

V&V Reference Report

L2 ASCDS Version : 8.4.3

Observation 13239 - L2 Version 2
Chandra X-Ray Center

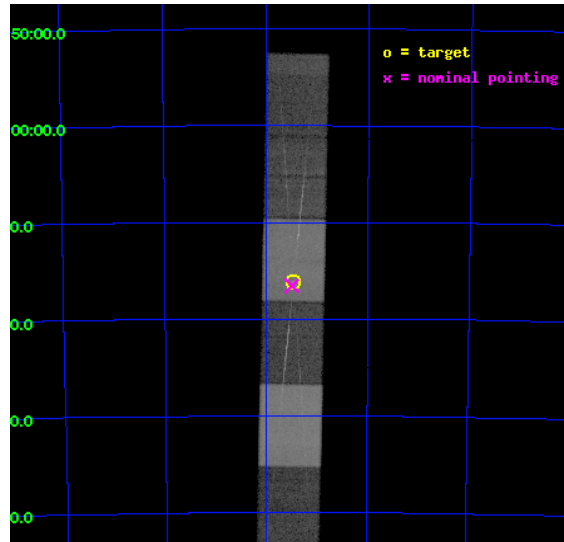
L2 Processing Date : Feb 5 2012

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

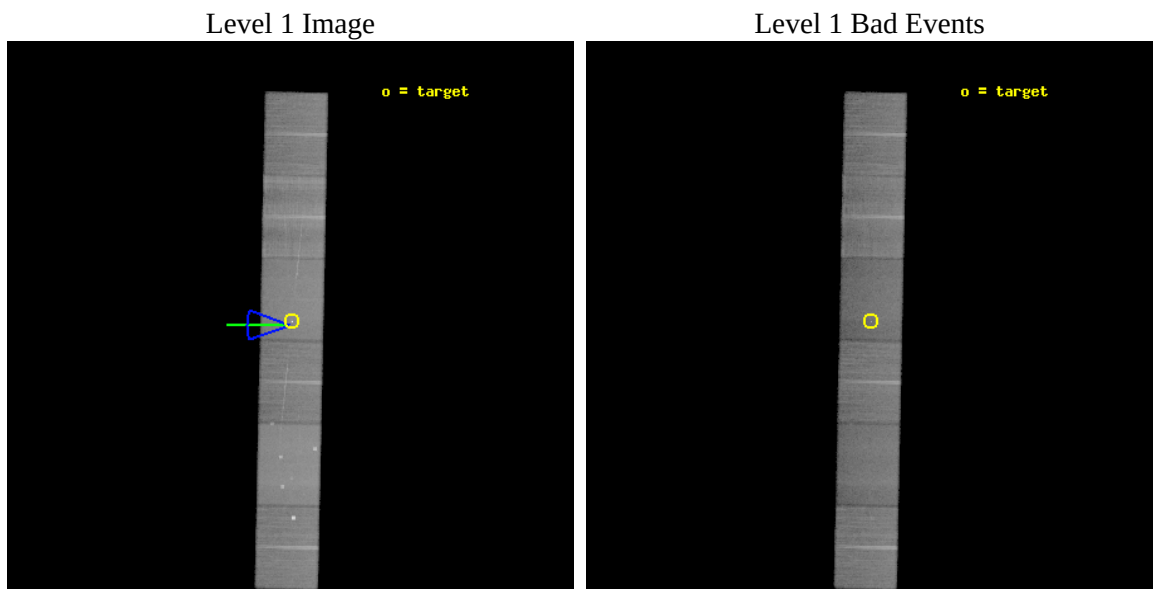
seq_num	501361	Sequence number
obs_id	13239	Observation id
title	SN 1987A Deep HETG Spectrum II: More than just a shocked ring	Prop
observer	Prof. Claude Canizares	Principal investigator
object	SN 1987A	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.866667	Observer's specified target RA [deg]
dec_targ	-69.269722	Observer's specified target Dec [deg]
ra_nom	83.874184286028	Nominal RA [deg]
dec_nom	-69.275970893815	Nominal Dec [deg]
roll_nom	271.16365702997	Nominal Roll [deg]
revision	2	Processing version of data
ontime	47502.5	Sum of GTIs [s]
livetime	46735.293423165	Livetime [s]
ontime4	47499.958999693	Sum of GTIs [s]
ontime5	47502.5	Sum of GTIs [s]
ontime6	47502.5	Sum of GTIs [s]
ontime7	47502.5	Sum of GTIs [s]
ontime8	47499.958979726	Sum of GTIs [s]
ontime9	47499.959009707	Sum of GTIs [s]
l2events	445323	Number of level 2 events



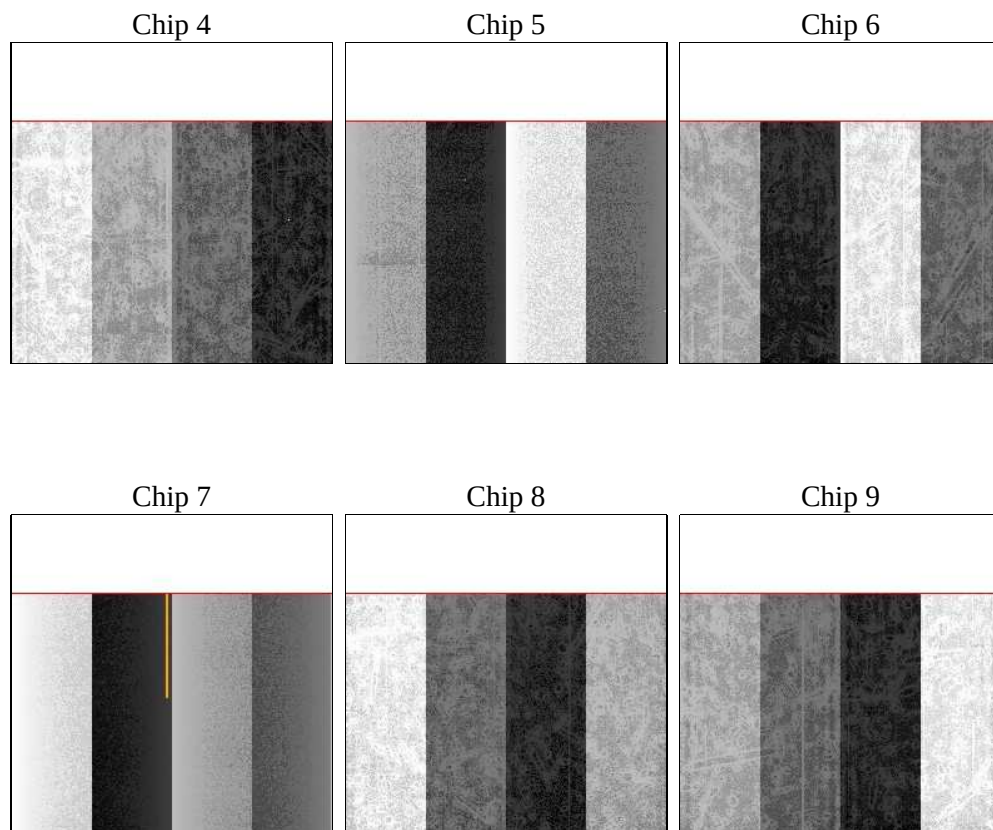
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	47456.920000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	47502.5	Sum of GTIs [s]
caldsver	4.4.7	 	ontime4	47499.958999693	Sum of GTIs [s]
date	2012-02-05T16:07:05	Date and time of file creation	ontime5	47502.5	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	47502.5	Sum of GTIs [s]
			ontime7	47502.5	Sum of GTIs [s]
			ontime8	47499.958979726	Sum of GTIs [s]
			ontime9	47499.959009707	Sum of GTIs [s]
			l1events	1838877	Number of level 1 events

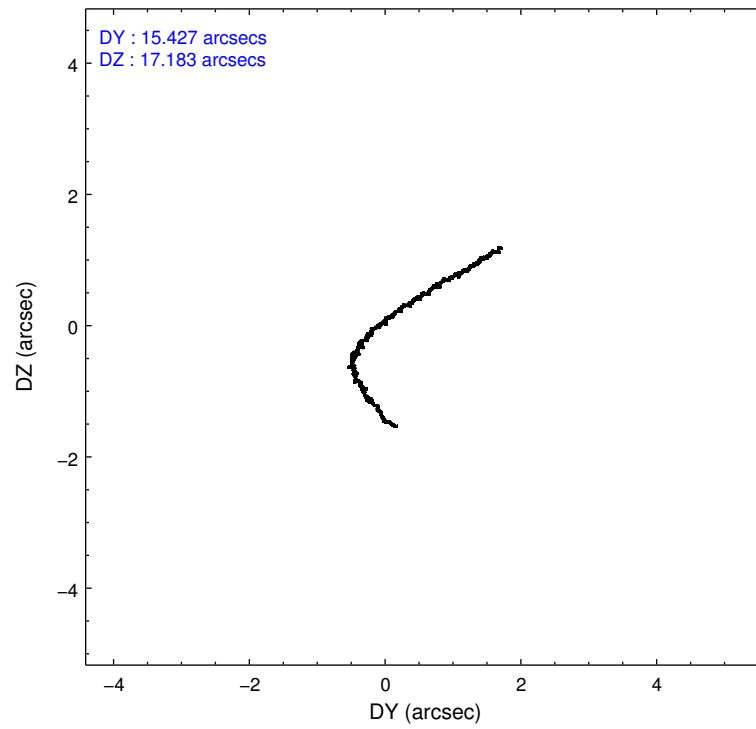
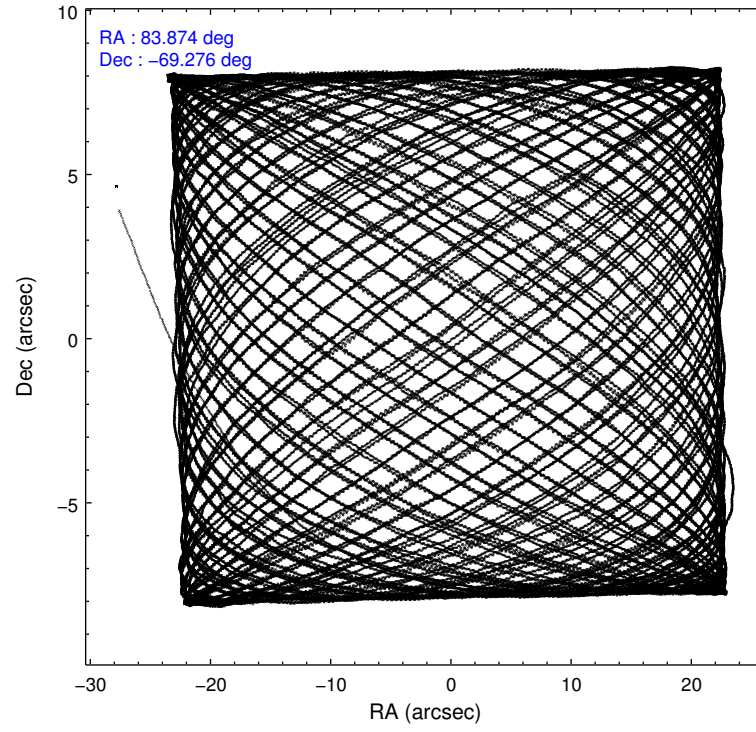
2.1.4 Events

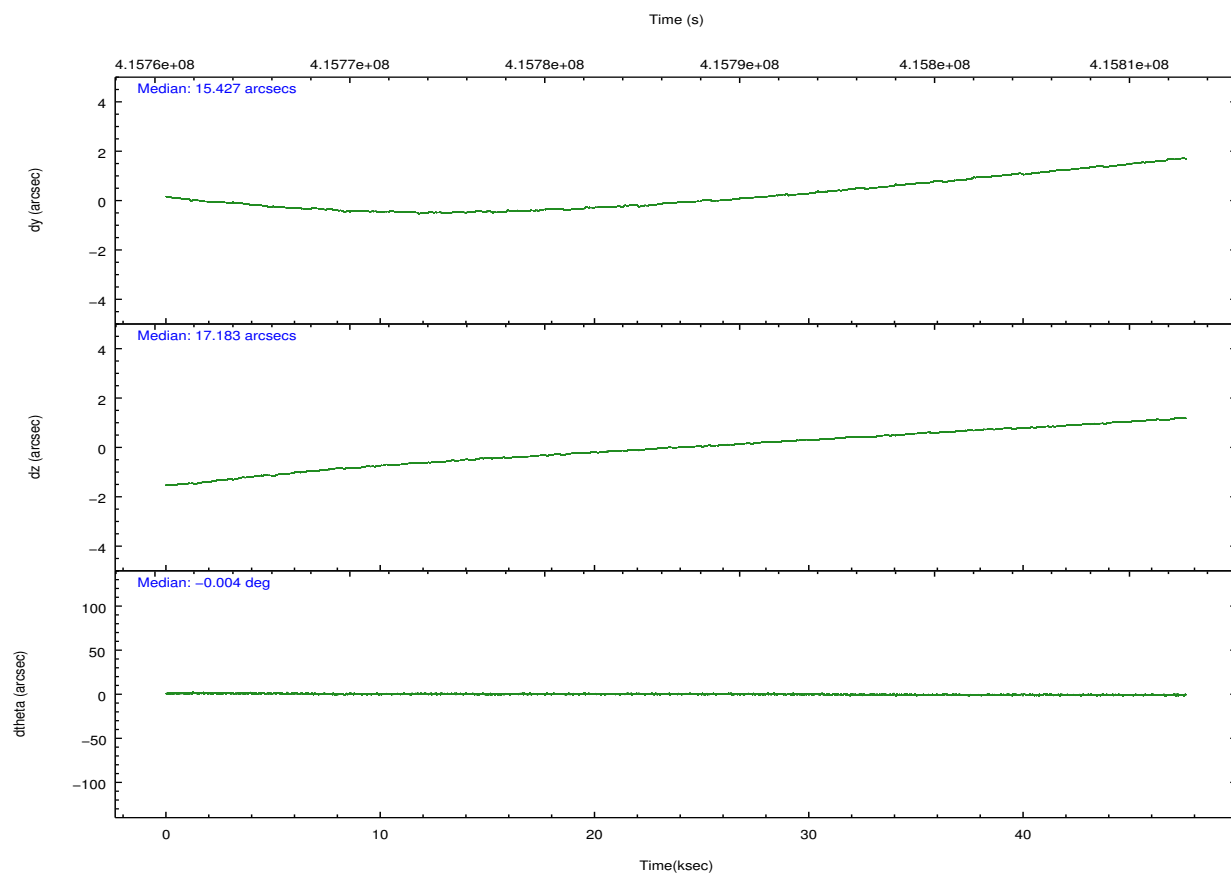
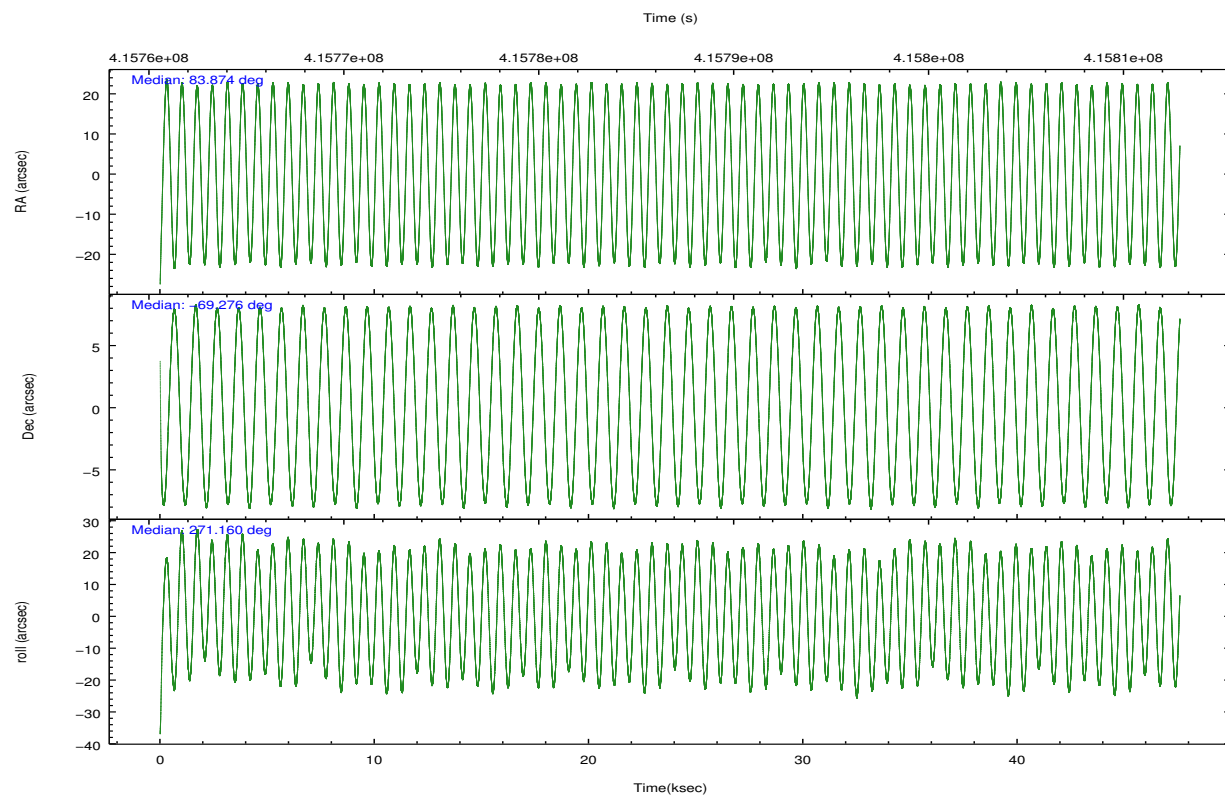
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	290077	385877	260142	318284	334762	249735	grade 0 events	22931	24007	14203	15778	29623	11739
rejected events	247621	190744	226143	166586	241344	218308		7%	6%	5%	4%	8%	4%
rejected %	85%	49%	86%	52%	72%	87%	grade 1 events	232	650	142	437	260	136
								0%	0%	0%	0%	0%	0%
							grade 2 events	7526	55545	7054	32006	21038	6779
								2%	14%	2%	10%	6%	2%
							grade 3 events	3373	8717	3225	14371	9550	3447
								1%	2%	1%	4%	2%	1%
							grade 4 events	3269	8609	3284	14239	8932	3293
								1%	2%	1%	4%	2%	1%
							grade 5 events	11299	30595	11285	32405	16406	12377
								3%	7%	4%	10%	4%	4%
							grade 6 events	5361	98264	6240	75308	24320	6170
								1%	25%	2%	23%	7%	2%
							grade 7 events	236086	159490	214709	133740	224633	205794
								81%	41%	82%	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	83.87418428602766	CCD I2 on	N	N
[deg] Pointing Dec	-69.252752	-69.27597089381536	CCD I3 on	N	N
[deg] Pointing Roll	270.968869	271.1636570299656	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	-187.1228876879999	Number of optional ACIS chips dropped	0	0
[mm] SIM translation stage offset	-3	-3.009634895007935	On-chip summing requested	N	N
[s] Observation start time (MET)	415763087.184000	415762005.55889	Subarray requested	CUSTOM	CUSTOM
Observation start date	2011-03-06T01:43:41	2011-03-06T01:26:45	Subarray start row	1	1
[s] Observation end time (MET)	415810544.184000	415810768.39891	Subarray row count	774	774
Observation end date	2011-03-06T14:54:38	2011-03-06T14:59:28	Alternating exposures requested	N	N
Read mode	TIMED	TIMED	[s] Primary exposure time	0.000000	2.5

2.3 Aspect



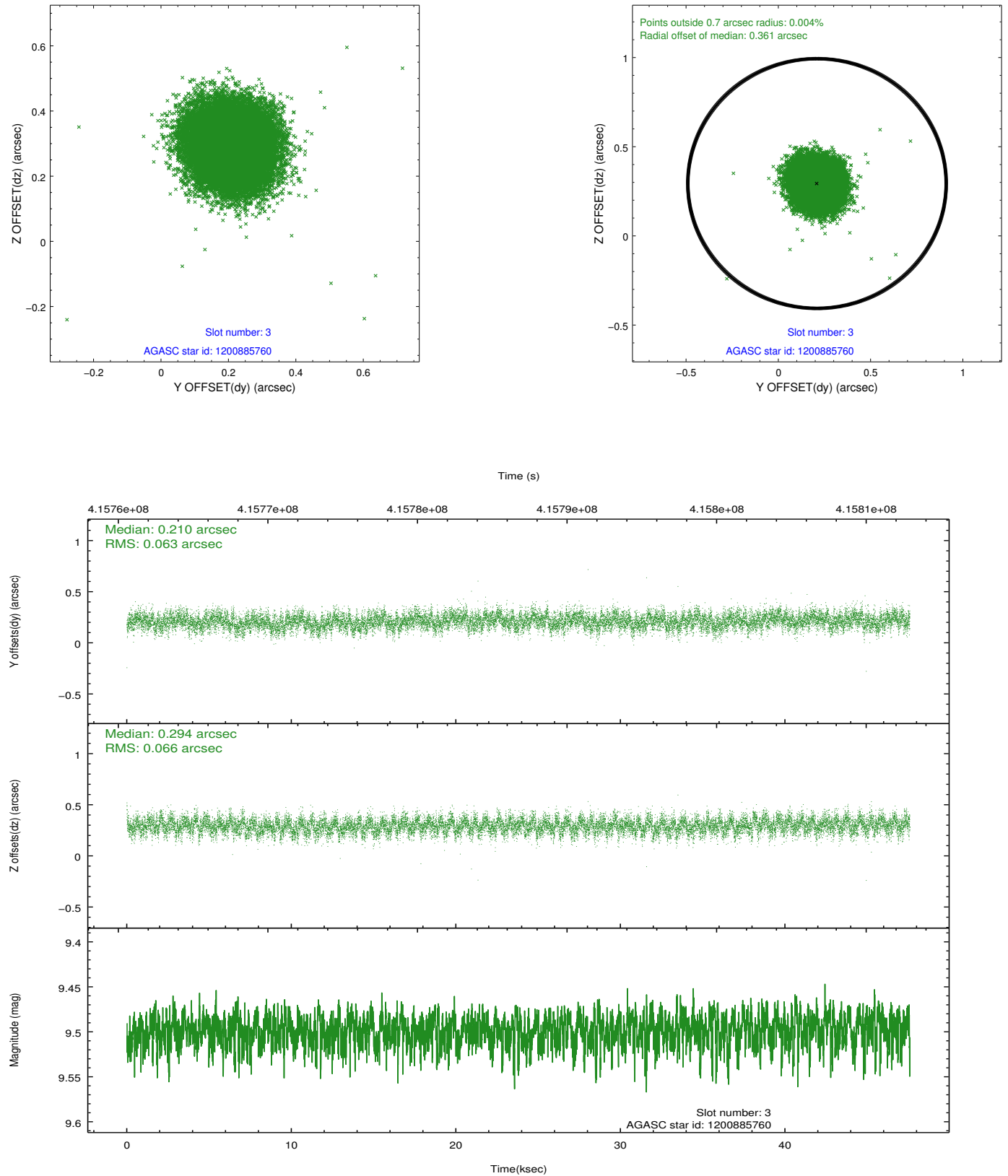


Slot Statistics

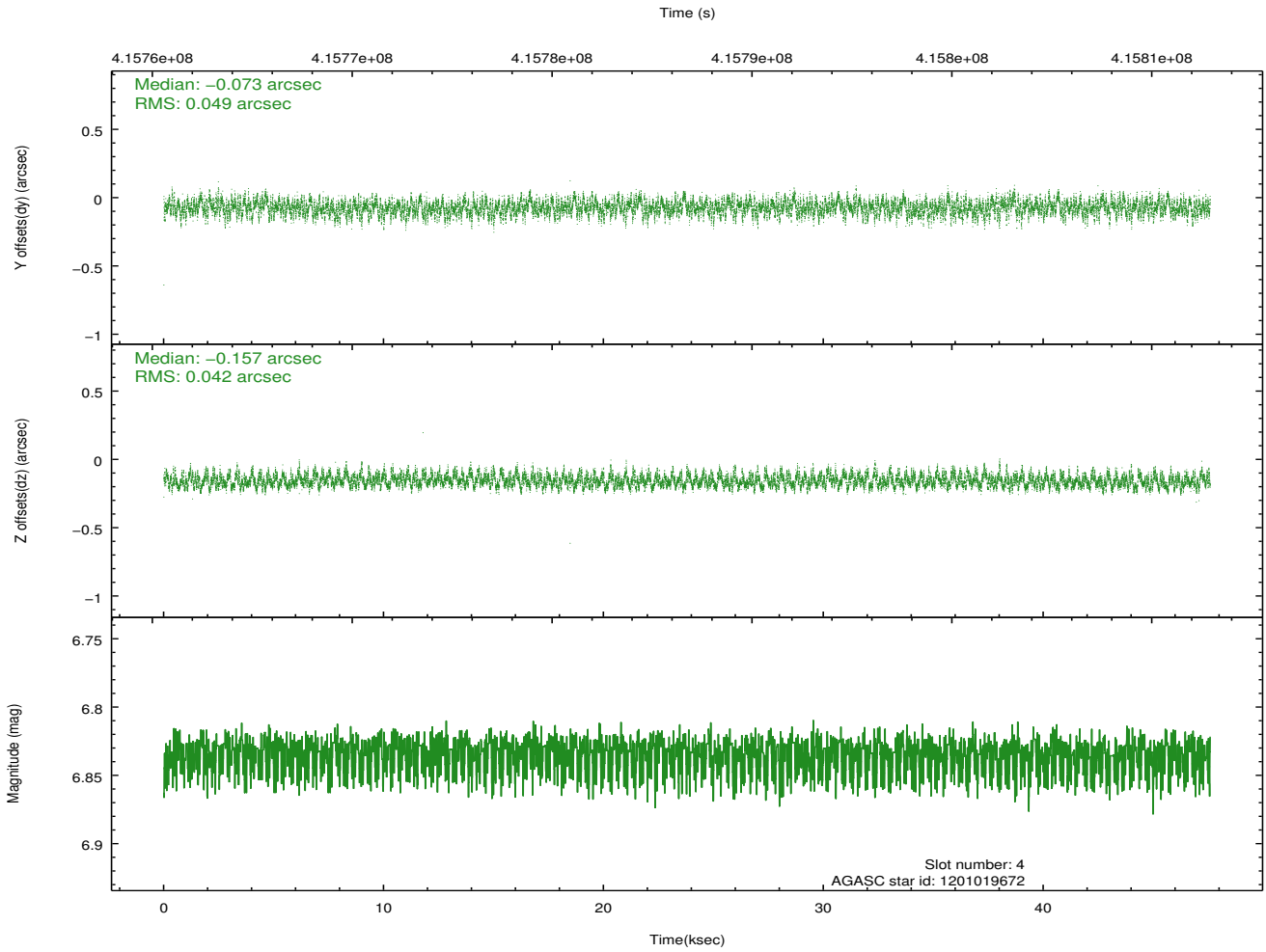
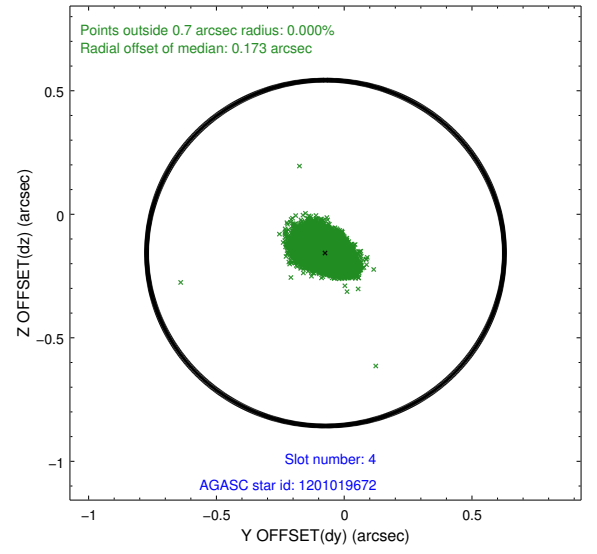
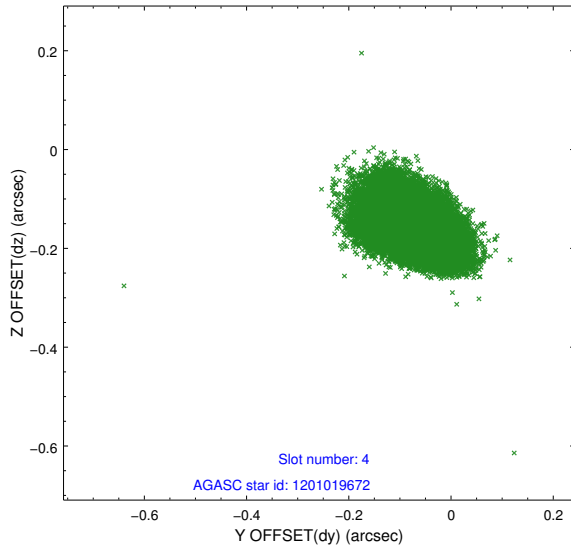
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	6.95	11607	0.042	0.036	0.035	0.064	0.000000	0.000000	927.58	-1796.34
1	FID	ACIS-S-2	6.88	11607	-0.190	-0.108	0.028	0.055	0.000000	0.000000	-768.56	-1800.96
2	FID	ACIS-S-4	6.96	11607	0.125	0.078	0.021	0.037	0.000000	0.000000	2144.97	107.84
3	GUIDE	1200885760	9.50	23190	0.210	0.294	0.097	0.156	83.723637	-68.777667	-1712.01	-113.56
4	GUIDE	1201019672	6.83	23215	-0.073	-0.157	0.069	0.112	85.312192	-68.770187	-1681.47	1956.33
5	GUIDE	1201020040	8.61	23202	0.095	-0.242	0.080	0.129	85.379163	-68.879396	-1284.85	2027.02
6	GUIDE	1201540776	9.58	23109	-0.054	-0.062	0.126	0.201	85.107945	-69.858480	2223.32	1542.94
7	GUIDE	1201410616	9.33	23175	-0.185	0.169	0.143	0.235	82.516808	-69.784406	1903.62	-1669.63

2.4 Star Slots

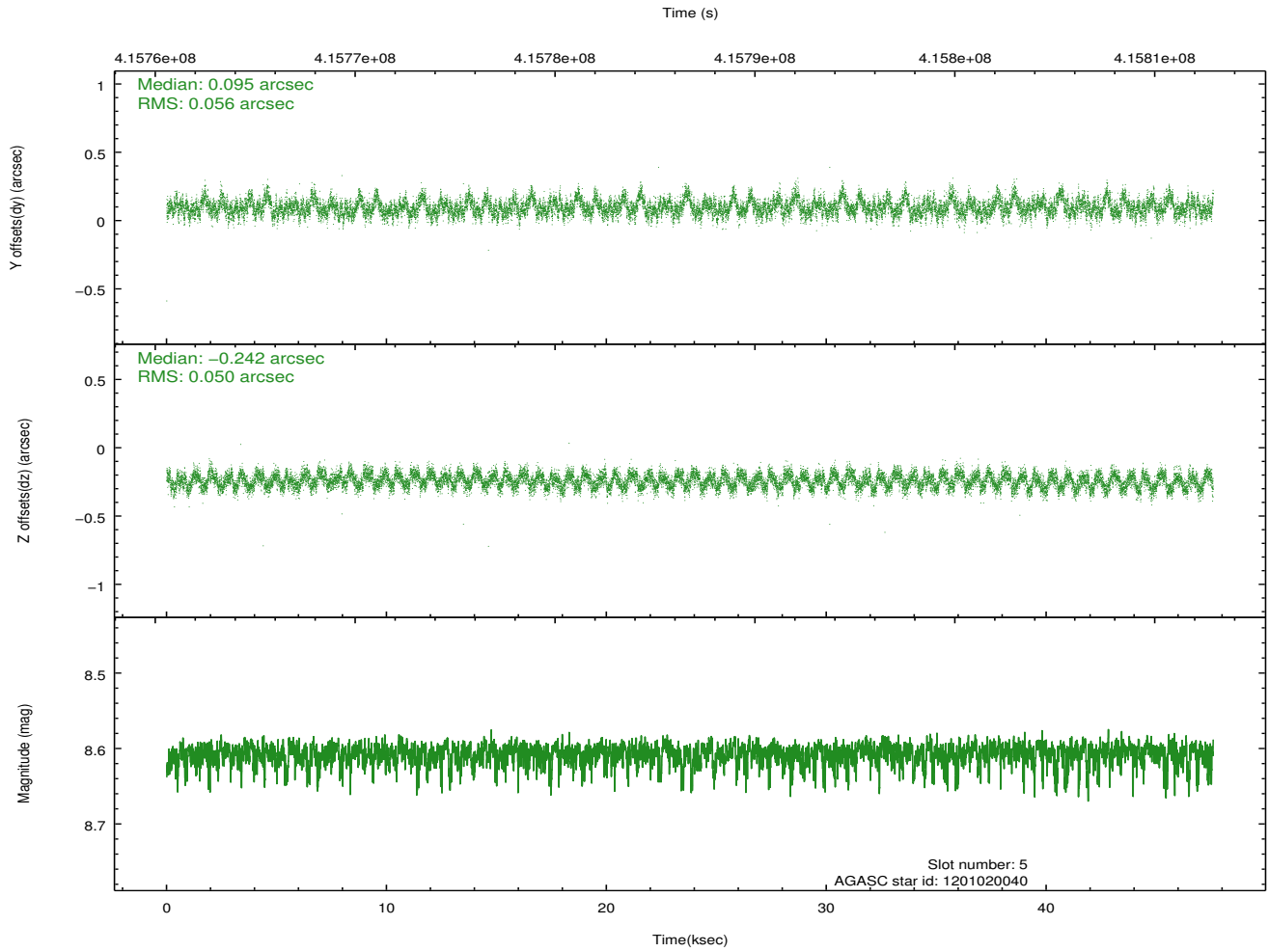
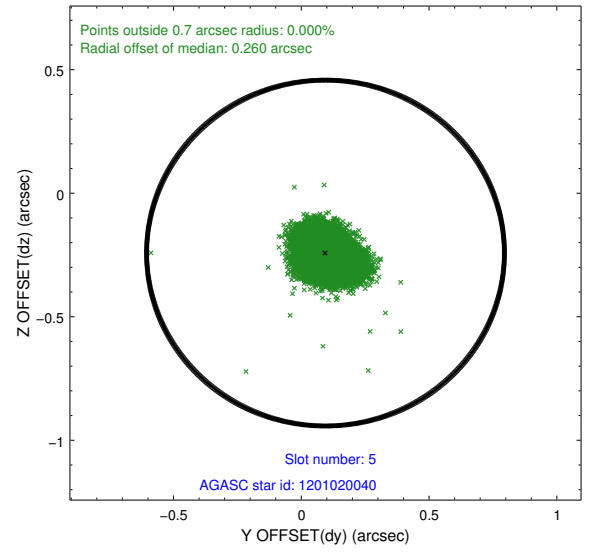
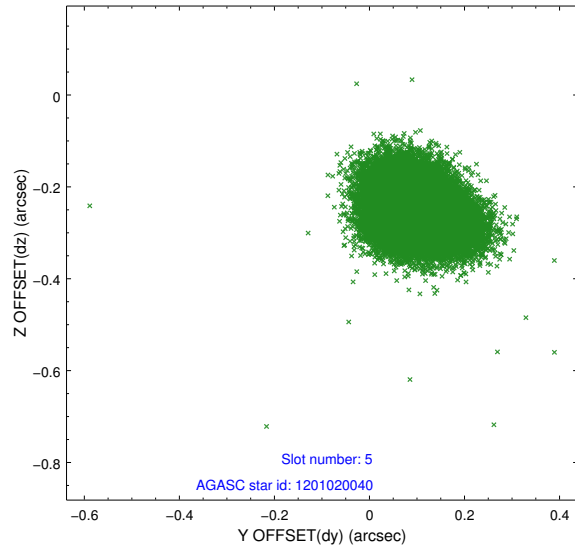
2.4.1 Slot 3



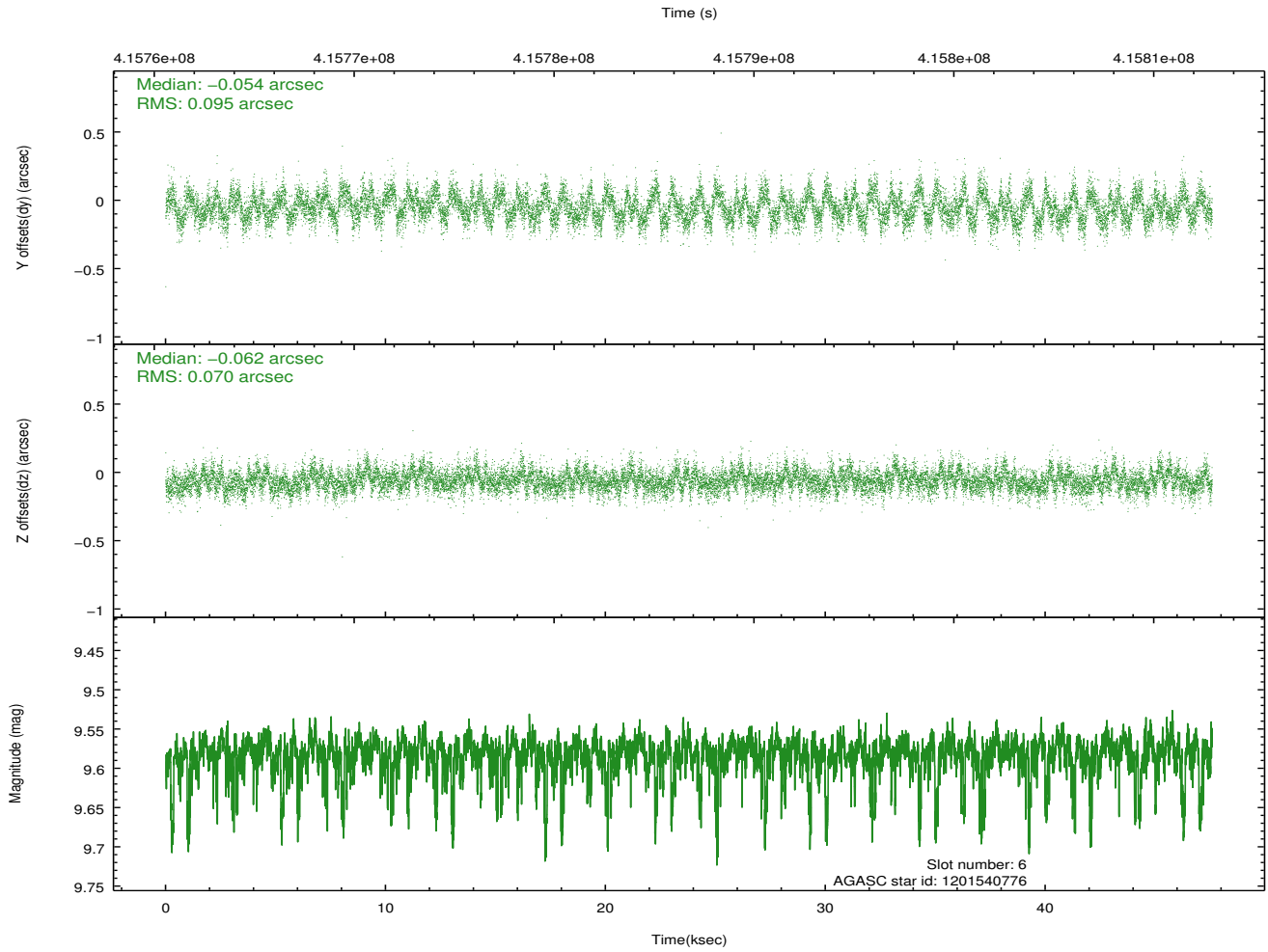
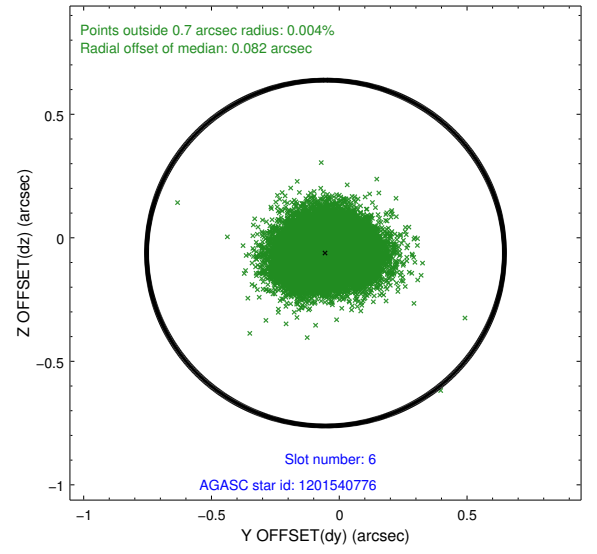
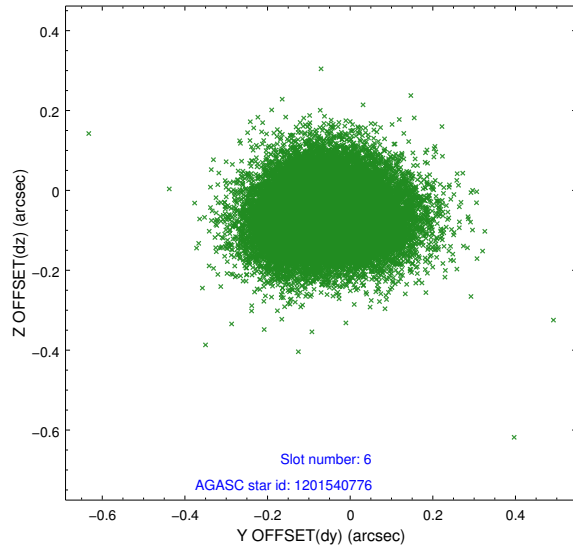
2.4.2 Slot 4



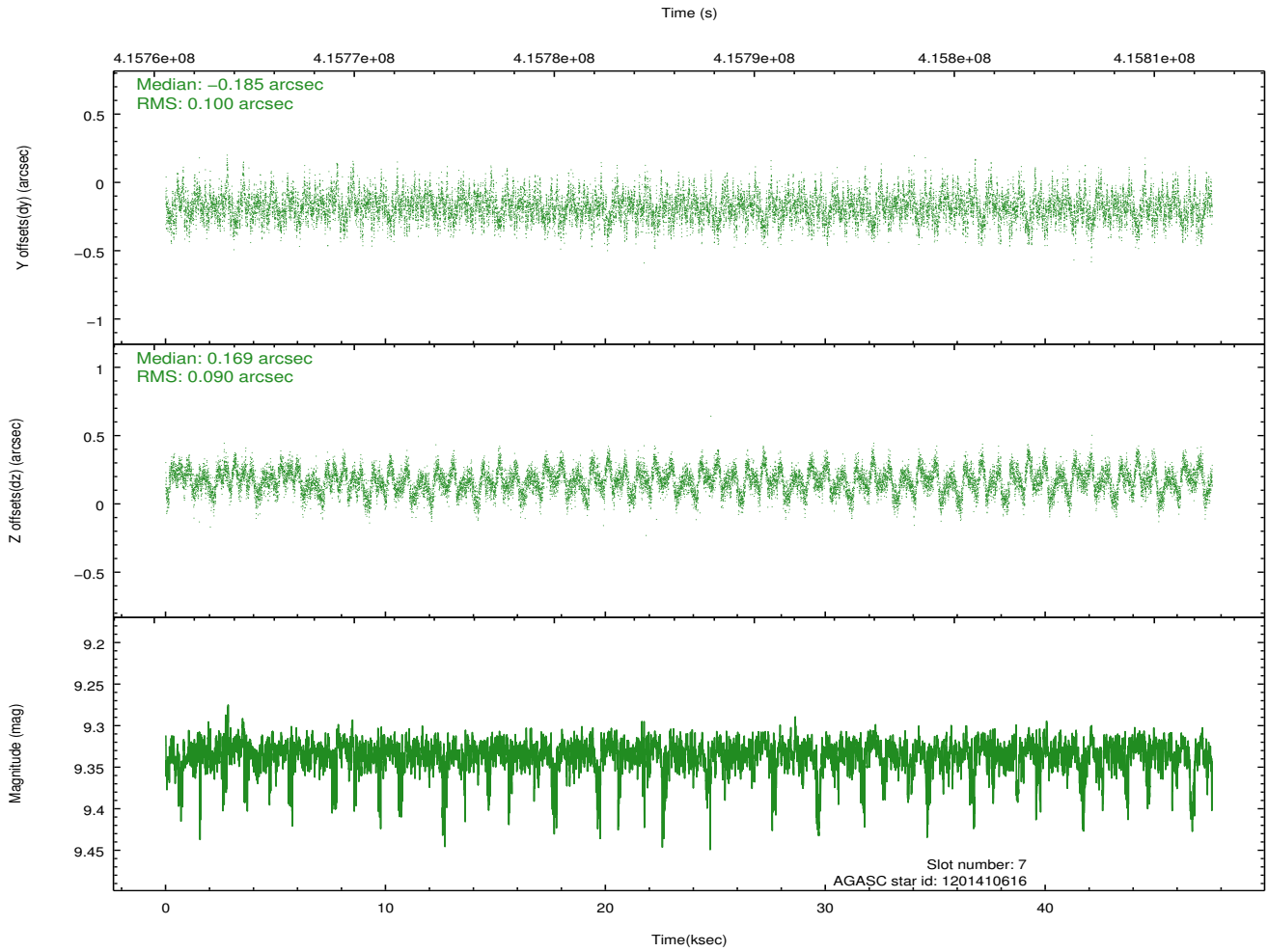
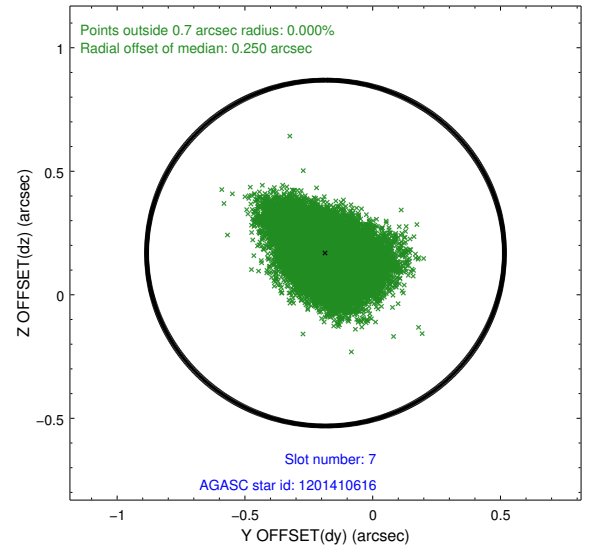
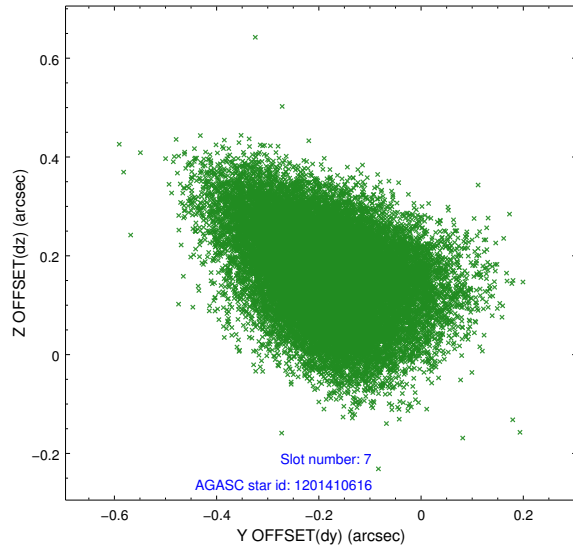
2.4.3 Slot 5



2.4.4 Slot 6

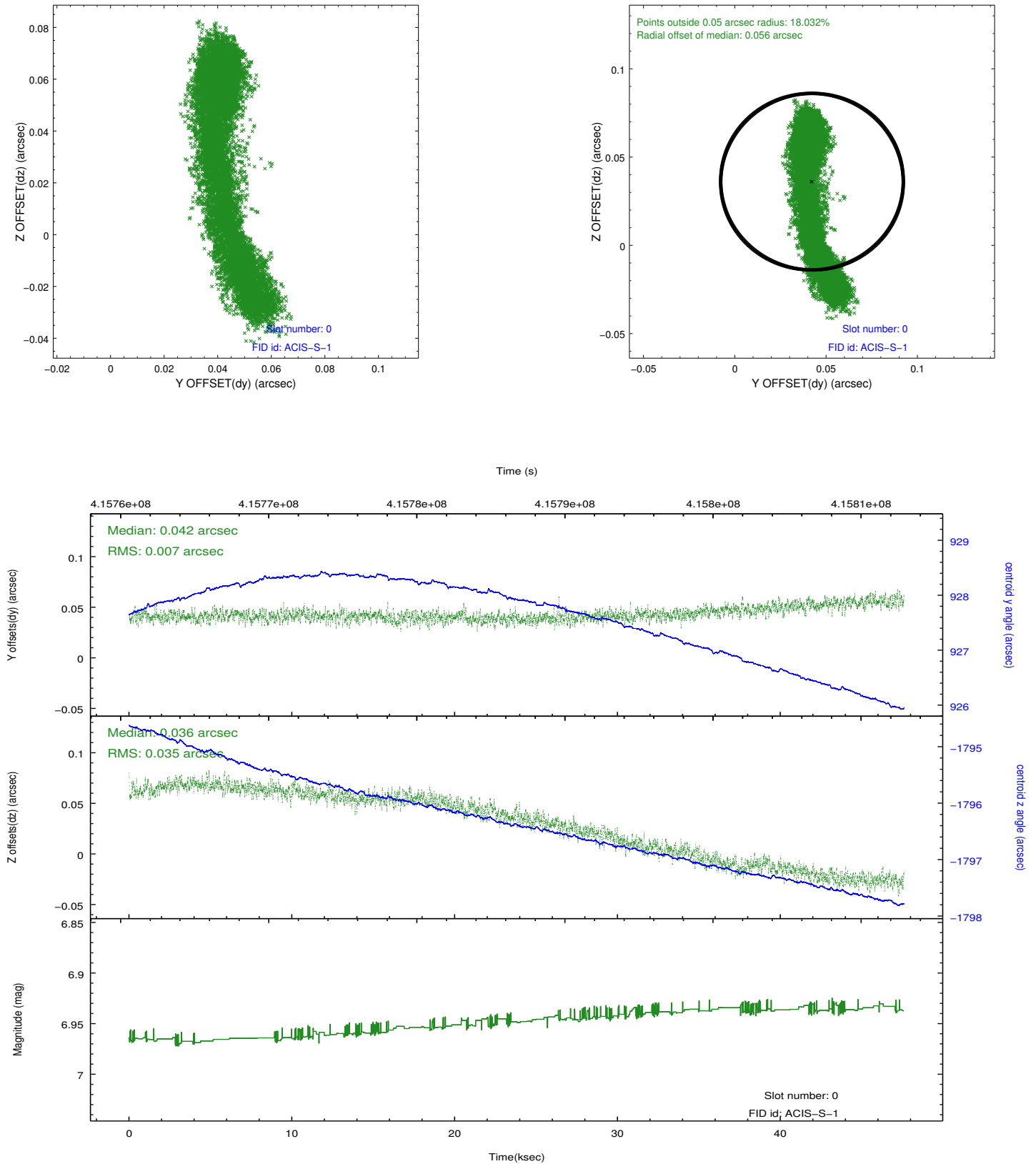


2.4.5 Slot 7

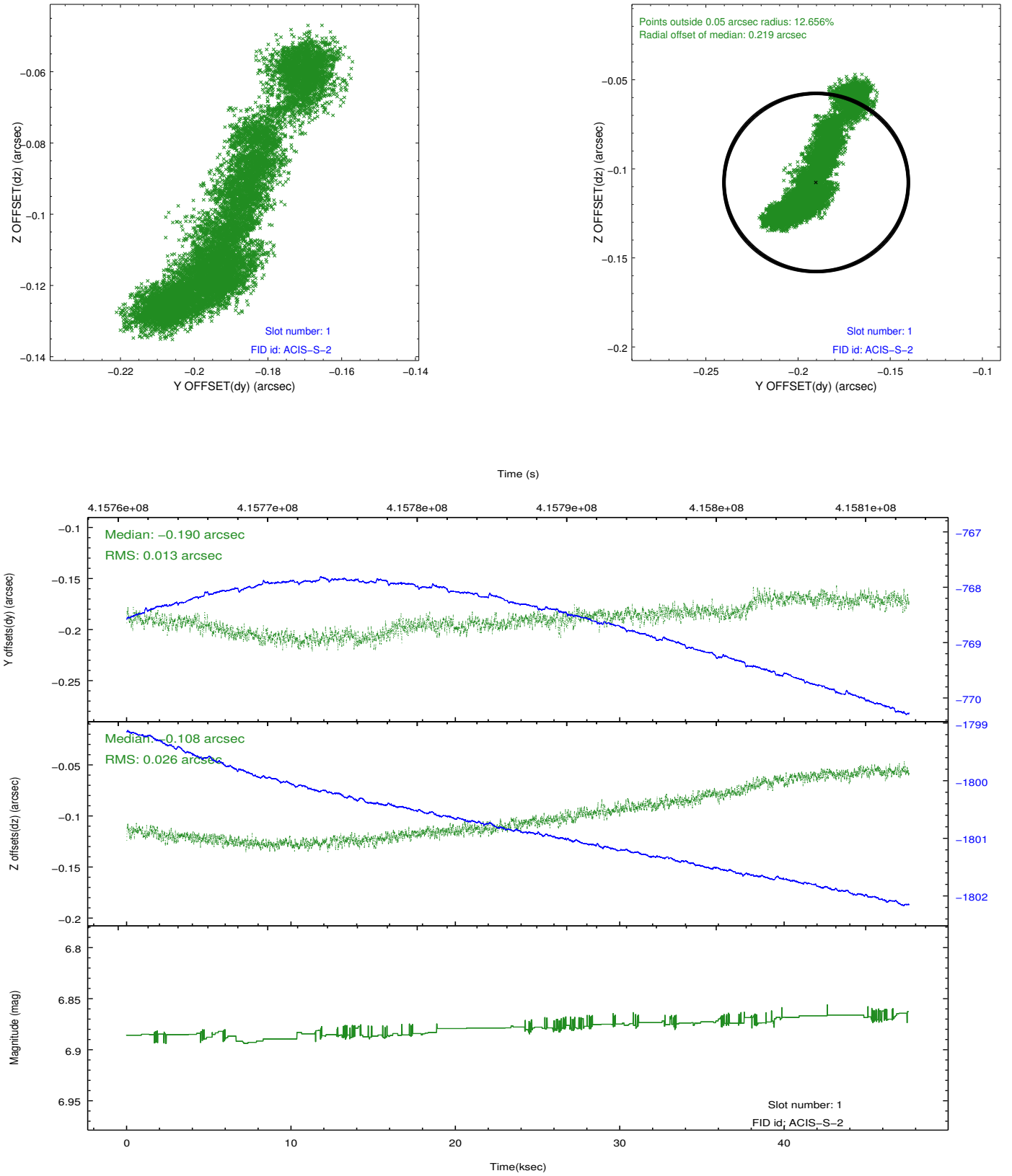


2.5 FID Slots

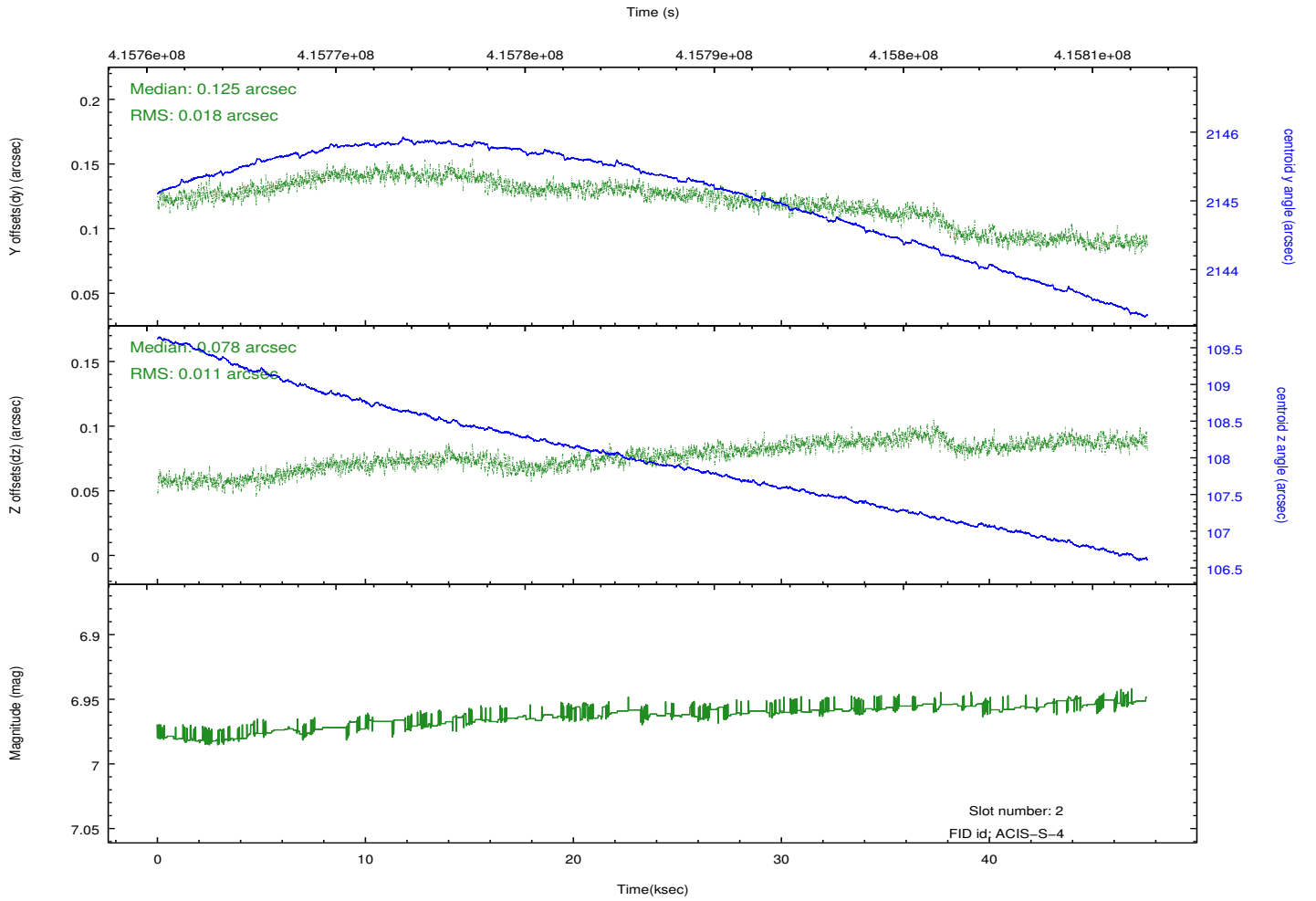
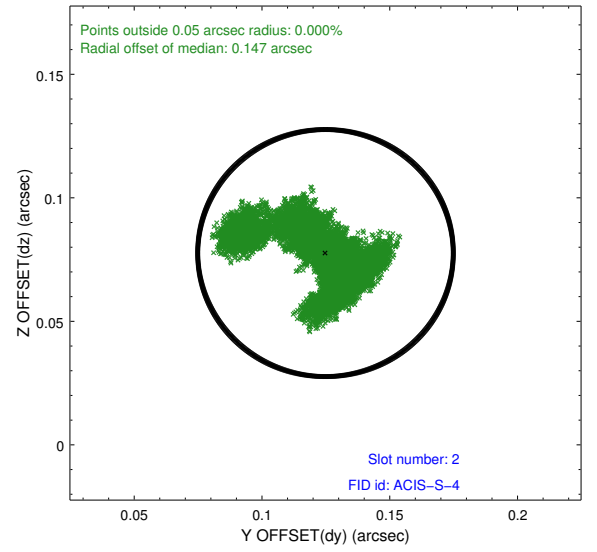
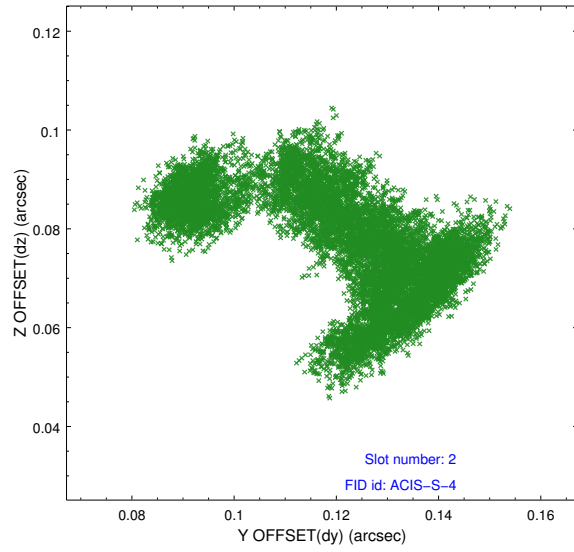
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

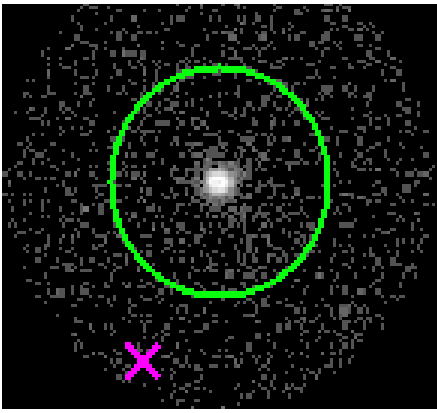


3 Gratings

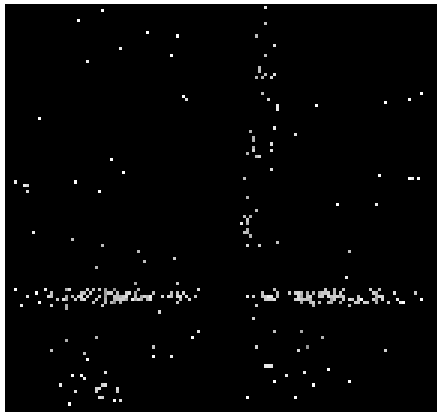
3.1 HEG Arm



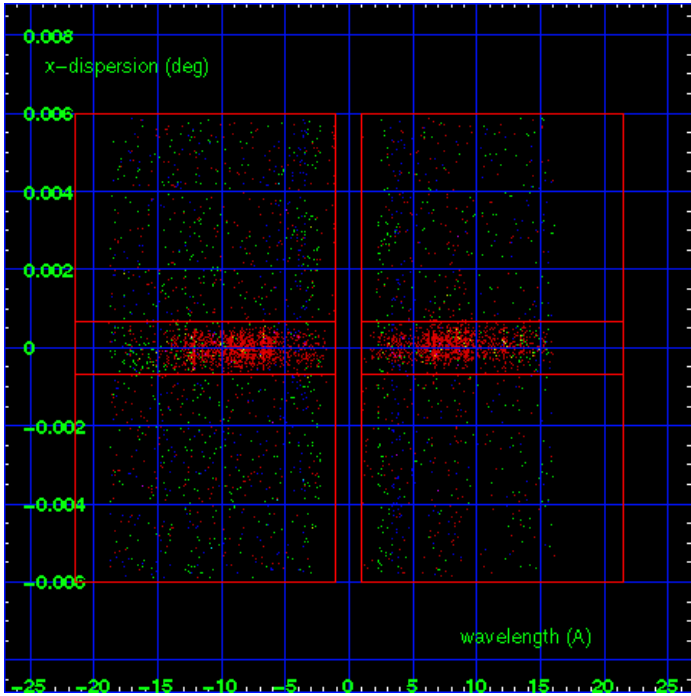
HEG Order Sort 123



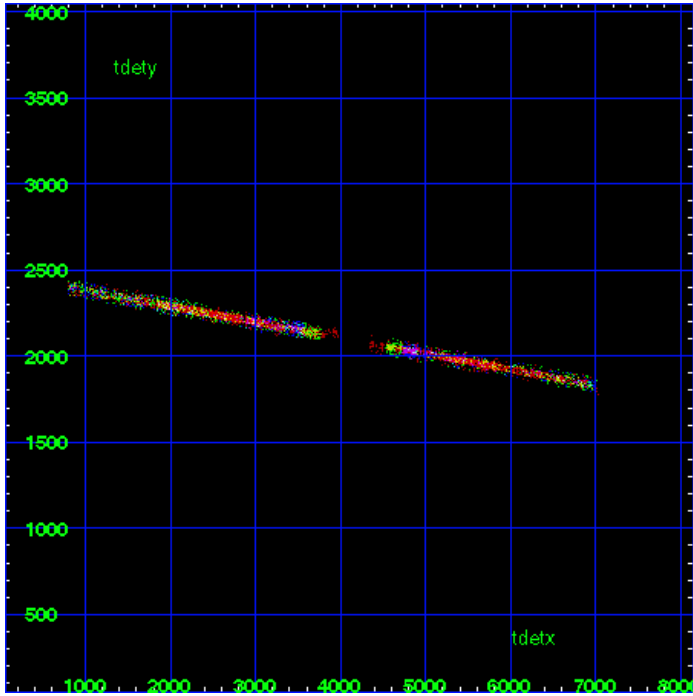
HEG Zero Order



HEG Order Sort ALL

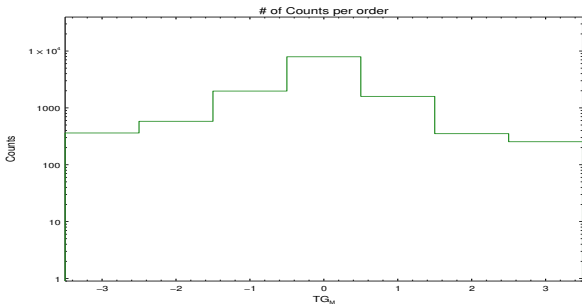


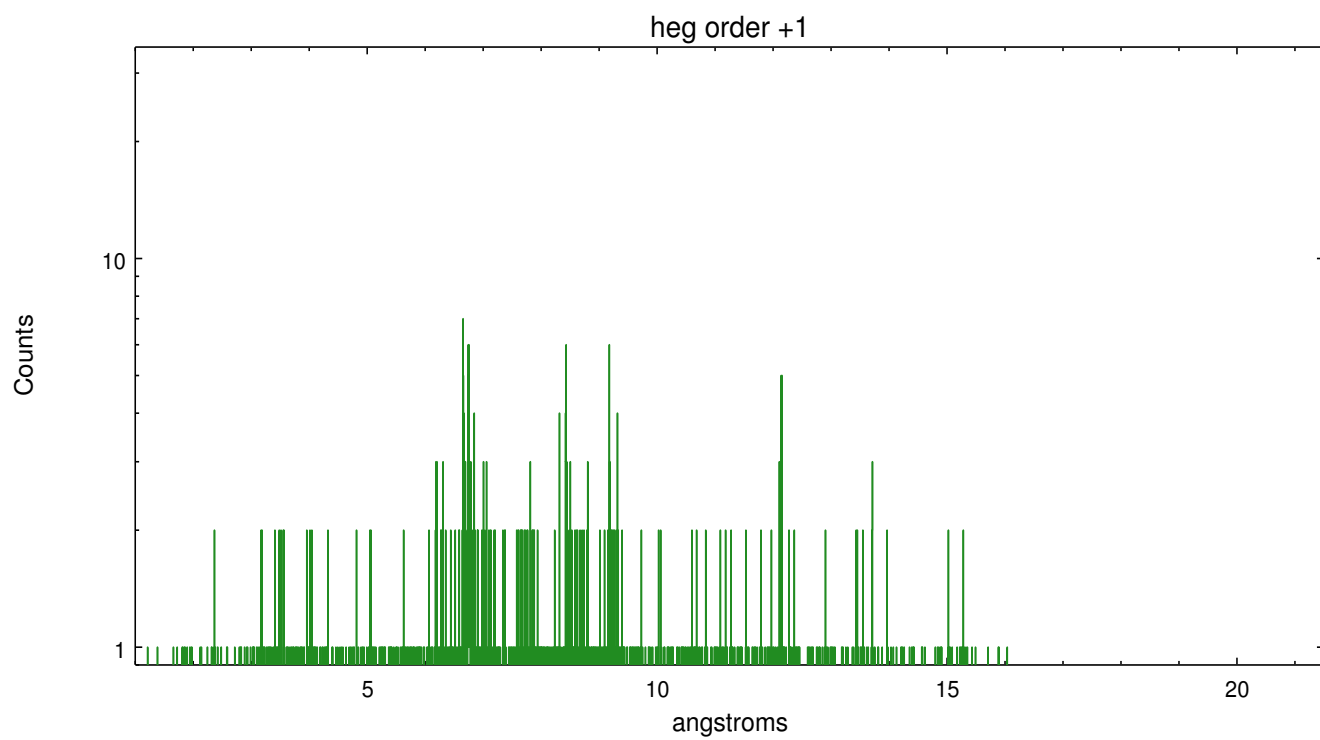
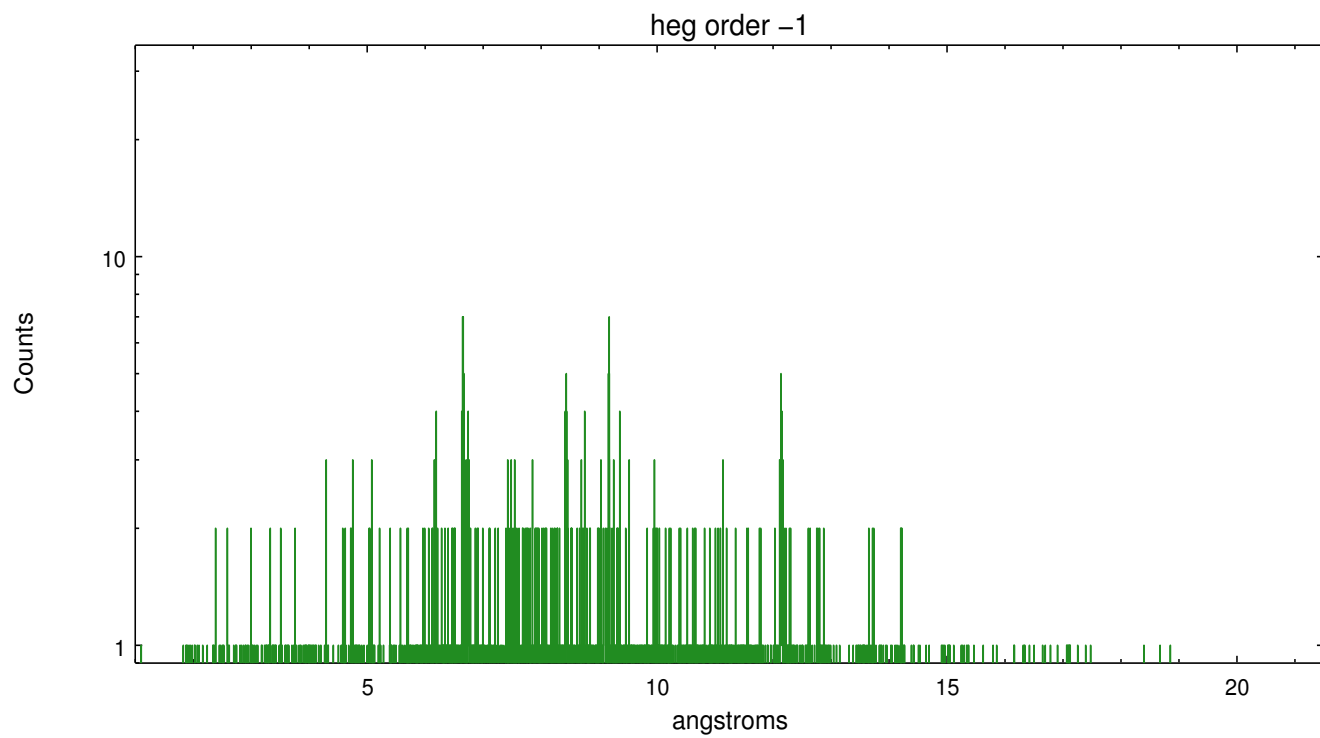
Spot Image HEG



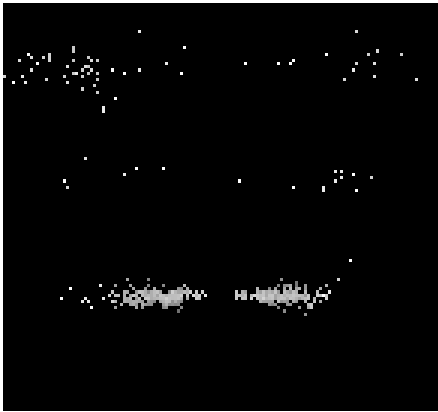
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	362	581	1976	7925	1594	352	254

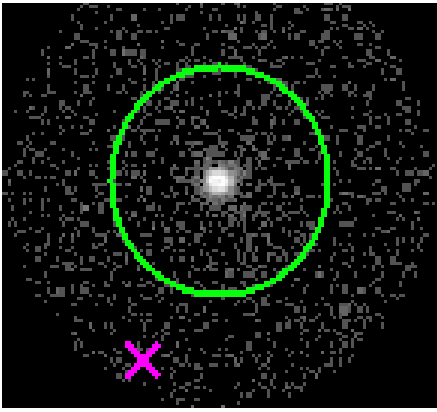




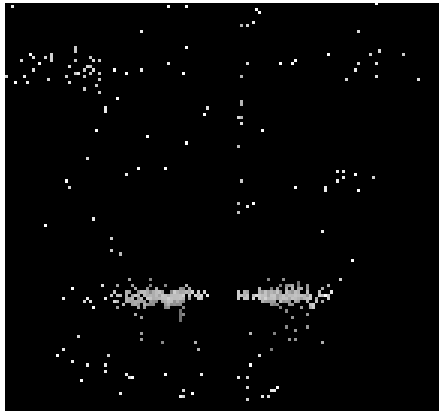
3.2 MEG Arm



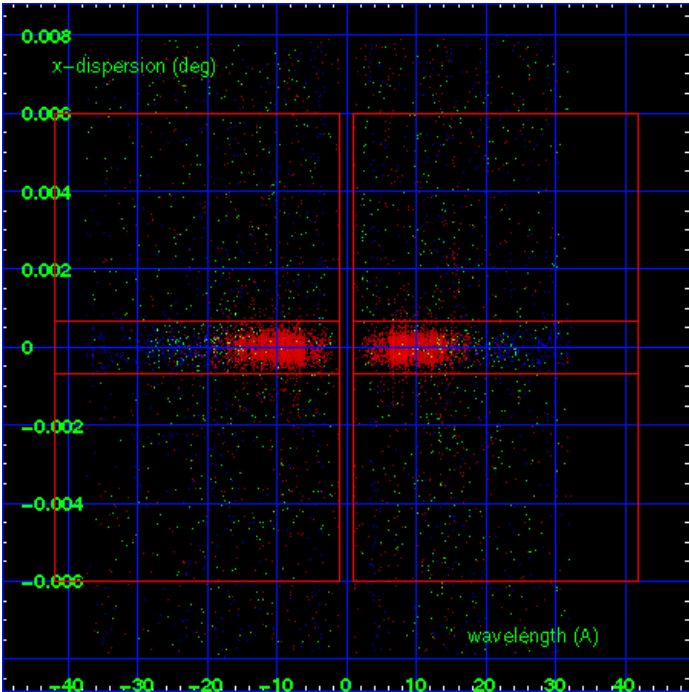
MEG Order Sort 123



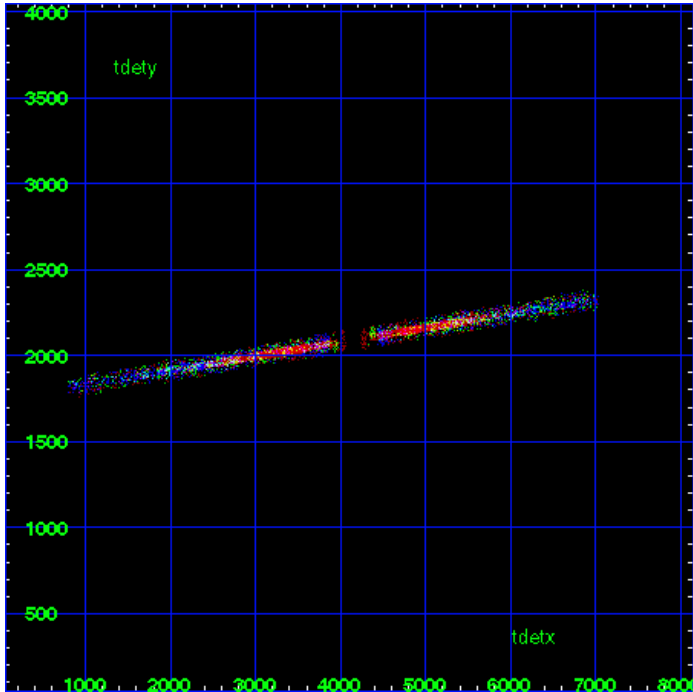
MEG Zero Order



MEG Order Sort ALL

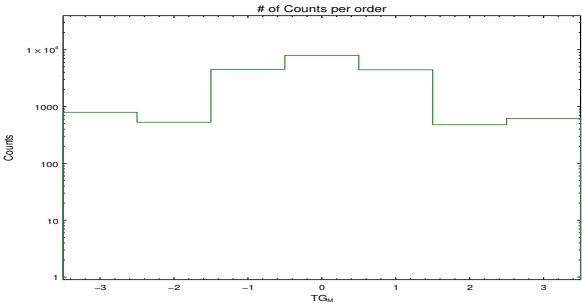


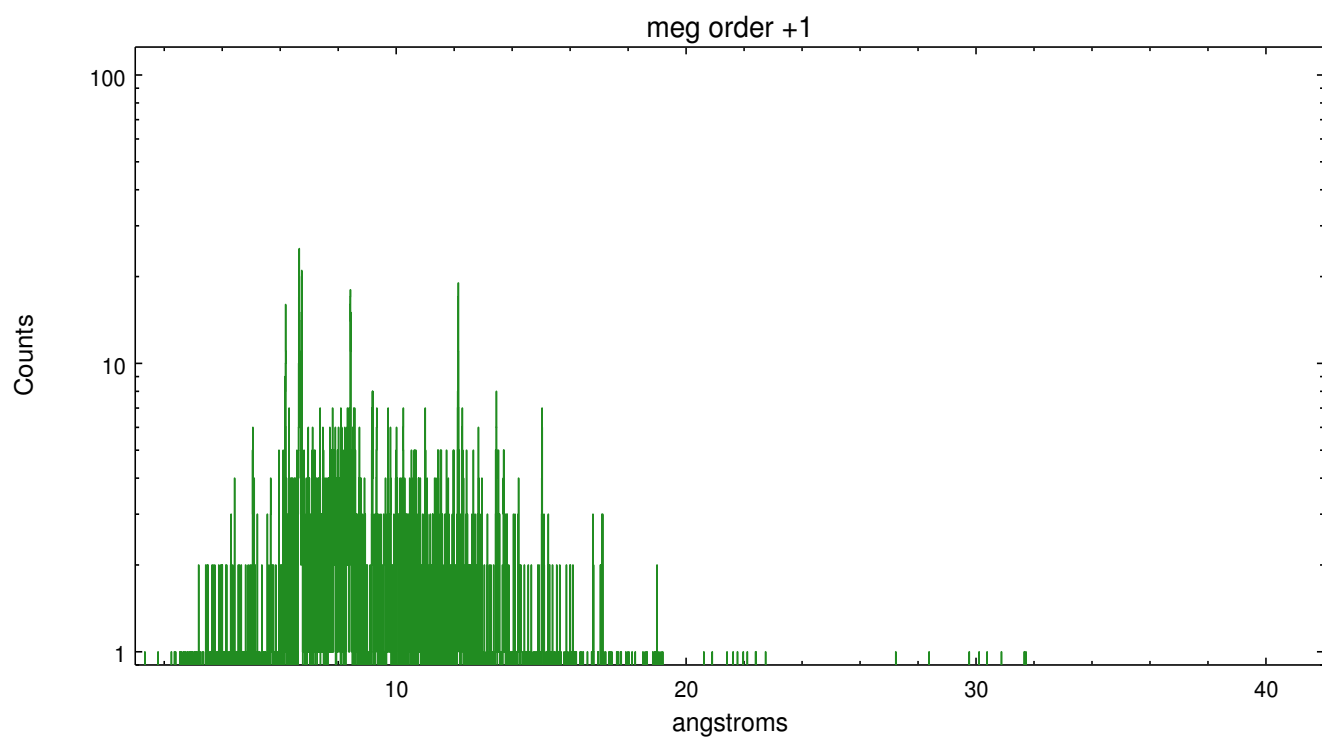
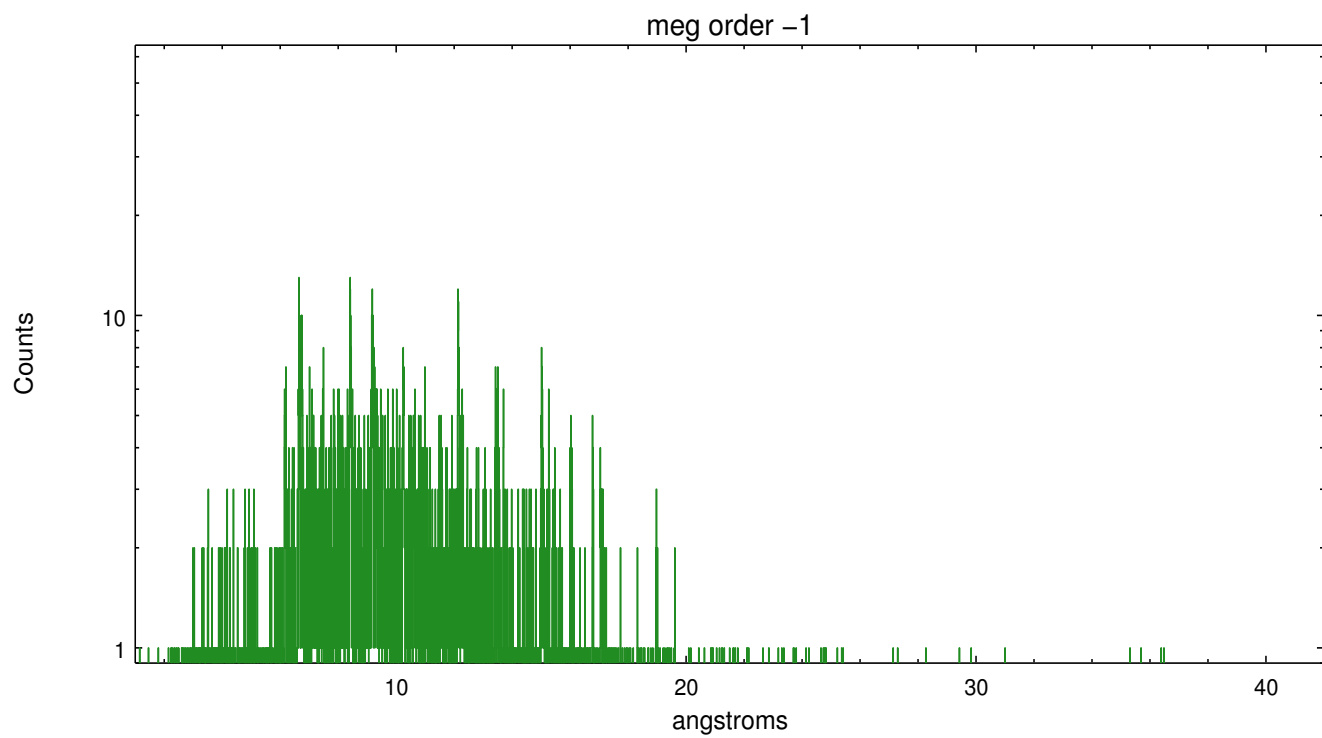
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	791	529	4493	7925	4427	478	619





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	47.5025

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 supernova remnant 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.