

V&V Reference Report

L2 ASCDS Version : 10.4.2.1

Observation 16630 - L2 Version 4
Chandra X-Ray Center

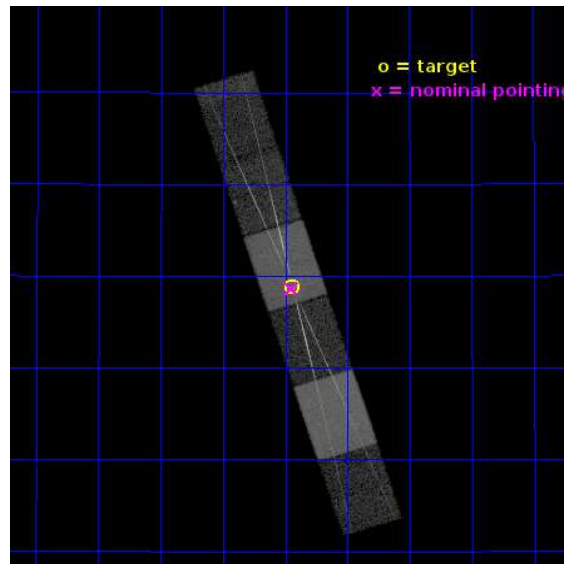
L2 Processing Date : Nov 4 2015

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

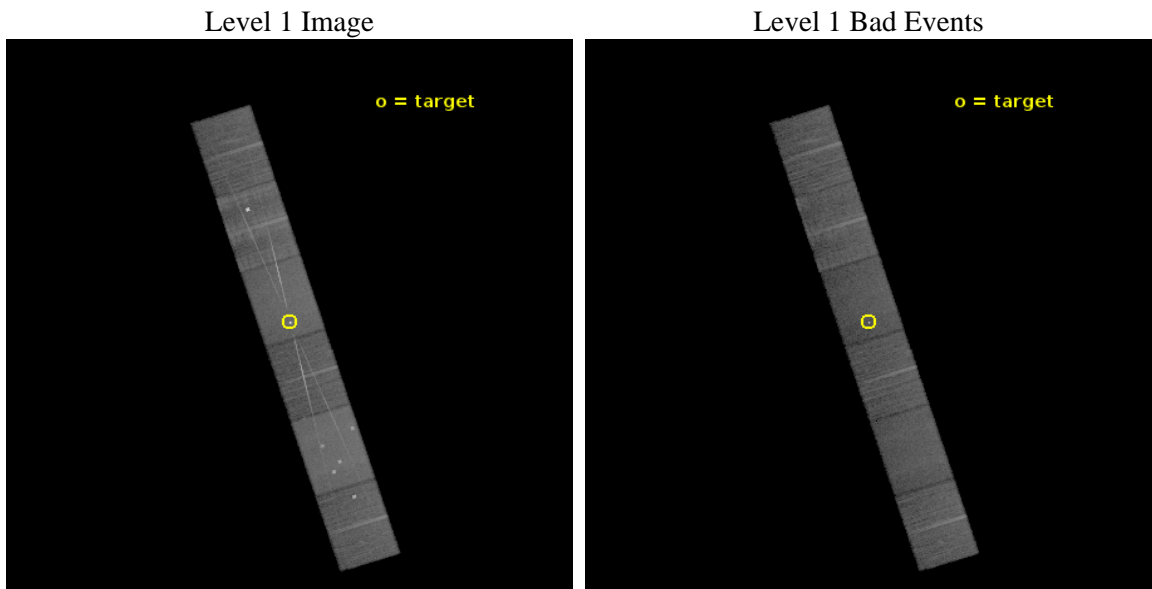
seq_num	703022	Sequence number
obs_id	16630	Observation id
title	A Warm Absorber Study of Mk 766	Proposal title
observer	Prof. Claude Canizares	Principal investigator
object	Mkn 766	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	184.610417	Observer's specified target RA [deg]
dec_targ	29.812778	Observer's specified target Dec [deg]
ra_nom	184.61261727538	Nominal RA [deg]
dec_nom	29.810431840747	Nominal Dec [deg]
roll_nom	252.1555260022	Nominal Roll [deg]
revision	4	Processing version of data
ontime	31417.5	Sum of GTIs [s]
livetime	30910.080124673	Livetime [s]
ontime4	31417.5	Sum of GTIs [s]
ontime5	31417.5	Sum of GTIs [s]
ontime6	31417.5	Sum of GTIs [s]
ontime7	31417.5	Sum of GTIs [s]
ontime8	31417.5	Sum of GTIs [s]
ontime9	31417.5	Sum of GTIs [s]
l2events	252498	Number of level 2 events



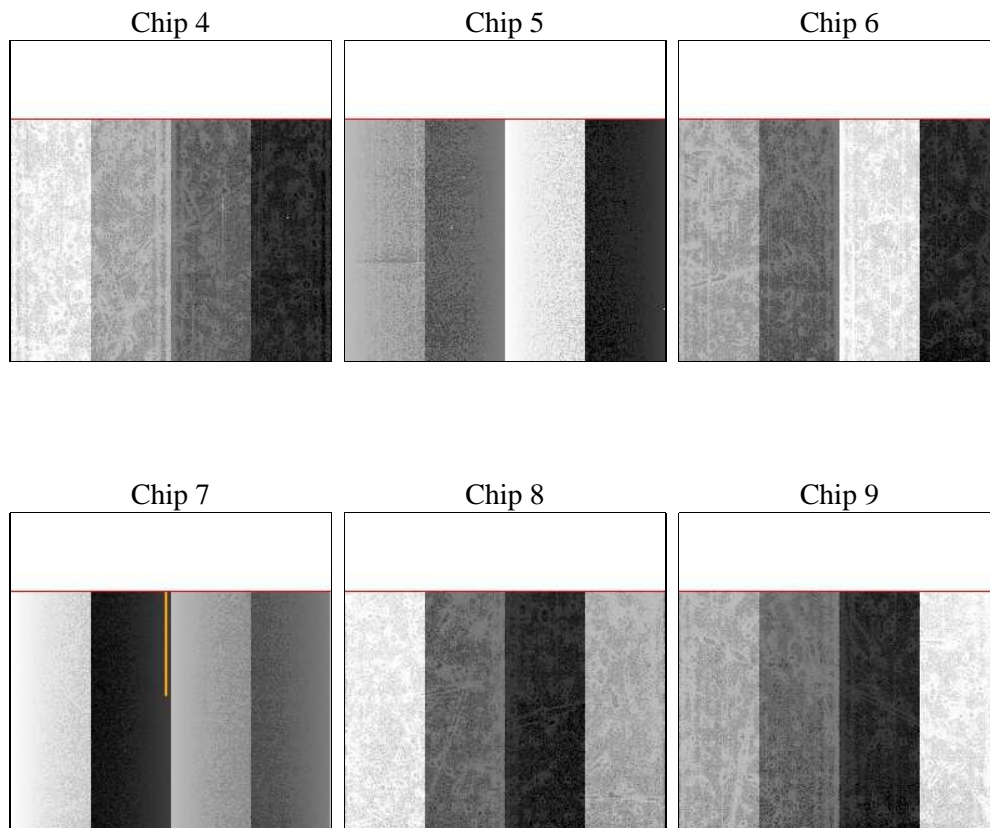
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	31400.000000	[s] Scheduled observation exposure time
ascdsver	10.4.2.1	Processing system revision	ontime	31417.5	Sum of GTIs [s]
caldbver	4.6.10a	 	ontime4	31417.5	Sum of GTIs [s]
date	2015-11-04T17:12:53	Date and time of file creation	ontime5	31417.5	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	31417.5	Sum of GTIs [s]
			ontime7	31417.5	Sum of GTIs [s]
			ontime8	31417.5	Sum of GTIs [s]
			ontime9	31417.5	Sum of GTIs [s]
			l1events	929131	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
				411014	

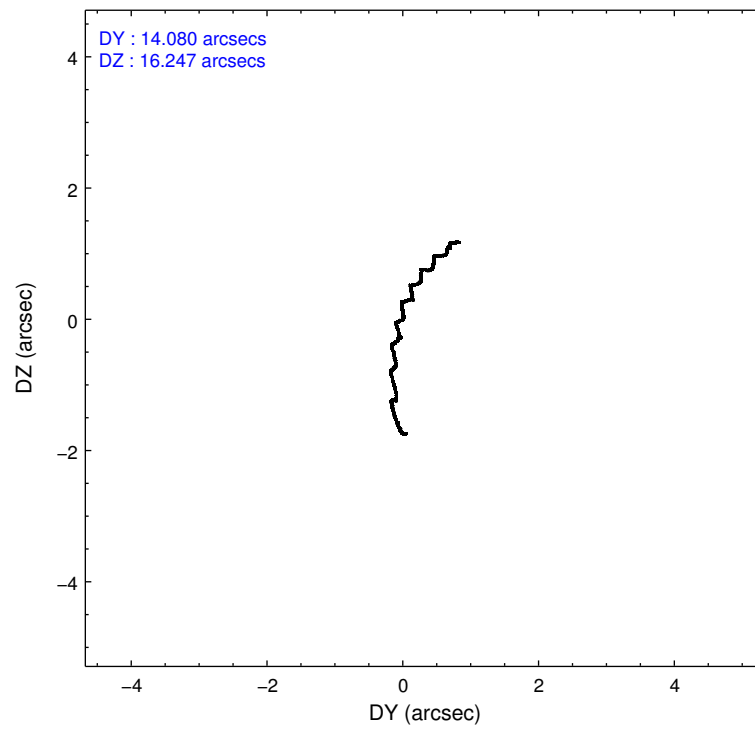
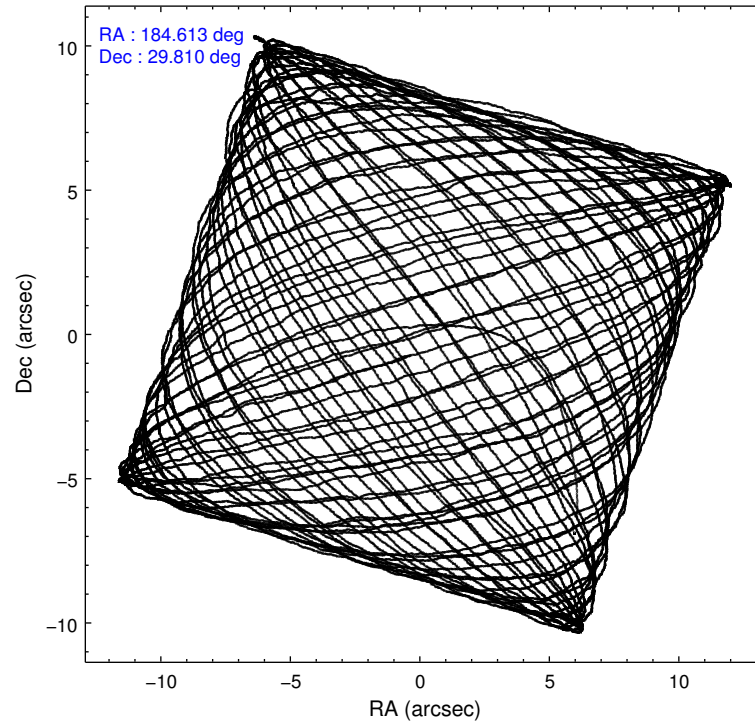
2.1.4 Events

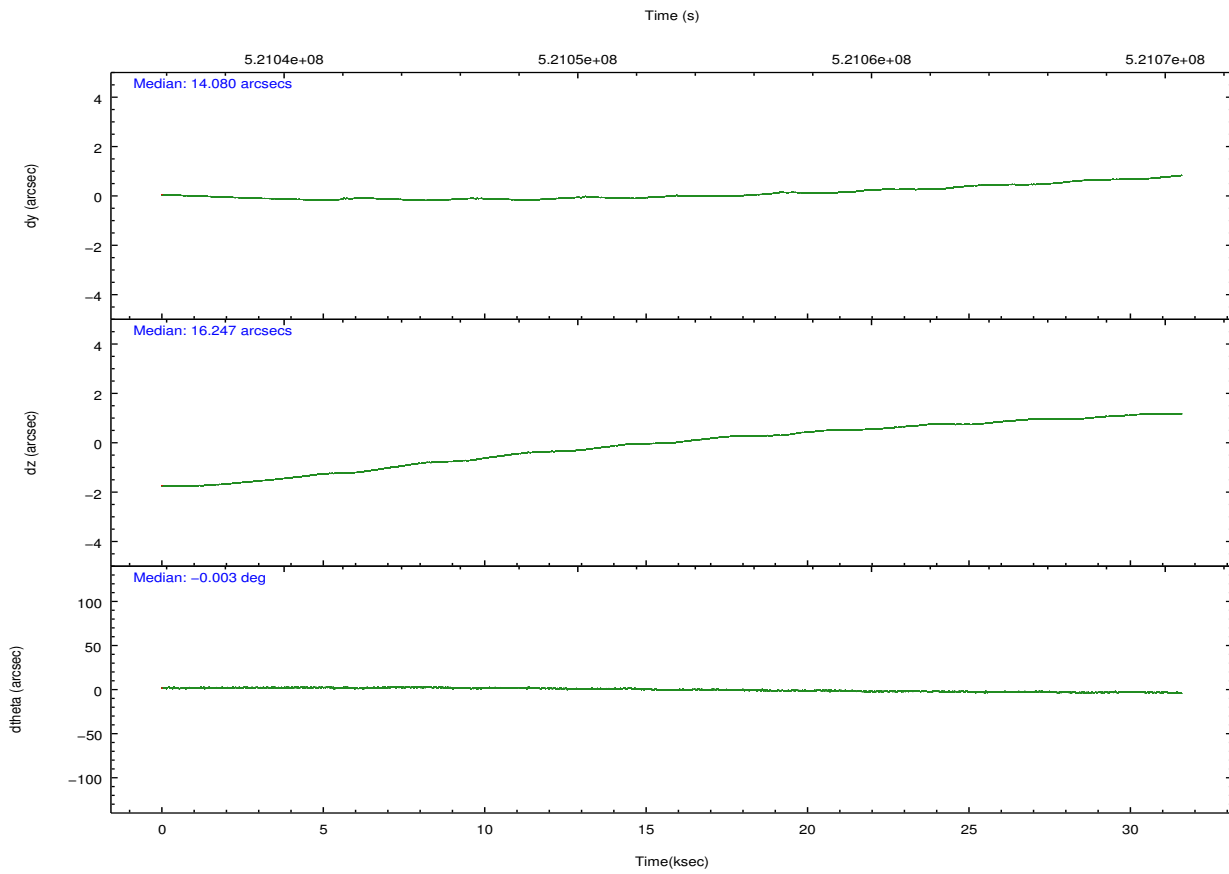
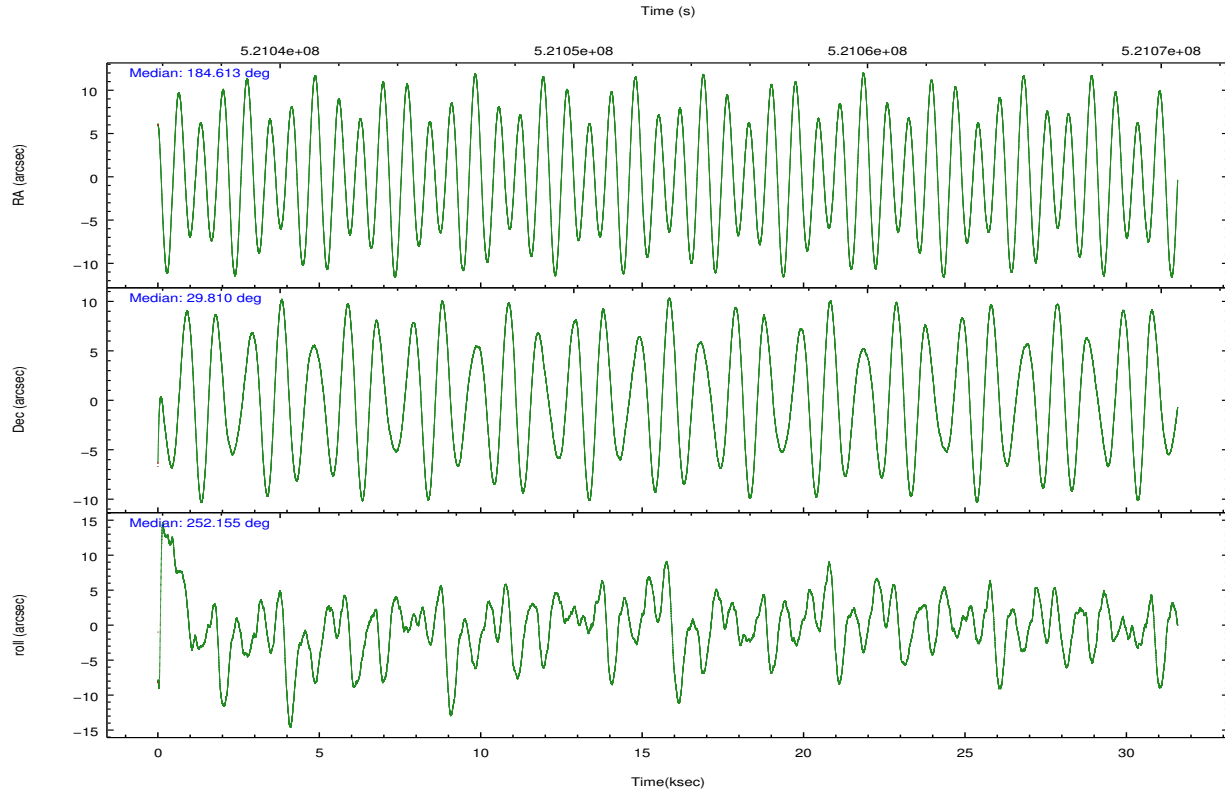
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	133319	197871	128750	181215	172647	115329	grade 0 events	10028	14566	16761	10762	30519	6140
rejected events	113708	97175	99500	90788	111118	99530		7%	7%	13%	5%	17%	5%
rejected %	85%	49%	77%	50%	64%	86%	grade 1 events	101	373	94	417	131	64
								0%	0%	0%	0%	0%	0%
							grade 2 events	3693	29456	4971	19266	10649	3382
								2%	14%	3%	10%	6%	2%
							grade 3 events	1654	3809	1966	8315	4559	1574
								1%	1%	1%	4%	2%	1%
							grade 4 events	1517	3749	2054	8328	4342	1517
								1%	1%	1%	4%	2%	1%
							grade 5 events	5771	14056	5834	17366	8694	6568
								4%	7%	4%	9%	5%	5%
							grade 6 events	2731	49183	3509	43800	11479	3191
								2%	24%	2%	24%	6%	2%
							grade 7 events	107824	82679	93561	72961	102274	92893
								80%	41%	72%	40%	59%	80%

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	OVERRIDE	OVERRIDE
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	184.605585	184.6126172753758	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	29.837094	29.81043184074672	Subarray start row	1	1
[deg] Pointing Roll	252.002408	252.1555260021976	Subarray row count	774	774
[mm] SIM focus pos	-0.6828225247311905	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0.001444942264670179	0.001444942264670179	[s] Primary exposure time	2.5	2.5
[mm] SIM translation stage pos	-187.127916318603	-187.127916318603			
[mm] SIM translation stage offset	-3.004606785364189	-3.004606785364189			
[s] Observation start time (MET)	521036528.184000	521036528.184			
Observation start date	2014-07-06T12:22:08	2014-07-06T12:22:08			
[s] Observation end time (MET)	521068998.410000	521068998.41			
Observation end date	2014-07-06T21:23:18	2014-07-06T21:23:18			
Read mode	TIMED	TIMED			

2.3 Aspect





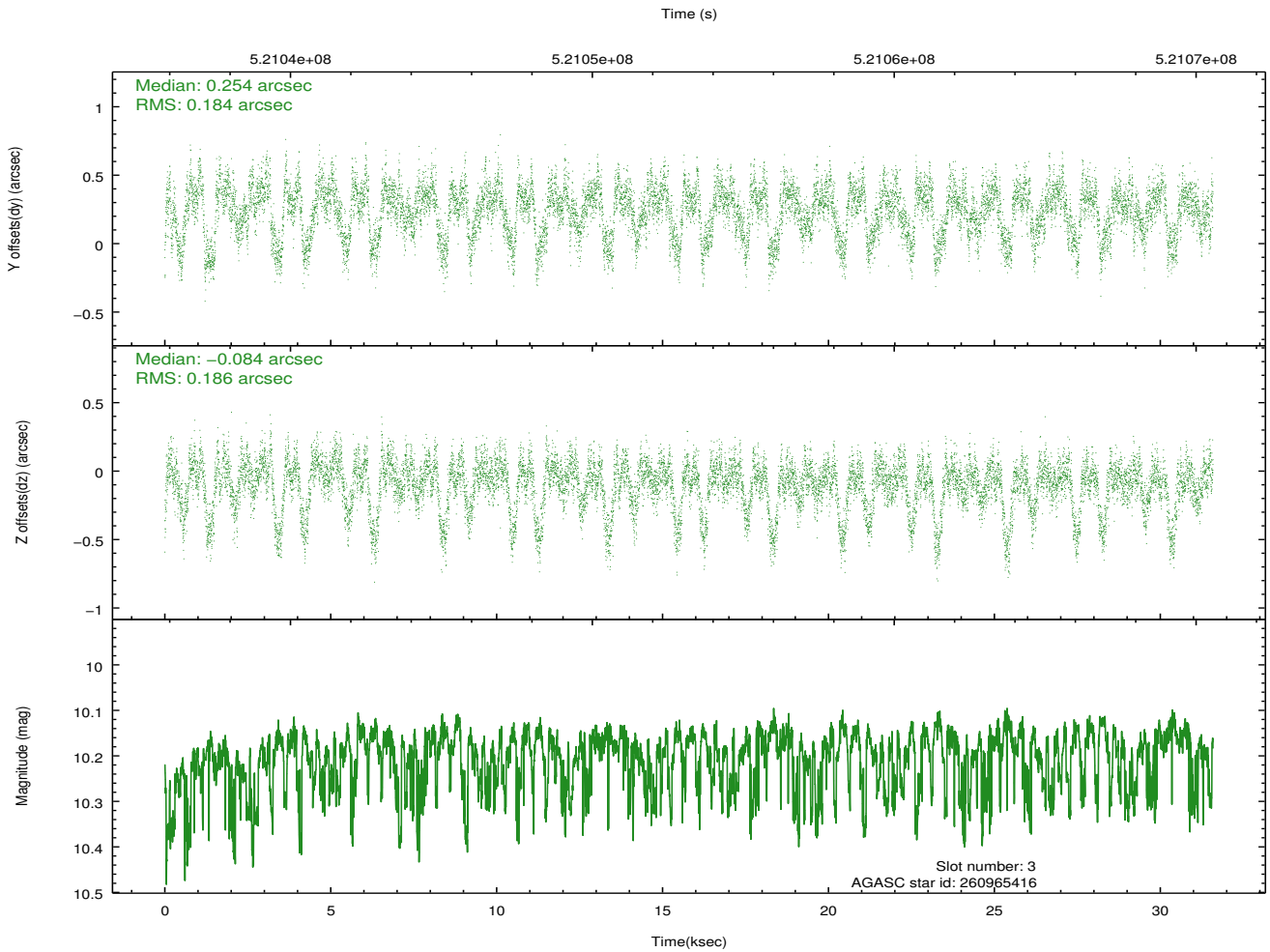
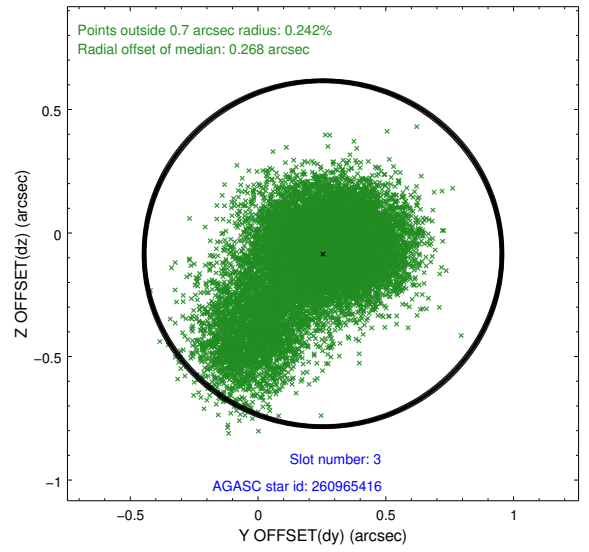
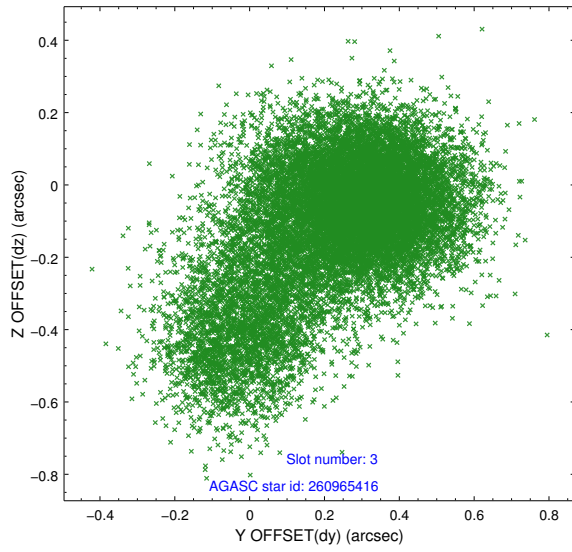
Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.02	7704	-0.095	-0.084	0.026	0.047	0.000000	0.000000	-767.06	-1799.64
1	FID		ACIS-S-4	7.09	7705	0.245	0.069	0.013	0.023	0.000000	0.000000	2146.56	108.86
2	FID		ACIS-S-5	7.13	7704	-0.178	0.024	0.025	0.042	0.000000	0.000000	-1819.88	102.62
3	GUIDE	used	260965416	10.20	15287	0.254	-0.084	0.254	0.517	184.798422	29.200373	1992.73	1284.00
4	GUIDE	used	260966048	10.26	15308	-0.479	-0.182	0.297	0.543	185.169624	29.533581	488.87	2016.26
5	GUIDE	used	331368240	6.52	15409	-0.214	0.091	0.125	0.202	184.631757	30.249046	-1434.33	-378.73
6	GUIDE	used	331352880	9.64	15338	0.080	0.231	0.168	0.265	184.726920	30.468207	-2276.57	-344.13
7	GUIDE	used	260968144	10.21	15380	0.398	-0.058	0.238	0.391	184.193166	29.586641	1254.69	-949.82

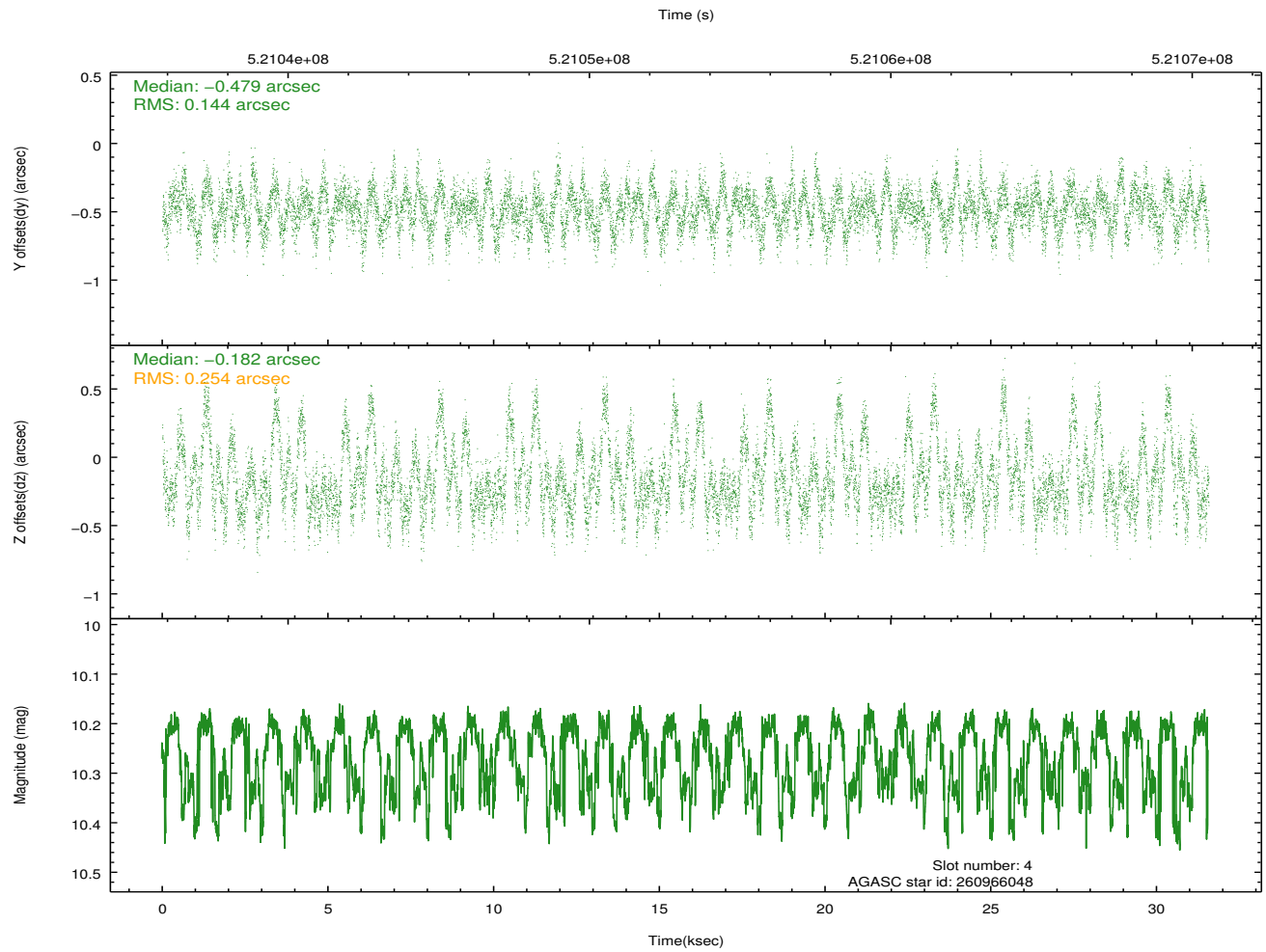
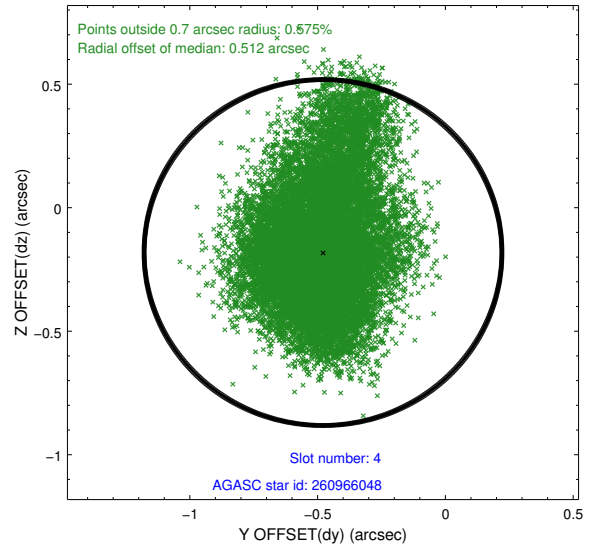
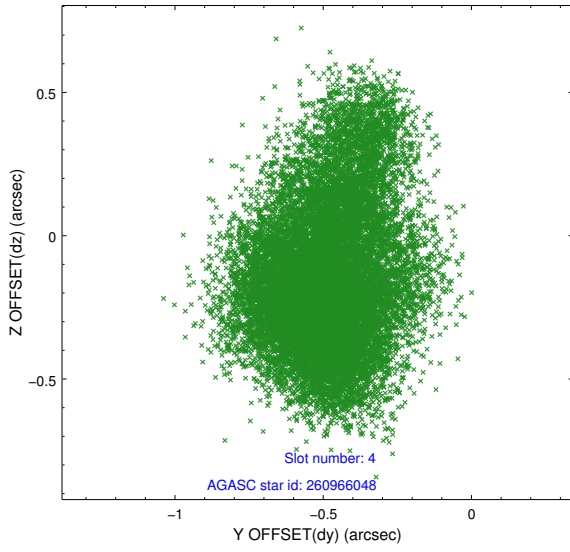
∞

2.4 Star Slots

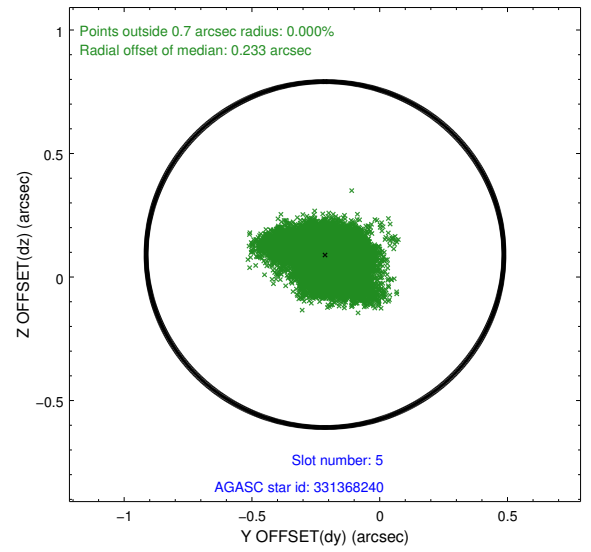
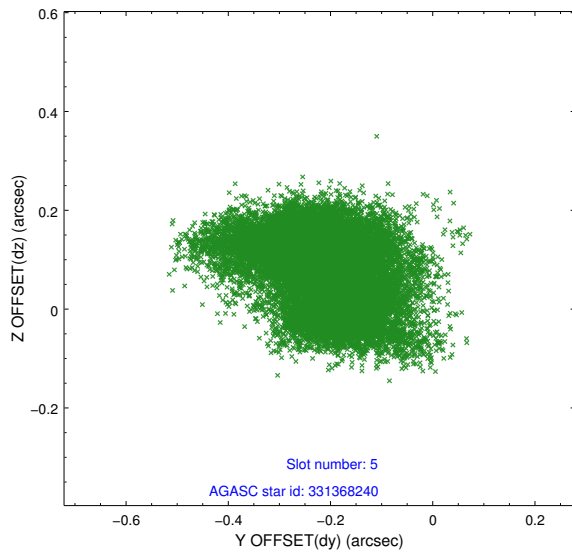
2.4.1 Slot 3



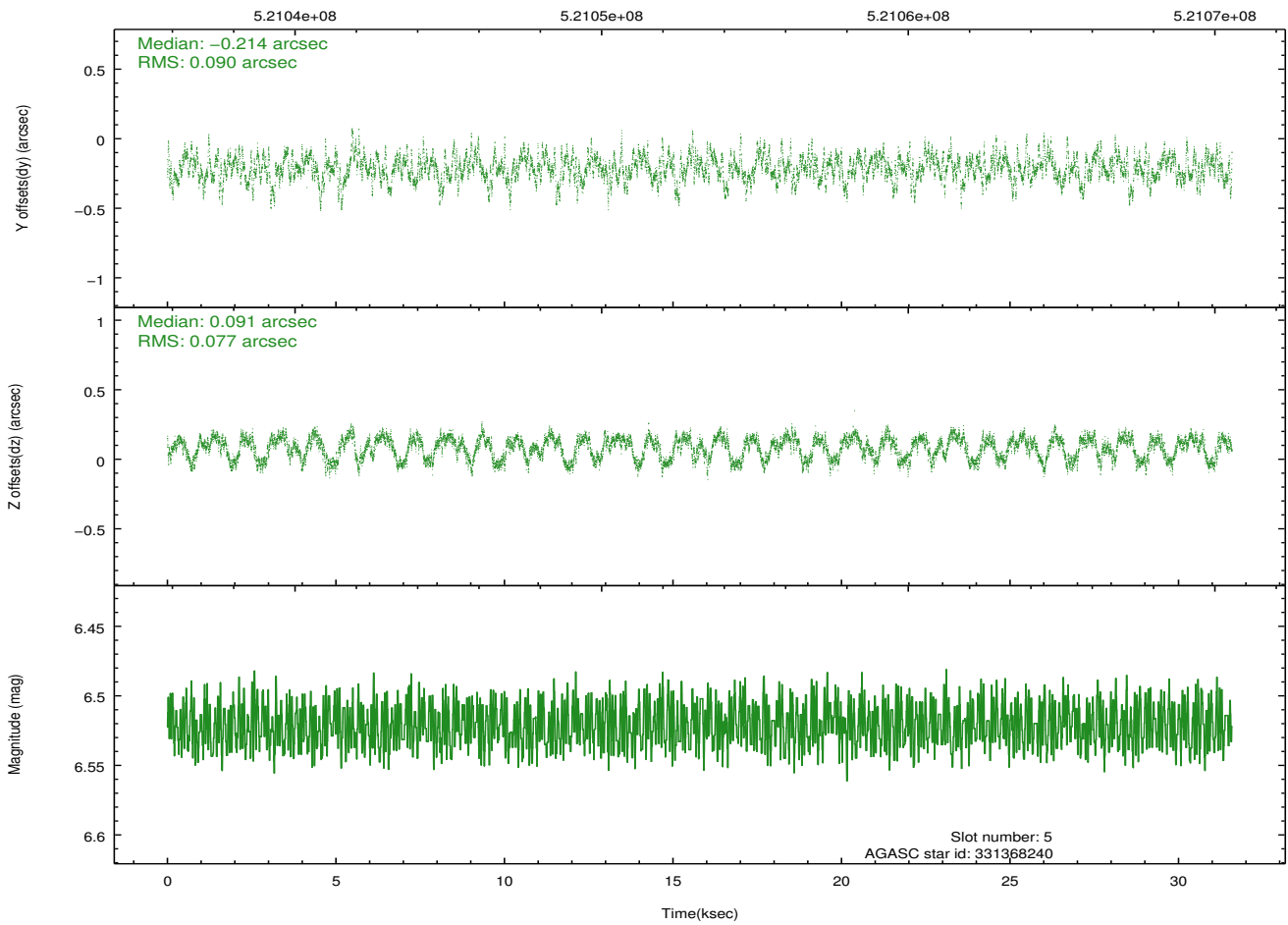
2.4.2 Slot 4



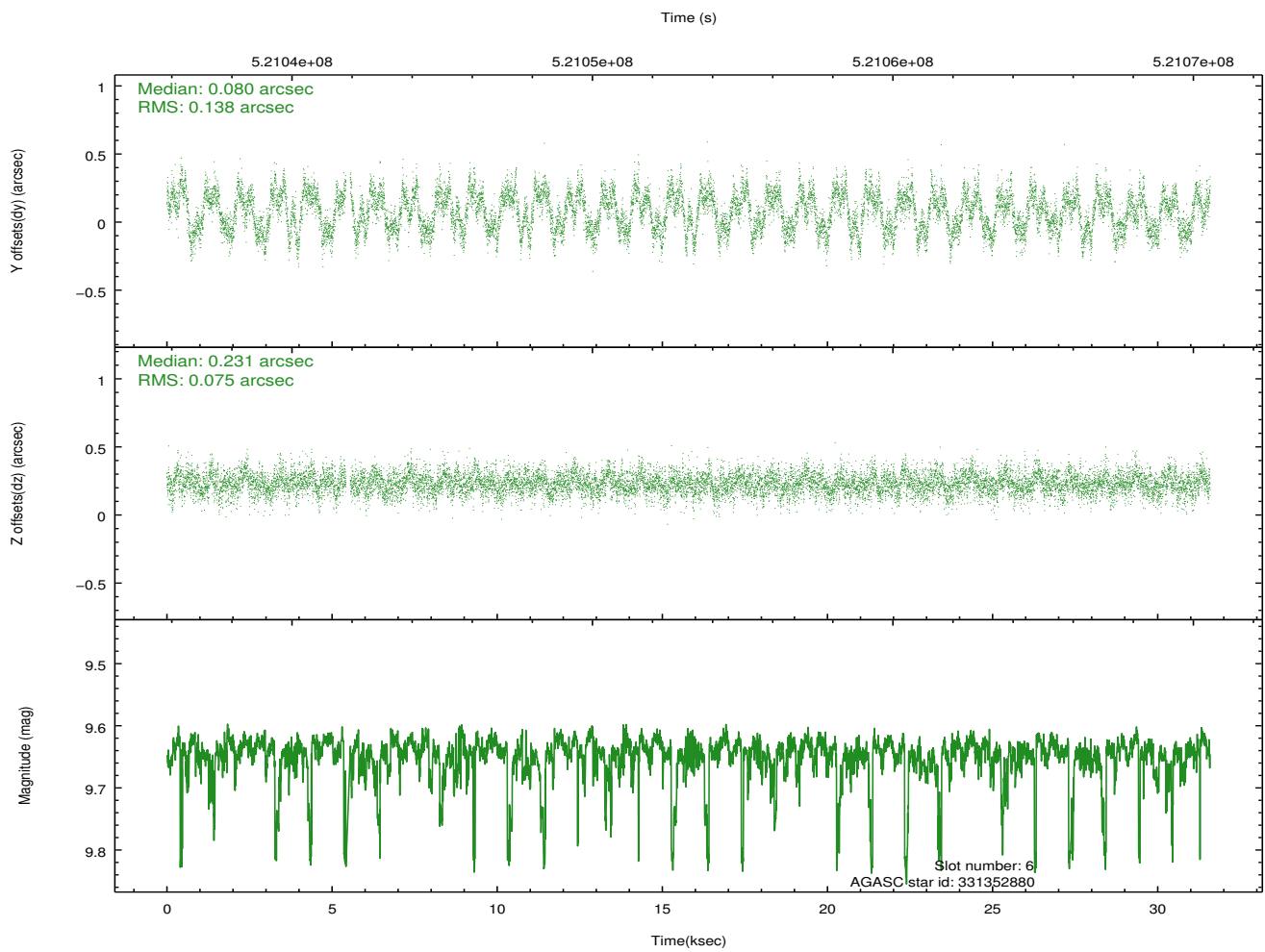
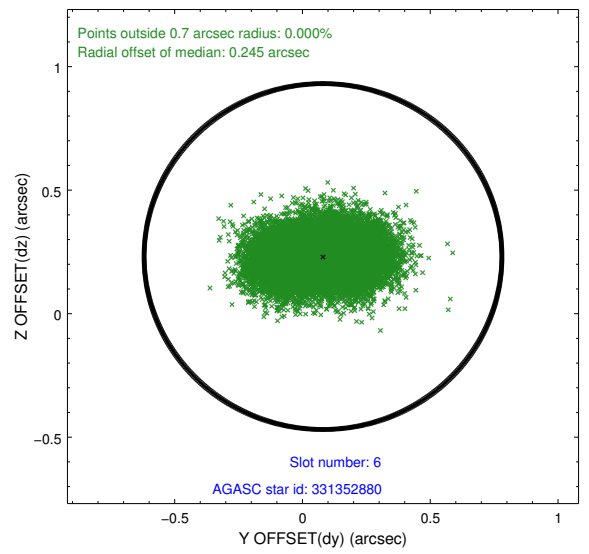
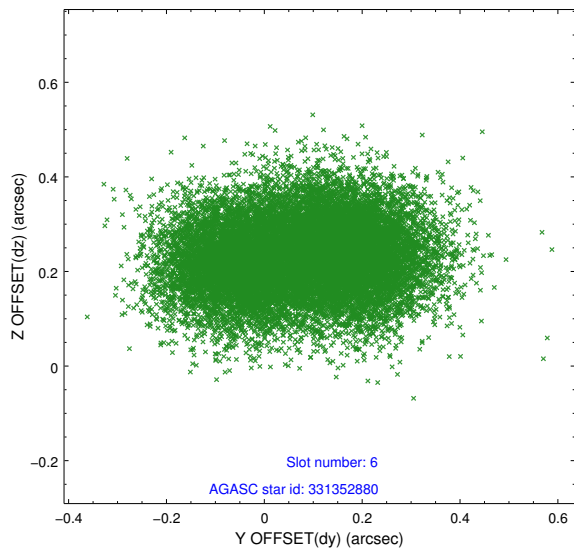
2.4.3 Slot 5



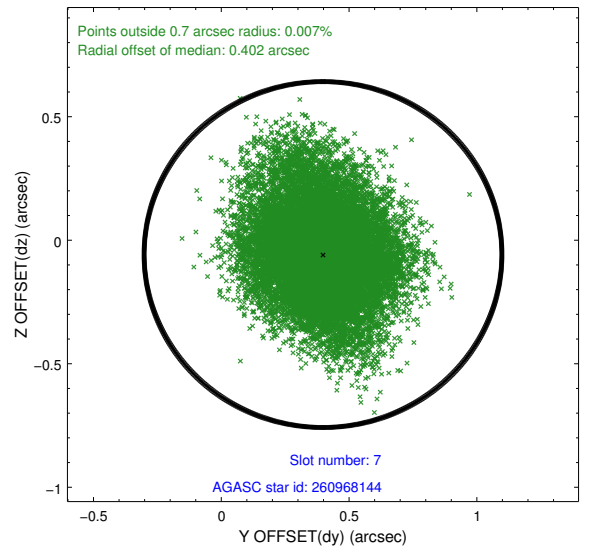
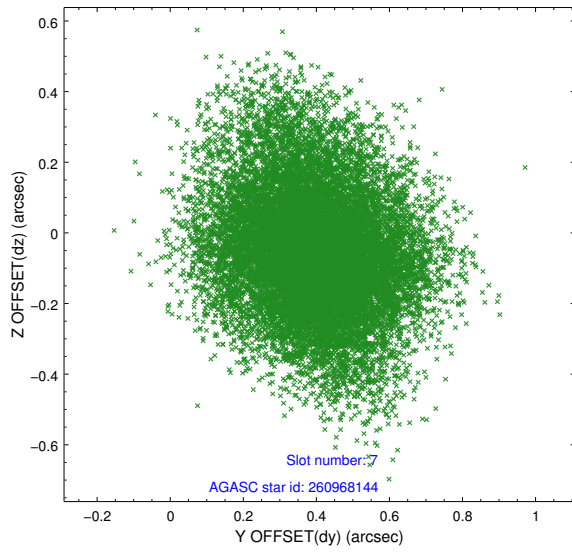
Time (s)



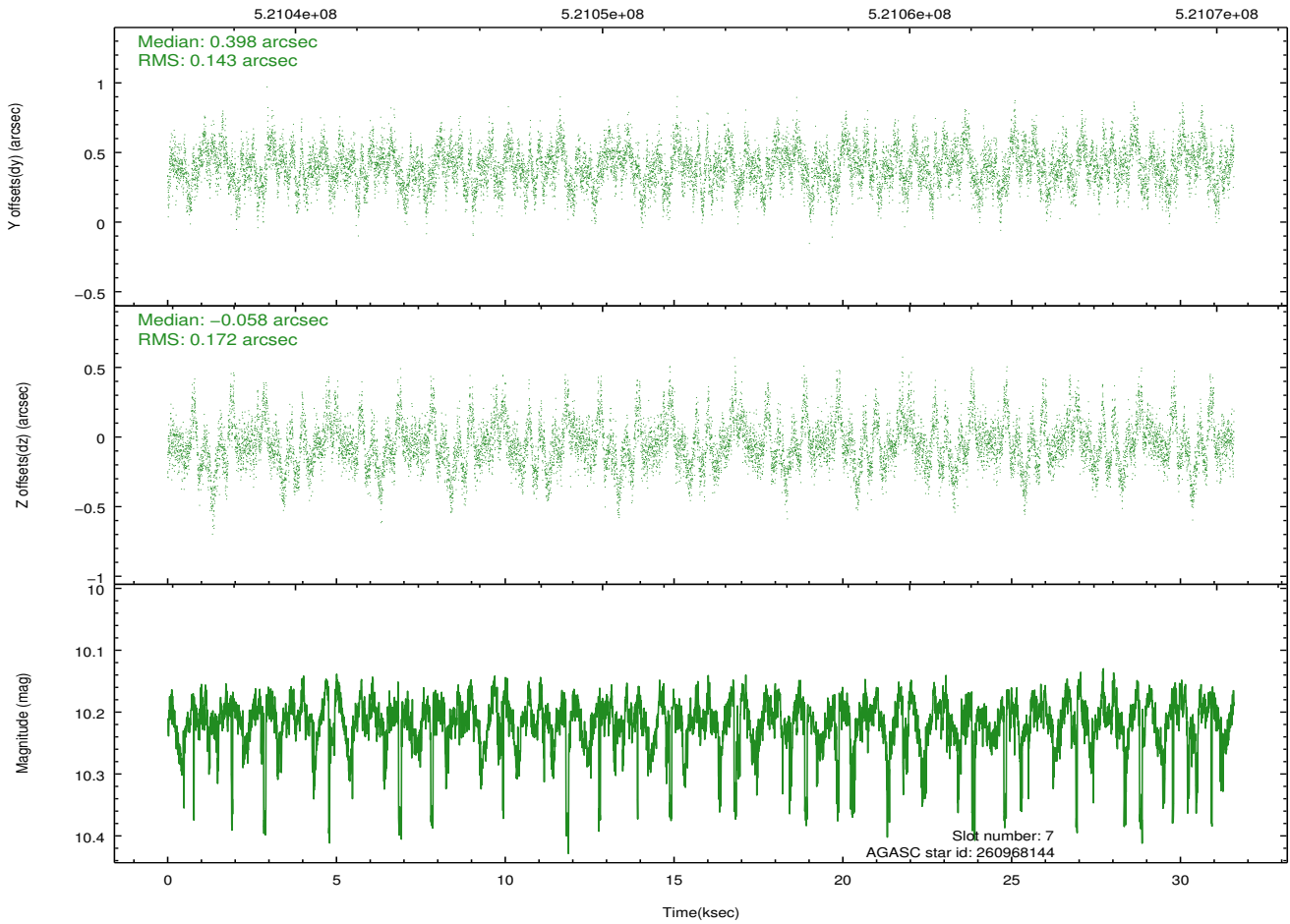
2.4.4 Slot 6



2.4.5 Slot 7

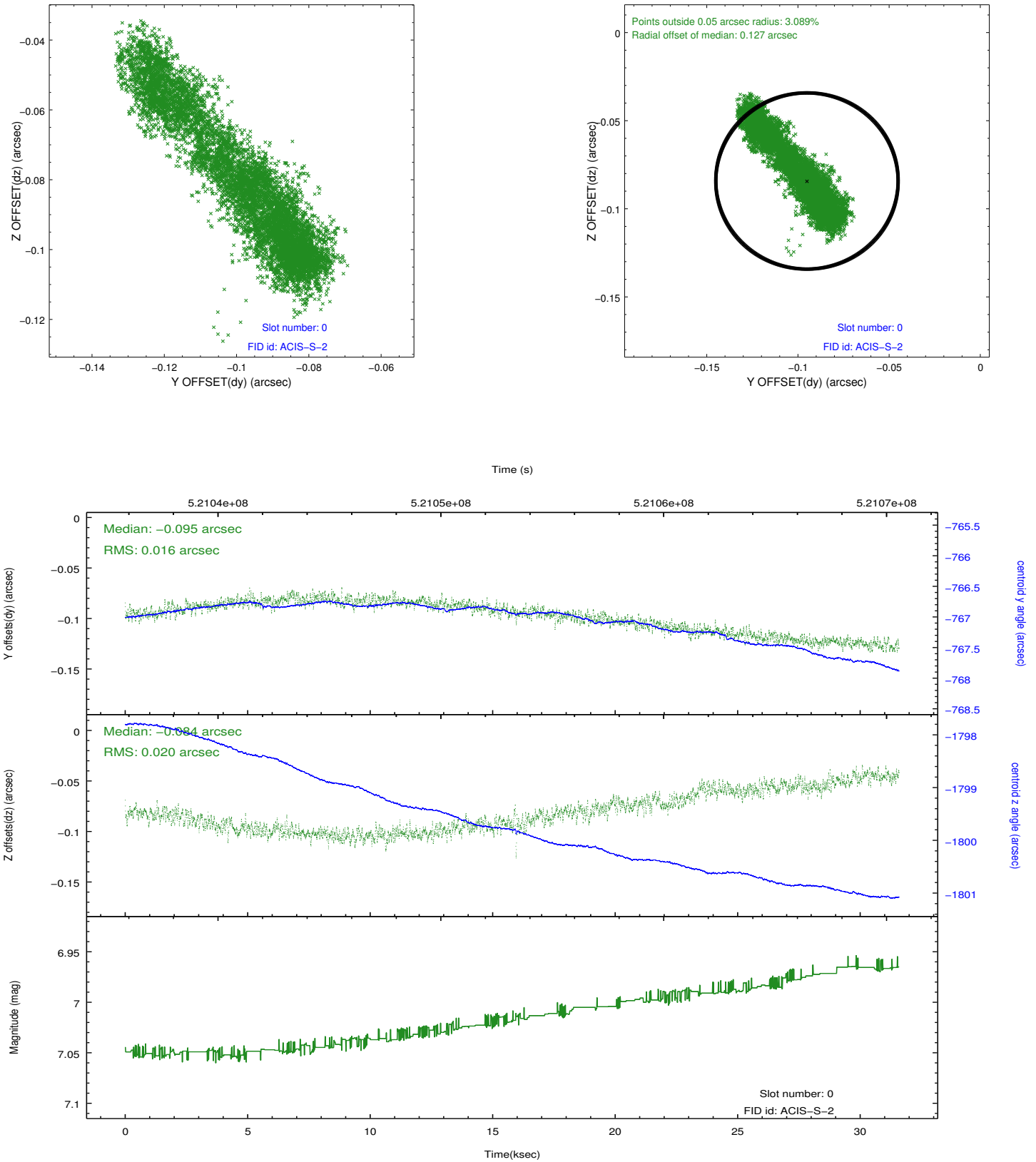


Time (s)

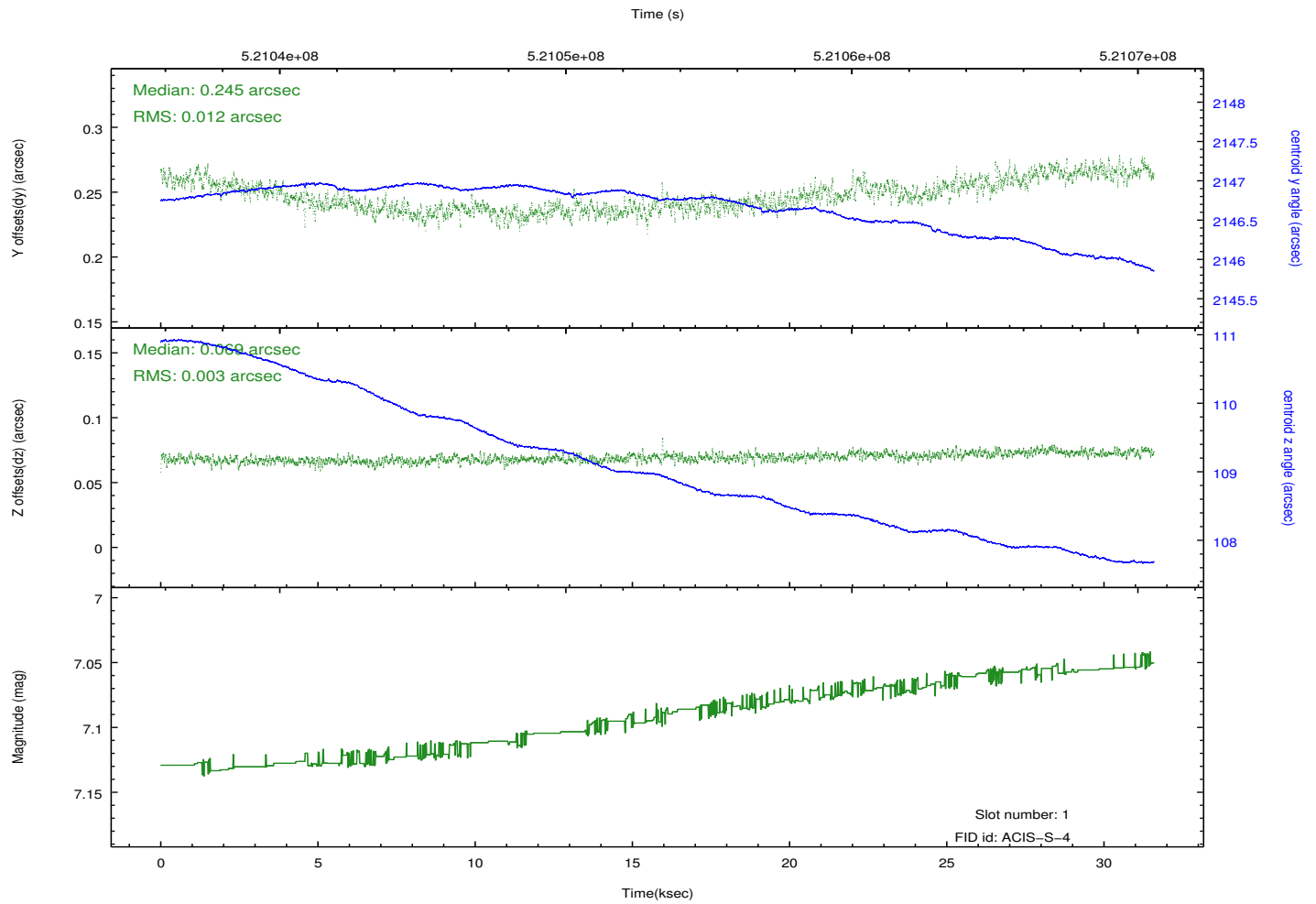
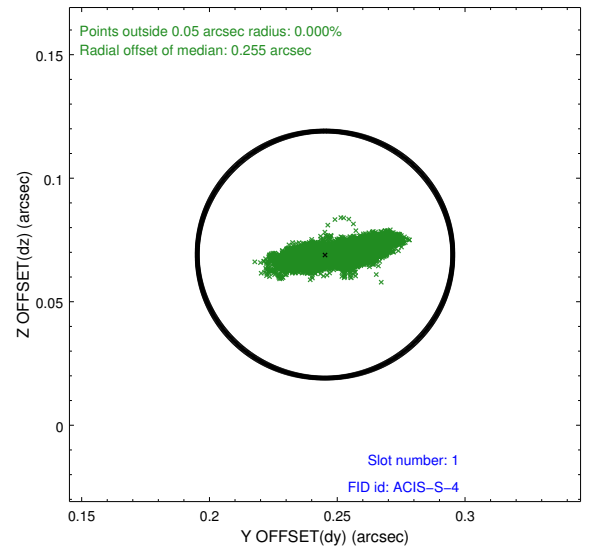
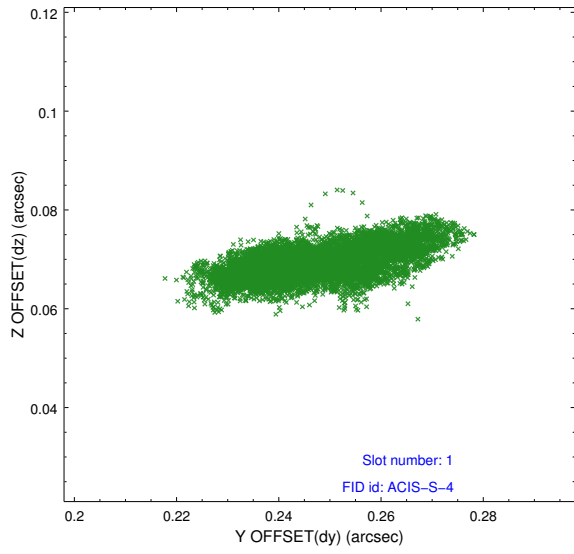


2.5 FID Slots

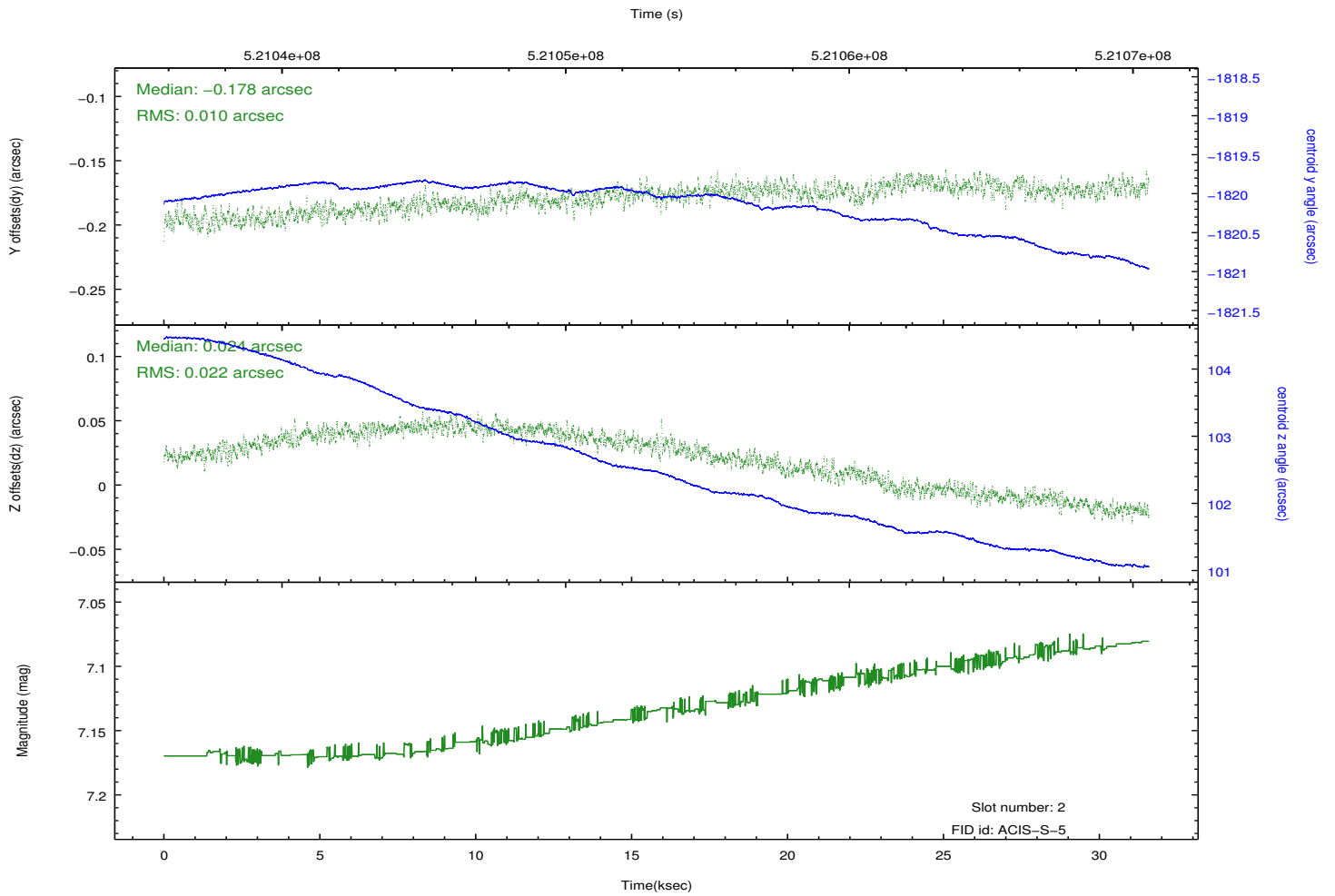
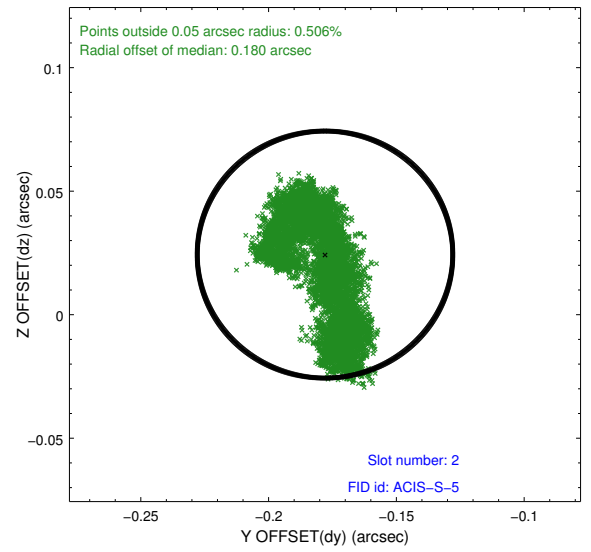
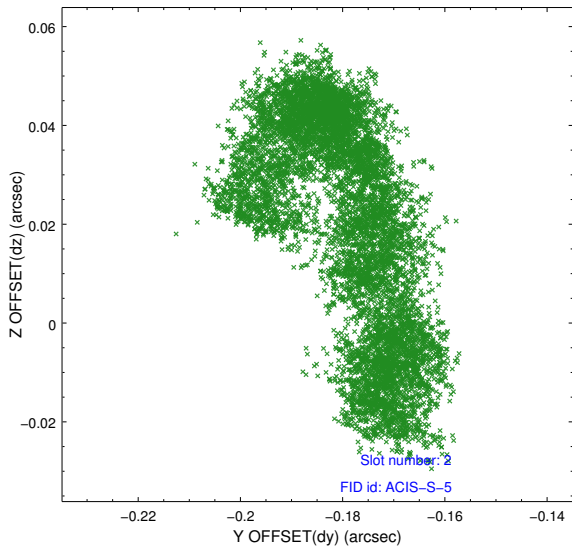
2.5.1 Slot 0



2.5.2 Slot 1

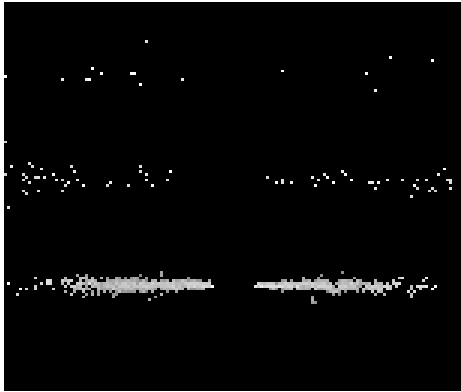


2.5.3 Slot 2

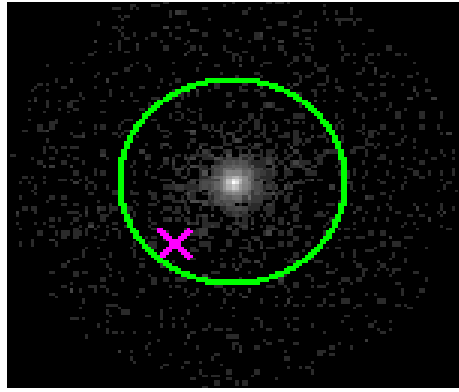


3 Gratings

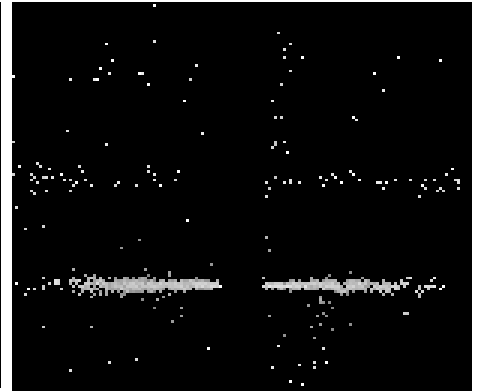
3.1 HEG Arm



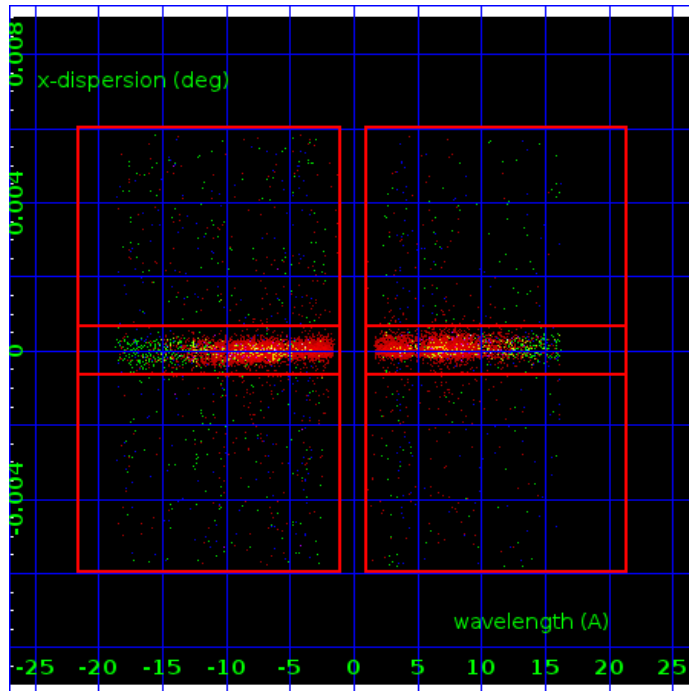
HEG Order Sort 123



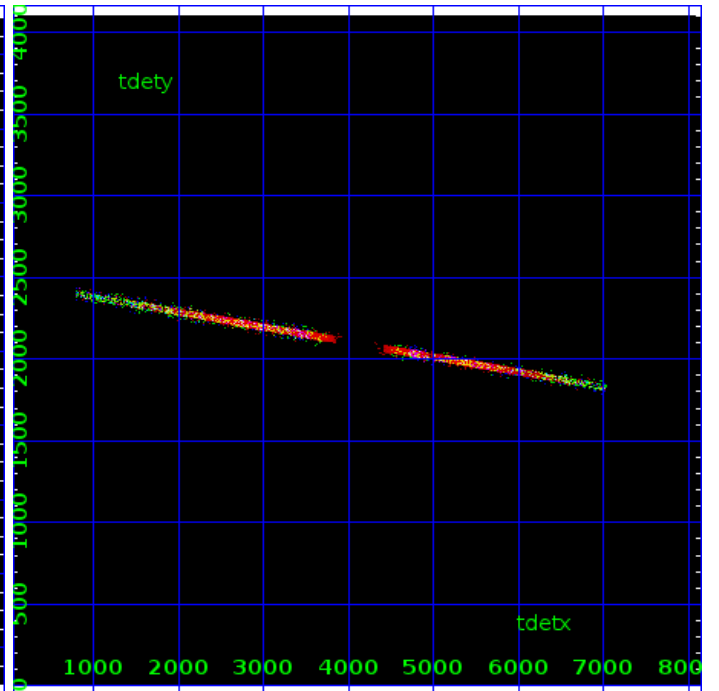
HEG Zero Order



HEG Order Sort ALL

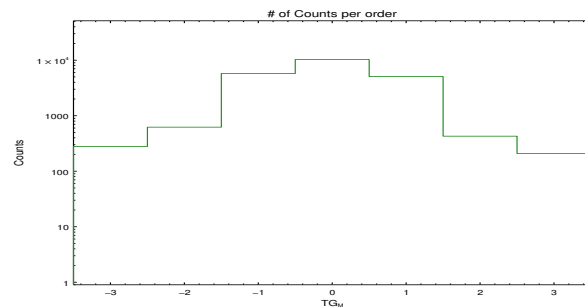


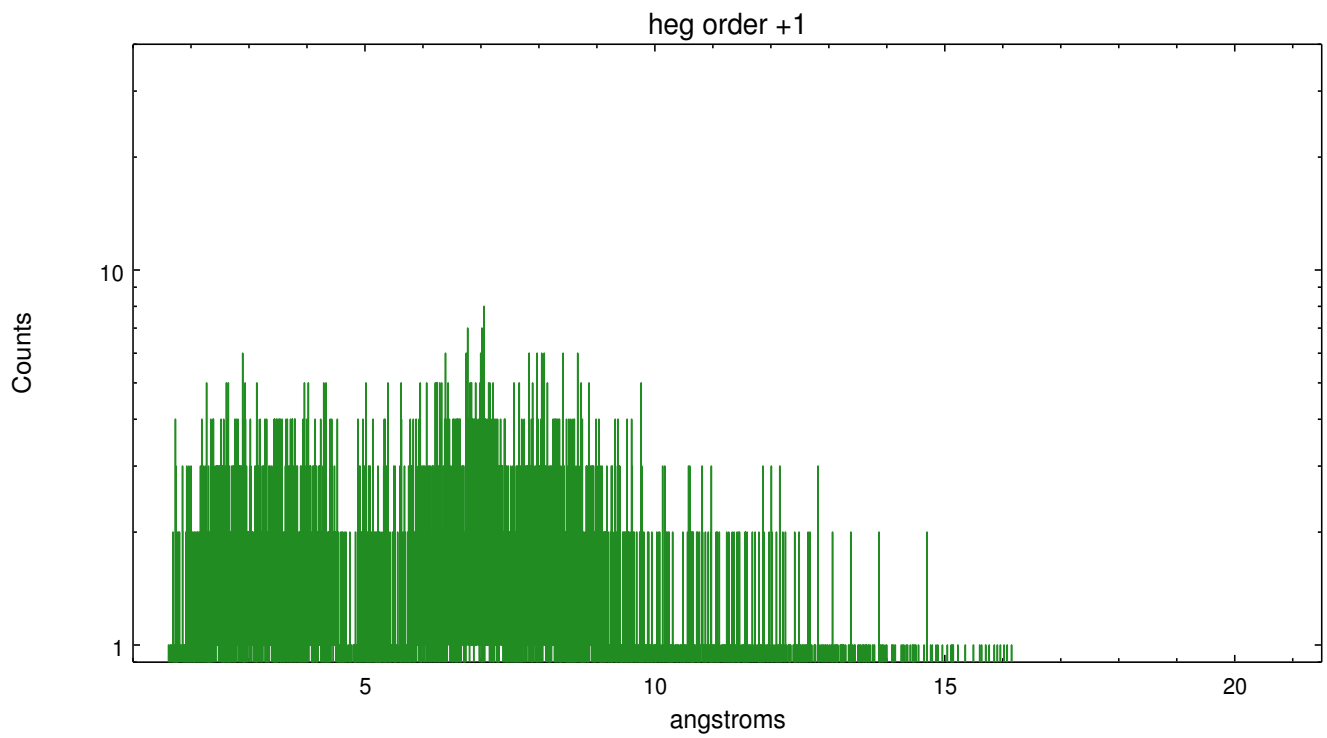
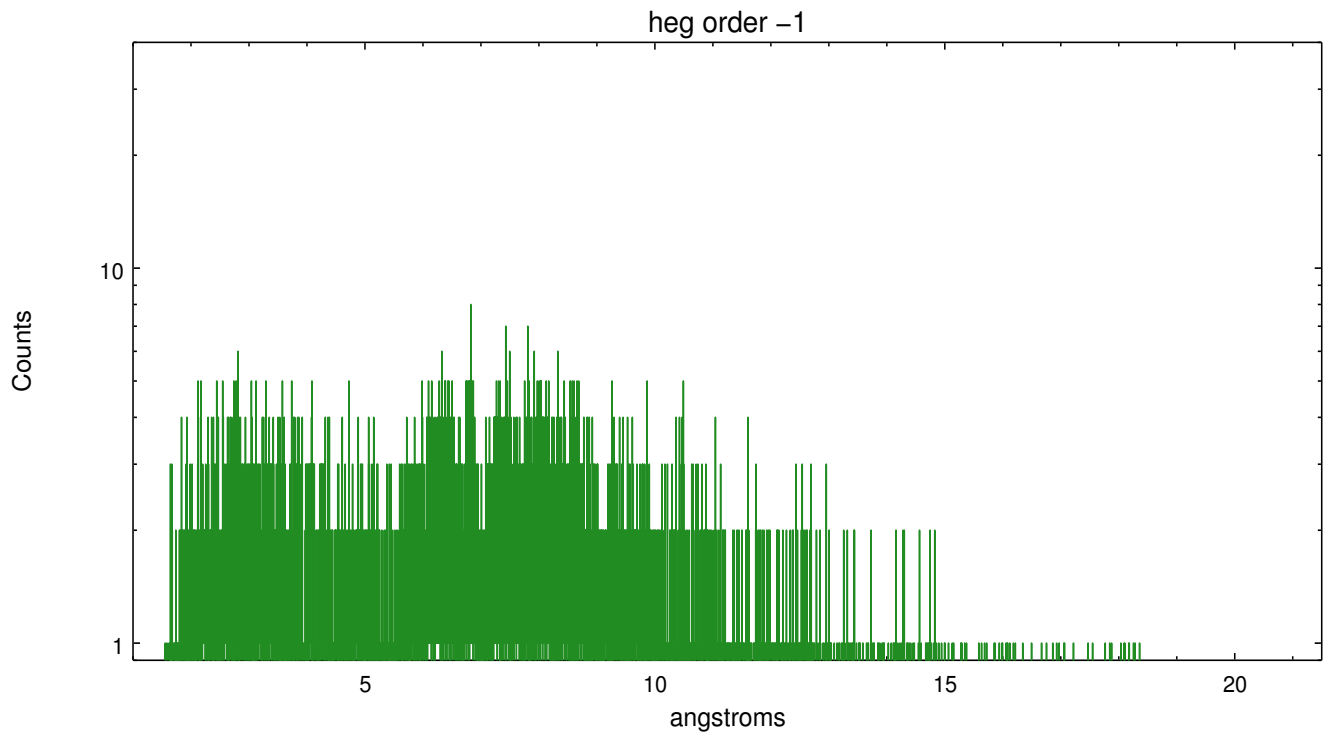
Spot Image HEG



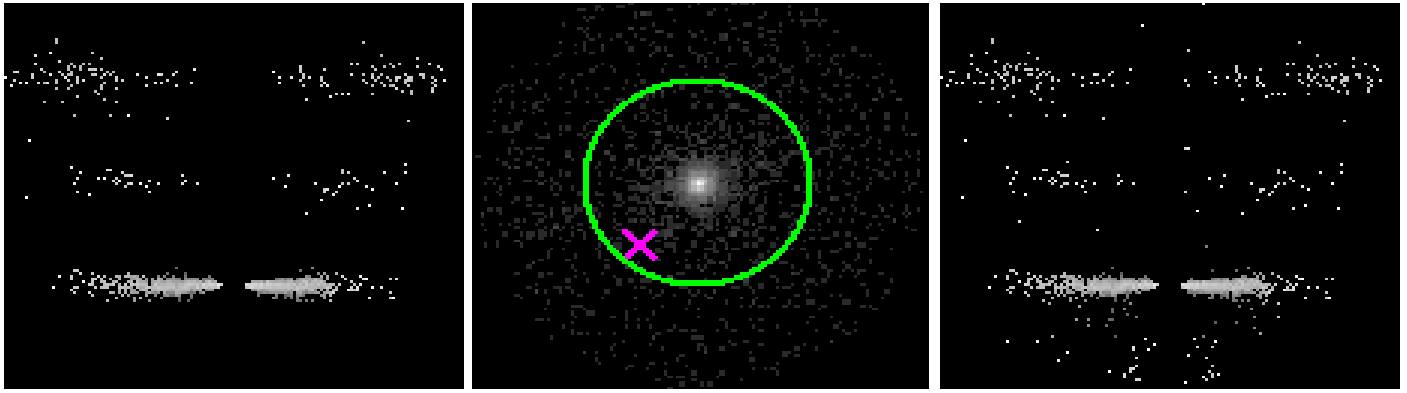
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	279	622	5756	10266	5078	428	209





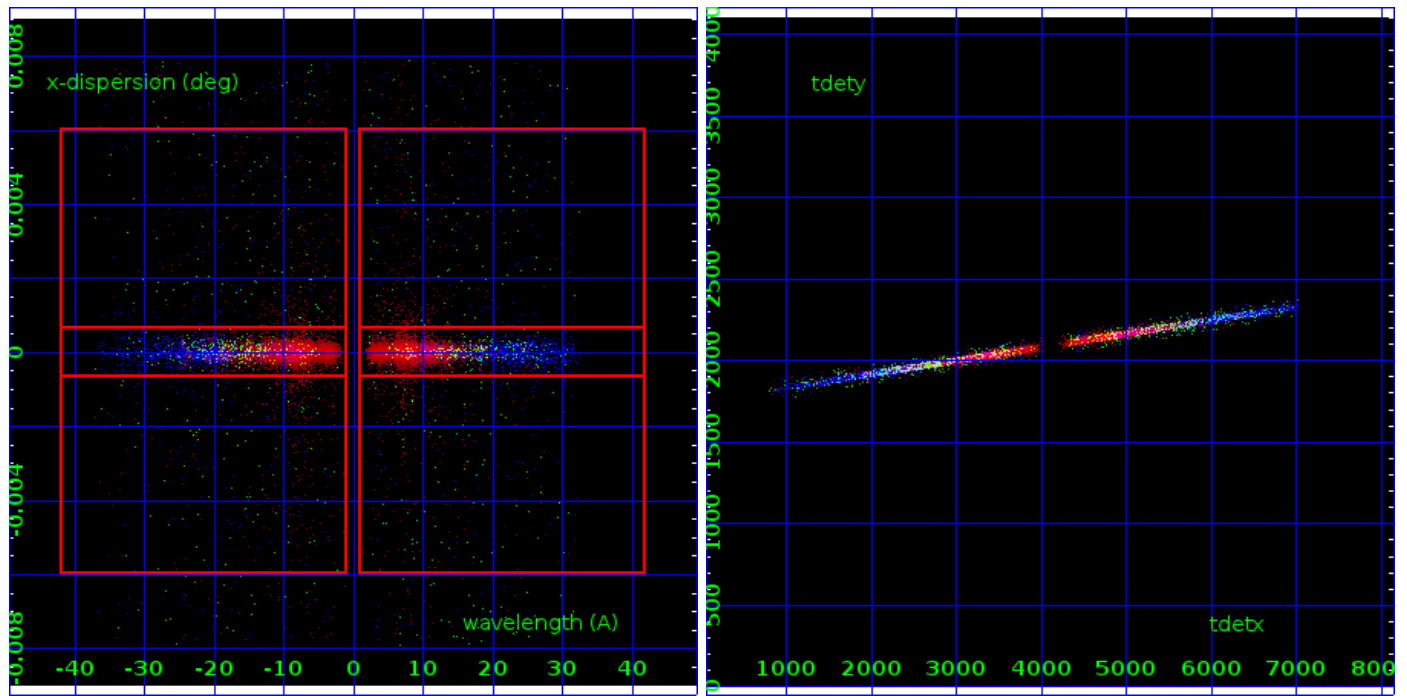
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

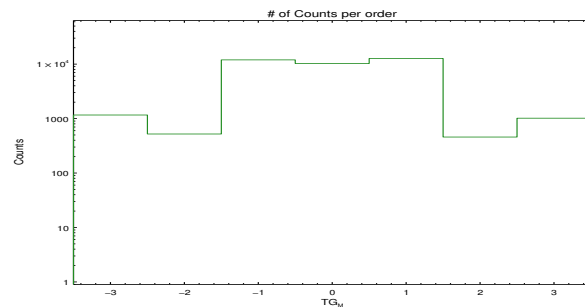
MEG Order Sort ALL



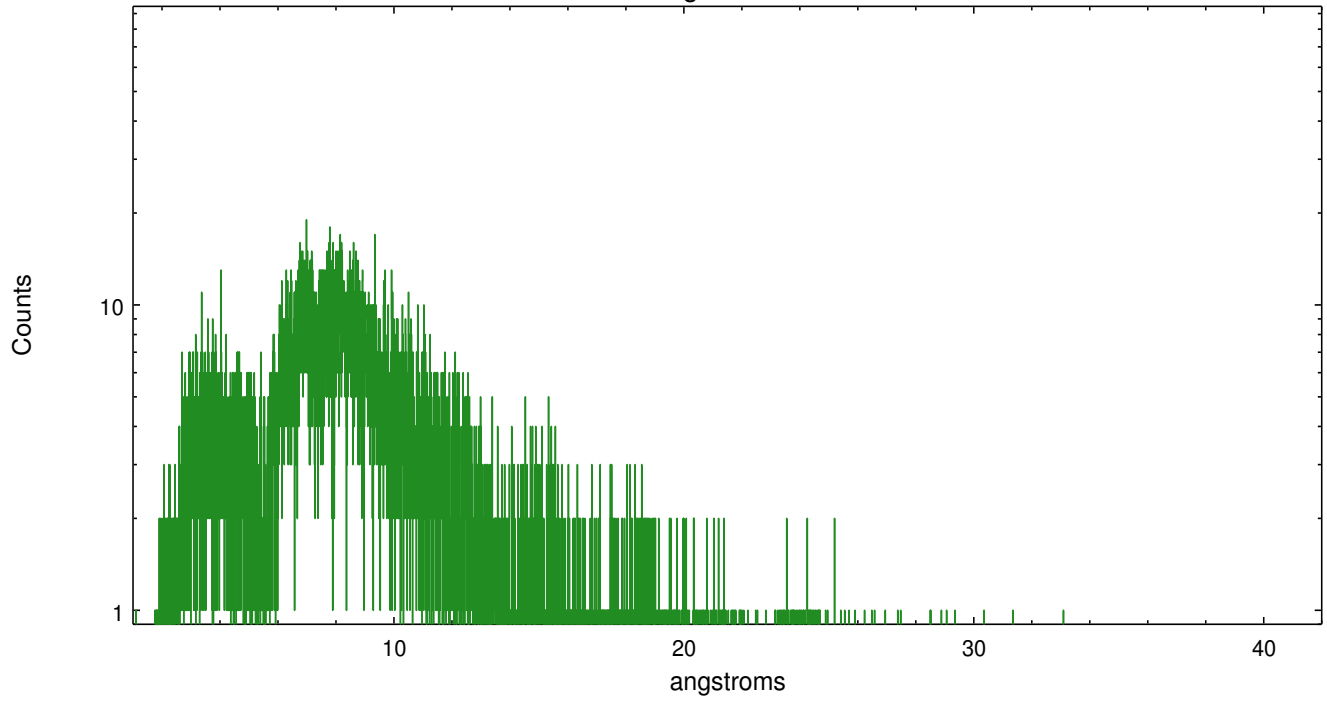
Spot Image MEG

Full Detector MEG

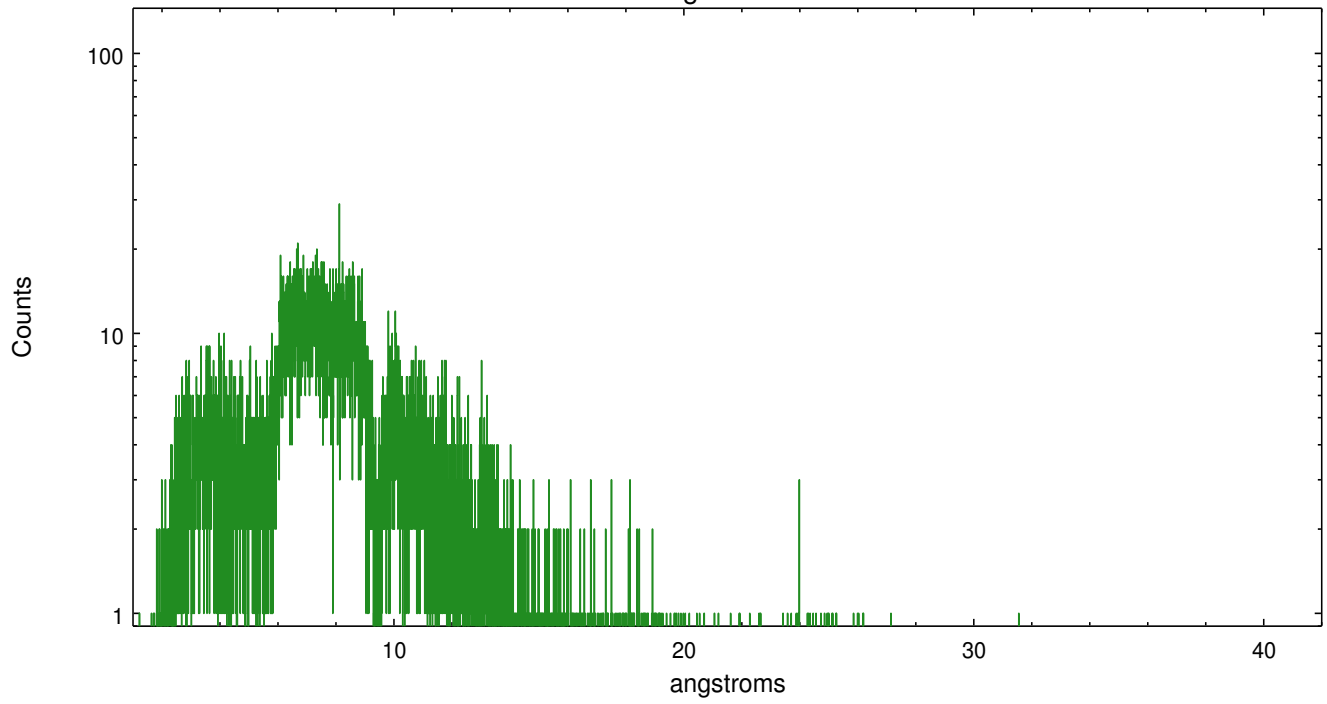
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1163	521	11970	10266	12693	458	1016



meg order -1



meg order +1



A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.11.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	31.4175

A.2 Comments

These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.

====

The stop time for the observation was manually set to Chandra MET of 521068998.41 sec to exclude a SIM translation that resulted from a commanding error.

====

Zeroth order piled up. The zeroth order sky position was determined using a software tool developed by CXC called findzero, which is available in CIAO as part of the tgdetect2 tool. The tool calculates the point of intersection of the readout streak on the ACIS CCD and the meg dispersed spectral arm, rather than using a centroid position of the source. The findzero results are more accurate than source centroid in this case.