

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 1019 - L2 Version 3  
Chandra X-Ray Center

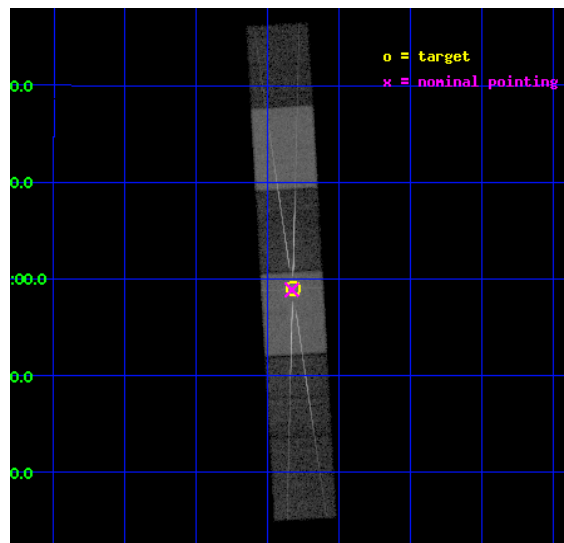
L2 Processing Date : Sep 14 2012

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# 1 Front

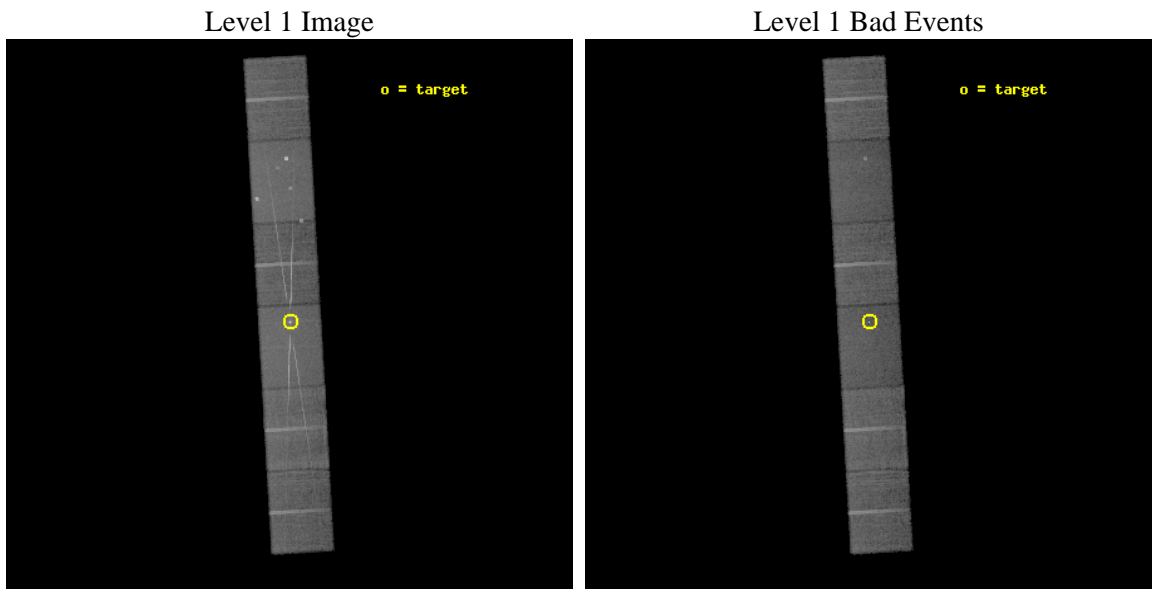
seq_num	400097	Sequence number
obs_id	1019	Observation id
title	HIGH RESOLUTION X-RAY SPECTROSCOPY OF THE PRECESSING JET IN SS 433 (PART III)	Proposal title
observer	Prof Claude Canizares	Principal investigator
object	SS 433	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	287.95625	Observer's specified target RA [deg]
dec_targ	4.982778	Observer's specified target Dec [deg]
ra_nom	287.95789082493	Nominal RA [deg]
dec_nom	4.9813340304143	Nominal Dec [deg]
roll_nom	86.676002532469	Nominal Roll [deg]
revision	3	Processing version of data
ontime	23735.0	Sum of GTIs [s]
livetime	23351.659163177	Livetime [s]
ontime4	23735.0	Sum of GTIs [s]
ontime5	23735.0	Sum of GTIs [s]
ontime6	23735.0	Sum of GTIs [s]
ontime7	23735.0	Sum of GTIs [s]
ontime8	23735.0	Sum of GTIs [s]
ontime9	23735.0	Sum of GTIs [s]
l2events	245083	Number of level 2 events



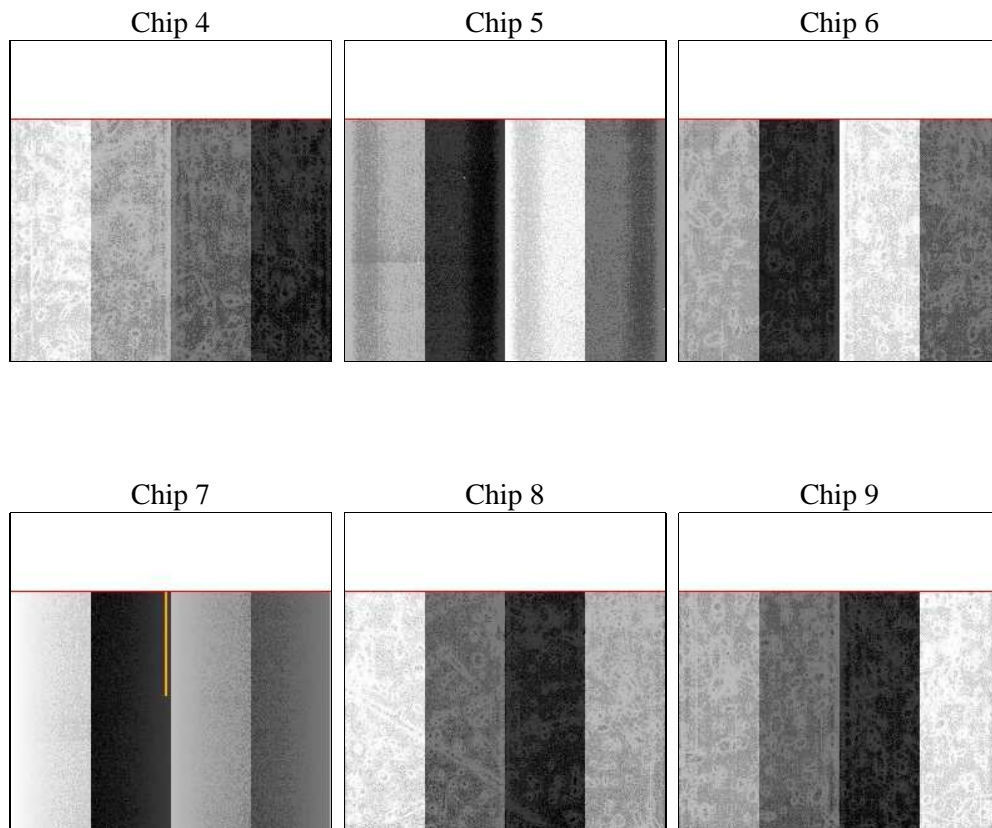
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	23619.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	23735.0	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	23735.0	Sum of GTIs [s]
date	2012-09-14T04:22:23	Date and time of file creation	ontime5	23735.0	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	23735.0	Sum of GTIs [s]
			ontime7	23735.0	Sum of GTIs [s]
			ontime8	23735.0	Sum of GTIs [s]
			ontime9	23735.0	Sum of GTIs [s]
			l1events	955753	Number of level 1 events

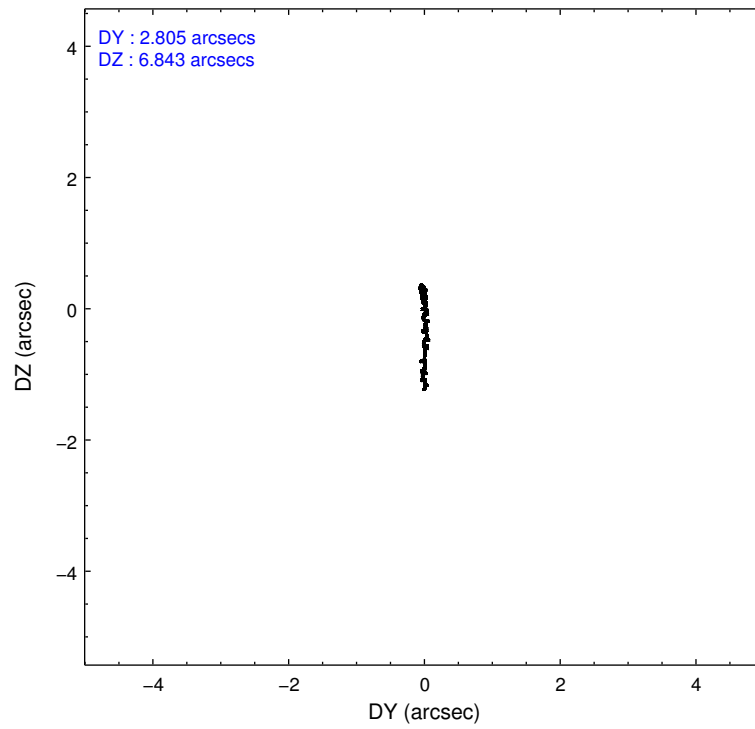
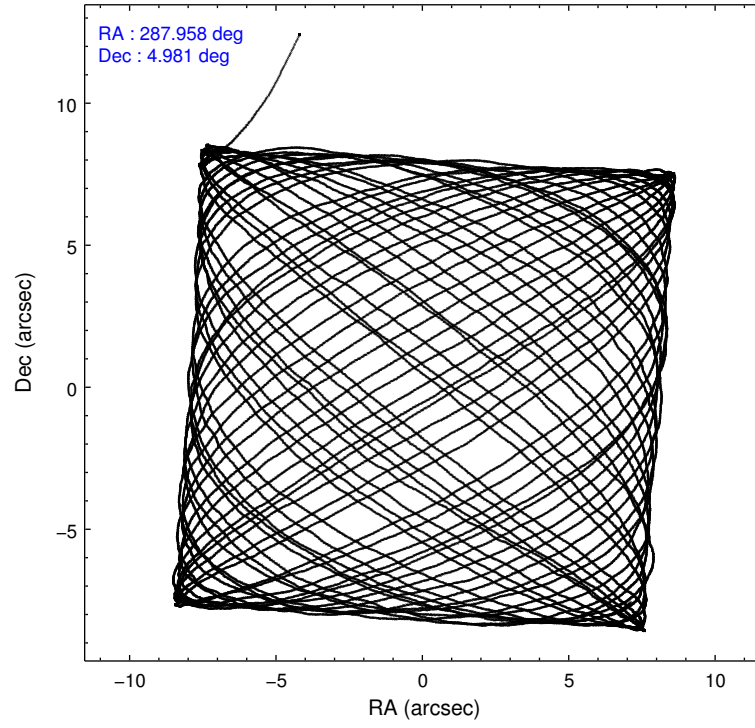
### 2.1.4 Events

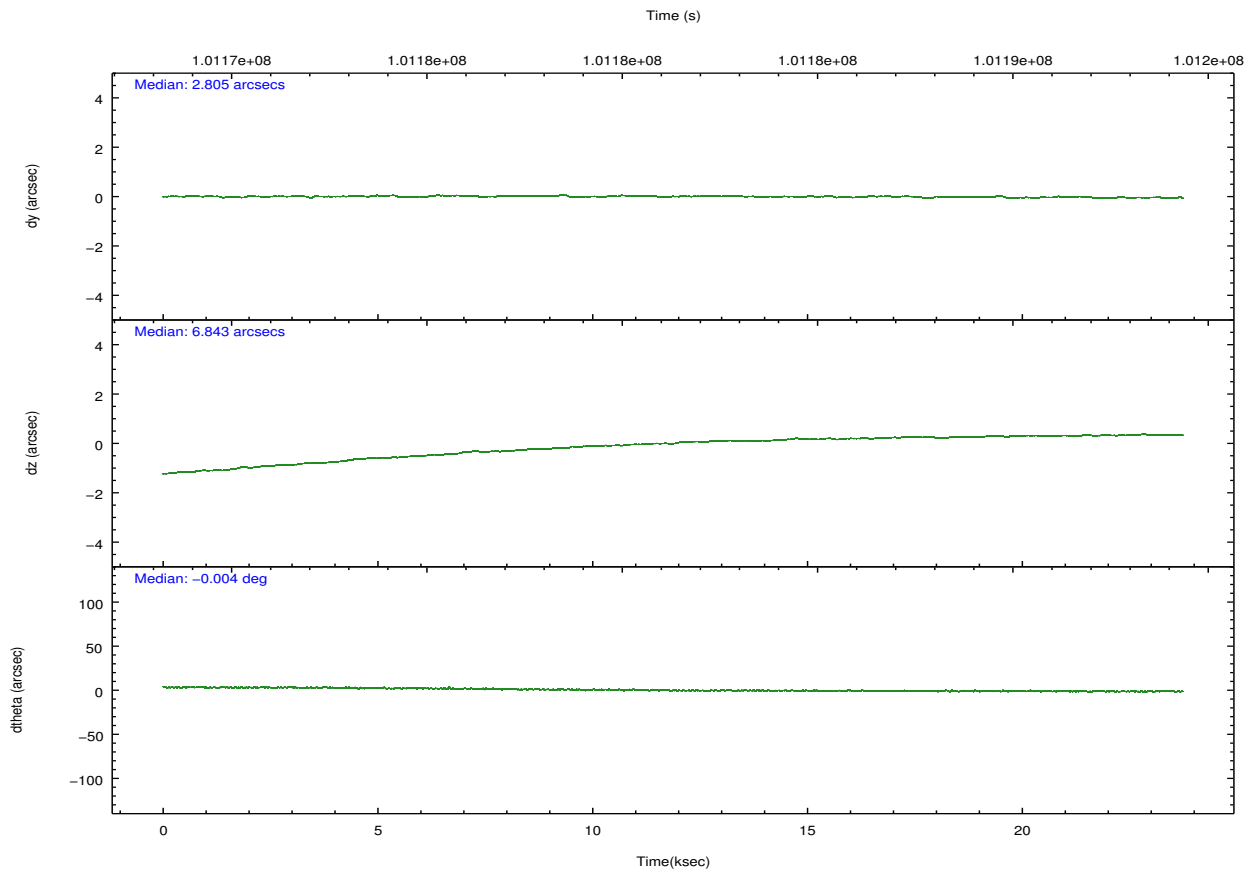
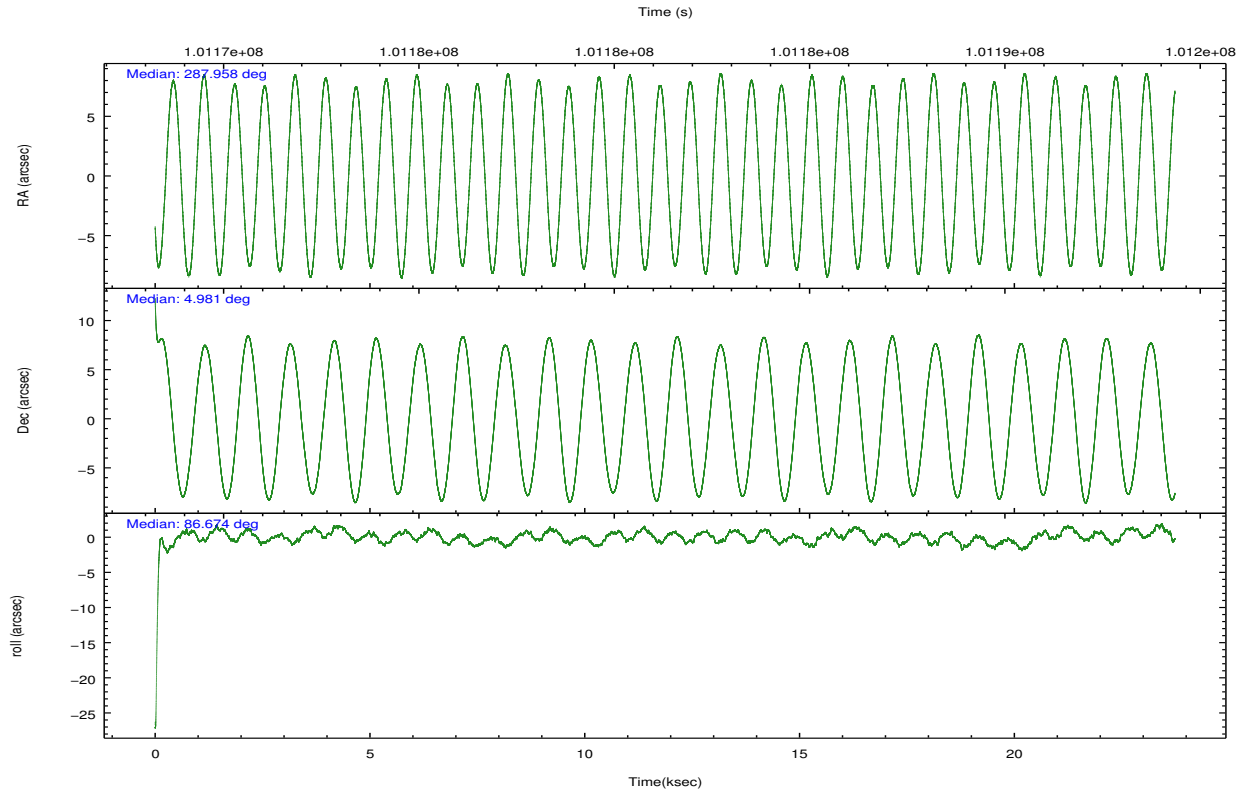
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	141103	186449	147166	190420	166665	123950	grade 0 events	6507	18255	21232	12191	14954	6813
rejected events	125825	94739	112552	96412	129053	108344		4%	9%	14%	6%	8%	5%
rejected %	89%	50%	76%	50%	77%	87%	grade 1 events	50	1006	106	354	109	57
								0%	0%	0%	0%	0%	0%
							grade 2 events	3448	25296	5393	19988	7463	2929
								2%	13%	3%	10%	4%	2%
							grade 3 events	1510	4396	2338	9015	3558	1614
								1%	2%	1%	4%	2%	1%
							grade 4 events	1436	4339	2380	9214	3372	1557
								1%	2%	1%	4%	2%	1%
							grade 5 events	4436	13629	5184	15982	6512	5147
								3%	7%	3%	8%	3%	4%
							grade 6 events	2560	40685	3660	44648	8554	2880
								1%	21%	2%	23%	5%	2%
							grade 7 events	121156	78843	106873	79028	122143	102953
								85%	42%	72%	41%	73%	83%

## 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	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	287.970434	287.9578908249307	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	4.957044	4.981334030414298	Subarray start row	1	1
[deg] Pointing Roll	86.518309	86.67600253246941	Subarray row count	774	774
[s] Window start time (MET)	95734864.184000	95734864.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	101394064.184000	101394064.184000	[s] Primary exposure time	0.000000	2.5
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-187.132523	-187.1228876879999			
[mm] SIM translation stage offset	-3	-3.009634895007935			
Phase constraints	Y	Y			
[d] Phase period	13.082000	13.082000			
[d] Phase epoch (MJD)	46595.700000	46595.700000			
Phase start	0.000000	0.000000			
Phase end	0.020000	0.020000			
Phase start error	0.050000	0.050000			
Phase end error	0.050000	0.050000			
[s] Observation start time (MET)	101169551.184000	101168433.2006			
Observation start date	2001-03-16T22:38:07	2001-03-16T22:20:33			
[s] Observation end time (MET)	101193170.184000	101194093.05159			

## 2.3 Aspect



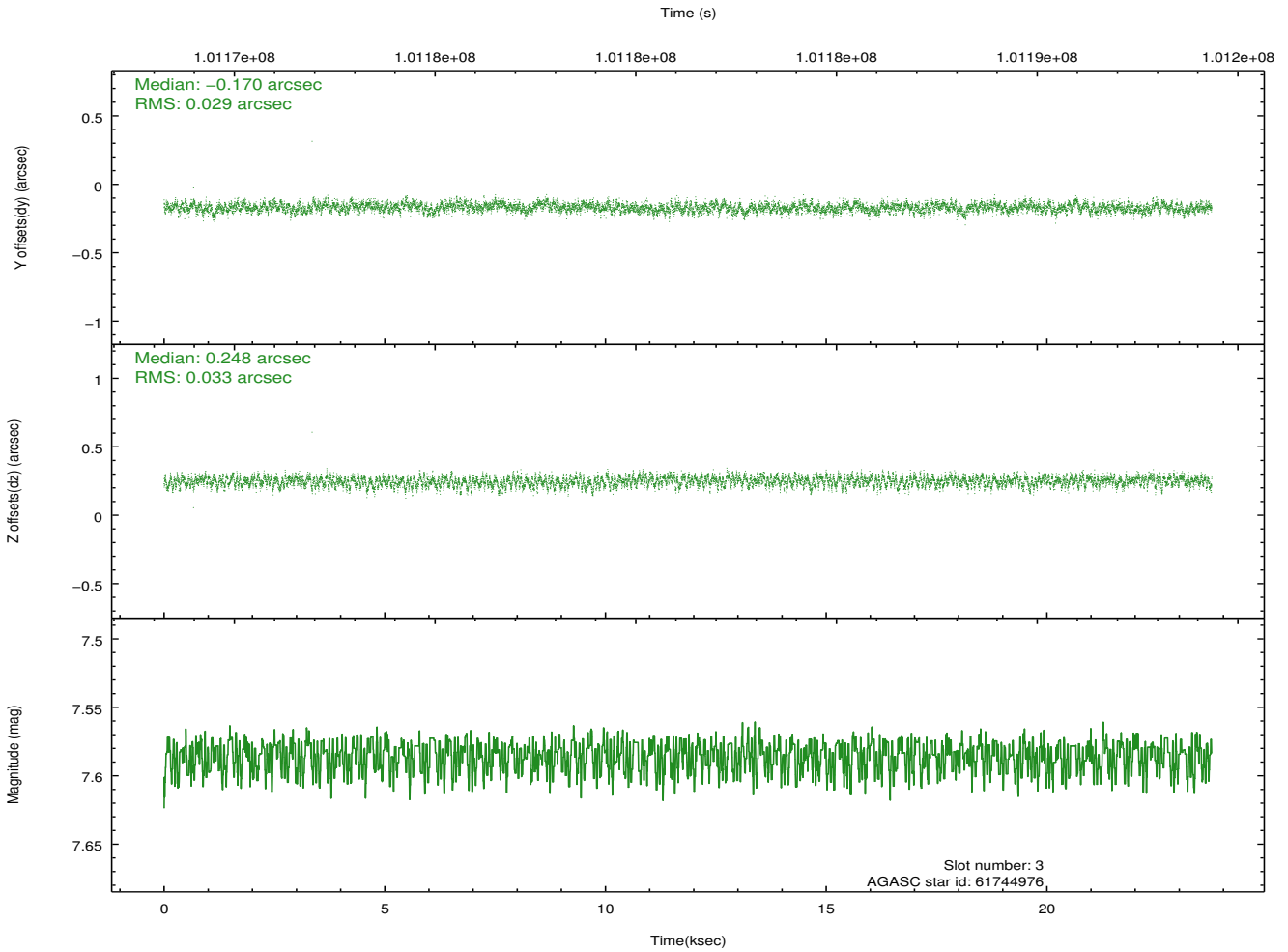
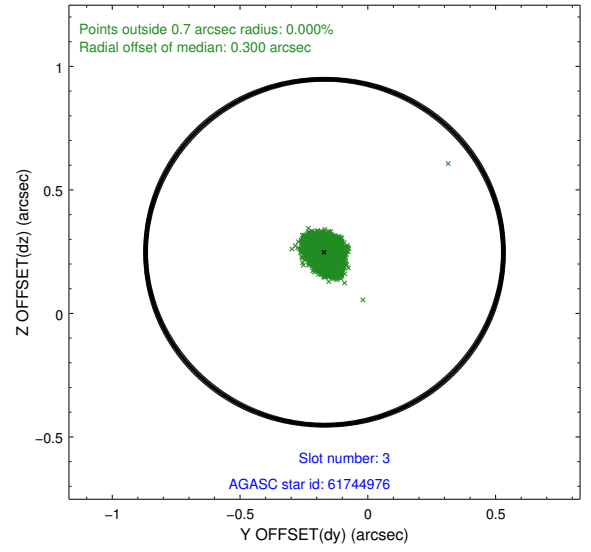
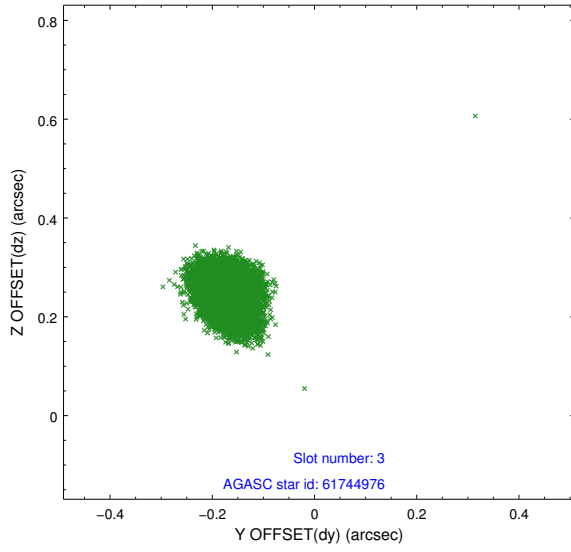


### Slot Statistics

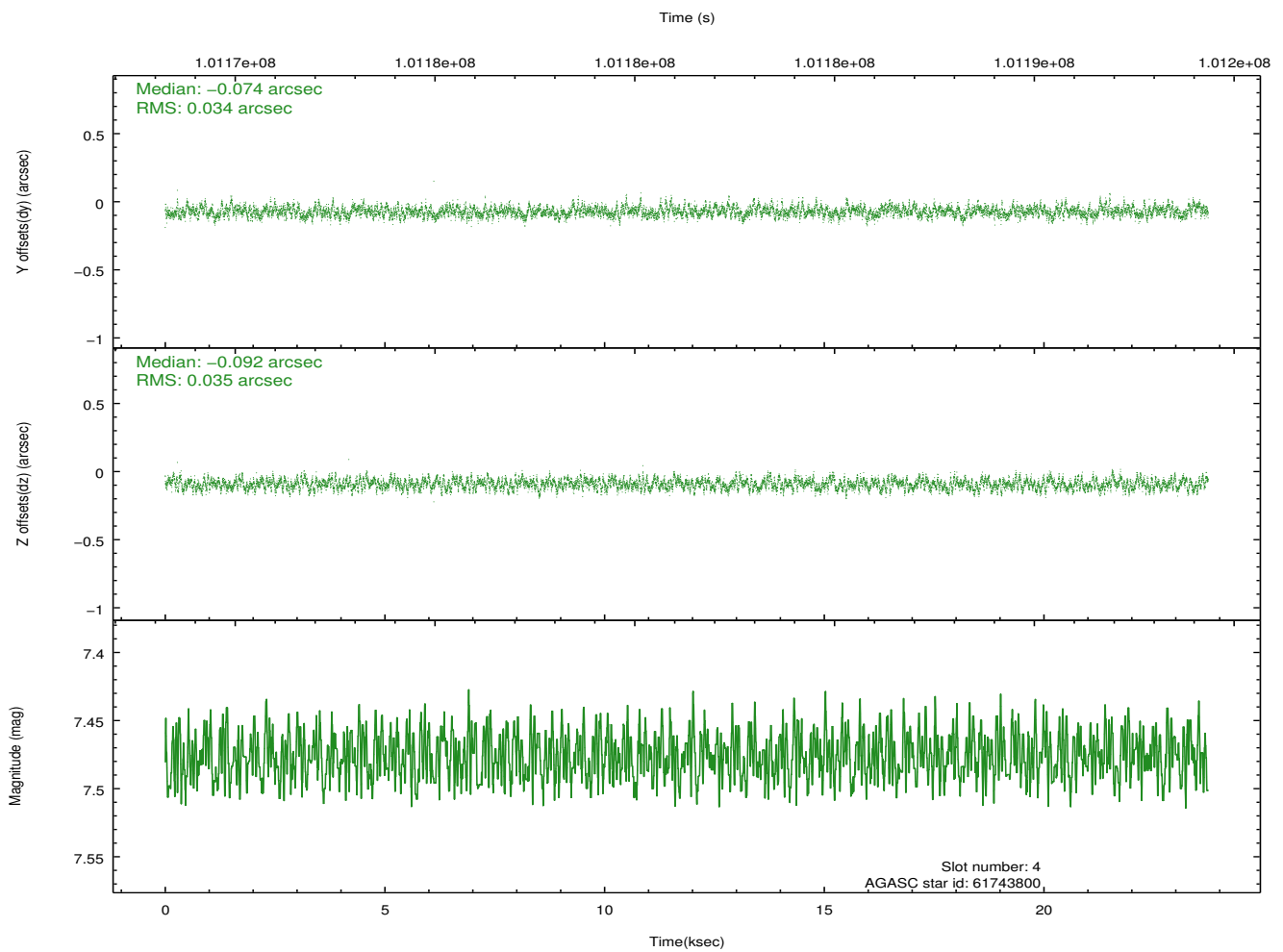
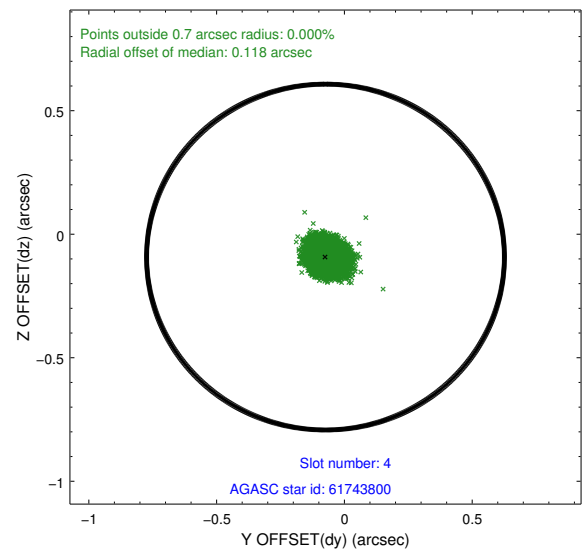
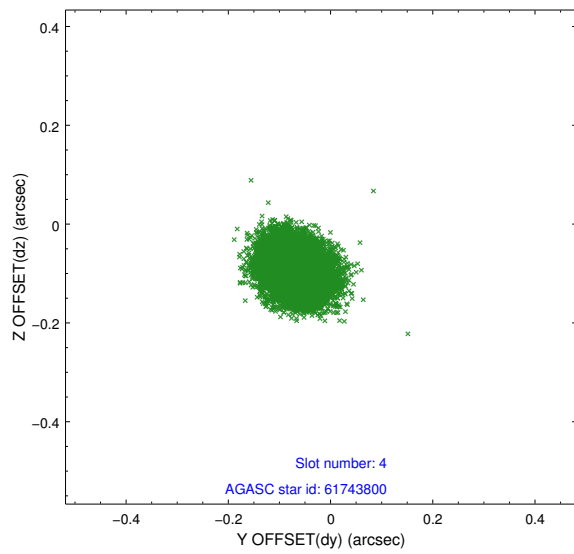
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	5789	-0.040	-0.055	0.014	0.020	0.000000	0.000000	-755.27	-1790.04
1	FID	ACIS-S-4	7.19	5789	-0.000	0.033	0.007	0.014	0.000000	0.000000	2157.99	118.38
2	FID	ACIS-S-5	7.23	5790	0.007	0.030	0.014	0.020	0.000000	0.000000	-1807.89	112.20
3	GUIDE	61744976	7.58	11579	-0.170	0.248	0.047	0.075	288.430364	5.306675	1356.62	-1569.17
4	GUIDE	61743800	7.48	11576	-0.074	-0.092	0.052	0.082	287.776811	5.274666	1098.96	761.79
5	GUIDE	61738240	7.41	11578	0.160	0.028	0.050	0.080	287.996556	4.354861	-2158.25	-225.52
6	GUIDE	61741304	7.64	11577	-0.130	-0.147	0.048	0.075	287.957418	5.377327	1506.74	138.02
7	GUIDE	61745016	8.64	11576	0.212	-0.030	0.060	0.099	288.113628	4.368816	-2082.47	-642.10

## 2.4 Star Slots

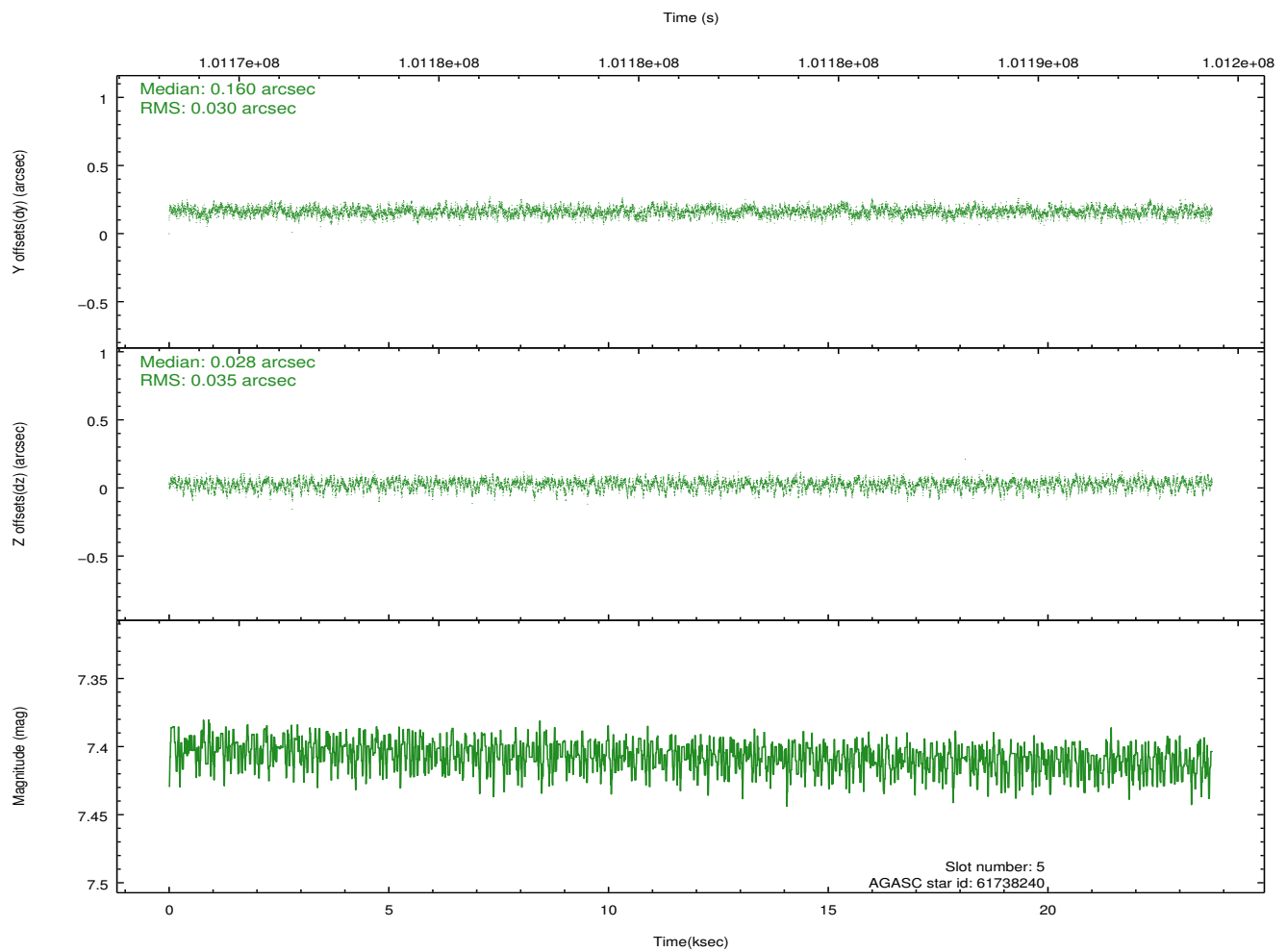
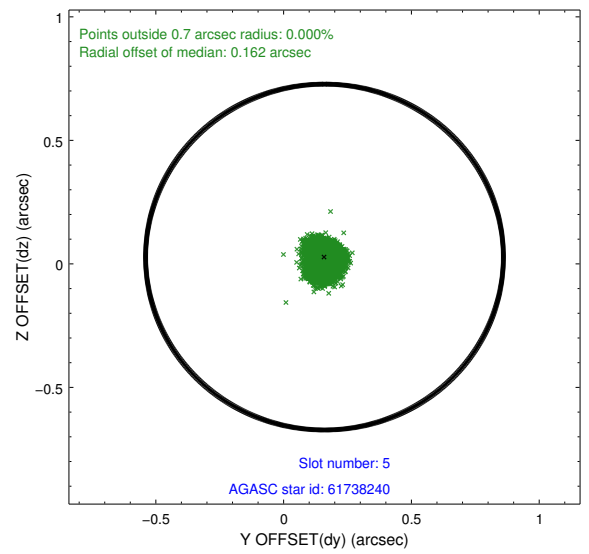
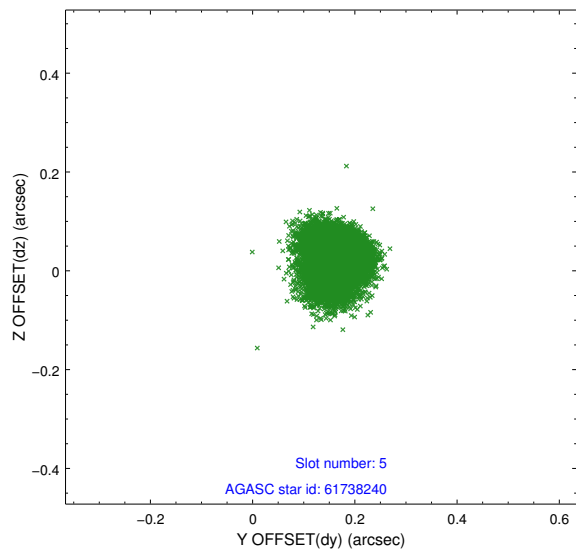
### 2.4.1 Slot 3



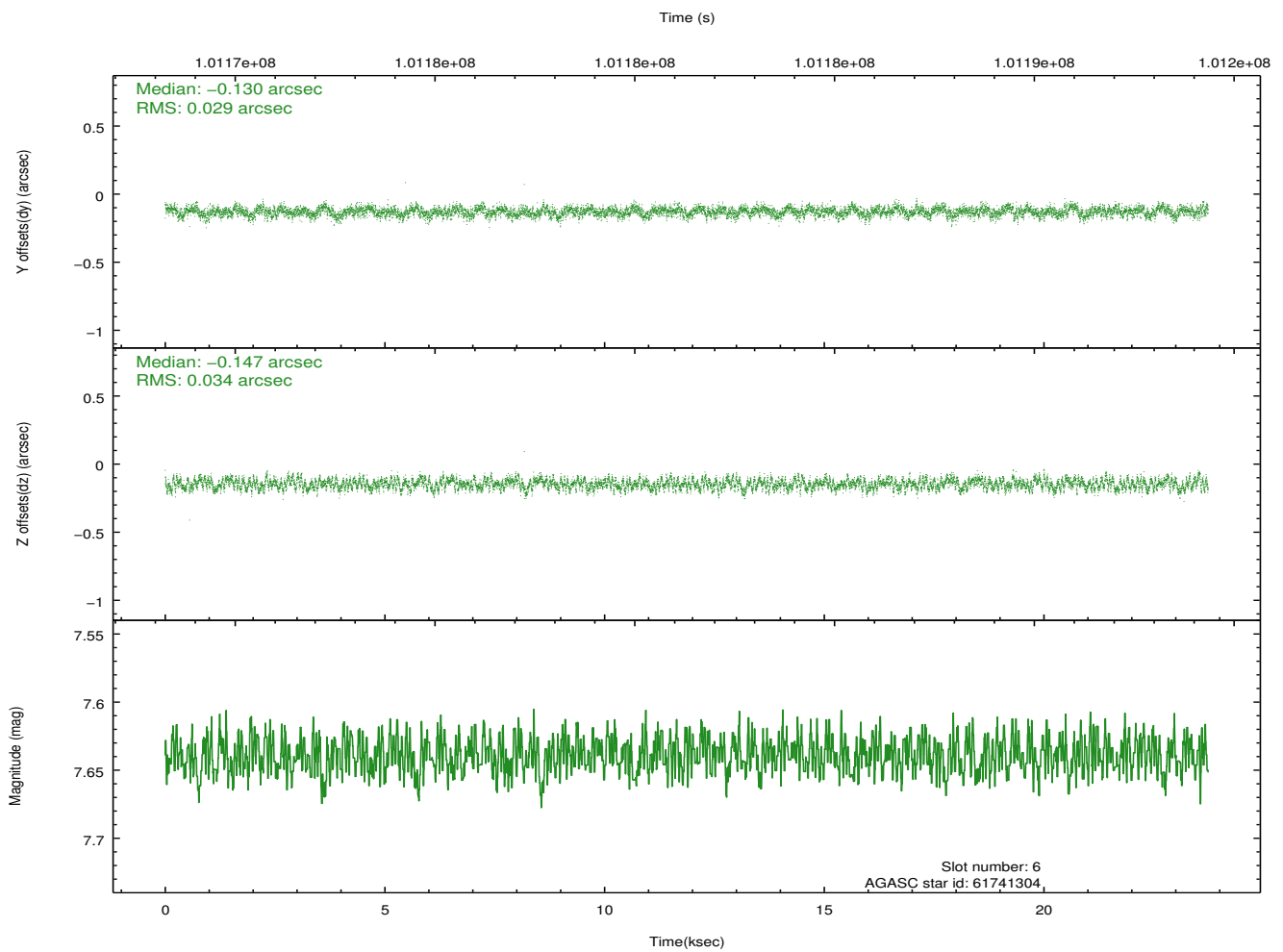
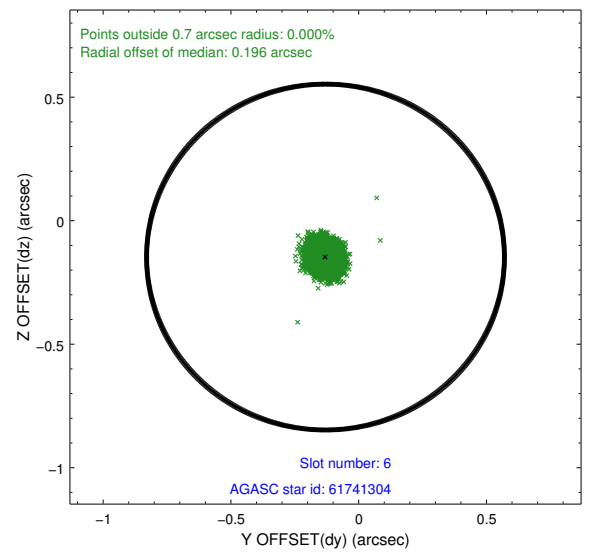
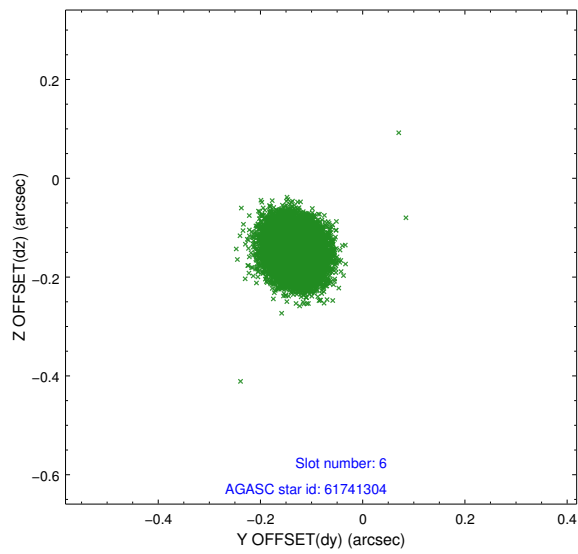
## 2.4.2 Slot 4



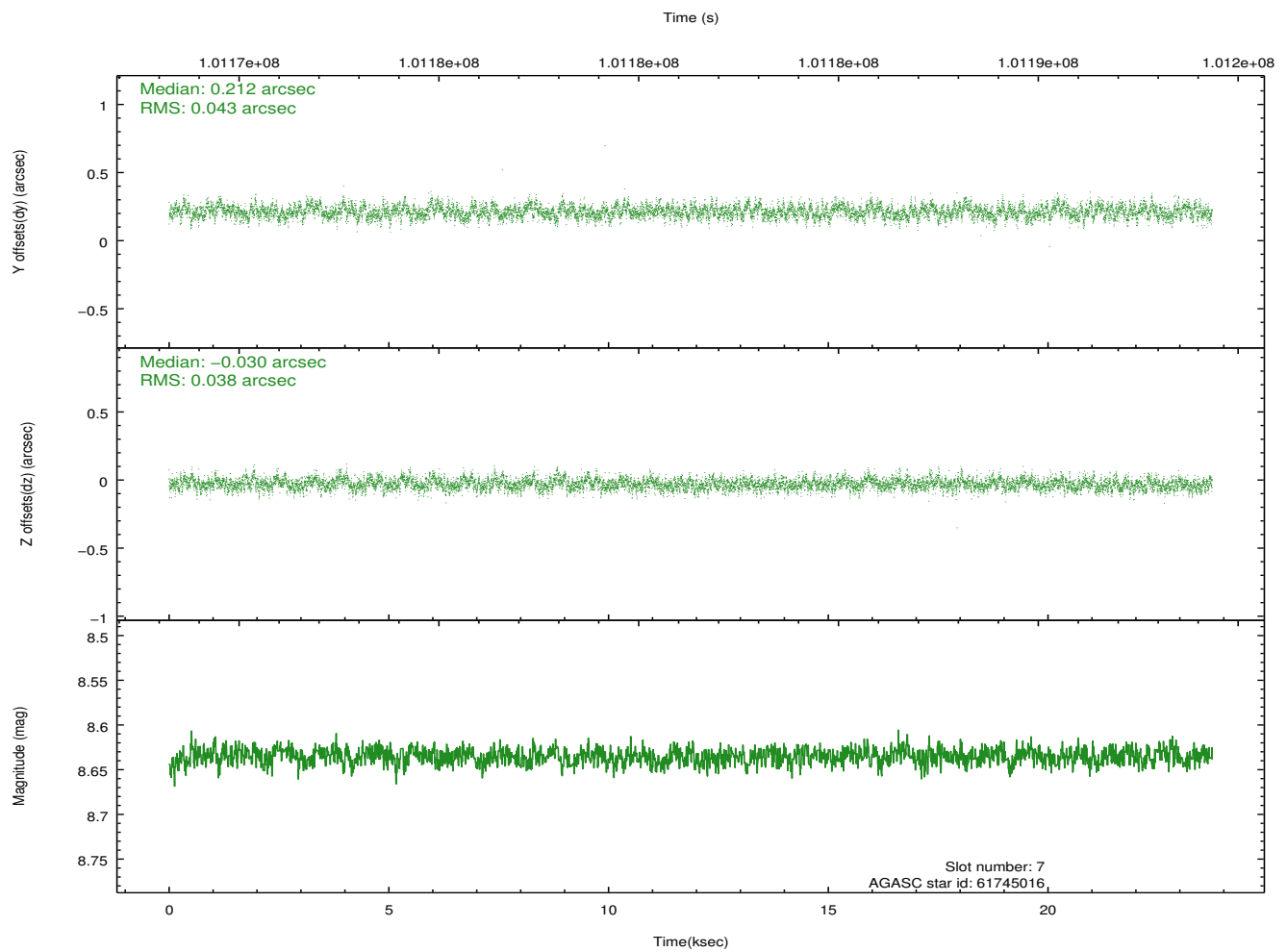
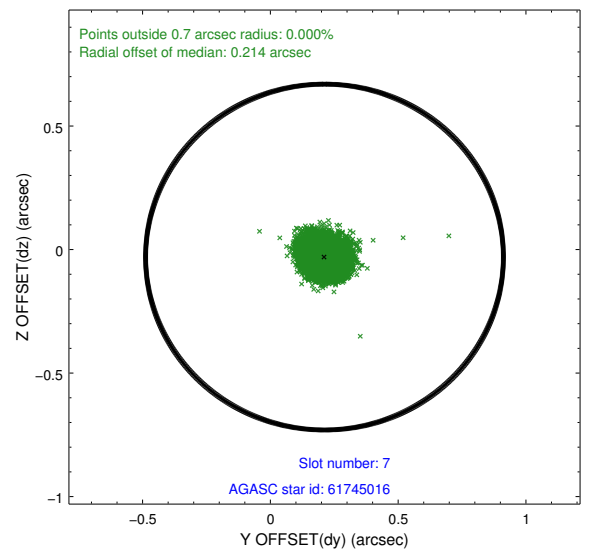
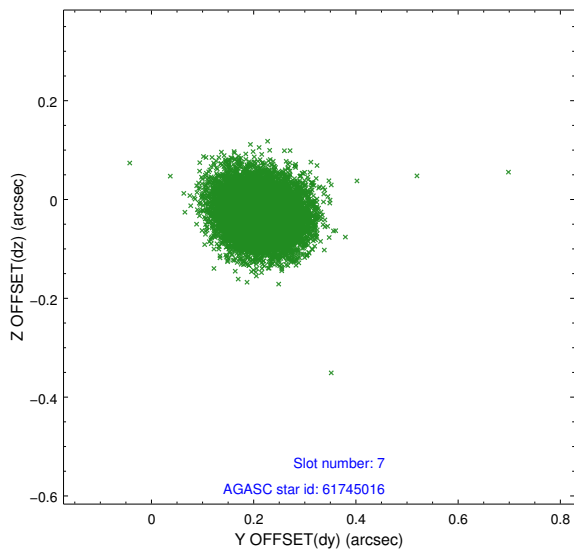
### 2.4.3 Slot 5



## 2.4.4 Slot 6

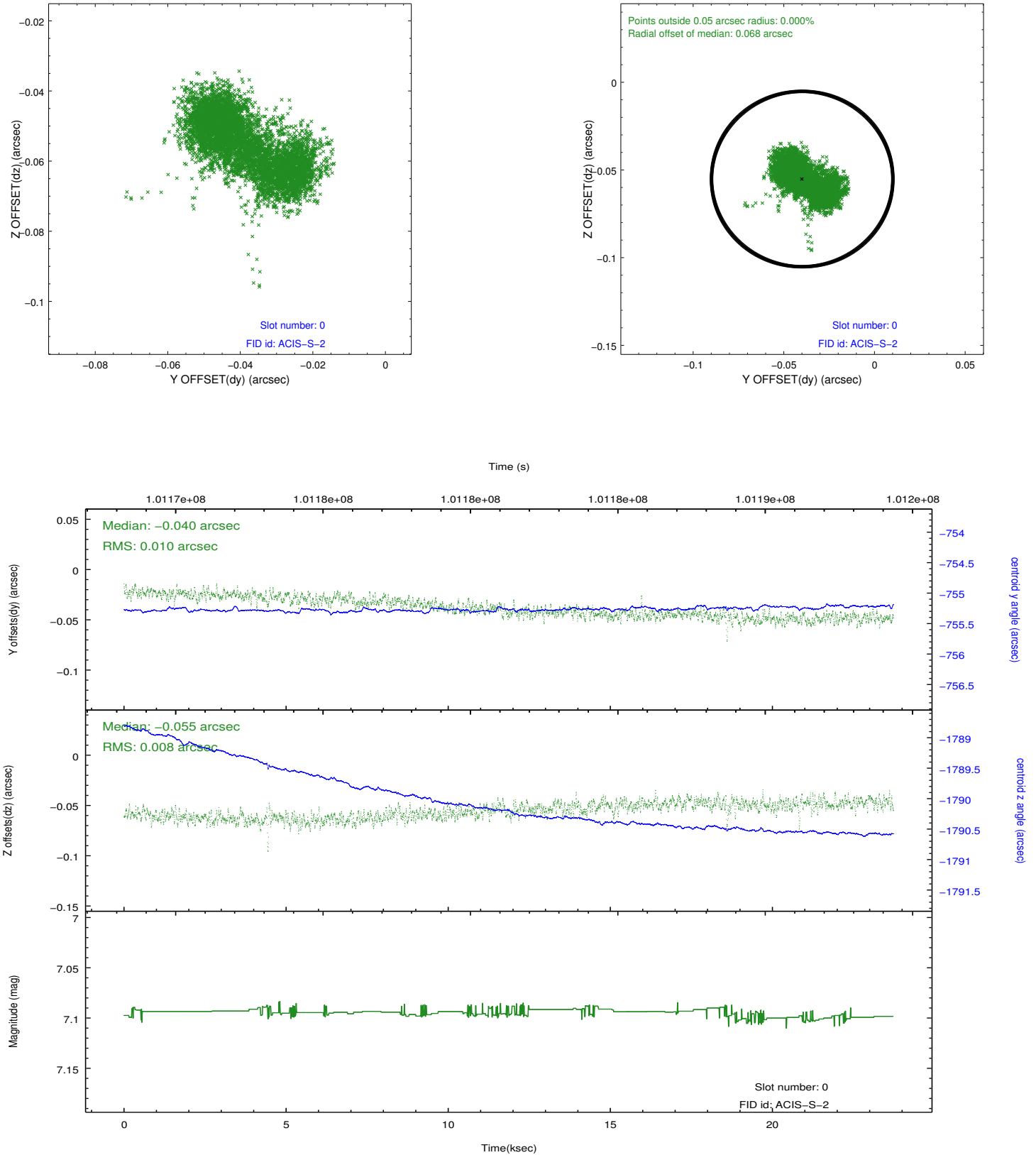


## 2.4.5 Slot 7

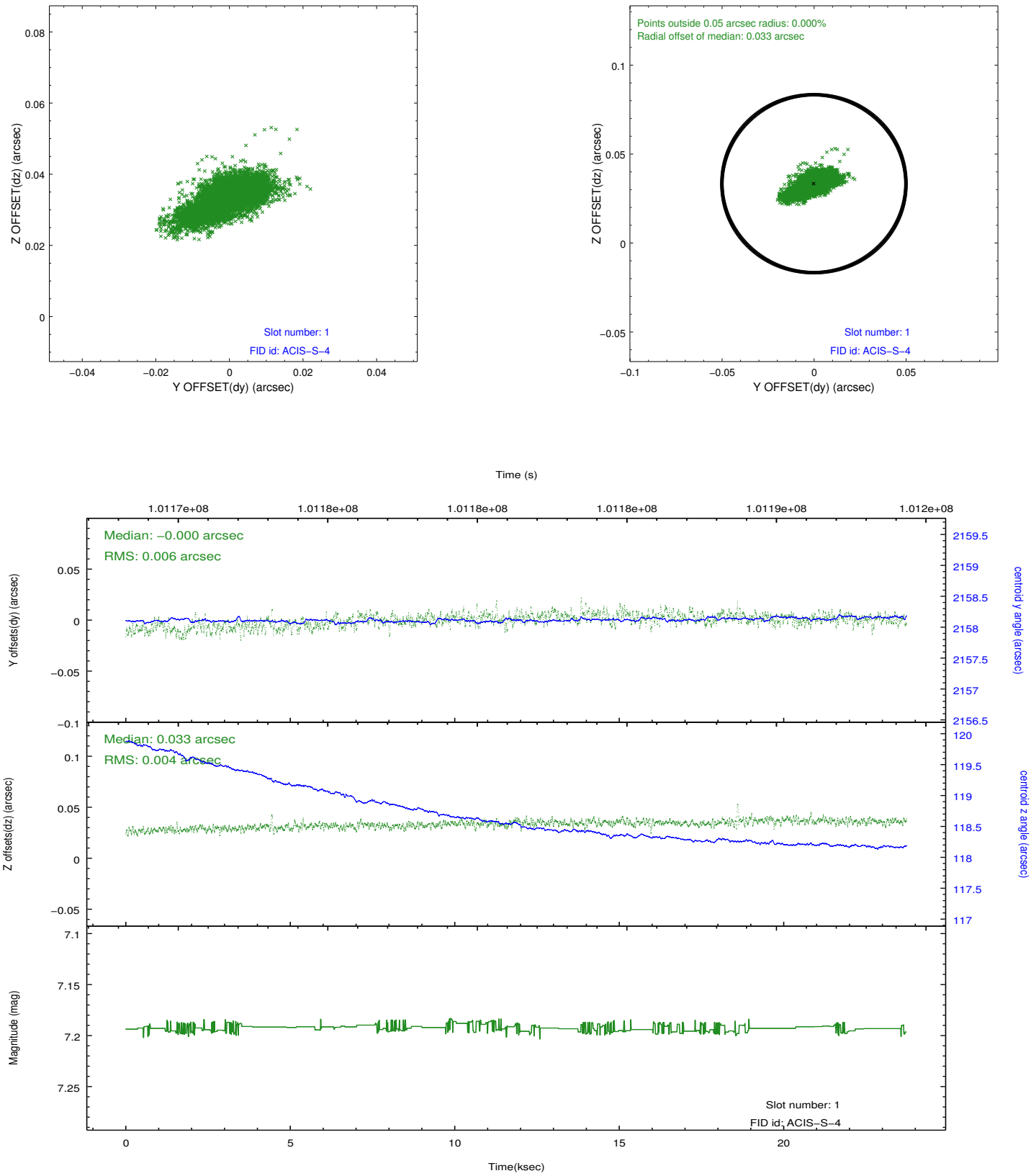


## 2.5 FID Slots

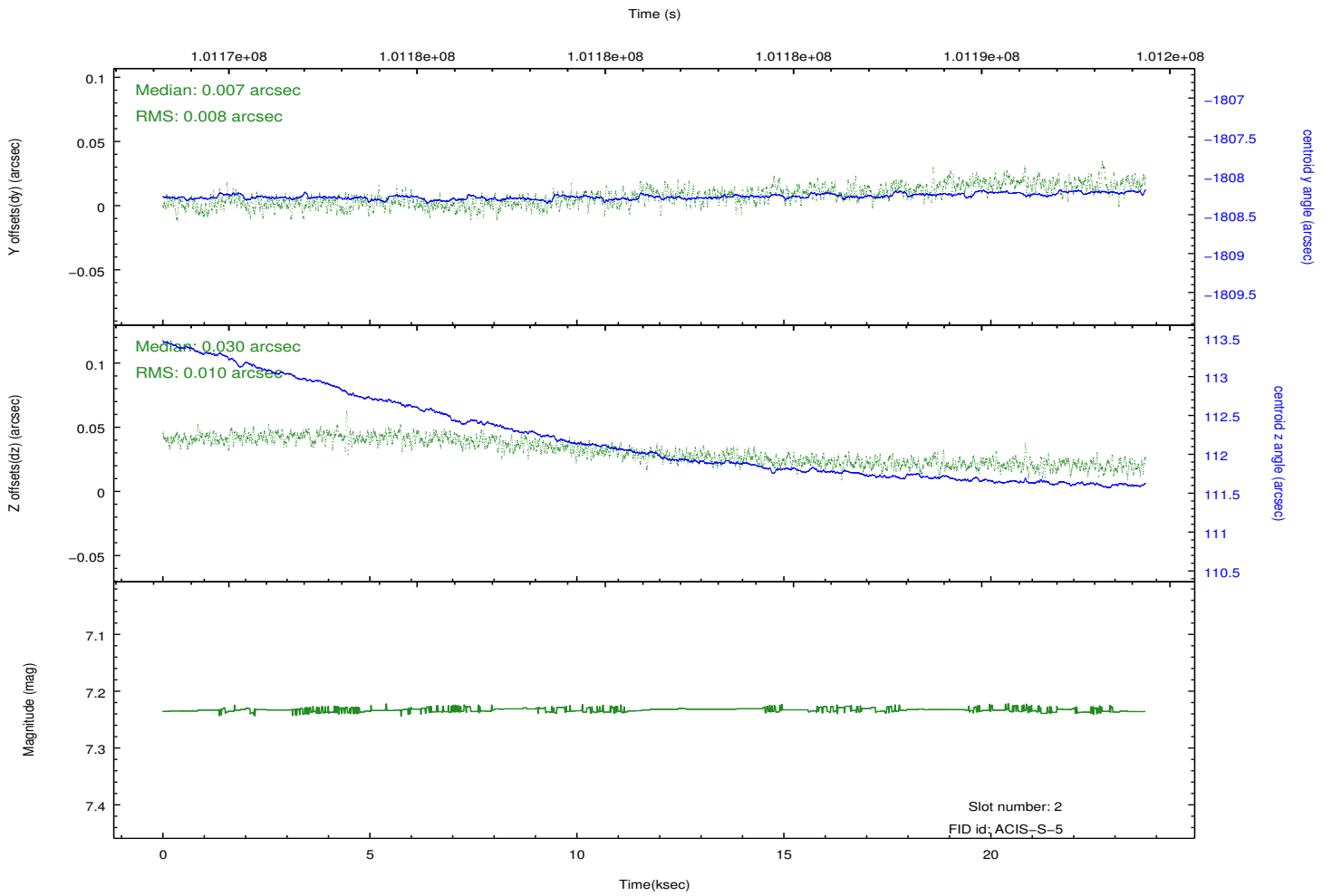
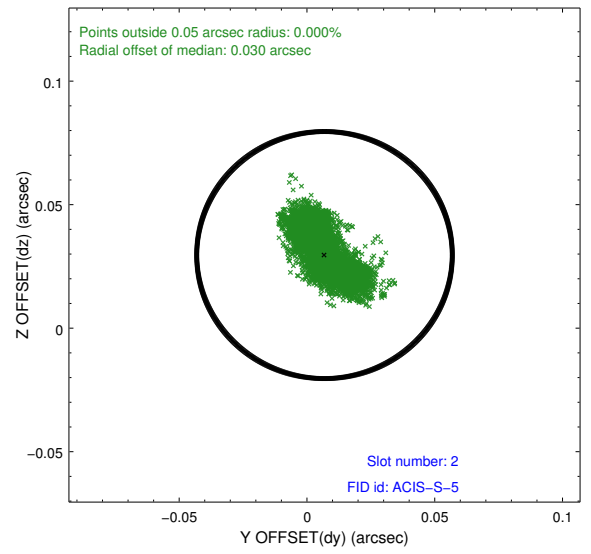
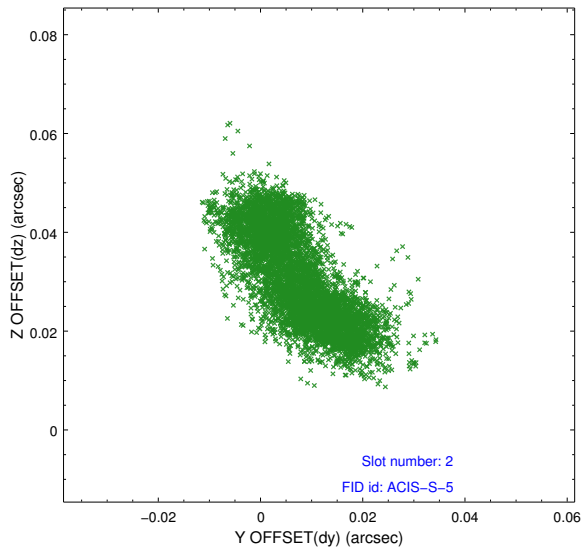
### 2.5.1 Slot 0



## 2.5.2 Slot 1

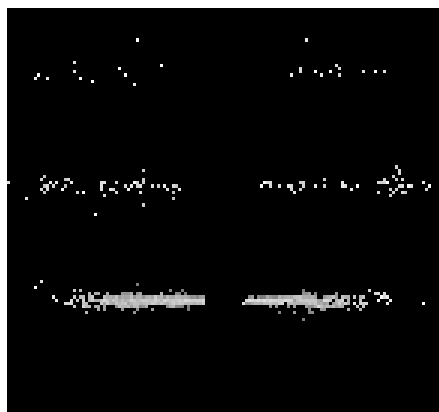


### 2.5.3 Slot 2

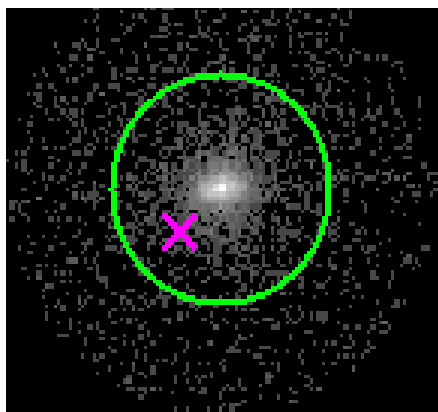


# 3 Gratings

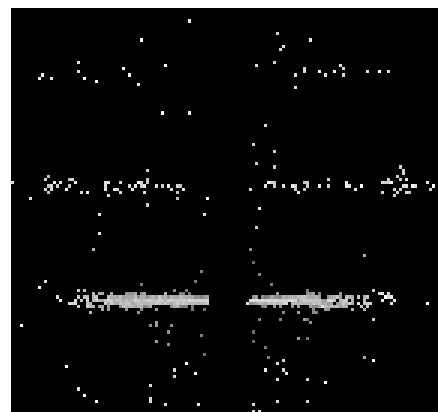
## 3.1 HEG Arm



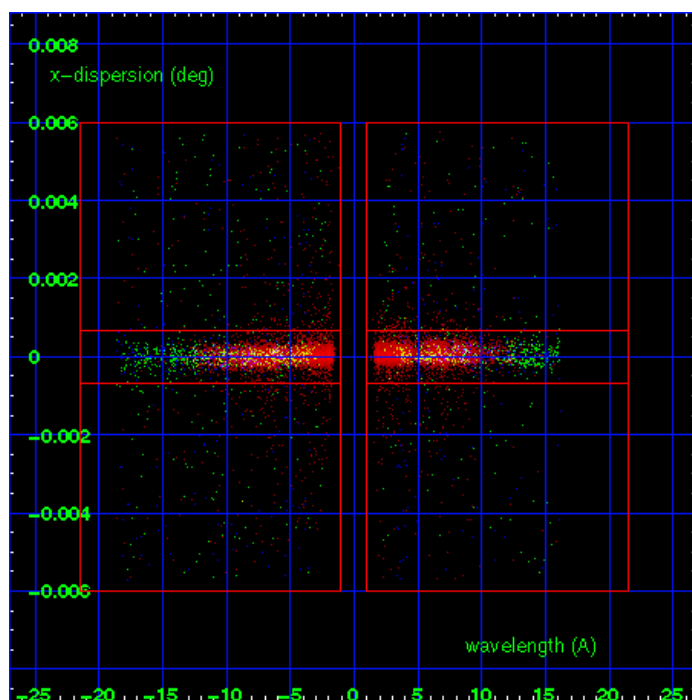
HEG Order Sort 123



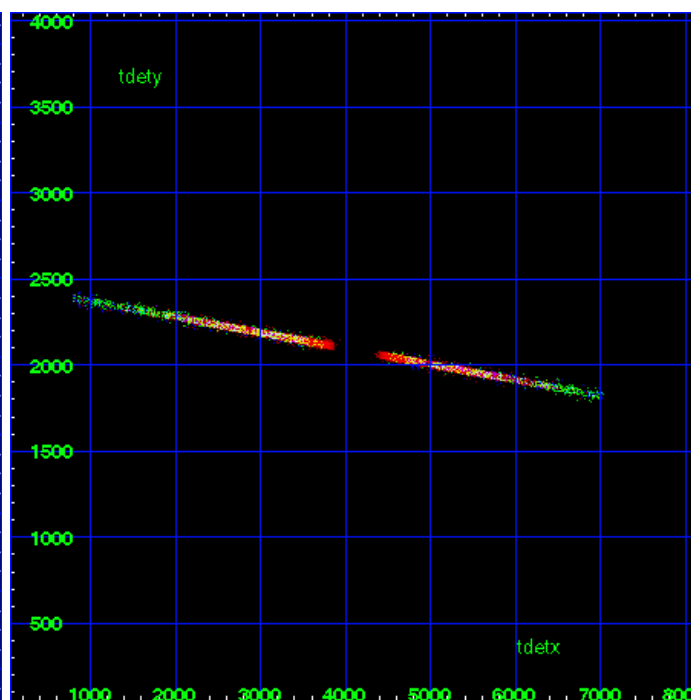
HEG Zero Order



HEG Order Sort ALL

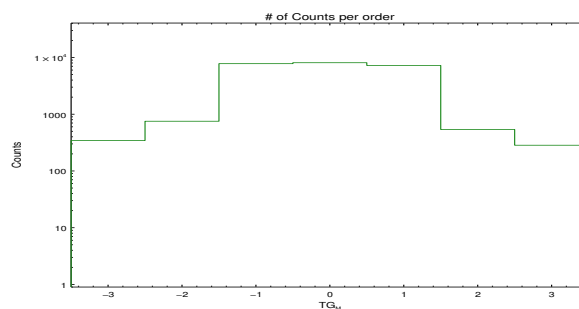


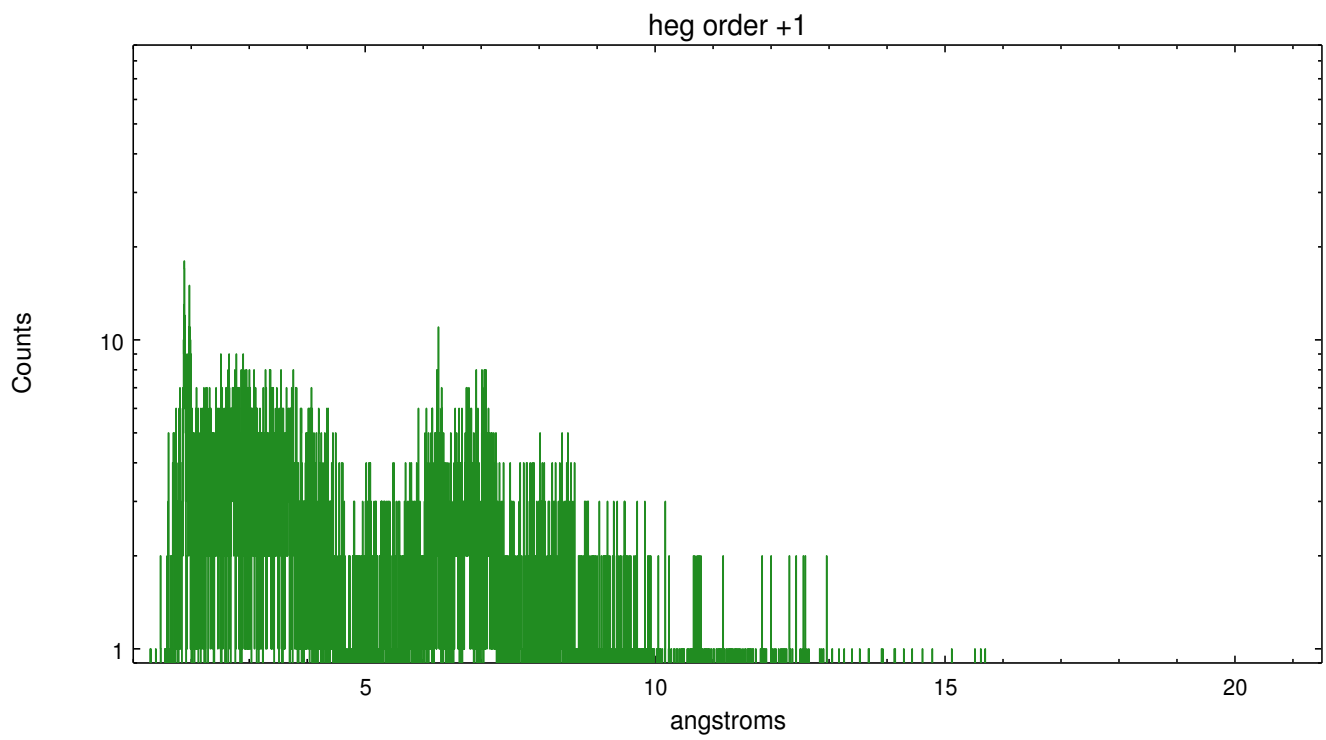
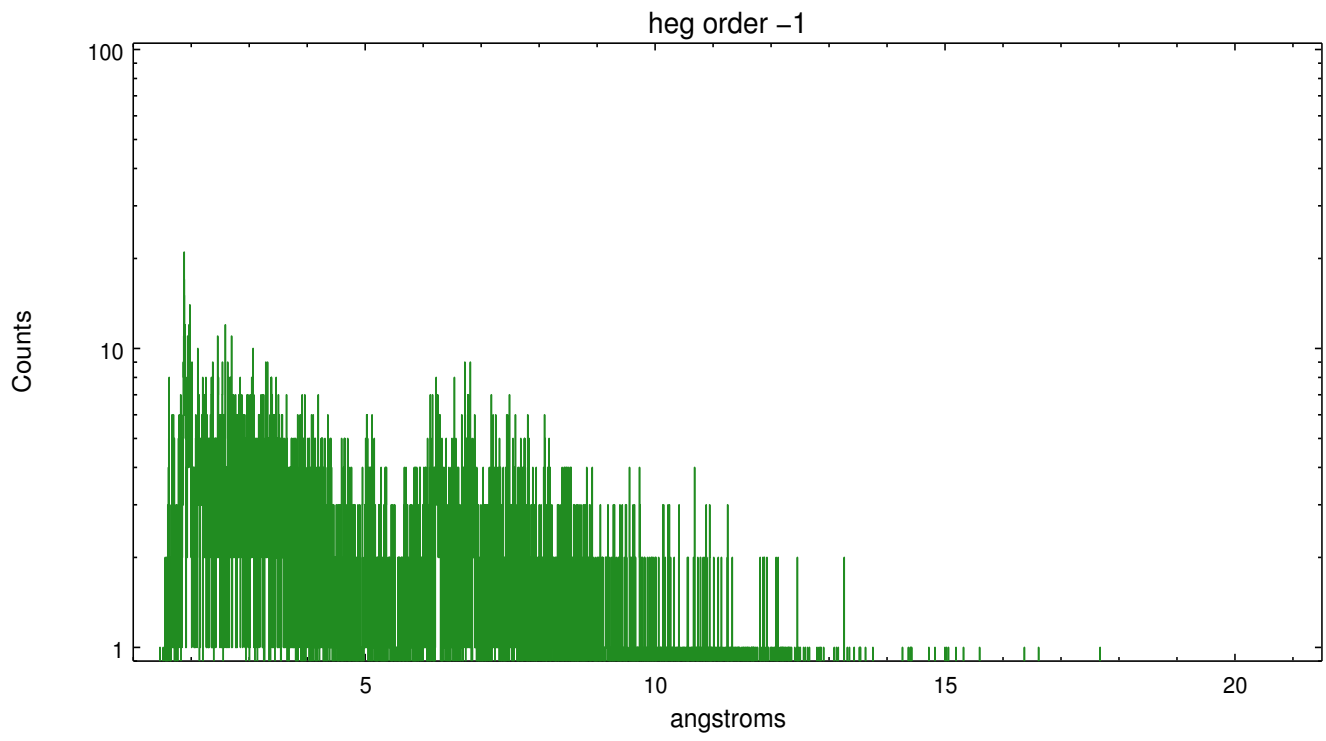
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	344	752	7789	8090	7239	538	284

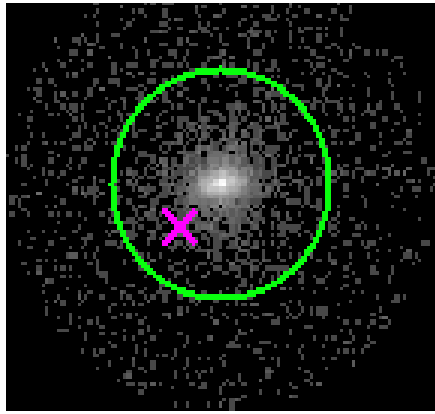




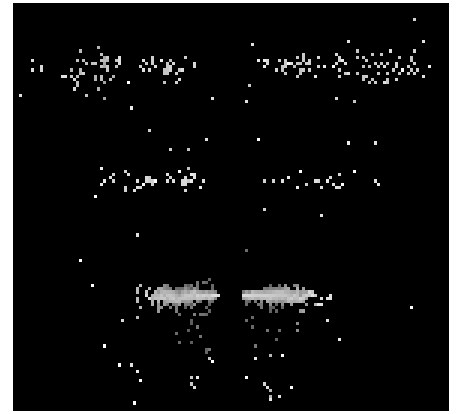
### 3.2 MEG Arm



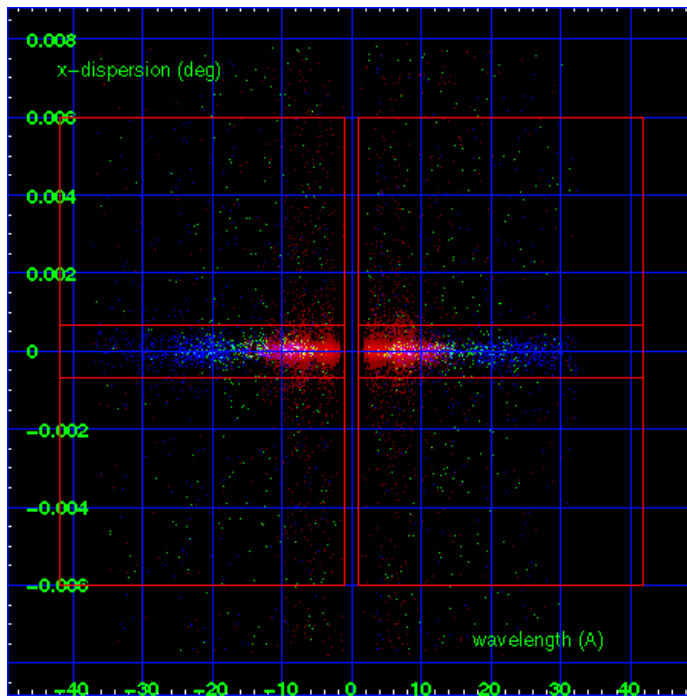
MEG Order Sort 123



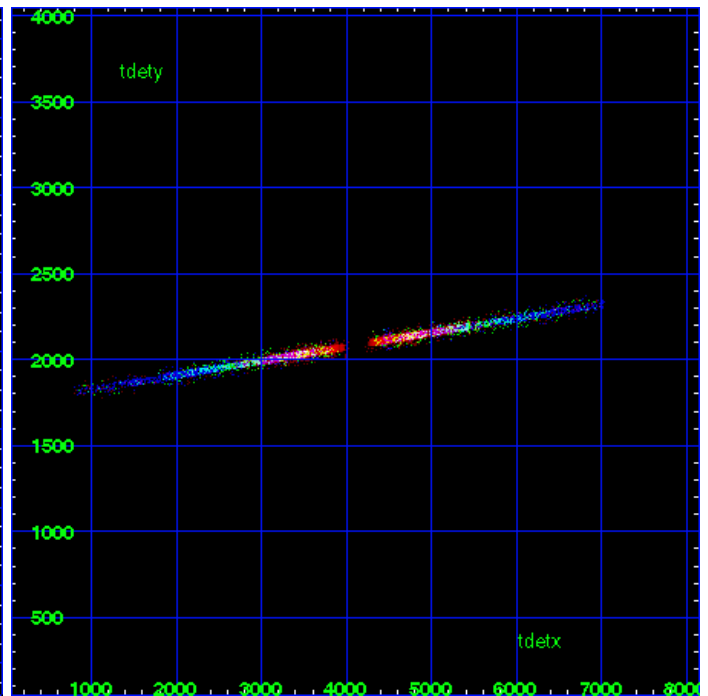
MEG Zero Order



MEG Order Sort ALL

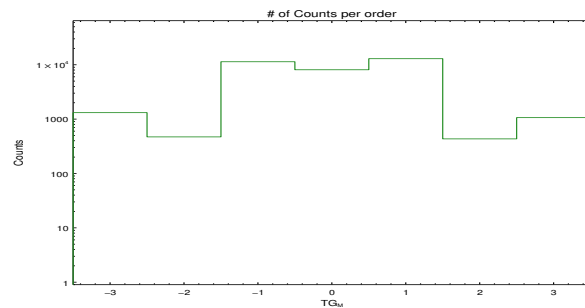


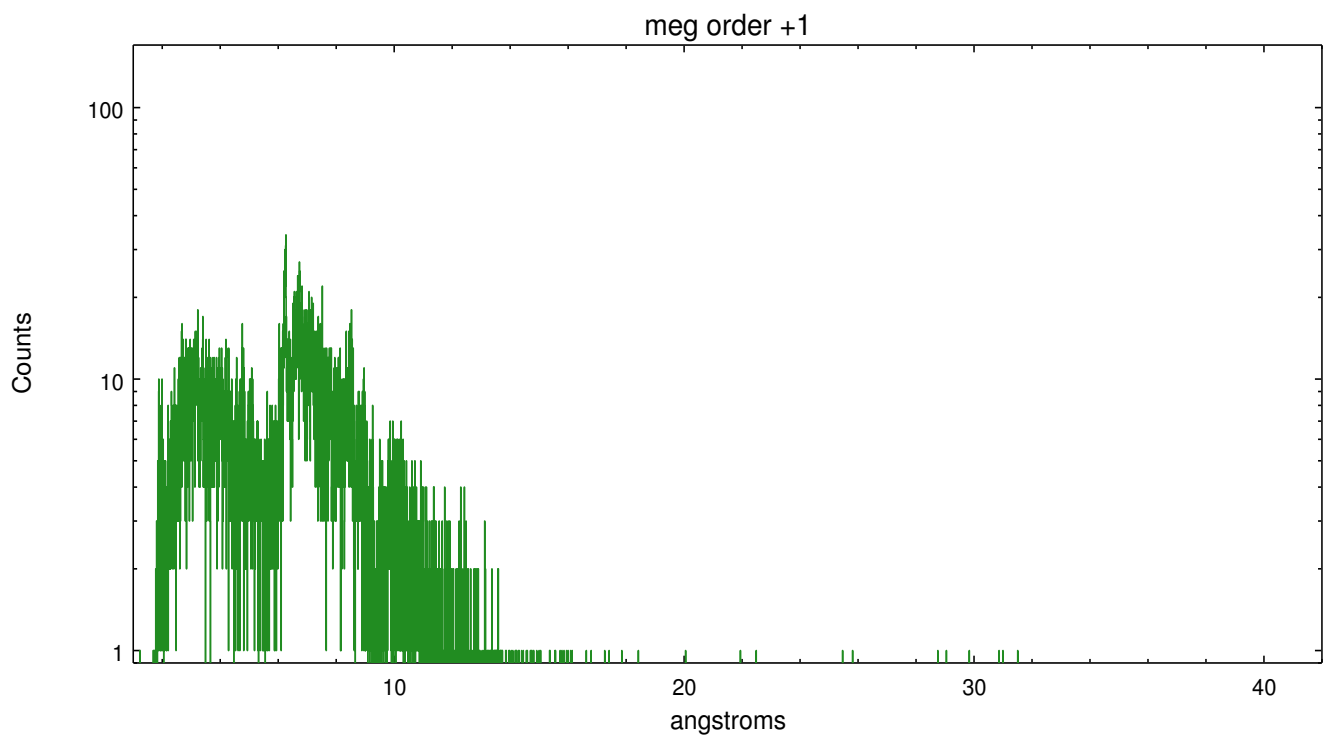
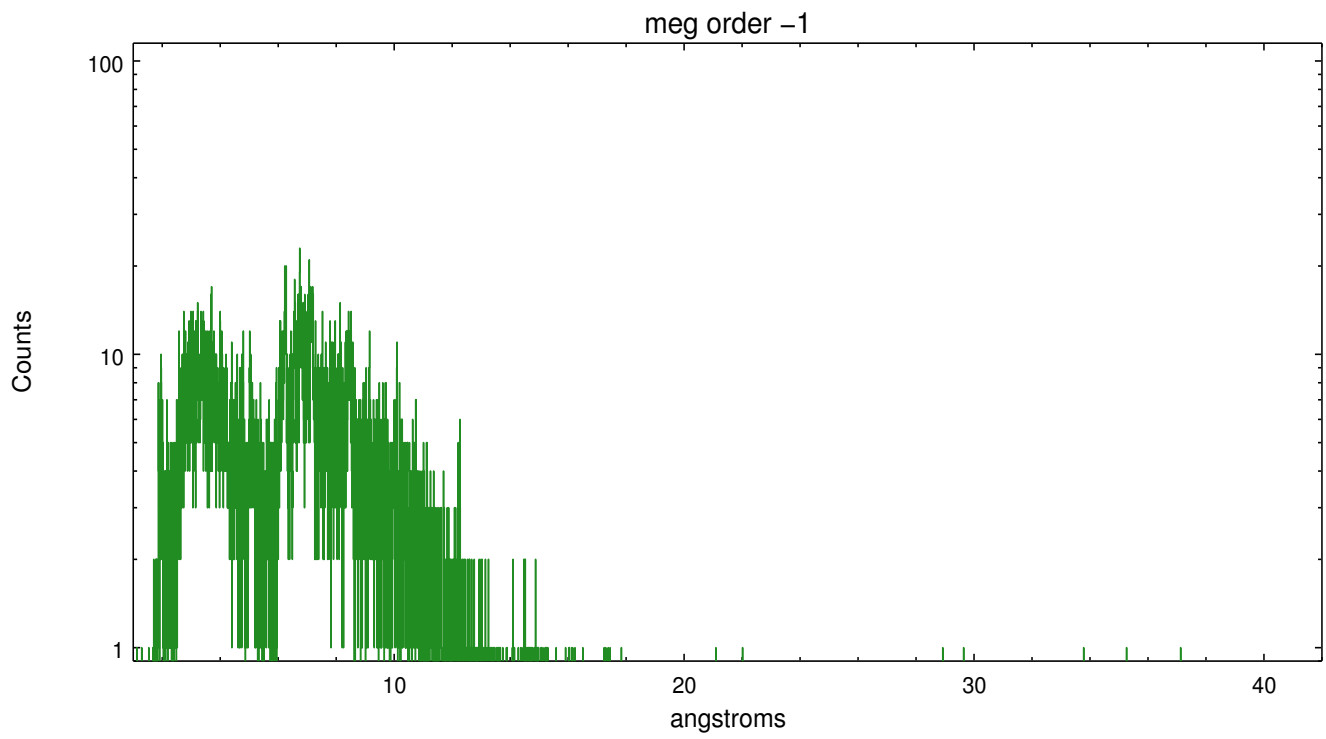
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1315	471	11362	8090	12930	433	1065





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.14
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	23.7

## A.2 Comments

Extended source. WARNING: there are no standard ciao tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle.