

V&V Reference Report

L2 ASCDS Version : 8.4.3.1

Observation 13105 - L2 Version 3
Chandra X-Ray Center

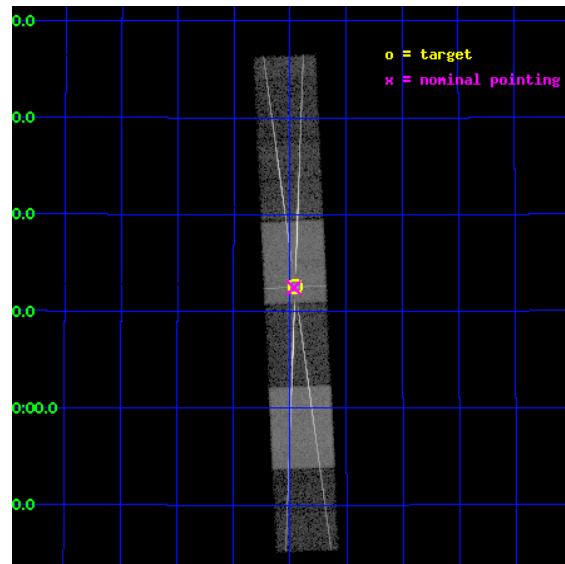
L2 Processing Date : Mar 21 2012

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1 Front

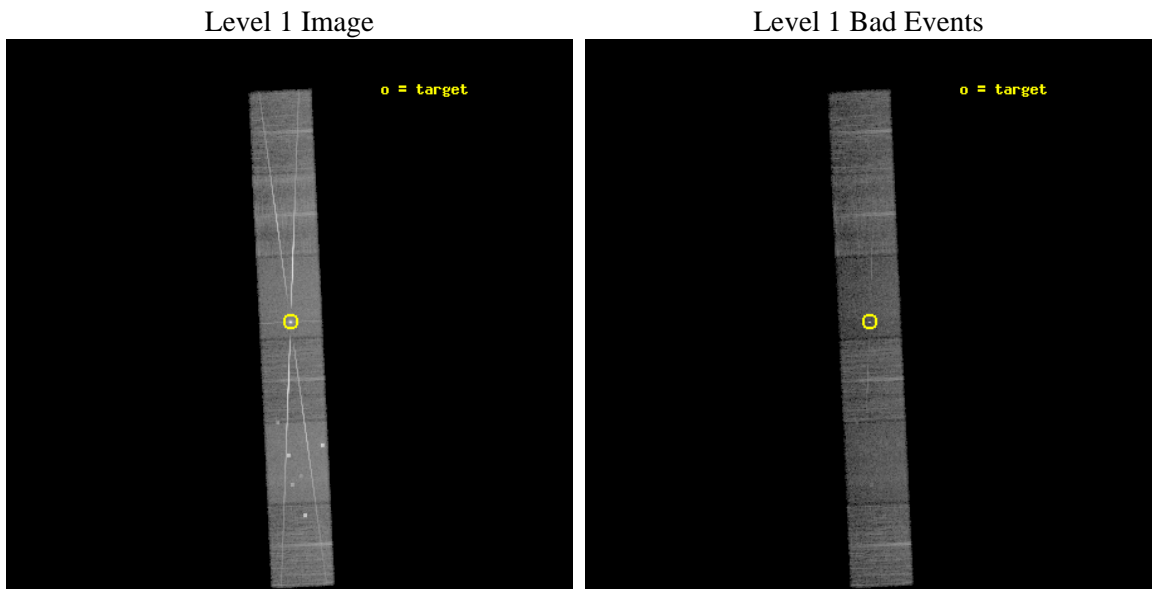
seq_num	790235	Sequence number
obs_id	13105	Observation id
title	AO-12 Calibration Observations of Mkn421	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.11649691114	Nominal RA [deg]
dec_nom	38.207376022633	Nominal Dec [deg]
roll_nom	267.28893851409	Nominal Roll [deg]
revision	3	Processing version of data
ontime	14999.333826184	Sum of GTIs [s]
livetime	14757.081575048	Livetime [s]
ontime4	14999.374866188	Sum of GTIs [s]
ontime5	14999.292786181	Sum of GTIs [s]
ontime6	14999.251746178	Sum of GTIs [s]
ontime7	14999.333826184	Sum of GTIs [s]
ontime8	14999.210706174	Sum of GTIs [s]
ontime9	14996.628646016	Sum of GTIs [s]
l2events	280078	Number of level 2 events



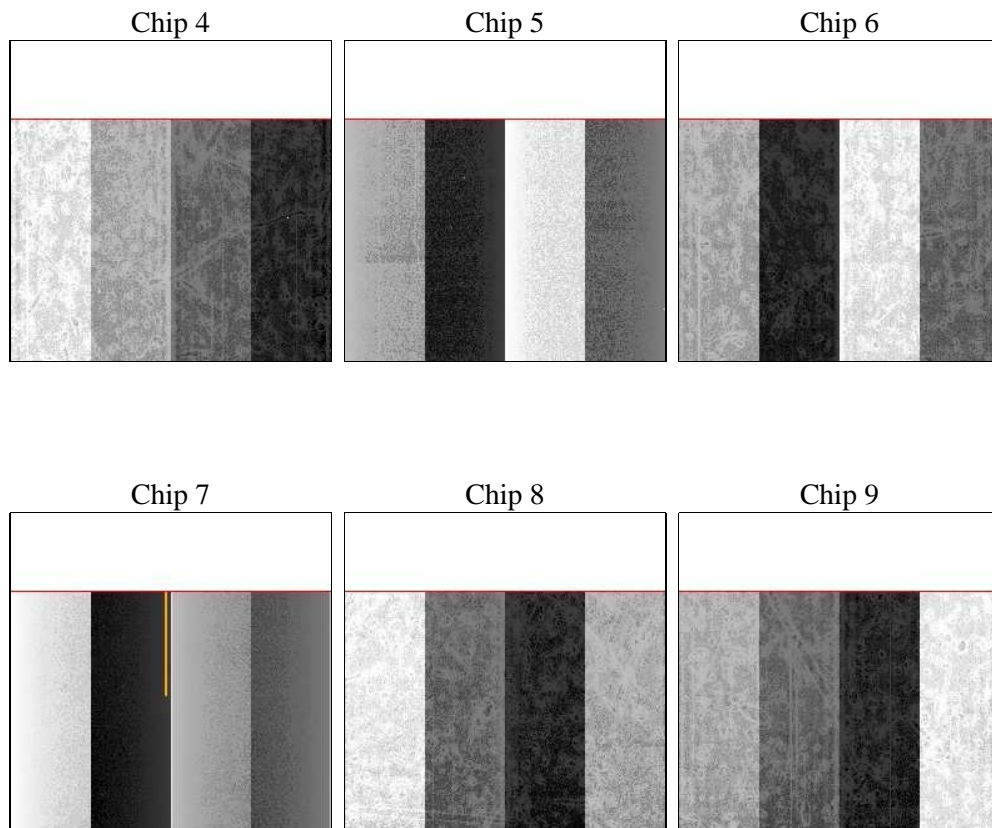
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	14949.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	14999.333826184	Sum of GTIs [s]
caldsver	4.4.8	 	ontime4	14999.374866188	Sum of GTIs [s]
date	2012-03-18T18:35:45	Date and time of file creation	ontime5	14999.292786181	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	14999.251746178	Sum of GTIs [s]
			ontime7	14999.333826184	Sum of GTIs [s]
			ontime8	14999.210706174	Sum of GTIs [s]
			ontime9	14996.628646016	Sum of GTIs [s]
			l1events	699508	Number of level 1 events

2.1.4 Events

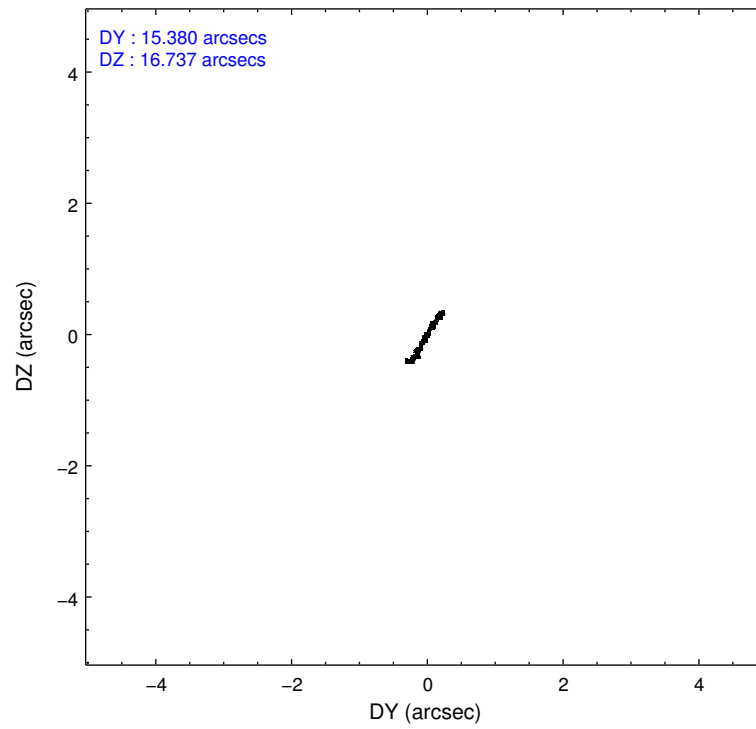
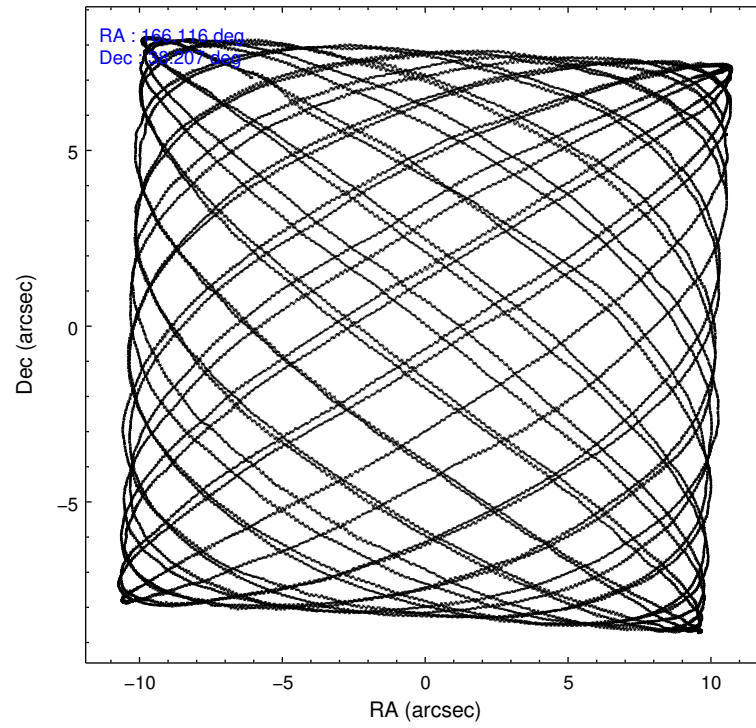
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	89314	140461	126776	139774	126700	76483	grade 0 events	11787	22290	45852	16200	34395	8703
rejected events	71279	55596	64785	50895	69314	61215		13%	15%	36%	11%	27%	11%
rejected %	79%	39%	51%	36%	54%	80%	grade 1 events	91	252	328	349	188	58
								0%	0%	0%	0%	0%	0%
							grade 2 events	2520	22990	7743	20869	8573	2434
								2%	16%	6%	14%	6%	3%
							grade 3 events	1033	4481	2646	9245	3732	1132
								1%	3%	2%	6%	2%	1%
							grade 4 events	991	4491	2671	9004	3455	1109
								1%	3%	2%	6%	2%	1%
							grade 5 events	3136	8837	3506	10162	4861	3679
								3%	6%	2%	7%	3%	4%
							grade 6 events	1707	30629	3094	33579	7242	1891
								1%	21%	2%	24%	5%	2%
							grade 7 events	68049	46491	60936	40366	64254	57477
								76%	33%	48%	28%	50%	75%

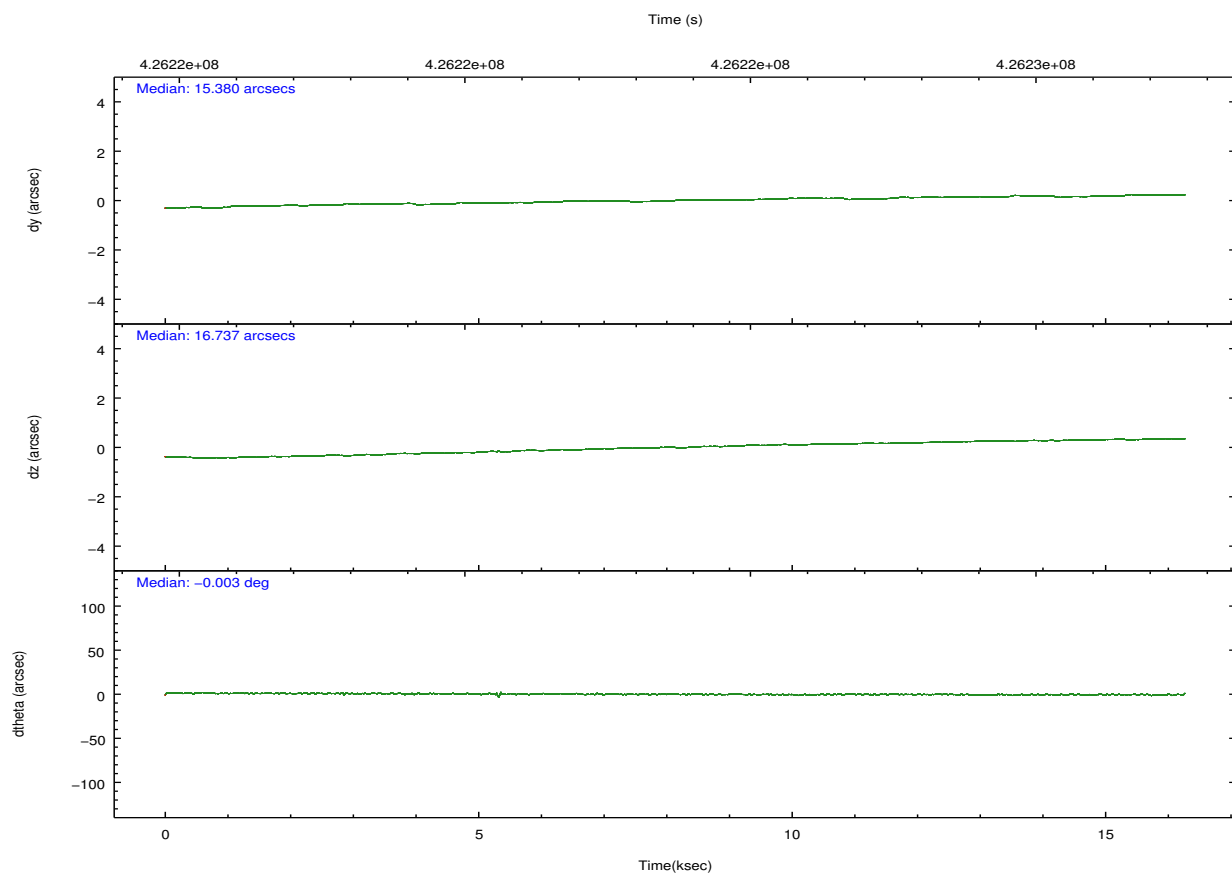
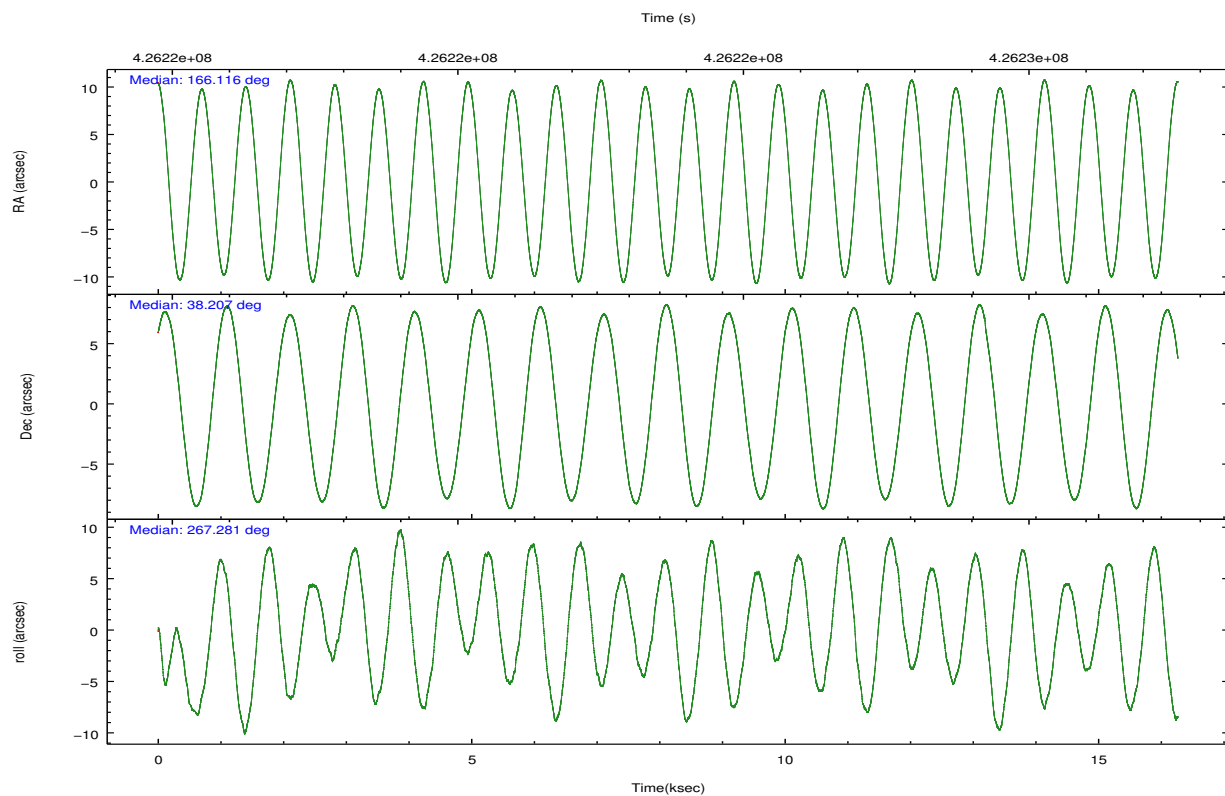
2.2 Compared Parameters

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	166.100124	166.1164969111367
[deg] Pointing Dec	38.231469	38.20737602263307
[deg] Pointing Roll	267.142445	267.2889385140904
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-187.132523	-187.1228876879999
[mm] SIM translation stage offset	-3	-3.009634895007935
[s] Observation start time (MET)	426216868.184000	426215231.82668
Observation start date	2011-07-05T01:33:22	2011-07-05T01:07:11
[s] Observation end time (MET)	426231817.184000	426232266.81507
Observation end date	2011-07-05T05:42:31	2011-07-05T05:51:06
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	O1	Y
CCD S1 on	Y	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	Y	Y
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	CUSTOM
Subarray start row	1	1
Subarray row count	774	774
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	2.5

2.3 Aspect



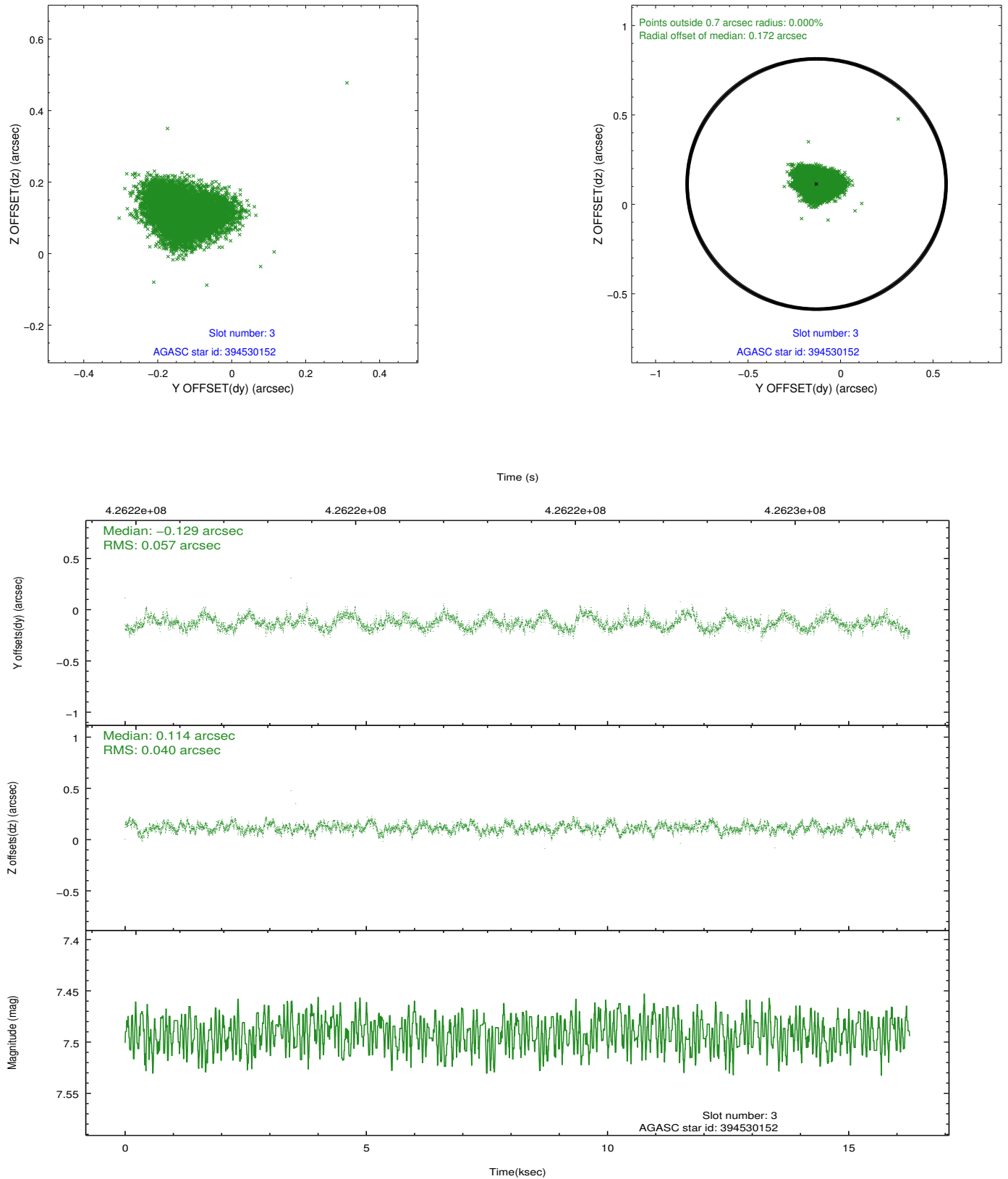


Slot Statistics

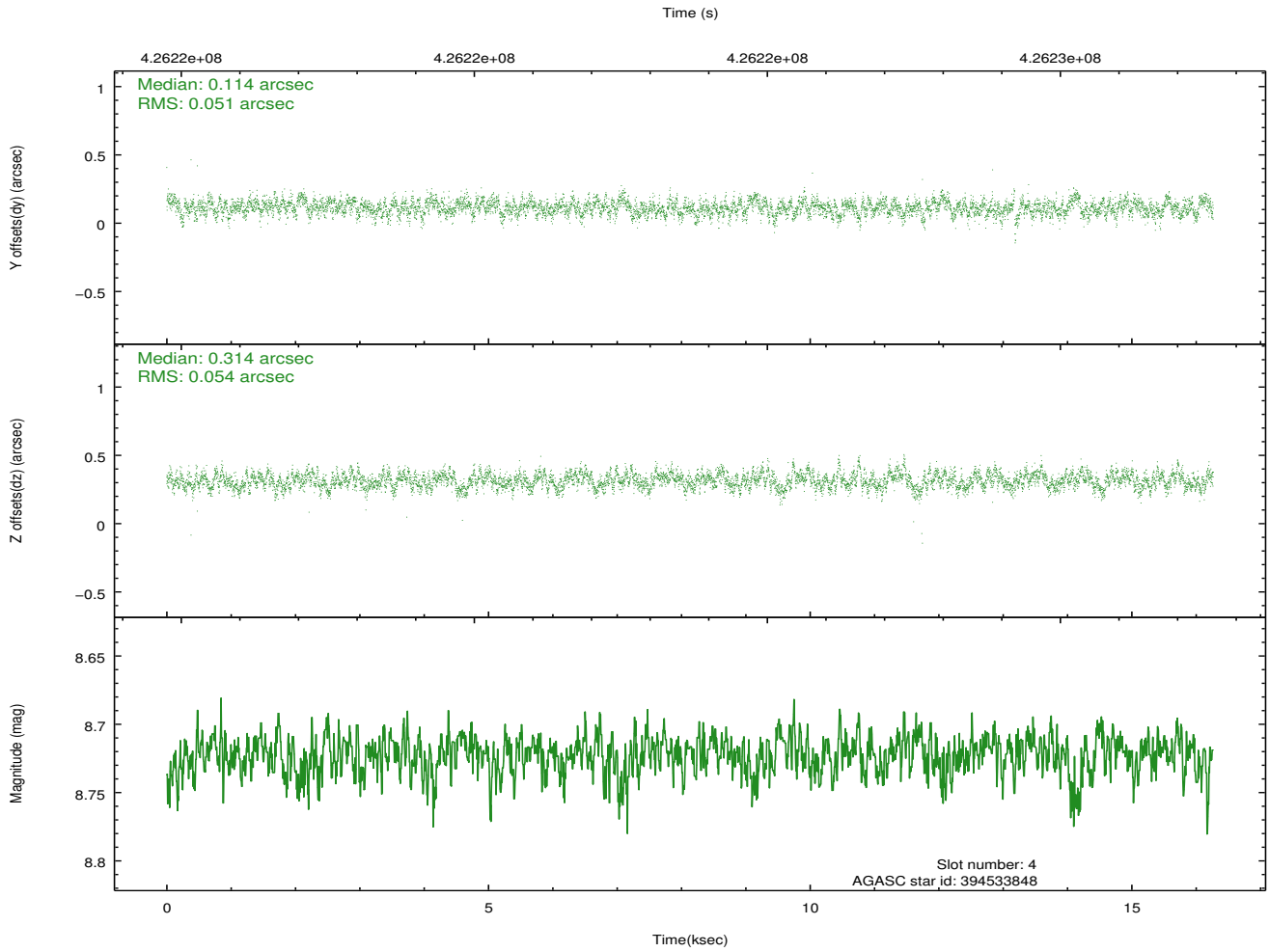
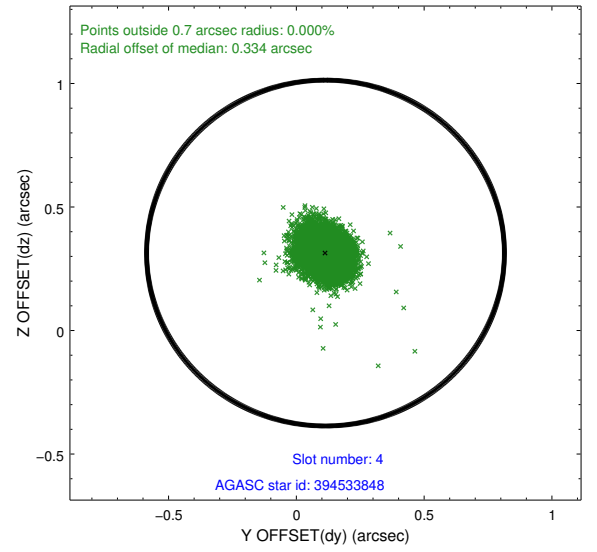
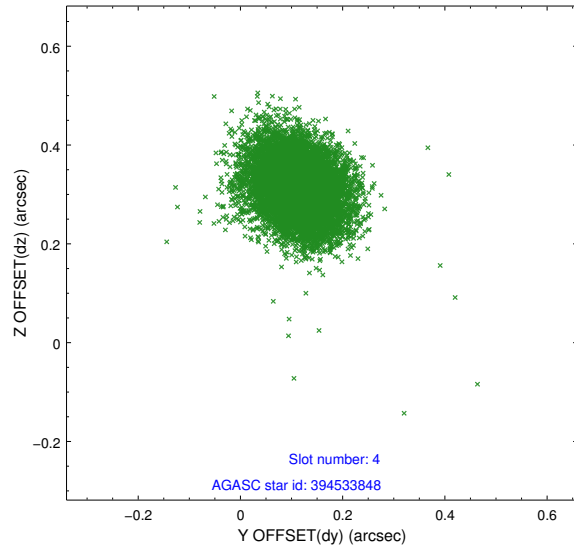
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.82	3968	-0.156	-0.090	0.006	0.011	0.000000	0.000000	-768.33	-1800.36
1	FID	ACIS-S-4	6.92	3967	0.133	0.107	0.007	0.011	0.000000	0.000000	2145.14	107.98
2	FID	ACIS-S-6	7.08	3968	-0.004	-0.010	0.007	0.011	0.000000	0.000000	394.18	745.59
3	GUIDE	394530152	7.49	7936	-0.129	0.114	0.074	0.116	166.075805	38.868252	-2285.95	-182.29
4	GUIDE	394533848	8.72	7936	0.114	0.314	0.077	0.125	166.382906	38.276007	-201.66	786.80
5	GUIDE	394543960	9.77	7926	0.082	0.224	0.124	0.197	165.802757	37.787371	1638.10	-764.49
6	GUIDE	394546712	6.60	7936	-0.137	0.241	0.052	0.083	166.451462	38.394357	-636.46	960.24
7	GUIDE	394546720	6.41	7935	0.063	-0.892	0.073	0.125	166.130115	38.241361	-39.50	82.44

2.4 Star Slots

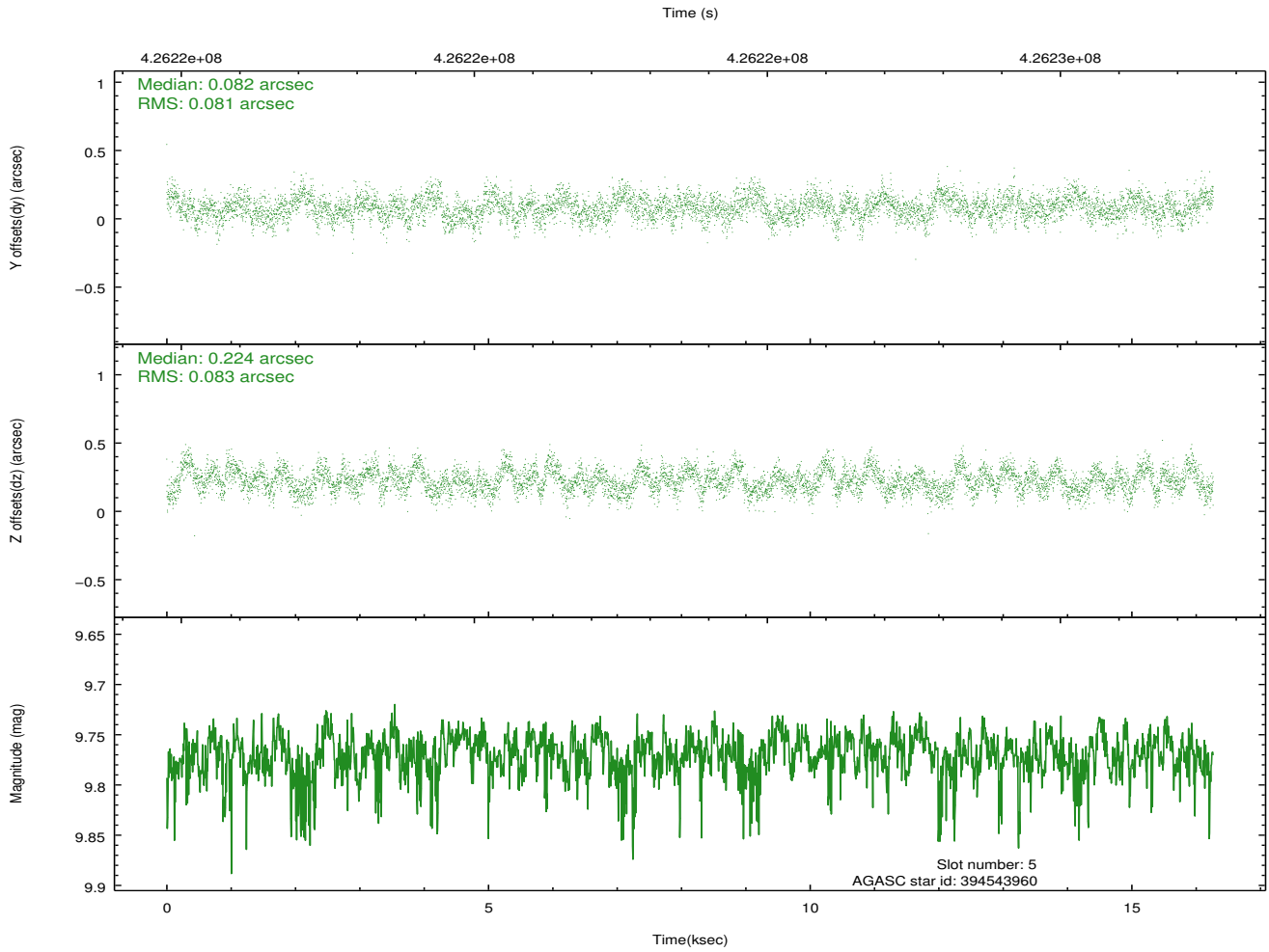
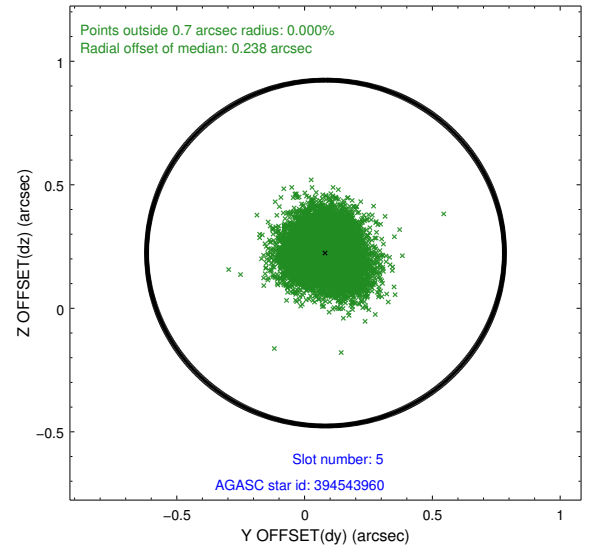
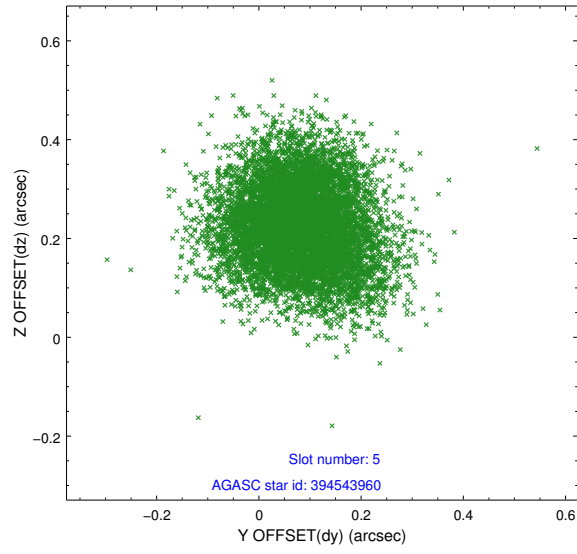
2.4.1 Slot 3



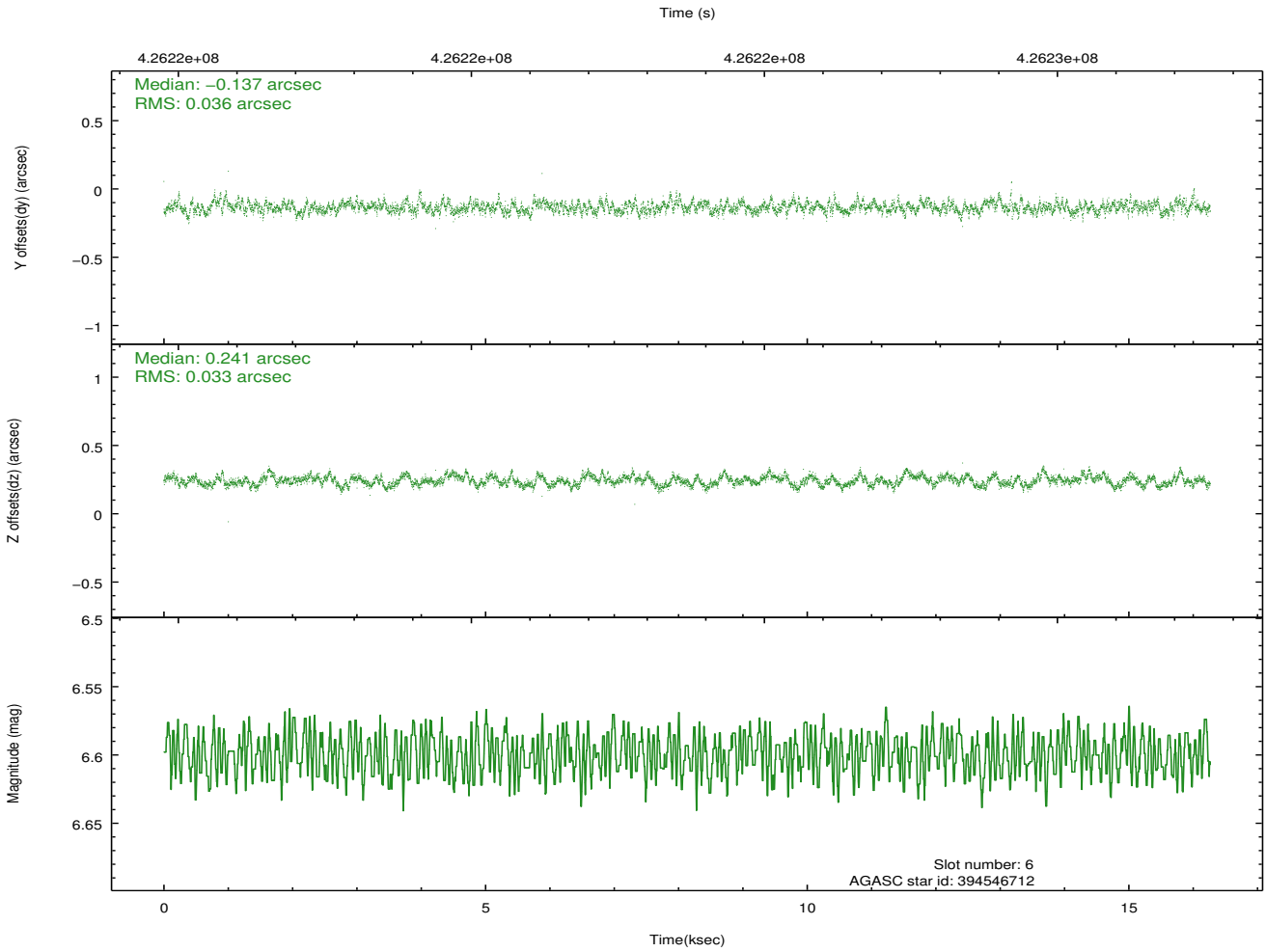
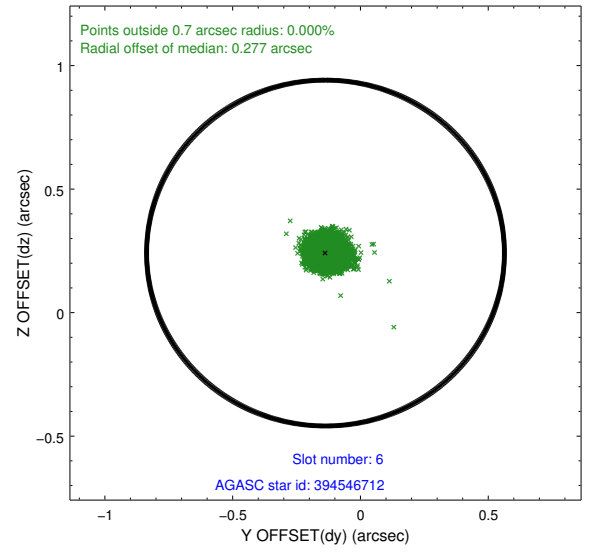
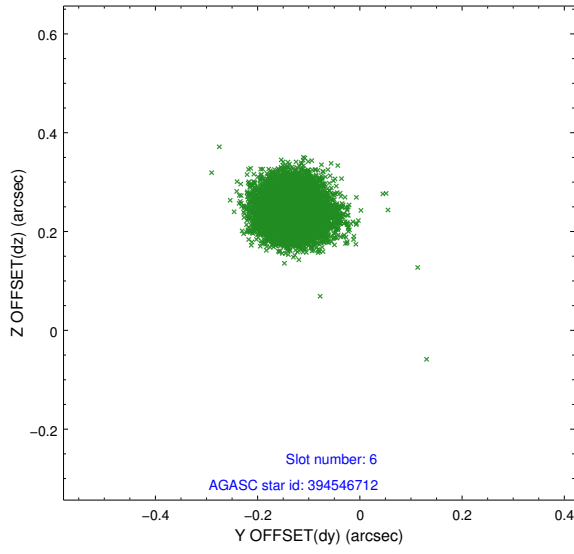
2.4.2 Slot 4



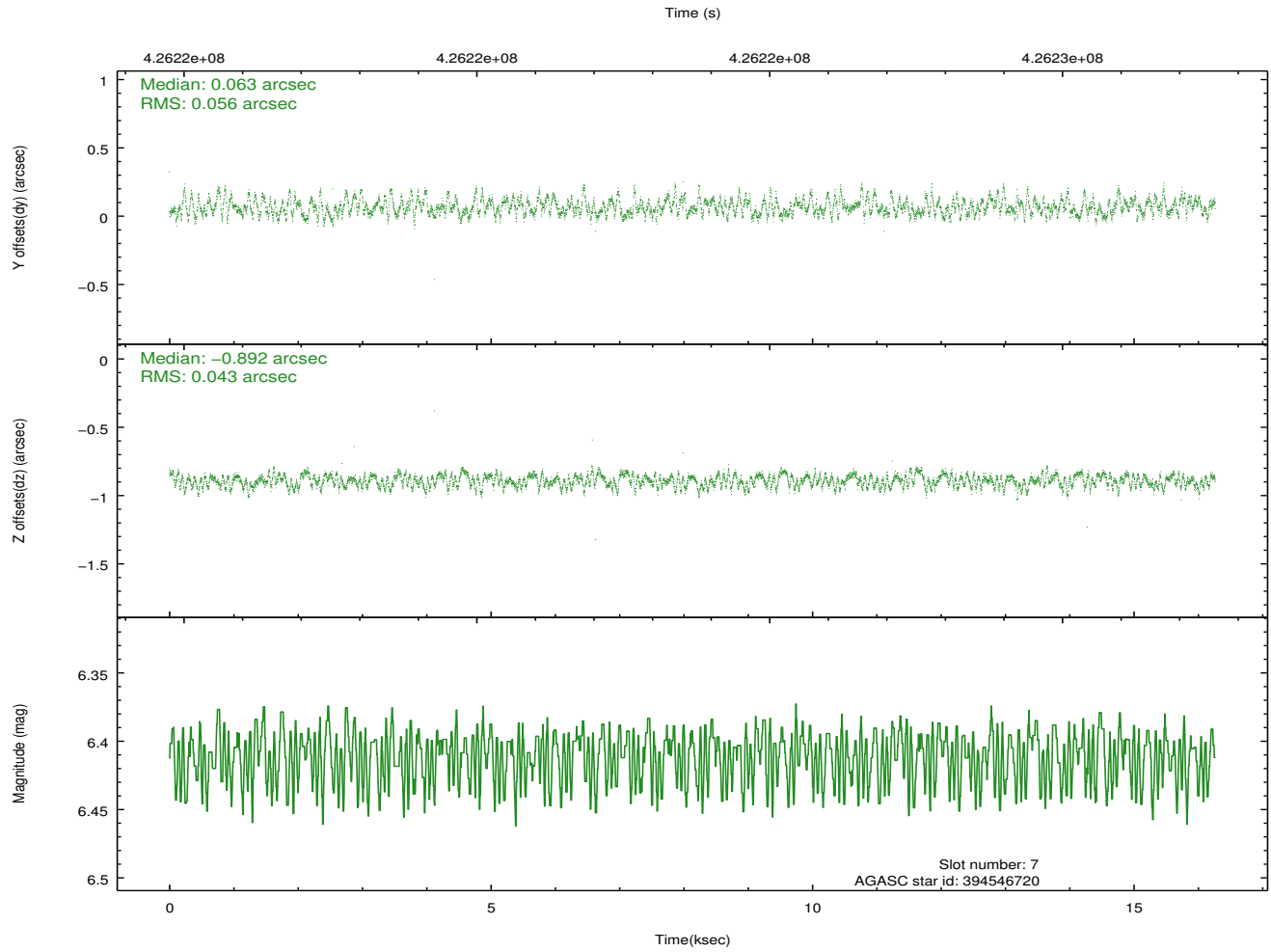
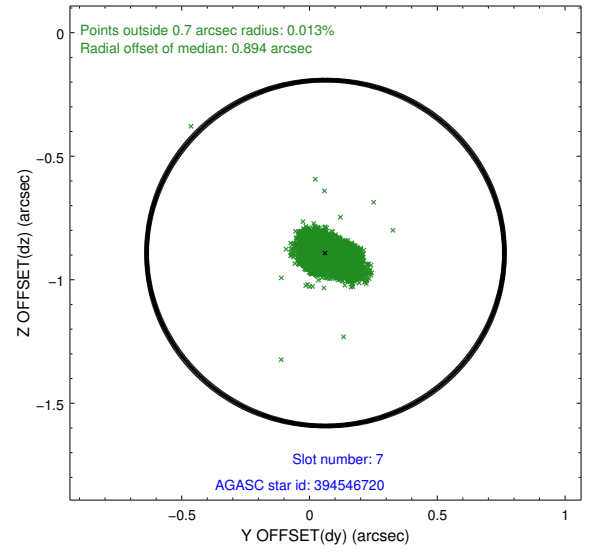
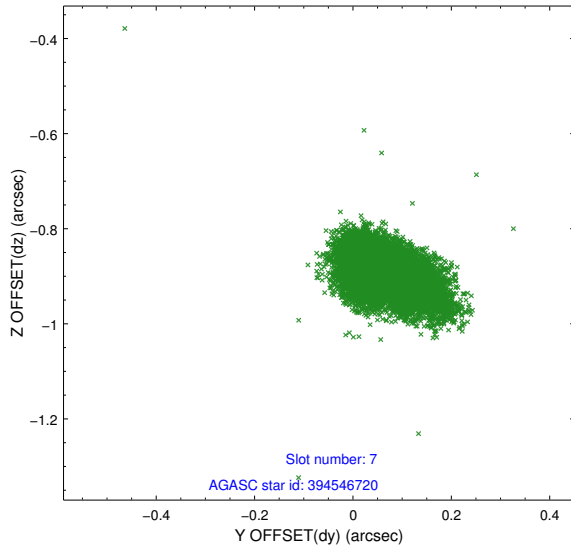
2.4.3 Slot 5



2.4.4 Slot 6

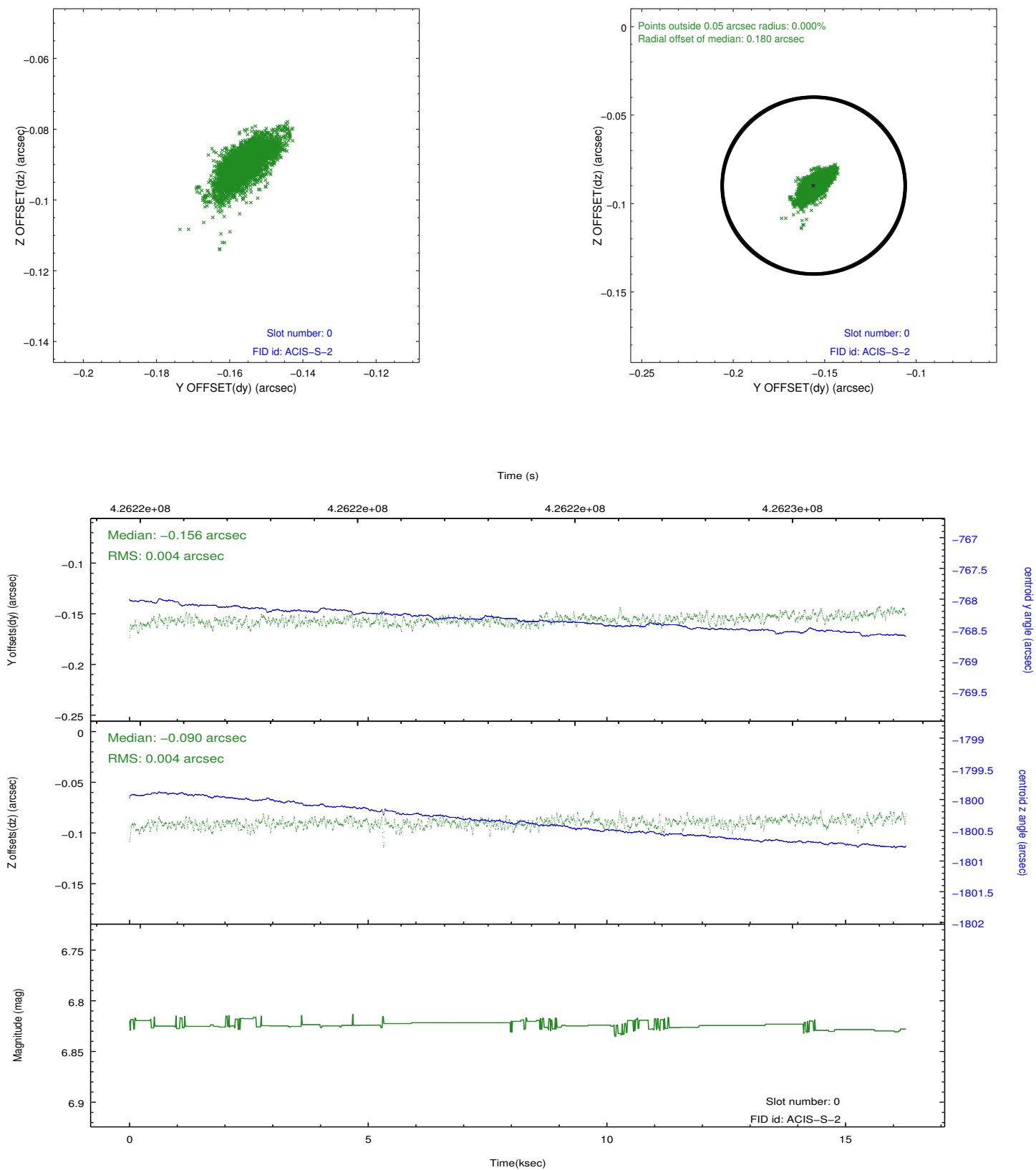


2.4.5 Slot 7

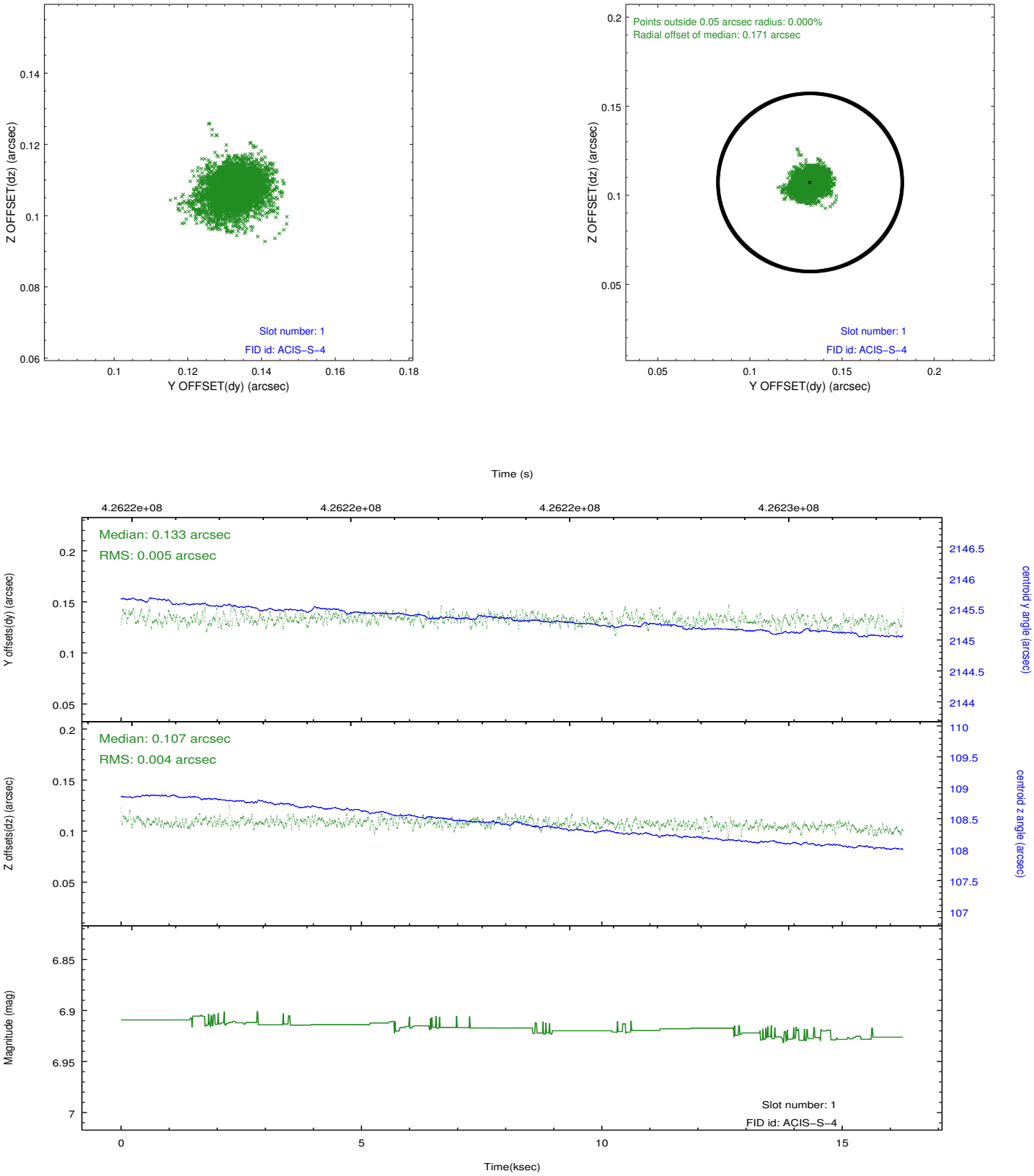


2.5 FID Slots

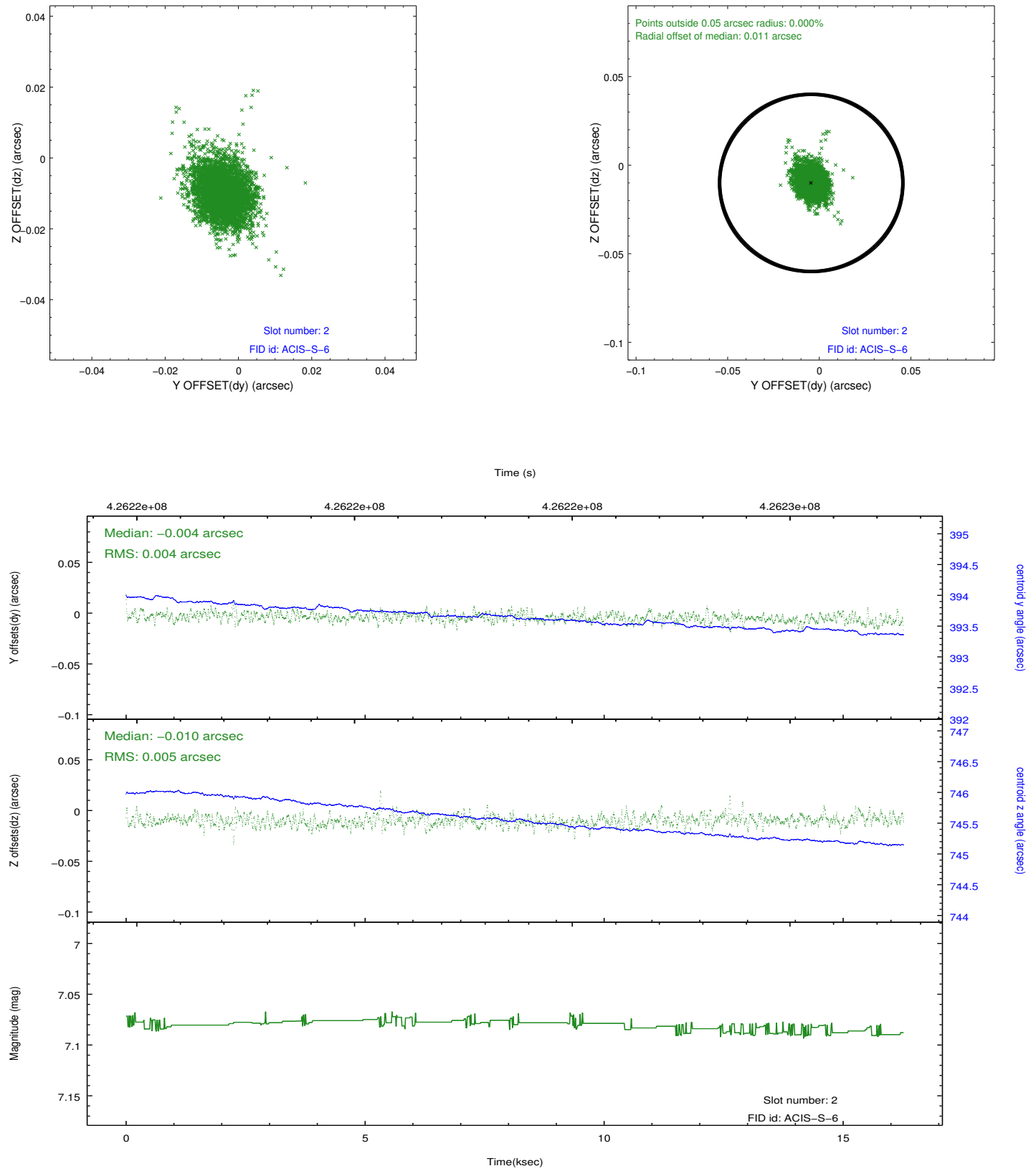
2.5.1 Slot 0



2.5.2 Slot 1

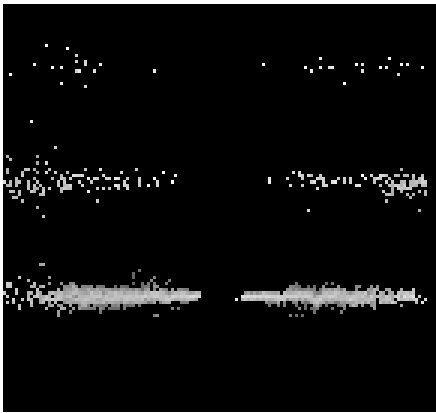


2.5.3 Slot 2

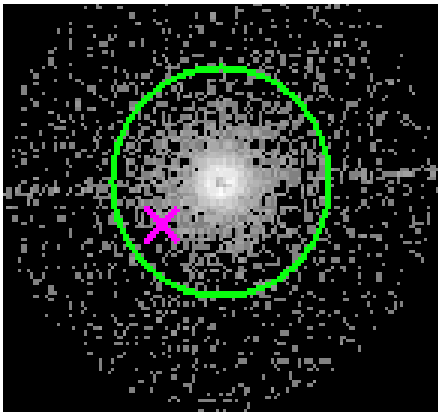


3 Gratings

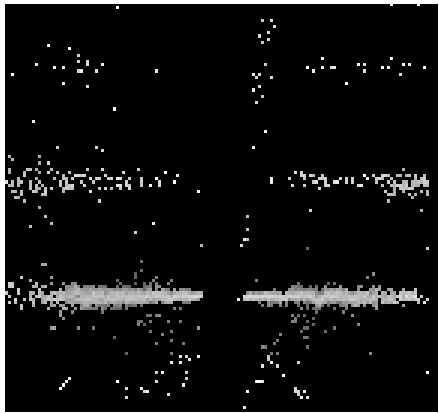
3.1 HEG Arm



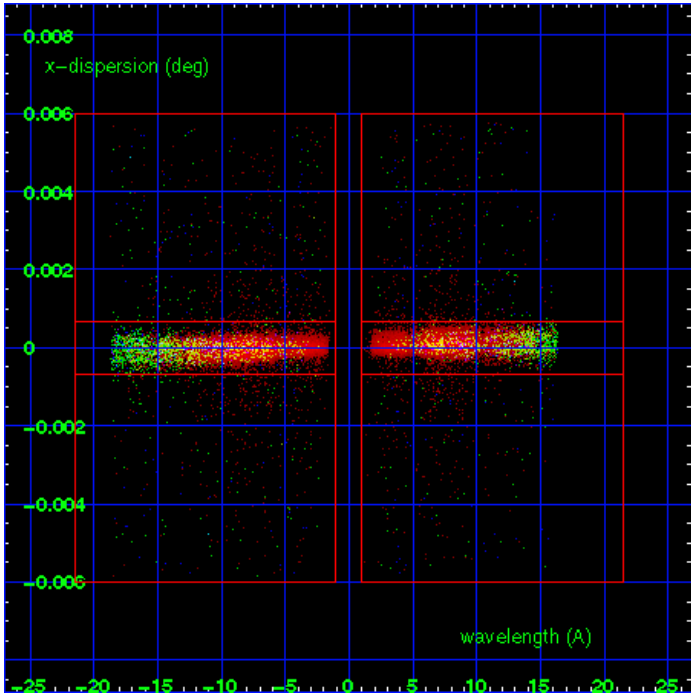
HEG Order Sort 123



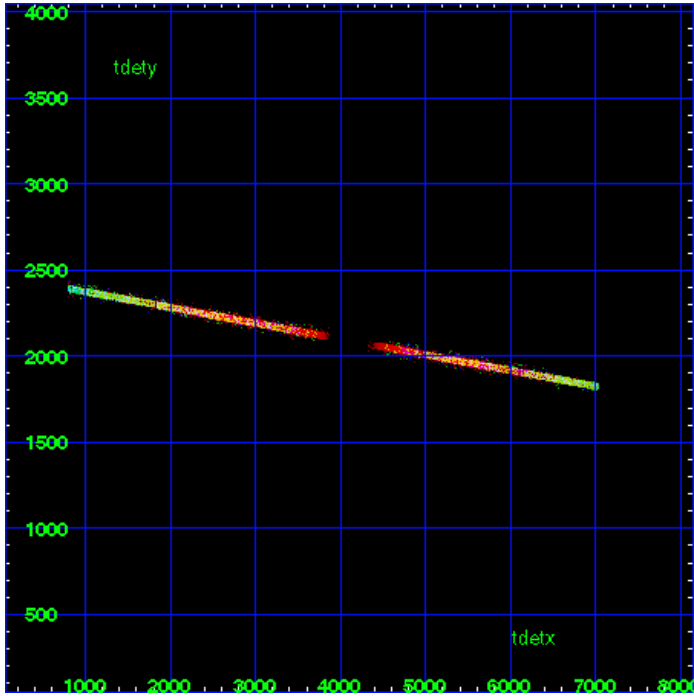
HEG Zero Order



HEG Order Sort ALL

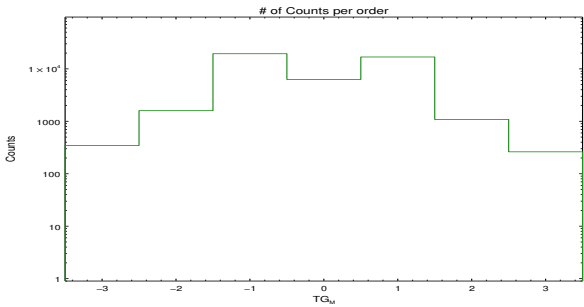


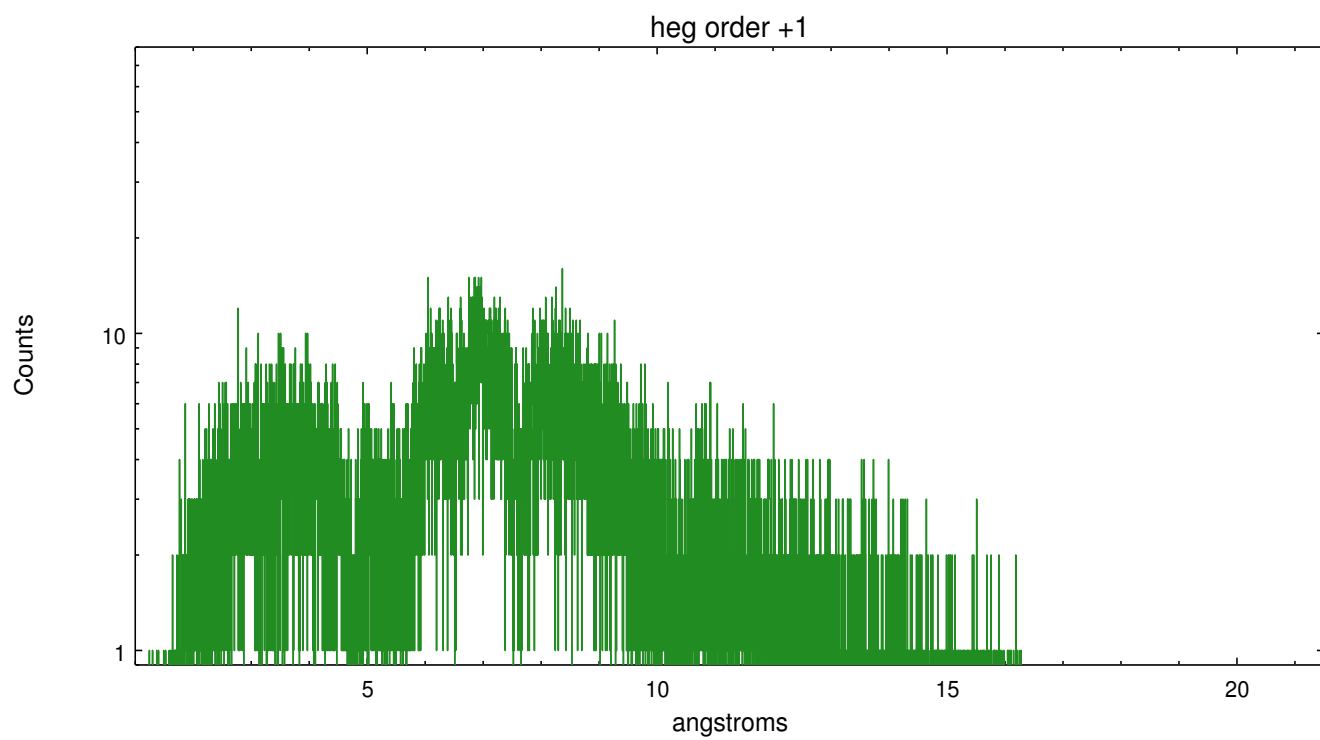
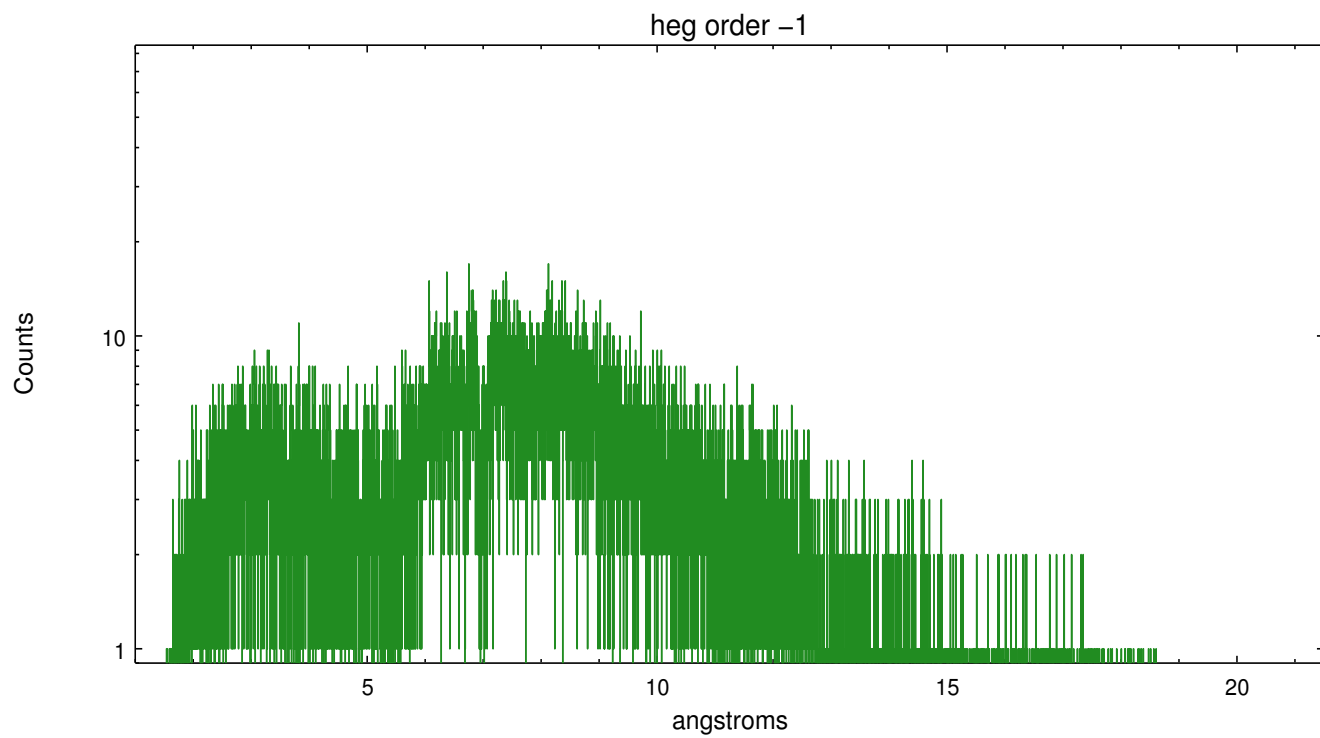
Spot Image HEG



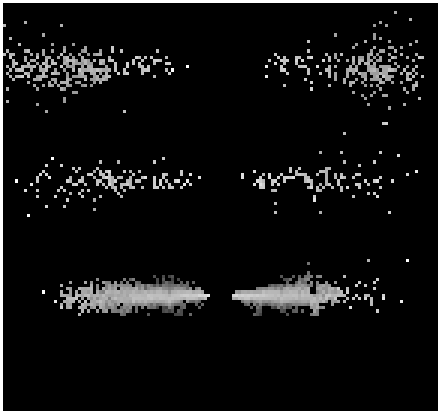
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	346	1596	19450	6290	16846	1086	262

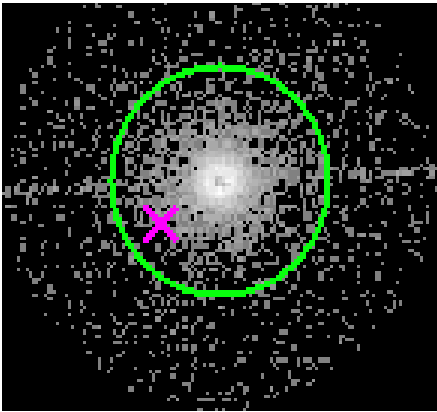




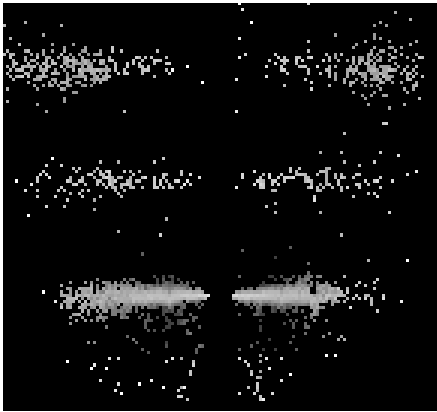
3.2 MEG Arm



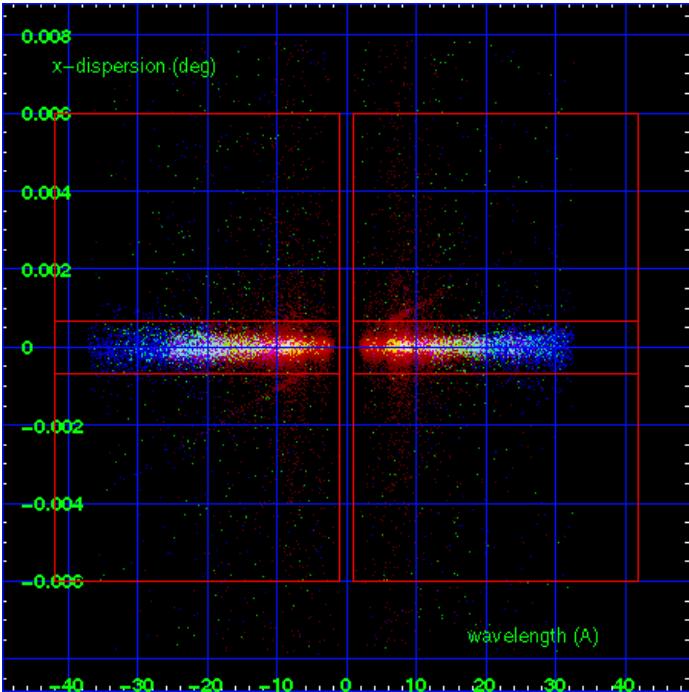
MEG Order Sort 123



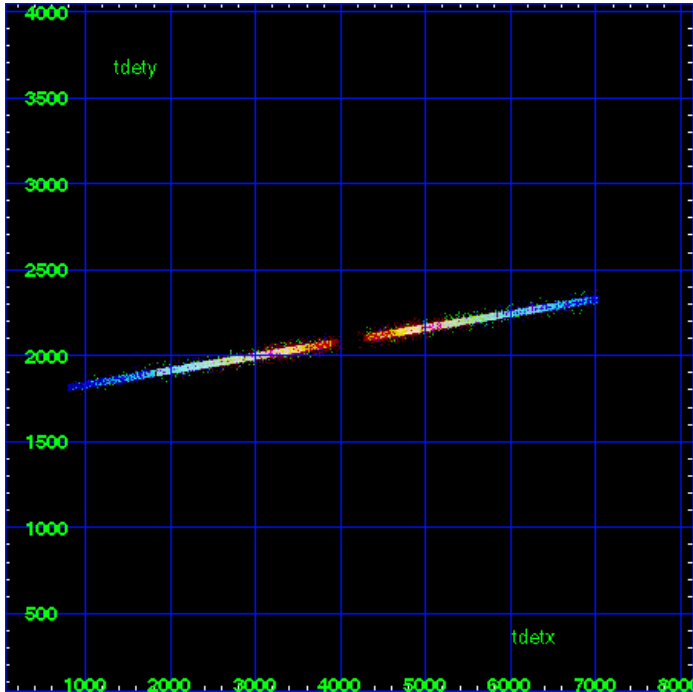
MEG Zero Order



MEG Order Sort ALL

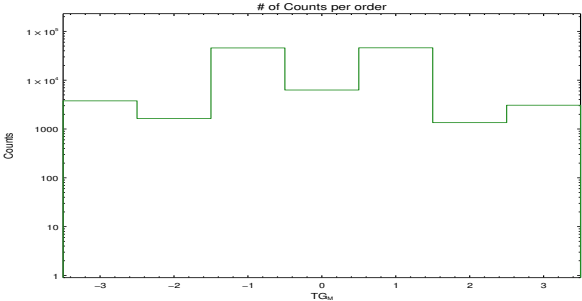


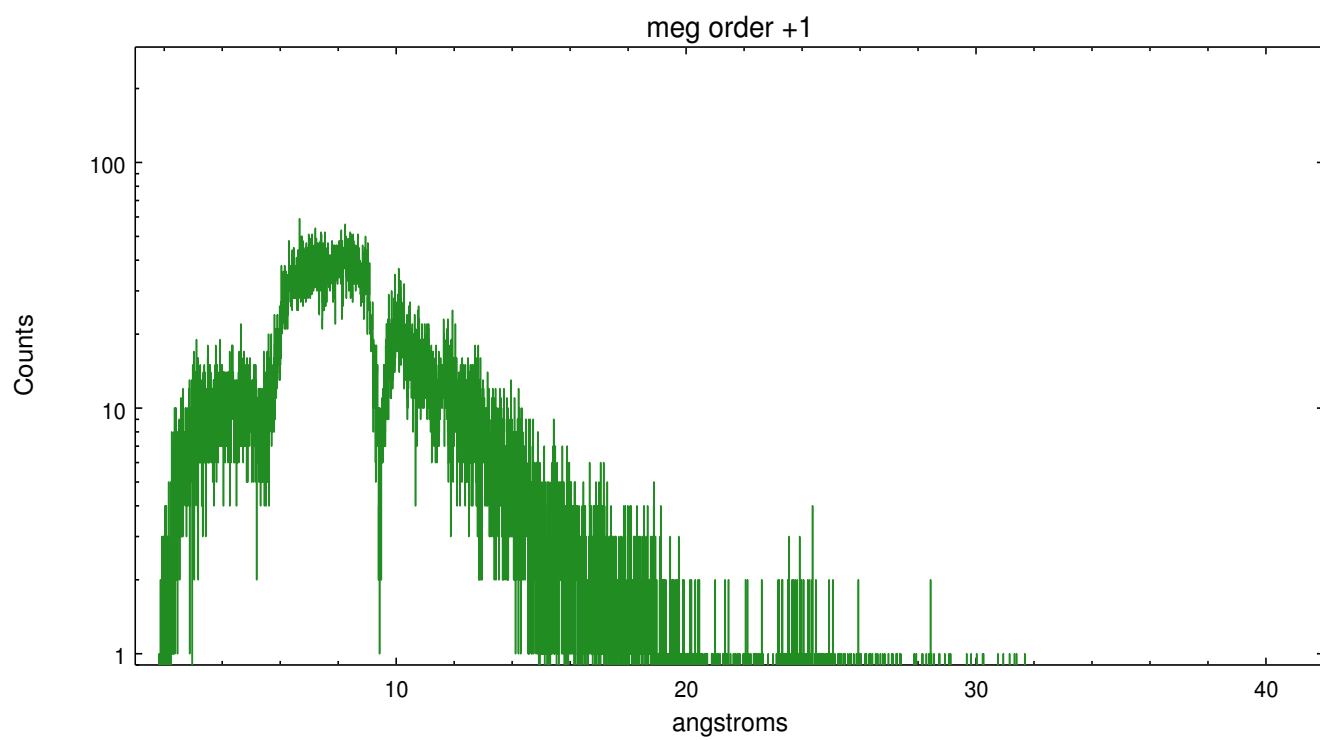
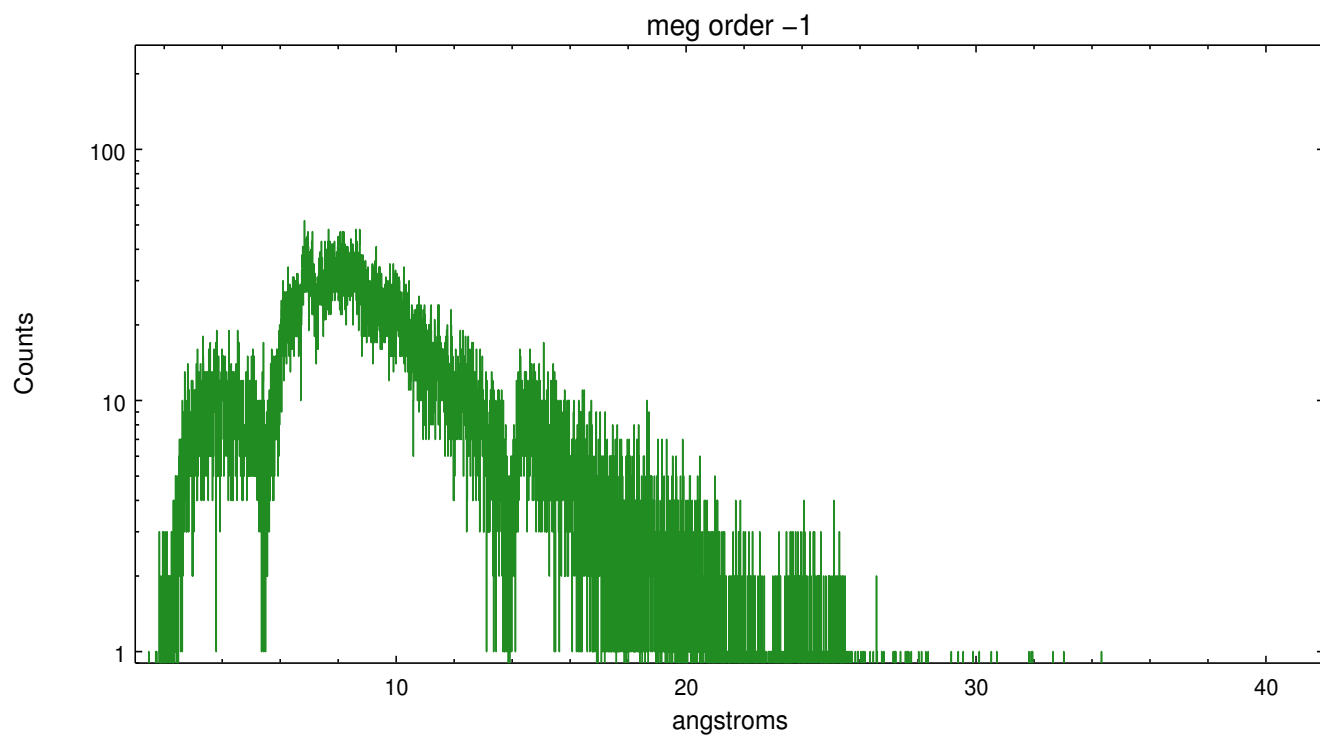
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	3773	1641	45790	6290	46060	1351	3071





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.03.26
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	14.999333827913

A.2 Comments

The MEG spectrum appears faintly in the Level 1 Bad Events image, and so may have significant pileup. 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=4111.51, y=4106.76) 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.