

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 1906 - L2 Version 6  
Chandra X-Ray Center

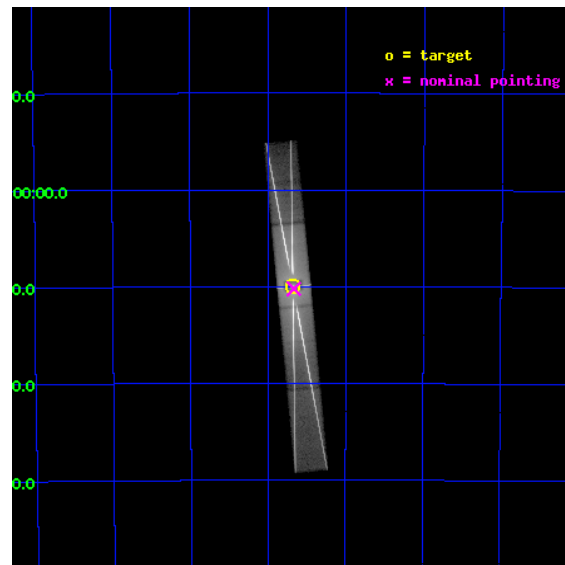
L2 Processing Date : Oct 22 2012

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# 1 Front

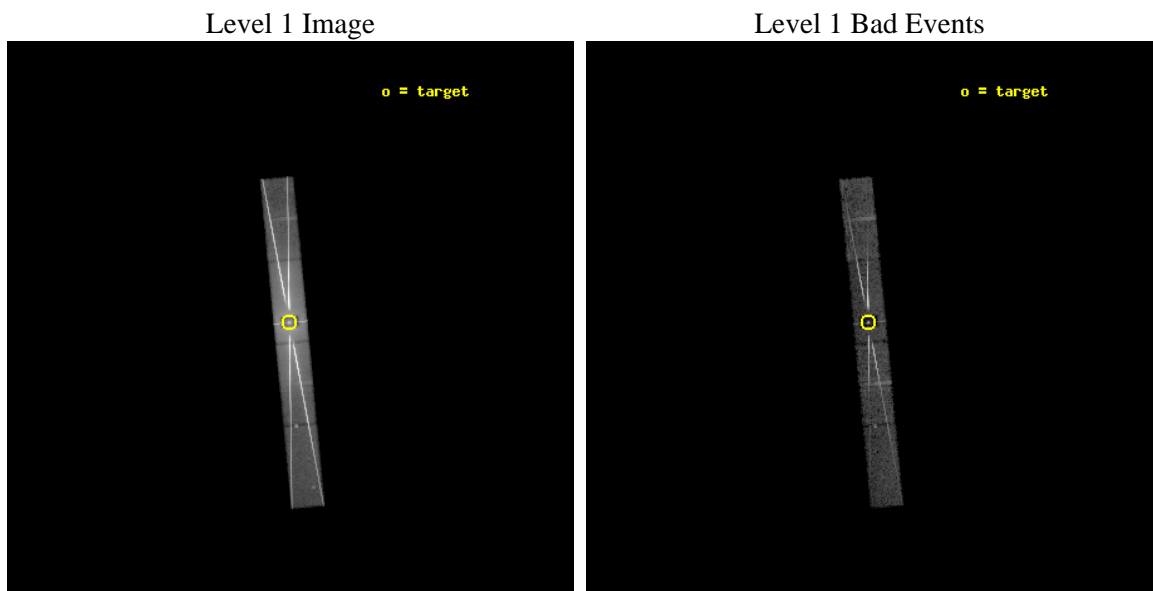
seq_num	400119	Sequence number
obs_id	1906	Observation id
title	PHASE RESOLVED SPECTROSCOPY OF THE X-RAY P-CYgni PROFILES FROM CIRCINUS X-1	Proposal title
observer	Prof. William Brandt	Principal investigator
object	CIR X-1	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	230.170833	Observer's specified target RA [deg]
dec_targ	-57.166667	Observer's specified target Dec [deg]
ra_nom	230.16694538601	Nominal RA [deg]
dec_nom	-57.170585855348	Nominal Dec [deg]
roll_nom	264.48154256943	Nominal Roll [deg]
revision	6	Processing version of data
ontime	8131.4999813735	Sum of GTIs [s]
livetime	7882.6507604439	Livetime [s]
ontime5	8131.4999813735	Sum of GTIs [s]
ontime6	8131.4999813735	Sum of GTIs [s]
ontime7	8131.4999813735	Sum of GTIs [s]
ontime8	8131.4999813735	Sum of GTIs [s]
l2events	1602918	Number of level 2 events



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	8000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	8131.4999813735	Sum of GTIs [s]
caldsver	4.5.2	&#160	ontime5	8131.4999813735	Sum of GTIs [s]
date	2012-10-22T14:34:56	Date and time of file creation	ontime6	8131.4999813735	Sum of GTIs [s]
revision	6	Processing version of data	ontime7	8131.4999813735	Sum of GTIs [s]
			ontime8	8131.4999813735	Sum of GTIs [s]
			l1events	1904753	Number of level 1 events

### 2.1.3 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	108272	702135	888117	206229
rejected events	24331	74018	113324	33224
rejected %	22%	10%	12%	16%

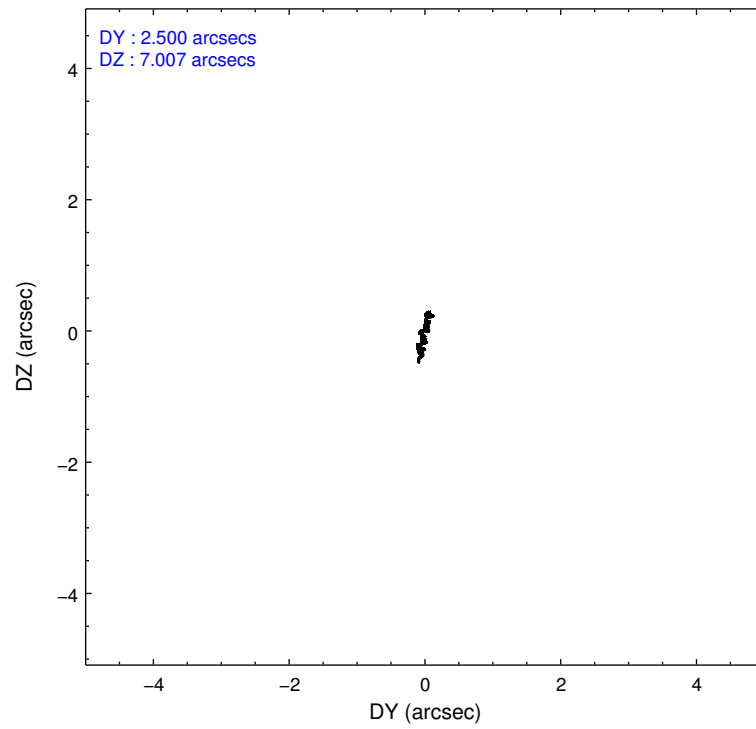
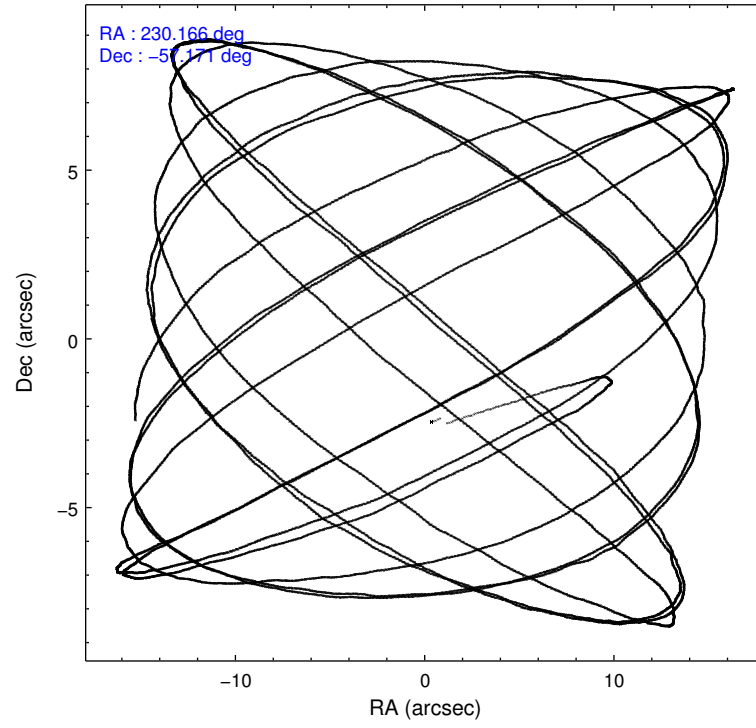
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	20211	436573	131519	131424
	18%	62%	14%	63%
grade 1 events	301	15672	5207	1189
	0%	2%	0%	0%
grade 2 events	29560	90763	198968	21660
	27%	12%	22%	10%
grade 3 events	6543	33521	76539	7419
	6%	4%	8%	3%
grade 4 events	6623	32530	75550	7662
	6%	4%	8%	3%
grade 5 events	3013	14637	28289	1867
	2%	2%	3%	0%
grade 6 events	24572	44035	309653	7983
	22%	6%	34%	3%
grade 7 events	17449	34404	62392	27025
	16%	4%	7%	13%

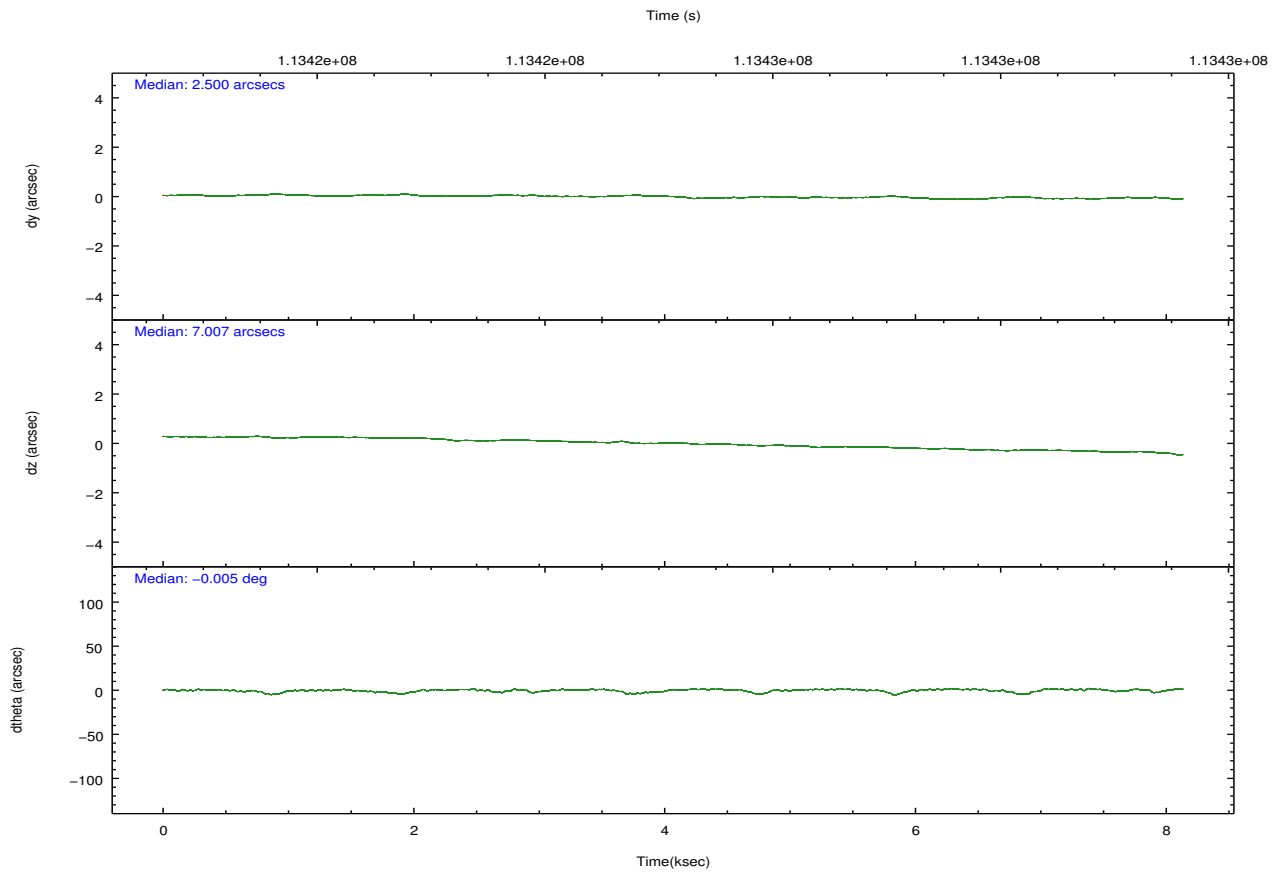
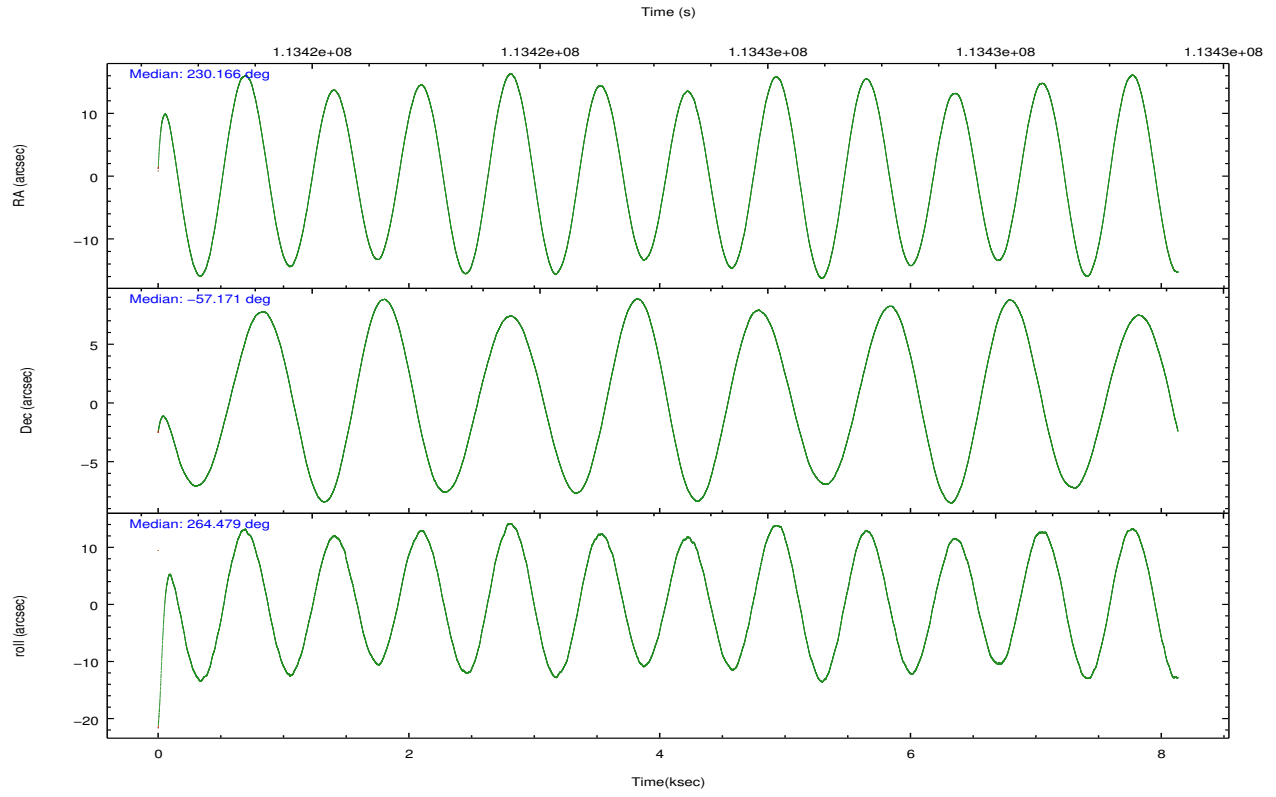


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	GRADED	GRADED	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	230.145621	230.1669453860086	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-57.145881	-57.17058585534831	Subarray start row	15	15
[deg] Pointing Roll	264.307033	264.4815425694271	Subarray row count	400	400
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	1.3
[mm] SIM translation stage pos	-182.832523	-182.8410087294432			
[mm] SIM translation stage offset	-7.3	-7.291513853564595			
Phase constraints	Y	Y			
[d] Phase period	16.536700	16.536700			
[d] Phase epoch (MJD)	52100.241000	52100.241000			
Phase start	0.600000	0.600000			
Phase end	0.610000	0.610000			
Phase start error	0.010000	0.010000			
Phase end error	0.010000	0.010000			
[s] Observation start time (MET)	113421190.184000	113419989.61515			
Observation start date	2001-08-05T17:52:06	2001-08-05T17:33:09			
[s] Observation end time (MET)	113429190.184000	113430813.61557			
Observation end date	2001-08-05T20:05:26	2001-08-05T20:33:33			
Read mode	TIMED	TIMED			

## 2.3 Aspect



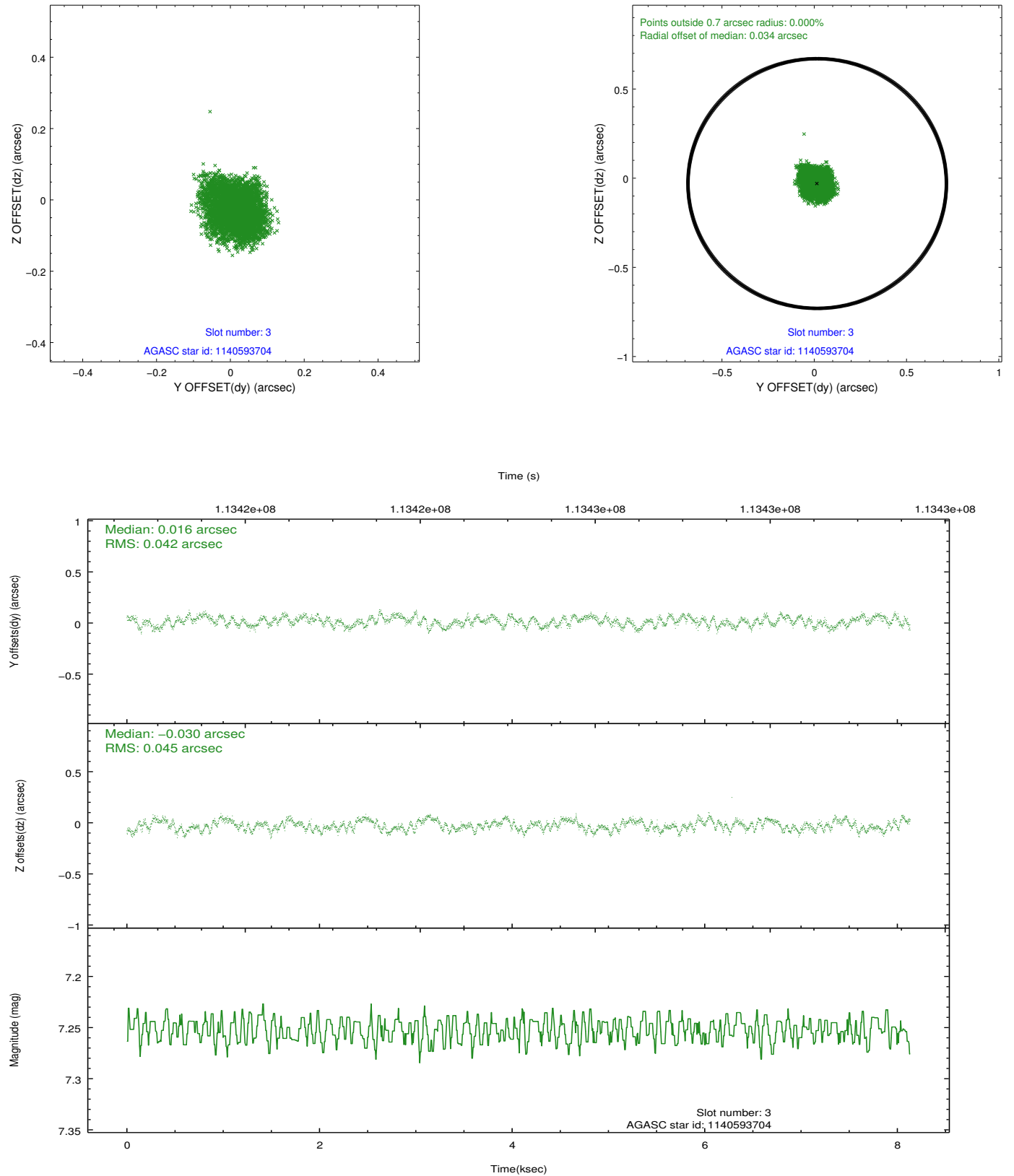


### Slot Statistics

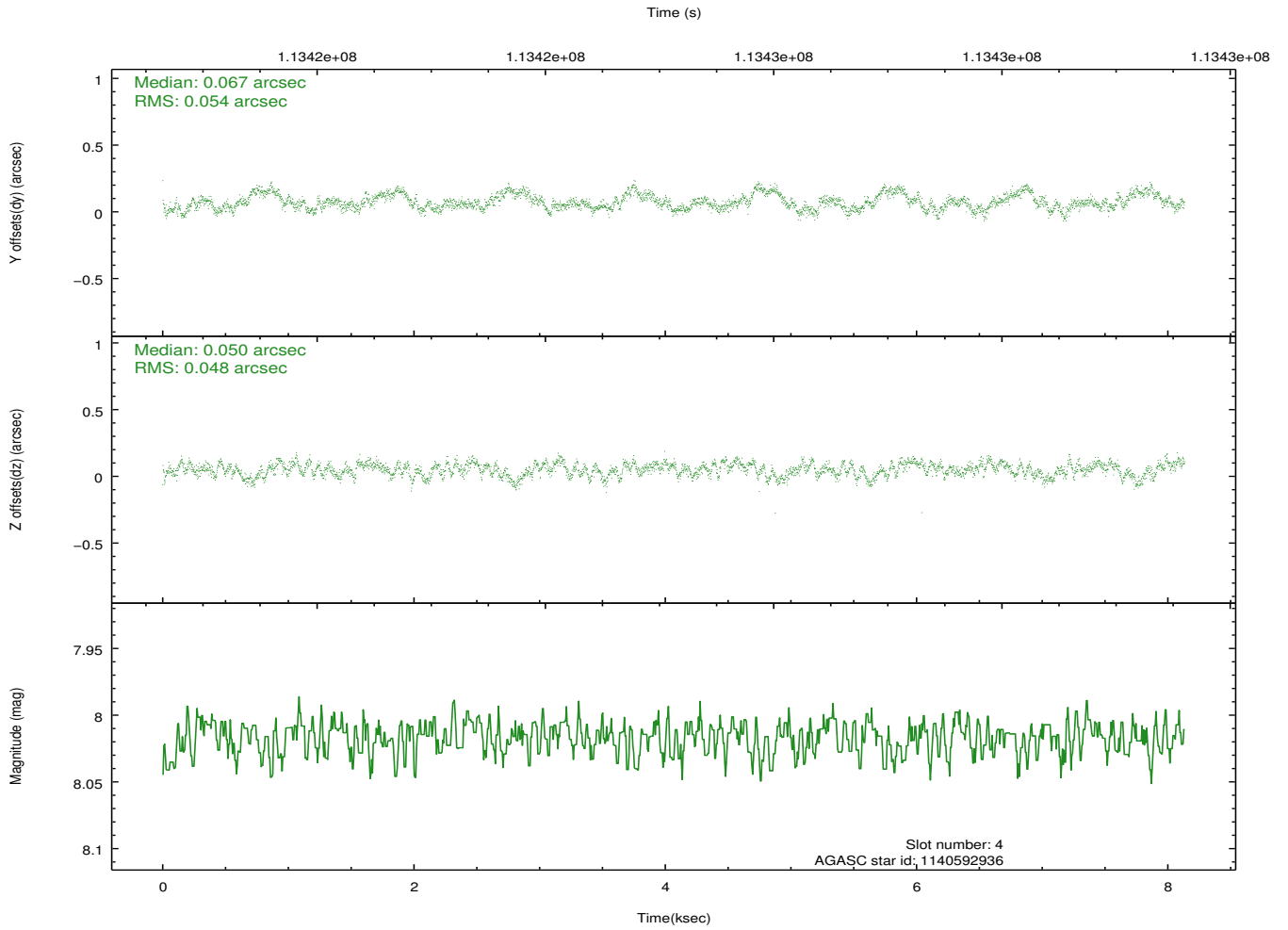
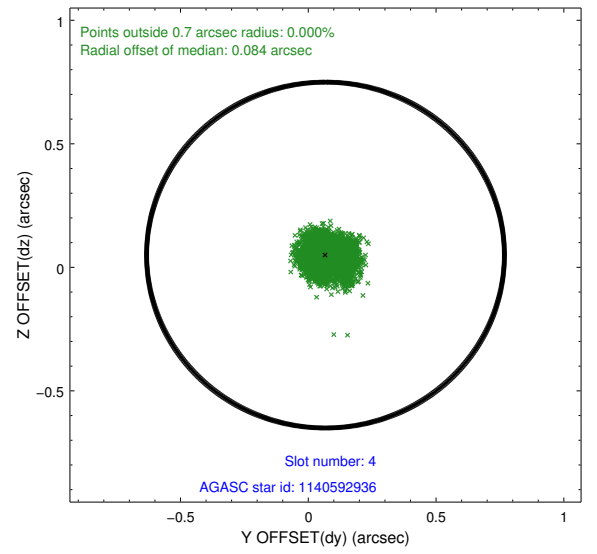
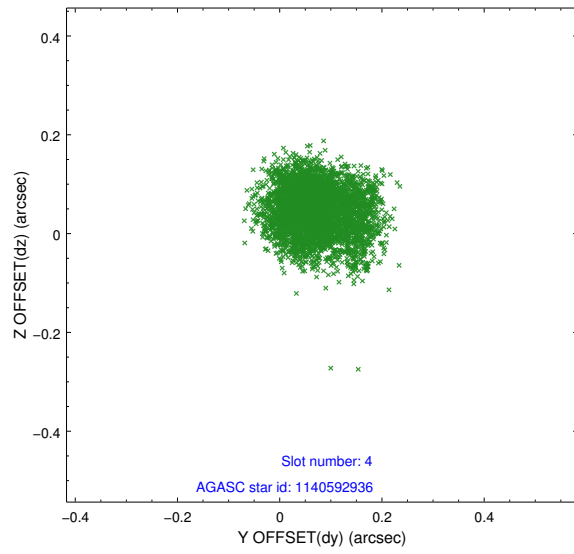
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	1984	-0.056	-0.033	0.009	0.029	0.000000	0.000000	-754.61	-1878.44
1	FID	ACIS-S-4	7.18	1984	0.035	0.036	0.009	0.029	0.000000	0.000000	2158.40	29.37
2	OMITTED		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
3	GUIDE	1140593704	7.25	3968	0.016	-0.030	0.067	0.101	229.741417	-57.540991	1495.32	-634.81
4	GUIDE	1140592936	8.02	3968	0.067	0.050	0.077	0.122	228.953111	-57.013969	-219.69	-2369.92
5	GUIDE	1140722888	8.10	3968	0.003	-0.051	0.057	0.091	230.457489	-57.599243	1565.79	761.06
6	GUIDE	1140723840	8.56	3967	0.004	-0.089	0.179	0.236	230.379592	-56.994965	-584.85	403.76
7	GUIDE	1140726312	8.89	3964	-0.089	0.125	0.094	0.149	231.010622	-56.676215	-1841.52	1536.71

## 2.4 Star Slots

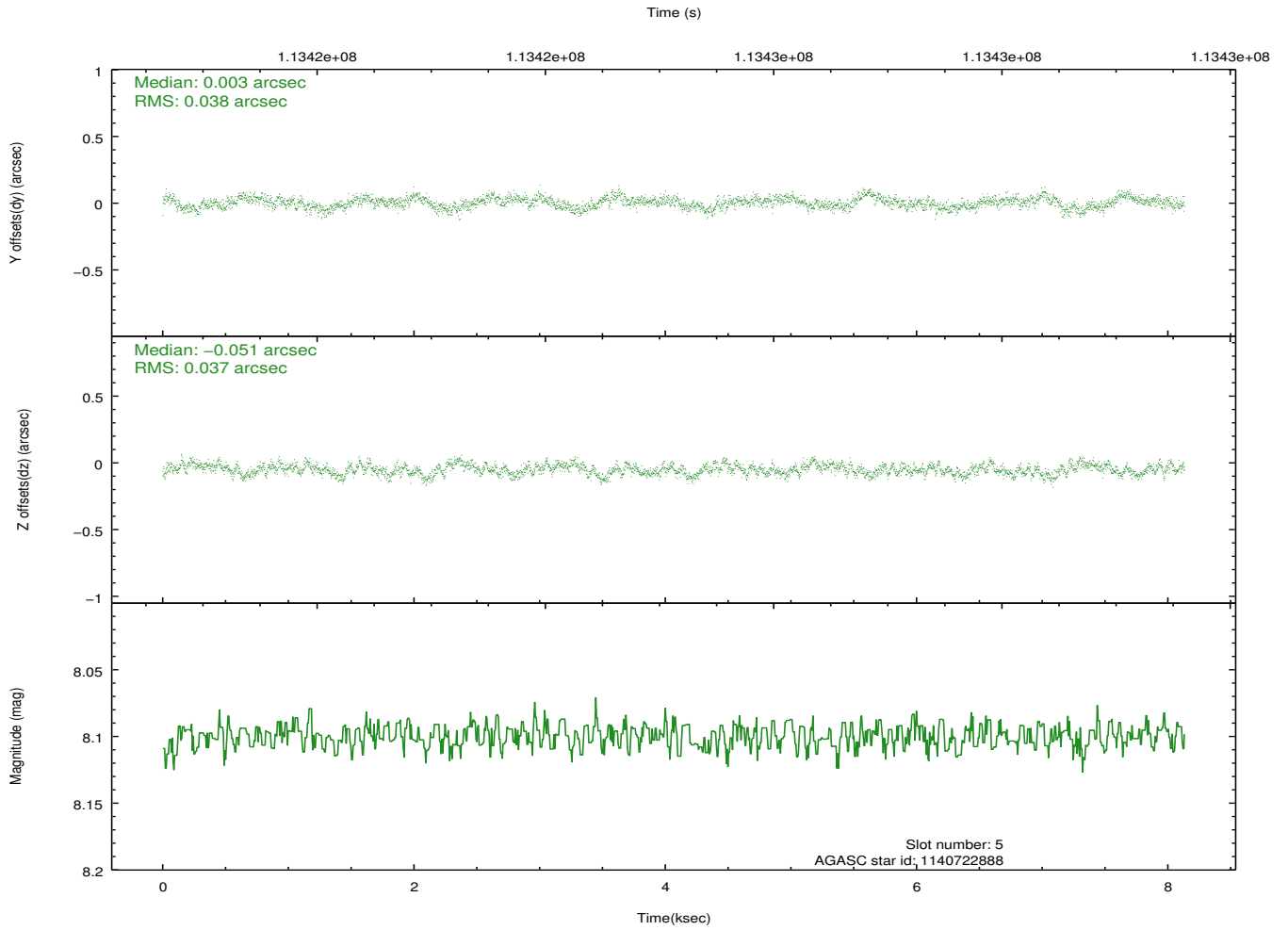
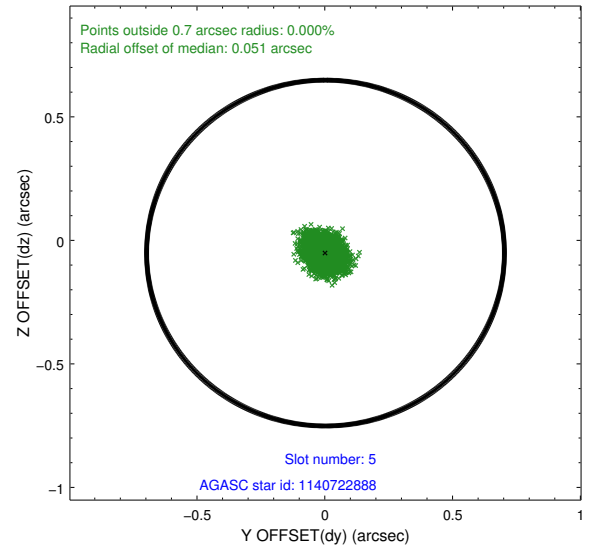
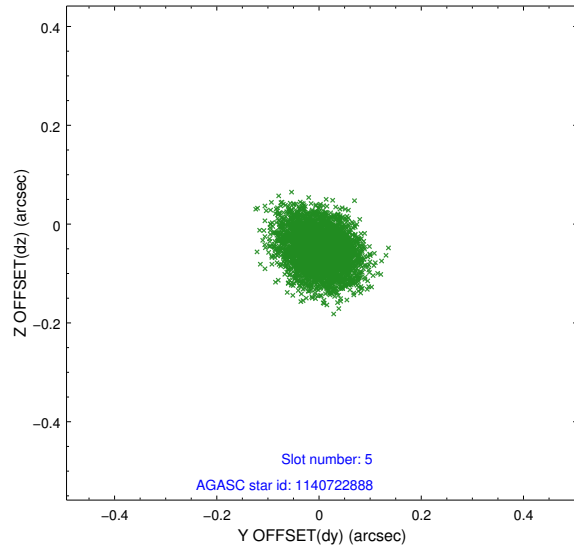
### 2.4.1 Slot 3



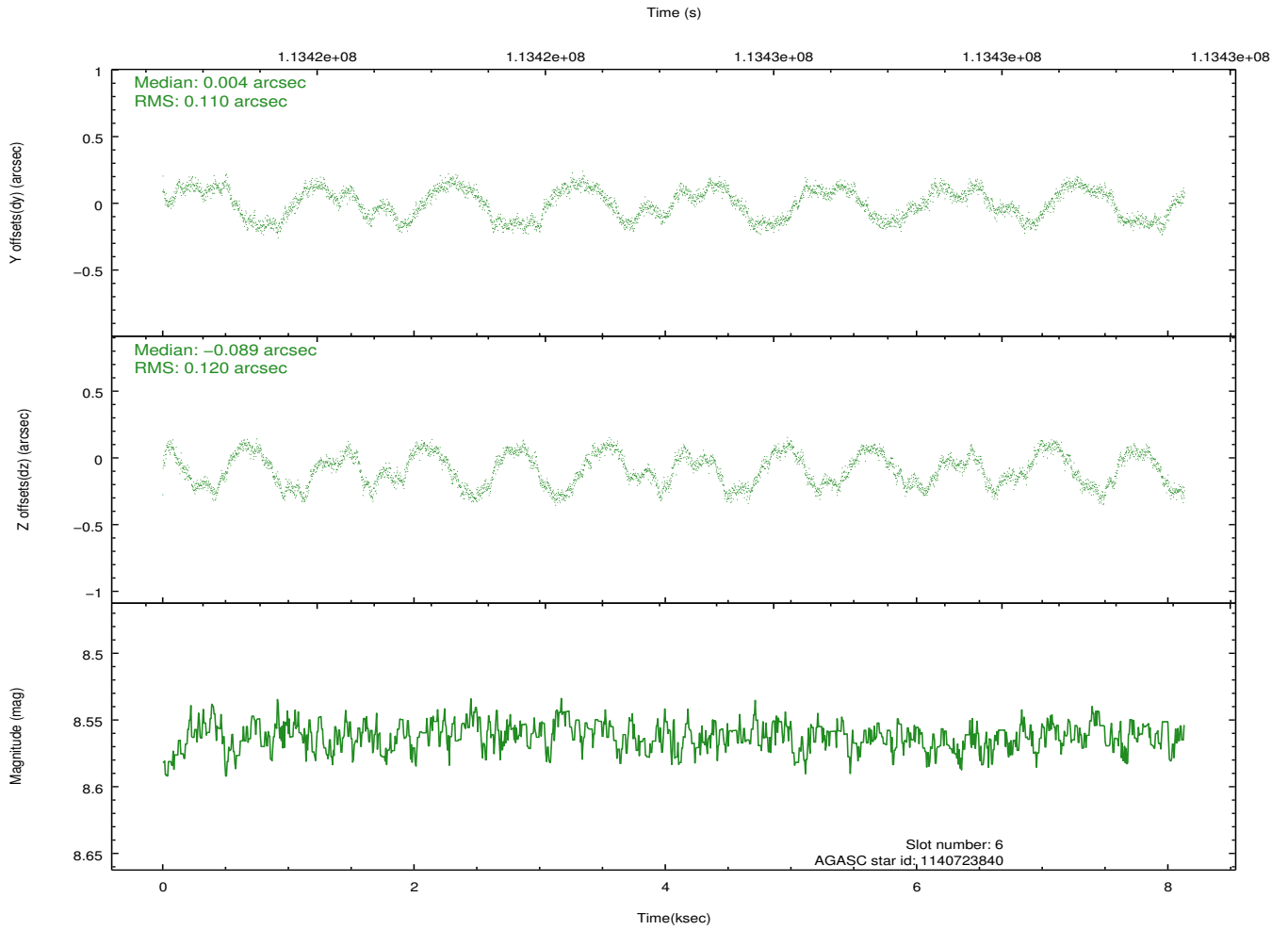
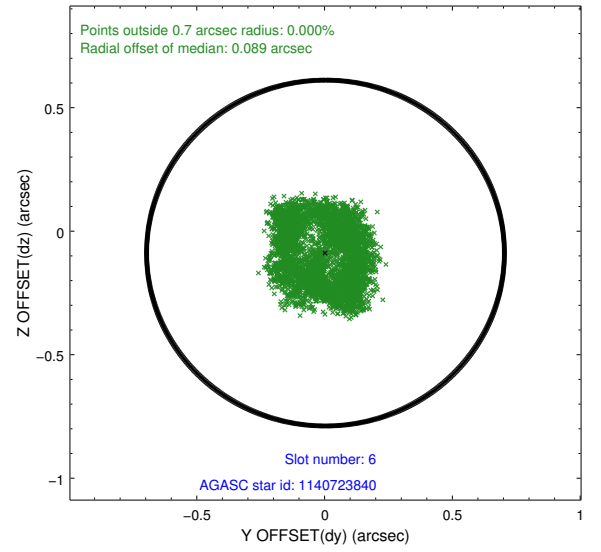
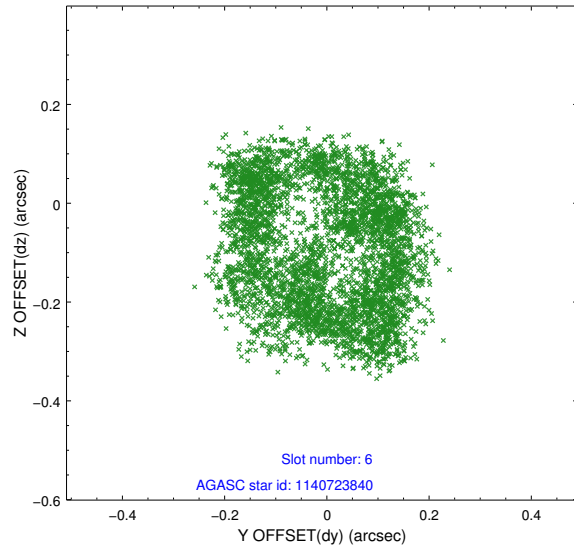
## 2.4.2 Slot 4



### 2.4.3 Slot 5

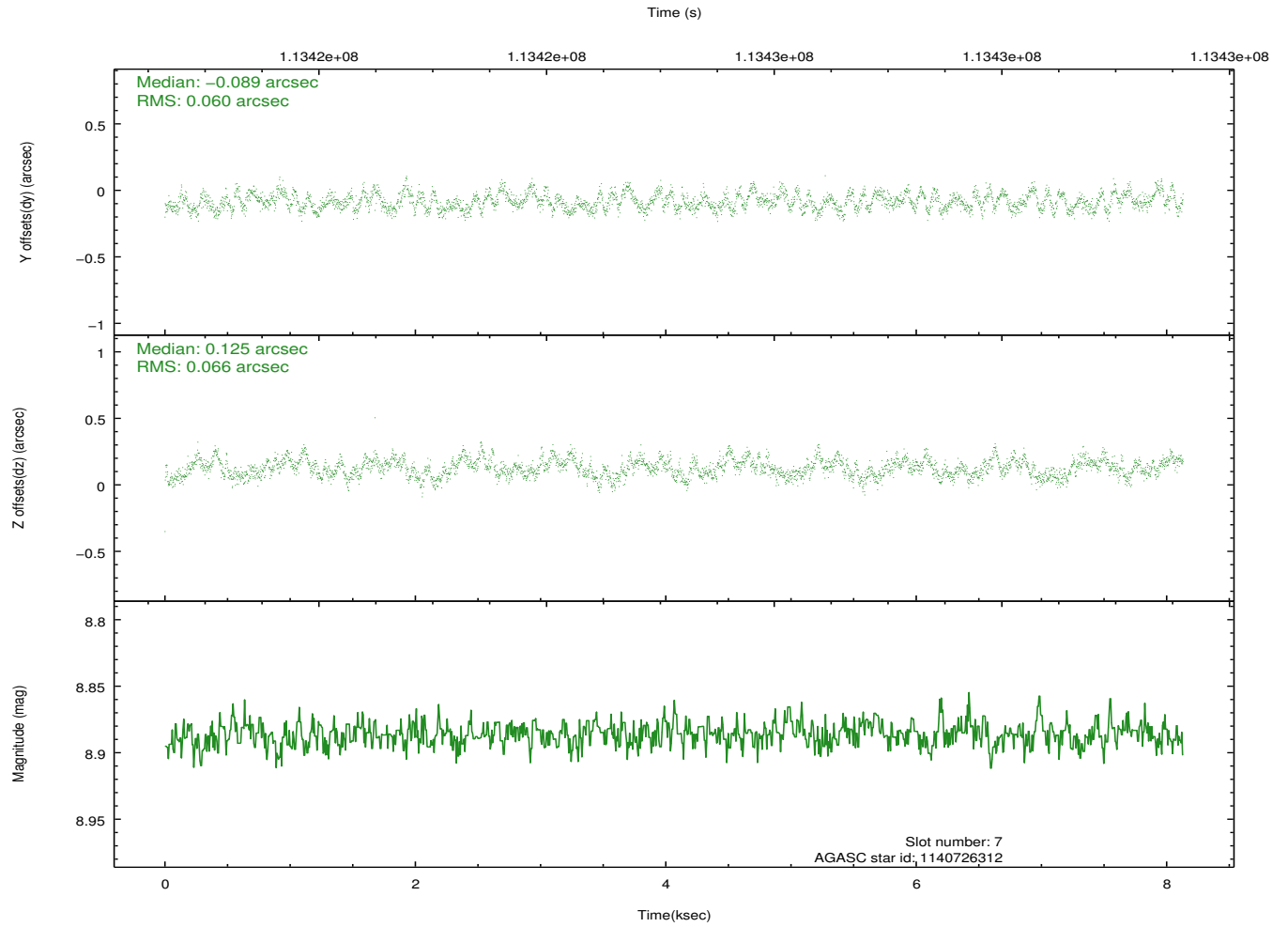
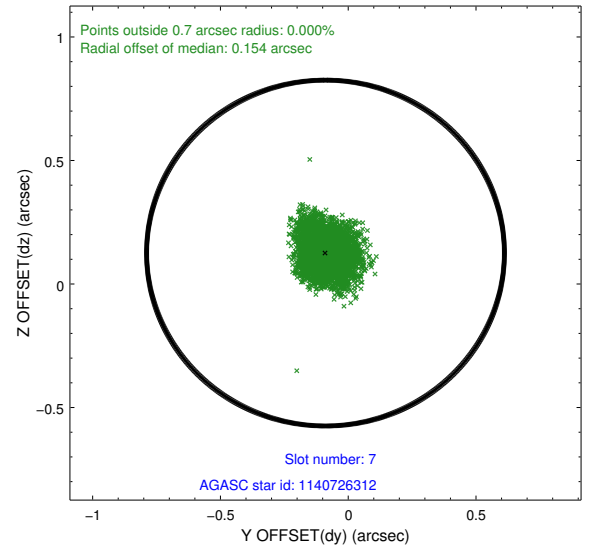
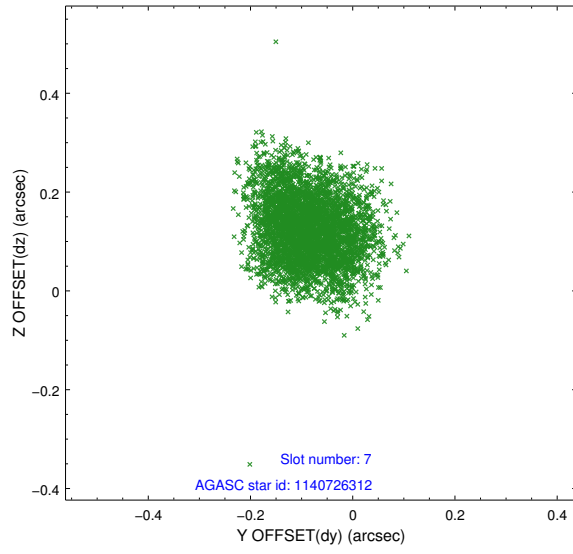


## 2.4.4 Slot 6



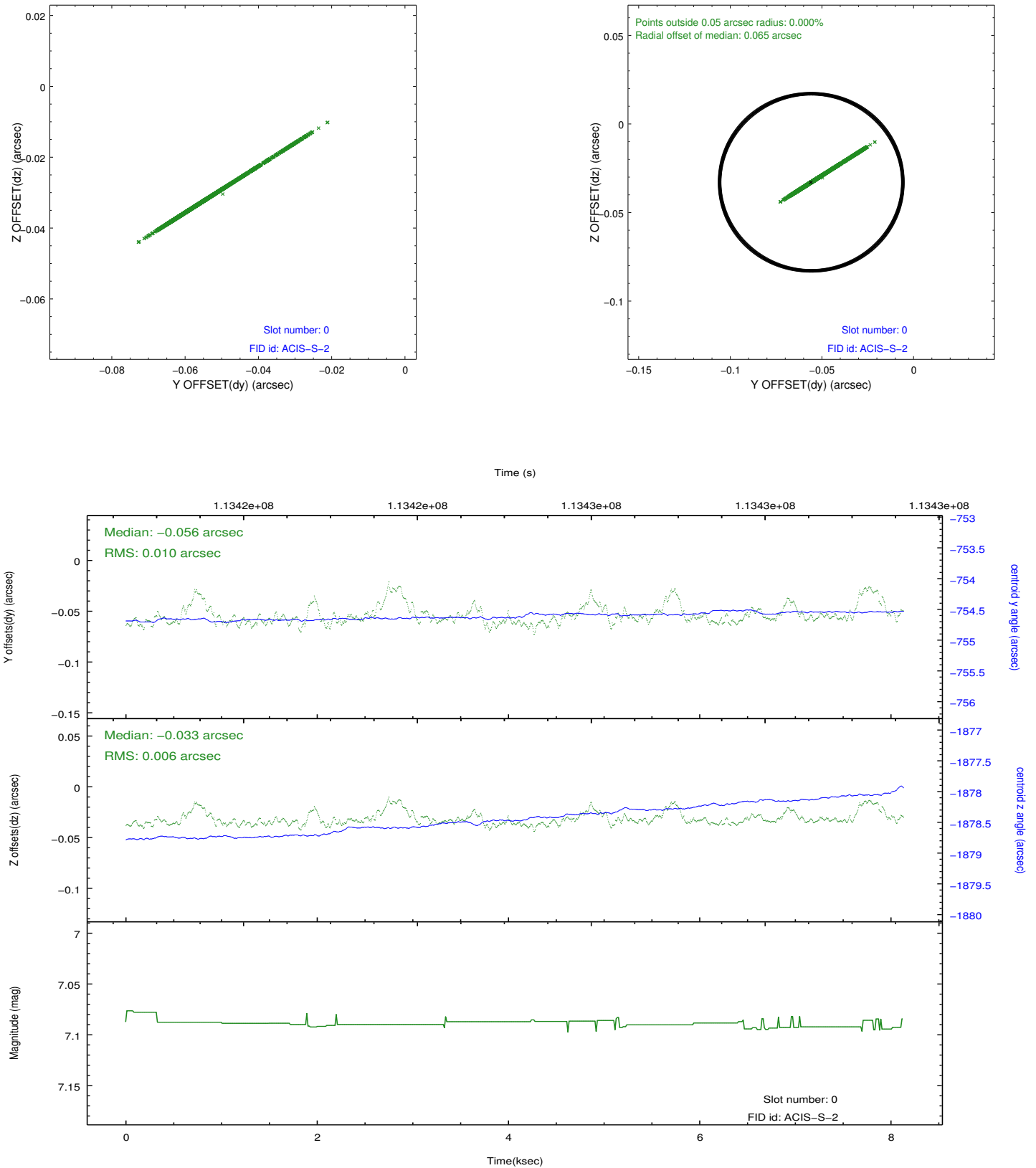


## 2.4.5 Slot 7

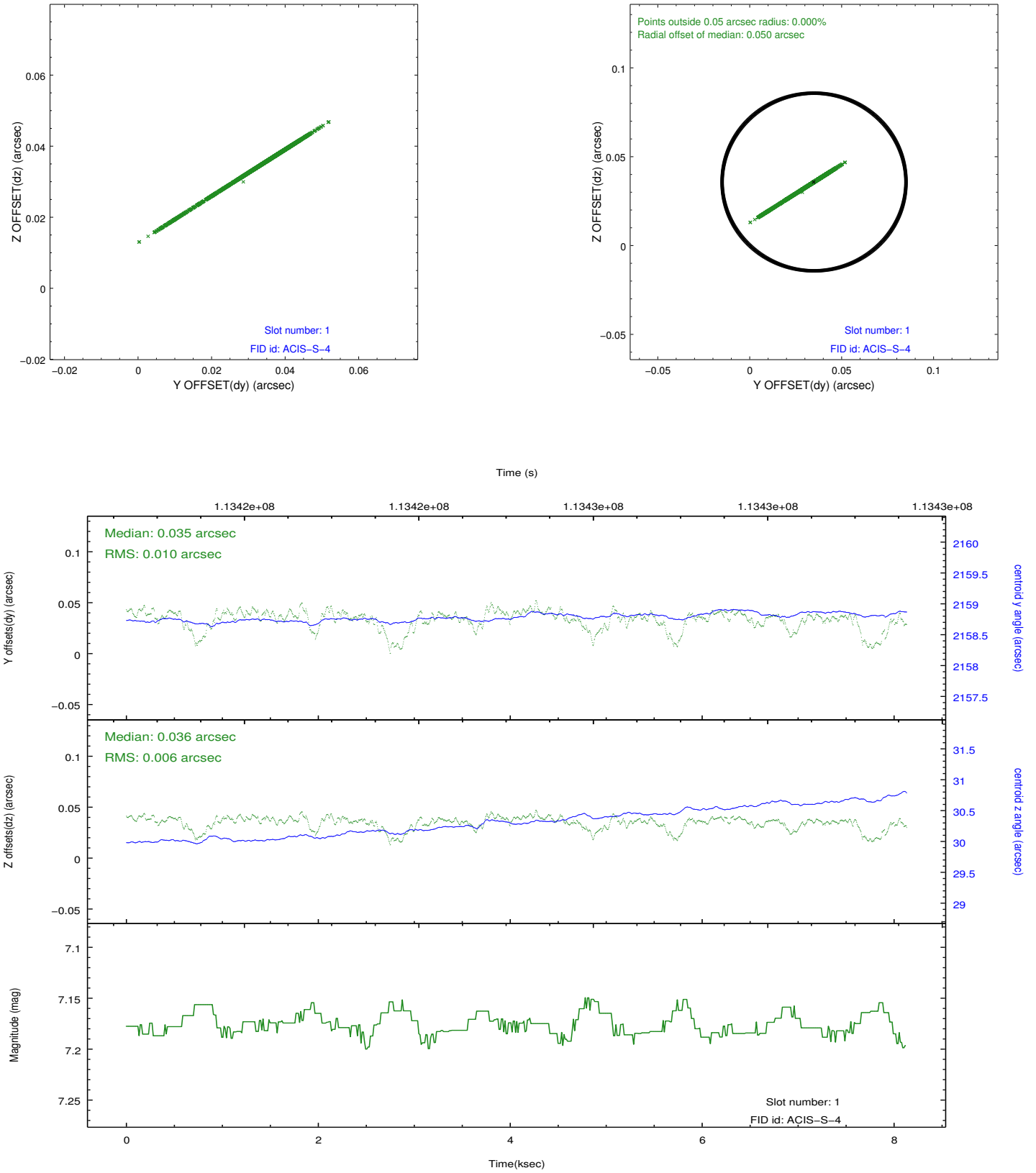


## 2.5 FID Slots

### 2.5.1 Slot 0

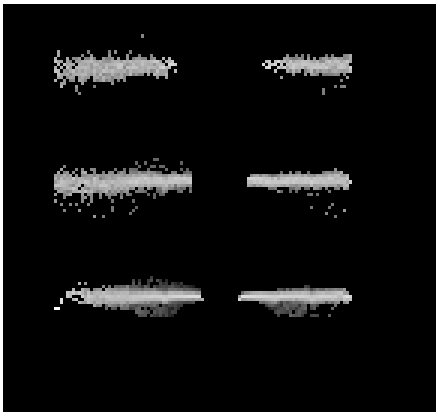


## 2.5.2 Slot 1

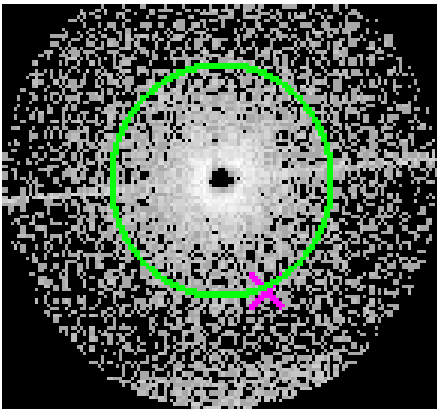


# 3 Gratings

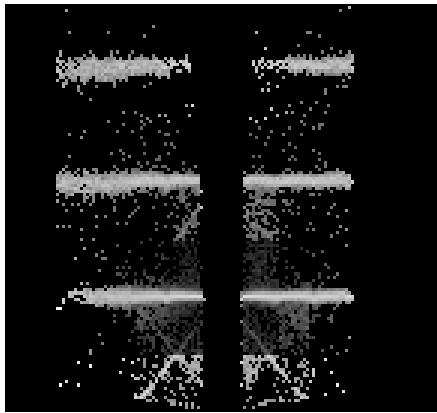
## 3.1 HEG Arm



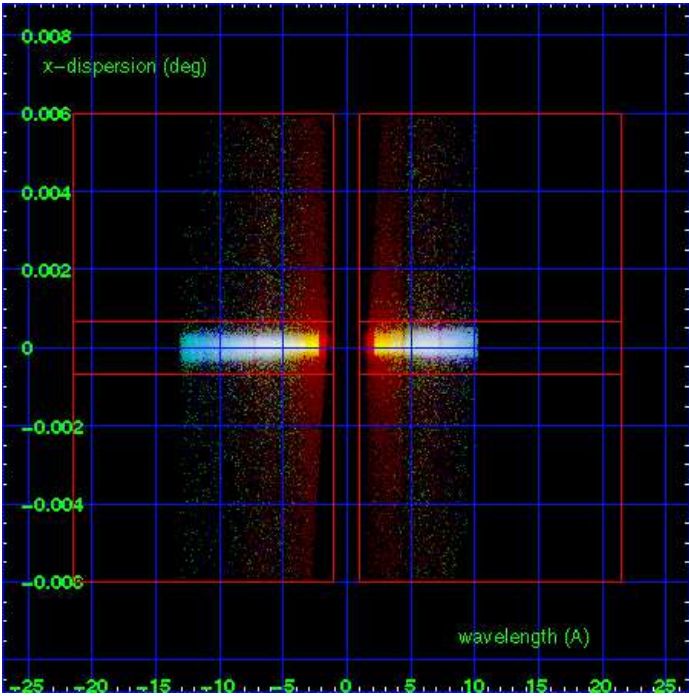
HEG Order Sort 123



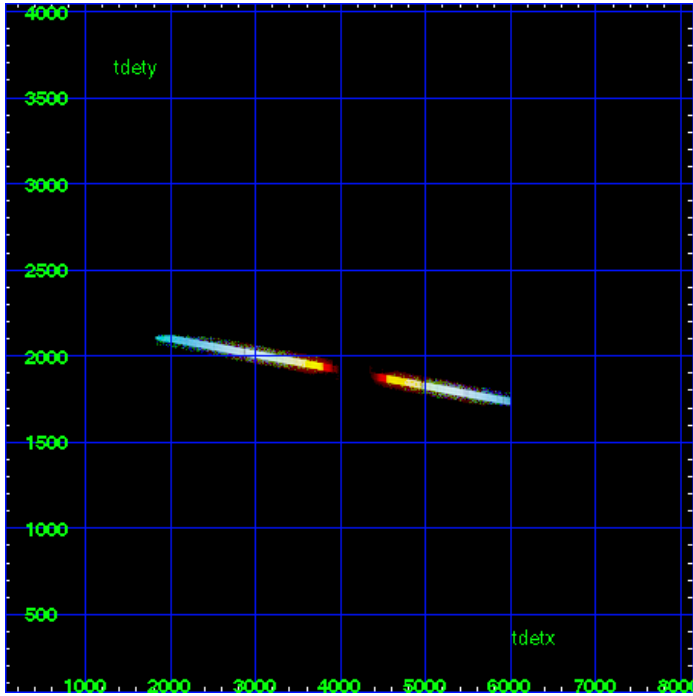
HEG Zero Order



HEG Order Sort ALL

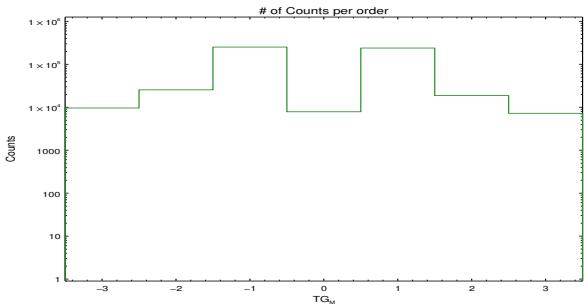


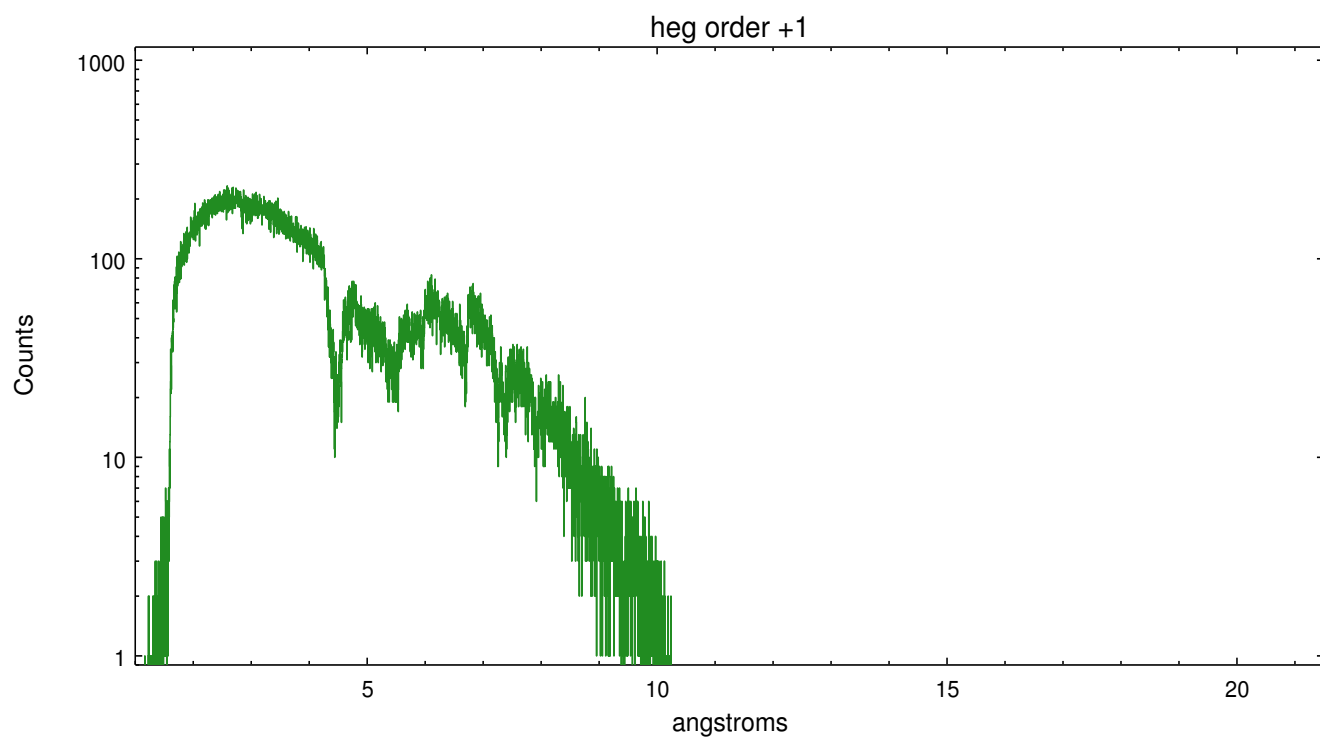
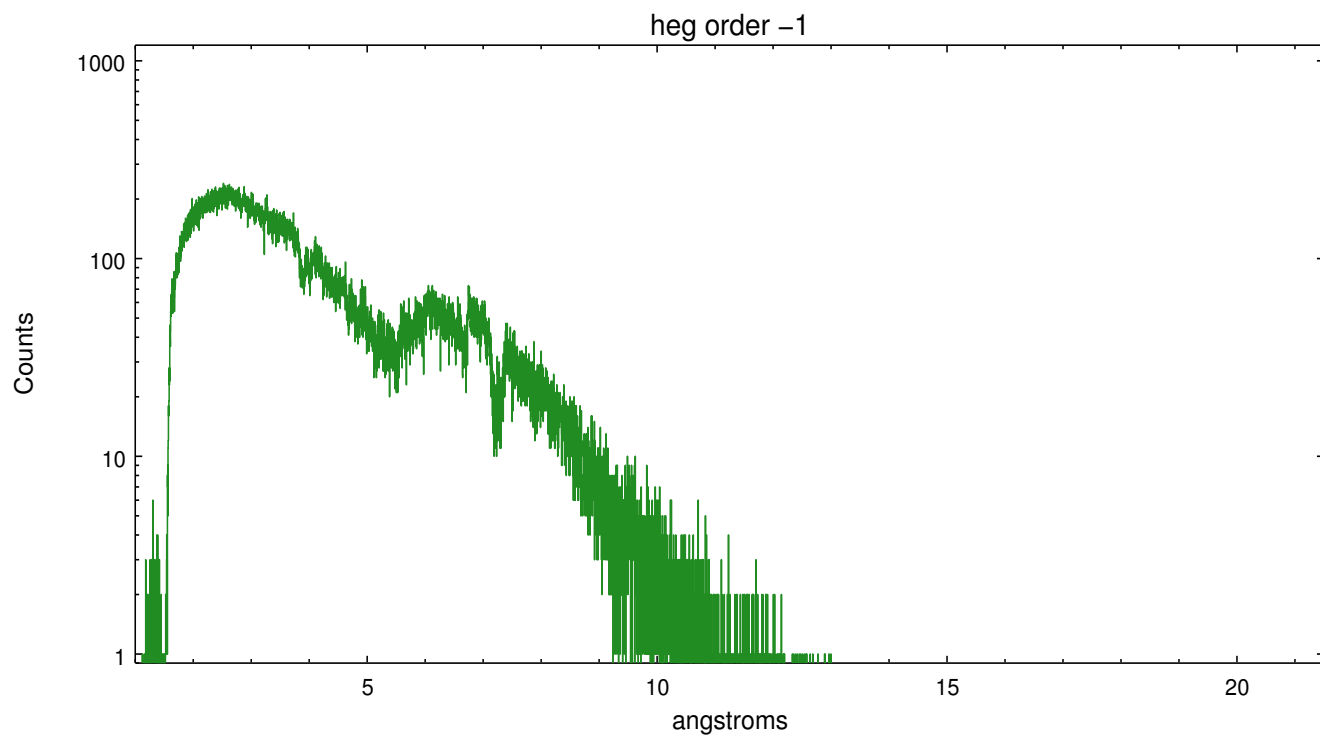
Spot Image HEG



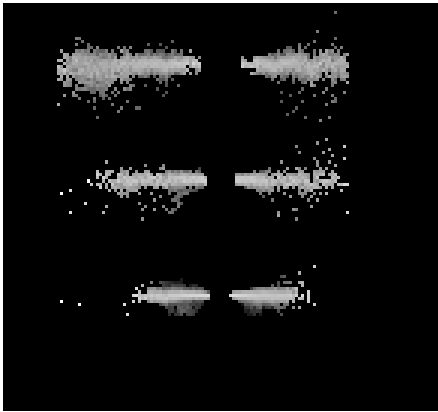
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	9608	25427	251858	7851	239150	18681	7226

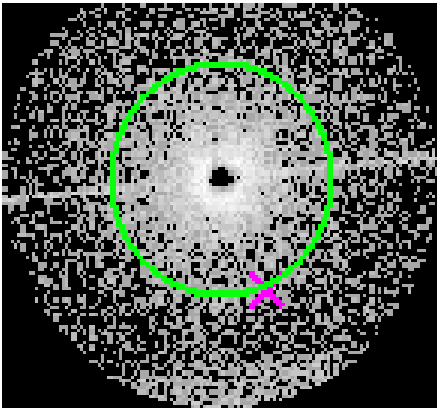




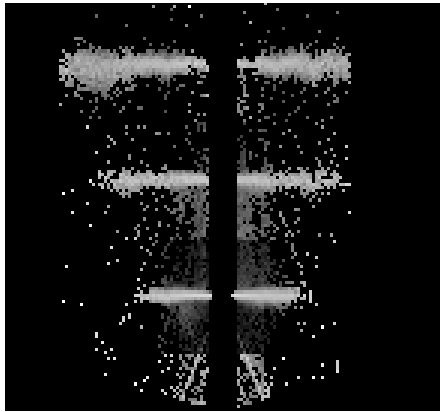
3.2 MEG Arm



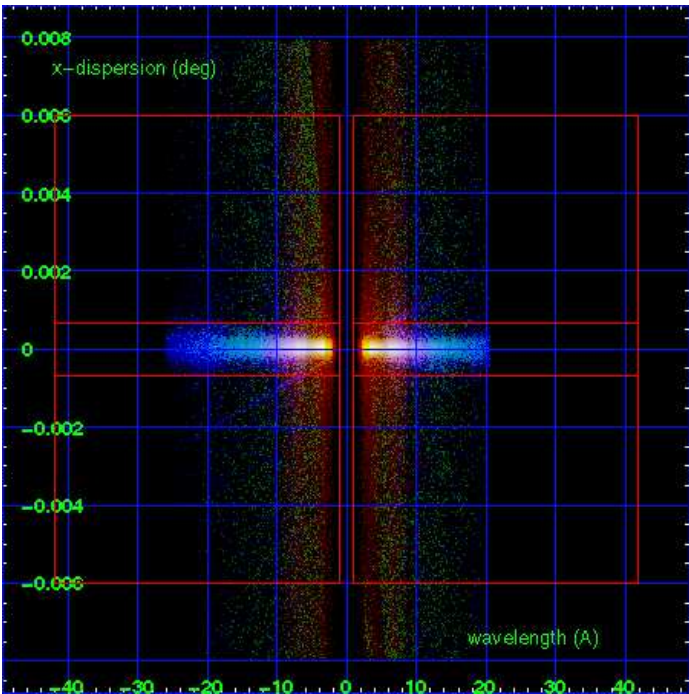
MEG Order Sort 123



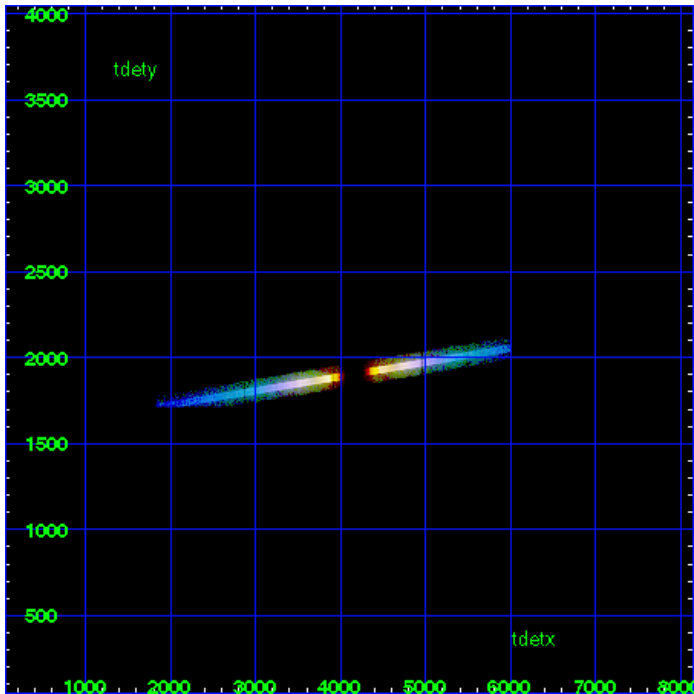
MEG Zero Order



MEG Order Sort ALL

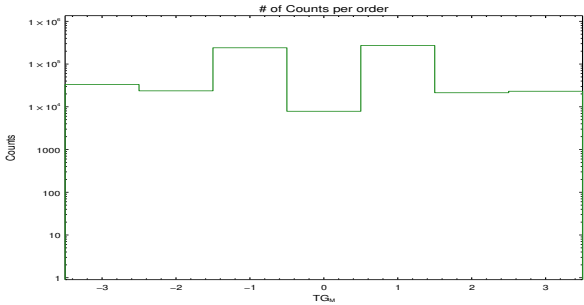


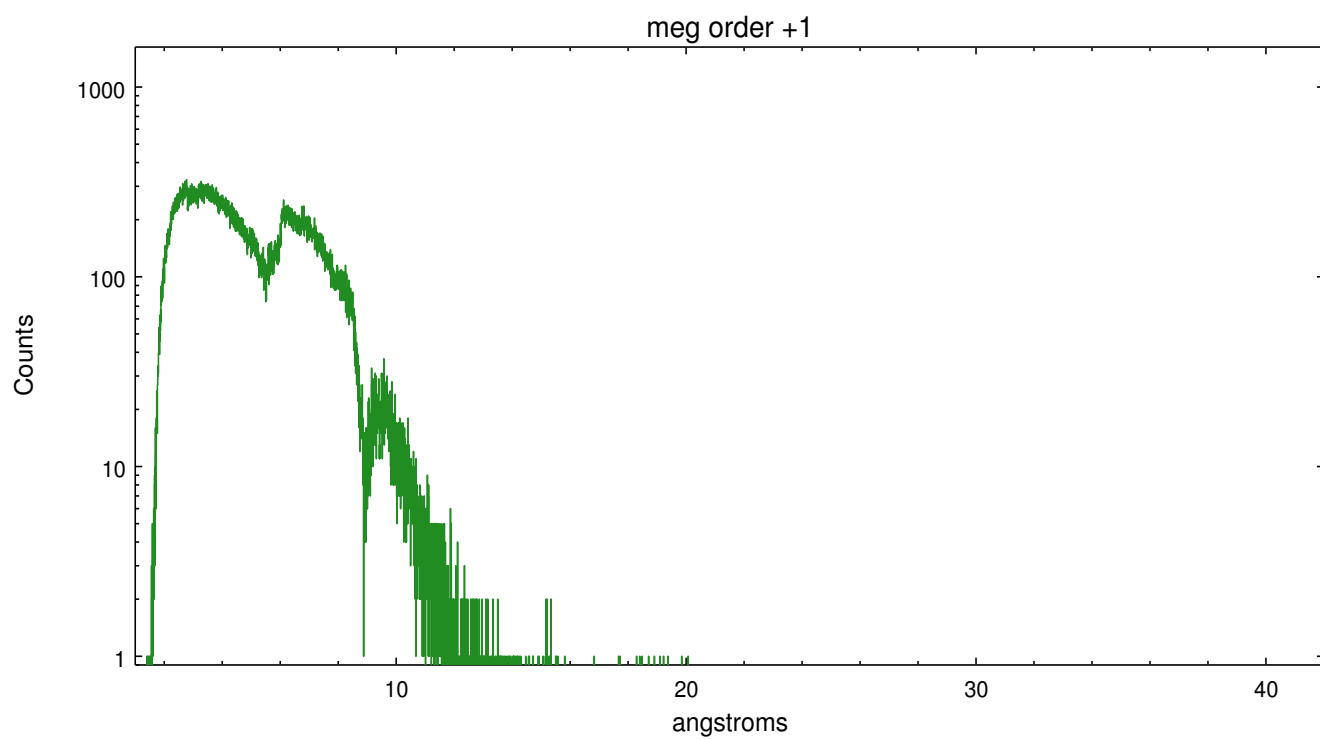
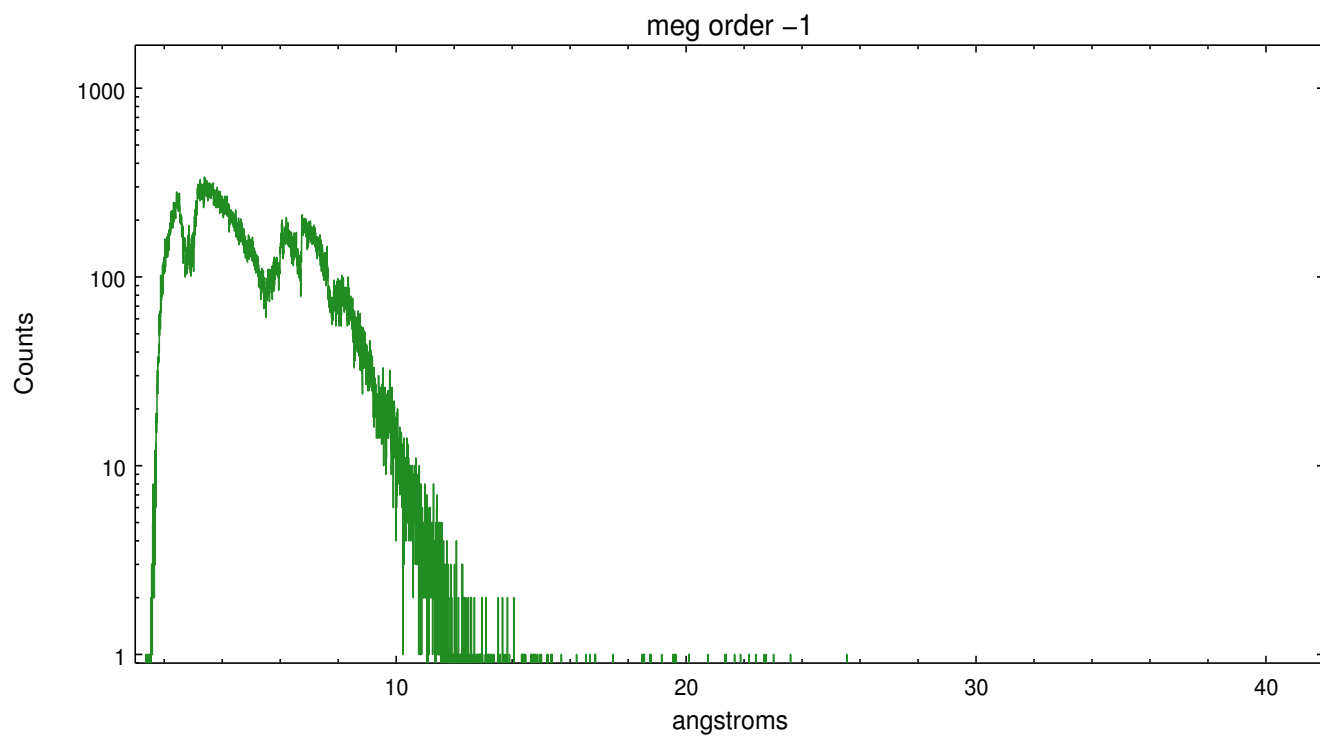
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	33160	23625	240403	7851	270990	21332	23090





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.10.24
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.131

## A.2 Comments

Phased constrained observation. Standard data processing software did not correctly locate the zeroth order because a spatial exclusion window was used to reduce the count rate of the zeroth order, and because the zeroth order is piled up in spite of the exclusion window. Only 1 in 10 events were recorded for the zeroth order. Manual intervention was used to input the correct sky coordinates (x=4083.34, y=4124.81) 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 (currently in ISIS). 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. === Spectral arms are clearly seen in the image of bad pixels, implying the dispersed spectral arms are piled up.

===

The fid light in slot 2 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this fid light from the solution.