

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 12071 - L2 Version 3
Chandra X-Ray Center

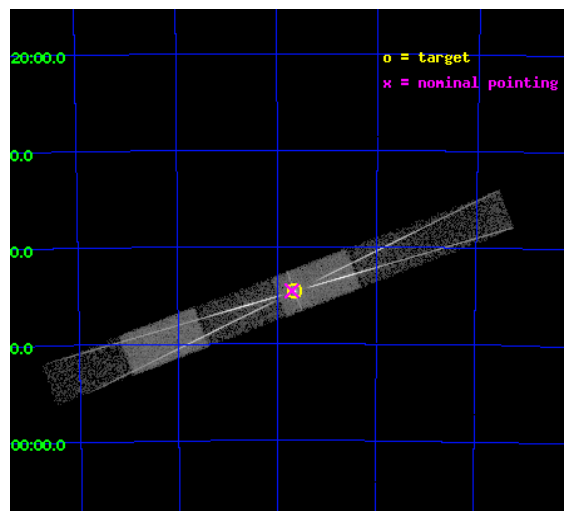
L2 Processing Date : Jun 19 2012

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

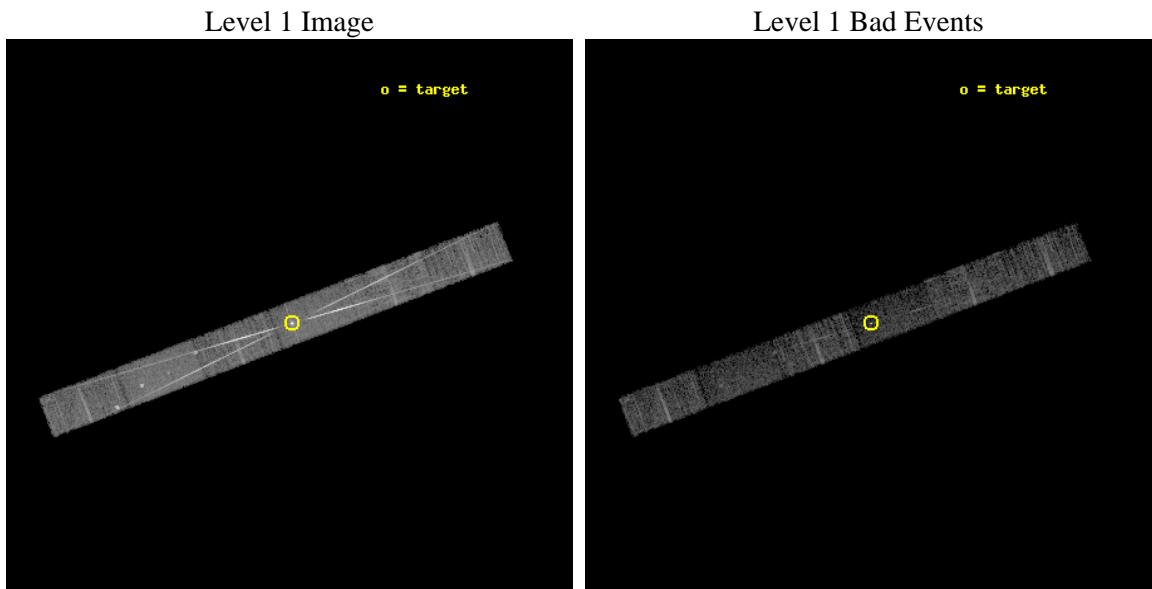
seq_num	401109	Sequence number
obs_id	12071	Observation id
title	Deep Chandra Observations of the Black Hole LMC X-1	Proposal title
observer	Dr. Michael Nowak	Principal investigator
object	LMC X-1	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	84.911667	Observer's specified target RA [deg]
dec_targ	-69.74325	Observer's specified target Dec [deg]
ra_nom	84.925579247986	Nominal RA [deg]
dec_nom	-69.742363743089	Nominal Dec [deg]
roll_nom	339.16965753099	Nominal Roll [deg]
revision	3	Processing version of data
ontime	4187.0999706984	Sum of GTIs [s]
livetime	4088.4011568874	Livetime [s]
ontime4	4187.0999706984	Sum of GTIs [s]
ontime5	4187.0999706984	Sum of GTIs [s]
ontime6	4187.0999706984	Sum of GTIs [s]
ontime7	4187.0999706984	Sum of GTIs [s]
ontime8	4185.3589305282	Sum of GTIs [s]
ontime9	4187.0999706984	Sum of GTIs [s]
l2events	104976	Number of level 2 events



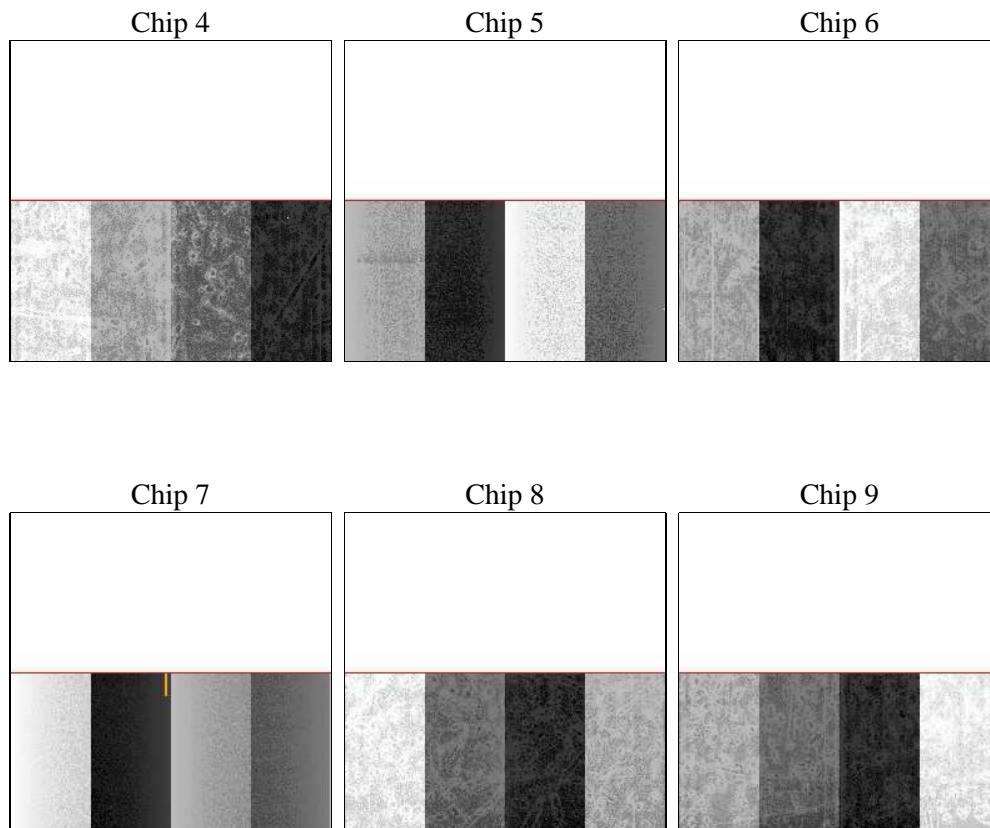
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	4000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	4187.0999706984	Sum of GTIs [s]
caldsver	4.4.10	 	ontime4	4187.0999706984	Sum of GTIs [s]
date	2012-06-19T07:41:37	Date and time of file creation	ontime5	4187.0999706984	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	4187.0999706984	Sum of GTIs [s]
			ontime7	4187.0999706984	Sum of GTIs [s]
			ontime8	4185.3589305282	Sum of GTIs [s]
			ontime9	4187.0999706984	Sum of GTIs [s]
			l1events	230266	Number of level 1 events

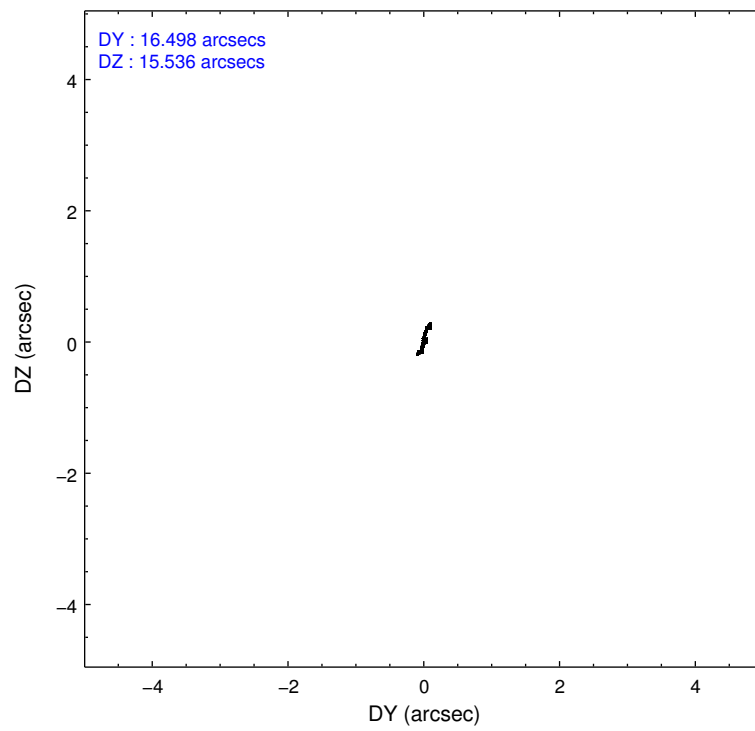
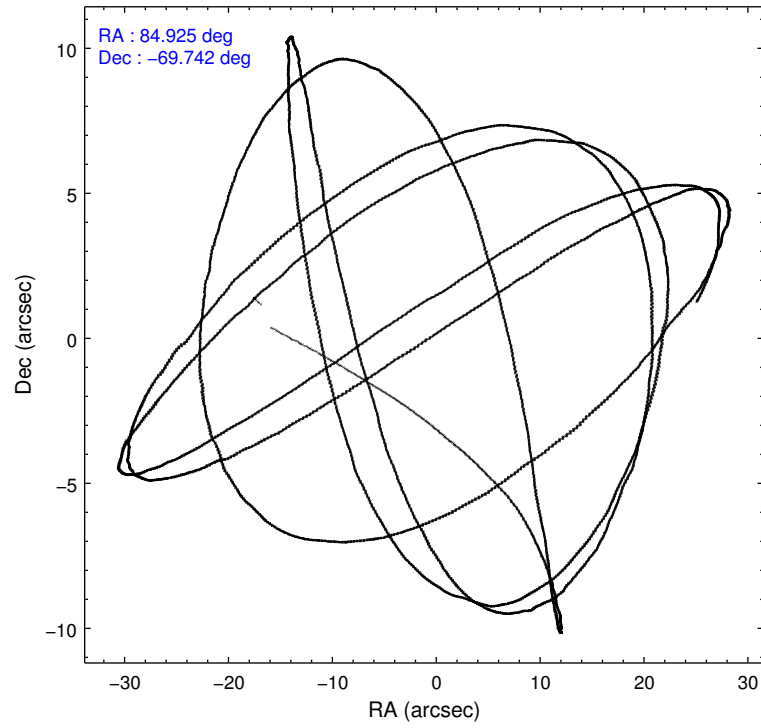
2.1.4 Events

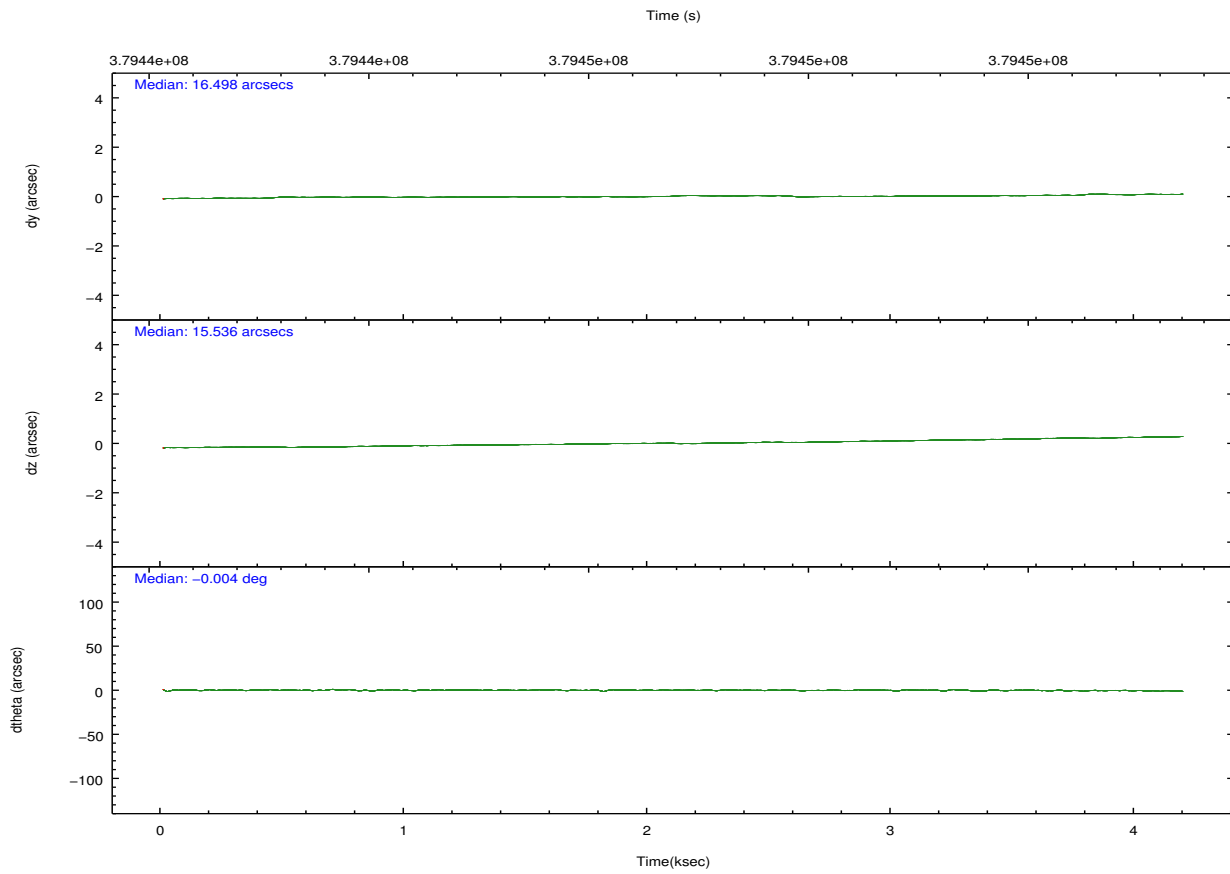
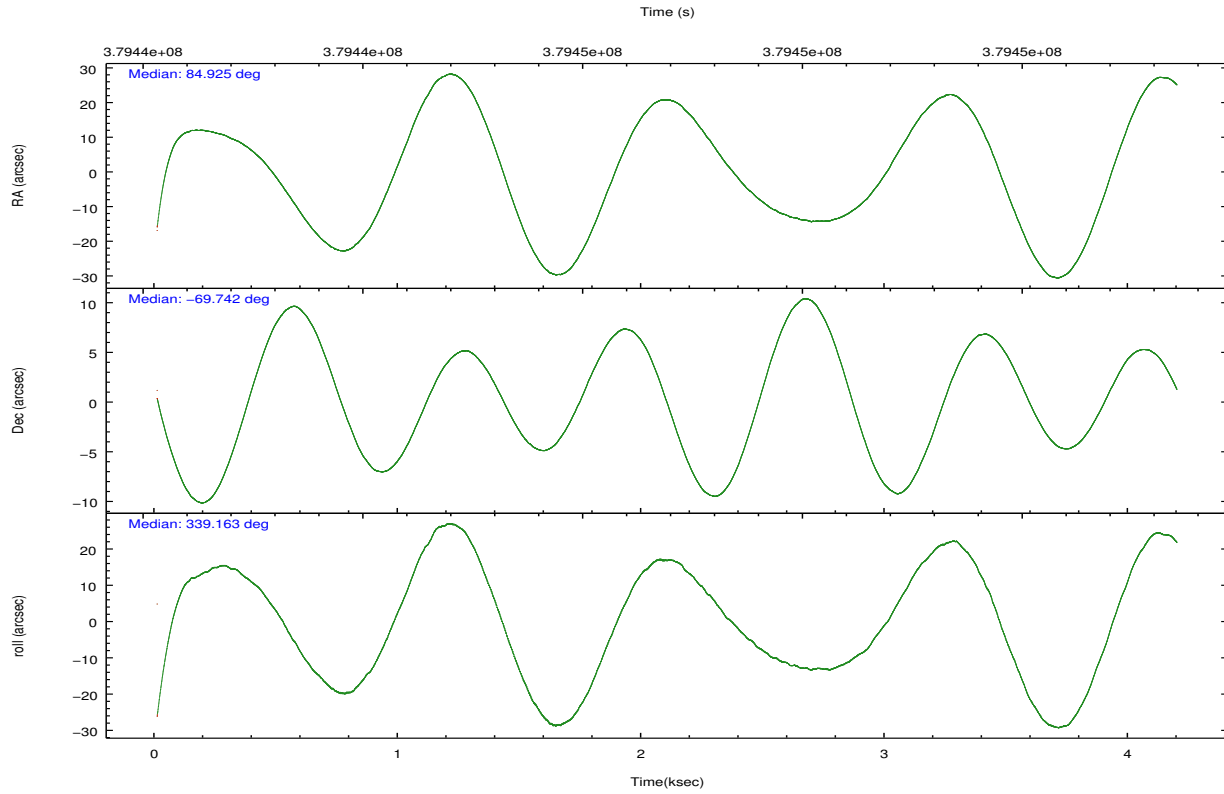
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	26018	37145	49886	53273	40247	23697	grade 0 events	3289	5067	22815	7548	12197	2783
rejected events	21157	15378	20355	14830	21476	19063		12%	13%	45%	14%	30%	11%
rejected %	81%	41%	40%	27%	53%	80%	grade 1 events	27	225	212	132	68	12
								0%	0%	0%	0%	0%	0%
							grade 2 events	748	6348	3728	9794	2766	791
								2%	17%	7%	18%	6%	3%
							grade 3 events	335	1449	1375	4392	1236	395
								1%	3%	2%	8%	3%	1%
							grade 4 events	291	1570	1268	4418	1162	346
								1%	4%	2%	8%	2%	1%
							grade 5 events	774	2495	924	2911	1165	894
								2%	6%	1%	5%	2%	3%
							grade 6 events	445	8378	1277	13650	2116	495
								1%	22%	2%	25%	5%	2%
							grade 7 events	20109	11613	18287	10428	19537	17981
								77%	31%	36%	19%	48%	75%

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	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	84.847622	84.92557924798632	CCD I2 on	N	N
[deg] Pointing Dec	-69.747052	-69.74236374308906	CCD I3 on	N	N
[deg] Pointing Roll	338.939907	339.1696575309942	CCD S0 on	O1	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-183.992523	-183.9875365069546	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-6.14	-6.144986076053243	CCD S4 on	Y	Y
[s] Observation start time (MET)	379444492.184000	379443467.23724	CCD S5 on	Y	Y
Observation start date	2010-01-09T17:13:46	2010-01-09T16:57:47	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	379448492.184000	379449267.71253	On-chip summing requested	N	N
Observation end date	2010-01-09T18:20:26	2010-01-09T18:34:27	Subarray requested	CUSTOM	1/2
Read mode	TIMED	TIMED	Subarray start row	1	1
			Subarray row count	512	512
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	1.7

2.3 Aspect



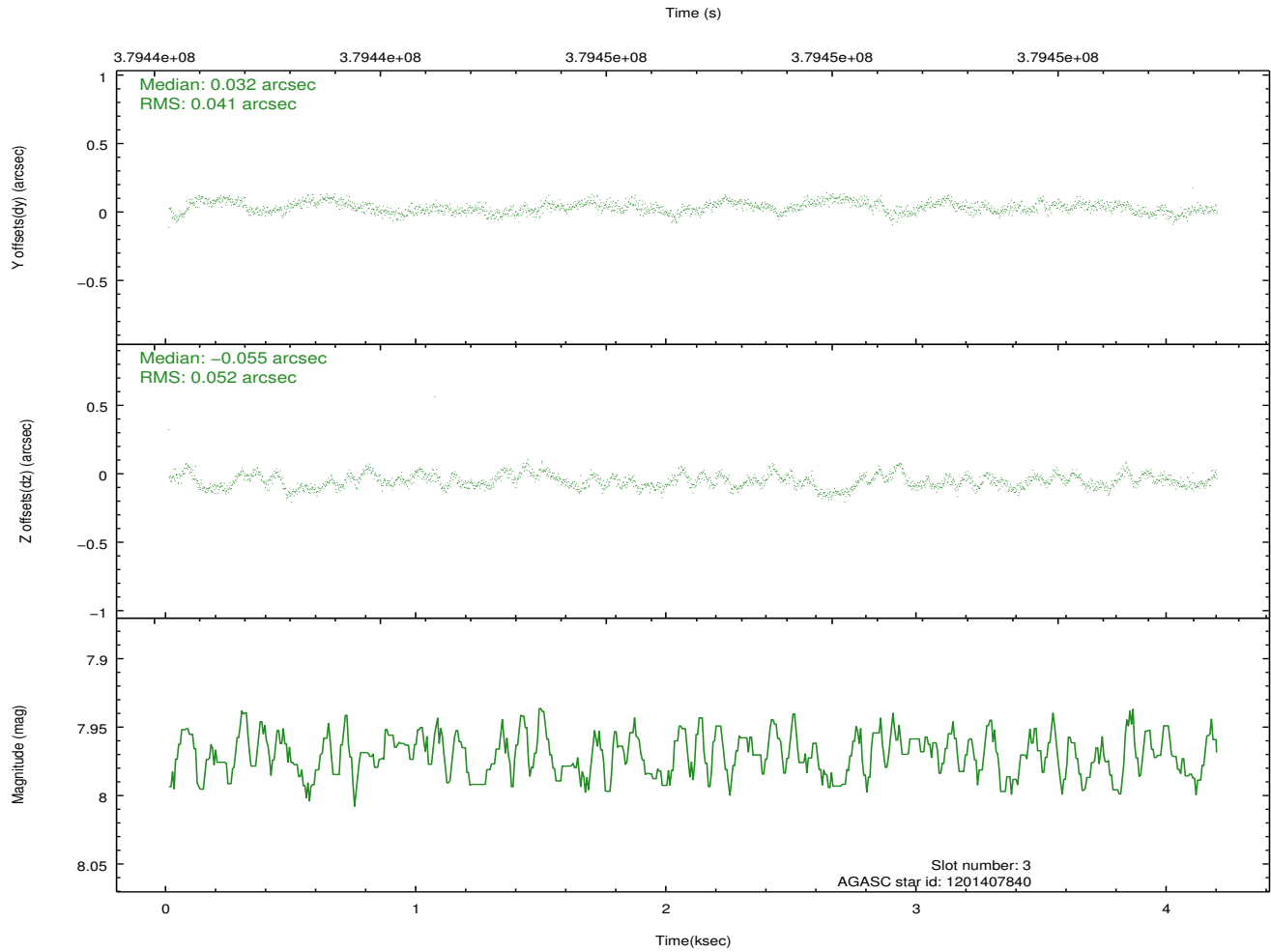
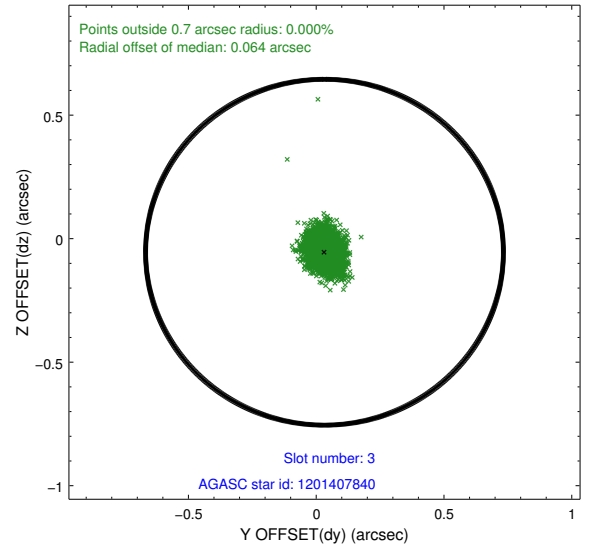
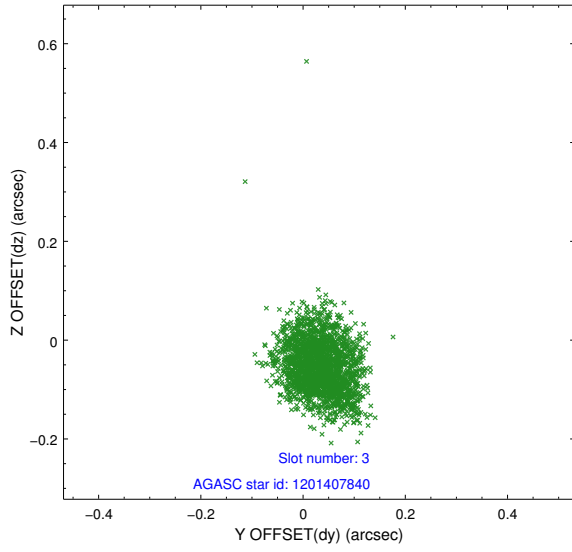


Slot Statistics

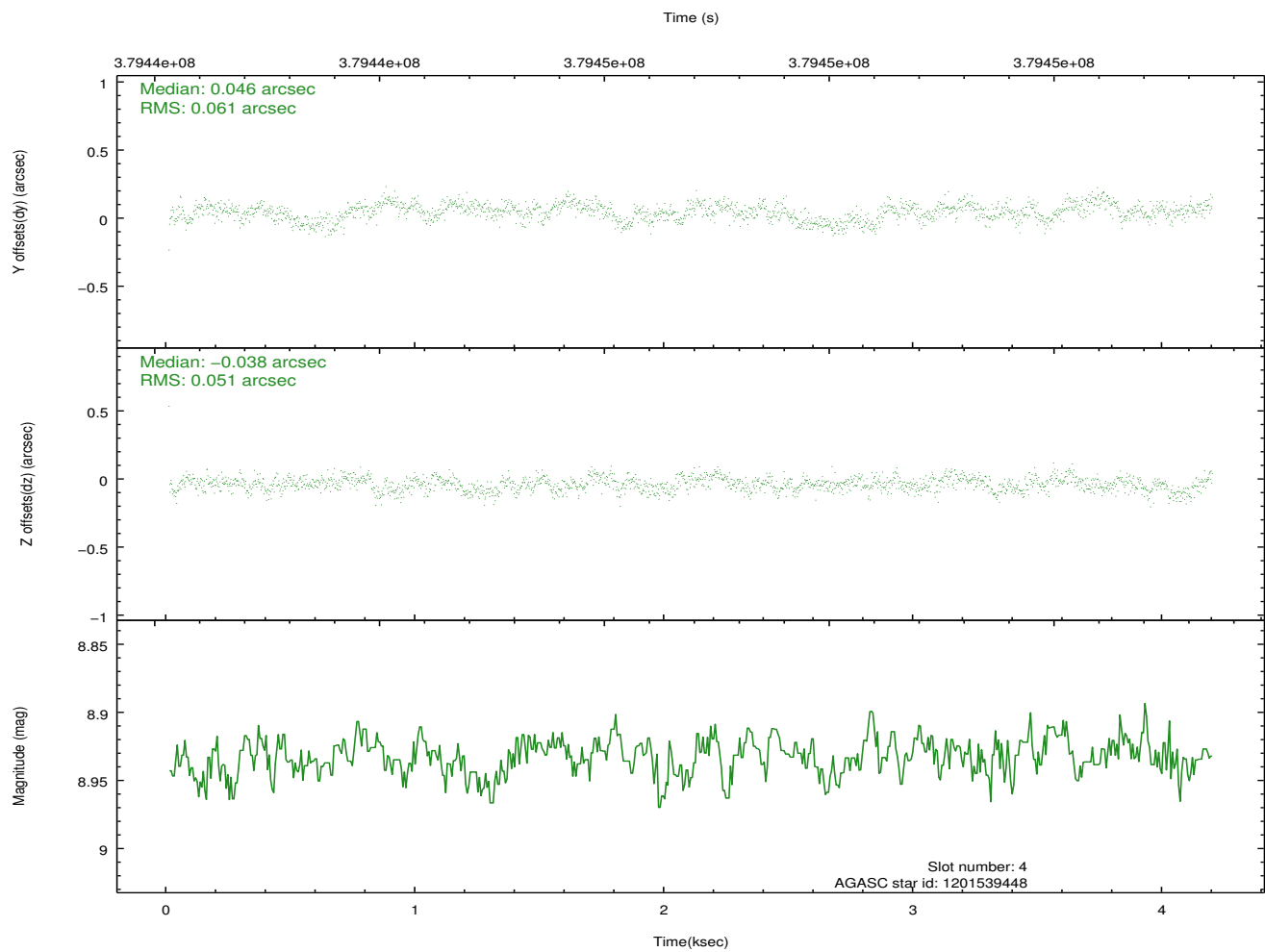
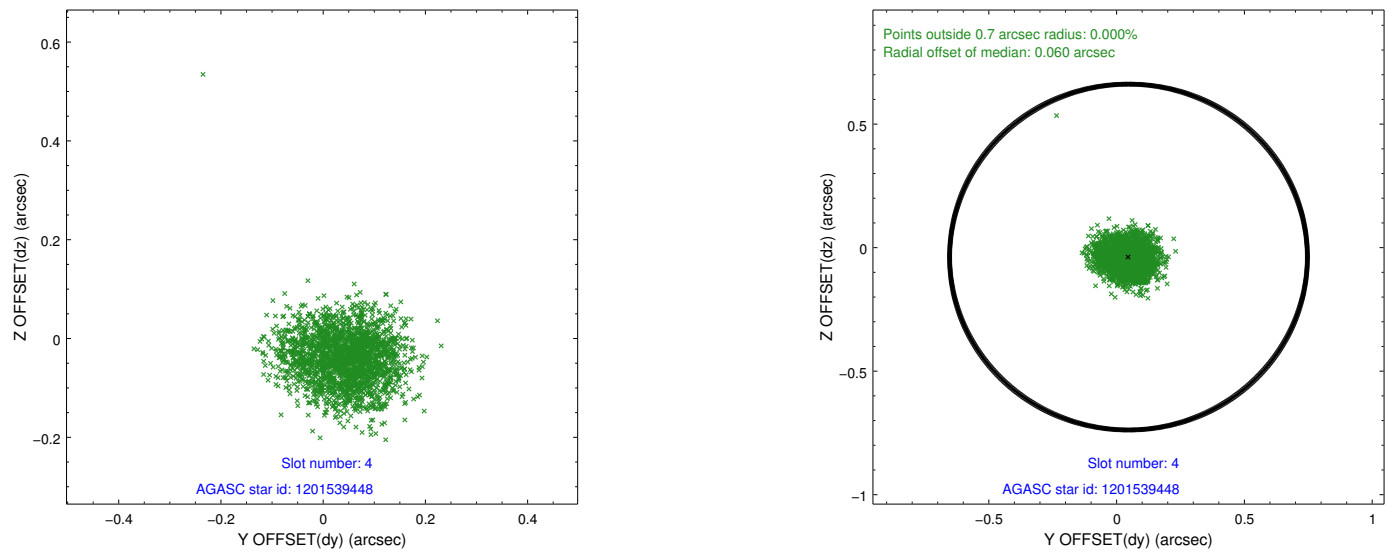
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.07	1021	0.051	0.116	0.007	0.013	0.000000	0.000000	926.95	-1859.14
1	FID	ACIS-S-4	7.06	1022	0.119	-0.100	0.007	0.010	0.000000	0.000000	2145.30	43.10
2	FID	ACIS-S-5	7.12	1023	-0.196	-0.003	0.007	0.012	0.000000	0.000000	-1820.22	38.57
3	GUIDE	1201407840	7.97	2044	0.032	-0.055	0.069	0.107	83.696303	-70.172201	-756.65	-1945.97
4	GUIDE	1201539448	8.93	2042	0.046	-0.038	0.086	0.133	85.635707	-70.382152	1712.93	-1797.48
5	GUIDE	1201541752	7.37	2044	-0.120	-0.004	0.061	0.096	85.373891	-70.033762	976.68	-733.88
6	GUIDE	1201542672	8.20	2045	0.115	-0.025	0.076	0.118	84.492488	-69.957531	-135.31	-864.13
7	GUIDE	1201540760	8.55	2044	-0.071	0.127	0.072	0.122	84.403691	-70.419249	370.95	-2452.42

2.4 Star Slots

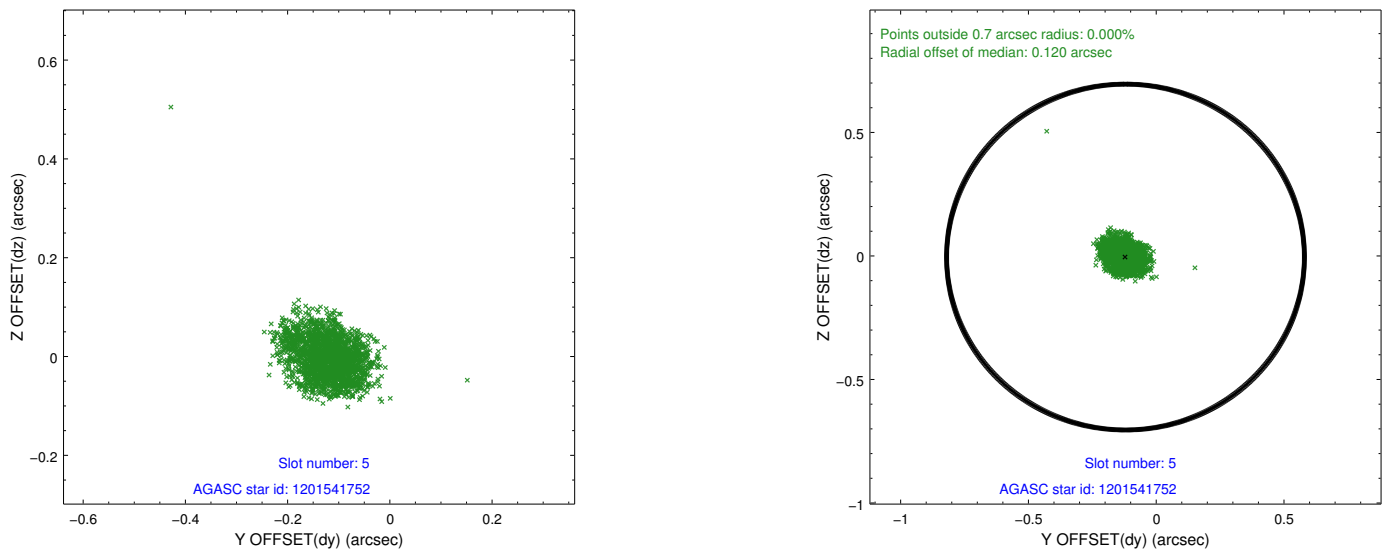
2.4.1 Slot 3



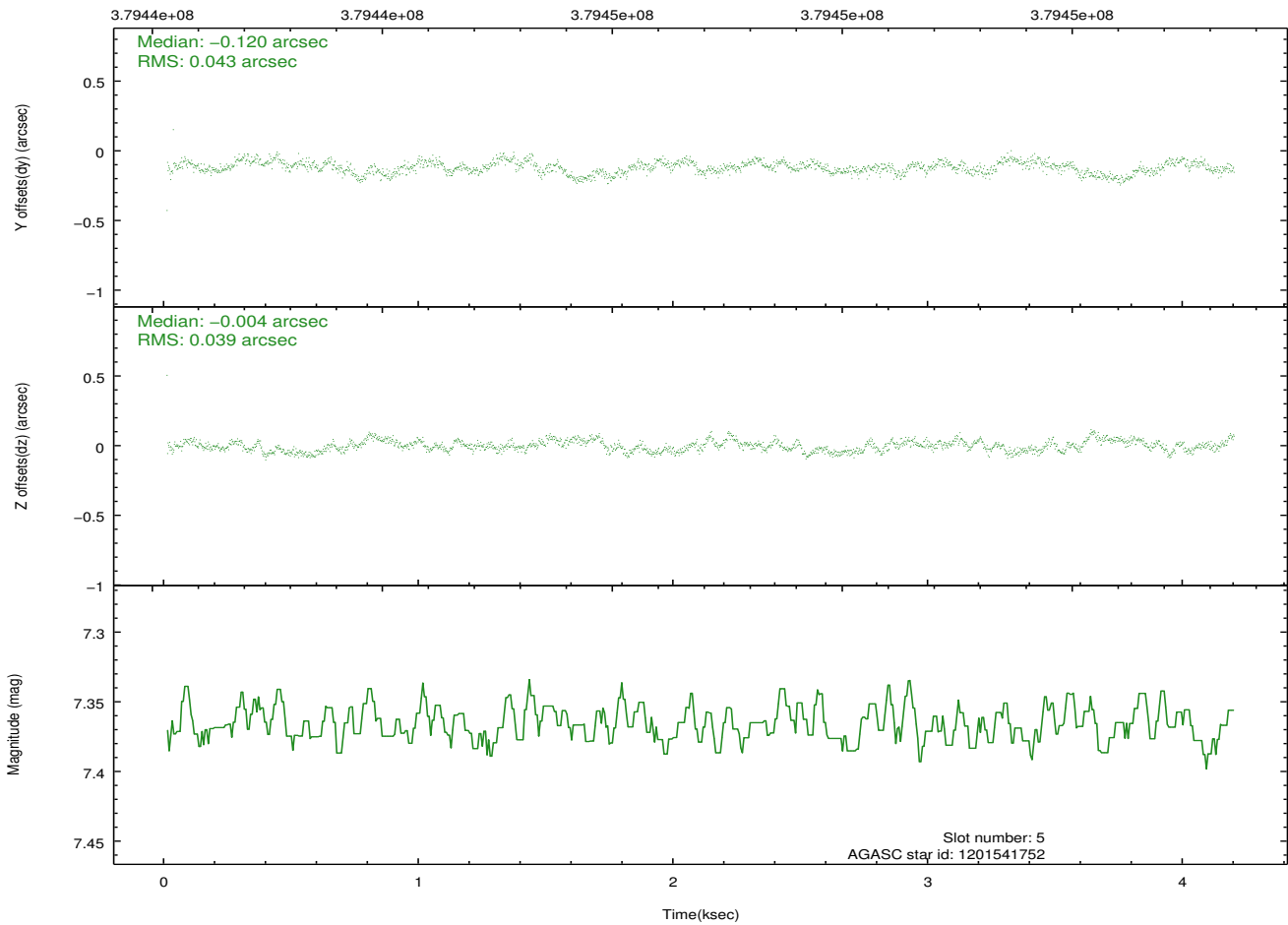
2.4.2 Slot 4



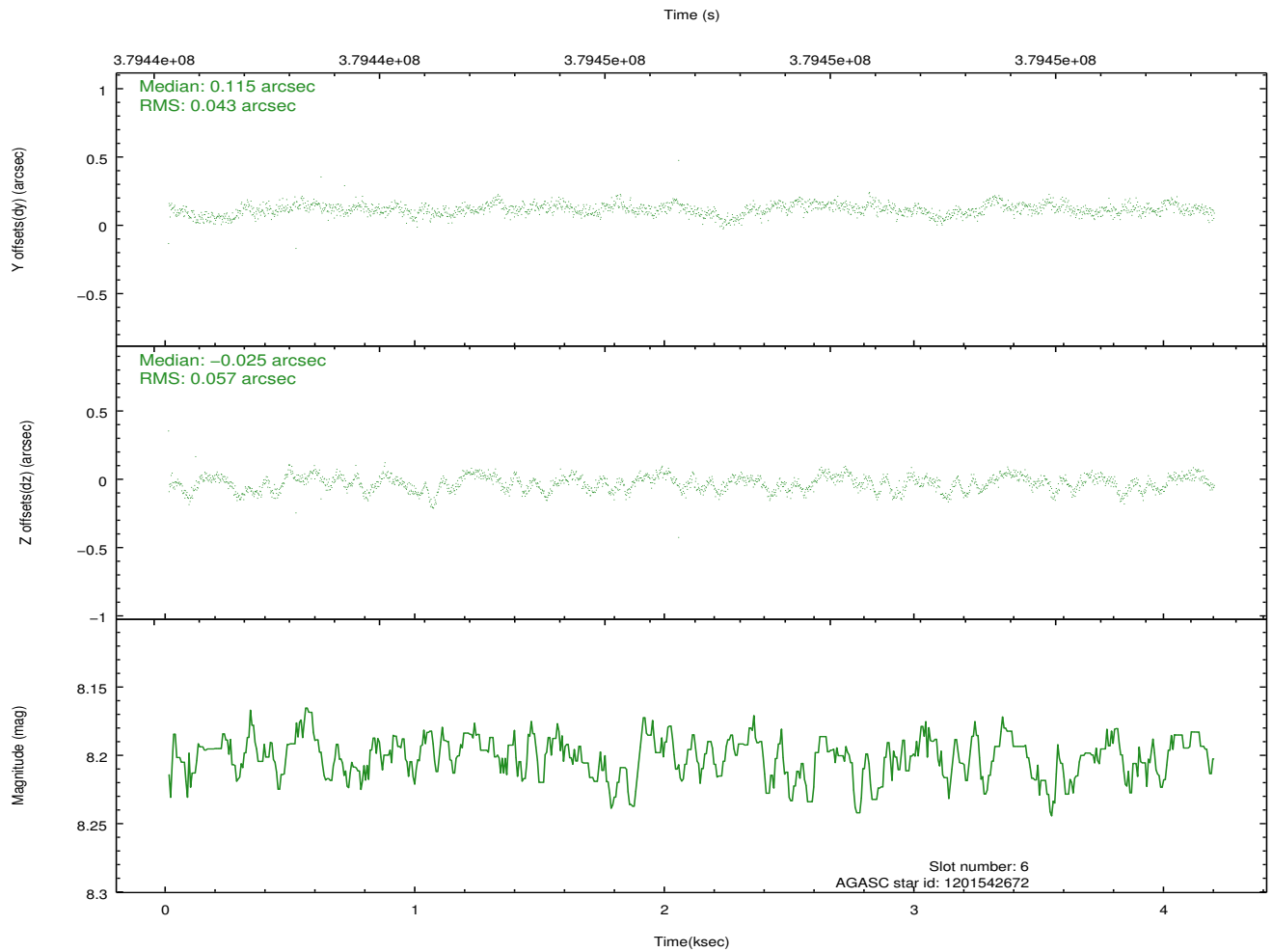
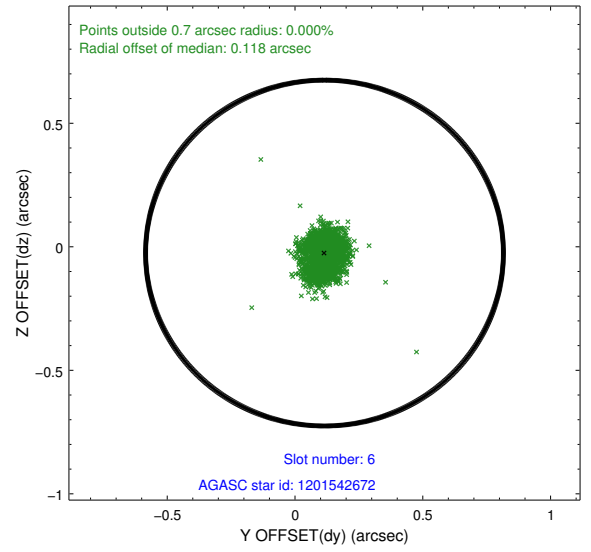
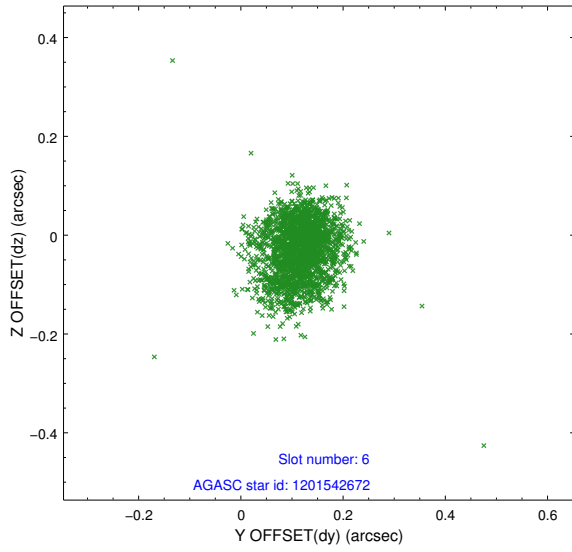
2.4.3 Slot 5



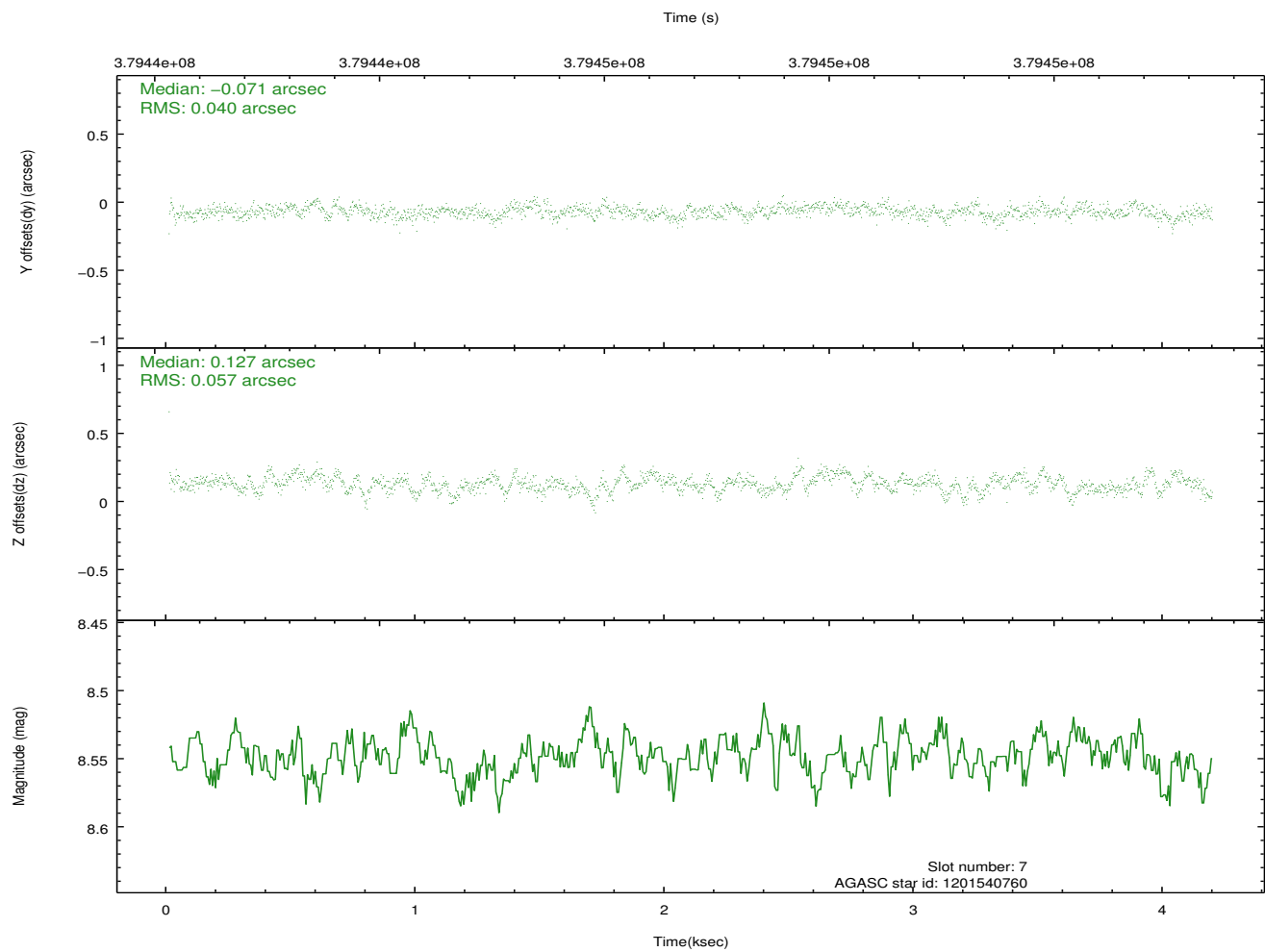
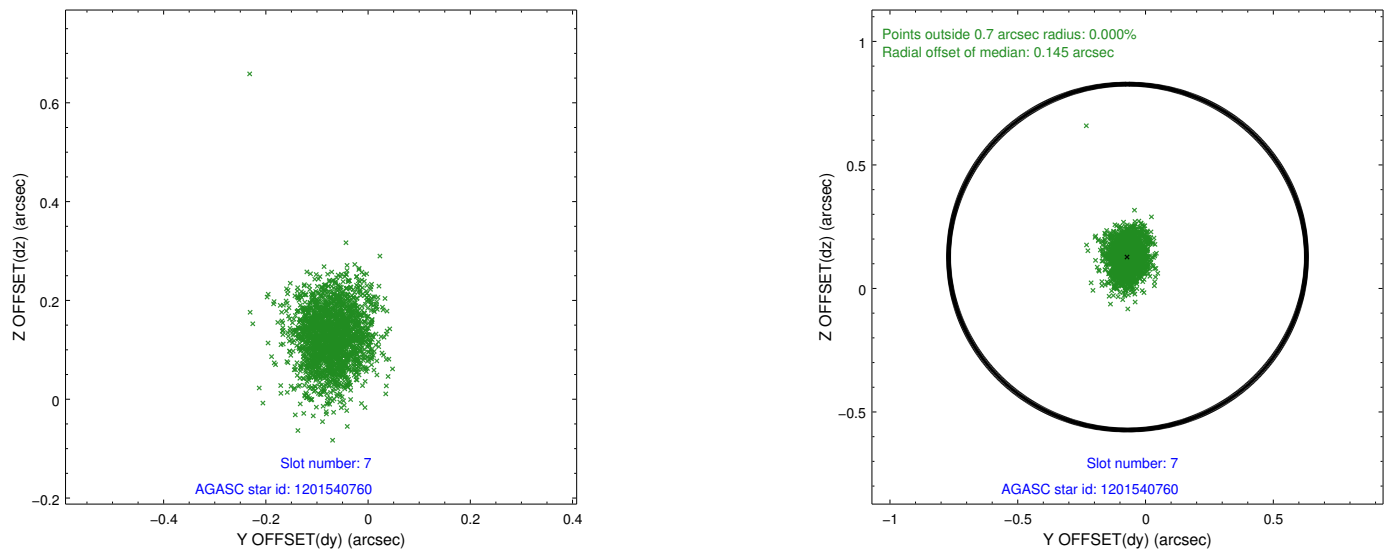
Time (s)



2.4.4 Slot 6

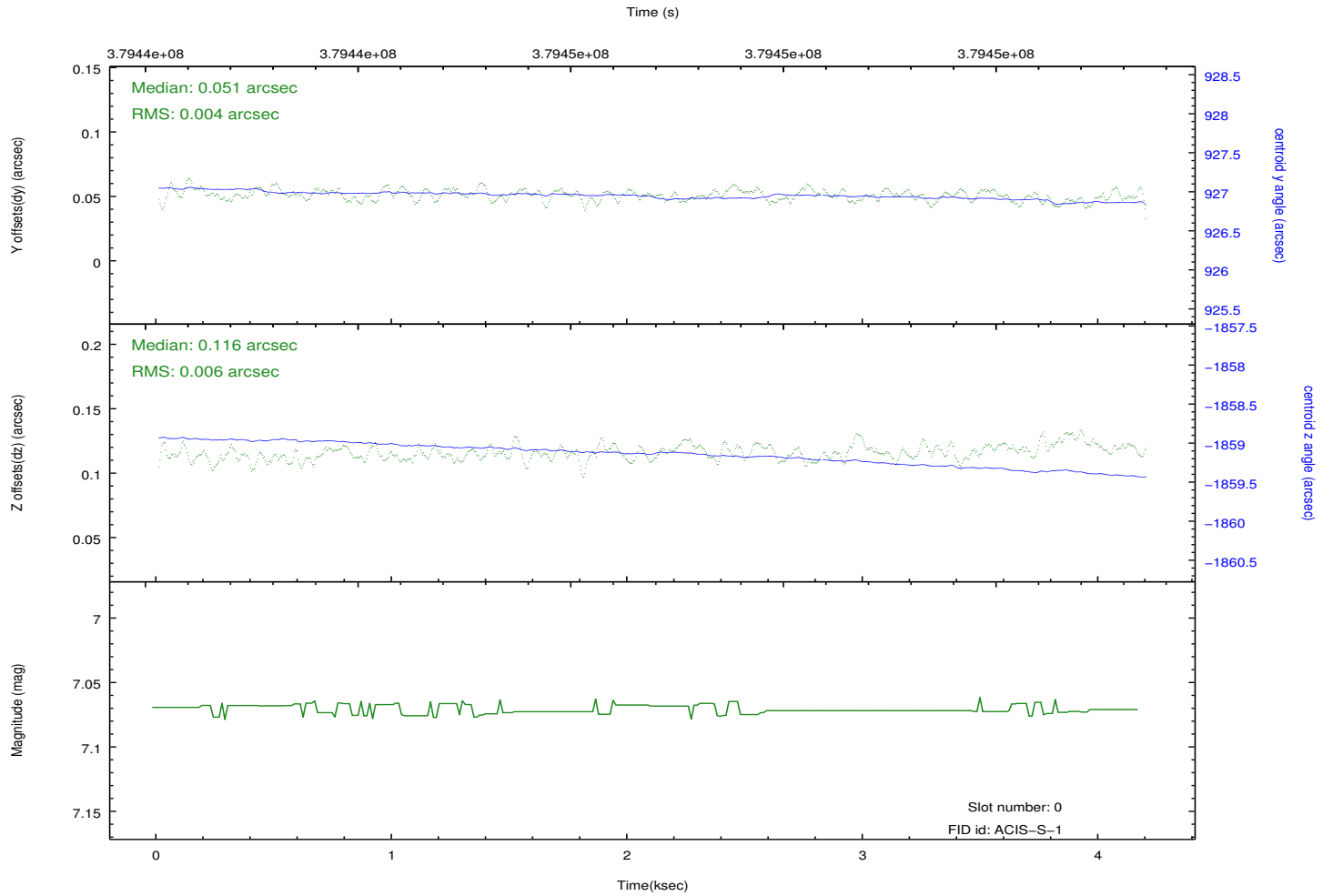
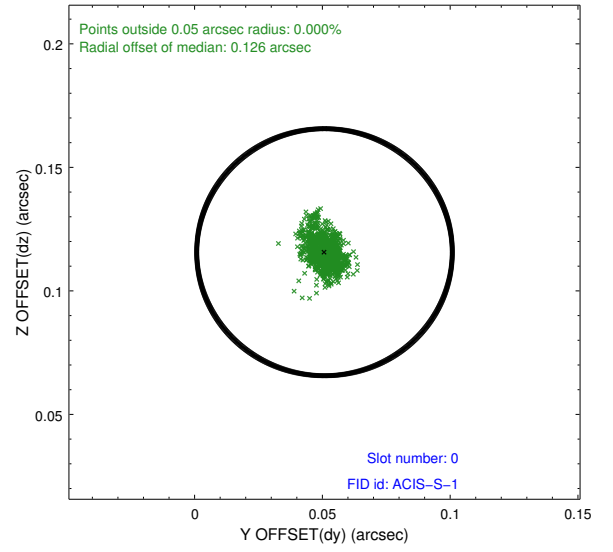
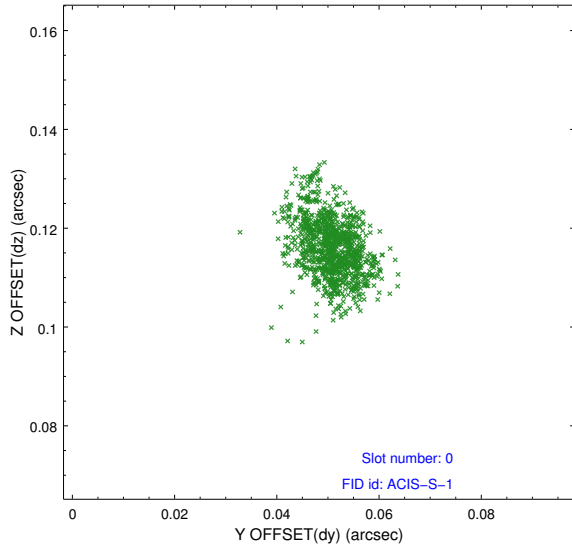


2.4.5 Slot 7

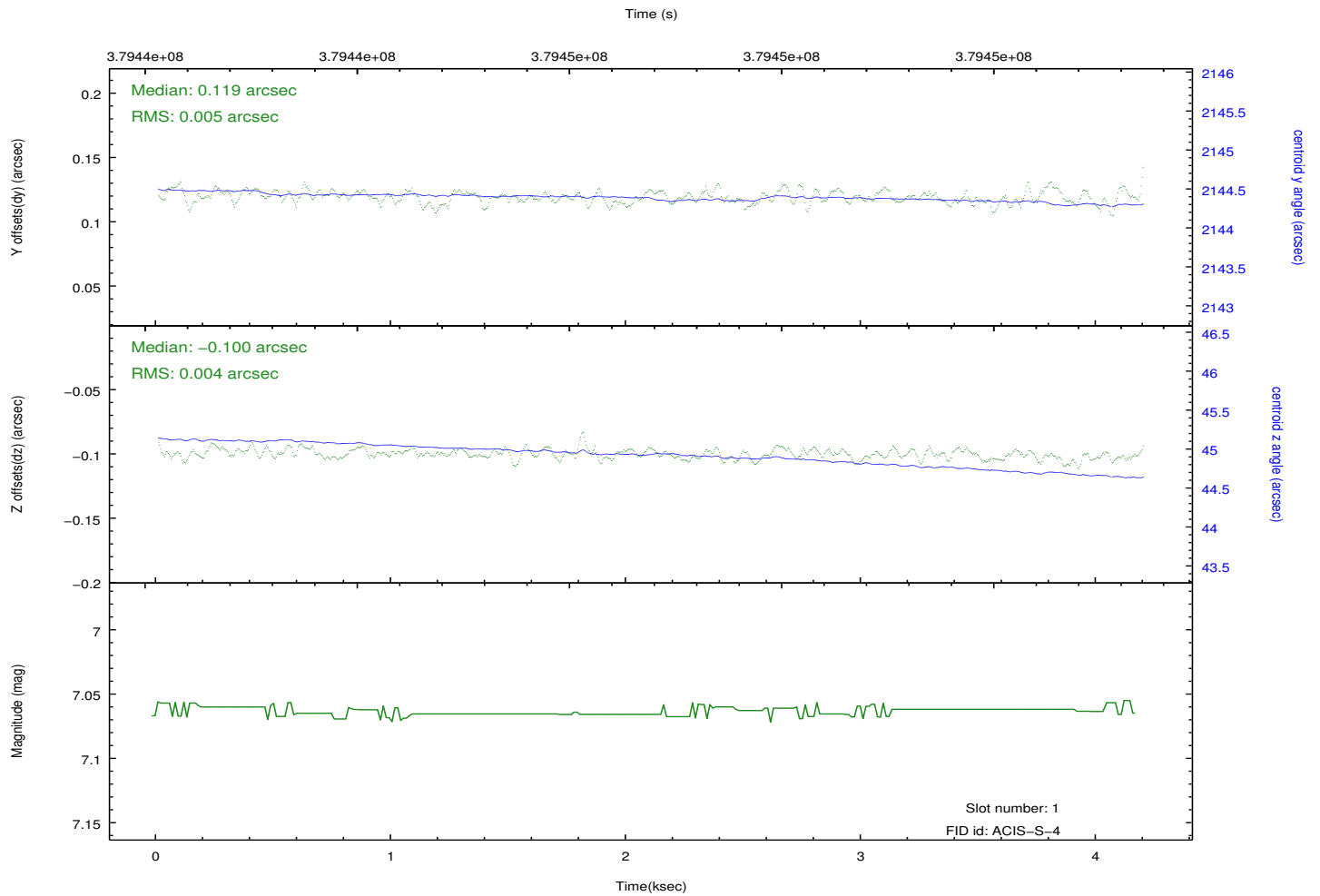
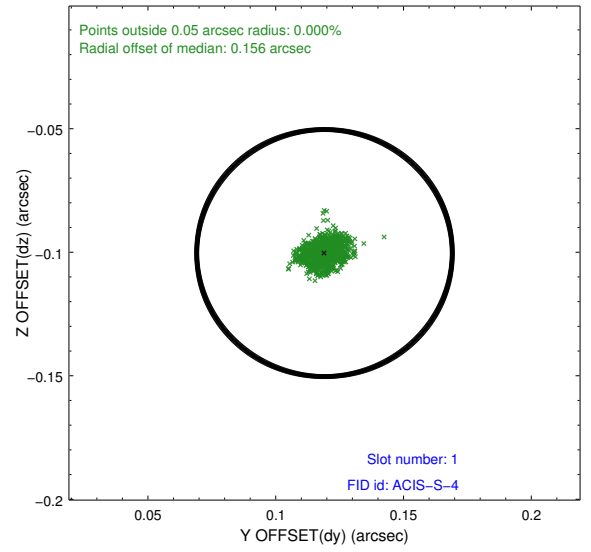
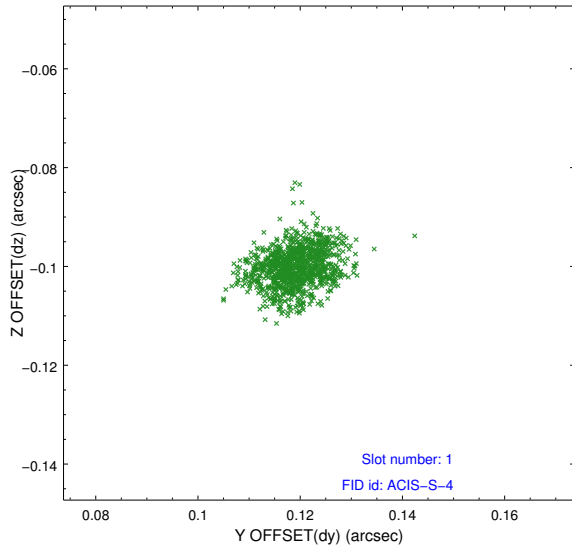


2.5 FID Slots

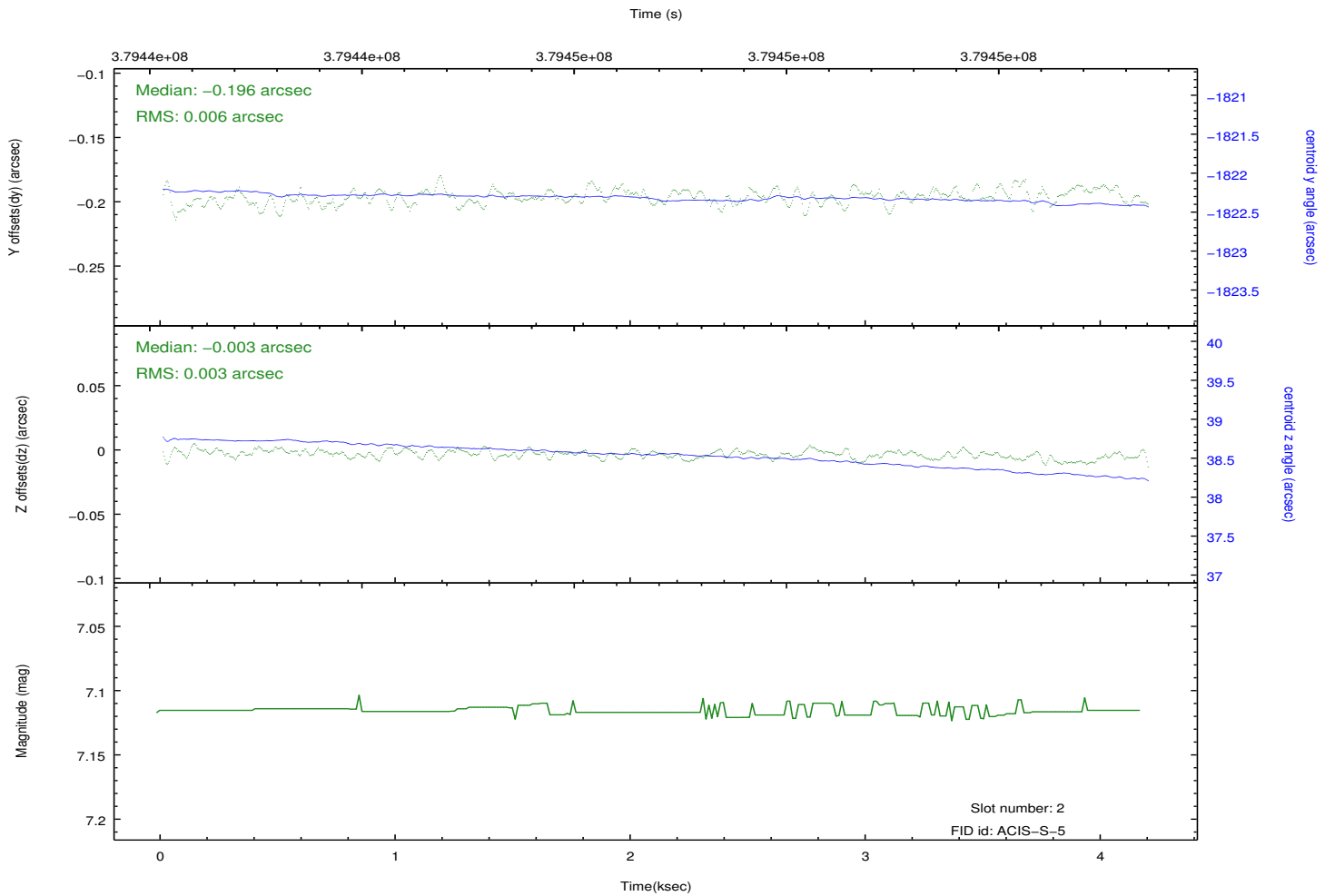
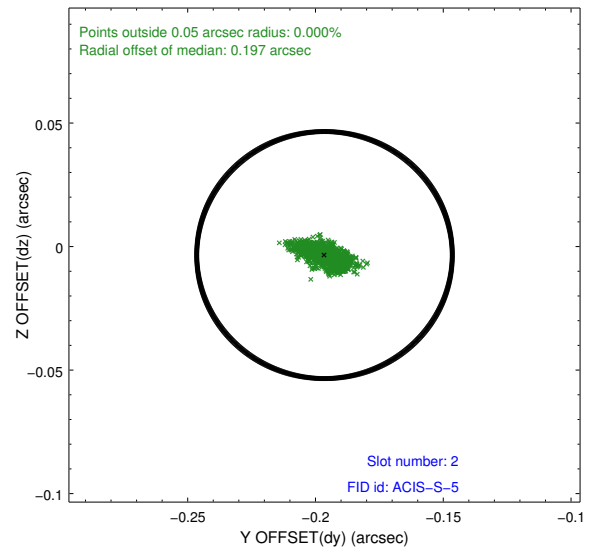
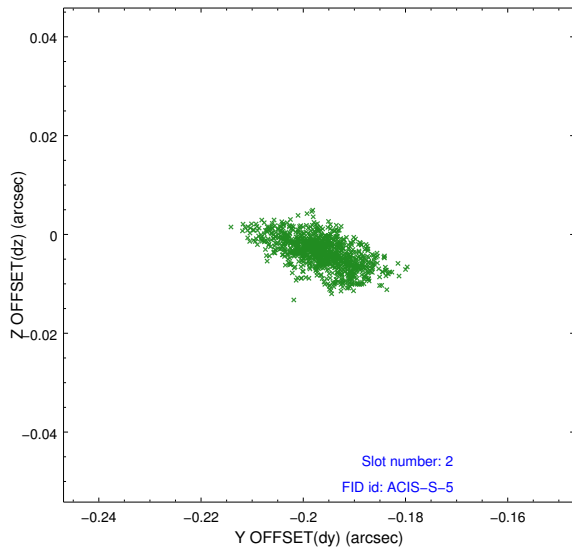
2.5.1 Slot 0



2.5.2 Slot 1

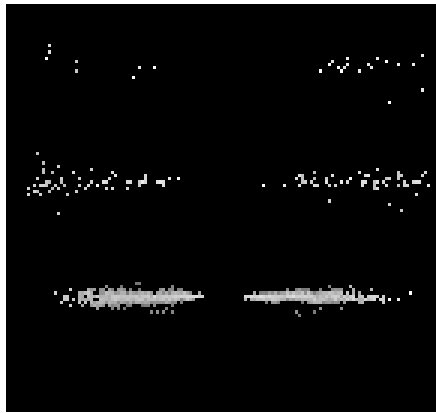


2.5.3 Slot 2

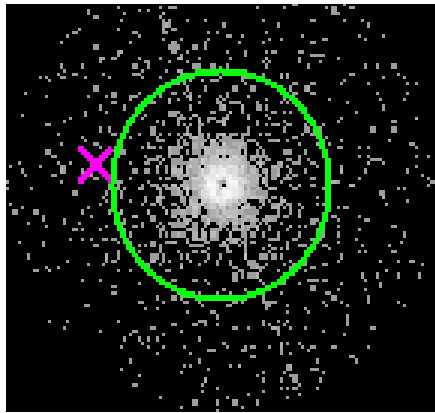


3 Gratings

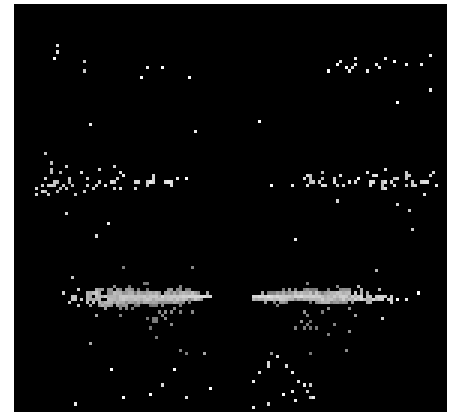
3.1 HEG Arm



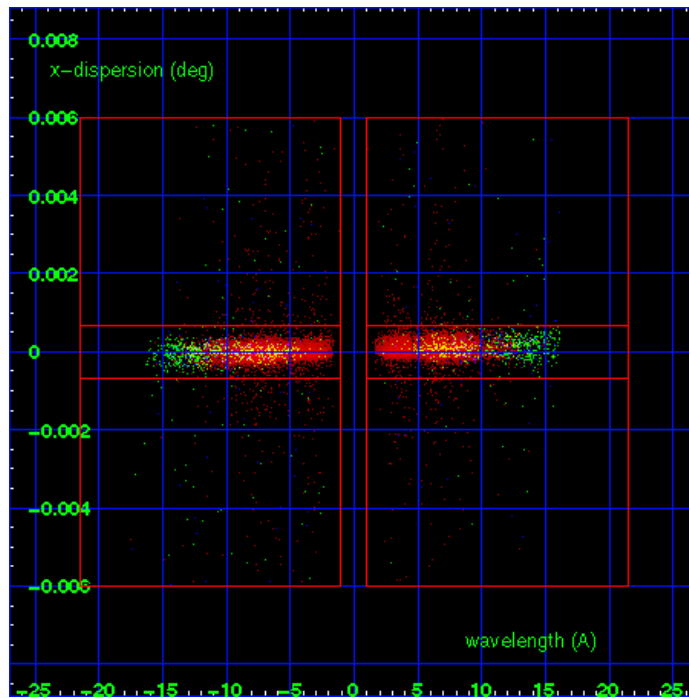
HEG Order Sort 123



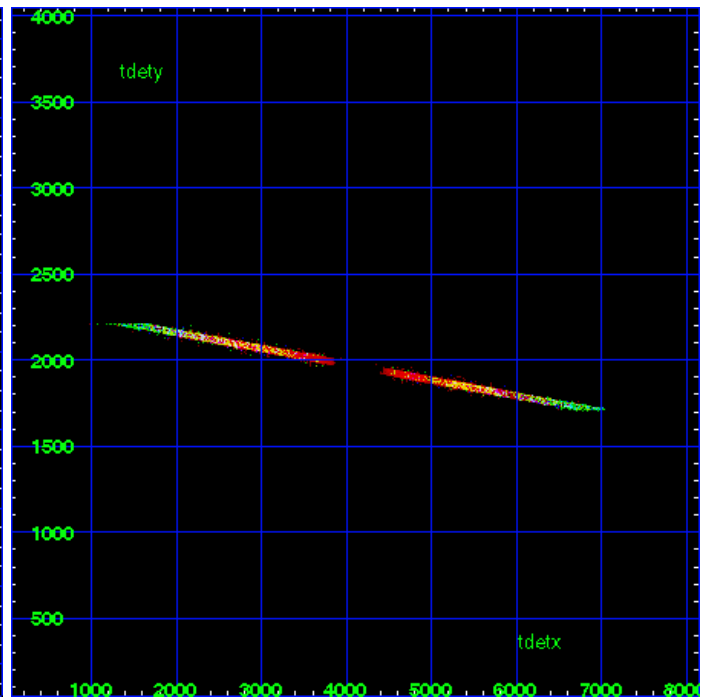
HEG Zero Order



HEG Order Sort ALL

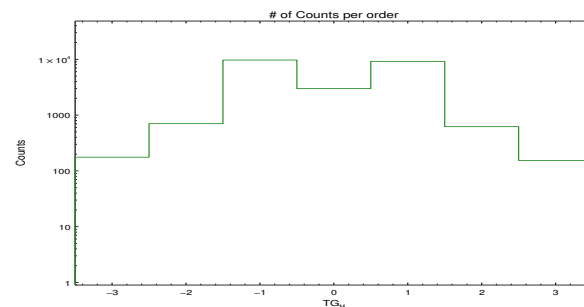


Spot Image HEG

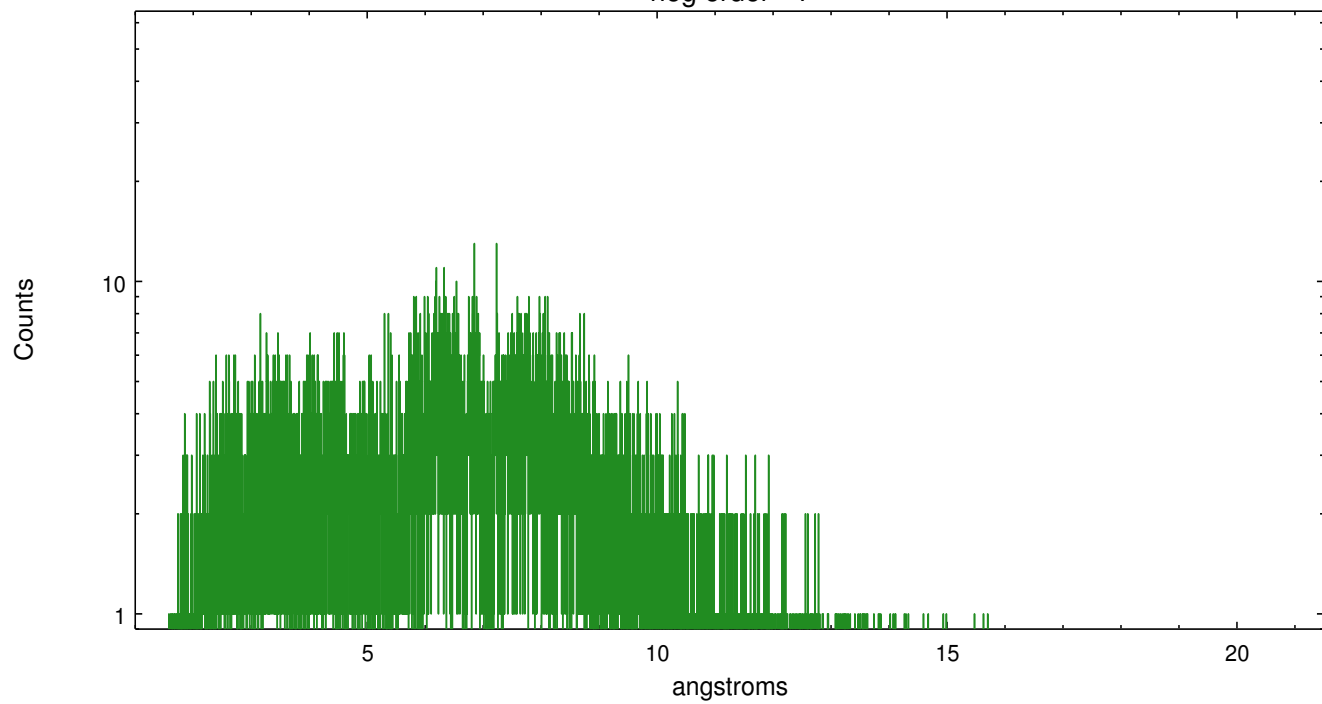


Full Detector HEG

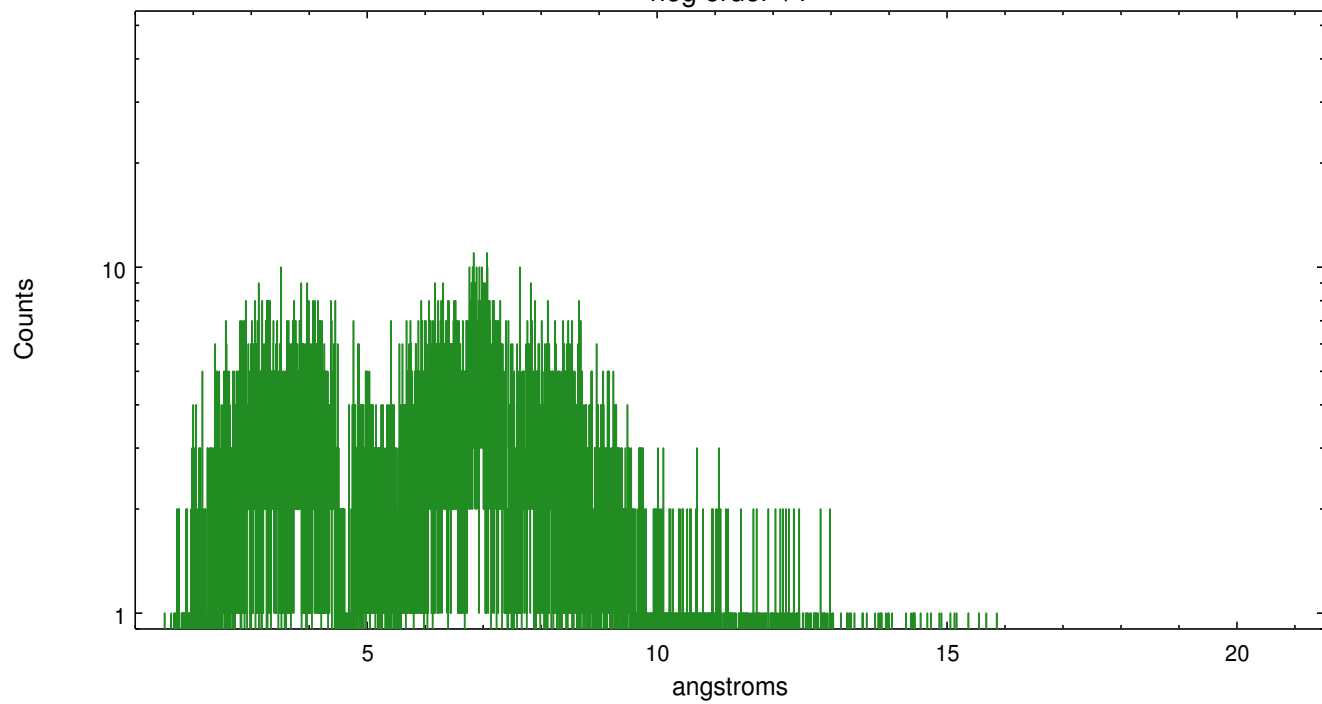
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	176	703	9702	2995	9186	621	154



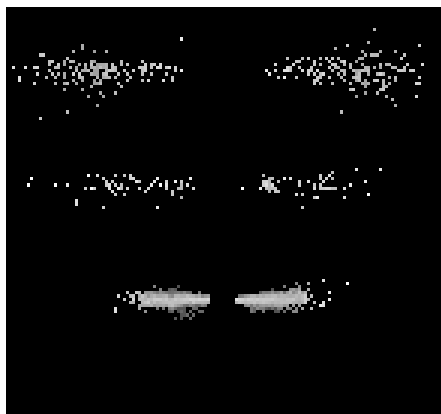
heg order -1



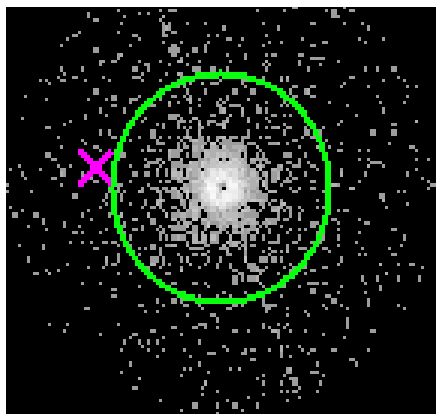
heg order +1



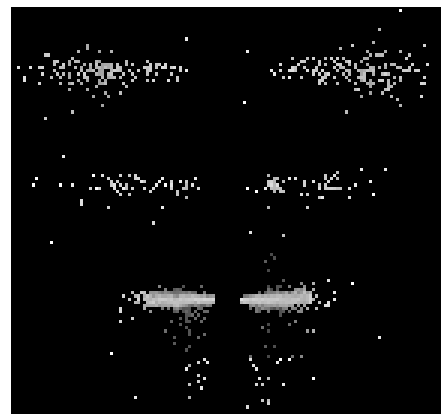
3.2 MEG Arm



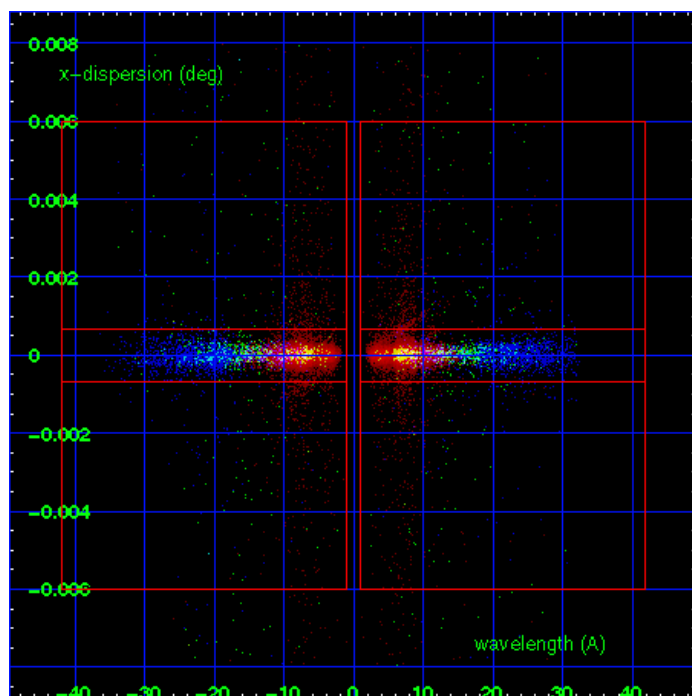
MEG Order Sort 123



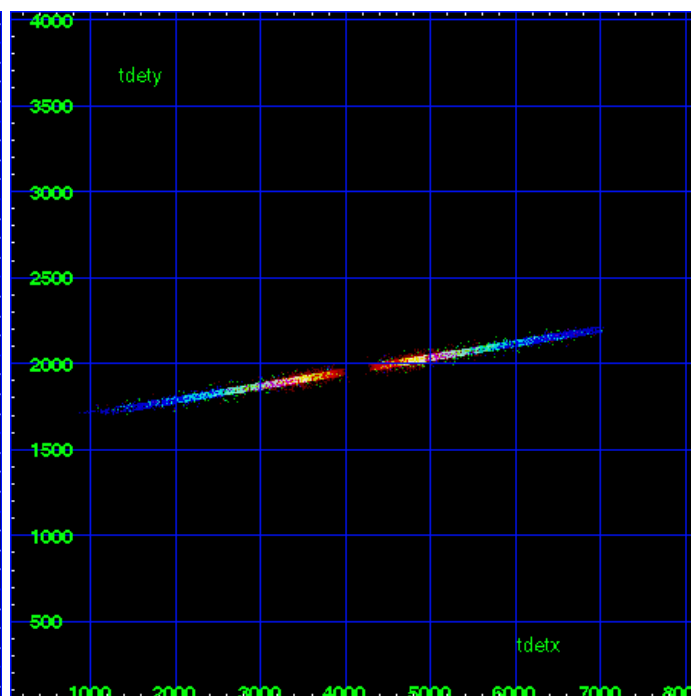
MEG Zero Order



MEG Order Sort ALL

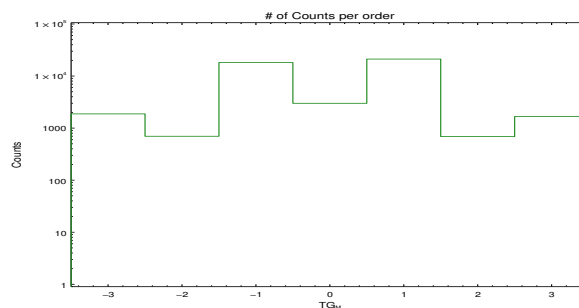


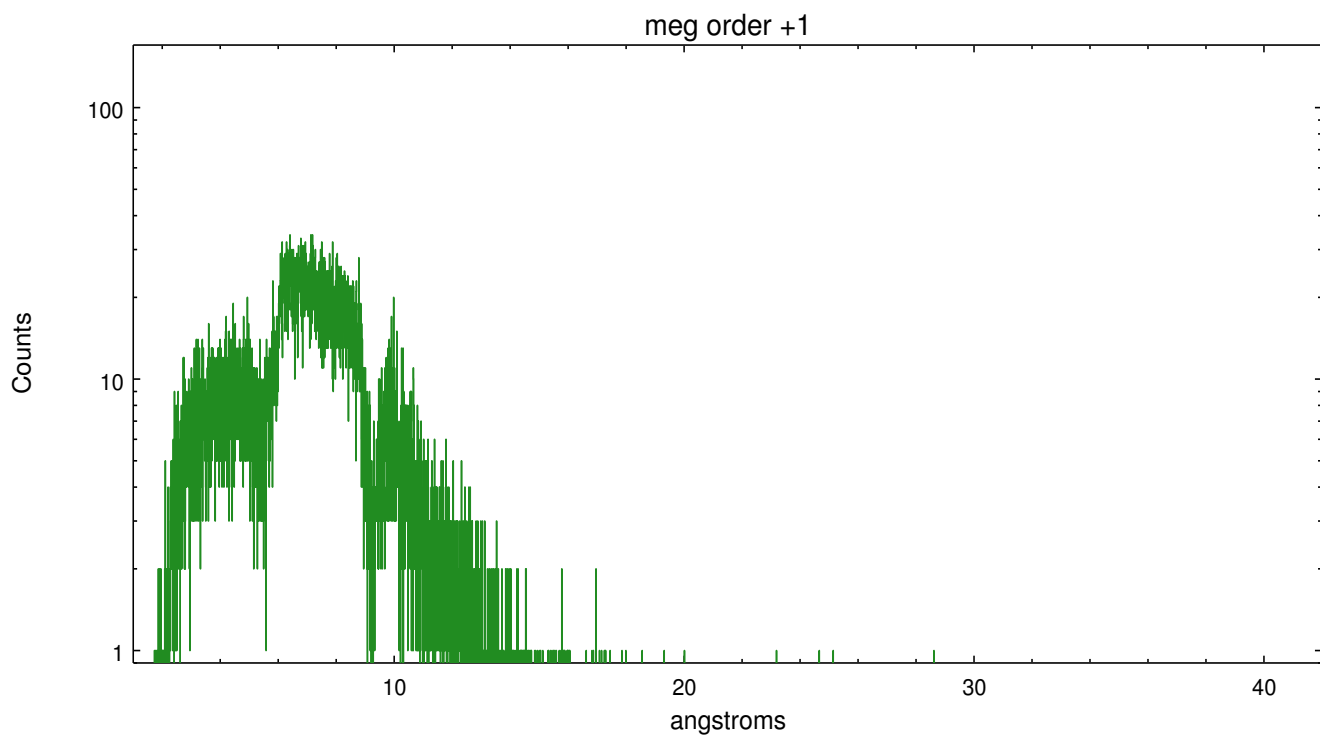
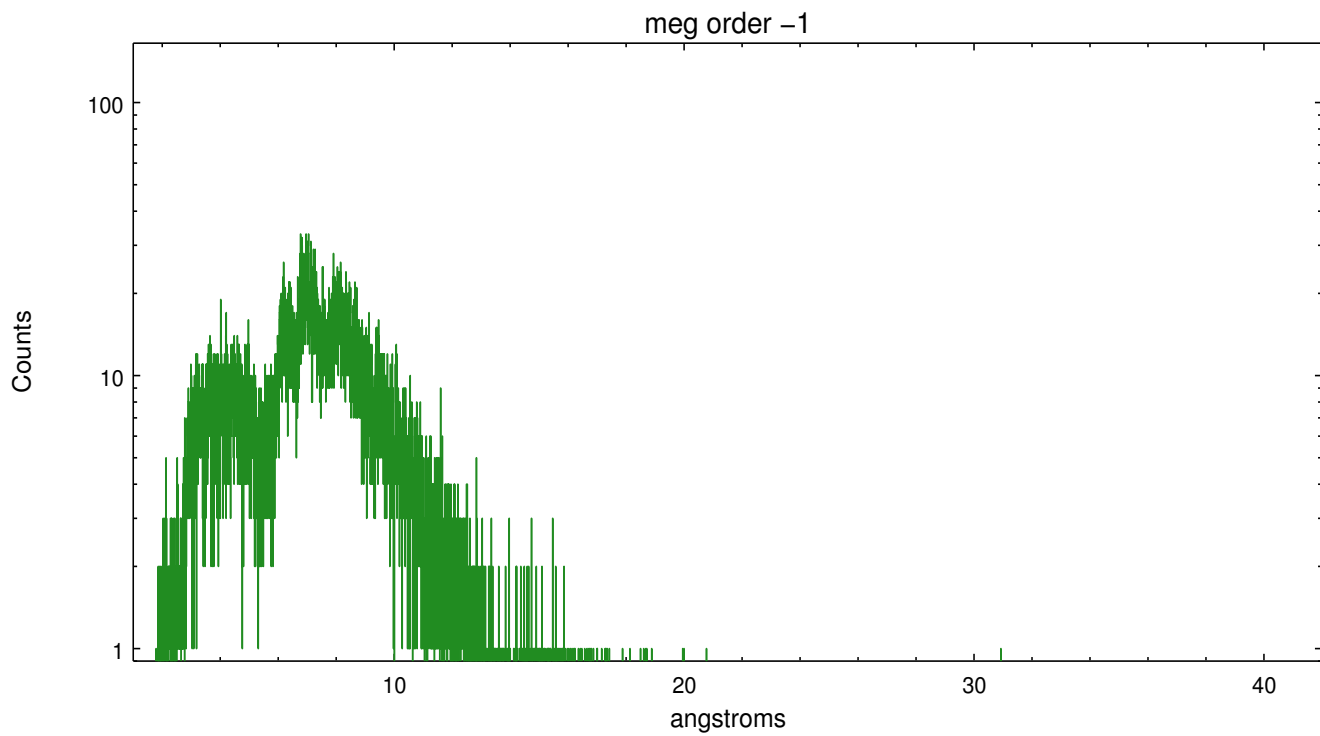
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1876	697	18143	2995	21182	688	1669





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.06.21
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	4.1870999706984

A.2 Comments

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=4131.55, y=4090.48) 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.