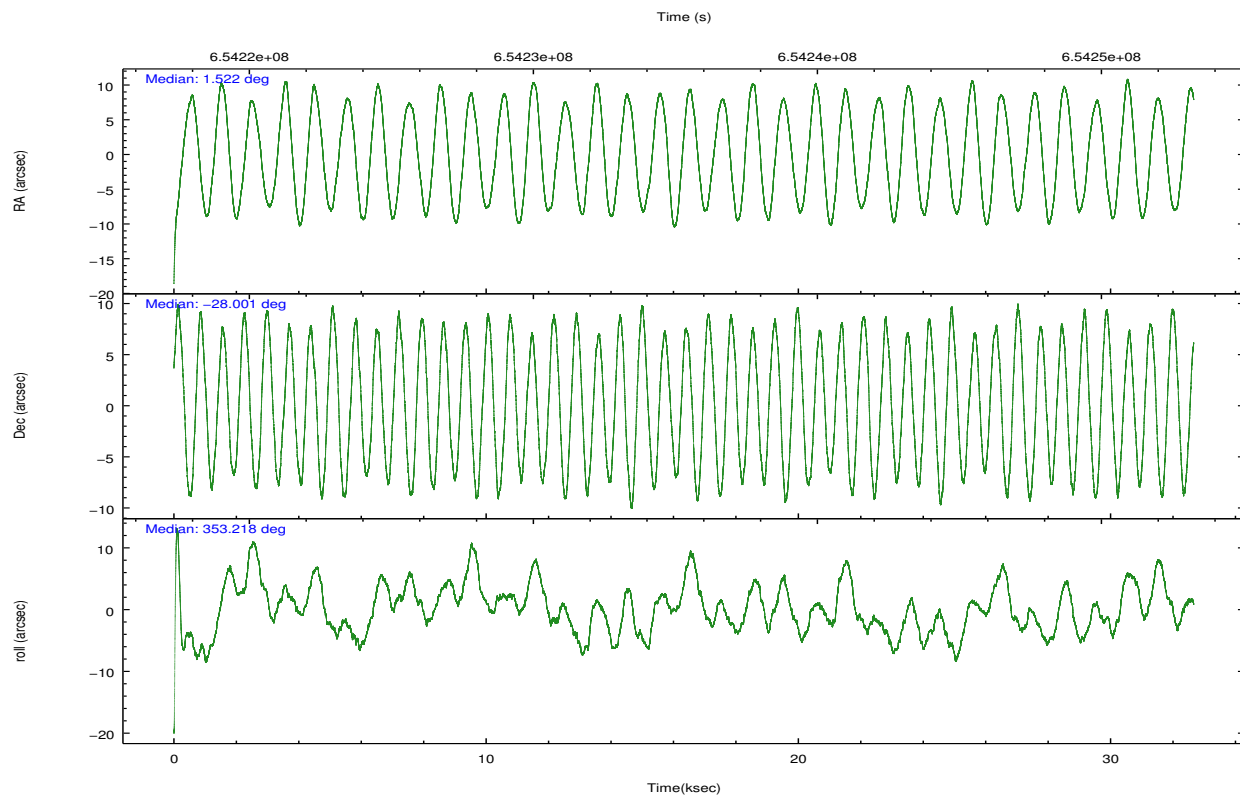
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	8915	15271	14815	10392
	4%	6%	5%	4%
grade 1 events	112	147	165	174
	0%	0%	0%	0%
grade 2 events	6678	7190	6302	5905
	3%	3%	2%	2%
grade 3 events	2693	2732	2530	2766
	1%	1%	0%	1%
grade 4 events	2485	2721	2688	2640
	1%	1%	1%	1%
grade 5 events	10268	10489	9916	11594
	4%	4%	3%	4%
grade 6 events	5785	6766	5181	5562
	2%	2%	2%	2%
grade 7 events	183641	191382	212372	198370
	83%	80%	83%	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	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	1.493642	1.5223259395515	CCD I2 on	Y	Y
[deg] Pointing Dec	-28.011735	-28.00075777890443	CCD I3 on	Y	Y
[deg] Pointing Roll	353.000537	353.2226778056795	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	N
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	N	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	654219140.184000	654217643.84043	CCD S5 on	N	N
Observation start date	2018-09-24T23:31:11	2018-09-24T23:07:23	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	654251640.184000	654252916.65503	On-chip summing requested	N	N
Observation end date	2018-09-25T08:32:51	2018-09-25T08:55:16	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



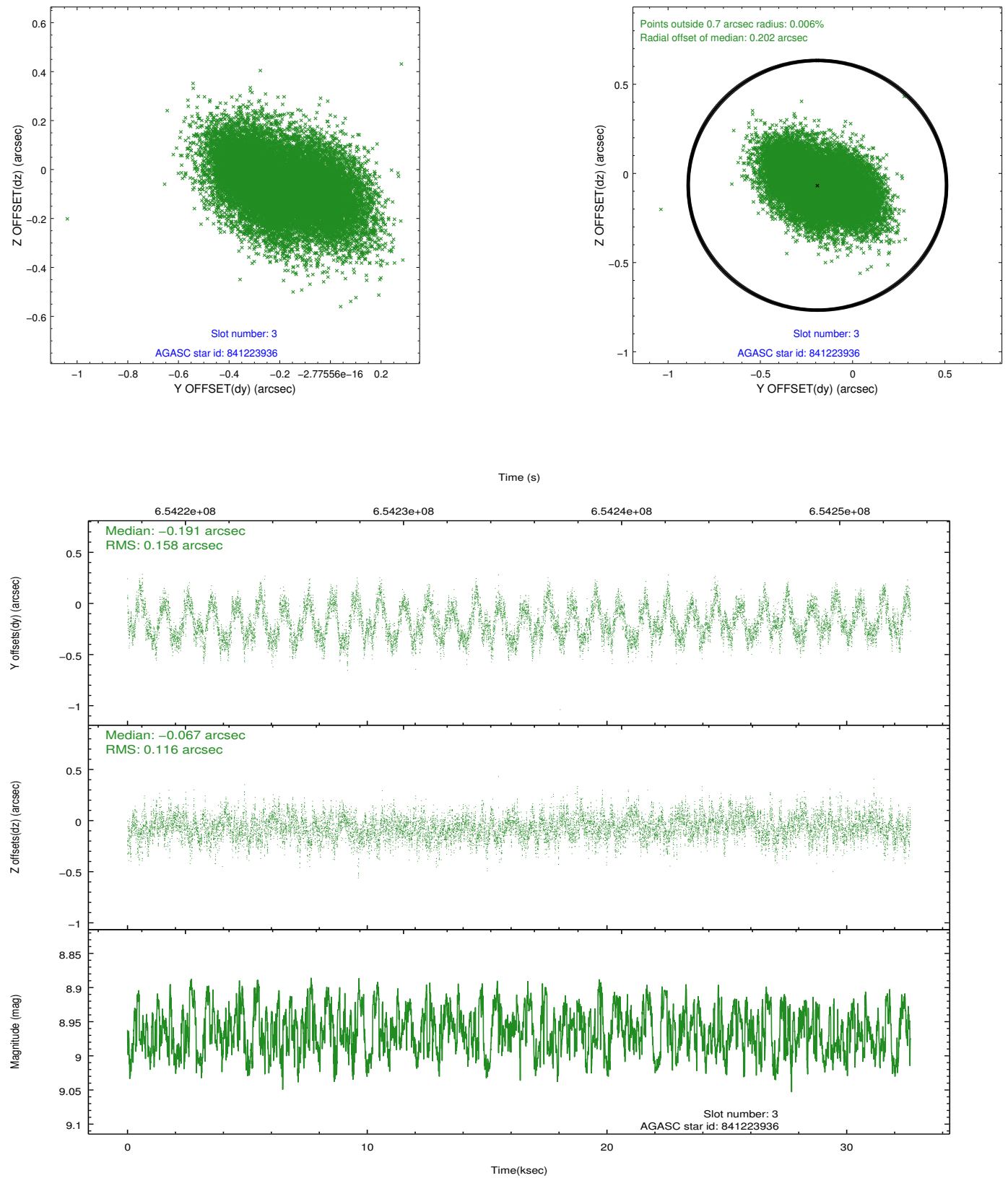


Slot Statistics

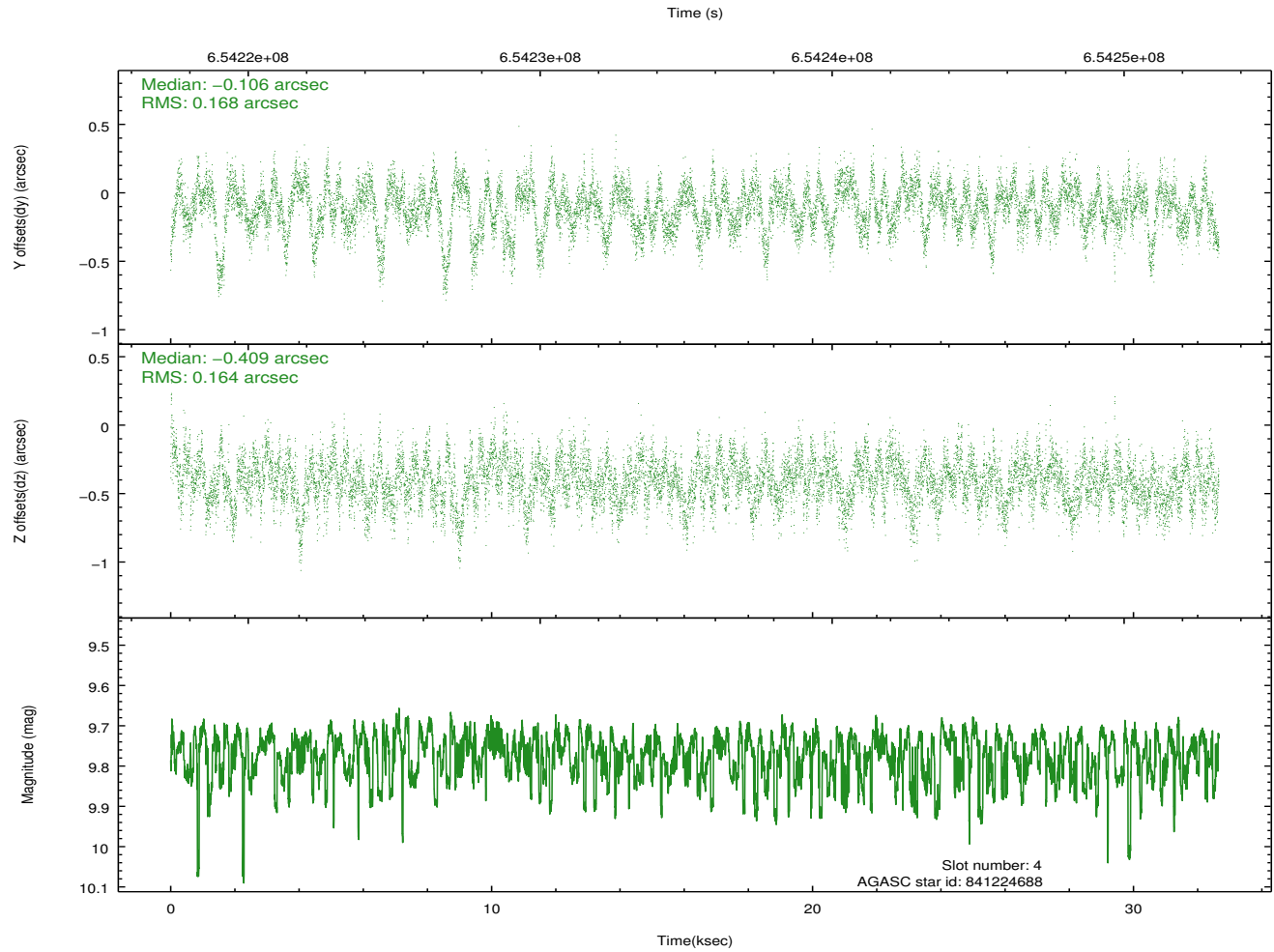
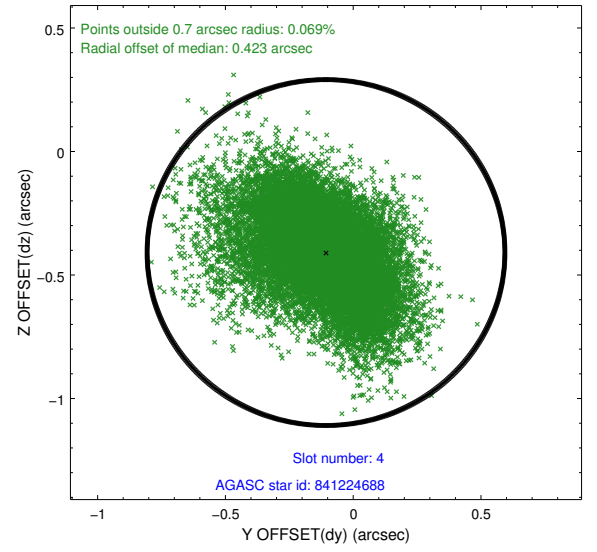
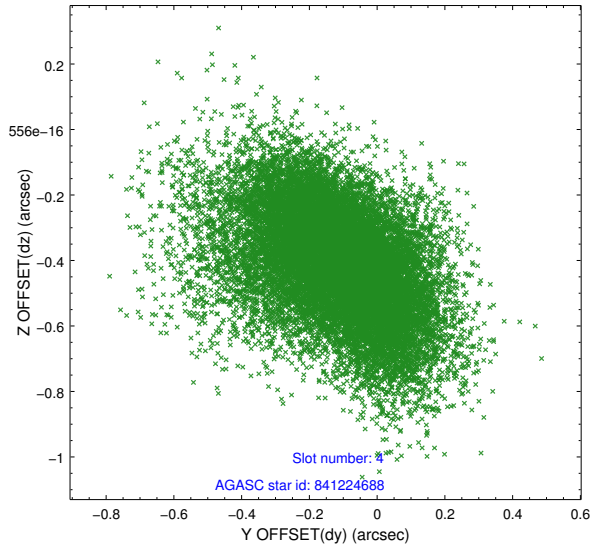
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-1	7.21	7967	1.000	-0.077	-0.074	0.030	0.054	0.000000	0.000000	922.64	-843
1	FID		ACIS-I-4	7.14	7965	1.000	0.460	0.112	0.031	0.046	0.000000	0.000000	2143.09	1056
2	FID		ACIS-I-5	7.19	7965	1.000	-0.478	0.033	0.012	0.023	0.000000	0.000000	-1825.84	1053
3	GUIDE	used	841223936	8.96	15907	1.000	-0.191	-0.067	0.210	0.333	1.963282	-28.324579	1615.40	-938
4	GUIDE	used	841224688	9.77	15903	1.000	-0.106	-0.409	0.244	0.420	1.211539	-27.692902	-1031.45	1028
5	GUIDE	used	841229840	7.70	15928	1.000	0.003	0.165	0.132	0.227	0.972338	-28.393818	-1468.12	-1569
6	GUIDE	used	841229872	8.25	15924	1.000	0.153	0.176	0.134	0.223	0.922842	-28.396196	-1618.81	-1599
7	GUIDE	used	841229848	8.64	15924	1.000	0.142	0.140	0.144	0.241	0.904575	-28.417139	-1671.97	-1680

2.4 Star Slots

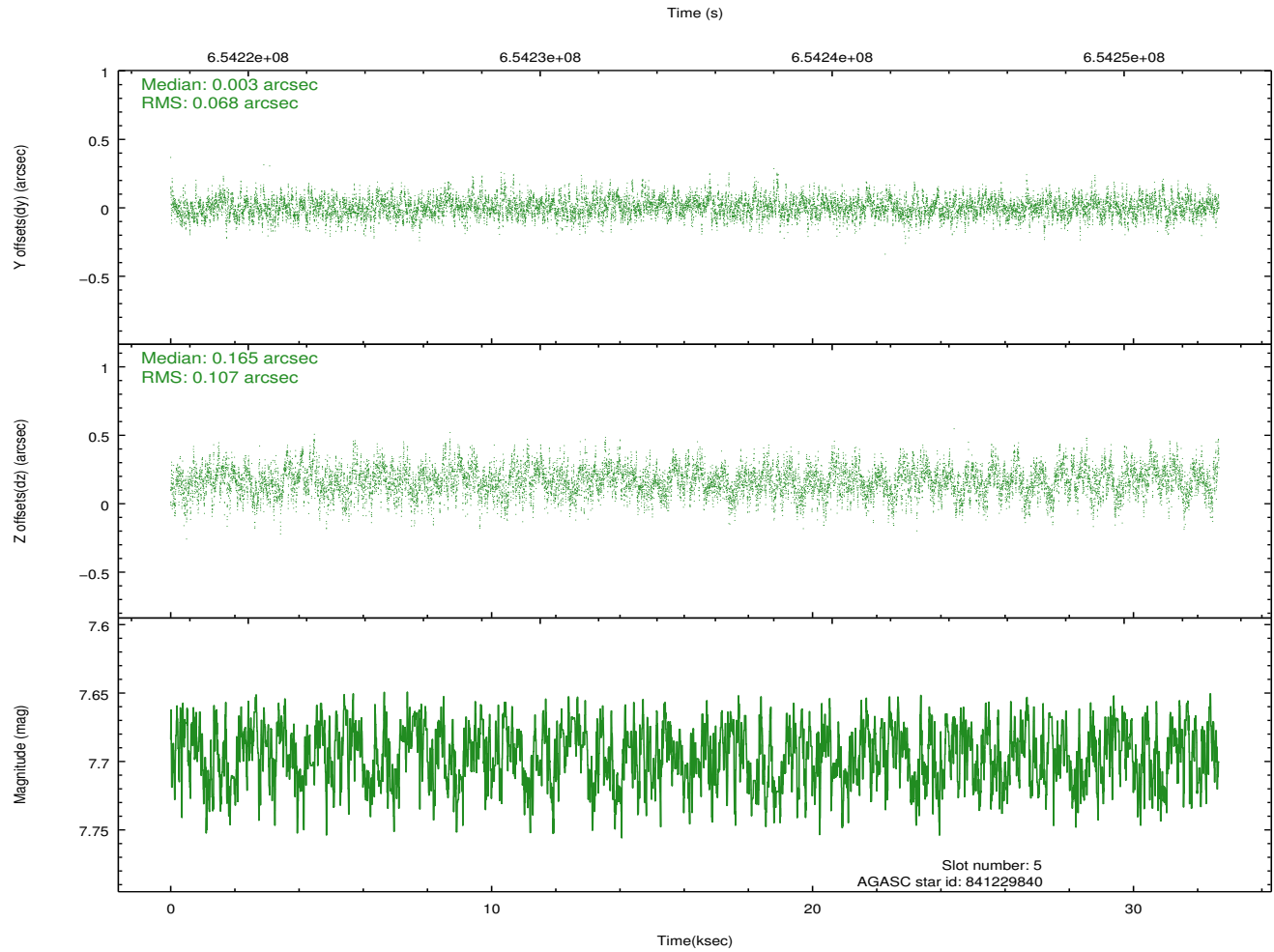
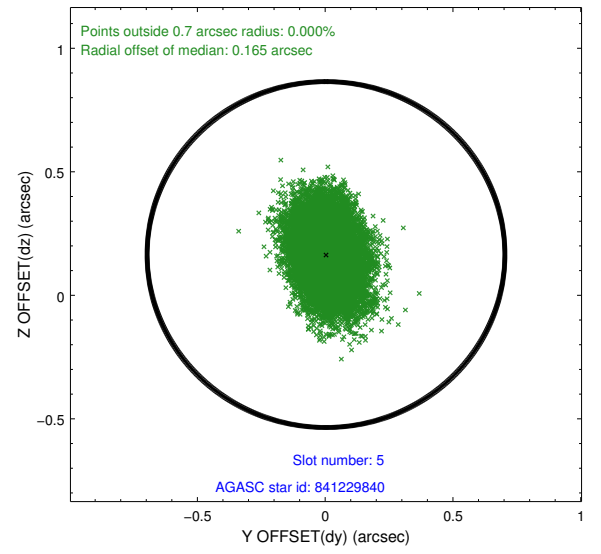
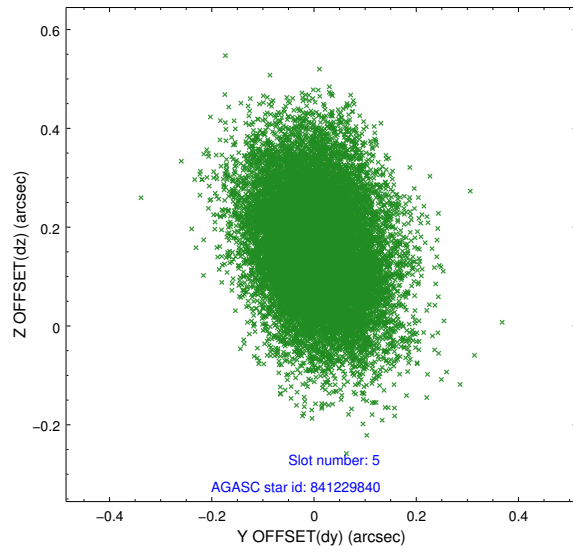
2.4.1 Slot 3



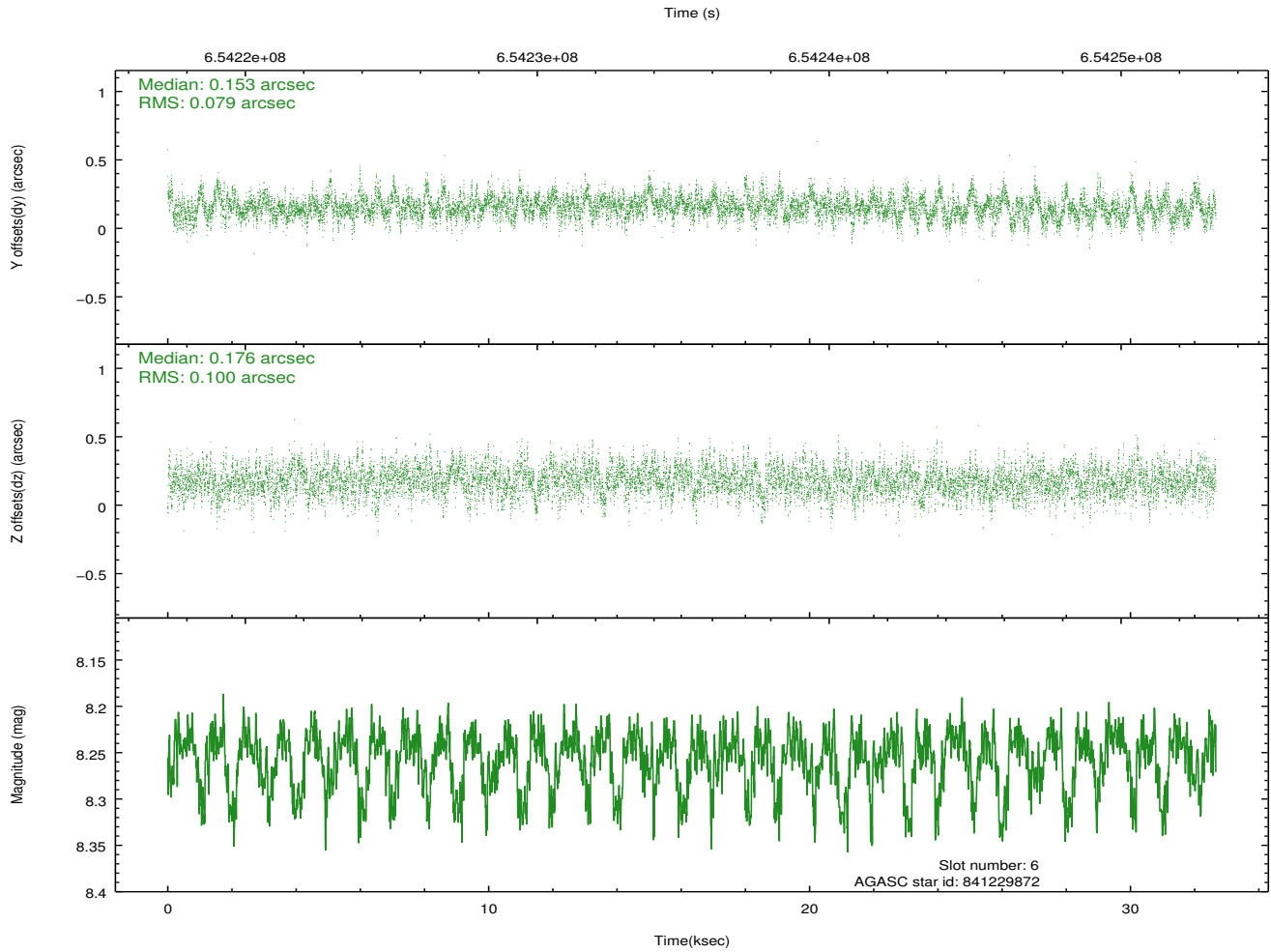
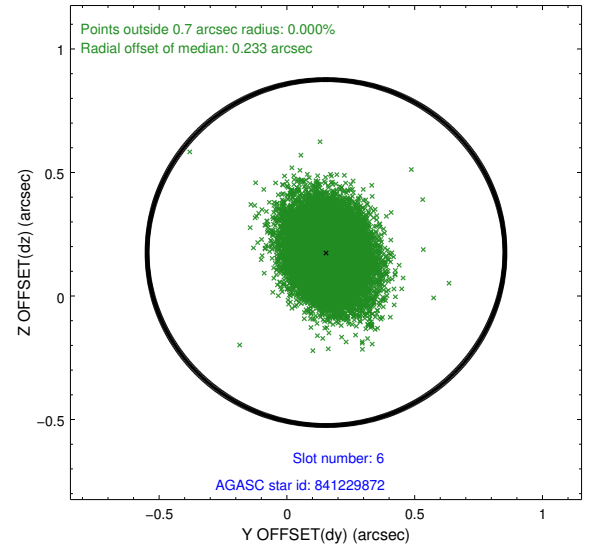
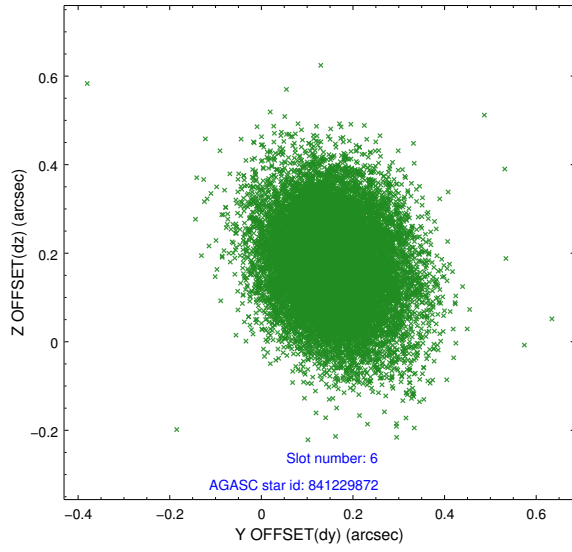
2.4.2 Slot 4



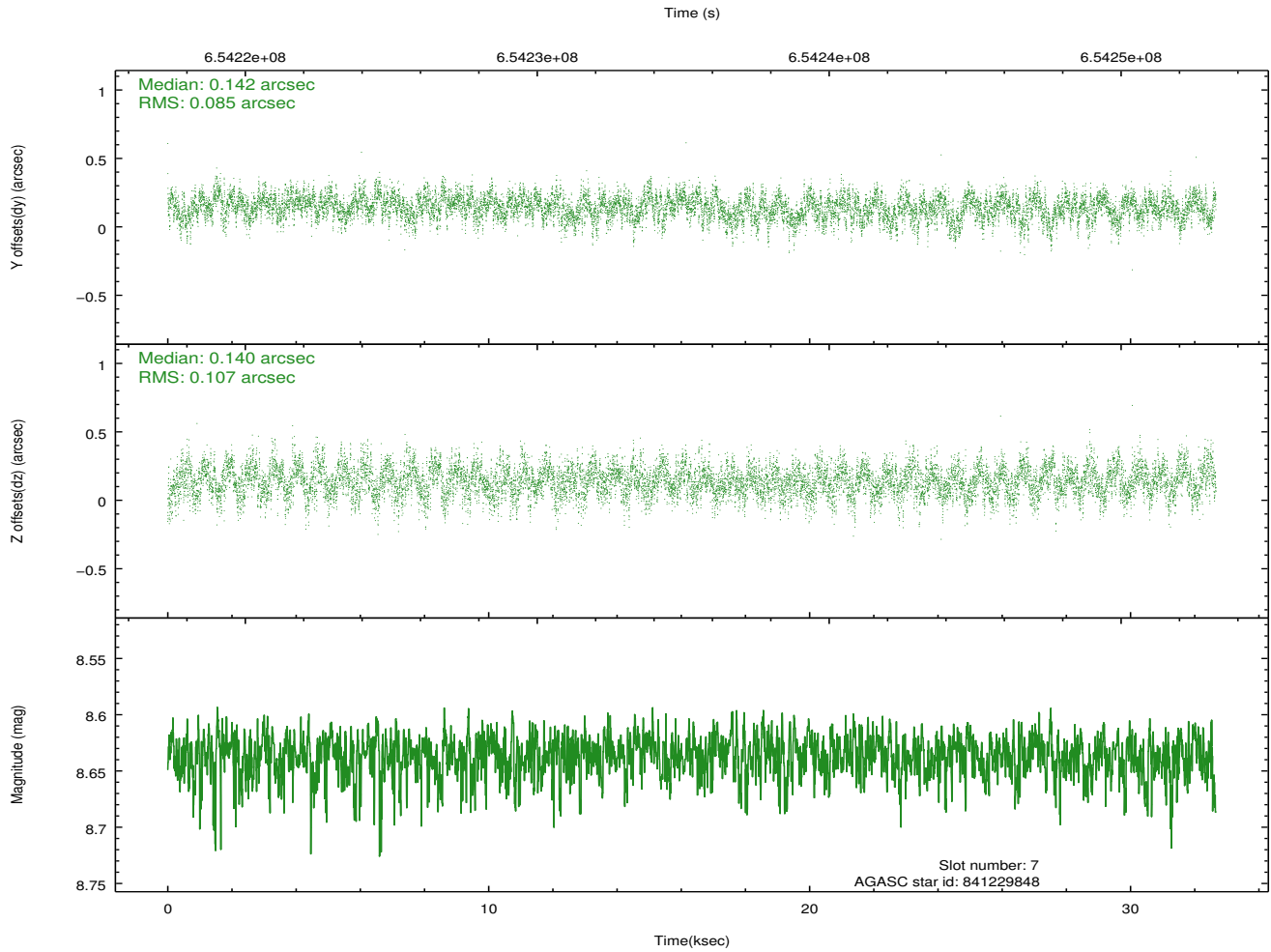
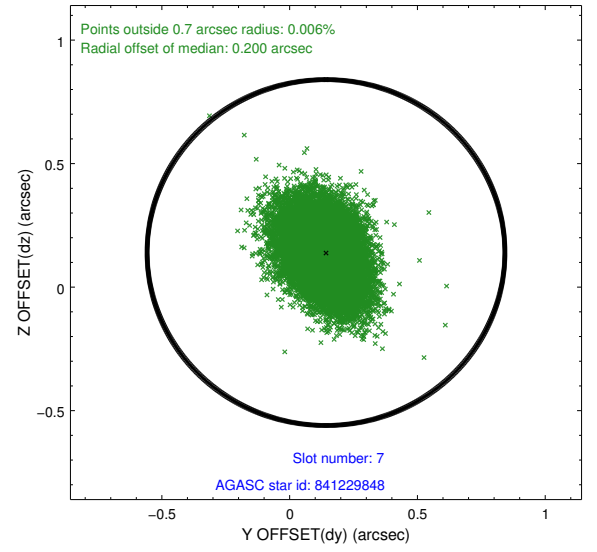
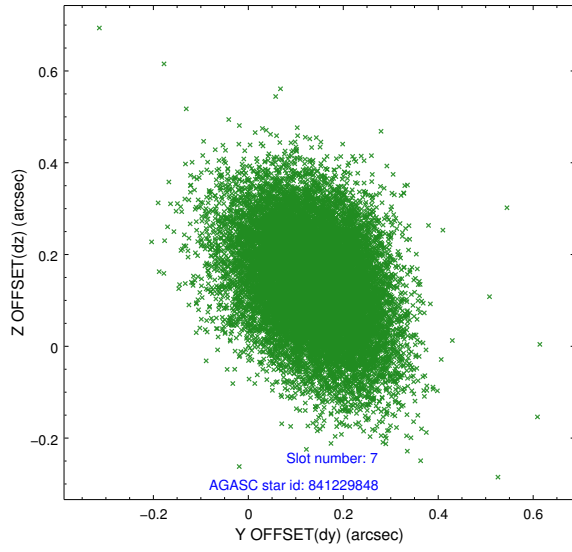
2.4.3 Slot 5



2.4.4 Slot 6

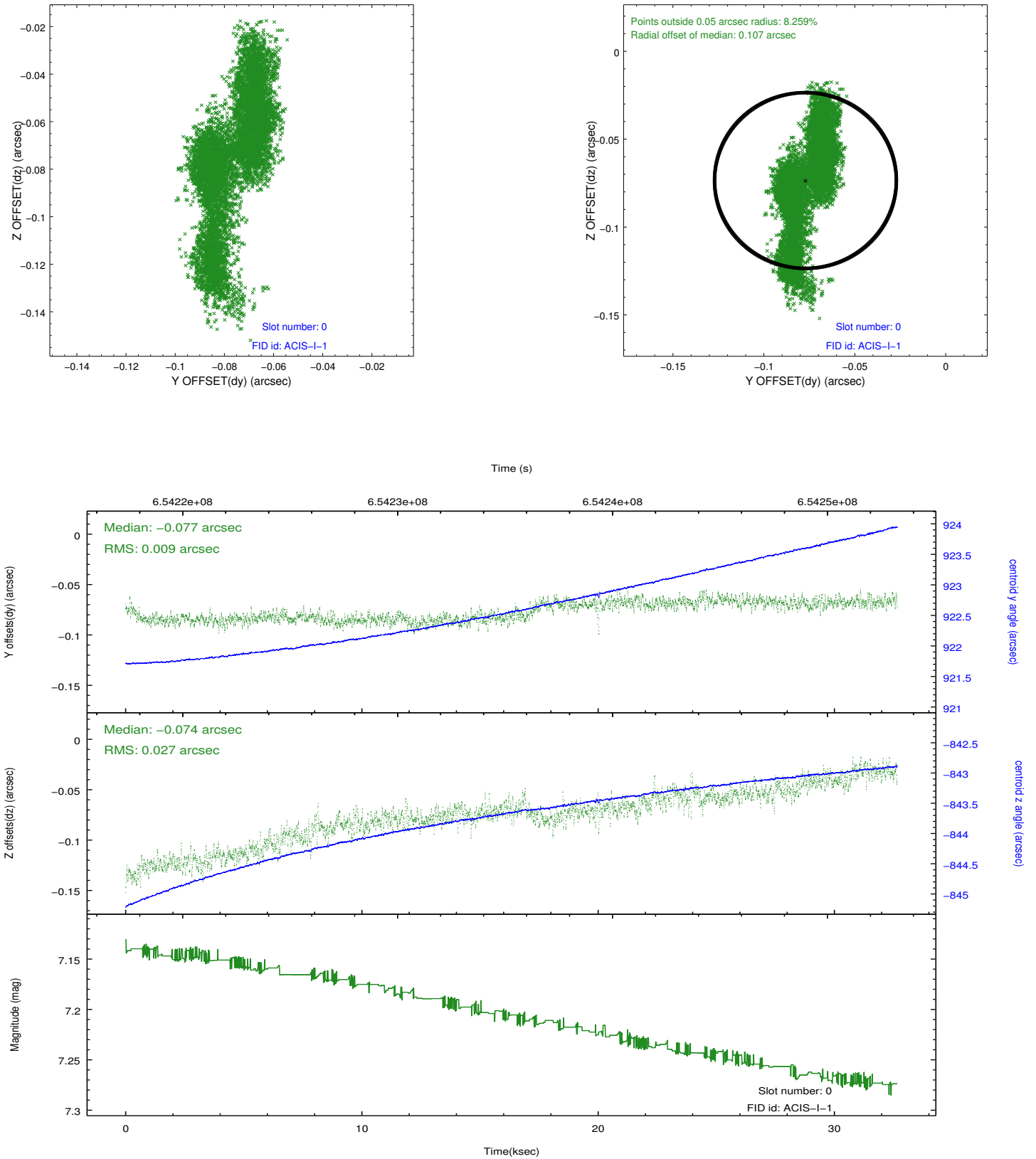


2.4.5 Slot 7

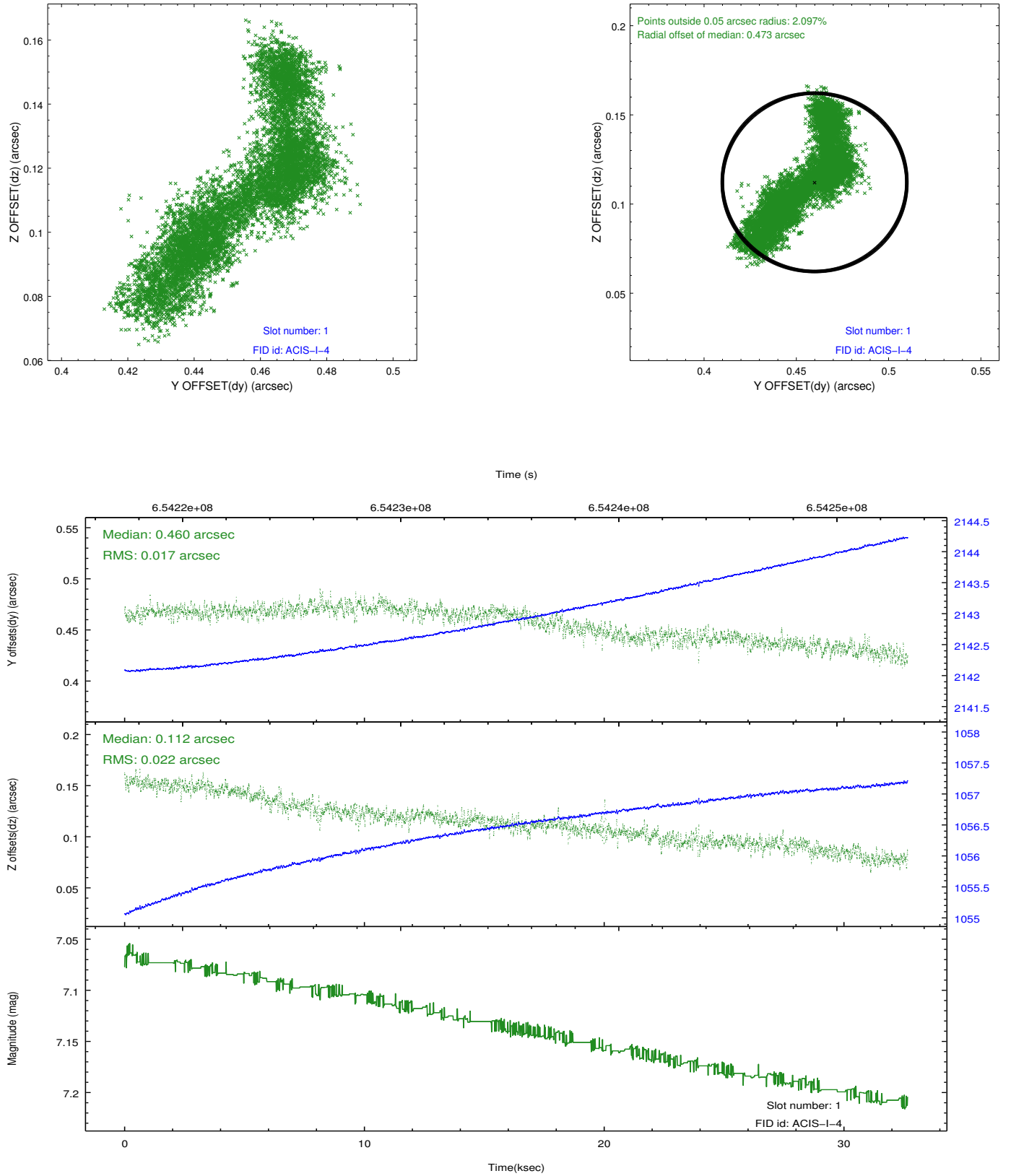


2.5 FID Slots

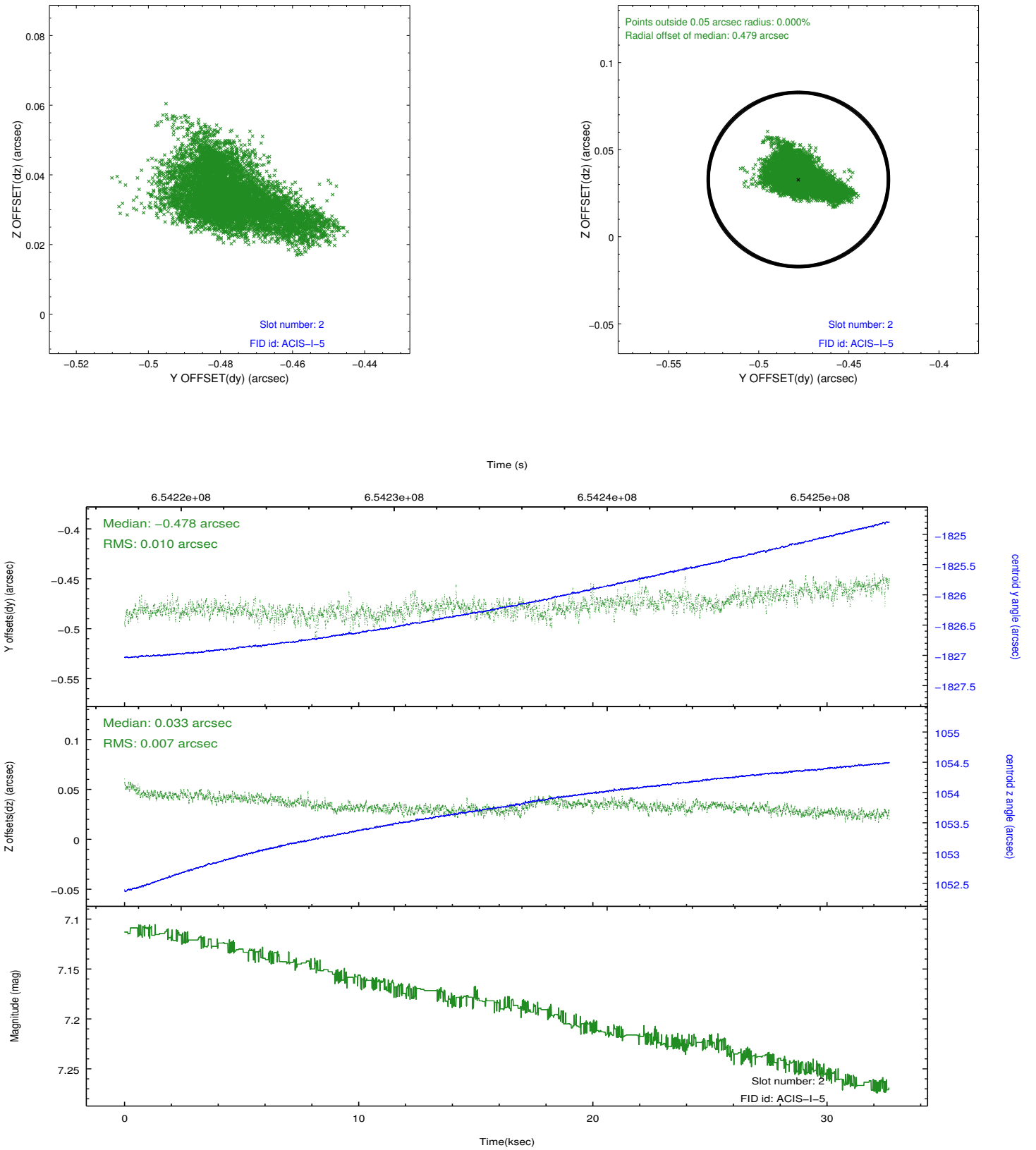
2.5.1 Slot 0



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)	2018.09.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	32.577859210491

A.2 Comments

One optional chip was dropped.

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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.