

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 1021 - L2 Version 4  
Chandra X-Ray Center

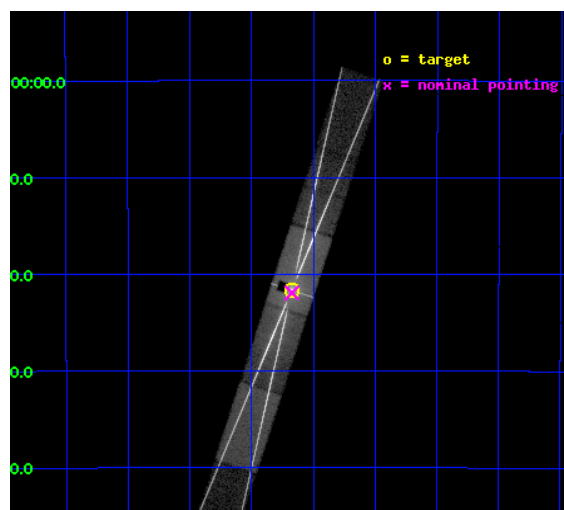
L2 Processing Date : Sep 21 2012

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# 1 Front

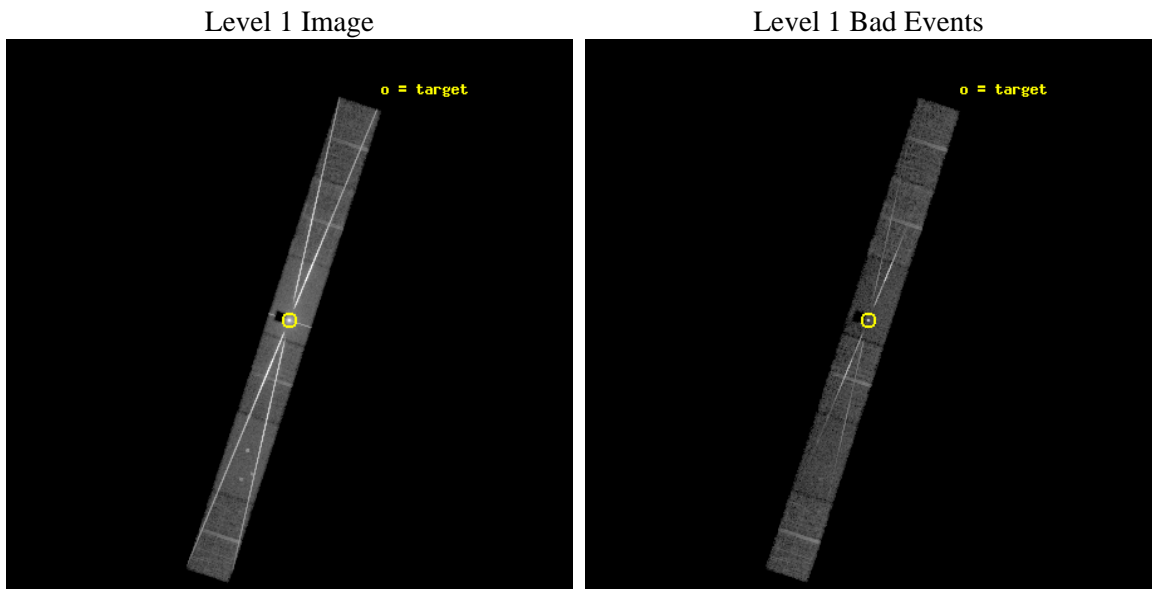
seq_num	400099	Sequence number
obs_id	1021	Observation id
title	ACCRETION DISK LINES AND CONTINUUM IN 4U 1820-30	Proposal title
observer	Dr. Stephen Murray	Principal investigator
object	NGC6624	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	275.91875	Observer's specified target RA [deg]
dec_targ	-30.361111	Observer's specified target Dec [deg]
ra_nom	275.91838549778	Nominal RA [deg]
dec_nom	-30.365584323431	Nominal Dec [deg]
roll_nom	288.10222173866	Nominal Roll [deg]
revision	4	Processing version of data
ontime	9860.3999836892	Sum of GTIs [s]
livetime	9640.59443067	Livetime [s]
ontime4	9860.3999836892	Sum of GTIs [s]
ontime5	9860.3999836892	Sum of GTIs [s]
ontime6	9860.3999836892	Sum of GTIs [s]
ontime7	9860.3999836892	Sum of GTIs [s]
ontime8	9860.3999836892	Sum of GTIs [s]
ontime9	9860.3999836892	Sum of GTIs [s]
l2events	1198974	Number of level 2 events



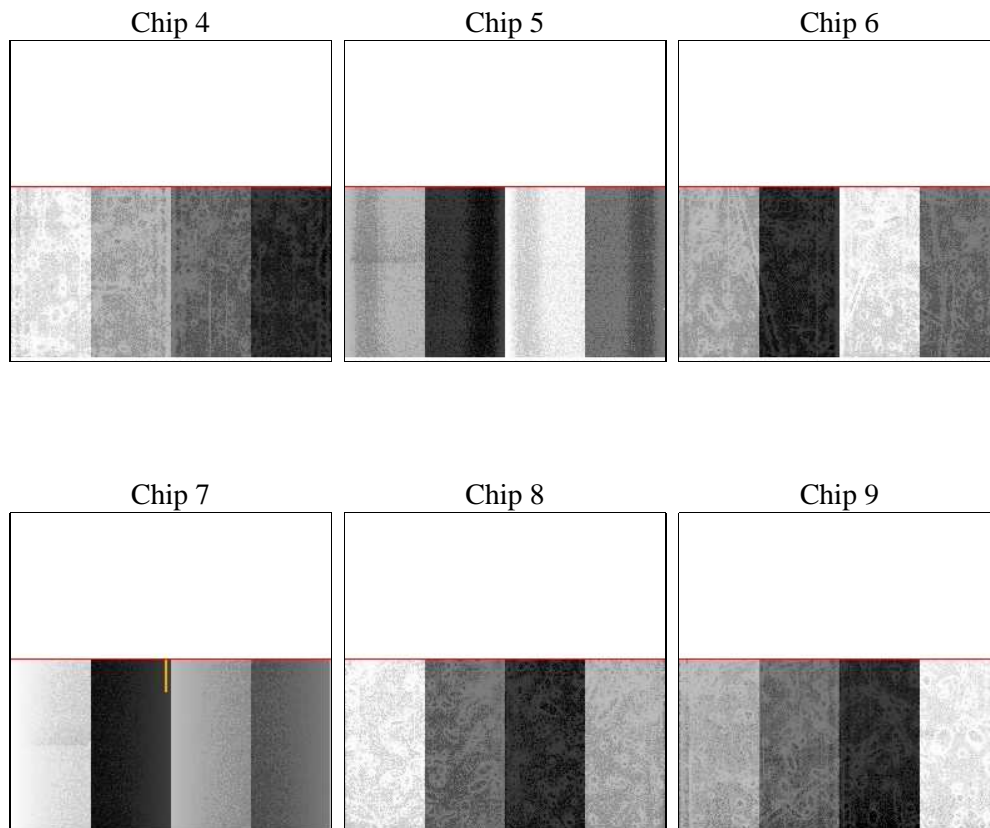
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	9500.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	9860.3999836892	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	9860.3999836892	Sum of GTIs [s]
date	2012-09-20T19:52:42	Date and time of file creation	ontime5	9860.3999836892	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	9860.3999836892	Sum of GTIs [s]
			ontime7	9860.3999836892	Sum of GTIs [s]
			ontime8	9860.3999836892	Sum of GTIs [s]
			ontime9	9860.3999836892	Sum of GTIs [s]
			l1events	1521820	Number of level 1 events

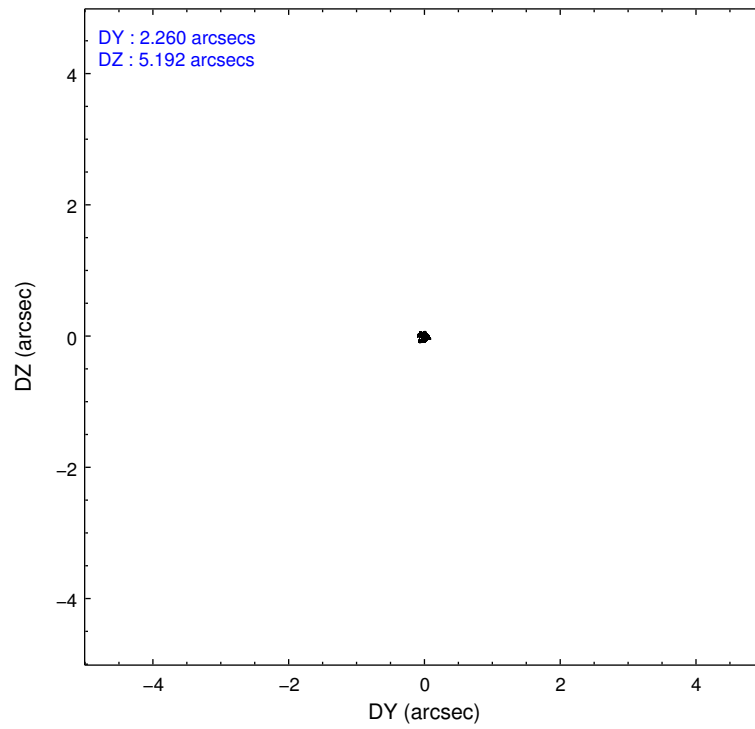
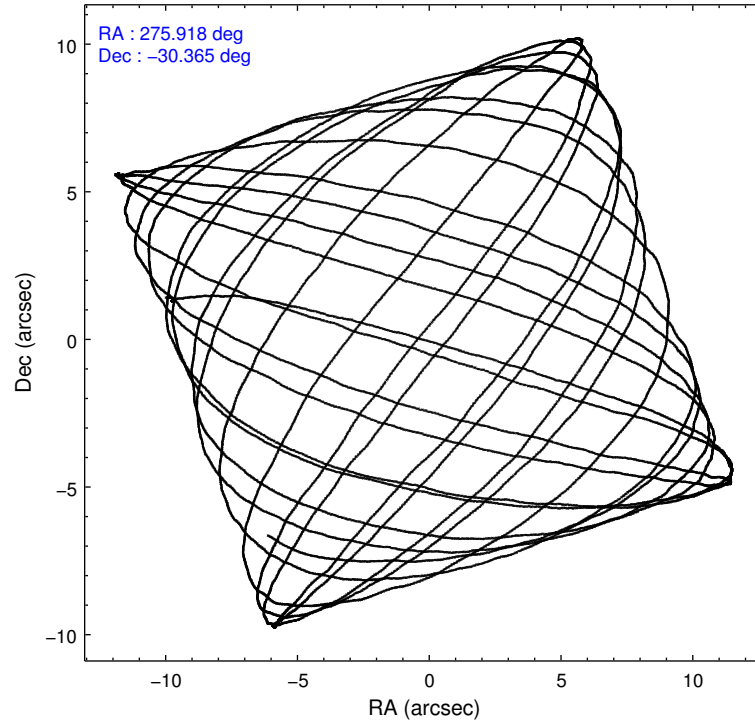
### 2.1.4 Events

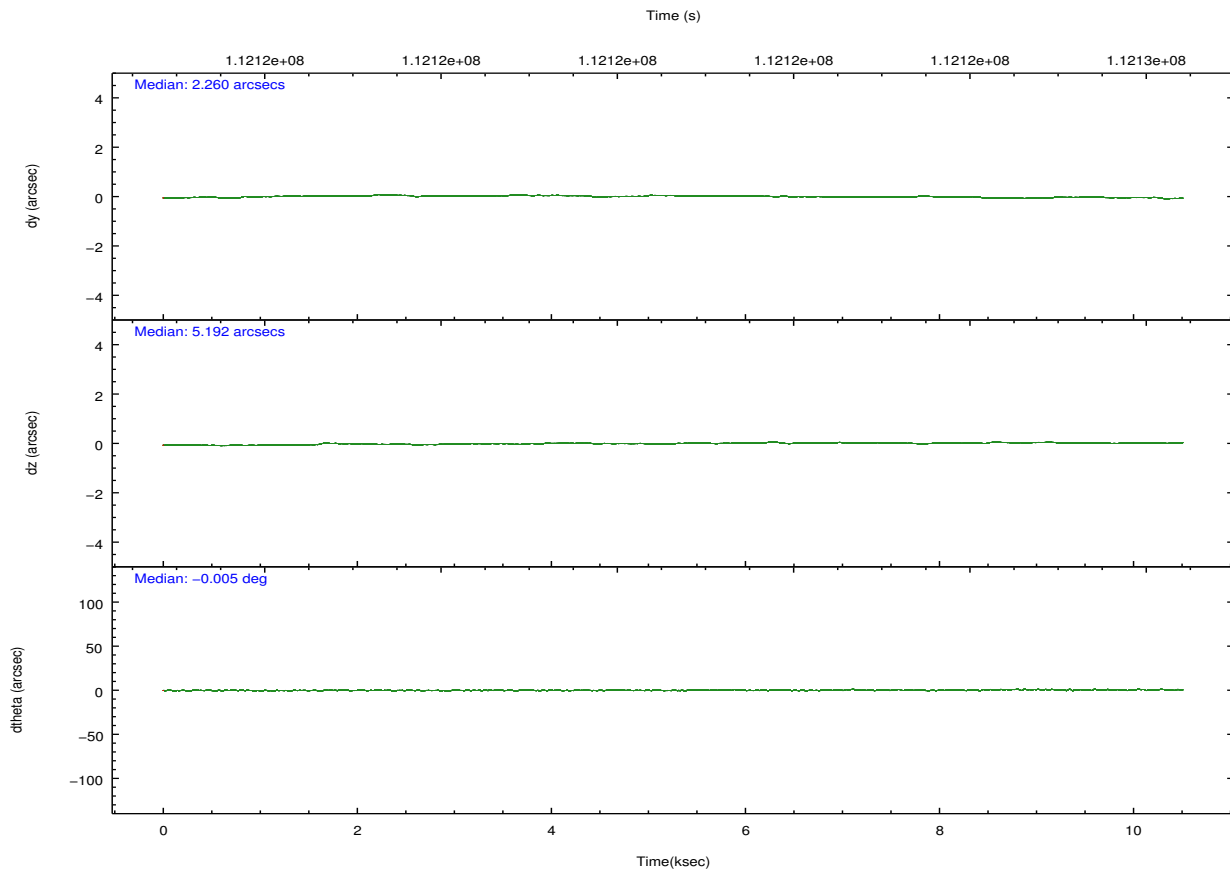
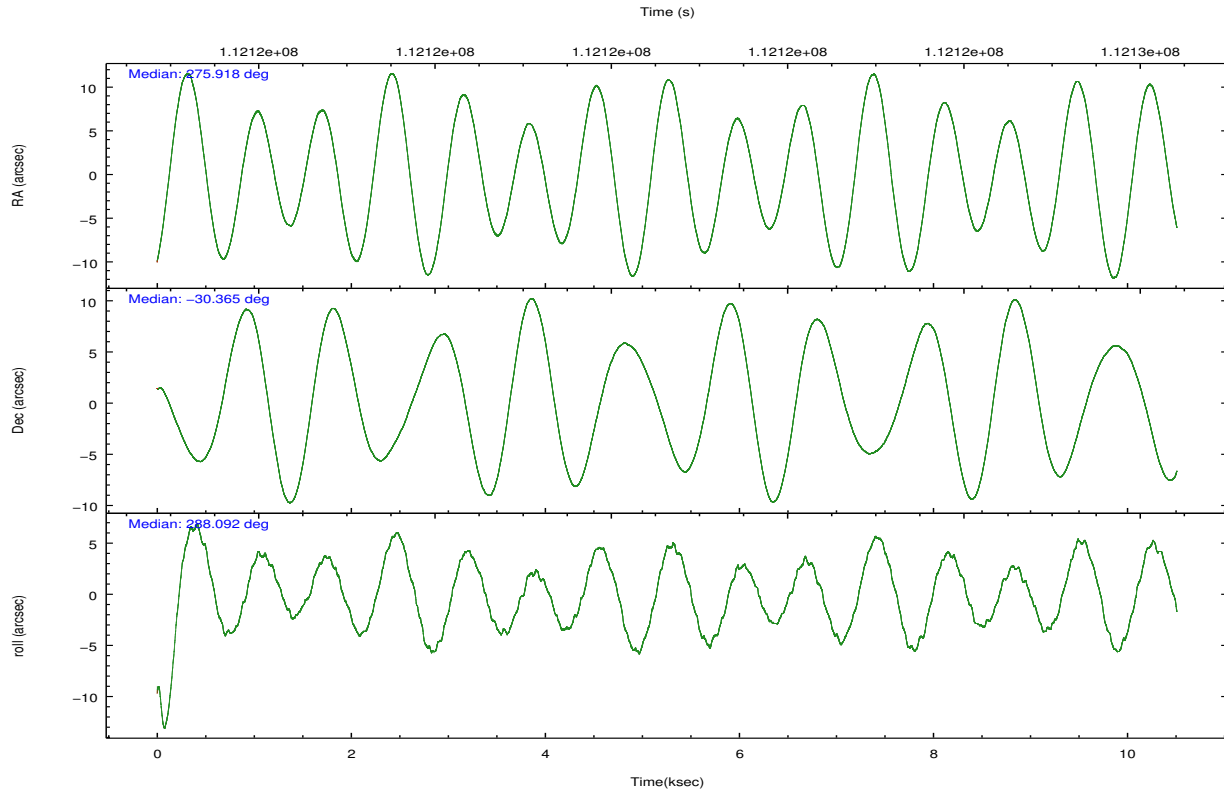
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	66858	171649	474288	462851	265787	80387	grade 0 events	21006	50445	316281	84788	176462	37098
rejected events	38943	29590	53864	57416	43774	32745		31%	29%	66%	18%	66%	46%
rejected %	58%	17%	11%	12%	16%	40%	grade 1 events	91	556	9600	3618	2679	141
								0%	0%	2%	0%	1%	0%
							grade 2 events	3410	38520	51490	98860	23424	5263
								5%	22%	10%	21%	8%	6%
							grade 3 events	1194	12760	18656	44847	8014	1827
								1%	7%	3%	9%	3%	2%
							grade 4 events	1147	12853	18322	45254	8043	1771
								1%	7%	3%	9%	3%	2%
							grade 5 events	1340	5350	7538	17061	3165	1537
								2%	3%	1%	3%	1%	1%
							grade 6 events	1167	27524	15831	131855	6165	1698
								1%	16%	3%	28%	2%	2%
							grade 7 events	37503	23641	36570	36568	37835	31052
								56%	13%	7%	7%	14%	38%

## 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	275.894571	275.9183854977767	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-30.347545	-30.36558432343148	Subarray start row	15	15
[deg] Pointing Roll	287.933558	288.1022217386575	Subarray row count	542	542
[s] Window start time (MET)	111369664.184000	111369664.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	112233664.184000	112233664.184000	[s] Primary exposure time	0.000000	1.8
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-184.532523	-184.5331429273931			
[mm] SIM translation stage offset	-5.6	-5.599379655614712			
[s] Observation start time (MET)	112116386.184000	112115019.52637			
Observation start date	2001-07-21T15:25:22	2001-07-21T15:03:39			
[s] Observation end time (MET)	112125886.184000	112126246.35181			
Observation end date	2001-07-21T18:03:42	2001-07-21T18:10:46			
Read mode	TIMED	TIMED			

## 2.3 Aspect



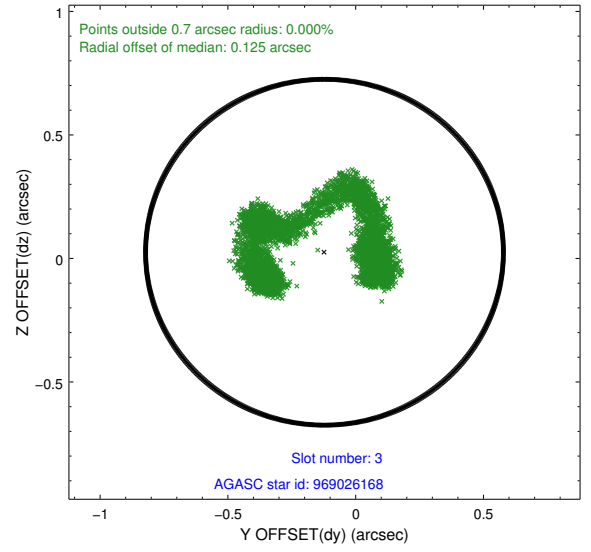
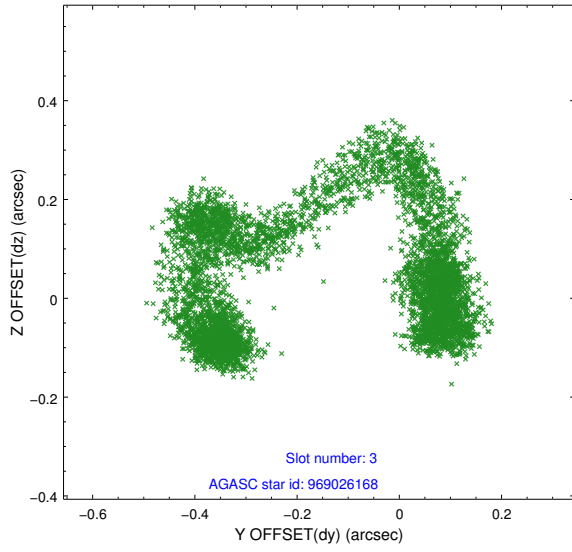


### Slot Statistics

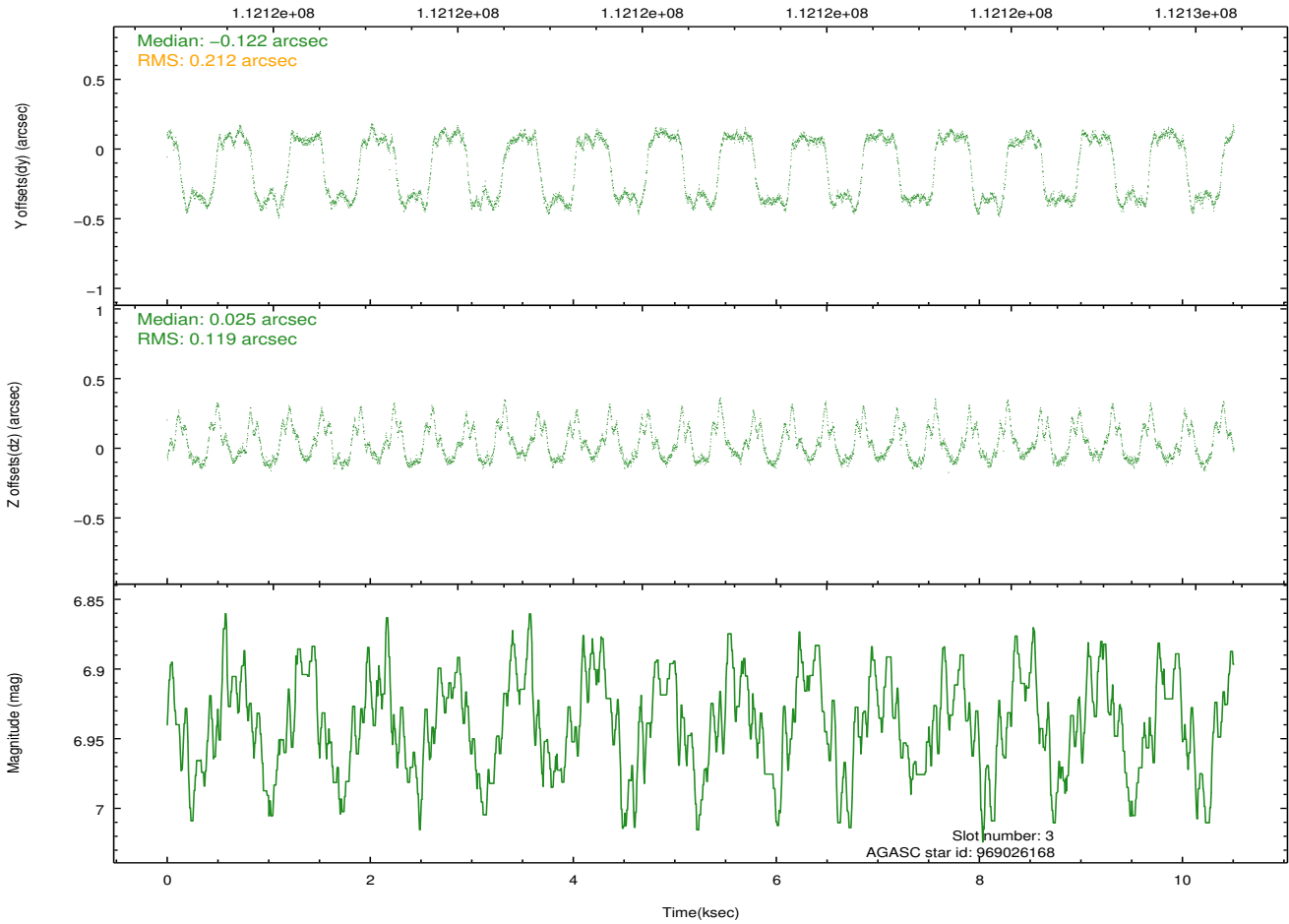
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.19	2564	0.013	0.031	0.008	0.013	0.000000	0.000000	941.56	-1837.33
1	FID	ACIS-S-4	7.19	2563	-0.031	-0.023	0.007	0.011	0.000000	0.000000	2159.20	66.21
2	FID	ACIS-S-5	7.23	2564	-0.008	0.005	0.006	0.011	0.000000	0.000000	-1806.69	60.39
3	GUIDE	969026168	6.94	5128	-0.122	0.025	0.263	0.315	276.670048	-30.393325	906.52	2238.05
4	GUIDE	969026752	7.42	5128	0.131	-0.087	0.102	0.158	275.318545	-30.941468	1492.50	-2351.31
5	GUIDE	969024352	7.12	5127	0.137	0.011	0.077	0.110	276.375278	-30.253432	141.93	1525.23
6	GUIDE	969019728	8.25	5127	-0.079	0.062	0.094	0.138	275.177360	-30.122339	-1451.26	-1877.15
7	GUIDE	969019560	8.09	5127	-0.048	-0.023	0.084	0.129	275.384365	-30.637201	509.72	-1826.00

## 2.4 Star Slots

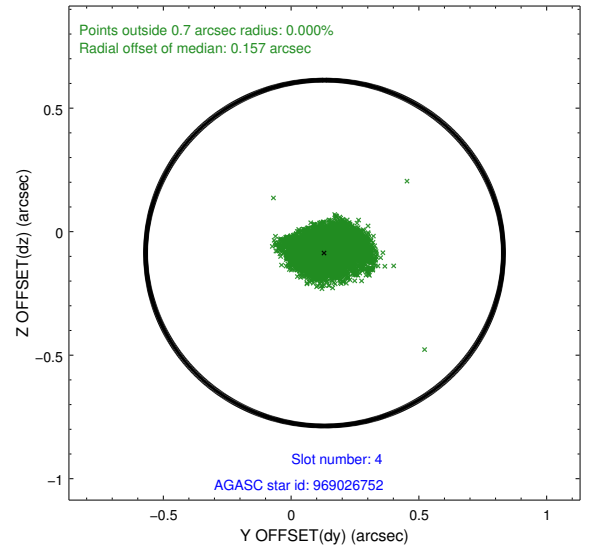
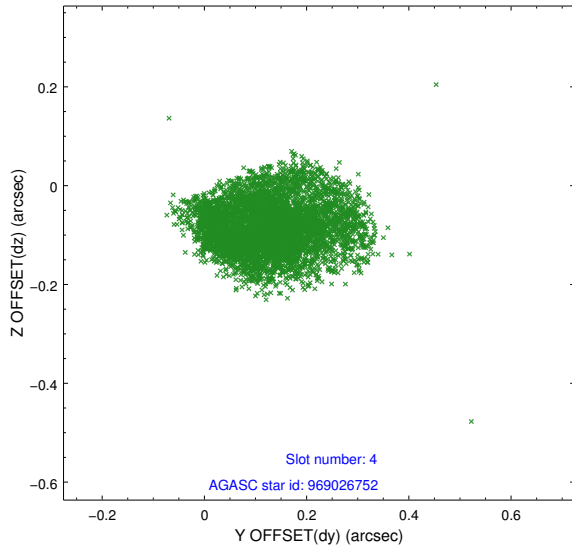
### 2.4.1 Slot 3



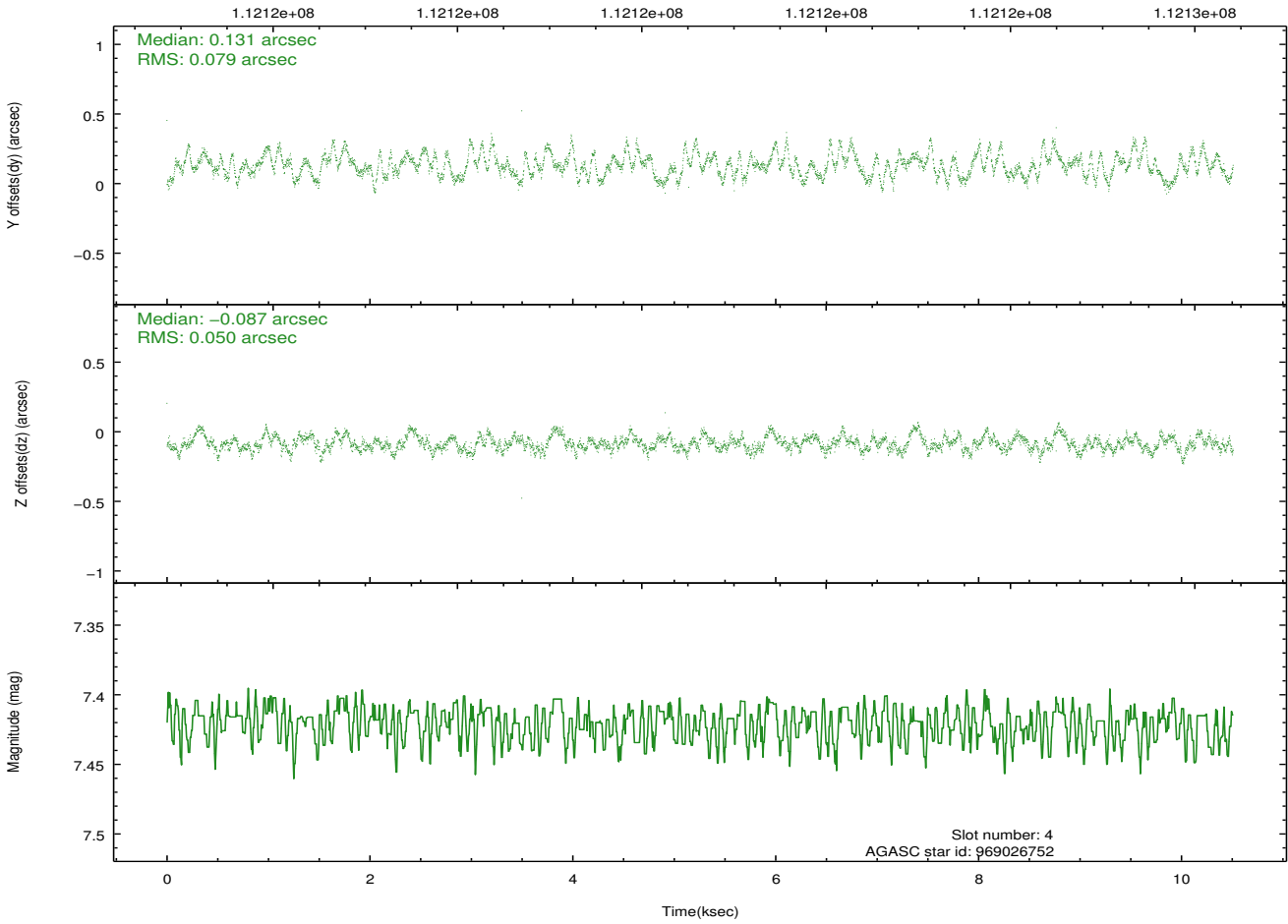
Time (s)



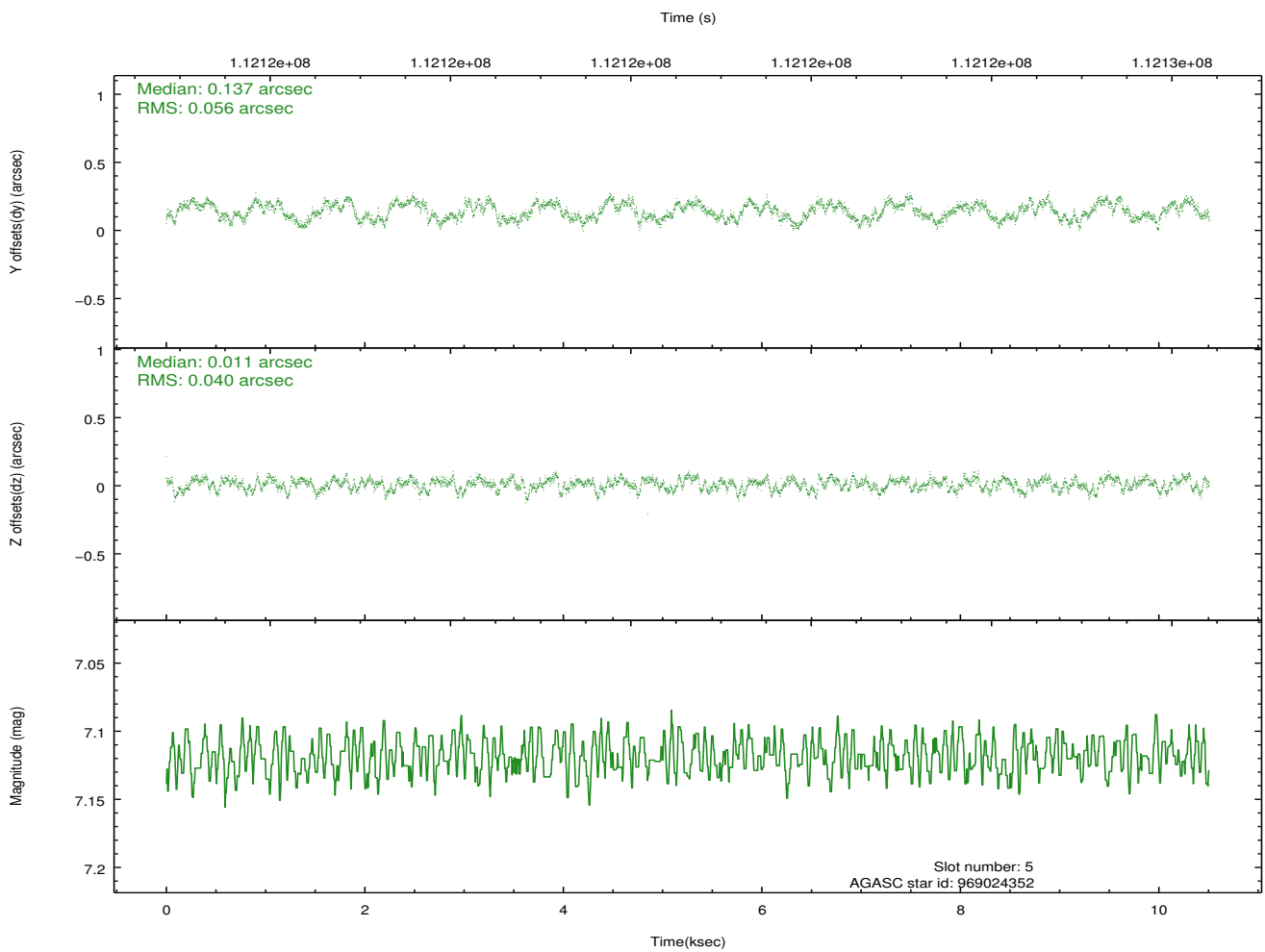
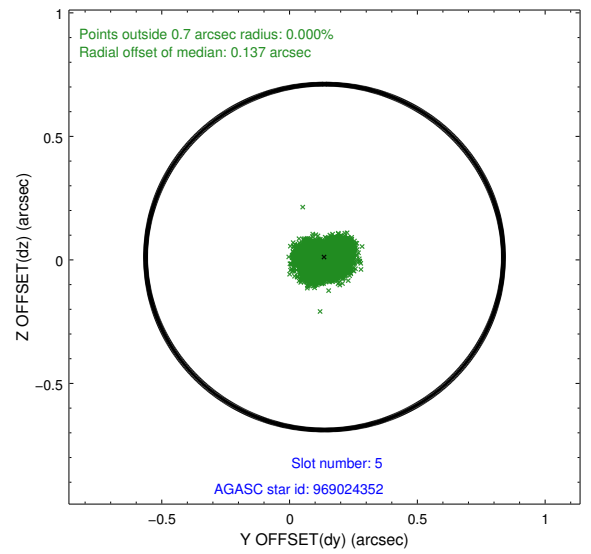
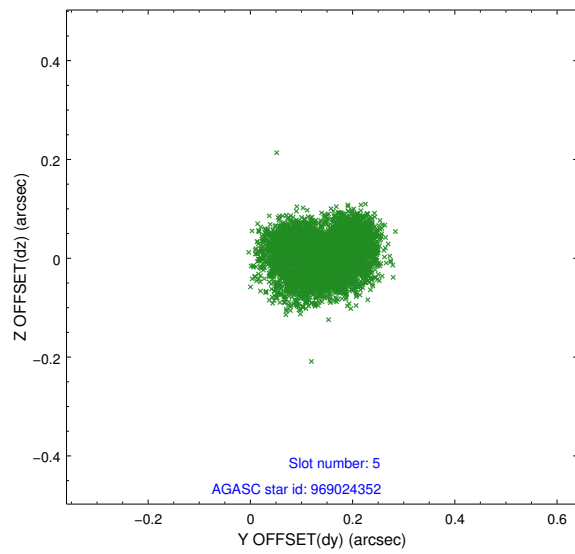
### 2.4.2 Slot 4



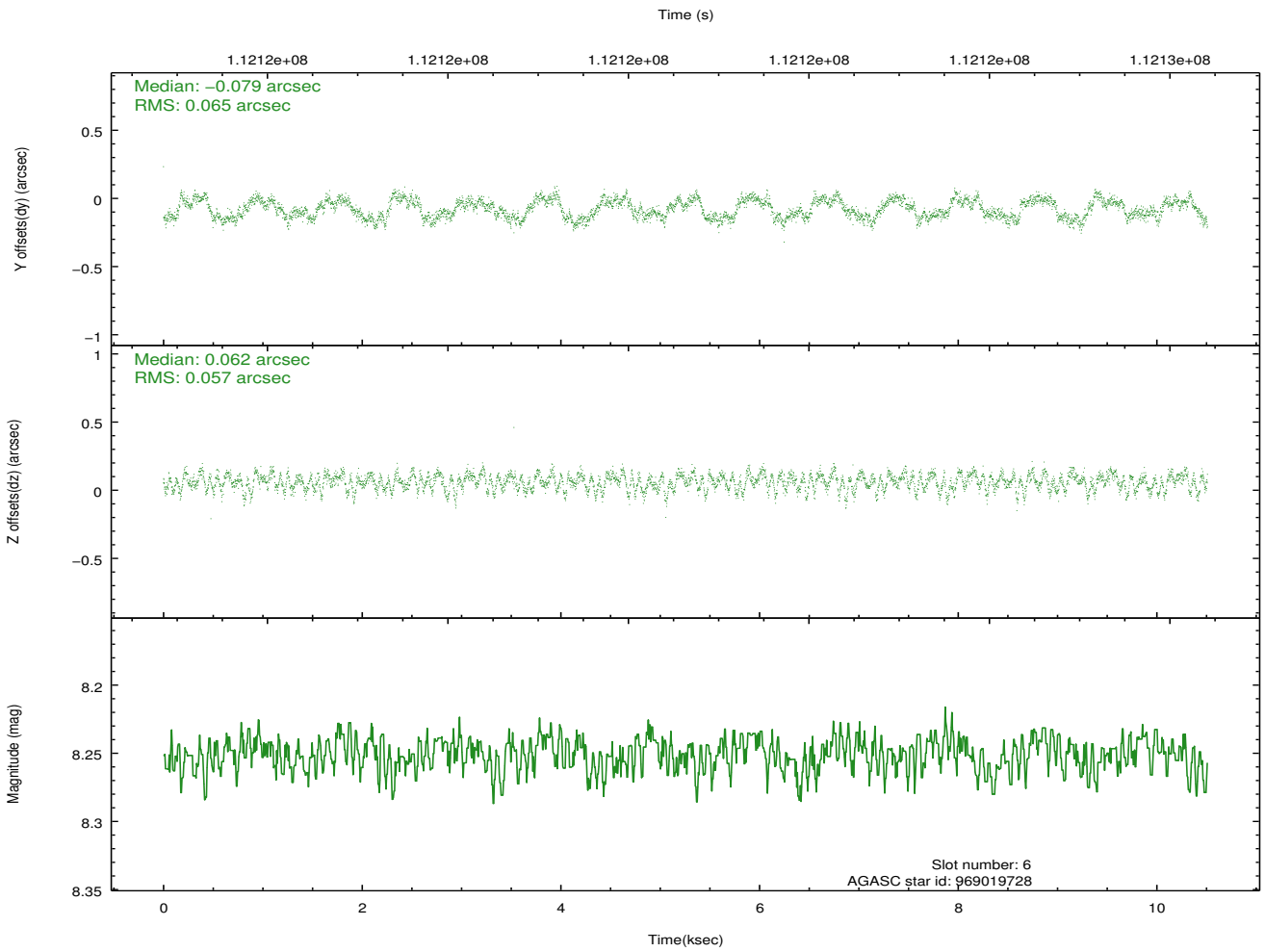
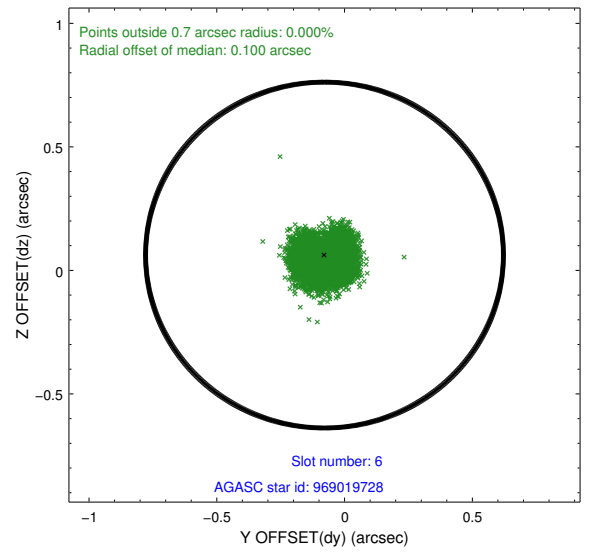
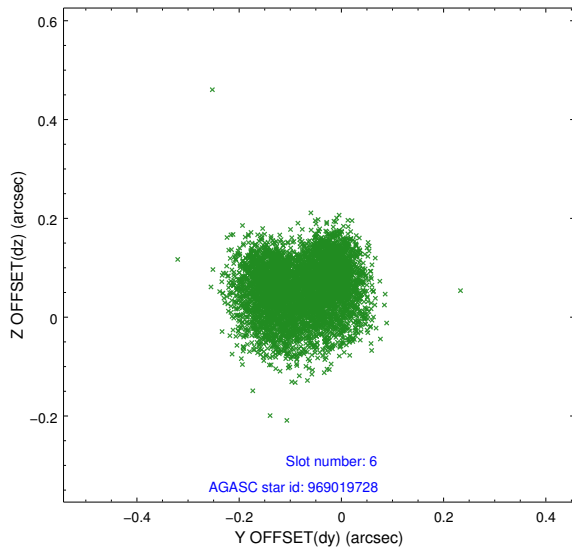
Time (s)



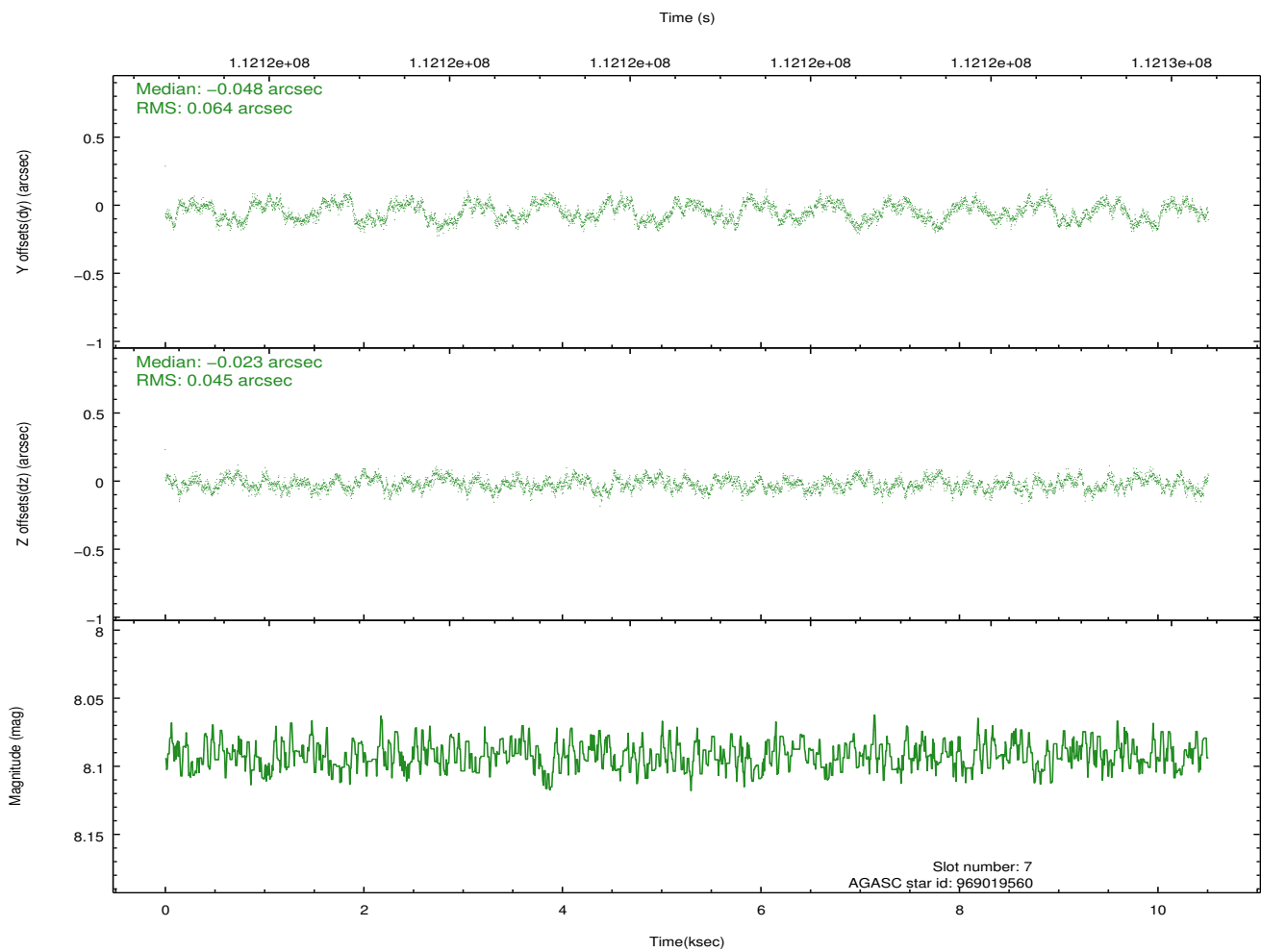
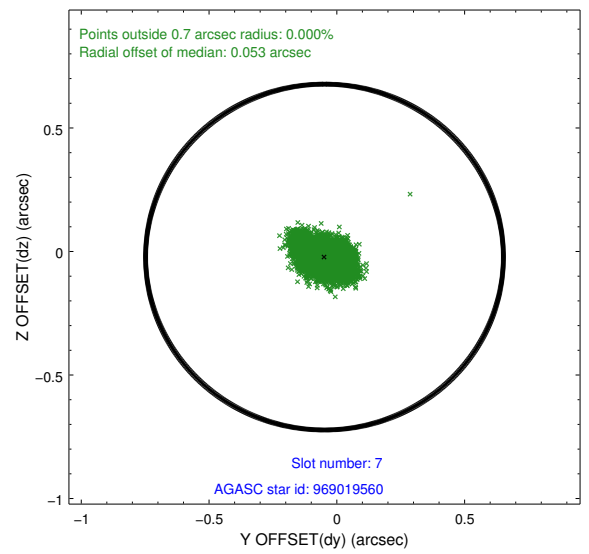
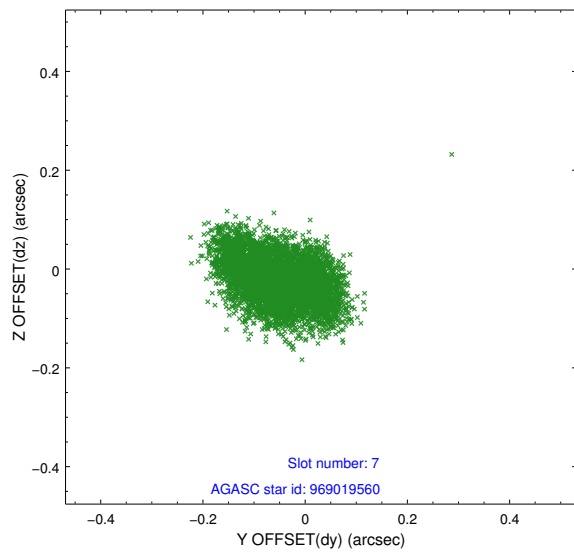
### 2.4.3 Slot 5



### 2.4.4 Slot 6

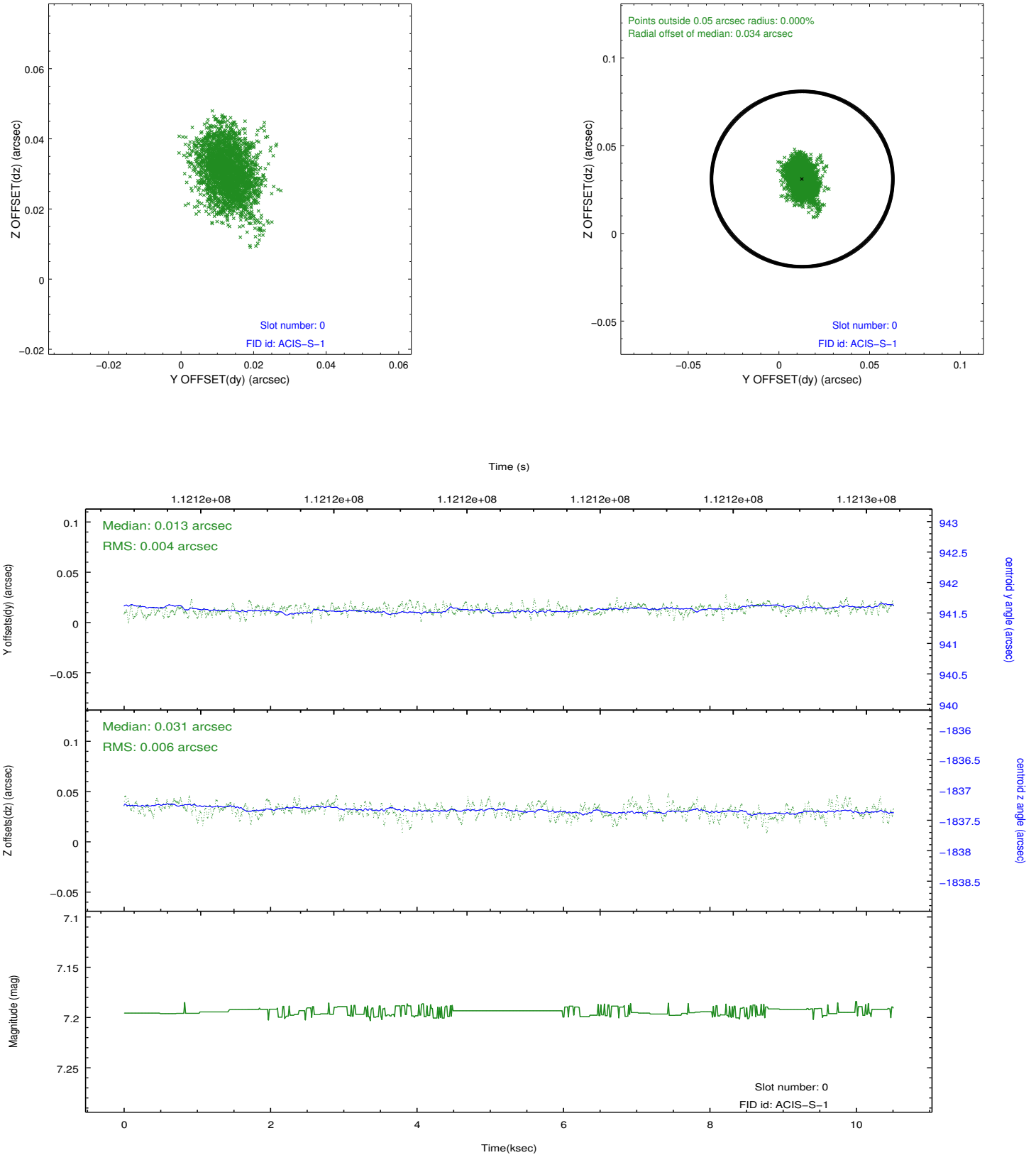


## 2.4.5 Slot 7

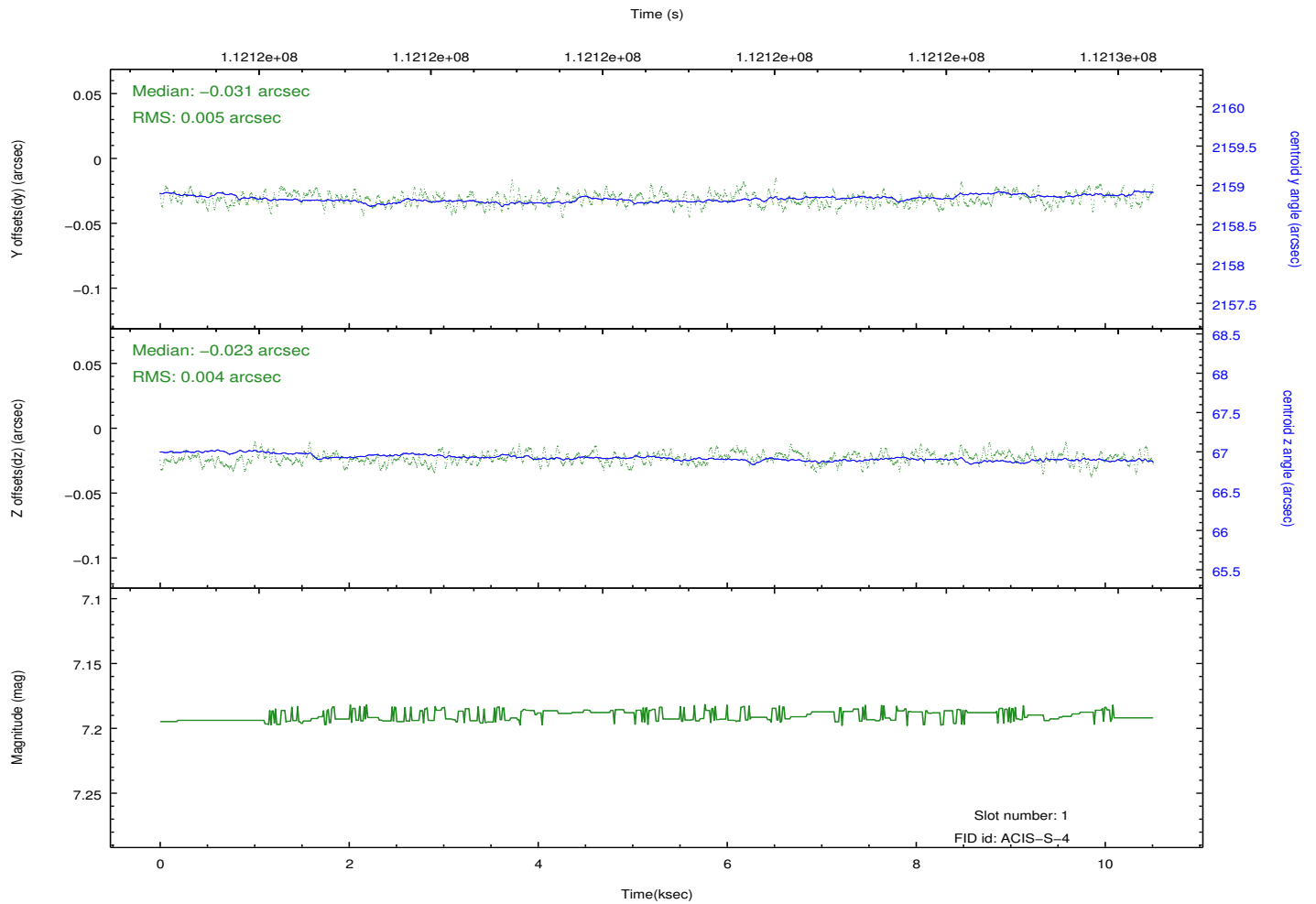
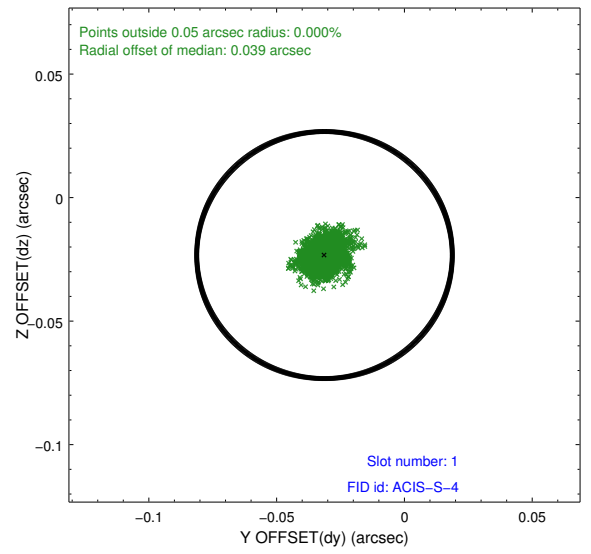
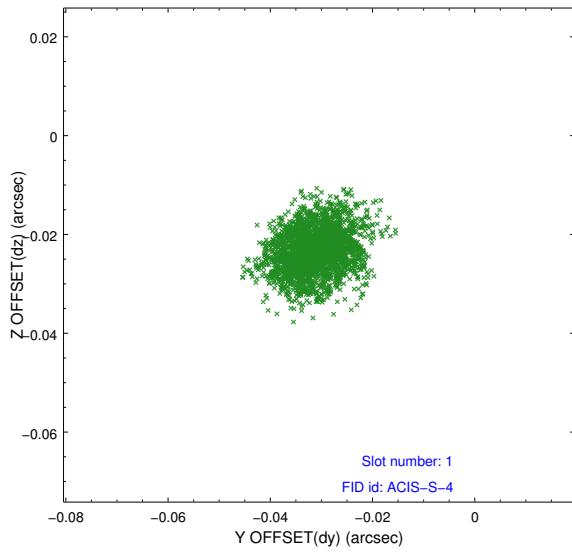


## 2.5 FID Slots

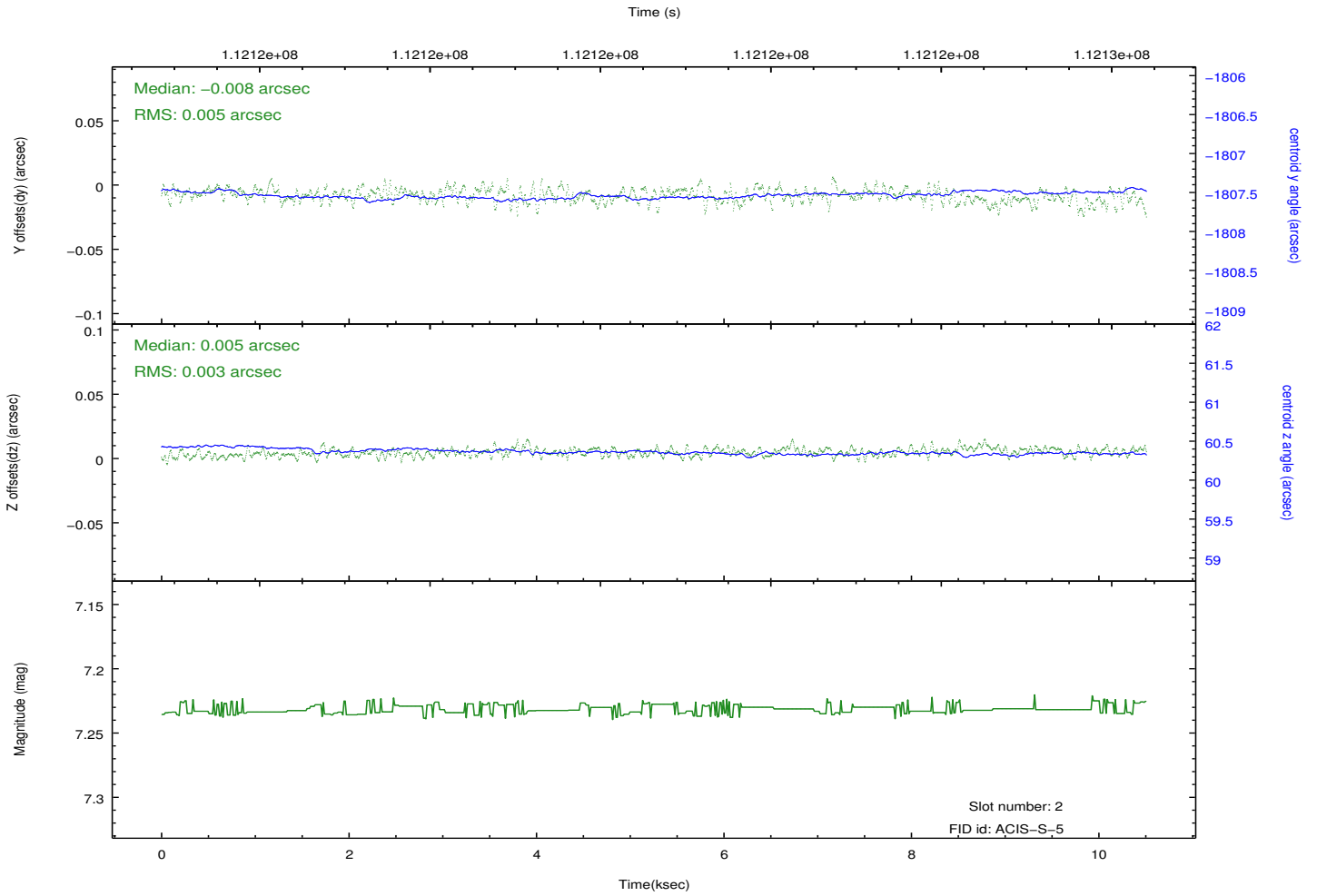
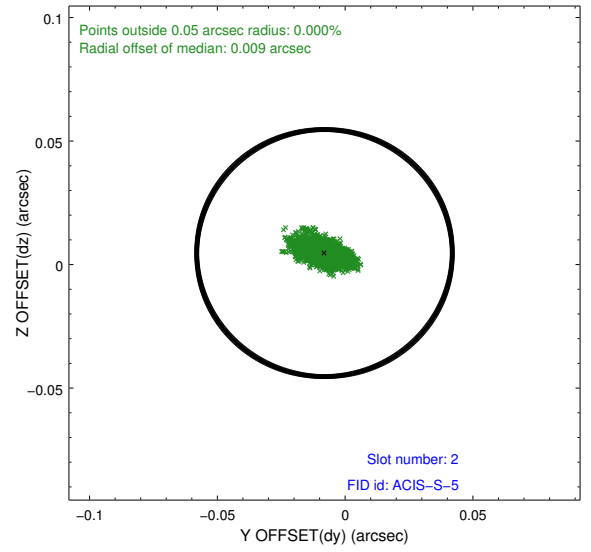
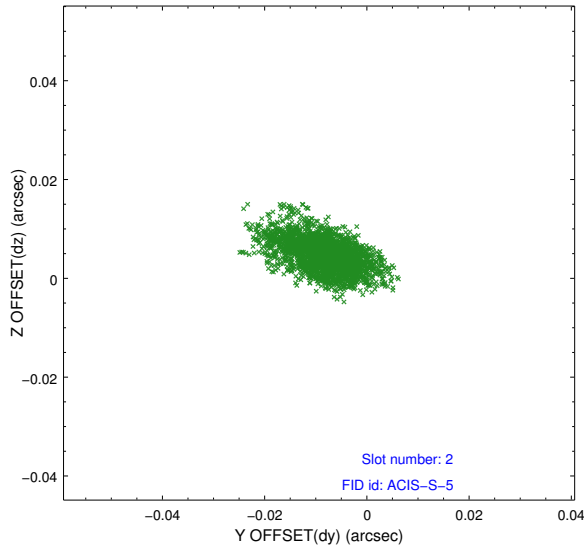
### 2.5.1 Slot 0



## 2.5.2 Slot 1

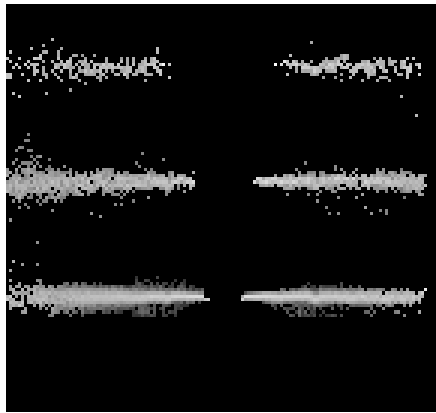


### 2.5.3 Slot 2

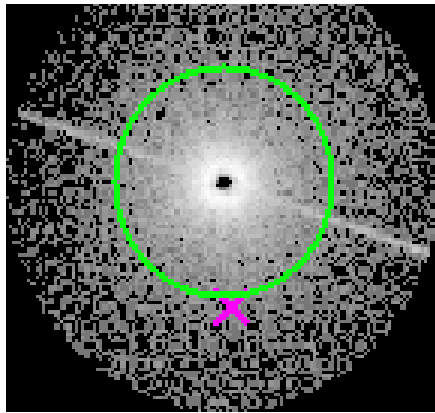


### 3 Gratings

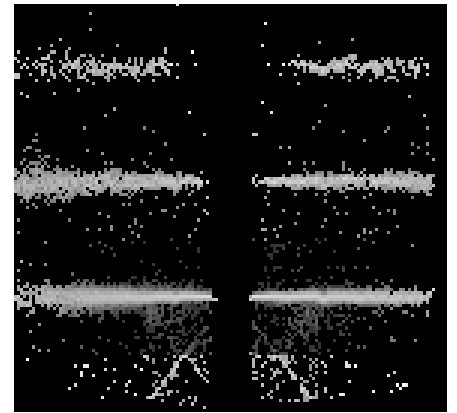
#### 3.1 HEG Arm



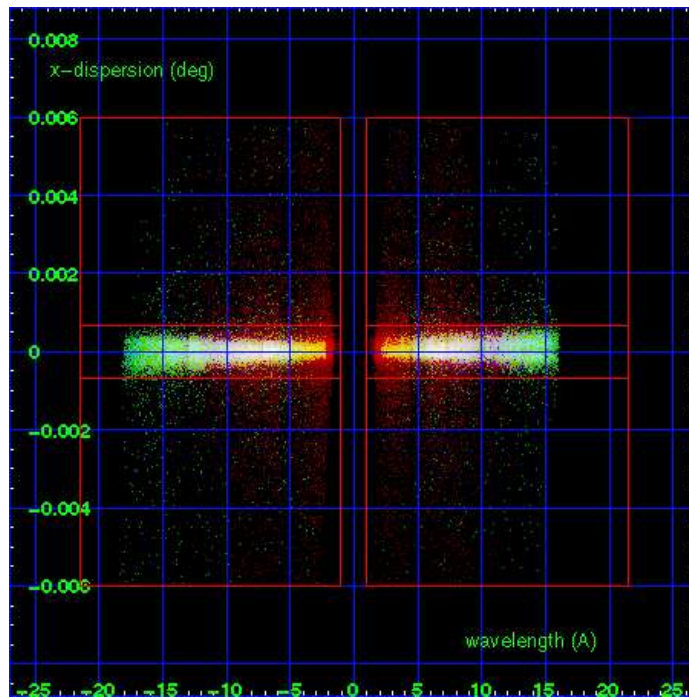
HEG Order Sort 123



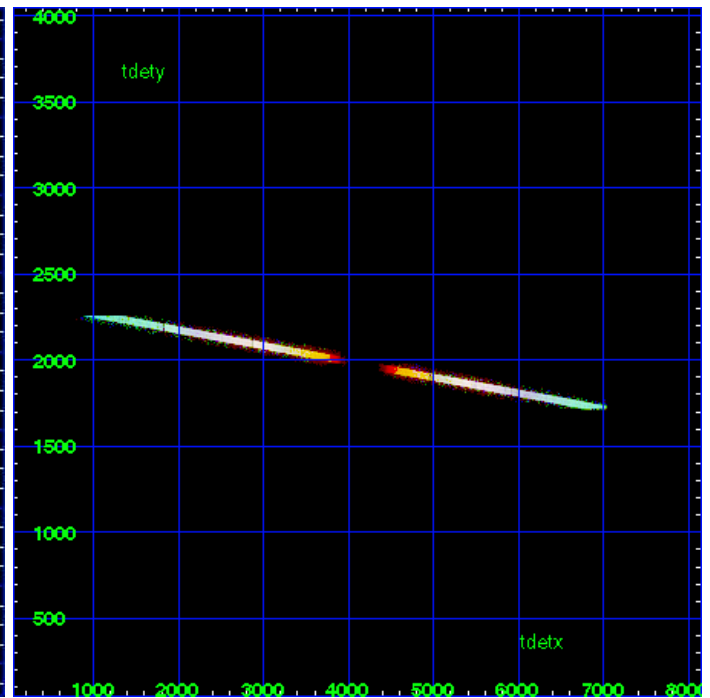
HEG Zero Order



HEG Order Sort ALL

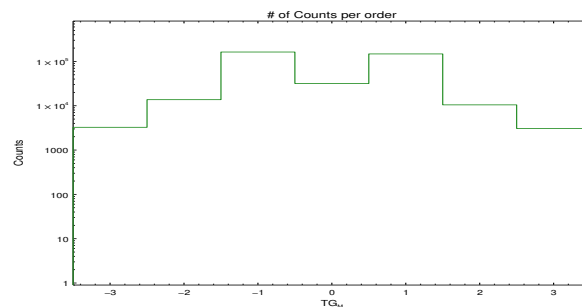


Spot Image HEG

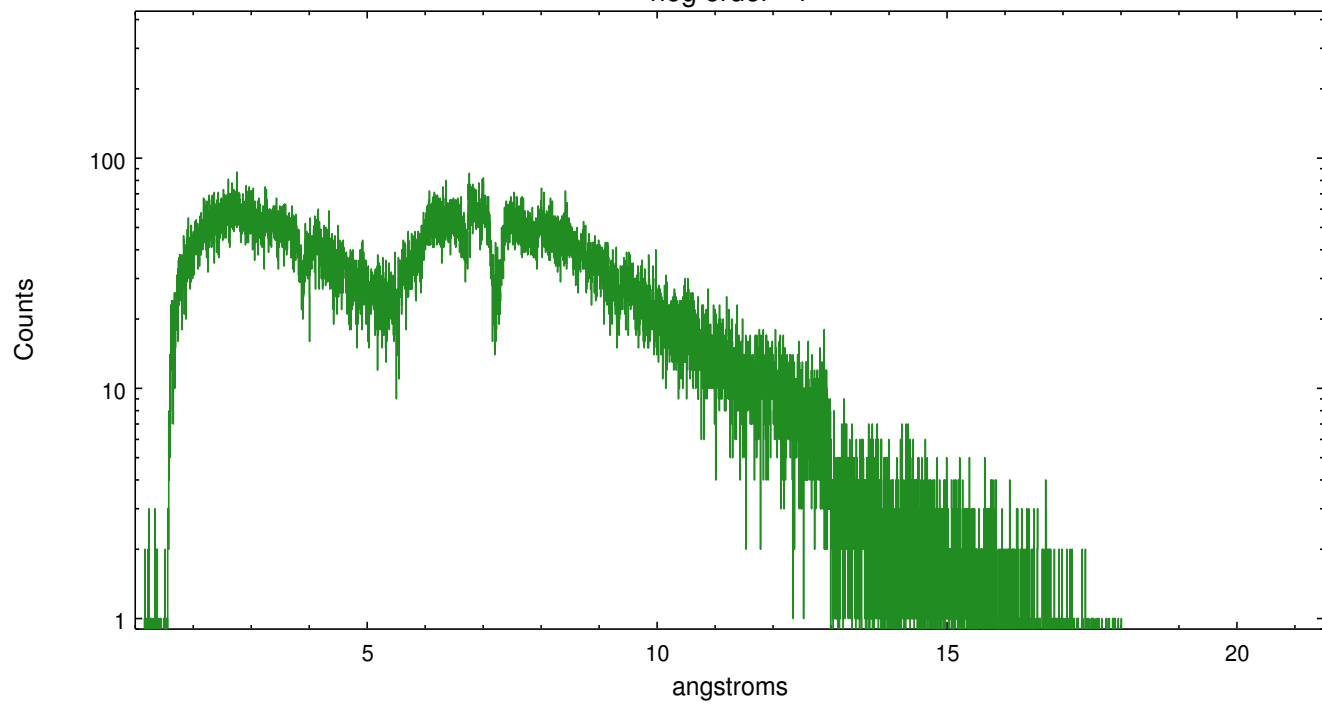


Full Detector HEG

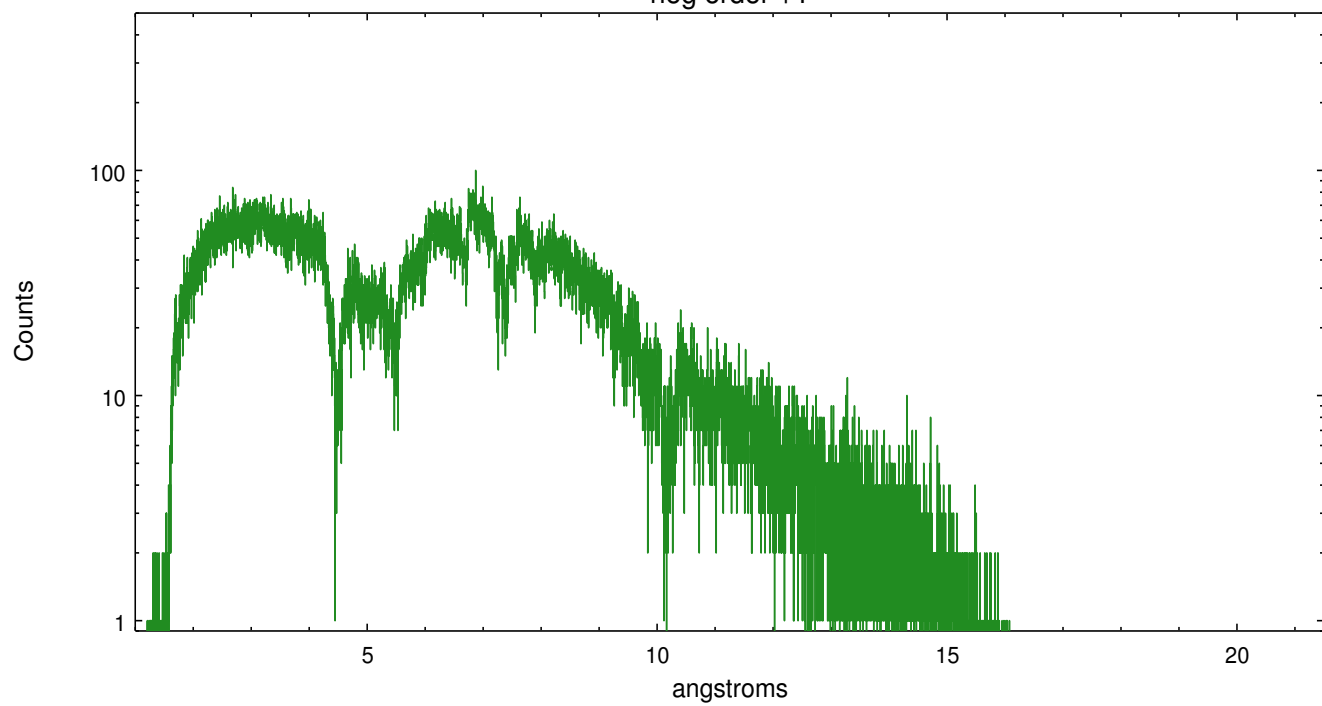
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	3260	13712	162925	31764	147646	10470	3066



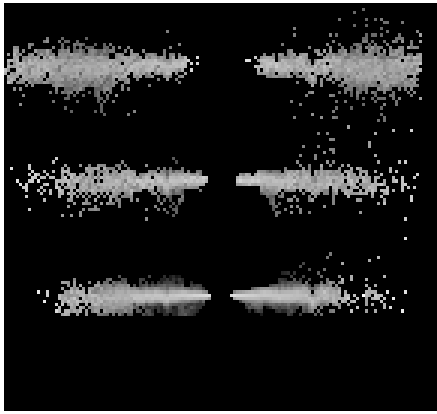
heg order -1



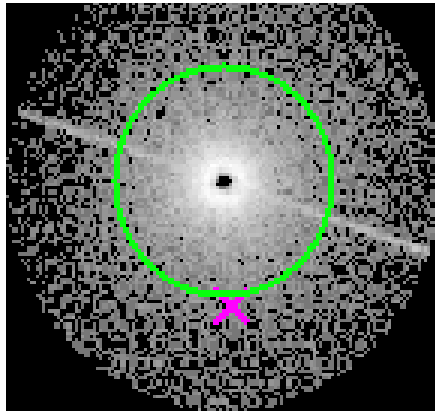
heg order +1



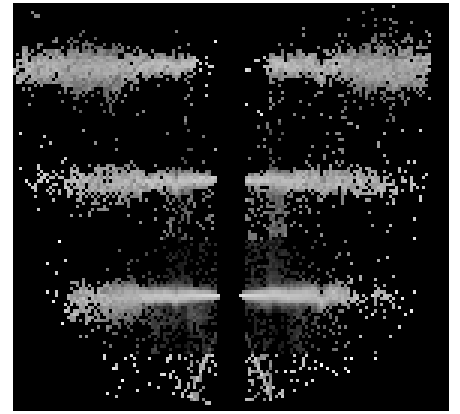
### 3.2 MEG Arm



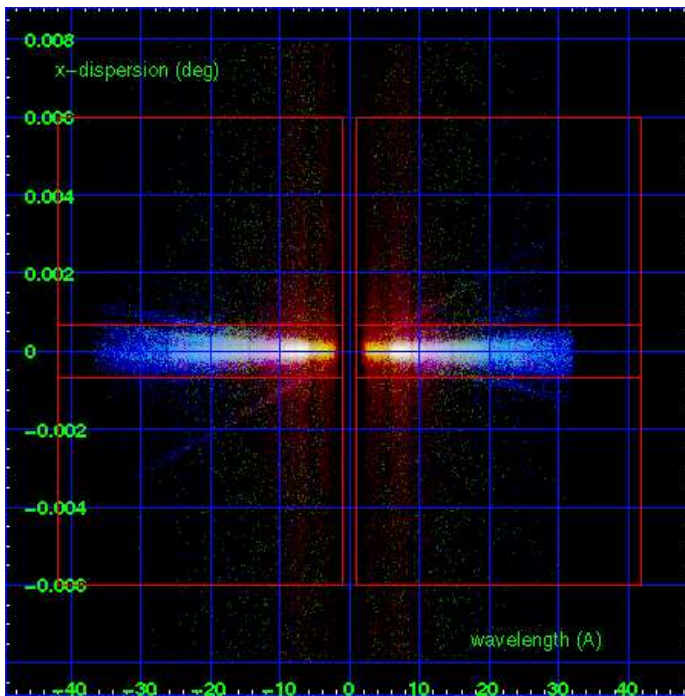
MEG Order Sort 123



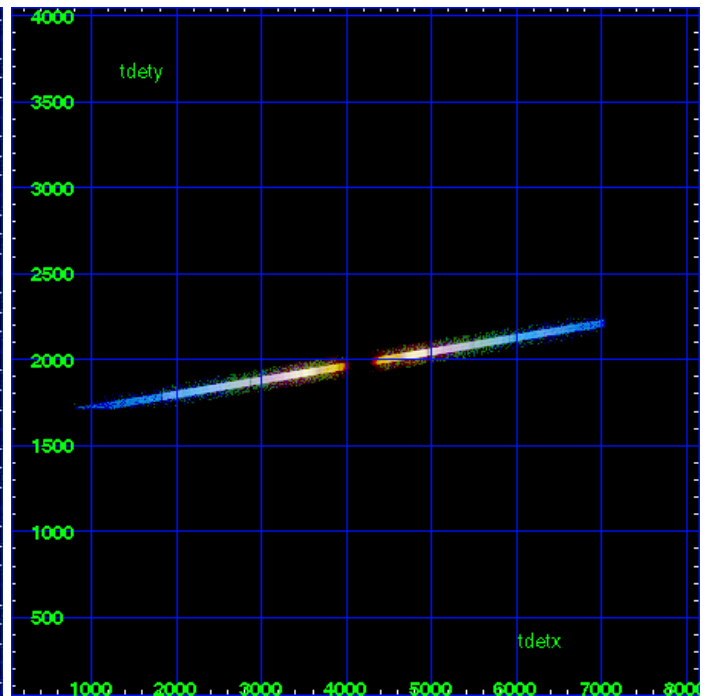
MEG Zero Order



MEG Order Sort ALL

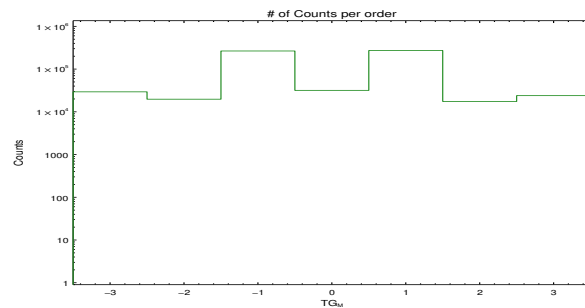


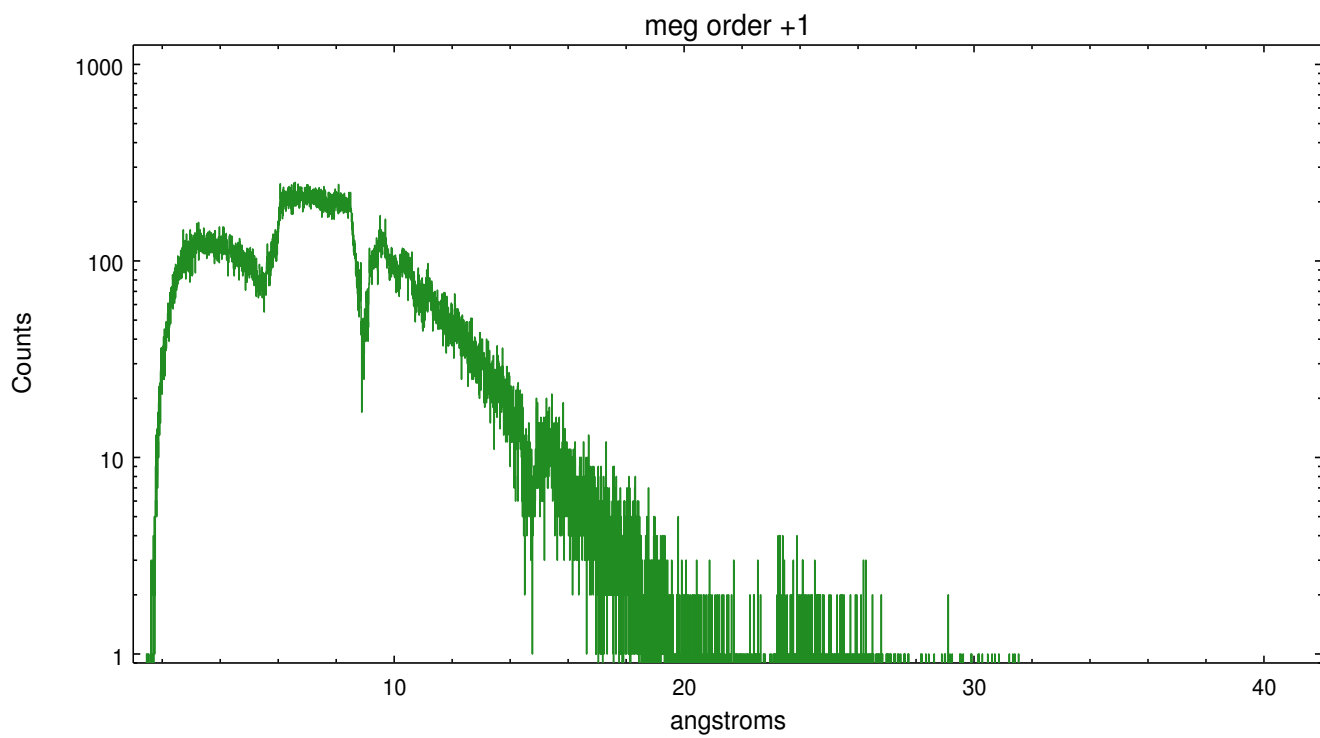
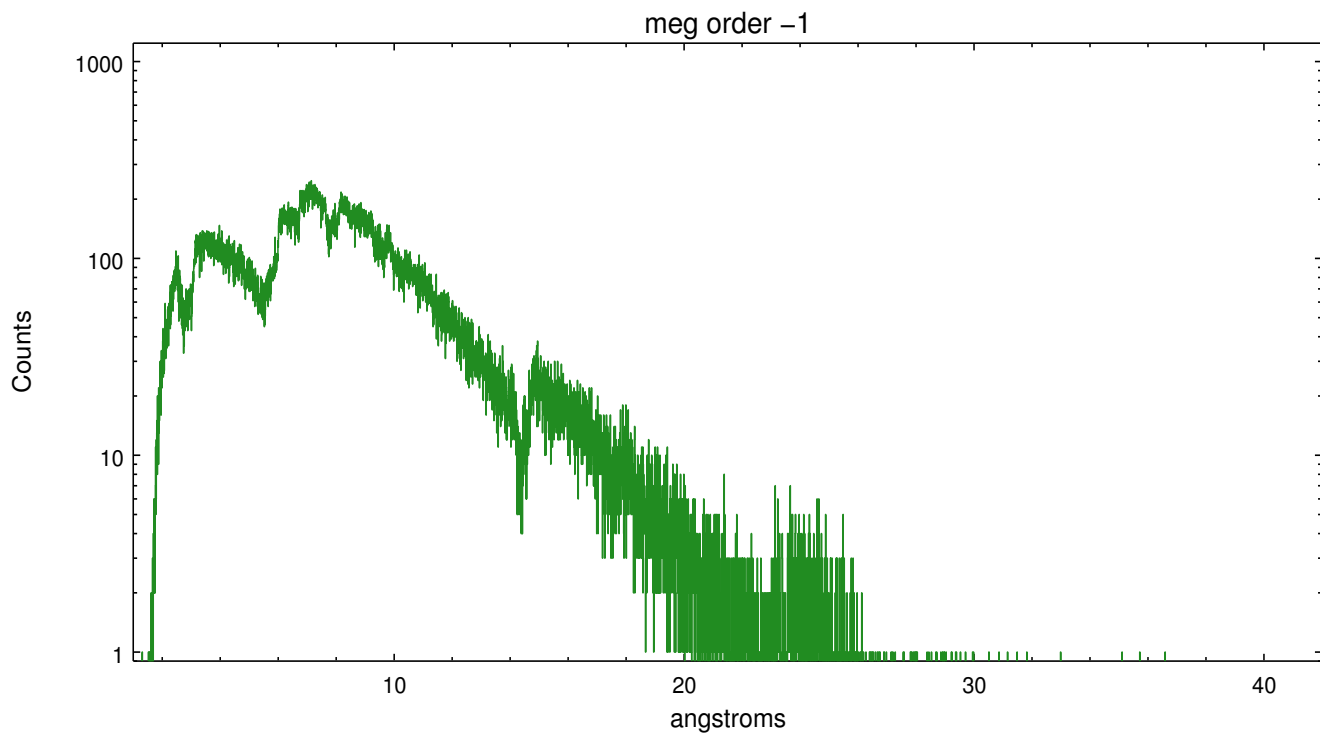
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	29355	19727	265276	31764	271490	17494	23924





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.21
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	9.7

## 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=4093.83, y=4129.12) 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.

===

A spatial exclusion window was intended to block events in the zeroth order.

The exclusion window was misplaced, allowing all events from the zeroth order to be collected. The exclusion window is offset from the zeroth order and

does not interfere with events in either the zeroth order or the dispersed spectral orders.

===

Spectral orders are piled up.

===

Charge time for this ObsId remains at previous value of 9.7 ks, although with the current processing the charge time would be 9.86 ks.