

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 5557 - L2 Version 5  
Chandra X-Ray Center

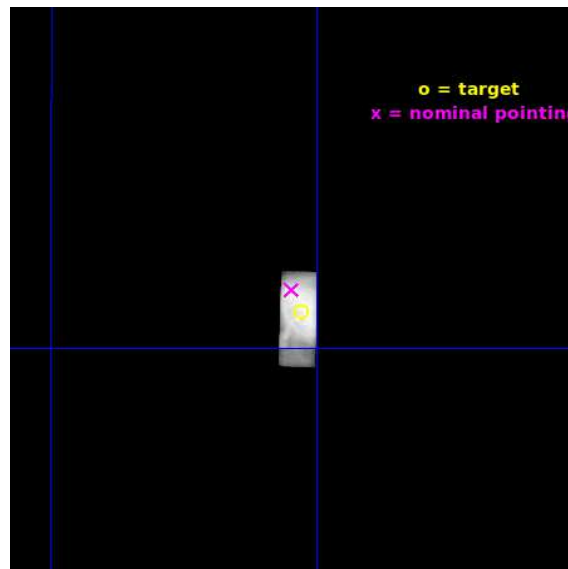
L2 Processing Date : Oct 11 2020

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# 1 Front

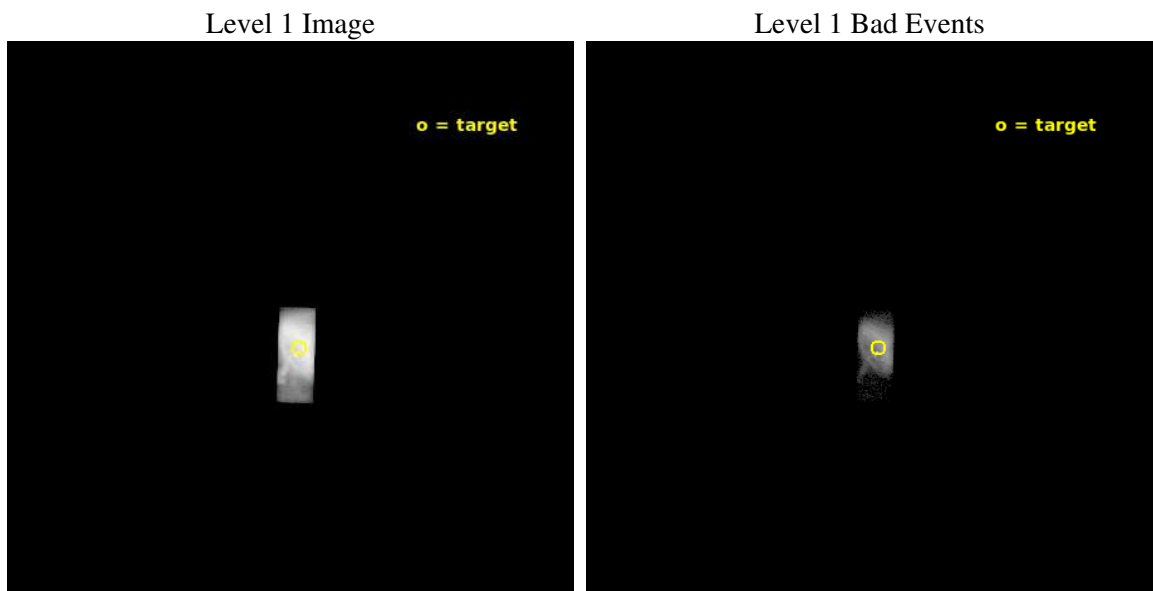
seq_num	500546	Sequence number
obs_id	5557	Observation id
title	Monitoring of the Relativistic Magnetohydrodynamic Shock in the Crab Nebula	Proposal title
observer	Dr Koji Mori	Principal investigator
object	Crab Nebula	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.632083	Observer's specified target RA [deg]
dec_targ	22.016472	Observer's specified target Dec [deg]
ra_nom	83.636653516103	Nominal RA [deg]
dec_nom	22.026689962455	Nominal Dec [deg]
roll_nom	91.62634025546	Nominal Roll [deg]
revision	5	Processing version of data
ontime	10183.800404668	Sum of GTIs [s]
livetime	8958.3043672307	Livetime [s]
ontime7	10183.800404668	Sum of GTIs [s]
l2events	2507218	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	10000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	10183.800404668	Sum of GTIs [s]
caldsver	4.9.2	&#160	ontime7	10183.800404668	Sum of GTIs [s]
date	2020-10-11T03:55:40	Date and time of file creation	l1events	2667383	Number of level 1 events
revision	5	Processing version of data	tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4129.11, 4029.20)	src1a sky pixel position
			zo_pos_tgd	(4113.55, 4001.69)	src1a sky pixel position via tgdetect

### 2.1.3 Events

	<b>ccd 7</b>
level 1 events	2667383
rejected events	121185
rejected %	4%

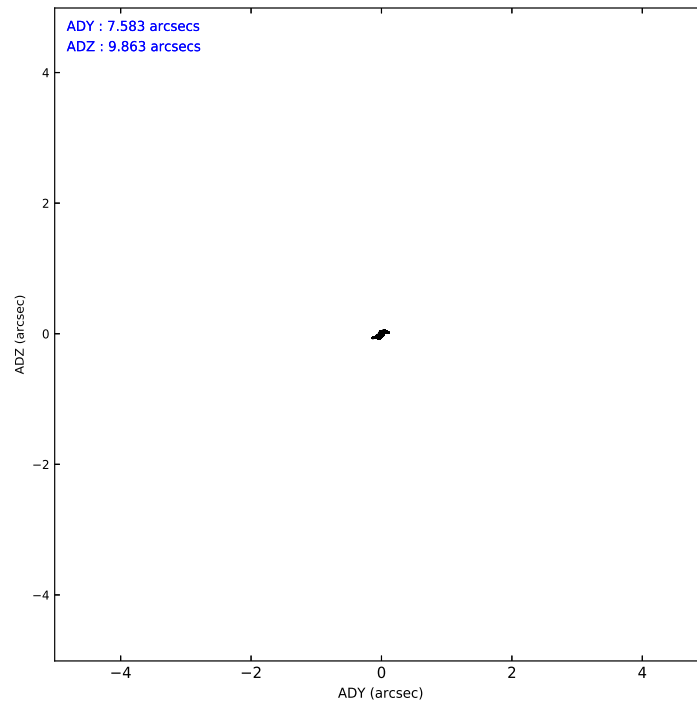
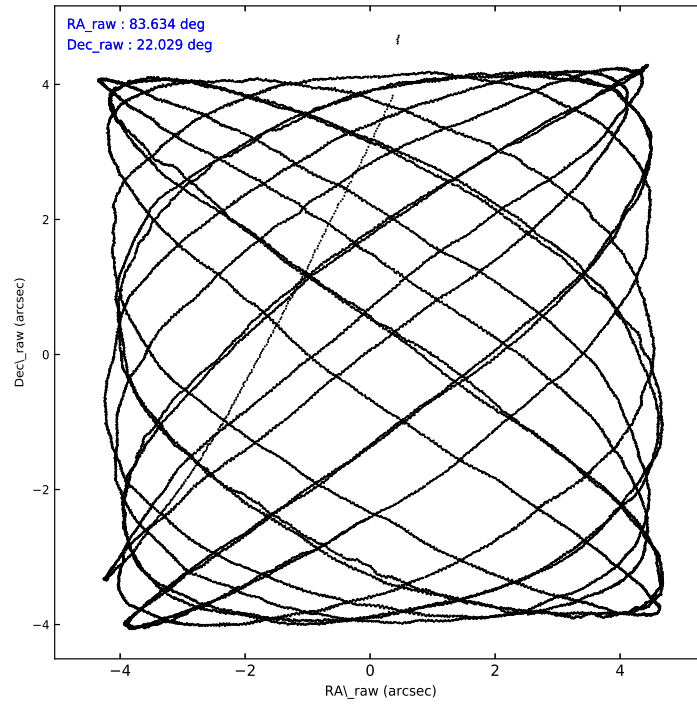
	<b>ccd 7</b>
grade 0 events	515936
	19%
grade 1 events	9757
	0%
grade 2 events	654110
	24%
grade 3 events	290729
	10%
grade 4 events	280536
	10%
grade 5 events	40207
	1%
grade 6 events	828218
	31%
grade 7 events	47890
	1%

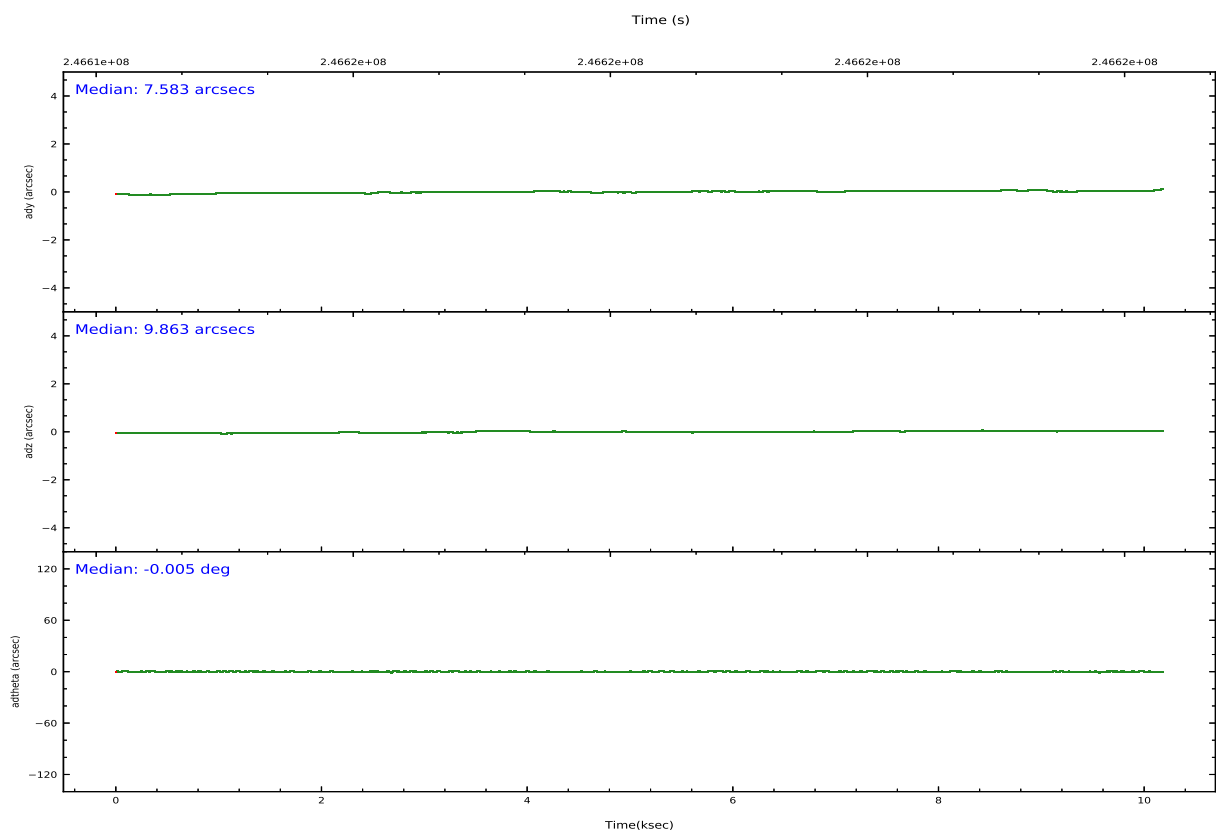
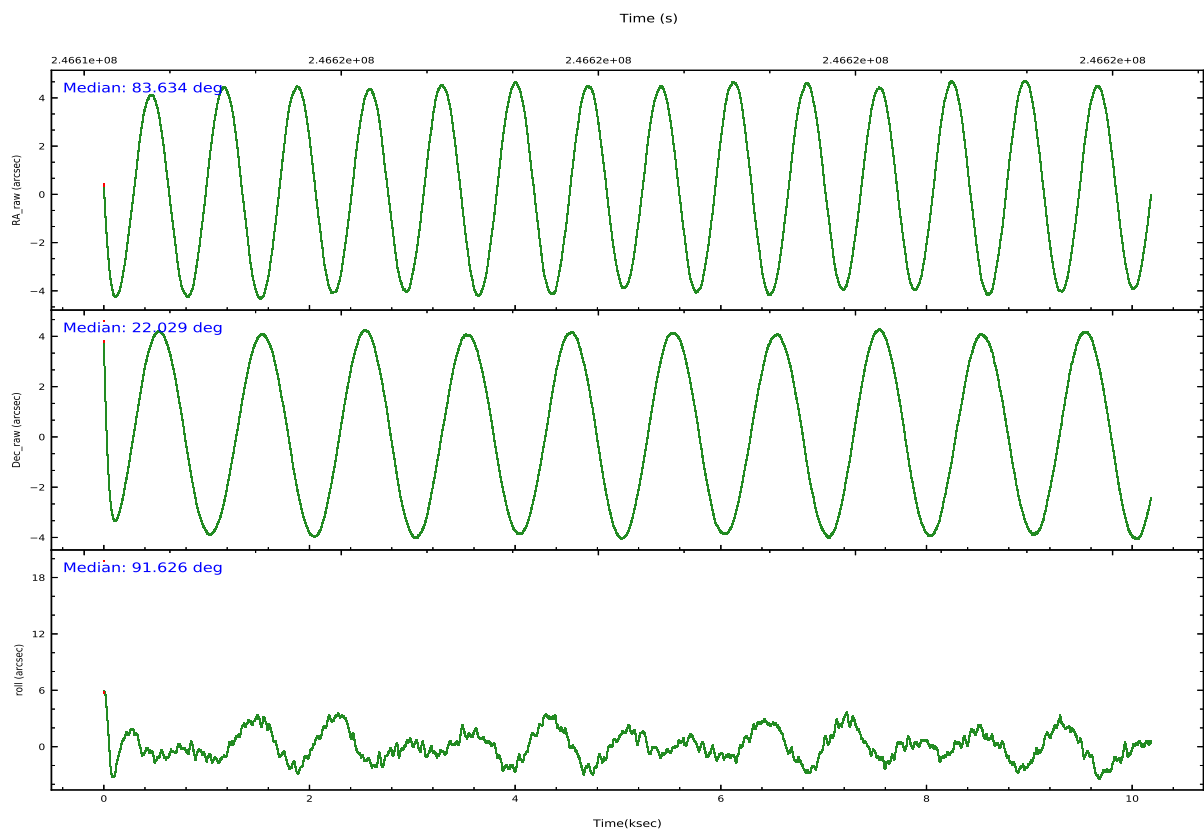


## 2.2 Compared Parameters

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	83.649279	83.636653516103	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	22.005877	22.026689962455	Subarray start row	127	127
[deg] Pointing Roll	91.464220	91.62634025545999	Subarray row count	101	101
[s] Window start time (MET)	246499264.184000	246499264.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	247104064.184000	247104064.184000	[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	-182.1370004450064			
[mm] SIM translation stage offset	-8	-7.995522138001405			
[s] Observation start time (MET)	246612875.184000	246612060.79569			
Observation start date	2005-10-25T07:33:31	2005-10-25T07:21:00			
[s] Observation end time (MET)	246622875.184000	246623750.92123			
Observation end date	2005-10-25T10:20:11	2005-10-25T10:35:50			
Read mode	TIMED	TIMED			

## 2.3 Aspect



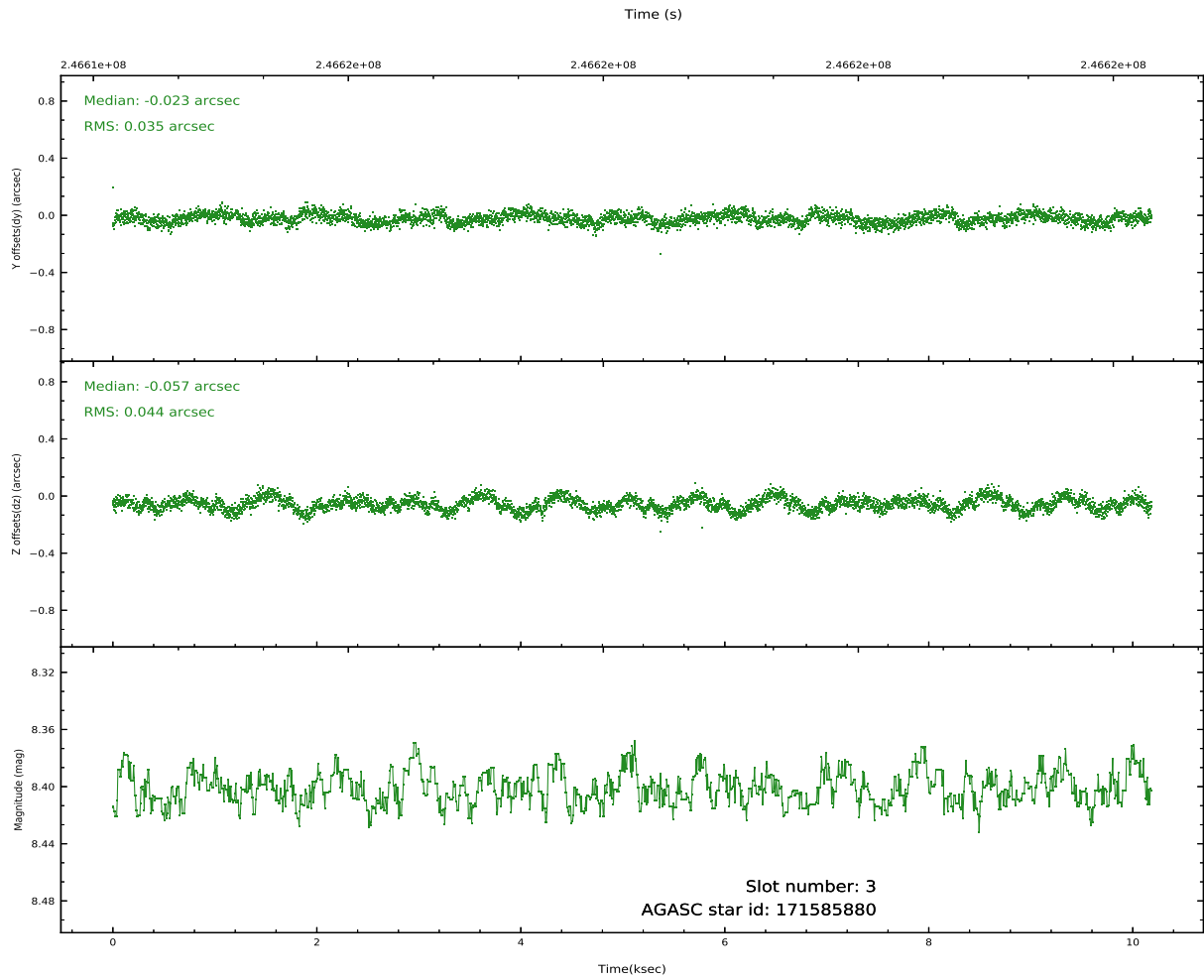
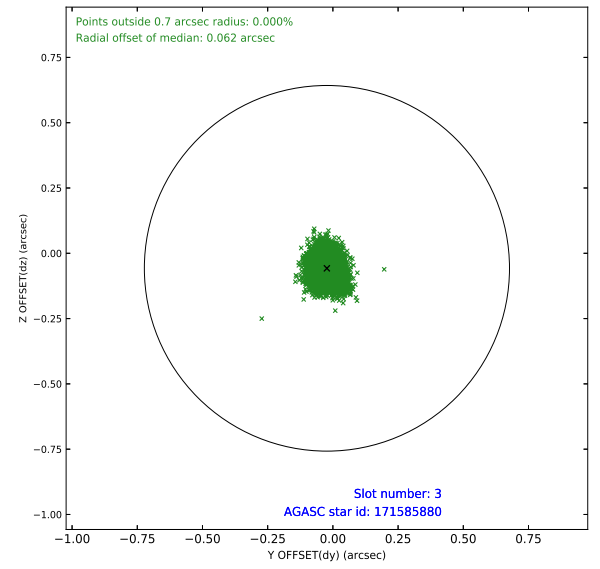
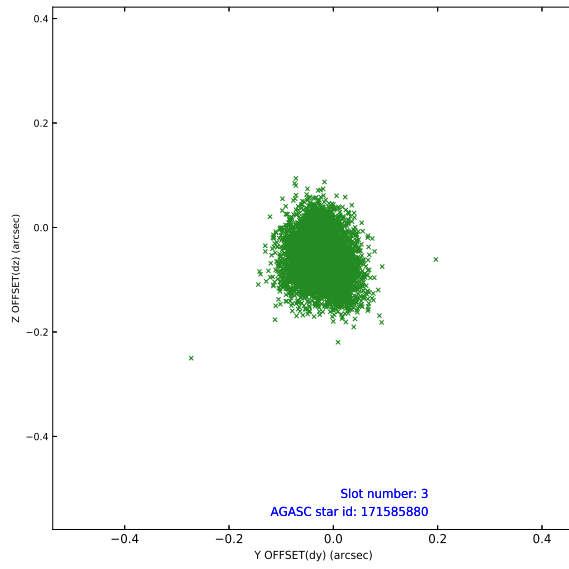


Slot Statistics

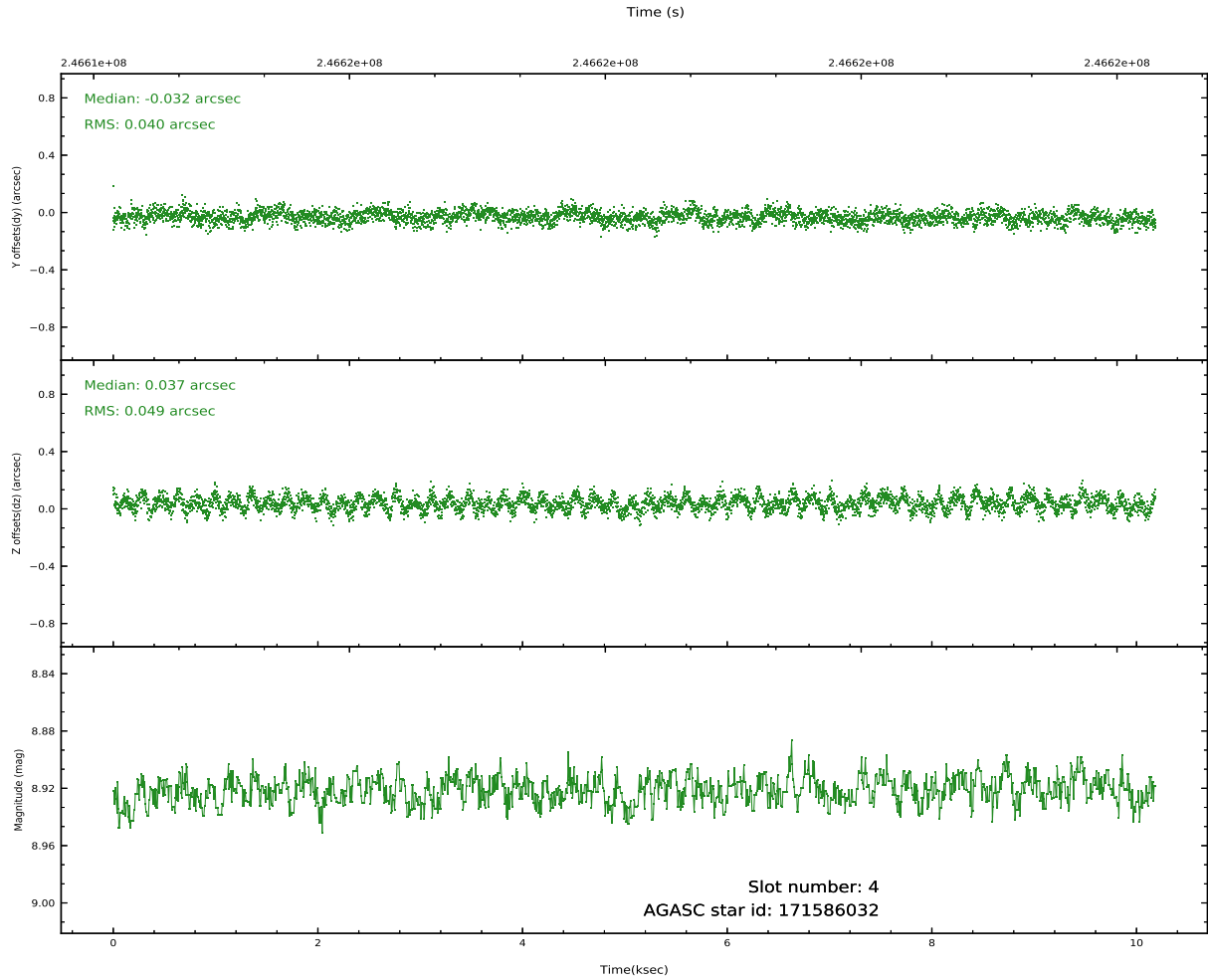
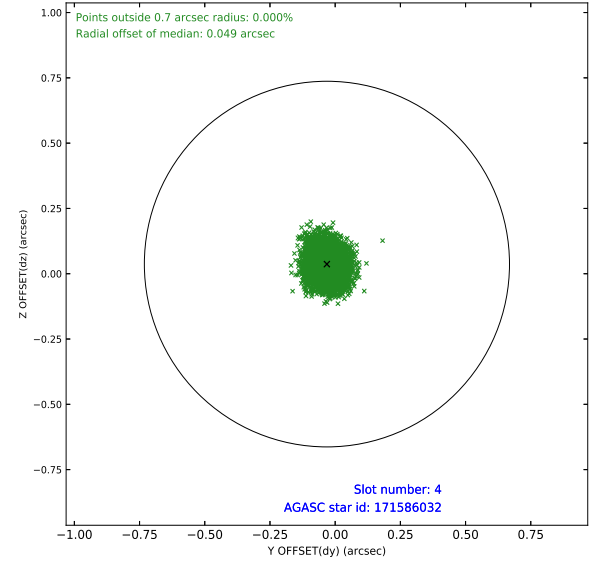
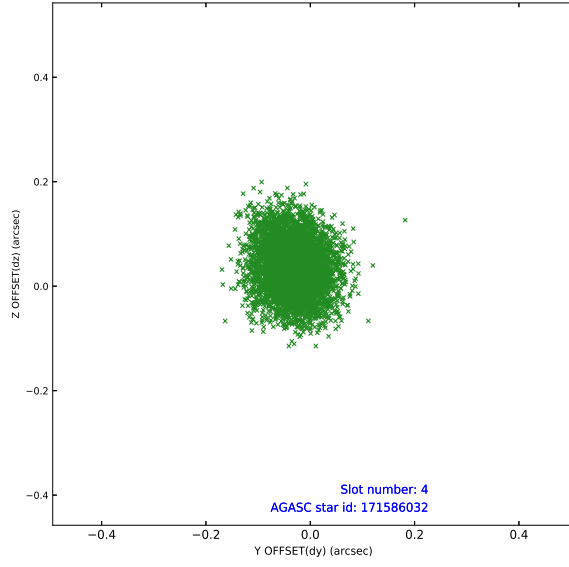
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.09	2485	1.000	-0.102	-0.136	0.006	0.011	0.000000	0.000000	-759.83	-1895
1	FID		ACIS-S-4	7.18	2485	1.000	0.184	0.085	0.005	0.009	0.000000	0.000000	2153.45	12
2	FID		ACIS-S-5	7.23	2485	1.000	-0.113	0.058	0.006	0.010	0.000000	0.000000	-1812.06	6
3	GUIDE	used	171585880	8.40	4969	1.000	-0.023	-0.057	0.061	0.096	83.676260	22.176319	611.43	-105
4	GUIDE	used	171586032	8.92	4969	1.000	-0.032	0.037	0.068	0.108	83.950197	22.083225	254.23	-1010
5	GUIDE	used	171721904	9.19	4962	1.000	-0.056	0.098	0.106	0.162	84.272676	22.116922	351.37	-2088
6	GUIDE	used	243941560	8.31	4966	1.000	-0.099	0.089	0.069	0.106	83.733264	22.568598	2018.39	-330
7	GUIDE	used	171597832	9.15	4963	1.000	0.221	-0.164	0.087	0.140	83.183230	21.366702	-2257.21	1620

## 2.4 Star Slots

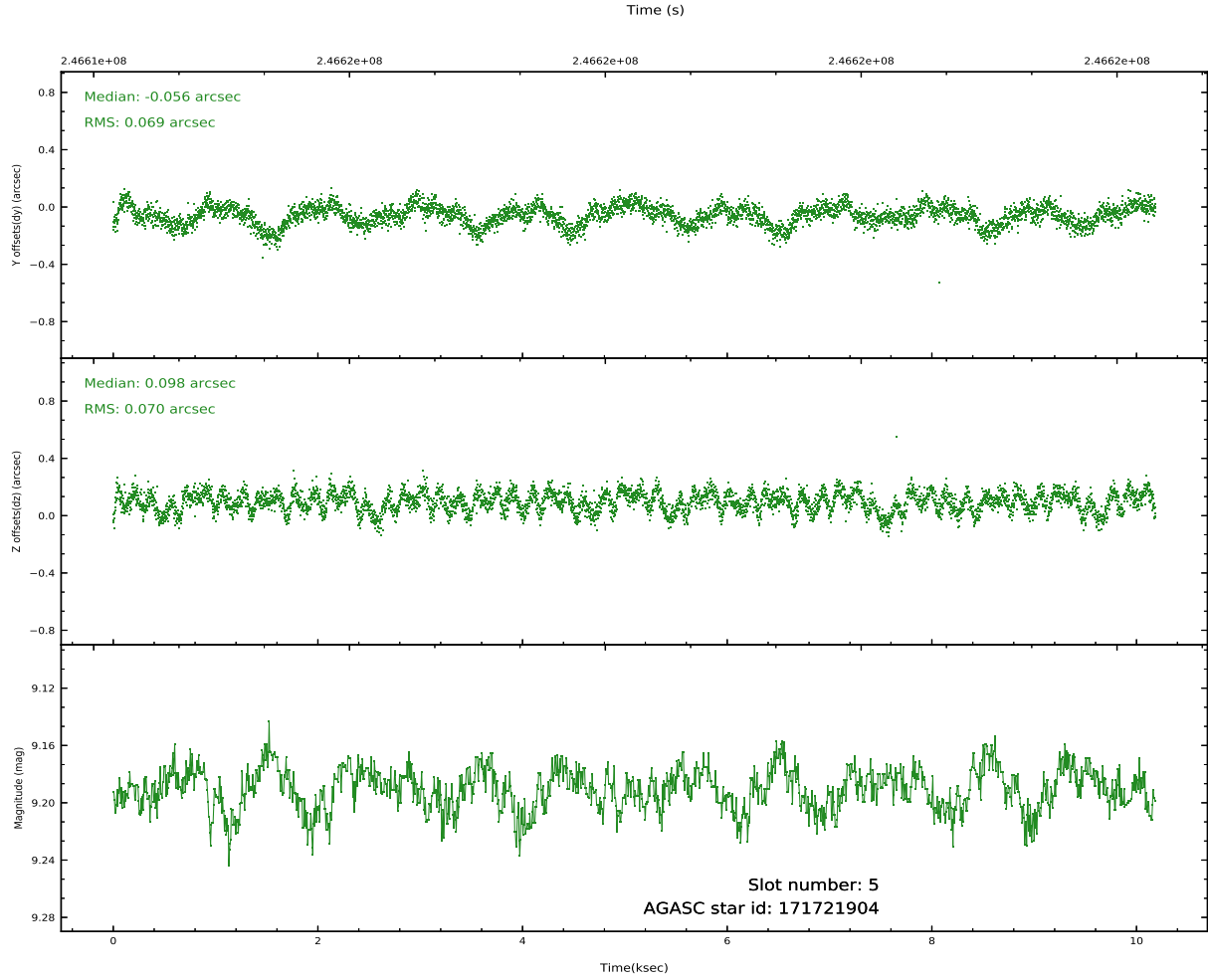
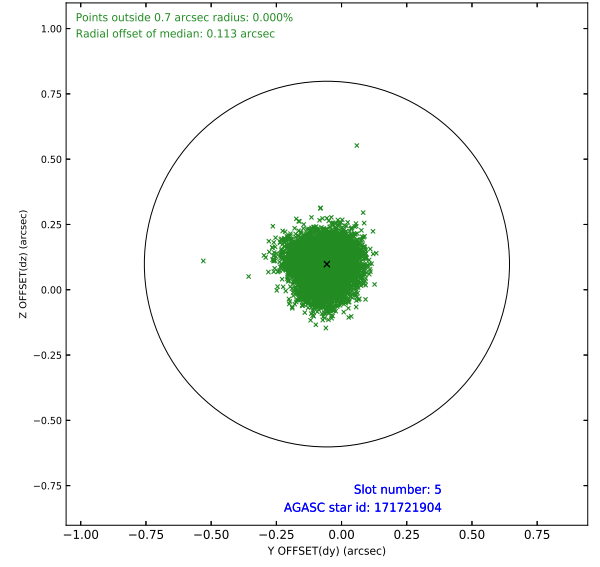
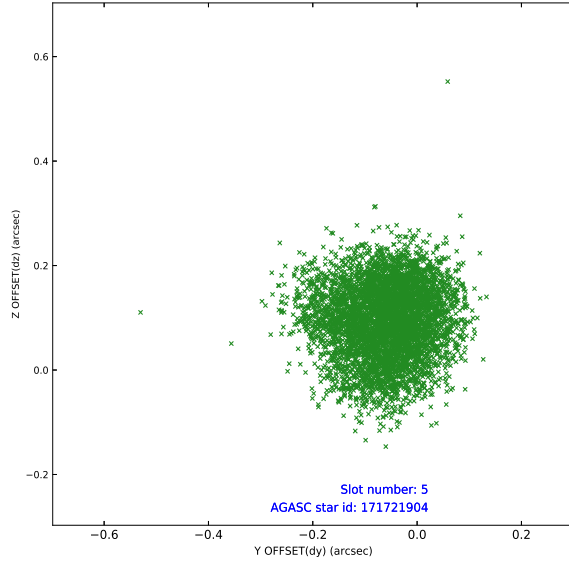
### 2.4.1 Slot 3



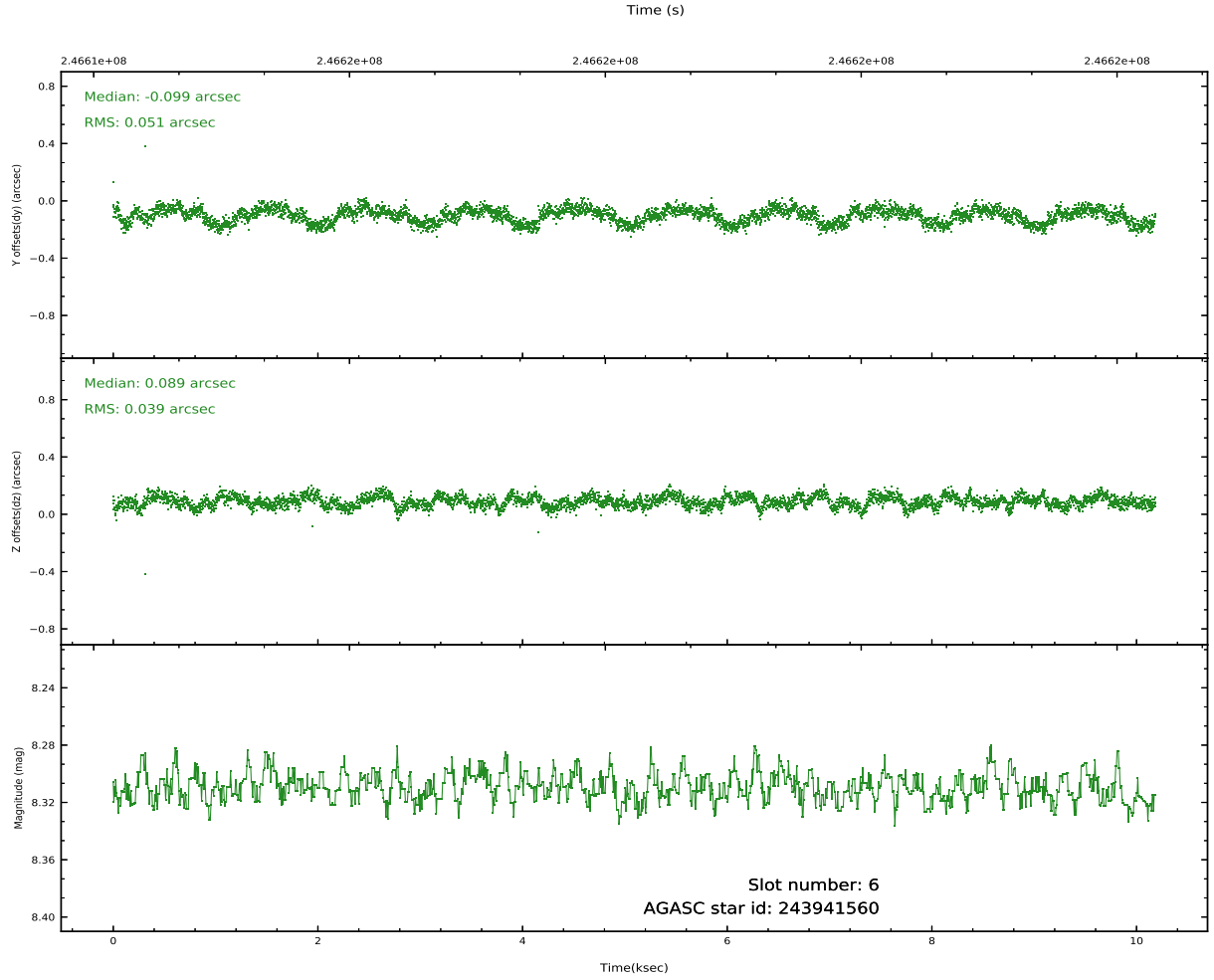
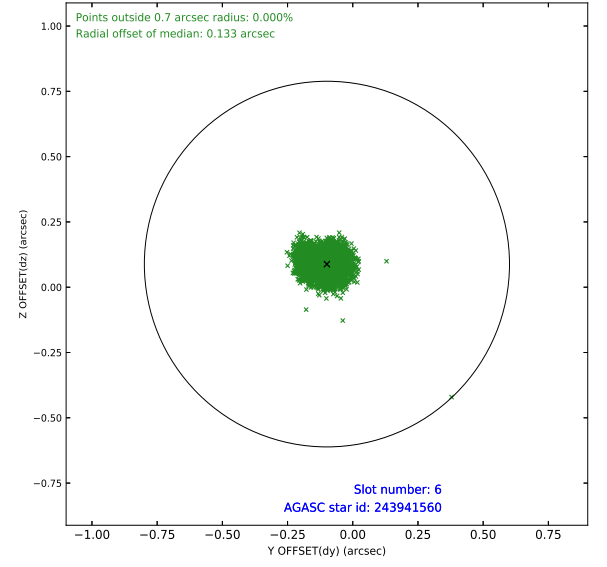
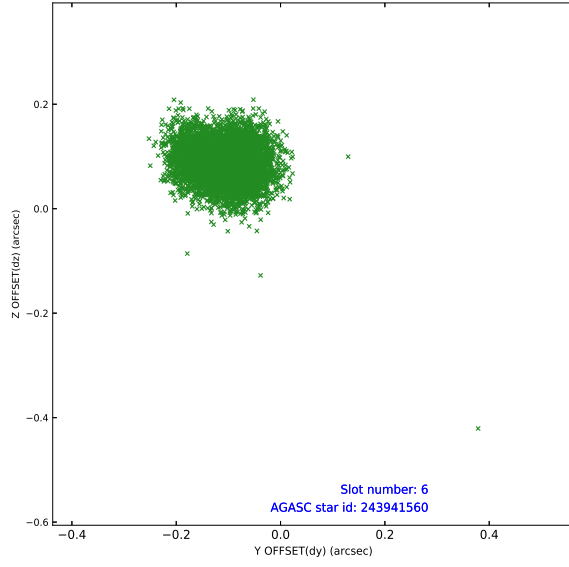
## 2.4.2 Slot 4



### 2.4.3 Slot 5

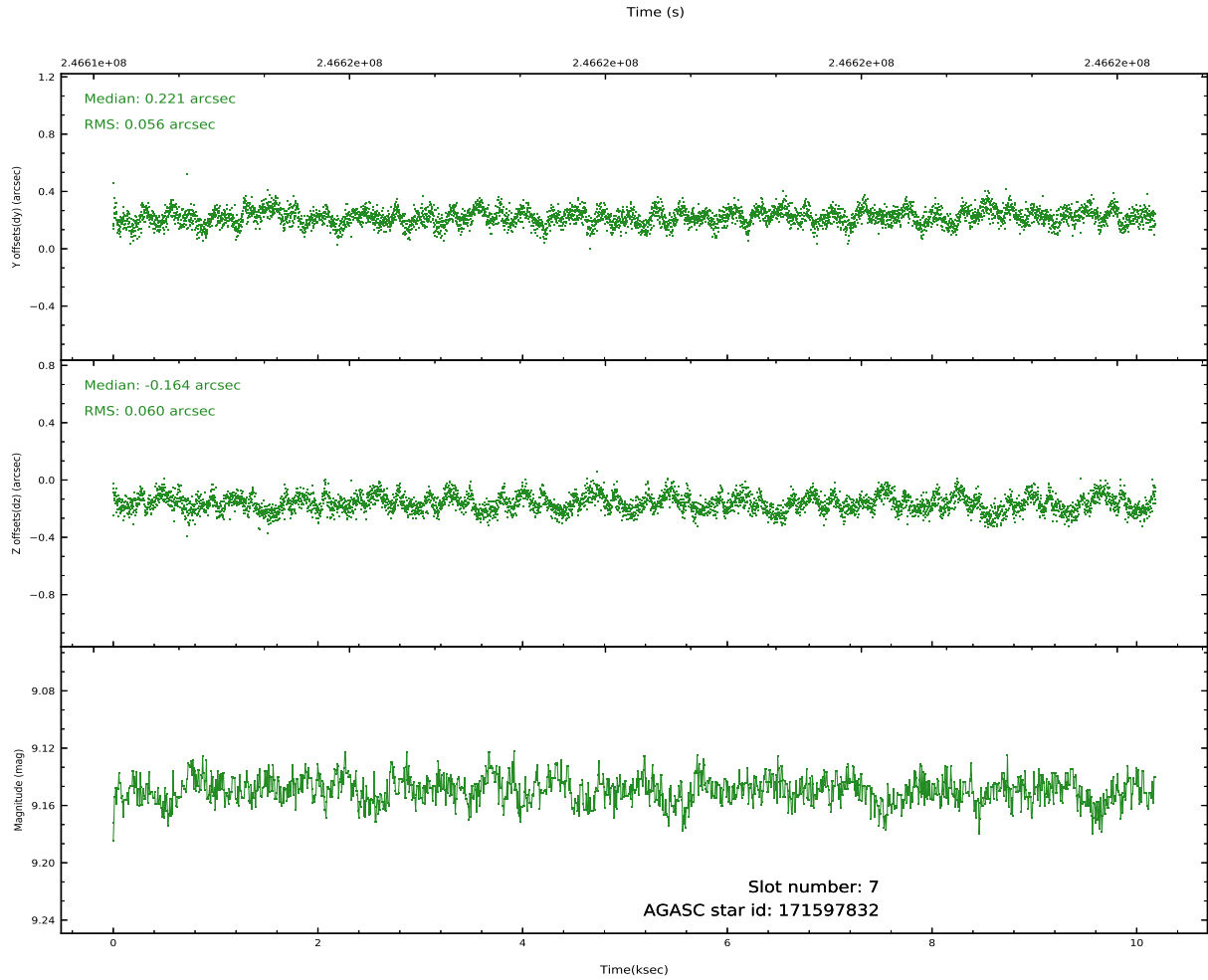
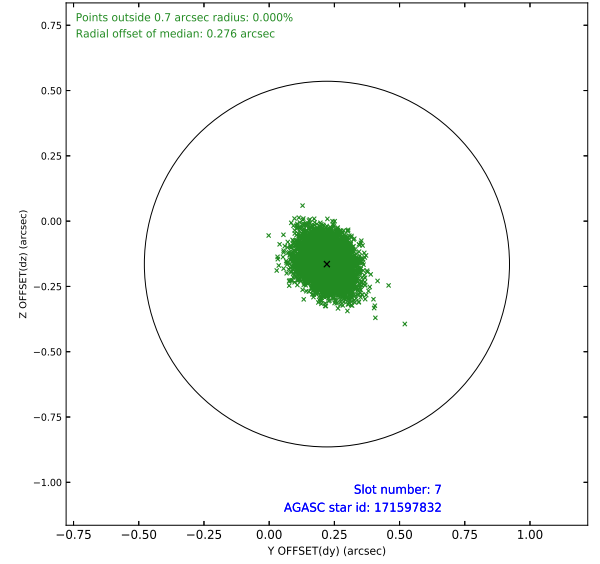
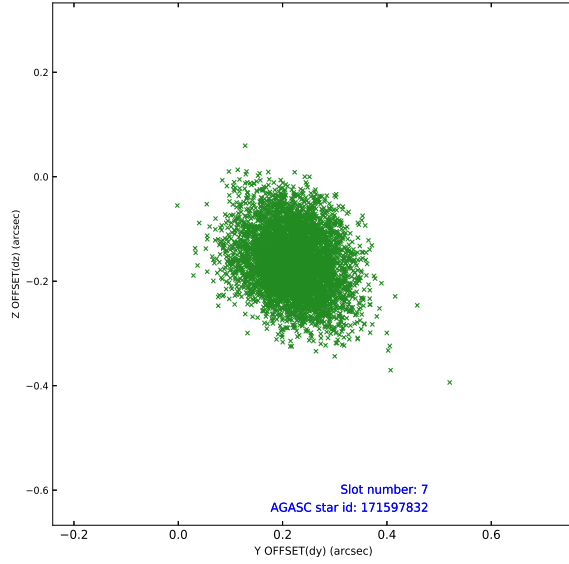


## 2.4.4 Slot 6



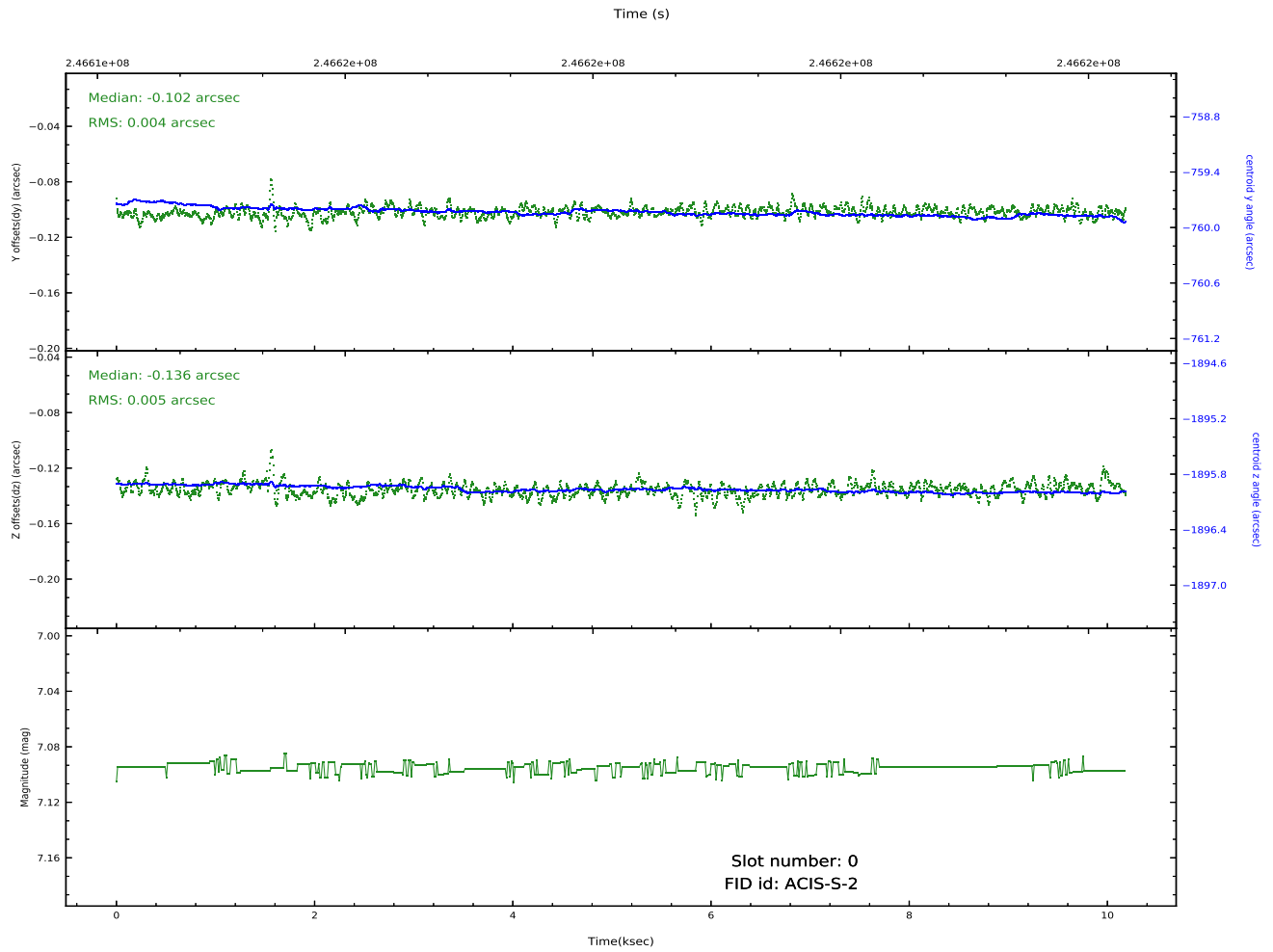
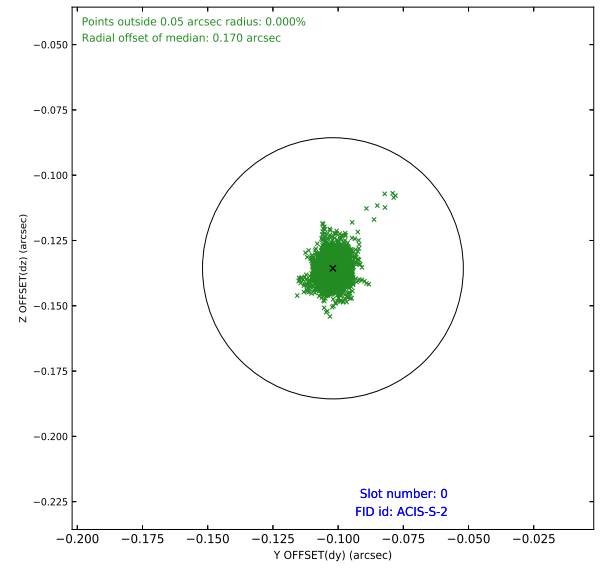
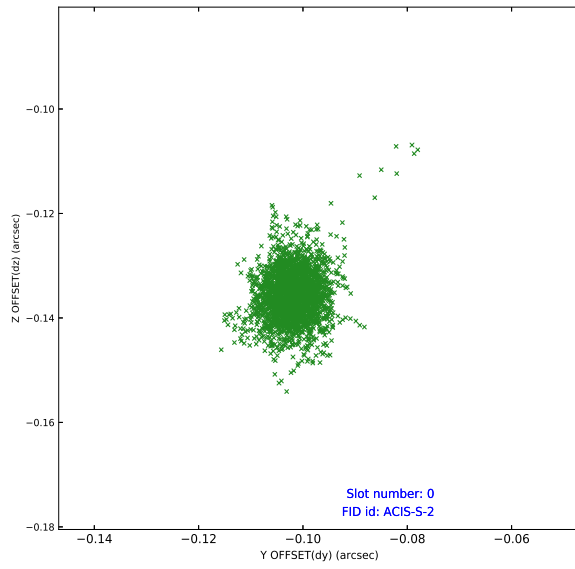


## 2.4.5 Slot 7

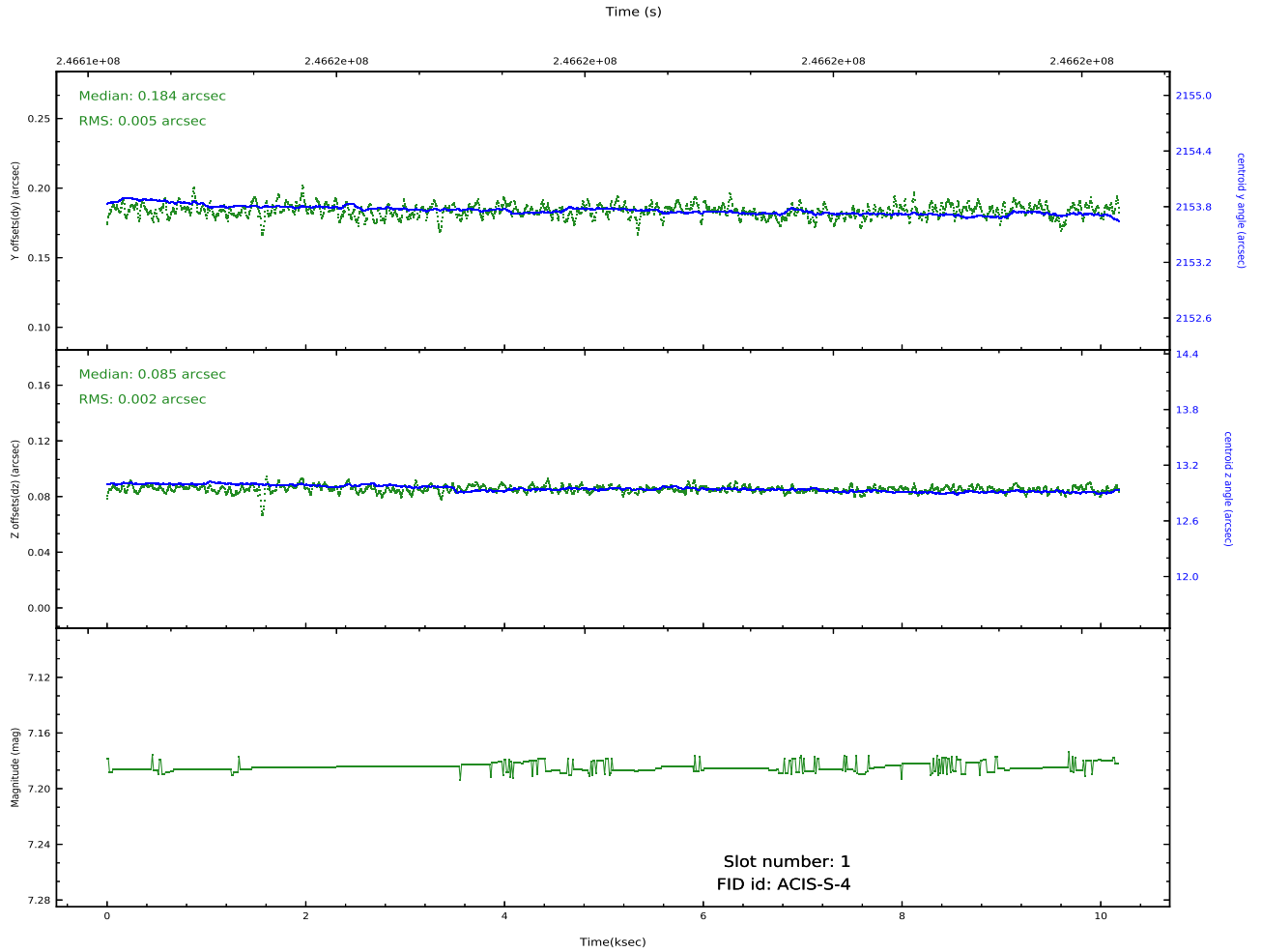
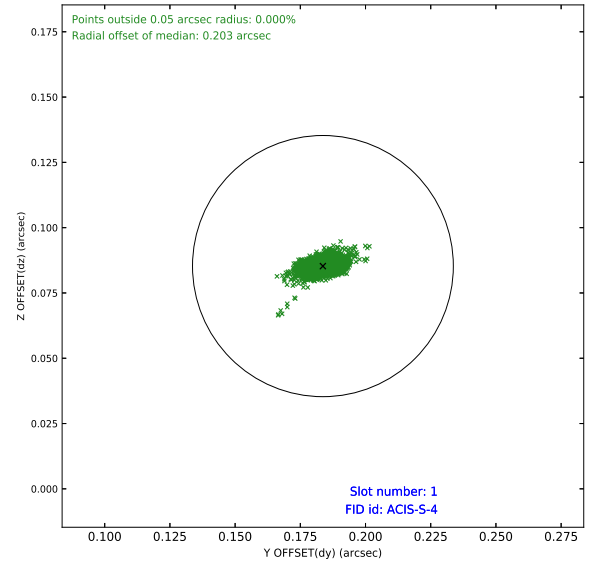
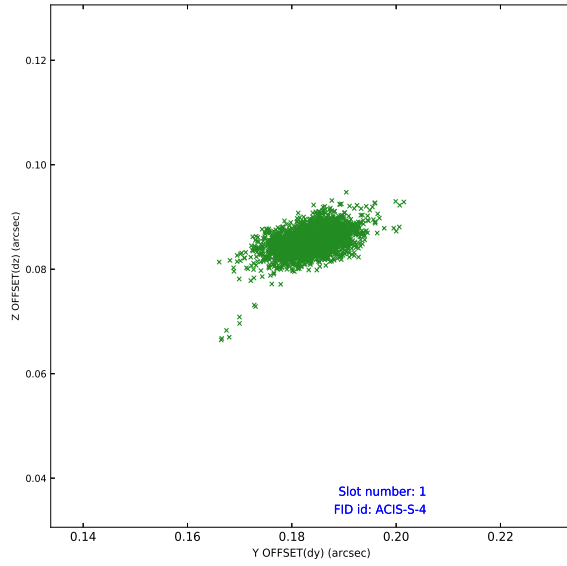


## 2.5 FID Slots

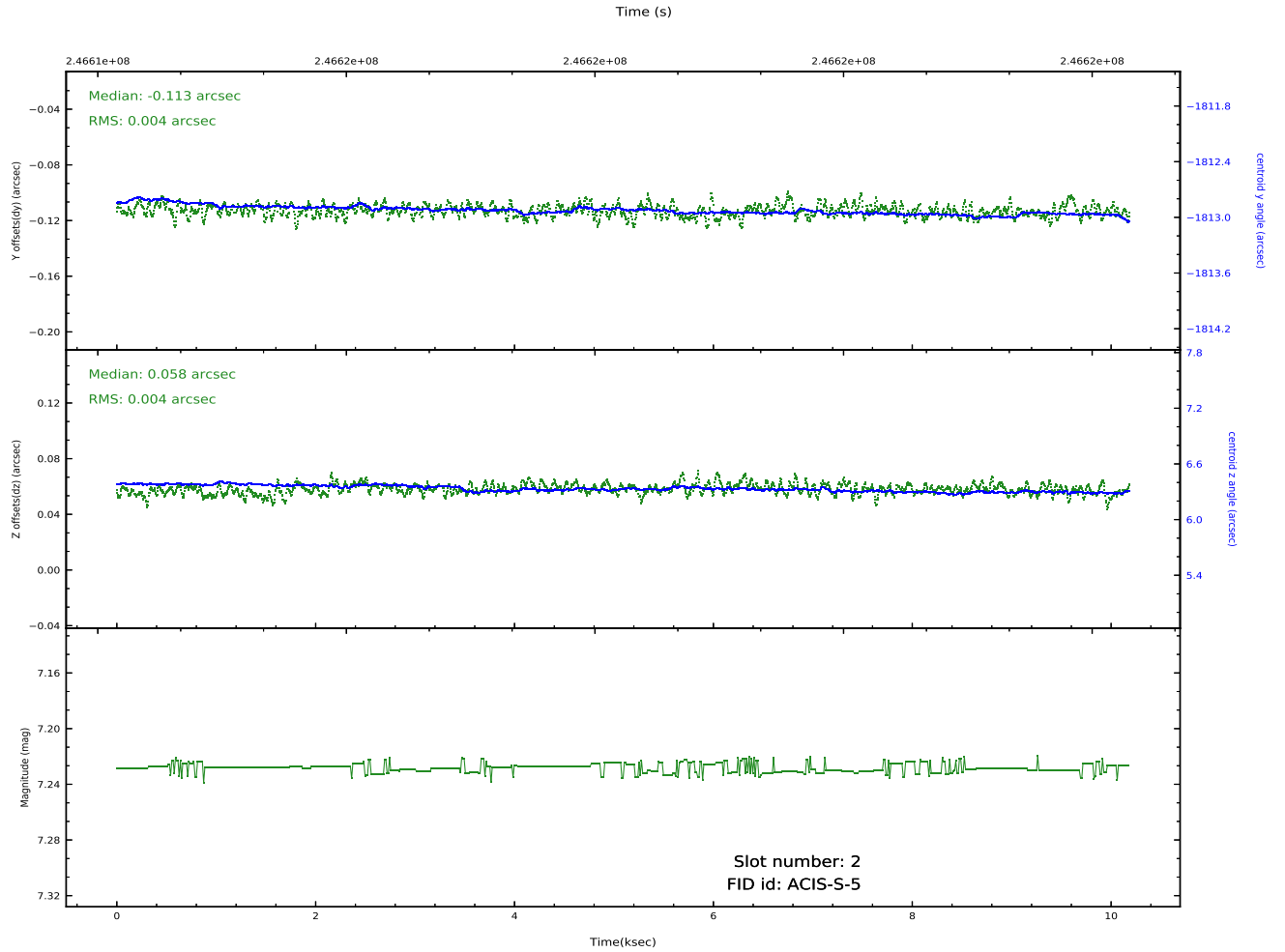
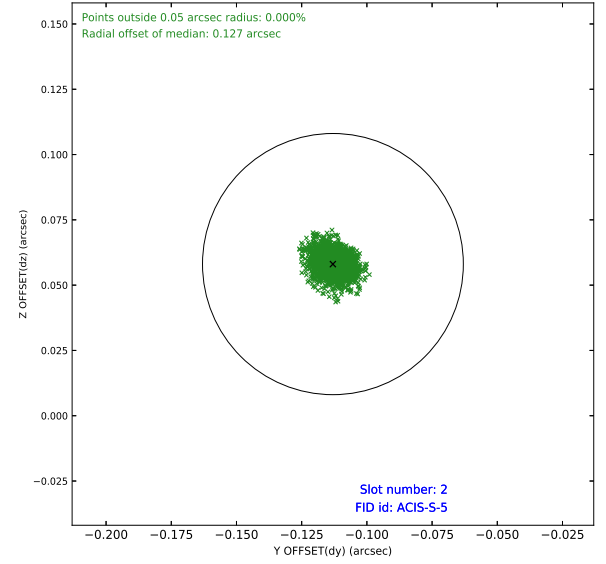
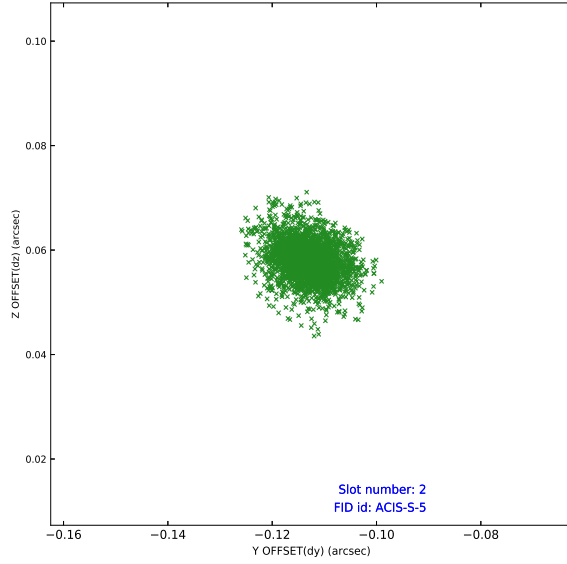
### 2.5.1 Slot 0



## 2.5.2 Slot 1

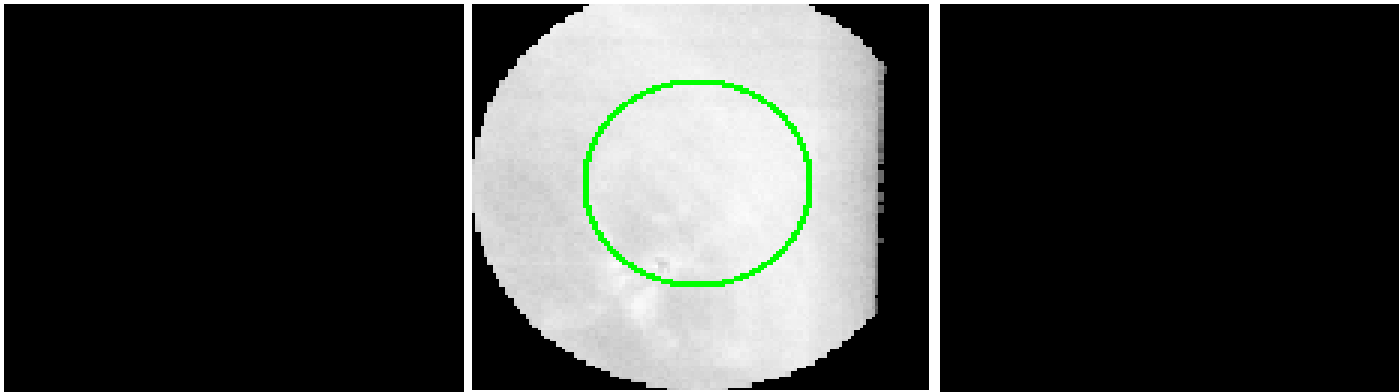


### 2.5.3 Slot 2



# 3 Gratings

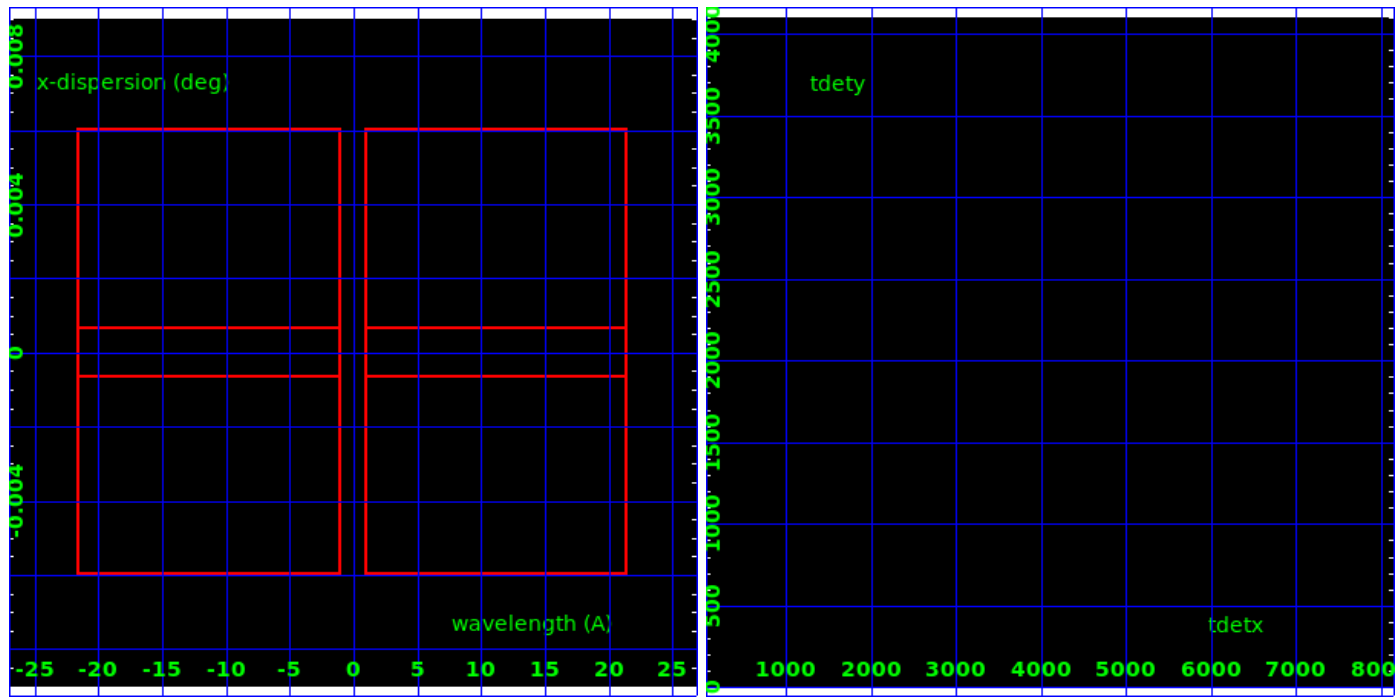
## 3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

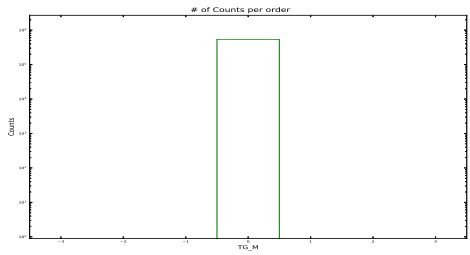
HEG Order Sort ALL

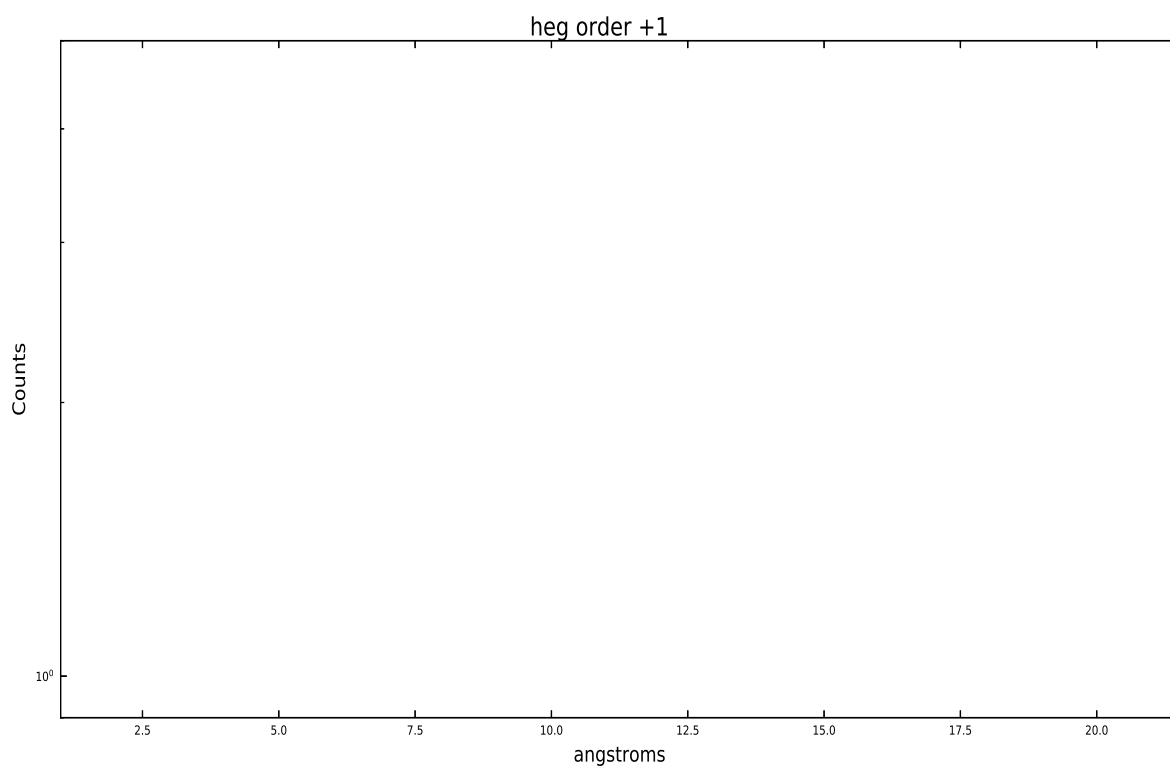
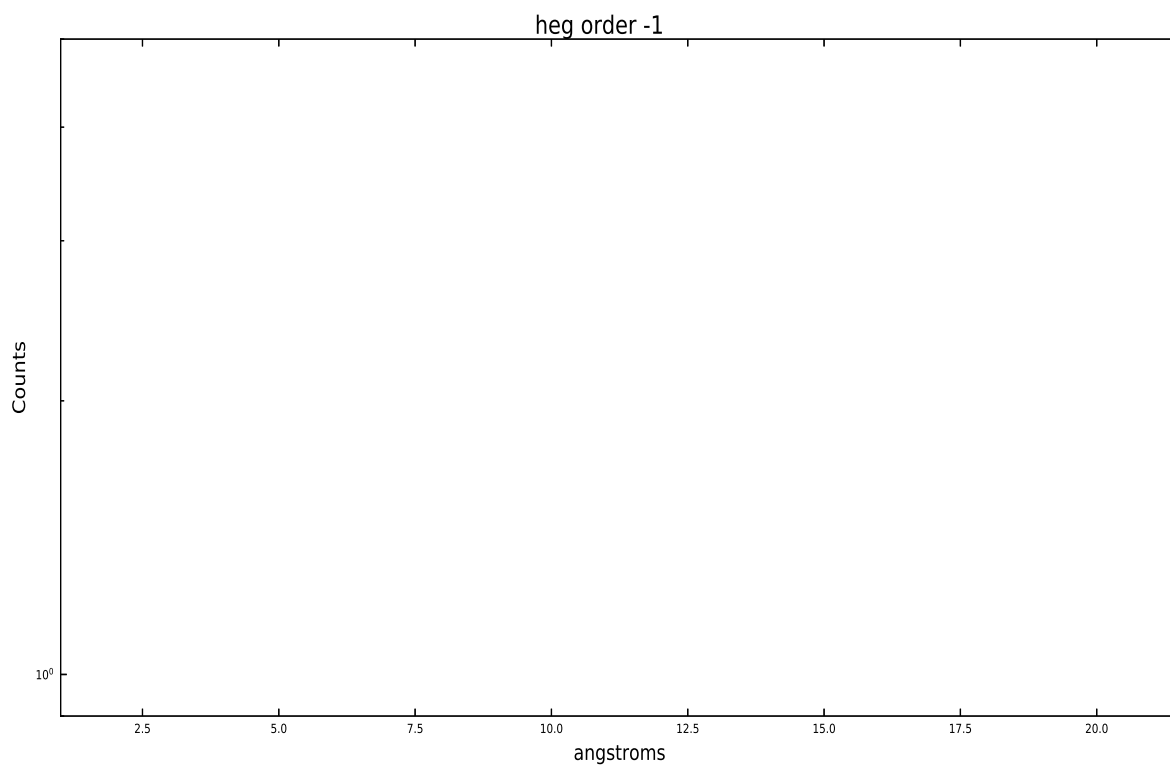


Spot Image HEG

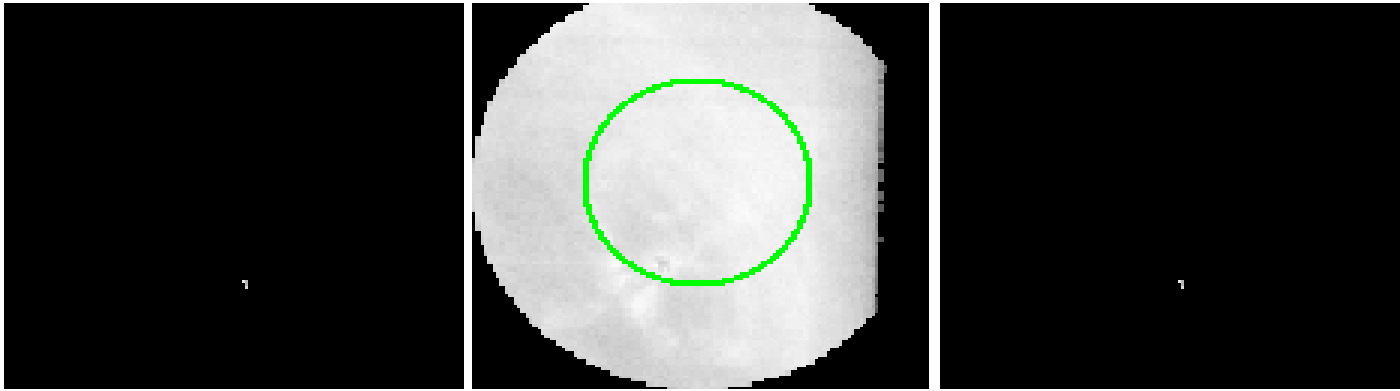
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	0	538434	0	0	0





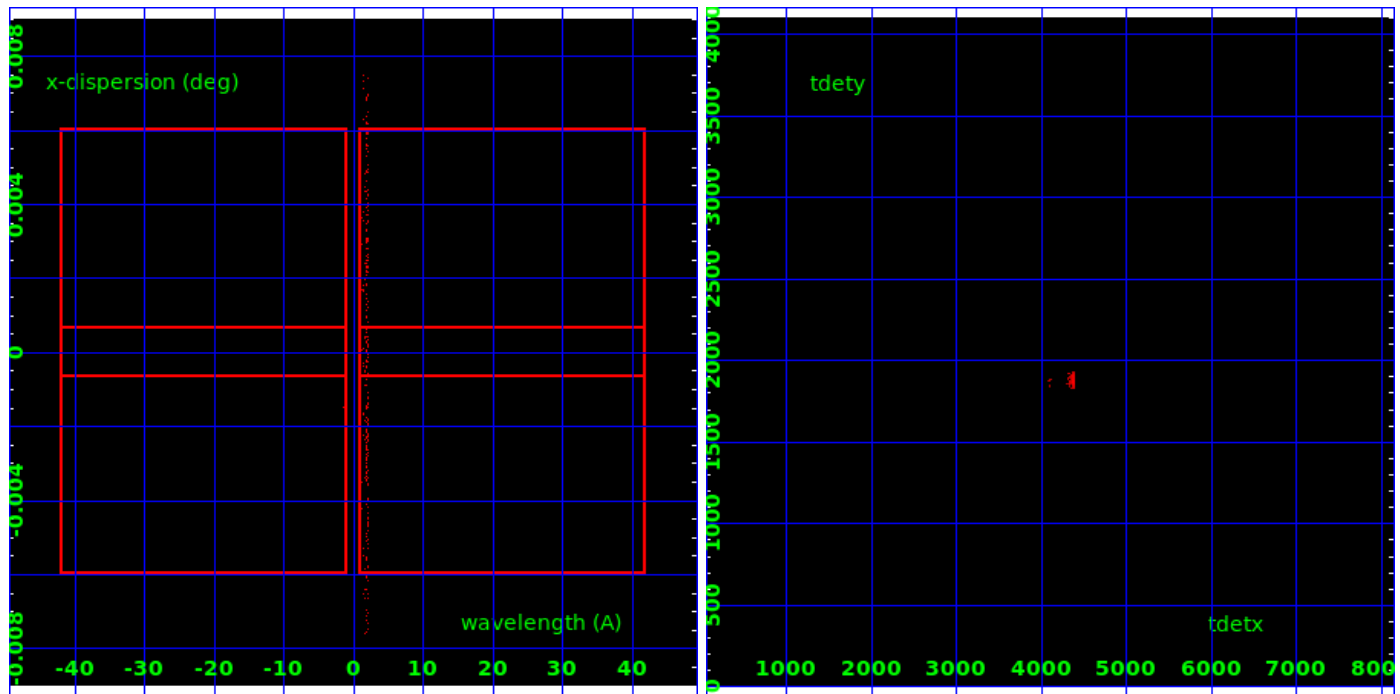
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

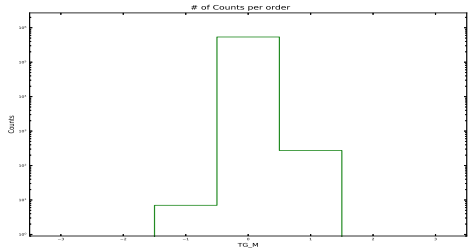
MEG Order Sort ALL

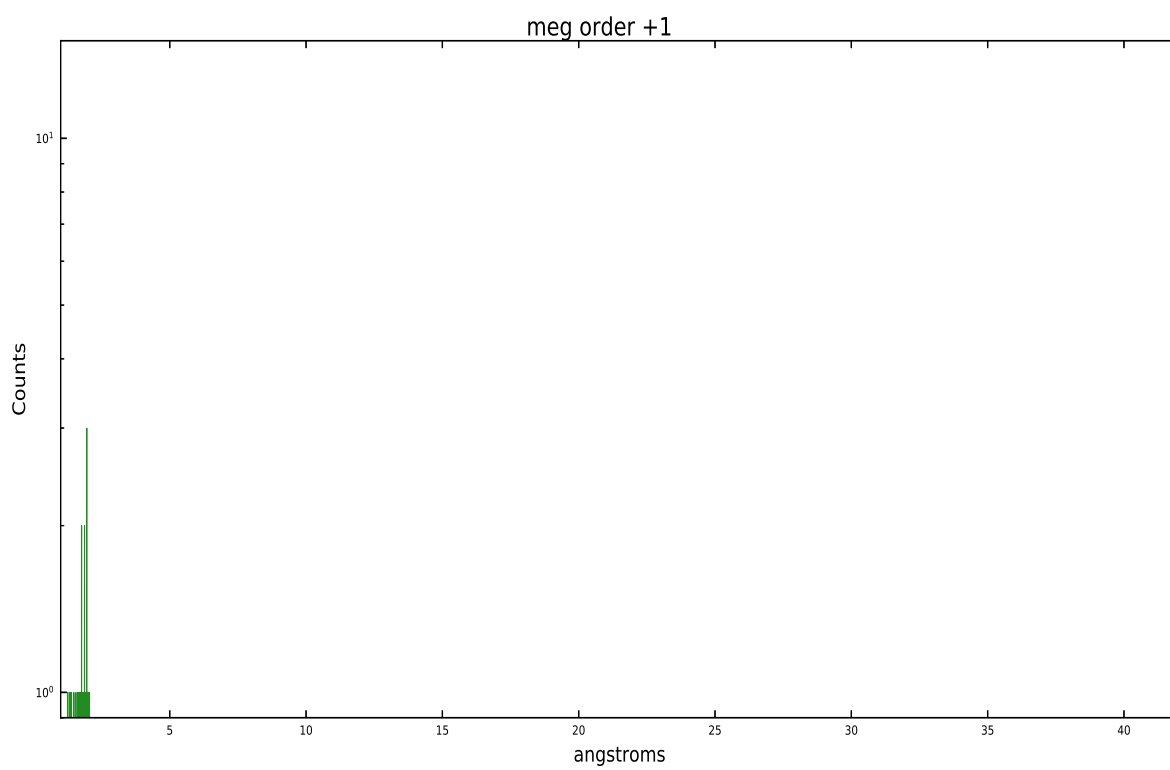
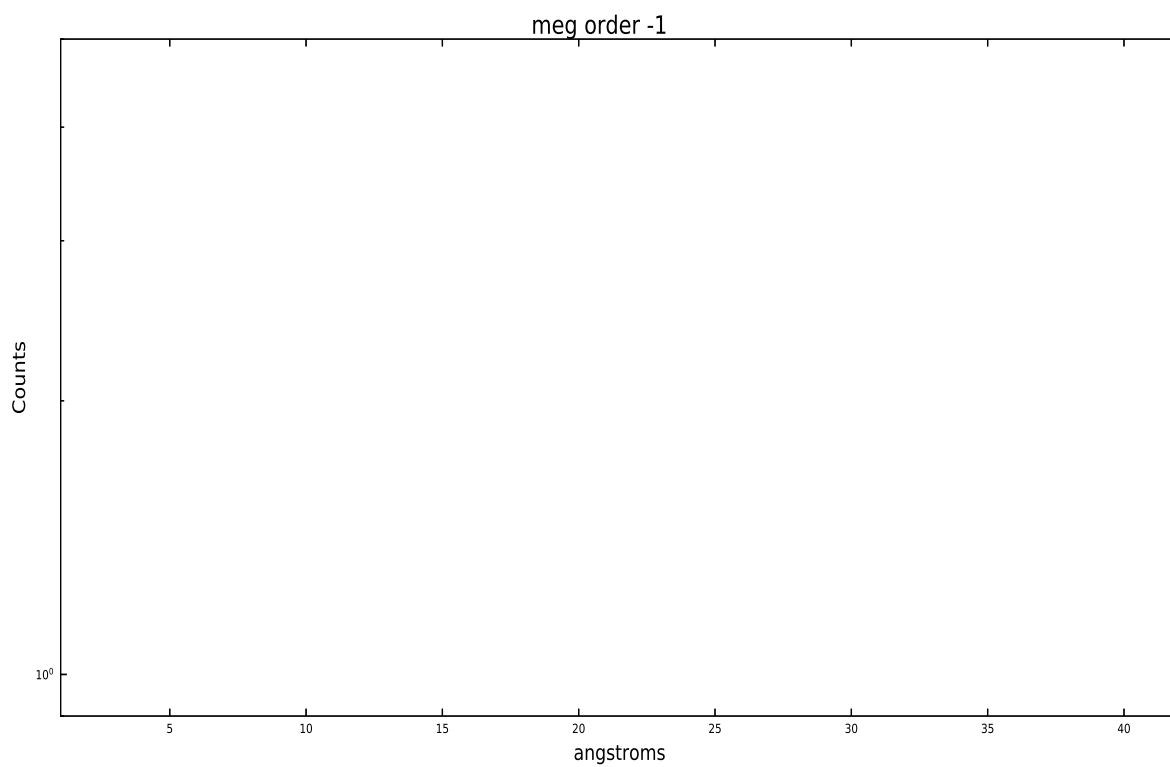


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	7	538434	273	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	10.1838

## 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 between the pulsar and a bright emission knot to the SE. The zeroth order is in a region of low X-ray emission. 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 Å.