

V&V Reference Report

L2 ASCDS Version : 10.4.3.1

Observation 18620 - L2 Version 1
Chandra X-Ray Center

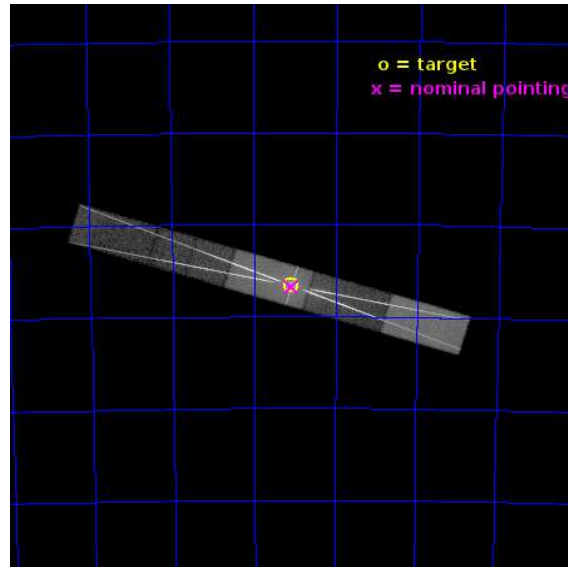
L2 Processing Date : Mar 25 2016

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1 Front

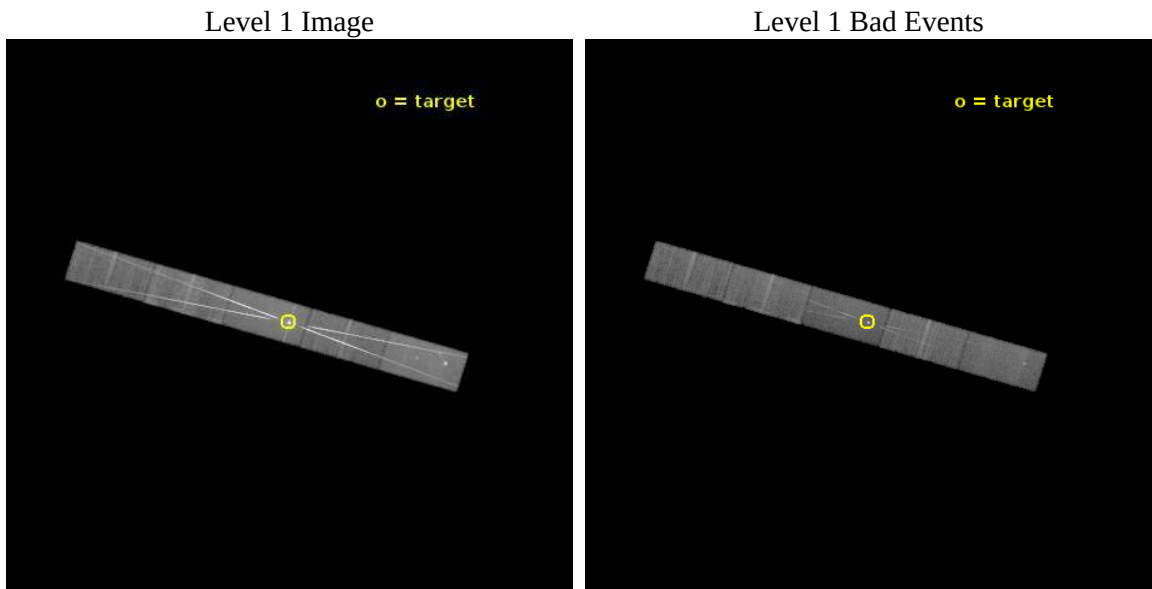
seq_num	401812	Sequence number
obs_id	18620	Observation id
title	Ionization and Reflection Physics in SMC X-1	Proposal title
observer	Prof. Claude Canizares	Principal investigator
object	SMC X-1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	19.27125	Observer's specified target RA [deg]
dec_targ	-73.443333	Observer's specified target Dec [deg]
ra_nom	19.271066891198	Nominal RA [deg]
dec_nom	-73.446048499986	Nominal Dec [deg]
roll_nom	196.69219456401	Nominal Roll [deg]
revision	1	Processing version of data
ontime	31072.600871563	Sum of GTIs [s]
livetime	30340.153863011	Livetime [s]
ontime5	31072.600871563	Sum of GTIs [s]
ontime6	31072.600871563	Sum of GTIs [s]
ontime7	31072.600871563	Sum of GTIs [s]
ontime8	31072.600871563	Sum of GTIs [s]
ontime9	31072.600871563	Sum of GTIs [s]
l2events	566012	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	31000.000000	[s] Scheduled observation exposure time
ascdsver	10.4.3.1	Processing system revision	ontime	31072.600871563	Sum of GTIs [s]
caldbver	4.7.1	 	ontime5	31072.600871563	Sum of GTIs [s]
date	2016-03-25T06:30:00	Date and time of file creation	ontime6	31072.600871563	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	31072.600871563	Sum of GTIs [s]
			ontime8	31072.600871563	Sum of GTIs [s]
			ontime9	31072.600871563	Sum of GTIs [s]
			l1events	1063133	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4096.17, 4114.98)	src1a sky pixel position
					src1a sky pixel position via

2.1.3 Events

	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	188821	261590	317004	187045	108673
rejected events	82725	94310	82145	97704	86616
rejected %	43%	36%	25%	52%	79%

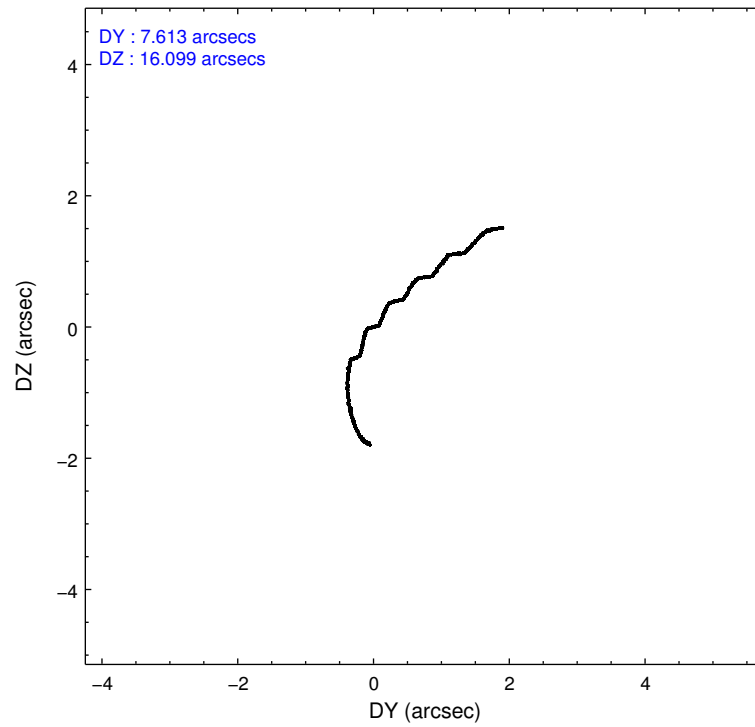
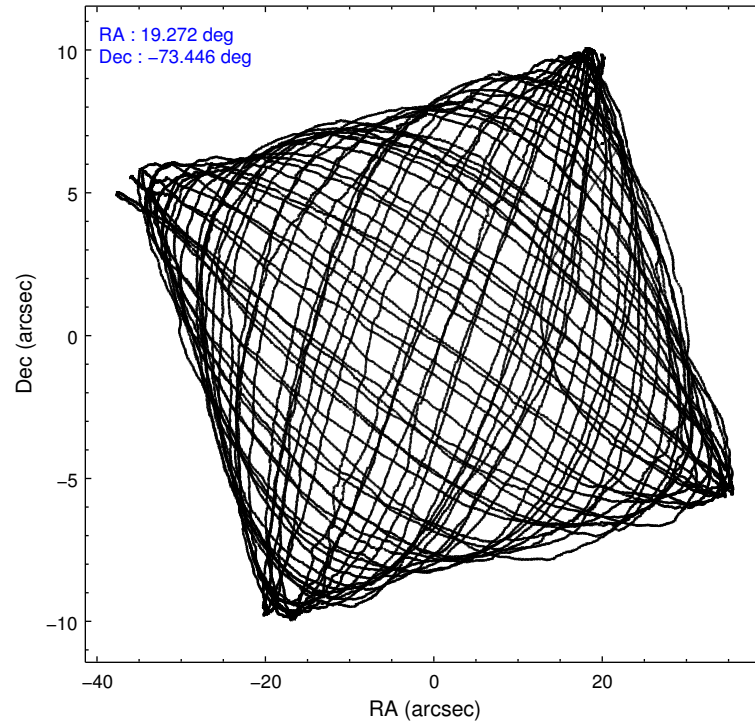
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	14785	114344	35791	52377	11012
	7%	43%	11%	28%	10%
grade 1 events	487	585	568	190	50
	0%	0%	0%	0%	0%
grade 2 events	35132	26274	65241	14617	4593
	18%	10%	20%	7%	4%
grade 3 events	4521	7325	19872	5316	1581
	2%	2%	6%	2%	1%
grade 4 events	4324	7448	19758	5123	1585
	2%	2%	6%	2%	1%
grade 5 events	8591	4621	12515	6205	4359
	4%	1%	3%	3%	4%
grade 6 events	47335	11897	94209	11915	3288
	25%	4%	29%	6%	3%
grade 7 events	73646	89096	69050	91302	82205
	39%	34%	21%	48%	75%

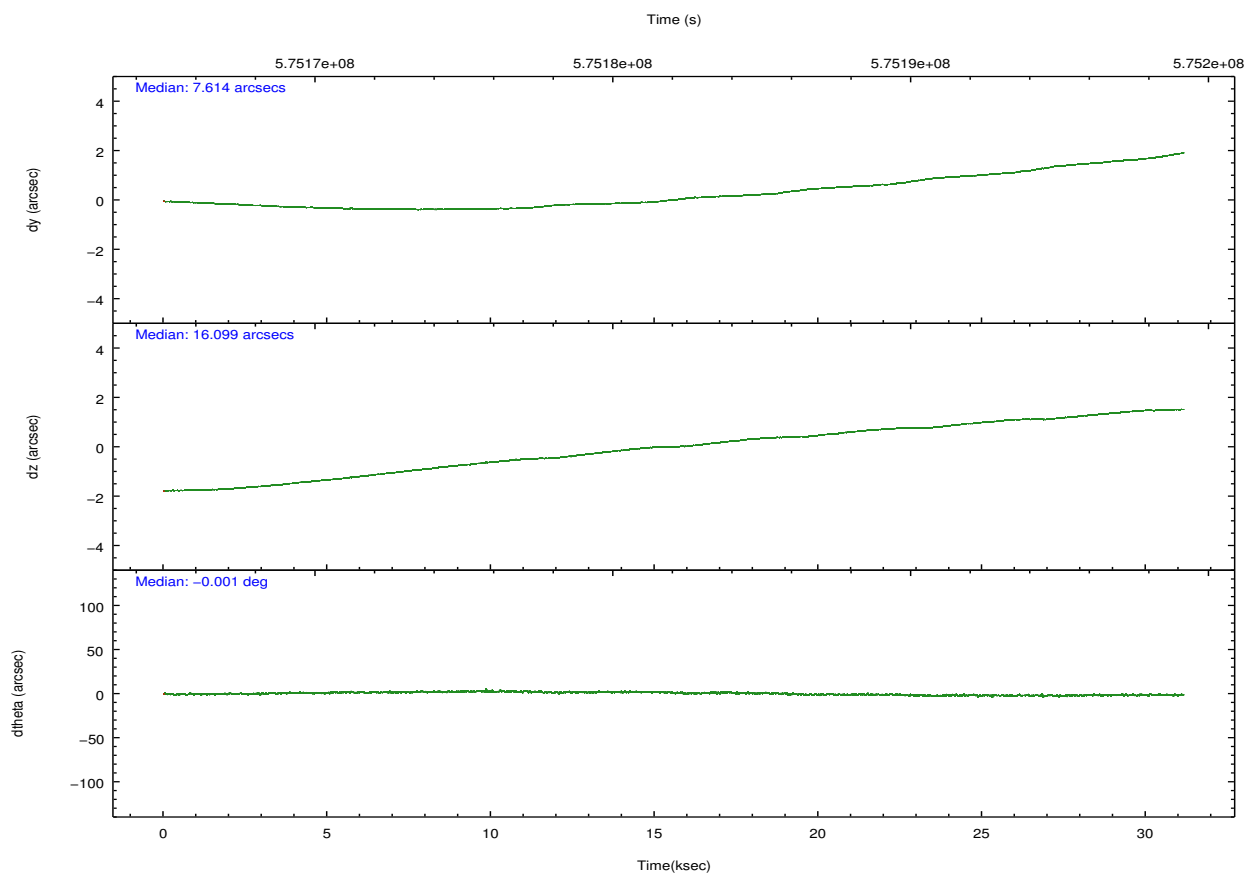
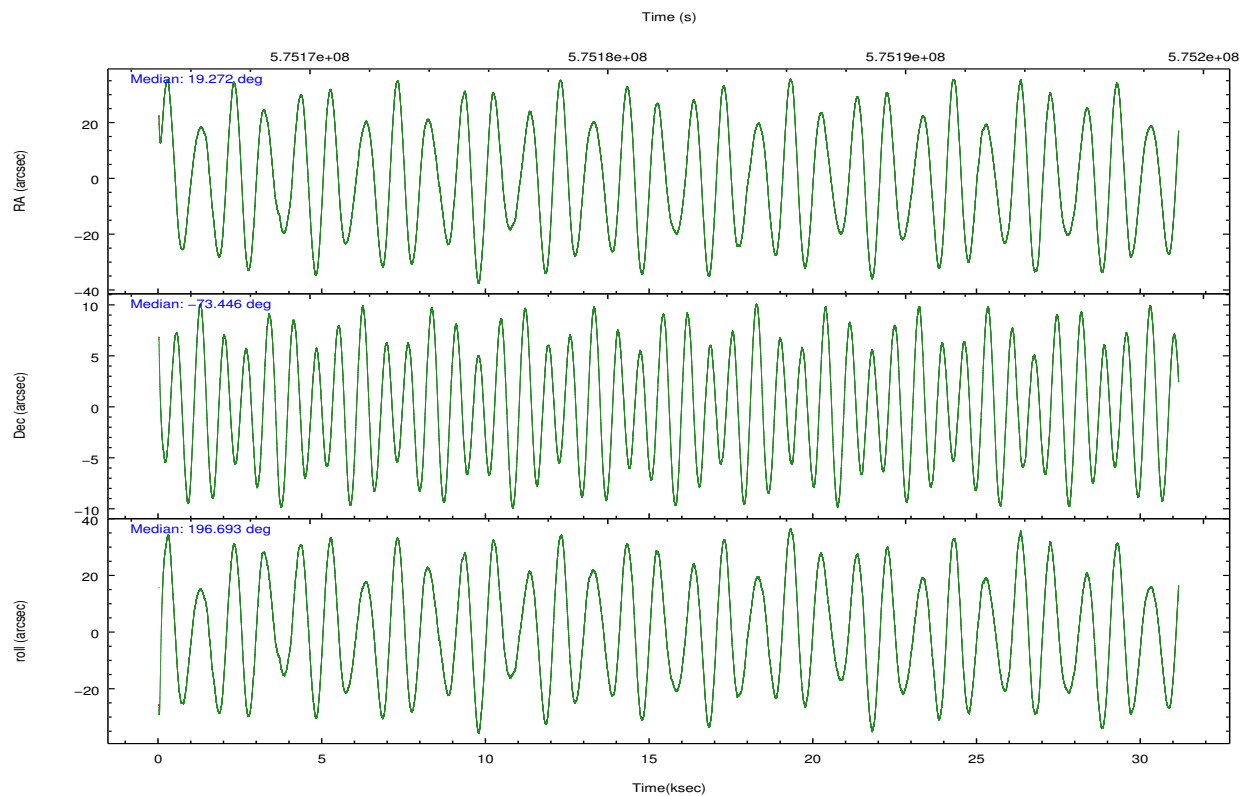
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-56789	ACIS-56789
Grating	HETG	HETG
Data mode	GRADED	GRADED
Observation mode	POINTING	POINTING
[deg] Pointing RA	19.336106	19.27106689119771
[deg] Pointing Dec	-73.425838	-73.44604849998611
[deg] Pointing Roll	196.597932	196.6921945640063
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-183.992523	-183.9875365069546
[mm] SIM translation stage offset	-6.14	-6.144986076053243
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)	575166638.184000	575165535.64599
Observation start date	2016-03-24T00:29:30	2016-03-24T00:12:15
[s] Observation end time (MET)	575197638.184000	575198345.8978699
Observation end date	2016-03-24T09:06:10	2016-03-24T09:19:05
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	N
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	1	1
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



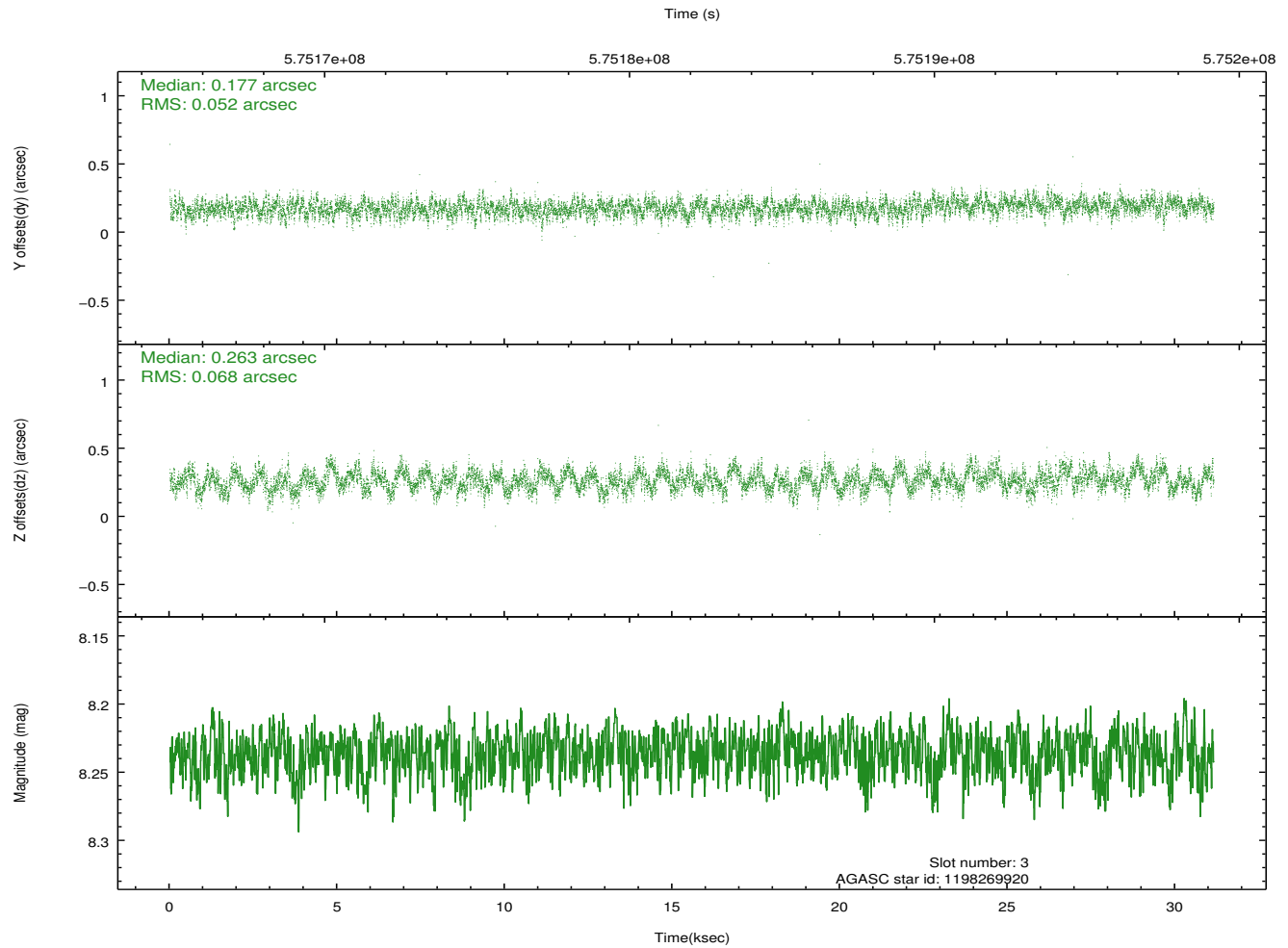
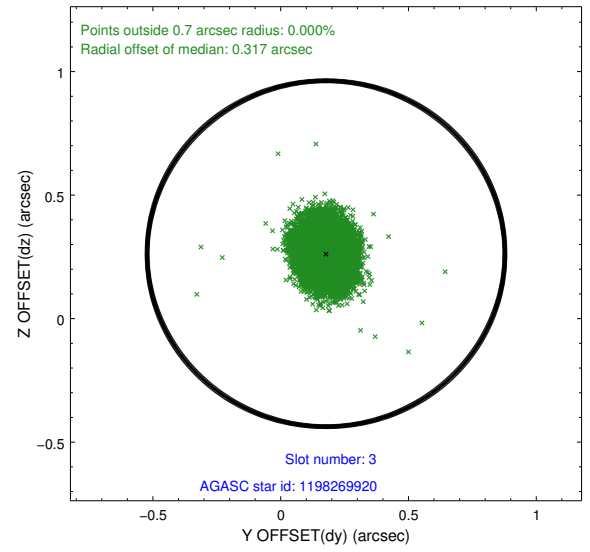
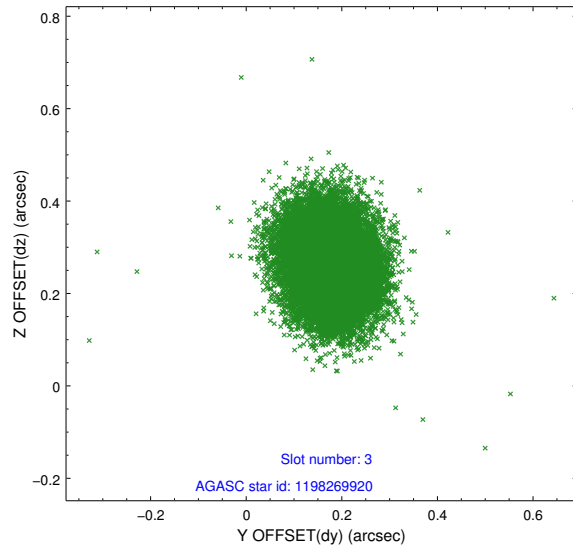


Slot Statistics

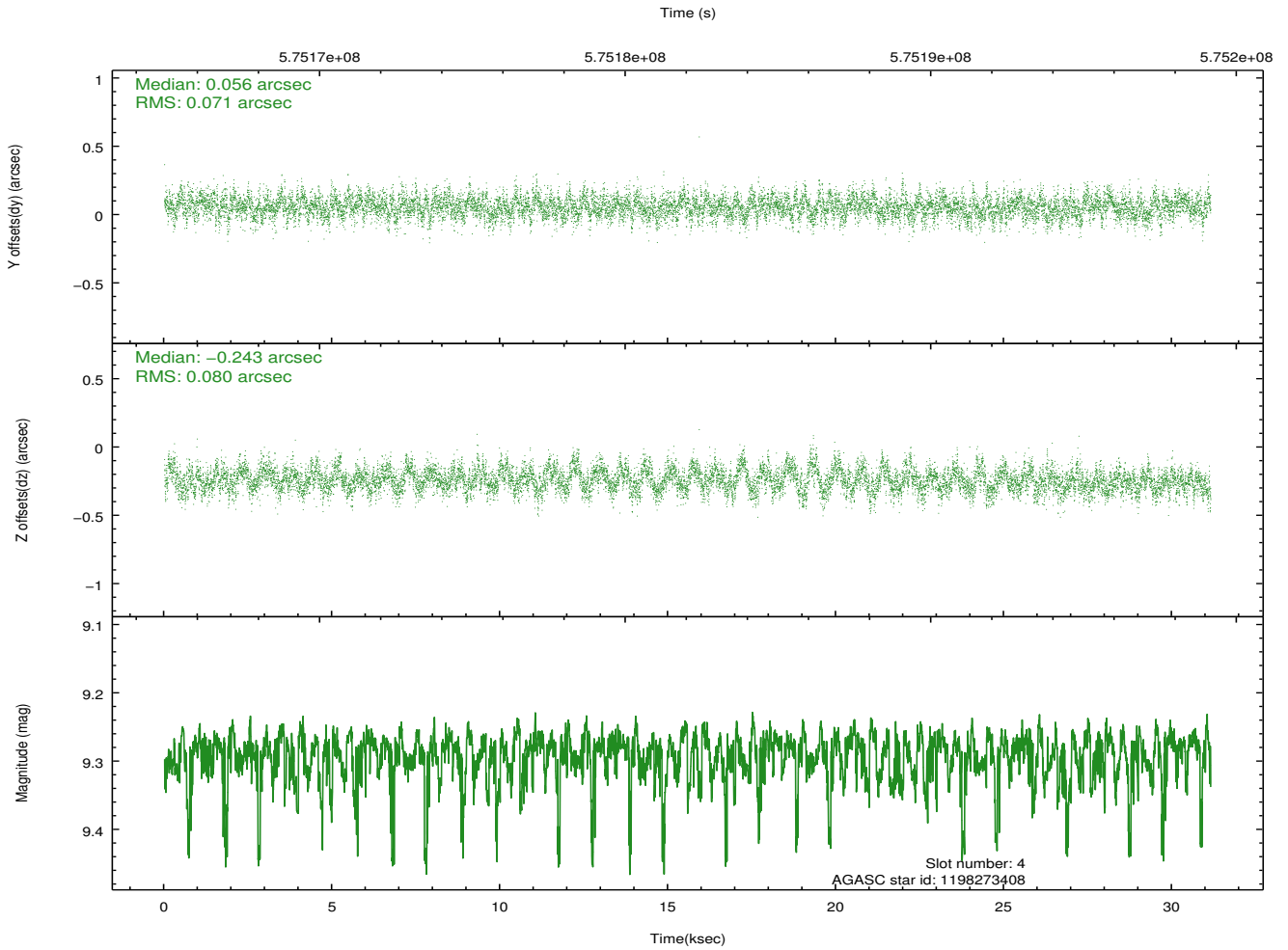
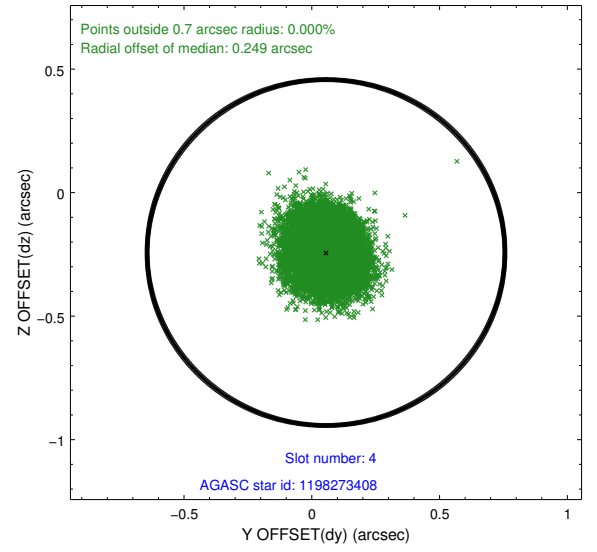
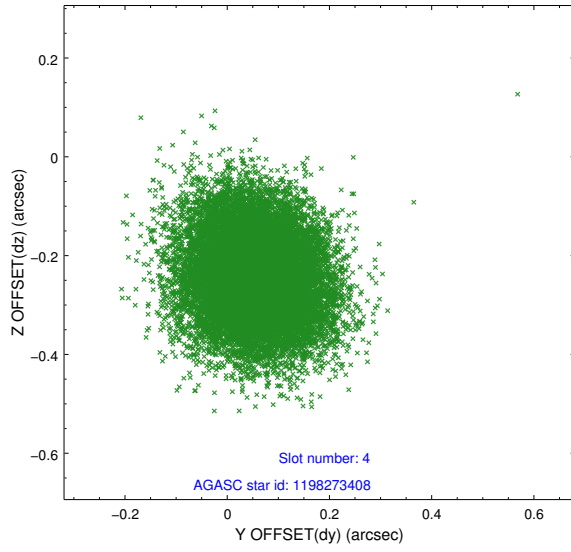
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.09	7597	-0.003	-0.131	0.034	0.063	0.000000	0.000000	-760.37	-1864.17
1	FID		ACIS-S-5	7.23	7597	-0.138	0.042	0.021	0.056	0.000000	0.000000	-1813.54	37.92
2	FID		ACIS-S-6	7.41	7596	0.116	0.092	0.022	0.035	0.000000	0.000000	401.44	681.84
3	GUIDE	used	1198269920	8.24	15189	0.177	0.263	0.092	0.146	20.316466	-73.033728	-1387.39	-1049.87
4	GUIDE	used	1198273408	9.29	15175	0.056	-0.243	0.114	0.184	17.532323	-73.621495	1963.91	178.46
5	GUIDE	used	1198282744	8.98	15187	0.110	0.139	0.106	0.176	17.028326	-73.013356	1915.55	-2070.70
6	GUIDE	used	1198282824	7.27	15193	-0.226	-0.145	0.088	0.141	18.044095	-73.907062	1733.28	1305.29
7	GUIDE	used	1198272400	9.12	15180	-0.111	-0.012	0.109	0.190	20.411923	-73.620598	-842.82	993.72

2.4 Star Slots

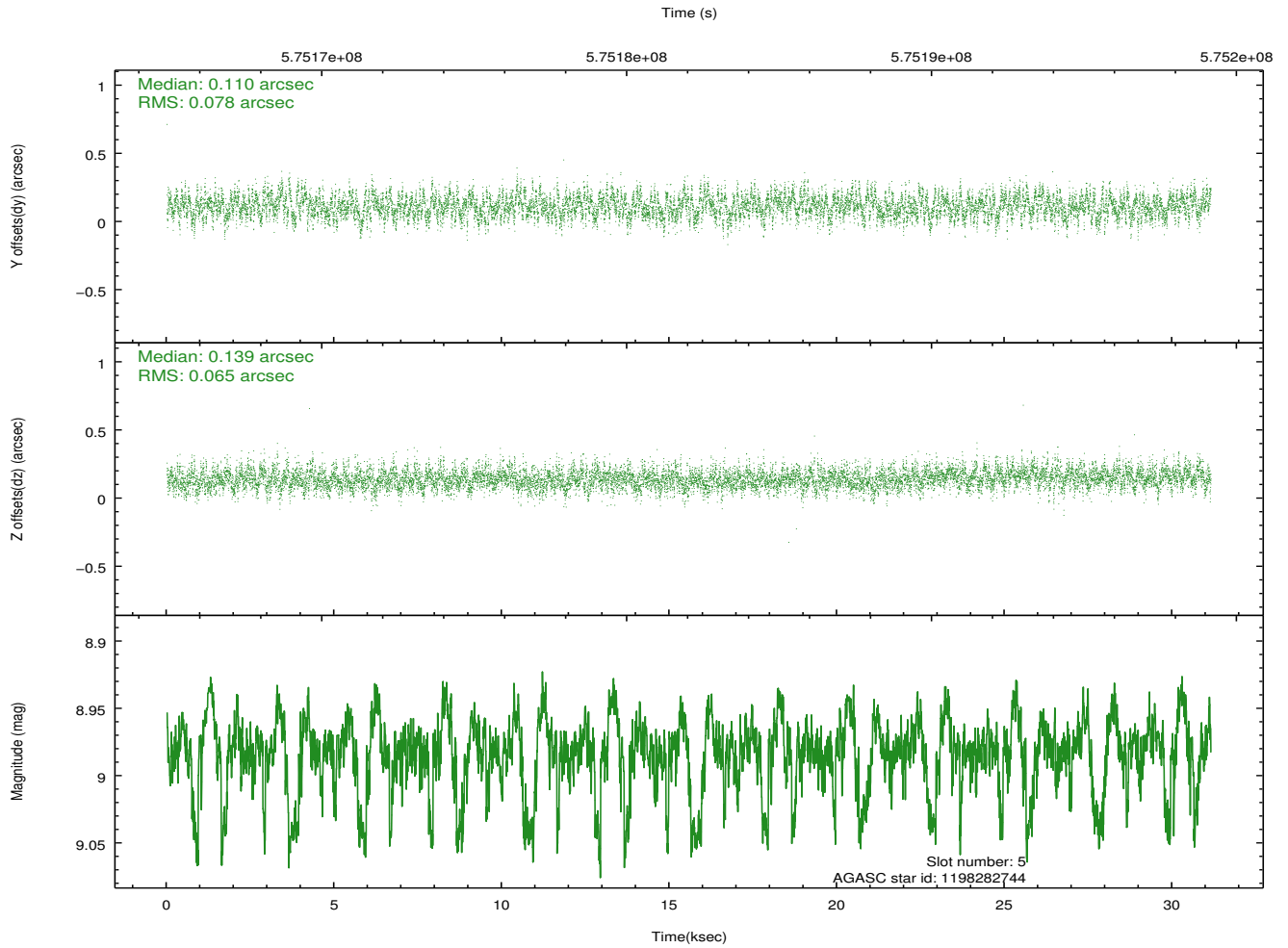
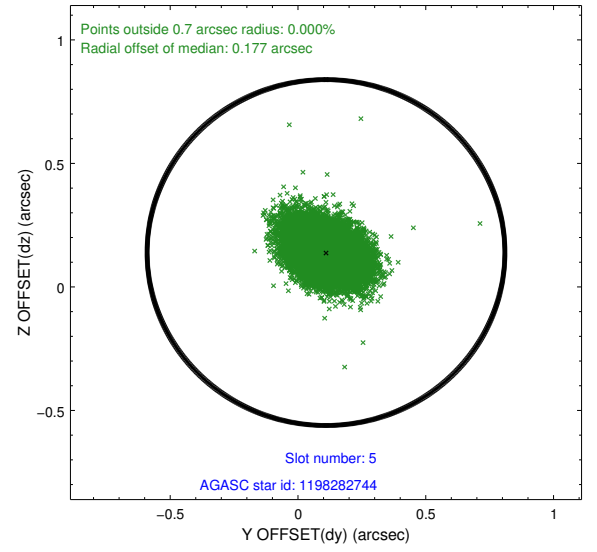
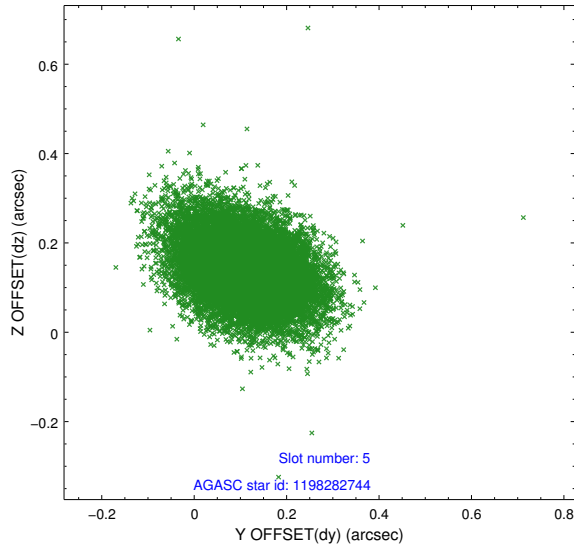
2.4.1 Slot 3



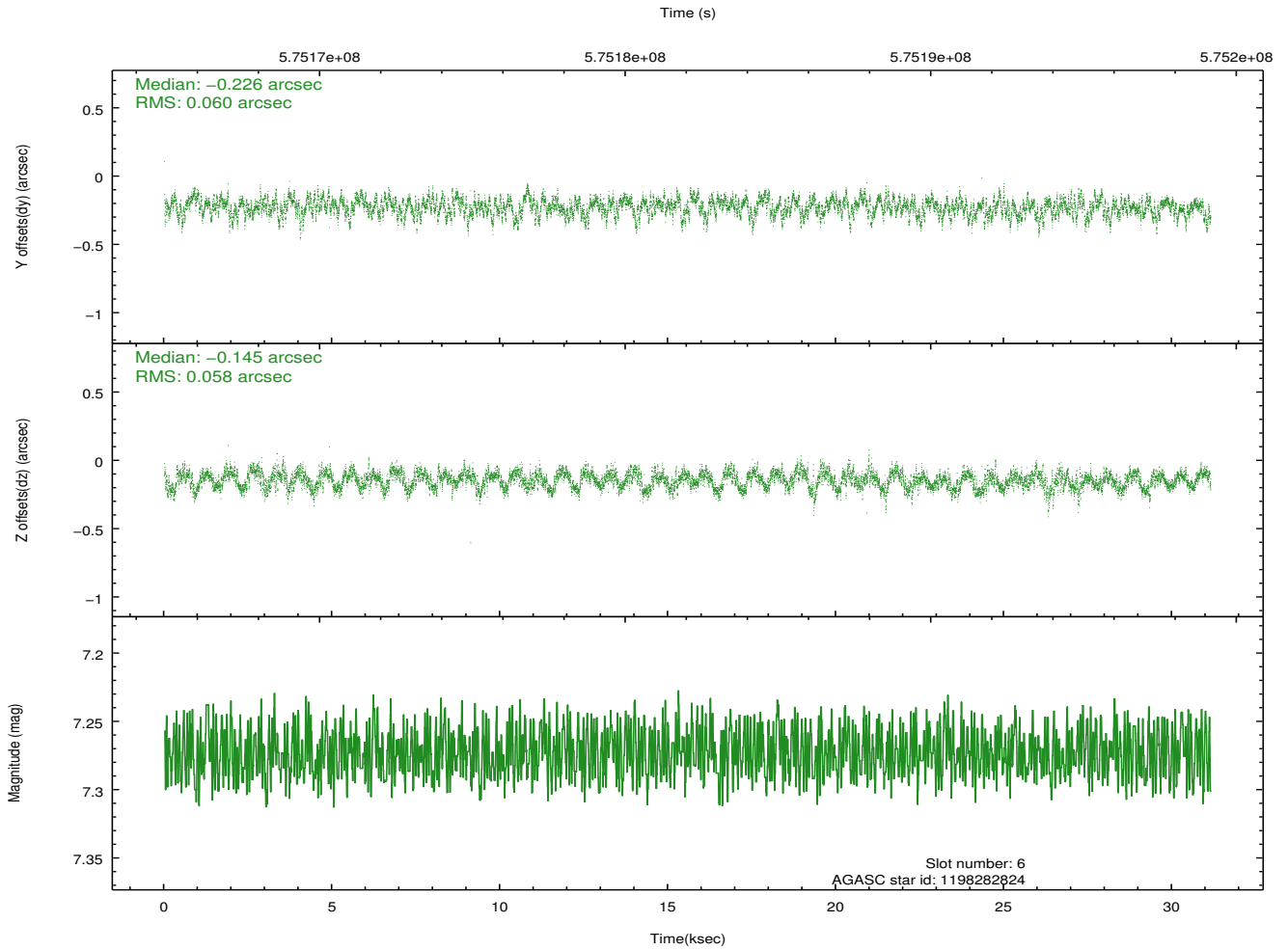
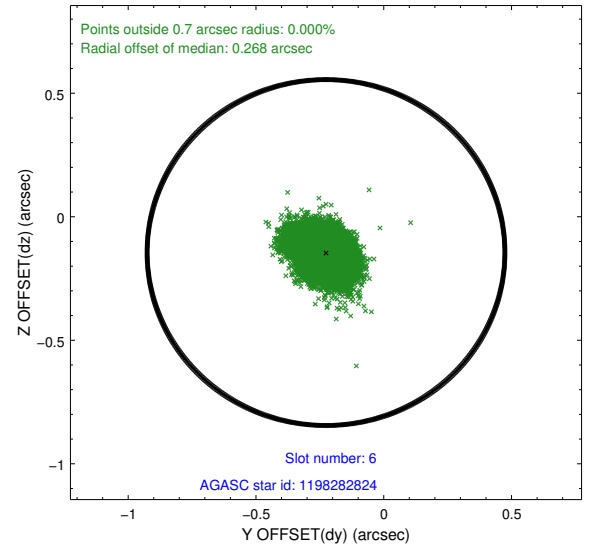
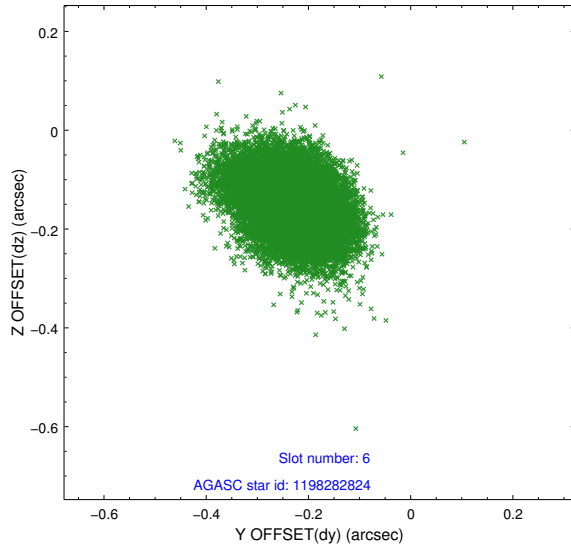
2.4.2 Slot 4



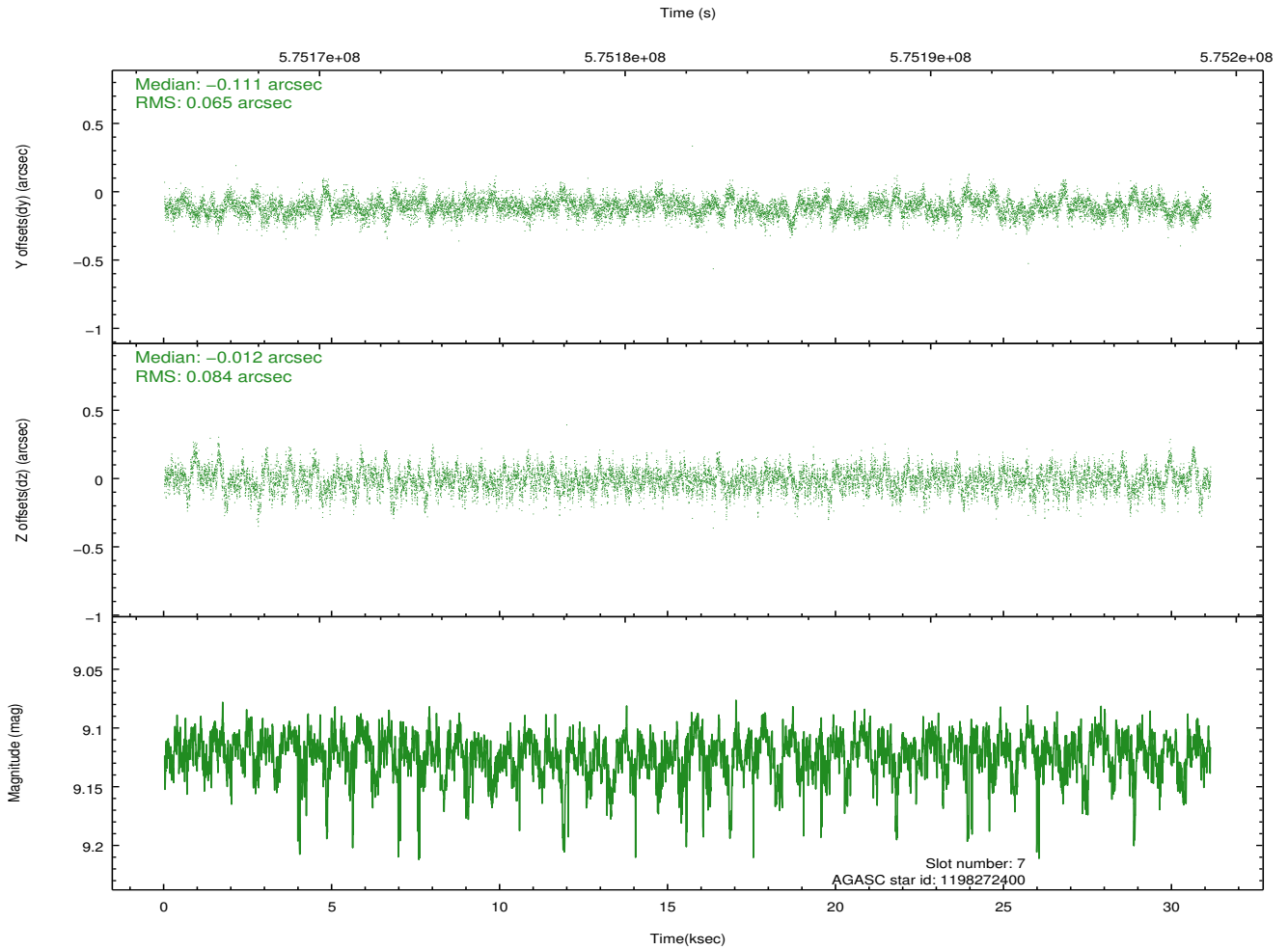
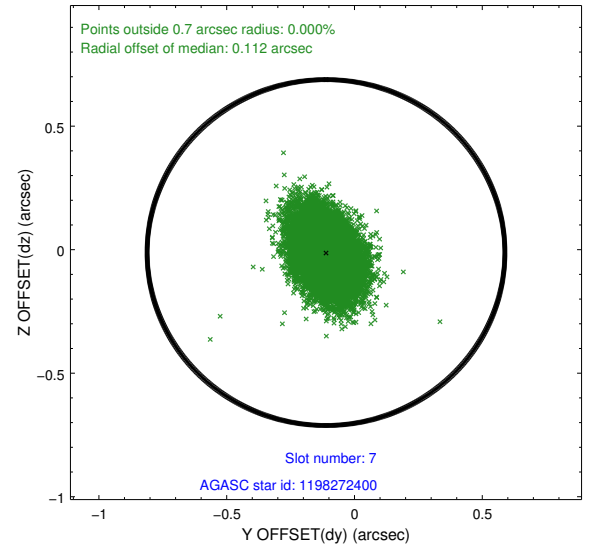
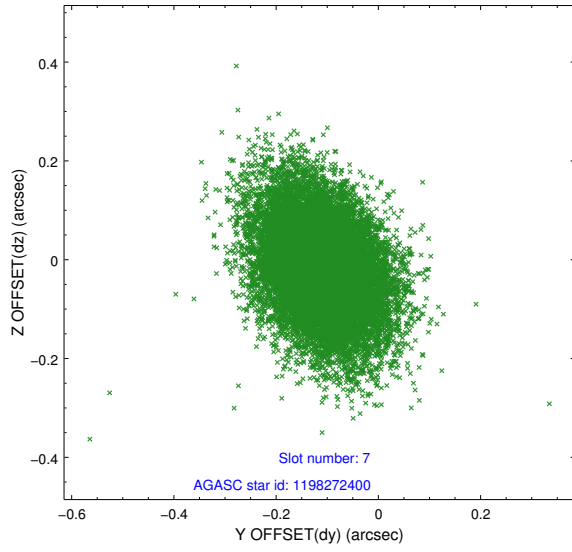
2.4.3 Slot 5



2.4.4 Slot 6

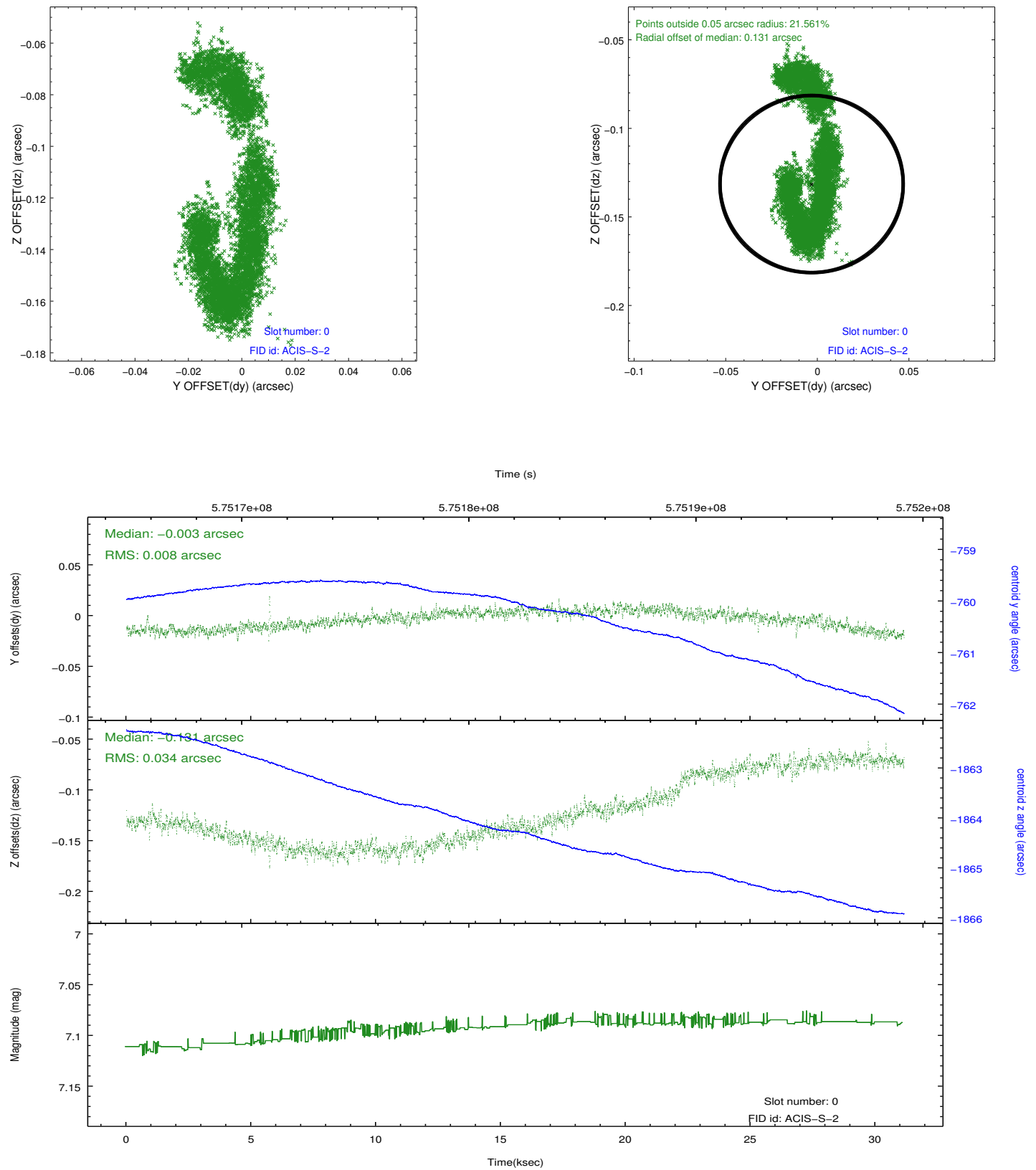


2.4.5 Slot 7

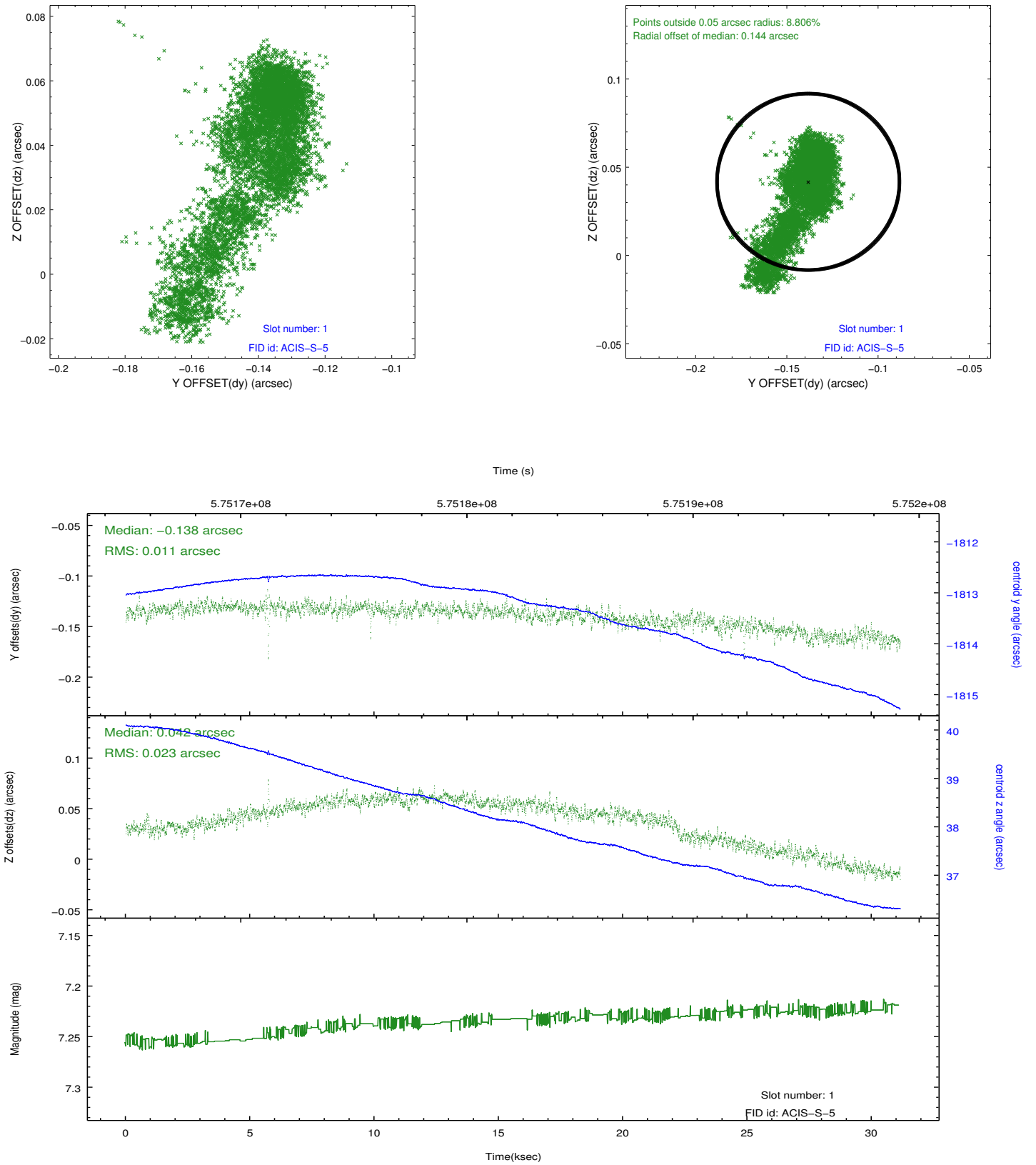


2.5 FID Slots

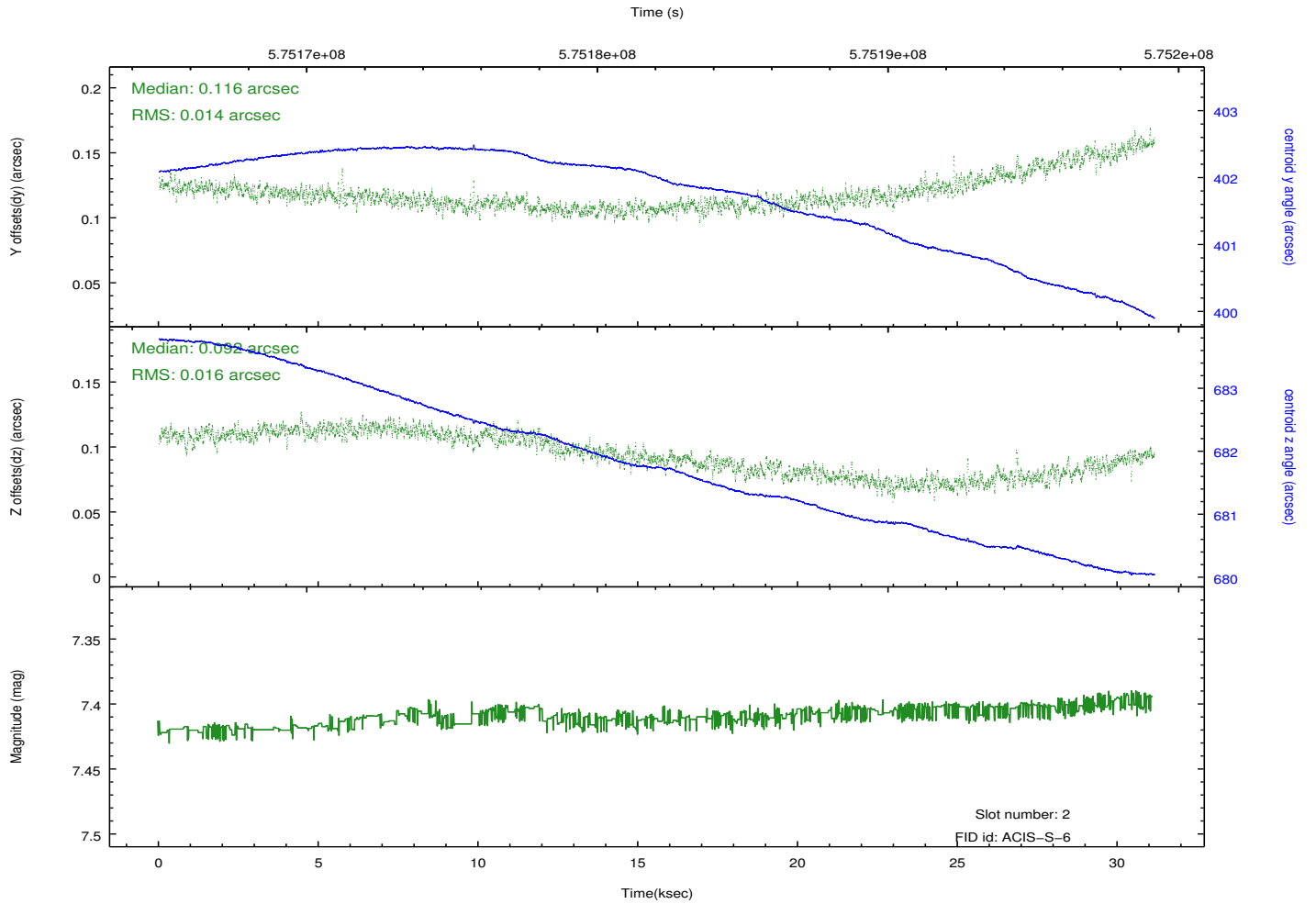
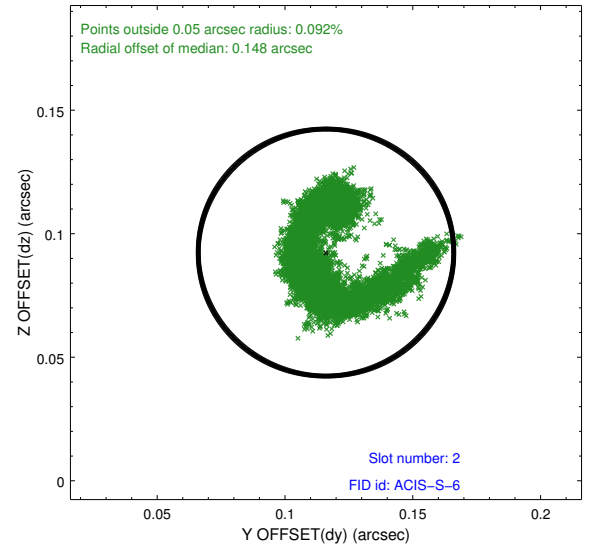
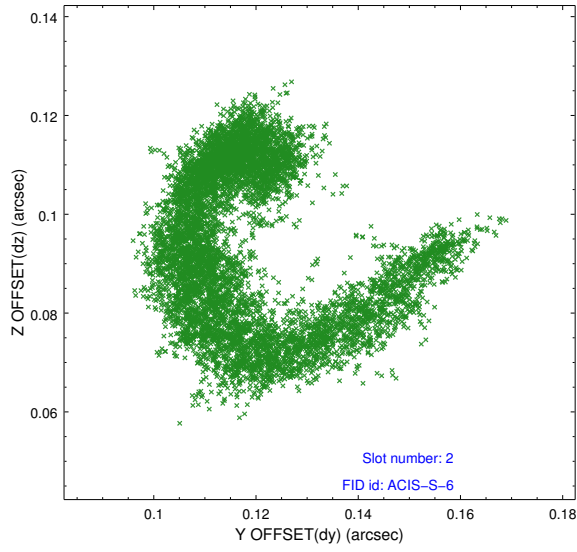
2.5.1 Slot 0



2.5.2 Slot 1

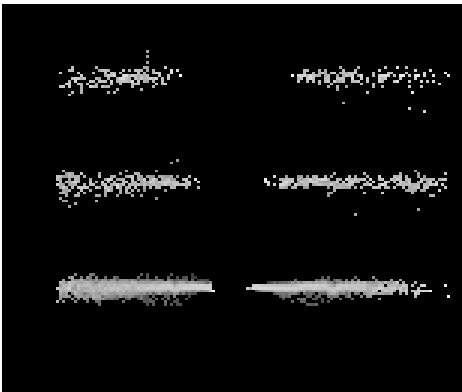


2.5.3 Slot 2

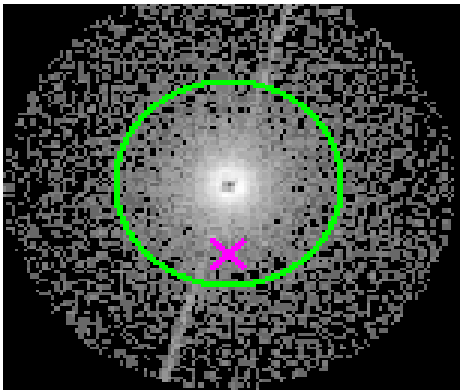


3 Gratings

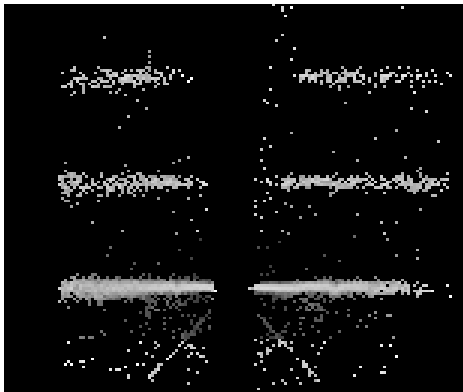
3.1 HEG Arm



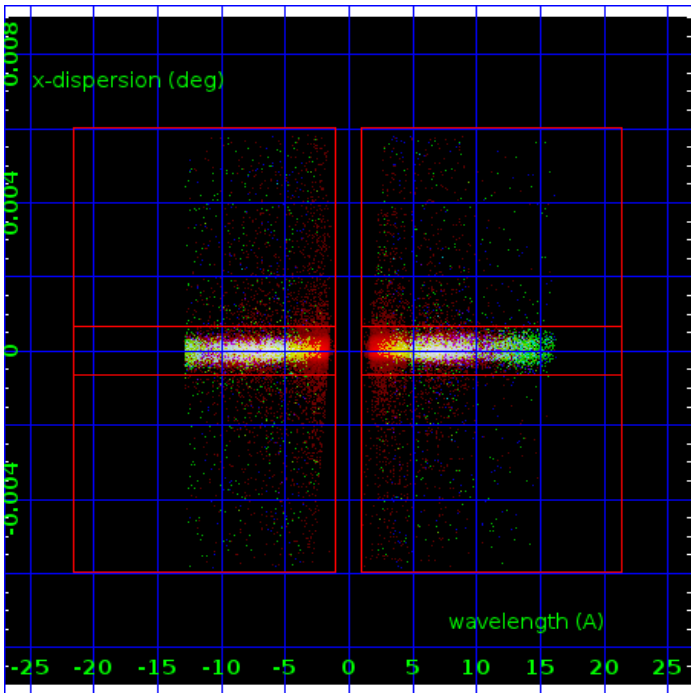
HEG Order Sort 123



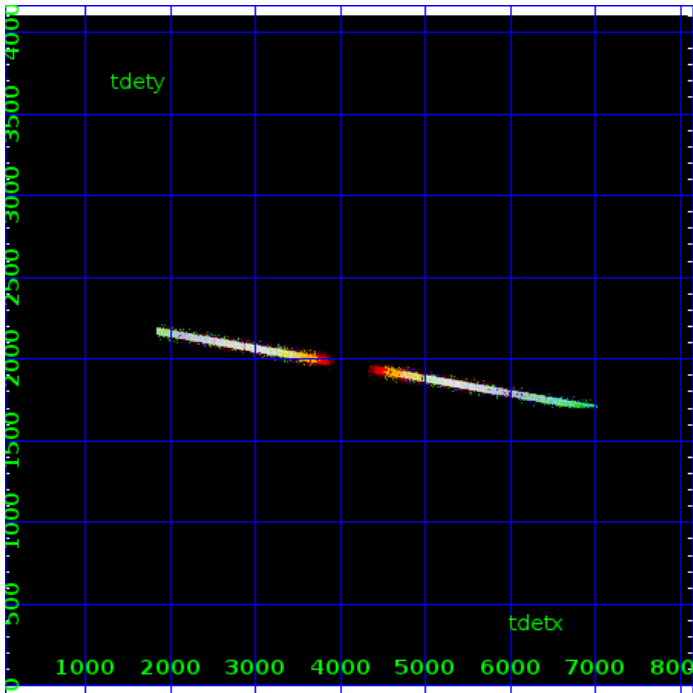
HEG Zero Order



HEG Order Sort ALL

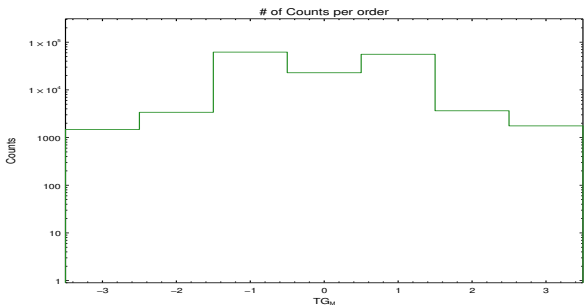


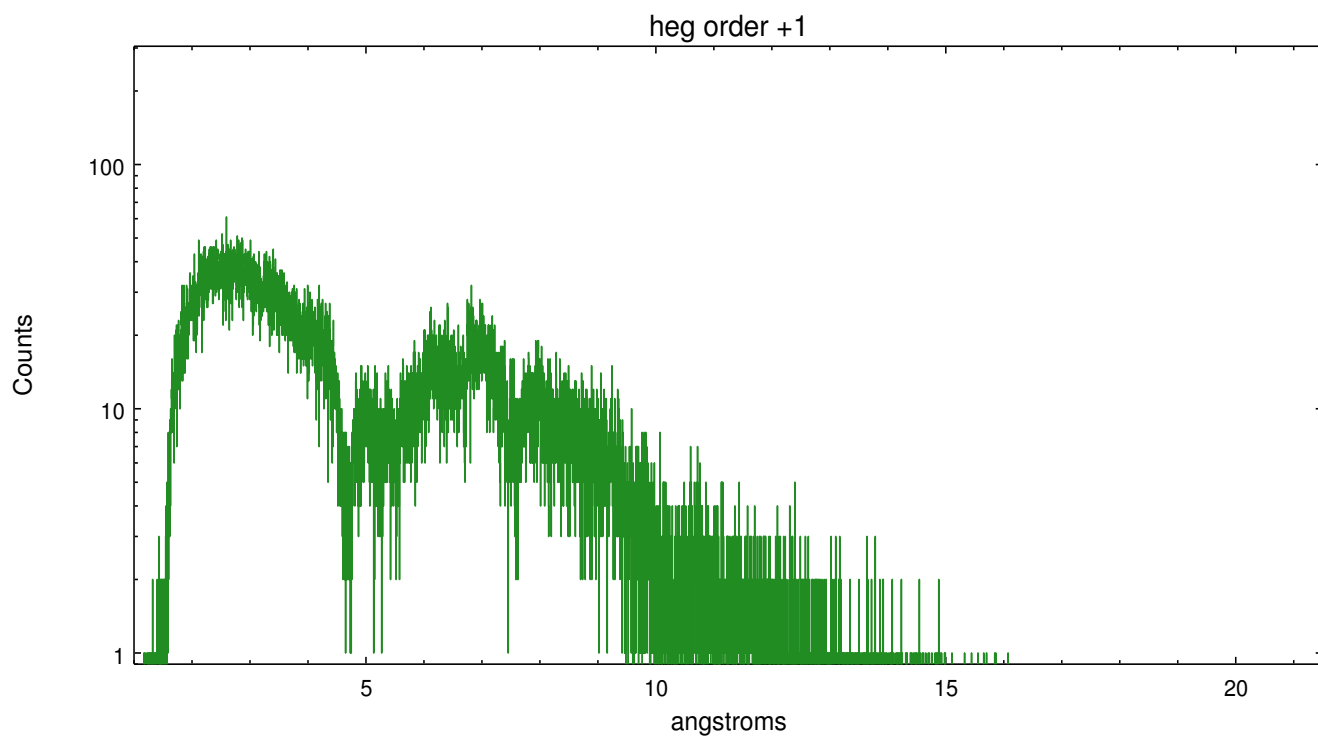
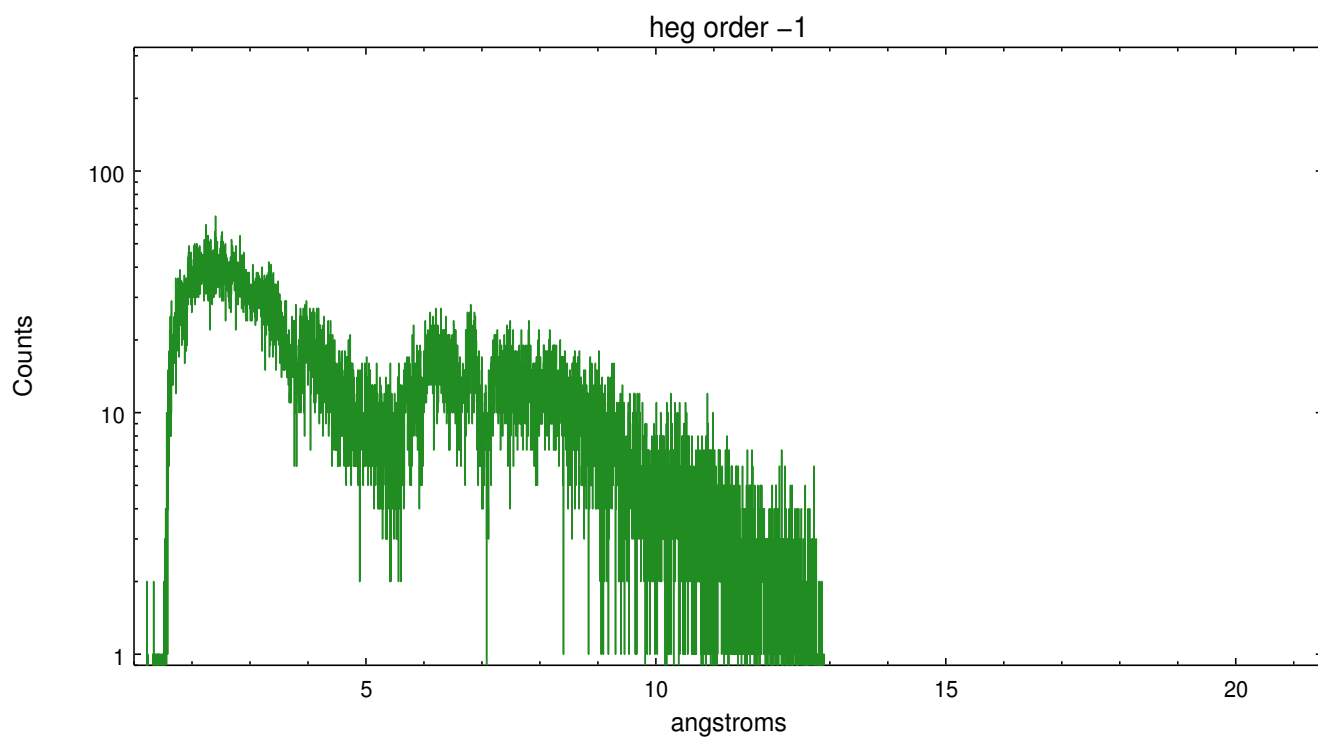
Spot Image HEG



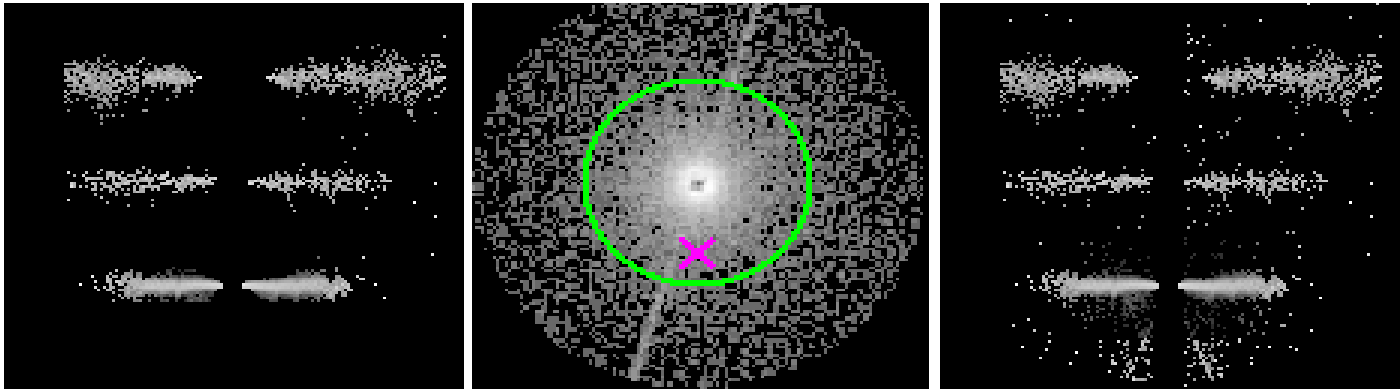
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1481	3388	61953	22883	55812	3646	1758





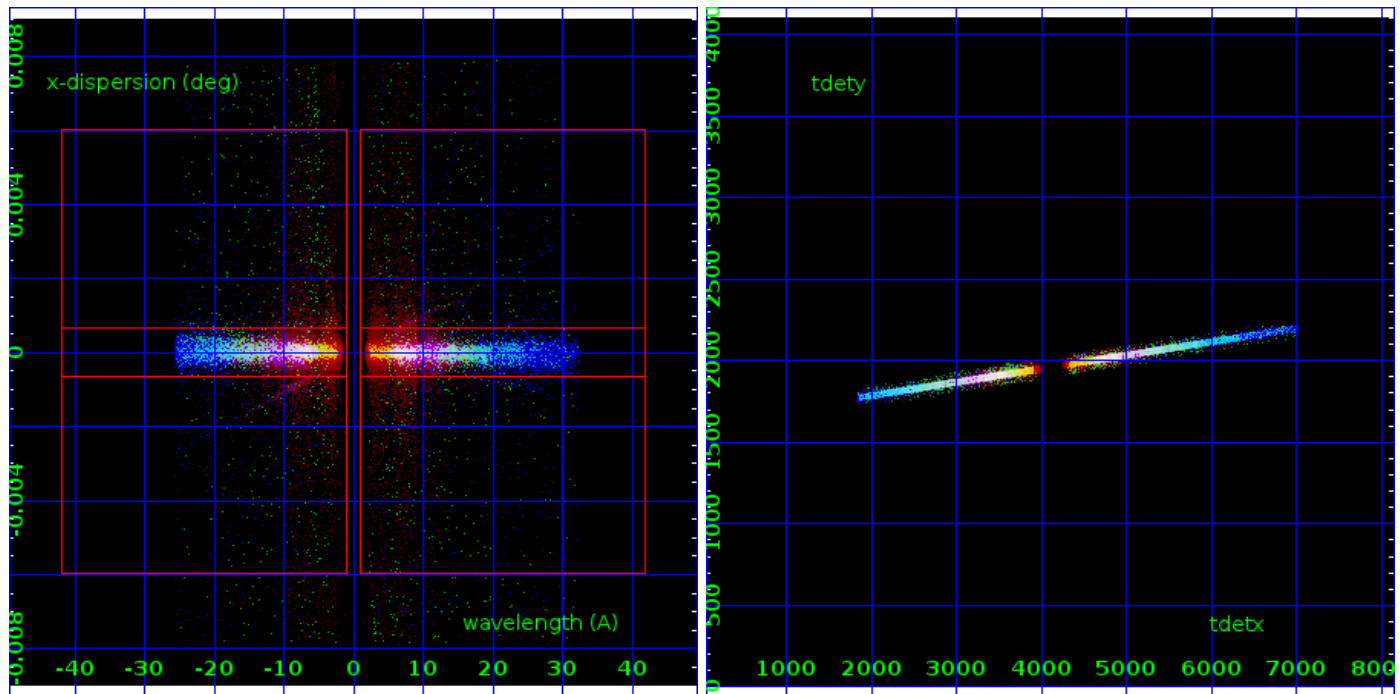
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

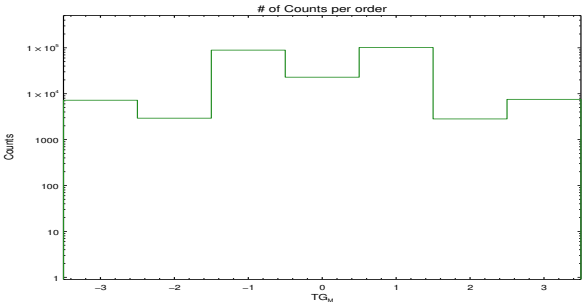
MEG Order Sort ALL

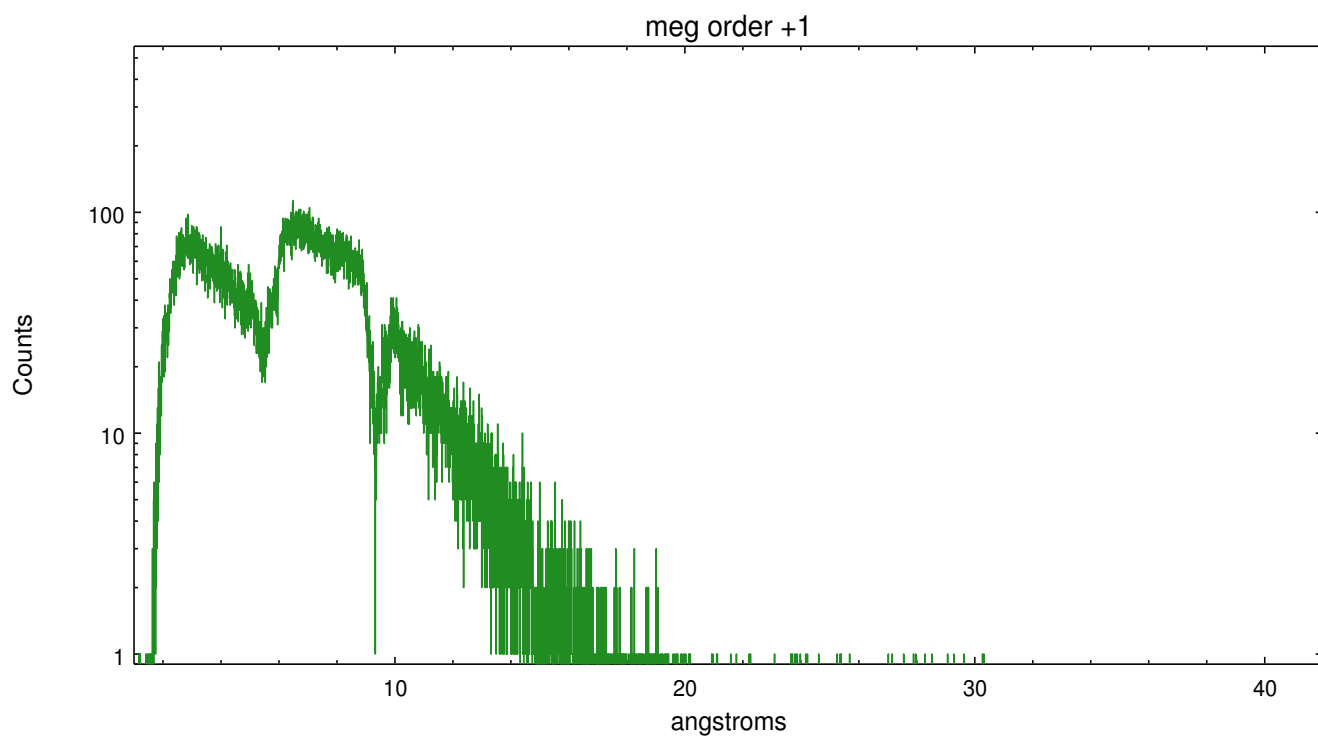
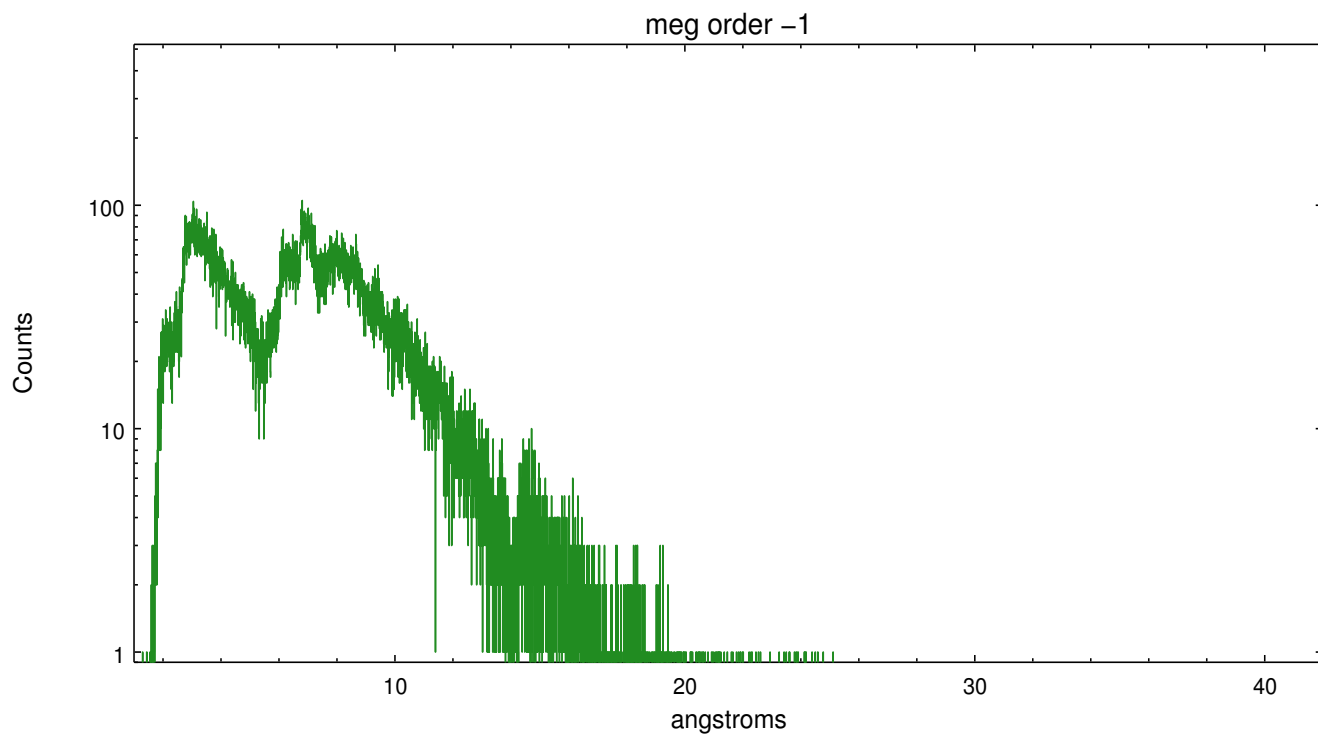


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	7209	2929	88997	22883	101471	2822	7532





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2016.03.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	31.072600871563

A.2 Comments

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.

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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.