

V&V Reference Report

L2 ASCDS Version : 10.6.3

Observation 21103 - L2 Version 1
Chandra X-Ray Center

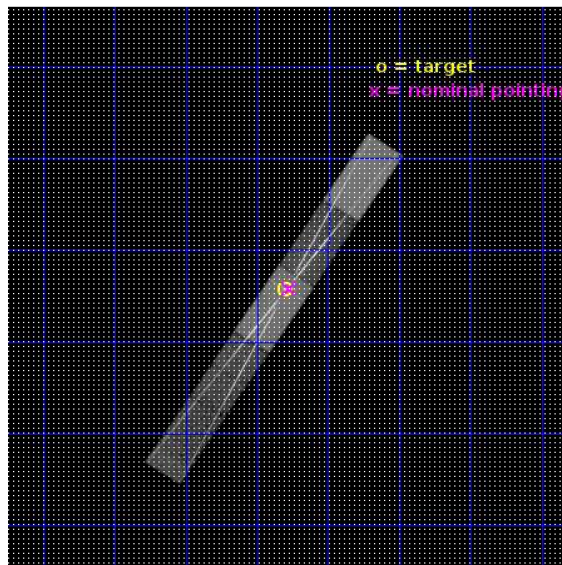
L2 Processing Date : Jun 13 2018

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1 Front

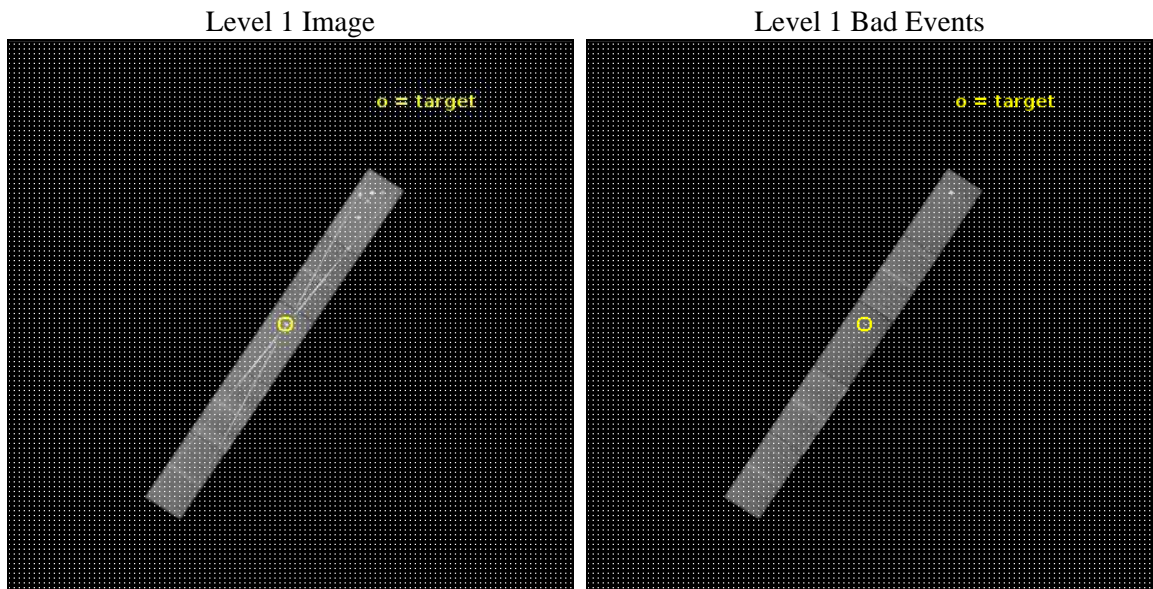
seq_num	401899	Sequence number
obs_id	21103	Observation id
title	An X-ray Outflow in an Ultracompact X-ray Binary	Proposal title
observer	Jon Miller	Principal investigator
object	4U 1916-053	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	289.699583	Observer's specified target RA [deg]
dec_targ	-5.238083	Observer's specified target Dec [deg]
ra_nom	289.6930492477	Nominal RA [deg]
dec_nom	-5.2368340012884	Nominal Dec [deg]
roll_nom	123.15602592011	Nominal Roll [deg]
revision	1	Processing version of data
ontime	29092.100816011	Sum of GTIs [s]
livetime	28406.338388101	Livetime [s]
ontime5	29092.100816011	Sum of GTIs [s]
ontime6	29092.100816011	Sum of GTIs [s]
ontime7	29092.100816011	Sum of GTIs [s]
ontime8	29090.35977602	Sum of GTIs [s]
ontime9	29092.100816011	Sum of GTIs [s]
l2events	439925	Number of level 2 events



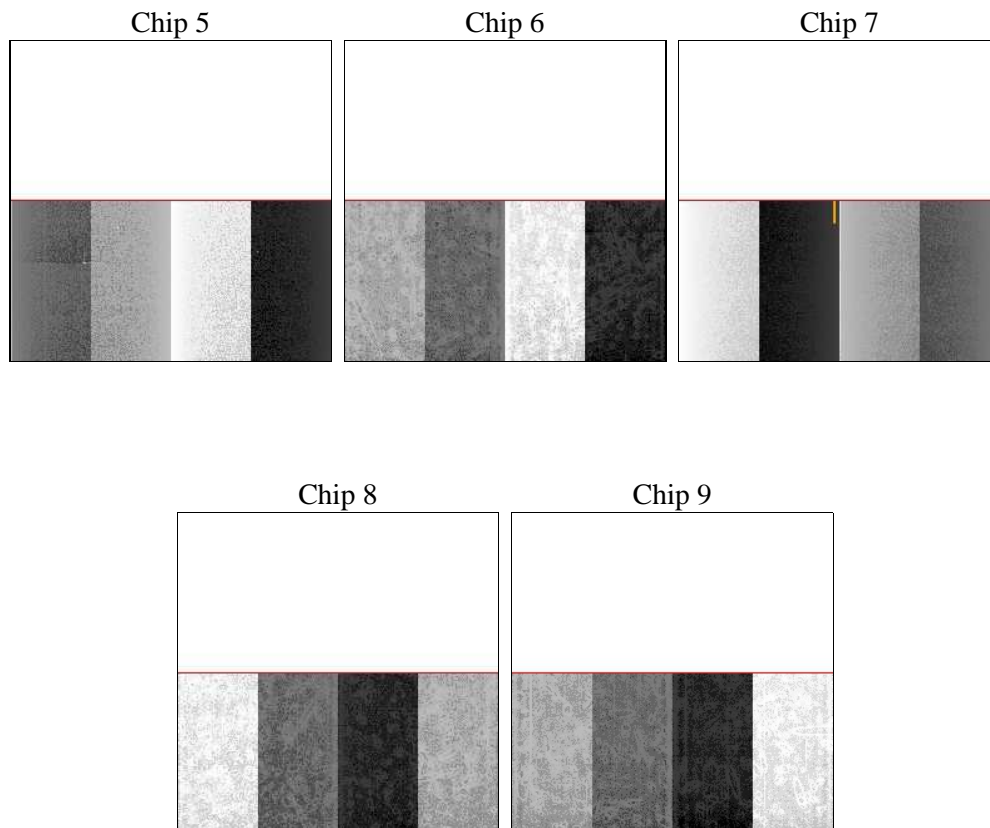
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	29003.917000	[s] Scheduled observation exposure time
ascdsver	10.6.3	Processing system revision	ontime	29092.100816011	Sum of GTIs [s]
caldbver	4.7.8	 	ontime5	29092.100816011	Sum of GTIs [s]
date	2018-06-13T06:00:07	Date and time of file creation	ontime6	29092.100816011	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	29092.100816011	Sum of GTIs [s]
			ontime8	29090.35977602	Sum of GTIs [s]
			ontime9	29092.100816011	Sum of GTIs [s]
			l1events	1044732	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4049.51, 4087.01)	src1a sky pixel position

2.1.4 Events

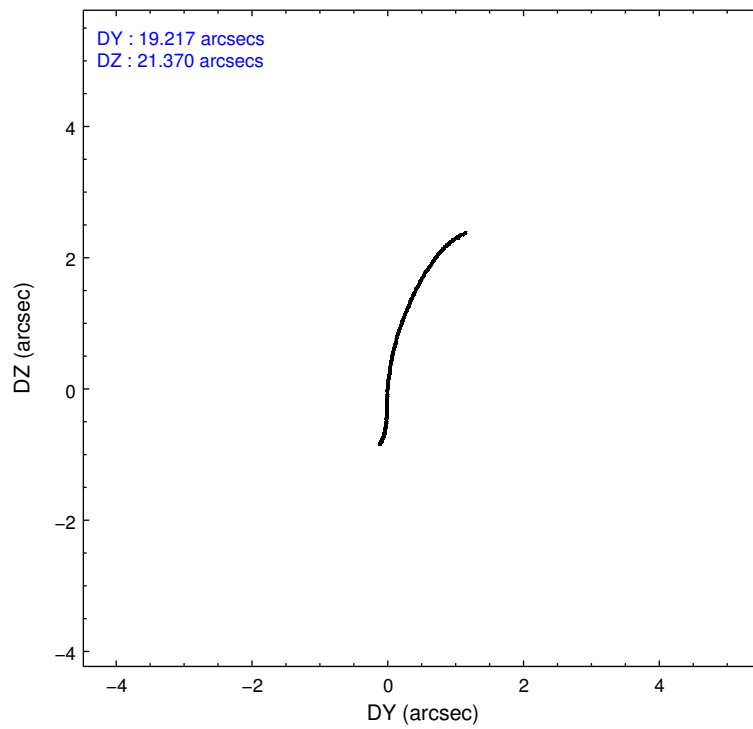
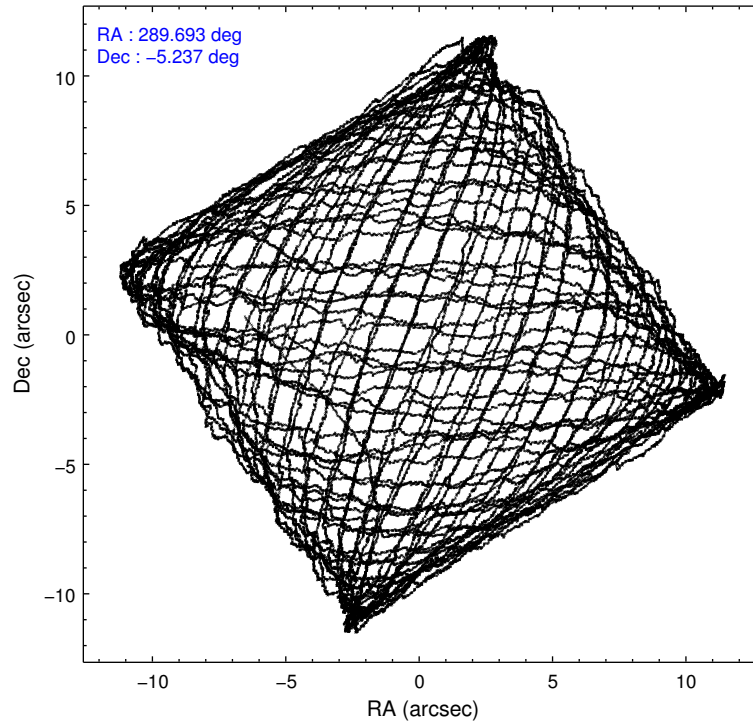
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	251875	215468	262200	192473	122716
rejected events	107181	107257	85763	115250	101848
rejected %	42%	49%	32%	59%	82%

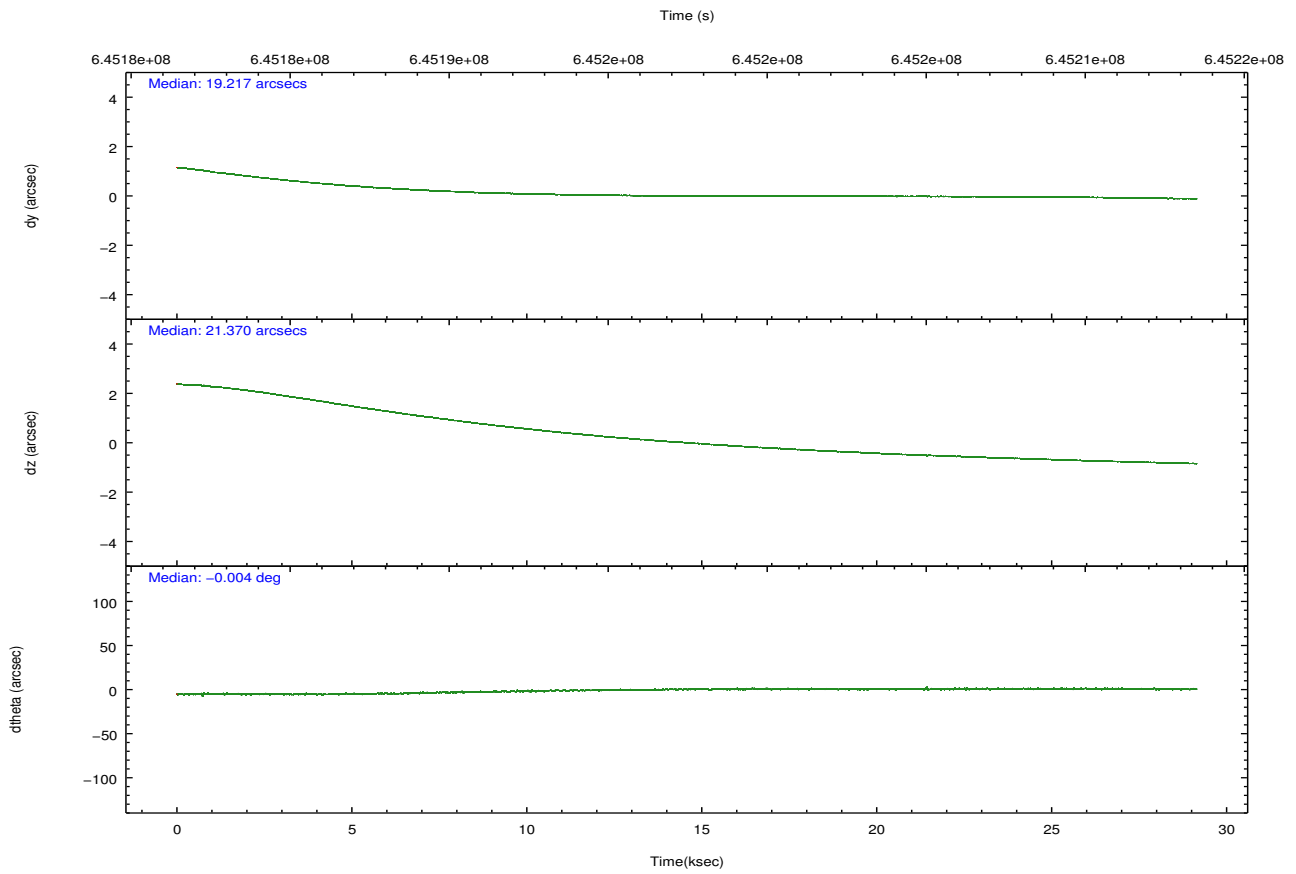
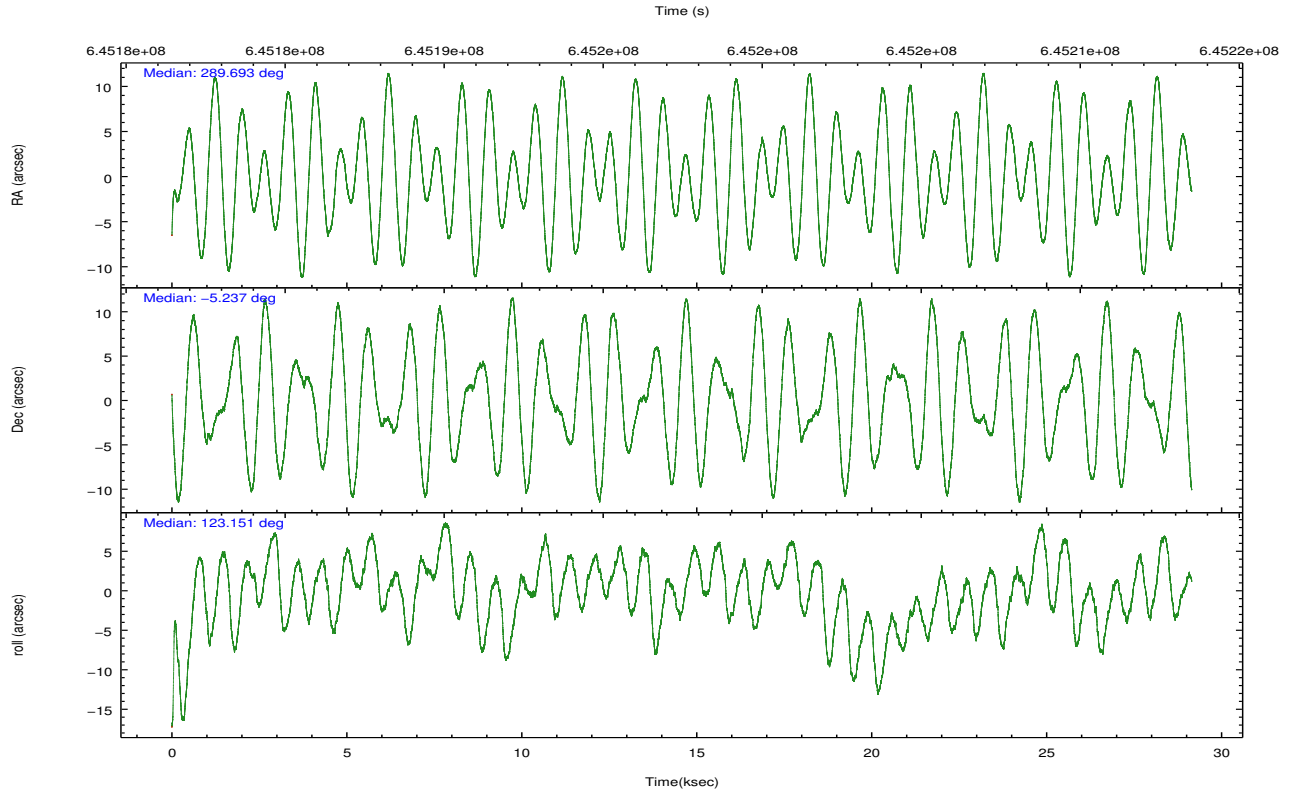
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	42801	75934	30047	38646	9840
	16%	35%	11%	20%	8%
grade 1 events	416	417	691	176	70
	0%	0%	0%	0%	0%
grade 2 events	33997	14910	41409	13929	3997
	13%	6%	15%	7%	3%
grade 3 events	8216	5289	17946	5912	1940
	3%	2%	6%	3%	1%
grade 4 events	9047	5262	17892	5530	1789
	3%	2%	6%	2%	1%
grade 5 events	19155	5568	17153	7895	5623
	7%	2%	6%	4%	4%
grade 6 events	50643	6825	69151	13209	3303
	20%	3%	26%	6%	2%
grade 7 events	87600	101263	67911	107176	96154
	34%	46%	25%	55%	78%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-56789	ACIS-56789	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	289.717813	289.6930492477006	CCD I2 on	N	N
[deg] Pointing Dec	-5.248897	-5.236834001288397	CCD I3 on	N	N
[deg] Pointing Roll	123.001668	123.1560259201074	CCD S0 on	O1	N
[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	-183.992523	-183.9875365069546	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-6.14	-6.144986076053243	CCD S4 on	Y	Y
[s] Observation start time (MET)	645183036.184000	645181769.12962	CCD S5 on	Y	Y
Observation start date	2018-06-12T09:29:27	2018-06-12T09:09:29	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	645212040.184000	645212839.44394	On-chip summing requested	N	N
Observation end date	2018-06-12T17:32:51	2018-06-12T17:47:19	Subarray requested	CUSTOM	1/2
Read mode	TIMED	TIMED	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



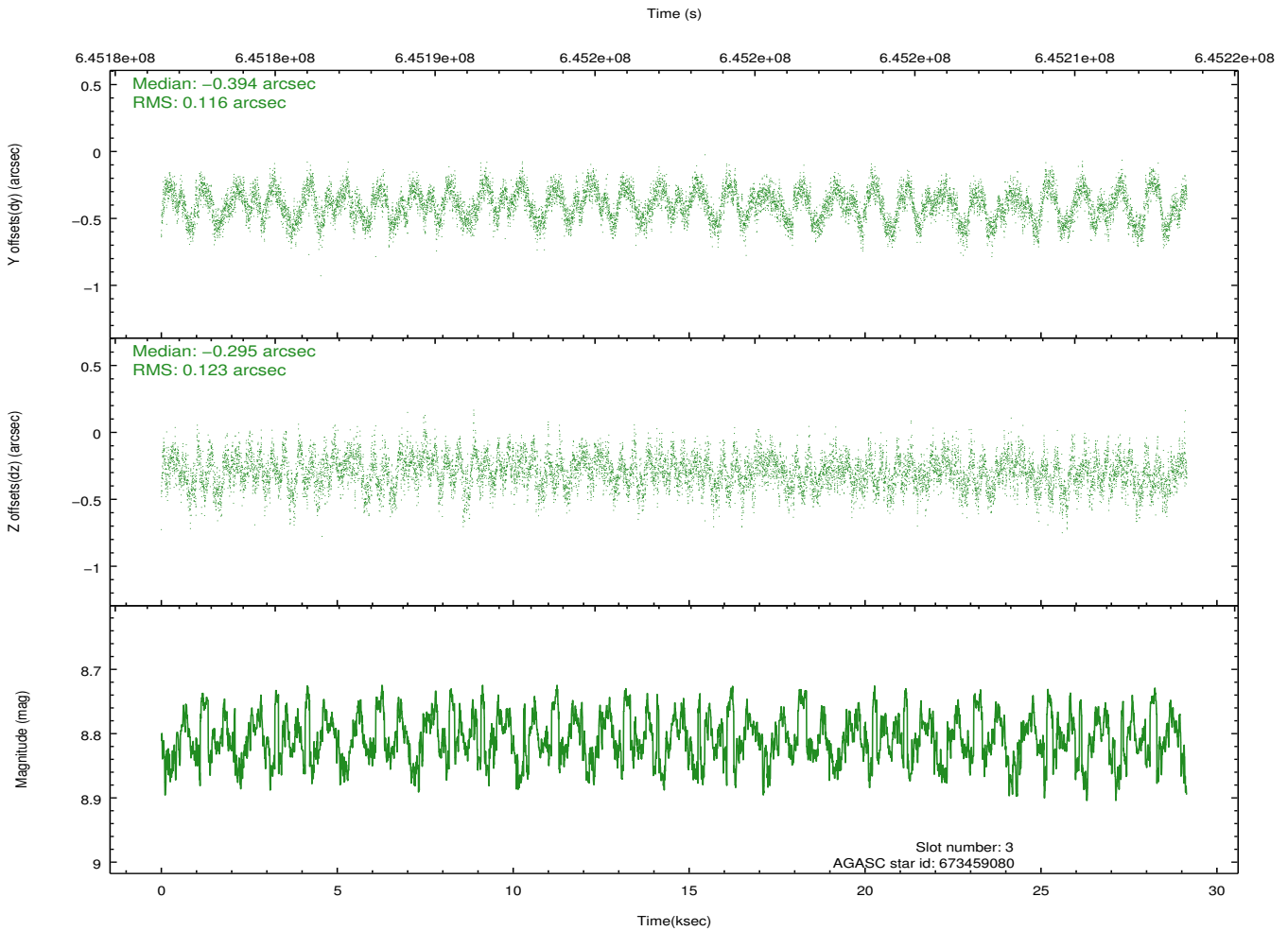
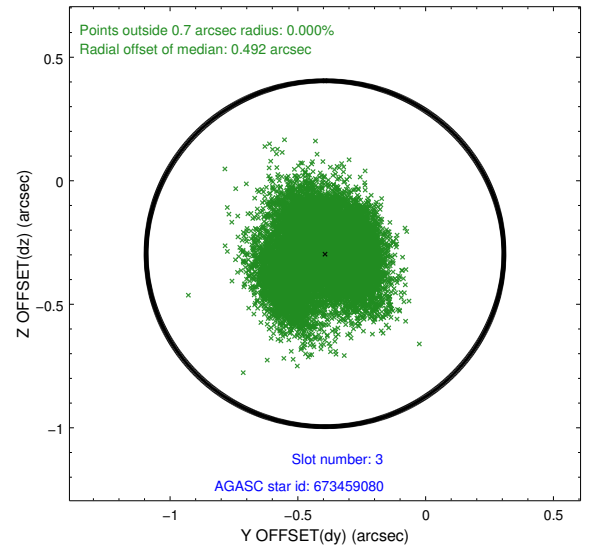
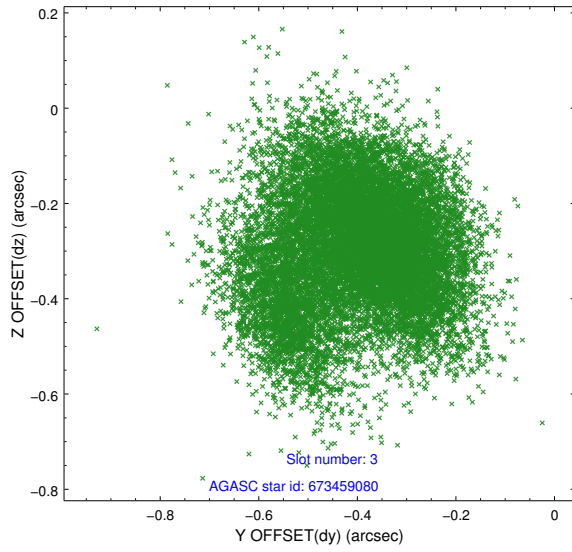


Slot Statistics

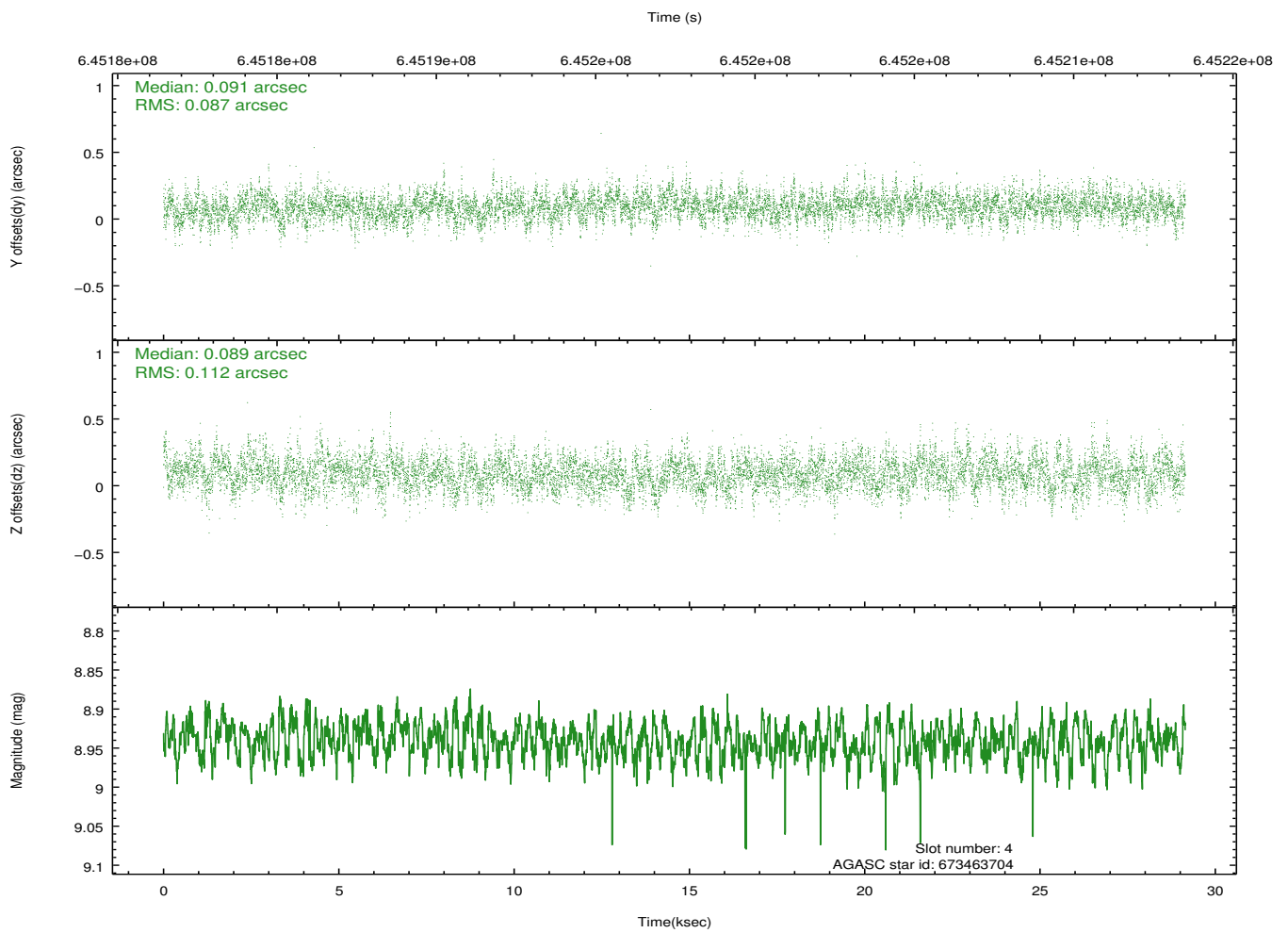
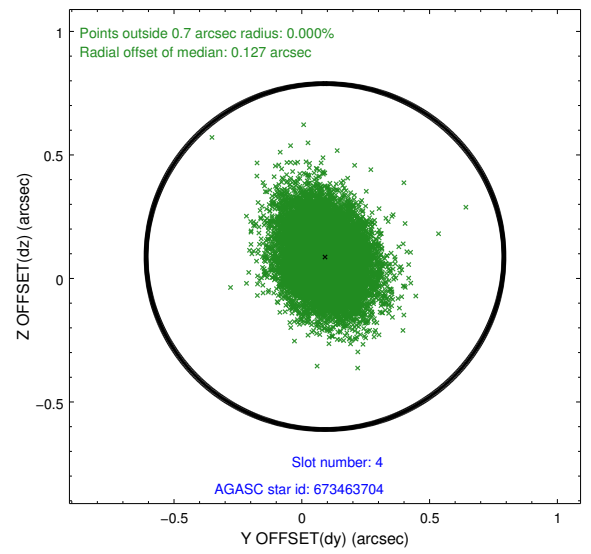
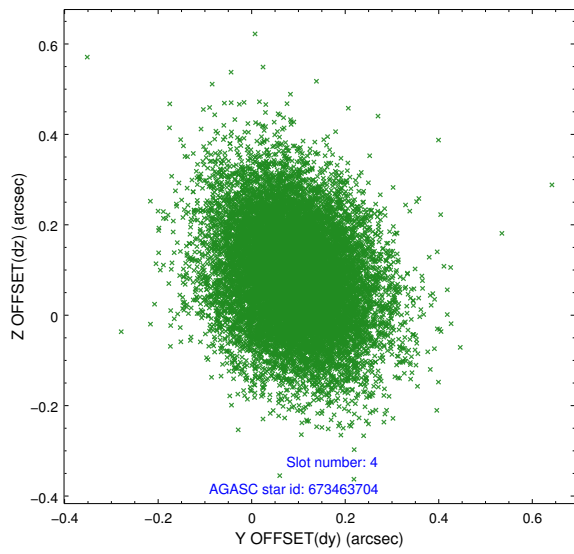
slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.03	7109	1.000	-0.246	-0.139	0.040	0.075	0.000000	0.000000	-772.26	-1870
1	FID		ACIS-S-4	7.13	7109	1.000	0.567	0.159	0.015	0.031	0.000000	0.000000	2141.79	38
2	FID		ACIS-S-5	7.17	7107	1.000	-0.350	-0.006	0.035	0.072	0.000000	0.000000	-1825.11	32
3	GUIDE	used	673459080	8.81	14204	1.000	-0.394	-0.295	0.185	0.286	289.246637	-5.373686	542.41	1661
4	GUIDE	used	673463704	8.94	14201	1.000	0.091	0.089	0.149	0.249	289.894494	-4.869892	799.26	-1274
5	GUIDE	used	673466464	9.21	14197	1.000	0.208	0.101	0.192	0.315	289.850458	-5.613937	-1360.46	316
6	GUIDE	used	673460992	8.29	14213	1.000	-0.032	0.360	0.145	0.231	289.799374	-5.232721	-110.10	-276
7	GUIDE	used	673455744	9.51	14191	1.000	0.135	-0.255	0.256	0.429	289.673010	-4.488976	2382.06	-1355

2.4 Star Slots

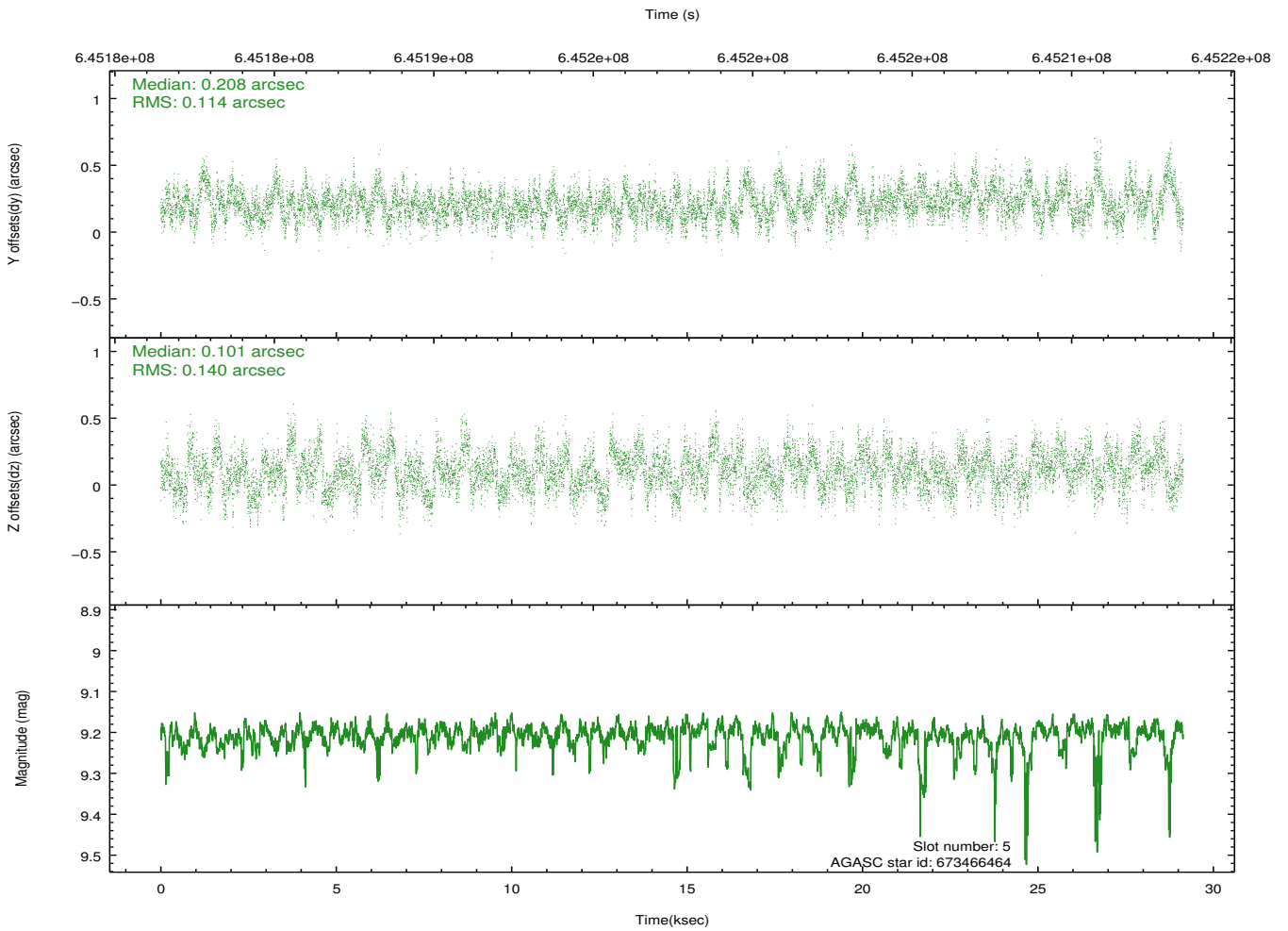
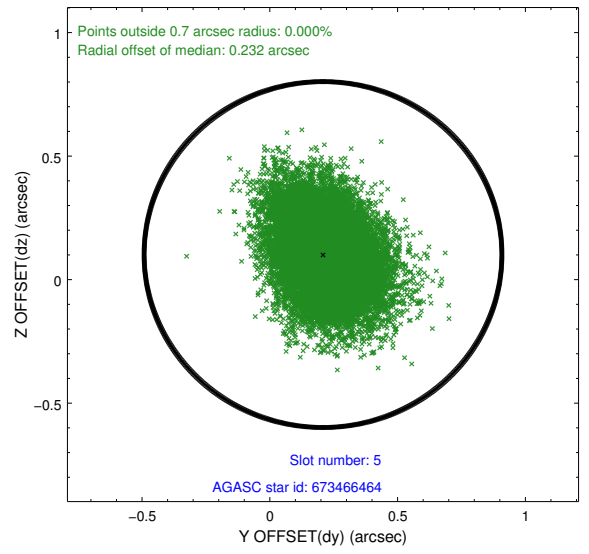
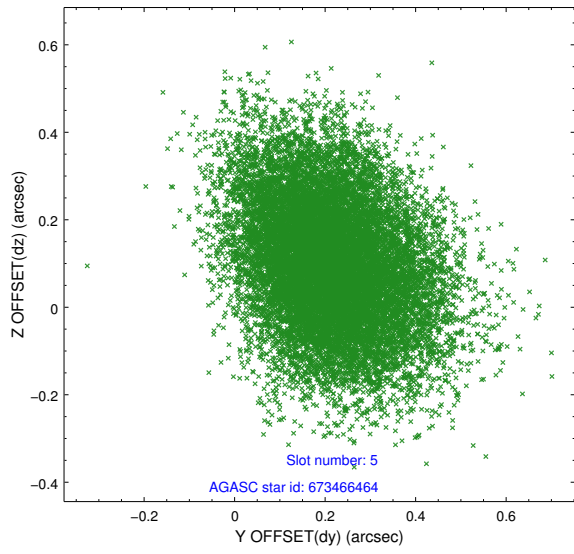
2.4.1 Slot 3



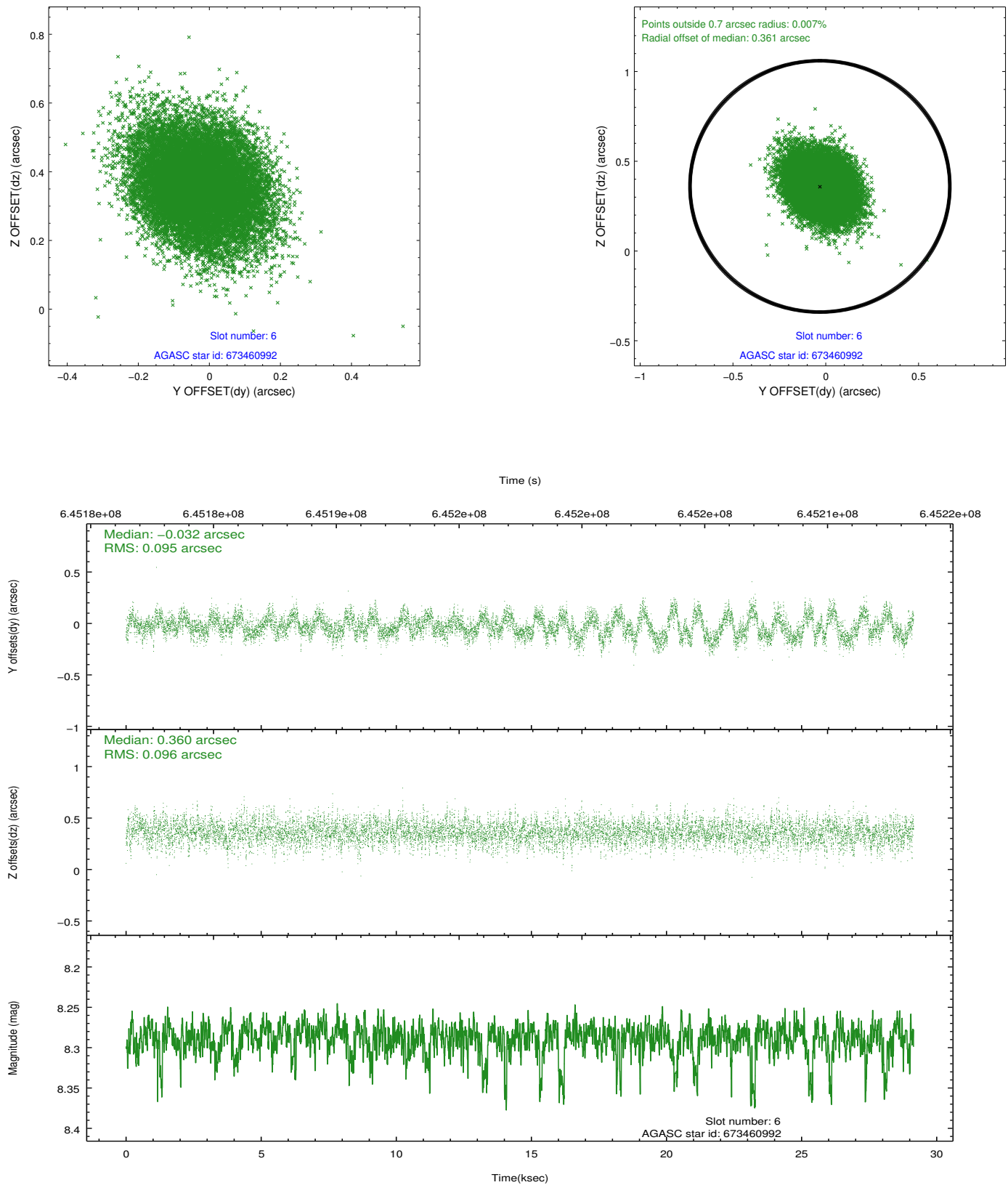
2.4.2 Slot 4



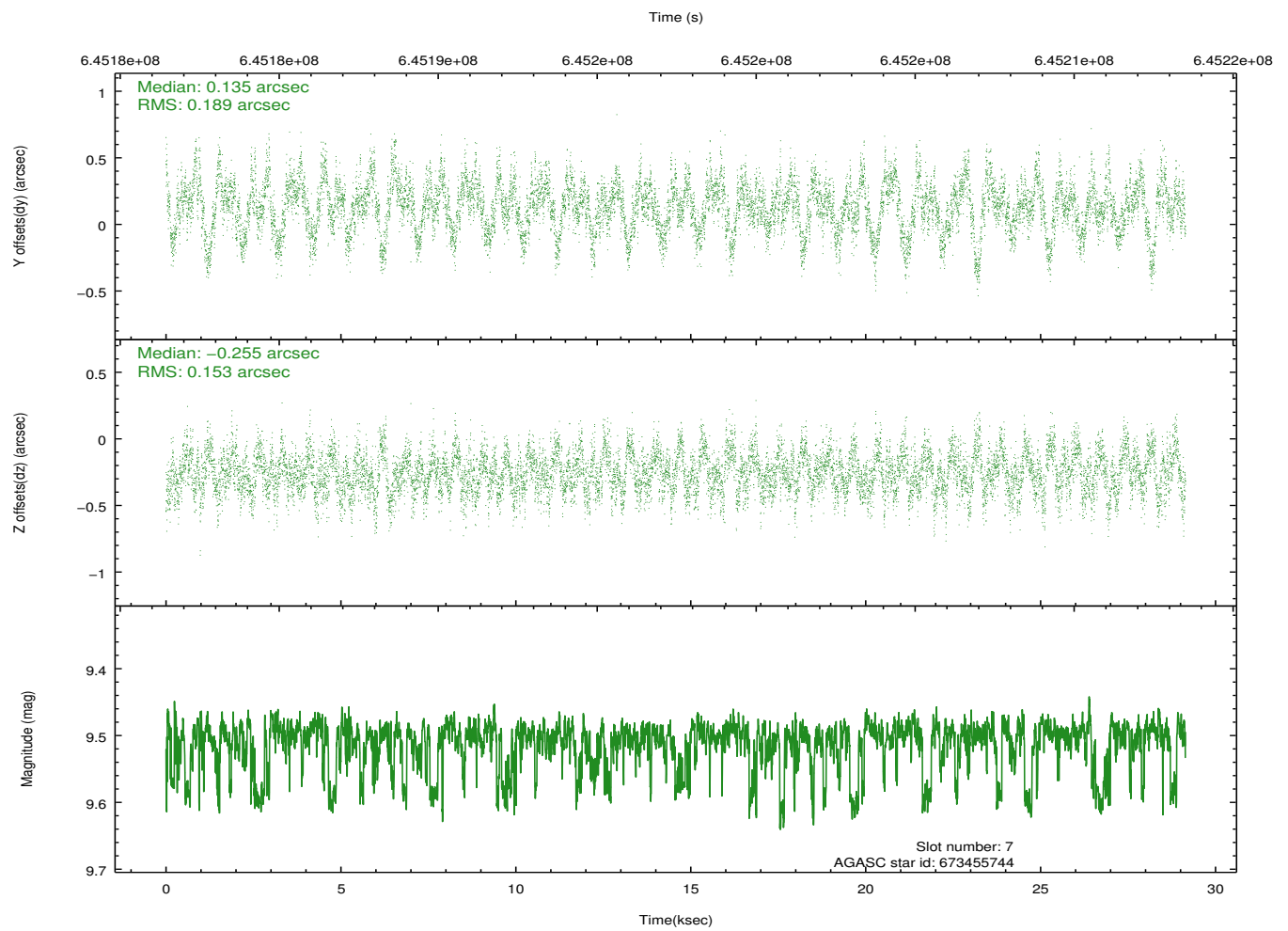
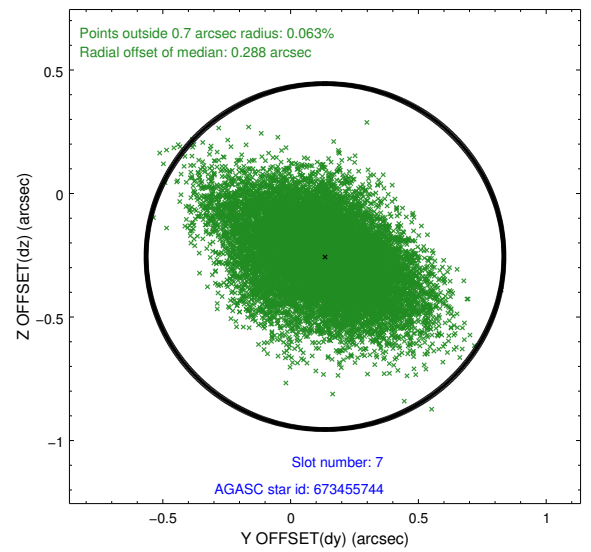
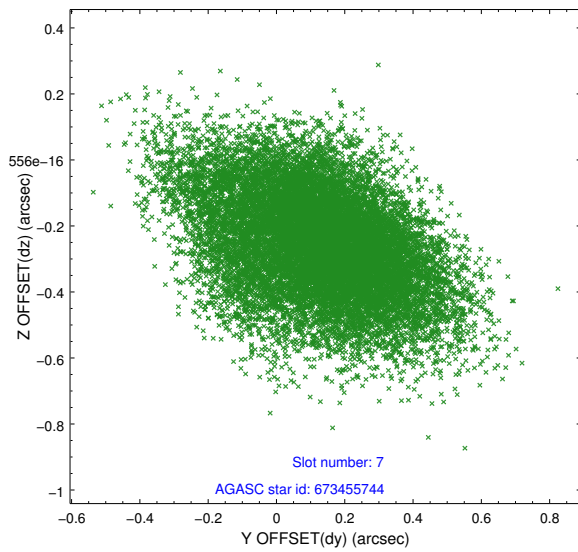
2.4.3 Slot 5



2.4.4 Slot 6

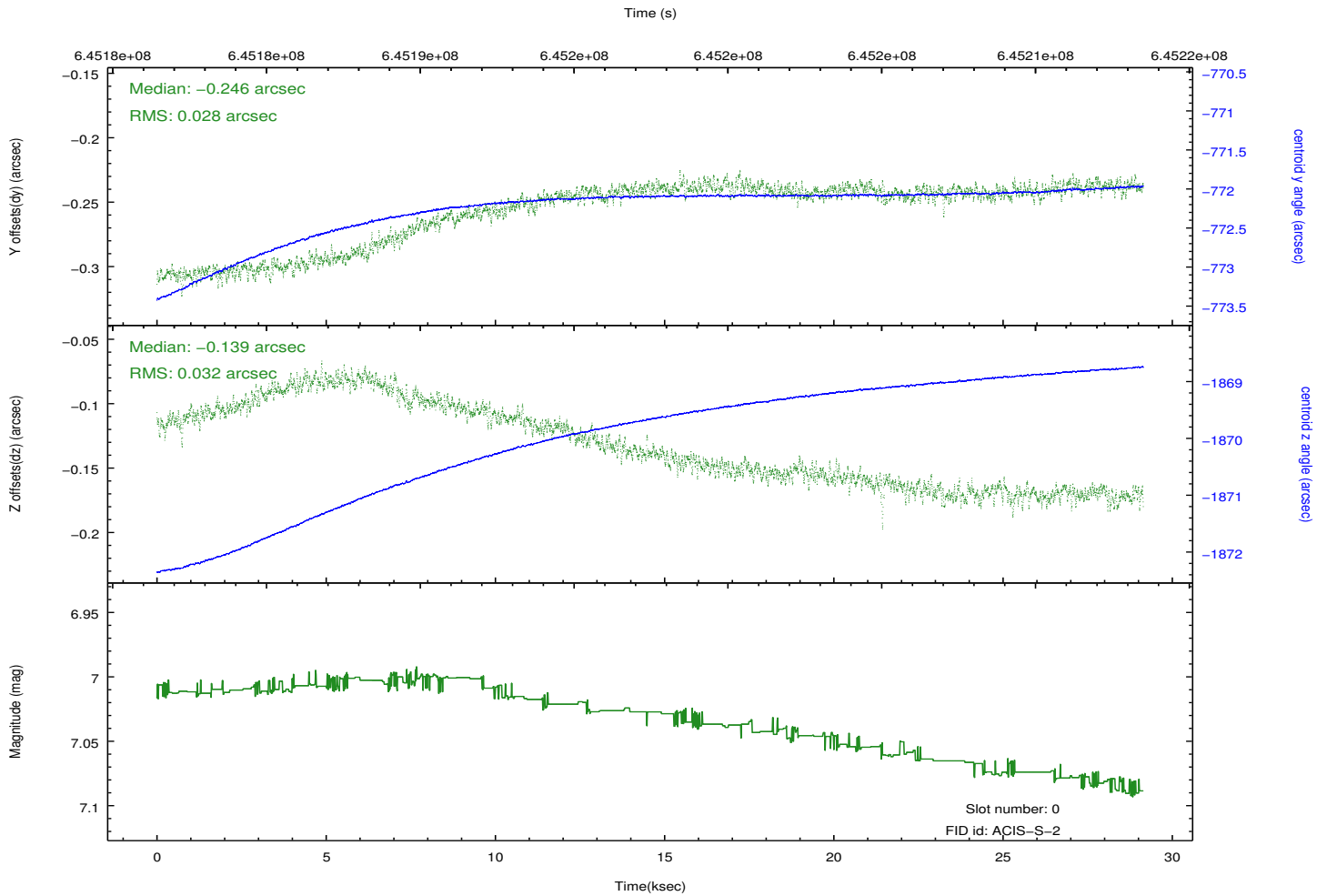
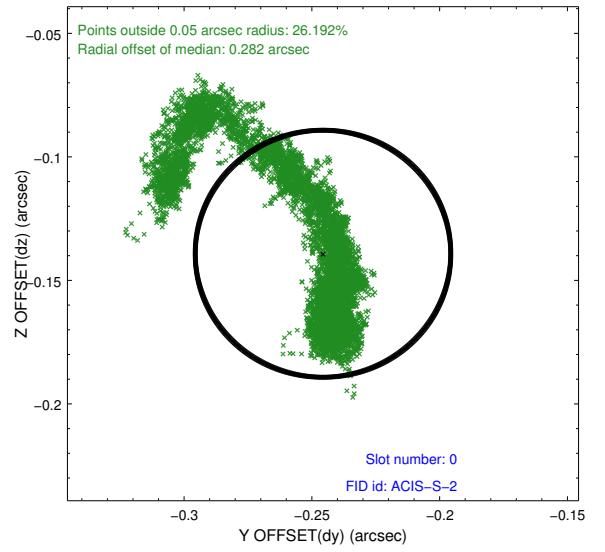
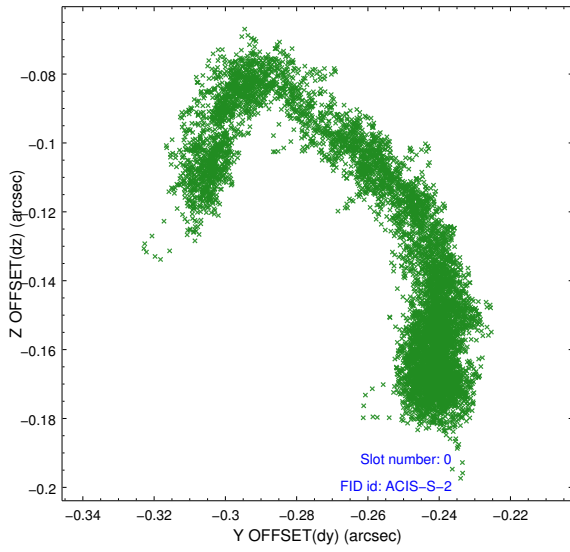


2.4.5 Slot 7

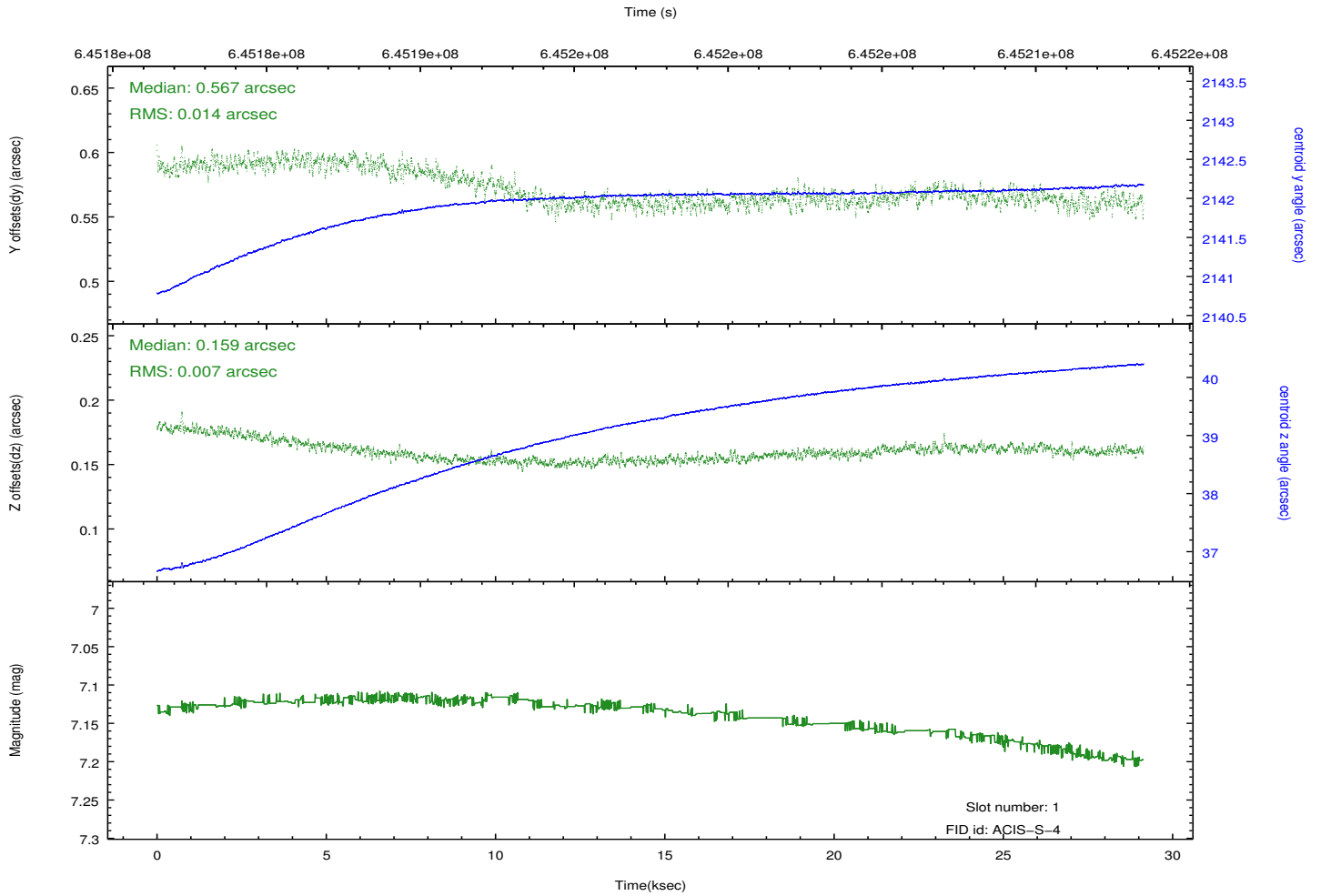
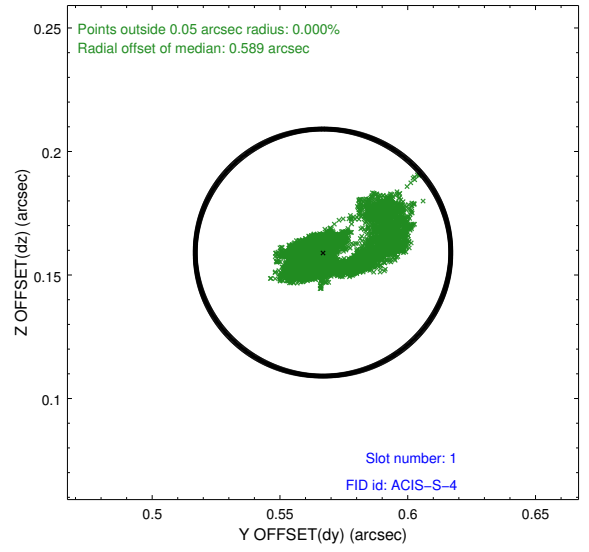
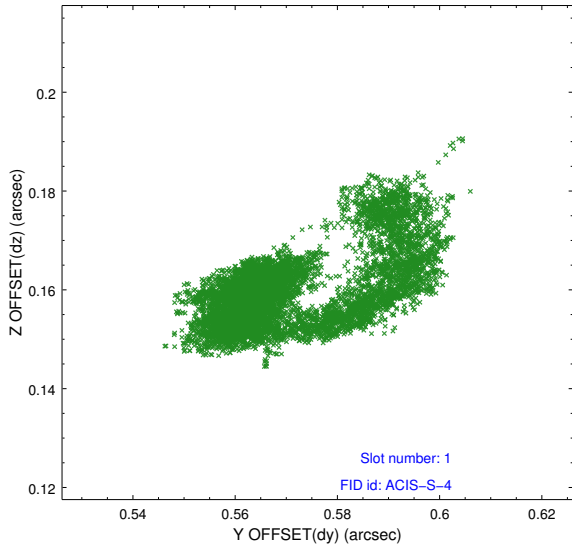


2.5 FID Slots

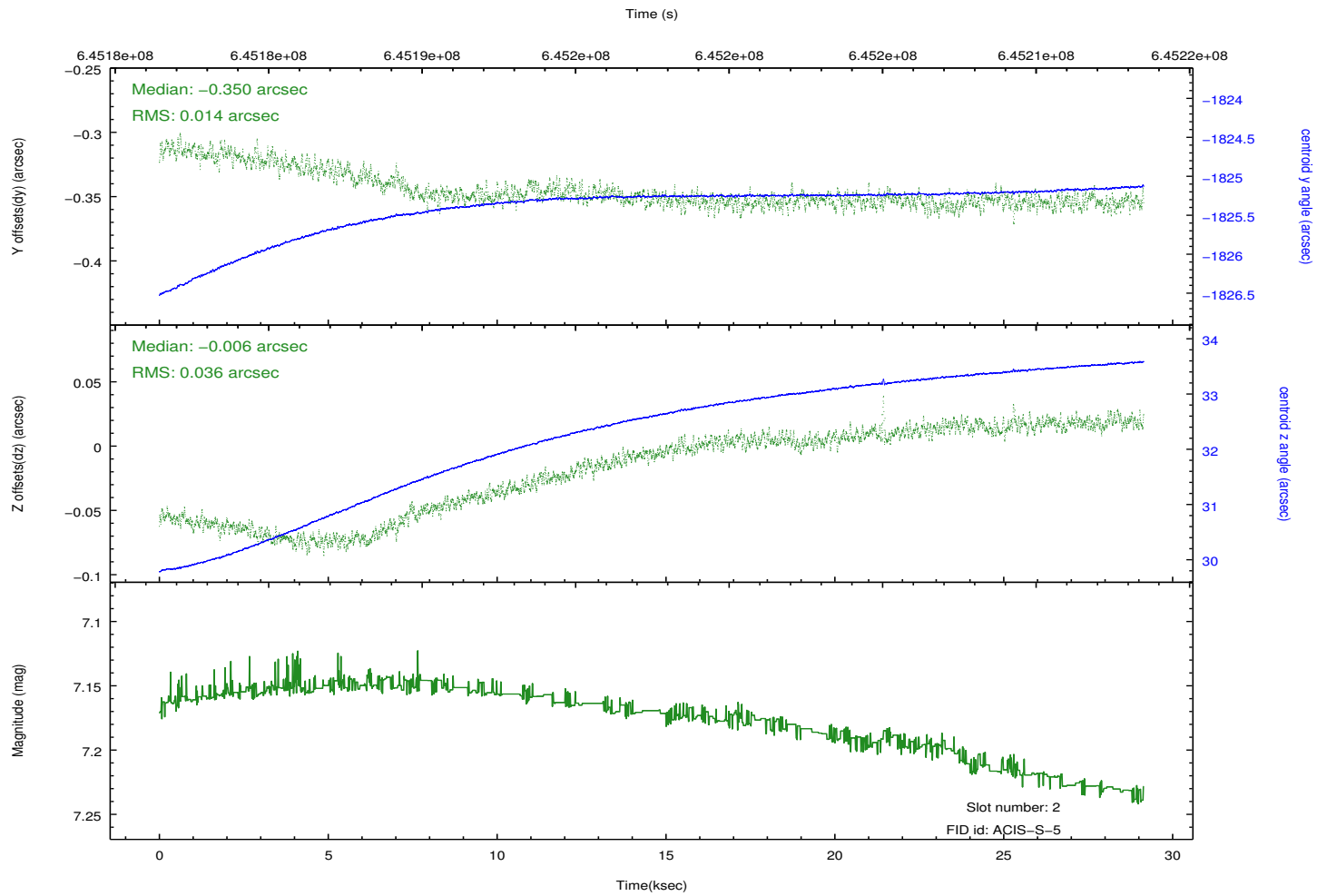
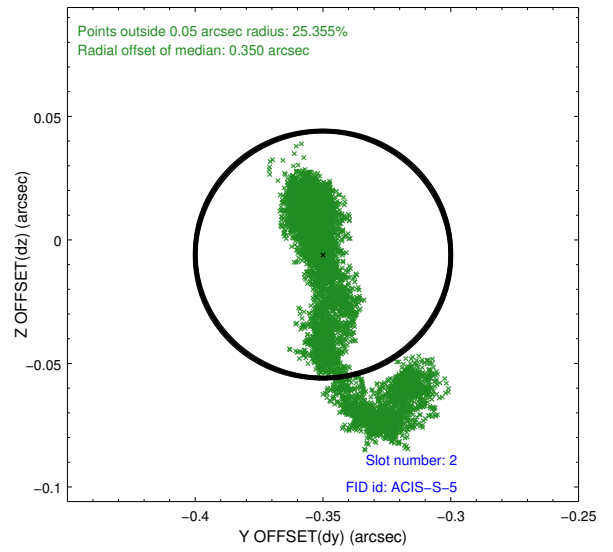
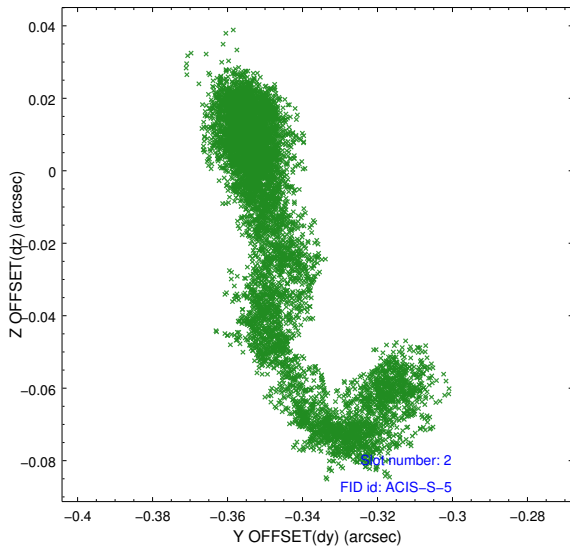
2.5.1 Slot 0



2.5.2 Slot 1

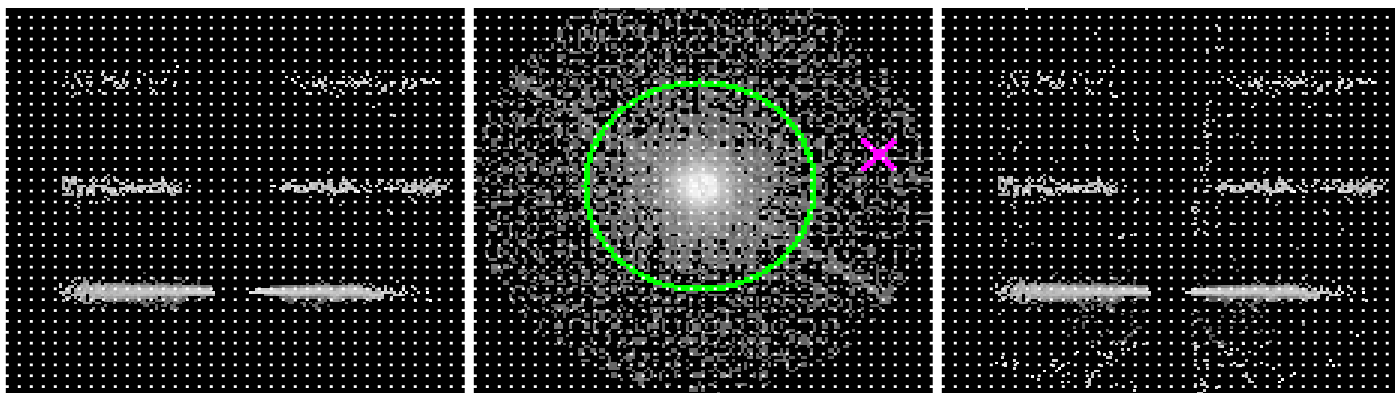


2.5.3 Slot 2



3 Gratings

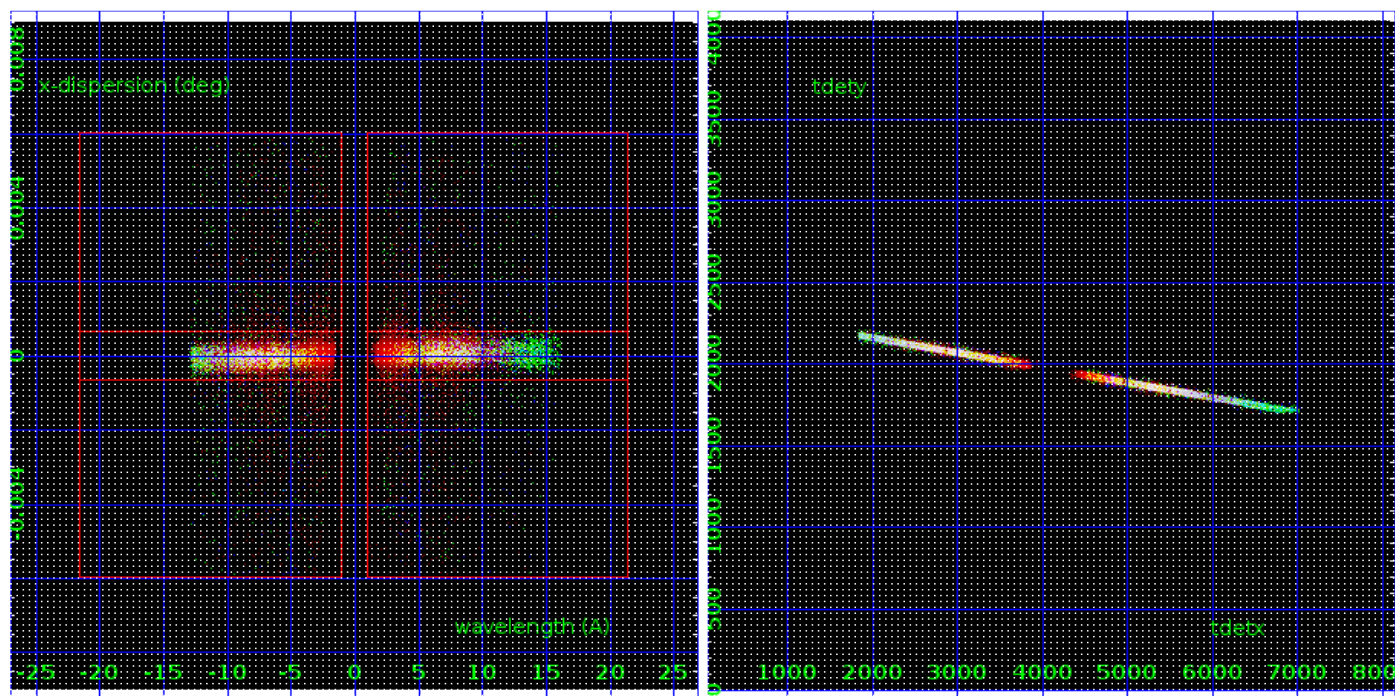
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

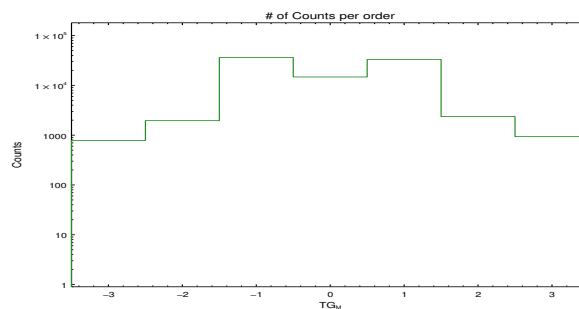
HEG Order Sort ALL

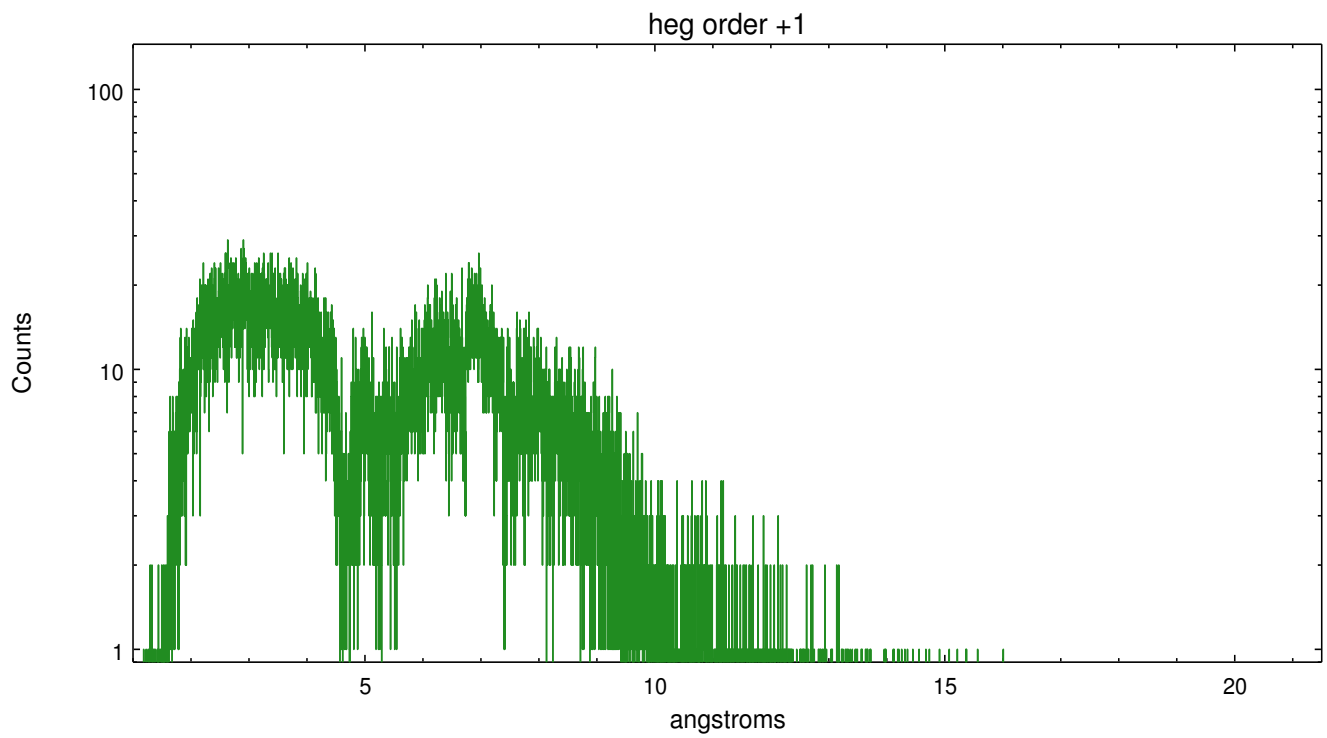
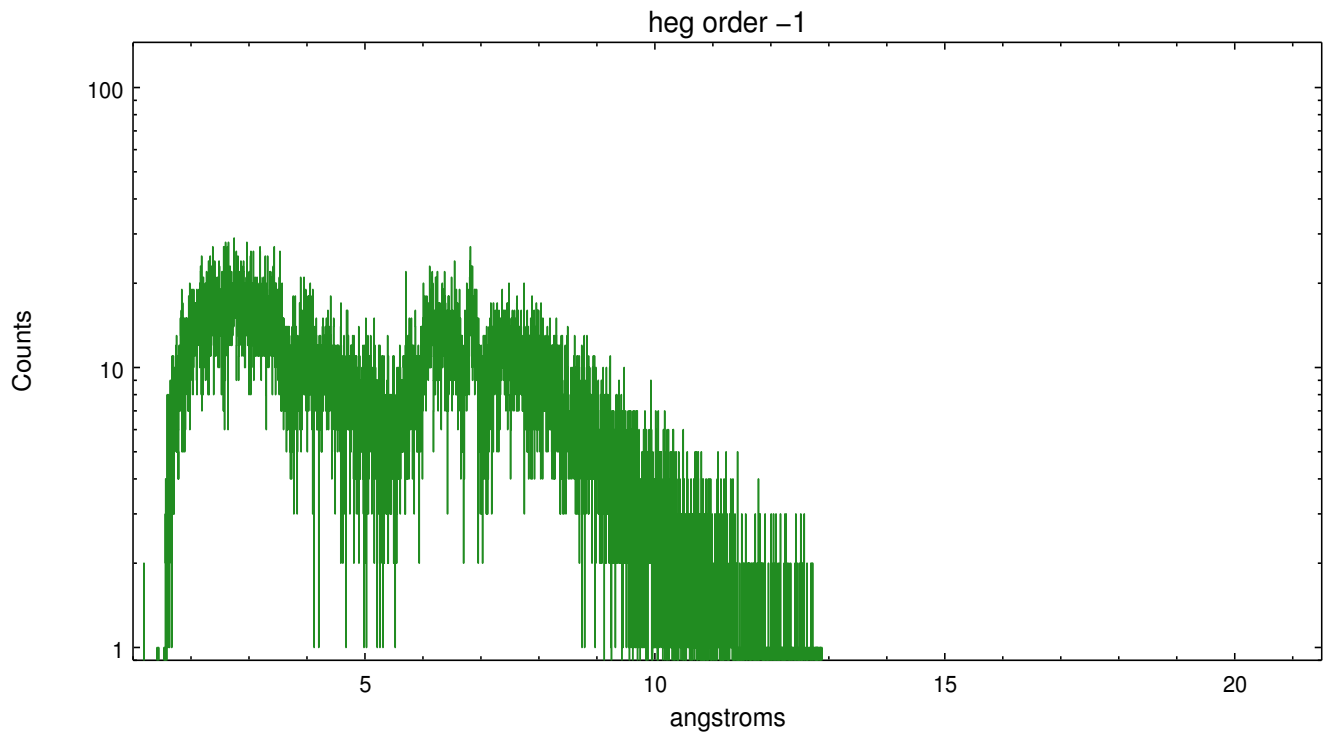


Spot Image HEG

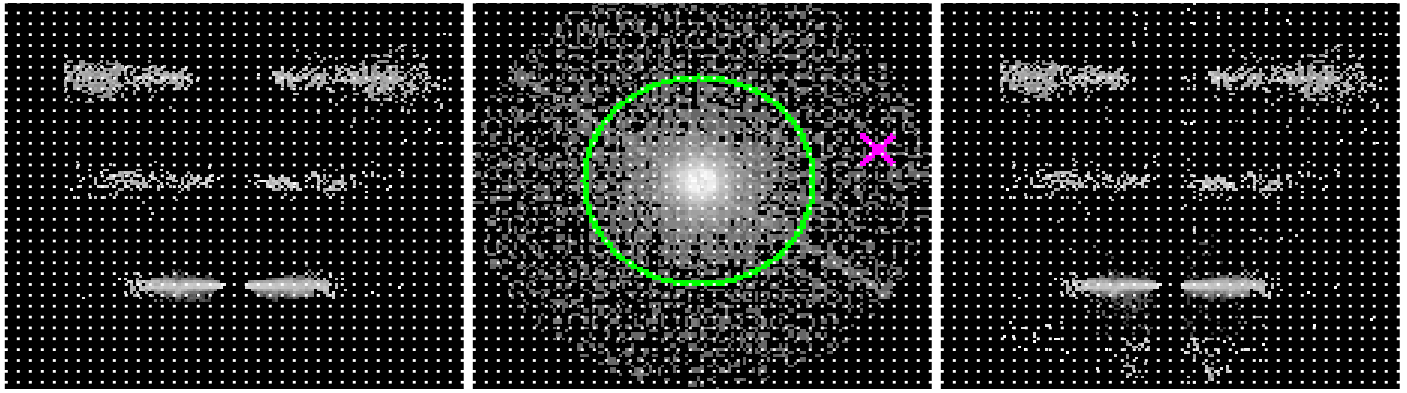
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	783	1956	36164	14755	32983	2365	934





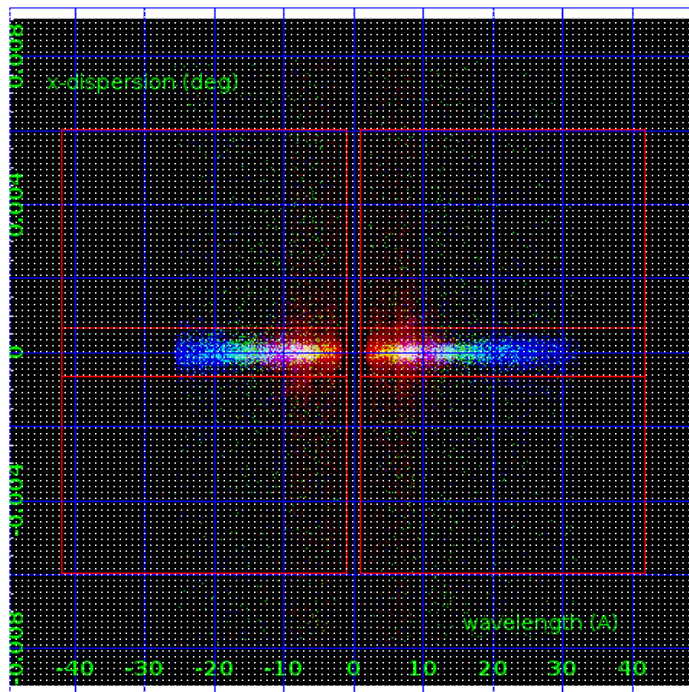
3.2 MEG Arm



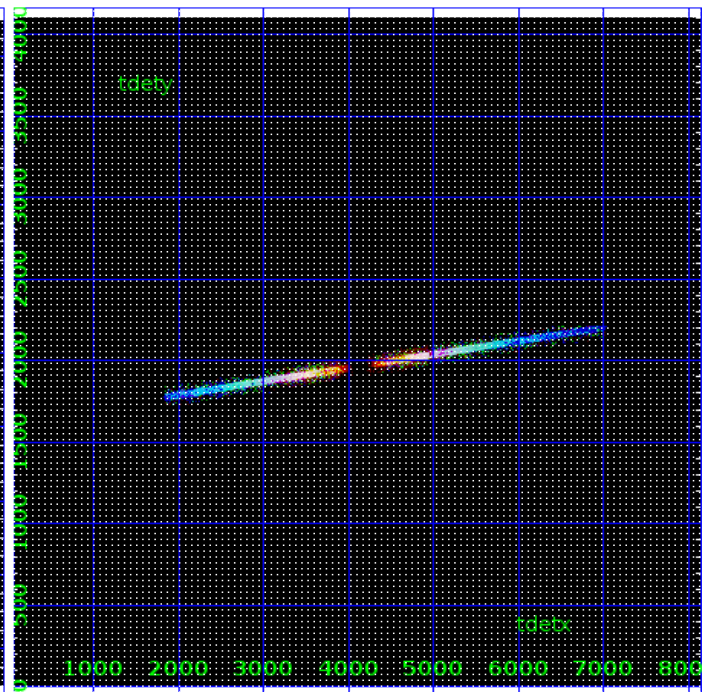
MEG Order Sort 123

MEG Zero Order

MEG Order Sort ALL

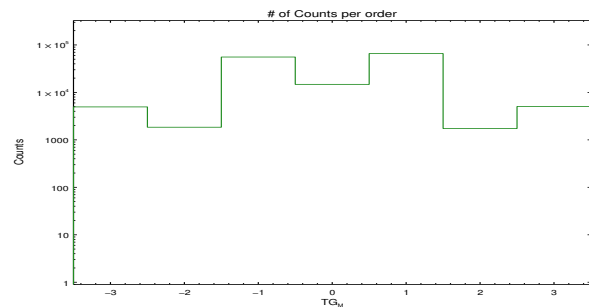


Spot Image MEG

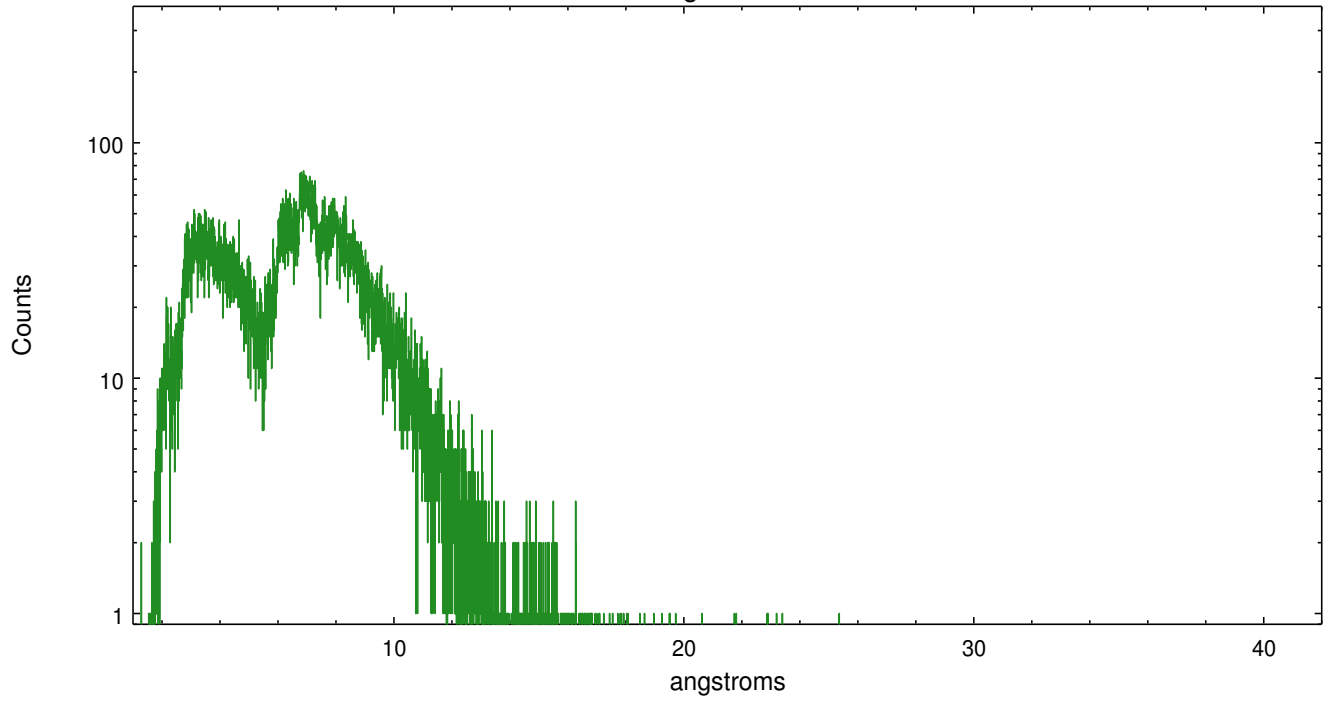


Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	4948	1845	55629	14755	65680	1736	5032



meg order -1



meg order +1



A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2018.06.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	29.092100816011

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.