

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 12165 - L2 Version 2  
Chandra X-Ray Center

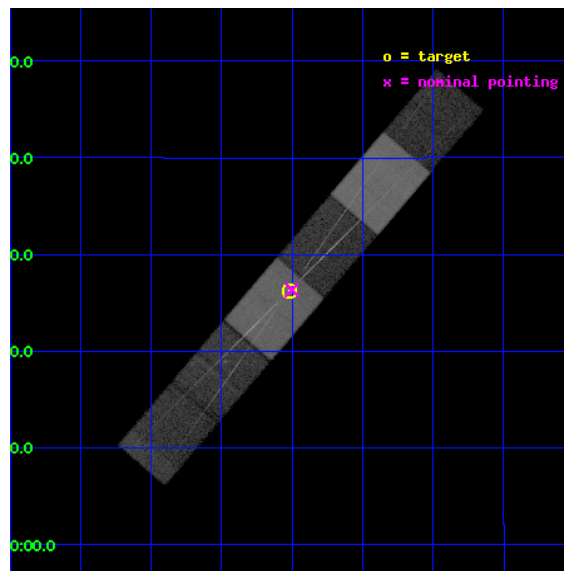
L2 Processing Date : Feb 8 2012

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# 1 Front

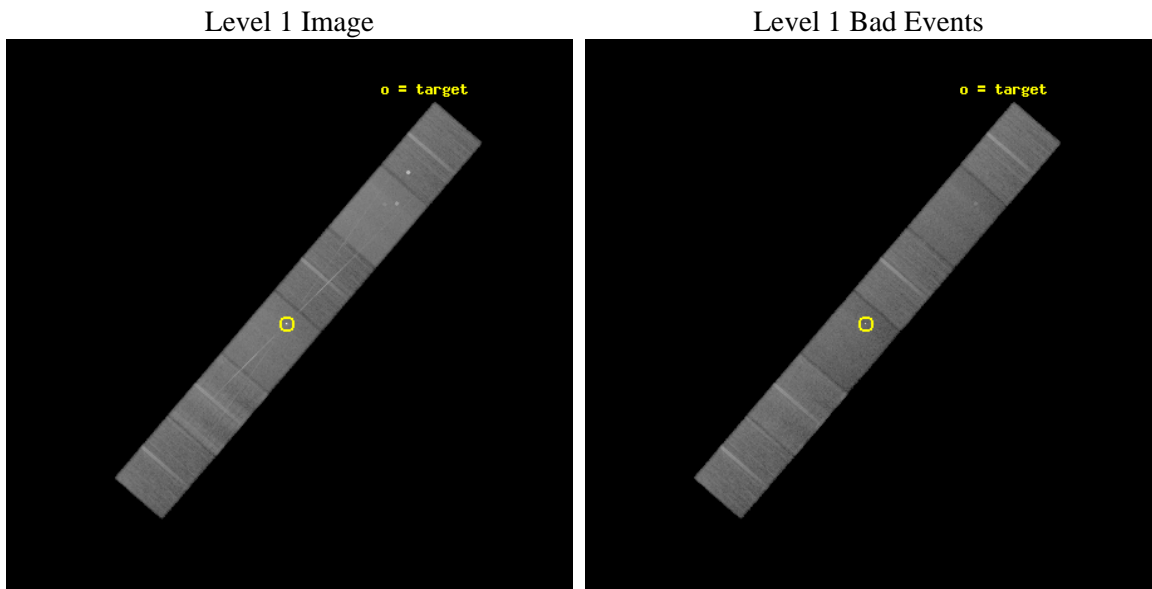
seq_num	702330	Sequence number
obs_id	12165	Observation id
title	A very complex seyfert 1 galaxy	Proposal title
observer	Prof. Claude Canizares	Principal investigator
object	Mkn 841	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	226.005	Observer's specified target RA [deg]
dec_targ	10.437778	Observer's specified target Dec [deg]
ra_nom	226.00030525722	Nominal RA [deg]
dec_nom	10.439264675757	Nominal Dec [deg]
roll_nom	130.65749319674	Nominal Roll [deg]
revision	2	Processing version of data
ontime	40047.017304301	Sum of GTIs [s]
livetime	39400.2232396	Livetime [s]
ontime4	40047.058344305	Sum of GTIs [s]
ontime5	40046.976264298	Sum of GTIs [s]
ontime6	40046.935224295	Sum of GTIs [s]
ontime7	40047.017304301	Sum of GTIs [s]
ontime8	40046.894184291	Sum of GTIs [s]
ontime9	40046.853144288	Sum of GTIs [s]
l2events	362318	Number of level 2 events



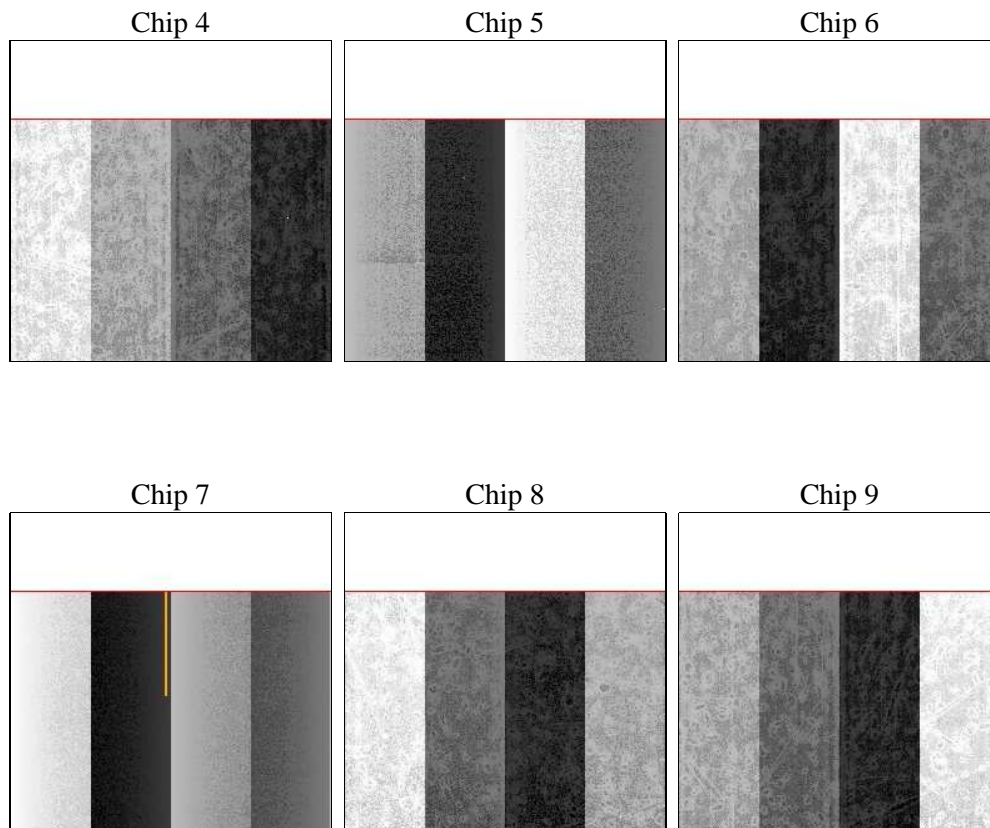
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	40000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	40047.017304301	Sum of GTIs [s]
caldbver	4.4.7	&#160	ontime4	40047.058344305	Sum of GTIs [s]
date	2012-02-08T05:13:05	Date and time of file creation	ontime5	40046.976264298	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	40046.935224295	Sum of GTIs [s]
			ontime7	40047.017304301	Sum of GTIs [s]
			ontime8	40046.894184291	Sum of GTIs [s]
			ontime9	40046.853144288	Sum of GTIs [s]
			l1events	1456050	Number of level 1 events

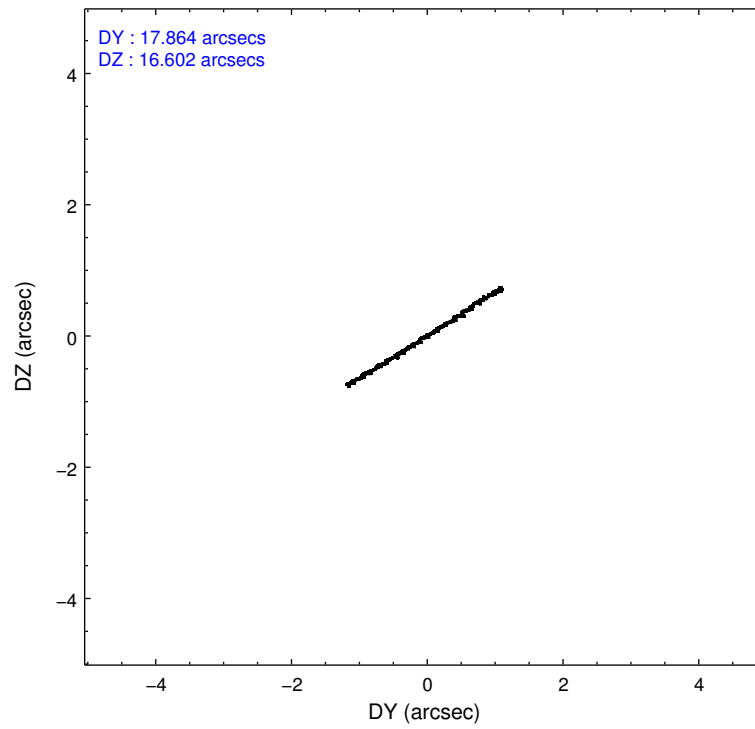
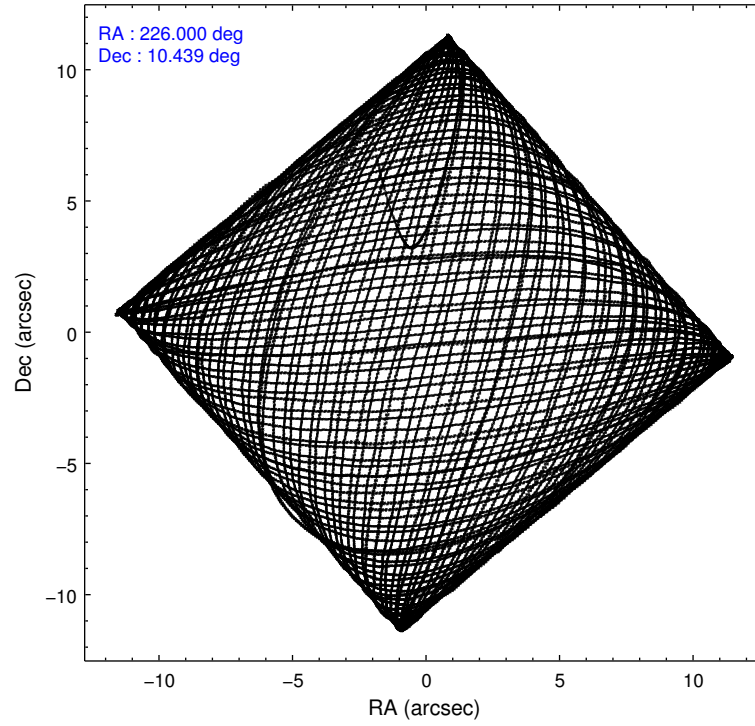
### 2.1.4 Events

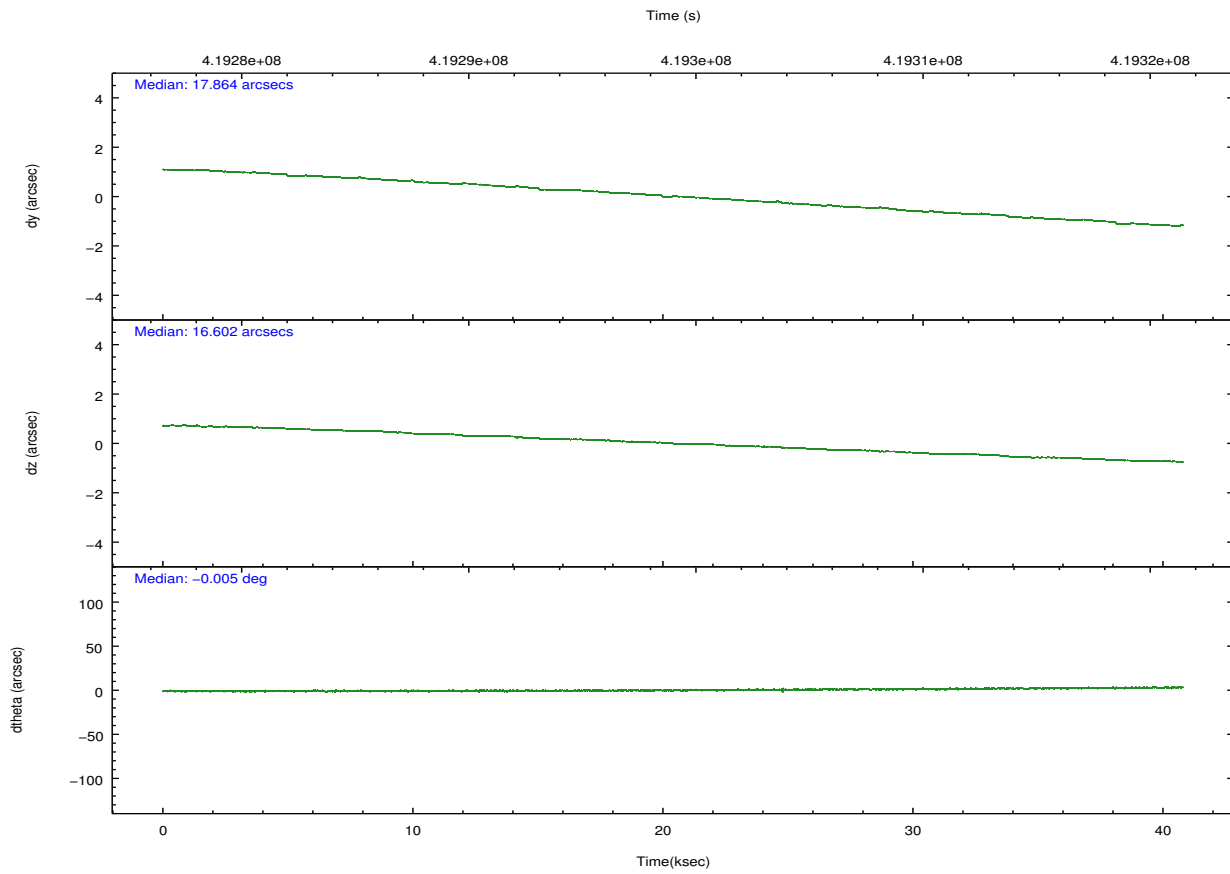
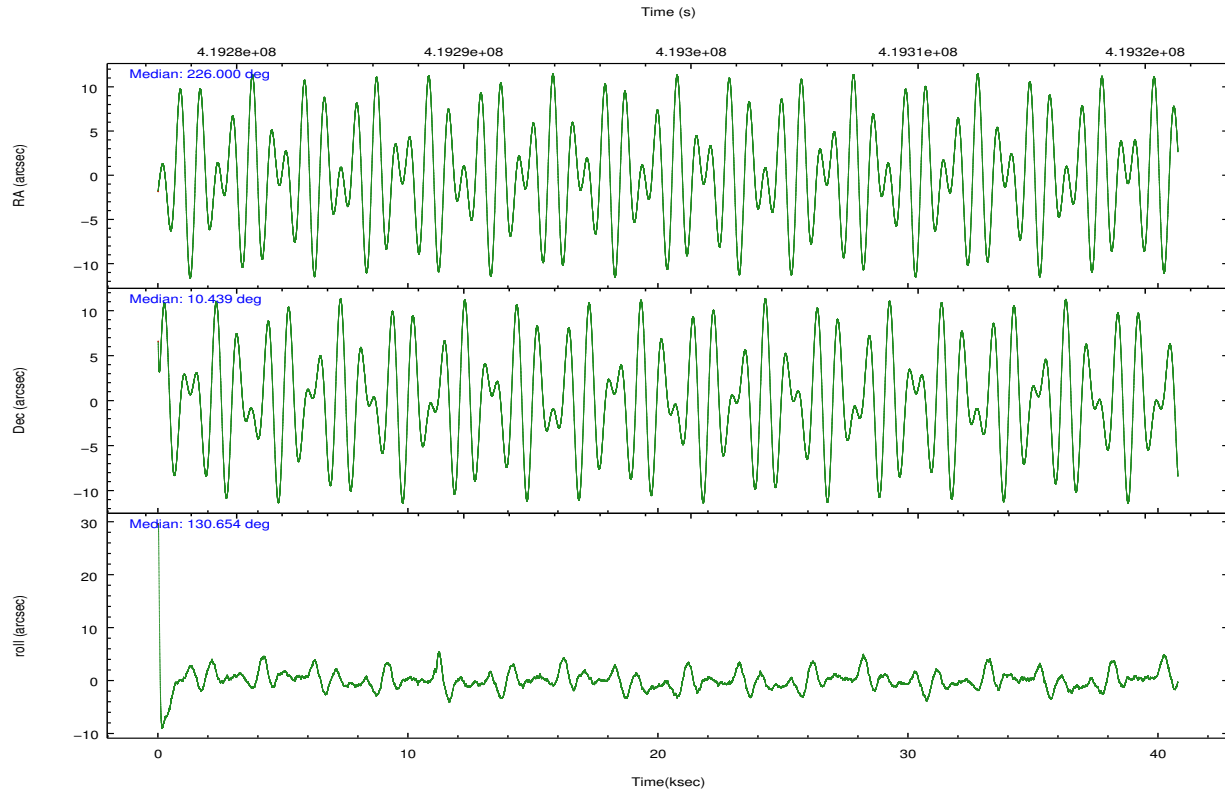
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	229232	299754	207429	264875	261543	193217	grade 0 events	16002	11044	14567	14103	21997	9328
rejected events	197845	152666	175811	136246	190026	168326		6%	3%	7%	5%	8%	4%
rejected %	86%	50%	84%	51%	72%	87%	grade 1 events	197	516	110	468	199	85
								0%	0%	0%	0%	0%	0%
							grade 2 events	6048	44148	6188	27113	16277	5299
								2%	14%	2%	10%	6%	2%
							grade 3 events	2706	7504	2908	11888	7396	2724
								1%	2%	1%	4%	2%	1%
							grade 4 events	2558	6253	2720	11888	6741	2530
								1%	2%	1%	4%	2%	1%
							grade 5 events	8937	23874	9257	26327	13043	9981
								3%	7%	4%	9%	4%	5%
							grade 6 events	4077	78165	5236	63654	19110	5014
								1%	26%	2%	24%	7%	2%
							grade 7 events	188707	128250	166443	109434	176780	158256
								82%	42%	80%	41%	67%	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	226.026665	226.0003052572215	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	10.430543	10.43926467575663	Subarray start row	1	1
[deg] Pointing Roll	130.496077	130.6574931967417	Subarray row count	774	774
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	2.5
[mm] SIM translation stage pos	-187.132523	-187.1228876879999			
[mm] SIM translation stage offset	-3	-3.009634895007935			
[s] Observation start time (MET)	419279390.184000	419277765.99109			
Observation start date	2011-04-15T18:28:44	2011-04-15T18:02:45			
[s] Observation end time (MET)	419319390.184000	419320474.66831			
Observation end date	2011-04-16T05:35:24	2011-04-16T05:54:34			
Read mode	TIMED	TIMED			

## 2.3 Aspect



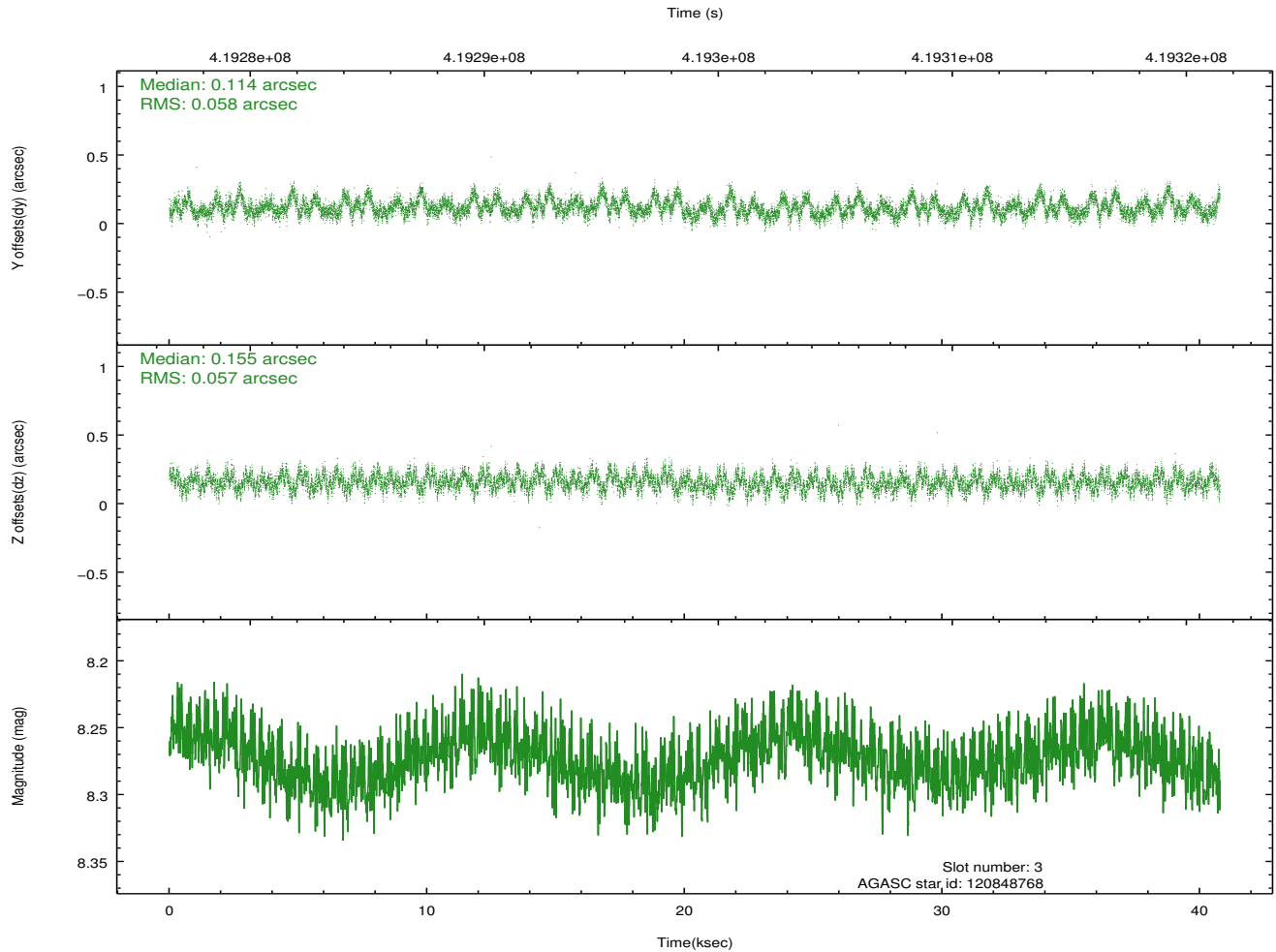
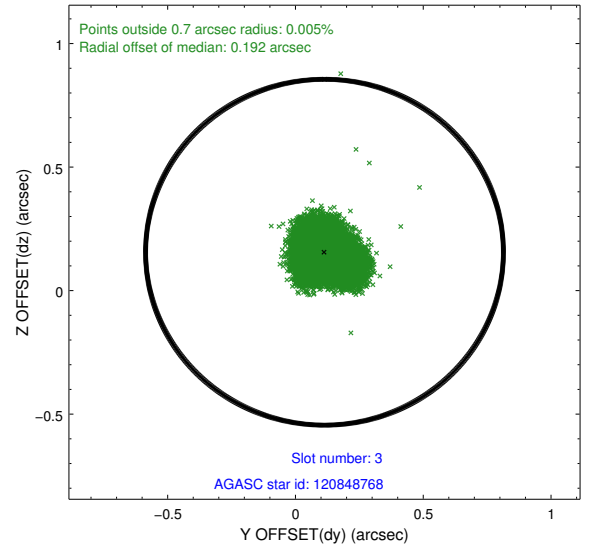
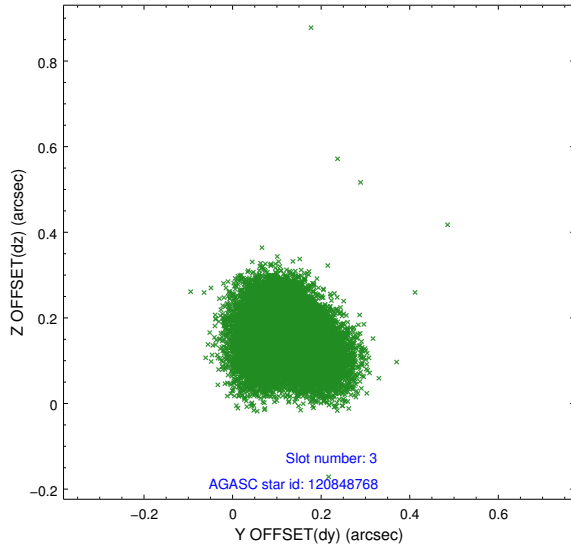


### Slot Statistics

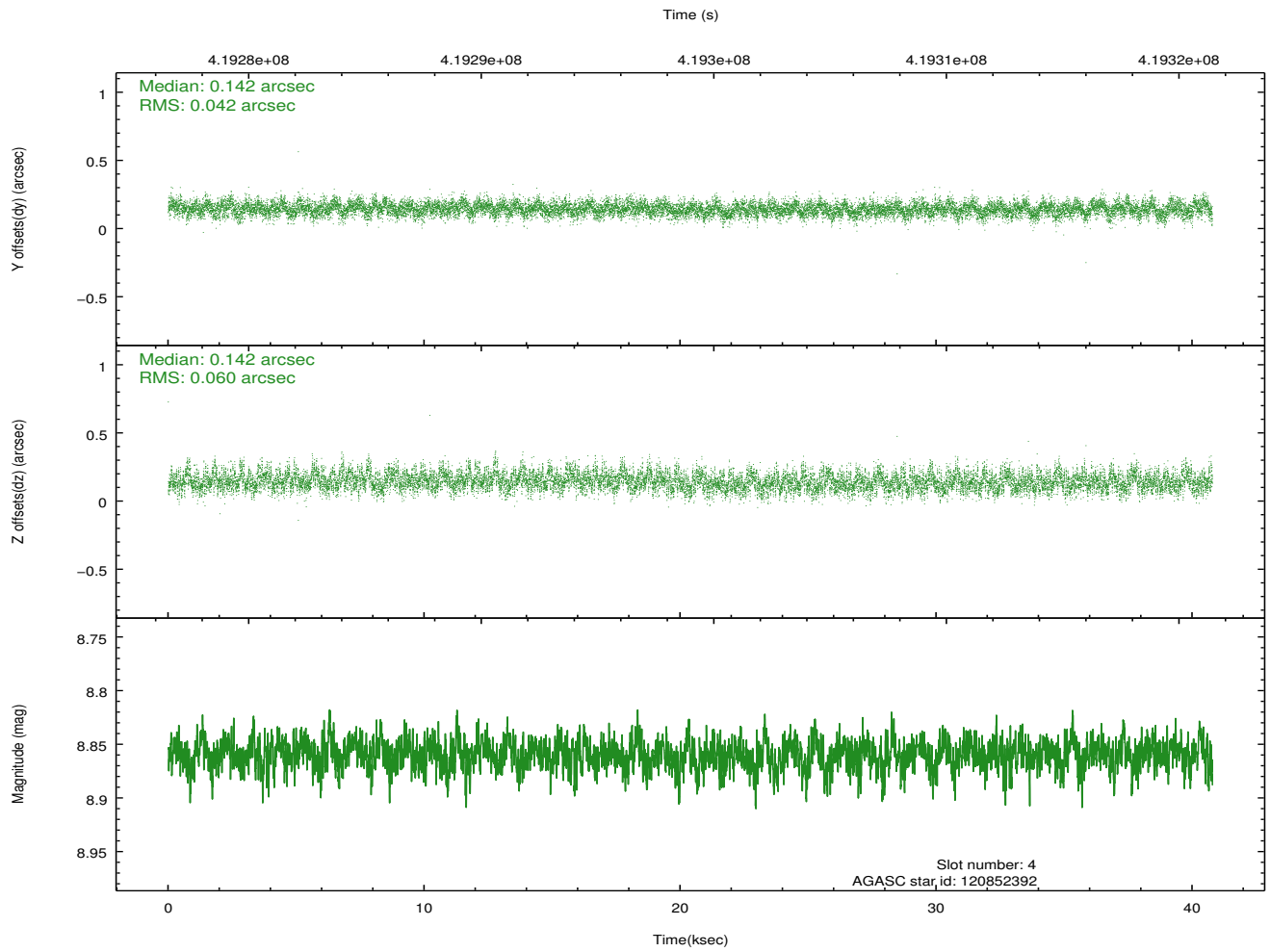
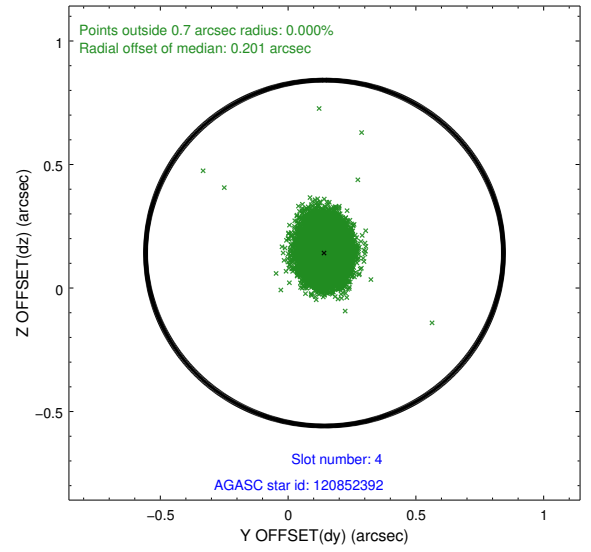
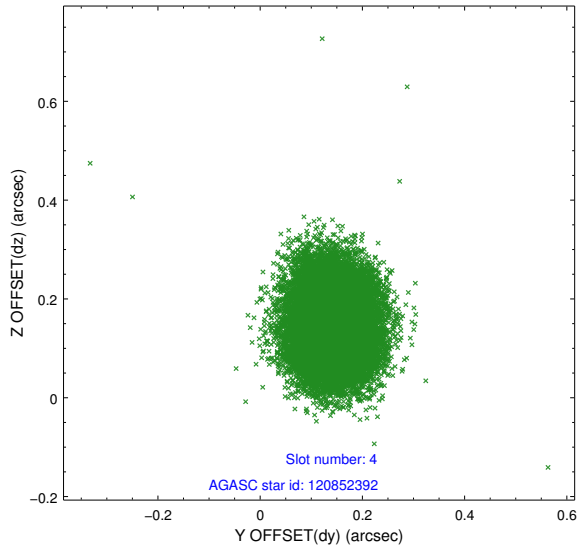
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.95	9949	-0.099	-0.069	0.020	0.031	0.000000	0.000000	-770.78	-1800.24
1	FID	ACIS-S-4	7.04	9949	0.234	0.067	0.037	0.052	0.000000	0.000000	2142.80	108.38
2	FID	ACIS-S-5	7.07	9949	-0.169	0.012	0.034	0.044	0.000000	0.000000	-1823.69	101.96
3	GUIDE	120848768	8.27	19889	0.114	0.155	0.087	0.139	226.805006	10.295985	-2155.72	-1783.92
4	GUIDE	120852392	8.86	19889	0.142	0.142	0.077	0.127	226.601101	10.759865	-415.97	-2315.92
5	GUIDE	120857304	7.35	19895	-0.095	0.020	0.055	0.088	226.016011	10.735132	858.72	-683.12
6	GUIDE	120857992	8.81	19886	-0.088	-0.161	0.081	0.133	225.633634	10.396915	812.74	1136.39
7	GUIDE	120859328	8.76	19887	-0.077	-0.159	0.081	0.130	225.353432	10.362574	1364.29	1971.04

## 2.4 Star Slots

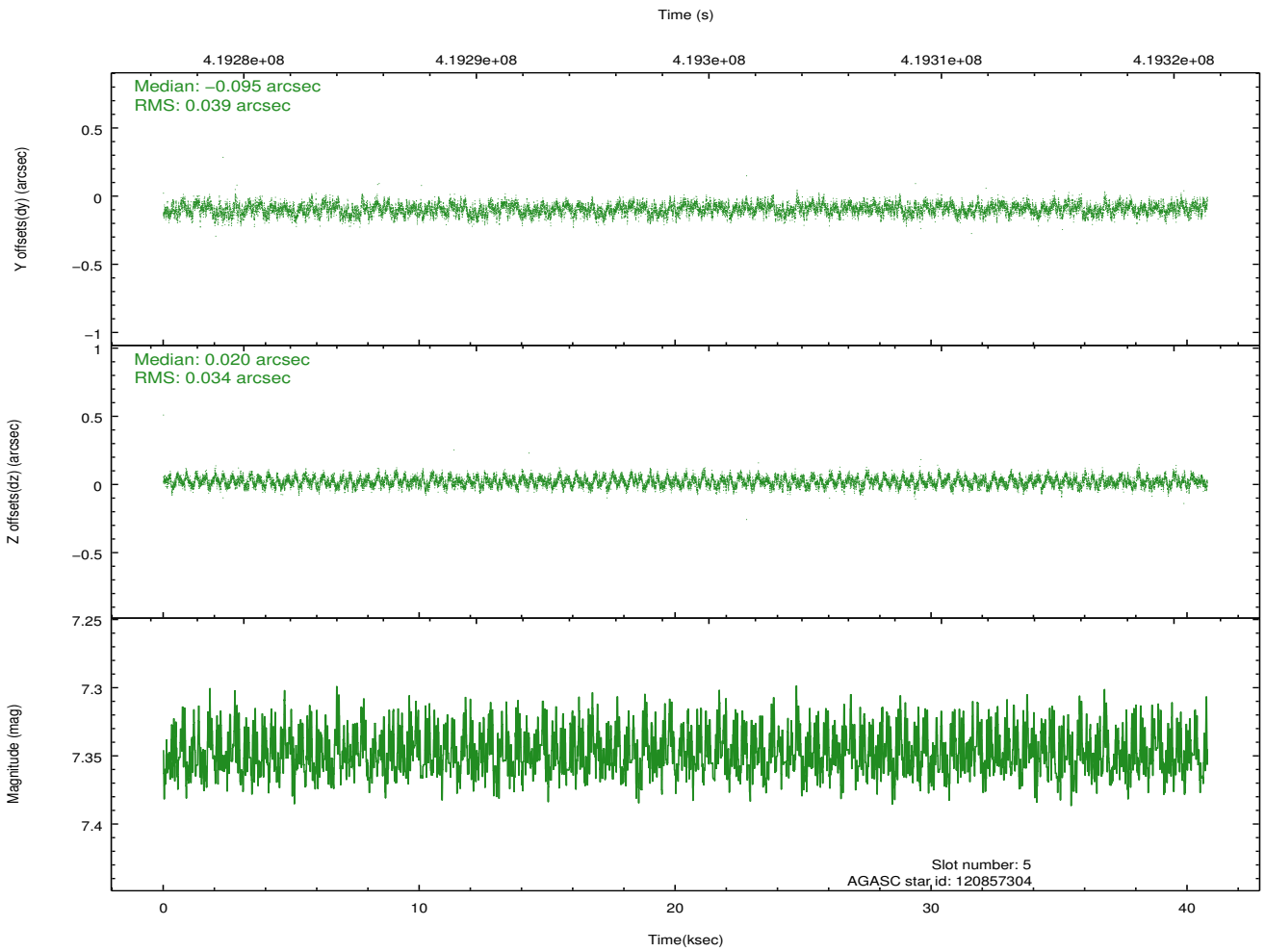
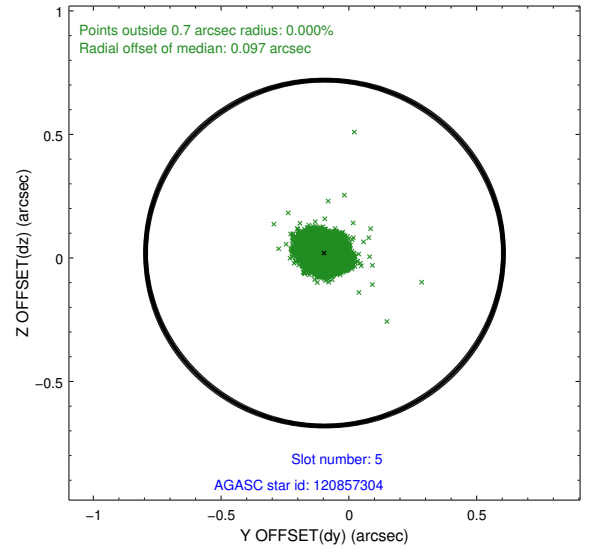
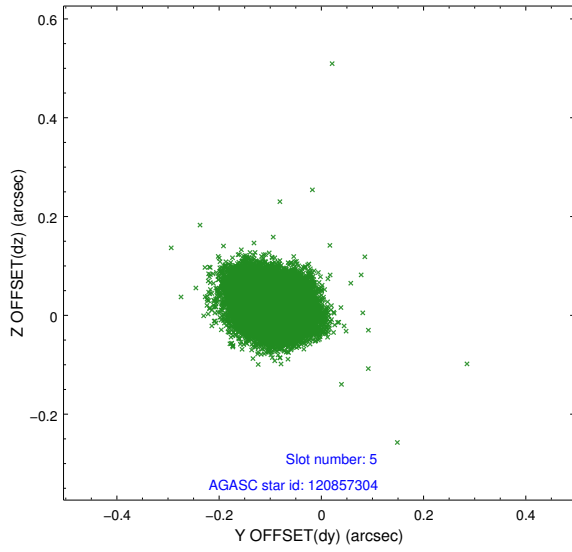
### 2.4.1 Slot 3



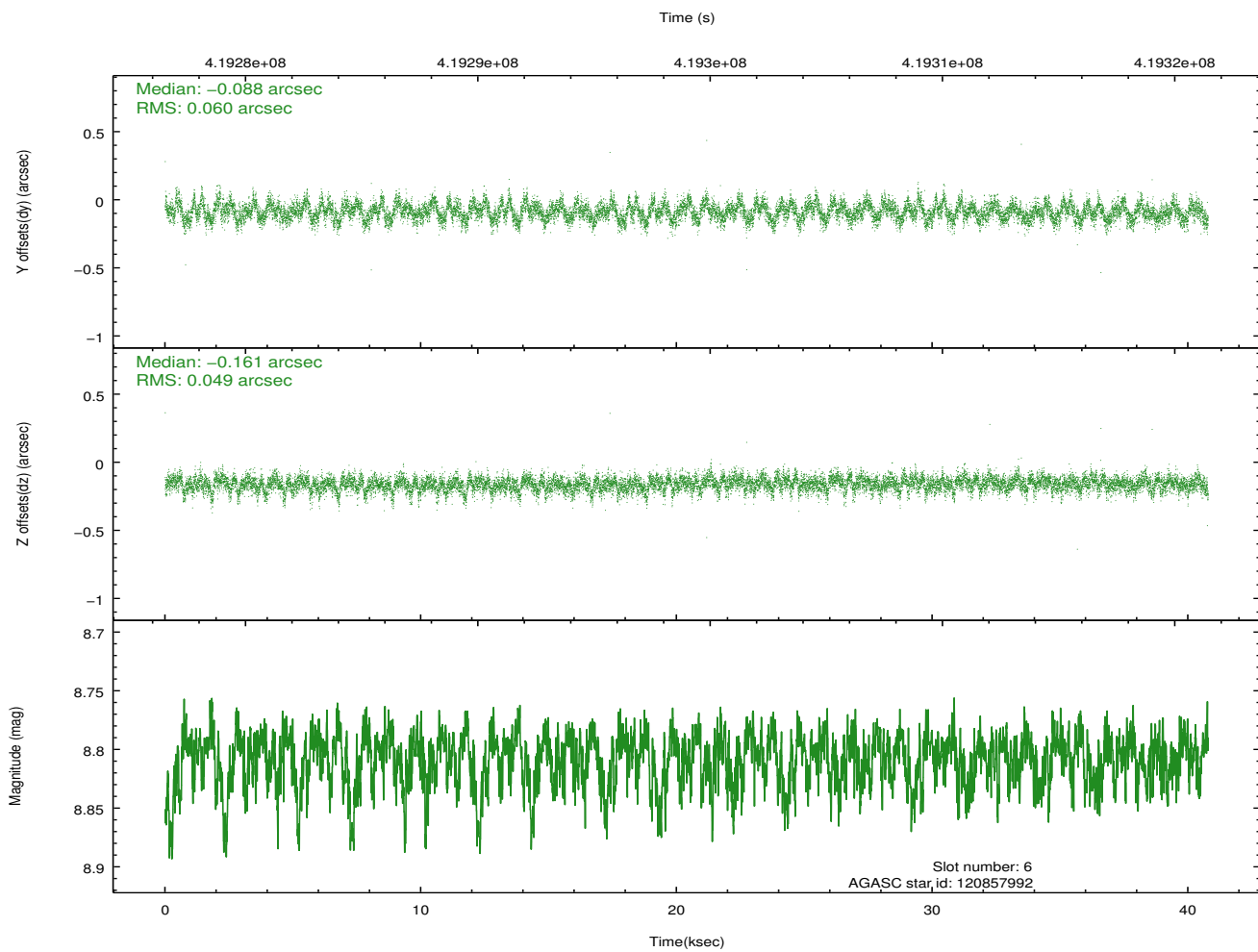
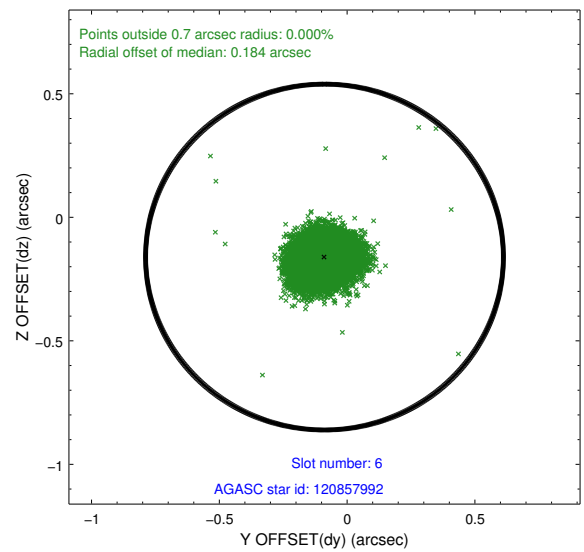
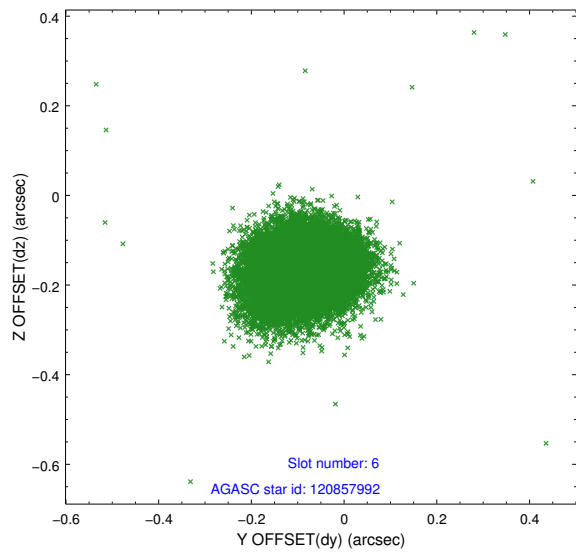
## 2.4.2 Slot 4



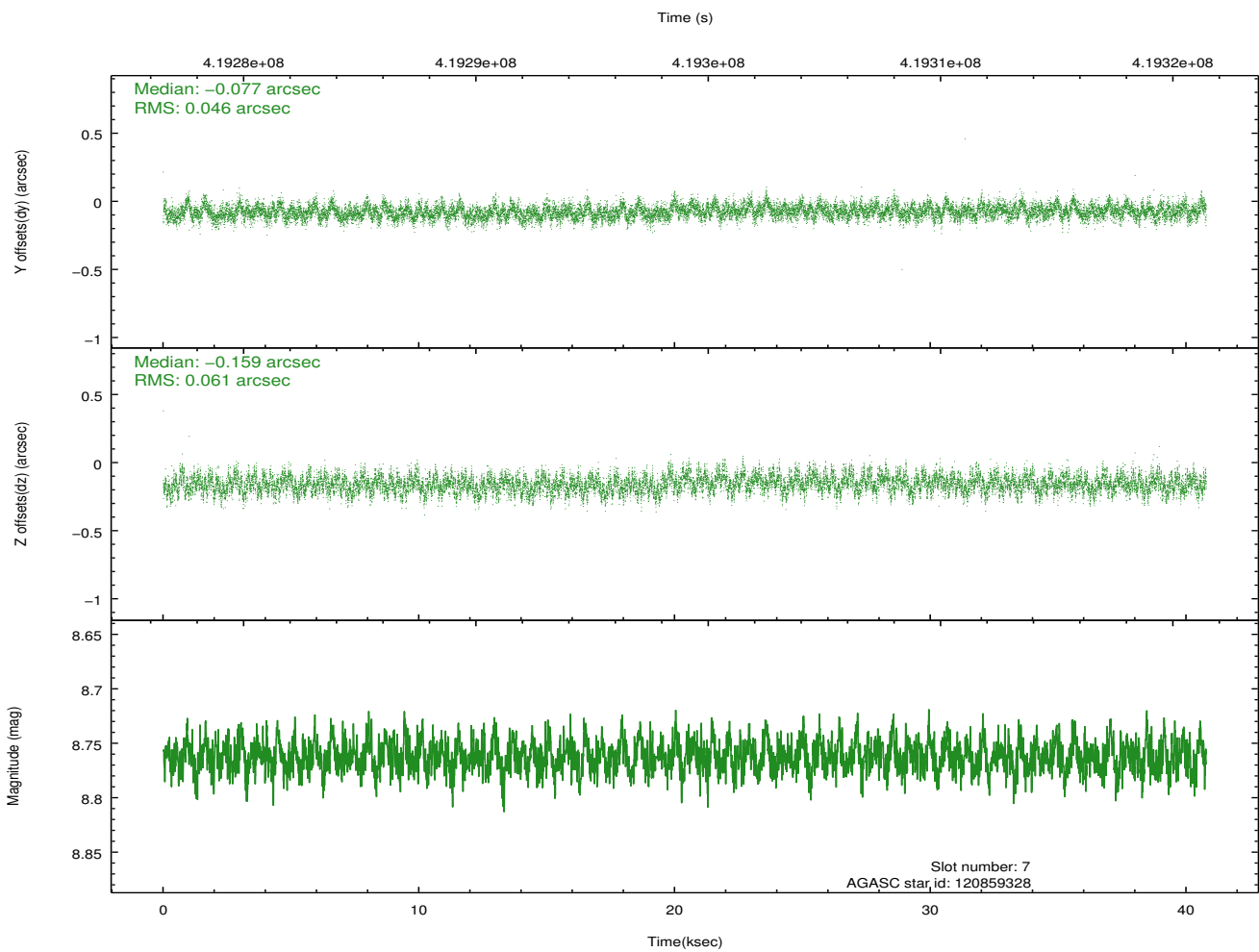
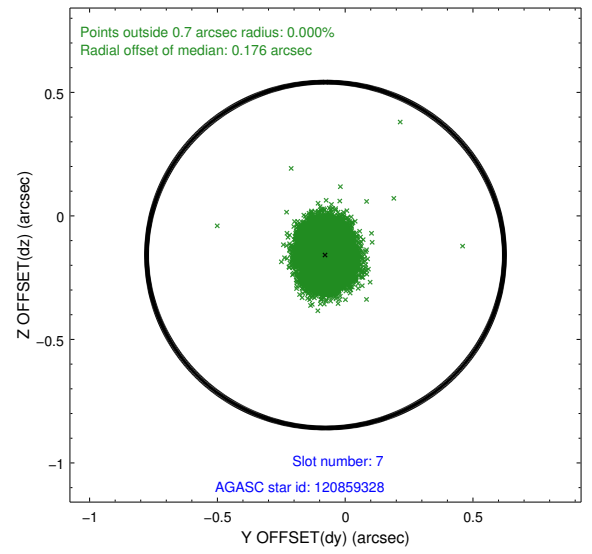
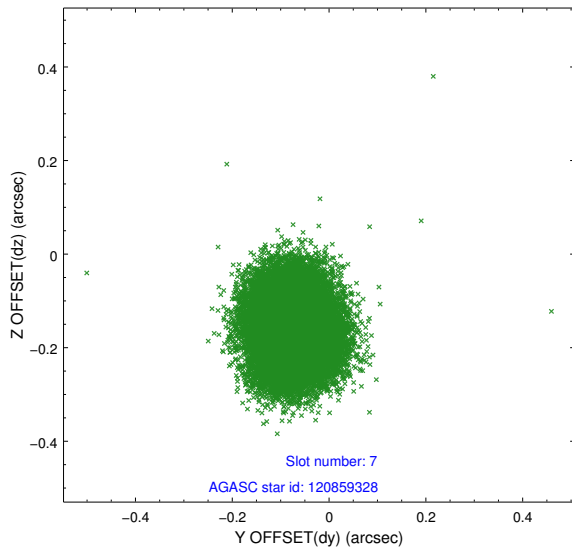
### 2.4.3 Slot 5



## 2.4.4 Slot 6

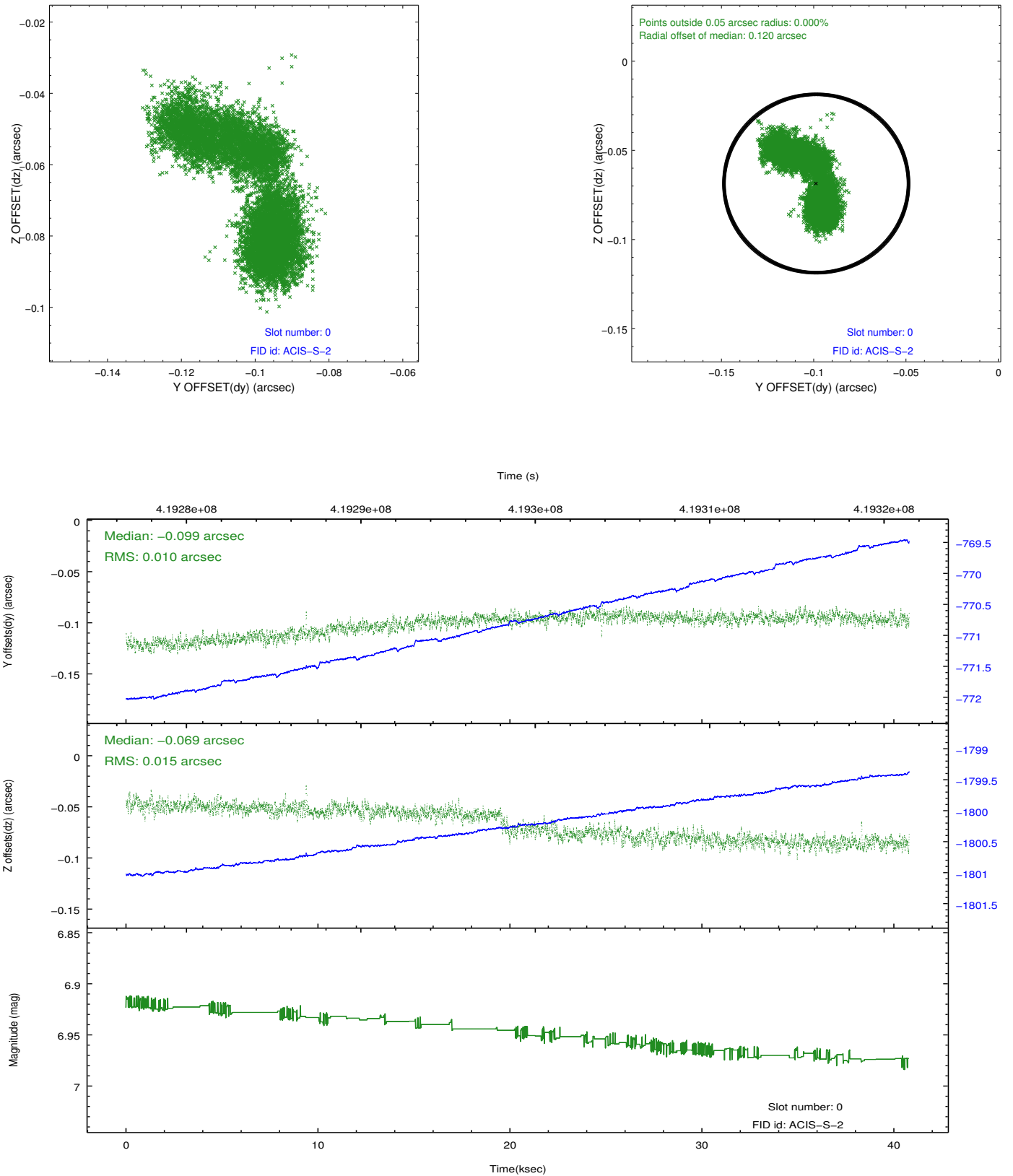


## 2.4.5 Slot 7

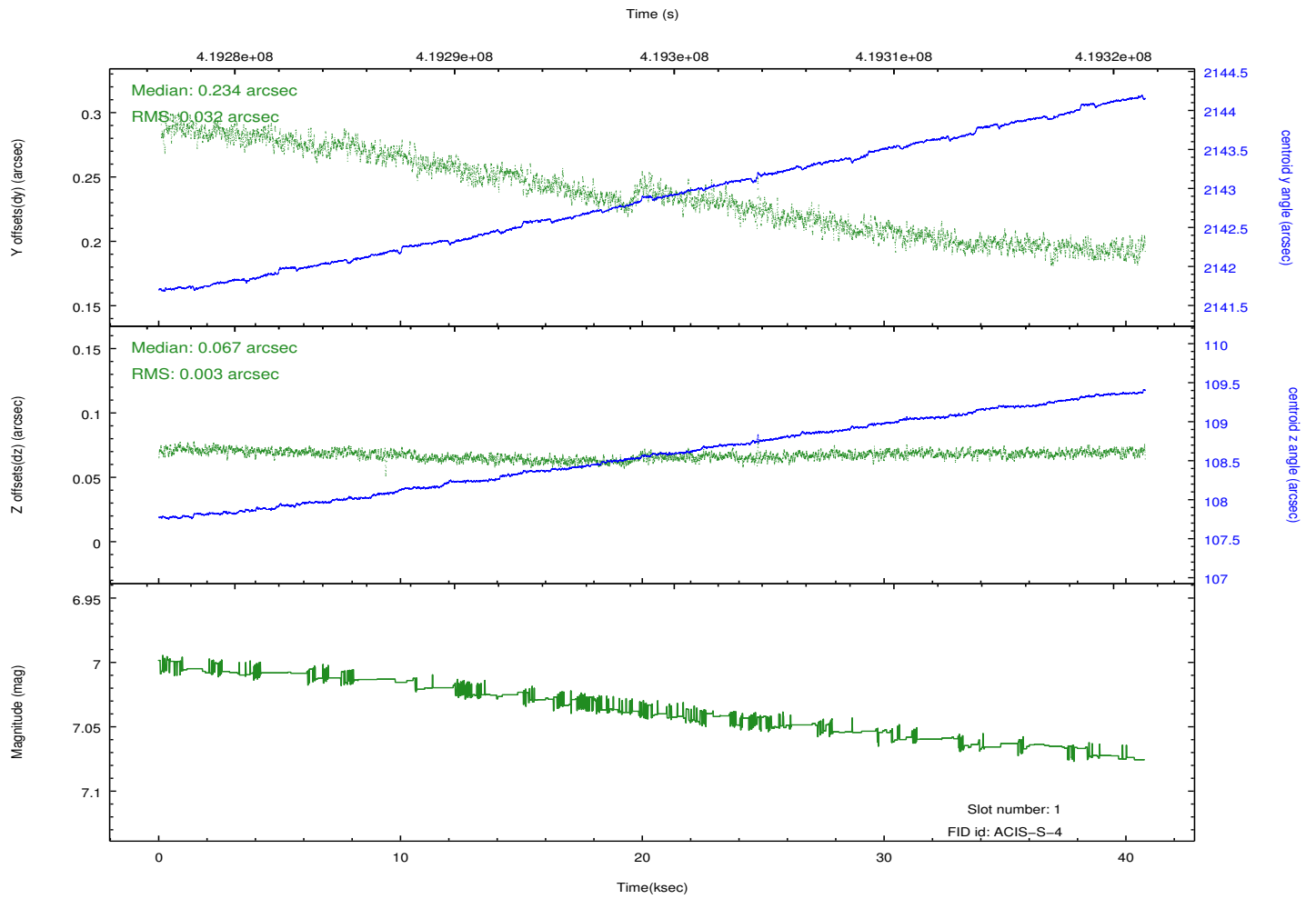
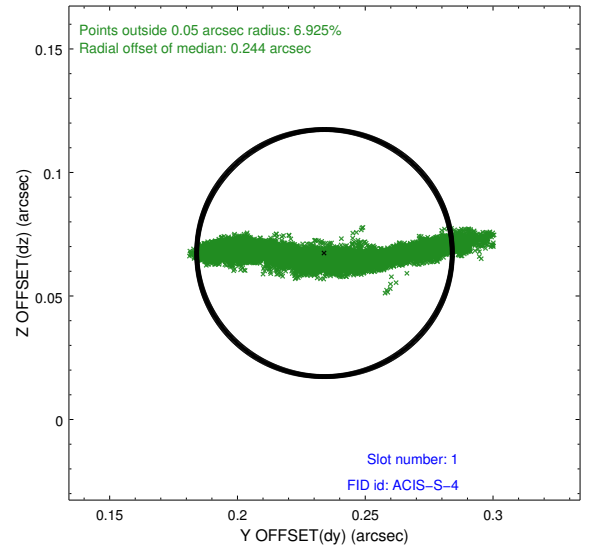
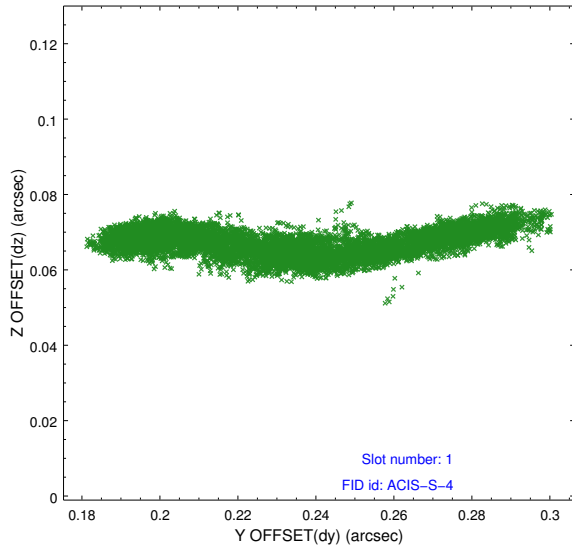


## 2.5 FID Slots

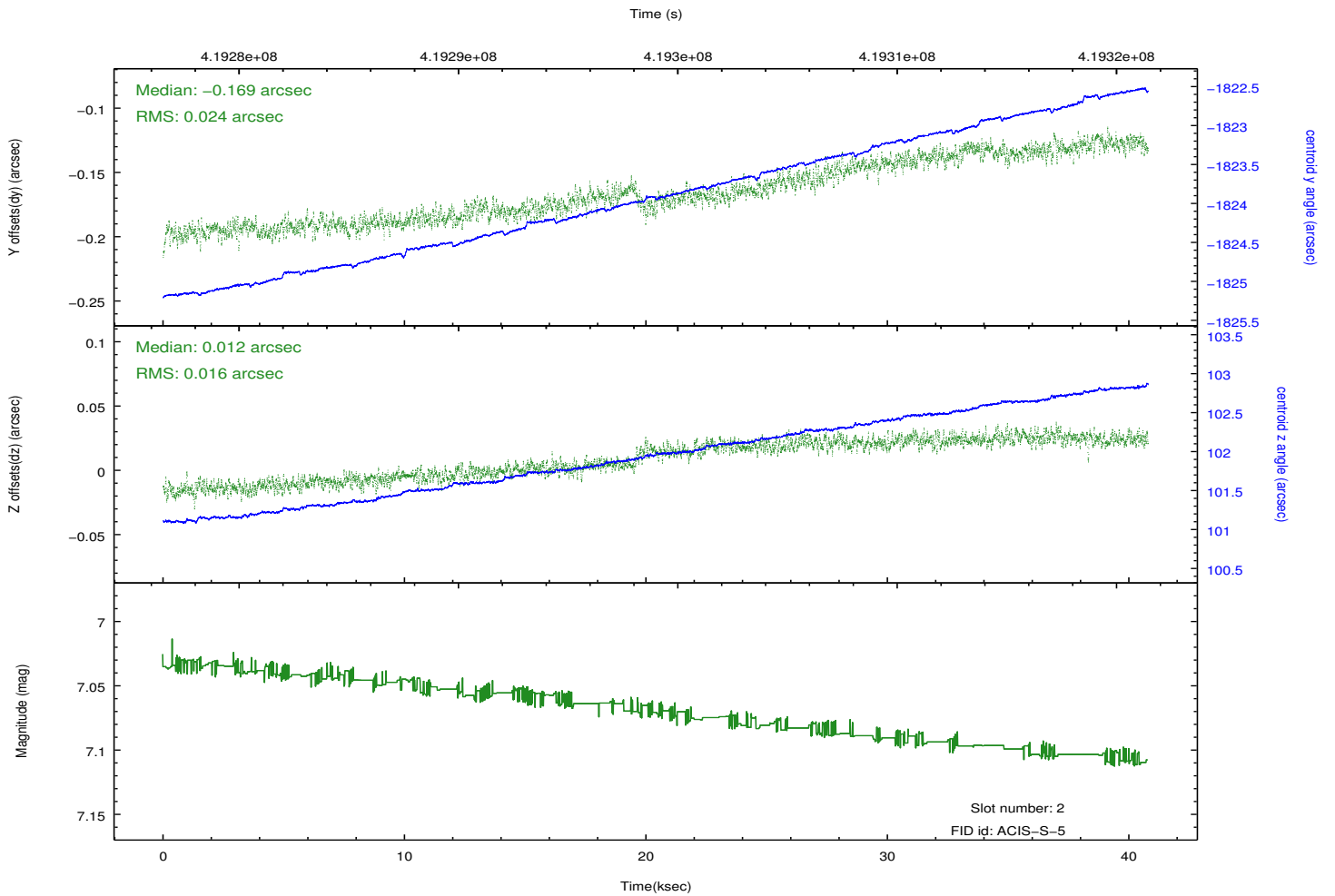
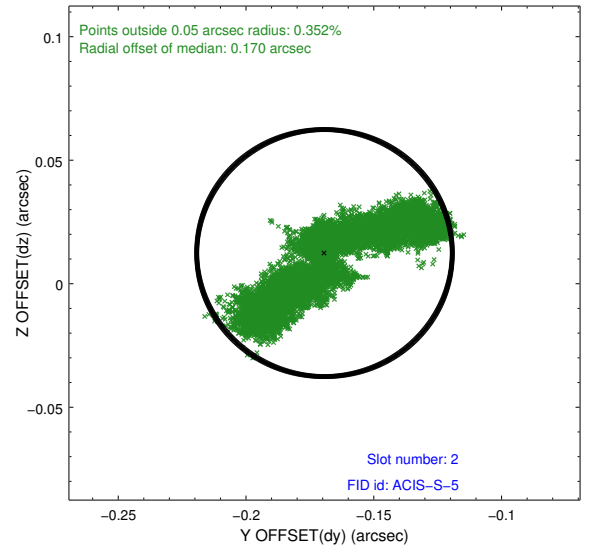
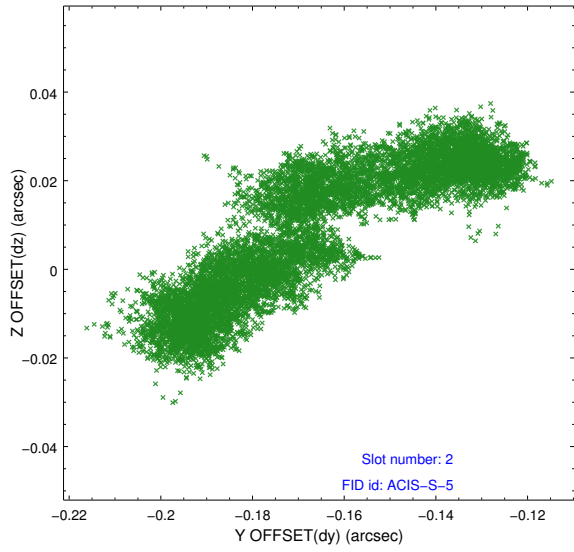
### 2.5.1 Slot 0



## 2.5.2 Slot 1

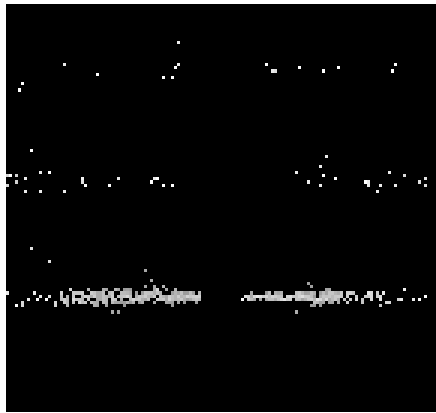


### 2.5.3 Slot 2

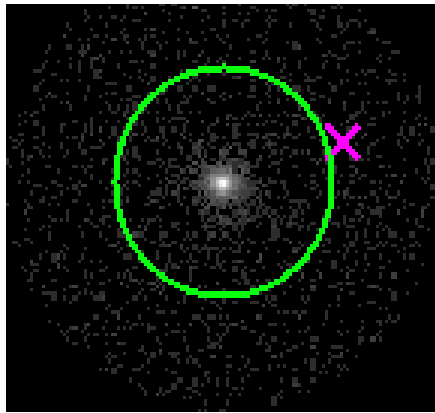


### 3 Gratings

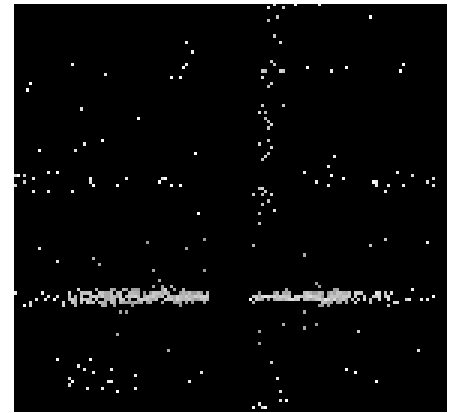
#### 3.1 HEG Arm



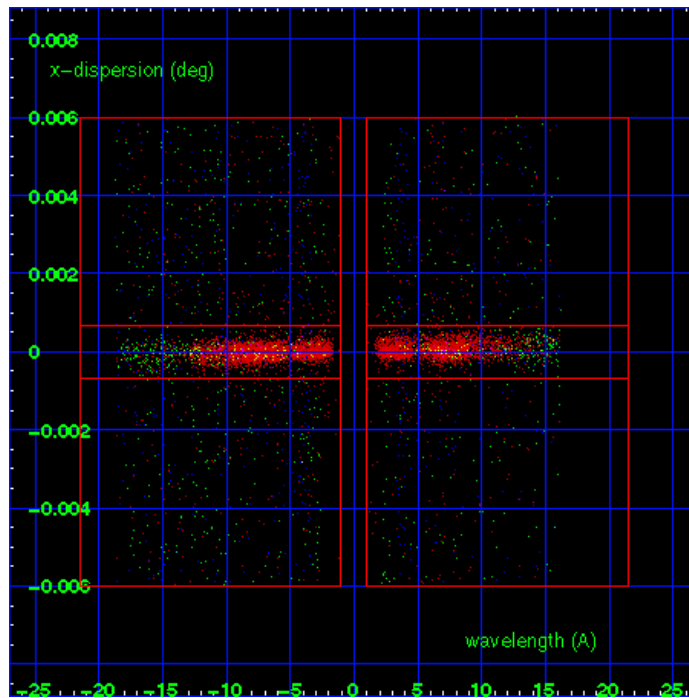
HEG Order Sort 123



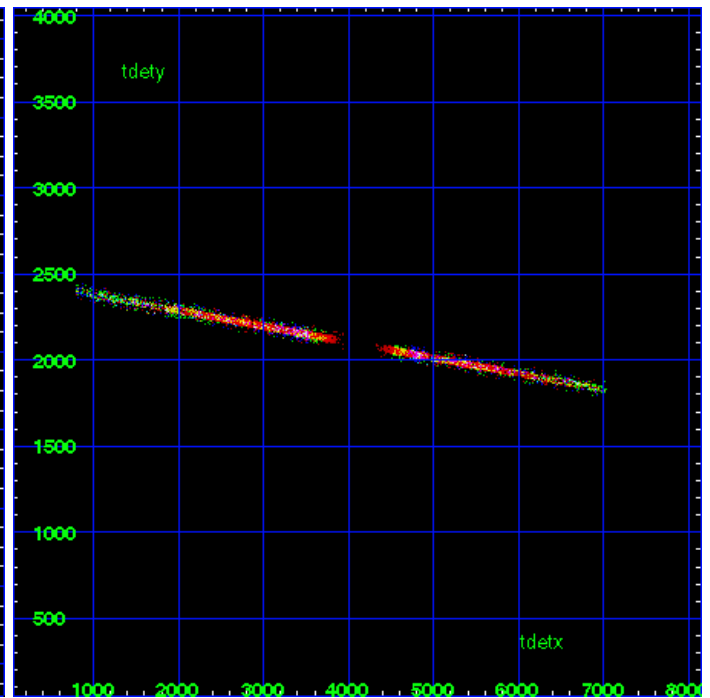
HEG Zero Order



HEG Order Sort ALL

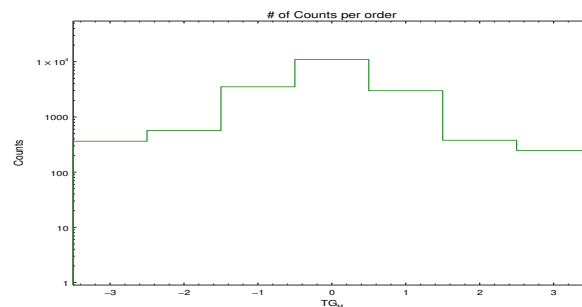


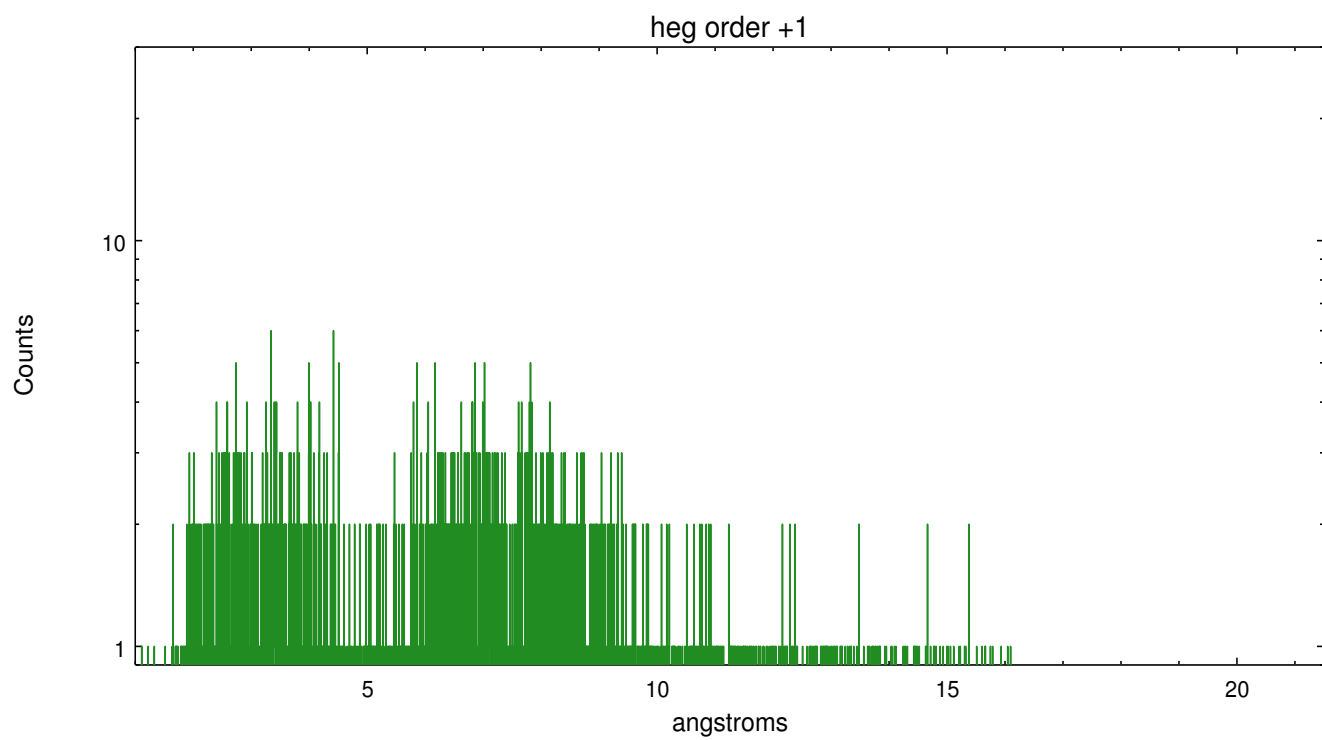
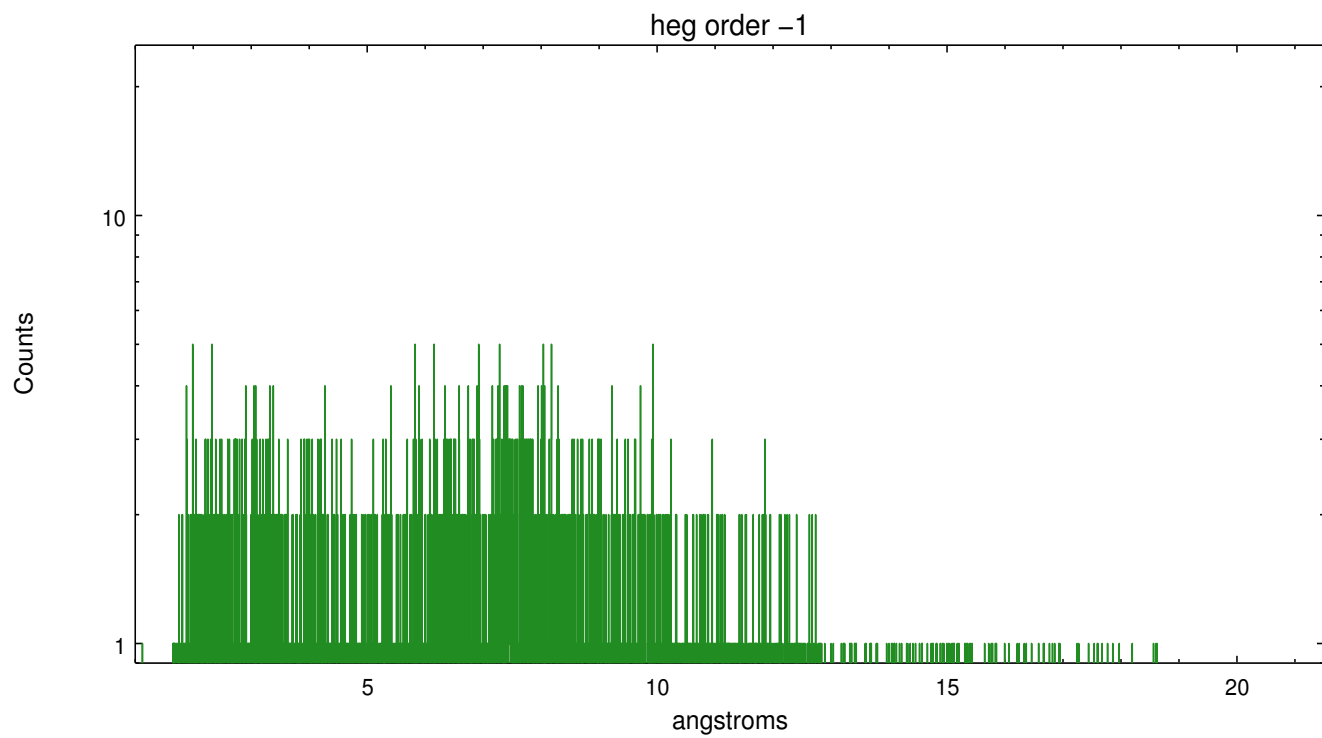
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	363	569	3514	10921	2986	378	247

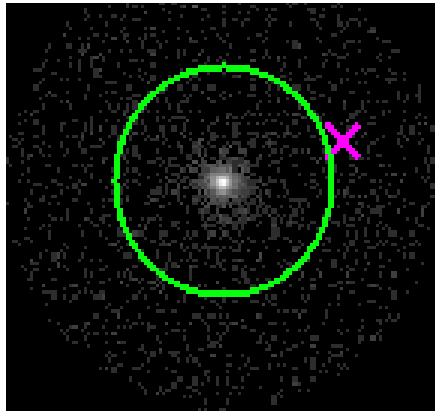




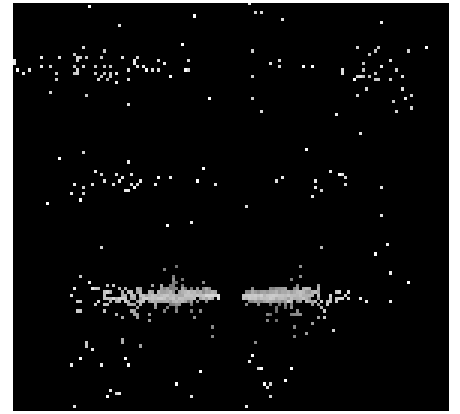
### 3.2 MEG Arm



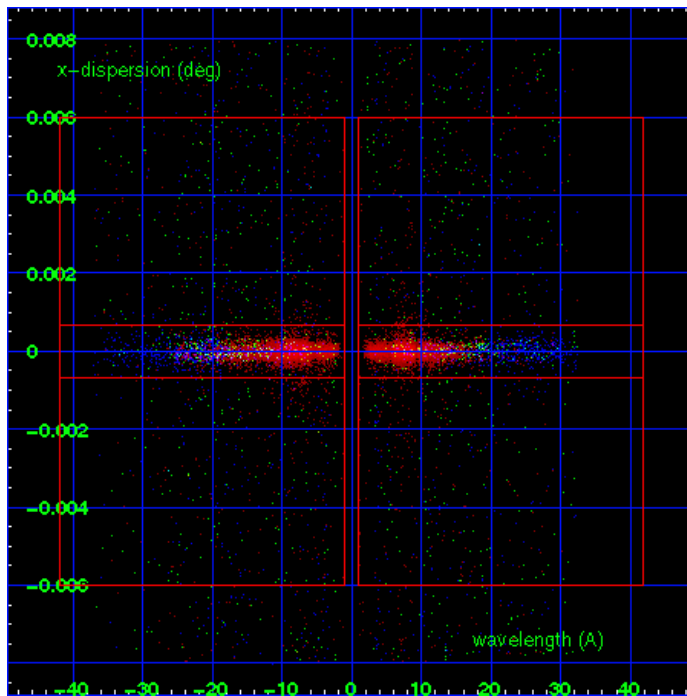
MEG Order Sort 123



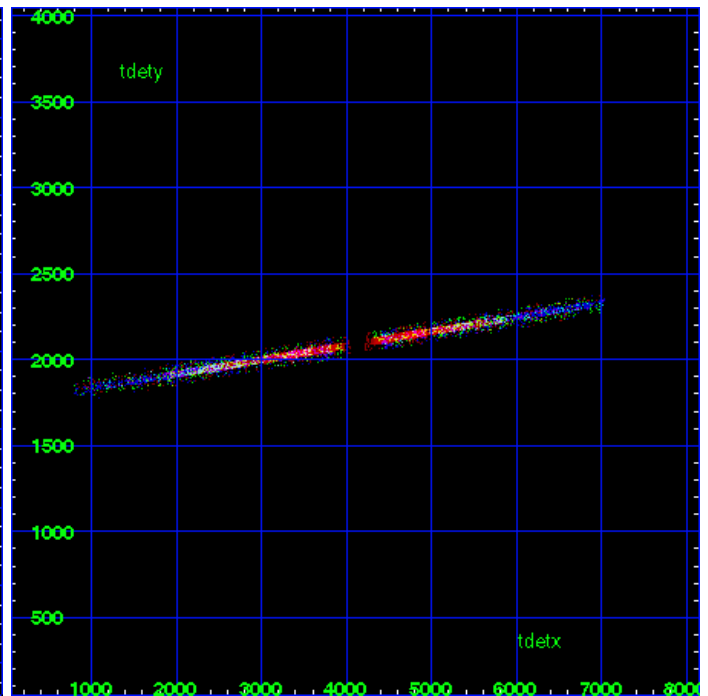
MEG Zero Order



MEG Order Sort ALL

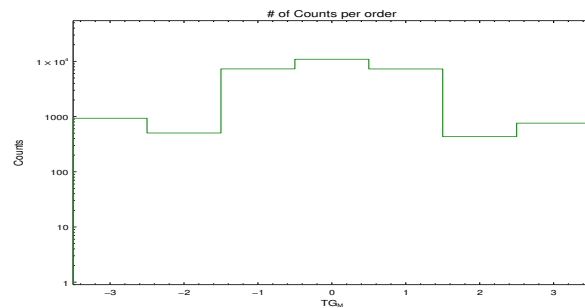


Spot Image MEG

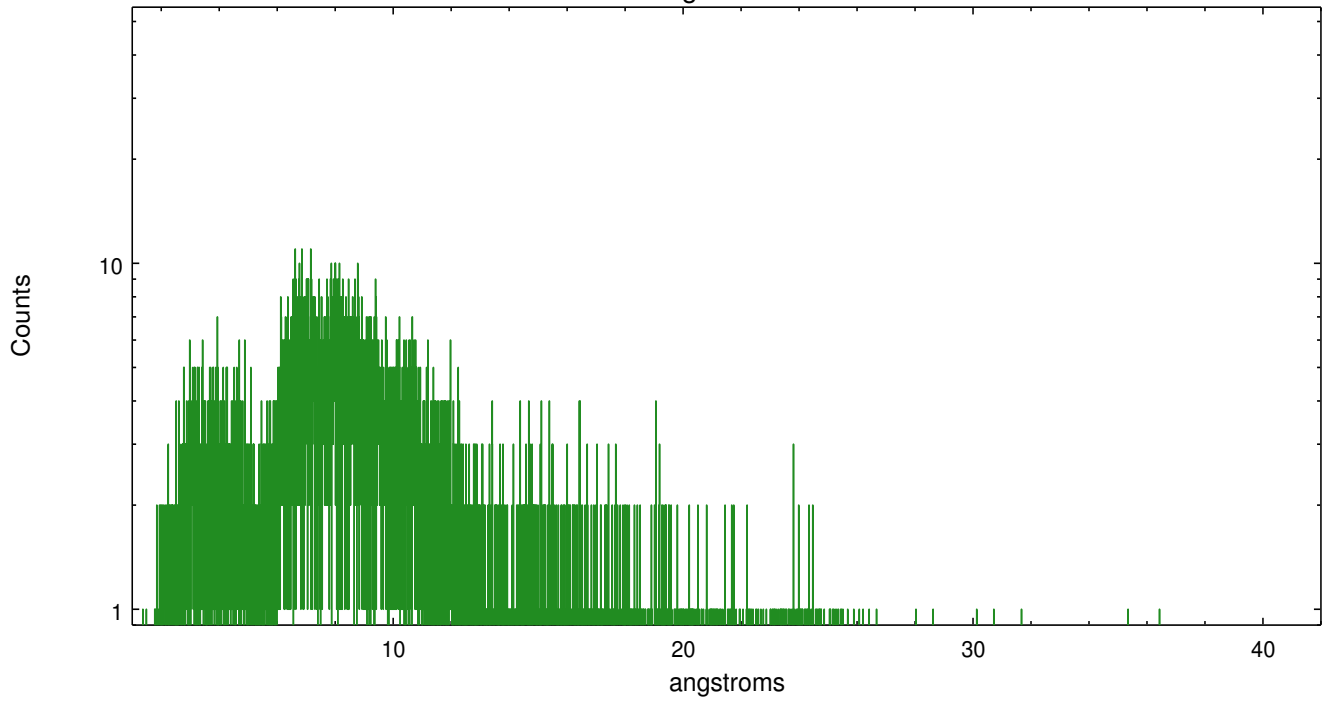


Full Detector MEG

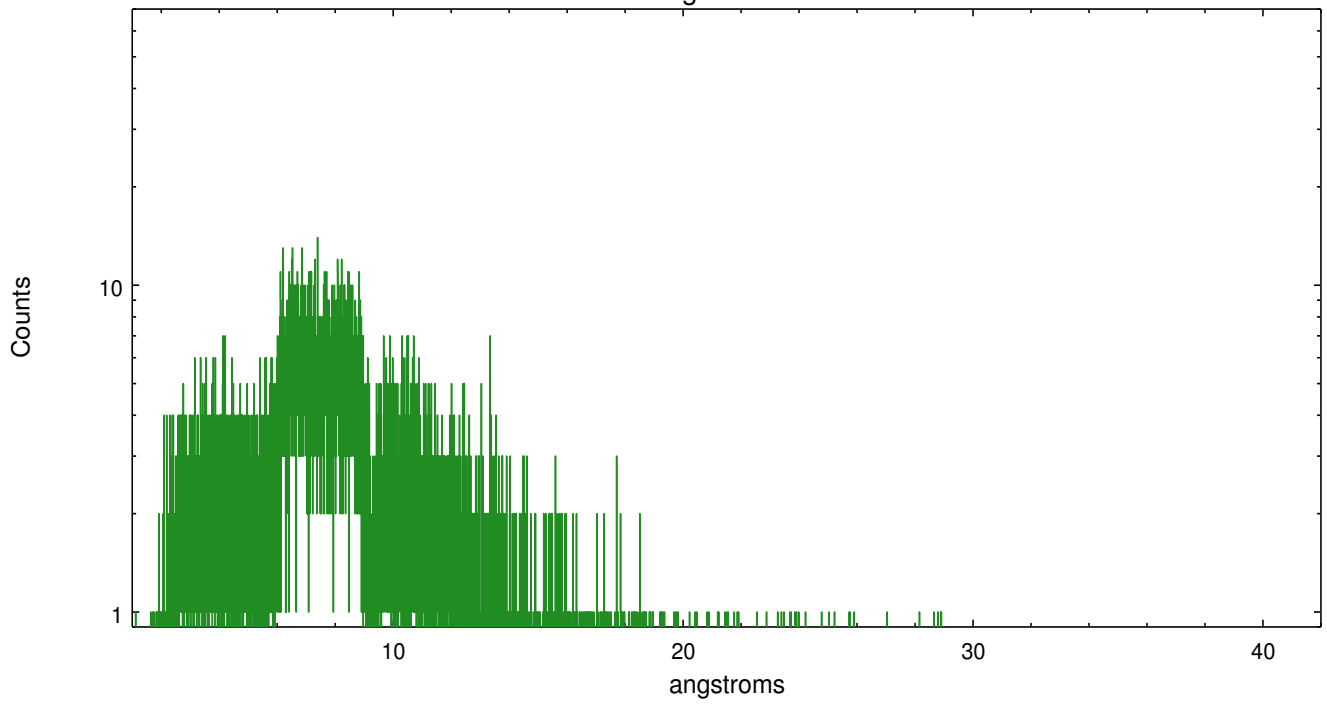
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	932	504	7310	10921	7292	433	760



meg order -1



meg order +1



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.02.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	40.047017309368

## A.2 Comments

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use `acis_process_events` to reprocess the data with the parameter `pix_adj=NONE` or `RANDOMIZE`, respectively.