

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 6148 - L2 Version 4  
Chandra X-Ray Center

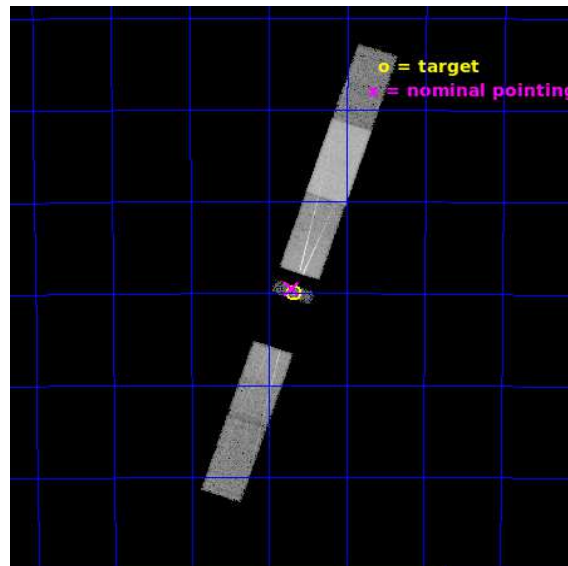
L2 Processing Date : Oct 5 2020

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# 1 Front

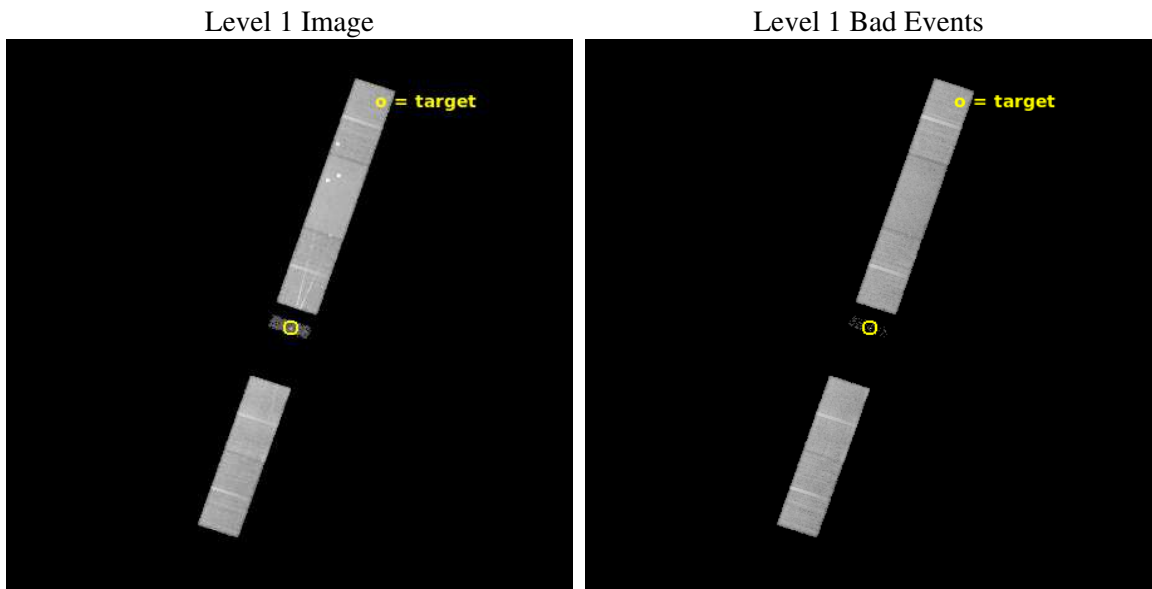
seq_num	400408	Sequence number
obs_id	6148	Observation id
title	Accretion Disk Mapping using the P Cygni Line Profiles in Circinus X-1	Proposal title
observer	Norbert Schulz	Principal investigator
object	Cir X-1	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	230.170833	Observer's specified target RA [deg]
dec_targ	-57.166667	Observer's specified target Dec [deg]
ra_nom	230.17578892396	Nominal RA [deg]
dec_nom	-57.158335598827	Nominal Dec [deg]
roll_nom	108.67593903736	Nominal Roll [deg]
revision	4	Processing version of data
ontime	25068.199824214	Sum of GTIs [s]
livetime	24477.289264557	Livetime [s]
ontime4	25068.199824214	Sum of GTIs [s]
ontime5	25068.171345979	Sum of GTIs [s]
ontime6	25068.130305976	Sum of GTIs [s]
ontime7	25068.199824214	Sum of GTIs [s]
ontime8	25066.348275751	Sum of GTIs [s]
ontime9	25068.048225999	Sum of GTIs [s]
l2events	145958	Number of level 2 events



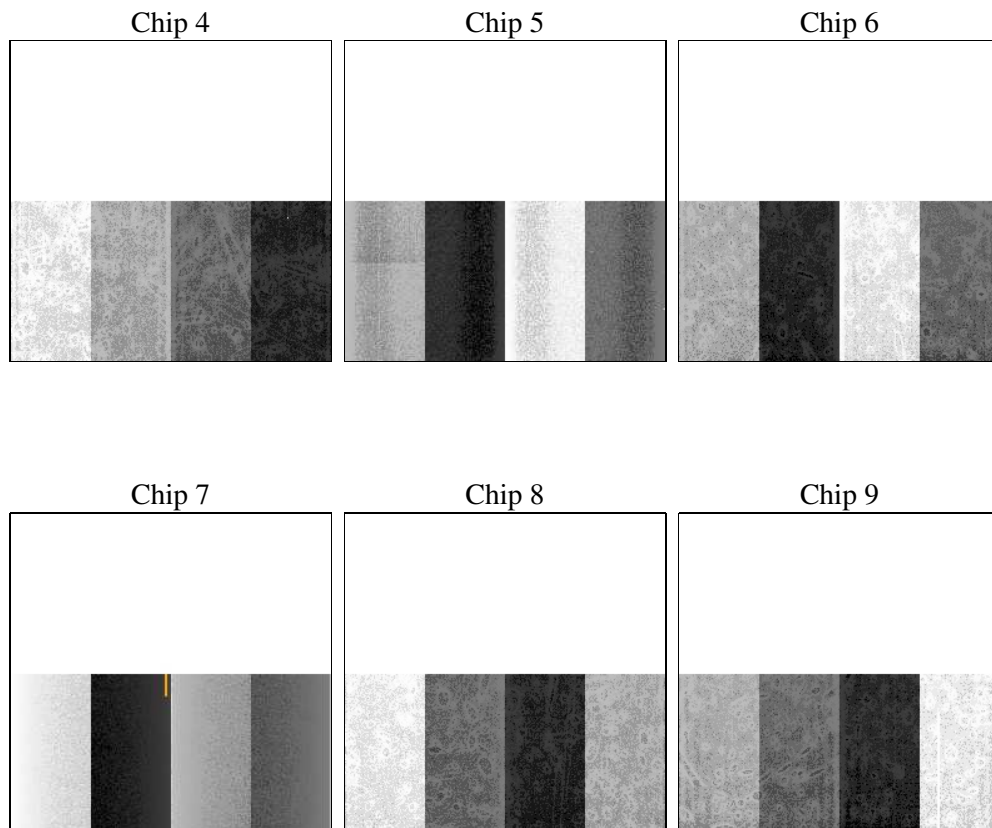
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	25000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	25068.199824214	Sum of GTIs [s]
caldbver	4.9.2	&#160	ontime4	25068.199824214	Sum of GTIs [s]
date	2020-10-06T02:39:02	Date and time of file creation	ontime5	25068.171345979	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	25068.130305976	Sum of GTIs [s]
			ontime7	25068.199824214	Sum of GTIs [s]
			ontime8	25066.348275751	Sum of GTIs [s]
			ontime9	25068.048225999	Sum of GTIs [s]
			l1events	622601	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			z0_pos	(4118.17, 4025.10)	src1a sky pixel position

### 2.1.4 Events

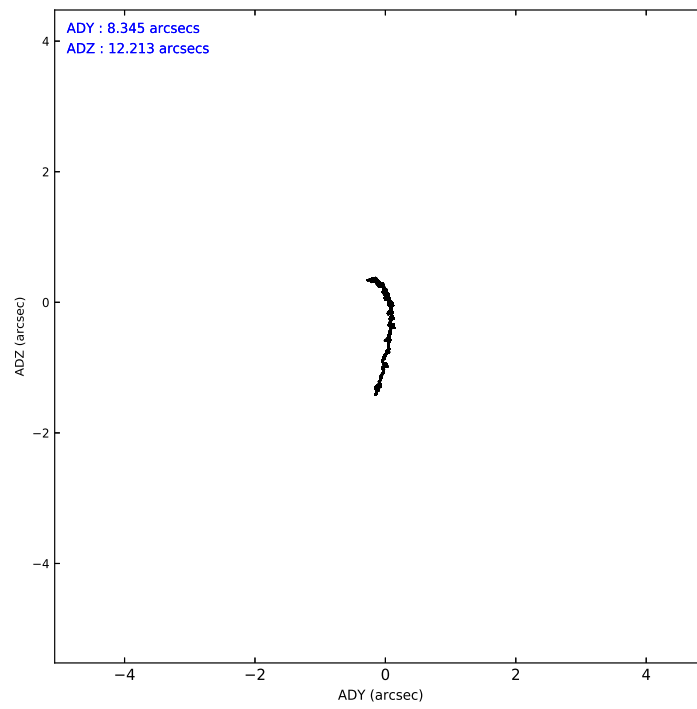
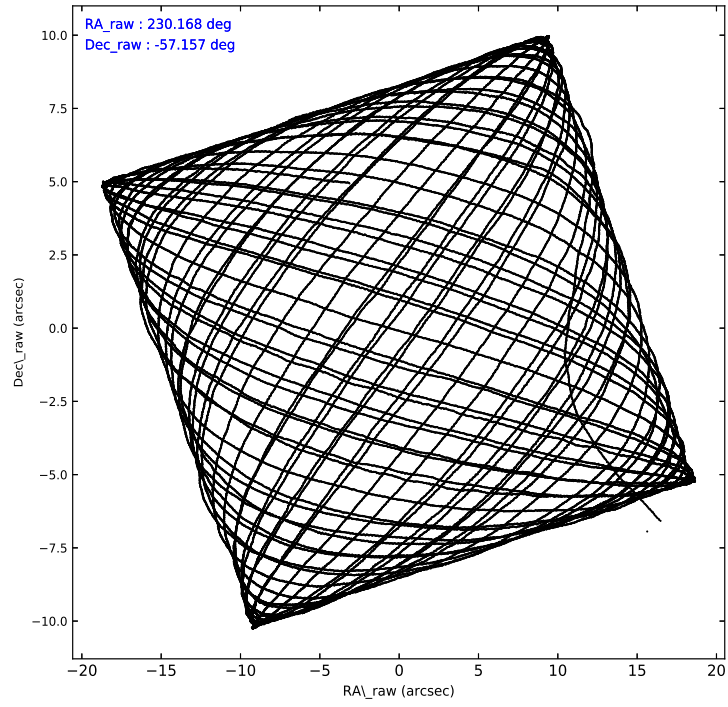
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	112339	150934	125728	1907	136183	95510
rejected events	95344	73606	85557	634	97567	81555
rejected %	84%	48%	68%	33%	71%	85%

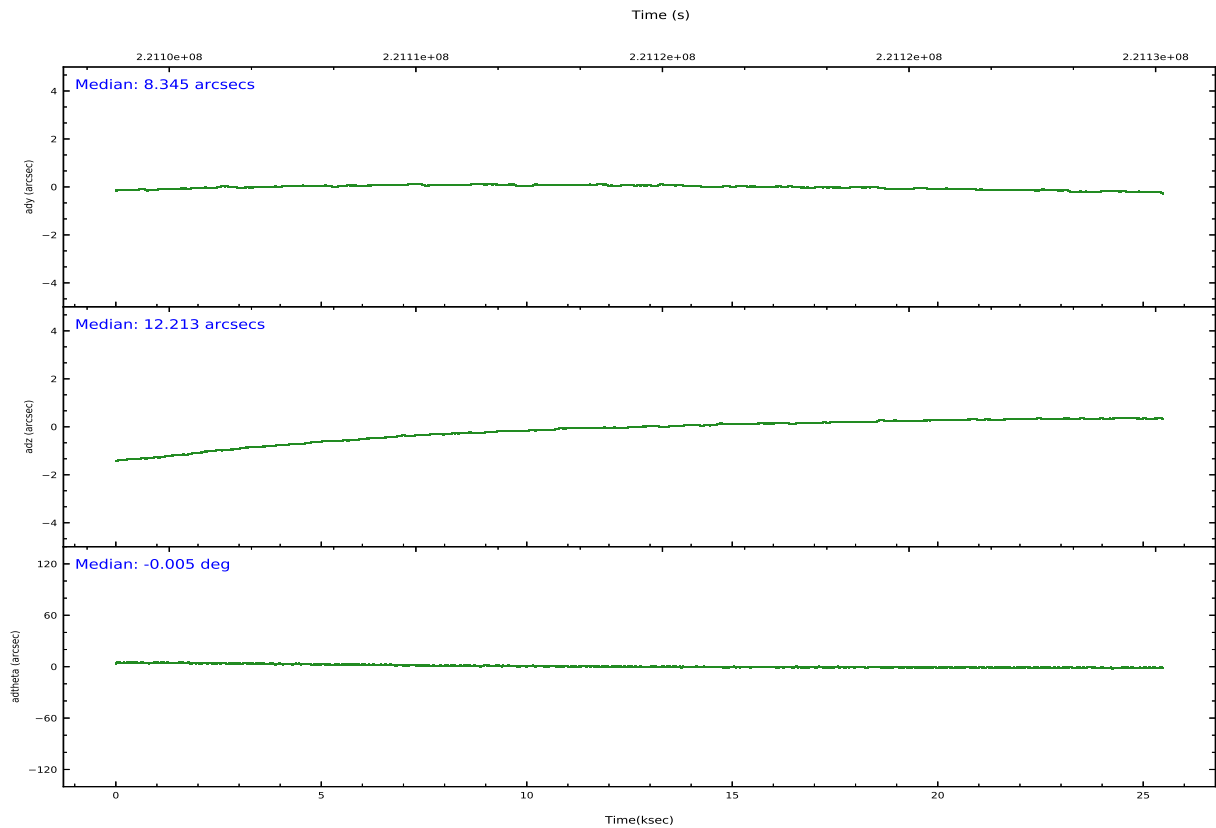
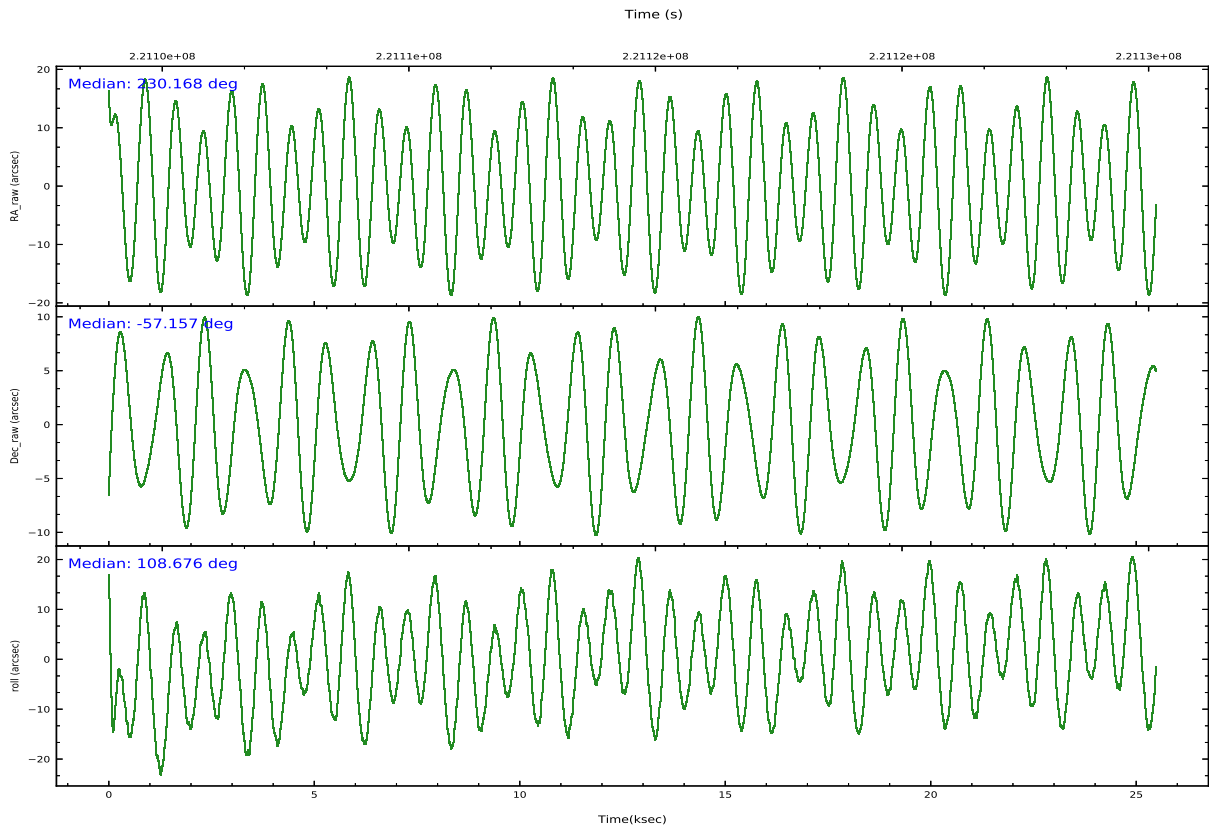
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	9567	16098	25841	170	16823	6317
	8%	10%	20%	8%	12%	6%
grade 1 events	86	317	86	13	75	50
	0%	0%	0%	0%	0%	0%
grade 2 events	2717	19978	5733	253	7219	2429
	2%	13%	4%	13%	5%	2%
grade 3 events	1418	3975	2553	117	3404	1460
	1%	2%	2%	6%	2%	1%
grade 4 events	1408	3852	2503	126	3288	1453
	1%	2%	1%	6%	2%	1%
grade 5 events	3834	10910	4133	165	5344	4316
	3%	7%	3%	8%	3%	4%
grade 6 events	1886	33430	3541	608	7883	2300
	1%	22%	2%	31%	5%	2%
grade 7 events	91423	62374	81338	455	92147	77185
	81%	41%	64%	23%	67%	80%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
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	230.206337	230.17578892396	Subarray requested	CUSTOM	1/2
[deg] Pointing Dec	-57.174796	-57.158335598827	Subarray start row	1	1
[deg] Pointing Roll	108.551569	108.67593903736	Subarray row count	512	512
[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	1.7
[mm] SIM translation stage pos	-183.992523	-183.9875365069546			
[mm] SIM translation stage offset	-6.14	-6.144986076053243			
Phase constraints	Y	Y			
[d] Phase period	16.536700	16.536700			
[d] Phase epoch (MJD)	52100.241000	52100.241000			
Phase start	0.950000	0.950000			
Phase end	0.050000	0.050000			
Phase start error	0.000000	0.000000			
Phase end error	0.000000	0.000000			
[s] Observation start time (MET)	221103184.184000	221102092.82			
Observation start date	2005-01-03T01:32:00	2005-01-03T01:14:52			
[s] Observation end time (MET)	221128184.184000	221128892.9837			
Observation end date	2005-01-03T08:28:40	2005-01-03T08:41:32			
Read mode	TIMED	TIMED			

## 2.3 Aspect



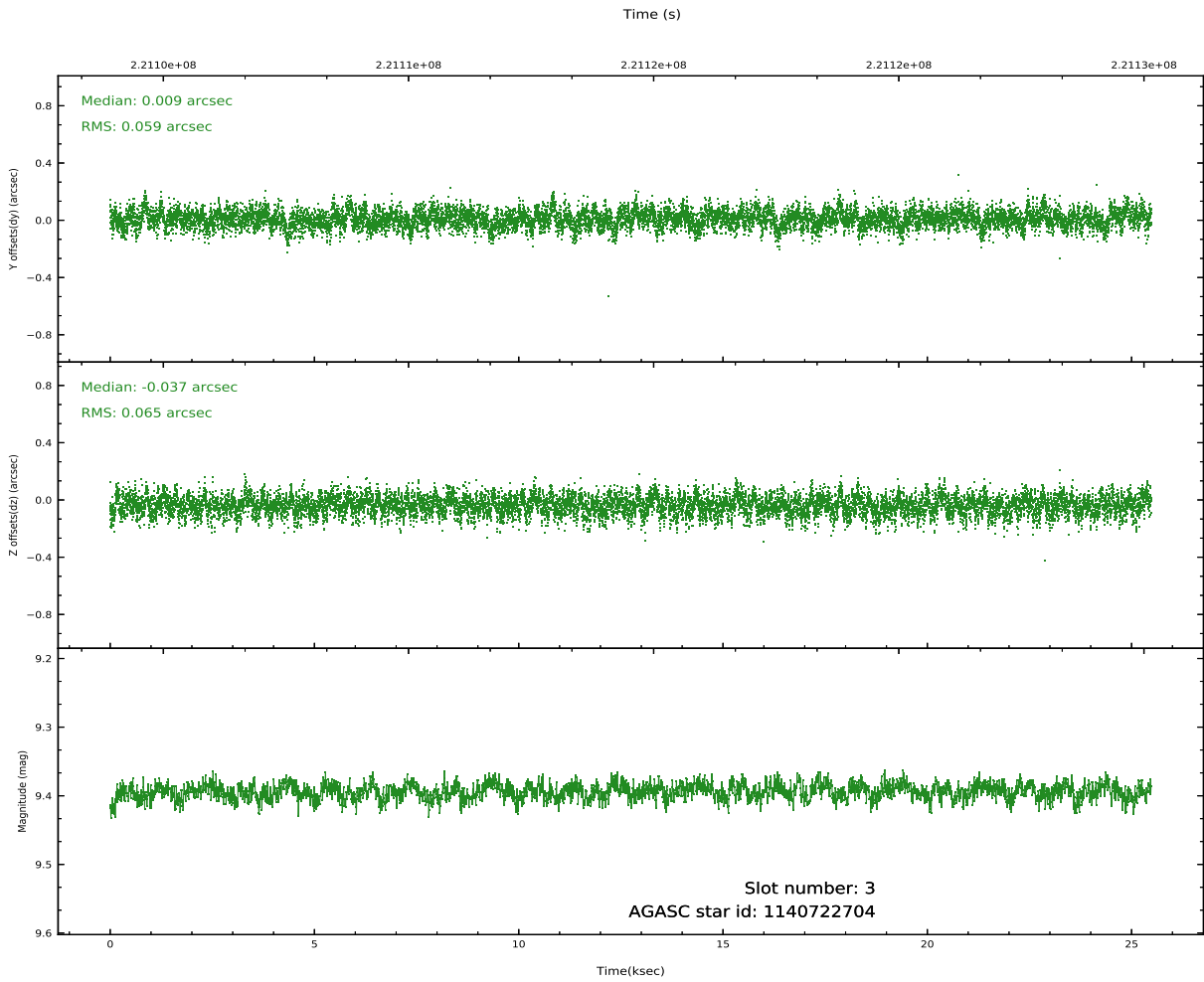
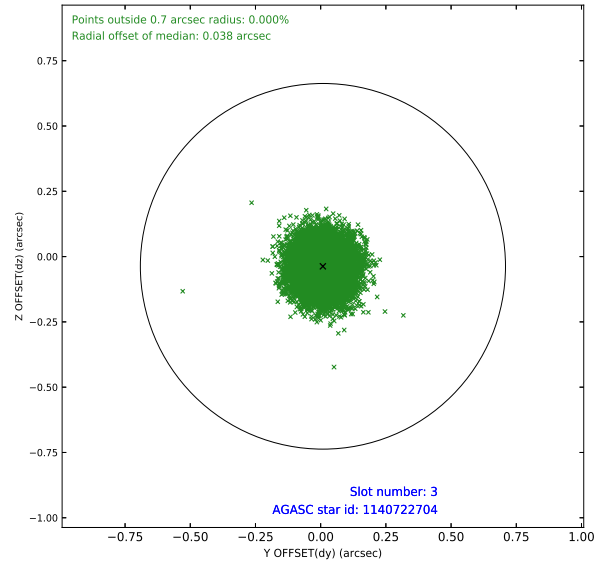
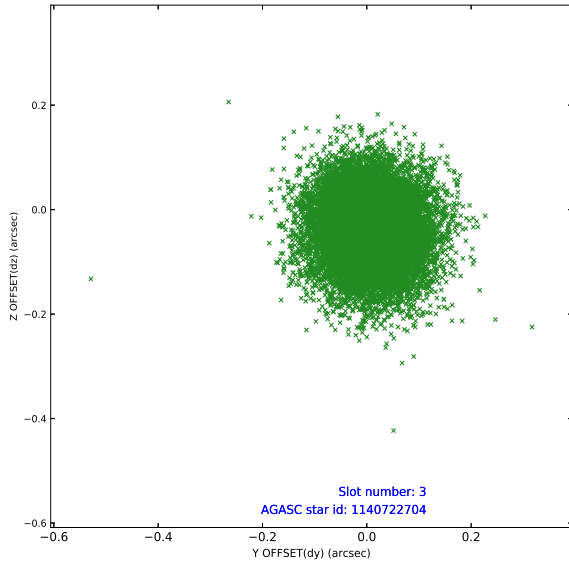


### Slot Statistics

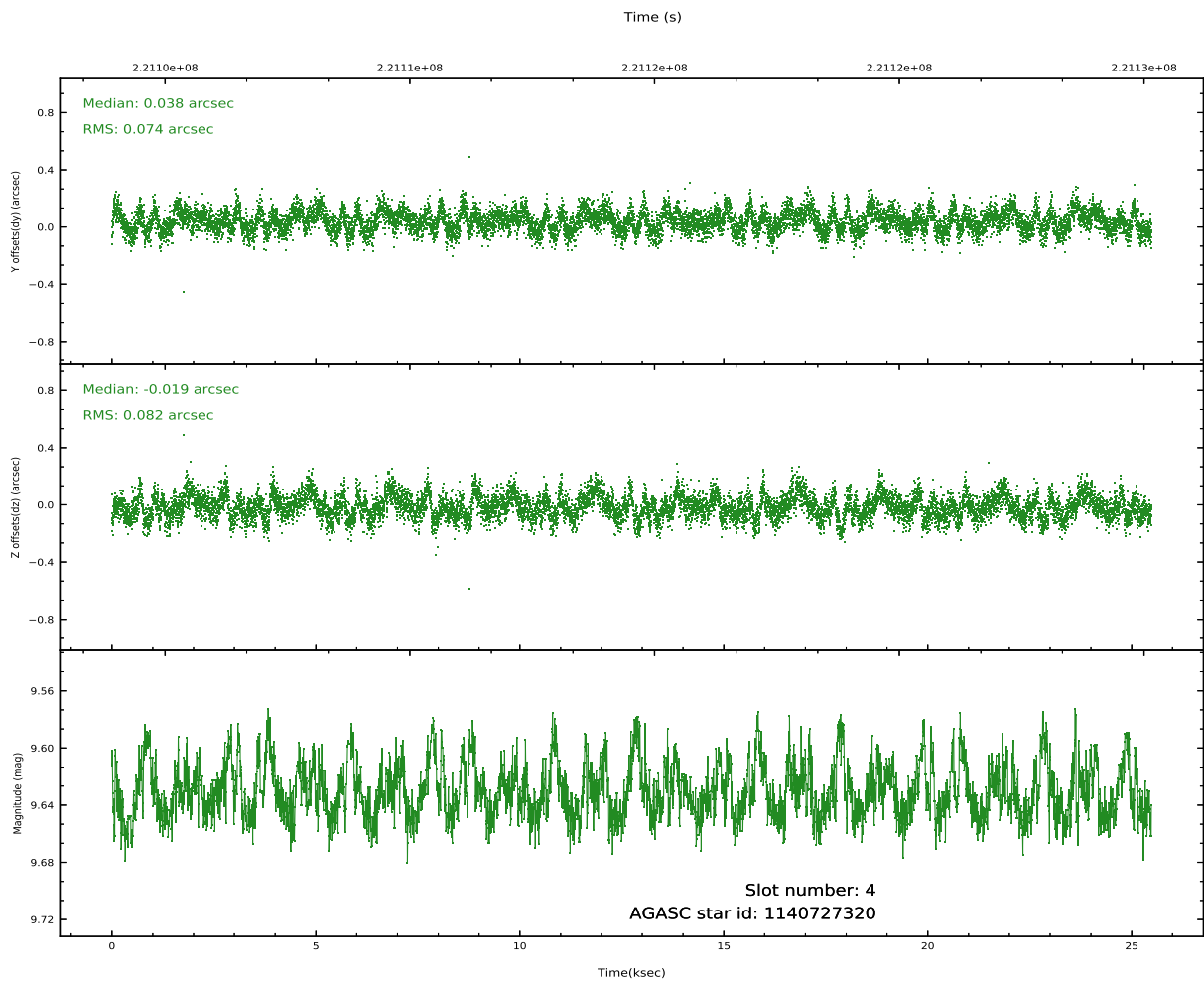
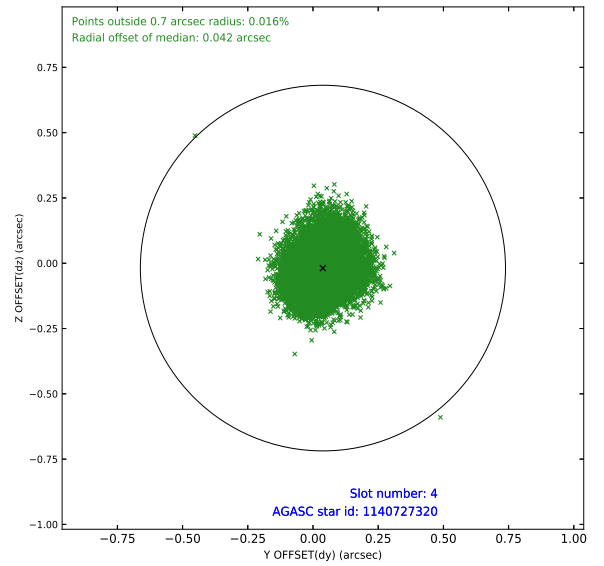
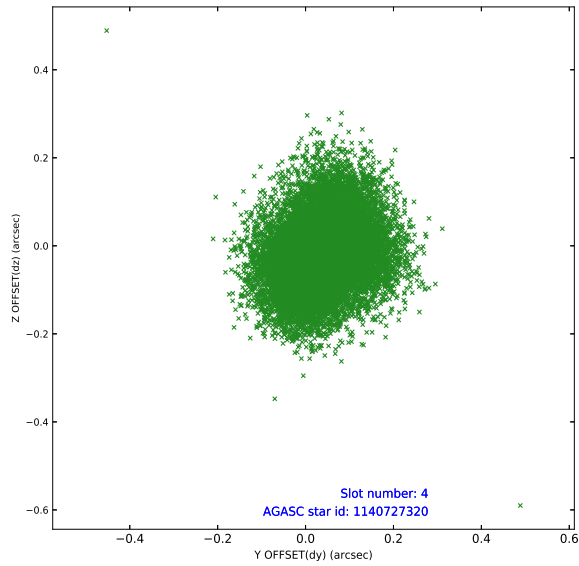
slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-S-2	7.08	6217	1.000	-0.098	-0.125	0.023	0.051	0.000000	0.000000	-760.74	-1860
1	FID		ACIS-S-4	7.18	6215	1.000	0.166	0.081	0.008	0.013	0.000000	0.000000	2152.71	48
2	FID		ACIS-S-5	7.23	6217	1.000	-0.102	0.052	0.025	0.047	0.000000	0.000000	-1813.48	42
3	GUIDE	used	1140722704	9.39	12417	1.000	0.009	-0.037	0.093	0.150	230.400167	-57.242184	-350.08	-280
4	GUIDE	used	1140727320	9.63	12416	1.000	0.038	-0.019	0.119	0.186	230.452630	-57.076993	180.15	-568
5	GUIDE	used	1140726312	8.89	12425	1.000	-0.053	0.054	0.088	0.140	231.010622	-56.676215	1187.24	-2075
6	GUIDE	used	1140722800	9.17	12392	1.000	0.006	0.001	0.079	0.132	231.057080	-56.699276	1078.81	-2135
7	GUIDE	used	1140726128	7.85	12429	1.000	0.002	0.001	0.066	0.108	231.437568	-57.014209	-239.52	-2464

## 2.4 Star Slots

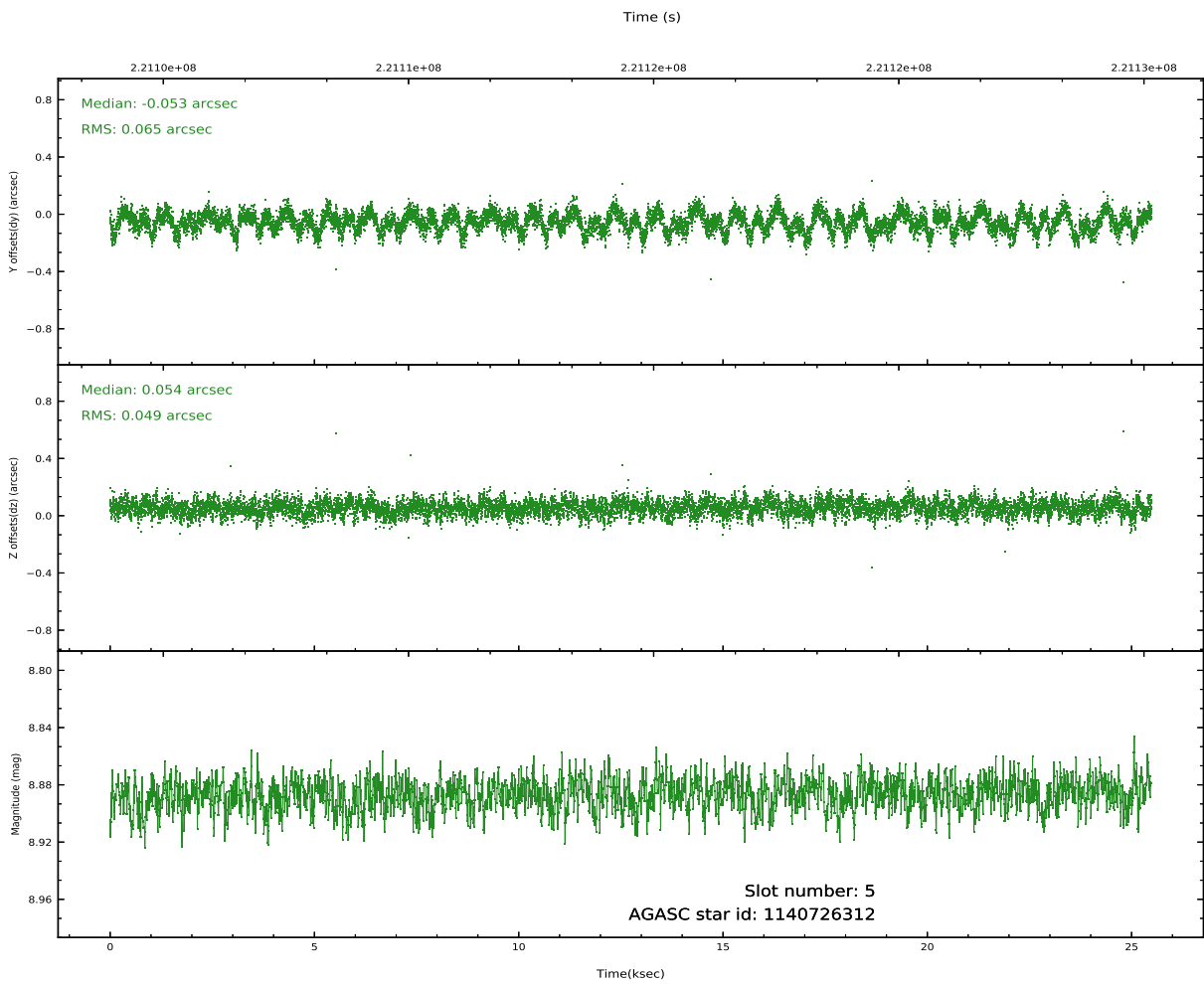
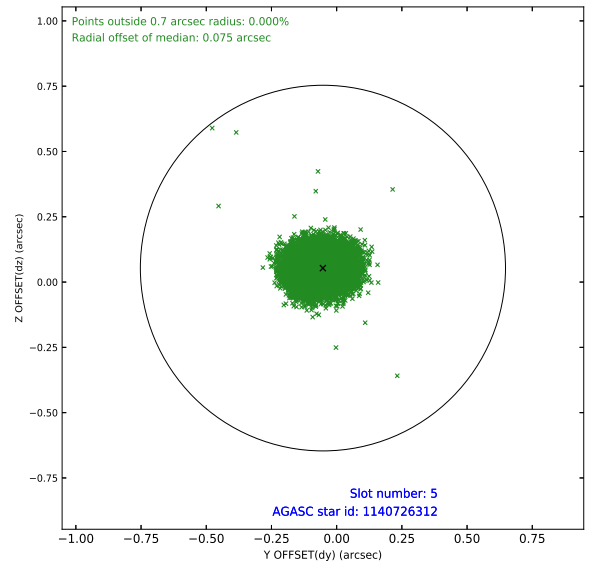
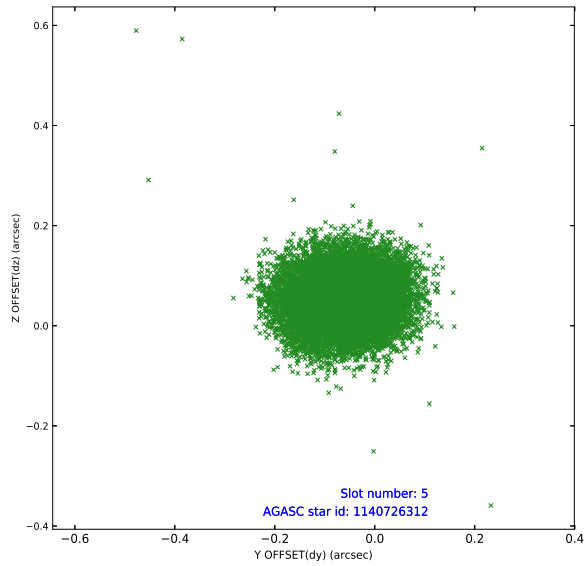
### 2.4.1 Slot 3



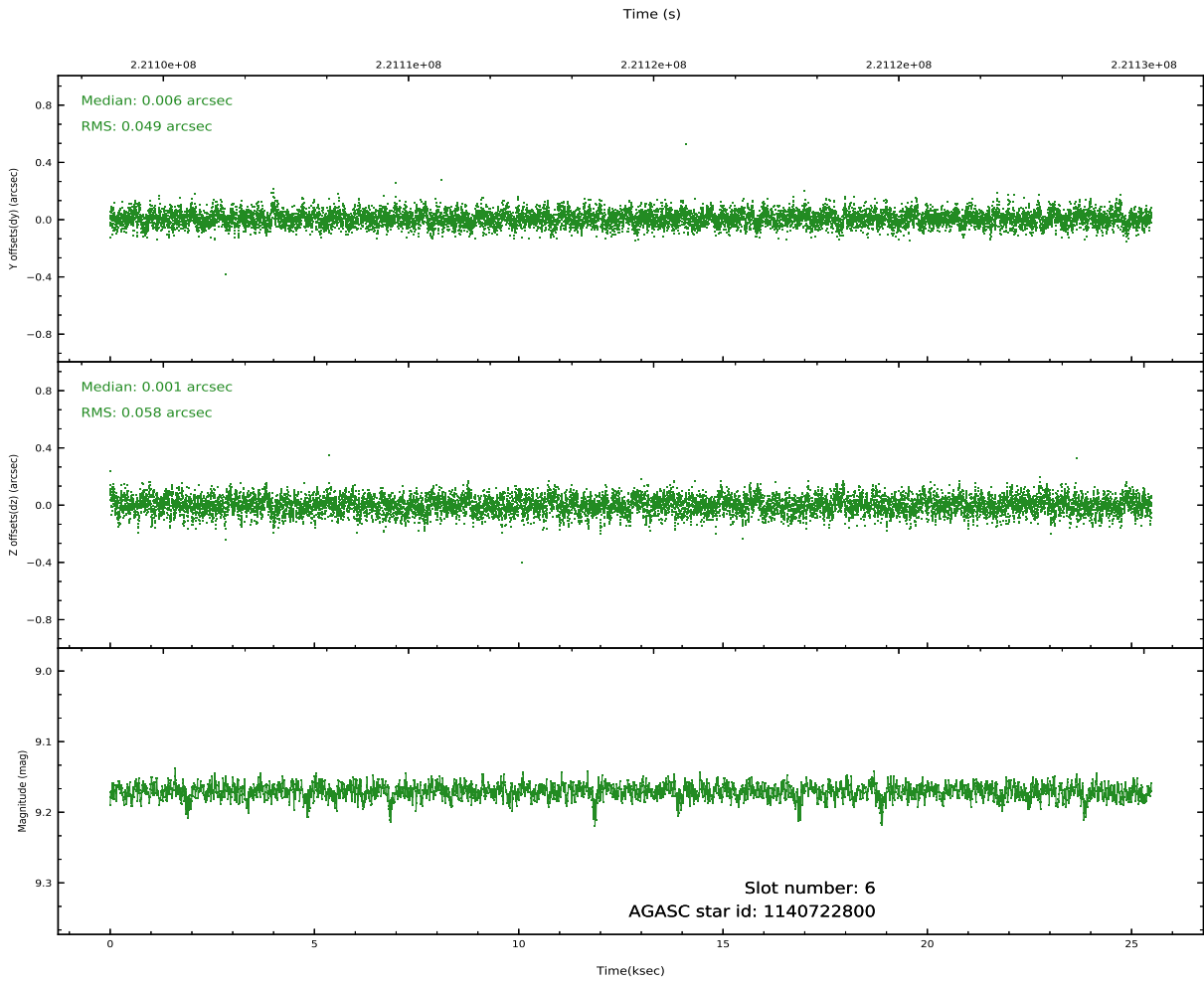
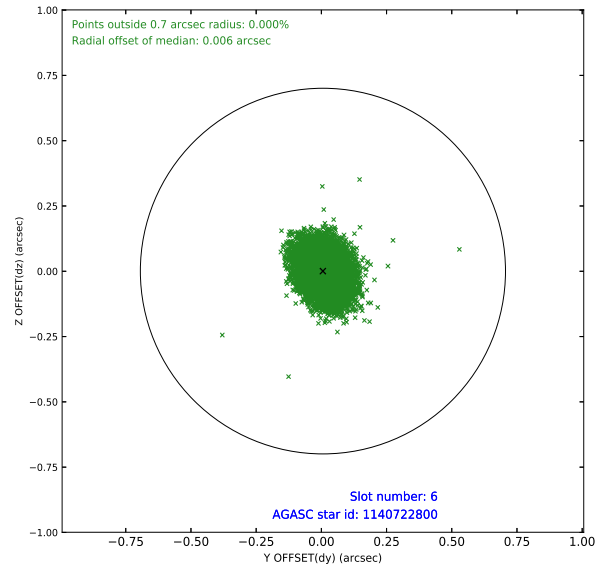
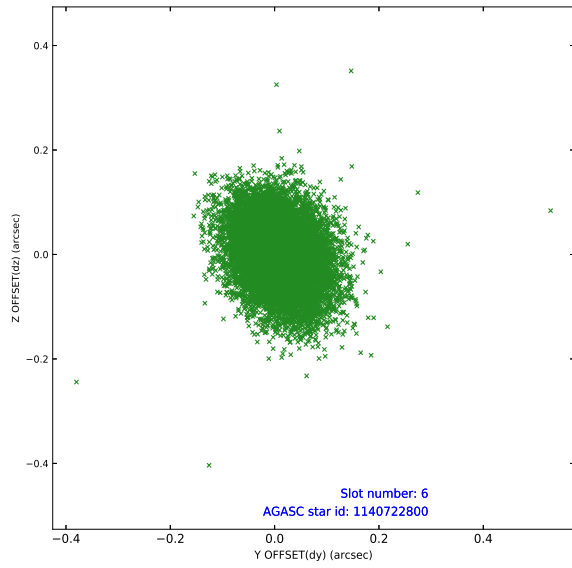
## 2.4.2 Slot 4



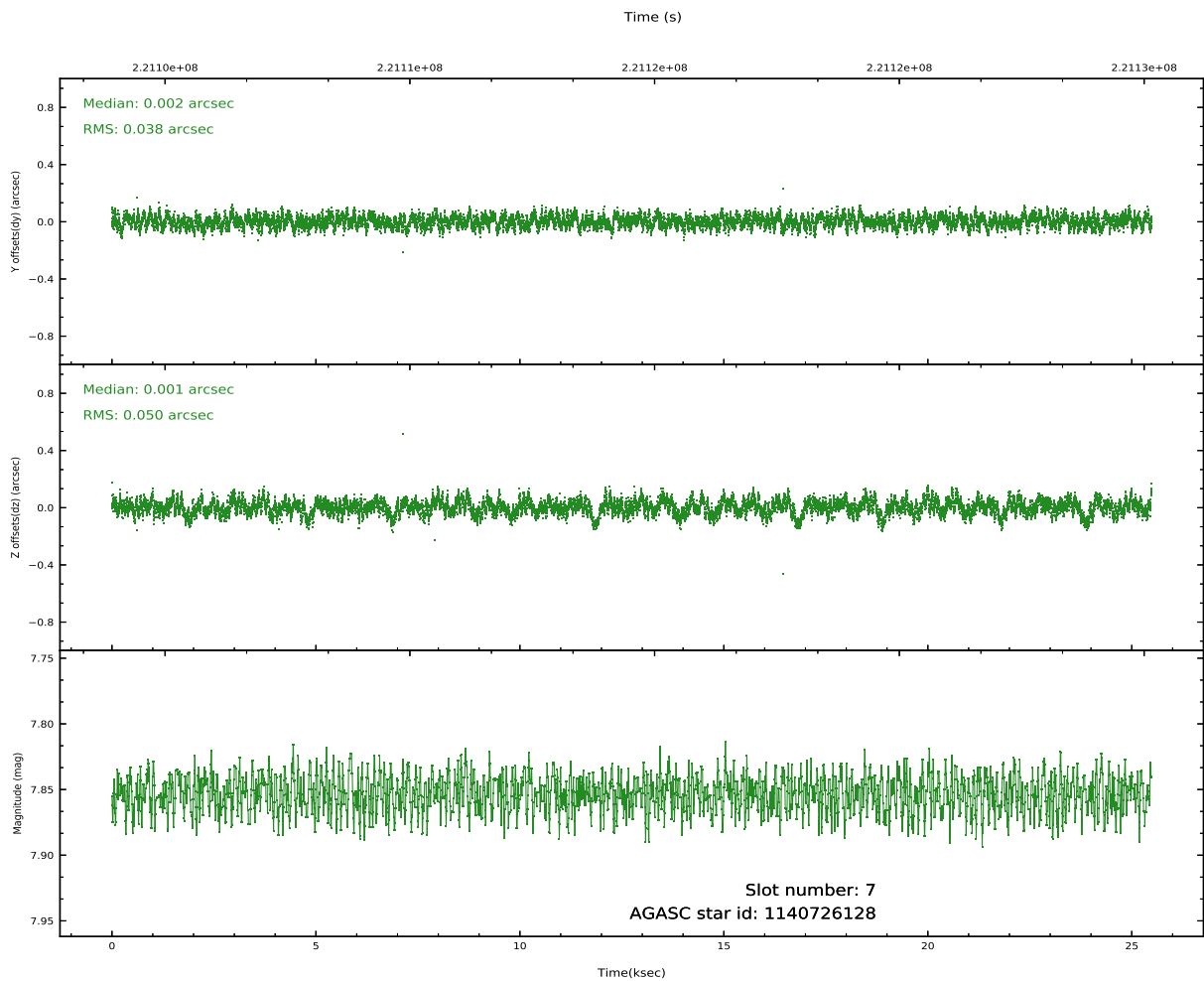
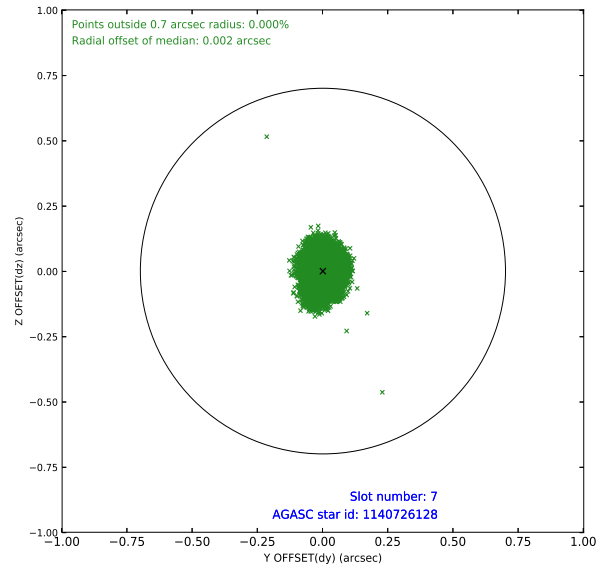
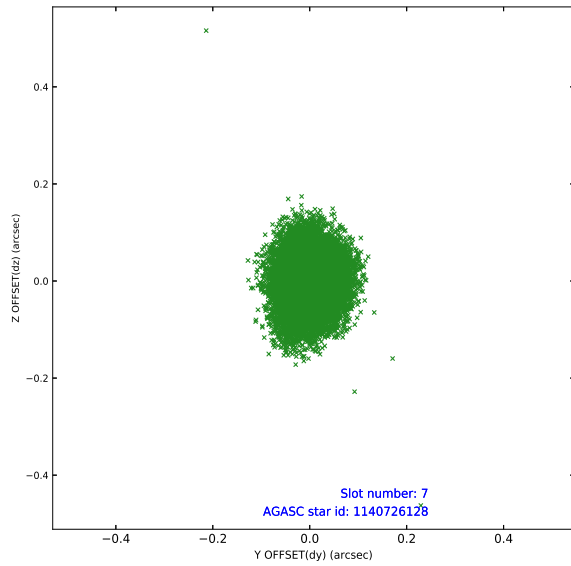
### 2.4.3 Slot 5



## 2.4.4 Slot 6

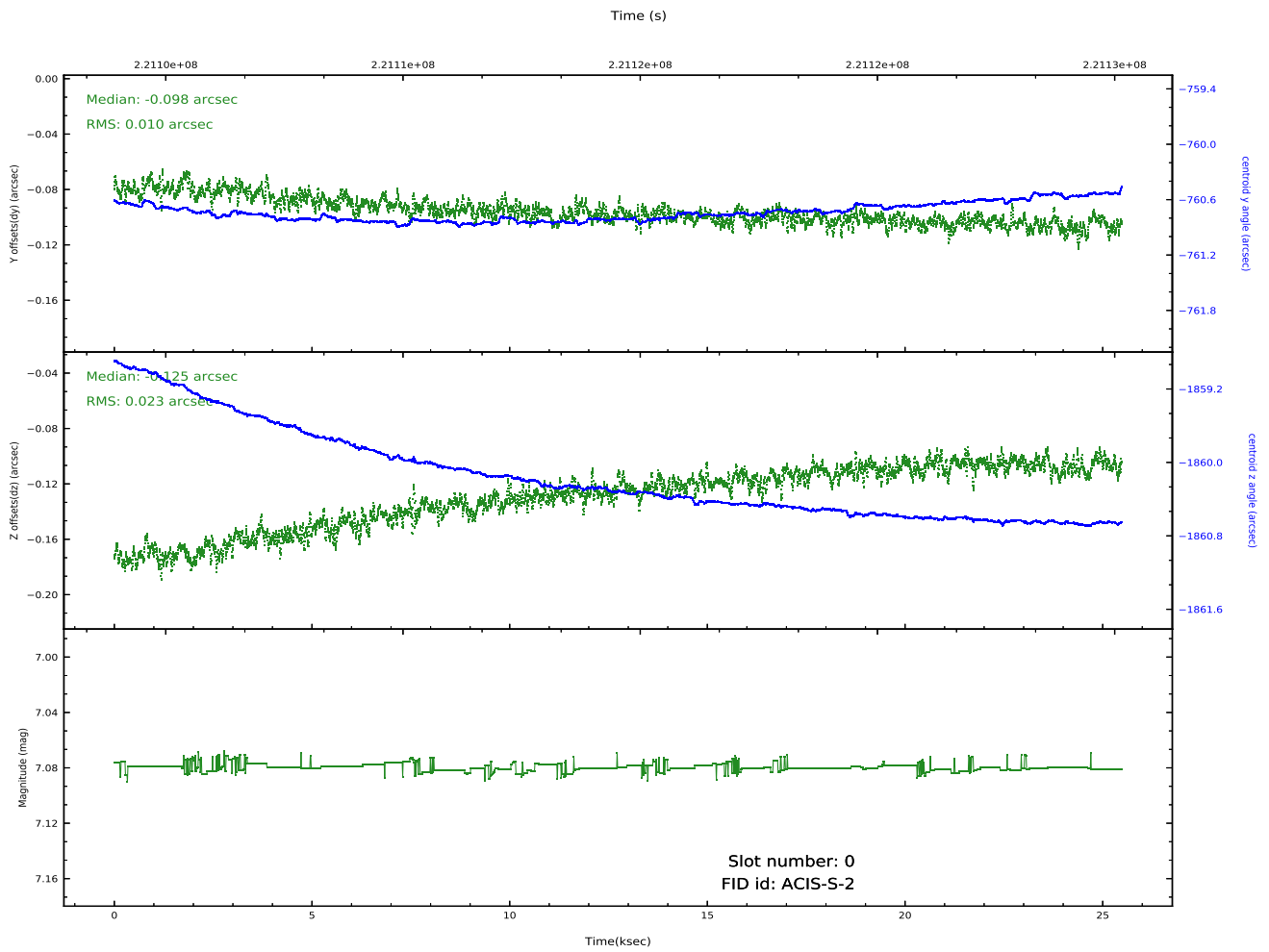
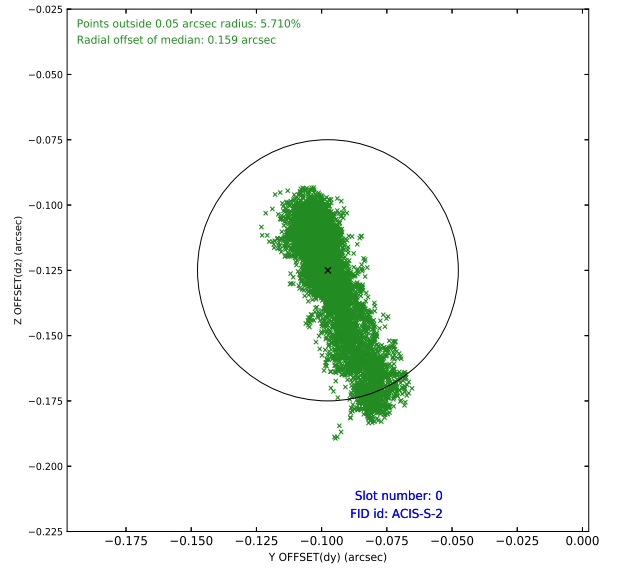
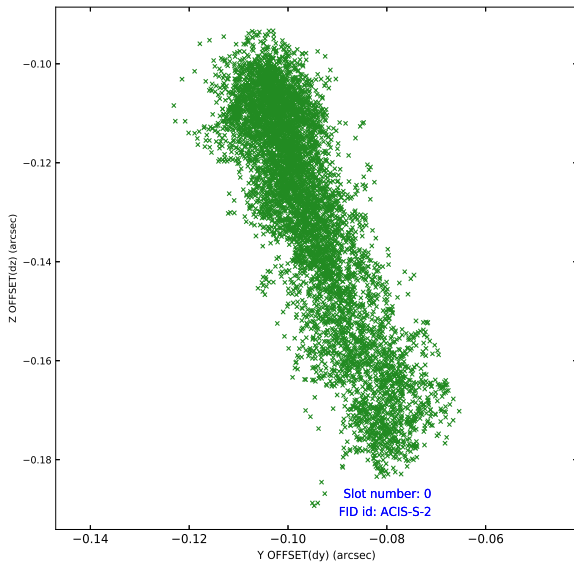


## 2.4.5 Slot 7

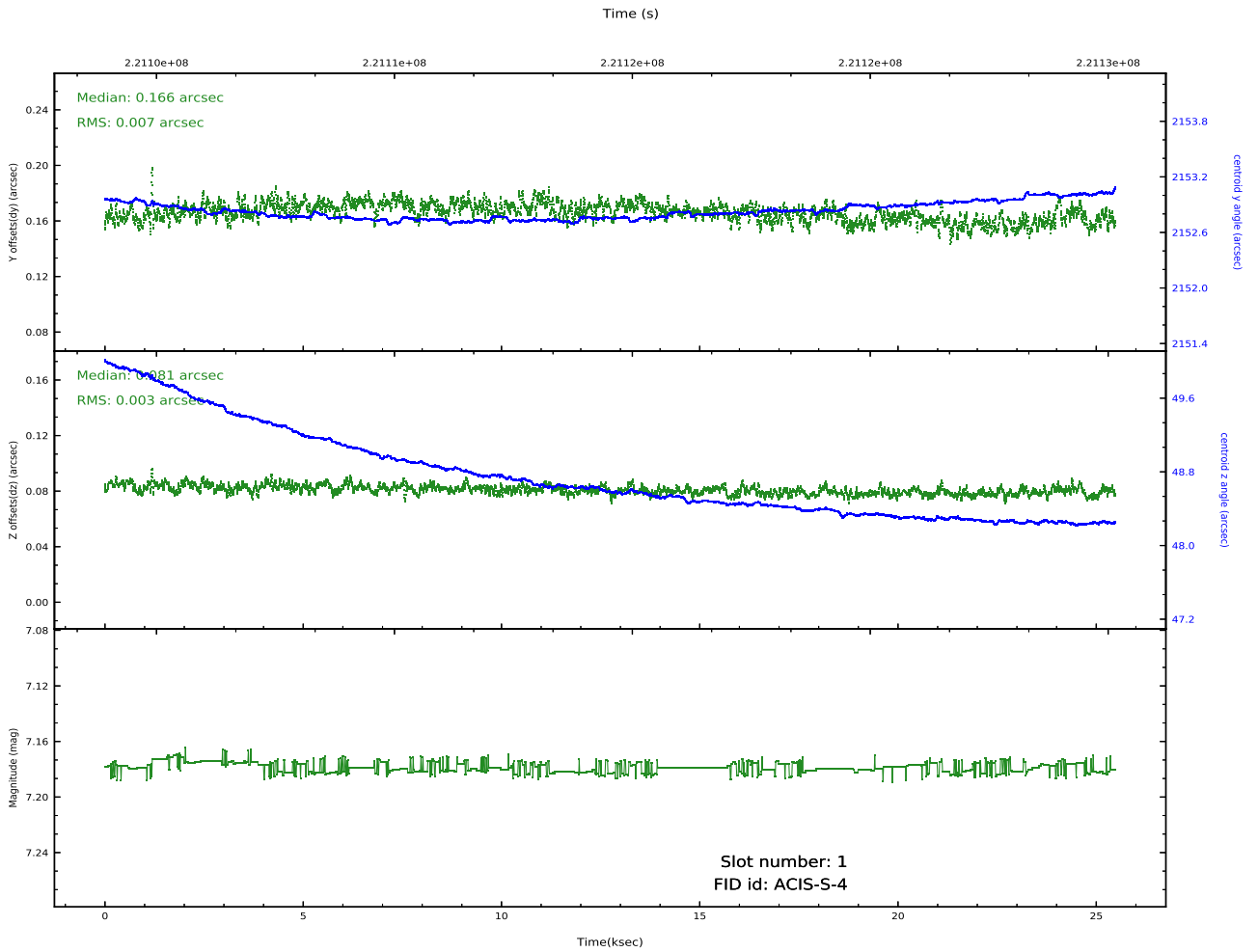
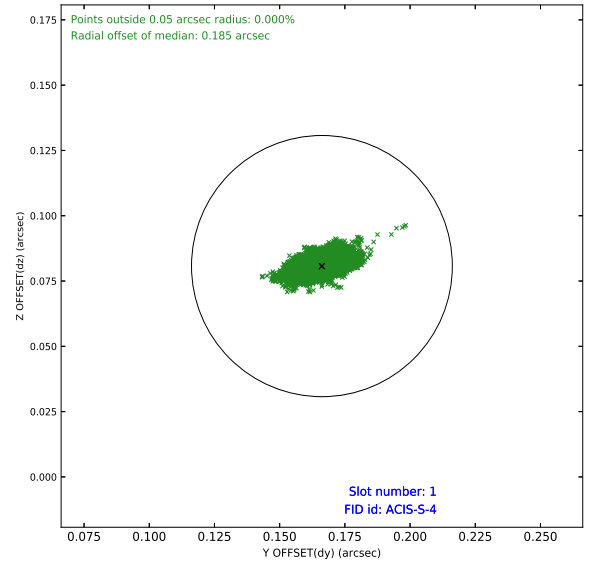
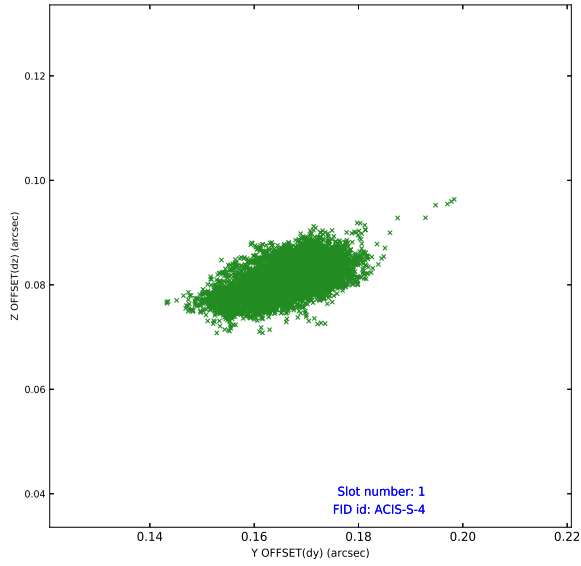


## 2.5 FID Slots

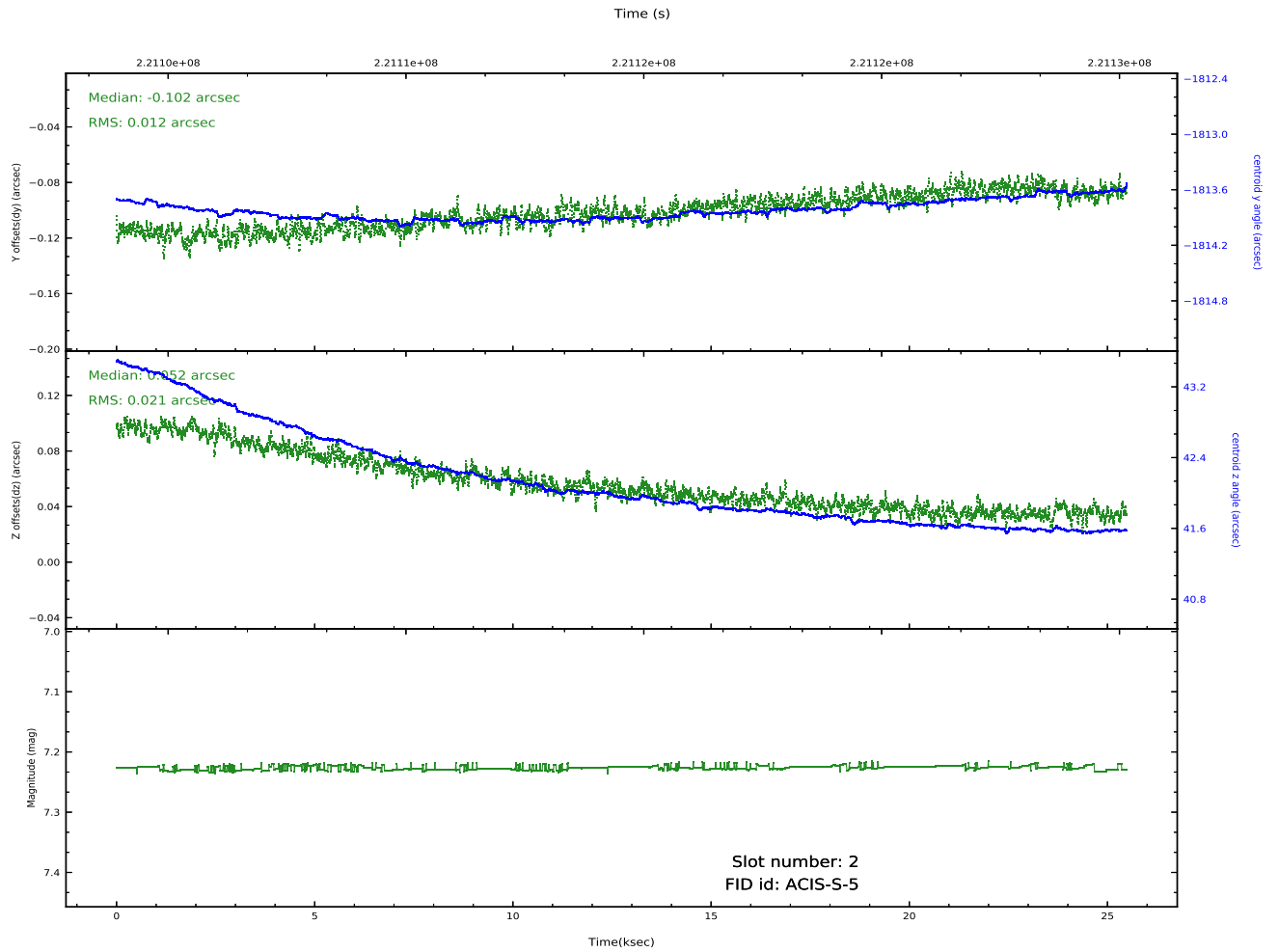
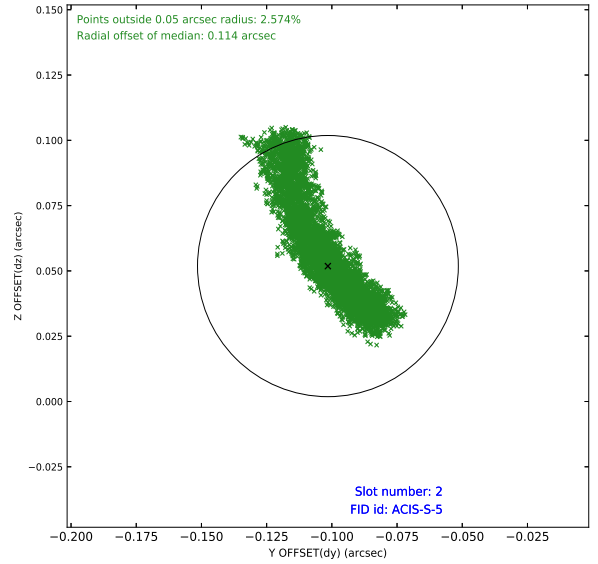
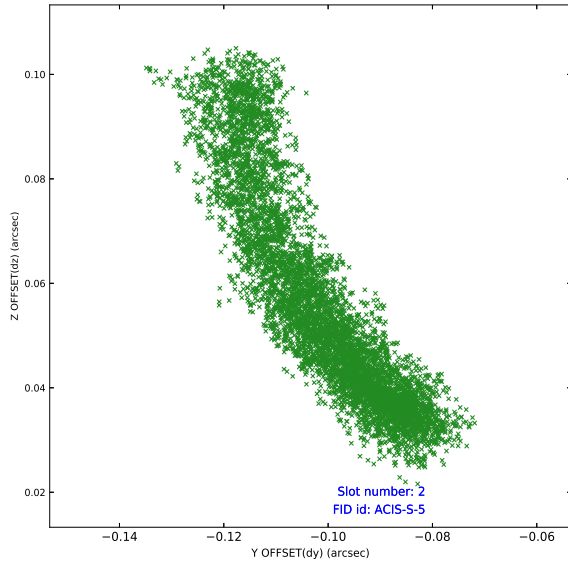
### 2.5.1 Slot 0



## 2.5.2 Slot 1

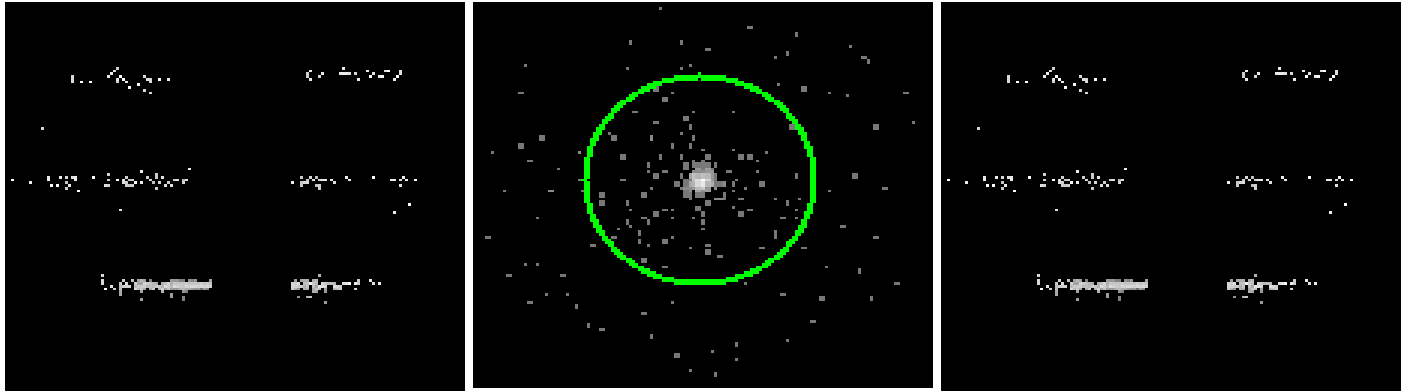


### 2.5.3 Slot 2



# 3 Gratings

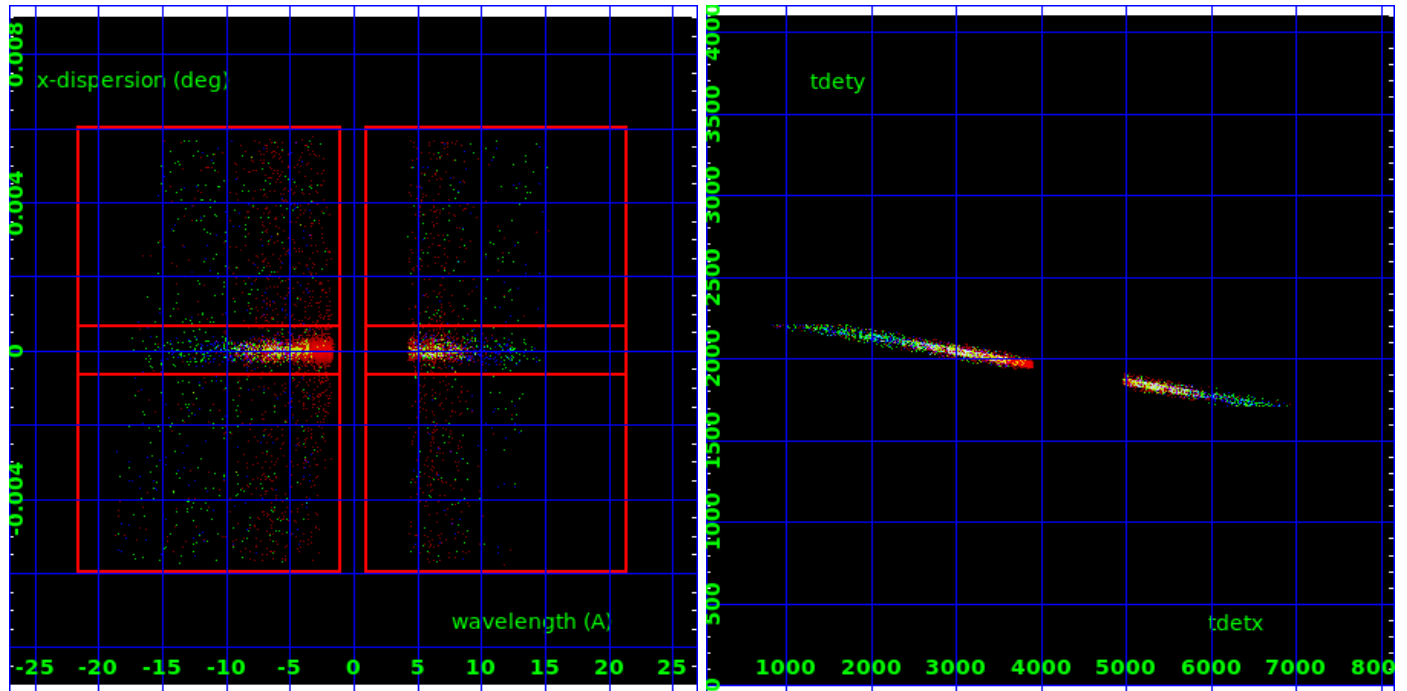
## 3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

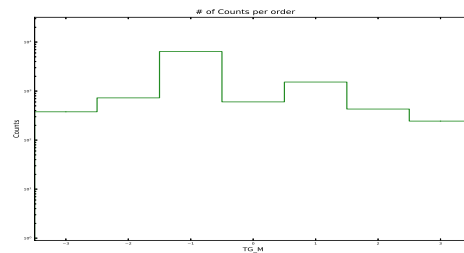
HEG Order Sort ALL

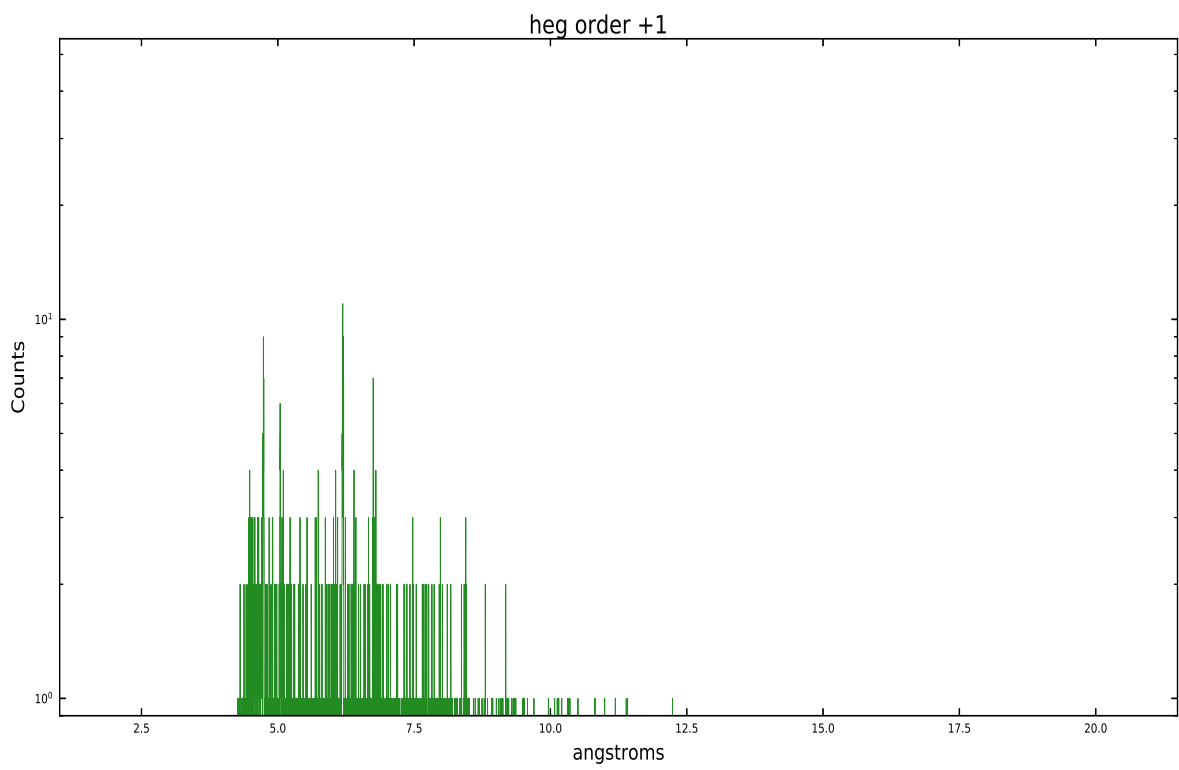
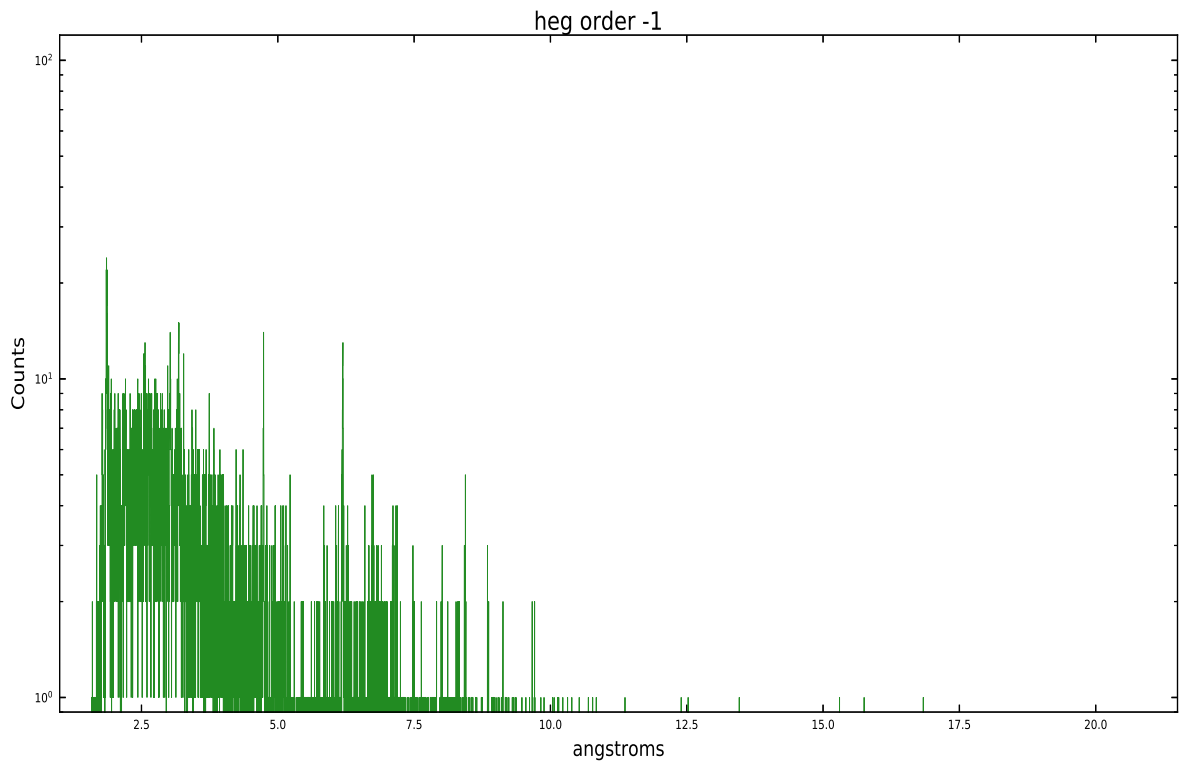


Spot Image HEG

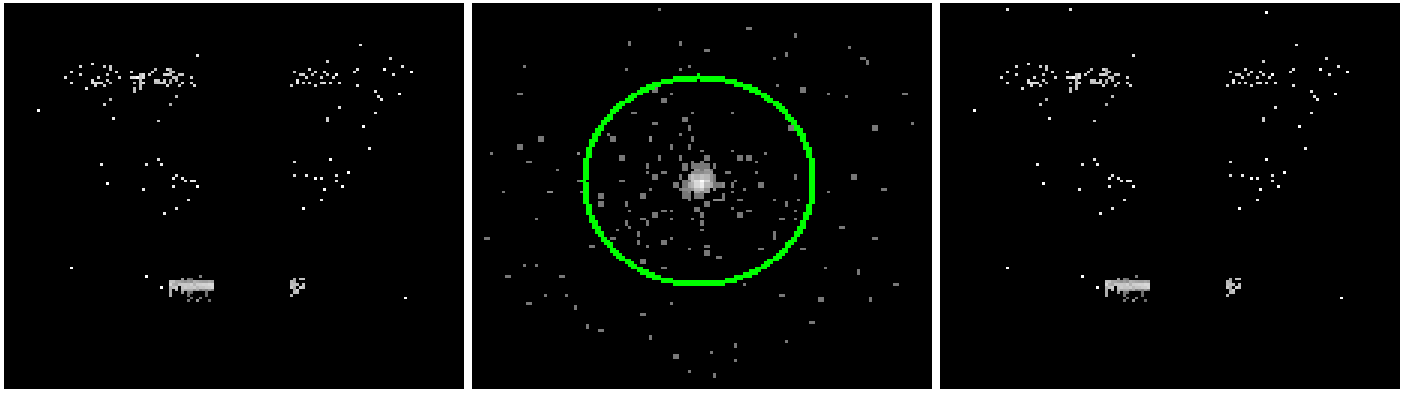
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	378	727	6400	602	1529	430	244





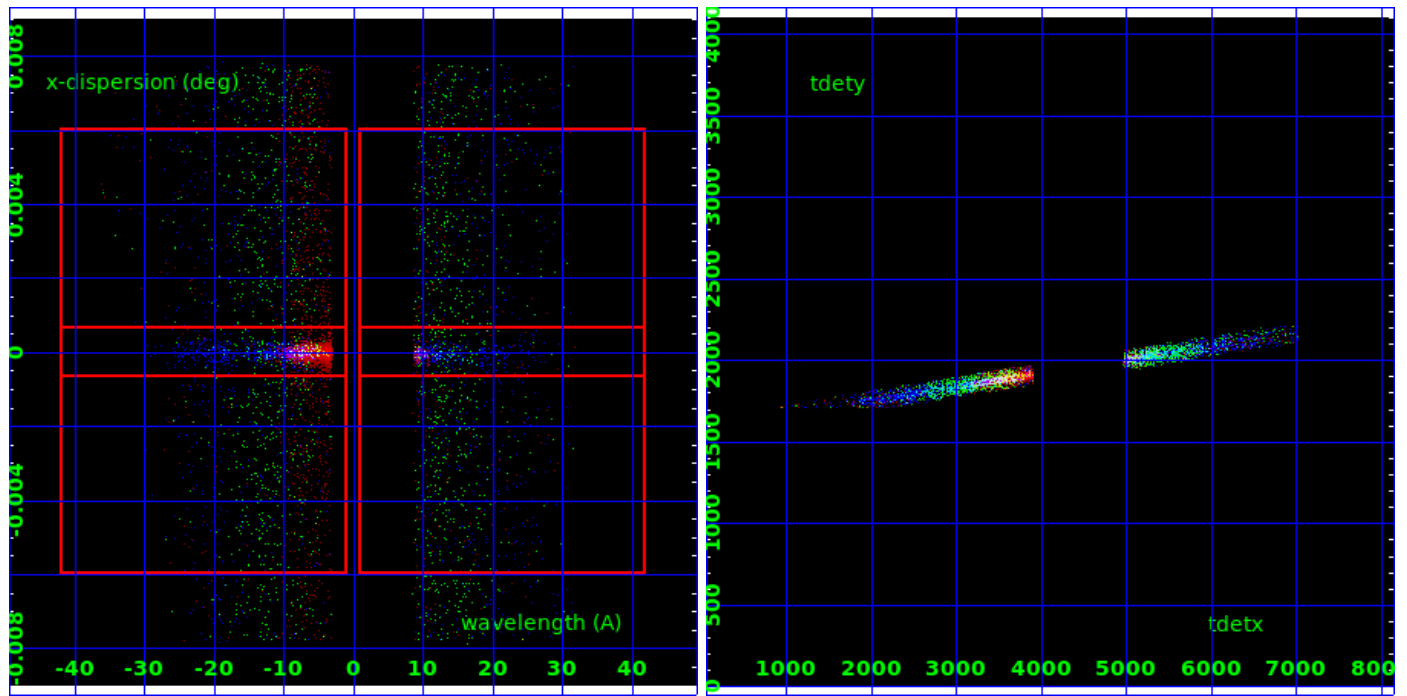
### 3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

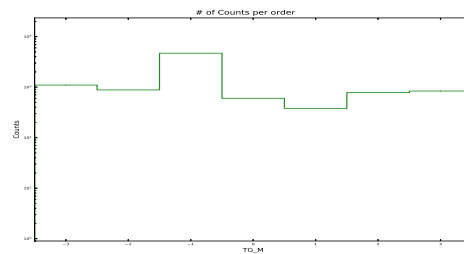
MEG Order Sort ALL

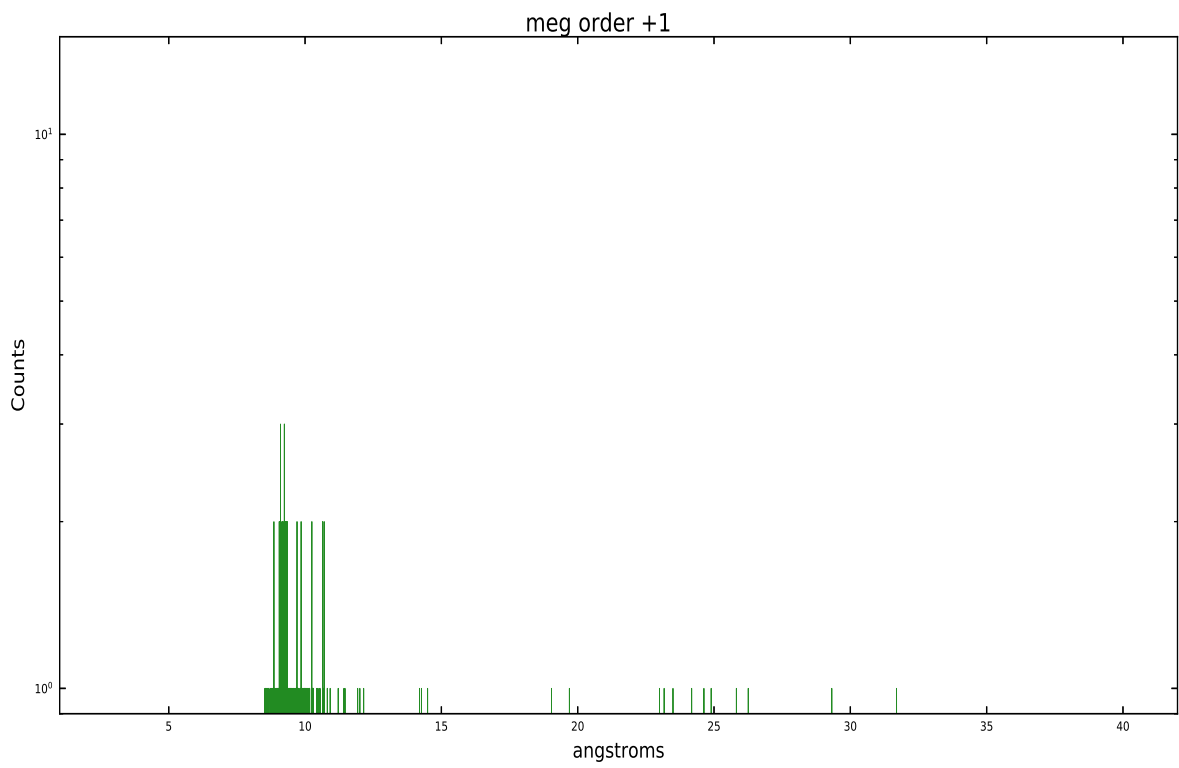
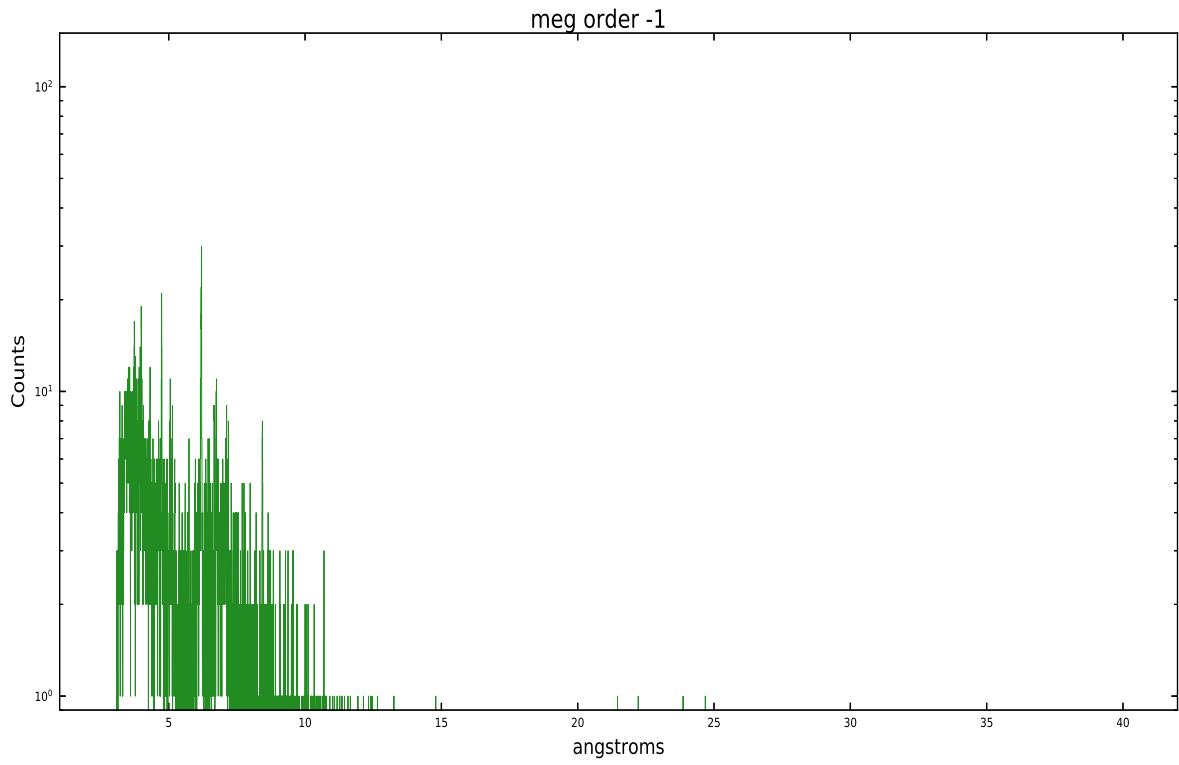


Spot Image MEG

Full Detector MEG

	order	order	order	order	order	order	order
	-3	-2	-1	0	1	2	3
Events	1099	880	4695	602	380	779	838





# A Summary

## A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2020.10.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	25.06819

## A.2 Comments

The observation was executed with an inclusion window around the zeroth-order image from columns 180 to 330, with a sample cycle of 15 (meaning that every 15th event is telemetered), and with a PH filter from 500 to 2500 PHAs. The columns on CCD chip S3 outside of the range 180 to 330 were not telemetered at all. This is not what the PI wanted. Dispersed spectral data that may be critical to the program have been lost. HEG minus order lost 0-1 A, HEG plus order lost 1-4A. MEG minus order lost 0-2 A, MEG plus order lost 0-8 A (all approximate).