

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 12072 - L2 Version 3
Chandra X-Ray Center

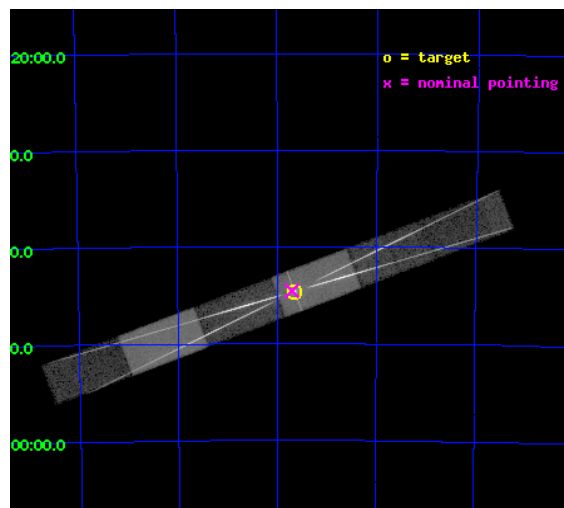
L2 Processing Date : Jun 19 2012

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1 Front

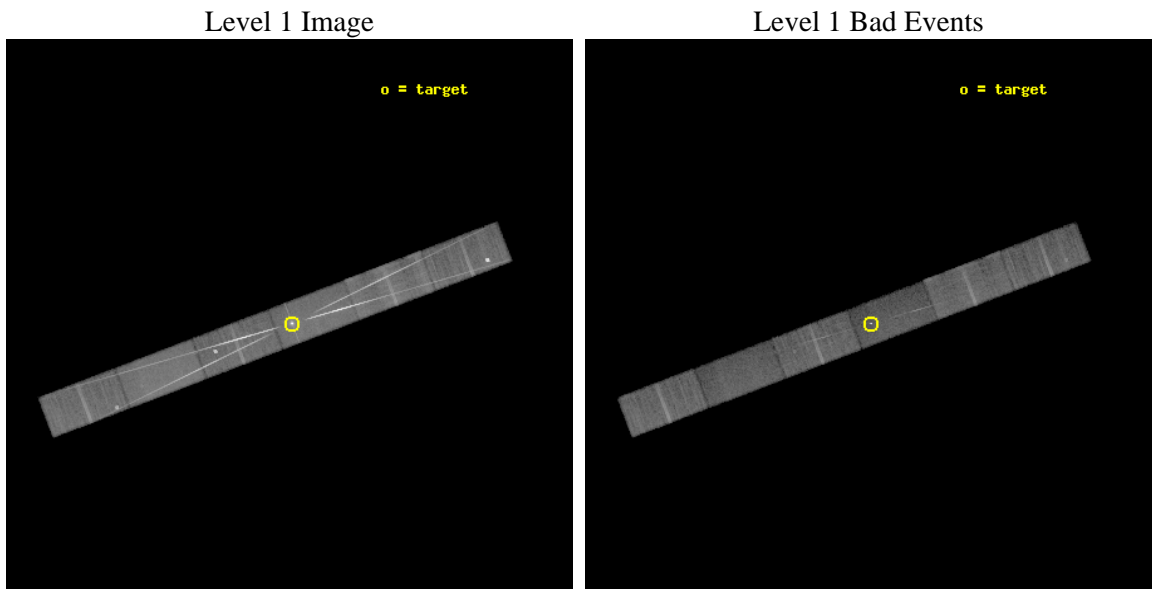
seq_num	401109	Sequence number
obs_id	12072	Observation id
title	Deep Chandra Observations of the Black Hole LMC X-1	Proposal title
observer	Dr. Michael Nowak	Principal investigator
object	LMC X-1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	84.911667	Observer's specified target RA [deg]
dec_targ	-69.74325	Observer's specified target Dec [deg]
ra_nom	84.925453064042	Nominal RA [deg]
dec_nom	-69.742356620462	Nominal Dec [deg]
roll_nom	339.1695497486	Nominal Roll [deg]
revision	3	Processing version of data
ontime	18569.099869847	Sum of GTIs [s]
livetime	18131.386860003	Livetime [s]
ontime4	18569.099869847	Sum of GTIs [s]
ontime5	18569.099869847	Sum of GTIs [s]
ontime6	18569.099869847	Sum of GTIs [s]
ontime7	18569.099869847	Sum of GTIs [s]
ontime8	18569.099869847	Sum of GTIs [s]
ontime9	18569.099869847	Sum of GTIs [s]
l2events	433335	Number of level 2 events



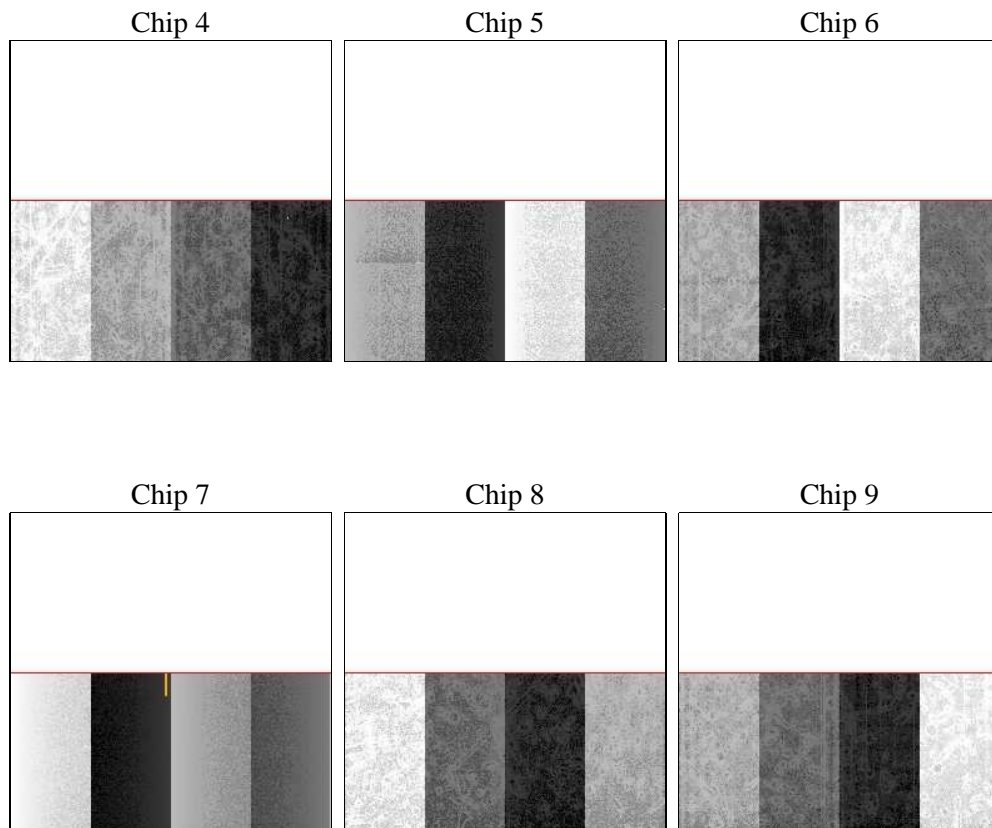
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	18500.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	18569.099869847	Sum of GTIs [s]
caldsver	4.4.10	 	ontime4	18569.099869847	Sum of GTIs [s]
date	2012-06-19T07:50:24	Date and time of file creation	ontime5	18569.099869847	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	18569.099869847	Sum of GTIs [s]
			ontime7	18569.099869847	Sum of GTIs [s]
			ontime8	18569.099869847	Sum of GTIs [s]
			ontime9	18569.099869847	Sum of GTIs [s]
			l1events	946601	Number of level 1 events

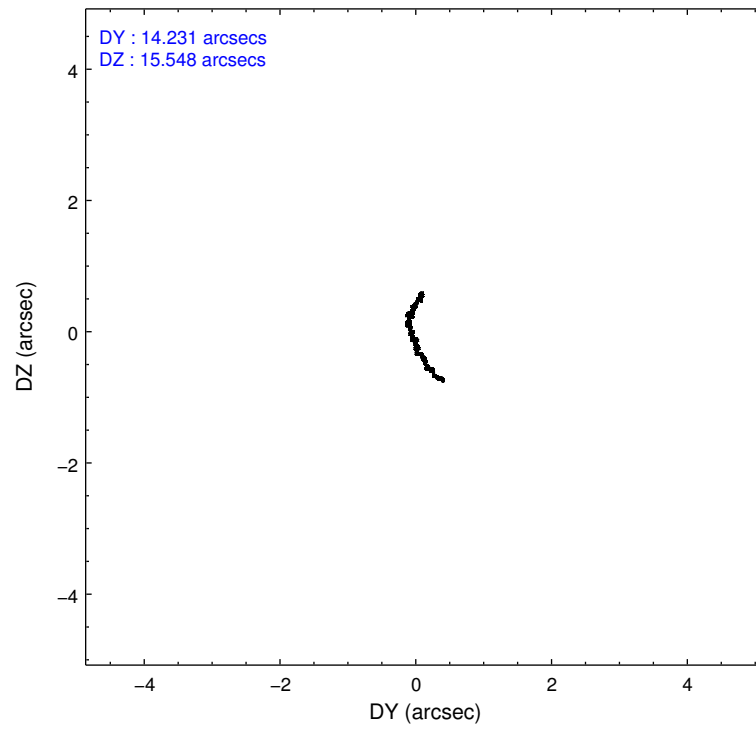
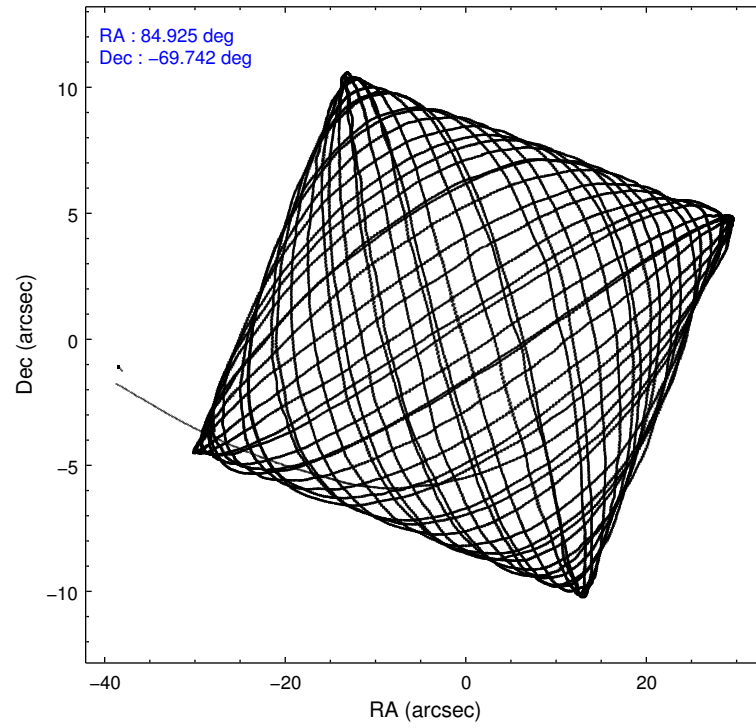
2.1.4 Events

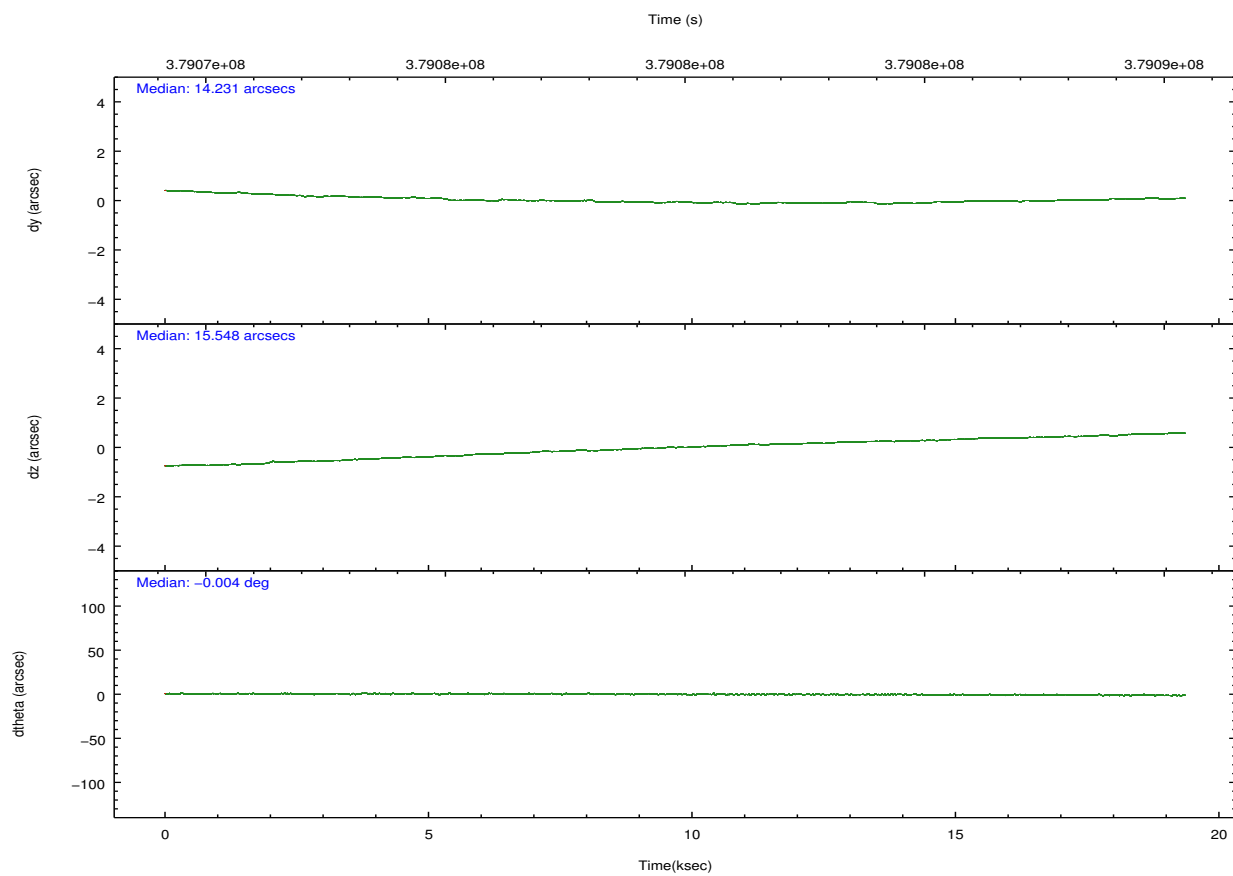
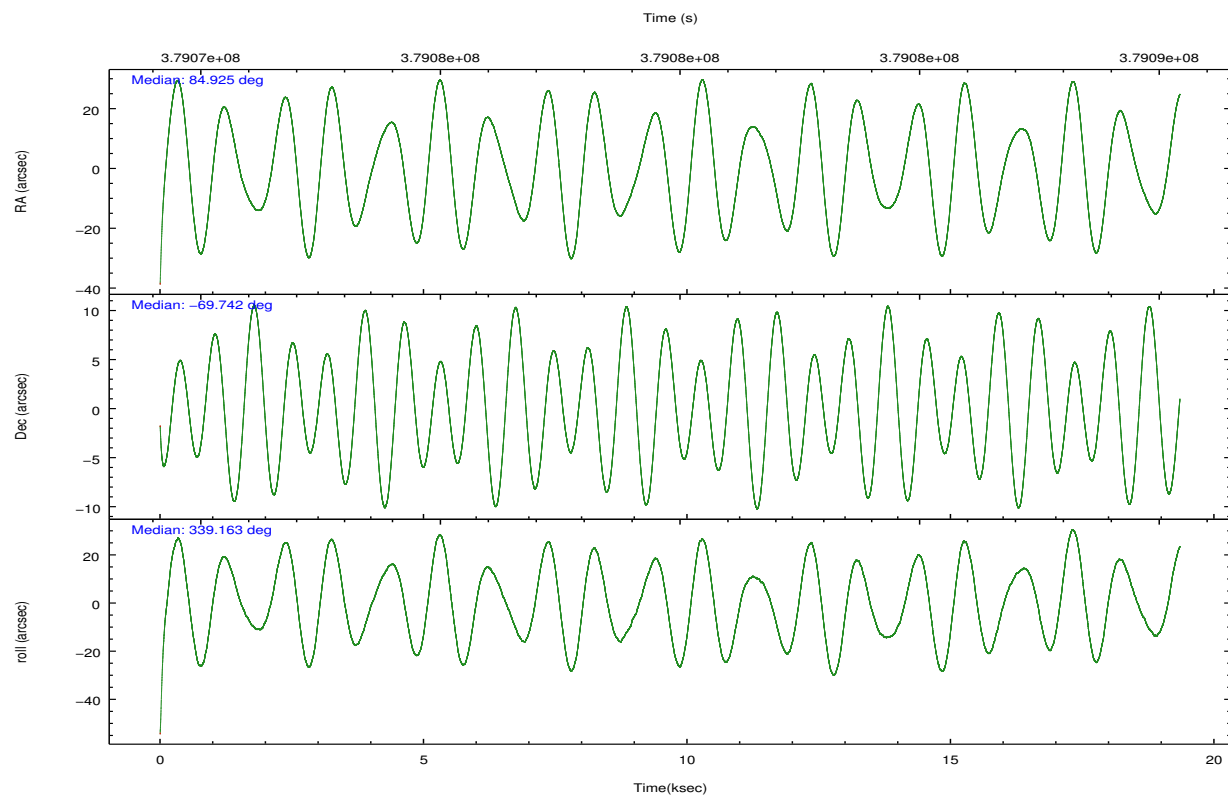
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	105450	145085	206811	210239	164995	114021	grade 0 events	10393	15329	97115	29349	49233	29660
rejected events	87559	58760	80164	54705	86705	75998		9%	10%	46%	13%	29%	26%
rejected %	83%	40%	38%	26%	52%	66%	grade 1 events	73	238	804	546	281	202
								0%	0%	0%	0%	0%	0%
							grade 2 events	2932	24969	14353	37625	11042	3066
								2%	17%	6%	17%	6%	2%
							grade 3 events	1355	6111	5201	17001	4780	1601
								1%	4%	2%	8%	2%	1%
							grade 4 events	1329	6065	5225	17088	4490	1544
								1%	4%	2%	8%	2%	1%
							grade 5 events	3225	10392	3870	11748	5055	3642
								3%	7%	1%	5%	3%	3%
							grade 6 events	1883	33867	4774	54492	8752	2158
								1%	23%	2%	25%	5%	1%
							grade 7 events	84260	48114	75469	42390	81362	72148
								79%	33%	36%	20%	49%	63%

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	84.9254530640421	CCD I2 on	N	N
[deg] Pointing Dec	-69.747052	-69.74235662046159	CCD I3 on	N	N
[deg] Pointing Roll	338.939907	339.1695497485971	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	-183.985022191653	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-6.14	-6.147500391354811	CCD S4 on	Y	Y
[s] Observation start time (MET)	379070967.184000	379069202.30581	CCD S5 on	Y	Y
Observation start date	2010-01-05T09:28:21	2010-01-05T09:00:02	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	379089467.184000	379090244.01938	On-chip summing requested	N	N
Observation end date	2010-01-05T14:36:41	2010-01-05T14:50:44	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



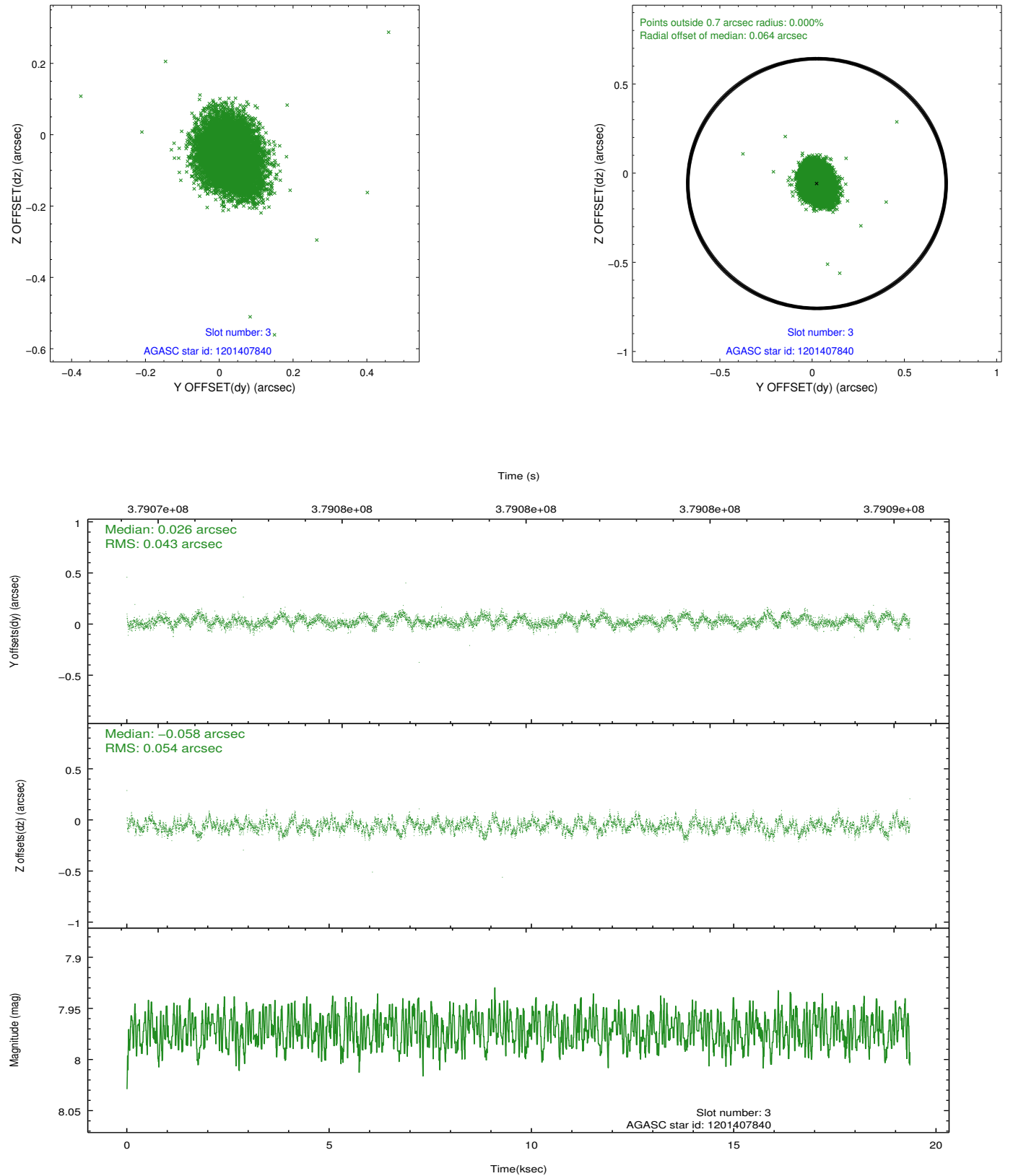


Slot Statistics

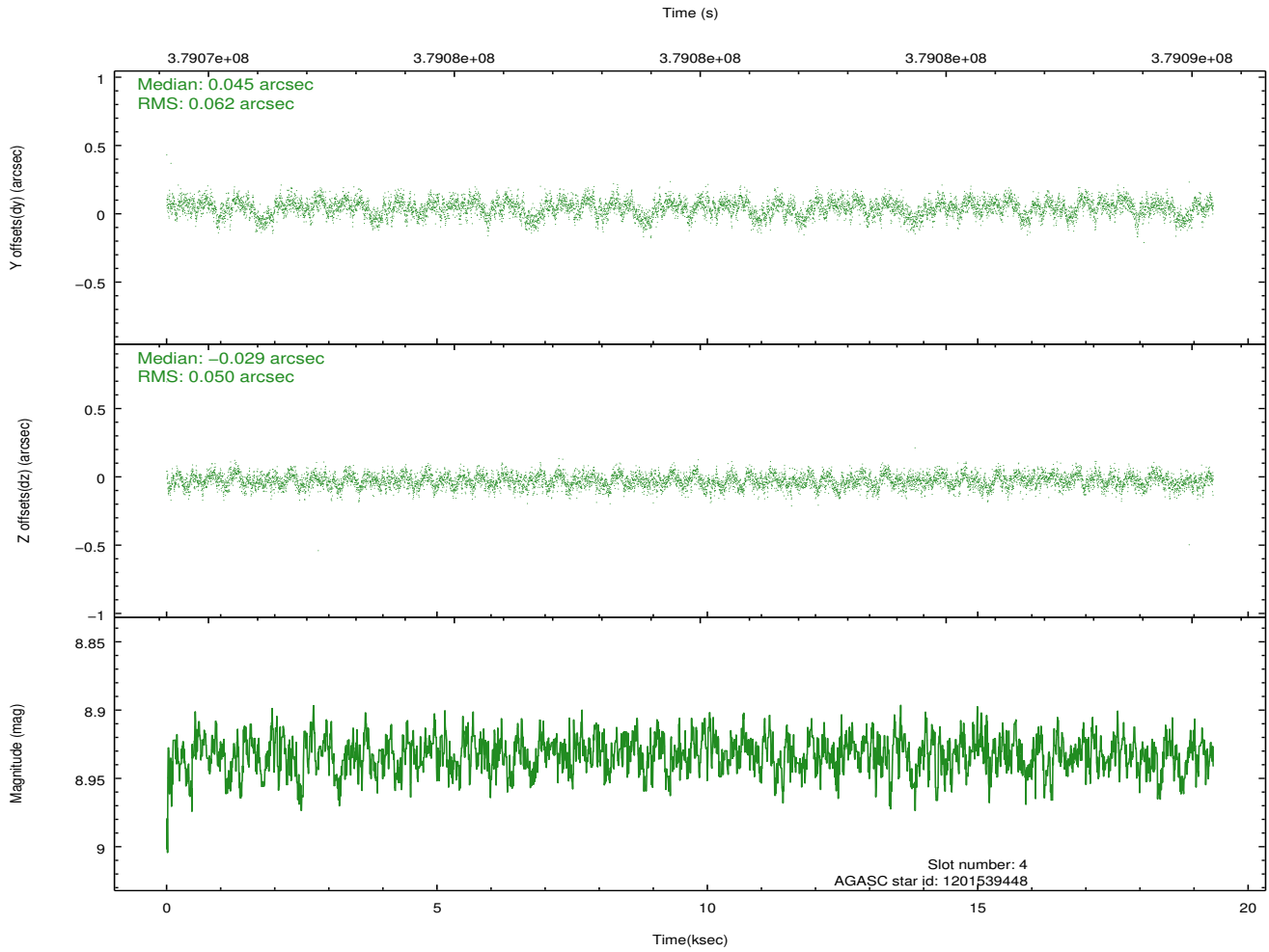
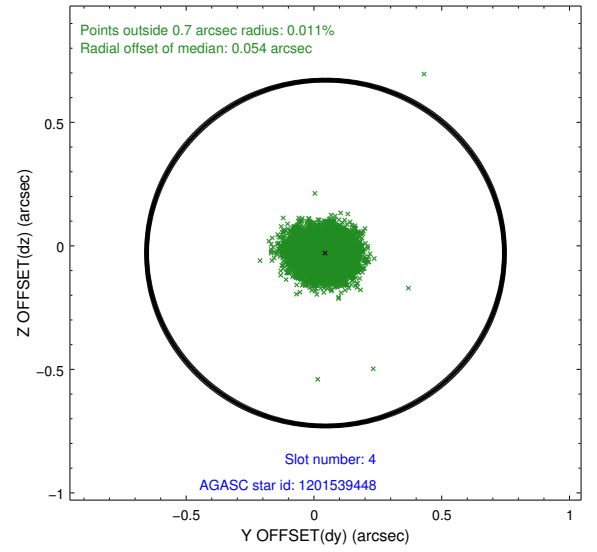
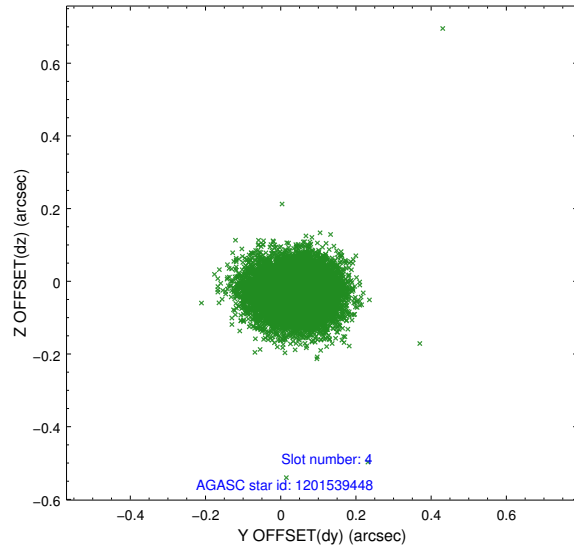
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	6.99	4721	0.091	0.120	0.014	0.028	0.000000	0.000000	929.31	-1859.13
1	FID	ACIS-S-4	6.97	4721	0.111	-0.122	0.011	0.022	0.000000	0.000000	2146.87	44.53
2	FID	ACIS-S-5	7.04	4719	-0.228	0.015	0.008	0.013	0.000000	0.000000	-1819.60	38.54
3	GUIDE	1201407840	7.97	9438	0.026	-0.058	0.072	0.117	83.696303	-70.172201	-756.50	-1945.94
4	GUIDE	1201539448	8.93	9403	0.045	-0.029	0.084	0.136	85.635707	-70.382152	1713.38	-1796.68
5	GUIDE	1201541752	7.39	9440	-0.111	-0.003	0.059	0.094	85.373891	-70.033762	976.19	-733.15
6	GUIDE	1201542672	8.20	9436	0.118	-0.023	0.072	0.117	84.492488	-69.957531	-135.53	-863.81
7	GUIDE	1201540760	8.55	9432	-0.075	0.119	0.076	0.127	84.403691	-70.419249	371.14	-2452.06

2.4 Star Slots

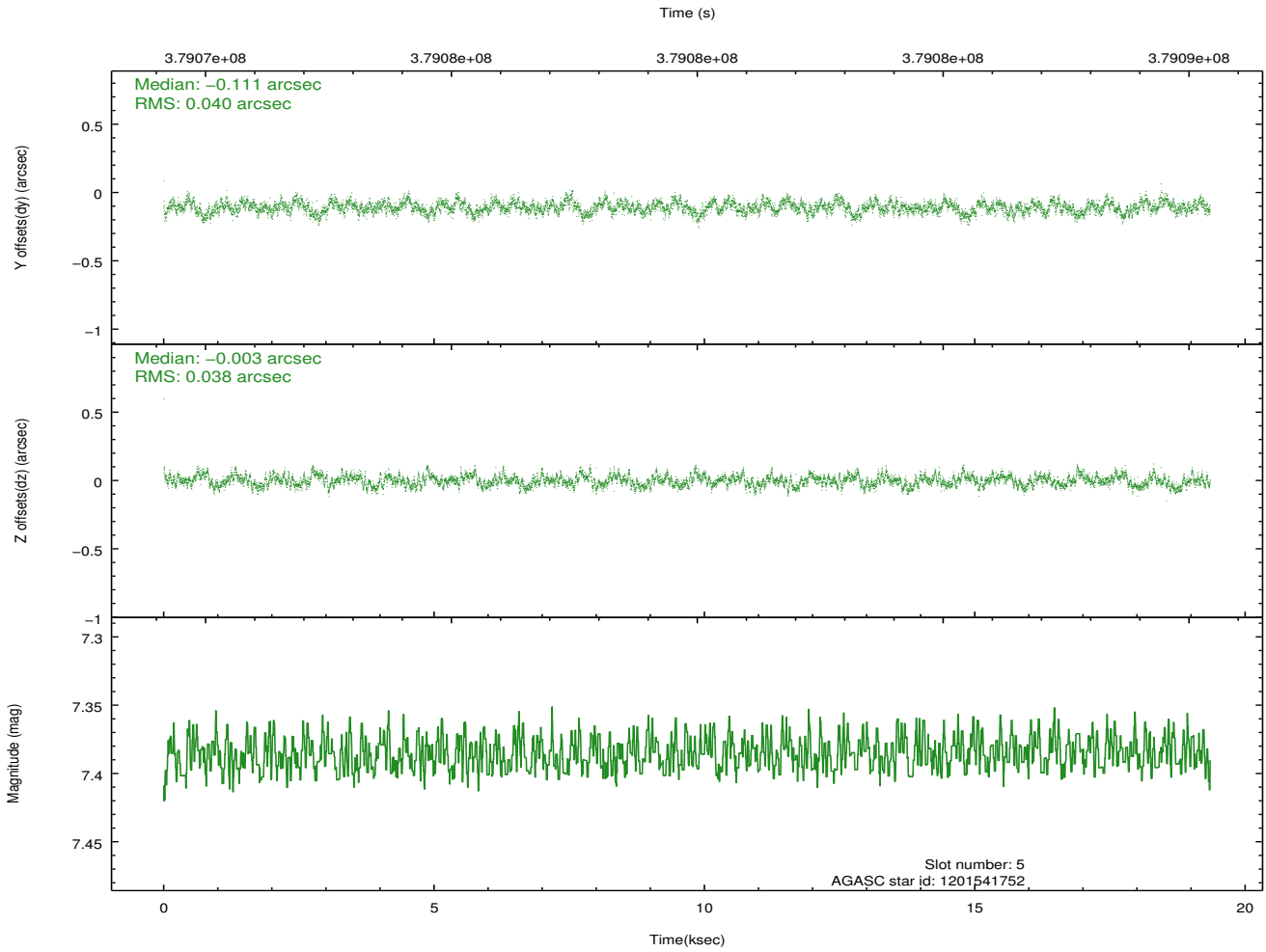
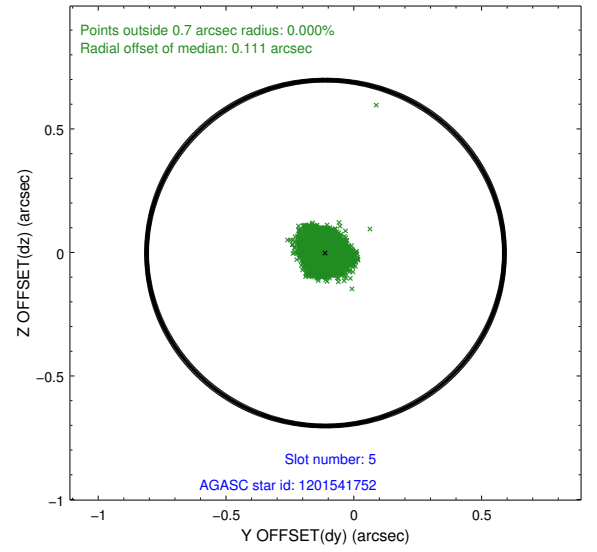
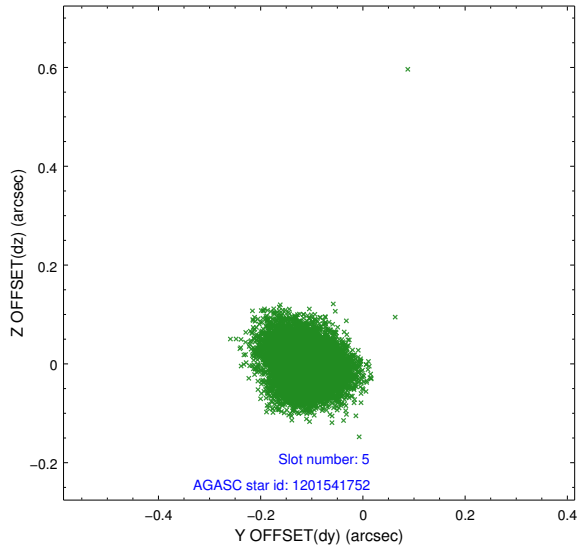
2.4.1 Slot 3



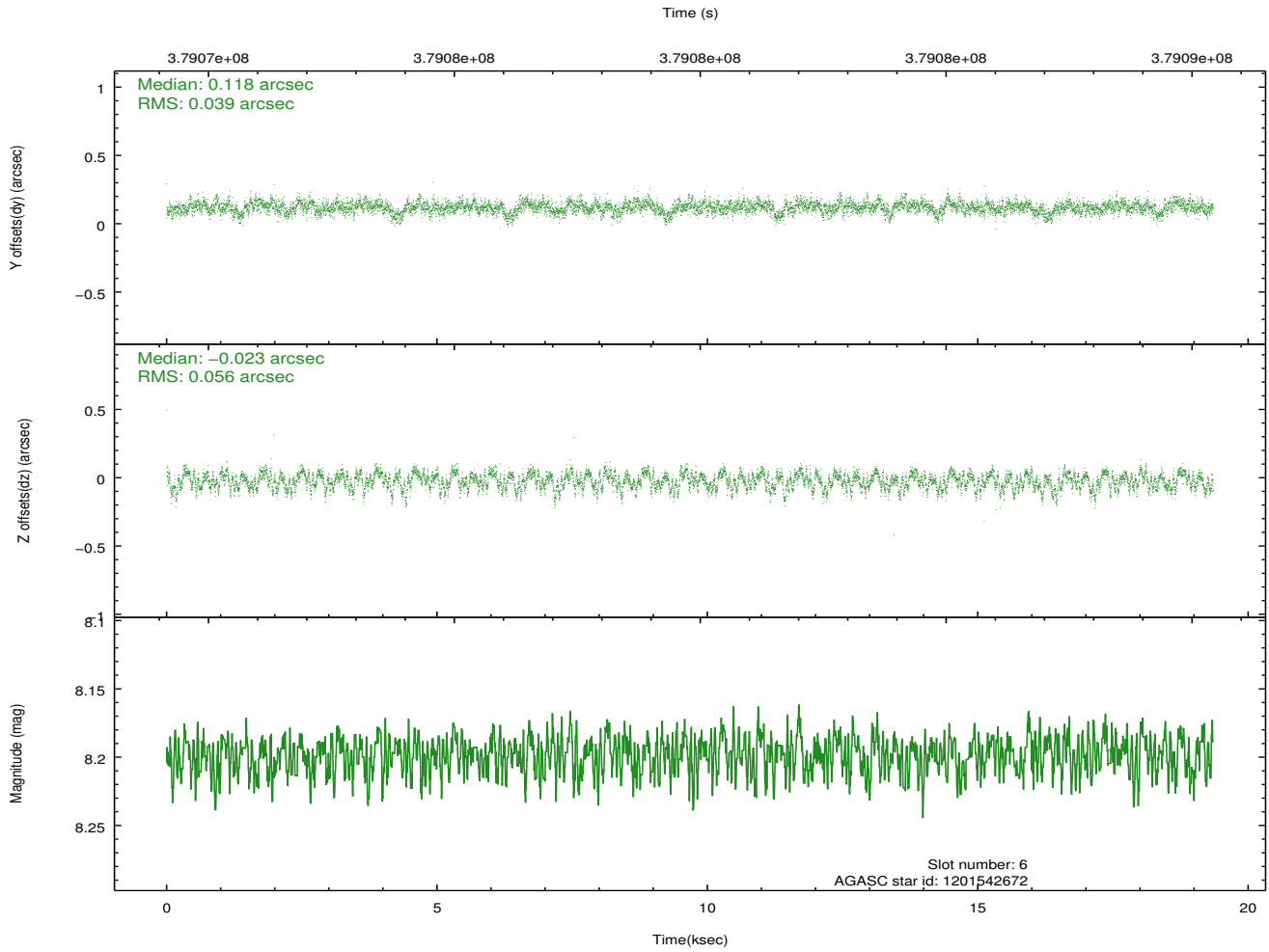
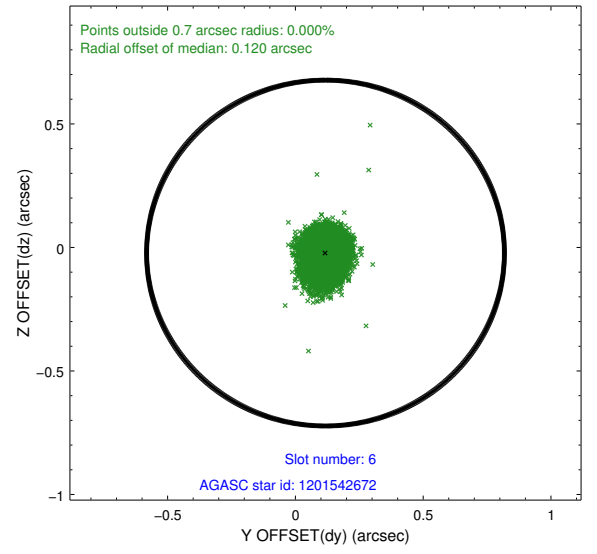
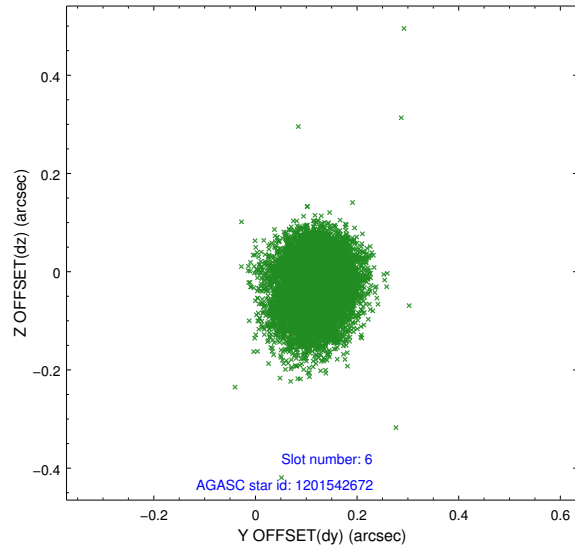
2.4.2 Slot 4



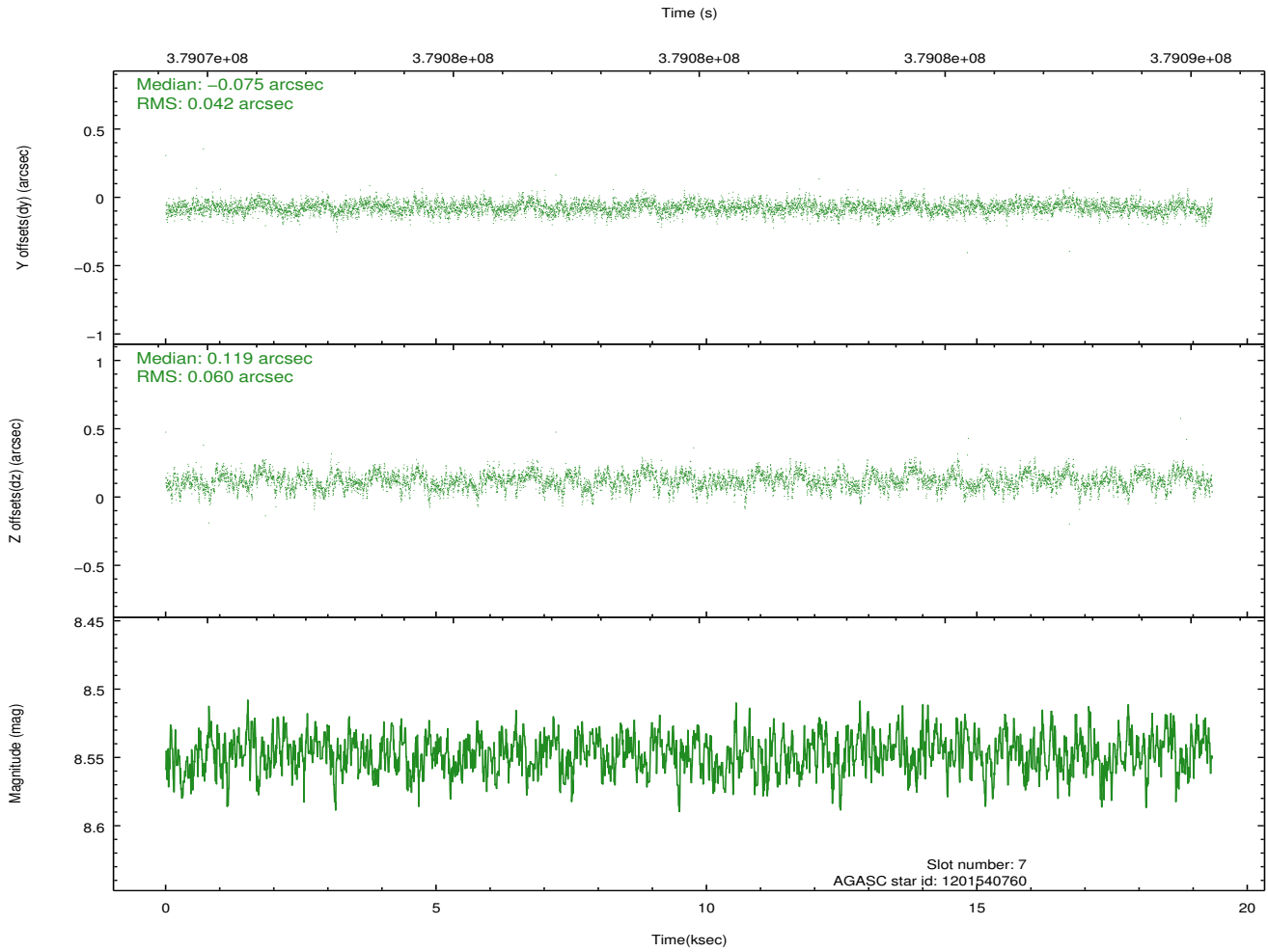
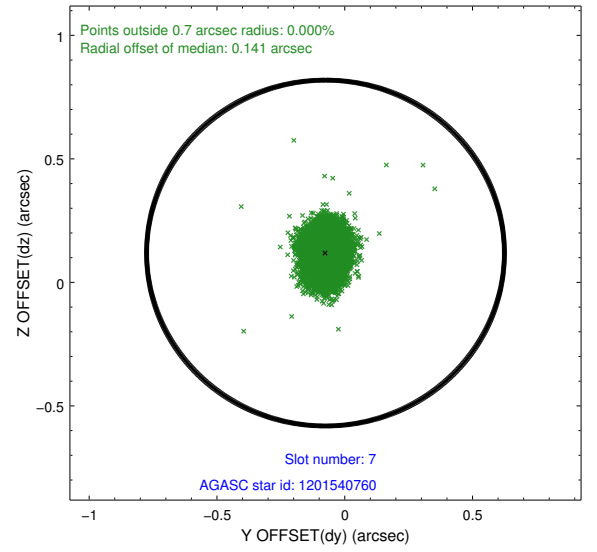
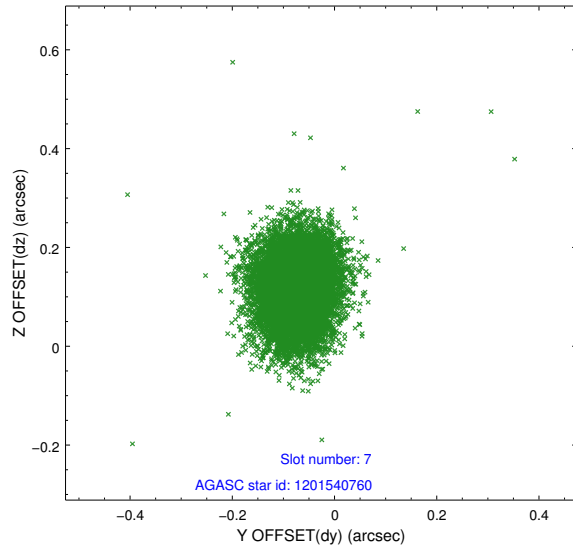
2.4.3 Slot 5



2.4.4 Slot 6

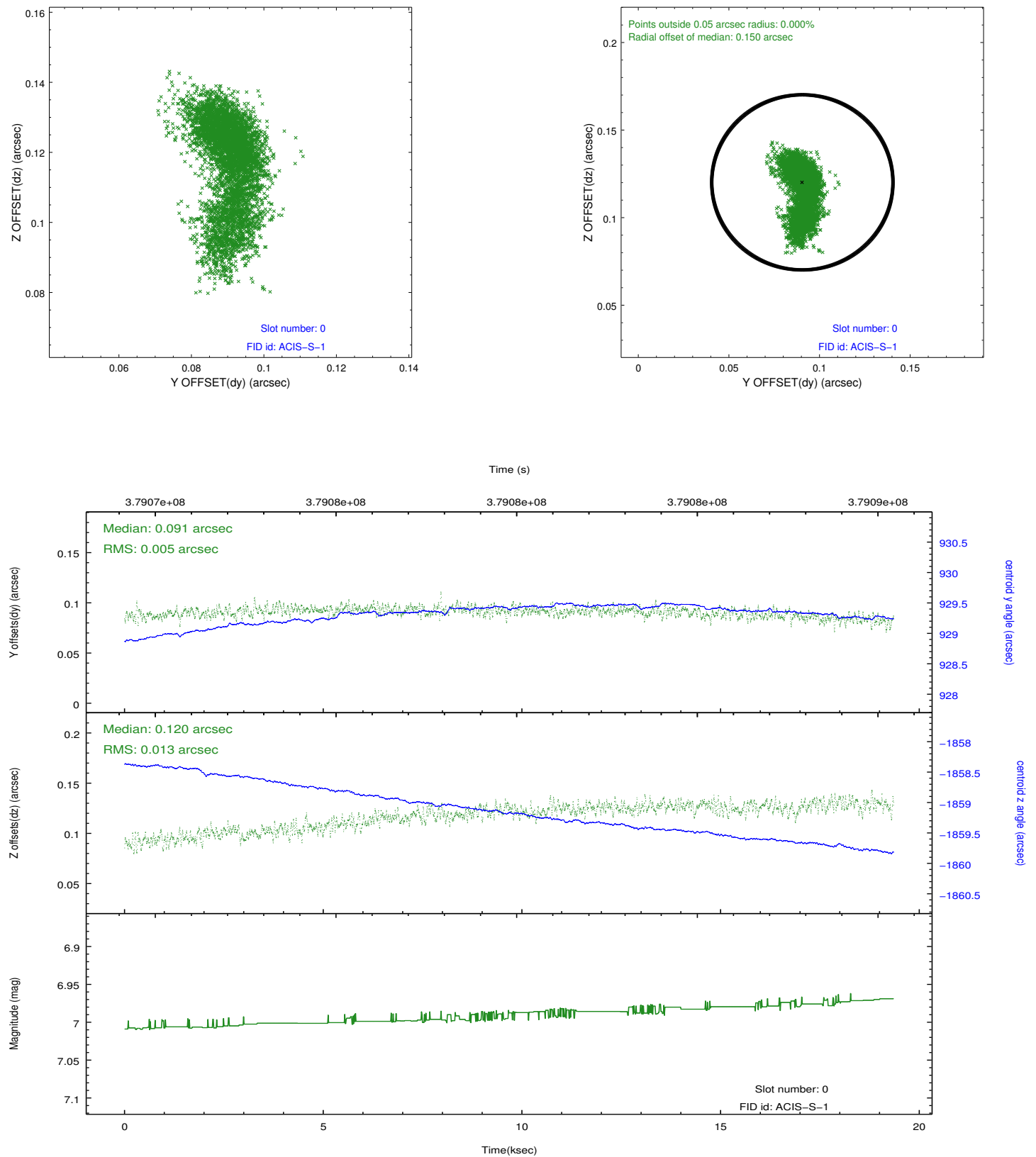


2.4.5 Slot 7

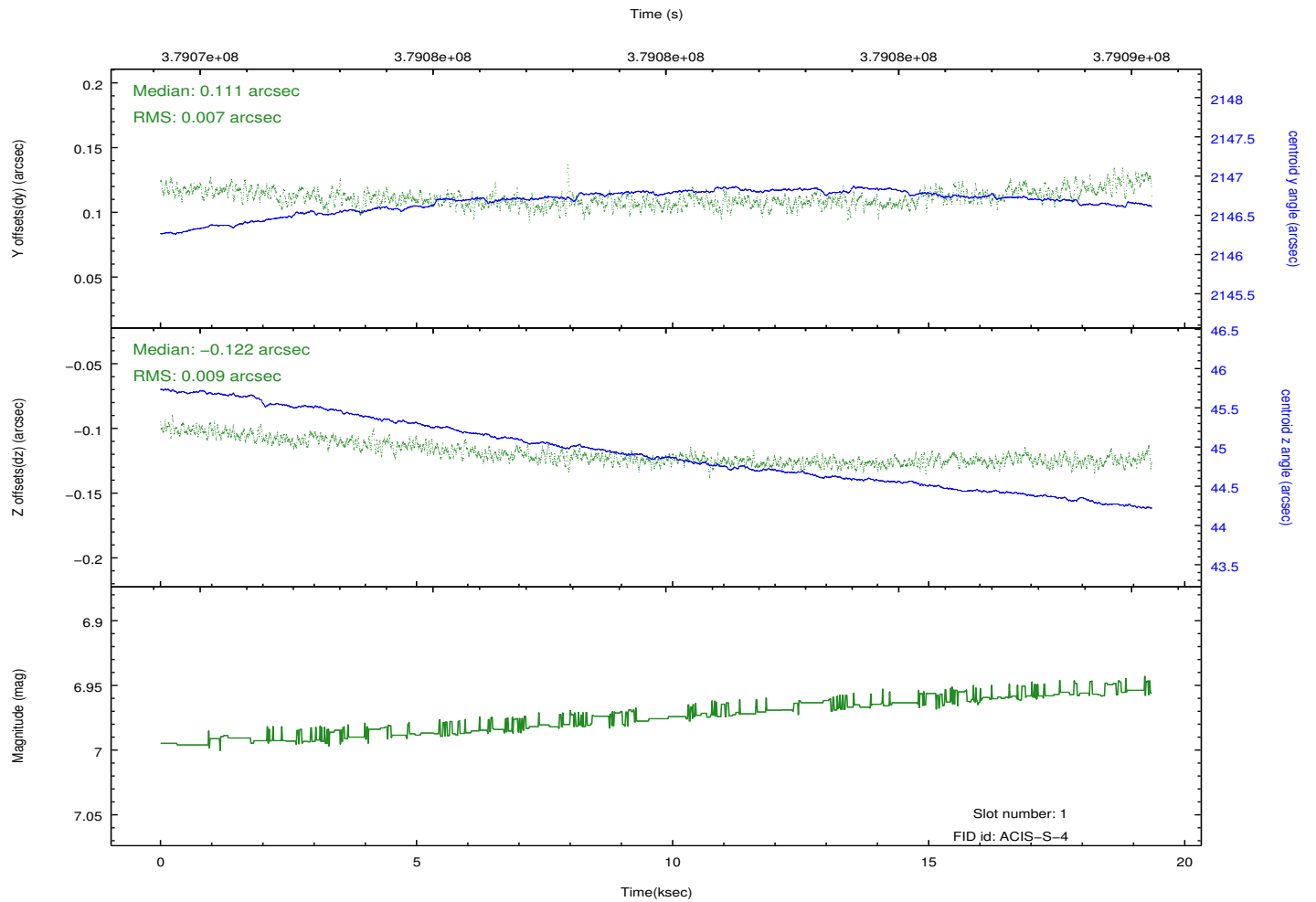
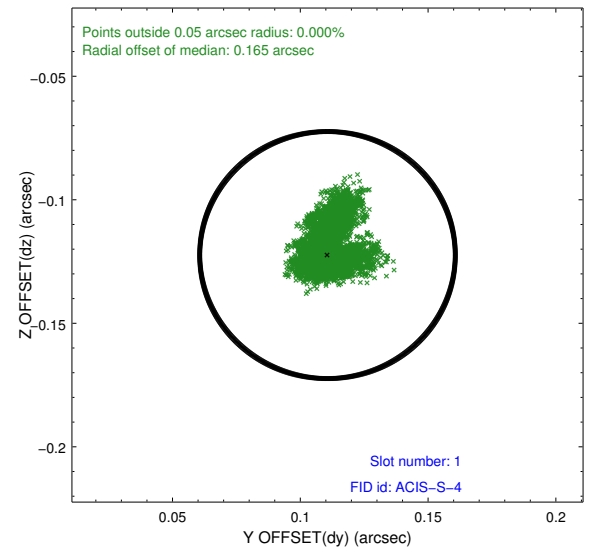
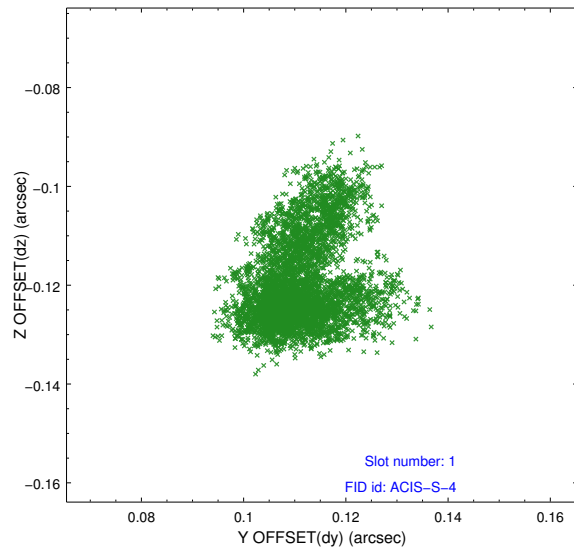


2.5 FID Slots

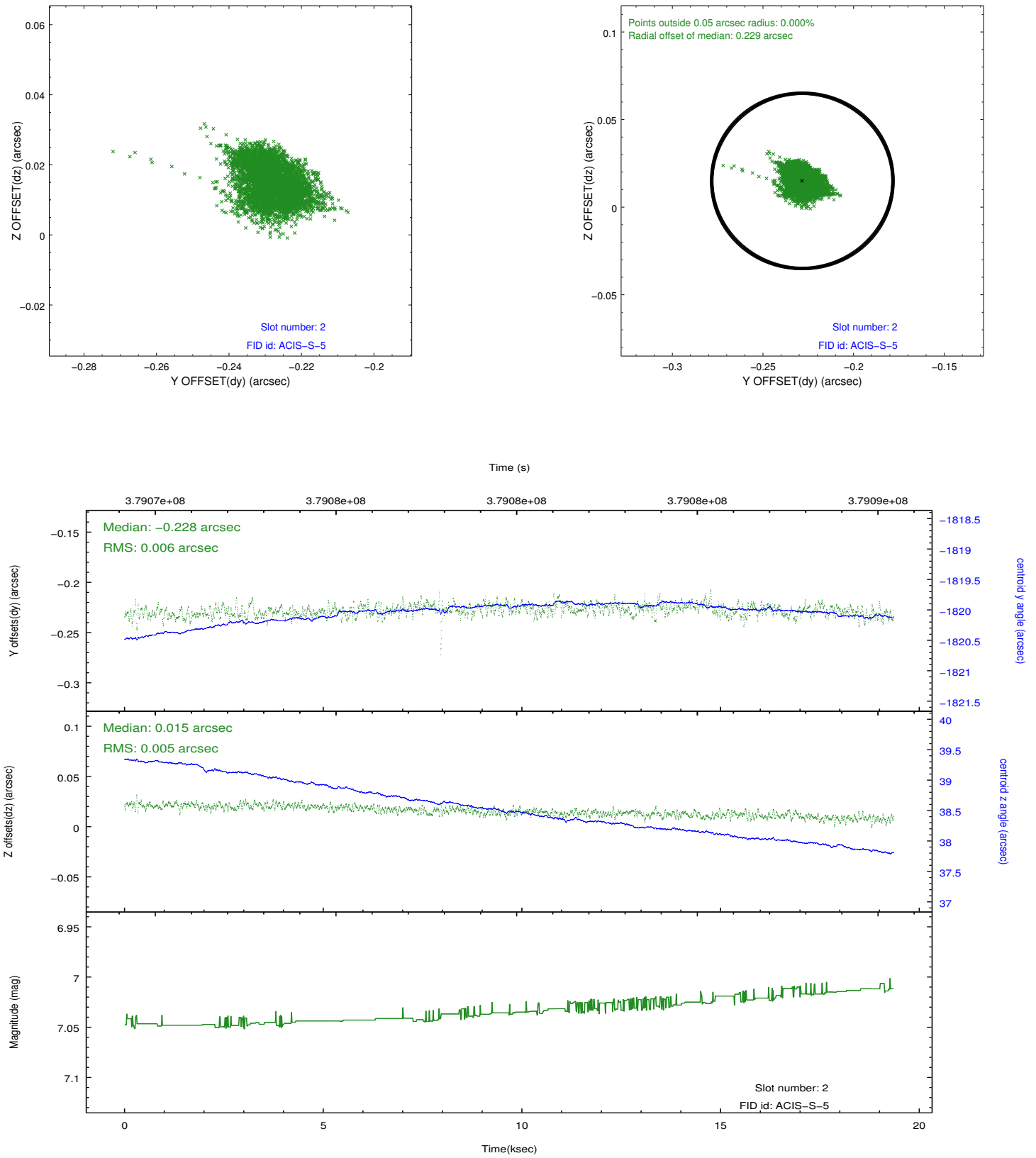
2.5.1 Slot 0



2.5.2 Slot 1

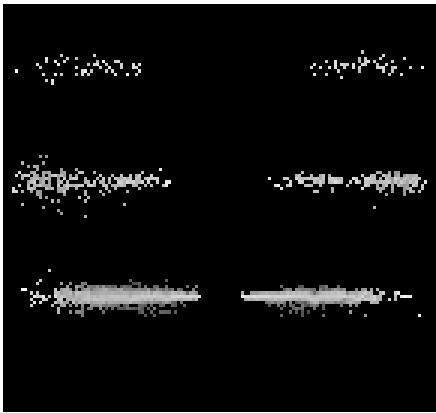


2.5.3 Slot 2

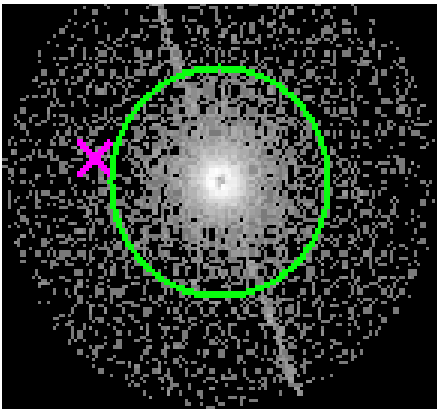


3 Gratings

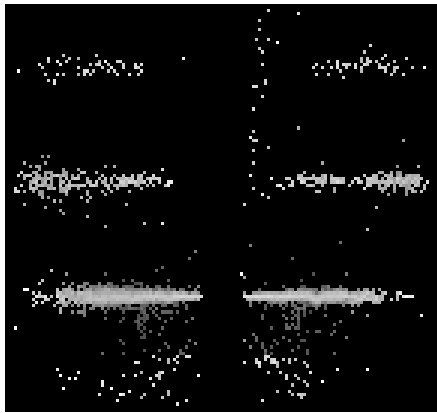
3.1 HEG Arm



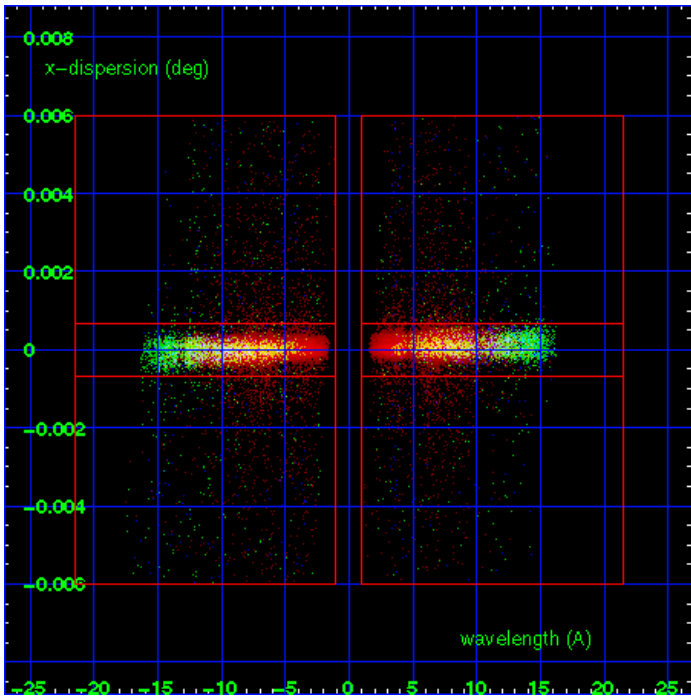
HEG Order Sort 123



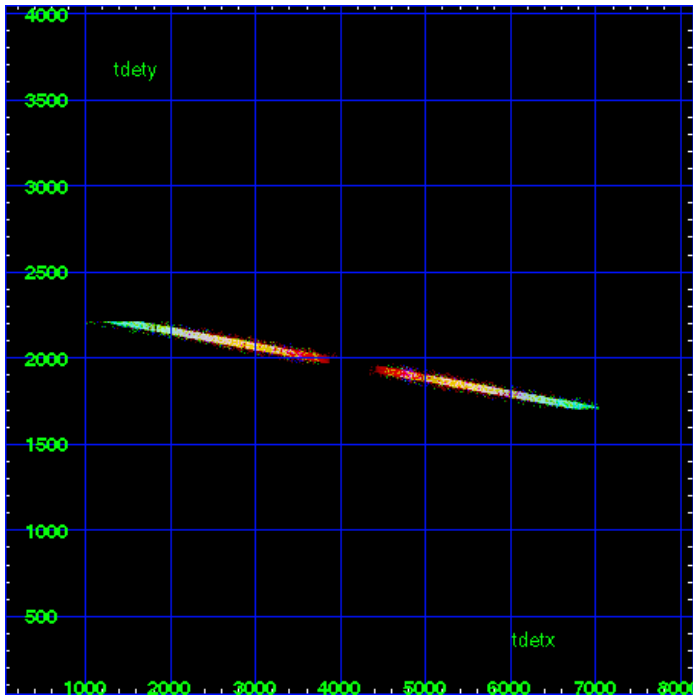
HEG Zero Order



HEG Order Sort ALL

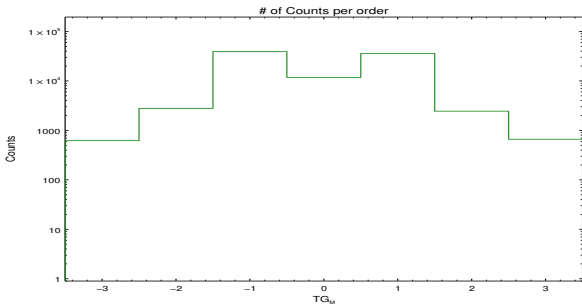


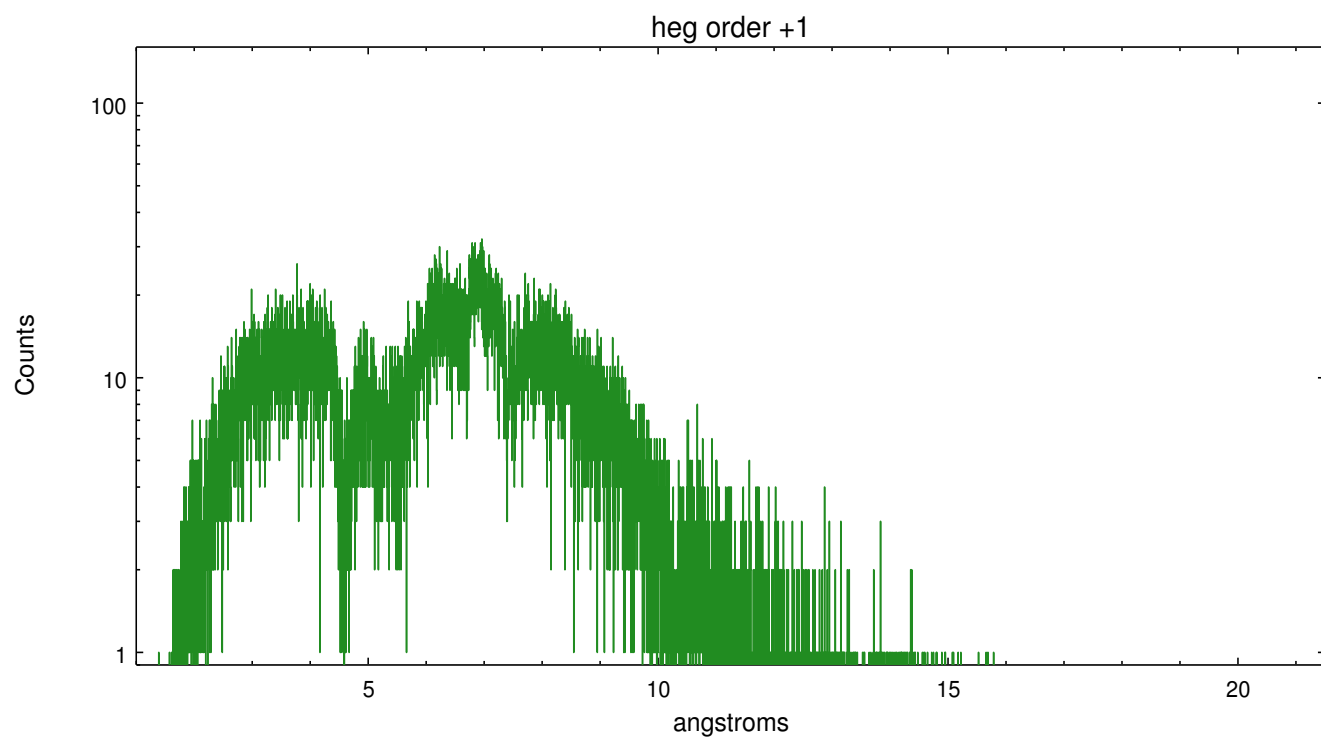
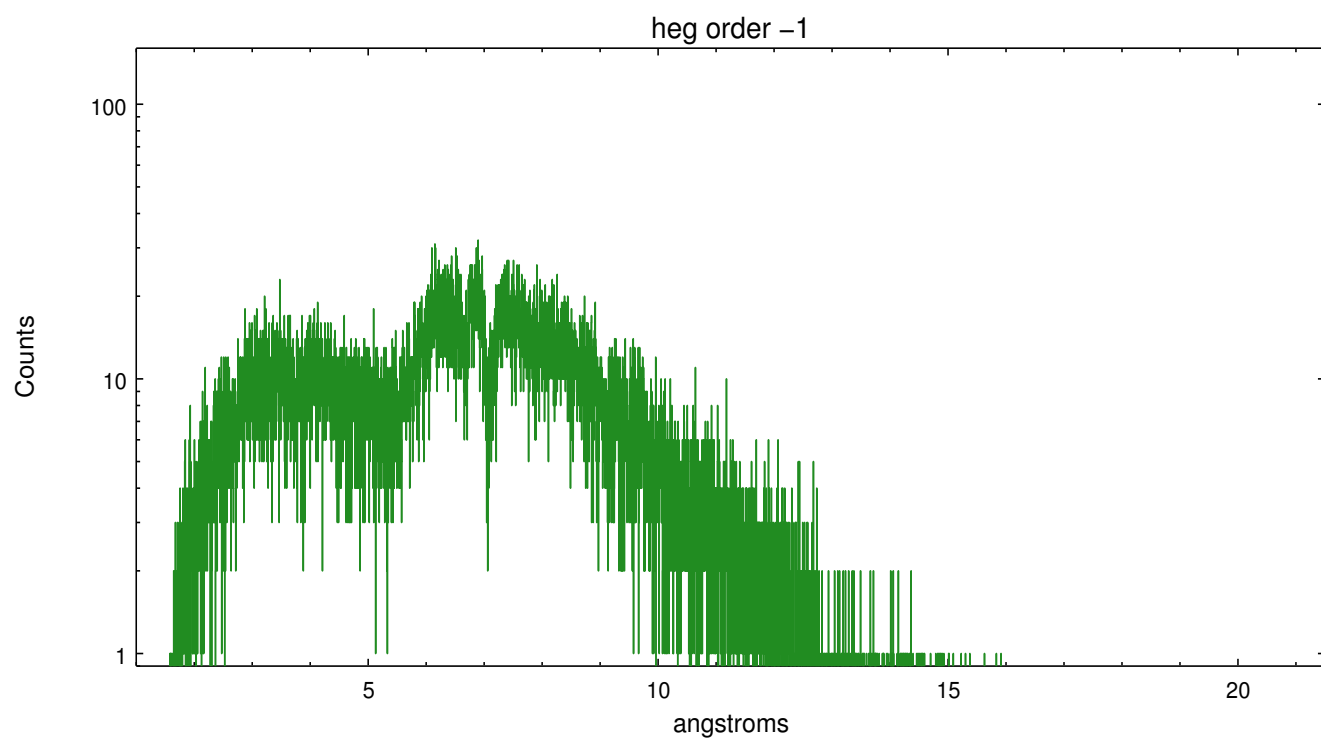
Spot Image HEG



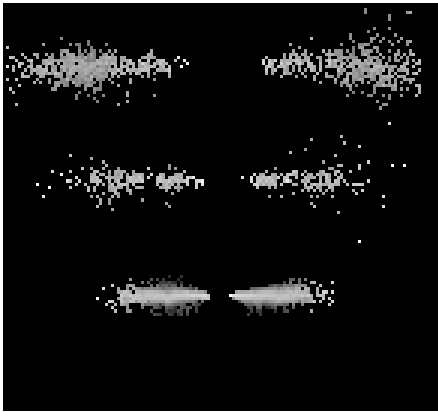
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	620	2786	39110	11777	35782	2444	662

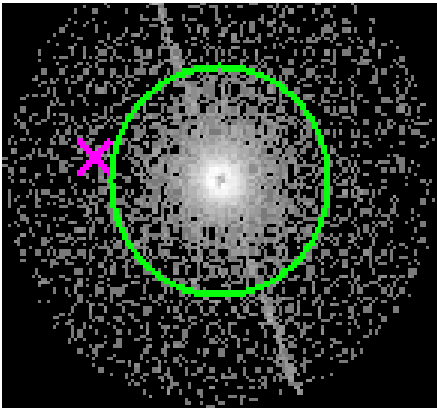




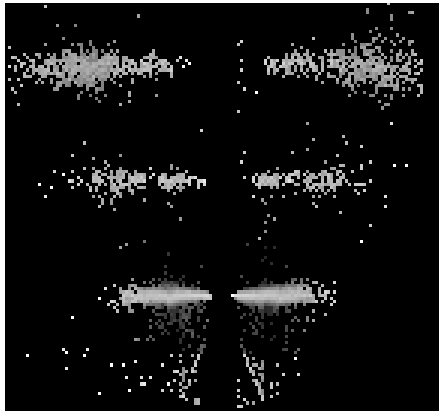
3.2 MEG Arm



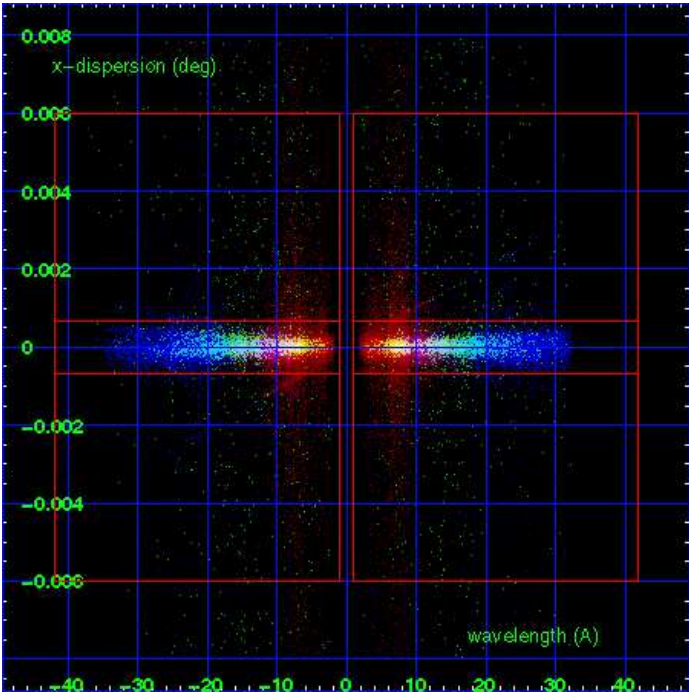
MEG Order Sort 123



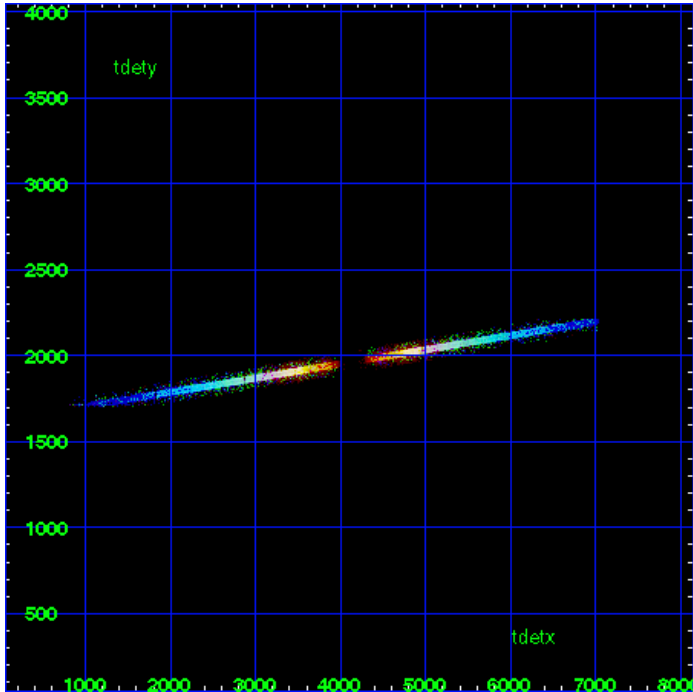
MEG Zero Order



MEG Order Sort ALL

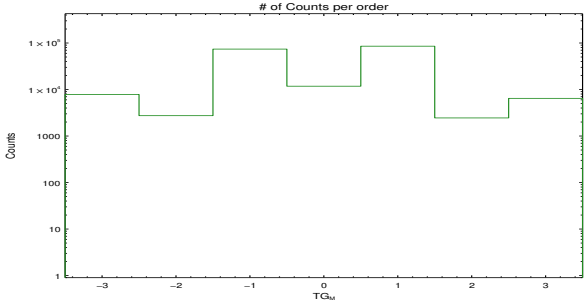


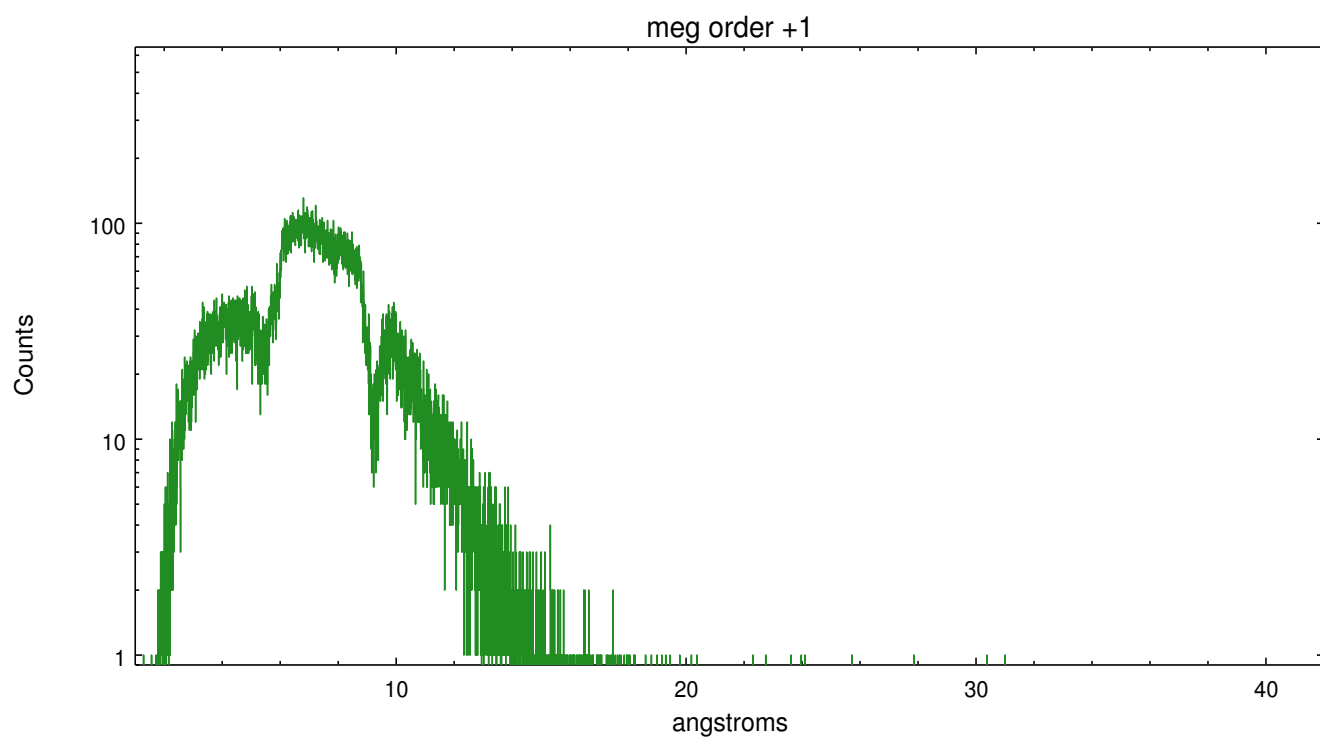
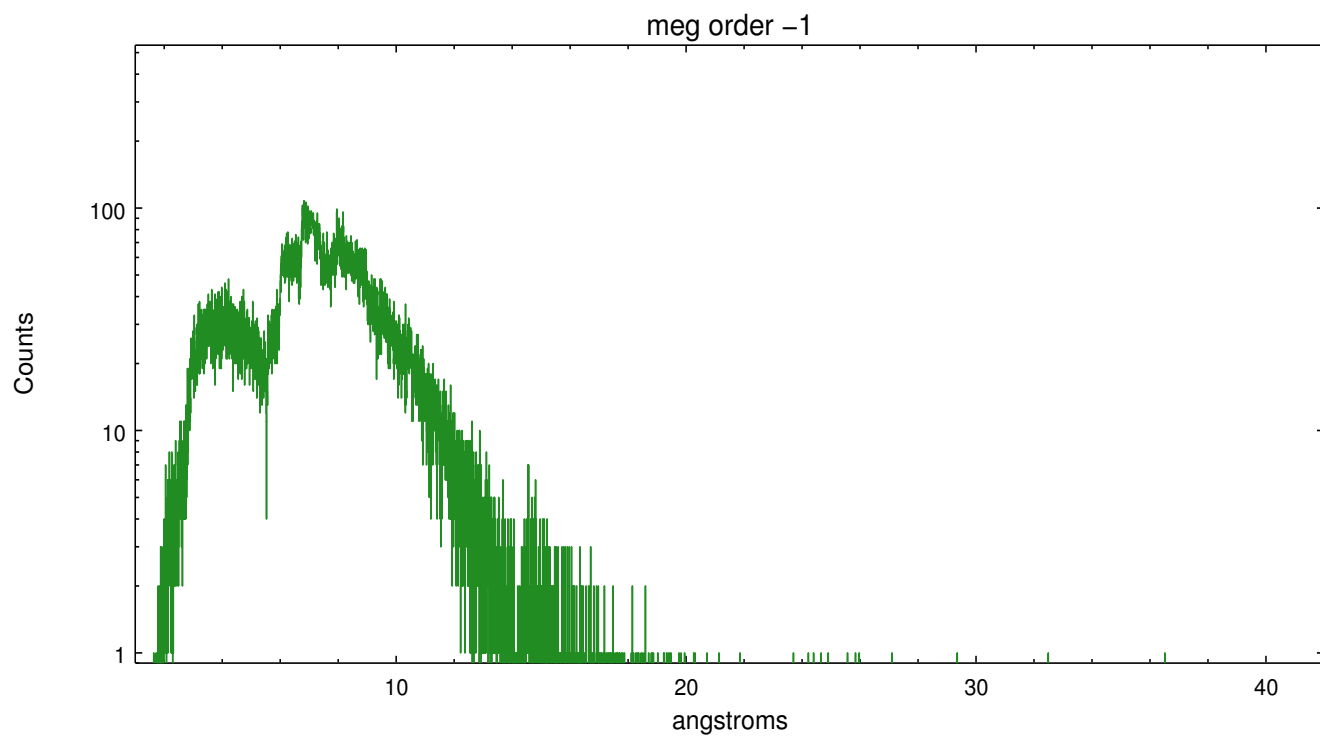
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	7841	2741	73978	11777	85411	2450	6454





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	18.569099869847

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=4130.8, y=4090.29) 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.