

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 2463 - L2 Version 3  
Chandra X-Ray Center

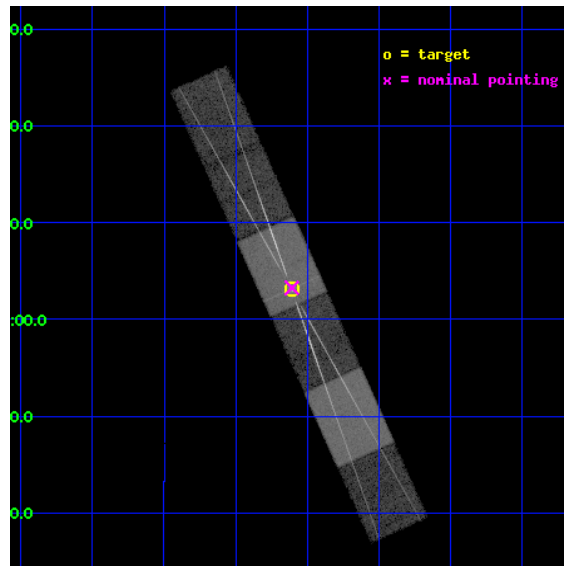
L2 Processing Date : Sep 18 2012

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# 1 Front

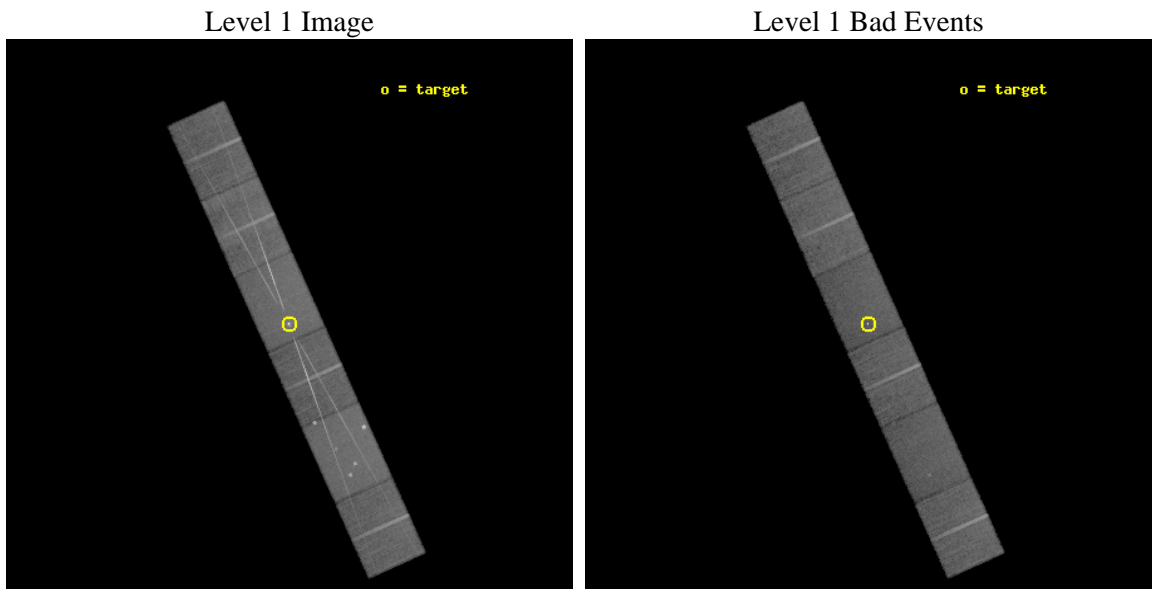
seq_num	790057	Sequence number
obs_id	2463	Observation id
title	AO3 CALIBRATION OBSERVATIONS OF 3C273	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	3C273	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	187.277917	Observer's specified target RA [deg]
dec_targ	2.052389	Observer's specified target Dec [deg]
ra_nom	187.27694056124	Nominal RA [deg]
dec_nom	2.0543397776464	Nominal Dec [deg]
roll_nom	245.70073037838	Nominal Roll [deg]
revision	3	Processing version of data
ontime	27127.5	Sum of GTIs [s]
livetime	26689.367345654	Livetime [s]
ontime4	27127.5	Sum of GTIs [s]
ontime5	27127.5	Sum of GTIs [s]
ontime6	27127.5	Sum of GTIs [s]
ontime7	27127.5	Sum of GTIs [s]
ontime8	27124.958989933	Sum of GTIs [s]
ontime9	27127.5	Sum of GTIs [s]
l2events	306224	Number of level 2 events



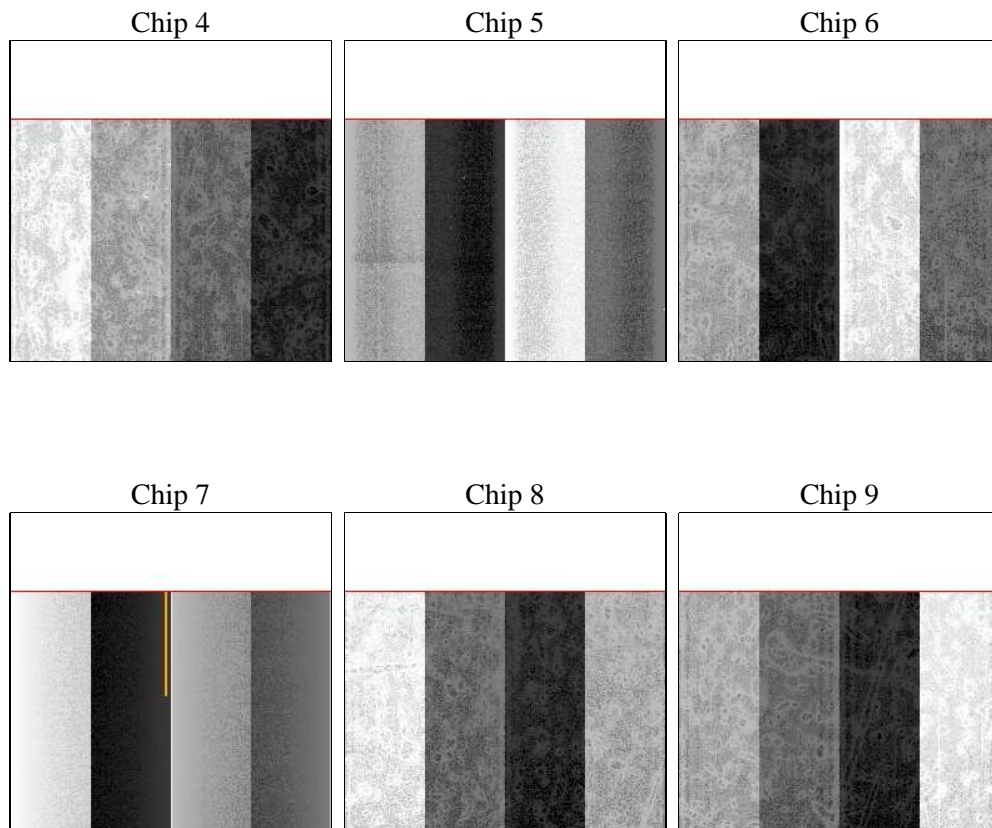
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	27000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	27127.5	Sum of GTIs [s]
caldsver	4.5.1.1	&#160	ontime4	27127.5	Sum of GTIs [s]
date	2012-09-17T22:29:36	Date and time of file creation	ontime5	27127.5	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	27127.5	Sum of GTIs [s]
			ontime7	27127.5	Sum of GTIs [s]
			ontime8	27124.958989933	Sum of GTIs [s]
			ontime9	27127.5	Sum of GTIs [s]
			l1events	1076014	Number of level 1 events

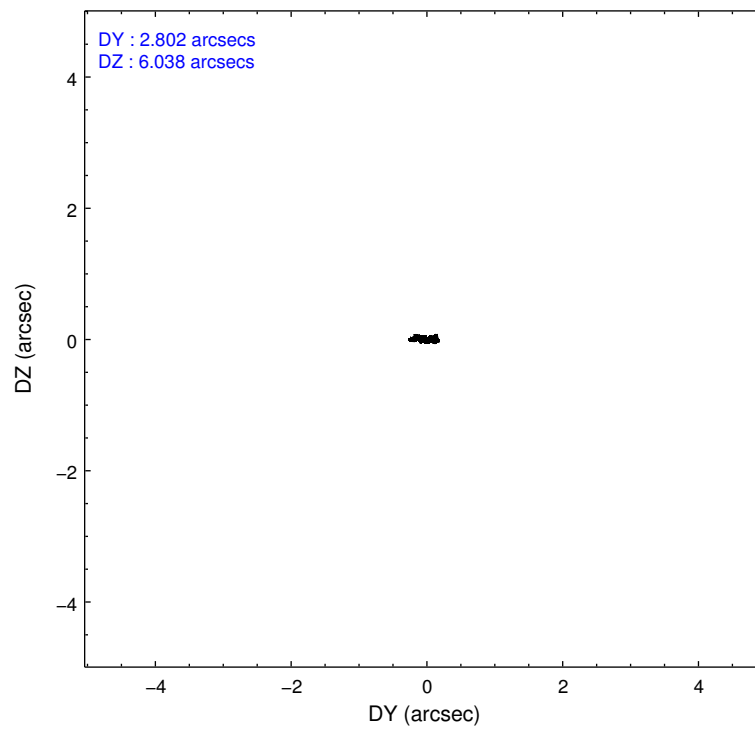
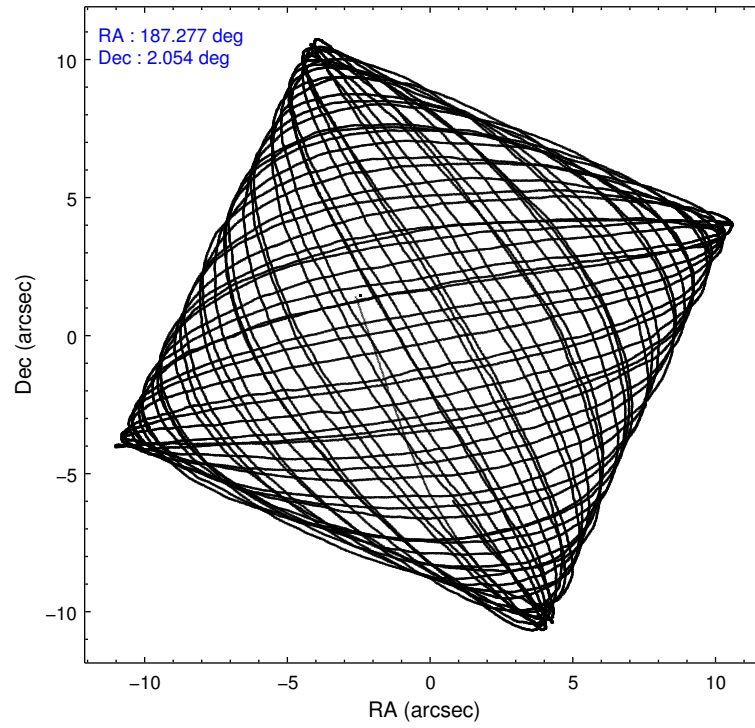
### 2.1.4 Events

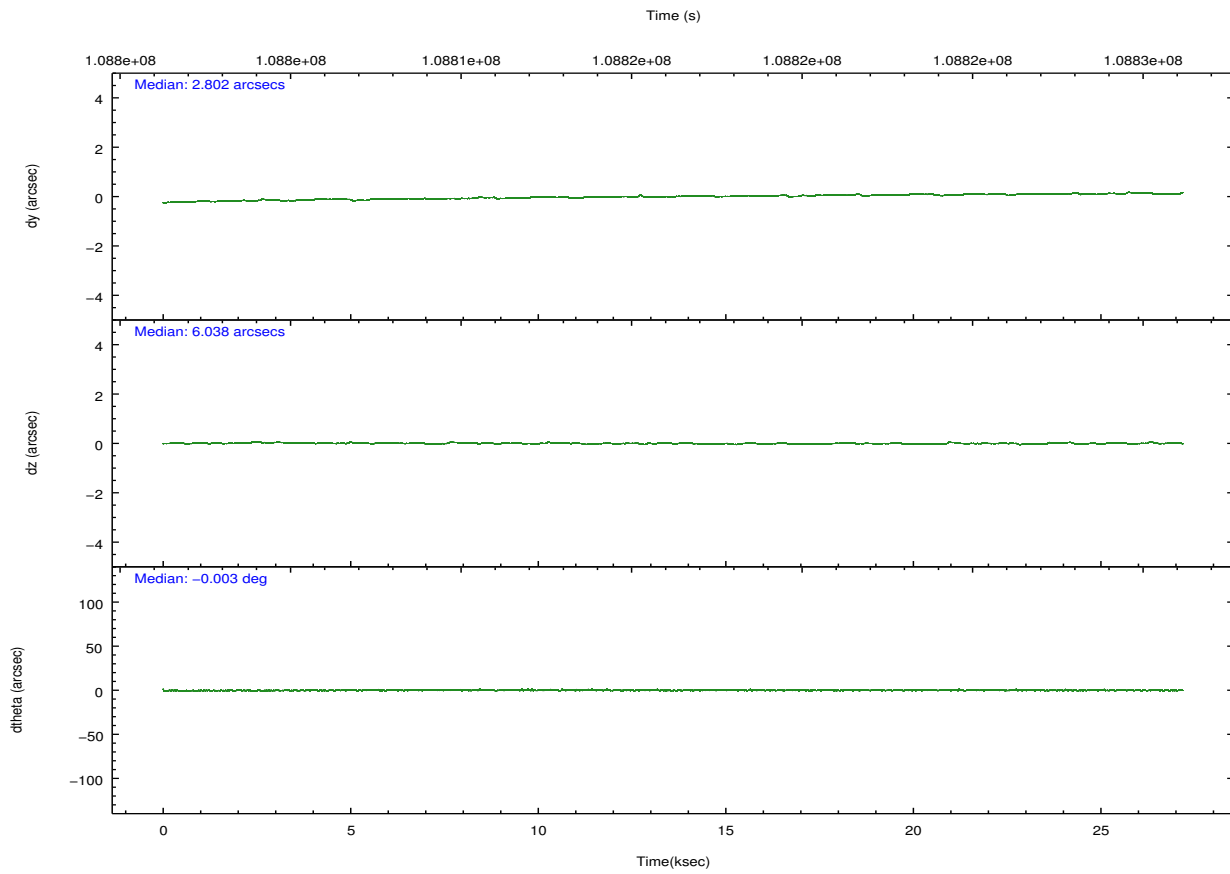
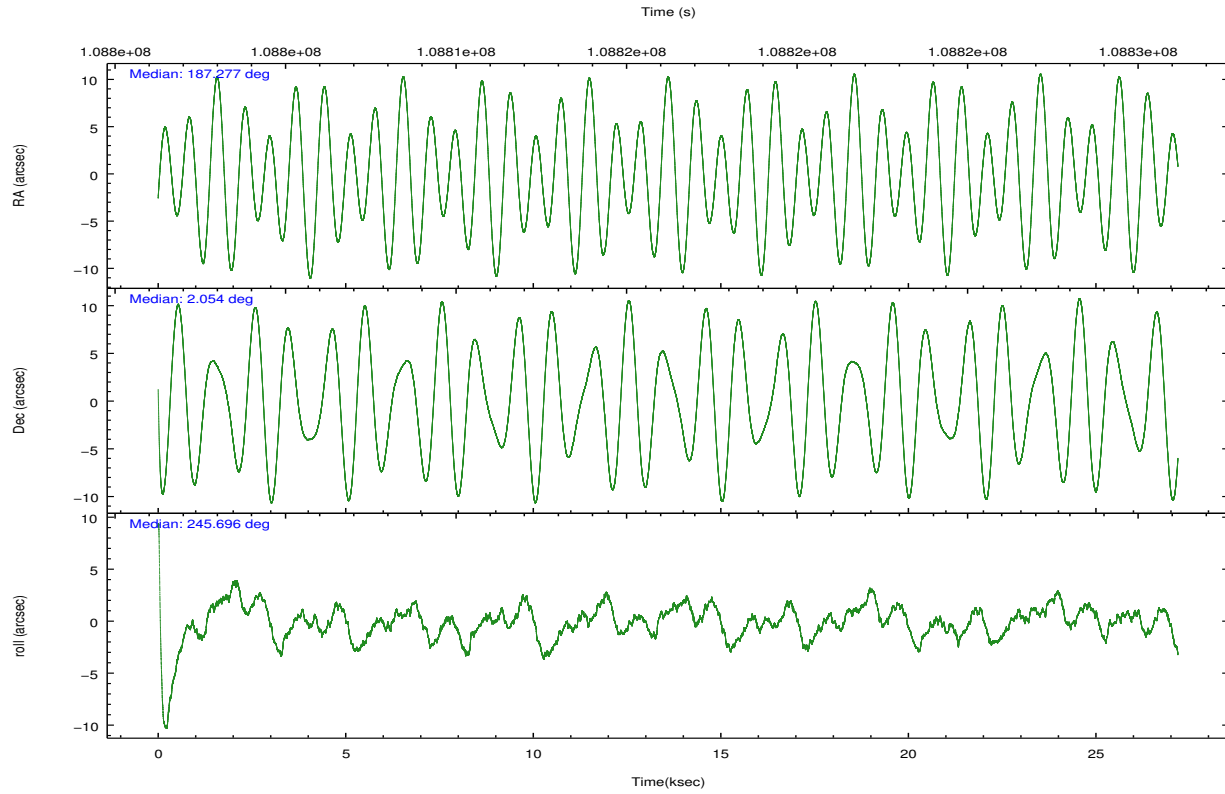
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	152439	210995	170110	213701	190507	138262	grade 0 events	9047	23847	32082	14978	25091	9537
rejected events	132916	101340	121214	105498	138313	118222		5%	11%	18%	7%	13%	6%
rejected %	87%	48%	71%	49%	72%	85%	grade 1 events	64	283	182	361	124	63
								0%	0%	0%	0%	0%	0%
							grade 2 events	4155	28980	6777	23025	8770	3624
								2%	13%	3%	10%	4%	2%
							grade 3 events	1736	5835	2891	10612	4518	1830
								1%	2%	1%	4%	2%	1%
							grade 4 events	1638	5872	2830	10686	4311	1719
								1%	2%	1%	5%	2%	1%
							grade 5 events	4613	15045	5564	17553	7164	5616
								3%	7%	3%	8%	3%	4%
							grade 6 events	2948	45141	4323	48929	9529	3332
								1%	21%	2%	22%	5%	2%
							grade 7 events	128238	85992	115461	87557	131000	112541
								84%	40%	67%	40%	68%	81%

## 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	187.273936	187.2769405612379	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	2.081481	2.054339777646418	Subarray start row	1	1
[deg] Pointing Roll	245.544210	245.7007303783824	Subarray row count	774	774
[s] Window start time (MET)	108792064.184000	108792064.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	108936064.184000	108936064.184000	[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	-187.1254020033014			
[mm] SIM translation stage offset	-3	-3.007120579706367			
[s] Observation start time (MET)	108802809.184000	108801745.33445			
Observation start date	2001-06-13T06:59:05	2001-06-13T06:42:25			
[s] Observation end time (MET)	108829809.184000	108830159.87305			
Observation end date	2001-06-13T14:29:05	2001-06-13T14:35:59			
Read mode	TIMED	TIMED			

## 2.3 Aspect



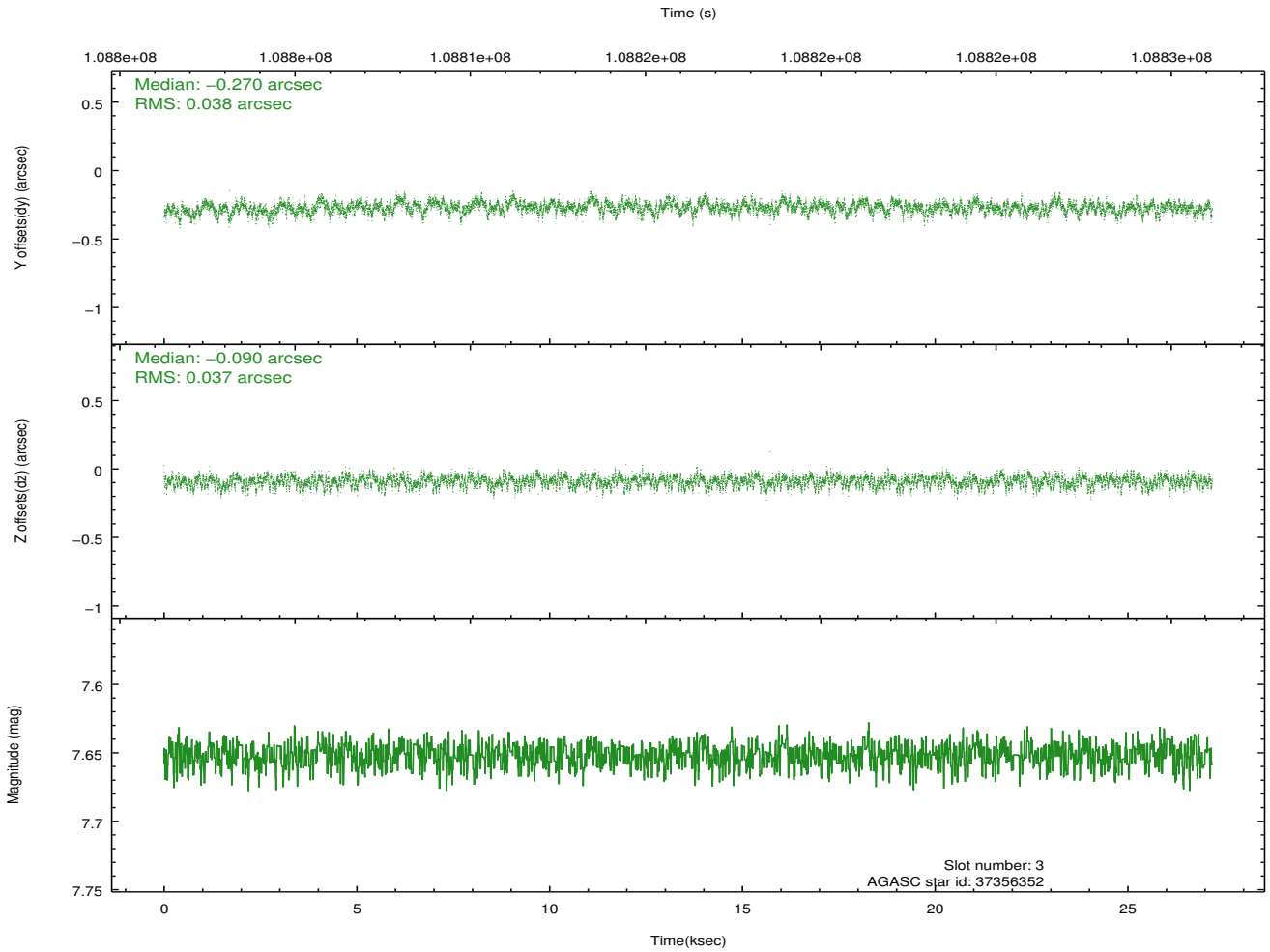
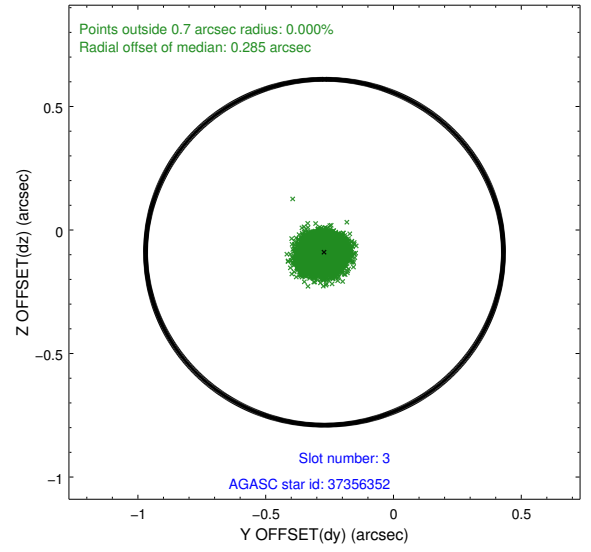
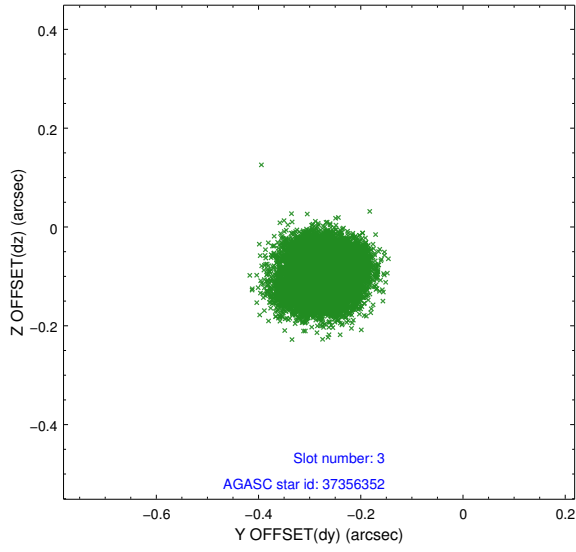


### Slot Statistics

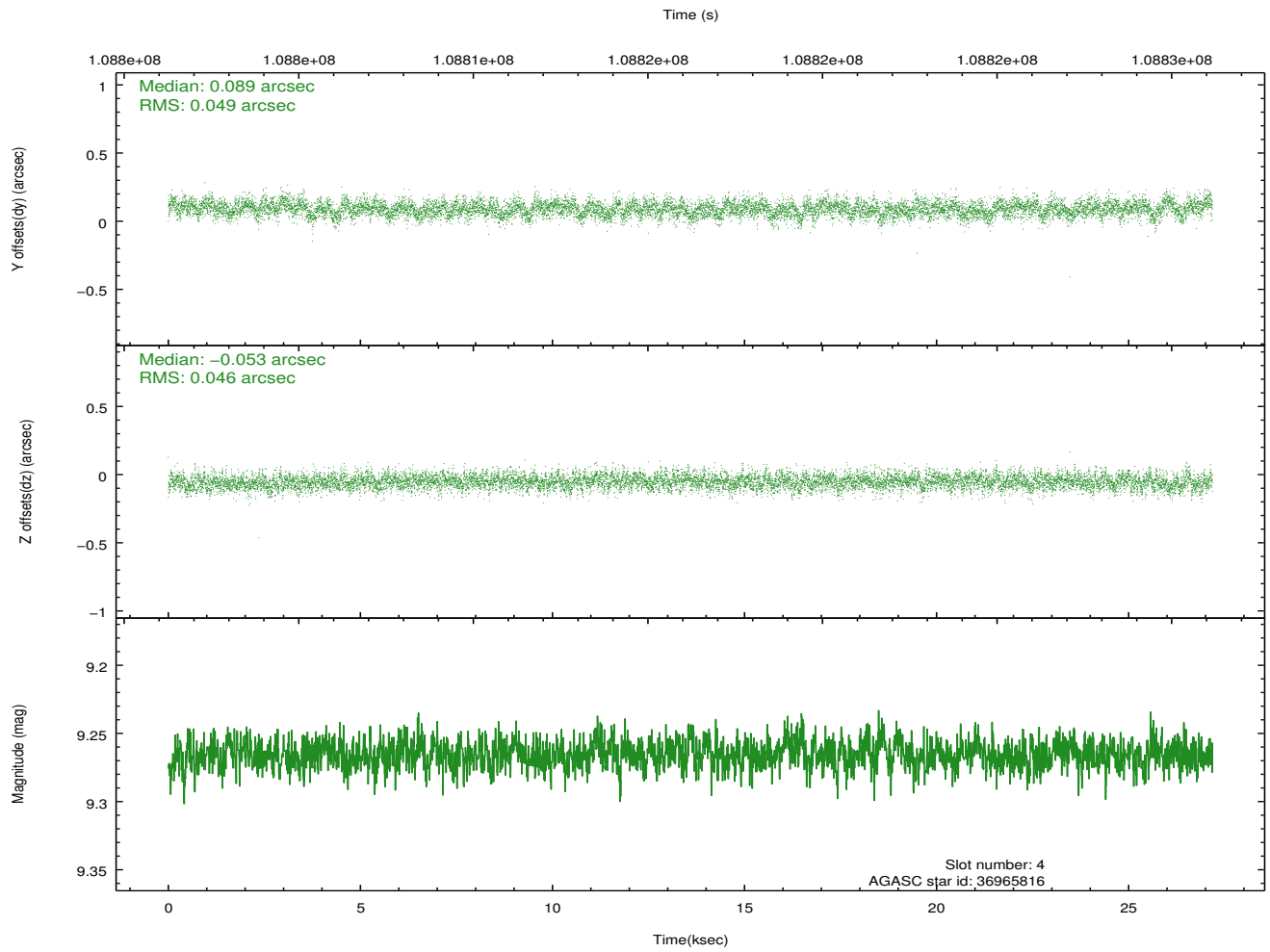
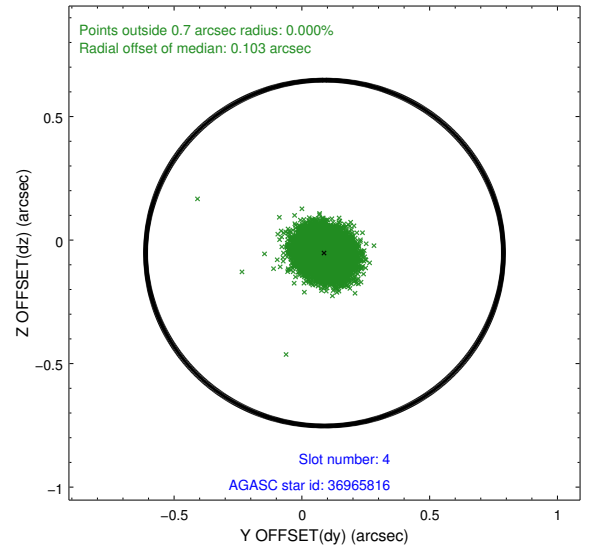
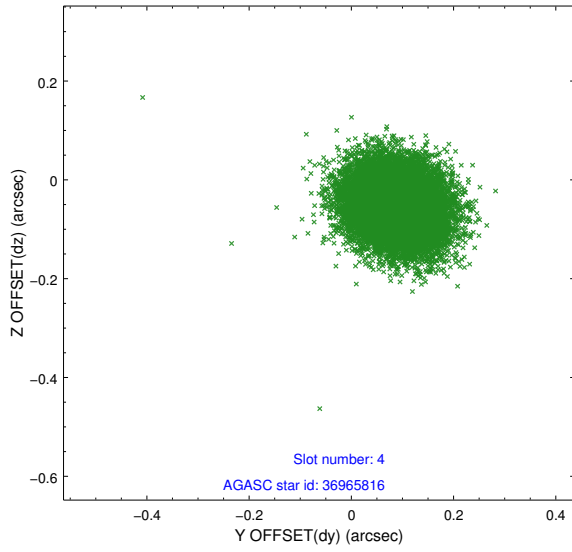
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	6631	-0.015	-0.047	0.008	0.022	0.000000	0.000000	-755.25	-1789.30
1	FID	ACIS-S-4	7.19	6631	-0.034	0.020	0.008	0.028	0.000000	0.000000	2157.98	119.10
2	FID	ACIS-S-5	7.23	6631	0.017	0.036	0.009	0.015	0.000000	0.000000	-1807.92	112.94
3	GUIDE	37356352	7.65	13263	-0.270	-0.090	0.056	0.091	187.433784	2.618460	-1998.55	-276.37
4	GUIDE	36965816	9.27	13250	0.089	-0.053	0.071	0.116	186.823353	1.771455	1686.41	-1012.95
5	GUIDE	36965296	9.09	13255	0.081	-0.056	0.063	0.104	186.926292	1.837429	1317.17	-774.14
6	GUIDE	37880408	10.08	13259	-0.242	0.026	0.130	0.209	187.758191	2.290324	-1406.61	1275.00
7	GUIDE	37883040	10.02	13250	0.340	0.173	0.126	0.207	187.575516	1.280402	2175.27	2183.37

## 2.4 Star Slots

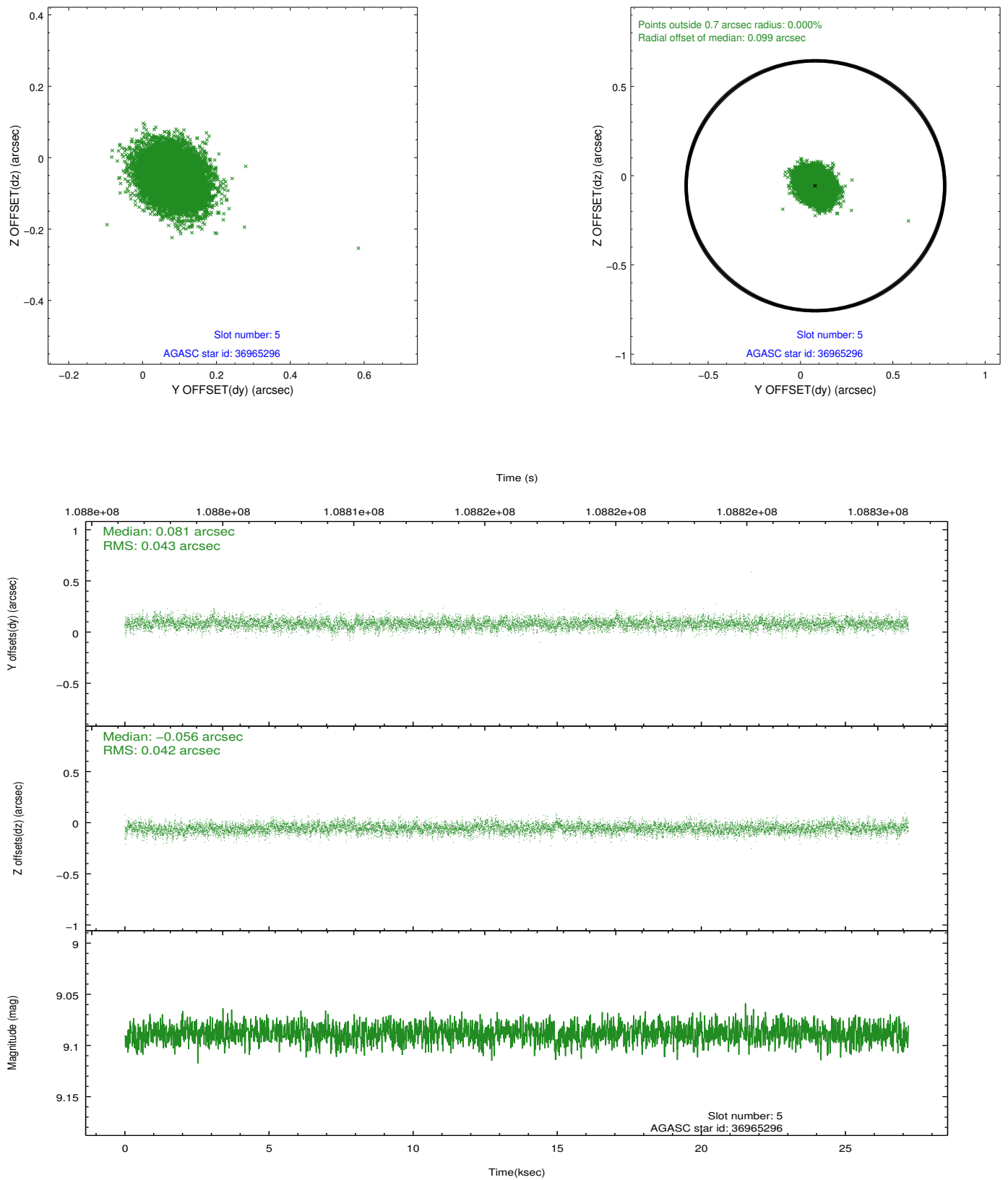
### 2.4.1 Slot 3



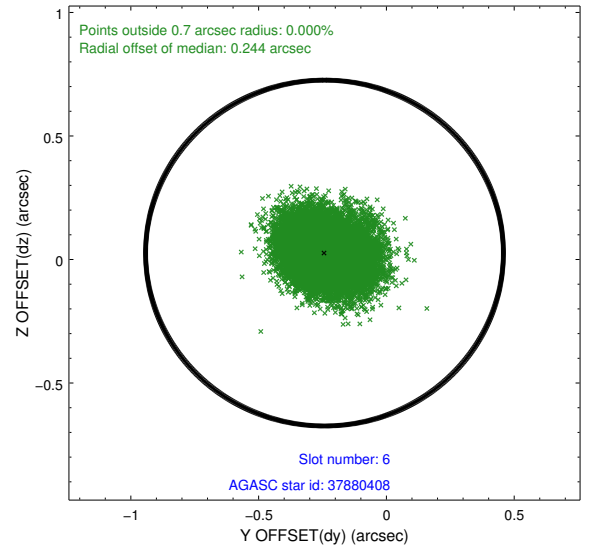
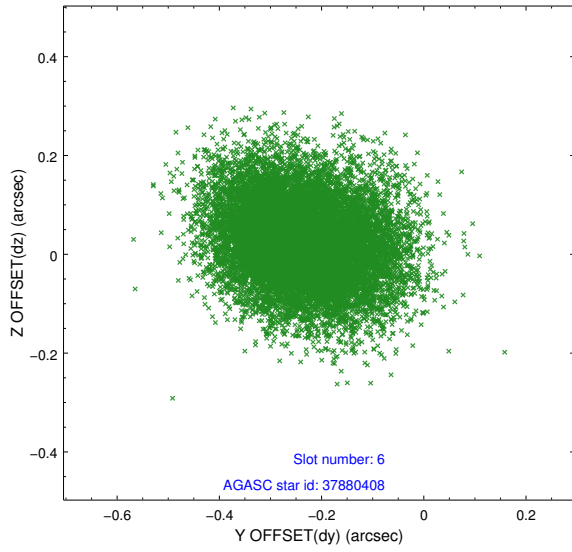
## 2.4.2 Slot 4



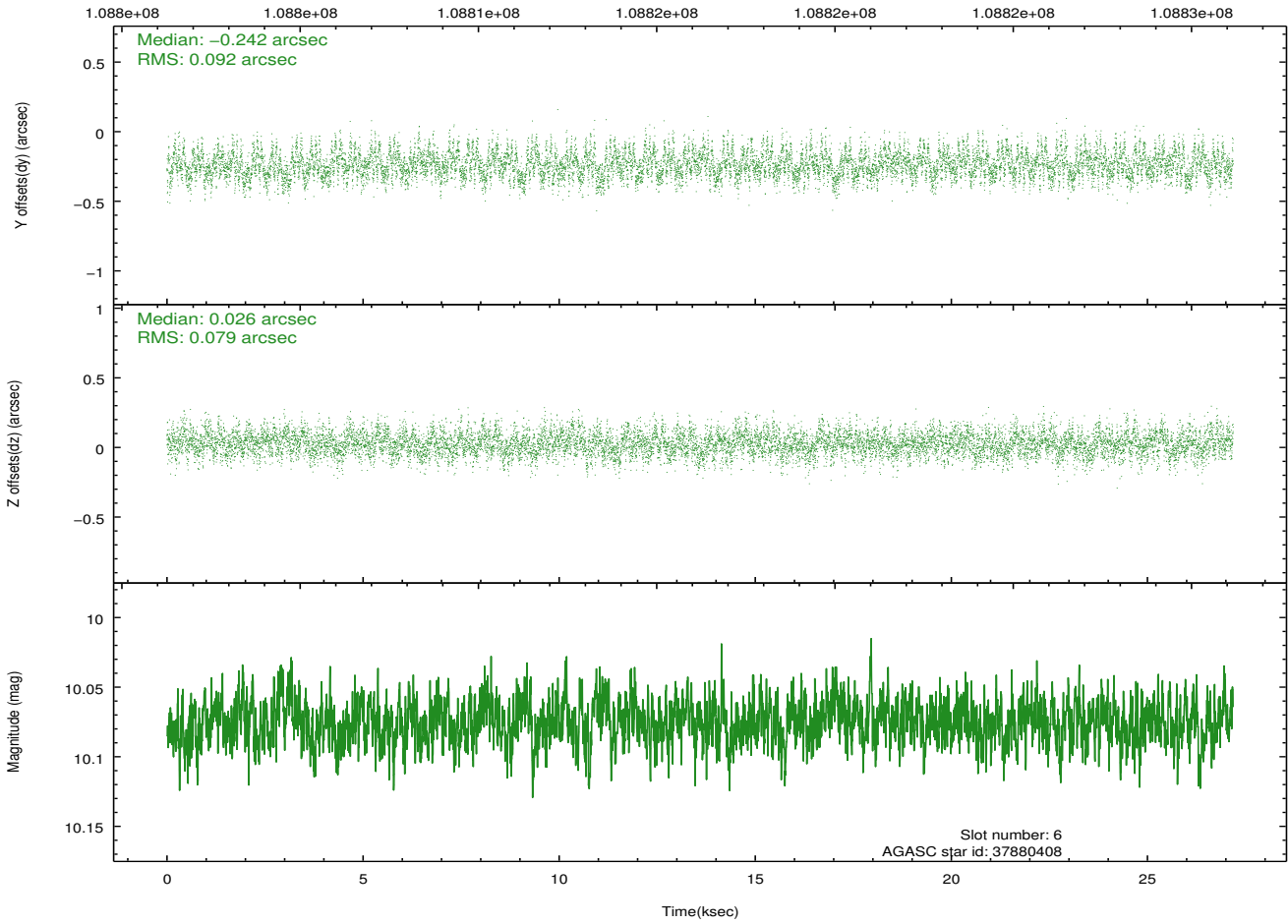
### 2.4.3 Slot 5



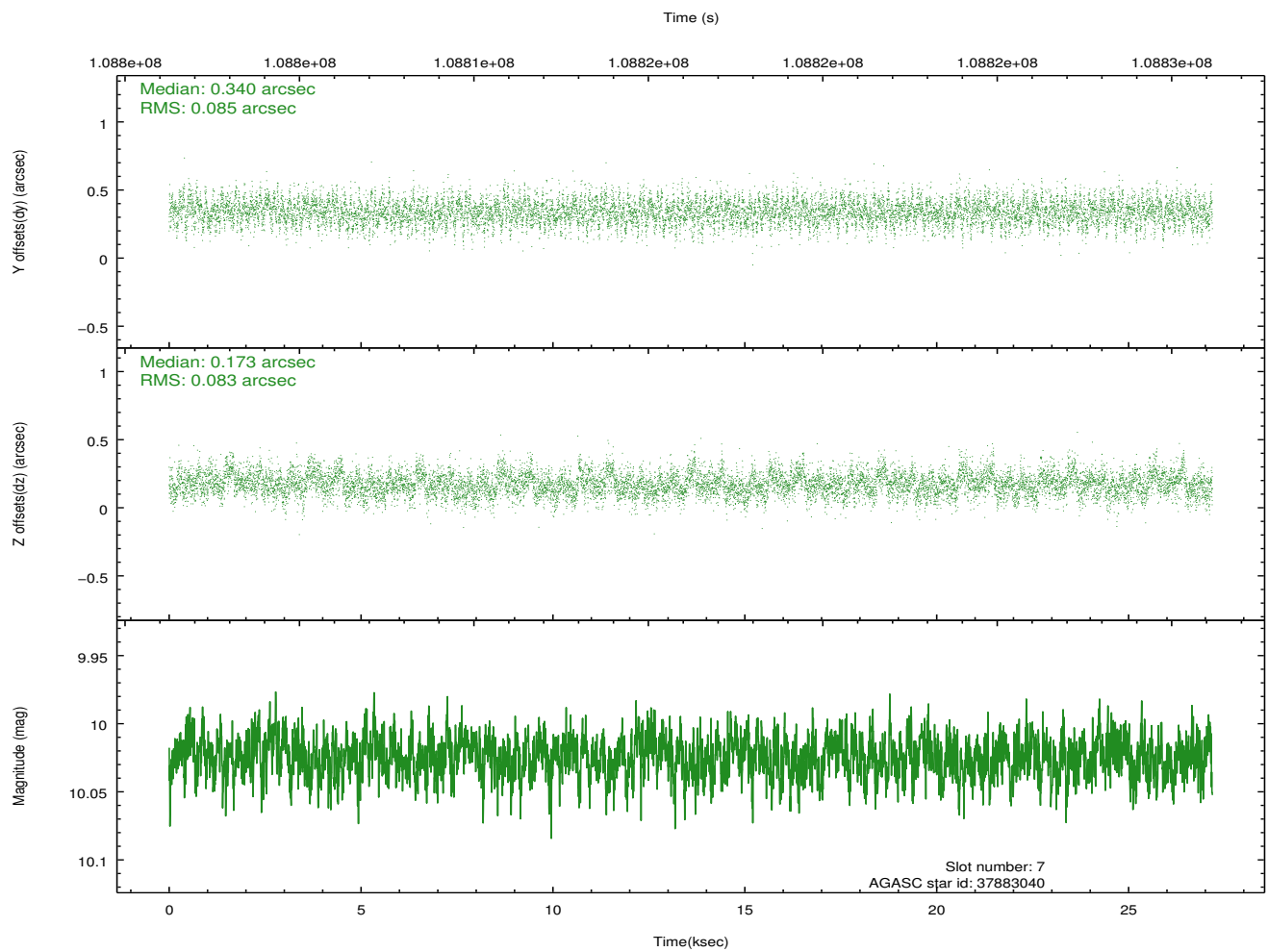
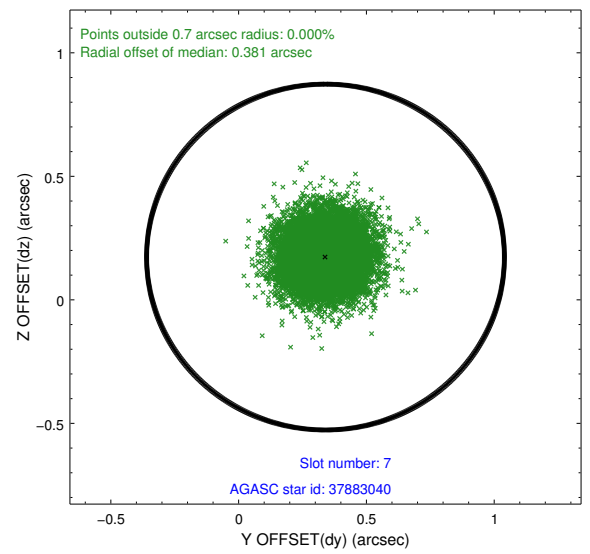
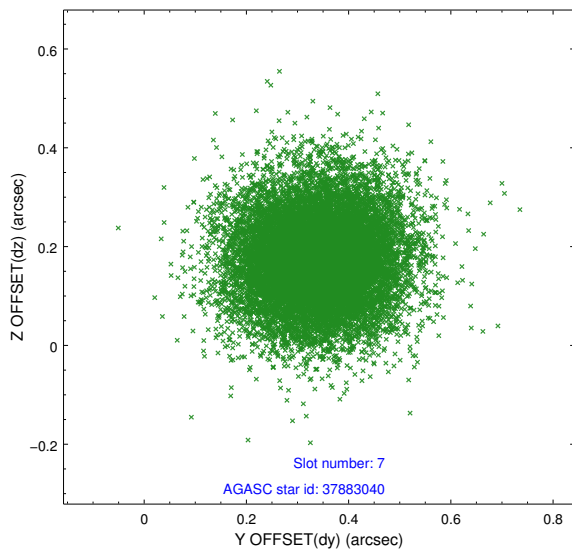
## 2.4.4 Slot 6



Time (s)

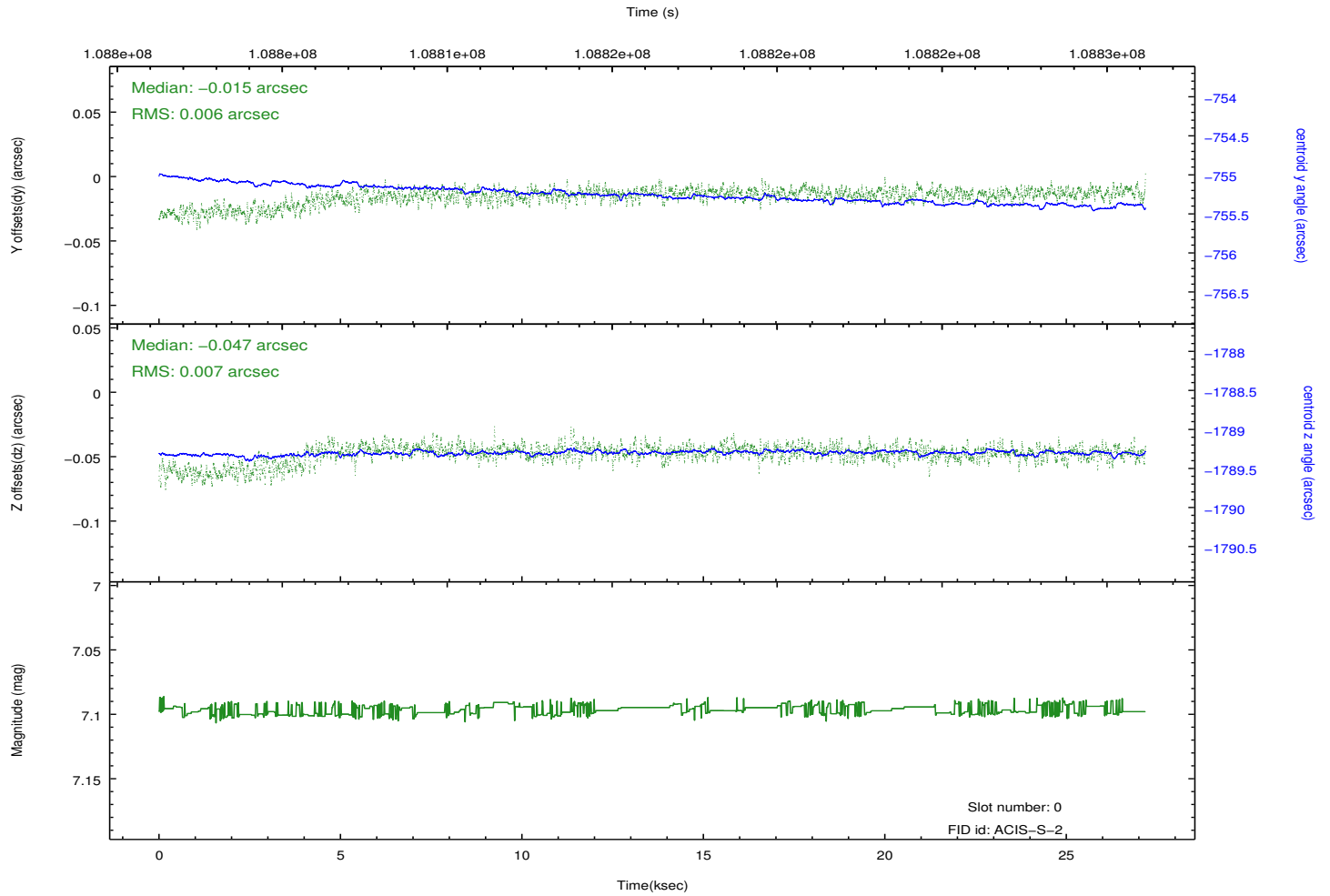
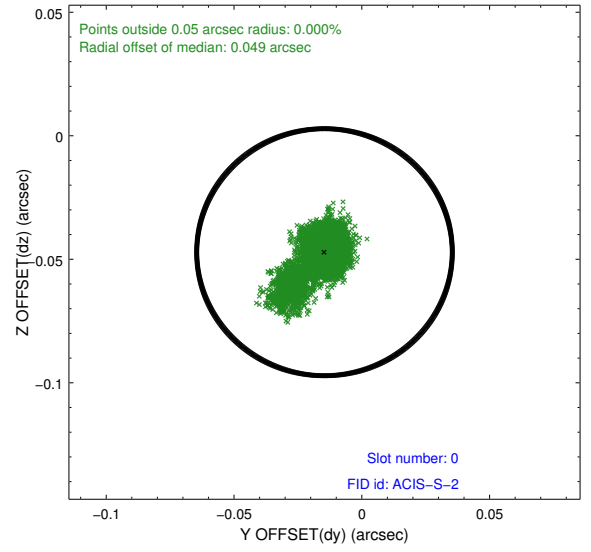
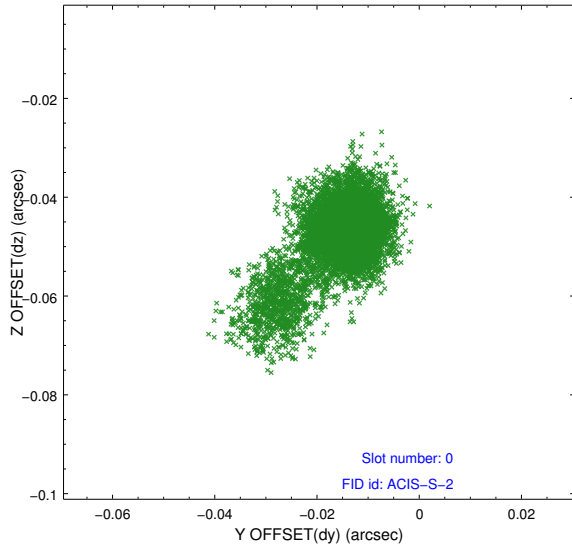


## 2.4.5 Slot 7

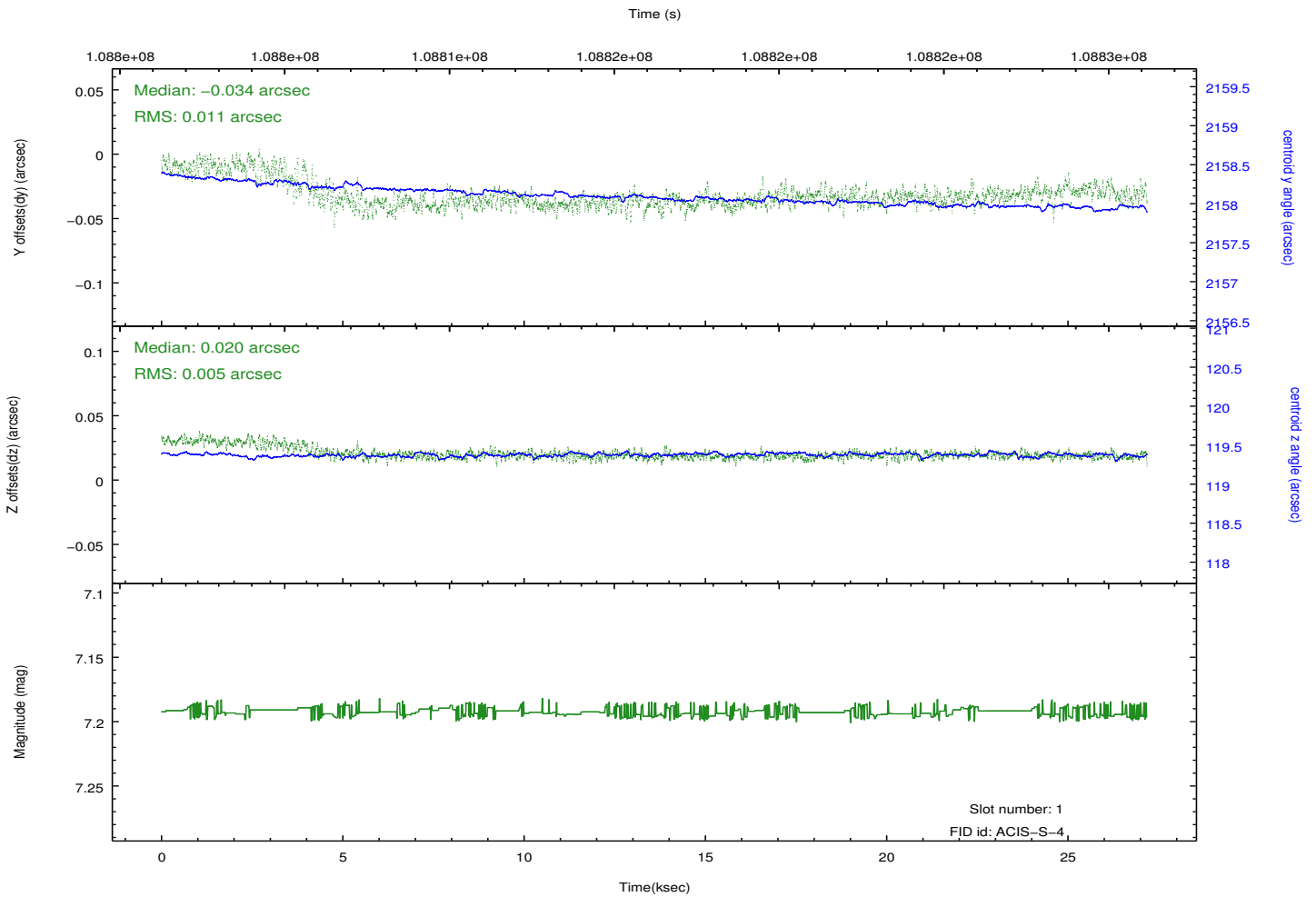
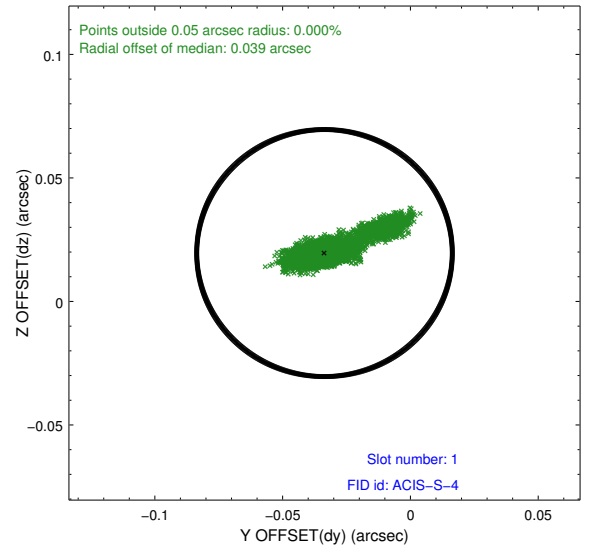
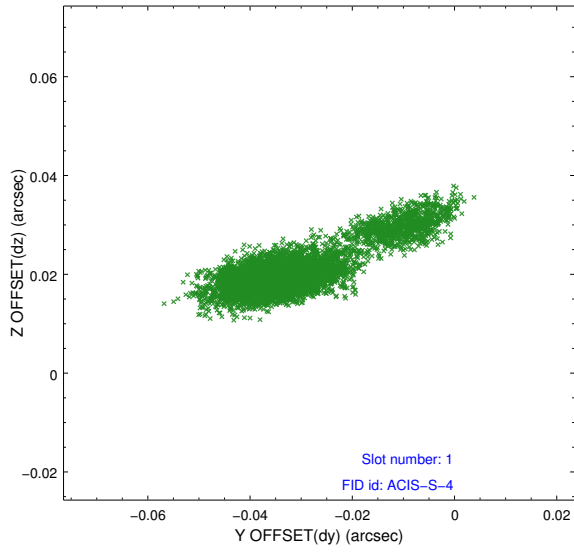


## 2.5 FID Slots

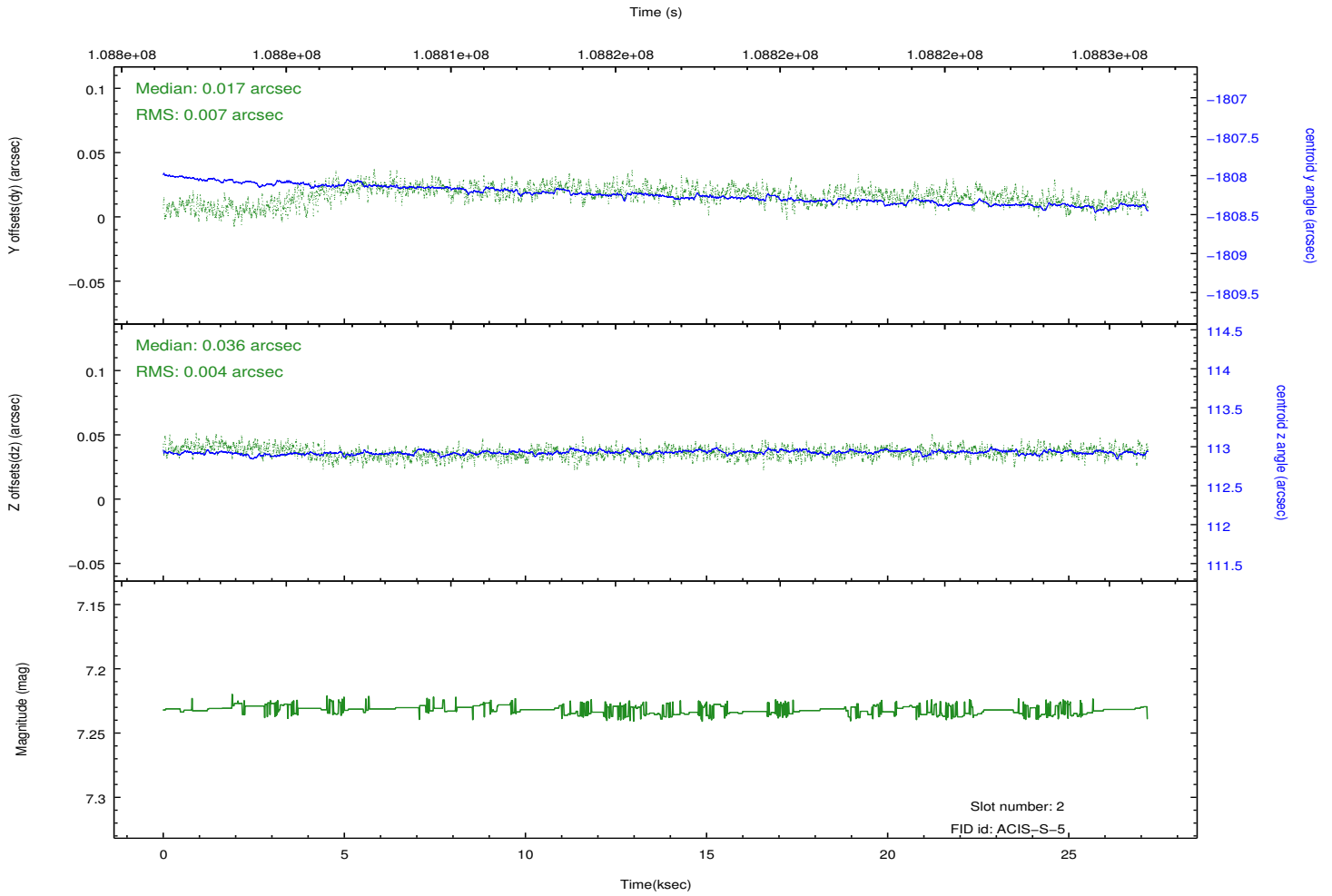
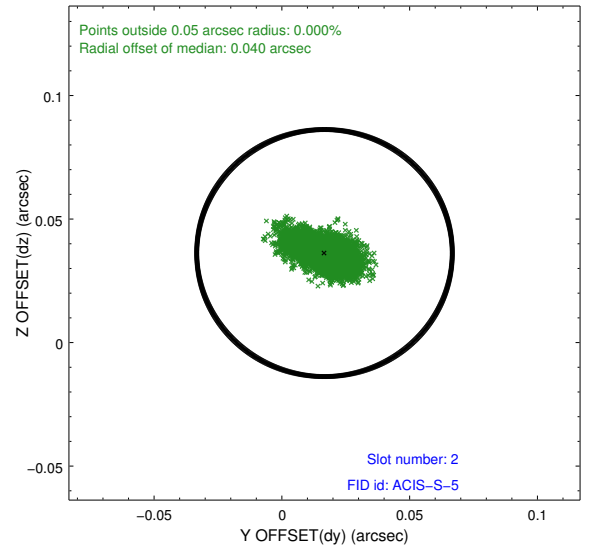
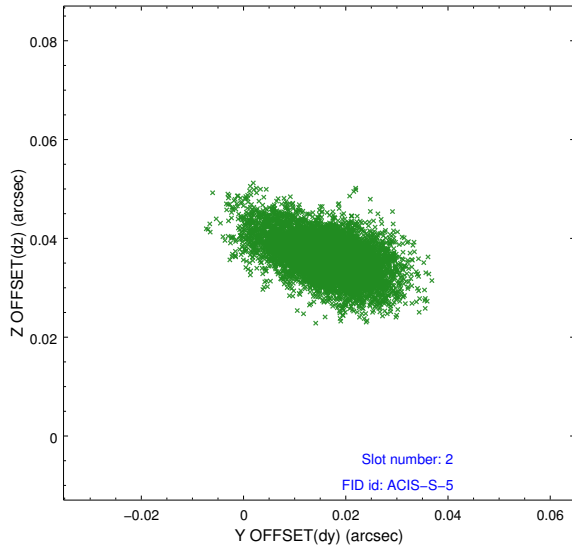
### 2.5.1 Slot 0



## 2.5.2 Slot 1

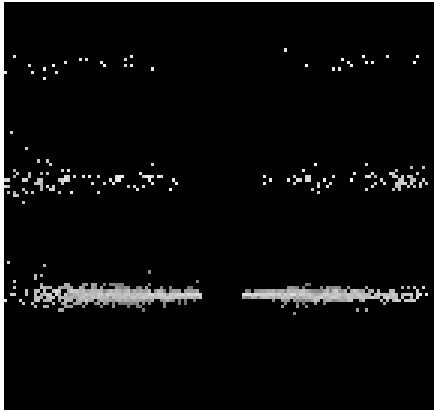


### 2.5.3 Slot 2

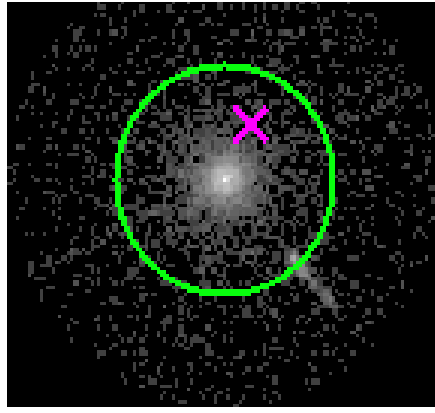


# 3 Gratings

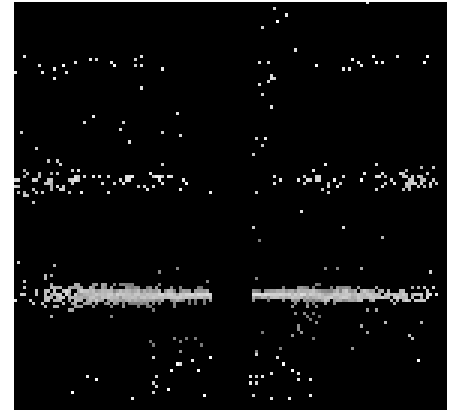
## 3.1 HEG Arm



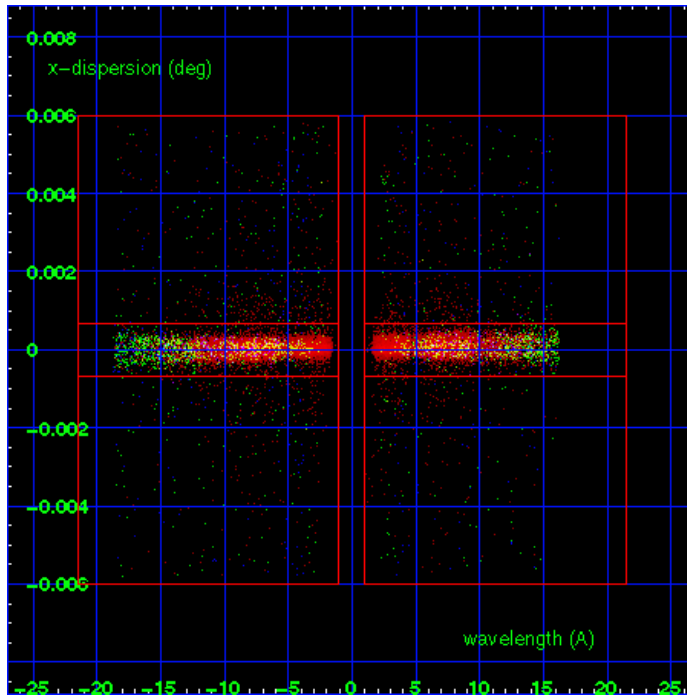
HEG Order Sort 123



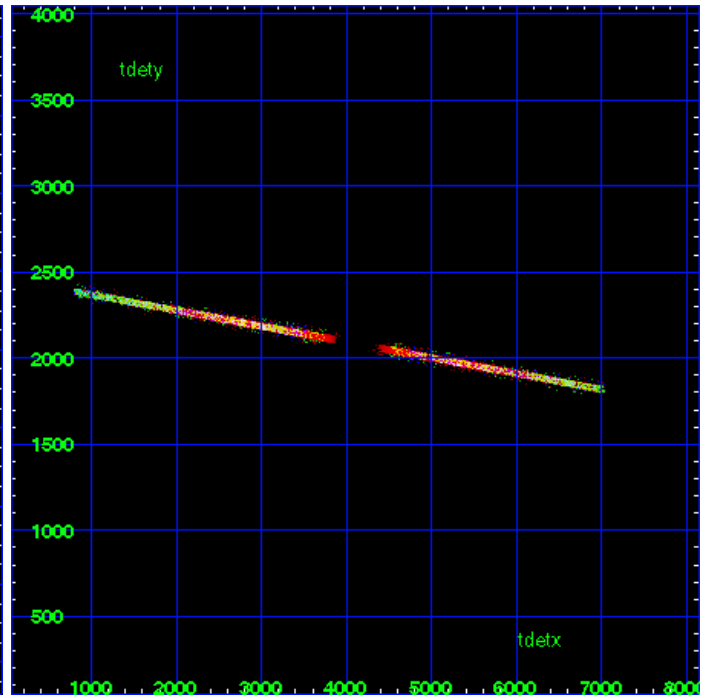
HEG Zero Order



HEG Order Sort ALL

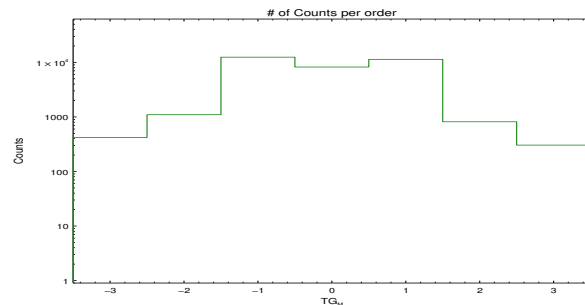


Spot Image HEG

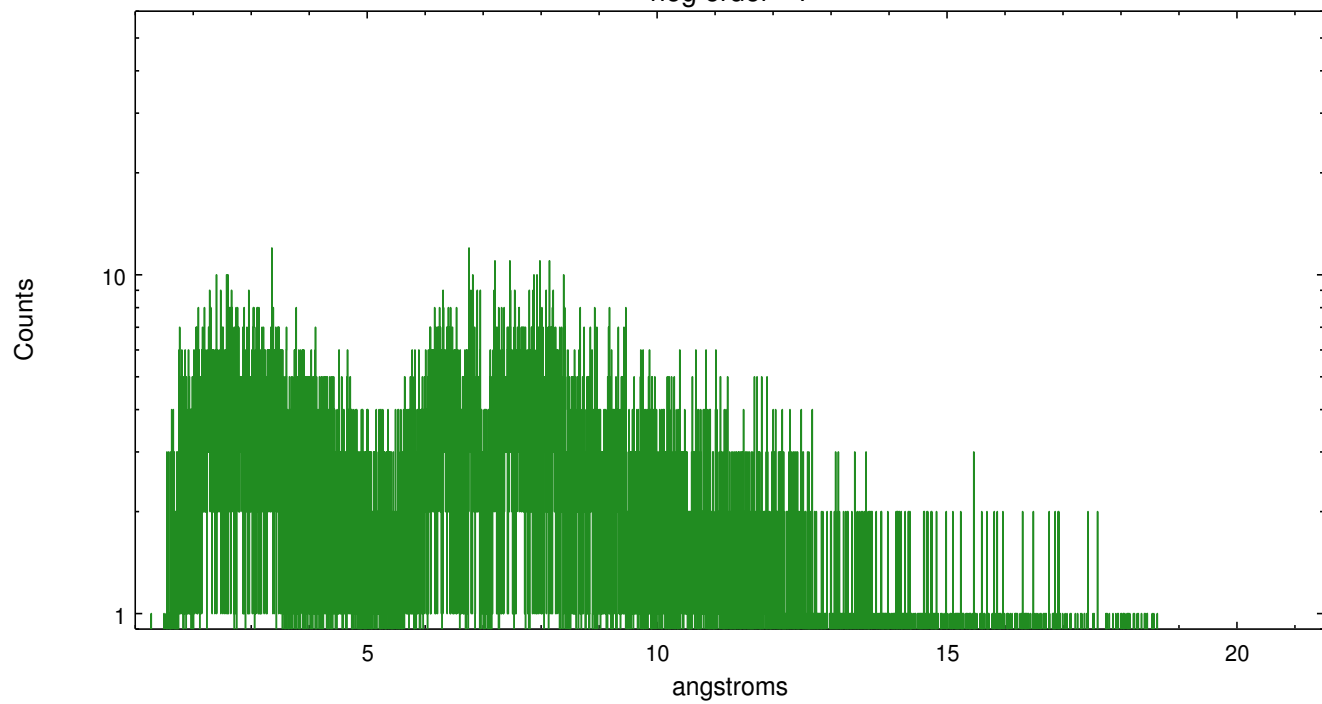


Full Detector HEG

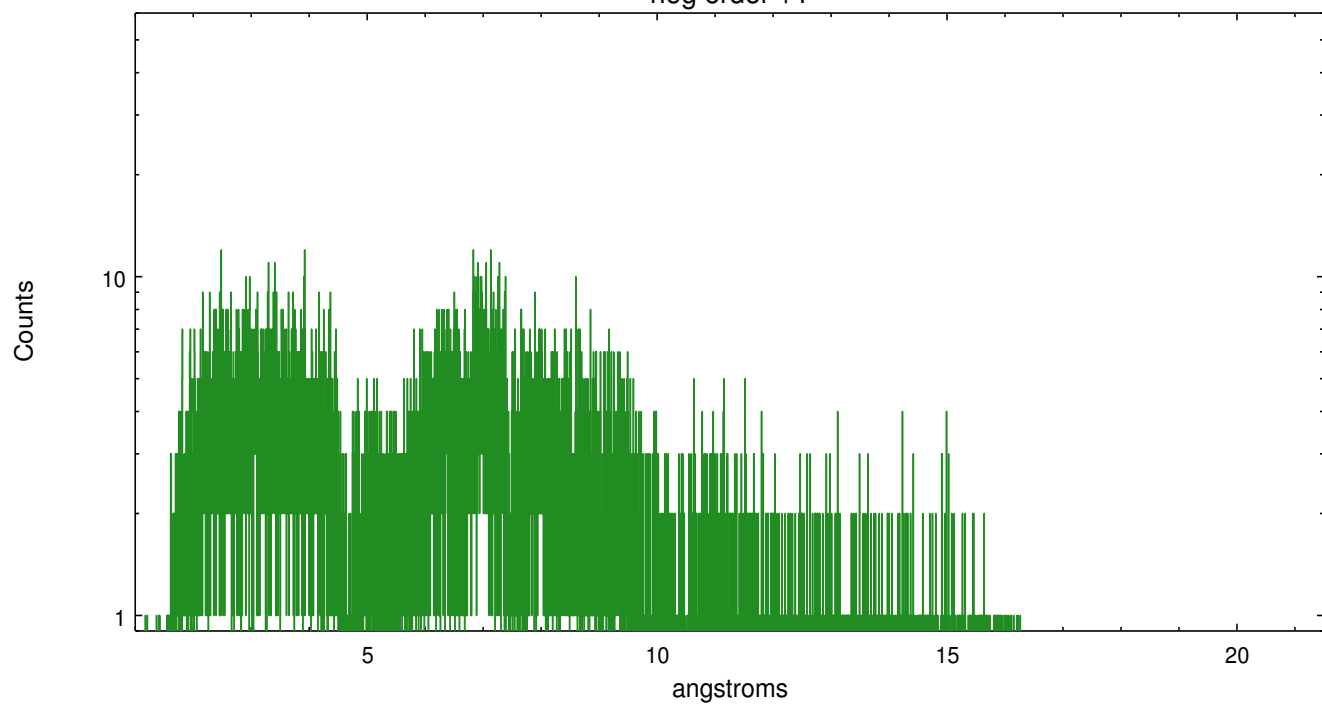
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	420	1098	12453	8213	11341	815	304



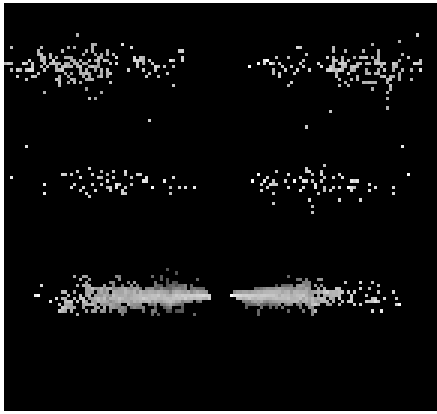
heg order -1



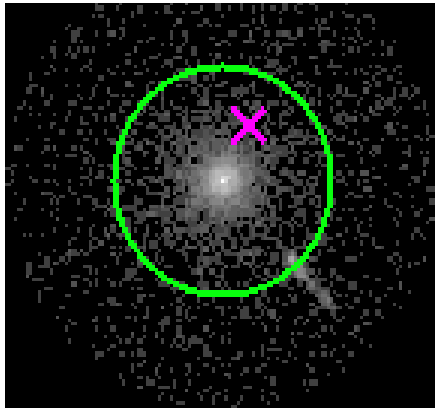
heg order +1



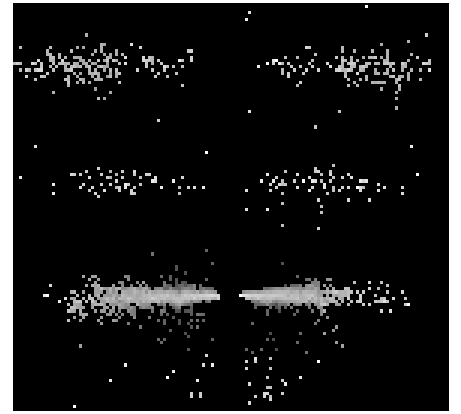
### 3.2 MEG Arm



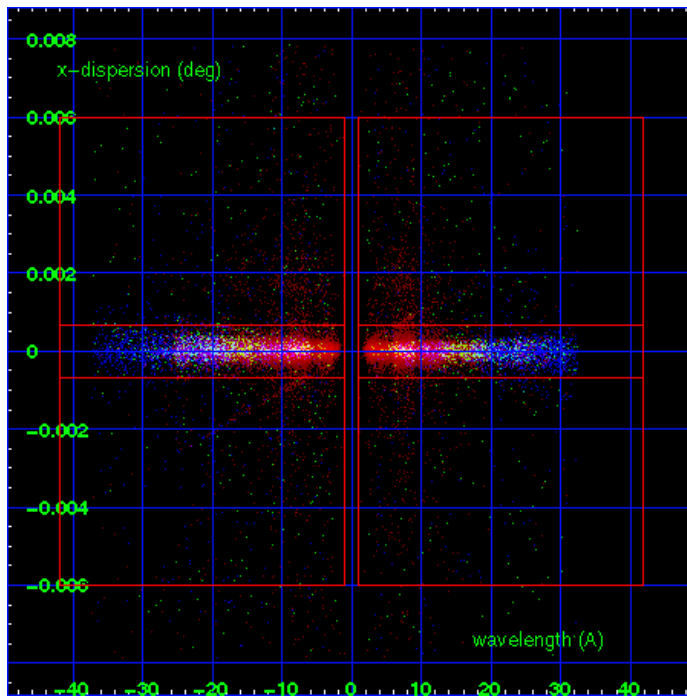
MEG Order Sort 123



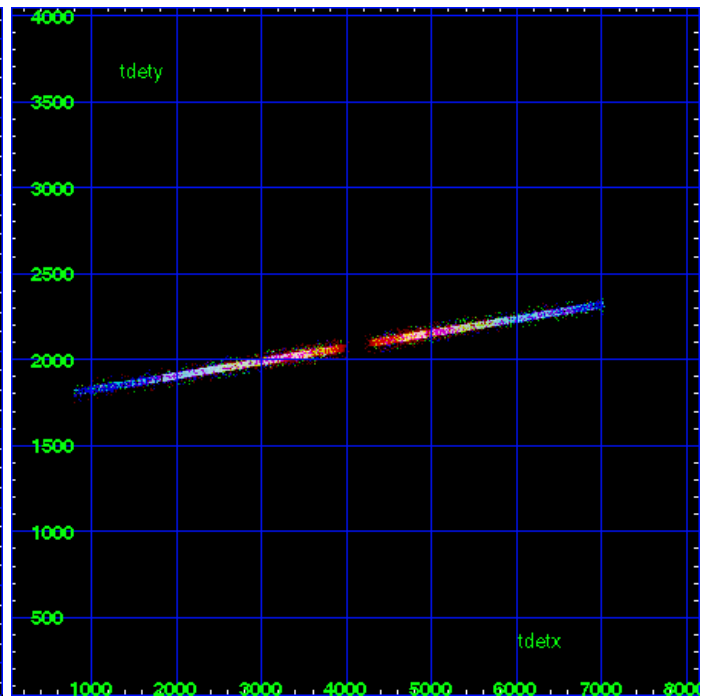
MEG Zero Order



MEG Order Sort ALL

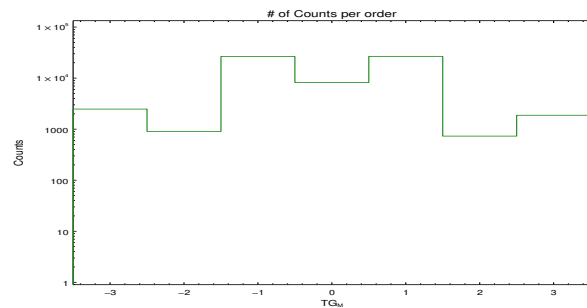


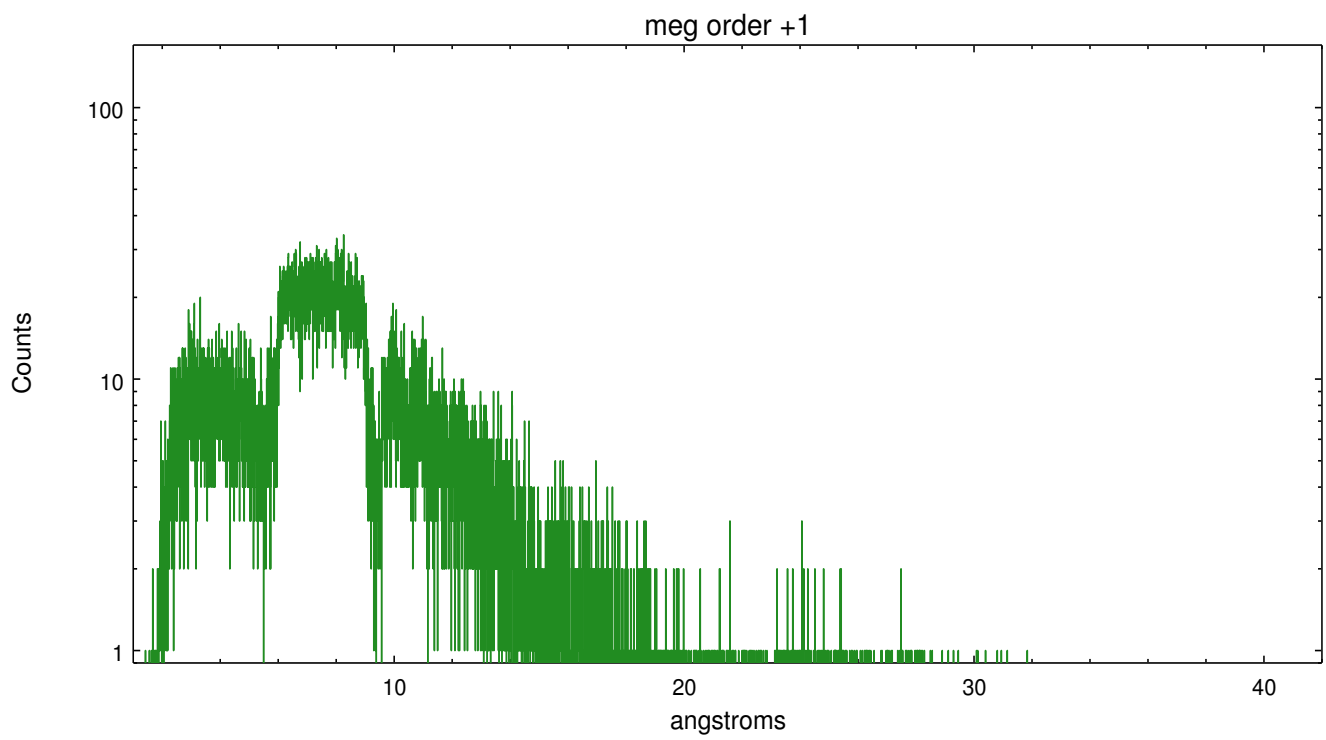
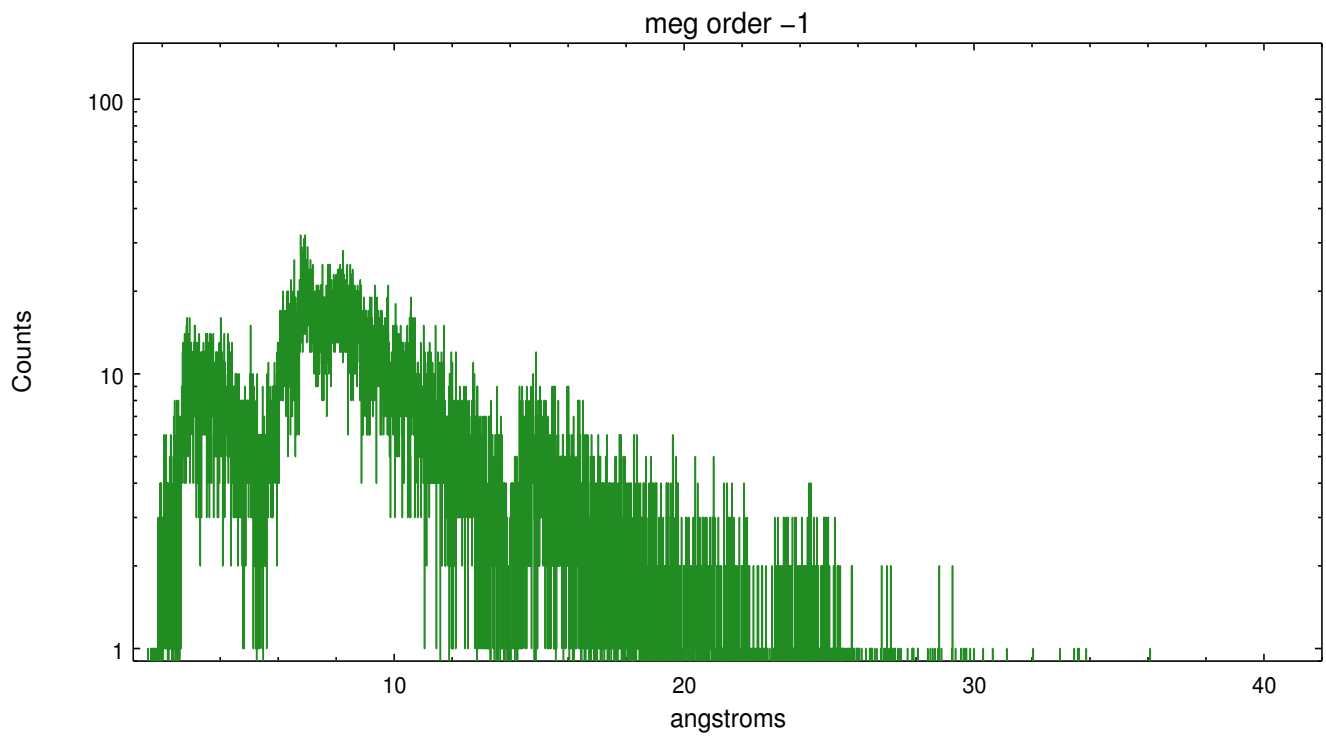
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2475	903	26570	8213	26649	731	1871





# 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	27.125

## 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 ( $x=4089.27$ ,  $y=4082.48$ ) 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.