

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 2334 - L2 Version 3  
Chandra X-Ray Center

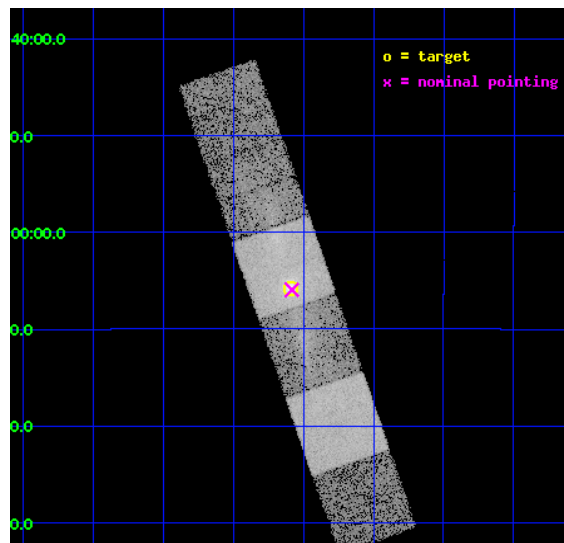
L2 Processing Date : Oct 18 2012

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# 1 Front

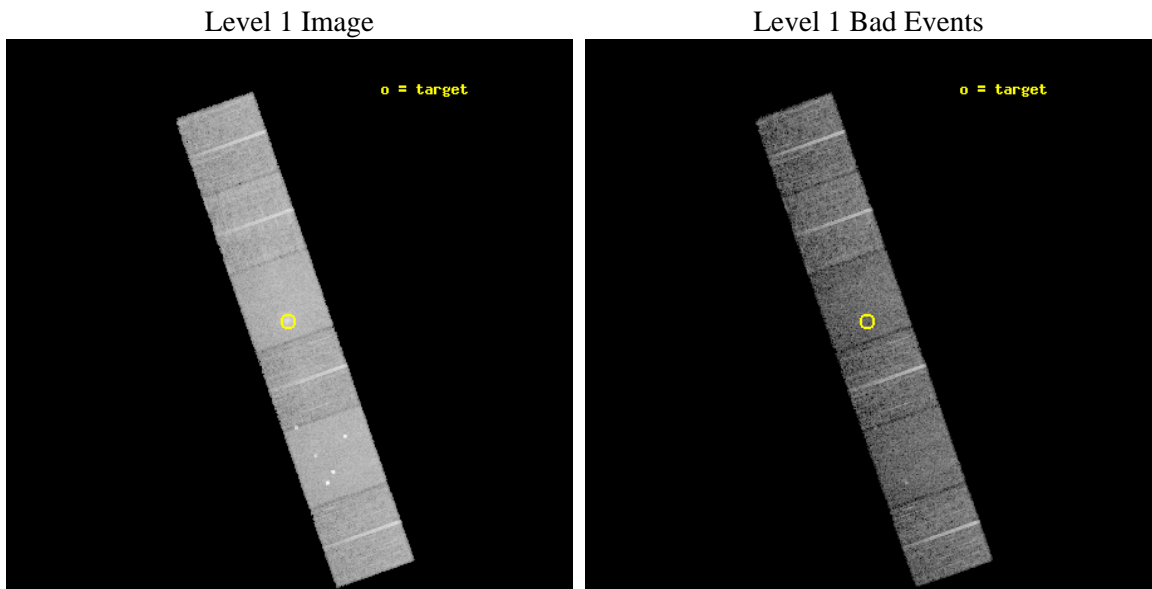
seq_num	800177	Sequence number
obs_id	2334	Observation id
title	ACIS-S/HETG OBSERVATIONS OF THE CENTRAL REGION OF THE HYDRA A CLUSTER OF GALAXIES	Proposal title
observer	Dr. J. Jernigan	Principal investigator
object	HYDRA A	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	139.52375	Observer's specified target RA [deg]
dec_targ	-12.095833	Observer's specified target Dec [deg]
ra_nom	139.52072853764	Nominal RA [deg]
dec_nom	-12.099191576033	Nominal Dec [deg]
roll_nom	250.75486495017	Nominal Roll [deg]
revision	3	Processing version of data
ontime	10149.89659363	Sum of GTIs [s]
livetime	10021.372491428	Livetime [s]
ontime4	10149.937633634	Sum of GTIs [s]
ontime5	10149.855553627	Sum of GTIs [s]
ontime6	10149.814513639	Sum of GTIs [s]
ontime7	10149.89659363	Sum of GTIs [s]
ontime8	10149.773473635	Sum of GTIs [s]
ontime9	10149.732433632	Sum of GTIs [s]
l2events	118721	Number of level 2 events



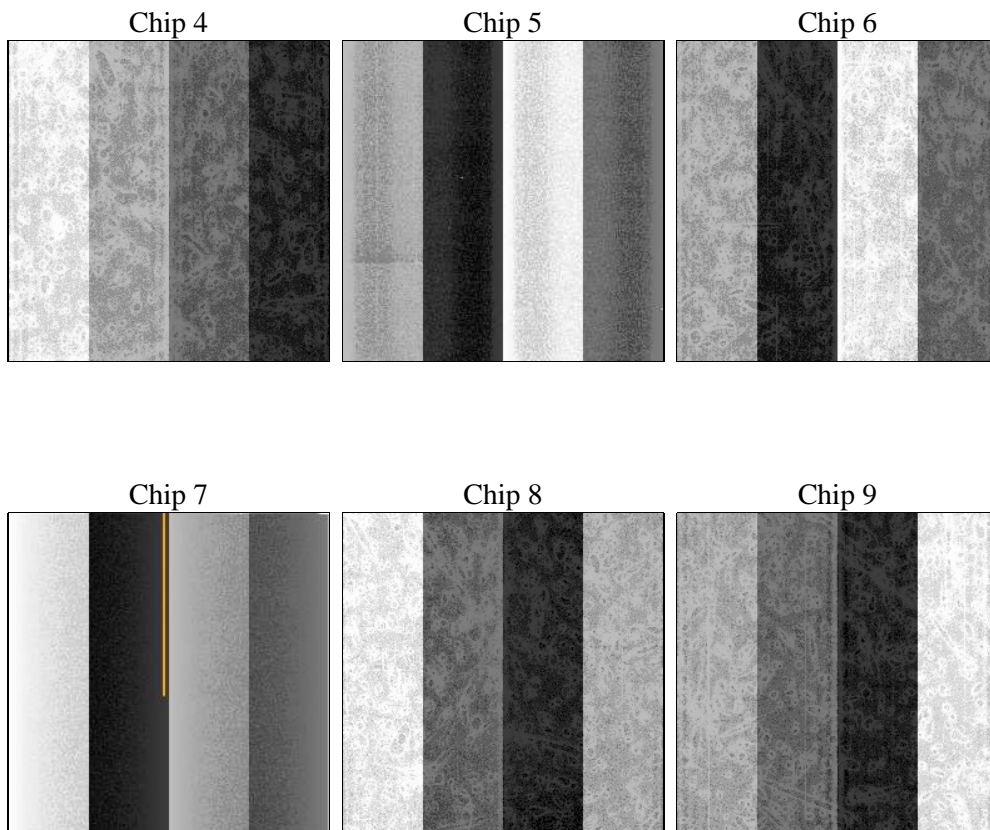
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	10149.89659363	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	10149.937633634	Sum of GTIs [s]
date	2012-09-18T23:13:14	Date and time of file creation	ontime5	10149.855553627	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	10149.814513639	Sum of GTIs [s]
			ontime7	10149.89659363	Sum of GTIs [s]
			ontime8	10149.773473635	Sum of GTIs [s]
			ontime9	10149.732433632	Sum of GTIs [s]
			l1events	477877	Number of level 1 events

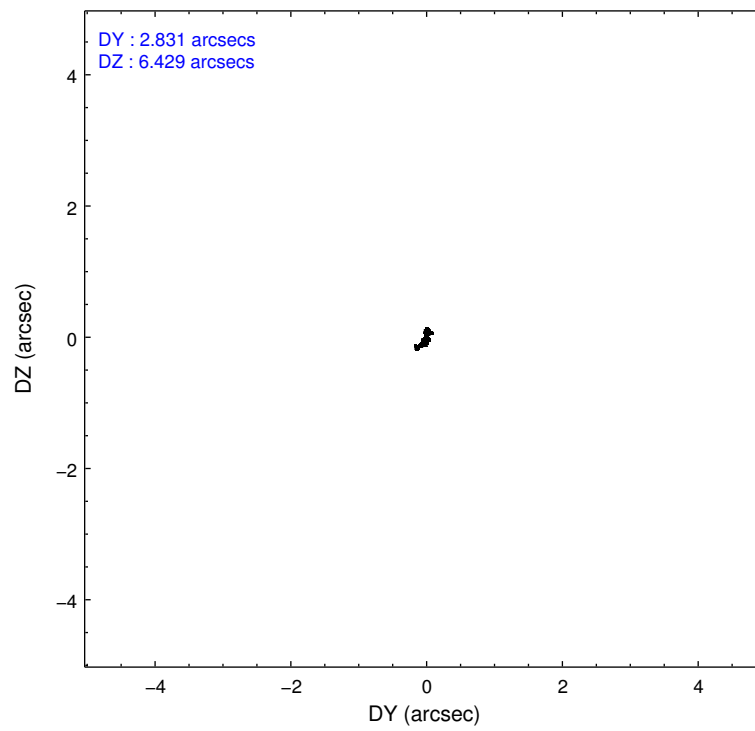
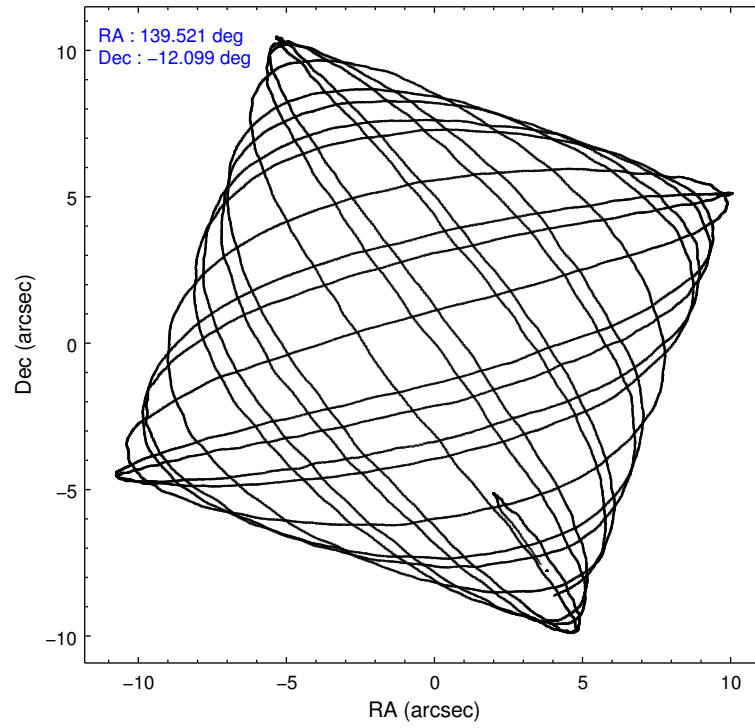
### 2.1.4 Events

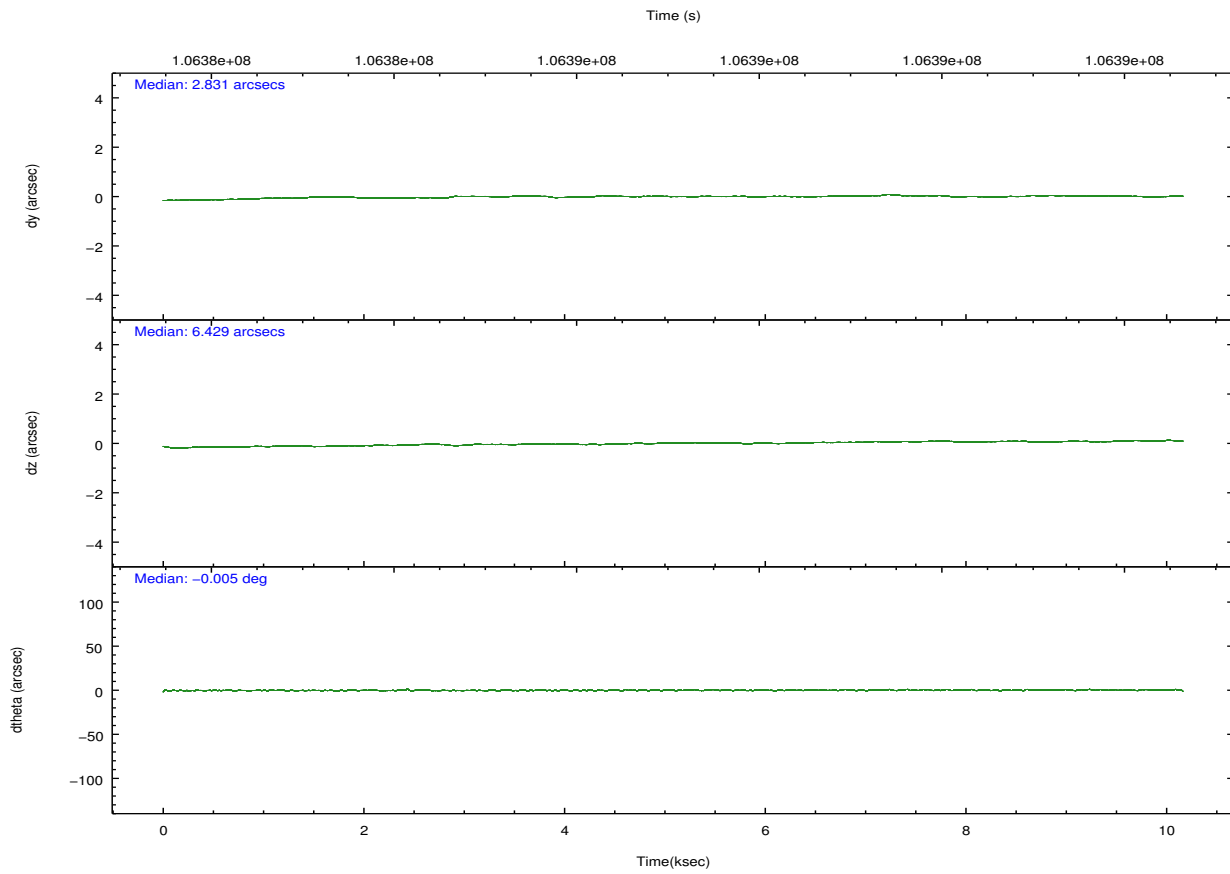
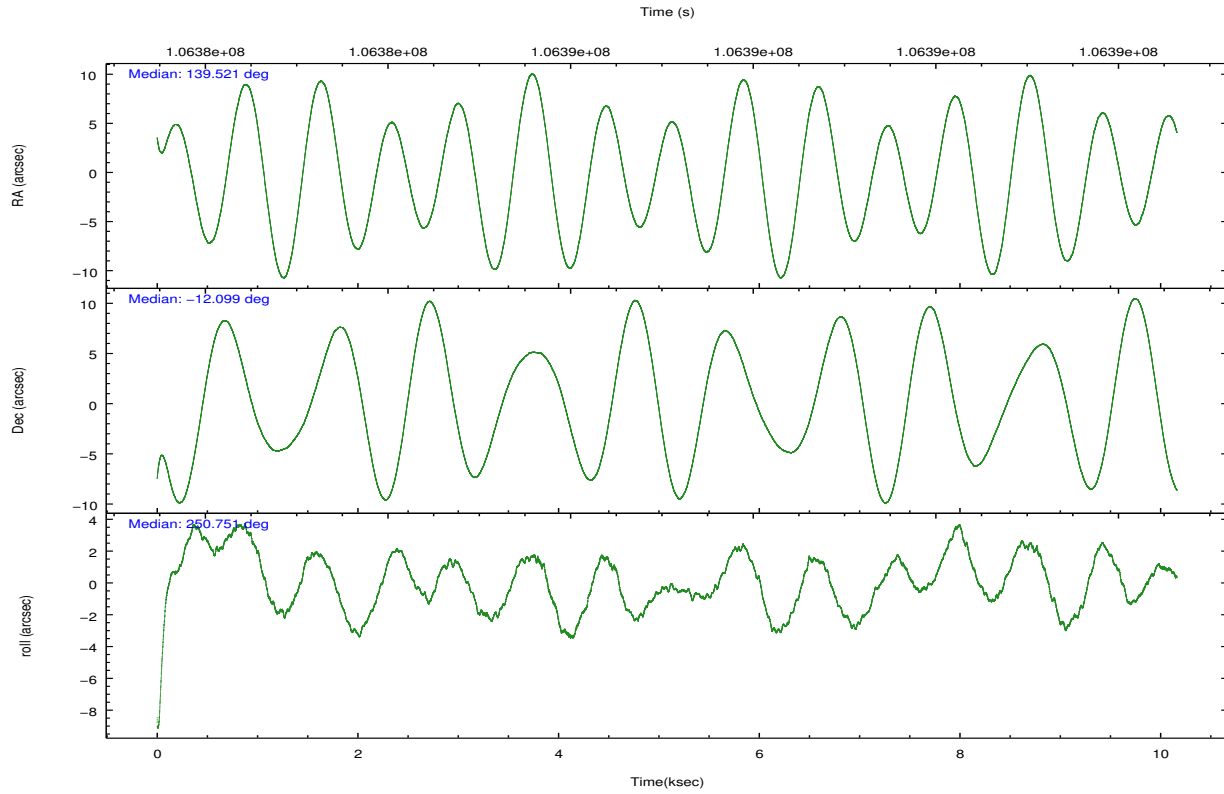
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	69825	95401	69647	94640	83530	64834	grade 0 events	3325	7722	7225	6181	7443	3404
rejected events	61892	49794	56997	48644	64574	56777		4%	8%	10%	6%	8%	5%
rejected %	88%	52%	81%	51%	77%	87%	grade 1 events	39	263	53	68	64	25
								0%	0%	0%	0%	0%	0%
							grade 2 events	1832	12751	2057	9740	3700	1585
								2%	13%	2%	10%	4%	2%
							grade 3 events	719	1888	916	4506	1836	784
								1%	1%	1%	4%	2%	1%
							grade 4 events	681	1745	925	4468	1765	758
								0%	1%	1%	4%	2%	1%
							grade 5 events	2365	6919	2723	8139	3447	2735
								3%	7%	3%	8%	4%	4%
							grade 6 events	1377	21512	1528	21115	4214	1527
								1%	22%	2%	22%	5%	2%
							grade 7 events	59487	42601	54220	40423	61061	54016
								85%	44%	77%	42%	73%	83%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
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	139.515208	139.5207285376422	Subarray requested	NONE	NONE
[deg] Pointing Dec	-12.072395	-12.09919157603333	Alternating exposures requested	N	N
[deg] Pointing Roll	250.597092	250.7548649501706	[s] Primary exposure time	0.000000	3.2
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.145094680475			
[mm] SIM translation stage offset	0	0.01257209746719923			
[s] Observation start time (MET)	106382139.184000	106380963.79019			
Observation start date	2001-05-16T06:34:35	2001-05-16T06:16:03			
[s] Observation end time (MET)	106392139.184000	106392838.41565			
Observation end date	2001-05-16T09:21:15	2001-05-16T09:33:58			
Read mode	TIMED	TIMED			

## 2.3 Aspect



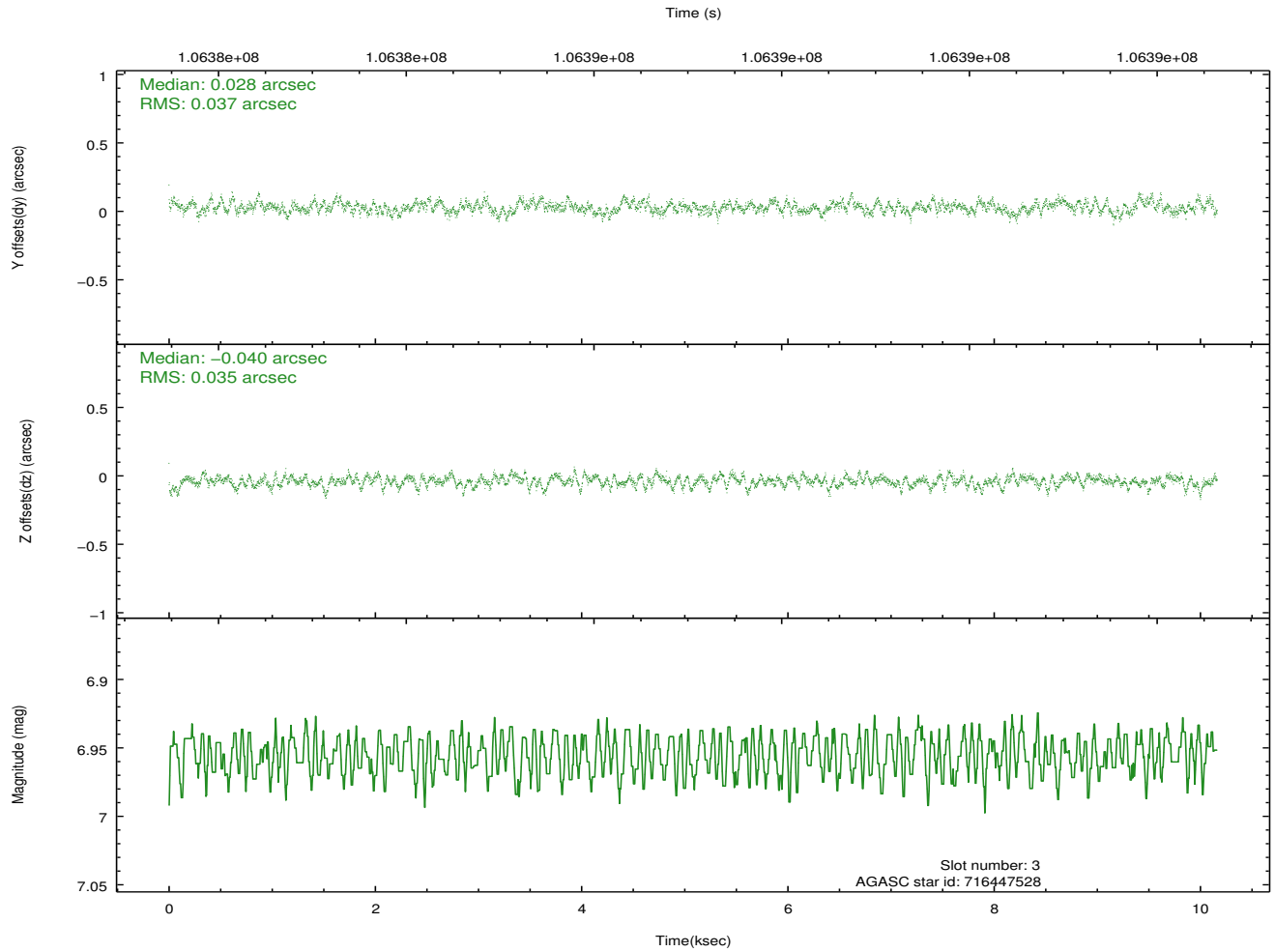
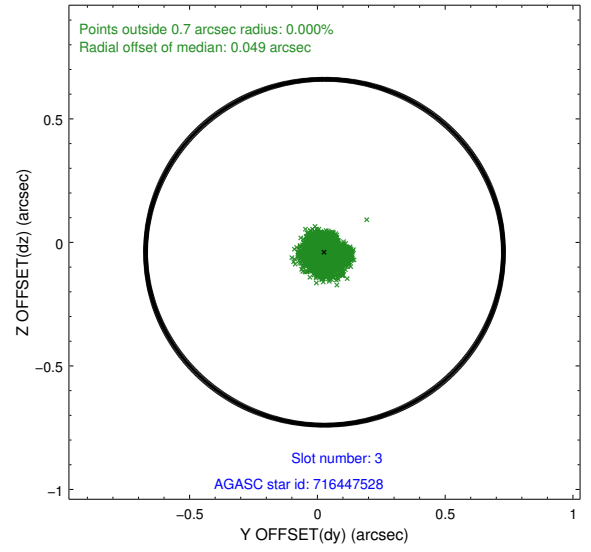
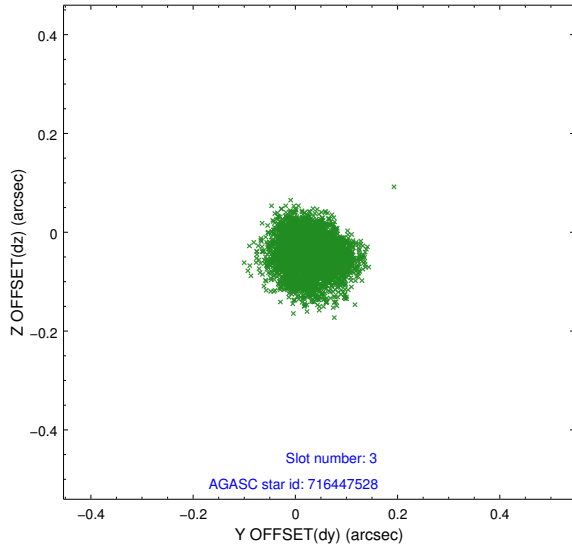


### Slot Statistics

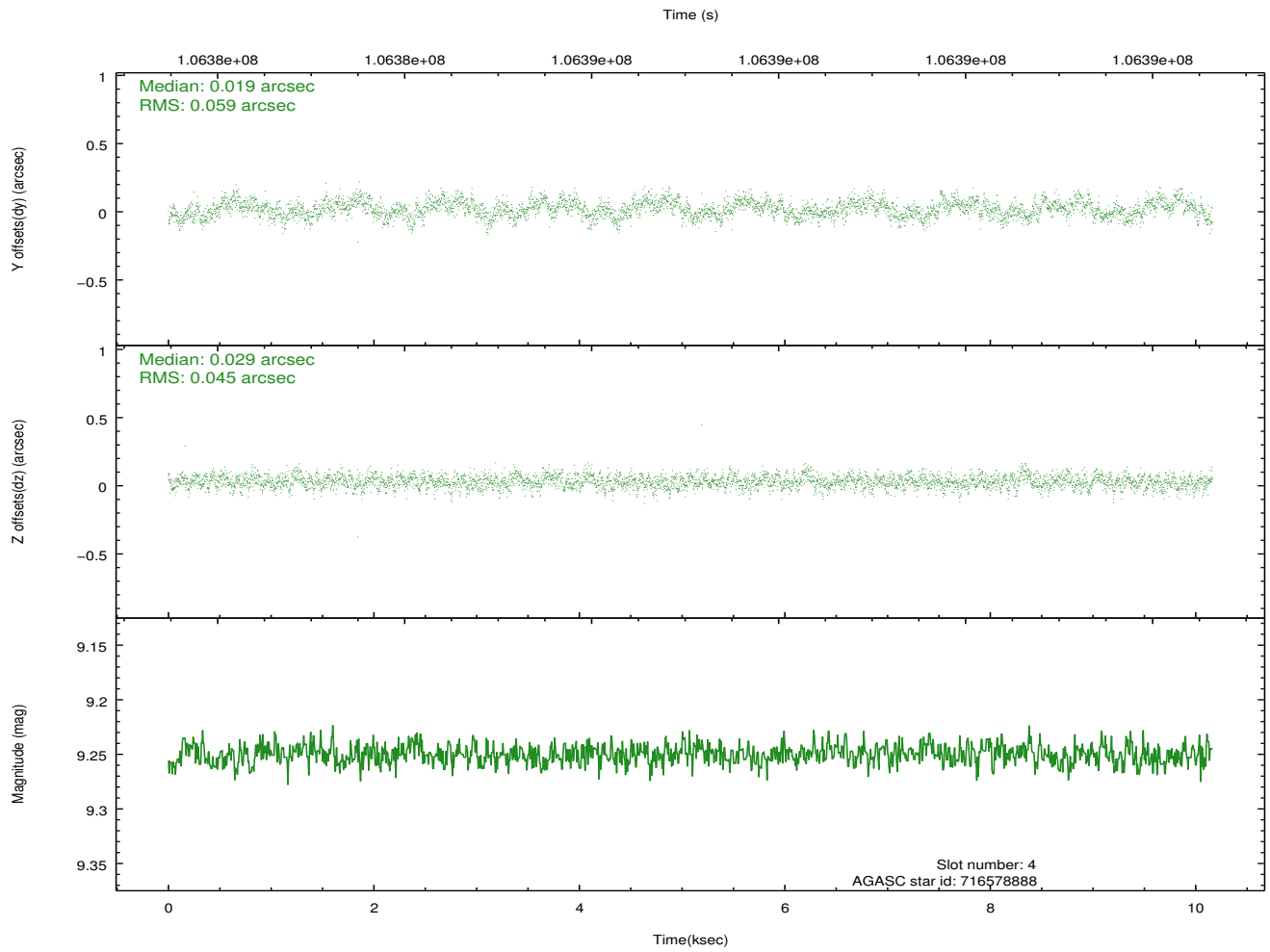
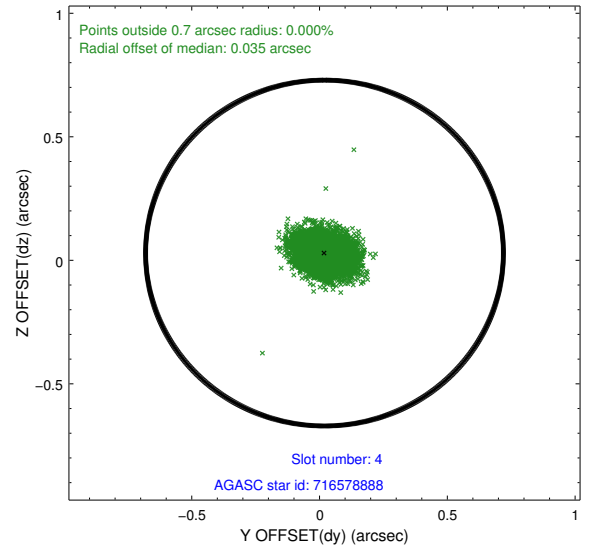
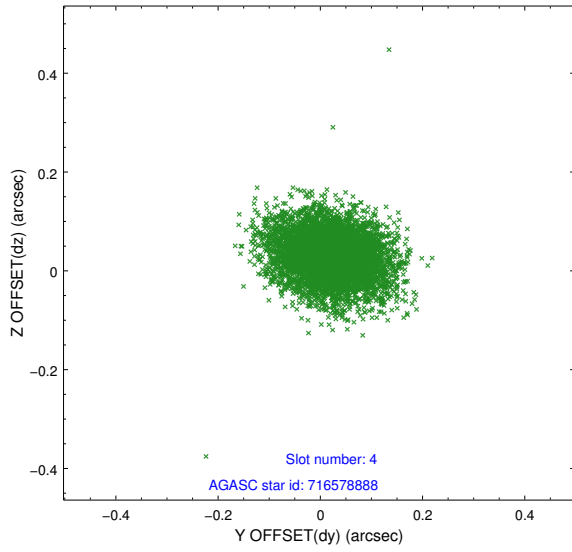
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.12	2479	-0.019	0.013	0.007	0.012	0.000000	0.000000	-755.44	-1727.47
1	FID	ACIS-S-4	7.20	2479	-0.054	0.006	0.006	0.011	0.000000	0.000000	2157.53	180.52
2	FID	ACIS-S-5	7.24	2479	0.043	-0.010	0.007	0.011	0.000000	0.000000	-1807.59	174.70
3	GUIDE	716447528	6.96	4959	0.028	-0.040	0.054	0.088	139.371683	-11.961966	-206.07	-608.80
4	GUIDE	716578888	9.25	4957	0.019	0.029	0.078	0.130	139.858876	-11.605741	-1985.81	585.09
5	GUIDE	716454552	9.00	4956	0.002	0.298	0.066	0.106	139.524204	-12.319370	828.41	325.76
6	GUIDE	716452328	8.86	4957	0.062	-0.134	0.067	0.111	138.982178	-12.235590	1180.08	-1573.05
7	GUIDE	716450872	9.39	4949	-0.116	-0.157	0.116	0.183	138.962522	-11.640040	-817.86	-2354.97

## 2.4 Star Slots

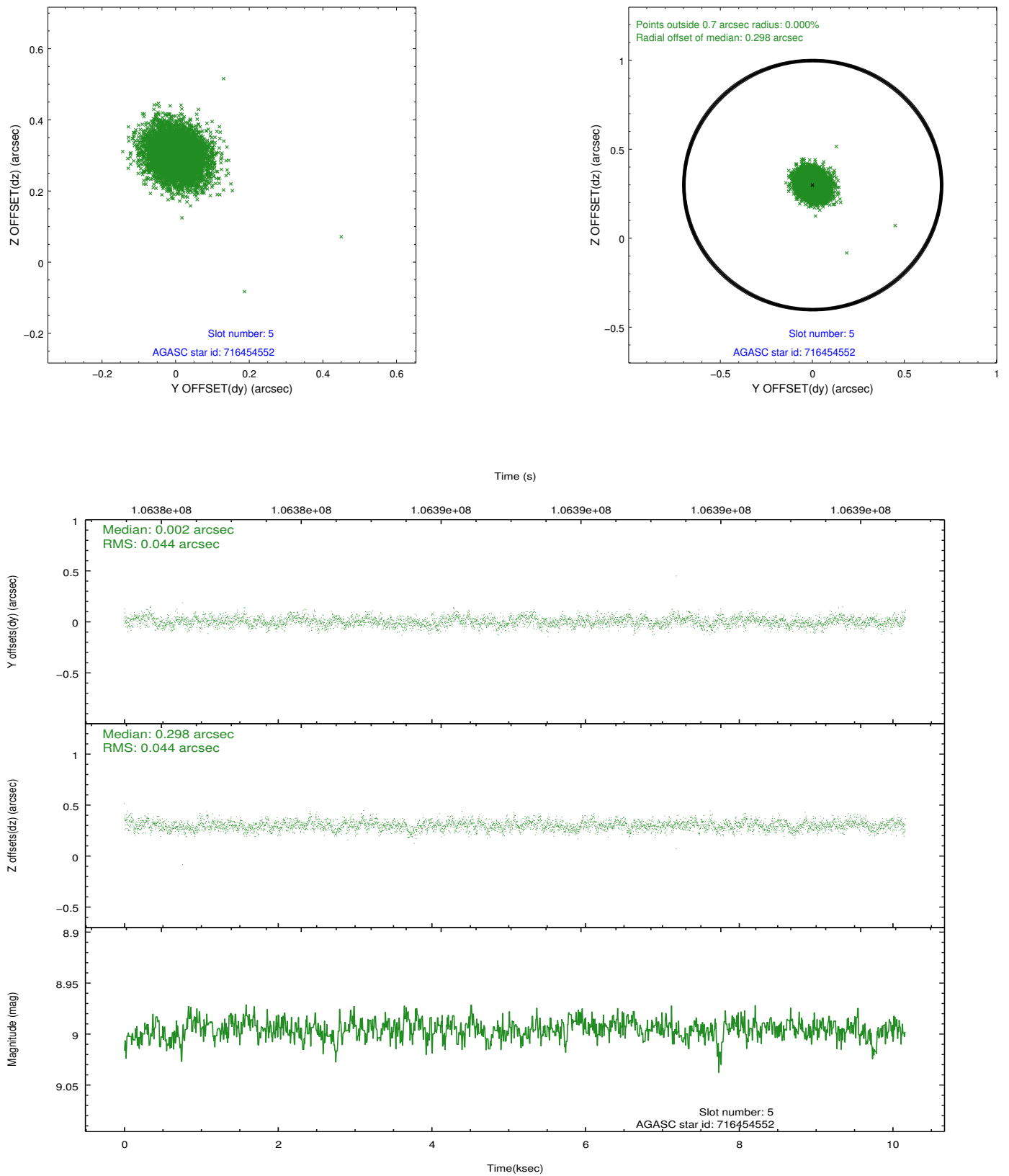
### 2.4.1 Slot 3



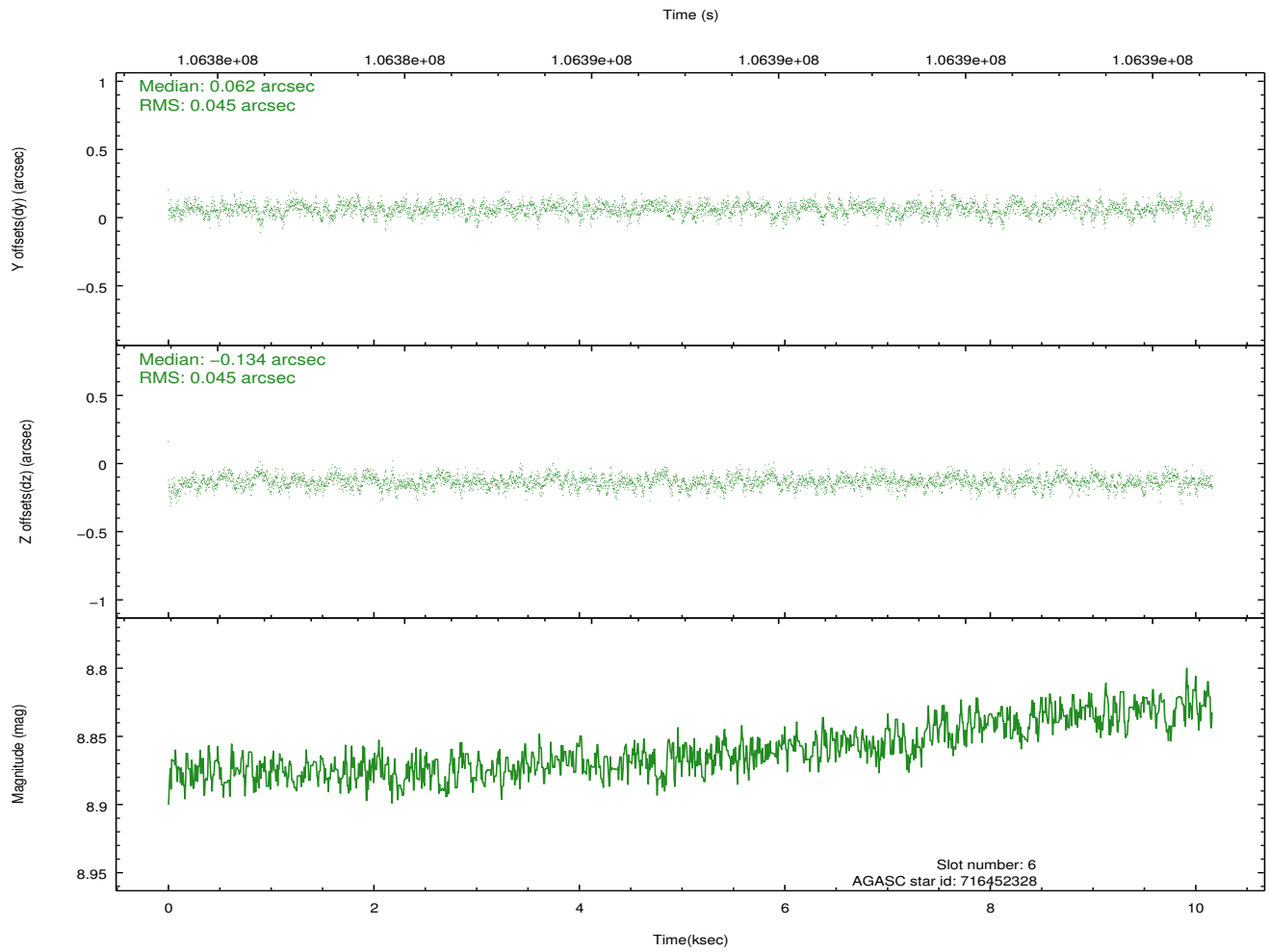
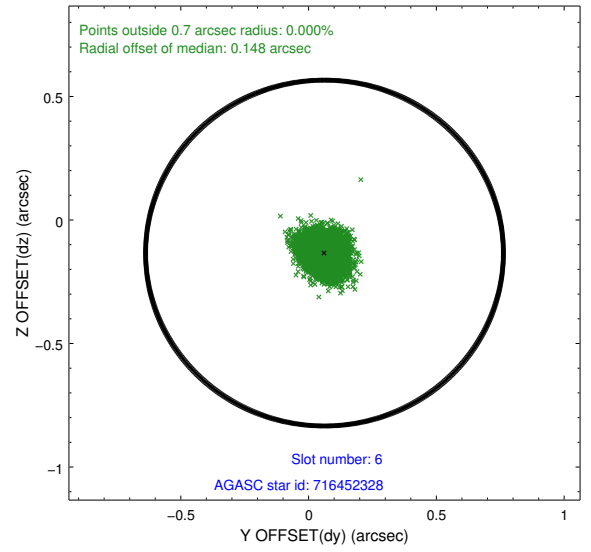
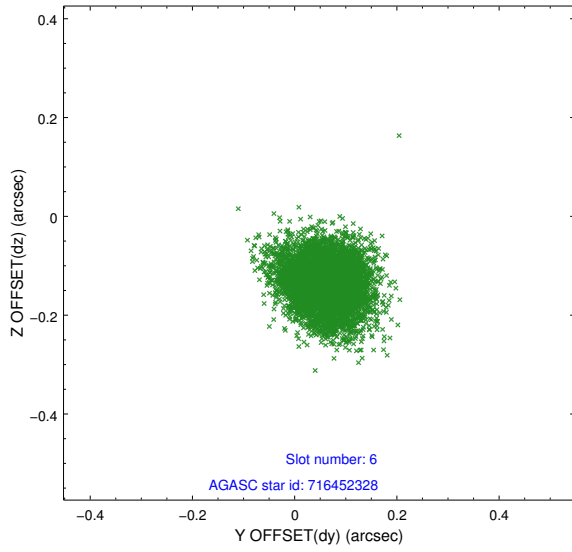
## 2.4.2 Slot 4



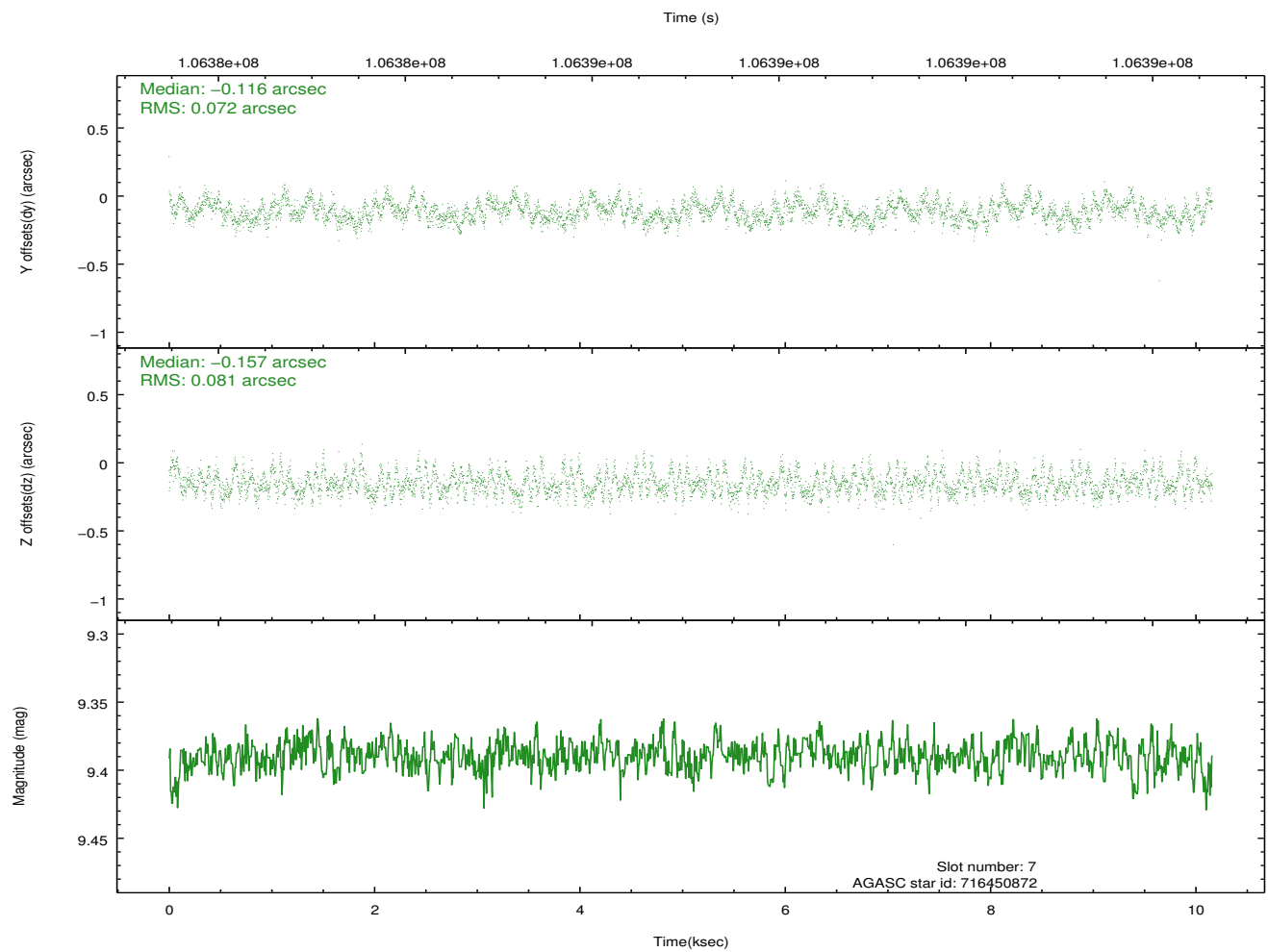
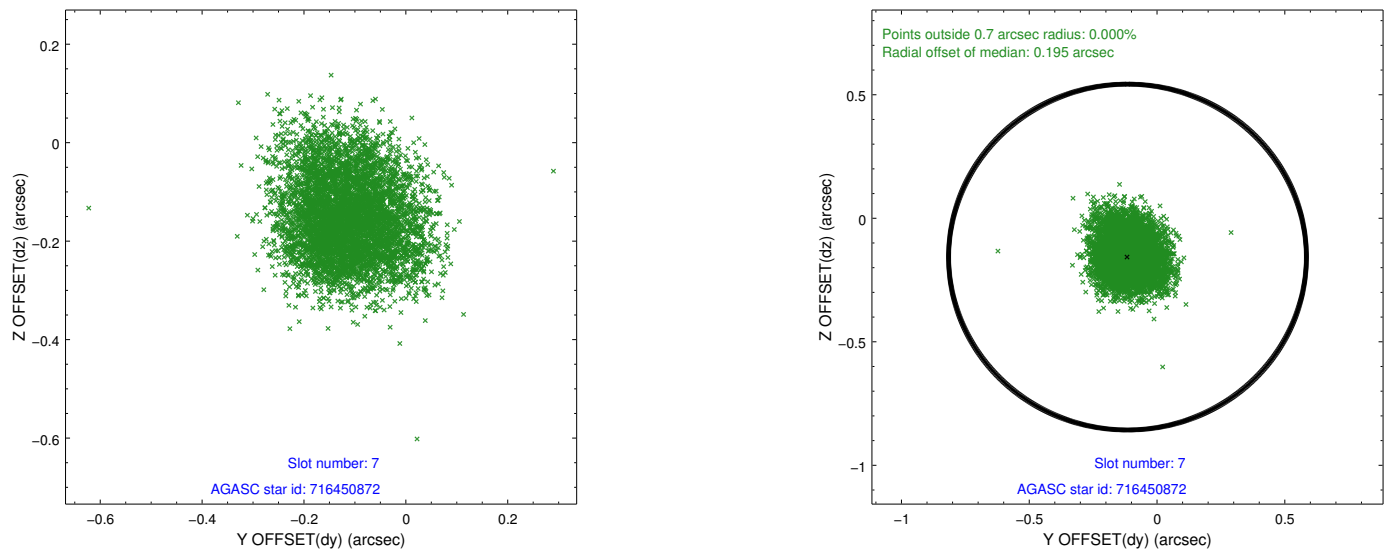
### 2.4.3 Slot 5



## 2.4.4 Slot 6

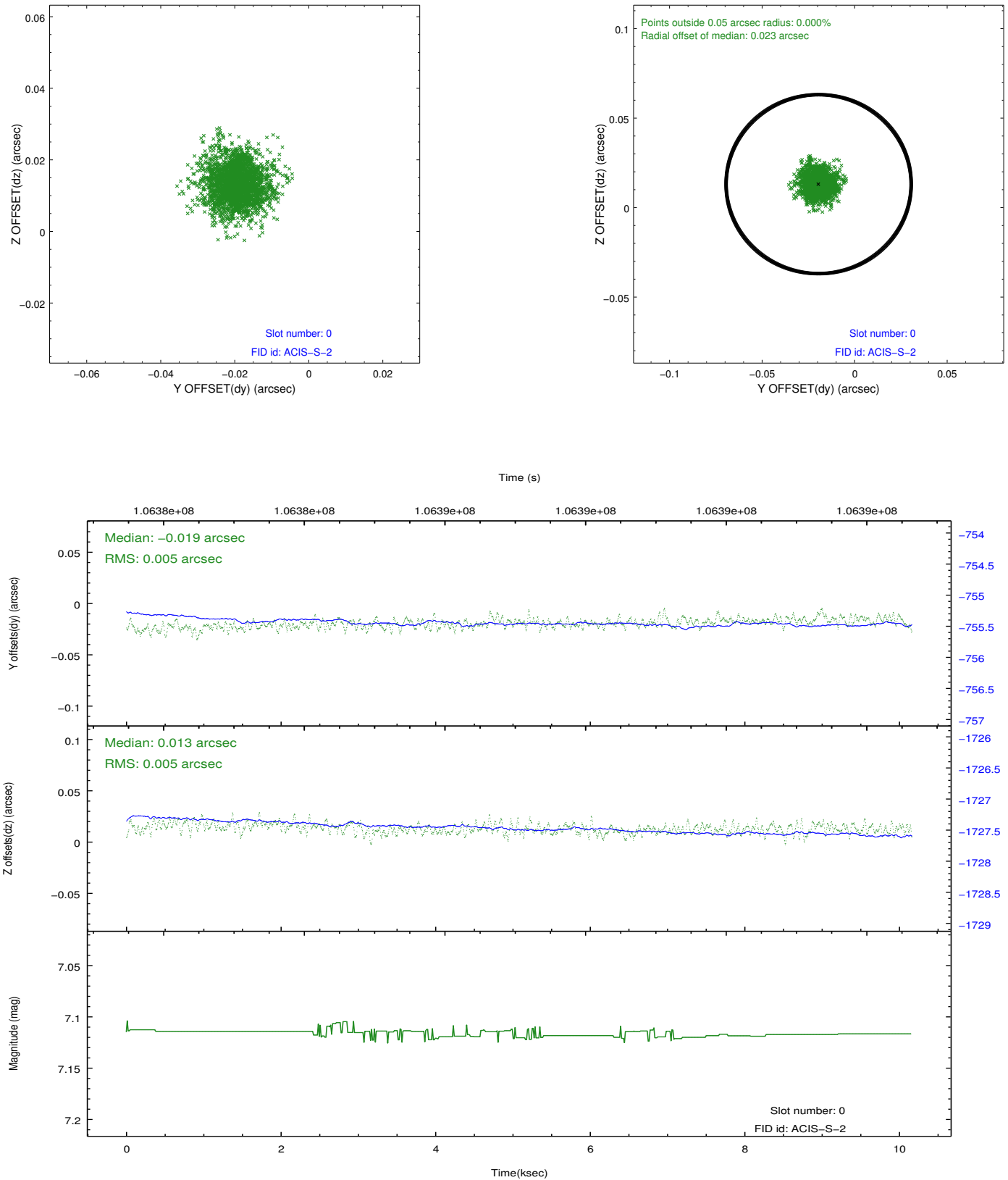


## 2.4.5 Slot 7

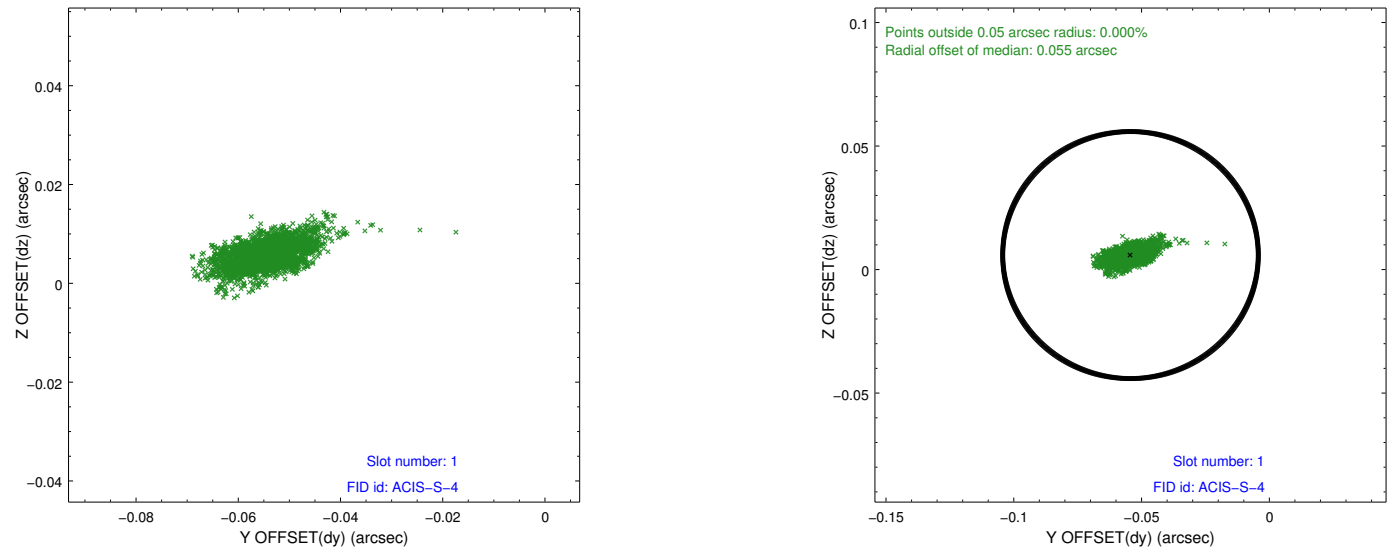


## 2.5 FID Slots

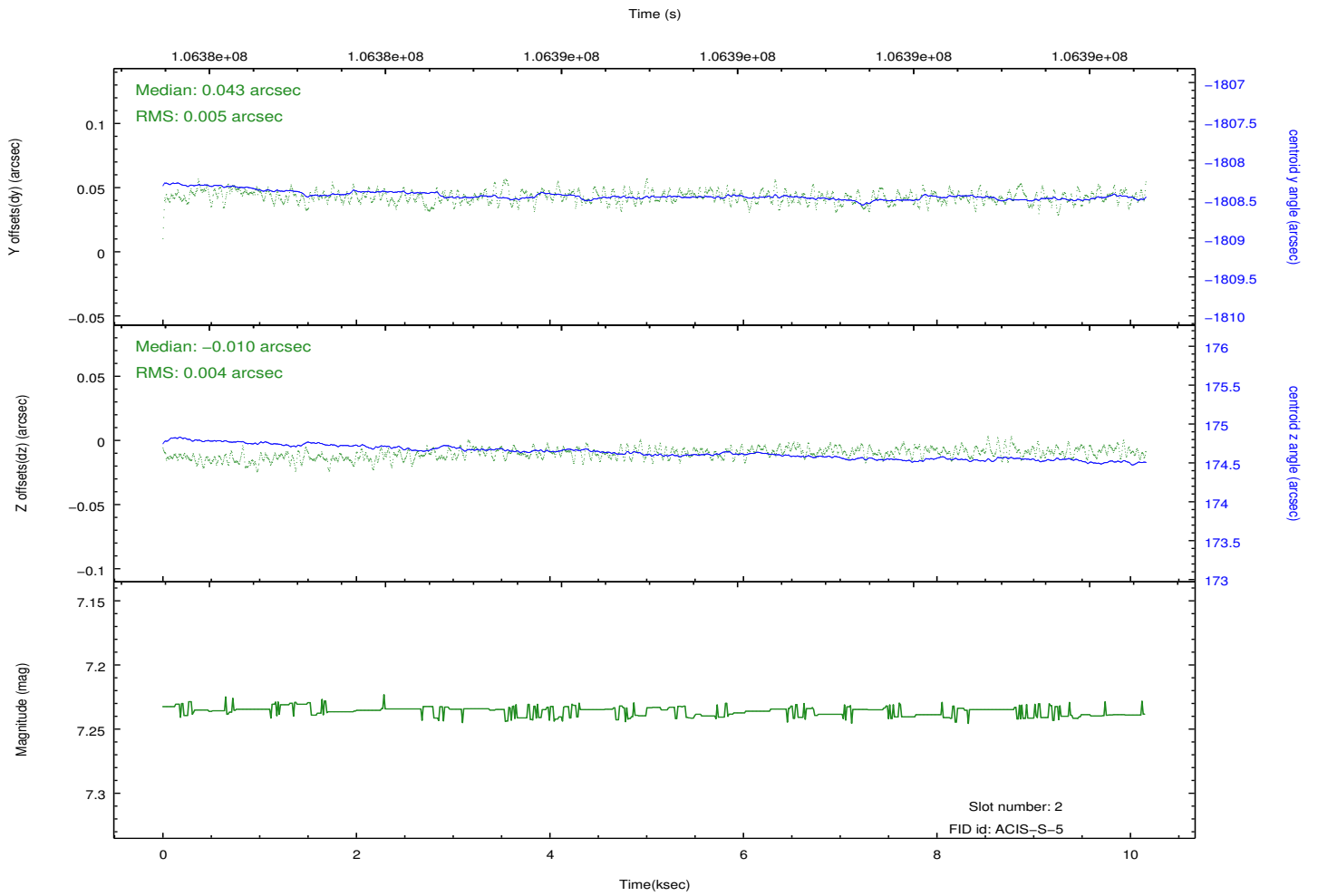
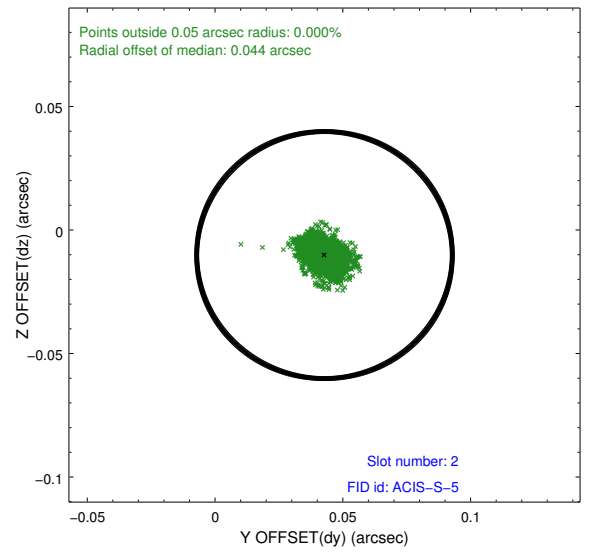
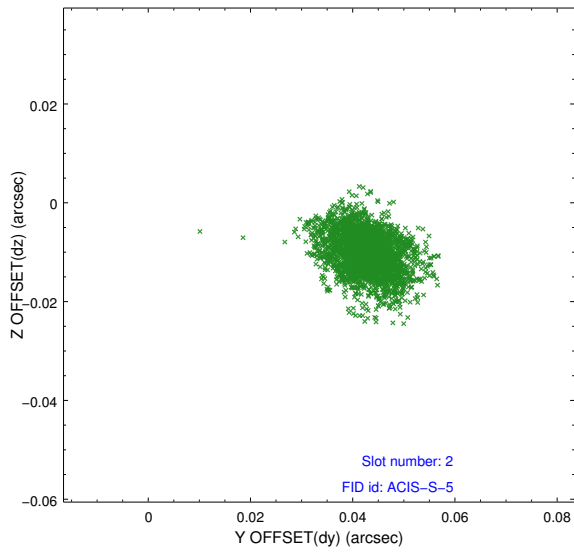
### 2.5.1 Slot 0



## 2.5.2 Slot 1

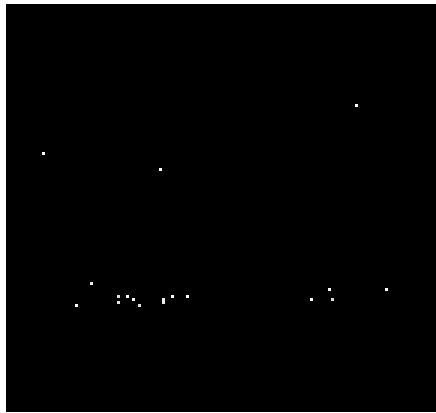


### 2.5.3 Slot 2

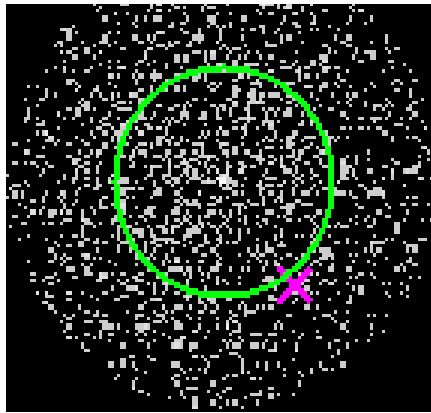


# 3 Gratings

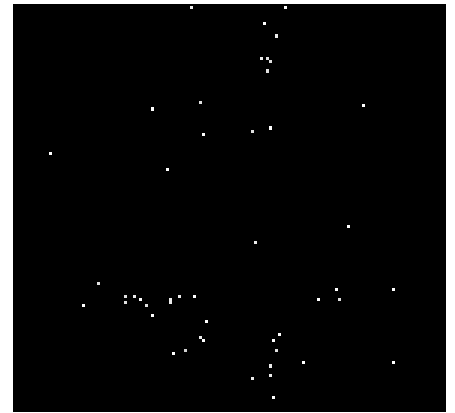
## 3.1 HEG Arm



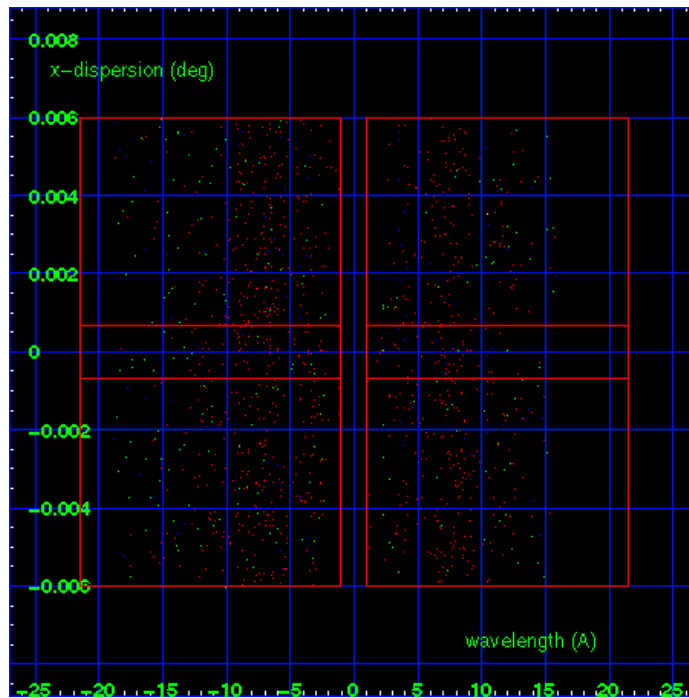
HEG Order Sort 123



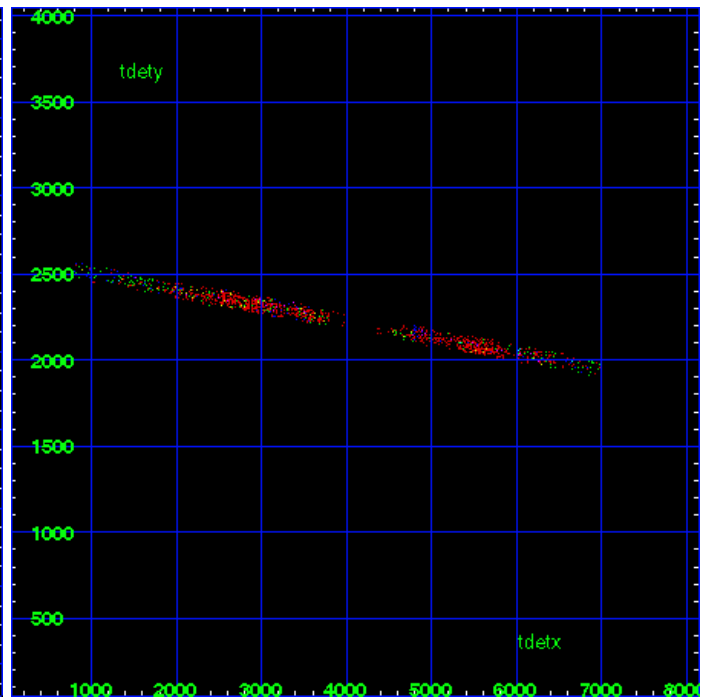
HEG Zero Order



HEG Order Sort ALL

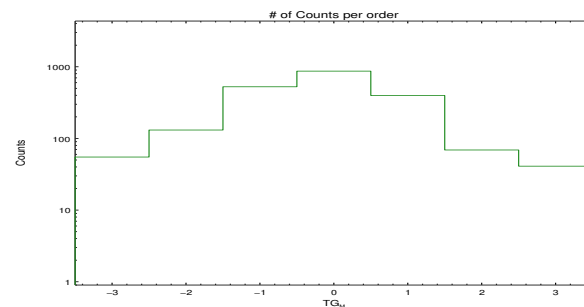


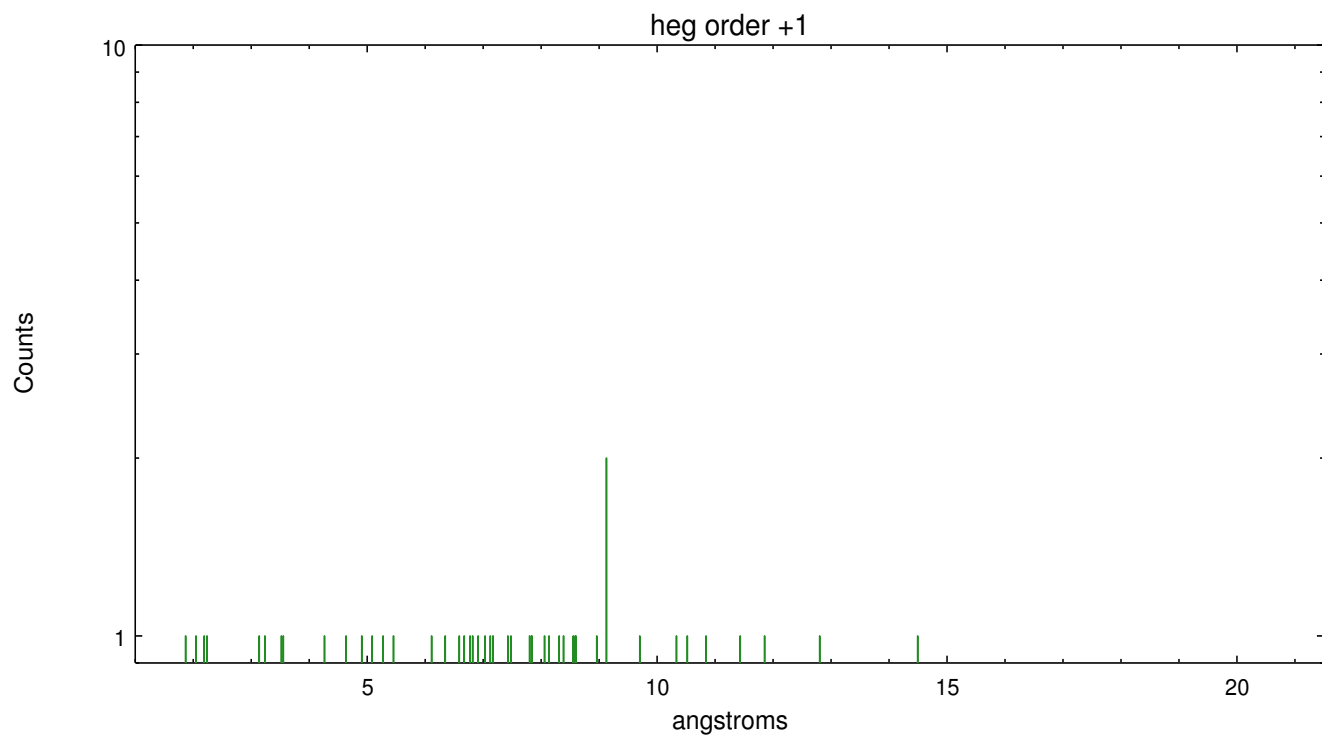
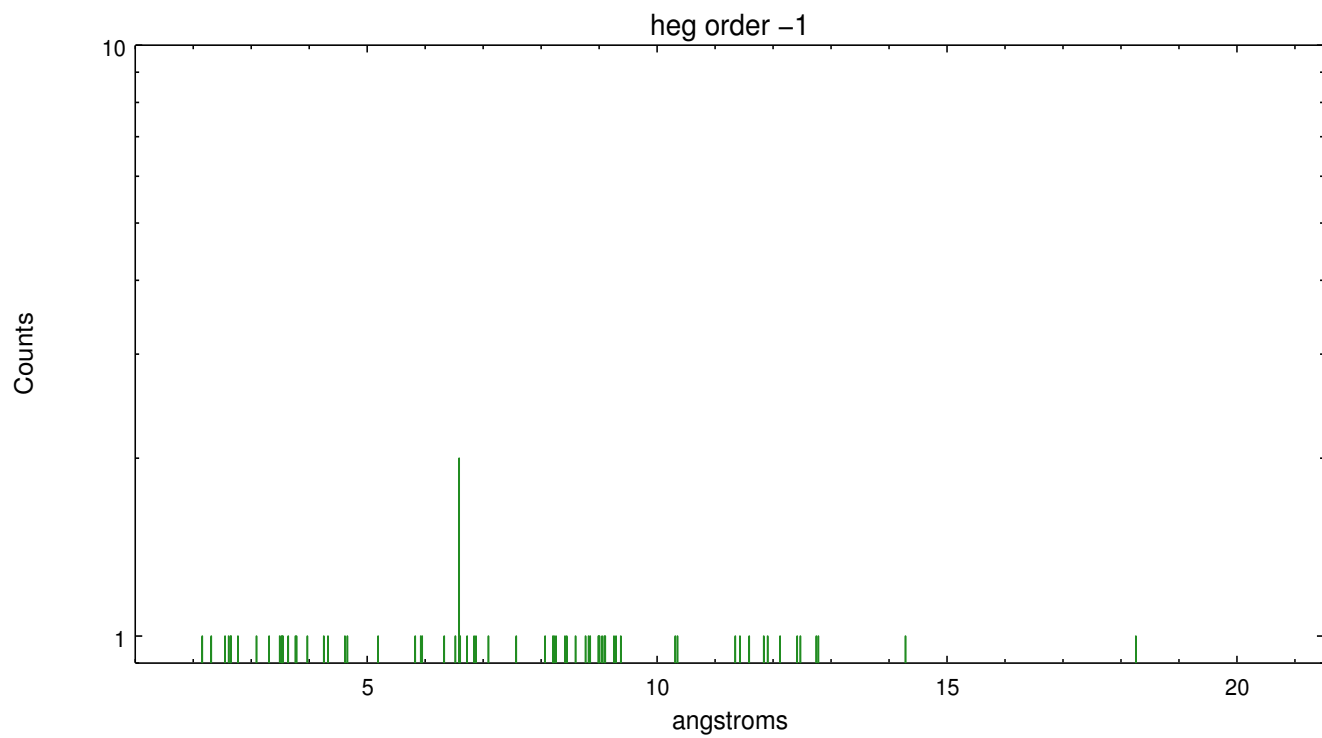
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	55	131	526	869	397	69	41

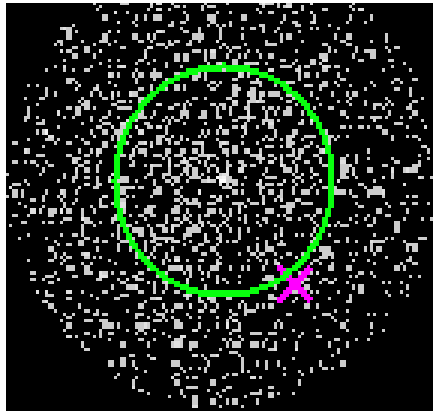




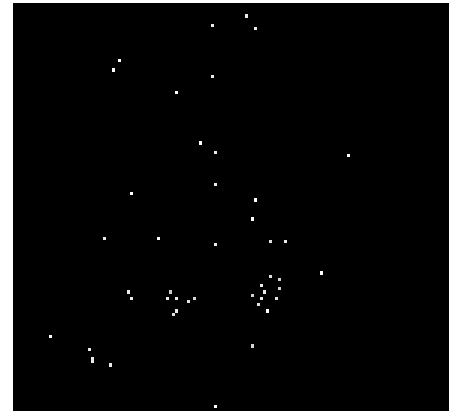
### 3.2 MEG Arm



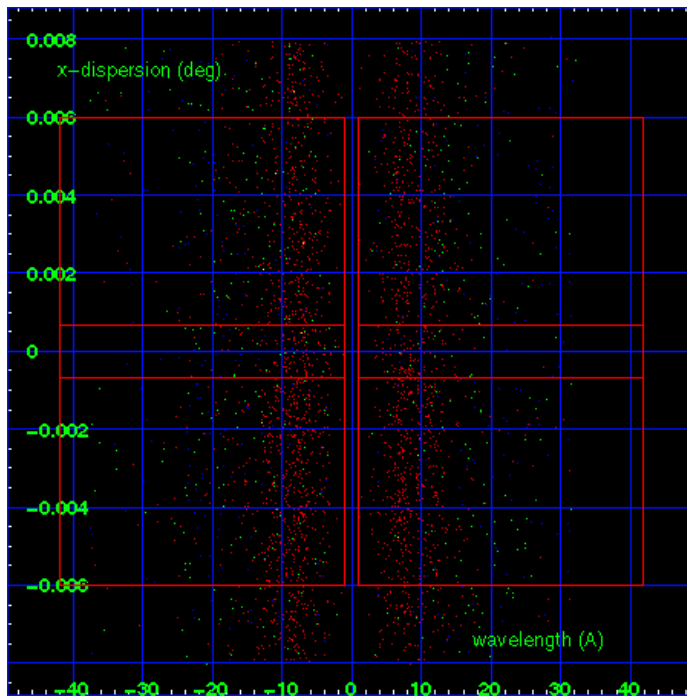
MEG Order Sort 123



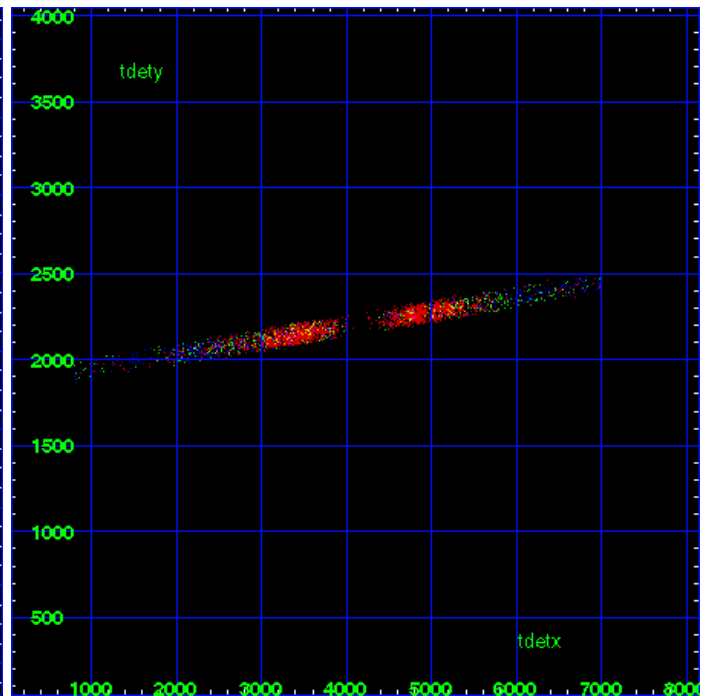
MEG Zero Order



MEG Order Sort ALL

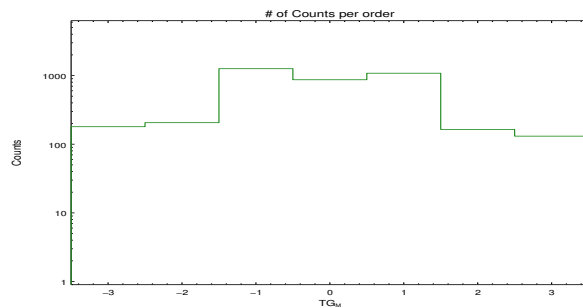


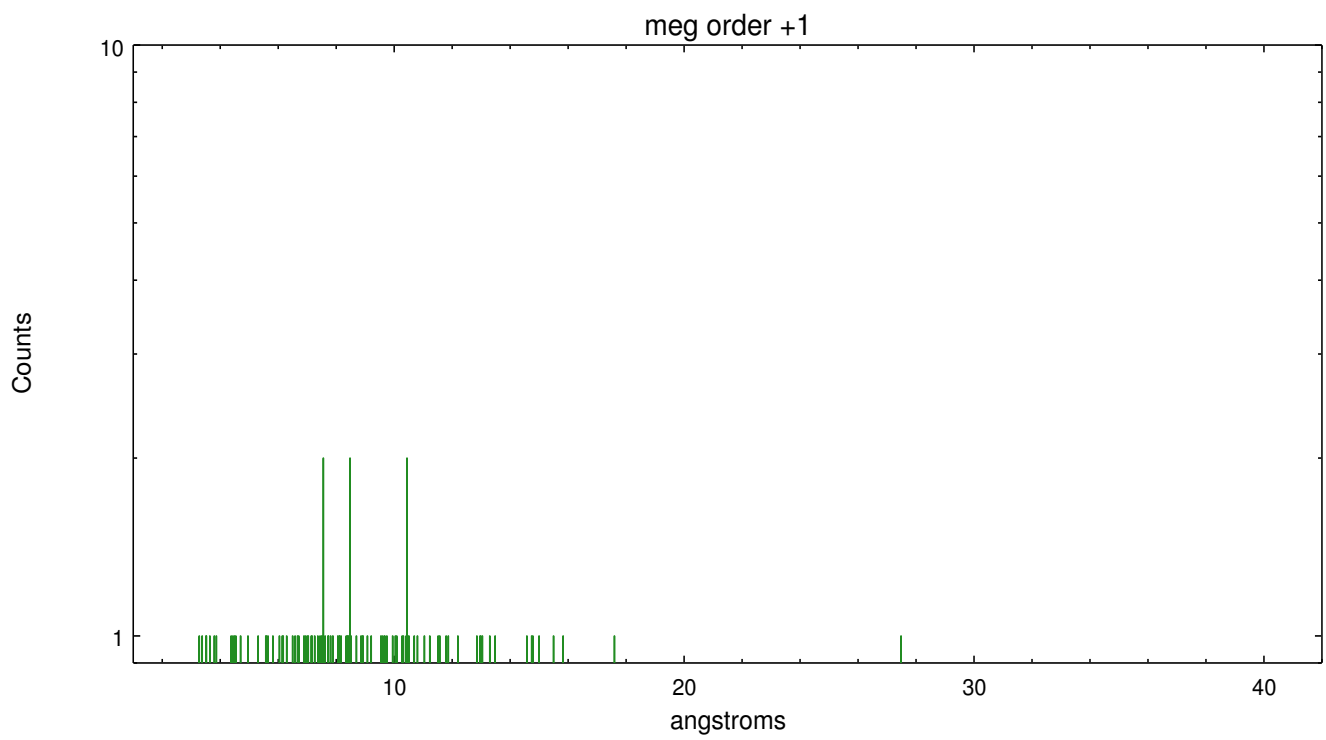
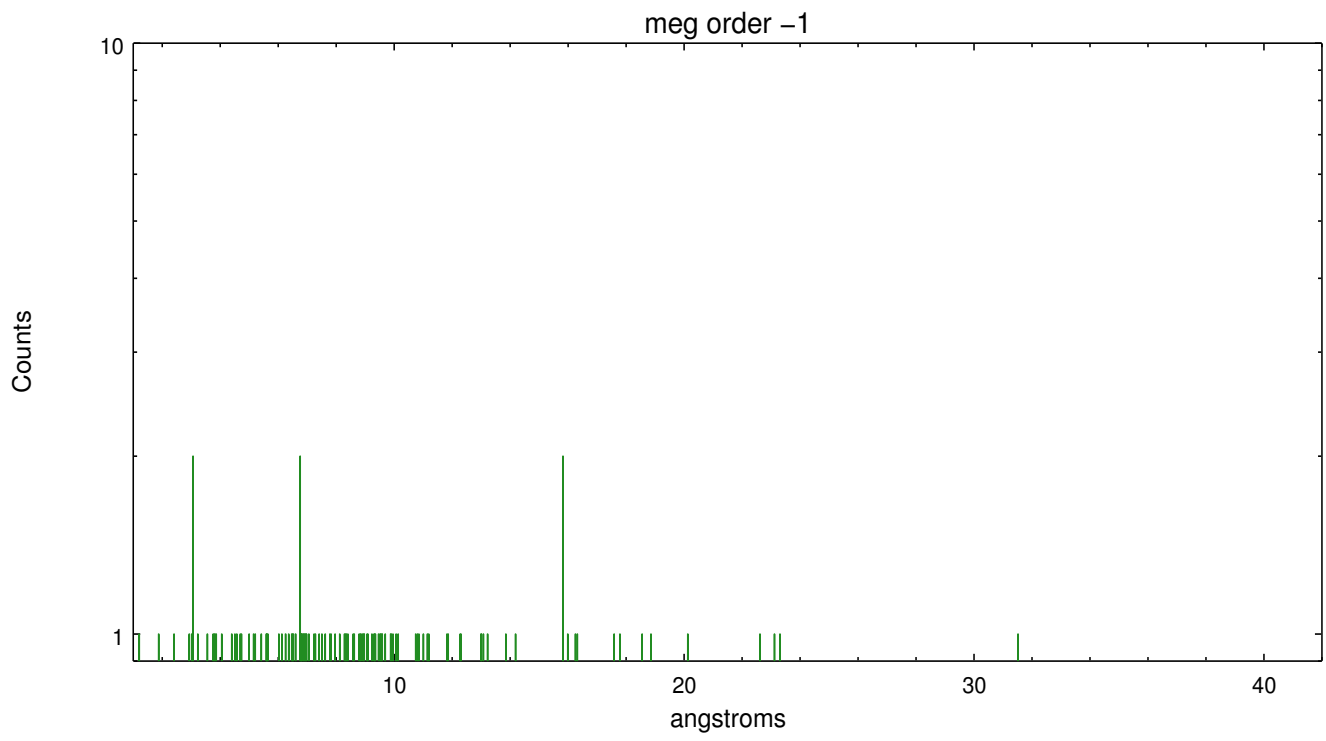
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	180	206	1259	869	1081	164	131





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.10.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.15

## A.2 Comments

Standard software processing technique using the tool `tgdetect` failed to determine an accurate position for the zeroth order for this observation. The source is extended. The position of the zeroth order was chosen to be the same as in `TGCat` and is at the position of the brightest emission (sky coordinates  $x=4075.96$ ,  $y=4123.0$ ). For grating analysis of localized X-ray emission within the extended emission, the investigator will need to extract one or more dispersed spectra using user-defined zeroth order positions for all positions of interest. === The spectral data supplied in this processing are only energy-calibrated for the particular zeroth order position selected. WARNING: there are no standard `ciao` tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle. === The spectral lines are spatially-broadened and the `rmfs` are not valid.