

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 12070 - L2 Version 3
Chandra X-Ray Center

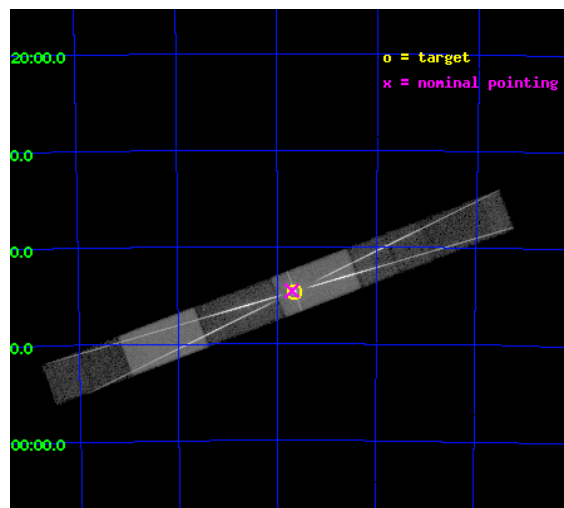
L2 Processing Date : Jun 19 2012

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1 Front

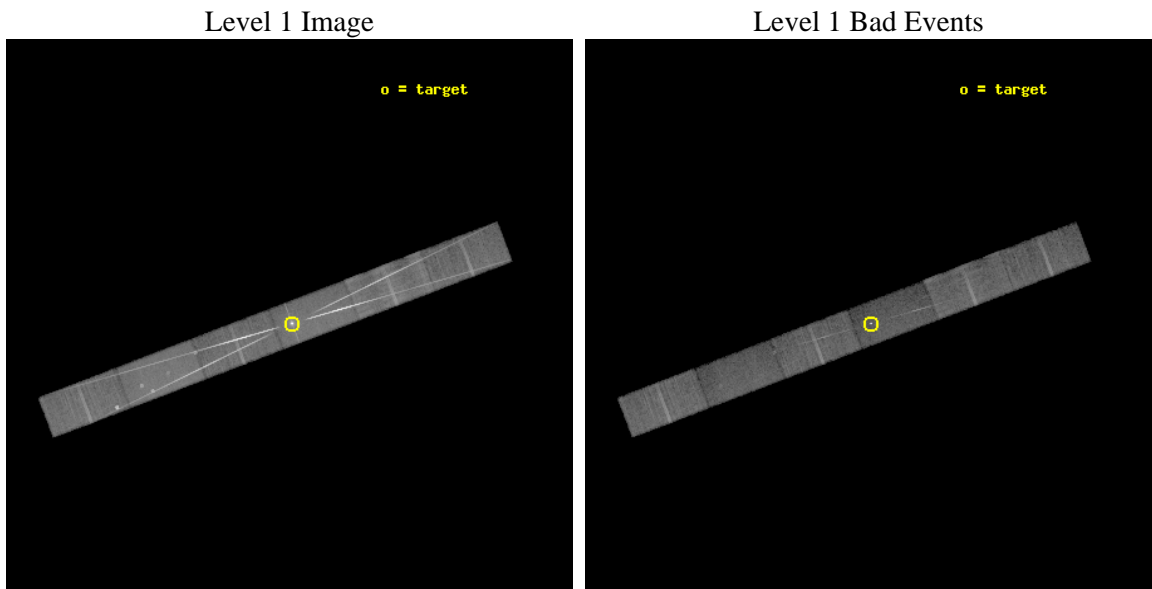
seq_num	401109	Sequence number
obs_id	12070	Observation id
title	Deep Chandra Observations of the Black Hole LMC X-1	Proposal title
observer	Dr. Michael Nowak	Principal investigator
object	LMC X-1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	84.911667	Observer's specified target RA [deg]
dec_targ	-69.74325	Observer's specified target Dec [deg]
ra_nom	84.925301672938	Nominal RA [deg]
dec_nom	-69.742335455396	Nominal Dec [deg]
roll_nom	339.16940834764	Nominal Roll [deg]
revision	3	Processing version of data
ontime	17771.799875438	Sum of GTIs [s]
livetime	17352.880914996	Livetime [s]
ontime4	17771.799875438	Sum of GTIs [s]
ontime5	17771.799875438	Sum of GTIs [s]
ontime6	17771.799875438	Sum of GTIs [s]
ontime7	17771.799875438	Sum of GTIs [s]
ontime8	17771.799875438	Sum of GTIs [s]
ontime9	17771.799875438	Sum of GTIs [s]
l2events	445772	Number of level 2 events



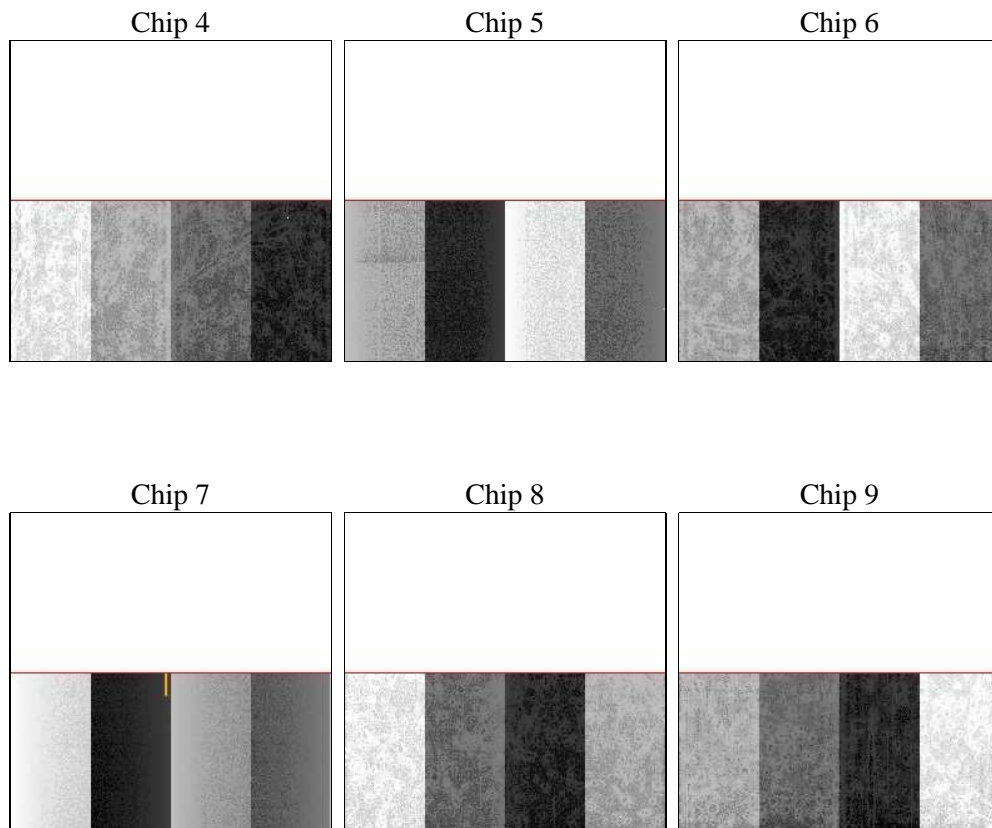
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	17700.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	17771.799875438	Sum of GTIs [s]
caldsver	4.4.10	 	ontime4	17771.799875438	Sum of GTIs [s]
date	2012-06-19T08:12:16	Date and time of file creation	ontime5	17771.799875438	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	17771.799875438	Sum of GTIs [s]
			ontime7	17771.799875438	Sum of GTIs [s]
			ontime8	17771.799875438	Sum of GTIs [s]
			ontime9	17771.799875438	Sum of GTIs [s]
			l1events	918084	Number of level 1 events

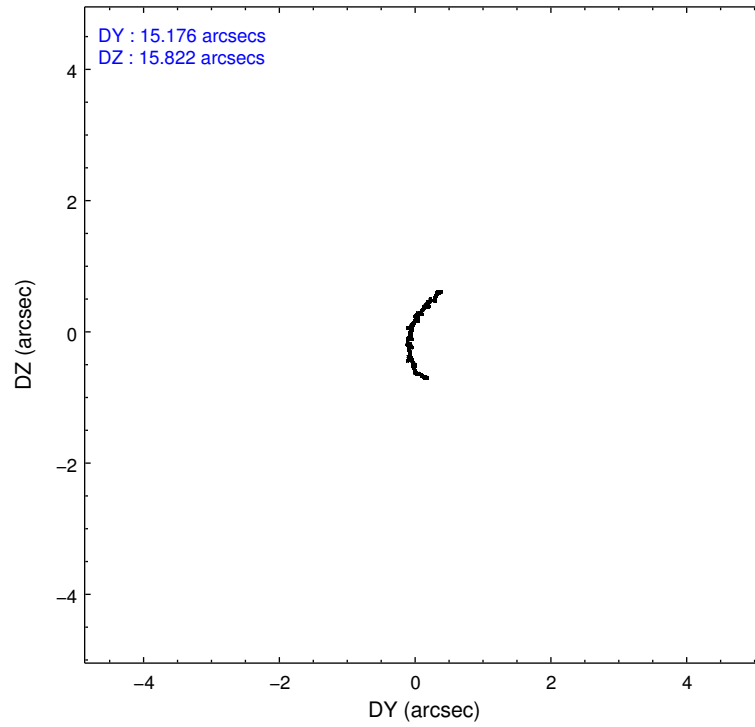
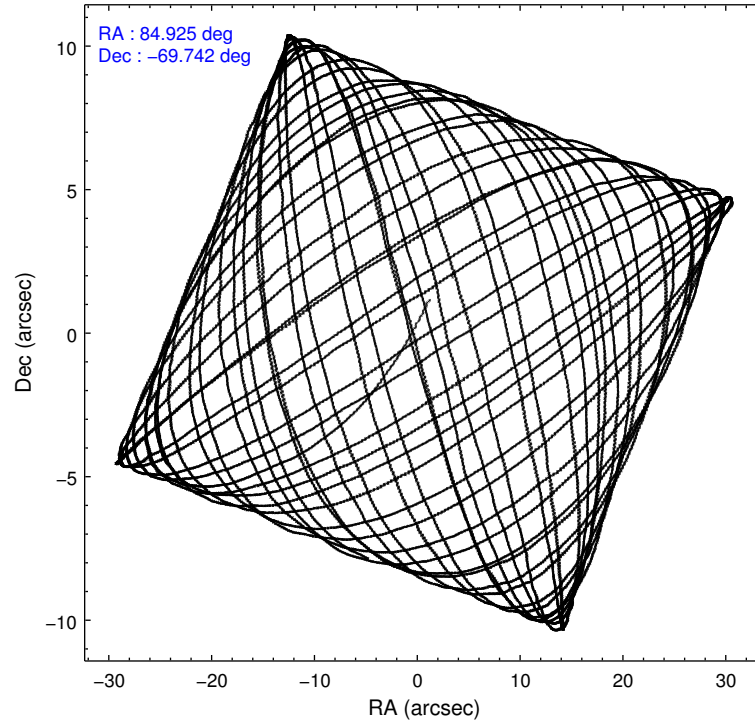
2.1.4 Events

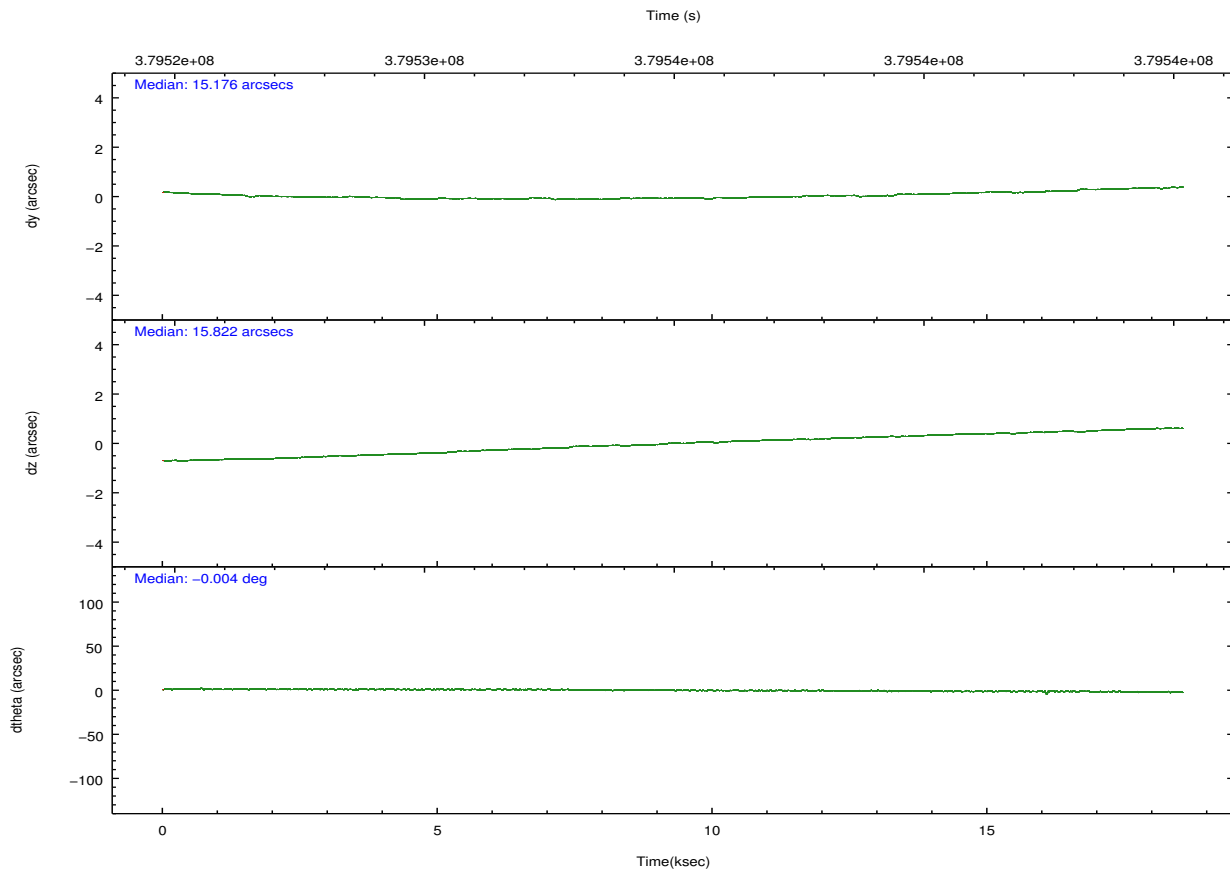
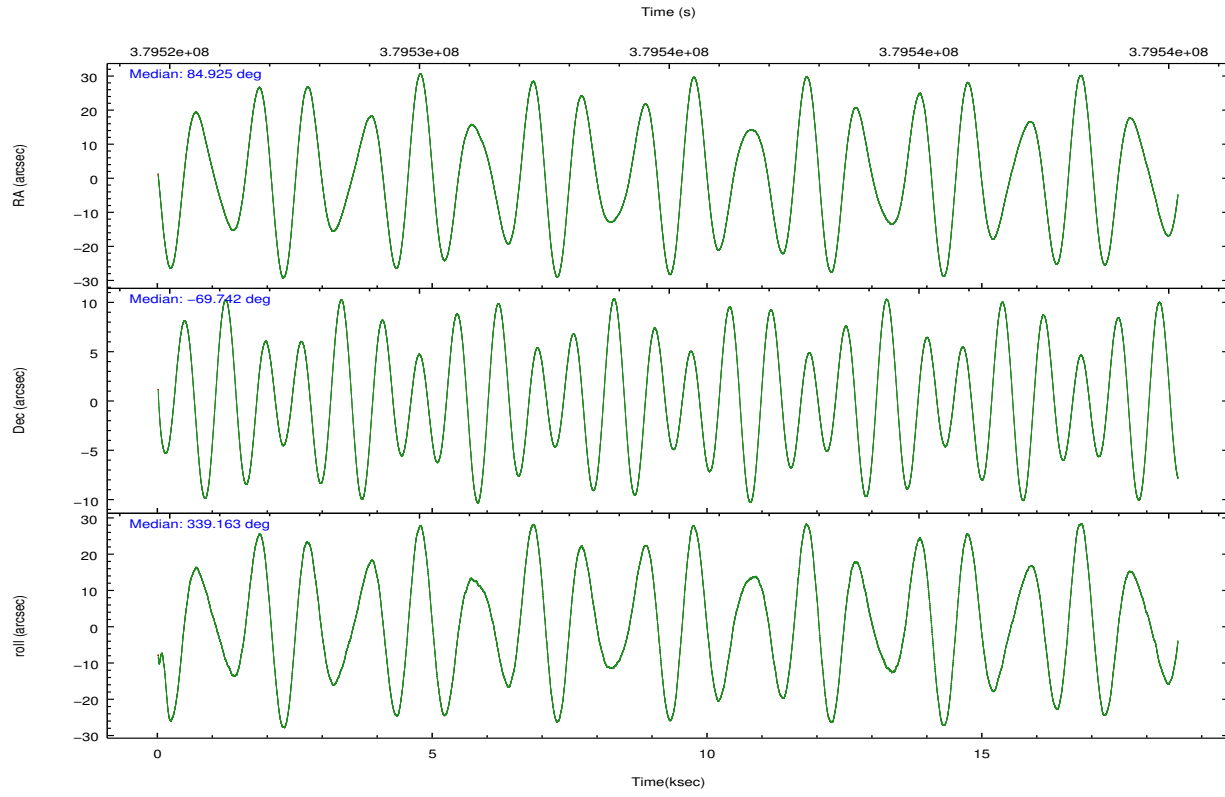
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	107669	146392	203007	213231	161145	86640	grade 0 events	12518	20093	95553	30524	50974	11393
rejected events	87877	56665	76334	52648	80505	67229		11%	13%	47%	14%	31%	13%
rejected %	81%	38%	37%	24%	49%	77%	grade 1 events	95	542	767	588	317	67
								0%	0%	0%	0%	0%	0%
							grade 2 events	2903	24479	15271	39397	11762	3010
								2%	16%	7%	18%	7%	3%
							grade 3 events	1331	6140	5596	17572	4717	1468
								1%	4%	2%	8%	2%	1%
							grade 4 events	1290	6044	5361	17493	4570	1474
								1%	4%	2%	8%	2%	1%
							grade 5 events	3239	10133	3652	11350	4784	3482
								3%	6%	1%	5%	2%	4%
							grade 6 events	1753	32978	4904	55614	8625	2068
								1%	22%	2%	26%	5%	2%
							grade 7 events	84540	45983	71903	40693	75396	63678
								78%	31%	35%	19%	46%	73%

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	84.92530167293839	CCD I2 on	N	N
[deg] Pointing Dec	-69.747052	-69.74233545539633	CCD I3 on	N	N
[deg] Pointing Roll	338.939907	339.1694083476429	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)	379526564.184000	379524796.89134	CCD S5 on	Y	Y
Observation start date	2010-01-10T16:01:38	2010-01-10T15:33:16	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	379544264.184000	379544847.42986	On-chip summing requested	N	N
Observation end date	2010-01-10T20:56:38	2010-01-10T21:07:27	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



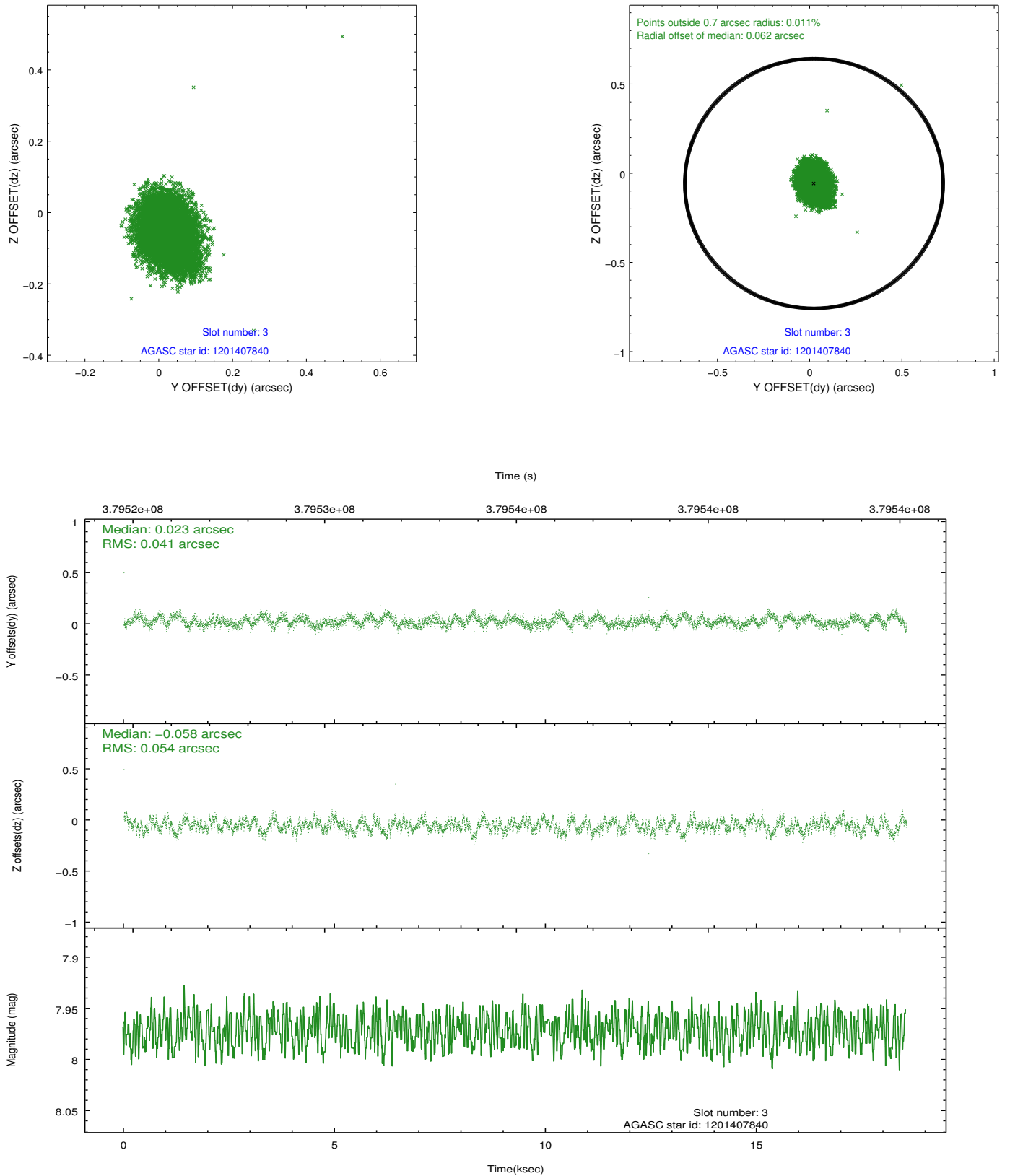


Slot Statistics

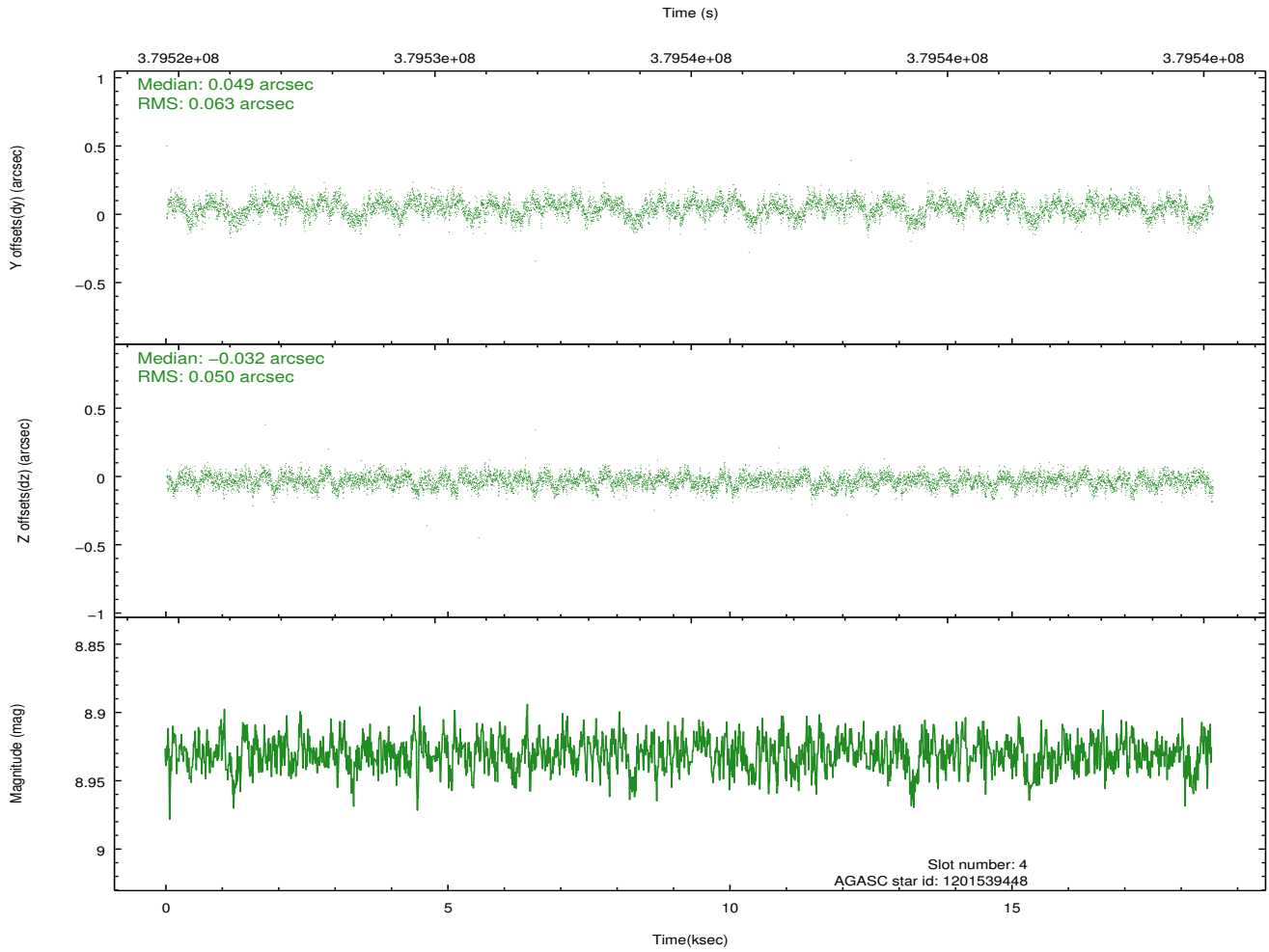
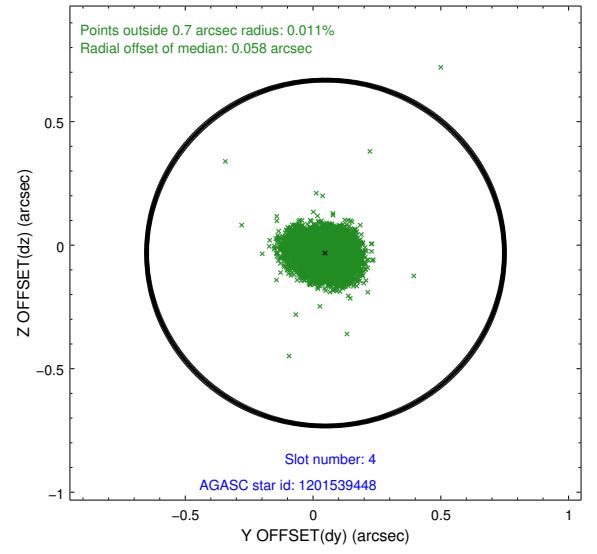
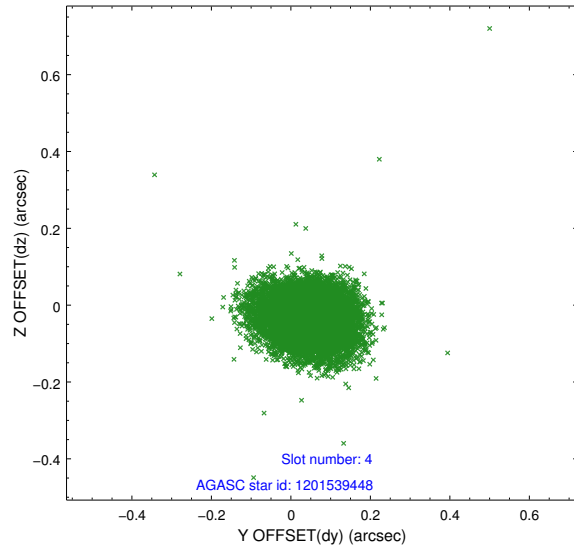
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	6.96	4525	0.073	0.110	0.014	0.022	0.000000	0.000000	928.31	-1859.44
1	FID	ACIS-S-4	6.94	4526	0.146	-0.106	0.011	0.019	0.000000	0.000000	2145.94	44.23
2	FID	ACIS-S-5	7.00	4526	-0.245	0.008	0.009	0.018	0.000000	0.000000	-1820.57	38.24
3	GUIDE	1201407840	7.97	9044	0.023	-0.058	0.072	0.115	83.696303	-70.172201	-756.30	-1945.95
4	GUIDE	1201539448	8.93	9031	0.049	-0.032	0.085	0.137	85.635707	-70.382152	1713.59	-1796.70
5	GUIDE	1201541752	7.37	9051	-0.107	0.005	0.063	0.098	85.373891	-70.033762	976.40	-733.16
6	GUIDE	1201542672	8.20	9046	0.112	-0.021	0.075	0.118	84.492488	-69.957531	-135.33	-863.82
7	GUIDE	1201540760	8.55	9035	-0.074	0.114	0.076	0.125	84.403691	-70.419249	371.36	-2452.09

2.4 Star Slots

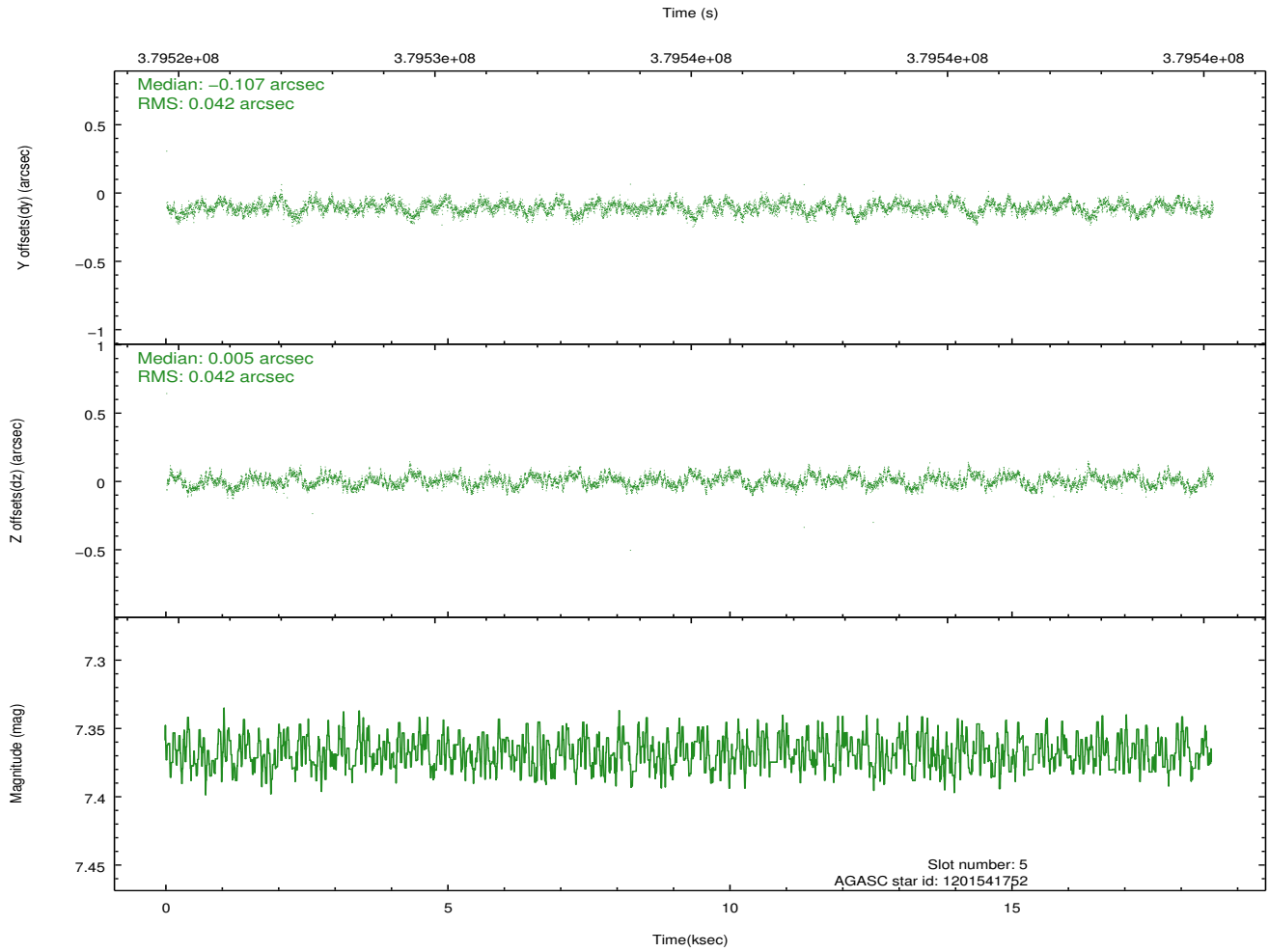
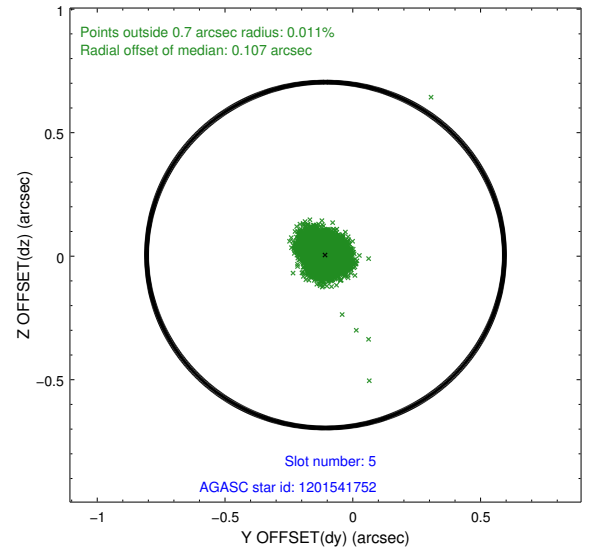
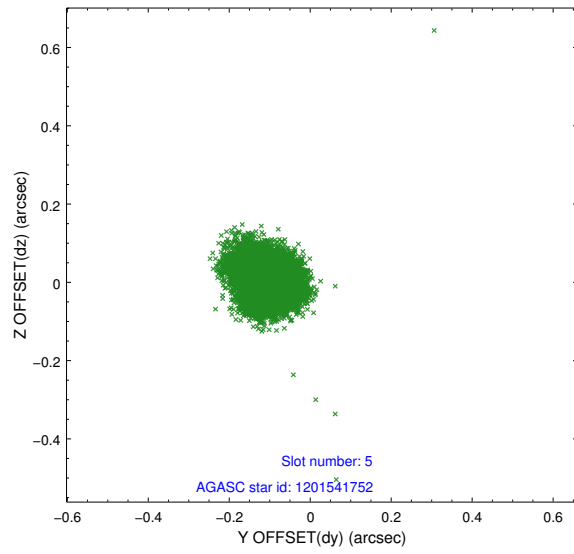
2.4.1 Slot 3



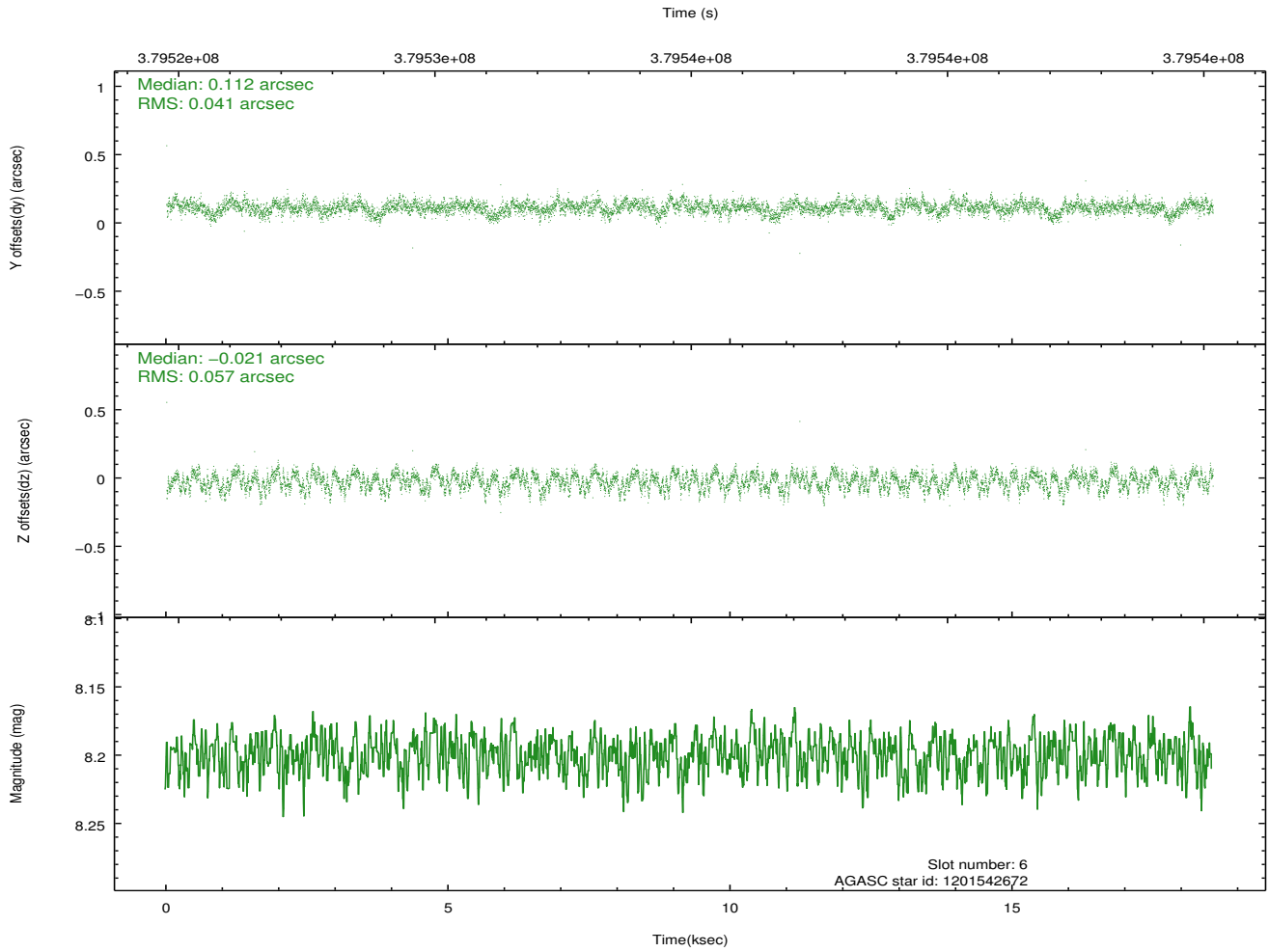
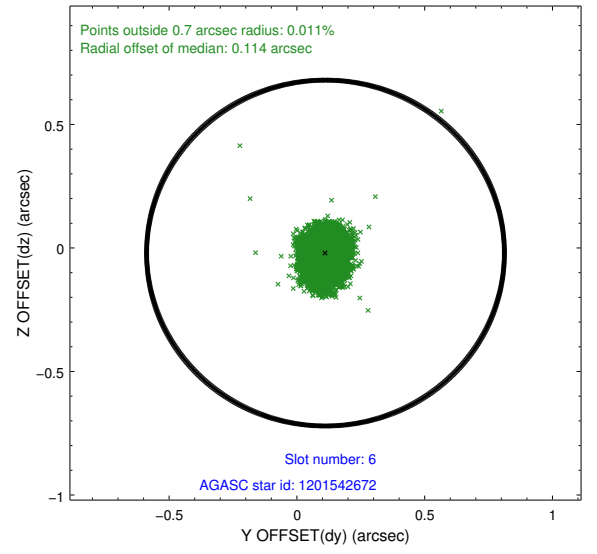
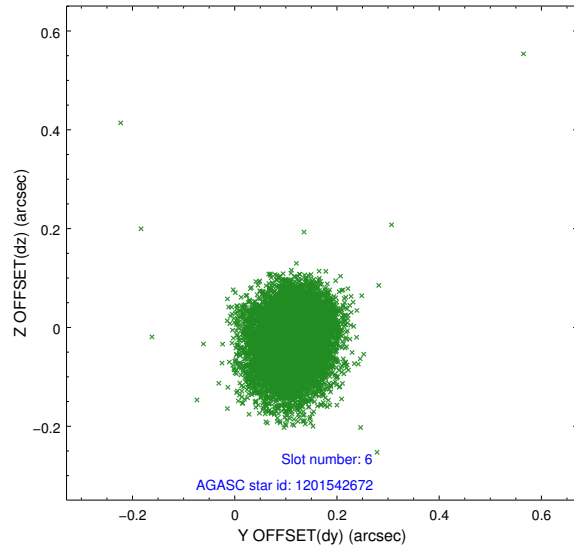
2.4.2 Slot 4



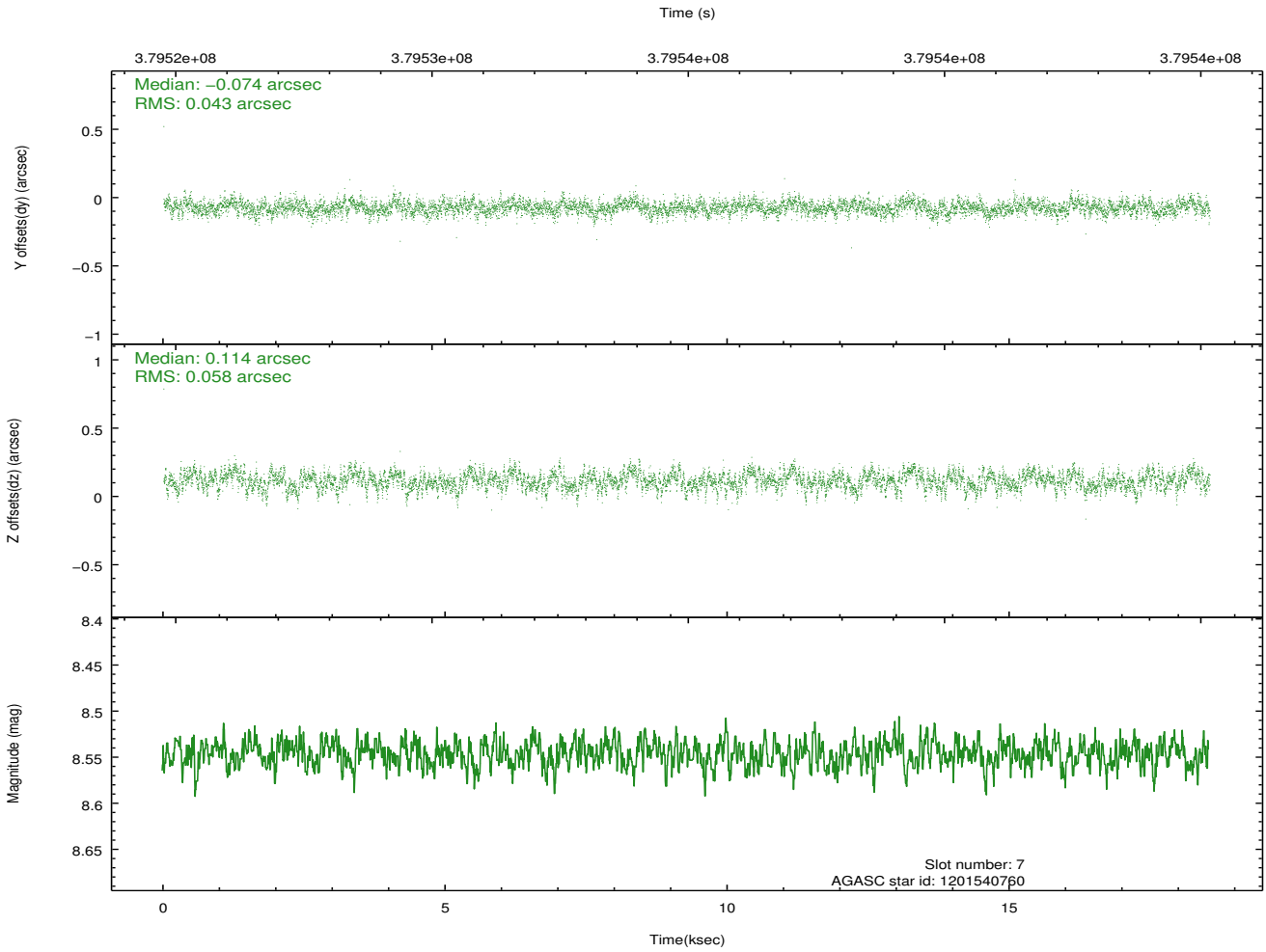
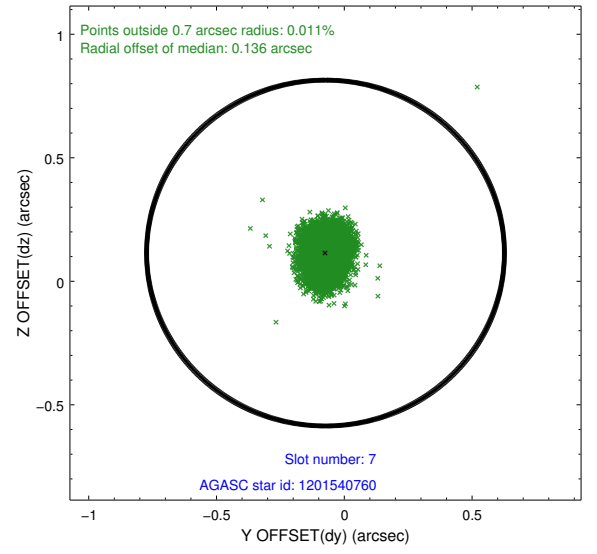
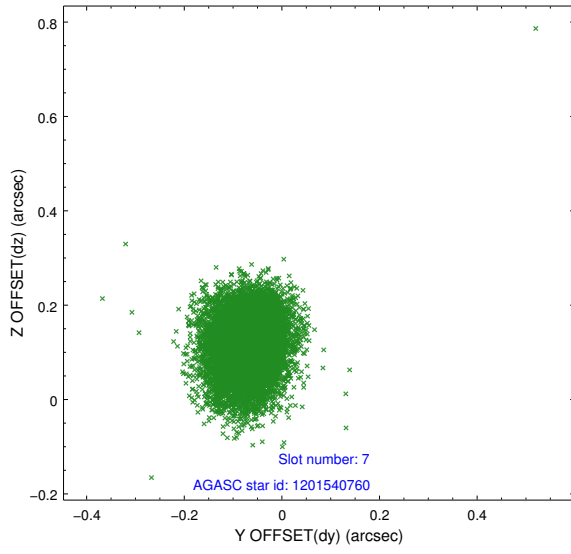
2.4.3 Slot 5



2.4.4 Slot 6

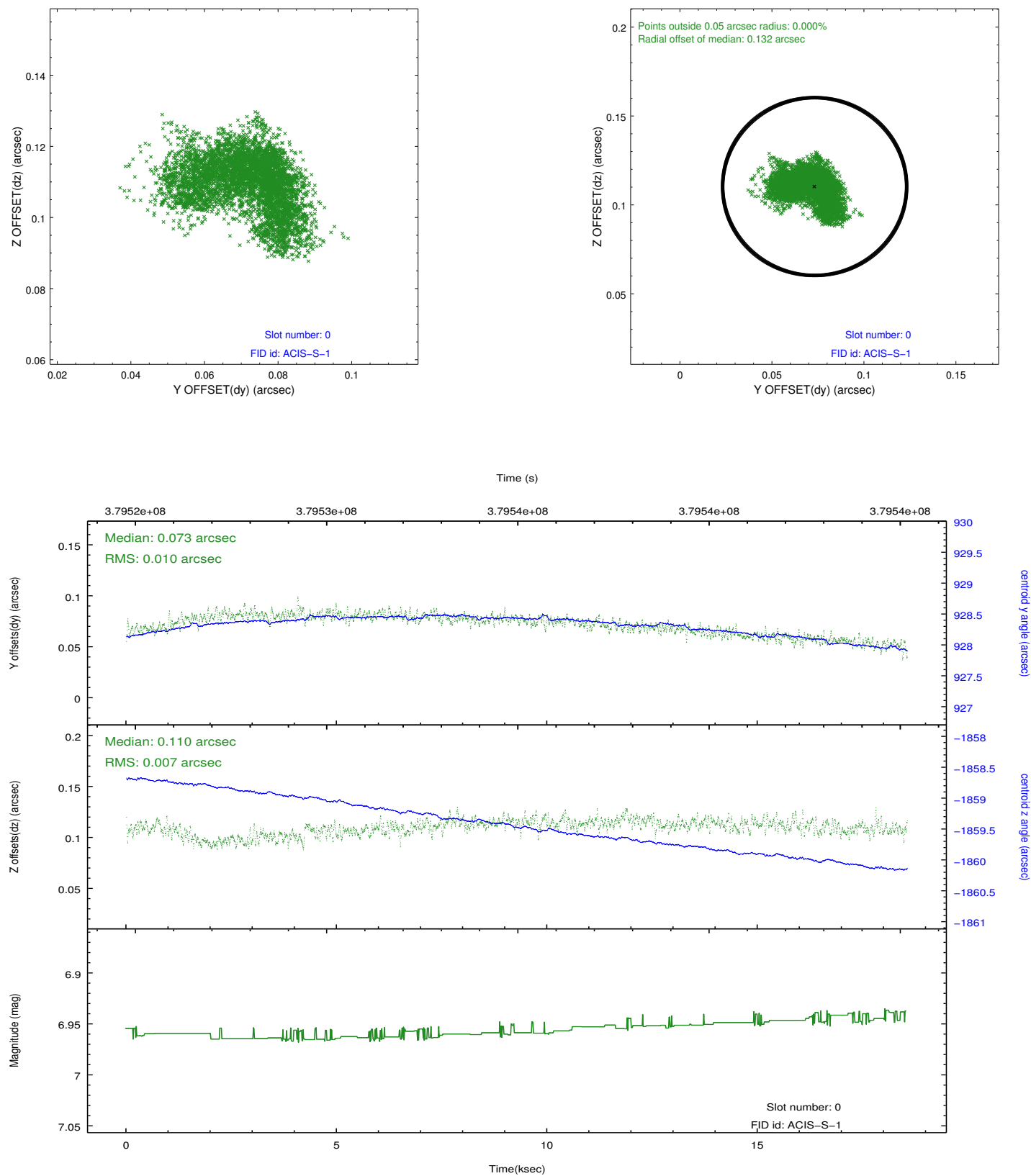


2.4.5 Slot 7

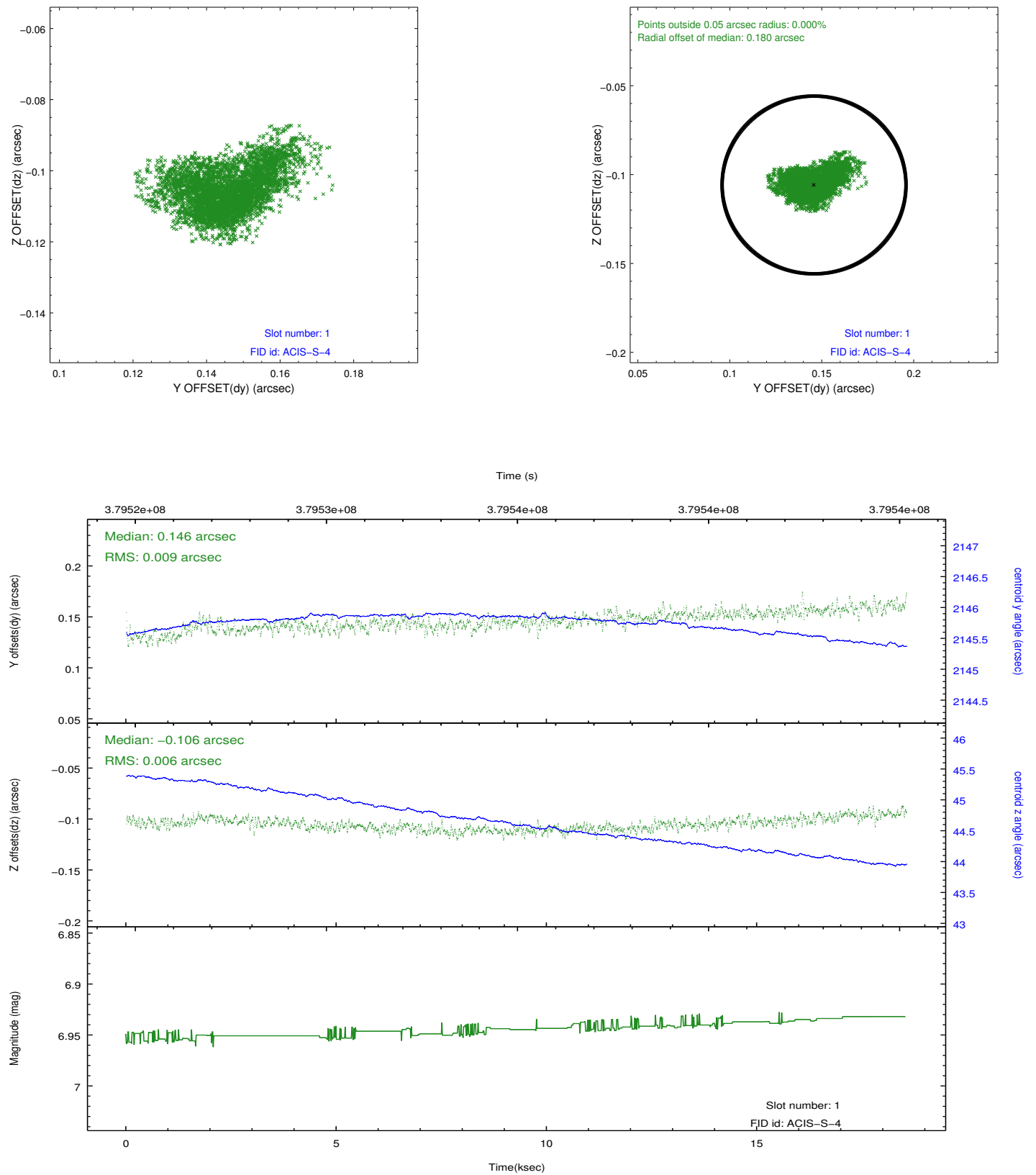


2.5 FID Slots

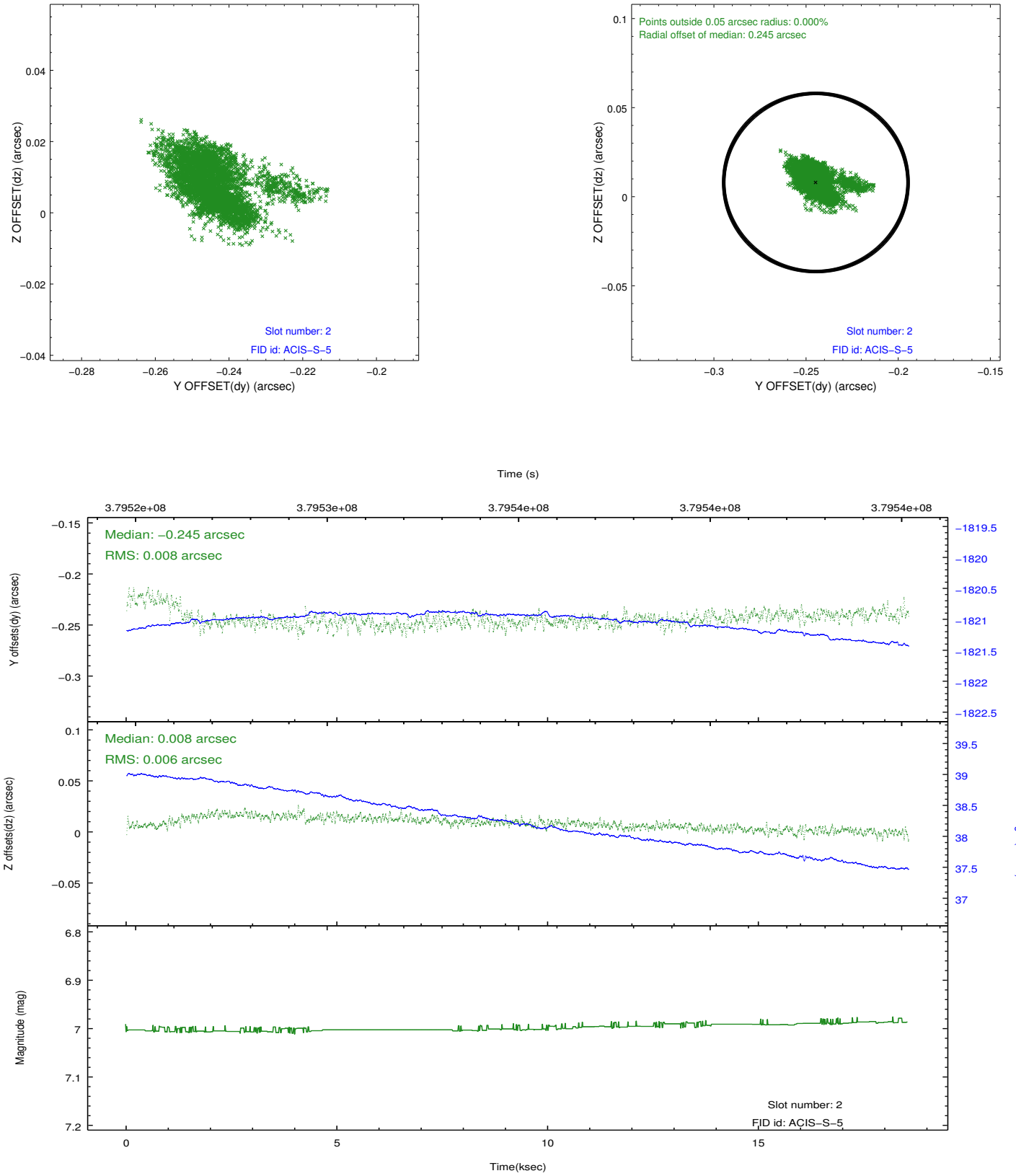
2.5.1 Slot 0



2.5.2 Slot 1

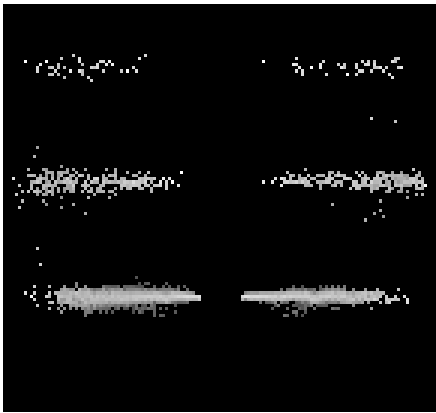


2.5.3 Slot 2

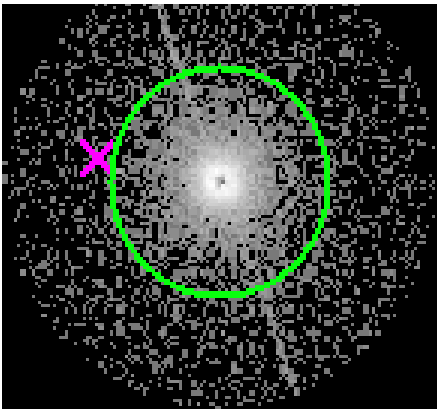


3 Gratings

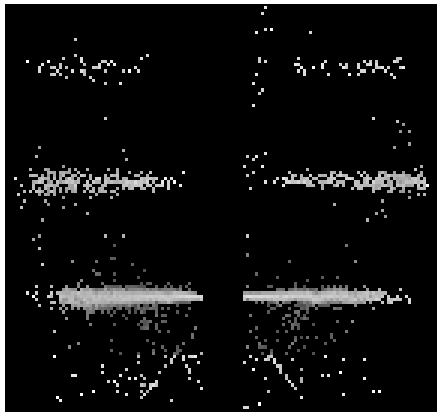
3.1 HEG Arm



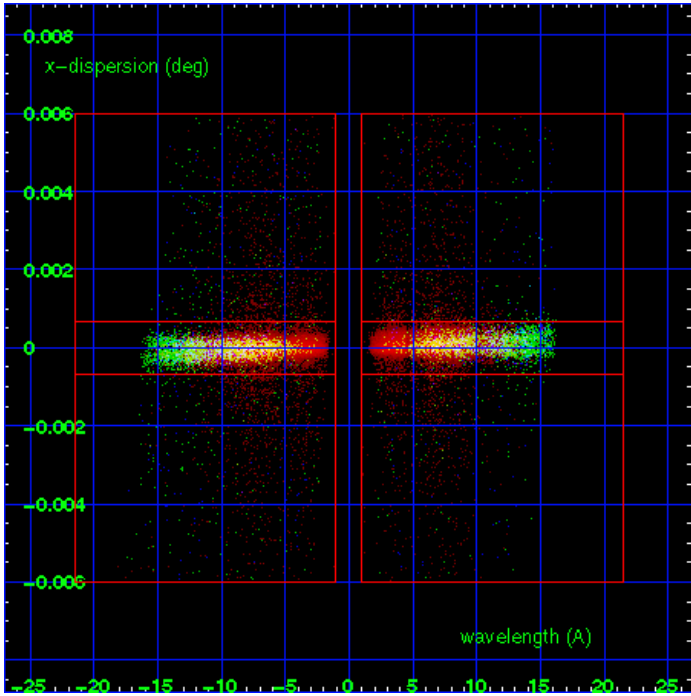
HEG Order Sort 123



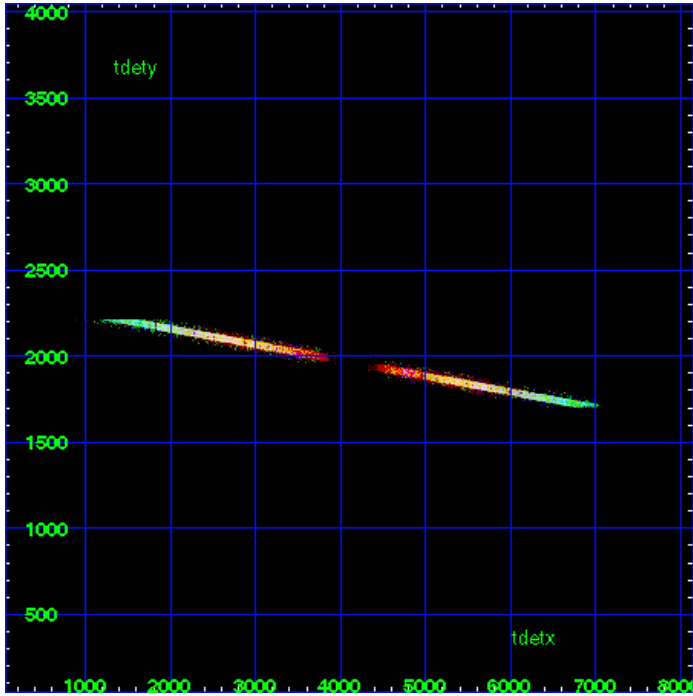
HEG Zero Order



HEG Order Sort ALL

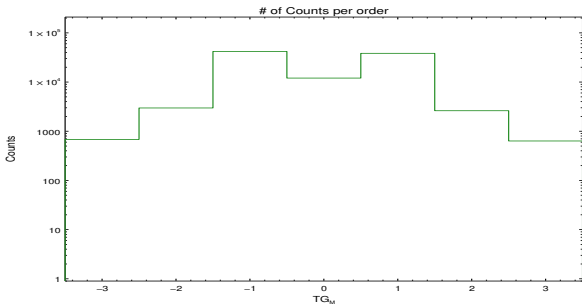


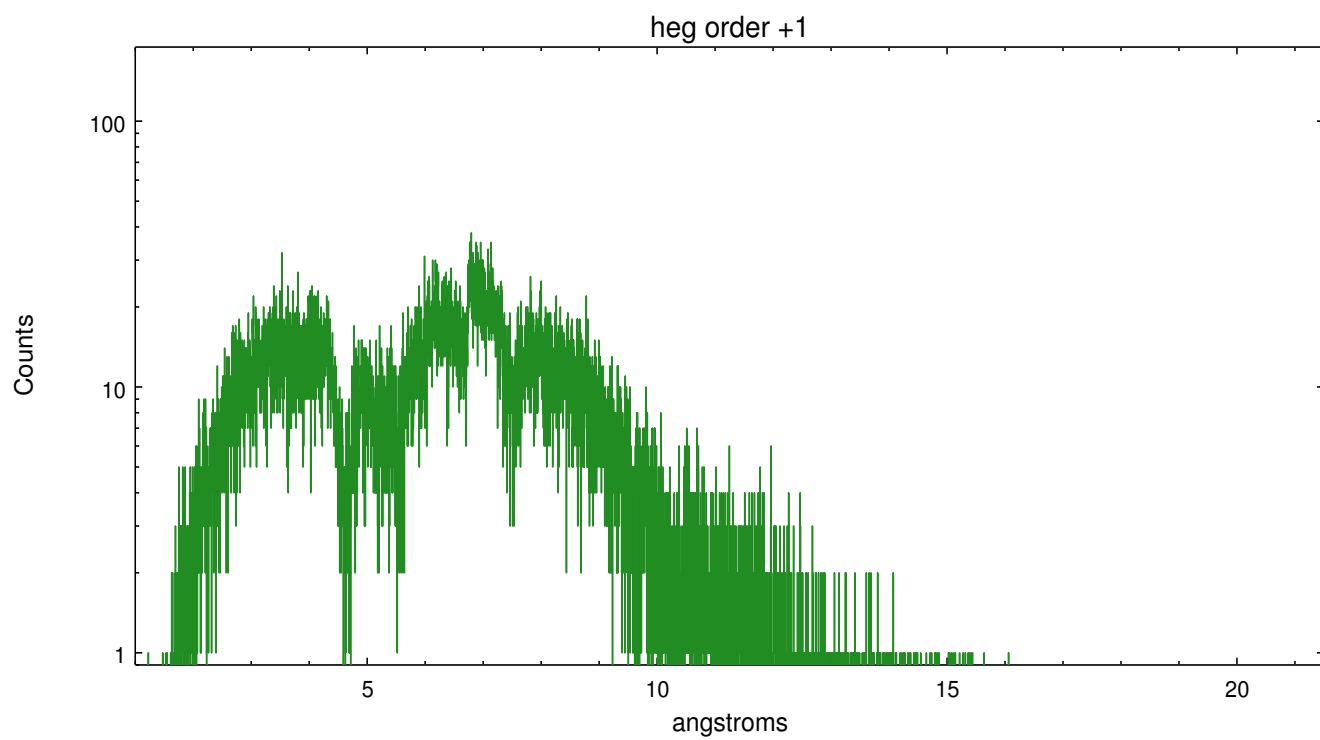
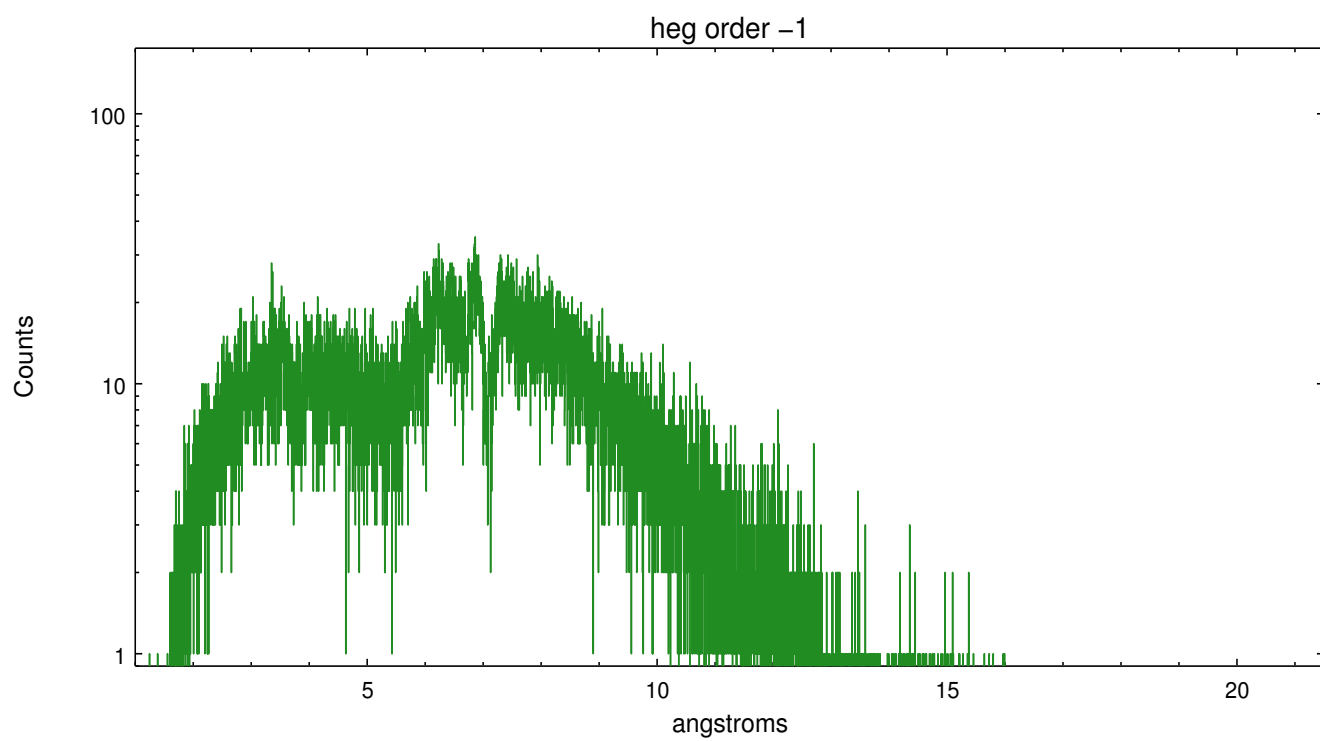
Spot Image HEG



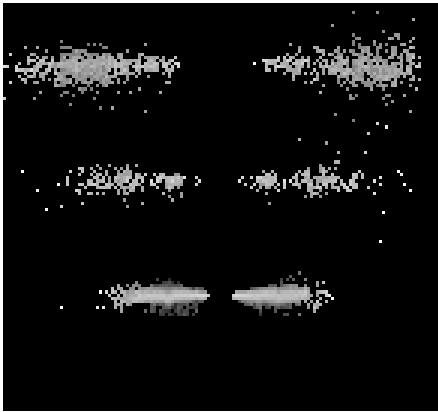
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	682	2973	41954	12044	38357	2615	634

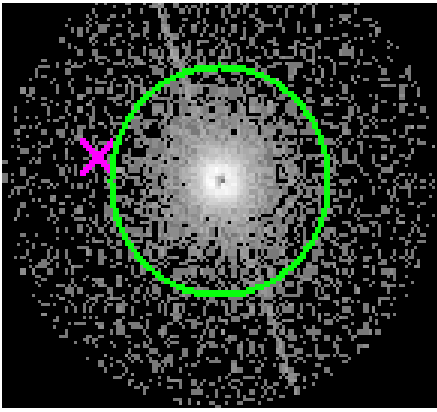




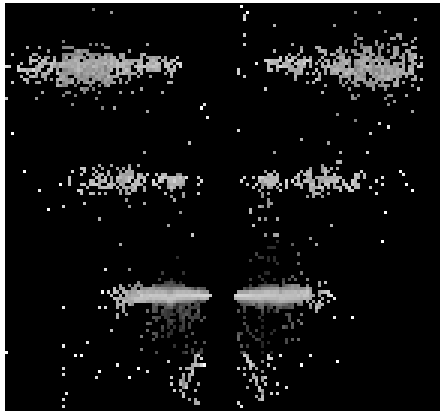
3.2 MEG Arm



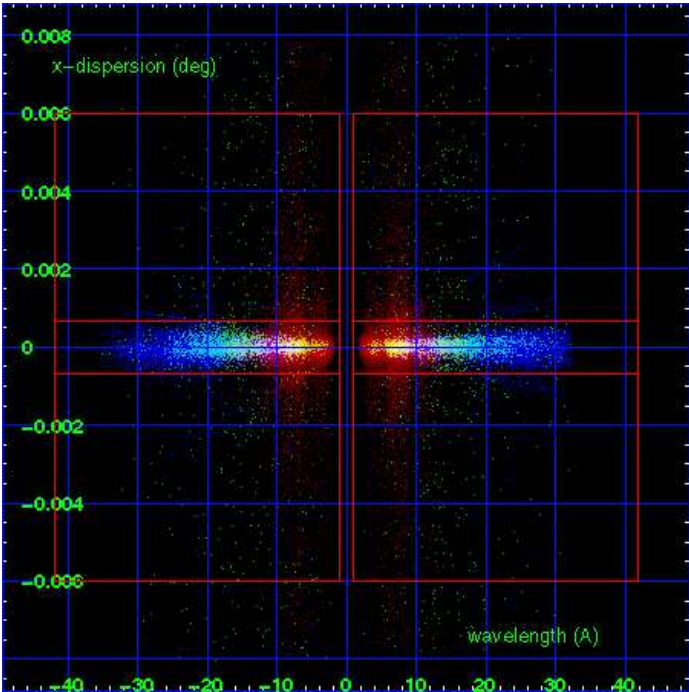
MEG Order Sort 123



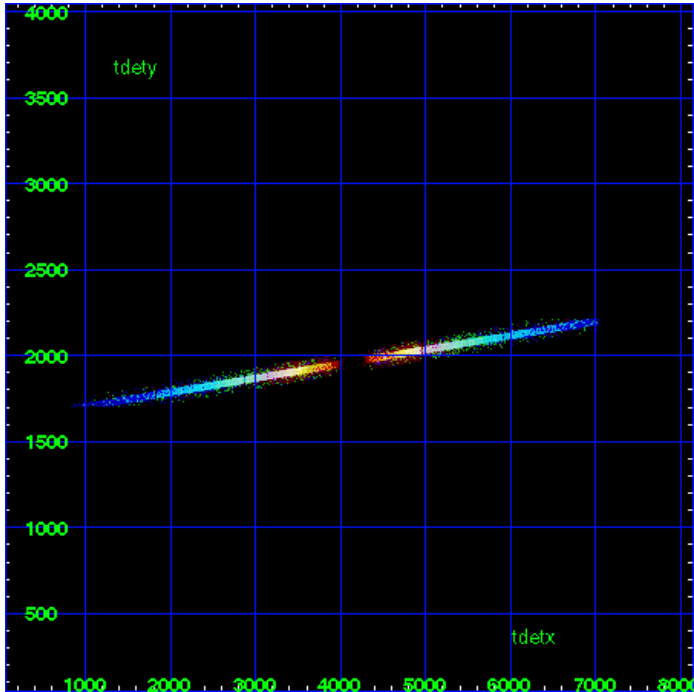
MEG Zero Order



MEG Order Sort ALL

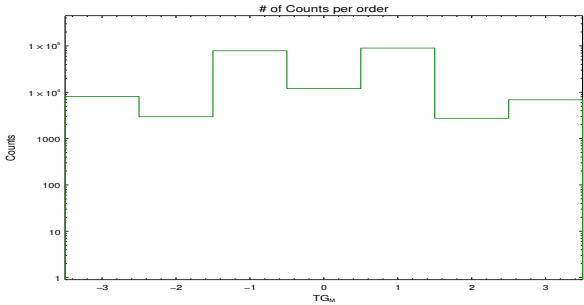


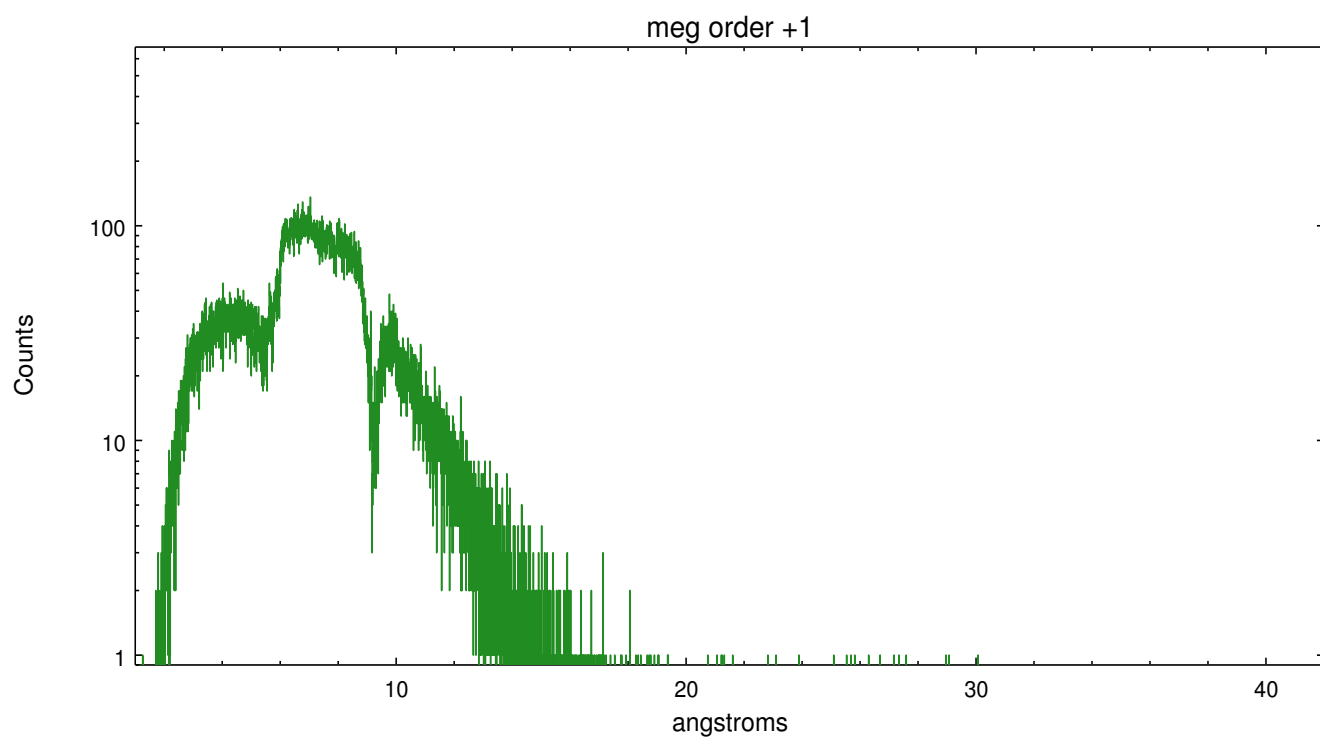
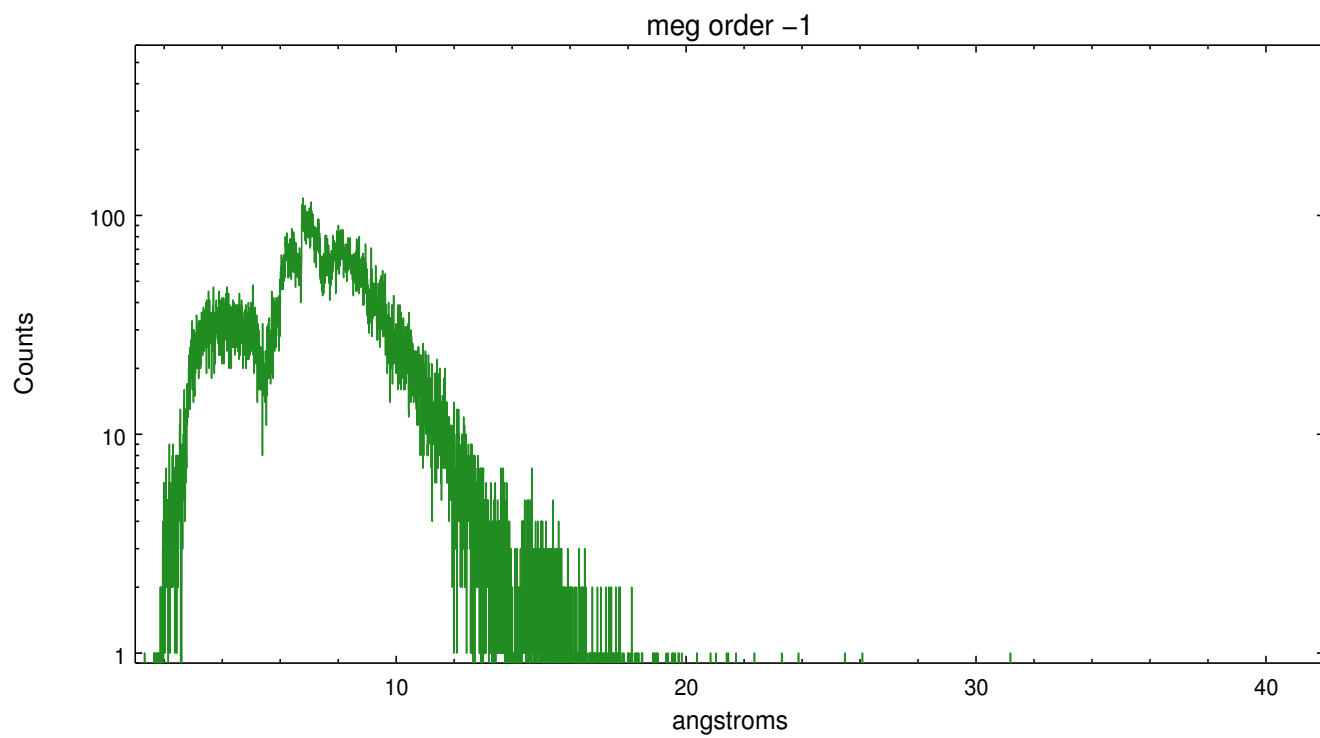
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	8094	2964	78583	12044	89896	2741	6872





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	17.771799875438

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=4130.63, y=4090.09) 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.