

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 3822 - L2 Version 3  
Chandra X-Ray Center

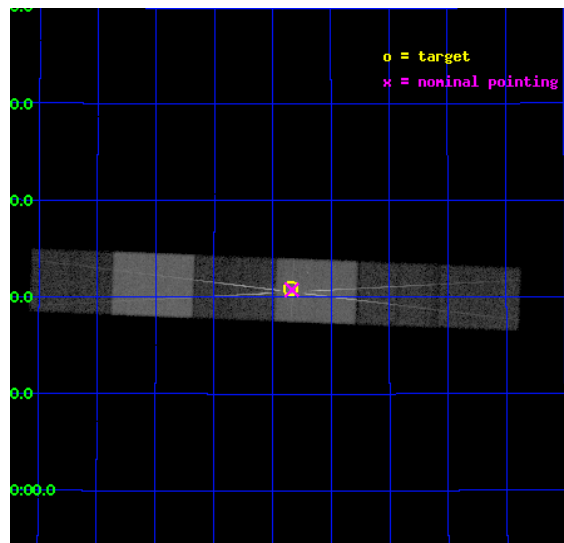
L2 Processing Date : Nov 9 2012

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# 1 Front

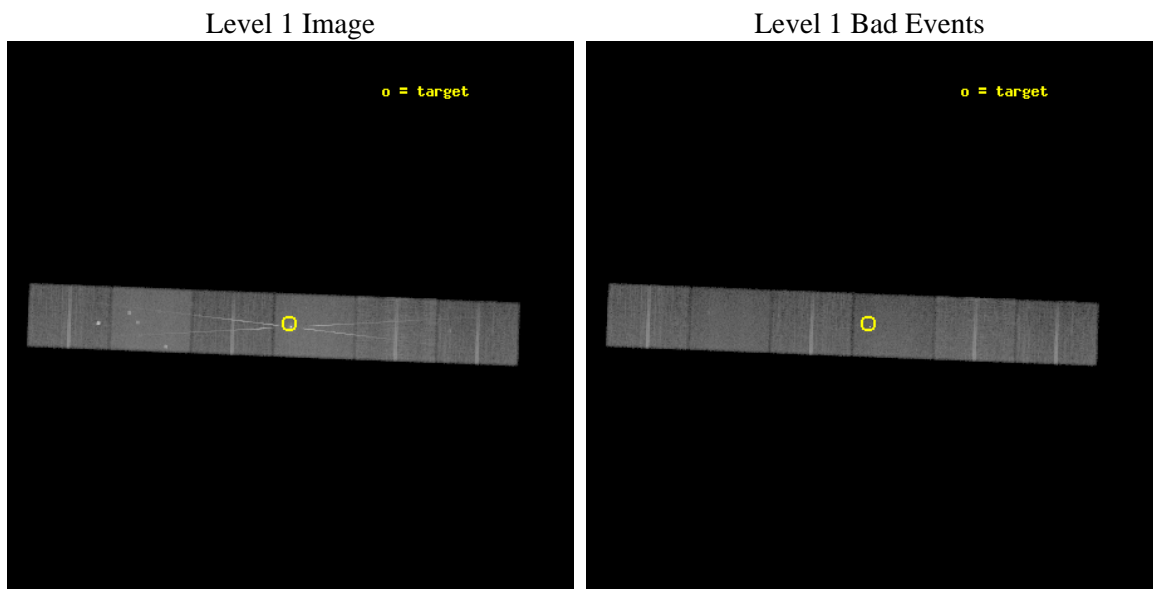
seq_num	400309	Sequence number
obs_id	3822	Observation id
title	X-RAY TRANSMISSION SPECTROSCOPY DURING THE STAR-RISE OF HER X-1	Pr
observer	Dr. Mario Jimenez-Garate	Principal investigator
object	HER X-1	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	254.460417	Observer's specified target RA [deg]
dec_targ	35.347778	Observer's specified target Dec [deg]
ra_nom	254.45862483636	Nominal RA [deg]
dec_nom	35.346043617496	Nominal Dec [deg]
roll_nom	2.2118642708065	Nominal Roll [deg]
revision	3	Processing version of data
ontime	30137.5	Sum of GTIs [s]
livetime	29650.753234896	Livetime [s]
ontime4	30137.5	Sum of GTIs [s]
ontime5	30137.5	Sum of GTIs [s]
ontime6	30137.5	Sum of GTIs [s]
ontime7	30137.5	Sum of GTIs [s]
ontime8	30137.5	Sum of GTIs [s]
ontime9	30137.5	Sum of GTIs [s]
l2events	269070	Number of level 2 events



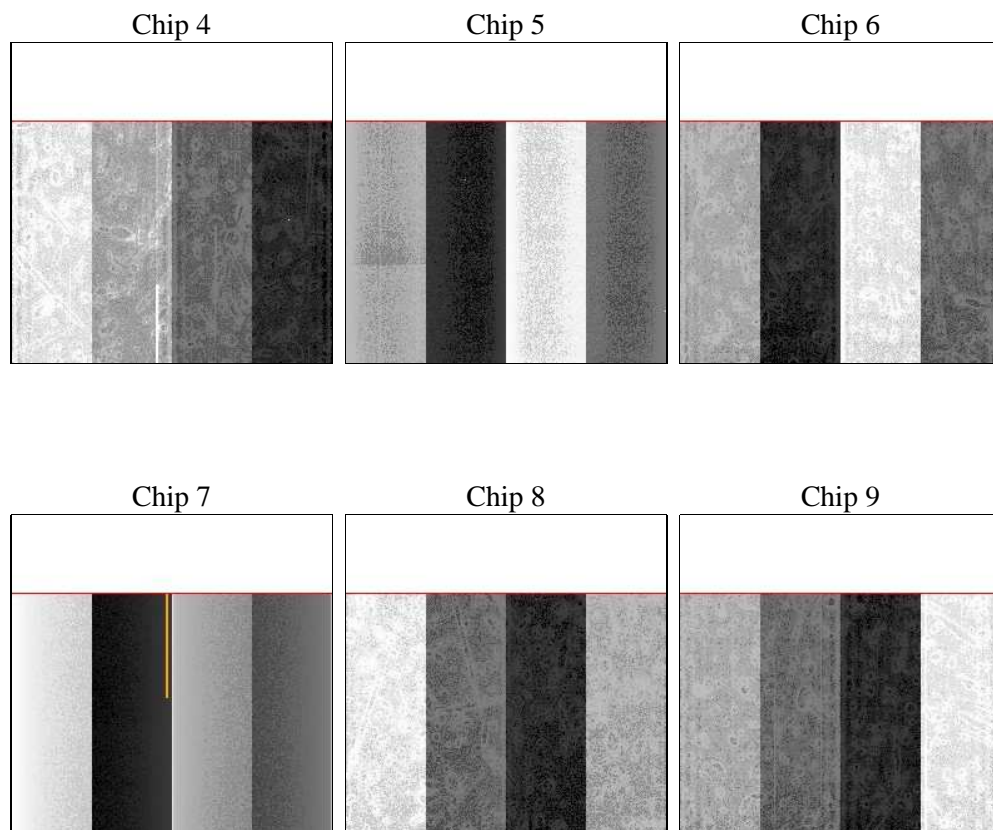
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	2	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	30137.5	Sum of GTIs [s]
caldsver	4.5.2	&#160	ontime4	30137.5	Sum of GTIs [s]
date	2012-11-09T08:20:35	Date and time of file creation	ontime5	30137.5	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	30137.5	Sum of GTIs [s]
			ontime7	30137.5	Sum of GTIs [s]
			ontime8	30137.5	Sum of GTIs [s]
			ontime9	30137.5	Sum of GTIs [s]
			l1events	1085839	Number of level 1 events

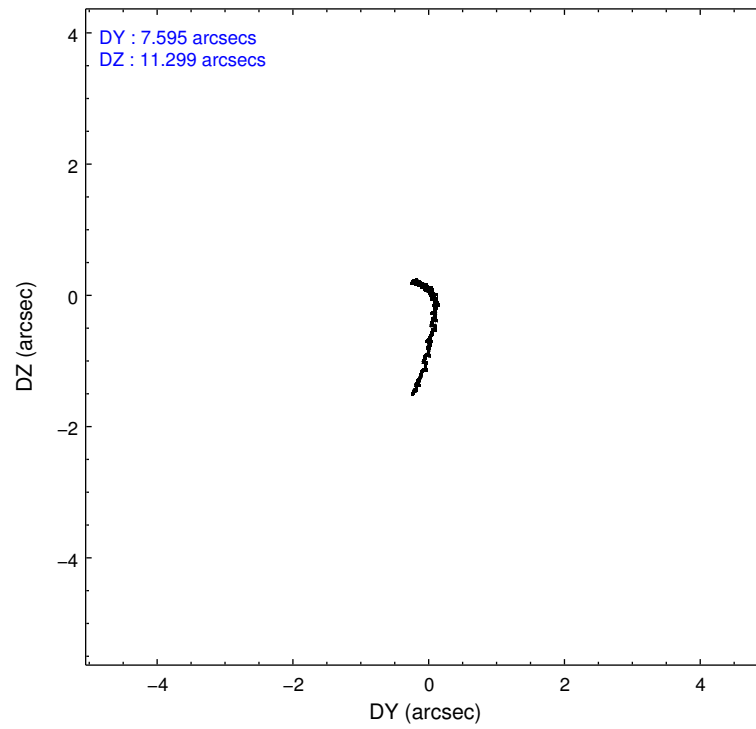
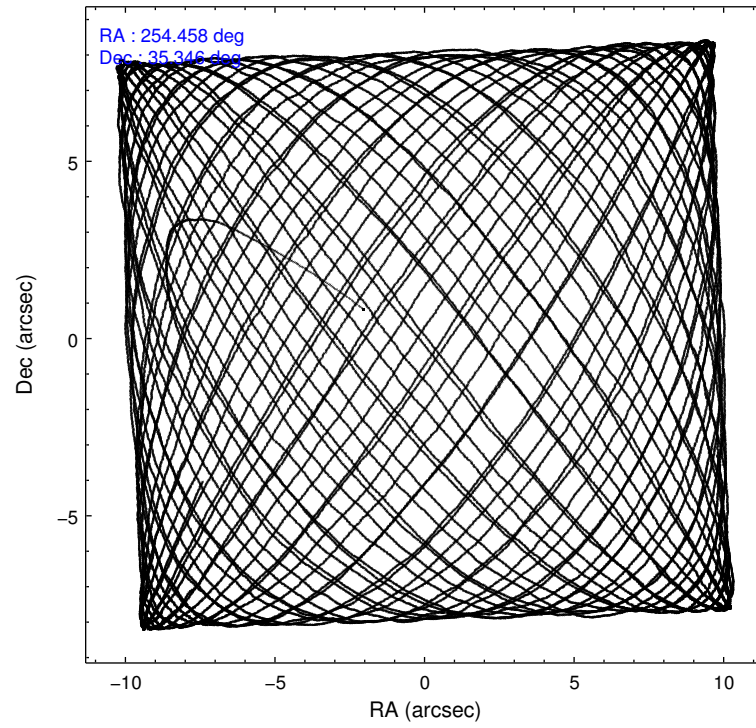
### 2.1.4 Events

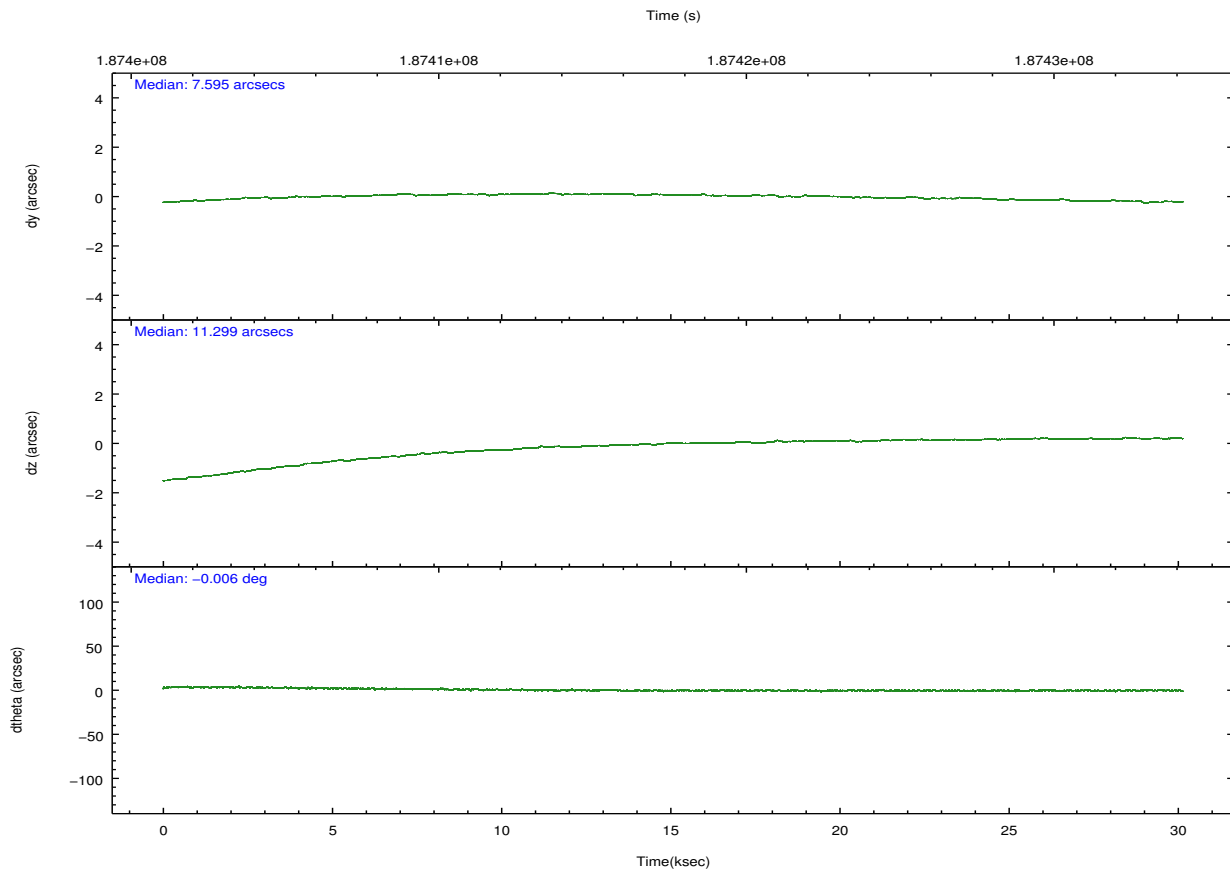
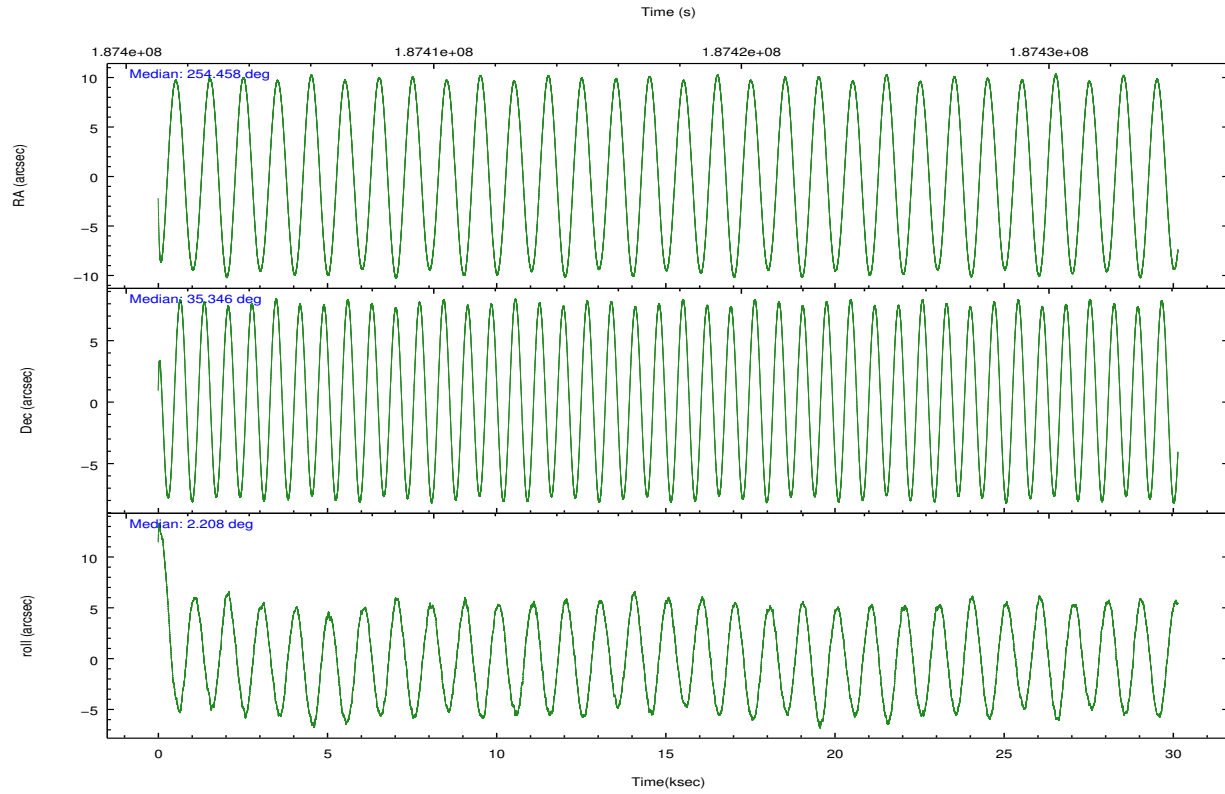
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	160416	215624	157815	224547	185452	141985	grade 0 events	15633	11672	18752	13264	16261	8915
rejected events	135898	122436	124432	122229	144811	123555		9%	5%	11%	5%	8%	6%
rejected %	84%	56%	78%	54%	78%	87%	grade 1 events	145	253	110	511	108	71
								0%	0%	0%	0%	0%	0%
							grade 2 events	4045	28787	5896	22260	8736	3770
								2%	13%	3%	9%	4%	2%
							grade 3 events	1995	5123	2718	10115	4338	1939
								1%	2%	1%	4%	2%	1%
							grade 4 events	1910	4468	2631	10007	4094	1864
								1%	2%	1%	4%	2%	1%
							grade 5 events	6104	16360	6599	19925	8418	6641
								3%	7%	4%	8%	4%	4%
							grade 6 events	3051	50915	5096	53276	10241	3665
								1%	23%	3%	23%	5%	2%
							grade 7 events	127533	98046	116013	95189	133256	115120
								79%	45%	73%	42%	71%	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	254.430626	254.4586248363579	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	35.331230	35.34604361749592	Subarray start row	1	1
[deg] Pointing Roll	2.071431	2.211864270806487	Subarray row count	774	774
[s] Window start time (MET)	187402504.184000	187402504.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	187432864.184000	187432864.184000	[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)	187402680.184000	187400568.4653			
Observation start date	2003-12-10T00:16:56	2003-12-09T23:42:48			
[s] Observation end time (MET)	187432680.184000	187434382.70427			
Observation end date	2003-12-10T08:36:56	2003-12-10T09:06:22			
Read mode	TIMED	TIMED			

## 2.3 Aspect



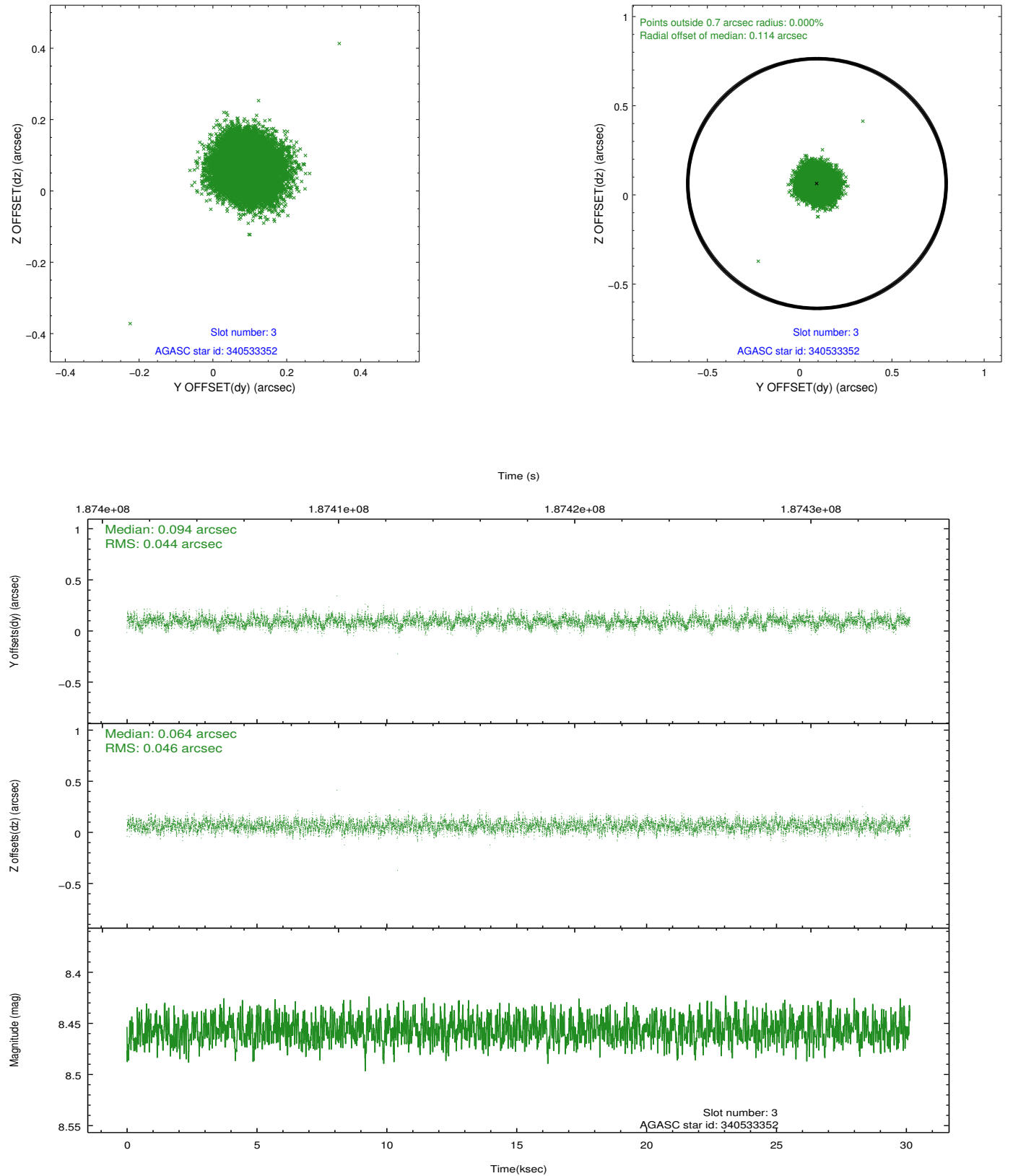


### Slot Statistics

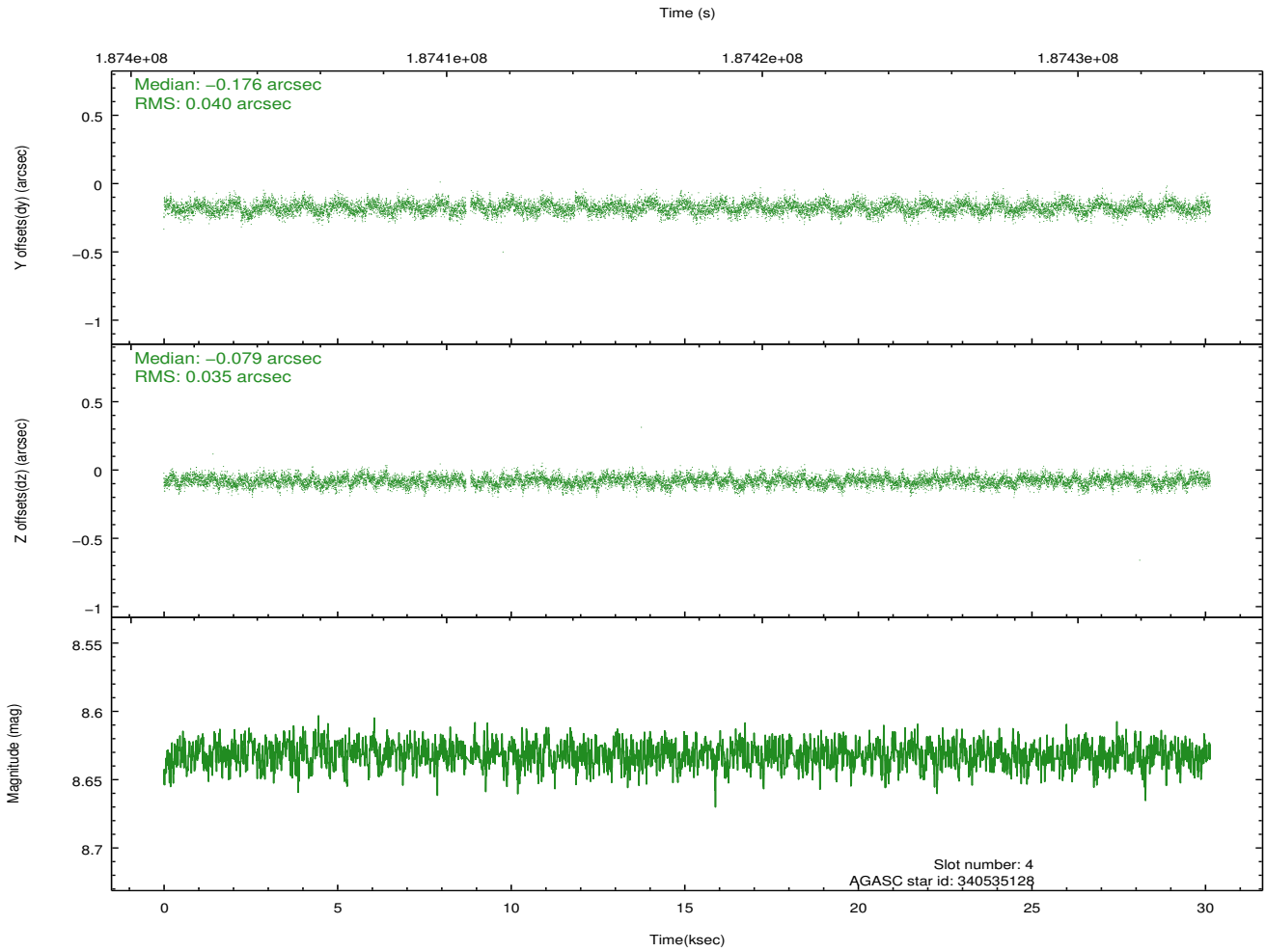
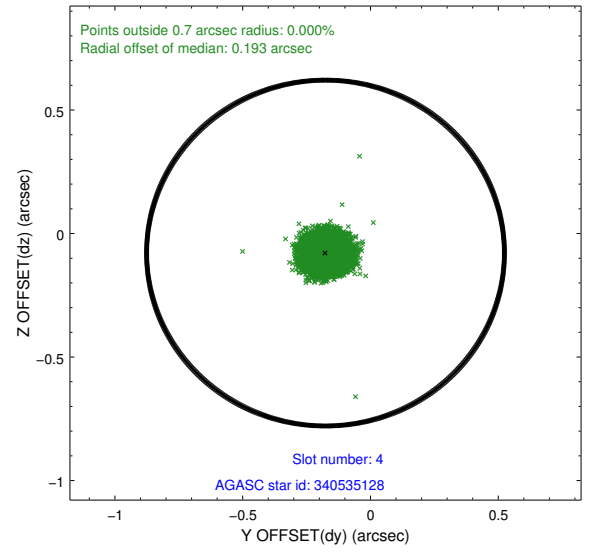
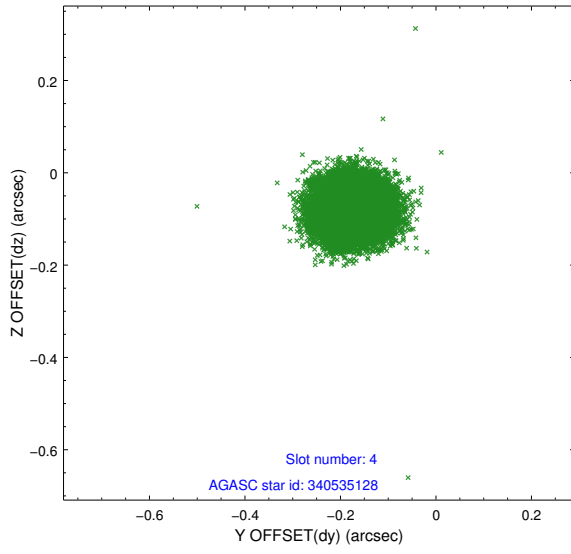
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.18	7352	0.035	0.046	0.017	0.056	0.000000	0.000000	935.94	-1790.03
1	FID	ACIS-S-5	7.23	7353	-0.072	0.043	0.011	0.017	0.000000	0.000000	-1813.12	107.45
2	FID	ACIS-S-6	7.37	7352	0.016	-0.076	0.010	0.047	0.000000	0.000000	401.40	751.37
3	GUIDE	340533352	8.46	14703	0.094	0.064	0.068	0.108	254.563691	34.717962	314.34	-2220.16
4	GUIDE	340535128	8.63	14637	-0.176	-0.079	0.057	0.092	255.168295	35.370645	2169.74	71.59
5	GUIDE	340536192	7.72	14669	0.050	0.048	0.064	0.098	254.294567	35.286536	-404.70	-145.91
6	GUIDE	341060696	9.20	14694	0.010	-0.037	0.083	0.136	254.855764	35.681180	1287.25	1217.86
7	GUIDE	340534080	8.84	14701	0.018	0.006	0.077	0.123	255.228954	35.471551	2358.23	429.98

## 2.4 Star Slots

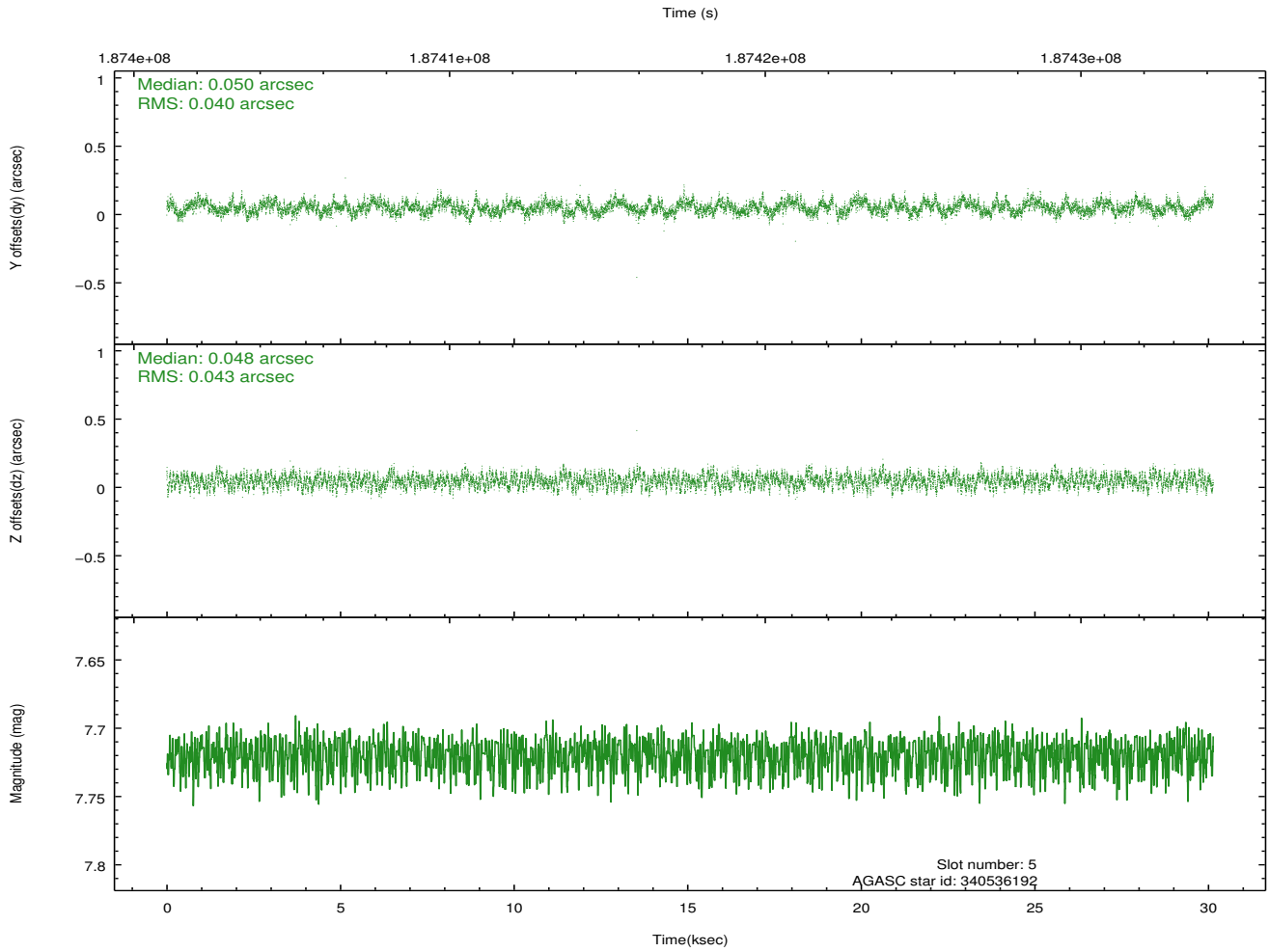
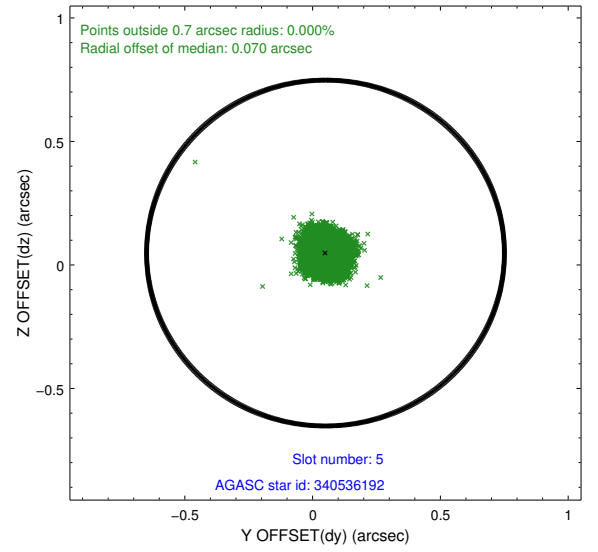
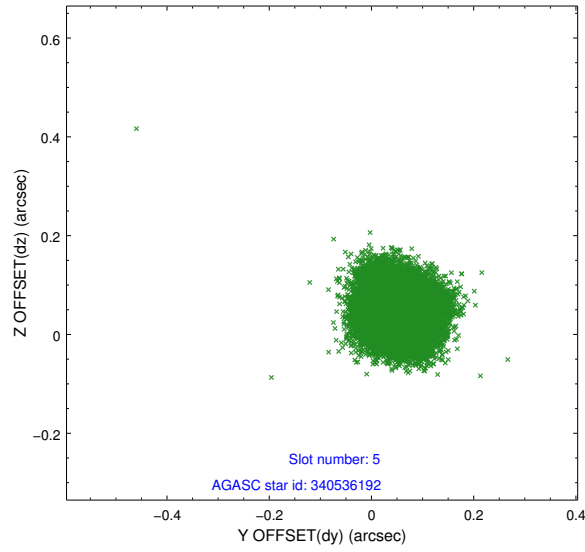
### 2.4.1 Slot 3



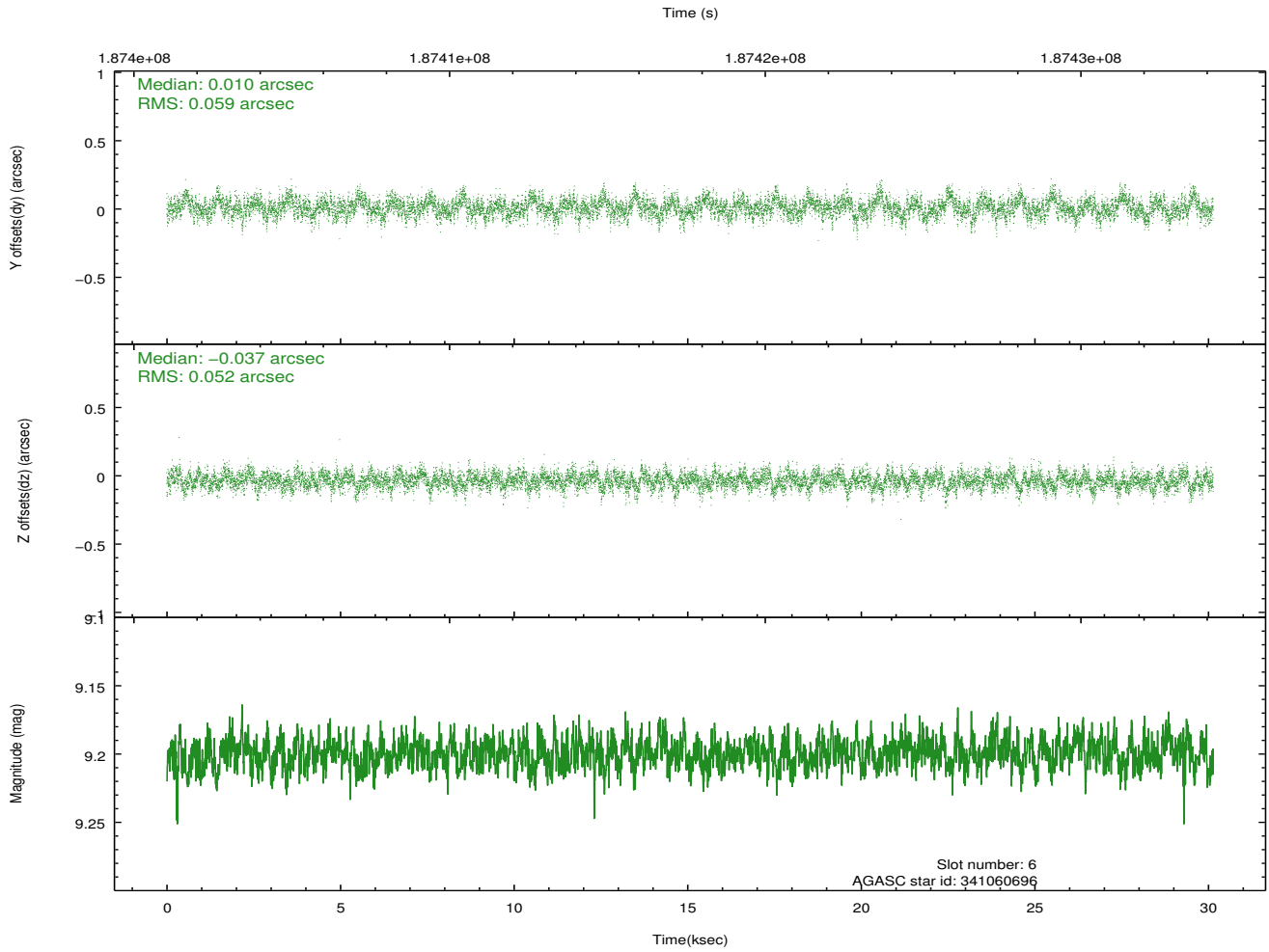
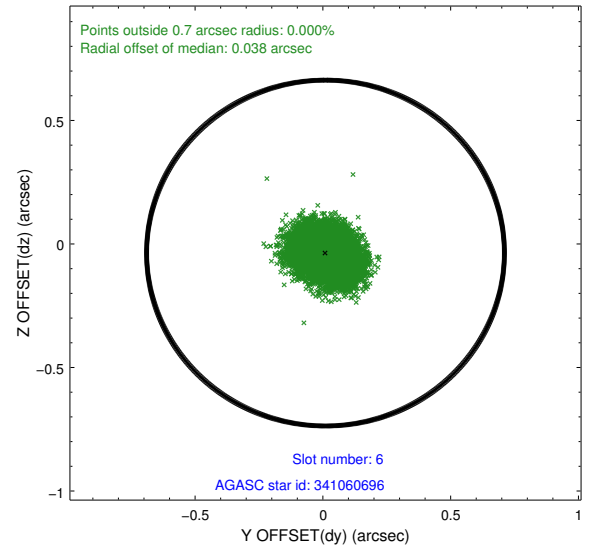
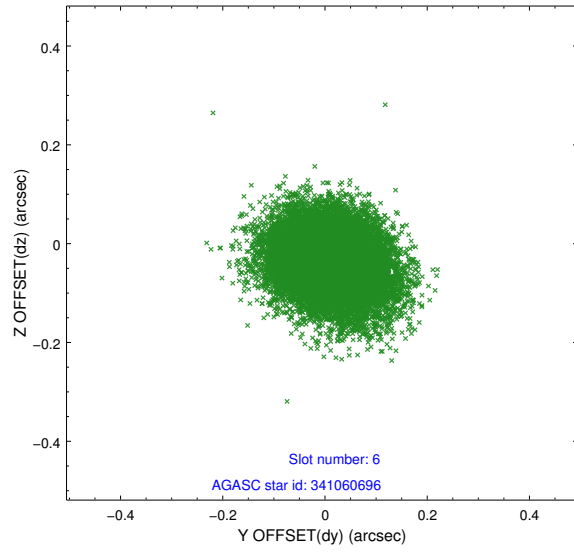
## 2.4.2 Slot 4



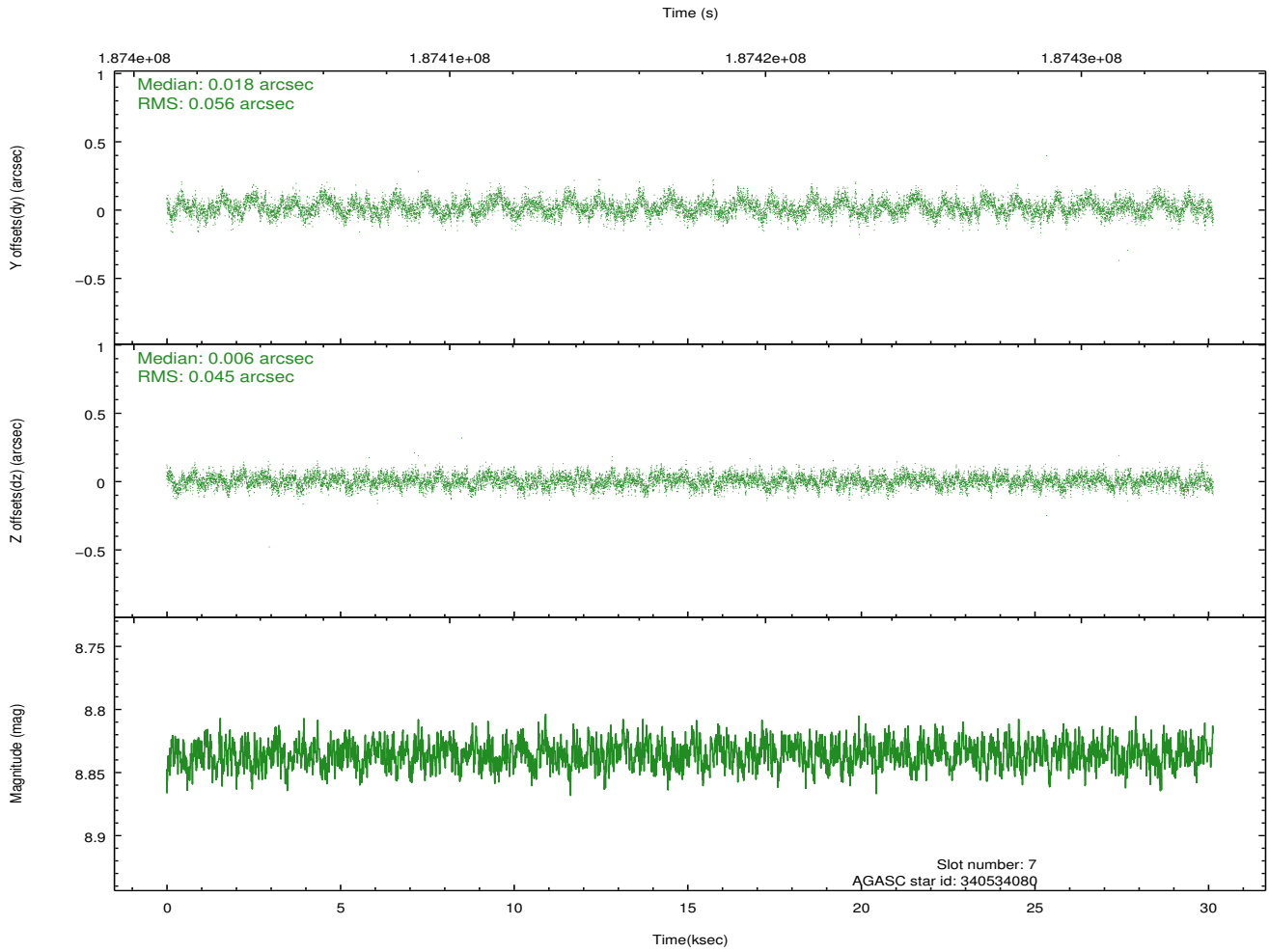
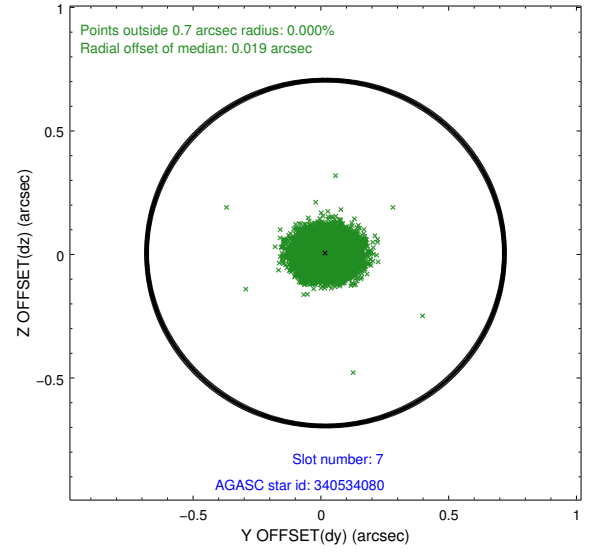
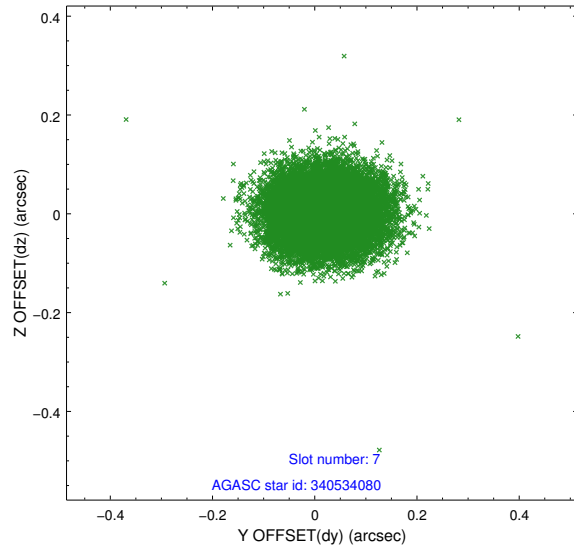
### 2.4.3 Slot 5



## 2.4.4 Slot 6

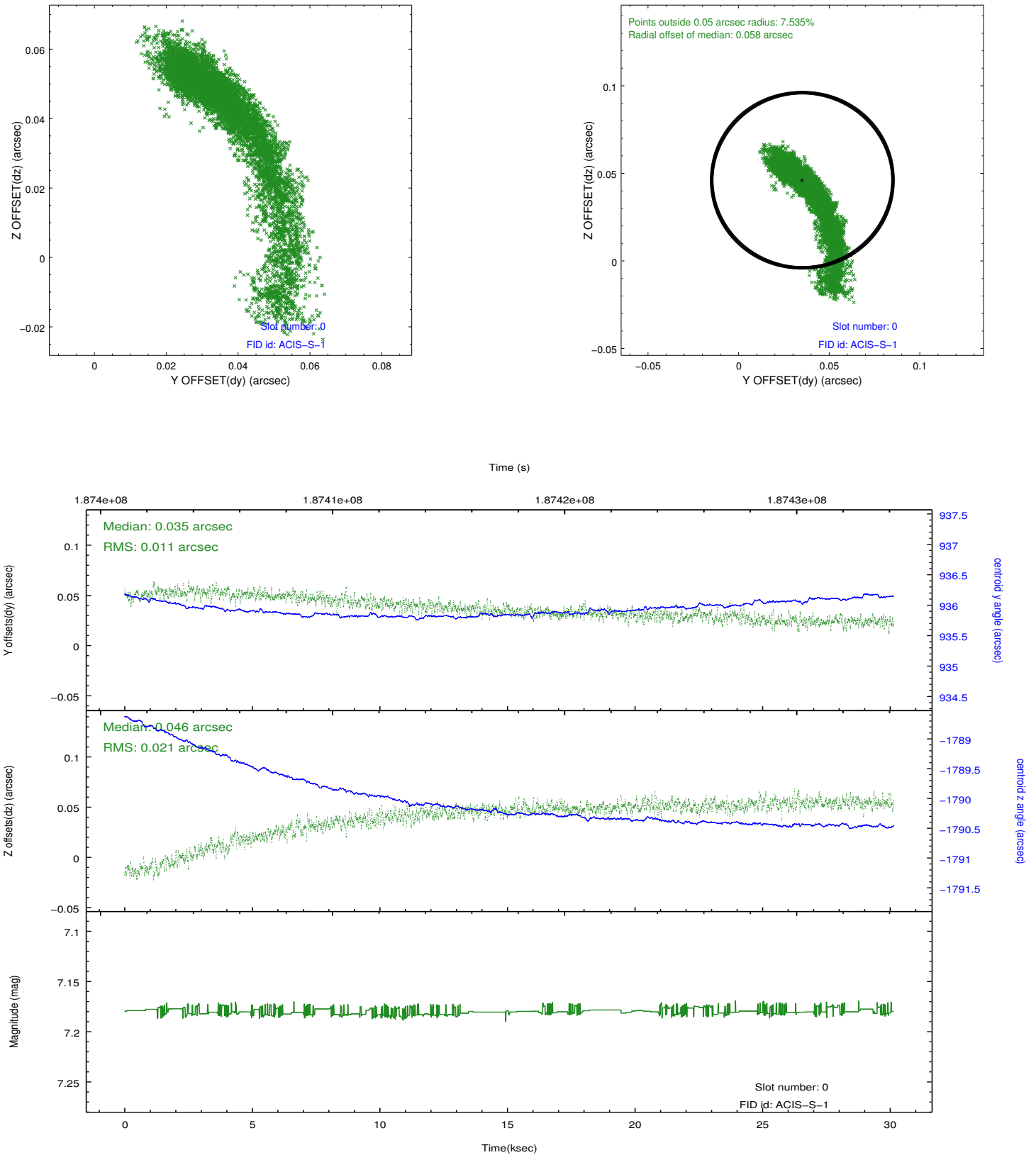


## 2.4.5 Slot 7

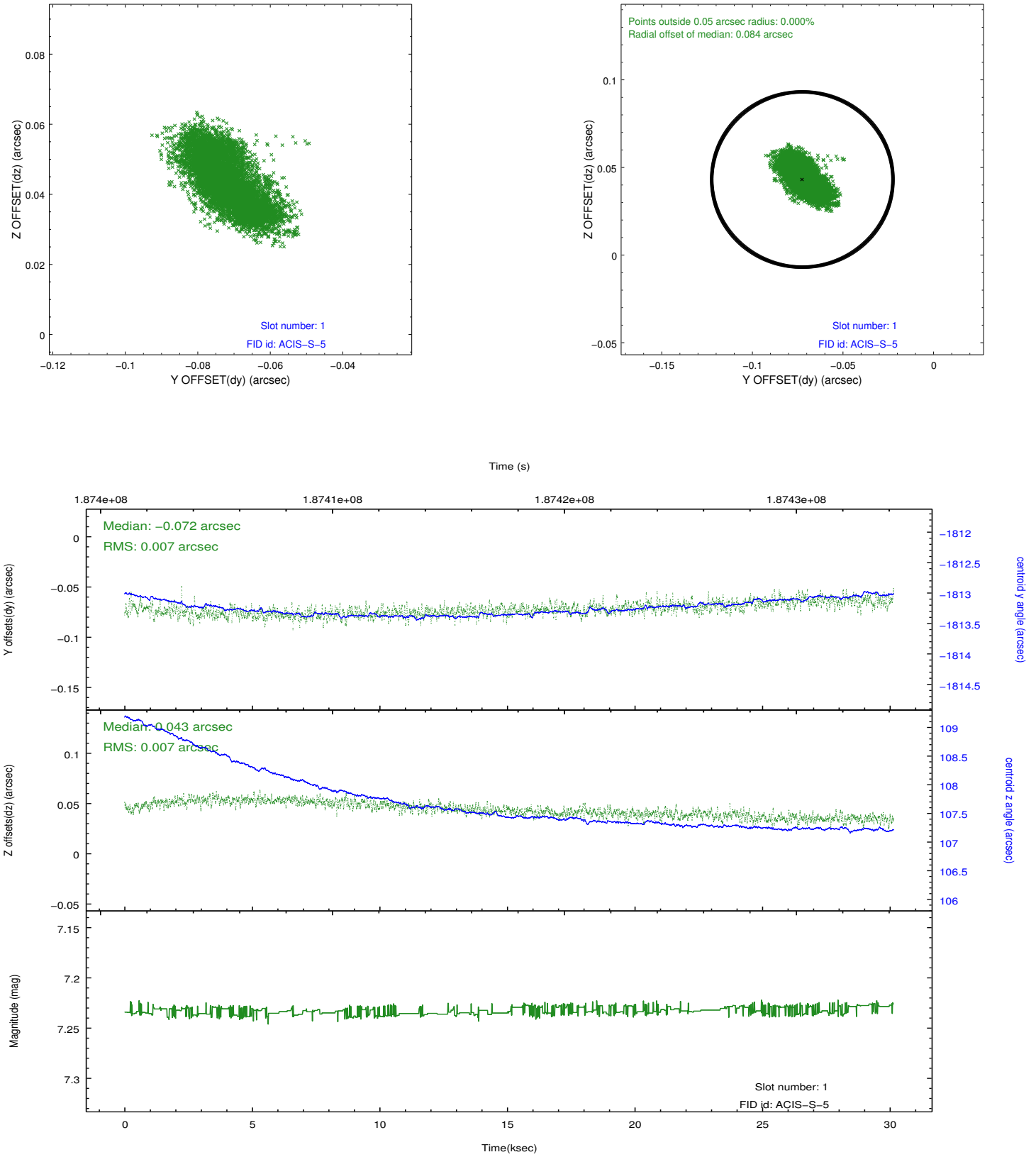


## 2.5 FID Slots

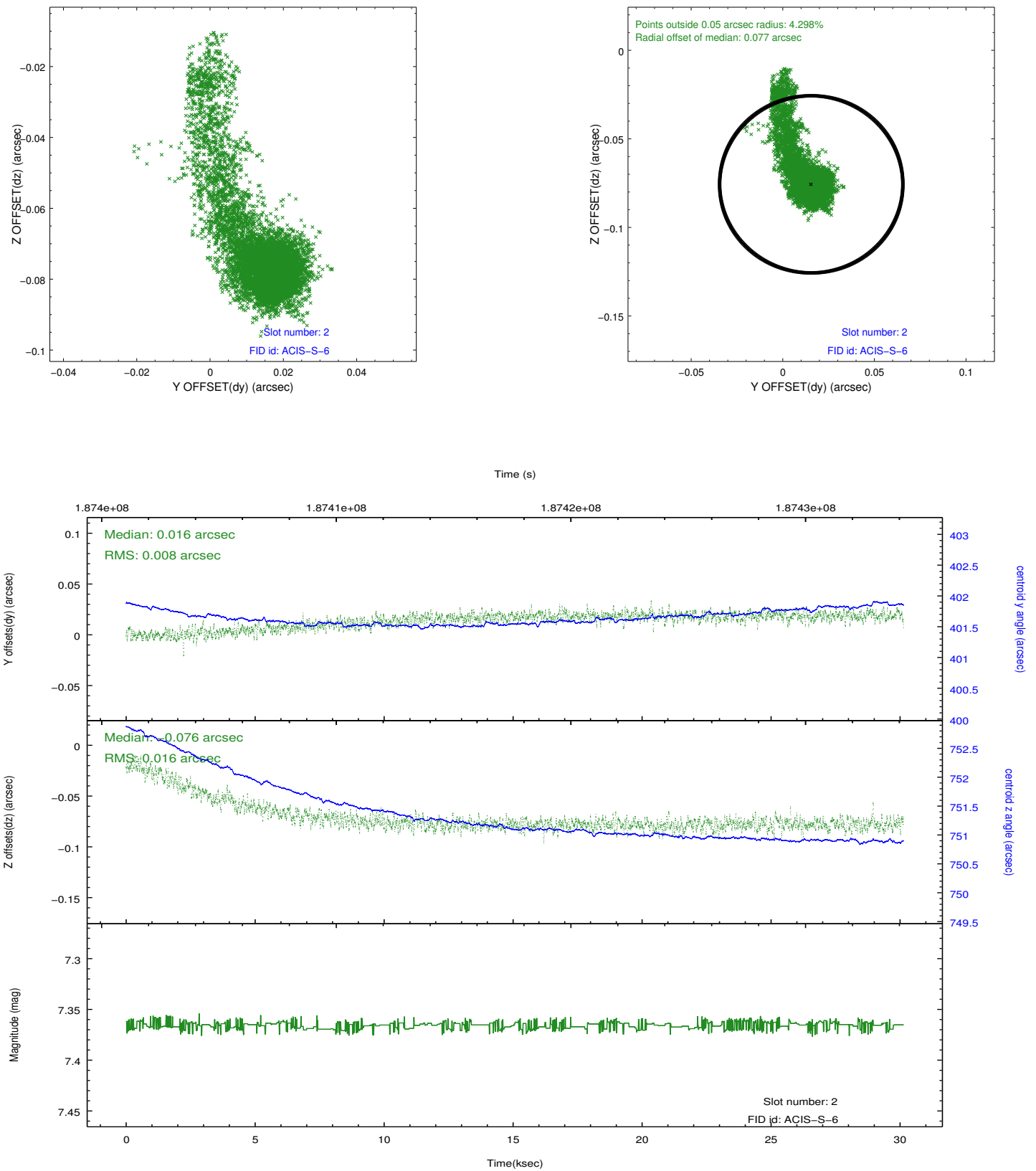
### 2.5.1 Slot 0



## 2.5.2 Slot 1

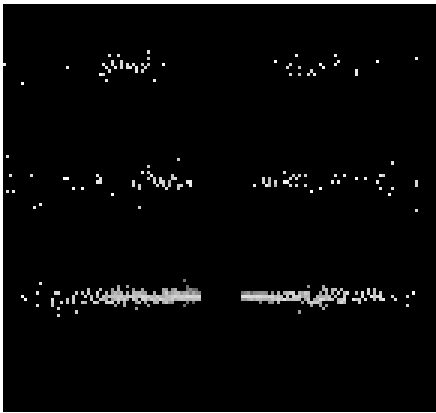


### 2.5.3 Slot 2

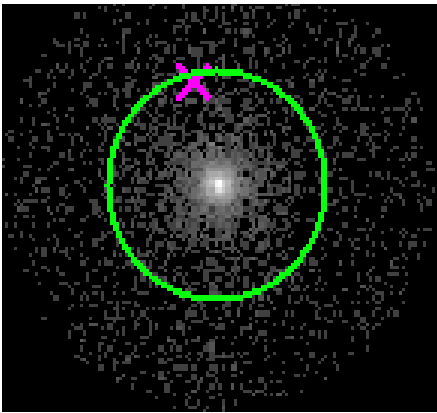


# 3 Gratings

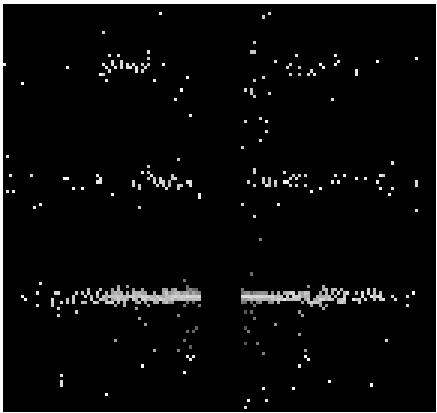
## 3.1 HEG Arm



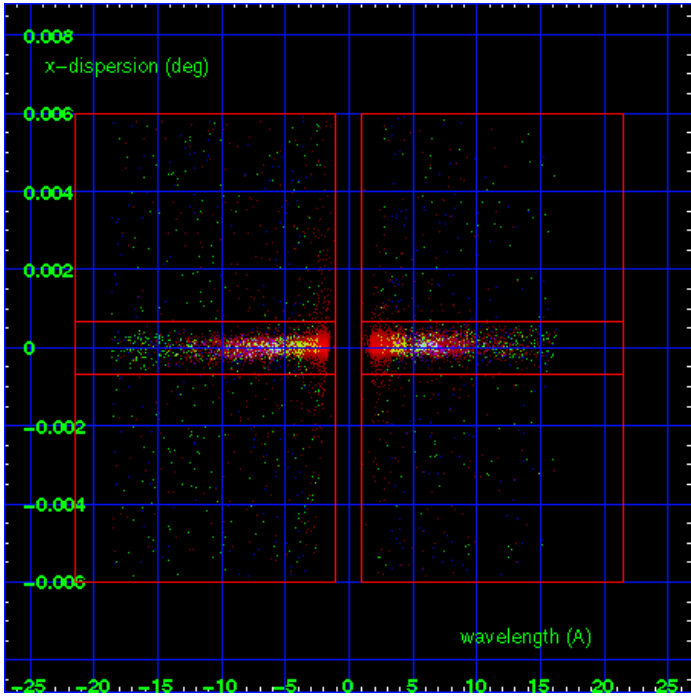
HEG Order Sort 123



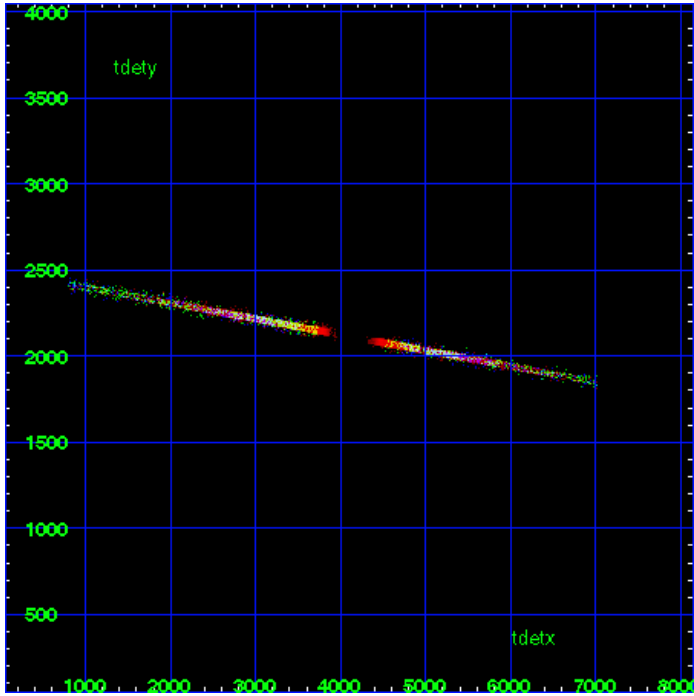
HEG Zero Order



HEG Order Sort ALL

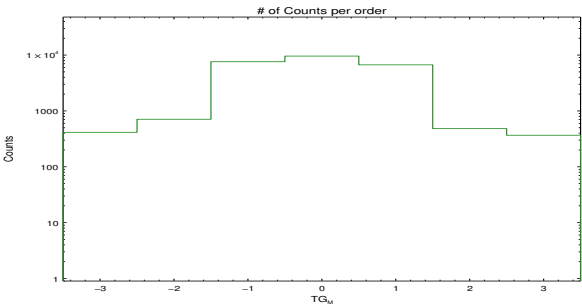


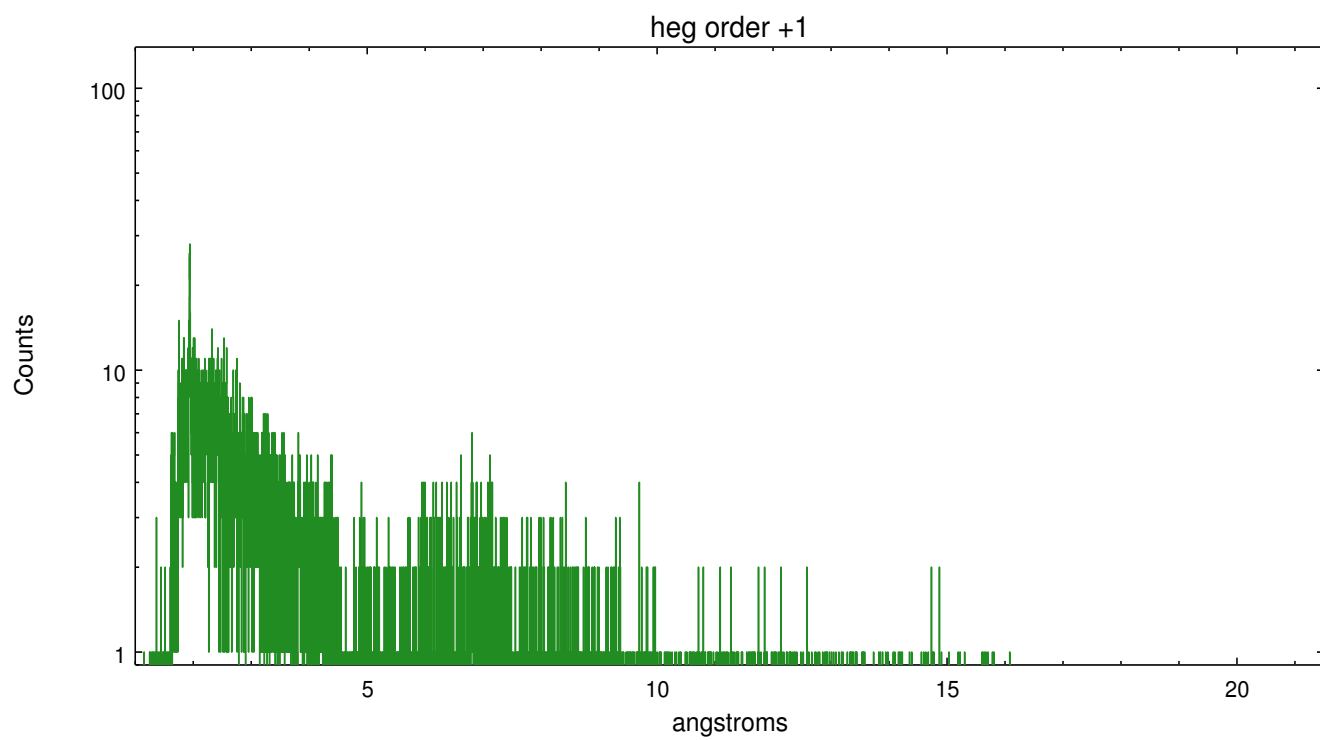
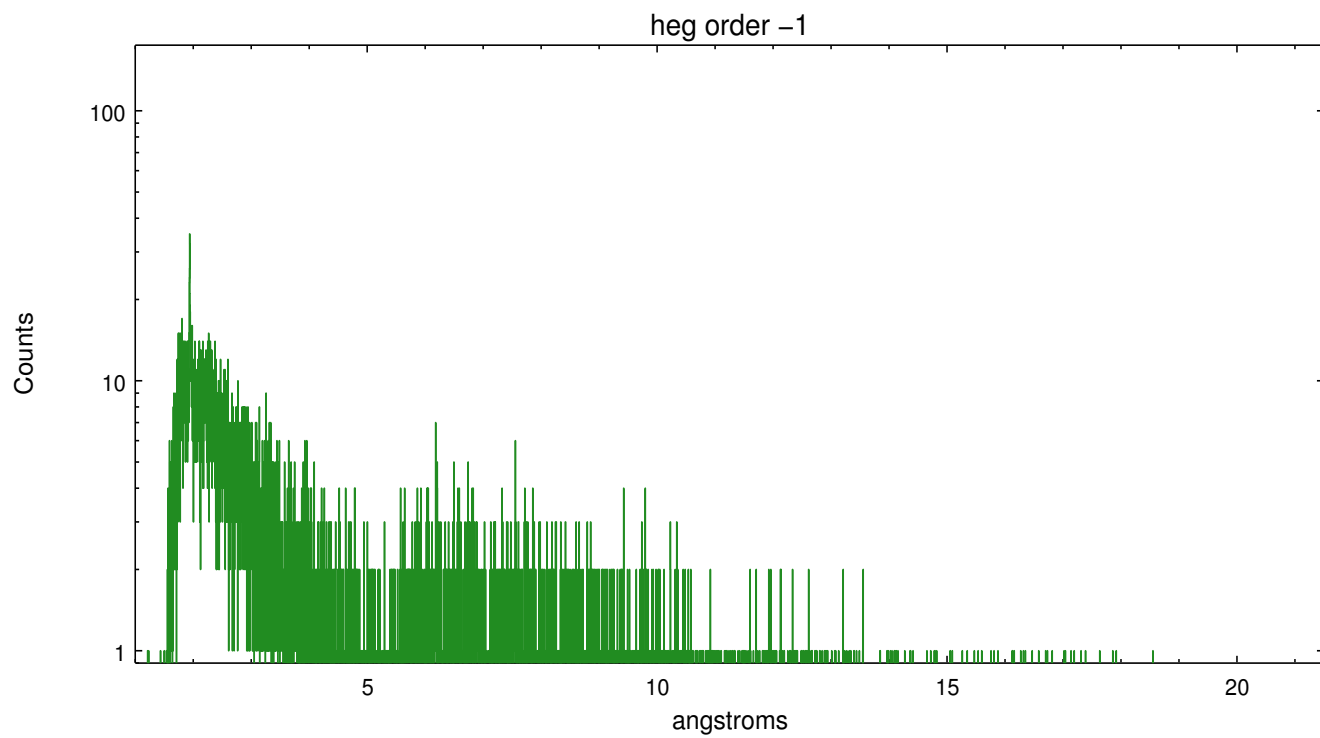
Spot Image HEG



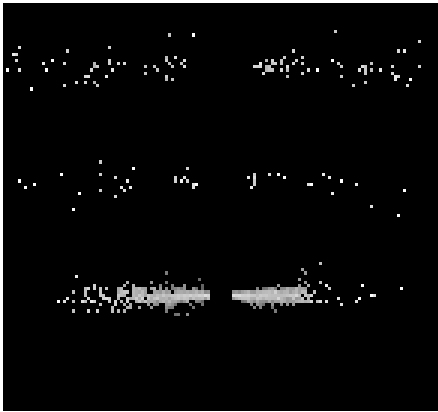
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	414	709	7602	9588	6680	482	367

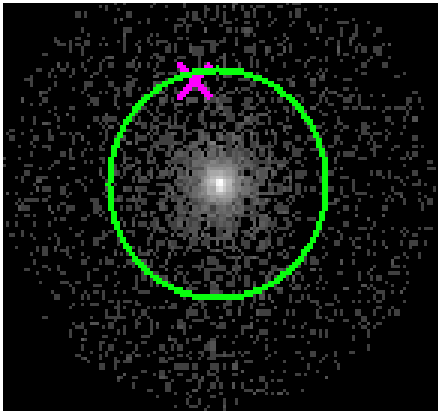




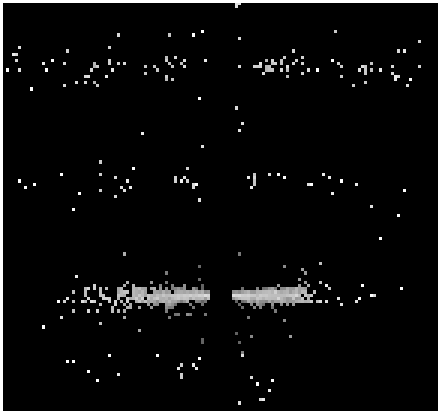
3.2 MEG Arm



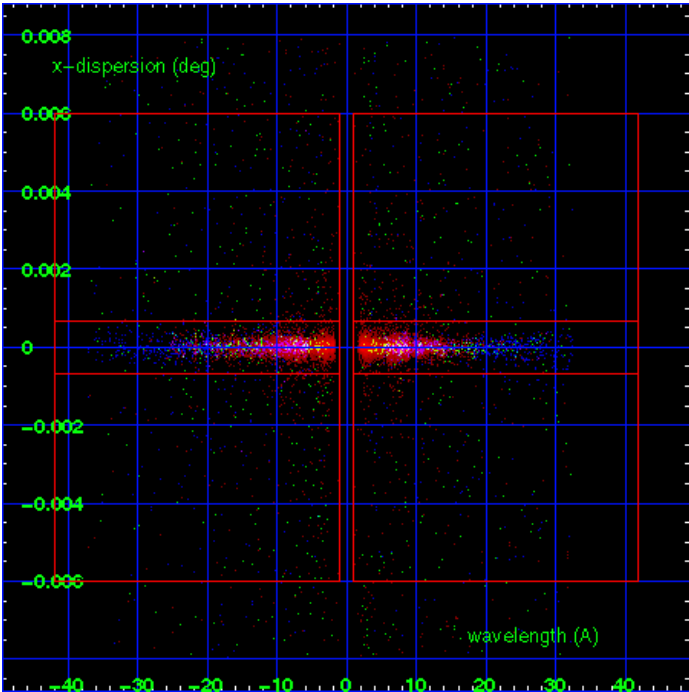
MEG Order Sort 123



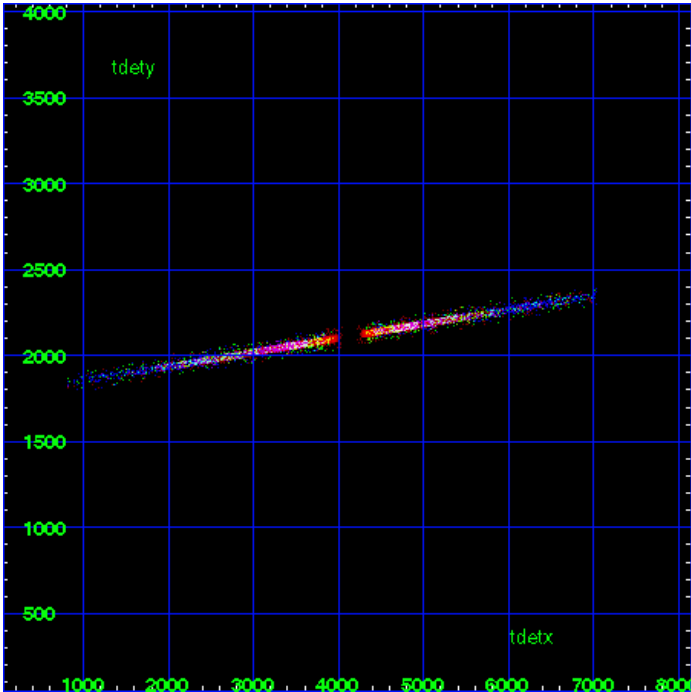
MEG Zero Order



MEG Order Sort ALL

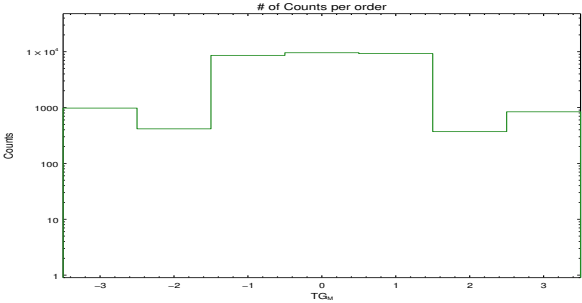


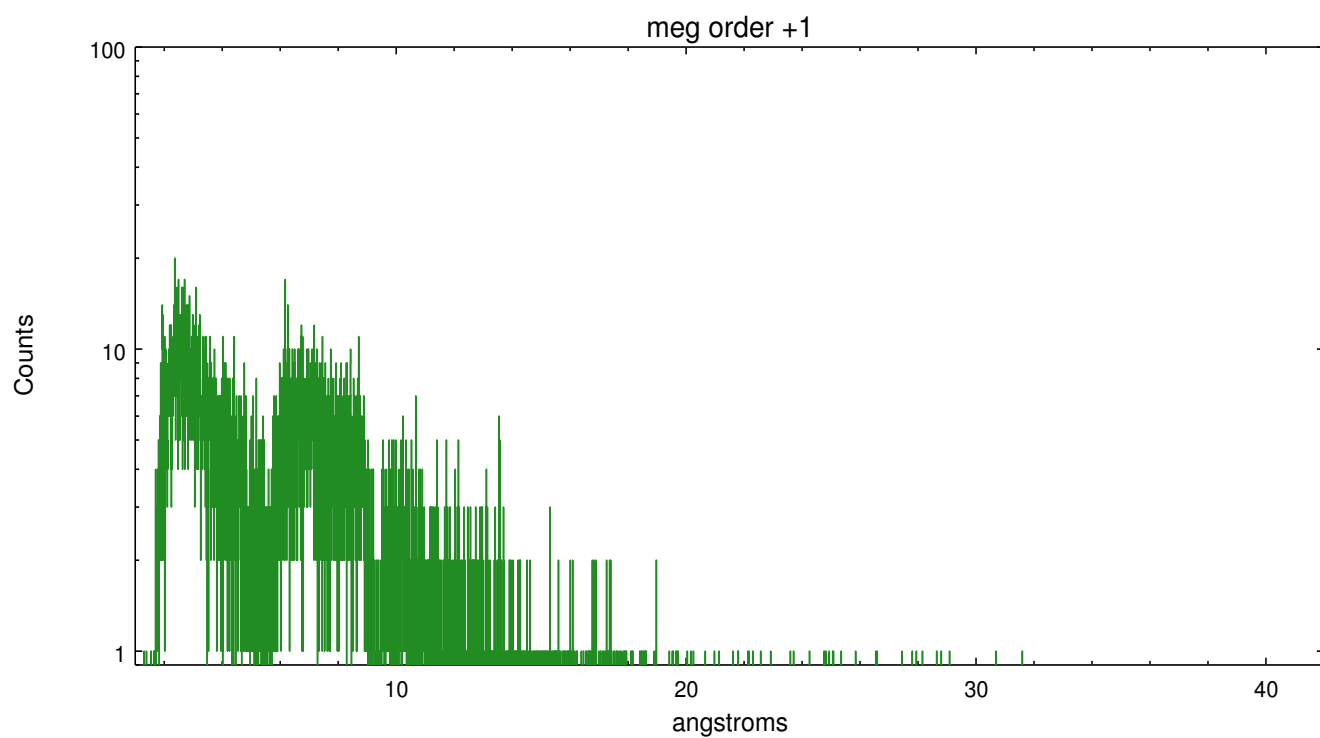
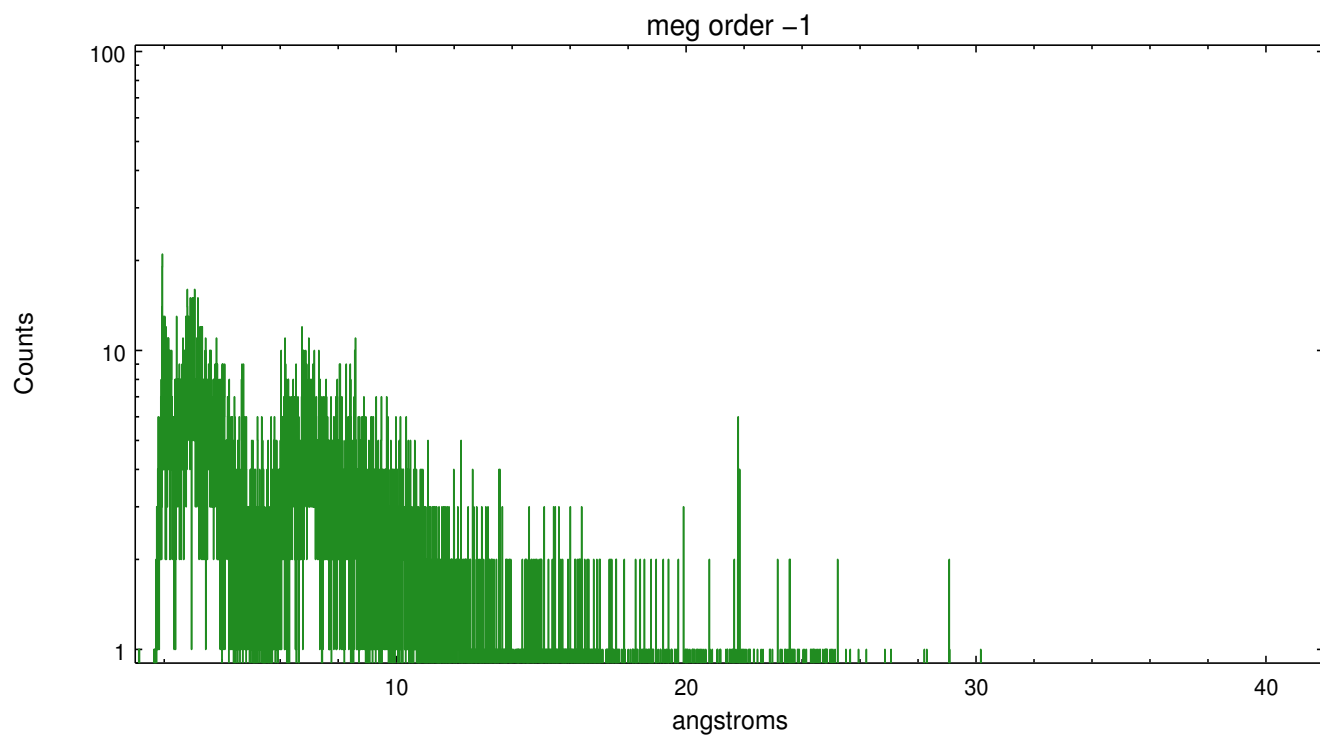
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	978	416	8590	9588	9255	371	840





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.12.17
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.137

## 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=4102.82, y=4069.6) into the \*src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called tg\_findzo, available in CIAO. 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.