

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 104 - L2 Version 4  
Chandra X-Ray Center

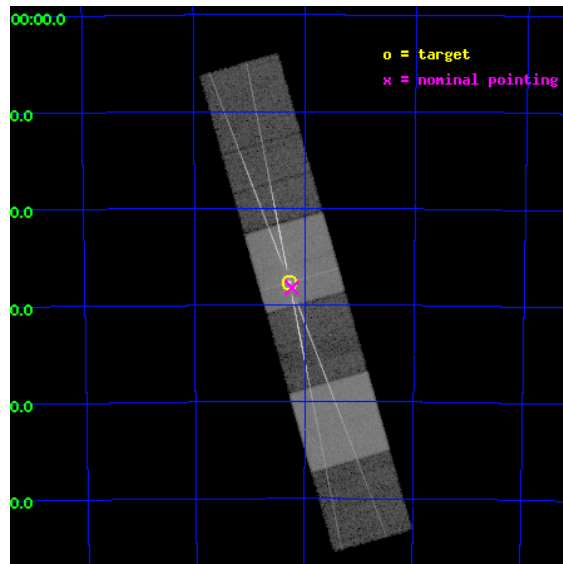
L2 Processing Date : Sep 14 2012

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# 1 Front

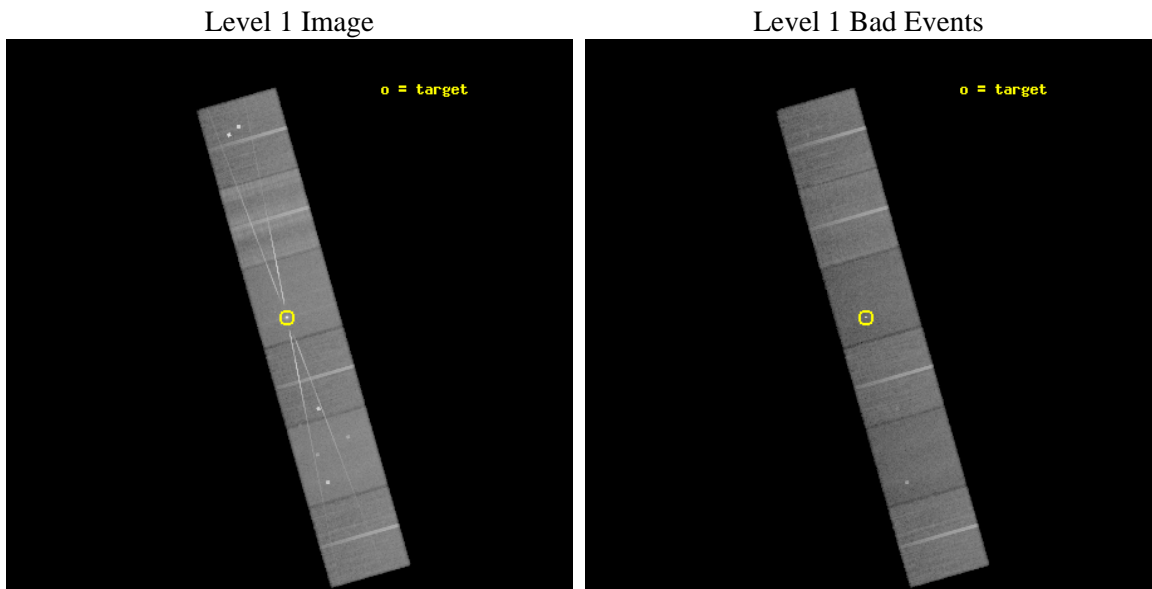
seq_num	400017	Sequence number
obs_id	104	Observation id
title	HETG OBSERVATIONS OF X-RAY BINARIES	Proposal title
observer	Prof Claude Canizares	Principal investigator
object	4U 1626-67	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	248.069583	Observer's specified target RA [deg]
dec_targ	-67.461667	Observer's specified target Dec [deg]
ra_nom	248.05811359432	Nominal RA [deg]
dec_nom	-67.470534526425	Nominal Dec [deg]
roll_nom	254.04933469594	Nominal Roll [deg]
revision	4	Processing version of data
ontime	39984.000037223	Sum of GTIs [s]
livetime	39477.698553277	Livetime [s]
ontime4	39980.759216607	Sum of GTIs [s]
ontime5	39984.000037223	Sum of GTIs [s]
ontime6	39980.759076983	Sum of GTIs [s]
ontime7	39984.000037223	Sum of GTIs [s]
ontime8	39984.000037223	Sum of GTIs [s]
ontime9	39984.000037223	Sum of GTIs [s]
l2events	489486	Number of level 2 events



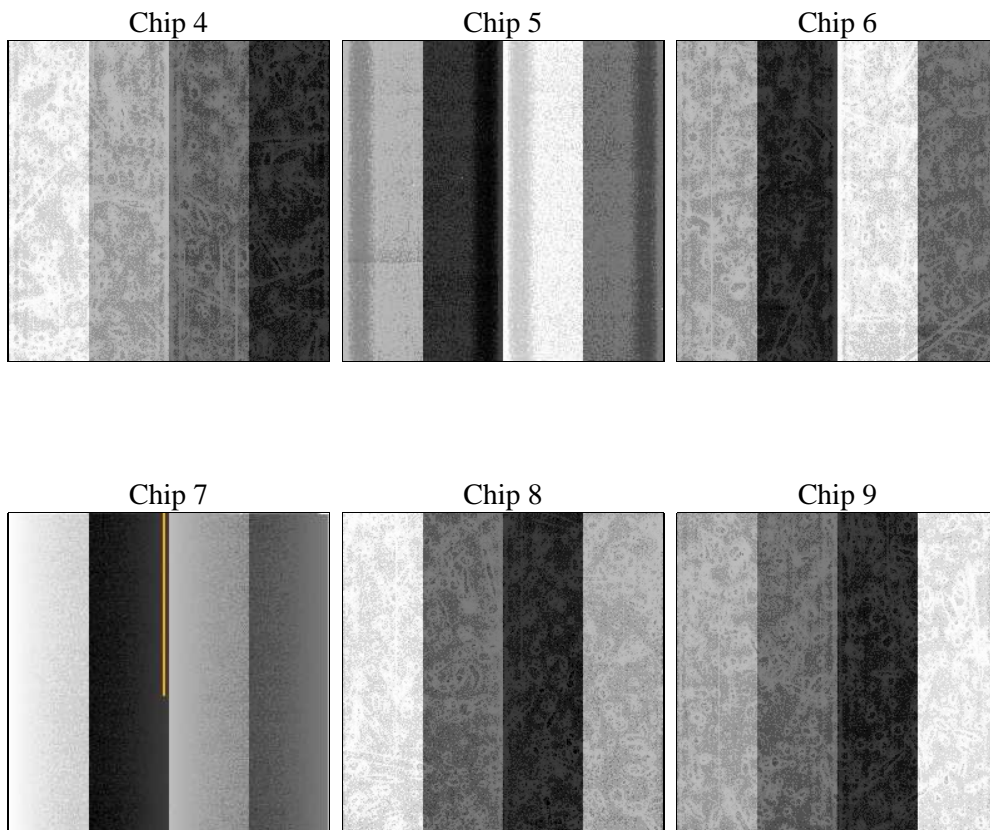
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	2	Obi number	sched_exp_time	40000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	39984.000037223	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	39980.759216607	Sum of GTIs [s]
date	2012-09-01T18:32:48	Date and time of file creation	ontime5	39984.000037223	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	39980.759076983	Sum of GTIs [s]
			ontime7	39984.000037223	Sum of GTIs [s]
			ontime8	39984.000037223	Sum of GTIs [s]
			ontime9	39984.000037223	Sum of GTIs [s]
			l1events	1951441	Number of level 1 events

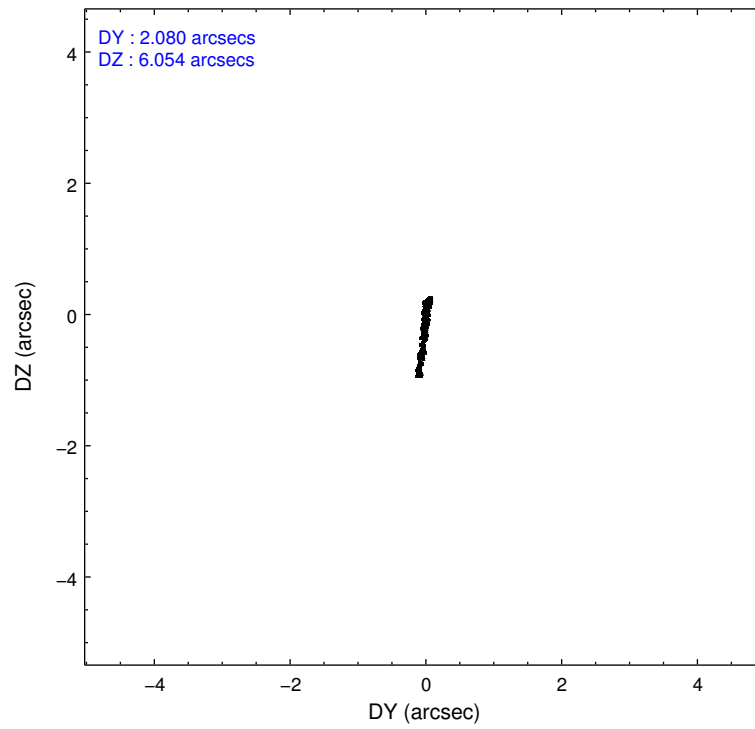
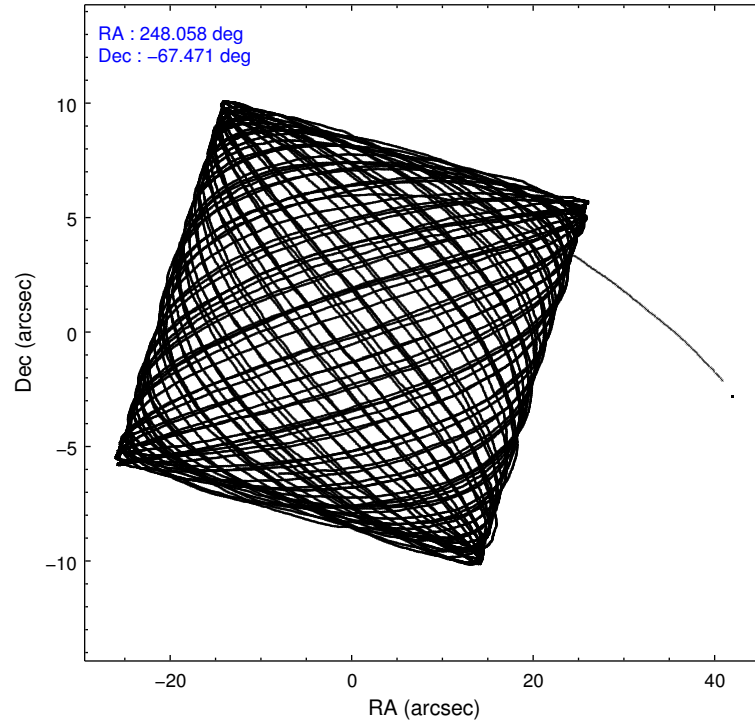
### 2.1.4 Events

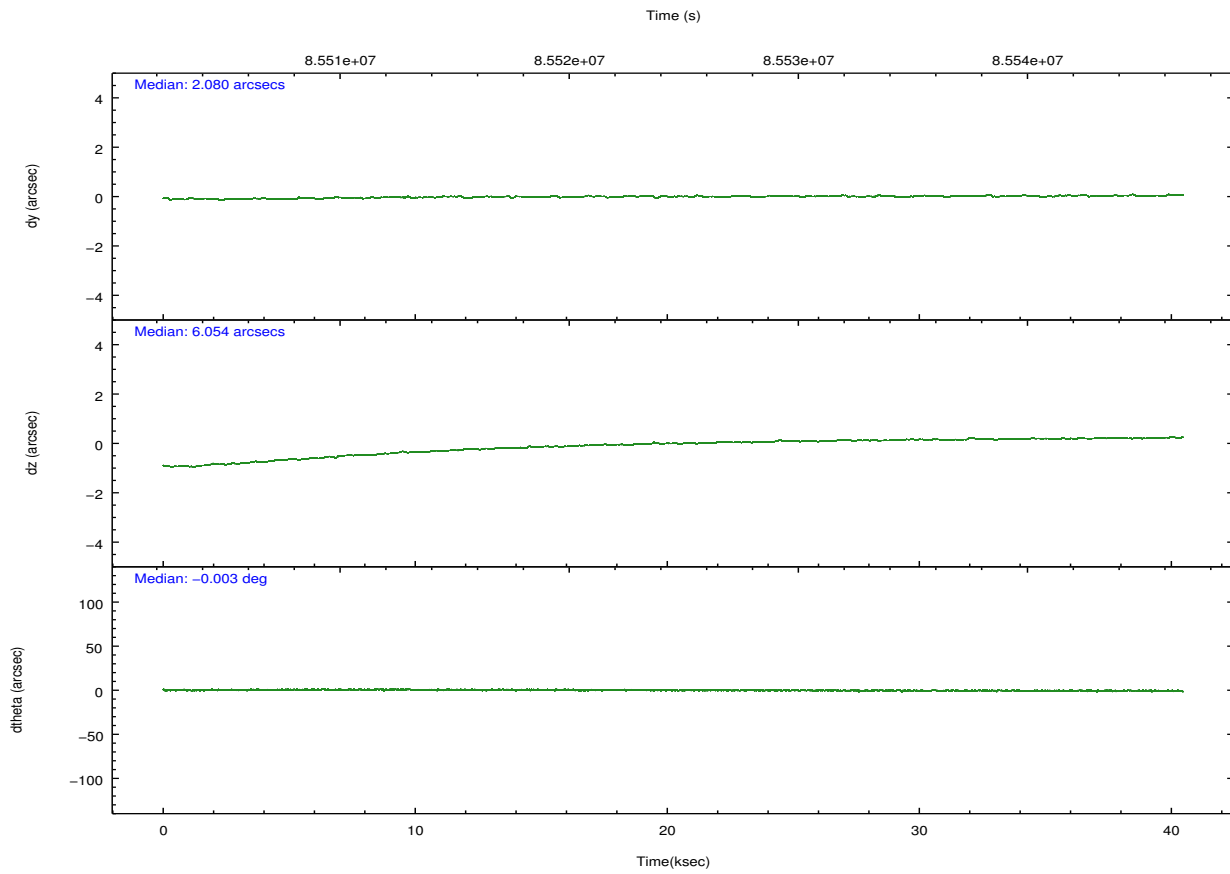
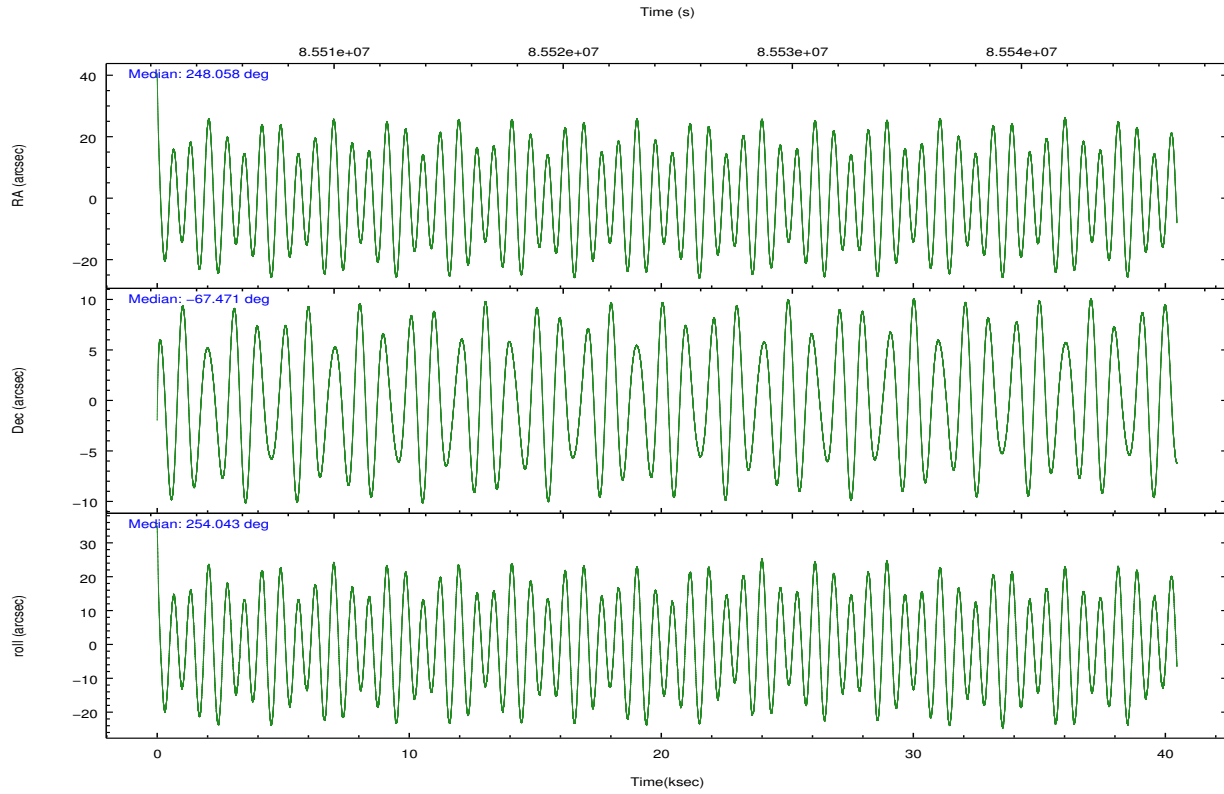
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	285113	332477	312131	348897	400291	272532	grade 0 events	15814	21311	53584	23414	55919	39139
rejected events	249143	174510	230168	172392	253508	214824		5%	6%	17%	6%	13%	14%
rejected %	87%	52%	73%	49%	63%	78%	grade 1 events	145	1858	318	596	419	236
								0%	0%	0%	0%	0%	0%
							grade 2 events	8992	43819	11905	37199	23176	6918
								3%	13%	3%	10%	5%	2%
							grade 3 events	2816	7943	4417	16955	19823	2834
								0%	2%	1%	4%	4%	1%
							grade 4 events	2766	8512	4407	17110	17915	2841
								0%	2%	1%	4%	4%	1%
							grade 5 events	8133	24559	9543	28996	13027	9595
								2%	7%	3%	8%	3%	3%
							grade 6 events	5589	76406	7660	81852	29959	5985
								1%	22%	2%	23%	7%	2%
							grade 7 events	240858	148069	220297	142775	240053	204984
								84%	44%	70%	40%	59%	75%

## 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	248.040330	248.0581135943224	Subarray requested	NONE	NONE
[deg] Pointing Dec	-67.444025	-67.47053452642521	Alternating exposures requested	N	N
[deg] Pointing Roll	253.876285	254.0493346959362	[s] Primary exposure time	0.000000	3.2
[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			
[s] Observation start time (MET)	85504495.184000	85503518.014805			
Observation start date	2000-09-16T15:13:51	2000-09-16T14:58:38			
[s] Observation end time (MET)	85544495.184000	85545371.841379			
Observation end date	2000-09-17T02:20:31	2000-09-17T02:36:11			
Read mode	TIMED	TIMED			

## 2.3 Aspect



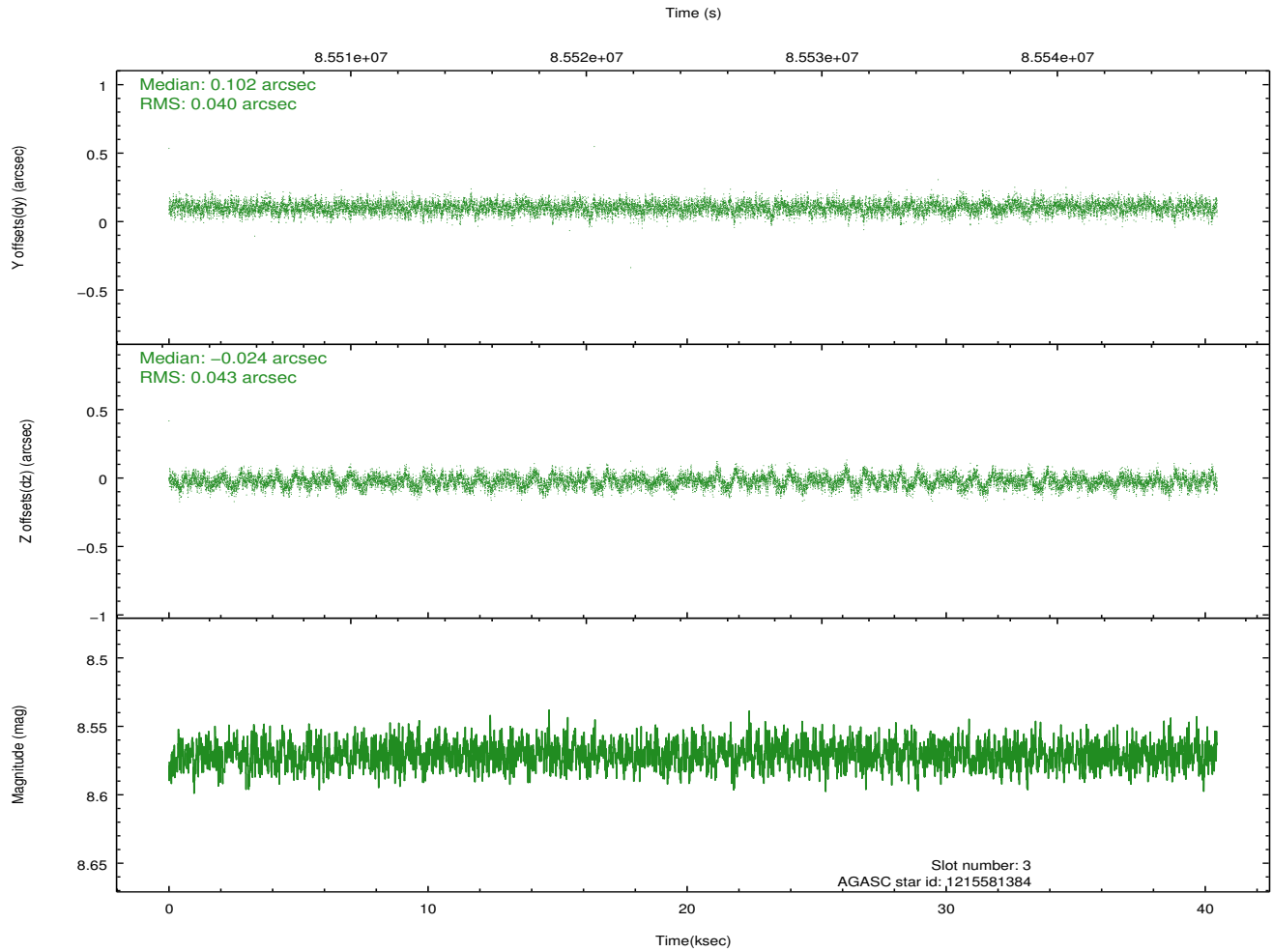
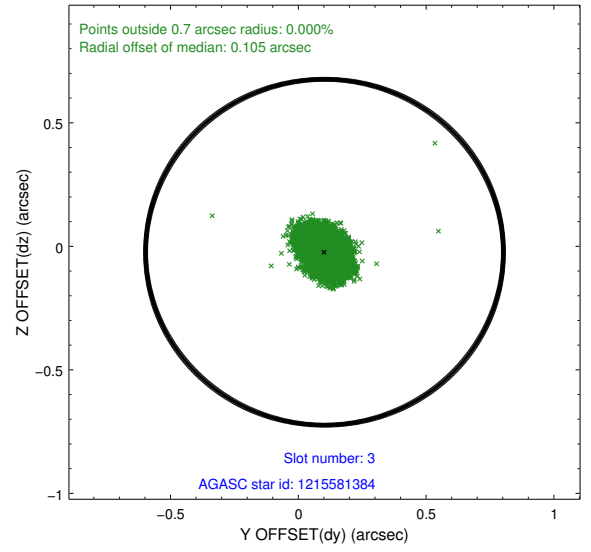
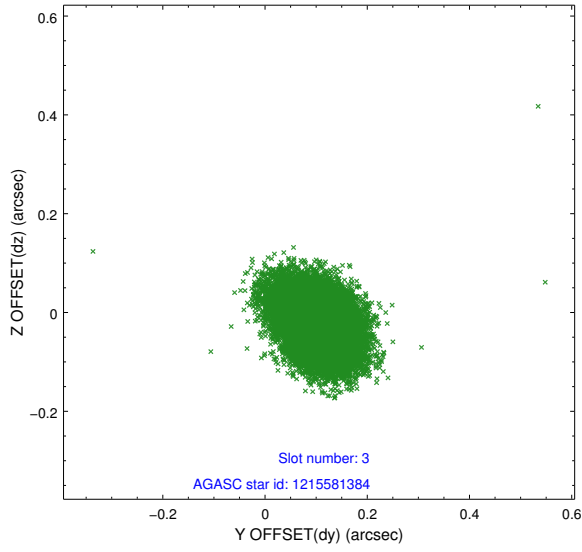


### Slot Statistics

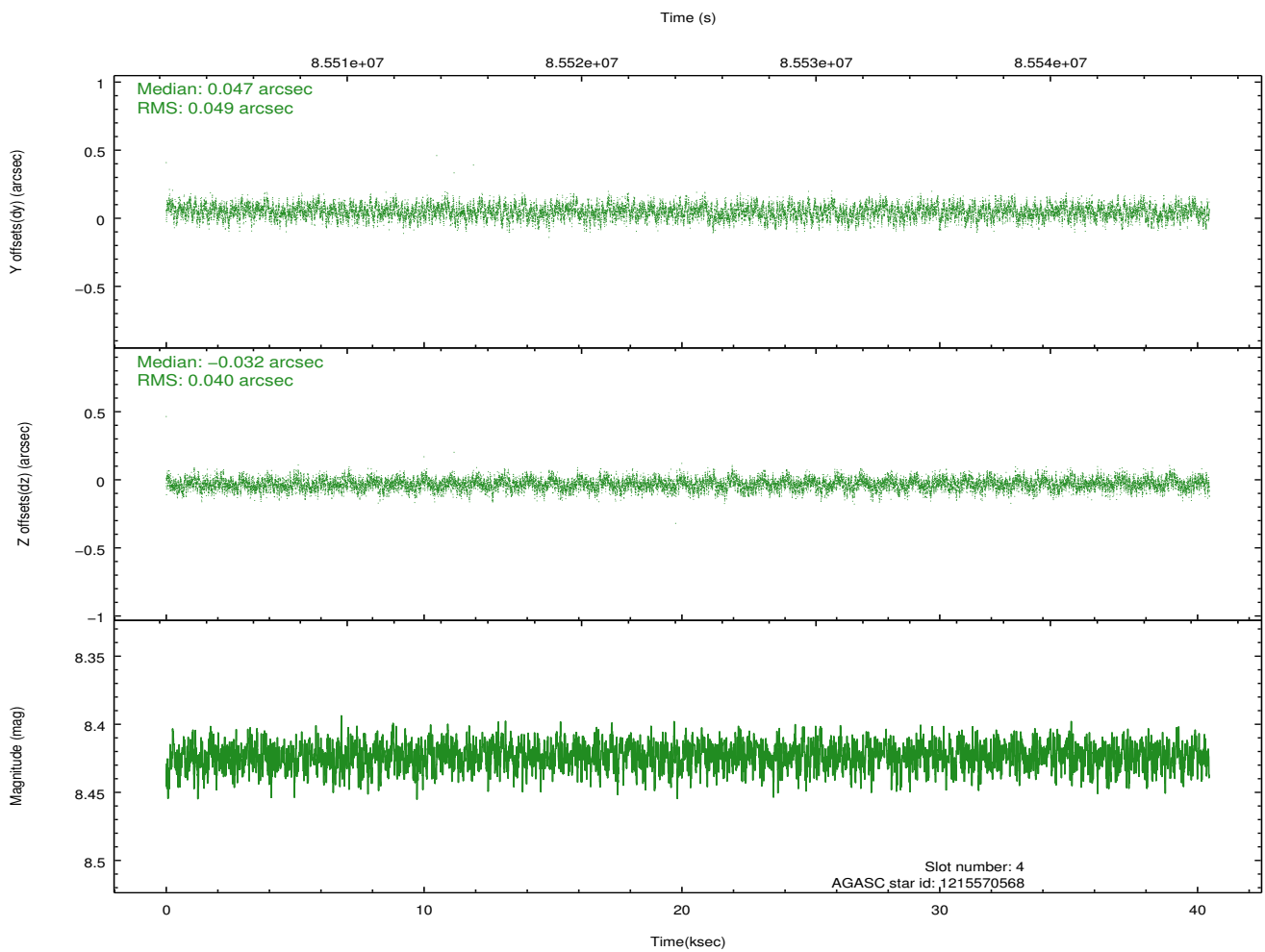
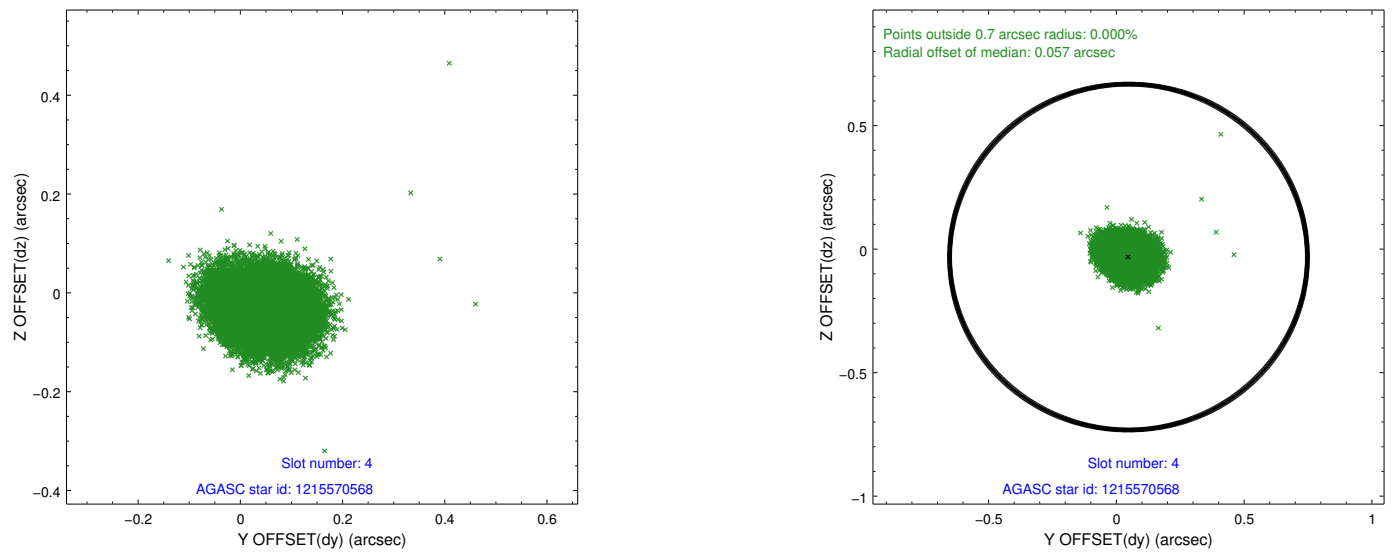
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	9868	-0.027	-0.061	0.008	0.015	0.000000	0.000000	-754.53	-1789.24
1	FID	ACIS-S-4	7.19	9867	-0.013	0.029	0.006	0.011	0.000000	0.000000	2158.78	119.26
2	FID	ACIS-S-5	7.23	9869	0.009	0.040	0.007	0.013	0.000000	0.000000	-1807.29	113.02
3	GUIDE	1215581384	8.57	19734	0.102	-0.024	0.062	0.102	247.338409	-67.766444	1385.55	-593.97
4	GUIDE	1215570568	8.42	19734	0.047	-0.032	0.068	0.108	246.859352	-67.889721	2000.32	-1086.69
5	GUIDE	1186072296	9.38	19721	-0.106	0.036	0.087	0.138	247.909553	-67.035246	-1362.84	-584.67
6	GUIDE	1215569992	9.28	19732	-0.016	0.074	0.097	0.152	249.398538	-67.627995	138.37	1977.94
7	GUIDE	1186080152	10.05	19728	-0.026	-0.048	0.155	0.246	247.523943	-66.875569	-1760.57	-1268.41

## 2.4 Star Slots

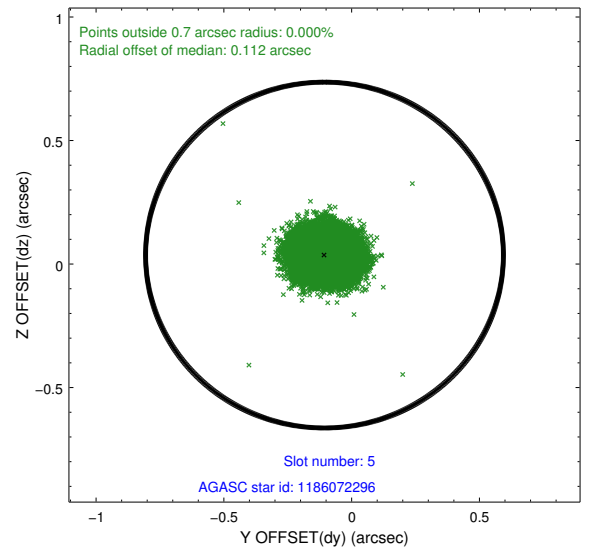
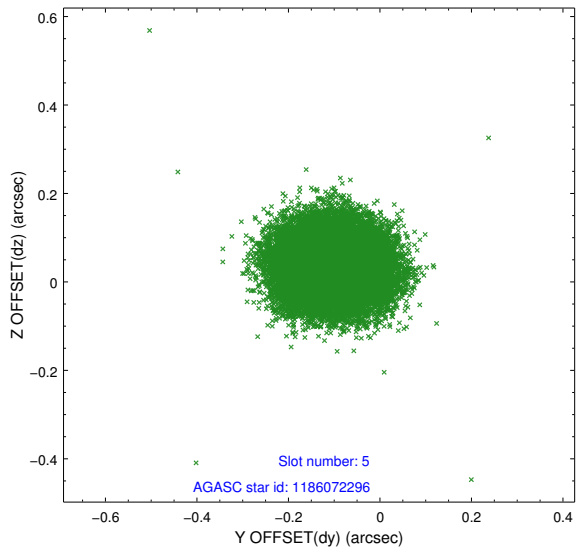
### 2.4.1 Slot 3



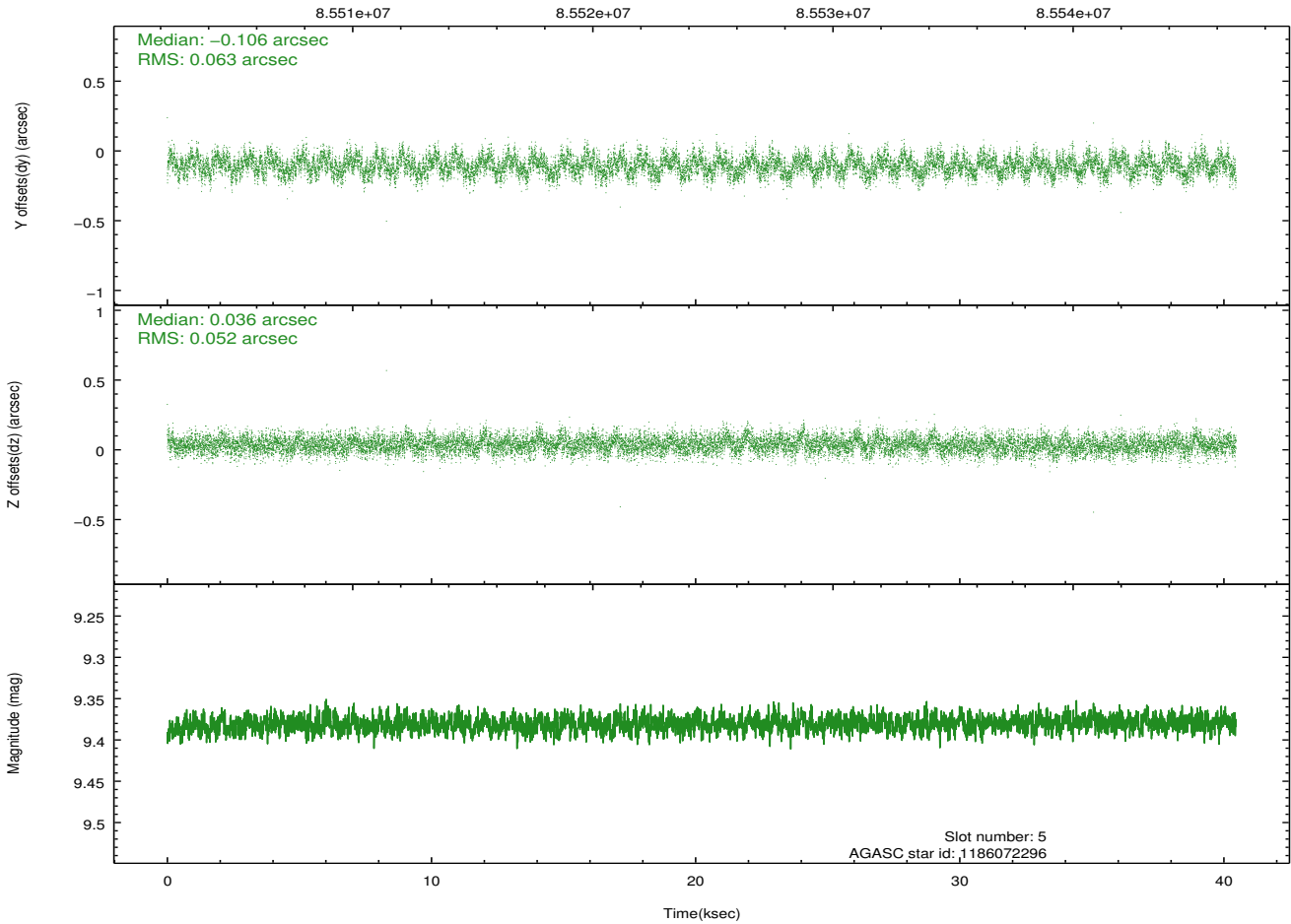
## 2.4.2 Slot 4



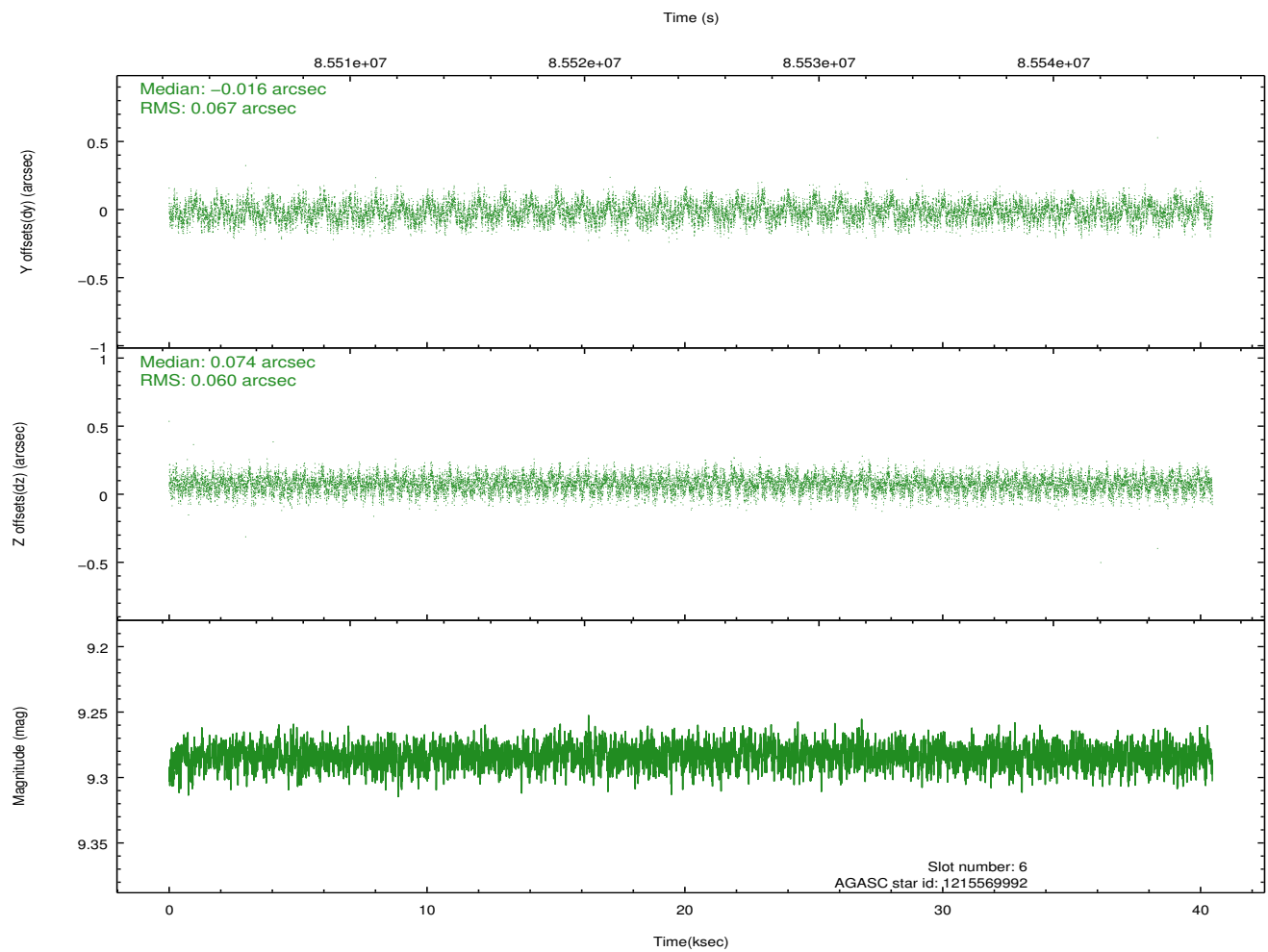
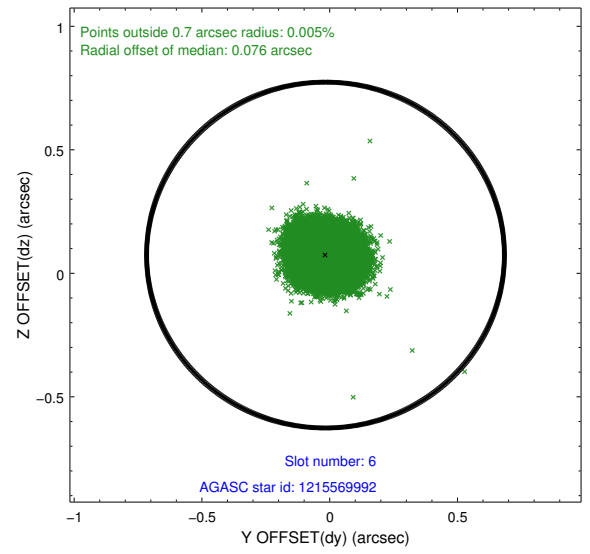
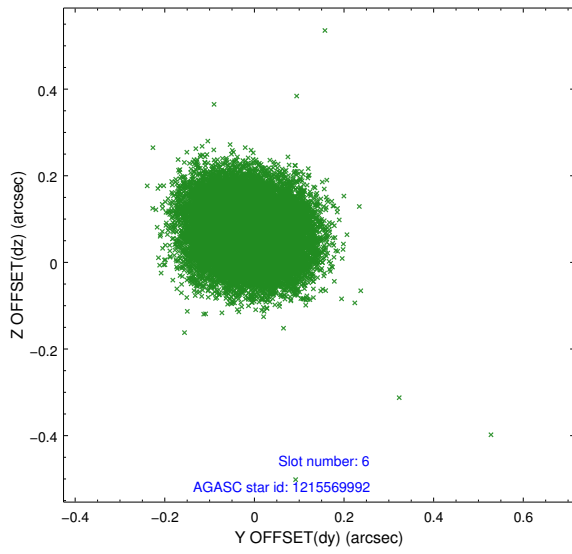
### 2.4.3 Slot 5



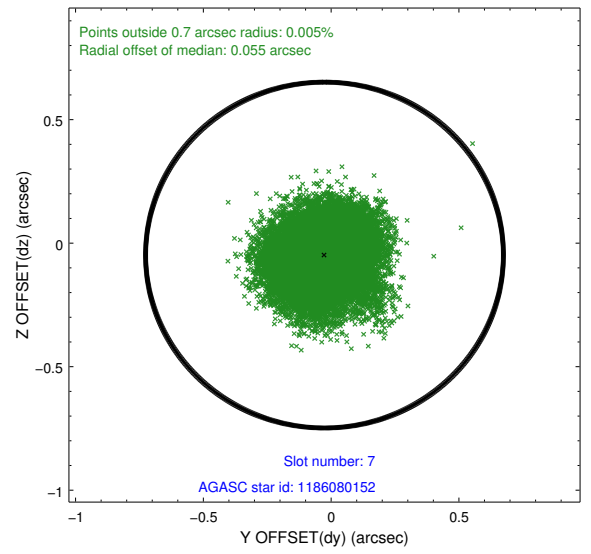
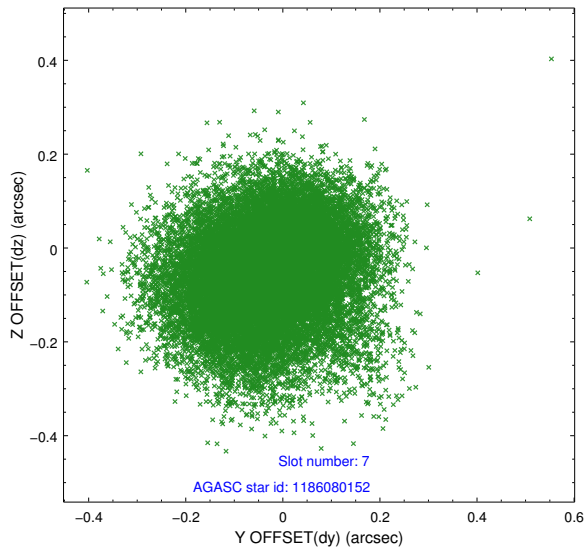
Time (s)



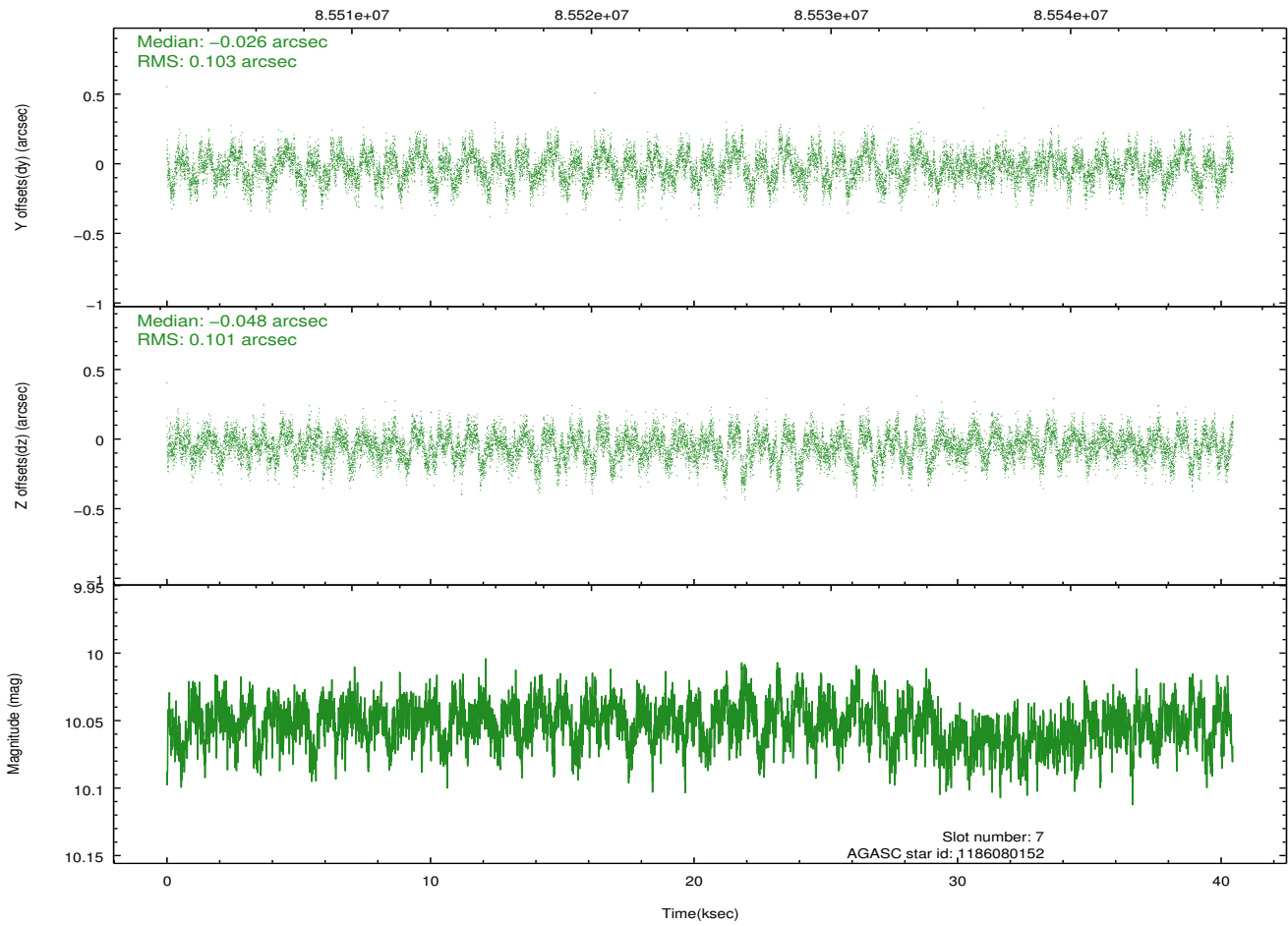
## 2.4.4 Slot 6



### 2.4.5 Slot 7

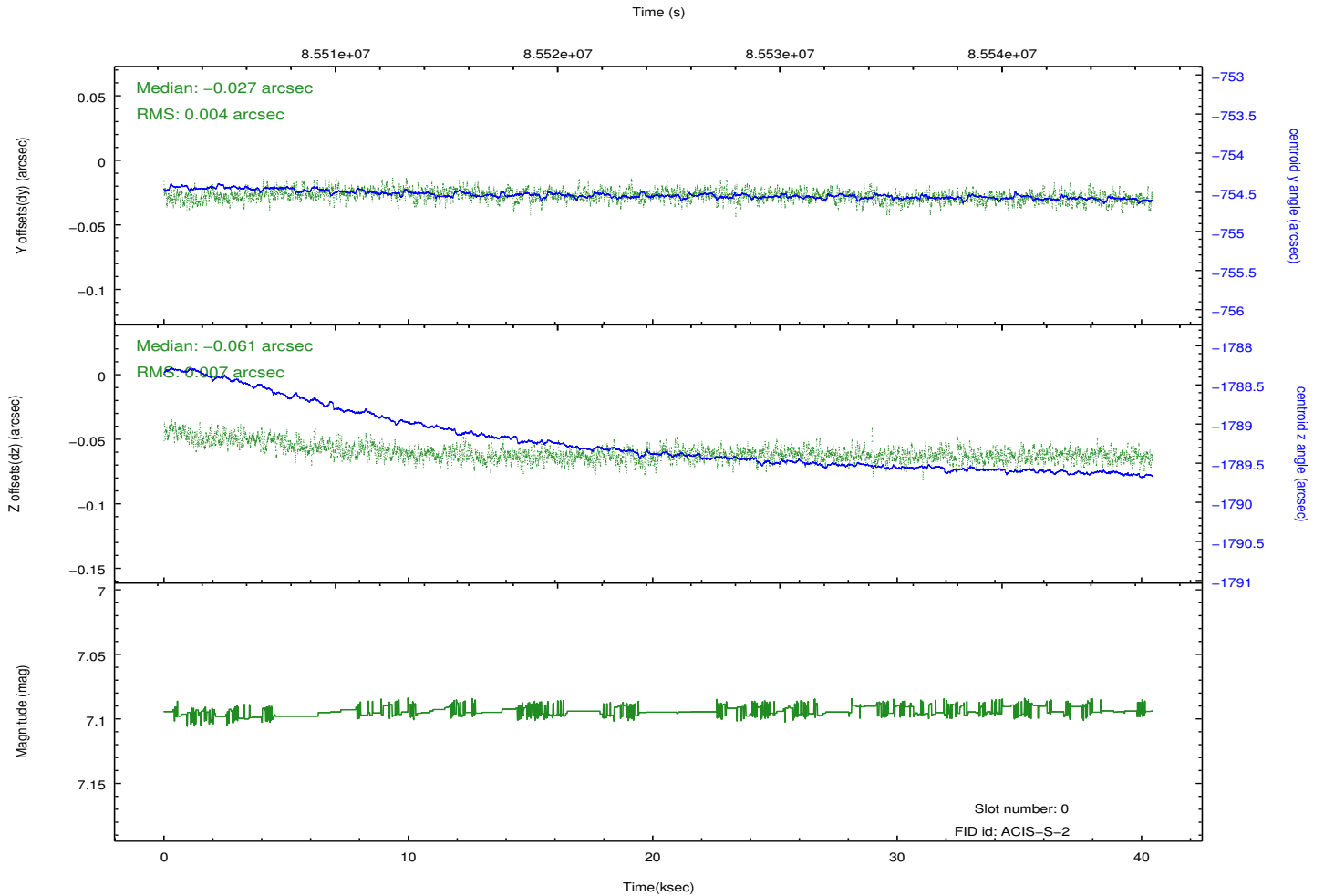
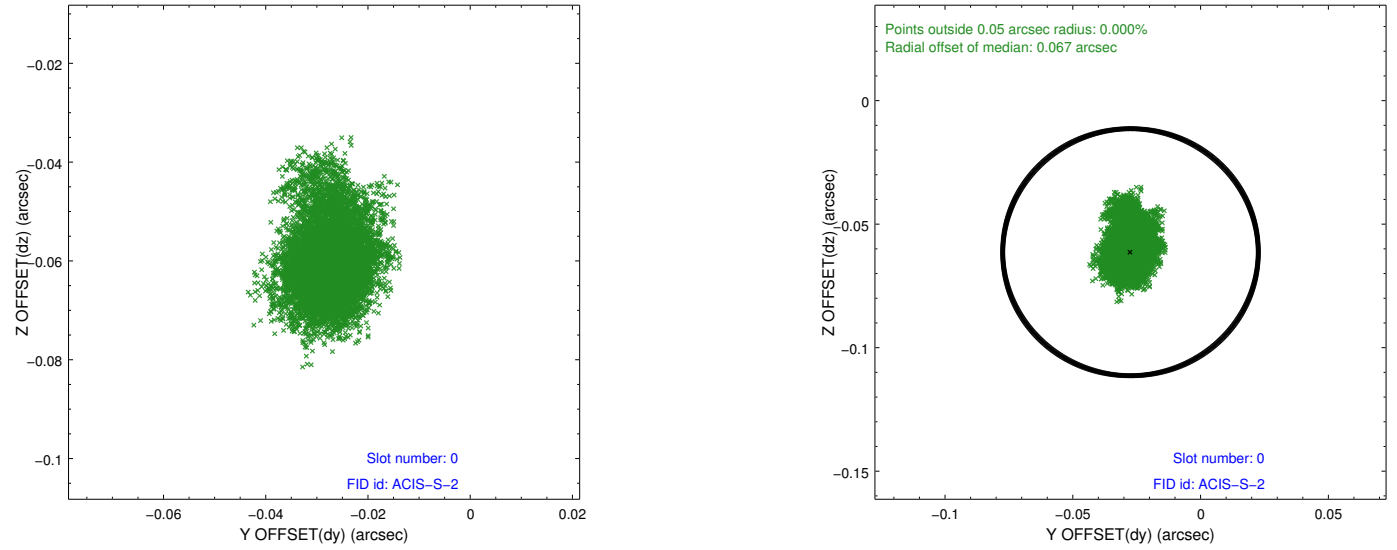


Time (s)

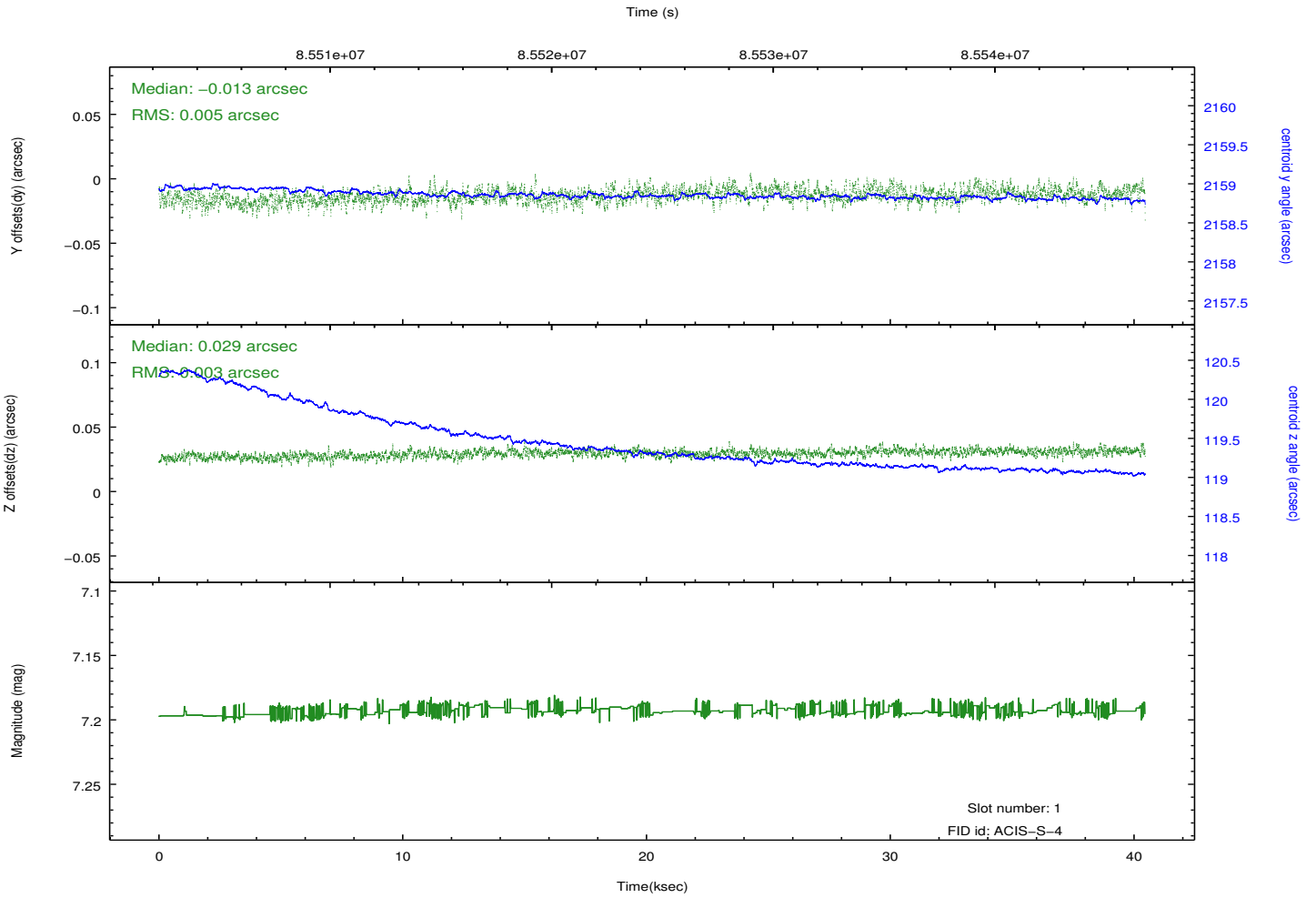
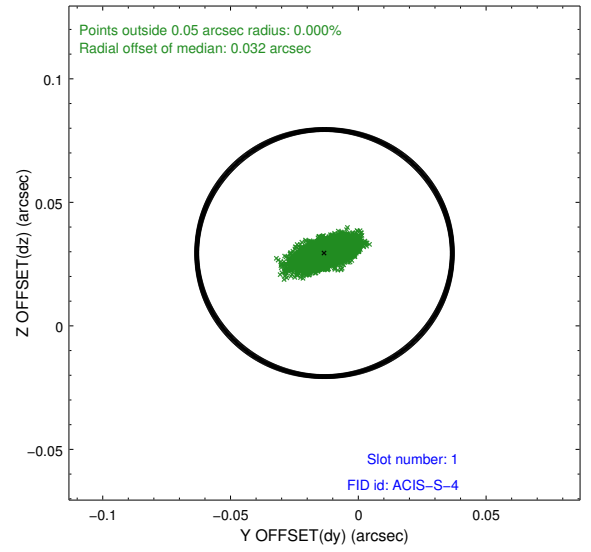
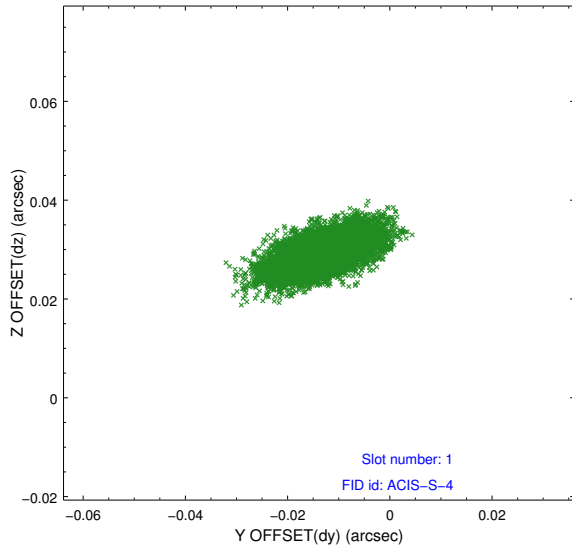


## 2.5 FID Slots

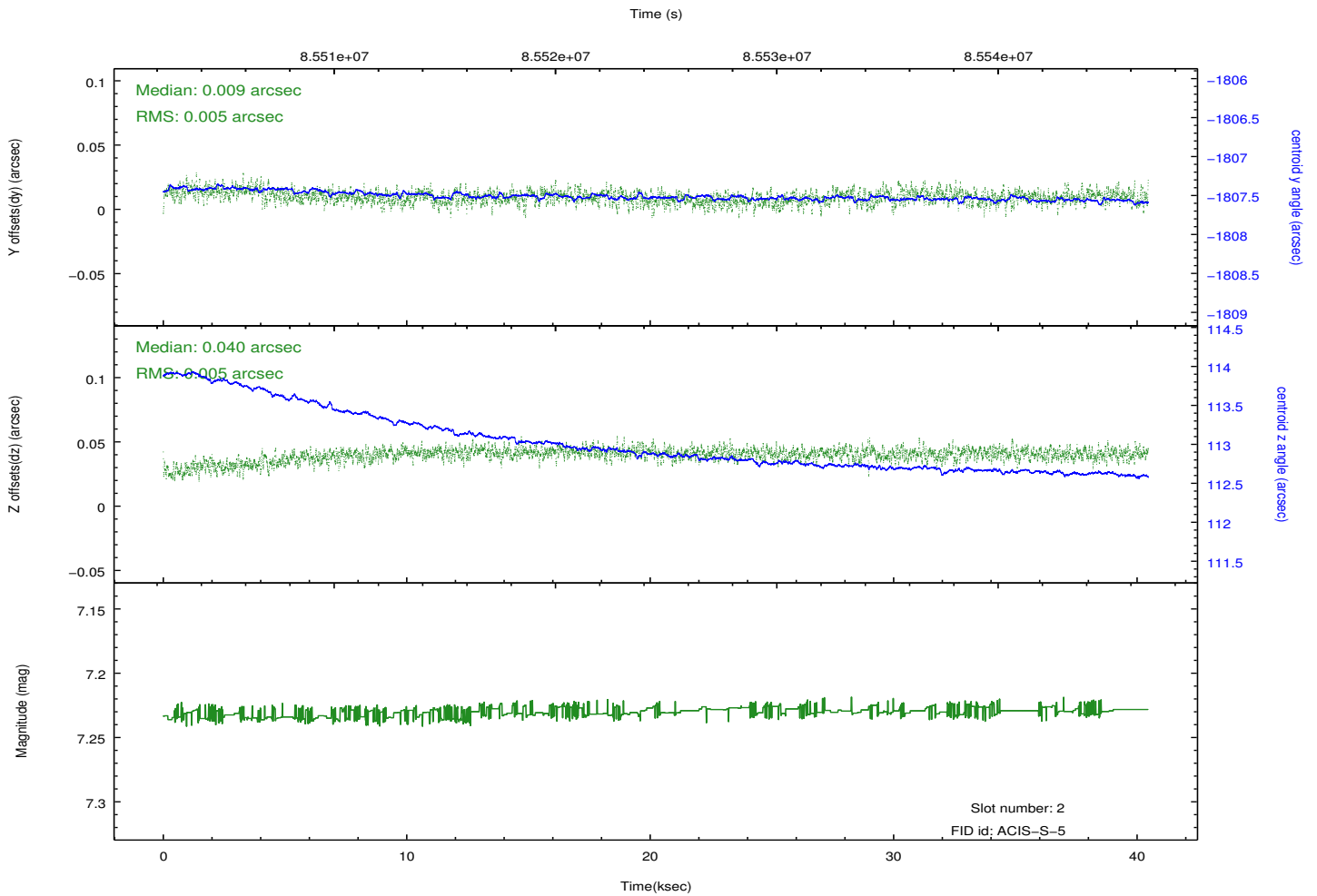
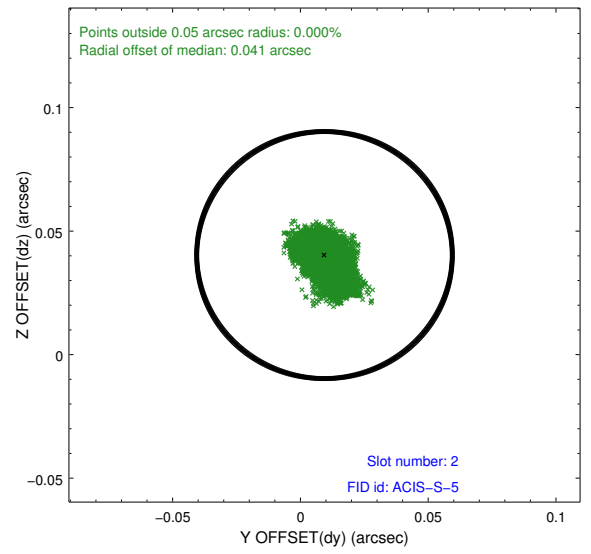
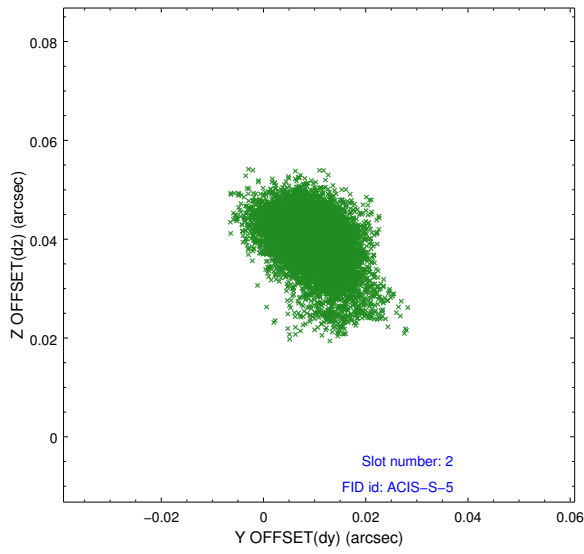
### 2.5.1 Slot 0



## 2.5.2 Slot 1

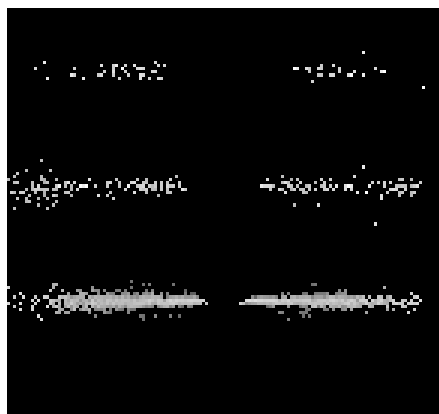


### 2.5.3 Slot 2

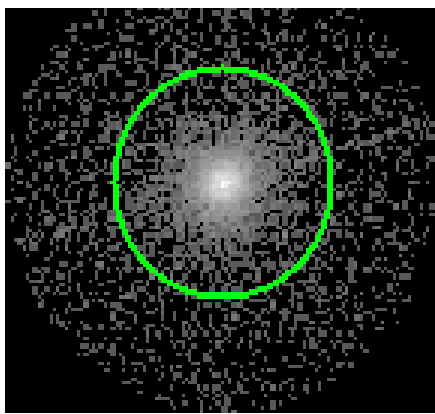


### 3 Gratings

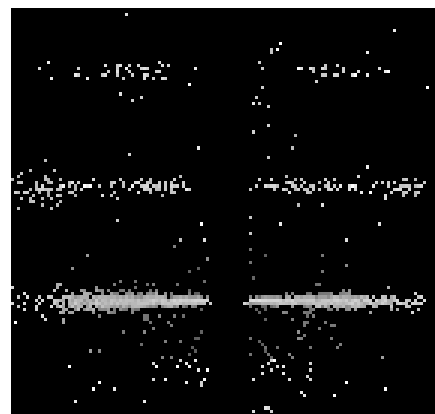
#### 3.1 HEG Arm



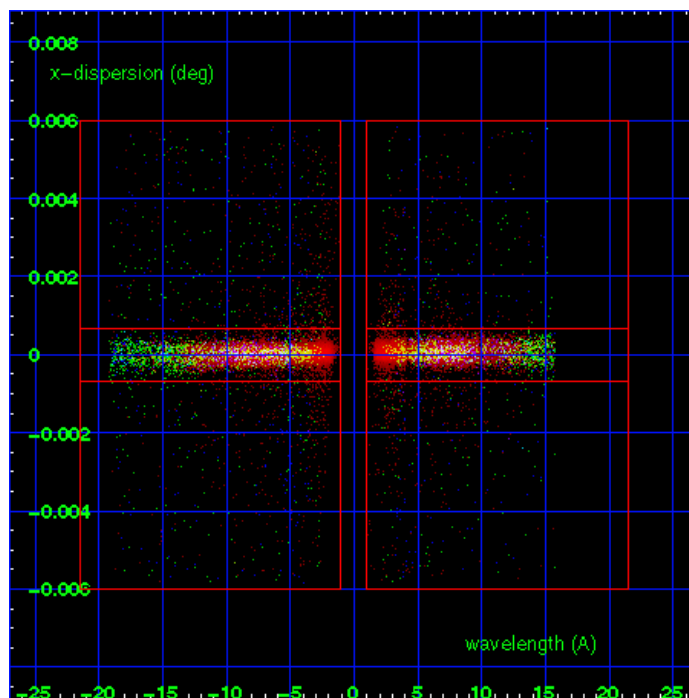
HEG Order Sort 123



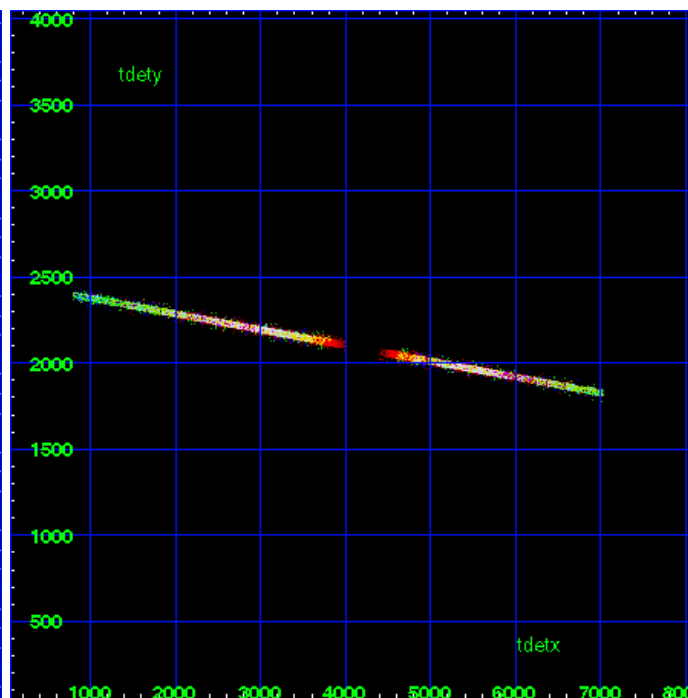
HEG Zero Order



HEG Order Sort ALL

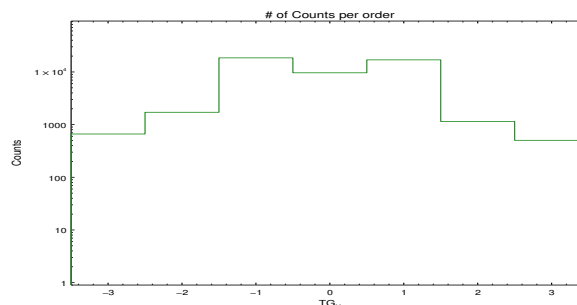


Spot Image HEG

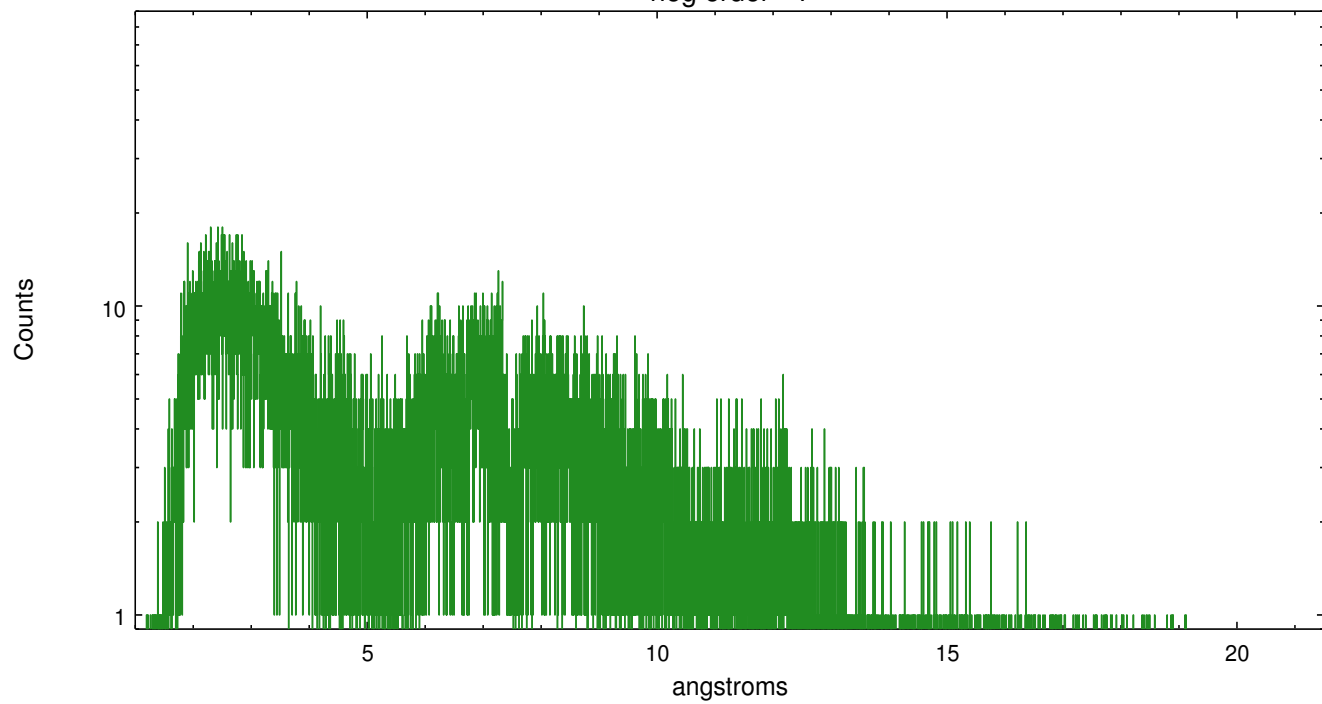


Full Detector HEG

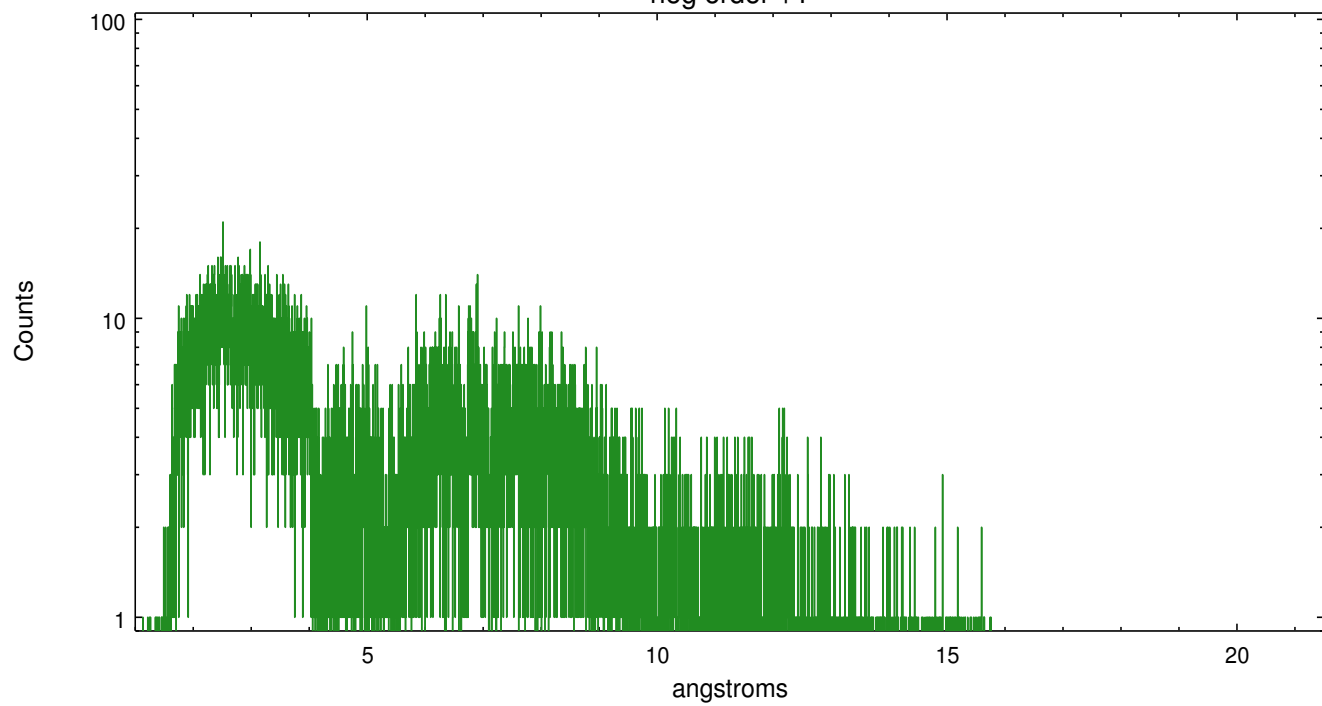
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	664	1714	18518	9642	16969	1147	503



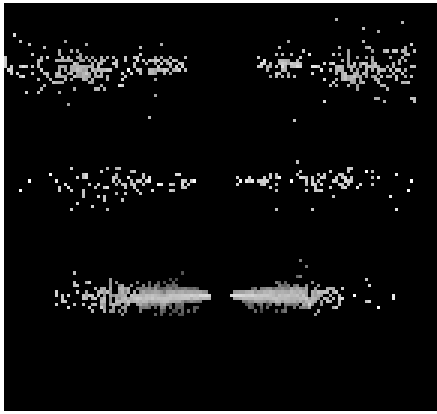
heg order -1



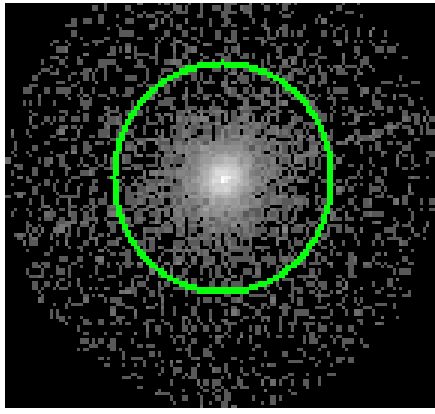
heg order +1



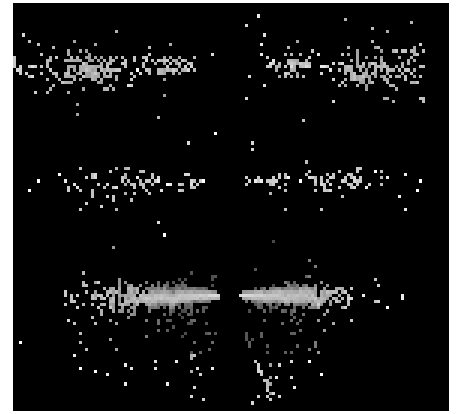
### 3.2 MEG Arm



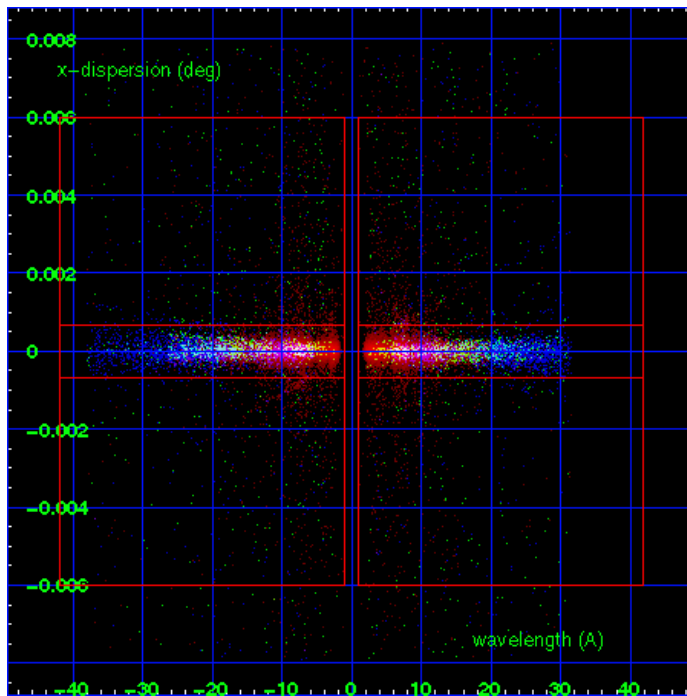
MEG Order Sort 123



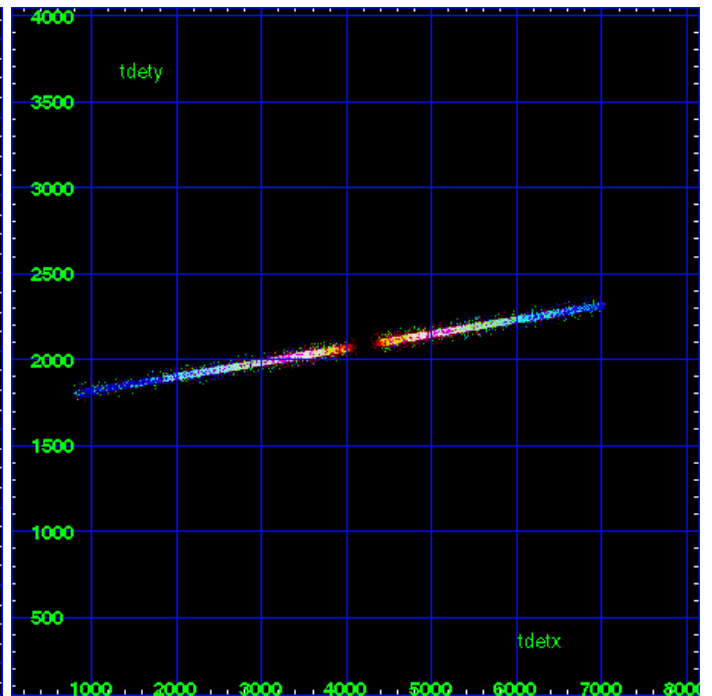
MEG Zero Order



MEG Order Sort ALL

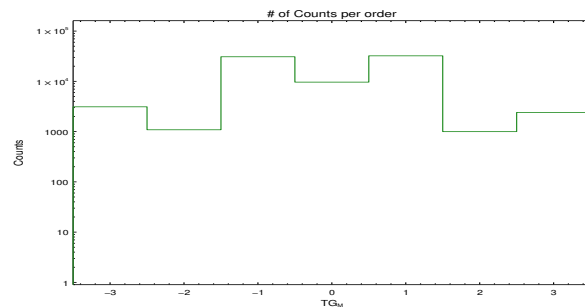


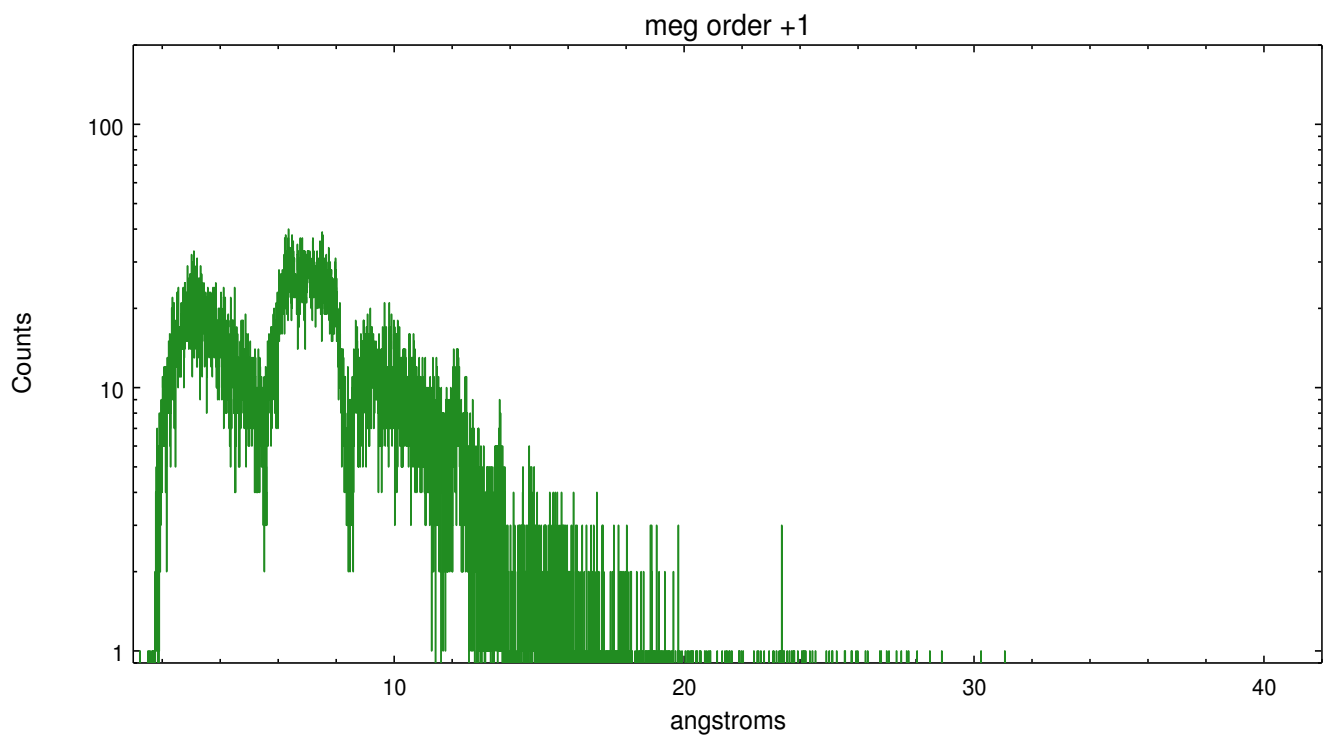
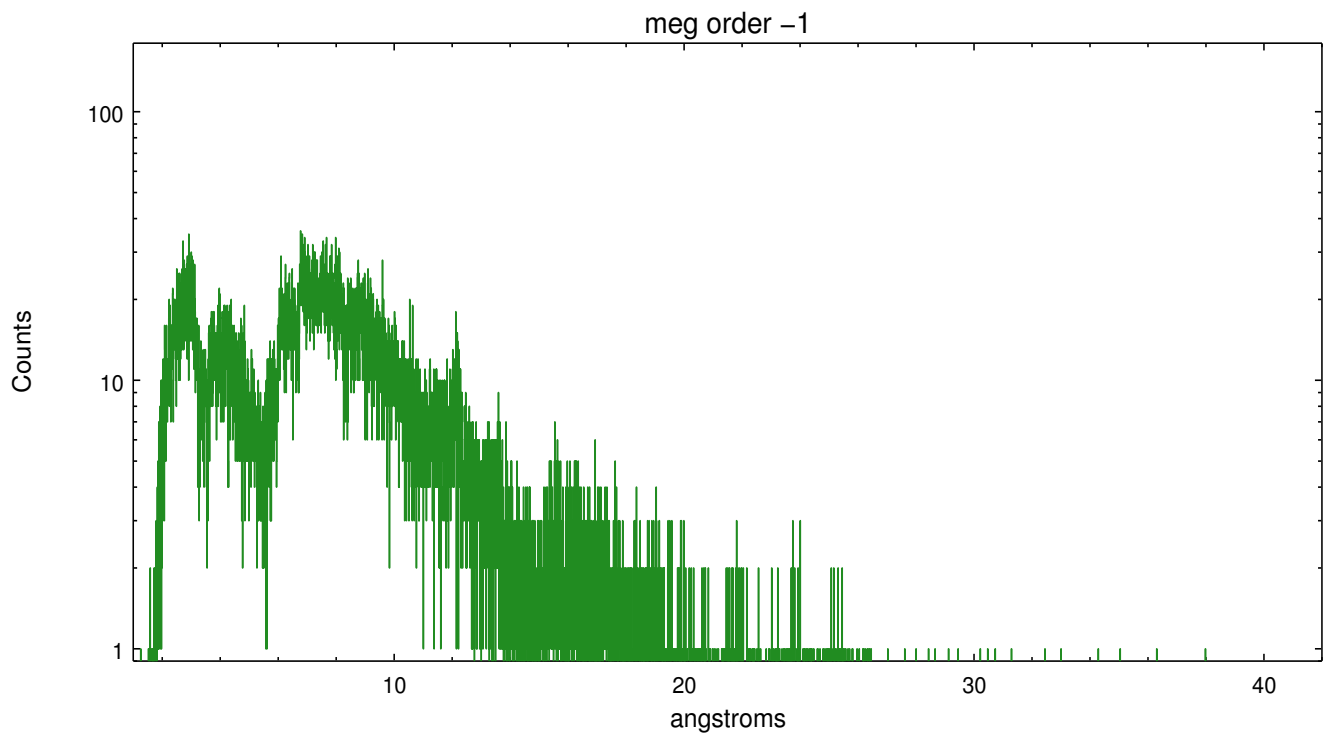
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	3116	1088	30854	9642	32206	999	2405





# 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	39.987

## A.2 Comments

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates (x=4064.7, y=4164.76) into the \*src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called findzero, which is expected to be released in CIAO as tg\_findzo (currently in ISIS as findzo). The tool calculates the point of intersection of the readout streak and the meg arm. The zeroth order source position determined by the standard pipeline processing using the tool tgdetect was not used in this processing. The newly determined zeroth order coordinates have been placed in the \*src1a.fits file, replacing the coordinates determined by tgdetect. Note that these corrected coordinates of the zeroth order cannot be reproduced by running tgdetect on the data