

V&V Reference Report

L2 ASCDS Version : 10.2.1

Observation 15075 - L2 Version 2
Chandra X-Ray Center

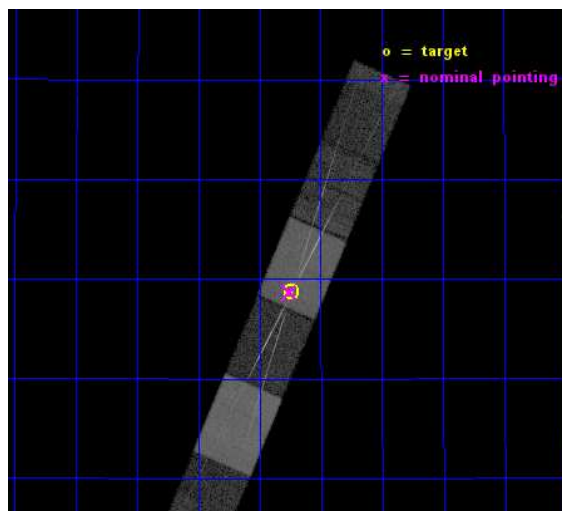
L2 Processing Date : Dec 10 2014

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1 Front

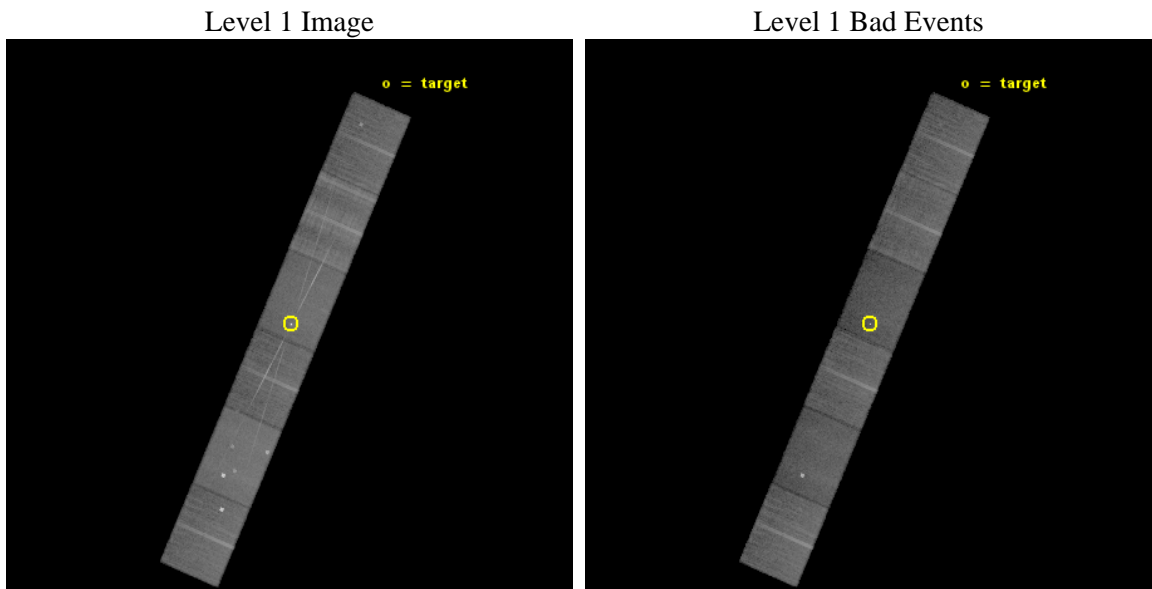
seq_num	702882	Sequence number
obs_id	15075	Observation id
title	A High-Resolution View of the Warm Absorber and Iron Line in Mrk 1040	Proposal title
observer	Mr Andrew Lobban	Principal investigator
object	Markarian 1040	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	37.060417	Observer's specified target RA [deg]
dec_targ	31.311667	Observer's specified target Dec [deg]
ra_nom	37.063925468646	Nominal RA [deg]
dec_nom	31.311169238181	Nominal Dec [deg]
roll_nom	293.15479900872	Nominal Roll [deg]
revision	2	Processing version of data
ontime	29034.797253907	Sum of GTIs [s]
livetime	28565.860094594	Livetime [s]
ontime4	29032.297273755	Sum of GTIs [s]
ontime5	29034.756213903	Sum of GTIs [s]
ontime6	29034.7151739	Sum of GTIs [s]
ontime7	29034.797253907	Sum of GTIs [s]
ontime8	29034.674133897	Sum of GTIs [s]
ontime9	29034.633093894	Sum of GTIs [s]
l2events	266804	Number of level 2 events



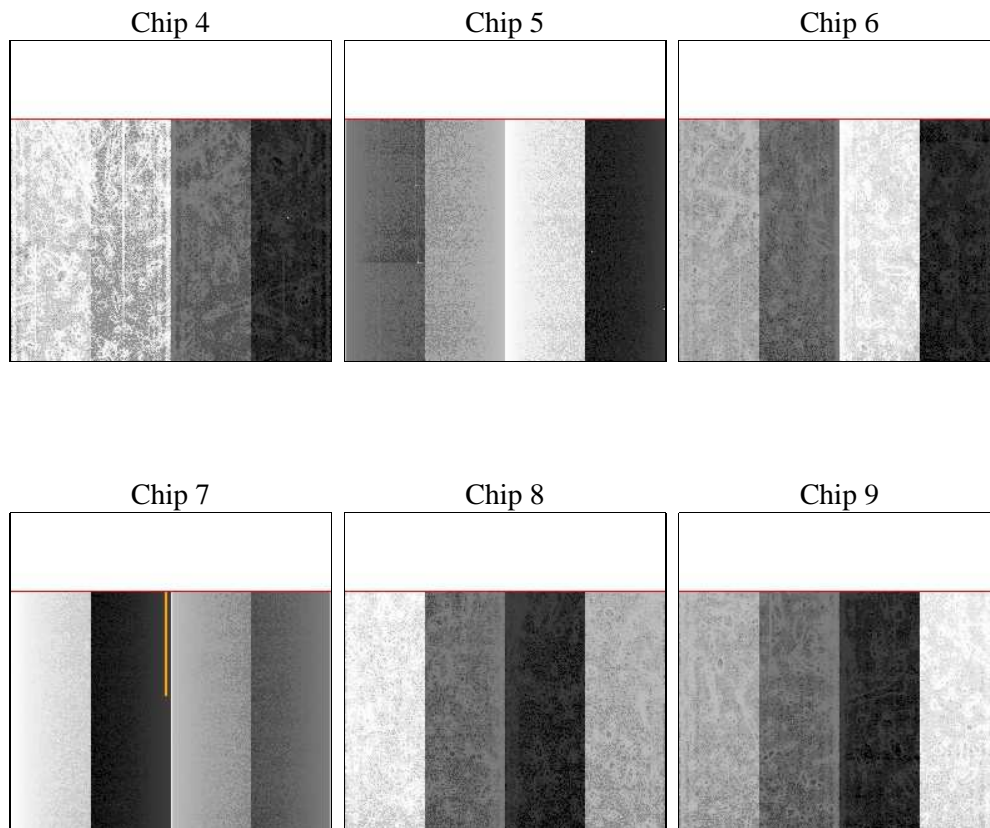
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	29000.387000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	29034.797253907	Sum of GTIs [s]
caldsver	4.6.4	 	ontime4	29032.297273755	Sum of GTIs [s]
date	2014-12-10T11:41:34	Date and time of file creation	ontime5	29034.756213903	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	29034.7151739	Sum of GTIs [s]
			ontime7	29034.797253907	Sum of GTIs [s]
			ontime8	29034.674133897	Sum of GTIs [s]
			ontime9	29034.633093894	Sum of GTIs [s]
			l1events	1051165	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			z0_pos	(4110.41 4000.26)	src1a sky level position

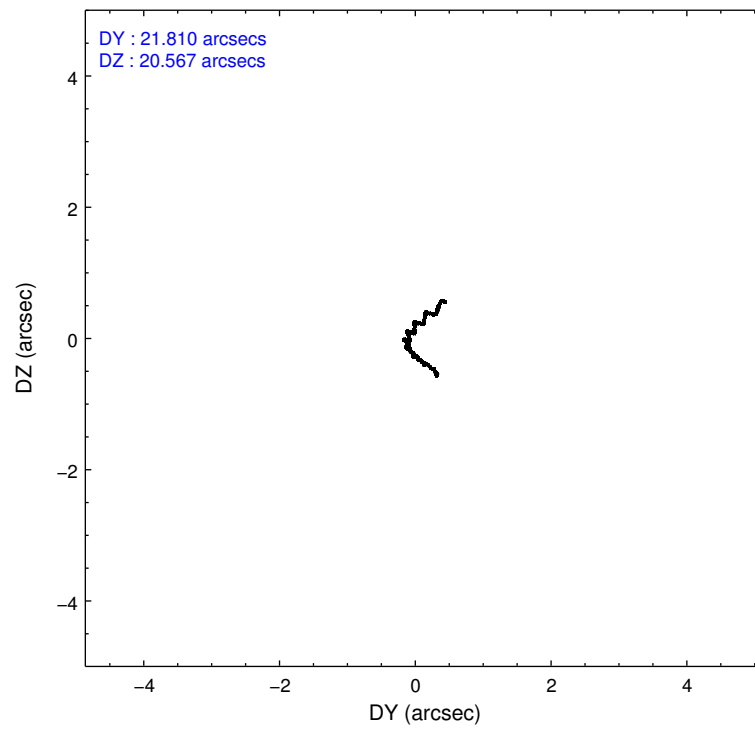
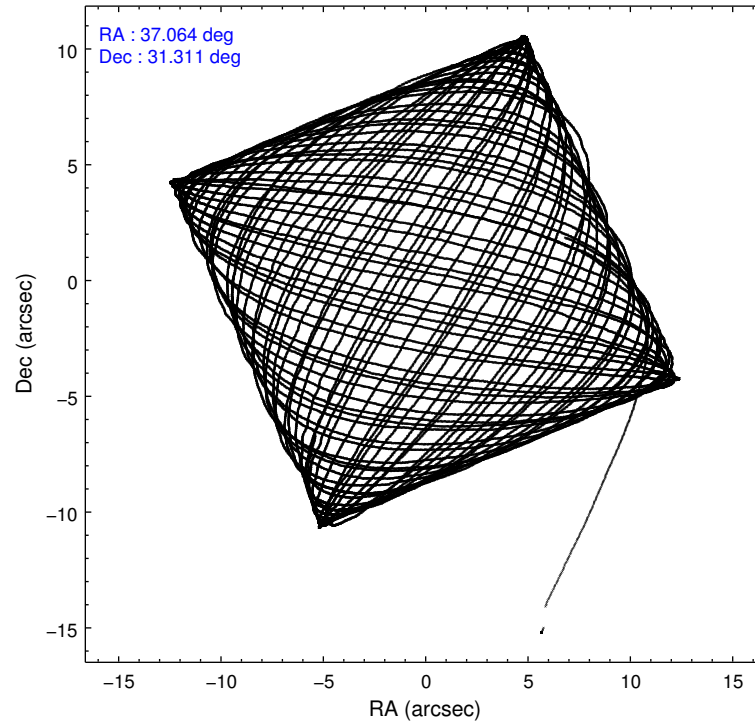
2.1.4 Events

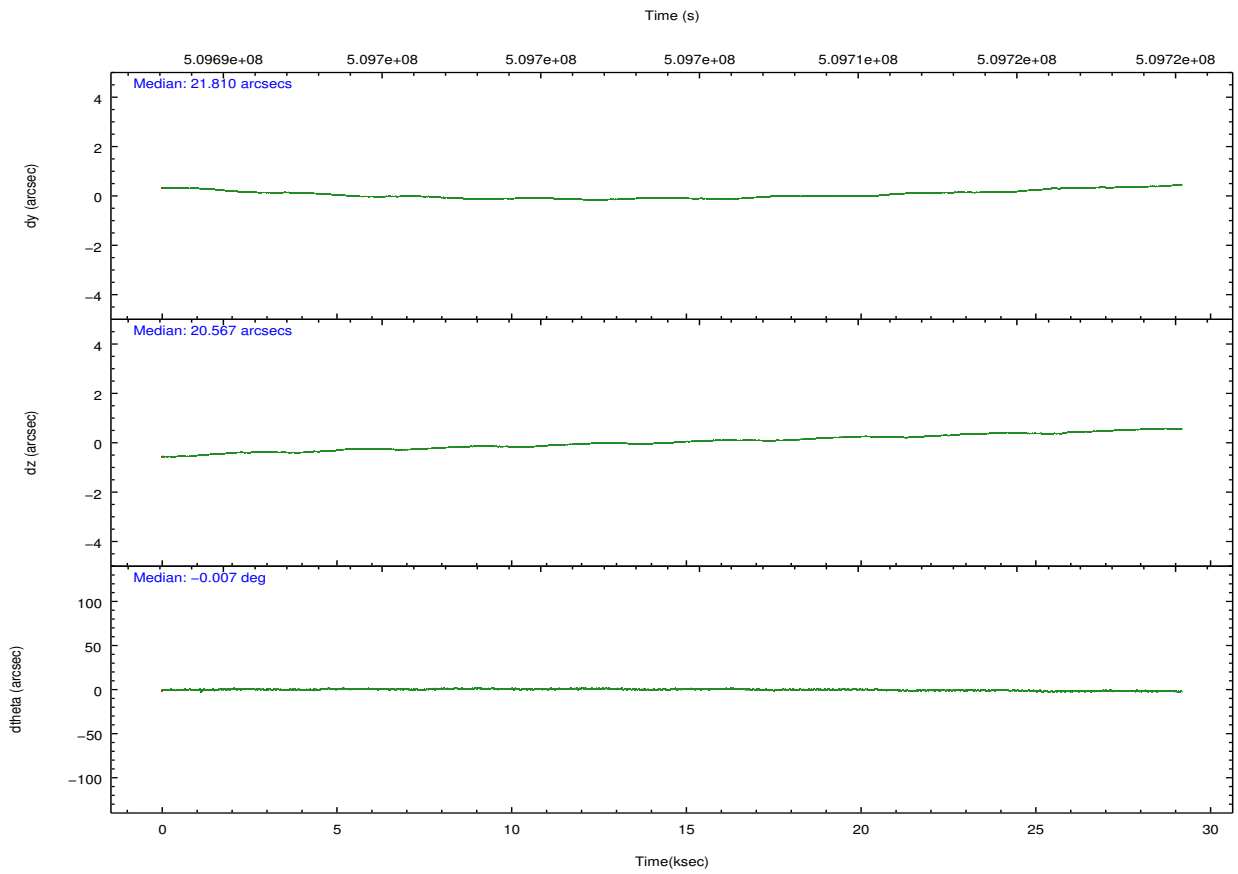
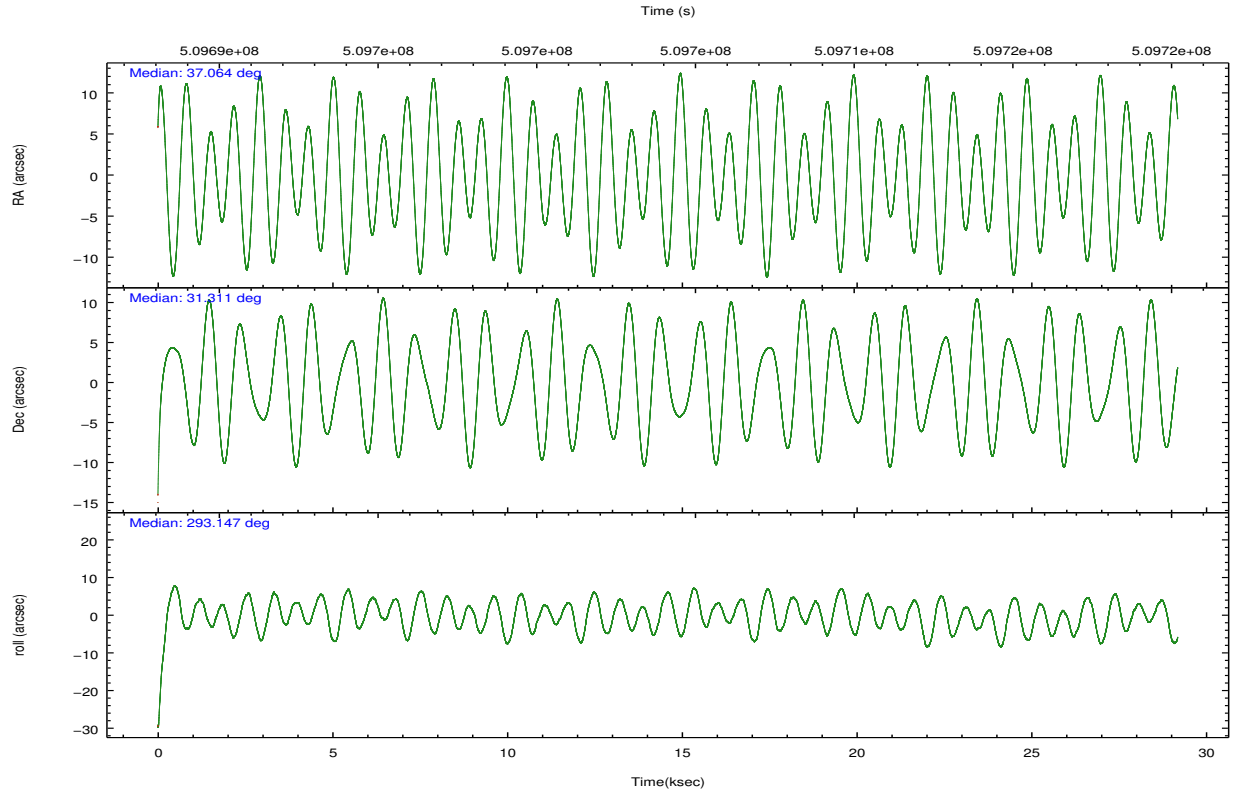
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	172859	211236	151305	176600	200018	139147	grade 0 events	18374	14223	13487	11004	25343	7888
rejected events	143149	99259	124738	82895	128791	119163		10%	6%	8%	6%	12%	5%
rejected %	82%	46%	82%	46%	64%	85%	grade 1 events	156	447	111	381	206	101
								0%	0%	0%	0%	0%	0%
							grade 2 events	4554	37929	4953	21173	15766	4862
								2%	17%	3%	11%	7%	3%
							grade 3 events	1993	4904	2145	8734	7423	1854
								1%	2%	1%	4%	3%	1%
							grade 4 events	1820	4842	2063	8518	7095	1838
								1%	2%	1%	4%	3%	1%
							grade 5 events	5334	15675	5278	15981	8207	5917
								3%	7%	3%	9%	4%	4%
							grade 6 events	2975	50103	3923	44289	15676	3544
								1%	23%	2%	25%	7%	2%
							grade 7 events	137653	83113	119345	66520	120302	113143
								79%	39%	78%	37%	60%	81%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-456789	ACIS-456789	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	37.038032	37.06392546864606	CCD I2 on	N	N
[deg] Pointing Dec	31.327267	31.31116923818055	CCD I3 on	N	N
[deg] Pointing Roll	293.011641	293.1547990087223	CCD S0 on	O1	Y
[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	-187.132523	-187.1254020033014	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-3	-3.007120579706367	CCD S4 on	Y	Y
[s] Observation start time (MET)	509689709.184000	509688084.35613	CCD S5 on	O2	Y
Observation start date	2014-02-25T04:27:22	2014-02-25T04:01:24	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	509718709.184000	509718934.80783	On-chip summing requested	N	N
Observation end date	2014-02-25T12:30:42	2014-02-25T12:35:34	Subarray requested	CUSTOM	CUSTOM
Read mode	TIMED	TIMED	Subarray start row	1	1
			Subarray row count	774	774
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	2.5

2.3 Aspect



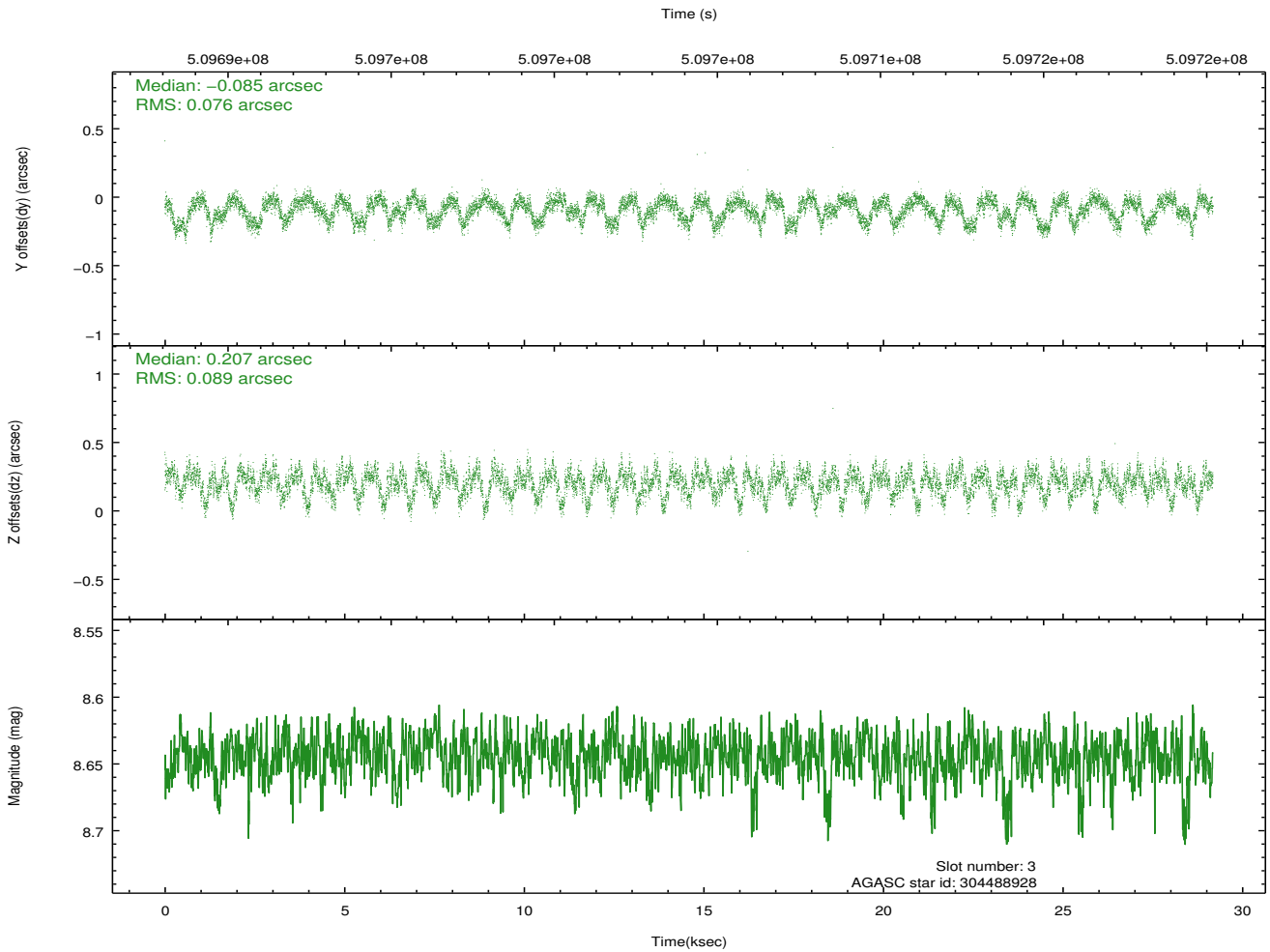
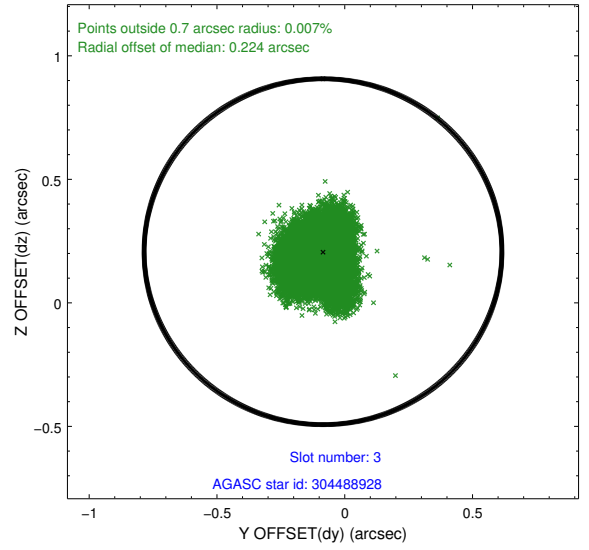
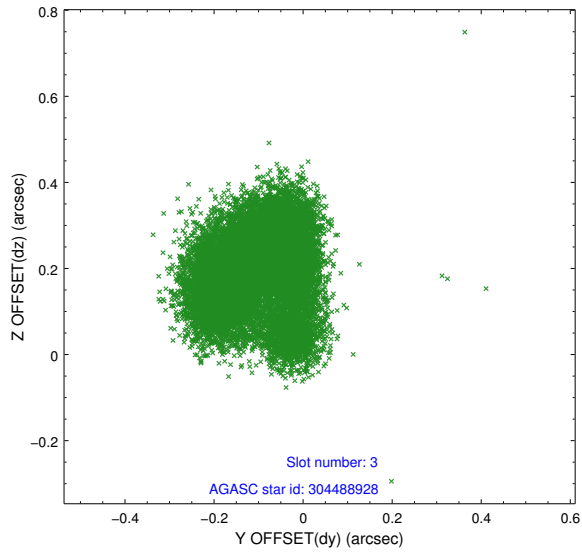


Slot Statistics

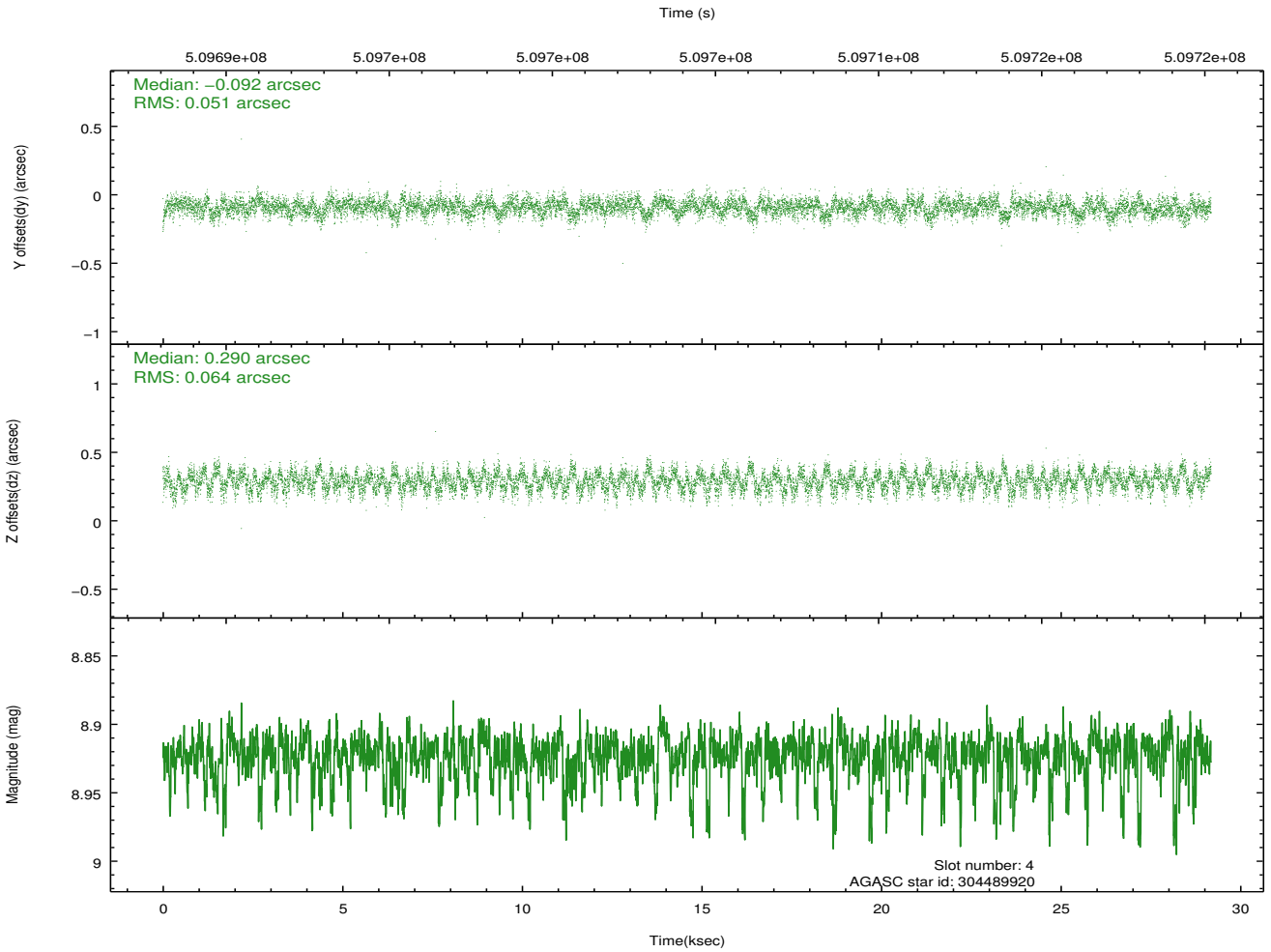
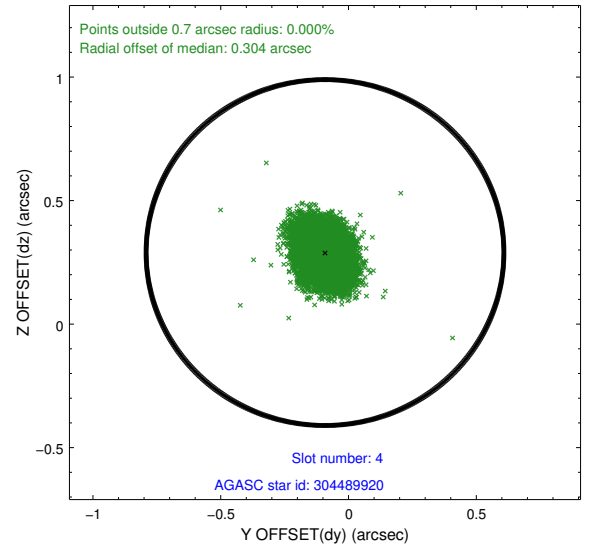
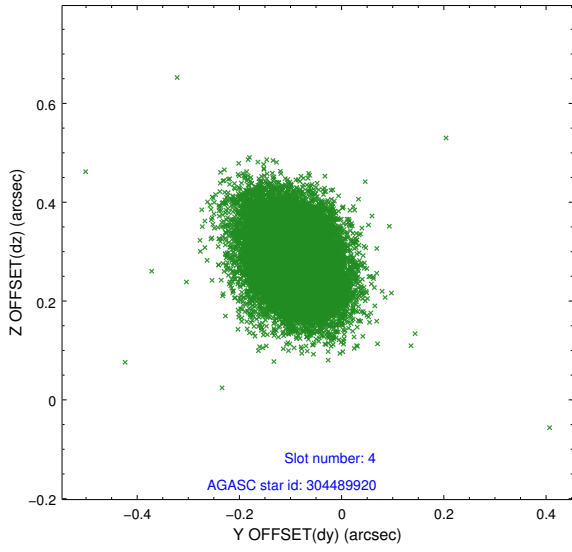
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-1	7.06	7118	0.042	0.042	0.011	0.030	0.000000	0.000000	921.30	-1799.77
1	FID		ACIS-S-5	7.09	7118	-0.176	0.020	0.008	0.018	0.000000	0.000000	-1827.92	97.60
2	FID		ACIS-S-6	7.24	7118	0.113	-0.049	0.009	0.018	0.000000	0.000000	386.77	741.64
3	GUIDE	used	304488928	8.64	14231	-0.085	0.207	0.127	0.198	36.290494	31.295864	-801.05	-2157.29
4	GUIDE	used	304489920	8.92	14223	-0.092	0.290	0.087	0.141	37.004568	31.865503	-1823.32	663.39
5	GUIDE	used	304490280	7.13	14190	-0.061	-0.323	0.073	0.115	37.339770	30.865291	1894.26	208.80
6	GUIDE	used	304493688	7.33	14231	0.538	-0.232	0.062	0.103	36.521322	30.906645	767.79	-2059.43
7	GUIDE	used	305007808	8.74	14226	-0.286	0.073	0.117	0.190	37.447401	32.043735	-1887.88	2159.12

2.4 Star Slots

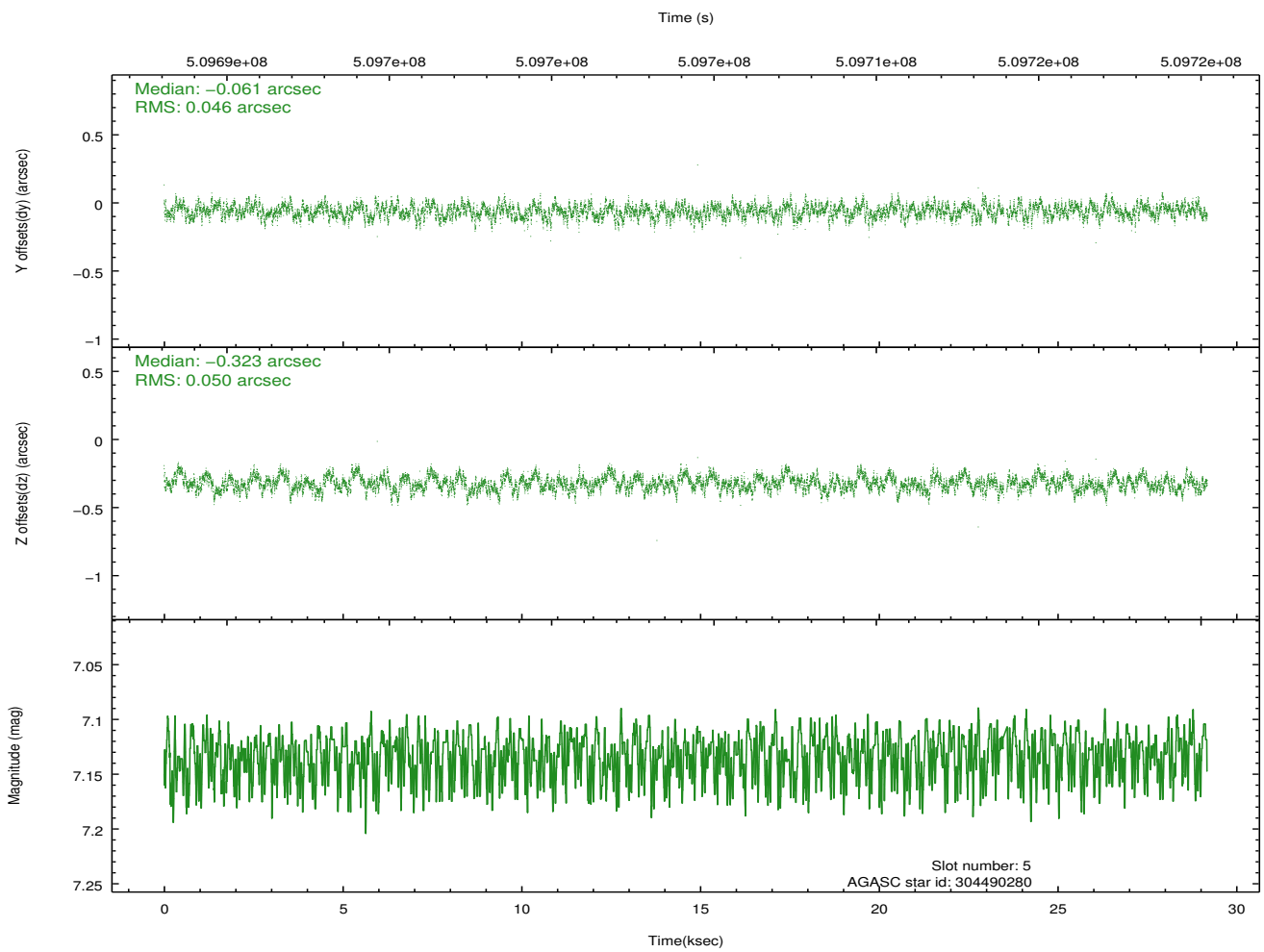
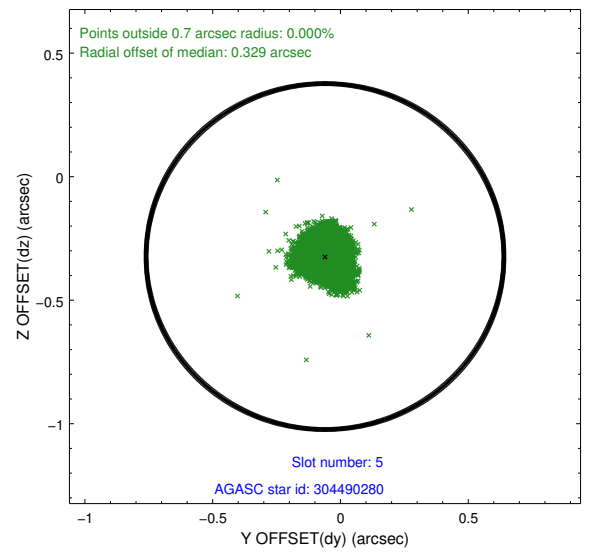
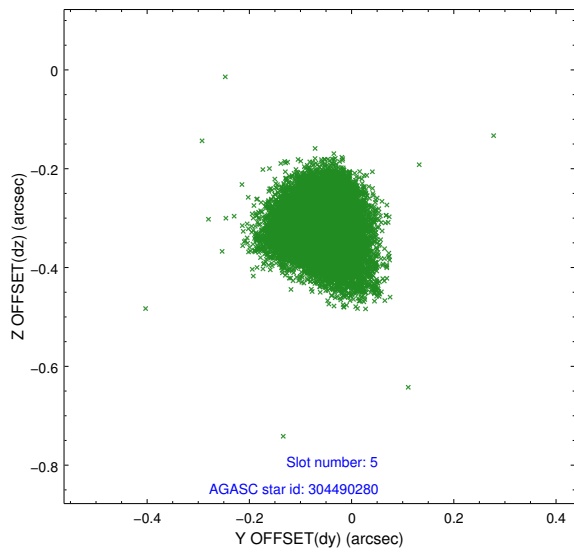
2.4.1 Slot 3



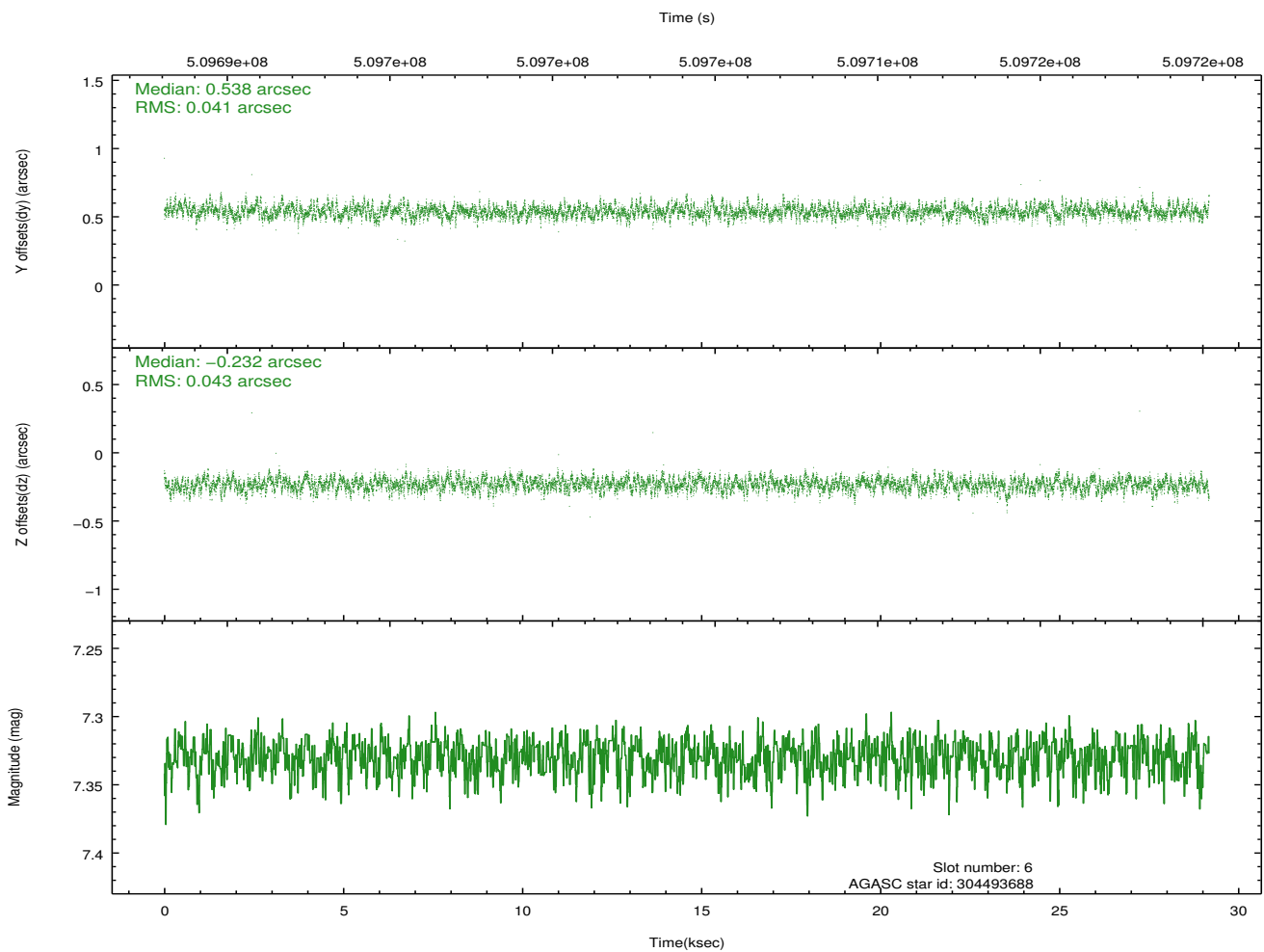
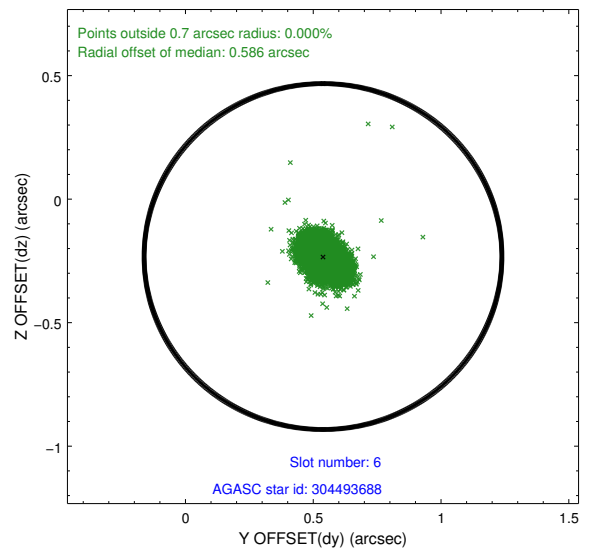
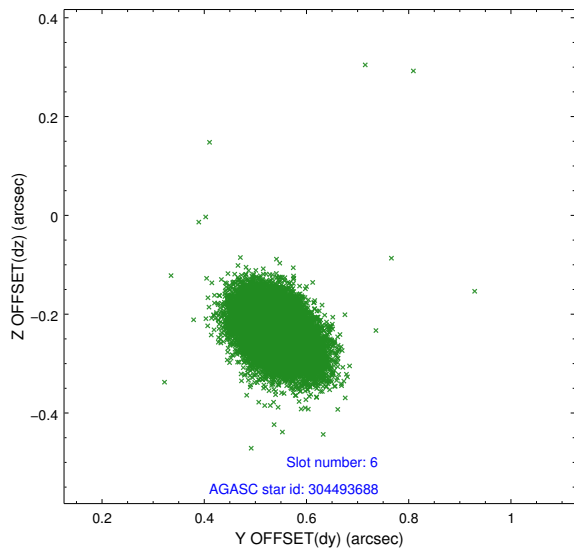
2.4.2 Slot 4



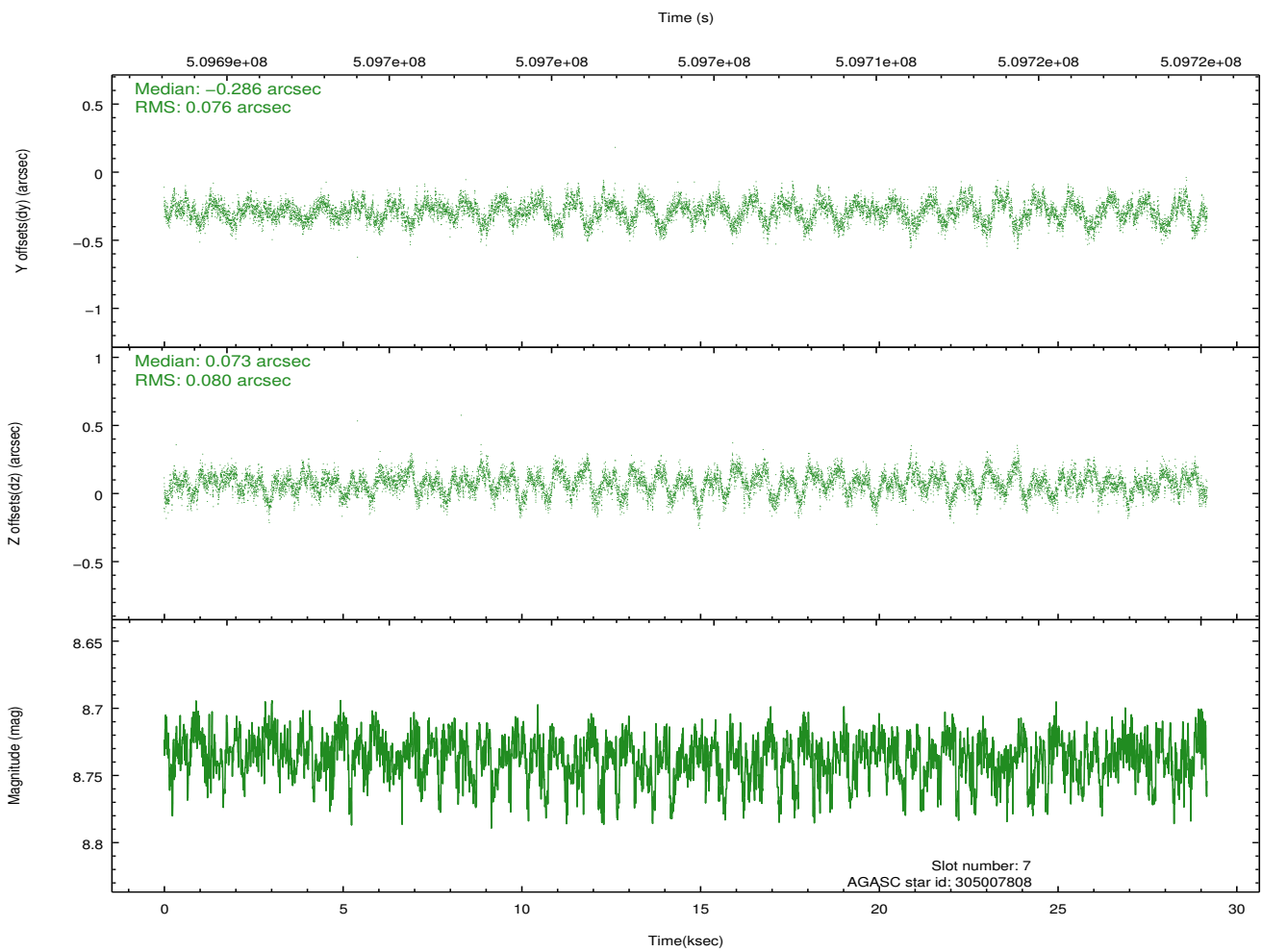
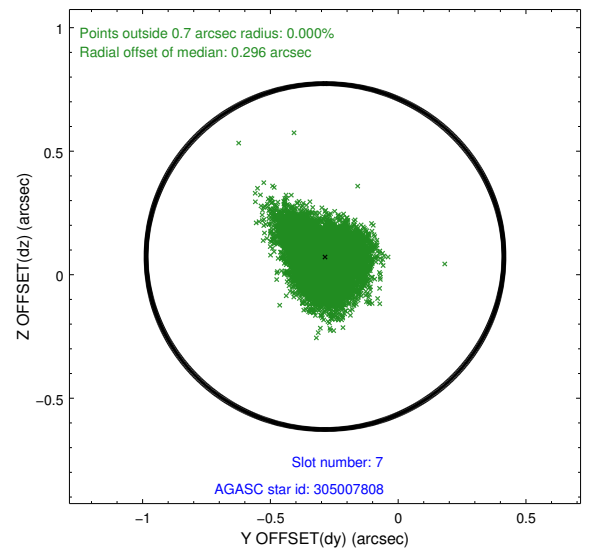
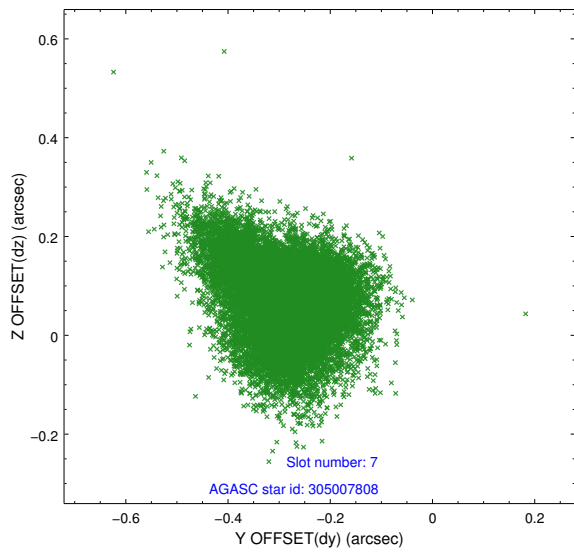
2.4.3 Slot 5



2.4.4 Slot 6

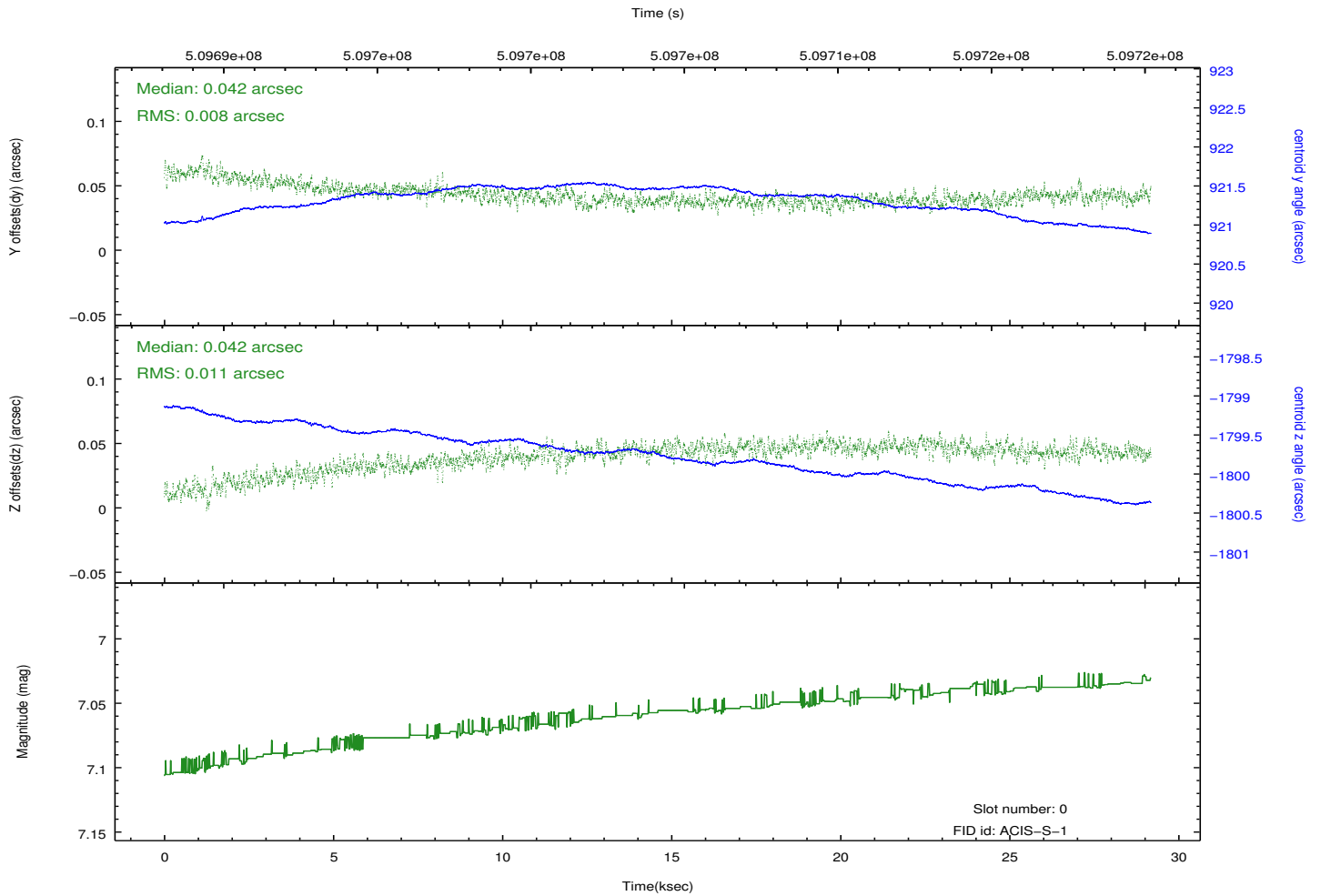
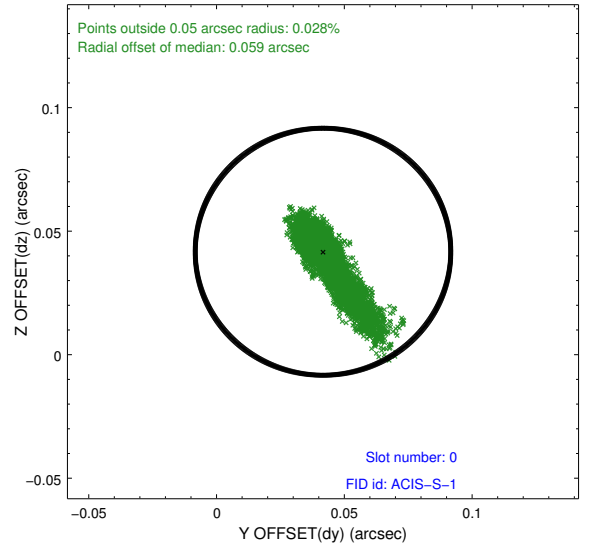
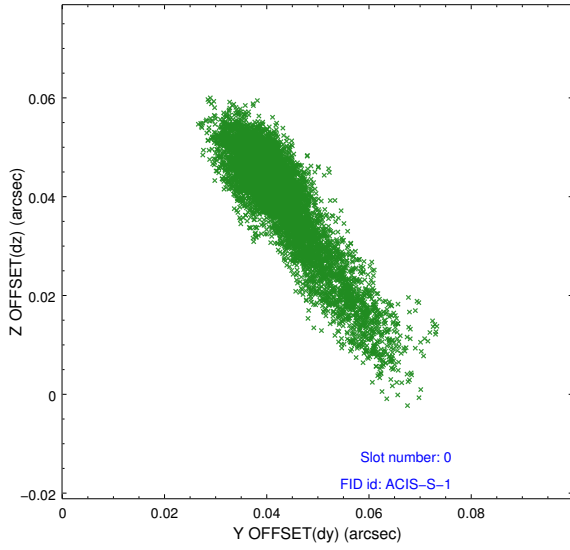


2.4.5 Slot 7

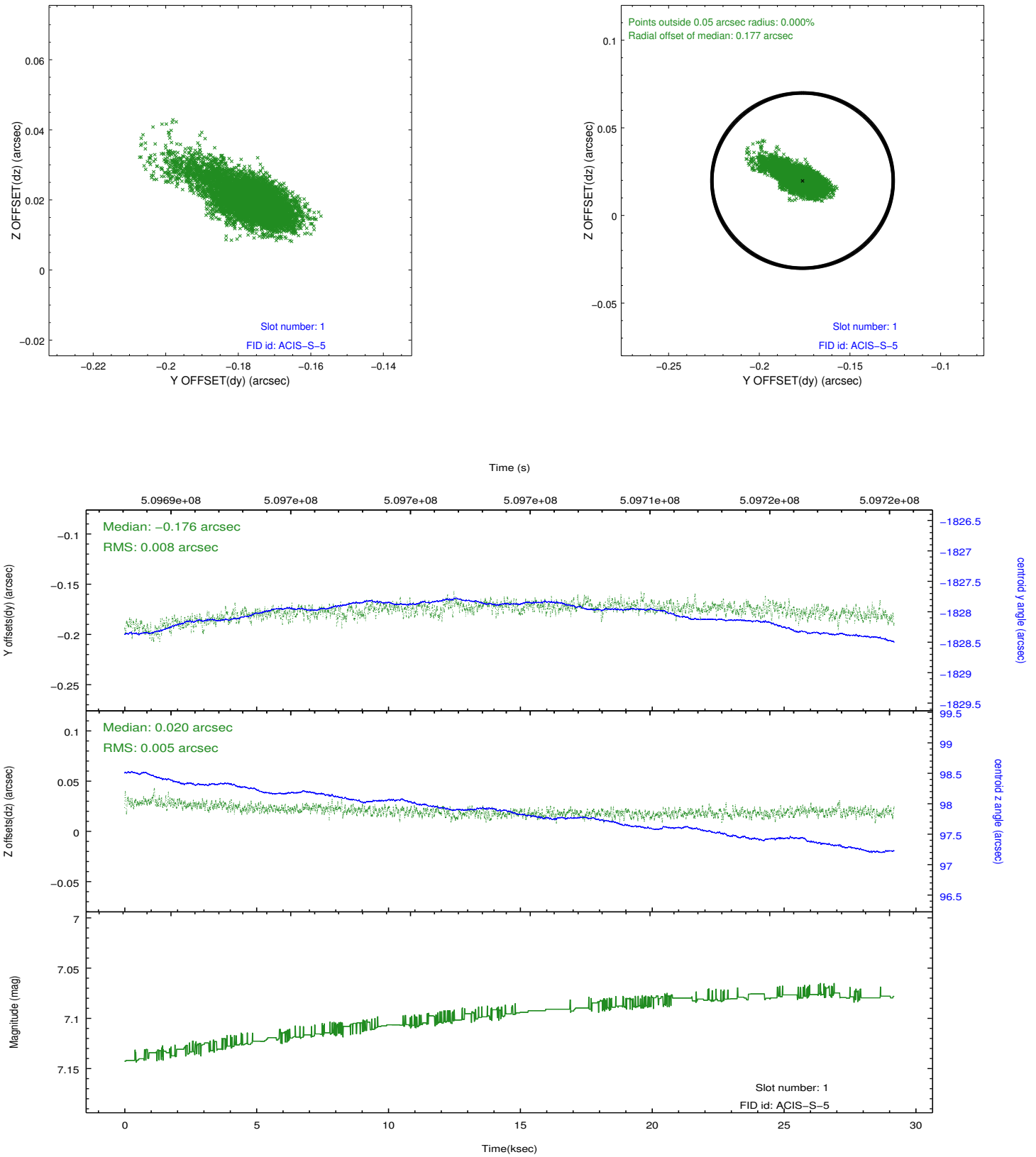


2.5 FID Slots

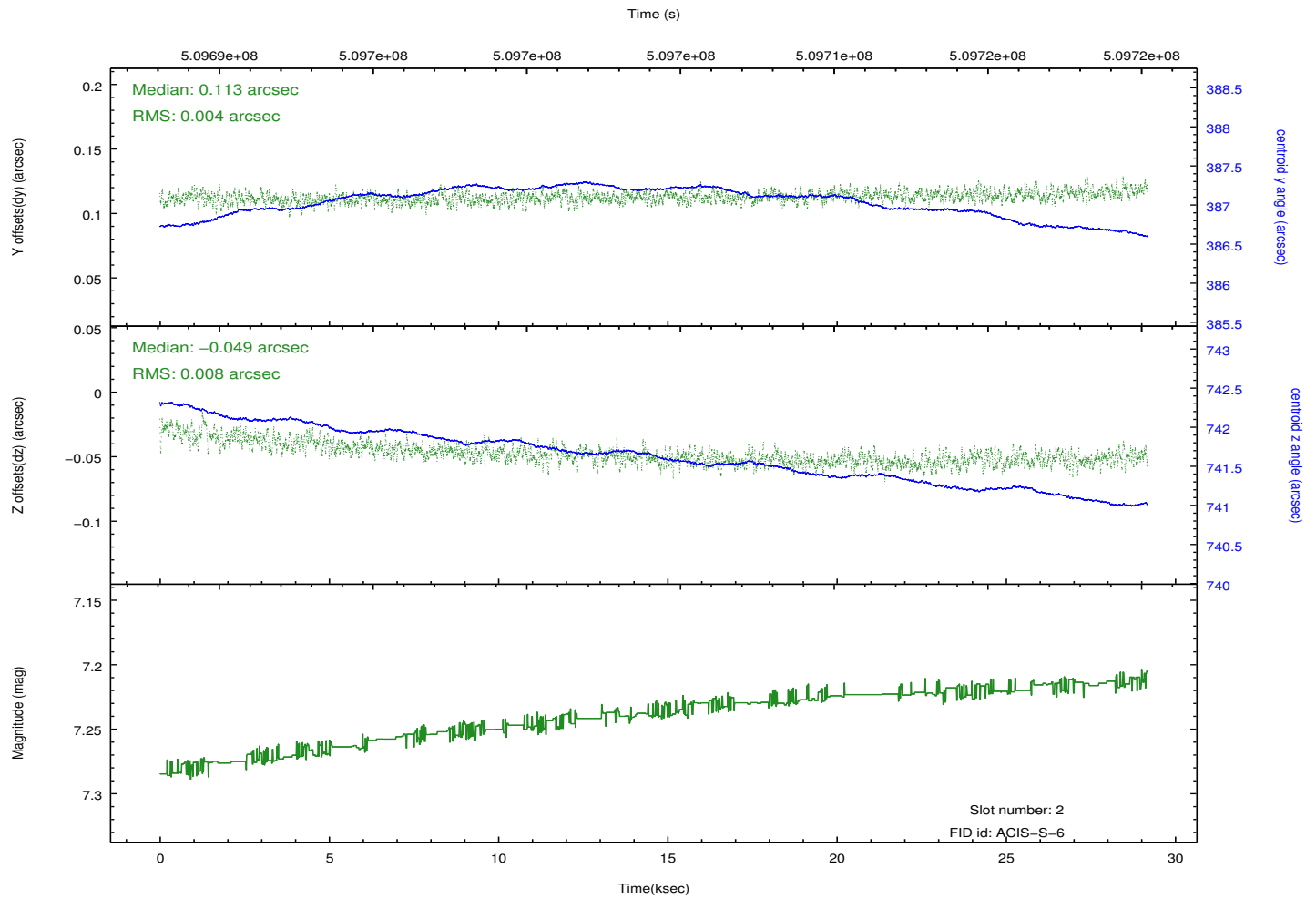
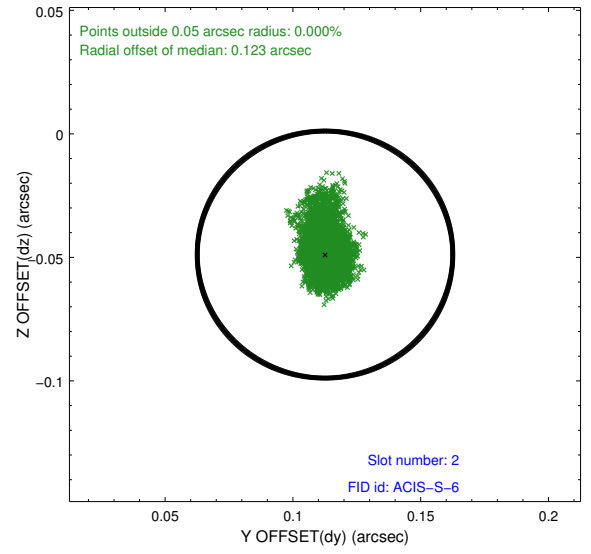
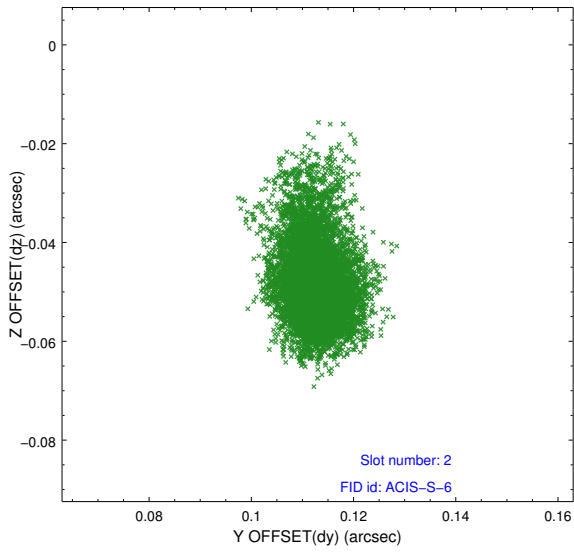
2.5.1 Slot 0



2.5.2 Slot 1

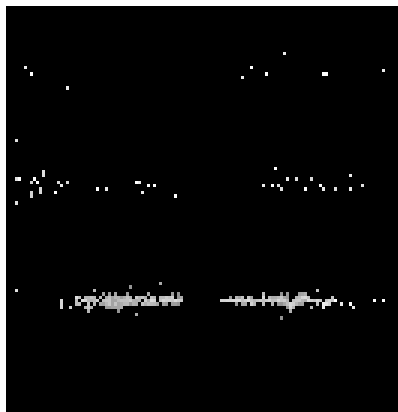


2.5.3 Slot 2

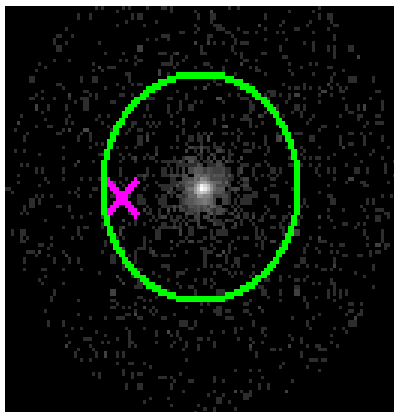


3 Gratings

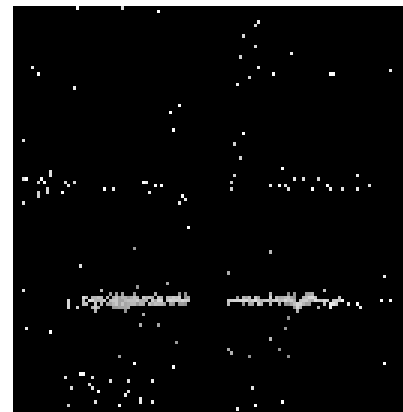
3.1 HEG Arm



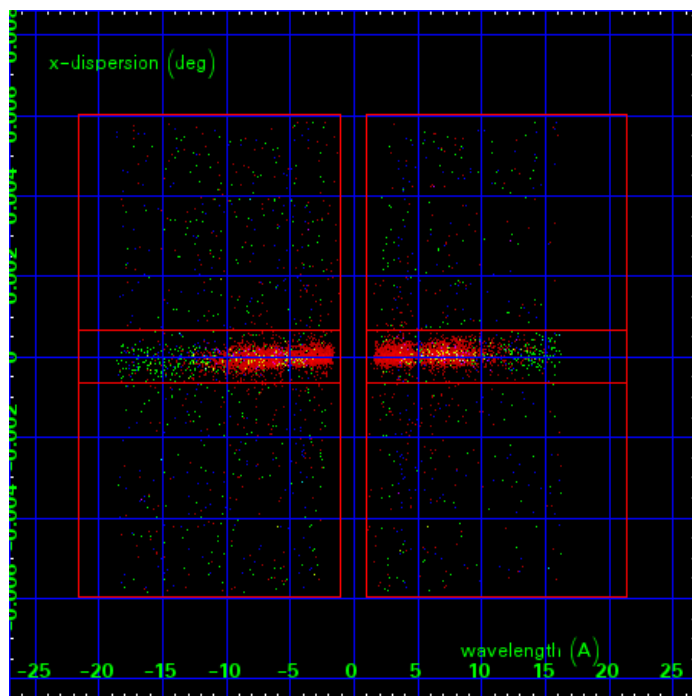
HEG Order Sort 123



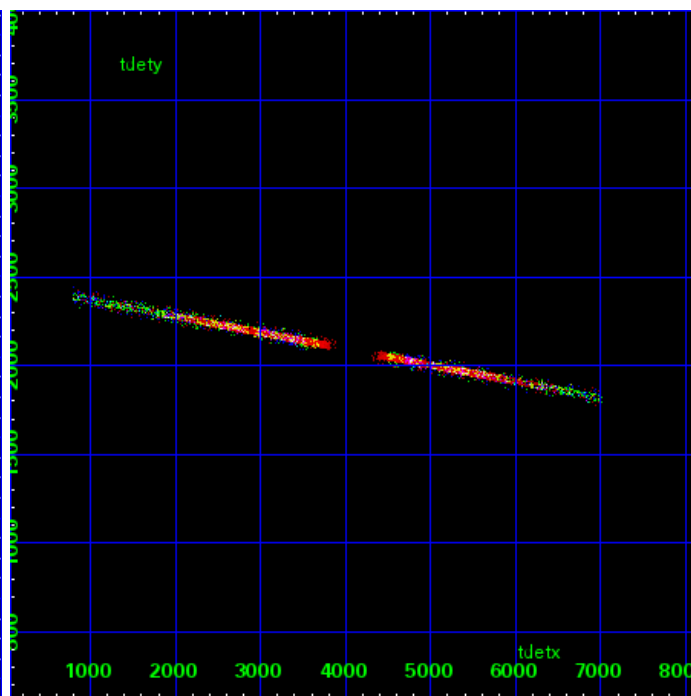
HEG Zero Order



HEG Order Sort ALL

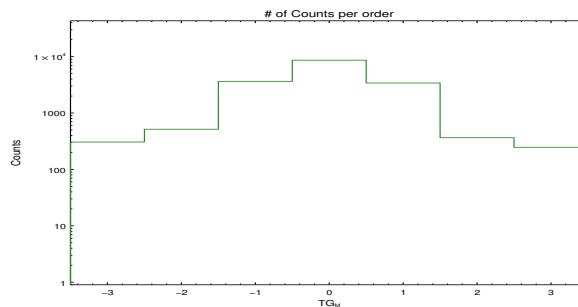


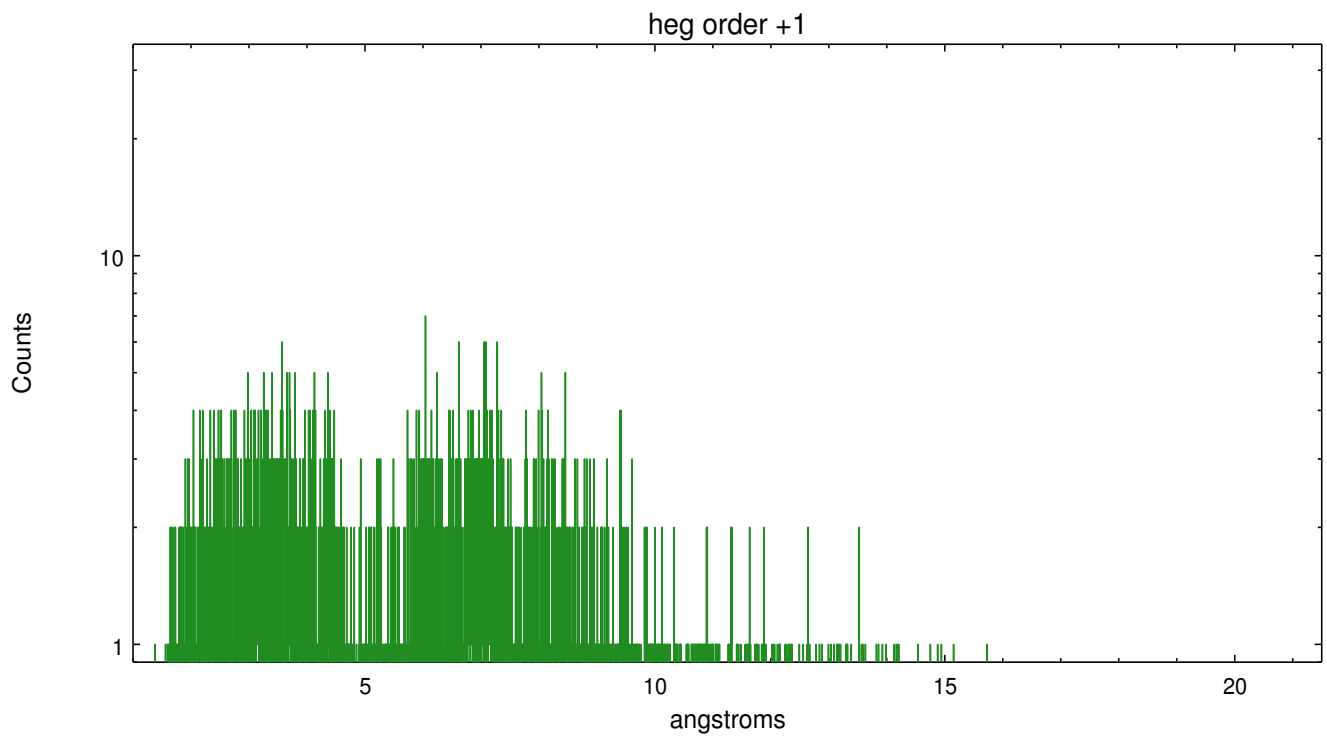
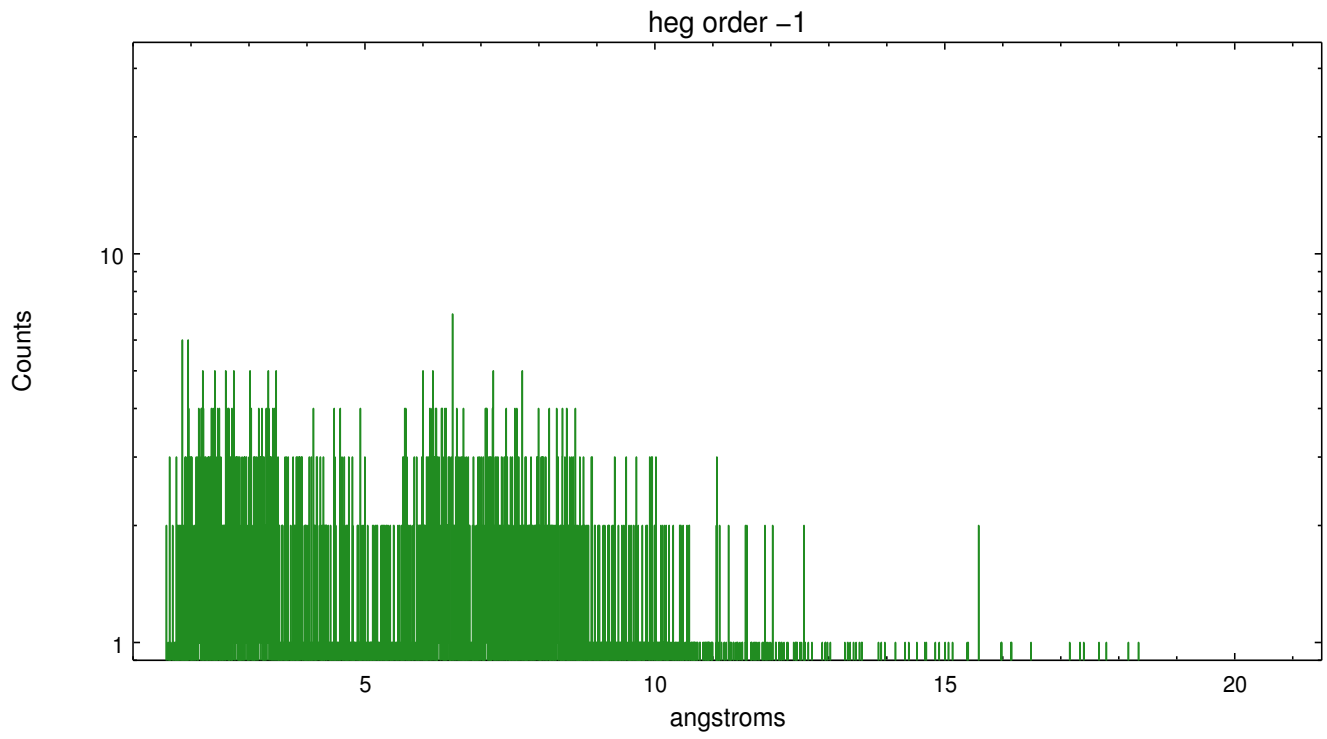
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	306	516	3644	8643	3405	365	247

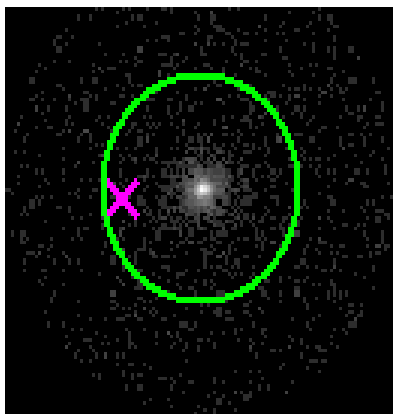




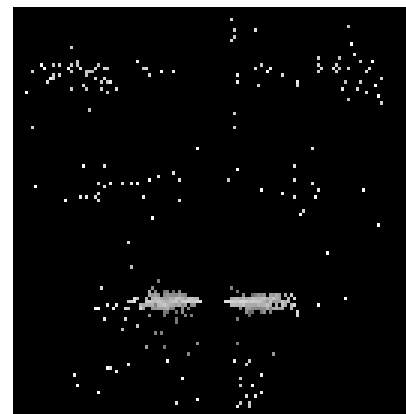
3.2 MEG Arm



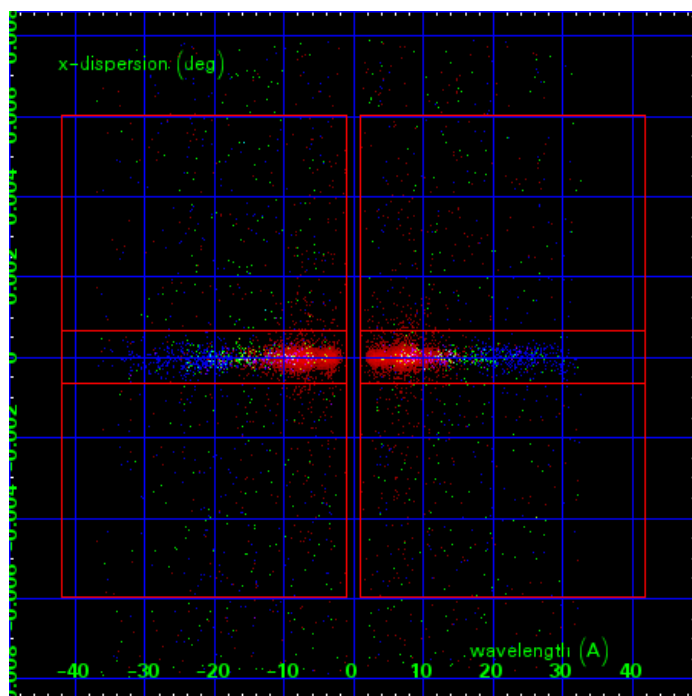
MEG Order Sort 123



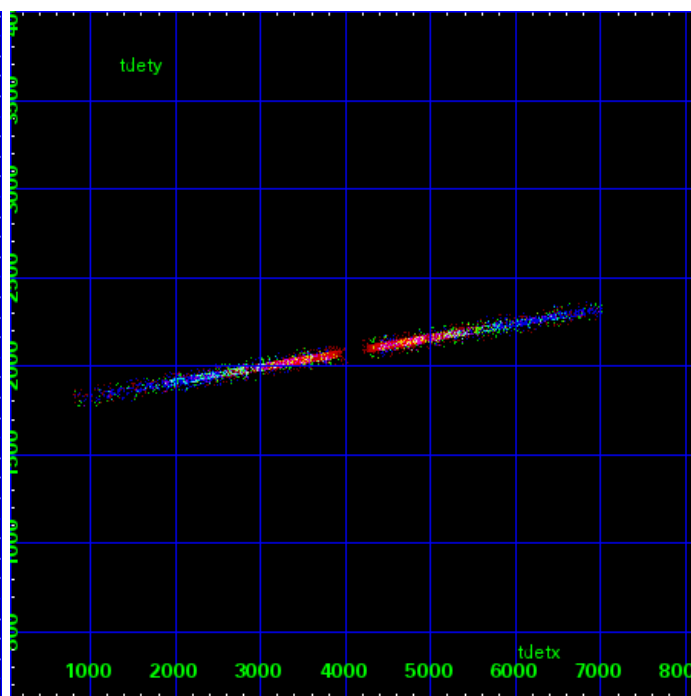
MEG Zero Order



MEG Order Sort ALL

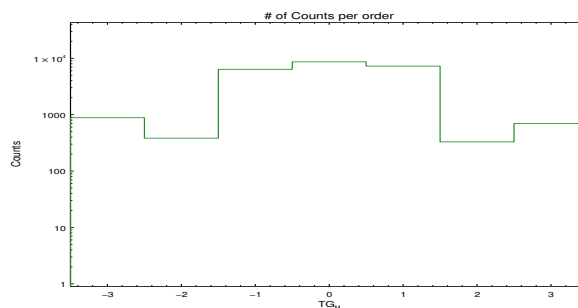


Spot Image MEG

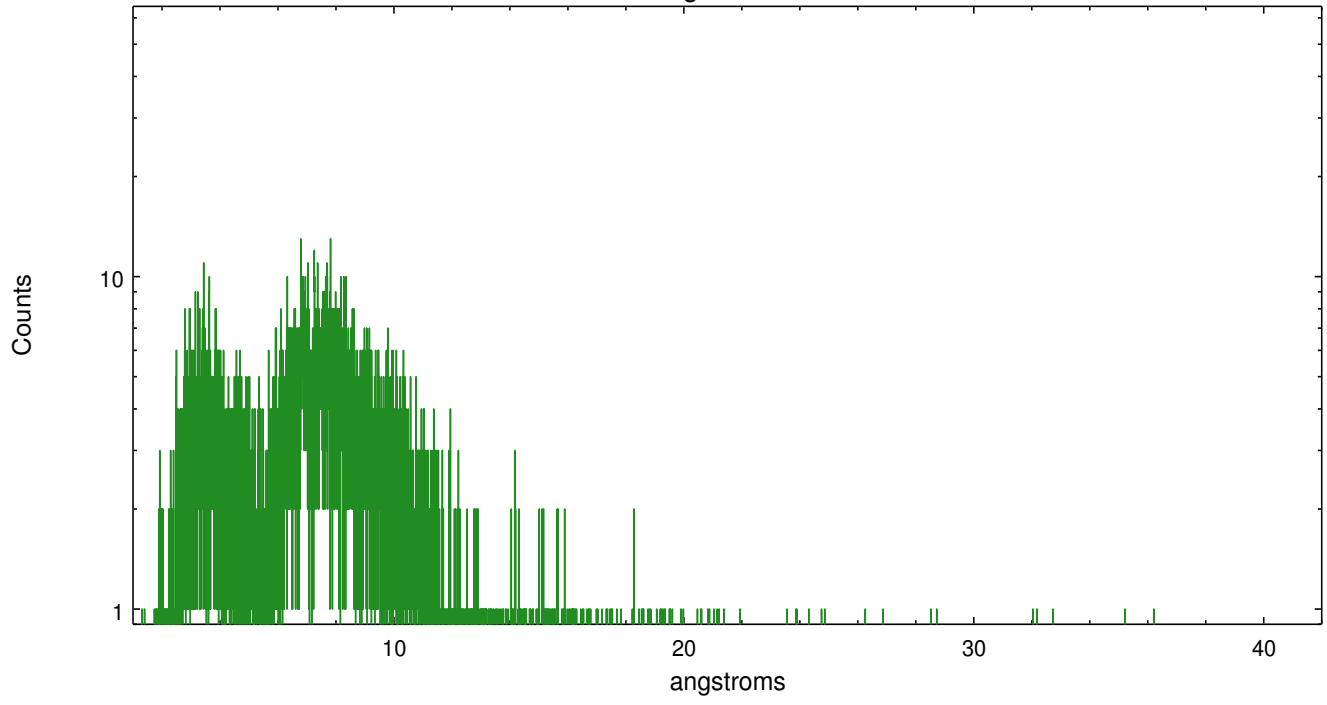


Full Detector MEG

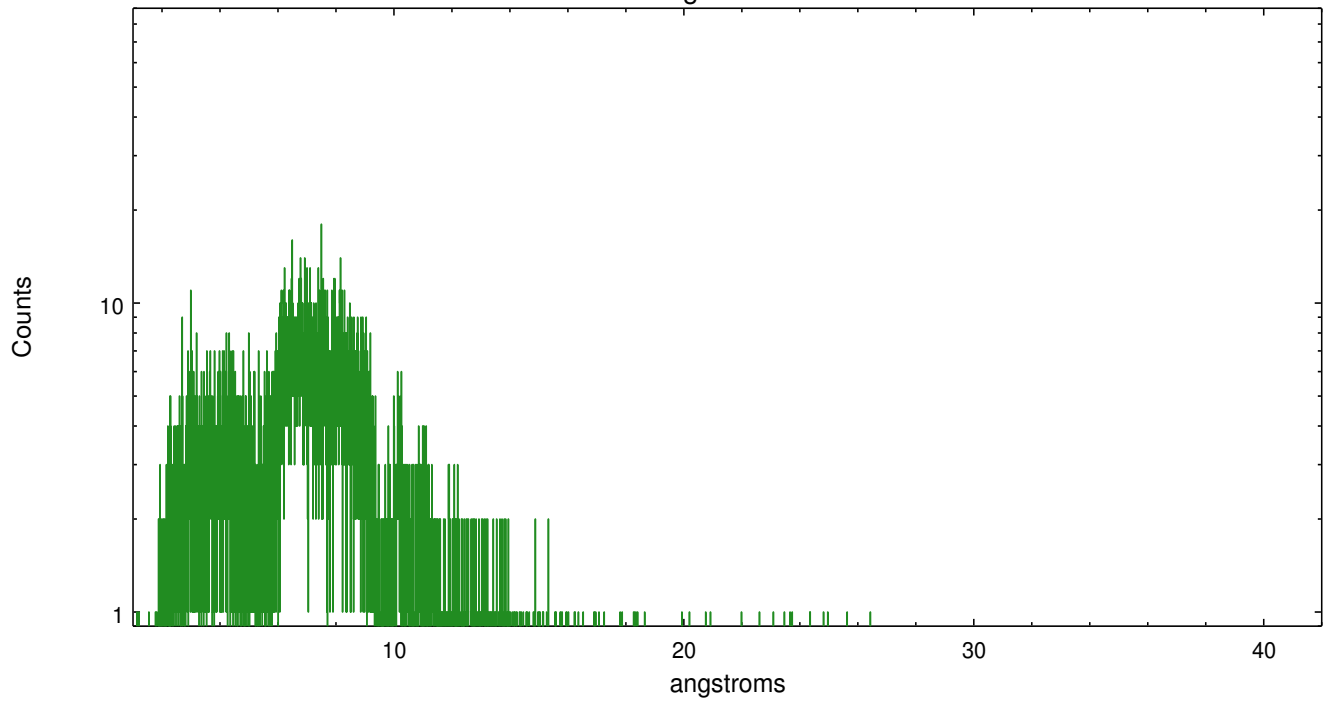
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	884	383	6373	8643	7265	329	698



meg order -1



meg order +1



A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.10.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	29.034797253907

A.2 Comments

Zeroth order moderately piled up. The zeroth order sky position was determined using a software tool developed by CXC called findzero, which is available in CIAO as part of the tgdetect2 tool. The tool calculates the point of intersection of the readout streak on the ACIS CCD and the meg dispersed spectral arm, rather than using a centroid position of the source. The findzero results are more accurate than source centroid in this case.

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These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.