

V&V Reference Report

L2 ASCDS Version : 8.5.1.1

Observation 3568 - L2 Version 4
Chandra X-Ray Center

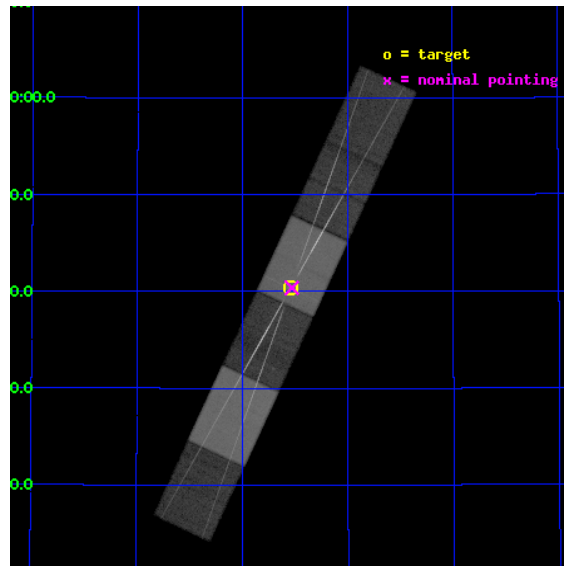
L2 Processing Date : Feb 27 2013

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

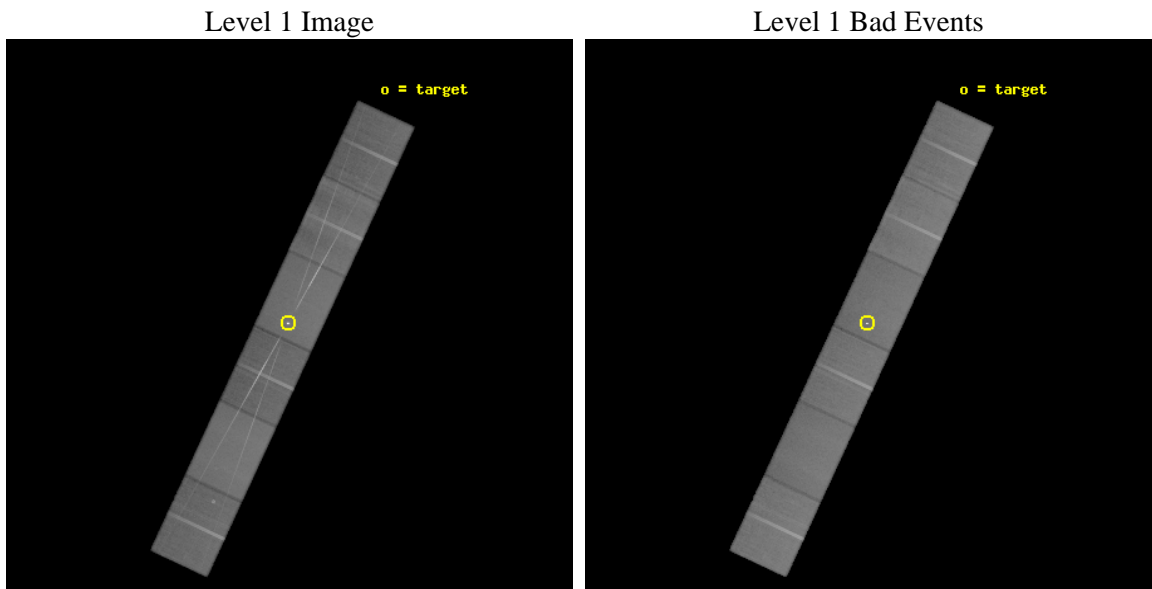
seq_num	700630	Sequence number
obs_id	3568	Observation id
title	PROBING THE INTERGALACTIC MEDIUM AT LOW REDSHIFT	Proposal title
observer	Prof Claude Canizares	Principal investigator
object	H 1426+428	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	217.135833	Observer's specified target RA [deg]
dec_targ	42.6725	Observer's specified target Dec [deg]
ra_nom	217.13294140228	Nominal RA [deg]
dec_nom	42.673130211206	Nominal Dec [deg]
roll_nom	294.97867291317	Nominal Roll [deg]
revision	4	Processing version of data
ontime	100999.91798973	Sum of GTIs [s]
livetime	99368.681710766	Livetime [s]
ontime4	100982.13111836	Sum of GTIs [s]
ontime5	100994.83607918	Sum of GTIs [s]
ontime6	100999.91804957	Sum of GTIs [s]
ontime7	100999.91798973	Sum of GTIs [s]
ontime8	100992.29516882	Sum of GTIs [s]
ontime9	100994.8360891	Sum of GTIs [s]
l2events	962990	Number of level 2 events



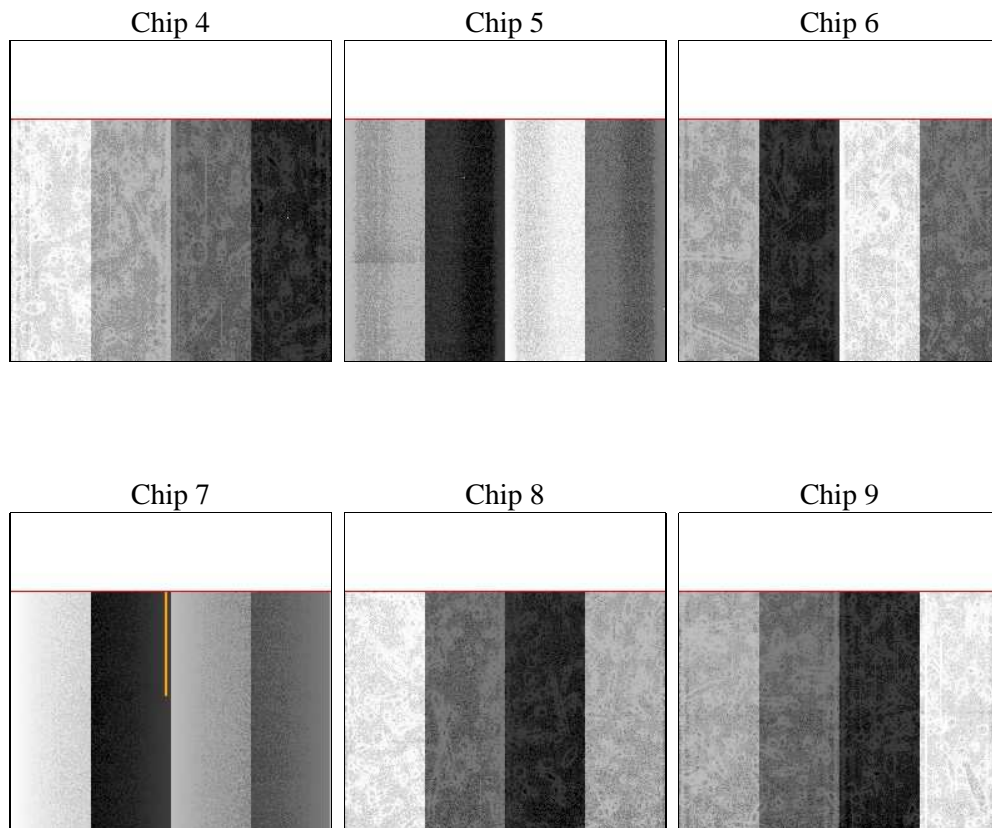
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	100861.000000	[s] Scheduled observation exposure time
ascdsver	8.5.1.1	Processing system revision	ontime	100999.91798973	Sum of GTIs [s]
caldsver	4.5.5	 	ontime4	100982.13111836	Sum of GTIs [s]
date	2013-02-27T03:04:58	Date and time of file creation	ontime5	100994.83607918	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	100999.91804957	Sum of GTIs [s]
			ontime7	100999.91798973	Sum of GTIs [s]
			ontime8	100992.29516882	Sum of GTIs [s]
			ontime9	100994.8360891	Sum of GTIs [s]
			l1events	3699979	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	550965	712813	552997	737797	653244	492163	grade 0 events	32140	30322	69941	39525	66283	29913
rejected events	482960	382676	435832	393636	493062	425934		5%	4%	12%	5%	10%	6%
rejected %	87%	53%	78%	53%	75%	86%	grade 1 events	387	735	376	1433	430	271
								0%	0%	0%	0%	0%	0%
							grade 2 events	13375	96540	18348	71131	30695	12020
								2%	13%	3%	9%	4%	2%
							grade 3 events	6708	17888	8057	32139	14903	6475
								1%	2%	1%	4%	2%	1%
							grade 4 events	6175	16911	7882	32103	14241	6281
								1%	2%	1%	4%	2%	1%
							grade 5 events	20350	55260	21711	65765	28387	22975
								3%	7%	3%	8%	4%	4%
							grade 6 events	9668	168808	13042	169567	34241	11596
								1%	23%	2%	22%	5%	2%
							grade 7 events	462162	326349	413640	326134	464064	402632
								83%	45%	74%	44%	71%	81%

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	217.102309	217.1329414022846	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	42.688462	42.67313021120604	Subarray start row	1	1
[deg] Pointing Roll	294.842804	294.9786729131681	Subarray row count	774	774
[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	2.5
[mm] SIM translation stage pos	-187.132523	-187.1254020033014			
[mm] SIM translation stage offset	-3	-3.007120579706367			
[s] Observation start time (MET)	179415232.184000	179414105.85844			
Observation start date	2003-09-08T13:32:48	2003-09-08T13:15:05			
[s] Observation end time (MET)	179516093.184000	179516592.53783			
Observation end date	2003-09-09T17:33:49	2003-09-09T17:43:12			
Read mode	TIMED	TIMED			

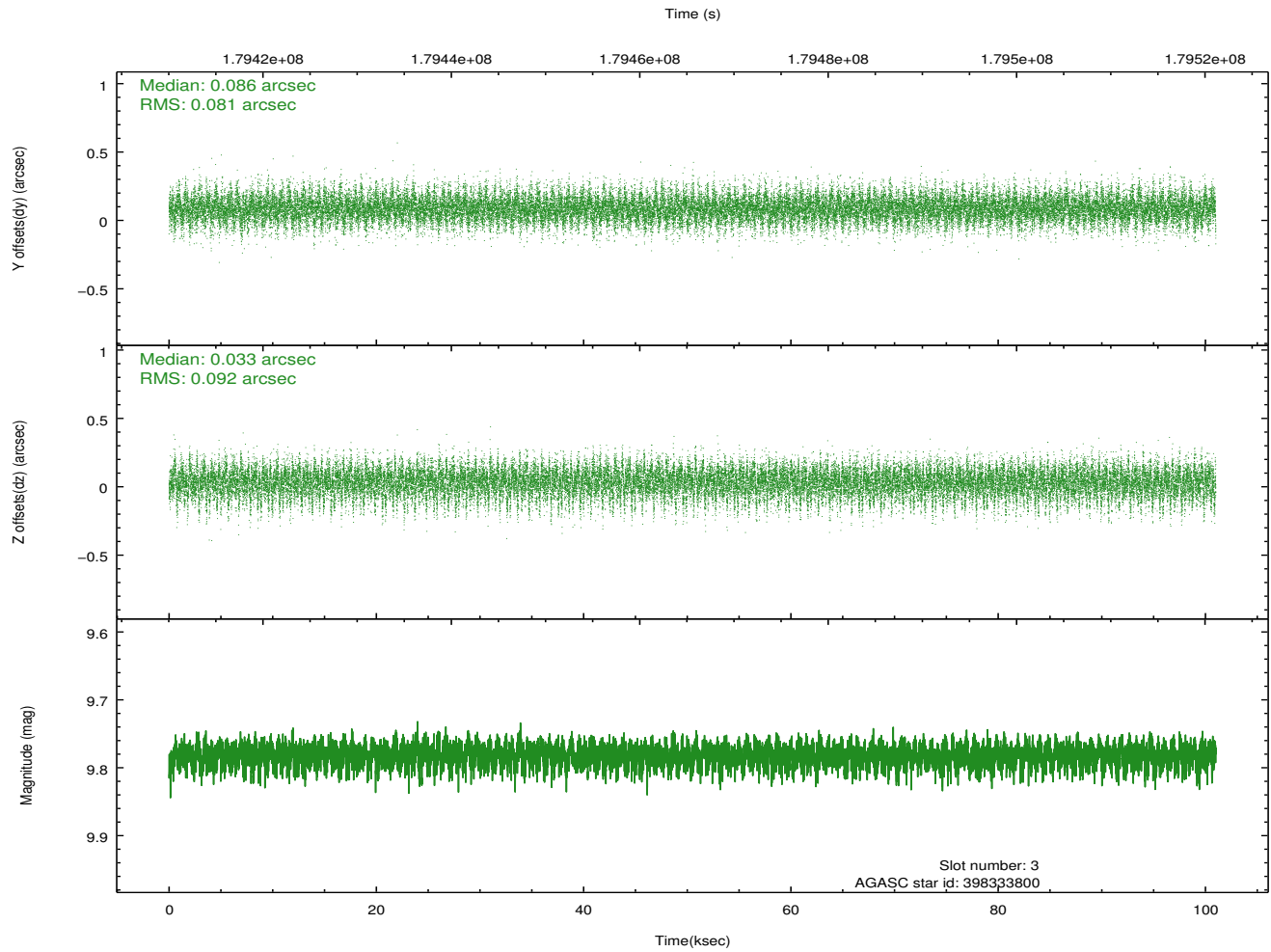
2.3 Aspect

Slot Statistics

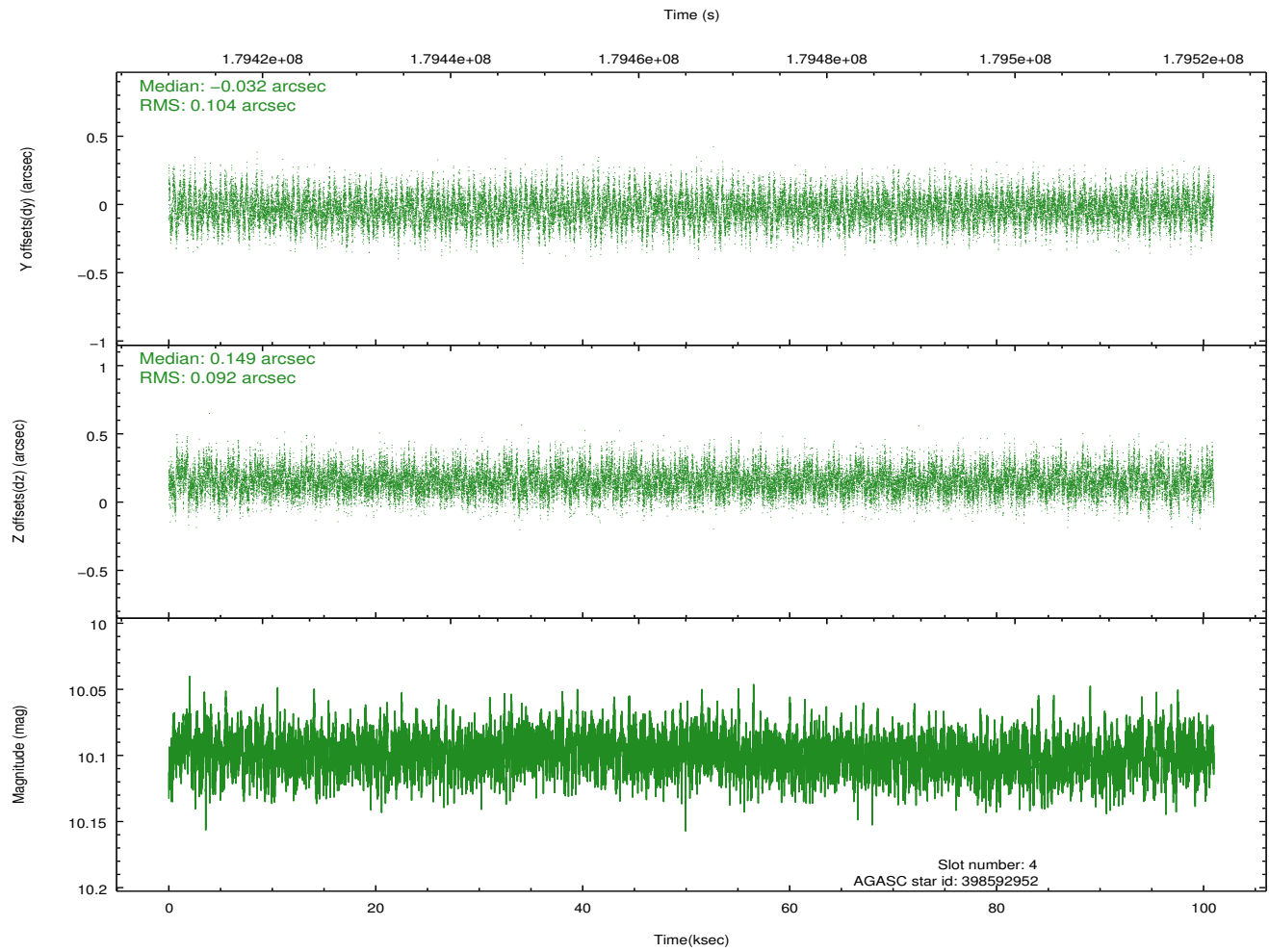
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	24623	-0.052	-0.083	0.008	0.020	0.000000	0.000000	-759.21	-1794.22
1	FID	ACIS-S-4	7.19	24621	0.076	0.047	0.006	0.011	0.000000	0.000000	2154.26	114.44
2	FID	ACIS-S-5	7.23	24623	-0.055	0.044	0.008	0.018	0.000000	0.000000	-1812.14	108.06
3	GUIDE	398333800	9.78	49217	0.086	0.033	0.128	0.217	216.924026	41.953431	2200.99	-1544.69
4	GUIDE	398592952	10.10	49218	-0.032	0.149	0.149	0.239	216.343106	43.029643	-1961.87	-1293.23
5	GUIDE	398723464	9.06	49229	0.013	-0.202	0.086	0.138	217.255519	42.514001	740.75	105.04
6	GUIDE	398725424	8.77	49237	0.007	0.058	0.063	0.102	217.673023	42.542871	1107.11	1156.04
7	GUIDE	398723456	9.37	49225	-0.066	-0.038	0.120	0.194	217.640217	43.368629	-1634.91	2308.14

2.4 Star Slots

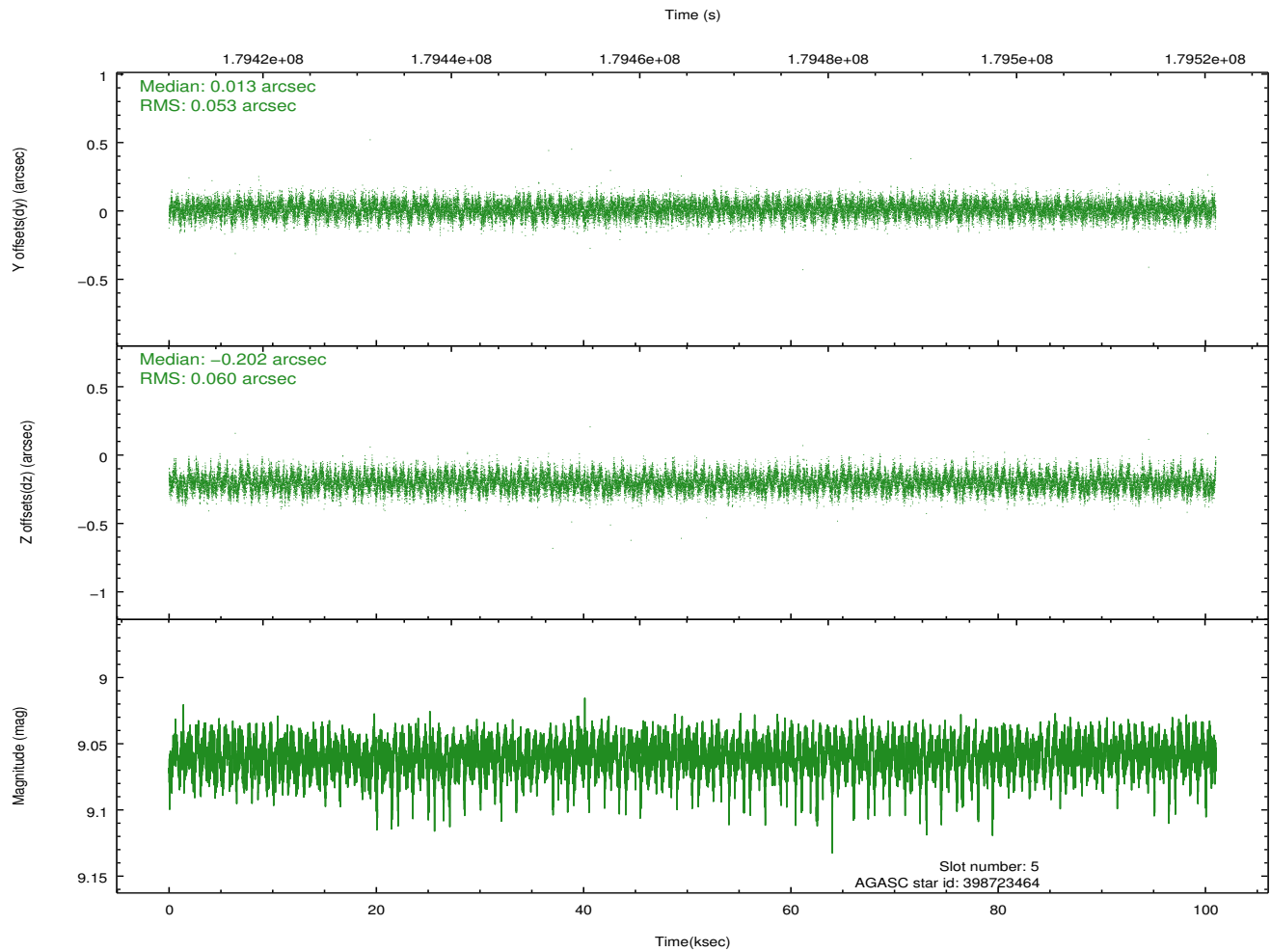
2.4.1 Slot 3



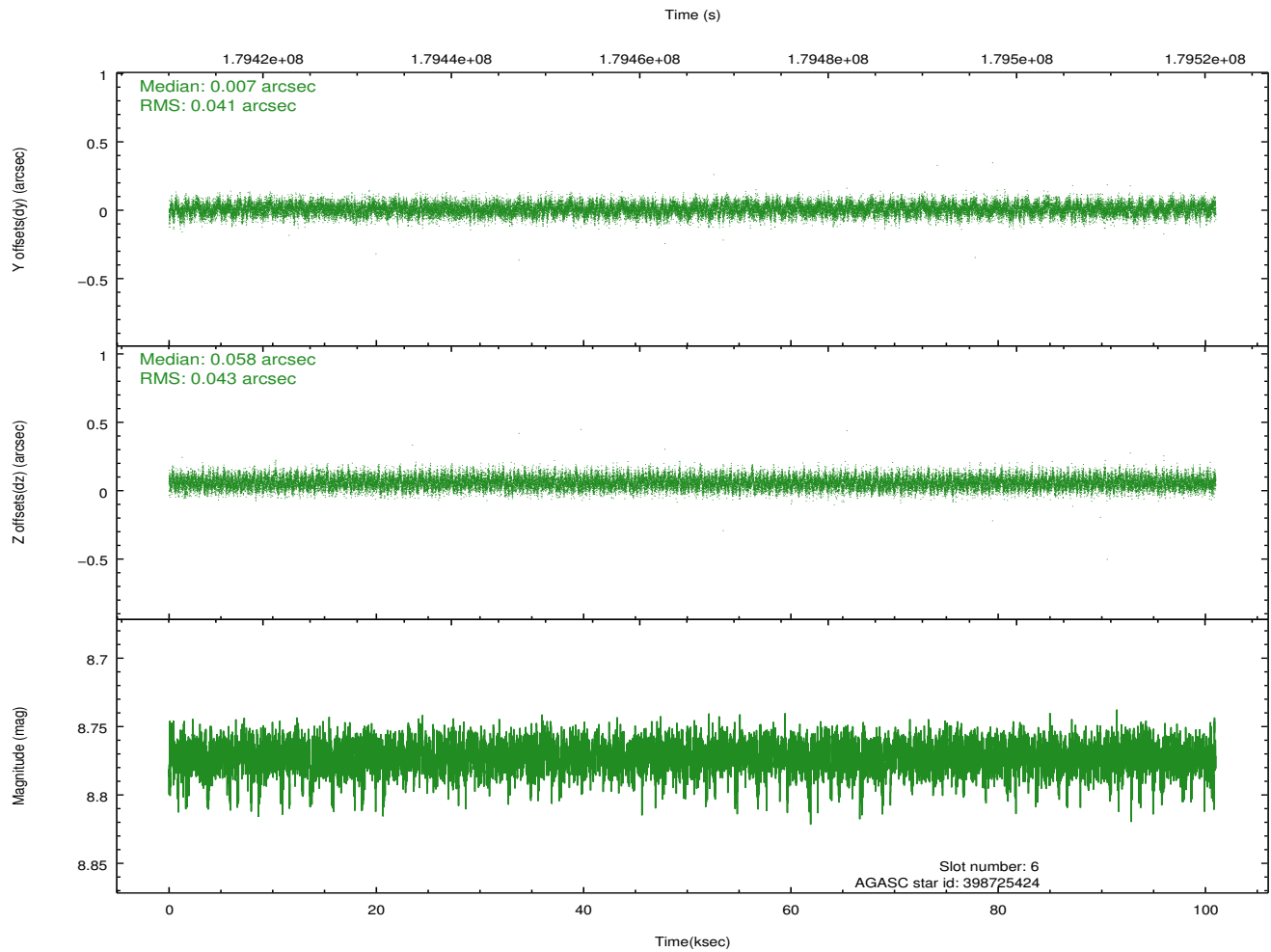
2.4.2 Slot 4



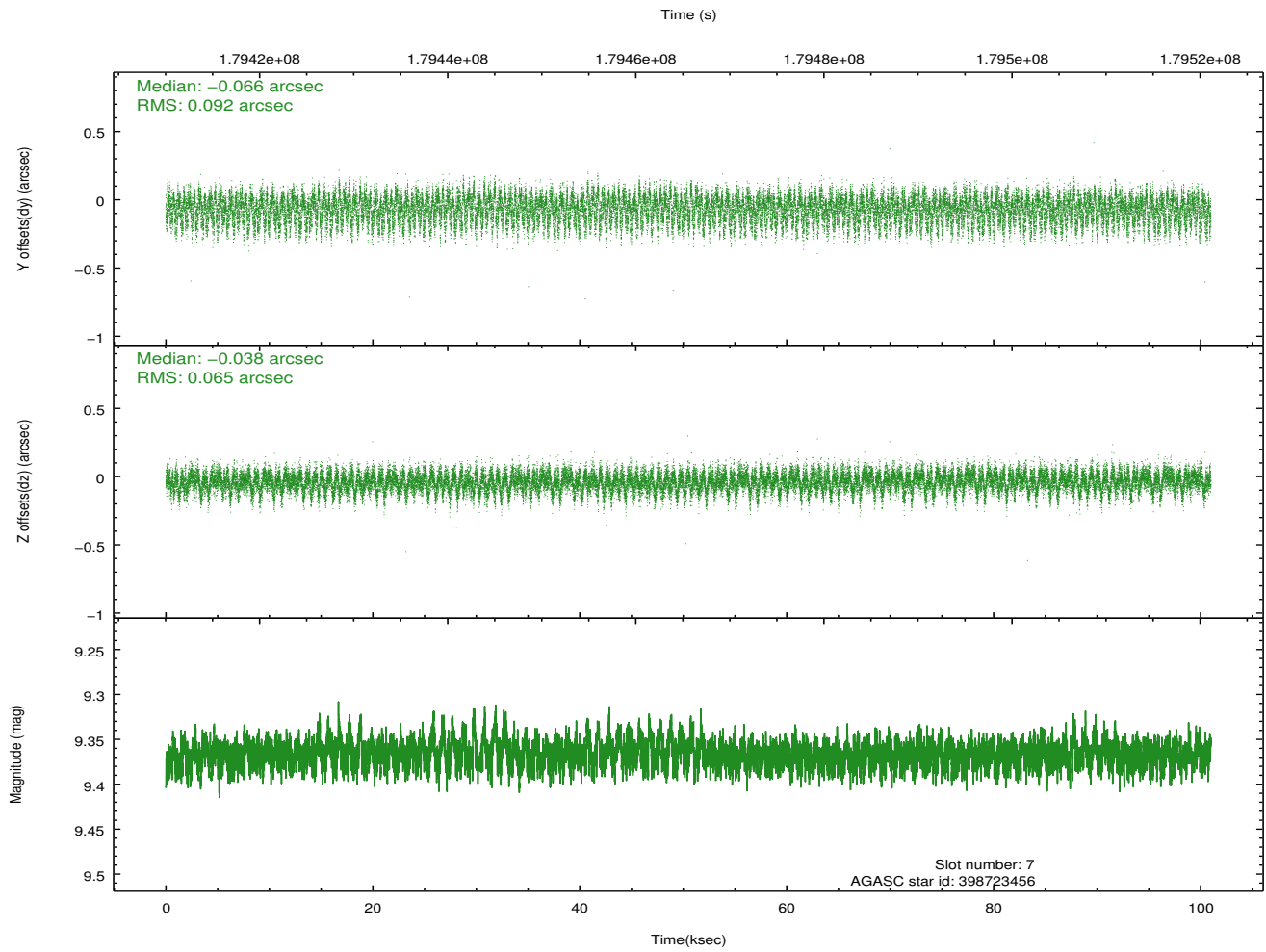
2.4.3 Slot 5



2.4.4 Slot 6

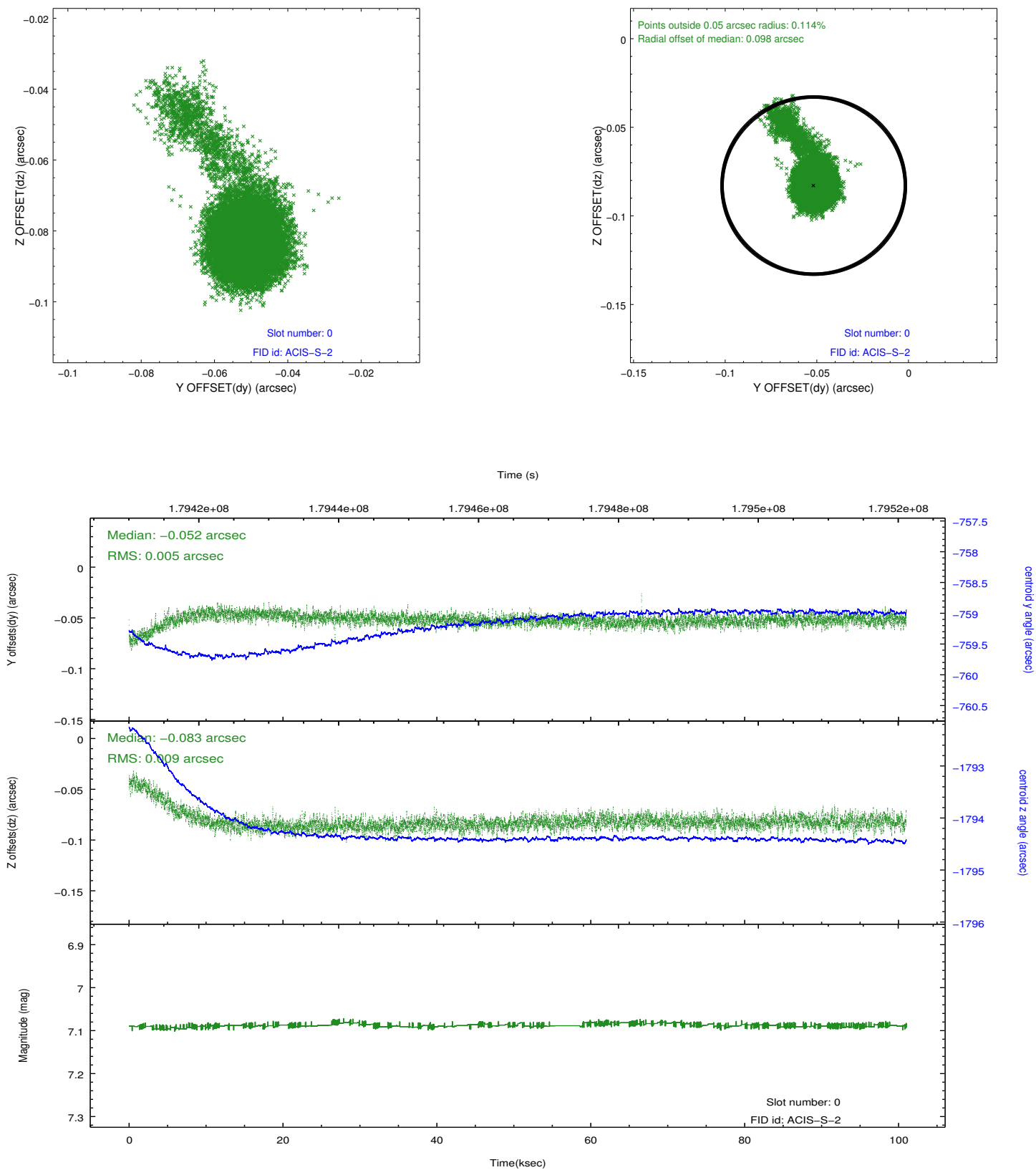


2.4.5 Slot 7

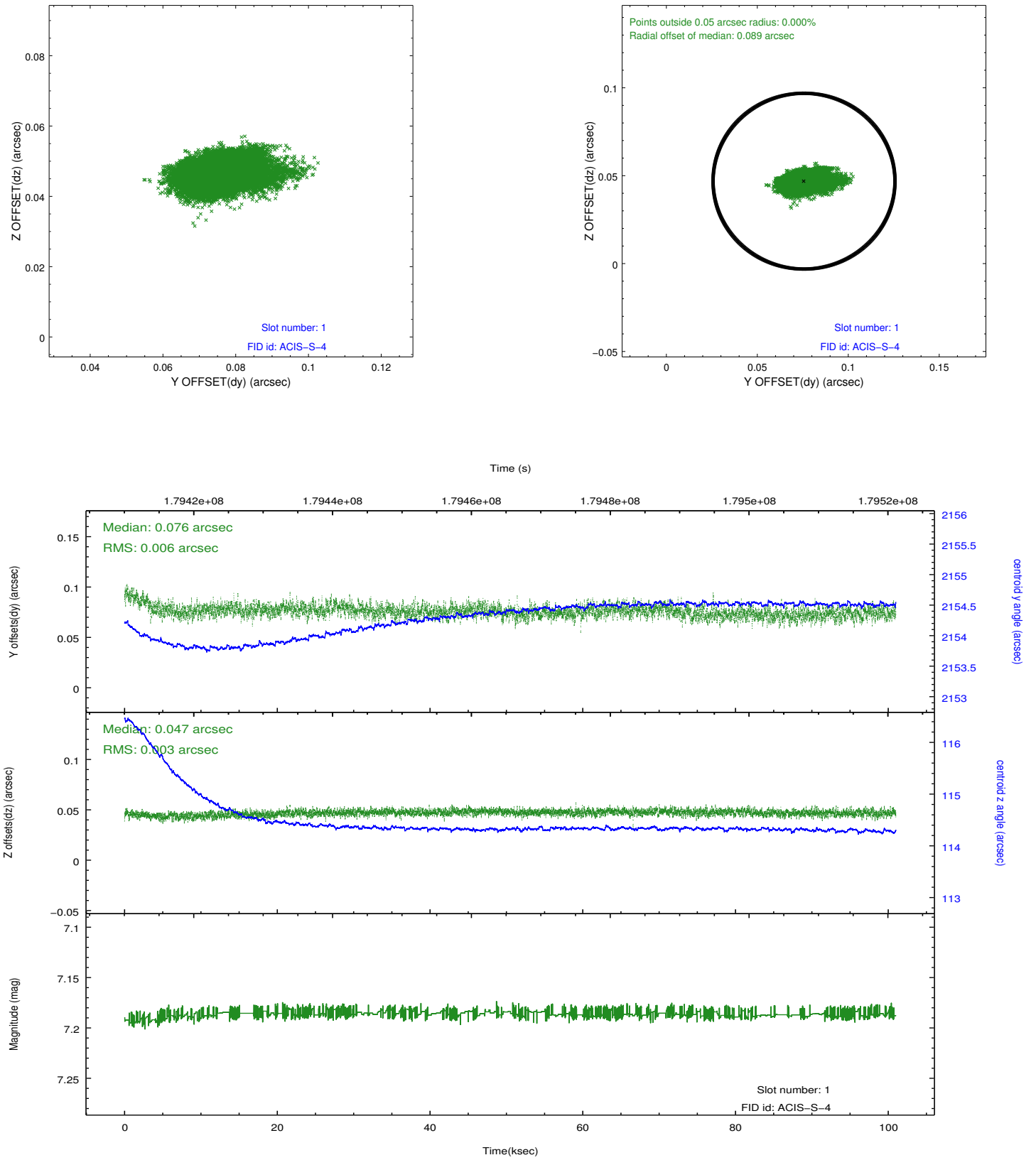


2.5 FID Slots

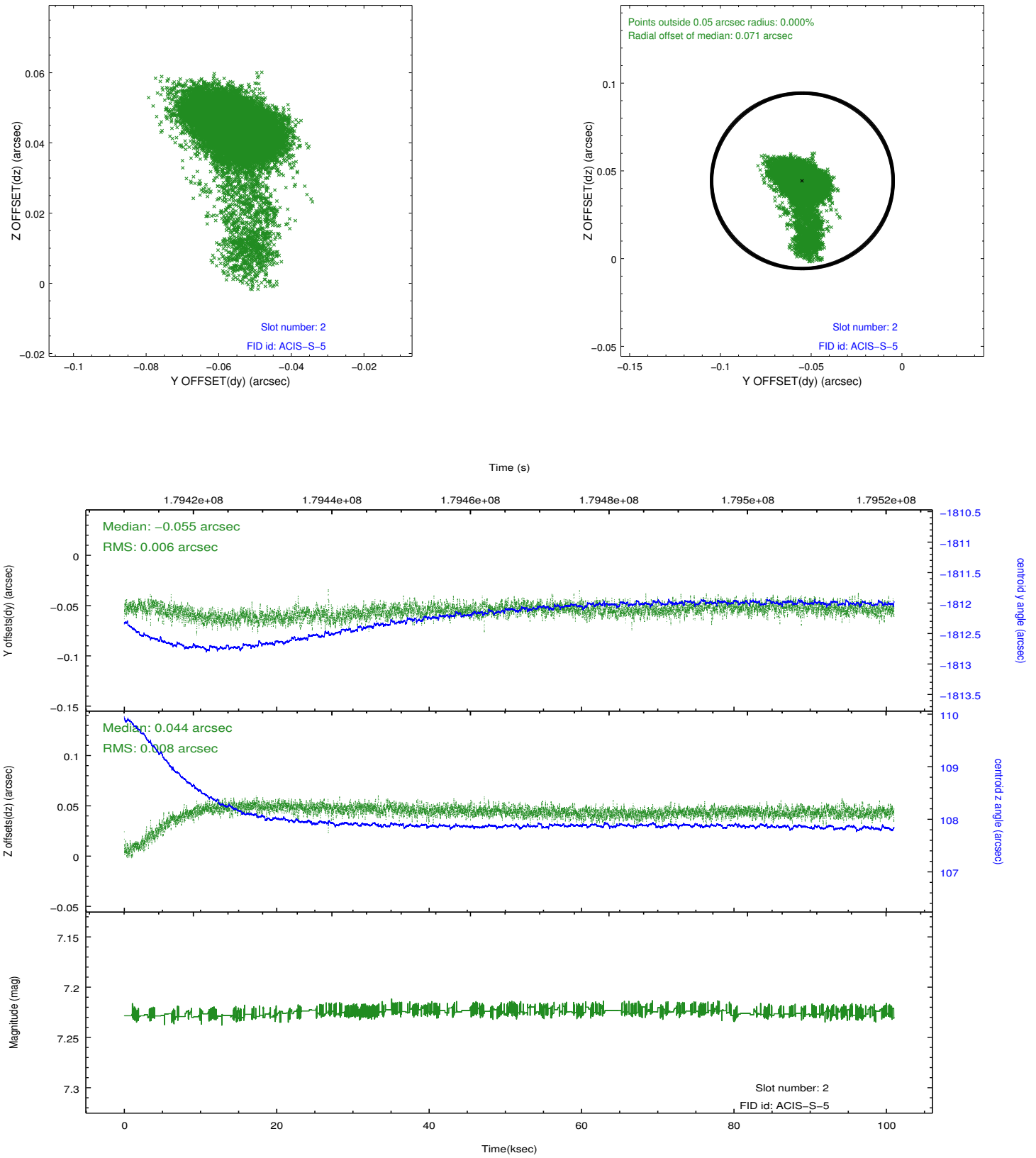
2.5.1 Slot 0



2.5.2 Slot 1

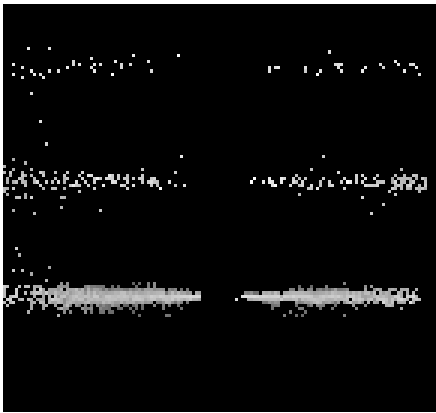


2.5.3 Slot 2

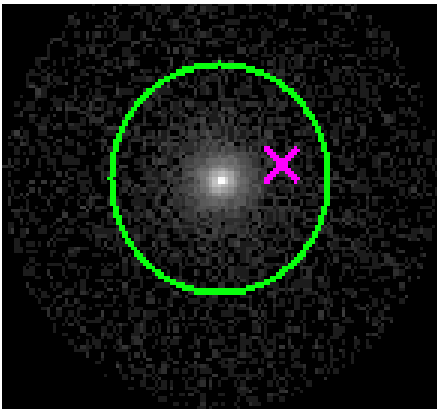


3 Gratings

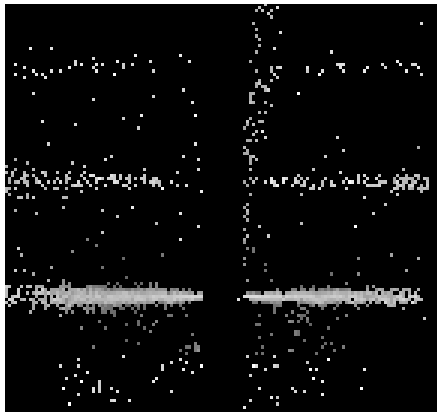
3.1 HEG Arm



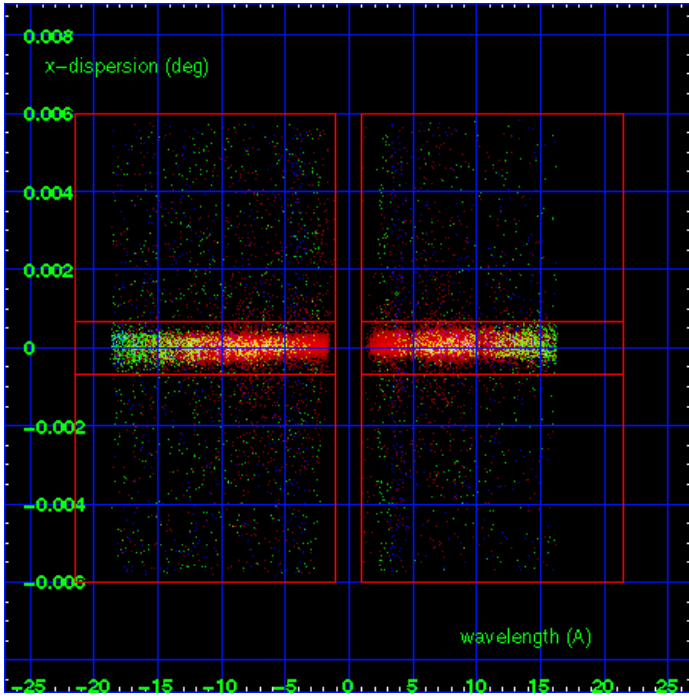
HEG Order Sort 123



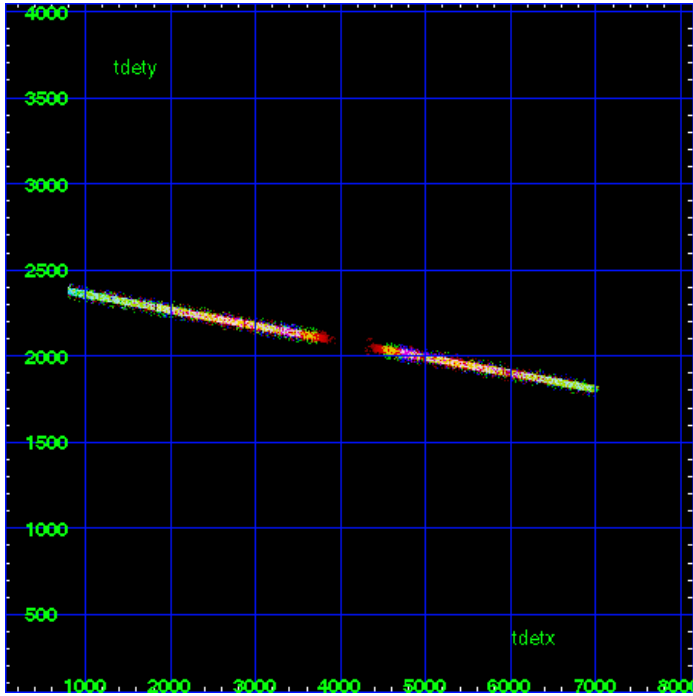
HEG Zero Order



HEG Order Sort ALL

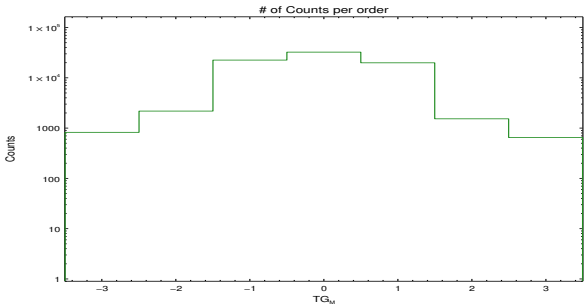


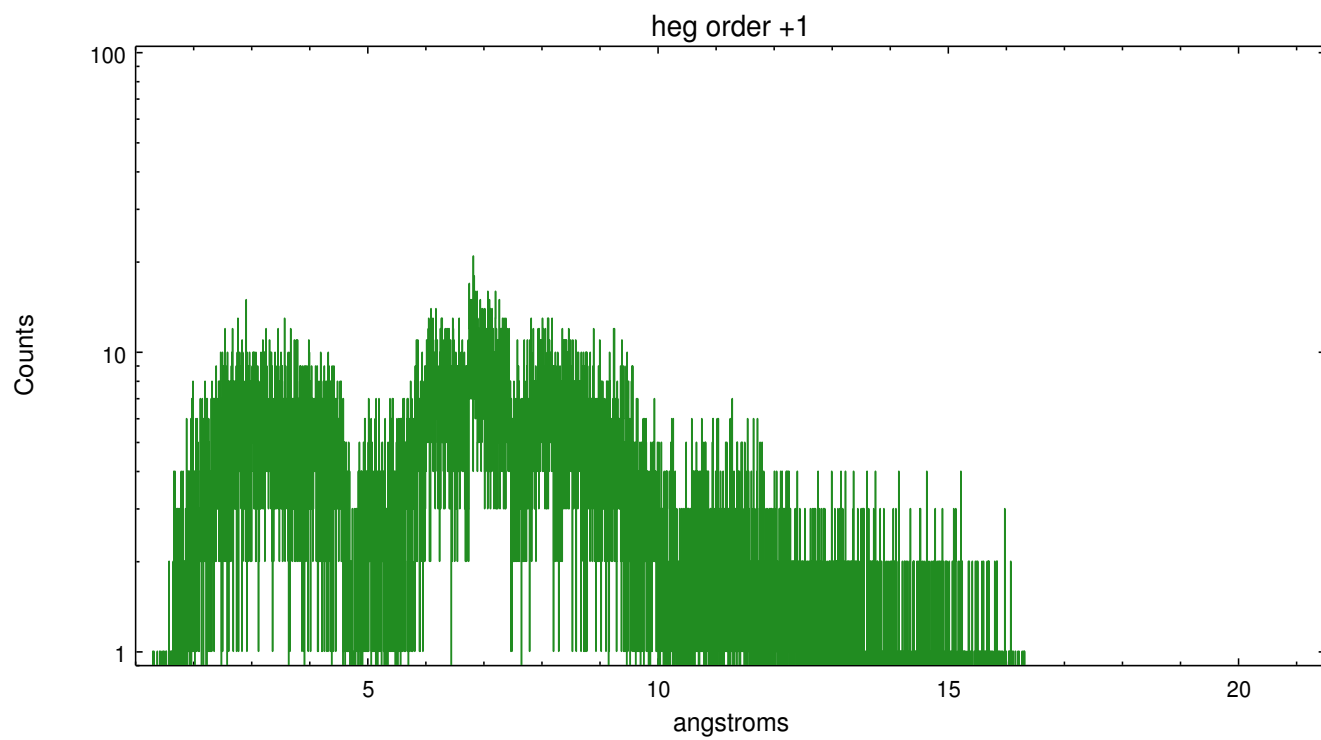
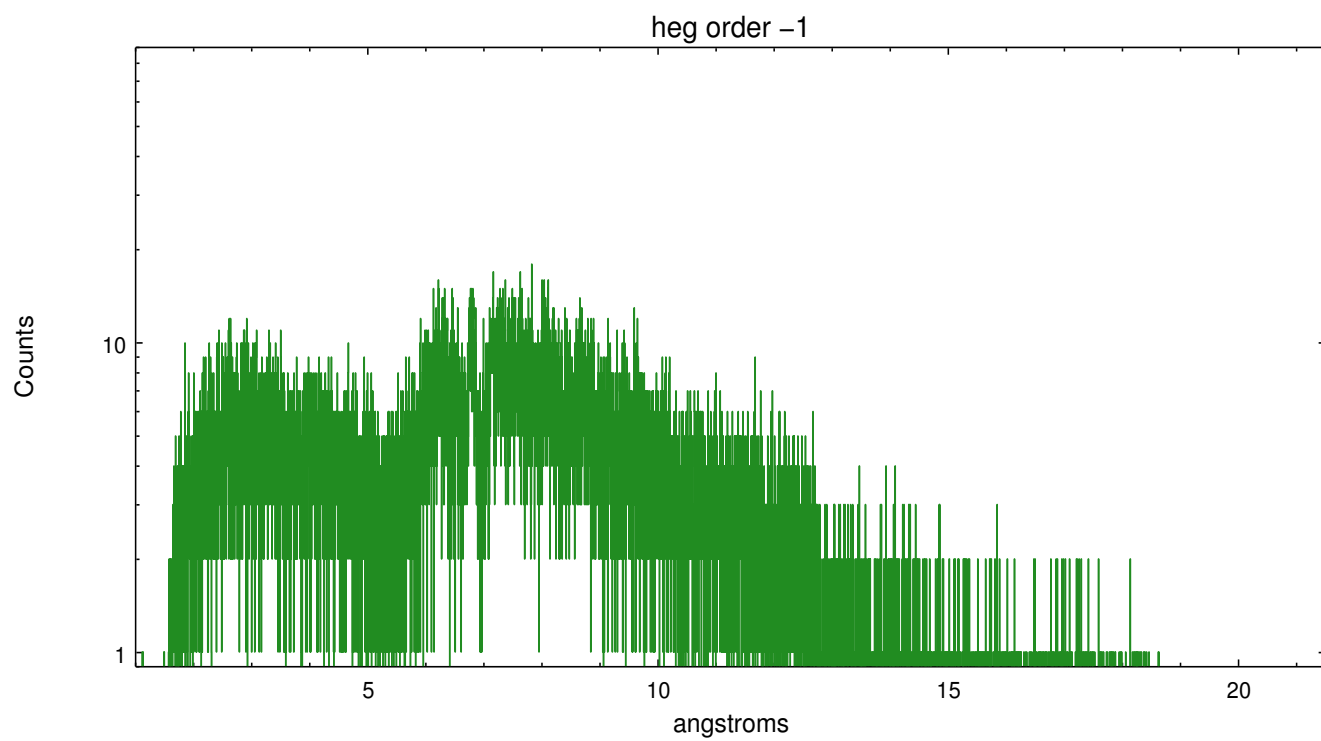
Spot Image HEG



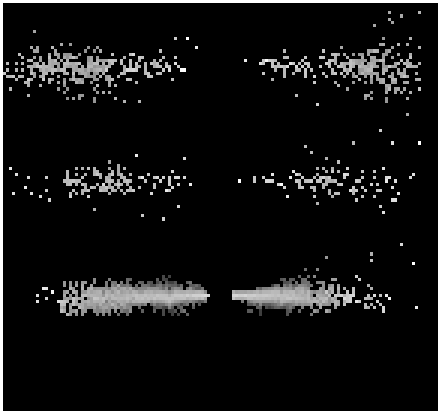
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	825	2187	22681	32676	20024	1535	650

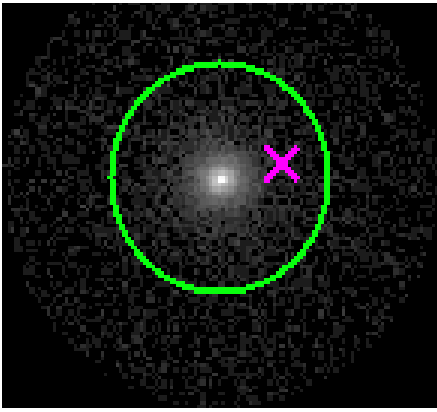




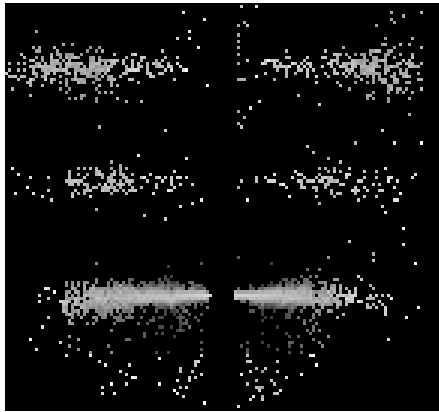
3.2 MEG Arm



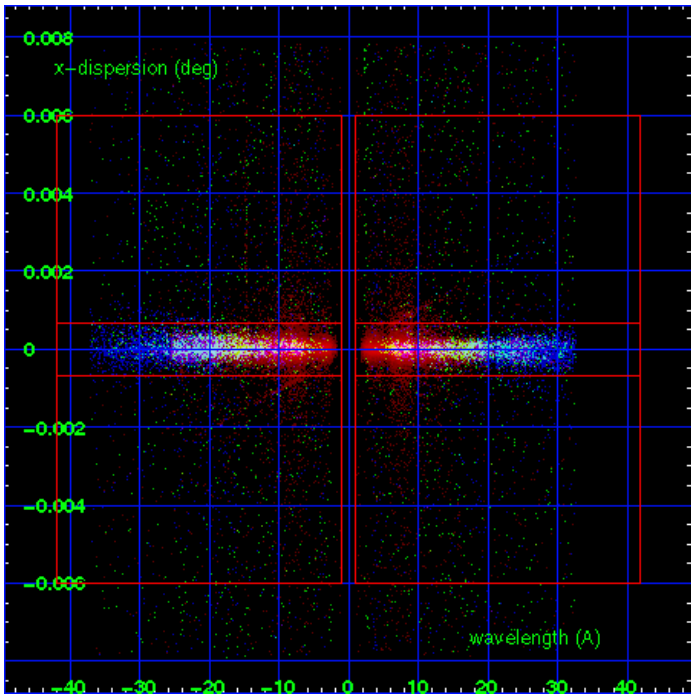
MEG Order Sort 123



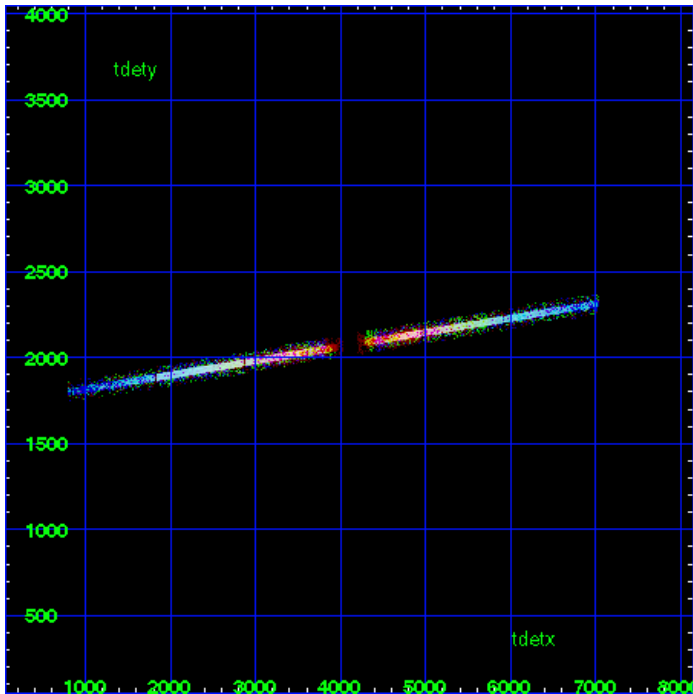
MEG Zero Order



MEG Order Sort ALL

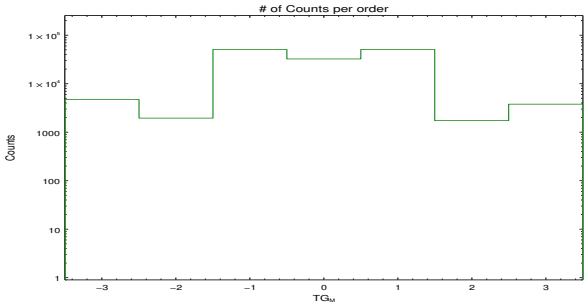


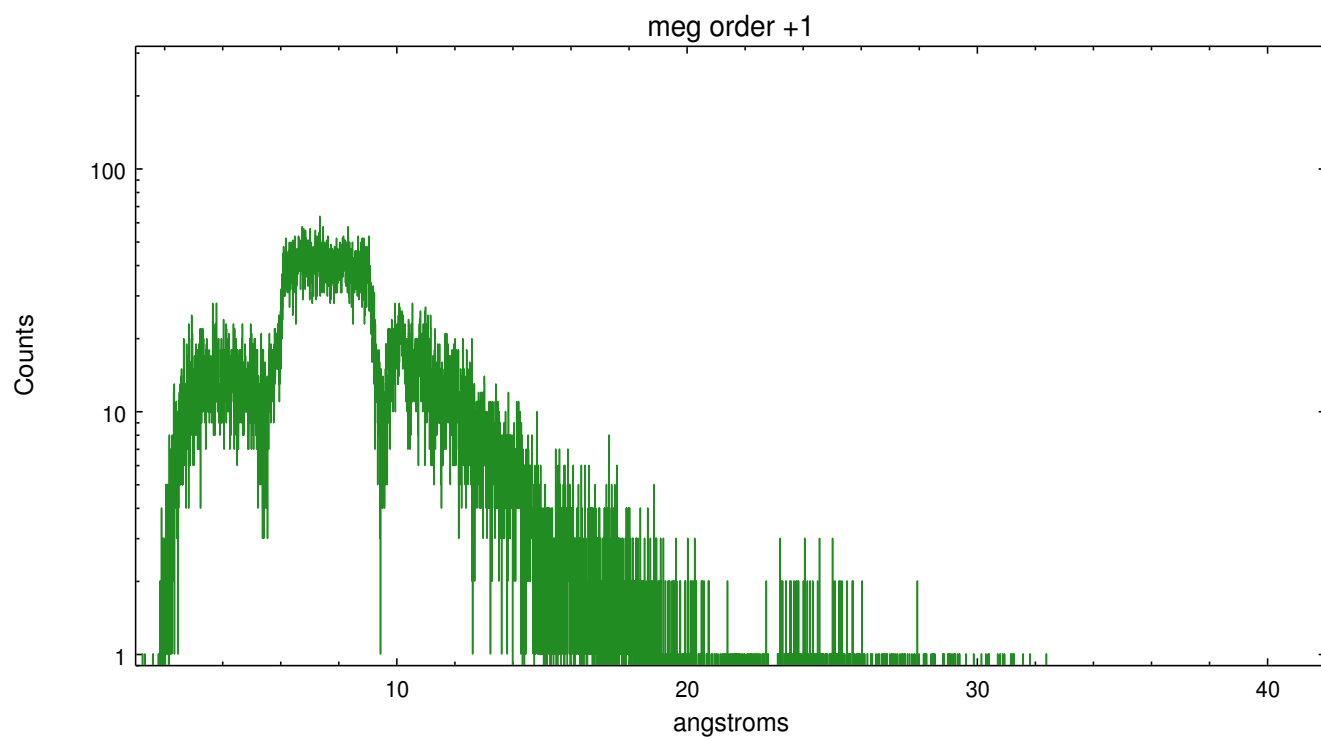
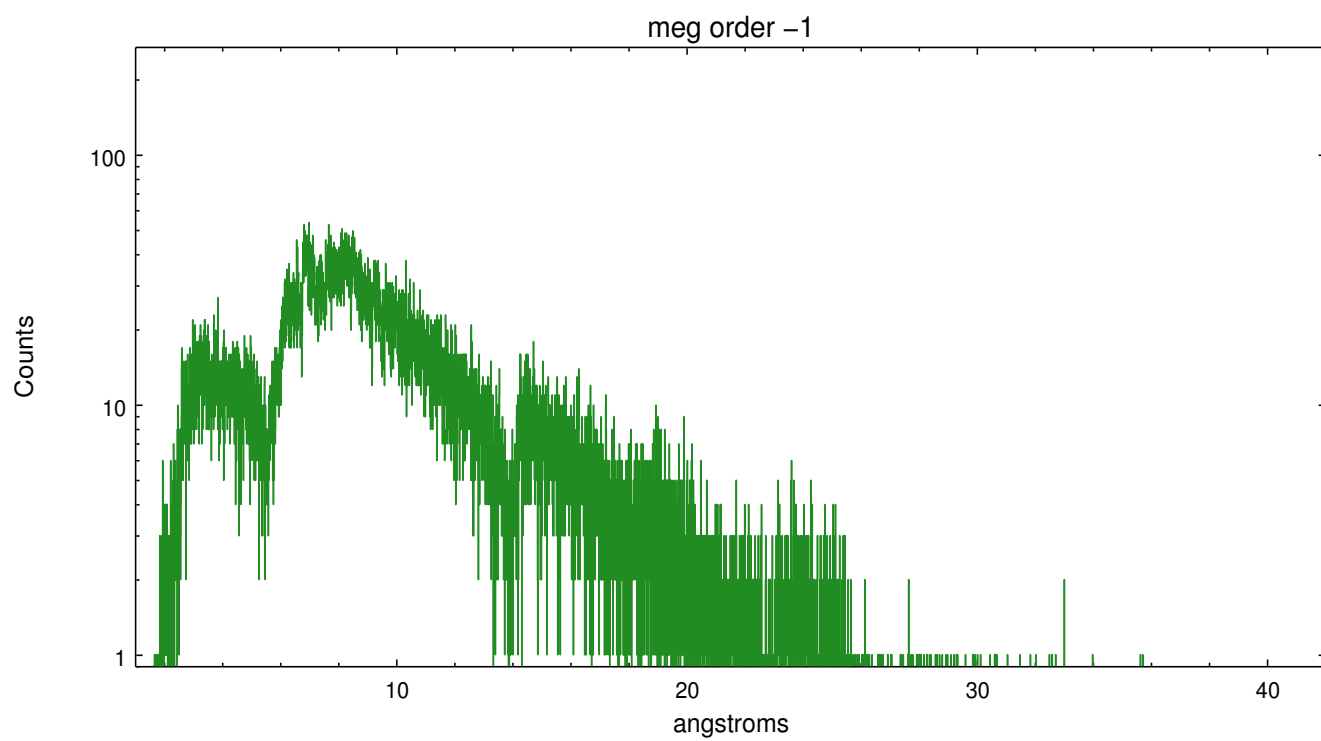
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	4731	1956	51118	32676	51051	1738	3797





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.03.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	100.999

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 ($x=4080.467$, $y=4092.064$) into the `*src1a.fits` file table. These corrected coordinates were determined using a software tool developed by CXC called `tg_findzo`, which is available in CIAO. 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.

====

A spatial region of the original bias map for CCD = 6 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~ 20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 6 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords: (217.27517,42.57218), (217.27228,42.57676), (217.18140,42.54559), (217.18430,42.54102).

Note that this region crosses both spectral arms.