

V&V Reference Report

L2 ASCDS Version : 10.6.4

Observation 21048 - L2 Version 1
Chandra X-Ray Center

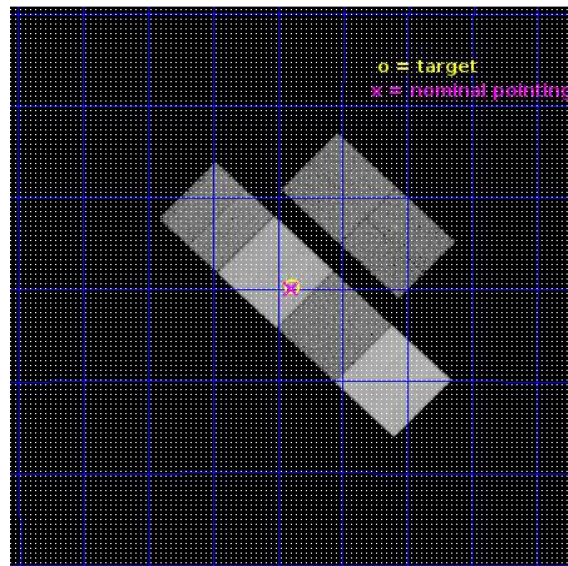
L2 Processing Date : Jul 24 2018

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1 Front

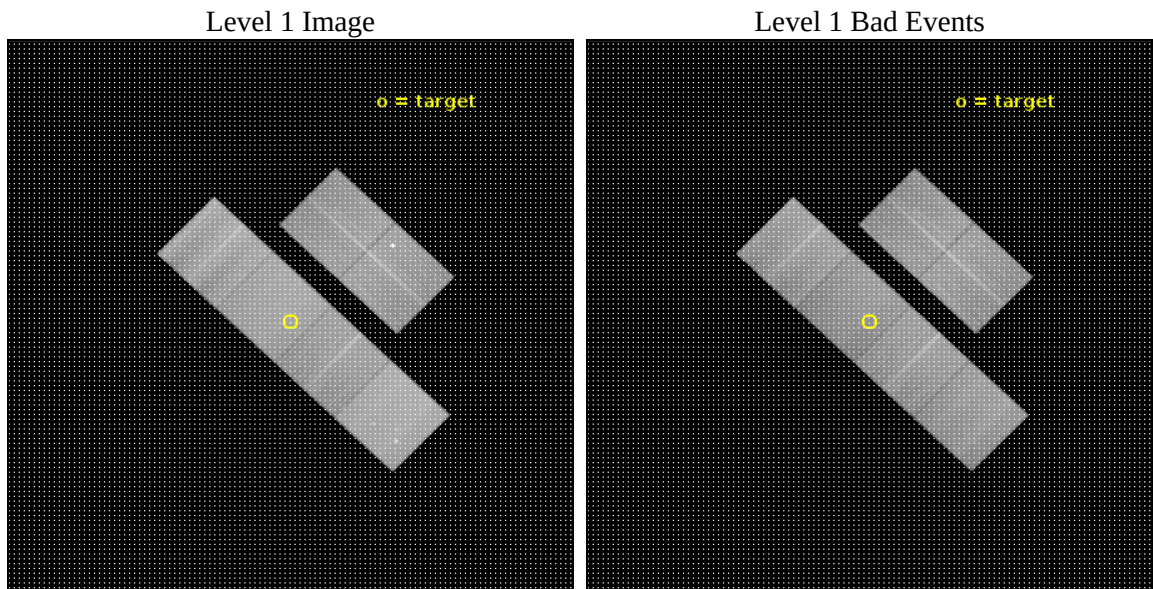
seq_num	703599	Sequence number
obs_id	21048	Observation id
title	NGC 3393: Resolving Feedback in the Narrow Line Region on 50-pc Scales	Proposal title
observer	Walter Maksym	Principal investigator
object	NGC 3393	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	162.0975	Observer's specified target RA [deg]
dec_targ	-25.162028	Observer's specified target Dec [deg]
ra_nom	162.0987297554	Nominal RA [deg]
dec_nom	-25.165601794271	Nominal Dec [deg]
roll_nom	223.93395940127	Nominal Roll [deg]
revision	1	Processing version of data
ontime	40947.200610161	Sum of GTIs [s]
livetime	40428.702500591	Livetime [s]
ontime2	40947.200610161	Sum of GTIs [s]
ontime3	40943.945183635	Sum of GTIs [s]
ontime5	40947.200610161	Sum of GTIs [s]
ontime6	40930.995618343	Sum of GTIs [s]
ontime7	40947.200610161	Sum of GTIs [s]
ontime8	40947.145134091	Sum of GTIs [s]
l2events	515775	Number of level 2 events



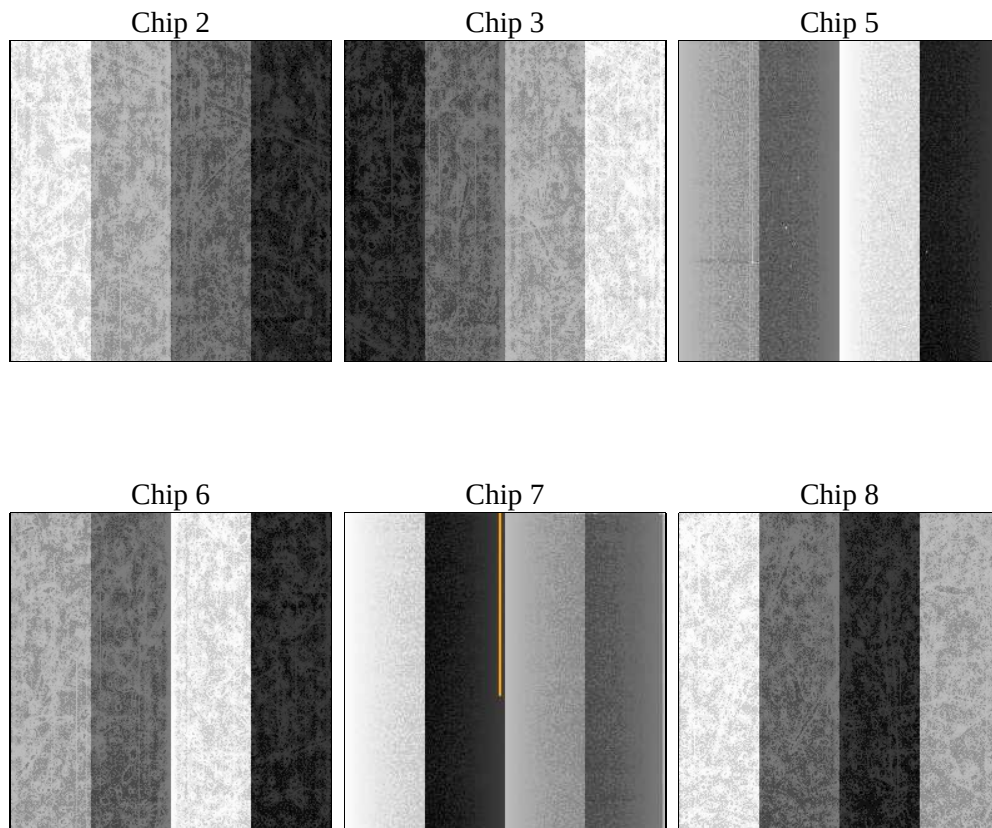
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	41000.000000	[s] Scheduled observation exposure time
ascdsver	10.6.4	Processing system revision	ontime	40947.200610161	Sum of GTIs [s]
caldsver	4.7.8	 	ontime2	40947.200610161	Sum of GTIs [s]
date	2018-07-25T02:40:47	Date and time of file creation	ontime3	40943.945183635	Sum of GTIs [s]
revision	1	Processing version of data	ontime5	40947.200610161	Sum of GTIs [s]
			ontime6	40930.995618343	Sum of GTIs [s]
			ontime7	40947.200610161	Sum of GTIs [s]
			ontime8	40947.145134091	Sum of GTIs [s]
			l1events	2239208	Number of level 1 events

2.1.4 Events

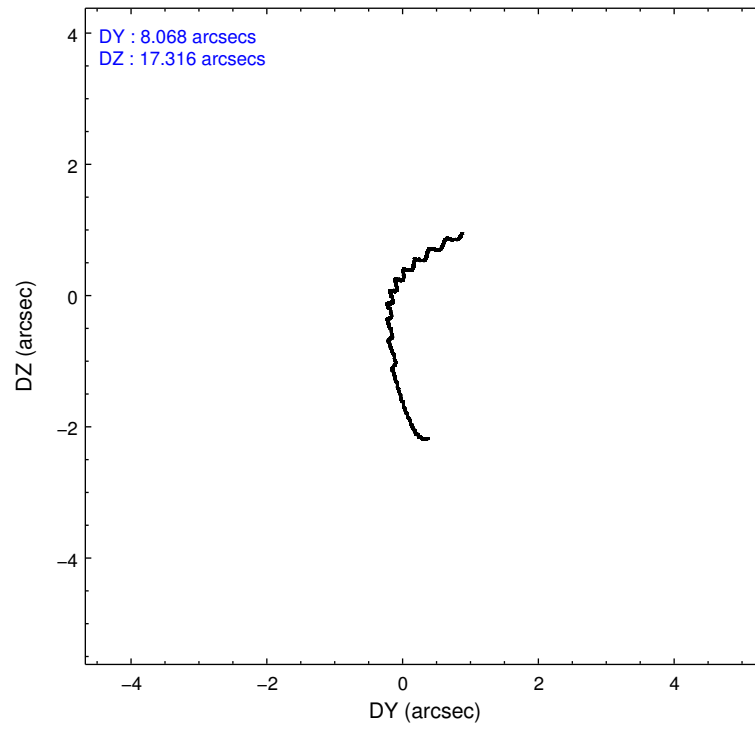
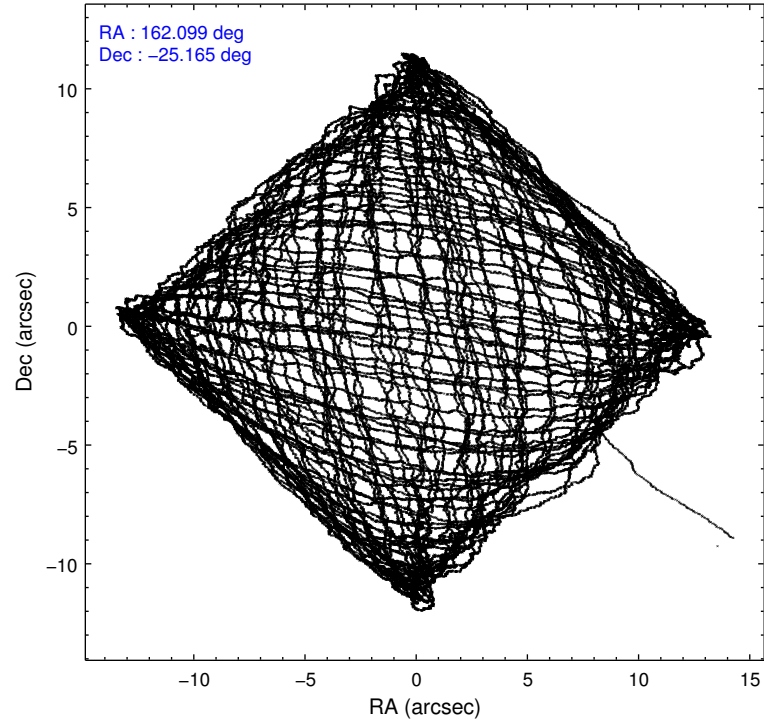
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8		ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	336025	297909	489998	316685	395846	402745	grade 0 events	11693	11295	15988	11059	14738	31443
rejected events	288888	266600	254028	281533	222614	294849		3%	3%	3%	3%	3%	7%
rejected %	85%	89%	51%	88%	56%	73%	grade 1 events	208	161	1286	137	585	333
								0%	0%	0%	0%	0%	0%
							grade 2 events	22285	6765	73979	8915	36609	25816
								6%	2%	15%	2%	9%	6%
							grade 3 events	3172	3253	7590	3215	13742	11261
								0%	1%	1%	1%	3%	2%
							grade 4 events	3299	3235	7494	3190	13669	10572
								0%	1%	1%	1%	3%	2%
							grade 5 events	12276	13847	33705	13886	39266	21134
								3%	4%	6%	4%	9%	5%
							grade 6 events	6700	6767	130953	8780	94503	28814
								1%	2%	26%	2%	23%	7%
							grade 7 events	276392	252586	219003	267503	182734	273372
								82%	84%	44%	84%	46%	67%

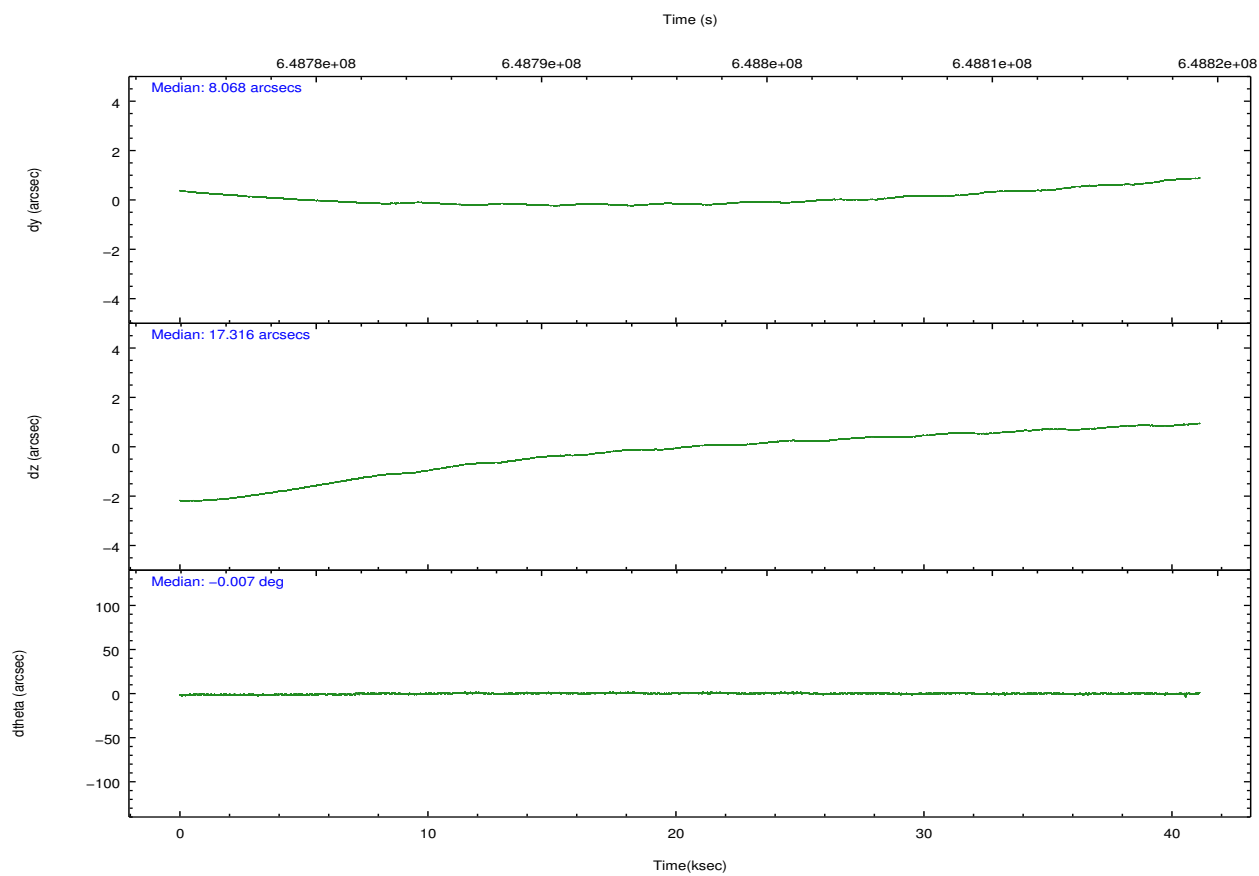
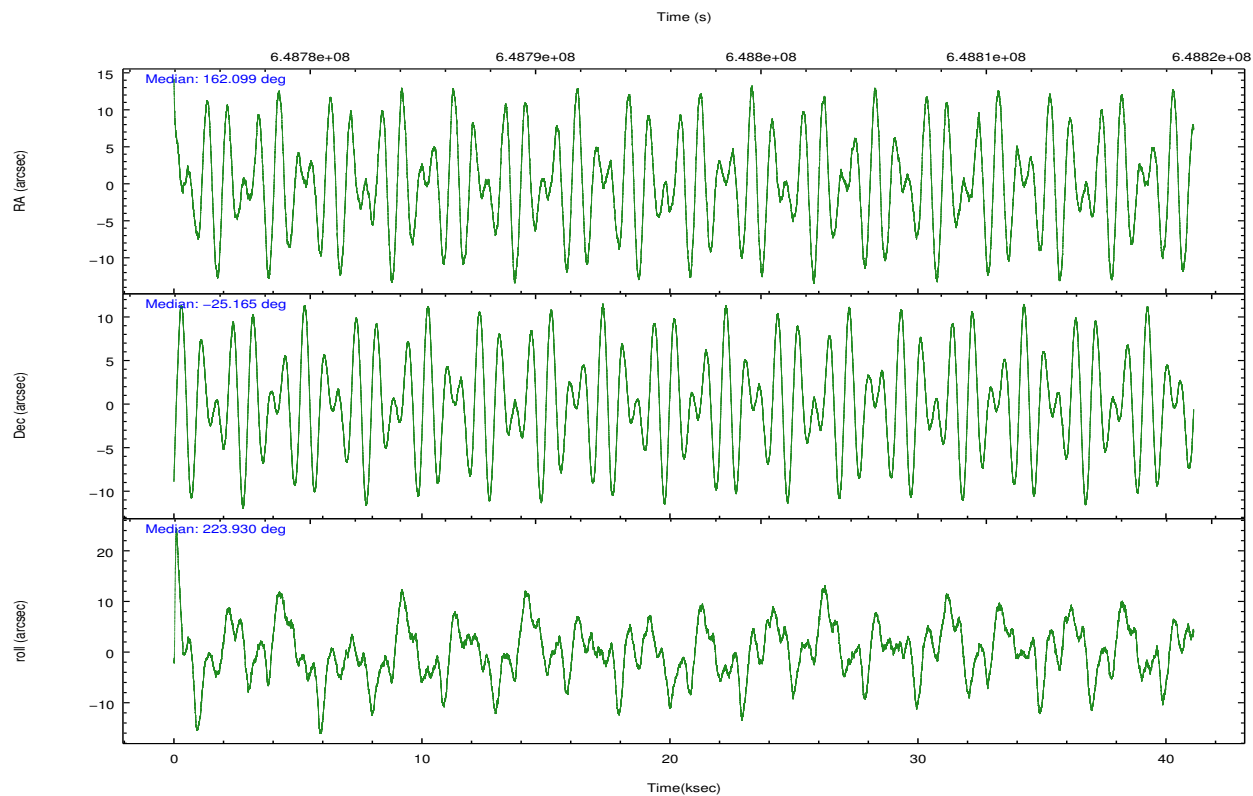
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-235678	ACIS-235678
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	162.106724	162.0987297554043
[deg] Pointing Dec	-25.139128	-25.16560179427128
[deg] Pointing Roll	223.780736	223.9339594012716
[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)	648776143.184000	648774911.4548399
Observation start date	2018-07-23T23:34:34	2018-07-23T23:15:11
[s] Observation end time (MET)	648817143.184000	648817910.71989
Observation end date	2018-07-24T10:57:54	2018-07-24T11:11:50
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	O2	Y
CCD I3 on	O3	Y
CCD S0 on	N	N
CCD S1 on	O1	Y
CCD S2 on	O5	Y
CCD S3 on	Y	Y
CCD S4 on	O4	Y
CCD S5 on	N	N
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	3.2

2.3 Aspect



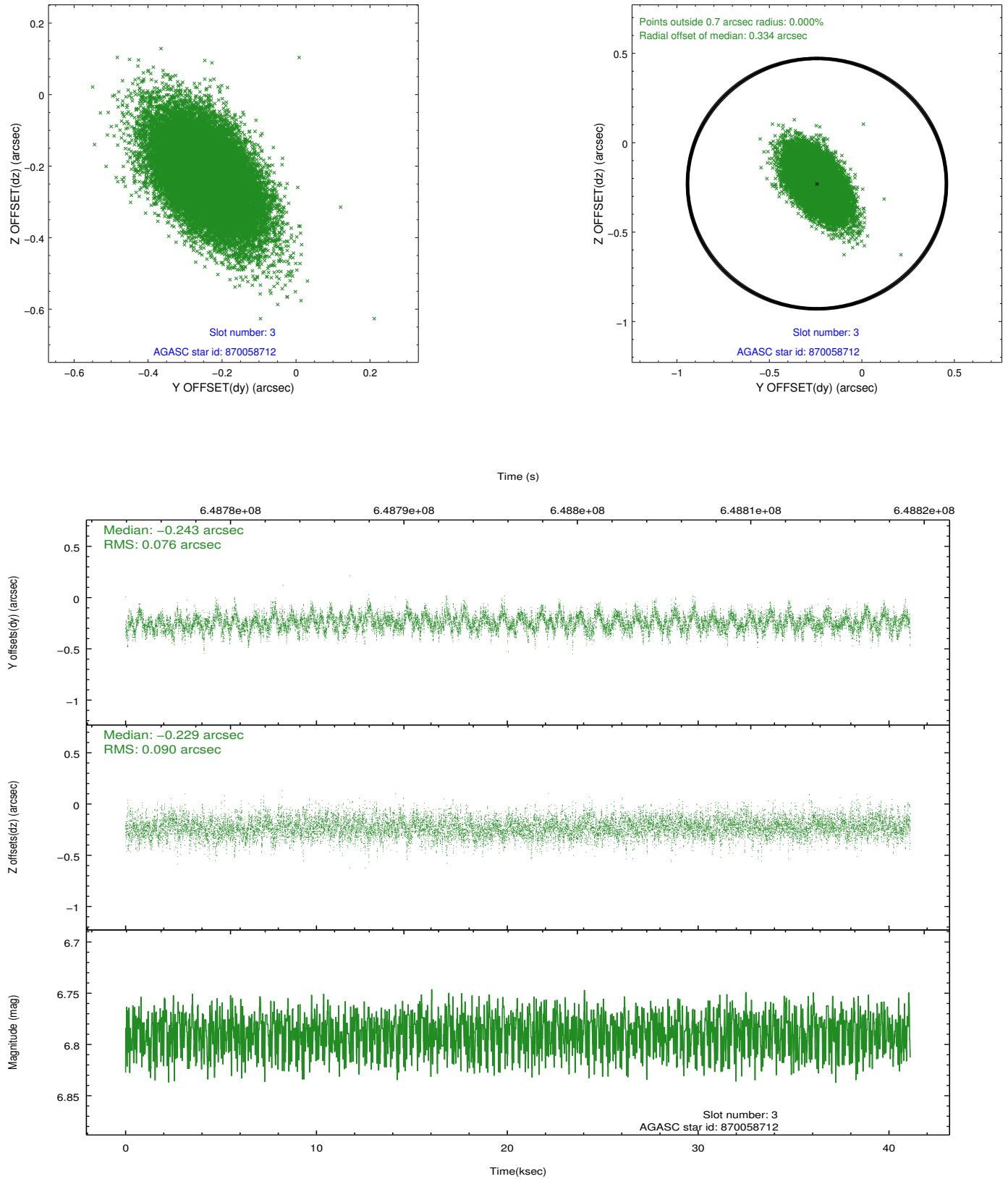


Slot Statistics

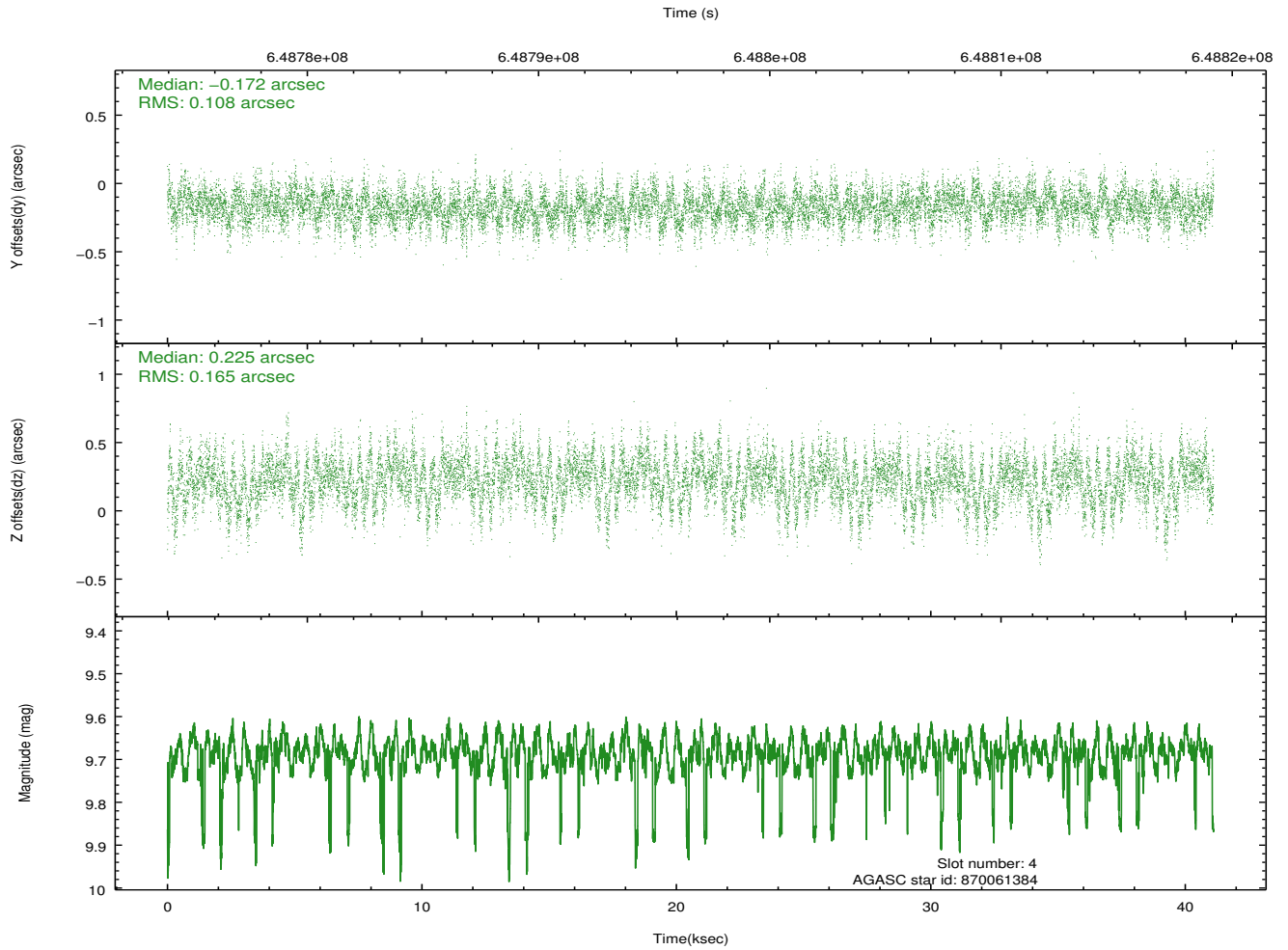
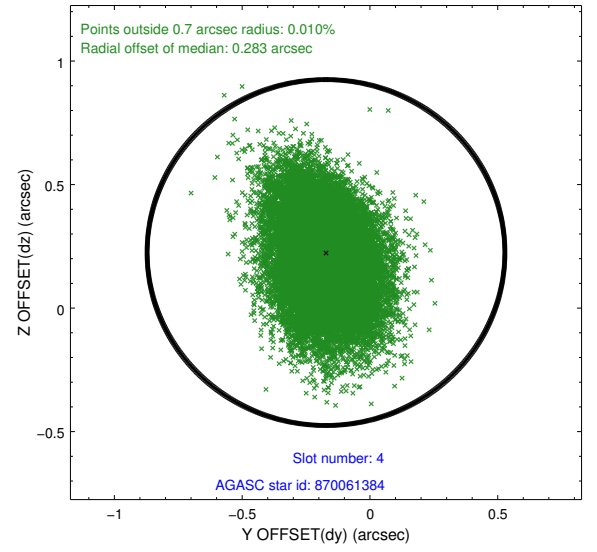
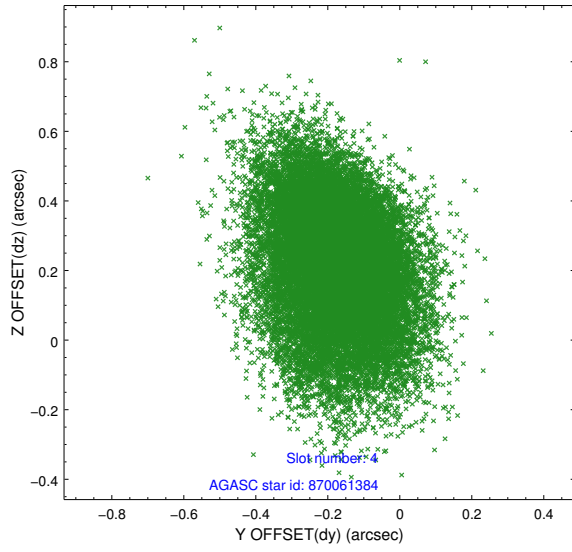
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-1	7.17	10029	1.000	0.110	-0.049	0.035	0.048	0.000000	0.000000	935.25	-1734
1	FID		ACIS-S-5	7.20	10030	1.000	-0.216	0.067	0.017	0.042	0.000000	0.000000	-1814.11	163
2	FID		ACIS-S-6	7.34	10029	1.000	0.082	-0.006	0.047	0.057	0.000000	0.000000	400.72	807
3	GUIDE	used	870058712	6.79	20059	1.000	-0.243	-0.229	0.122	0.212	161.694136	-25.533829	1953.11	99
4	GUIDE	used	870061384	9.69	20026	1.000	-0.172	0.225	0.204	0.353	162.911310	-25.114400	-1949.92	1756
5	GUIDE	used	870061456	9.46	20022	1.000	0.175	-0.057	0.197	0.334	161.242140	-25.108001	1963.96	-2023
6	GUIDE	used	870063952	8.28	20047	1.000	0.193	0.201	0.126	0.221	161.785917	-24.549213	-708.68	-2259
7	GUIDE	used	870060416	9.34	20033	1.000	0.047	-0.134	0.213	0.341	162.151228	-25.161120	-49.54	158

2.4 Star Slots

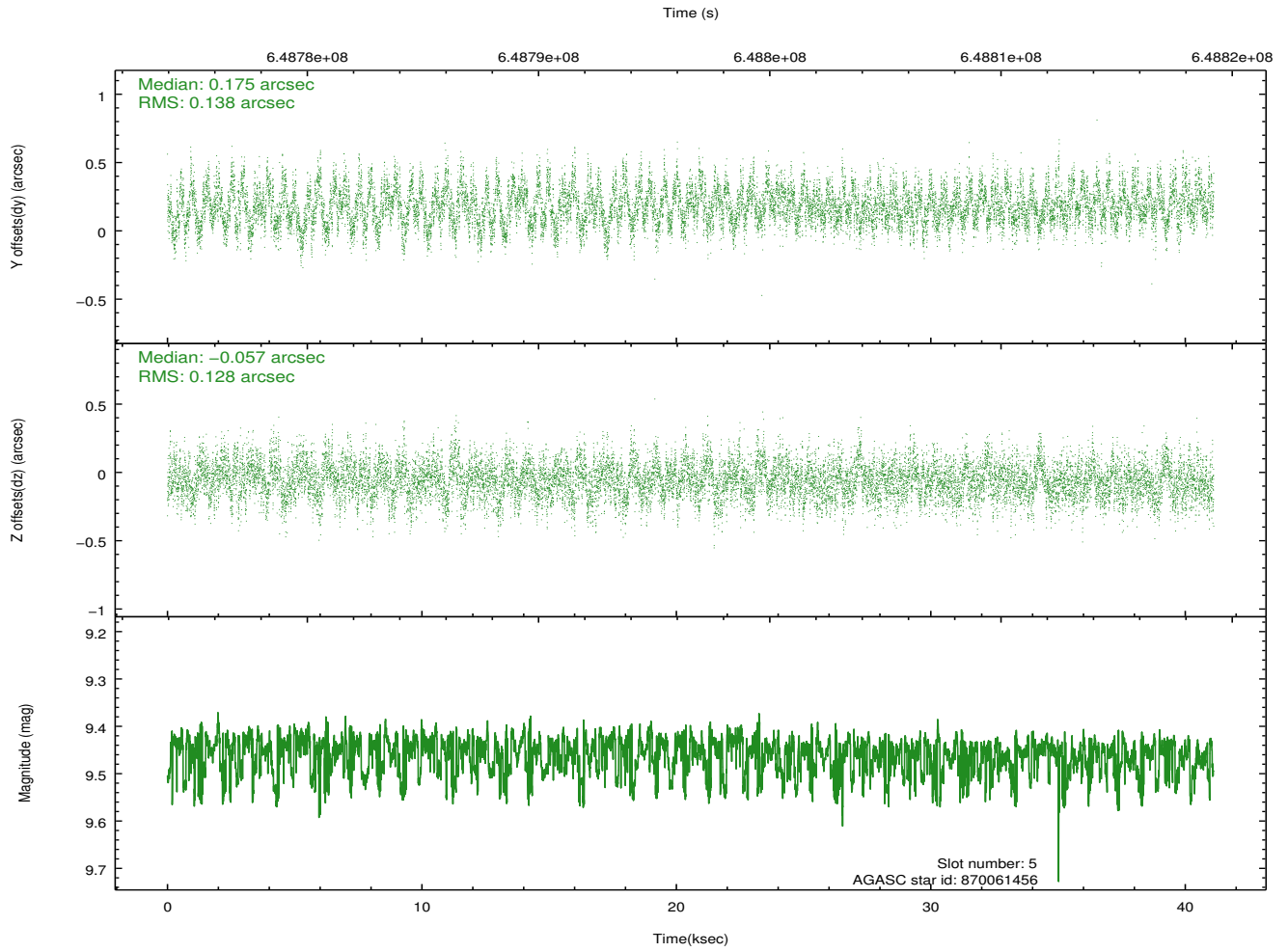
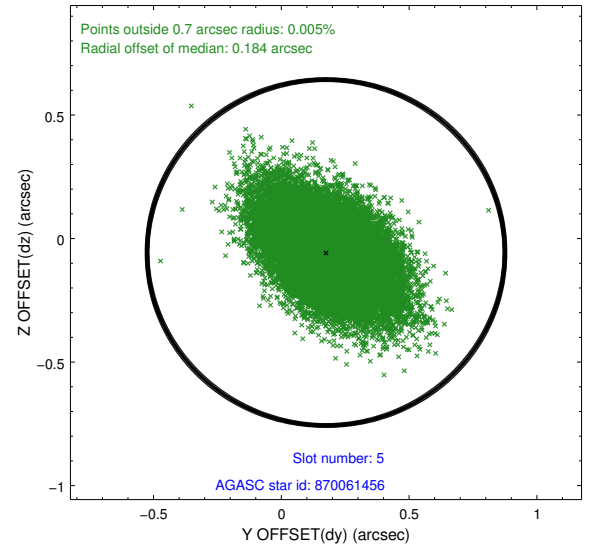
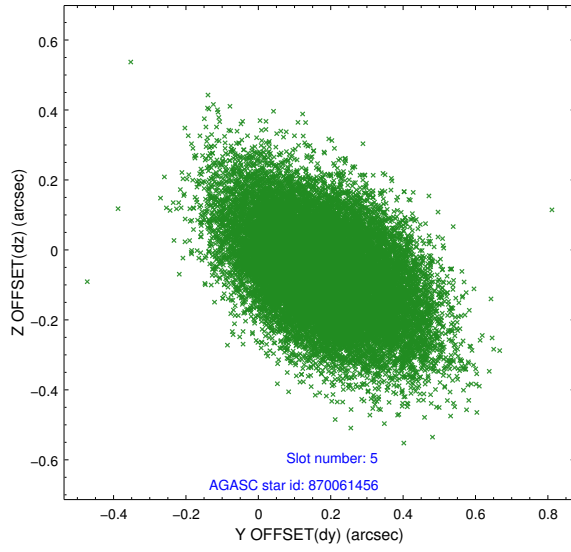
2.4.1 Slot 3



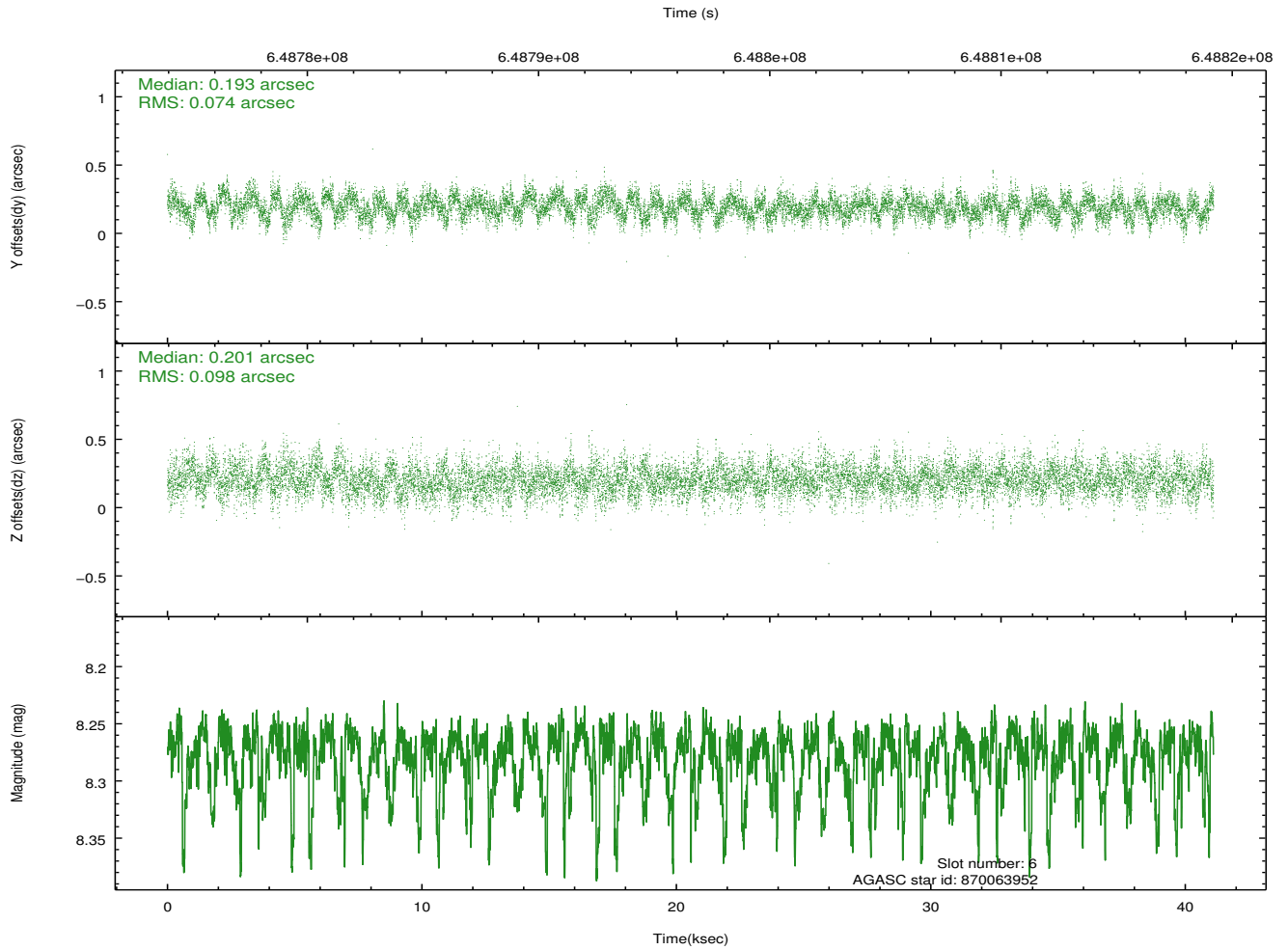
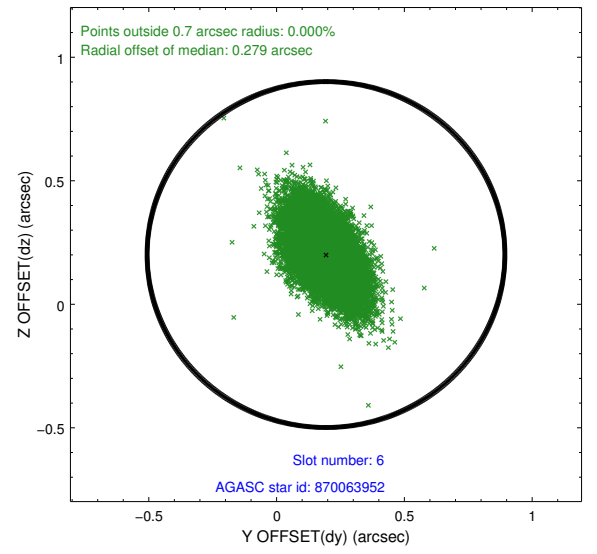
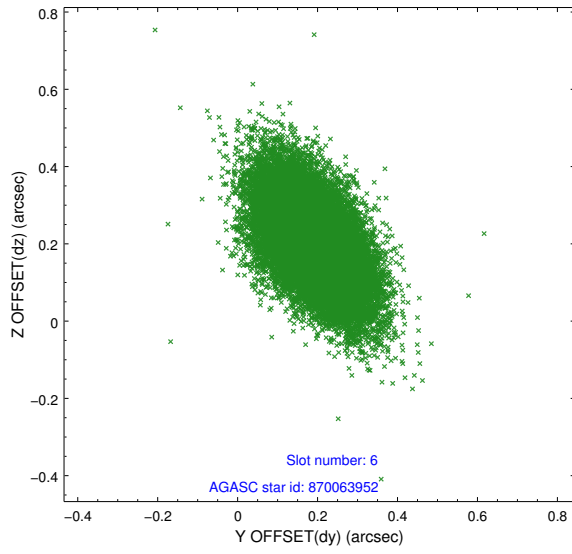
2.4.2 Slot 4



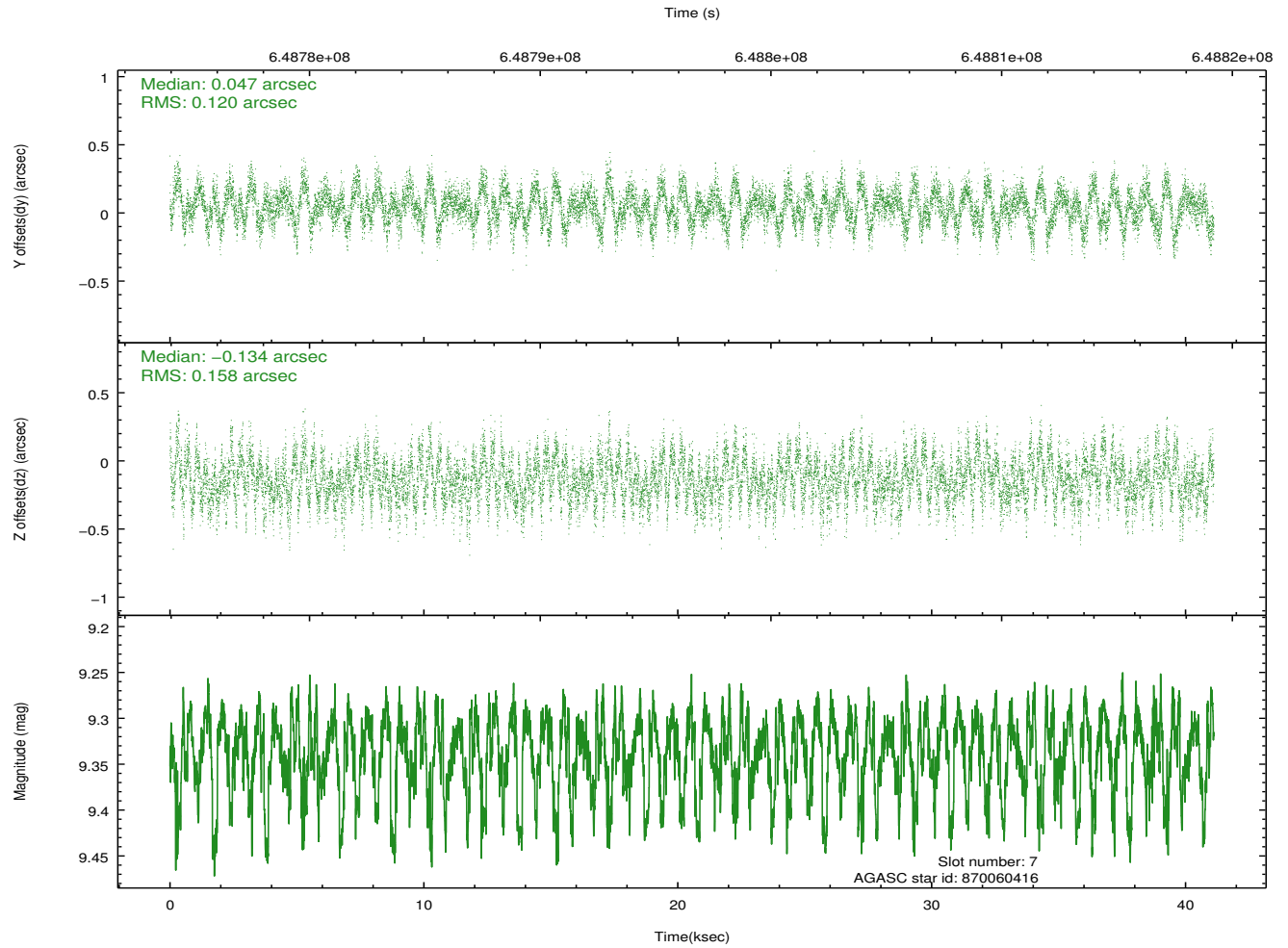
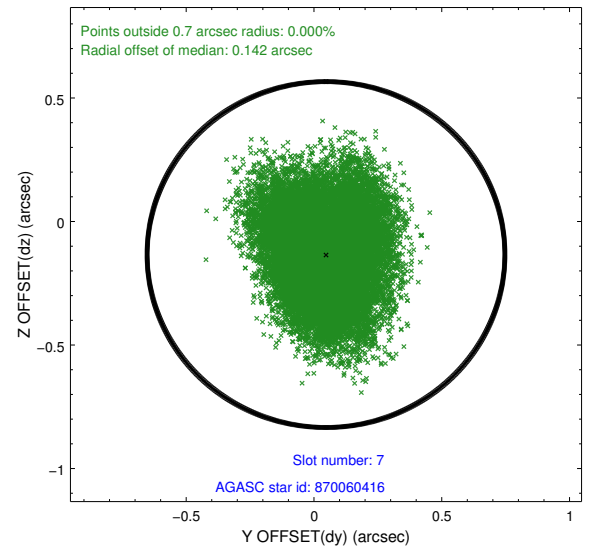
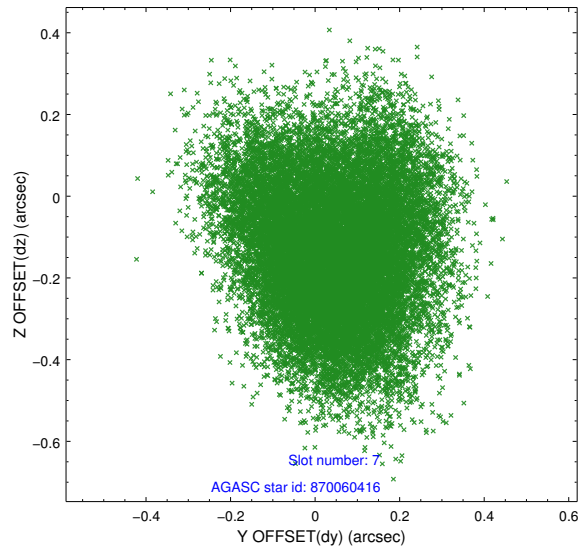
2.4.3 Slot 5



2.4.4 Slot 6

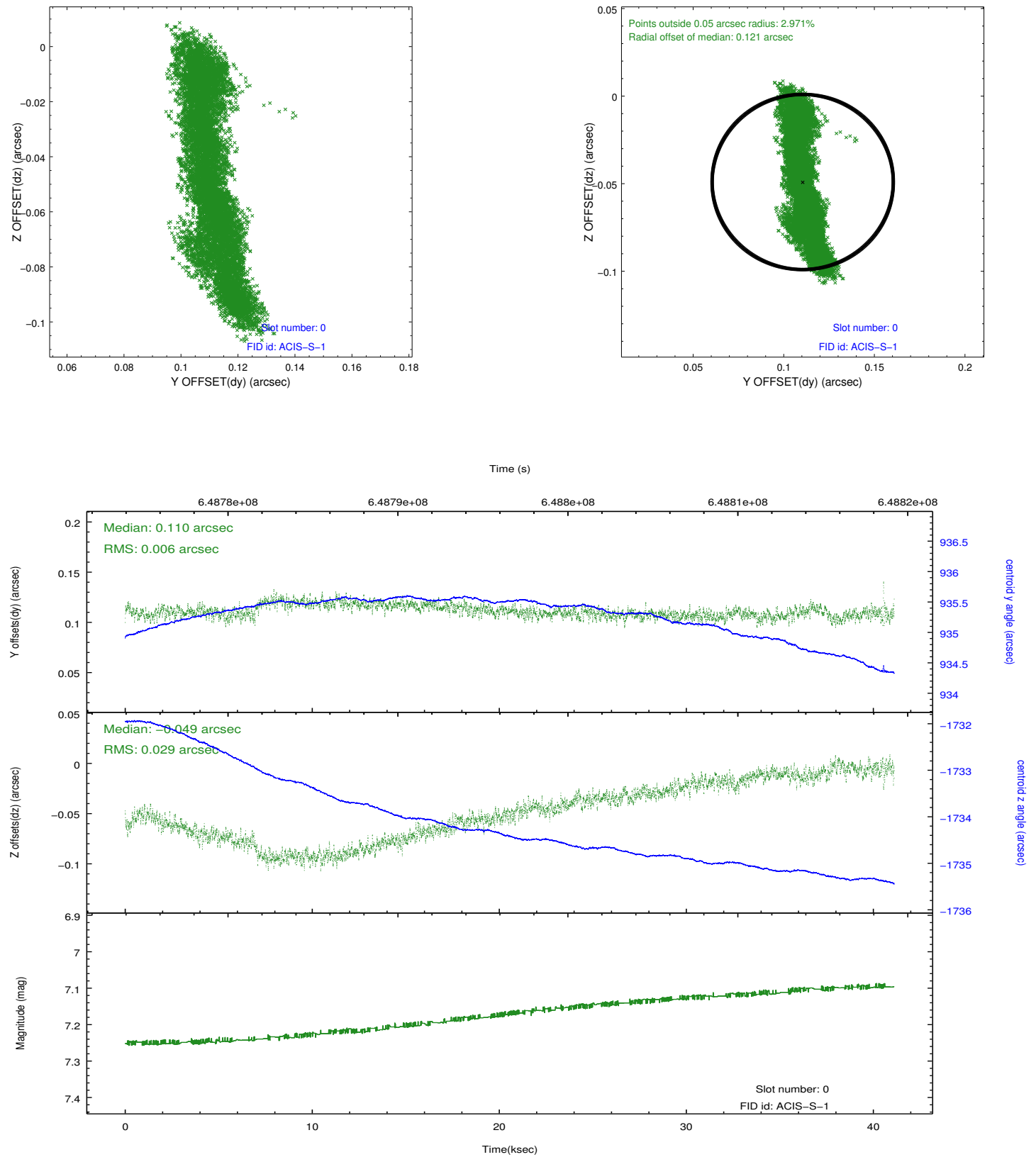


2.4.5 Slot 7

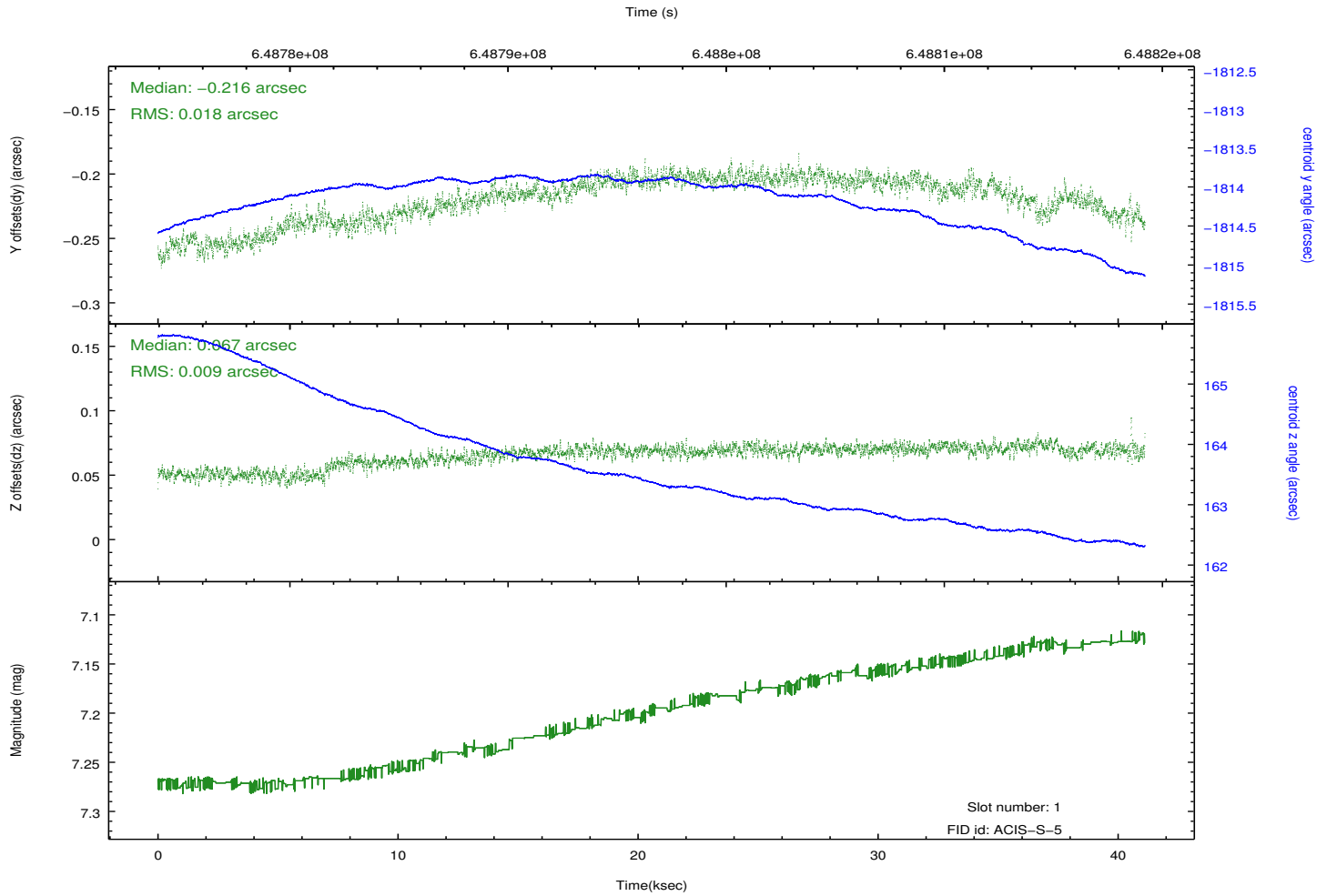
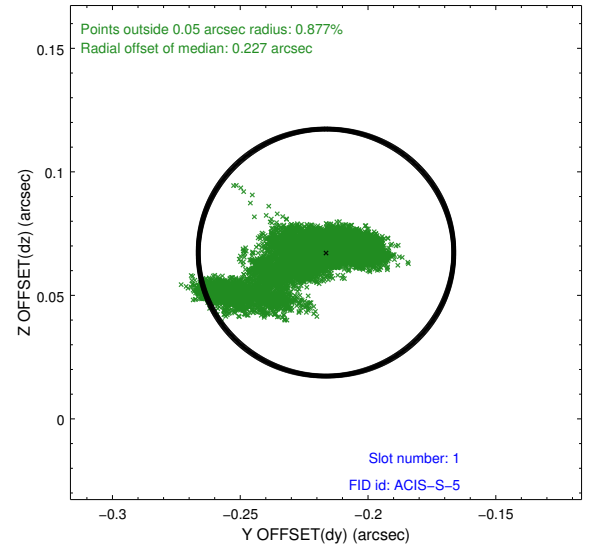
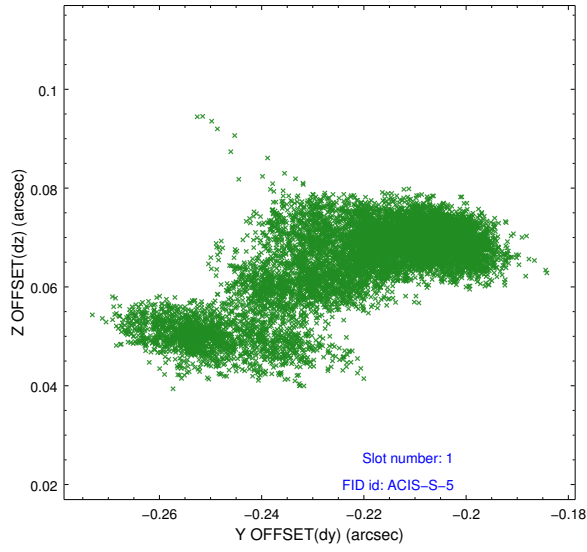


2.5 FID Slots

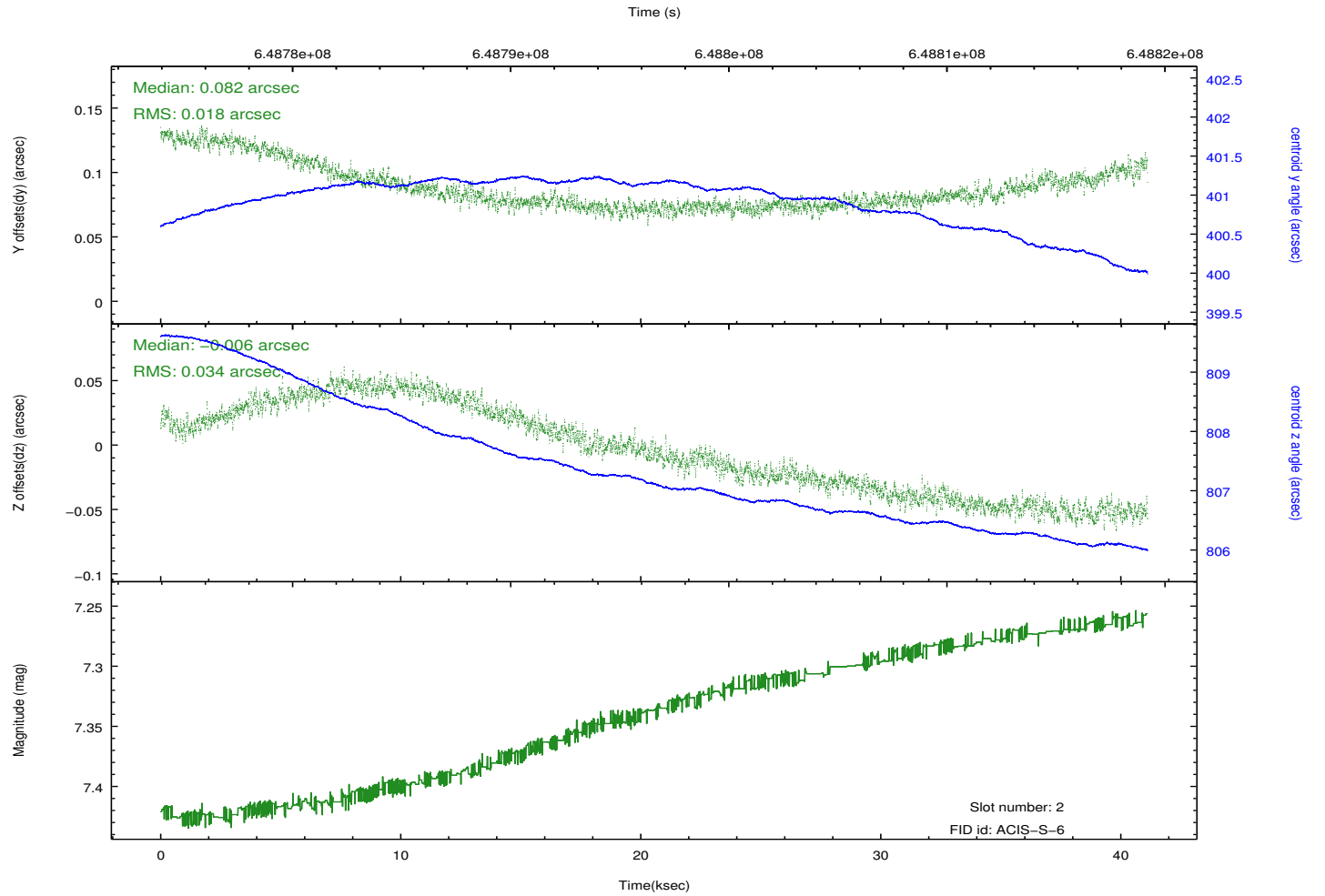
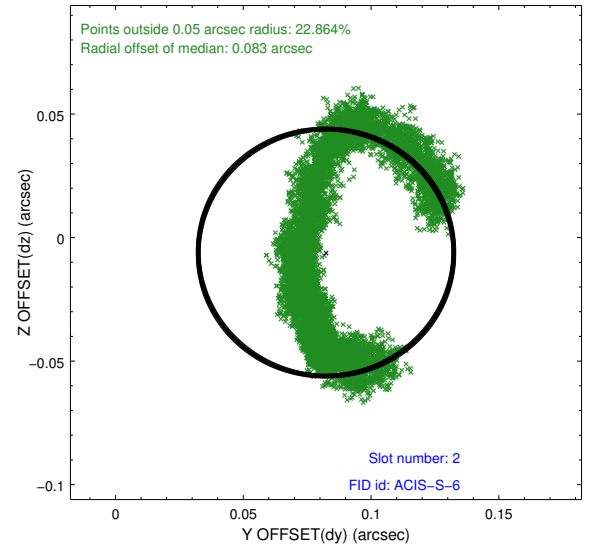
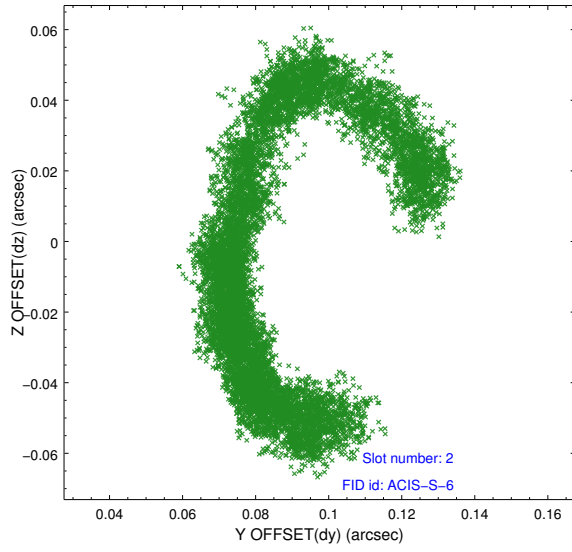
2.5.1 Slot 0



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)	2018.07.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	40.947200610161

A.2 Comments

Joint Proposal: NRAO

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The focal plane temperature during the first ~4ksec 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.