

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 22203 - L2 Version 1
Chandra X-Ray Center

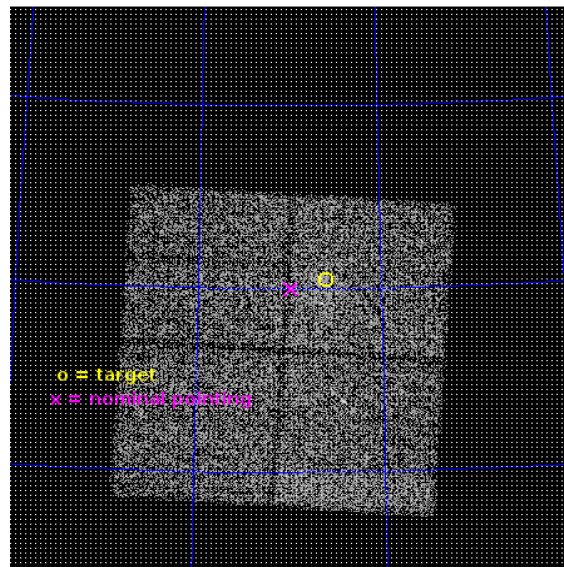
L2 Processing Date : May 5 2019

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1 Front

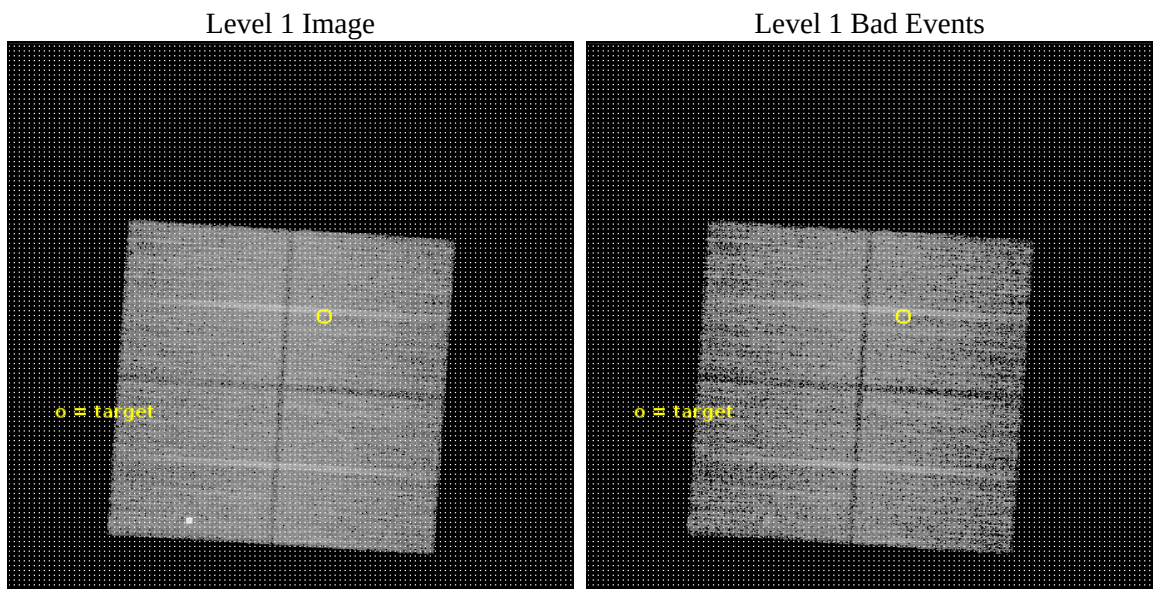
seq_num	801796	Sequence number
obs_id	22203	Observation id
title	Clusters in Formation - The Case of 3C61.1 and A Luminous AGN in a Merging Cluster	Proposal title
observer	Ralph Kraft	Principal investigator
object	X-CLASS 1835 (3C61.1)	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	35.75	Observer's specified target RA [deg]
dec_targ	86.341667	Observer's specified target Dec [deg]
ra_nom	36.220650090751	Nominal RA [deg]
dec_nom	86.333721101214	Nominal Dec [deg]
roll_nom	3.7390261135068	Nominal Roll [deg]
revision	1	Processing version of data
ontime	15074.07467258	Sum of GTIs [s]
livetime	14877.12078961	Livetime [s]
ontime0	15077.092523098	Sum of GTIs [s]
ontime1	15077.133563042	Sum of GTIs [s]
ontime2	15077.174603105	Sum of GTIs [s]
ontime3	15074.07467258	Sum of GTIs [s]
l2events	42906	Number of level 2 events



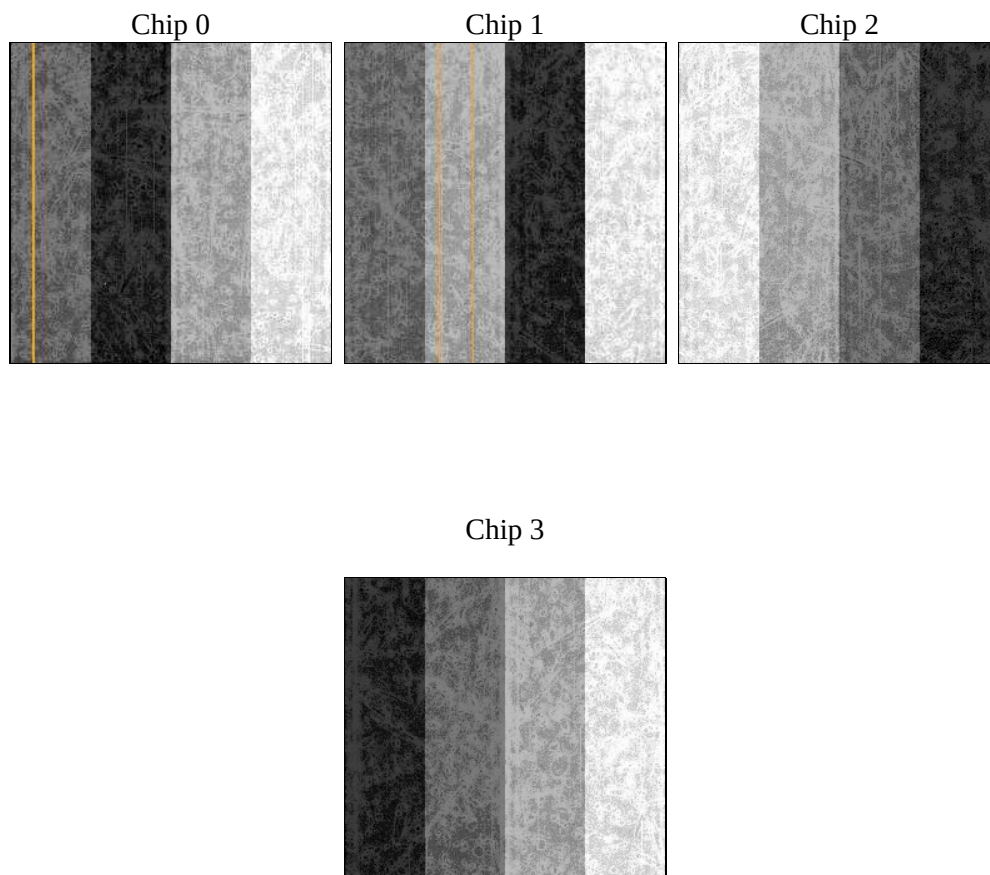
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	15000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	15074.07467258	Sum of GTIs [s]
caldsver	4.8.2	 	ontime0	15077.092523098	Sum of GTIs [s]
date	2019-05-06T01:15:37	Date and time of file creation	ontime1	15077.133563042	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	15077.174603105	Sum of GTIs [s]
			ontime3	15074.07467258	Sum of GTIs [s]
			l1events	452829	Number of level 1 events

2.1.4 Events

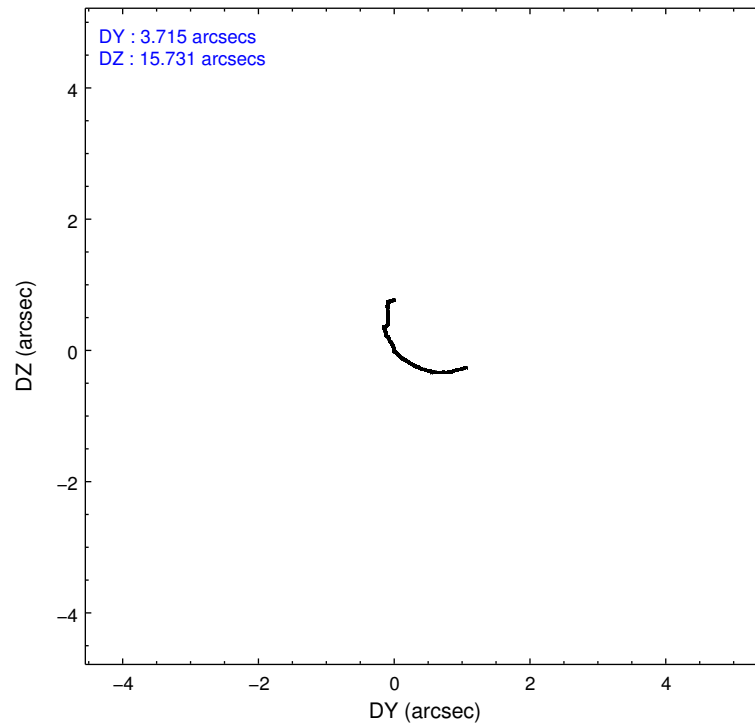
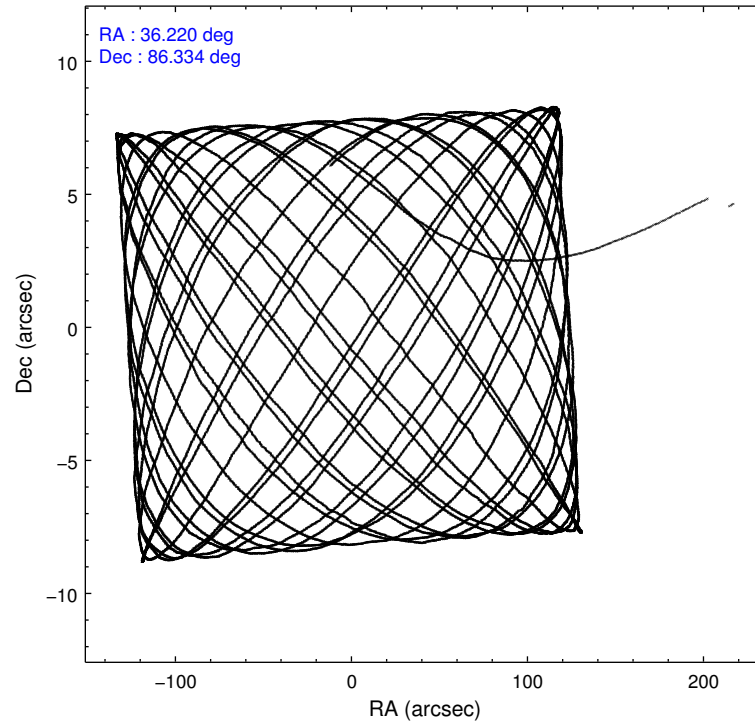
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	109184	111457	118090	114098
rejected events	92131	97380	106249	101472
rejected %	84%	87%	89%	88%

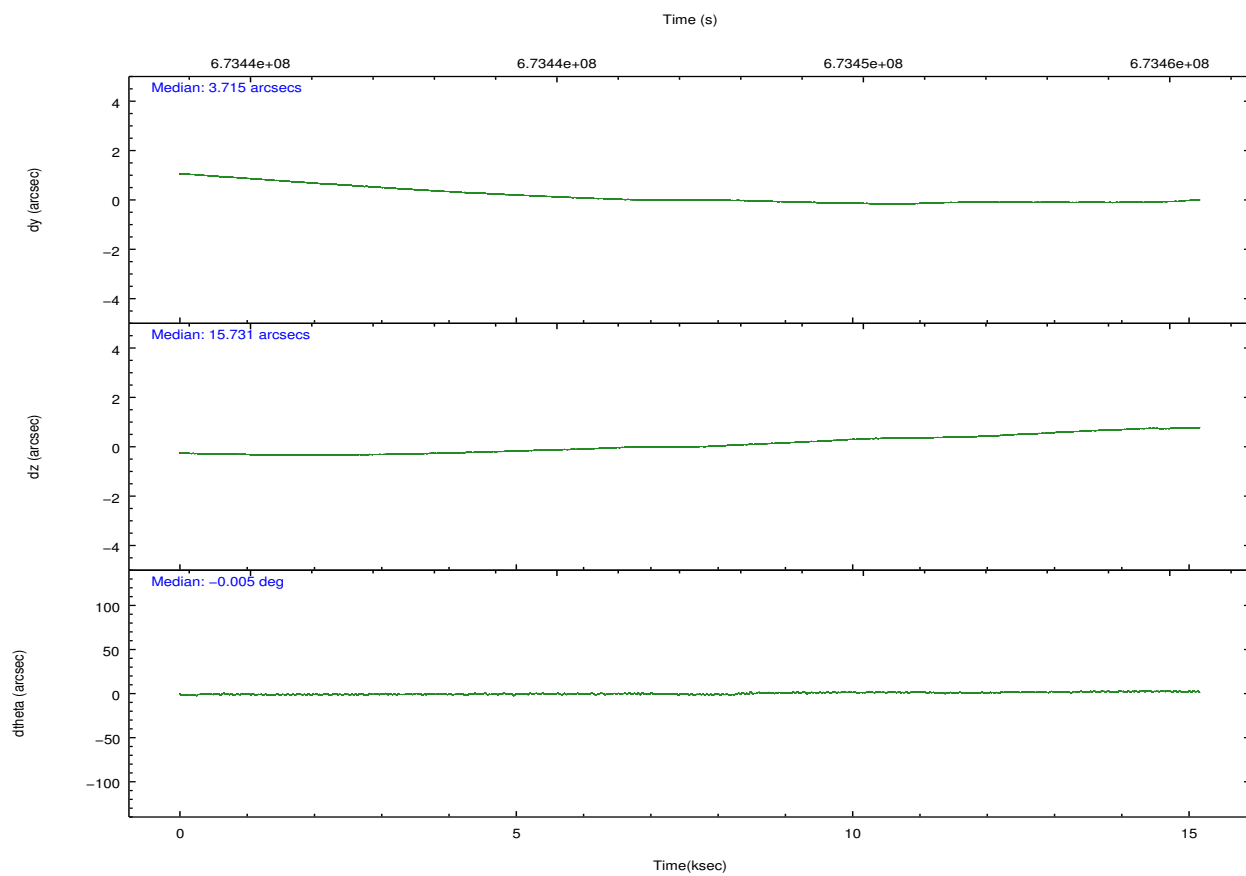
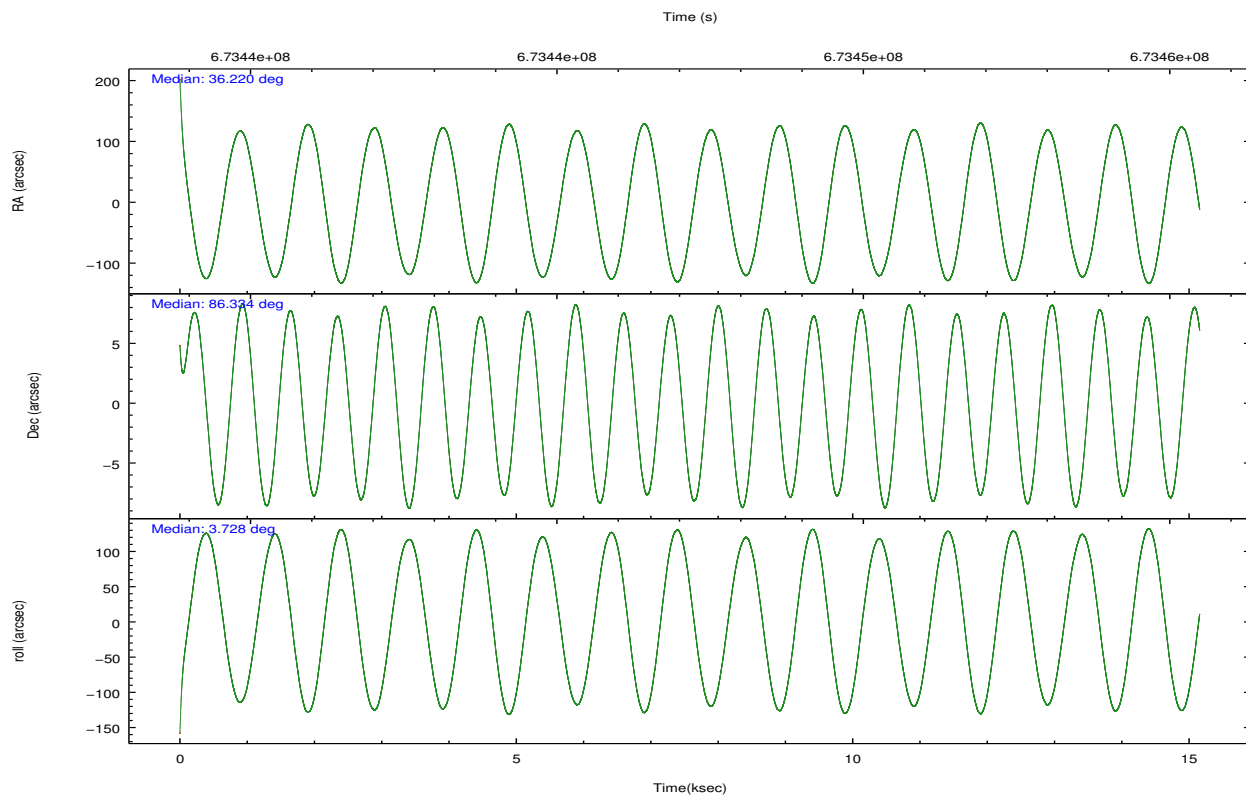
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	8752	4188	4118	4909
	8%	3%	3%	4%
grade 1 events	77	57	52	48
	0%	0%	0%	0%
grade 2 events	3212	4091	2916	2627
	2%	3%	2%	2%
grade 3 events	1185	1172	1194	1262
	1%	1%	1%	1%
grade 4 events	1153	1164	1091	1241
	1%	1%	0%	1%
grade 5 events	4444	4638	4326	5192
	4%	4%	3%	4%
grade 6 events	2759	3473	2531	2593
	2%	3%	2%	2%
grade 7 events	87602	92674	101862	96226
	80%	83%	86%	84%

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	35.863922	36.22065009075106	CCD I2 on	Y	Y
[deg] Pointing Dec	86.318255	86.33372110121425	CCD I3 on	Y	Y
[deg] Pointing Roll	3.886304	3.739026113506812	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	-225.842463	-225.8433433320239	CCD S3 on	N	N
[mm] SIM translation stage offset	-7.75	-7.749109670905796	CCD S4 on	N	N
[s] Observation start time (MET)	673439759.184000	673438501.44243	CCD S5 on	N	N
Observation start date	2019-05-05T10:34:50	2019-05-05T10:15:01	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	673454759.184000	673455565.13095	On-chip summing requested	N	N
Observation end date	2019-05-05T14:44:50	2019-05-05T14:59:25	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



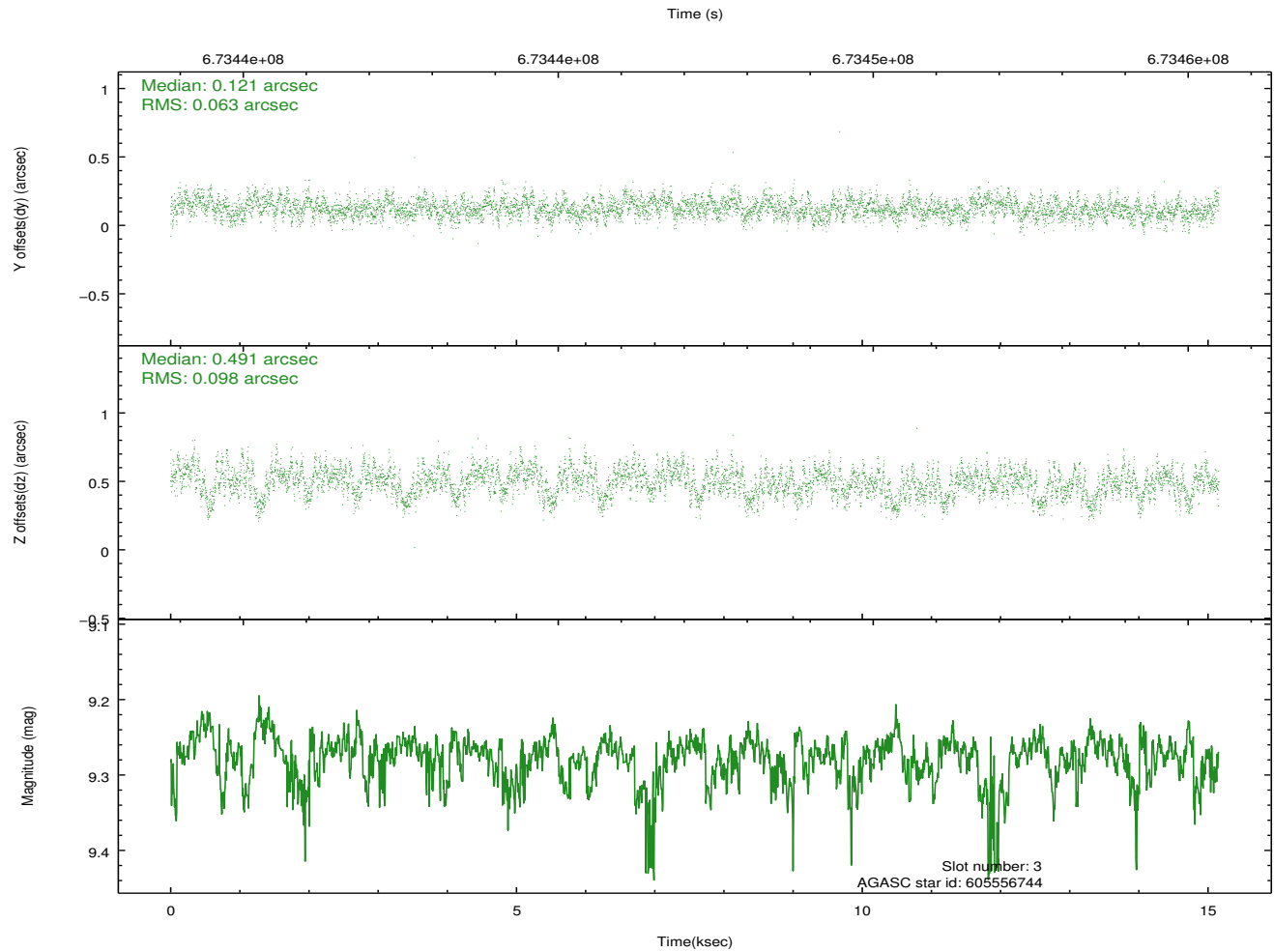
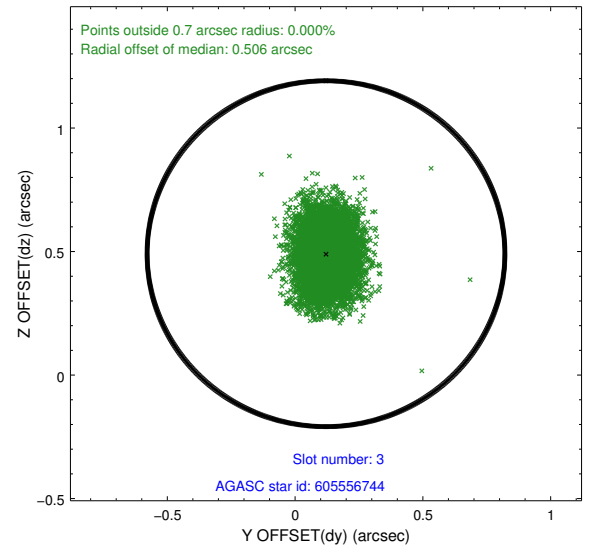
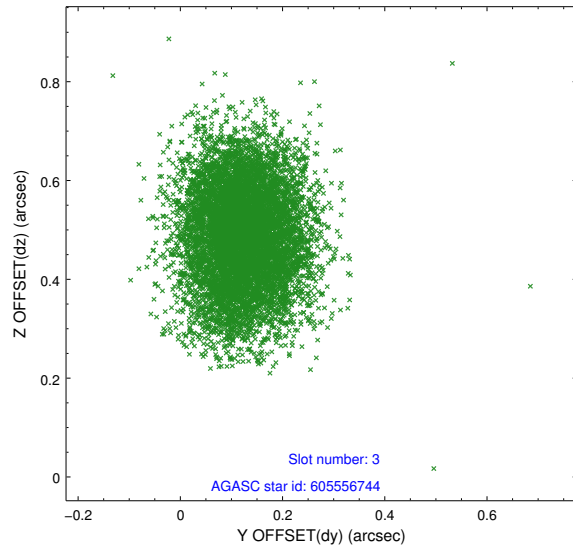


Slot Statistics

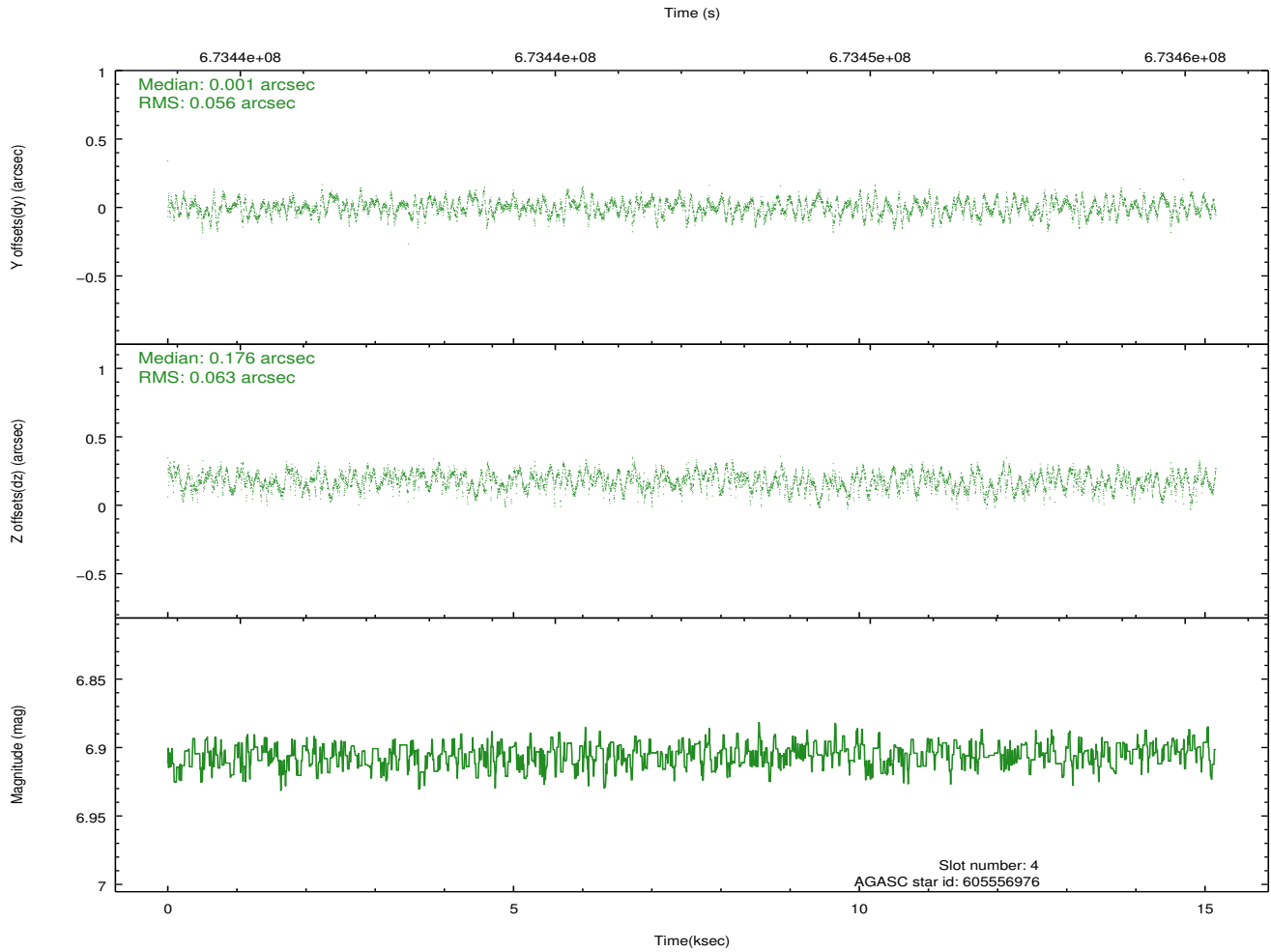
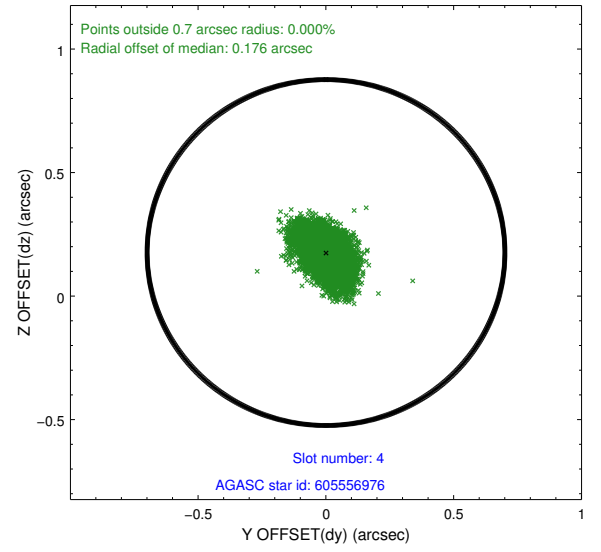
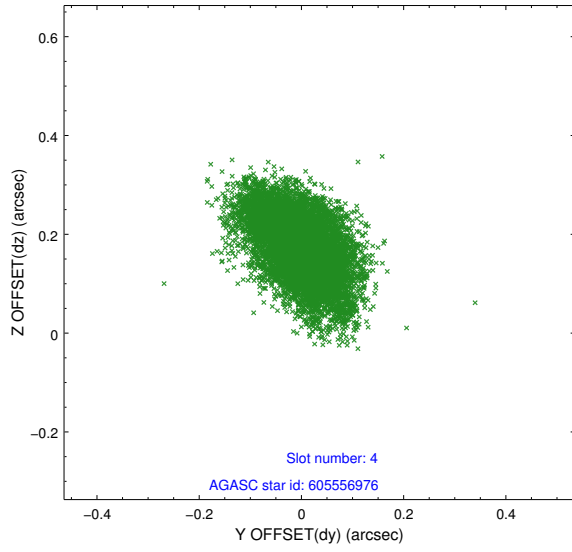
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-1	7.21	3698	1.000	0.191	-0.240	0.022	0.029	0.000000	0.000000	935.98	-998
1	FID		ACIS-I-5	7.19	3698	1.000	-0.481	0.085	0.016	0.023	0.000000	0.000000	-1812.73	898
2	FID		ACIS-I-6	7.24	3698	1.000	0.196	0.224	0.018	0.027	0.000000	0.000000	401.08	1543
3	GUIDE	used	605556744	9.28	7388	1.000	0.121	0.491	0.124	0.202	30.576614	85.741708	-1542.59	-1910
4	GUIDE	used	605556976	6.91	7395	1.000	0.001	0.176	0.090	0.147	34.748698	85.736157	-439.30	-2065
5	GUIDE	used	605559440	8.22	7389	1.000	0.010	-0.007	0.107	0.180	41.642951	85.799283	1397.58	-1890
6	GUIDE	used	606079672	8.64	7386	1.000	-0.032	-0.297	0.102	0.159	35.254825	86.761950	-15.26	1602
7	GUIDE	used	606080224	8.34	7393	1.000	-0.104	-0.357	0.117	0.207	30.895322	86.931799	-801.04	2309

2.4 Star Slots

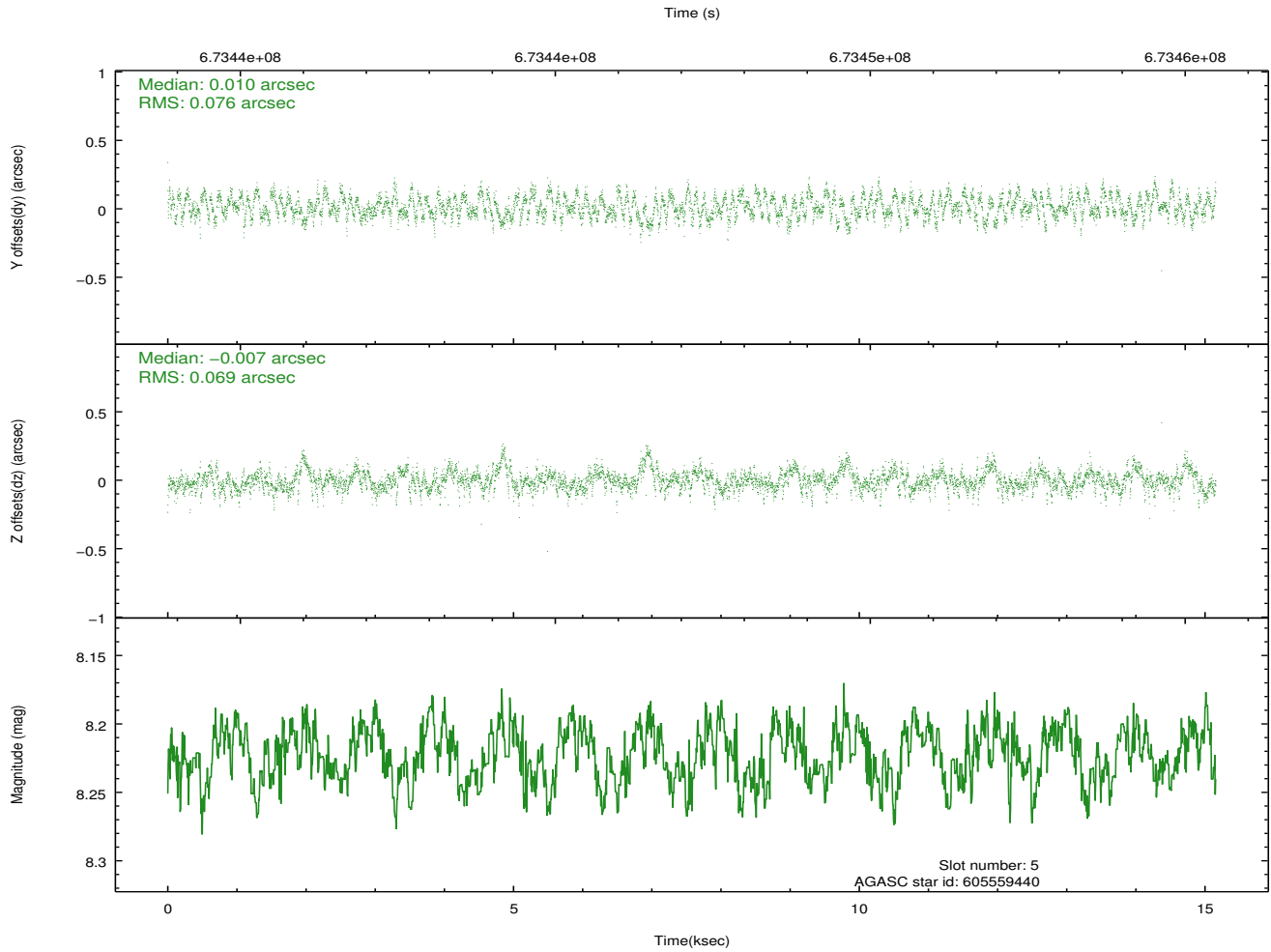
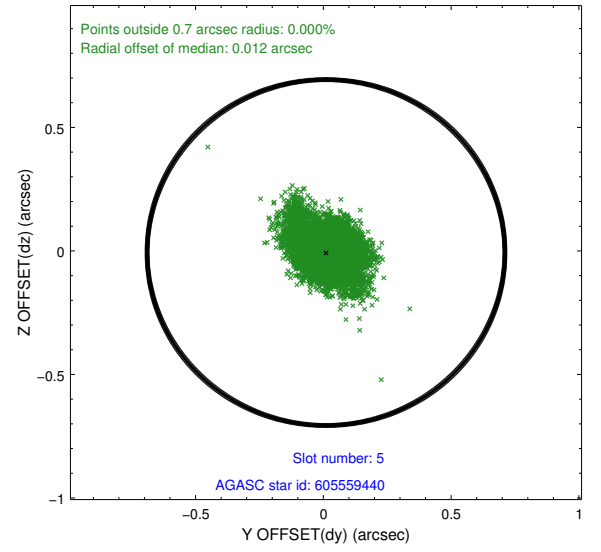
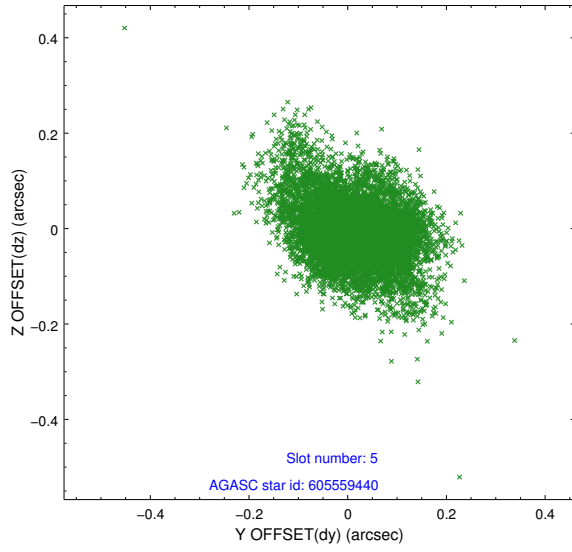
2.4.1 Slot 3



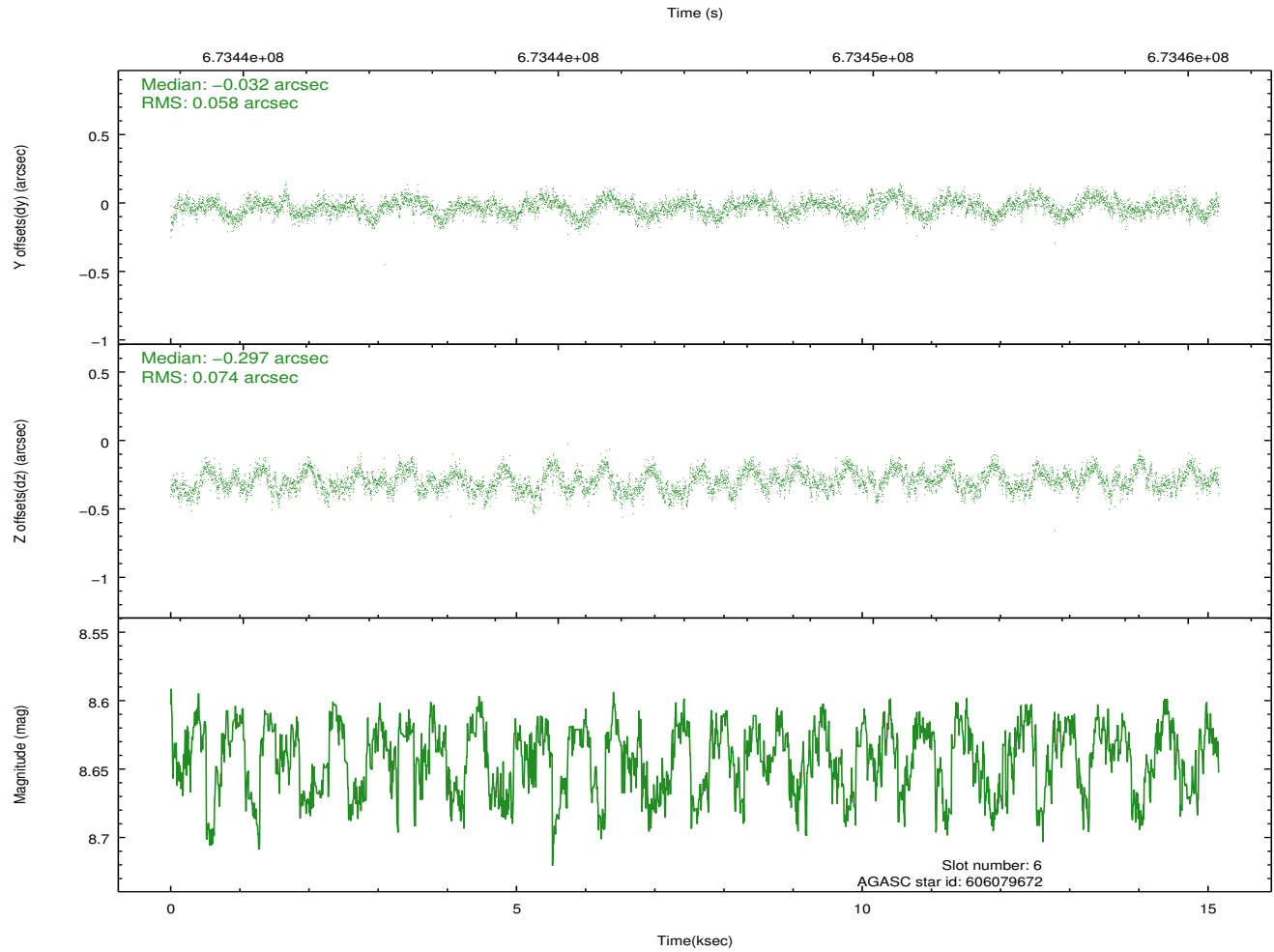
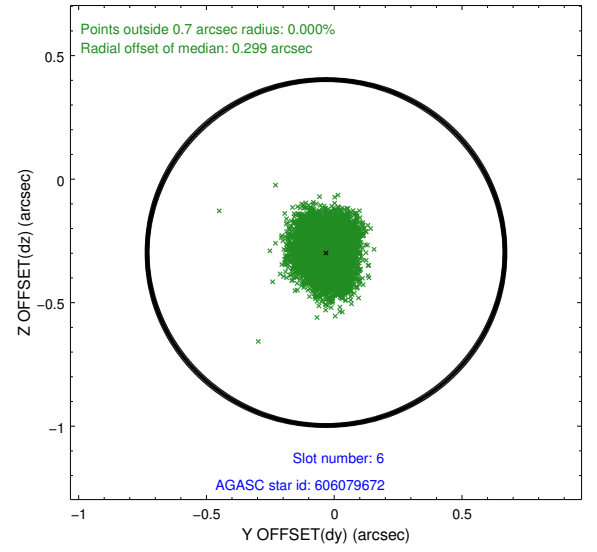
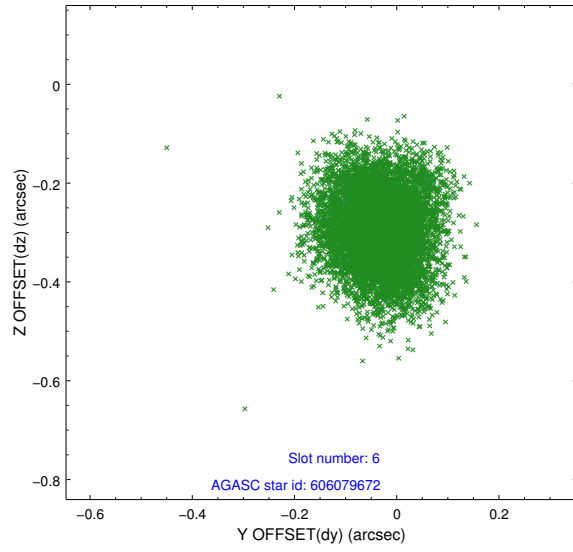
2.4.2 Slot 4



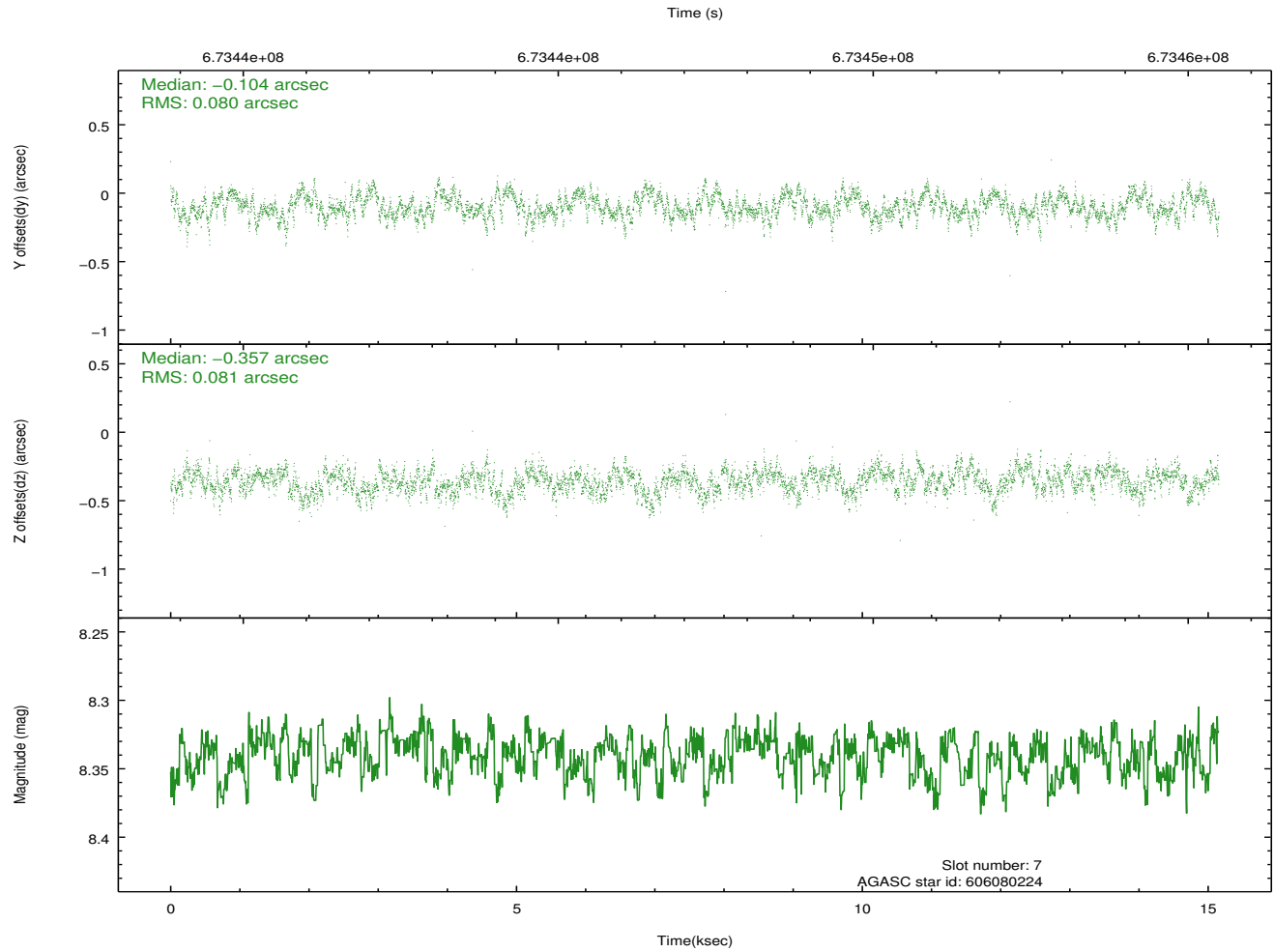
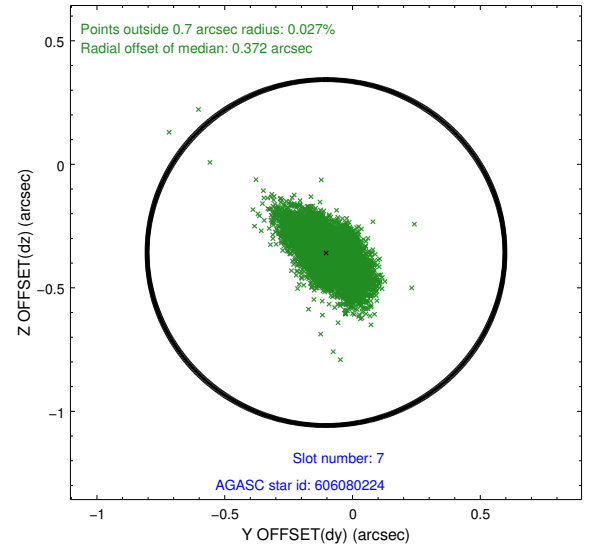
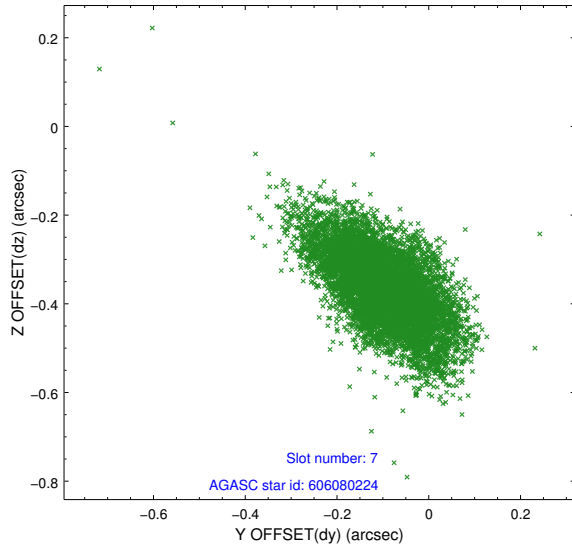
2.4.3 Slot 5



2.4.4 Slot 6

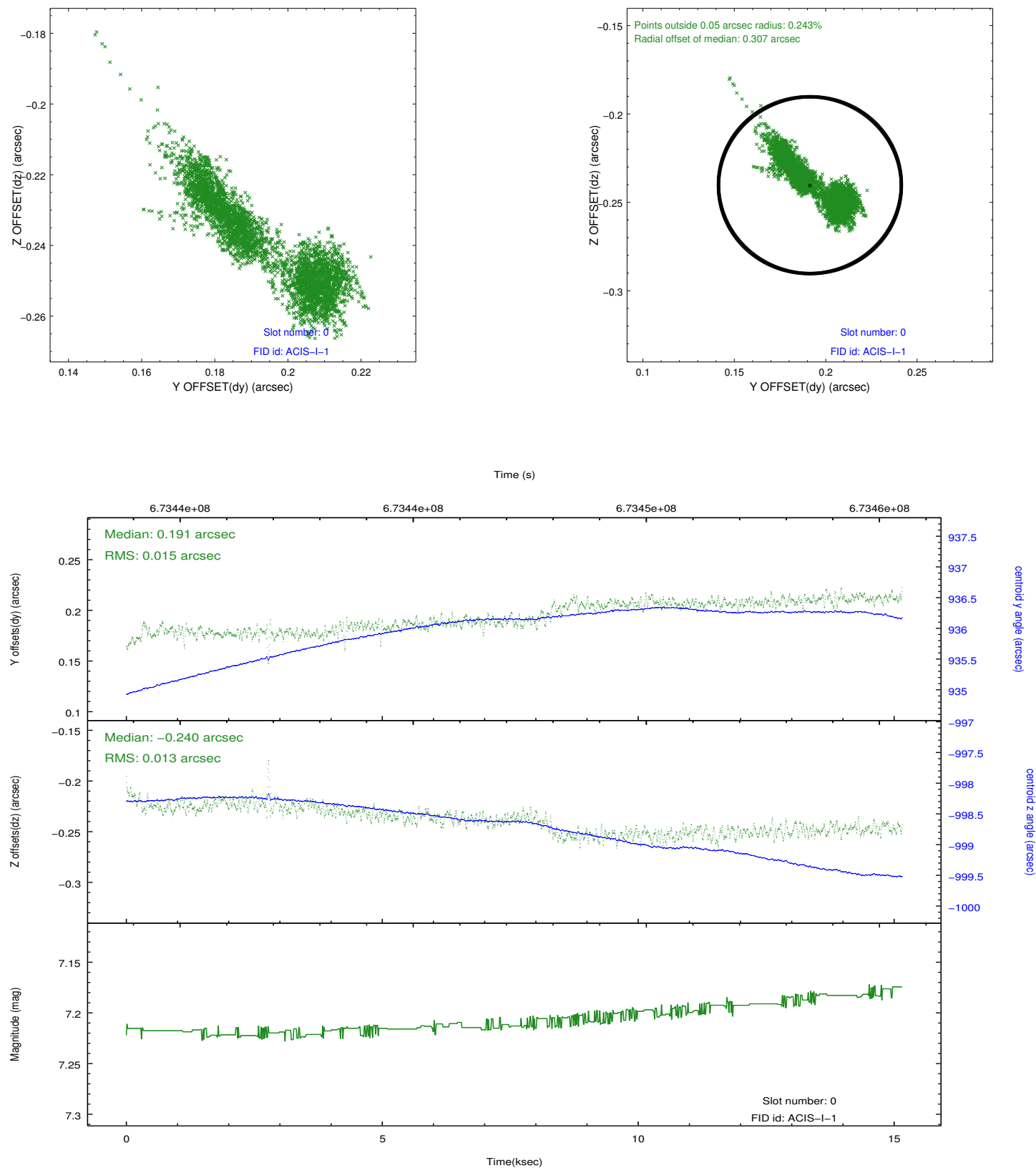


2.4.5 Slot 7

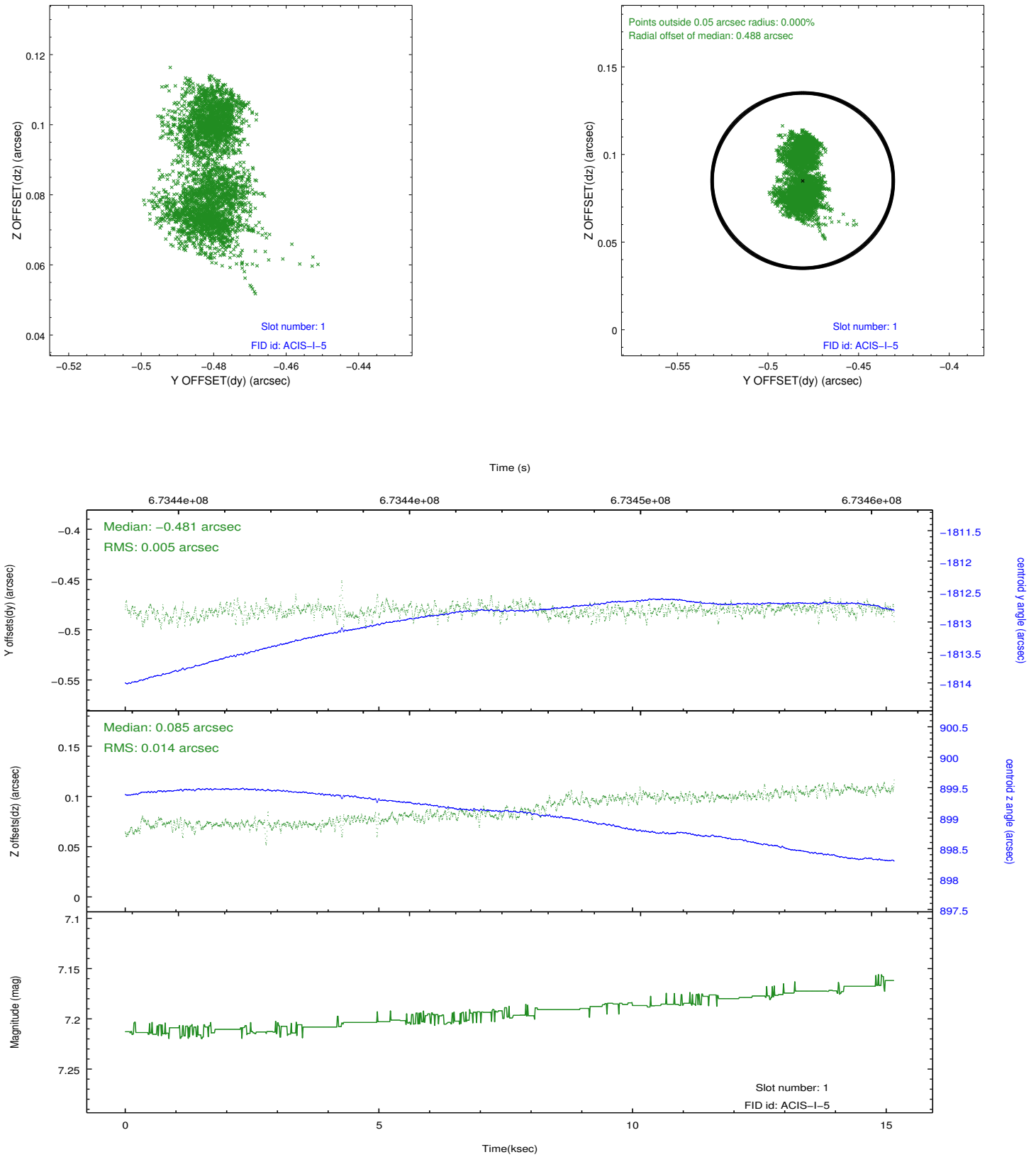


2.5 FID Slots

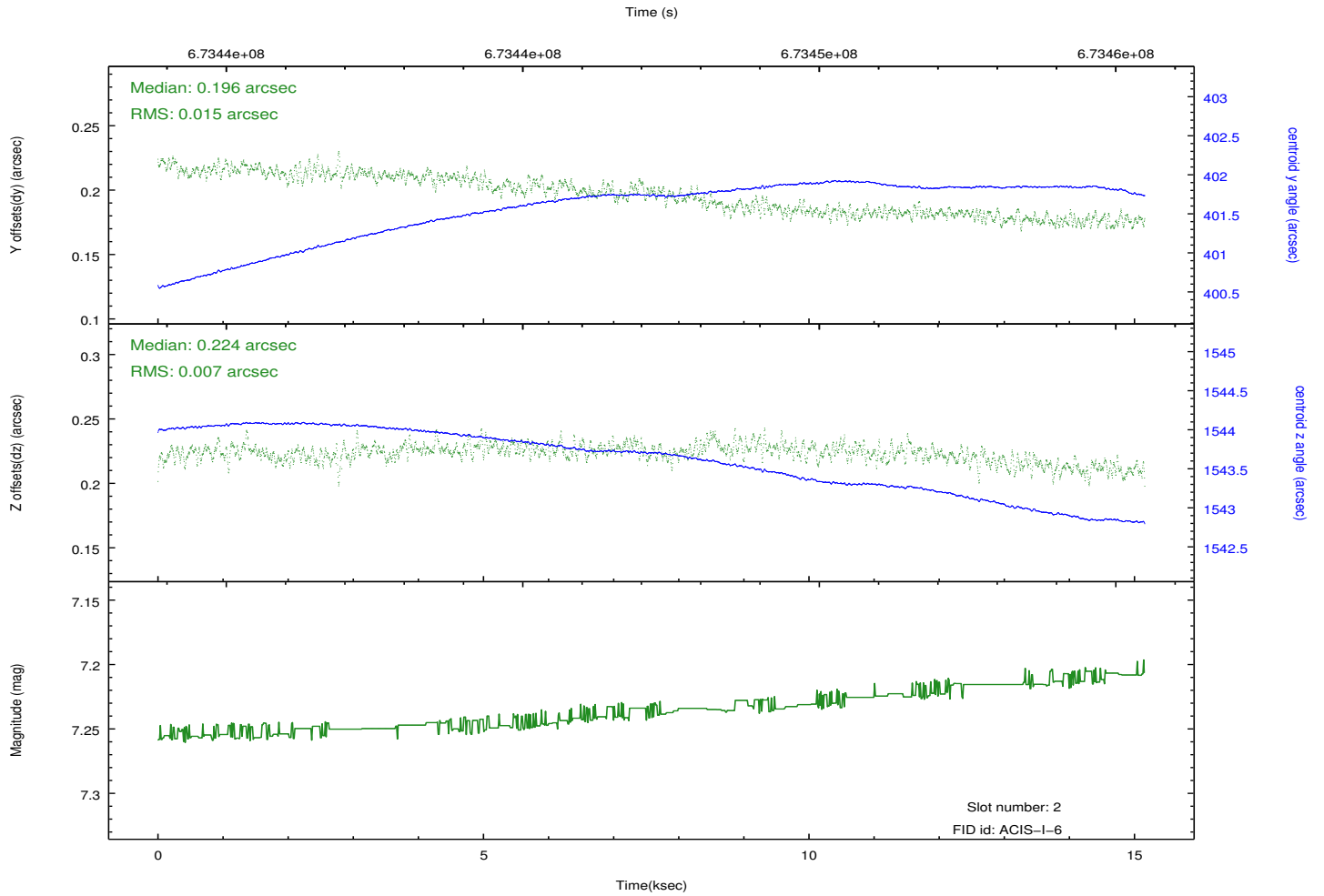
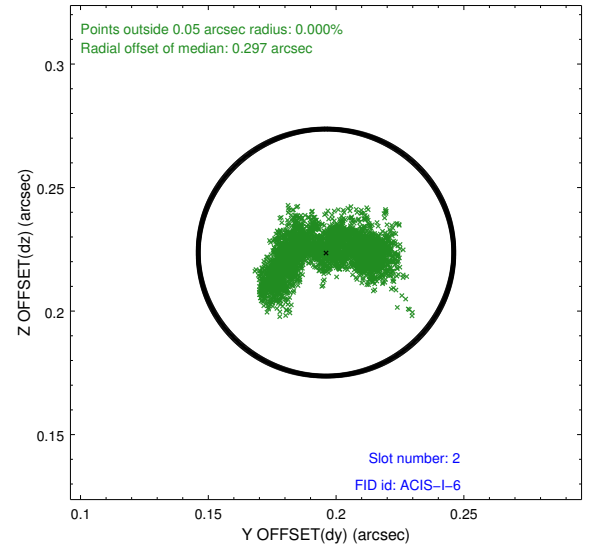
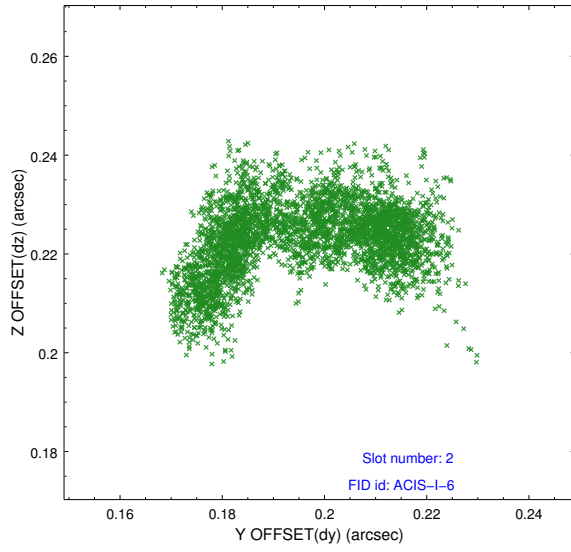
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2019.05.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.07407467258

A.2 Comments

Optional chip S2 not included.

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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/A_CIS_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.