

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 5555 - L2 Version 5  
Chandra X-Ray Center

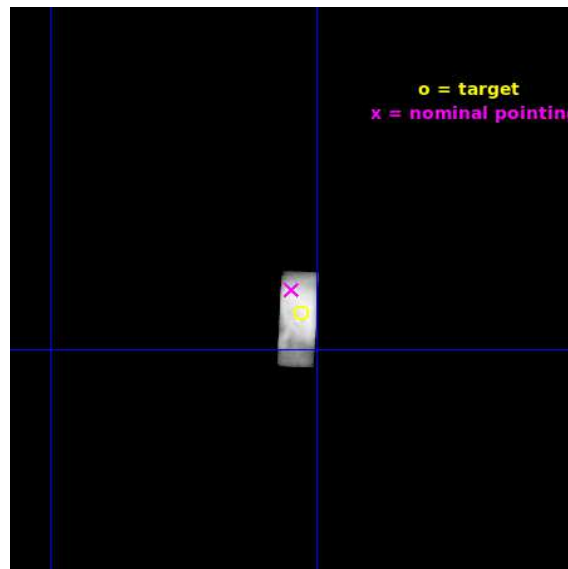
L2 Processing Date : Oct 10 2020

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# 1 Front

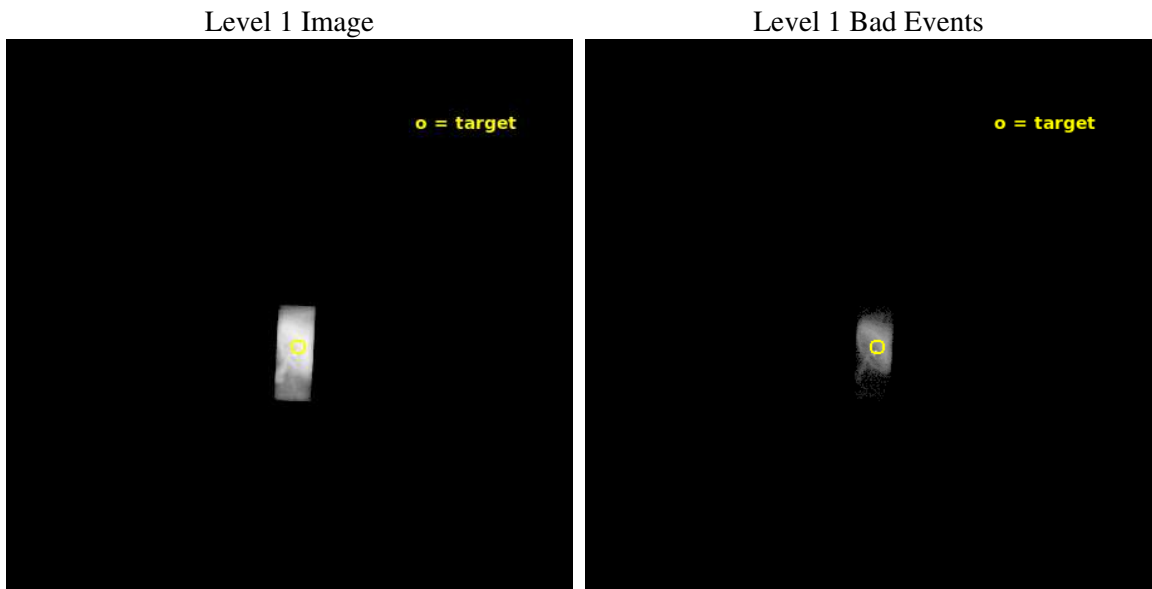
seq_num	500544	Sequence number
obs_id	5555	Observation id
title	Monitoring of the Relativistic Magnetohydrodynamic Shock in the Crab Nebula	Proposal title
observer	Dr Koji Mori	Principal investigator
object	Crab Nebula	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.632083	Observer's specified target RA [deg]
dec_targ	22.016472	Observer's specified target Dec [deg]
ra_nom	83.636528493737	Nominal RA [deg]
dec_nom	22.027108679443	Nominal Dec [deg]
roll_nom	92.725784437472	Nominal Roll [deg]
revision	5	Processing version of data
ontime	9150.6003636122	Sum of GTIs [s]
livetime	8049.4373360417	Livetime [s]
ontime7	9150.6003636122	Sum of GTIs [s]
l2events	2236779	Number of level 2 events



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	1	Obi number	sched_exp_time	9000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	9150.6003636122	Sum of GTIs [s]
caldbver	4.9.2	&#160	ontime7	9150.6003636122	Sum of GTIs [s]
date	2020-10-10T09:15:49	Date and time of file creation	l1events	2386572	Number of level 1 events
revision	5	Processing version of data	tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4129.22, 4025.53)	src1a sky pixel position
			zo_pos_tgd	(4113.40, 3997.62)	src1a sky pixel position via tgdetect

### 2.1.3 Events

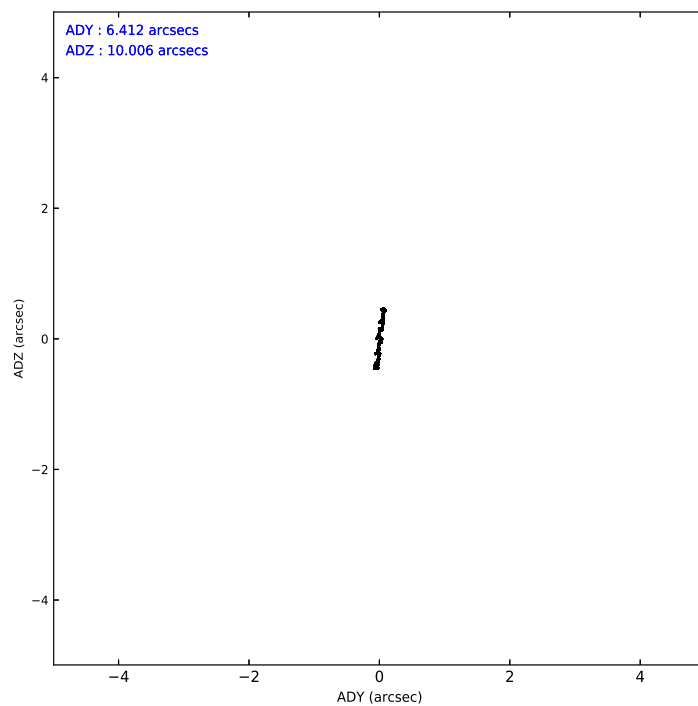
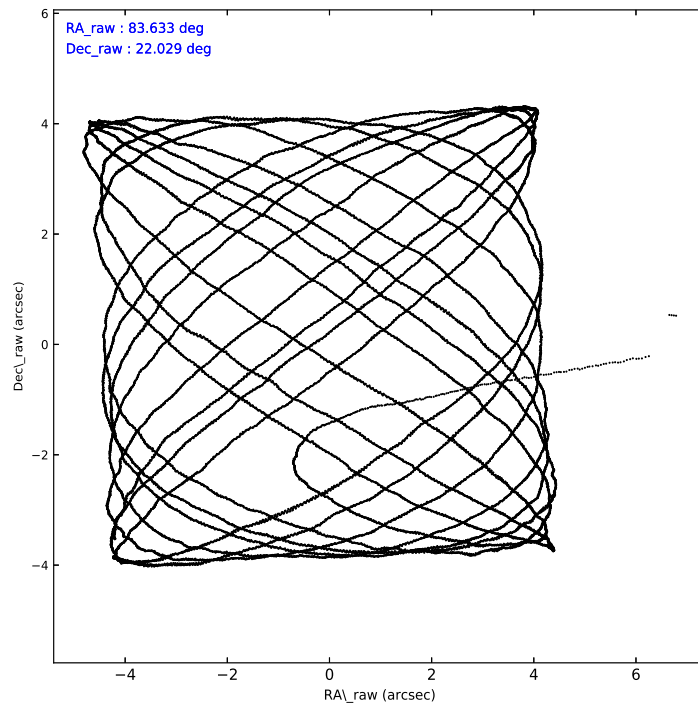
	<b>ccd 7</b>
level 1 events	2386572
rejected events	114792
rejected %	4%

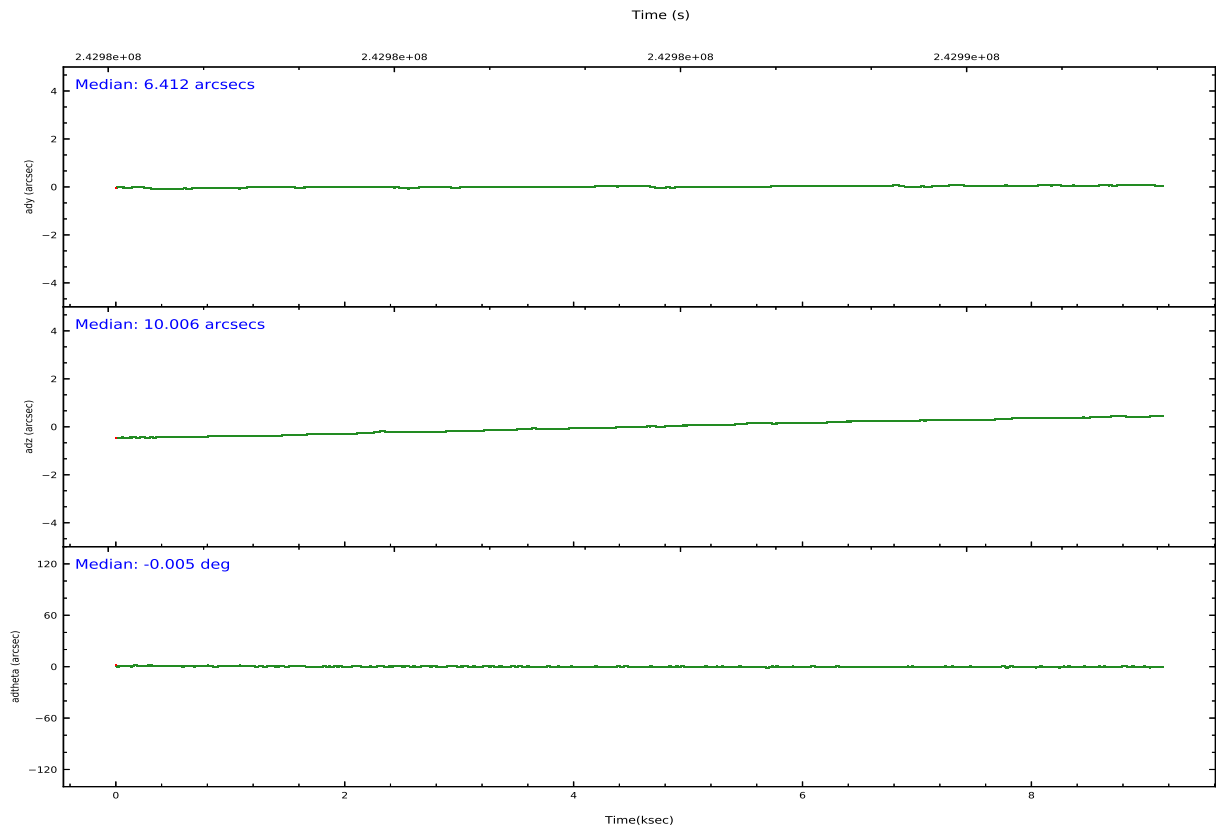
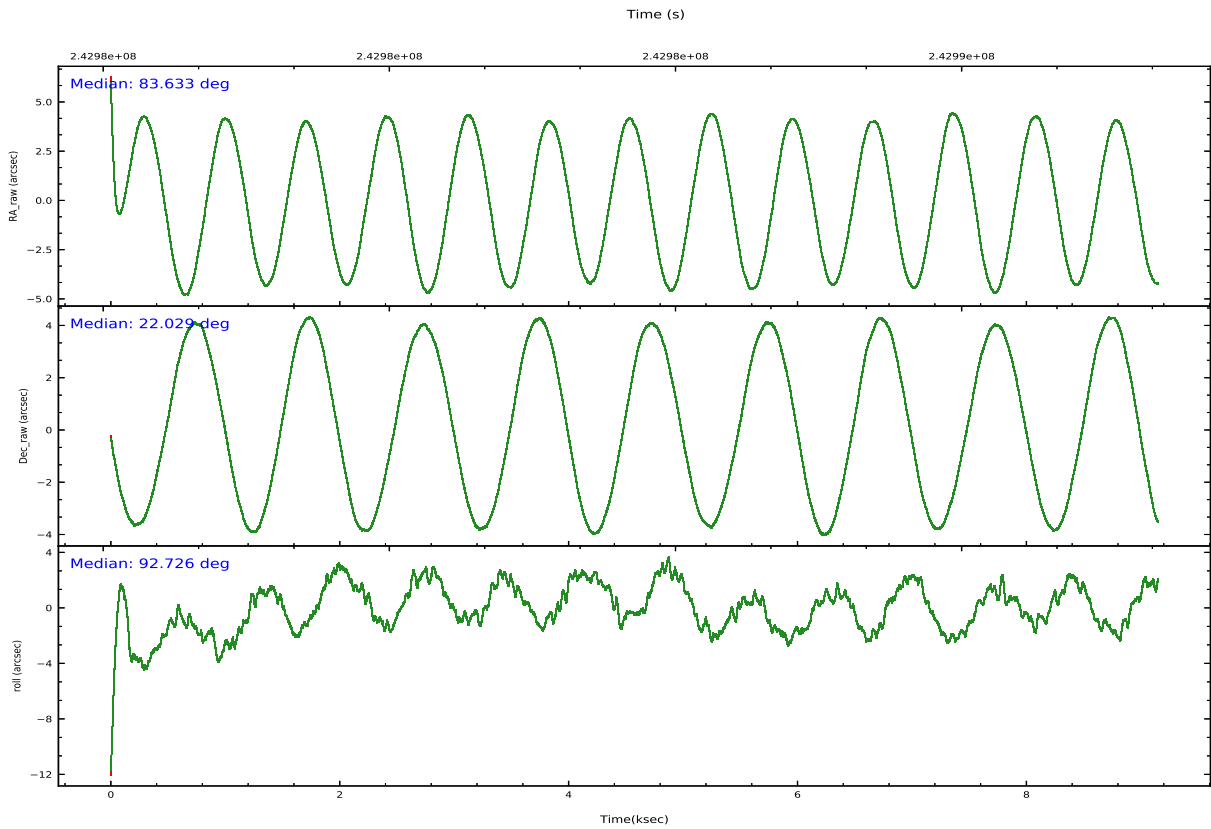
	<b>ccd 7</b>
grade 0 events	463329
	19%
grade 1 events	8569
	0%
grade 2 events	585563
	24%
grade 3 events	261319
	10%
grade 4 events	251272
	10%
grade 5 events	35928
	1%
grade 6 events	738247
	30%
grade 7 events	42345
	1%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-7	ACIS-7	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	83.649500	83.636528493737	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	22.006182	22.027108679443	Subarray start row	127	127
[deg] Pointing Roll	92.562239	92.725784437472	Subarray row count	101	101
[s] Window start time (MET)	242265664.184000	242265664.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	242870464.184000	242870464.184000	[s] Primary exposure time	0.000000	0.3
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-182.132523	-182.1344861297048			
[mm] SIM translation stage offset	-8	-7.998036453302973			
[s] Observation start time (MET)	242980217.184000	242979224.87851			
Observation start date	2005-09-13T06:29:13	2005-09-13T06:13:44			
[s] Observation end time (MET)	242989217.184000	242990221.59151			
Observation end date	2005-09-13T08:59:13	2005-09-13T09:17:01			
Read mode	TIMED	TIMED			

## 2.3 Aspect





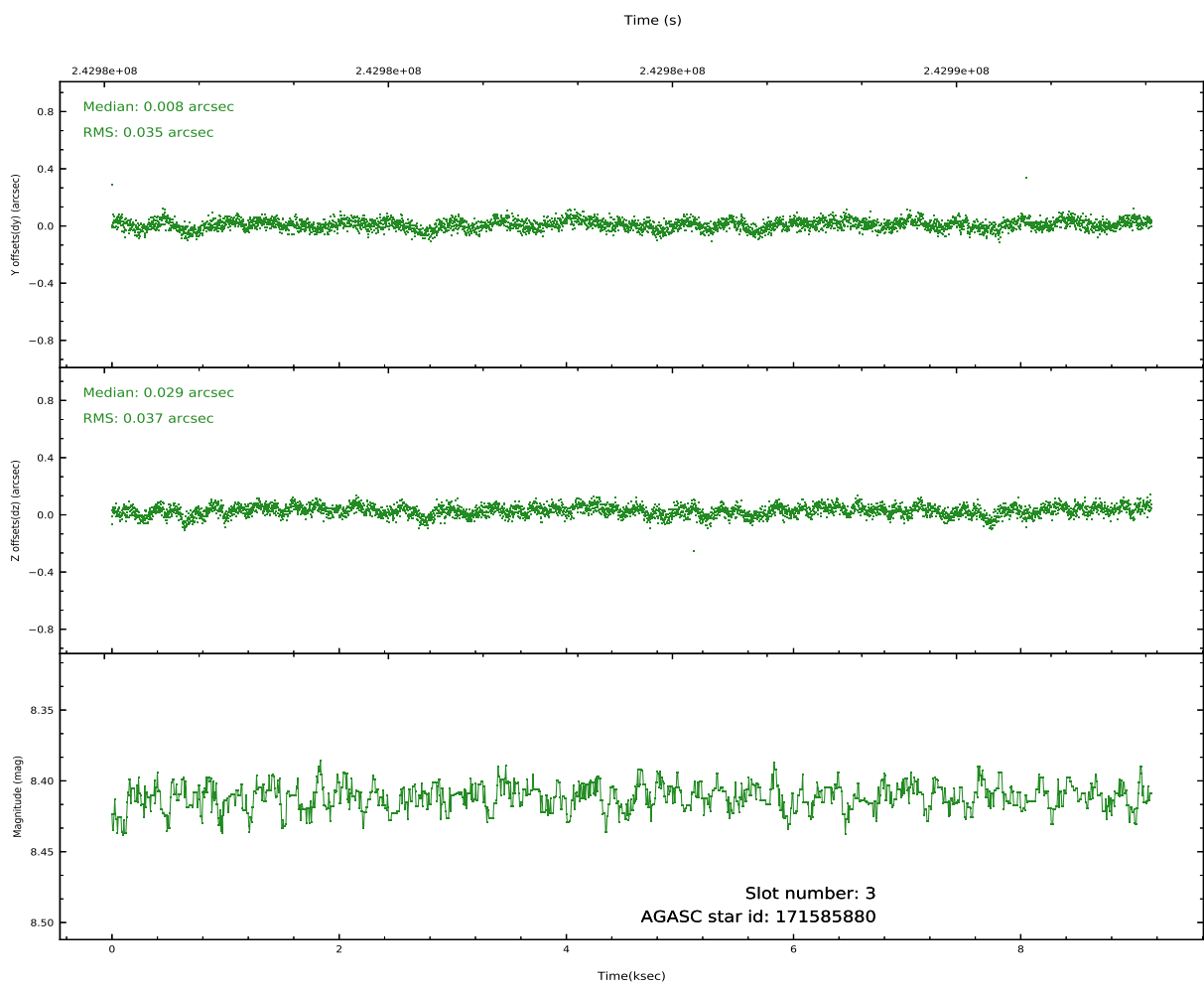
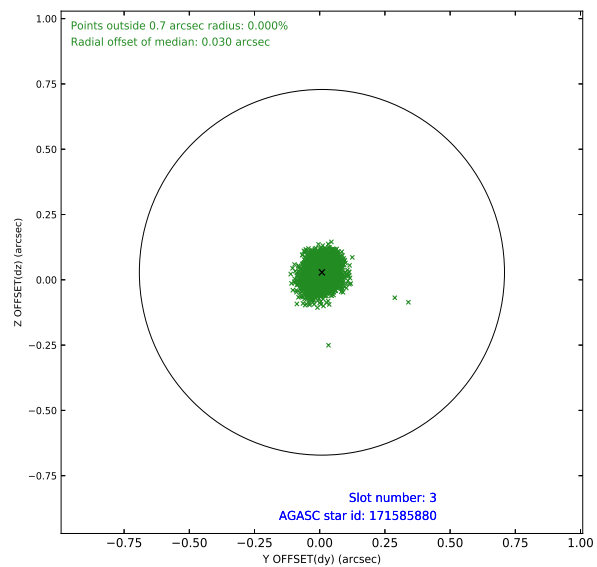
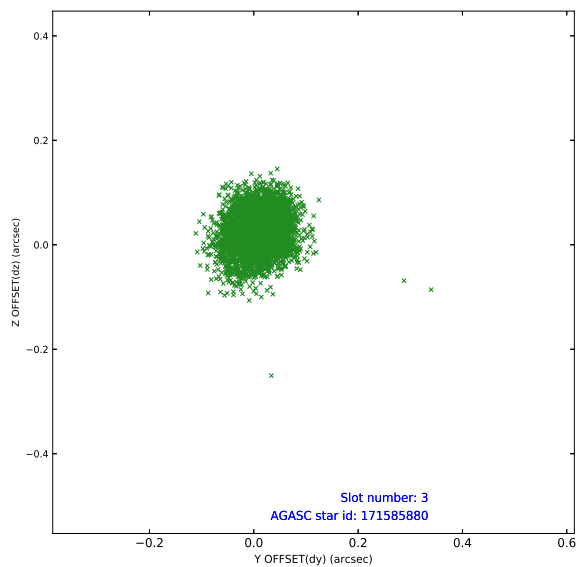
### Slot Statistics

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	7.09	2233	1.000	-0.120	-0.138	0.007	0.013	0.000000	0.000000	-758.67	-1896
1	FID		ACIS-S-4	7.18	2233	1.000	0.215	0.095	0.007	0.011	0.000000	0.000000	2154.64	11
2	FID		ACIS-S-5	7.22	2233	1.000	-0.127	0.052	0.008	0.013	0.000000	0.000000	-1810.78	6
3	GUIDE	used	171585880	8.41	4462	1.000	0.008	0.029	0.054	0.088	83.676260	22.176319	608.23	-116
4	GUIDE	used	171586032	8.93	4464	1.000	0.008	0.041	0.063	0.101	83.950197	22.083225	233.75	-1014
5	GUIDE	used	171597832	9.16	4462	1.000	0.273	-0.231	0.078	0.128	83.183230	21.366702	-2227.09	1664
6	GUIDE	used	171721904	9.19	4464	1.000	-0.097	0.084	0.079	0.130	84.272676	22.116922	309.54	-2093
7	GUIDE	used	243941560	8.29	4463	1.000	-0.190	0.081	0.064	0.103	83.733264	22.568598	2010.49	-368

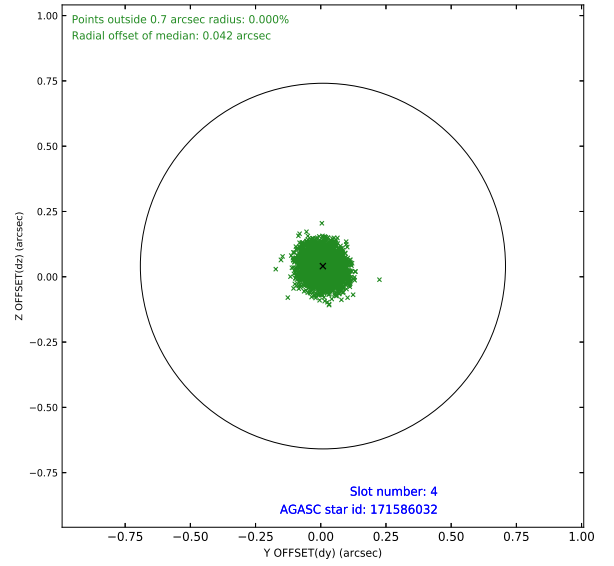
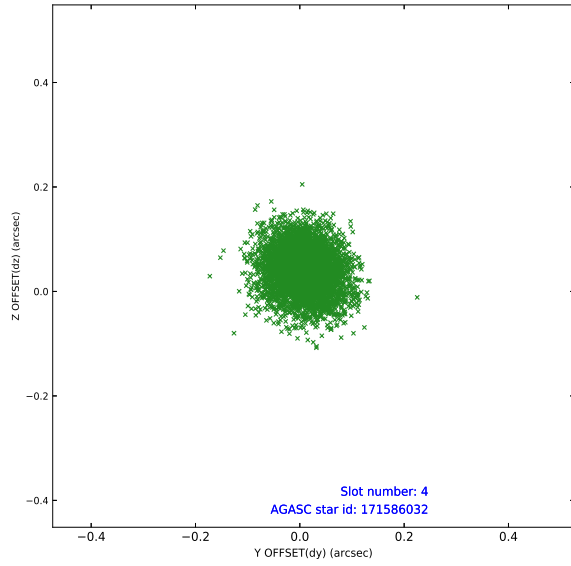
∞

## 2.4 Star Slots

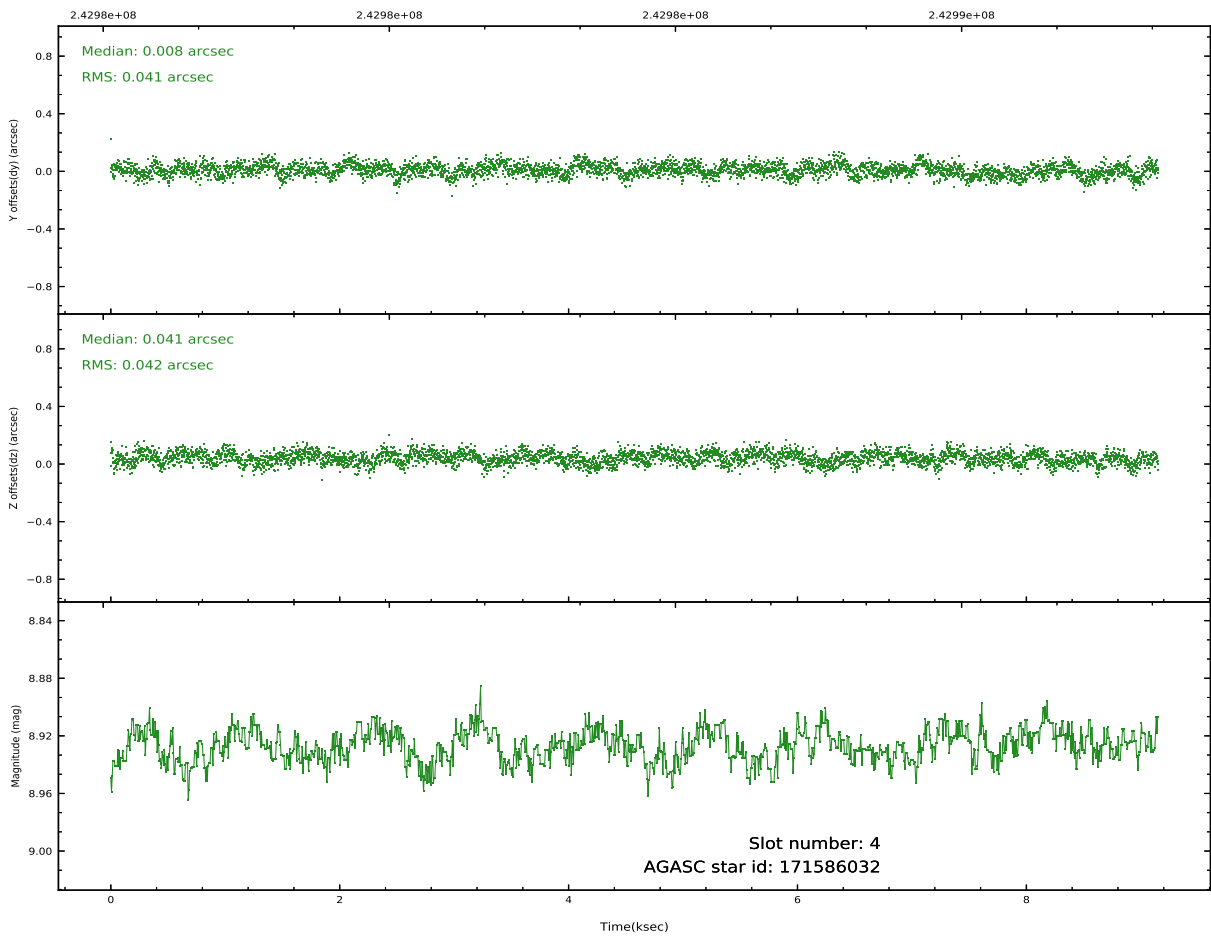
### 2.4.1 Slot 3



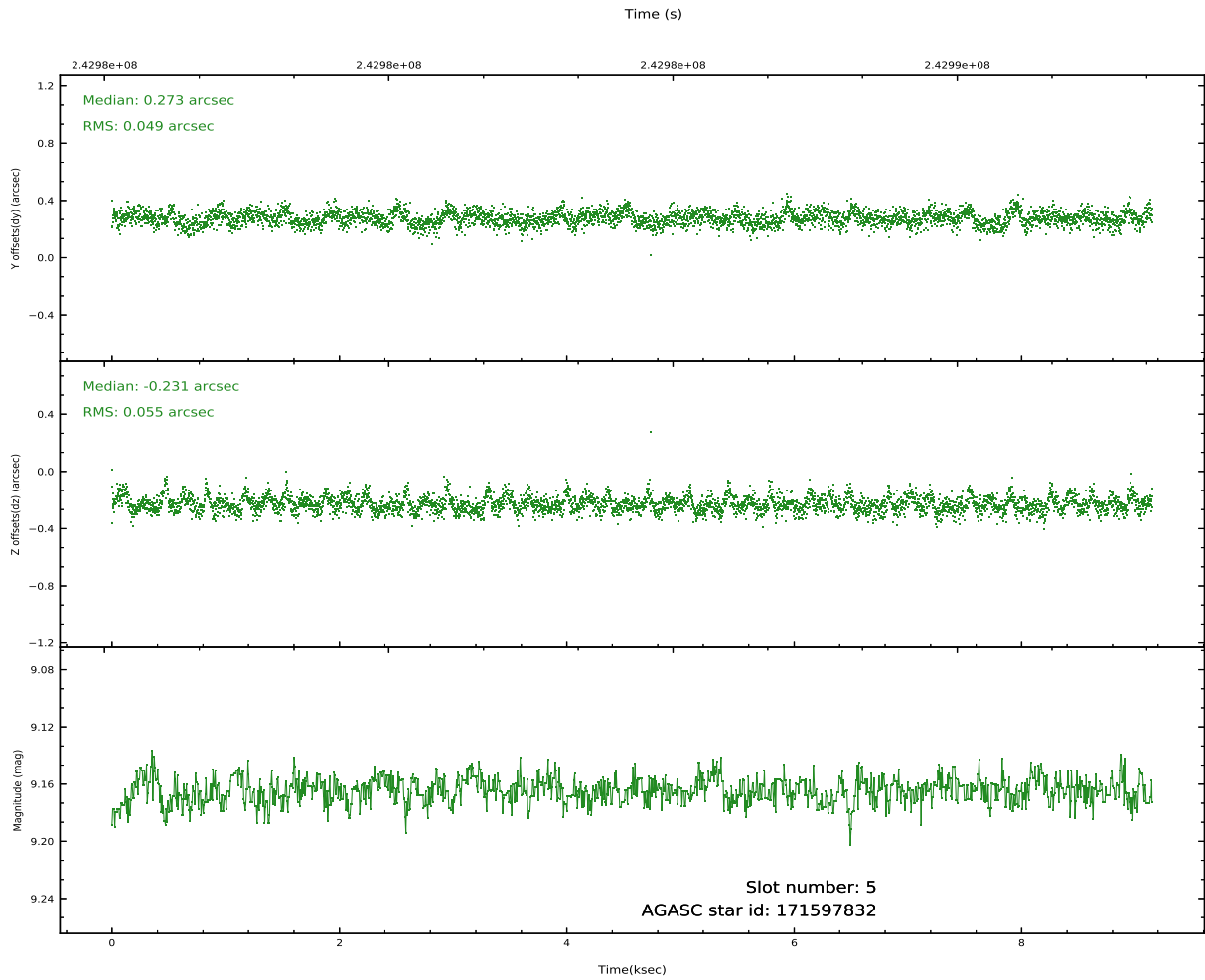
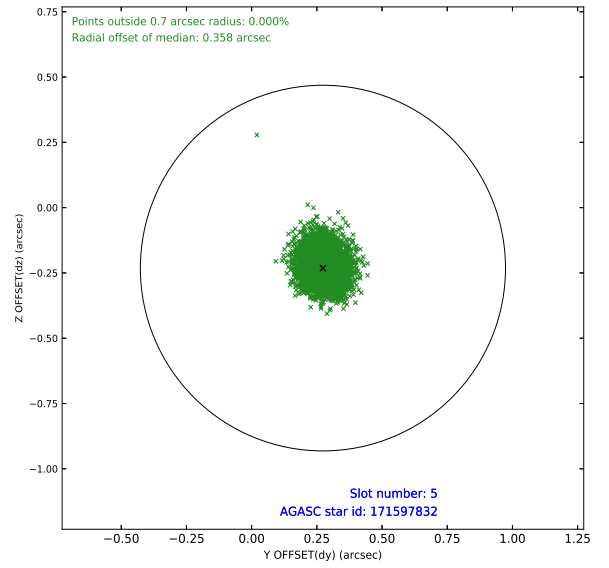
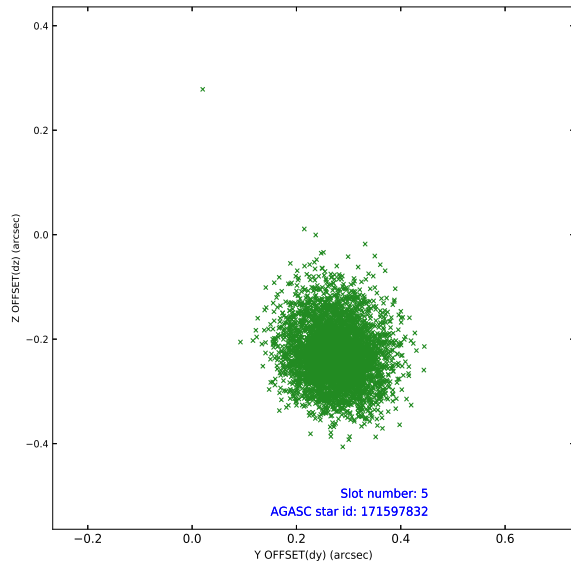
## 2.4.2 Slot 4



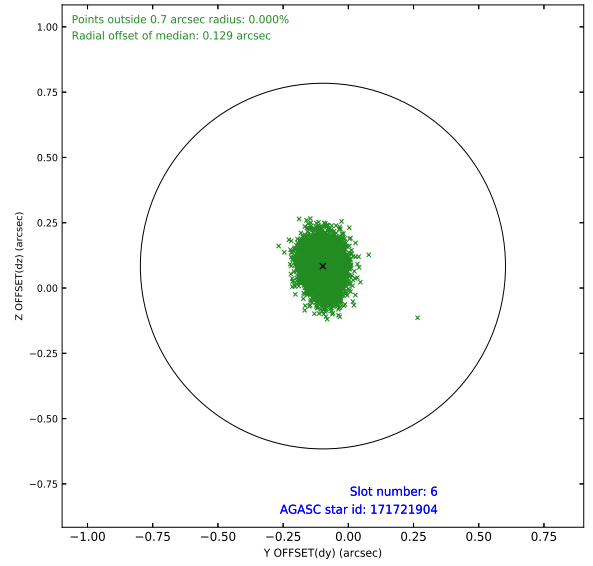
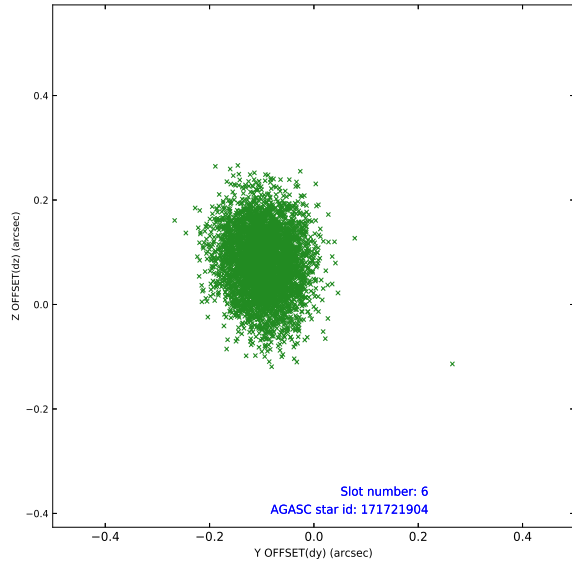
Time (s)



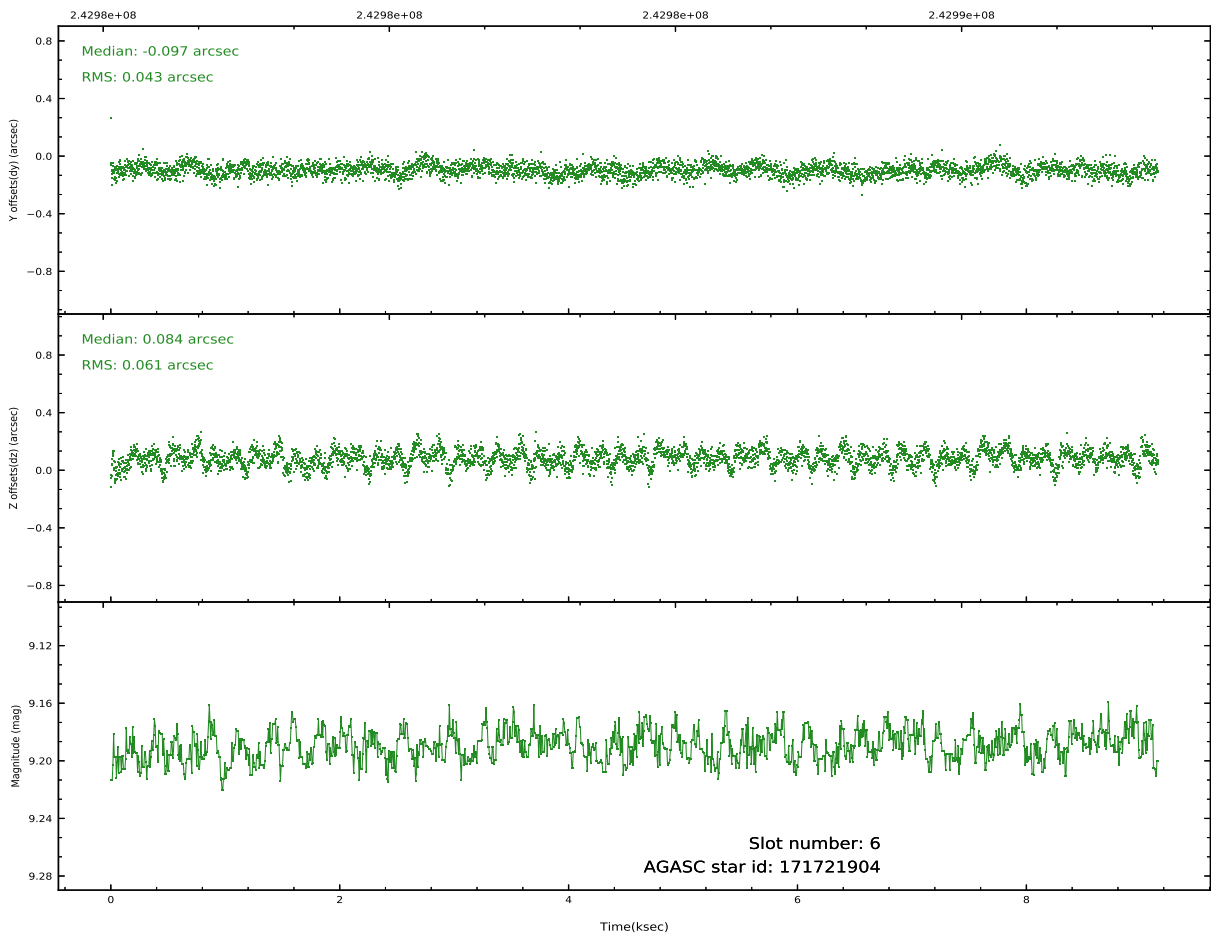
### 2.4.3 Slot 5



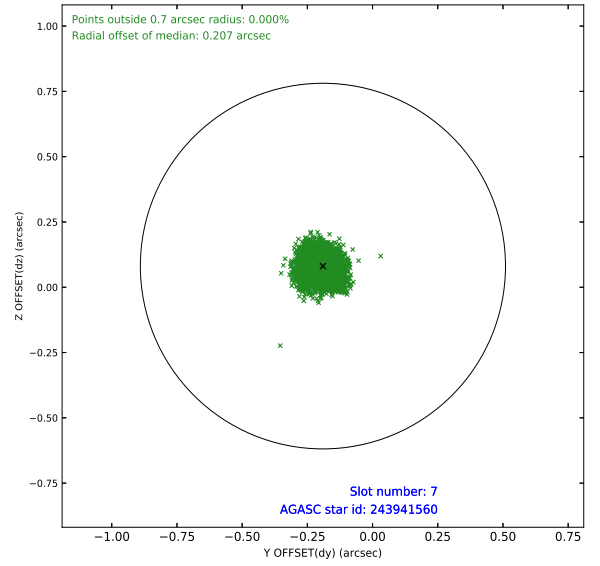
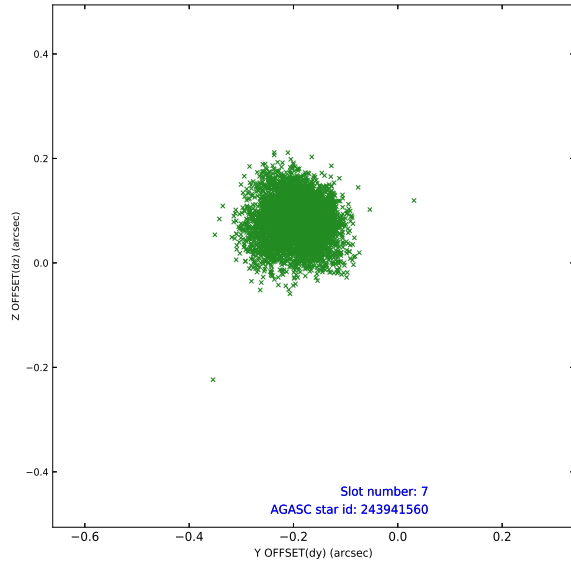
## 2.4.4 Slot 6



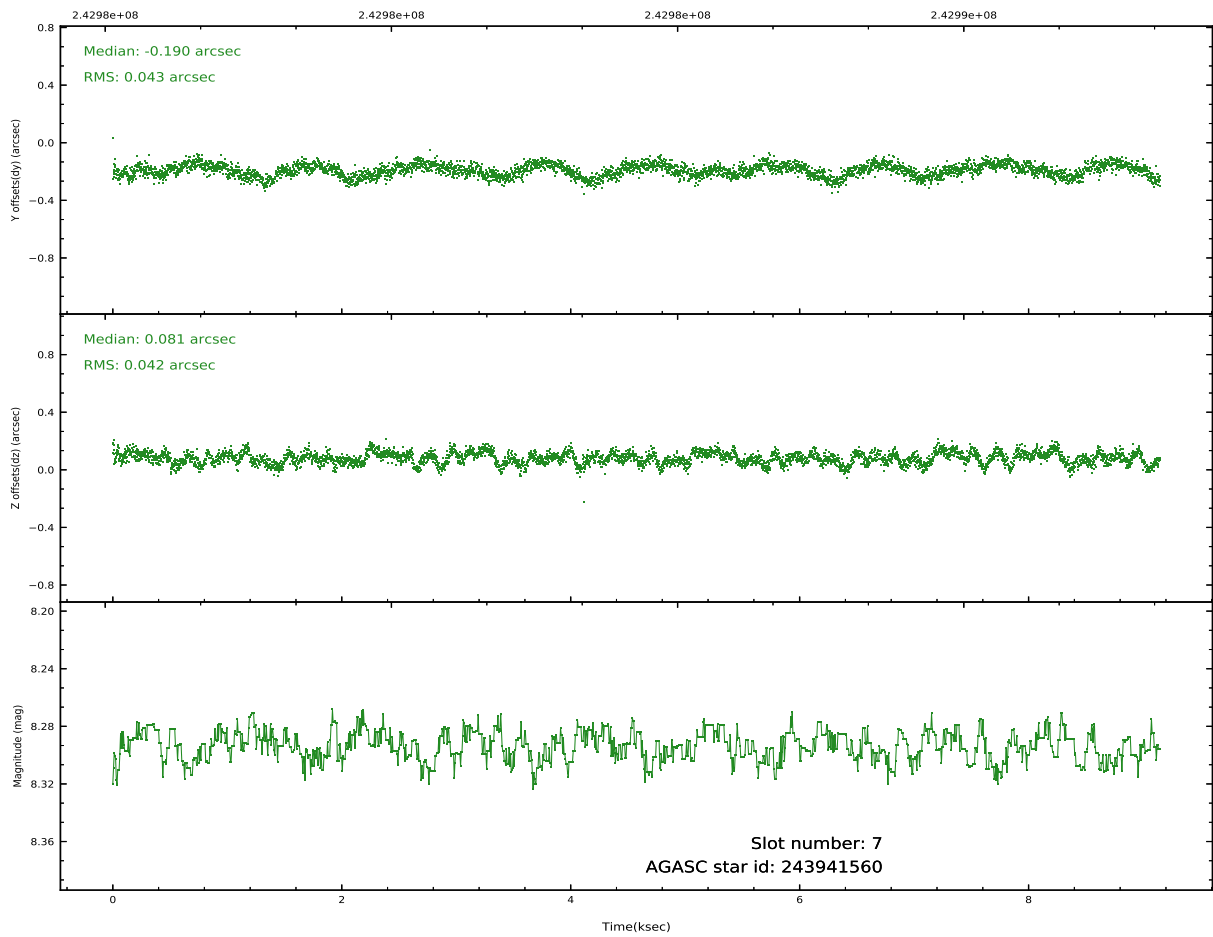
Time (s)



## 2.4.5 Slot 7

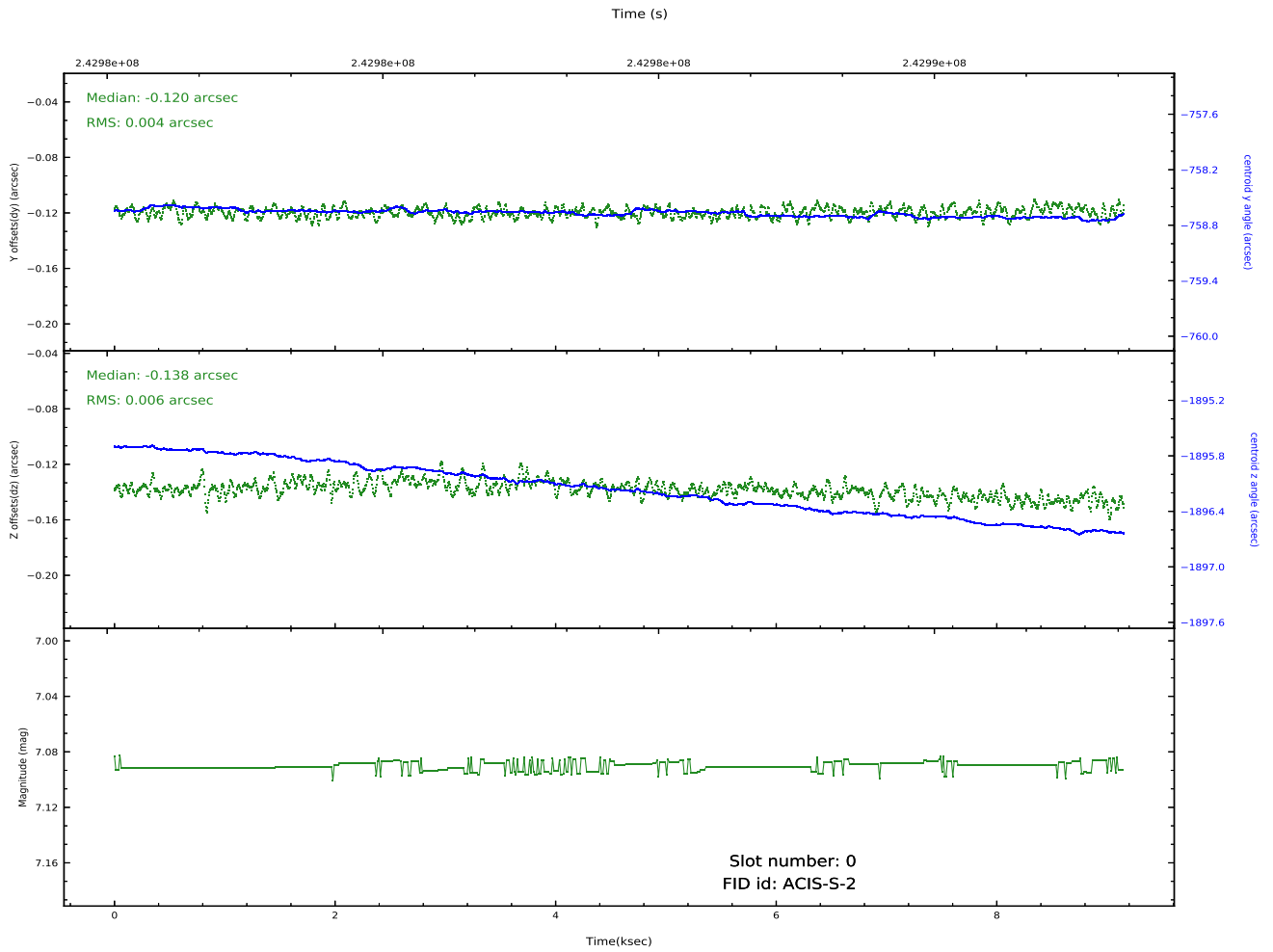
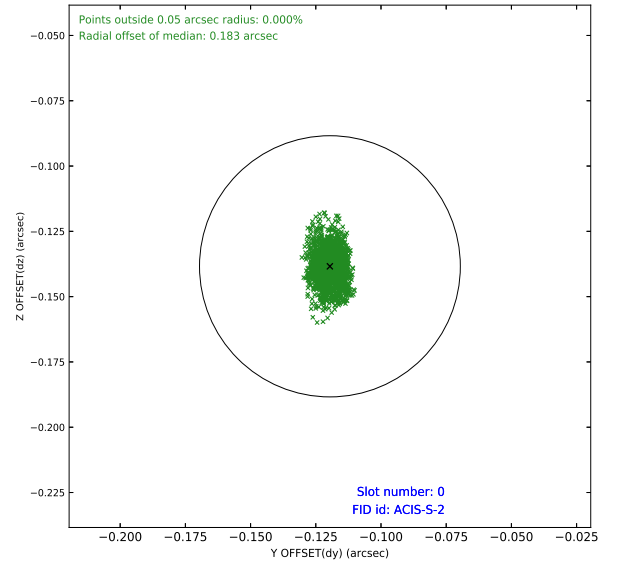
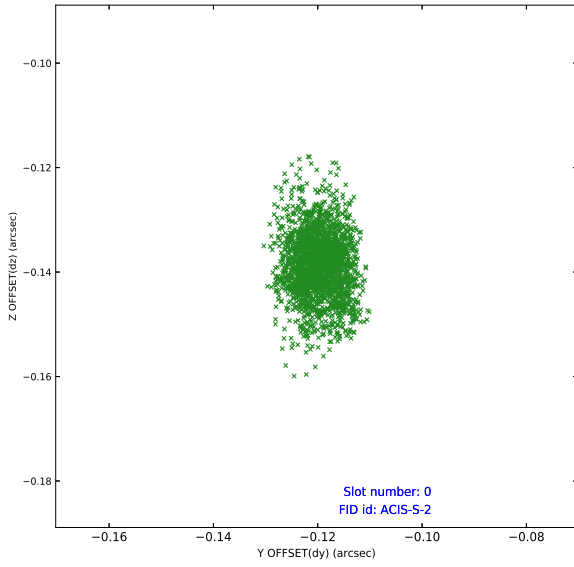


Time (s)

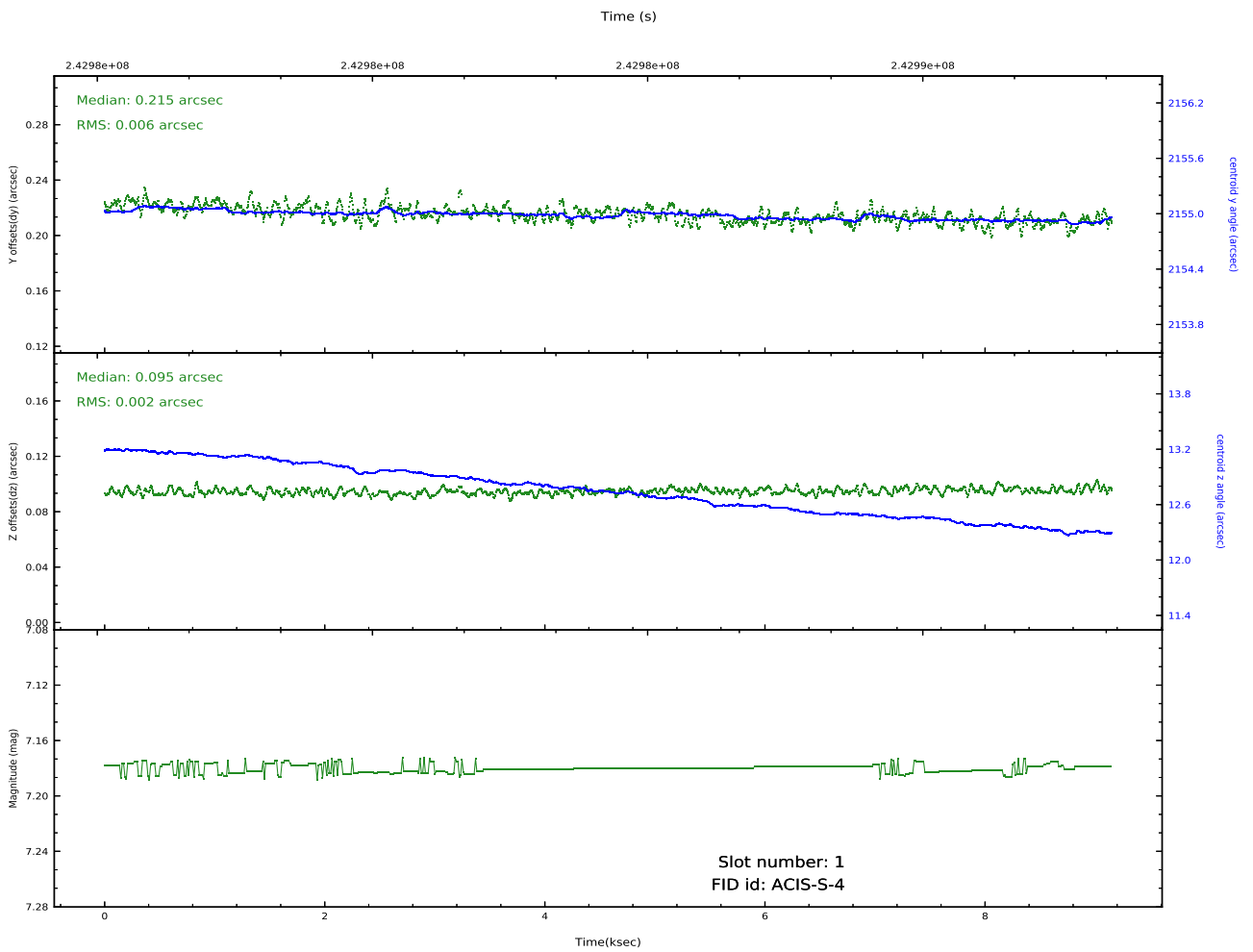
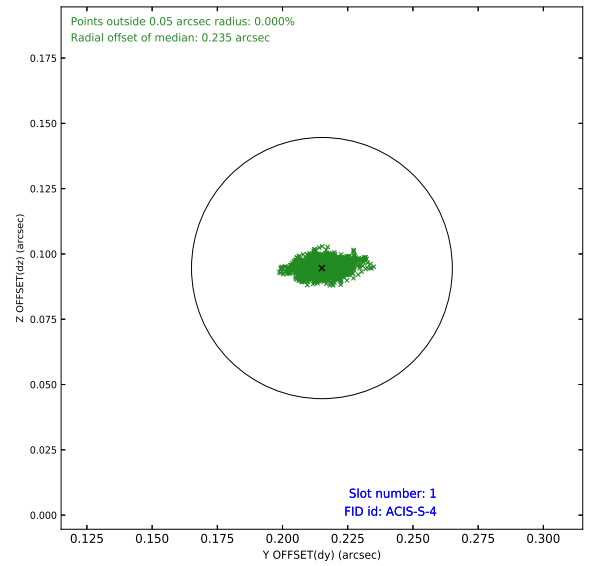
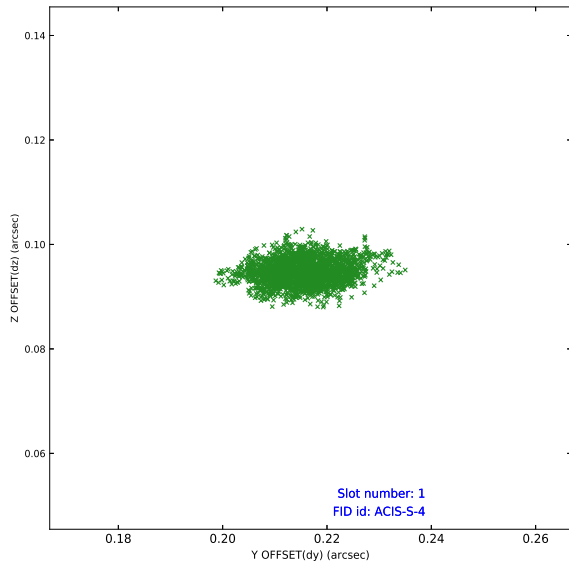


## 2.5 FID Slots

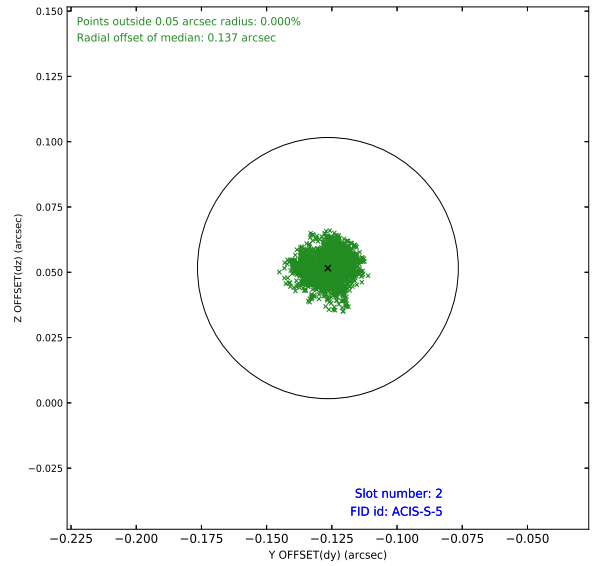
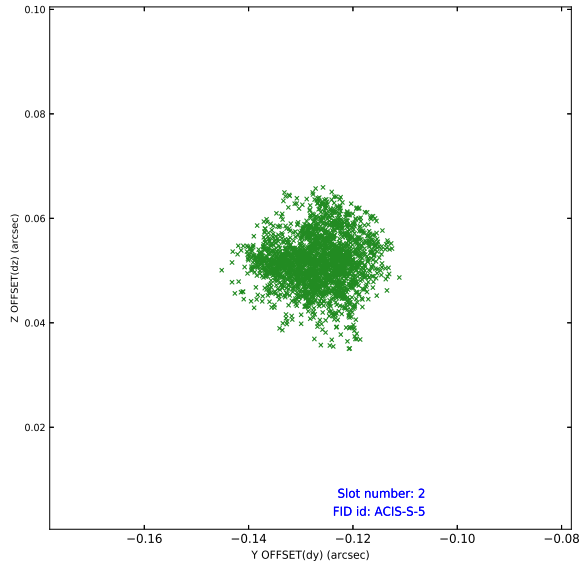
### 2.5.1 Slot 0



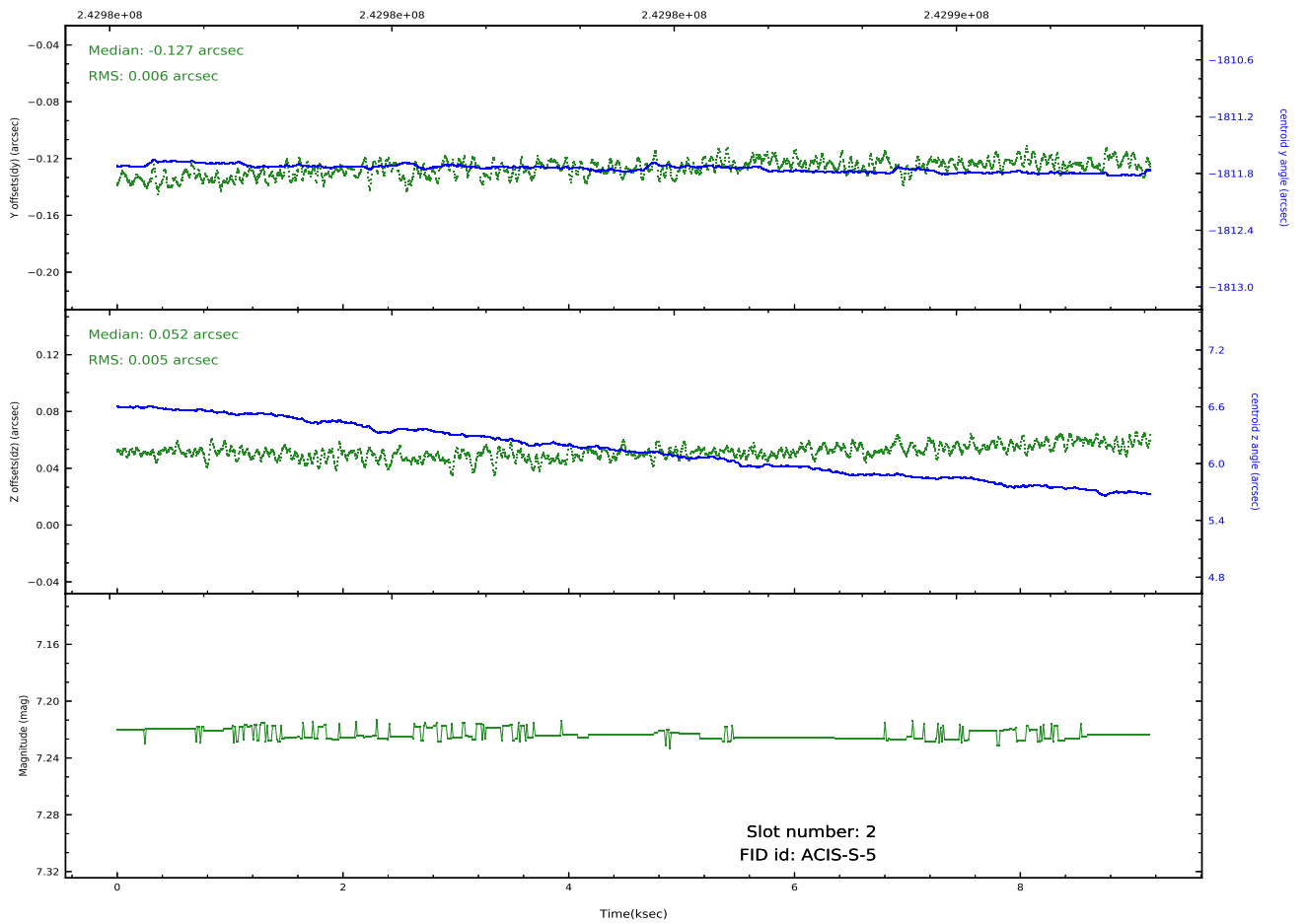
## 2.5.2 Slot 1



### 2.5.3 Slot 2

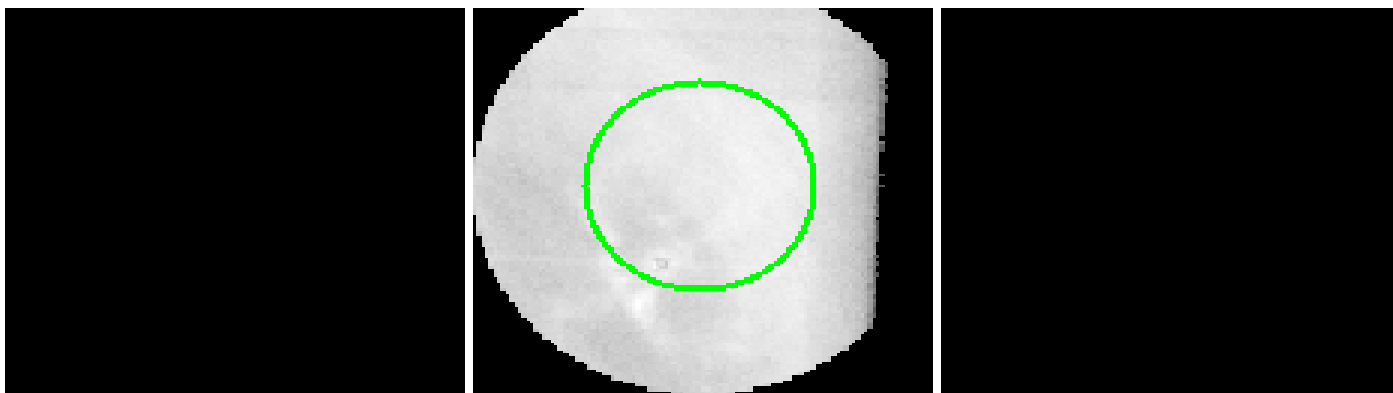


Time (s)



### 3 Gratings

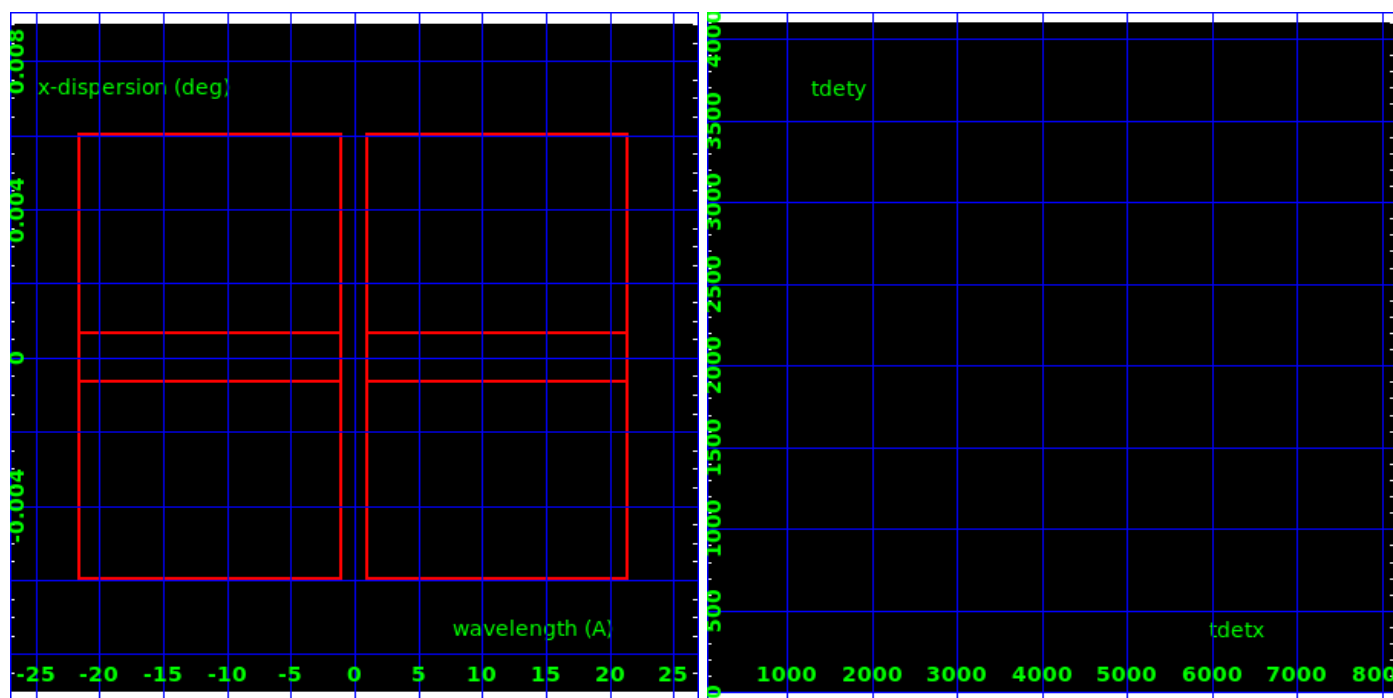
#### 3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

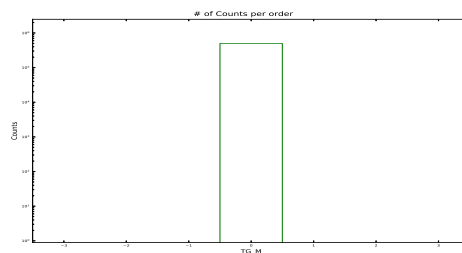
HEG Order Sort ALL

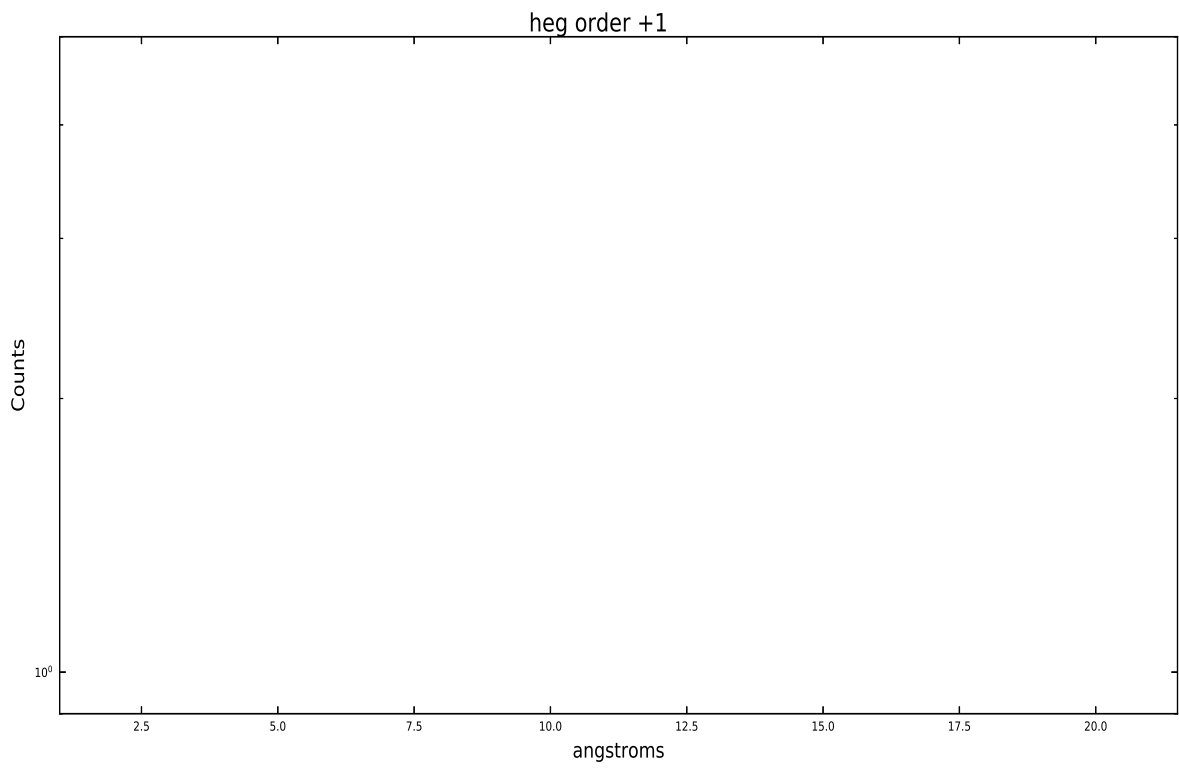
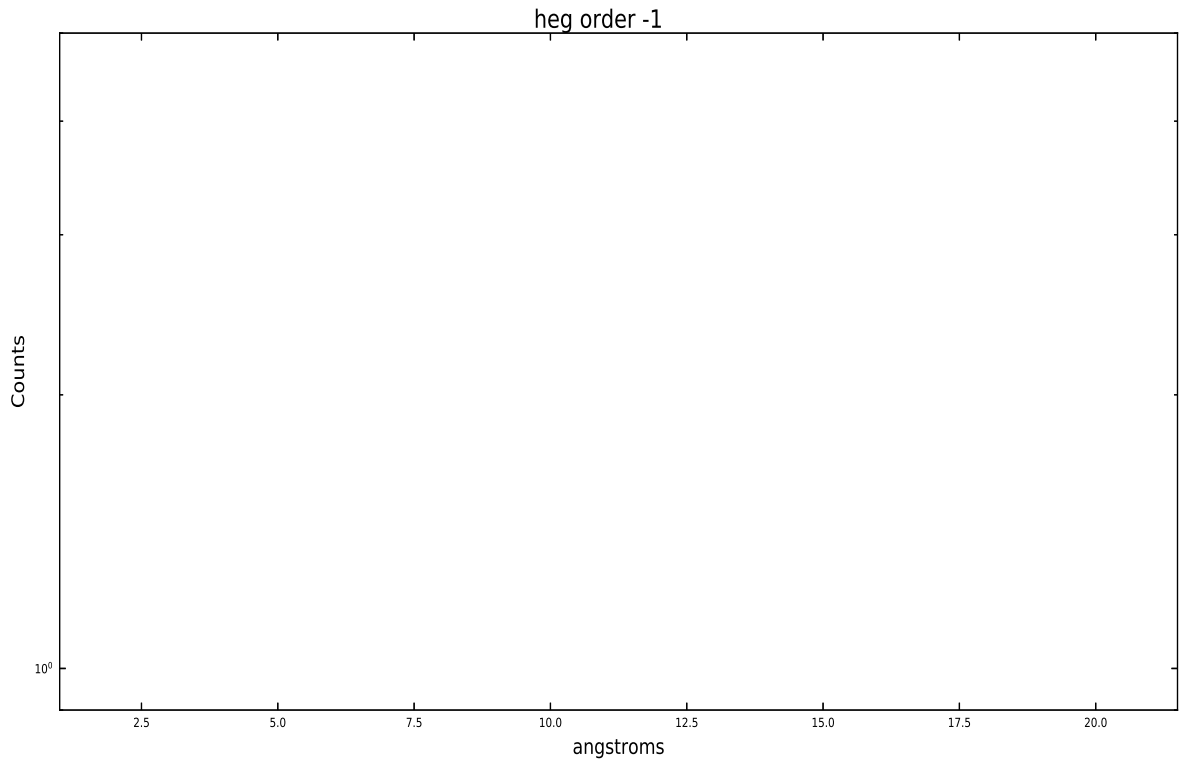


Spot Image HEG

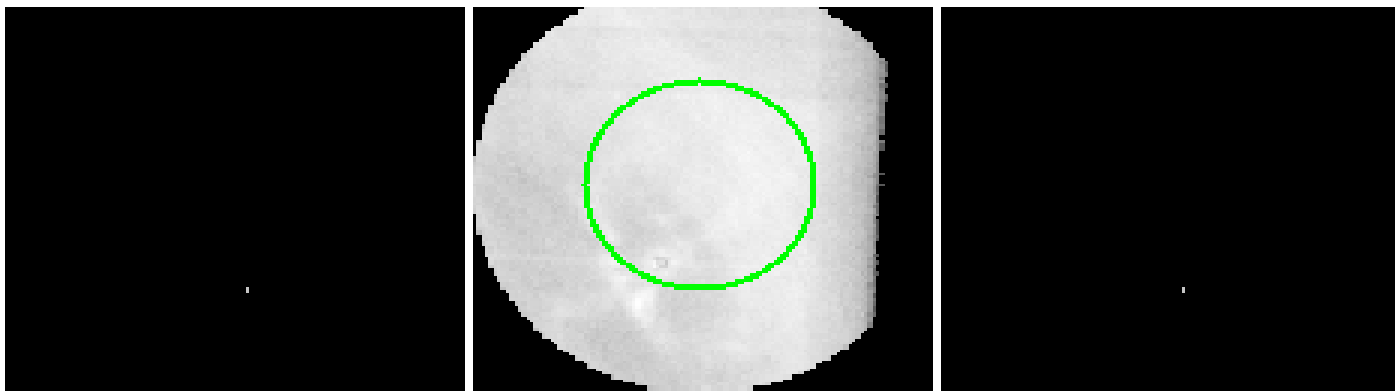
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	0	496048	0	0	0





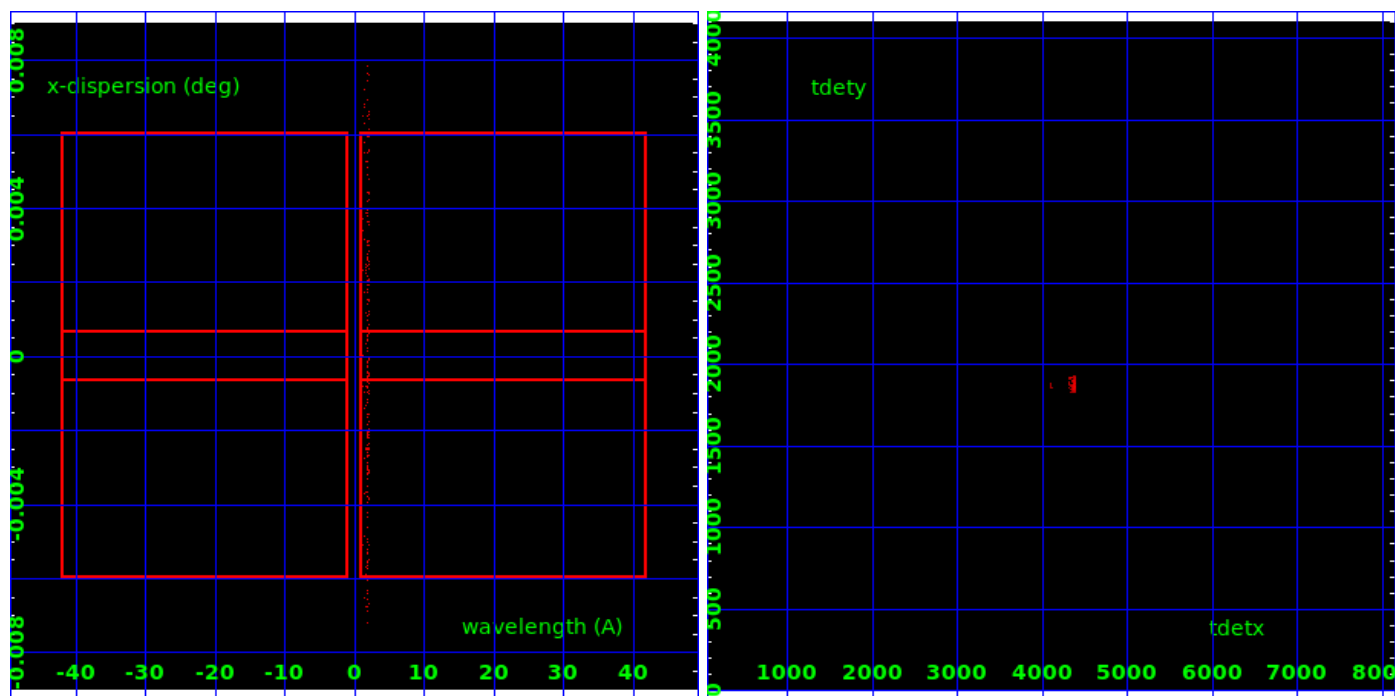
### 3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

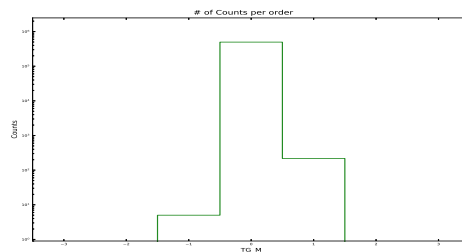
MEG Order Sort ALL

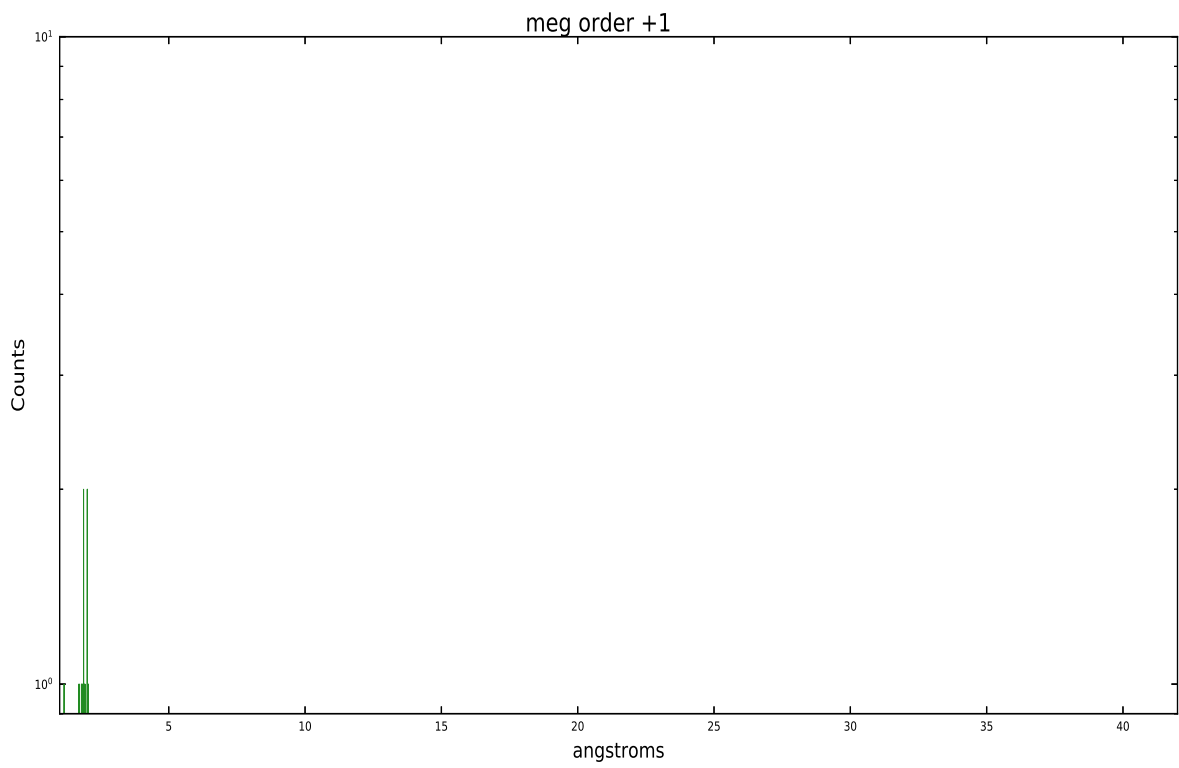
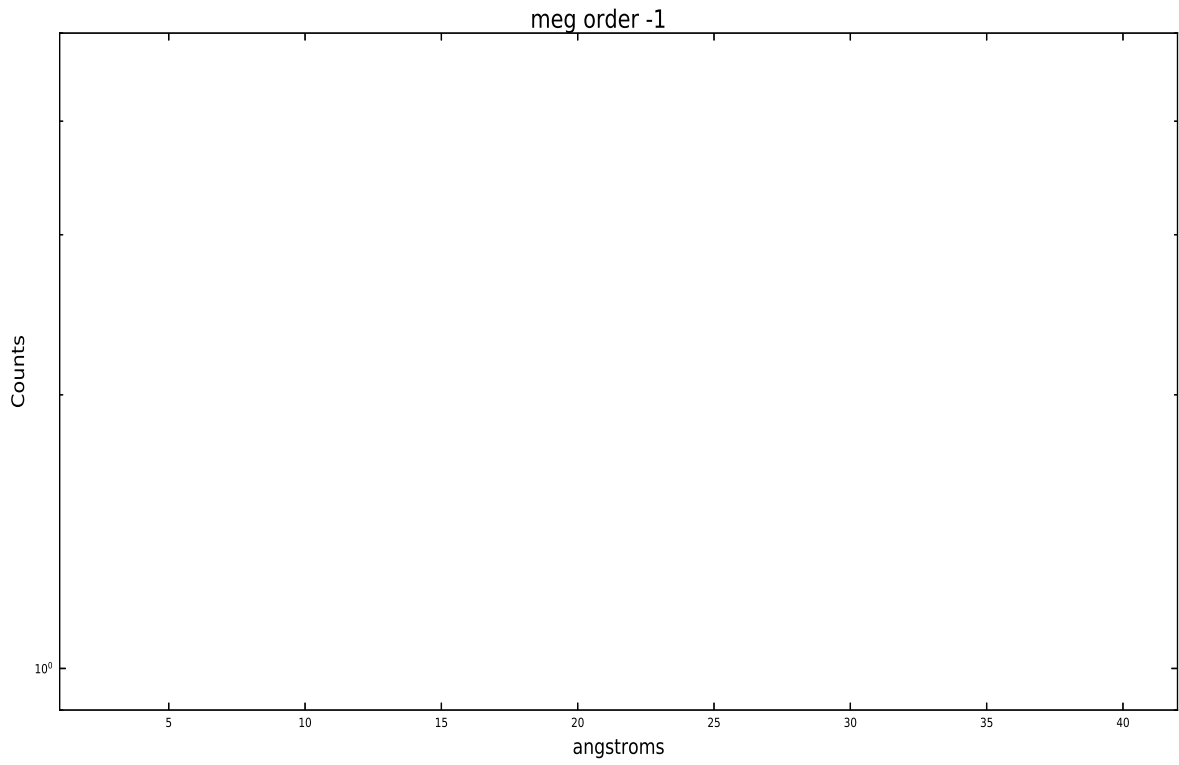


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	5	496048	217	0	0





# A Summary

## A.1 Status

V&V Scientist	Melania Nynka
V&V Date (YYYY-MM-DD)	2020.10.20
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	9.1506

## A.2 Comments

HETG is inserted as a filter; there is very little useful gratings information in the observation. The zeroth order position used in the grating extraction is NOT at the position of the pulsar, but is near a bright emission knot to the SE. If the dispersed grating spectrum is to be analyzed, it should be re-extracted using the exact position of the pulsar as the zeroth order position. The dispersed spectrum only contains data for the meg +1 order between 1-2 A. Broad east/west streak in Level 2 data is instrumental, due to the fact that the spacecraft dither during this observation was only 1 arcsec.