

V&V Reference Report

L2 ASCDS Version : 10.4.3.1

Observation 18619 - L2 Version 2
Chandra X-Ray Center

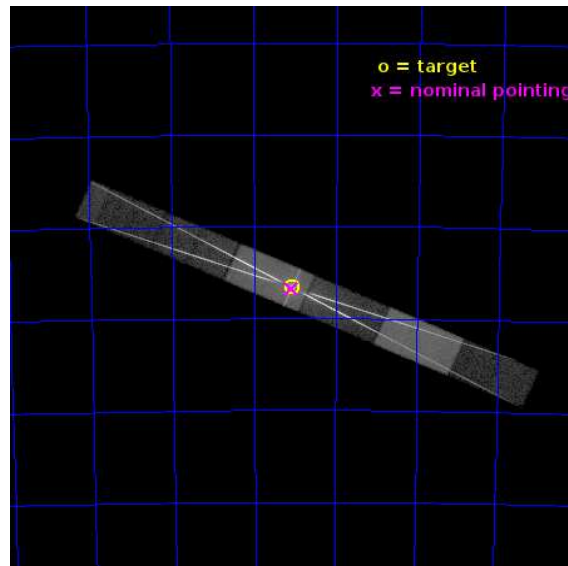
L2 Processing Date : Mar 18 2016

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1 Front

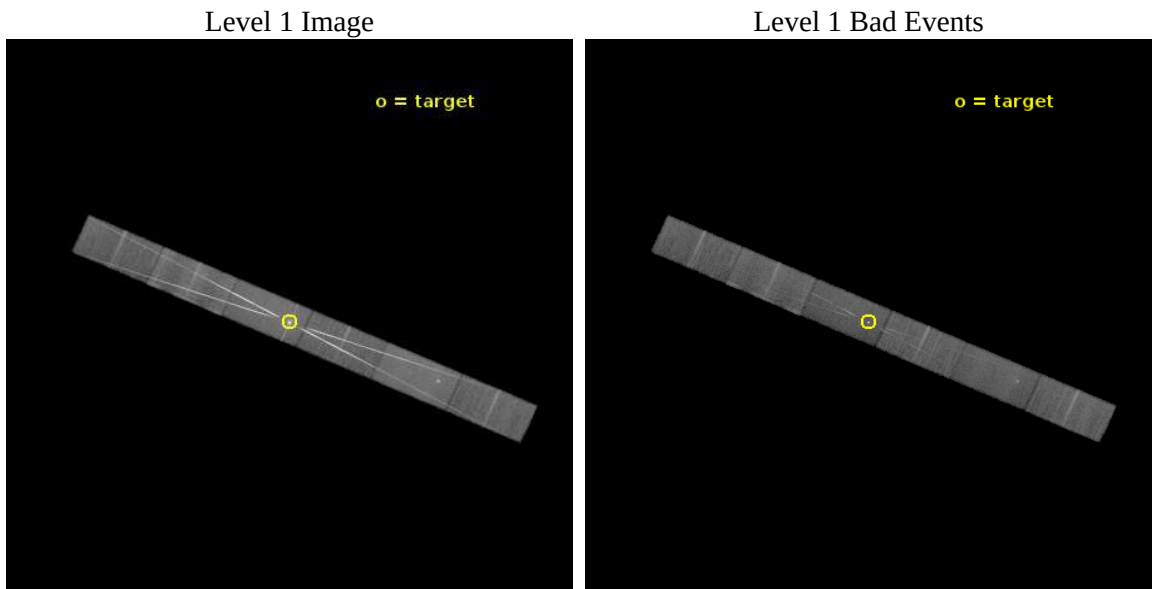
seq_num	401811	Sequence number
obs_id	18619	Observation id
title	Ionization and Reflection Physics in SMC X-1	Proposal title
observer	Prof. Claude Canizares	Principal investigator
object	SMC X-1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	19.27125	Observer's specified target RA [deg]
dec_targ	-73.443333	Observer's specified target Dec [deg]
ra_nom	19.27228966957	Nominal RA [deg]
dec_nom	-73.446033811385	Nominal Dec [deg]
roll_nom	203.88621157657	Nominal Roll [deg]
revision	2	Processing version of data
ontime	32032.571957469	Sum of GTIs [s]
livetime	31277.496397382	Livetime [s]
ontime4	32032.612997413	Sum of GTIs [s]
ontime5	32032.530917406	Sum of GTIs [s]
ontime6	32032.489877462	Sum of GTIs [s]
ontime7	32032.571957469	Sum of GTIs [s]
ontime8	32032.448837399	Sum of GTIs [s]
ontime9	32032.407797456	Sum of GTIs [s]
l2events	609178	Number of level 2 events



2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Parameters

obi_num	1	Obi number	sched_exp_time	32000.000000	[s] Scheduled observation exposure time
ascdsver	10.4.3.1	Processing system revision	ontime	32032.571957469	Sum of GTIs [s]
caldsver	4.7.0	 	ontime4	32032.612997413	Sum of GTIs [s]
date	2016-03-18T21:30:17	Date and time of file creation	ontime5	32032.530917406	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	32032.489877462	Sum of GTIs [s]
			ontime7	32032.571957469	Sum of GTIs [s]
			ontime8	32032.448837399	Sum of GTIs [s]
			ontime9	32032.407797456	Sum of GTIs [s]
			l1events	1214730	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			src1a_pos	(4097.01 -4116.08)	src1a sky pixel position

2.1.3 Events

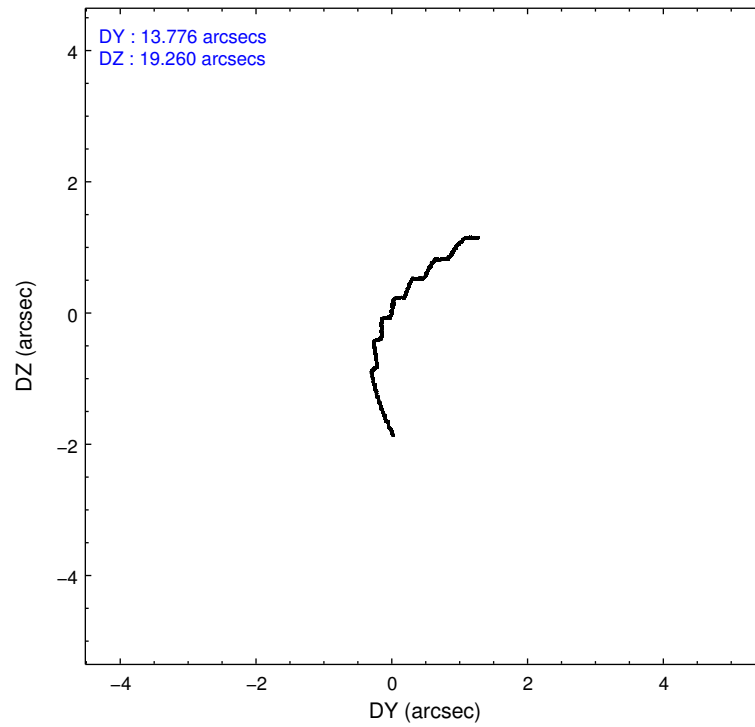
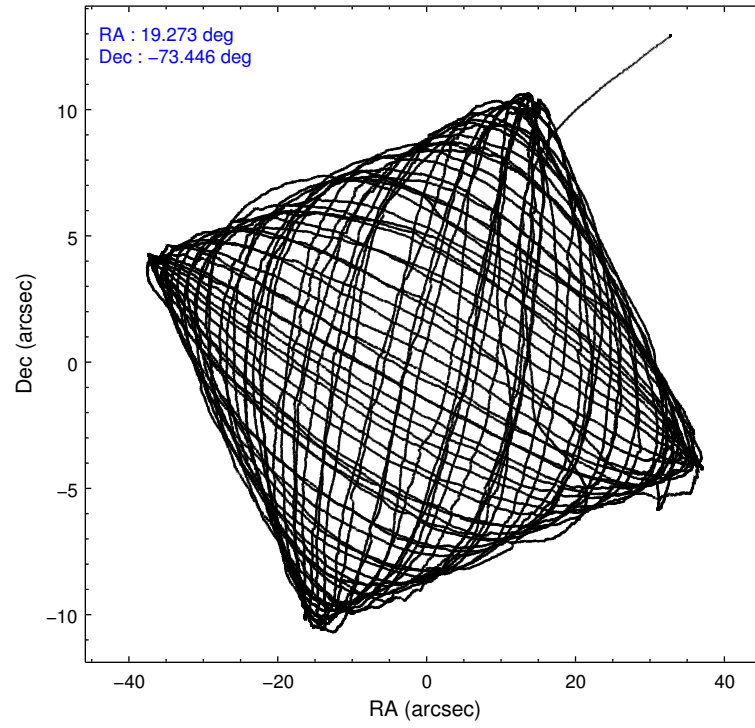
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	118009	188520	273725	331490	193477	109509	grade 0 events	7737	13567	123074	38042	54694	11554
rejected events	99872	84273	95609	84652	100540	86932		6%	7%	44%	11%	28%	10%
rejected %	84%	44%	34%	25%	51%	79%	grade 1 events	40	914	636	659	197	44
								0%	0%	0%	0%	0%	0%
							grade 2 events	4748	33603	26840	68026	15107	4636
								4%	17%	9%	20%	7%	4%
							grade 3 events	1415	4594	7940	21357	5655	1621
								1%	2%	2%	6%	2%	1%
							grade 4 events	1257	4551	7937	20955	5428	1508
								1%	2%	2%	6%	2%	1%
							grade 5 events	3675	8918	4852	13019	6365	4471
								3%	4%	1%	3%	3%	4%
							grade 6 events	2982	47938	12333	98473	12060	3259
								2%	25%	4%	29%	6%	2%
							grade 7 events	96155	74435	90113	70959	93971	82416
								81%	39%	32%	21%	48%	75%

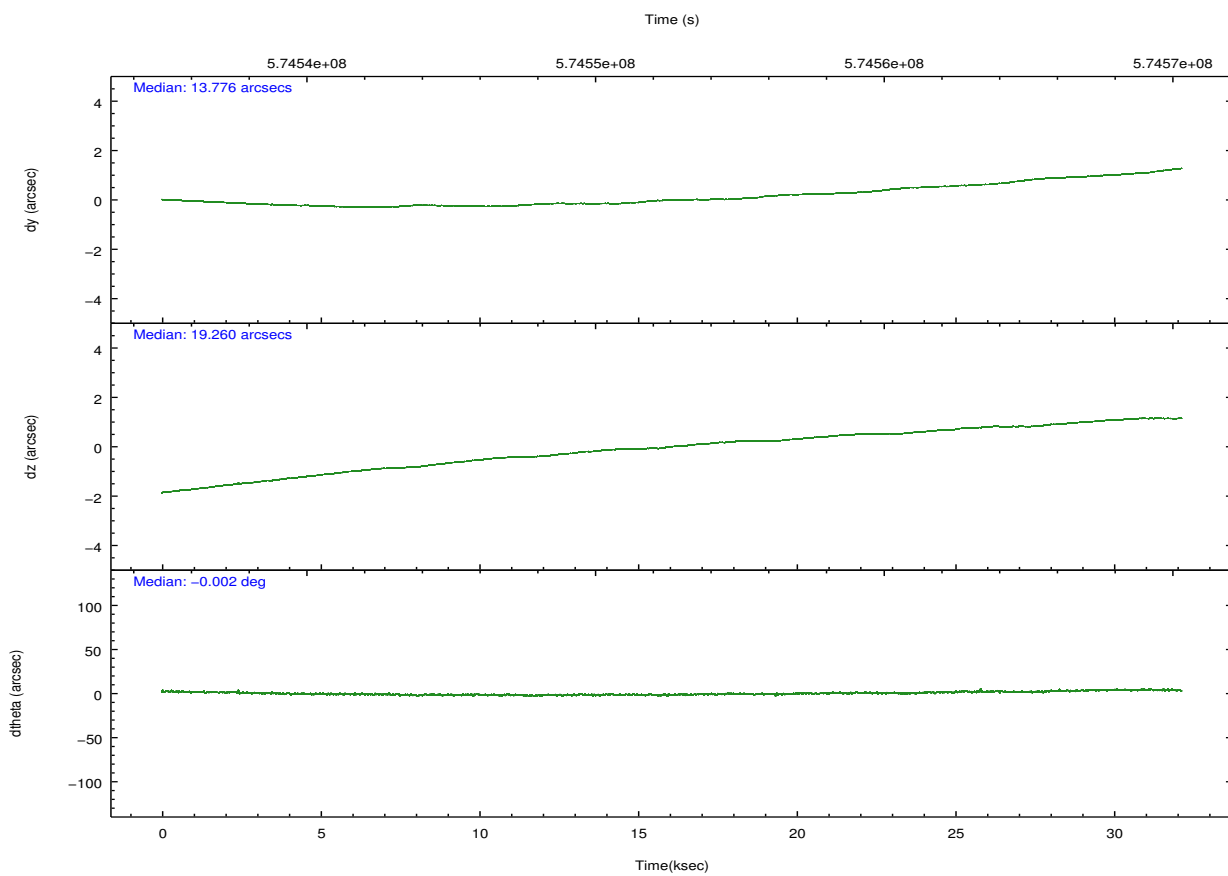
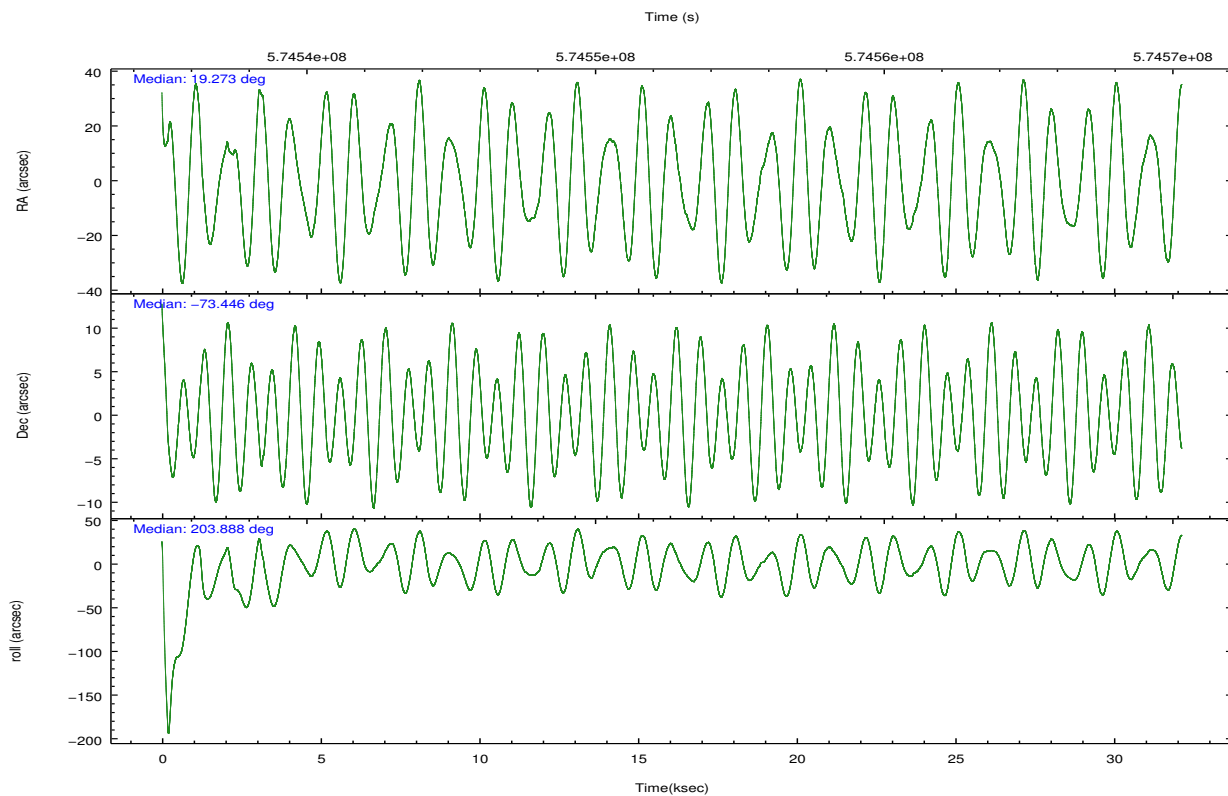
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	HETG	HETG
Data mode	GRADED	GRADED
Observation mode	POINTING	POINTING
[deg] Pointing RA	19.327908	19.2722896695704
[deg] Pointing Dec	-73.423648	-73.44603381138492
[deg] Pointing Roll	203.782799	203.8862115765689
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-183.992523	-183.9900508222561
[mm] SIM translation stage offset	-6.14	-6.142471760751675
Phase constraints	Y	Y
[d] Phase period	3.891782	3.891782
[d] Phase epoch (MJD)	57092.711423	57092.711423
Phase start	0.170000	0.170000
Phase end	0.830000	0.830000
Phase start error	0.020000	0.020000
Phase end error	0.020000	0.020000
[s] Observation start time (MET)	574536688.184000	574535075.02249
Observation start date	2016-03-16T17:30:20	2016-03-16T17:04:35
[s] Observation end time (MET)	574568688.184000	574570034.6994801
Observation end date	2016-03-17T02:23:40	2016-03-17T02:47:14
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	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



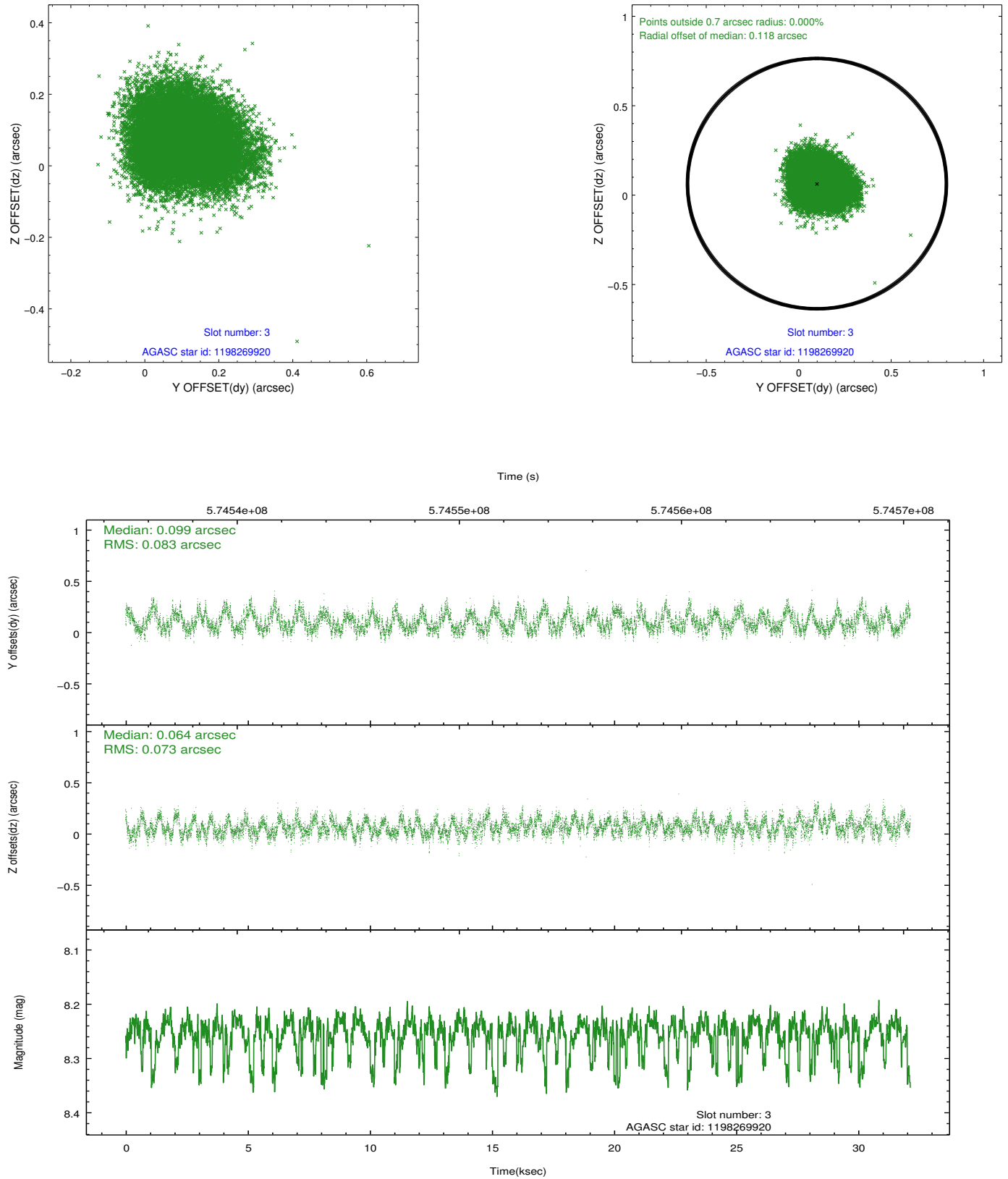


Slot Statistics

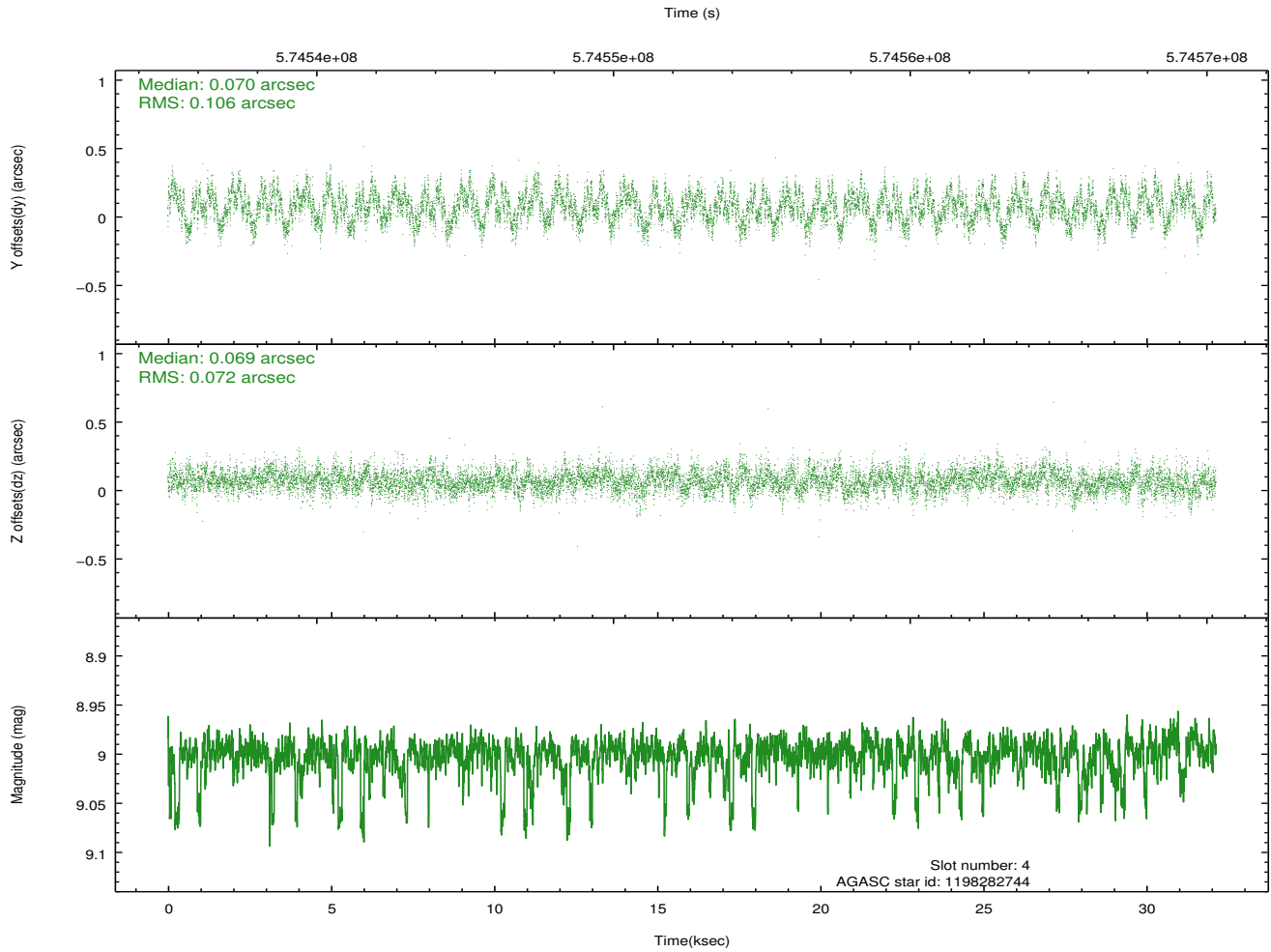
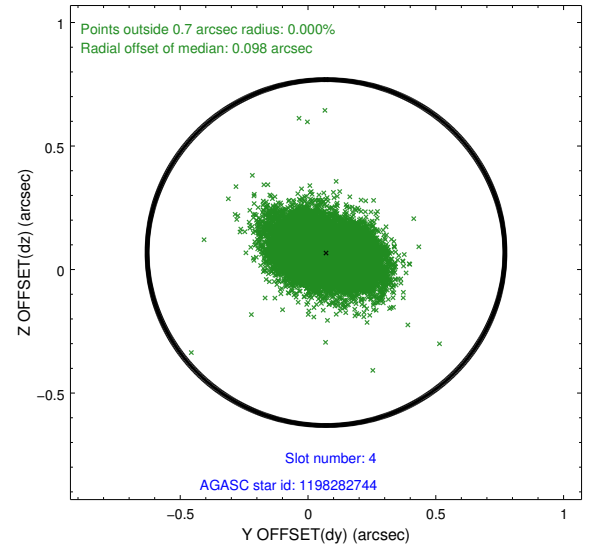
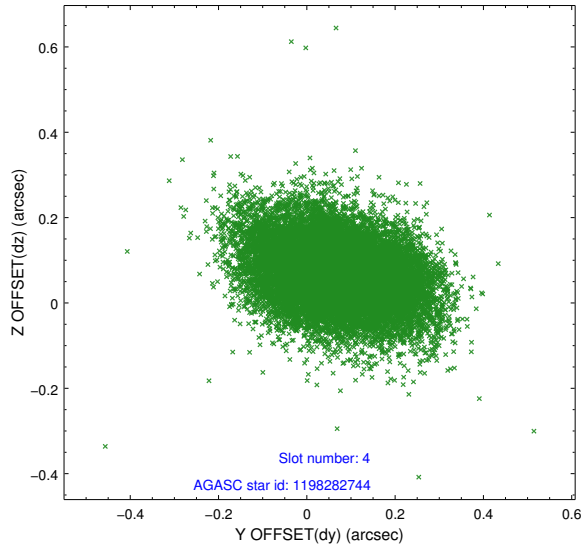
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.10	7838	-0.031	-0.135	0.035	0.065	0.000000	0.000000	-766.58	-1867.35
1	FID		ACIS-S-5	7.23	7839	-0.185	-0.003	0.025	0.034	0.000000	0.000000	-1819.79	34.71
2	FID		ACIS-S-6	7.42	7834	0.190	0.145	0.022	0.037	0.000000	0.000000	395.31	678.72
3	GUIDE	used	1198269920	8.25	15636	0.099	0.064	0.119	0.184	20.316466	-73.033728	-1512.41	-857.47
4	GUIDE	used	1198282744	9.00	15659	0.070	0.069	0.136	0.221	17.028326	-73.013356	1636.54	-2283.74
5	GUIDE	used	1198282824	7.28	15675	-0.427	-0.343	0.103	0.164	18.044095	-73.907062	1878.47	1088.38
6	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
7	GUIDE	used	1198264832	9.46	15606	0.230	0.211	0.219	0.328	20.353668	-72.974637	-1637.28	-1034.27

2.4 Star Slots

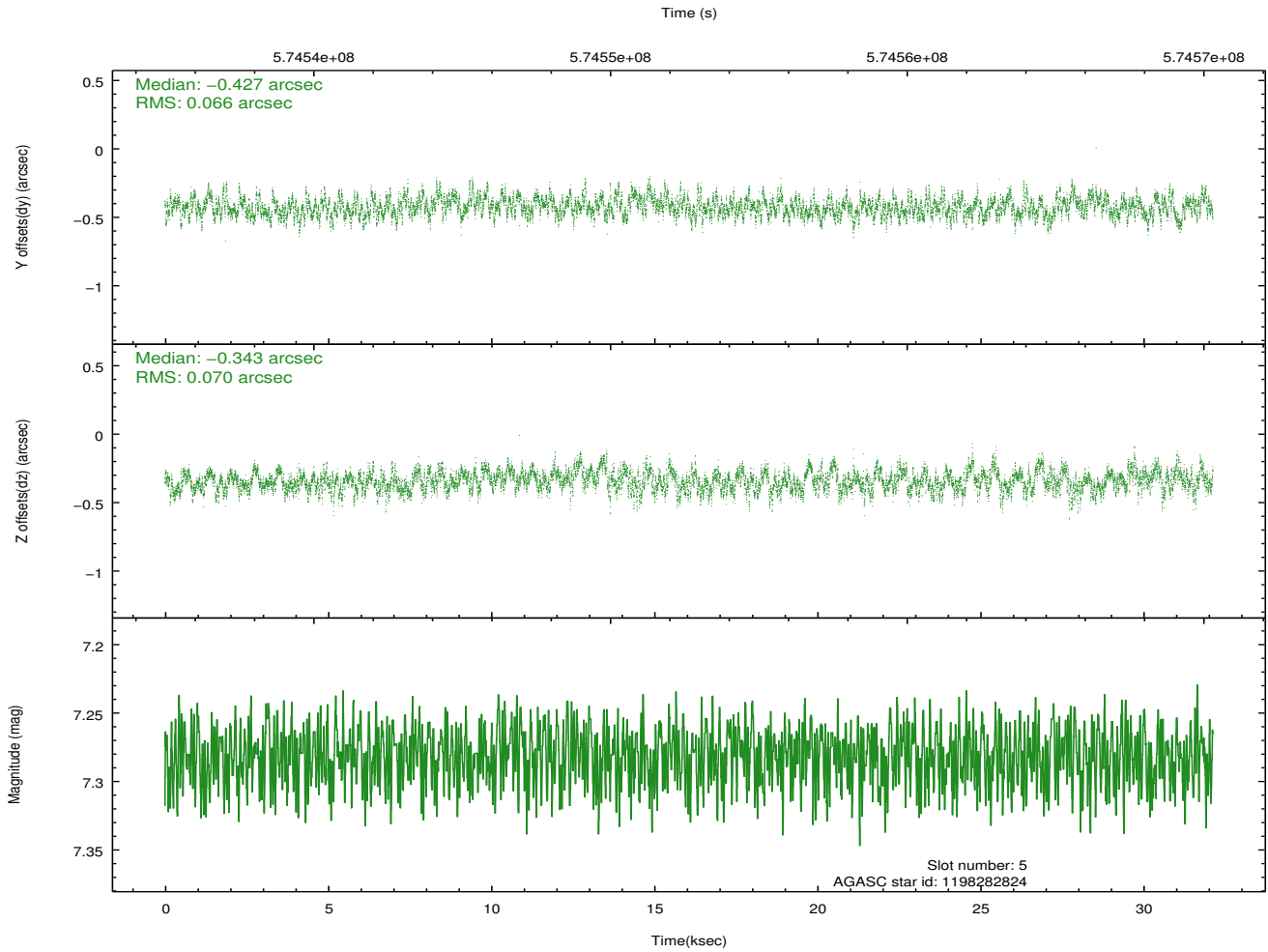
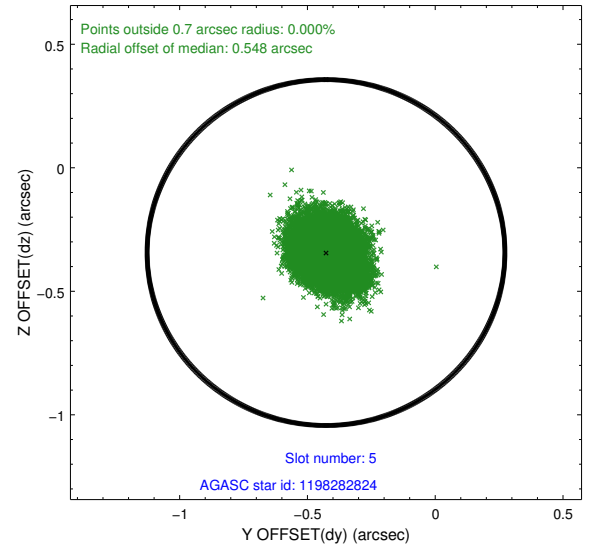
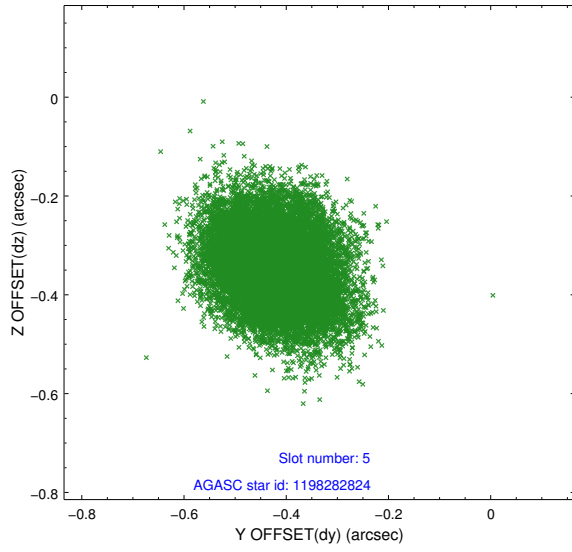
2.4.1 Slot 3



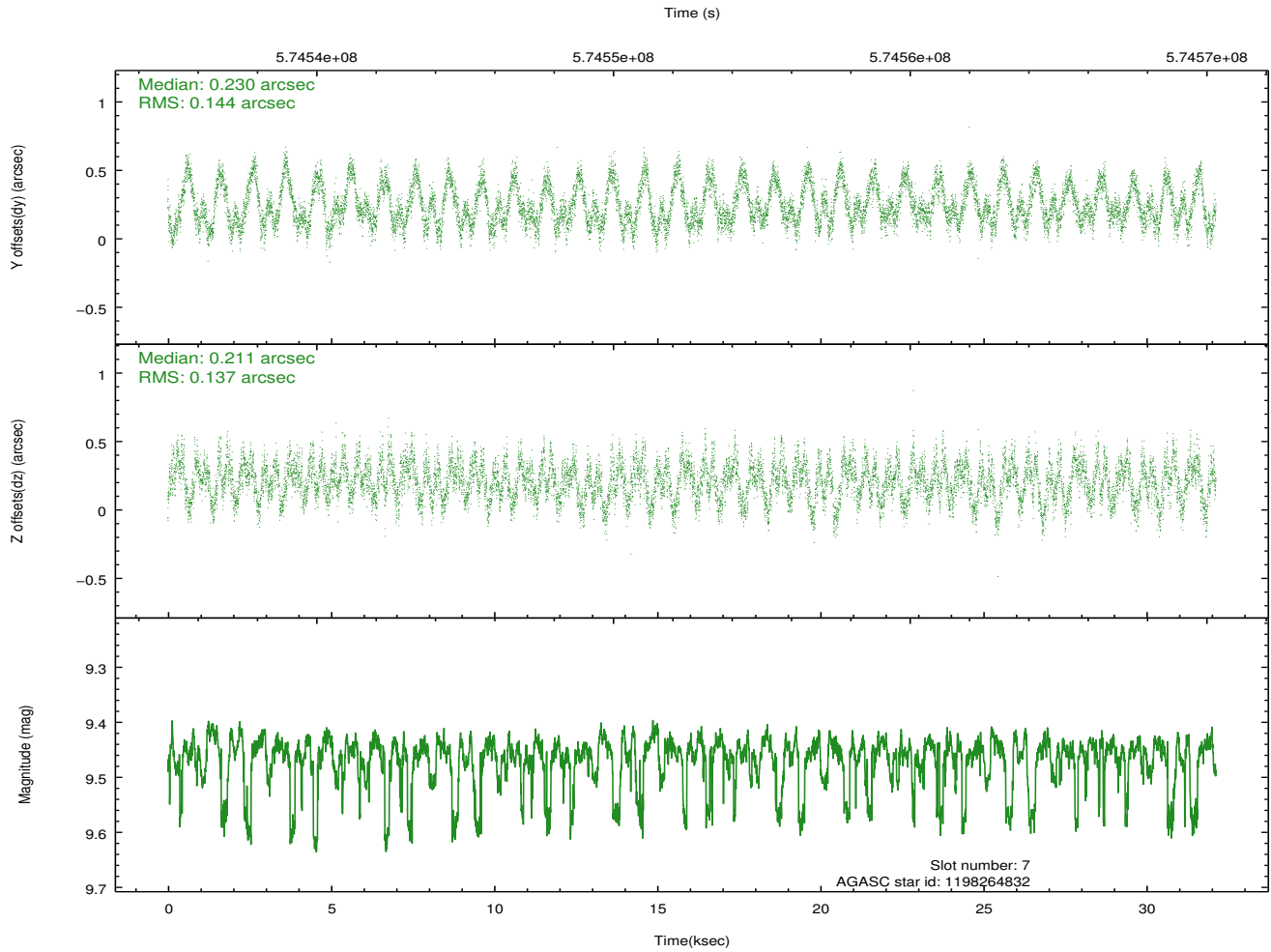
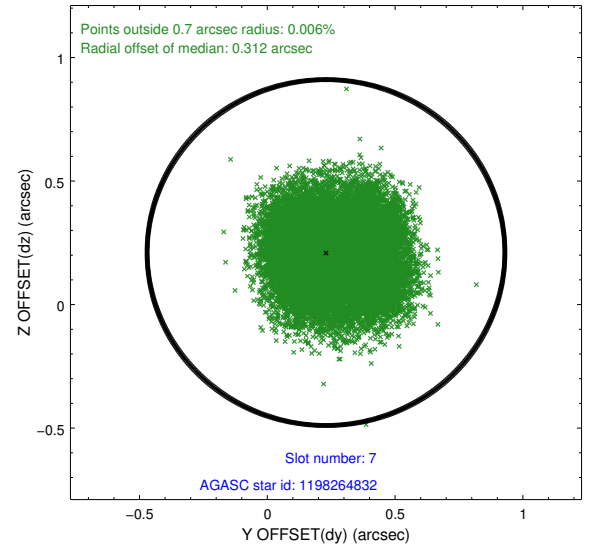
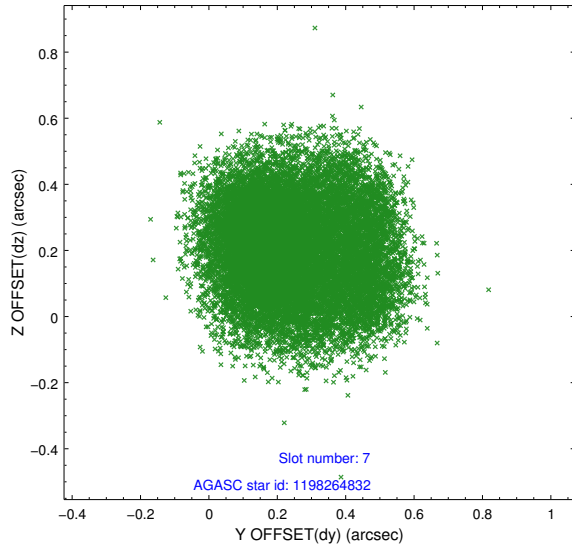
2.4.2 Slot 4



2.4.3 Slot 5

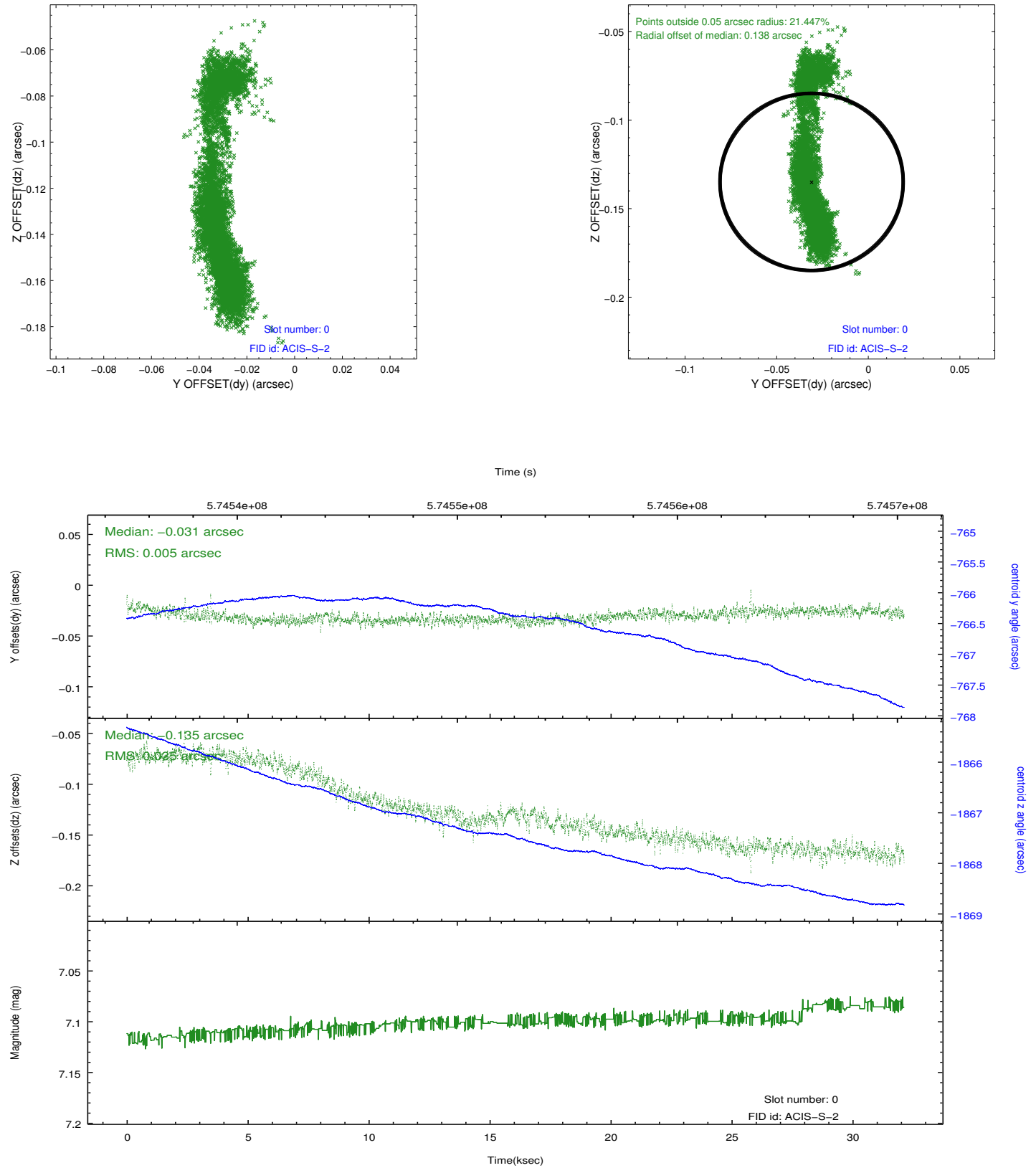


2.4.4 Slot 7

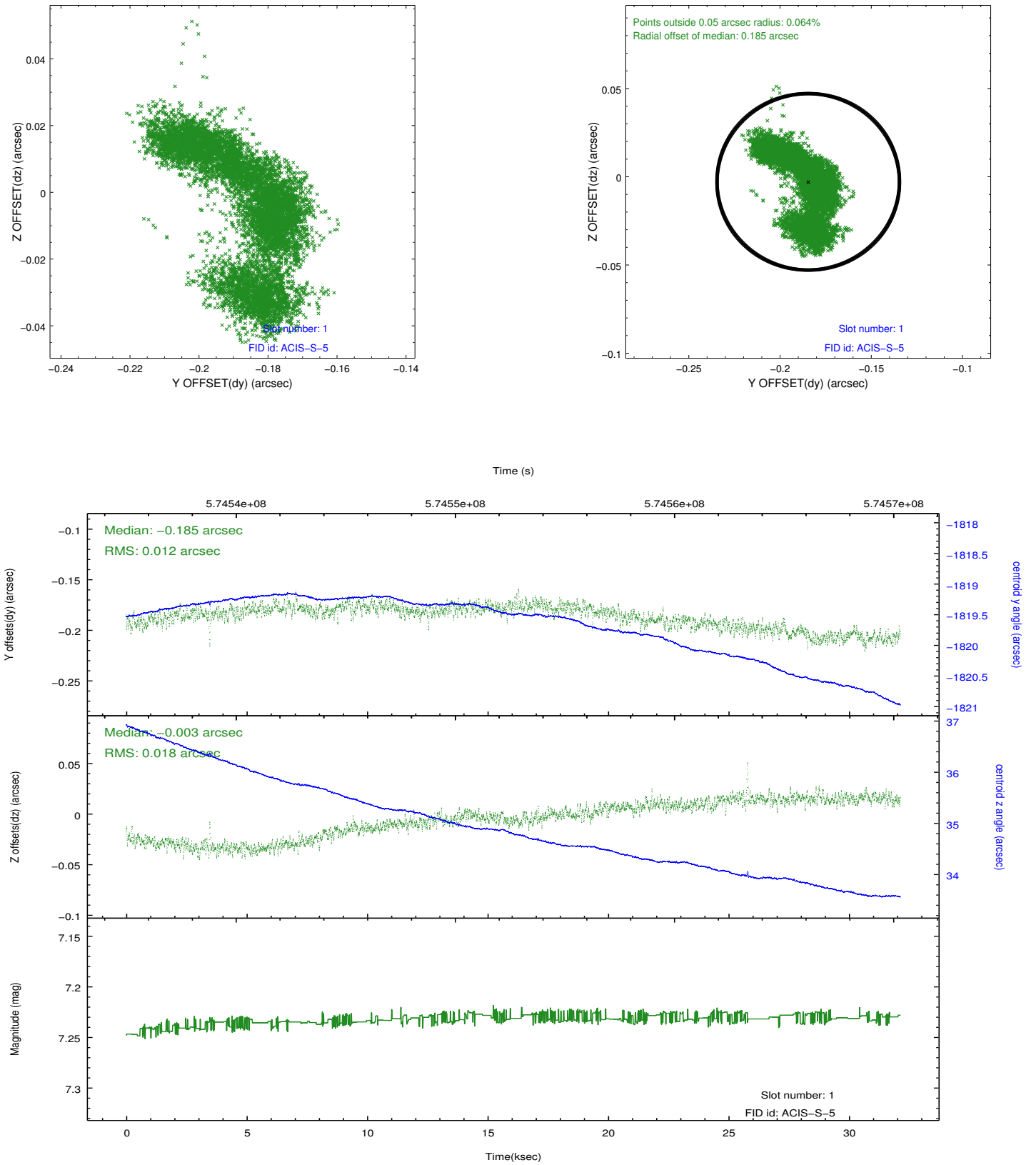


2.5 FID Slots

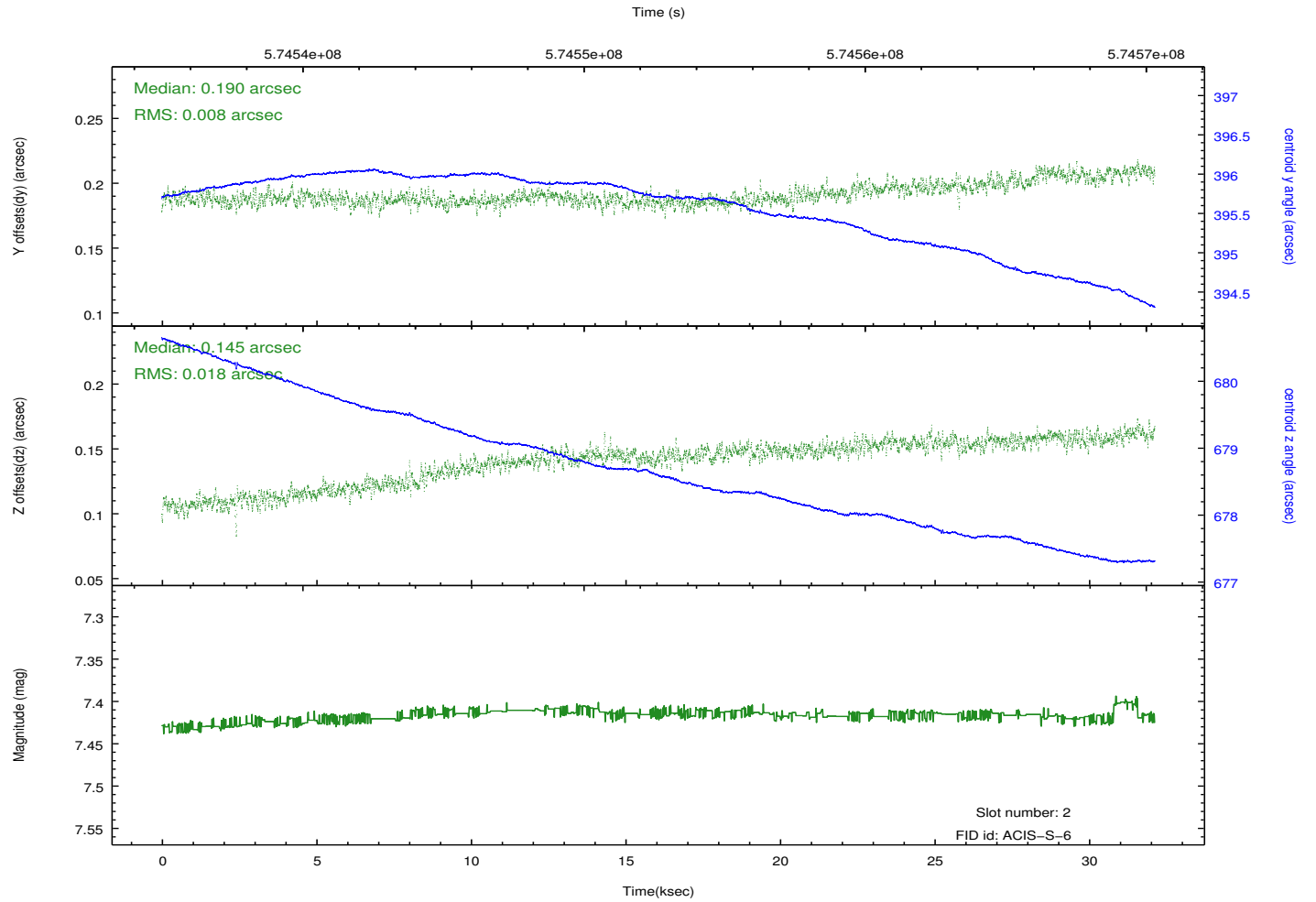
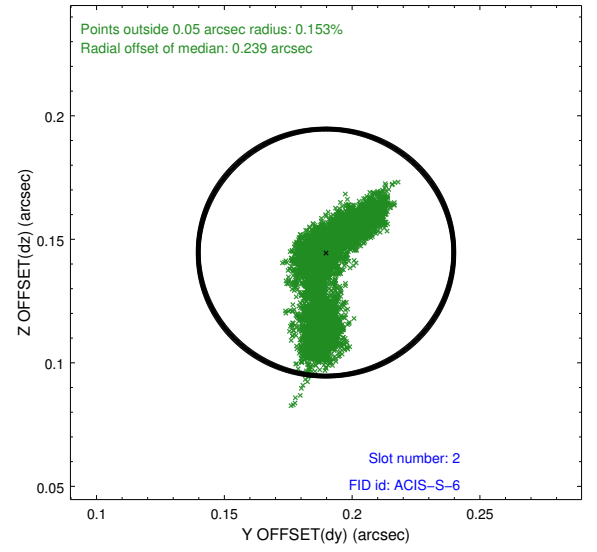
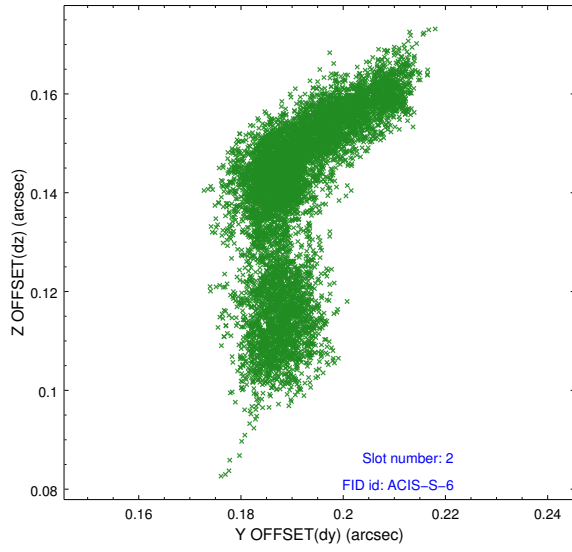
2.5.1 Slot 0



2.5.2 Slot 1

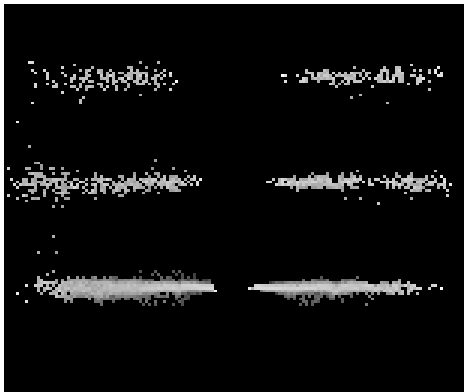


2.5.3 Slot 2

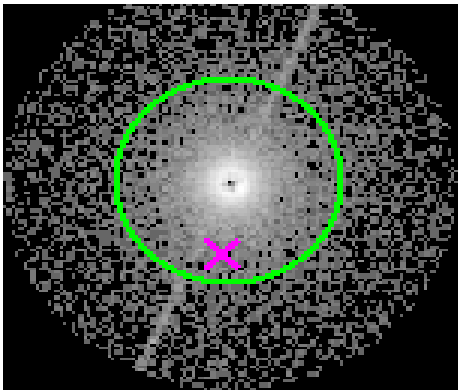


3 Gratings

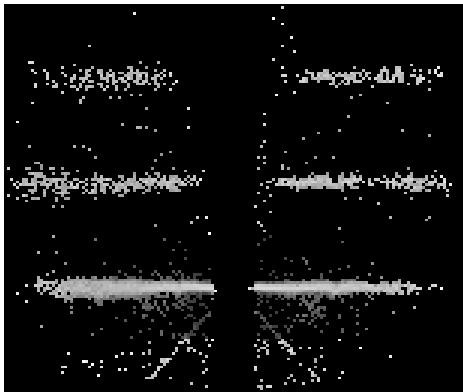
3.1 HEG Arm



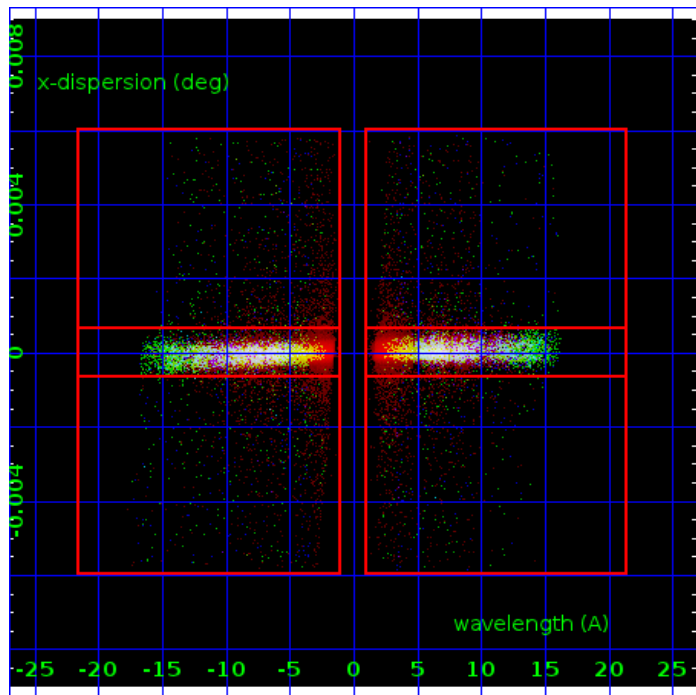
HEG Order Sort 123



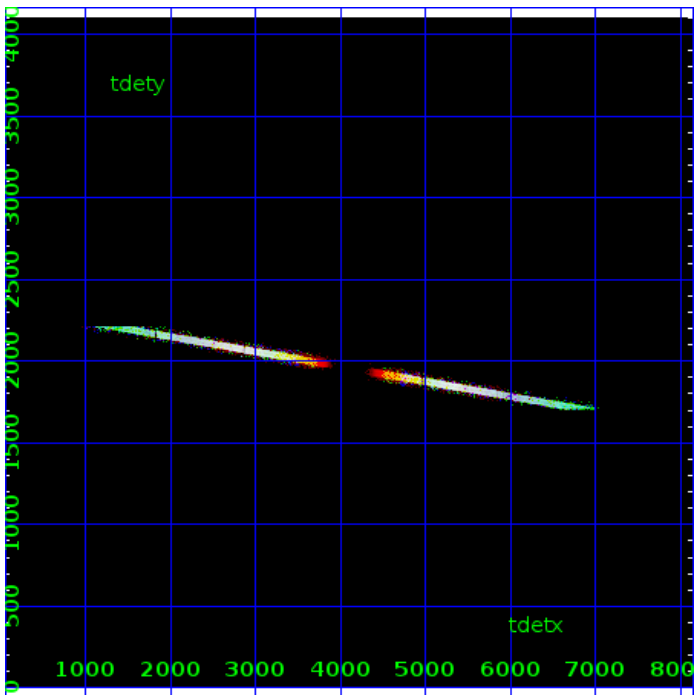
HEG Zero Order



HEG Order Sort ALL

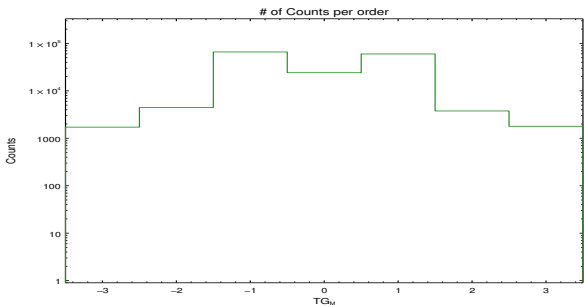


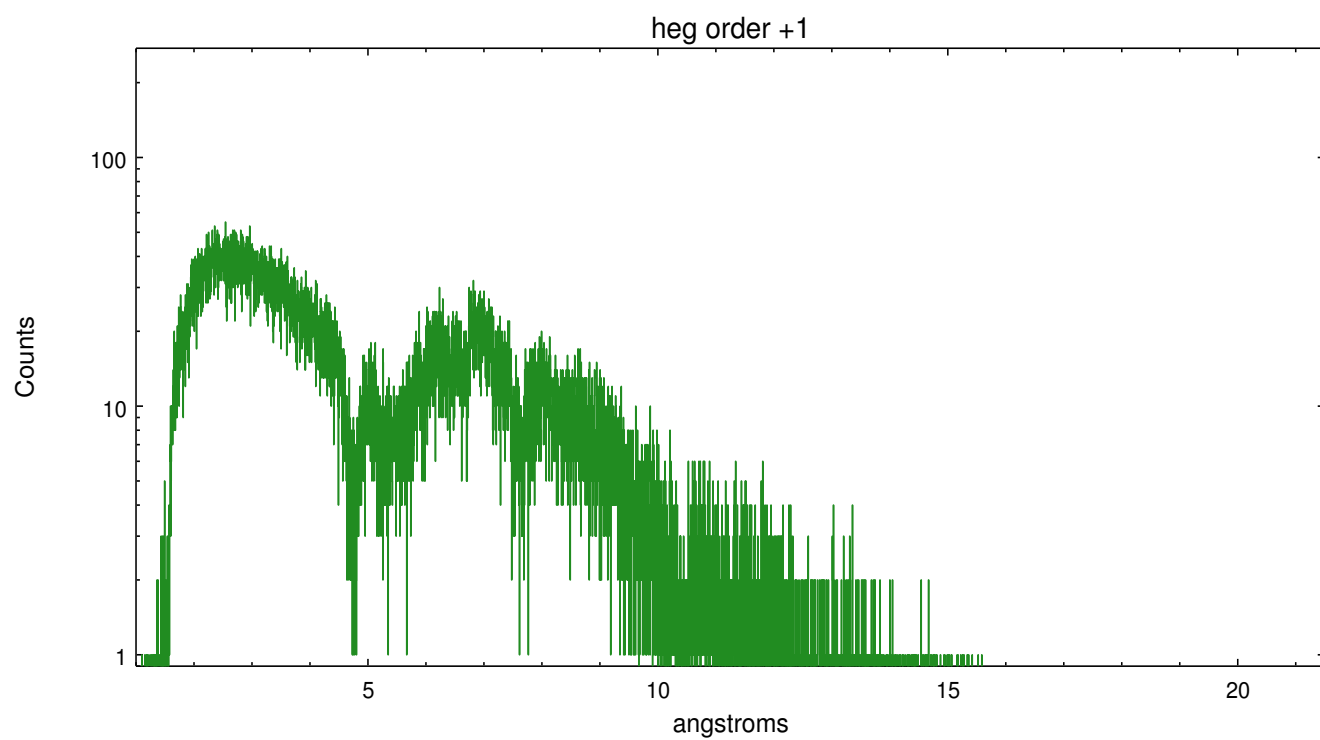
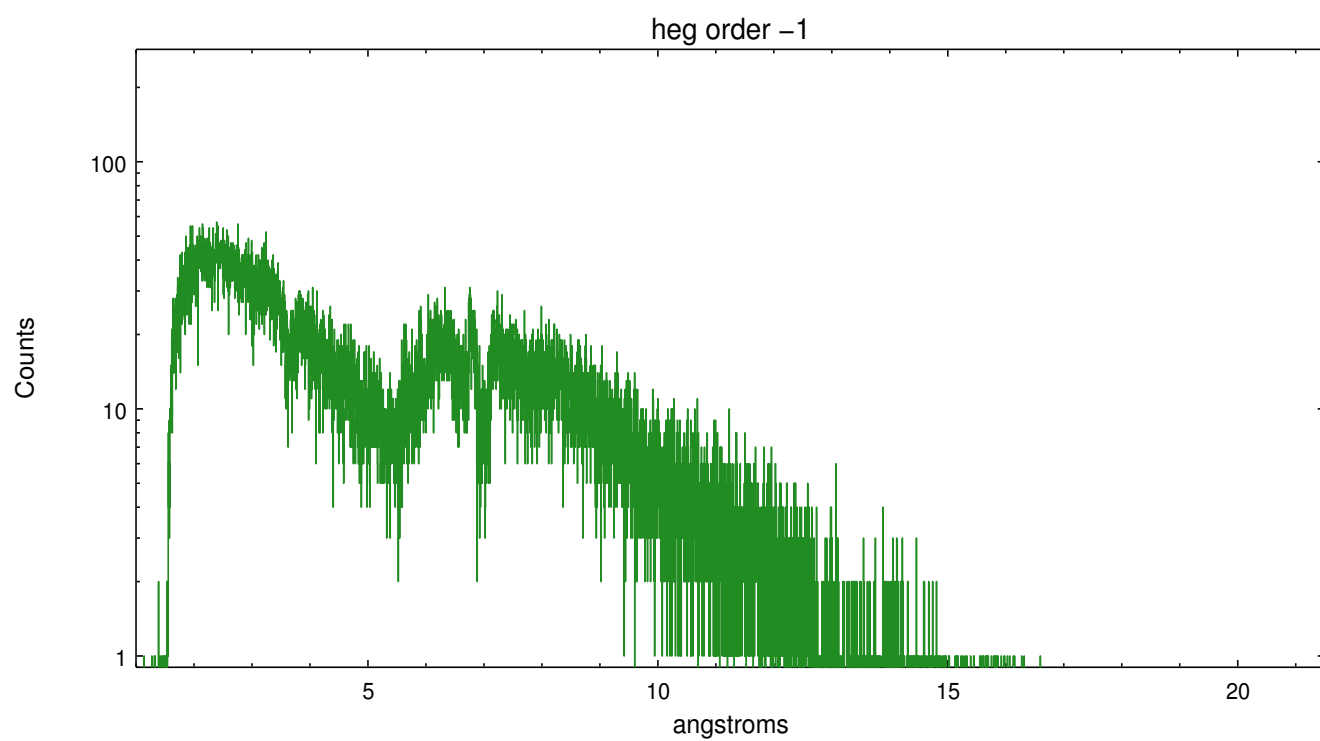
Spot Image HEG



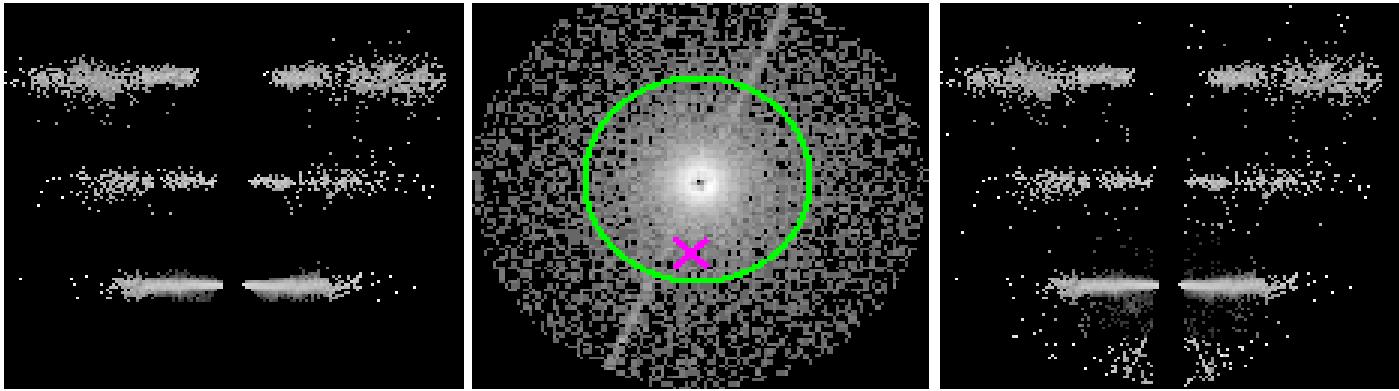
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1718	4443	66069	24096	59944	3767	1792





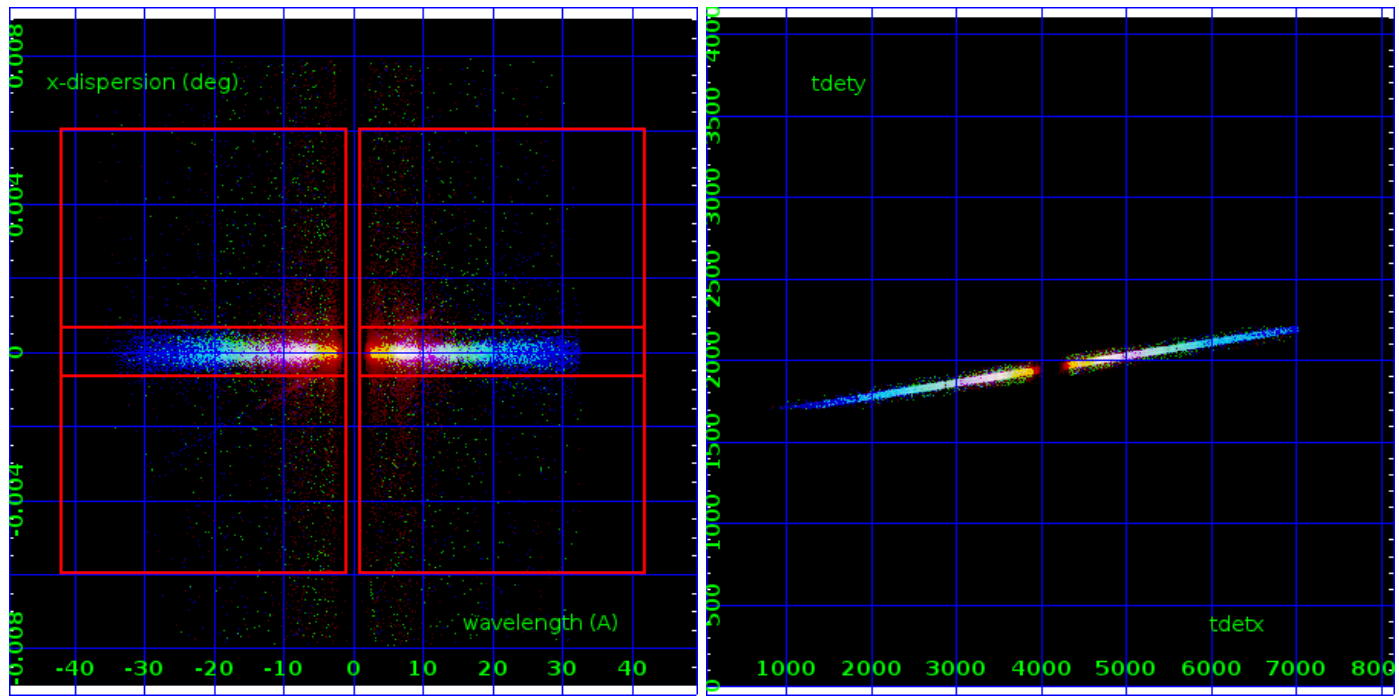
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

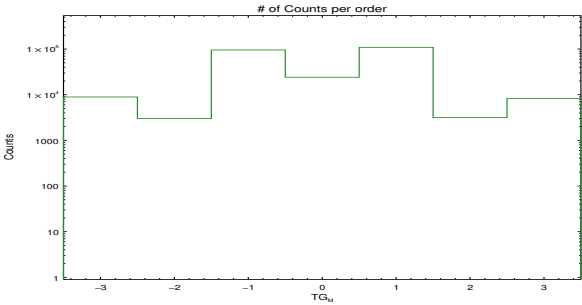
MEG Order Sort ALL

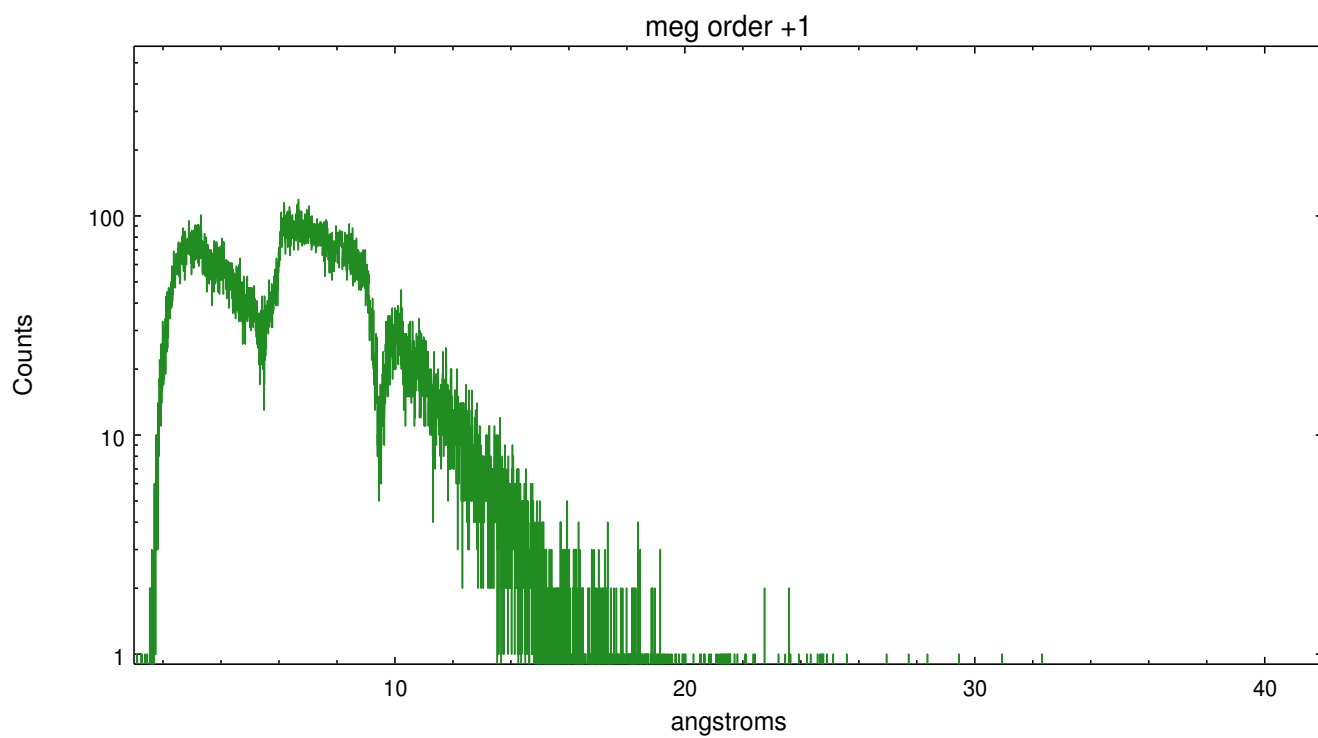
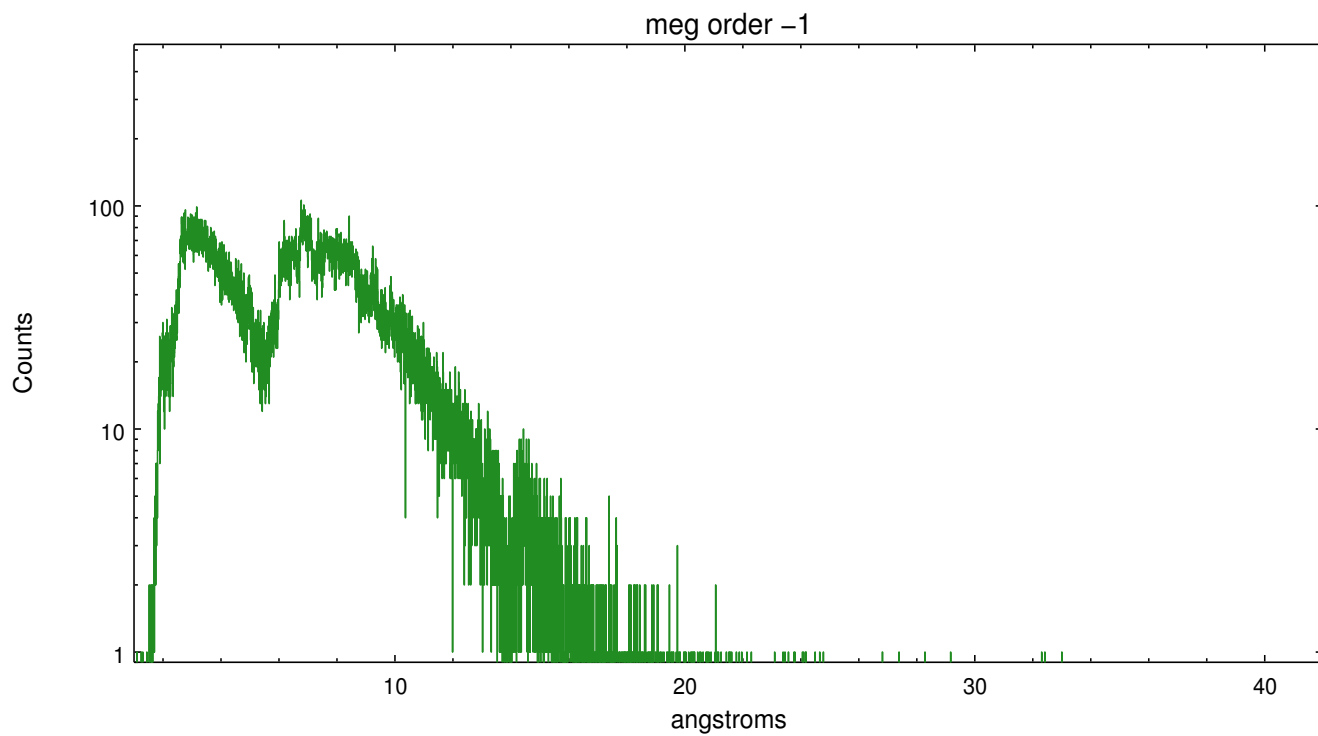


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	8917	3010	95360	24096	108965	3145	8312





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2016.03.21
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	32.032571957469

A.2 Comments

Phase constraint met.== 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 or leg dispersed spectral arm, rather than using a centroid position of the source. The findzero results are more accurate than source centroid in this case. === 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.

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The guide star in slot 6 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this guide star from the solution.