

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 332 - L2 Version 4
Chandra X-Ray Center

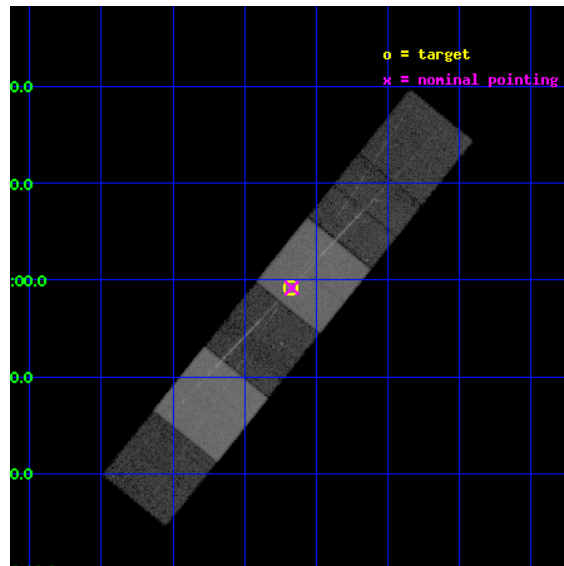
L2 Processing Date : Sep 11 2012

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

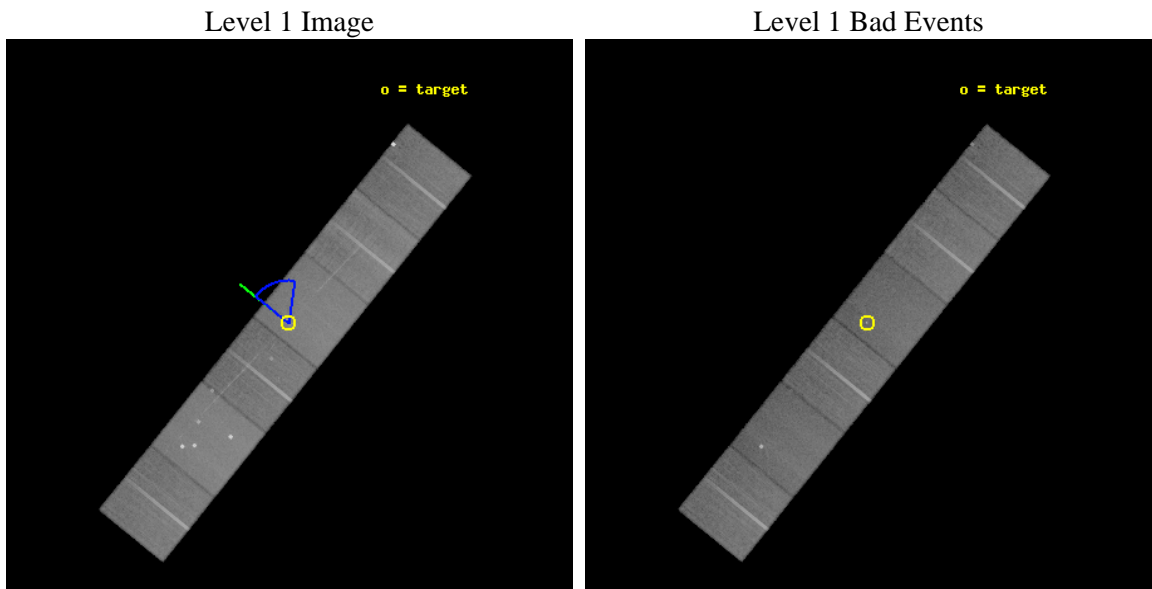
seq_num	700004	Sequence number
obs_id	332	Observation id
title	HETG OBSERVATIONS OF VARIOUS ACTIVE GALACTIC NUCLEI	Proposal title
observer	Prof Claude Canizares	Principal investigator
object	NGC 1068	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	40.669583	Observer's specified target RA [deg]
dec_targ	-0.013333	Observer's specified target Dec [deg]
ra_nom	40.667358899477	Nominal RA [deg]
dec_nom	-0.013359558618449	Nominal Dec [deg]
roll_nom	308.92094742051	Nominal Roll [deg]
revision	4	Processing version of data
ontime	46288.000043094	Sum of GTIs [s]
livetime	45701.873515261	Livetime [s]
ontime4	46284.75907284	Sum of GTIs [s]
ontime5	46288.000043094	Sum of GTIs [s]
ontime6	46288.000043094	Sum of GTIs [s]
ontime7	46288.000043094	Sum of GTIs [s]
ontime8	46288.000043094	Sum of GTIs [s]
ontime9	46288.000043094	Sum of GTIs [s]
l2events	412518	Number of level 2 events



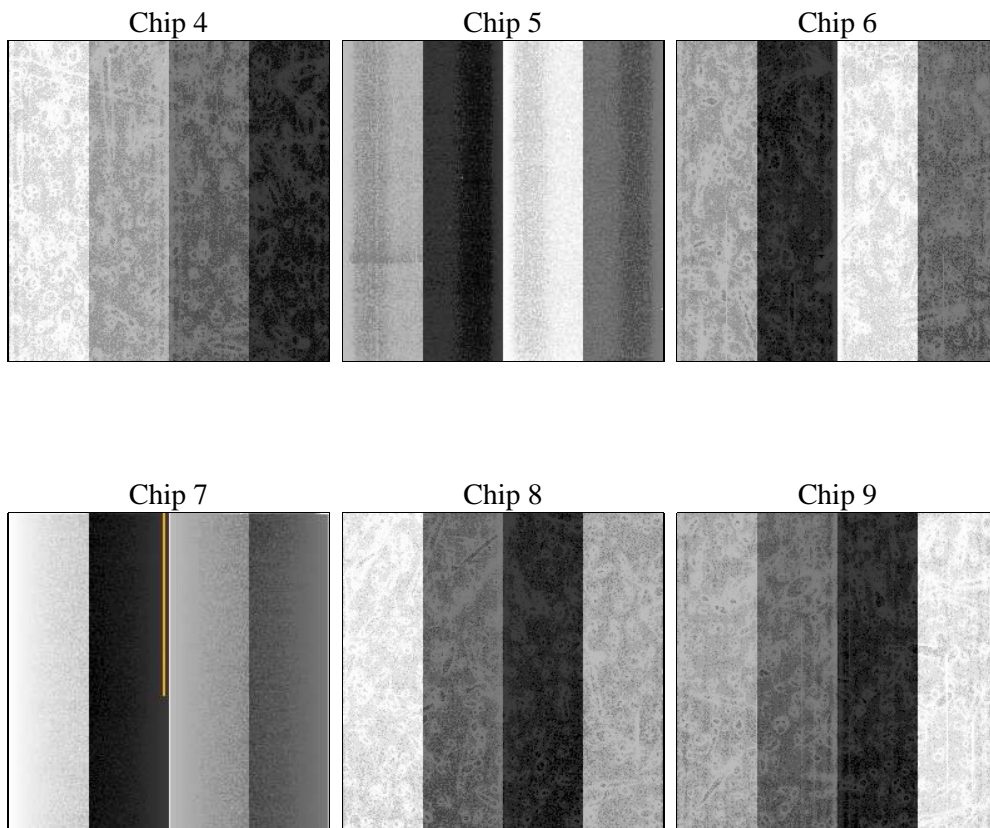
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	46300.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	46288.000043094	Sum of GTIs [s]
caldbver	4.5.1.1	 	ontime4	46284.75907284	Sum of GTIs [s]
date	2012-09-04T05:40:59	Date and time of file creation	ontime5	46288.000043094	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	46288.000043094	Sum of GTIs [s]
			ontime7	46288.000043094	Sum of GTIs [s]
			ontime8	46288.000043094	Sum of GTIs [s]
			ontime9	46288.000043094	Sum of GTIs [s]
			l1events	1879535	Number of level 1 events

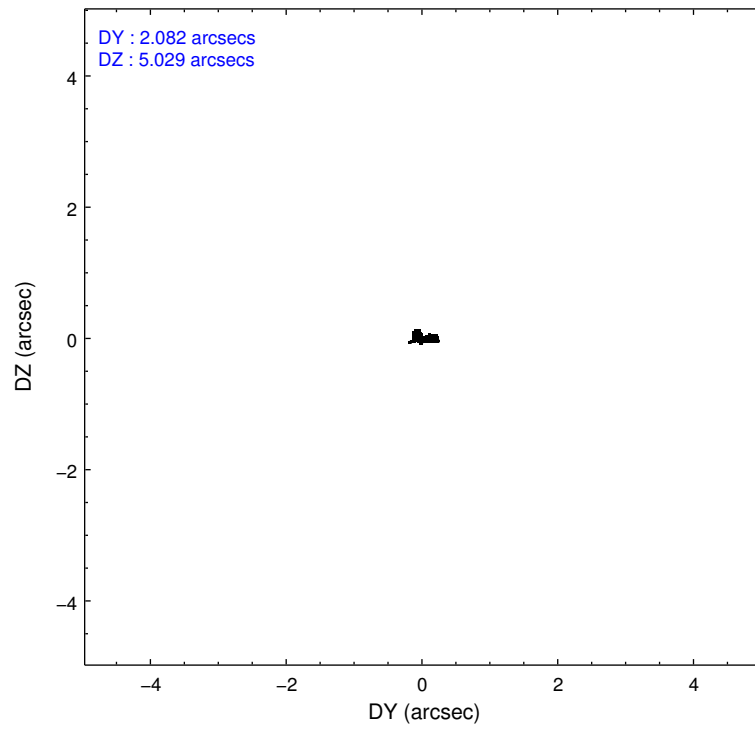
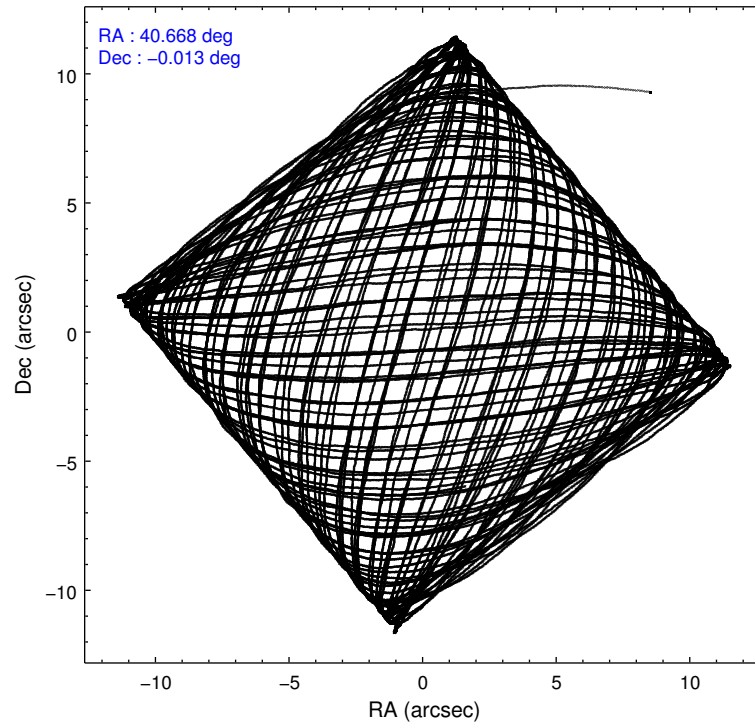
2.1.4 Events

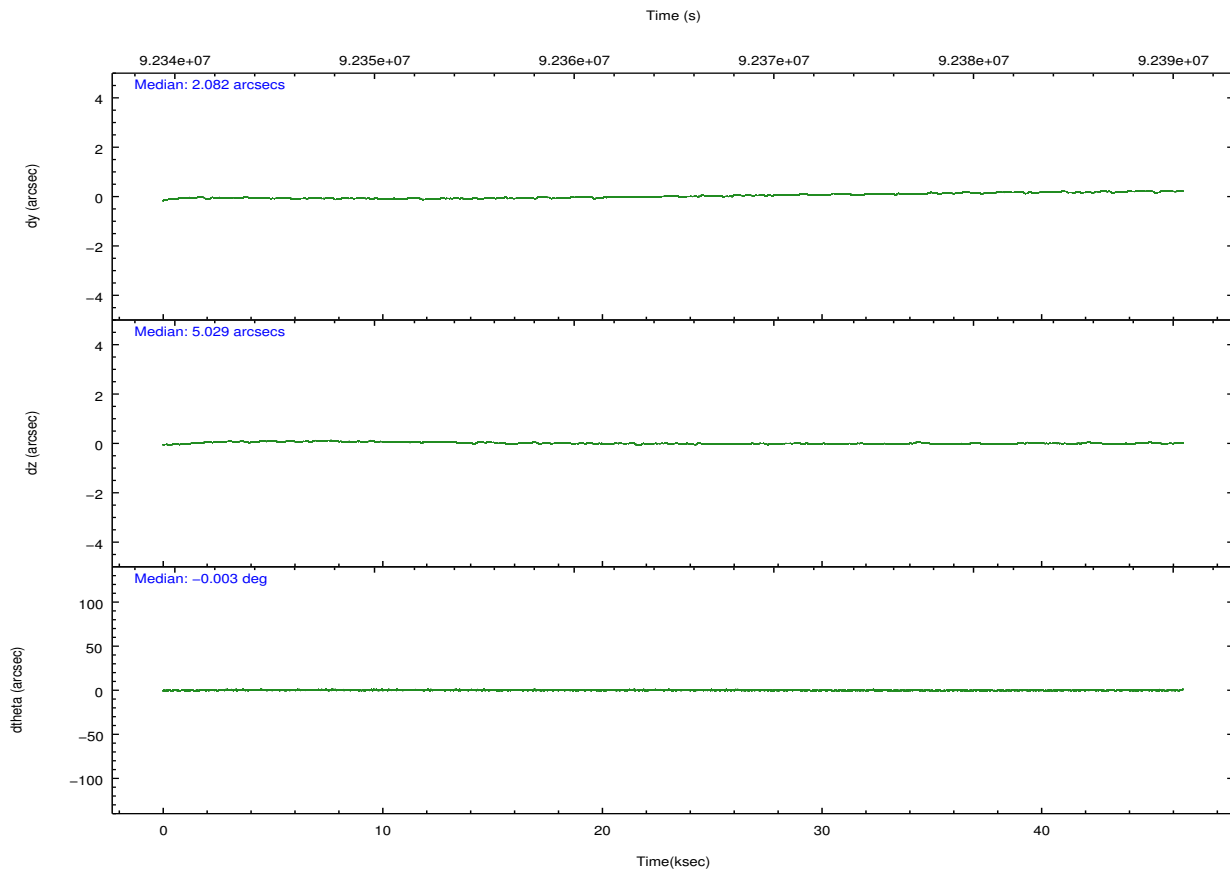
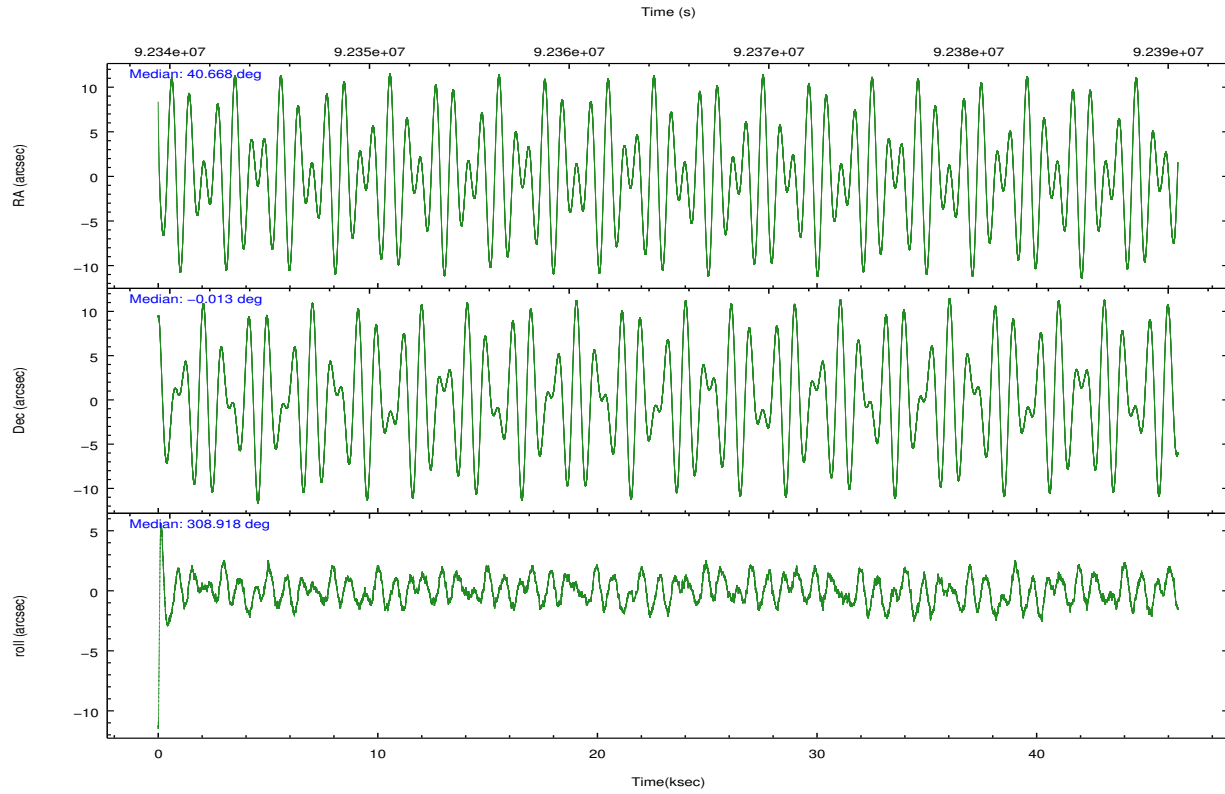
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	283444	382054	264907	341751	334062	273317	grade 0 events	13021	32624	16023	16790	24060	26367
rejected events	251992	199162	230238	192261	262348	227947		4%	8%	6%	4%	7%	9%
rejected %	88%	52%	86%	56%	78%	83%	grade 1 events	120	531	132	427	190	443
								0%	0%	0%	0%	0%	0%
							grade 2 events	7310	52125	6432	30104	14494	6325
								2%	13%	2%	8%	4%	2%
							grade 3 events	2908	7177	3087	14037	7985	3107
								1%	1%	1%	4%	2%	1%
							grade 4 events	2724	6723	3067	13812	7323	3406
								0%	1%	1%	4%	2%	1%
							grade 5 events	9288	27544	10659	31397	13561	11105
								3%	7%	4%	9%	4%	4%
							grade 6 events	5490	84268	6066	74774	17887	6172
								1%	22%	2%	21%	5%	2%
							grade 7 events	242583	171062	219441	160410	248562	216392
								85%	44%	82%	46%	74%	79%

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	40.641778	40.66735889947715	Subarray requested	NONE	NONE
[deg] Pointing Dec	-0.003740	-0.01335955861844945	Alternating exposures requested	N	N
[deg] Pointing Roll	308.764318	308.9209474205138	[s] Primary exposure time	0.000000	3.2
[deg] Roll angle	338.000000	338.000000			
[deg] Roll tolerance	30.000000	30.000000			
Roll constraint allows 180D rotation	N	N			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-187.132523	-187.1228876879999			
[mm] SIM translation stage offset	-3	-3.009634895007935			
[s] Observation start time (MET)	92341869.184000	92340776.67375199			
Observation start date	2000-12-04T18:30:05	2000-12-04T18:12:56			
[s] Observation end time (MET)	92388169.184000	92388393.563071			
Observation end date	2000-12-05T07:21:45	2000-12-05T07:26:33			
Read mode	TIMED	TIMED			

2.3 Aspect



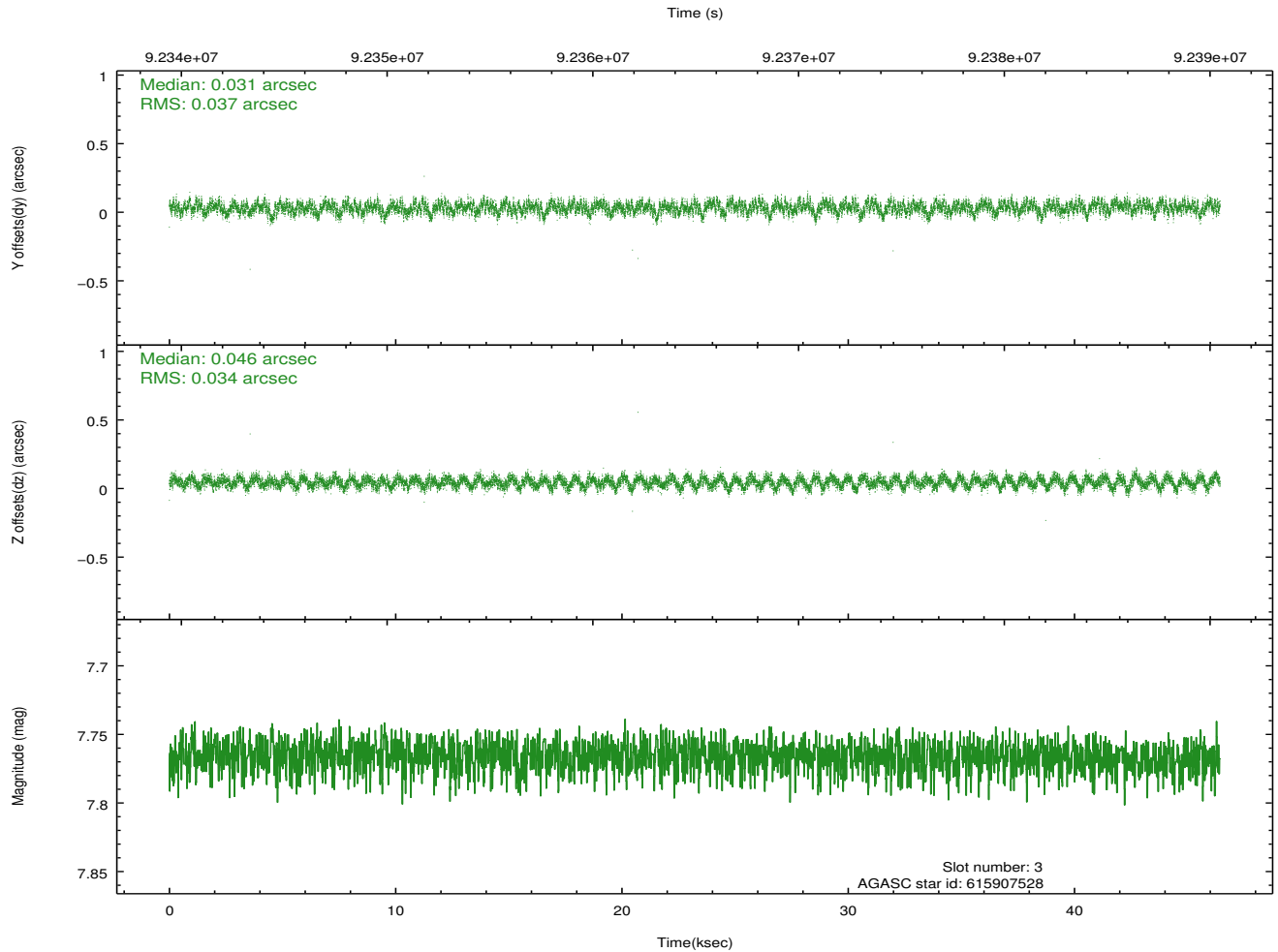
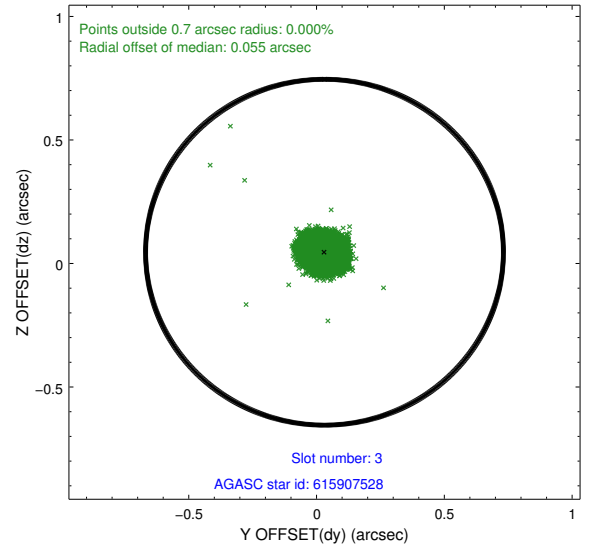
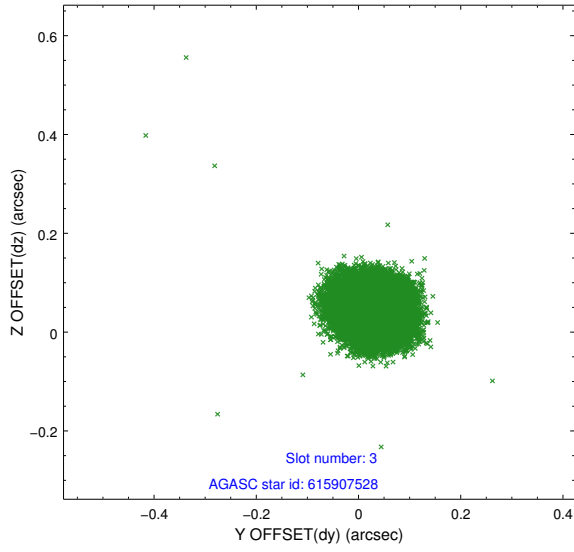


Slot Statistics

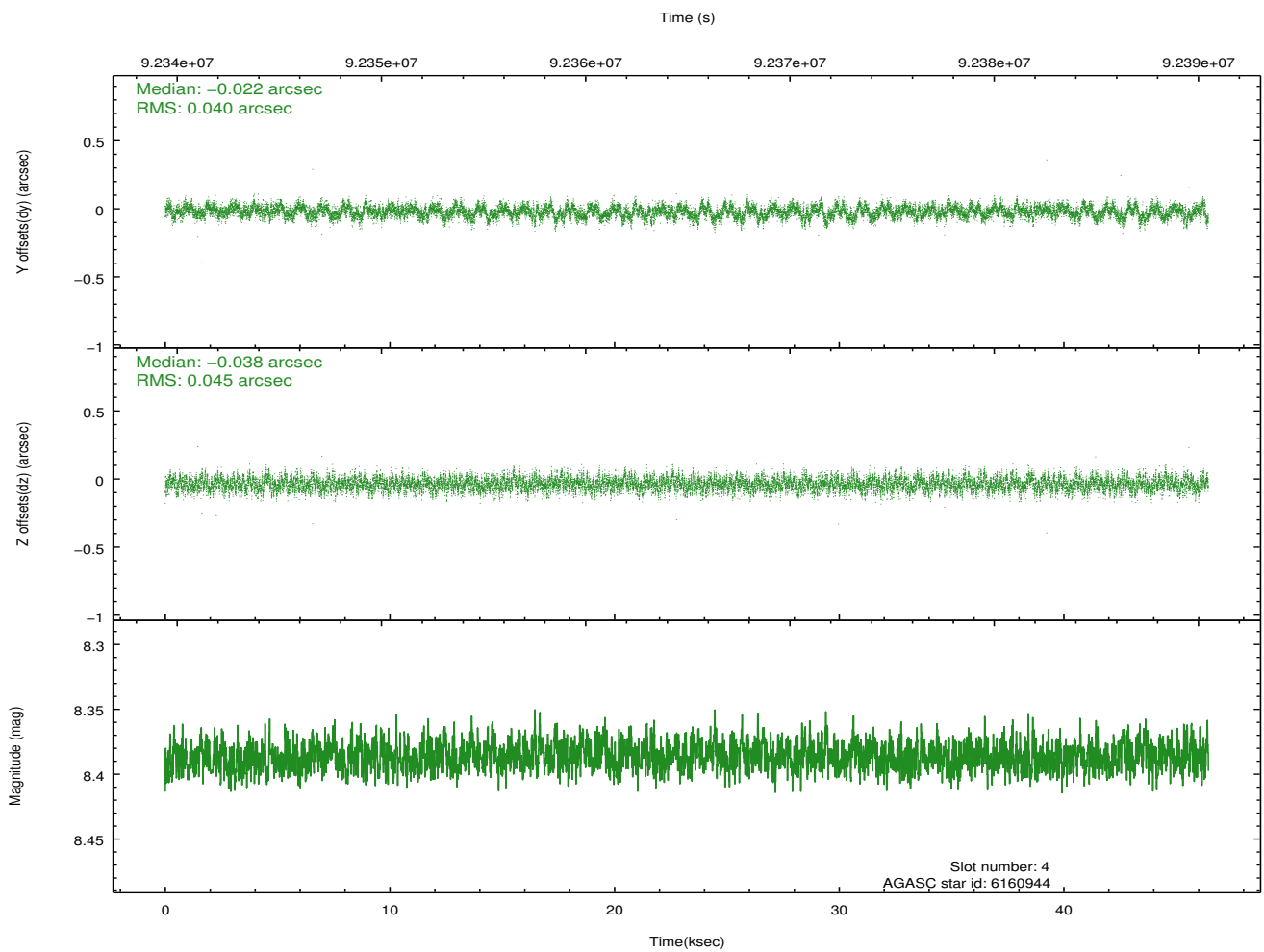
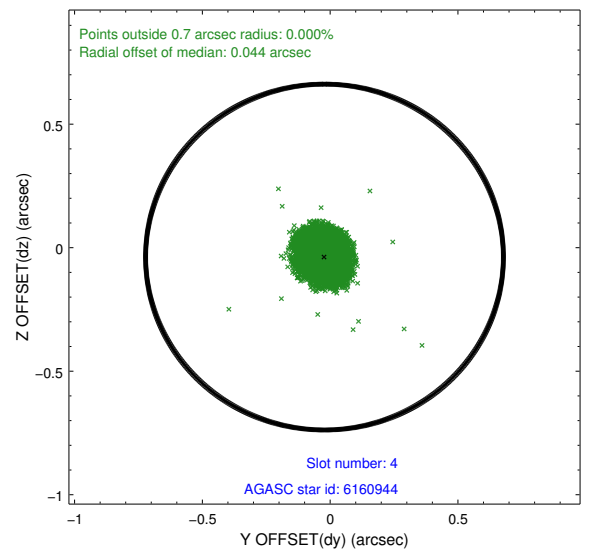
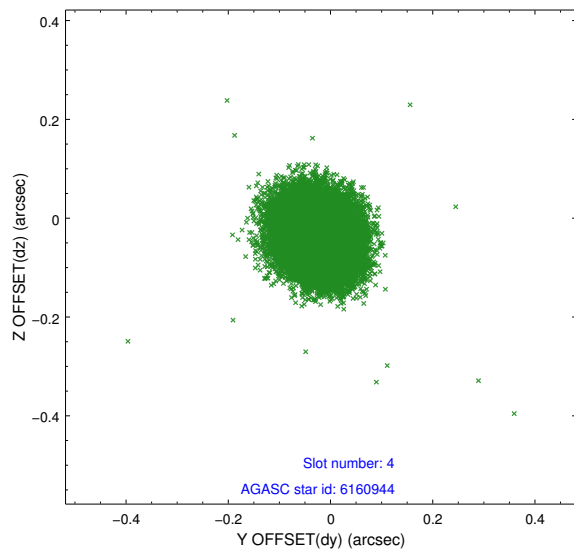
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	11326	-0.031	-0.045	0.007	0.011	0.000000	0.000000	-754.57	-1788.33
1	FID	ACIS-S-4	7.20	11325	-0.019	0.027	0.006	0.010	0.000000	0.000000	2158.74	120.19
2	FID	ACIS-S-5	7.23	11325	0.018	0.026	0.007	0.011	0.000000	0.000000	-1807.35	113.90
3	GUIDE	615907528	7.77	22649	0.031	0.046	0.054	0.083	41.252710	-0.191636	1903.74	1291.15
4	GUIDE	6160944	8.39	22649	-0.022	-0.038	0.064	0.102	40.821496	0.087247	148.98	709.20
5	GUIDE	615907472	8.36	22649	-0.039	-0.076	0.119	0.171	40.049578	-0.266703	-597.34	-2255.52
6	GUIDE	615913552	8.71	22643	0.100	0.075	0.069	0.110	41.235237	-0.003650	1336.71	1665.73
7	GUIDE	6166048	7.86	22627	-0.061	-0.008	0.046	0.075	40.482066	0.525874	-1847.40	745.06

2.4 Star Slots

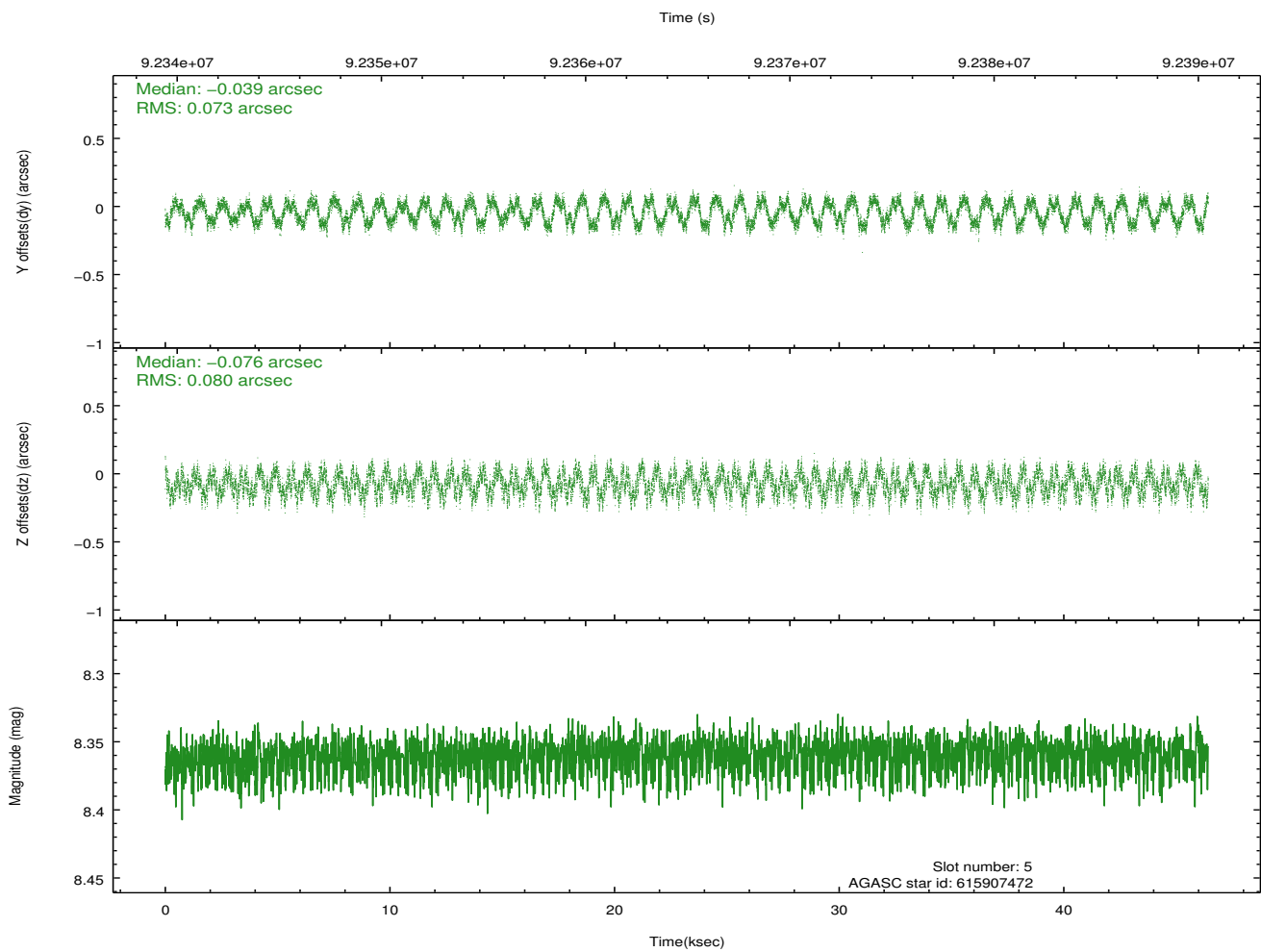
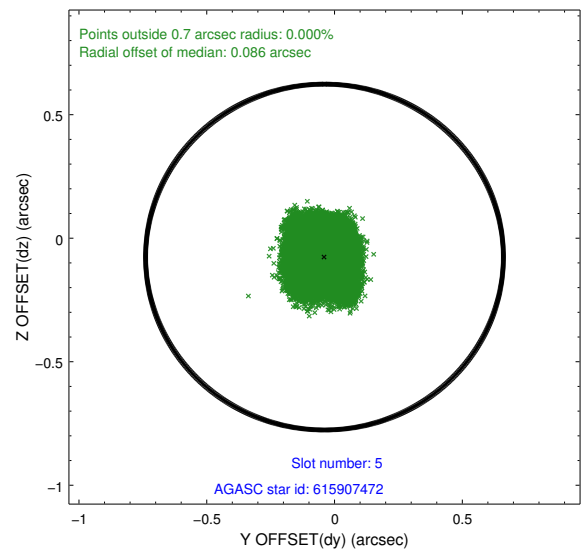
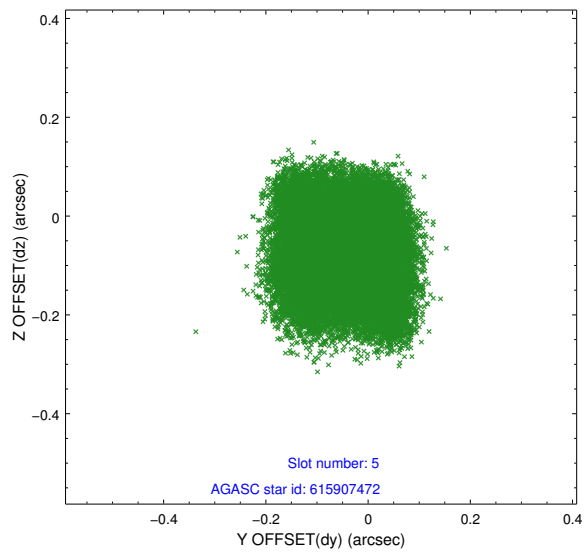
2.4.1 Slot 3



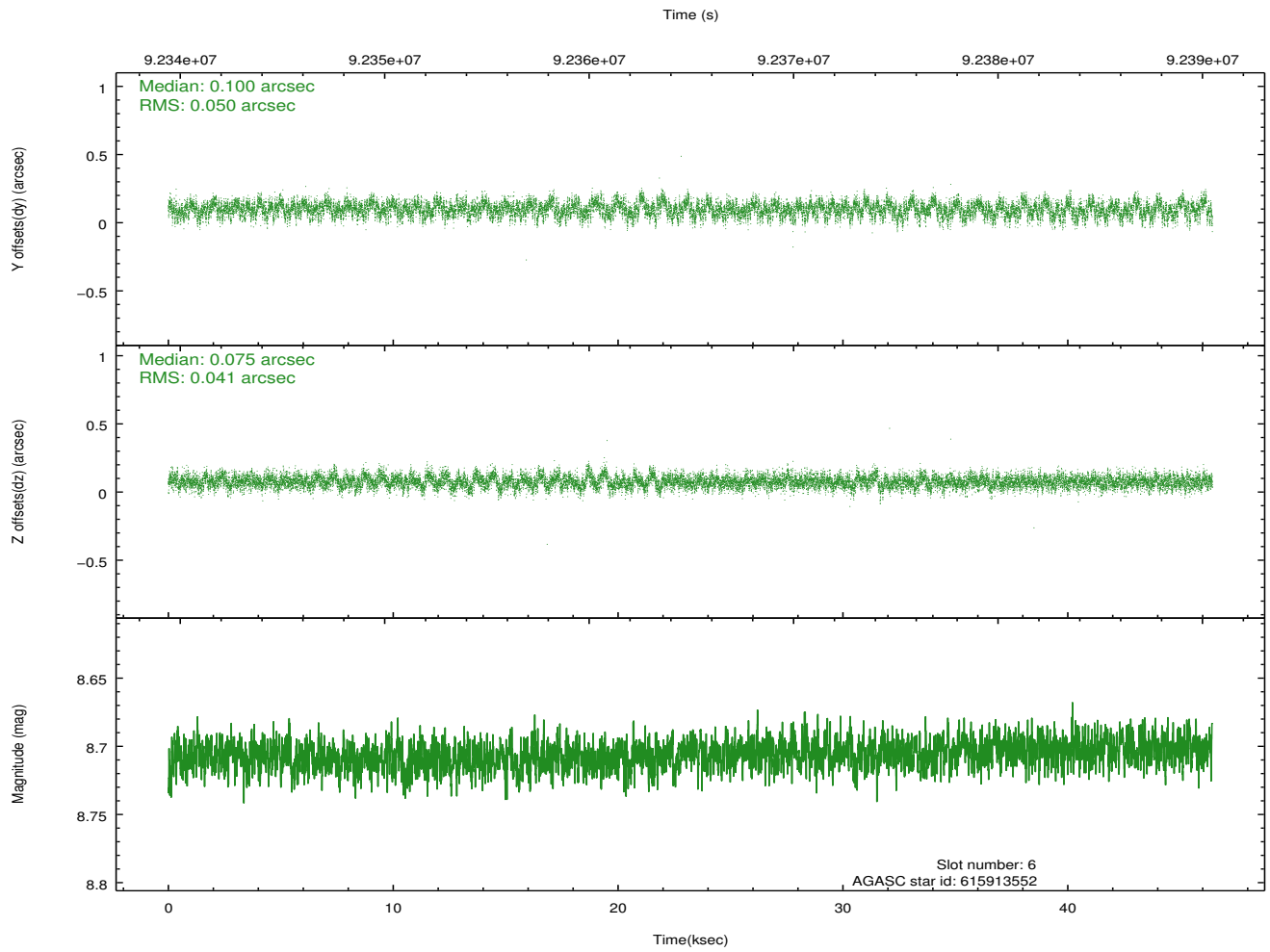
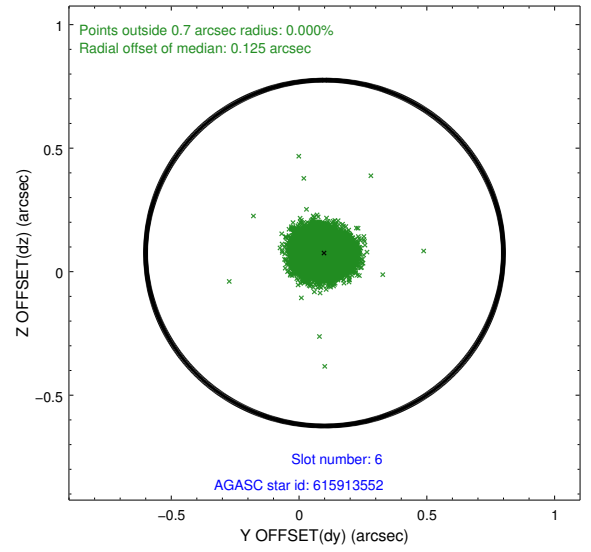
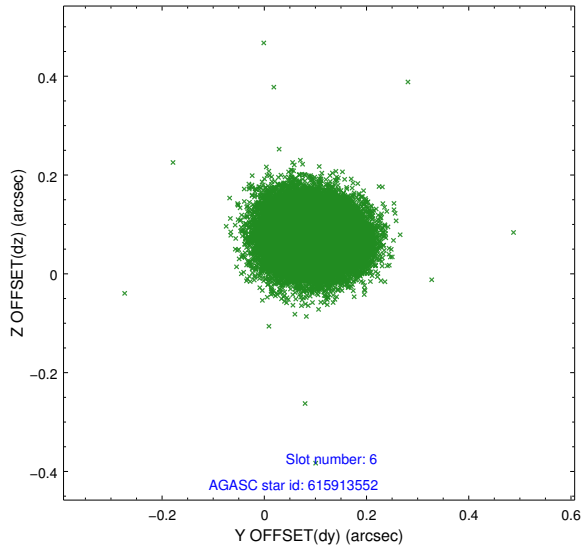
2.4.2 Slot 4



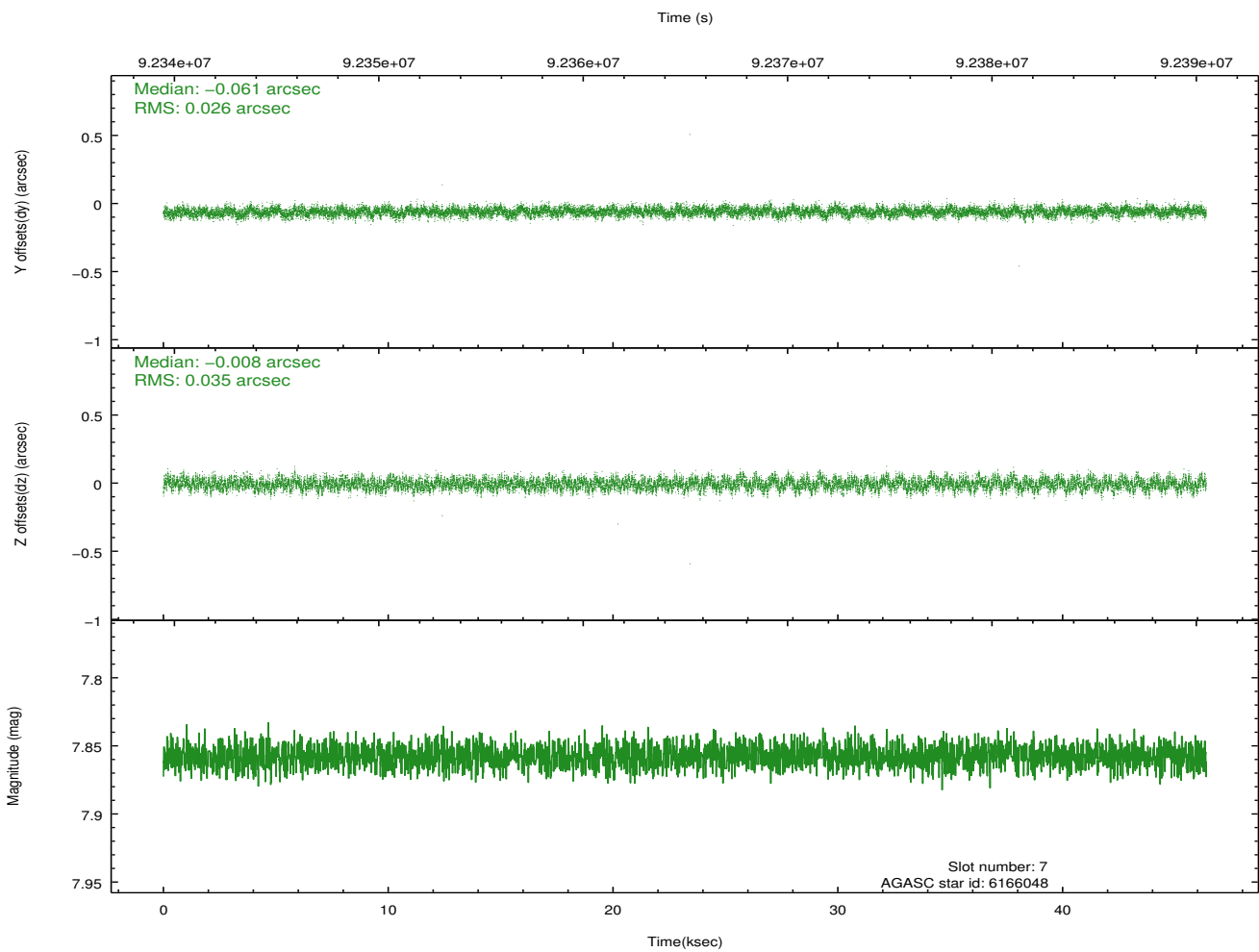
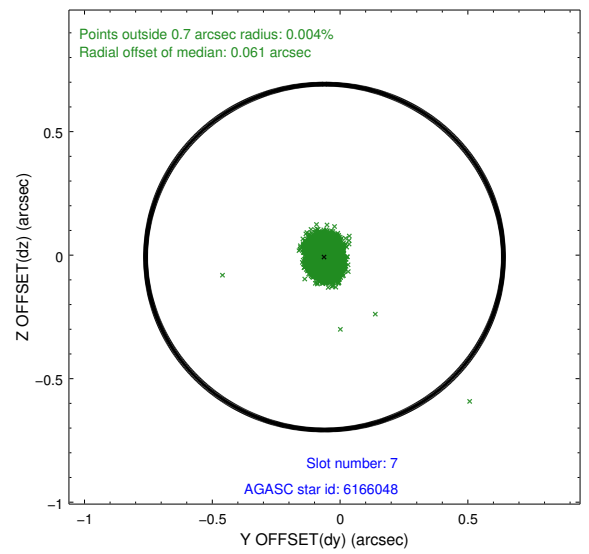
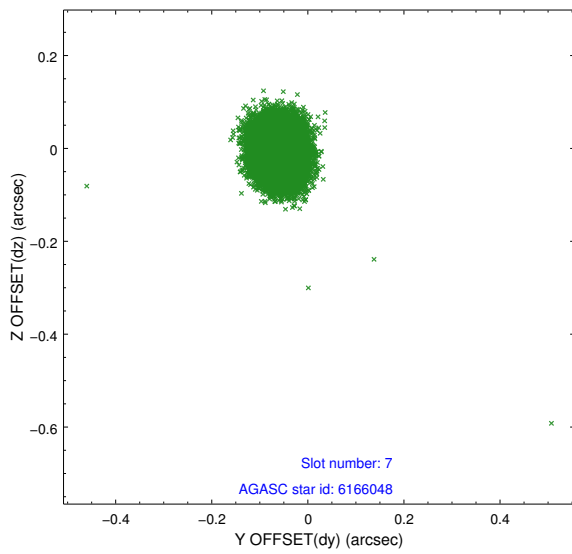
2.4.3 Slot 5



2.4.4 Slot 6

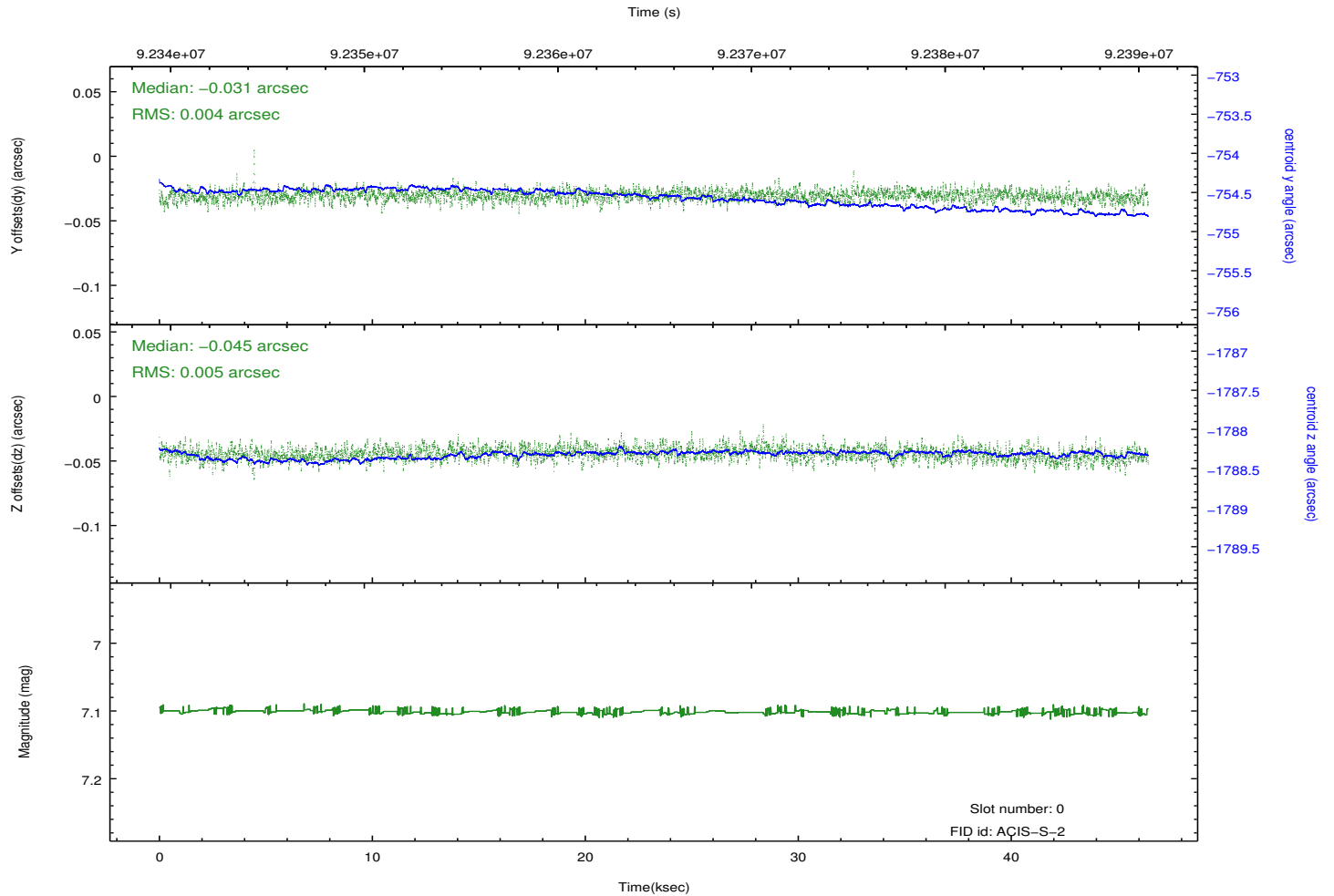
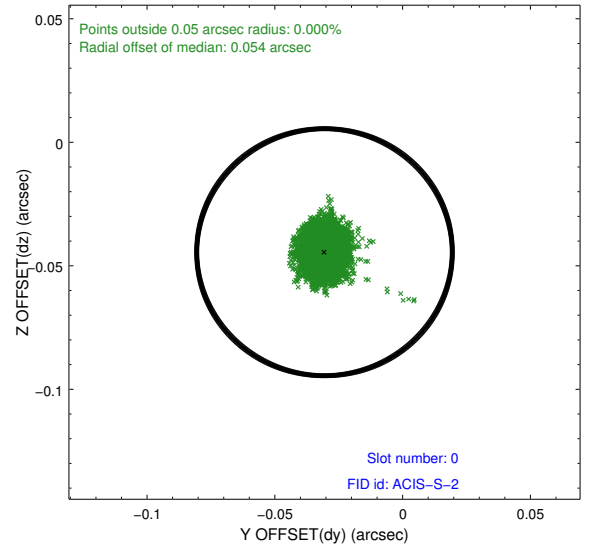
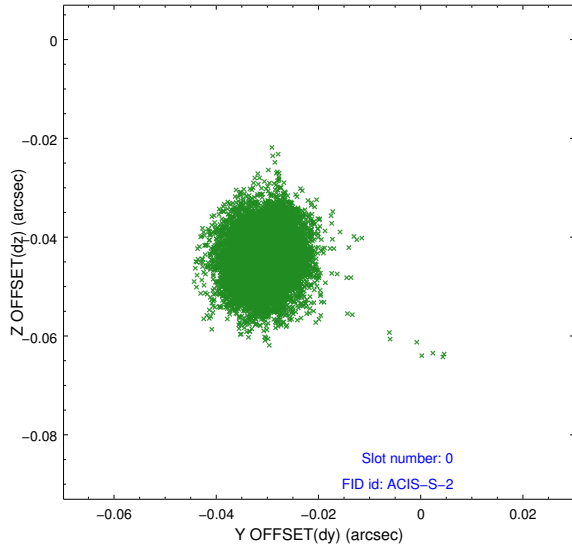


2.4.5 Slot 7

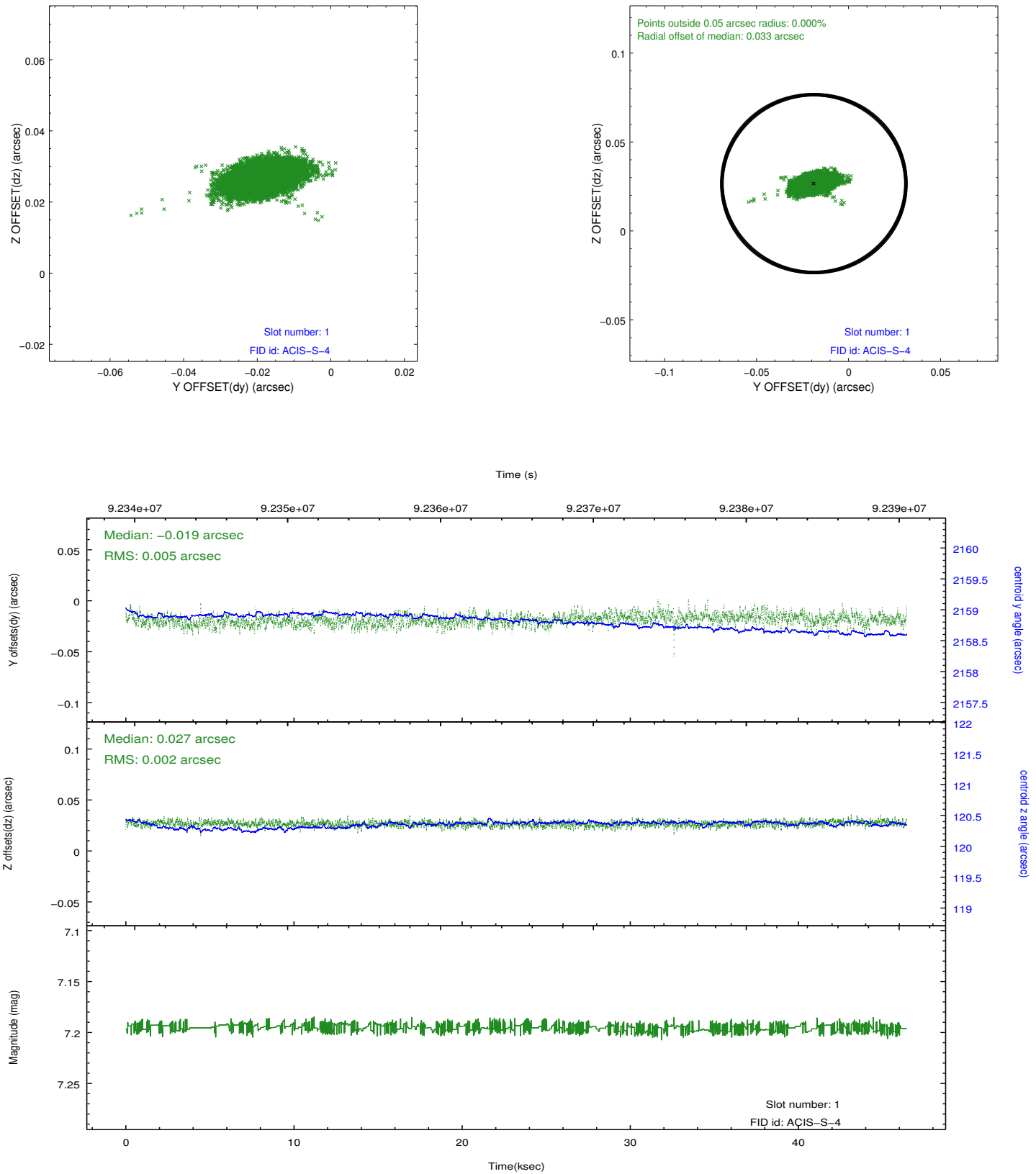


2.5 FID Slots

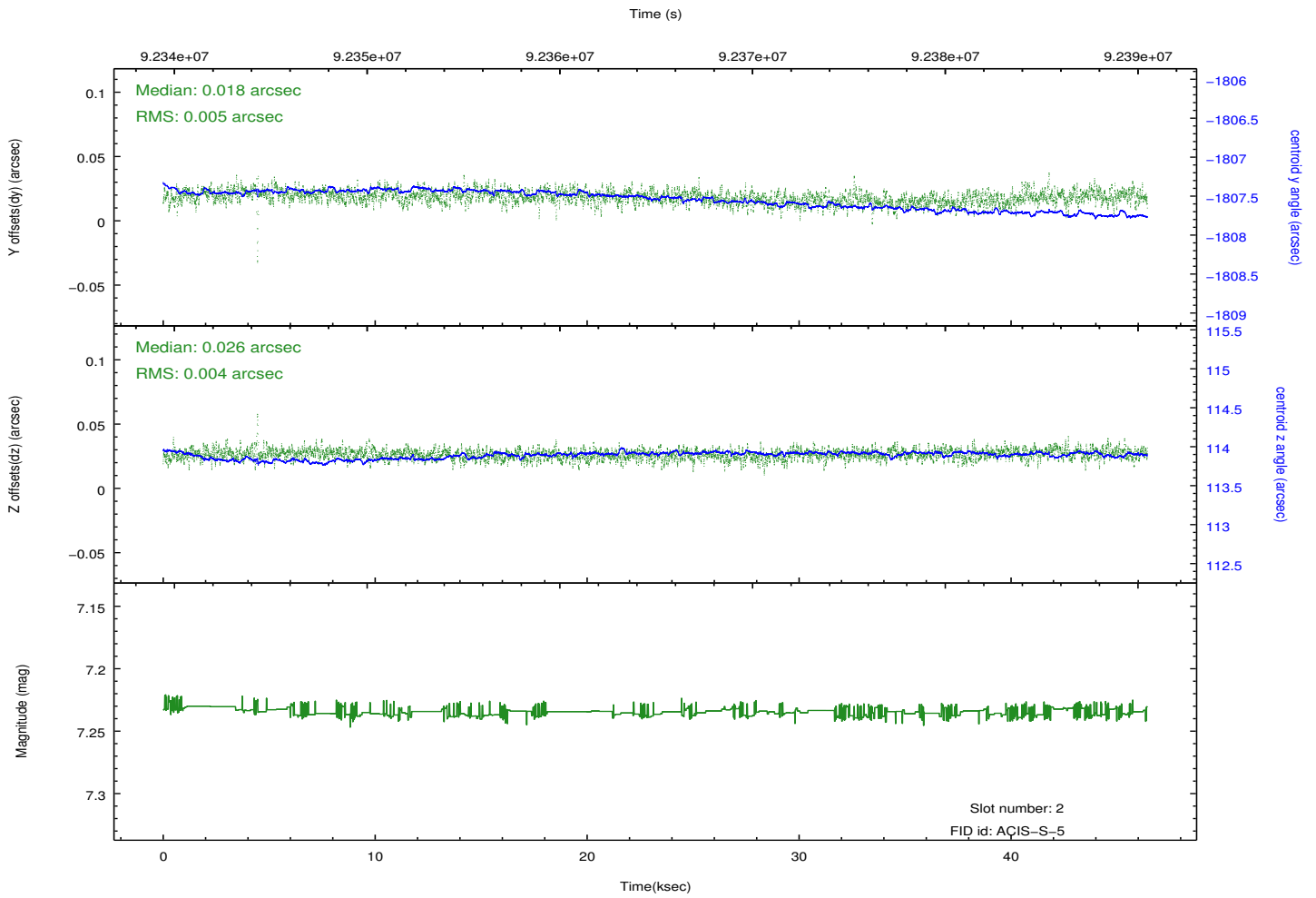
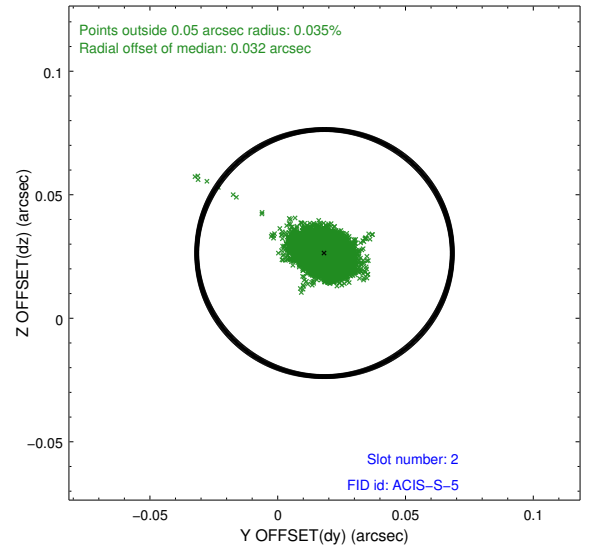
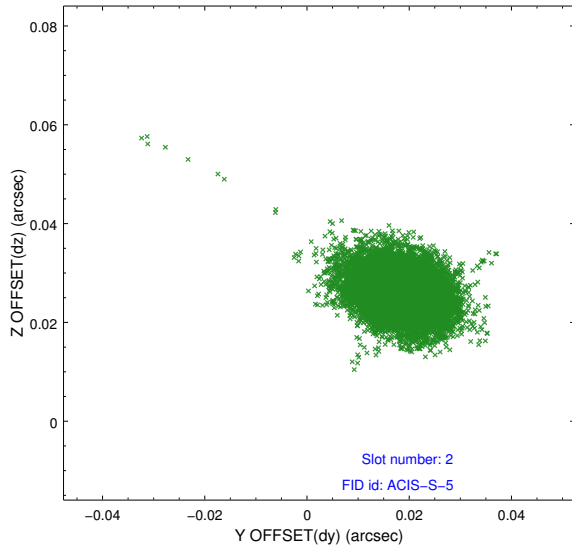
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

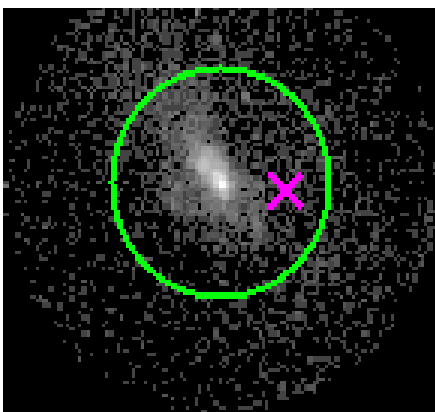


3 Gratings

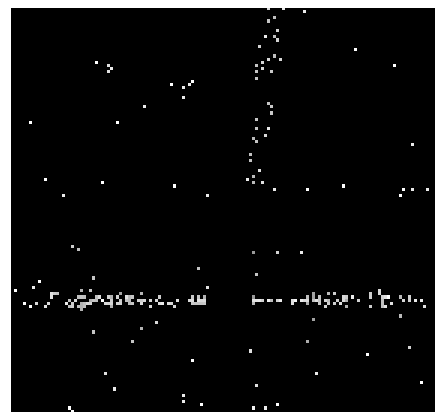
3.1 HEG Arm



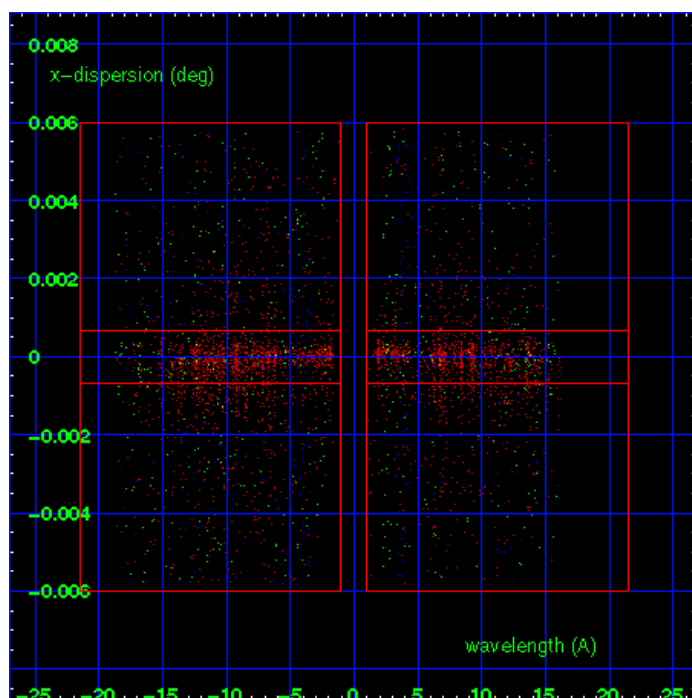
HEG Order Sort 123



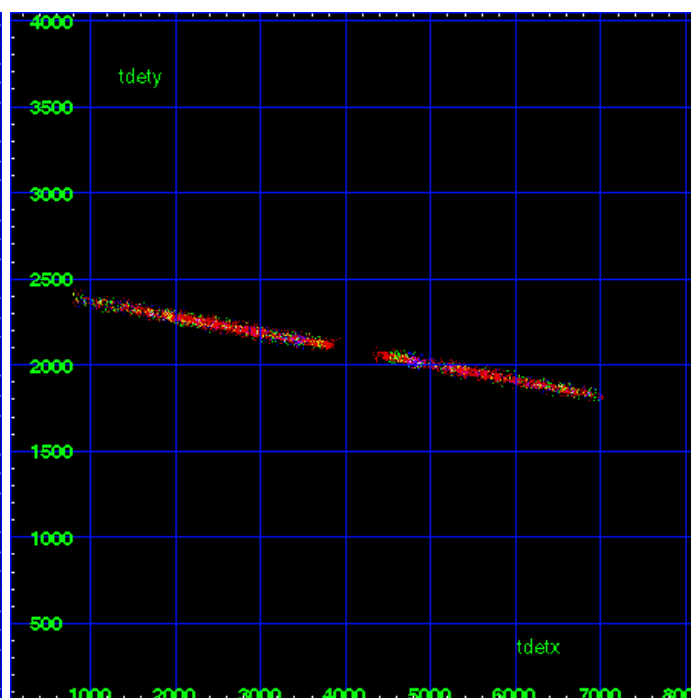
HEG Zero Order



HEG Order Sort ALL

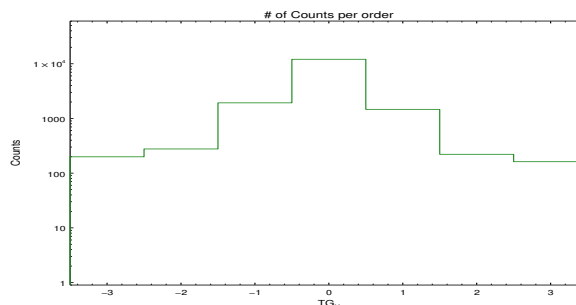


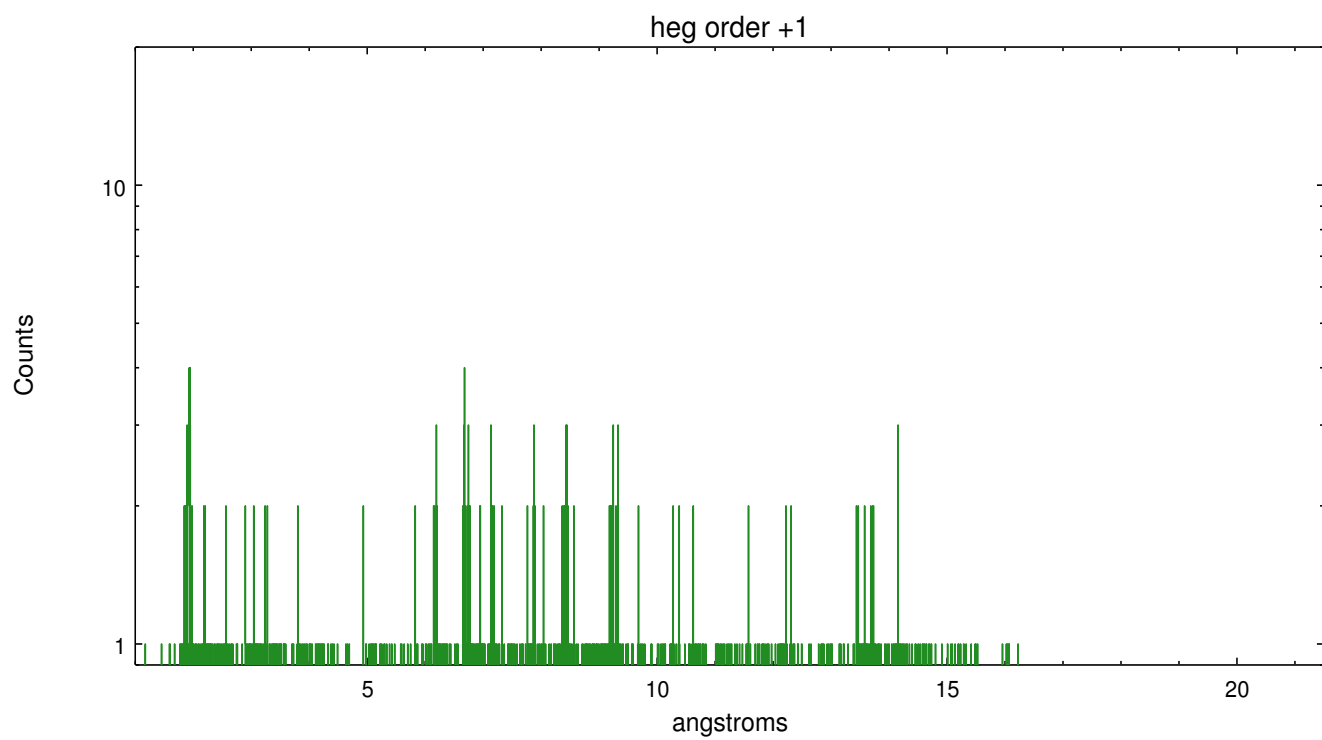
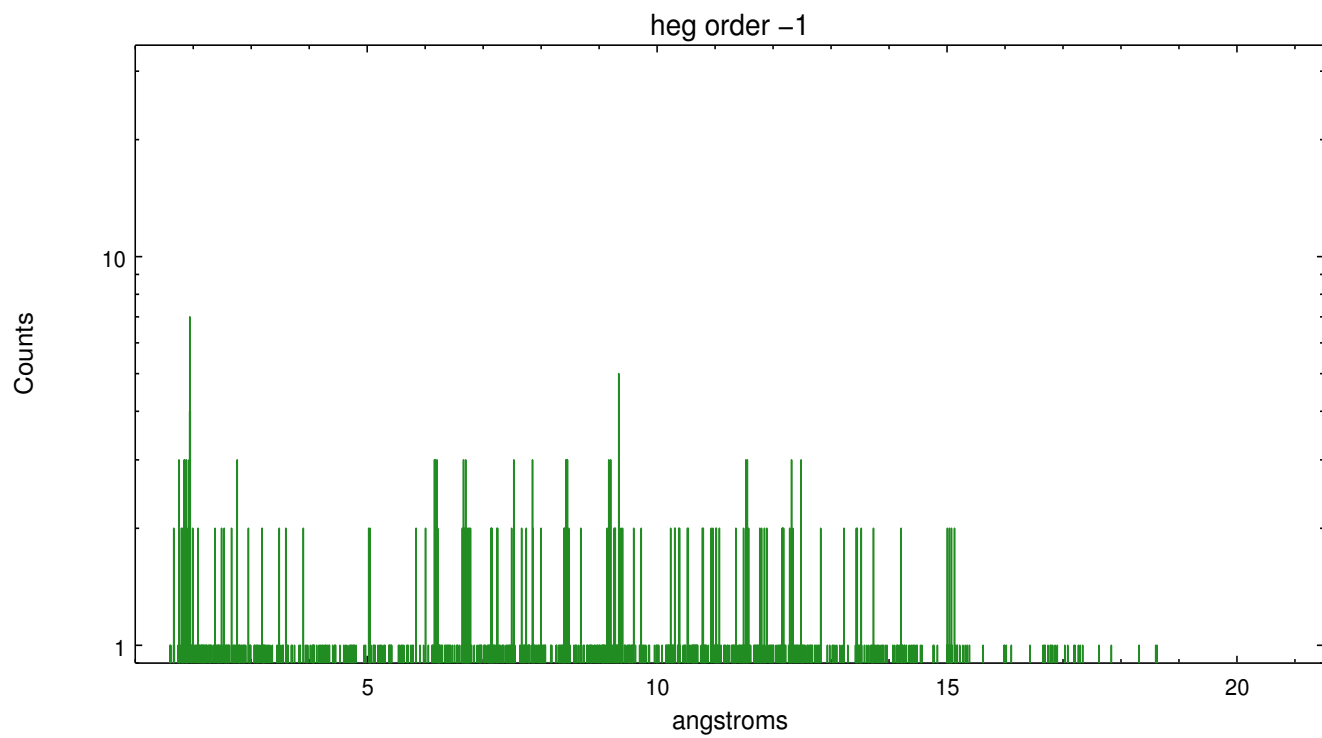
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	199	277	1930	12077	1466	221	162

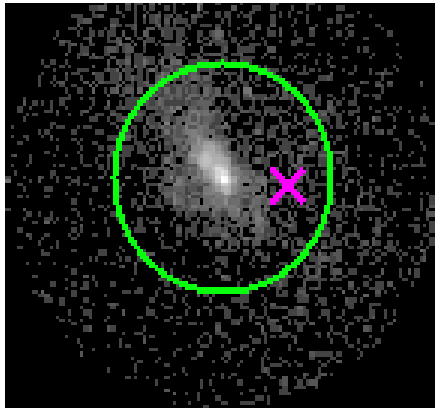




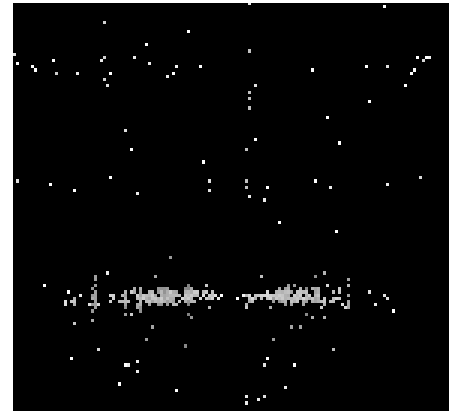
3.2 MEG Arm



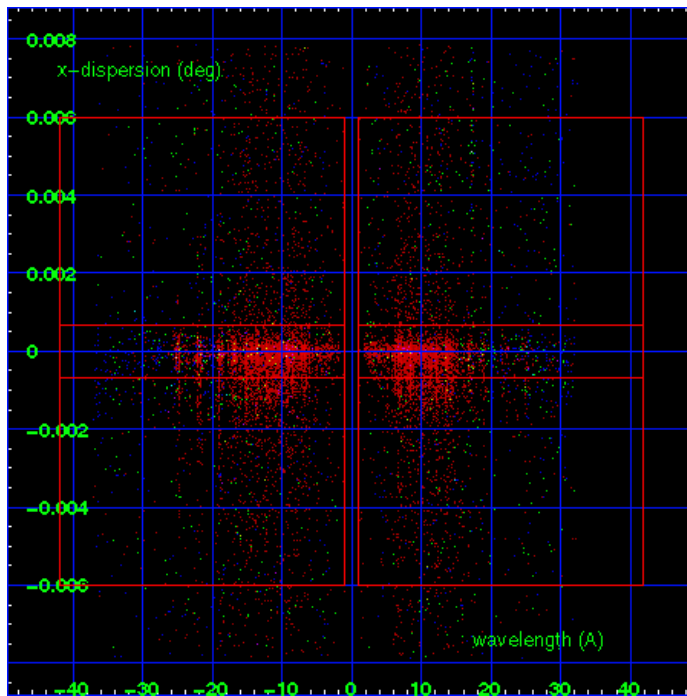
MEG Order Sort 123



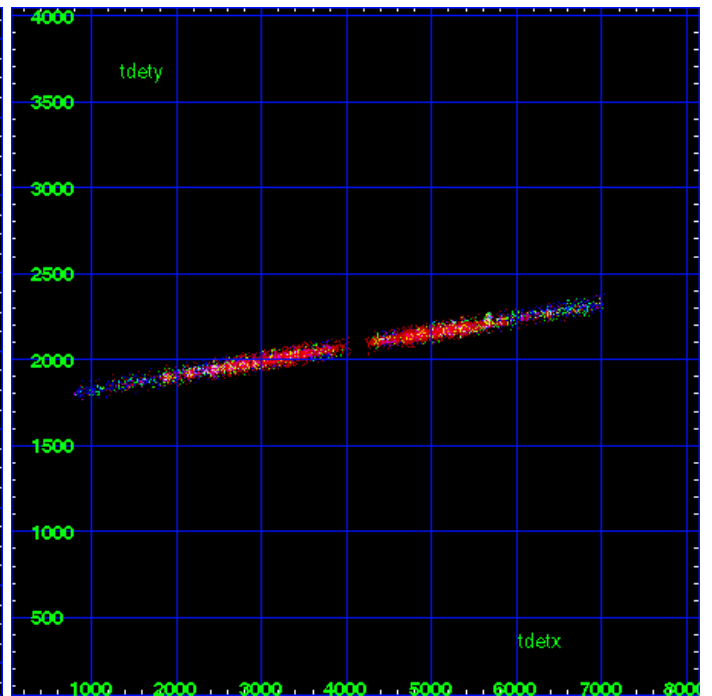
MEG Zero Order



MEG Order Sort ALL

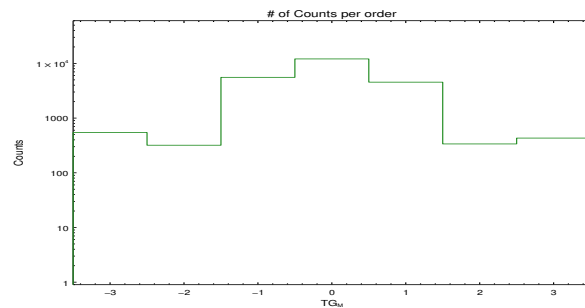


Spot Image MEG

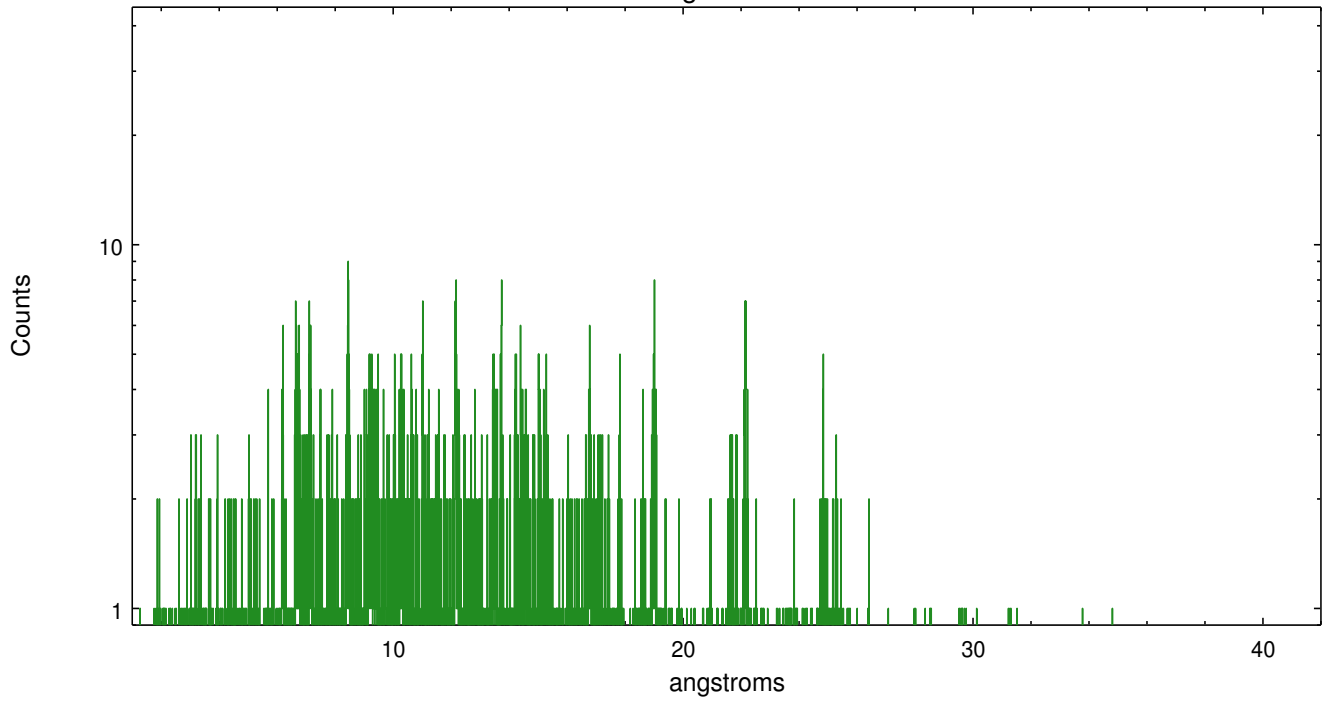


Full Detector MEG

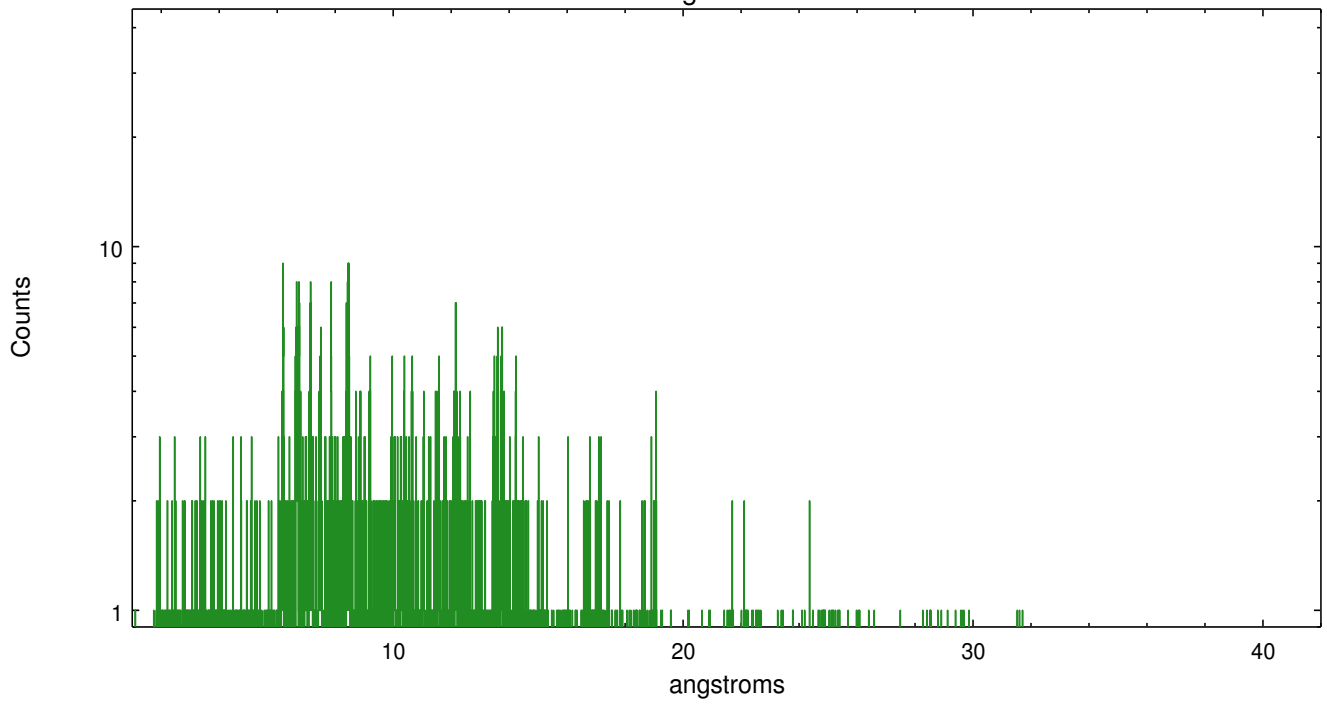
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	545	319	5557	12077	4537	337	431



meg order -1



meg order +1



A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	46.291

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 ($x=4079.812$, $y=4097.312$) 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.