

# V&V Reference Report

## L2 ASCDS Version : 8.4.4

Observation 8380 - L2 Version 2  
Chandra X-Ray Center

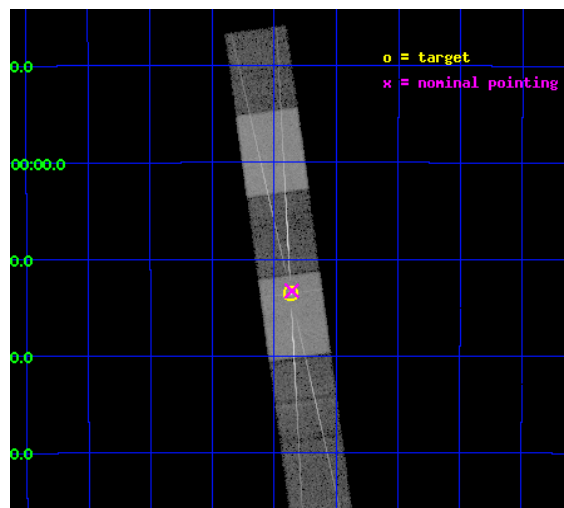
L2 Processing Date : Apr 30 2012

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# 1 Front

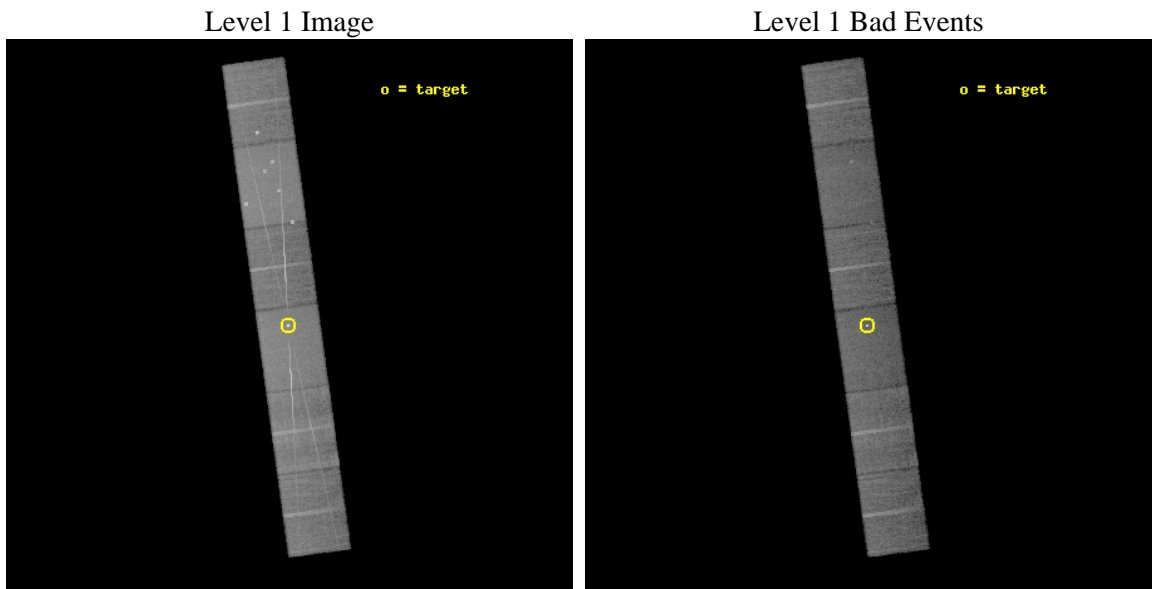
seq_num	790116	Sequence number
obs_id	8380	Observation id
title	AO8 Calibration Observations of Mkn 421 and PKS2155-304	Proposal t
observer	Dr. CXC Calibration	Principal investigator
object	PKS2155-304	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	329.716667	Observer's specified target RA [deg]
dec_targ	-30.225556	Observer's specified target Dec [deg]
ra_nom	329.71439522183	Nominal RA [deg]
dec_nom	-30.221117872725	Nominal Dec [deg]
roll_nom	82.155473362447	Nominal Roll [deg]
revision	2	Processing version of data
ontime	15536.984000325	Sum of GTIs [s]
livetime	15286.04823254	Livetime [s]
ontime4	15537.025040329	Sum of GTIs [s]
ontime5	15536.942960322	Sum of GTIs [s]
ontime6	15536.901920319	Sum of GTIs [s]
ontime7	15536.984000325	Sum of GTIs [s]
ontime8	15536.860880315	Sum of GTIs [s]
ontime9	15536.819840312	Sum of GTIs [s]
l2events	242908	Number of level 2 events



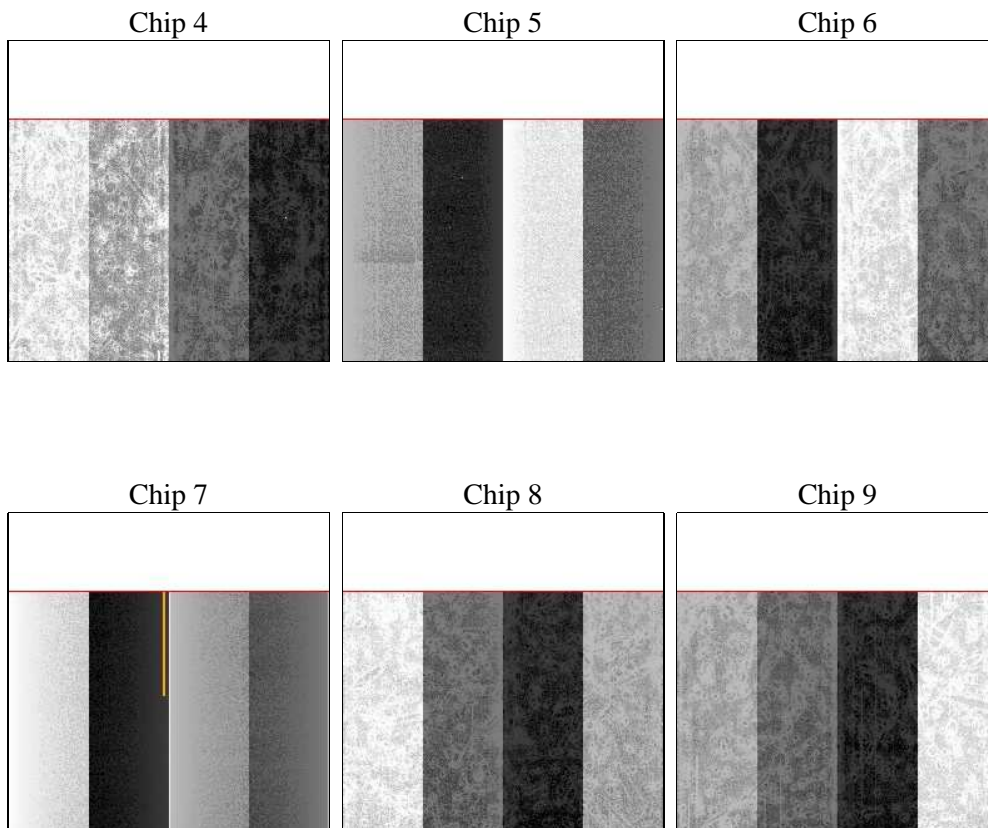
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	15414.000000	[s] Scheduled observation exposure time
ascdsver	8.4.4	Processing system revision	ontime	15536.984000325	Sum of GTIs [s]
caldbver	4.4.9	&#160	ontime4	15537.025040329	Sum of GTIs [s]
date	2012-04-28T01:05:02	Date and time of file creation	ontime5	15536.942960322	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	15536.901920319	Sum of GTIs [s]
			ontime7	15536.984000325	Sum of GTIs [s]
			ontime8	15536.860880315	Sum of GTIs [s]
			ontime9	15536.819840312	Sum of GTIs [s]
			l1events	902285	Number of level 1 events

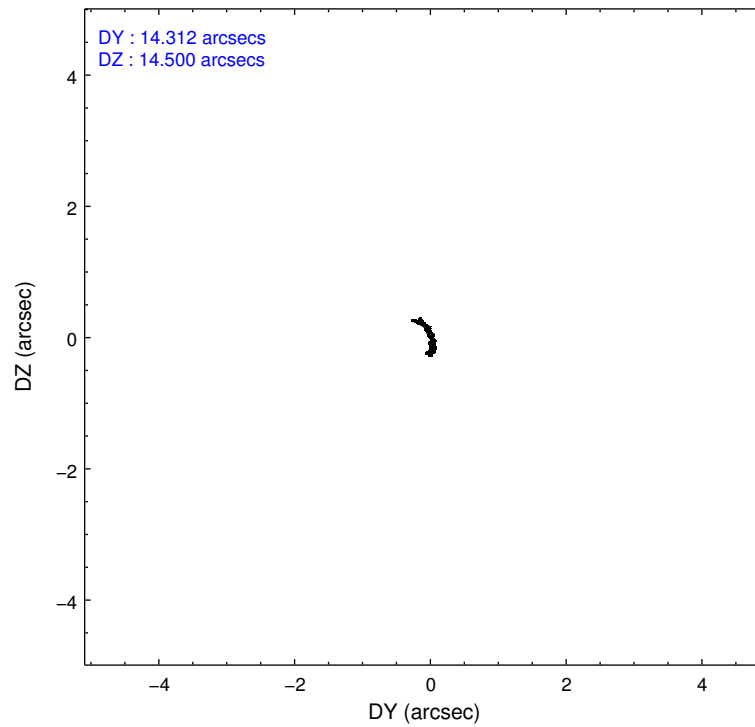
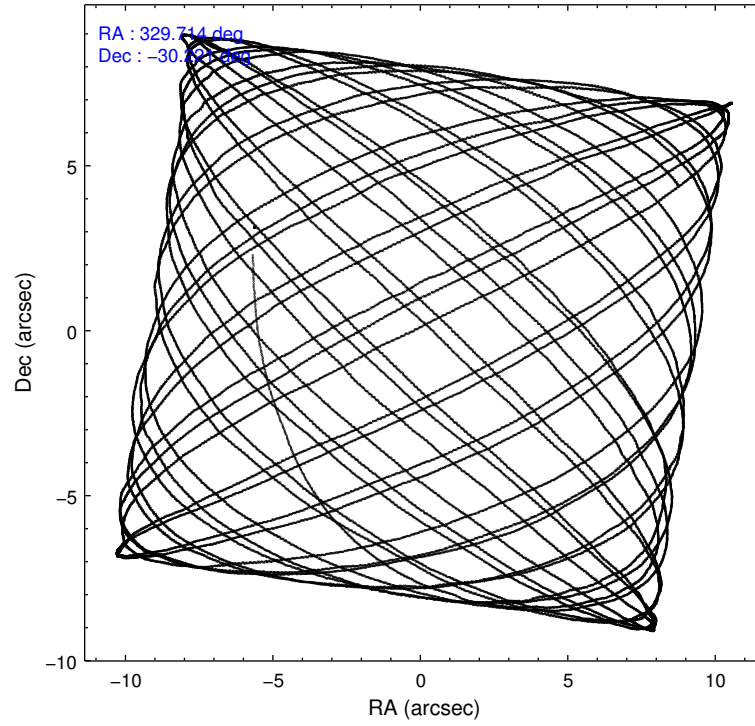
### 2.1.4 Events

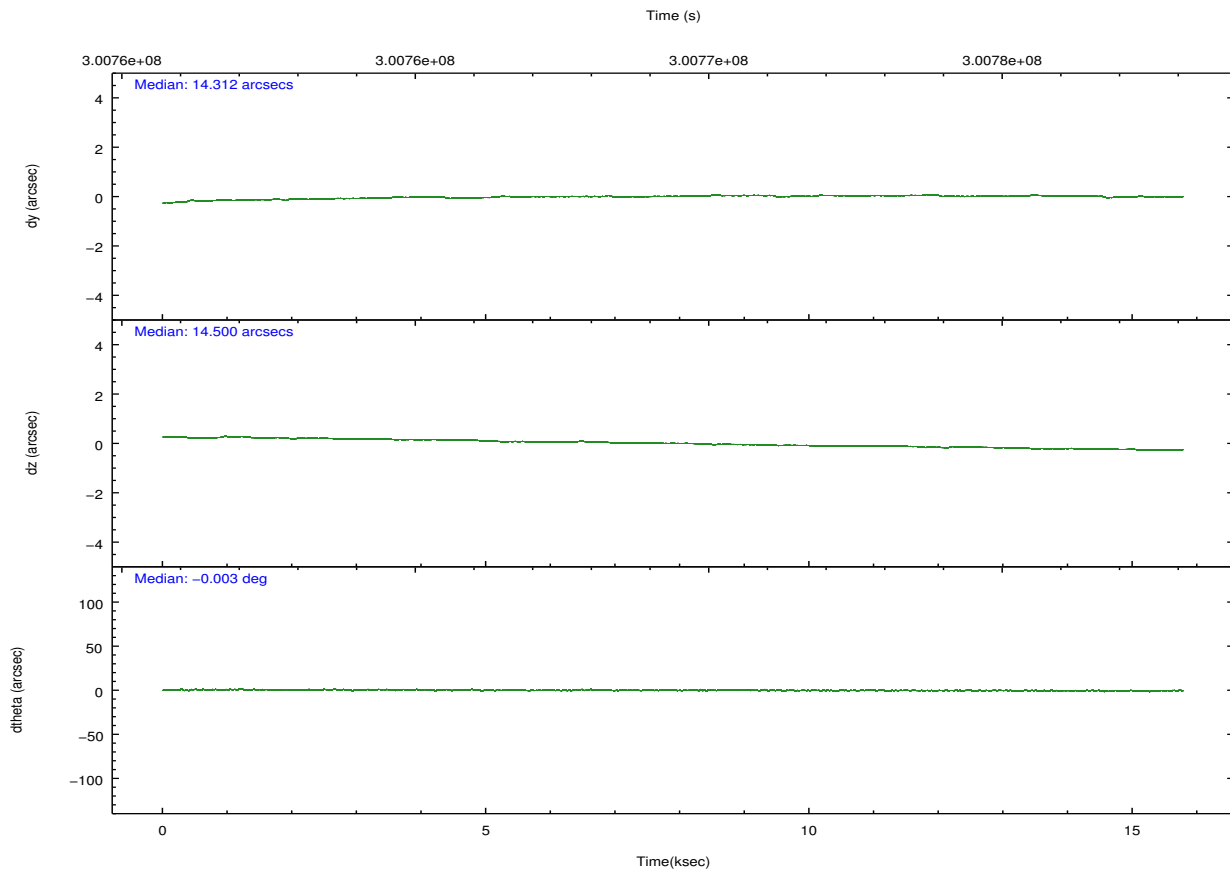
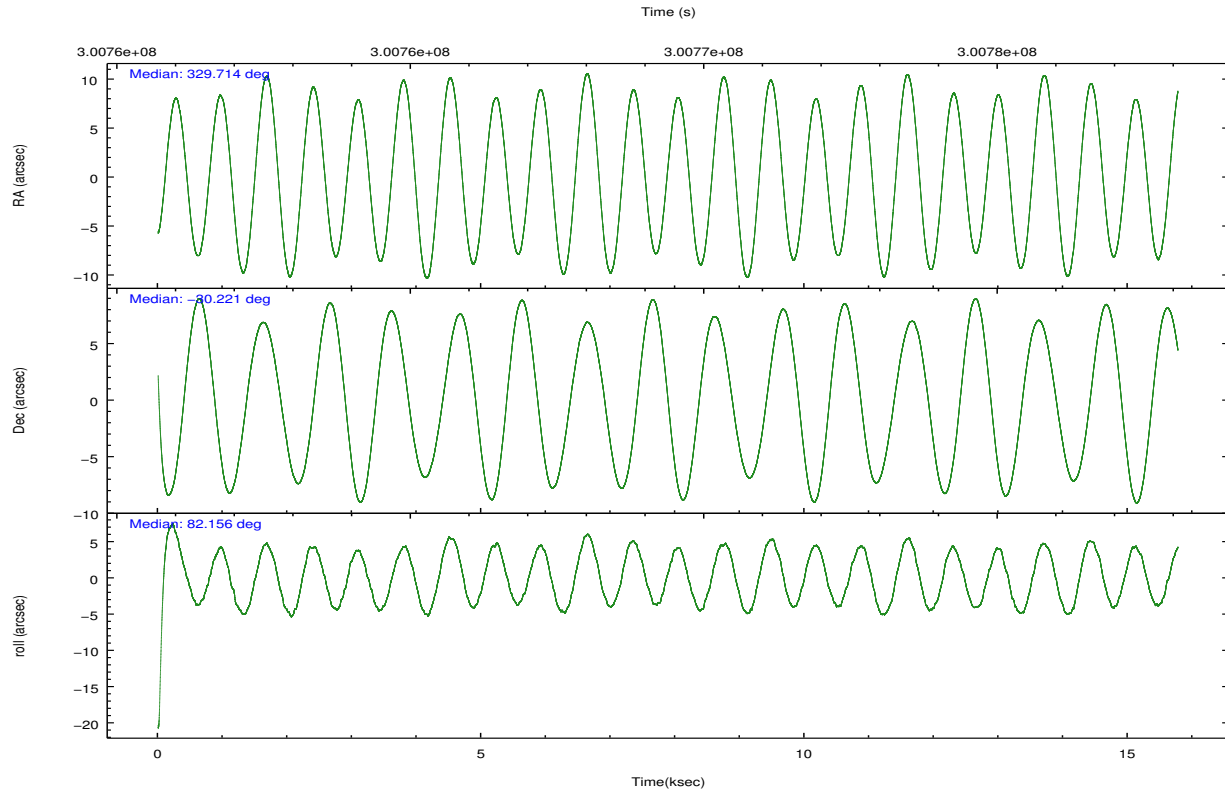
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	132290	188488	131082	177233	157227	115965	grade 0 events	10456	15710	18425	9518	19455	7666
rejected events	112954	94384	101078	95418	113240	99184		7%	8%	14%	5%	12%	6%
rejected %	85%	50%	77%	53%	72%	85%	grade 1 events	109	382	125	321	157	66
								0%	0%	0%	0%	0%	0%
							grade 2 events	3467	26563	4679	17294	8280	3110
								2%	14%	3%	9%	5%	2%
							grade 3 events	1587	4577	1876	7476	3876	1618
								1%	2%	1%	4%	2%	1%
							grade 4 events	1509	4312	1854	7568	3612	1569
								1%	2%	1%	4%	2%	1%
							grade 5 events	4961	13279	5179	15505	7134	5536
								3%	7%	3%	8%	4%	4%
							grade 6 events	2319	42981	3180	39987	8789	2825
								1%	22%	2%	22%	5%	2%
							grade 7 events	107882	80684	95764	79564	105924	93575
								81%	42%	73%	44%	67%	80%

## 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	329.726733	329.7143952218253	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-30.246300	-30.22111787272548	Subarray start row	1	1
[deg] Pointing Roll	82.005073	82.15547336244703	Subarray row count	774	774
[s] Window start time (MET)	299635265.184000	299635265.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	308102465.184000	308102465.184000	[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)	300761697.184000	300760607.0287			
Observation start date	2007-07-14T00:53:52	2007-07-14T00:36:47			
[s] Observation end time (MET)	300777111.184000	300777546.17951			
Observation end date	2007-07-14T05:10:46	2007-07-14T05:19:06			
Read mode	TIMED	TIMED			

## 2.3 Aspect



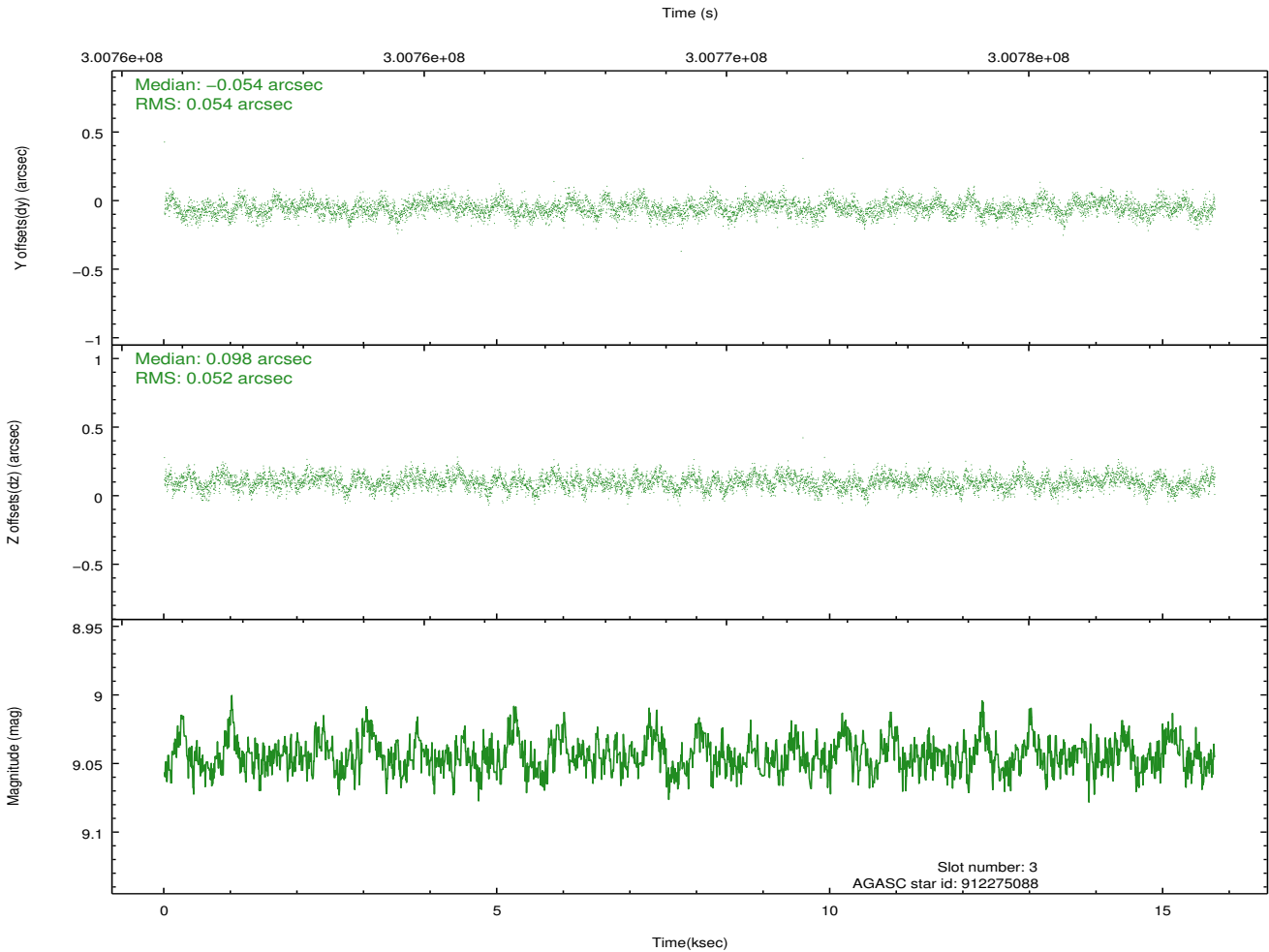
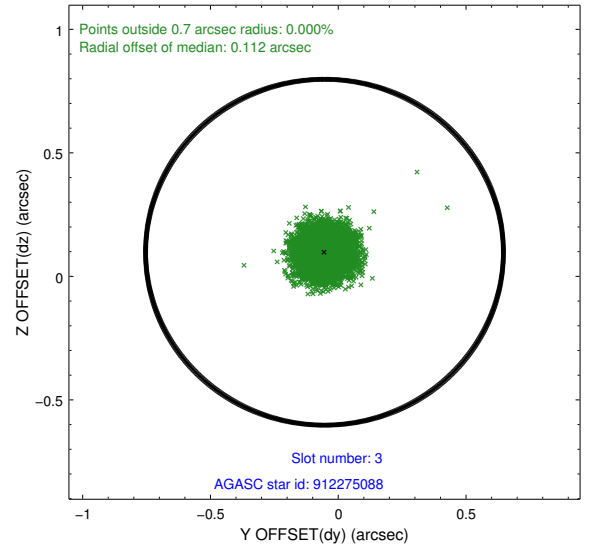
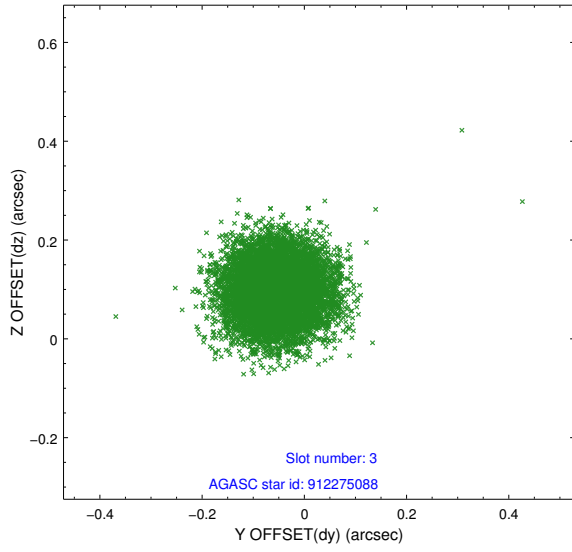


### Slot Statistics

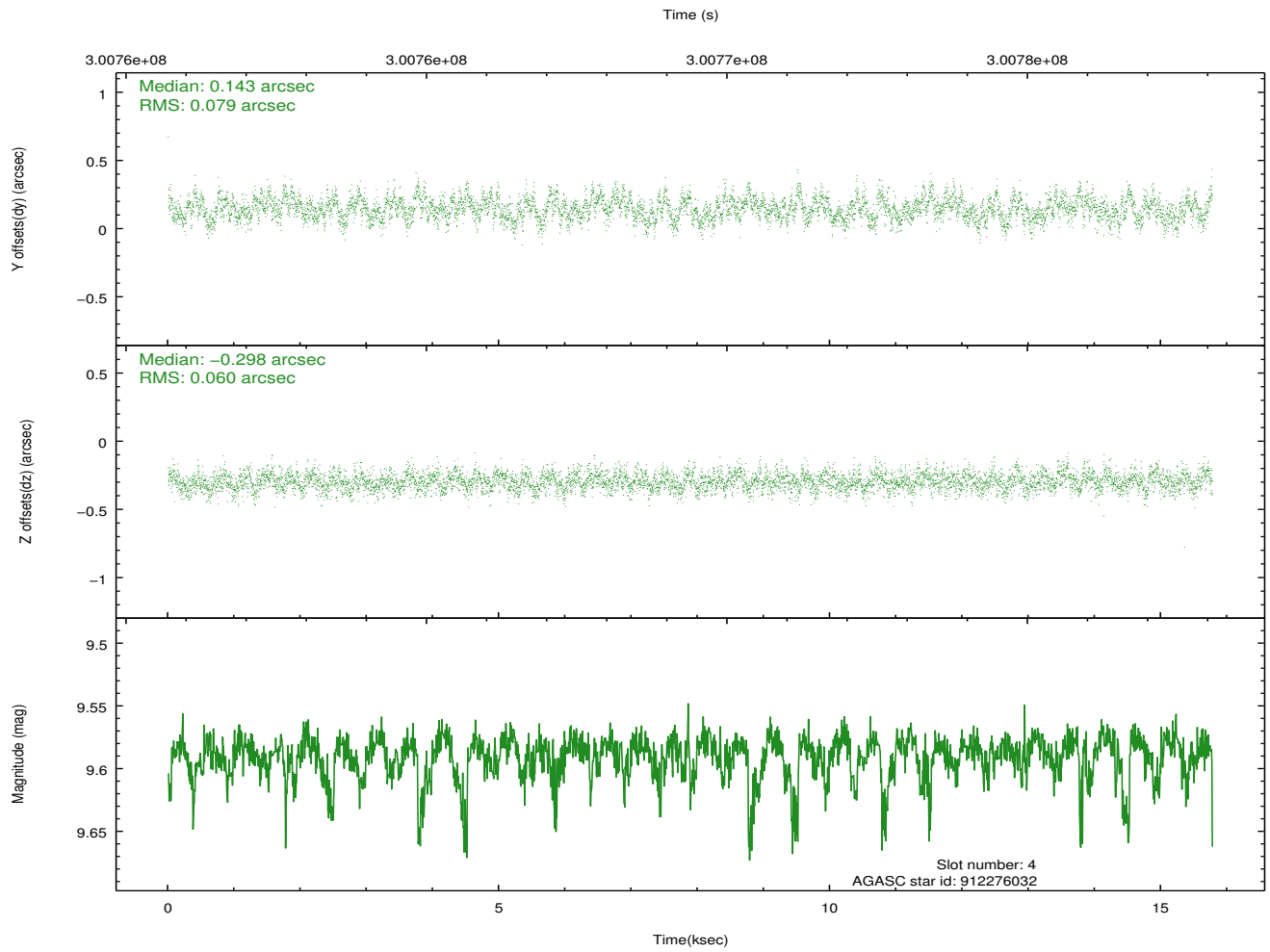
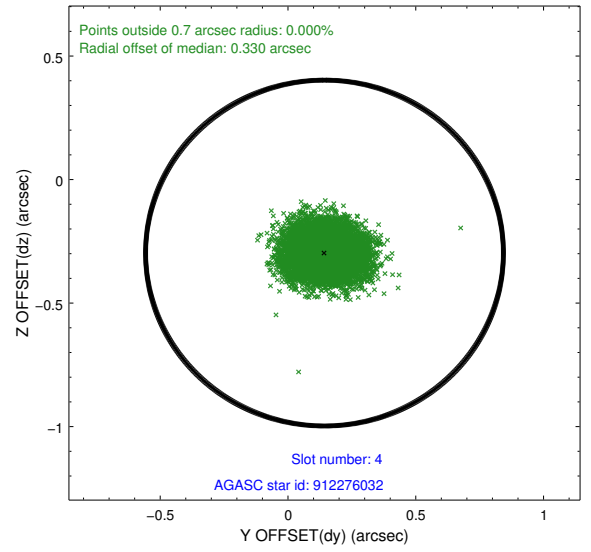
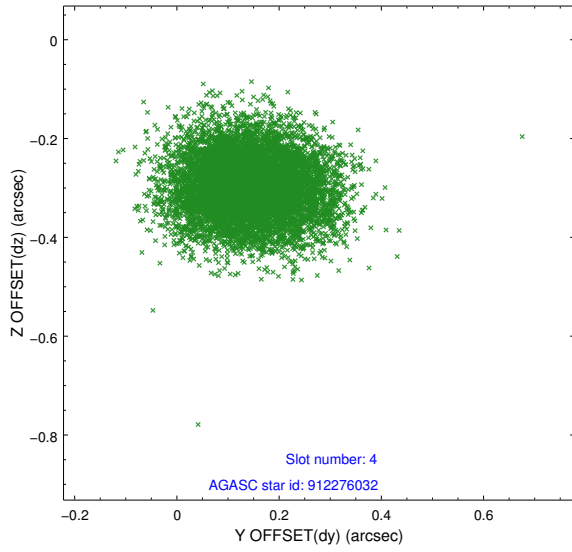
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	3847	-0.095	-0.102	0.010	0.017	0.000000	0.000000	-767.16	-1798.04
1	FID	ACIS-S-4	7.18	3848	0.237	0.073	0.008	0.014	0.000000	0.000000	2146.35	110.26
2	FID	ACIS-S-5	7.22	3848	-0.173	0.037	0.010	0.015	0.000000	0.000000	-1819.69	104.28
3	GUIDE	912275088	9.04	7693	-0.054	0.098	0.080	0.126	329.619228	-29.738698	1762.69	587.11
4	GUIDE	912276032	9.59	7686	0.143	-0.298	0.106	0.173	329.395967	-29.803466	1433.93	1244.63
5	GUIDE	981469488	9.57	7685	-0.138	0.106	0.123	0.200	329.261199	-30.045155	512.47	1537.28
6	GUIDE	981471664	6.34	7696	0.037	-0.082	0.077	0.132	328.981826	-30.605916	-1610.57	2104.37
7	GUIDE	981478152	9.39	7688	0.009	0.172	0.103	0.162	329.415589	-30.057192	537.86	1055.10

## 2.4 Star Slots

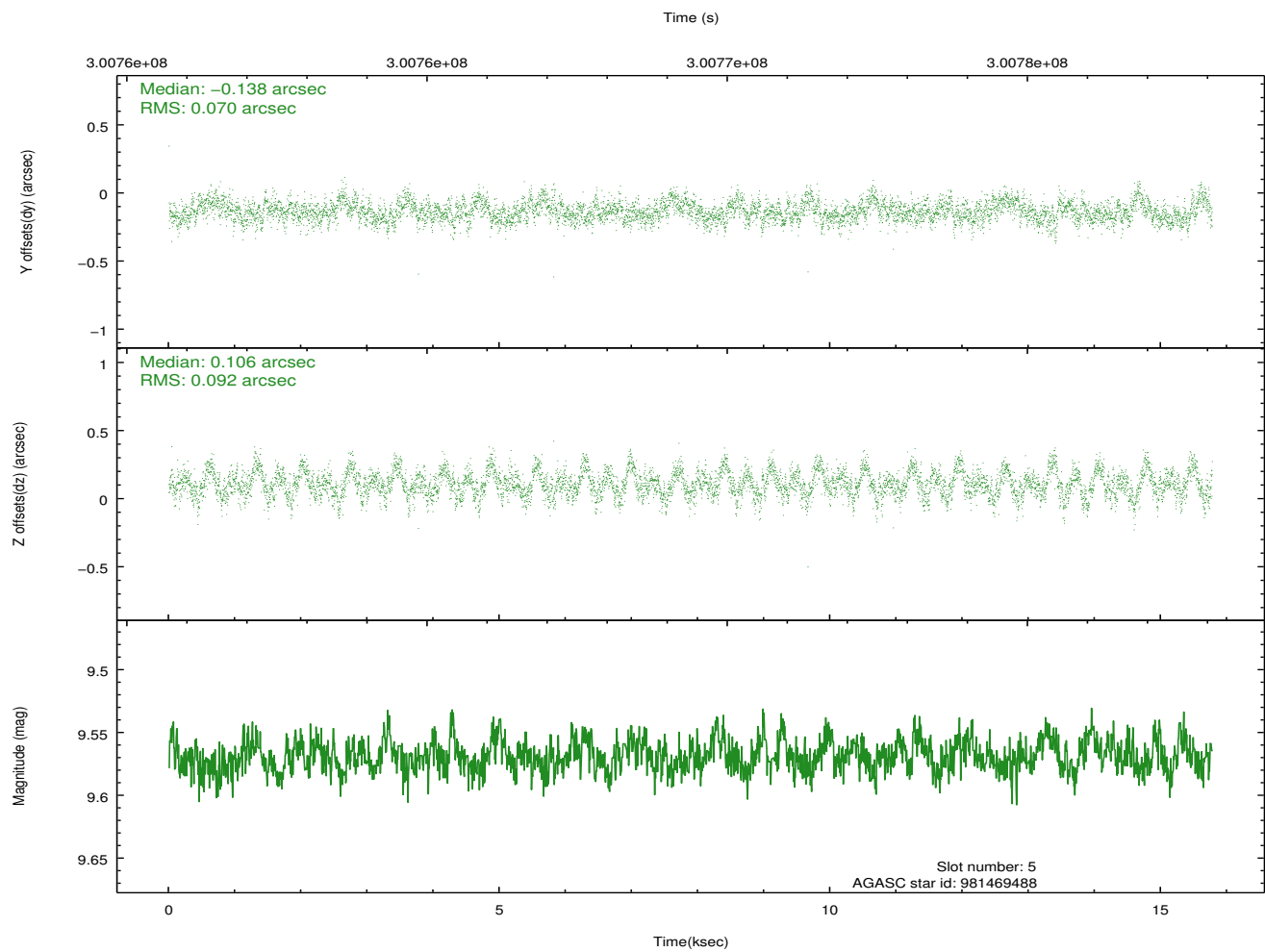
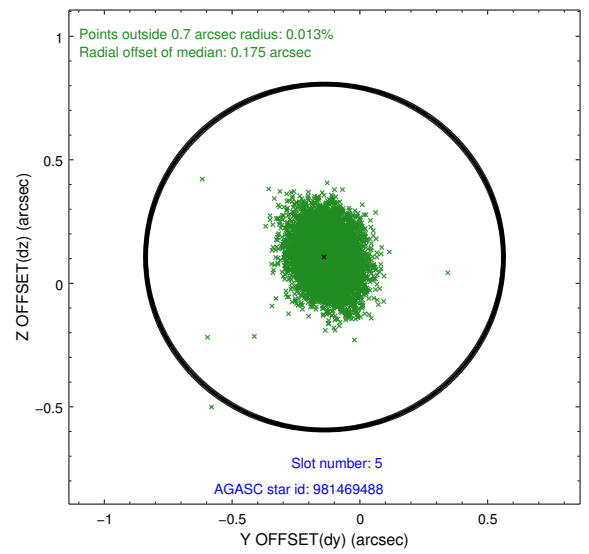
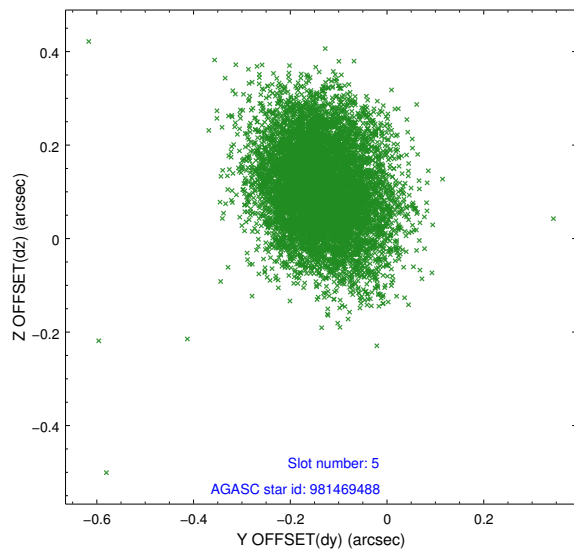
### 2.4.1 Slot 3



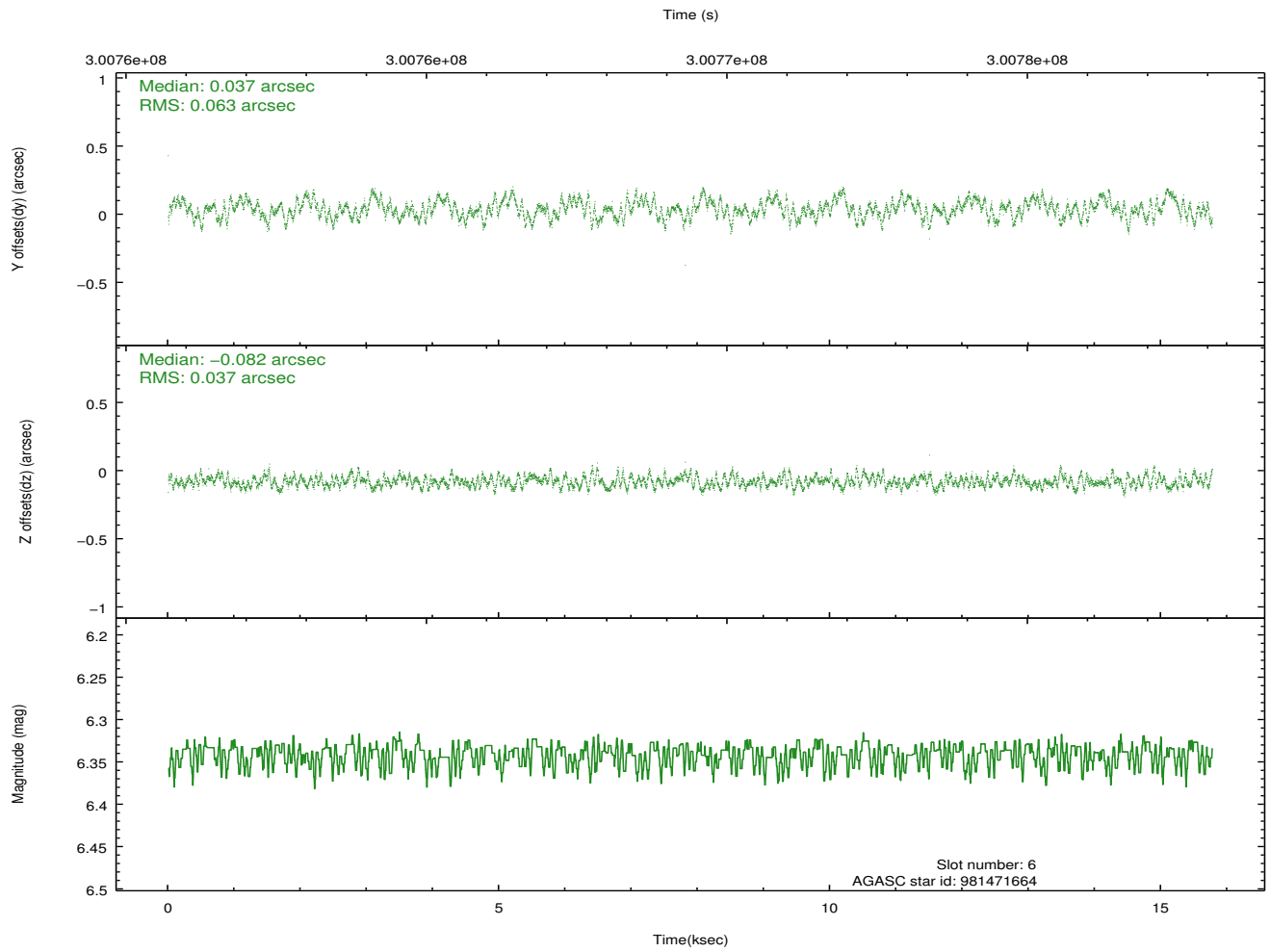
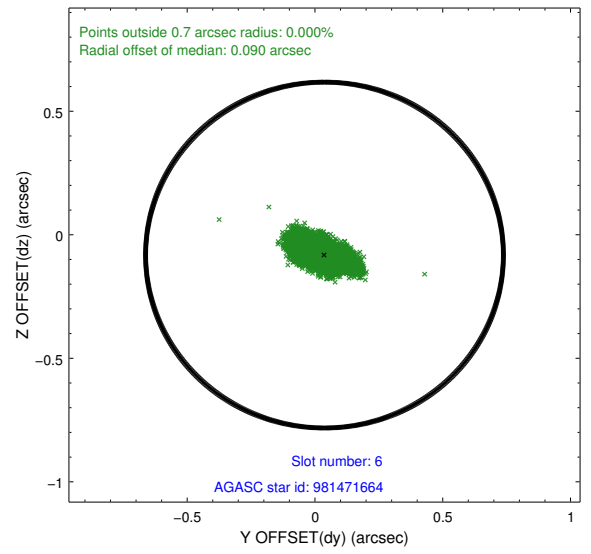
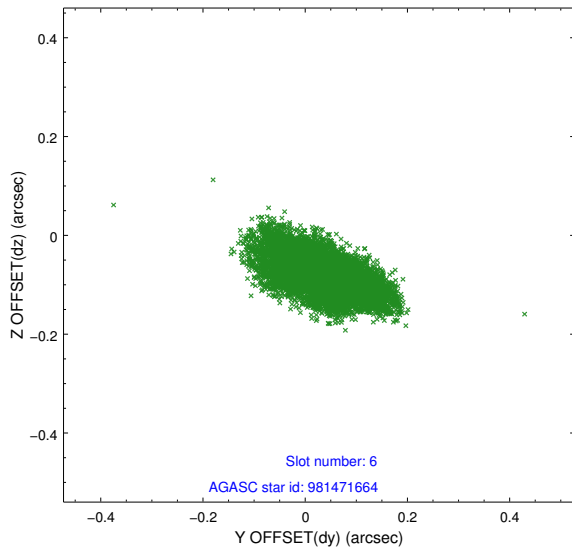
## 2.4.2 Slot 4



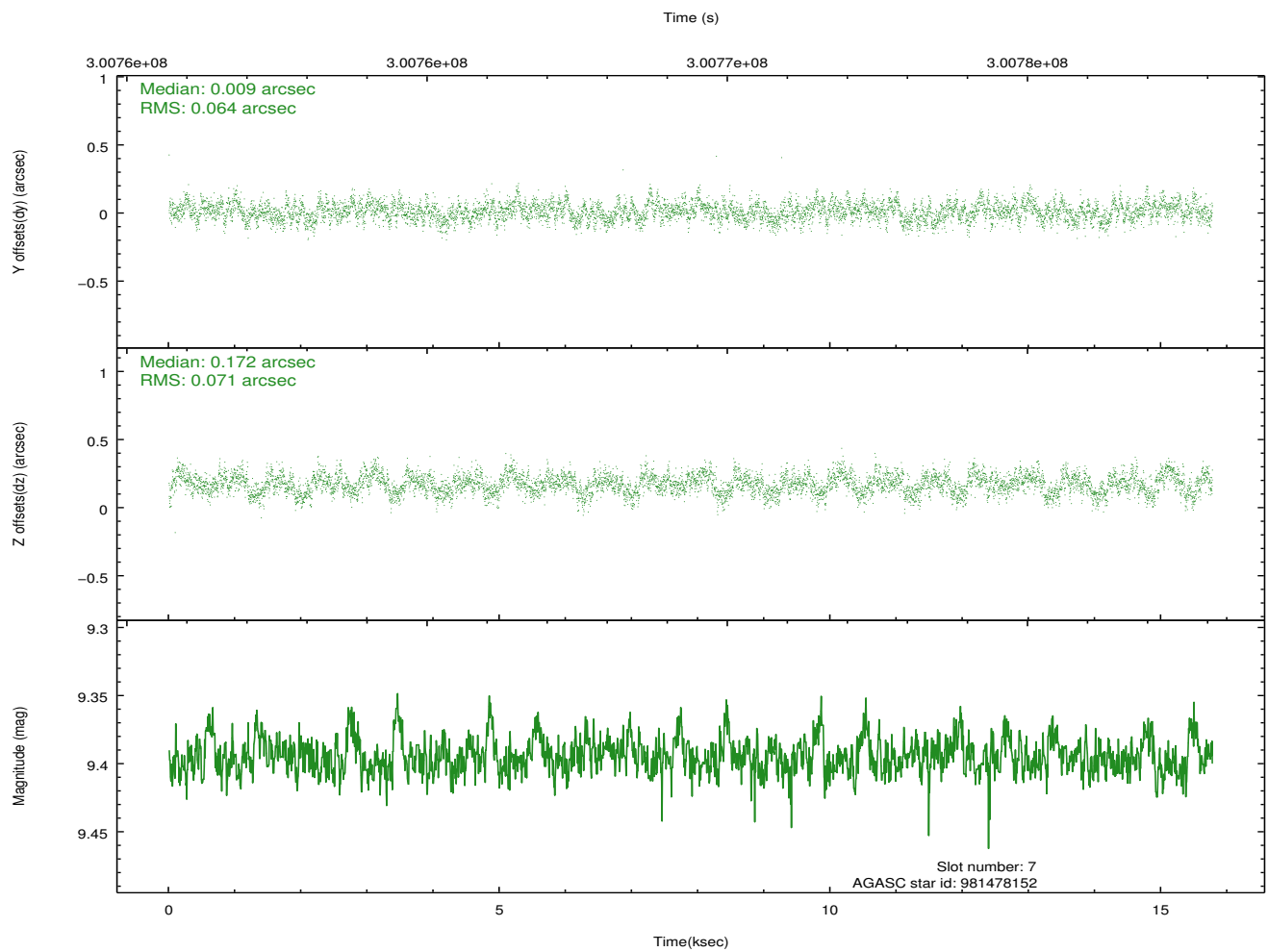
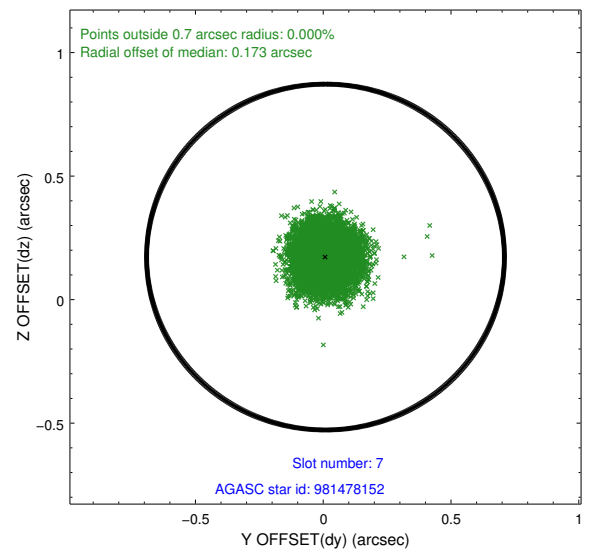
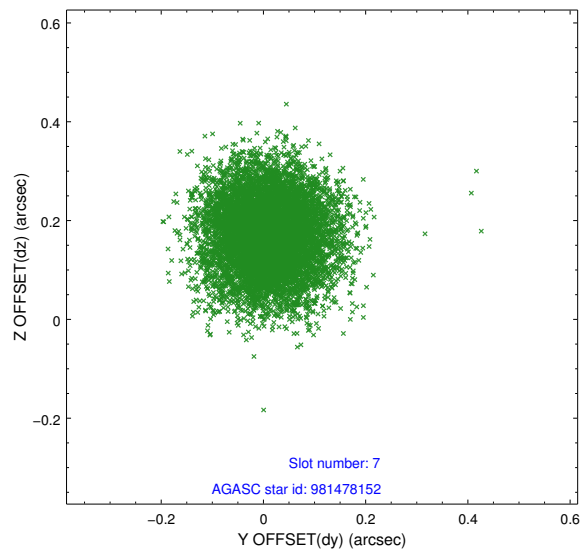
### 2.4.3 Slot 5



### 2.4.4 Slot 6

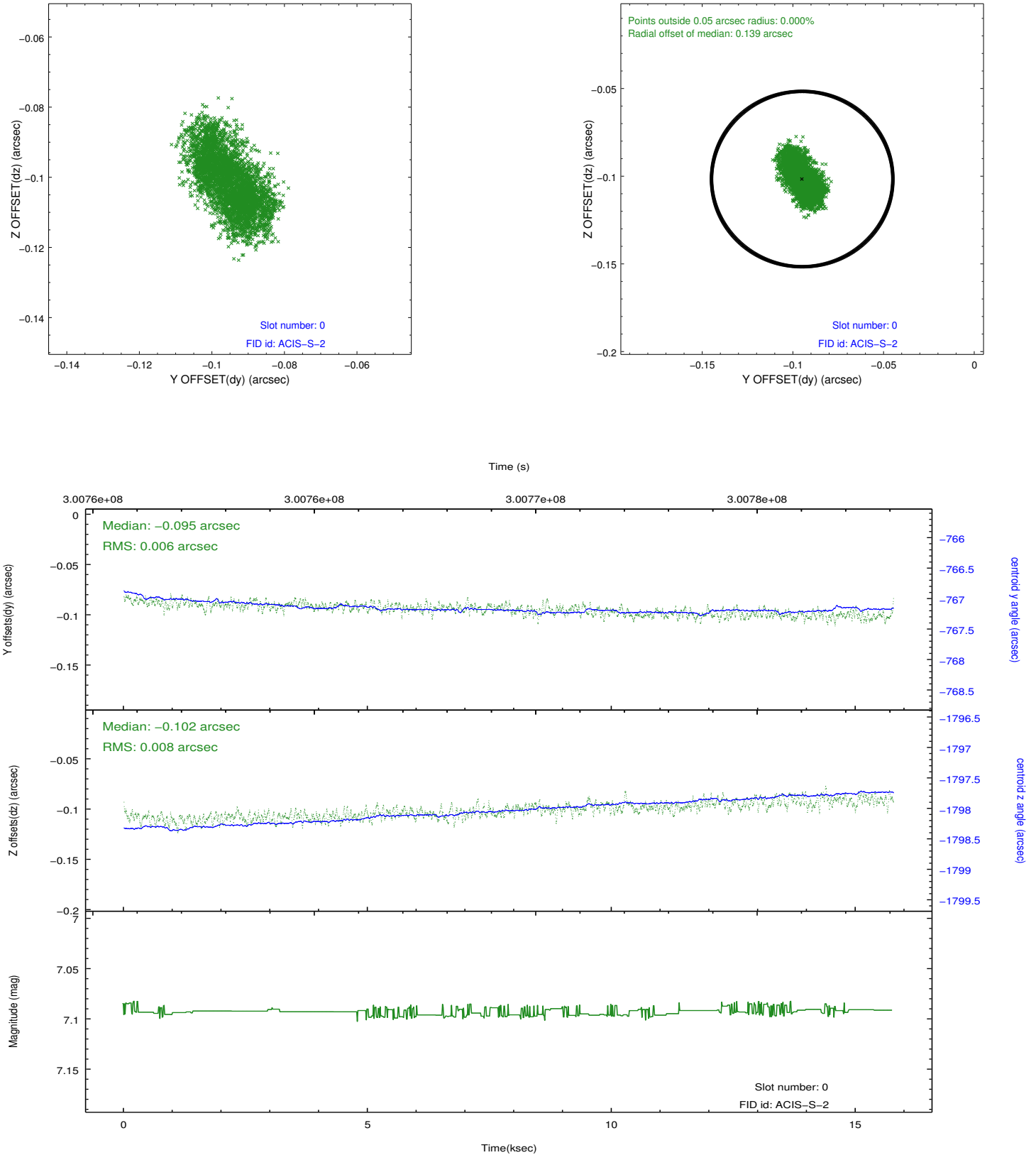


## 2.4.5 Slot 7

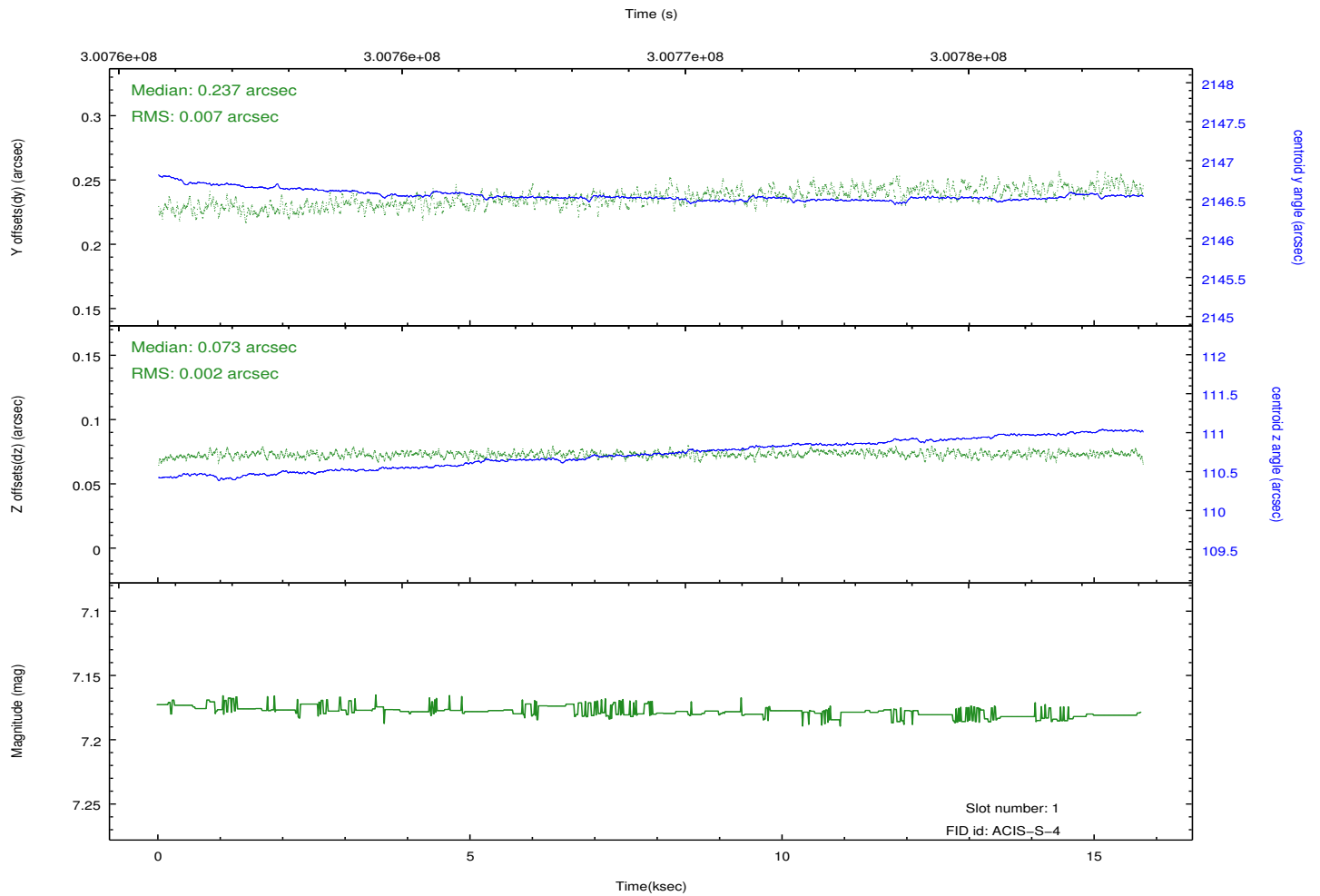
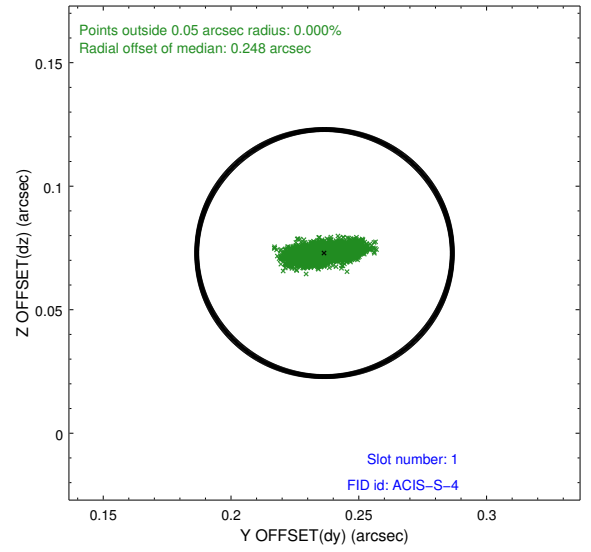
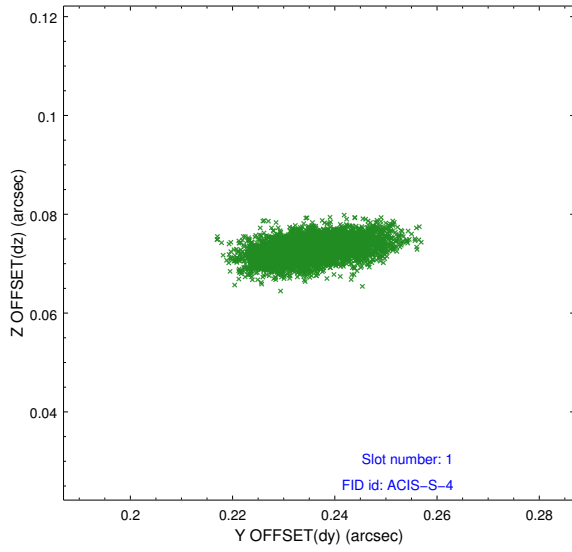


## 2.5 FID Slots

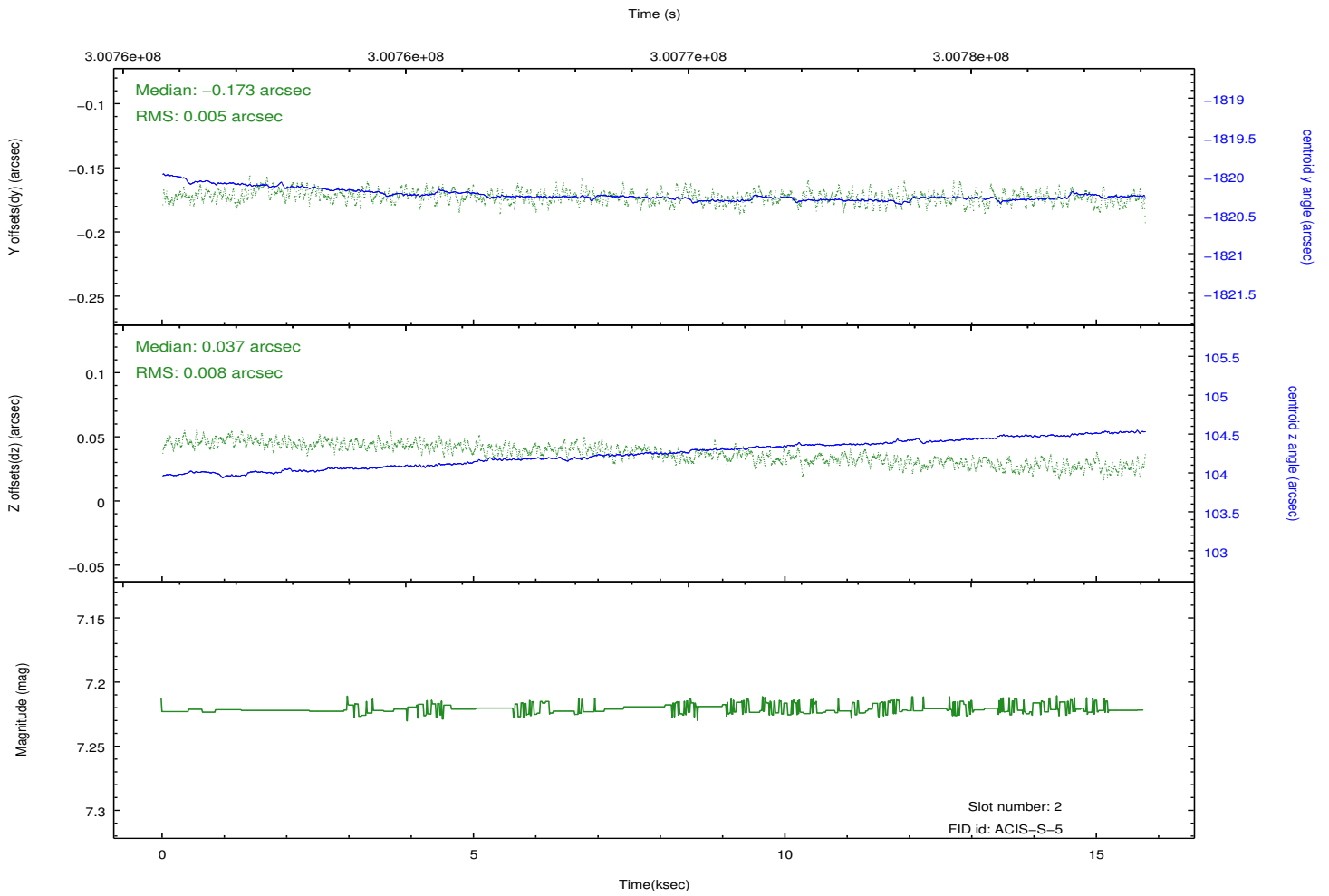
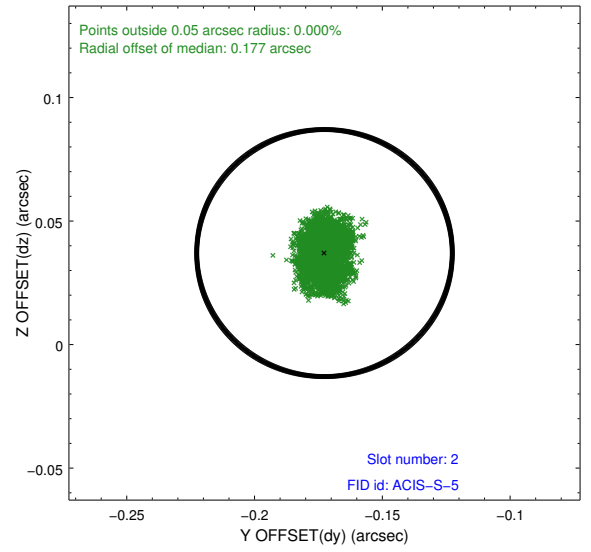
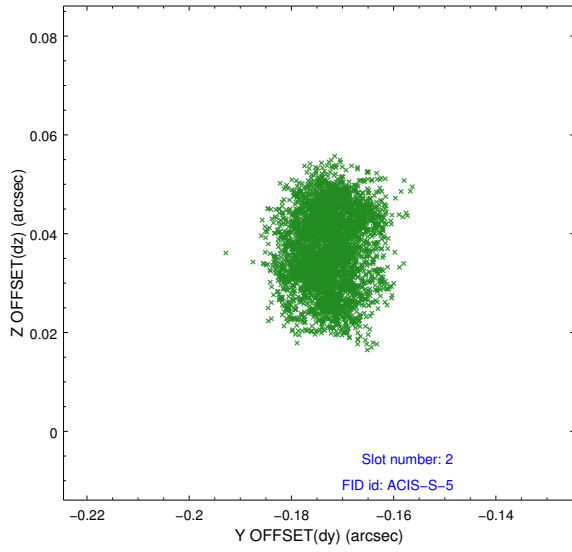
### 2.5.1 Slot 0



## 2.5.2 Slot 1

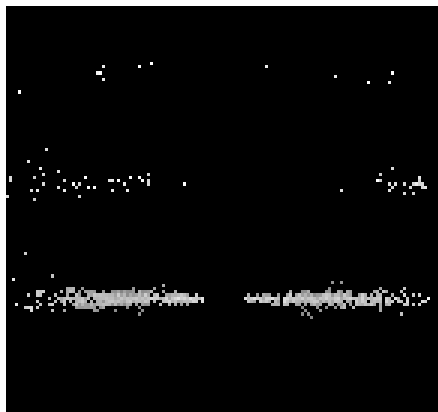


### 2.5.3 Slot 2

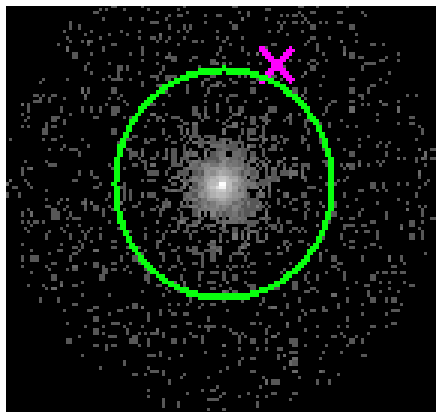


### 3 Gratings

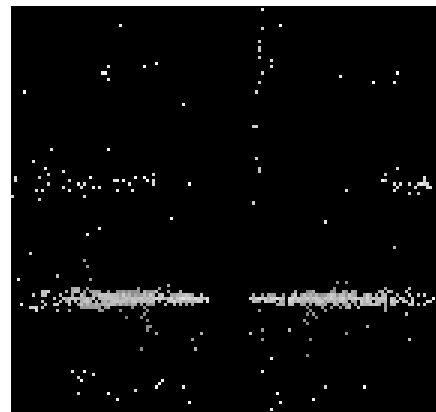
#### 3.1 HEG Arm



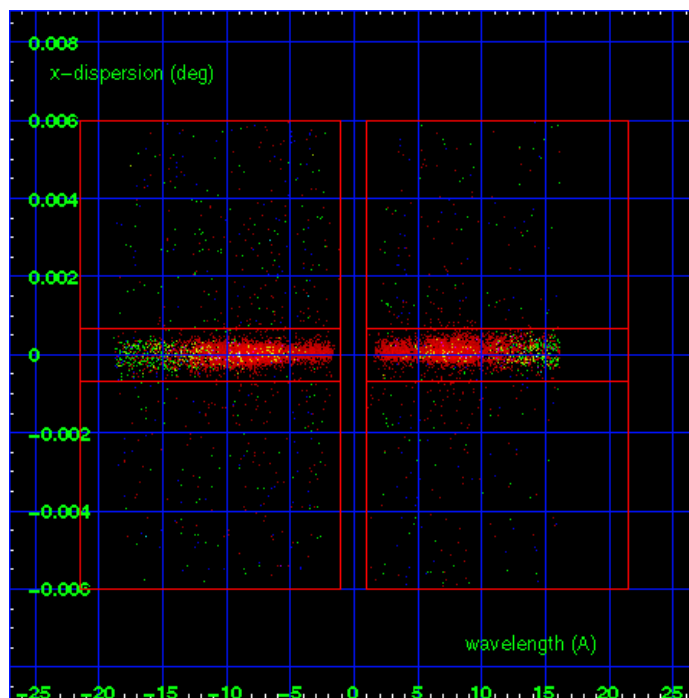
HEG Order Sort 123



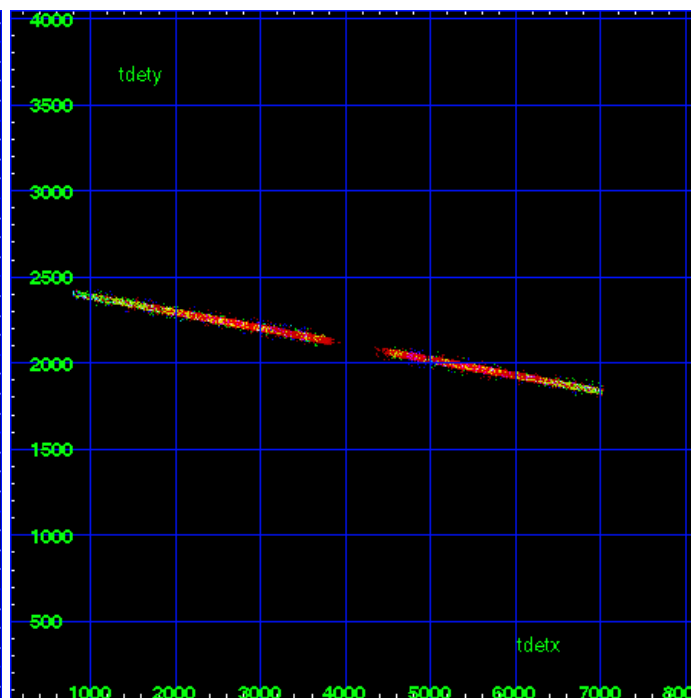
HEG Zero Order



HEG Order Sort ALL

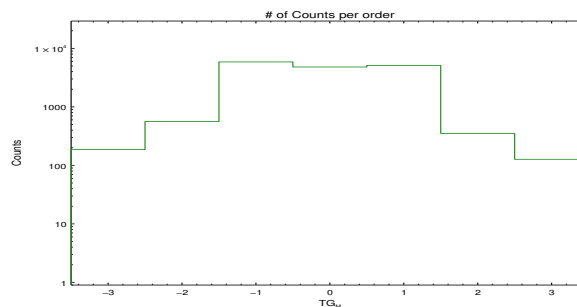


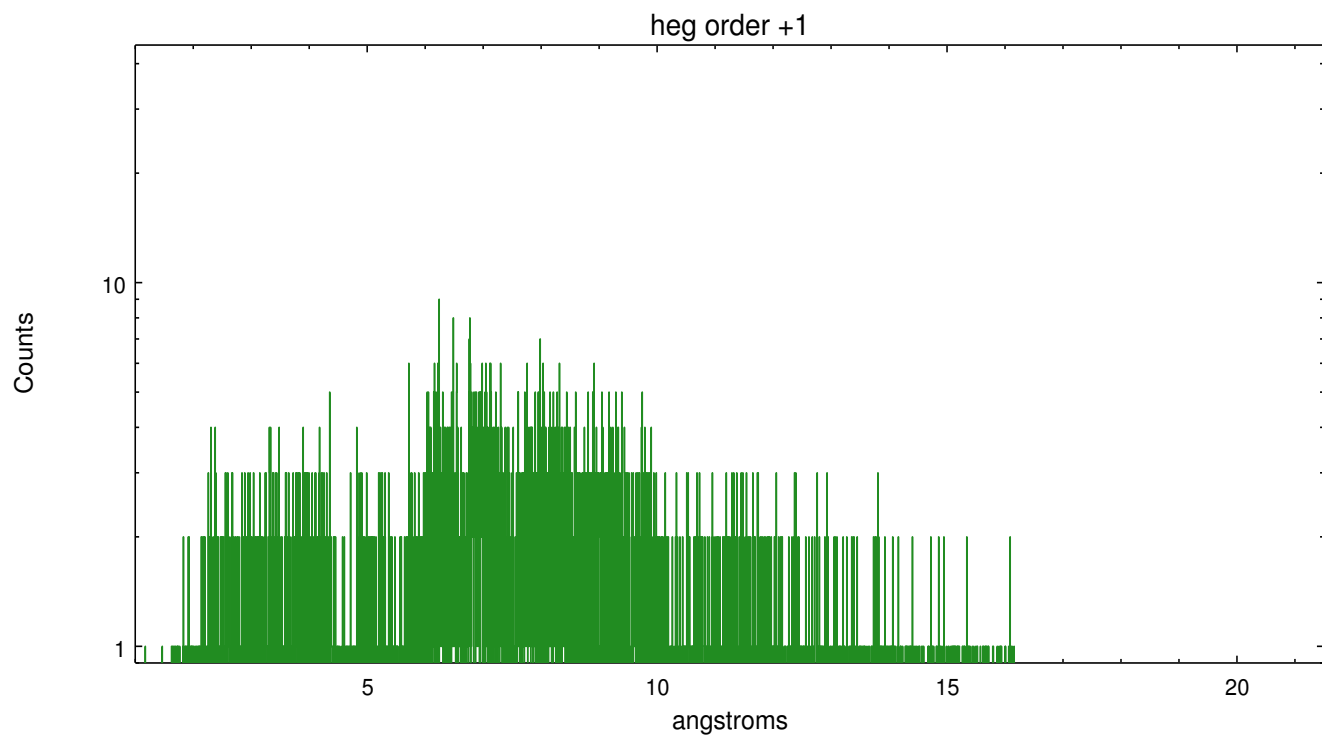
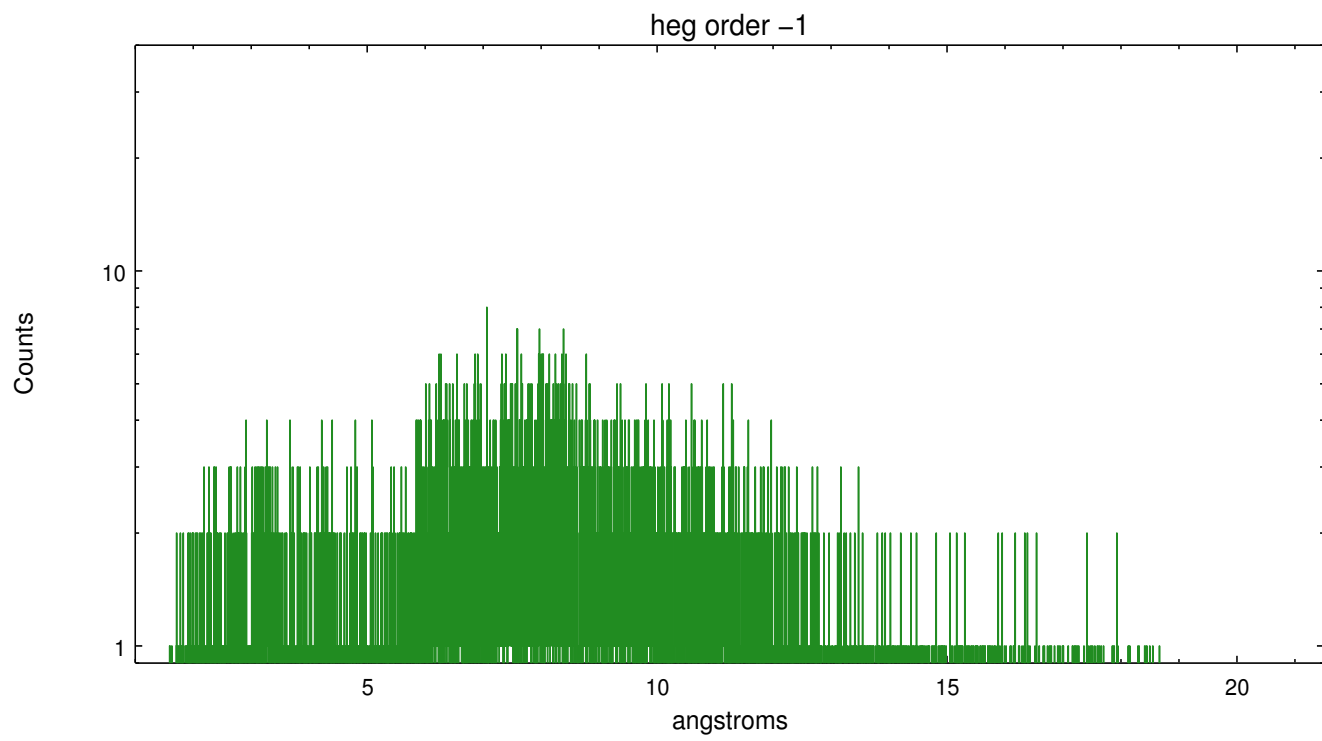
Spot Image HEG



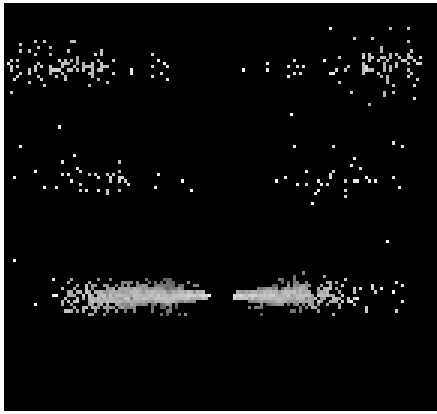
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	186	562	5865	4806	5087	352	127

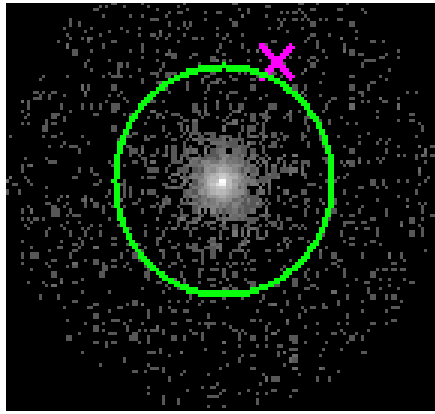




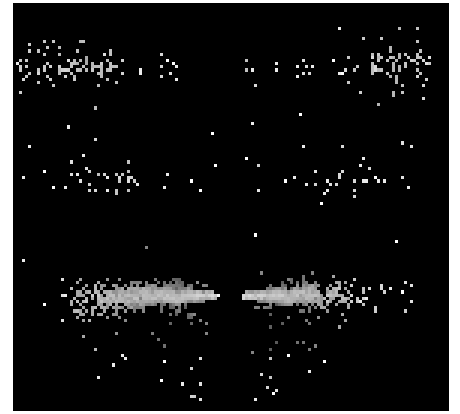
### 3.2 MEG Arm



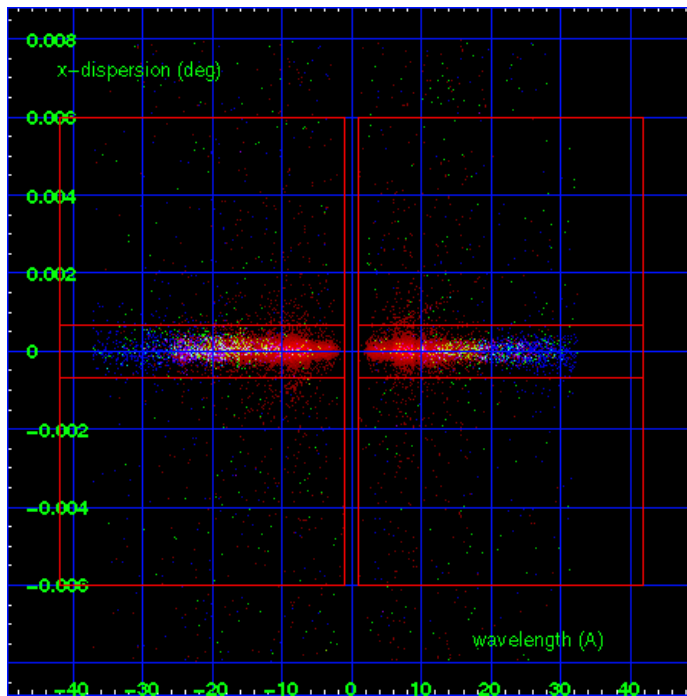
MEG Order Sort 123



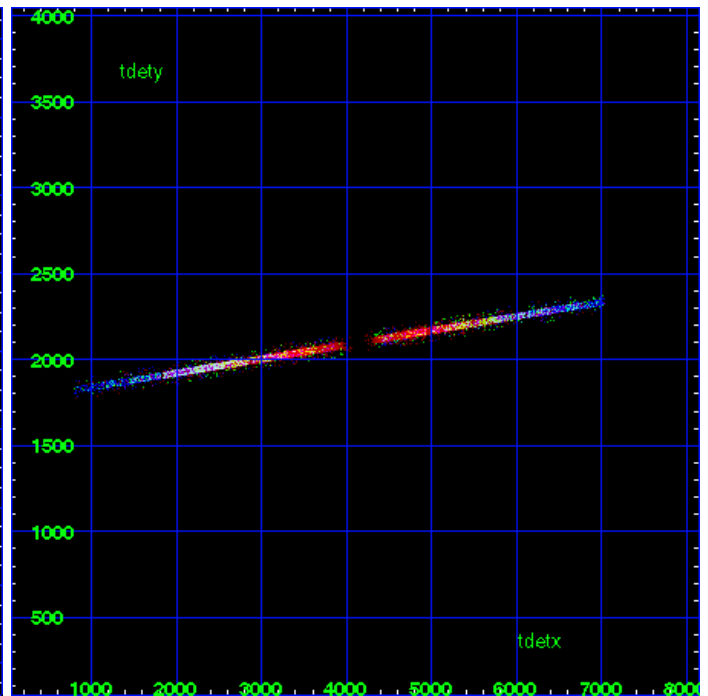
MEG Zero Order



MEG Order Sort ALL

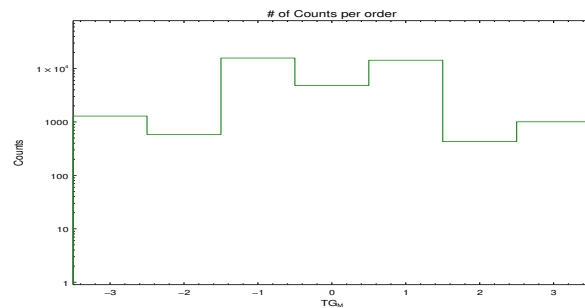


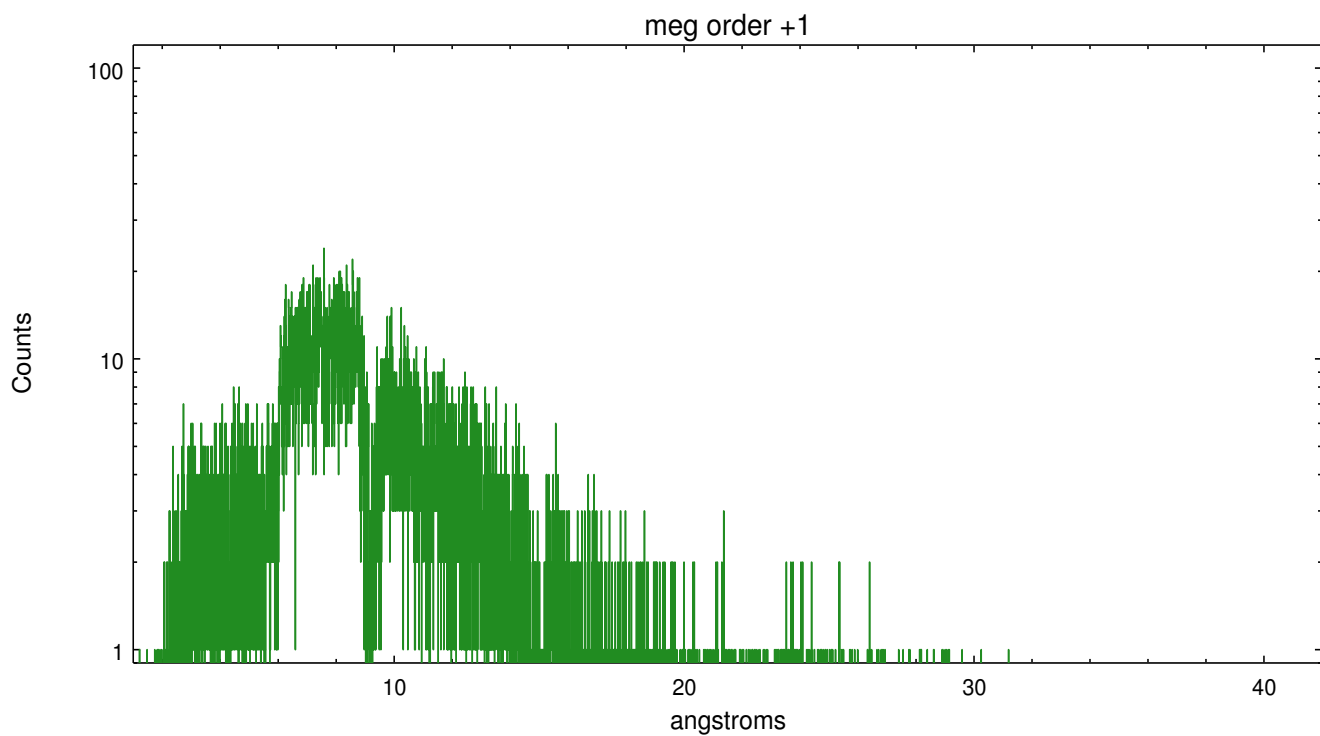
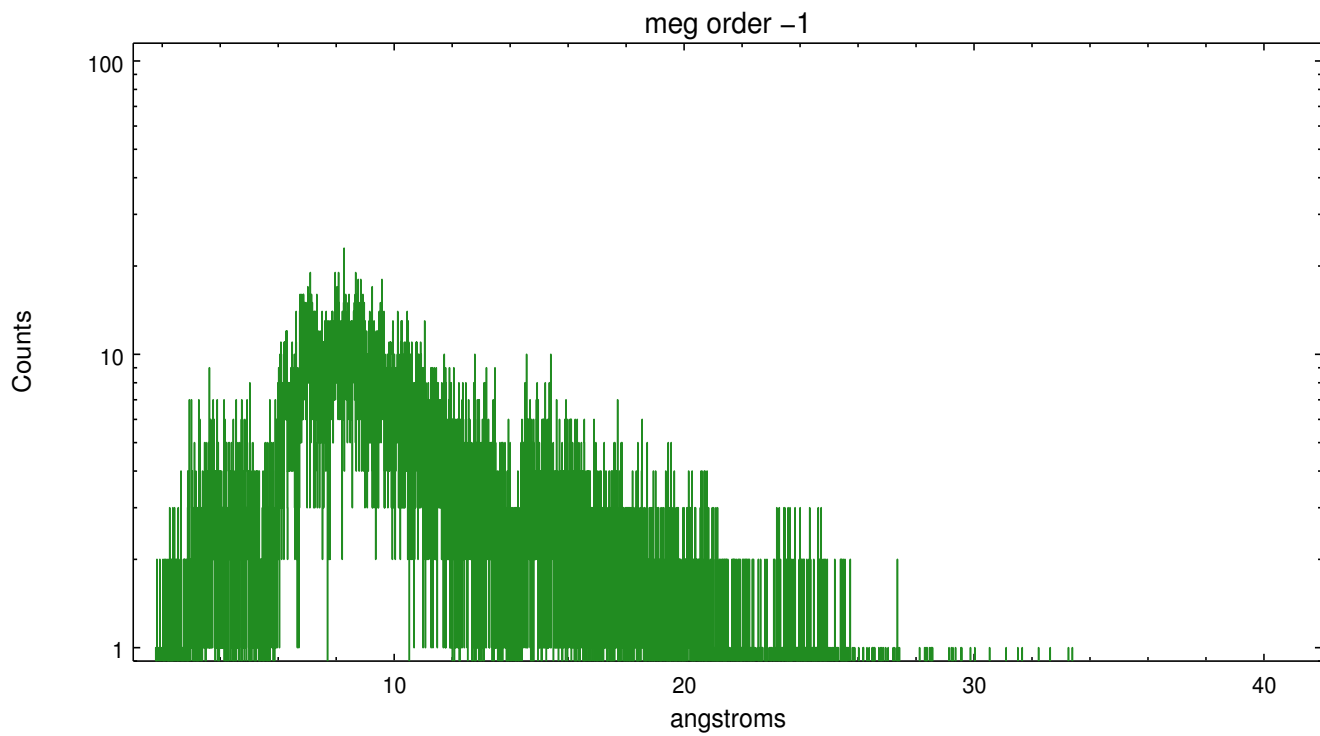
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1288	585	15720	4806	14291	429	1008





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.05.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.5375

## 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=4081.05, y=4064.08) 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 (currently in ISIS). The tool calculates the point of intersection of the readout streak and the meg arm (preferred position), or the readout streak and the heg 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.