

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1700 - L2 Version 7
Chandra X-Ray Center

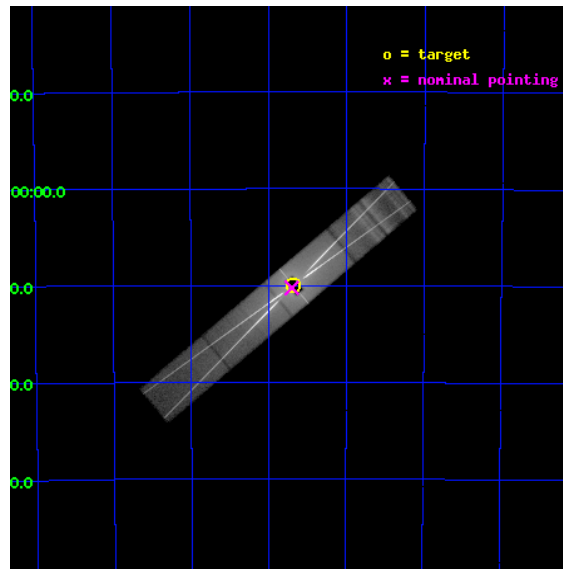
L2 Processing Date : Sep 14 2012

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1 Front

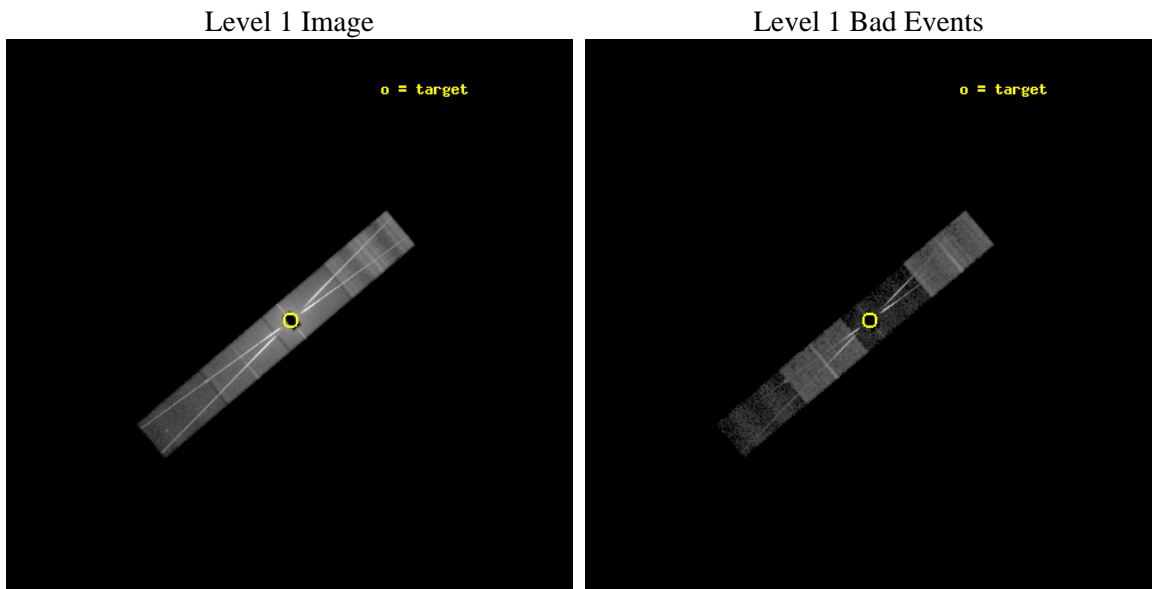
seq_num	400073	Sequence number
obs_id	1700	Observation id
title	HETG ZERO PHASE SPECTROSCOPY OF CIRCINUS X-1	Proposal title
observer	Prof. William Brandt	Principal investigator
object	CIR X-1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	230.170833	Observer's specified target RA [deg]
dec_targ	-57.166667	Observer's specified target Dec [deg]
ra_nom	230.17479370692	Nominal RA [deg]
dec_nom	-57.170814806839	Nominal Dec [deg]
roll_nom	319.79078376746	Nominal Roll [deg]
revision	7	Processing version of data
ontime	15322.100026846	Sum of GTIs [s]
livetime	14960.925679845	Livetime [s]
ontime5	15322.100026846	Sum of GTIs [s]
ontime6	15322.100026846	Sum of GTIs [s]
ontime7	15322.100026846	Sum of GTIs [s]
ontime8	15322.100026846	Sum of GTIs [s]
l2events	1363109	Number of level 2 events



2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	14885.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	15322.100026846	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime5	15322.100026846	Sum of GTIs [s]
date	2012-08-28T22:43:21	Date and time of file creation	ontime6	15322.100026846	Sum of GTIs [s]
revision	5	Processing version of data	ontime7	15322.100026846	Sum of GTIs [s]
			ontime8	15322.100026846	Sum of GTIs [s]
			l1events	1685316	Number of level 1 events

2.1.3 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	77807	552891	766828	287790
rejected events	13811	76774	48393	75038
rejected %	17%	13%	6%	26%

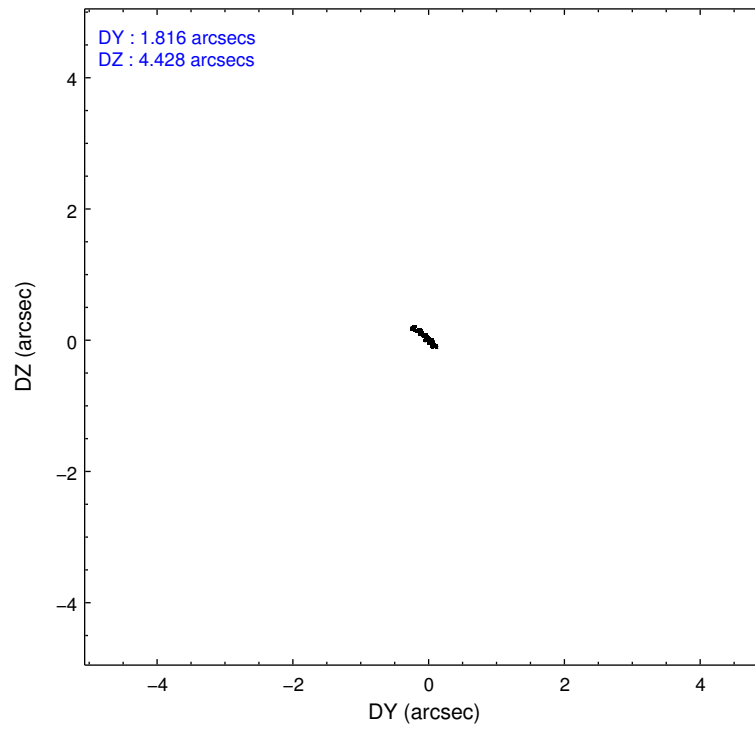
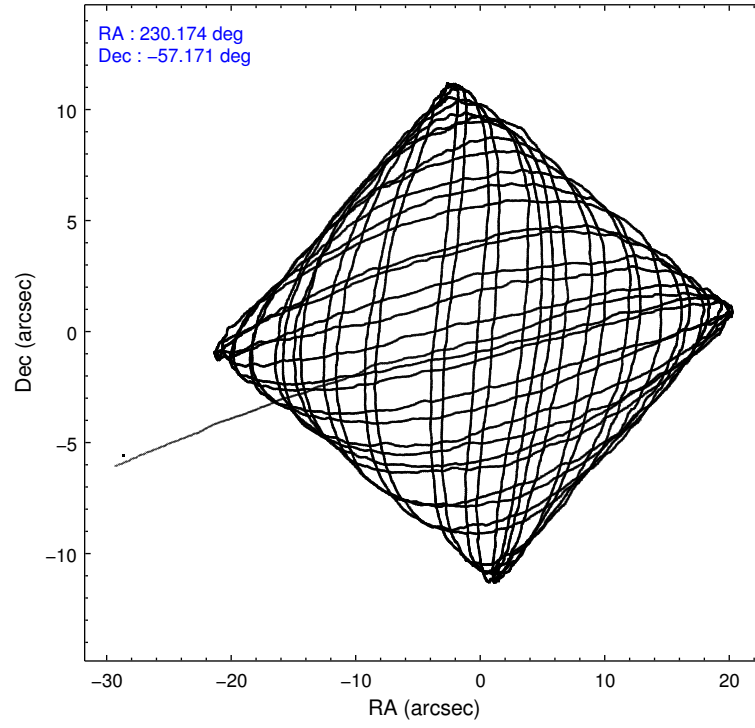
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	12569	317362	127206	105667
	16%	57%	16%	36%
grade 1 events	224	7113	3048	516
	0%	1%	0%	0%
grade 2 events	23548	72446	186452	28569
	30%	13%	24%	9%
grade 3 events	4793	24592	69230	24776
	6%	4%	9%	8%
grade 4 events	5145	24335	68223	21890
	6%	4%	8%	7%
grade 5 events	2292	6222	16560	2510
	2%	1%	2%	0%
grade 6 events	18058	38139	268408	32191
	23%	6%	35%	11%
grade 7 events	11178	62682	27701	71671
	14%	11%	3%	24%

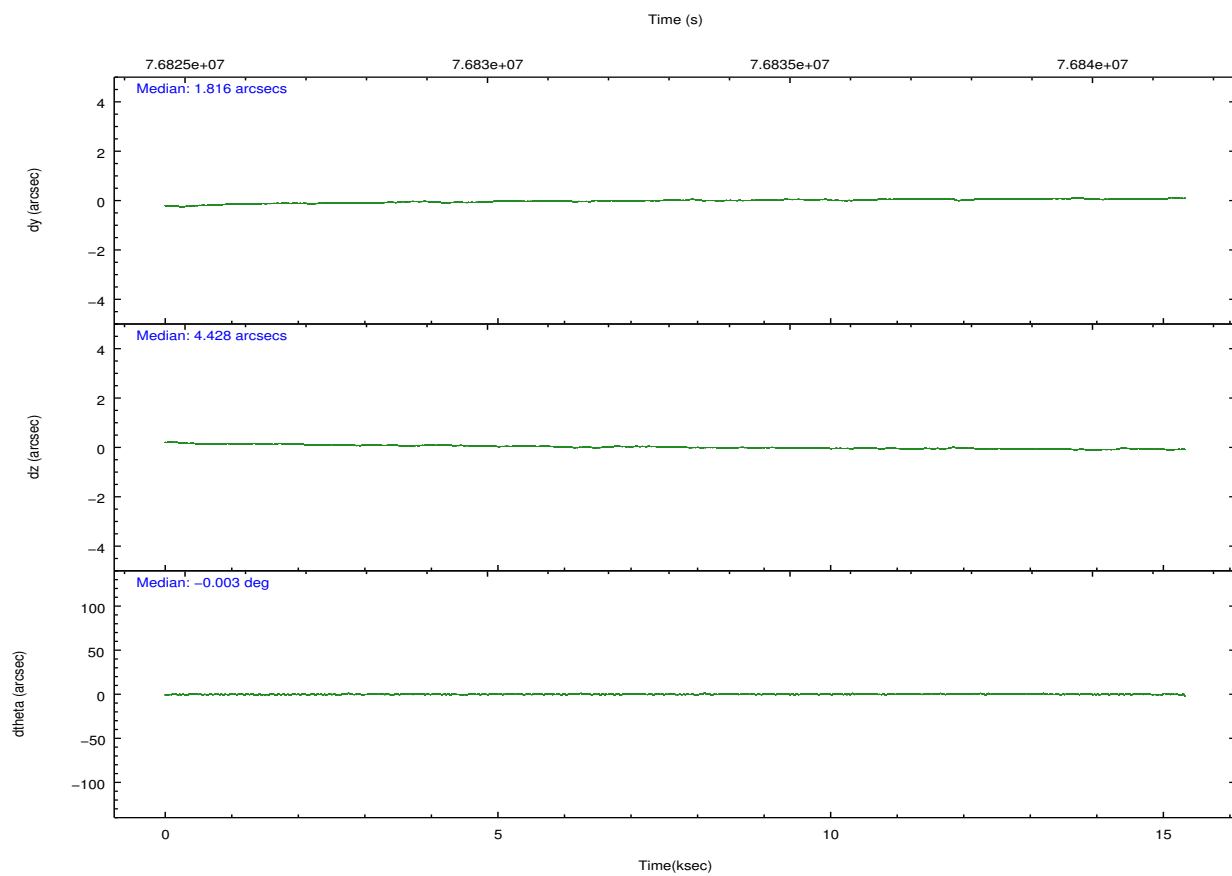
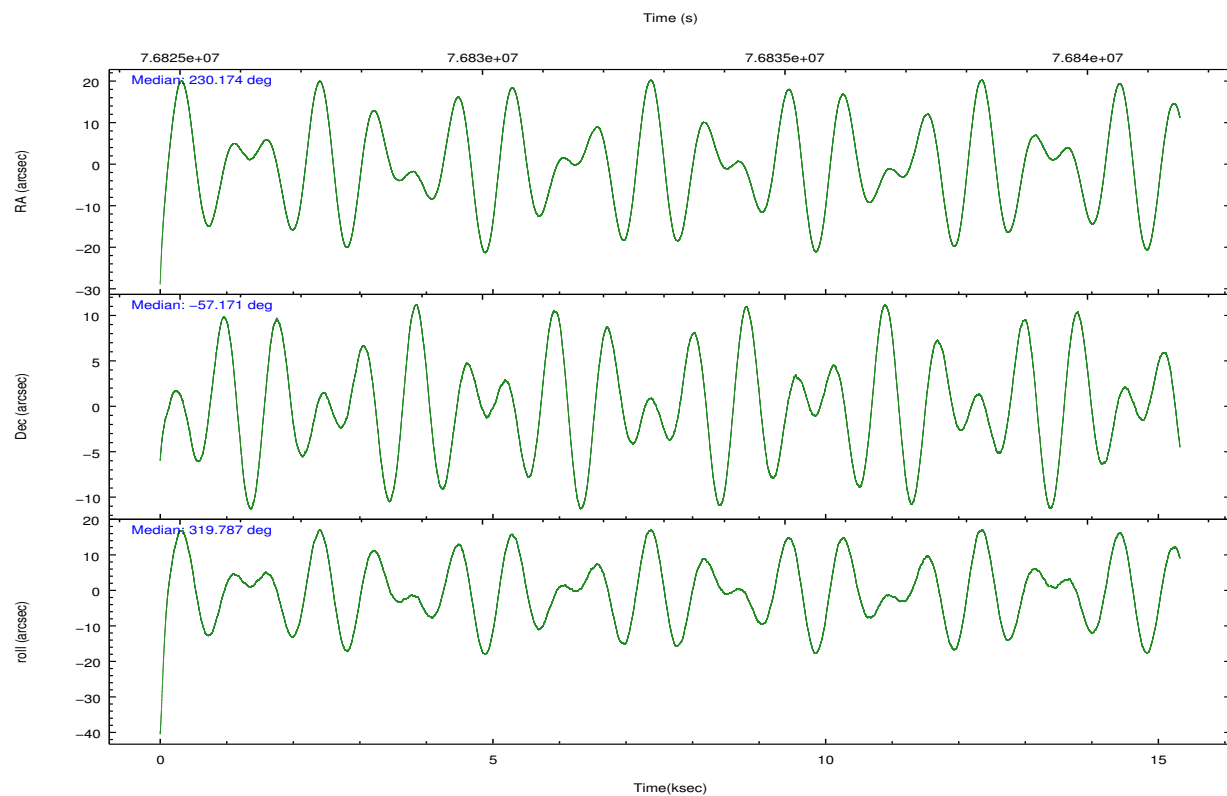
2.2 Compared Parameters

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	230.124955	230.1747937069242
[deg] Pointing Dec	-57.166080	-57.17081480683872
[deg] Pointing Roll	319.592284	319.7907837674628
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-184.532523	-184.5306286120915
[mm] SIM translation stage offset	-5.6	-5.601893970916279
Phase constraints	Y	Y
[d] Phase period	16.540100	16.540100
[d] Phase epoch (MJD)	51355.944980	51355.944980
Phase start	0.950000	0.950000
Phase end	0.050000	0.050000
Phase start error	0.000000	0.000000
Phase end error	0.000000	0.000000
[s] Observation start time (MET)	76825879.184000	76824781.704579
Observation start date	2000-06-08T04:30:15	2000-06-08T04:13:01
[s] Observation end time (MET)	76840764.184000	76841388.755191
Observation end date	2000-06-08T08:38:20	2000-06-08T08:49:48
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	15	15
Subarray row count	542	542
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	1.7

2.3 Aspect



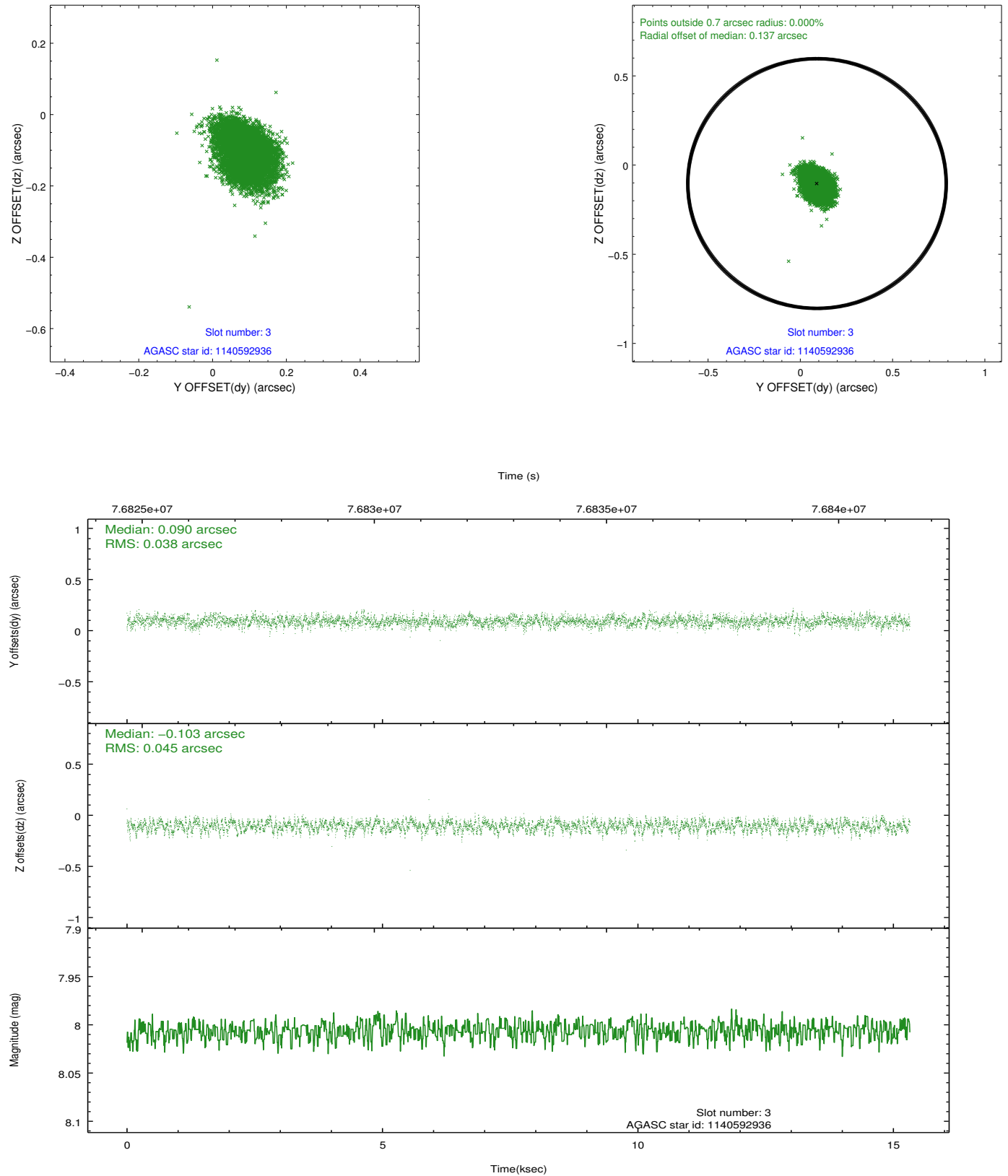


Slot Statistics

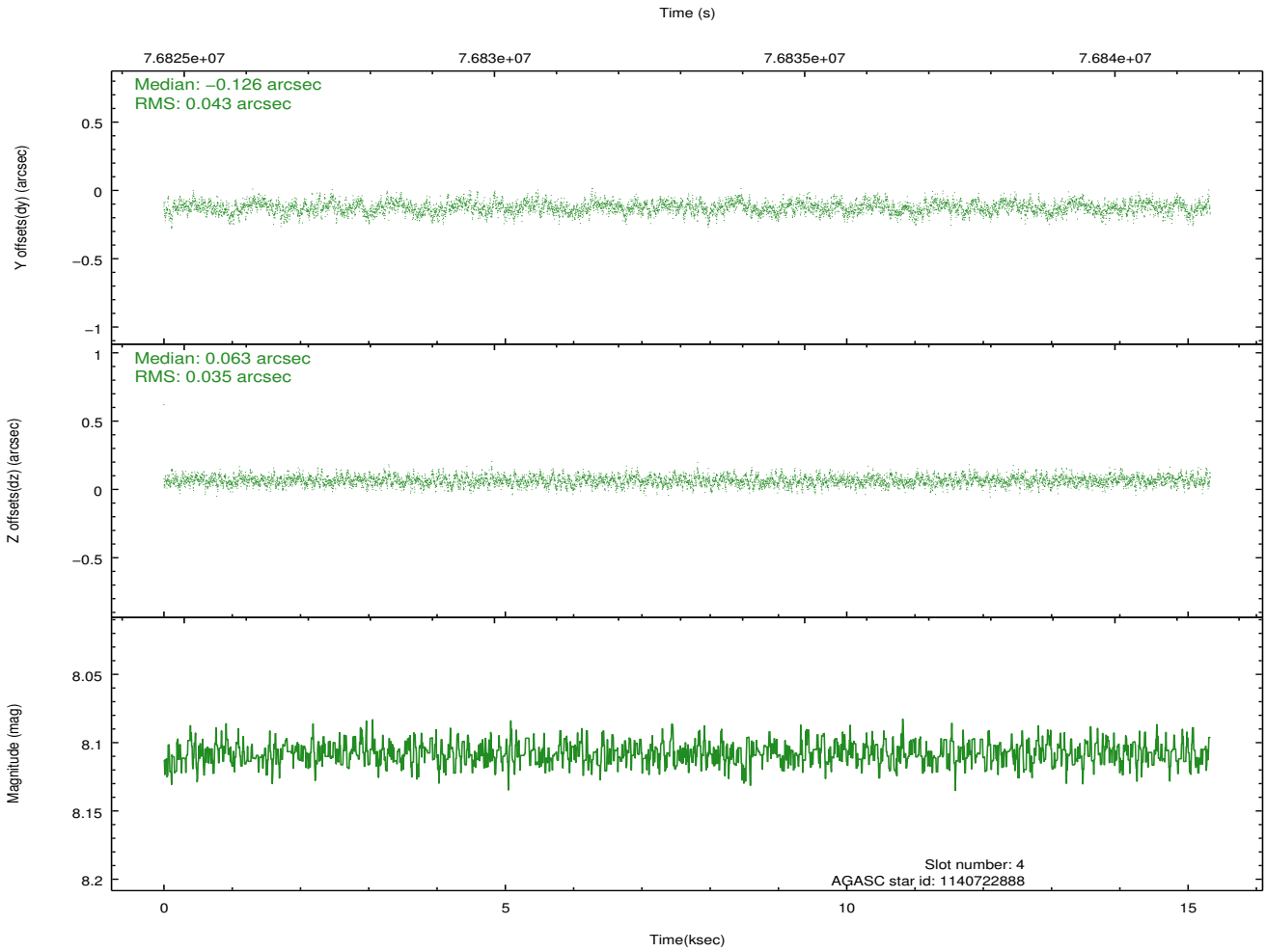
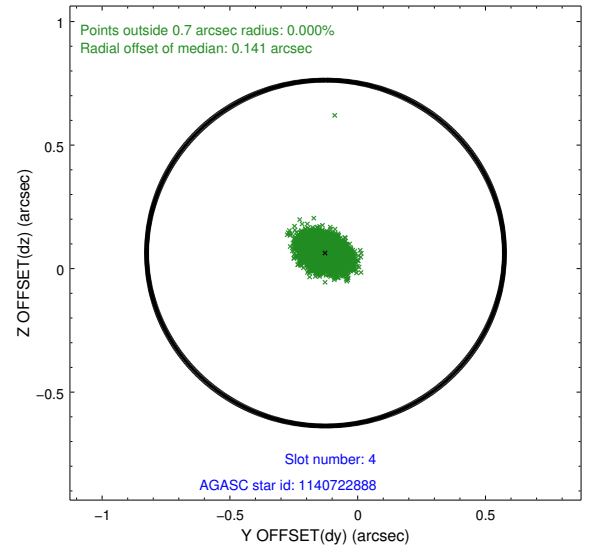
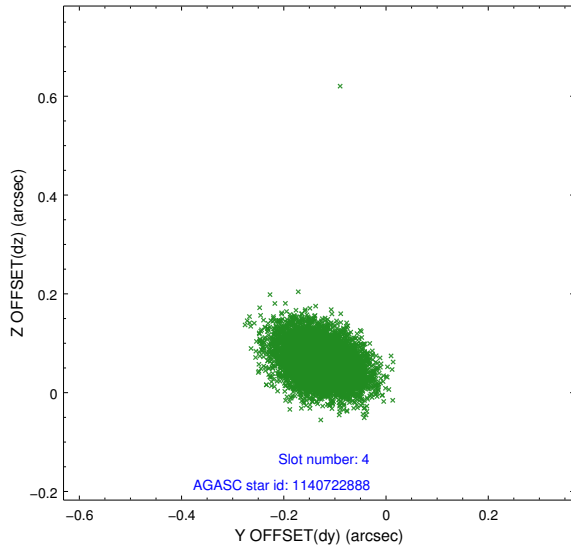
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-3	7.36	3737	-0.070	-0.038	0.008	0.013	0.000000	0.000000	59.09	-1970.13
1	FID	ACIS-S-4	7.19	3737	0.034	0.055	0.006	0.010	0.000000	0.000000	2159.38	67.11
2	FID	ACIS-S-5	7.23	3738	0.008	-0.008	0.006	0.011	0.000000	0.000000	-1806.47	61.13
3	GUIDE	1140592936	8.01	7476	0.090	-0.103	0.062	0.101	228.953111	-57.013969	-2090.29	-1086.19
4	GUIDE	1140722888	8.11	7476	-0.126	0.063	0.057	0.097	230.457489	-57.599243	1500.49	-771.88
5	GUIDE	1140591736	8.62	7474	-0.167	0.004	0.078	0.122	228.676984	-57.228571	-1982.43	-2022.39
6	GUIDE	1140723280	8.82	7474	0.289	0.108	0.072	0.121	231.440595	-57.293670	2262.85	1291.18
7	GUIDE	1140729040	9.13	7471	-0.086	-0.073	0.095	0.151	231.193986	-56.778170	711.60	2418.58

2.4 Star Slots

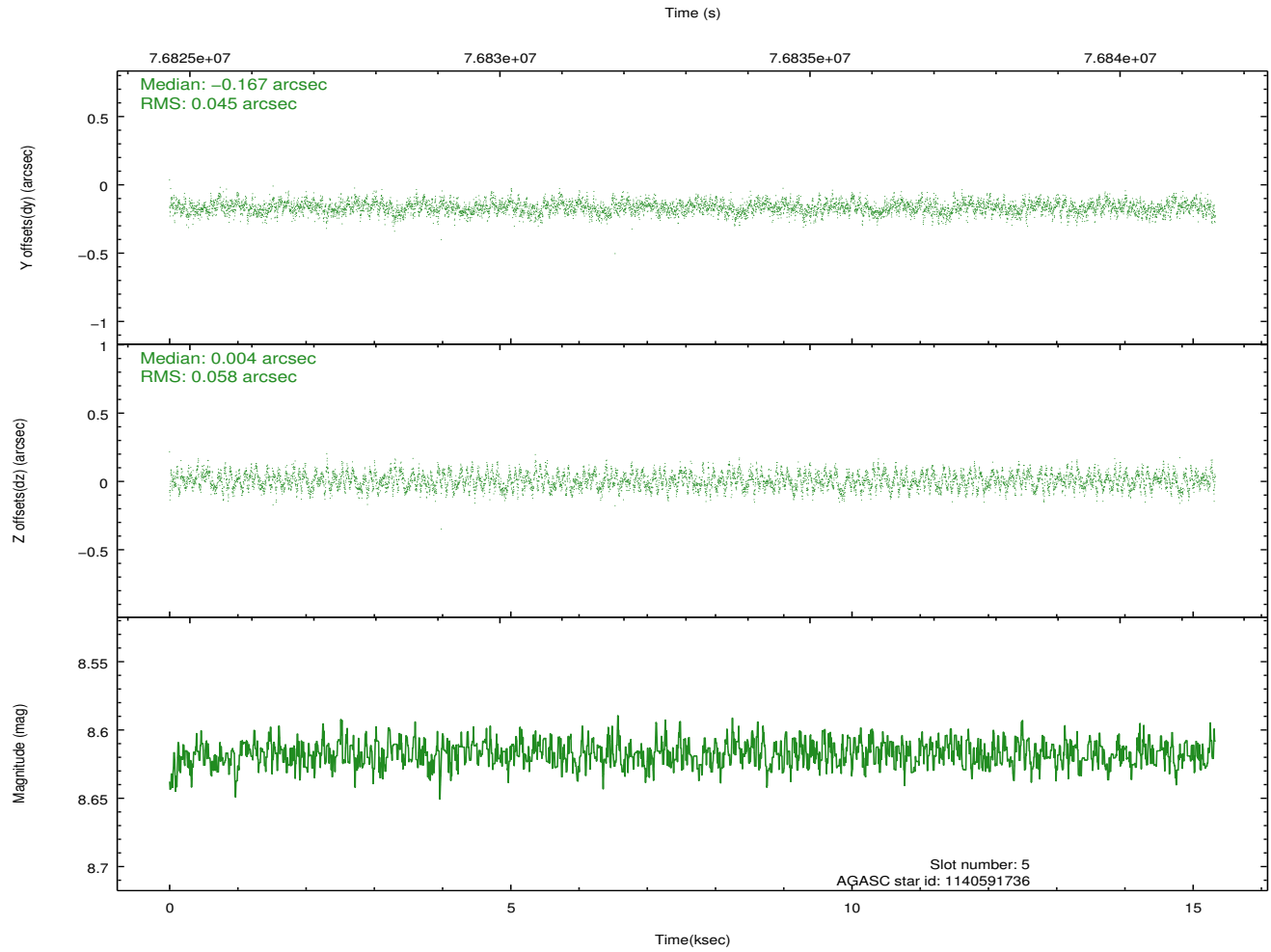
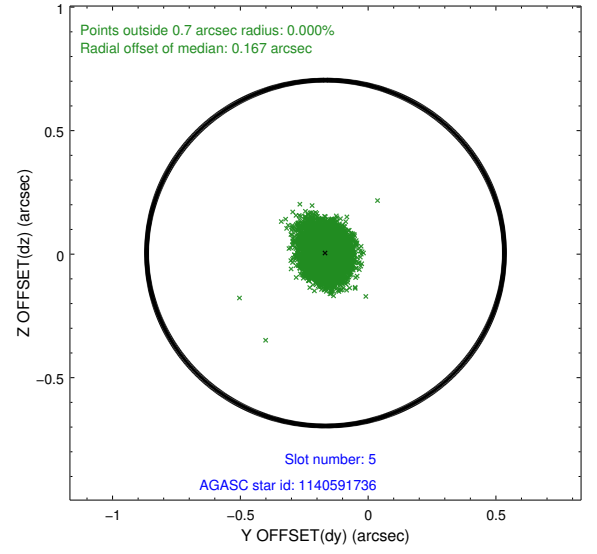
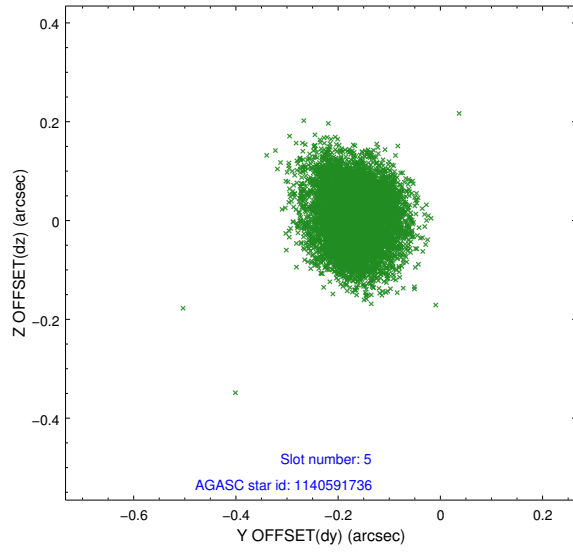
2.4.1 Slot 3



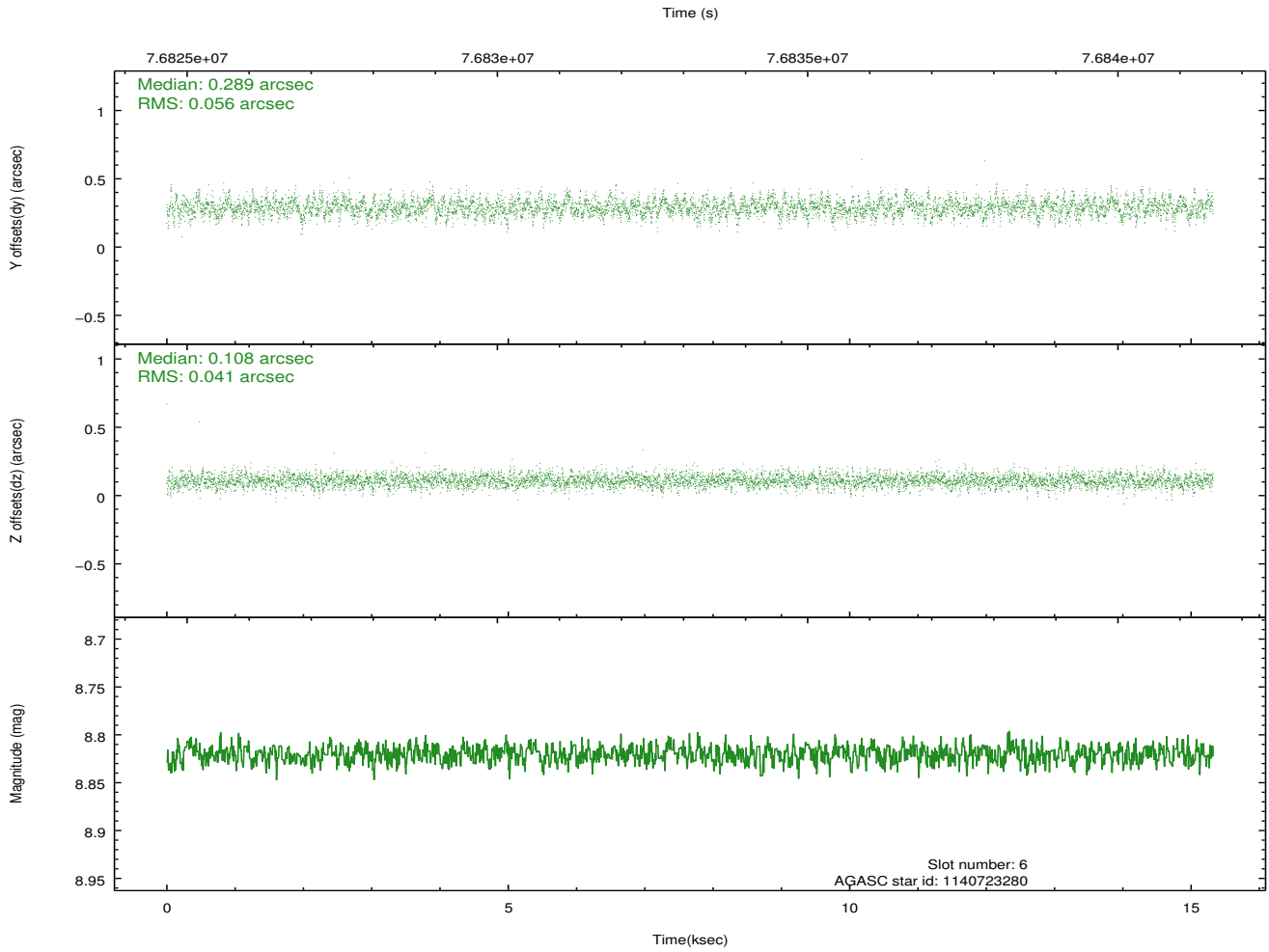
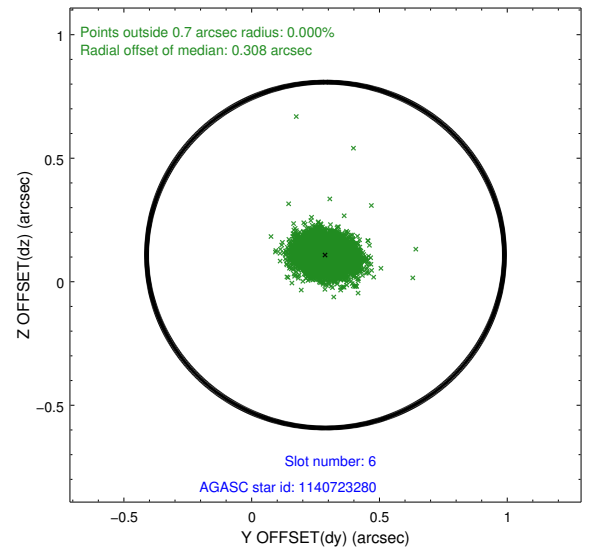
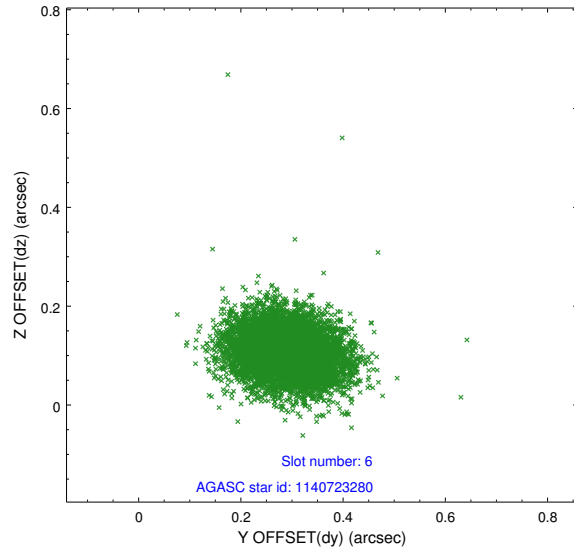
2.4.2 Slot 4



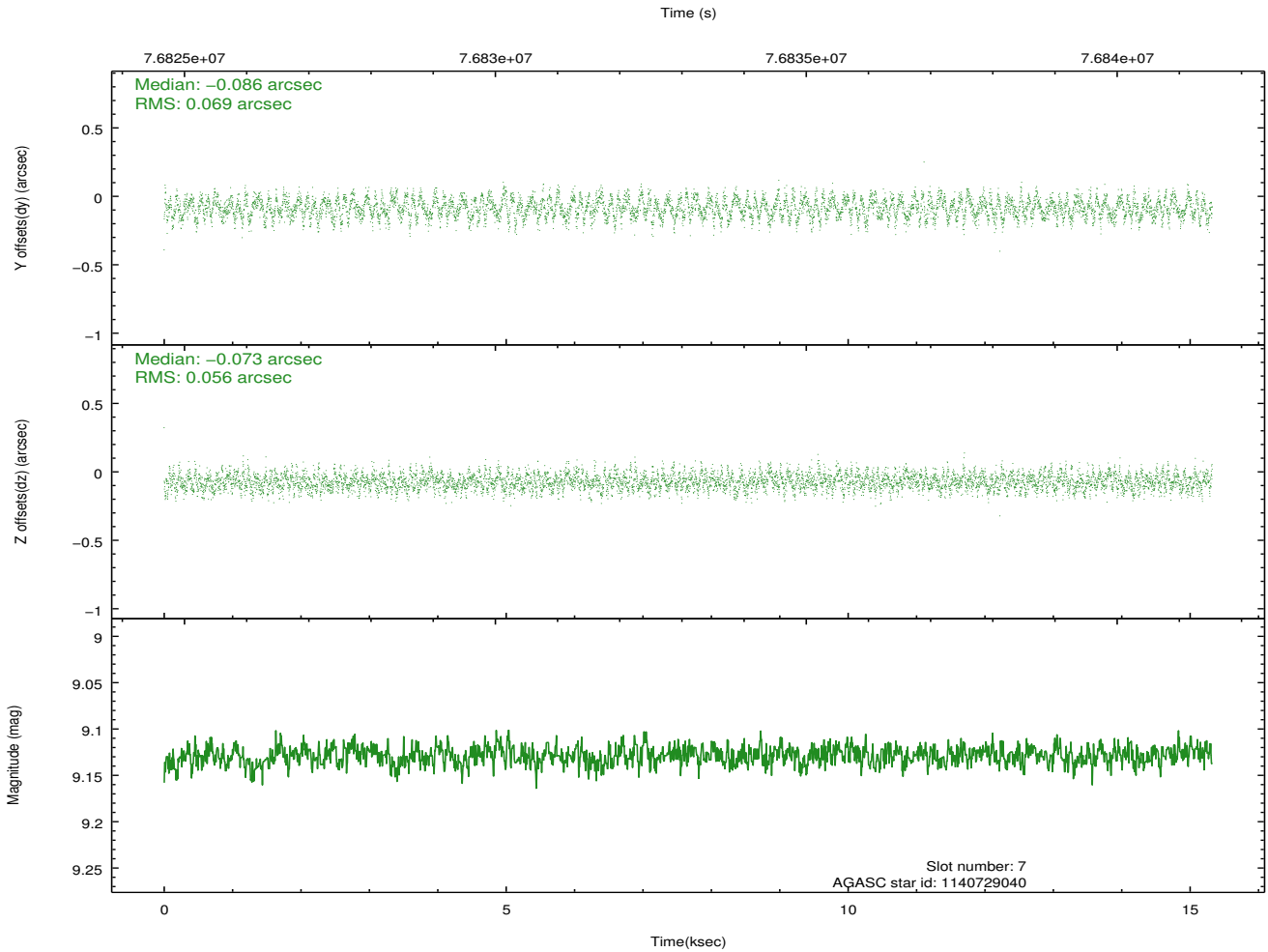
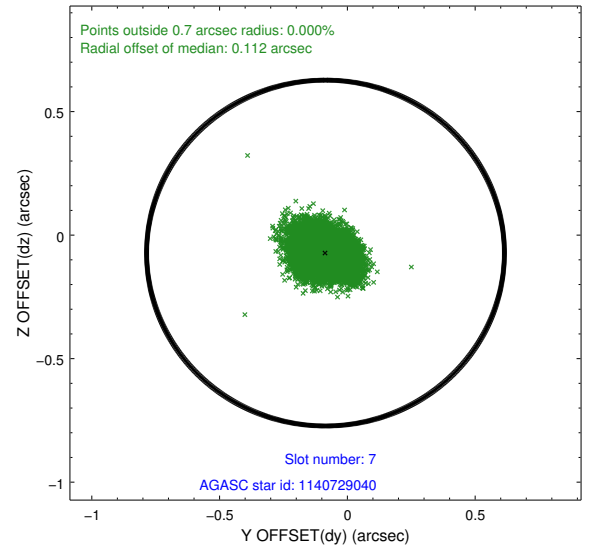
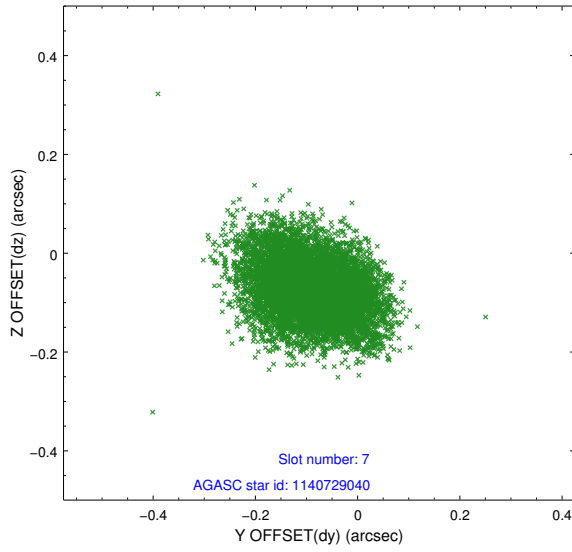
2.4.3 Slot 5



2.4.4 Slot 6

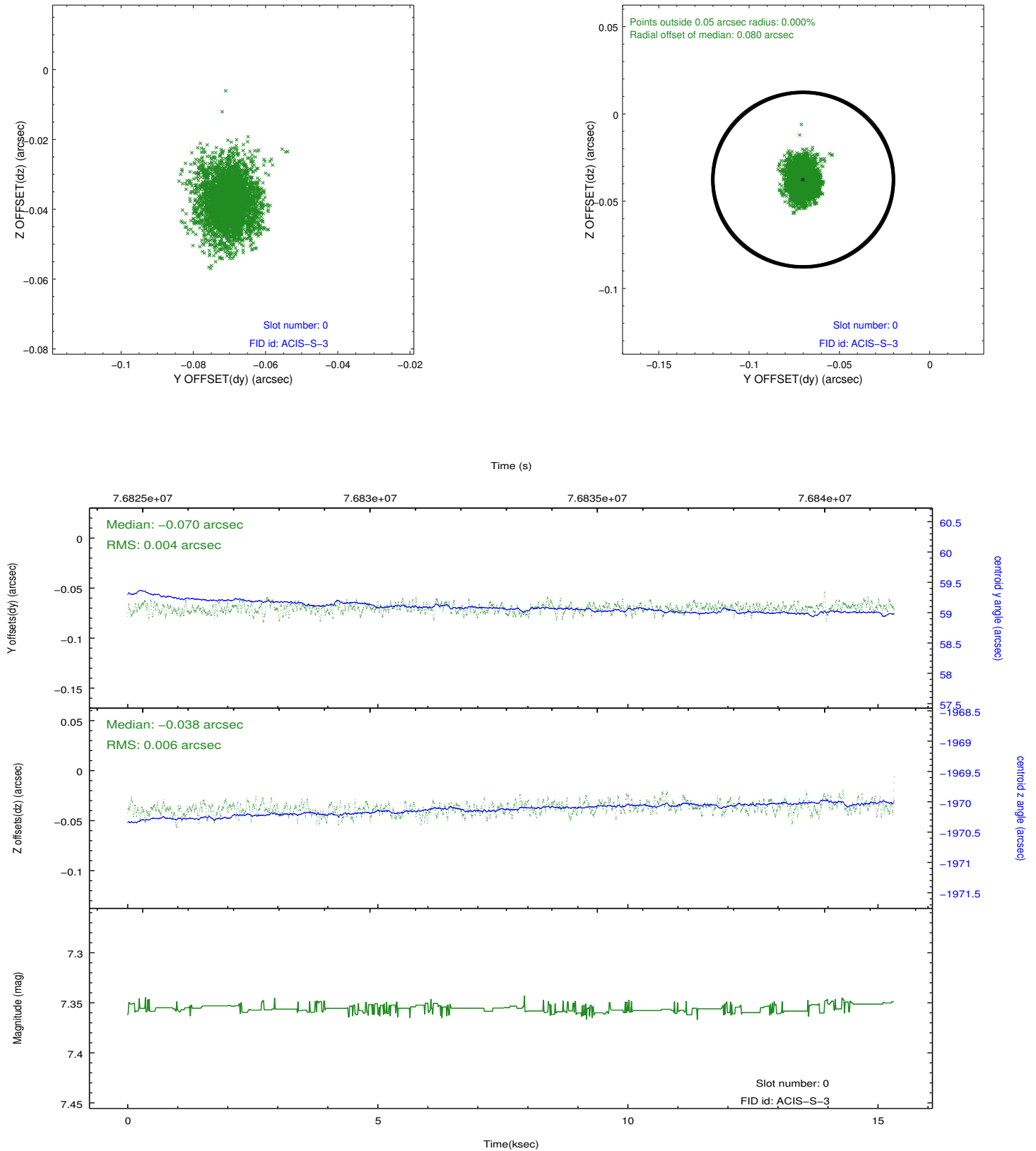


2.4.5 Slot 7

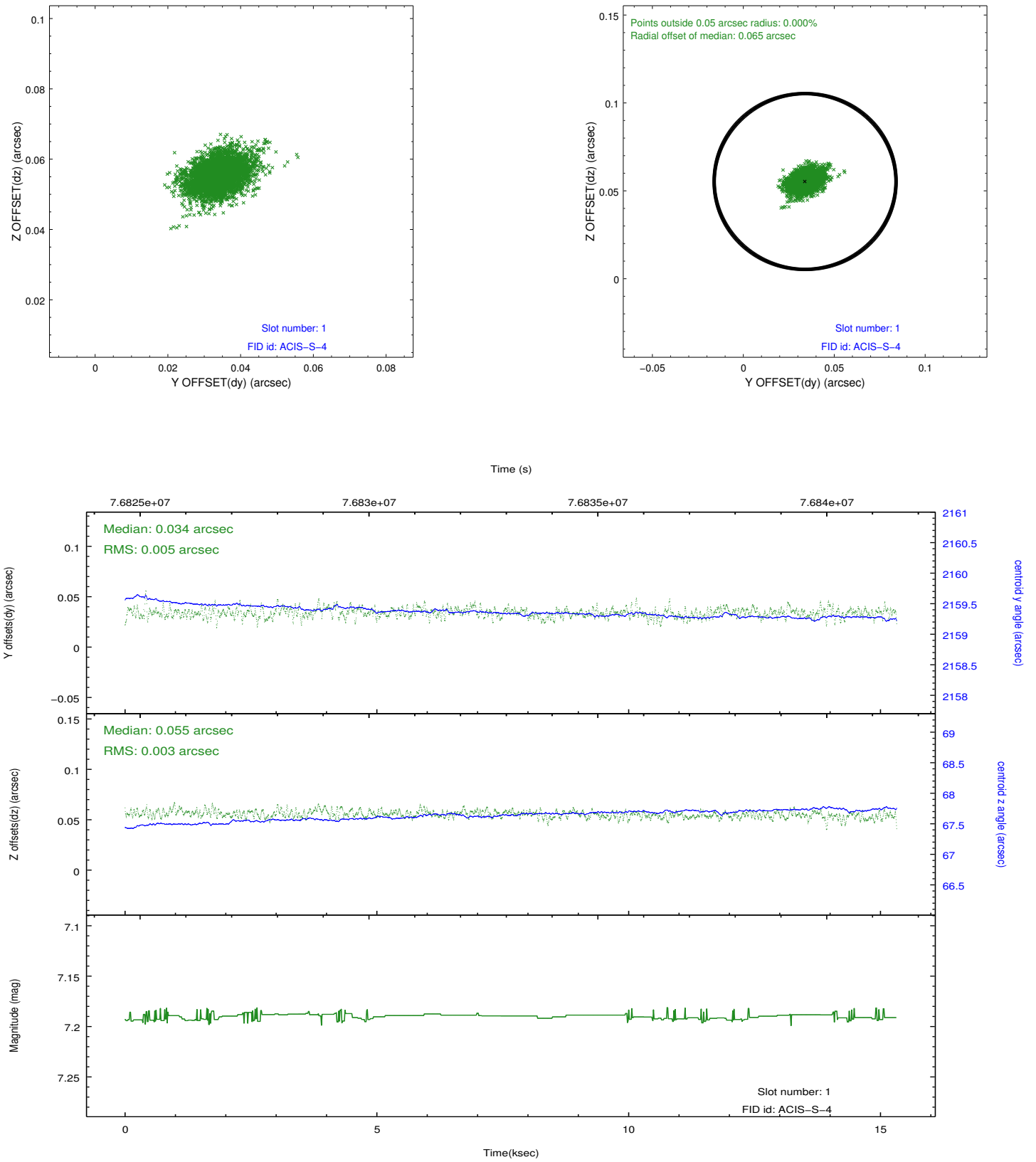


2.5 FID Slots

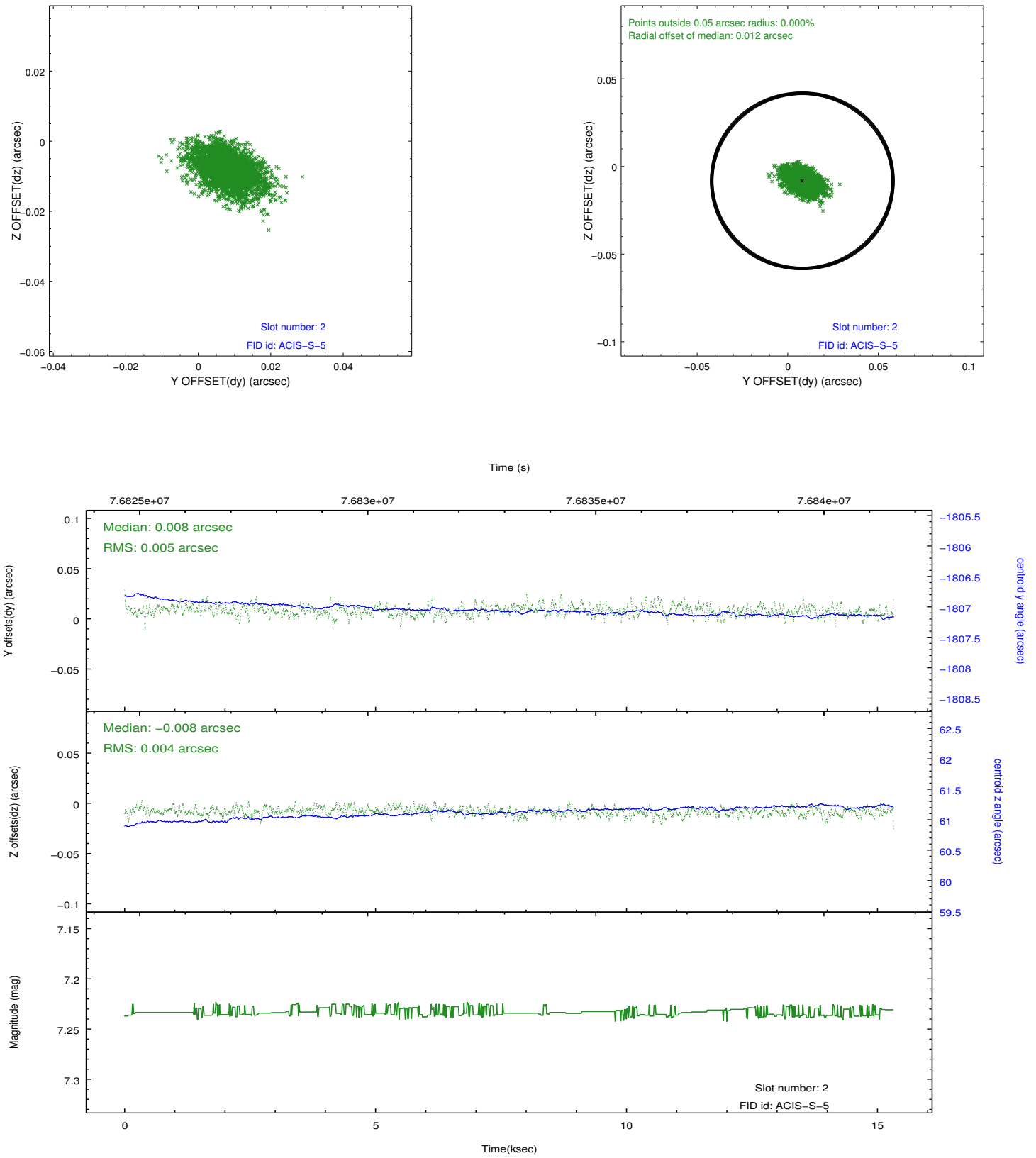
2.5.1 Slot 0



2.5.2 Slot 1

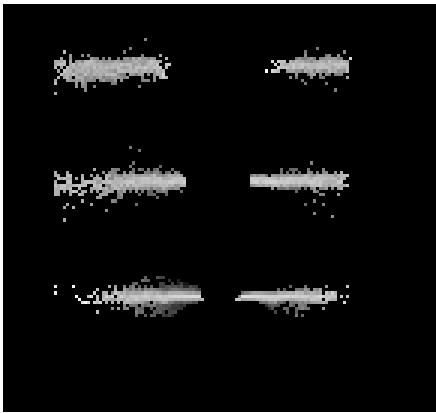


2.5.3 Slot 2

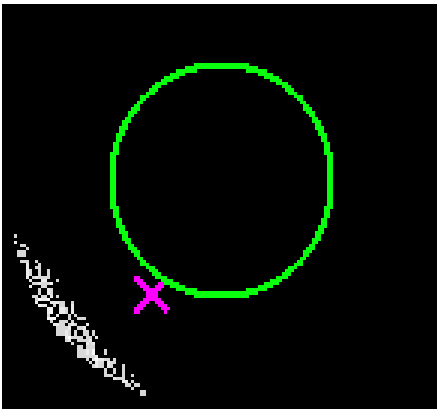


3 Gratings

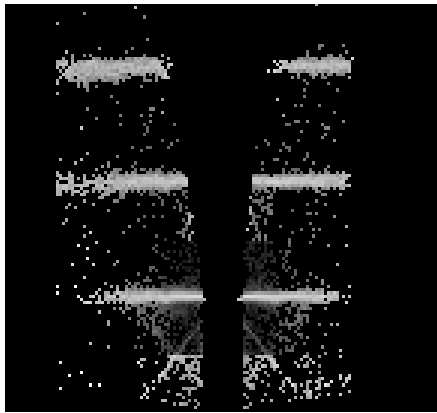
3.1 HEG Arm



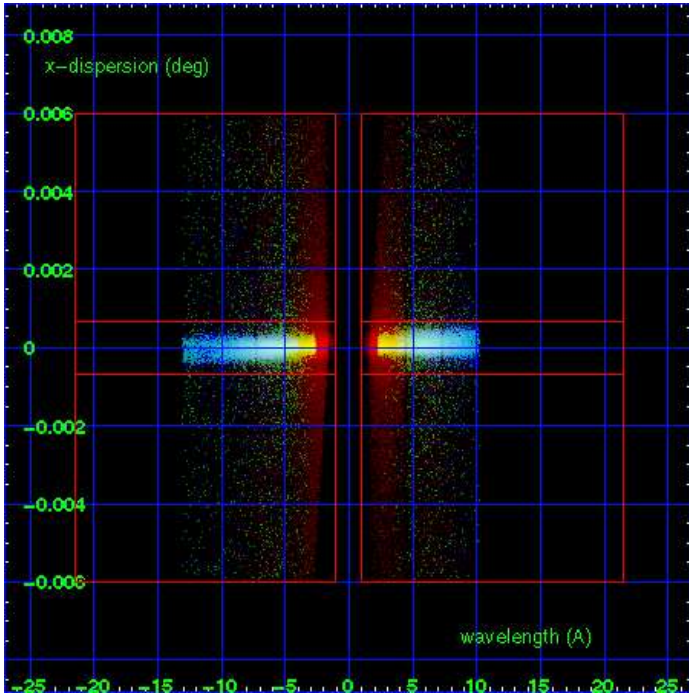
HEG Order Sort 123



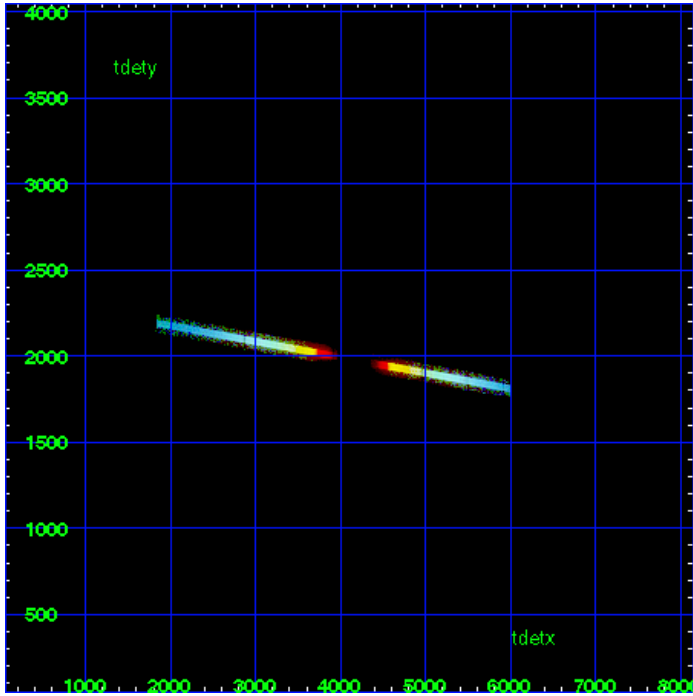
HEG Zero Order



HEG Order Sort ALL

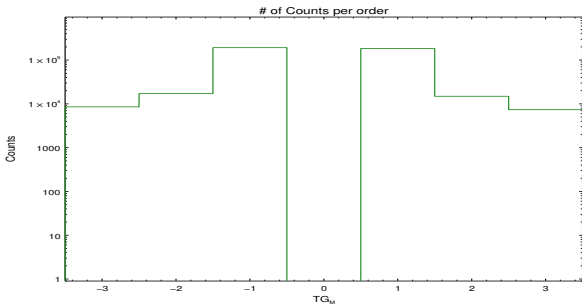


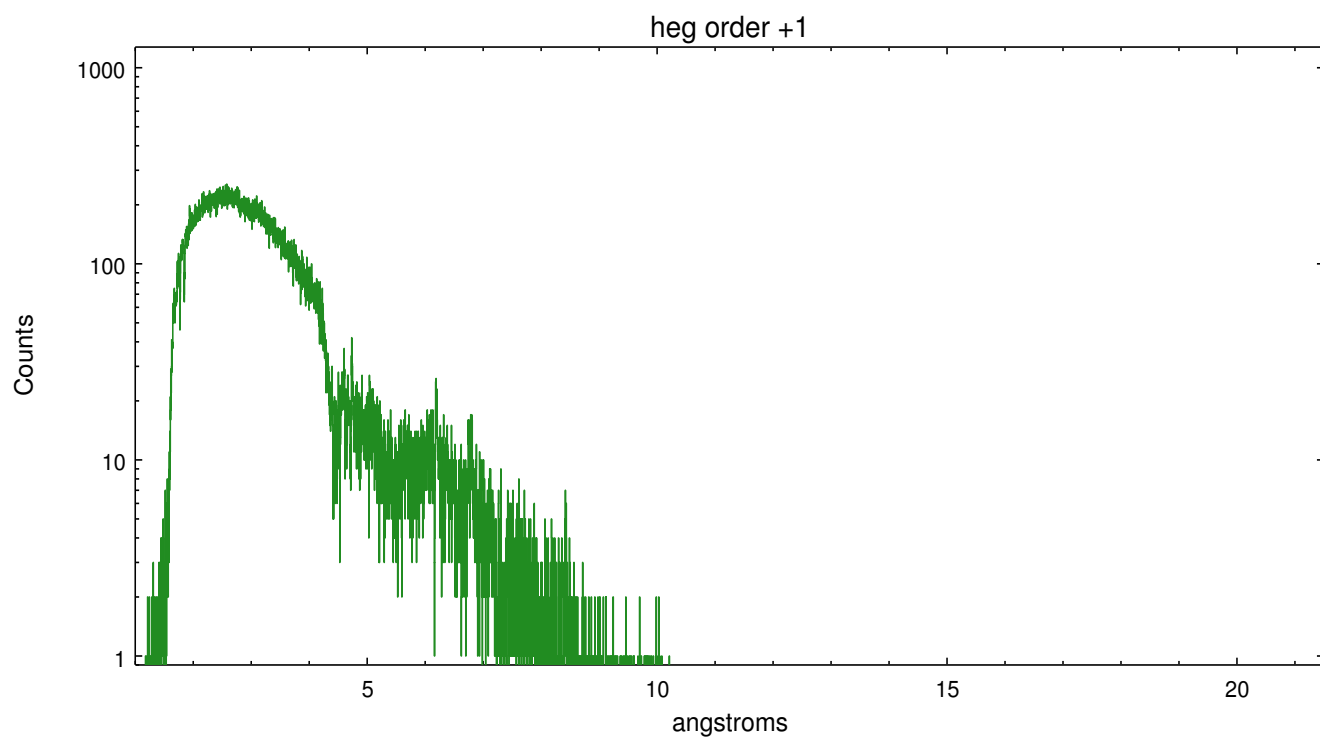
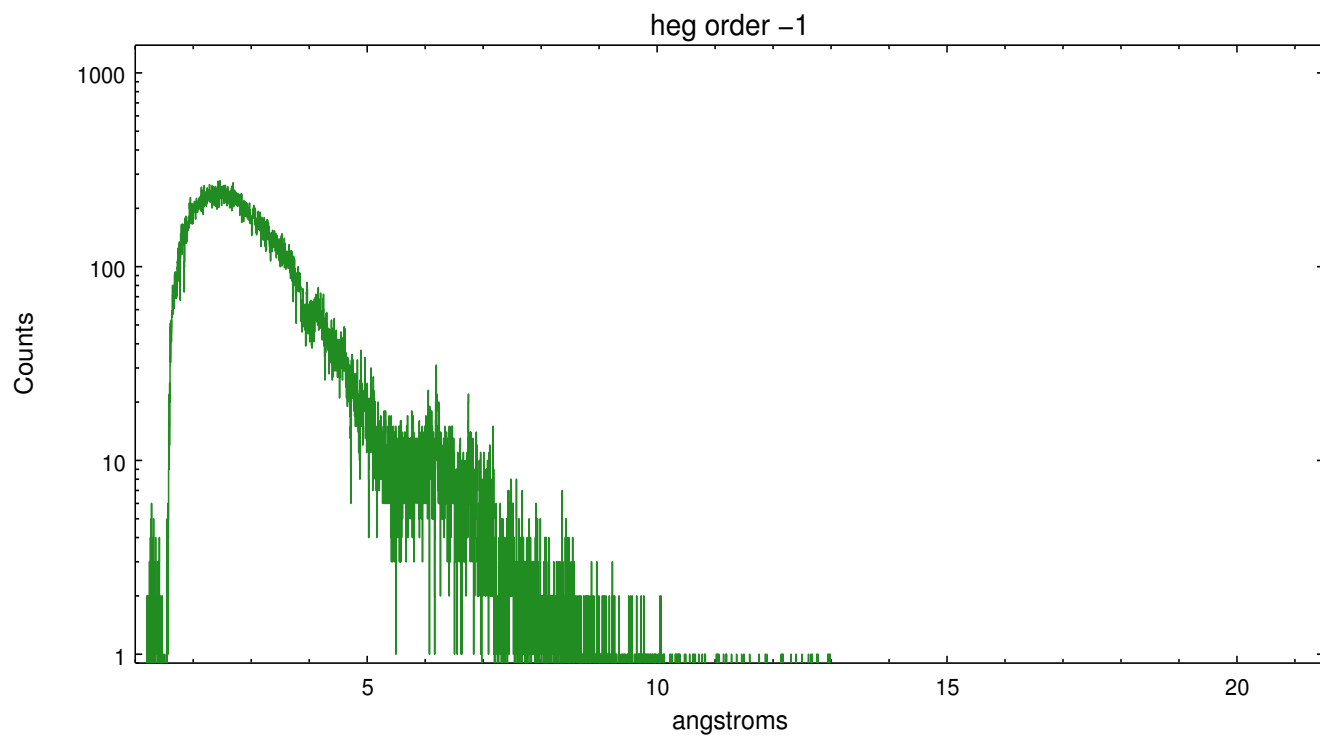
Spot Image HEG



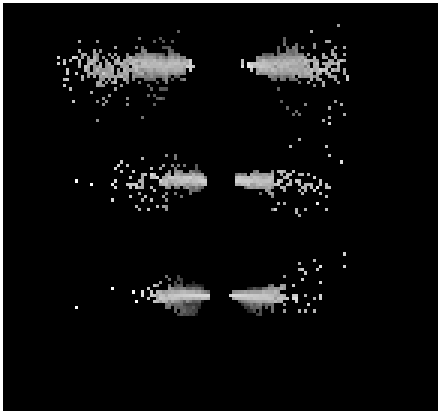
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	8545	17153	192156	0	183705	14908	7367

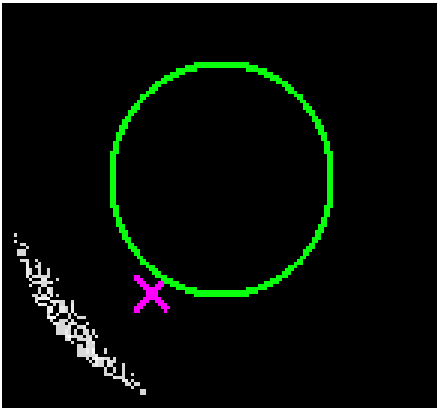




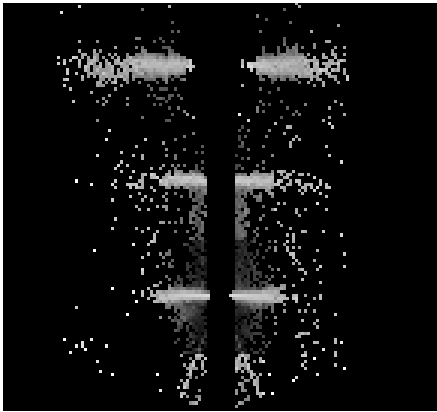
3.2 MEG Arm



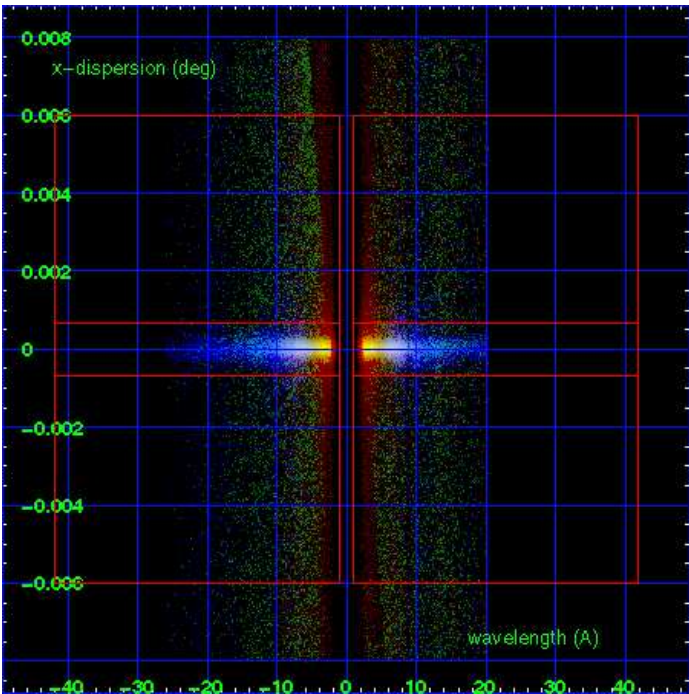
MEG Order Sort 123



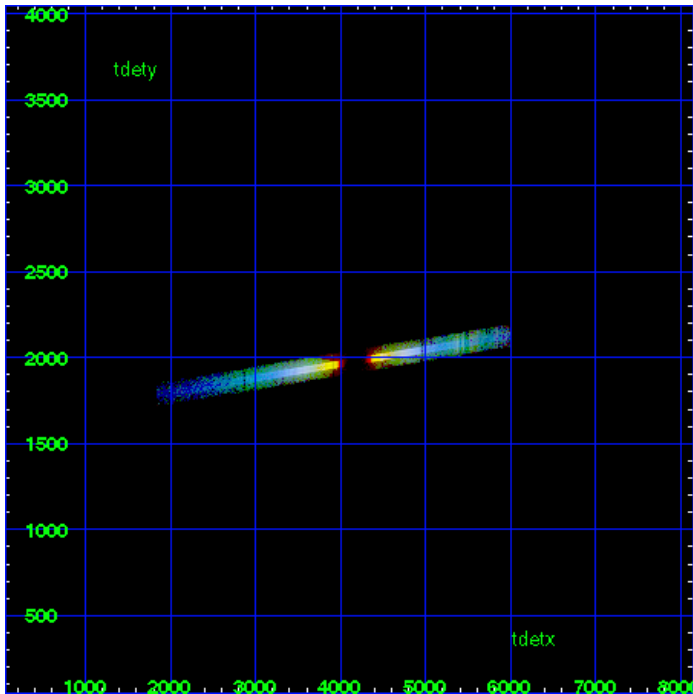
MEG Zero Order



MEG Order Sort ALL

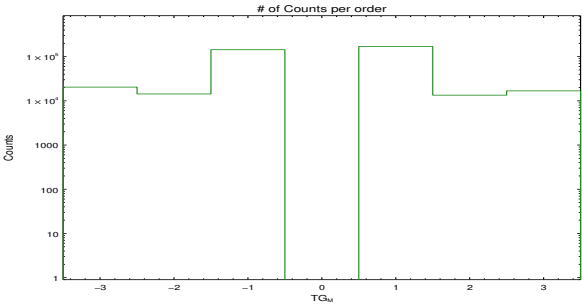


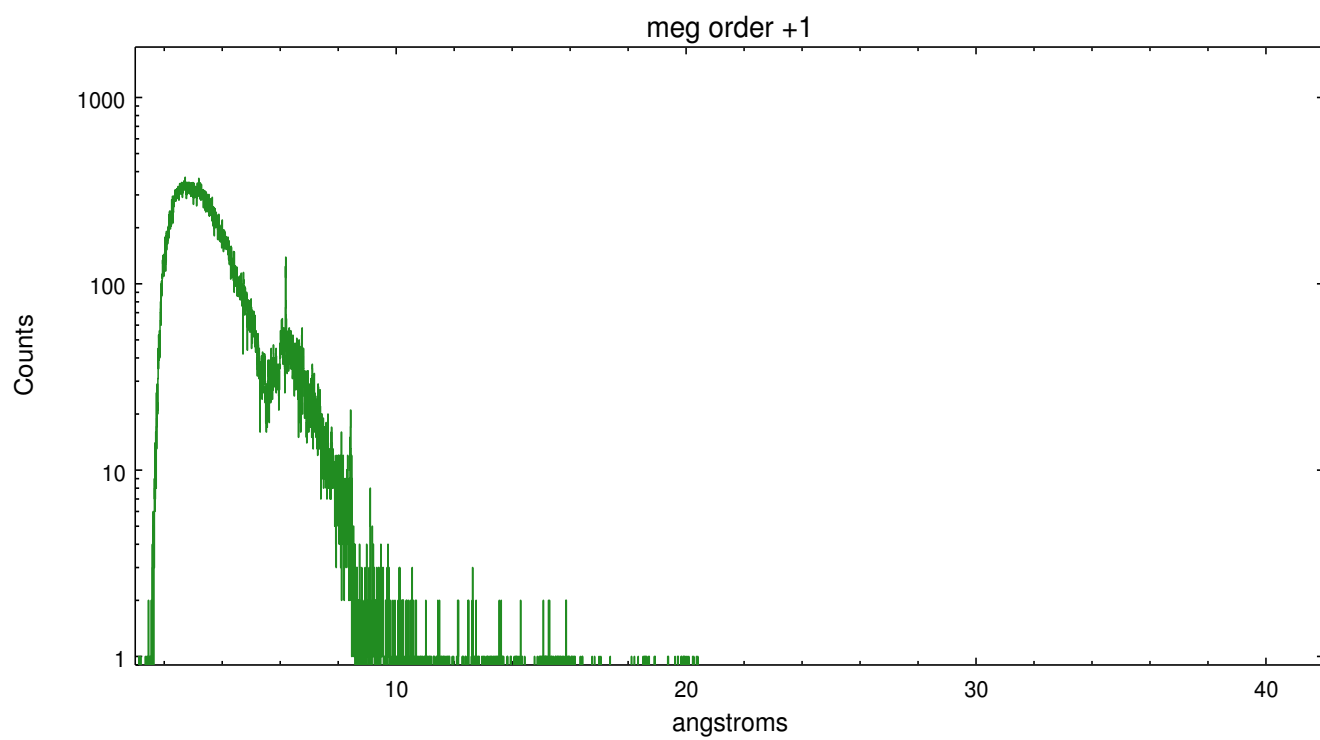
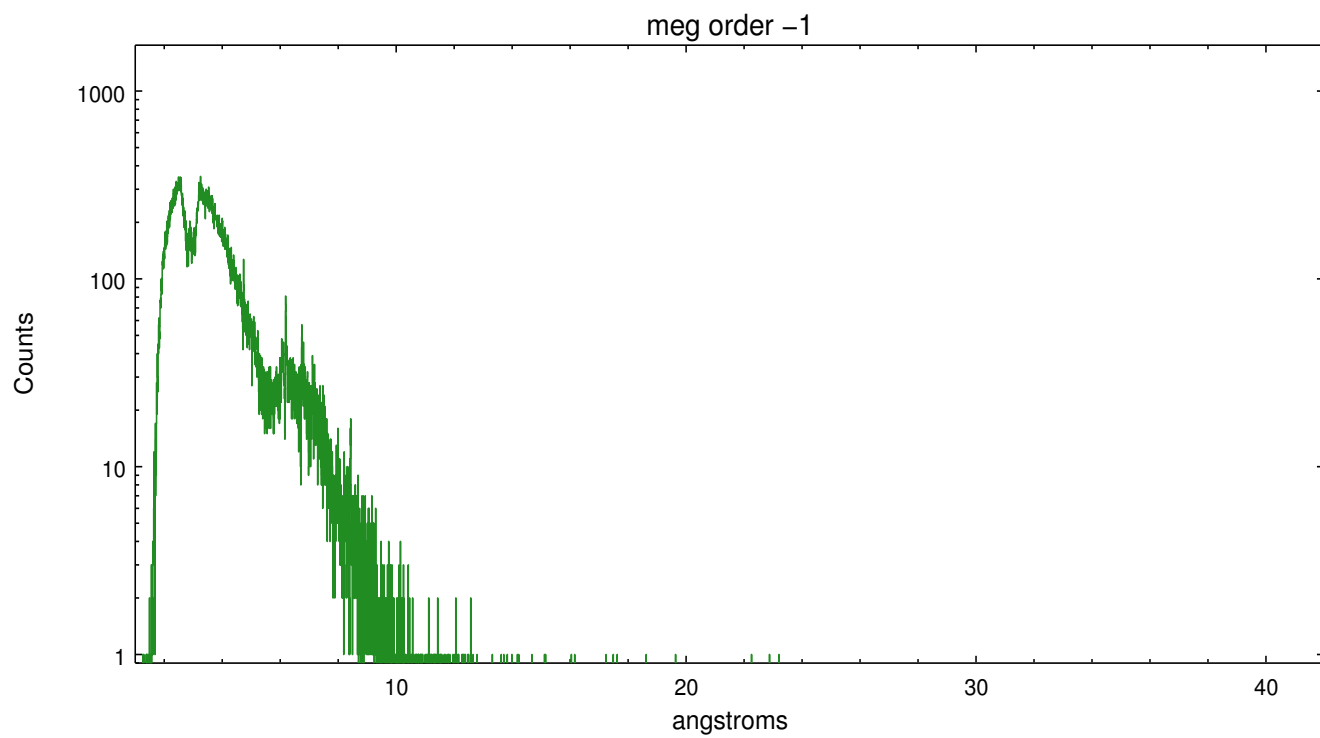
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	20449	14329	143572	0	168973	13441	16839





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.14
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.322

A.2 Comments

Chip ACIS-S4 suffers from an unusually large amplitude of streaks of instrumental origin. The user may want to run the CIAO tool 'destreak' on the Level 2 event data. When using destreak, note that setting 'max' to 1, especially for gratings data, may remove a large fraction of the data. Users should check the output 'timefile' to see what percent of the data was removed. See the CIAO help file for more details.

===

Standard data processing software did not correctly locate the zeroth order because a spatial exclusion window was used to block the zeroth order image. Manual intervention was used to input the correct sky coordinates (x=4114.83, y=4126.58) 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 spectral 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.