

V&V Reference Report

L2 ASCDS Version : 8.5

Observation 4584 - L2 Version 3
Chandra X-Ray Center

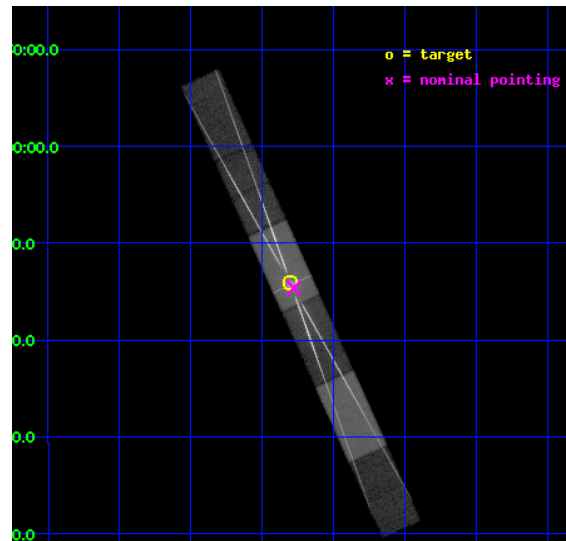
L2 Processing Date : Dec 16 2012

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1 Front

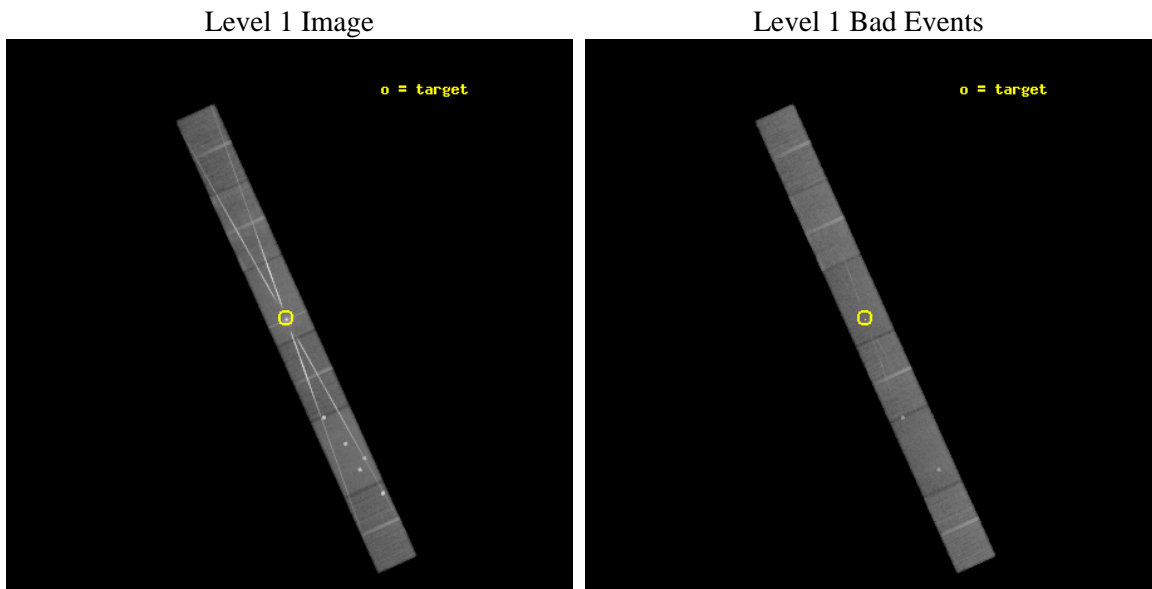
seq_num	400366	Sequence number
obs_id	4584	Observation id
title	HETGS Spectroscopy of the Ultracompact X-ray Dipper 4U 1916-05	Pro
observer	Prof. Deepto Chakrabarty	Principal investigator
object	4U 1916-05	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	289.7	Observer's specified target RA [deg]
dec_targ	-5.235722	Observer's specified target Dec [deg]
ra_nom	289.69449691949	Nominal RA [deg]
dec_nom	-5.243695318112	Nominal Dec [deg]
roll_nom	245.62441993934	Nominal Roll [deg]
revision	3	Processing version of data
ontime	47174.999669194	Sum of GTIs [s]
livetime	46062.985019086	Livetime [s]
ontime4	47174.999669194	Sum of GTIs [s]
ontime5	47174.999669194	Sum of GTIs [s]
ontime6	47173.258629173	Sum of GTIs [s]
ontime7	47174.999669194	Sum of GTIs [s]
ontime8	47174.999669194	Sum of GTIs [s]
ontime9	47174.999669194	Sum of GTIs [s]
l2events	915820	Number of level 2 events



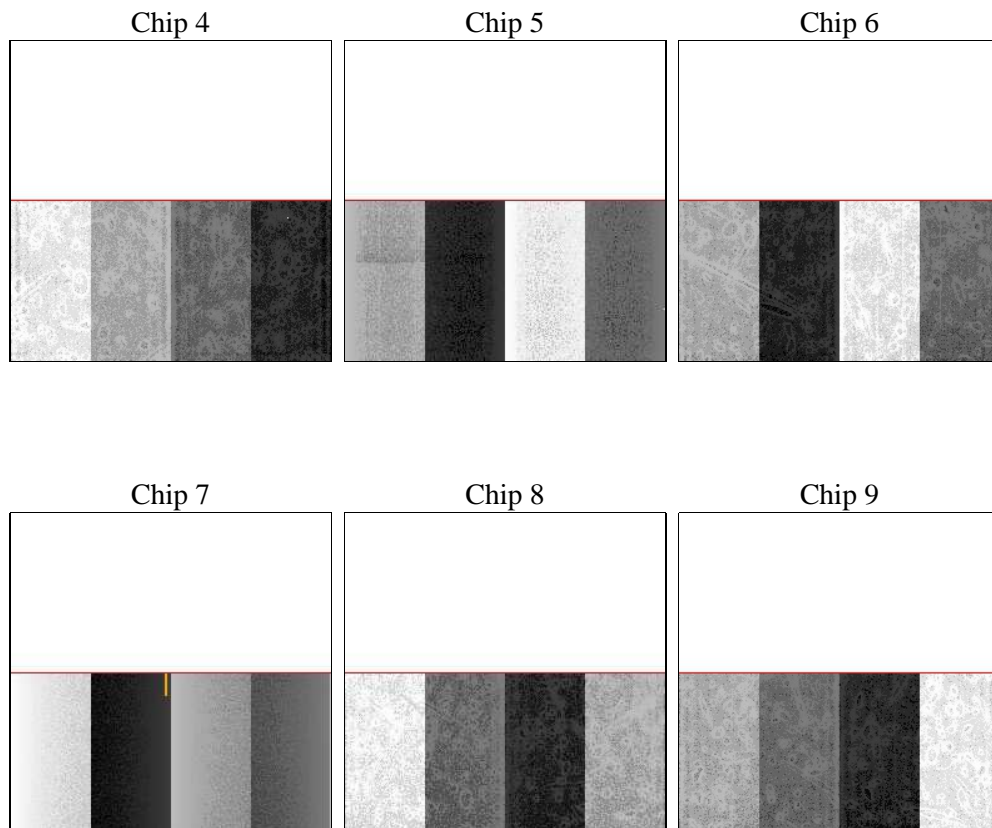
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	2	Obi number	sched_exp_time	47000.000000	[s] Scheduled observation exposure time
ascdsver	8.5	Processing system revision	ontime	47174.999669194	Sum of GTIs [s]
caldsver	4.5.4	 	ontime4	47174.999669194	Sum of GTIs [s]
date	2012-12-07T00:37:12	Date and time of file creation	ontime5	47174.999669194	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	47173.258629173	Sum of GTIs [s]
			ontime7	47174.999669194	Sum of GTIs [s]
			ontime8	47174.999669194	Sum of GTIs [s]
			ontime9	47174.999669194	Sum of GTIs [s]
			l1events	2026835	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	233631	353264	416441	501179	331683	190637	grade 0 events	41364	65807	186671	65894	97496	22741
rejected events	177673	142176	162360	144235	182064	151513		17%	18%	44%	13%	29%	11%
rejected %	76%	40%	38%	28%	54%	79%	grade 1 events	199	4388	1098	1102	437	108
								0%	1%	0%	0%	0%	0%
							grade 2 events	5565	49085	32110	84588	20749	5953
								2%	13%	7%	16%	6%	3%
							grade 3 events	2922	15792	11433	38092	8866	3107
								1%	4%	2%	7%	2%	1%
							grade 4 events	2723	13593	11461	37699	8365	3088
								1%	3%	2%	7%	2%	1%
							grade 5 events	6968	21399	8396	25934	9988	7772
								2%	6%	2%	5%	3%	4%
							grade 6 events	3781	68040	13336	132595	15095	4502
								1%	19%	3%	26%	4%	2%
							grade 7 events	170109	115160	151936	115275	170687	143366
								72%	32%	36%	23%	51%	75%

2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	HETG	HETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	289.691455	289.6944969194925
[deg] Pointing Dec	-5.216635	-5.243695318111994
[deg] Pointing Roll	245.467513	245.62441993934
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-184.032523	-184.0277655517795
[mm] SIM translation stage offset	-6.1	-6.104757031228274
[s] Observation start time (MET)	208234016.184000	208232842.6063
Observation start date	2004-08-07T02:45:52	2004-08-07T02:27:22
[s] Observation end time (MET)	208281016.184000	208282051.83349
Observation end date	2004-08-07T15:49:12	2004-08-07T16:07:31
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/2
Subarray start row	1	1
Subarray row count	512	512
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	1.7

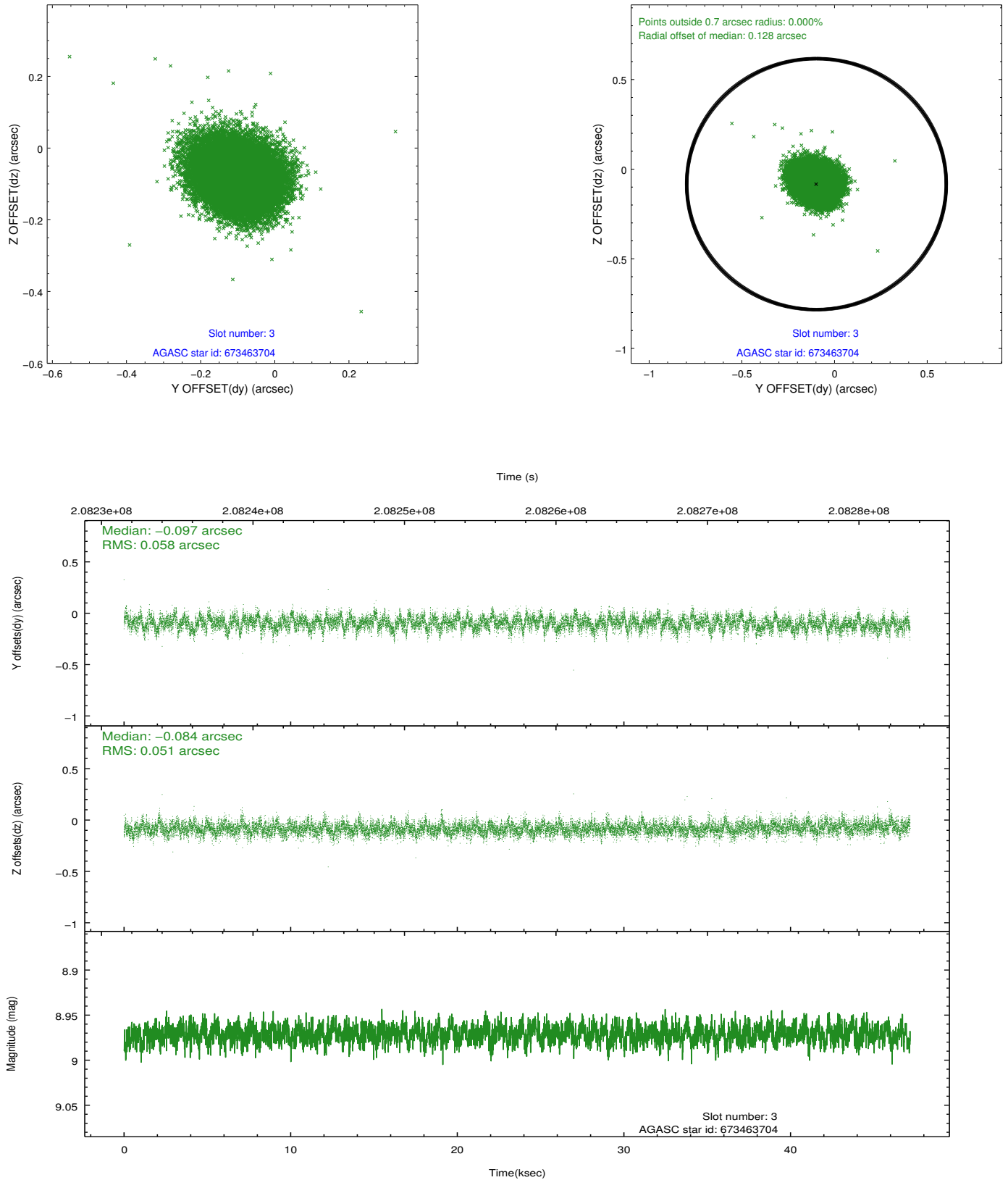
2.3 Aspect

Slot Statistics

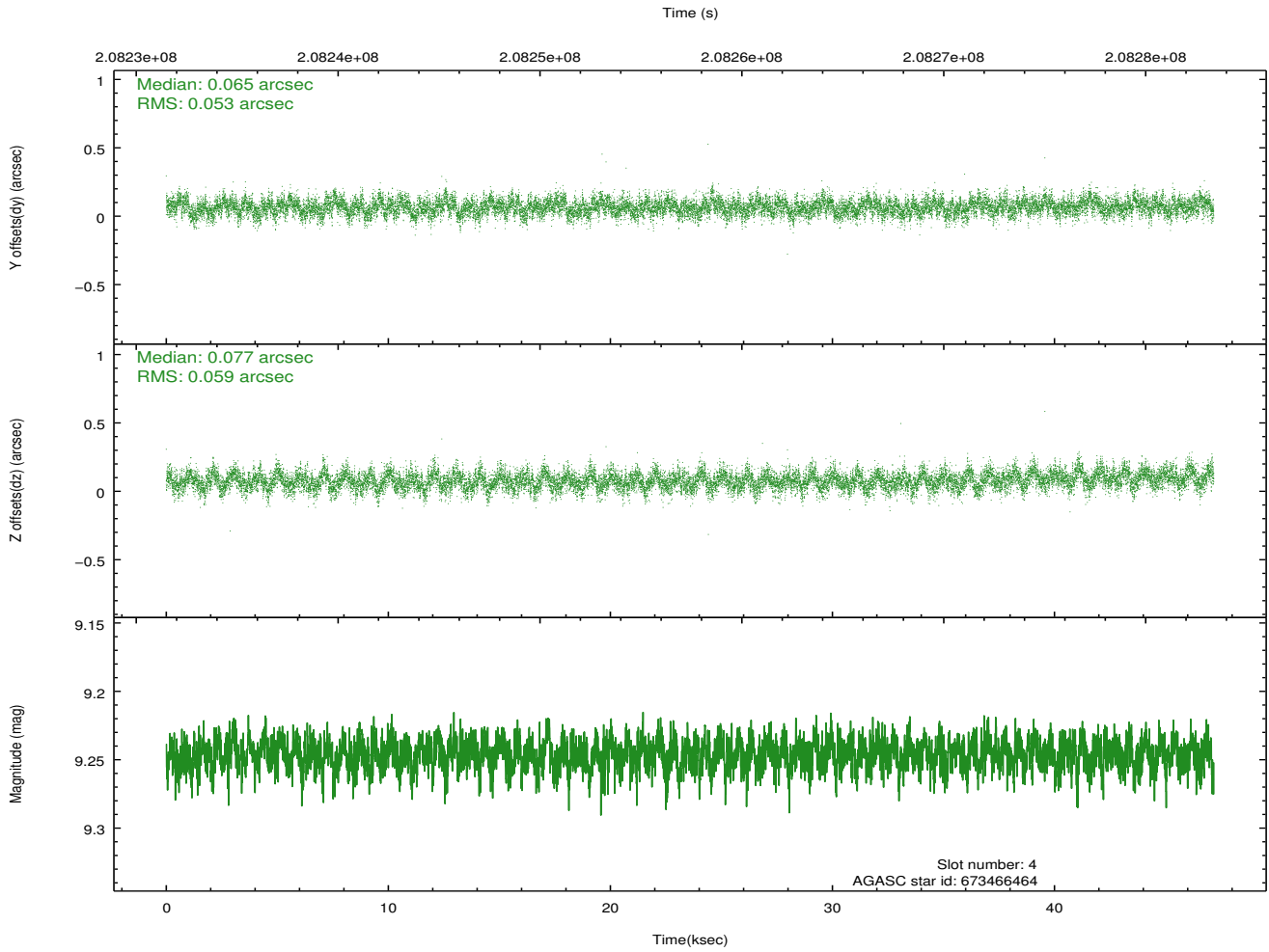
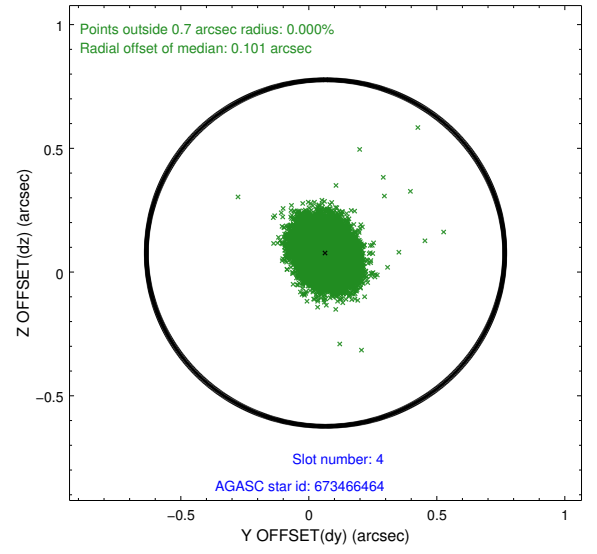
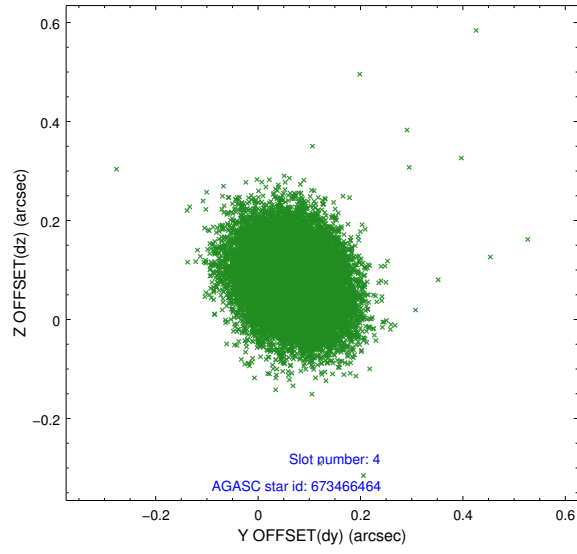
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.08	11505	-0.084	-0.063	0.011	0.026	0.000000	0.000000	-759.34	-1856.19
1	FID	ACIS-S-4	7.19	11506	0.114	0.057	0.009	0.036	0.000000	0.000000	2154.14	52.43
2	FID	ACIS-S-5	7.22	11507	-0.062	0.014	0.009	0.021	0.000000	0.000000	-1812.18	46.02
3	GUIDE	673463704	8.97	22995	-0.097	-0.084	0.082	0.134	289.894494	-4.869892	-1437.42	144.42
4	GUIDE	673466464	9.25	23004	0.065	0.077	0.083	0.137	289.850458	-5.613937	1065.08	1112.64
5	GUIDE	673466472	9.61	22862	0.021	-0.022	0.137	0.216	288.954848	-5.311739	1410.08	-2258.87
6	GUIDE	673461944	9.78	22884	0.102	-0.047	0.130	0.214	288.963170	-5.480160	1949.03	-1979.50
7	GUIDE	673455744	9.60	22993	-0.094	0.072	0.104	0.169	289.673010	-4.488976	-2355.02	-1147.79

2.4 Star Slots

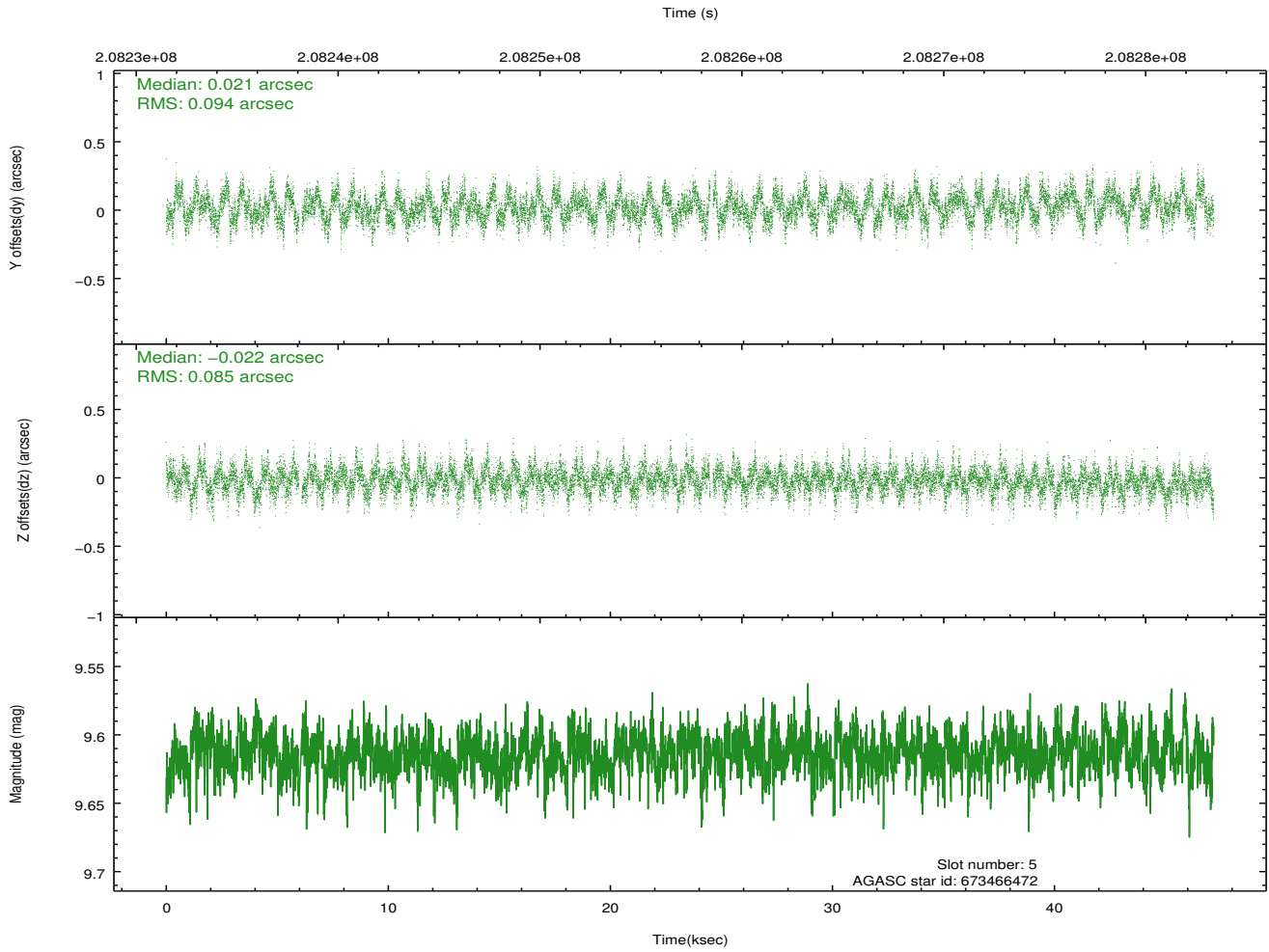
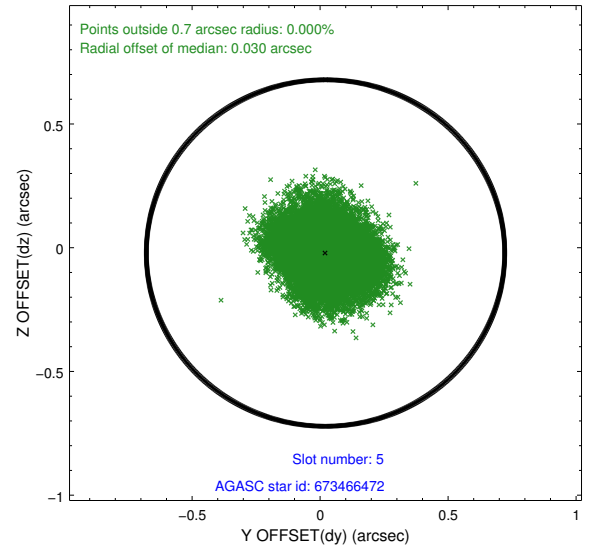
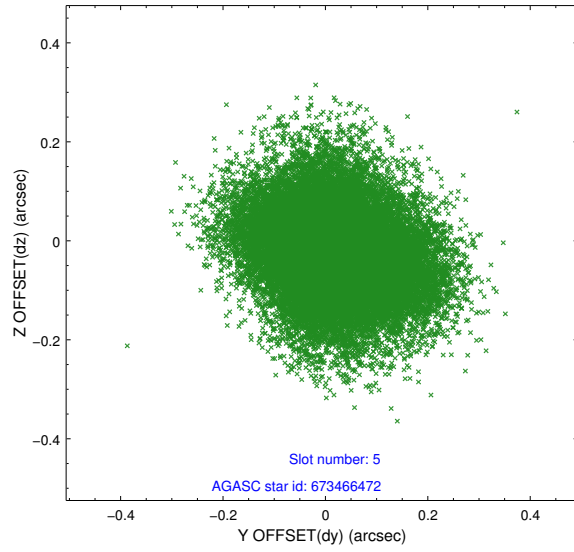
2.4.1 Slot 3



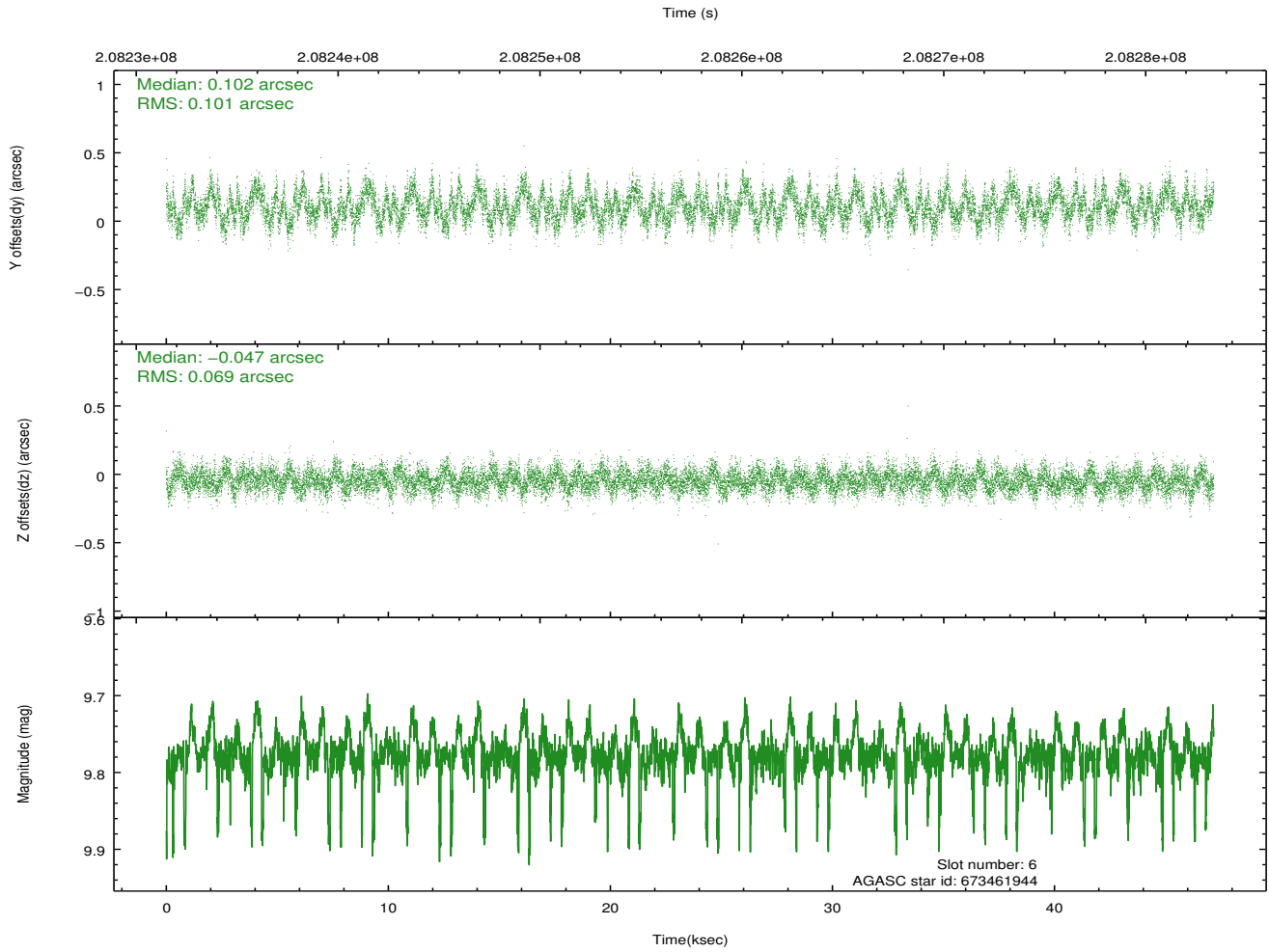
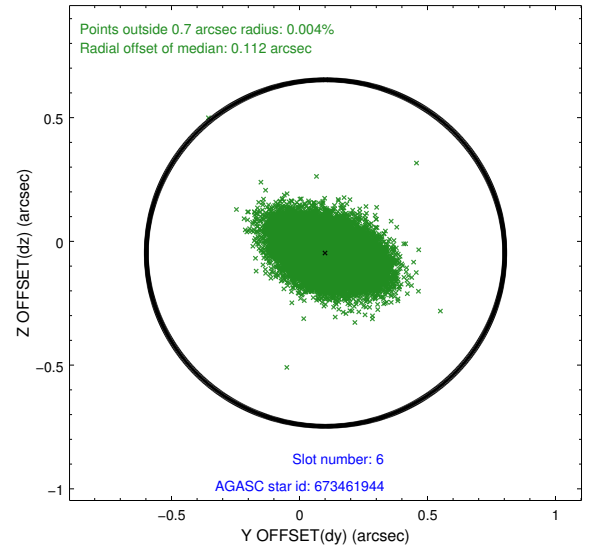
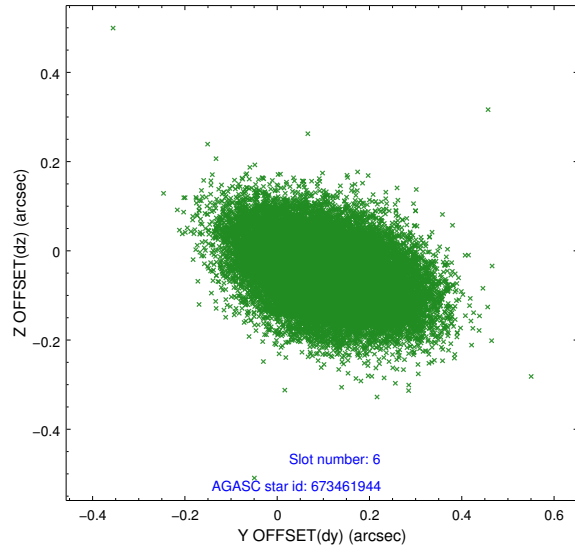
2.4.2 Slot 4



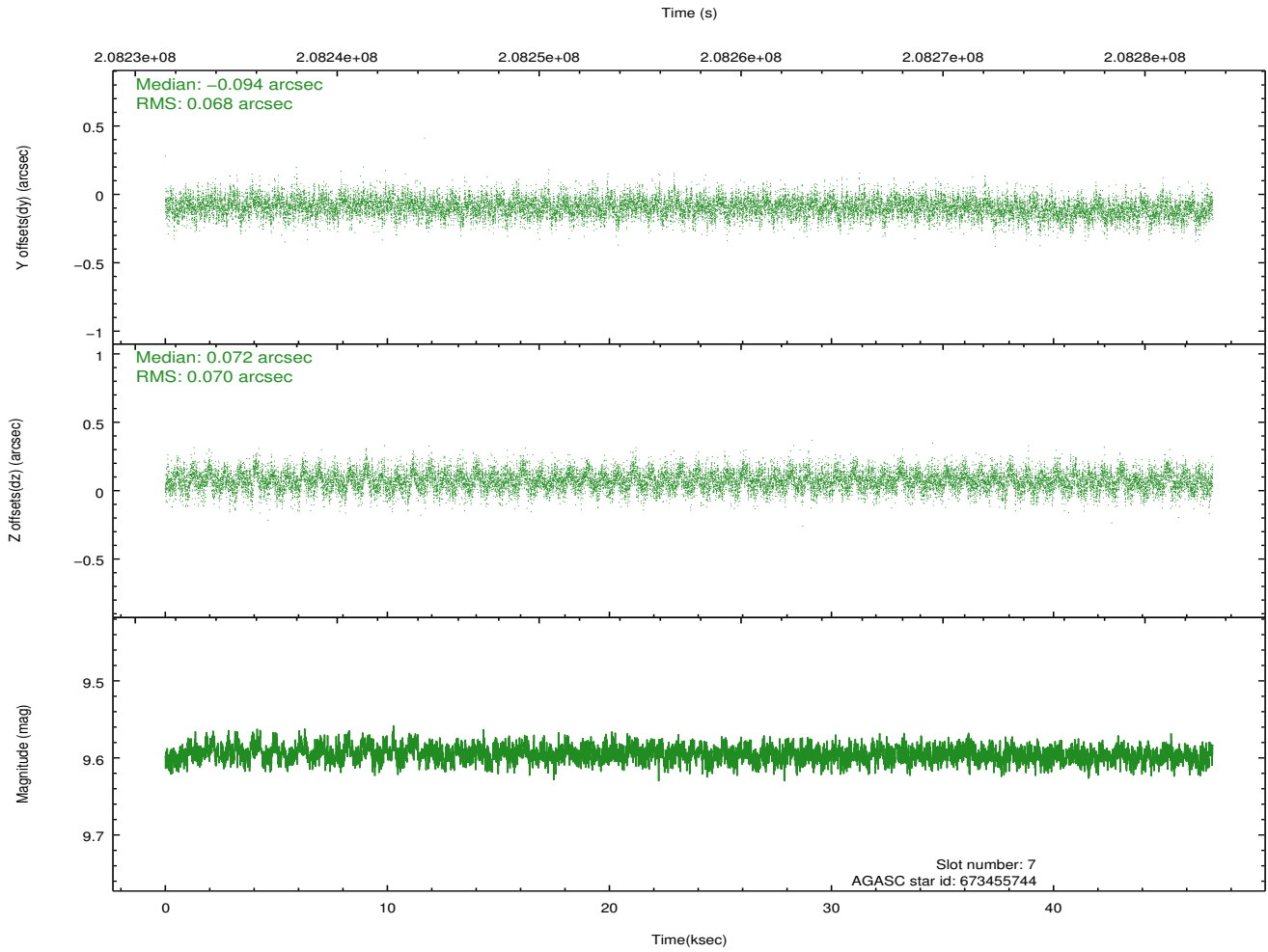
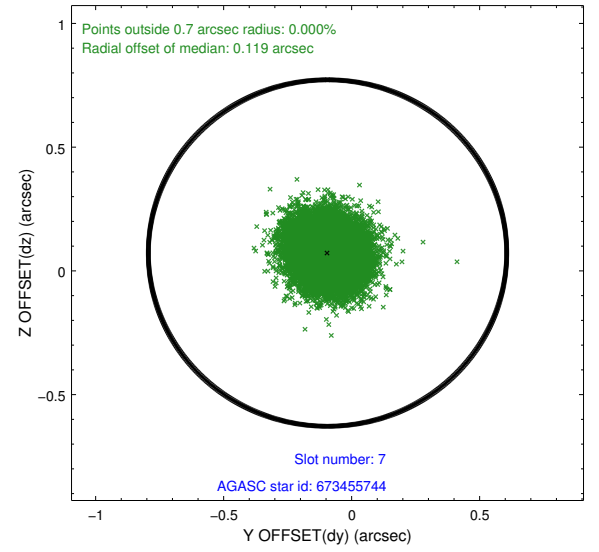
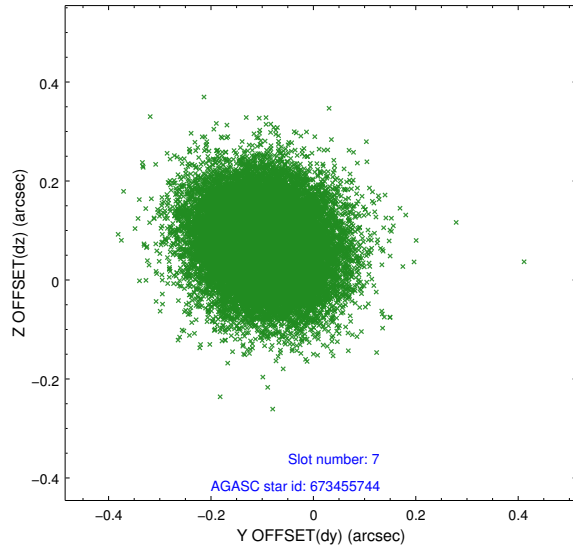
2.4.3 Slot 5



2.4.4 Slot 6

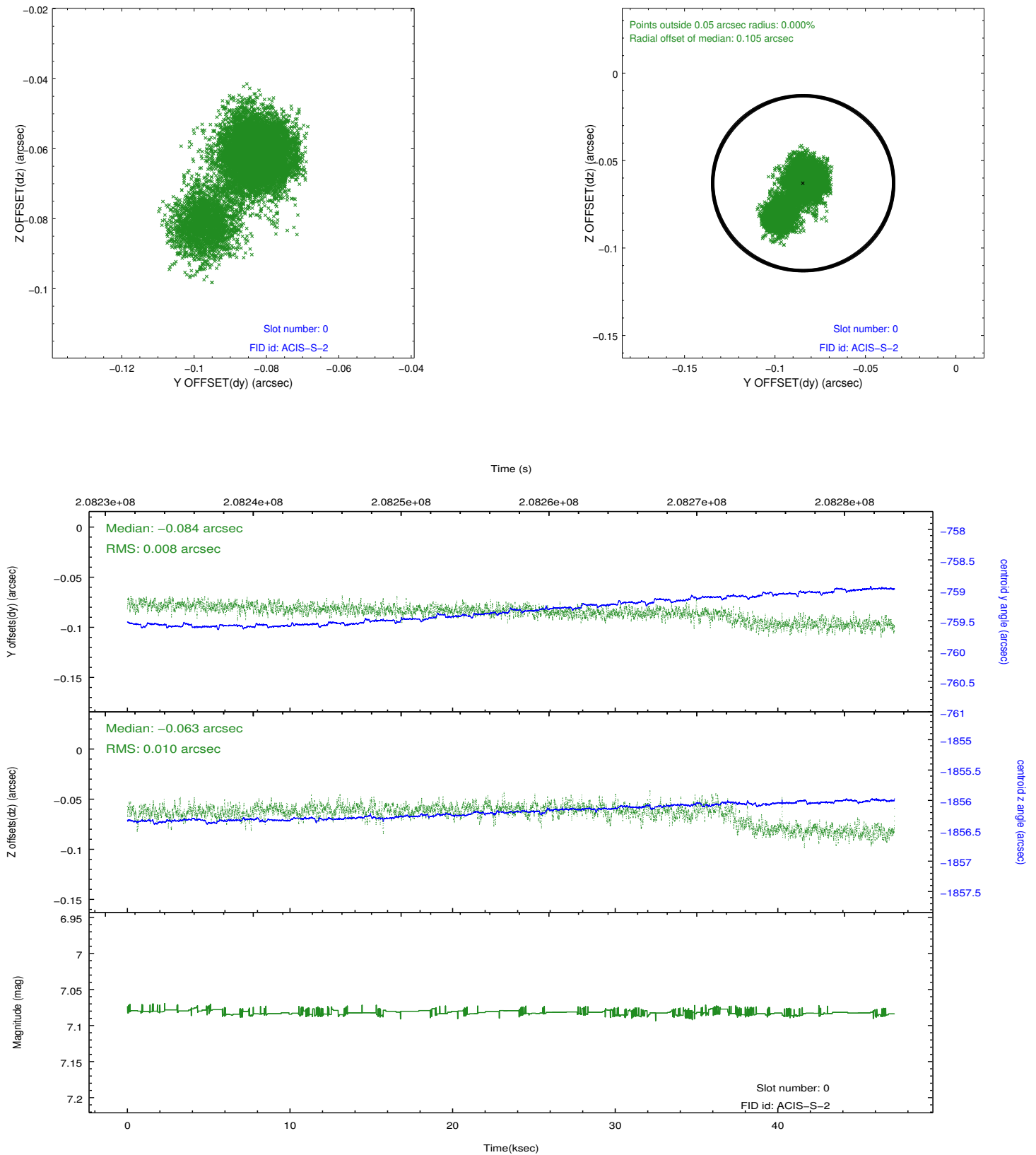


2.4.5 Slot 7

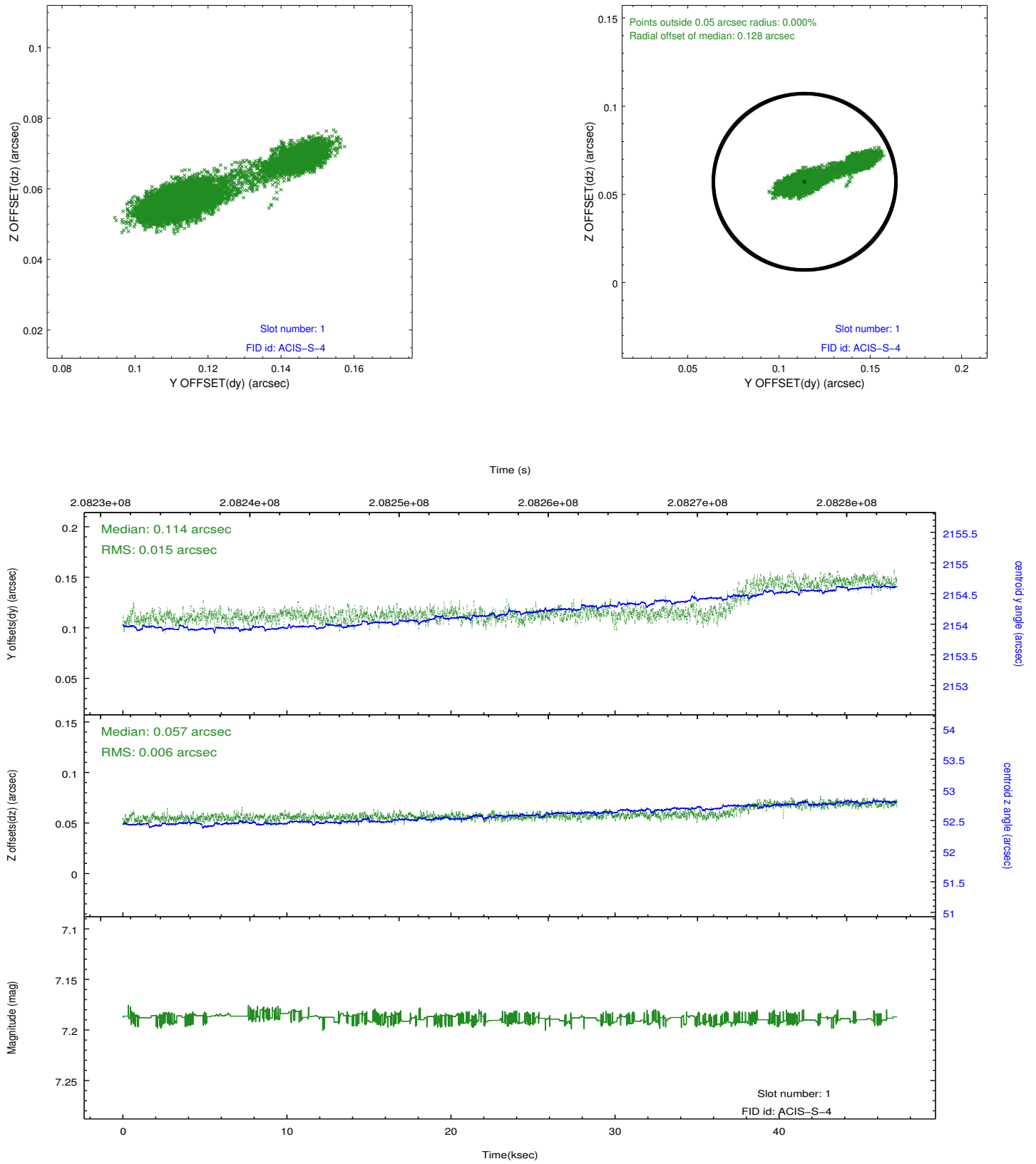


2.5 FID Slots

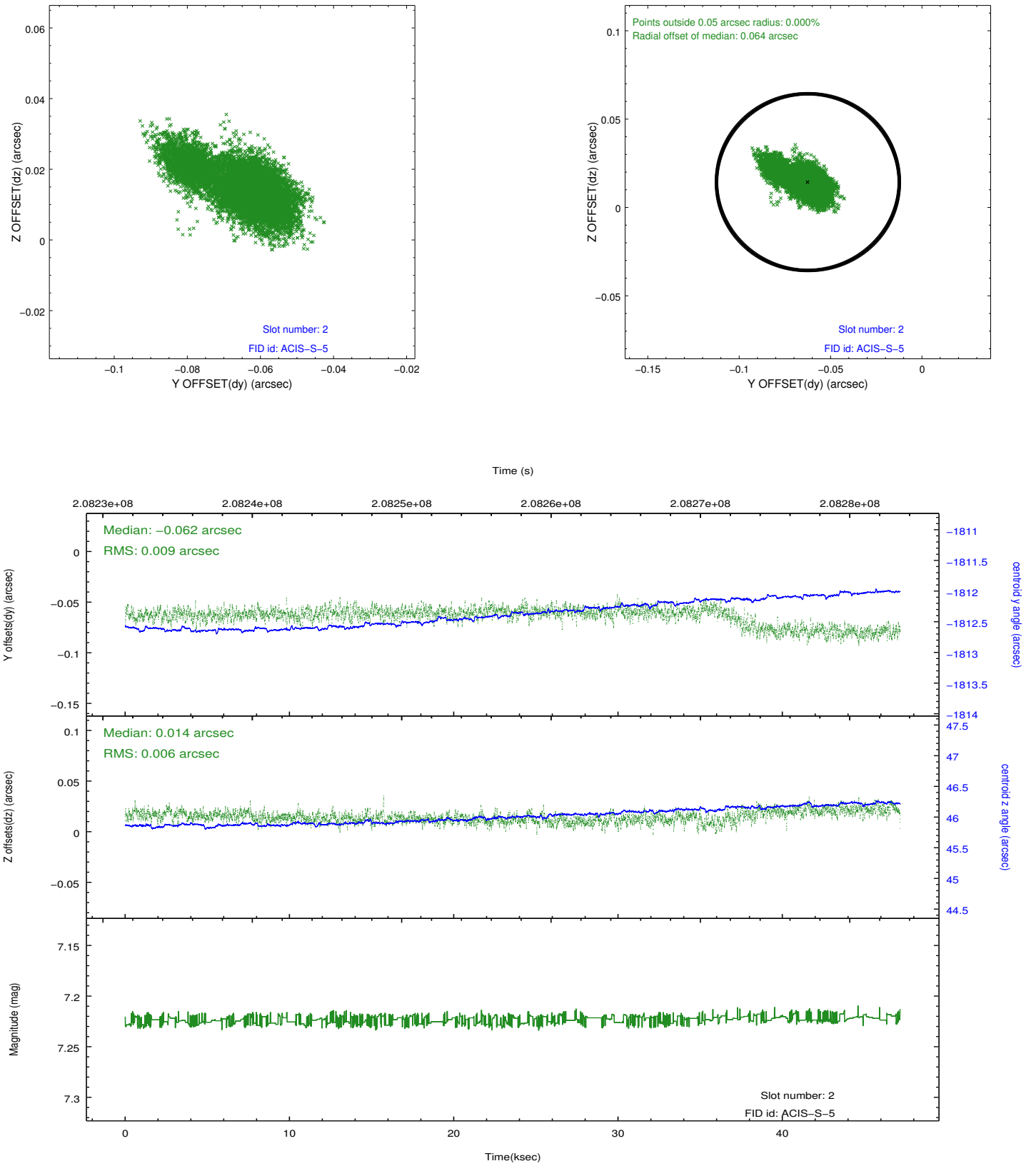
2.5.1 Slot 0



2.5.2 Slot 1

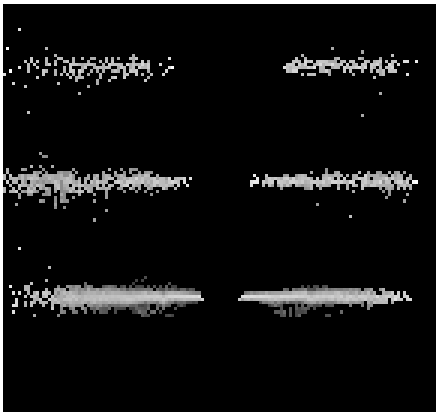


2.5.3 Slot 2

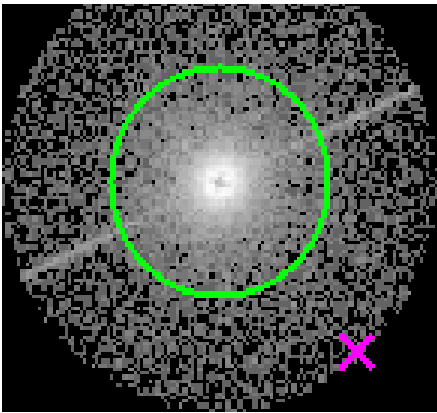


3 Gratings

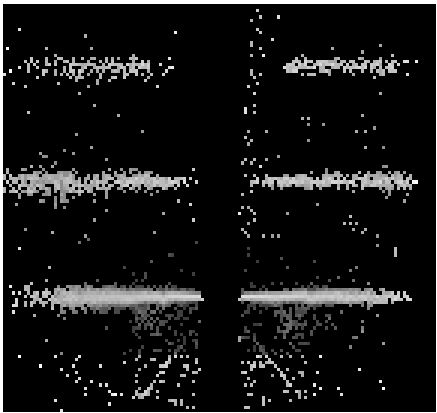
3.1 HEG Arm



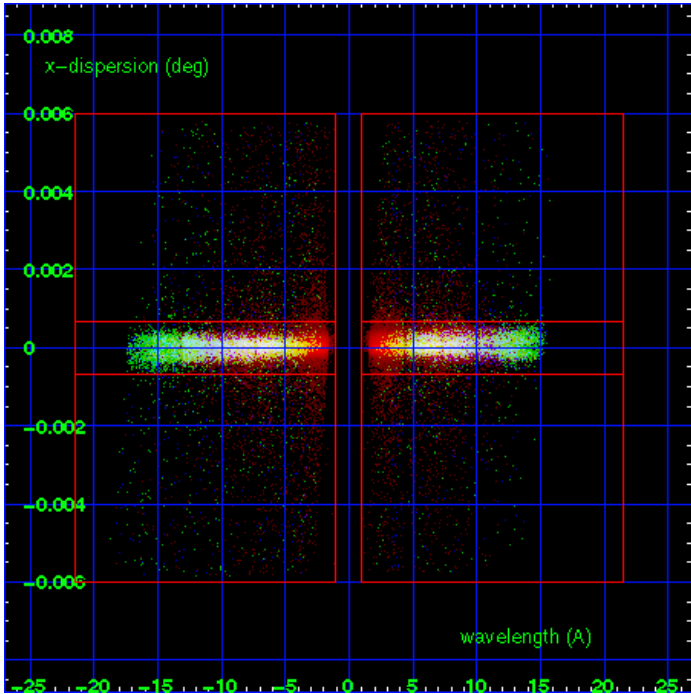
HEG Order Sort 123



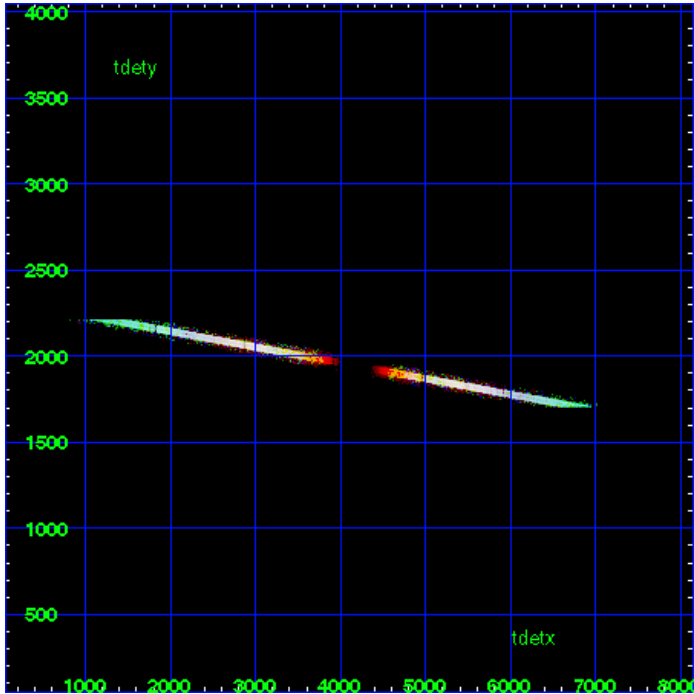
HEG Zero Order



HEG Order Sort ALL

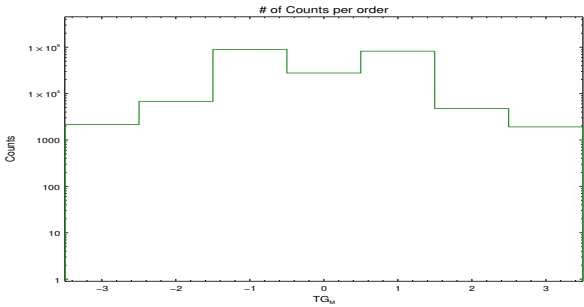


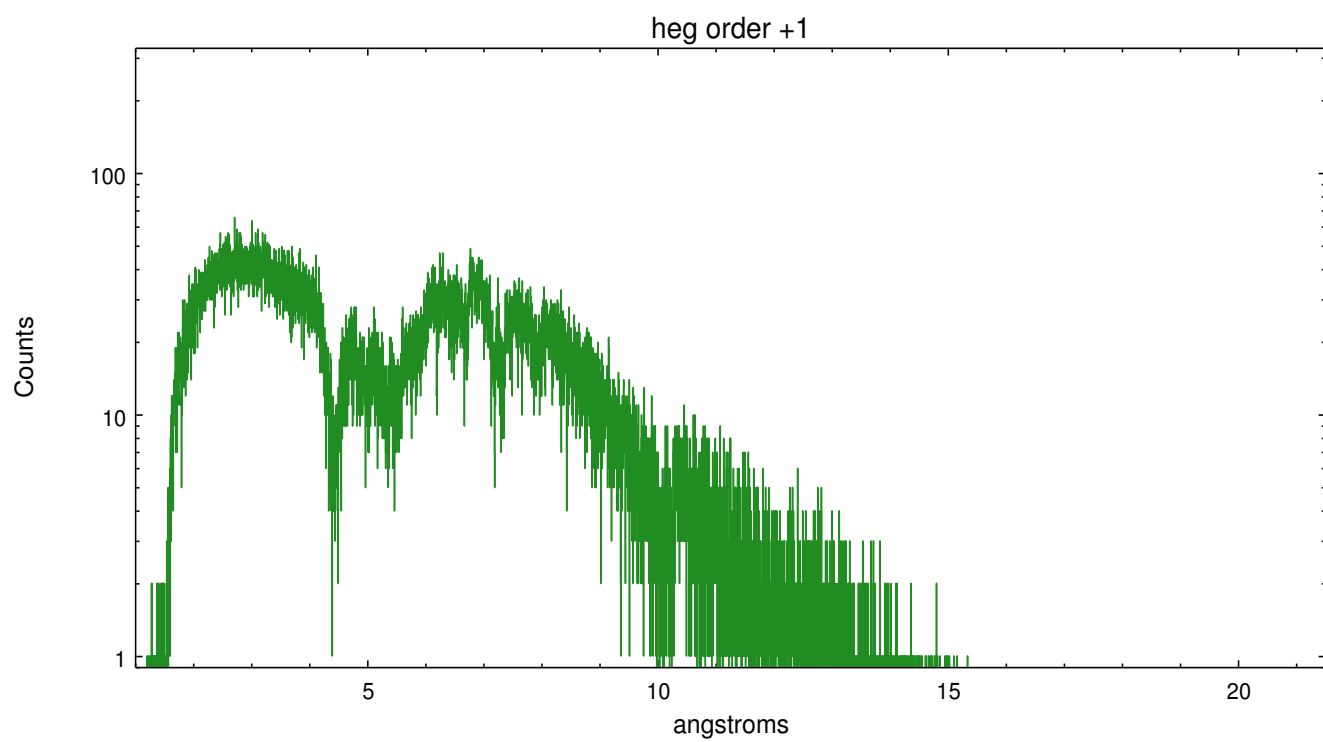
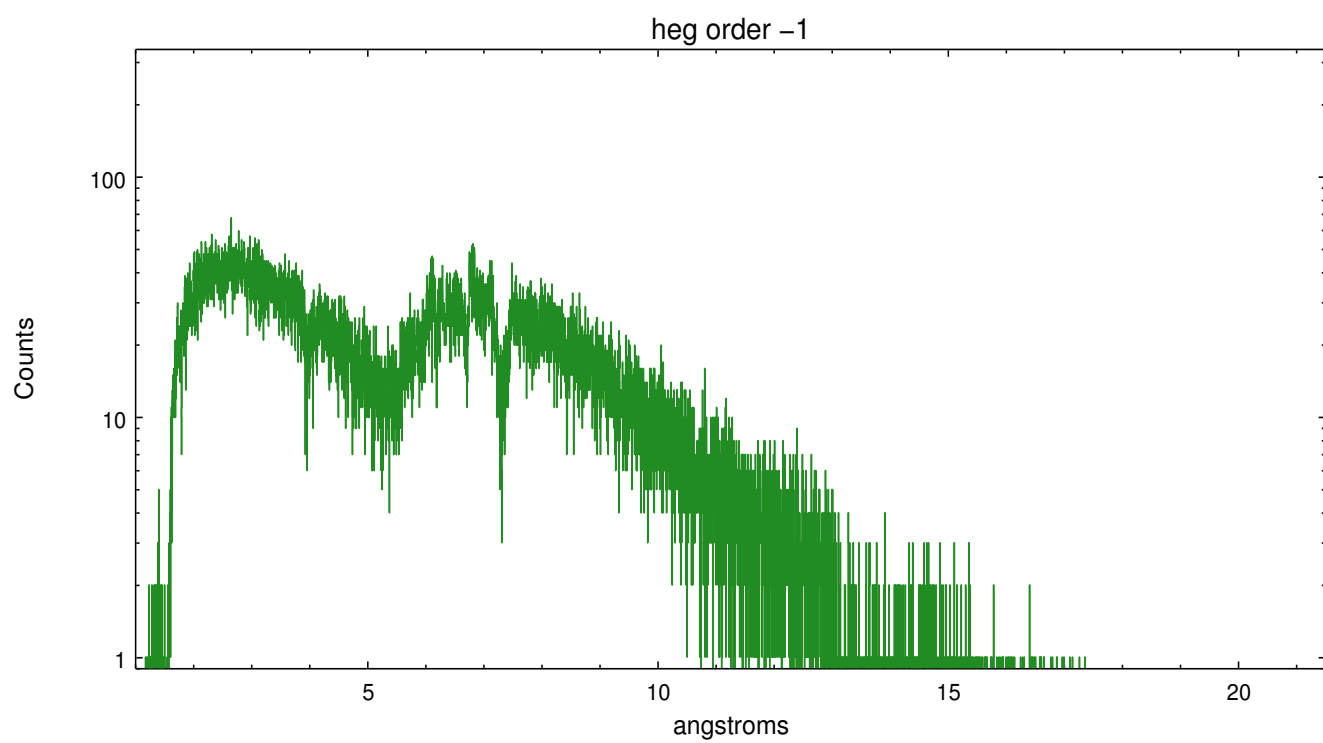
Spot Image HEG



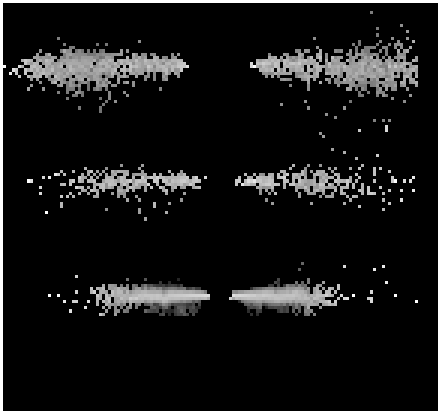
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2153	6826	90507	27975	82809	4802	1919

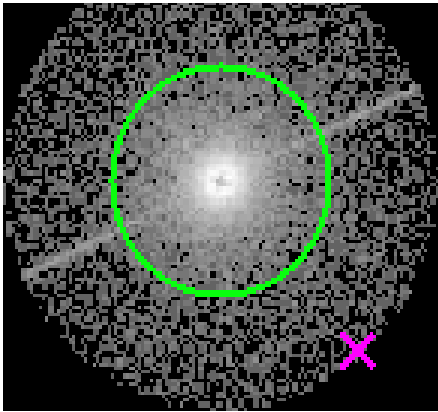




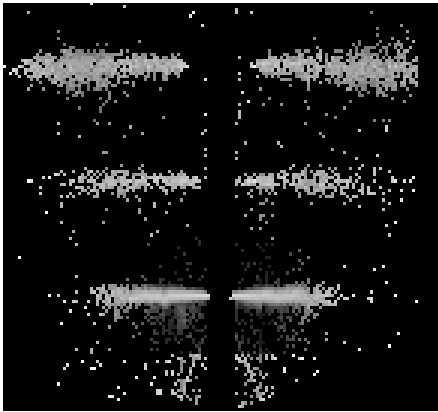
3.2 MEG Arm



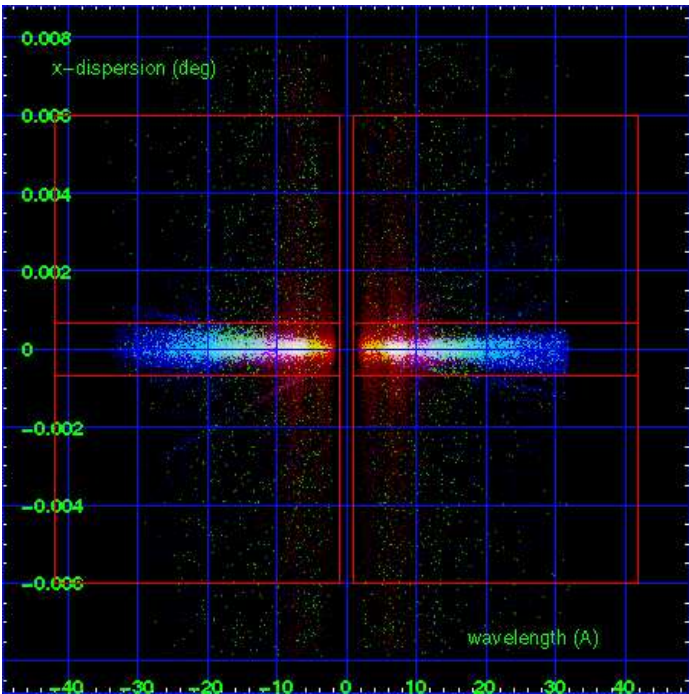
MEG Order Sort 123



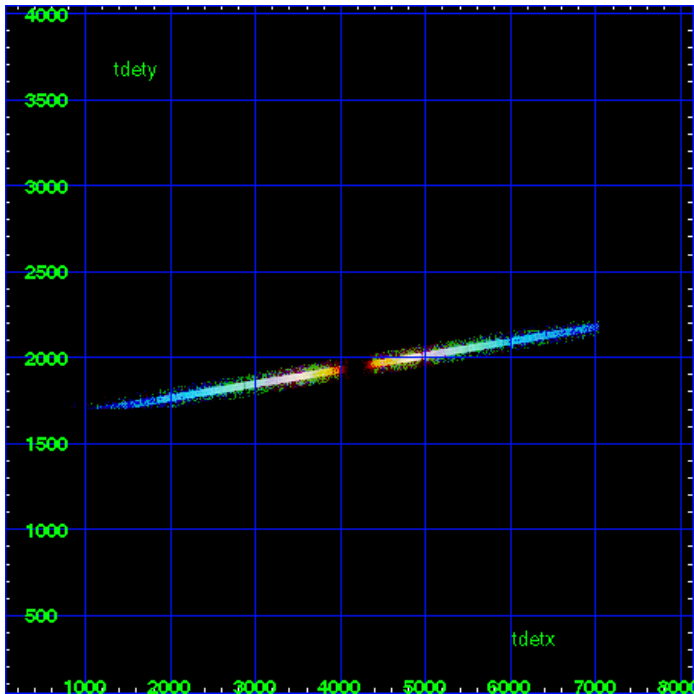
MEG Zero Order



MEG Order Sort ALL

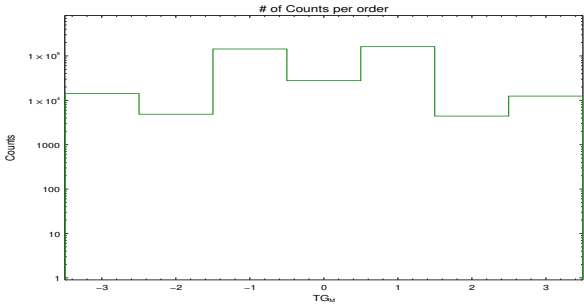


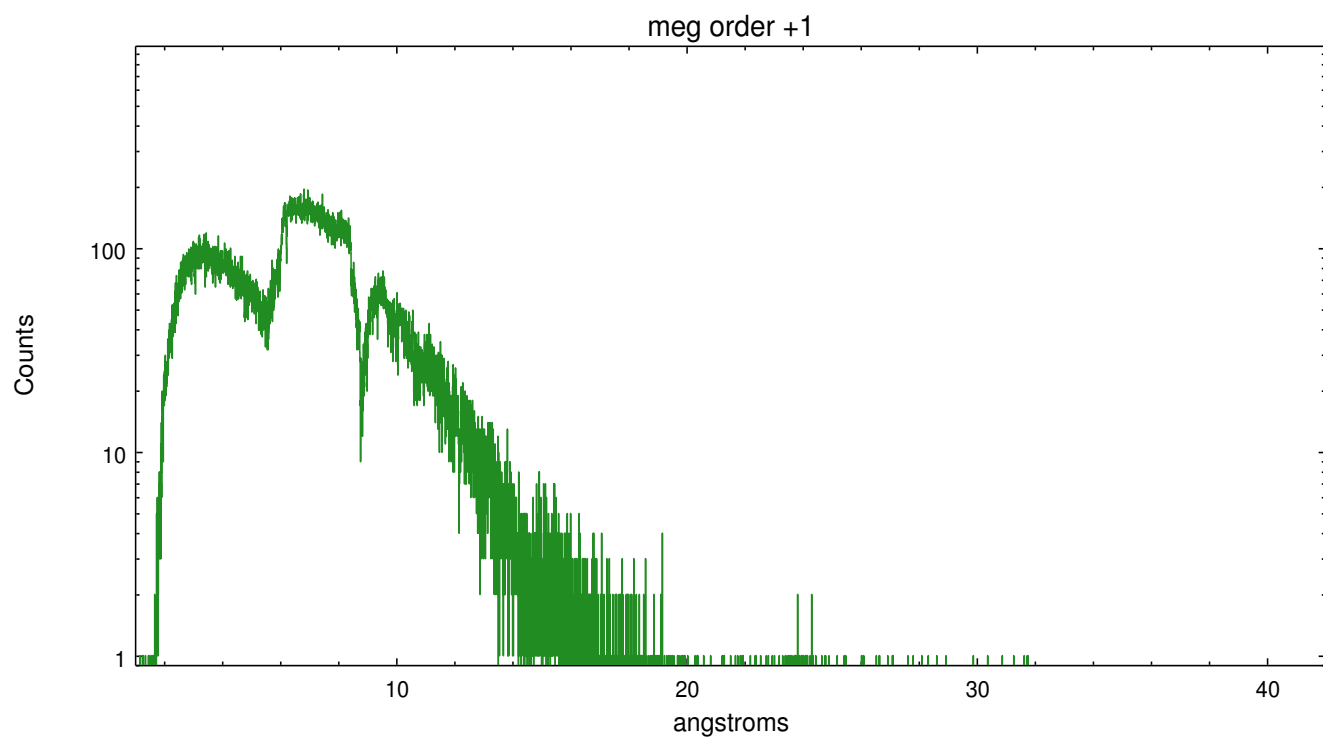
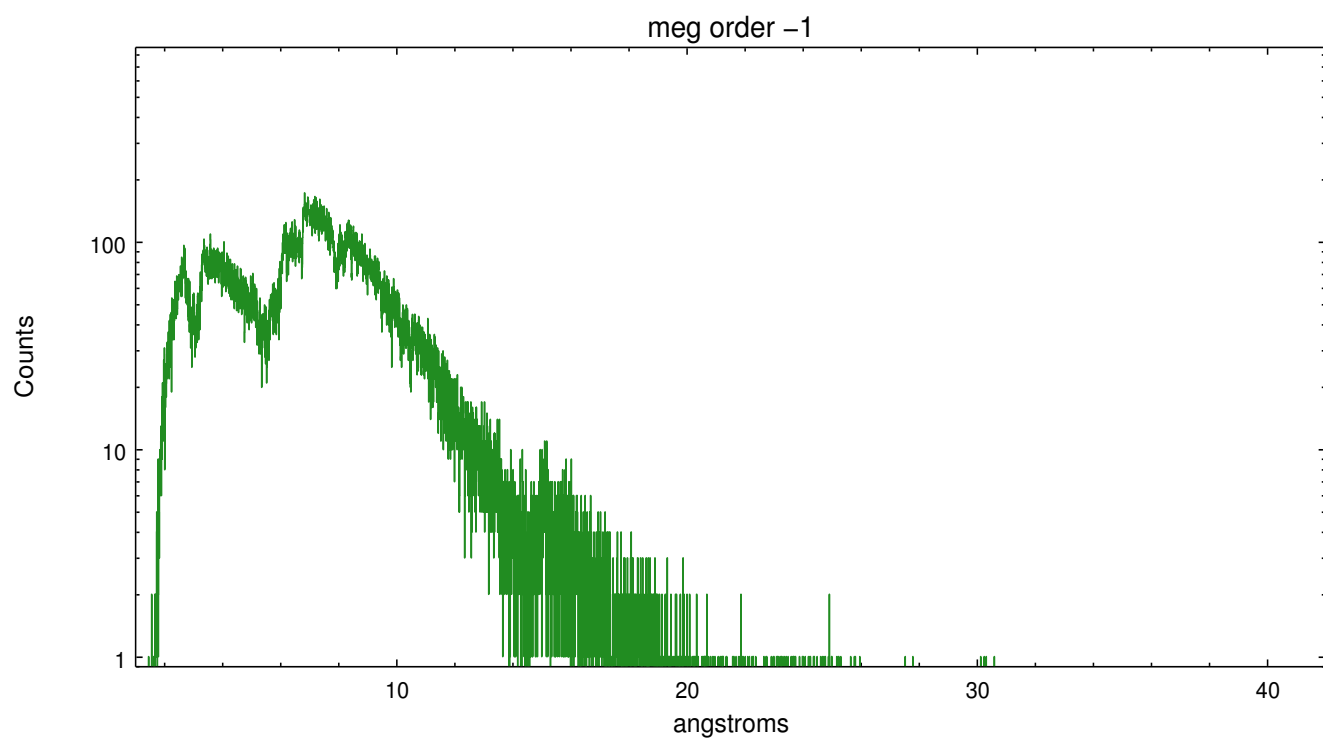
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	14262	4877	144854	27975	163507	4430	12517





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	47.174

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=4060.44, y=4137.28) into the *src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called tg_findzo, 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.

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Faint grating spectra can be seen in an image of bad events. This is probably due to pileup in the spectrum, causing migration to bad grades. This should be considered in analysis.