

V&V Reference Report

L2 ASCDS Version : 8.4.3

Observation 12146 - L2 Version 2
Chandra X-Ray Center

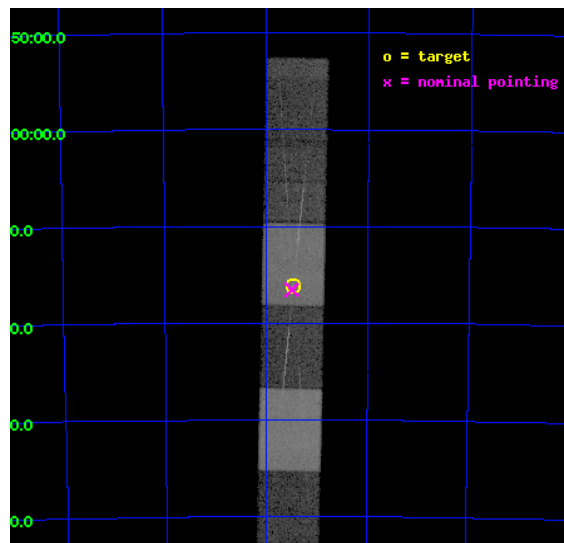
L2 Processing Date : Feb 6 2012

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1 Front

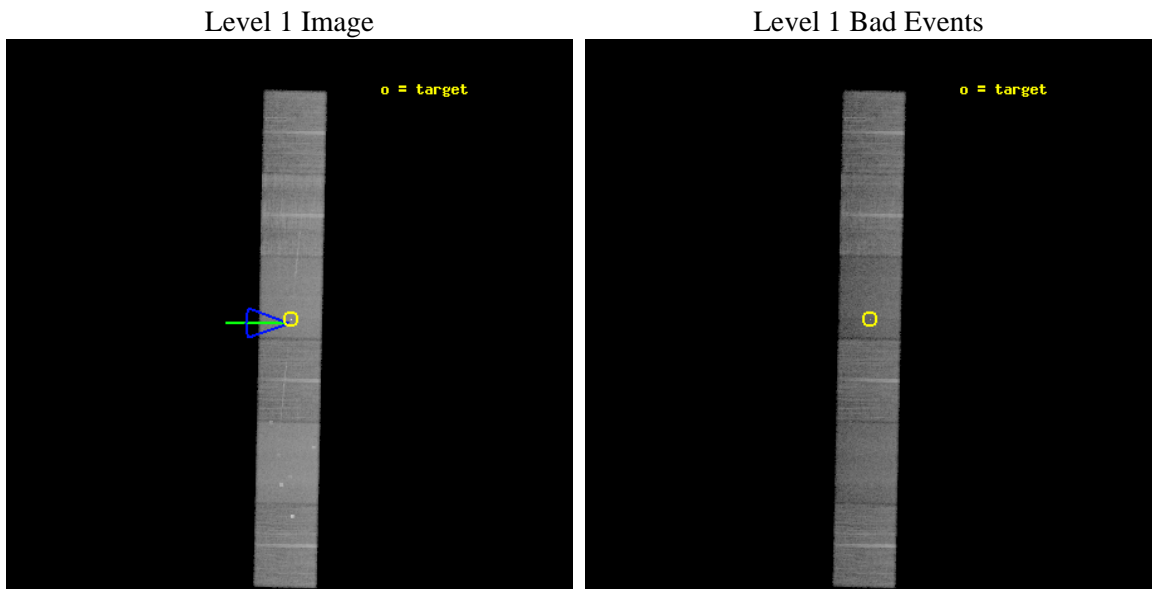
seq_num	501361	Sequence number
obs_id	12146	Observation id
title	SN 1987A Deep HETG Spectrum II: More than just a shocked ring	Prop
observer	Prof. Claude Canizares	Principal investigator
object	SN 1987A	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.866667	Observer's specified target RA [deg]
dec_targ	-69.269722	Observer's specified target Dec [deg]
ra_nom	83.874208981767	Nominal RA [deg]
dec_nom	-69.275972205881	Nominal Dec [deg]
roll_nom	271.16367455495	Nominal Roll [deg]
revision	2	Processing version of data
ontime	26045.0	Sum of GTIs [s]
livetime	25624.350659572	Livetime [s]
ontime4	26045.0	Sum of GTIs [s]
ontime5	26045.0	Sum of GTIs [s]
ontime6	26045.0	Sum of GTIs [s]
ontime7	26045.0	Sum of GTIs [s]
ontime8	26045.0	Sum of GTIs [s]
ontime9	26039.917949319	Sum of GTIs [s]
l2events	232493	Number of level 2 events



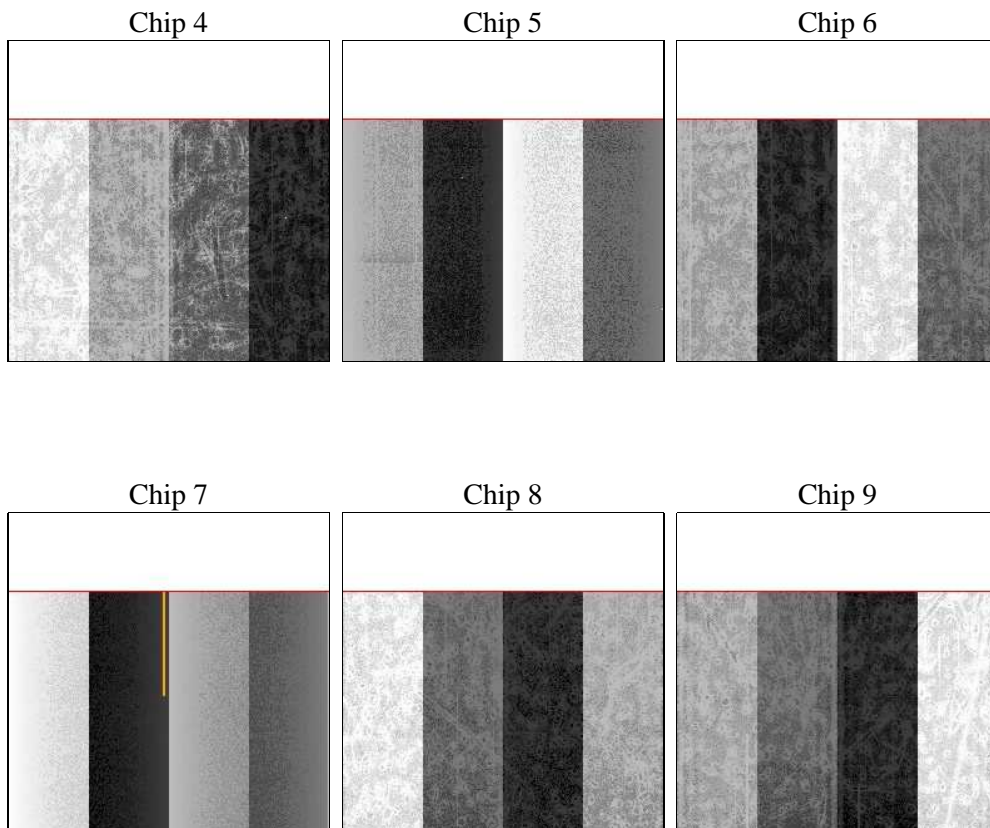
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	26000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	26045.0	Sum of GTIs [s]
caldbver	4.4.7	 	ontime4	26045.0	Sum of GTIs [s]
date	2012-02-06T07:50:55	Date and time of file creation	ontime5	26045.0	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	26045.0	Sum of GTIs [s]
			ontime7	26045.0	Sum of GTIs [s]
			ontime8	26045.0	Sum of GTIs [s]
			ontime9	26039.917949319	Sum of GTIs [s]
			l1events	958154	Number of level 1 events

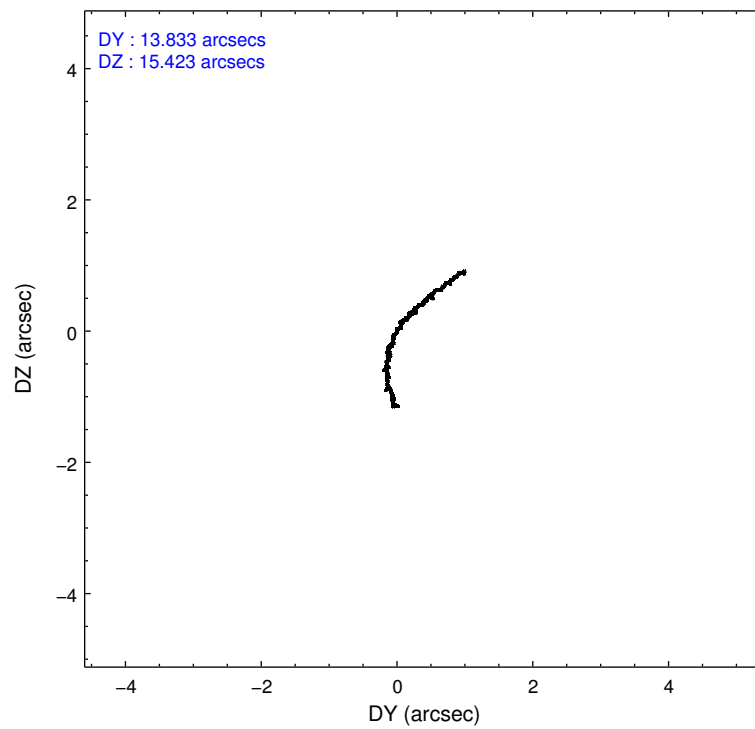
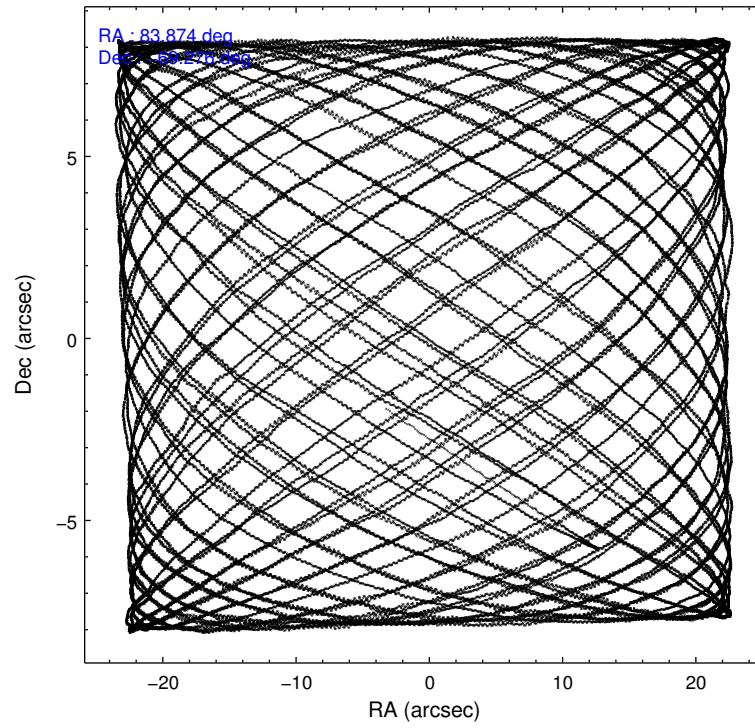
2.1.4 Events

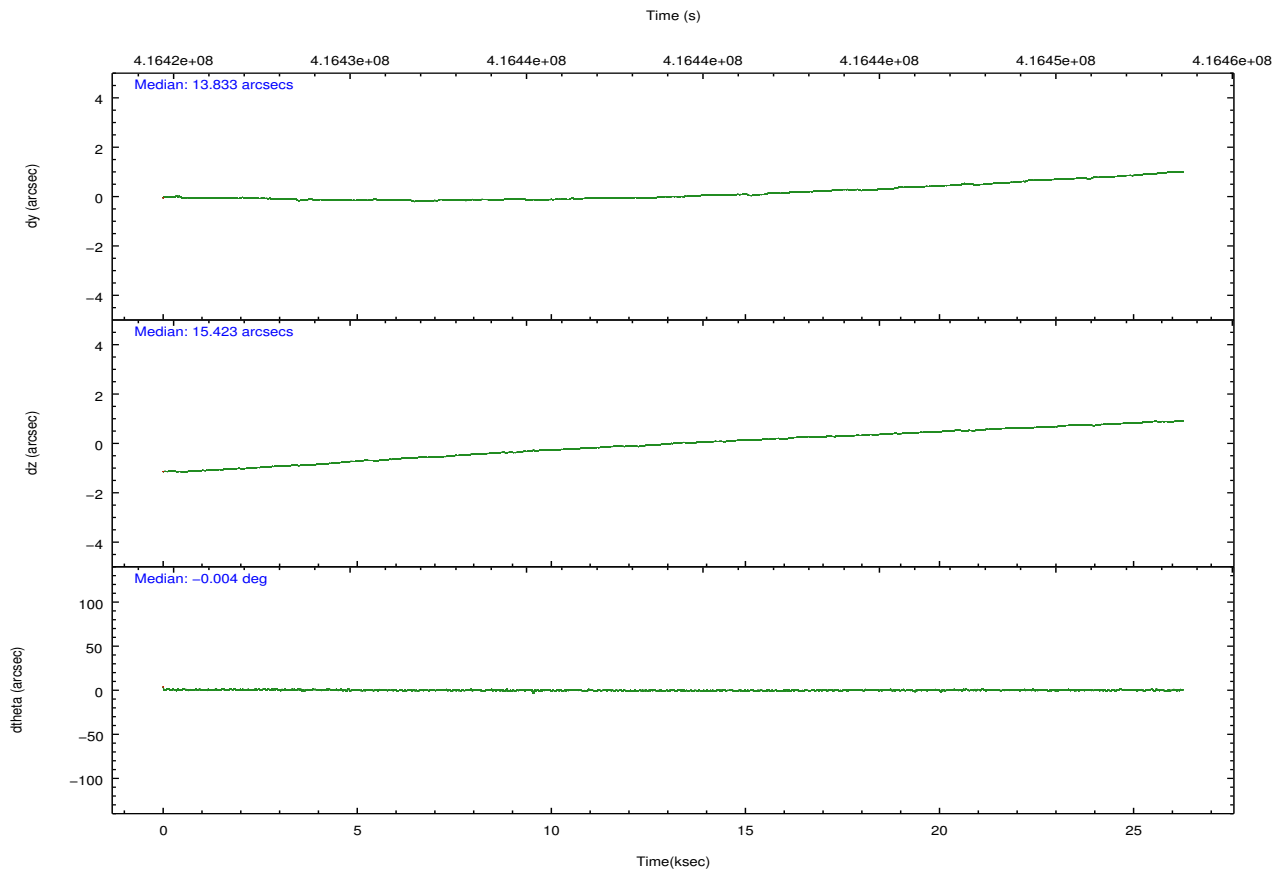
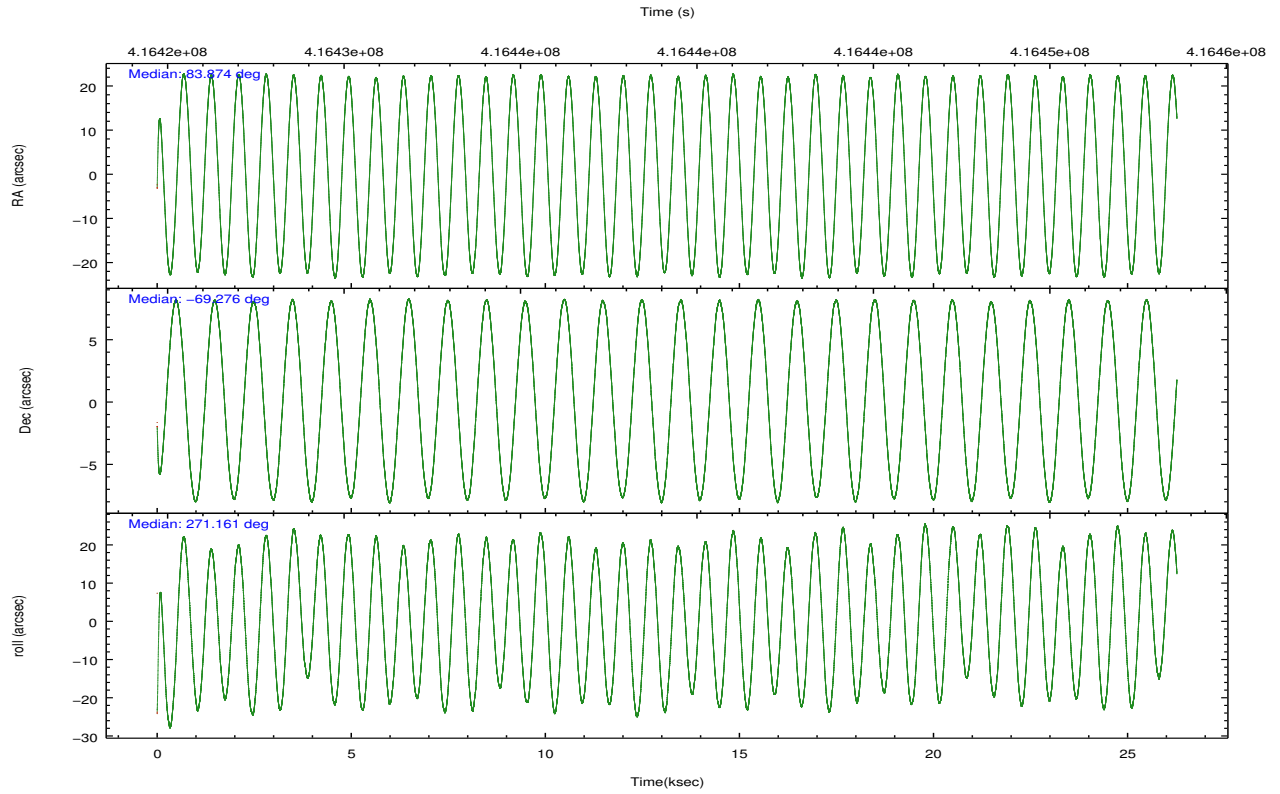
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	150025	200818	134476	168499	175266	129070	grade 0 events	9393	9611	7567	8365	15023	6100
rejected events	130377	101573	116304	88685	127630	112585		6%	4%	5%	4%	8%	4%
rejected %	86%	50%	86%	52%	72%	87%	grade 1 events	122	369	82	228	123	77
								0%	0%	0%	0%	0%	0%
							grade 2 events	3952	29411	3766	16812	10696	3522
								2%	14%	2%	9%	6%	2%
							grade 3 events	1826	4397	1764	7369	4990	1782
								1%	2%	1%	4%	2%	1%
							grade 4 events	1727	4354	1700	7246	4586	1709
								1%	2%	1%	4%	2%	1%
							grade 5 events	5755	15701	6048	17054	8589	6596
								3%	7%	4%	10%	4%	5%
							grade 6 events	2753	51485	3375	40031	12341	3373
								1%	25%	2%	23%	7%	2%
							grade 7 events	124497	85490	110174	71394	118918	105911
								82%	42%	81%	42%	67%	82%

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	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	83.833374	83.87420898176659	CCD I2 on	N	N
[deg] Pointing Dec	-69.252752	-69.27597220588146	CCD I3 on	N	N
[deg] Pointing Roll	270.968869	271.1636745549541	CCD S0 on	O1	Y
[deg] Roll angle	270.000000	270.000000	CCD S1 on	Y	Y
[deg] Roll tolerance	20.000000	20.000000	CCD S2 on	Y	Y
Roll constraint allows 180D rotation	N	N	CCD S3 on	Y	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S4 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S5 on	Y	Y
[mm] SIM translation stage pos	-187.132523	-187.1254020033014	Number of optional ACIS chips dropped	0	0
[mm] SIM translation stage offset	-3	-3.007120579706367	On-chip summing requested	N	N
[s] Observation start time (MET)	416426288.184000	416425192.89324	Subarray requested	CUSTOM	CUSTOM
Observation start date	2011-03-13T17:57:02	2011-03-13T17:39:52	Subarray start row	1	1
[s] Observation end time (MET)	416452288.184000	416452830.48218	Subarray row count	774	774
Observation end date	2011-03-14T01:10:22	2011-03-14T01:20:30	Alternating exposures requested	N	N
Read mode	TIMED	TIMED	[s] Primary exposure time	0.000000	2.5

2.3 Aspect



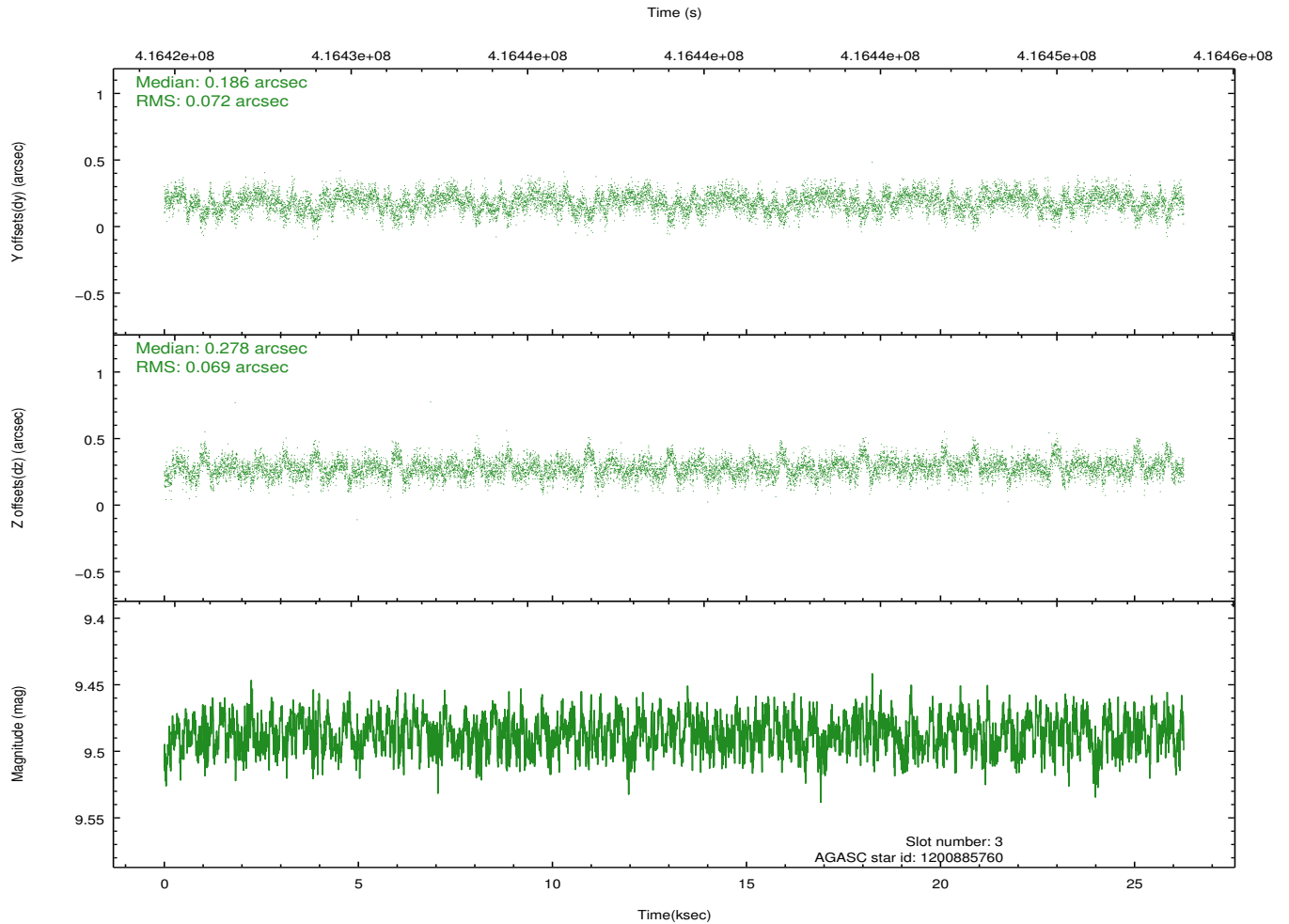
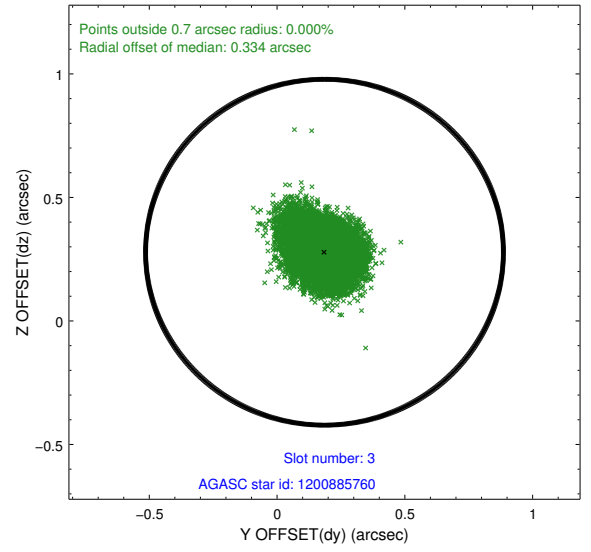
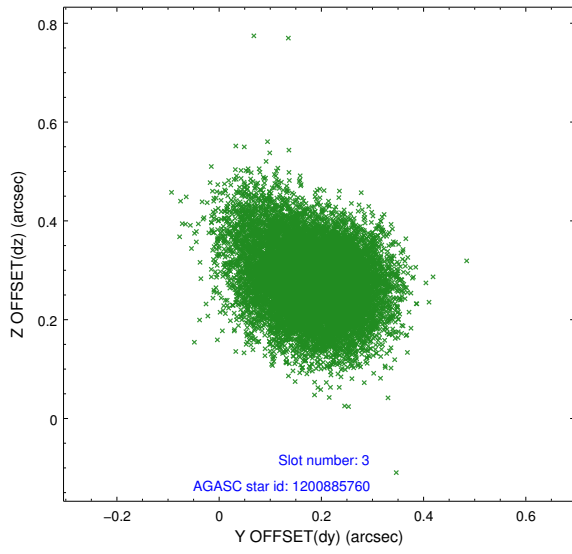


Slot Statistics

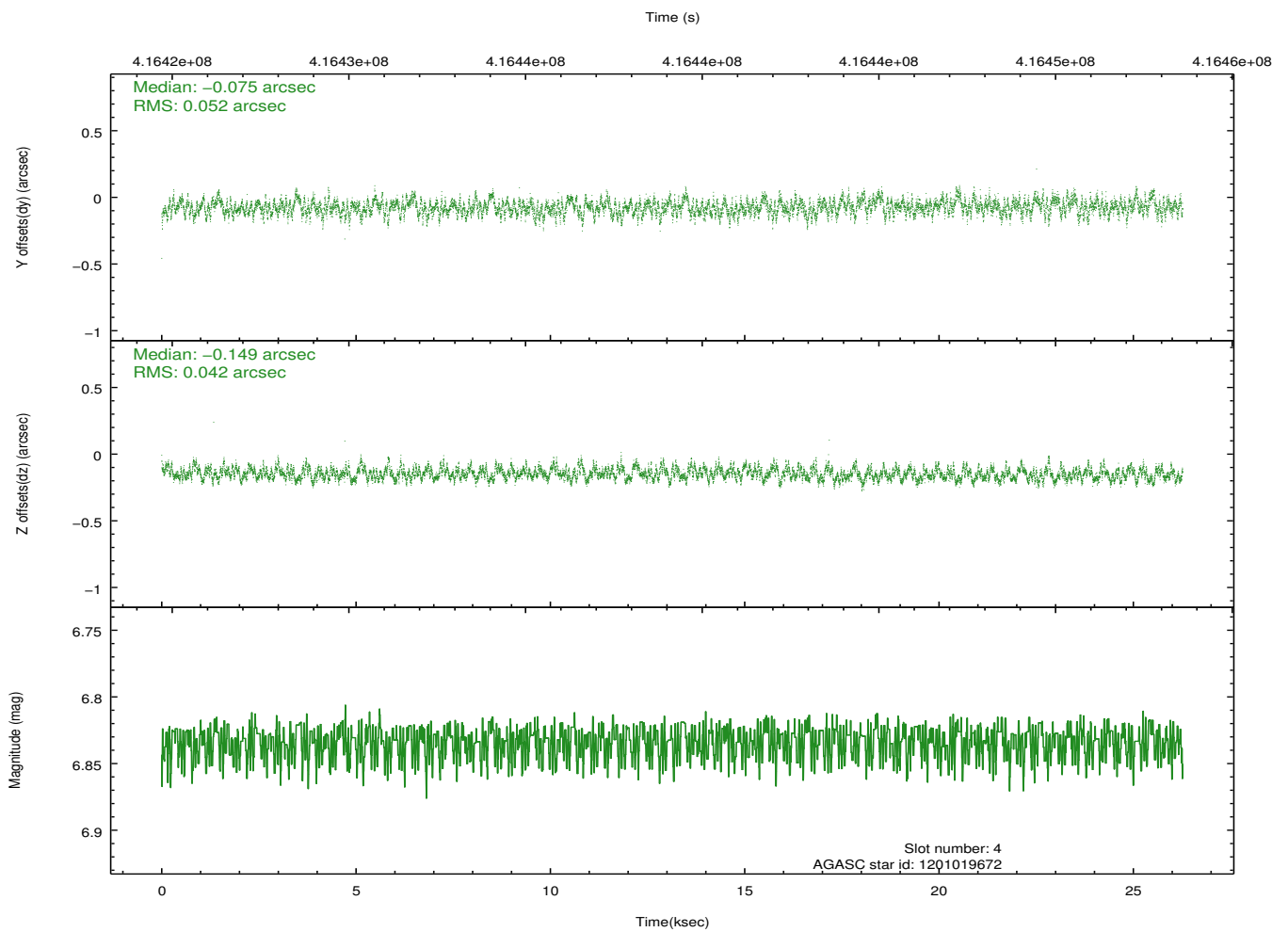
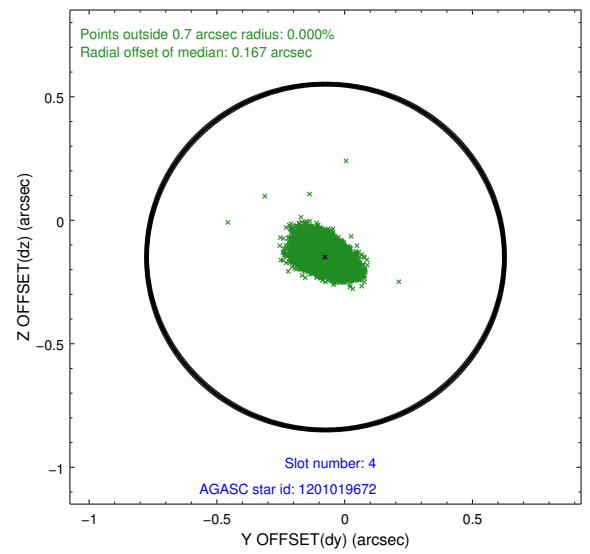
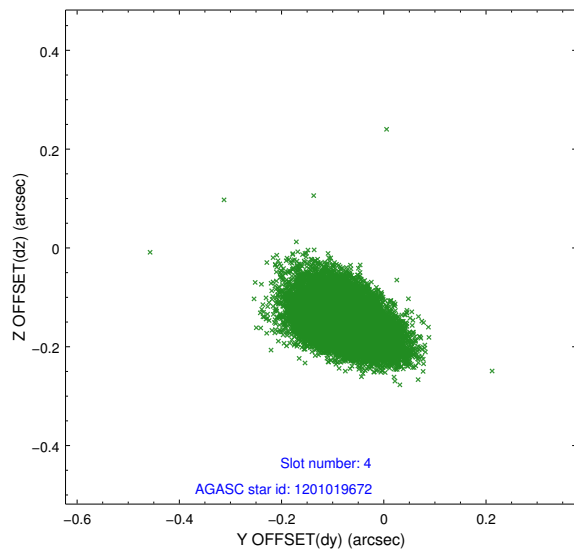
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.07	6407	0.059	0.036	0.031	0.062	0.000000	0.000000	929.30	-1794.46
1	FID	ACIS-S-2	7.01	6408	-0.217	-0.110	0.022	0.032	0.000000	0.000000	-766.82	-1799.21
2	FID	ACIS-S-4	7.07	6408	0.131	0.081	0.019	0.031	0.000000	0.000000	2146.62	109.60
3	GUIDE	1200885760	9.49	12805	0.186	0.278	0.105	0.174	83.723637	-68.777667	-1712.07	-113.58
4	GUIDE	1201019672	6.83	12816	-0.075	-0.149	0.070	0.116	85.312192	-68.770187	-1681.56	1956.32
5	GUIDE	1201020040	8.60	12810	0.086	-0.226	0.074	0.121	85.379163	-68.879396	-1284.95	2027.09
6	GUIDE	1201540776	9.58	12757	-0.033	-0.054	0.123	0.199	85.107945	-69.858480	2223.26	1542.99
7	GUIDE	1201410616	9.34	12791	-0.161	0.151	0.138	0.229	82.516808	-69.784406	1903.68	-1669.63

2.4 Star Slots

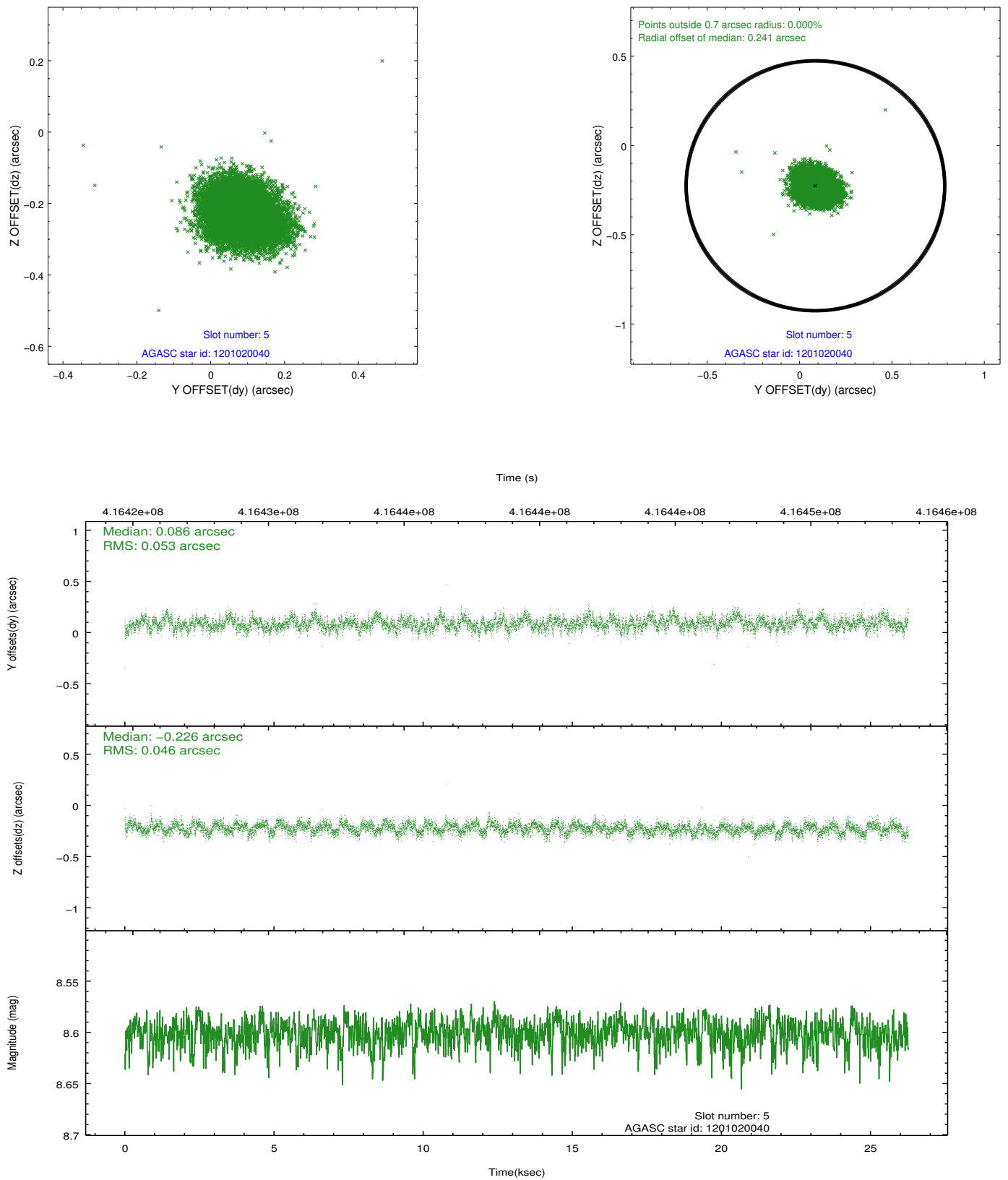
2.4.1 Slot 3



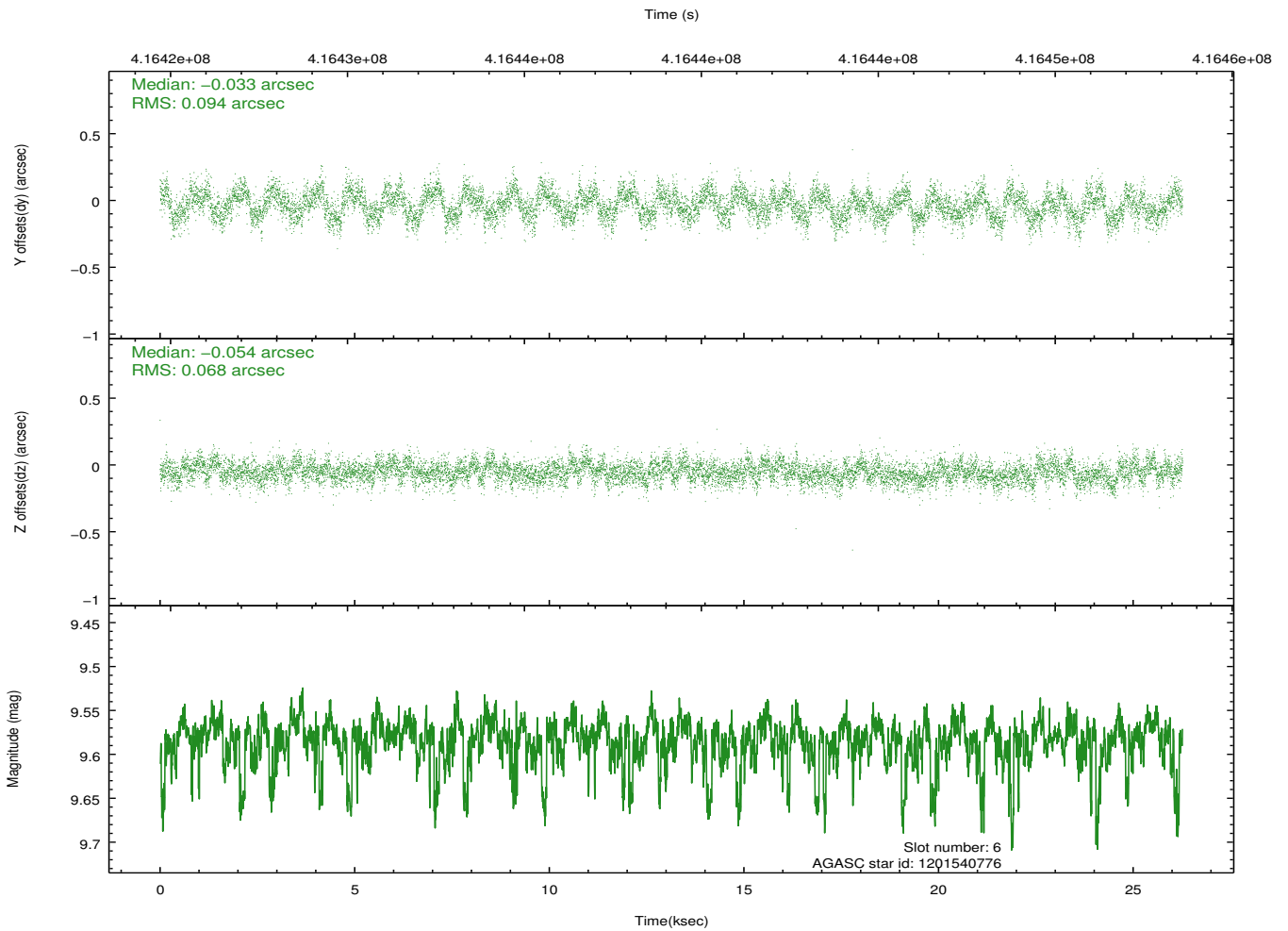
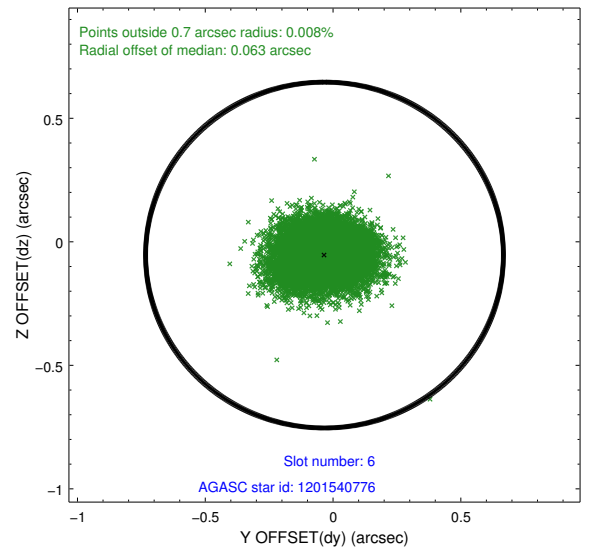
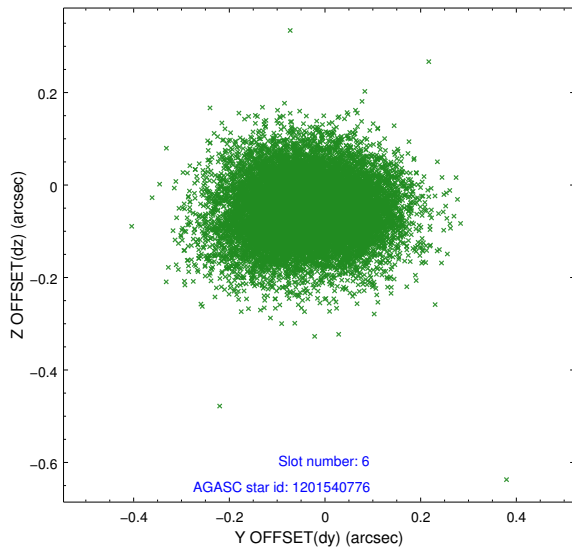
2.4.2 Slot 4



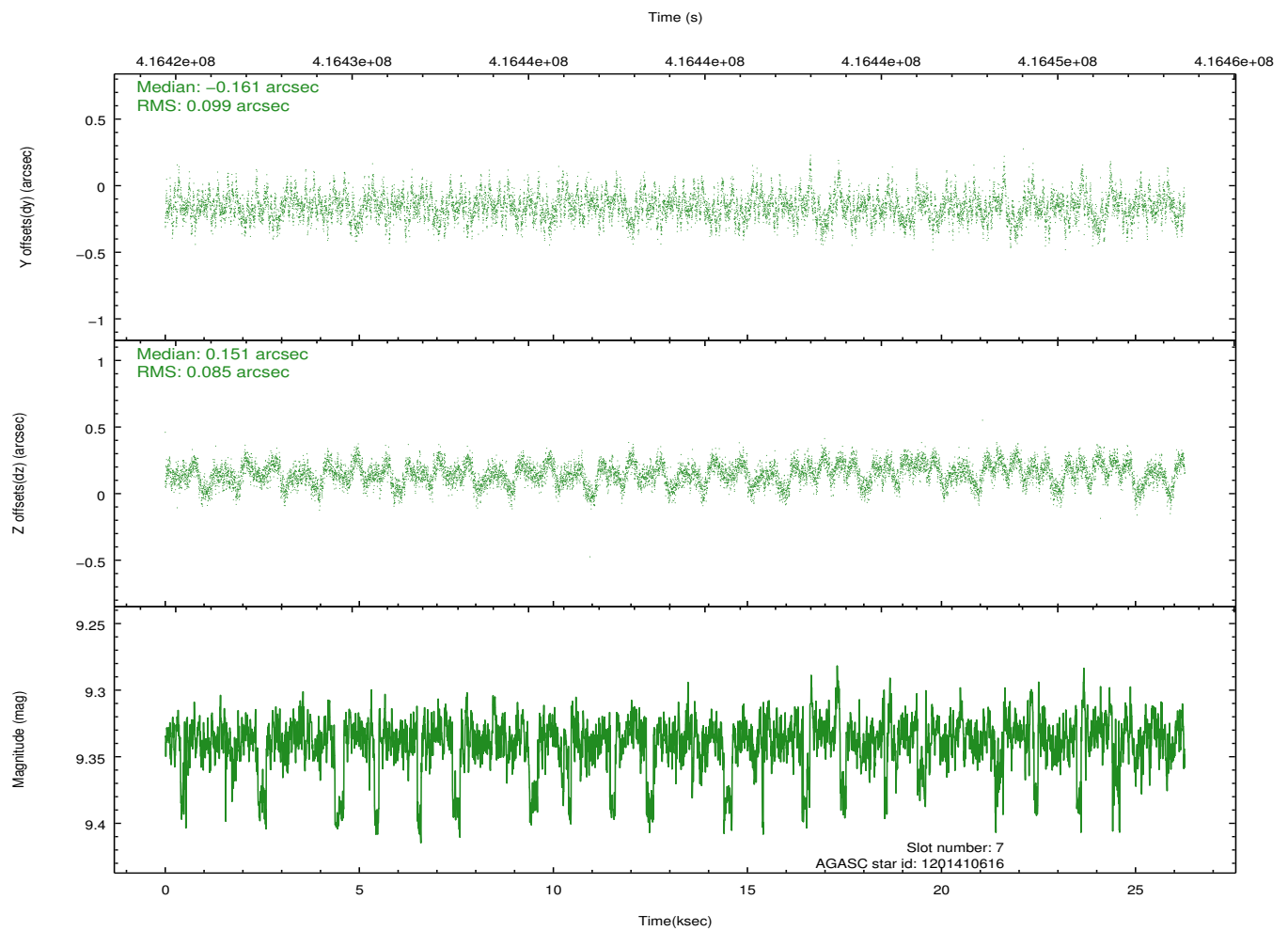
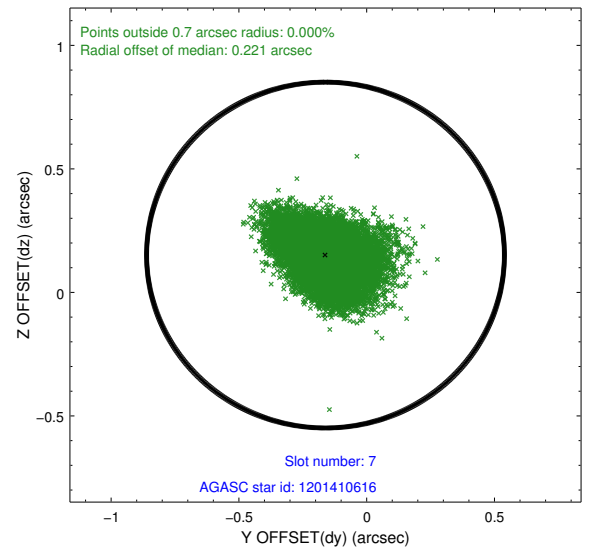
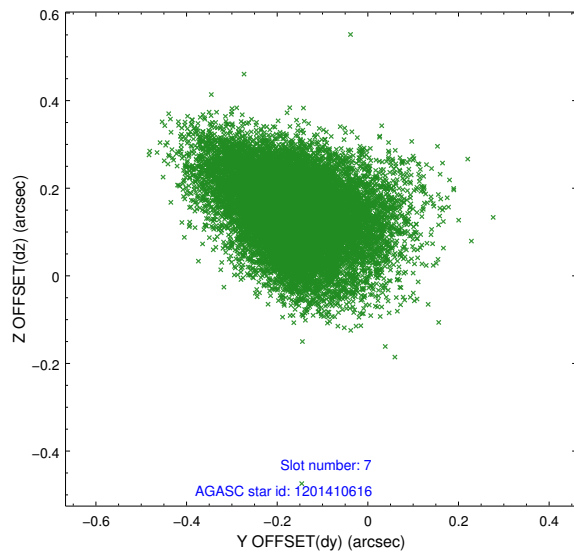
2.4.3 Slot 5



2.4.4 Slot 6

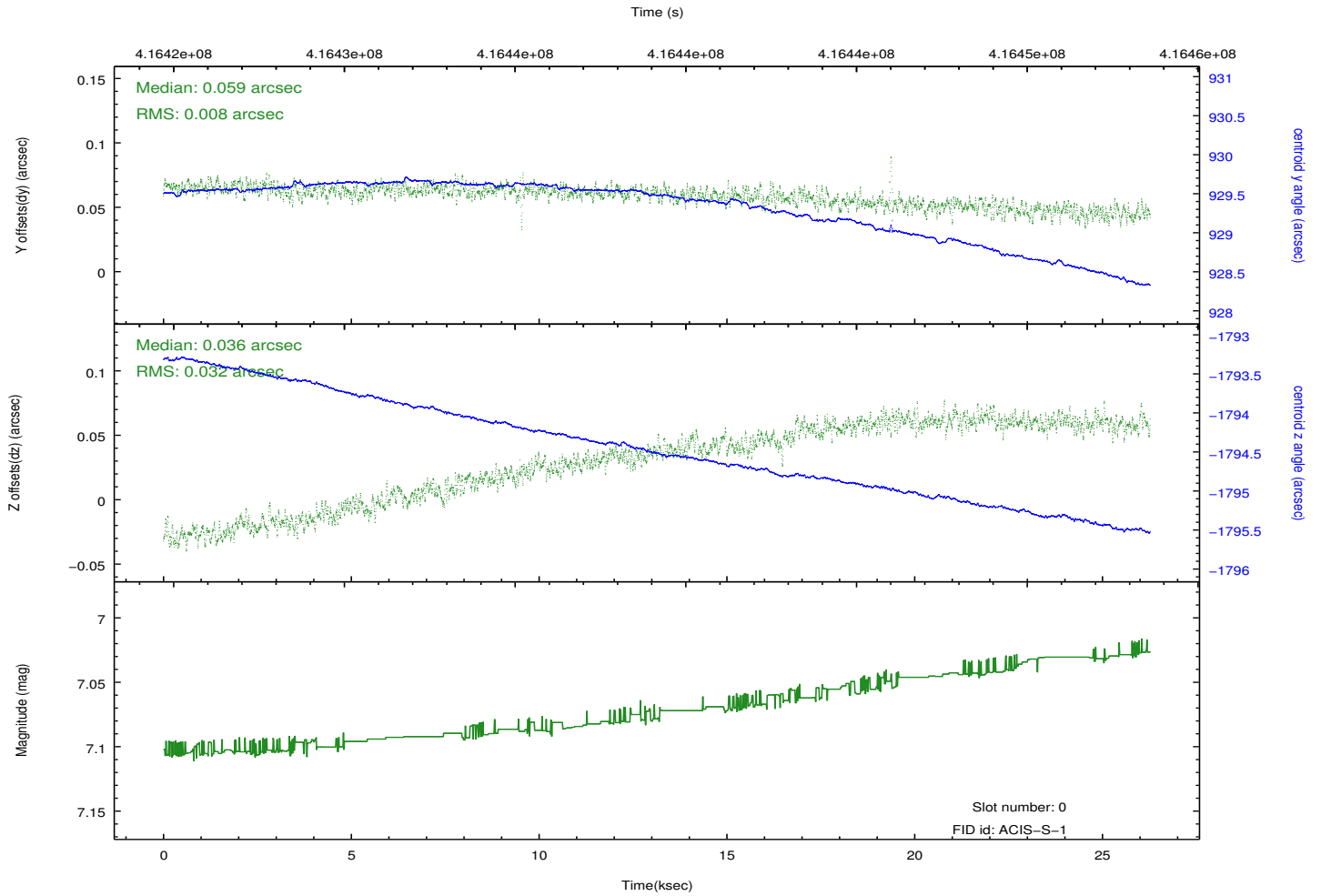
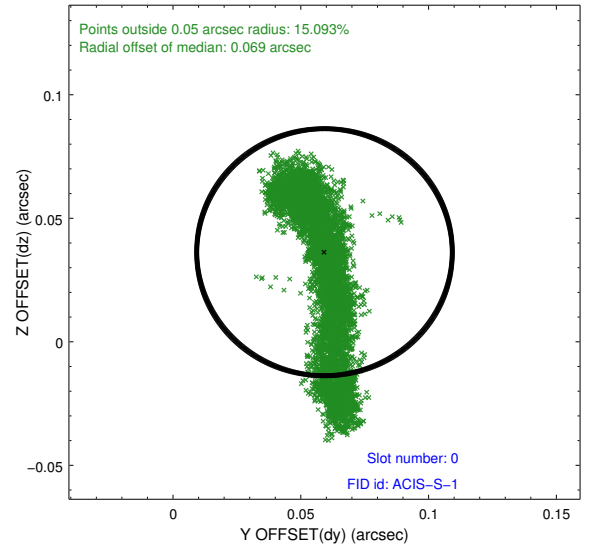
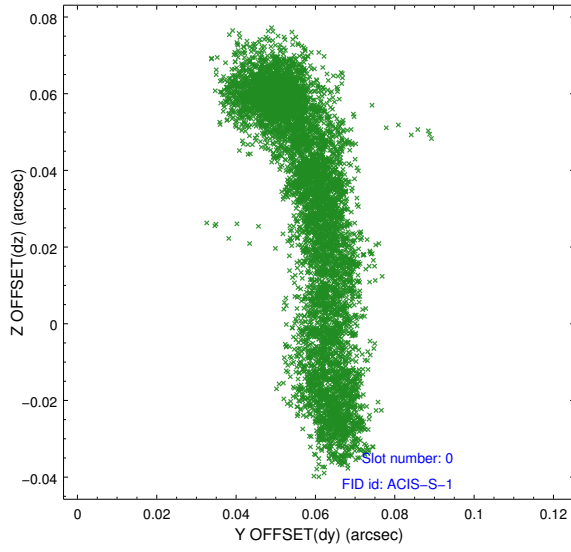


2.4.5 Slot 7

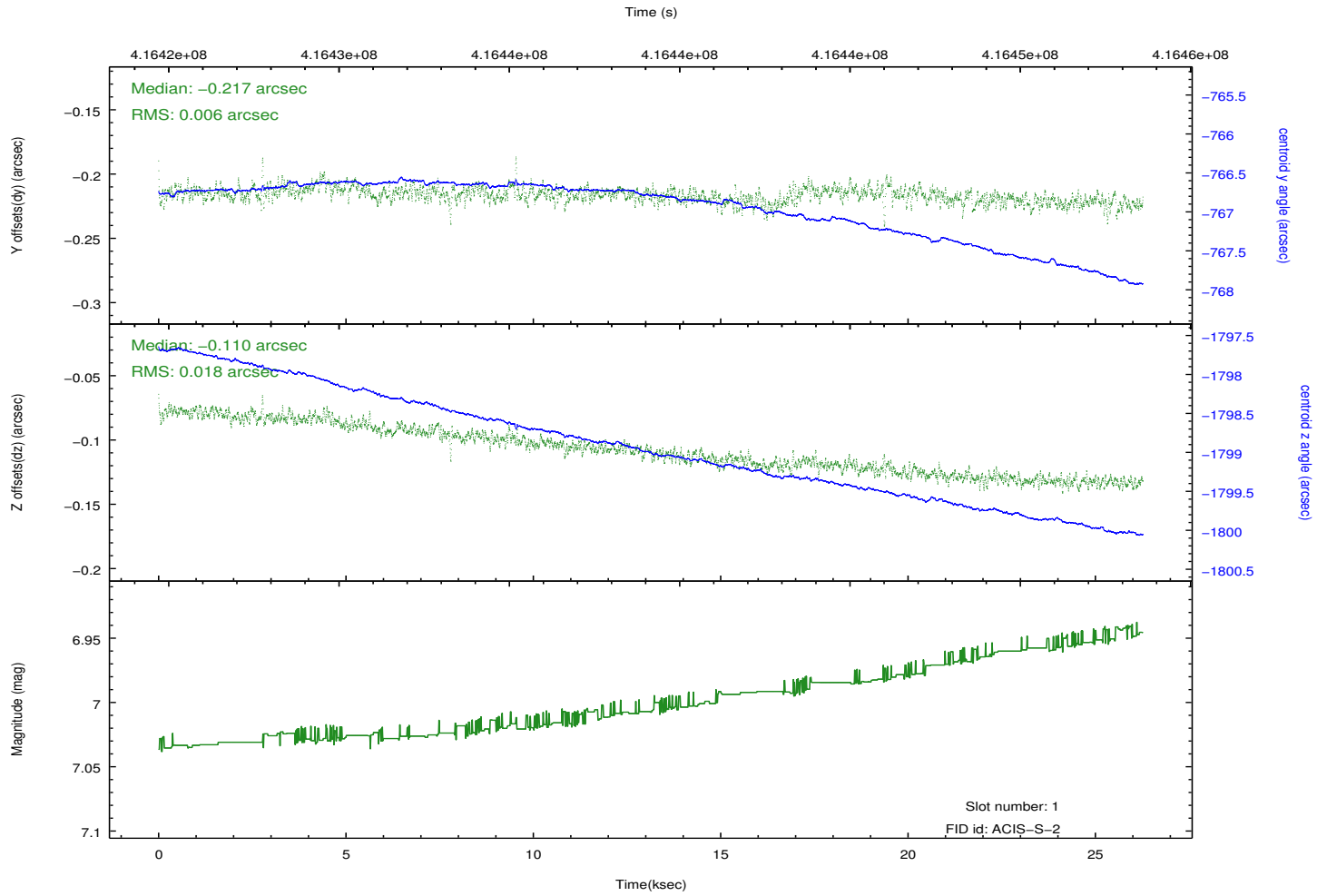
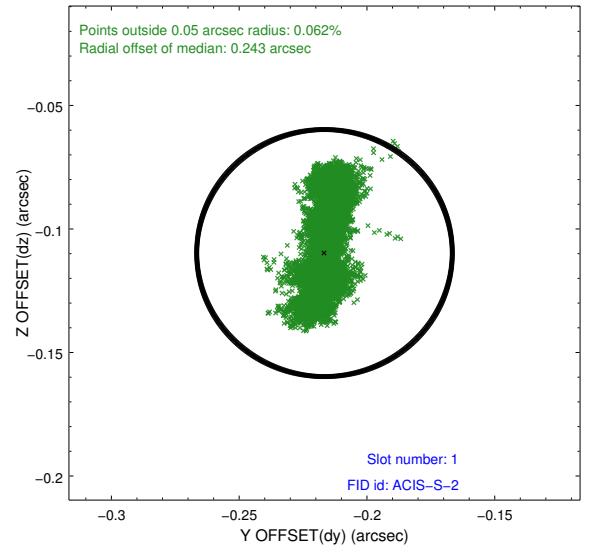
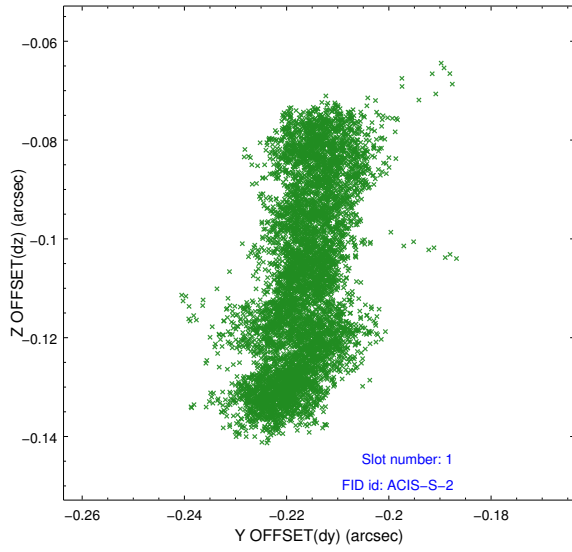


2.5 FID Slots

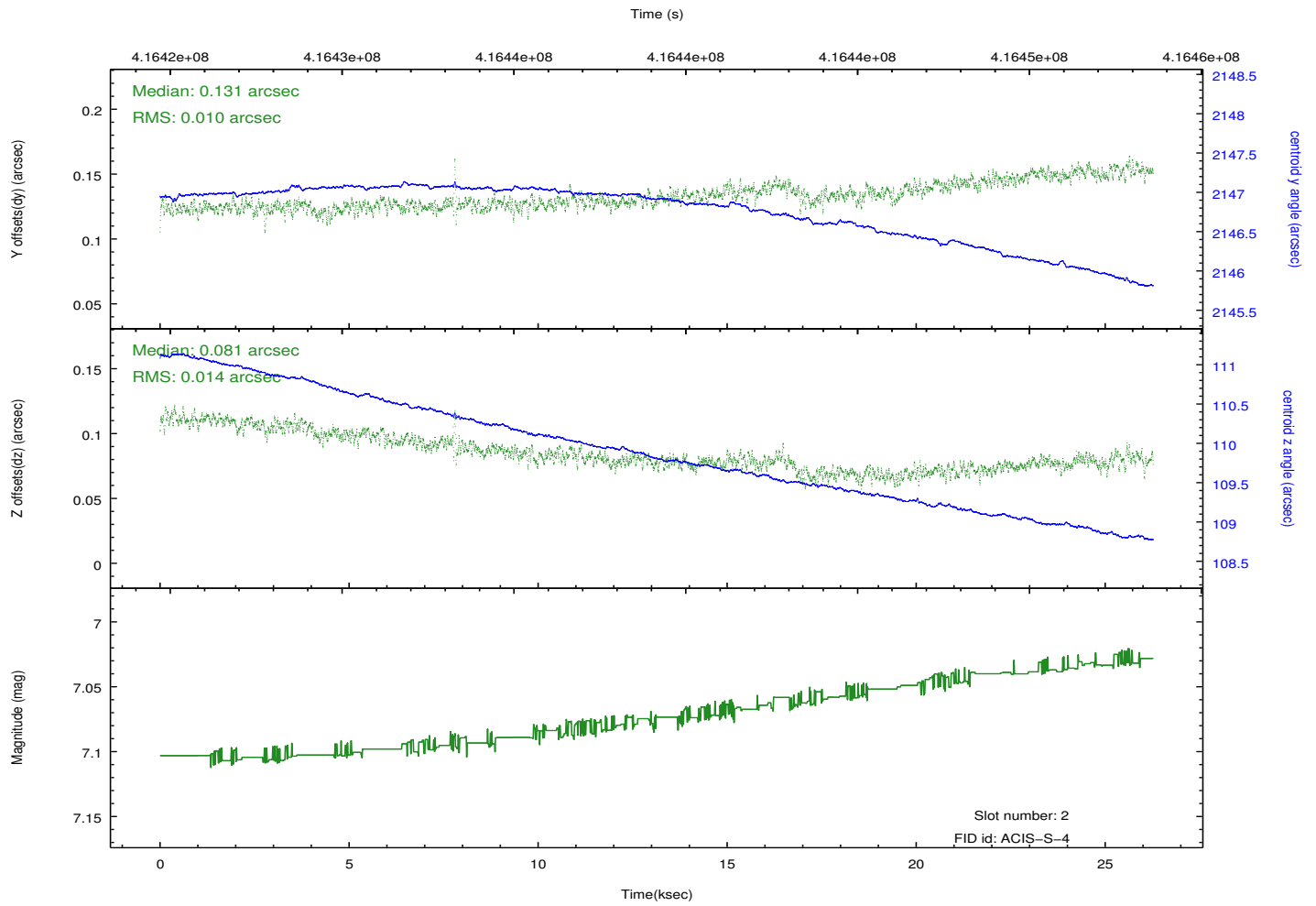
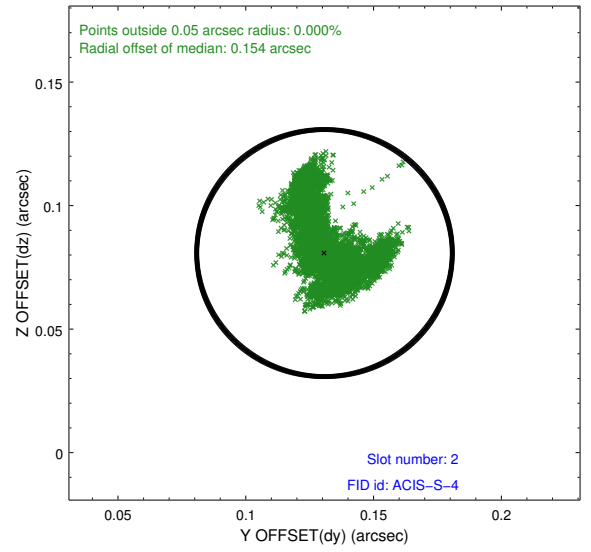
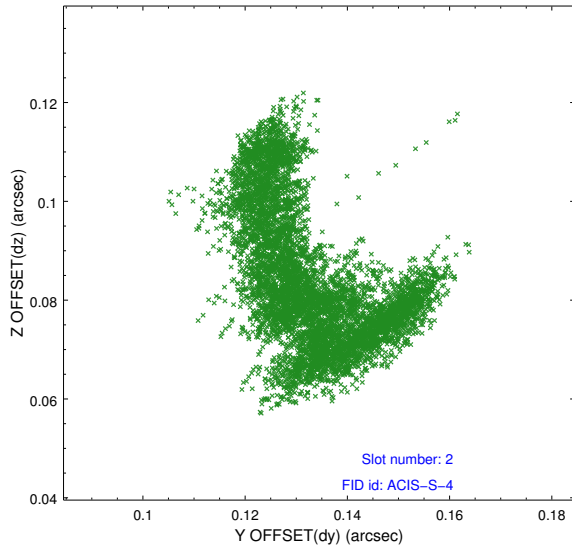
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

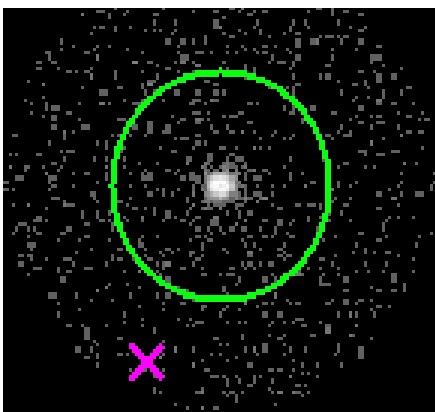


3 Gratings

3.1 HEG Arm



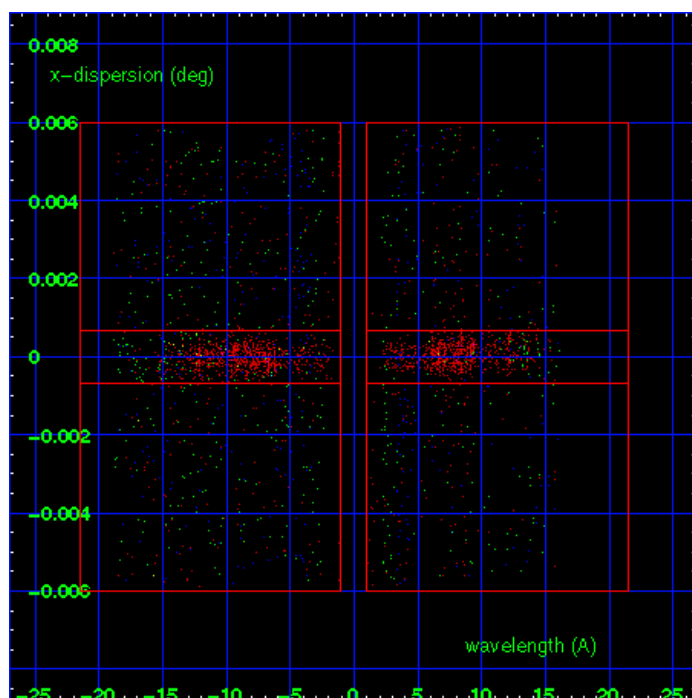
HEG Order Sort 123



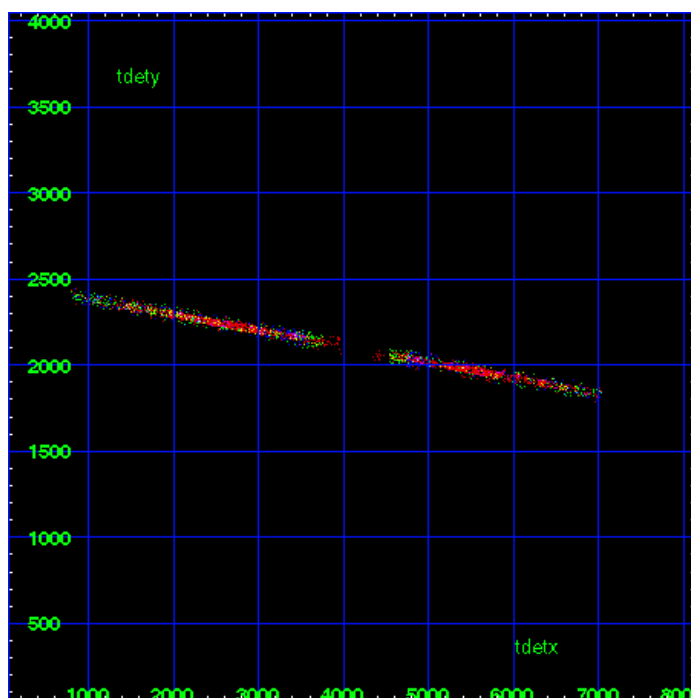
HEG Zero Order



HEG Order Sort ALL

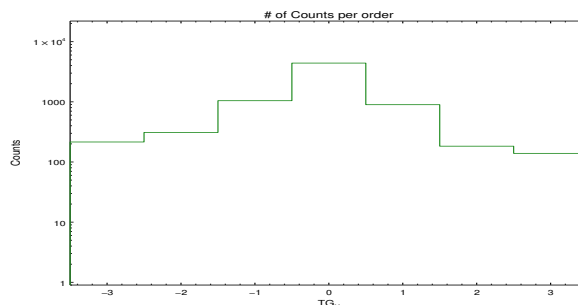


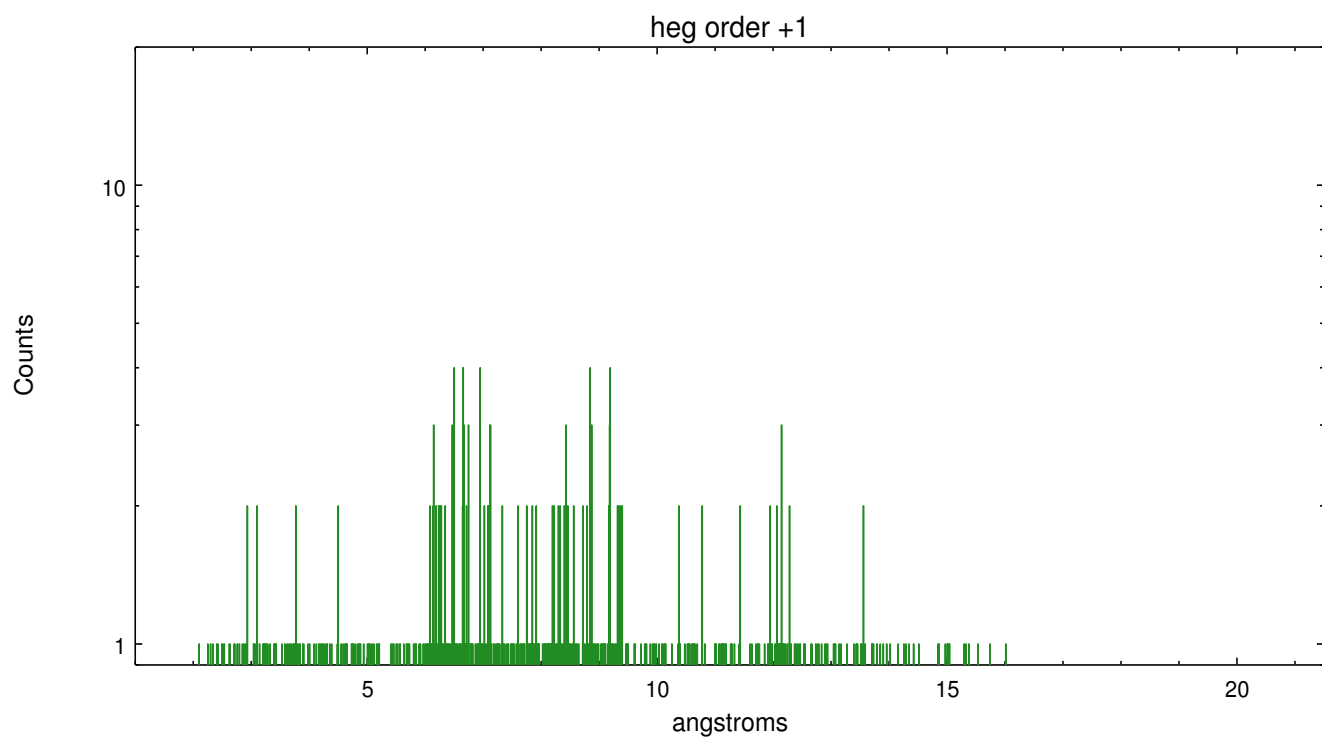
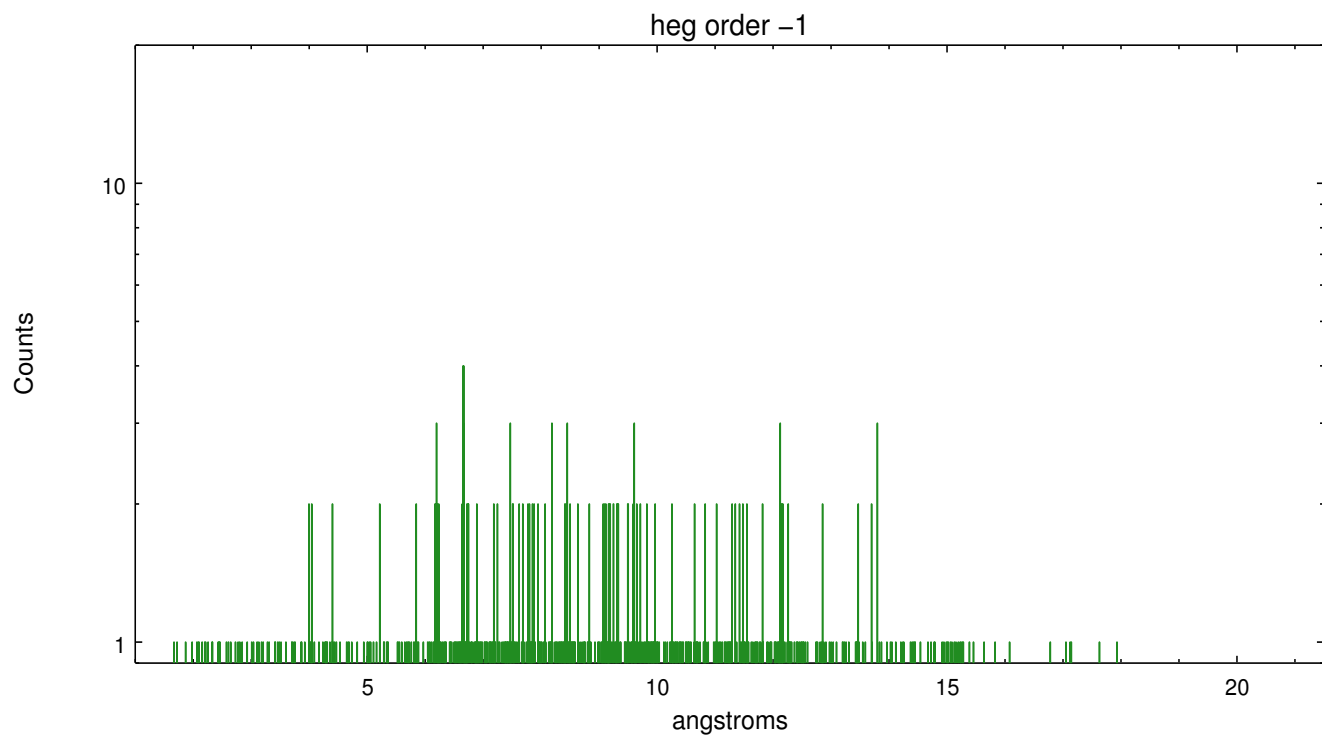
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	215	310	1045	4406	897	183	139

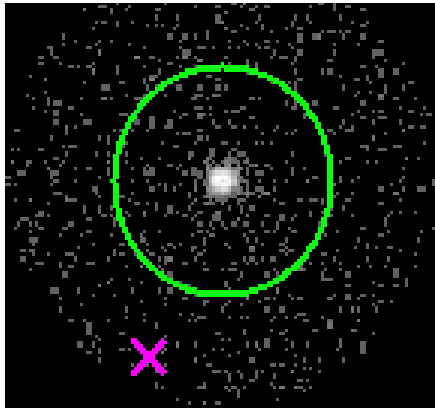




3.2 MEG Arm



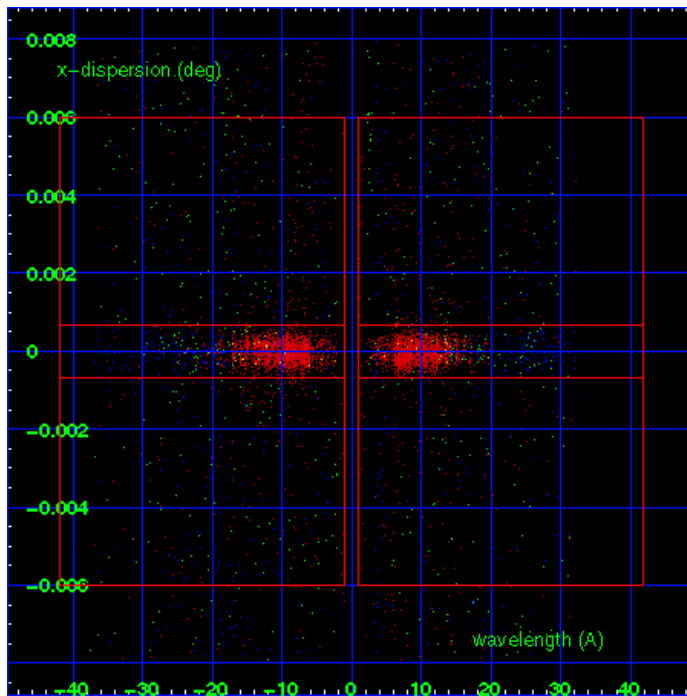
MEG Order Sort 123



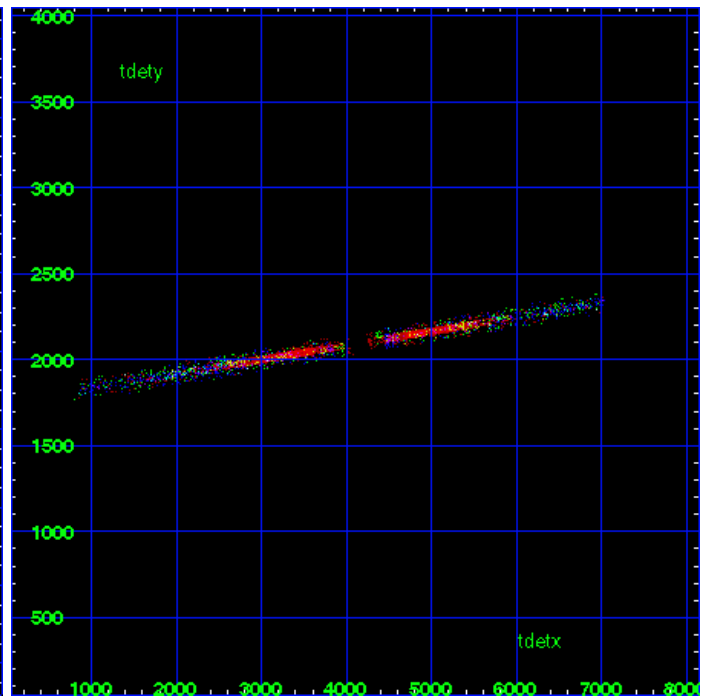
MEG Zero Order



MEG Order Sort ALL

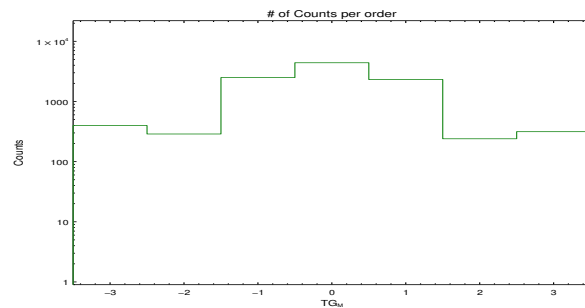


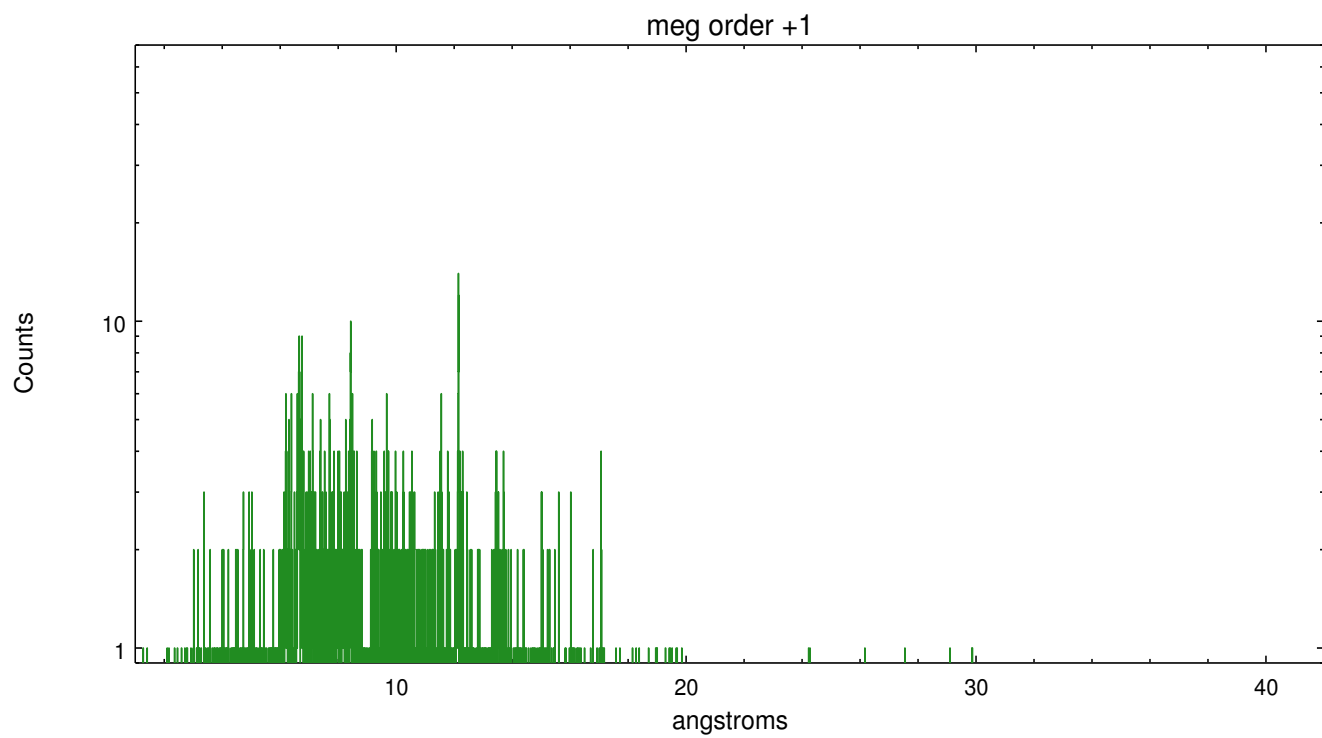
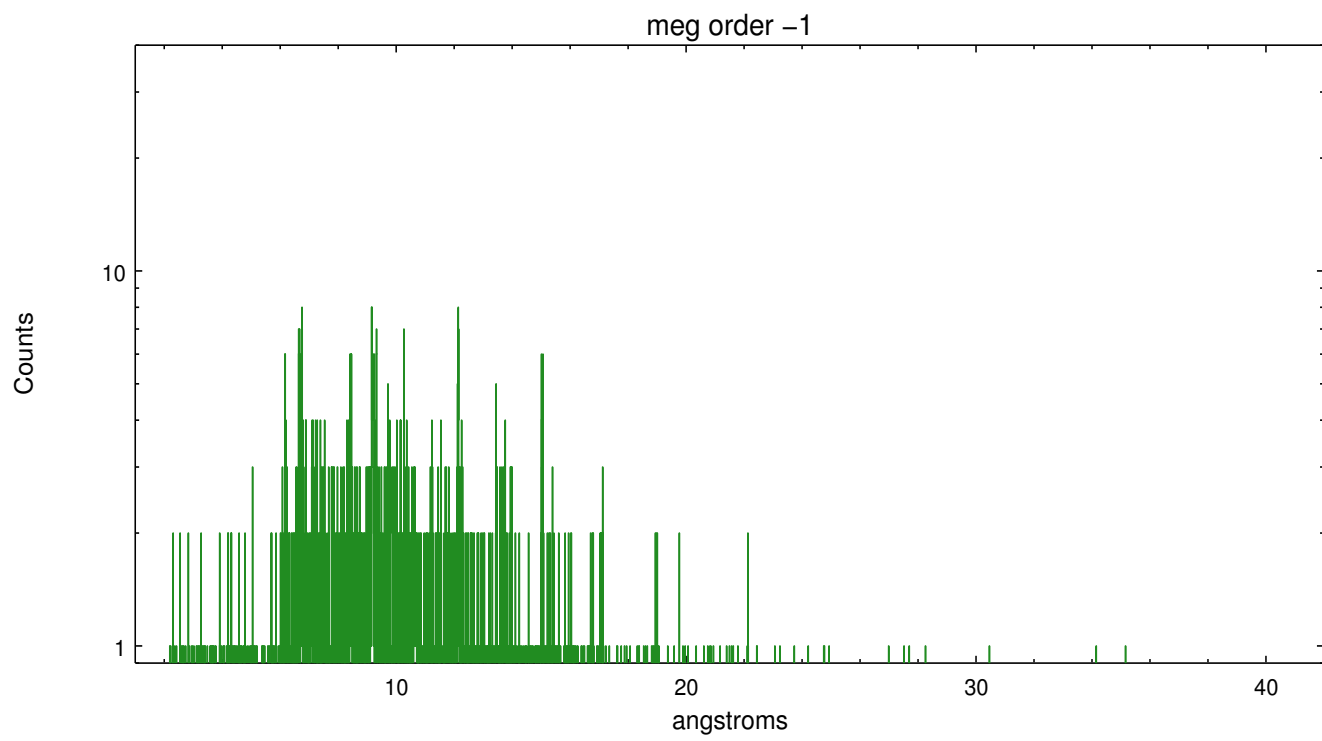
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	398	288	2496	4406	2316	240	315





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.02.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	26.045

A.2 Comments

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. ===== WARNING::Zeroth order selected by pipeline tools is well-centered in the SNR but is not at the position(s) of brightest emission. The user may want to select a region or source of interest, then use software tools such as CIAO to specify the coordinates of the zeroth order source of interest before running the tools to resolve the dispersed events. ===

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use `acis_process_events` to reprocess the data with the parameter `pix_adj=NONE` or `RANDOMIZE`, respectively.