

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1905 - L2 Version 5
Chandra X-Ray Center

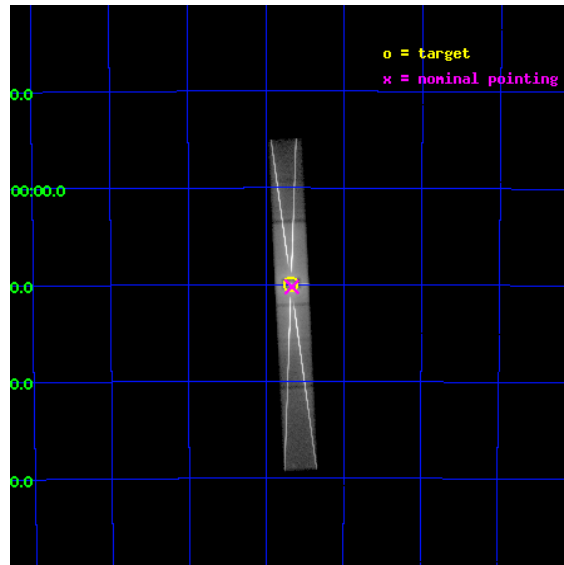
L2 Processing Date : Sep 21 2012

Contents

1	Front	2
2	OBI	3
2.1	OBI	3
2.1.1	Images	3
2.1.2	Parameters	4
2.1.3	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

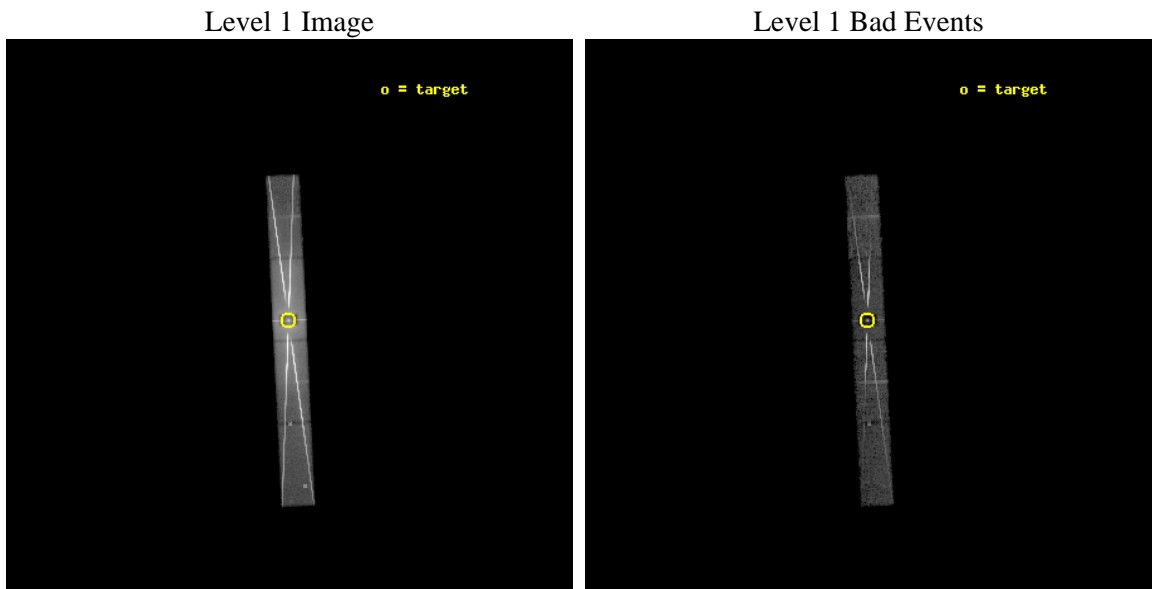
seq_num	400118	Sequence number
obs_id	1905	Observation id
title	PHASE RESOLVED SPECTROSCOPY OF THE X-RAY P-CYGNI PROFILES FROM CIRCINUS X-1	Proposal title
observer	Prof. William Brandt	Principal investigator
object	CIR X-1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	230.170833	Observer's specified target RA [deg]
dec_targ	-57.166667	Observer's specified target Dec [deg]
ra_nom	230.16737774602	Nominal RA [deg]
dec_nom	-57.170710666225	Nominal Dec [deg]
roll_nom	267.23806350637	Nominal Roll [deg]
revision	5	Processing version of data
ontime	8156.1999813169	Sum of GTIs [s]
livetime	7906.5948634732	Livetime [s]
ontime5	8156.1999813169	Sum of GTIs [s]
ontime6	8156.1999813169	Sum of GTIs [s]
ontime7	8156.1999813169	Sum of GTIs [s]
ontime8	8156.1999813169	Sum of GTIs [s]
l2events	1786698	Number of level 2 events



2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	8000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	8156.1999813169	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime5	8156.1999813169	Sum of GTIs [s]
date	2012-09-21T10:44:58	Date and time of file creation	ontime6	8156.1999813169	Sum of GTIs [s]
revision	4	Processing version of data	ontime7	8156.1999813169	Sum of GTIs [s]
			ontime8	8156.1999813169	Sum of GTIs [s]
			l1events	2114072	Number of level 1 events

2.1.3 Events

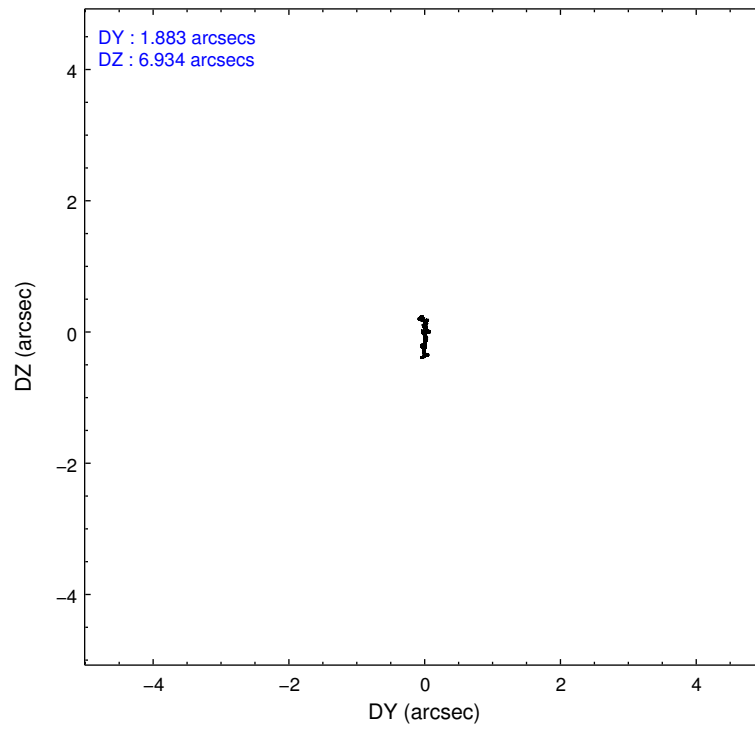
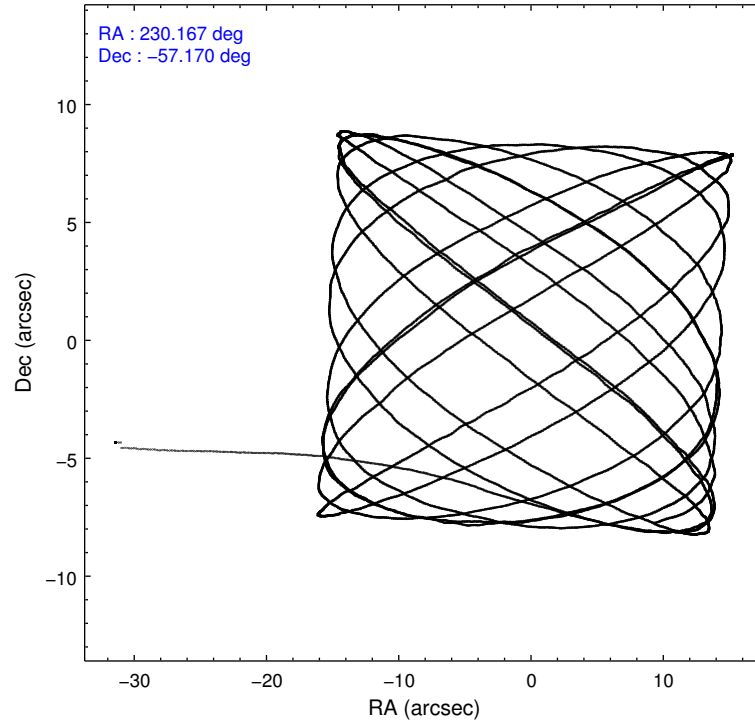
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	126171	781945	966531	239425
rejected events	25387	78569	122230	34057
rejected %	20%	10%	12%	14%

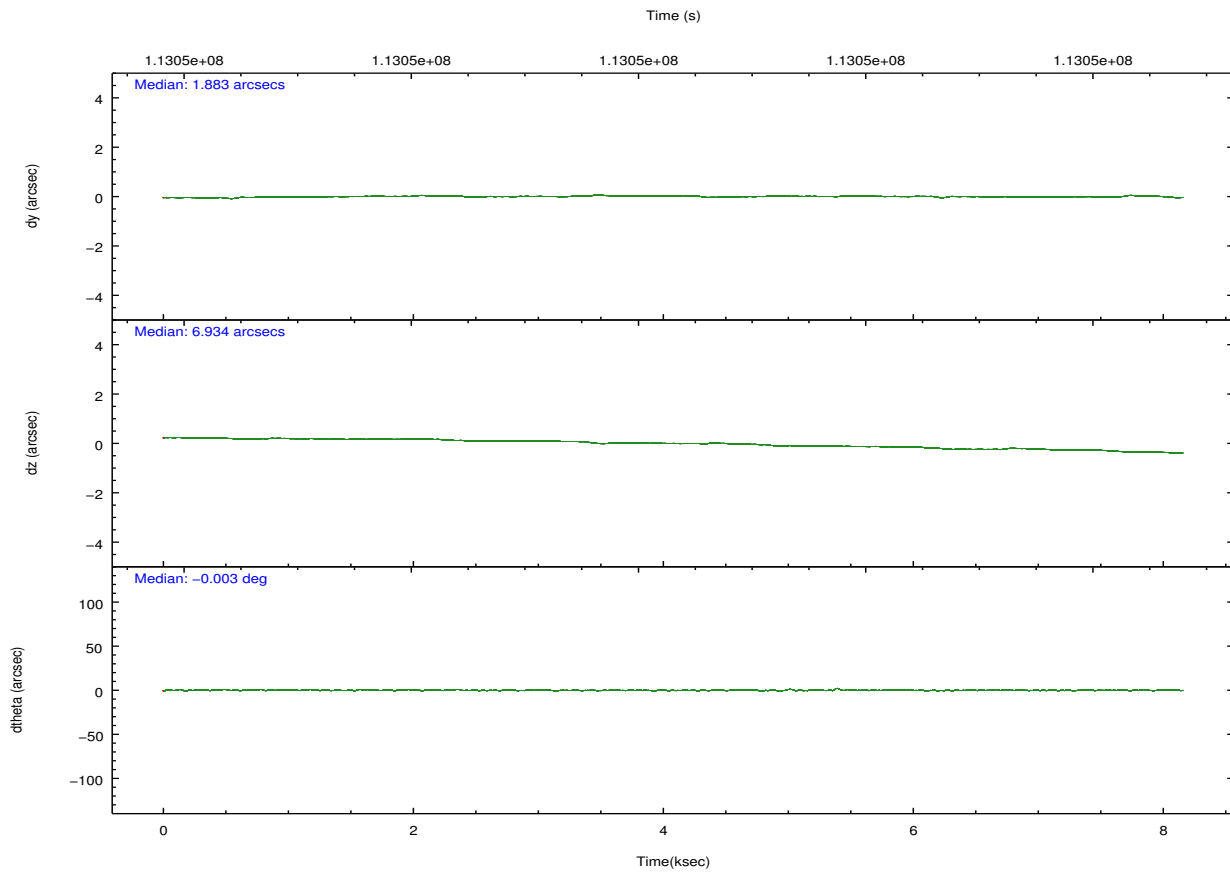
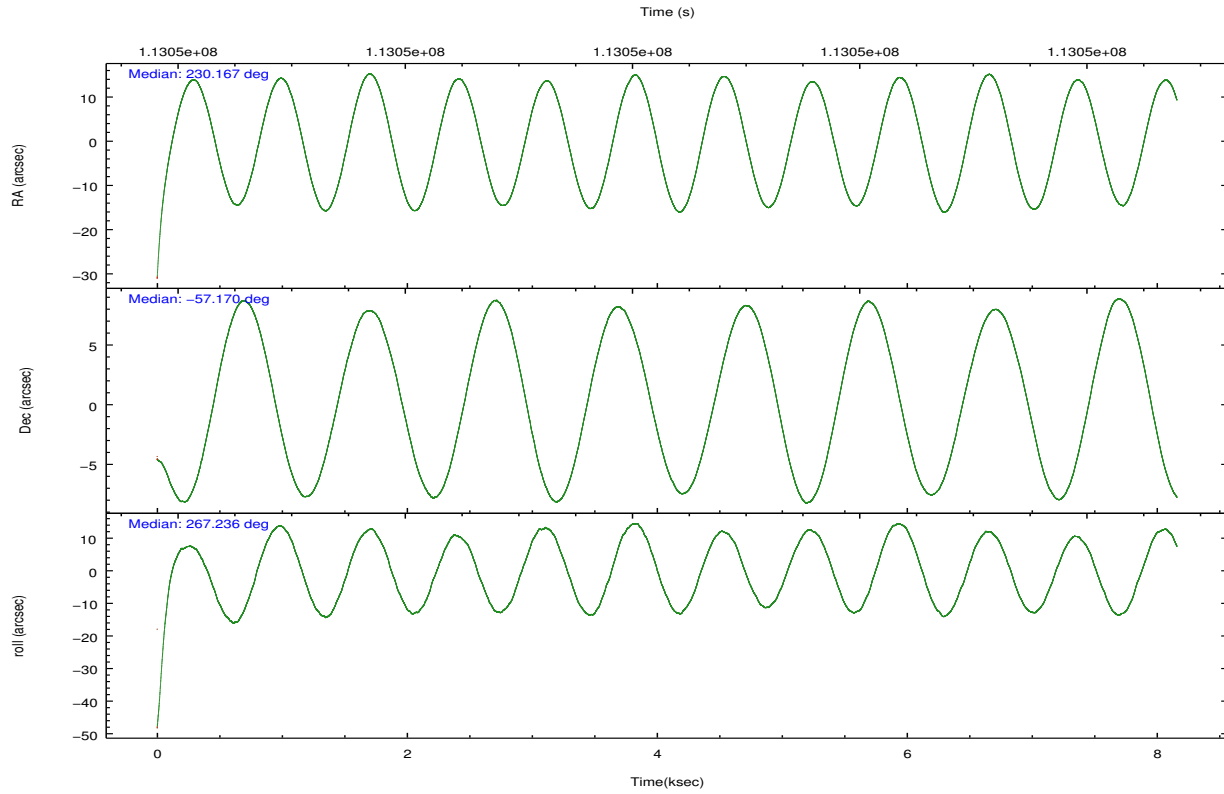
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	26039	496959	140526	157802
	20%	63%	14%	65%
grade 1 events	488	18578	5543	1675
	0%	2%	0%	0%
grade 2 events	34733	99967	217799	25120
	27%	12%	22%	10%
grade 3 events	7871	36918	83583	8805
	6%	4%	8%	3%
grade 4 events	7691	36350	82597	8562
	6%	4%	8%	3%
grade 5 events	3191	16582	31209	2150
	2%	2%	3%	0%
grade 6 events	27707	43757	337507	8267
	21%	5%	34%	3%
grade 7 events	18451	32834	67767	27044
	14%	4%	7%	11%

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	GRADED	GRADED	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	230.143808	230.167377746019	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-57.146559	-57.17071066622454	Subarray start row	15	15
[deg] Pointing Roll	267.061667	267.2380635063726	Subarray row count	400	400
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	1.3
[mm] SIM translation stage pos	-182.832523	-182.8410087294432			
[mm] SIM translation stage offset	-7.3	-7.291513853564595			
Phase constraints	Y	Y			
[d] Phase period	16.536700	16.536700			
[d] Phase epoch (MJD)	52100.241000	52100.241000			
Phase start	0.330000	0.330000			
Phase end	0.370000	0.370000			
Phase start error	0.020000	0.020000			
Phase end error	0.020000	0.020000			
[s] Observation start time (MET)	113046382.184000	113045285.47541			
Observation start date	2001-08-01T09:45:18	2001-08-01T09:28:05			
[s] Observation end time (MET)	113054382.184000	113055866.55082			
Observation end date	2001-08-01T11:58:38	2001-08-01T12:24:26			
Read mode	TIMED	TIMED			

2.3 Aspect



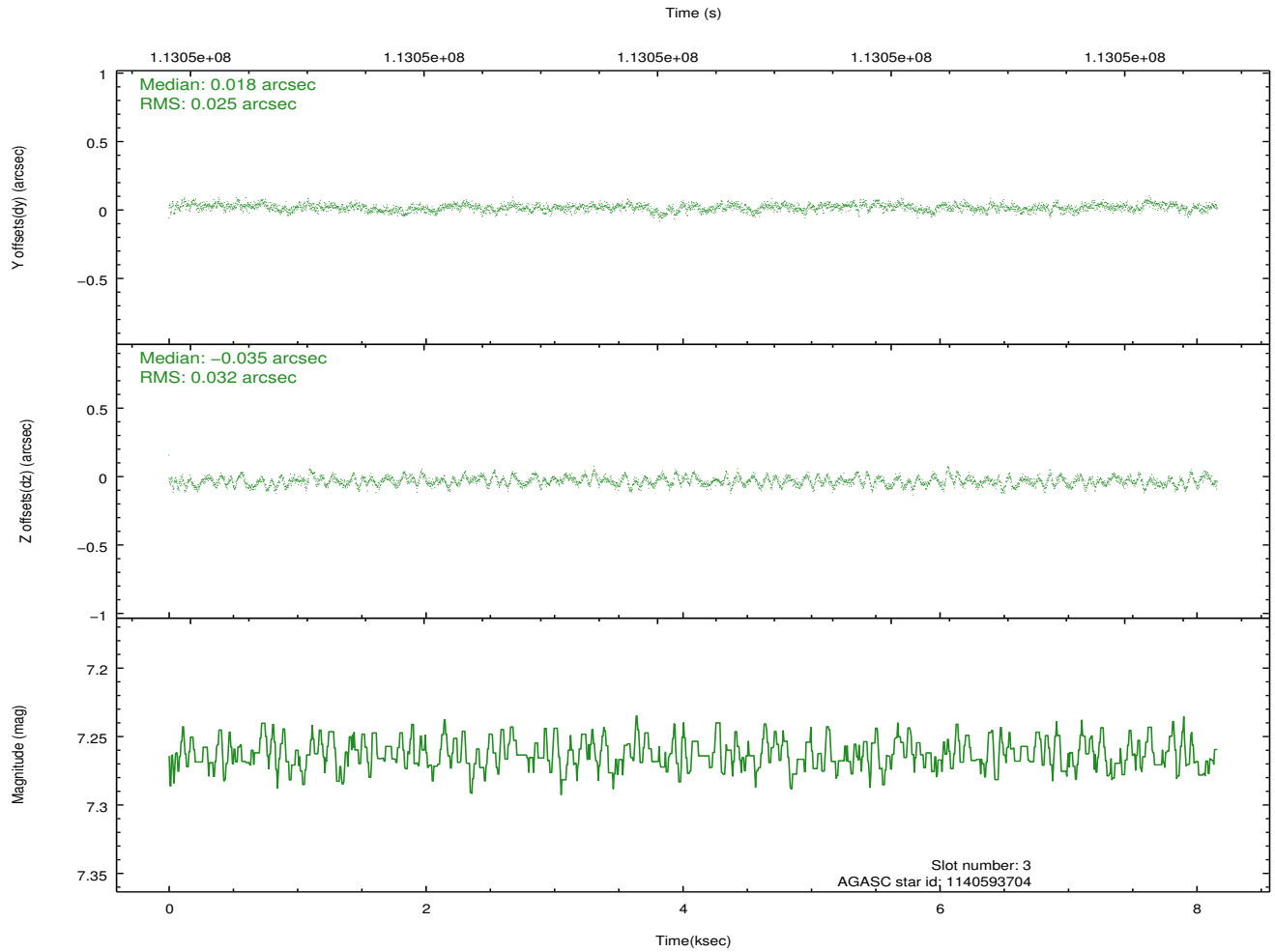
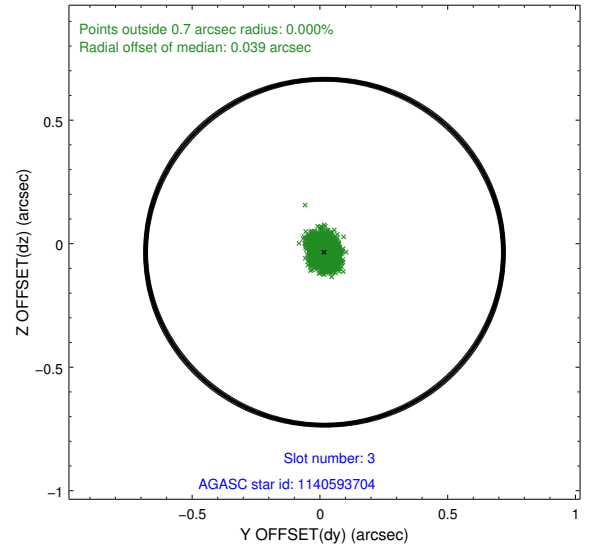
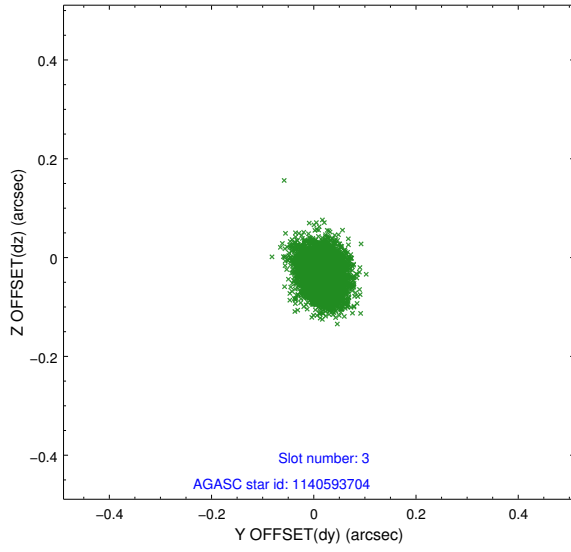


Slot Statistics

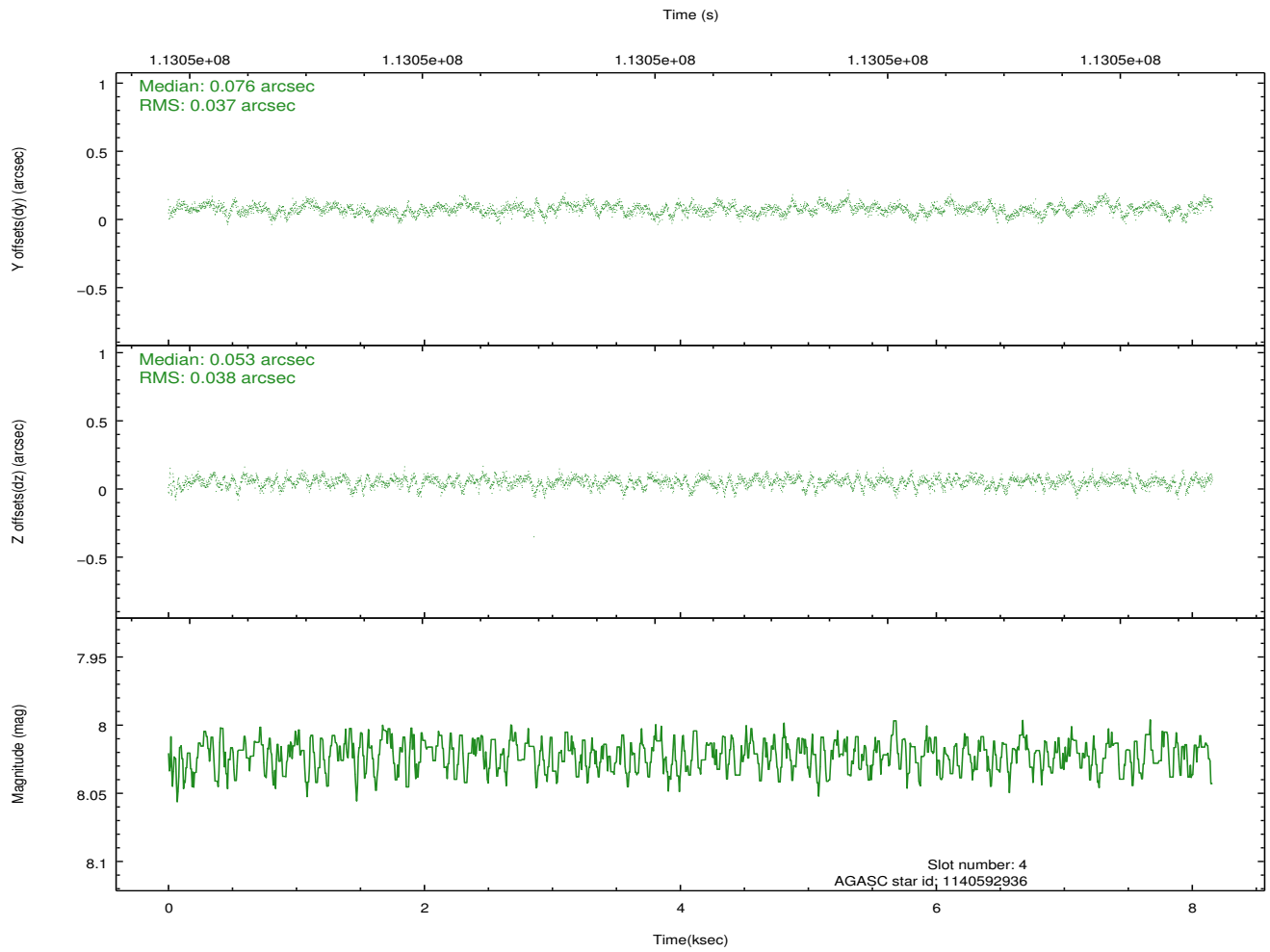
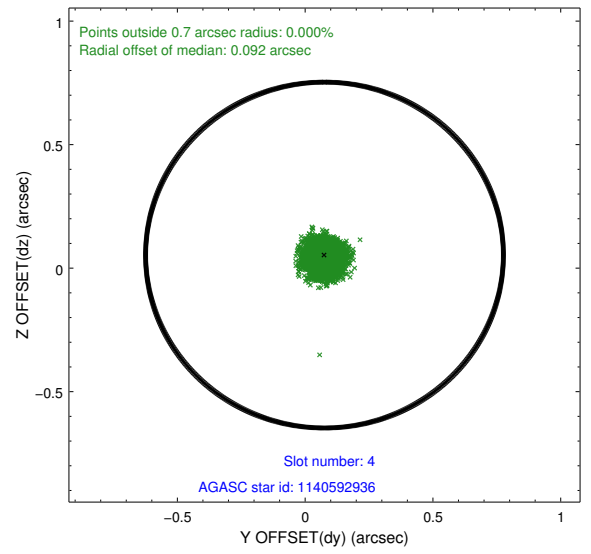
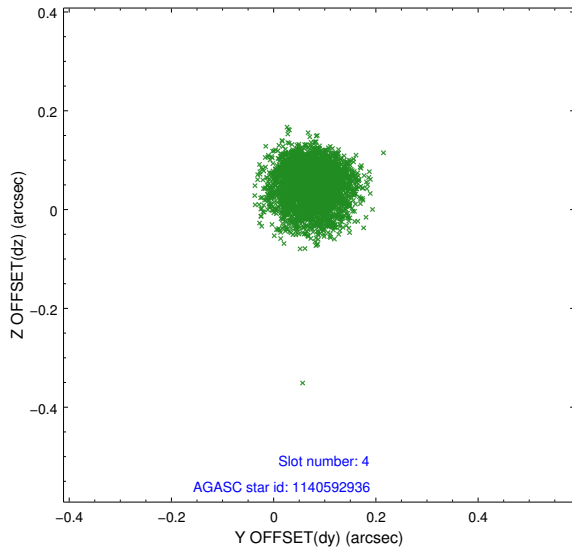
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	1991	-0.049	-0.110	0.008	0.012	0.000000	0.000000	-754.06	-1878.41
1	FID	ACIS-S-4	7.18	1991	0.005	0.053	0.007	0.012	0.000000	0.000000	2159.00	29.39
2	FID	ACIS-S-5	7.23	1991	0.013	0.065	0.007	0.012	0.000000	0.000000	-1805.92	23.93
3	GUIDE	1140593704	7.26	3981	0.018	-0.035	0.044	0.071	229.741417	-57.540991	1461.24	-703.70
4	GUIDE	1140592936	8.02	3980	0.076	0.053	0.057	0.092	228.953111	-57.013969	-335.24	-2354.32
5	GUIDE	1140722888	8.11	3981	-0.036	-0.047	0.048	0.075	230.457489	-57.599243	1598.70	687.18
6	GUIDE	1140723840	8.59	3981	-0.002	-0.090	0.055	0.088	230.379592	-56.994965	-566.59	433.71
7	GUIDE	1140726312	8.89	3978	-0.057	0.120	0.092	0.145	231.010622	-56.676215	-1767.31	1625.77

2.4 Star Slots

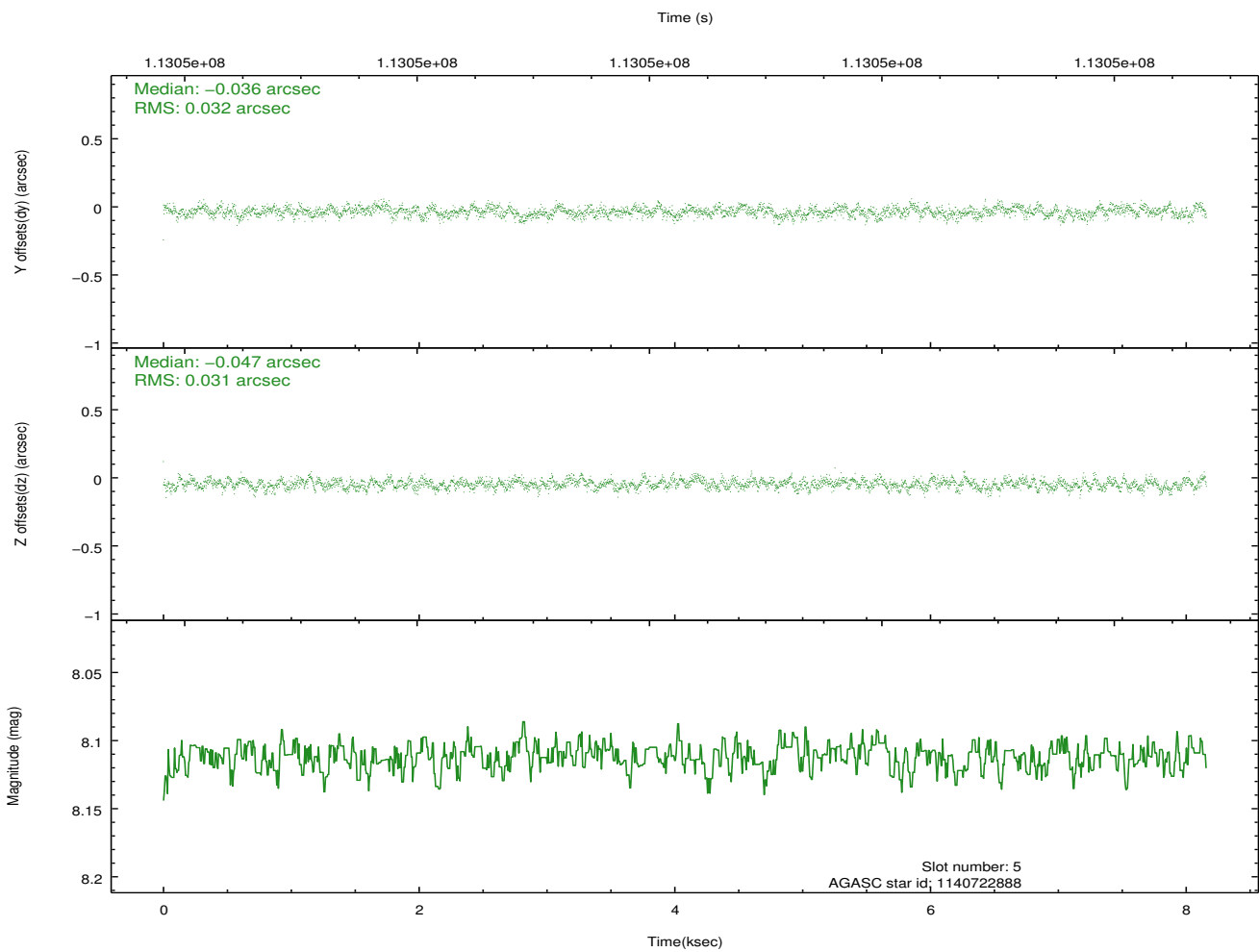
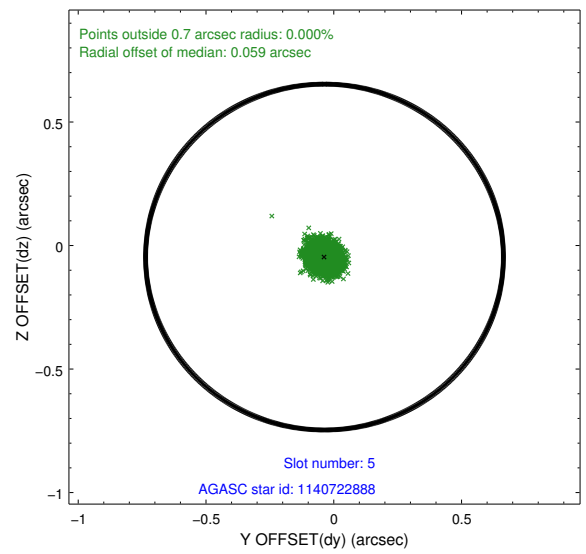
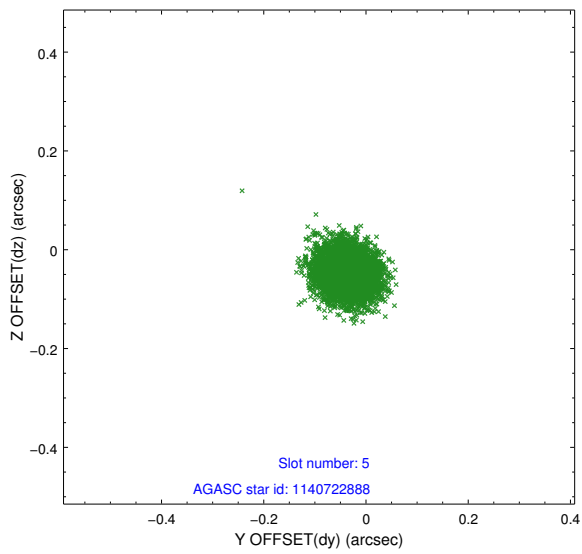
2.4.1 Slot 3



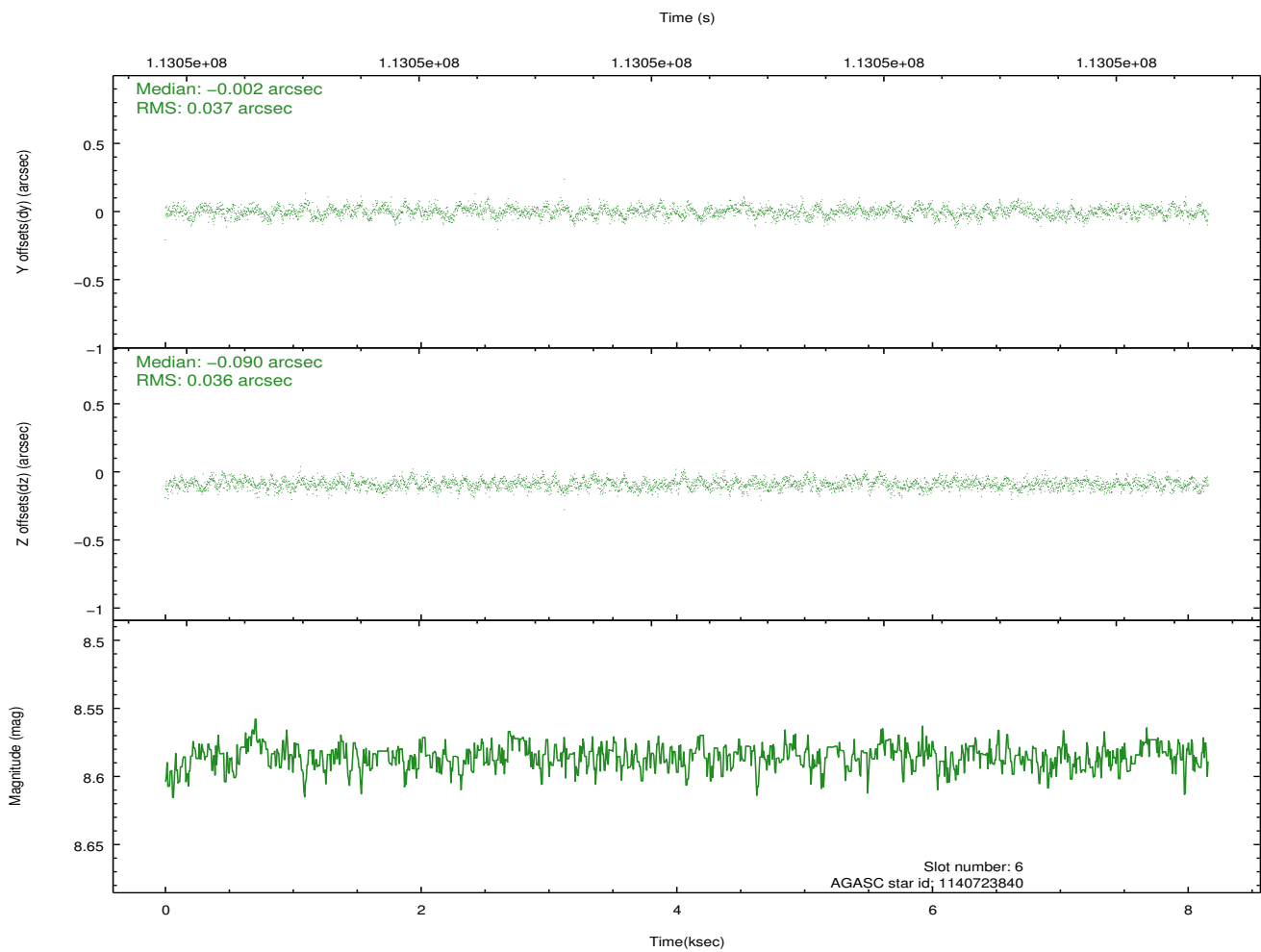
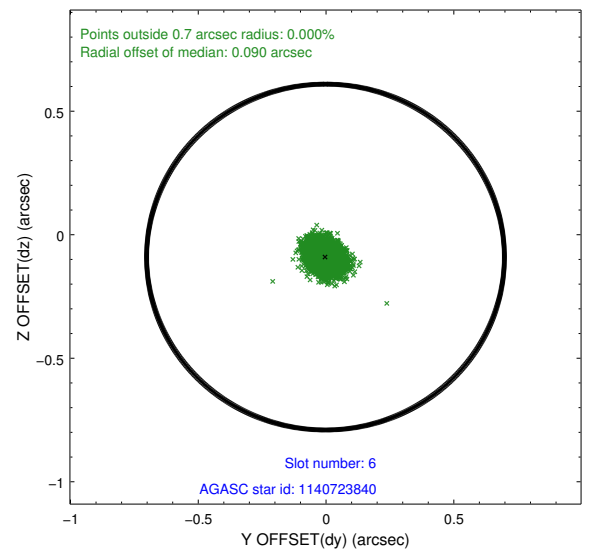
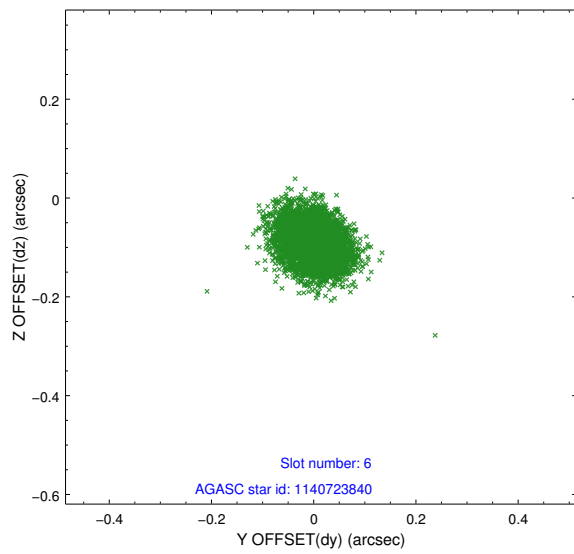
2.4.2 Slot 4



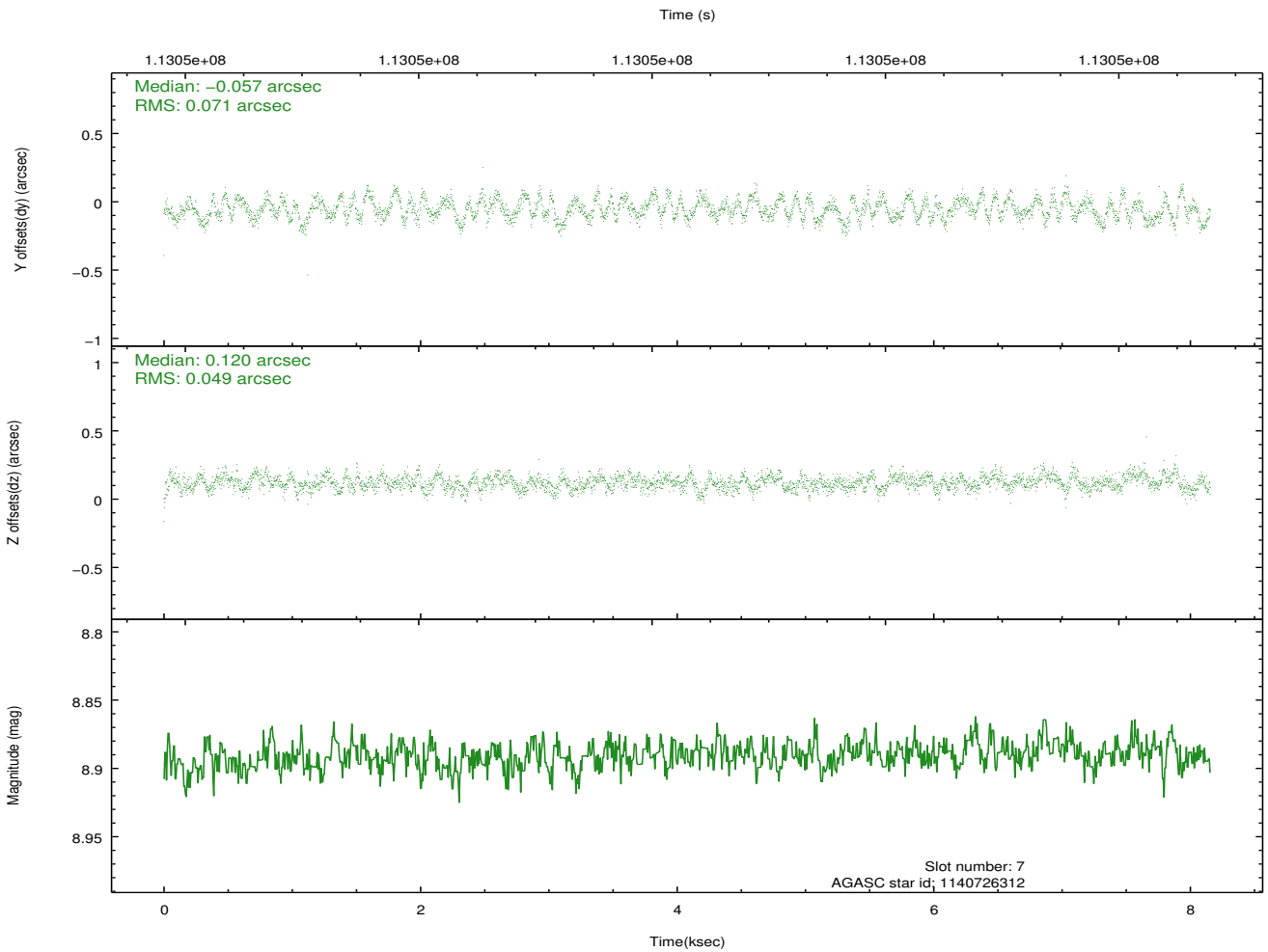
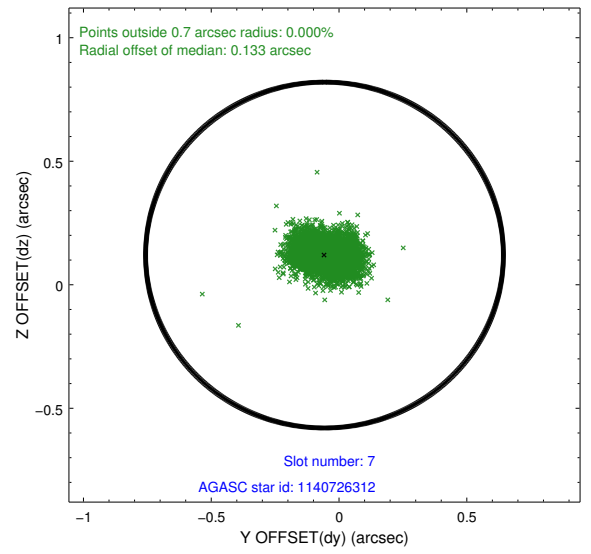
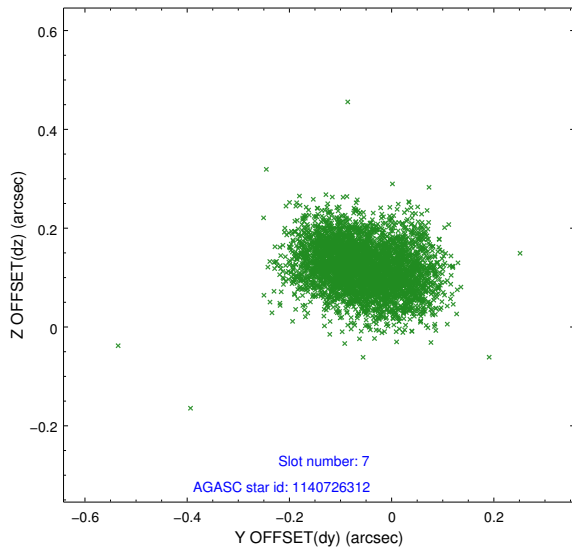
2.4.3 Slot 5



2.4.4 Slot 6

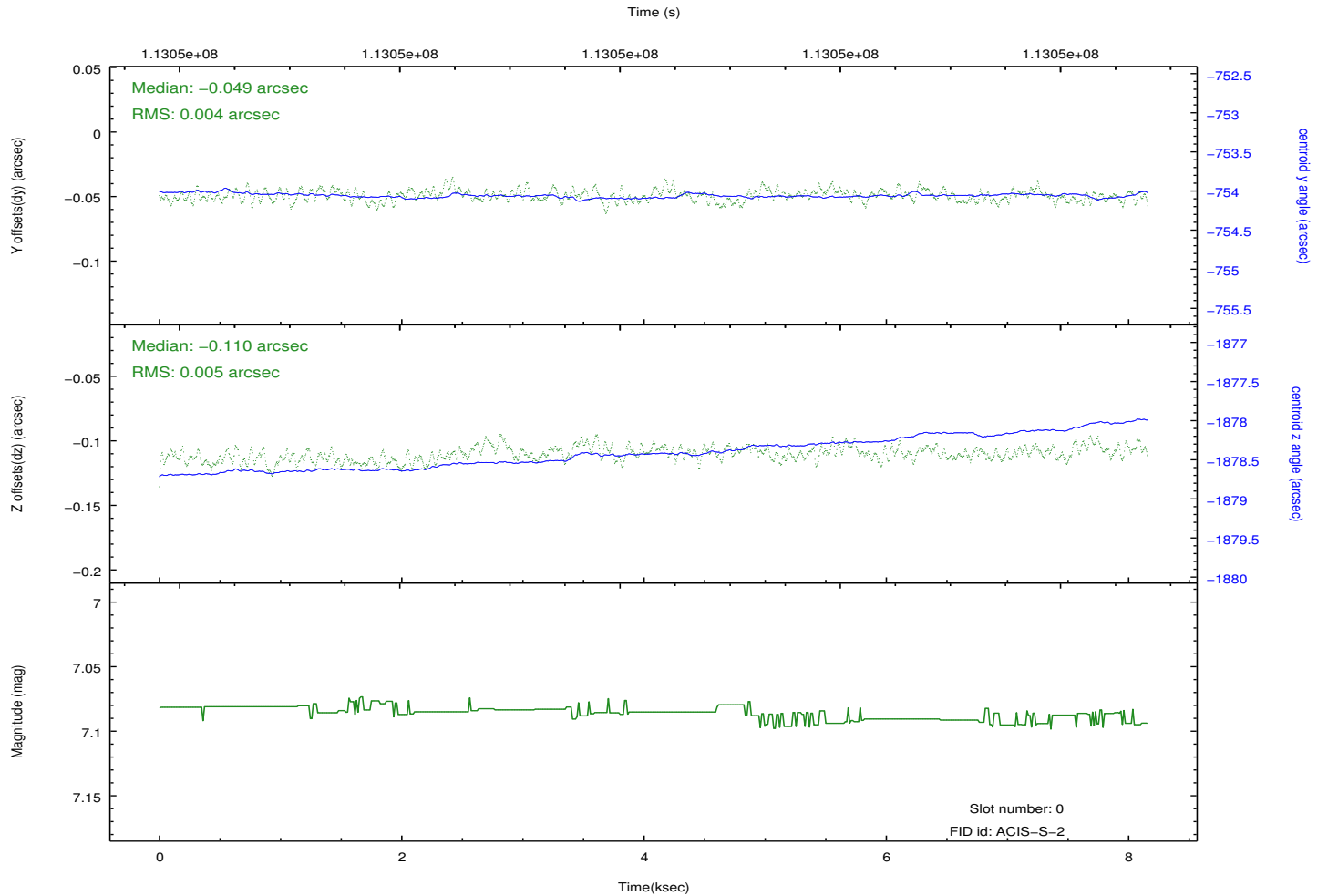
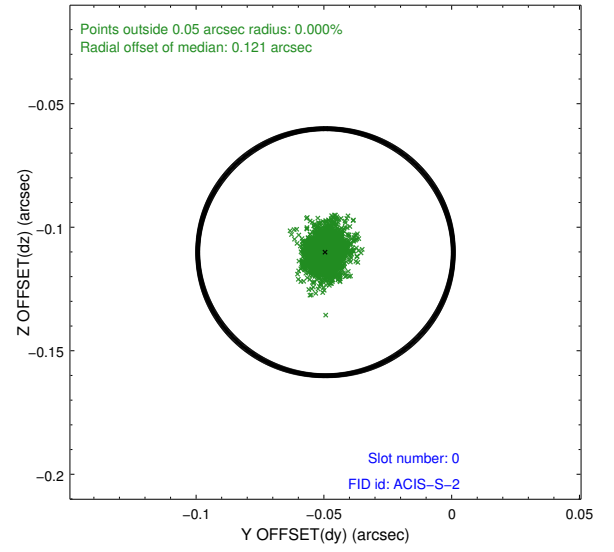
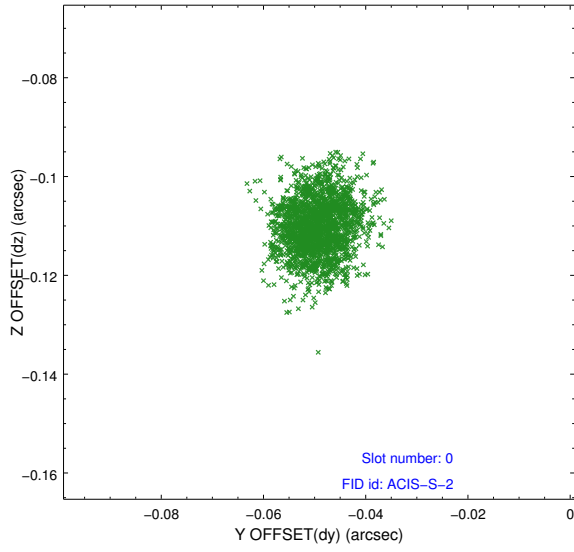


2.4.5 Slot 7

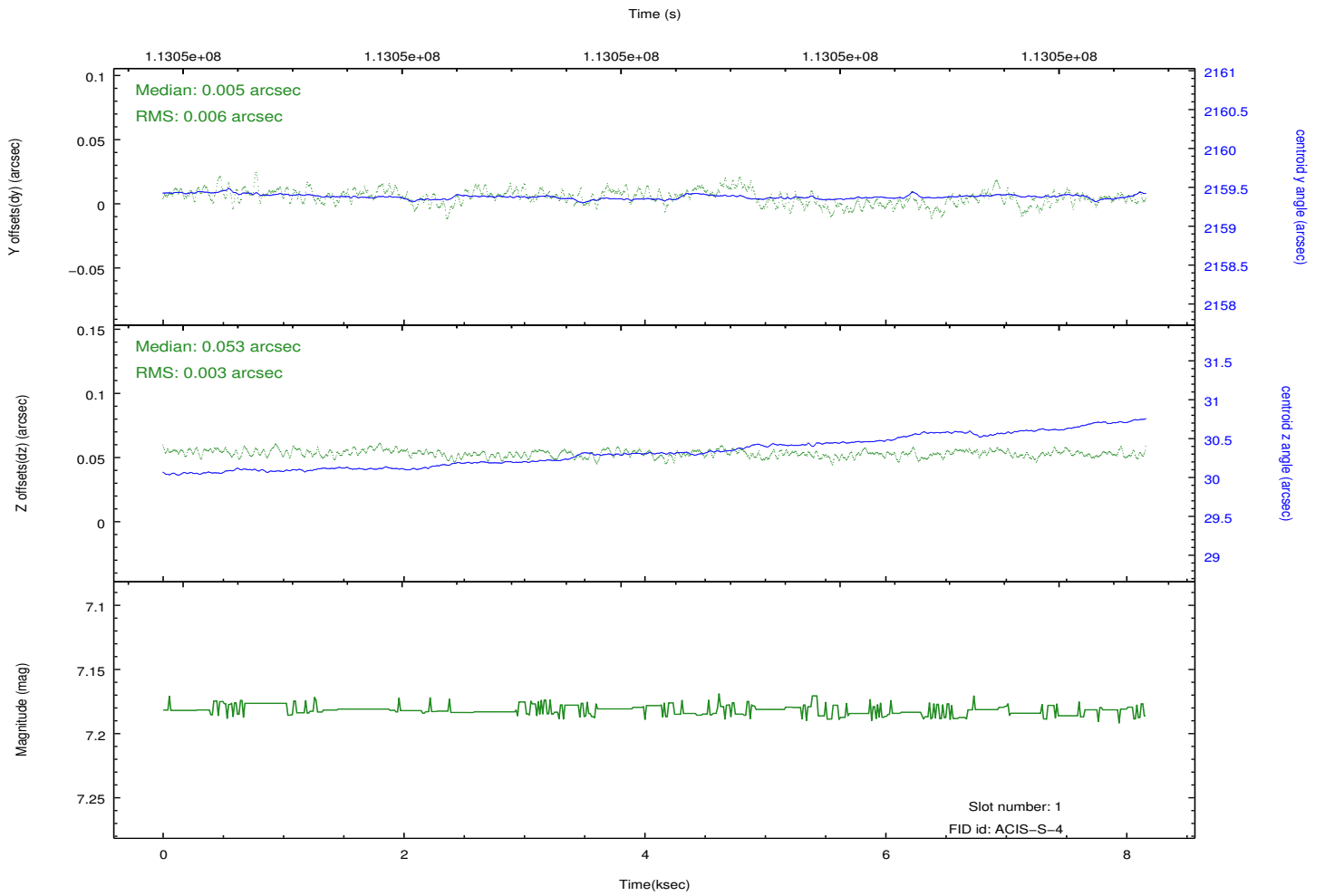
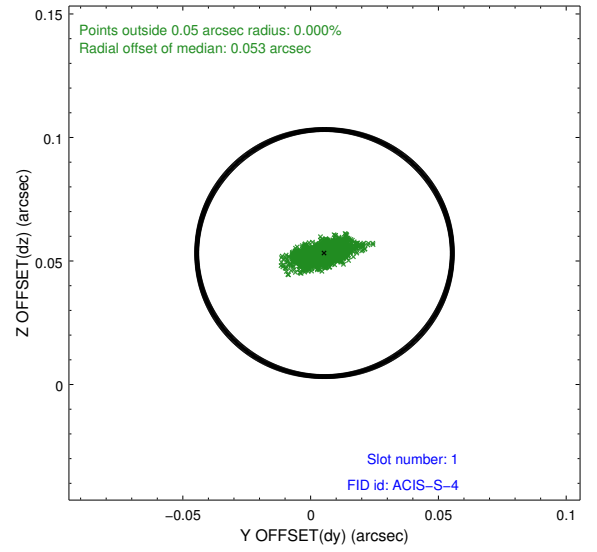
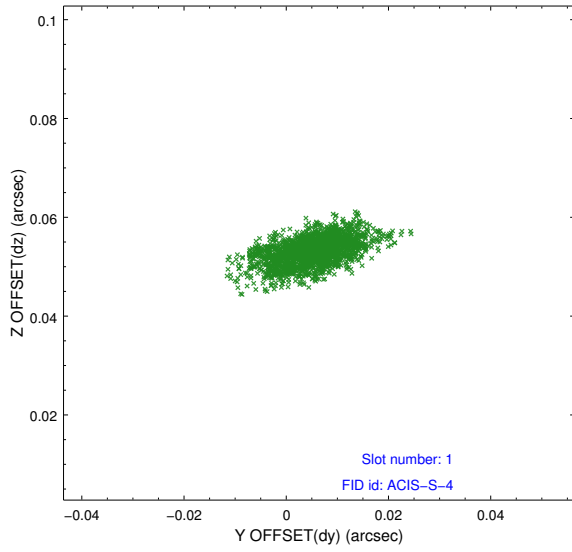


2.5 FID Slots

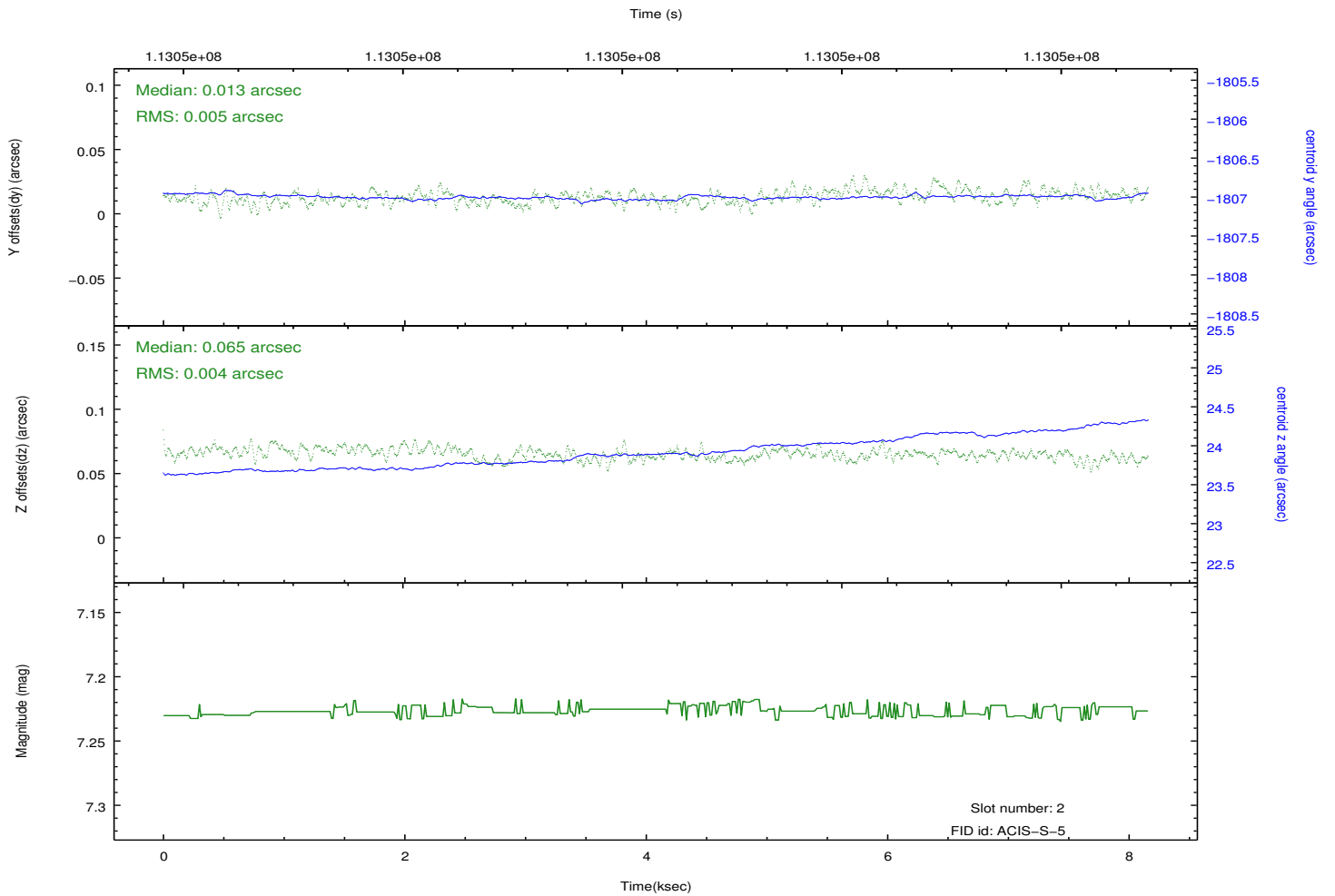
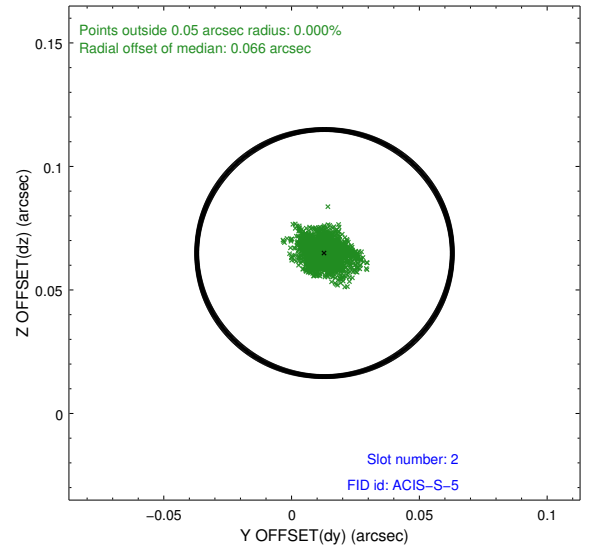
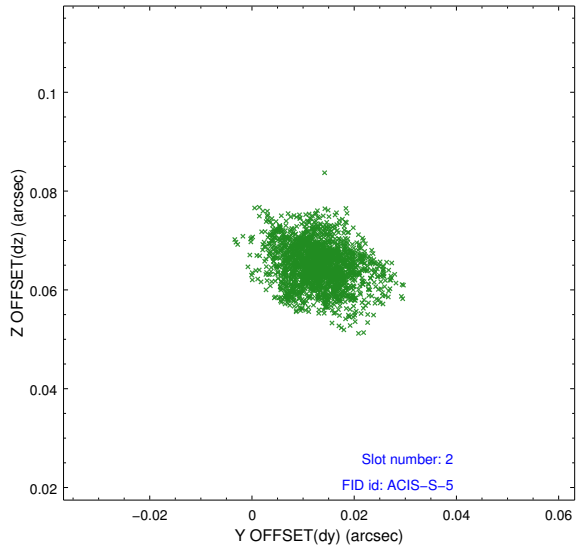
2.5.1 Slot 0



2.5.2 Slot 1

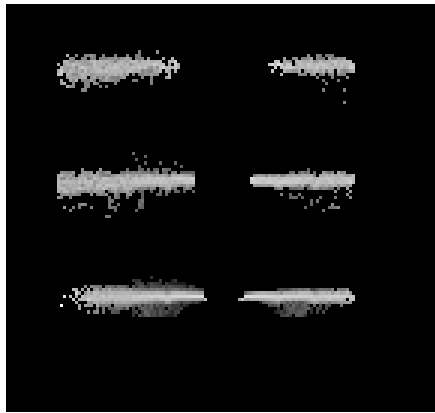


2.5.3 Slot 2

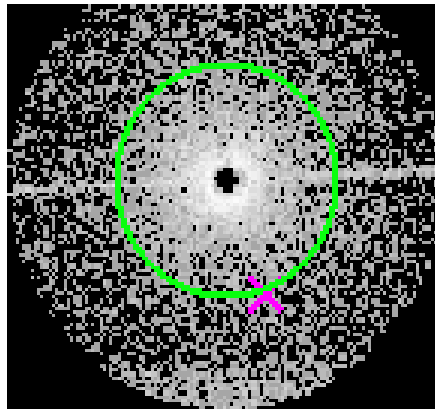


3 Gratings

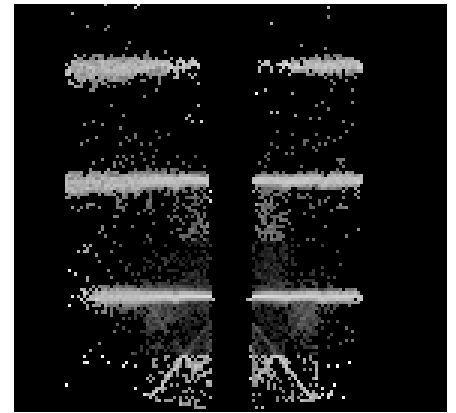
3.1 HEG Arm



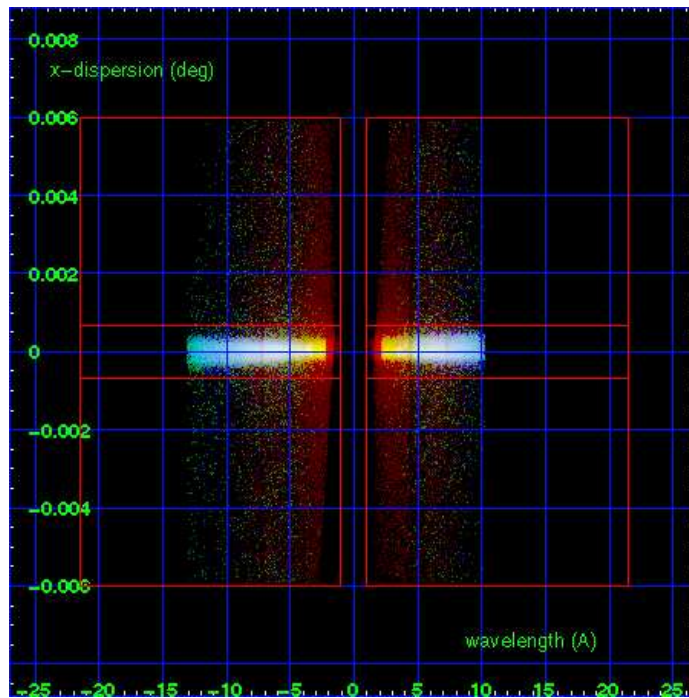
HEG Order Sort 123



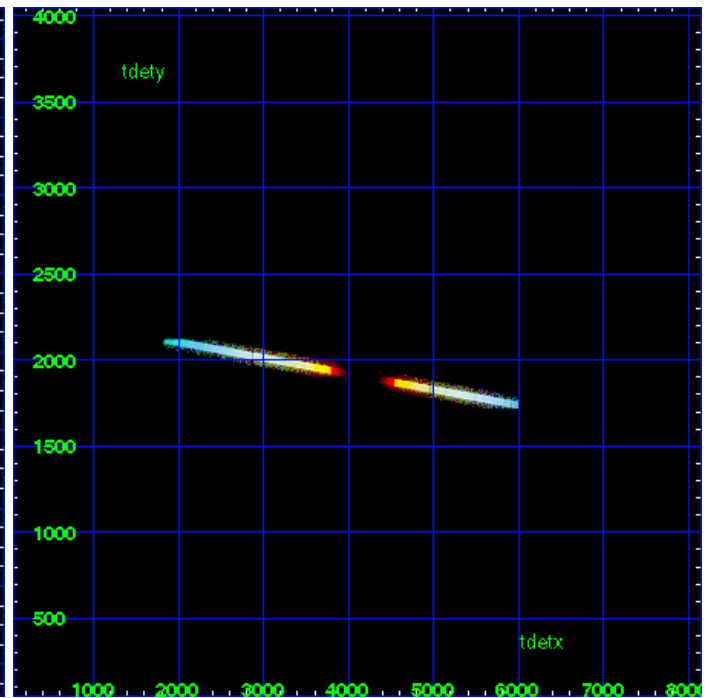
HEG Zero Order



HEG Order Sort ALL

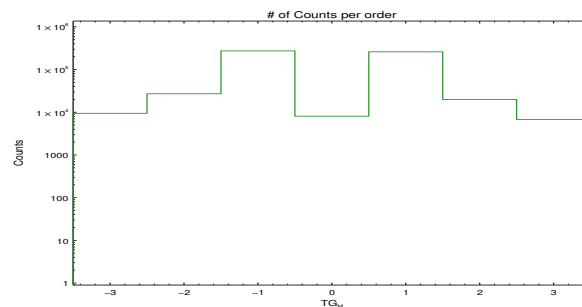


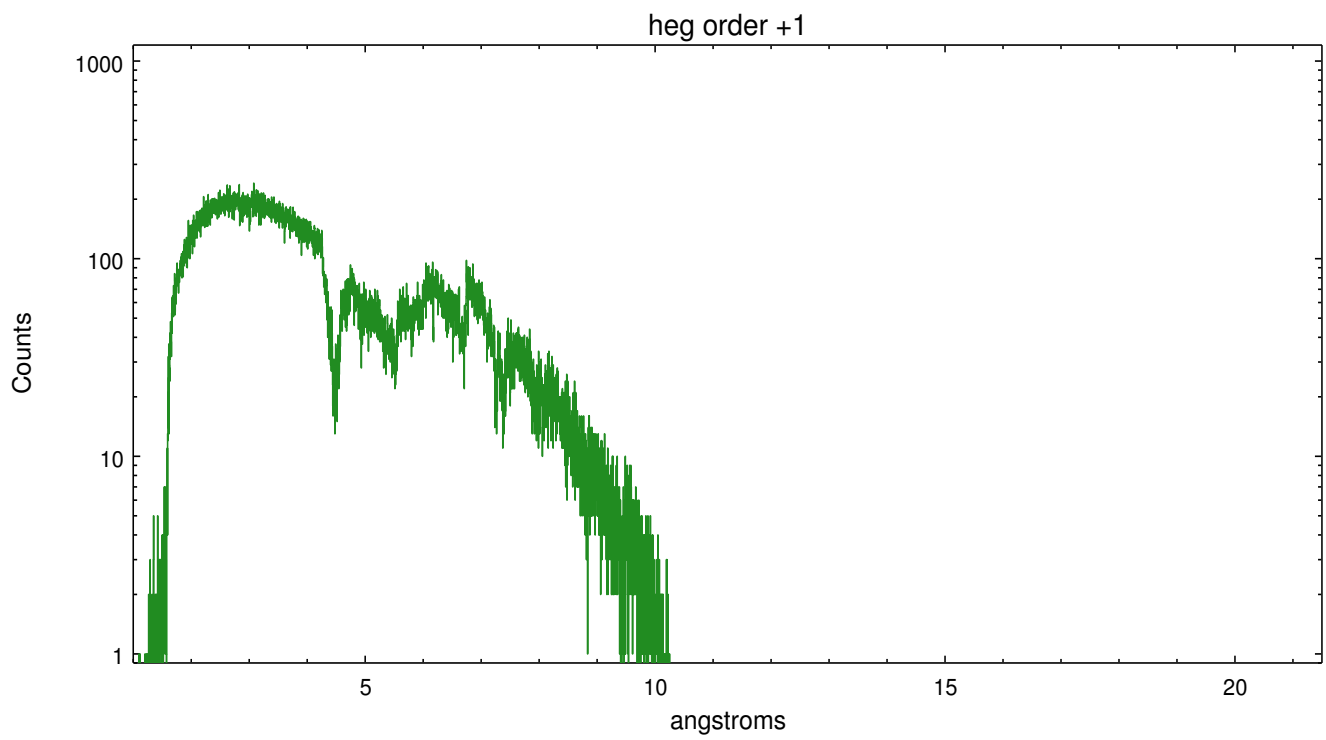
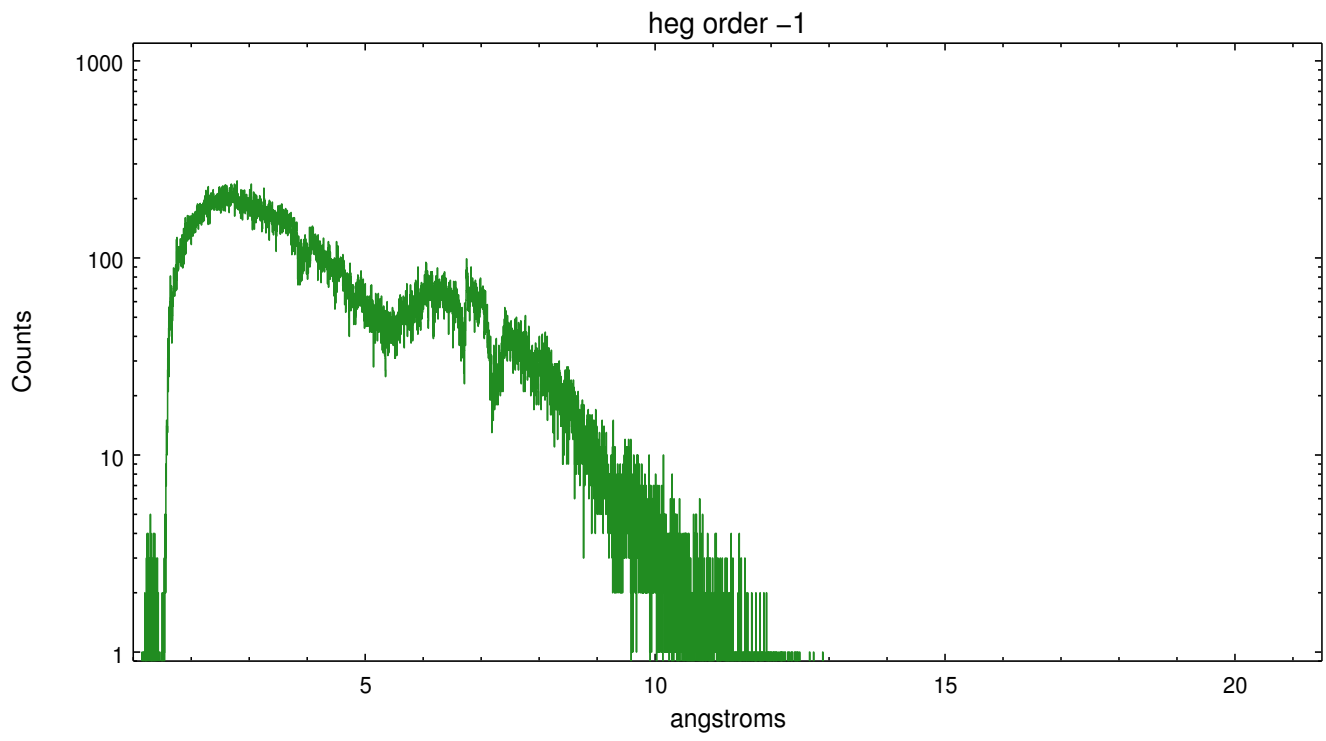
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	9442	27057	272817	8086	259613	19942	6750

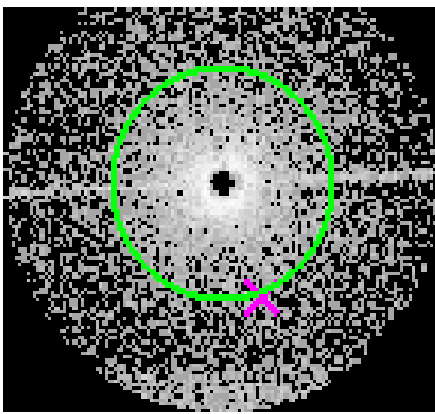




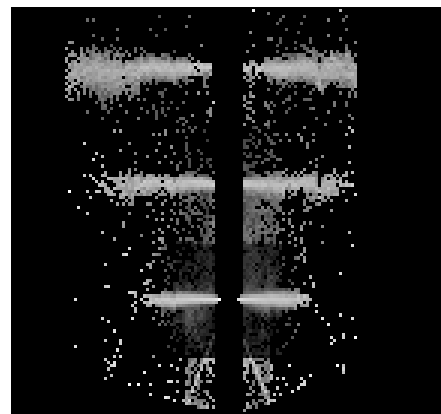
3.2 MEG Arm



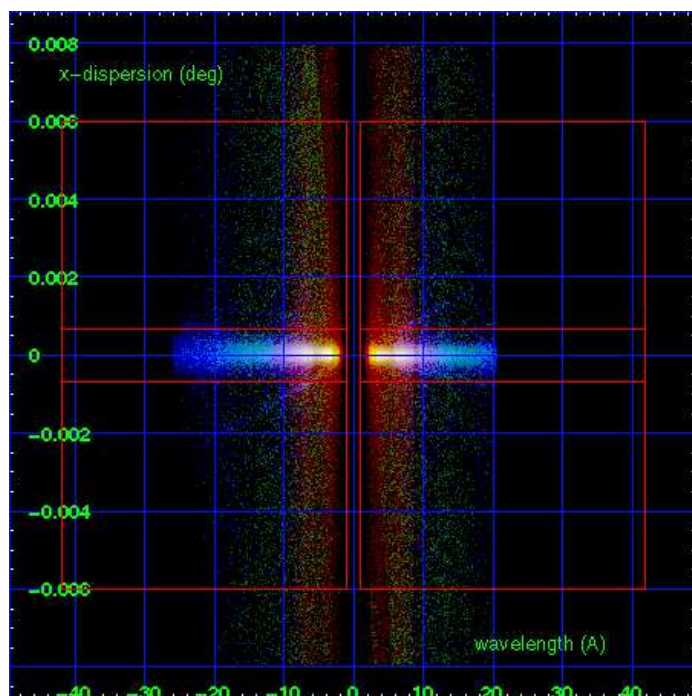
MEG Order Sort 123



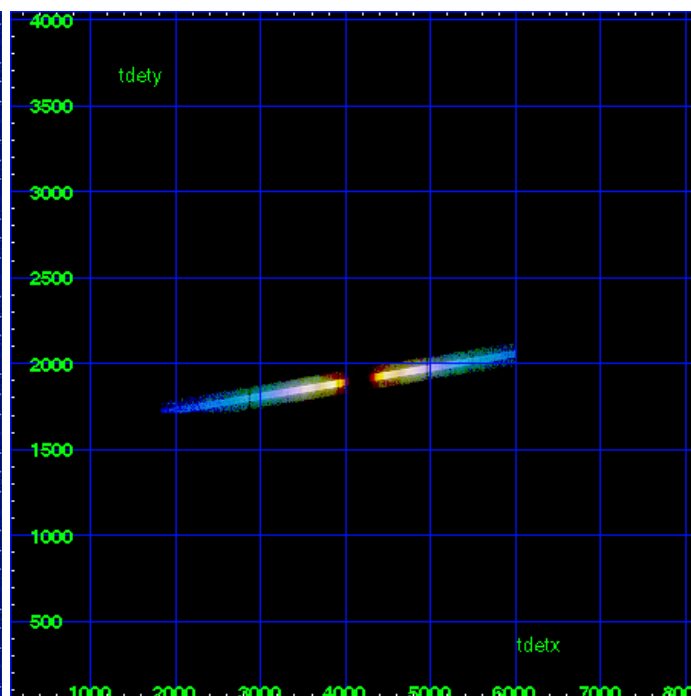
MEG Zero Order



MEG Order Sort ALL

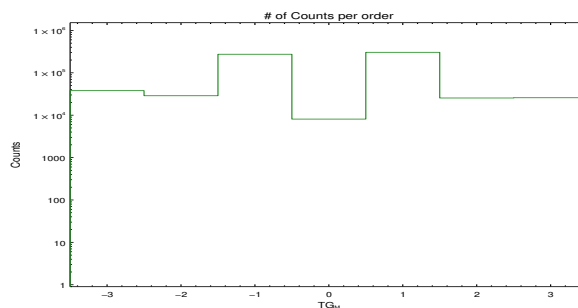


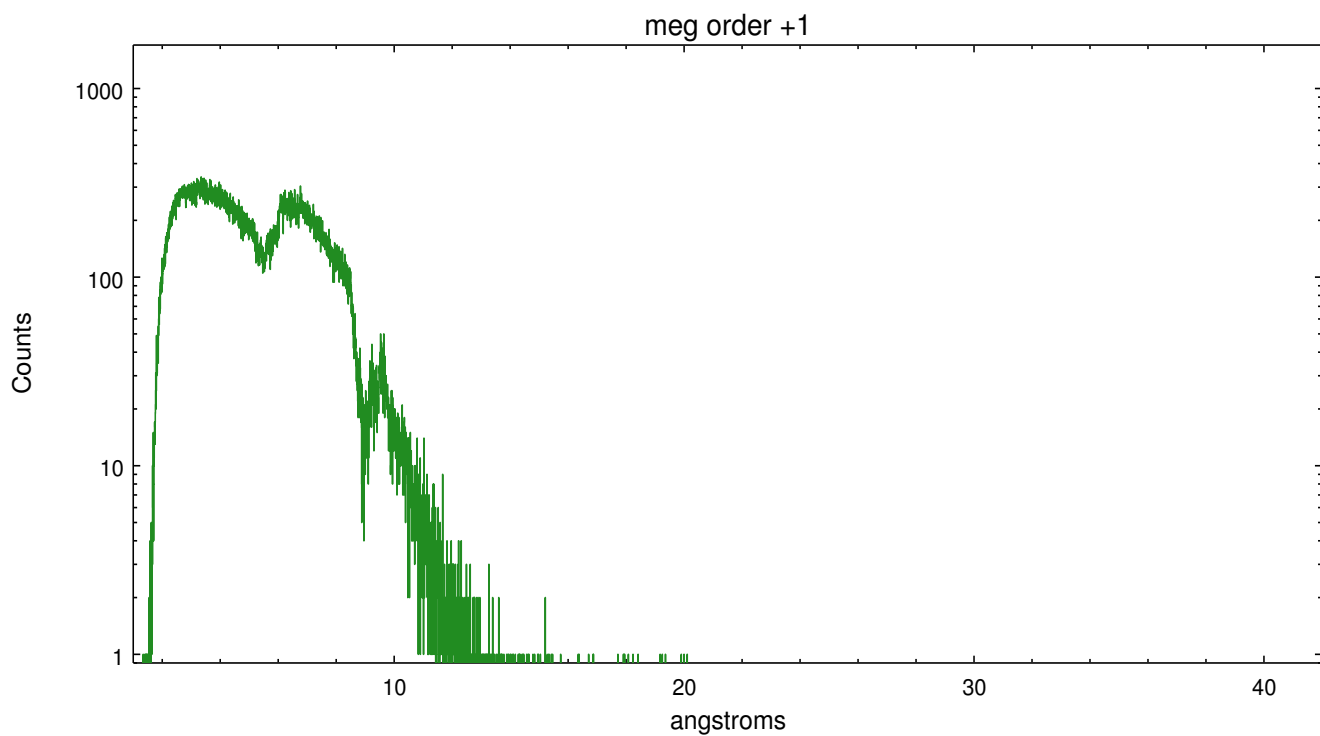
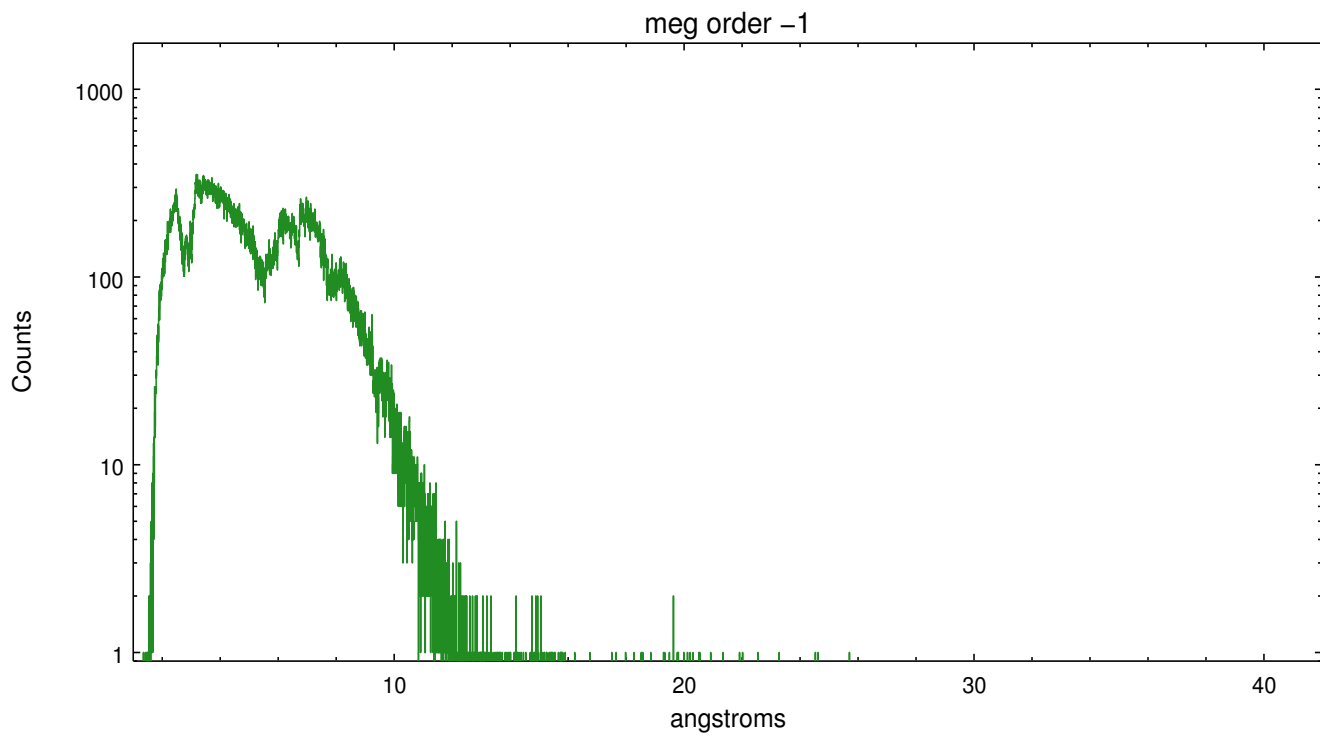
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	37946	28778	273726	8086	304224	25447	25814





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.27
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.156

A.2 Comments

Phased constrained observation. Standard data processing software did not correctly locate the zeroth order because a spatial exclusion window was used to reduce the count rate of the zeroth order. Only 1 in 10 events were recorded for the zeroth order. Manual intervention was used to input the correct sky coordinates ($x=4085.12$, $y=4125.69$) into the *src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called findzero, which is expected to be released in CIAO (currently in ISIS). The tool calculates the point of intersection of the readout streak and the meg arm (preferred position), or the readout streak and the heg arm. The zeroth order source position determined by the standard pipeline processing using the tool tgdetect was not used in this processing. The newly determined zeroth order coordinates have been placed in the *src1a.fits file, replacing the coordinates determined by tgdetect. Note that these corrected coordinates of the zeroth order cannot be reproduced by running tgdetect on the data.

===

Spectral arms are clearly seen in the image of bad pixels, implying the dispersed spectral arms are piled up.