

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 5169 - L2 Version 4  
Chandra X-Ray Center

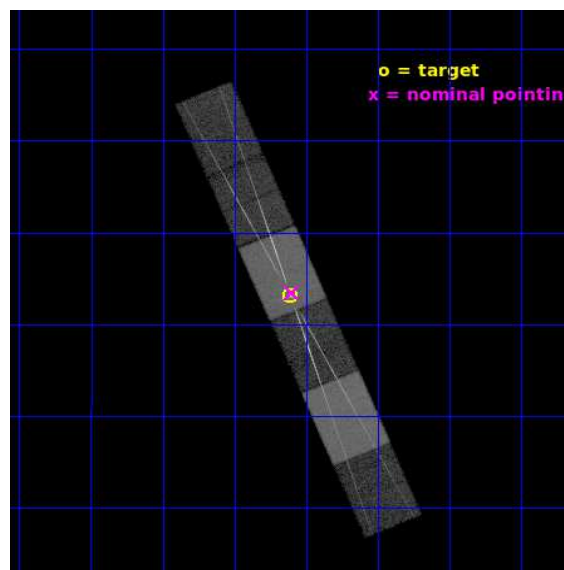
L2 Processing Date : Sep 27 2020

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# 1 Front

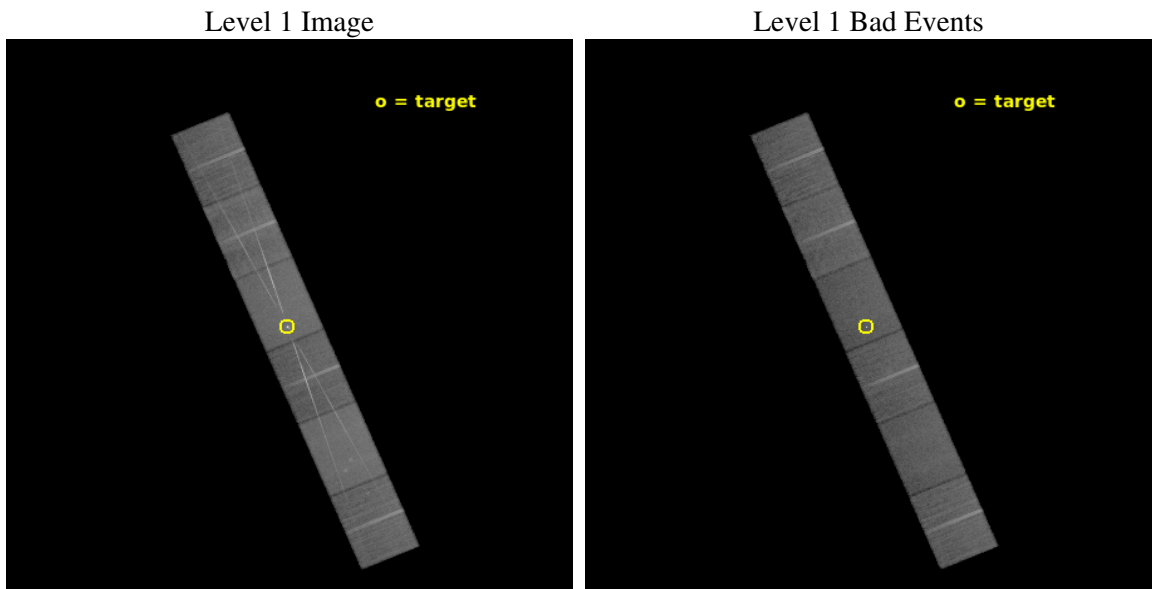
seq_num	790089	Sequence number
obs_id	5169	Observation id
title	AO5 Calibration Observations of 3C273	Proposal title
observer	CXC Calibration	Principal investigator
object	3C273	Source name
dtycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	187.277917	Observer's specified target RA [deg]
dec_targ	2.052389	Observer's specified target Dec [deg]
ra_nom	187.27493798692	Nominal RA [deg]
dec_nom	2.057488390654	Nominal Dec [deg]
roll_nom	247.1071248458	Nominal Roll [deg]
revision	4	Processing version of data
ontime	30167.5	Sum of GTIs [s]
livetime	29680.268708875	Livetime [s]
ontime4	30167.5	Sum of GTIs [s]
ontime5	30167.5	Sum of GTIs [s]
ontime6	30164.959009826	Sum of GTIs [s]
ontime7	30167.5	Sum of GTIs [s]
ontime8	30167.5	Sum of GTIs [s]
ontime9	30167.5	Sum of GTIs [s]
l2events	353295	Number of level 2 events



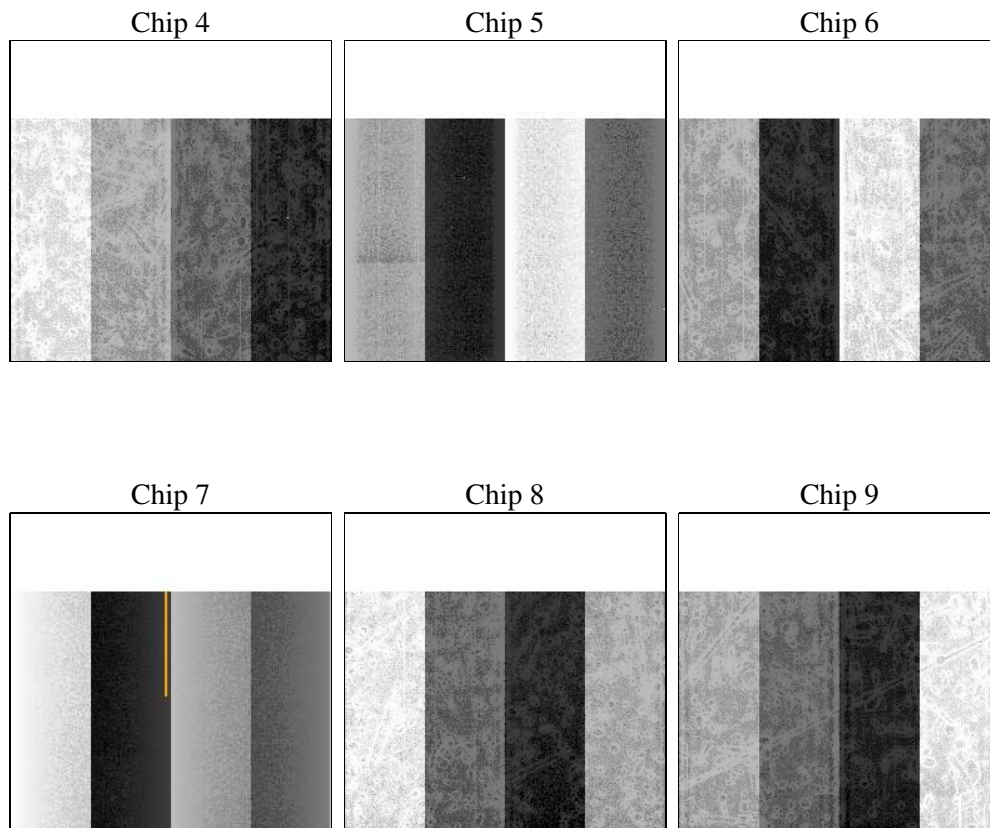
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	30167.5	Sum of GTIs [s]
caldbver	4.9.2	&#160	ontime4	30167.5	Sum of GTIs [s]
date	2020-09-27T03:42:46	Date and time of file creation	ontime5	30167.5	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	30164.959009826	Sum of GTIs [s]
			ontime7	30167.5	Sum of GTIs [s]
			ontime8	30167.5	Sum of GTIs [s]
			ontime9	30167.5	Sum of GTIs [s]
			l1events	1331788	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			z0_pos	(4074.70, 4050.56)	src1a sky level position

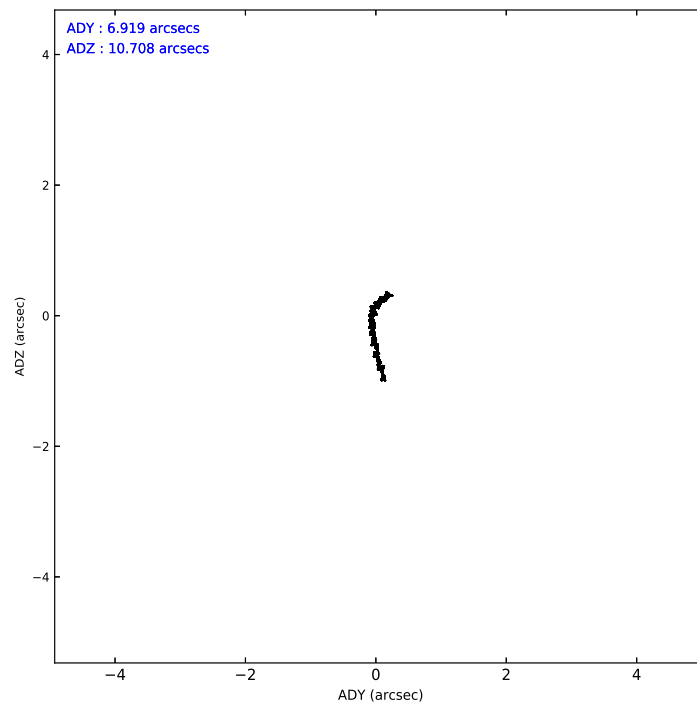
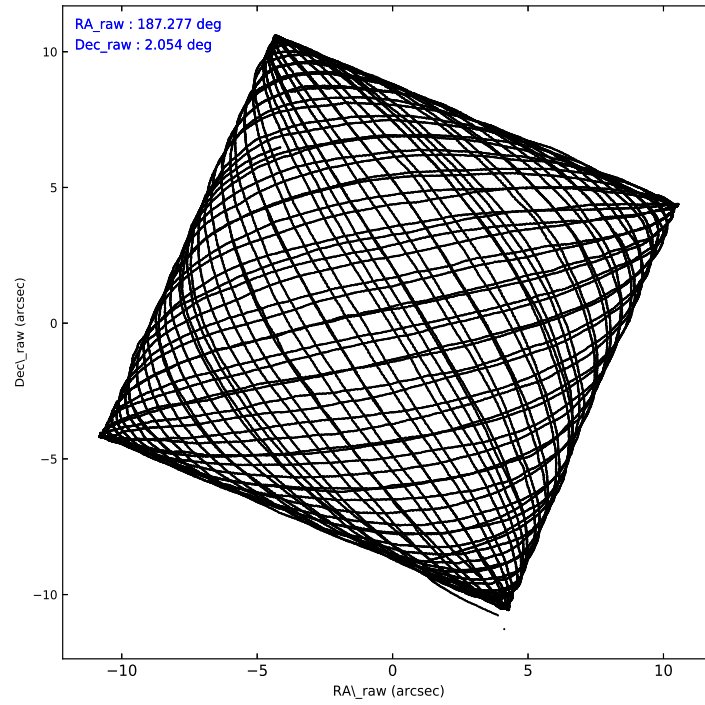
### 2.1.4 Events

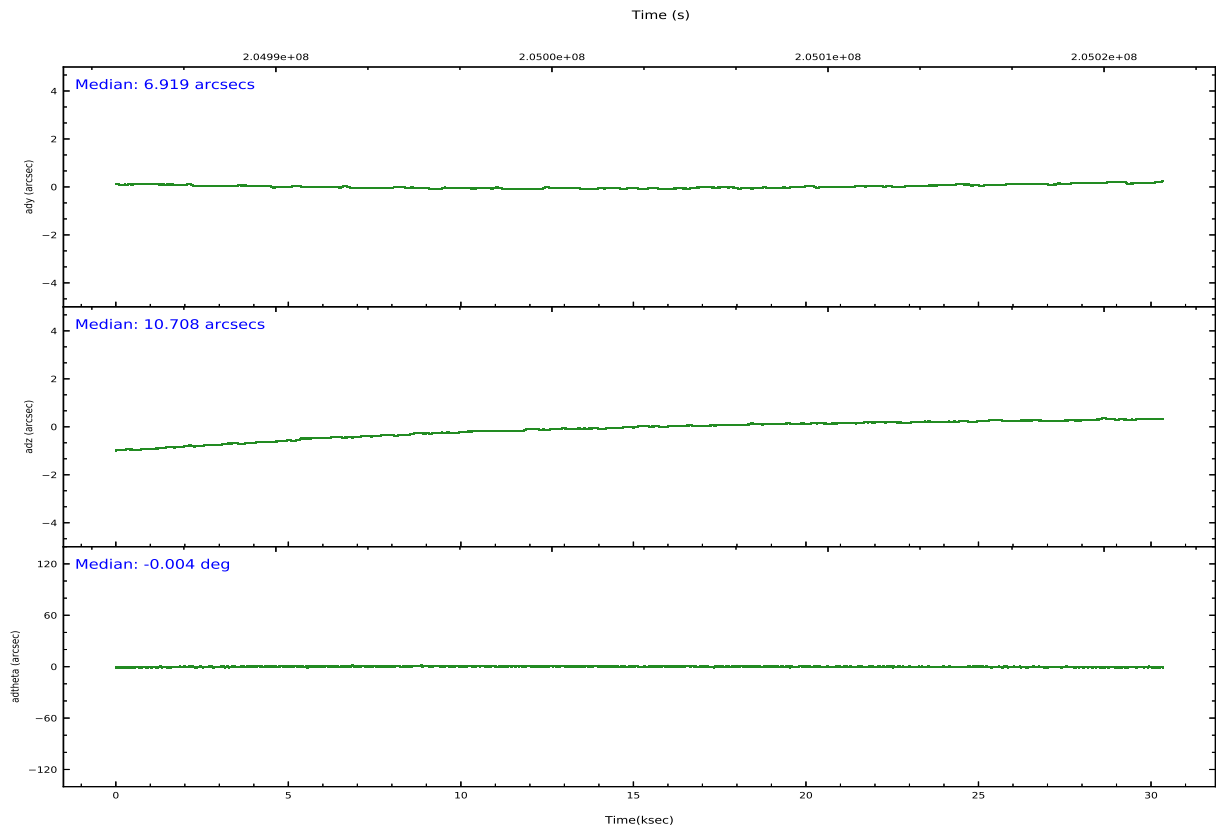
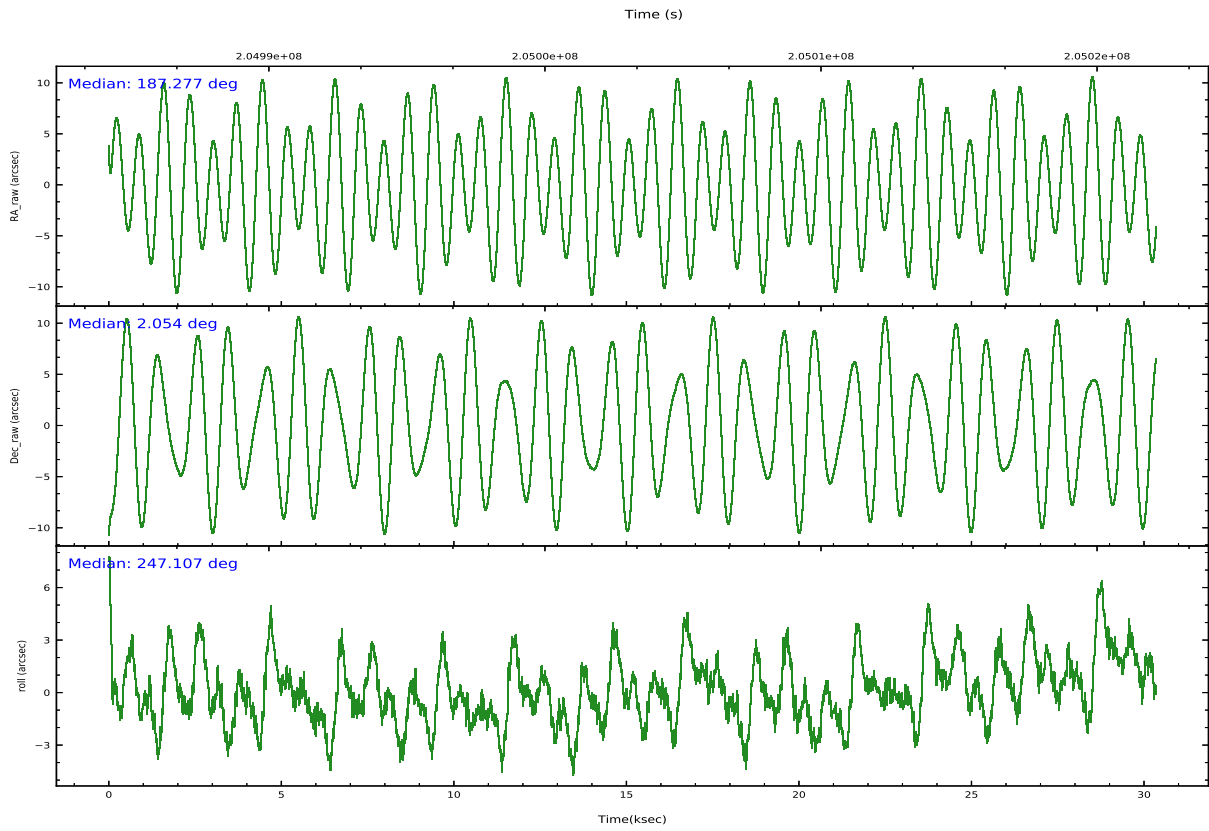
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	196950	258486	202203	267959	231687	174503	grade 0 events	11140	12227	29080	15407	25259	10745
rejected events	173255	138518	155170	141018	172075	150786		5%	4%	14%	5%	10%	6%
rejected %	87%	53%	76%	52%	74%	86%	grade 1 events	139	445	162	482	176	90
								0%	0%	0%	0%	0%	0%
							grade 2 events	4694	35468	7105	26417	11480	4364
								2%	13%	3%	9%	4%	2%
							grade 3 events	2434	6006	3145	12244	5440	2341
								1%	2%	1%	4%	2%	1%
							grade 4 events	2185	5880	3070	11909	5271	2284
								1%	2%	1%	4%	2%	1%
							grade 5 events	7287	19416	7872	23331	10065	7958
								3%	7%	3%	8%	4%	4%
							grade 6 events	3453	61277	4898	61695	12502	4128
								1%	23%	2%	23%	5%	2%
							grade 7 events	165618	117767	146871	116474	161494	142593
								84%	45%	72%	43%	69%	81%

## 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	187.273217	187.27493798692	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	2.081375	2.057488390654	Subarray start row	1	1
[deg] Pointing Roll	246.950265	247.1071248458	Subarray row count	774	774
[s] Window start time (MET)	202435264.184000	202435264.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	207619264.184000	207619264.184000	[s] Primary exposure time	0.000000	2.5
[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)	204987533.184000	204986422.48714			
Observation start date	2004-06-30T12:57:49	2004-06-30T12:40:22			
[s] Observation end time (MET)	205017533.184000	205017714.20103			
Observation end date	2004-06-30T21:17:49	2004-06-30T21:21:54			
Read mode	TIMED	TIMED			

## 2.3 Aspect





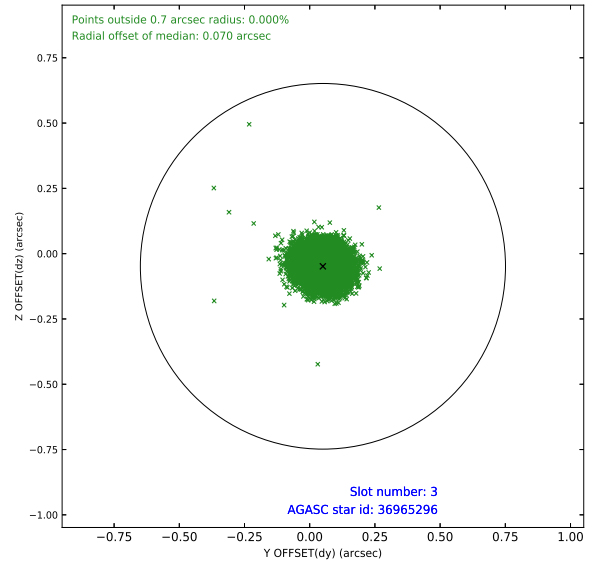
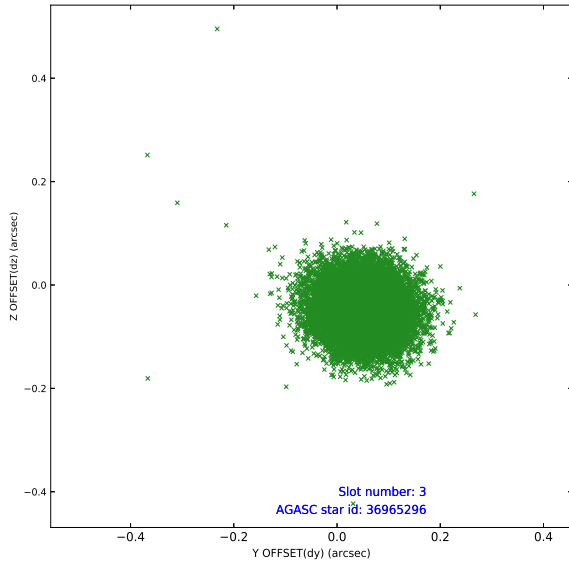
### Slot Statistics

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	7403	1.000	-0.079	-0.125	0.009	0.022	0.000000	0.000000	-759.56	-1794
1	FID		ACIS-S-4	7.19	7402	1.000	0.146	0.071	0.007	0.013	0.000000	0.000000	2153.91	114
2	FID		ACIS-S-5	7.23	7402	1.000	-0.097	0.062	0.010	0.020	0.000000	0.000000	-1812.33	108
3	GUIDE	used	36965296	9.09	14799	1.000	0.051	-0.048	0.067	0.110	186.926292	1.837429	1297.17	-804
4	GUIDE	used	36965816	9.24	14794	1.000	0.043	0.028	0.078	0.124	186.823353	1.771455	1660.81	-1052
5	GUIDE	used	36965896	9.72	14795	1.000	0.065	-0.113	0.099	0.162	187.153754	1.617178	1706.51	258
6	GUIDE	used	37356352	7.66	14806	1.000	-0.416	-0.113	0.057	0.092	187.433784	2.618460	-2005.16	-225
7	GUIDE	used	37883040	9.98	14789	1.000	0.256	0.240	0.135	0.221	187.575516	1.280402	2227.72	2130

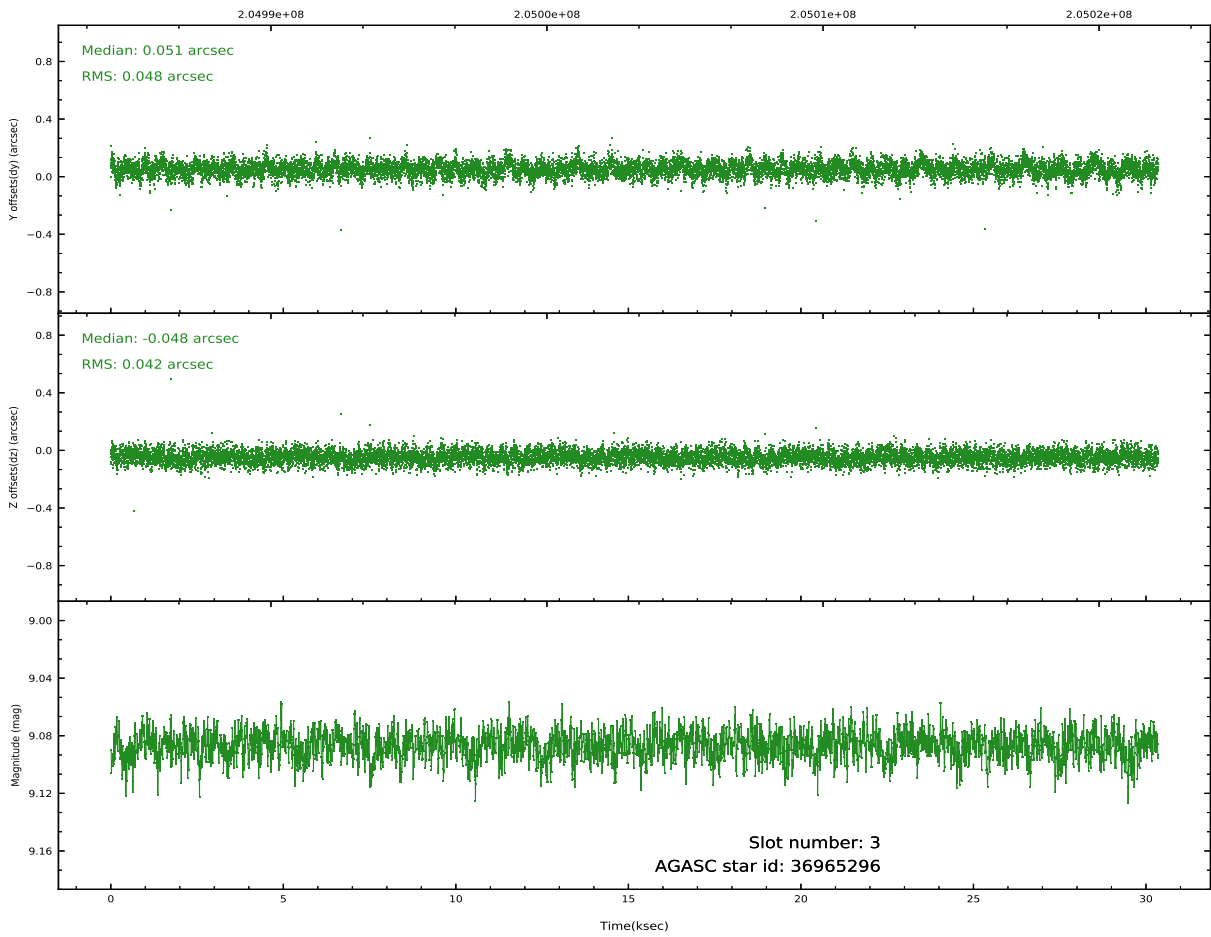
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## 2.4 Star Slots

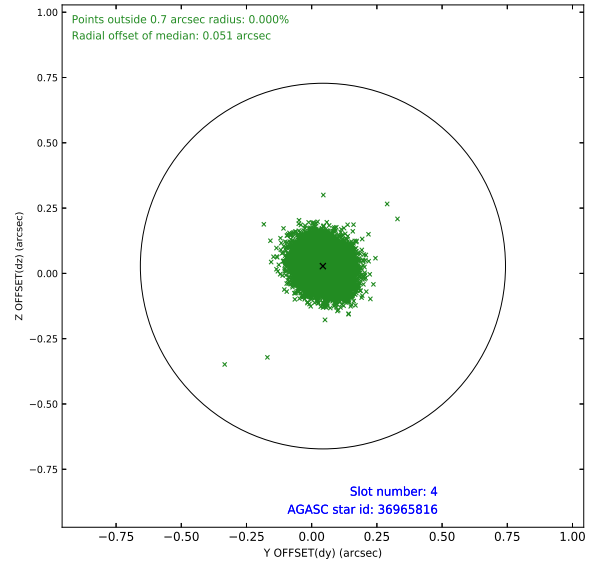
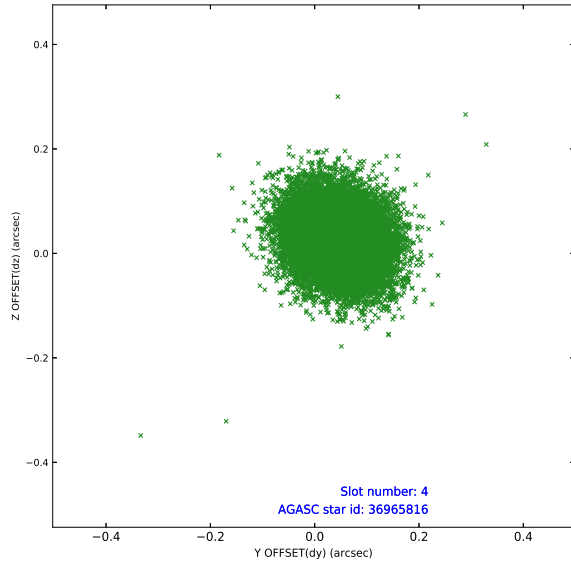
### 2.4.1 Slot 3



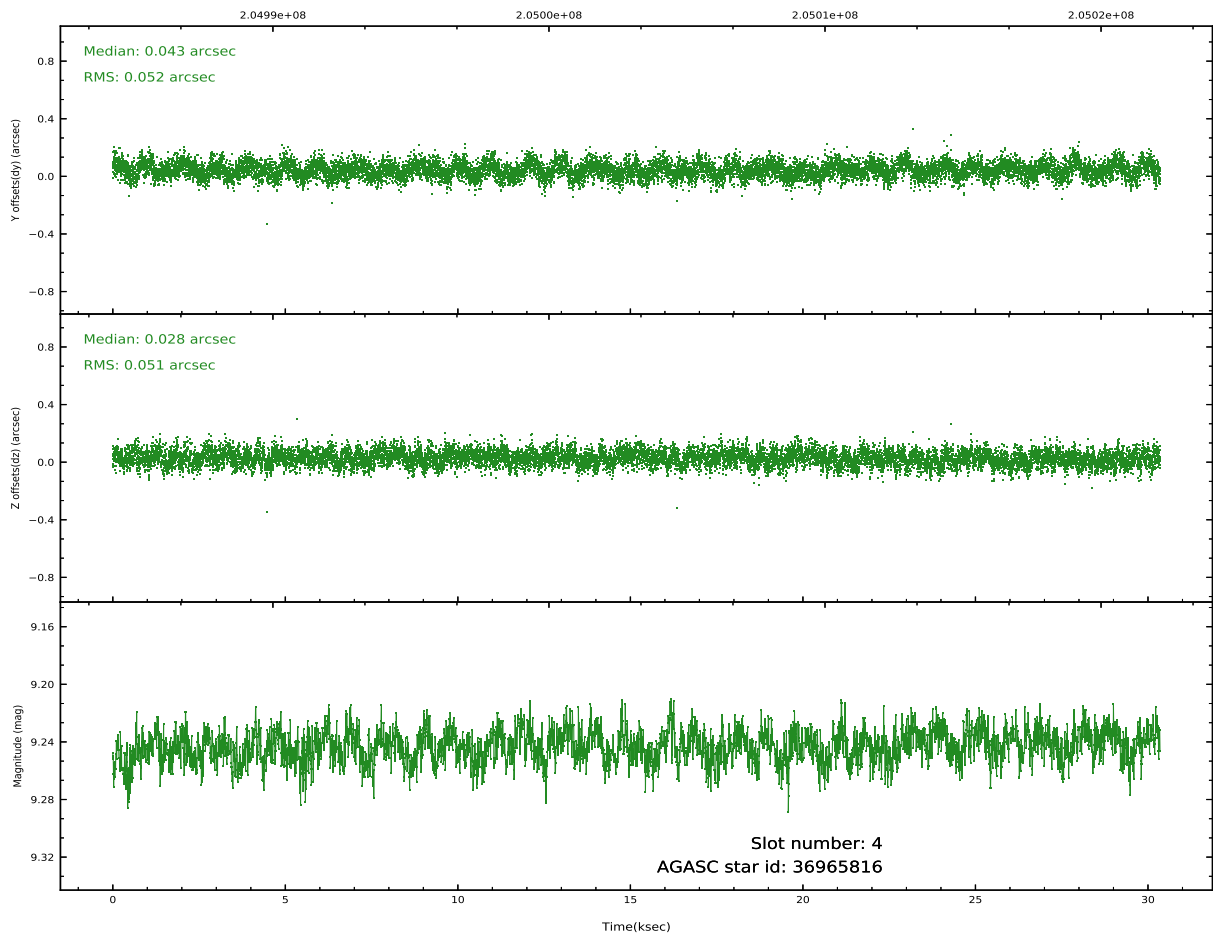
Time (s)



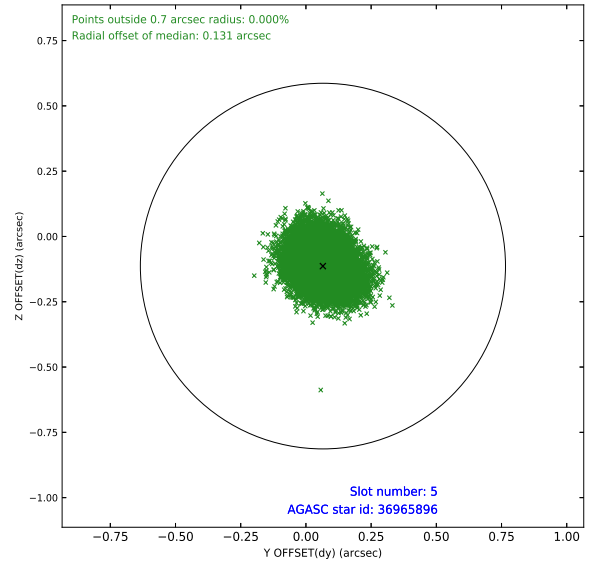
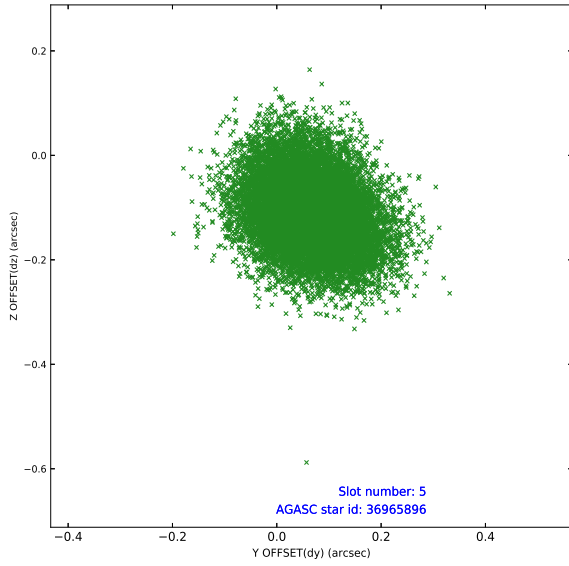
## 2.4.2 Slot 4



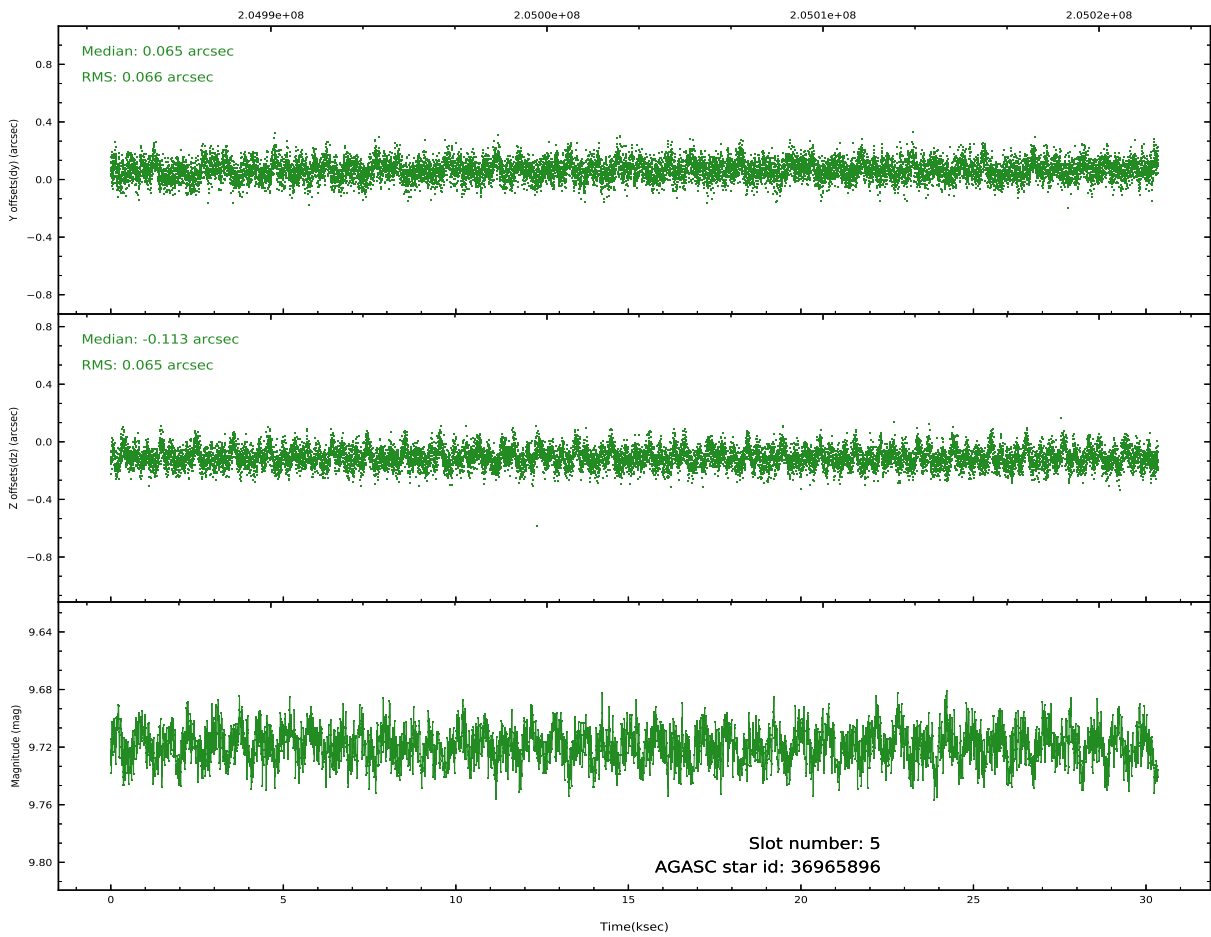
Time (s)



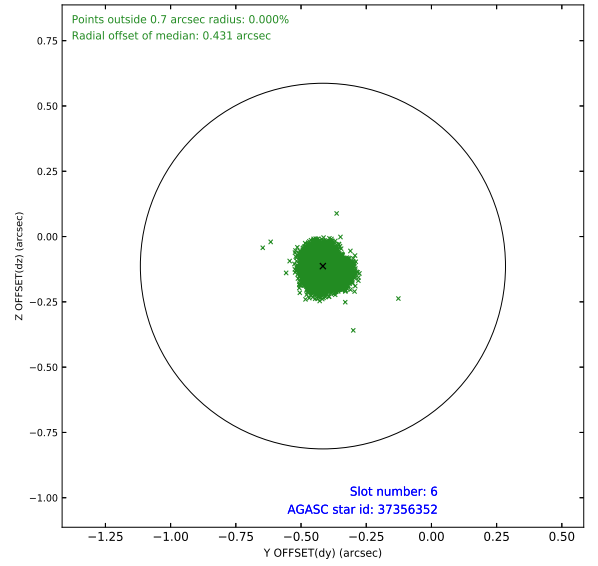
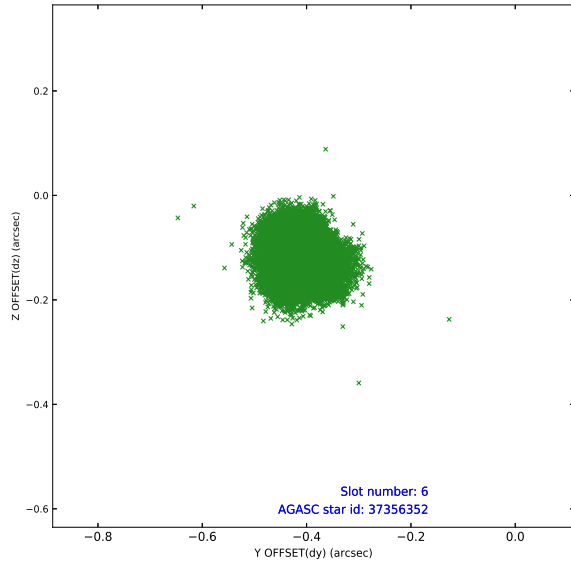
### 2.4.3 Slot 5



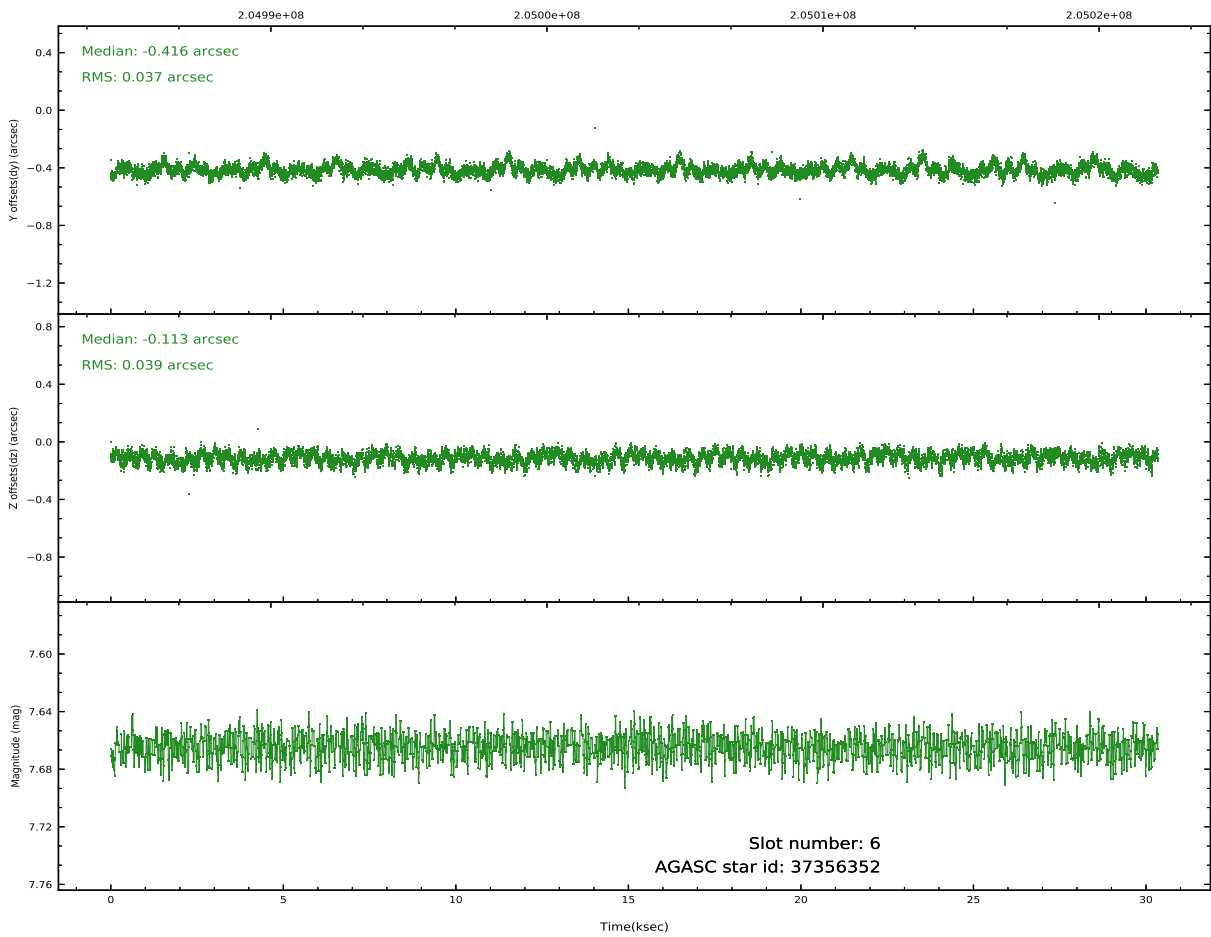
Time (s)



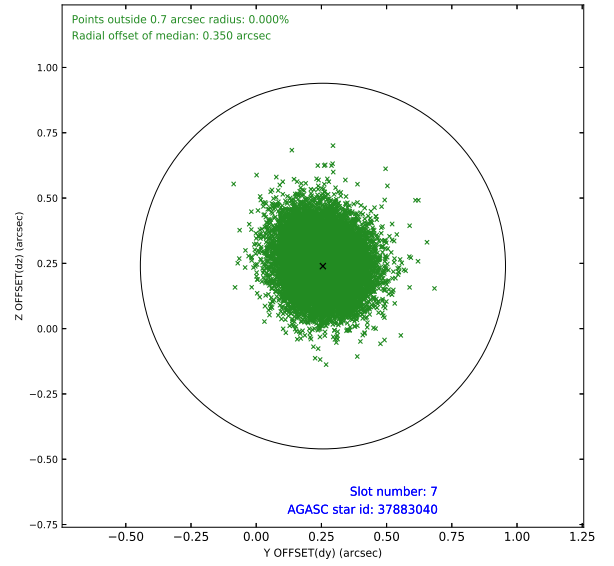
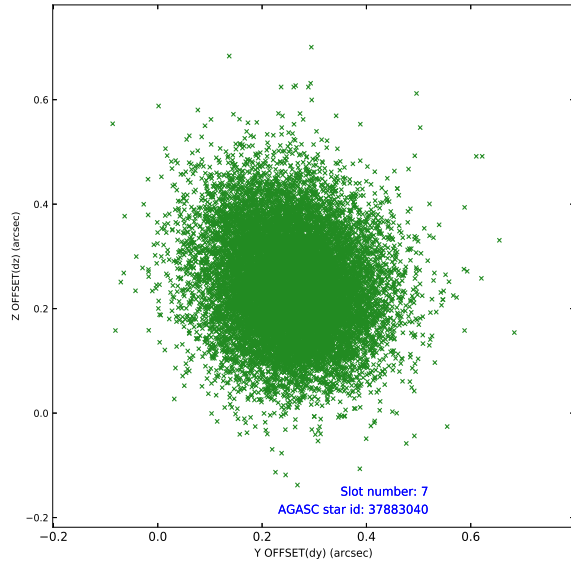
## 2.4.4 Slot 6



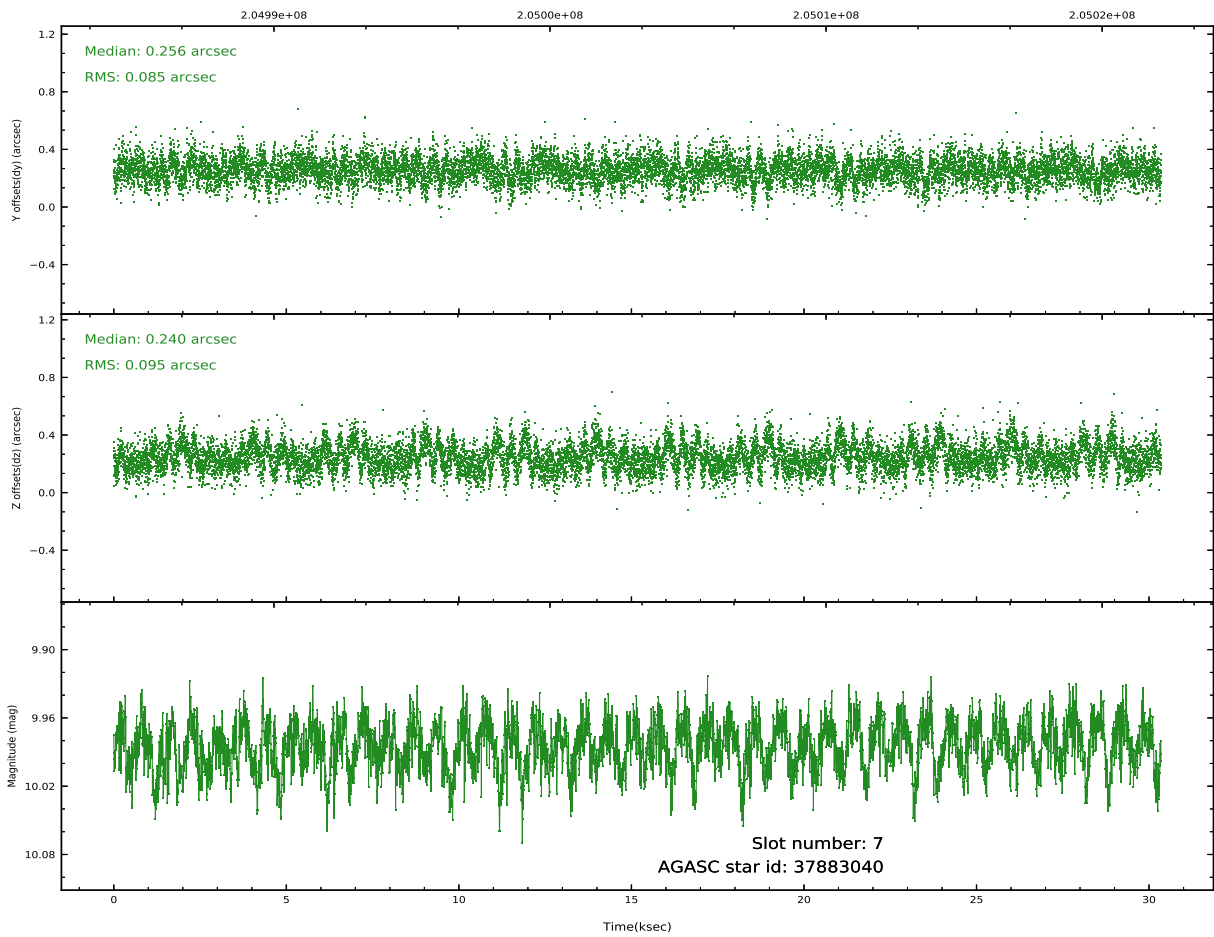
Time (s)



## 2.4.5 Slot 7

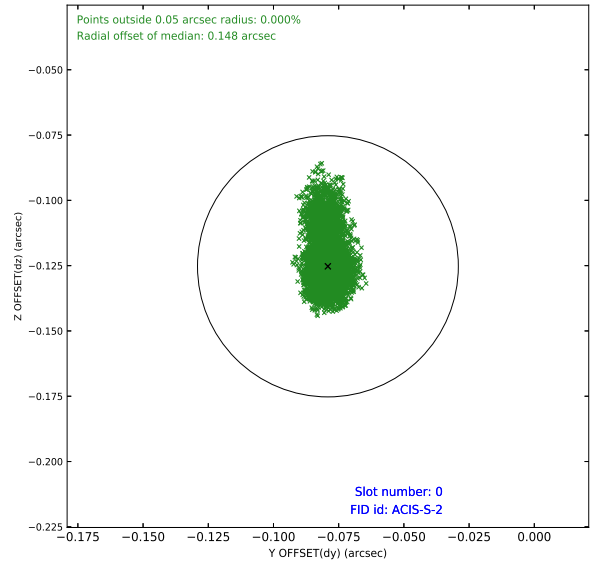
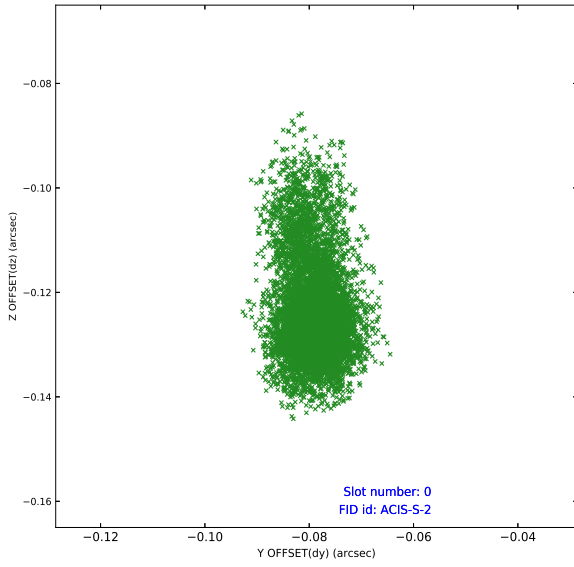


Time (s)

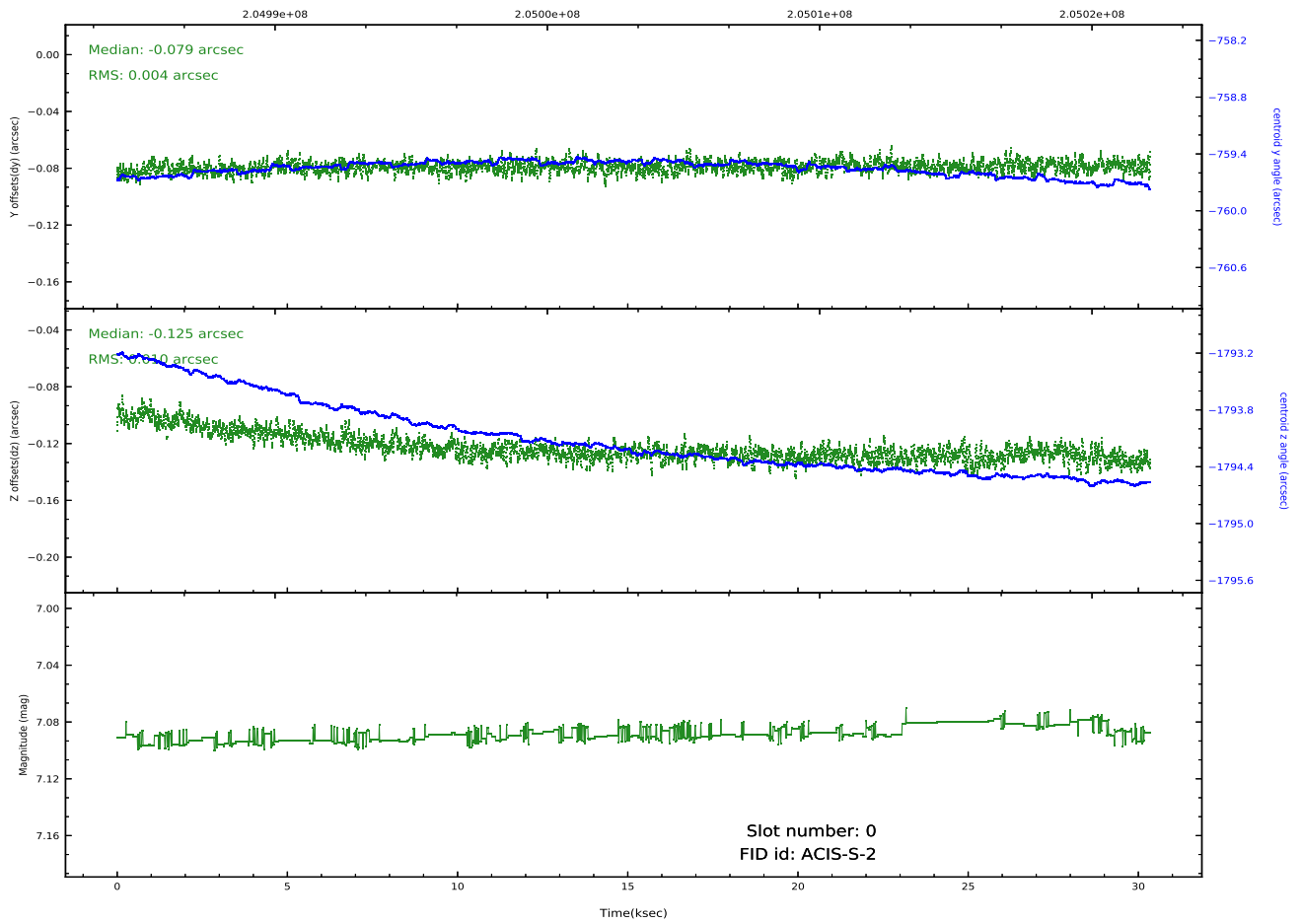


## 2.5 FID Slots

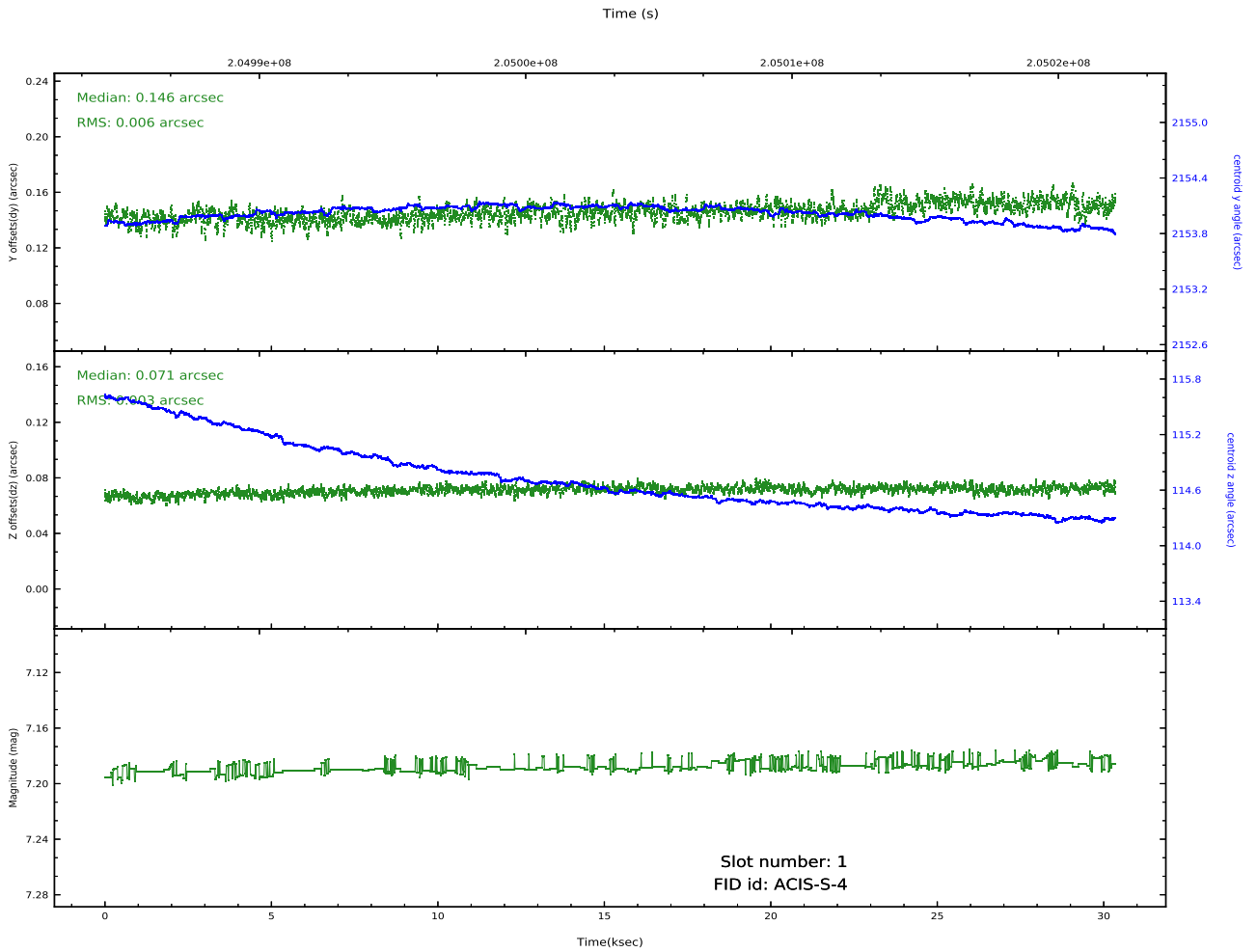
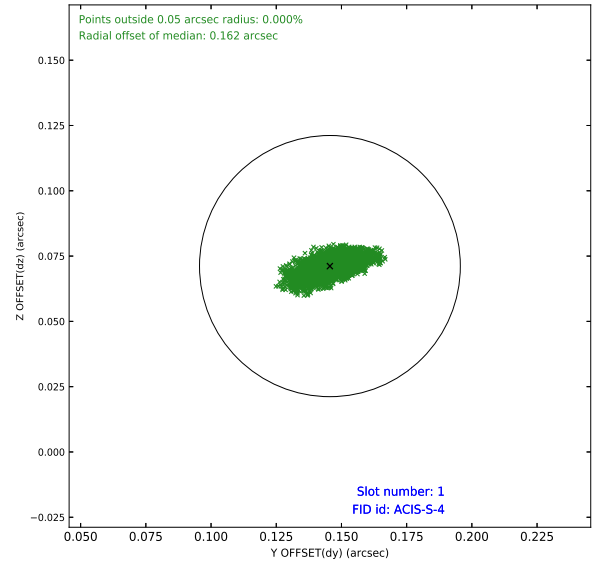
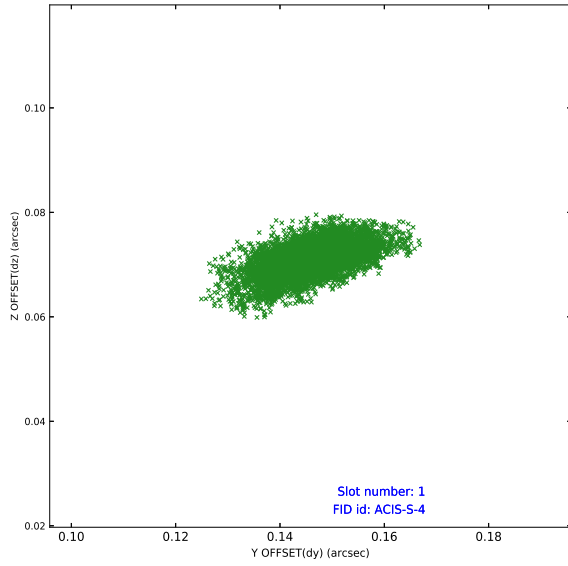
### 2.5.1 Slot 0



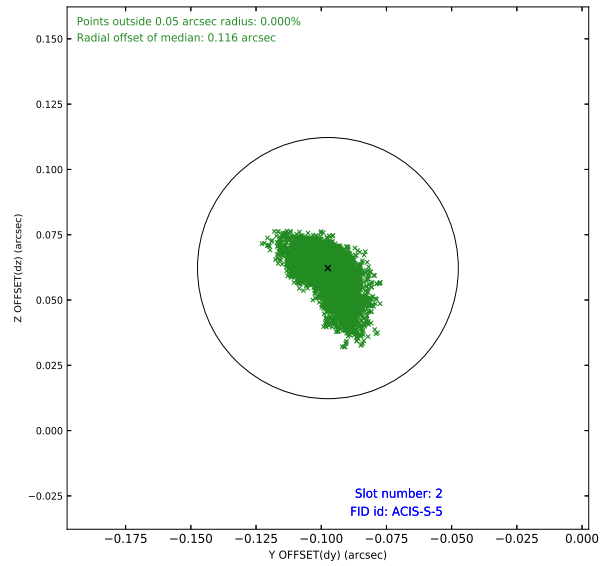
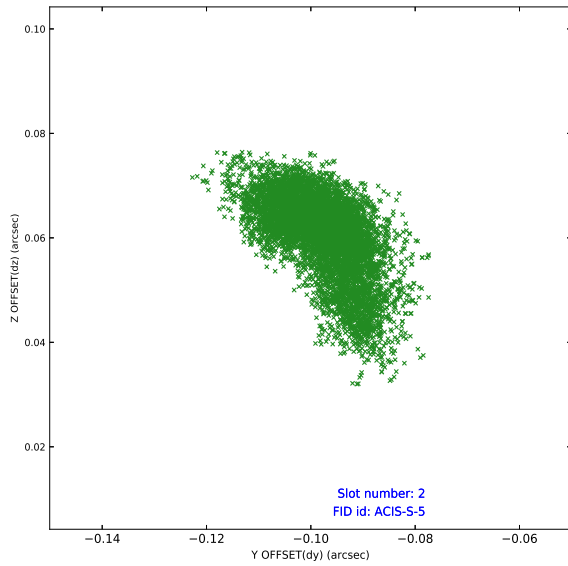
Time (s)



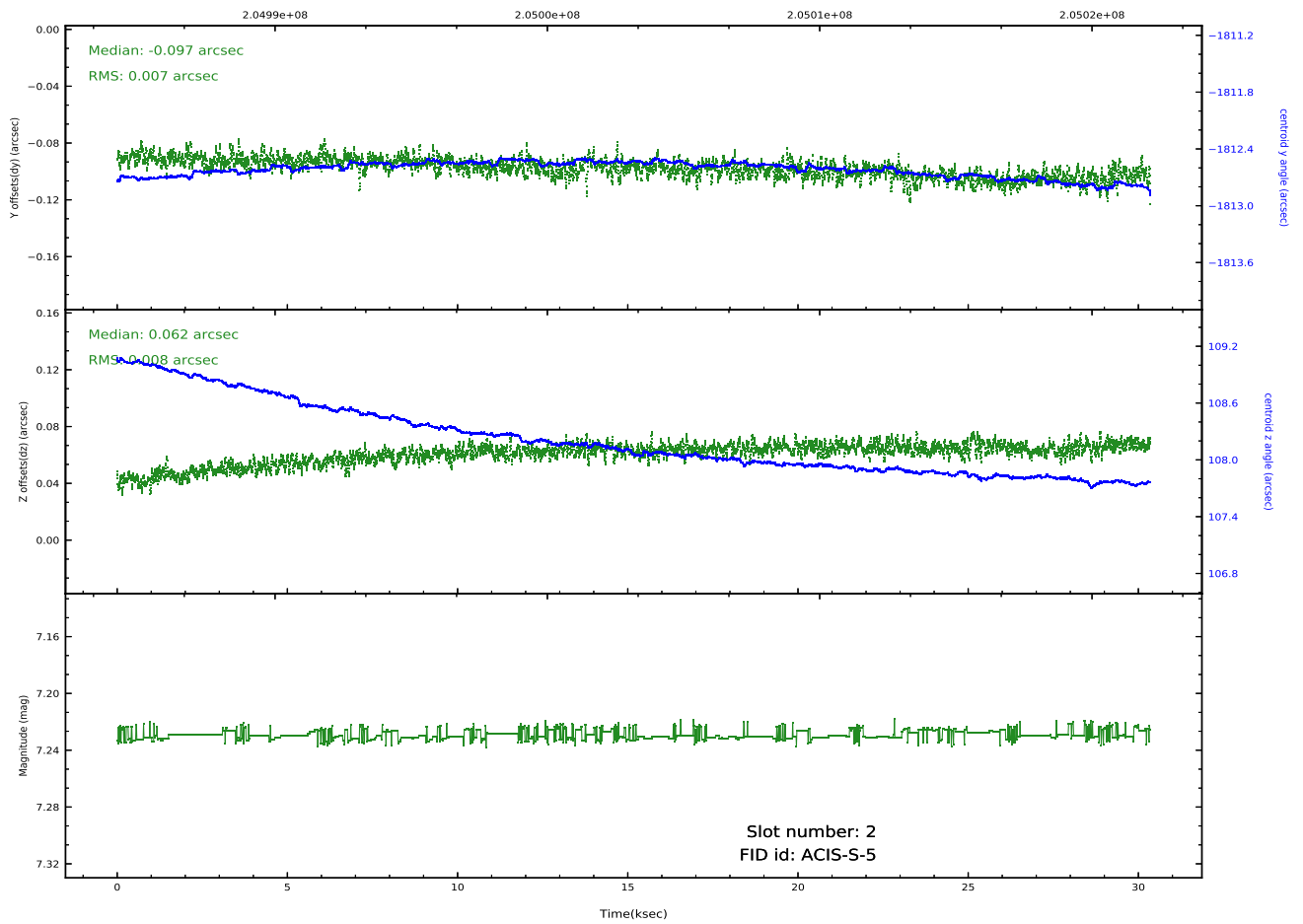
## 2.5.2 Slot 1



### 2.5.3 Slot 2

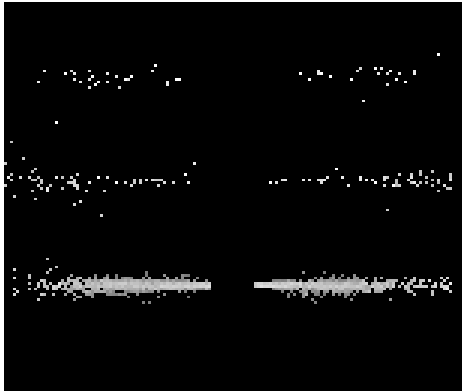


Time (s)

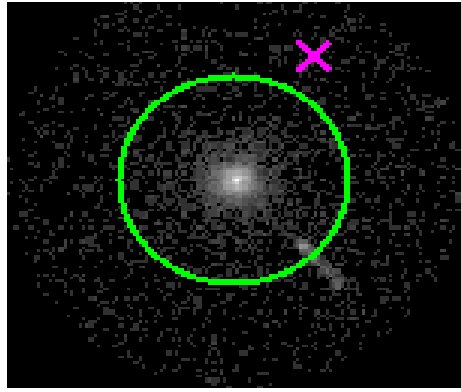


# 3 Gratings

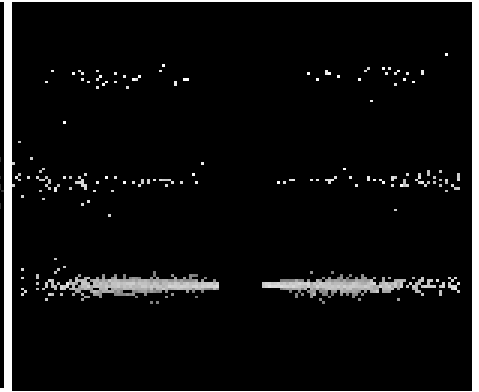
## 3.1 HEG Arm



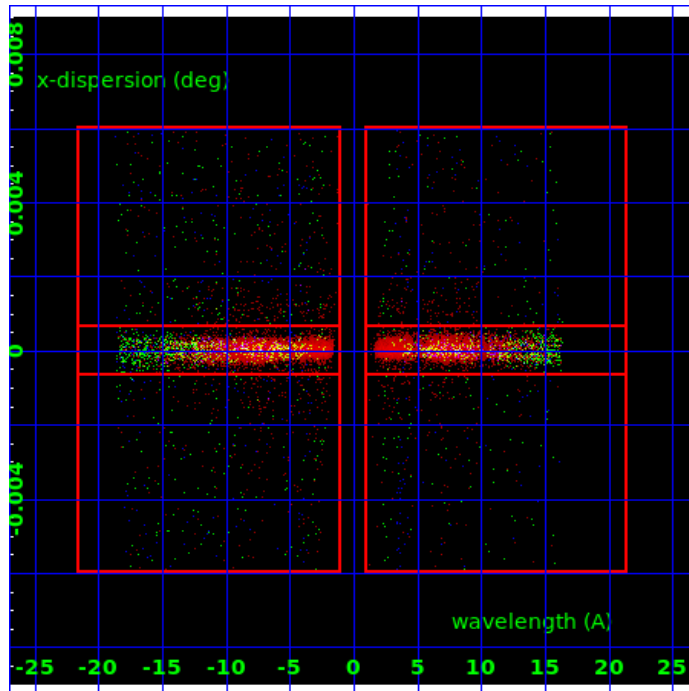
HEG Order Sort 123



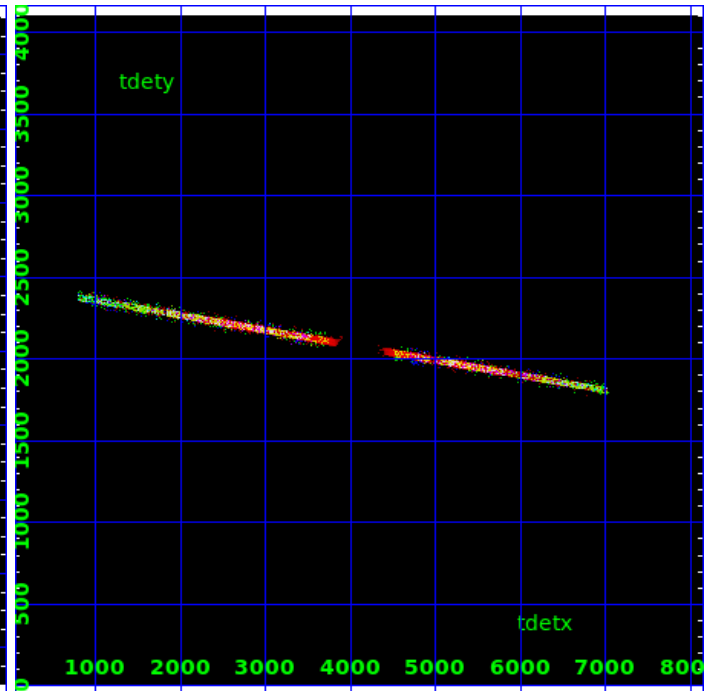
HEG Zero Order



HEG Order Sort ALL

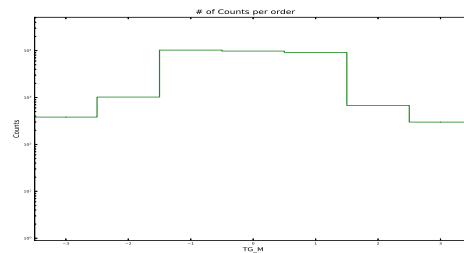


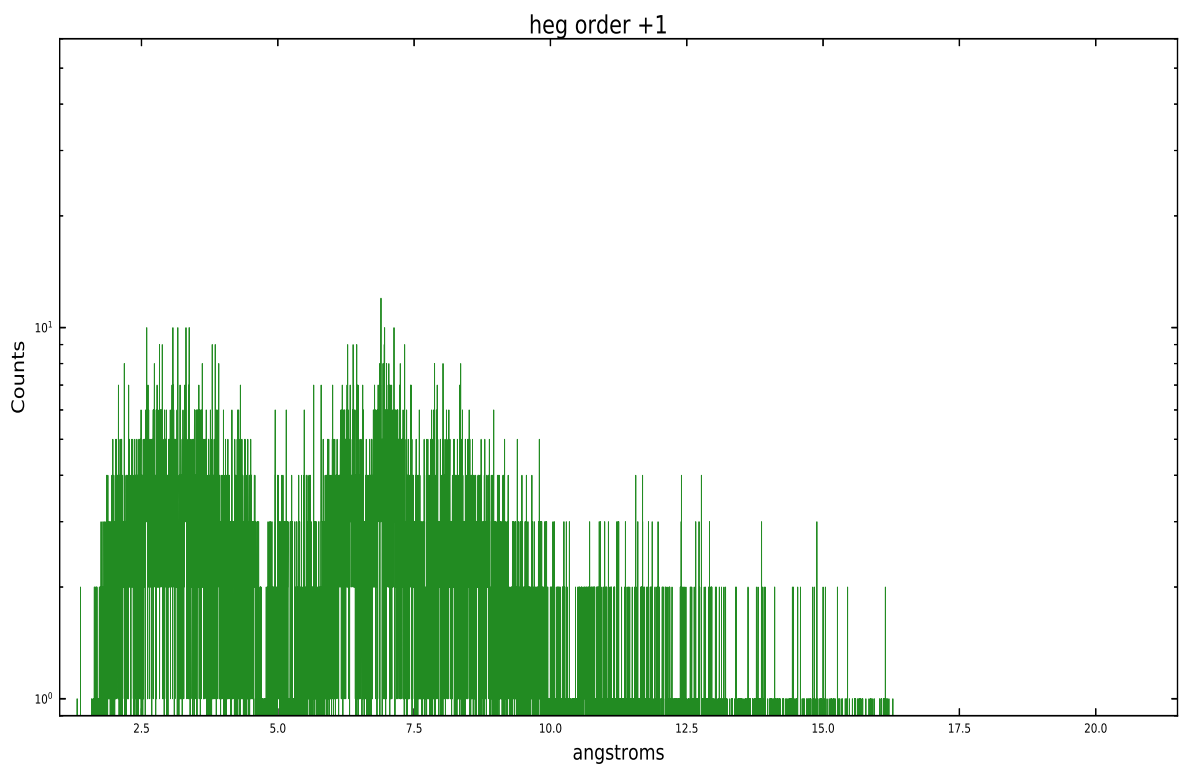
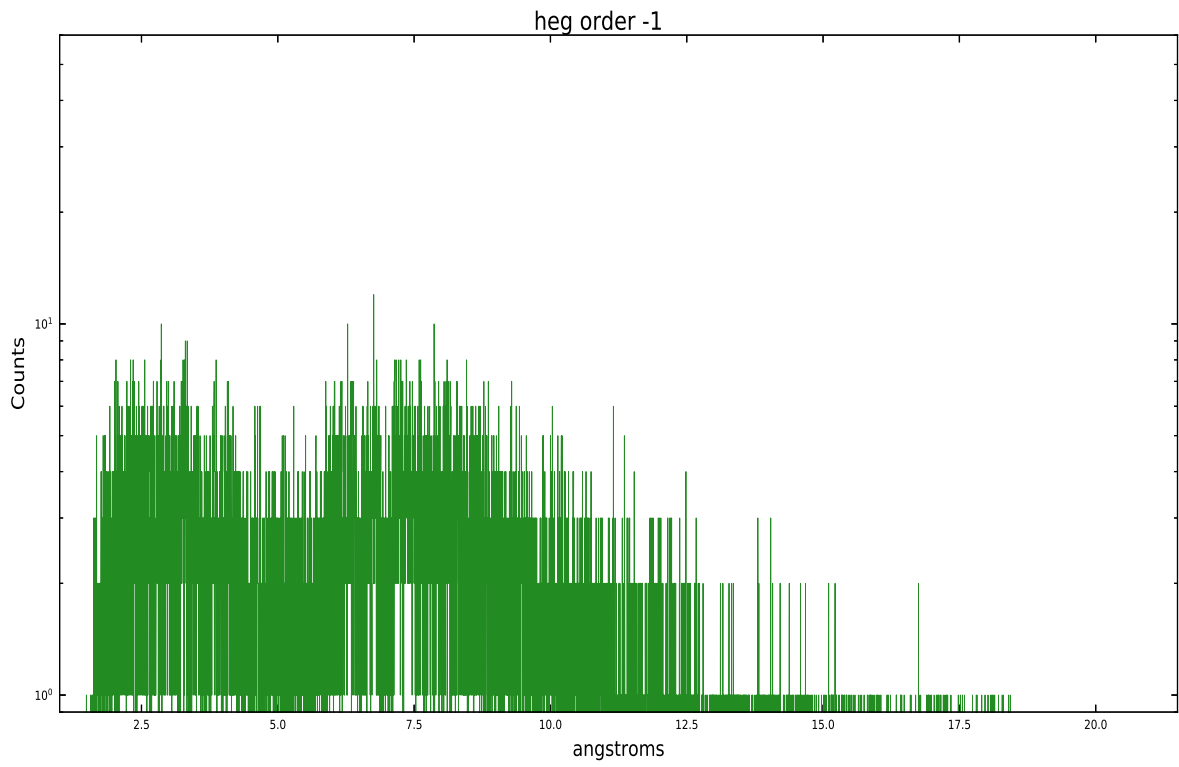
Spot Image HEG



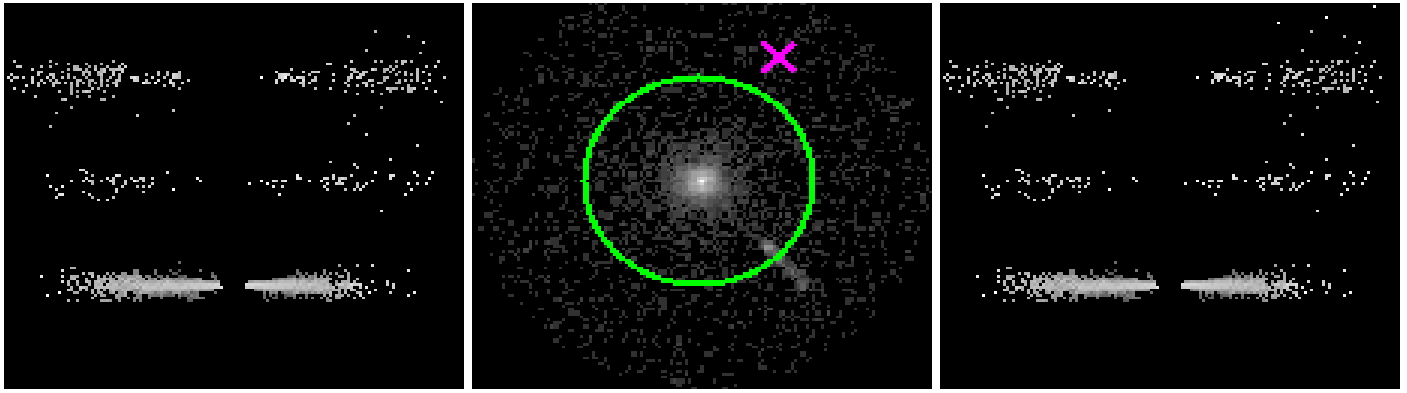
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	382	1021	10246	9755	9141	678	299





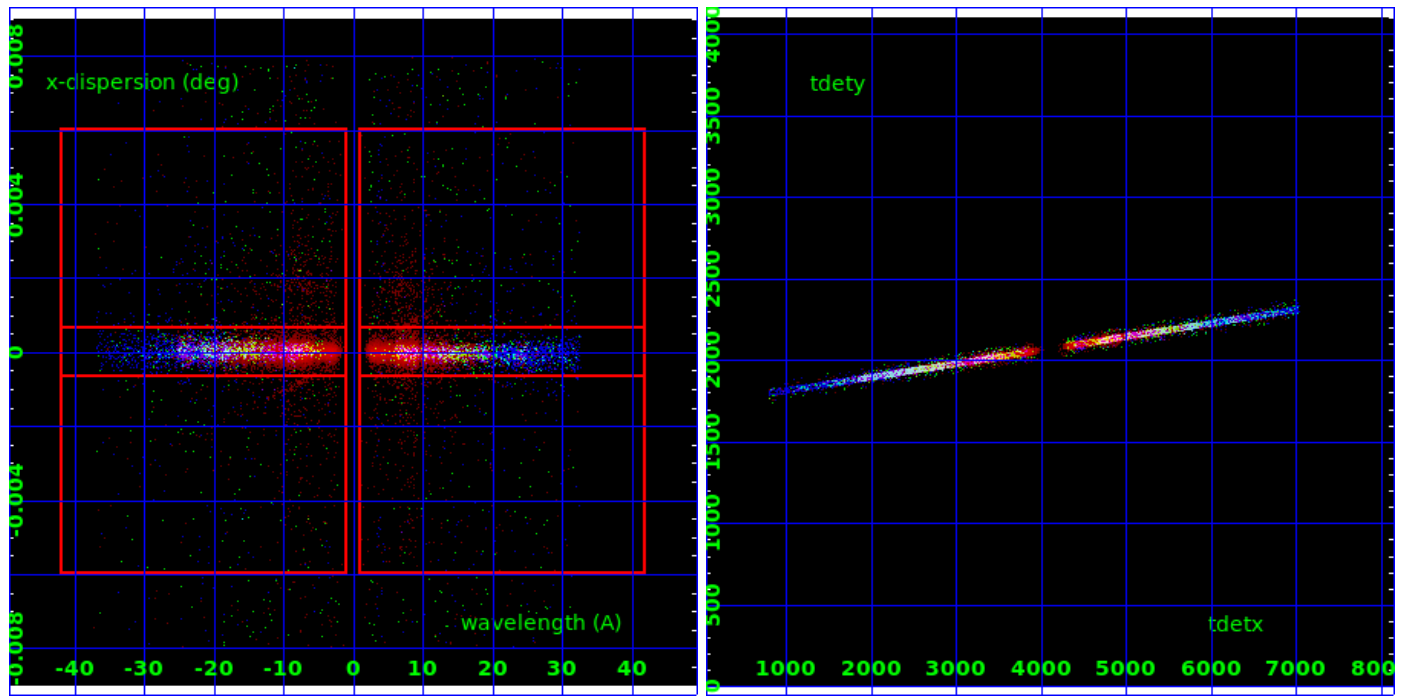
### 3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

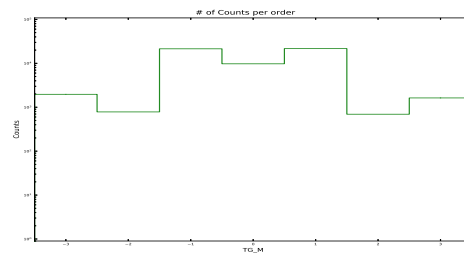
MEG Order Sort ALL

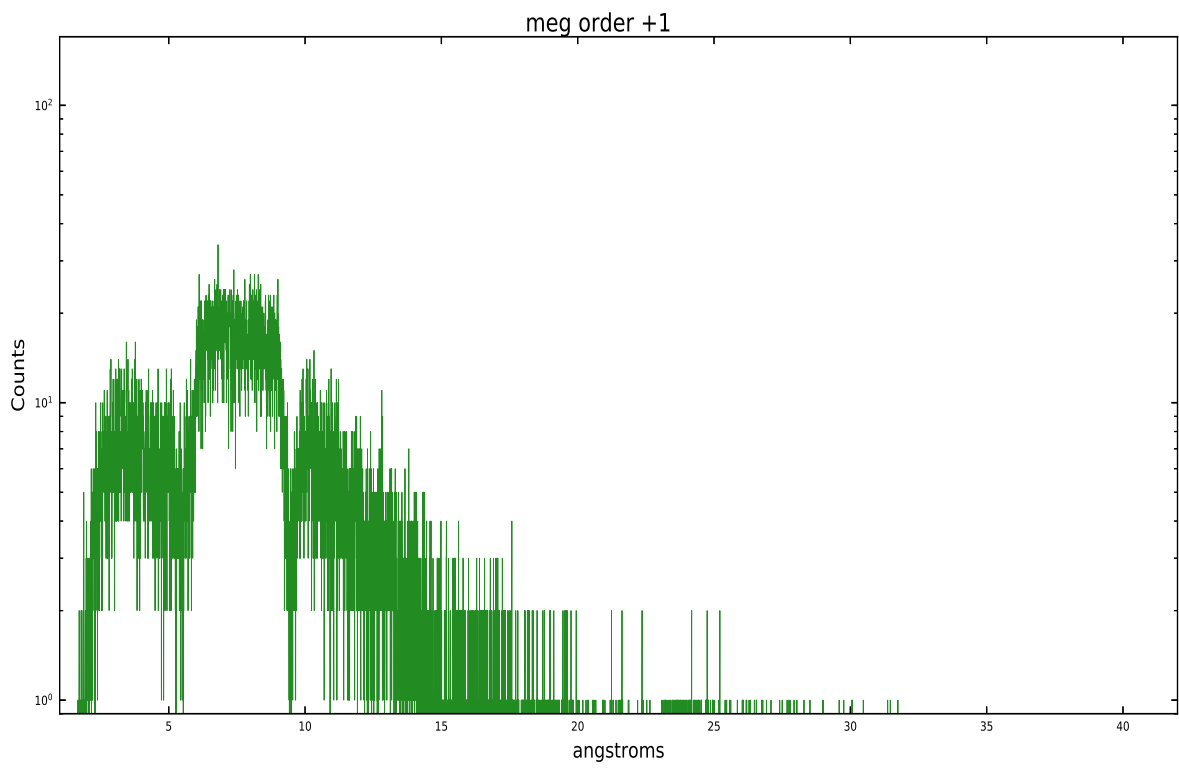
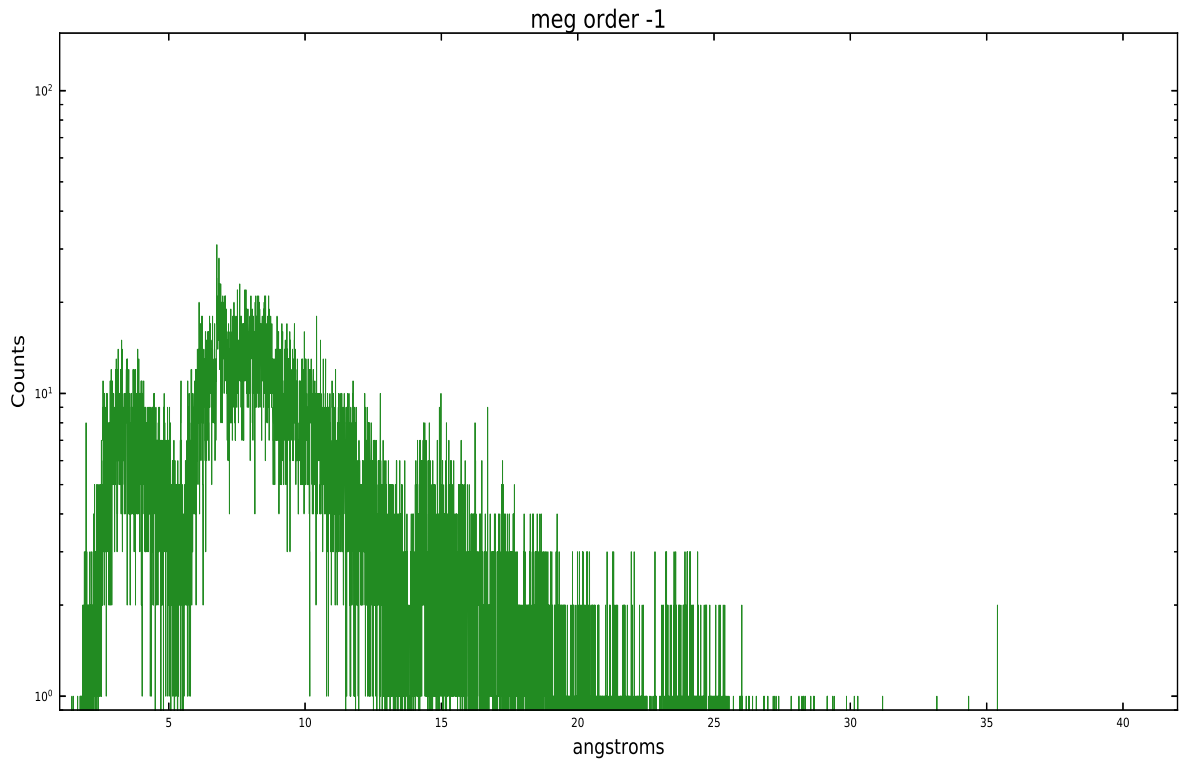


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1968	783	21421	9755	21638	693	1630





# A Summary

## A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2020.10.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.167

## A.2 Comments