

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 2748 - L2 Version 3  
Chandra X-Ray Center

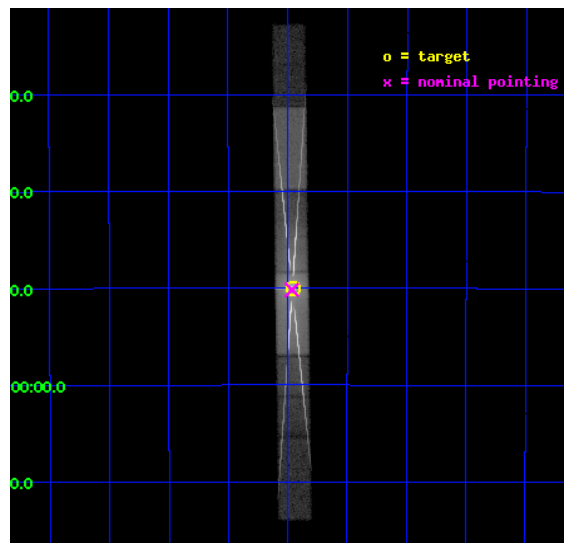
L2 Processing Date : Oct 3 2012

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# 1 Front

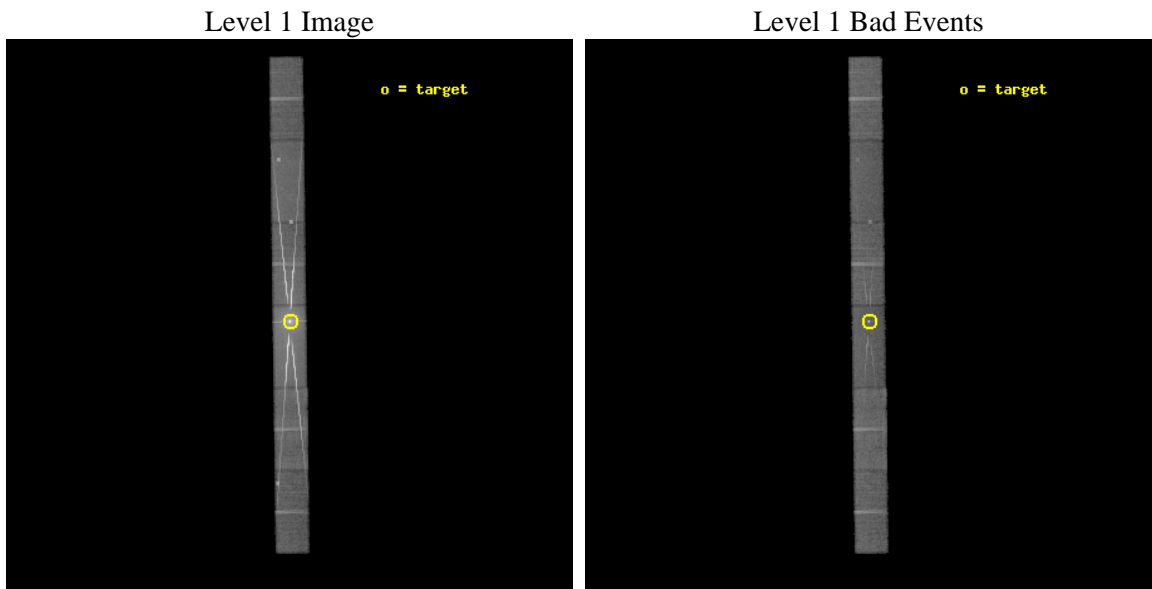
seq_num	400228	Sequence number
obs_id	2748	Observation id
title	STUDY OF THE IRON LINE AND LOW ENERGY FEATURES IN 4U 1728-34 WITH CHANDRA/HETGS	Proposal title
observer	Dr. Tiziana Di Salvo	Principal investigator
object	4U 1728-34	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	262.989167	Observer's specified target RA [deg]
dec_targ	-33.834722	Observer's specified target Dec [deg]
ra_nom	262.99114995823	Nominal RA [deg]
dec_nom	-33.836182088789	Nominal Dec [deg]
roll_nom	89.203764845695	Nominal Roll [deg]
revision	3	Processing version of data
ontime	30483.559149623	Sum of GTIs [s]
livetime	29615.404714284	Livetime [s]
ontime4	30482.118139535	Sum of GTIs [s]
ontime5	30483.559149623	Sum of GTIs [s]
ontime6	30485.000129789	Sum of GTIs [s]
ontime7	30483.559149623	Sum of GTIs [s]
ontime8	30483.559149623	Sum of GTIs [s]
ontime9	30485.000129789	Sum of GTIs [s]
l2events	819583	Number of level 2 events



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	30483.559149623	Sum of GTIs [s]
caldsver	4.5.2	&#160	ontime4	30482.118139535	Sum of GTIs [s]
date	2012-10-03T03:58:10	Date and time of file creation	ontime5	30483.559149623	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	30485.000129789	Sum of GTIs [s]
			ontime7	30483.559149623	Sum of GTIs [s]
			ontime8	30483.559149623	Sum of GTIs [s]
			ontime9	30485.000129789	Sum of GTIs [s]
			l1events	1360342	Number of level 1 events

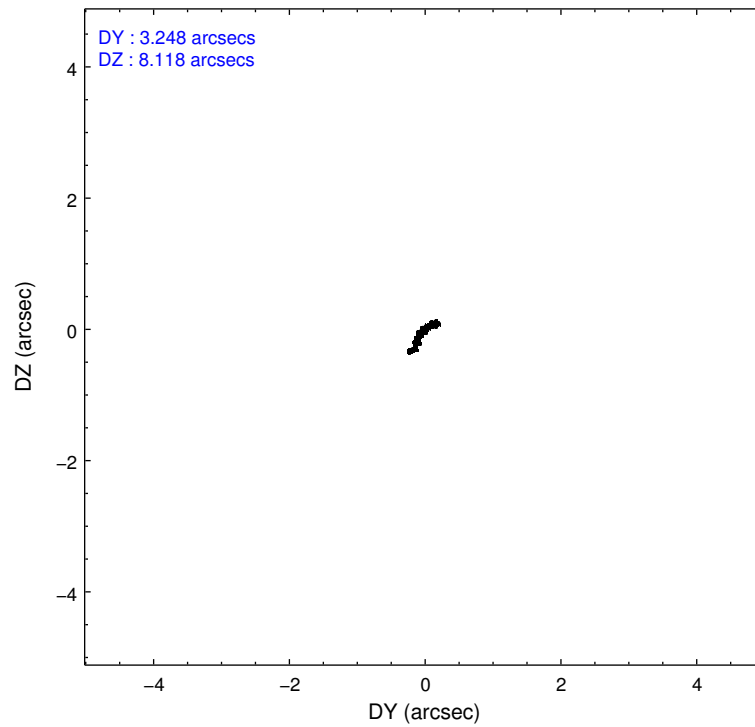
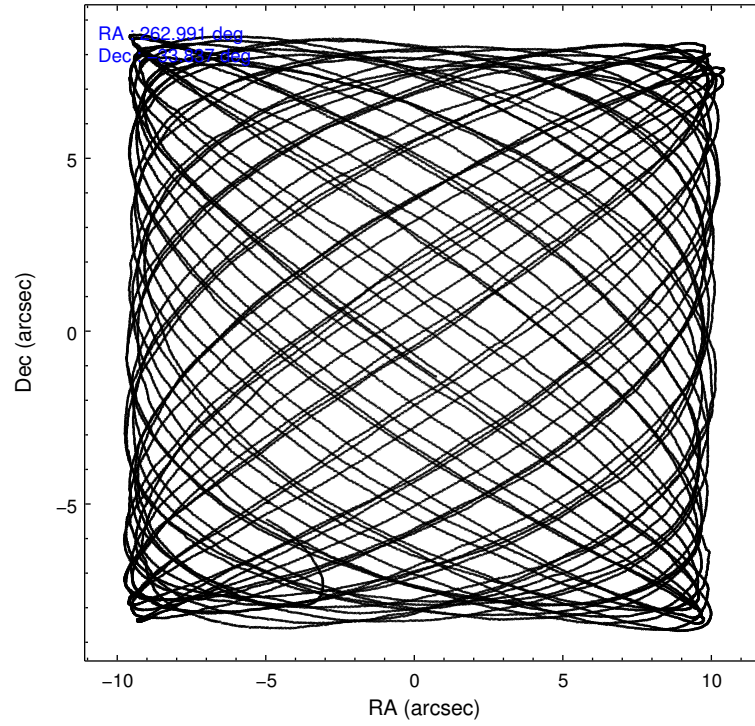
### 2.1.3 Events

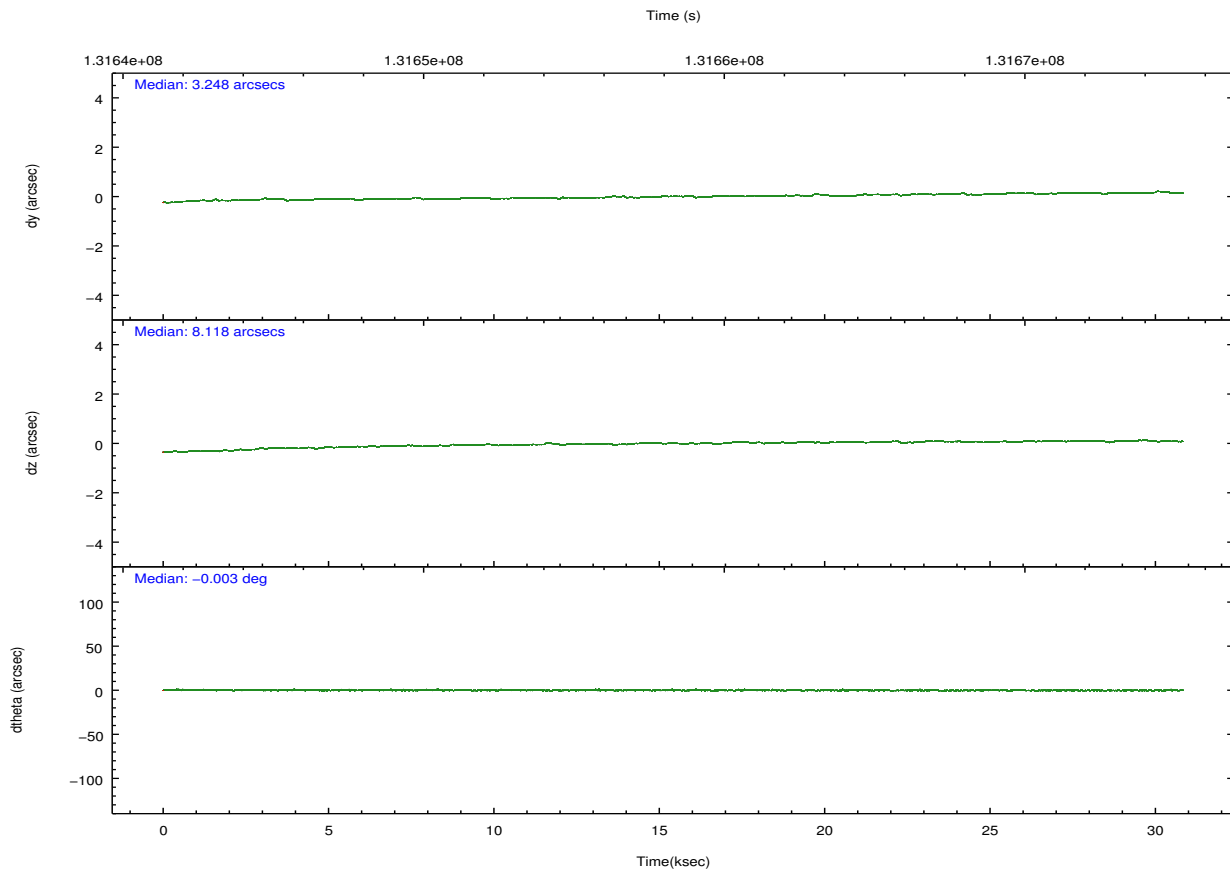
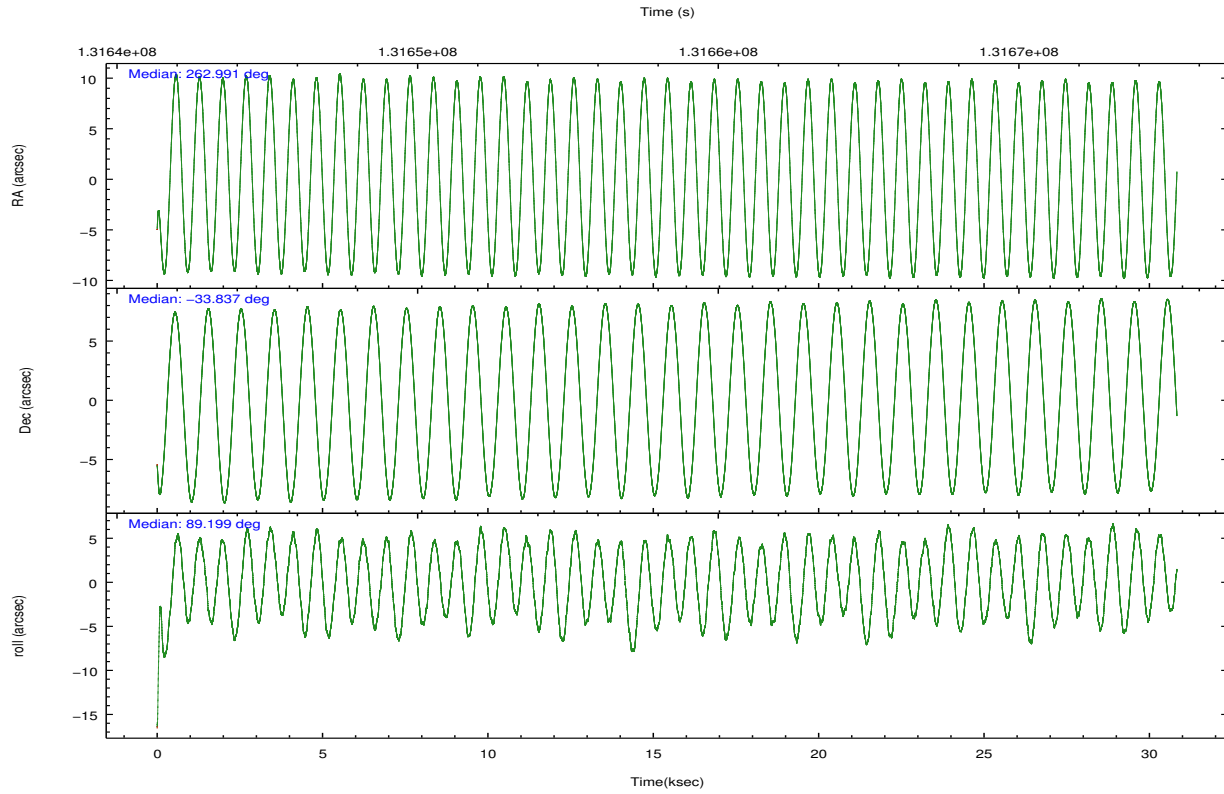
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	103581	150383	351838	485791	172817	95932	grade 0 events	5109	14478	184942	67792	48864	11795
rejected events	91132	66371	85591	74885	94775	76210		4%	9%	52%	13%	28%	12%
rejected %	87%	44%	24%	15%	54%	79%	grade 1 events	22	1034	1117	863	176	51
								0%	0%	0%	0%	0%	0%
							grade 2 events	2755	25113	37235	103894	11272	2808
								2%	16%	10%	21%	6%	2%
							grade 3 events	1406	4504	12835	39974	4783	1481
								1%	2%	3%	8%	2%	1%
							grade 4 events	1259	4536	12848	39869	4473	1448
								1%	3%	3%	8%	2%	1%
							grade 5 events	2692	7249	4420	13091	4306	3220
								2%	4%	1%	2%	2%	3%
							grade 6 events	1921	35385	18400	159407	8653	2190
								1%	23%	5%	32%	5%	2%
							grade 7 events	88417	58084	80041	60901	90290	72939
								85%	38%	22%	12%	52%	76%

## 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	GRADED	GRADED	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	263.007537	262.9911499582325	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-33.859815	-33.83618208878947	Subarray start row	1	1
[deg] Pointing Roll	89.056272	89.2037648456951	Subarray row count	400	400
[s] Window start time (MET)	131587264.184000	131587264.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	132105664.184000	132105664.184000	[s] Primary exposure time	0.000000	1.4
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-182.642523	-182.6373491900168			
[mm] SIM translation stage offset	-7.49	-7.495173392990978			
[s] Observation start time (MET)	131643713.184000	131642434.705			
Observation start date	2002-03-04T15:40:49	2002-03-04T15:20:34			
[s] Observation end time (MET)	131673713.184000	131675245.98132			
Observation end date	2002-03-05T00:00:49	2002-03-05T00:27:25			
Read mode	TIMED	TIMED			

## 2.3 Aspect



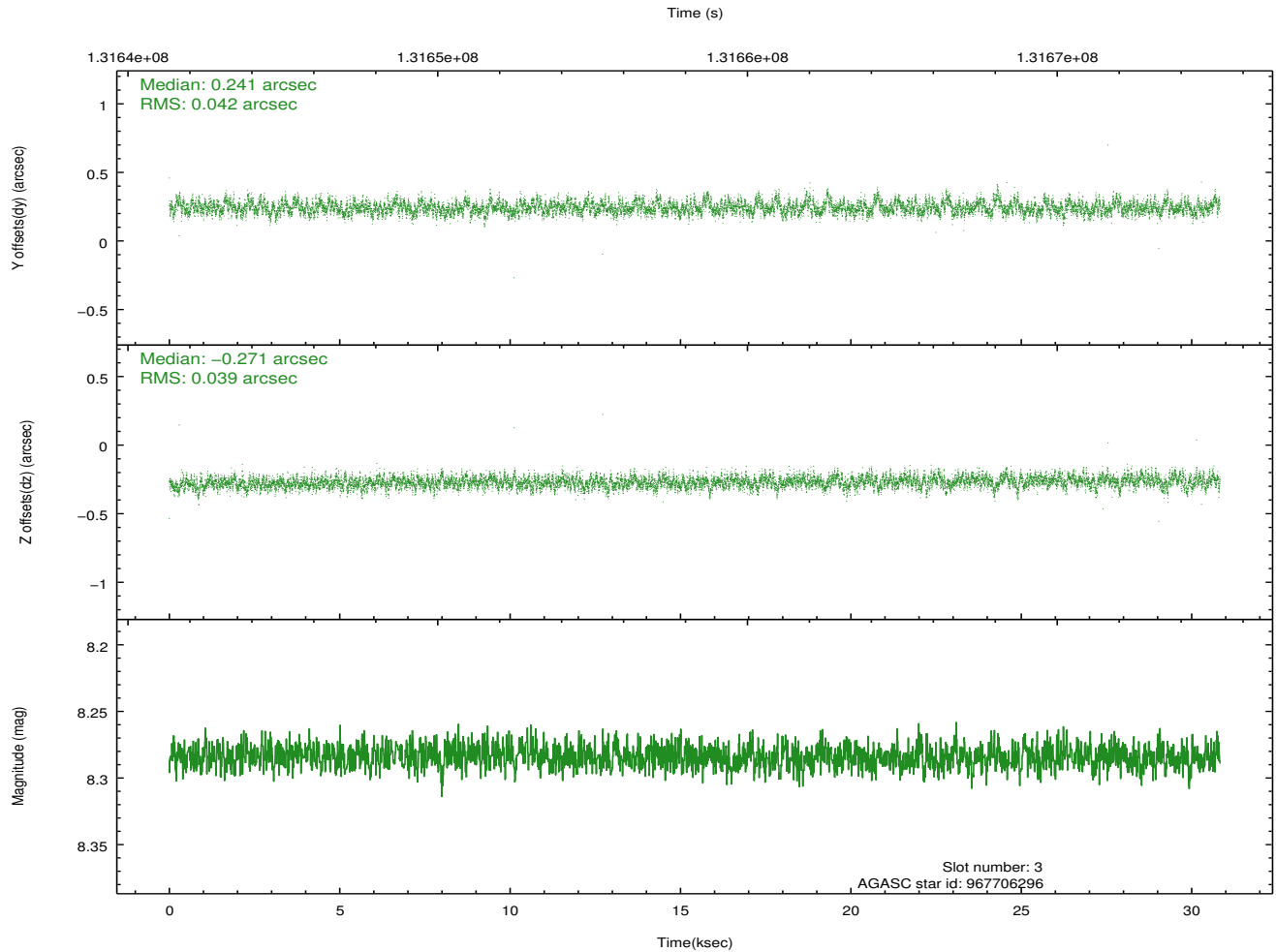
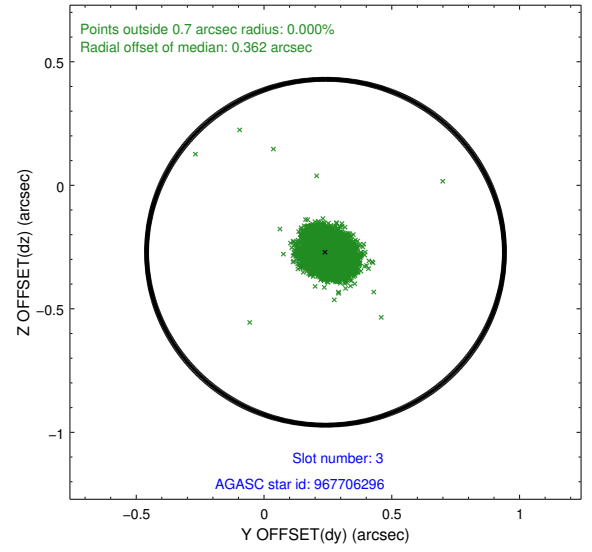
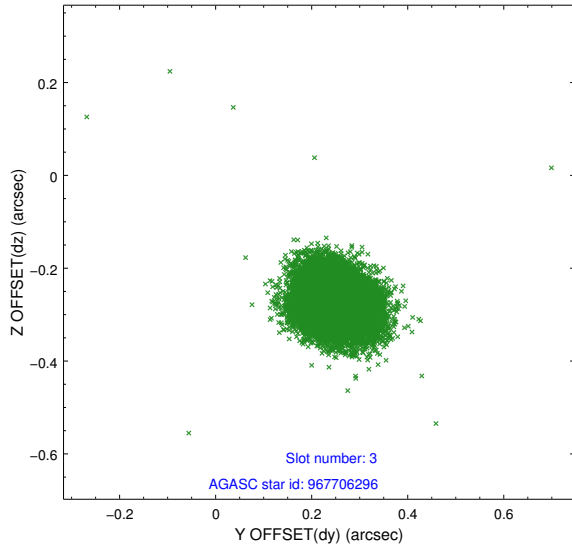


### Slot Statistics

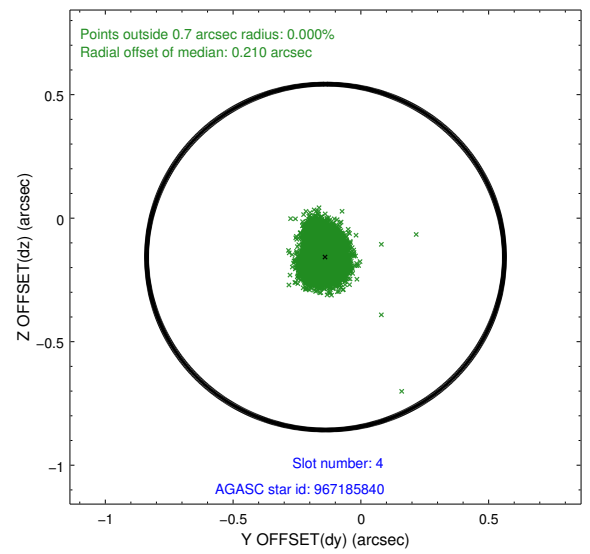
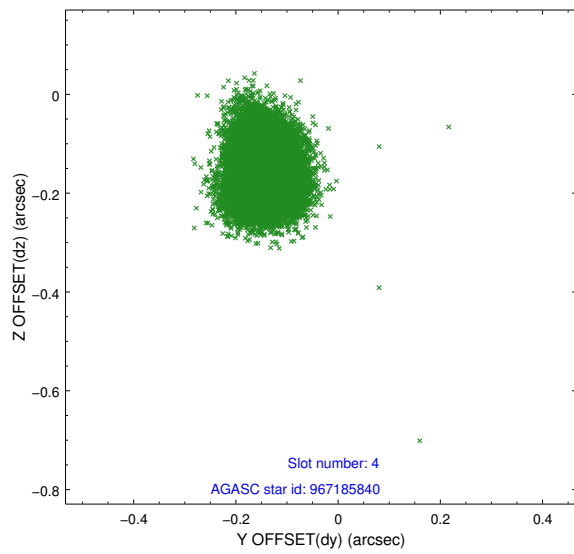
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	7519	-0.028	-0.113	0.007	0.011	0.000000	0.000000	-755.42	-1883.80
1	FID	ACIS-S-4	7.18	7518	-0.009	0.044	0.007	0.012	0.000000	0.000000	2157.88	24.68
2	FID	ACIS-S-5	7.23	7520	0.006	0.077	0.007	0.012	0.000000	0.000000	-1808.11	18.54
3	GUIDE	967706296	8.28	15032	0.241	-0.271	0.060	0.098	262.582774	-34.480498	-2256.07	1222.95
4	GUIDE	967185840	8.21	15037	-0.138	-0.157	0.067	0.110	262.638986	-33.654421	720.13	1116.22
5	GUIDE	967311664	8.35	15039	-0.194	0.301	0.103	0.155	263.779418	-33.687761	650.12	-2301.51
6	GUIDE	967185024	8.66	15030	-0.142	-0.114	0.056	0.090	262.820462	-33.346243	1840.03	592.68
7	GUIDE	967839384	9.21	15031	0.233	0.243	0.089	0.143	263.774555	-34.464522	-2145.91	-2312.44

## 2.4 Star Slots

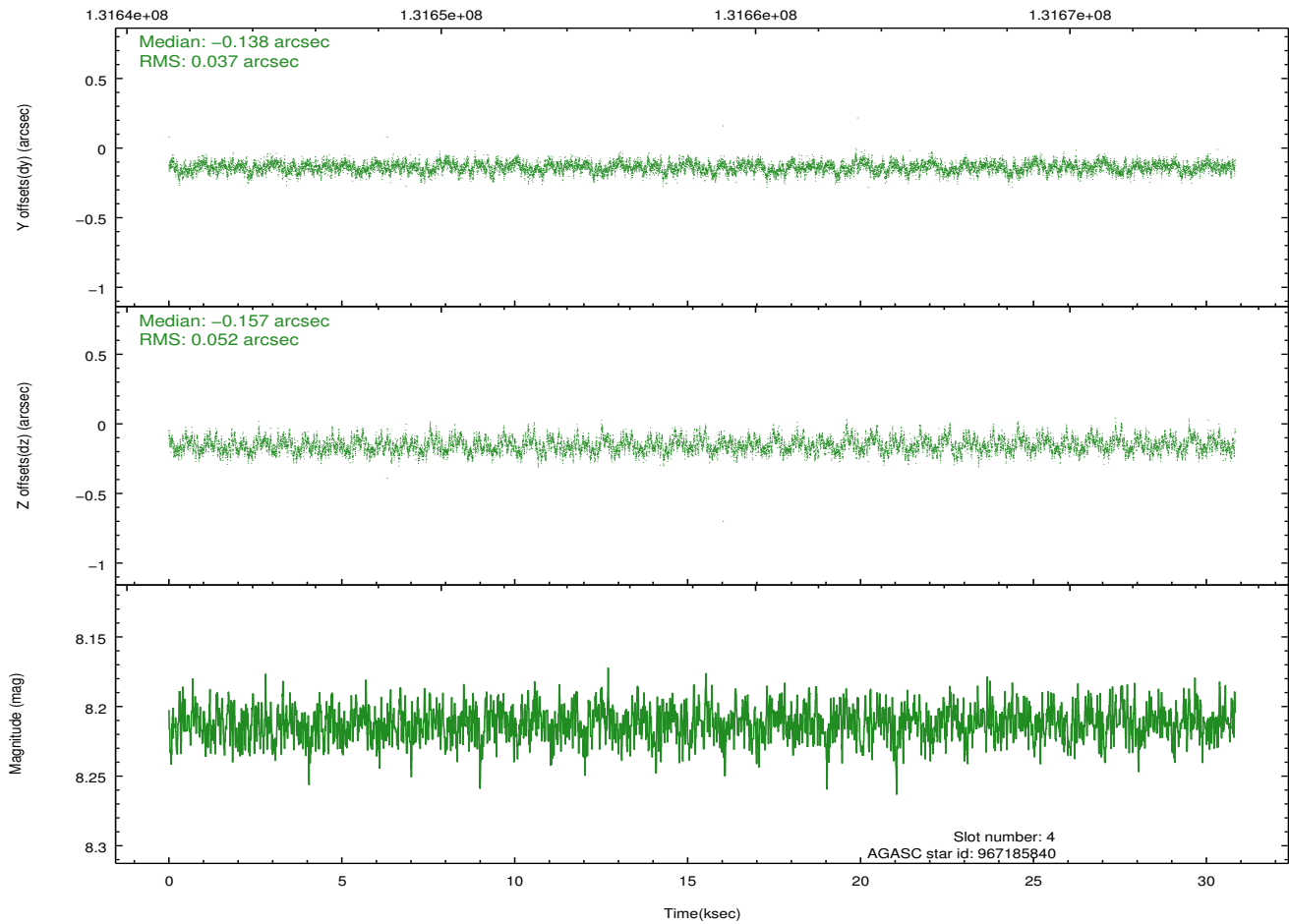
### 2.4.1 Slot 3



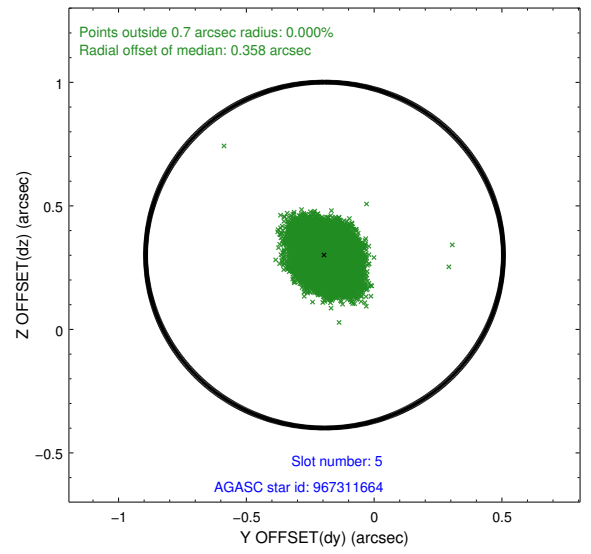
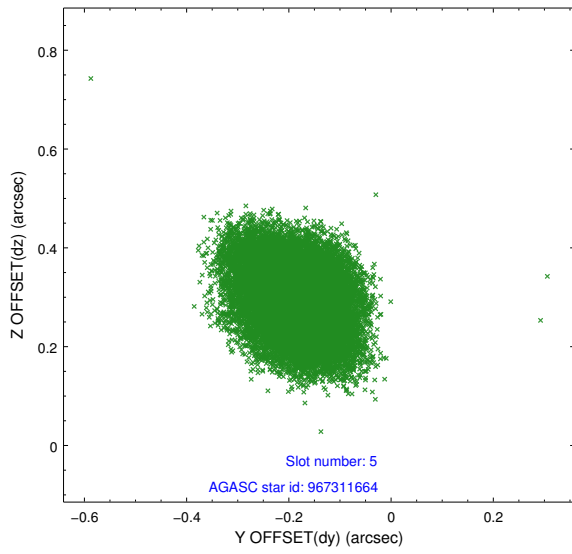
## 2.4.2 Slot 4



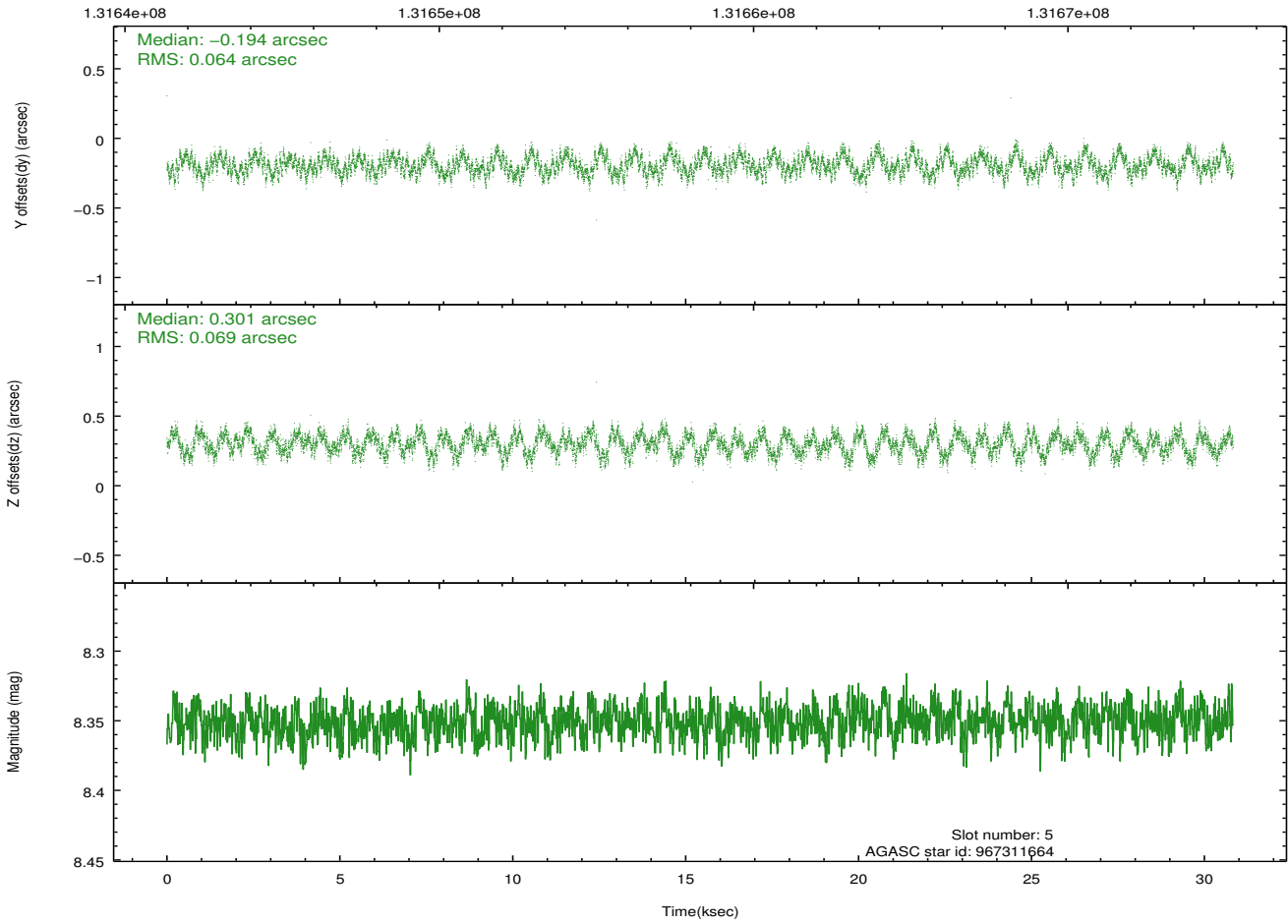
Time (s)



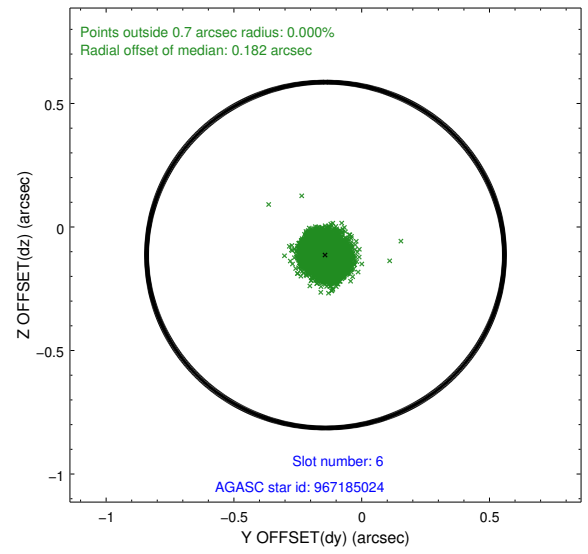
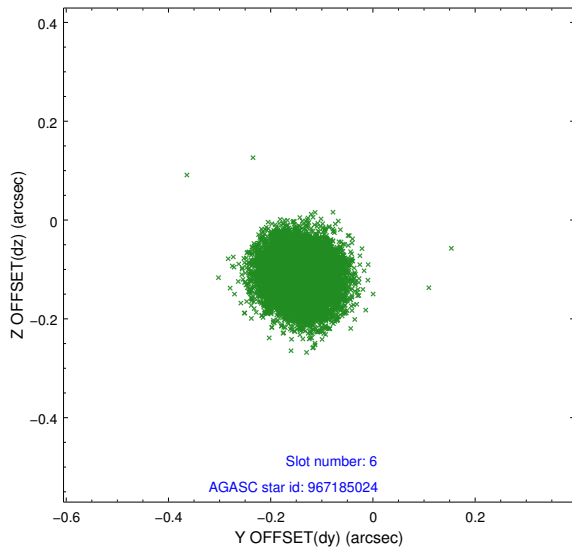
### 2.4.3 Slot 5



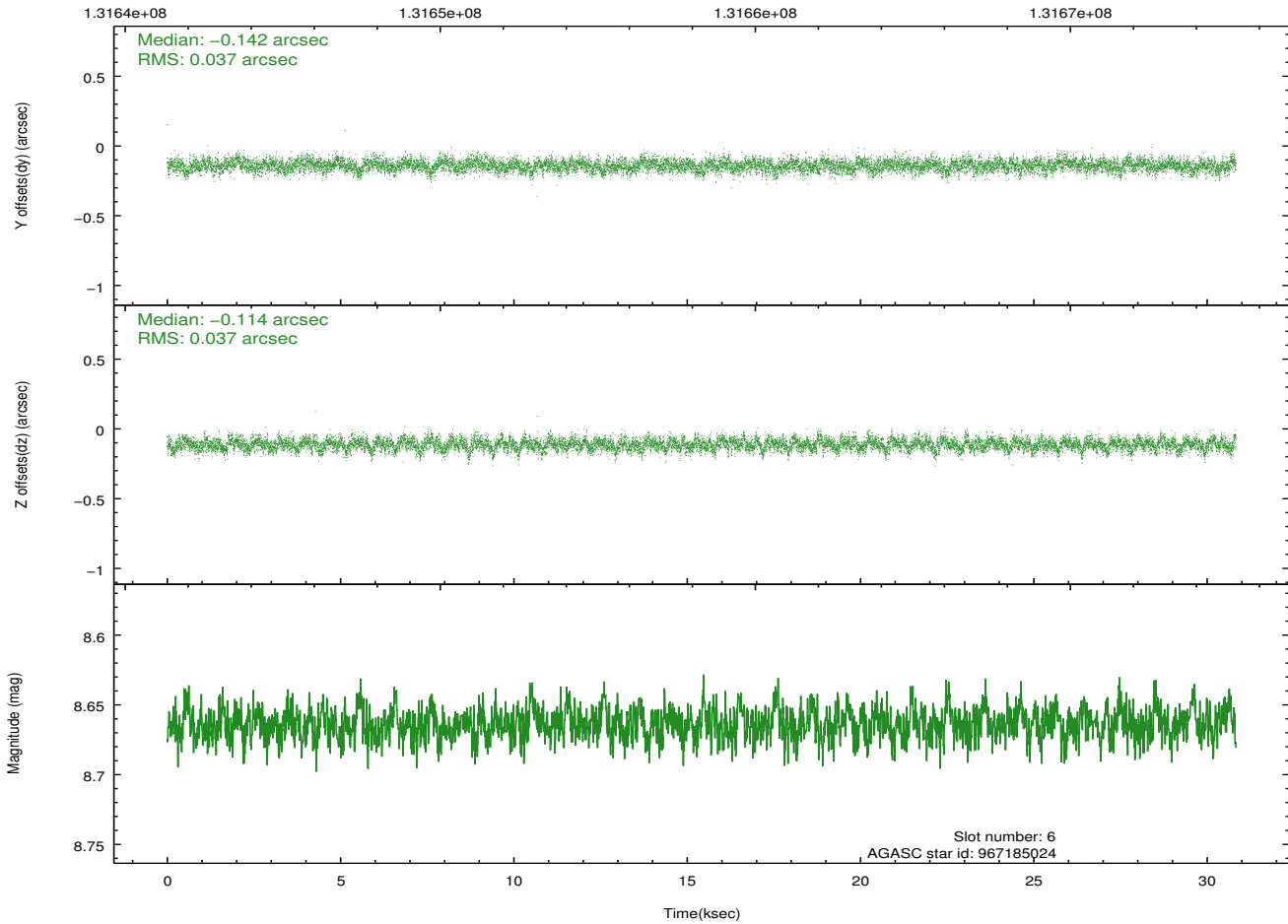
Time (s)



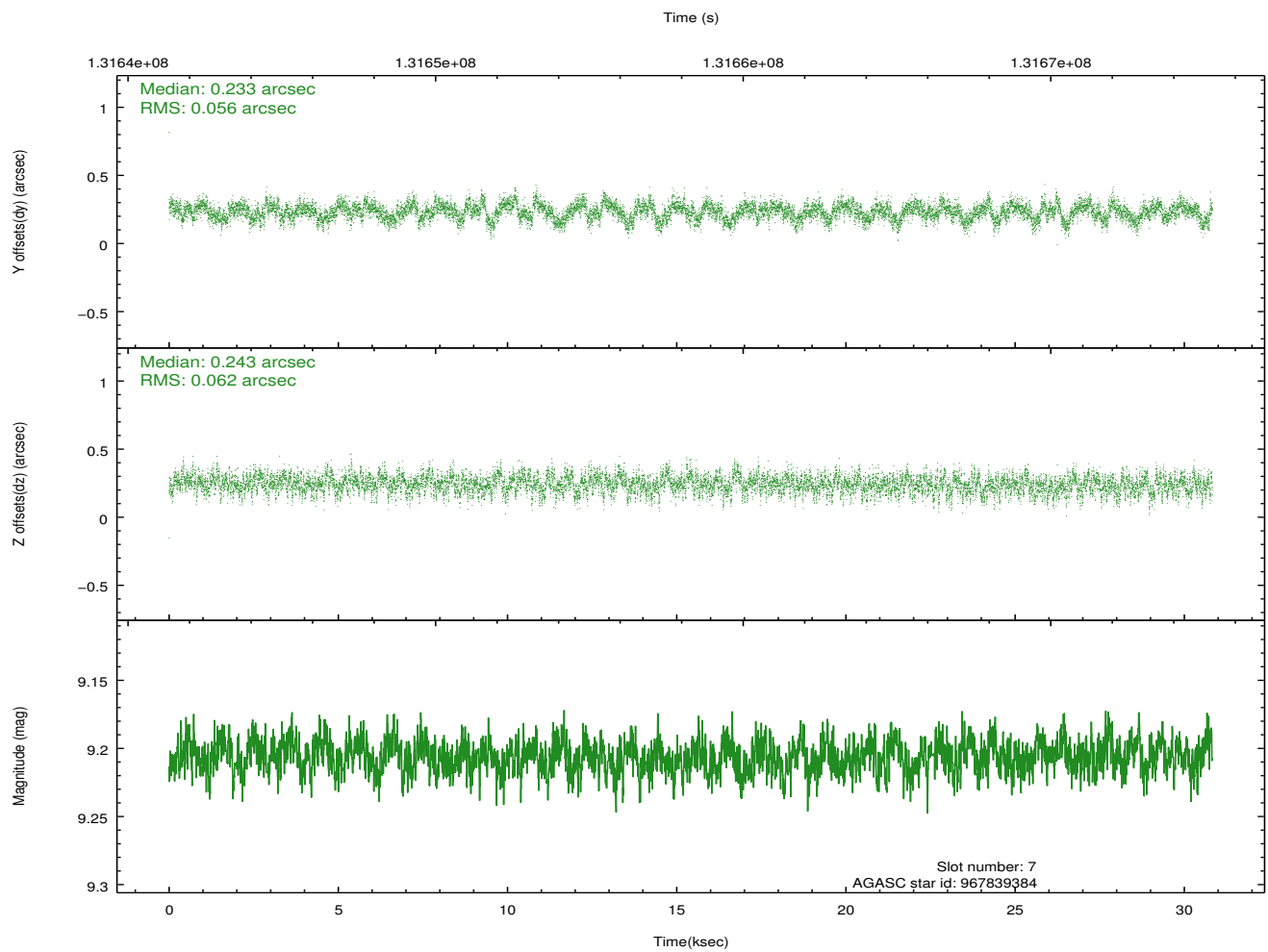
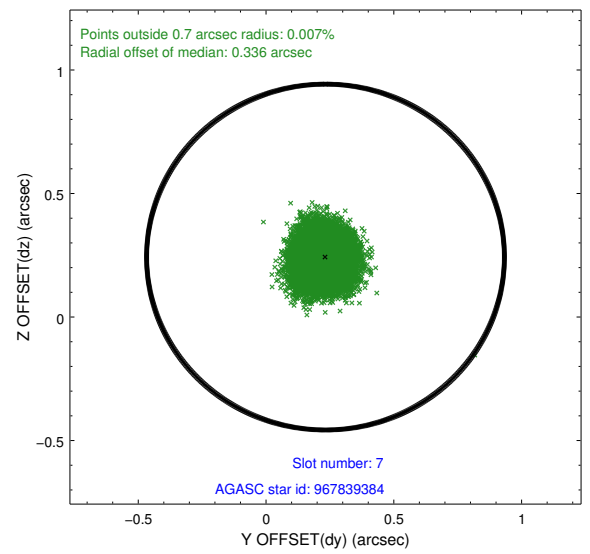
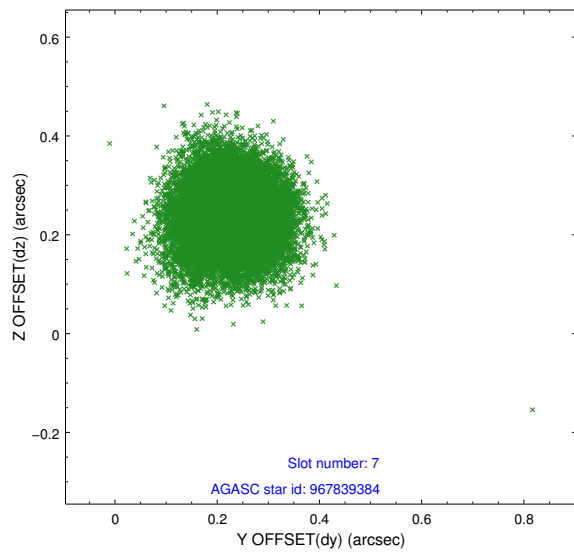
## 2.4.4 Slot 6



Time (s)

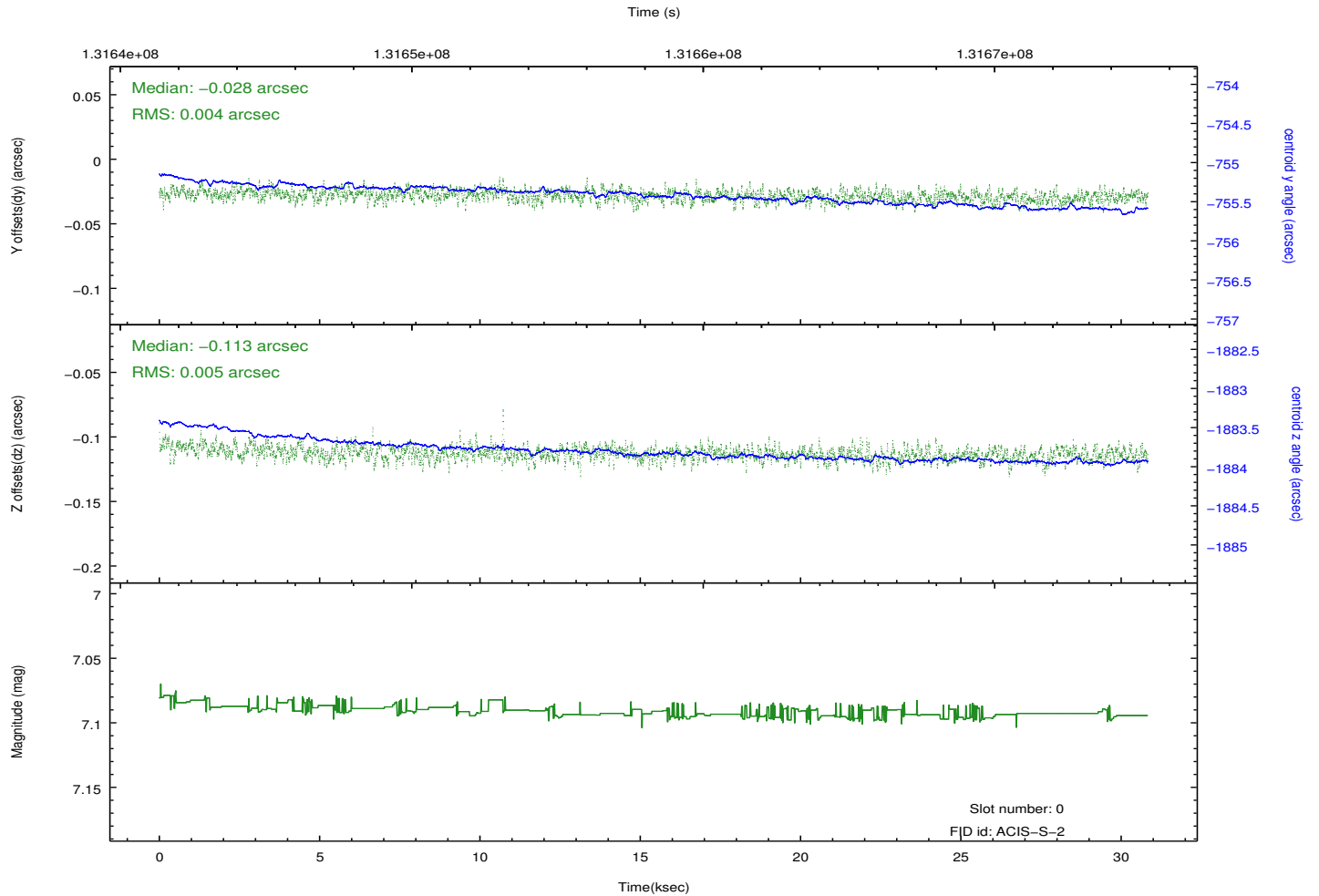
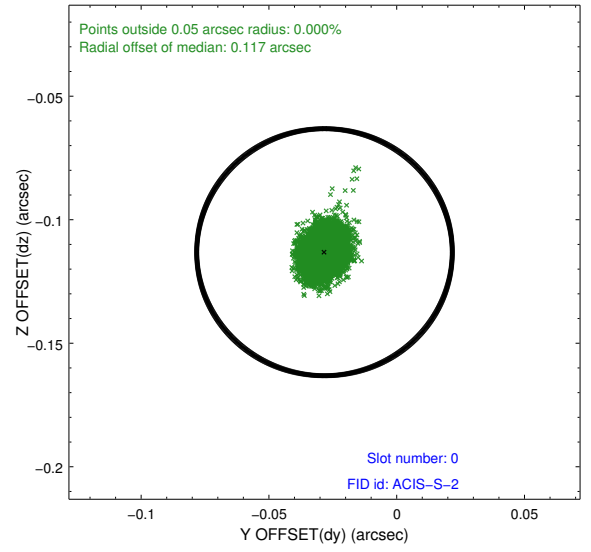
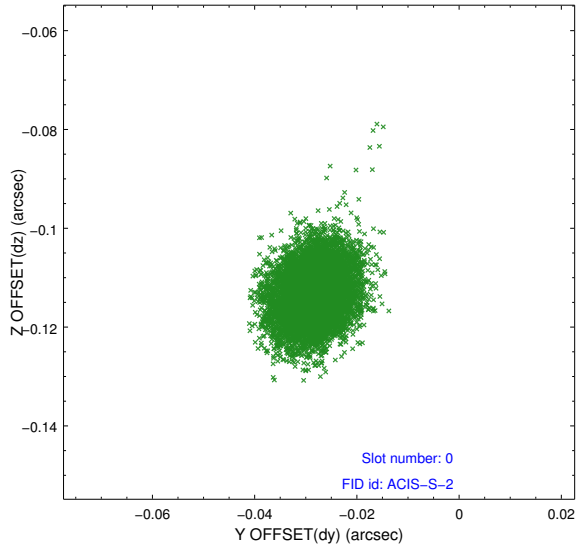


## 2.4.5 Slot 7

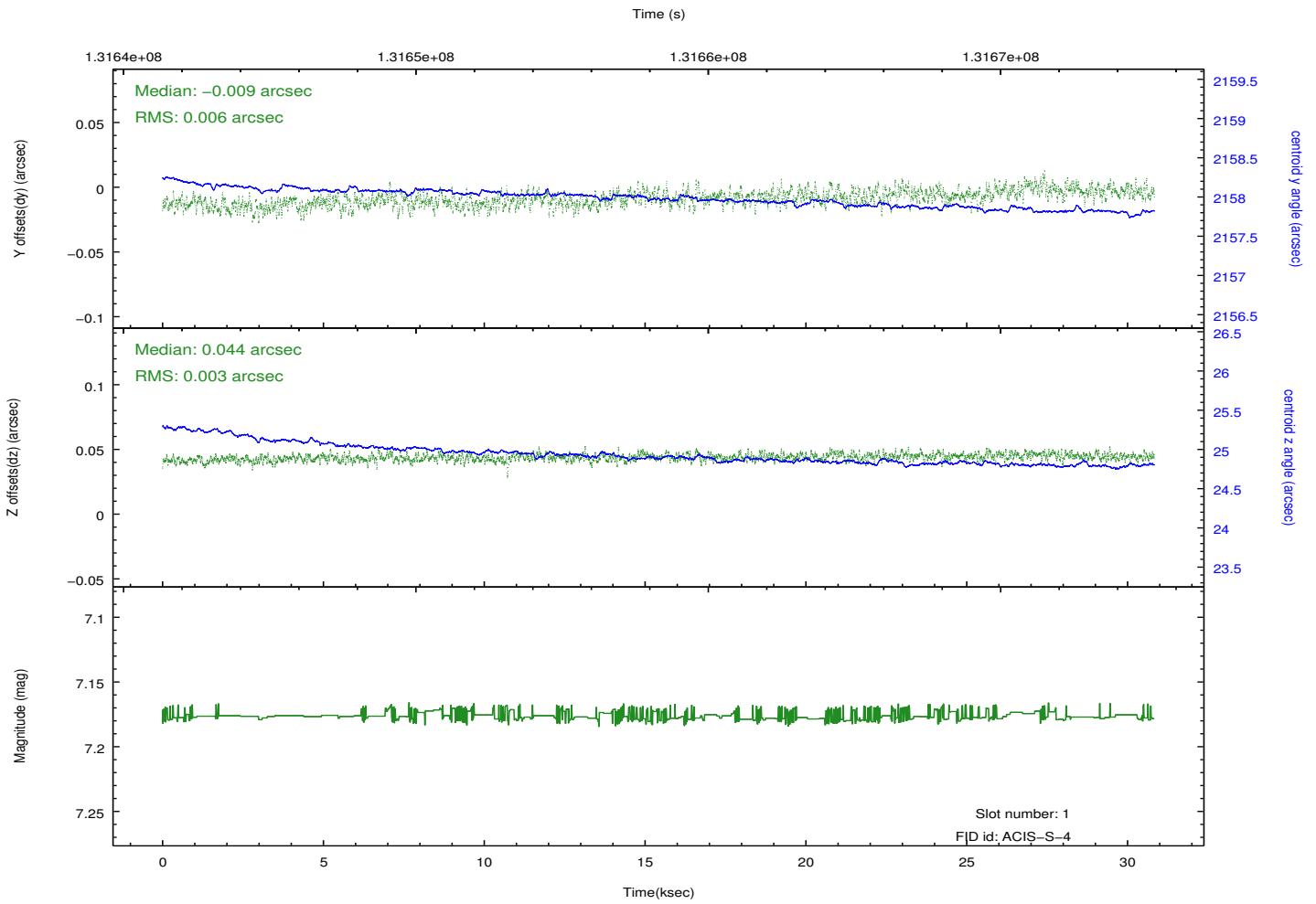
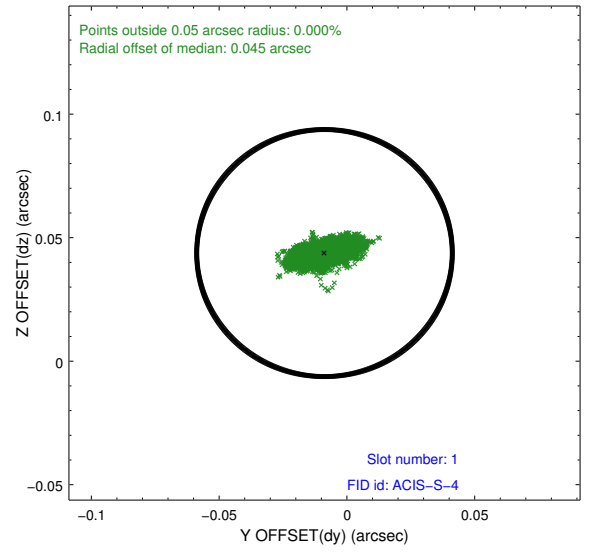
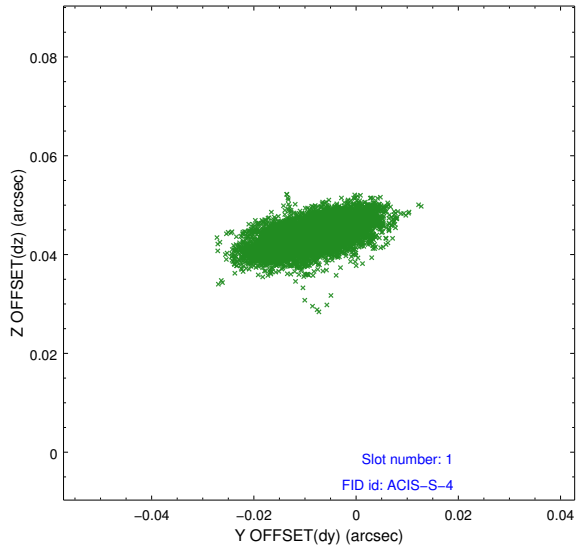


## 2.5 FID Slots

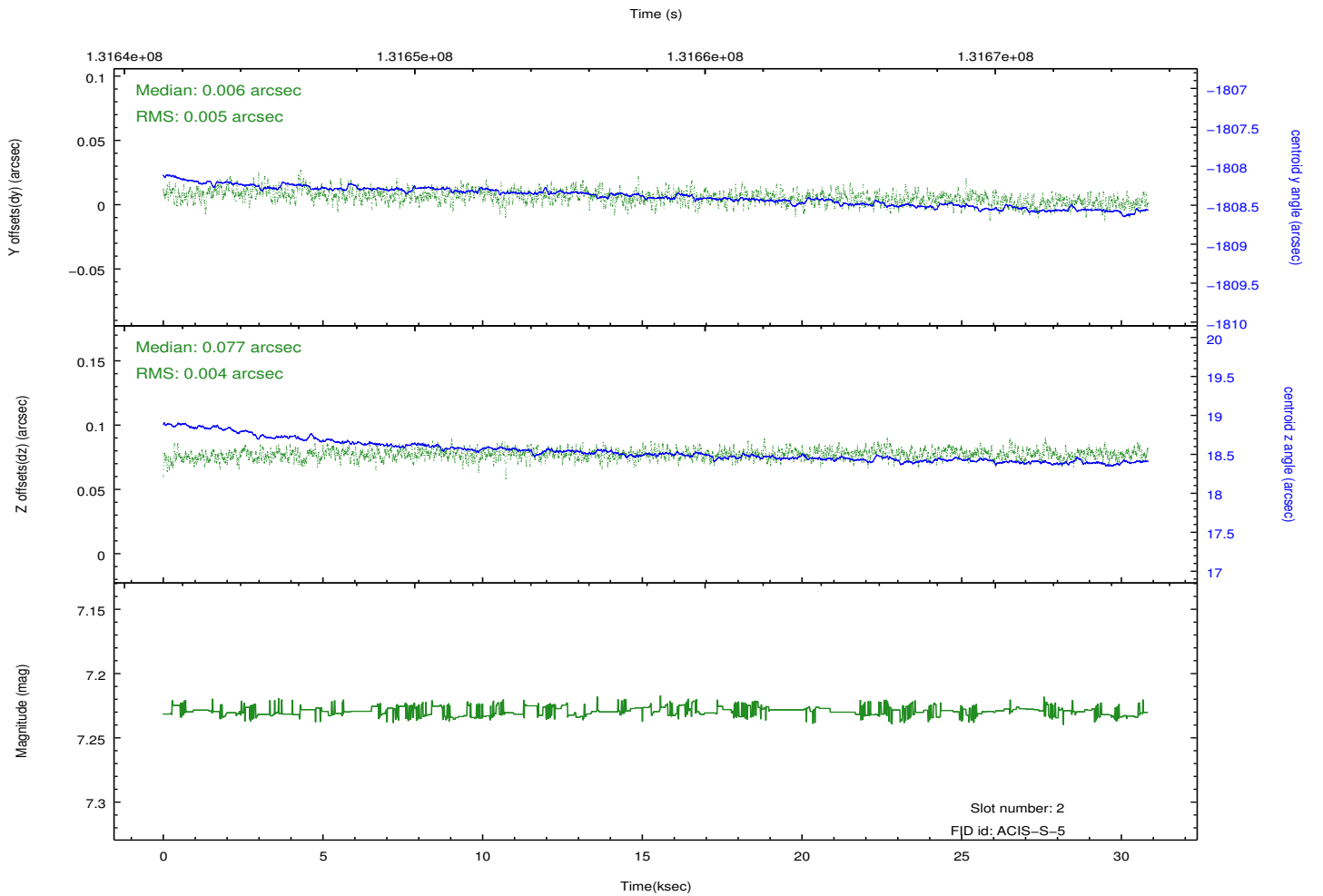
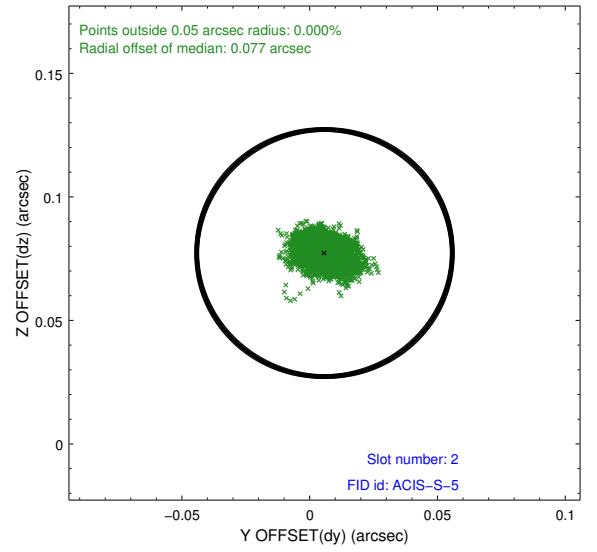
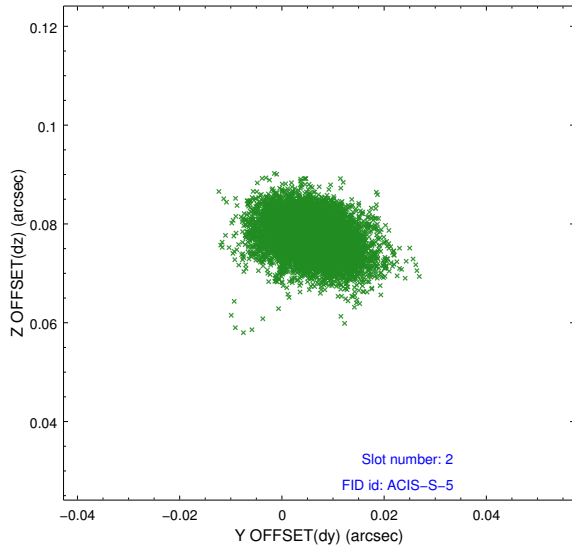
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

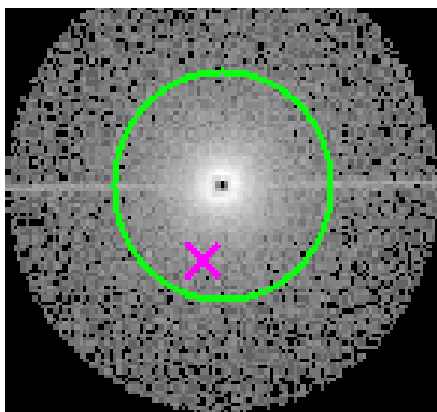


### 3 Gratings

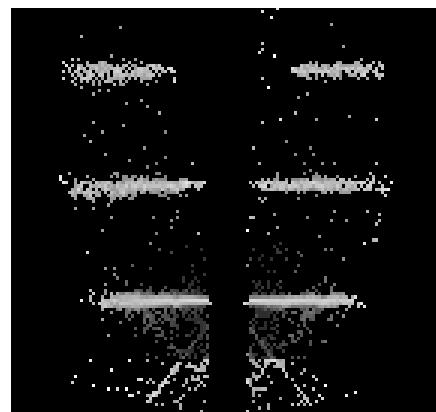
#### 3.1 HEG Arm



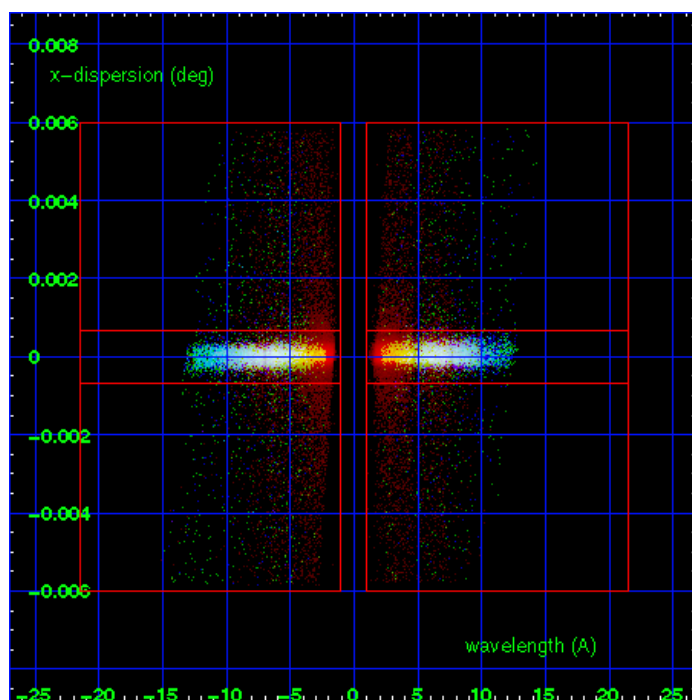
HEG Order Sort 123



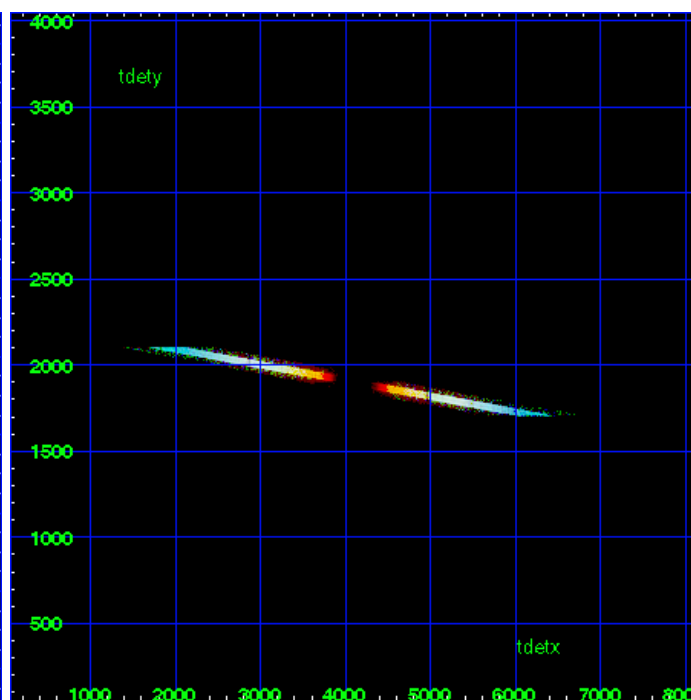
HEG Zero Order



HEG Order Sort ALL

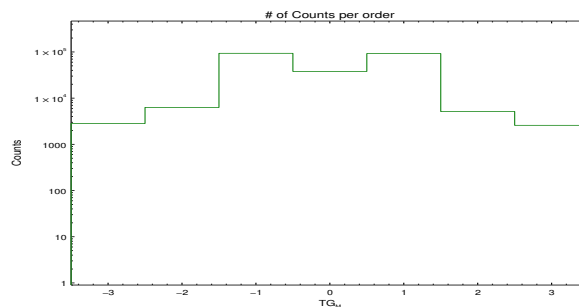


Spot Image HEG

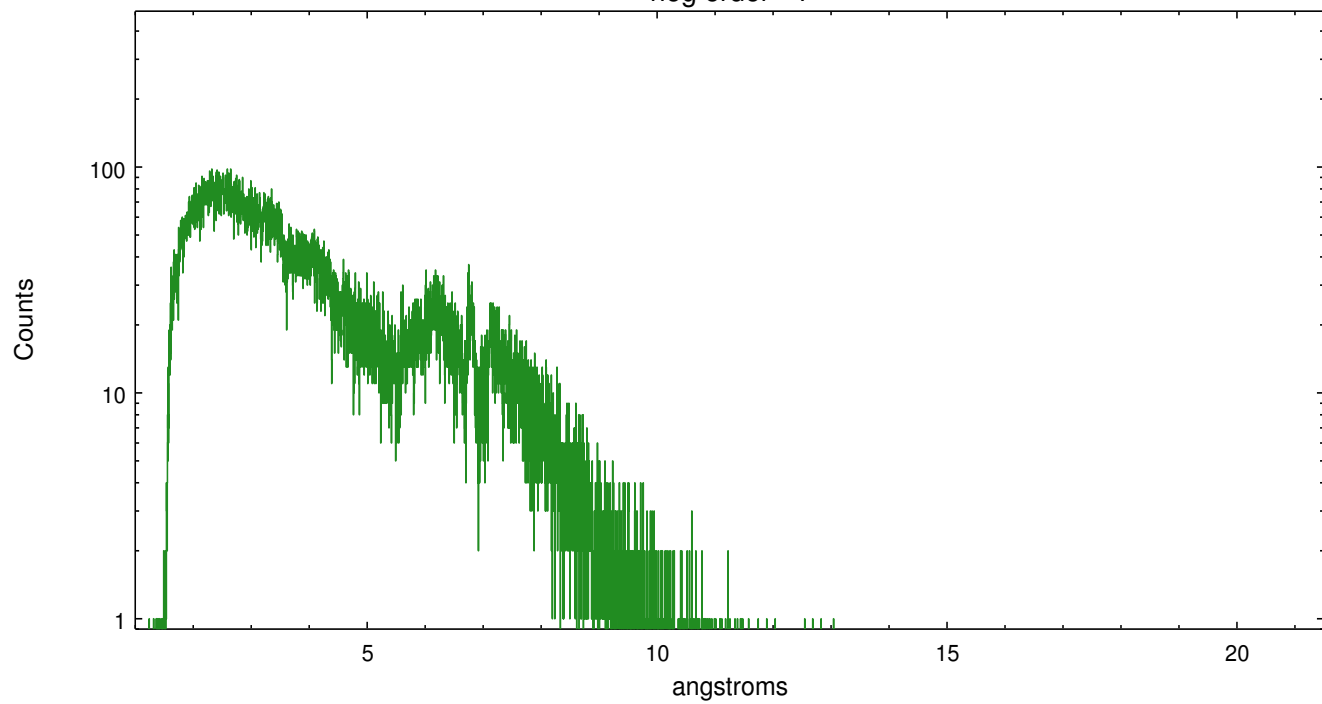


Full Detector HEG

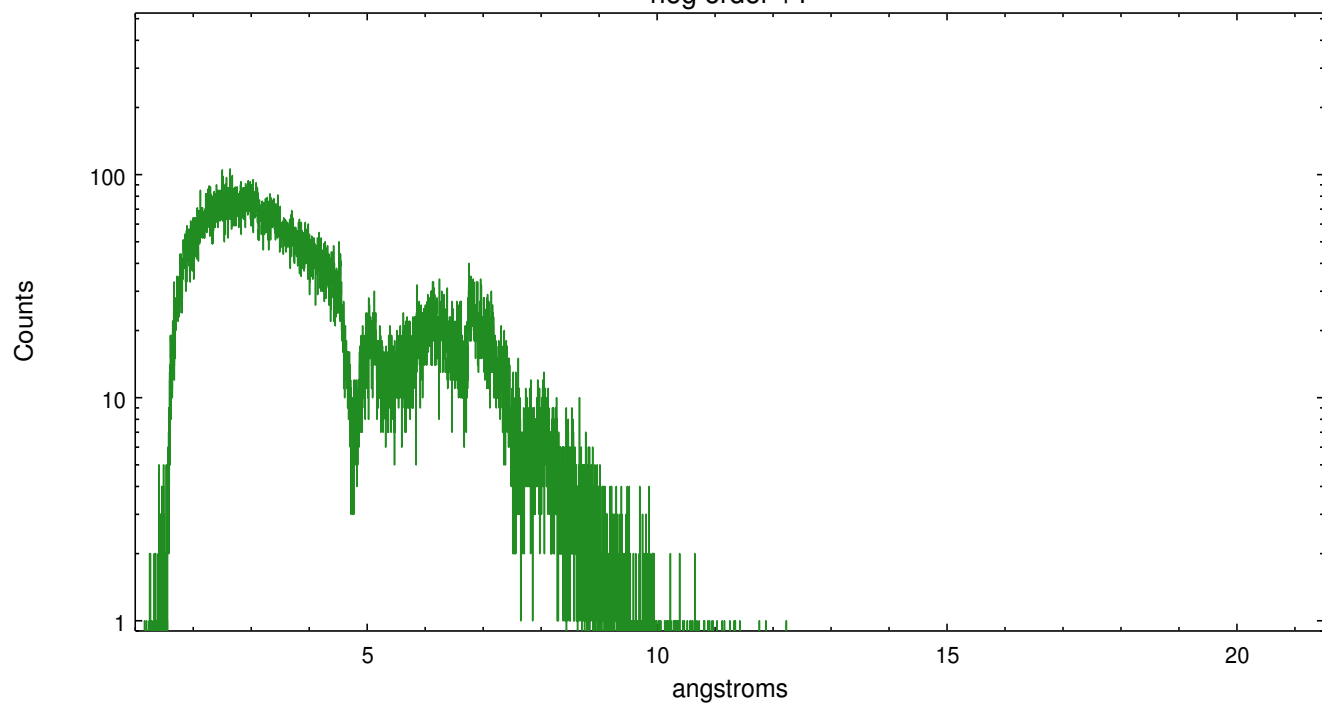
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2828	6303	93335	37923	92204	5132	2577



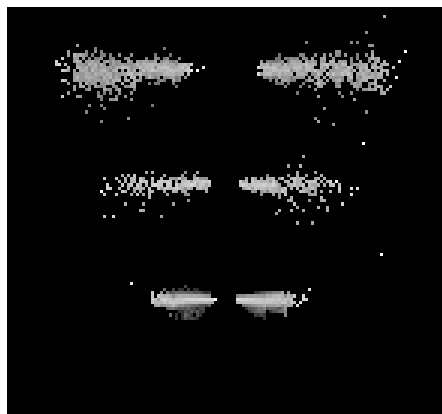
heg order -1



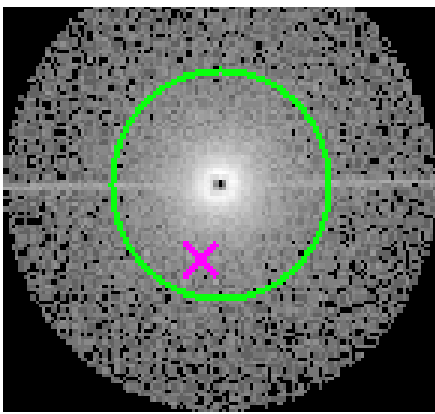
heg order +1



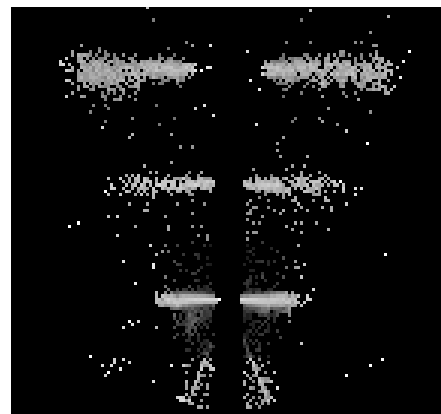
### 3.2 MEG Arm



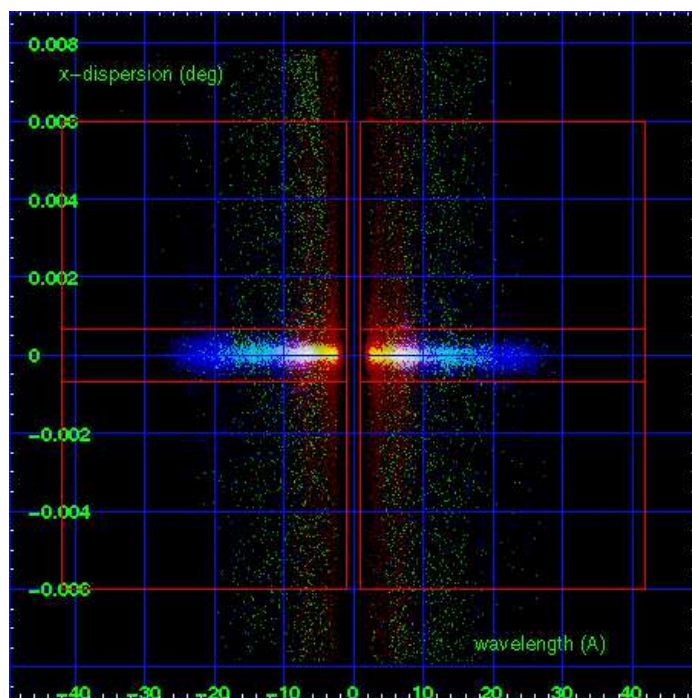
MEG Order Sort 123



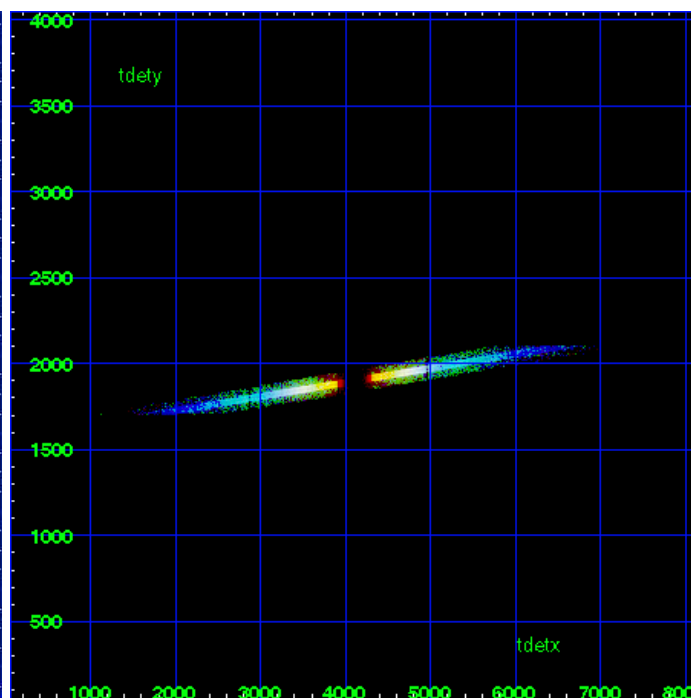
MEG Zero Order



MEG Order Sort ALL

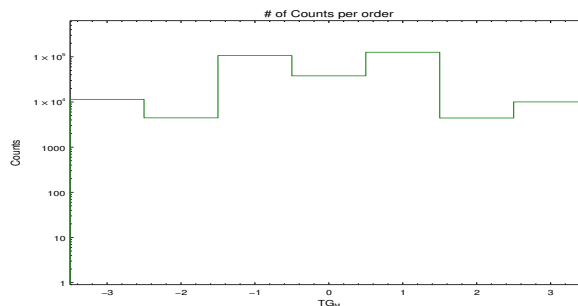


Spot Image MEG

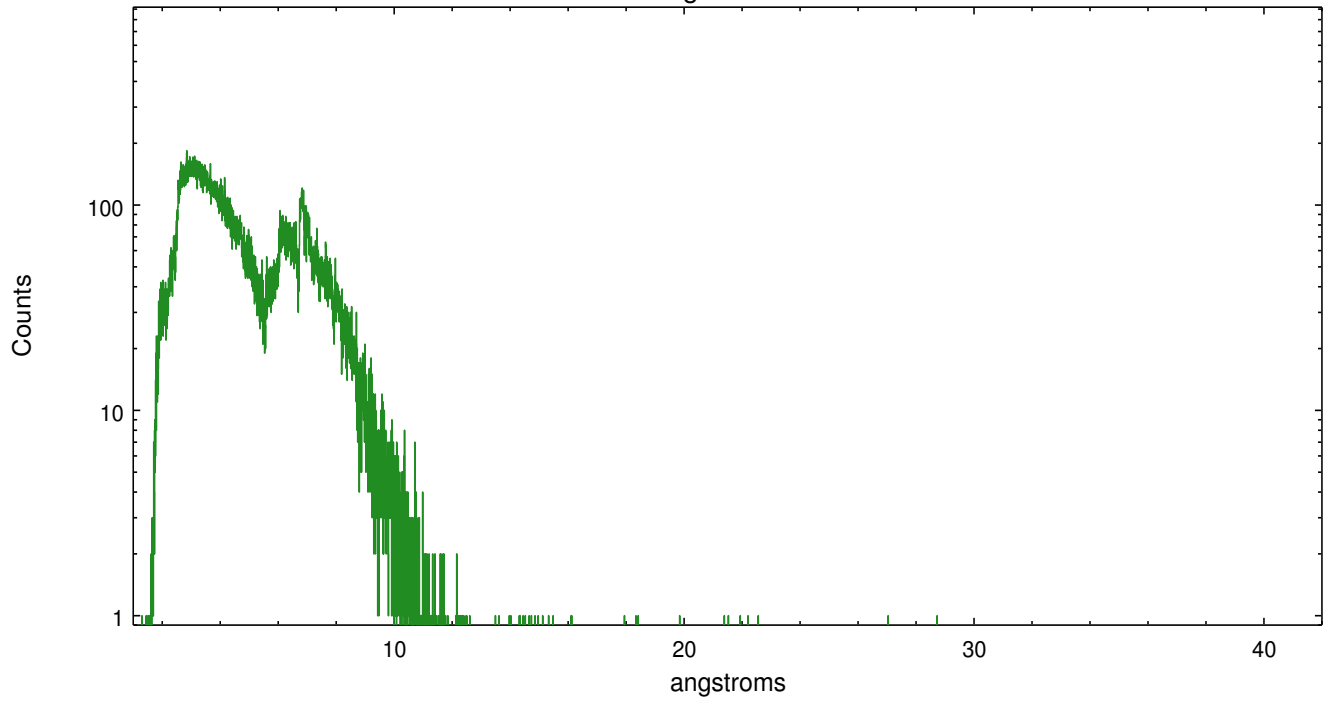


Full Detector MEG

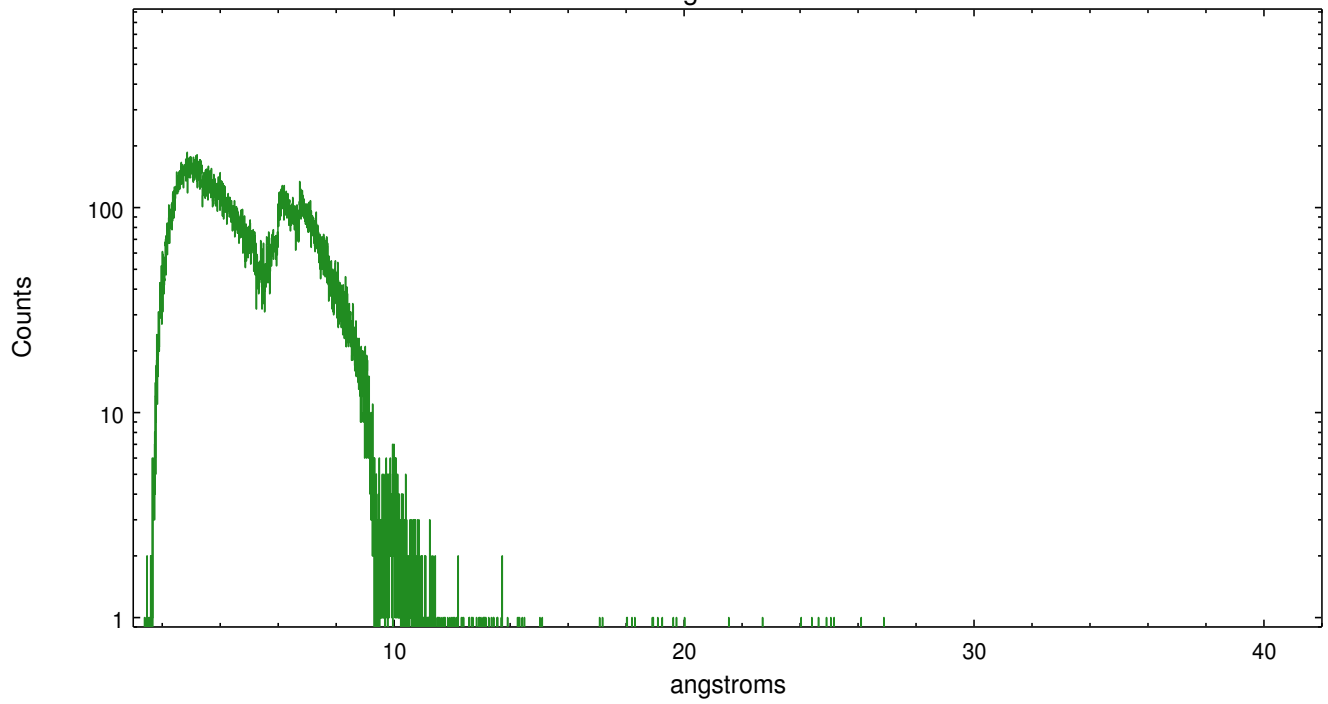
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	11419	4453	106472	37923	126207	4415	10031



meg order -1



meg order +1



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.10.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.484

## A.2 Comments

Zeroth order piled up and cratered. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates ( $x=4101.28$ ,  $y=4114.46$ ) 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.