

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 22215 - L2 Version 2
Chandra X-Ray Center

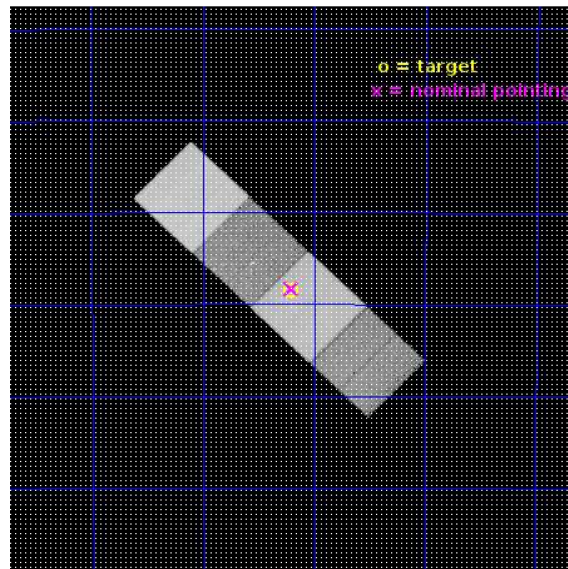
L2 Processing Date : May 15 2019

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1 Front

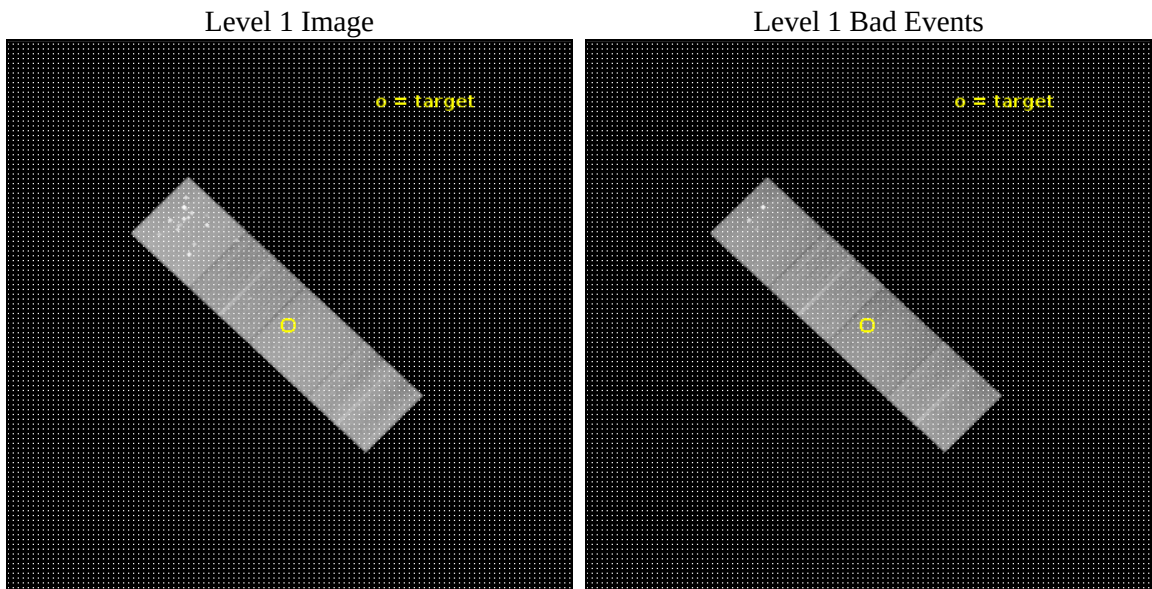
seq_num	201260	Sequence number
obs_id	22215	Observation id
title	Identifying Accretion at a Key Stage of Pre-main Sequence Stellar Evolution	Proposal title
observer	Dr. Claude Canizares	Principal investigator
object	SZ 96	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	242.052667	Observer's specified target RA [deg]
dec_targ	-39.142633	Observer's specified target Dec [deg]
ra_nom	242.05142952298	Nominal RA [deg]
dec_nom	-39.138381624424	Nominal Dec [deg]
roll_nom	44.155845091961	Nominal Roll [deg]
revision	2	Processing version of data
ontime	41620.60032022	Sum of GTIs [s]
livetime	41076.796536396	Livetime [s]
ontime5	41620.60032022	Sum of GTIs [s]
ontime6	41620.60032022	Sum of GTIs [s]
ontime7	41620.60032022	Sum of GTIs [s]
ontime8	41620.60032022	Sum of GTIs [s]
l2events	472056	Number of level 2 events



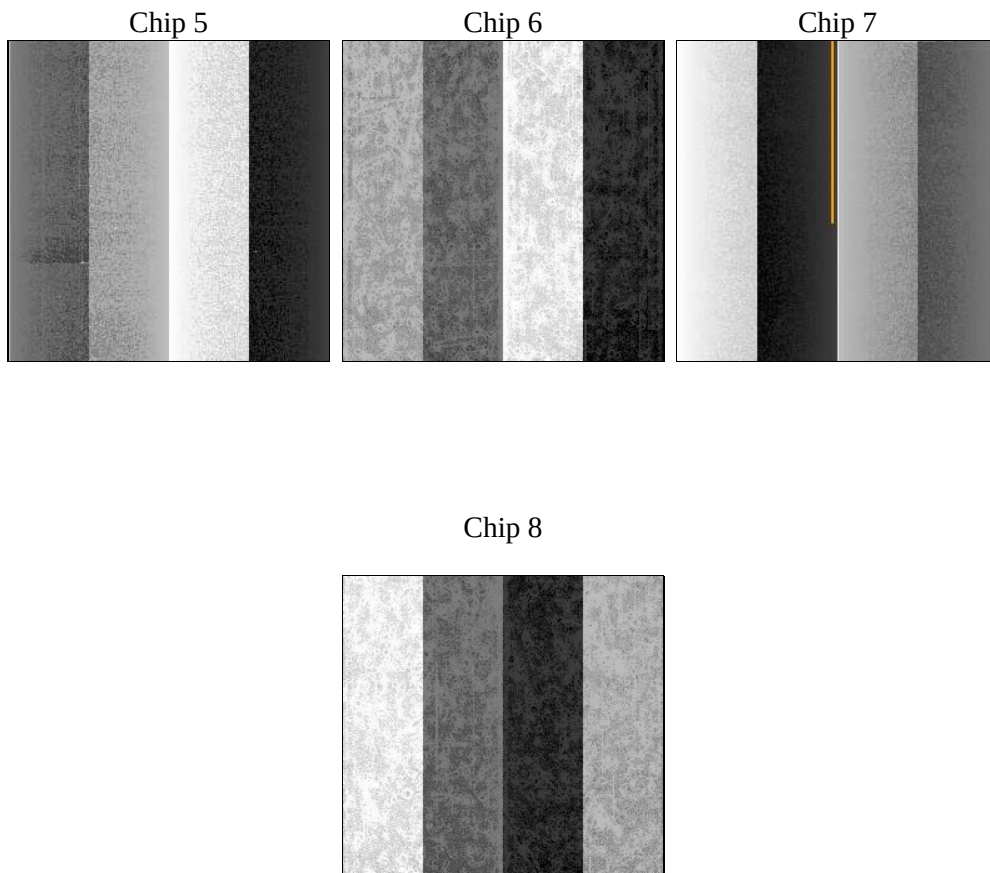
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	41600.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	41620.60032022	Sum of GTIs [s]
caldbver	4.8.2	 	ontime5	41620.60032022	Sum of GTIs [s]
date	2019-05-14T18:16:59	Date and time of file creation	ontime6	41620.60032022	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	41620.60032022	Sum of GTIs [s]
			ontime8	41620.60032022	Sum of GTIs [s]
			l1events	1747735	Number of level 1 events
			tgmethod	MANUAL	Method used to create src1a file
			zo_pos	(4090.25, 4064.00)	src1a sky pixel position

2.1.4 Events

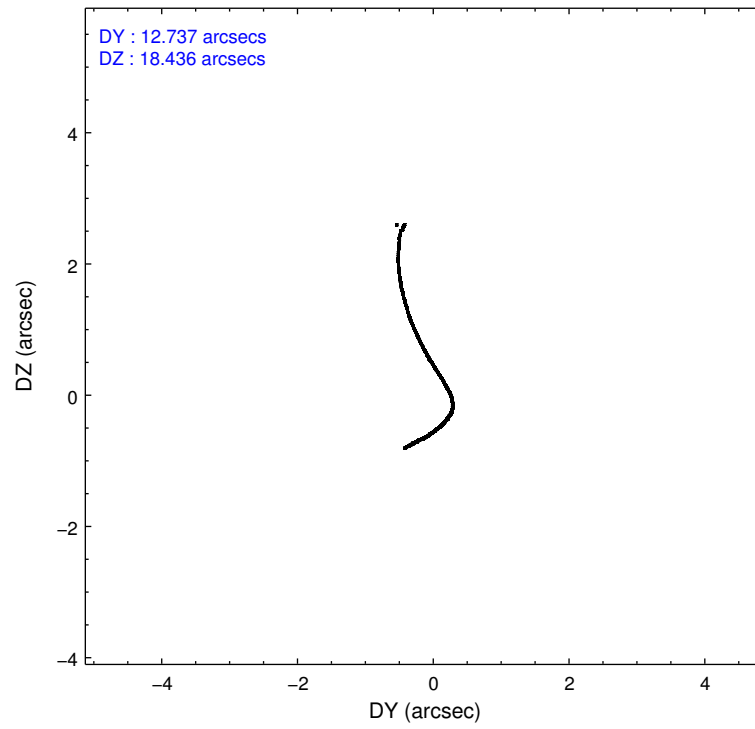
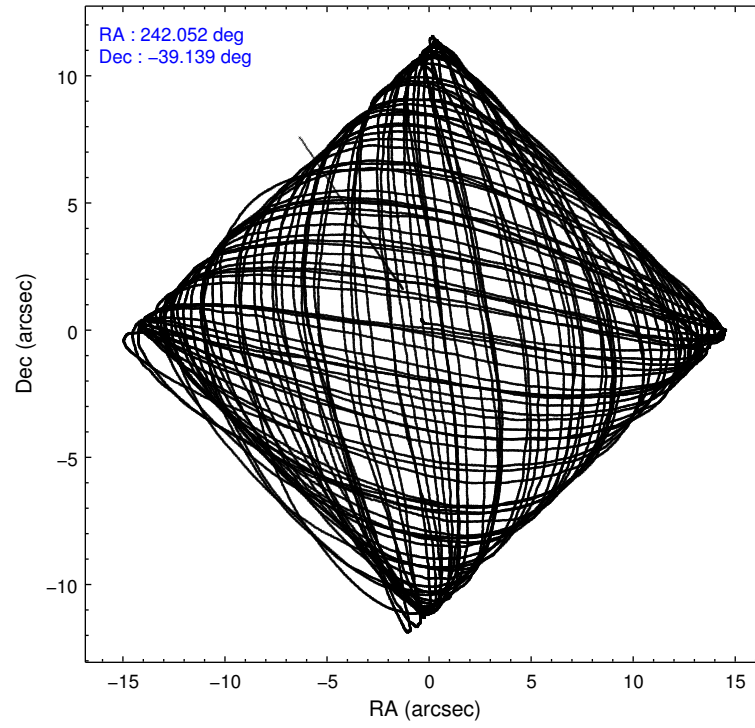
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	592467	331080	408722	415466
rejected events	281196	293315	232815	304495
rejected %	47%	88%	56%	73%

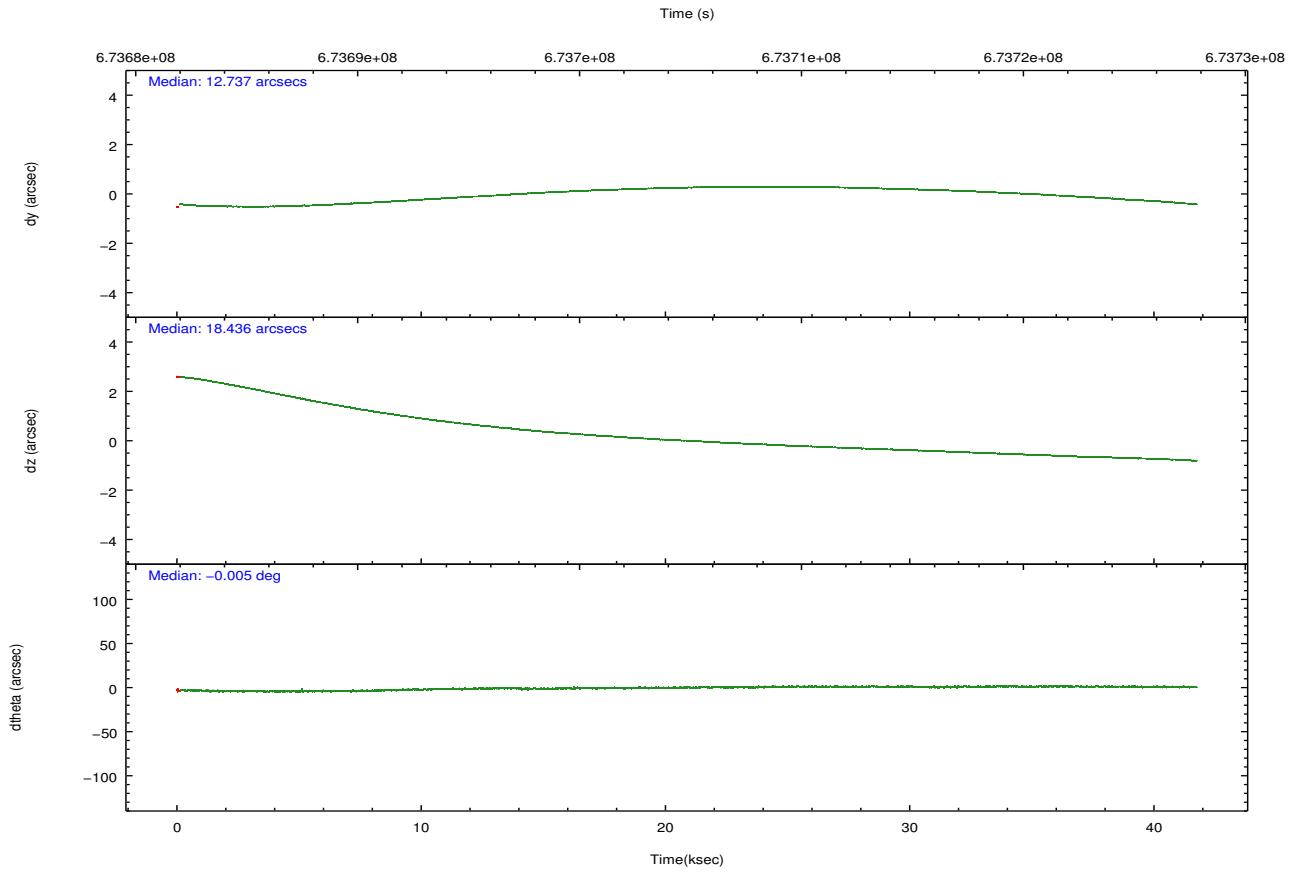
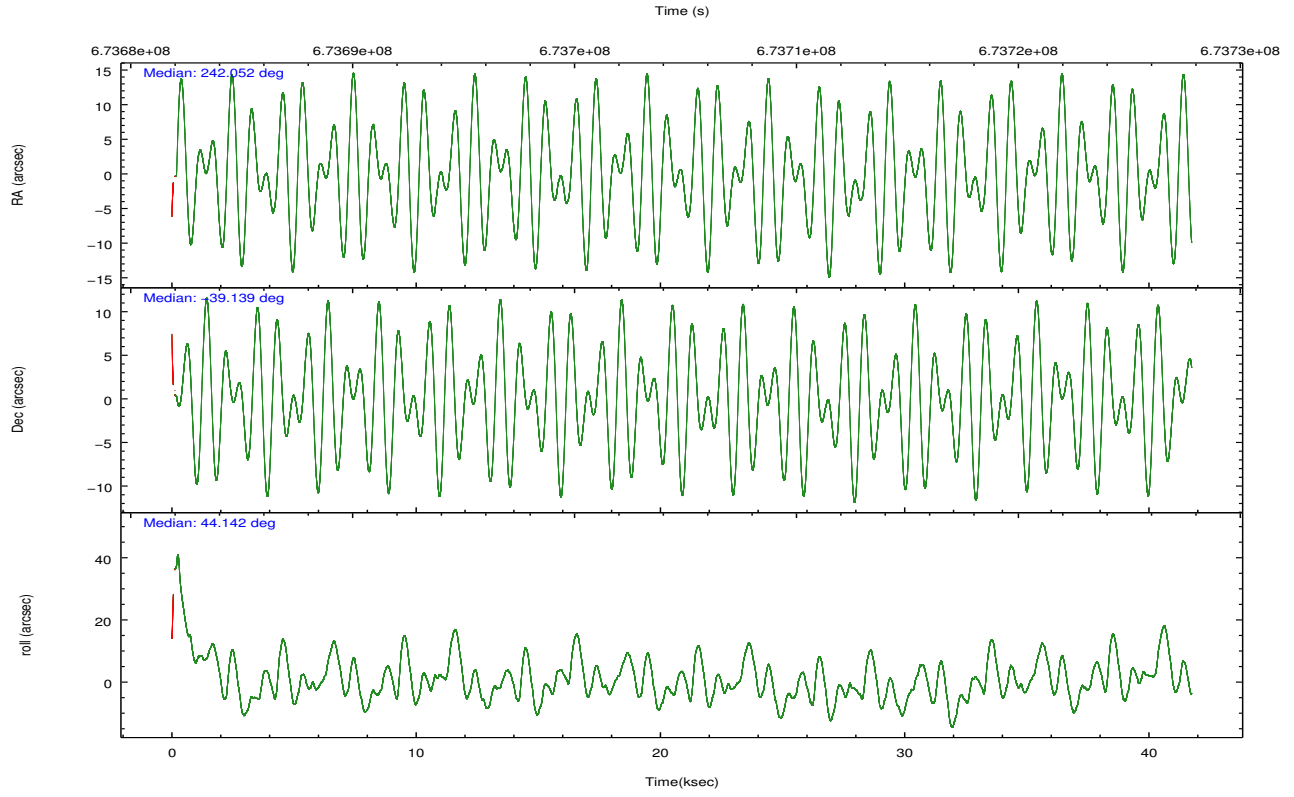
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	71544	12807	14715	30671
	12%	3%	3%	7%
grade 1 events	1374	163	619	321
	0%	0%	0%	0%
grade 2 events	88266	9139	37594	27445
	14%	2%	9%	6%
grade 3 events	8928	3396	13512	11356
	1%	1%	3%	2%
grade 4 events	7843	3436	13527	10773
	1%	1%	3%	2%
grade 5 events	36486	14201	39272	22549
	6%	4%	9%	5%
grade 6 events	135015	9031	96774	30823
	22%	2%	23%	7%
grade 7 events	243011	278907	192709	281528
	41%	84%	47%	67%

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	242.042195	242.0514295229804	CCD I2 on	N	N
[deg] Pointing Dec	-39.164888	-39.13838162442406	CCD I3 on	N	N
[deg] Pointing Roll	43.993394	44.1558450919611	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	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	Y	Y
[s] Observation start time (MET)	673684123.184000	673682864.01957	CCD S5 on	O1	N
Observation start date	2019-05-08T06:27:34	2019-05-08T06:07:44	Number of optional ACIS chips dropped	2	2
[s] Observation end time (MET)	673725723.184000	673726773.9972	On-chip summing requested	N	N
Observation end date	2019-05-08T18:00:54	2019-05-08T18:19:33	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



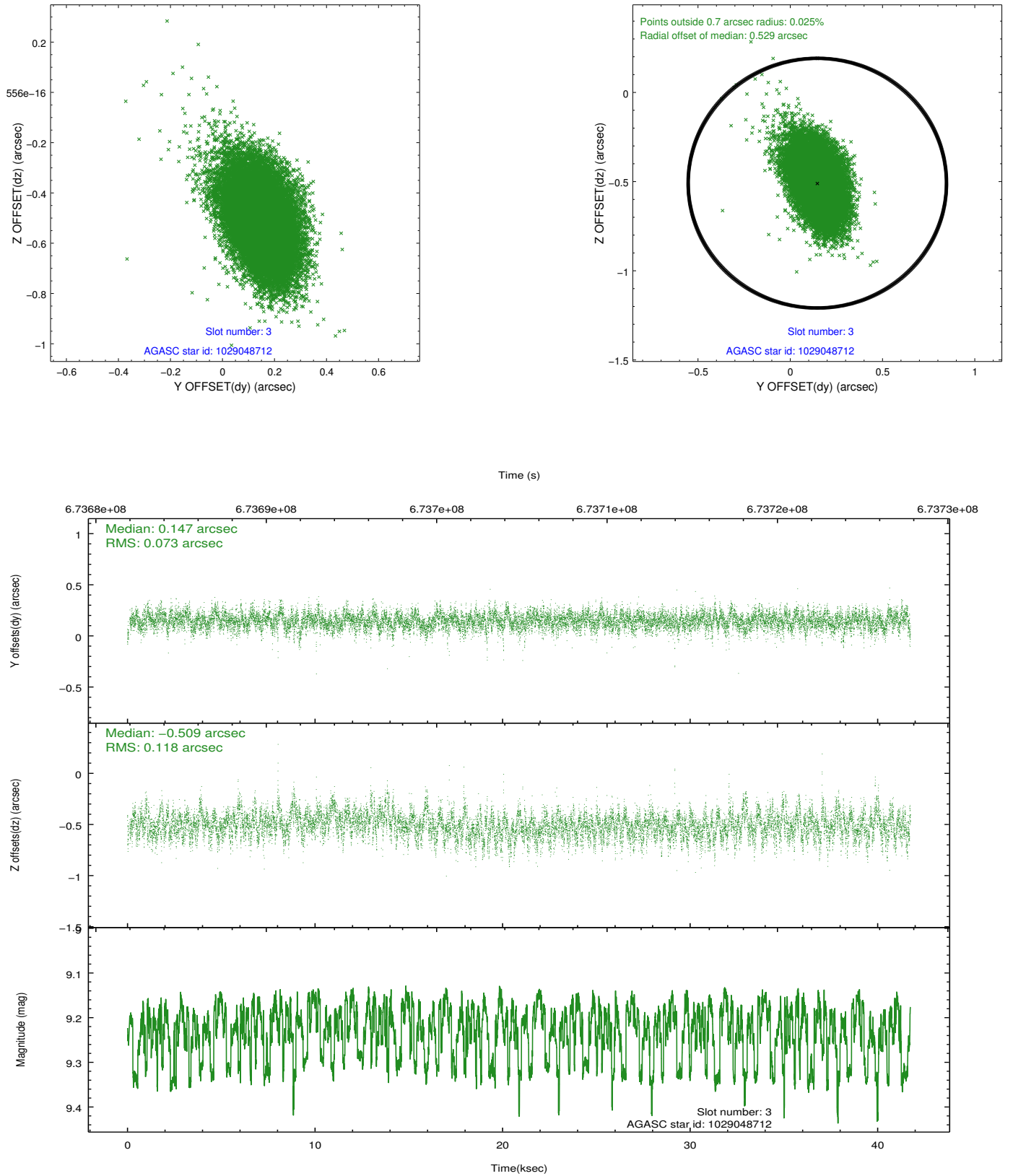


Slot Statistics

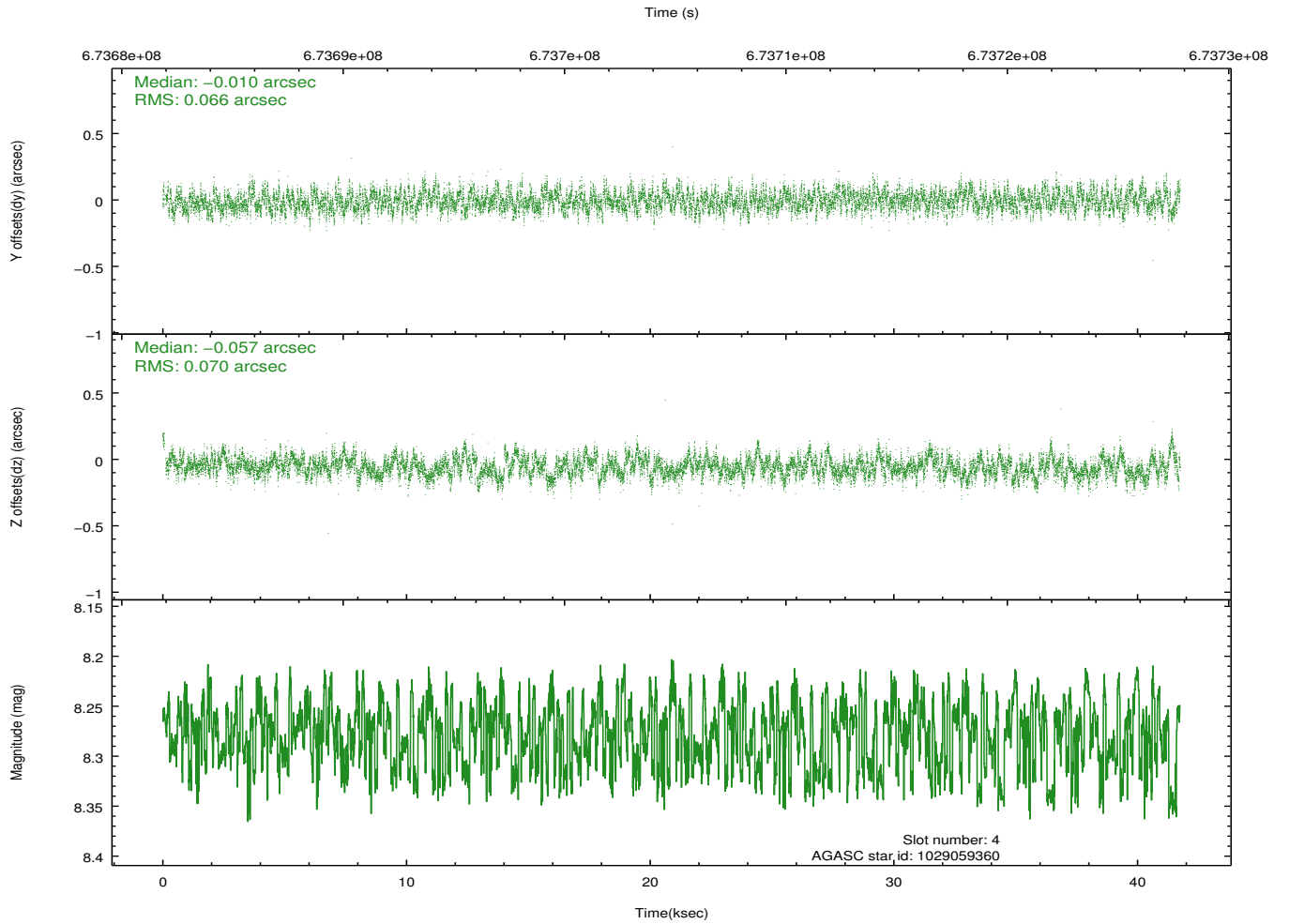
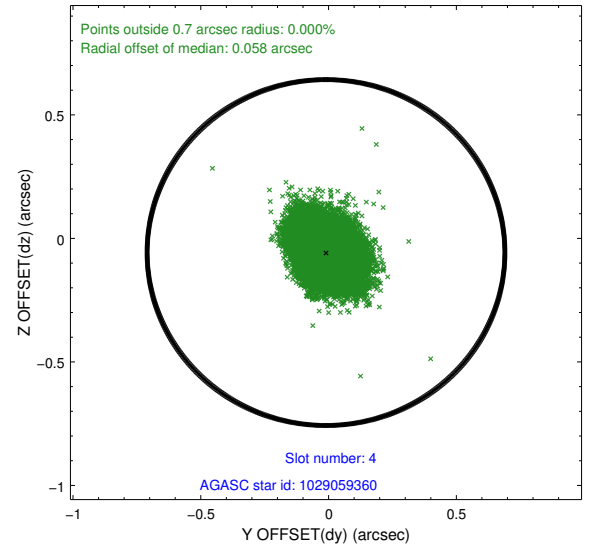
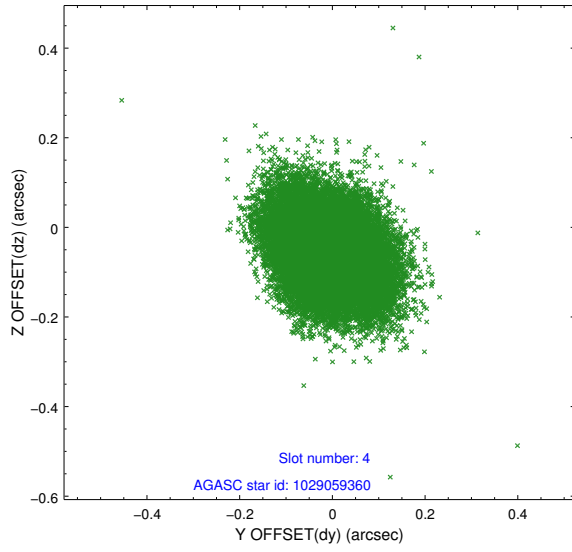
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-3	7.29	10167	1.000	-0.206	-0.182	0.019	0.034	0.000000	0.000000	47.45	-1869
1	FID		ACIS-S-4	7.16	10164	1.000	0.688	0.192	0.026	0.068	0.000000	0.000000	2148.44	168
2	FID		ACIS-S-5	7.14	10167	1.000	-0.511	-0.005	0.034	0.095	0.000000	0.000000	-1818.92	161
3	GUIDE	used	1029048712	9.23	20309	1.000	0.147	-0.509	0.139	0.251	241.237794	-38.954366	-1101.68	2101
4	GUIDE	used	1029059360	8.28	20326	1.000	-0.010	-0.057	0.102	0.166	241.638388	-39.259513	-1048.50	535
5	GUIDE	used	1029580280	9.16	20305	1.000	0.129	0.312	0.122	0.204	242.322361	-39.646406	-645.87	-1786
6	GUIDE	used	1029579520	7.39	20336	1.000	-0.263	0.249	0.100	0.153	241.185376	-39.434662	-2397.06	948
7	MONITOR	unused		0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

2.4 Star Slots

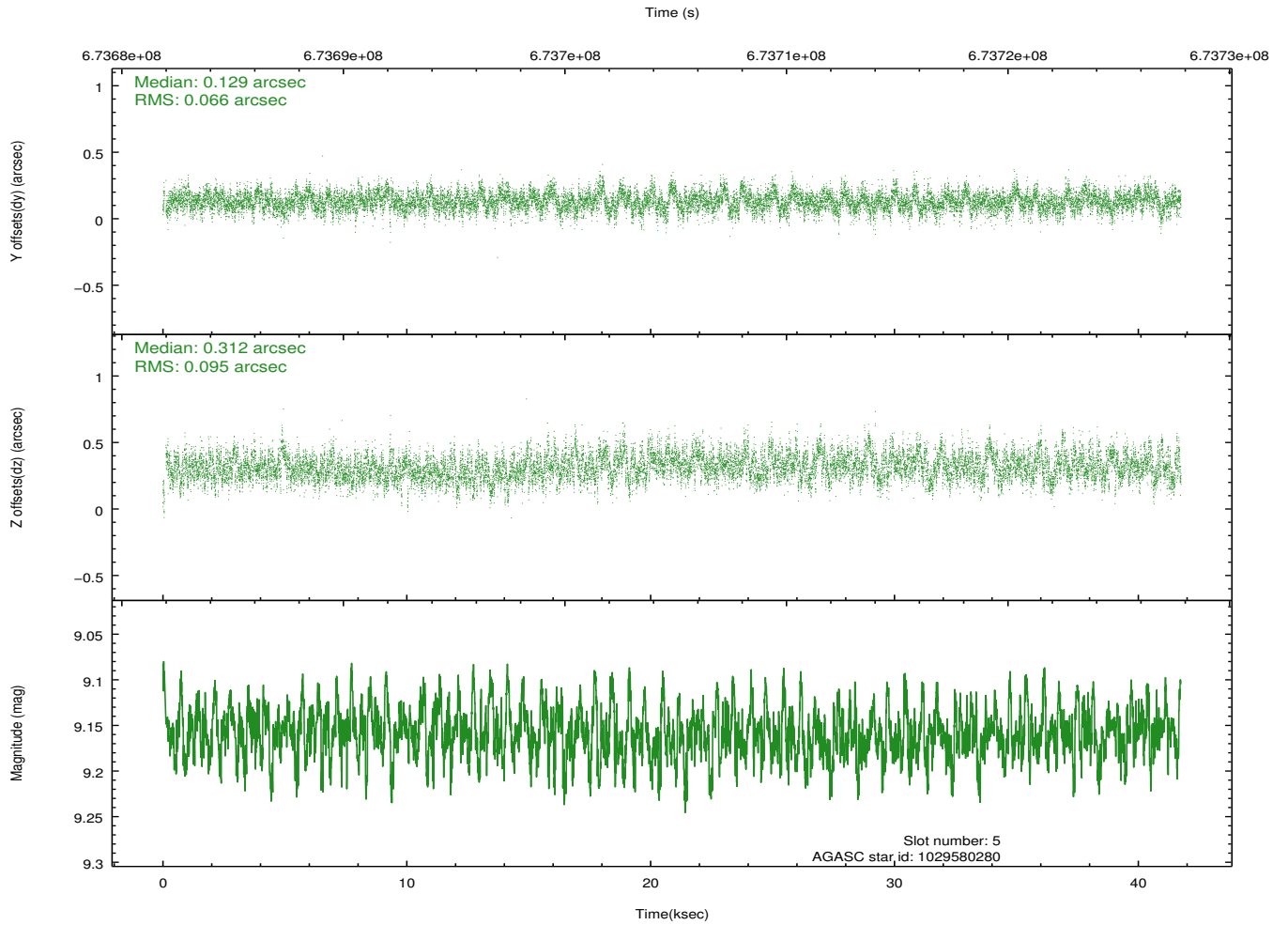
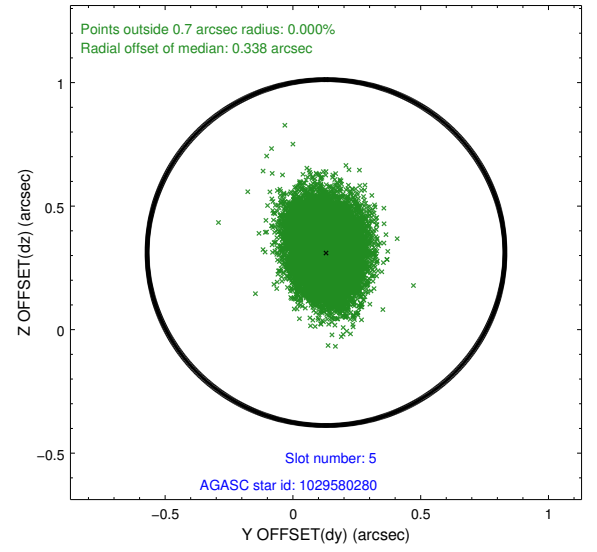
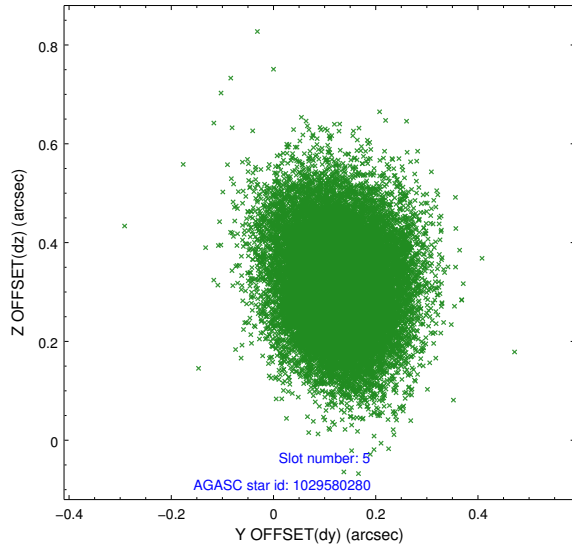
2.4.1 Slot 3



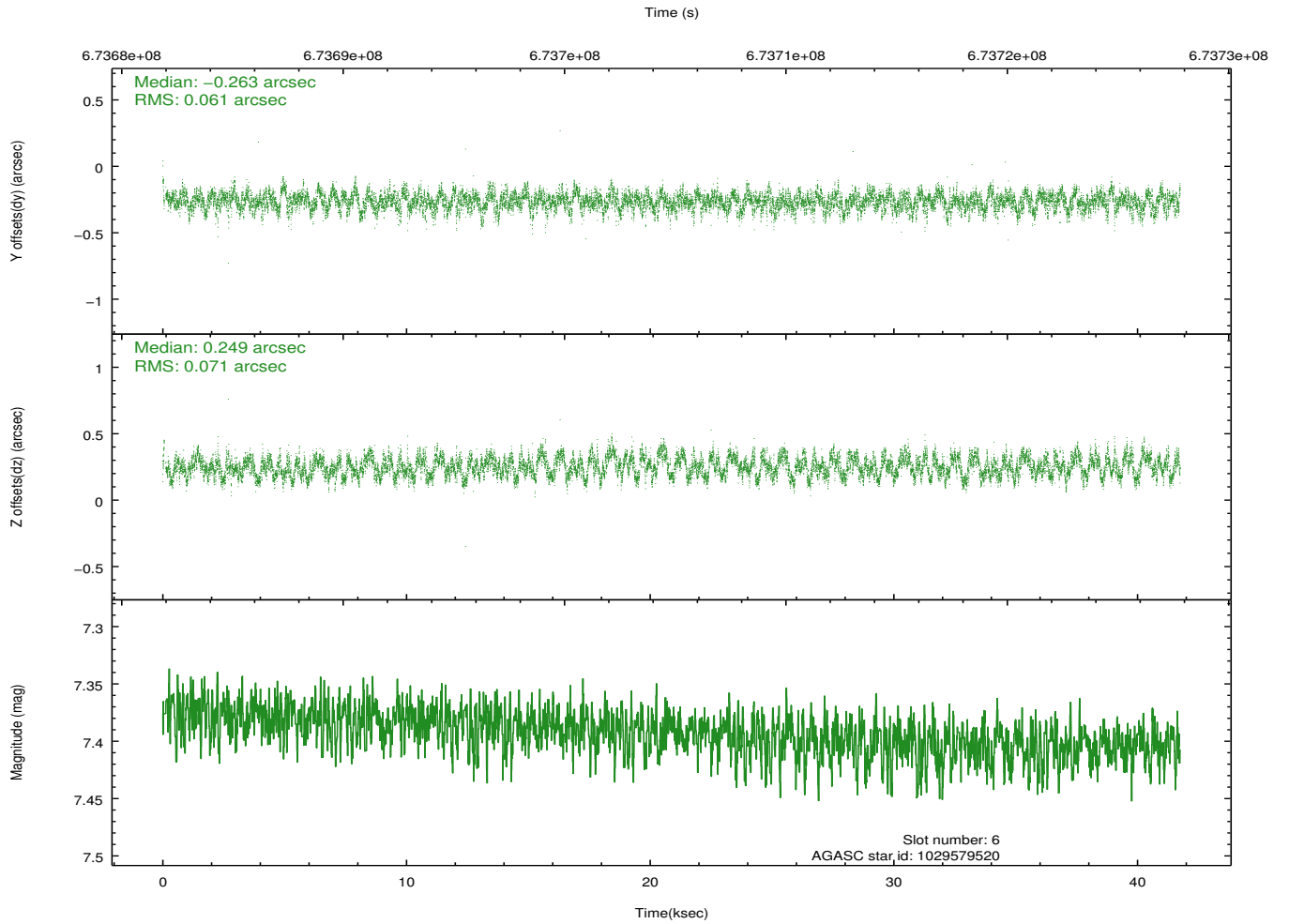
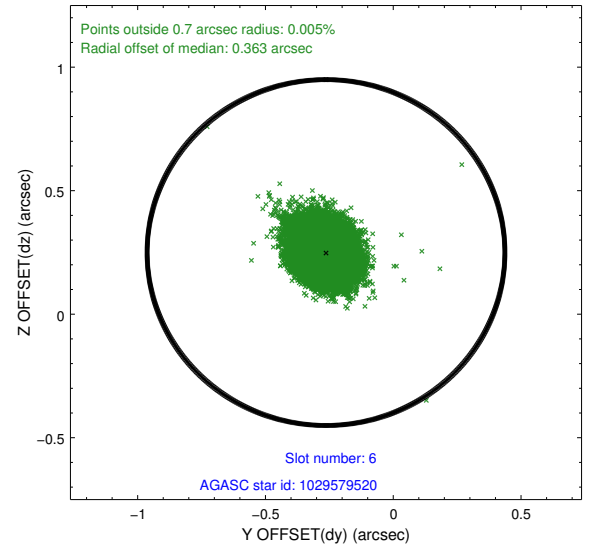
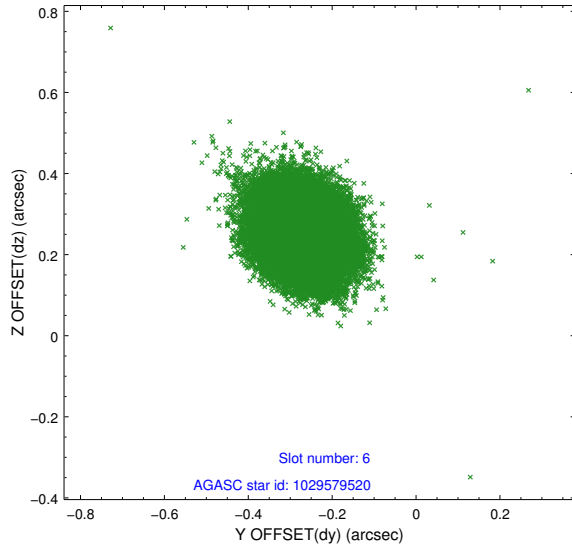
2.4.2 Slot 4



2.4.3 Slot 5

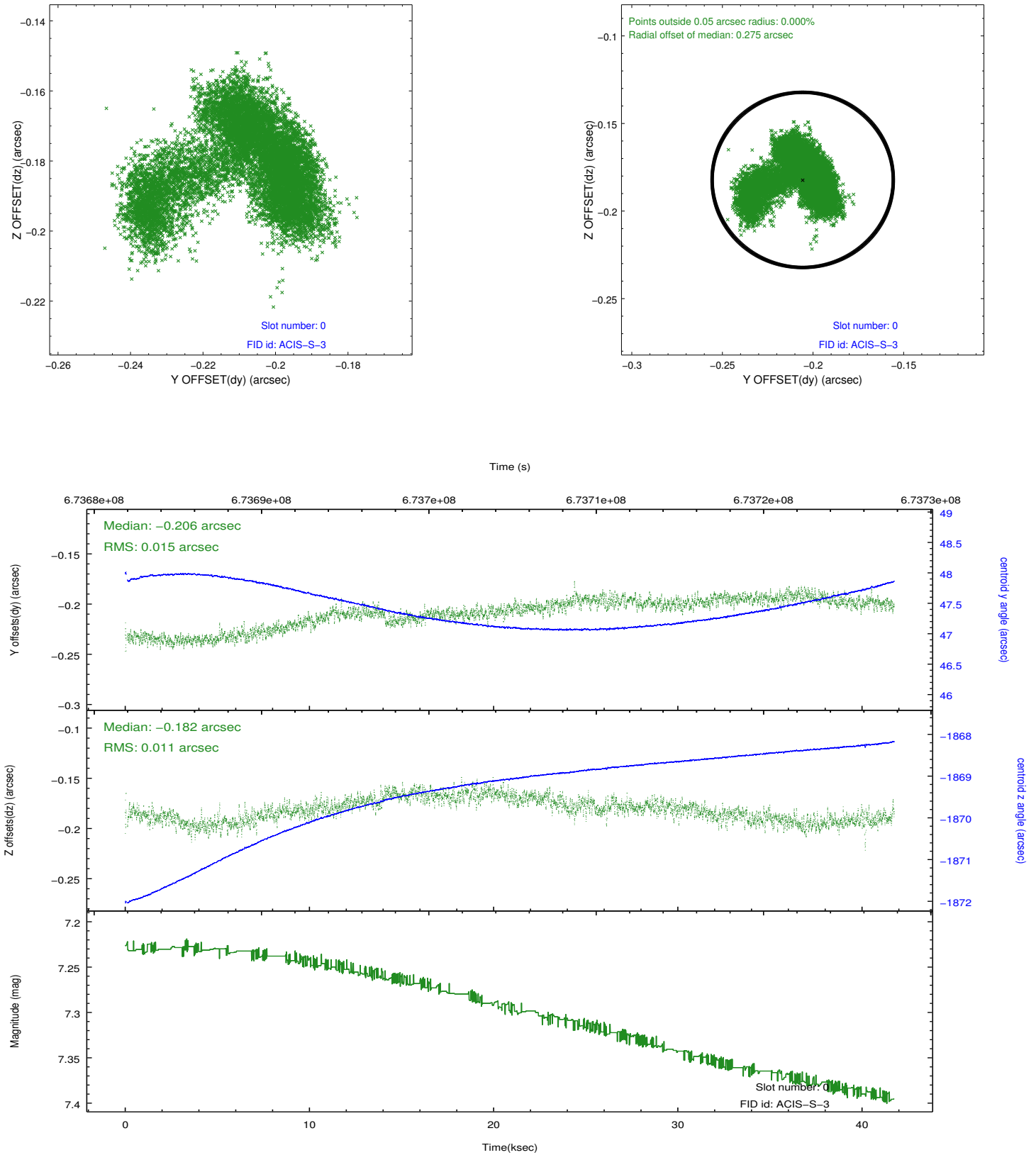


2.4.4 Slot 6

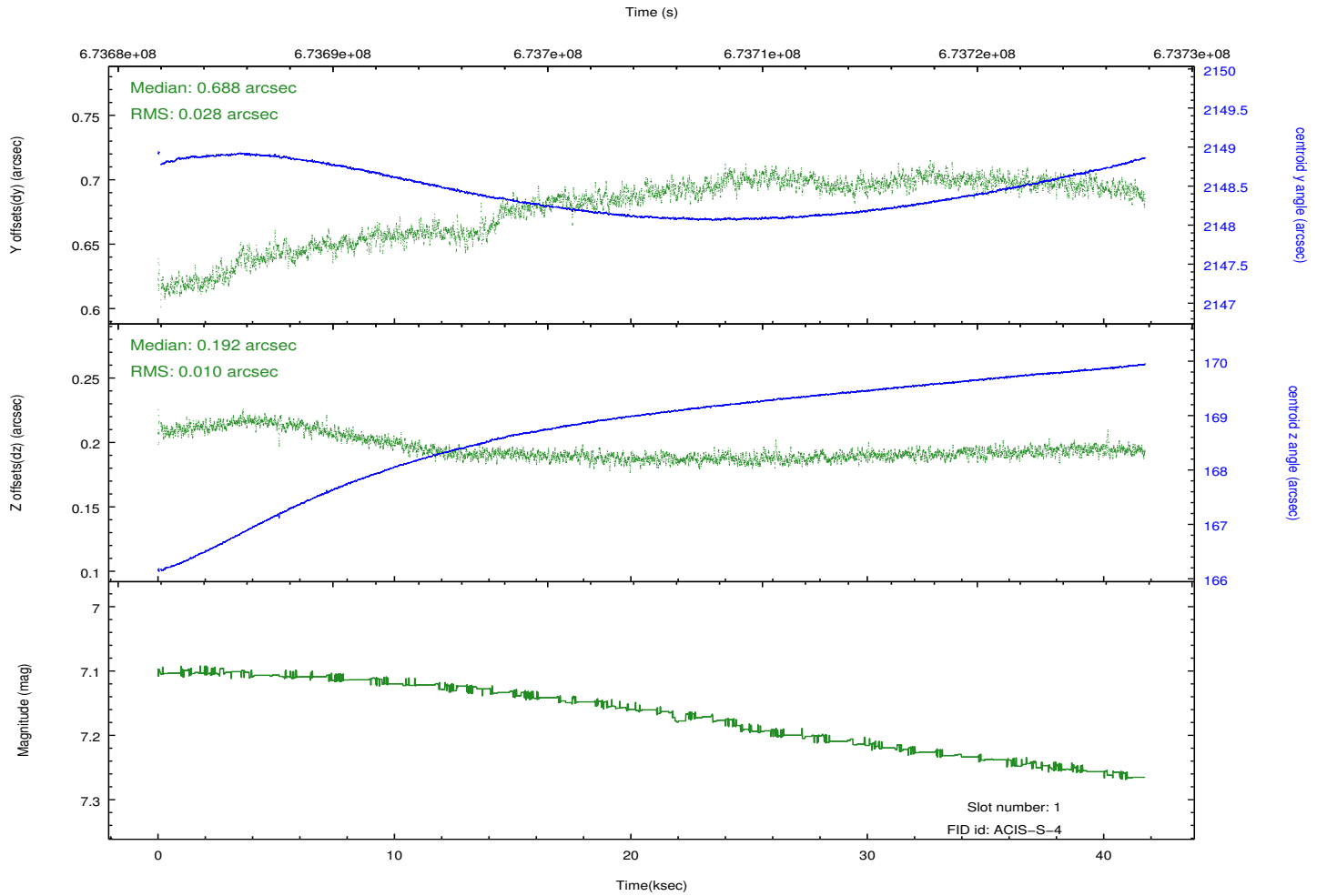
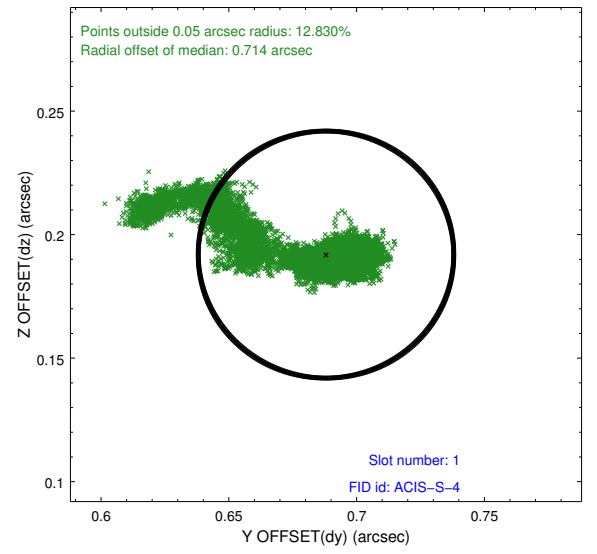
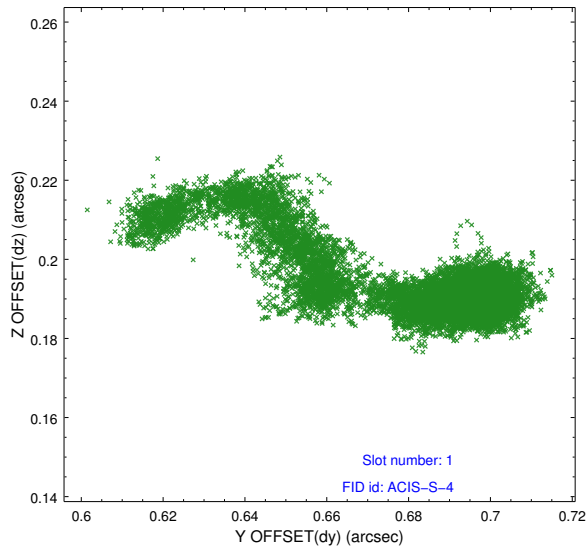


2.5 FID Slots

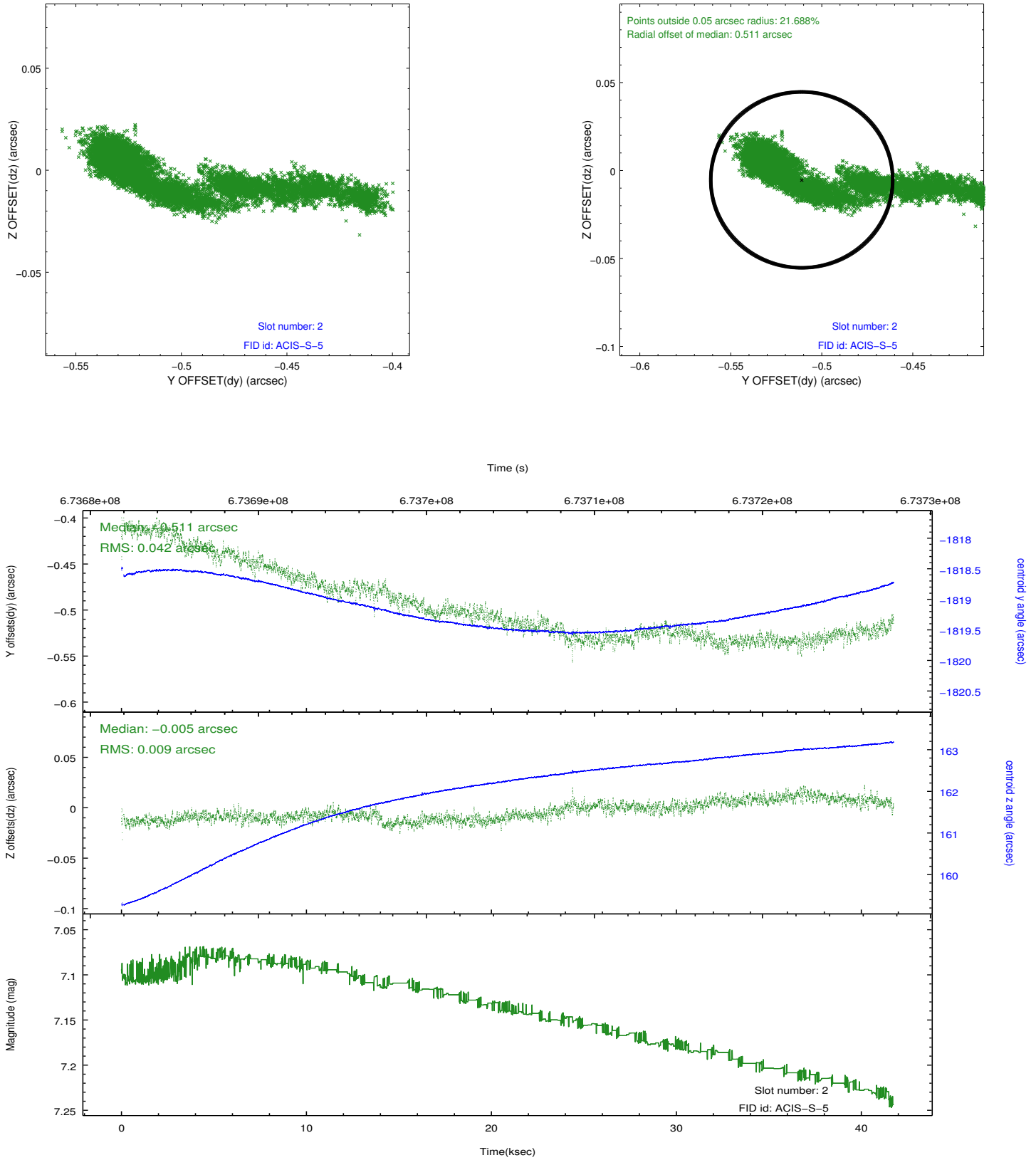
2.5.1 Slot 0



2.5.2 Slot 1

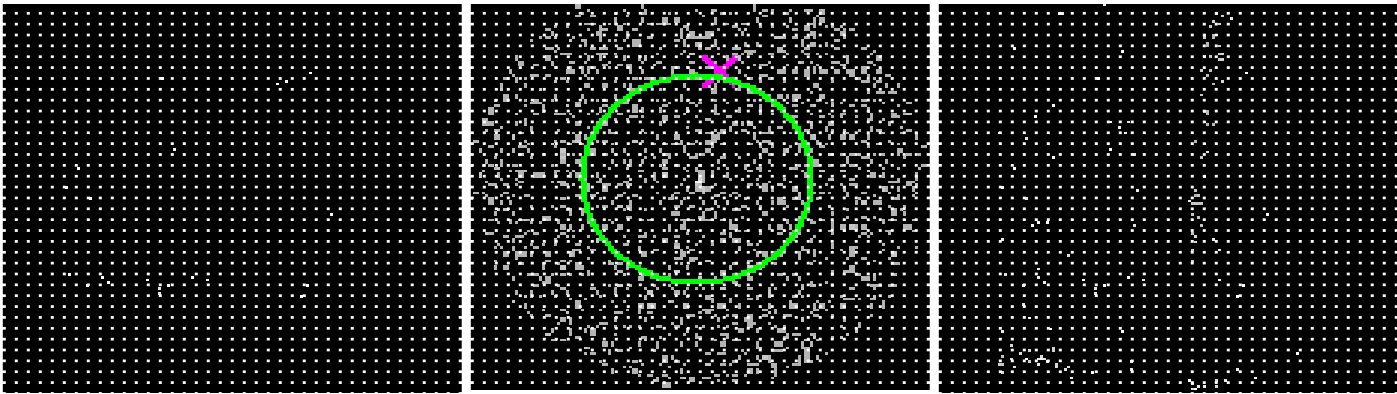


2.5.3 Slot 2



3 Gratings

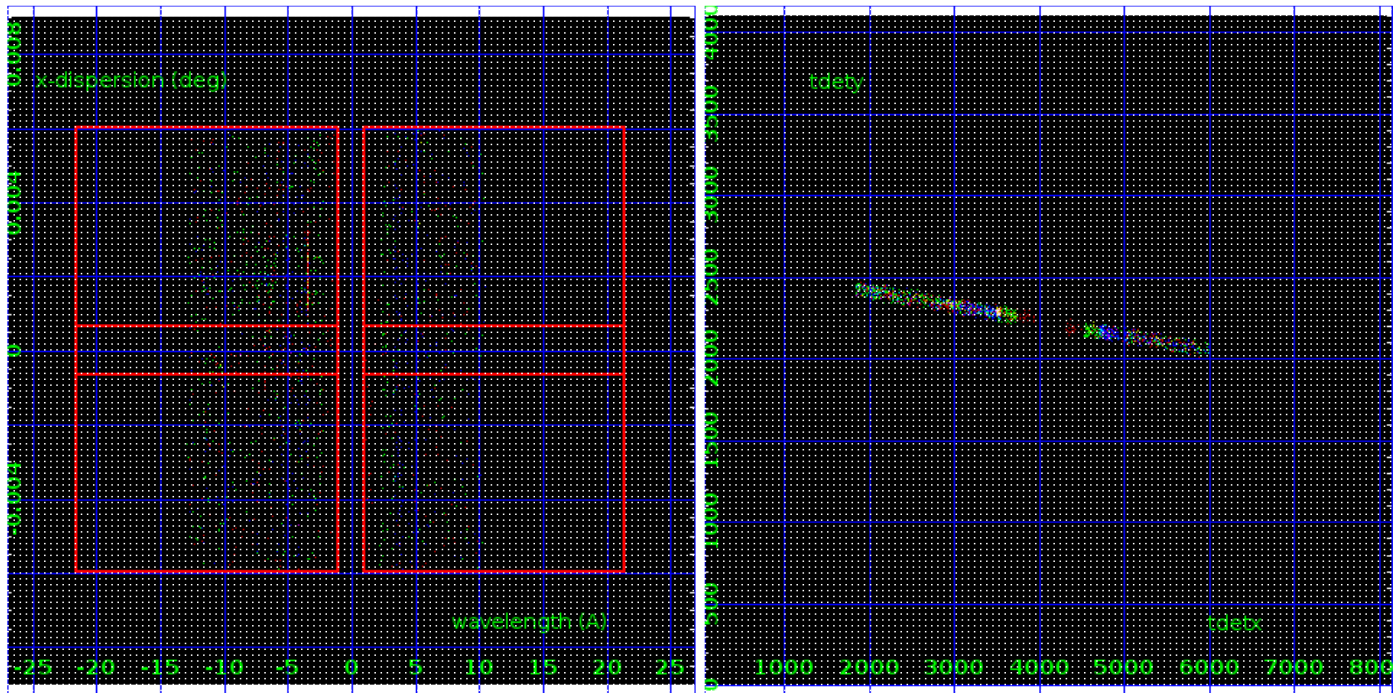
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

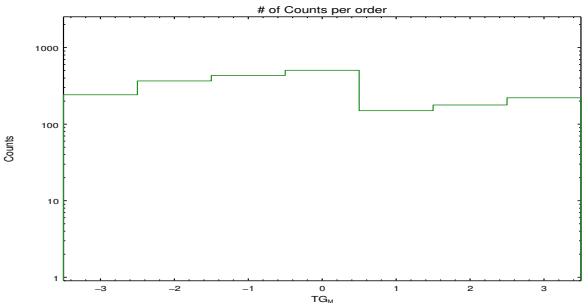
HEG Order Sort ALL

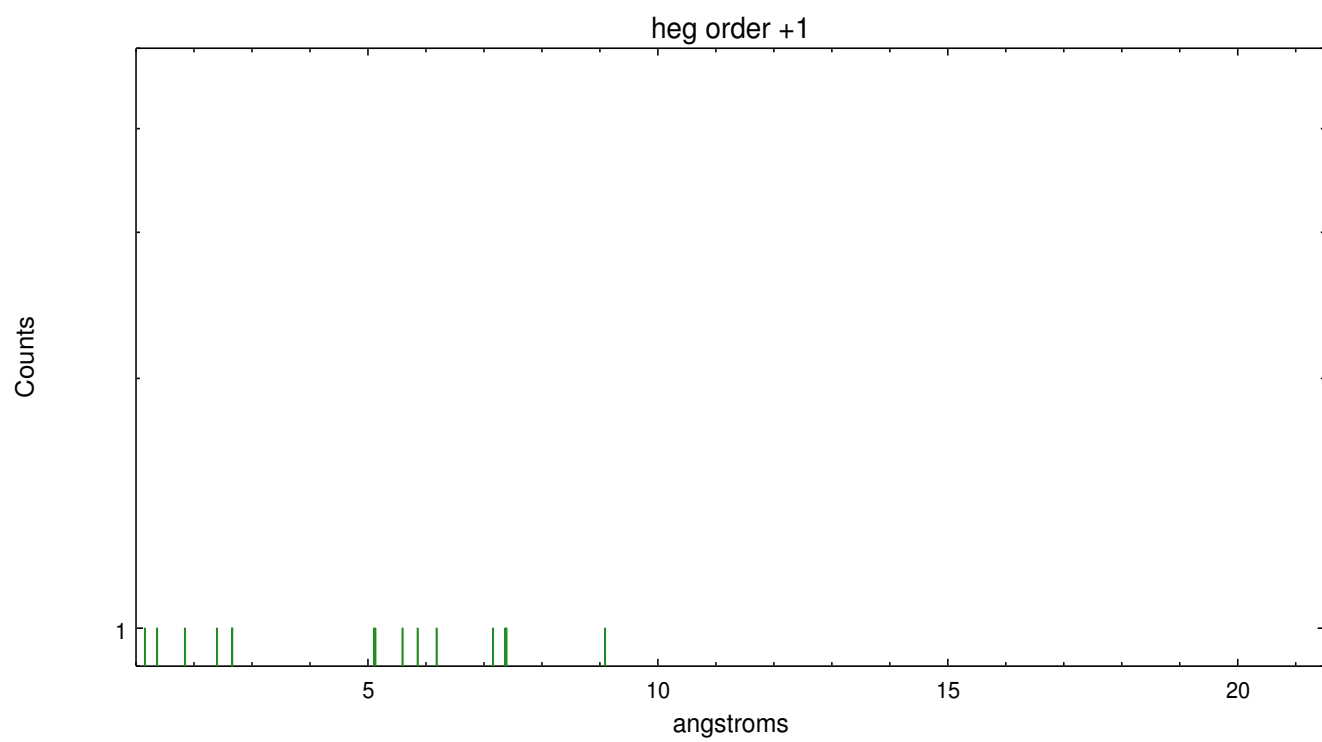
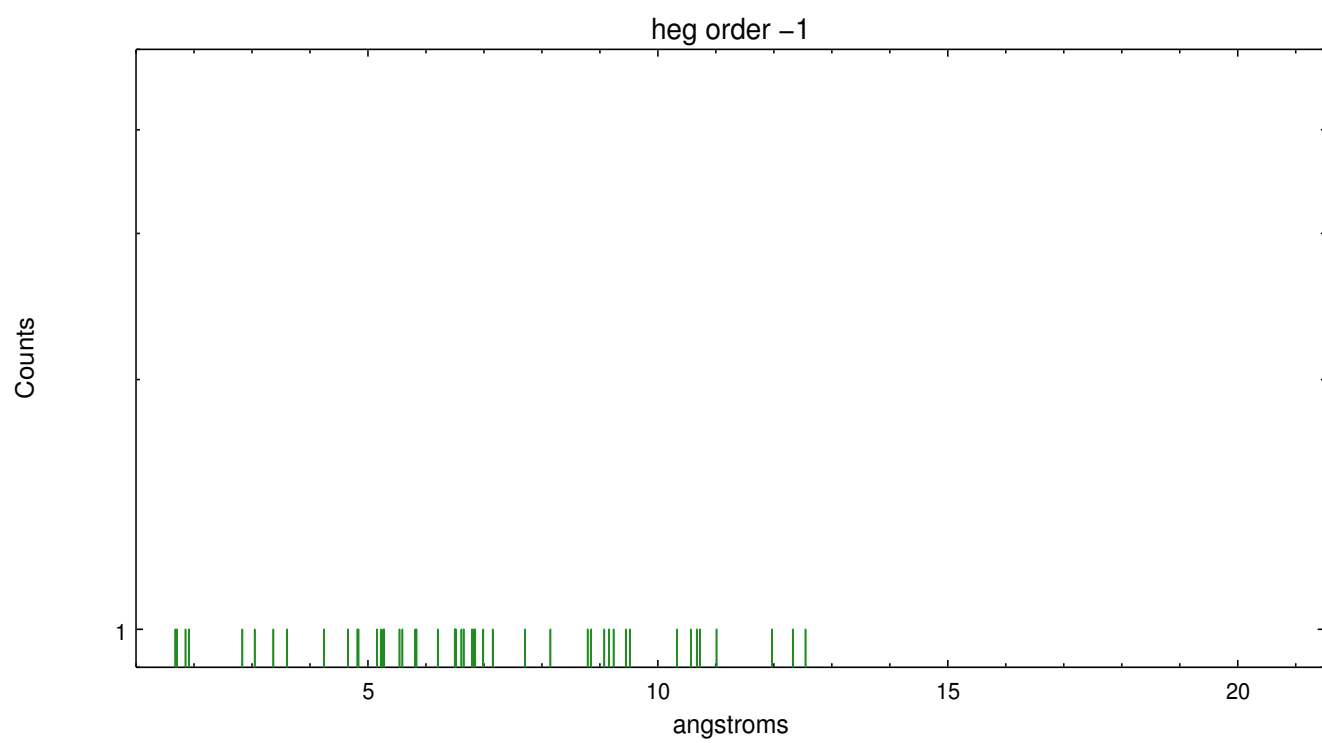


Spot Image HEG

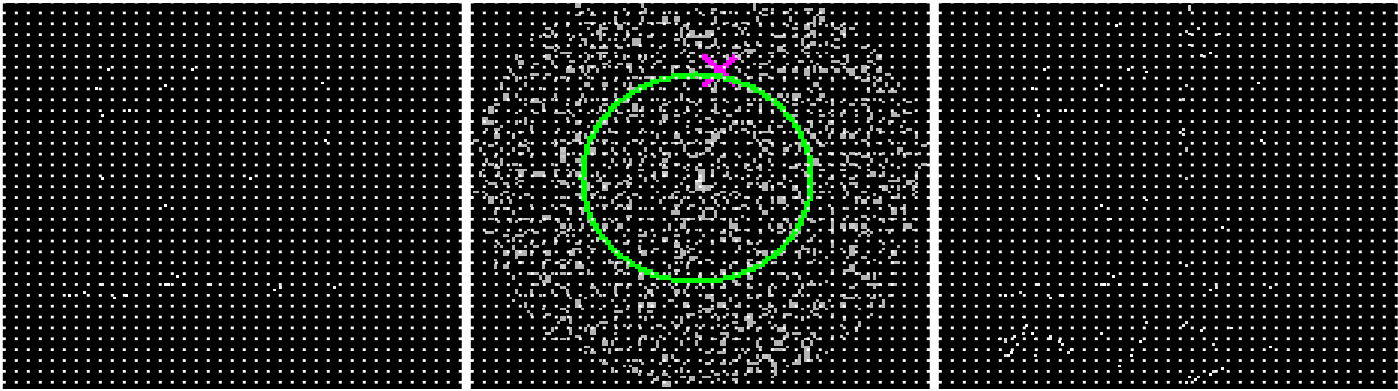
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	242	367	433	505	150	178	221





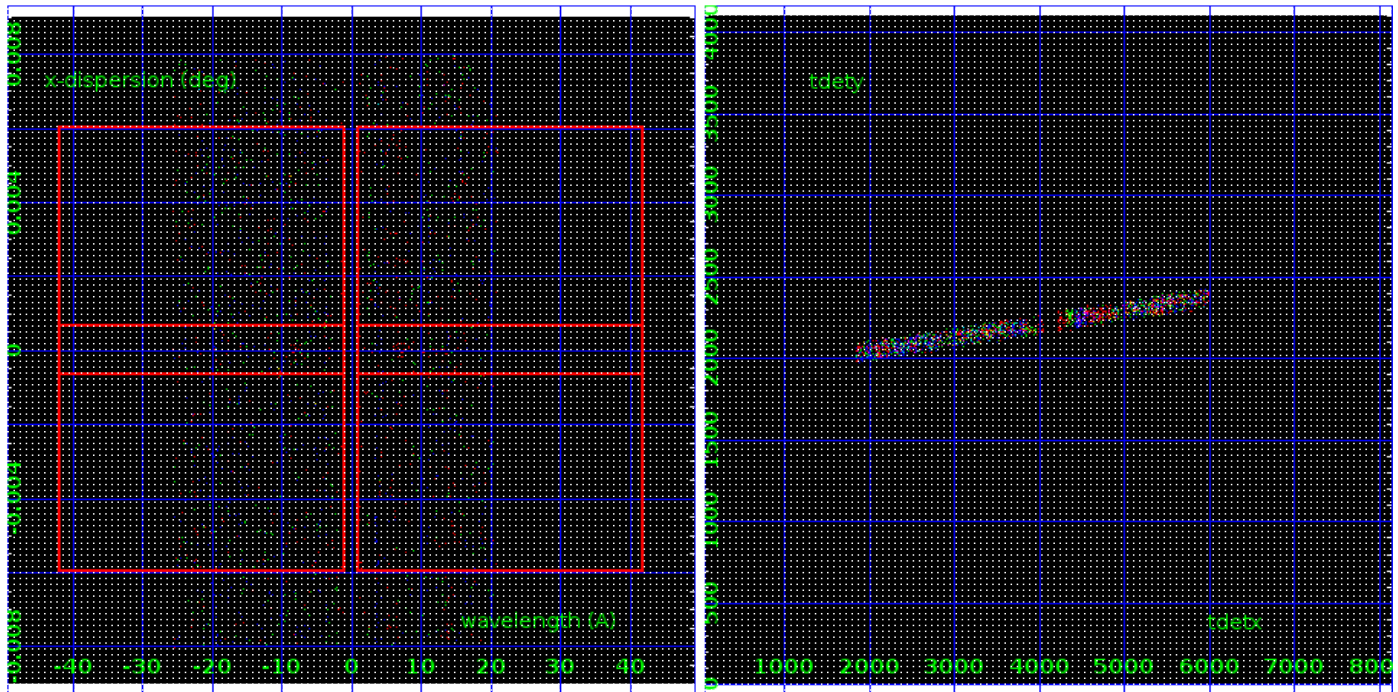
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

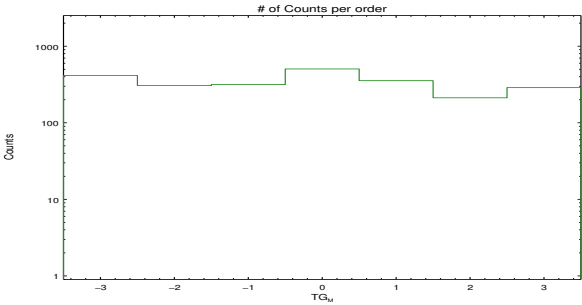
MEG Order Sort ALL

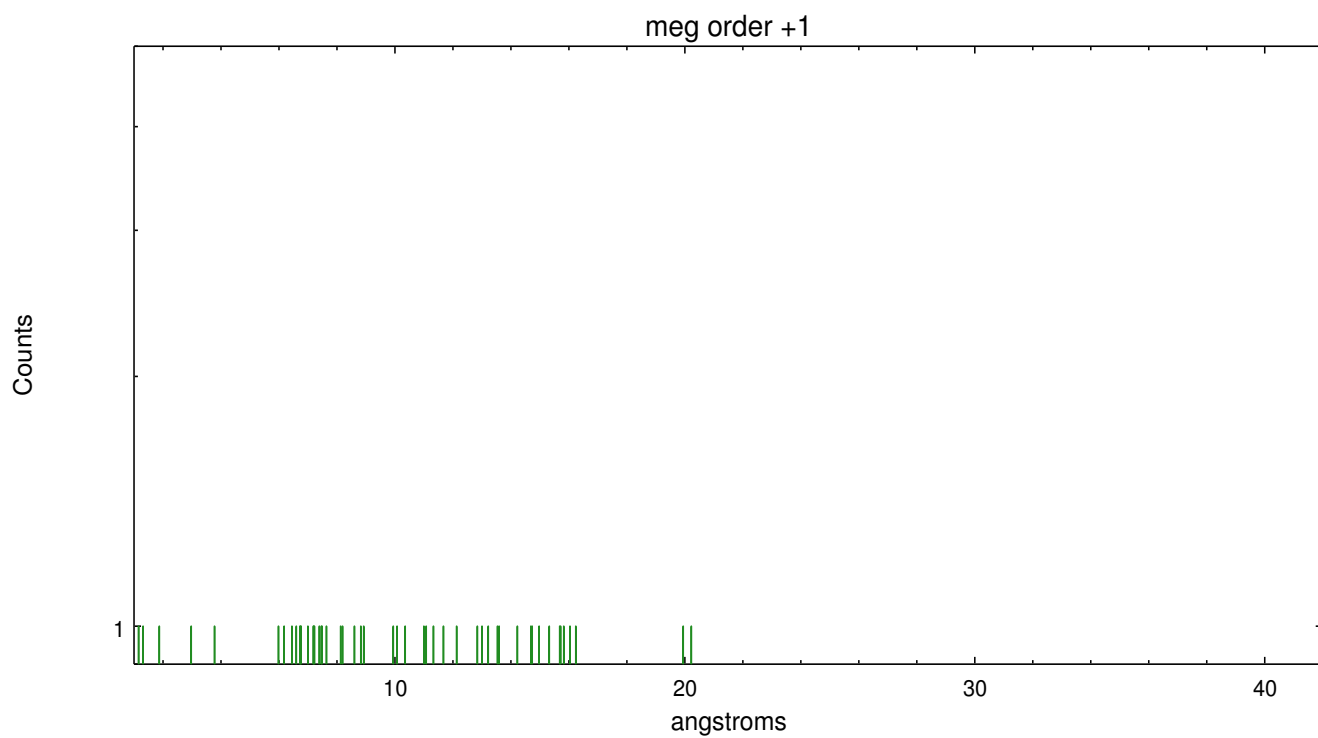
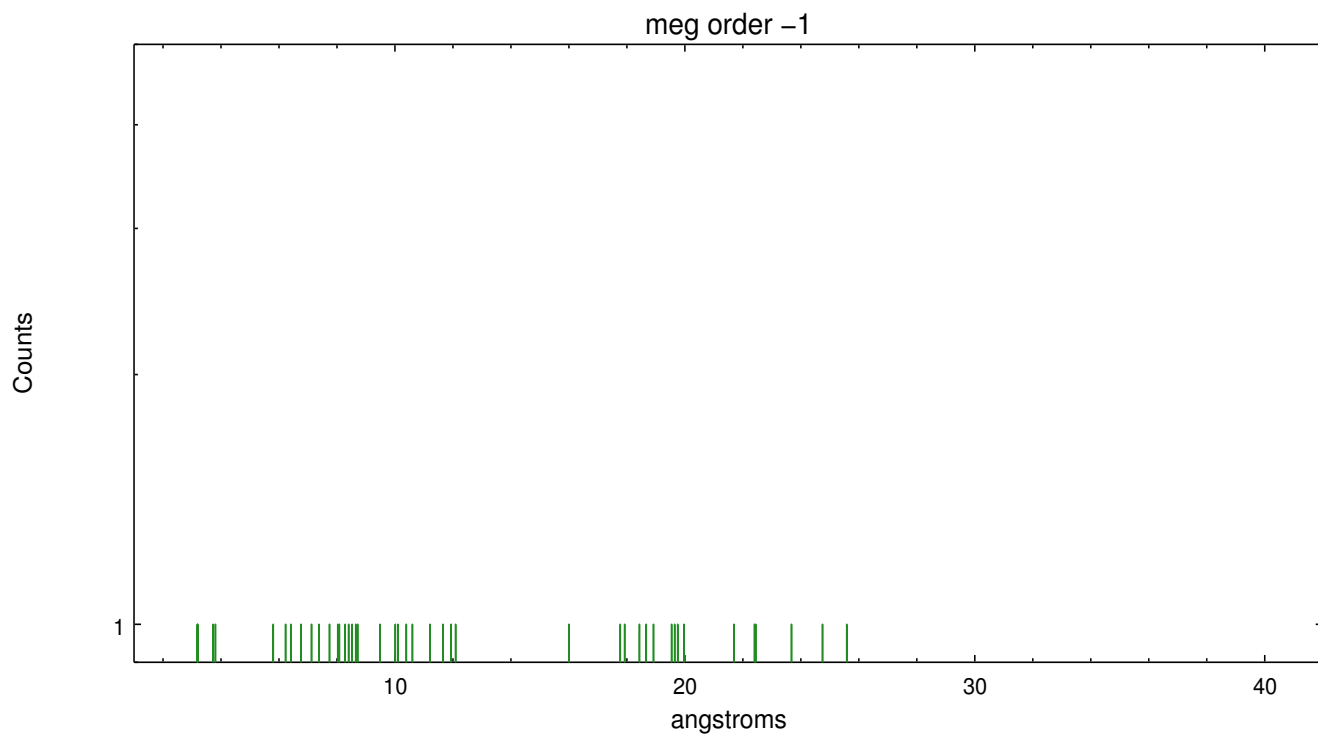


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	414	306	316	505	355	212	288





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.05.16
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	41.62060032022

A.2 Comments

Target optically monitored in slot 7. 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 $m_{ACA} = 10.2$ mag. The bright-end limit for monitor star photometry is $m_{ACA}=6.2$ 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.

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The software tool `tgdetect` could not locate the zeroth order automatically because of low S/N of the source. The zeroth order position was manually determined by eye and input into the processing.

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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). Please note this bad pixel did impact the dispersed spectral data.

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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. =====

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