

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 646 - L2 Version 4  
Chandra X-Ray Center

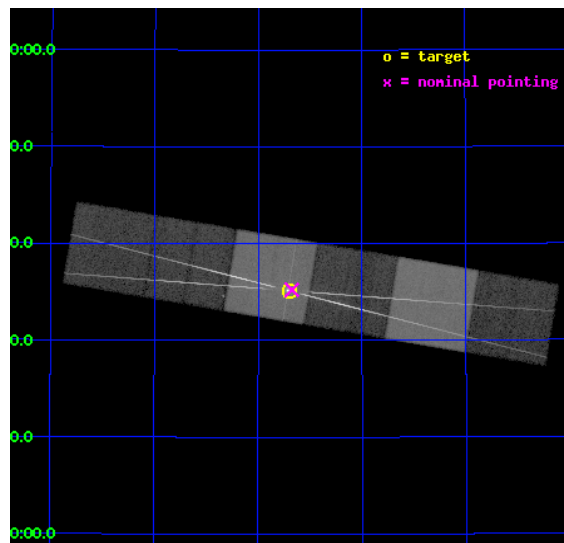
L2 Processing Date : Sep 14 2012

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# 1 Front

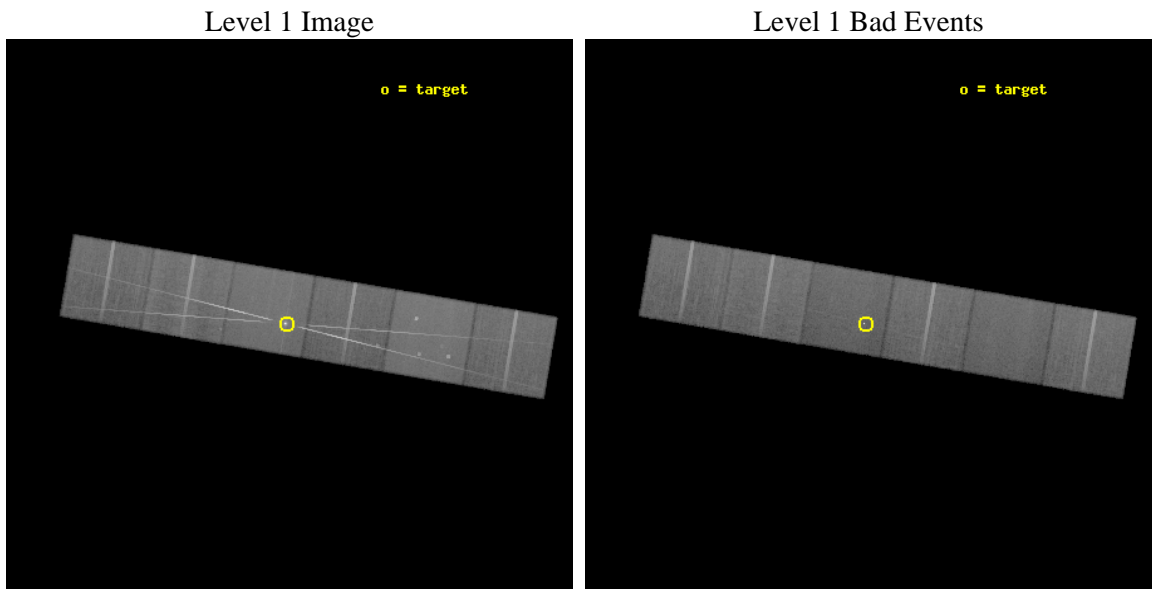
seq_num	300015	Sequence number
obs_id	646	Observation id
title	HIGH-RESOLUTION X-RAY SPECTROSCOPY OF SS CYGNI IN QUIESCENCE	Propo
observer	Dr Peter Wheatley	Principal investigator
object	SS CYGNI	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	325.675	Observer's specified target RA [deg]
dec_targ	43.586111	Observer's specified target Dec [deg]
ra_nom	325.66877400922	Nominal RA [deg]
dec_nom	43.587173555826	Nominal Dec [deg]
roll_nom	189.5757827232	Nominal Roll [deg]
revision	4	Processing version of data
ontime	47948.005002588	Sum of GTIs [s]
livetime	47340.858492423	Livetime [s]
ontime4	47948.046042591	Sum of GTIs [s]
ontime5	47947.963962585	Sum of GTIs [s]
ontime6	47947.922922596	Sum of GTIs [s]
ontime7	47948.005002588	Sum of GTIs [s]
ontime8	47947.881882593	Sum of GTIs [s]
ontime9	47947.84084259	Sum of GTIs [s]
l2events	633612	Number of level 2 events



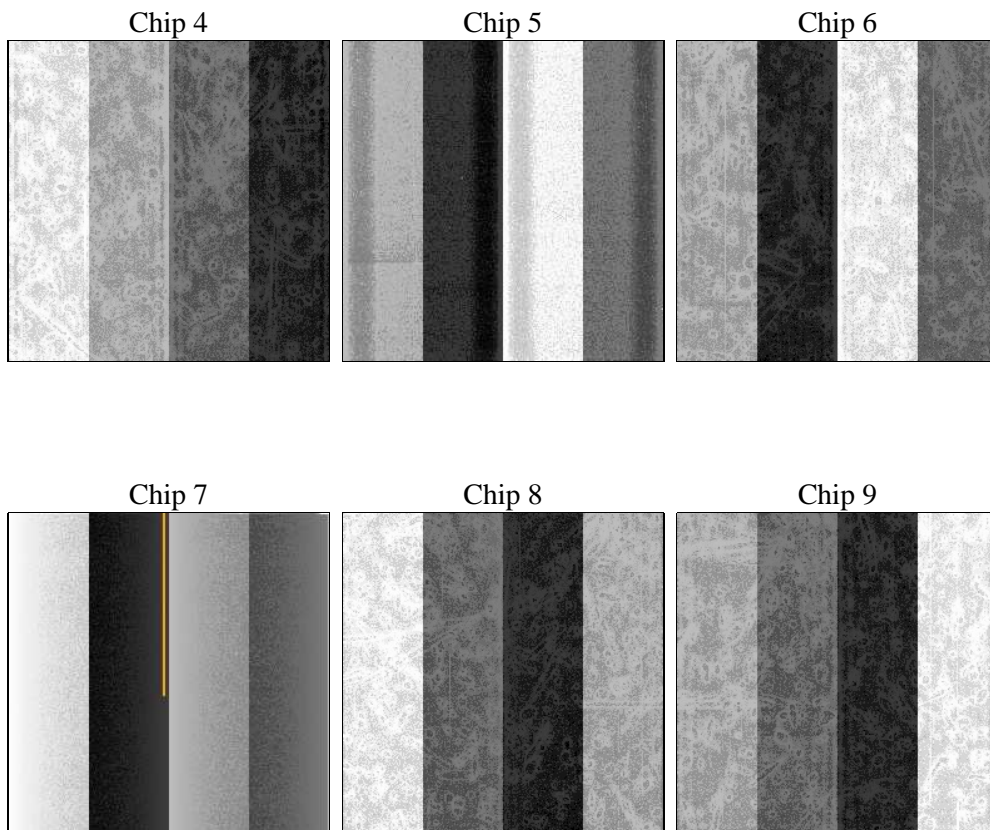
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	48000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	47948.005002588	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	47948.046042591	Sum of GTIs [s]
date	2012-09-01T02:53:54	Date and time of file creation	ontime5	47947.963962585	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	47947.922922596	Sum of GTIs [s]
			ontime7	47948.005002588	Sum of GTIs [s]
			ontime8	47947.881882593	Sum of GTIs [s]
			ontime9	47947.84084259	Sum of GTIs [s]
			l1events	2246933	Number of level 1 events

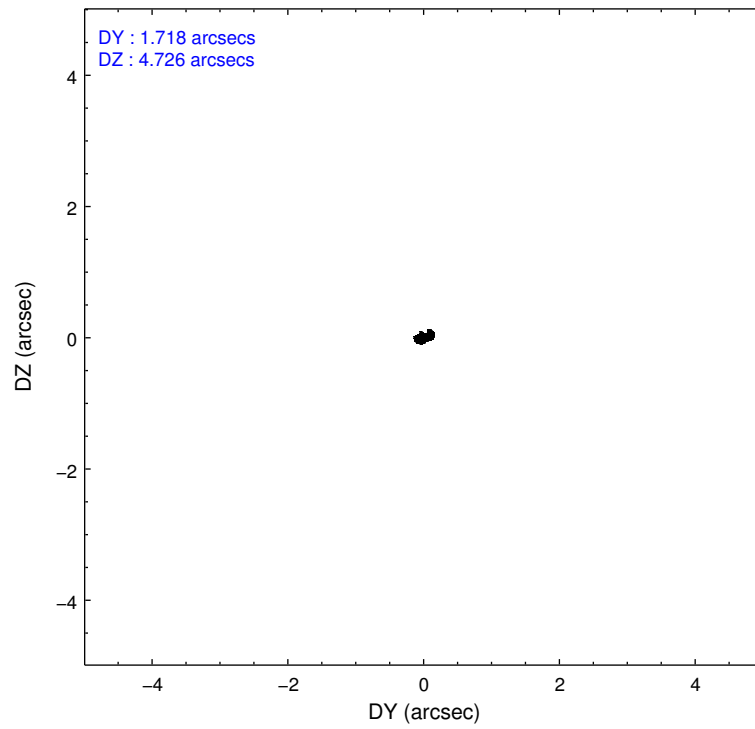
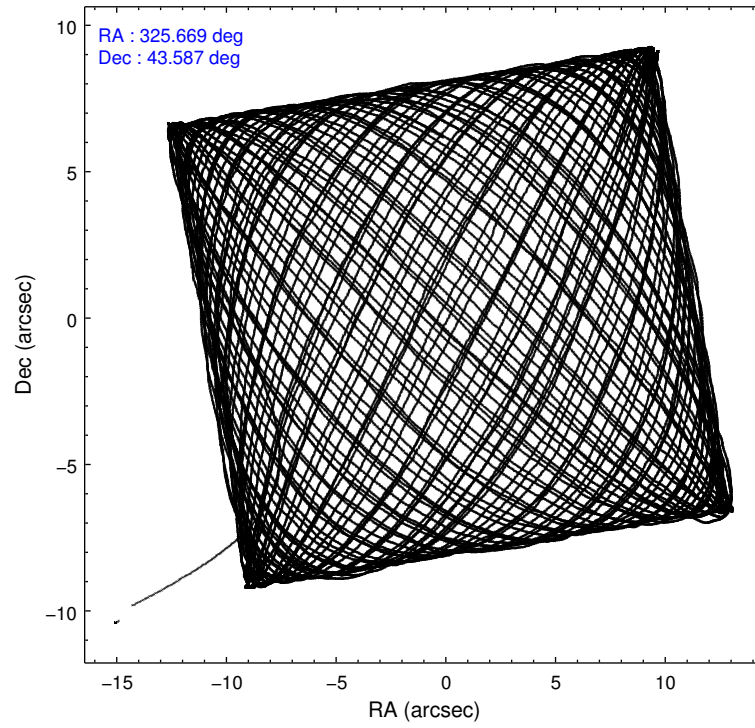
### 2.1.4 Events

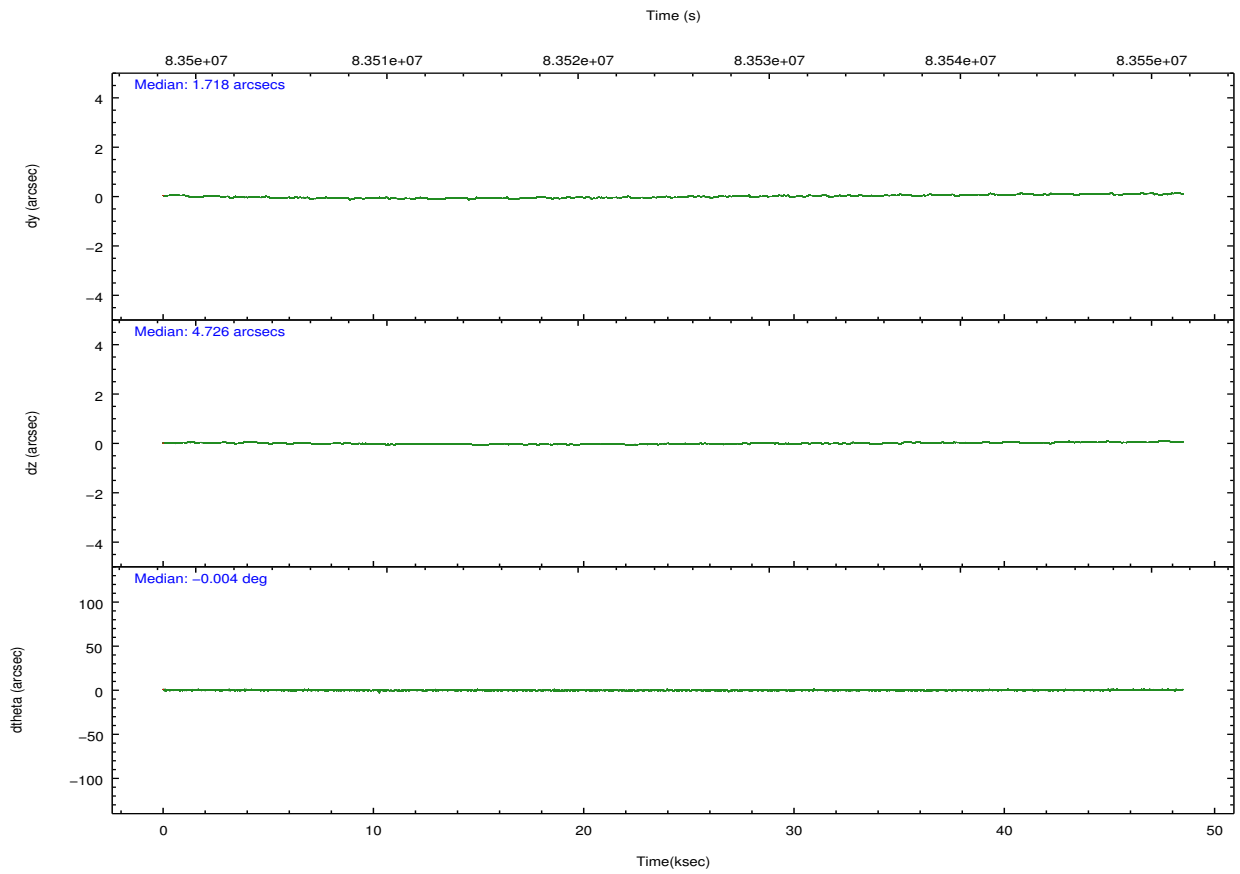
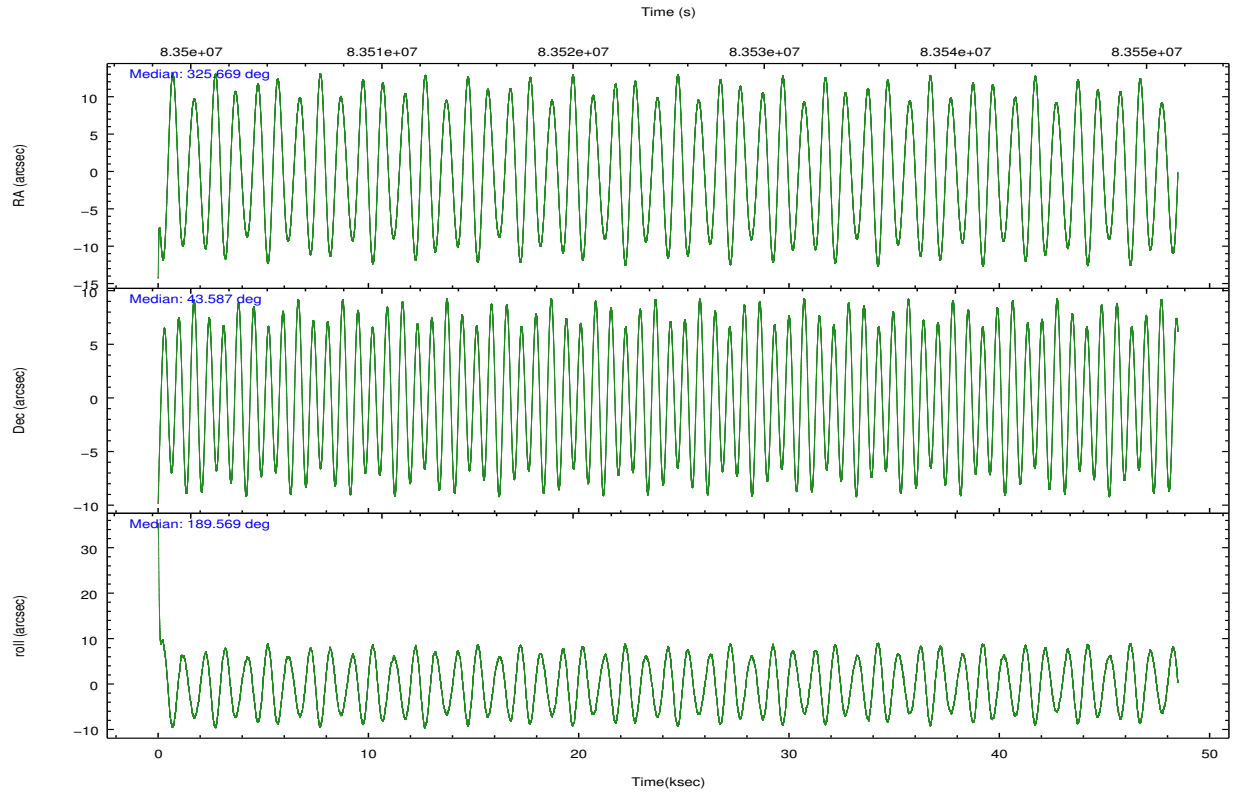
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	322594	412144	368946	434955	403551	304743	grade 0 events	17700	28009	69480	30738	55082	20083
rejected events	284402	212049	263678	212999	294202	263923		5%	6%	18%	7%	13%	6%
rejected %	88%	51%	71%	48%	72%	86%	grade 1 events	149	458	418	696	336	160
								0%	0%	0%	0%	0%	0%
							grade 2 events	8344	56781	15243	46848	18805	7286
								2%	13%	4%	10%	4%	2%
							grade 3 events	3176	9962	5868	21835	8600	3458
								0%	2%	1%	5%	2%	1%
							grade 4 events	3234	9799	5751	21790	8057	3490
								1%	2%	1%	5%	1%	1%
							grade 5 events	9734	30300	11913	36038	14969	12024
								3%	7%	3%	8%	3%	3%
							grade 6 events	5741	95575	8940	100781	18818	6509
								1%	23%	2%	23%	4%	2%
							grade 7 events	274516	181260	251333	176229	278884	251733
								85%	43%	68%	40%	69%	82%

## 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	325.697798	325.6687740092214	Subarray requested	NONE	NONE
[deg] Pointing Dec	43.604731	43.58717355582585	Alternating exposures requested	N	N
[deg] Pointing Roll	189.399154	189.5757827232021	[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	-187.132523	-187.1228876879999			
[mm] SIM translation stage offset	-3	-3.009634895007935			
[s] Observation start time (MET)	83501213.184000	83500103.677066			
Observation start date	2000-08-24T10:45:49	2000-08-24T10:28:23			
[s] Observation end time (MET)	83549213.184000	83549970.953936			
Observation end date	2000-08-25T00:05:49	2000-08-25T00:19:30			
Read mode	TIMED	TIMED			

## 2.3 Aspect





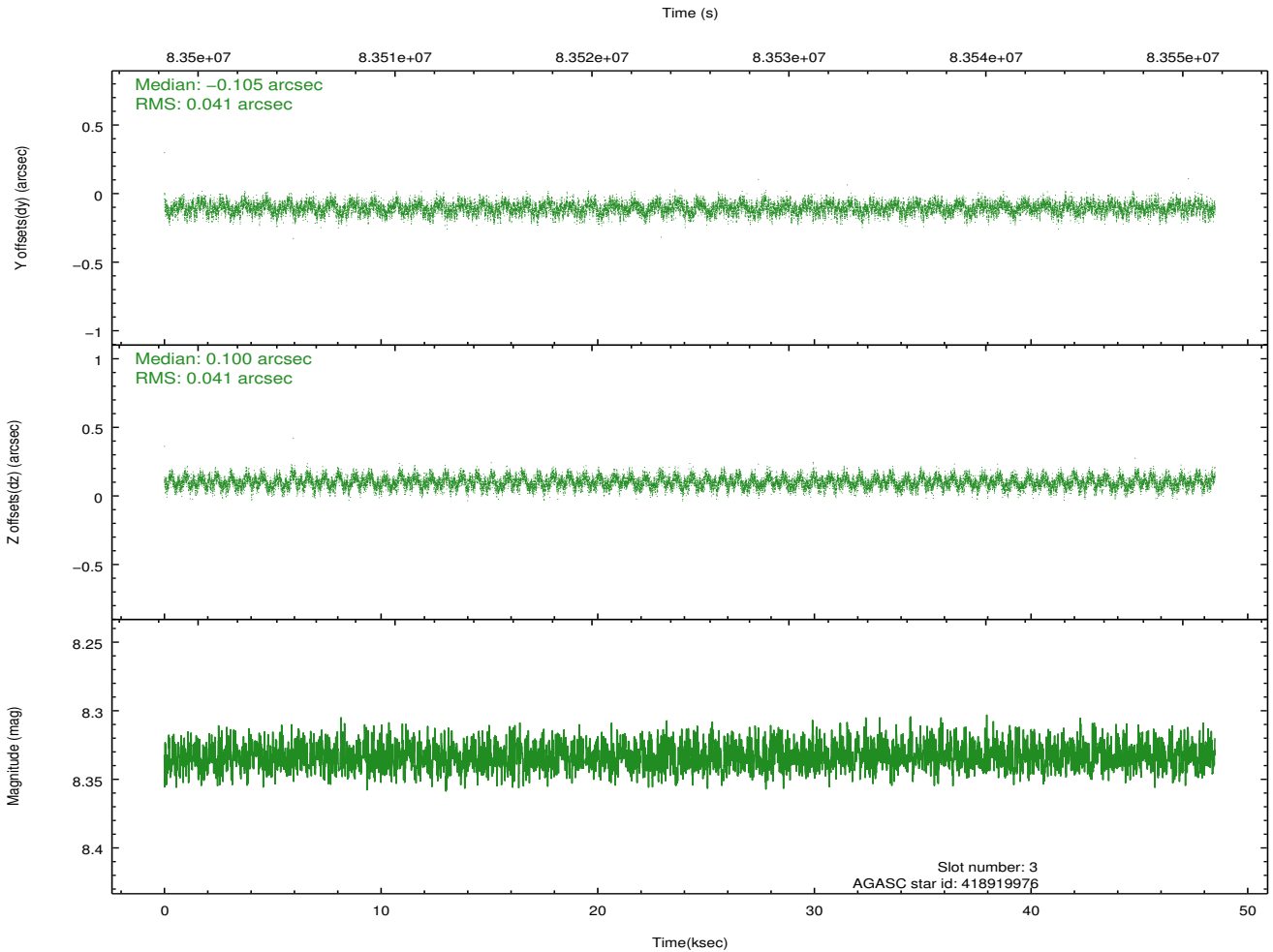
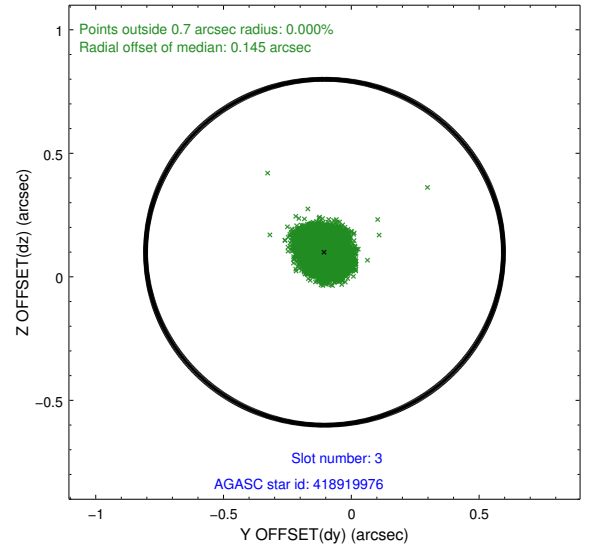
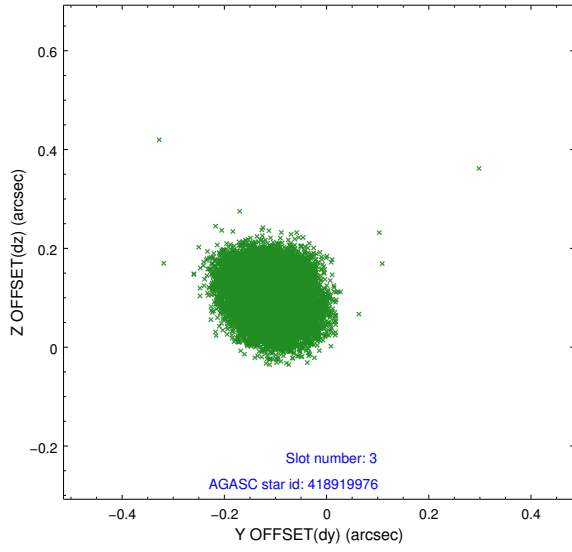
### Slot Statistics

slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	11828	-0.033	-0.035	0.007	0.011	0.000000	0.000000	-754.17	-1788.00
1	FID	ACIS-S-4	7.20	11827	0.005	0.025	0.006	0.010	0.000000	0.000000	2159.17	120.53
2	FID	ACIS-S-5	7.23	11825	-0.003	0.019	0.006	0.011	0.000000	0.000000	-1806.99	114.21
3	GUIDE	418919976	8.33	23648	-0.105	0.100	0.062	0.099	325.082300	43.946188	1372.19	-1478.29
4	GUIDE	418779408	8.28	23649	-0.027	0.062	0.076	0.121	324.813346	44.038681	2001.24	-1926.32
5	GUIDE	418390104	8.99	23650	-0.073	-0.043	0.074	0.117	325.407324	43.099724	1049.69	1668.22
6	GUIDE	418917368	9.24	23642	0.087	-0.039	0.093	0.152	326.308221	43.332066	-1417.79	1224.14
7	GUIDE	418911992	9.34	23640	0.126	-0.081	0.098	0.155	326.487476	43.206584	-1812.14	1743.17

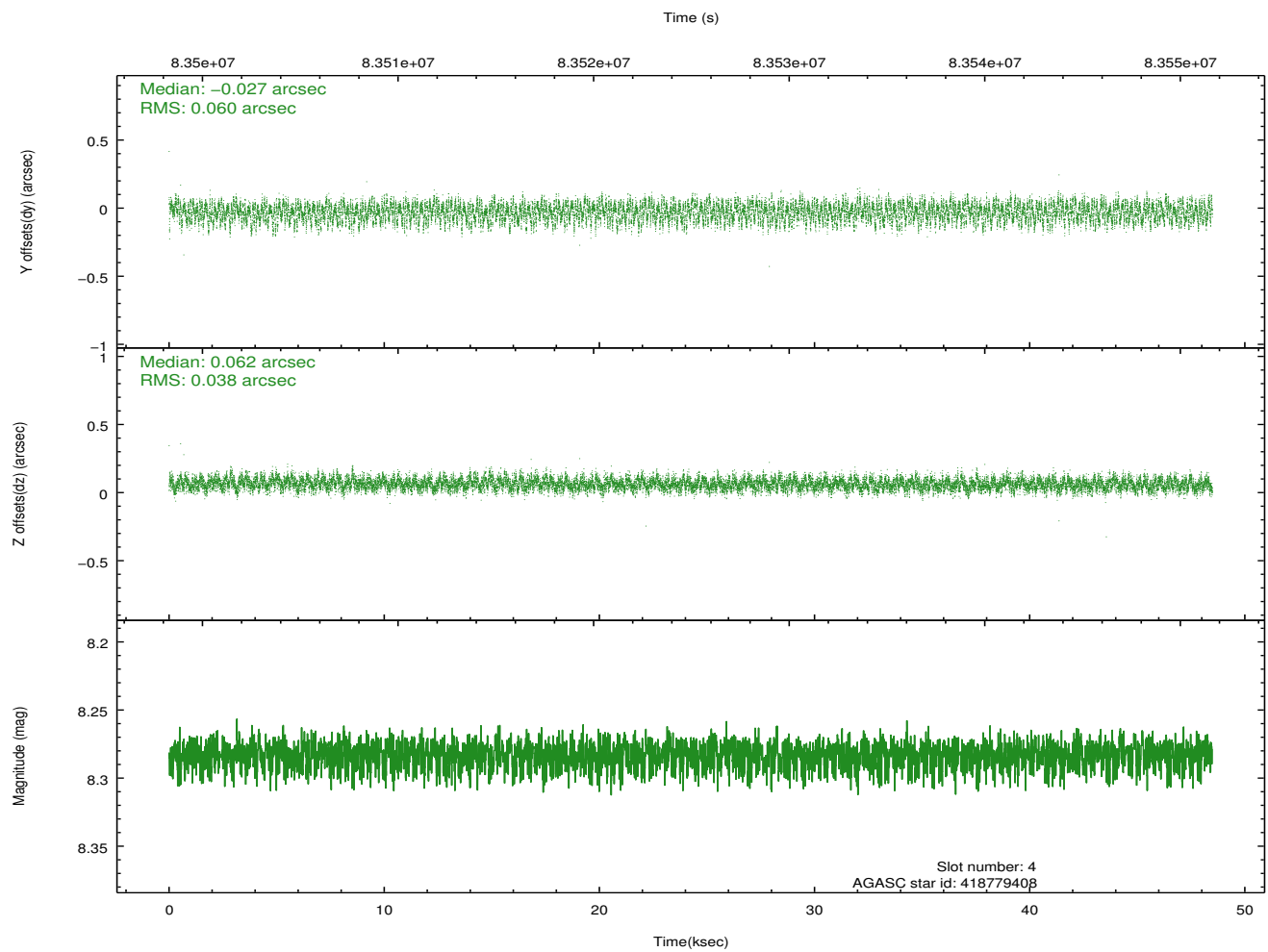
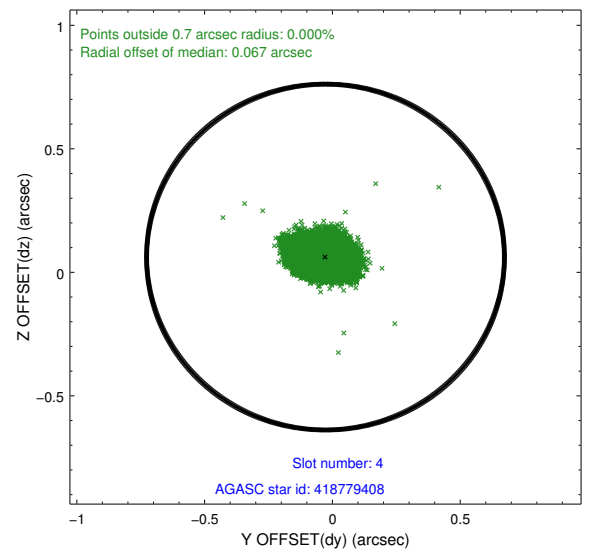
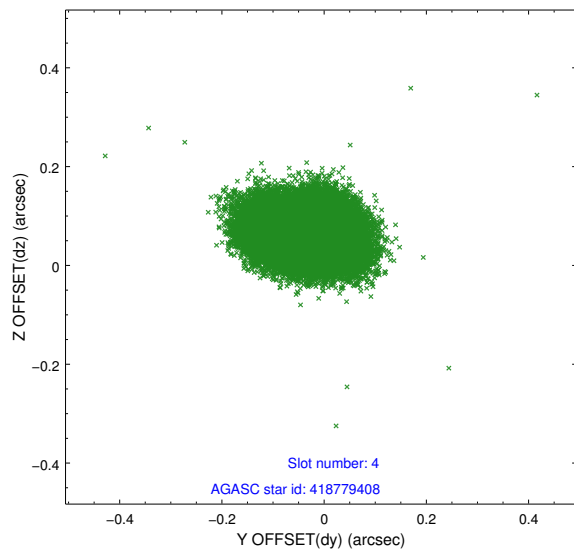
∞

## 2.4 Star Slots

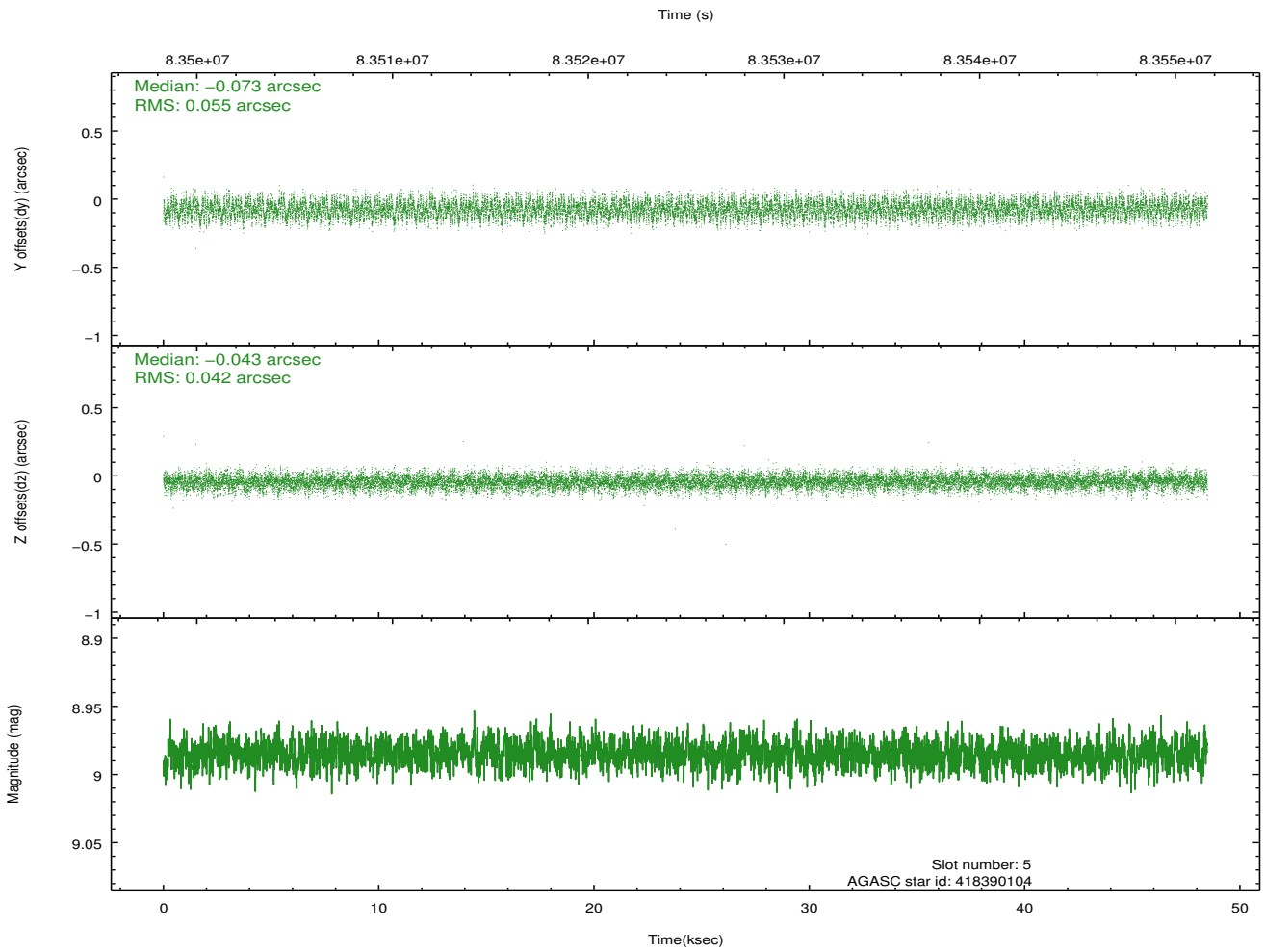
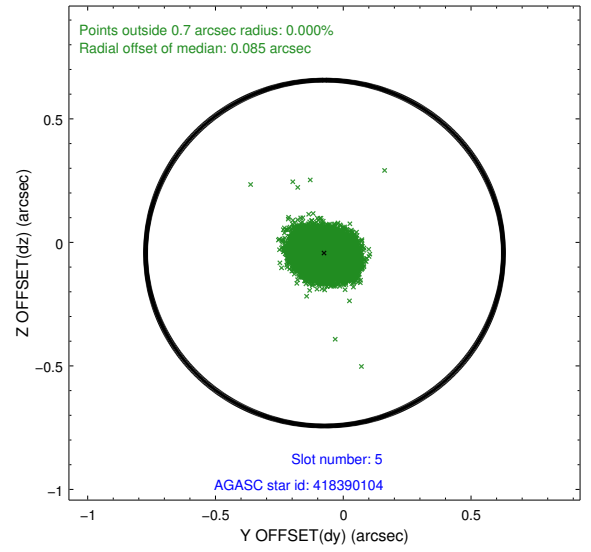
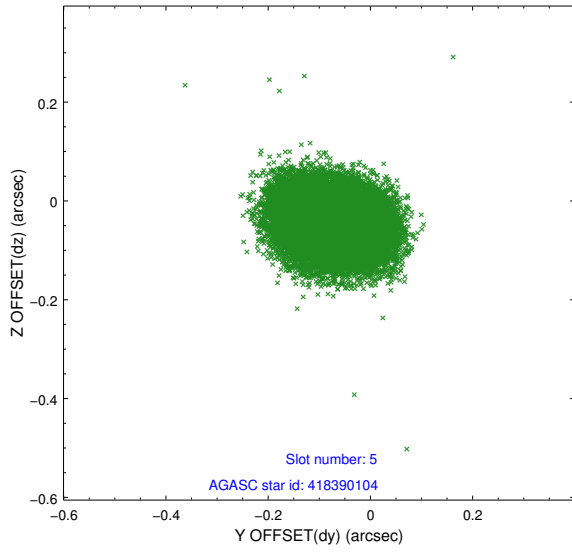
### 2.4.1 Slot 3



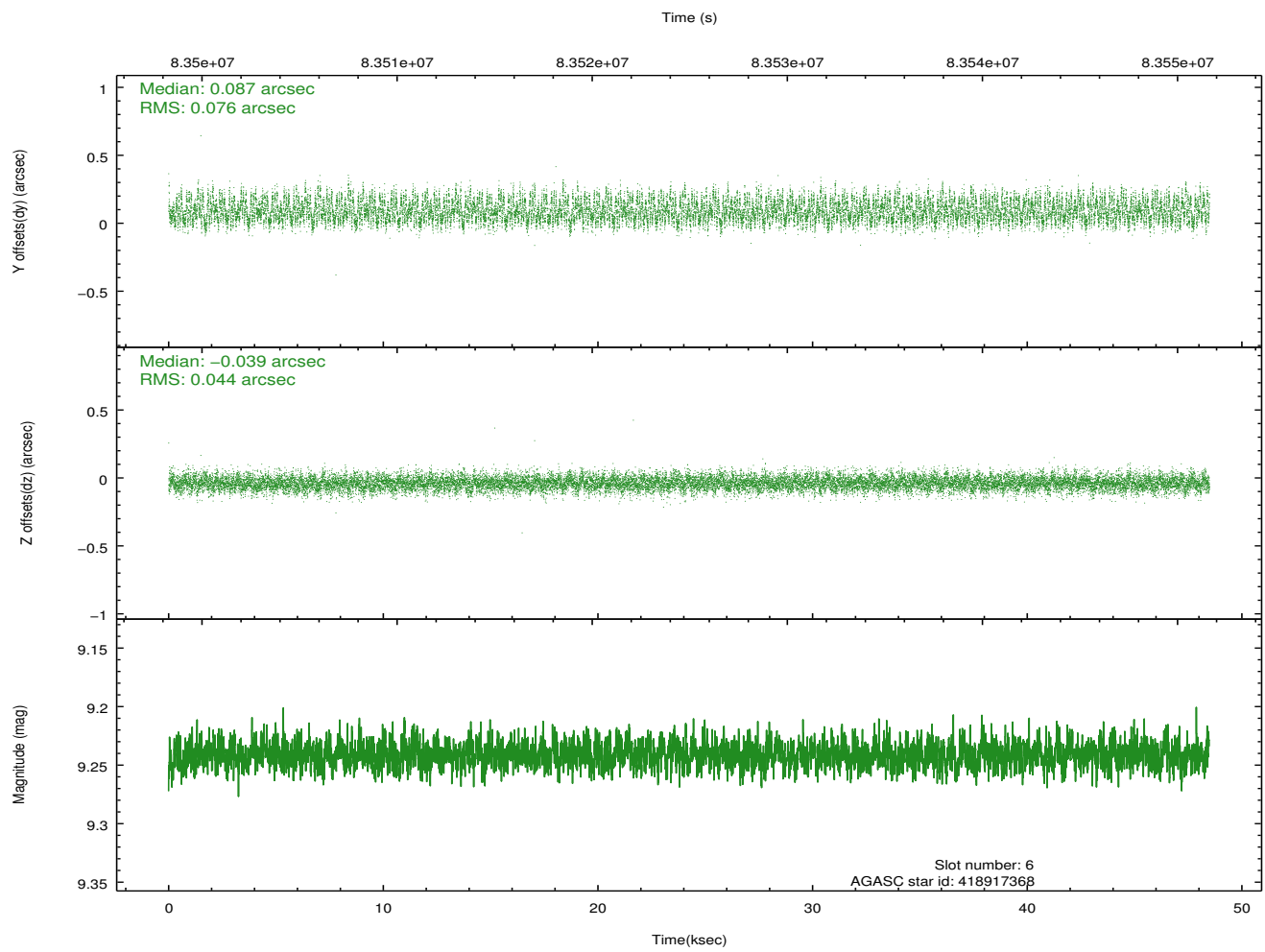
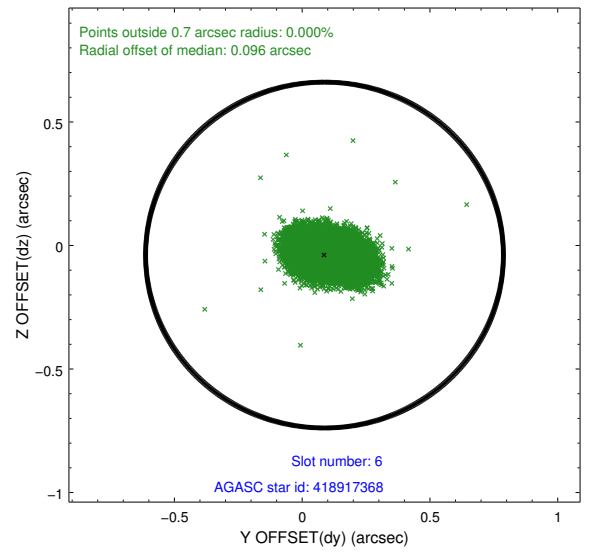
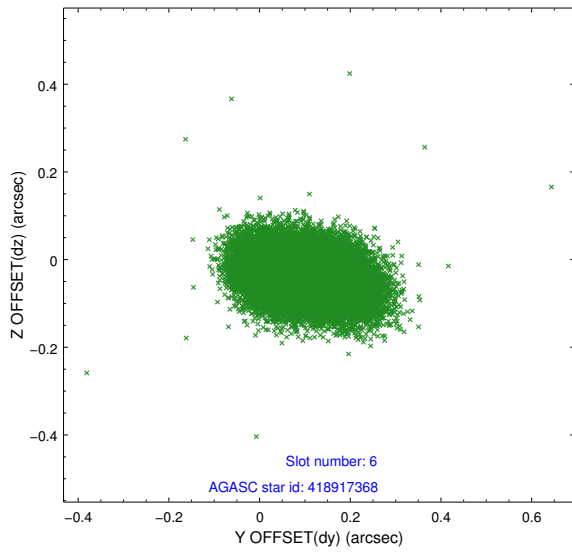
## 2.4.2 Slot 4



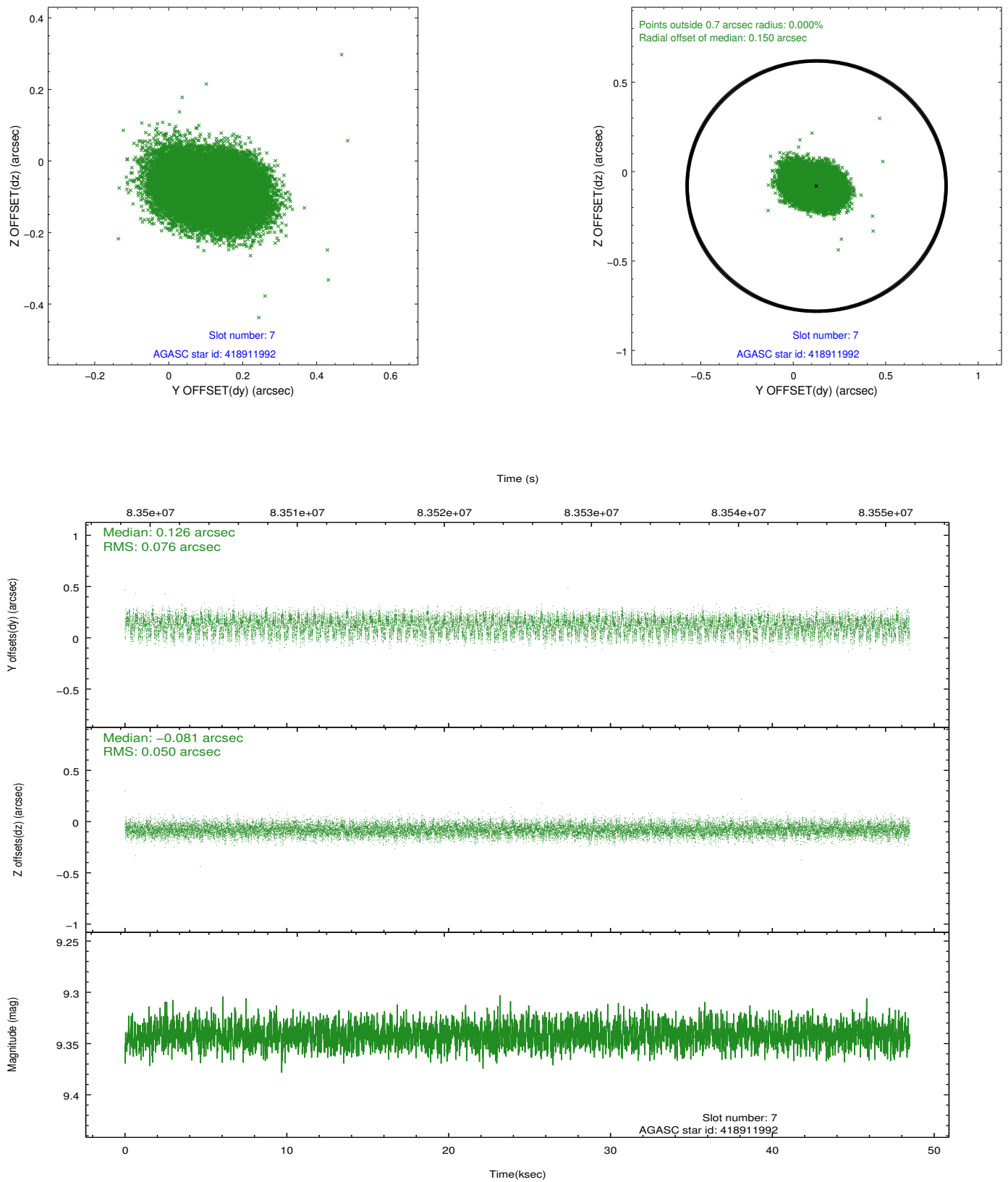
### 2.4.3 Slot 5



## 2.4.4 Slot 6

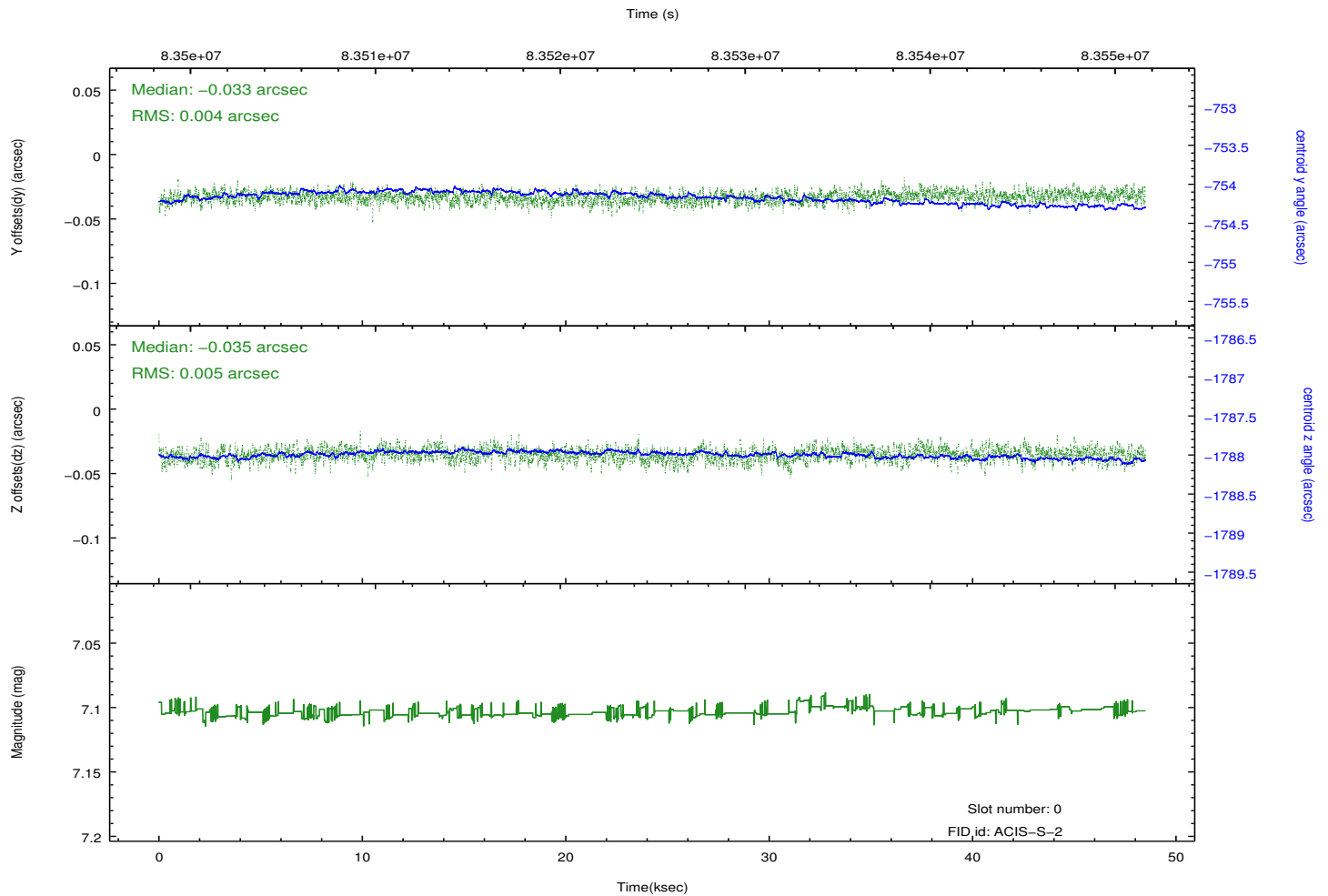
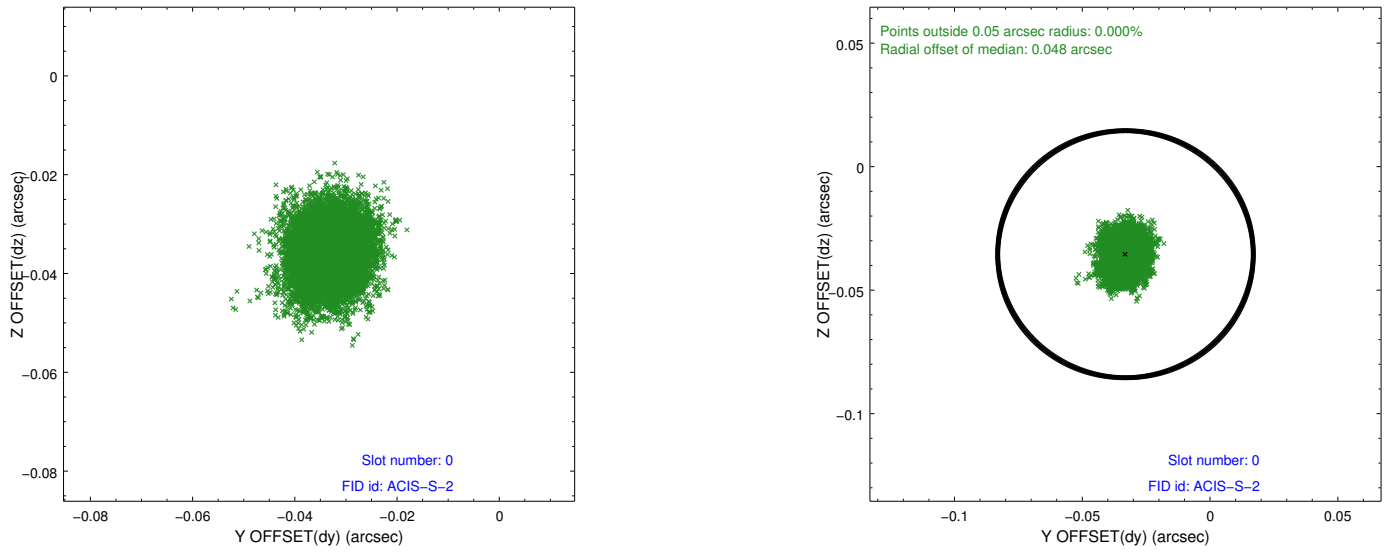


## 2.4.5 Slot 7

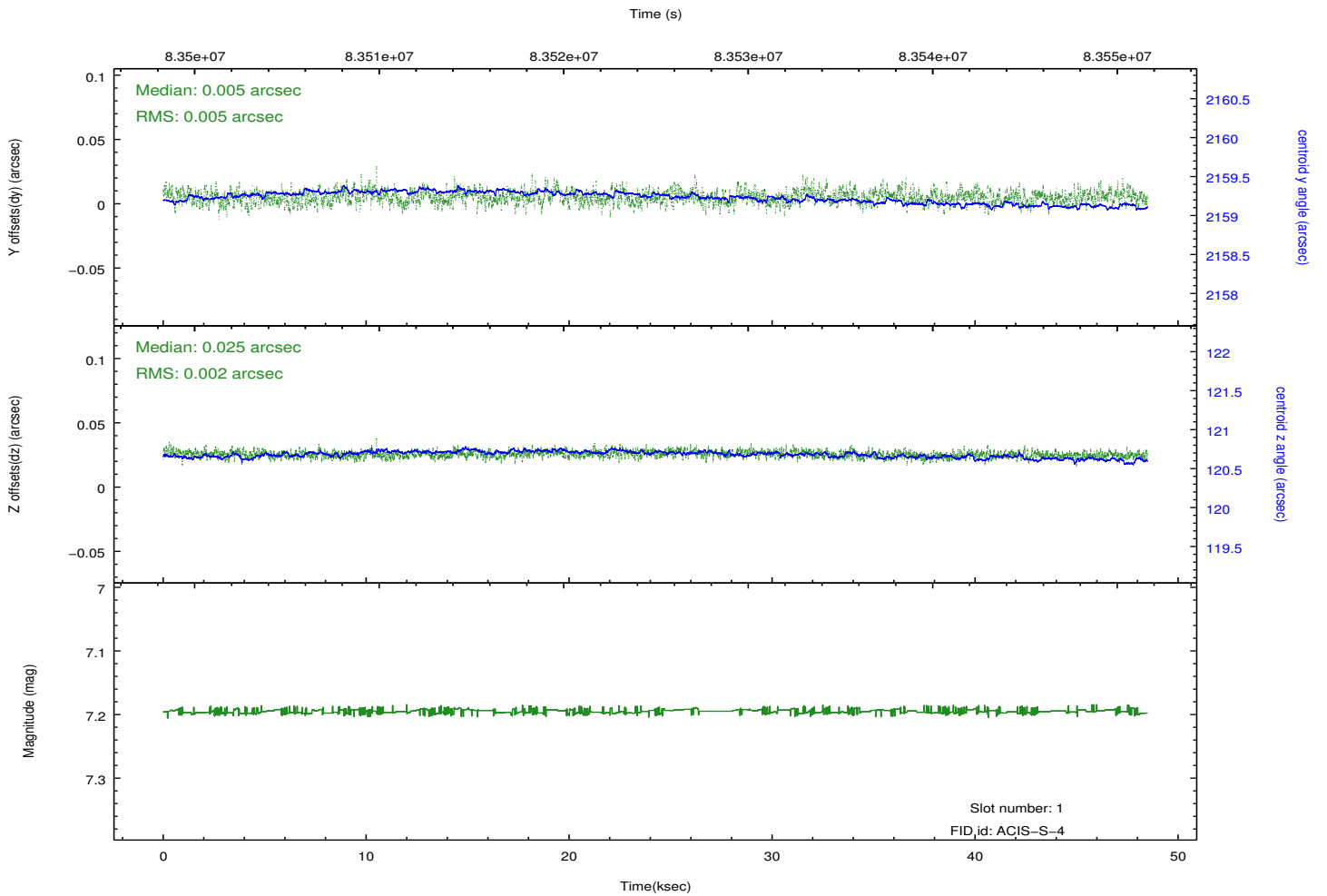
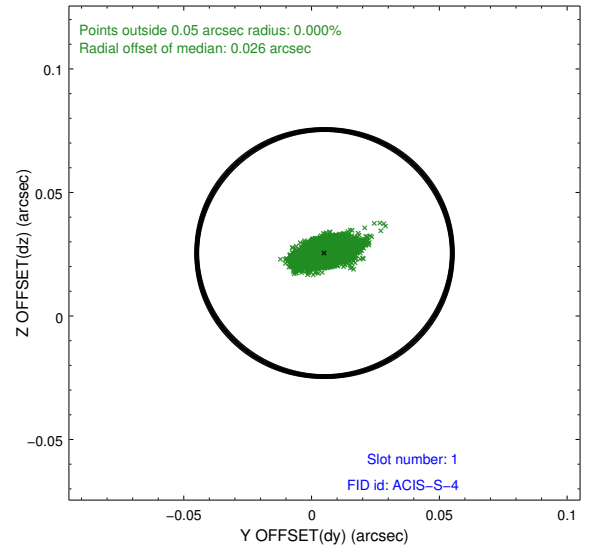
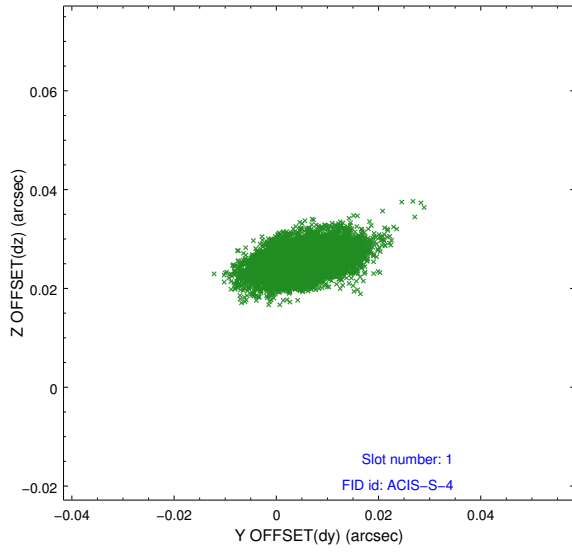


## 2.5 FID Slots

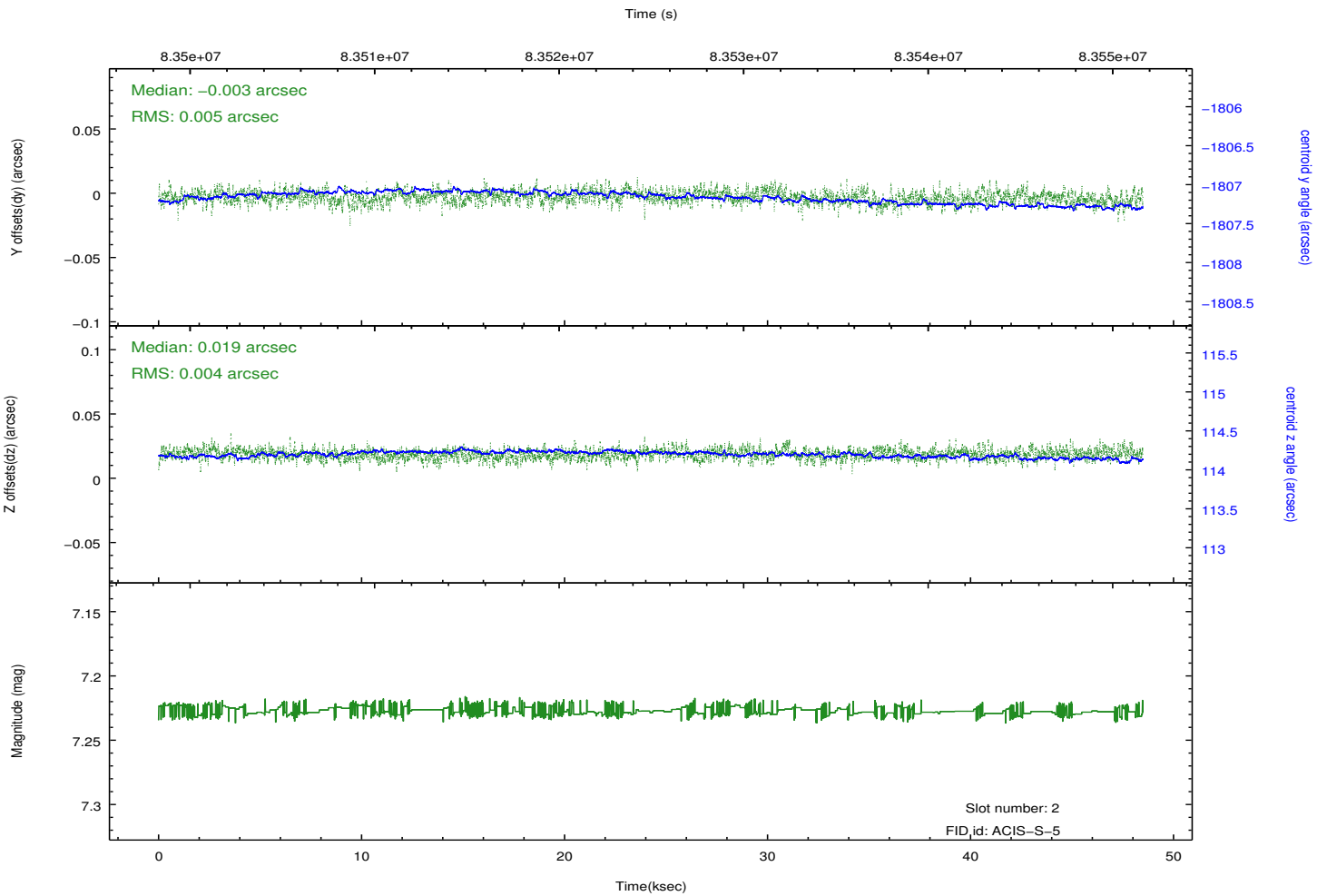
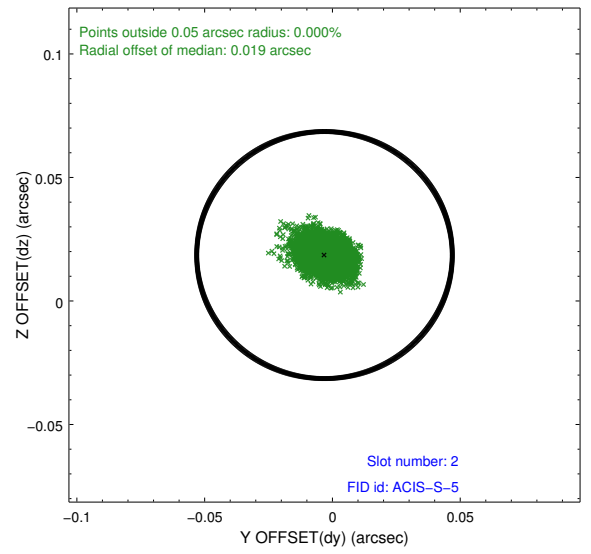
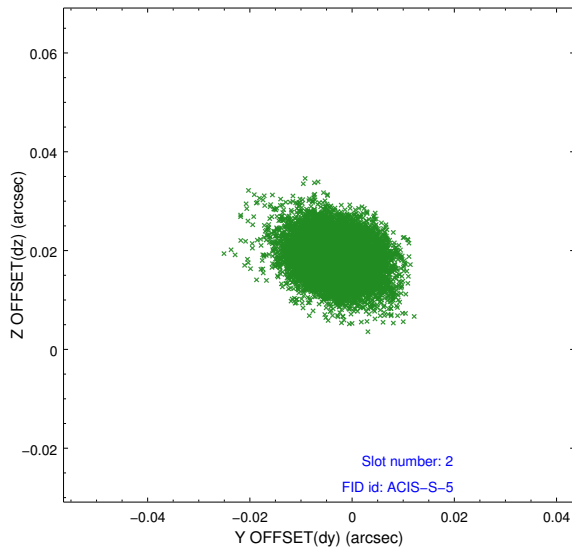
### 2.5.1 Slot 0



## 2.5.2 Slot 1

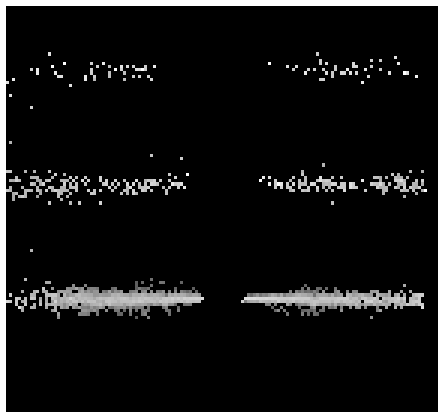


### 2.5.3 Slot 2

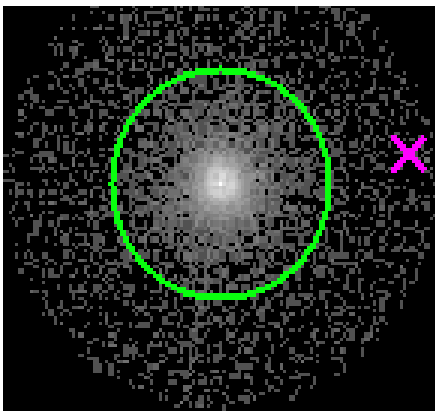


### 3 Gratings

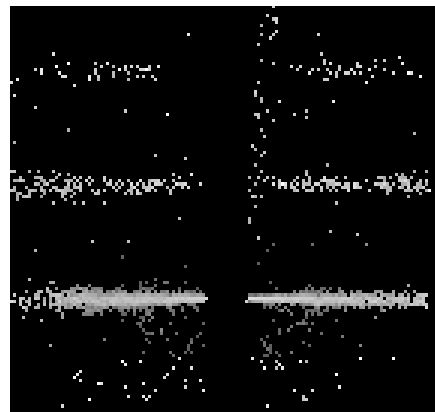
#### 3.1 HEG Arm



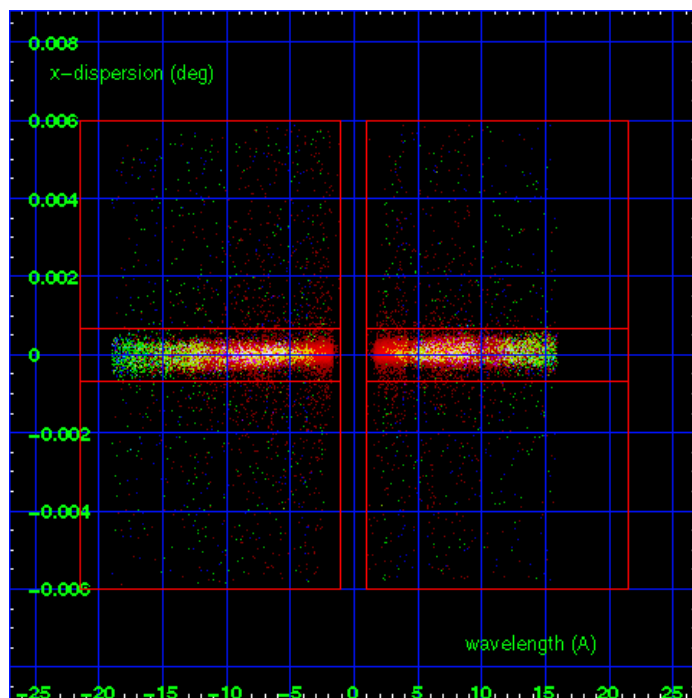
HEG Order Sort 123



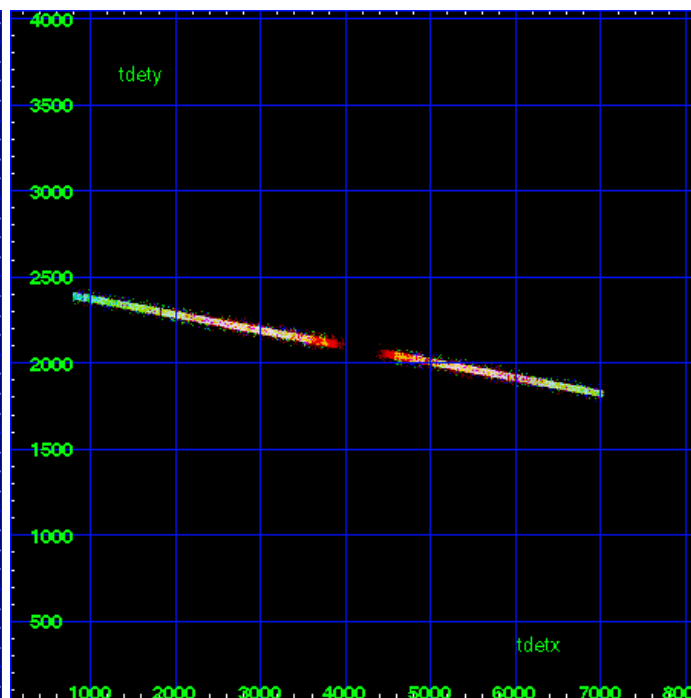
HEG Zero Order



HEG Order Sort ALL

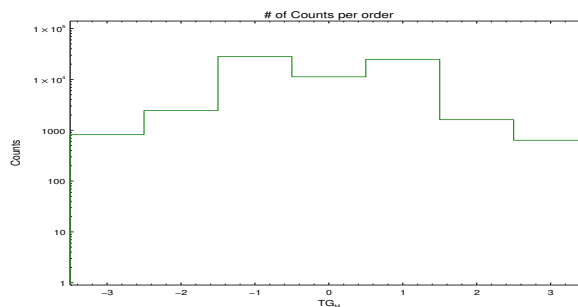


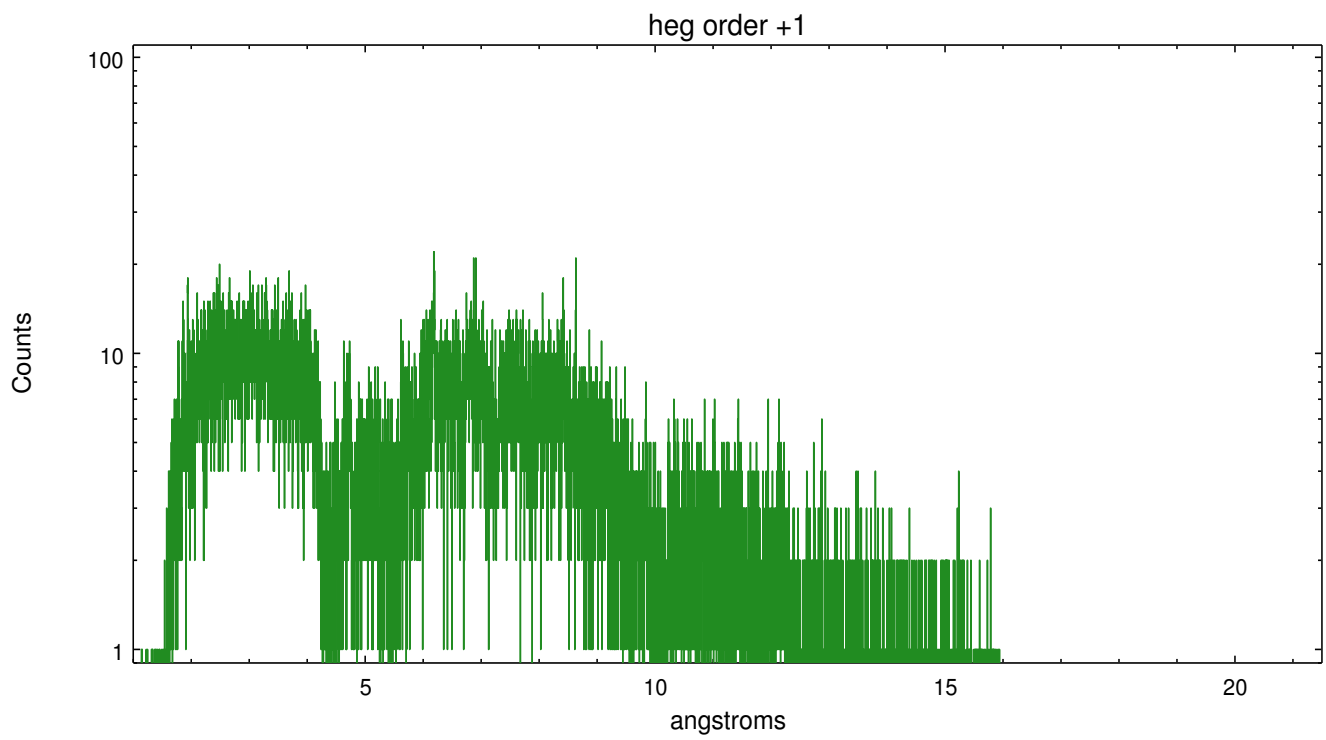
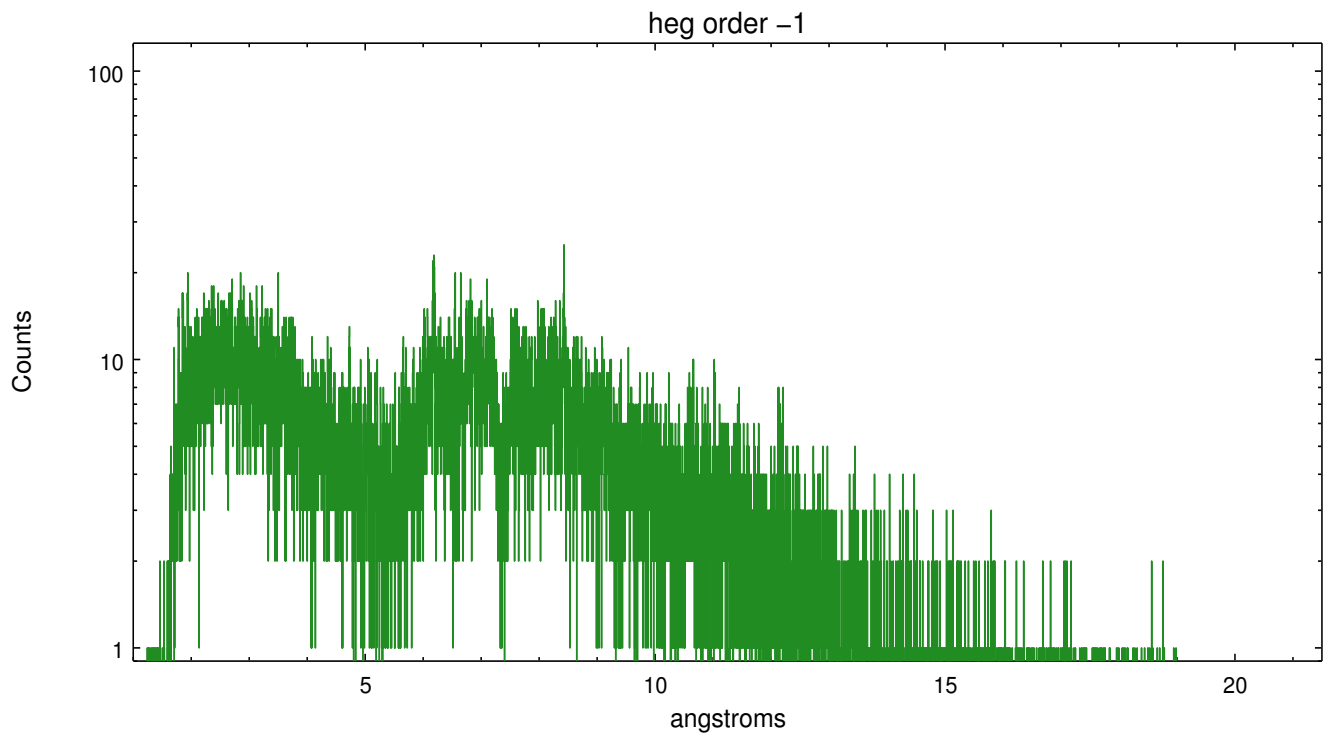
Spot Image HEG



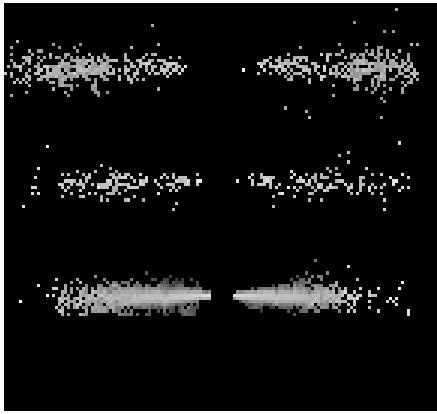
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	820	2437	28169	11265	24848	1616	635

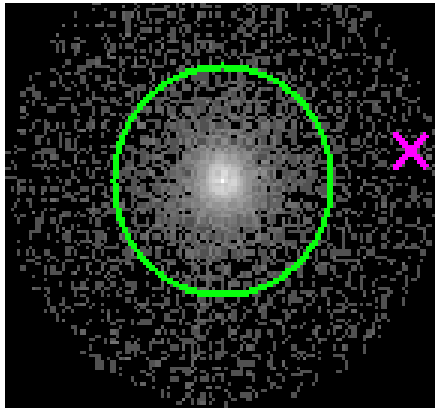




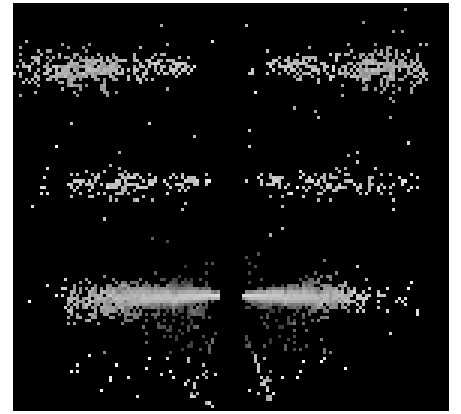
### 3.2 MEG Arm



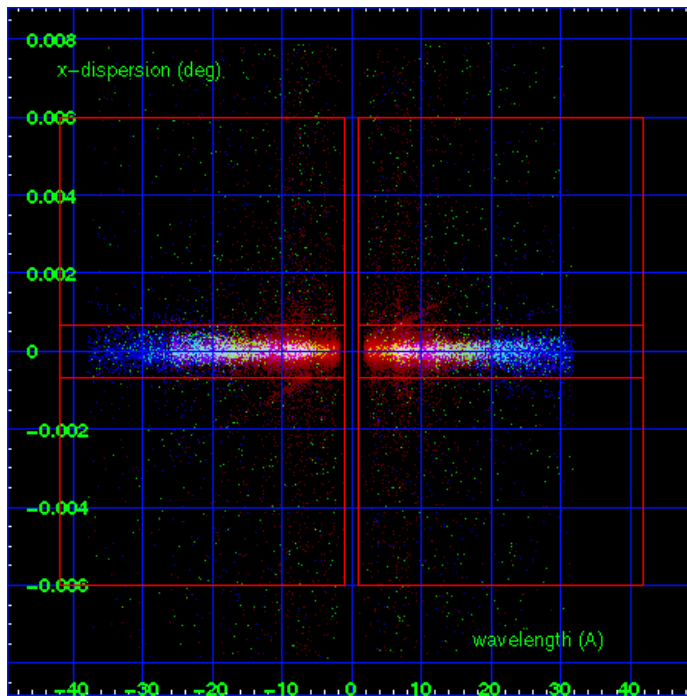
MEG Order Sort 123



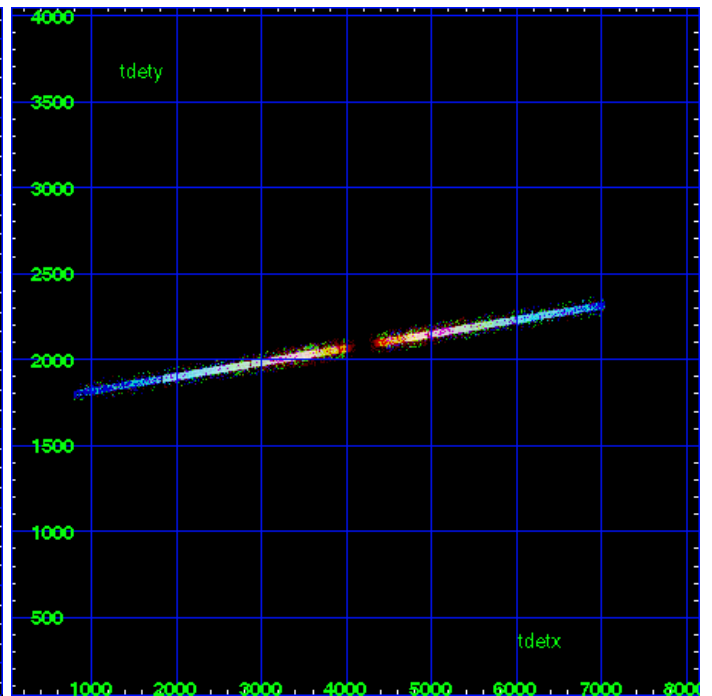
MEG Zero Order



MEG Order Sort ALL

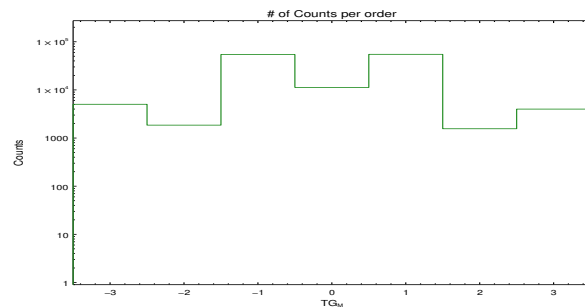


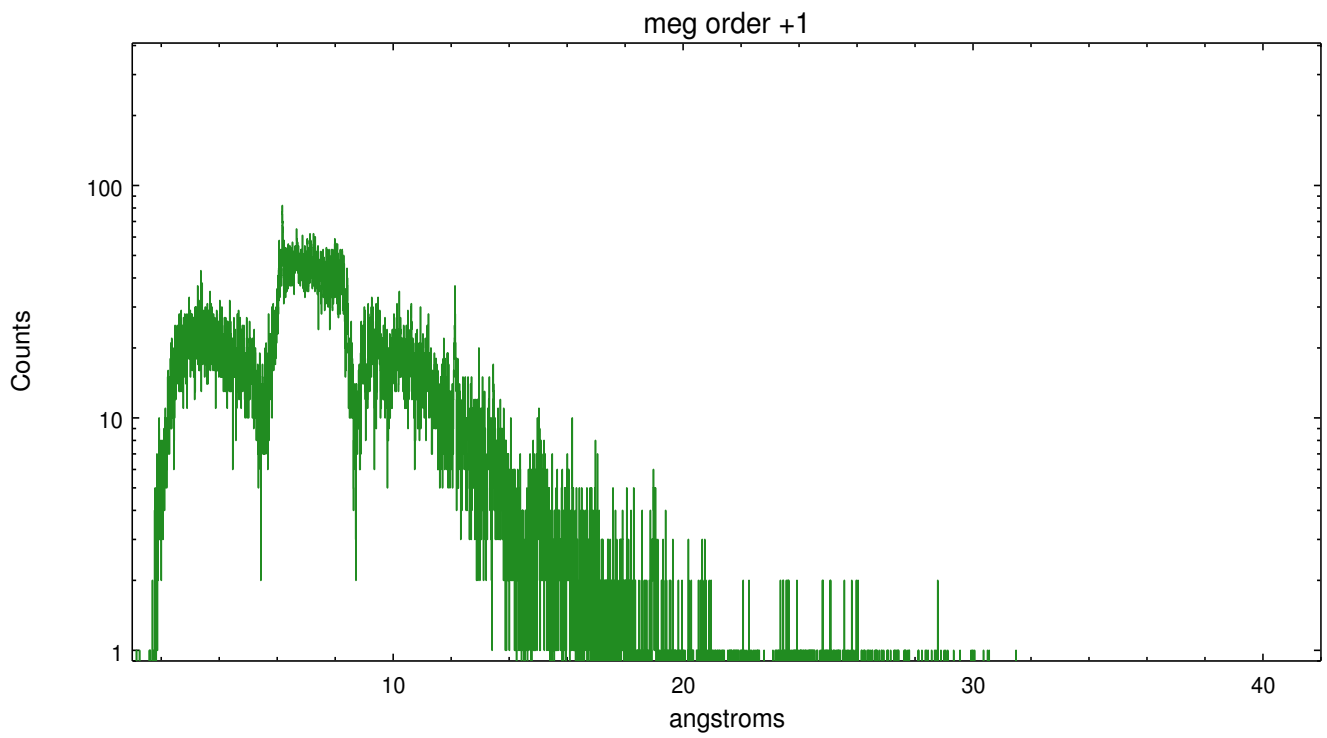
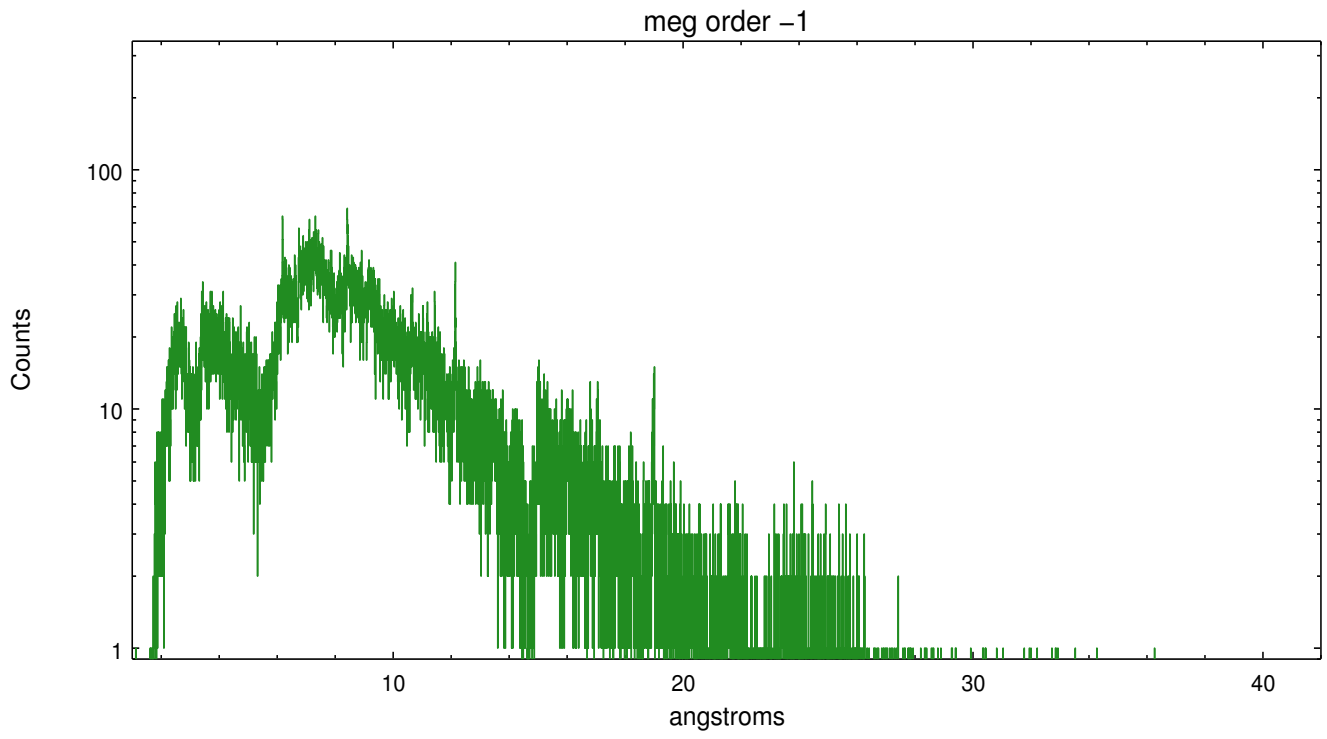
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	5023	1853	54340	11265	54780	1561	3992





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	47.948

## A.2 Comments

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates ( $x=4045.52$ ,  $y=4088.64$ ) into the `*src1a.fits` file table. These corrected coordinates were determined using a software tool developed by CXC called `findzero`, which is expected to be released in CIAO as `tg_findzo` (currently in ISIS as `findzo`). The tool calculates the point of intersection of the readout streak and the meg arm. The zeroth order source position determined by the standard pipeline processing using the tool `tgdetect` was not used in this processing. The newly determined zeroth order coordinates have been placed in the `*src1a.fits` file, replacing the coordinates determined by `tgdetect`. Note that these corrected coordinates of the zeroth order cannot be reproduced by running `tgdetect` on the data.