

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 715 - L2 Version 8
Chandra X-Ray Center

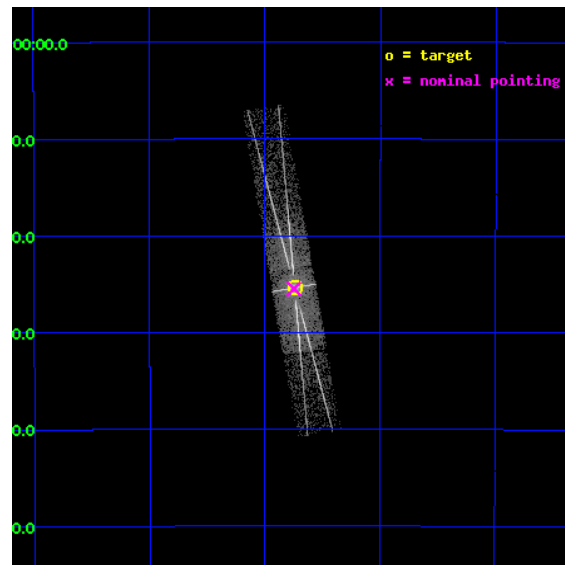
L2 Processing Date : Oct 15 2012

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1 Front

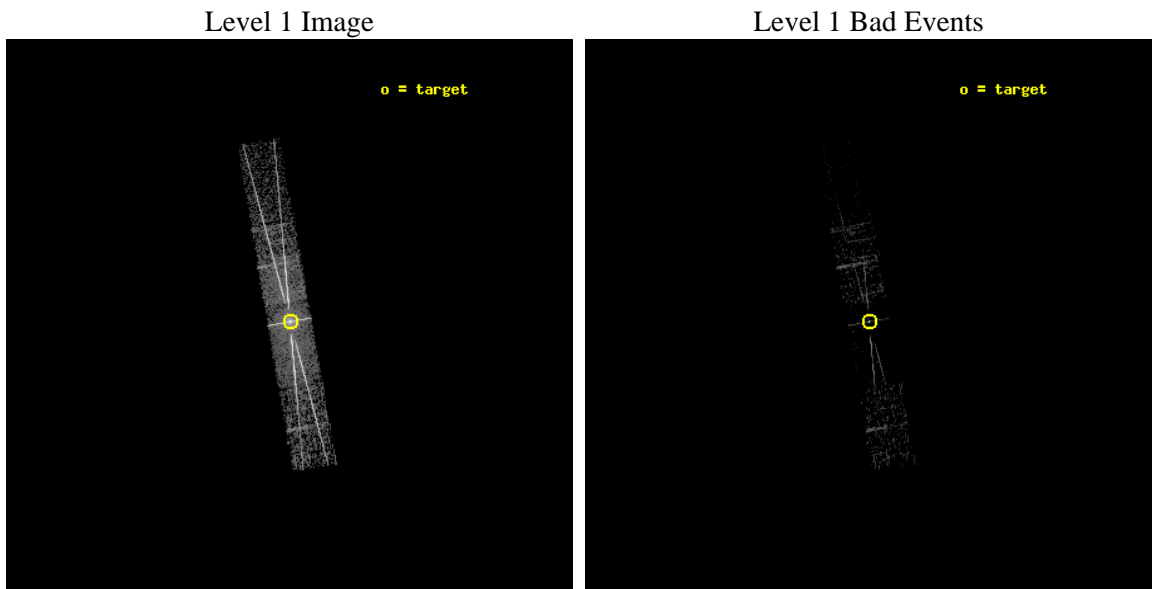
seq_num	400082	Sequence number
obs_id	715	Observation id
title	AXAF GRATING SPECTRA AND PRECISE POSITIONS OF BRIGHT GALACTIC-CENTER X-RAY SOURCES	Proposal title
observer	Dr. Alan Levine	Principal investigator
object	GX 349+2	Source name
dtcycle	0	
cycle	P	events are from which exps? P[rimary] S[econdar
ra_targ	256.435	Observer's specified target RA [deg]
dec_targ	-36.423611	Observer's specified target Dec [deg]
ra_nom	256.43694868315	Nominal RA [deg]
dec_nom	-36.425003942169	Nominal Dec [deg]
roll_nom	80.124157203988	Nominal Roll [deg]
revision	8	Processing version of data
ontime	1369.9110458046	Sum of GTIs [s]
livetime	196.15928296567	Livetime [s]
ontime5	1369.8700058013	Sum of GTIs [s]
ontime6	1369.828965798	Sum of GTIs [s]
ontime7	1369.9110458046	Sum of GTIs [s]
ontime8	1369.7879258096	Sum of GTIs [s]
l2events	73293	Number of level 2 events



2 OBI Primary

2.1 OBI

2.1.1 Images



2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	10534.945000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	1369.9110458046	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime5	1369.8700058013	Sum of GTIs [s]
date	2012-08-25T02:46:01	Date and time of file creation	ontime6	1369.828965798	Sum of GTIs [s]
revision	6	Processing version of data	ontime7	1369.9110458046	Sum of GTIs [s]
			ontime8	1369.7879258096	Sum of GTIs [s]
			l1events	86570	Number of level 1 events

2.1.3 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	5341	30957	38792	11480
rejected events	581	3894	2721	3037
rejected %	10%	12%	7%	26%

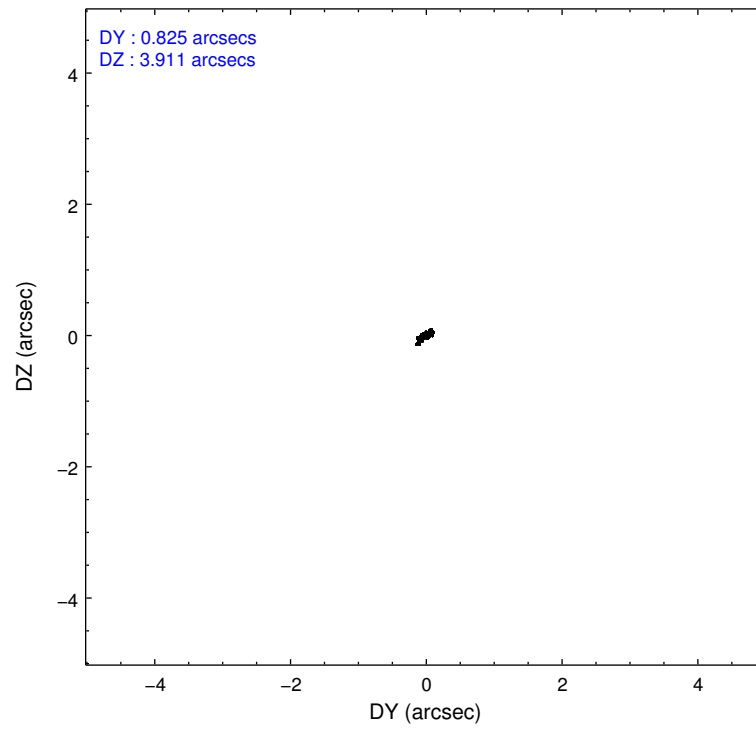
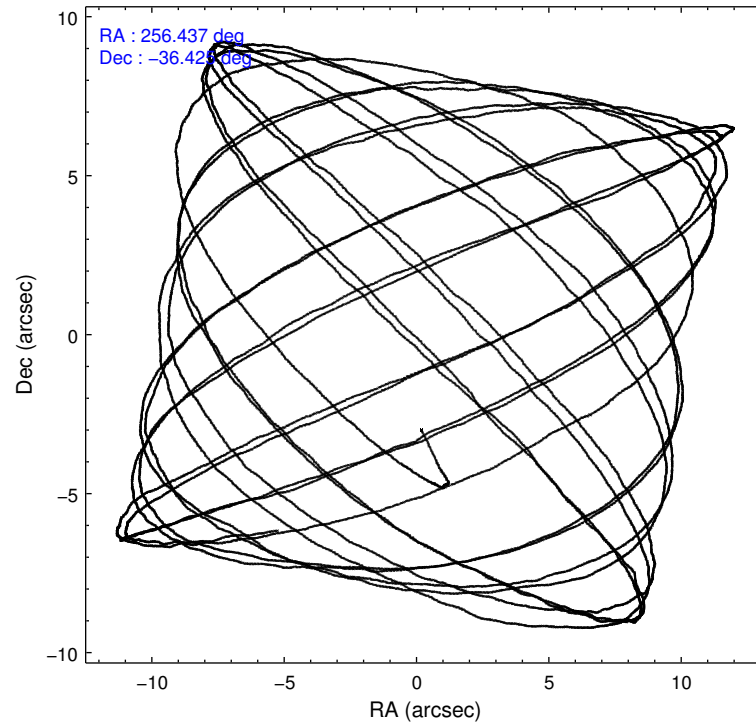
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	1146	19702	6942	6562
	21%	63%	17%	57%
grade 1 events	2	248	124	28
	0%	0%	0%	0%
grade 2 events	1846	3898	10082	1058
	34%	12%	25%	9%
grade 3 events	346	1177	3537	326
	6%	3%	9%	2%
grade 4 events	369	1152	3474	340
	6%	3%	8%	2%
grade 5 events	114	213	686	62
	2%	0%	1%	0%
grade 6 events	1126	1476	12578	333
	21%	4%	32%	2%
grade 7 events	392	3091	1369	2771
	7%	9%	3%	24%

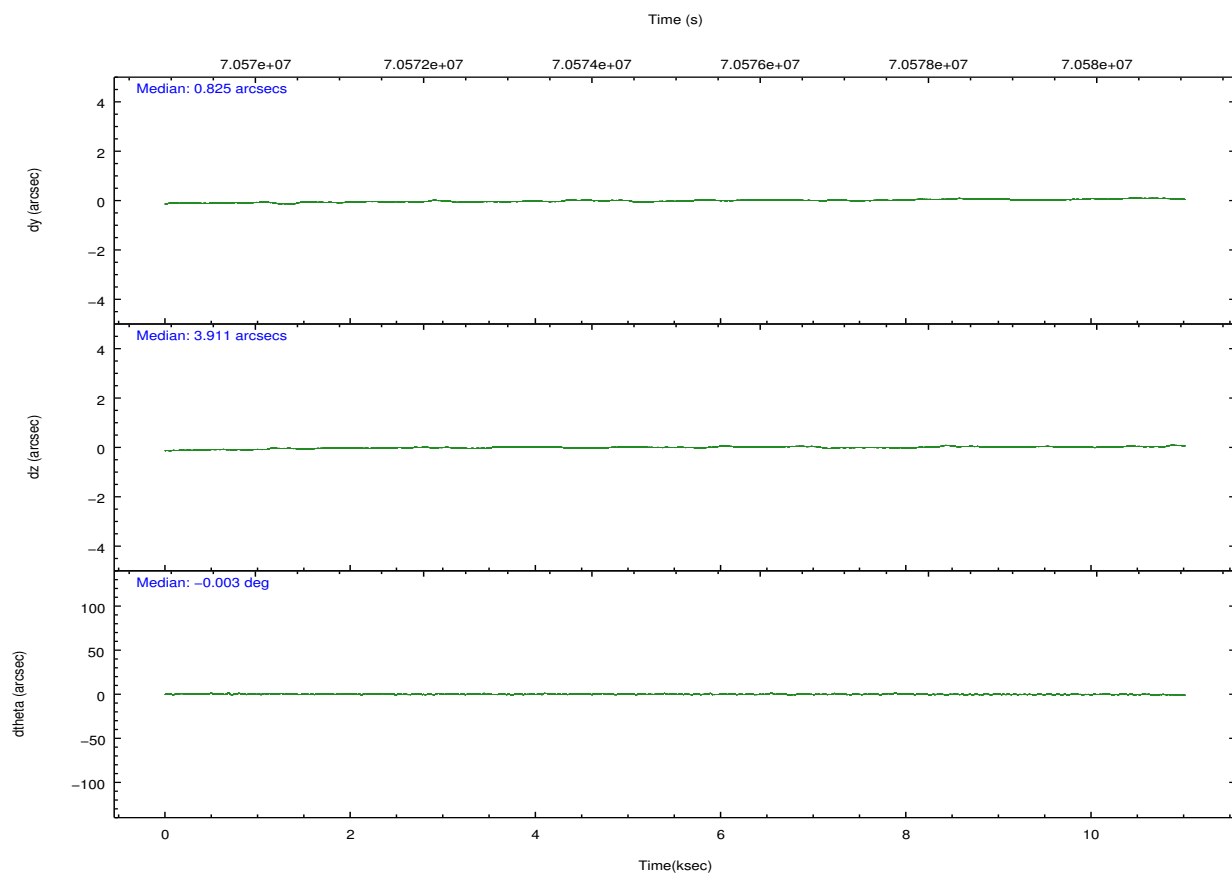
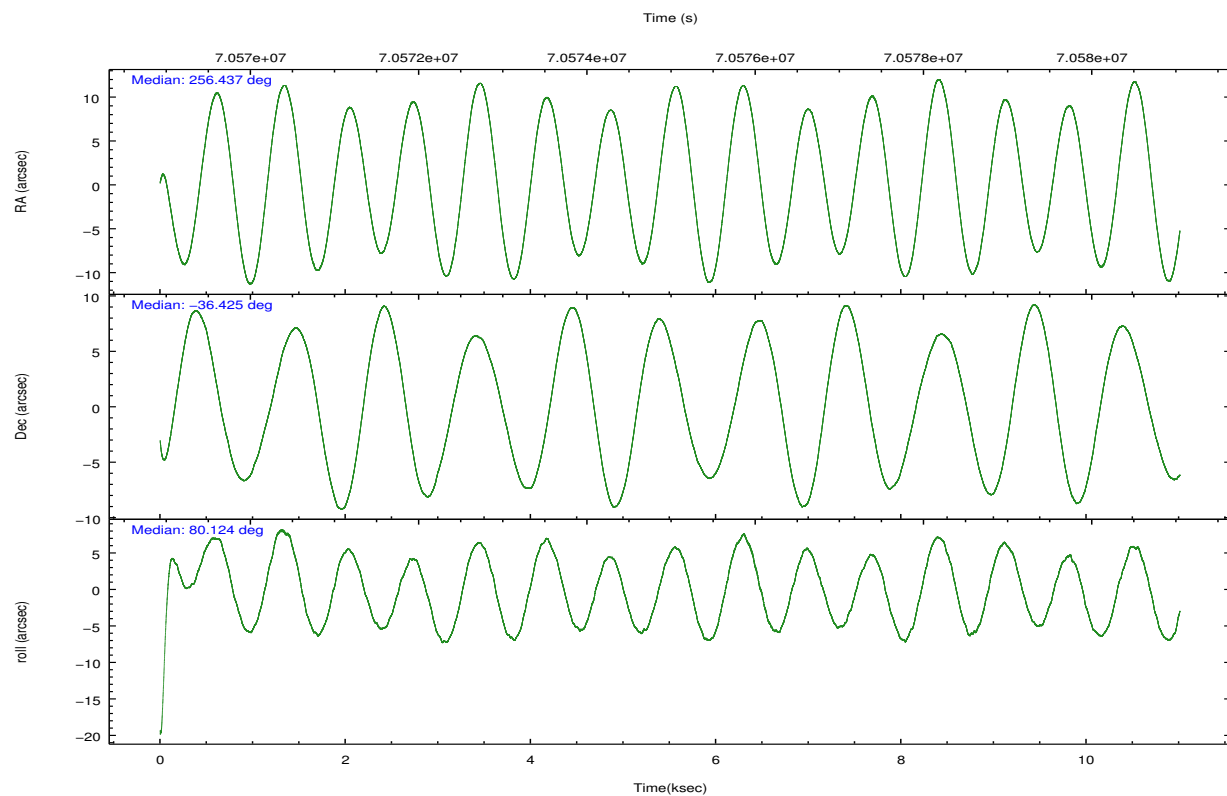
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-5678	ACIS-5678
Grating	HETG	HETG
Data mode	GRADED	GRADED
Observation mode	POINTING	POINTING
[deg] Pointing RA	256.448803	256.4369486831525
[deg] Pointing Dec	-36.450791	-36.42500394216918
[deg] Pointing Roll	79.974599	80.12415720398758
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-190.132523	-190.1425803651734
[mm] SIM translation stage offset	0	0.01005778216563158
[s] Observation start time (MET)	70569965.184000	70568768.28743701
Observation start date	2000-03-27T18:45:01	2000-03-27T18:26:08
[s] Observation end time (MET)	70580500.184000	70580809.47537801
Observation end date	2000-03-27T21:40:36	2000-03-27T21:46:49
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	CUSTOM
Subarray start row	249	249
Subarray row count	542	542
Alternating exposures requested	Y	Y
[s] Primary exposure time	0.300000	0.3
[s] Secondary exposure time	0.300000	1.8
Duty cycle	8	8

2.3 Aspect



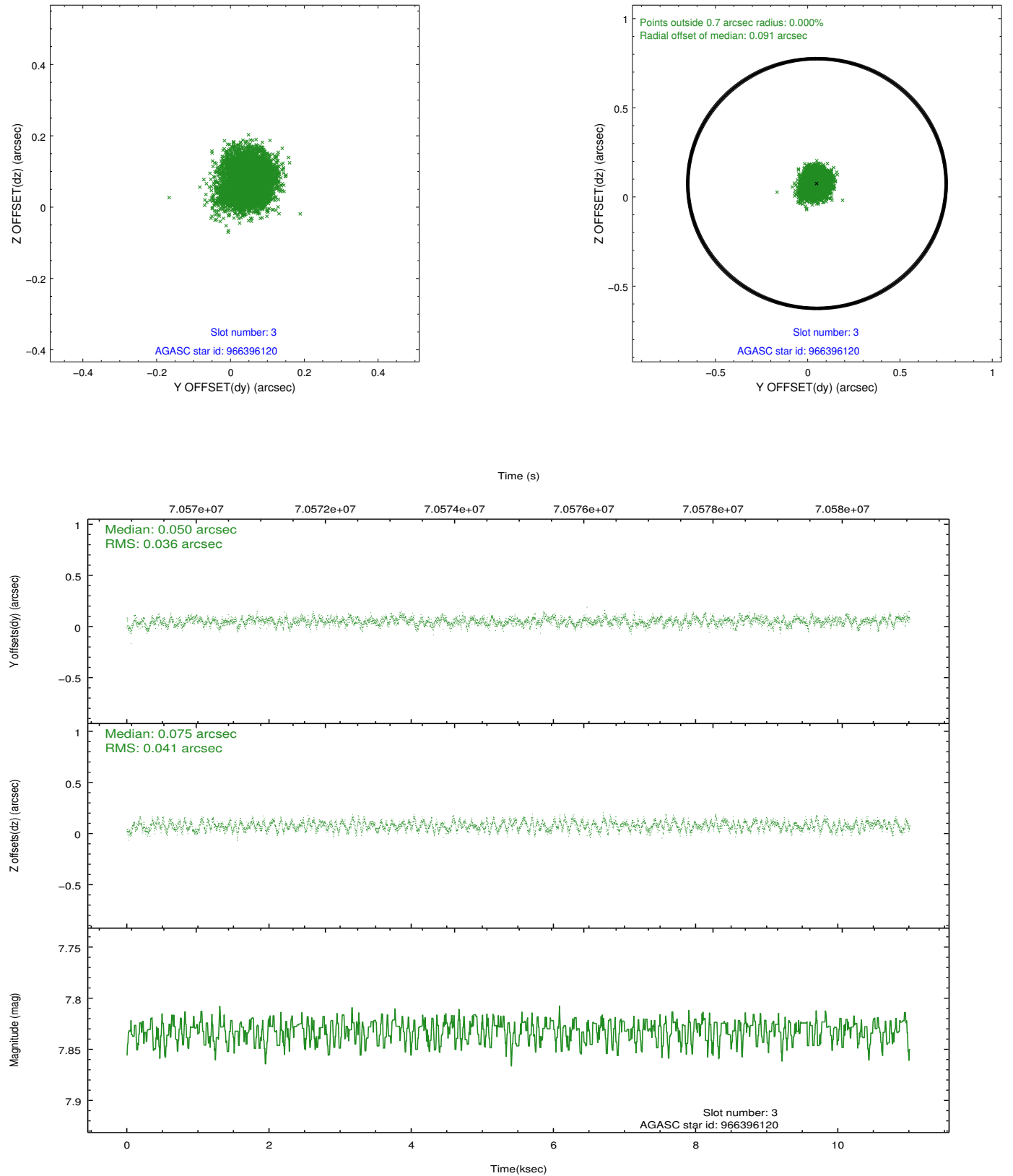


Slot Statistics

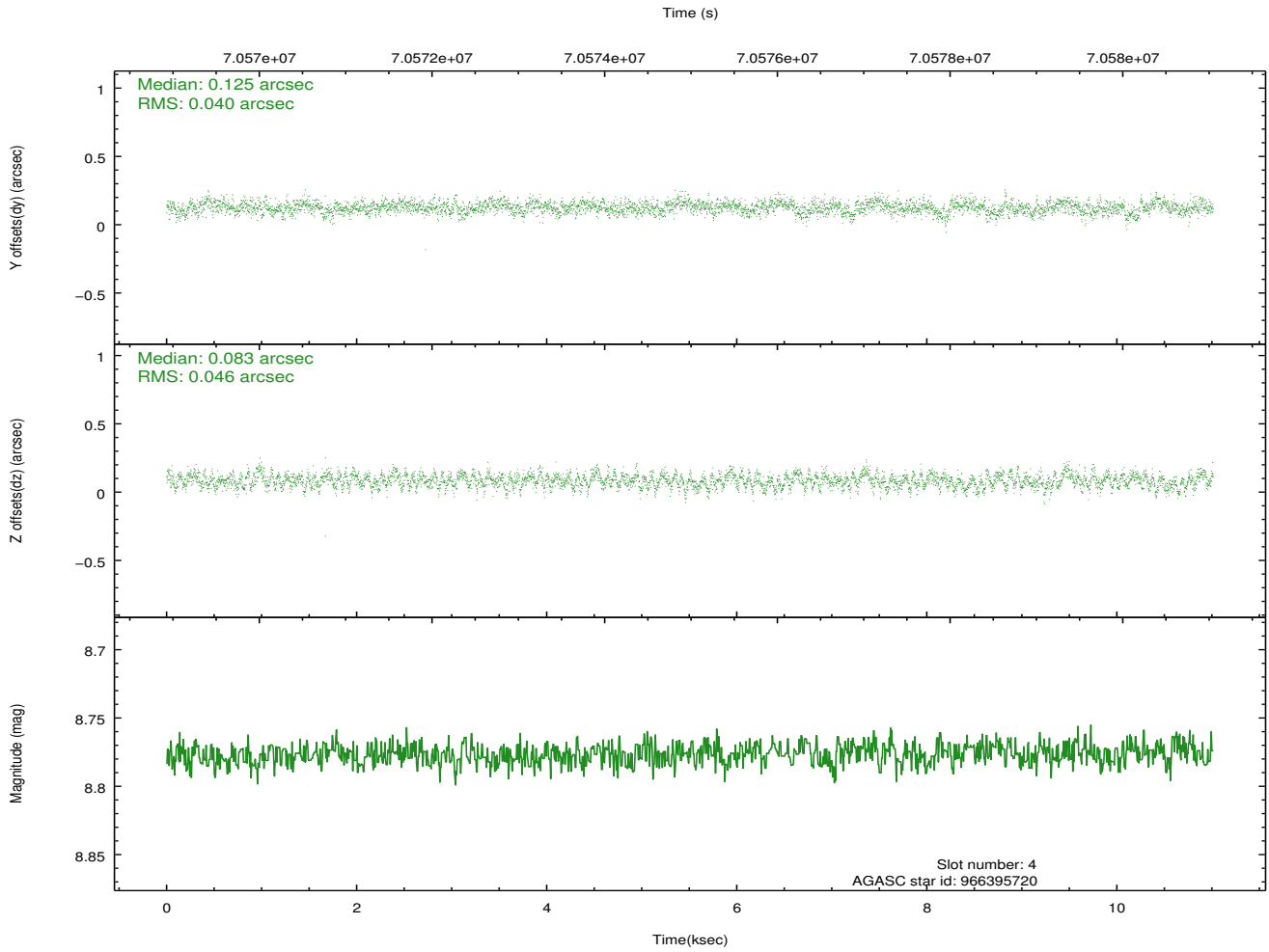
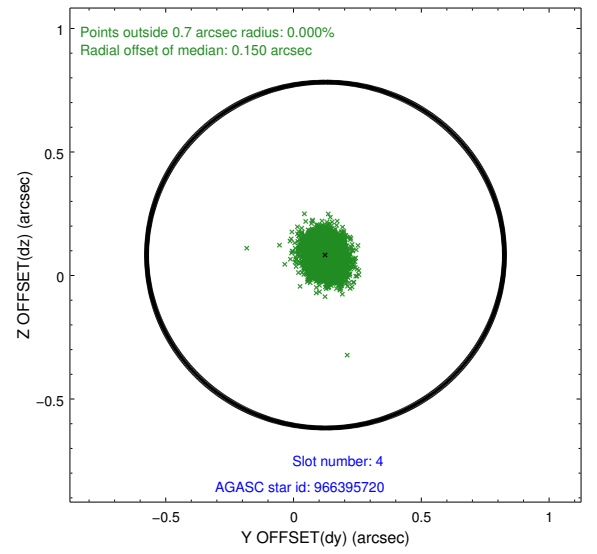
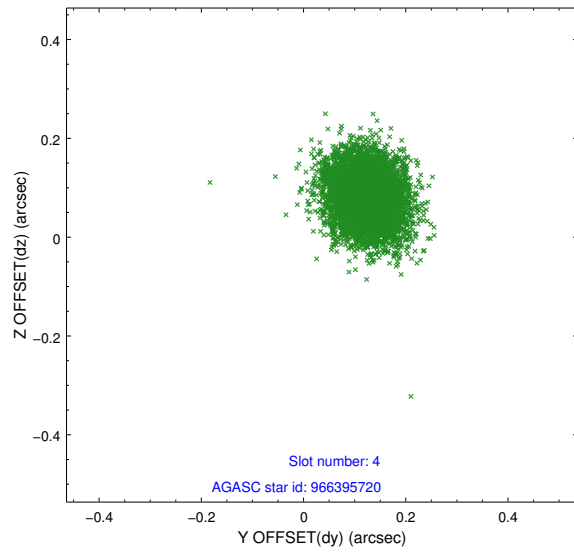
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.12	2686	-0.011	-0.018	0.006	0.010	0.000000	0.000000	-753.45	-1724.93
1	FID	ACIS-S-4	7.21	2686	0.010	0.010	0.006	0.010	0.000000	0.000000	2159.68	183.03
2	FID	ACIS-S-5	7.23	2686	-0.031	0.017	0.006	0.011	0.000000	0.000000	-1805.66	177.33
3	GUIDE	966396120	7.83	5373	0.050	0.075	0.059	0.091	256.737004	-36.720258	-812.67	-988.03
4	GUIDE	966395720	8.78	5370	0.125	0.083	0.065	0.105	256.666571	-36.868291	-1372.60	-879.56
5	GUIDE	966263464	8.65	5373	-0.151	-0.035	0.052	0.086	256.403645	-35.929342	1824.20	456.19
6	GUIDE	966267584	8.85	5372	0.074	-0.080	0.061	0.103	256.057206	-36.642617	-879.81	993.21
7	GUIDE	966270288	9.30	5372	-0.098	-0.043	0.071	0.118	256.249148	-35.958541	1641.91	881.42

2.4 Star Slots

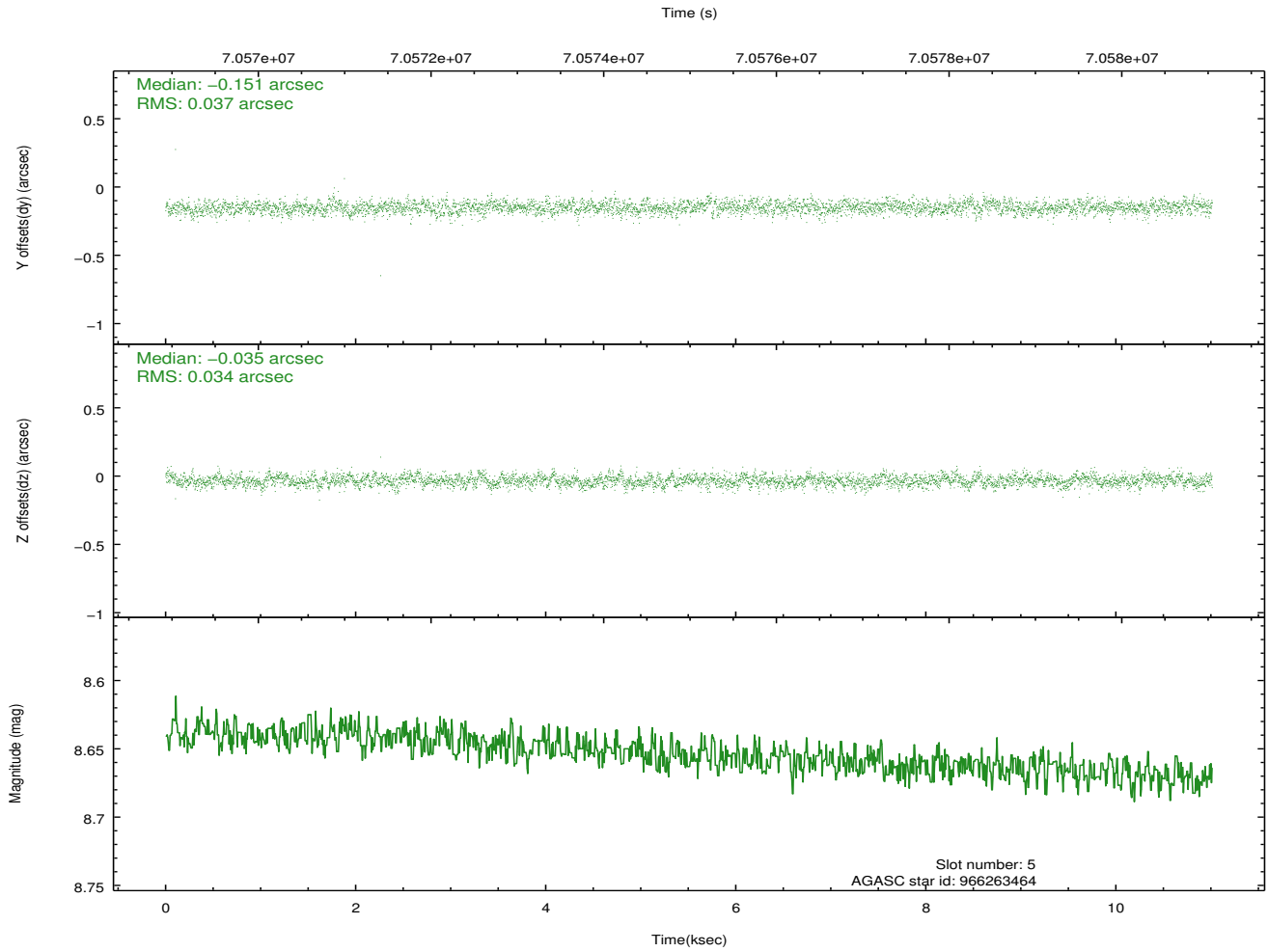
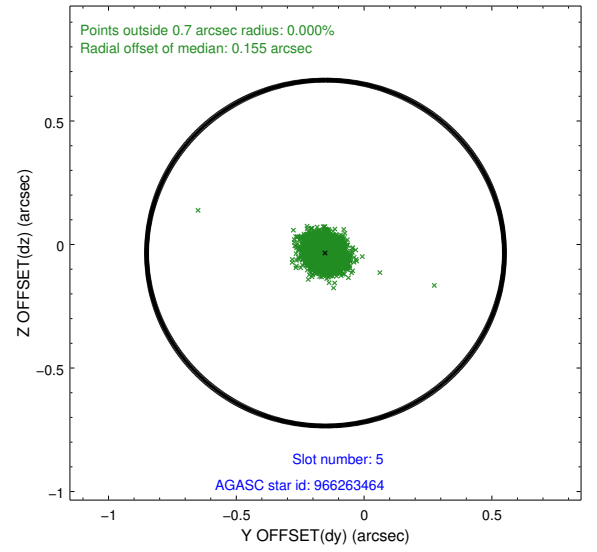
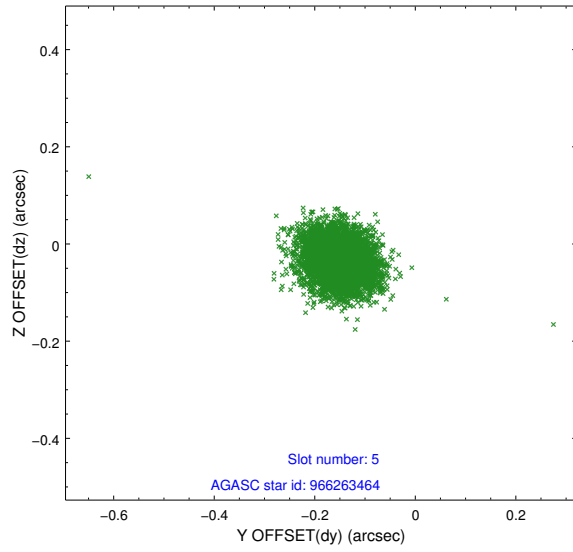
2.4.1 Slot 3



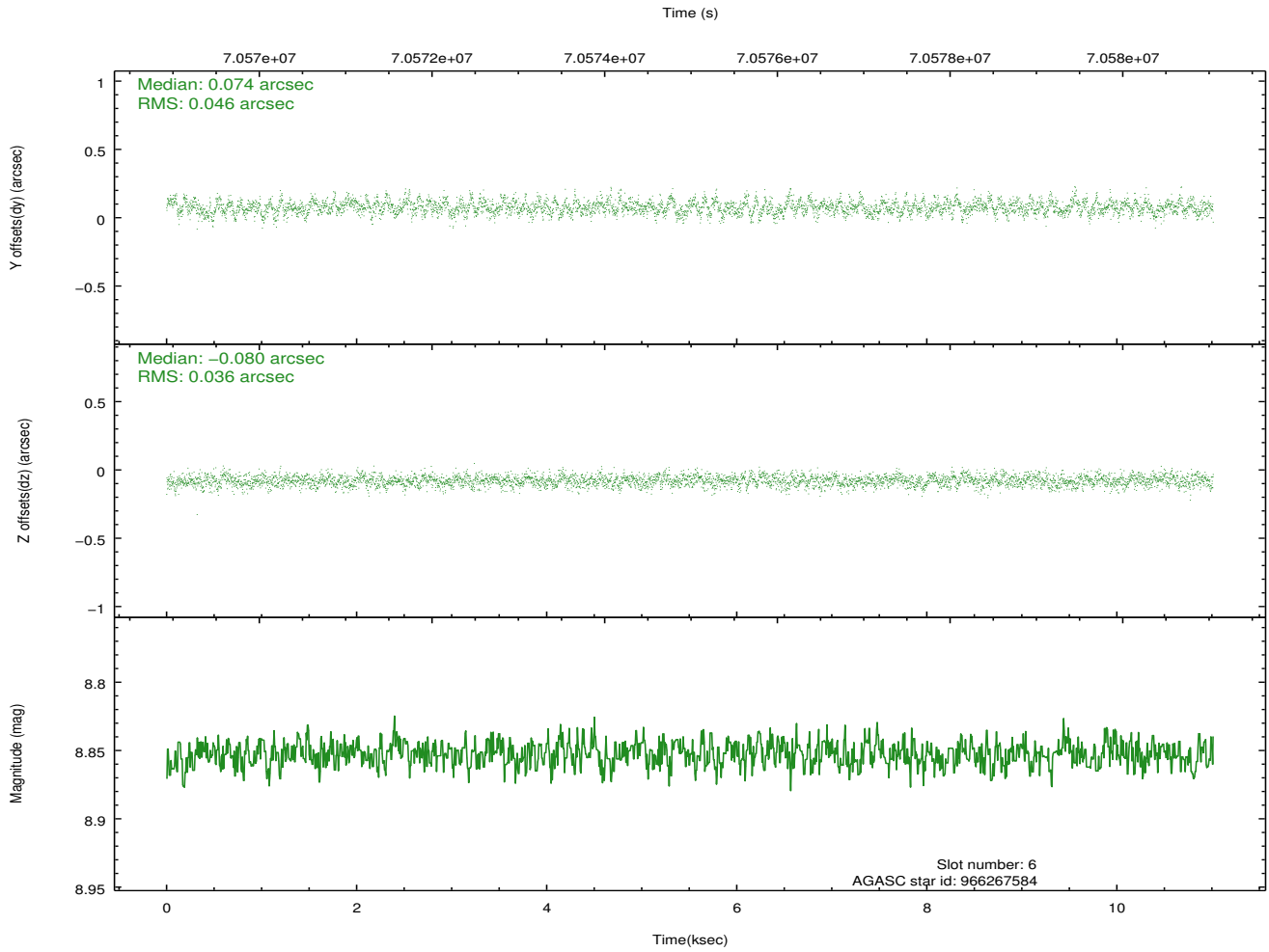
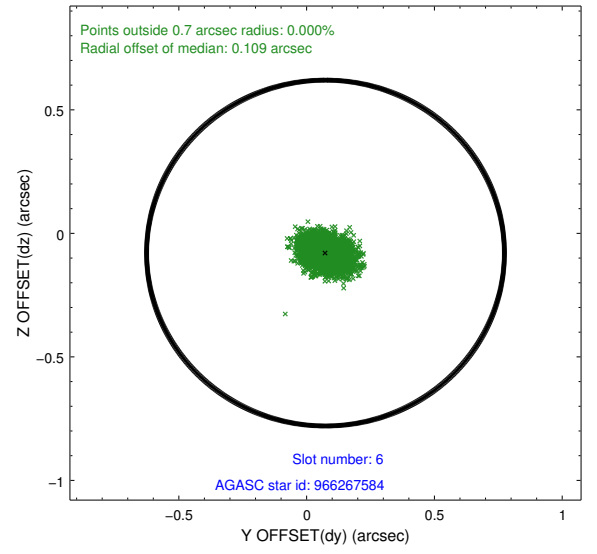
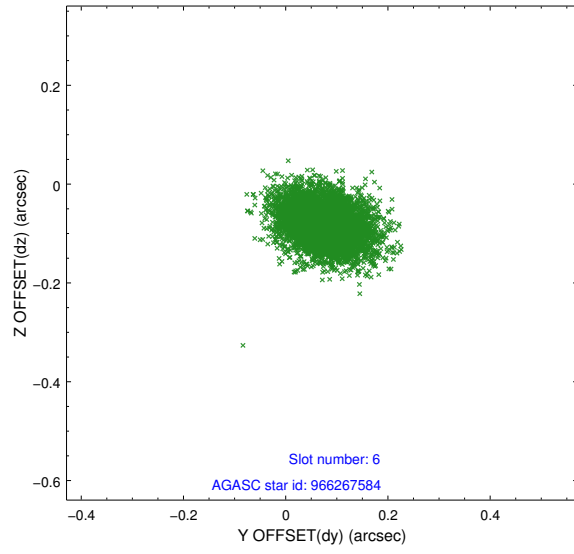
2.4.2 Slot 4



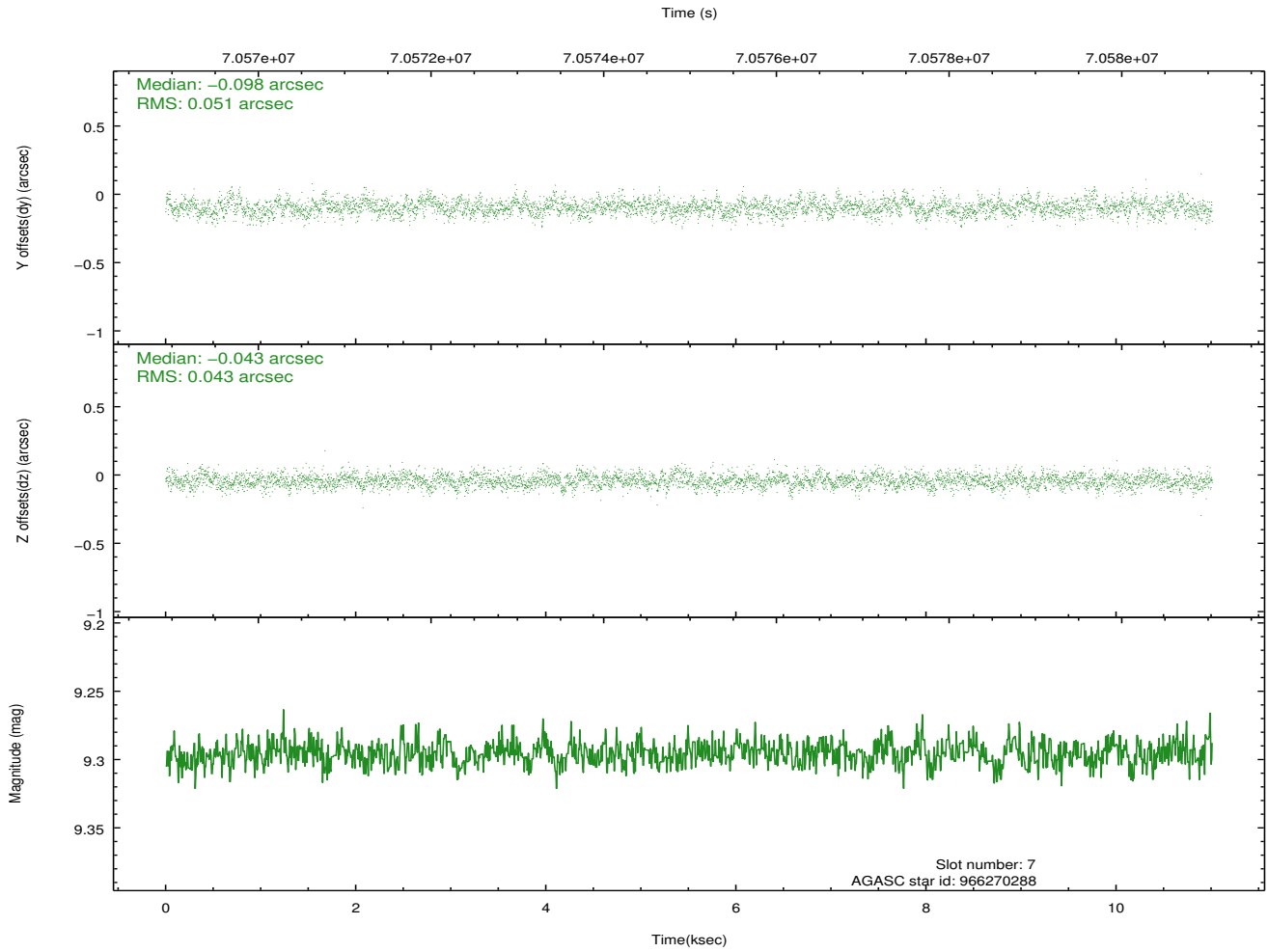
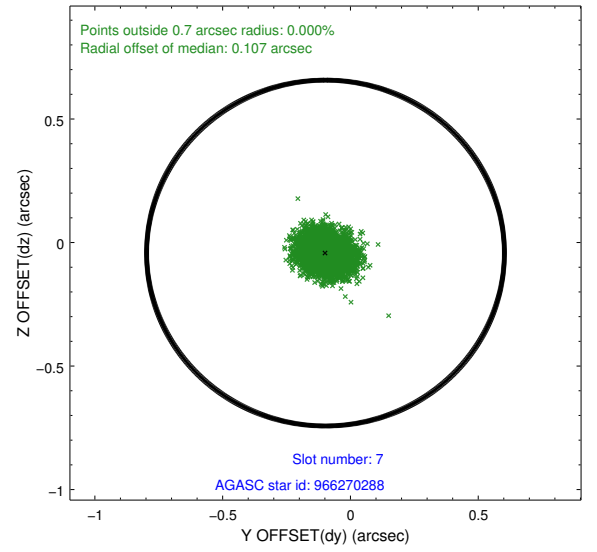
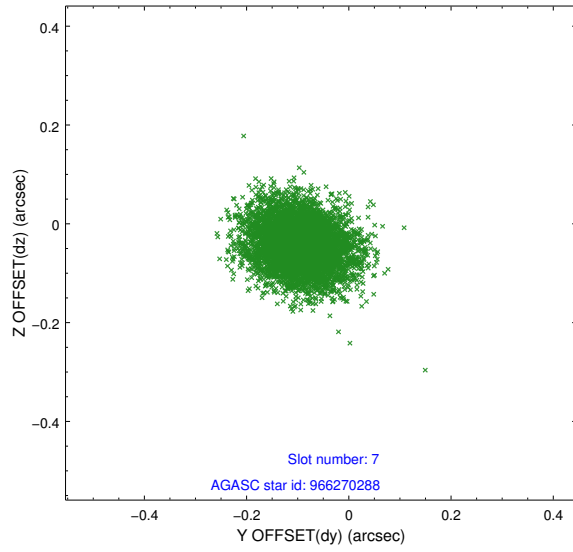
2.4.3 Slot 5



2.4.4 Slot 6

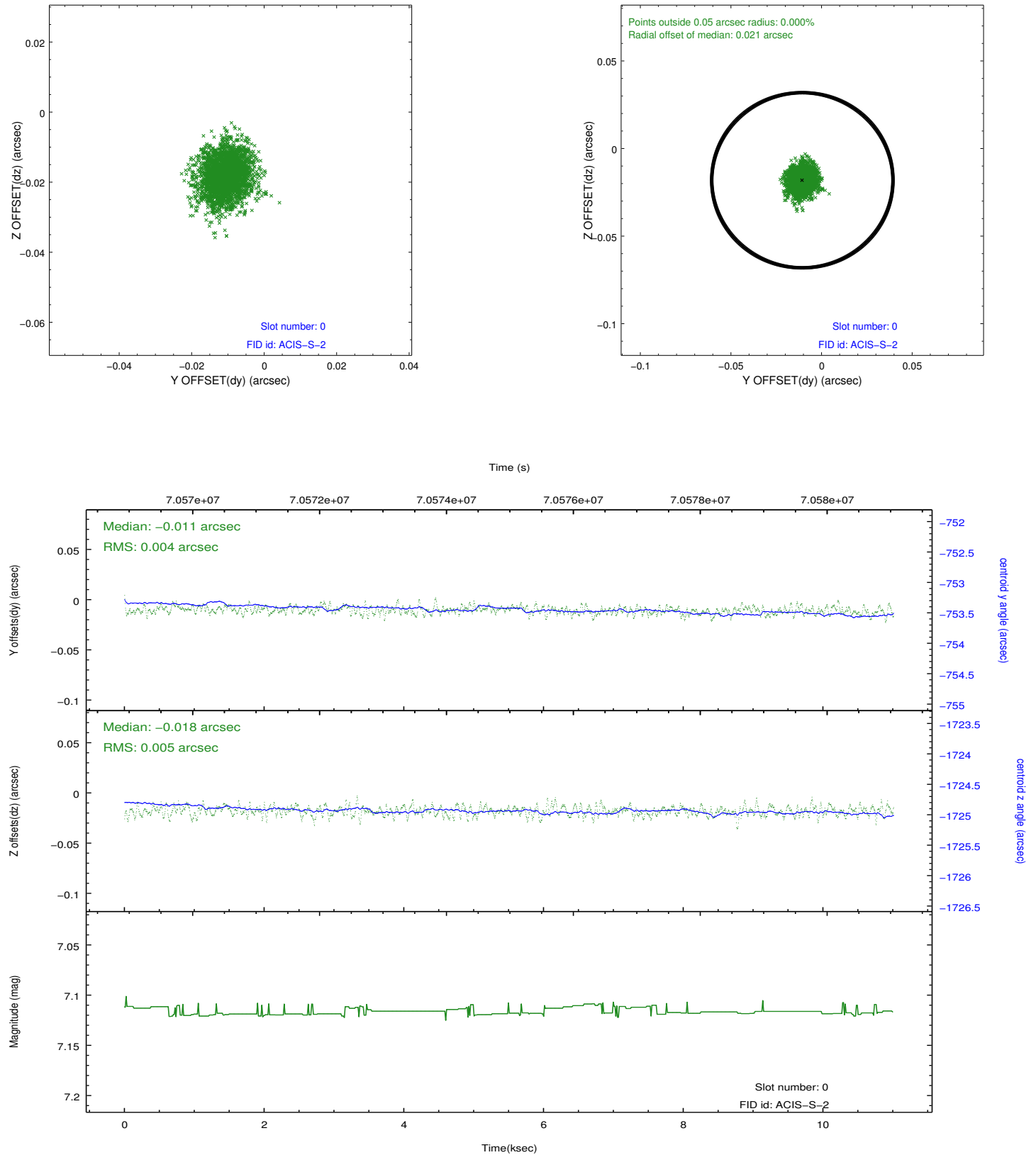


2.4.5 Slot 7

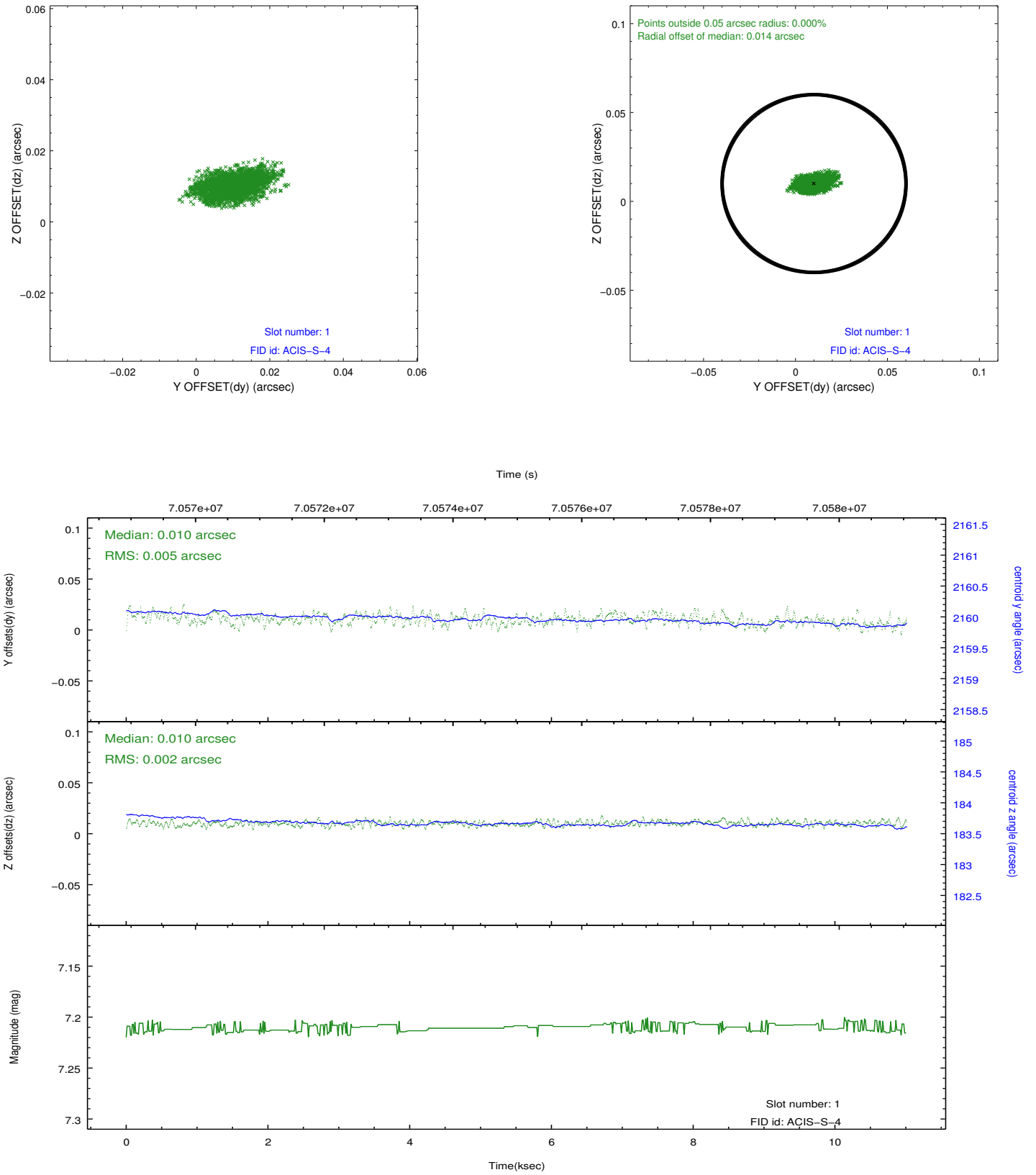


2.5 FID Slots

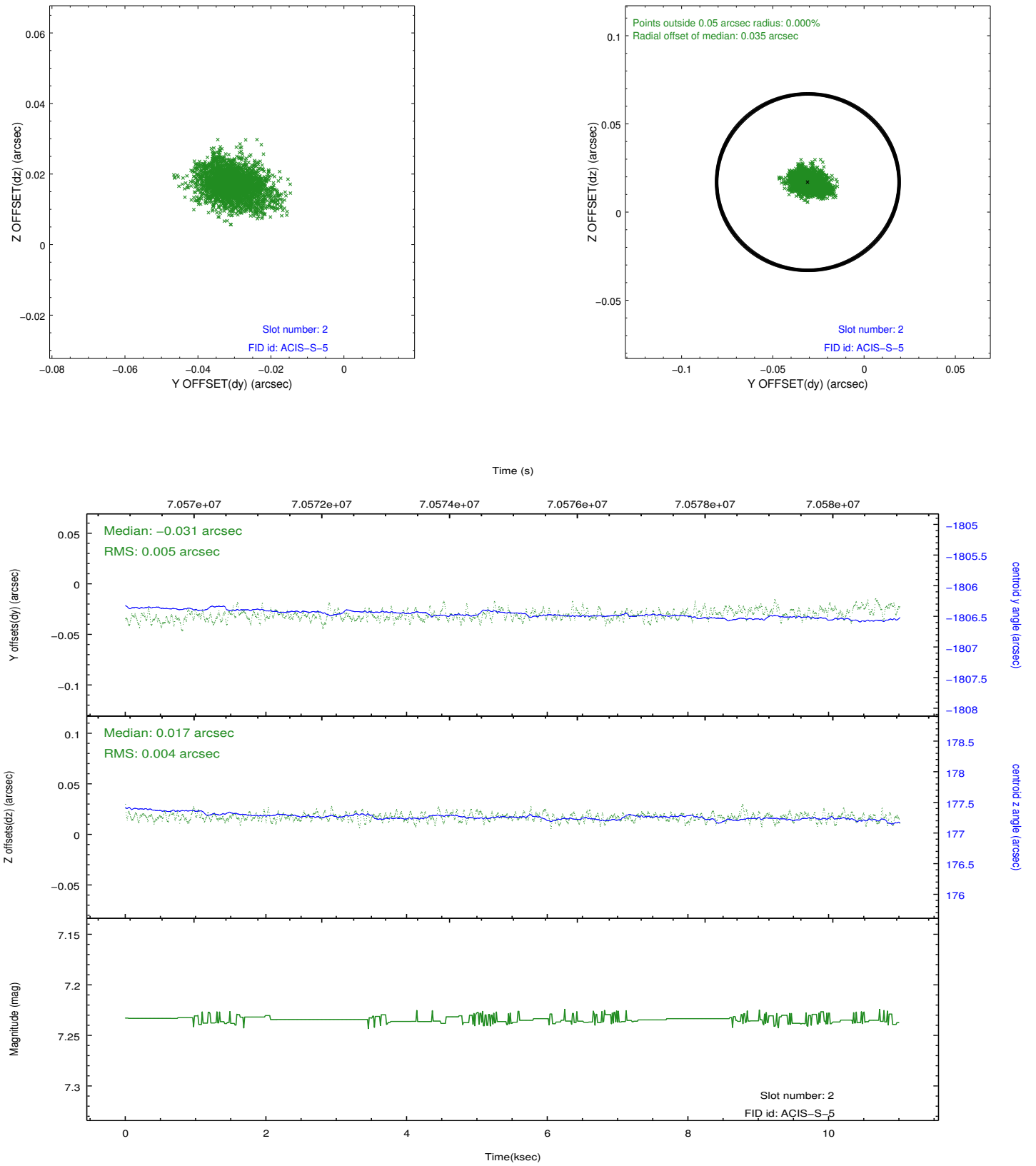
2.5.1 Slot 0



2.5.2 Slot 1



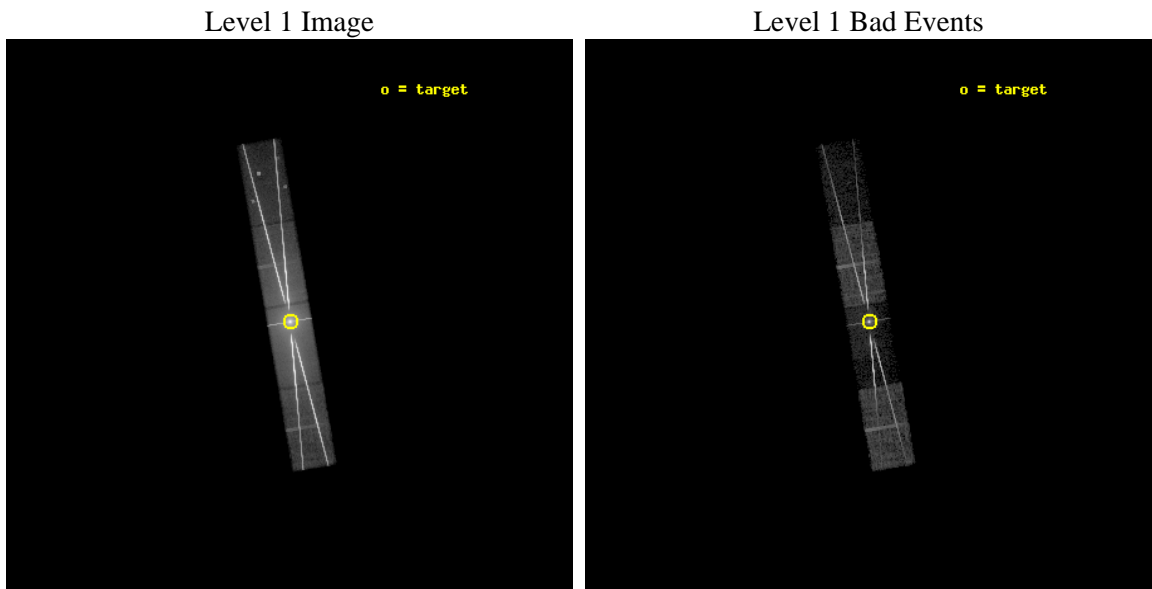
2.5.3 Slot 2



3 OBI Secondary

3.1 OBI

3.1.1 Images



3.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	10534.945000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	9639.54244636	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime5	9639.5421974659	Sum of GTIs [s]
date	2012-08-25T03:53:13	Date and time of file creation	ontime6	9639.5421379209	Sum of GTIs [s]
revision	6	Processing version of data	ontime7	9639.54244636	Sum of GTIs [s]
			ontime8	9639.5425862223	Sum of GTIs [s]
			l1events	3032625	Number of level 1 events

3.1.3 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	215545	1106125	1317141	393814
rejected events	17948	135023	198449	47933
rejected %	8%	12%	15%	12%

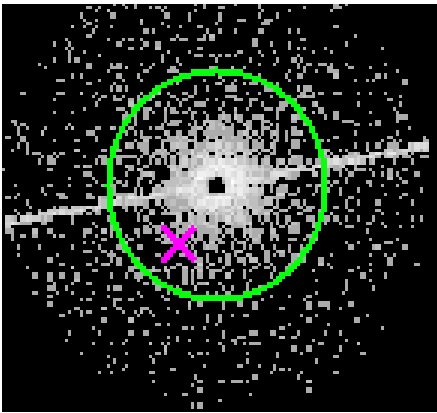
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	51970	670441	194792	270319
	24%	60%	14%	68%
grade 1 events	452	42659	12435	5664
	0%	3%	0%	1%
grade 2 events	78011	149391	310293	41727
	36%	13%	23%	10%
grade 3 events	13149	52998	103742	13795
	6%	4%	7%	3%
grade 4 events	12910	51506	103746	13493
	5%	4%	7%	3%
grade 5 events	4502	30961	57056	3611
	2%	2%	4%	0%
grade 6 events	43841	58494	420109	11328
	20%	5%	31%	2%
grade 7 events	10710	49675	114968	33877
	4%	4%	8%	8%

4 Gratings

4.1 HEG Arm



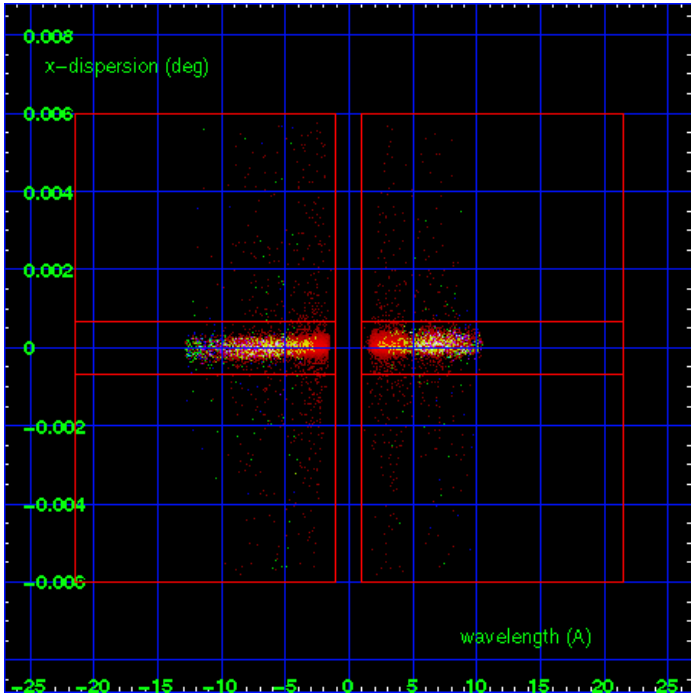
HEG Order Sort 123



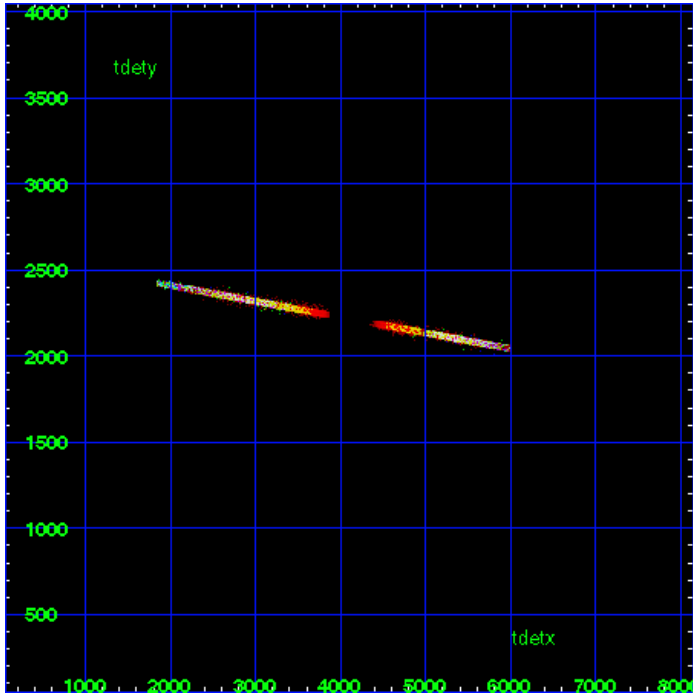
HEG Zero Order



HEG Order Sort ALL

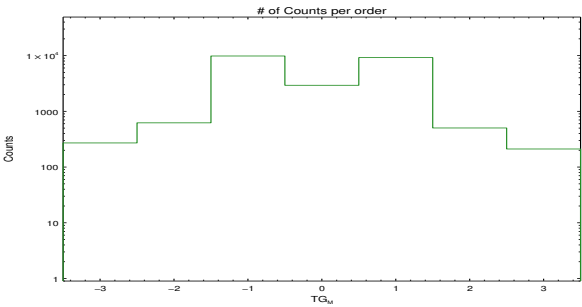


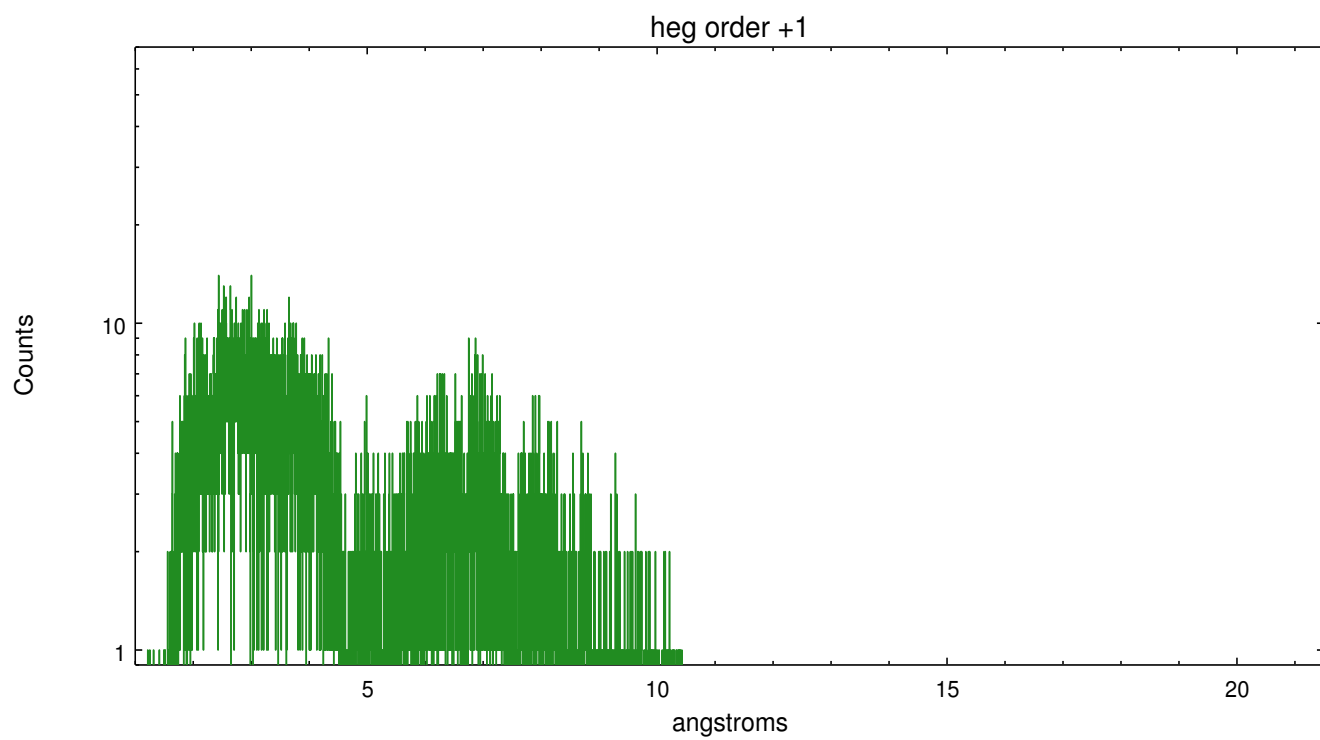
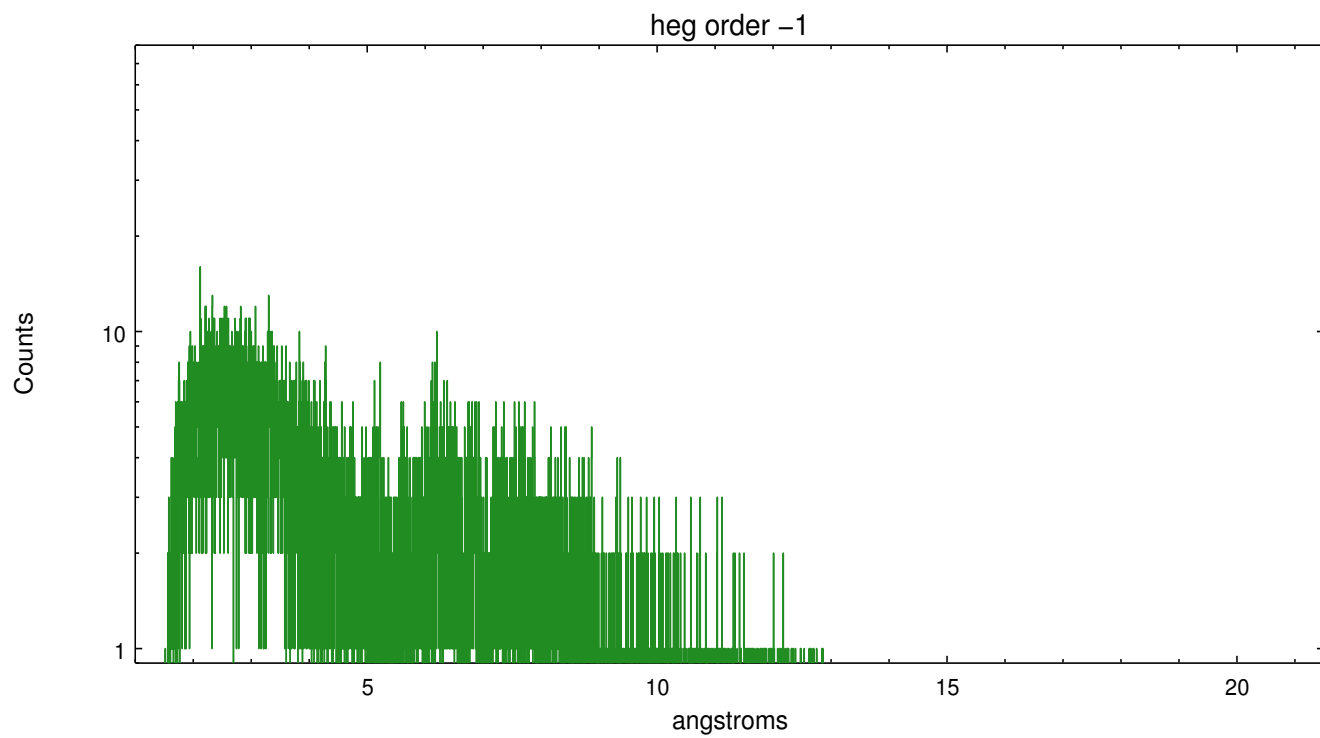
Spot Image HEG



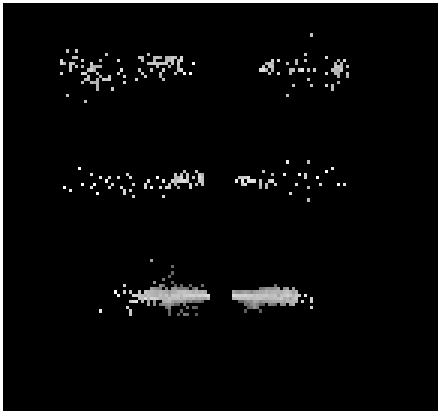
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	271	622	9849	2934	9214	503	211

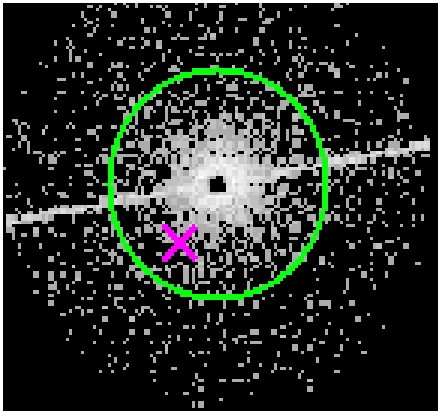




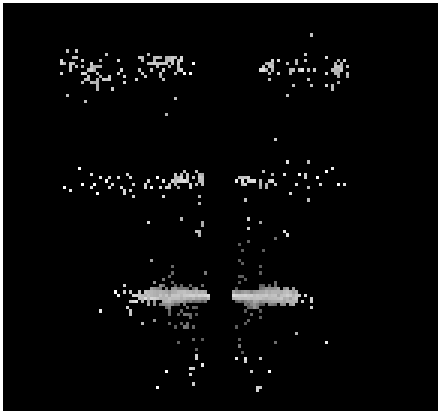
4.2 MEG Arm



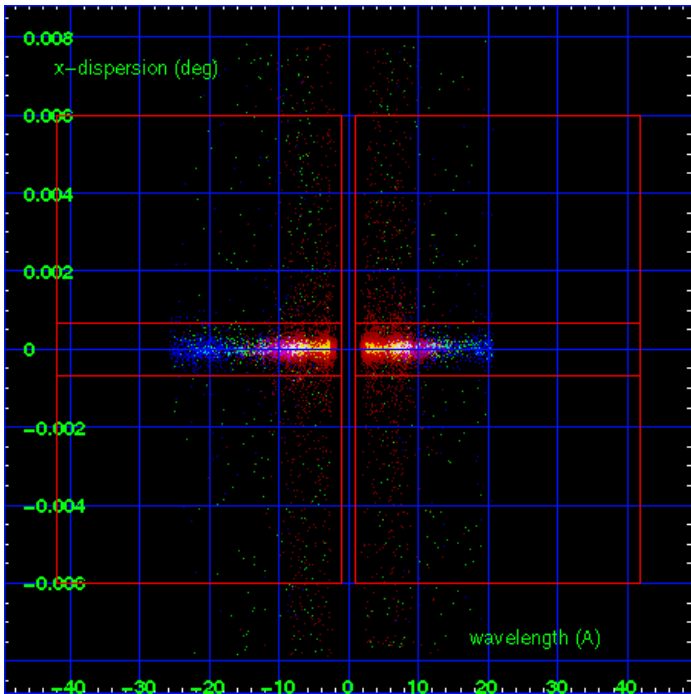
MEG Order Sort 123



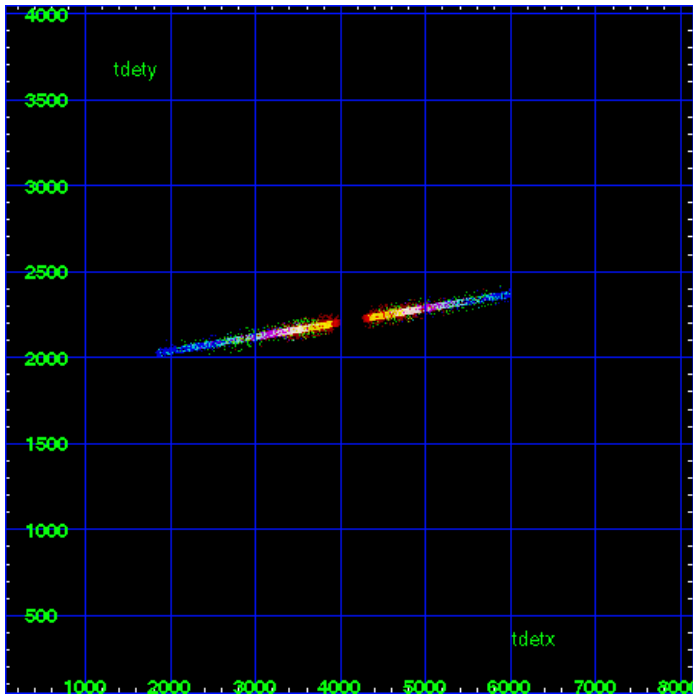
MEG Zero Order



MEG Order Sort ALL

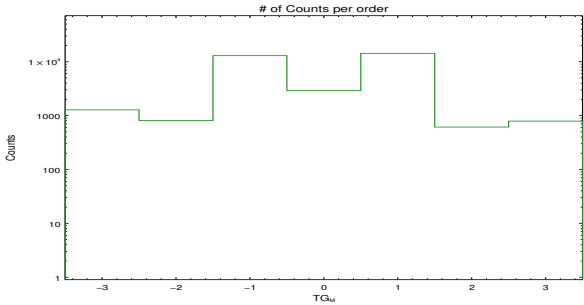


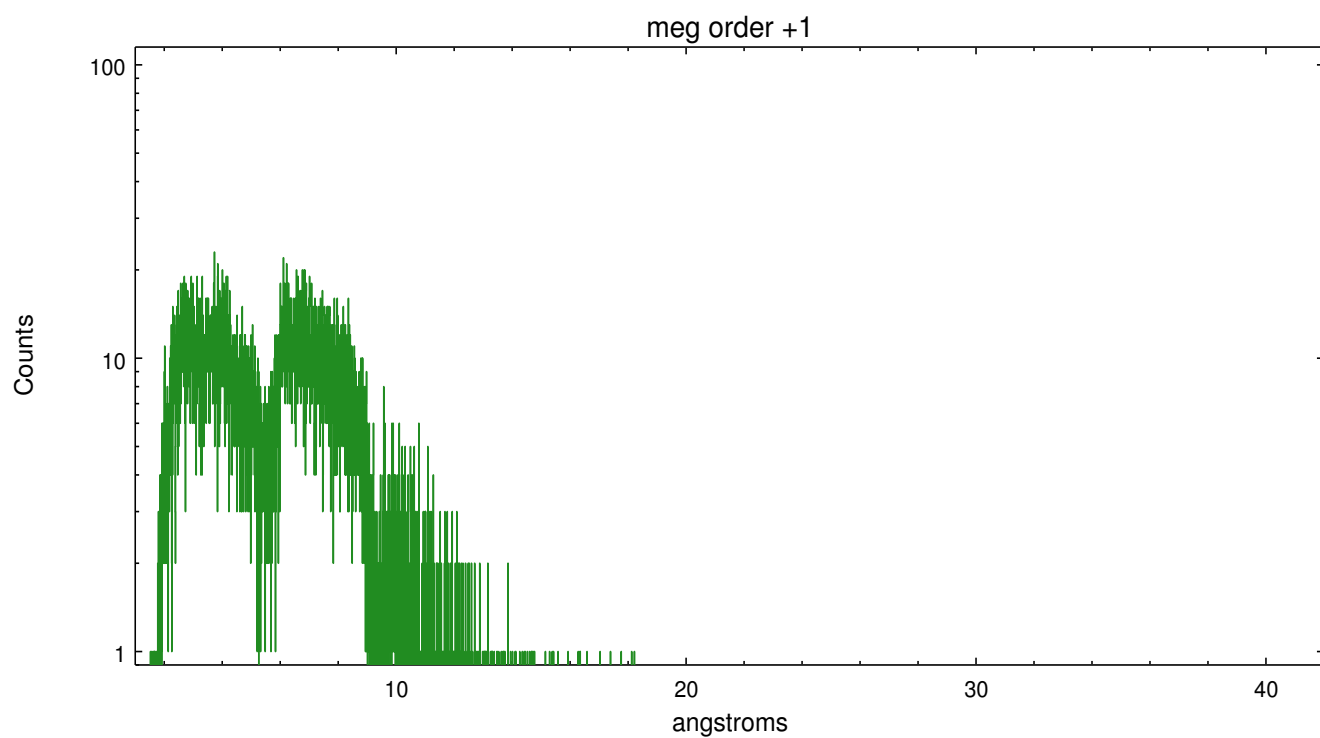
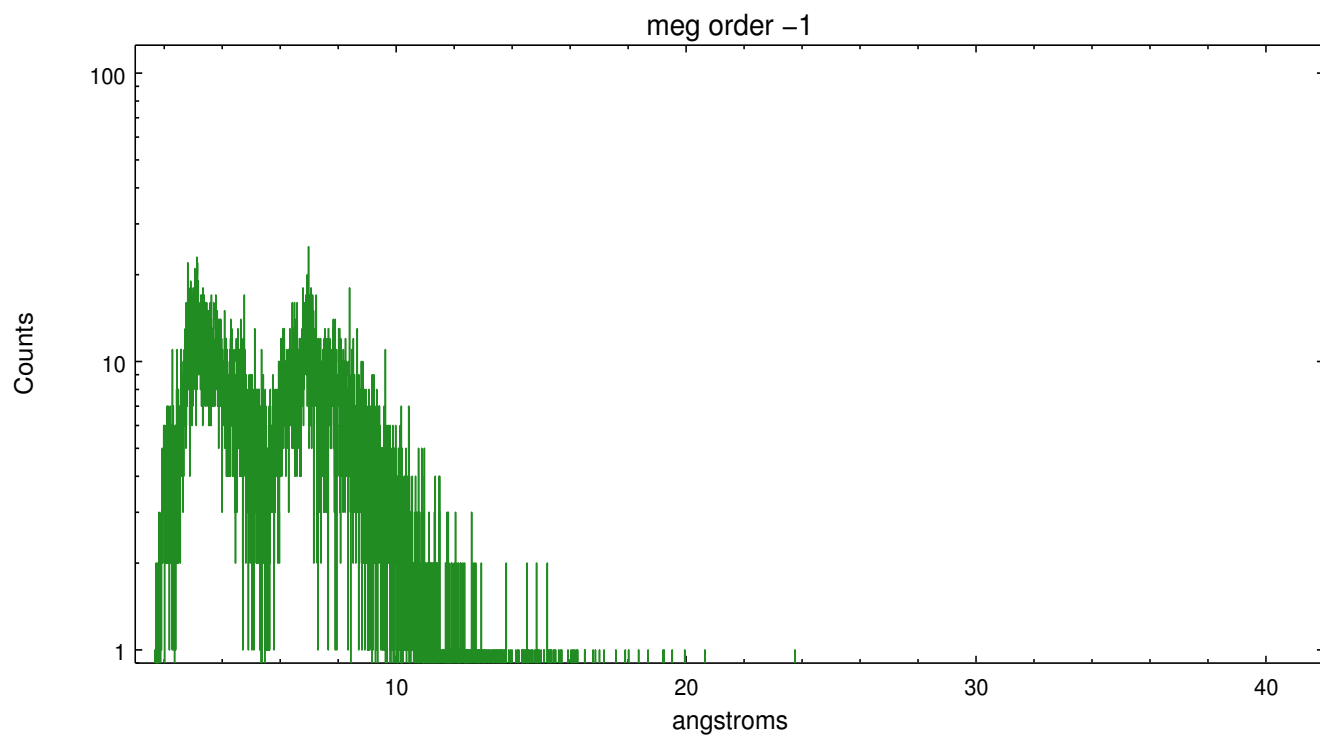
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1277	811	12946	2934	14285	612	789





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.10.16
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	11.0096034

A.2 Comments

This is an interleaved-mode observation. The primary exposure (e1) is shorter than the secondary exposure (e2). Therefore the longer exposure was used to determine the zeroth order position, then that position was applied to both exposures.

===

For e2 exposure, to determine the zeroth order position:===

Zeroth order piled up and cratered. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates (sky coordinates x=4105.7, y=4110.7) 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 as tg_findzo (currently in ISIS as findzo). 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.

===

For e1 exposure:

Zeroth order is also piled up and cratered. However, it is important that the zeroth order positions of e1 and e2 be identical, so the e2 position was manually inserted in the *src1a.fits file.

===

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.