

V&V Reference Report

L2 ASCDS Version : 8.4.4

Observation 10817 - L2 Version 3
Chandra X-Ray Center

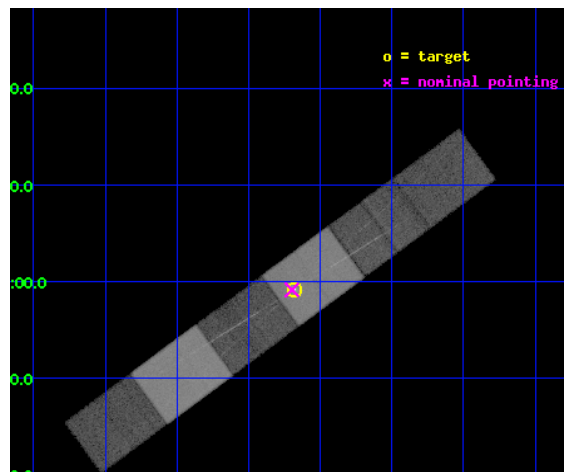
L2 Processing Date : Jun 2 2012

Contents

1	Front	2
2	OBI	3
2.1	OBI	3
2.1.1	Images	3
2.1.2	Bias	3
2.1.3	Parameters	4
2.1.4	Events	4
2.2	Compared Parameters	5
2.3	Aspect	6
2.4	Star Slots	9
2.4.1	Slot 3	9
2.4.2	Slot 4	10
2.4.3	Slot 5	11
2.4.4	Slot 6	12
2.4.5	Slot 7	13
2.5	FID Slots	14
2.5.1	Slot 0	14
2.5.2	Slot 1	15
2.5.3	Slot 2	16
3	Gratings	17
3.1	HEG Arm	17
3.2	MEG Arm	19
A	Summary	21
A.1	Status	21
A.2	Comments	21

1 Front

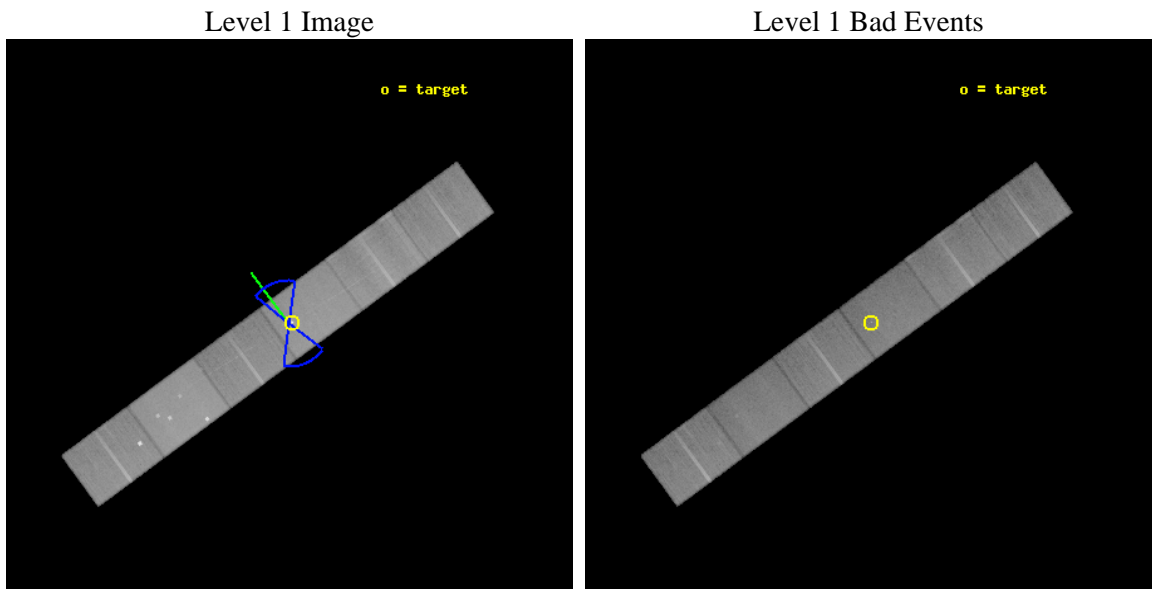
seq_num	701591	Sequence number
obs_id	10817	Observation id
title	NGC 1068: Photo-ionized gas in the nucleus, and ionization cone	Pr
observer	Prof Claude Canizares	Principal investigator
object	NGC 1068	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	40.669583	Observer's specified target RA [deg]
dec_targ	-0.013333	Observer's specified target Dec [deg]
ra_nom	40.67440562458	Nominal RA [deg]
dec_nom	-0.013713780927076	Nominal Dec [deg]
roll_nom	323.65662062067	Nominal Roll [deg]
revision	3	Processing version of data
ontime	33182.5	Sum of GTIs [s]
livetime	32646.57384378	Livetime [s]
ontime4	33182.5	Sum of GTIs [s]
ontime5	33182.5	Sum of GTIs [s]
ontime6	33179.958999634	Sum of GTIs [s]
ontime7	33182.5	Sum of GTIs [s]
ontime8	33182.5	Sum of GTIs [s]
ontime9	33182.5	Sum of GTIs [s]
l2events	452813	Number of level 2 events



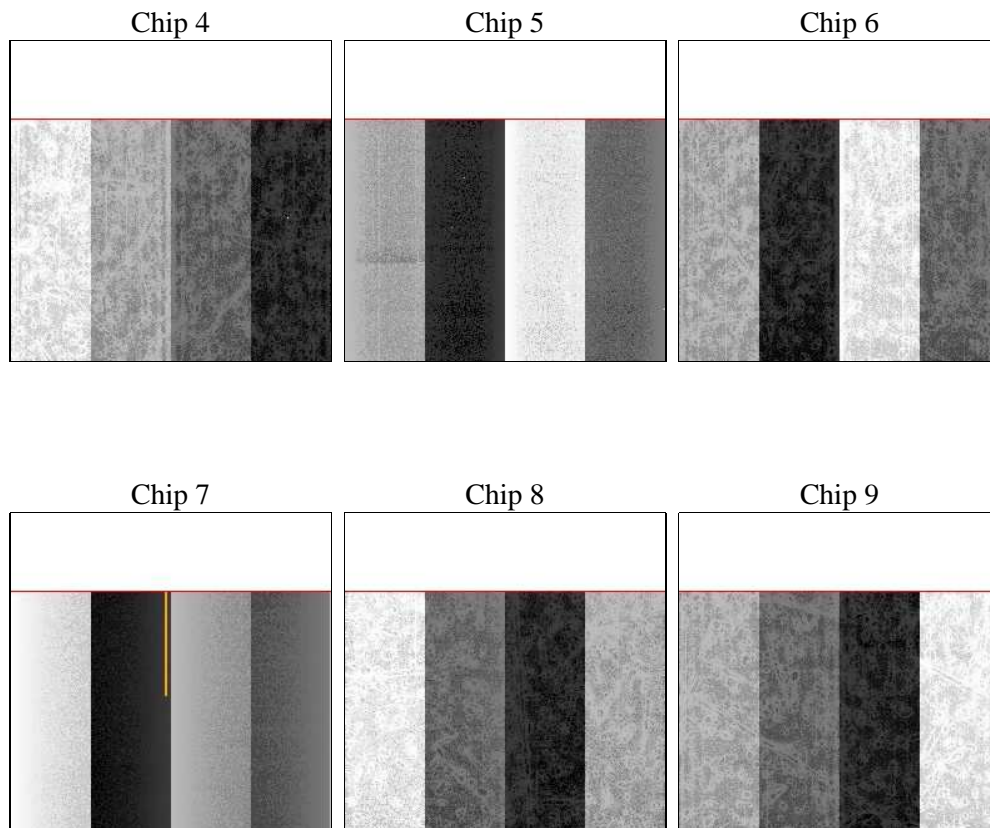
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	33000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.4	Processing system revision	ontime	33182.5	Sum of GTIs [s]
caldbver	4.4.9	 	ontime4	33182.5	Sum of GTIs [s]
date	2012-05-24T16:50:42	Date and time of file creation	ontime5	33182.5	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	33179.958999634	Sum of GTIs [s]
			ontime7	33182.5	Sum of GTIs [s]
			ontime8	33182.5	Sum of GTIs [s]
			ontime9	33182.5	Sum of GTIs [s]
			l1events	1956019	Number of level 1 events

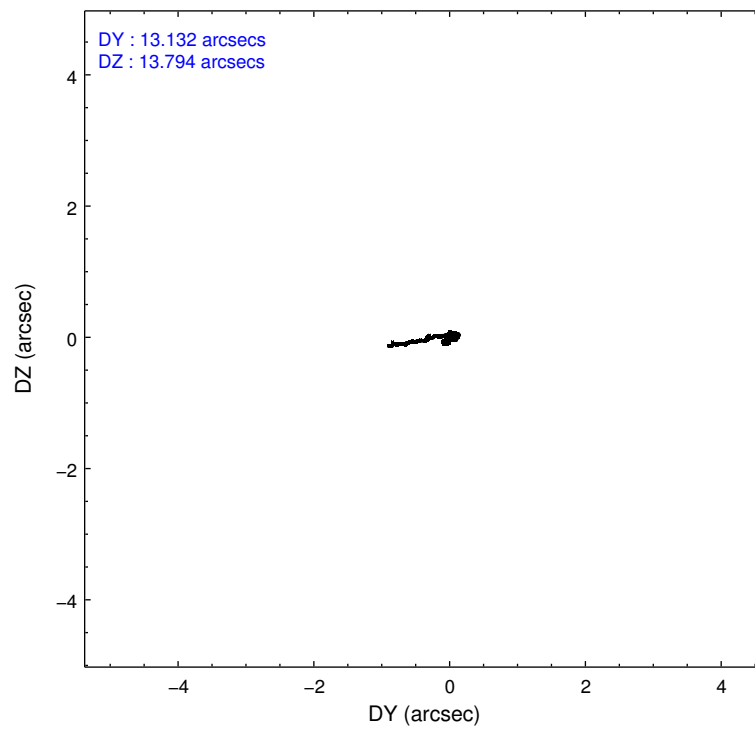
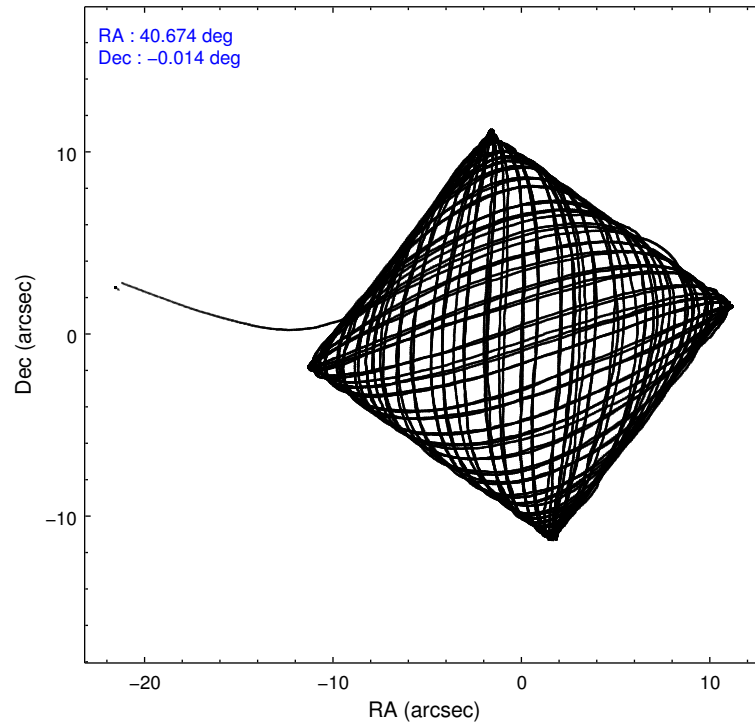
2.1.4 Events

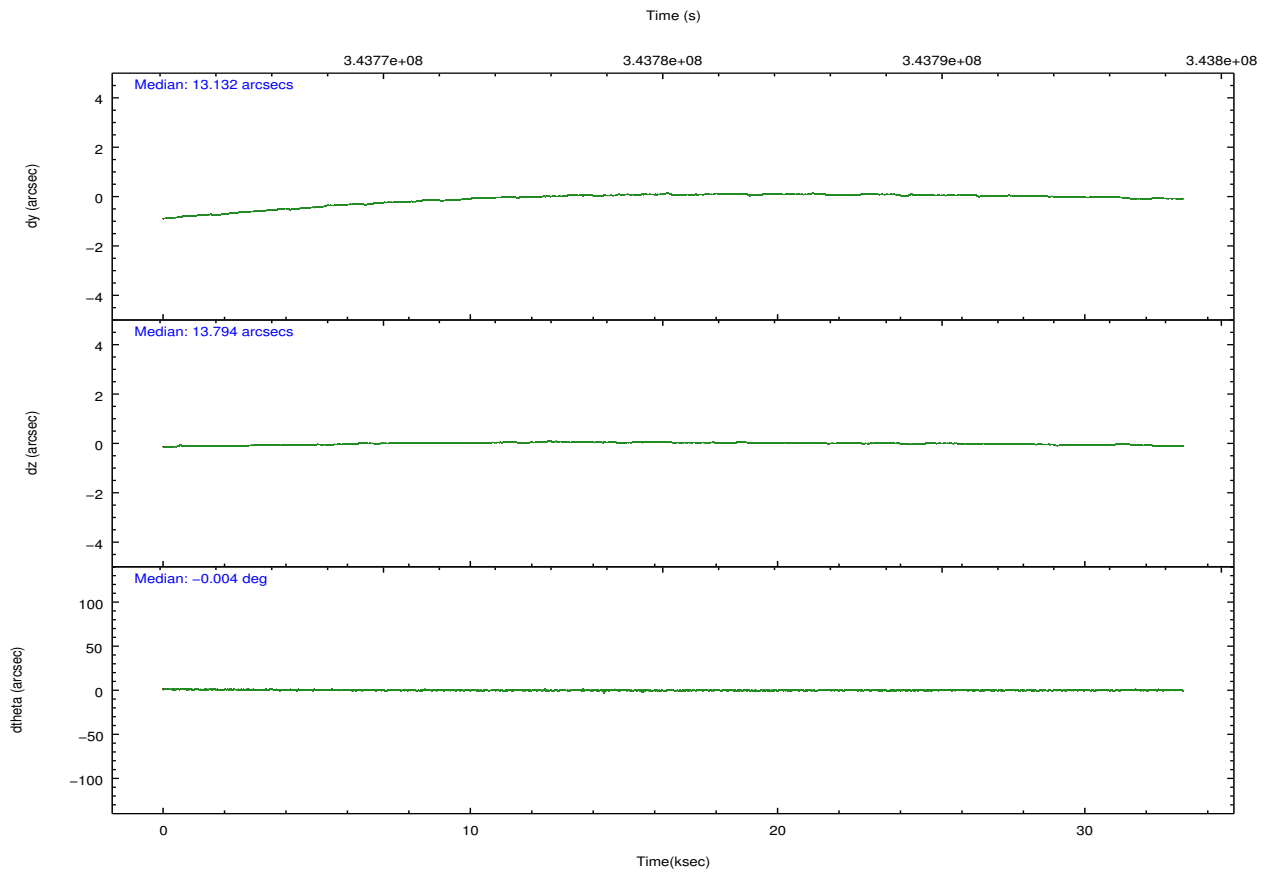
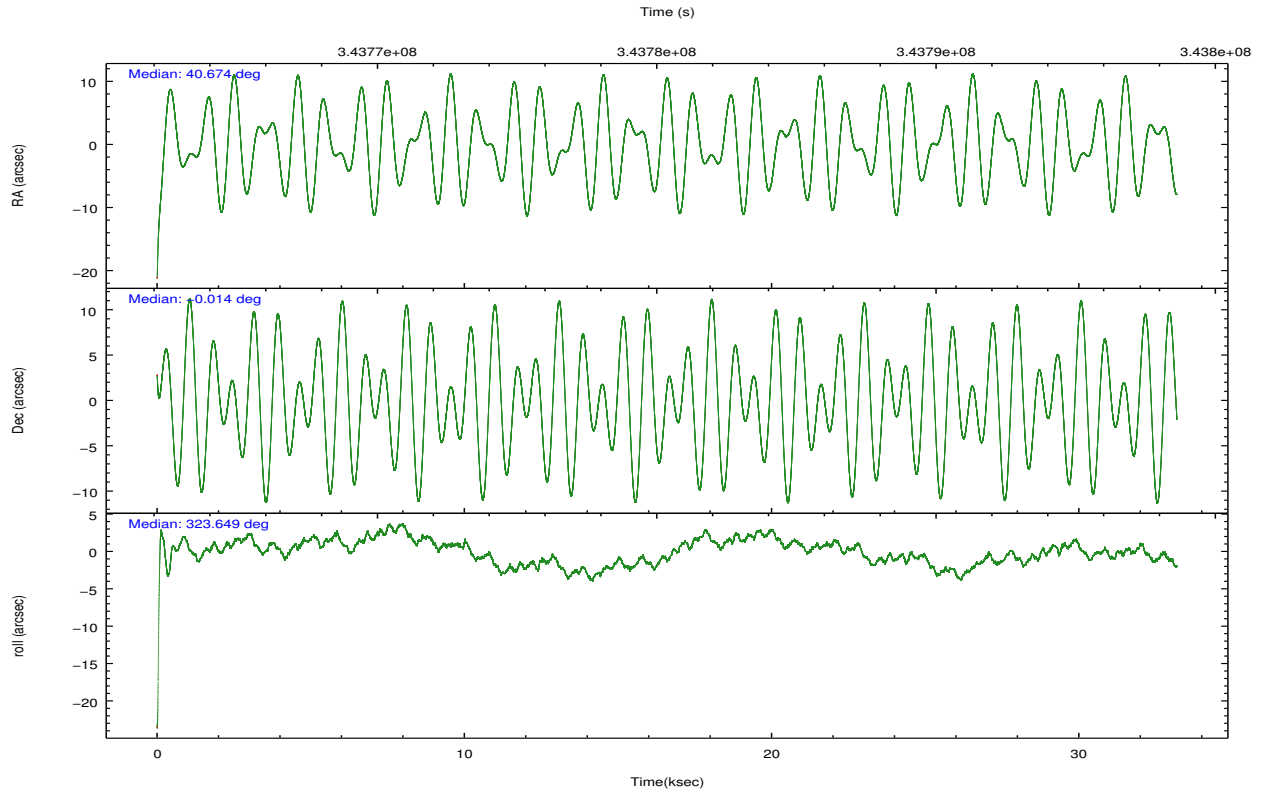
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	301566	415619	268192	373689	338269	258684	grade 0 events	26923	26474	14726	16160	26344	14010
rejected events	255507	221737	233677	213173	259385	225390		8%	6%	5%	4%	7%	5%
rejected %	84%	53%	87%	57%	76%	87%	grade 1 events	277	529	133	406	240	152
								0%	0%	0%	0%	0%	0%
							grade 2 events	7472	57131	7288	34021	17709	6736
								2%	13%	2%	9%	5%	2%
							grade 3 events	3568	7811	3191	14849	8143	3300
								1%	1%	1%	3%	2%	1%
							grade 4 events	3360	7475	3161	14342	7659	3337
								1%	1%	1%	3%	2%	1%
							grade 5 events	12019	29833	12391	34744	16640	13296
								3%	7%	4%	9%	4%	5%
							grade 6 events	5494	98225	6664	83723	20236	6476
								1%	23%	2%	22%	5%	2%
							grade 7 events	242453	188141	220638	175444	241298	211377
								80%	45%	82%	46%	71%	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	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	40.647198	40.67440562458003	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-0.011074	-0.01371378092707632	Subarray start row	1	1
[deg] Pointing Roll	323.499996	323.6566206206668	Subarray row count	774	774
[deg] Roll angle	338.000000	338.000000	Alternating exposures requested	N	N
[deg] Roll tolerance	30.000000	30.000000	[s] Primary exposure time	0.000000	2.5
Roll constraint allows 180D rotation	Y	Y			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-186.772523	-186.7834551222893			
[mm] SIM translation stage offset	-3.36	-3.349067460718516			
[s] Observation start time (MET)	343763969.184000	343762662.46751			
Observation start date	2008-11-22T17:58:24	2008-11-22T17:37:42			
[s] Observation end time (MET)	343796969.184000	343798028.55676			
Observation end date	2008-11-23T03:08:24	2008-11-23T03:27:08			
Read mode	TIMED	TIMED			

2.3 Aspect



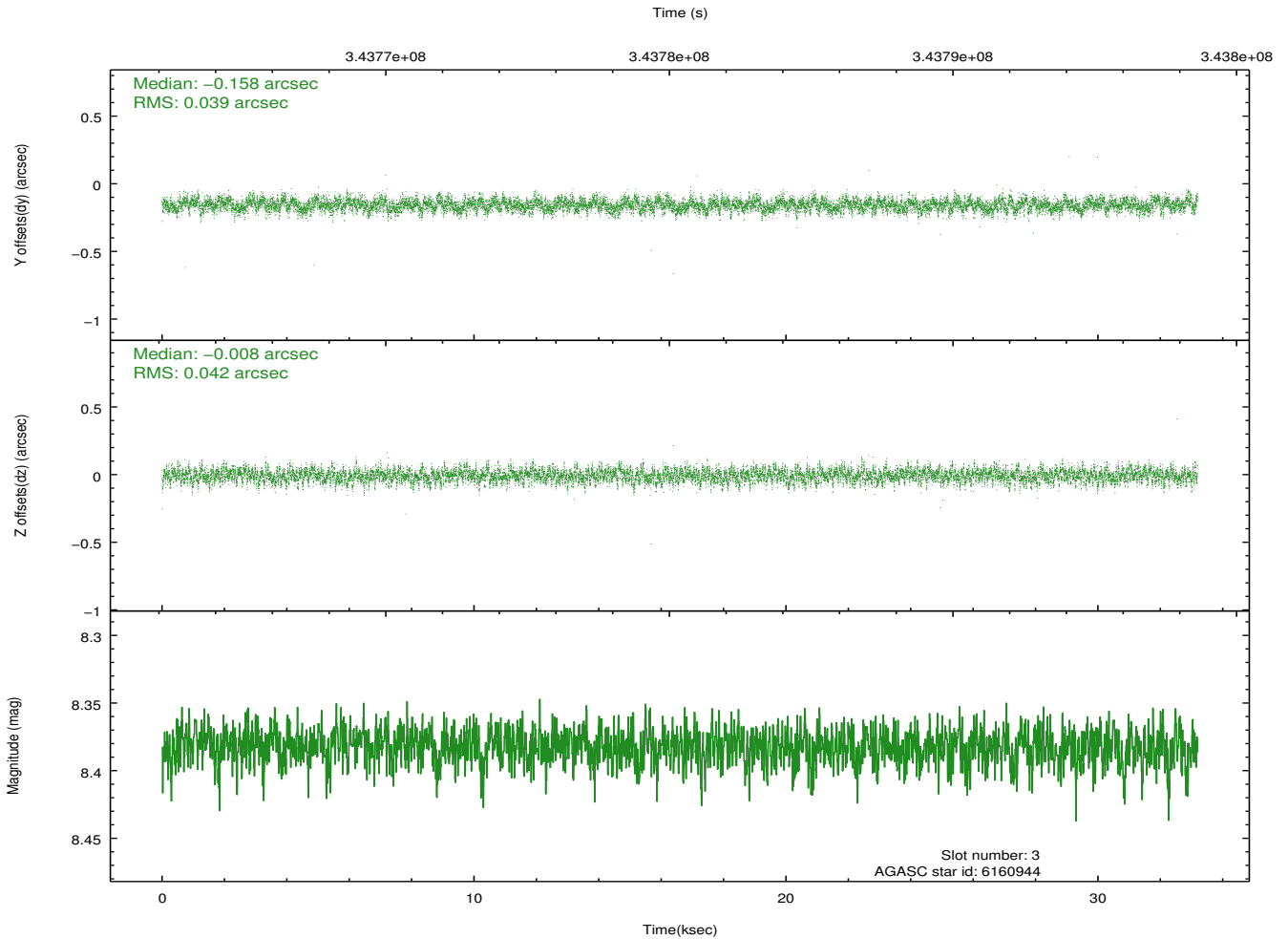
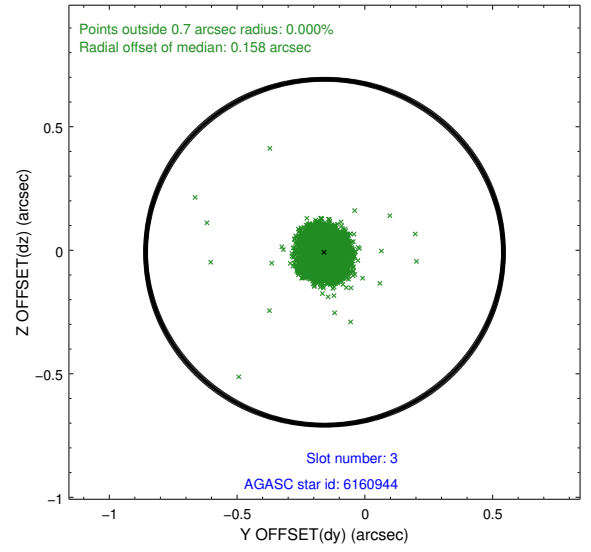
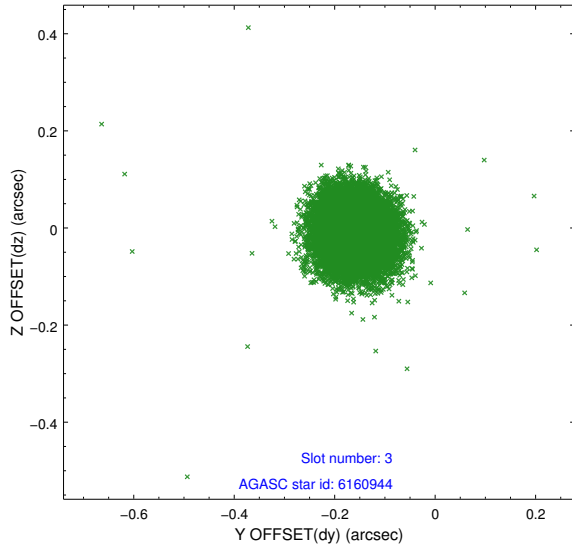


Slot Statistics

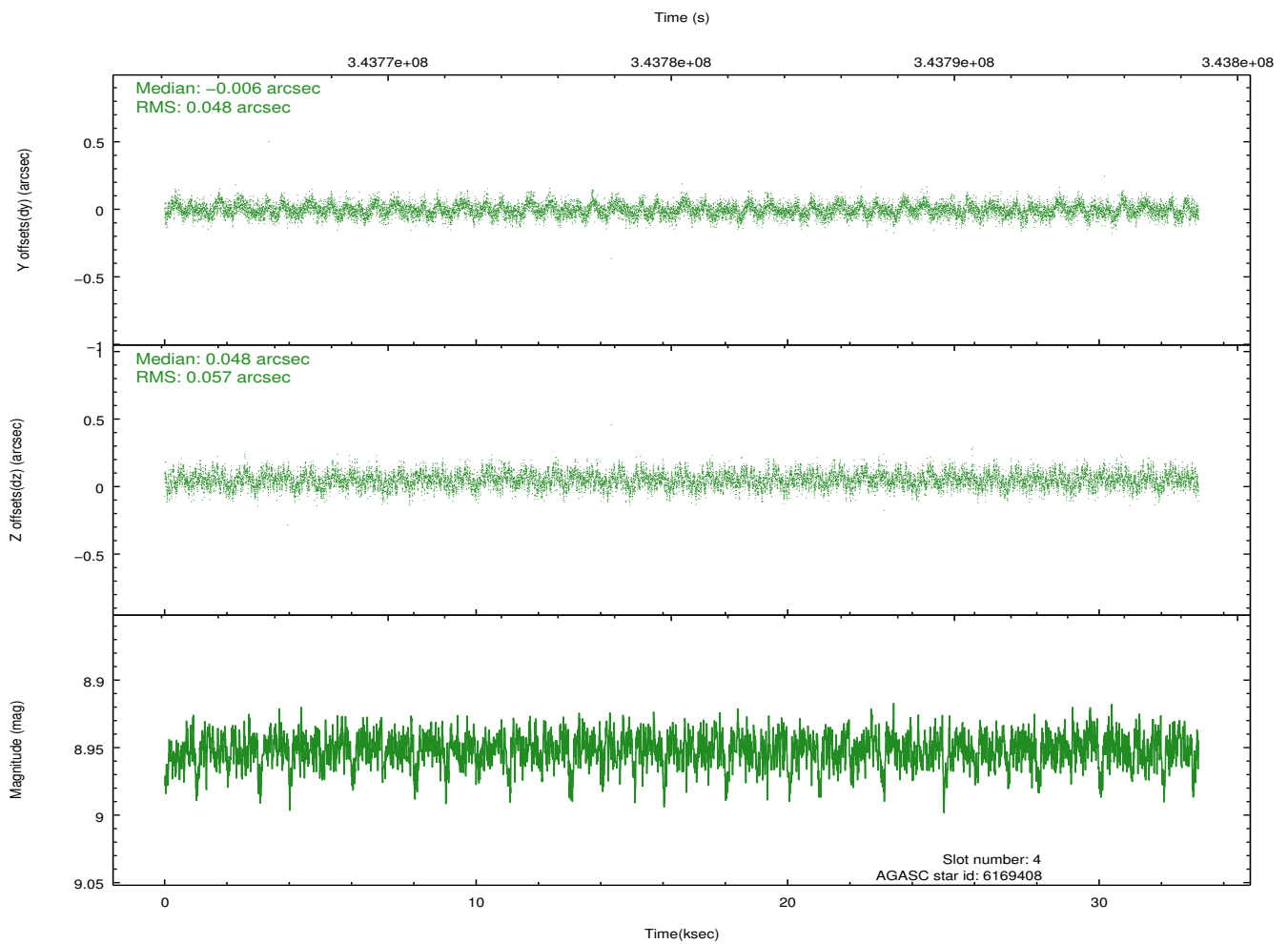
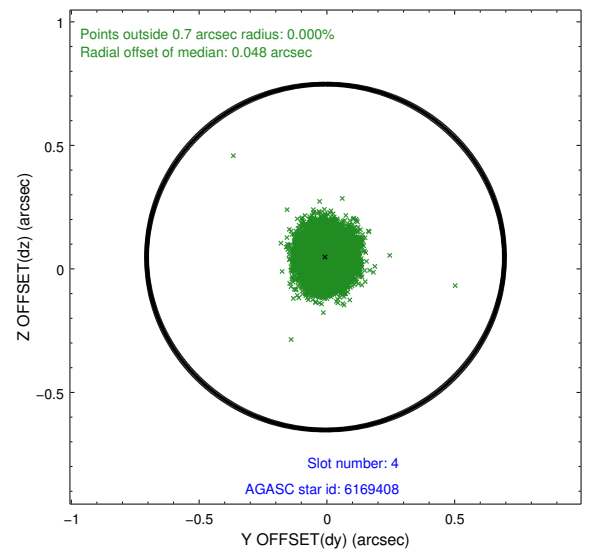
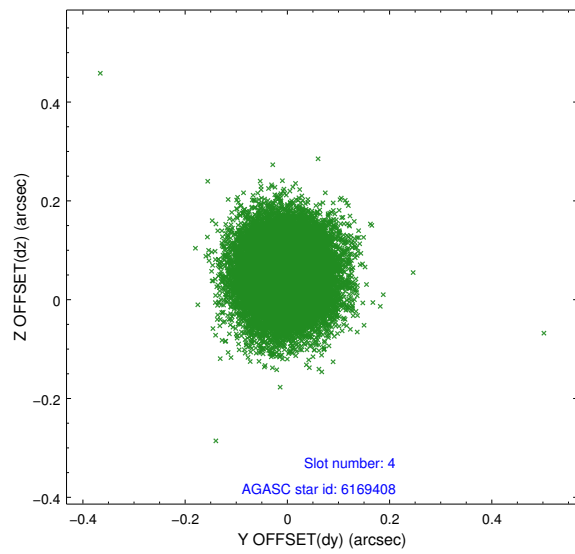
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.93	8096	-0.070	-0.099	0.007	0.012	0.000000	0.000000	-765.79	-1804.34
1	FID	ACIS-S-4	7.01	8095	0.156	0.060	0.011	0.028	0.000000	0.000000	2147.70	104.20
2	FID	ACIS-S-5	7.06	8096	-0.117	0.047	0.010	0.024	0.000000	0.000000	-1818.60	97.96
3	GUIDE	6160944	8.38	16179	-0.158	-0.008	0.061	0.098	40.821496	0.087247	294.04	657.76
4	GUIDE	6169408	8.95	16179	-0.006	0.048	0.080	0.128	40.937839	0.210390	366.92	1263.07
5	GUIDE	615907528	7.77	16184	-0.054	-0.094	0.051	0.083	41.252710	-0.191636	2139.11	774.31
6	GUIDE	615909768	9.07	16179	0.142	0.082	0.079	0.128	40.904100	-0.344520	1458.03	-414.93
7	GUIDE	615913552	8.70	16180	0.076	-0.027	0.065	0.106	41.235237	-0.003650	1686.26	1280.77

2.4 Star Slots

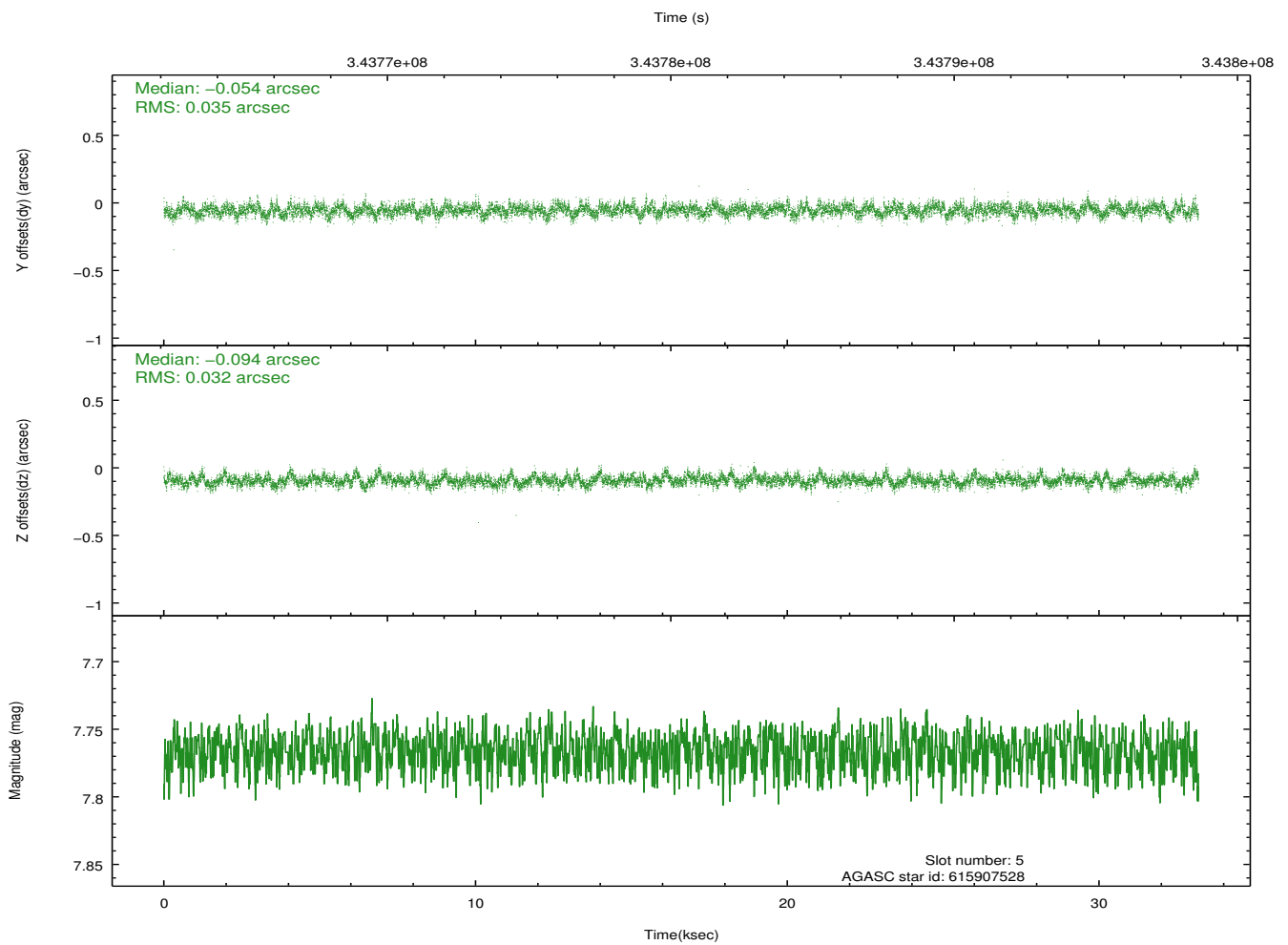
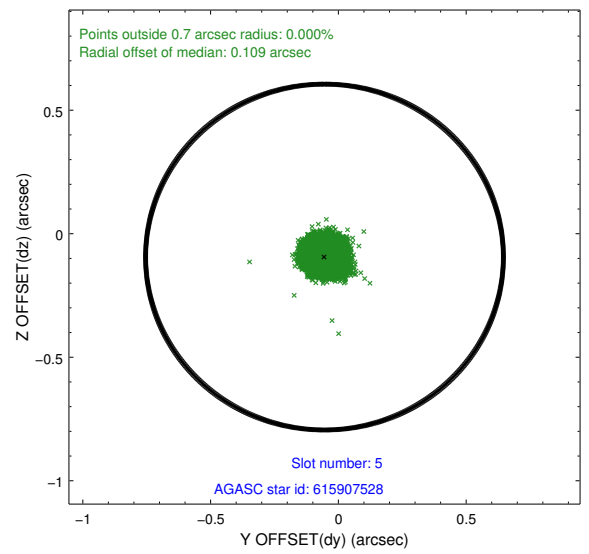
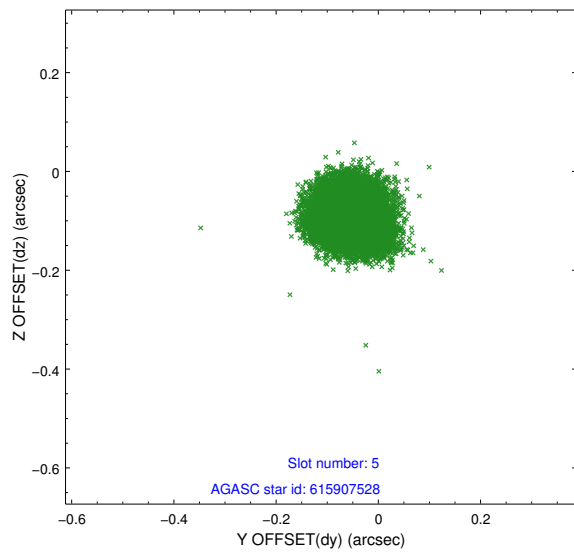
2.4.1 Slot 3



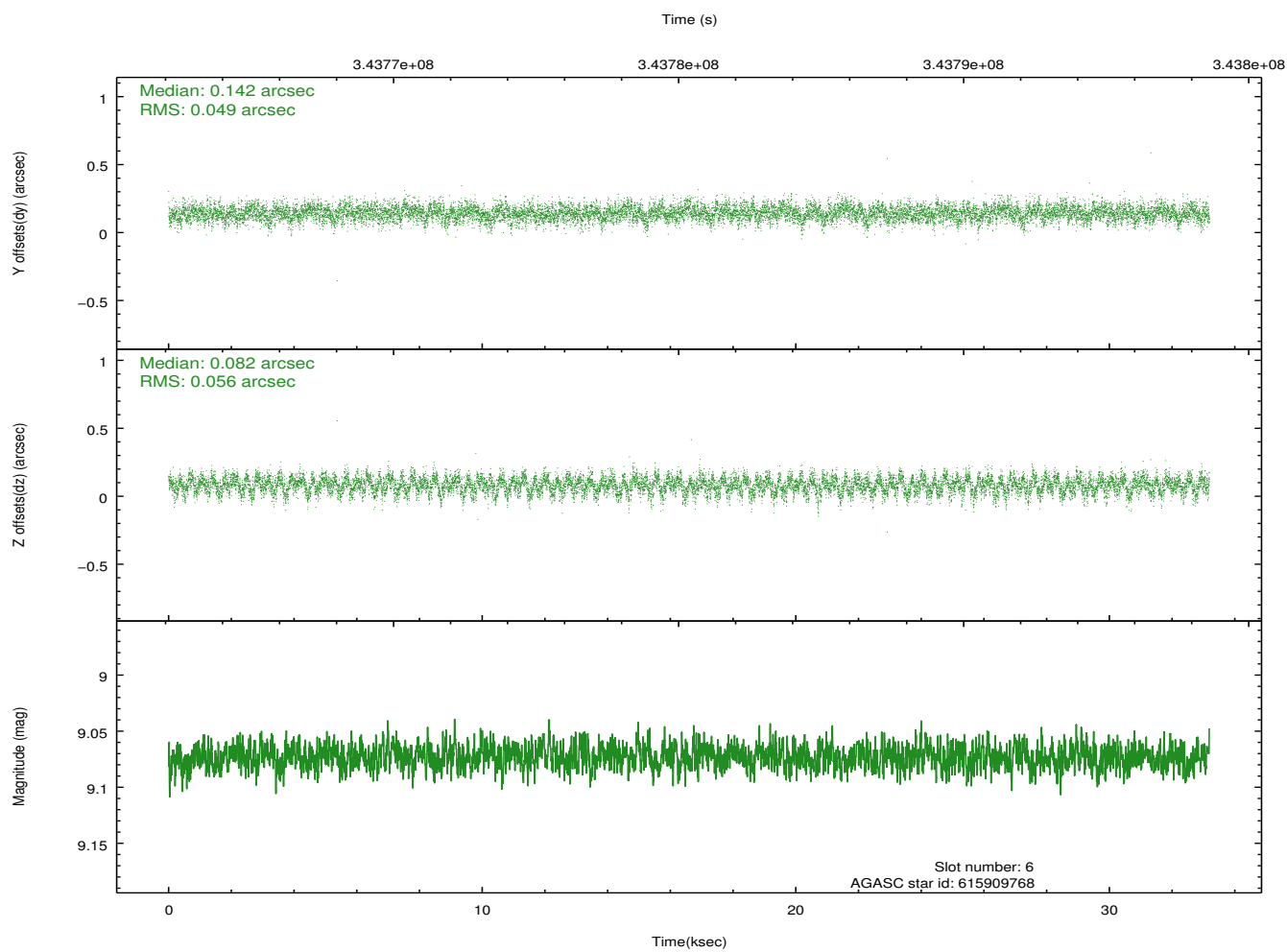
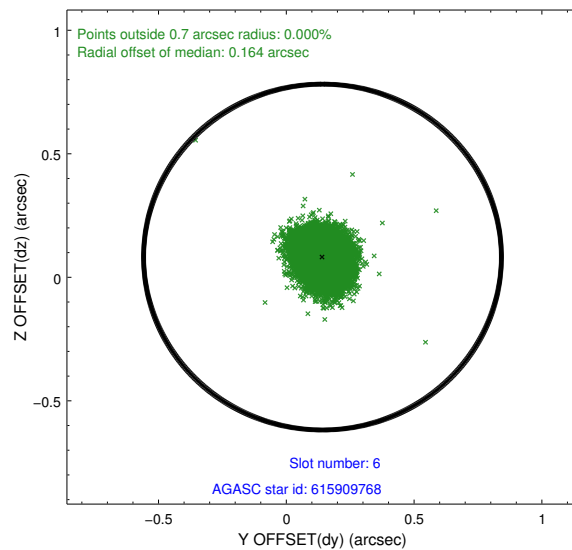
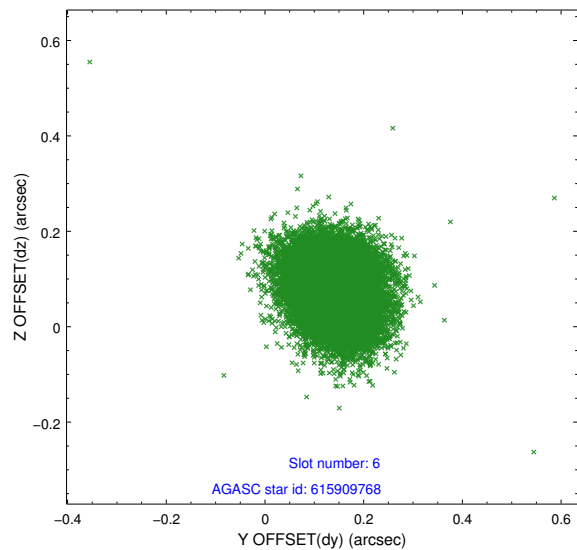
2.4.2 Slot 4



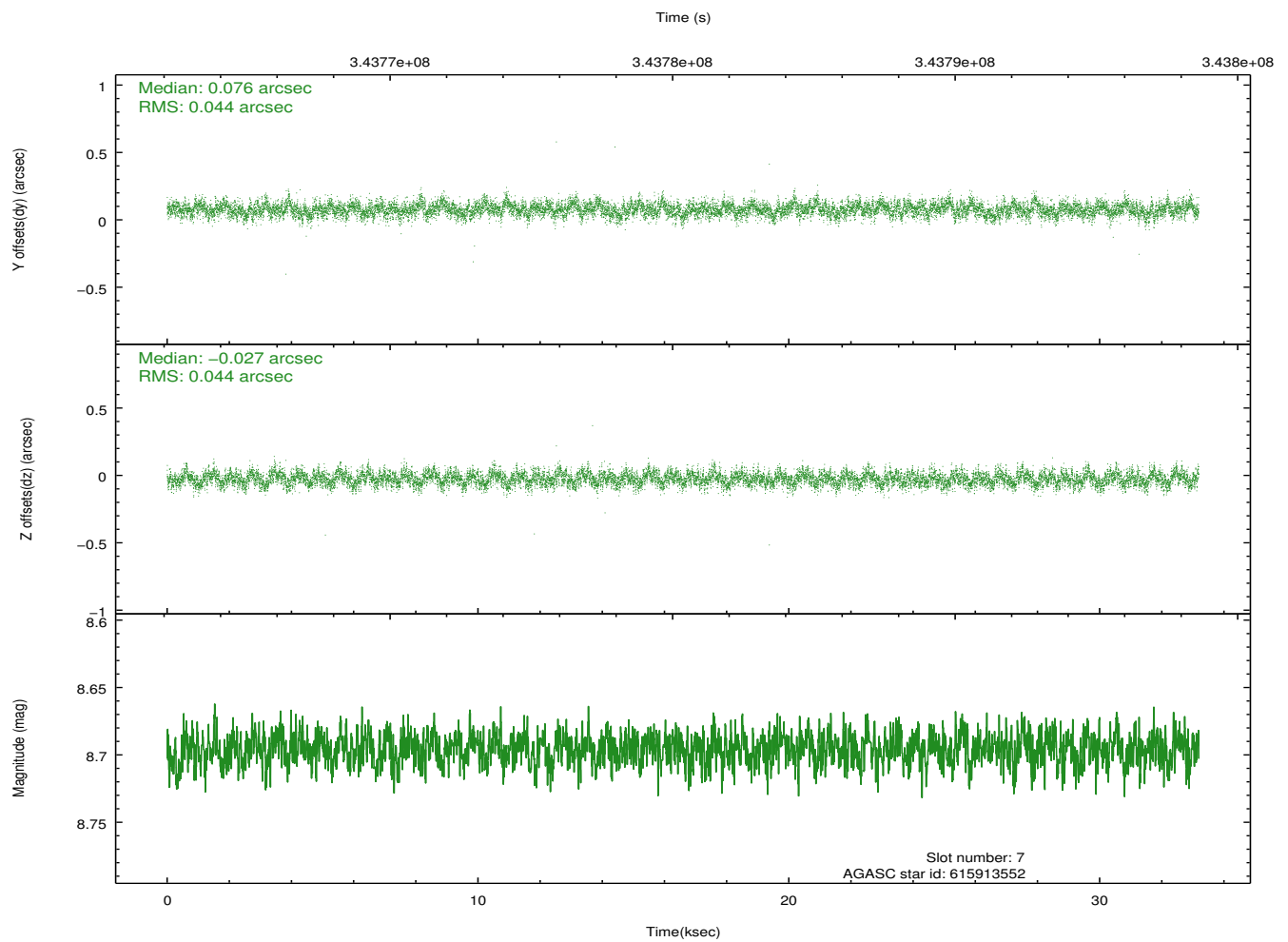
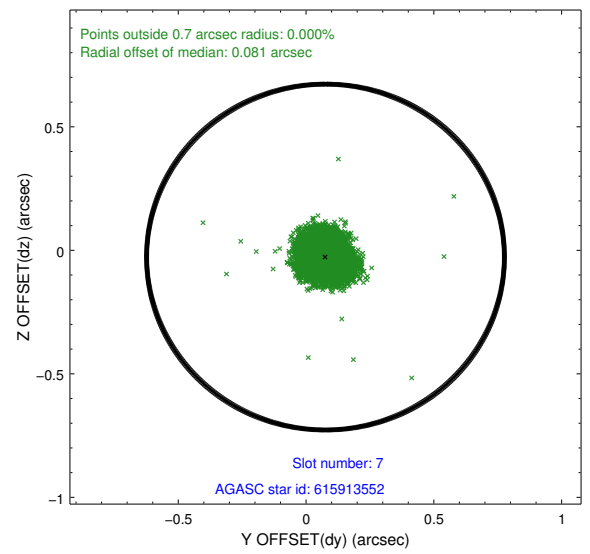
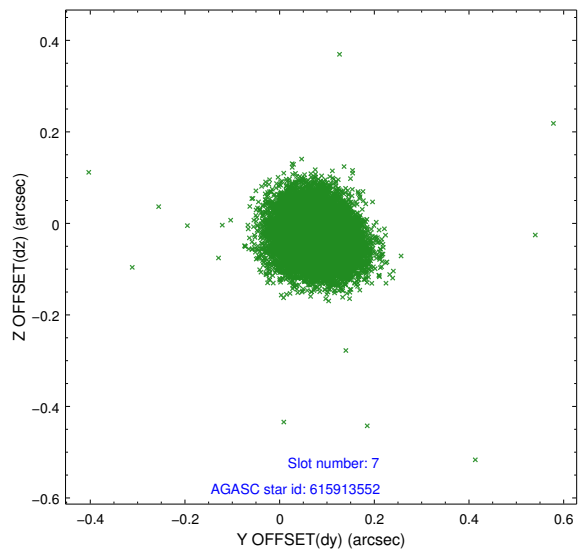
2.4.3 Slot 5



2.4.4 Slot 6

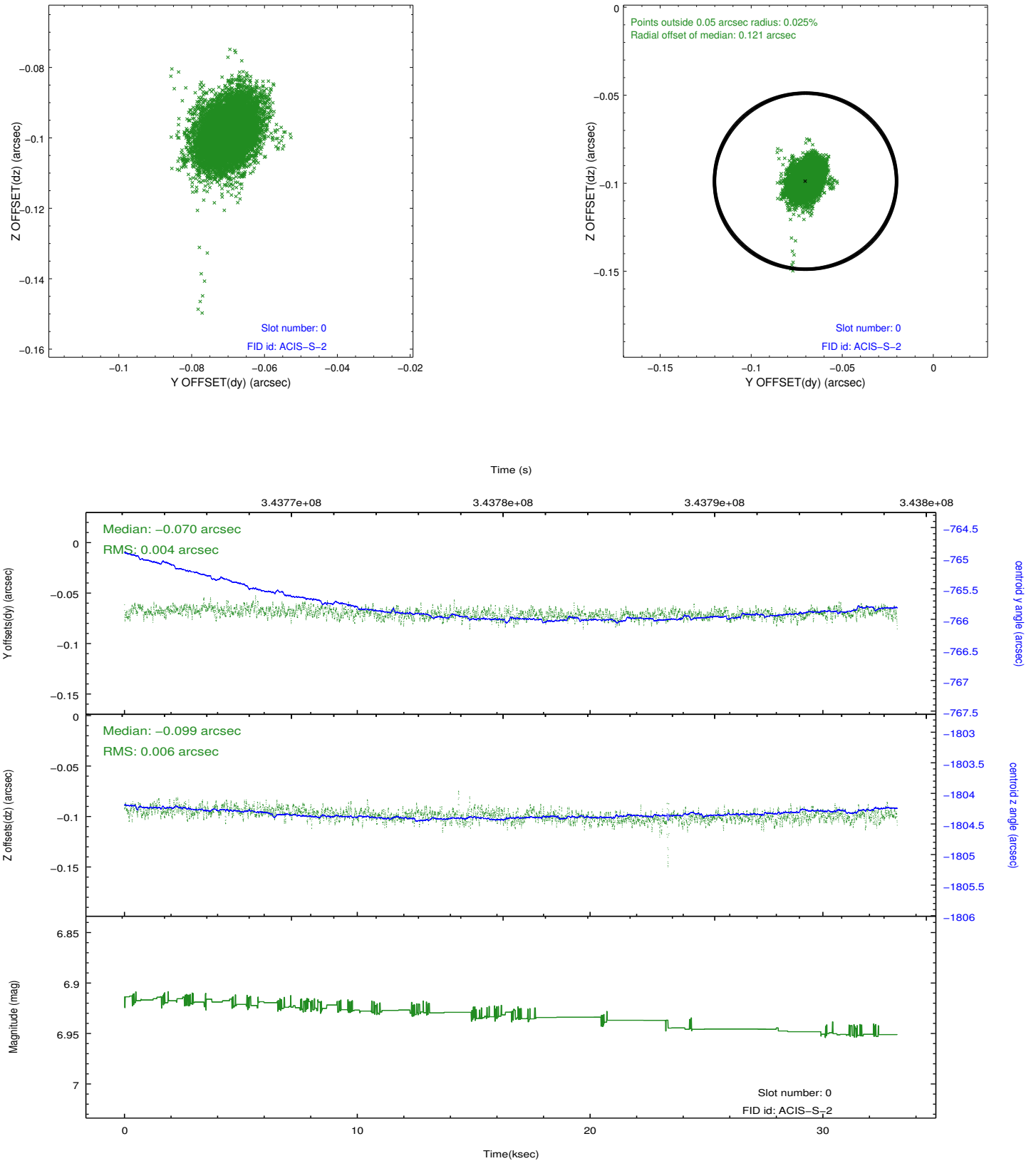


2.4.5 Slot 7

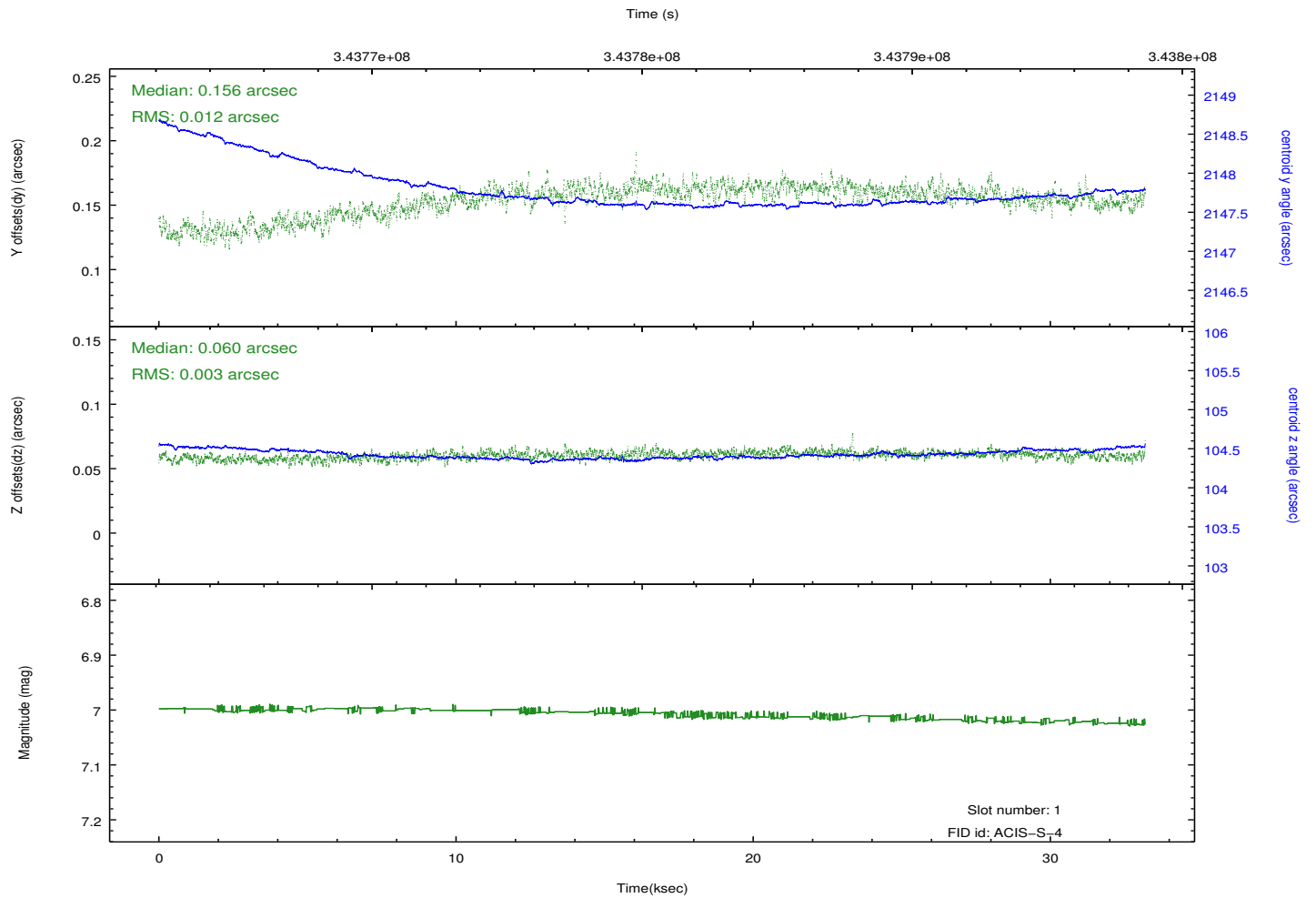
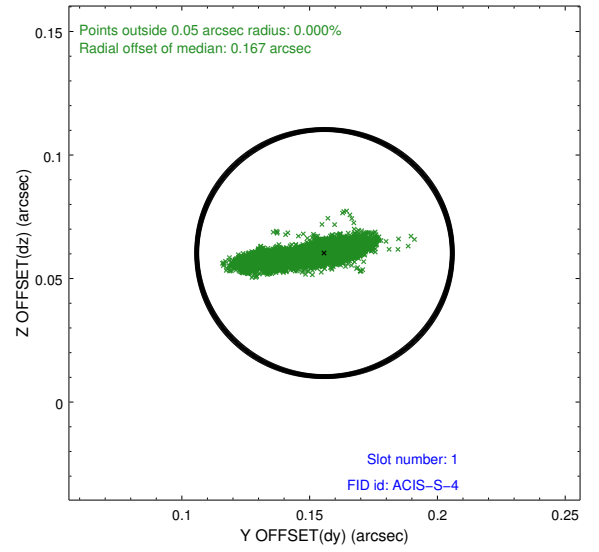
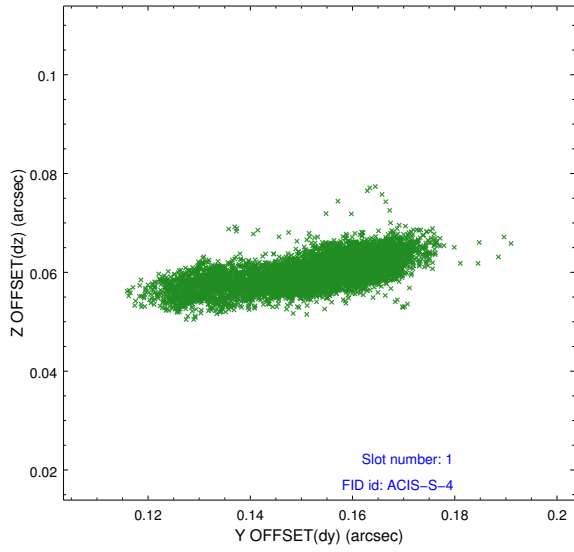


2.5 FID Slots

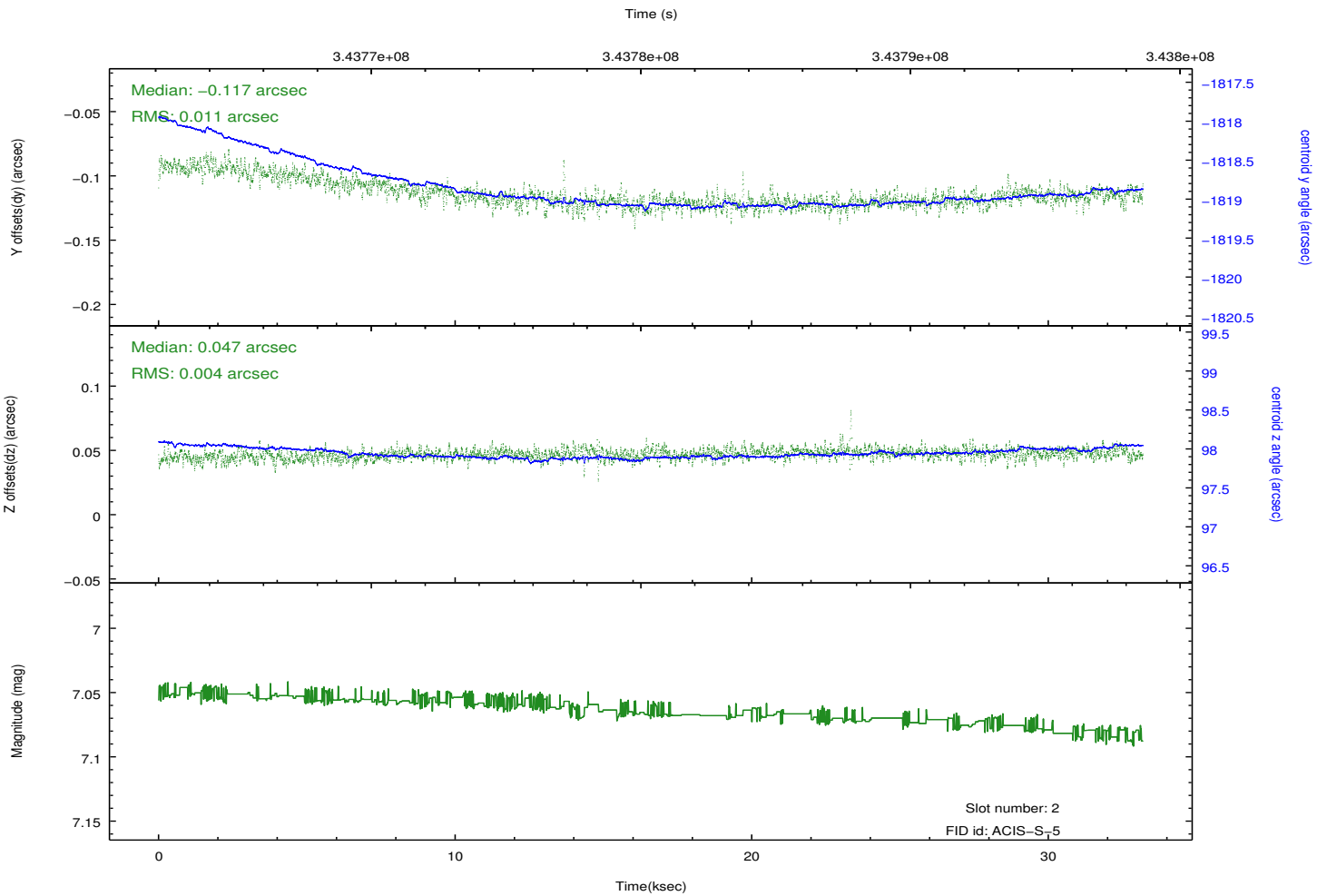
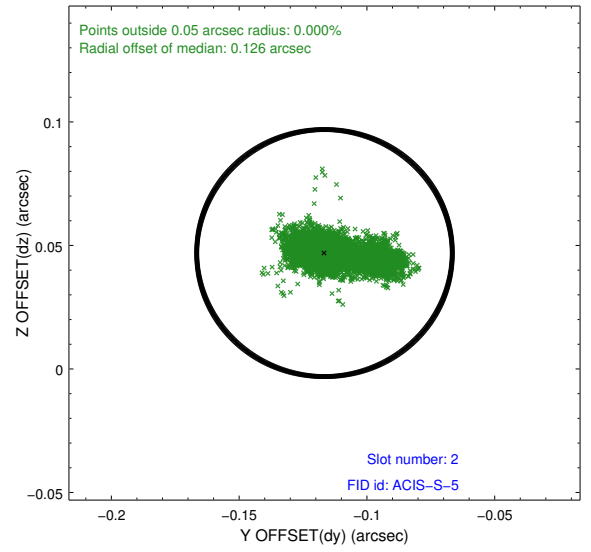
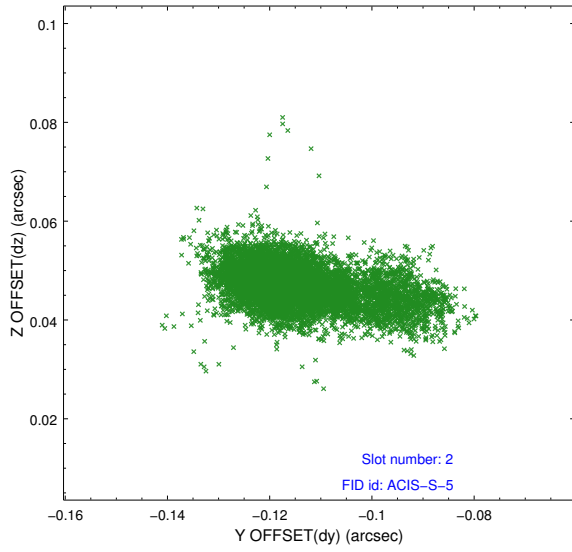
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

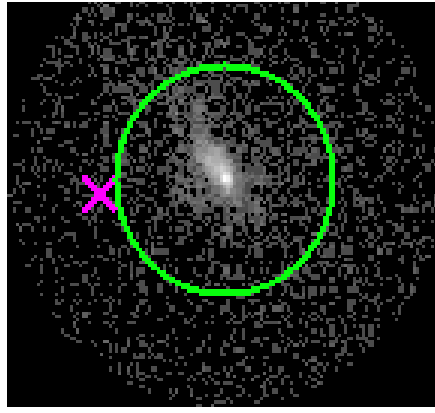


3 Gratings

3.1 HEG Arm



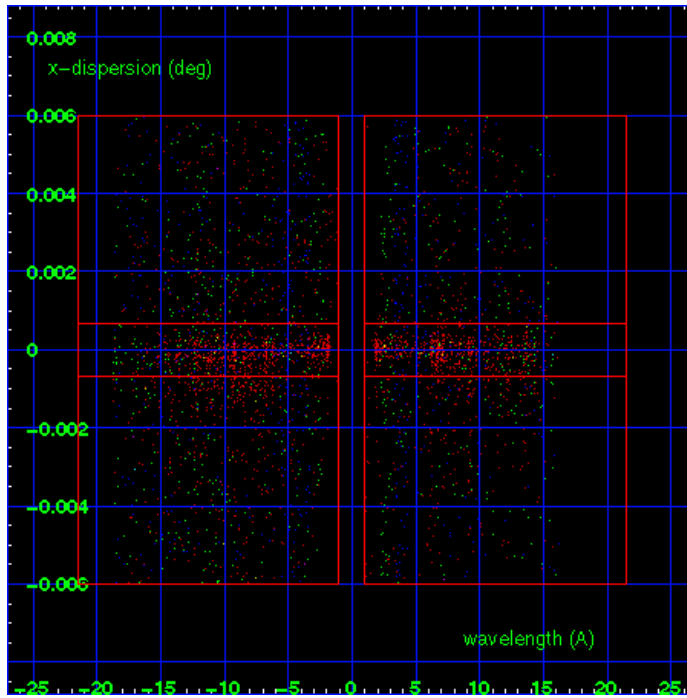
HEG Order Sort 123



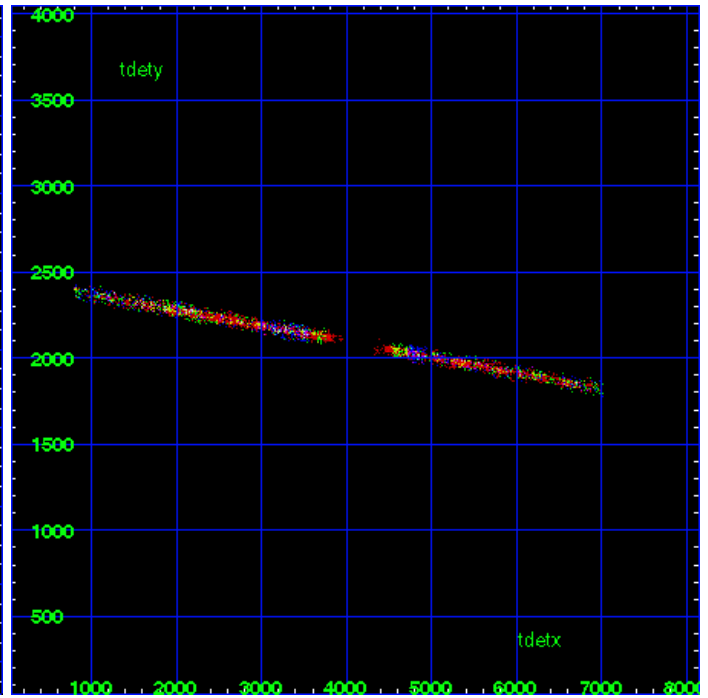
HEG Zero Order



HEG Order Sort ALL

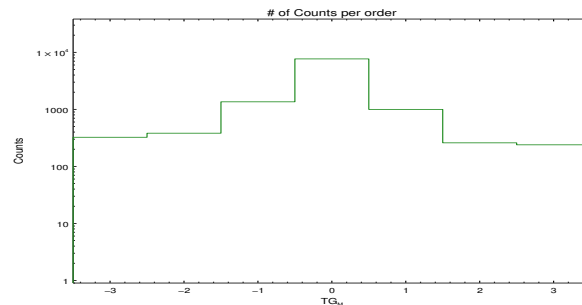


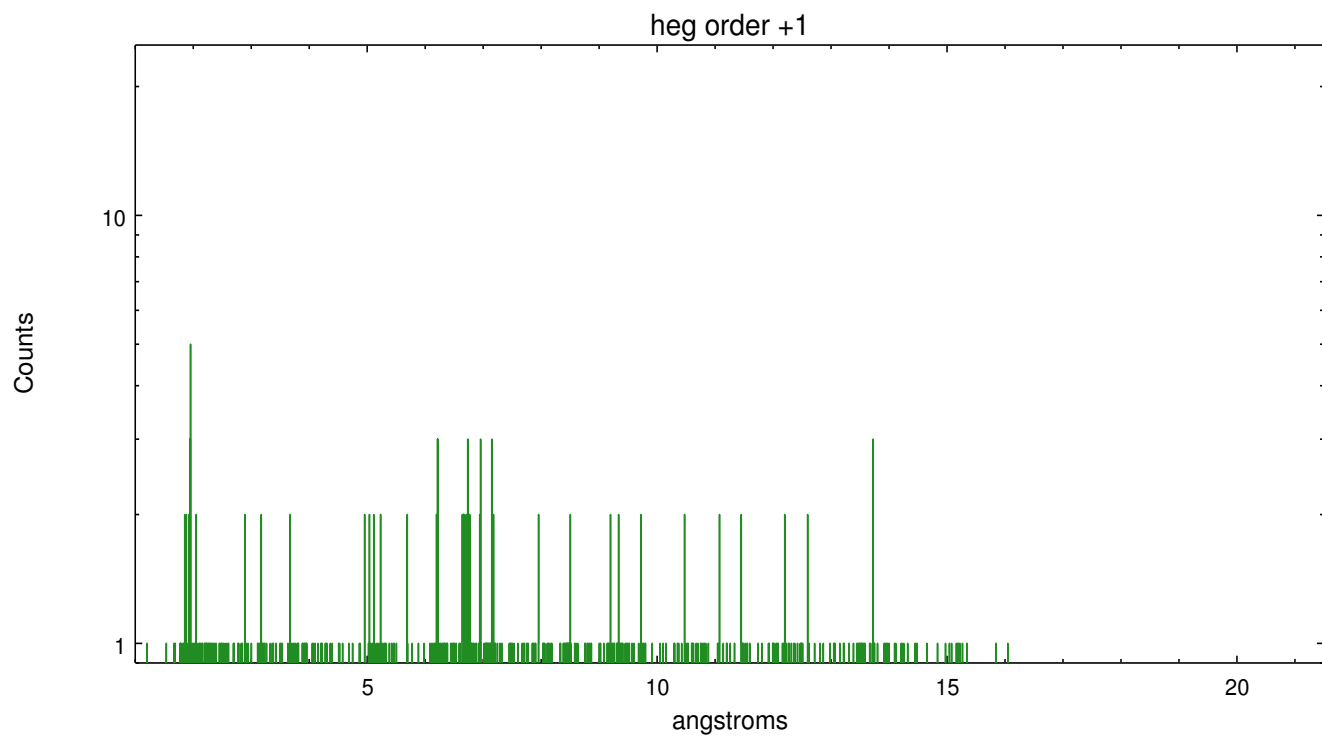
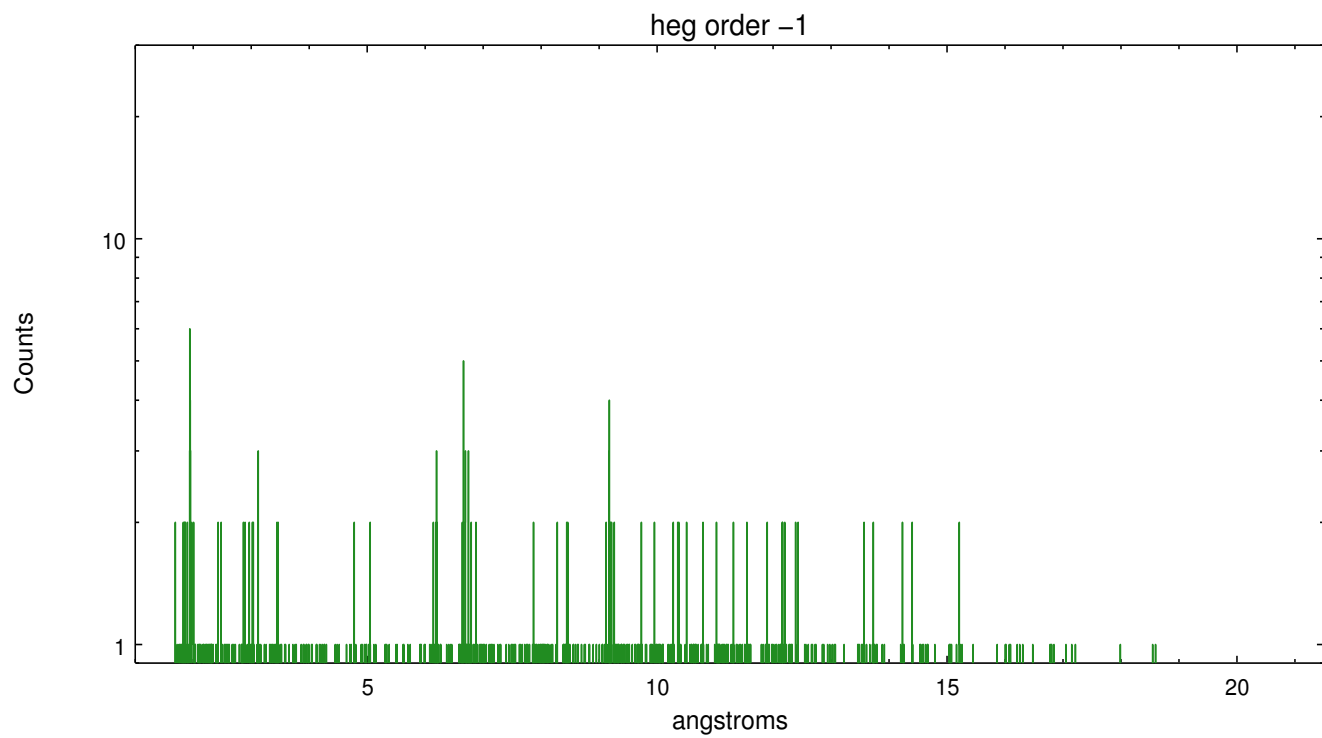
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	324	382	1357	7675	999	259	239

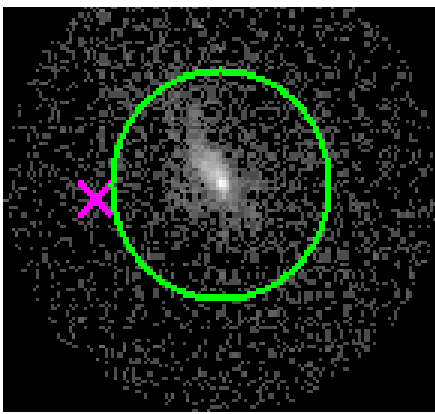




3.2 MEG Arm



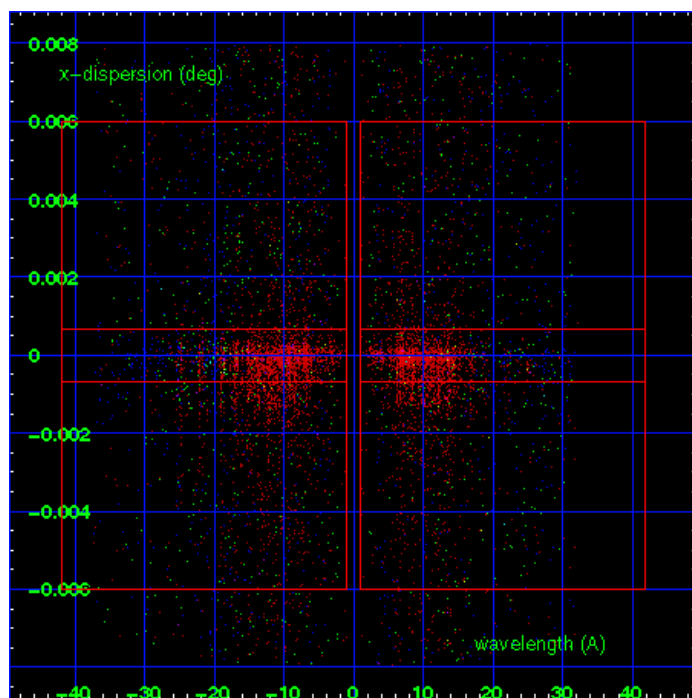
MEG Order Sort 123



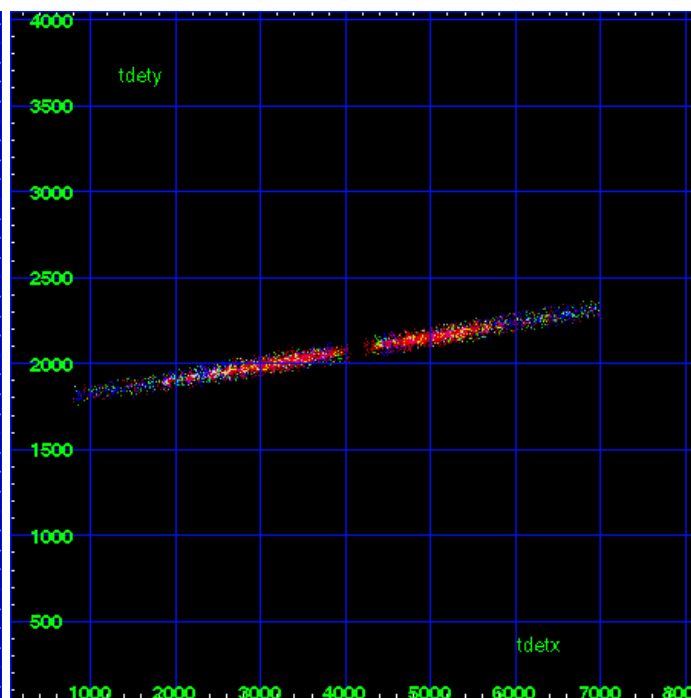
MEG Zero Order



MEG Order Sort ALL

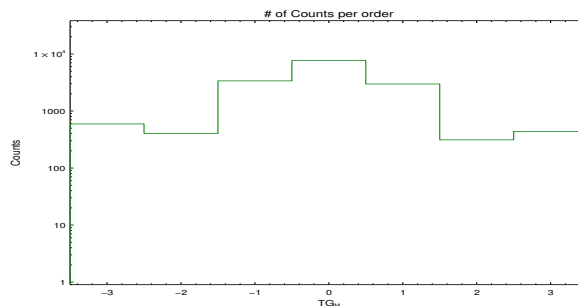


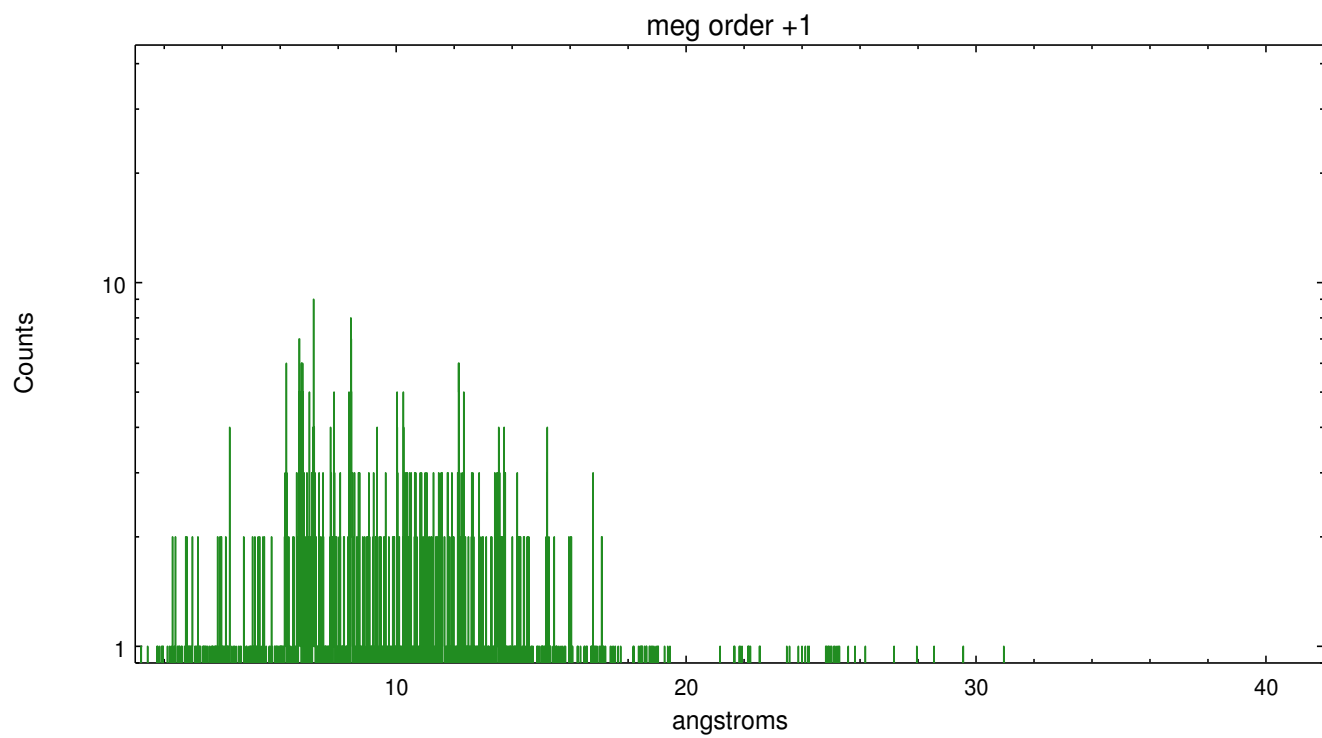
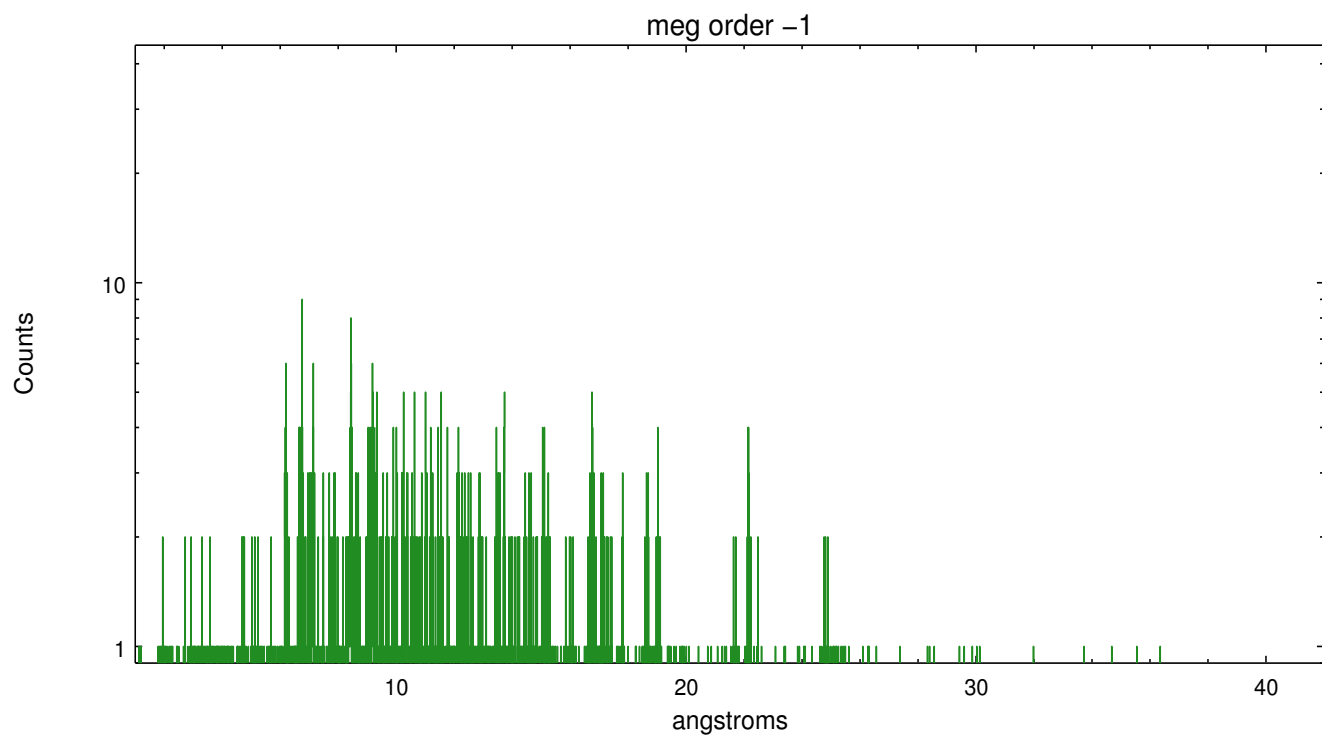
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	594	404	3378	7675	2979	312	439





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.06.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	33.1825

A.2 Comments

Source is extended and asymmetric. Standard software processing technique using the tool `tgdetect` did not give an accurate position for the zeroth order. The zeroth order position used in this processing was manually determined to be the brightest position in the nucleus. The newly determined zeroth order coordinates ($x=4131.125$, $y=4099.75$) have been placed in the `*src1a.fits` file, replacing the coordinates determined by `tgdetect`. Please note that rerunning `tgdetect` for analysis purposes will not give the same zeroth order position as that used in this processing.

===

Roll constraint met.

===

WARNING: there are no standard ciao tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle.