

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 5460 - L2 Version 5  
Chandra X-Ray Center

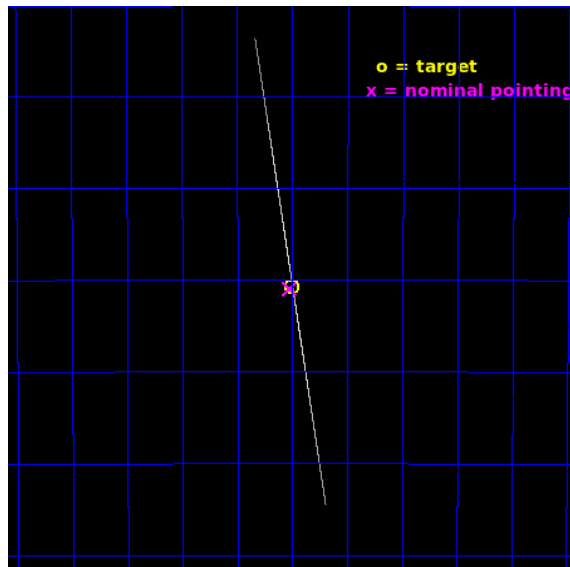
L2 Processing Date : Oct 7 2020

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# 1 Front

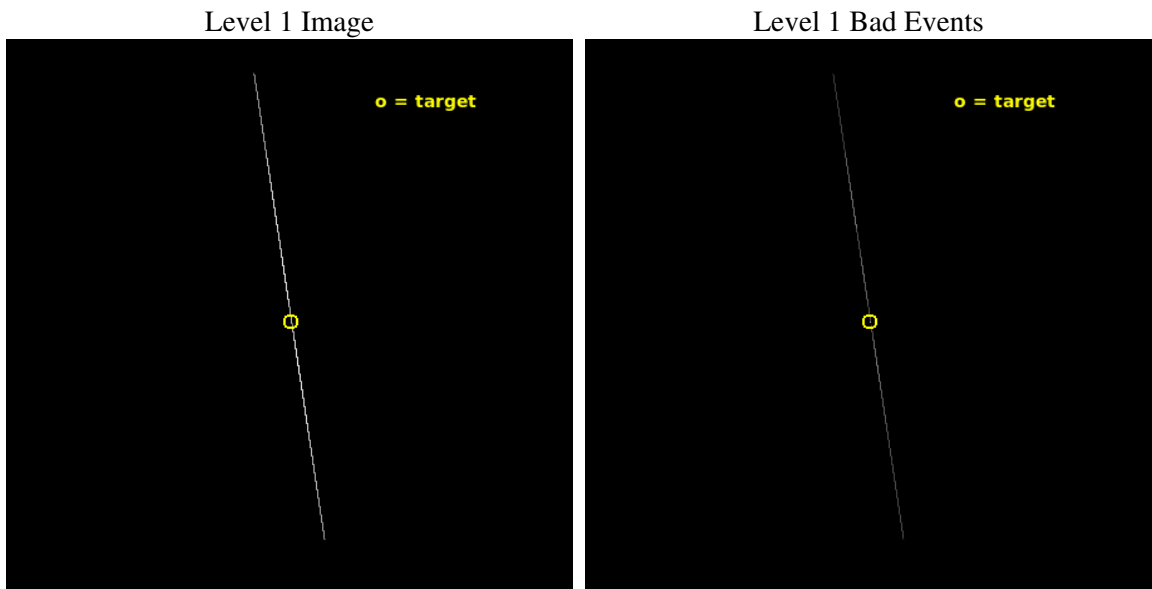
seq_num	400390	Sequence number
obs_id	5460	Observation id
title	Relativistic Effects and Outflows in a Black Hole Transient	Propos
observer	Jon Miller	Principal investigator
object	GRO J1655-40	Source name
ra_targ	253.500583	Observer's specified target RA [deg]
dec_targ	-39.845806	Observer's specified target Dec [deg]
ra_nom	253.50562682395	Nominal RA [deg]
dec_nom	-39.849821004768	Nominal Dec [deg]
roll_nom	81.702963739854	Nominal Roll [deg]
revision	5	Processing version of data
ontime	14301.597810149	Sum of GTIs [s]
livetime	14245.732193703	Livetime [s]
ontime4	29659.036127865	Sum of GTIs [s]
ontime5	33566.75	Sum of GTIs [s]
ontime6	14288.461262673	Sum of GTIs [s]
ontime7	14301.597810149	Sum of GTIs [s]
ontime8	22929.274050176	Sum of GTIs [s]
ontime9	33025.319042295	Sum of GTIs [s]
l2events	10517215	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	33423.002000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	14301.597810149	Sum of GTIs [s]
caldbver	4.9.2	&#160	ontime4	29659.036127865	Sum of GTIs [s]
date	2020-10-07T05:17:18	Date and time of file creation	ontime5	33566.75	Sum of GTIs [s]
revision	5	Processing version of data	ontime6	14288.461262673	Sum of GTIs [s]
			ontime7	14301.597810149	Sum of GTIs [s]
			ontime8	22929.274050176	Sum of GTIs [s]
			ontime9	33025.319042295	Sum of GTIs [s]
			l1events	12650023	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			z0_pos	(4124.62, 4126.03)	src1a sky pixel position

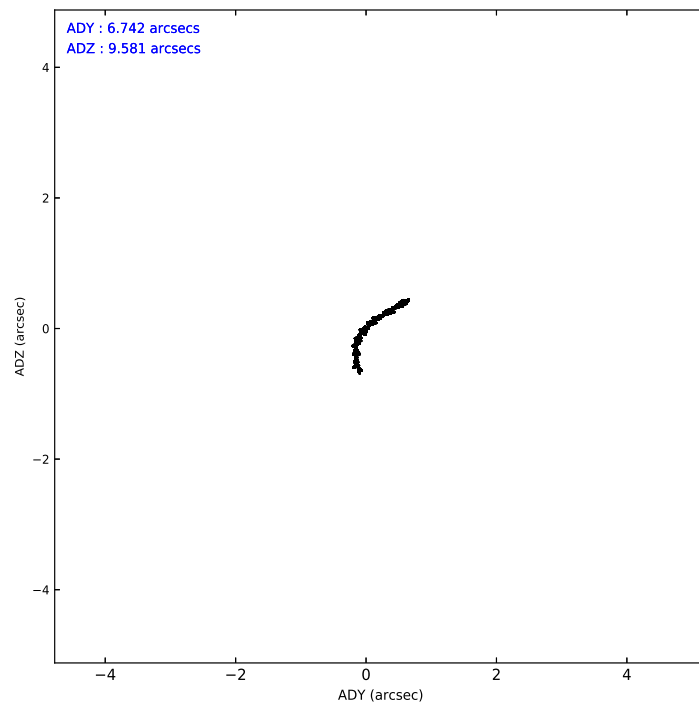
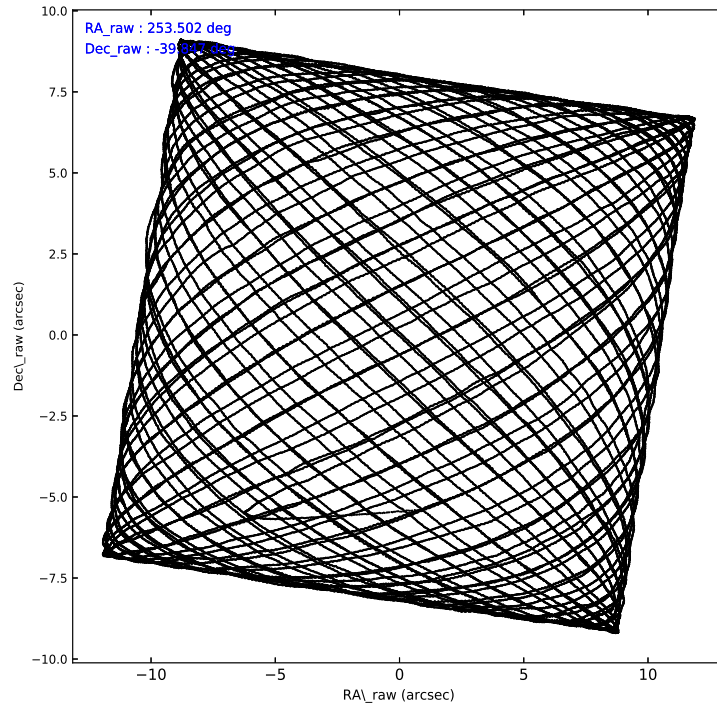
### 2.1.3 Events

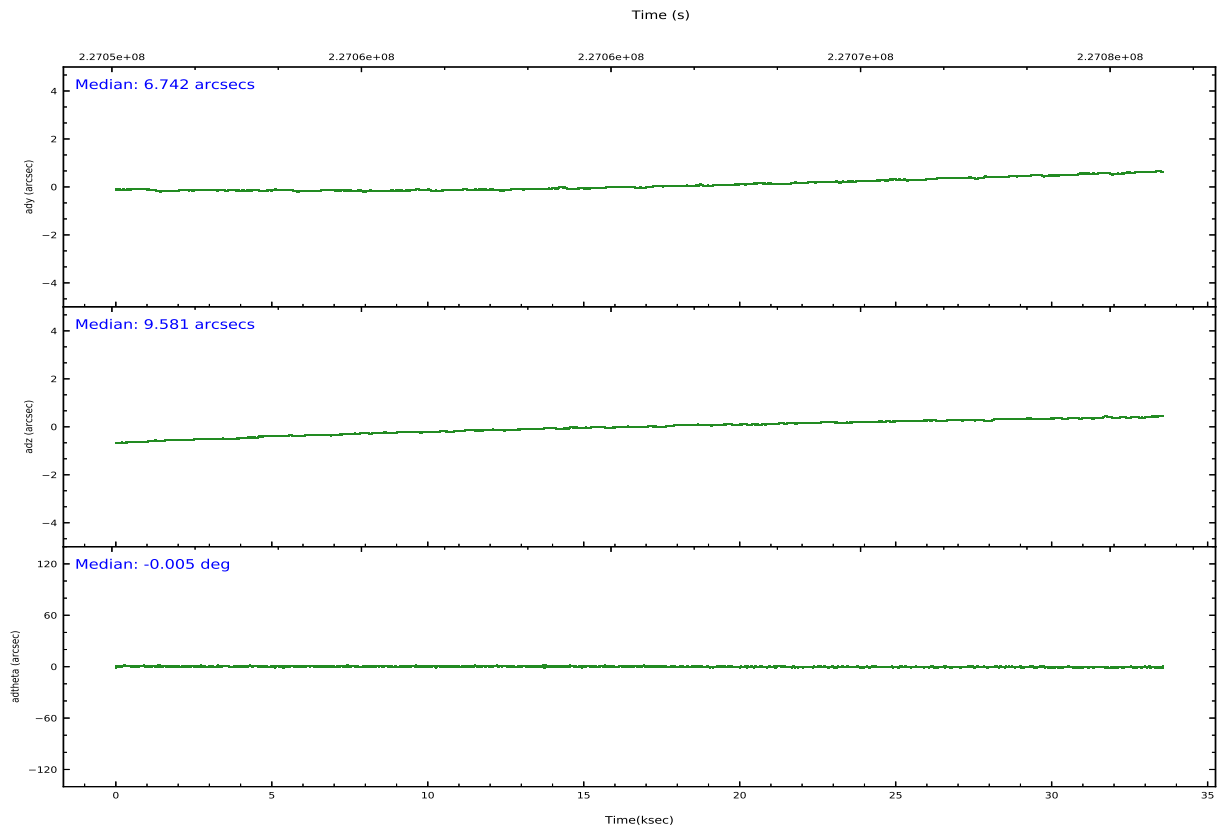
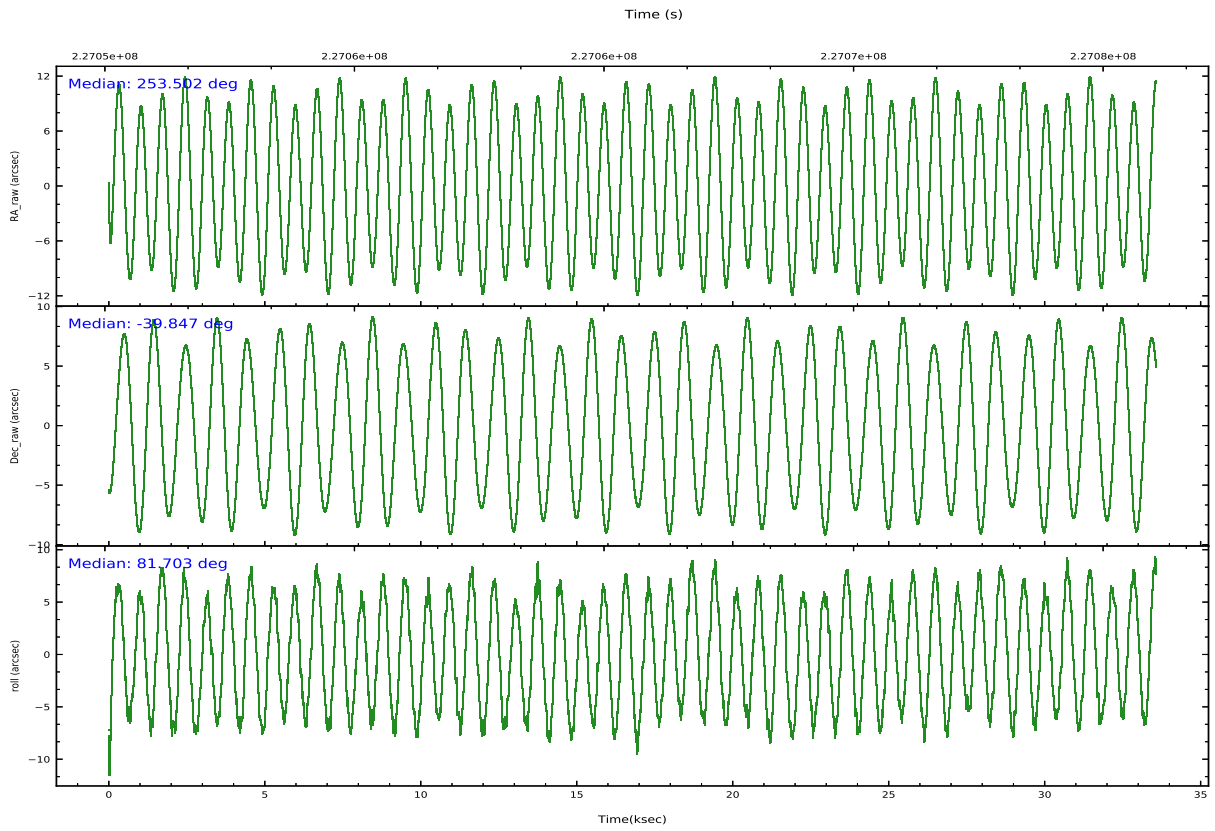
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	274954	2078814	3657370	3835908	2315965	487012	grade 0 events	14838	346088	1203031	748903	1498926	67284
rejected events	11905	59851	67939	88606	39666	17250		5%	16%	32%	19%	64%	13%
rejected %	4%	2%	1%	2%	1%	3%	grade 1 events	192	693	5368	4768	4887	379
								0%	0%	0%	0%	0%	0%
							grade 2 events	214767	923065	2063471	1106445	591224	351249
								78%	44%	56%	28%	25%	72%
							grade 3 events	5392	102650	55950	378072	64200	8007
								1%	4%	1%	9%	2%	1%
							grade 4 events	5618	100782	55941	376000	63193	8456
								2%	4%	1%	9%	2%	1%
							grade 5 events	9164	43908	26460	45508	17784	13312
								3%	2%	0%	1%	0%	2%
							grade 6 events	24983	561628	247149	1176212	75751	38325
								9%	27%	6%	30%	3%	7%
							grade 7 events	0	0	0	0	0	0
								0%	0%	0%	0%	0%	0%

## 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	CC33_GRADED	CC33_GRADED	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	253.516021	253.50562682395	Subarray requested	NONE	NONE
[deg] Pointing Dec	-39.872673	-39.849821004768	Alternating exposures requested	N	N
[deg] Pointing Roll	81.552967	81.702963739854	[s] Primary exposure time	0.000000	0
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-182.632523	-182.64237782062			
[mm] SIM translation stage offset	-7.5	-7.490144762387843			
[s] Observation start time (MET)	227048277.184000	227047293.98875			
Observation start date	2005-03-12T20:56:53	2005-03-12T20:41:33			
[s] Observation end time (MET)	227081700.184000	227081913.87782			
Observation end date	2005-03-13T06:13:56	2005-03-13T06:18:33			
Read mode	CONTINUOUS	CONTINUOUS			

## 2.3 Aspect





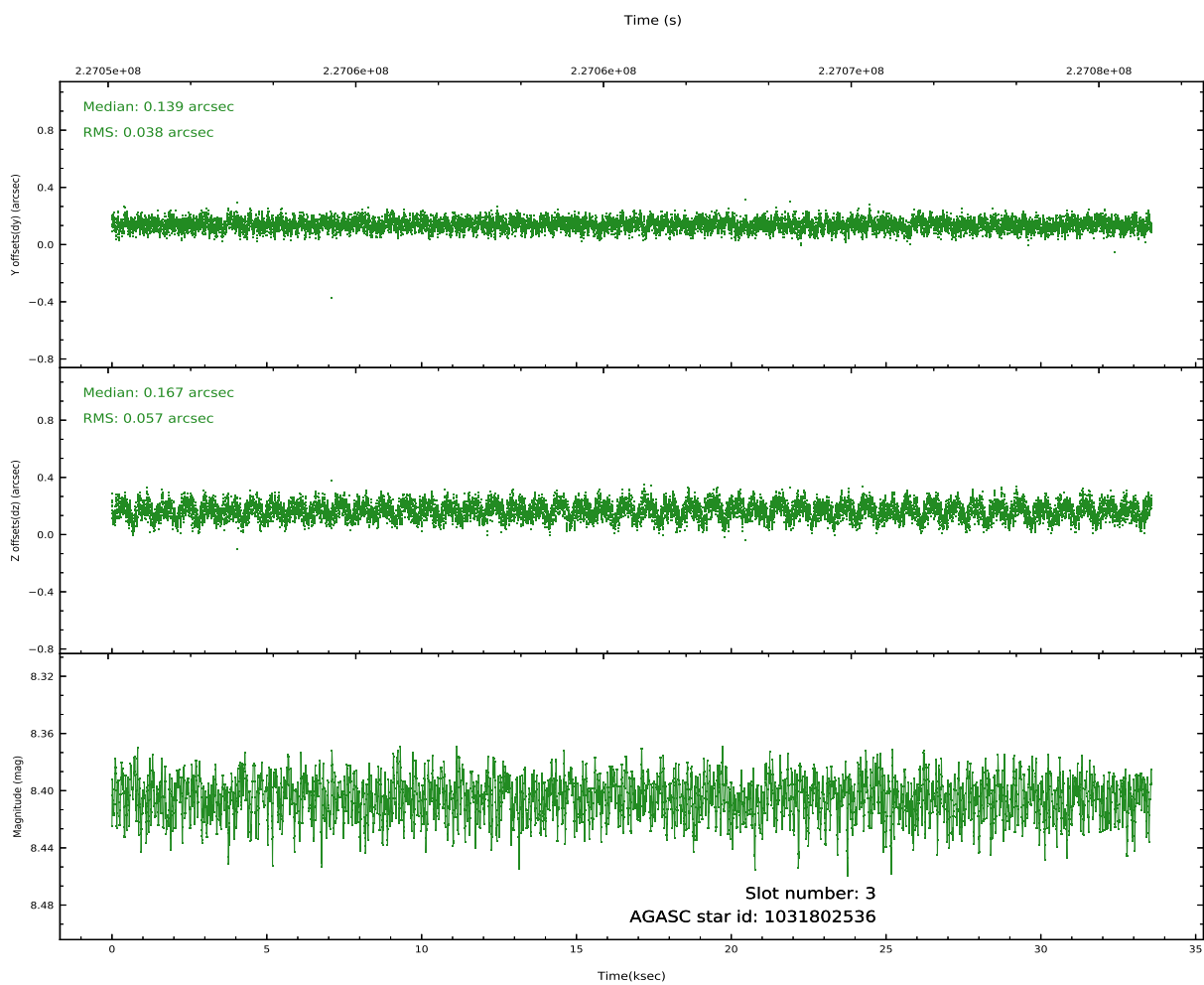
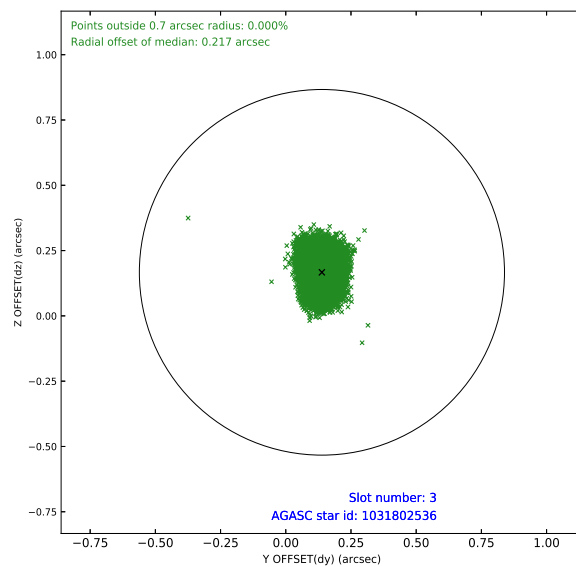
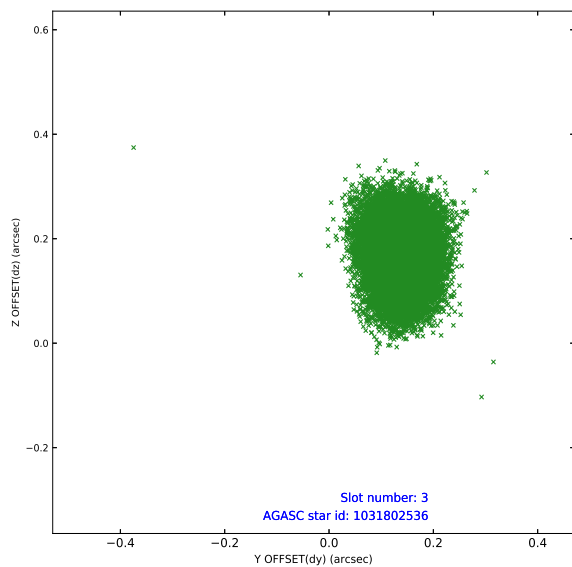
### Slot Statistics

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-1	7.18	8188	1.000	0.038	0.144	0.029	0.041	0.000000	0.000000	937.02	-1880
1	FID		ACIS-S-2	7.09	8190	1.000	-0.206	-0.163	0.014	0.023	0.000000	0.000000	-759.10	-1885
2	FID		ACIS-S-4	7.18	8189	1.000	0.142	0.024	0.016	0.024	0.000000	0.000000	2154.35	23
3	GUIDE	used	1031802536	8.40	16372	1.000	0.139	0.167	0.073	0.116	254.071271	-40.495693	-1999.75	-1833
4	GUIDE	used	1031813048	8.10	16375	1.000	0.008	-0.161	0.059	0.094	252.819336	-39.835864	-159.47	1923
5	GUIDE	used	1031279512	8.07	16377	1.000	-0.232	-0.074	0.048	0.078	253.011652	-39.245400	2022.93	1722
6	GUIDE	used	1031807512	8.25	16371	1.000	-0.067	-0.115	0.069	0.105	252.886468	-39.697545	361.36	1816
7	GUIDE	used	1031807240	7.53	16375	1.000	0.153	0.188	0.055	0.091	253.730711	-40.524826	-2236.47	-925

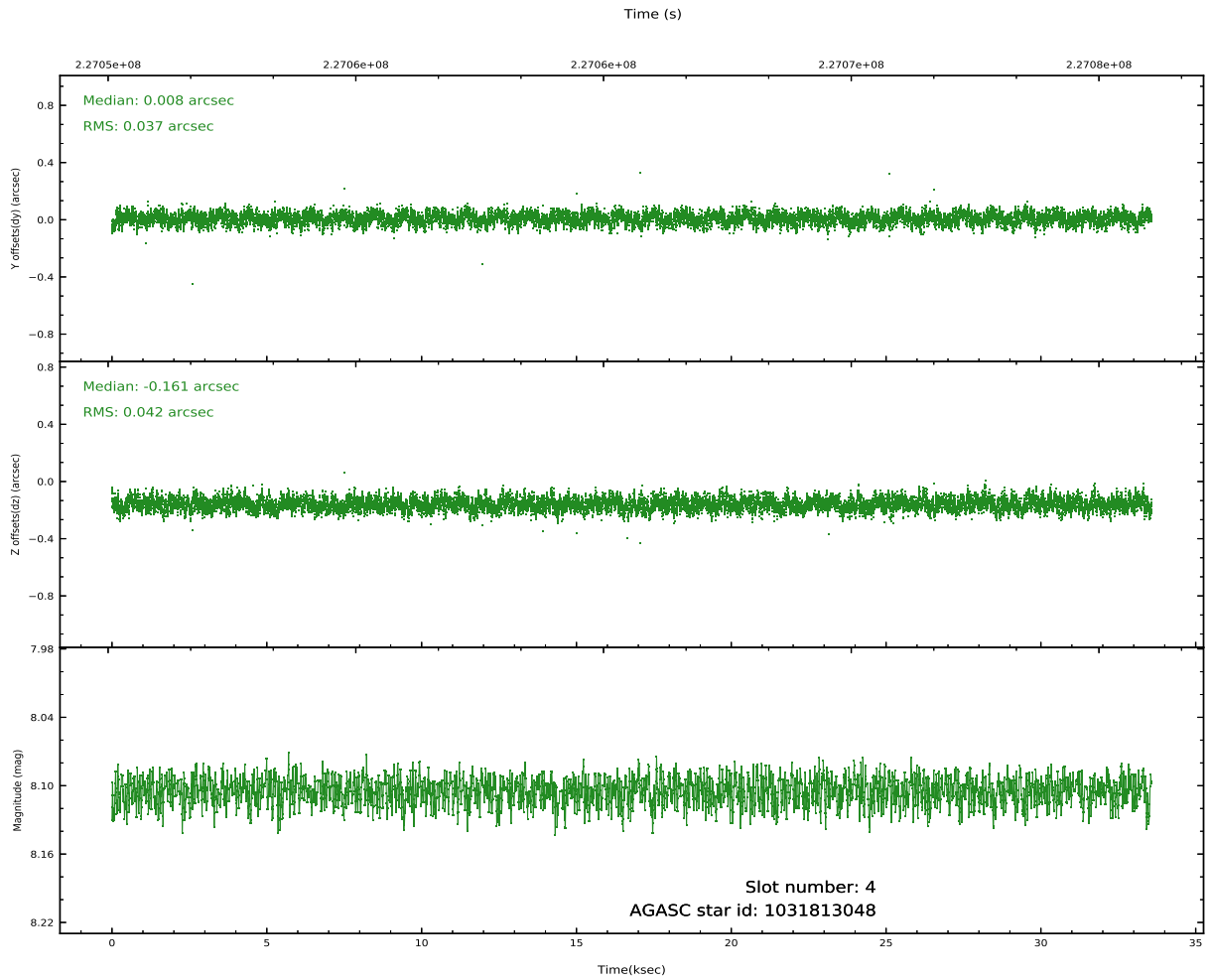
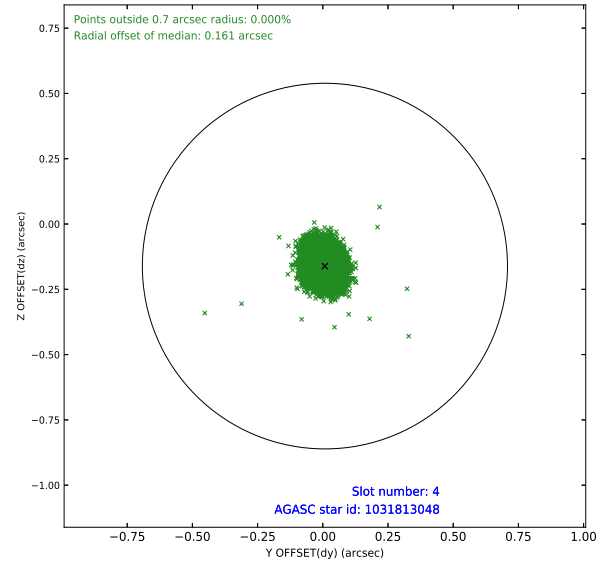
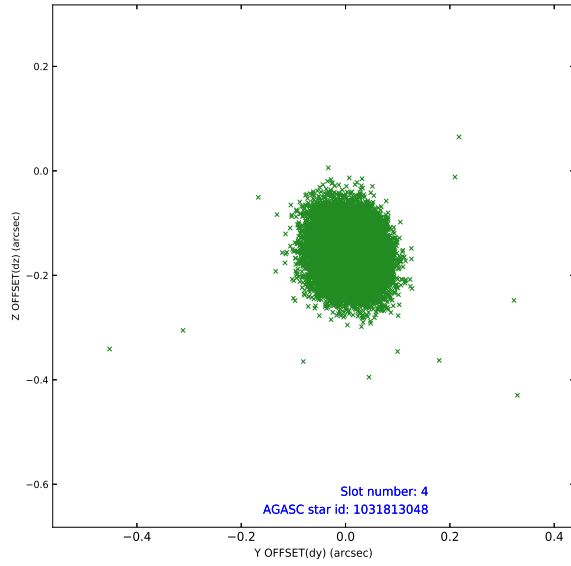
∞

## 2.4 Star Slots

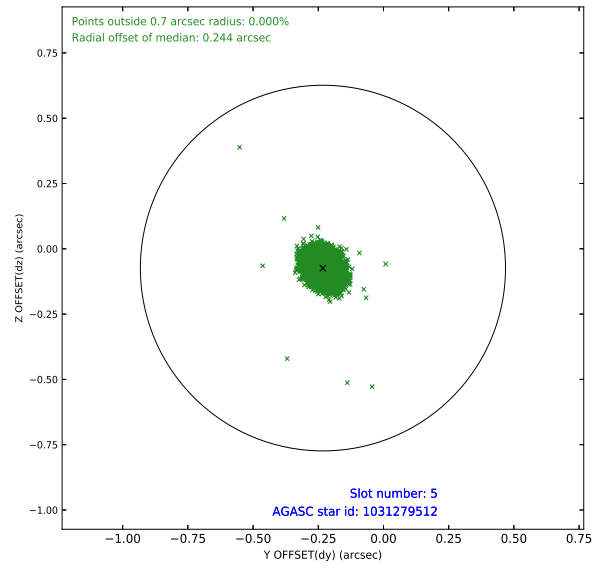
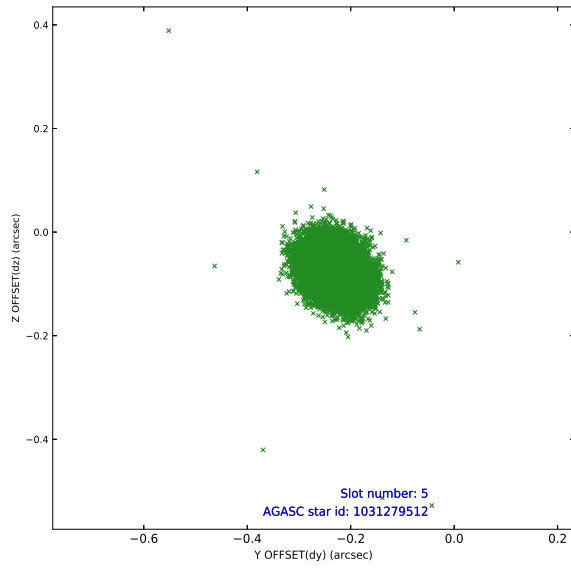
### 2.4.1 Slot 3



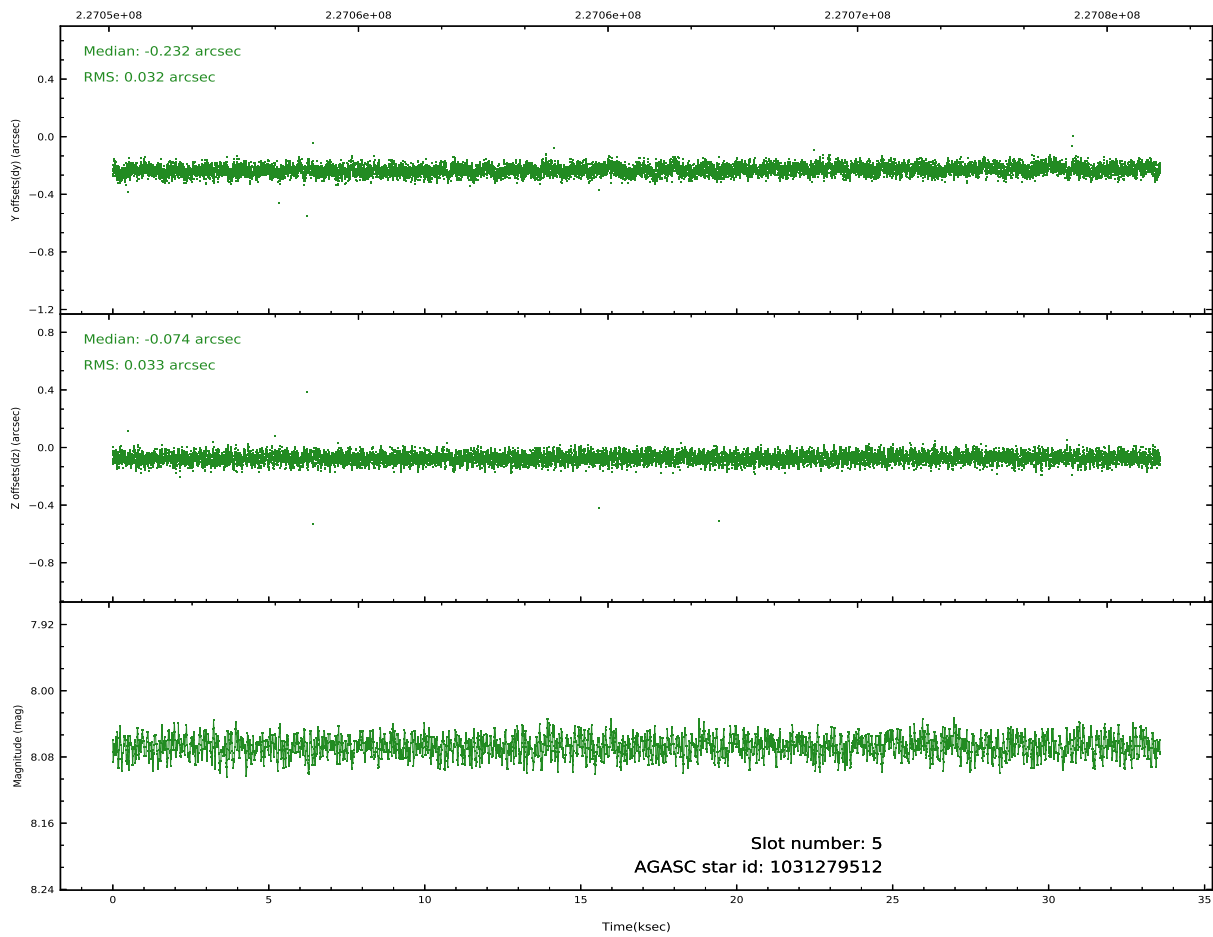
## 2.4.2 Slot 4



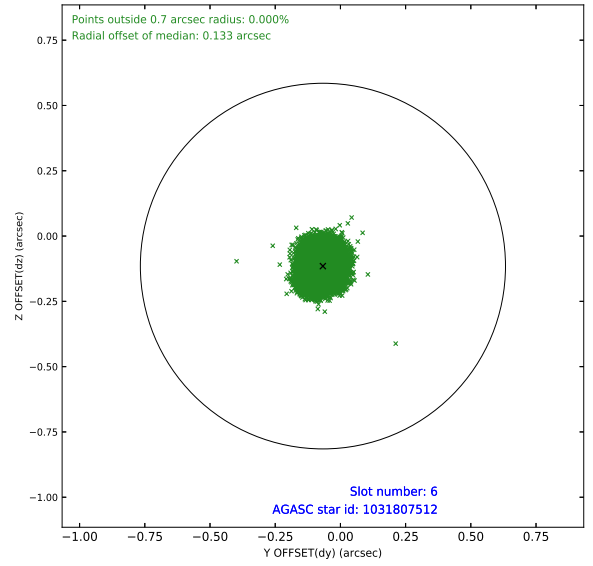
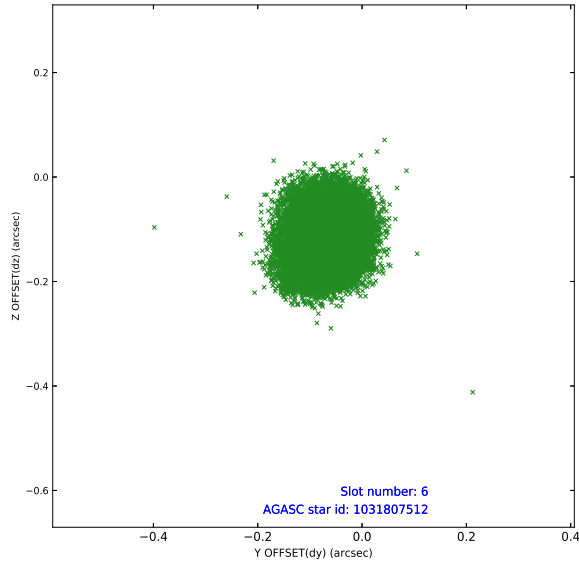
### 2.4.3 Slot 5



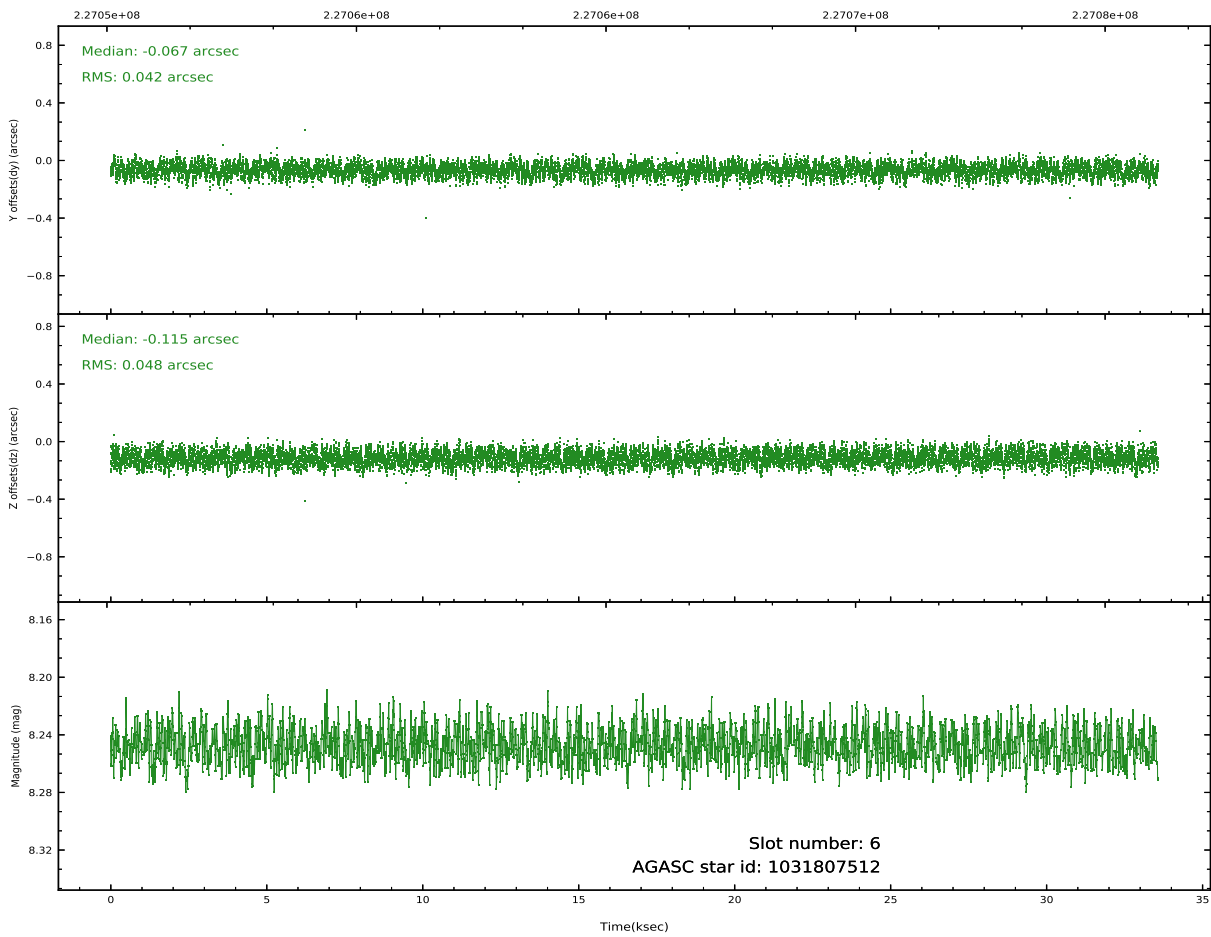
Time (s)



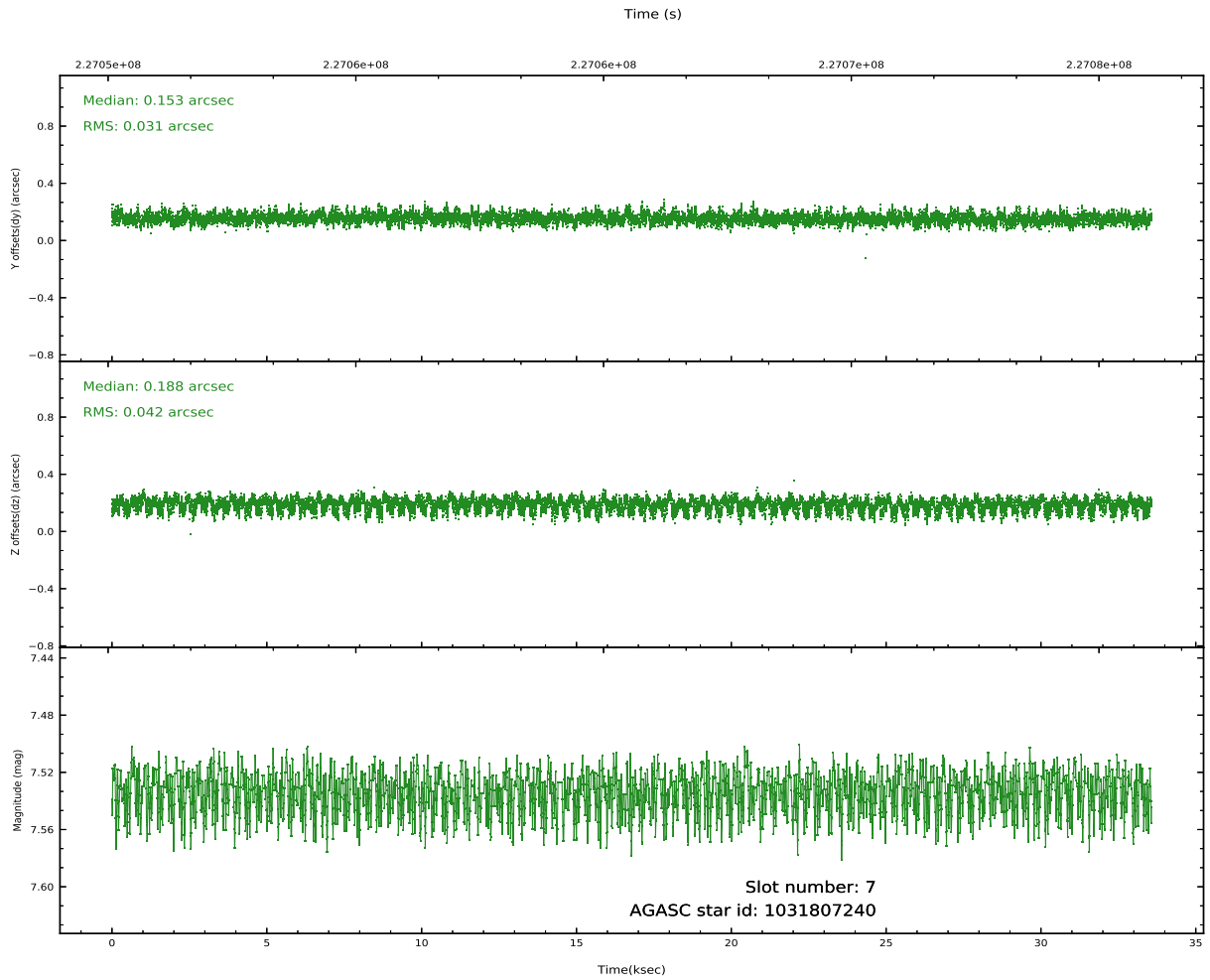
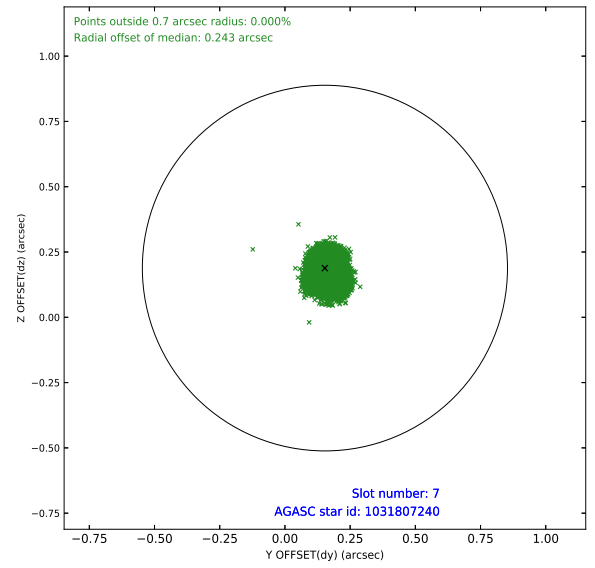
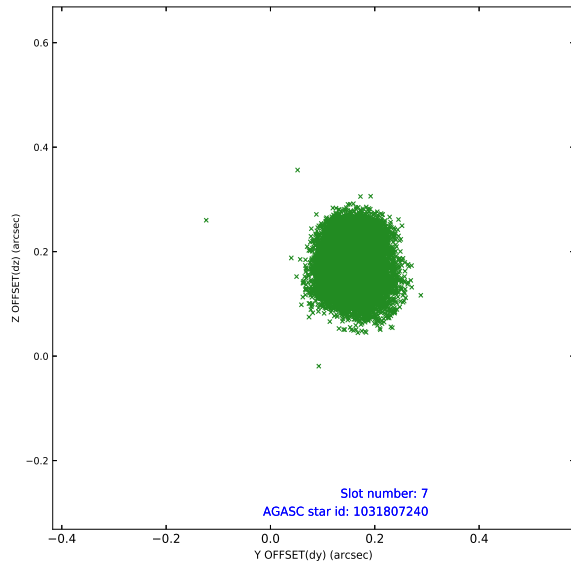
## 2.4.4 Slot 6



Time (s)

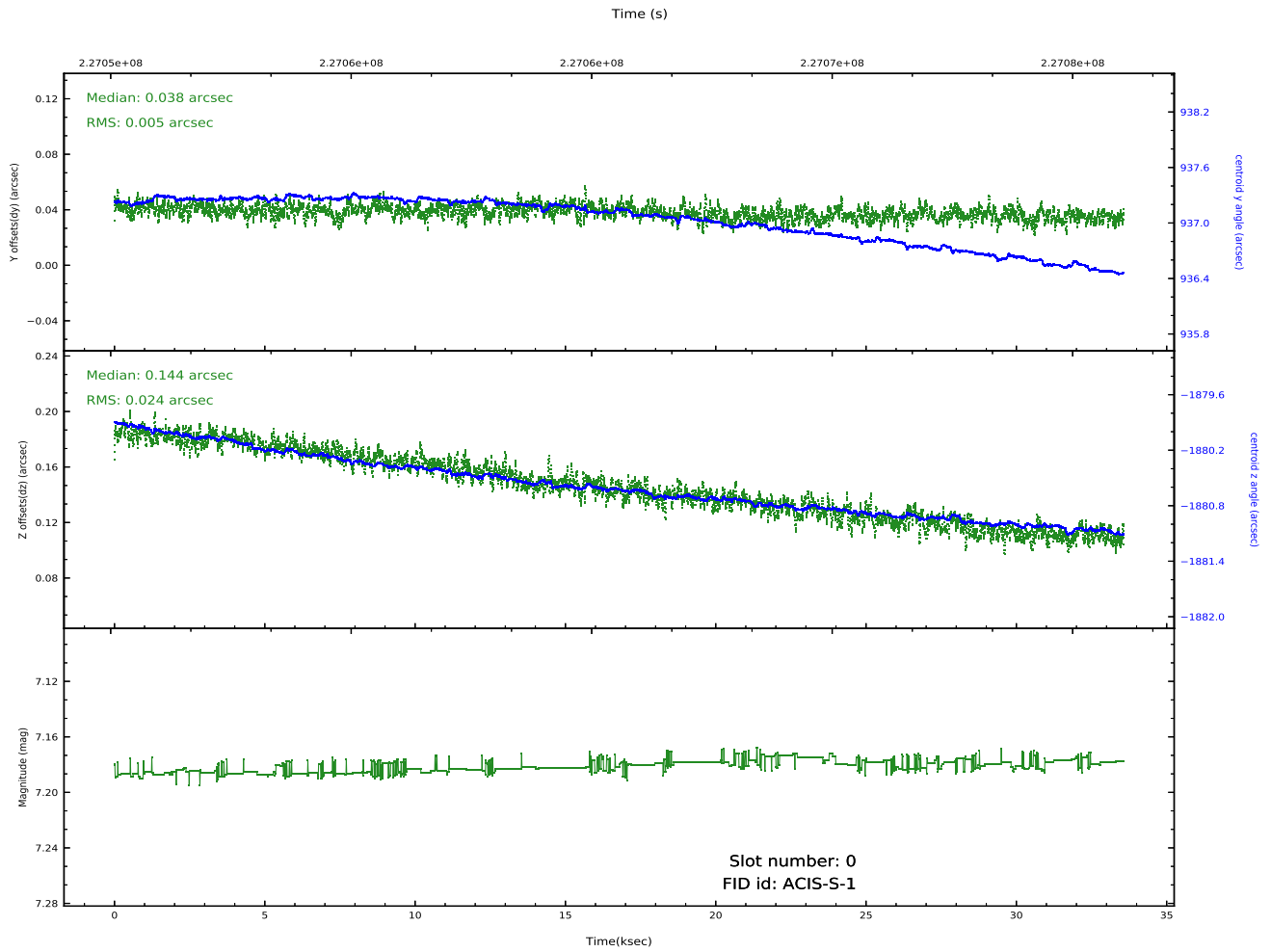
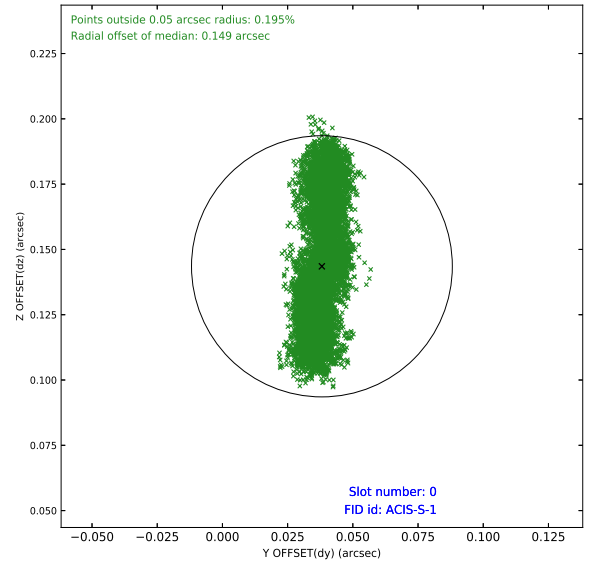
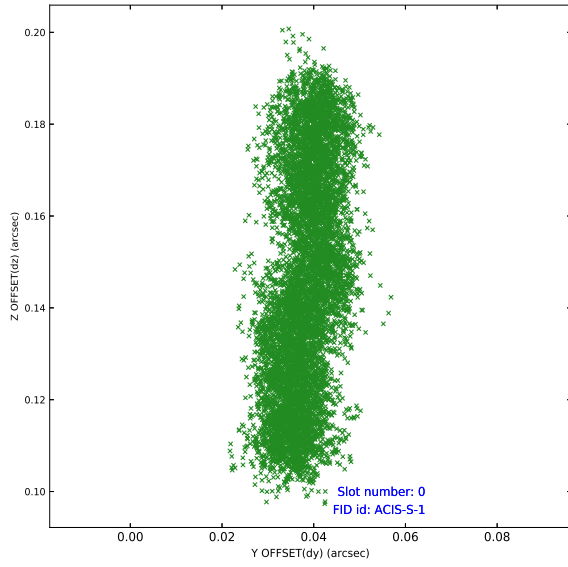


## 2.4.5 Slot 7

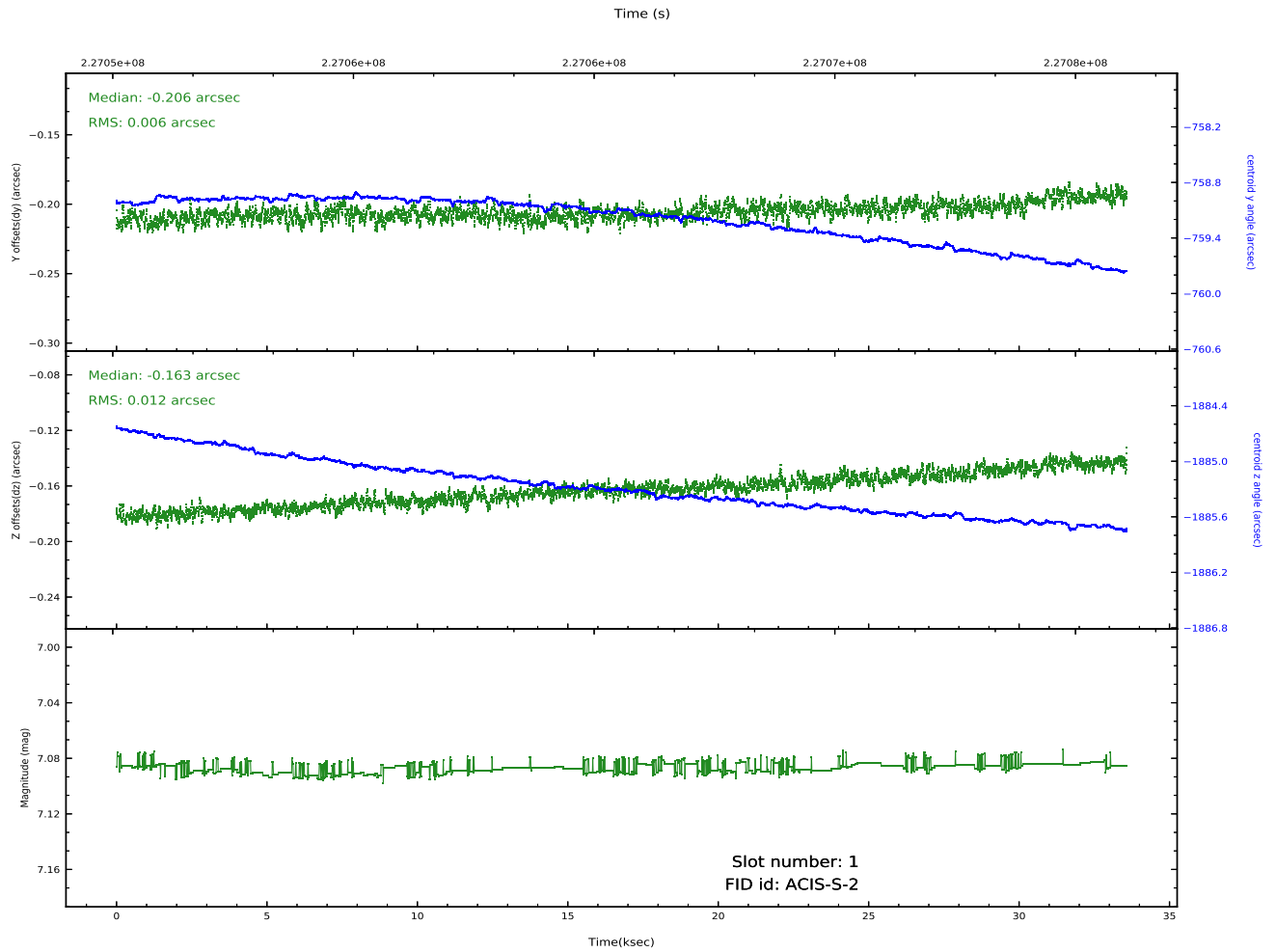
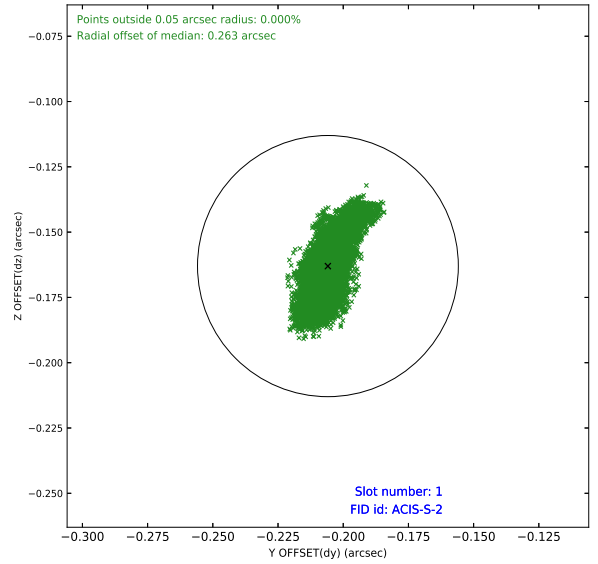
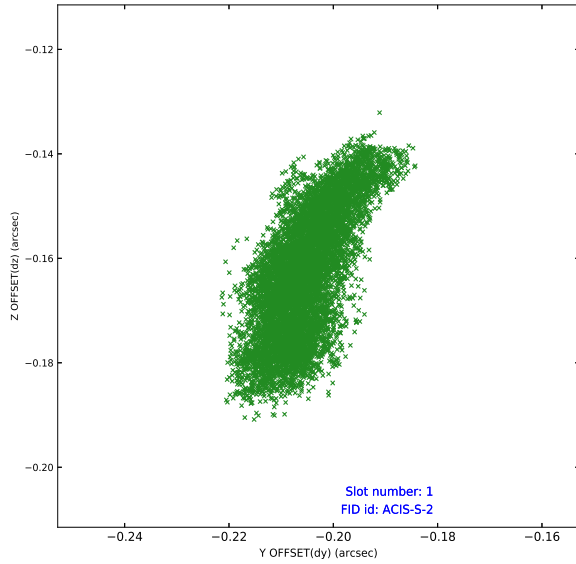


## 2.5 FID Slots

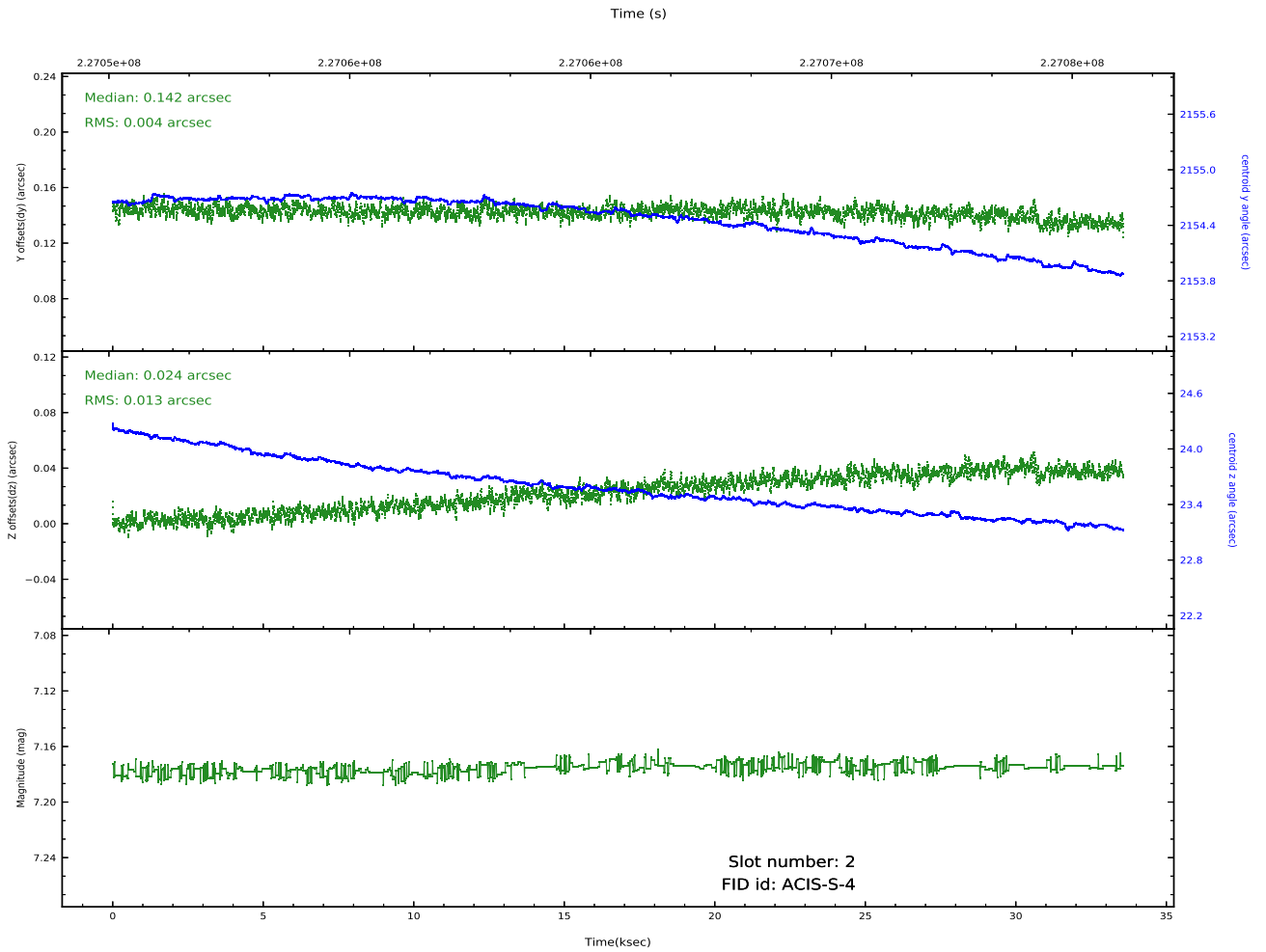
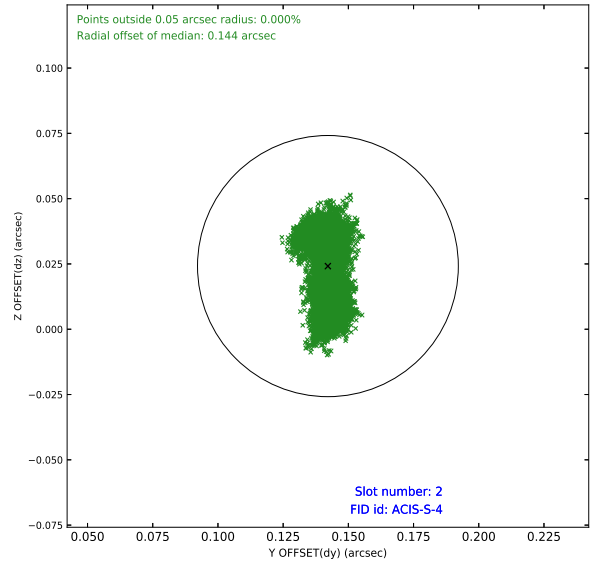
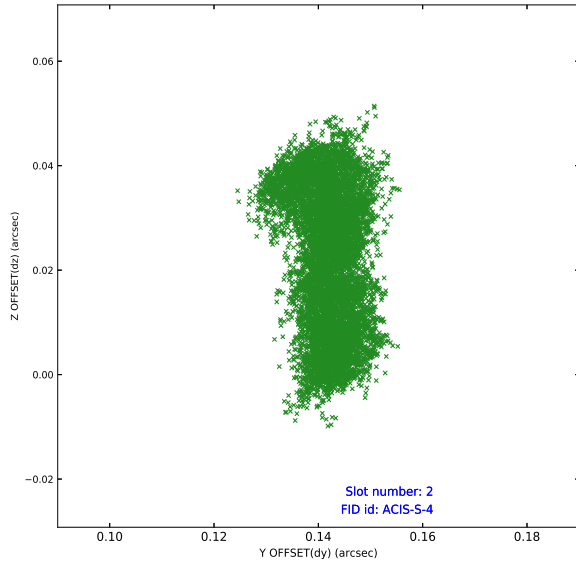
### 2.5.1 Slot 0



## 2.5.2 Slot 1

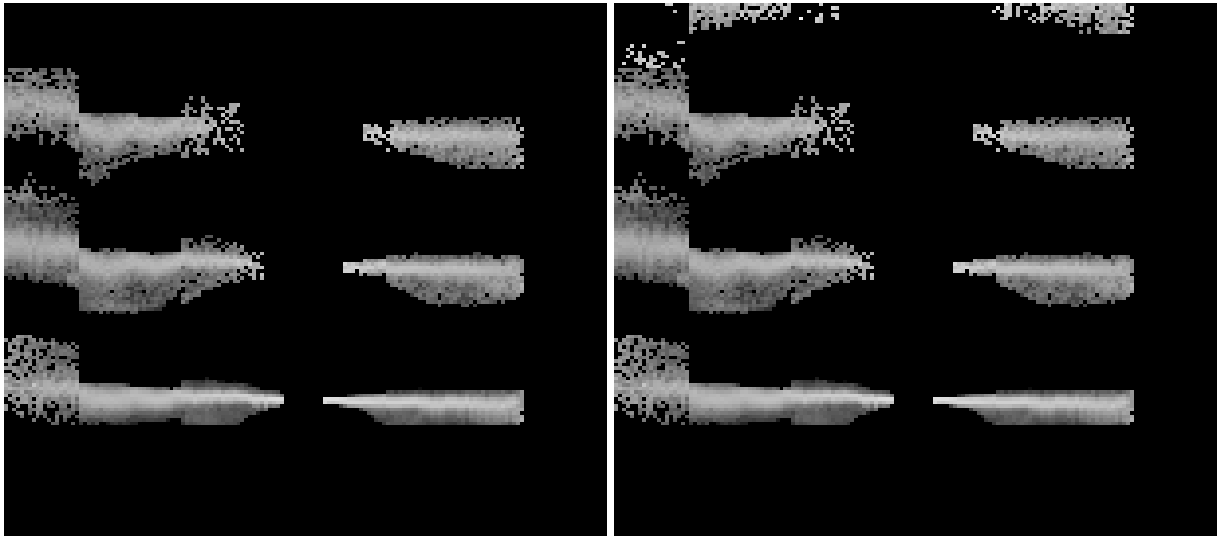


### 2.5.3 Slot 2



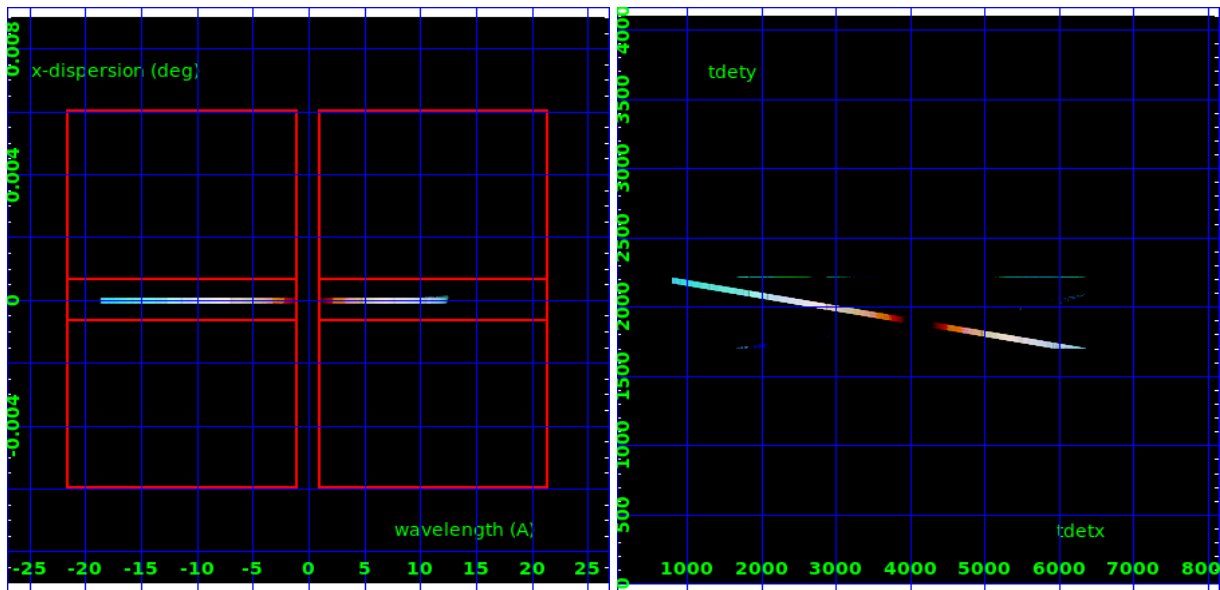
# 3 Gratings

## 3.1 HEG Arm



HEG Order Sort 123

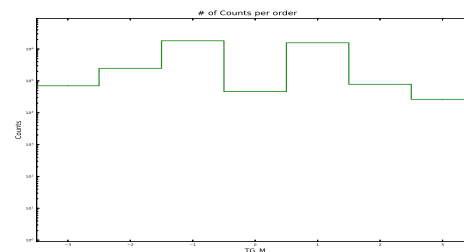
HEG Order Sort ALL

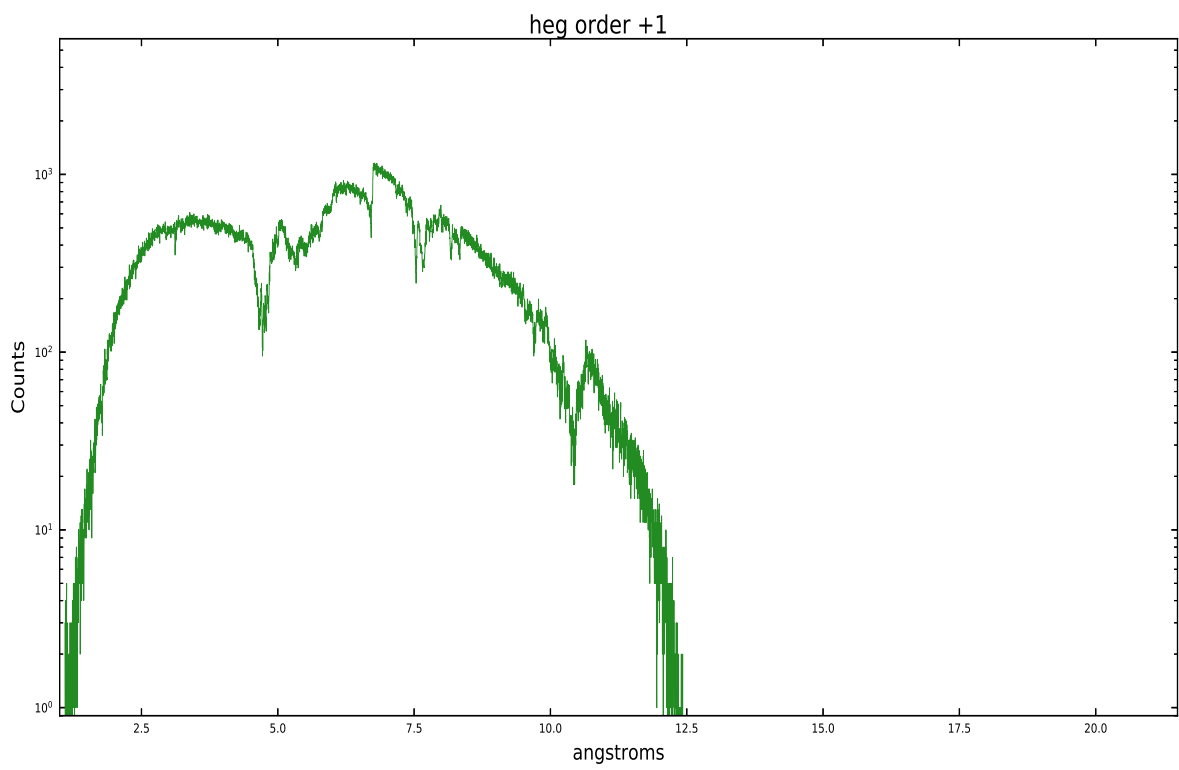
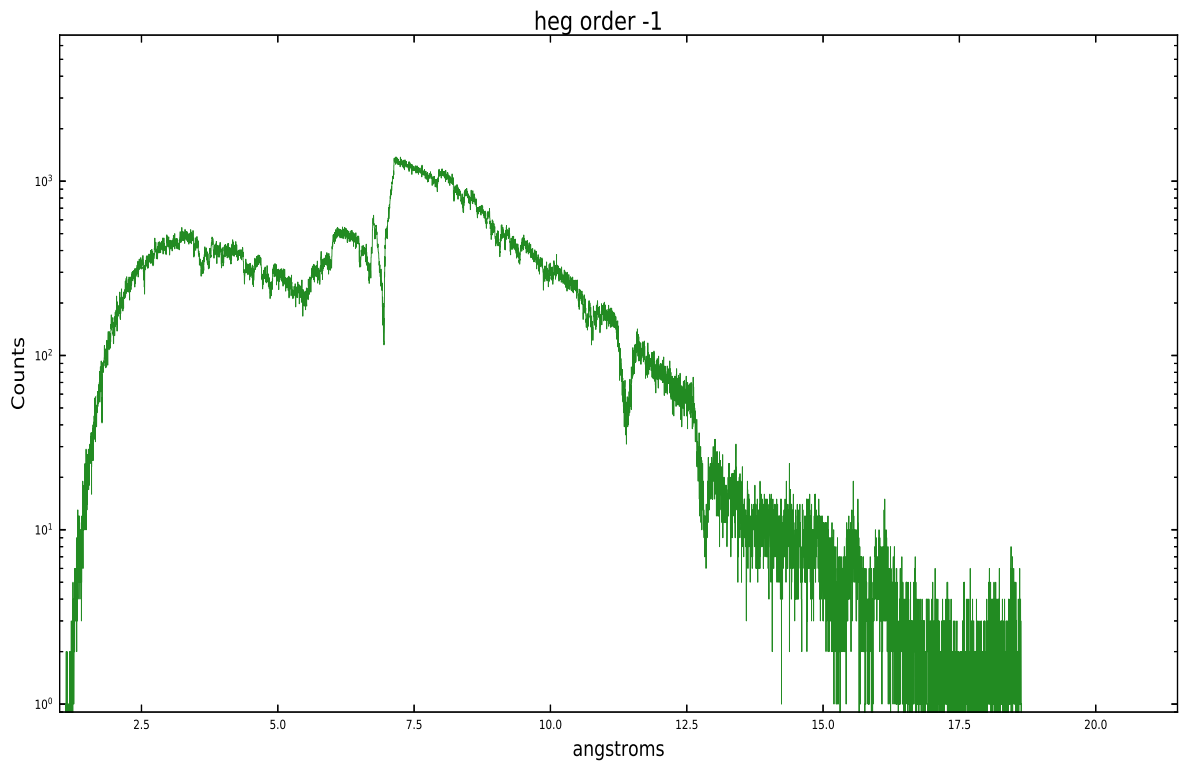


Spot Image HEG

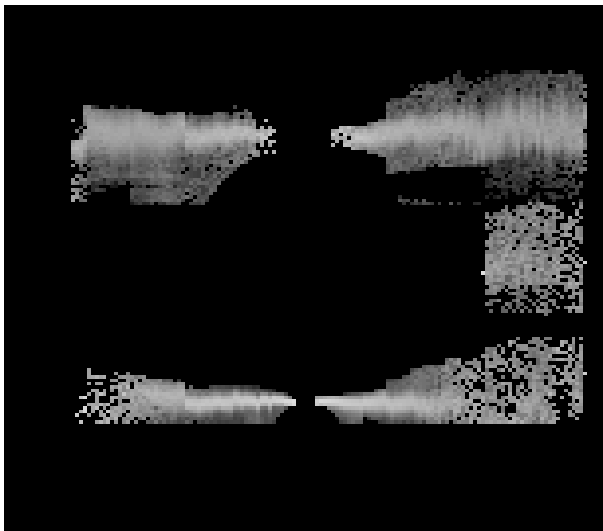
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	70343	248019	1820827	46154	1572491	78117	26390

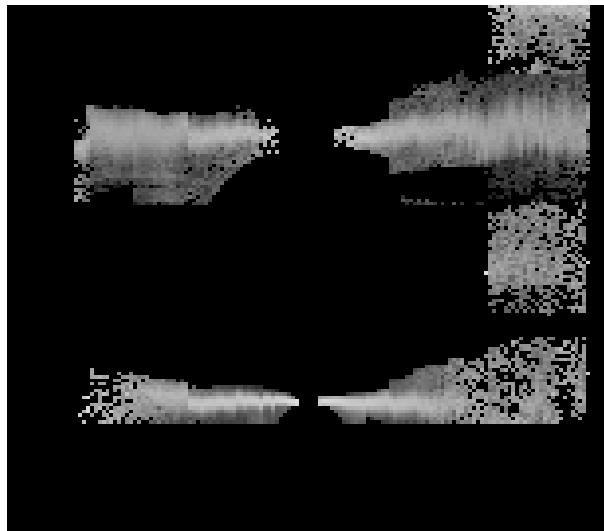




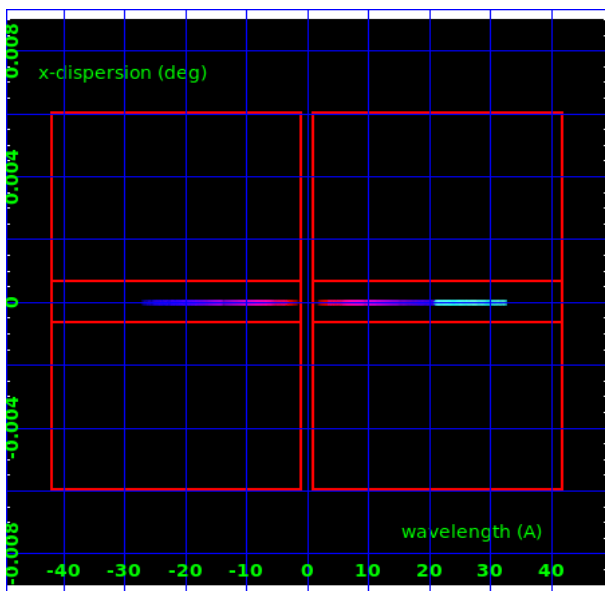
### 3.2 MEG Arm



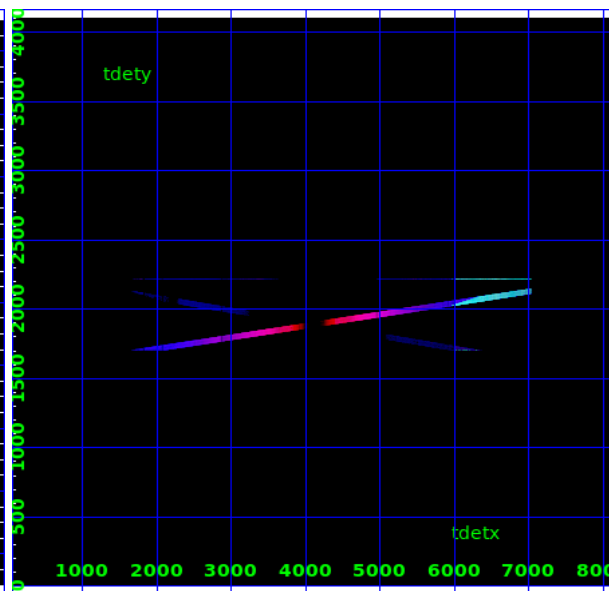
MEG Order Sort 123



MEG Order Sort ALL

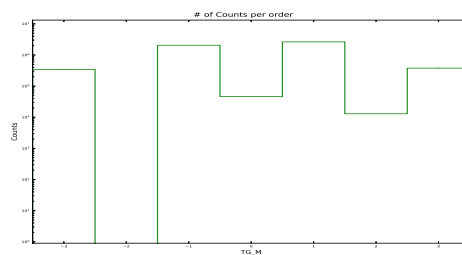


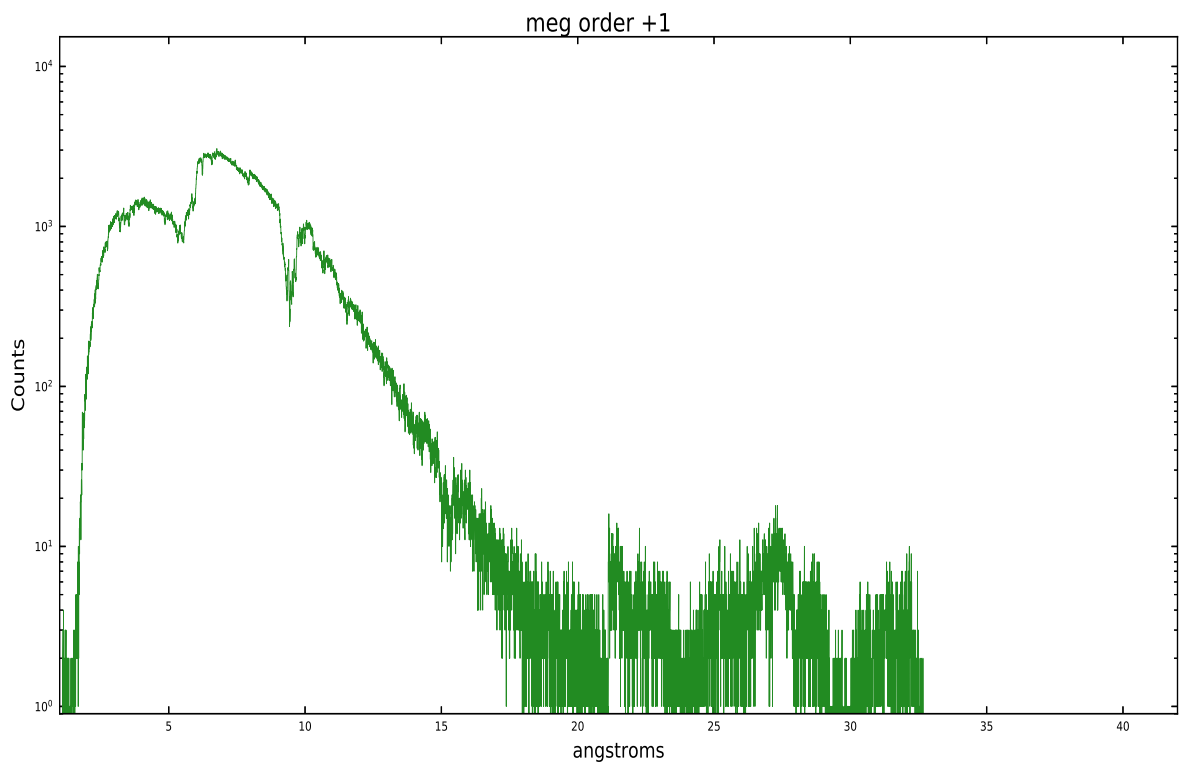
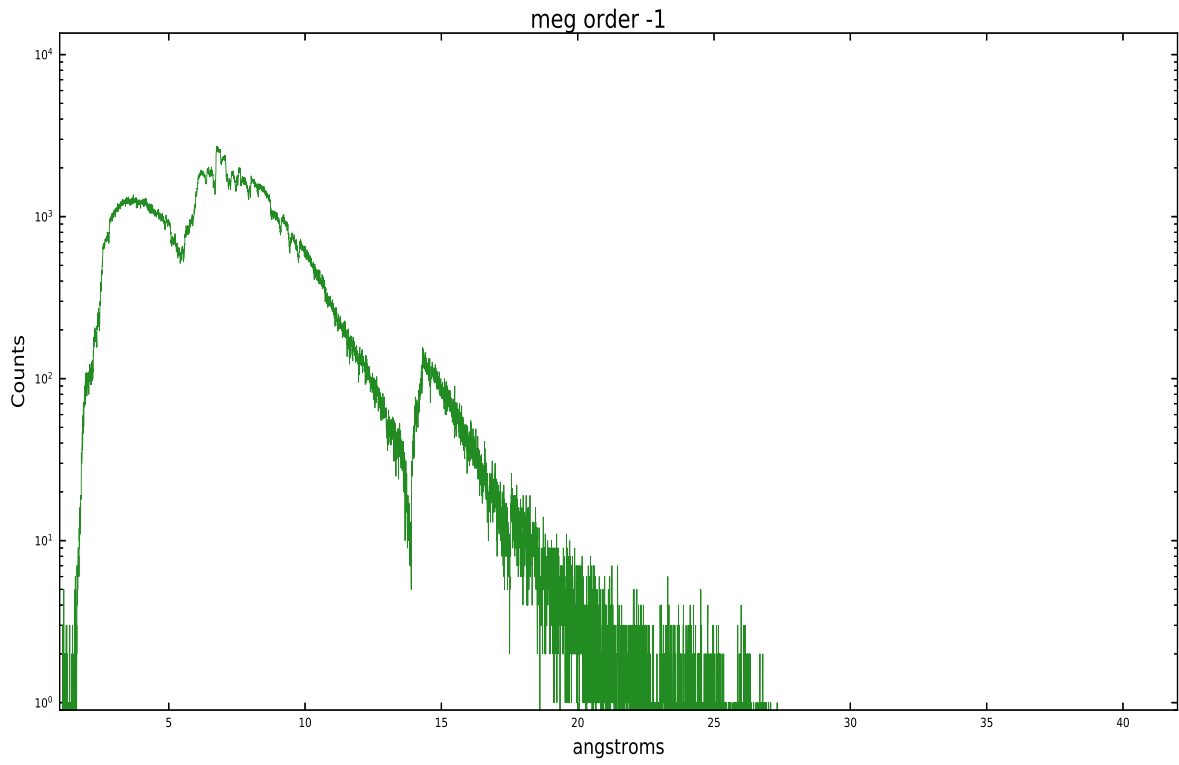
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	341950	0	2057780	46154	2640583	12923	378279





# 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	33.567

## A.2 Comments

used ontime9 for charge time, which indicates the duration of the observation. other chips can be lower due to telemetry saturation by the bright source.