

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1928 - L2 Version 4
Chandra X-Ray Center

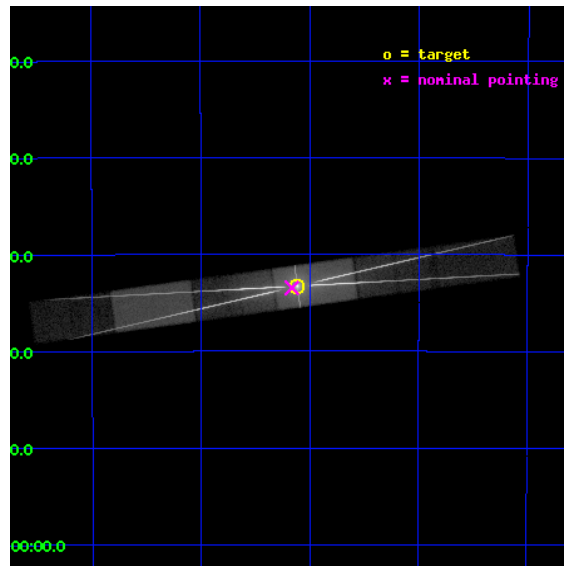
L2 Processing Date : Sep 18 2012

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

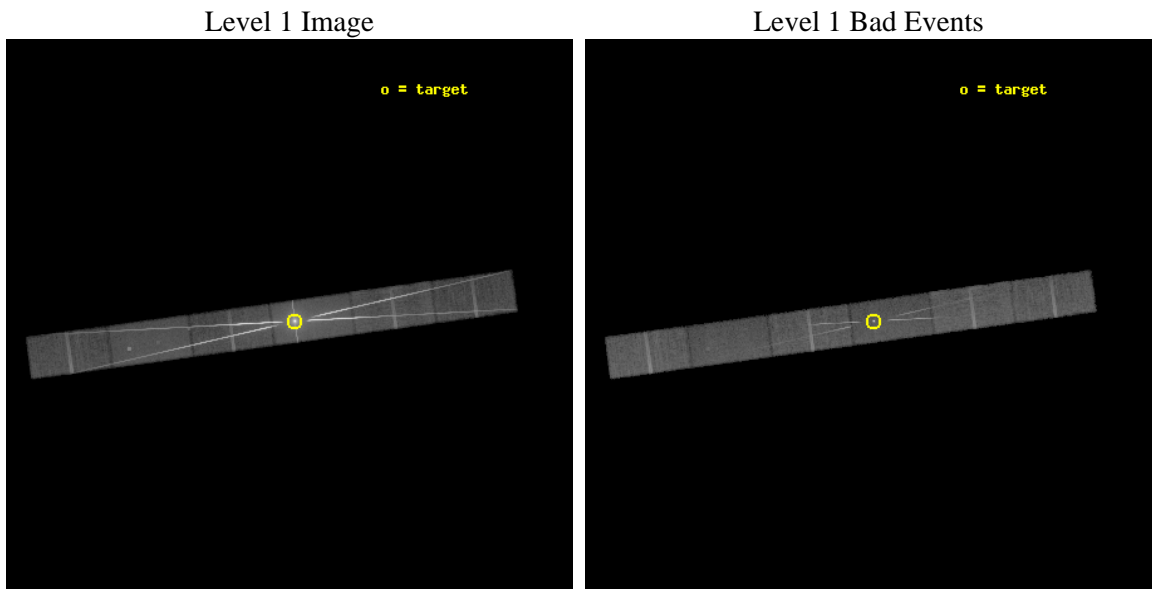
seq_num	400141	Sequence number
obs_id	1928	Observation id
title	DYNAMICS OF THE IONIZED STELLAR WIND IN VELA X-1	Proposal title
observer	PROF. STEVEN KAHN	Principal investigator
object	VELA X-1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	135.52875	Observer's specified target RA [deg]
dec_targ	-40.554694	Observer's specified target Dec [deg]
ra_nom	135.54100521106	Nominal RA [deg]
dec_nom	-40.557743204543	Nominal Dec [deg]
roll_nom	352.16467932461	Nominal Roll [deg]
revision	4	Processing version of data
ontime	30280.400053069	Sum of GTIs [s]
livetime	29566.626895544	Livetime [s]
ontime4	30278.659042969	Sum of GTIs [s]
ontime5	30278.659042969	Sum of GTIs [s]
ontime6	30280.400053069	Sum of GTIs [s]
ontime7	30280.400053069	Sum of GTIs [s]
ontime8	30278.659042969	Sum of GTIs [s]
ontime9	30280.400053069	Sum of GTIs [s]
l2events	1242247	Number of level 2 events



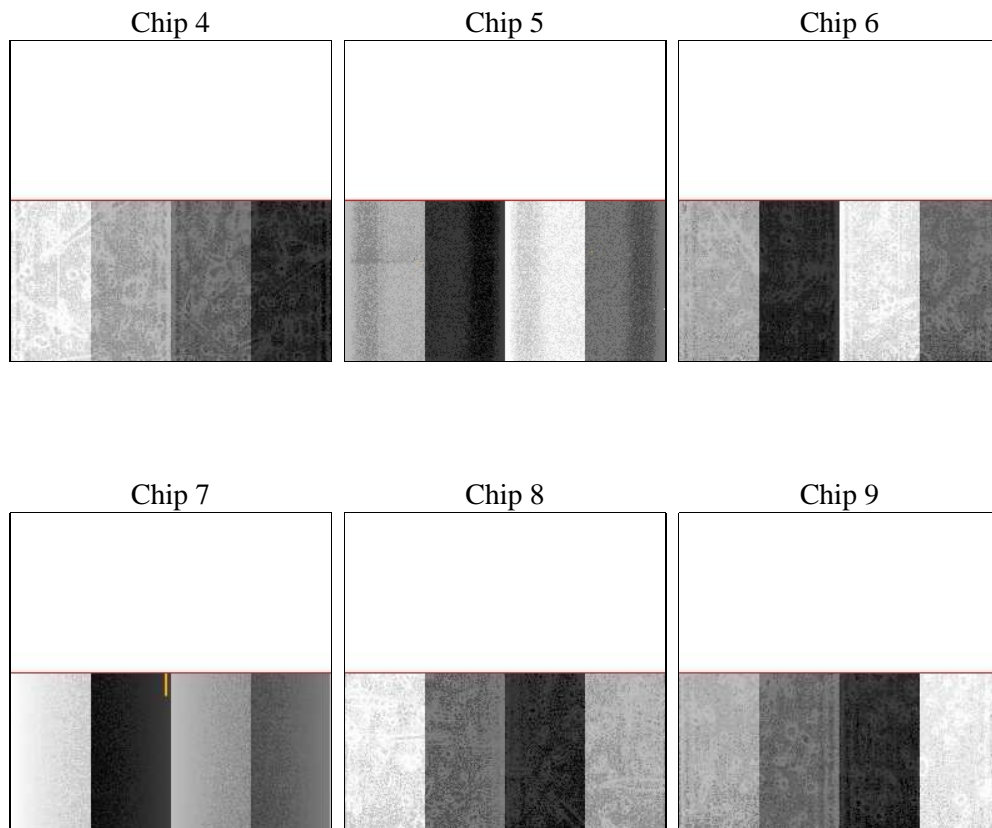
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30156.243000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	30280.400053069	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime4	30278.659042969	Sum of GTIs [s]
date	2012-09-16T04:29:29	Date and time of file creation	ontime5	30278.659042969	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	30280.400053069	Sum of GTIs [s]
			ontime7	30280.400053069	Sum of GTIs [s]
			ontime8	30278.659042969	Sum of GTIs [s]
			ontime9	30280.400053069	Sum of GTIs [s]
			l1events	1893566	Number of level 1 events

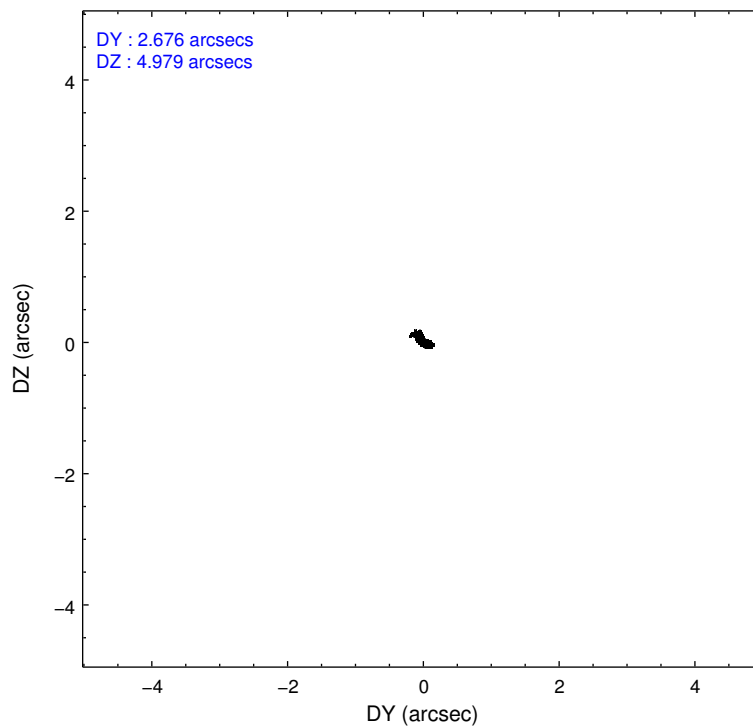
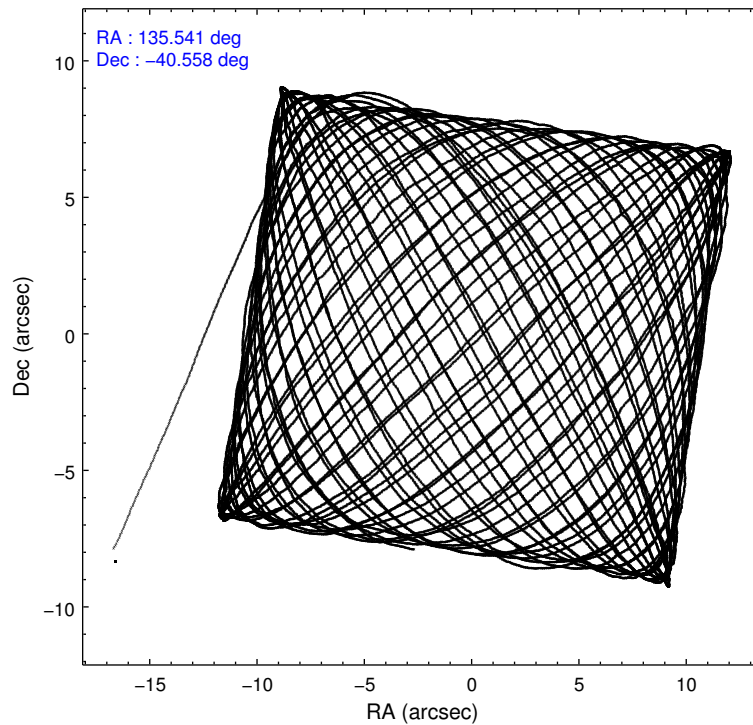
2.1.4 Events

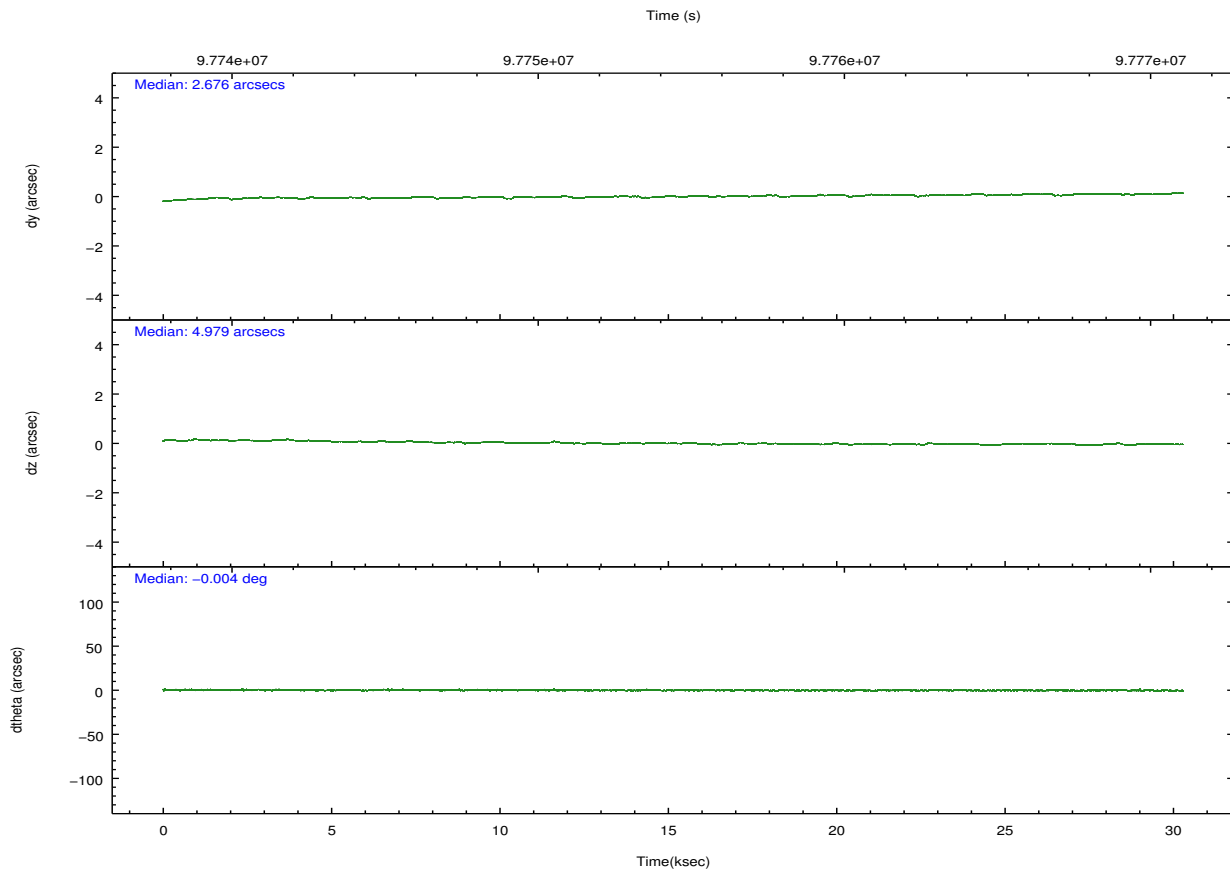
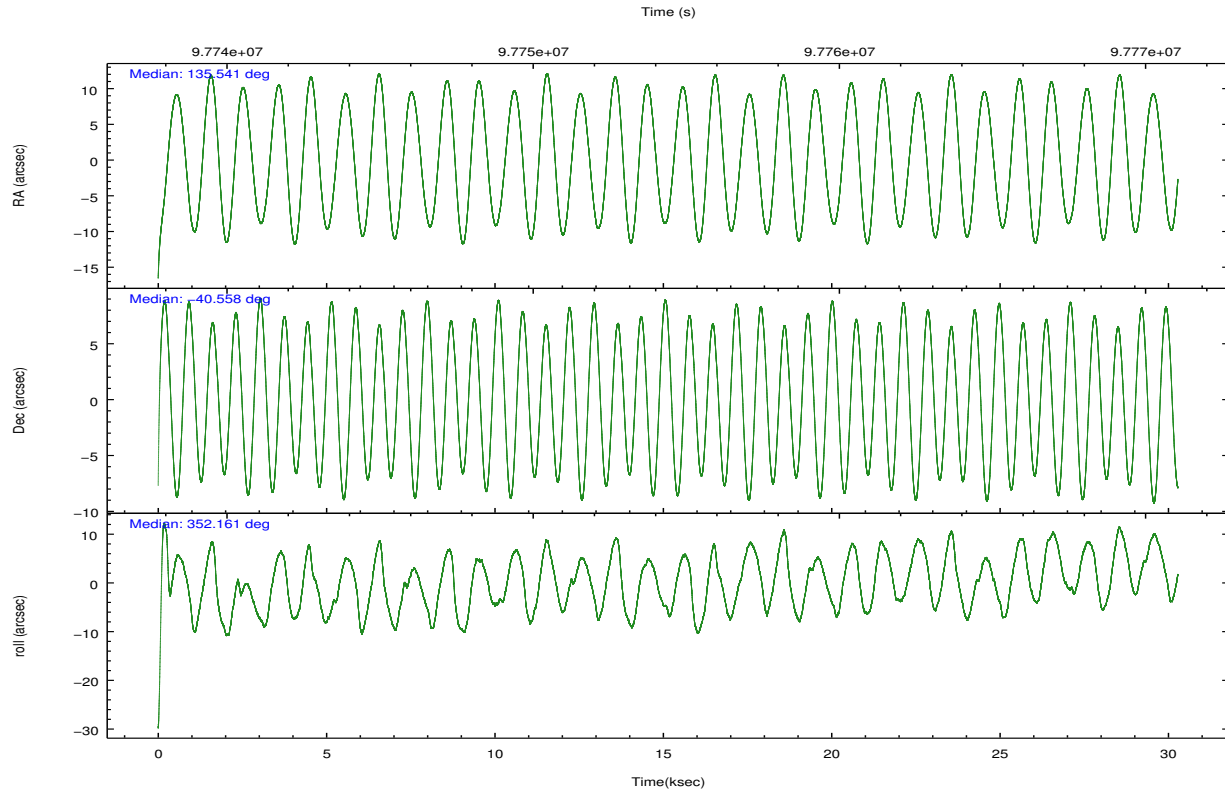
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	126028	185555	486849	706626	265409	123099	grade 0 events	11241	23985	274284	119552	112274	22389
rejected events	105801	74910	105500	104432	108352	88716		8%	12%	56%	16%	42%	18%
rejected %	83%	40%	21%	14%	40%	72%	grade 1 events	66	292	3806	2636	696	74
								0%	0%	0%	0%	0%	0%
							grade 2 events	3656	31886	50845	143876	20042	4934
								2%	17%	10%	20%	7%	4%
							grade 3 events	1710	8701	18166	64663	7791	2286
								1%	4%	3%	9%	2%	1%
							grade 4 events	1700	8433	18054	64465	7545	2239
								1%	4%	3%	9%	2%	1%
							grade 5 events	3378	11603	6788	22139	5370	3945
								2%	6%	1%	3%	2%	3%
							grade 6 events	2236	40105	23597	216991	10752	2911
								1%	21%	4%	30%	4%	2%
							grade 7 events	102041	60550	91309	72304	100939	84321
								80%	32%	18%	10%	38%	68%

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	135.507851	135.5410052110636	Subarray requested	CUSTOM	1/2
[deg] Pointing Dec	-40.568285	-40.55774320454255	Subarray start row	1	1
[deg] Pointing Roll	351.986511	352.1646793246093	Subarray row count	512	512
[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	1.7
[mm] SIM translation stage pos	-184.032523	-184.0277655517795			
[mm] SIM translation stage offset	-6.1	-6.104757031228274			
Phase constraints	Y	Y			
[d] Phase period	8.964416	8.964416			
[d] Phase epoch (MJD)	50132.313800	50132.313800			
Phase start	0.230000	0.230000			
Phase end	0.270000	0.270000			
Phase start error	0.010000	0.010000			
Phase end error	0.010000	0.010000			
[s] Observation start time (MET)	97739388.184000	97738195.230729			
Observation start date	2001-02-05T05:48:44	2001-02-05T05:29:55			
[s] Observation end time (MET)	97769544.184000	97769859.019449			
Observation end date	2001-02-05T14:11:20	2001-02-05T14:17:39			
Read mode	TIMED	TIMED			

2.3 Aspect



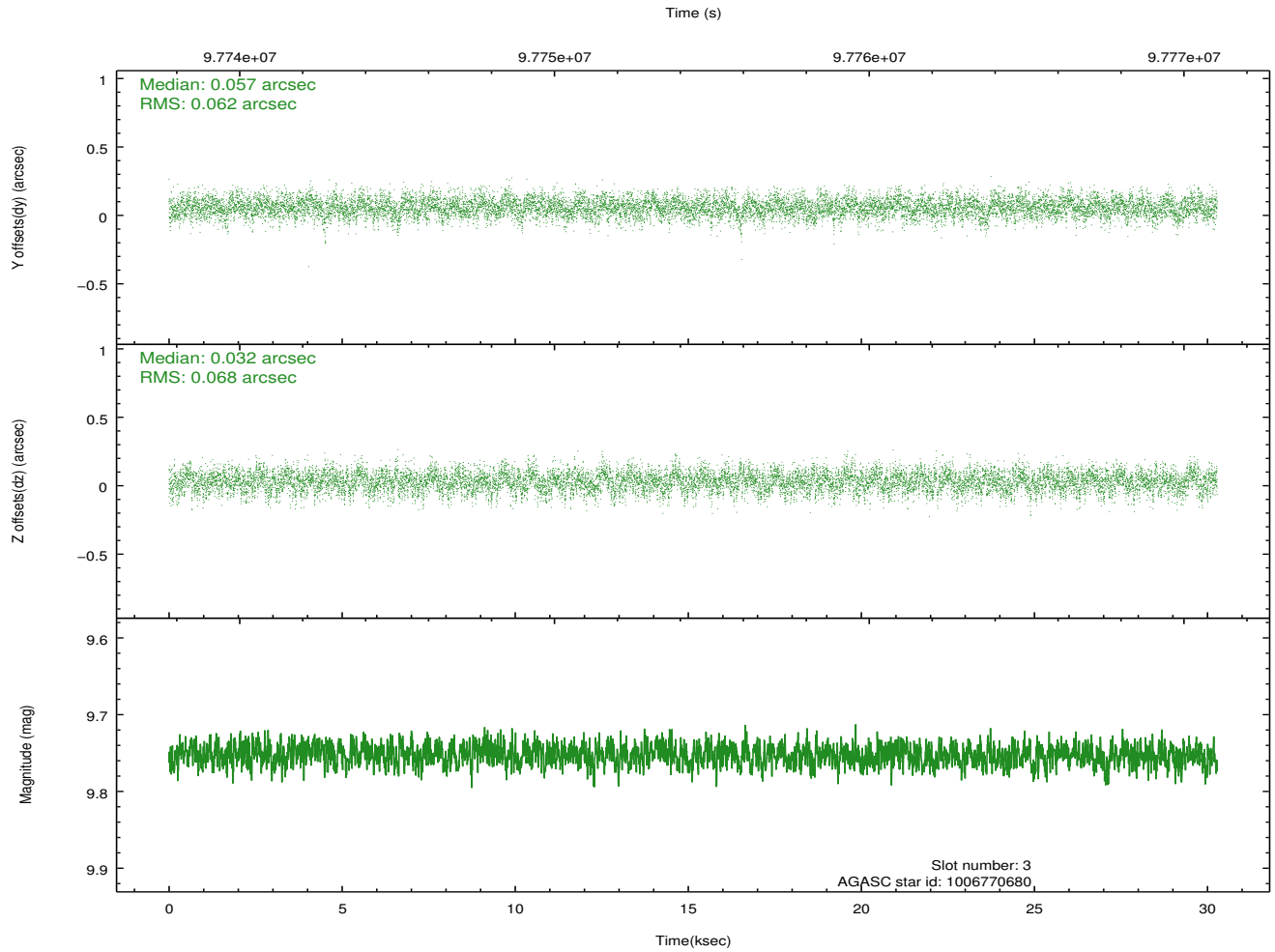
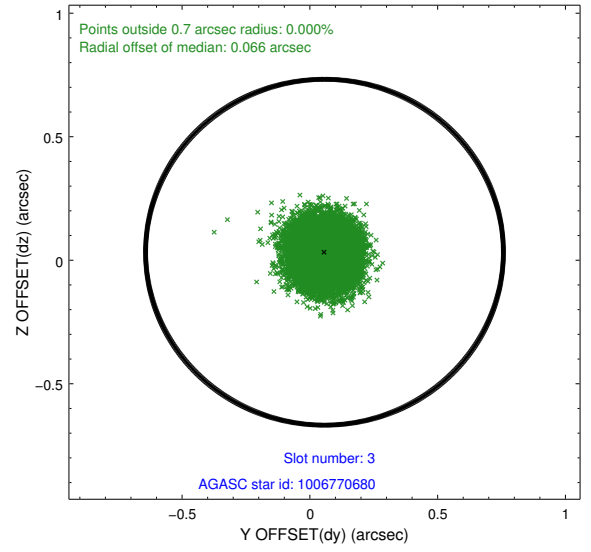
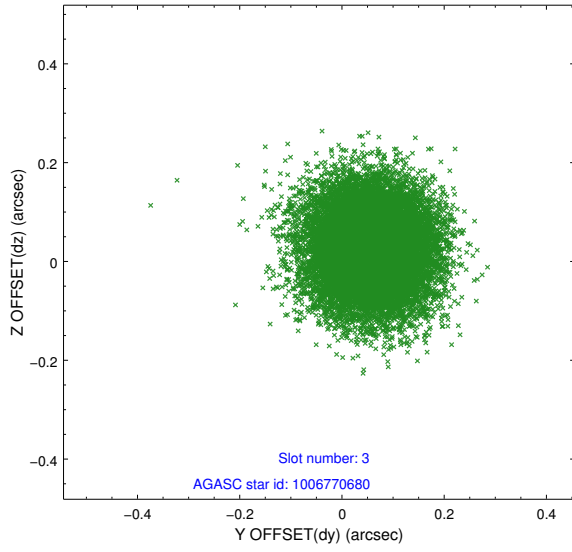


Slot Statistics

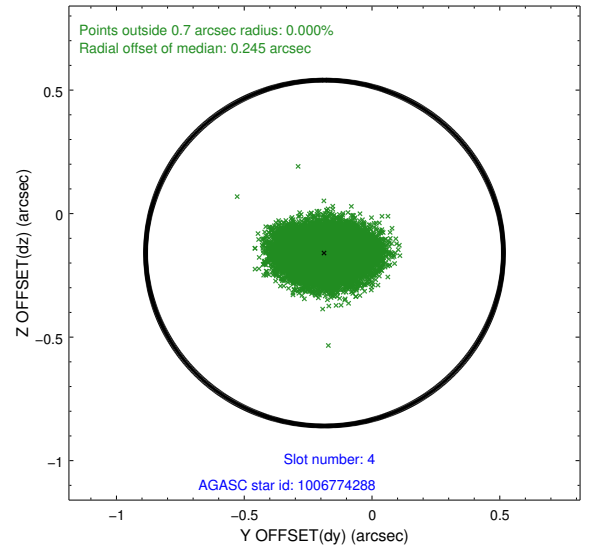
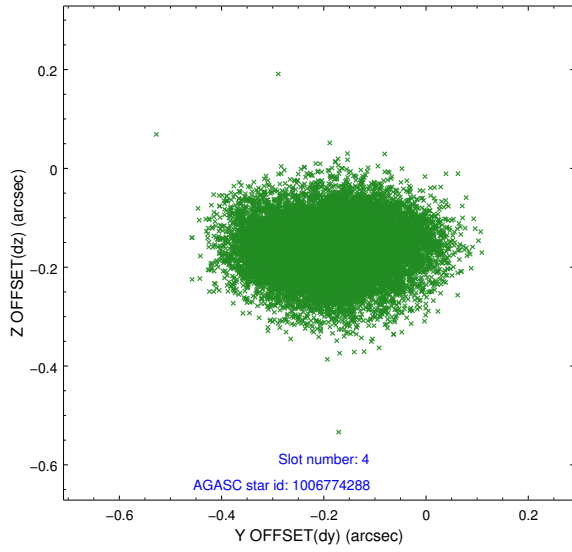
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	7387	-0.053	-0.048	0.007	0.012	0.000000	0.000000	-754.94	-1851.98
1	FID	ACIS-S-4	7.19	7387	-0.024	0.038	0.006	0.011	0.000000	0.000000	2158.34	56.48
2	FID	ACIS-S-5	7.23	7387	0.046	0.018	0.007	0.011	0.000000	0.000000	-1807.59	50.22
3	GUIDE	1006770680	9.75	14623	0.057	0.032	0.098	0.158	136.066277	-40.835914	1641.06	-746.69
4	GUIDE	1006774288	9.43	14760	-0.186	-0.160	0.119	0.188	136.151715	-40.161117	1550.36	1691.89
5	GUIDE	1006784024	9.65	14760	0.067	-0.098	0.101	0.165	135.140125	-40.518811	-1021.07	33.87
6	GUIDE	1006646160	10.41	14619	0.061	0.167	0.135	0.223	134.960399	-40.683654	-1421.47	-624.29
7	GUIDE	1006767392	9.85	14762	0.004	0.069	0.116	0.187	135.128758	-40.847245	-882.17	-1140.69

2.4 Star Slots

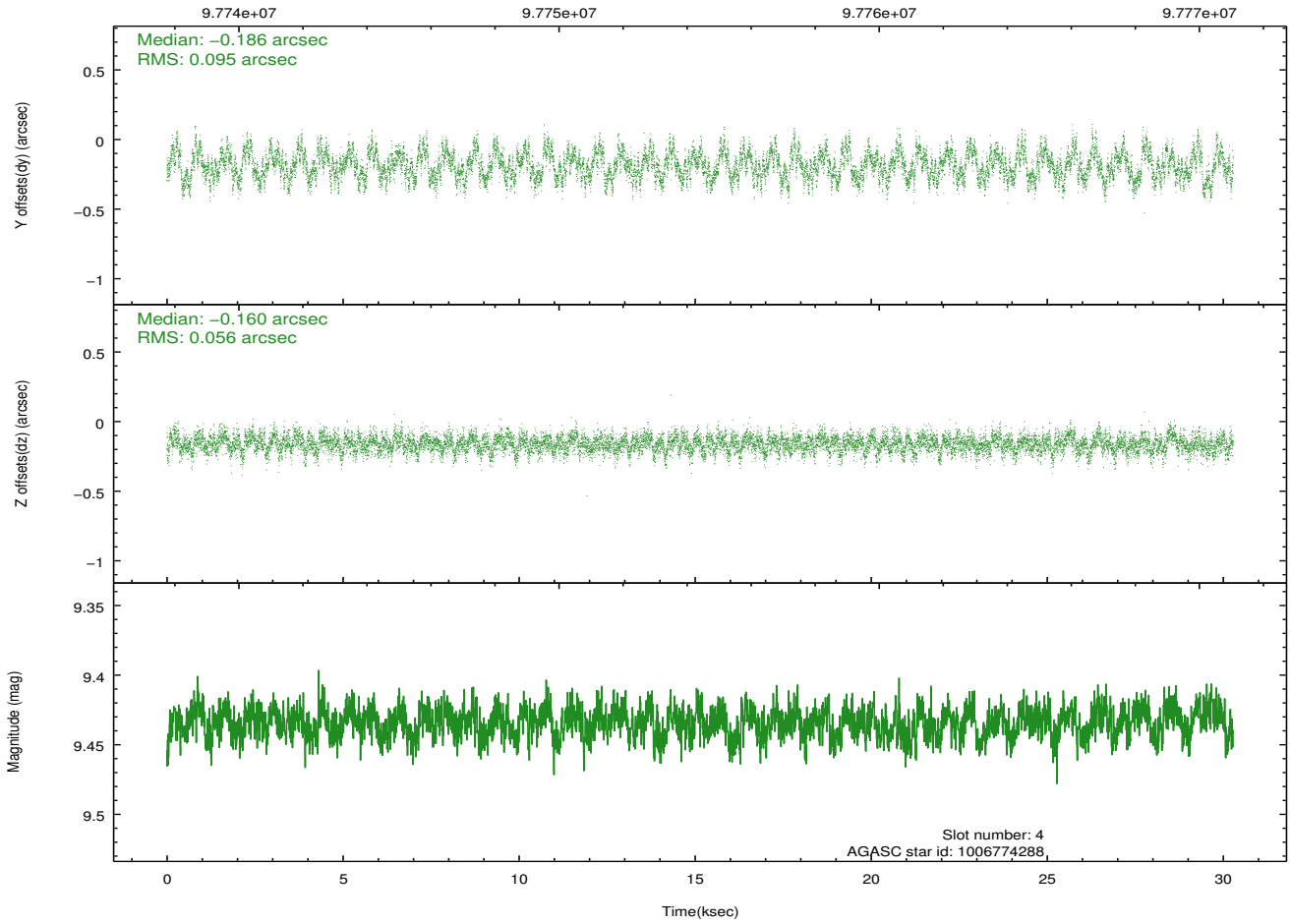
2.4.1 Slot 3



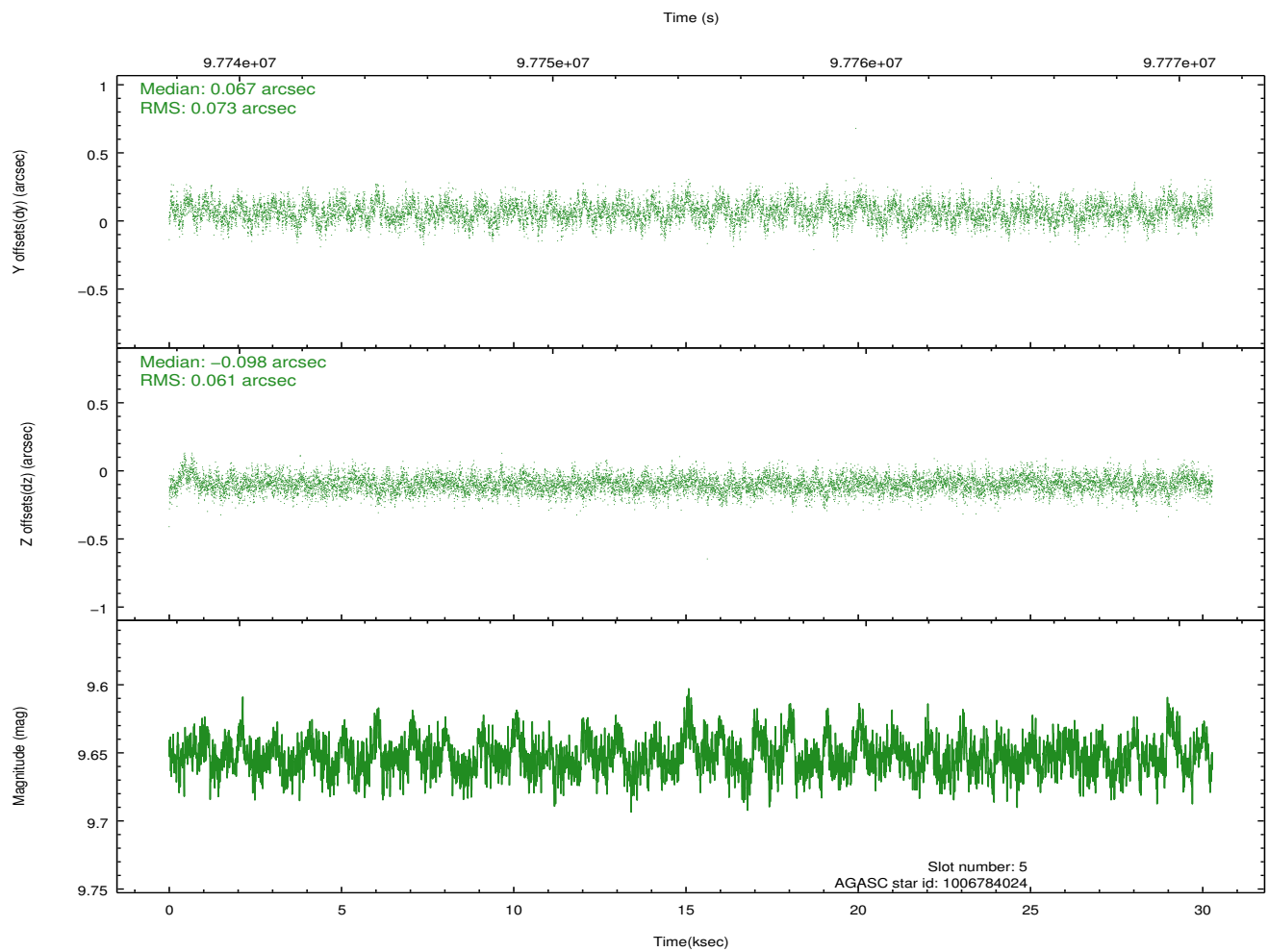
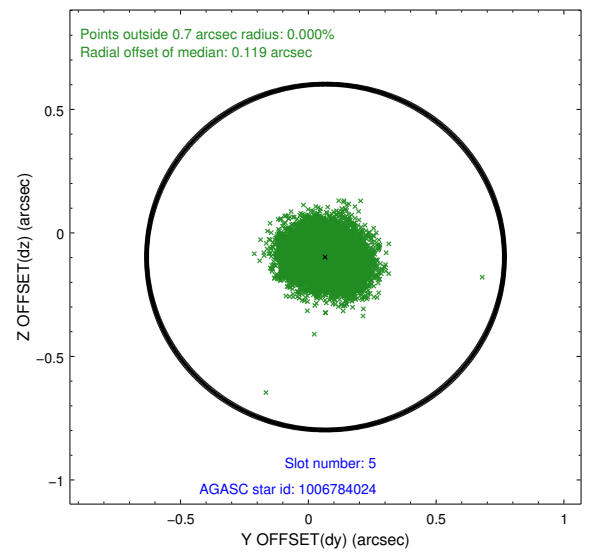
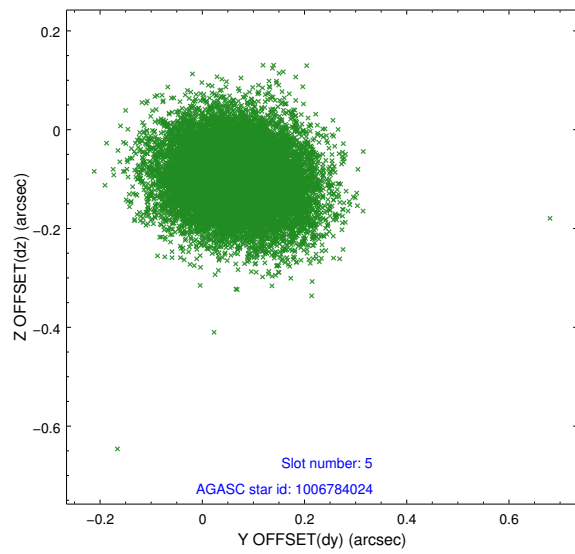
2.4.2 Slot 4



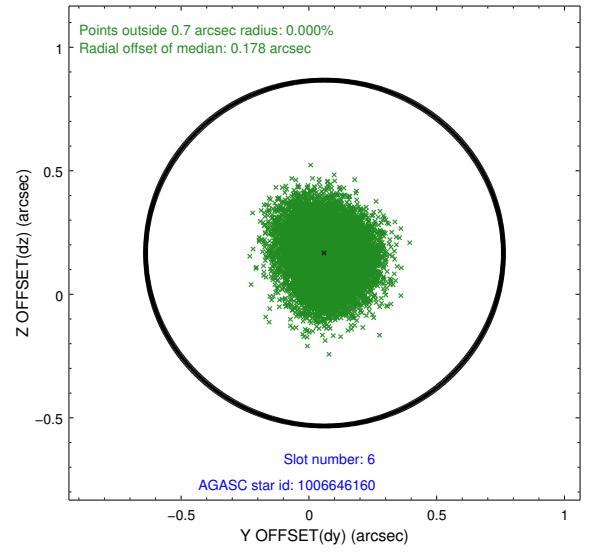
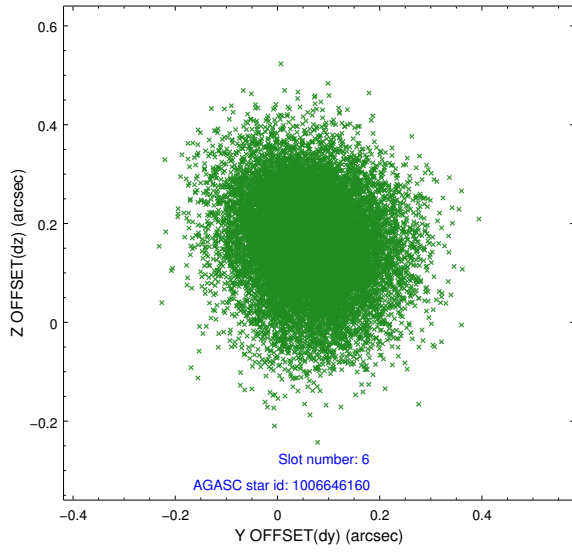
Time (s)



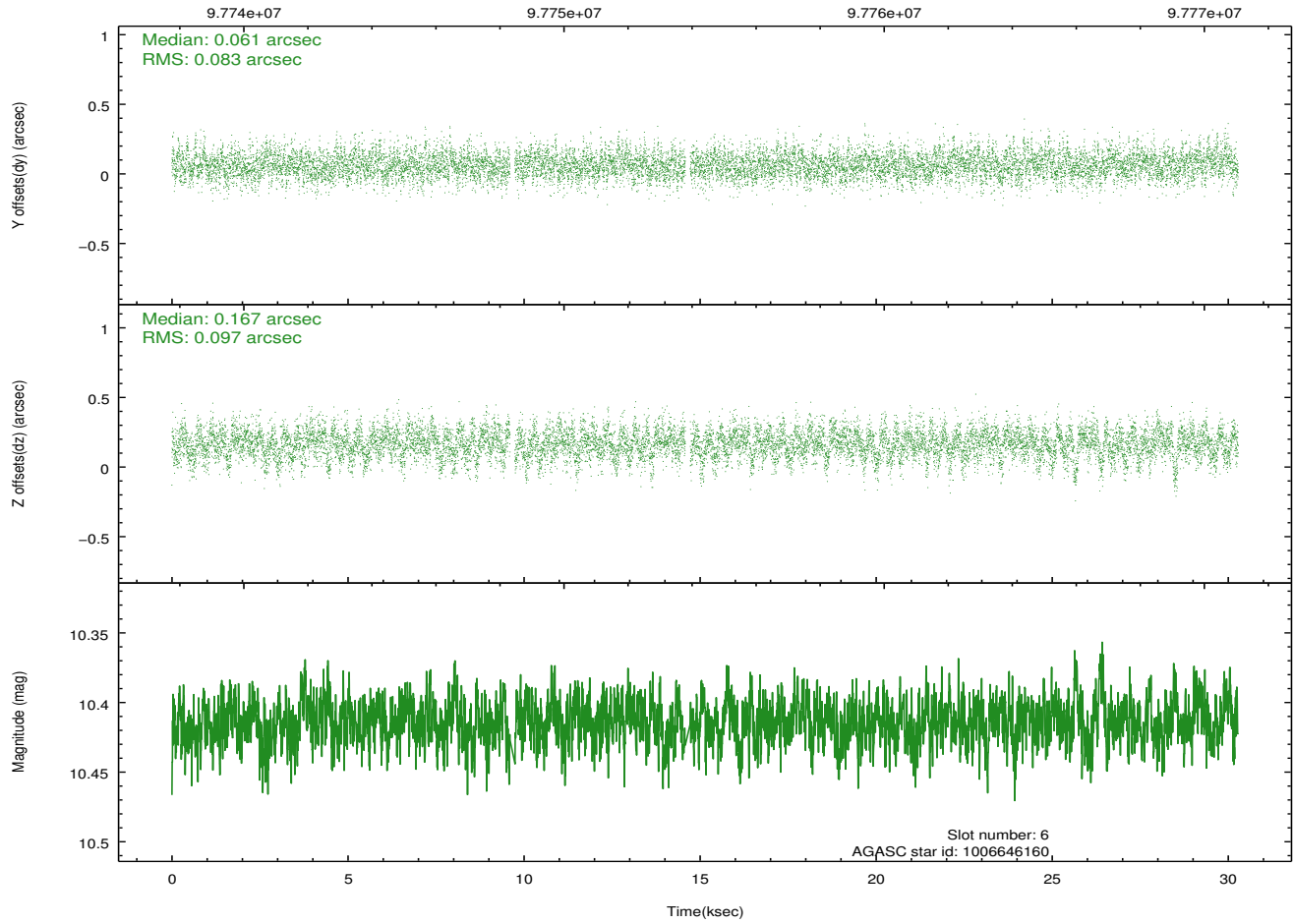
2.4.3 Slot 5



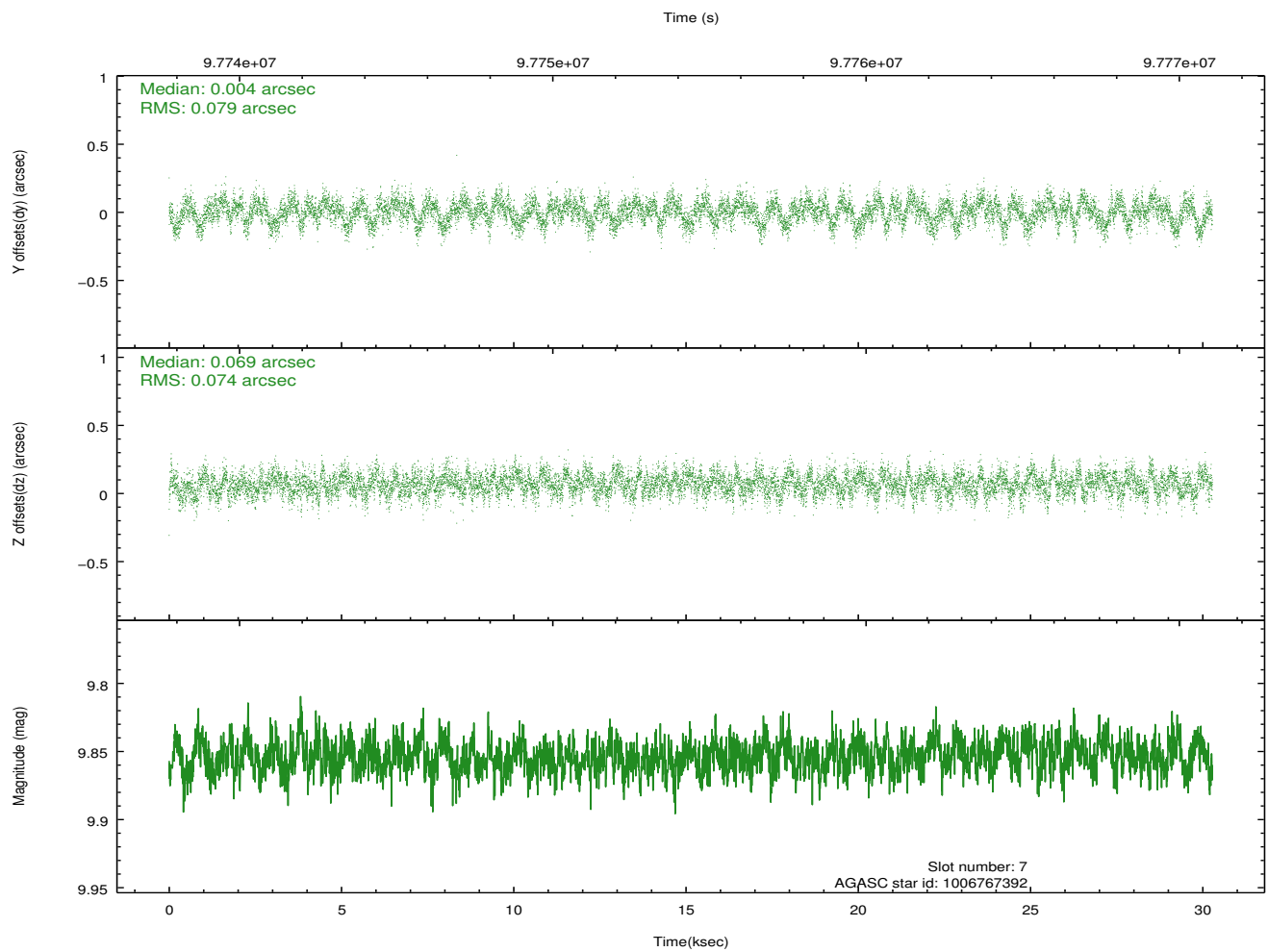
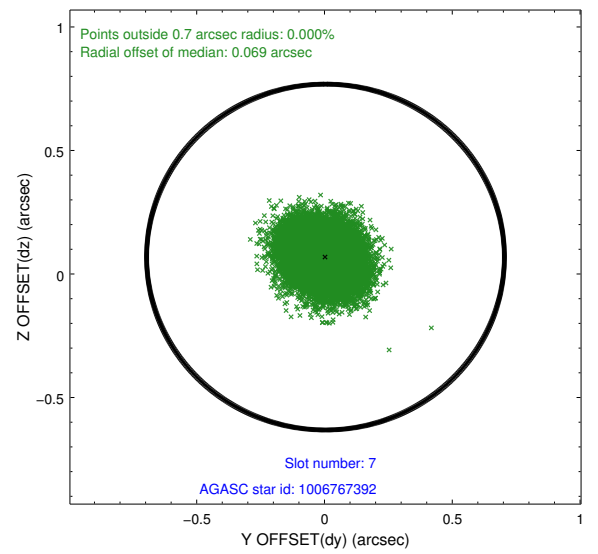
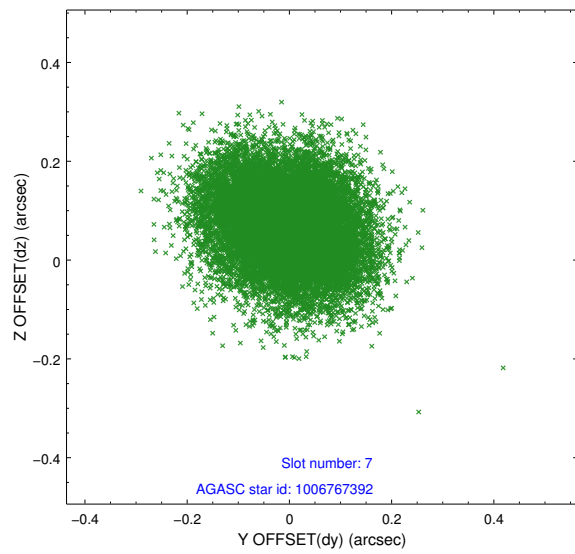
2.4.4 Slot 6



Time (s)

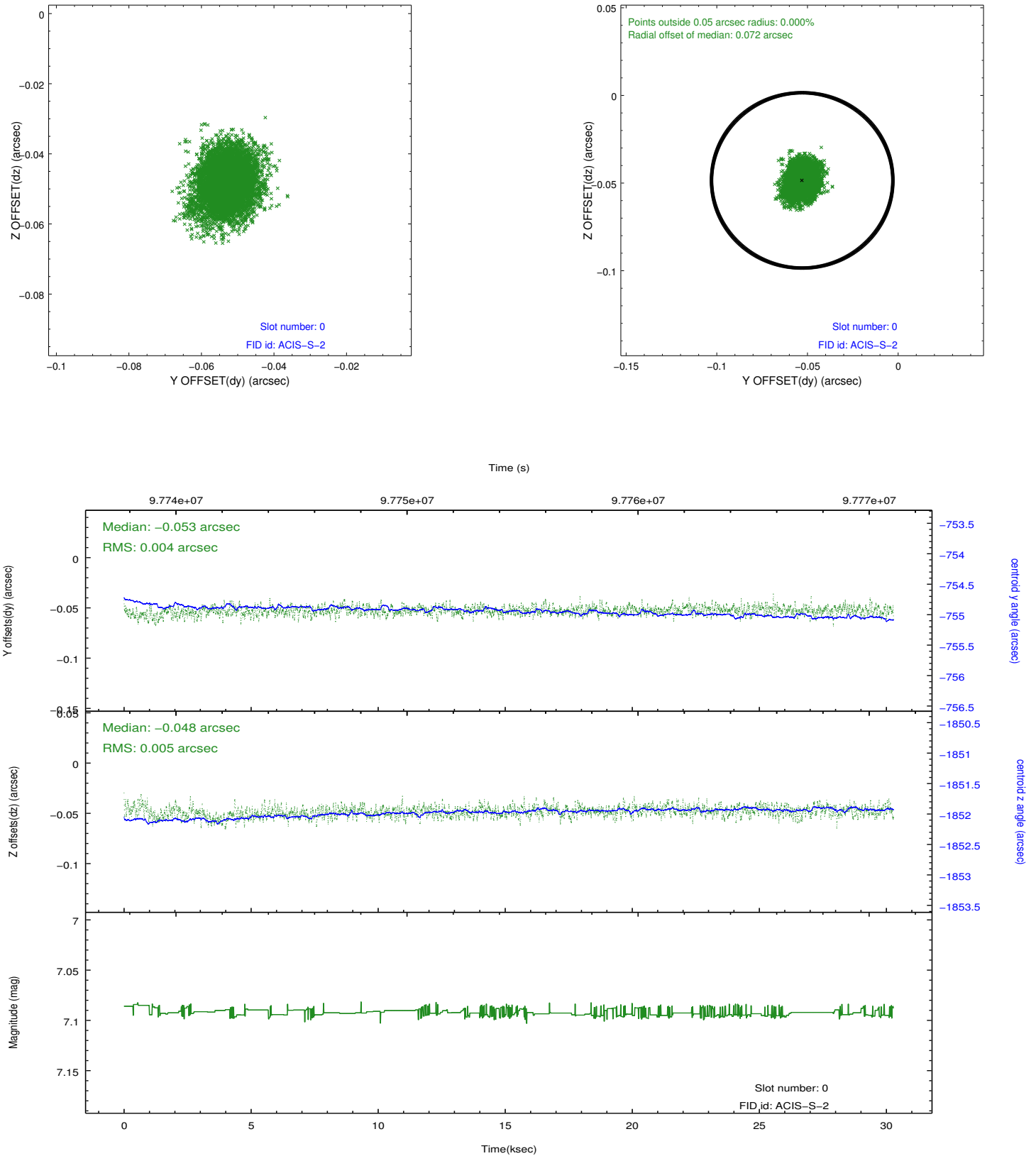


2.4.5 Slot 7

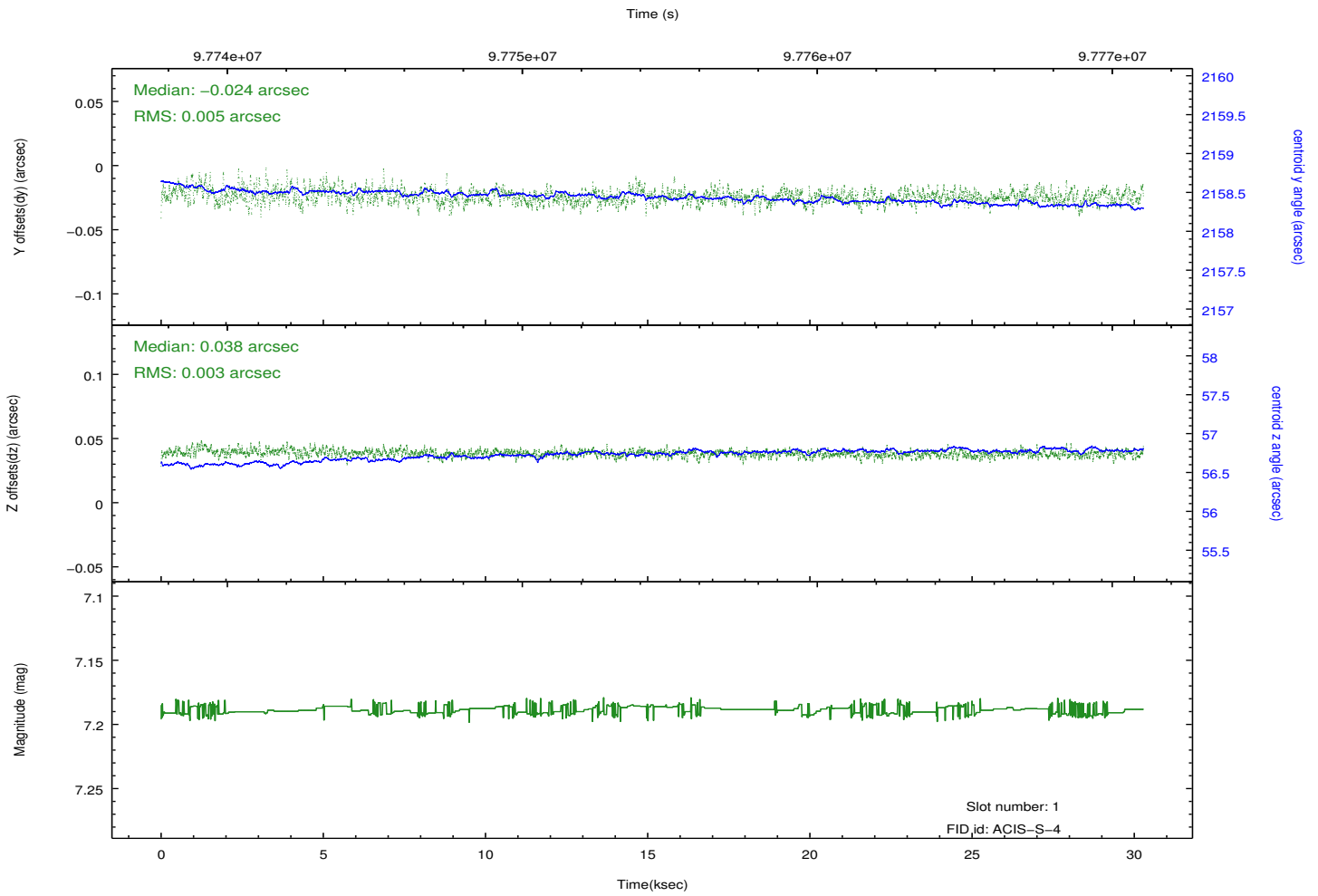
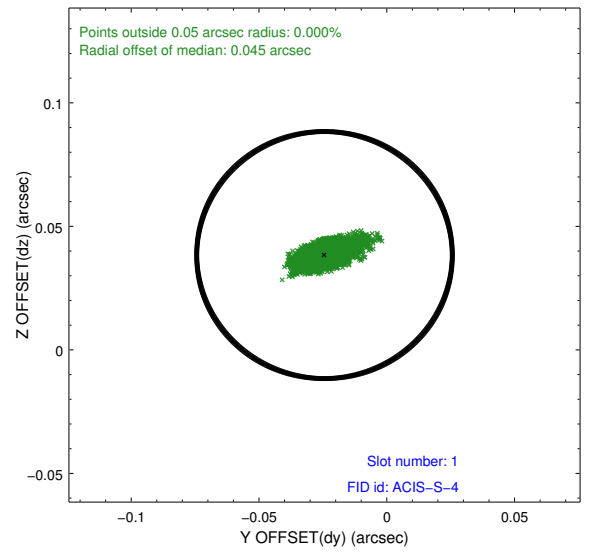
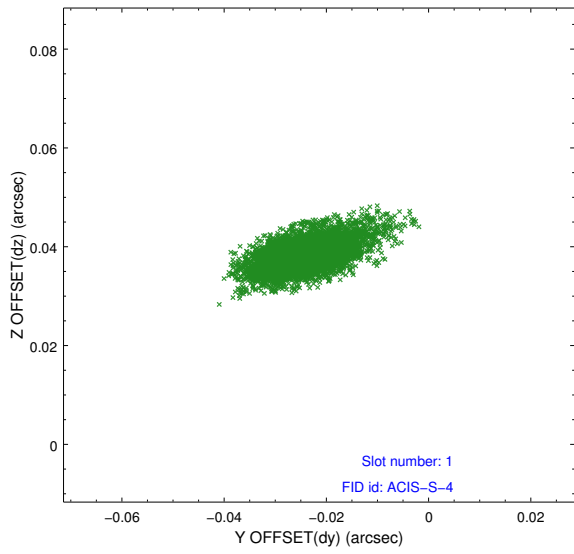


2.5 FID Slots

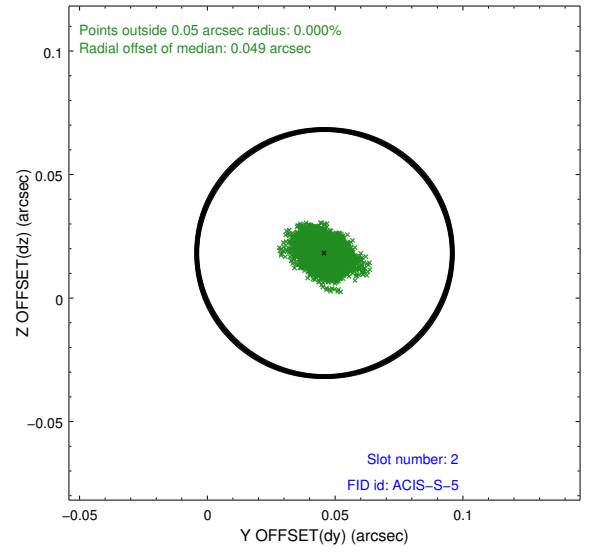
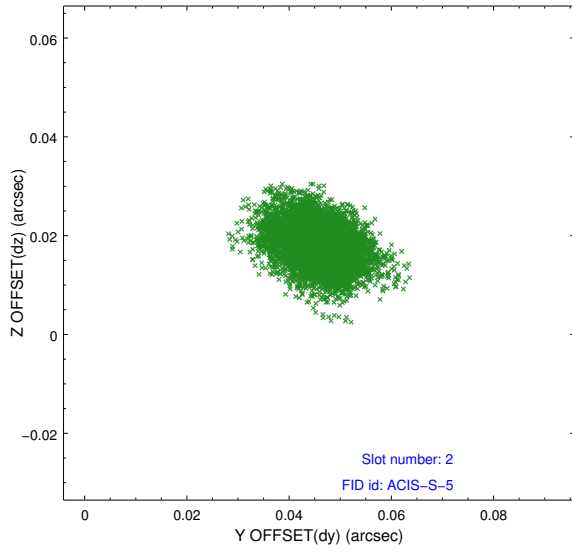
2.5.1 Slot 0



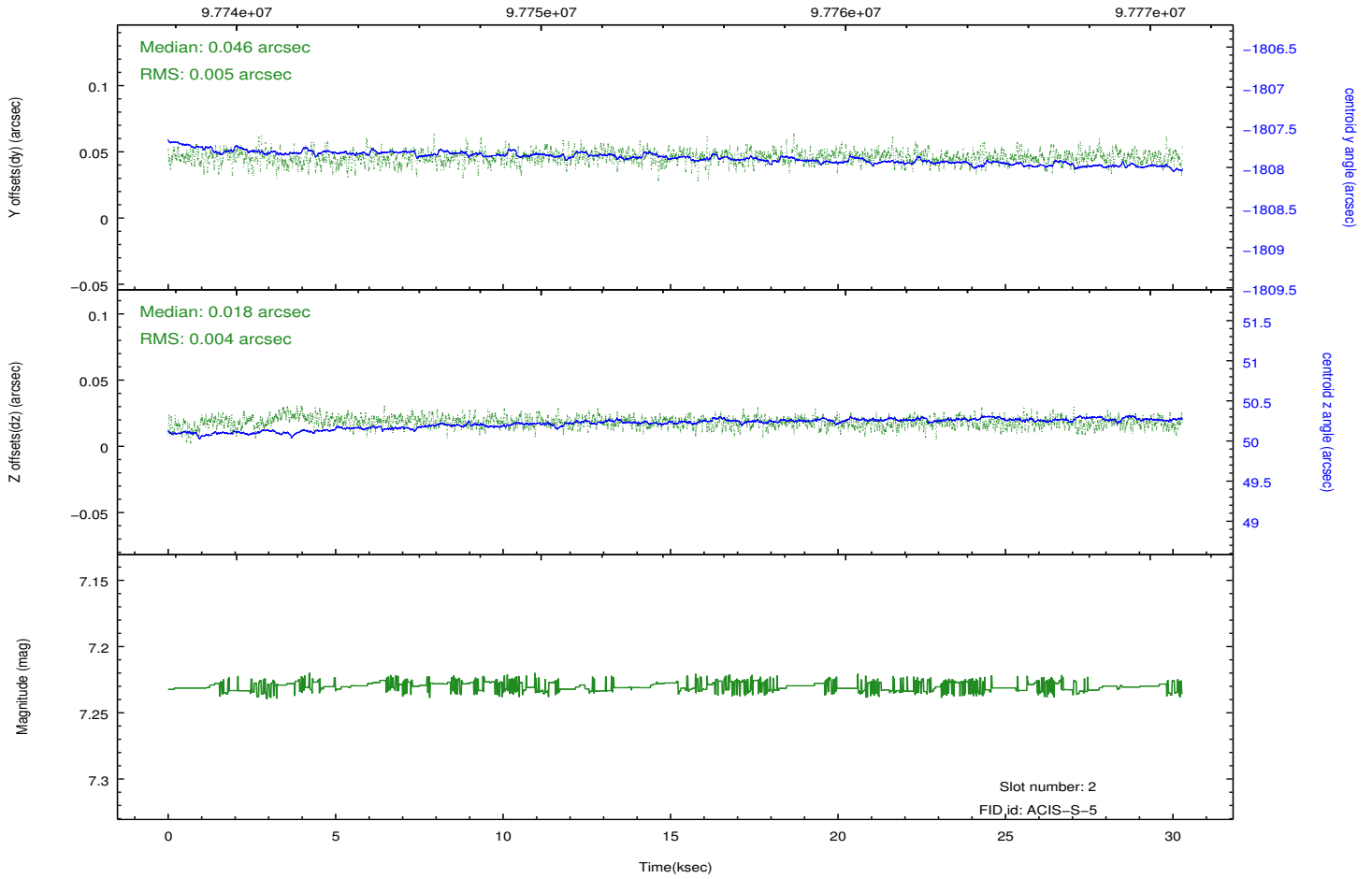
2.5.2 Slot 1



2.5.3 Slot 2

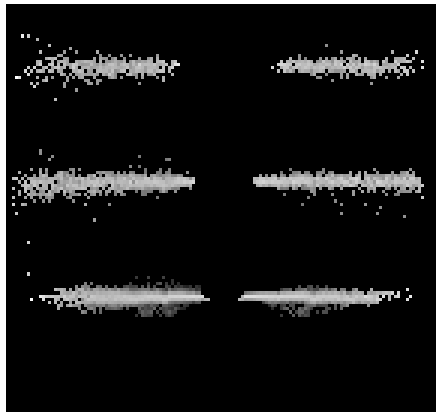


Time (s)

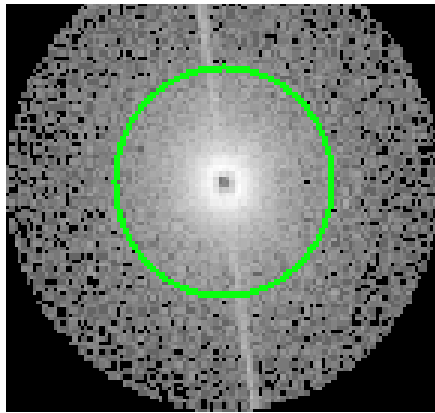


3 Gratings

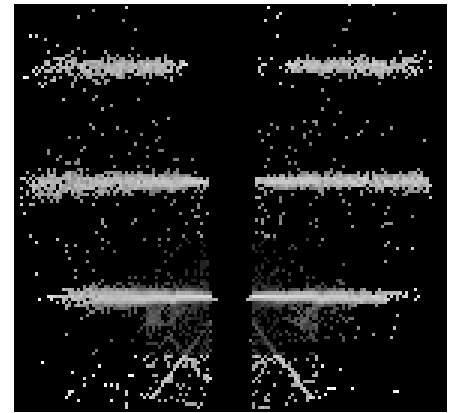
3.1 HEG Arm



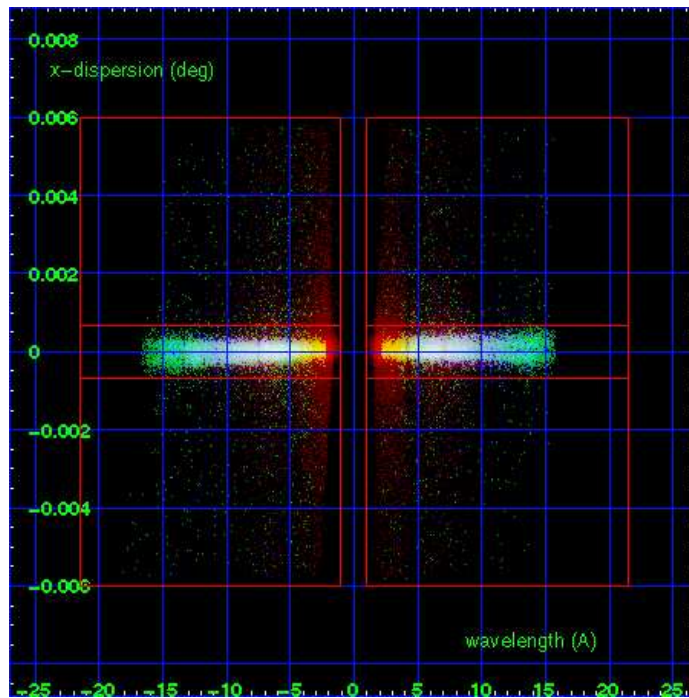
HEG Order Sort 123



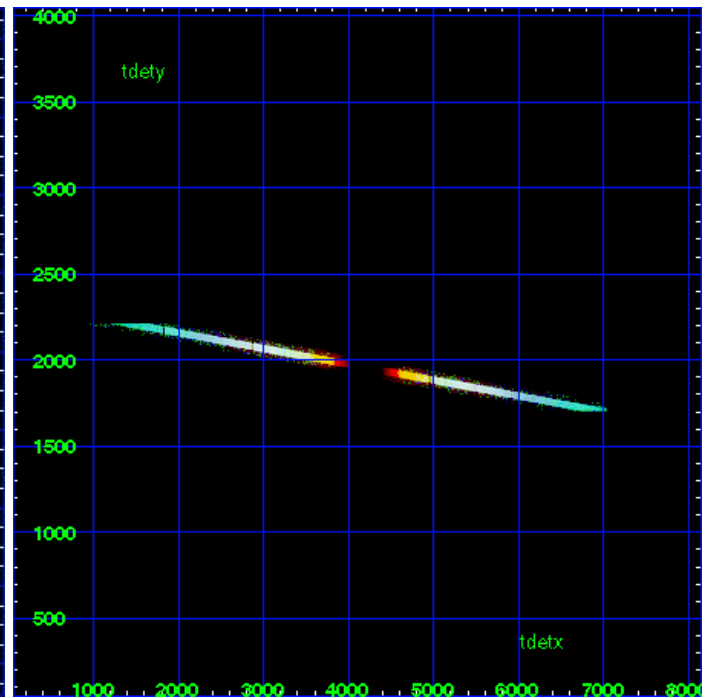
HEG Zero Order



HEG Order Sort ALL

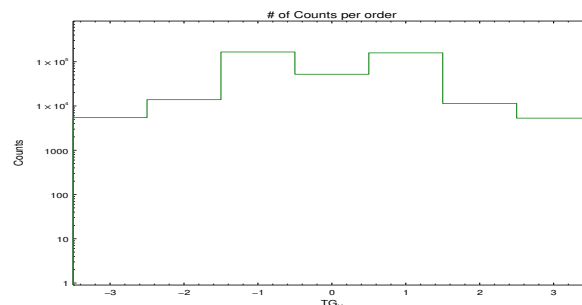


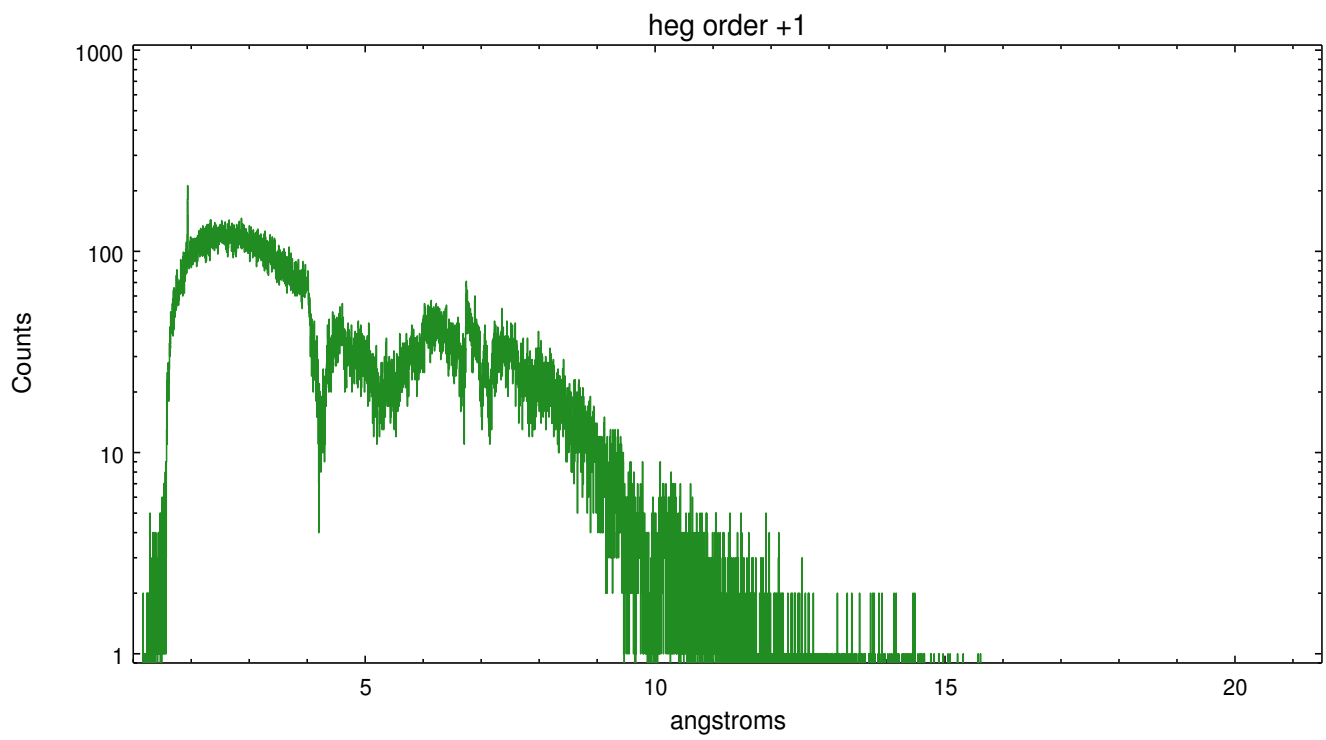
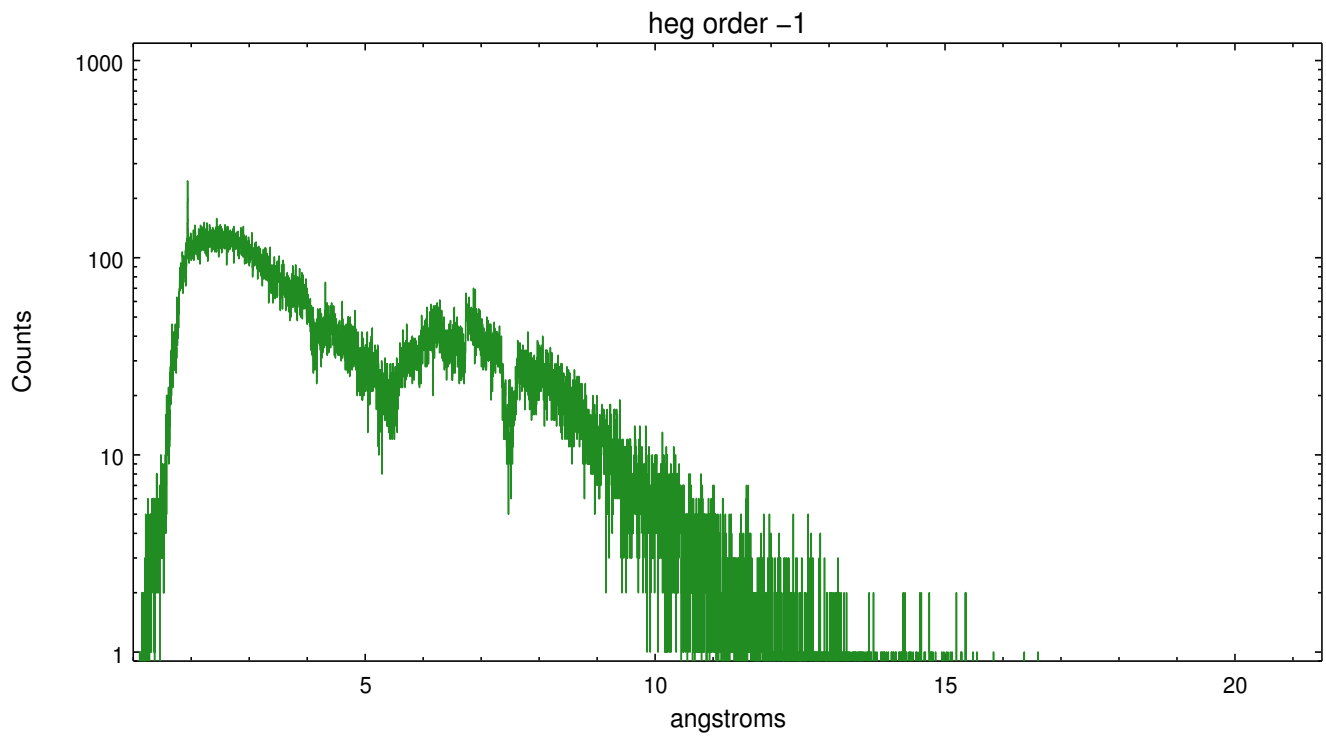
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	5458	13900	165936	52035	158536	11381	5313

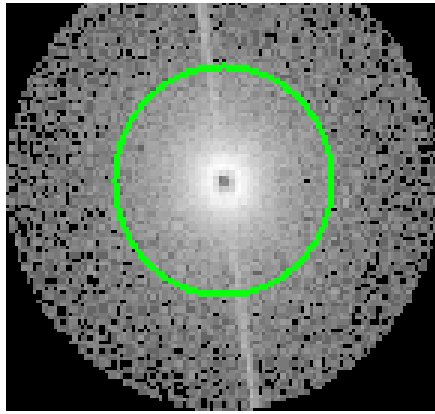




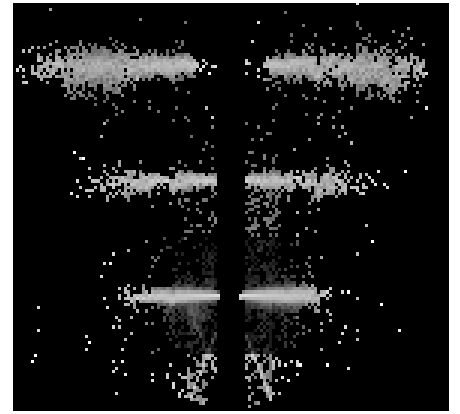
3.2 MEG Arm



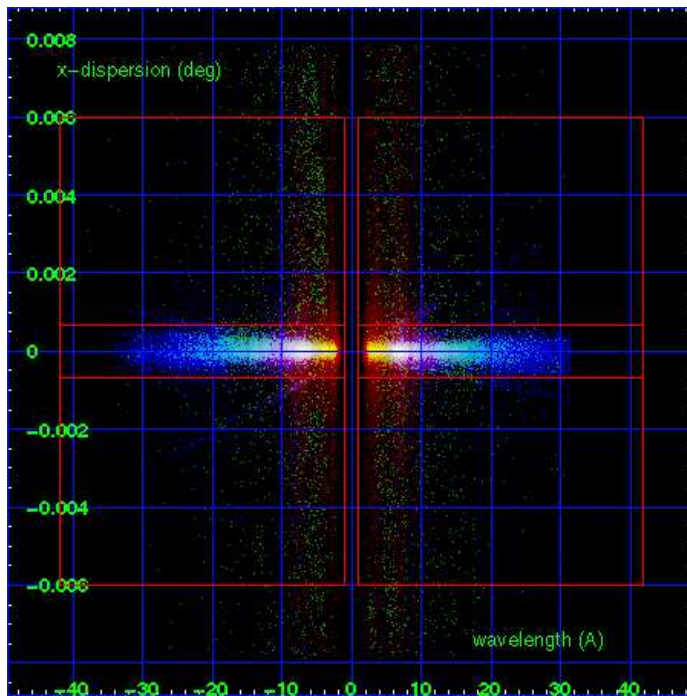
MEG Order Sort 123



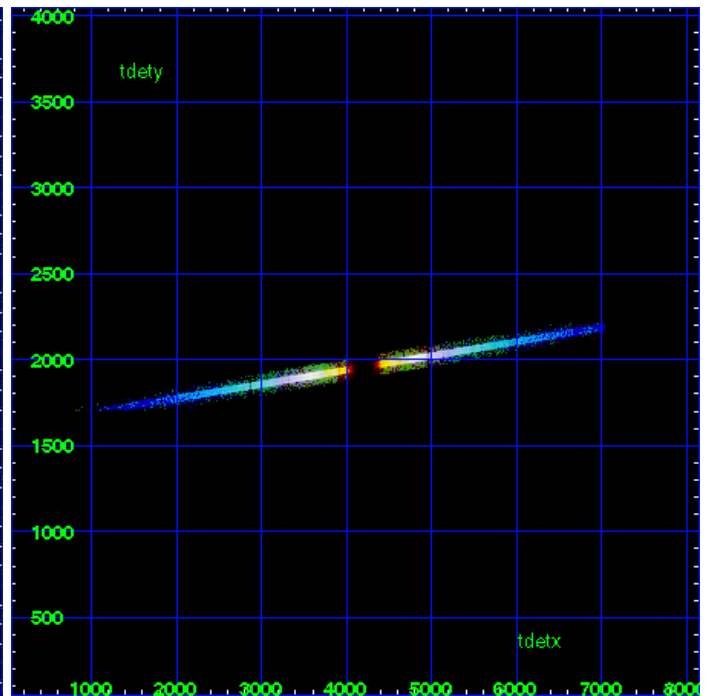
MEG Zero Order



MEG Order Sort ALL

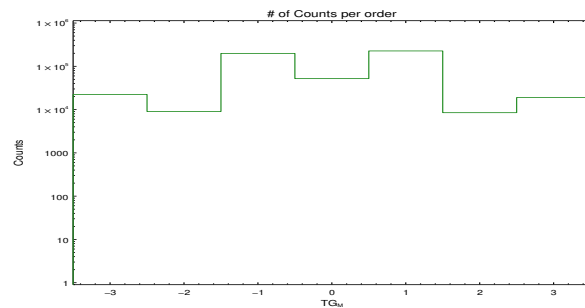


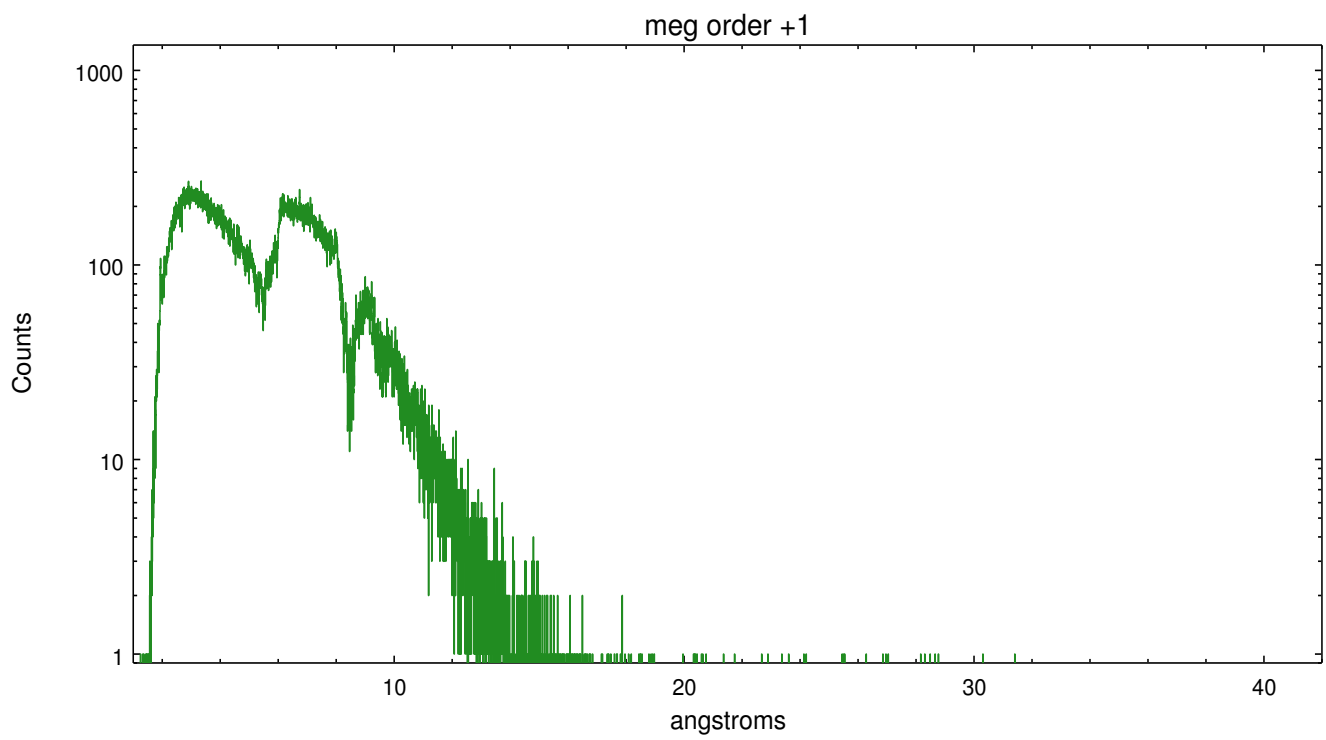
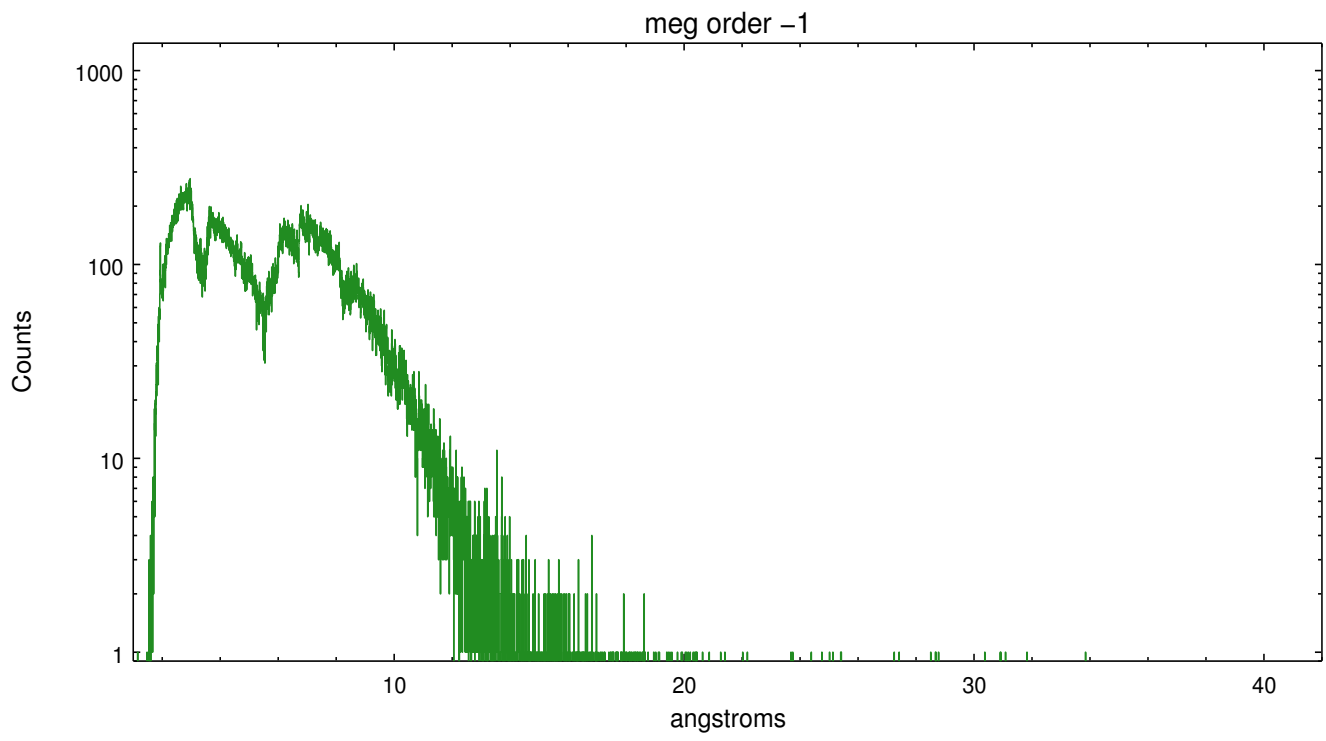
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	22379	9042	198926	52035	226819	8495	18988





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.20
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.28

A.2 Comments

Phase constraint met.

===

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates (x=4165.94, y=4119.03) 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 as tg_findzo (currently in ISIS as findzo). The tool calculates the point of intersection of the readout streak and the meg 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.