

V&V Reference Report

L2 ASCDS Version : 10.1.1

Observation 16418 - L2 Version 2
Chandra X-Ray Center

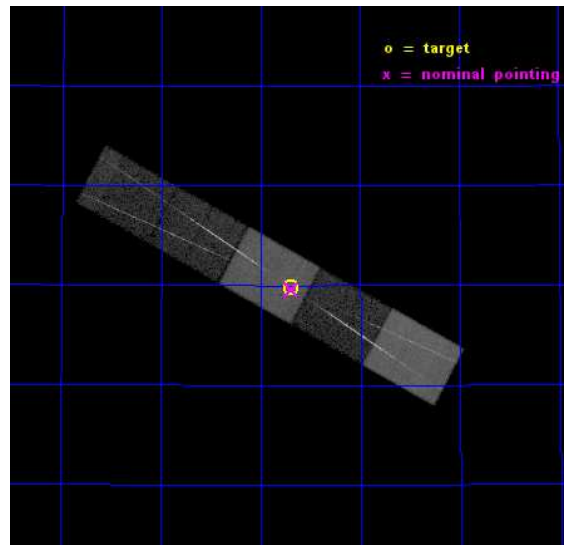
L2 Processing Date : Dec 8 2014

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1 Front

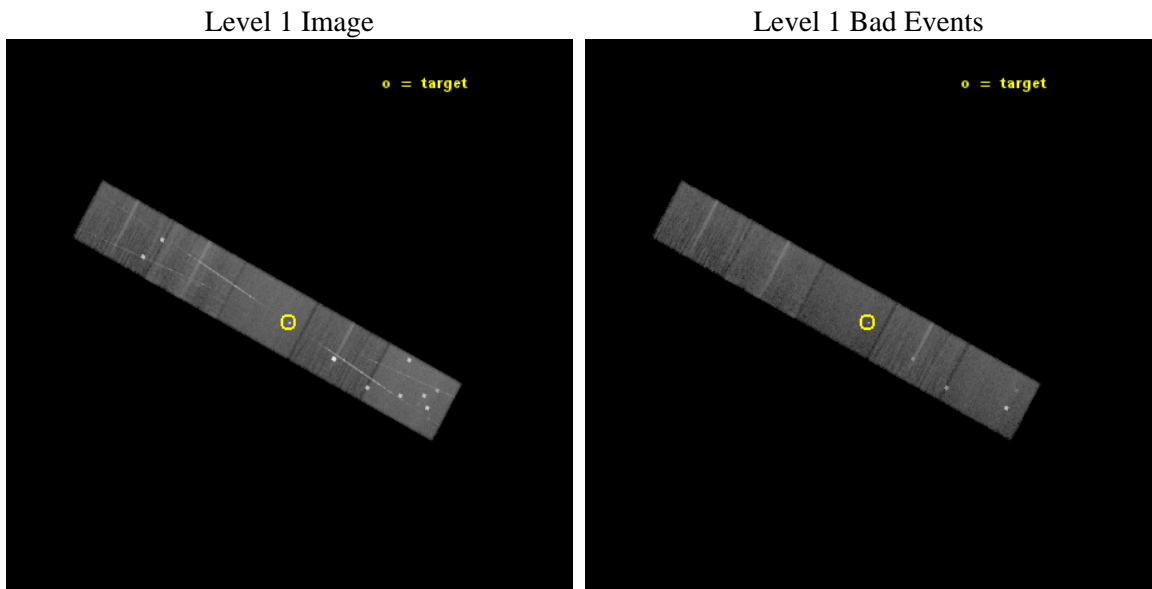
seq_num	291190	Sequence number
obs_id	16418	Observation id
title	AO-15 HETG/ACIS-S Calibration Observations of Capella	Proposal tit
observer	Dr. CXC Calibration	Principal investigator
object	Capella	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	79.172917	Observer's specified target RA [deg]
dec_targ	45.996389	Observer's specified target Dec [deg]
ra_nom	79.173006084515	Nominal RA [deg]
dec_nom	45.993508063735	Nominal Dec [deg]
roll_nom	208.50729070684	Nominal Roll [deg]
revision	2	Processing version of data
ontime	30047.569835484	Sum of GTIs [s]
livetime	29542.394882985	Livetime [s]
ontime5	30047.528795481	Sum of GTIs [s]
ontime6	30047.487755477	Sum of GTIs [s]
ontime7	30047.569835484	Sum of GTIs [s]
ontime8	30047.446715474	Sum of GTIs [s]
ontime9	30044.964615345	Sum of GTIs [s]
l2events	232761	Number of level 2 events



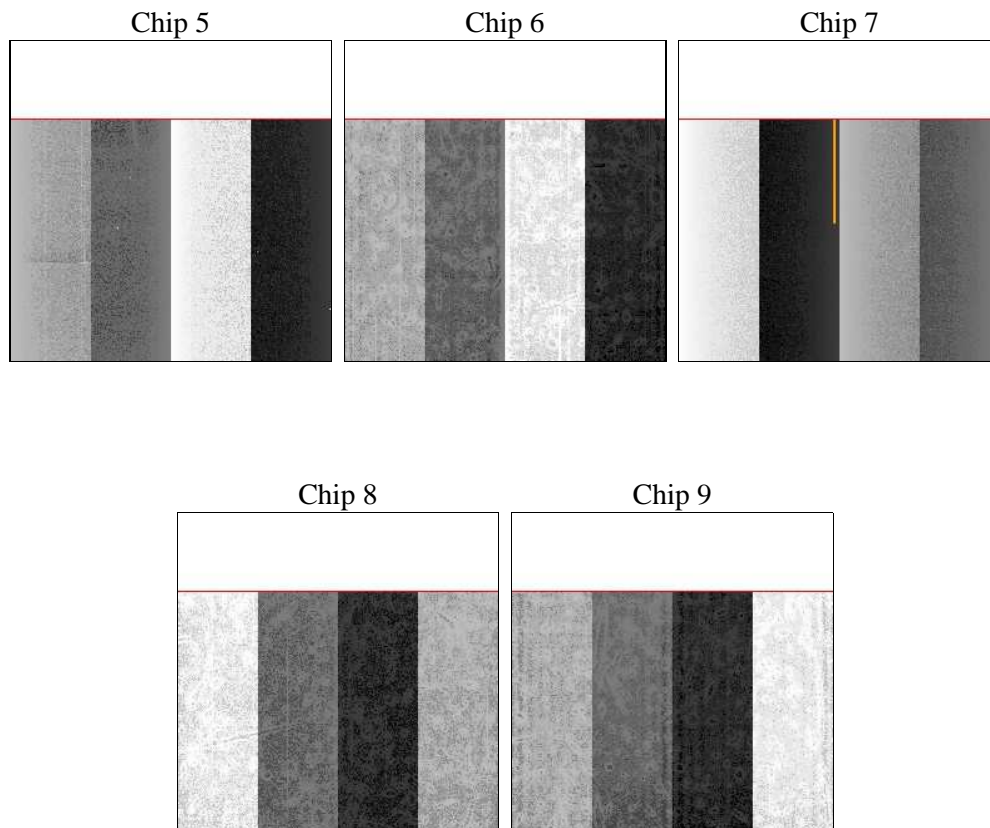
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	30047.569835484	Sum of GTIs [s]
caldbver	4.6.4	 	ontime5	30047.528795481	Sum of GTIs [s]
date	2014-12-08T12:20:05	Date and time of file creation	ontime6	30047.487755477	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	30047.569835484	Sum of GTIs [s]
			ontime8	30047.446715474	Sum of GTIs [s]
			ontime9	30044.964615345	Sum of GTIs [s]
			l1events	912596	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4097.84, 4117.35)	src1a sky pixel position
					src1a sky pixel position via

2.1.4 Events

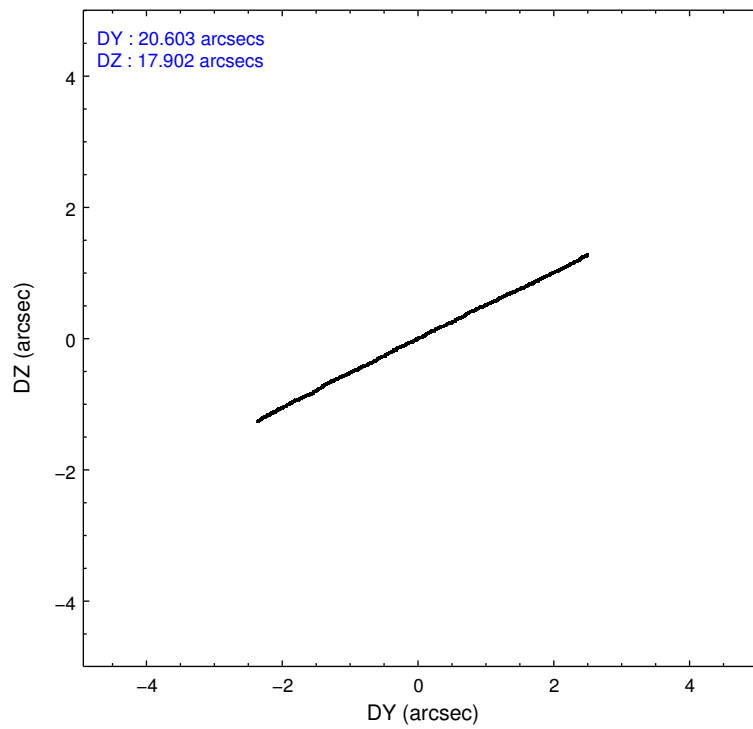
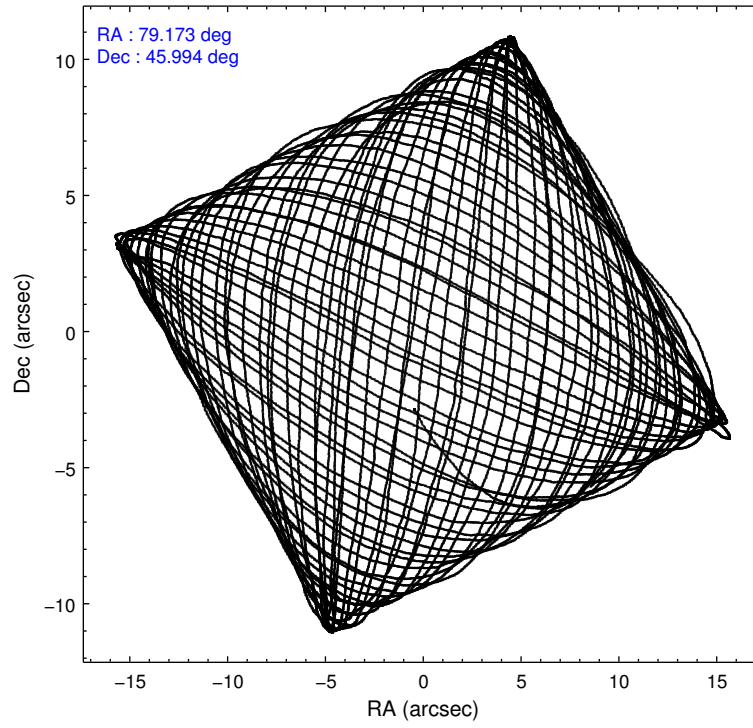
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	254181	186947	173657	159067	138744
rejected events	109229	102078	92525	110770	98103
rejected %	42%	54%	53%	69%	70%

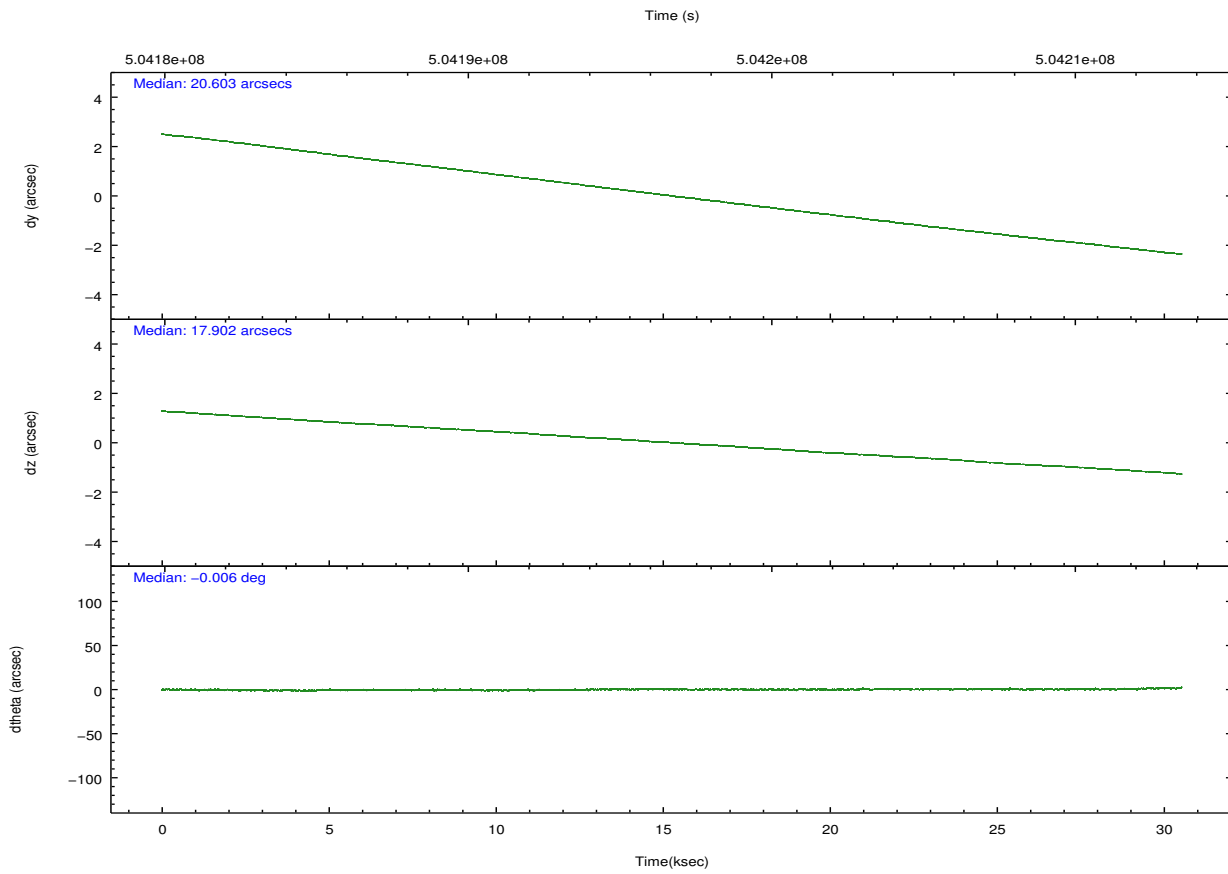
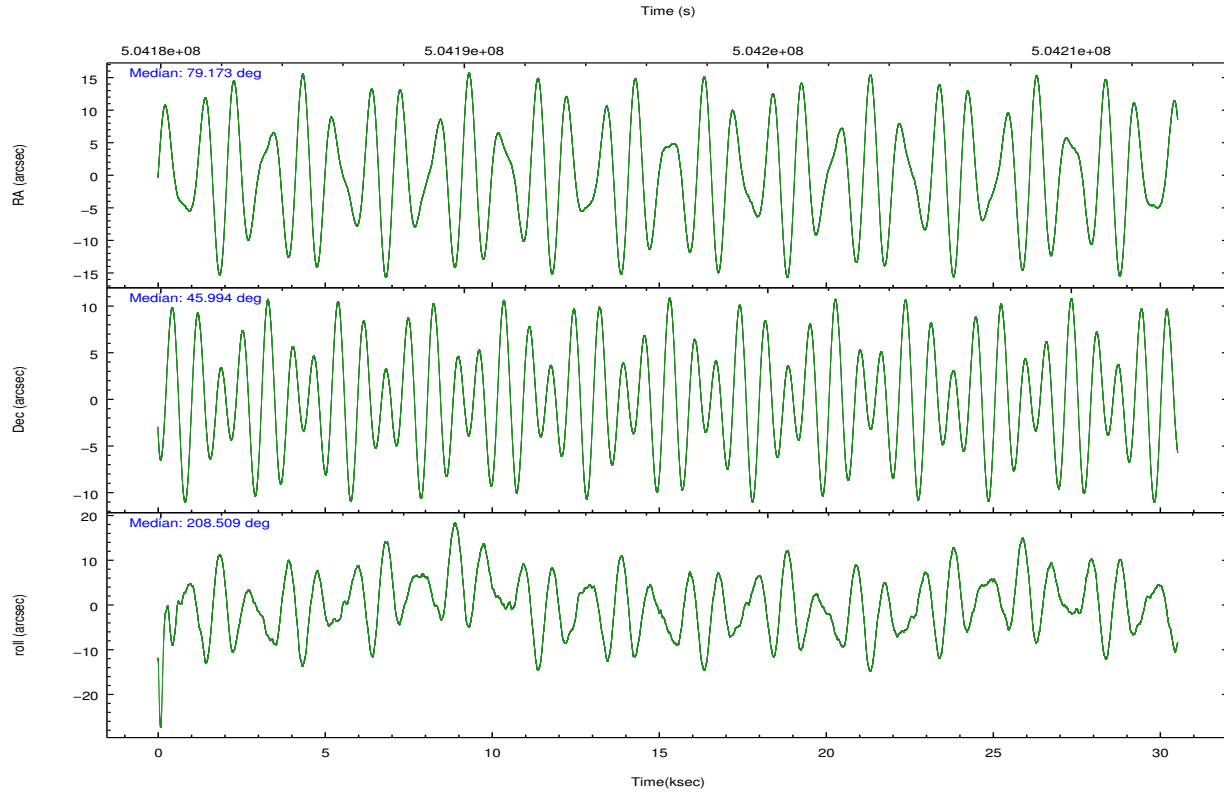
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	43795	73265	8876	20403	31001
	17%	39%	5%	12%	22%
grade 1 events	1305	867	511	122	140
	0%	0%	0%	0%	0%
grade 2 events	35889	4233	17329	9861	3270
	14%	2%	9%	6%	2%
grade 3 events	6415	1787	7330	4128	1611
	2%	0%	4%	2%	1%
grade 4 events	4559	2337	7111	3937	1565
	1%	1%	4%	2%	1%
grade 5 events	16467	5849	16964	8228	6121
	6%	3%	9%	5%	4%
grade 6 events	54314	3259	40497	9997	3201
	21%	1%	23%	6%	2%
grade 7 events	91437	95350	75039	102391	91835
	35%	51%	43%	64%	66%

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	79.193081	79.17300608451502	CCD I2 on	N	N
[deg] Pointing Dec	46.017015	45.99350806373467	CCD I3 on	N	N
[deg] Pointing Roll	208.336215	208.5072907068356	CCD S0 on	N	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	-187.132523	-187.1228876879999	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-3	-3.009634895007935	CCD S4 on	Y	Y
[s] Observation start time (MET)	504181960.184000	504180684.74078	CCD S5 on	O1	Y
Observation start date	2013-12-23T10:31:33	2013-12-23T10:11:24	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	504211960.184000	504212604.78003	On-chip summing requested	N	N
Observation end date	2013-12-23T18:51:33	2013-12-23T19:03:24	Subarray requested	CUSTOM	CUSTOM
Read mode	TIMED	TIMED	Subarray start row	1	1
			Subarray row count	774	774
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	2.4

2.3 Aspect





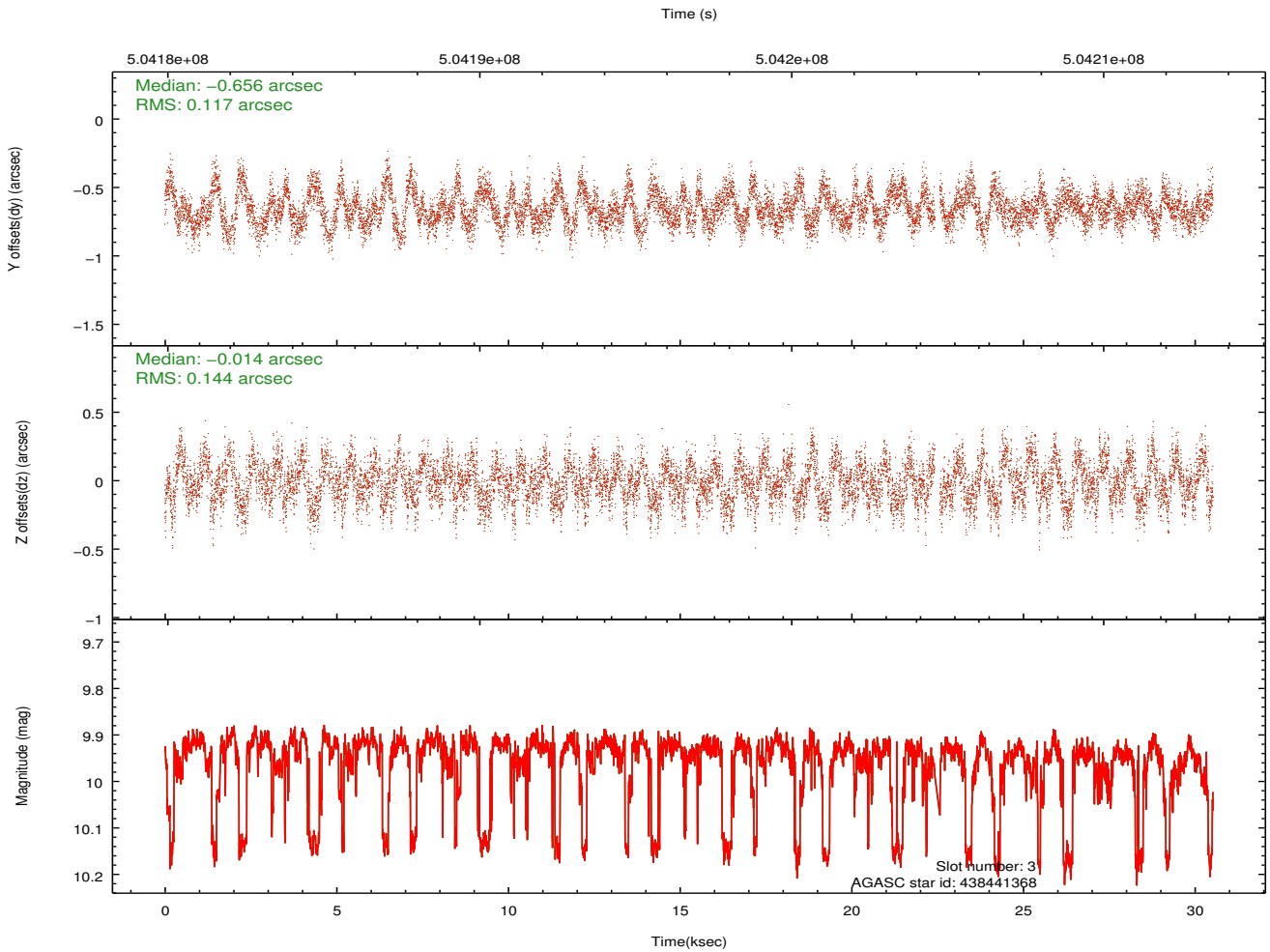
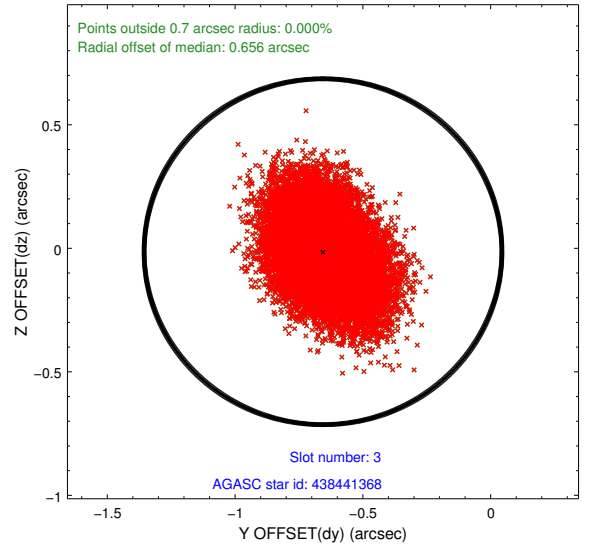
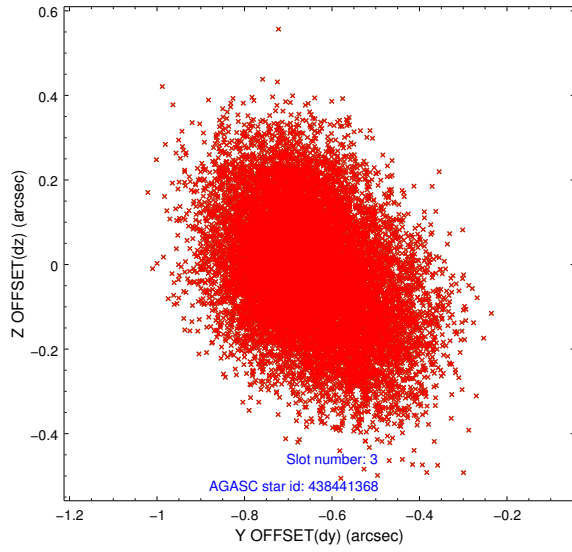
Slot Statistics

lot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-S-1	7.15	7446	0.017	-0.000	0.030	0.045	0.000000	0.000000	922.53	-1797.11
1	FID		ACIS-S-4	7.15	7445	0.261	-0.001	0.022	0.049	0.000000	0.000000	2140.18	106.98
2	FID		ACIS-S-5	7.18	7447	-0.305	0.017	0.023	0.039	0.000000	0.000000	-1826.60	100.59
3	BAD	used	438441368	9.94	14271	-0.656	-0.014	0.199	0.319	78.646413	46.420494	503.18	-1926.07
4	GUIDE	used	438450792	8.81	14888	0.213	0.095	0.110	0.170	78.654240	46.382628	552.22	-1795.68
5	GUIDE	used	440150048	7.21	14892	0.360	-0.054	0.107	0.159	79.112838	46.416060	-505.75	-1359.09
6	GUIDE	used	440163960	8.86	14888	-0.206	-0.088	0.099	0.162	79.298370	45.827072	91.99	726.99
7	GUIDE	used	440164960	8.30	14890	0.253	0.054	0.101	0.167	79.132526	46.140947	-77.82	-463.46

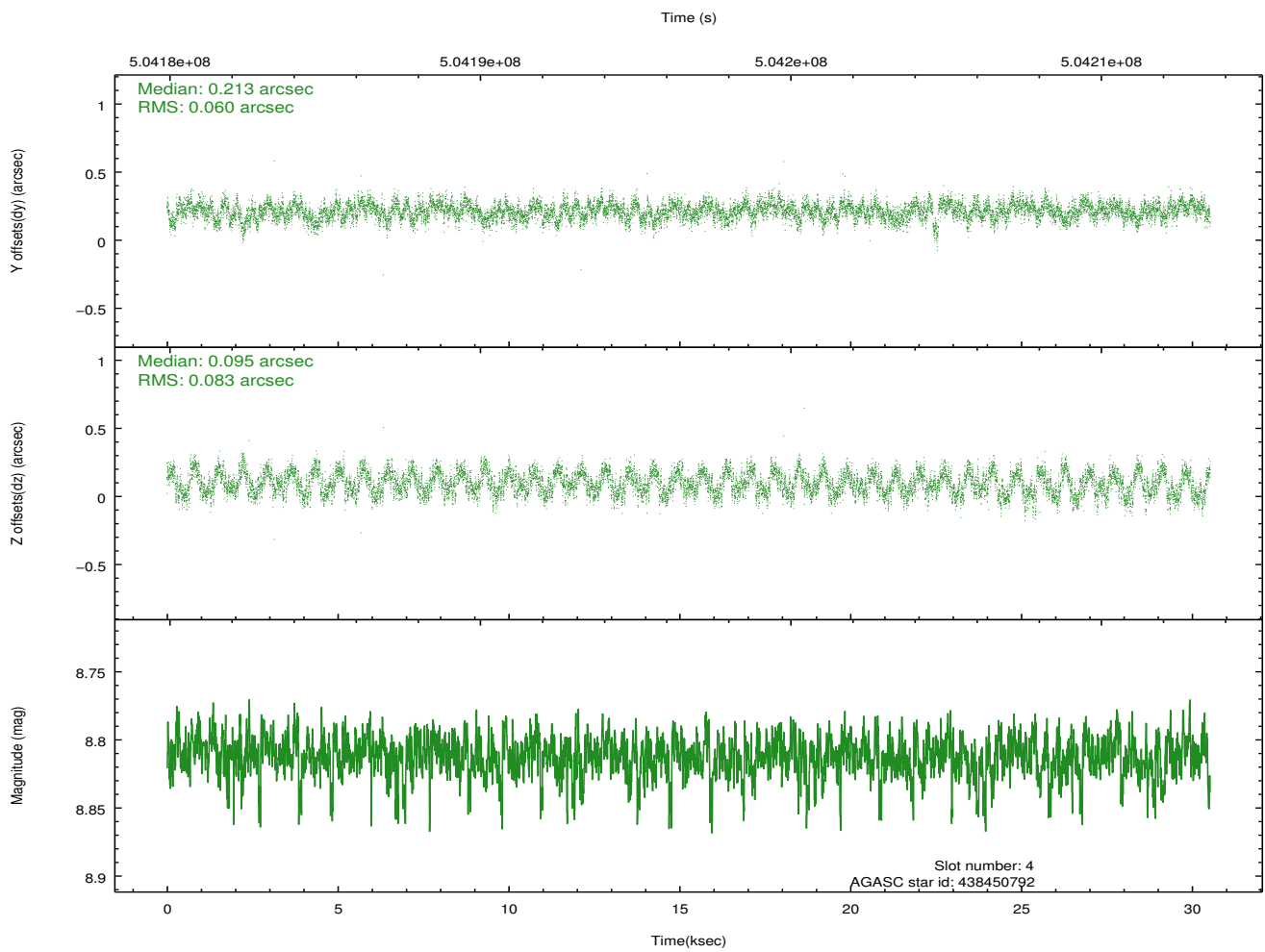
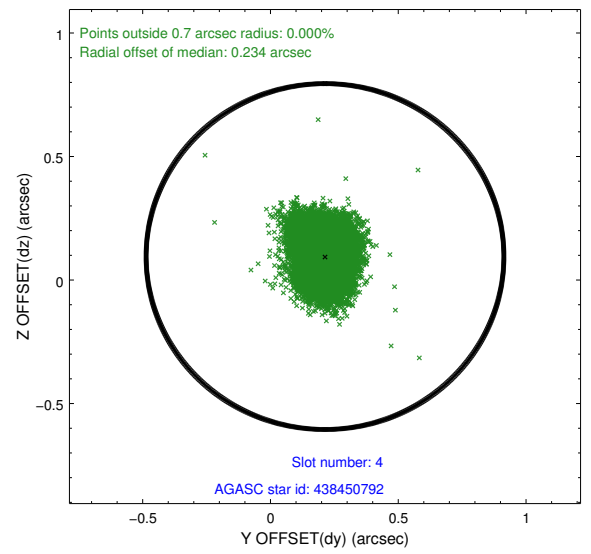
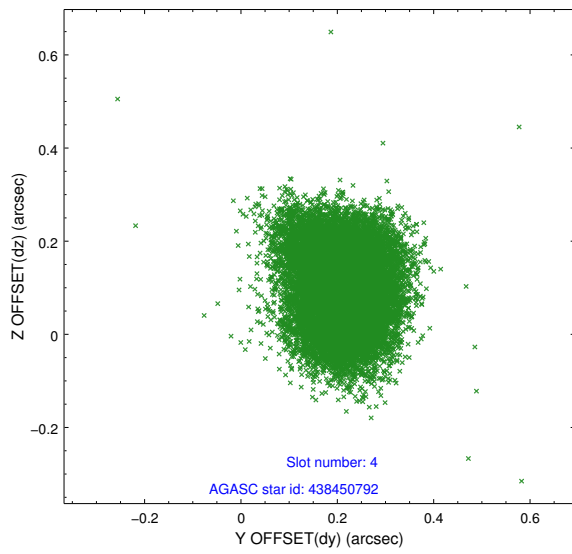
∞

2.4 Star Slots

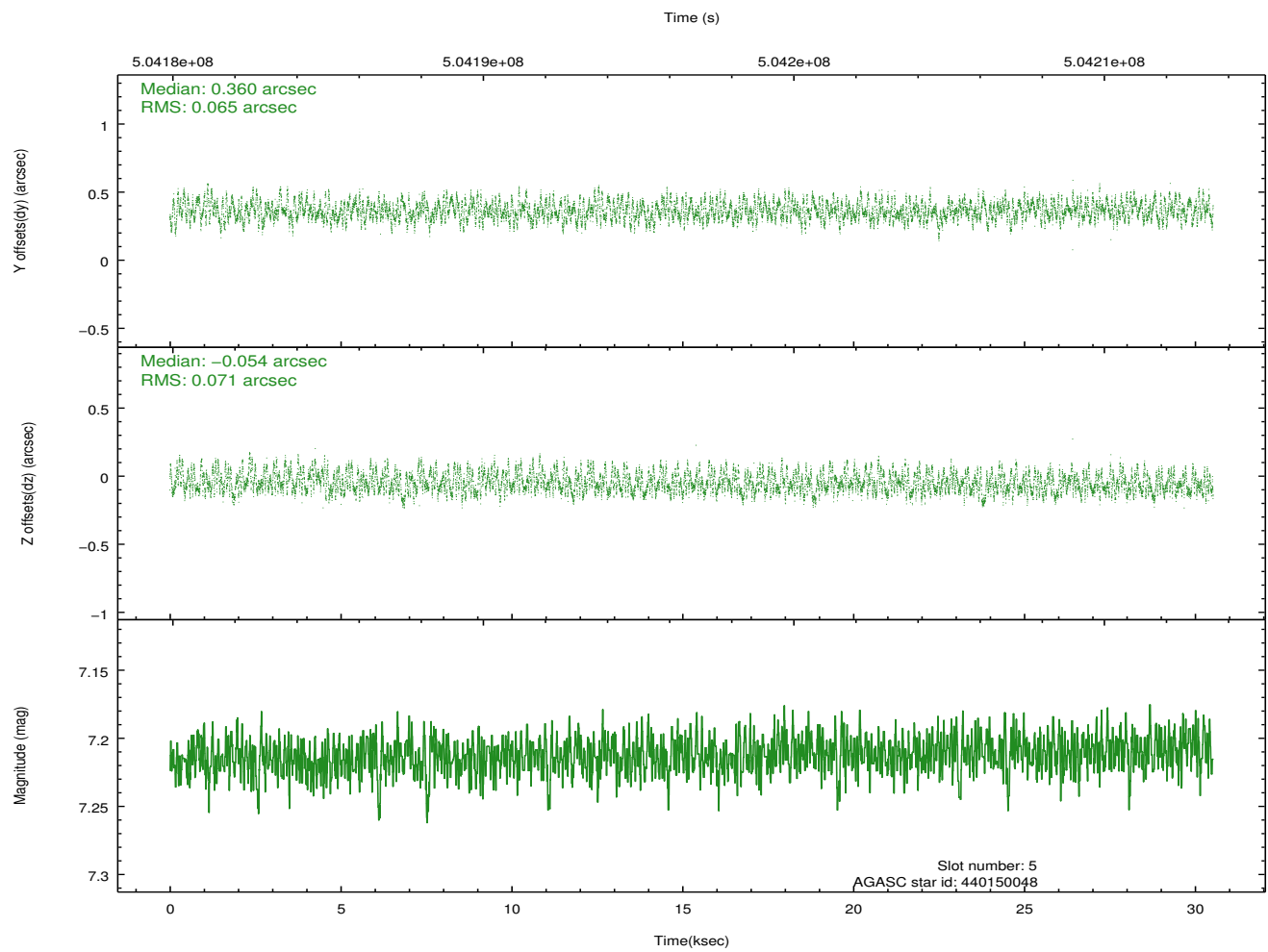
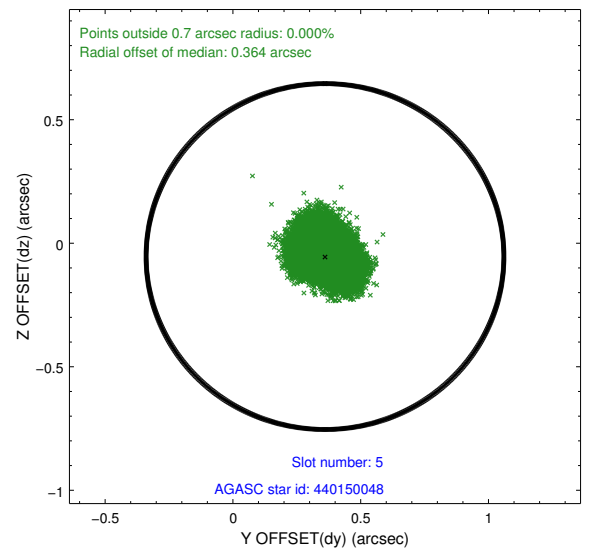
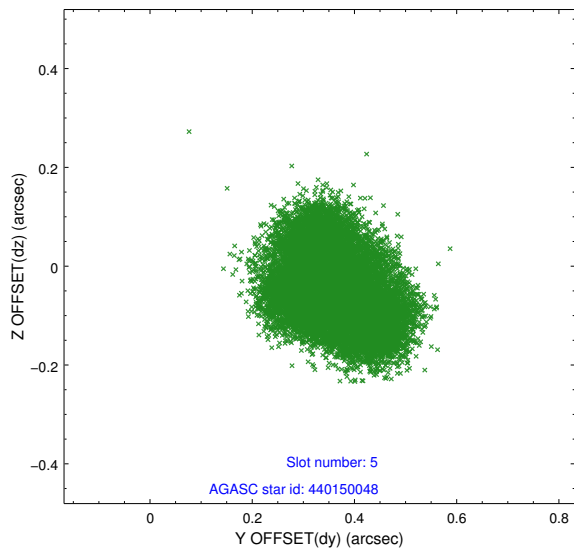
2.4.1 Slot 3



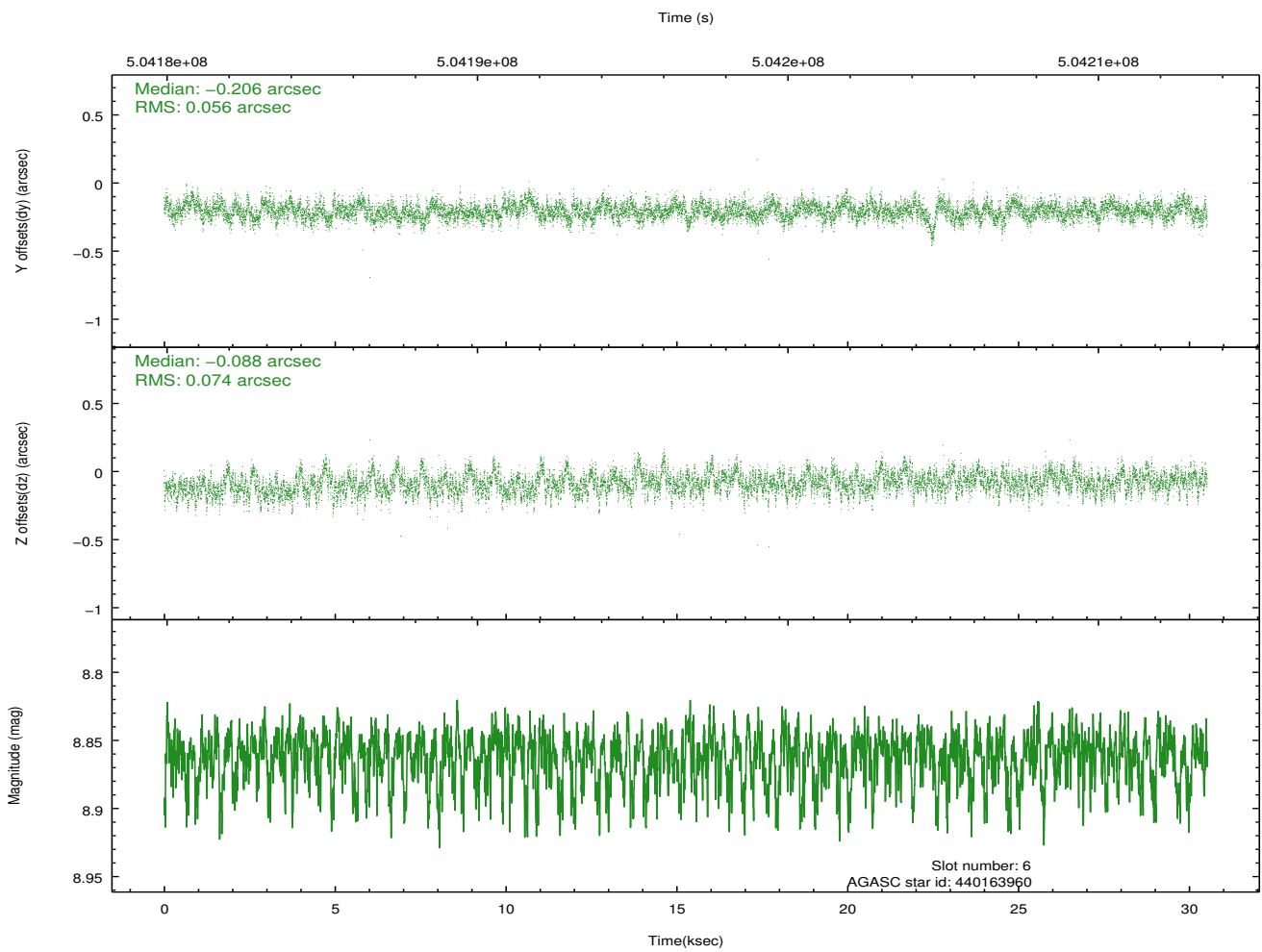
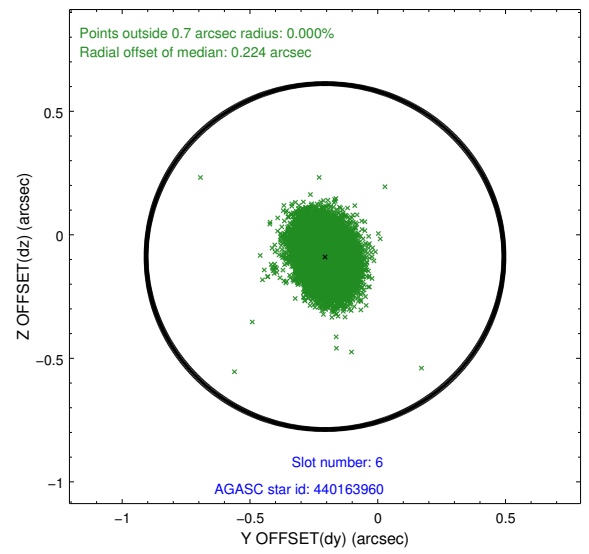
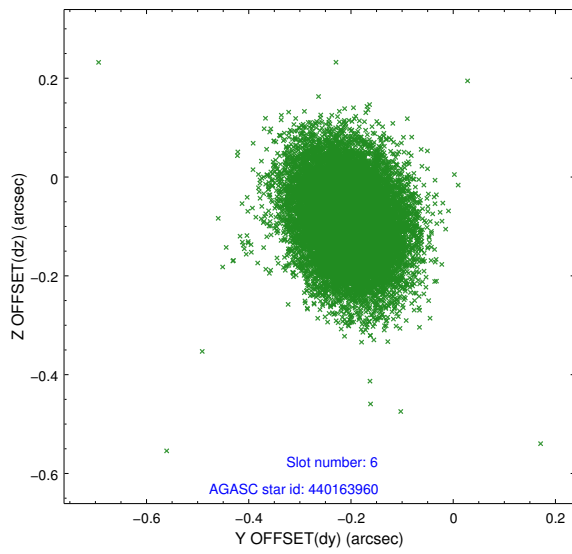
2.4.2 Slot 4



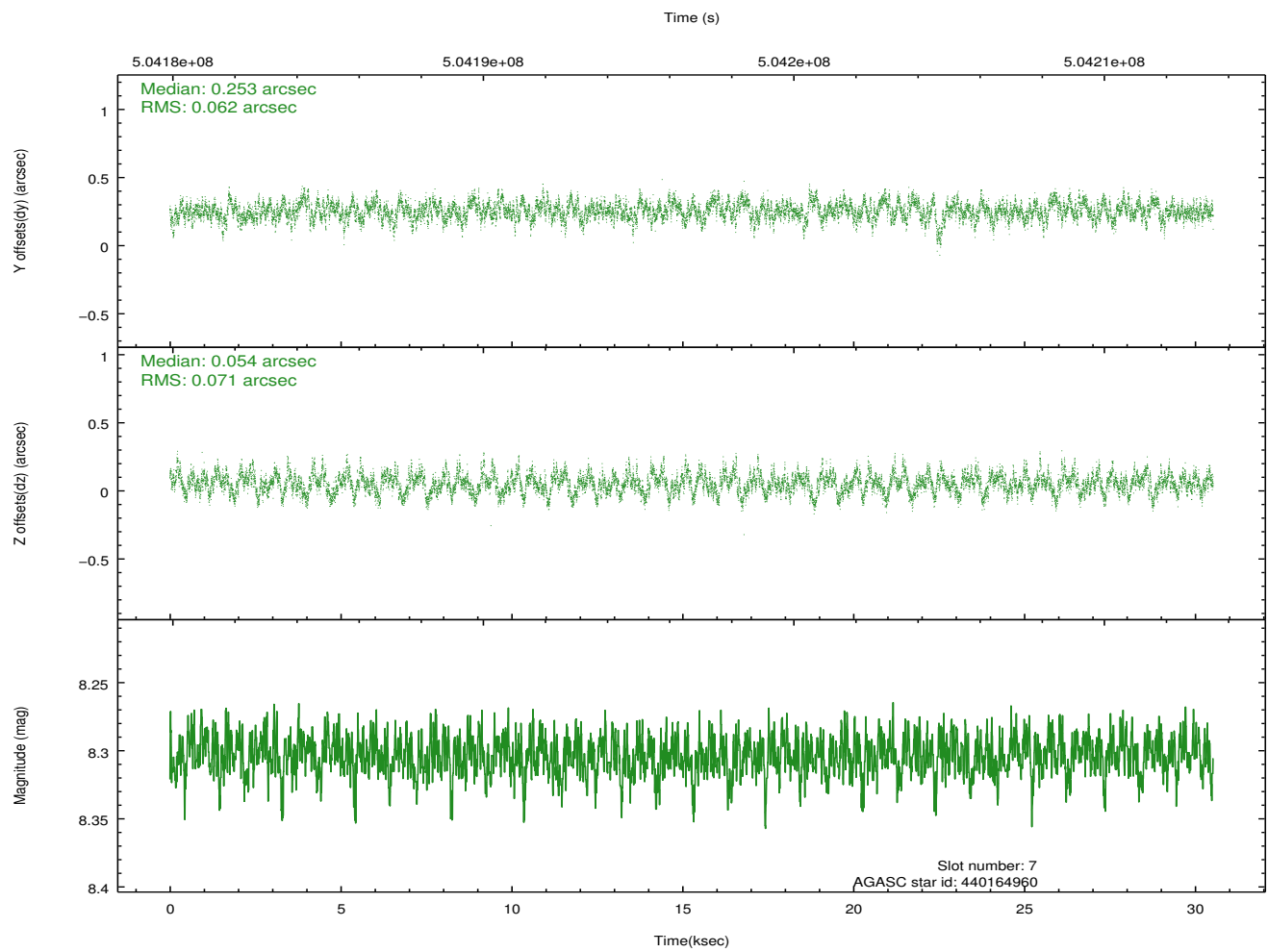
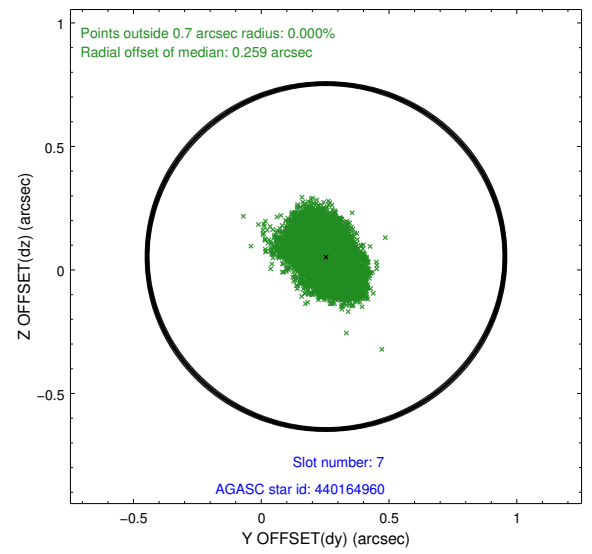
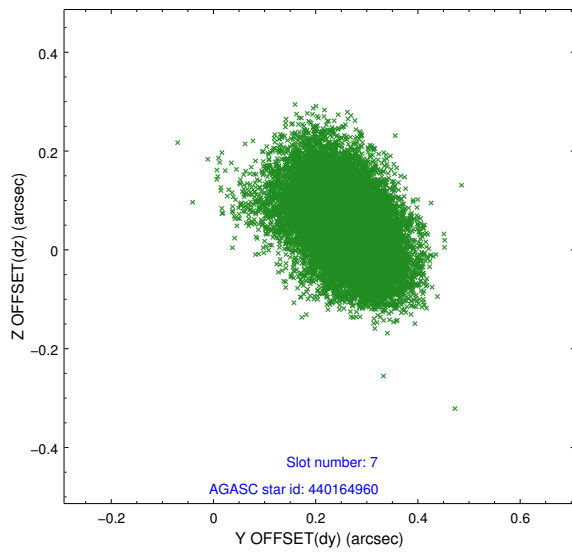
2.4.3 Slot 5



2.4.4 Slot 6

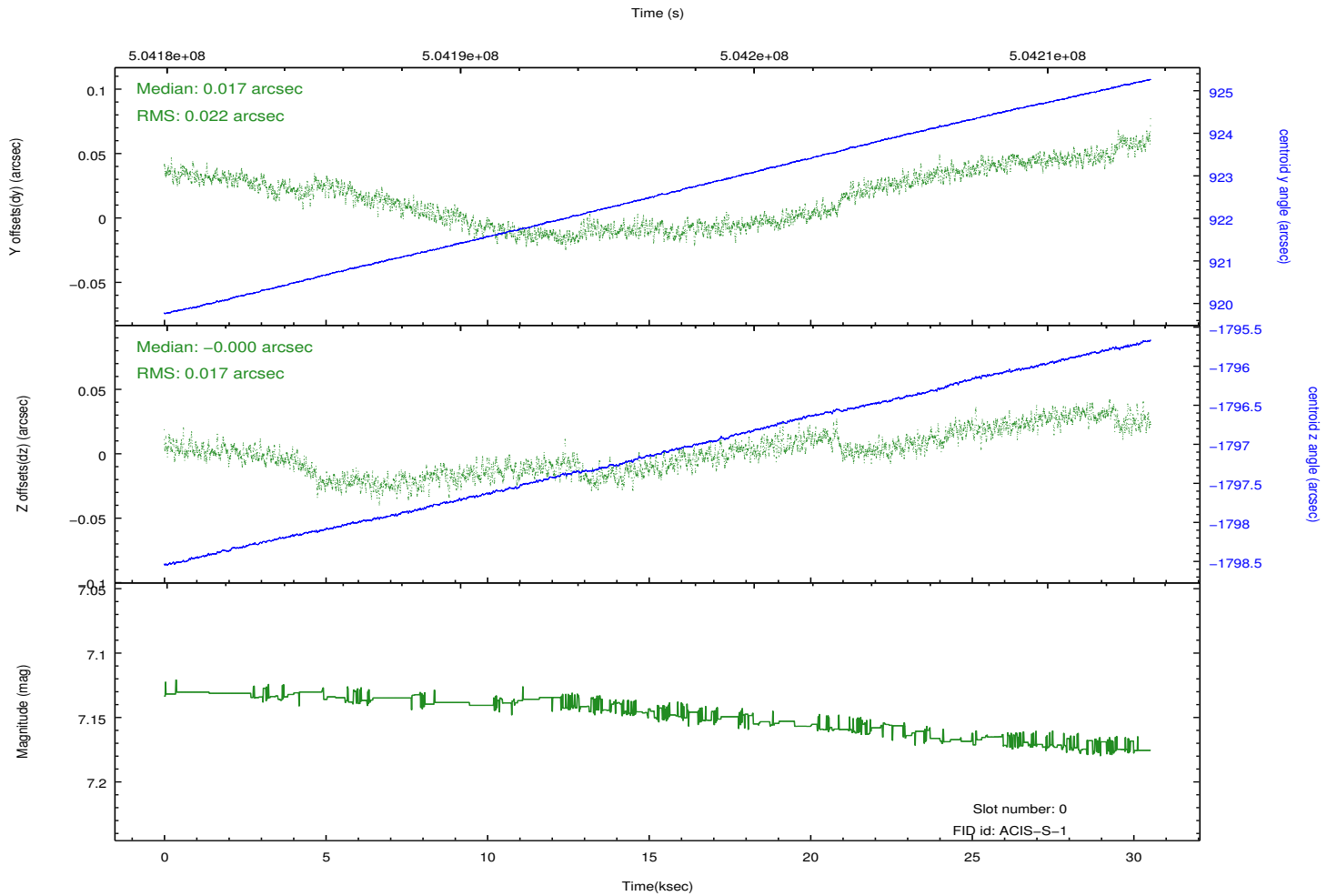
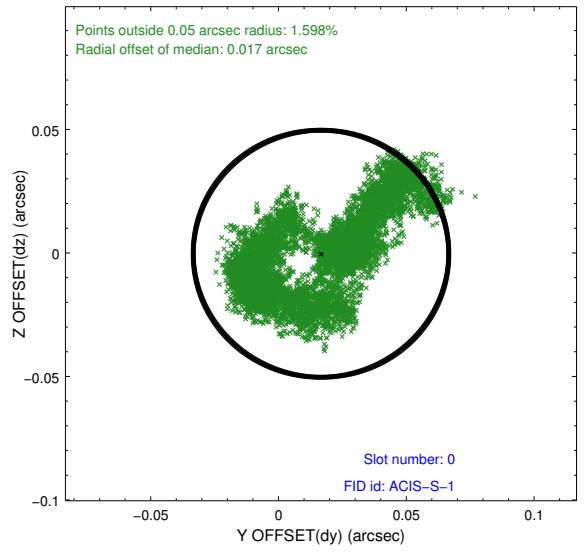
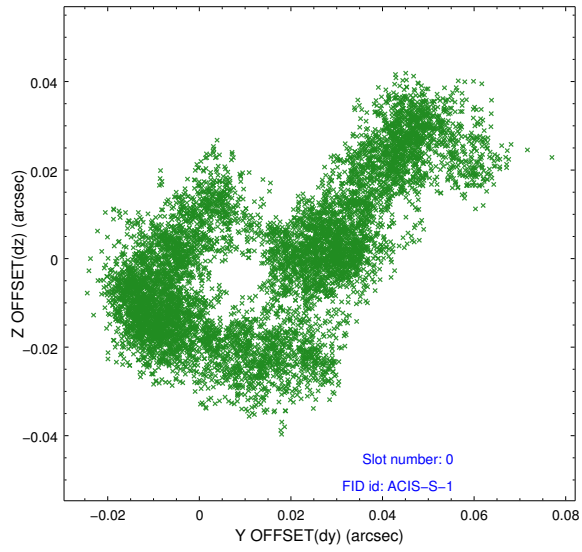


2.4.5 Slot 7

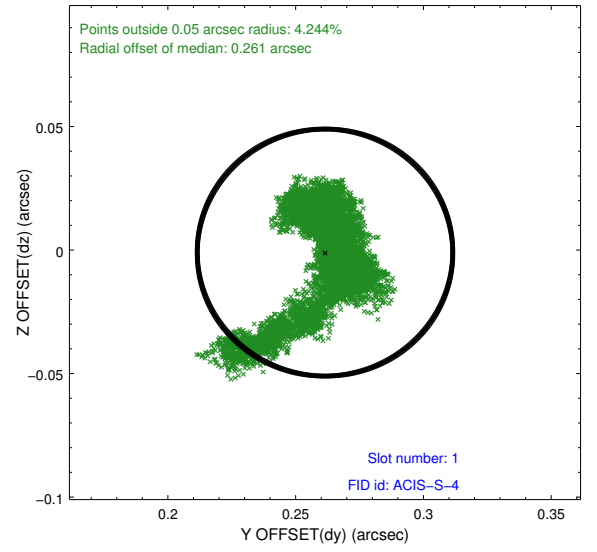
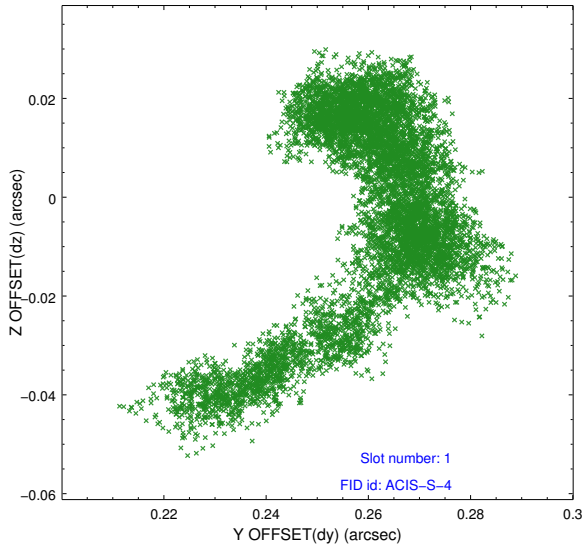


2.5 FID Slots

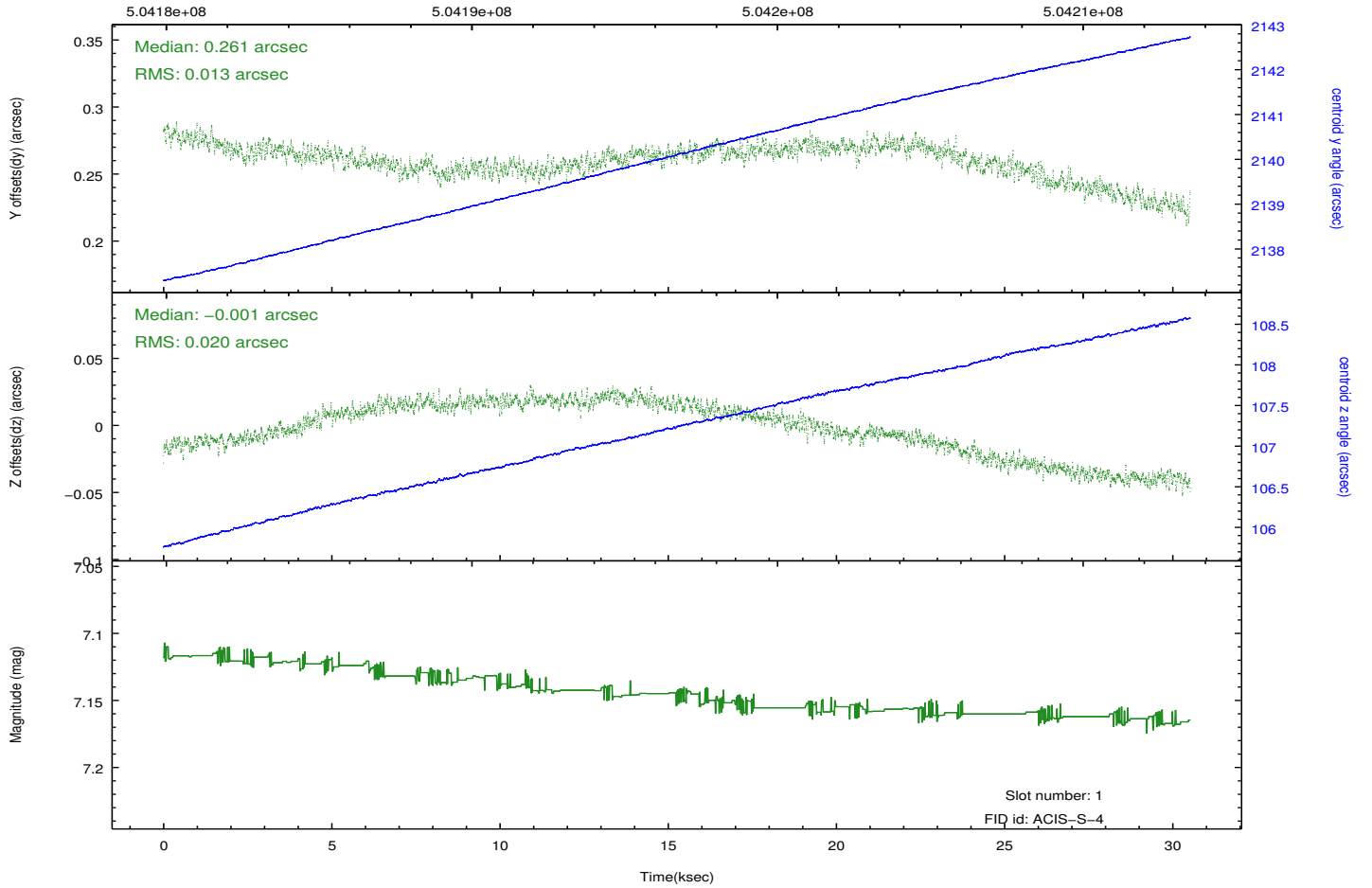
2.5.1 Slot 0



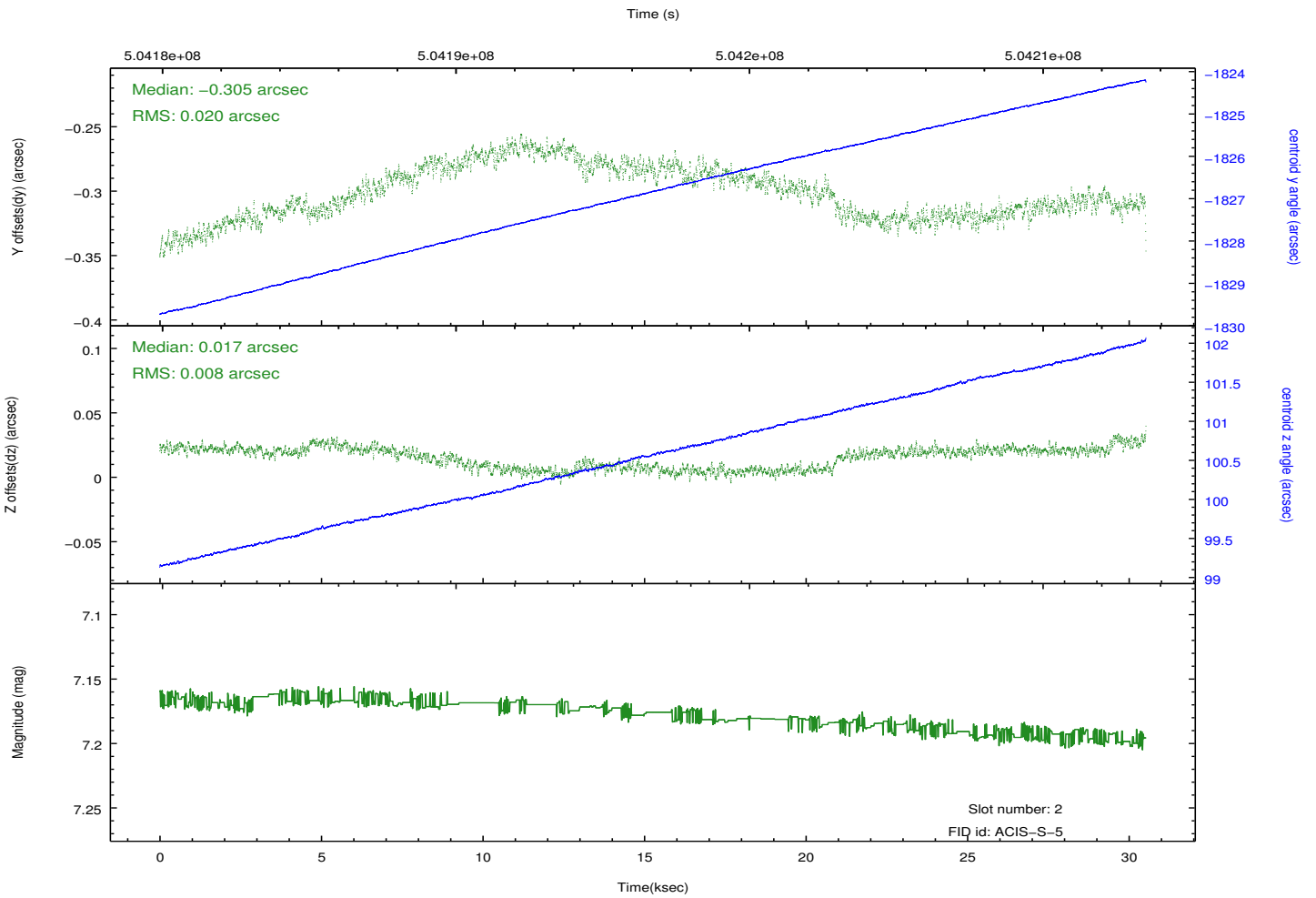
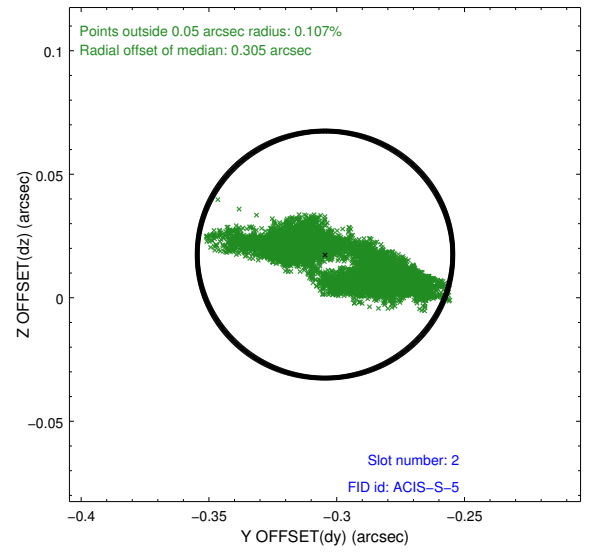
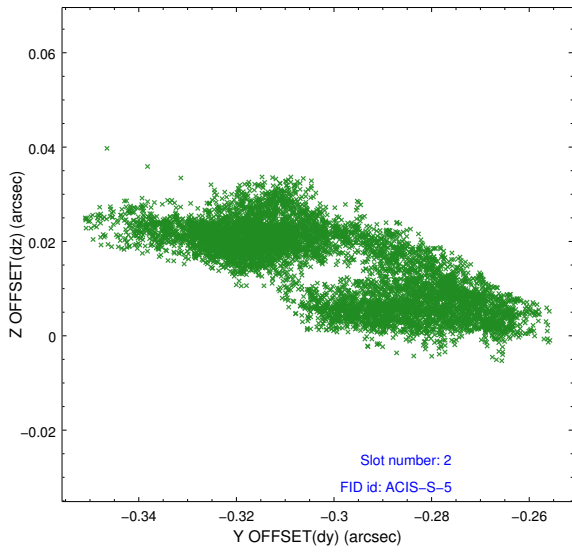
2.5.2 Slot 1



Time (s)



2.5.3 Slot 2

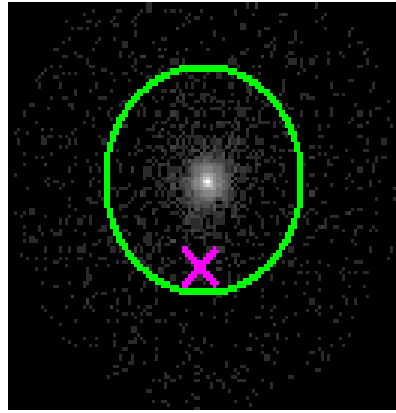


3 Gratings

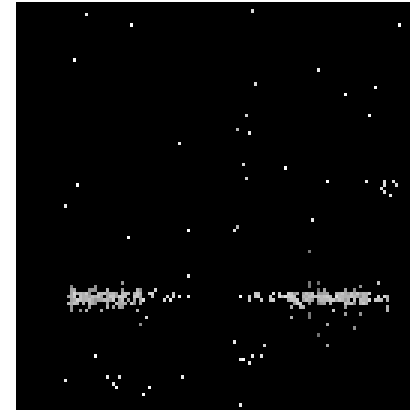
3.1 HEG Arm



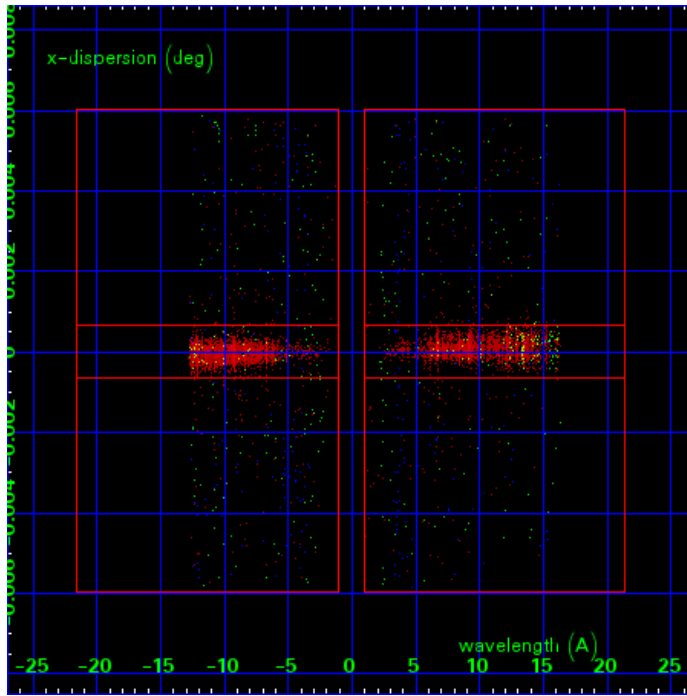
HEG Order Sort 123



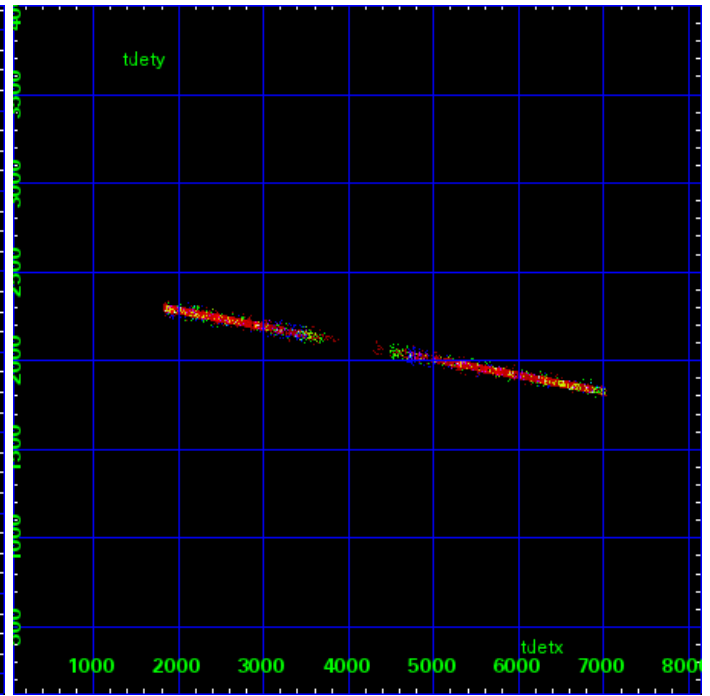
HEG Zero Order



HEG Order Sort ALL

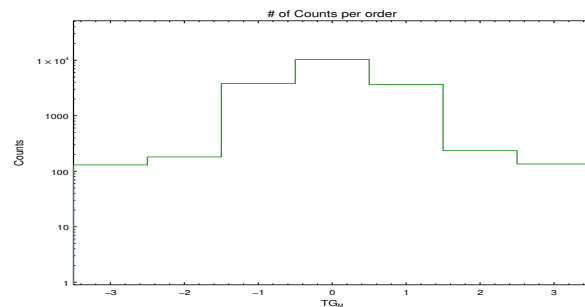


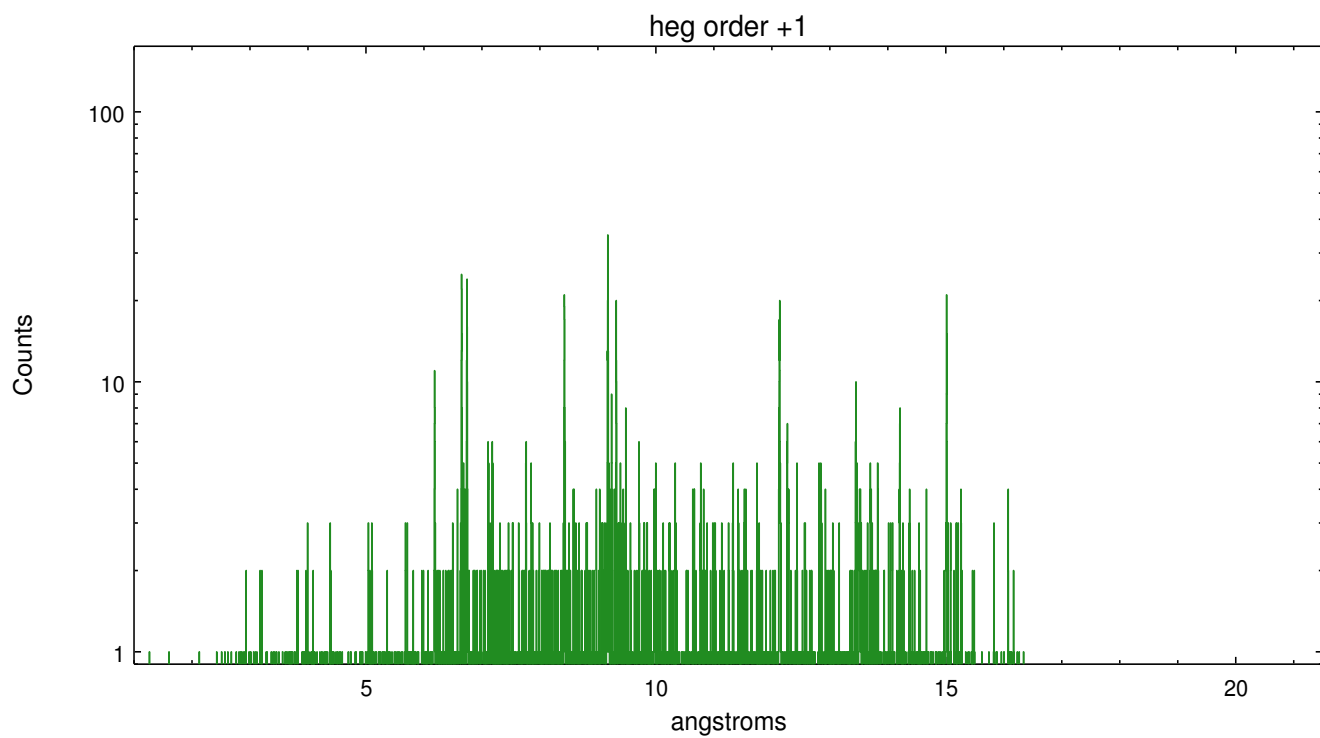
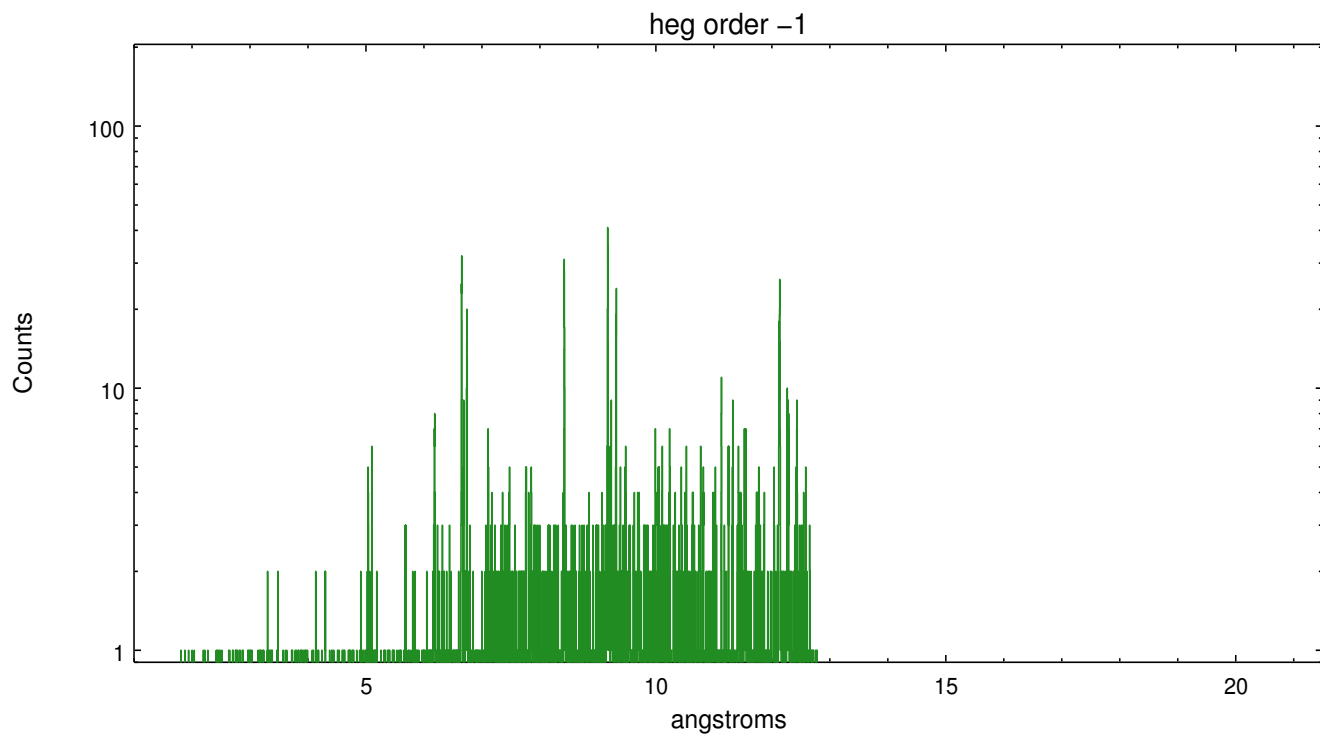
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	130	181	3799	10271	3669	235	135

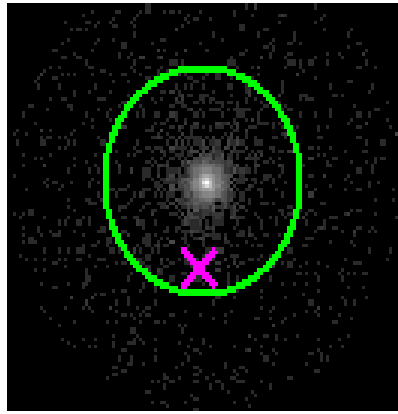




3.2 MEG Arm



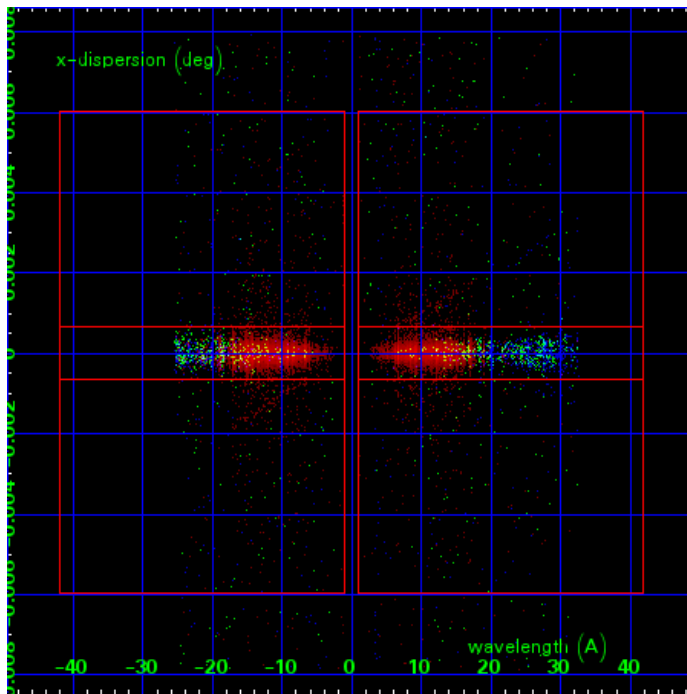
MEG Order Sort 123



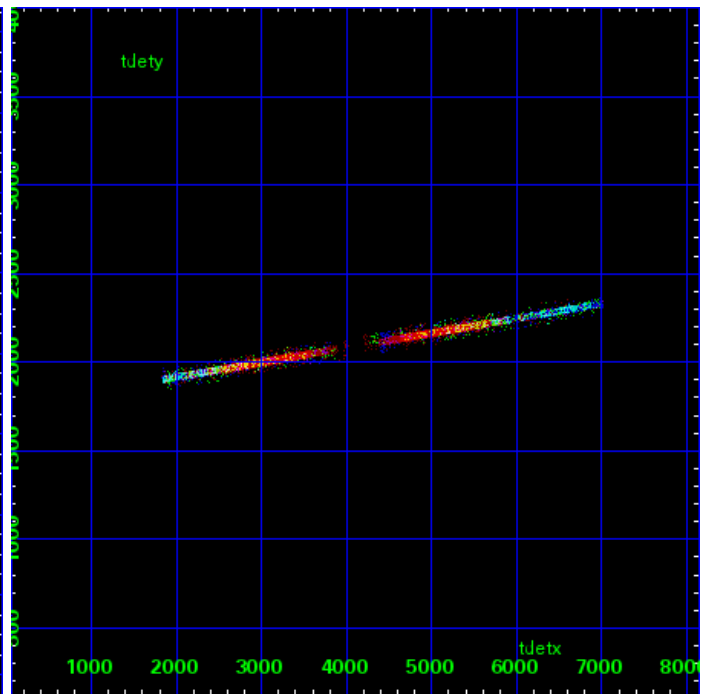
MEG Zero Order



MEG Order Sort ALL

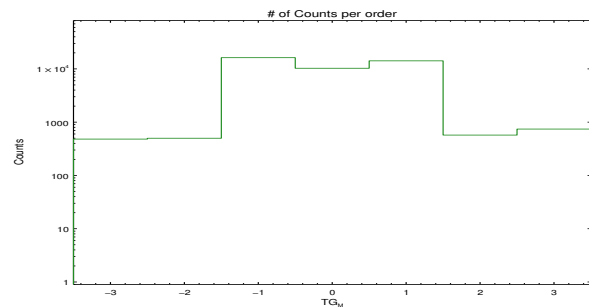


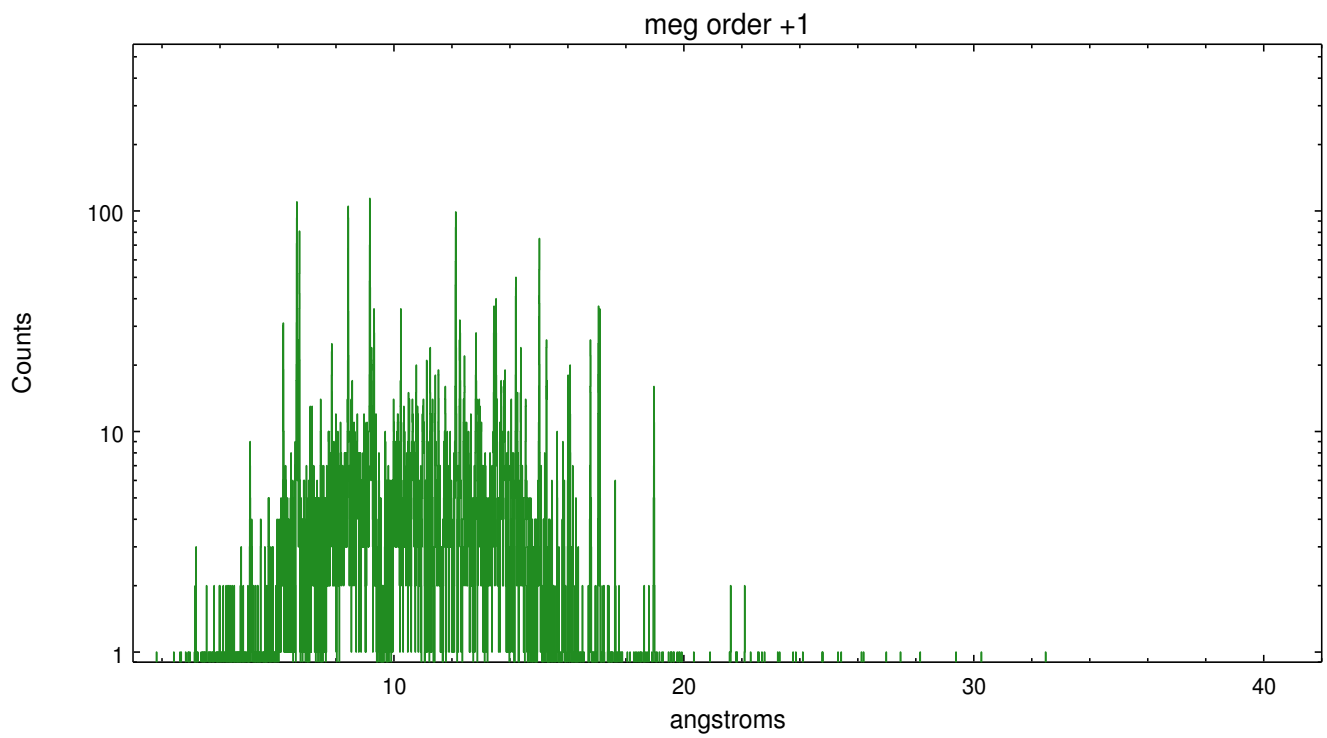
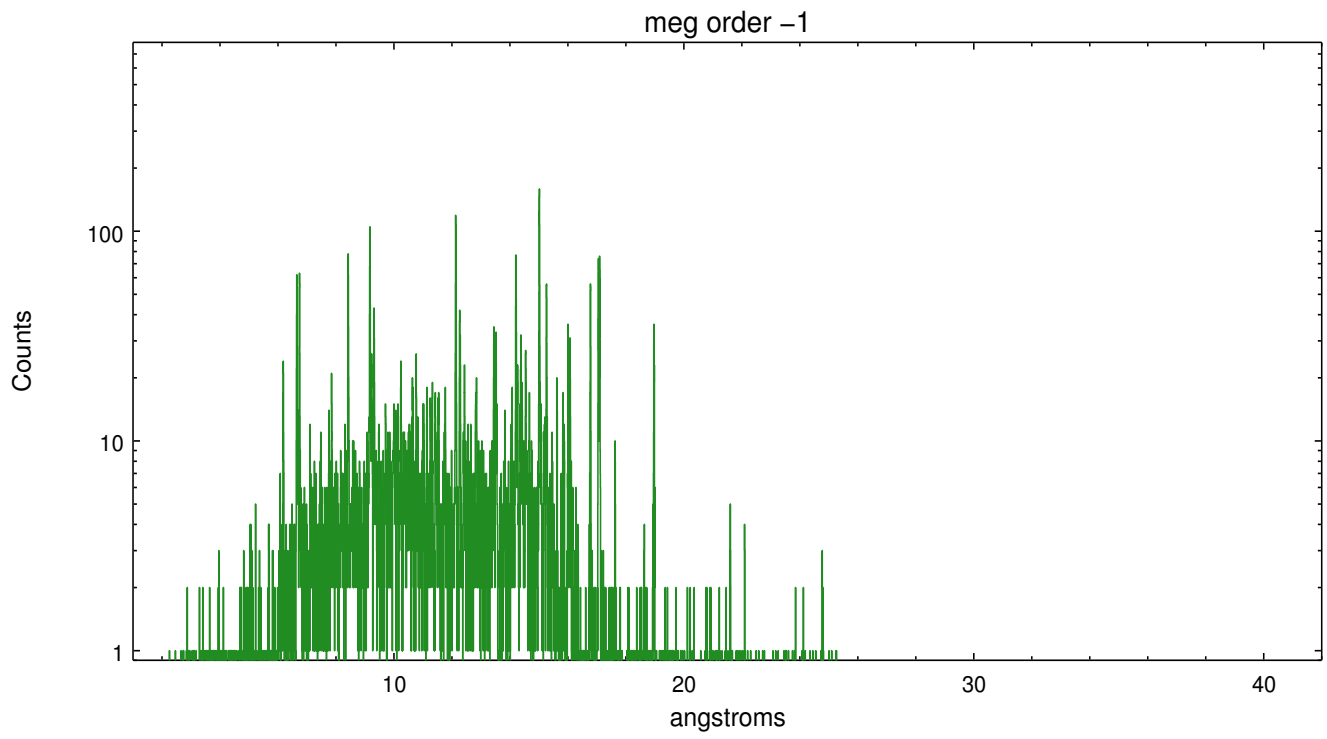
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	481	499	16243	10271	14164	572	742





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.10.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.047569835484

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.

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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.