

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 22220 - L2 Version 3
Chandra X-Ray Center

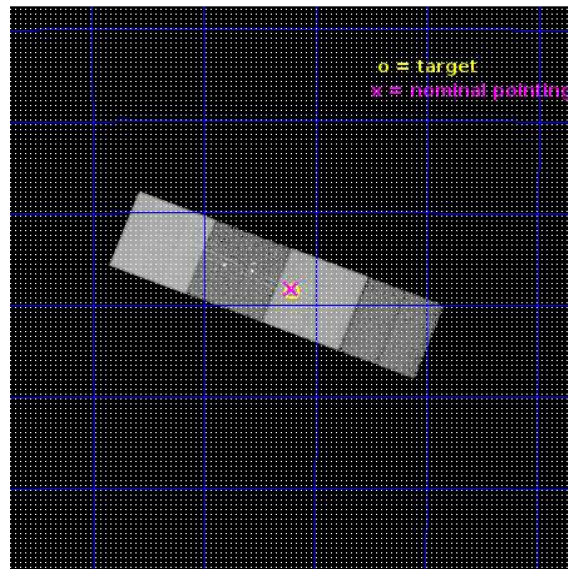
L2 Processing Date : Jun 3 2019

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1 Front

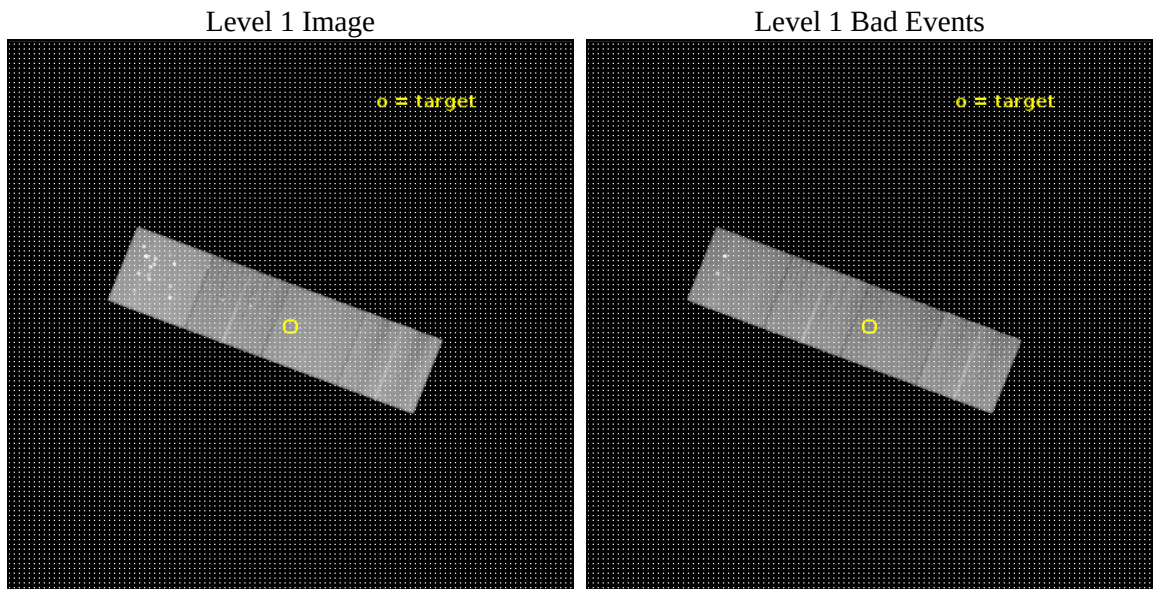
seq_num	201260	Sequence number
obs_id	22220	Observation id
title	Identifying Accretion at a Key Stage of Pre-main Sequence Stellar Evolution	Proposal title
observer	Dr. Claude Canizares	Principal investigator
object	SZ 96	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	242.052667	Observer's specified target RA [deg]
dec_targ	-39.142633	Observer's specified target Dec [deg]
ra_nom	242.05380815708	Nominal RA [deg]
dec_nom	-39.138221638859	Nominal Dec [deg]
roll_nom	21.157360541921	Nominal Roll [deg]
revision	3	Processing version of data
ontime	33231.147460938	Sum of GTIs [s]
livetime	32796.958054945	Livetime [s]
ontime5	33231.106420994	Sum of GTIs [s]
ontime6	33231.065380931	Sum of GTIs [s]
ontime7	33231.147460938	Sum of GTIs [s]
ontime8	33231.024340987	Sum of GTIs [s]
l2events	367402	Number of level 2 events



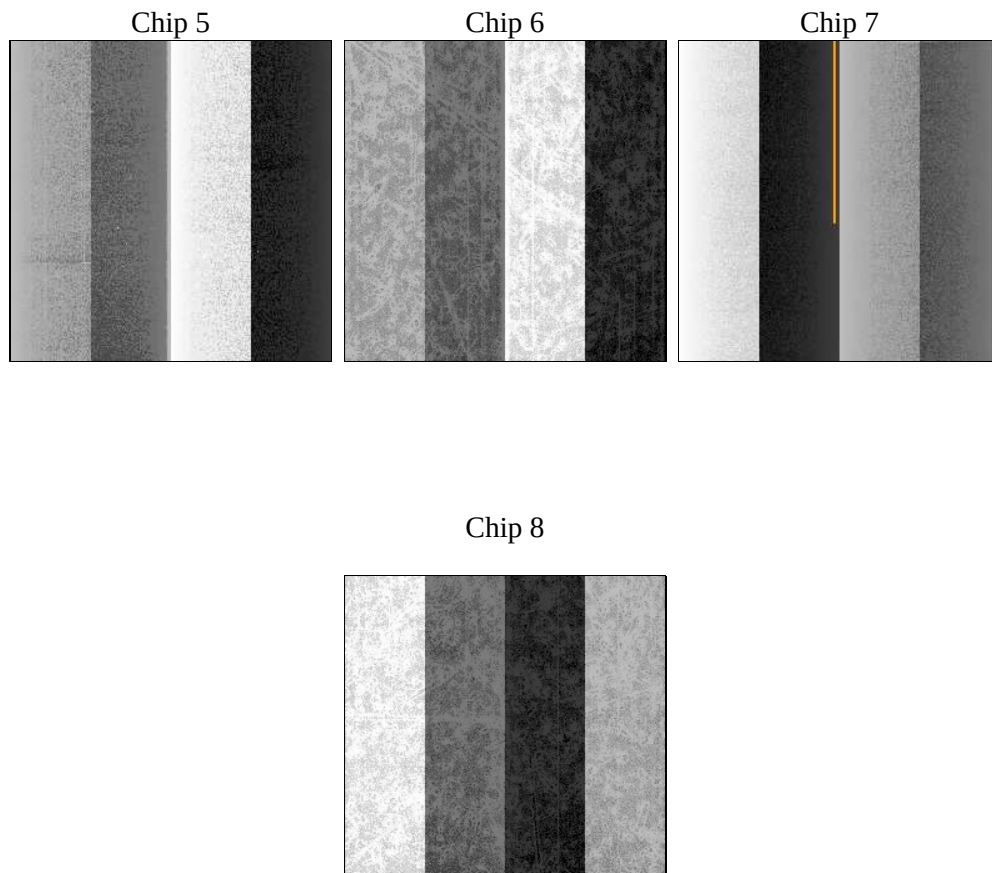
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	33167.164000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	33231.147460938	Sum of GTIs [s]
caldsver	4.8.3	 	ontime5	33231.106420994	Sum of GTIs [s]
date	2019-06-03T15:52:47	Date and time of file creation	ontime6	33231.065380931	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	33231.147460938	Sum of GTIs [s]
			ontime8	33231.024340987	Sum of GTIs [s]
			l1events	1353248	Number of level 1 events
			tgmethod	MANUAL	Method used to create src1a file
			zo_pos	(4104.25, 4063.25)	src1a sky pixel position

2.1.4 Events

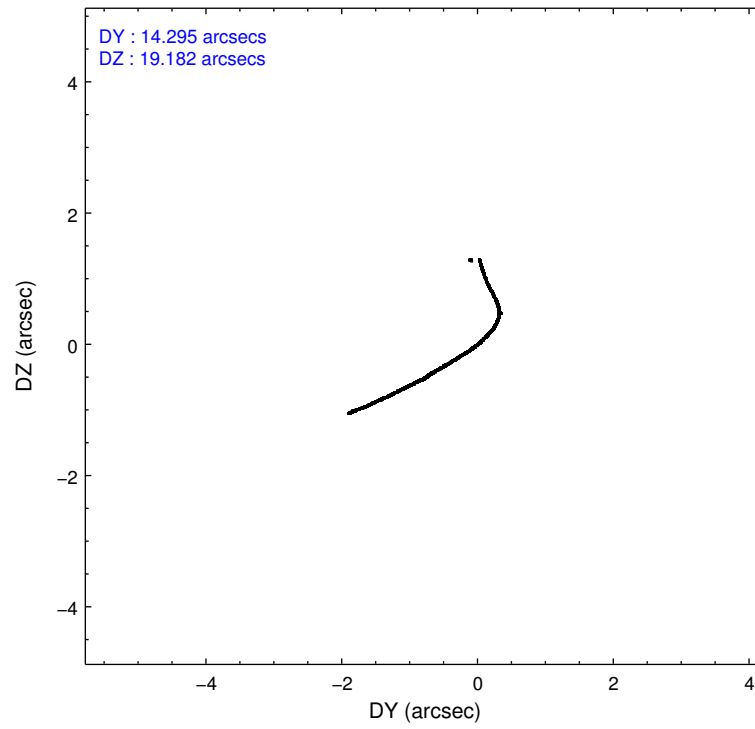
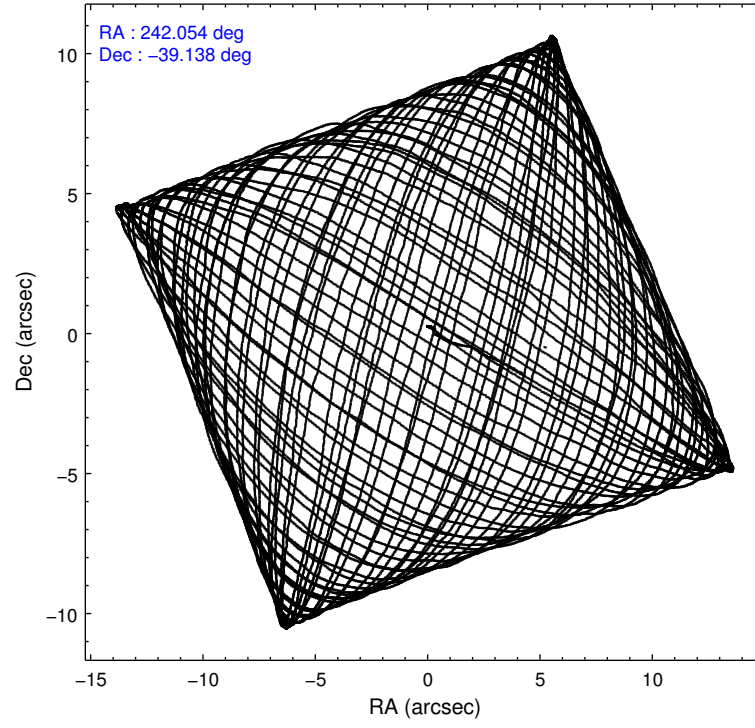
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	465217	253503	316771	317757
rejected events	217563	219512	180221	233682
rejected %	46%	86%	56%	73%

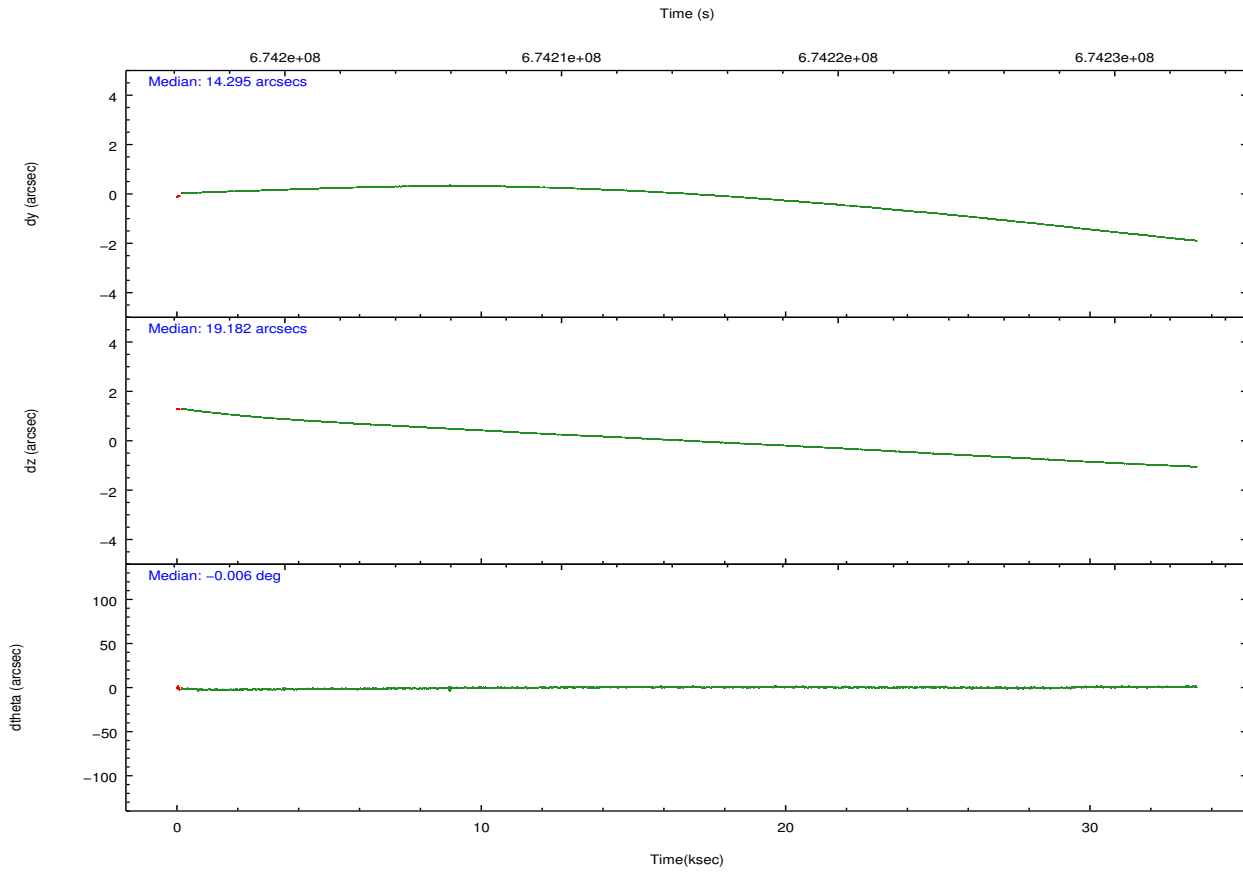
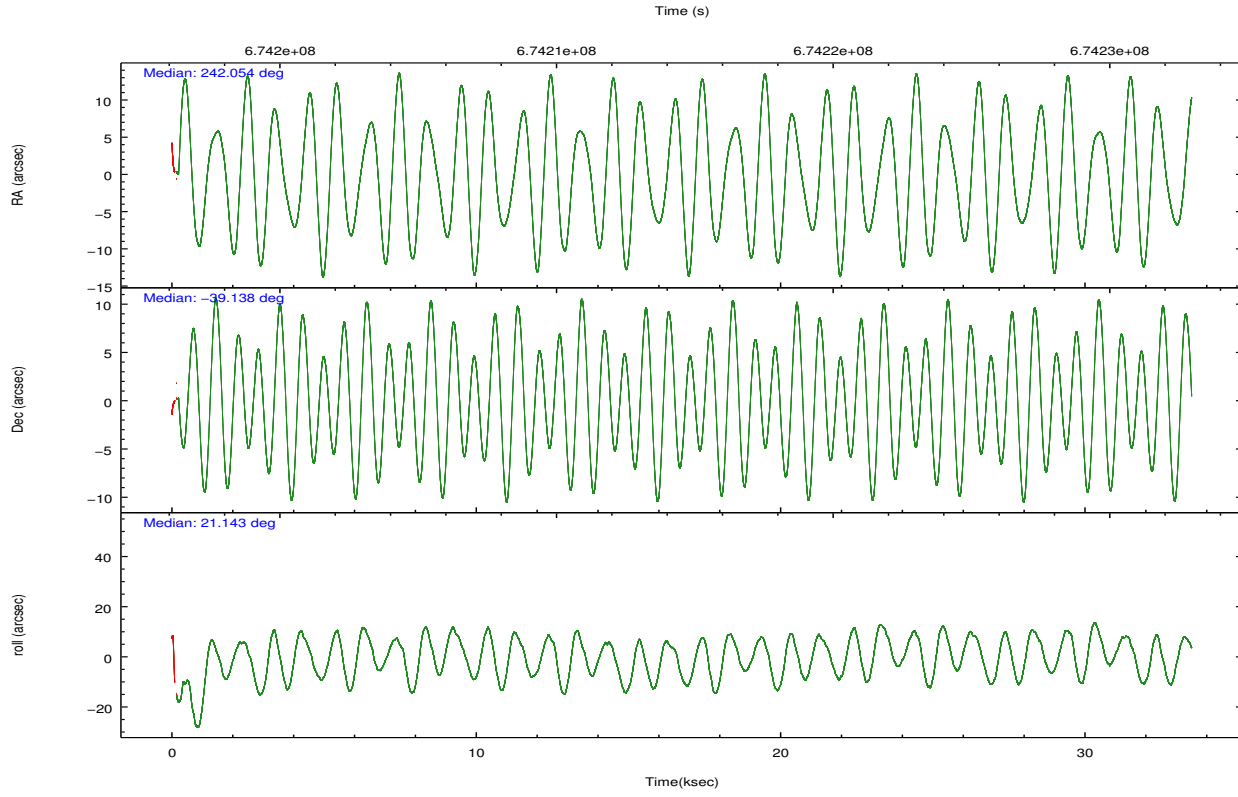
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	62092	13064	11456	23259
	13%	5%	3%	7%
grade 1 events	1018	220	449	246
	0%	0%	0%	0%
grade 2 events	69598	7798	29341	20537
	14%	3%	9%	6%
grade 3 events	6491	2861	10670	8899
	1%	1%	3%	2%
grade 4 events	5775	2934	10294	8273
	1%	1%	3%	2%
grade 5 events	27238	10986	30628	16994
	5%	4%	9%	5%
grade 6 events	103731	7339	74796	23115
	22%	2%	23%	7%
grade 7 events	189274	208301	149137	216434
	40%	82%	47%	68%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	242.031963	242.0538081570756	CCD I2 on	N	N
[deg] Pointing Dec	-39.159825	-39.13822163885868	CCD I3 on	N	N
[deg] Pointing Roll	20.986931	21.15736054192129	CCD S0 on	O2	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	Y	Y
[s] Observation start time (MET)	674198118.184000	674197015.32538	CCD S5 on	O1	N
Observation start date	2019-05-14T05:14:09	2019-05-14T04:56:55	Number of optional ACIS chips dropped	2	2
[s] Observation end time (MET)	674231285.184000	674232507.49	On-chip summing requested	N	N
Observation end date	2019-05-14T14:26:56	2019-05-14T14:48:27	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



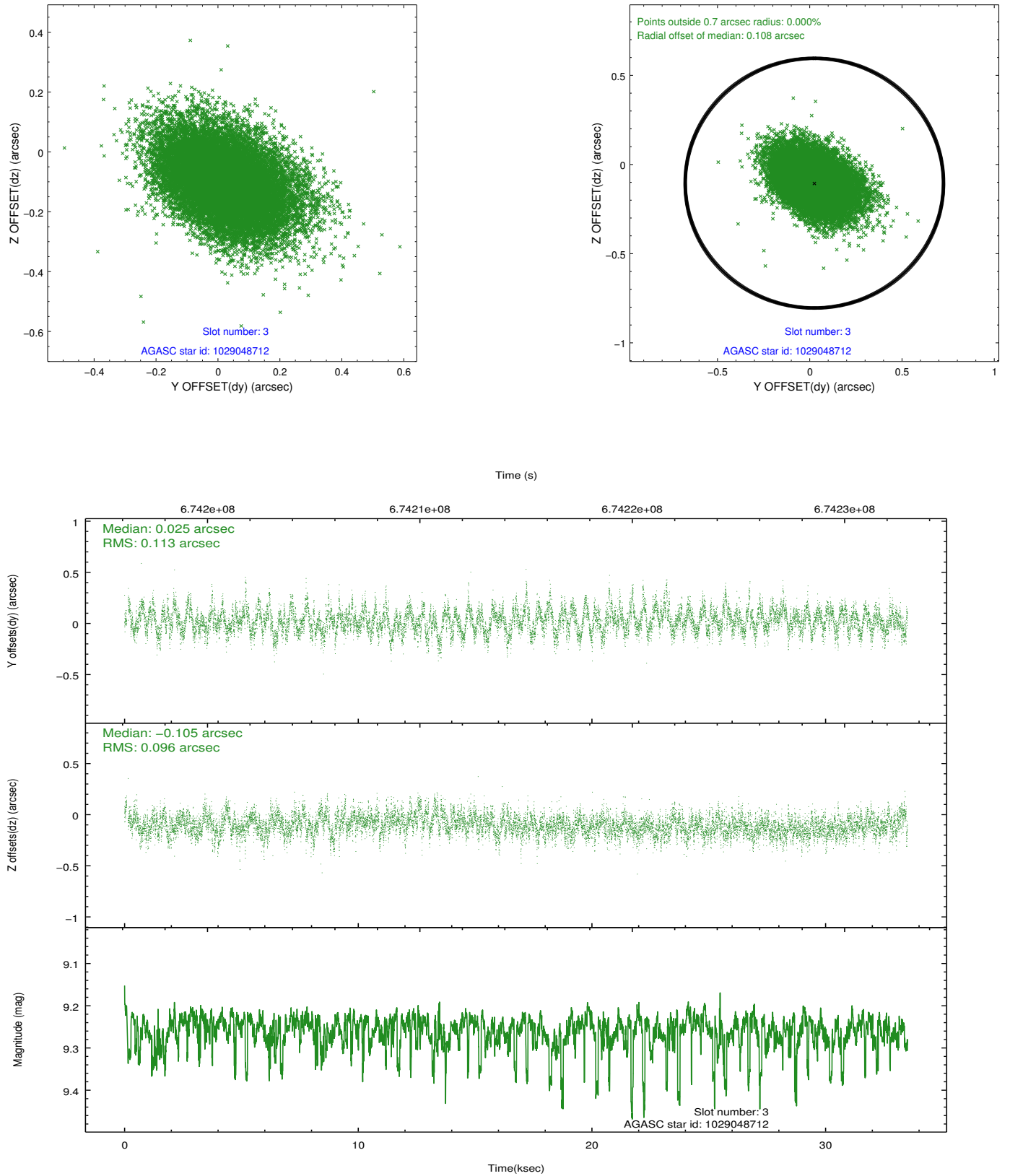


Slot Statistics

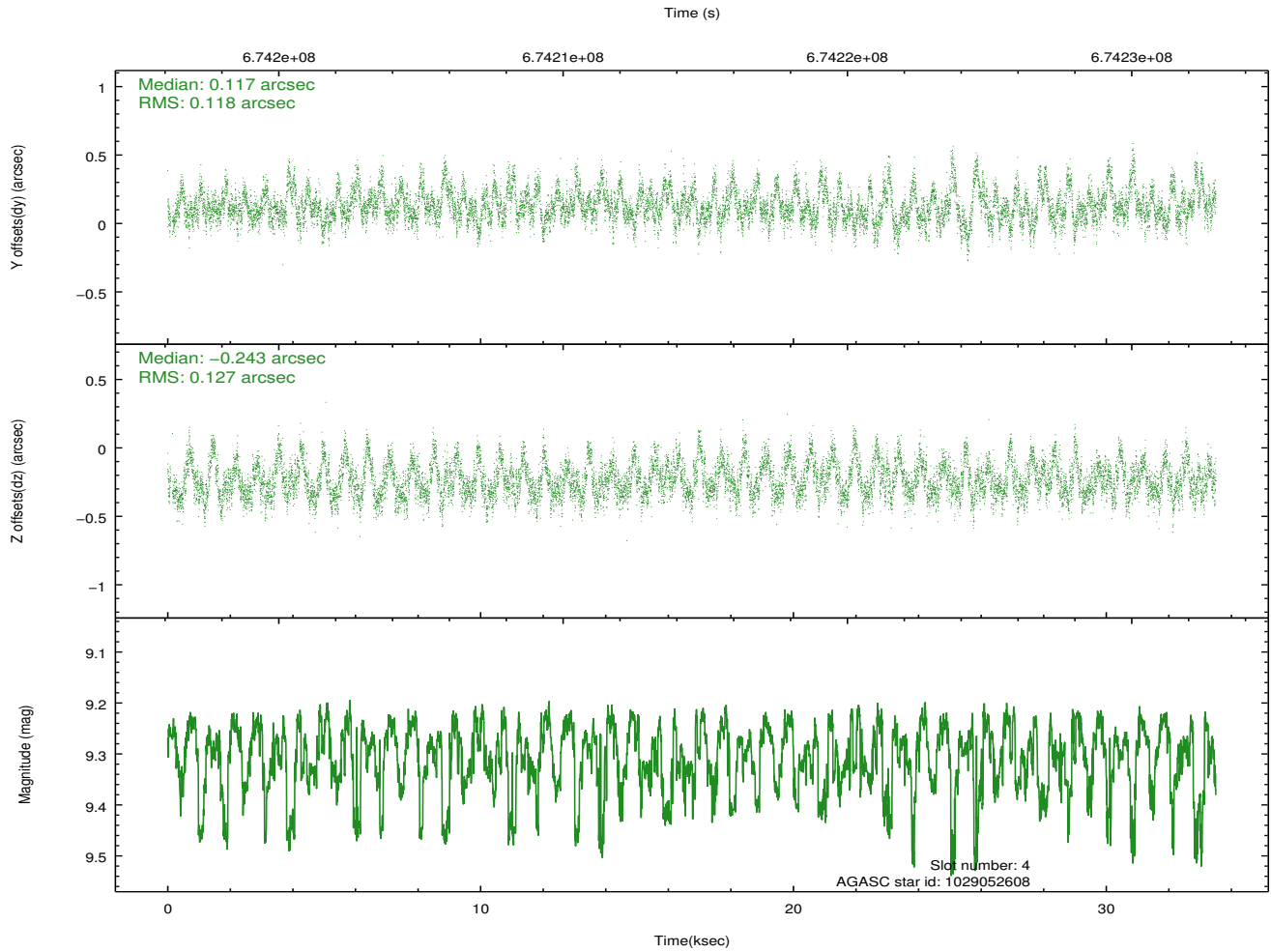
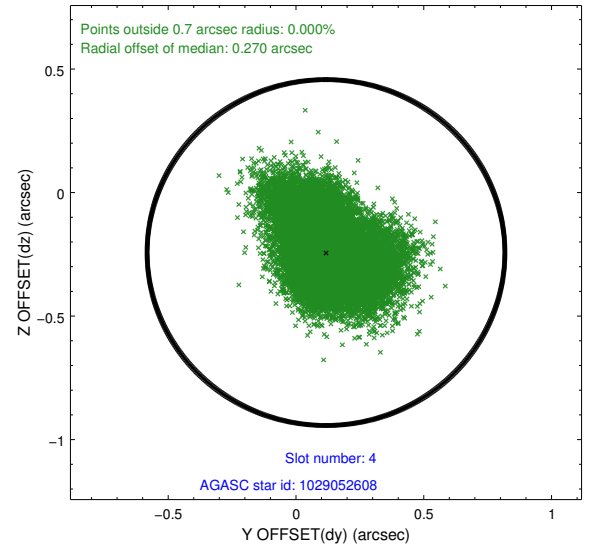
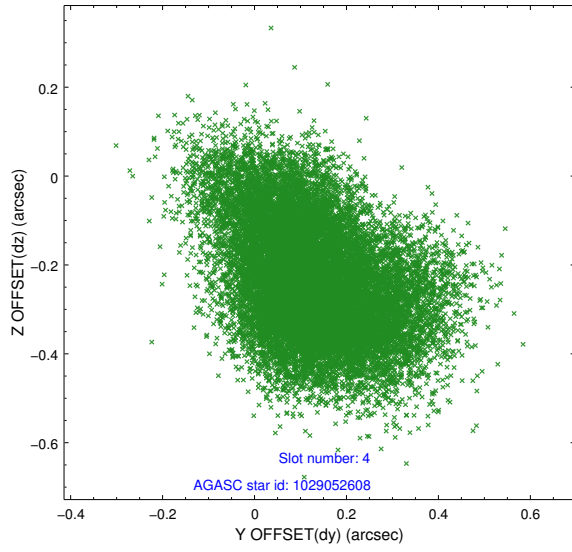
slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-S-2	7.07	8159	1.000	-0.311	-0.200	0.043	0.071	0.000000	0.000000	-767.14	-1740.0
1	FID		ACIS-S-4	7.19	8159	1.000	0.781	0.202	0.019	0.065	0.000000	0.000000	2147.12	168.0
2	FID		ACIS-S-5	7.16	8159	1.000	-0.503	0.005	0.039	0.049	0.000000	0.000000	-1820.20	161.0
3	GUIDE	used	1029048712	9.26	16303	1.000	0.025	-0.105	0.154	0.261	241.237794	-38.954366	-1814.57	1477.0
4	GUIDE	used	1029052608	9.30	16288	1.000	0.117	-0.243	0.184	0.301	241.909057	-39.099888	-243.69	324.0
5	GUIDE	used	1029059360	8.28	16304	1.000	-0.042	-0.011	0.105	0.173	241.638388	-39.259513	-1153.17	55.0
6	GUIDE	used	1029580280	9.14	16297	1.000	-0.108	0.353	0.182	0.300	242.322361	-39.646406	124.38	-1923.0
7	MONITOR	unused		0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.0

2.4 Star Slots

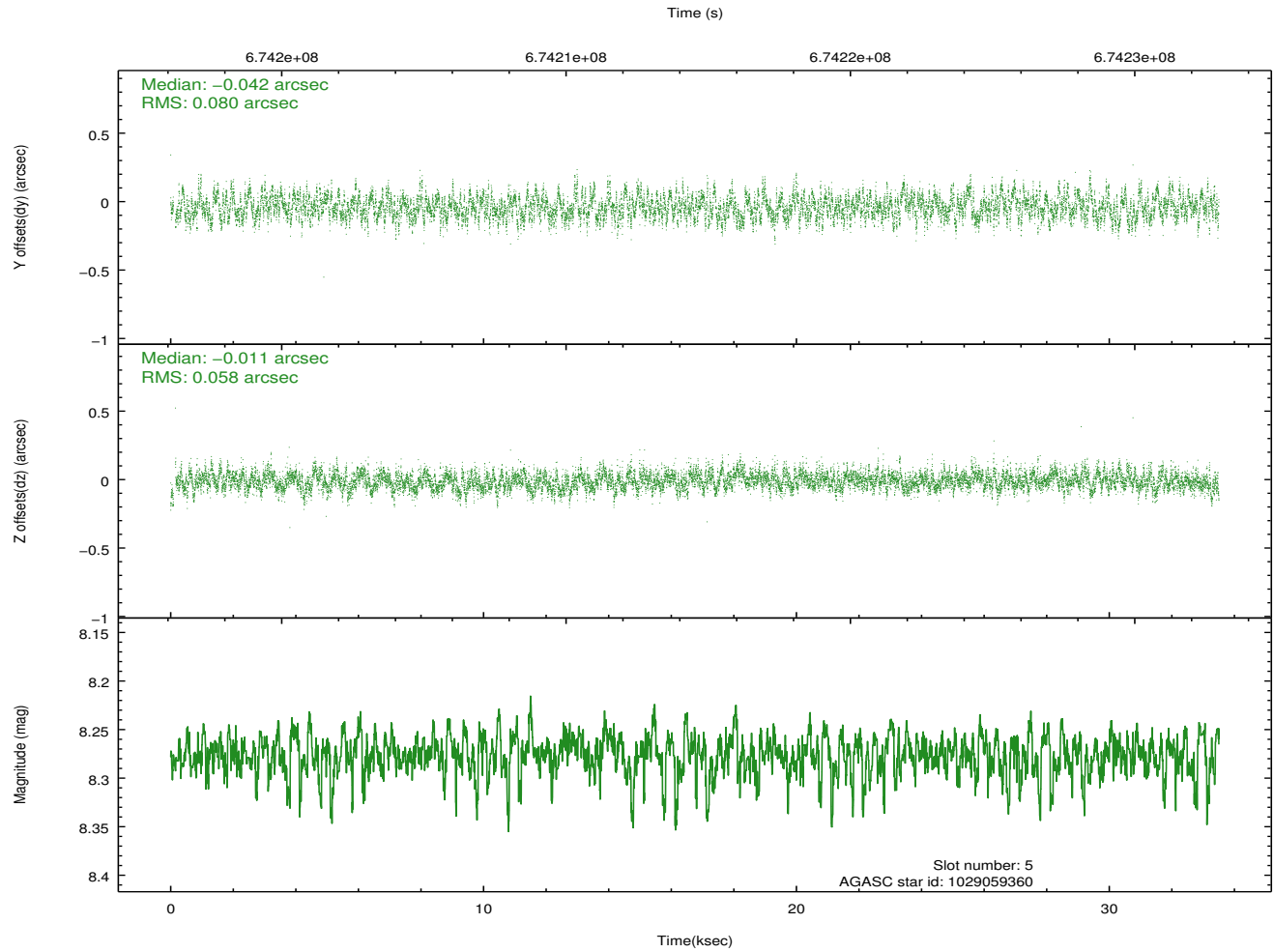
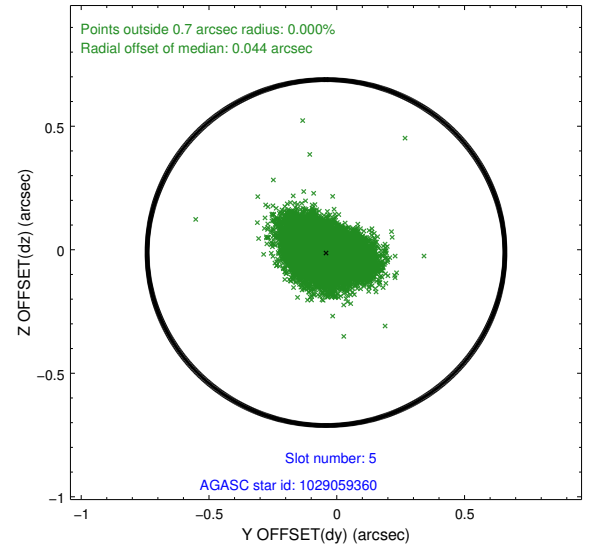
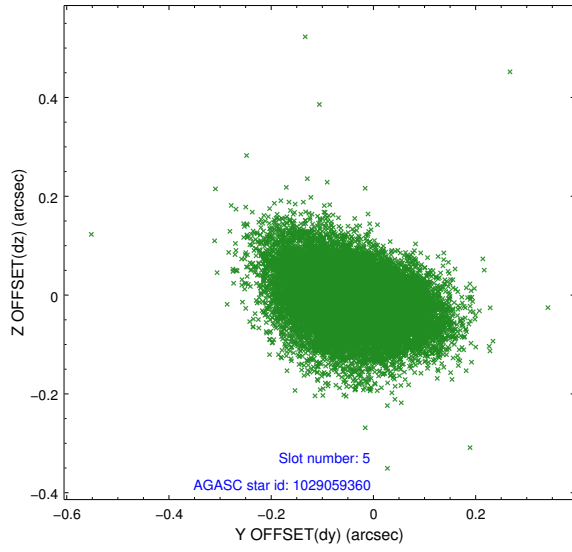
2.4.1 Slot 3



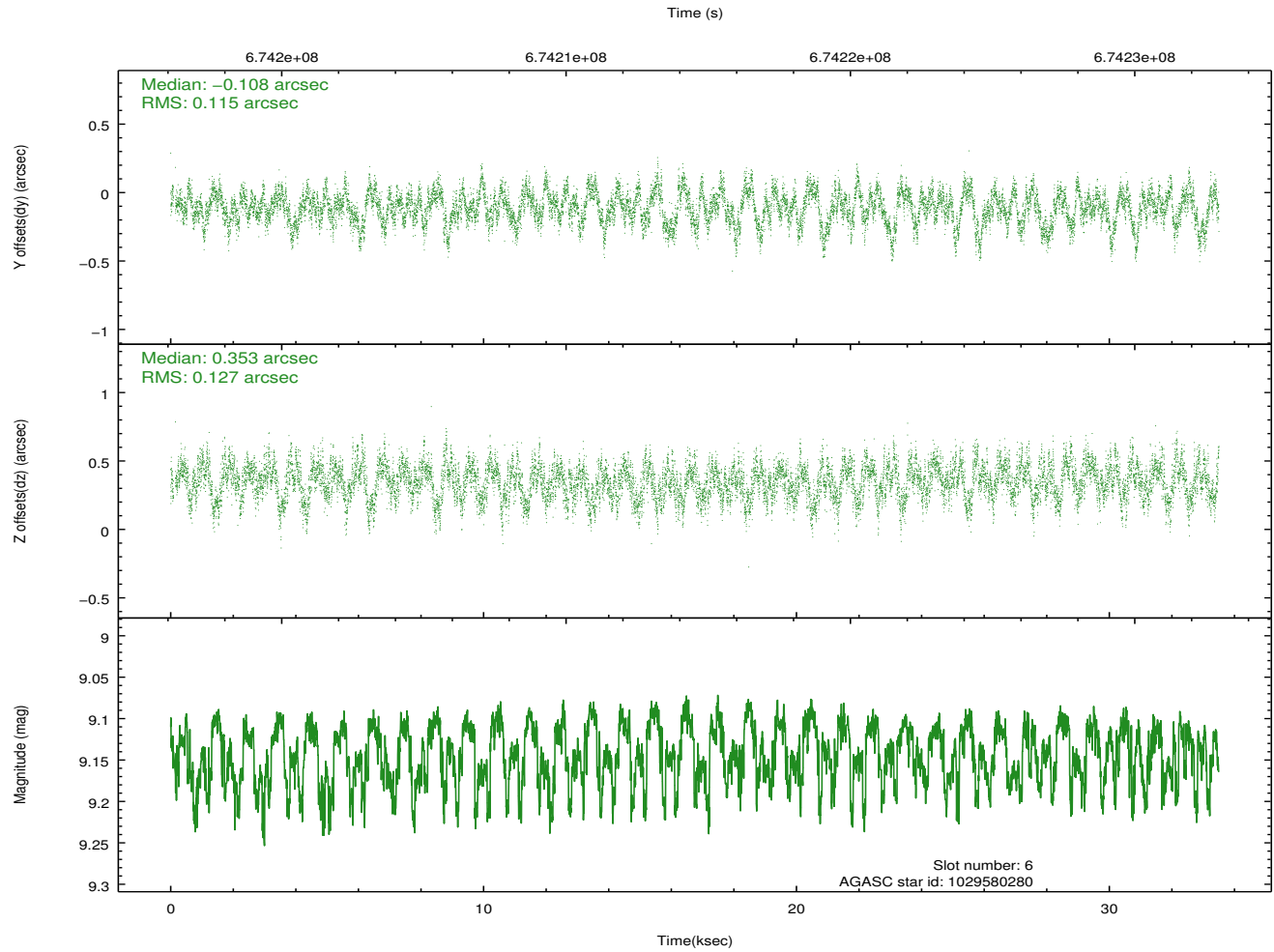
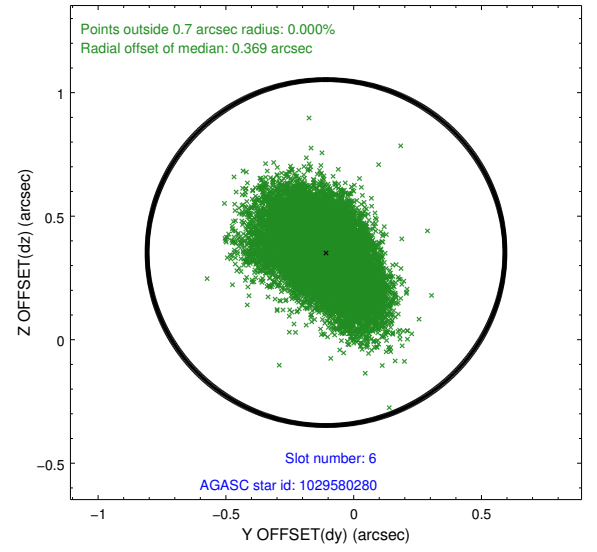
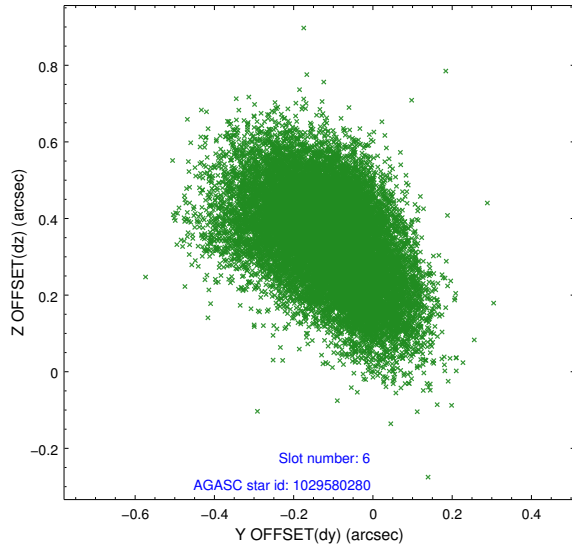
2.4.2 Slot 4



2.4.3 Slot 5

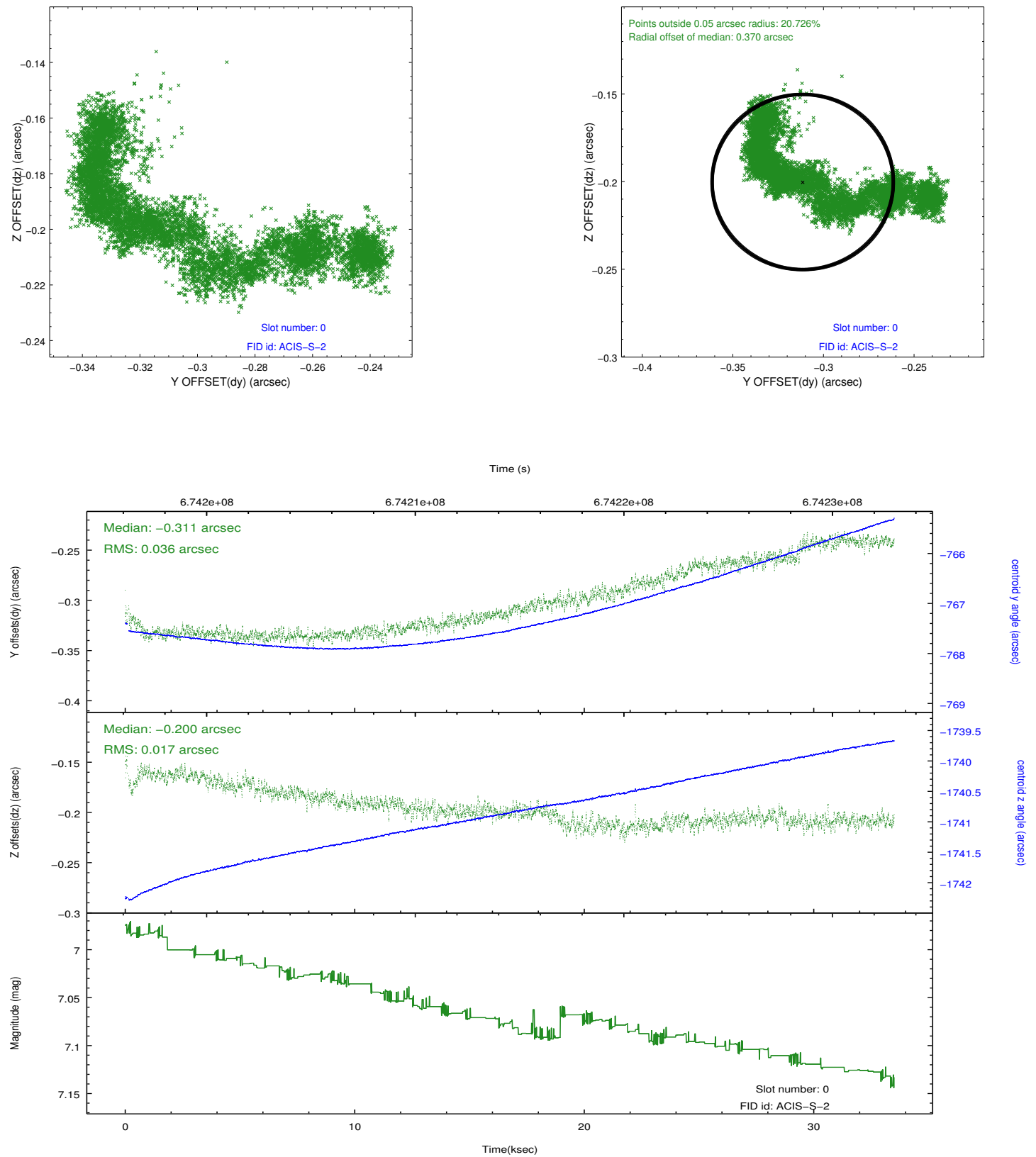


2.4.4 Slot 6

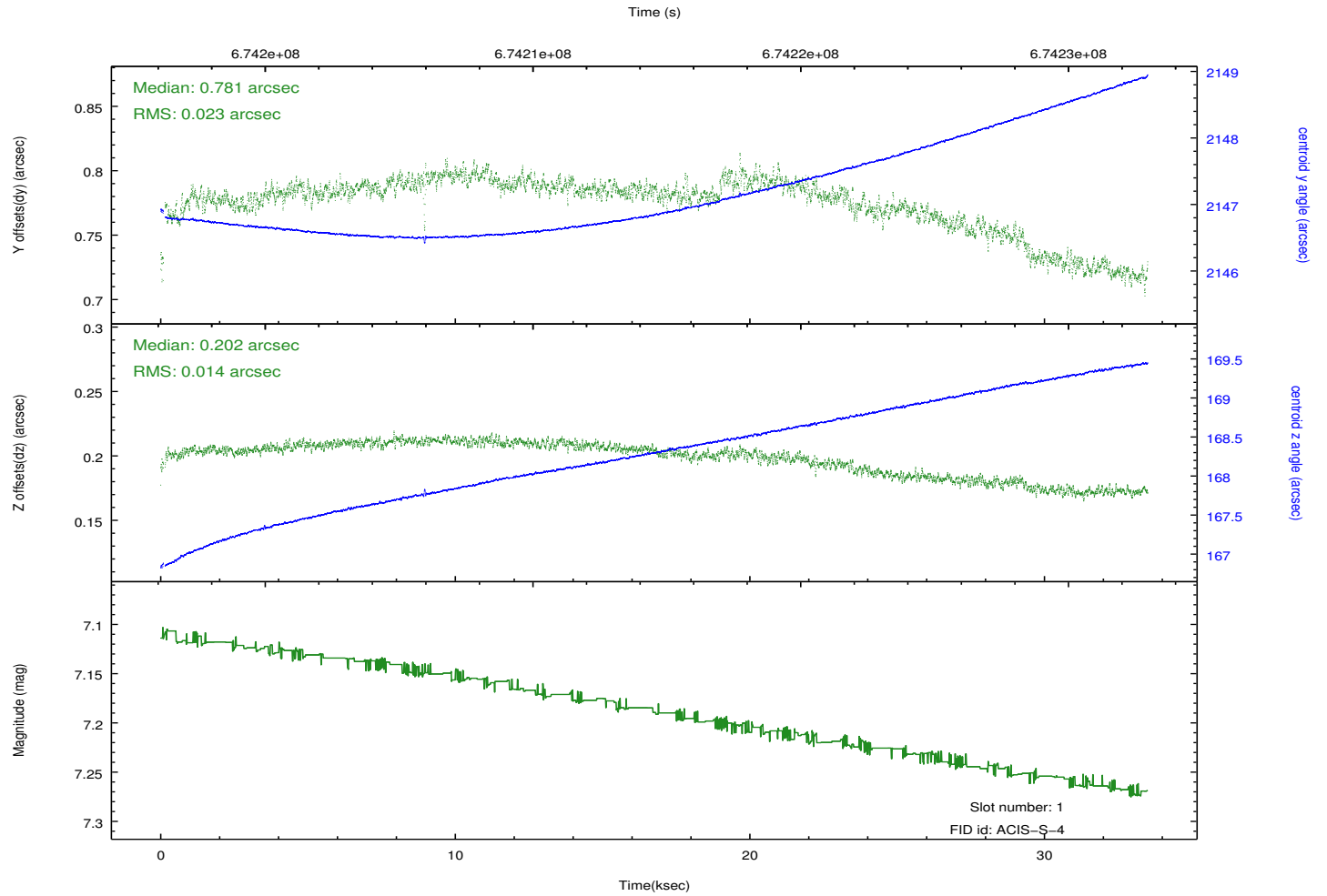
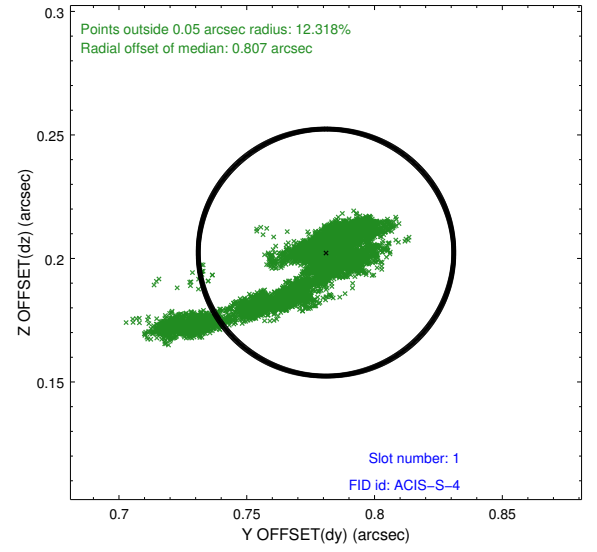
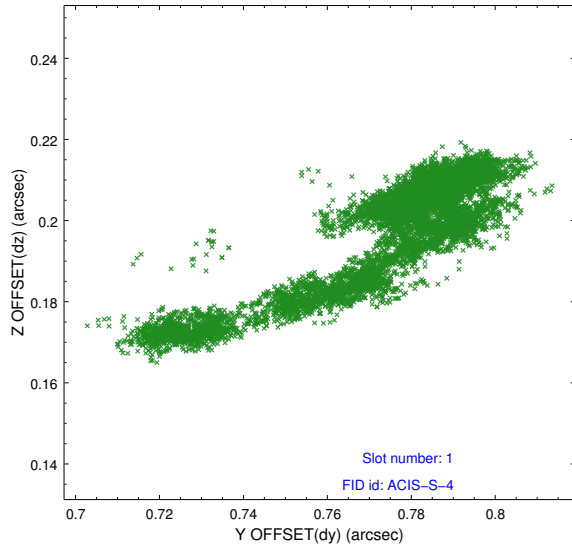


2.5 FID Slots

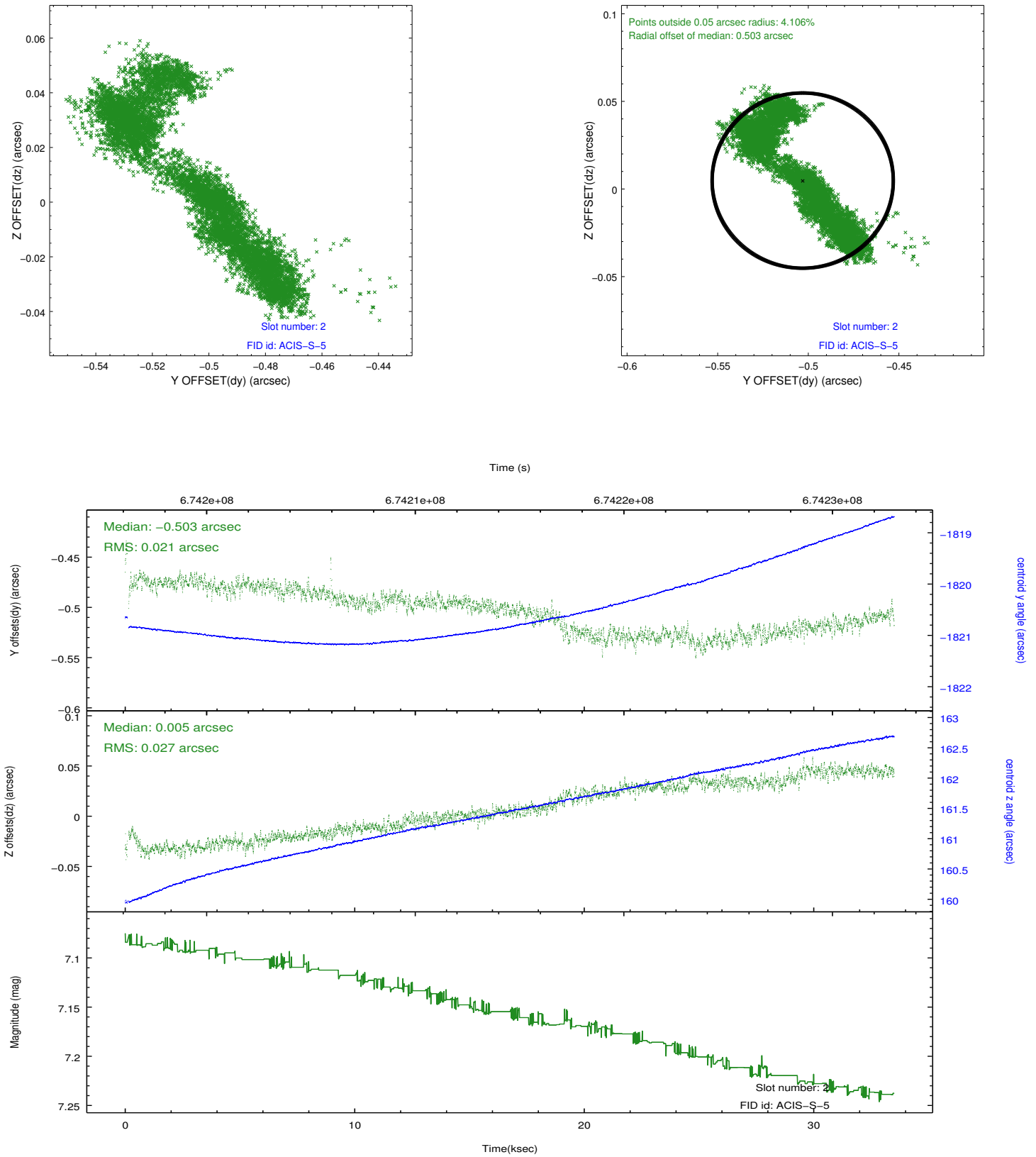
2.5.1 Slot 0



2.5.2 Slot 1

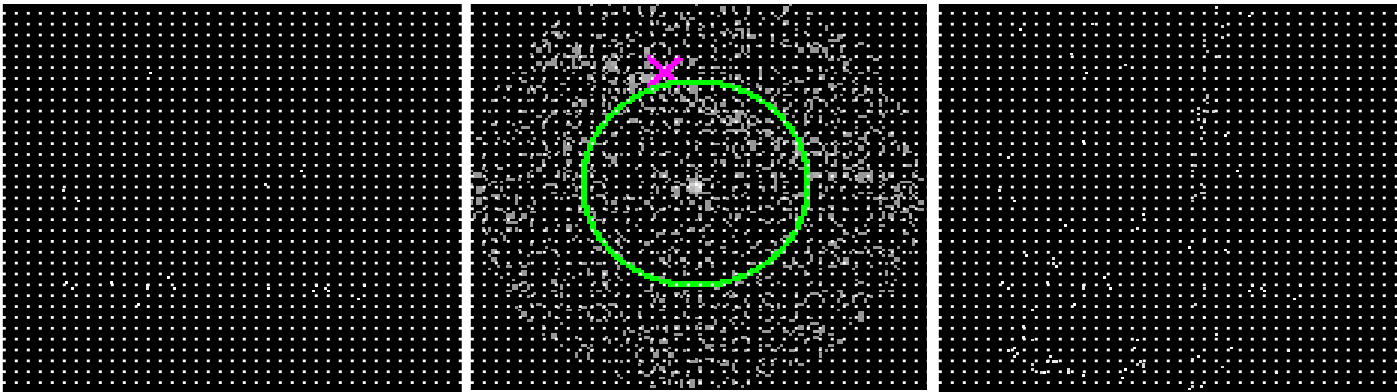


2.5.3 Slot 2



3 Gratings

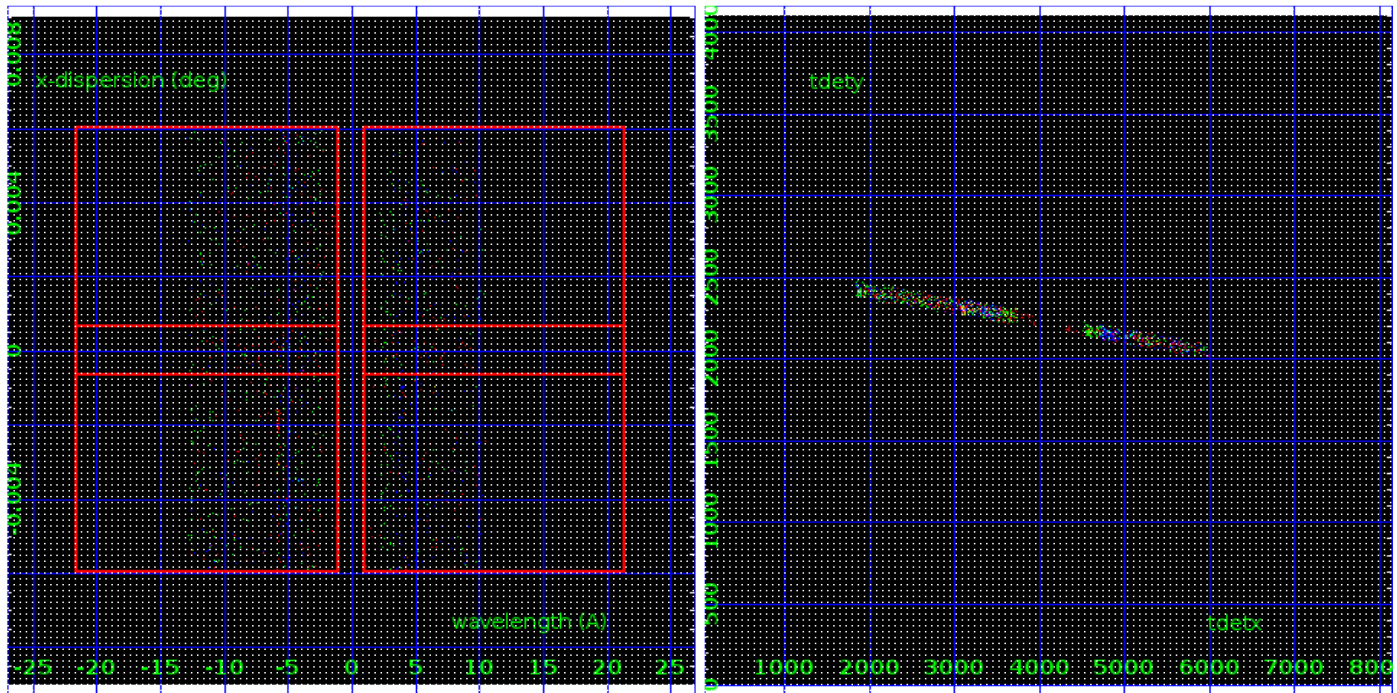
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

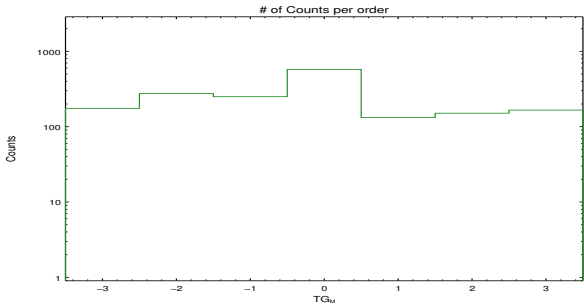
HEG Order Sort ALL

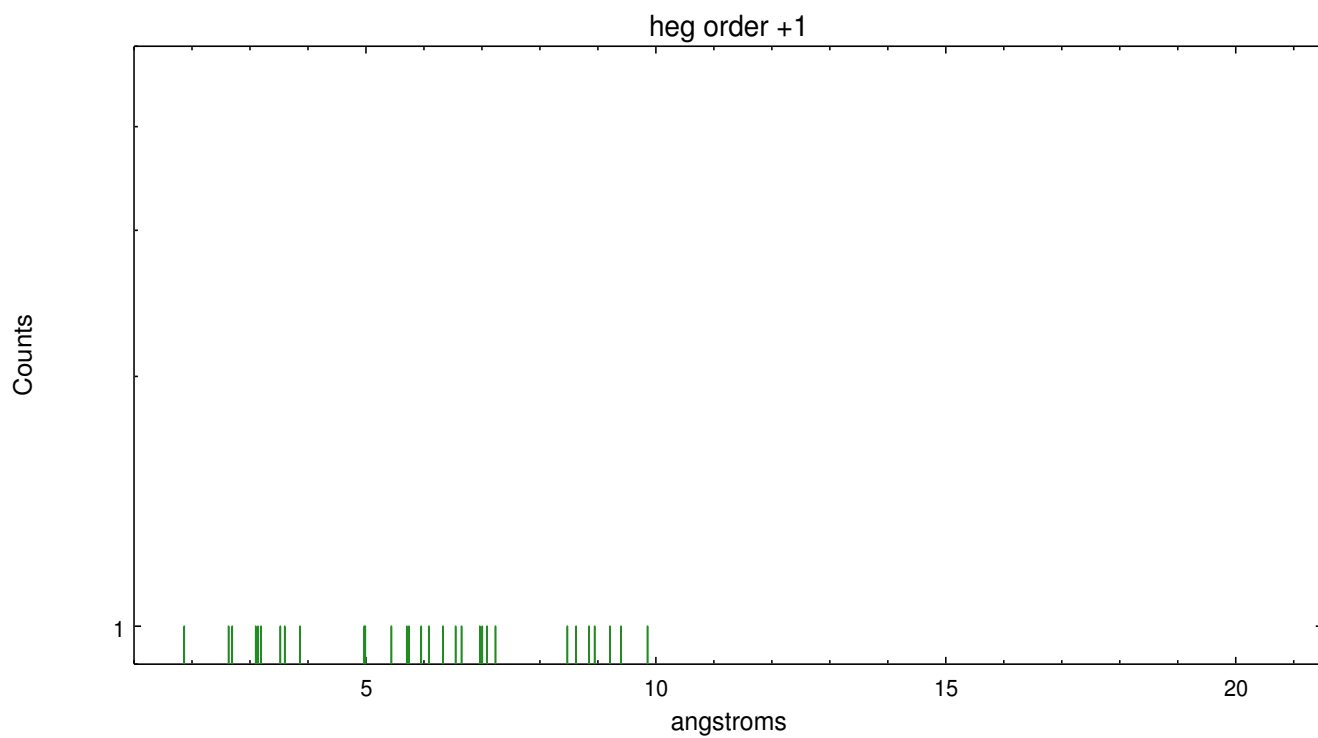
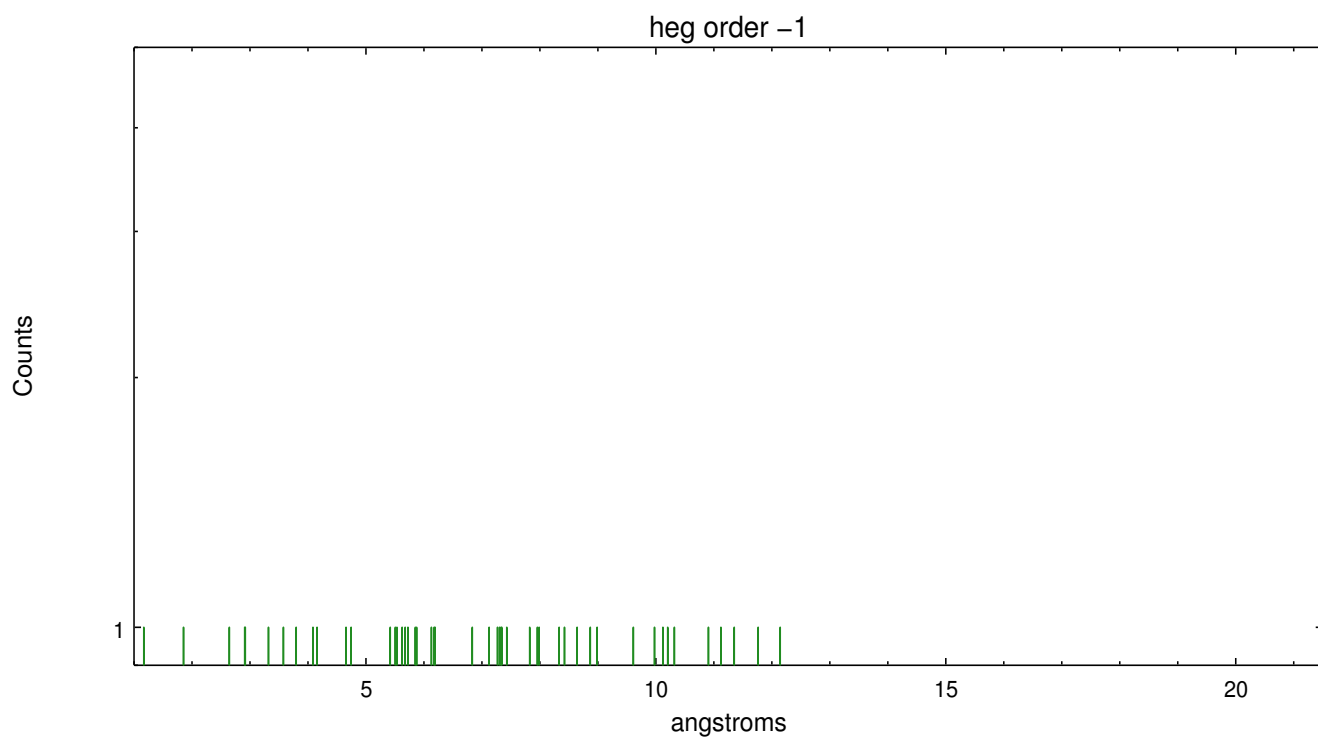


Spot Image HEG

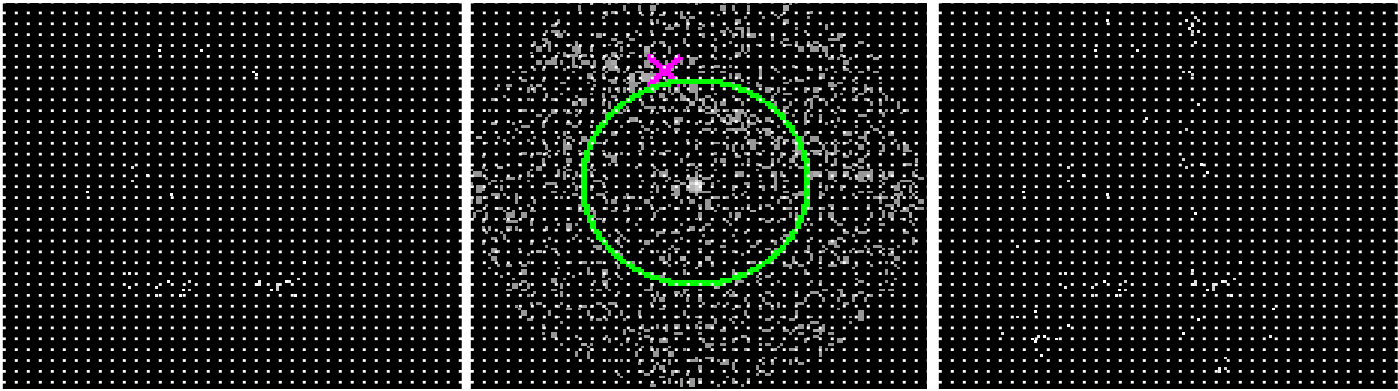
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	175	276	250	575	132	151	166





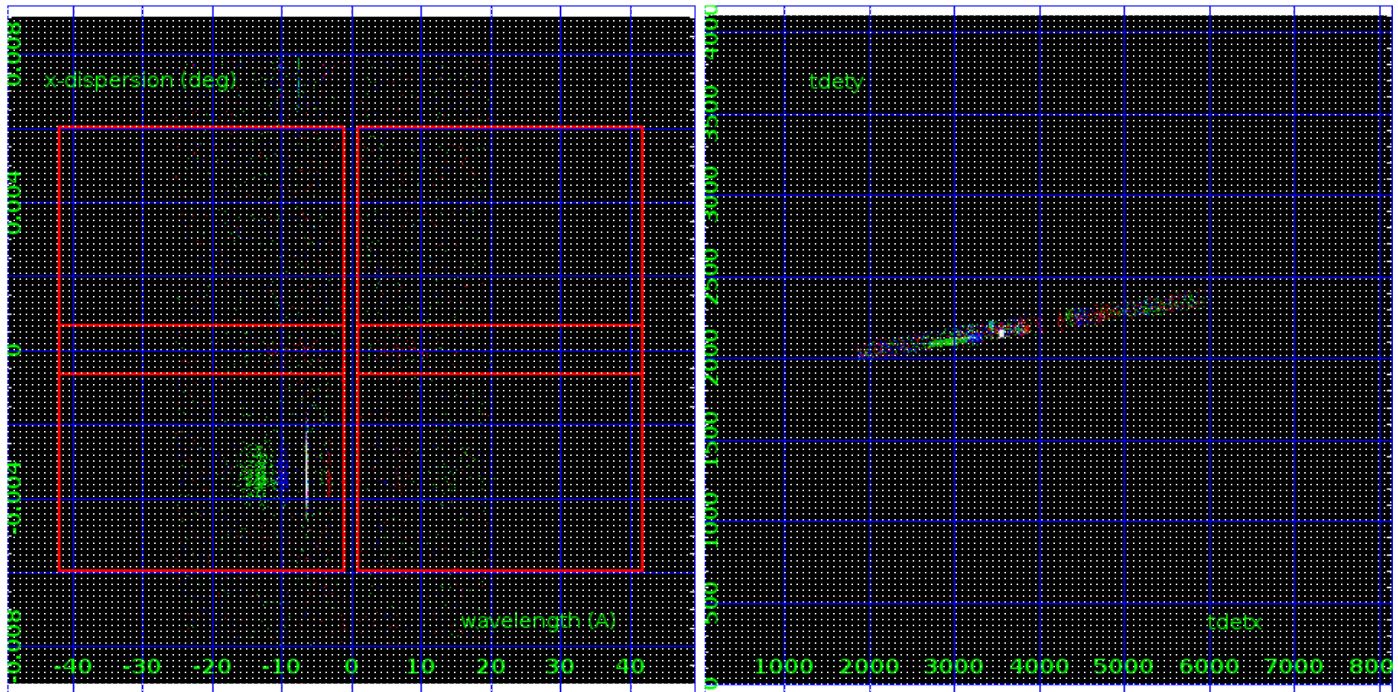
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

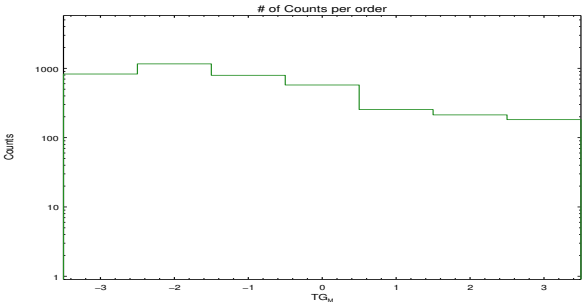
MEG Order Sort ALL

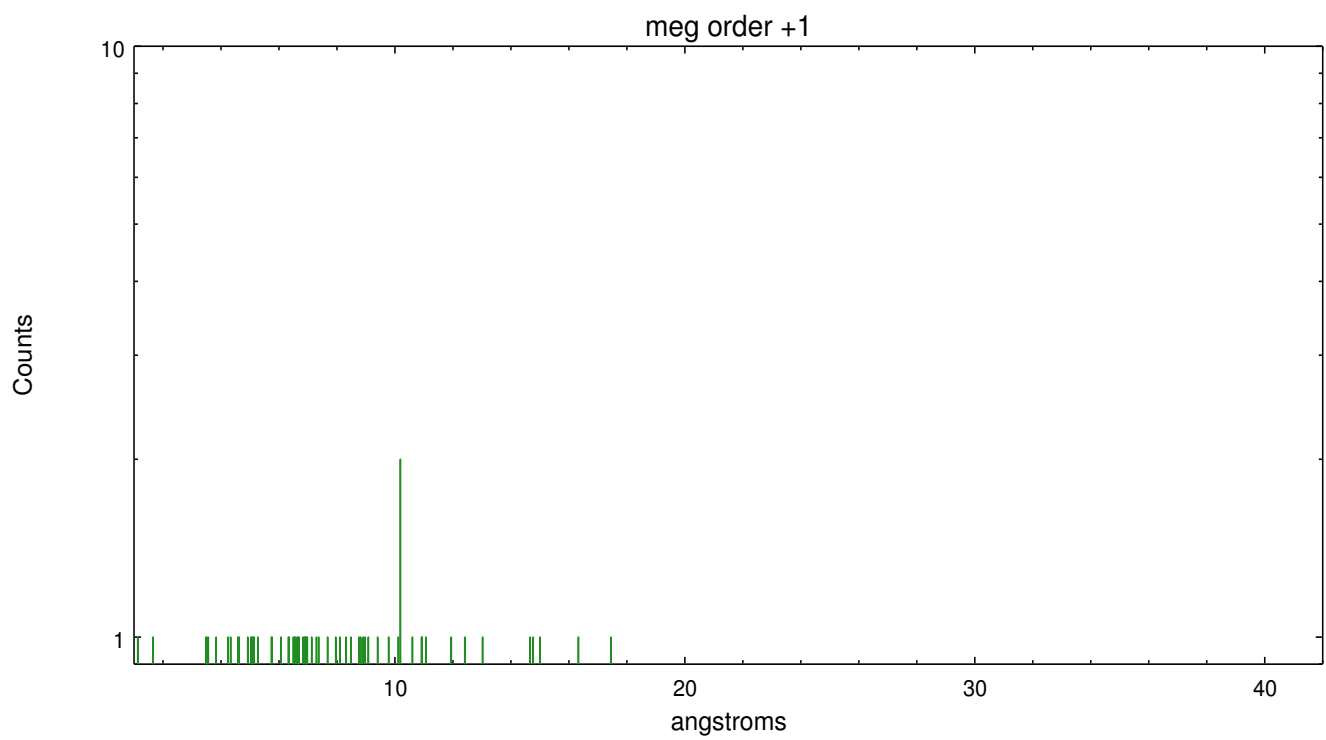
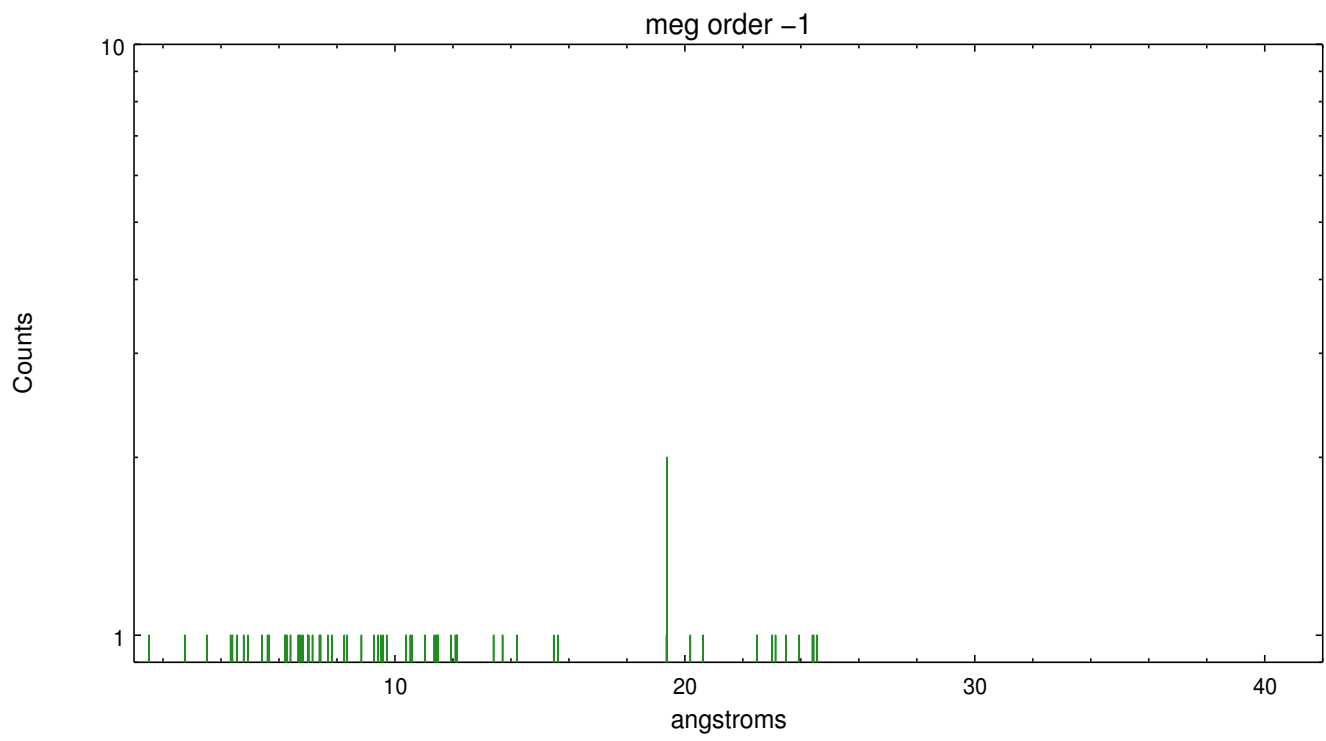


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	828	1160	793	575	254	213	182





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.06.04
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	33.231147460938

A.2 Comments

The target was too faint during this observation for the zeroth order position to be determined automatically by the software. The zeroth order position was determined by eye and manually input into the processing.

====There are multiple dispersed spectra associated with different sources in this observation. The ciao tool tgextract2 can be used to create non-standard background regions.

===

To compensate for a few bad pixels not marked as bad that were not removed in the Level 2 processing, a custom bad pixel file with additional bad pixels at (chipx, chipy) = (232:234,322:339) in S1 was added in this processing. As a result, the user will NOT find a relatively bright square of pixels on the S1 chip for level 2 data caused by the application of the dither algorithm to the bad pixels in question, as opposed to previous processing(s).

===

The ACA has the capability to devote one or more of the eight image slots to "monitor" particular sky locations. This allows simultaneous optical photometry of one or more targets in the ACA field of view. These optical sources can be slightly fainter than the ACA guide star limit of mACA = 10.2 mag. The bright-end limit for monitor star photometry is mACA=6.2 mag. However, since there are a fixed number of image slots, devoting a slot to photometry instead of tracking a guide star results in a degradation of the image reconstruction and celestial location accuracy (Section 5.4). Using one monitor slot represents a 15 - 25% increase in the aspect image reconstruction RMS diameter, depending on the particular guide star configuration. Two monitor slots would increase the diameter by about 50 - 60%, but this configuration is not operationally allowed under normal circumstances. The photometric accuracy which can be achieved depends primarily on the star magnitude, integration time, CCD dark current, CCD read noise, sky background, and the CCD dark current uncertainty.