

V&V Reference Report

L2 ASCDS Version : 10.6

Observation 20821 - L2 Version 1
Chandra X-Ray Center

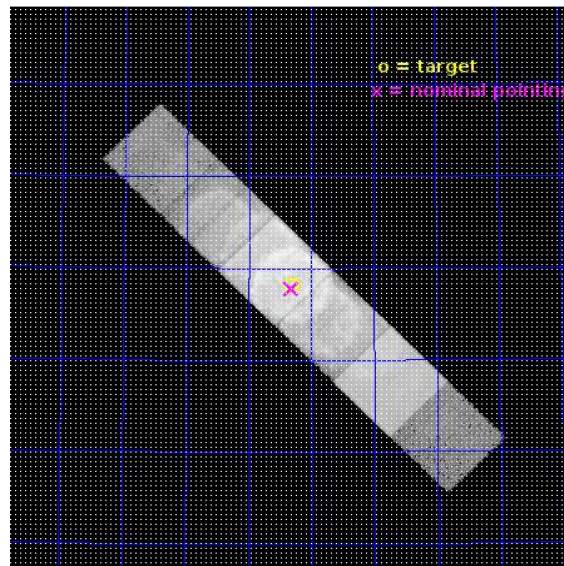
L2 Processing Date : Nov 20 2017

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1 Front

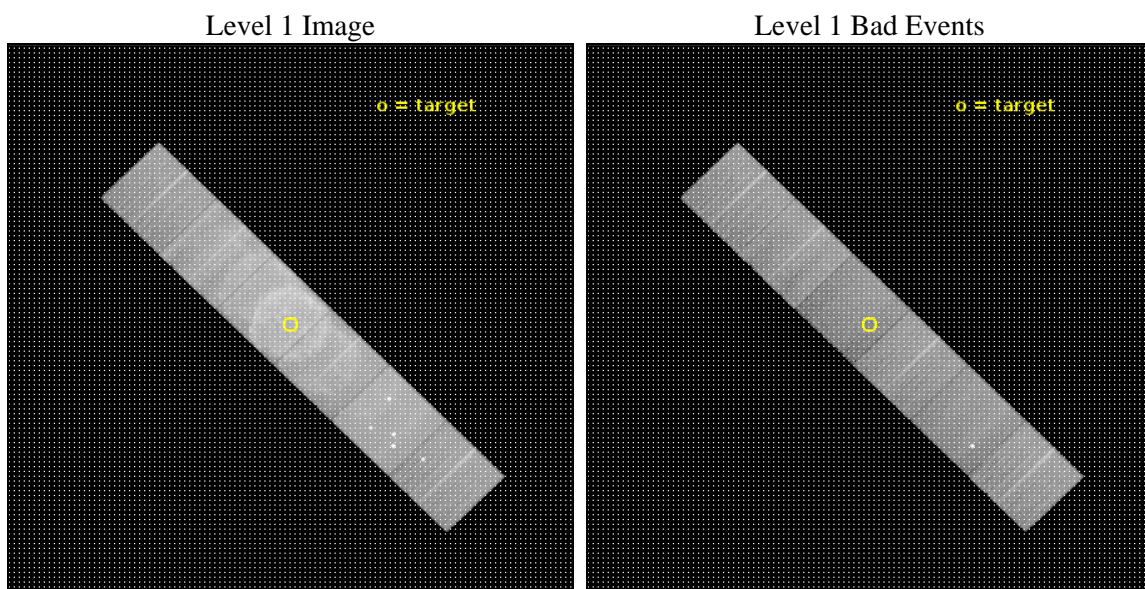
seq_num	502941	Sequence number
obs_id	20821	Observation id
title	Ejecta Kinematics Study of Tycho's SNR With Chandra HETGS	Proposa
observer	SANGWOOK PARK	Principal investigator
object	Tycho's Supernova Remnant	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	6.329167	Observer's specified target RA [deg]
dec_targ	64.136111	Observer's specified target Dec [deg]
ra_nom	6.3295097964349	Nominal RA [deg]
dec_nom	64.129665345116	Nominal Dec [deg]
roll_nom	225.15630985567	Nominal Roll [deg]
revision	1	Processing version of data
ontime	25953.960358858	Sum of GTIs [s]
livetime	25625.315685196	Livetime [s]
ontime4	25030.485449314	Sum of GTIs [s]
ontime5	25953.919318795	Sum of GTIs [s]
ontime6	25169.544691205	Sum of GTIs [s]
ontime7	25953.960358858	Sum of GTIs [s]
ontime8	25944.114047647	Sum of GTIs [s]
ontime9	25850.08273685	Sum of GTIs [s]
l2events	858569	Number of level 2 events



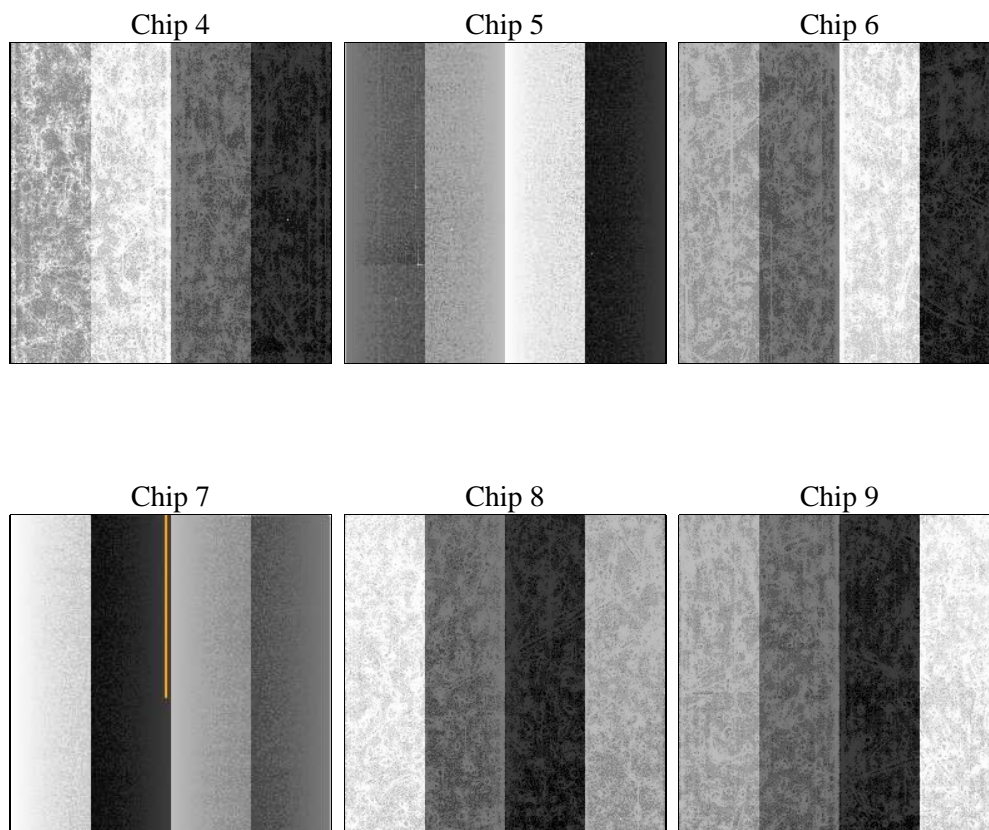
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	26000.000000	[s] Scheduled observation exposure time
ascdsver	10.6	Processing system revision	ontime	25953.960358858	Sum of GTIs [s]
caldsver	4.7.6	 	ontime4	25030.485449314	Sum of GTIs [s]
date	2017-11-19T21:33:23	Date and time of file creation	ontime5	25953.919318795	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	25169.544691205	Sum of GTIs [s]
			ontime7	25953.960358858	Sum of GTIs [s]
			ontime8	25944.114047647	Sum of GTIs [s]
			ontime9	25850.08273685	Sum of GTIs [s]
			l1events	1832140	Number of level 1 events
			tgmetho	USER	Method used to create src1a file
			ra_pos	(4007.60, 4143.70)	src1a sky pixel position

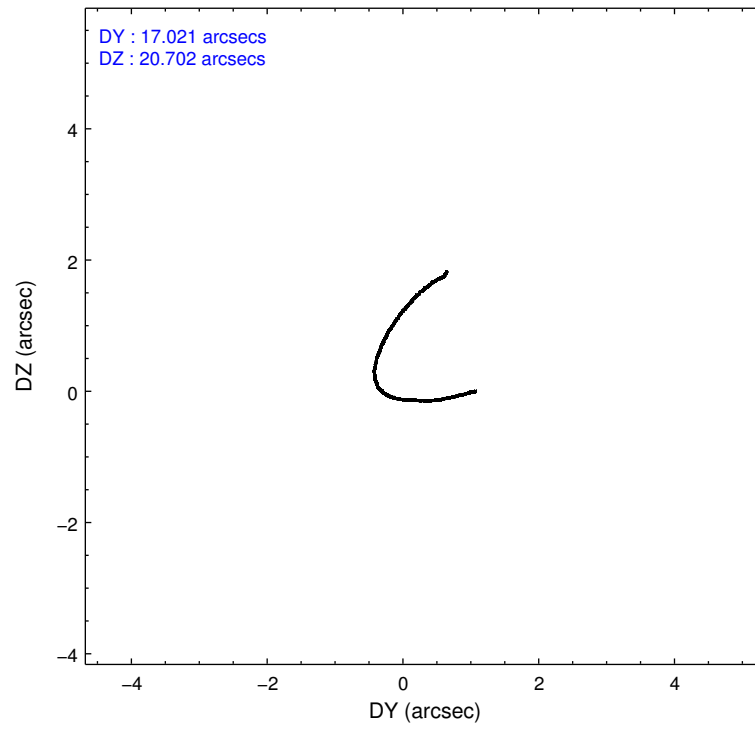
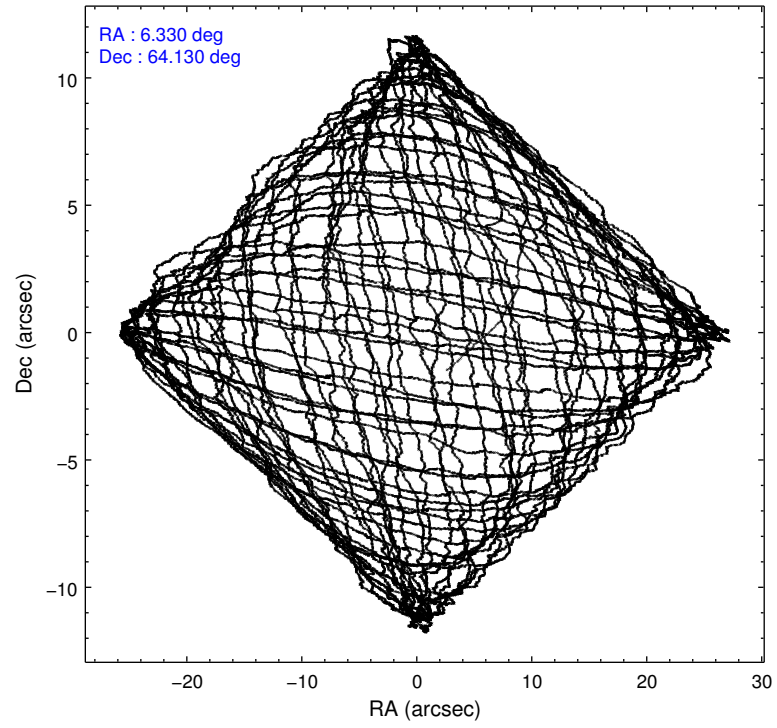
2.1.4 Events

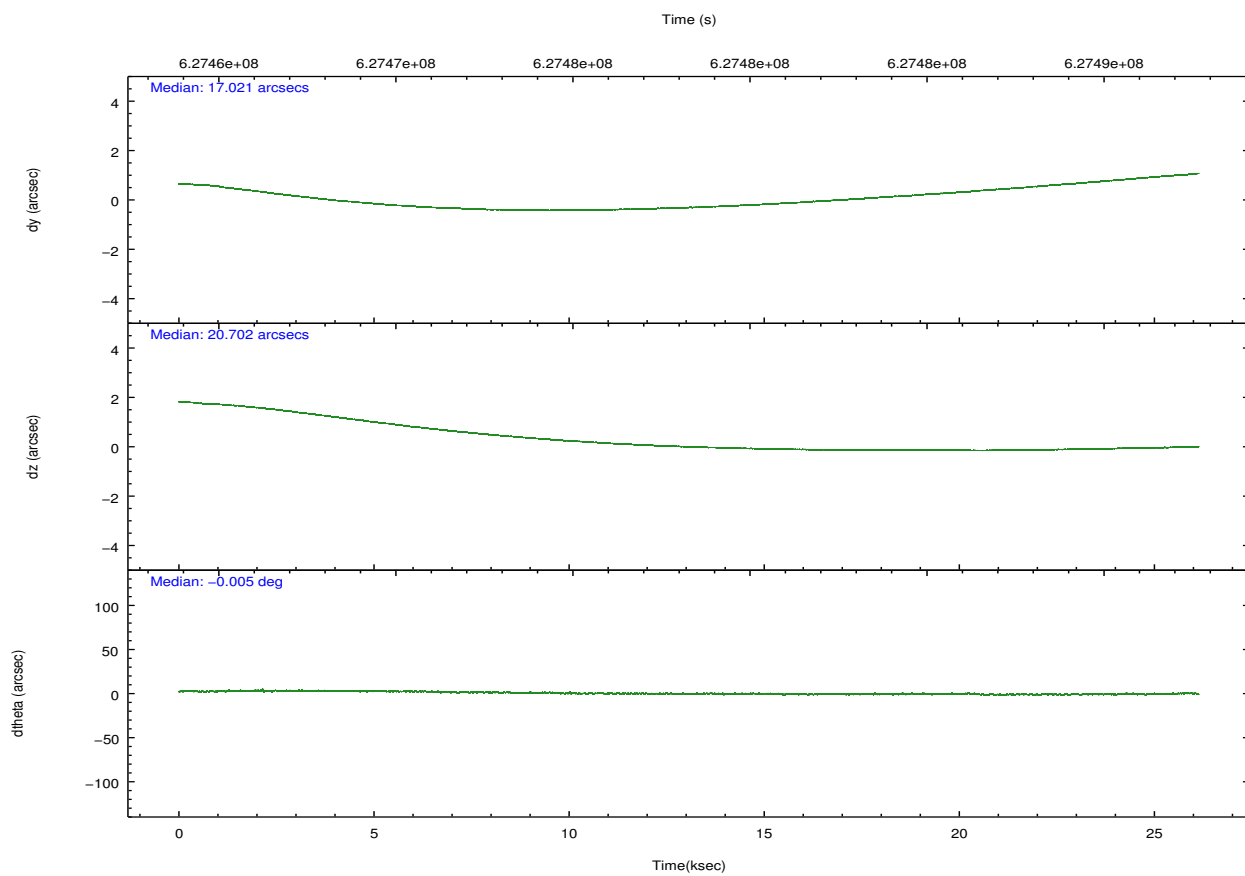
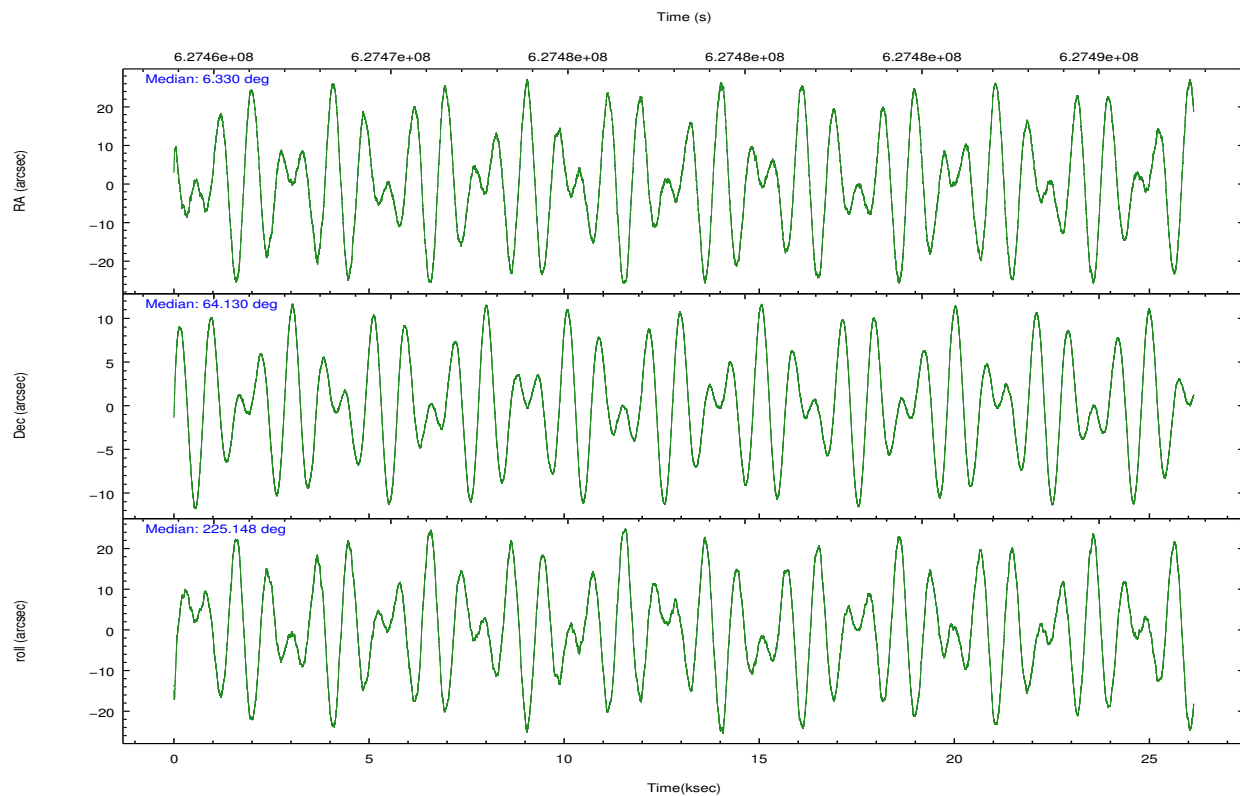
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	201199	318800	338922	487335	305513	180371	grade 0 events	18758	39444	142298	73372	84750	16289
rejected events	168903	129769	152425	104261	160354	149469		9%	12%	41%	15%	27%	9%
rejected %	83%	40%	44%	21%	52%	82%	grade 1 events	234	766	670	425	492	135
								0%	0%	0%	0%	0%	0%
							grade 2 events	5717	57782	22541	99458	23591	5470
								2%	18%	6%	20%	7%	3%
							grade 3 events	2239	8208	7069	41245	9108	2429
								1%	2%	2%	8%	2%	1%
							grade 4 events	2084	7843	6766	40459	8555	2354
								1%	2%	1%	8%	2%	1%
							grade 5 events	6995	19776	7519	22389	11294	8028
								3%	6%	2%	4%	3%	4%
							grade 6 events	3503	75780	7848	128583	19169	4362
								1%	23%	2%	26%	6%	2%
							grade 7 events	161669	109201	144211	81404	148554	141304
								80%	34%	42%	16%	48%	78%

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	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	6.344811	6.329509796434877	CCD I2 on	N	N
[deg] Pointing Dec	64.156282	64.12966534511582	CCD I3 on	N	N
[deg] Pointing Roll	224.985924	225.1563098556725	CCD S0 on	O1	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	Y	Y
[s] Observation start time (MET)	627465345.184000	627464166.97291	CCD S5 on	Y	Y
Observation start date	2017-11-19T07:54:36	2017-11-19T07:36:06	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	627491345.184000	627492784.46209	On-chip summing requested	N	N
Observation end date	2017-11-19T15:07:56	2017-11-19T15:33:04	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.2

2.3 Aspect



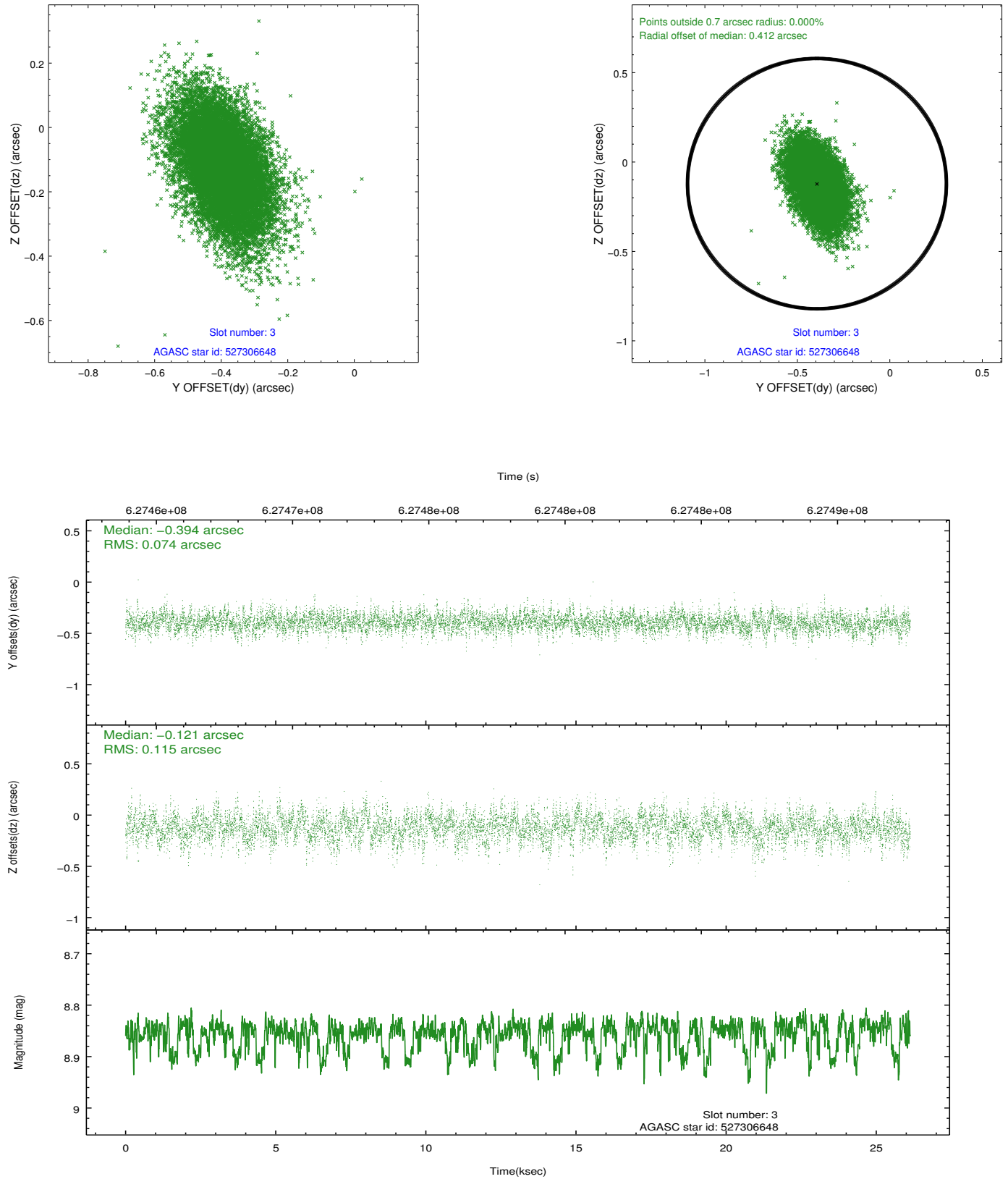


Slot Statistics

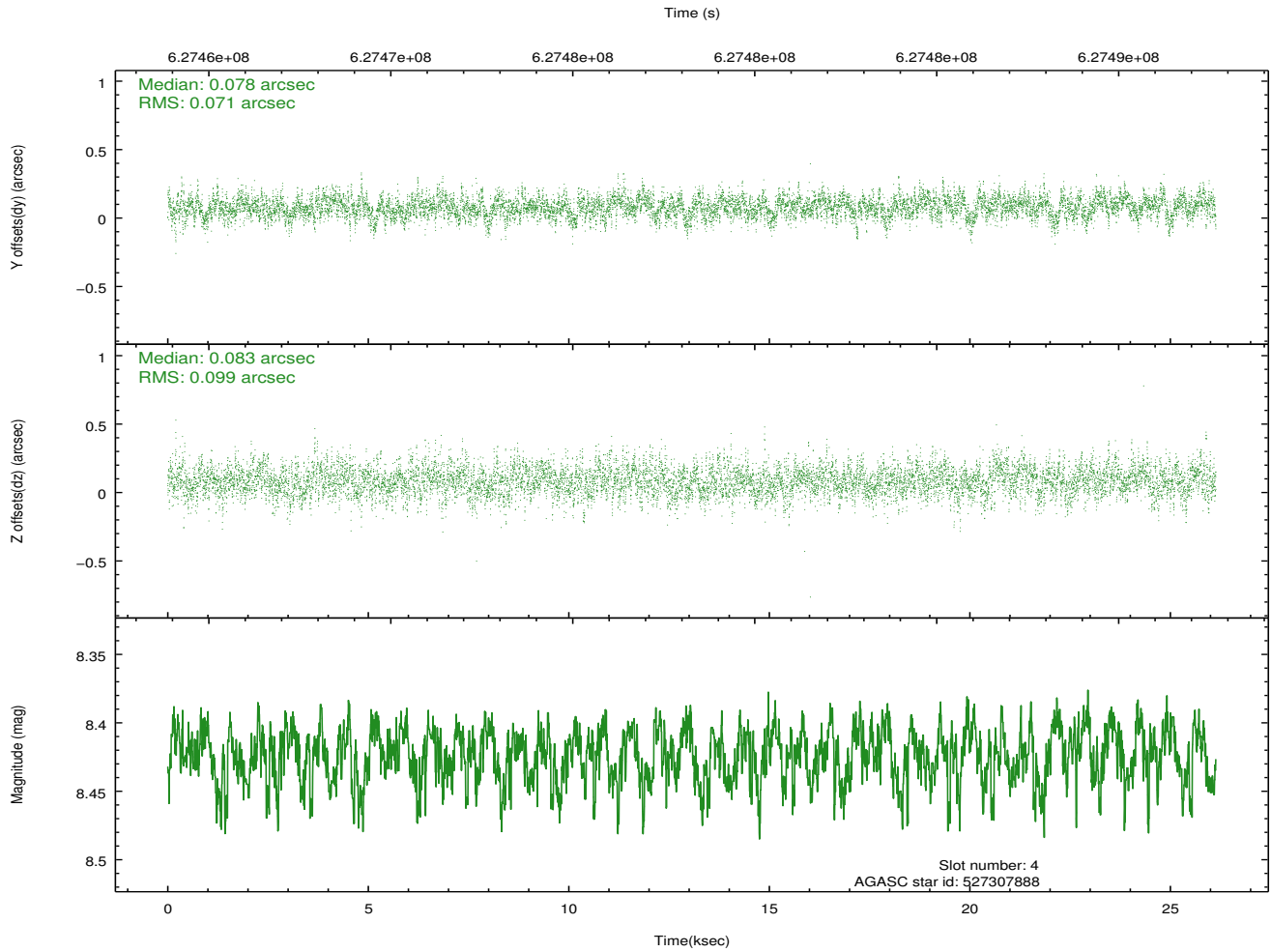
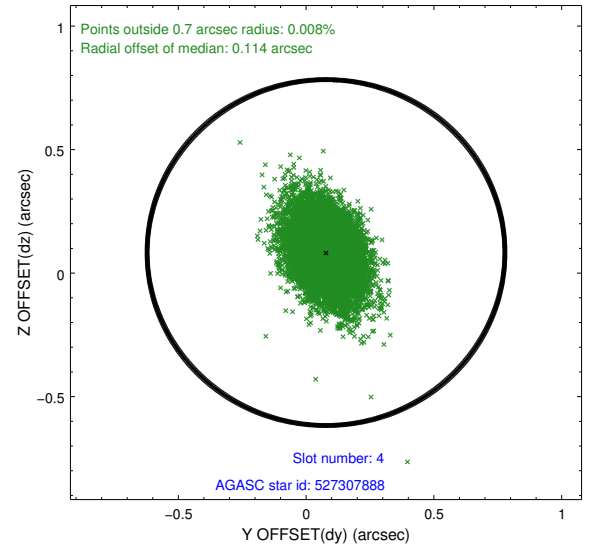
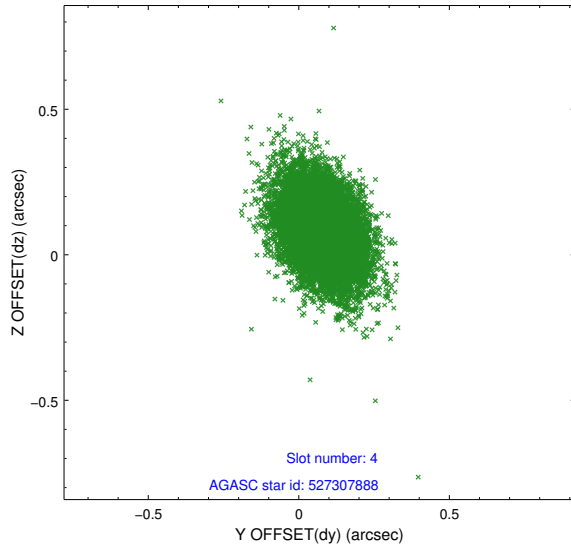
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.99	6375	-0.212	-0.076	0.014	0.046	0.000000	0.000000	-770.33	-1742.69
1	FID		ACIS-S-4	7.10	6375	0.473	0.122	0.021	0.036	0.000000	0.000000	2143.56	165.92
2	FID		ACIS-S-5	7.09	6375	-0.294	-0.038	0.022	0.040	0.000000	0.000000	-1823.14	159.51
3	GUIDE	used	527306648	8.85	12742	-0.394	-0.121	0.141	0.246	6.477351	63.853785	620.89	918.91
4	GUIDE	used	527307888	8.42	12741	0.078	0.083	0.124	0.216	4.965121	64.287990	1173.16	-1874.57
5	GUIDE	used	527310400	7.71	12746	0.087	0.499	0.113	0.196	6.292387	64.638680	-1169.73	-1285.06
6	GUIDE	used	527306552	8.72	12738	0.118	-0.169	0.152	0.254	4.766895	63.925622	2331.53	-1198.61
7	GUIDE	used	527309096	8.26	12746	0.111	-0.288	0.143	0.226	7.726277	64.064373	-1320.63	1754.55

2.4 Star Slots

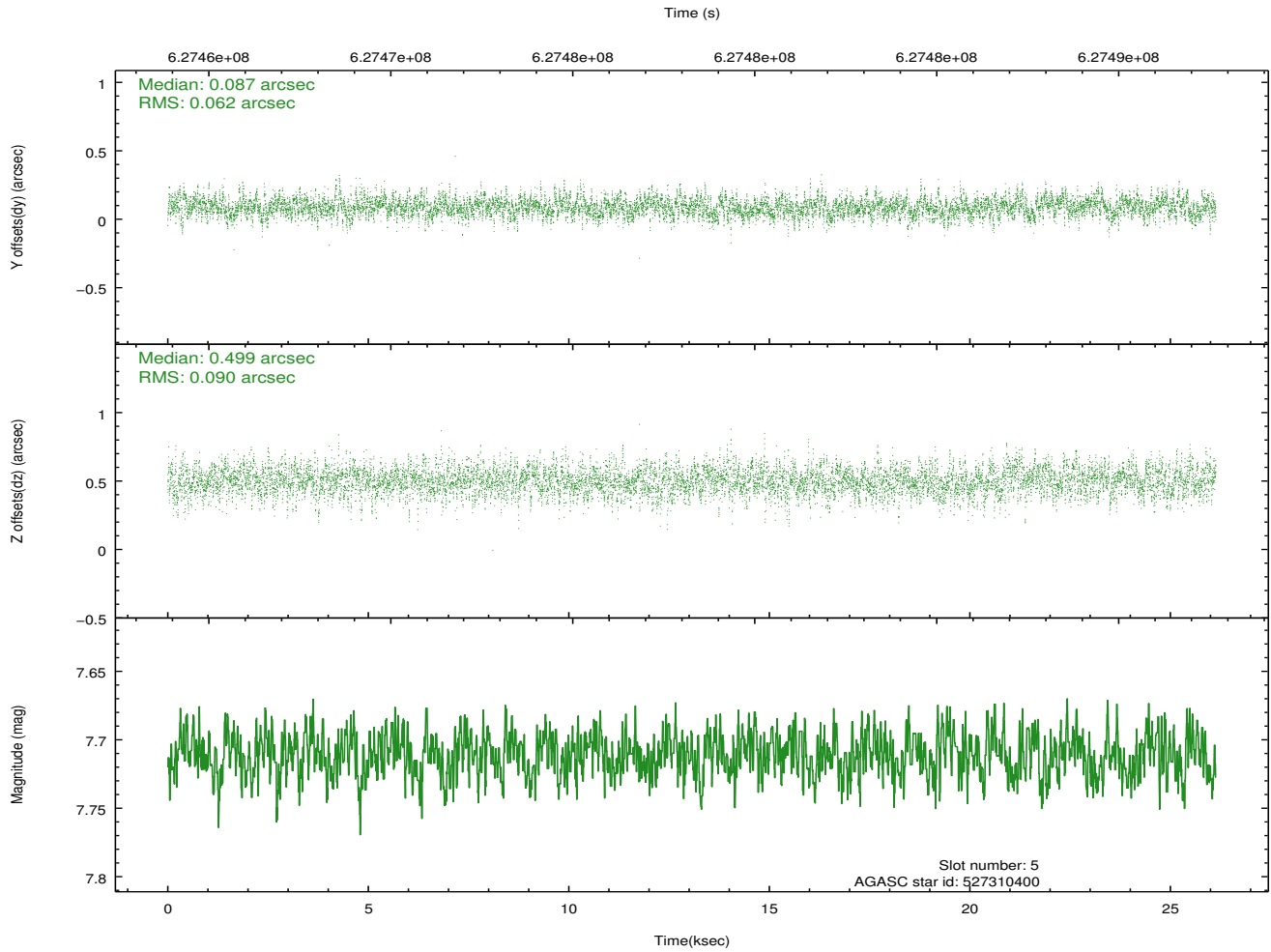
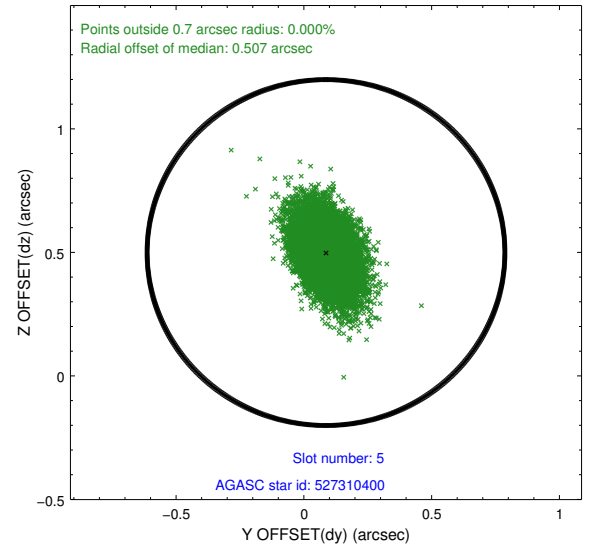
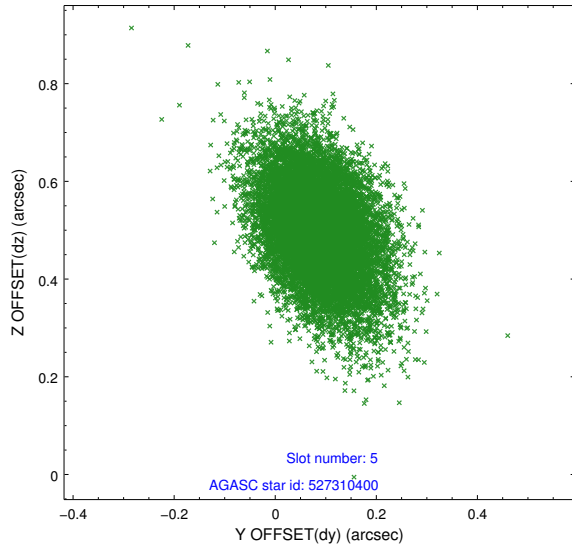
2.4.1 Slot 3



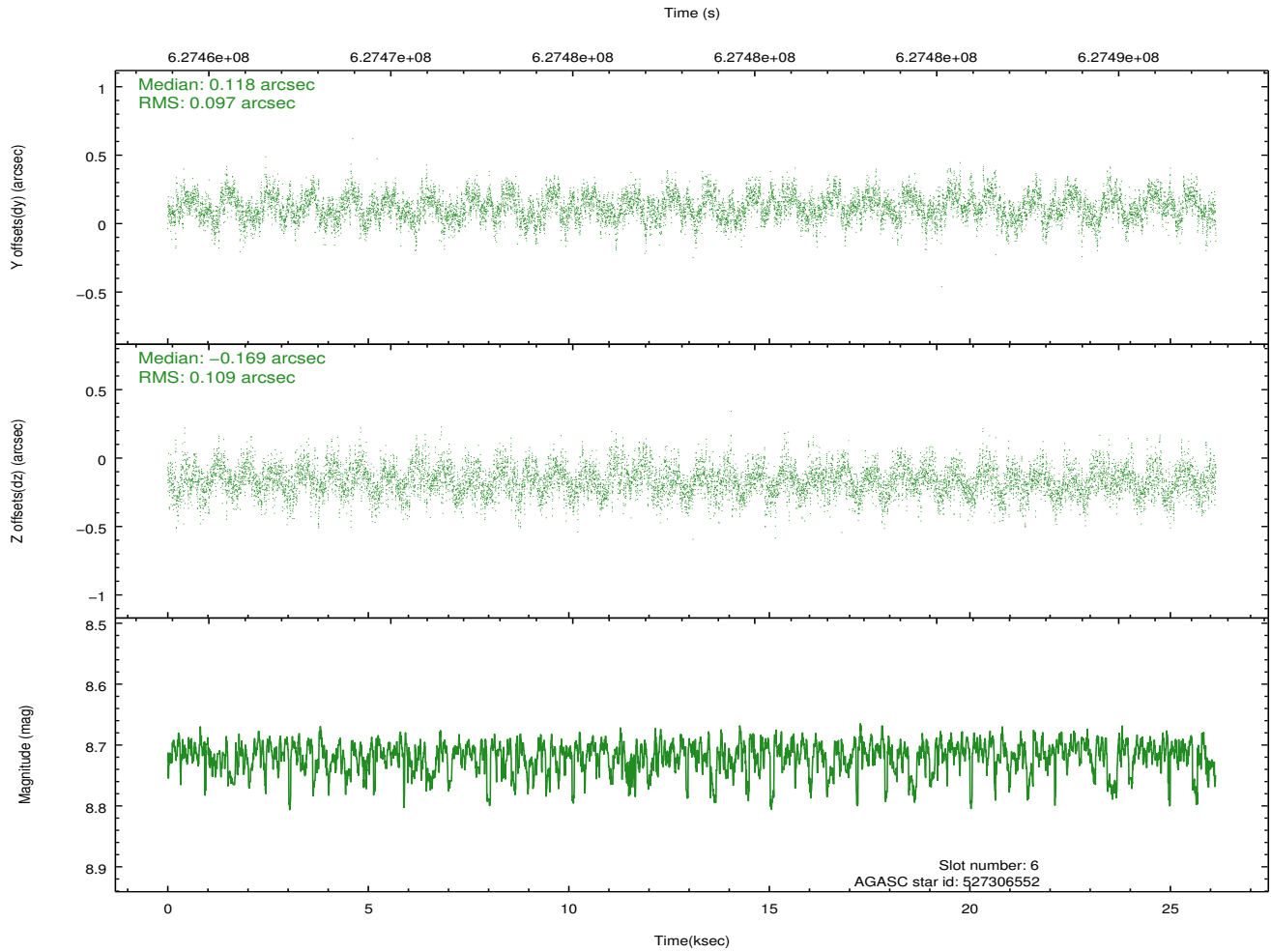
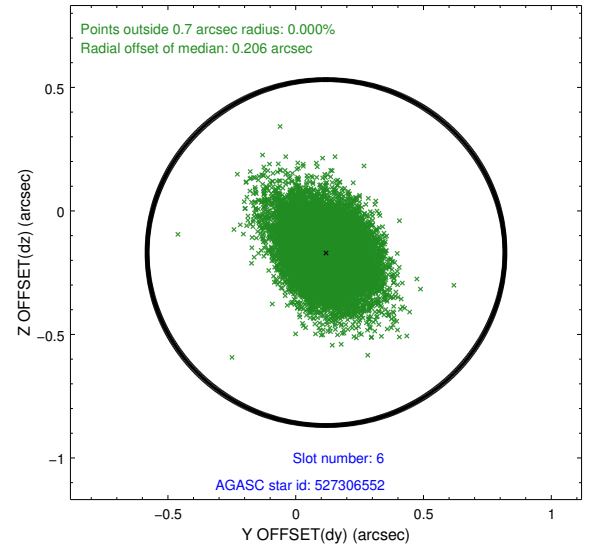
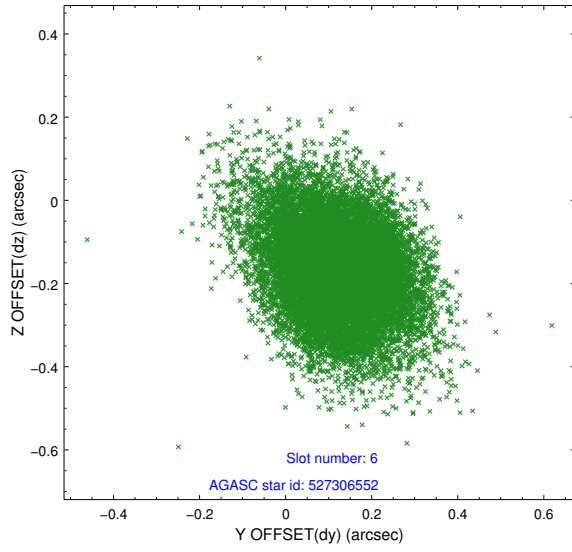
2.4.2 Slot 4



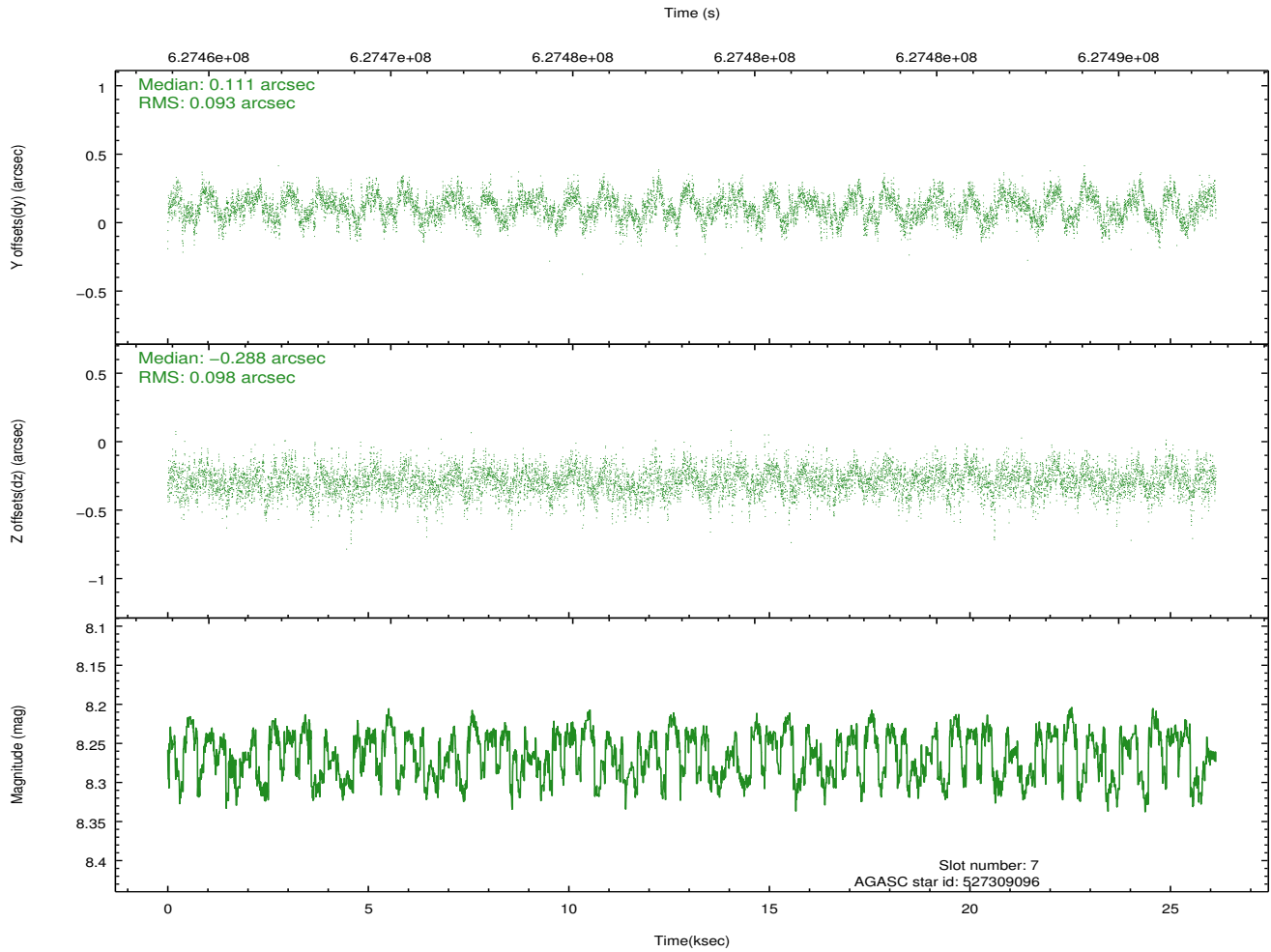
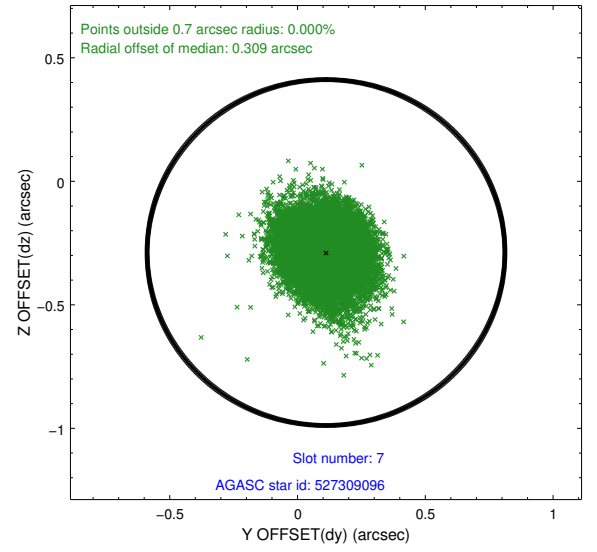
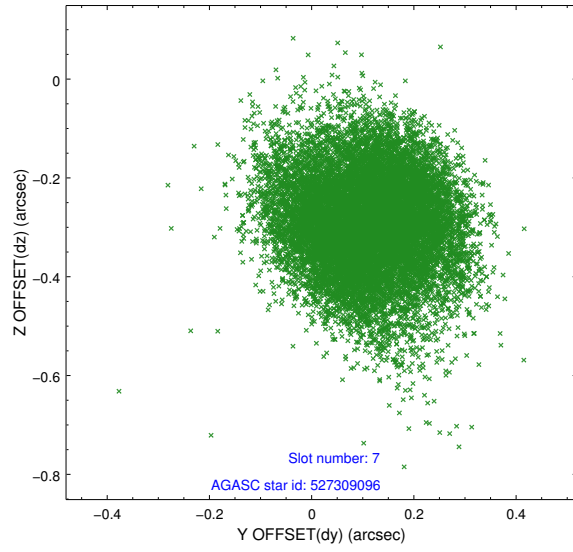
2.4.3 Slot 5



2.4.4 Slot 6

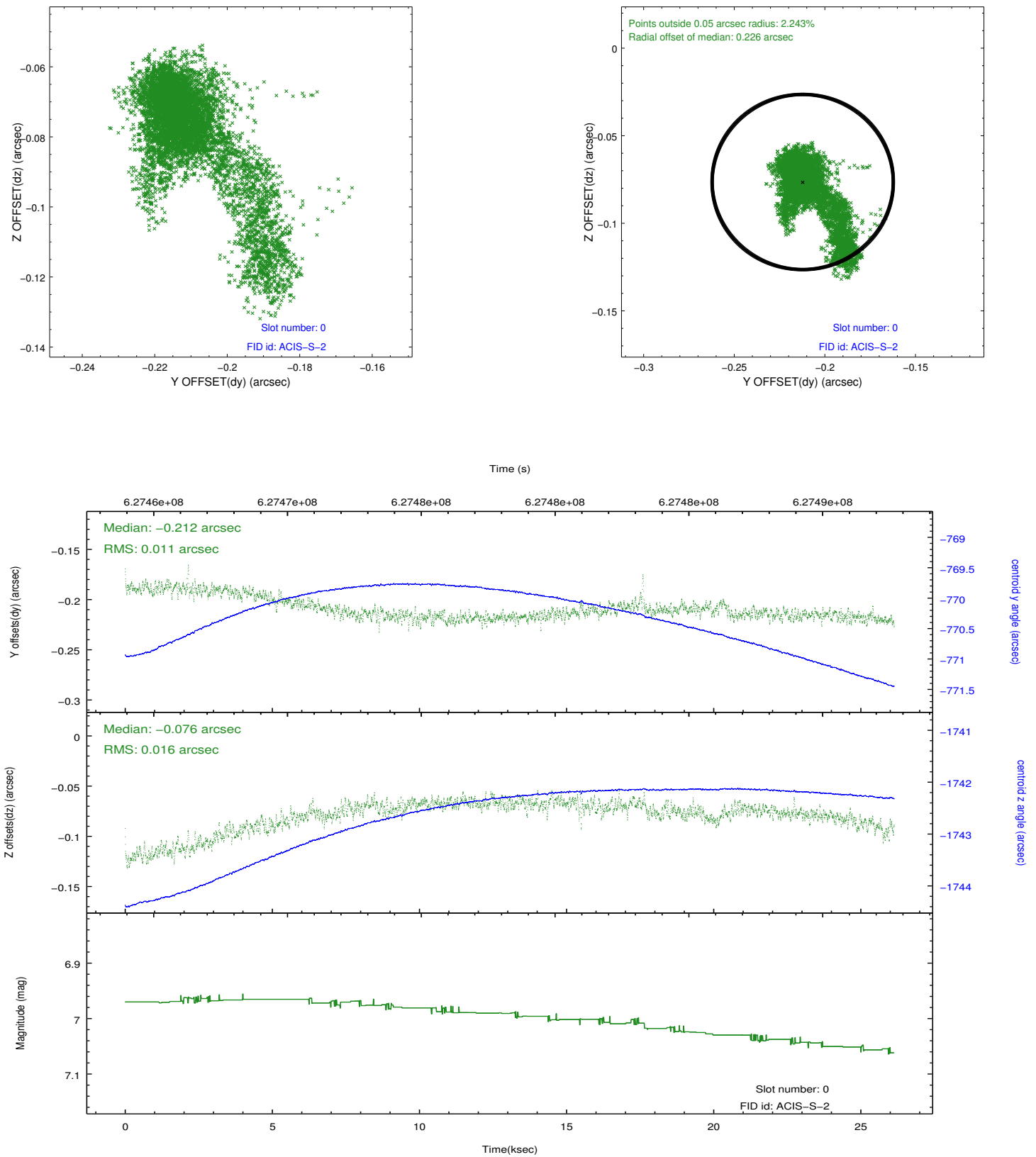


2.4.5 Slot 7

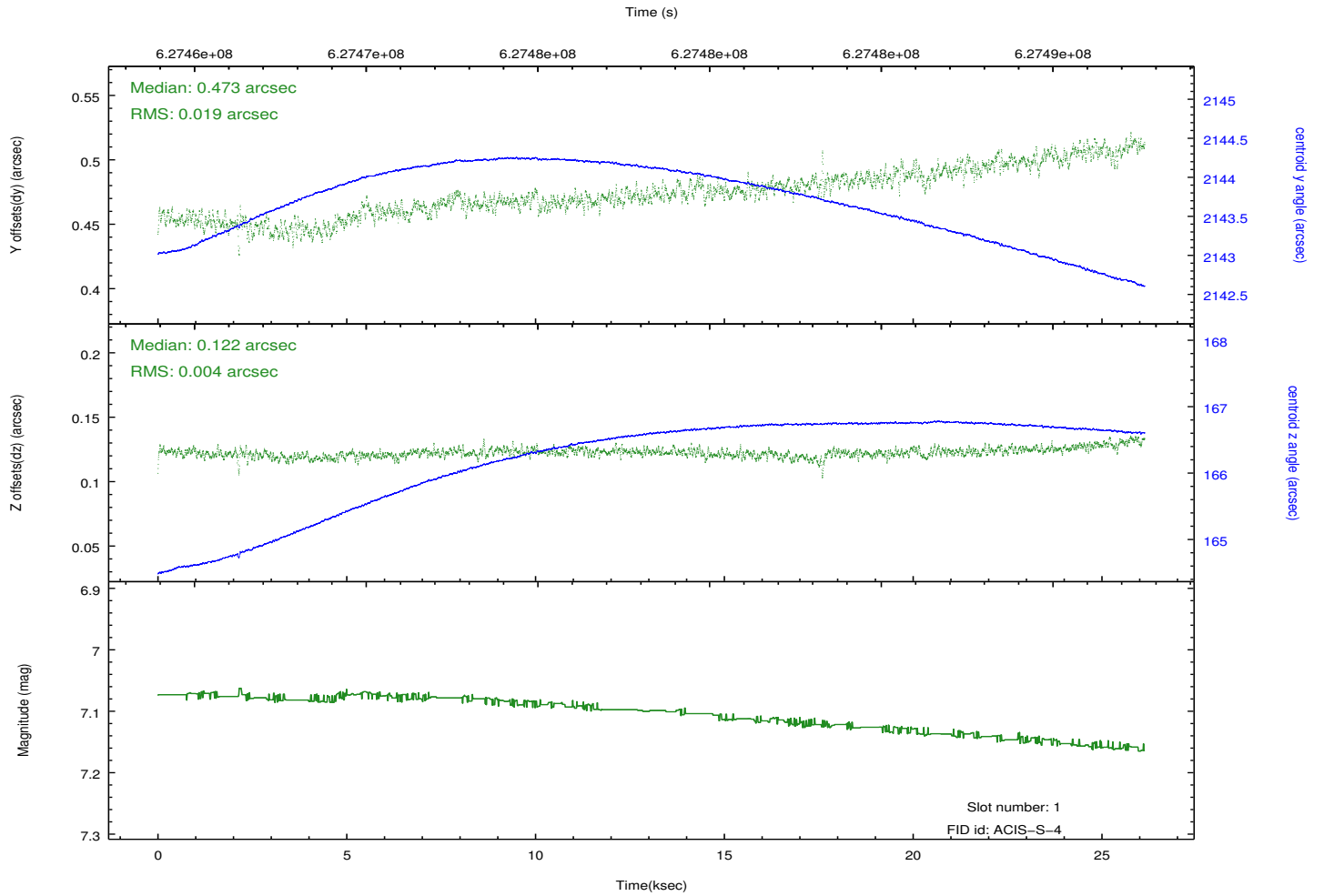
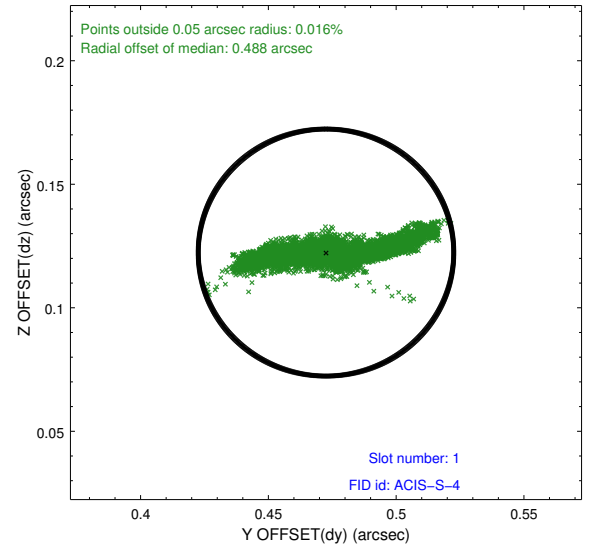
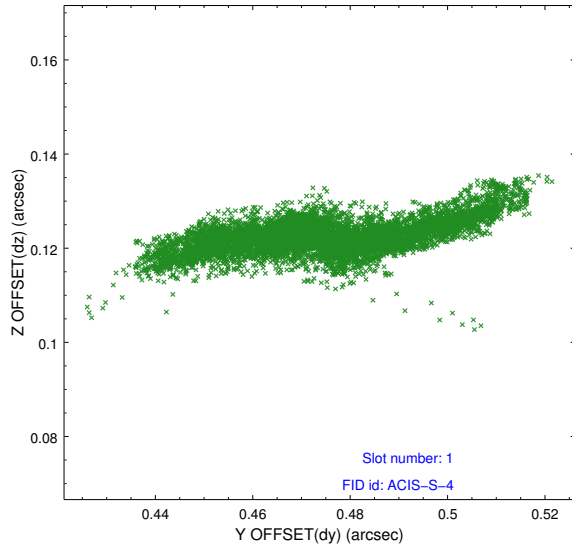


2.5 FID Slots

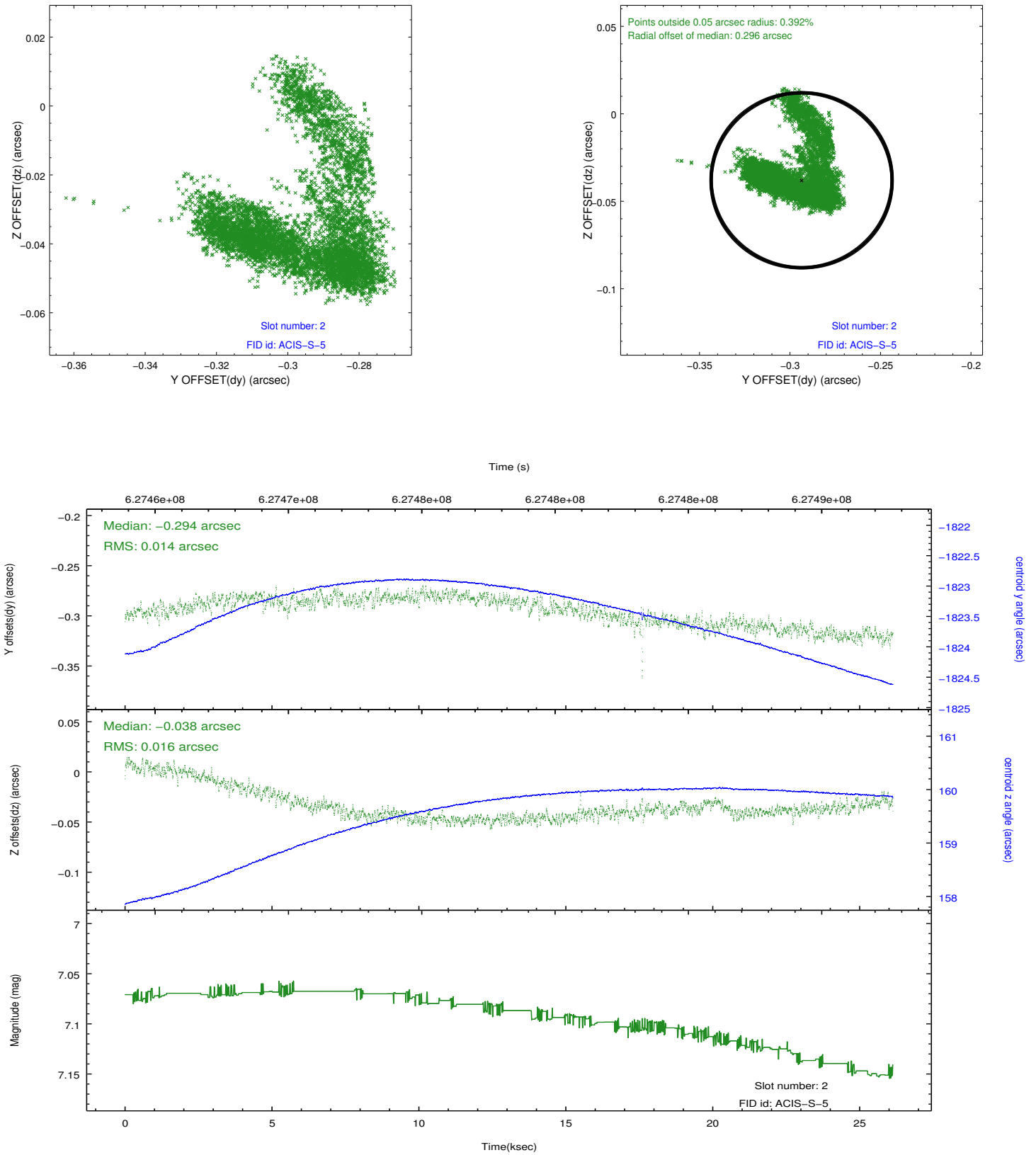
2.5.1 Slot 0



2.5.2 Slot 1

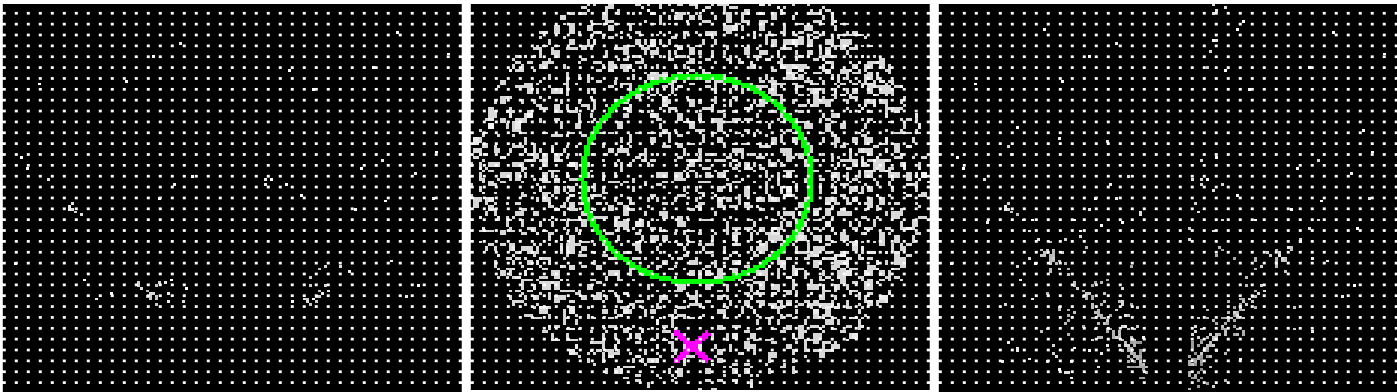


2.5.3 Slot 2



3 Gratings

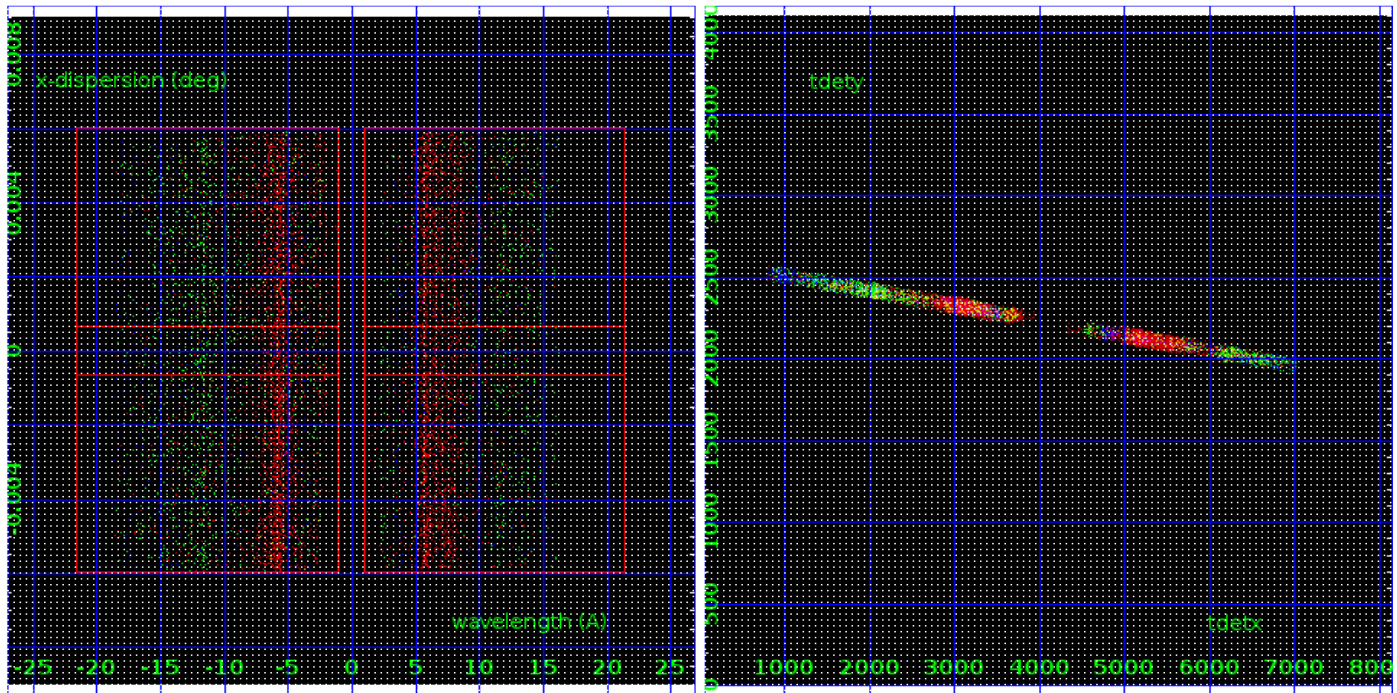
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

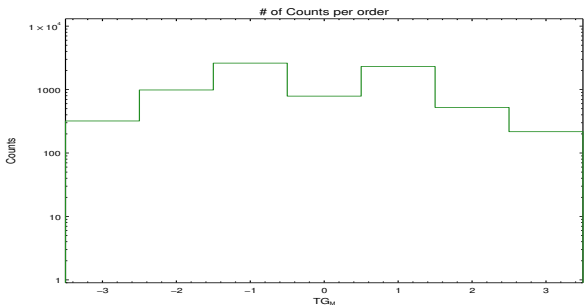
HEG Order Sort ALL

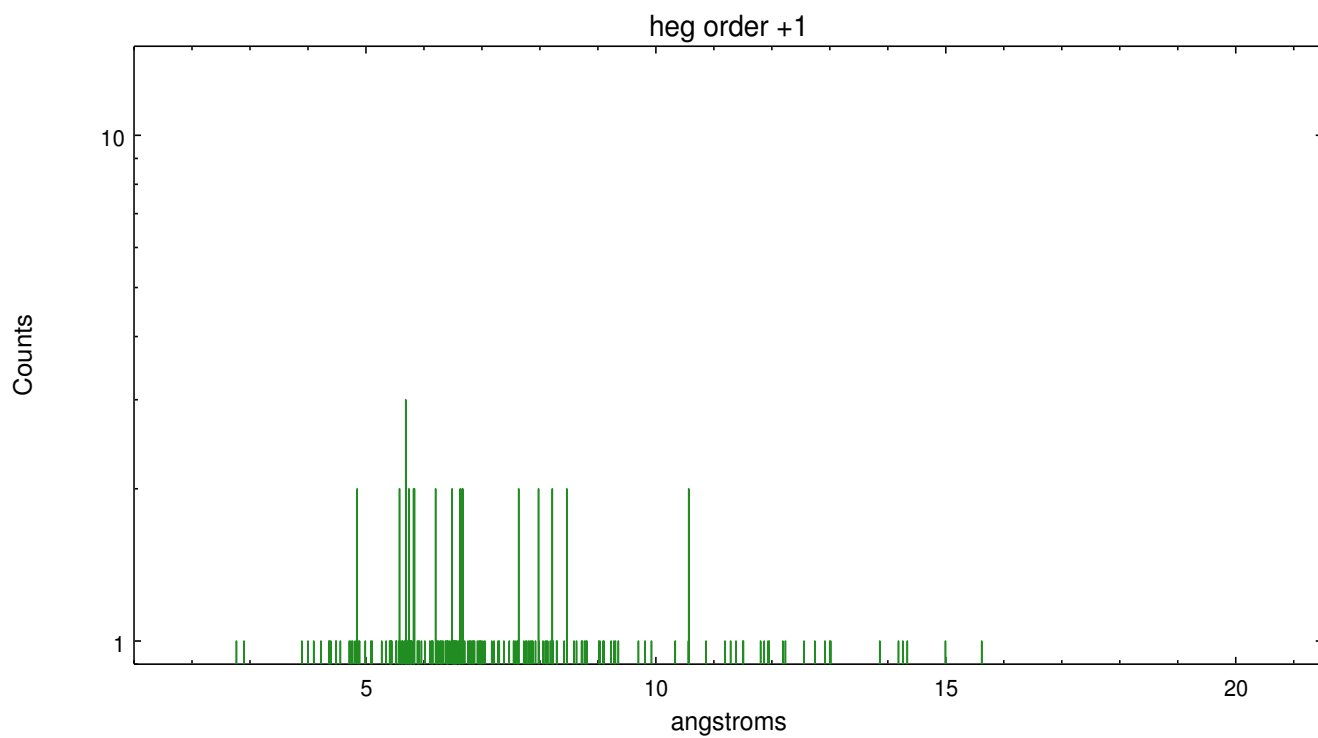
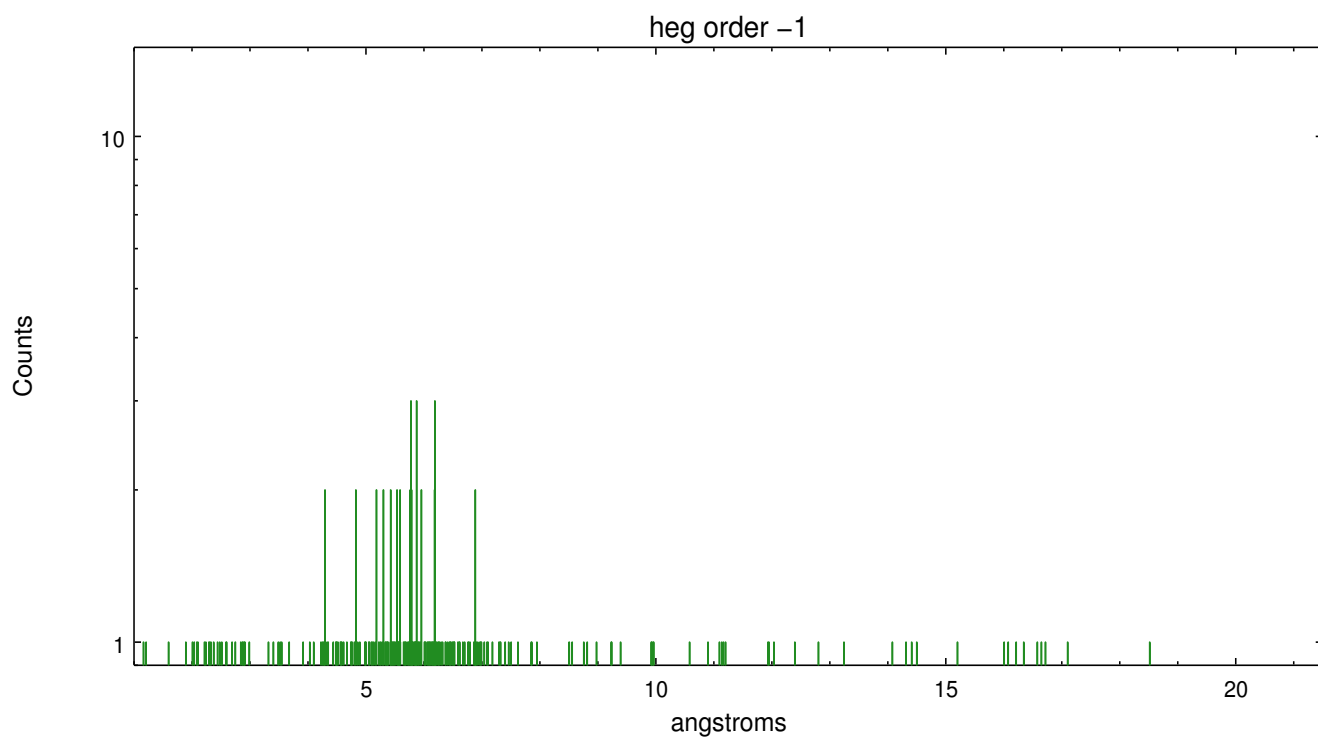


Spot Image HEG

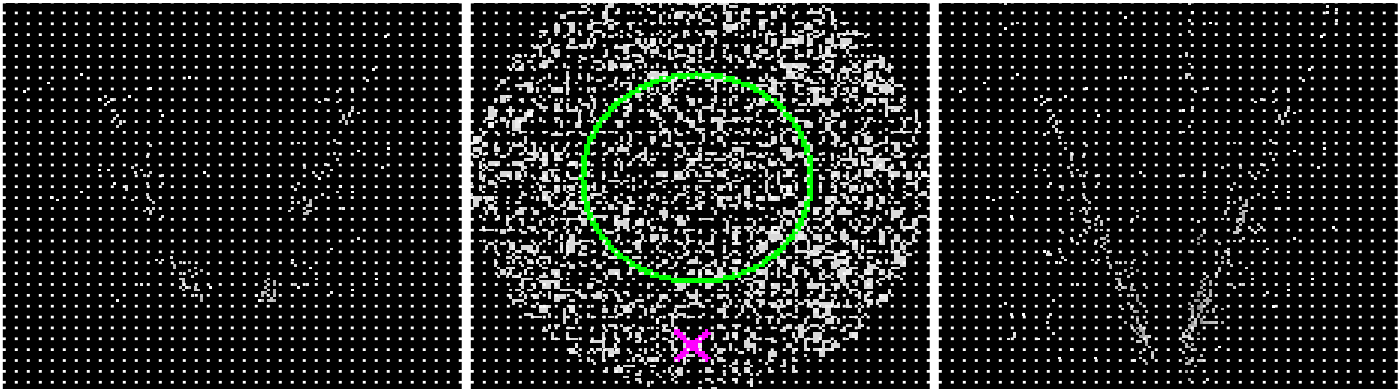
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	320	986	2612	788	2309	523	217





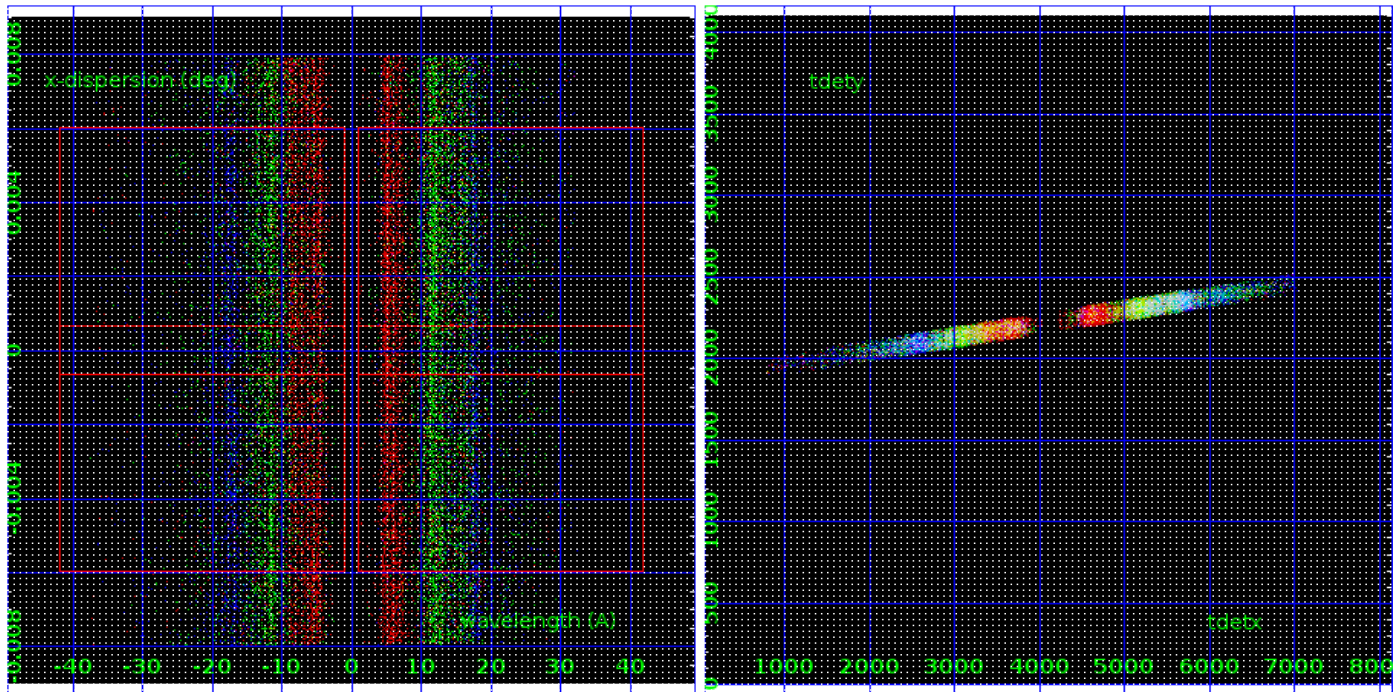
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

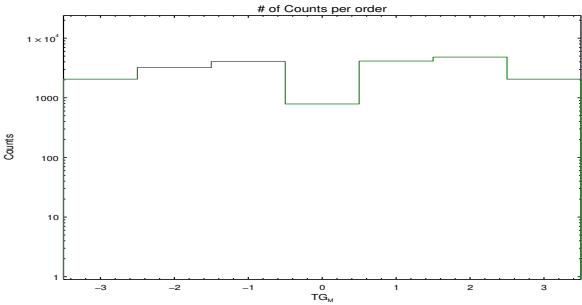
MEG Order Sort ALL

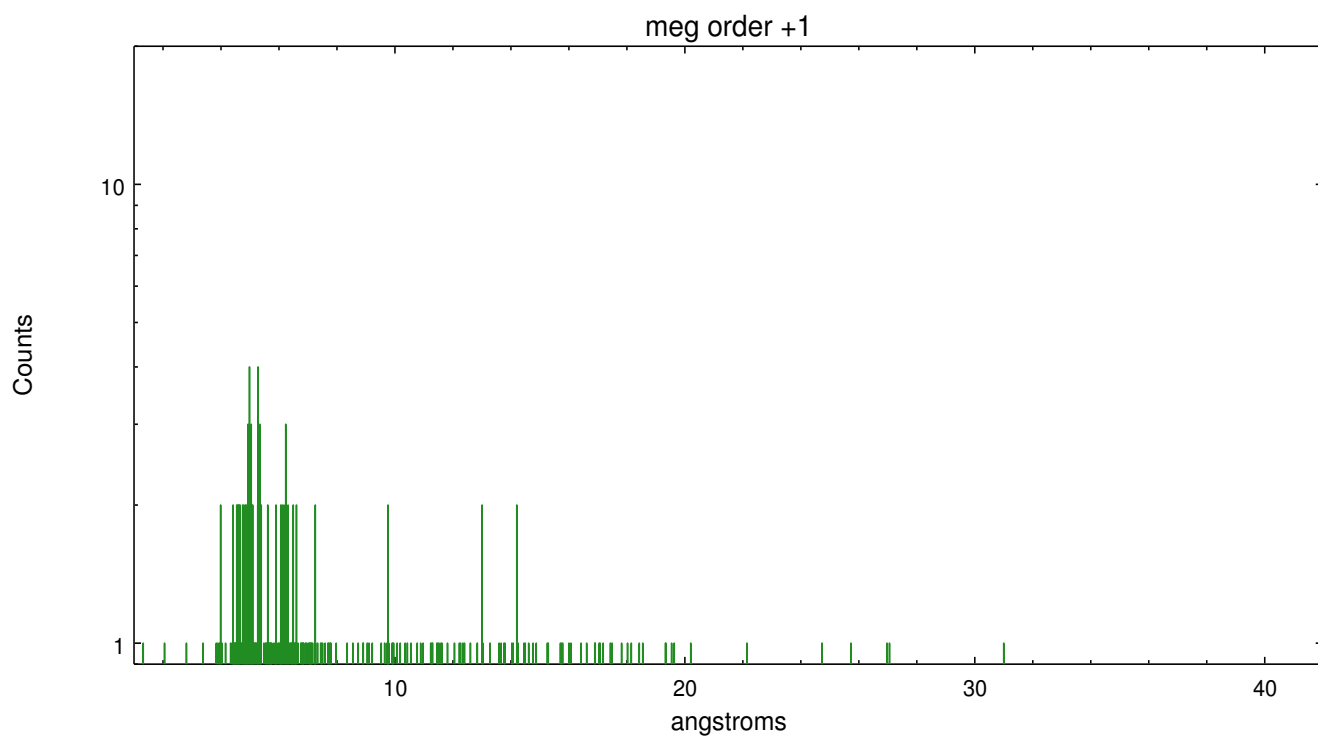
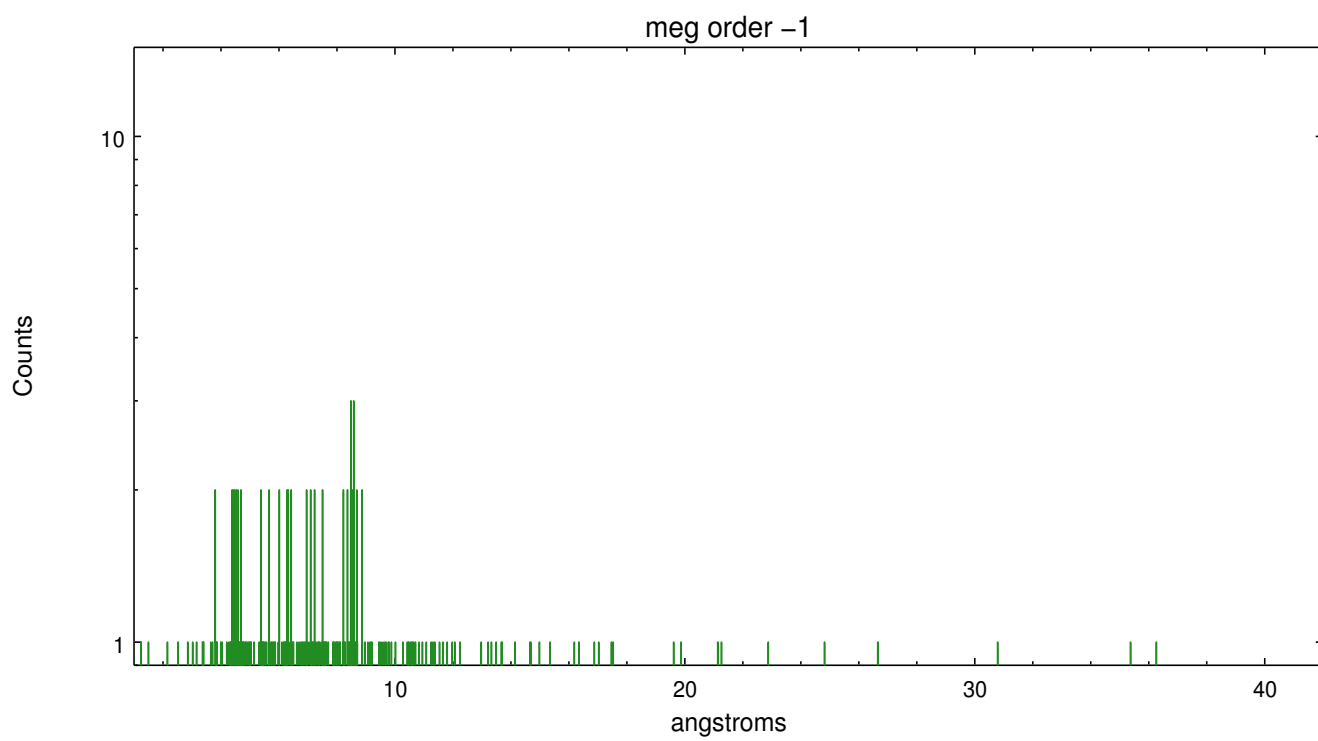


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2053	3220	4051	788	4128	4811	2052





A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2017.11.20
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	25.953960358858

A.2 Comments

WARNING: this is a grating observation of a very extended source. Dispersed spectra are a mix of spatial and spectral information. The default extraction, on the nominal target position, is of no particular significance. Custom analysis will be required to perform extractions on features of interest (e.g., bright knots). Note that there are also no standard responses for analysis of extended sources; the grating RMFs (LSF) are as if point sources, so custom analysis will be required to model profiles, with care to disentangle spatial-spectral features.