

# V&V Reference Report

## L2 ASCDS Version : 8.5

Observation 4585 - L2 Version 3  
Chandra X-Ray Center

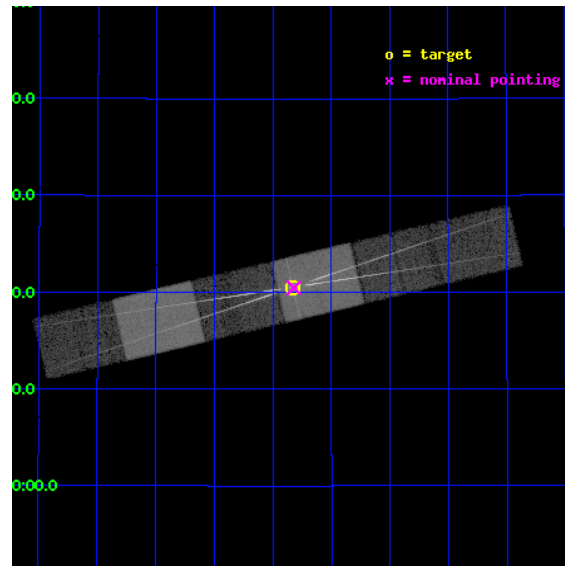
L2 Processing Date : Dec 14 2012

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# 1 Front

seq_num	400367	Sequence number
obs_id	4585	Observation id
title	Using the Intensity Dips in Hercules X-1 to Probe the Inner Accretion Disk	Proposal title
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	254.4575	Observer's specified target RA [deg]
dec_targ	35.342389	Observer's specified target Dec [deg]
ra_nom	254.45520650364	Nominal RA [deg]
dec_nom	35.341137240551	Nominal Dec [deg]
roll_nom	346.6877073538	Nominal Roll [deg]
revision	3	Processing version of data
ontime	20155.0	Sum of GTIs [s]
livetime	19829.479268331	Livetime [s]
ontime4	20155.0	Sum of GTIs [s]
ontime5	20155.0	Sum of GTIs [s]
ontime6	20155.0	Sum of GTIs [s]
ontime7	20155.0	Sum of GTIs [s]
ontime8	20155.0	Sum of GTIs [s]
ontime9	20155.0	Sum of GTIs [s]
l2events	275004	Number of level 2 events

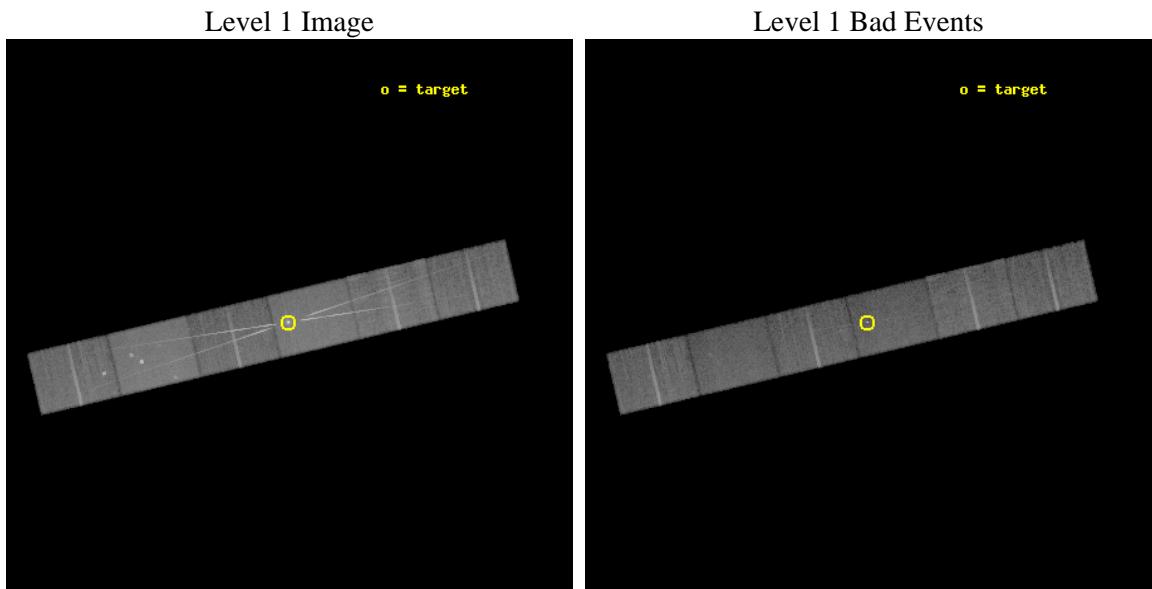




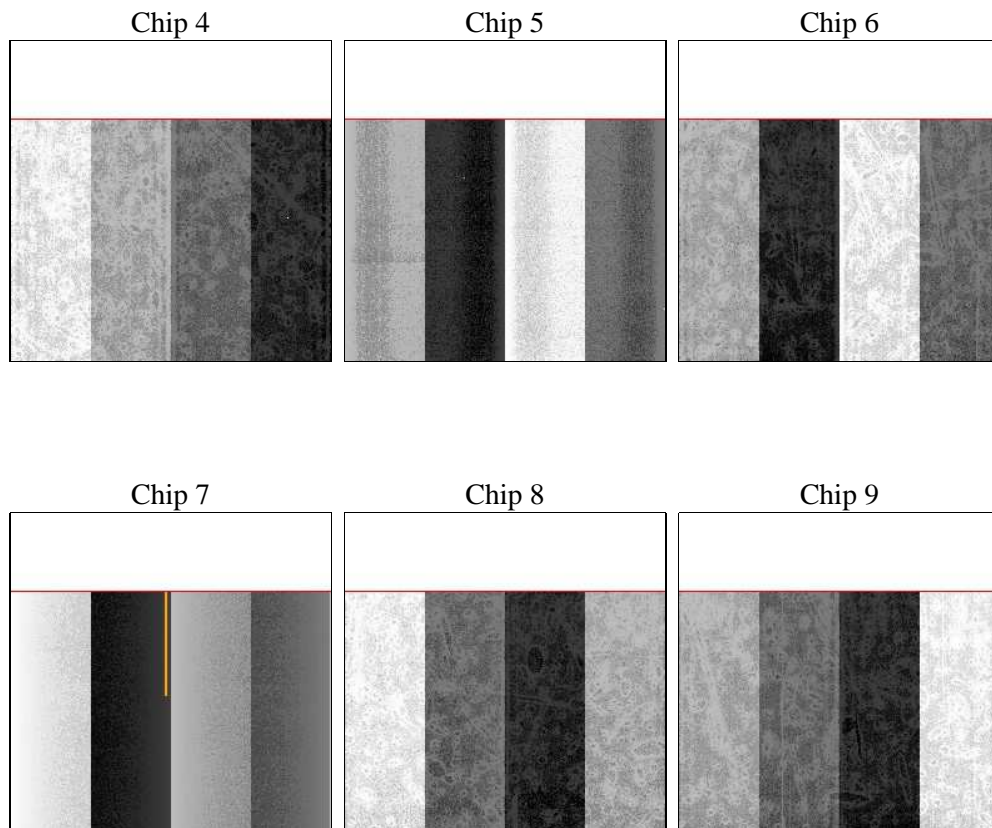
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	20000.000000	[s] Scheduled observation exposure time
ascdsver	8.5	Processing system revision	ontime	20155.0	Sum of GTIs [s]
caldsver	4.5.4	&#160	ontime4	20155.0	Sum of GTIs [s]
date	2012-12-12T00:27:09	Date and time of file creation	ontime5	20155.0	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	20155.0	Sum of GTIs [s]
			ontime7	20155.0	Sum of GTIs [s]
			ontime8	20155.0	Sum of GTIs [s]
			ontime9	20155.0	Sum of GTIs [s]
			l1events	963429	Number of level 1 events

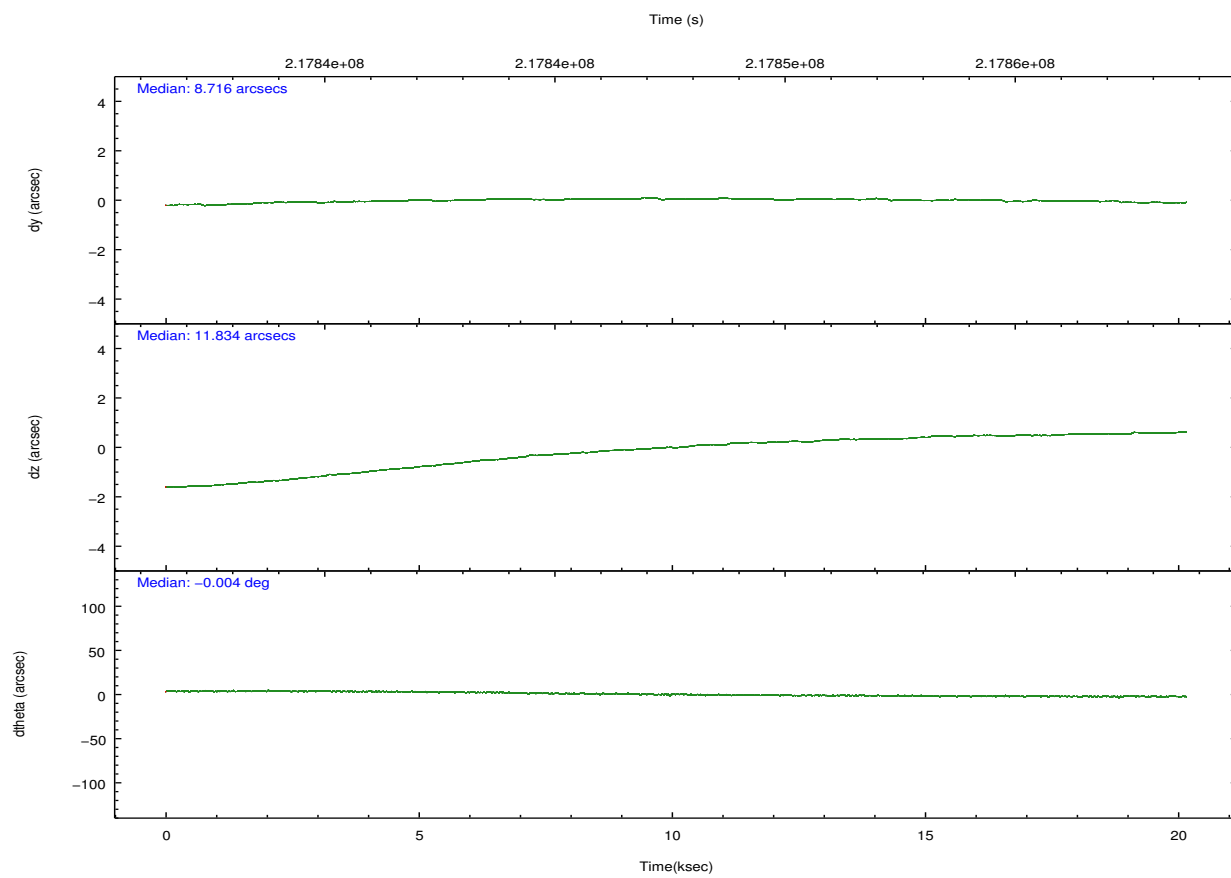
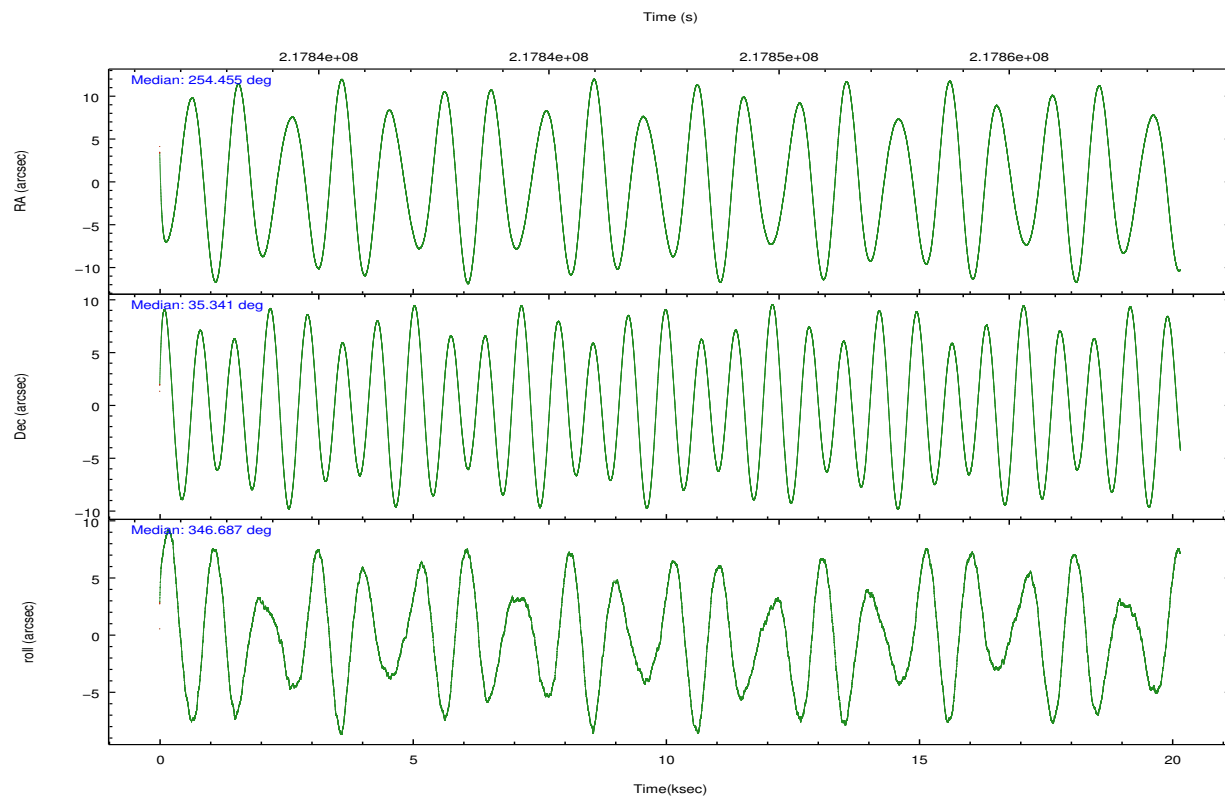
### 2.1.4 Events

	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	138033	186638	148363	203045	163697	123653	grade 0 events	9859	14153	24617	15001	16629	7433
rejected events	119142	96215	105991	96729	122898	107074		7%	7%	16%	7%	10%	6%
rejected %	86%	51%	71%	47%	75%	86%	grade 1 events	127	359	215	437	141	72
								0%	0%	0%	0%	0%	0%
							grade 2 events	3445	24885	6841	22670	7909	3176
								2%	13%	4%	11%	4%	2%
							grade 3 events	1677	4405	2821	10201	3993	1629
								1%	2%	1%	5%	2%	1%
							grade 4 events	1501	4209	2794	10134	3636	1527
								1%	2%	1%	4%	2%	1%
							grade 5 events	5106	13713	5569	16410	7078	5698
								3%	7%	3%	8%	4%	4%
							grade 6 events	2485	43217	5449	48708	8734	2875
								1%	23%	3%	23%	5%	2%
							grade 7 events	113833	81697	100057	79484	115577	101243
								82%	43%	67%	39%	70%	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	254.423362	254.4552065036356	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	35.332939	35.34113724055064	Subarray start row	1	1
[deg] Pointing Roll	346.549496	346.6877073537995	Subarray row count	774	774
[s] Window start time (MET)	217831564.184000	217831564.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	217858864.184000	217858864.184000	[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			
Phase constraints	Y	Y			
[d] Phase period	1.700167	1.700167			
[d] Phase epoch (MJD)	51310.760000	51310.760000			
Phase start	0.750000	0.750000			
Phase end	0.900000	0.900000			
Phase start error	0.020000	0.020000			
Phase end error	0.010000	0.010000			
[s] Observation start time (MET)	217837706.184000	217836560.54801			
Observation start date	2004-11-26T06:27:22	2004-11-26T06:09:20			
[s] Observation end time (MET)	217857706.184000	217858609.324			

## 2.3 Aspect

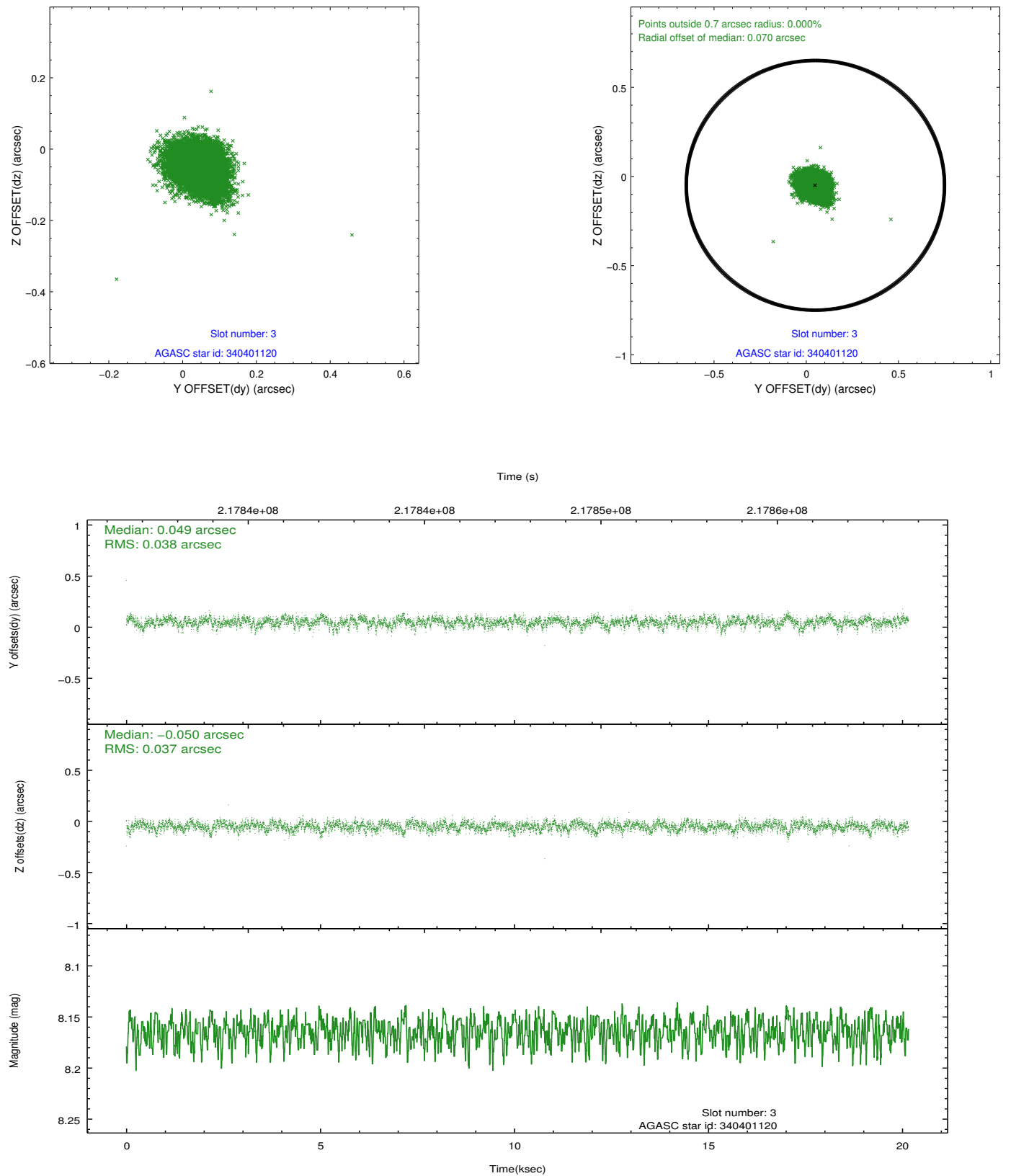


### Slot Statistics

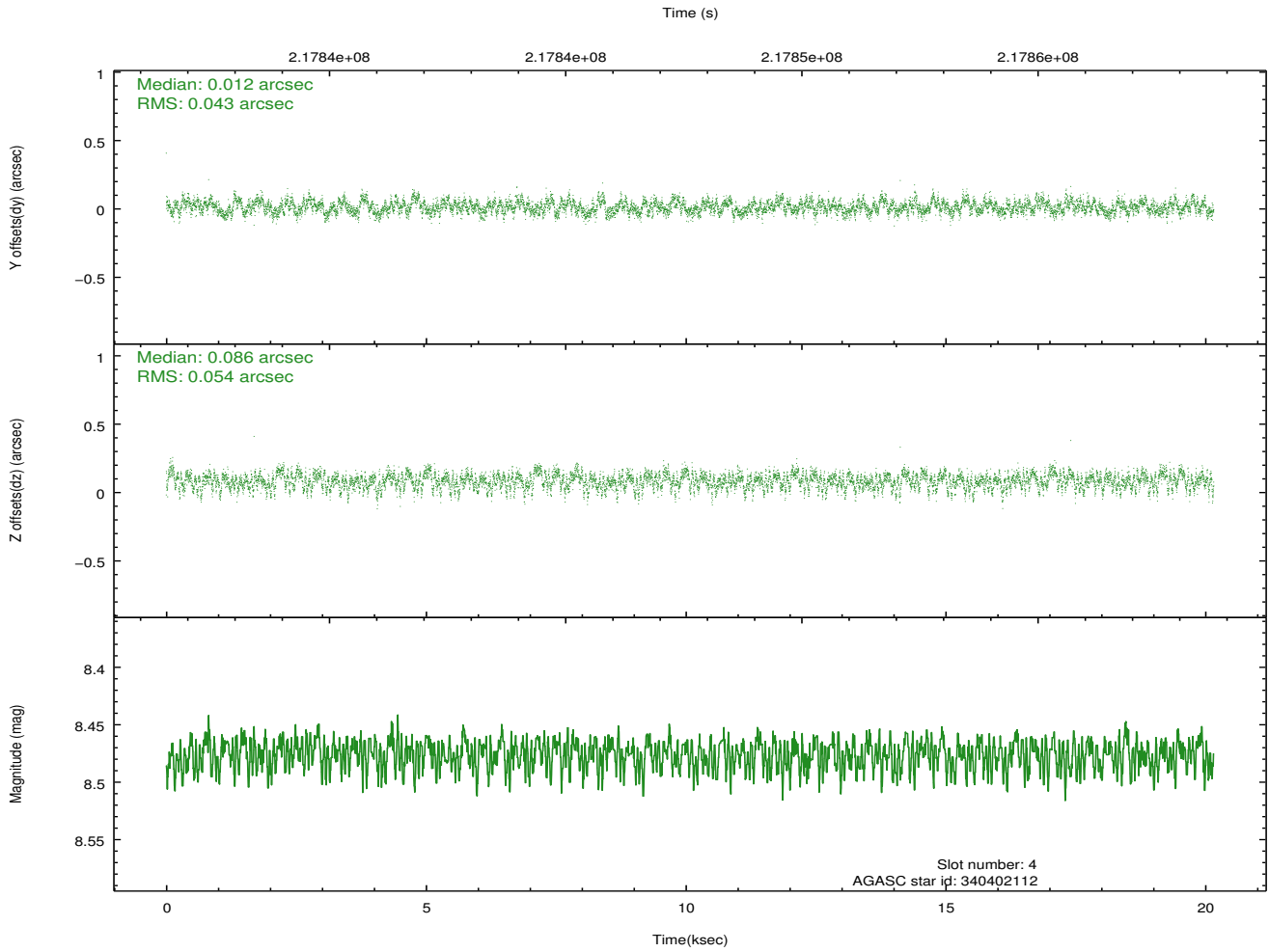
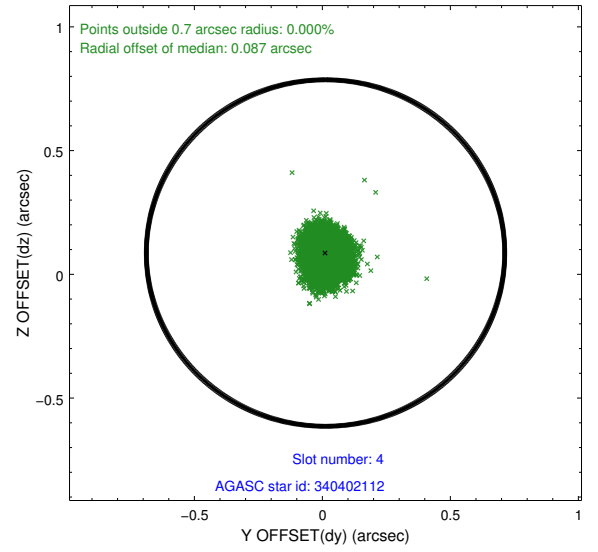
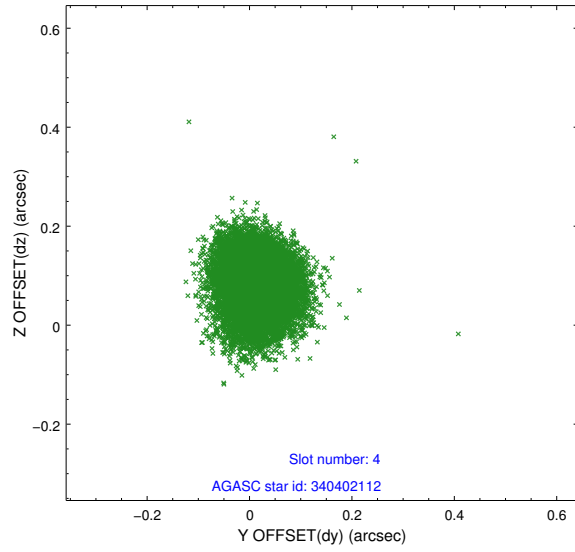
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	4918	-0.061	-0.084	0.022	0.029	0.000000	0.000000	-761.35	-1795.08
1	FID	ACIS-S-4	7.19	4918	0.146	0.051	0.011	0.025	0.000000	0.000000	2152.05	113.32
2	FID	ACIS-S-5	7.23	4918	-0.117	0.042	0.018	0.025	0.000000	0.000000	-1814.01	107.20
3	GUIDE	340401120	8.16	9830	0.049	-0.050	0.055	0.093	253.574895	35.128140	-2260.08	-1287.89
4	GUIDE	340402112	8.48	9830	0.012	0.086	0.074	0.116	253.640936	34.860529	-1854.31	-2182.88
5	GUIDE	340534080	8.83	9833	0.034	-0.034	0.058	0.093	255.228954	35.471551	2179.02	1043.87
6	GUIDE	340534896	8.59	9832	-0.126	-0.046	0.057	0.093	255.288450	35.541682	2287.63	1331.29
7	GUIDE	340536192	7.72	9834	0.030	0.049	0.045	0.073	254.294567	35.286536	-328.69	-250.03

## 2.4 Star Slots

### 2.4.1 Slot 3

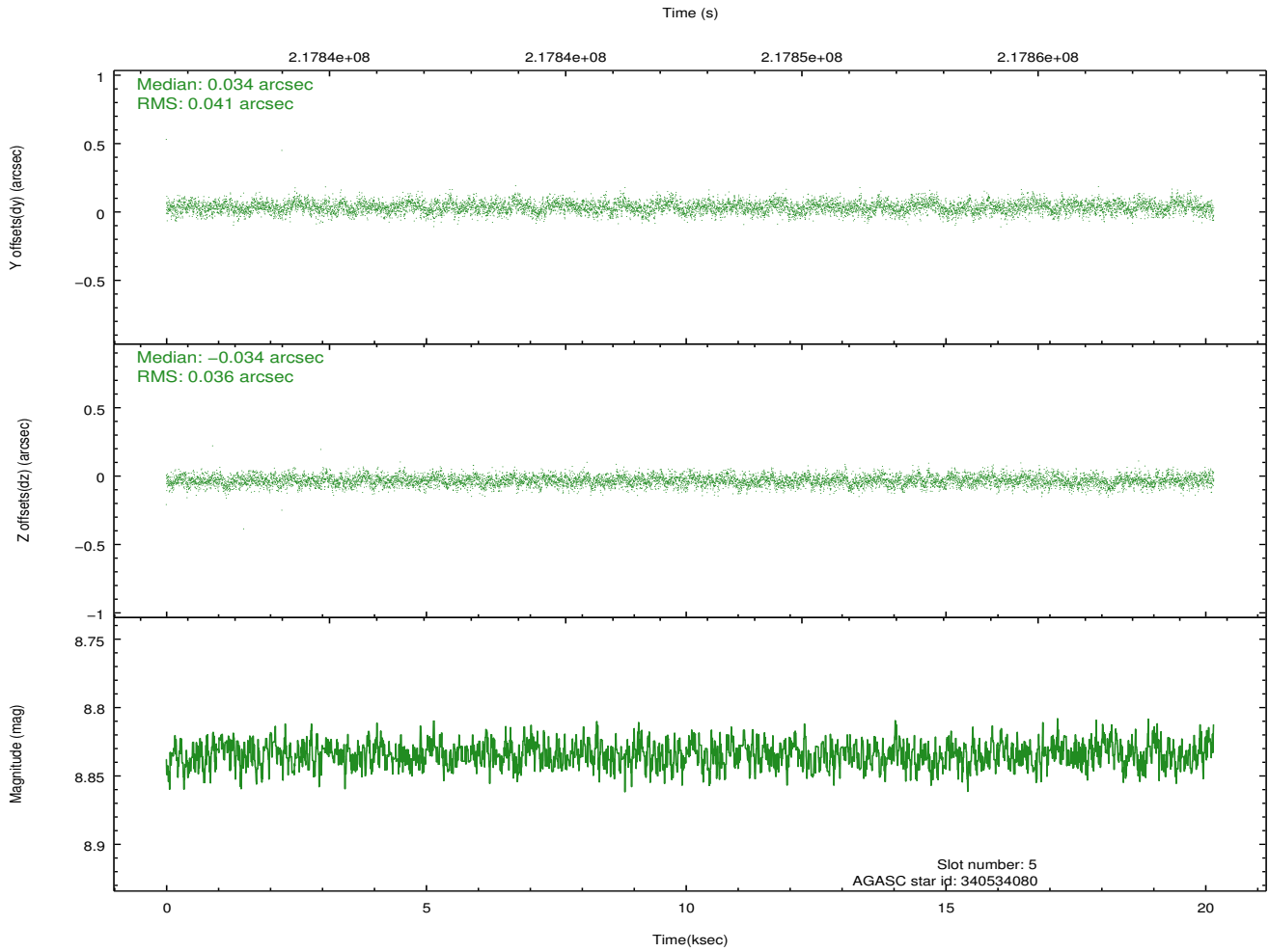
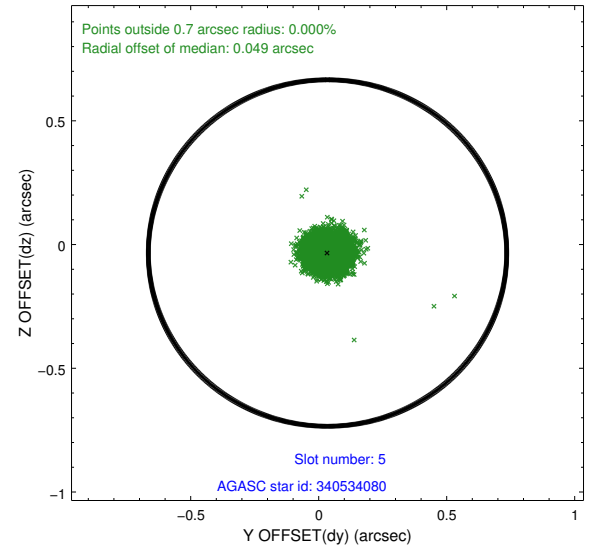
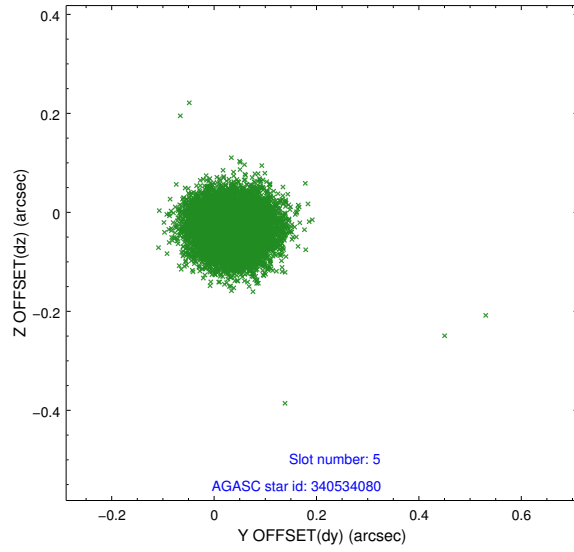


## 2.4.2 Slot 4

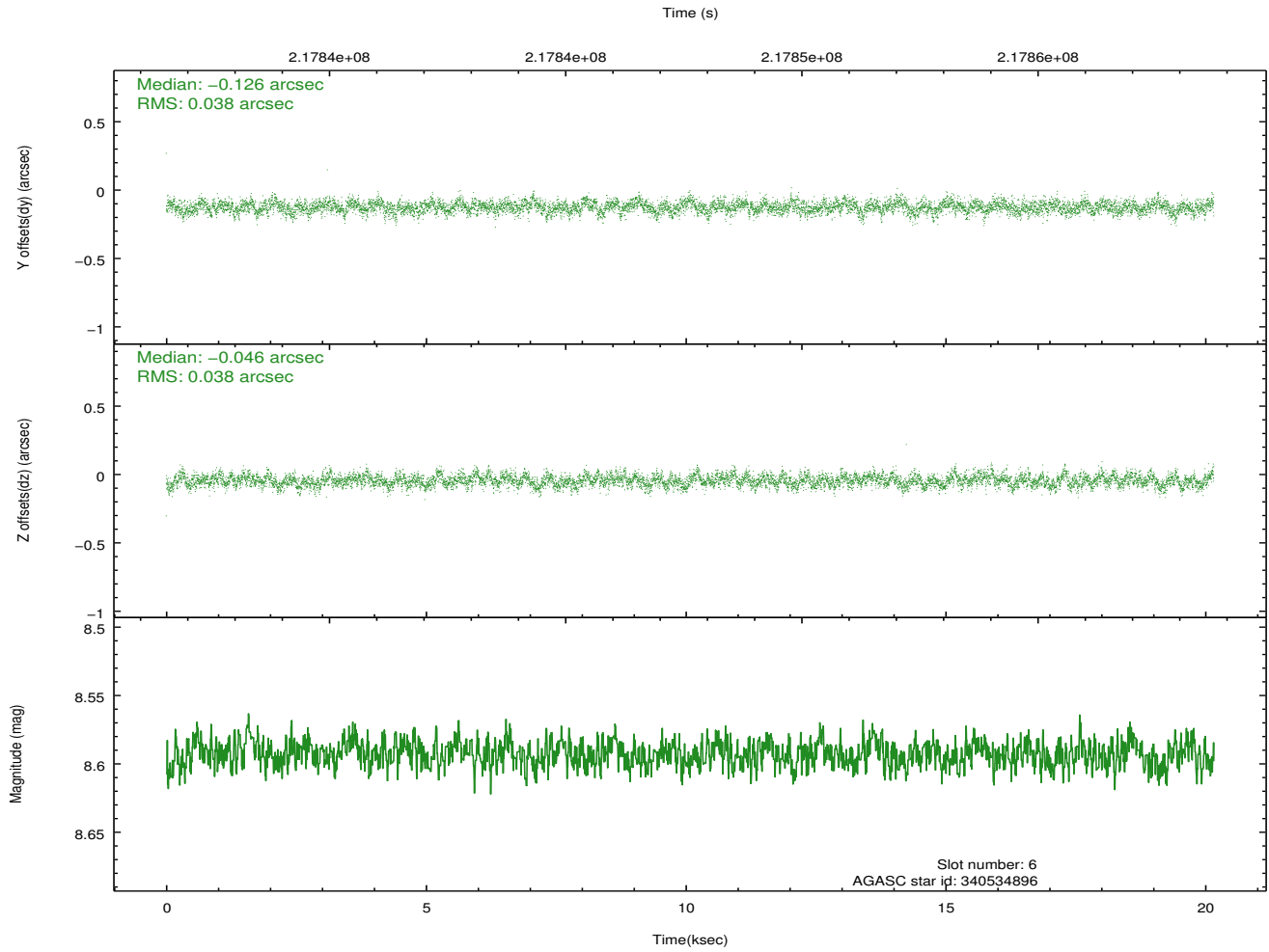
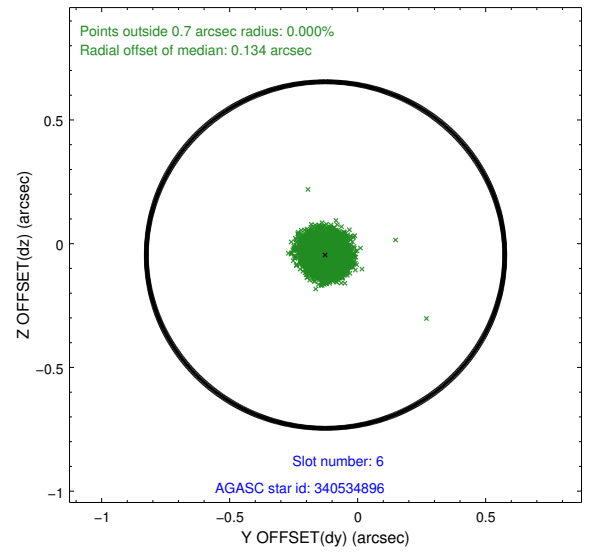
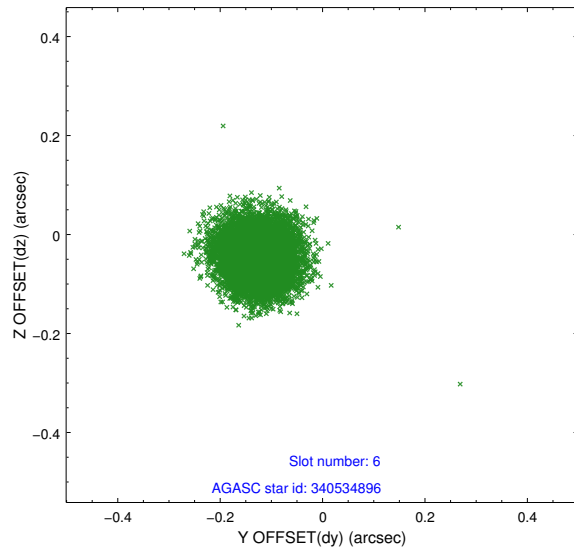




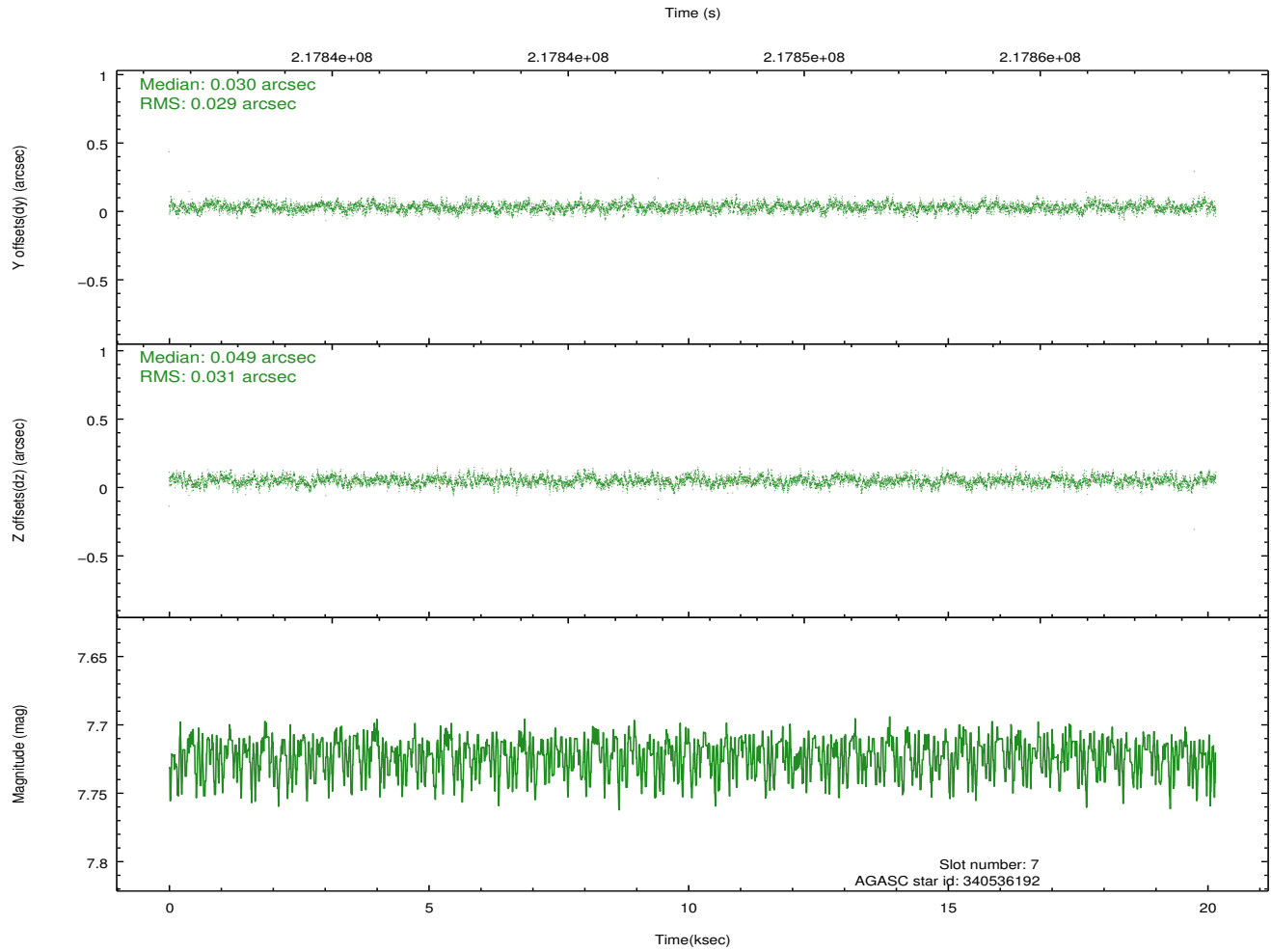
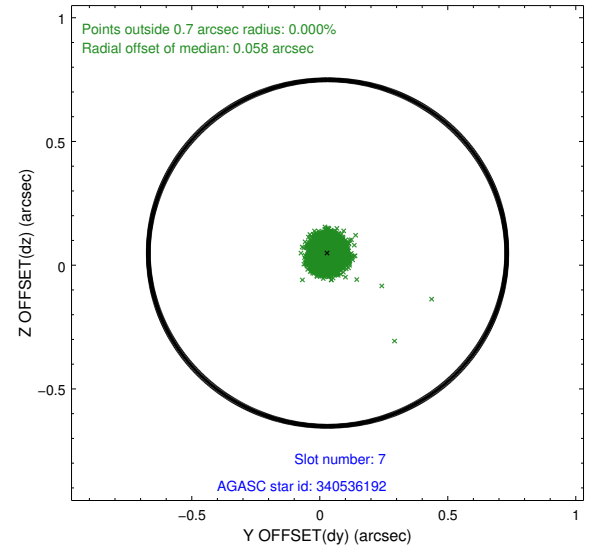
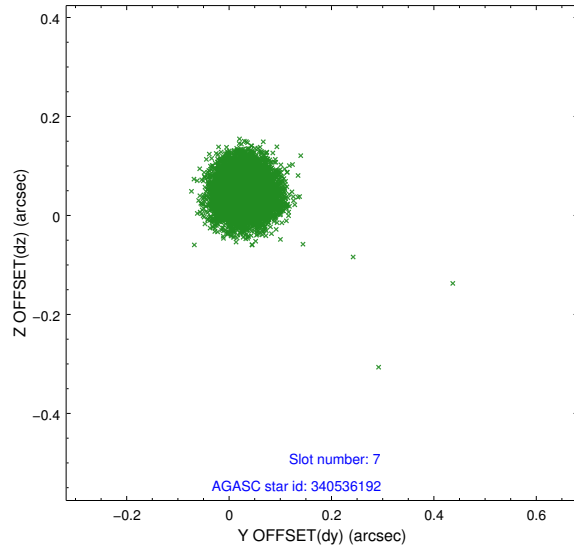
### 2.4.3 Slot 5



## 2.4.4 Slot 6

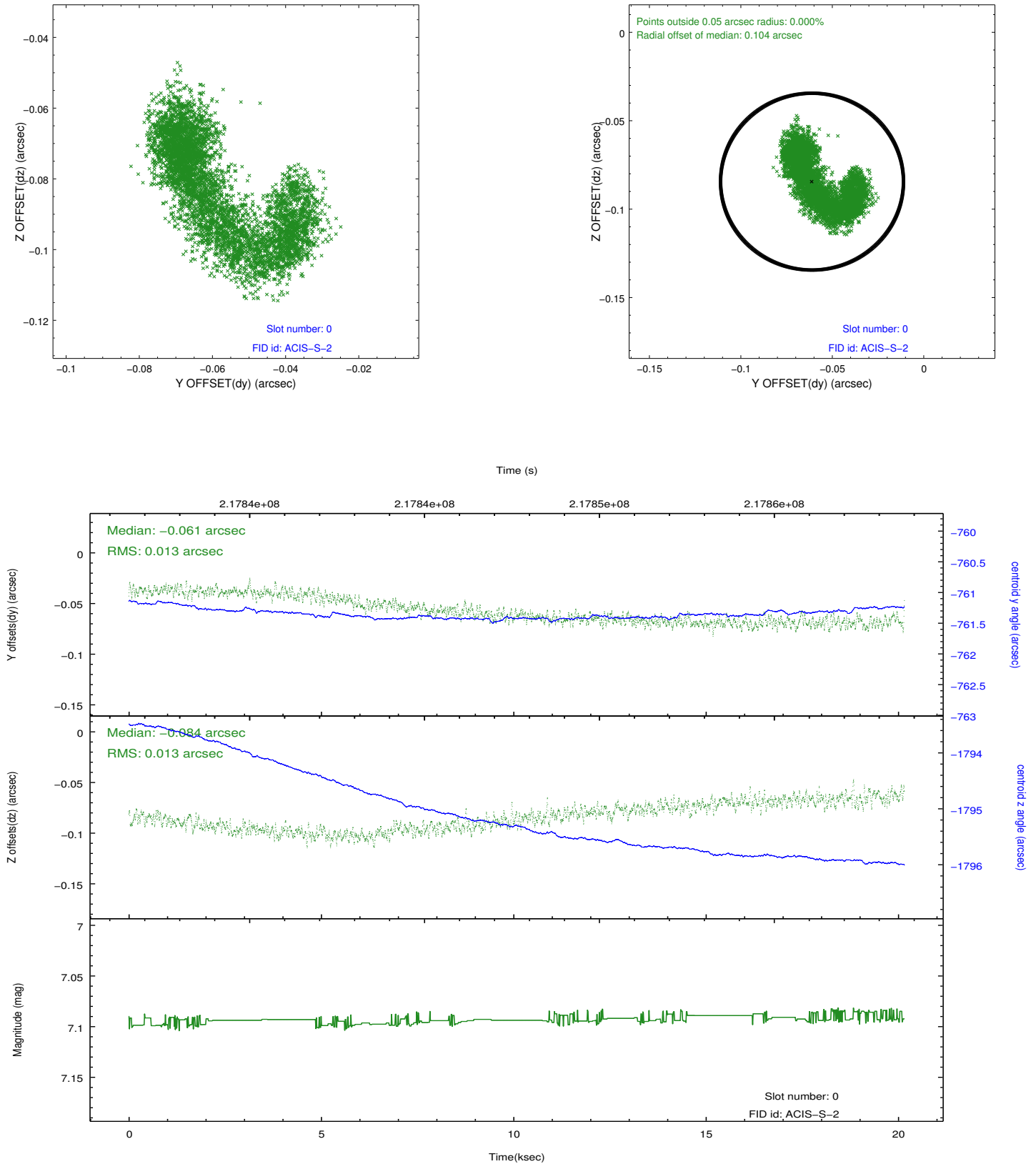


## 2.4.5 Slot 7

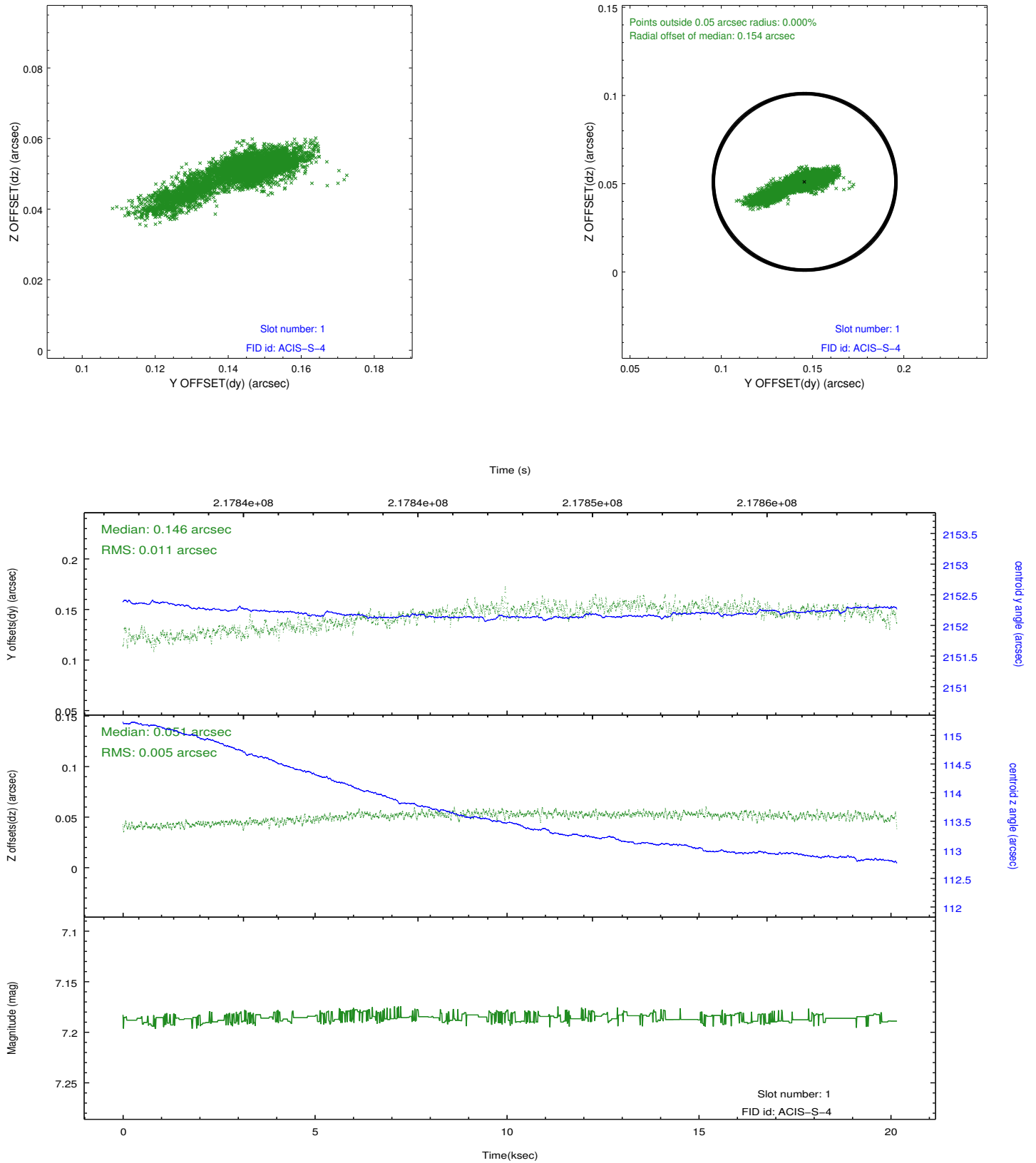


## 2.5 FID Slots

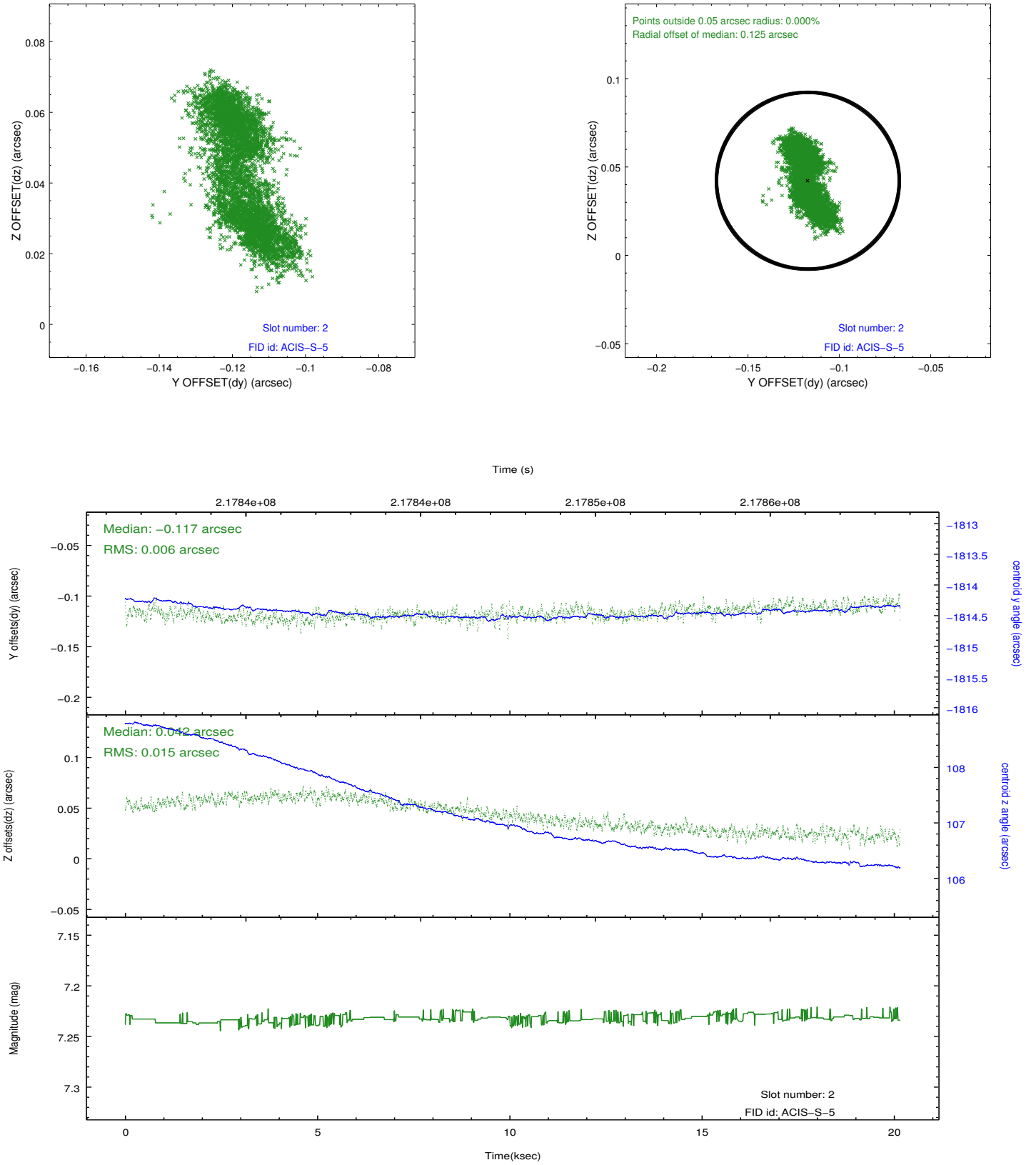
### 2.5.1 Slot 0



## 2.5.2 Slot 1

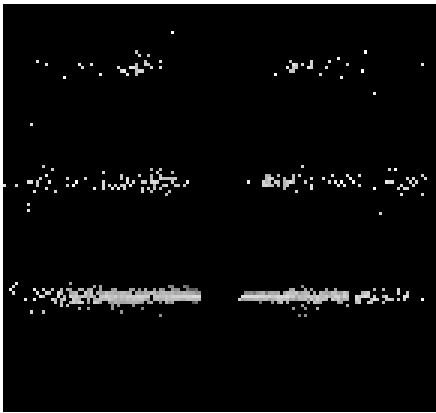


### 2.5.3 Slot 2

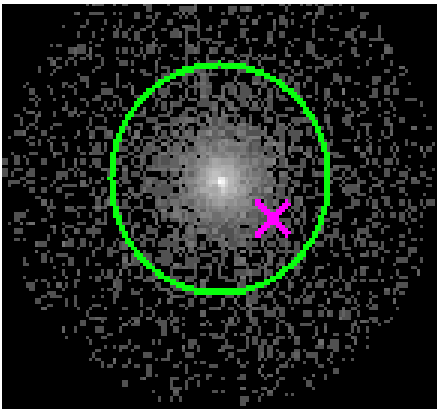


# 3 Gratings

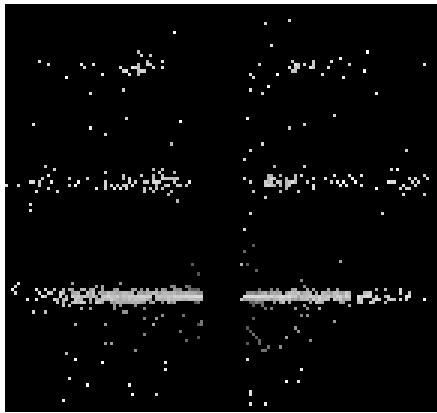
## 3.1 HEG Arm



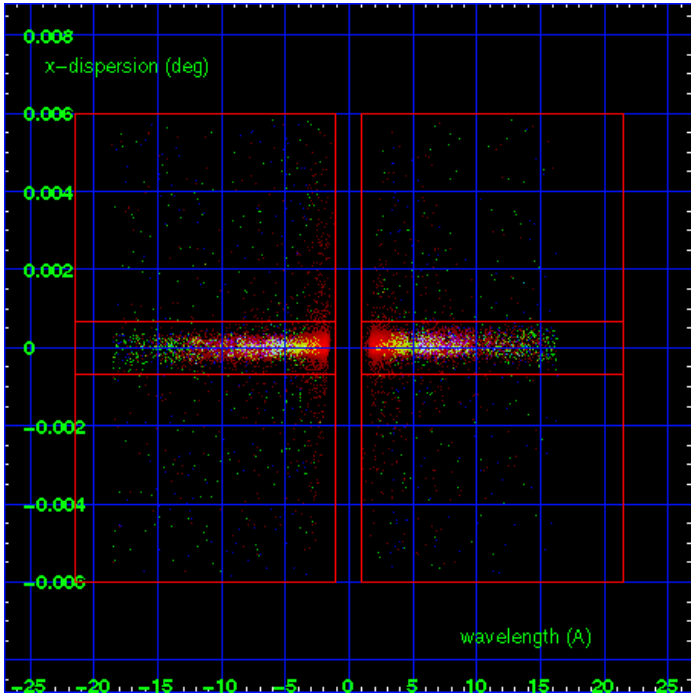
HEG Order Sort 123



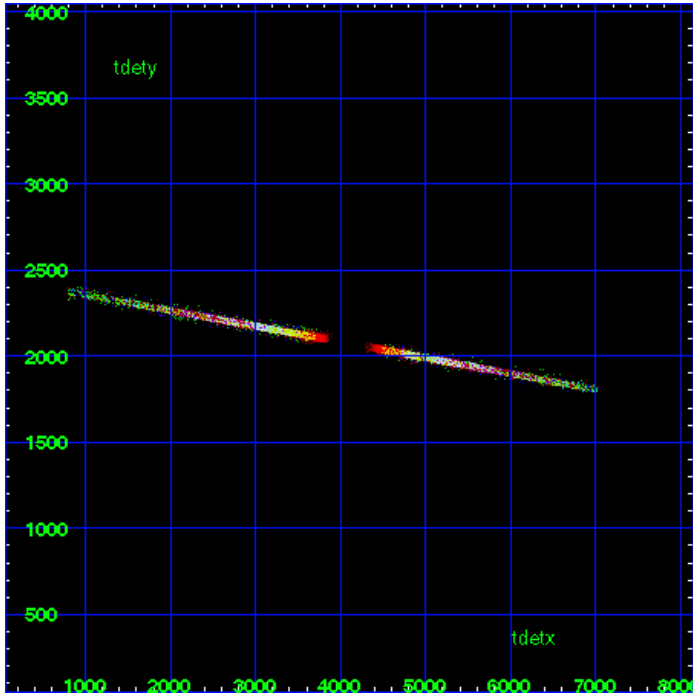
HEG Zero Order



HEG Order Sort ALL

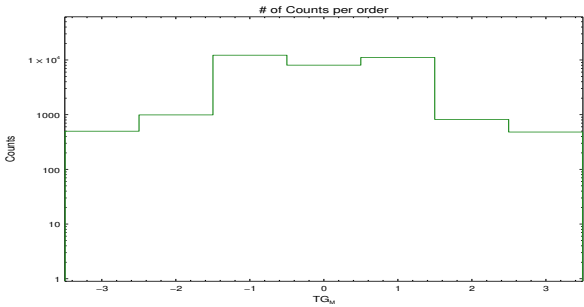


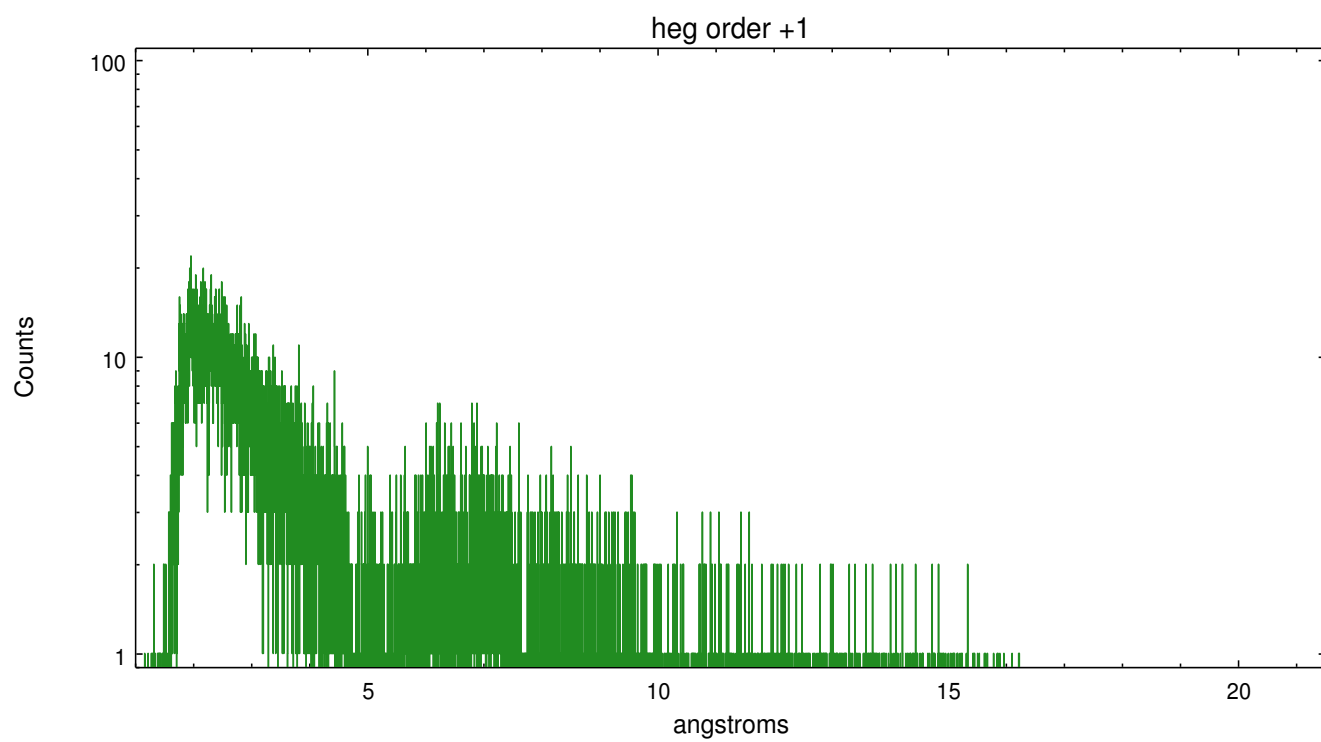
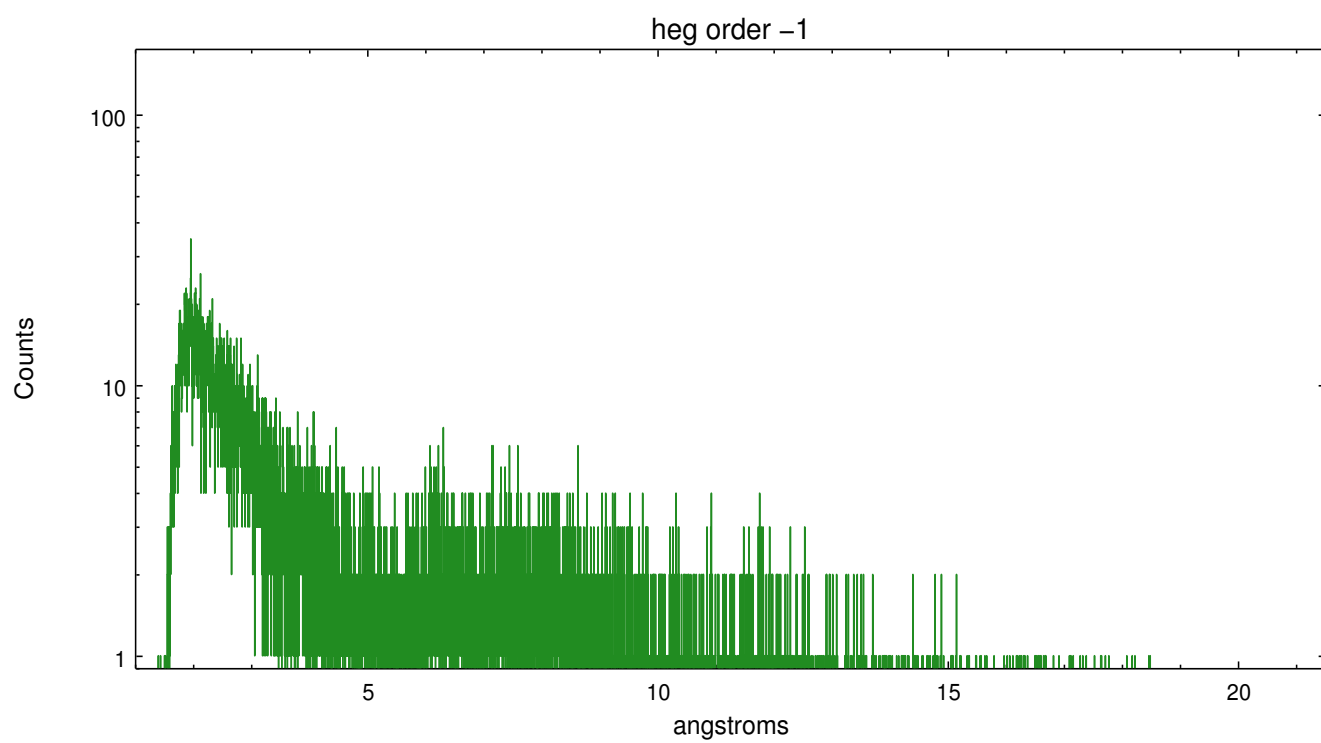
Spot Image HEG



Full Detector HEG

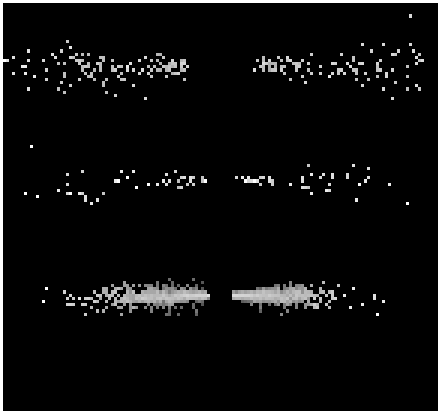
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	499	993	12303	8084	11173	821	482



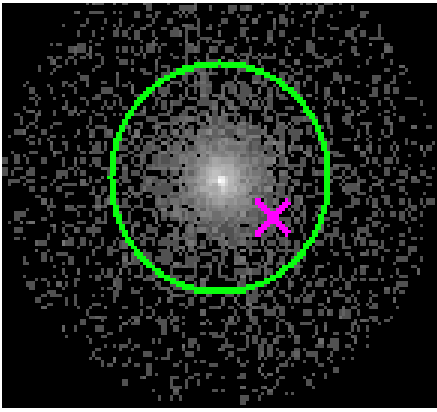




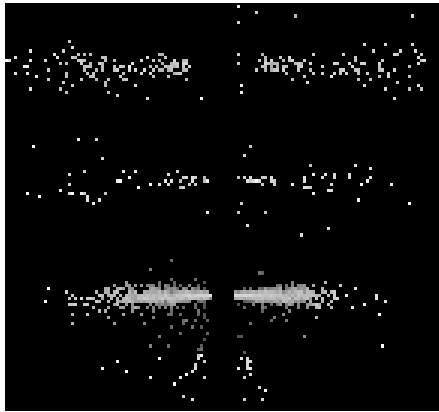
### 3.2 MEG Arm



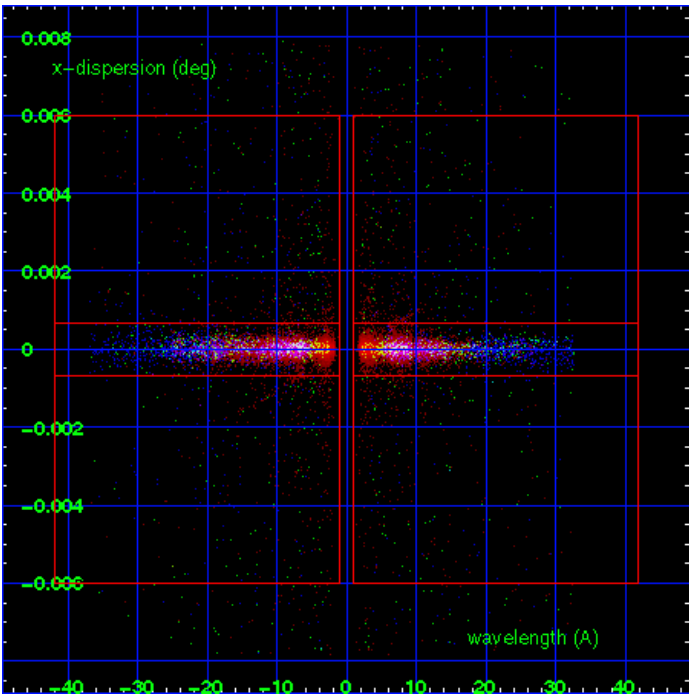
MEG Order Sort 123



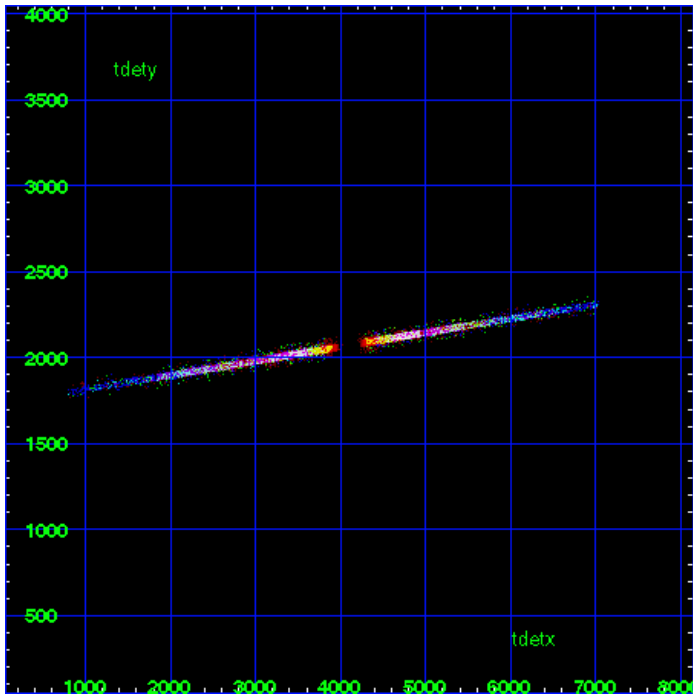
MEG Zero Order



MEG Order Sort ALL

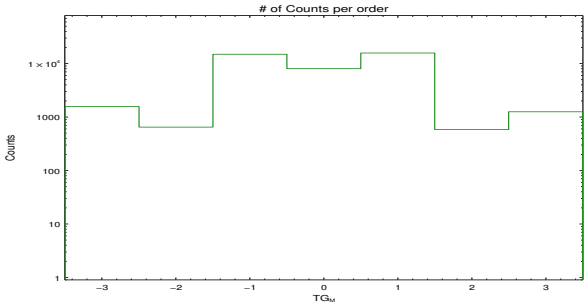


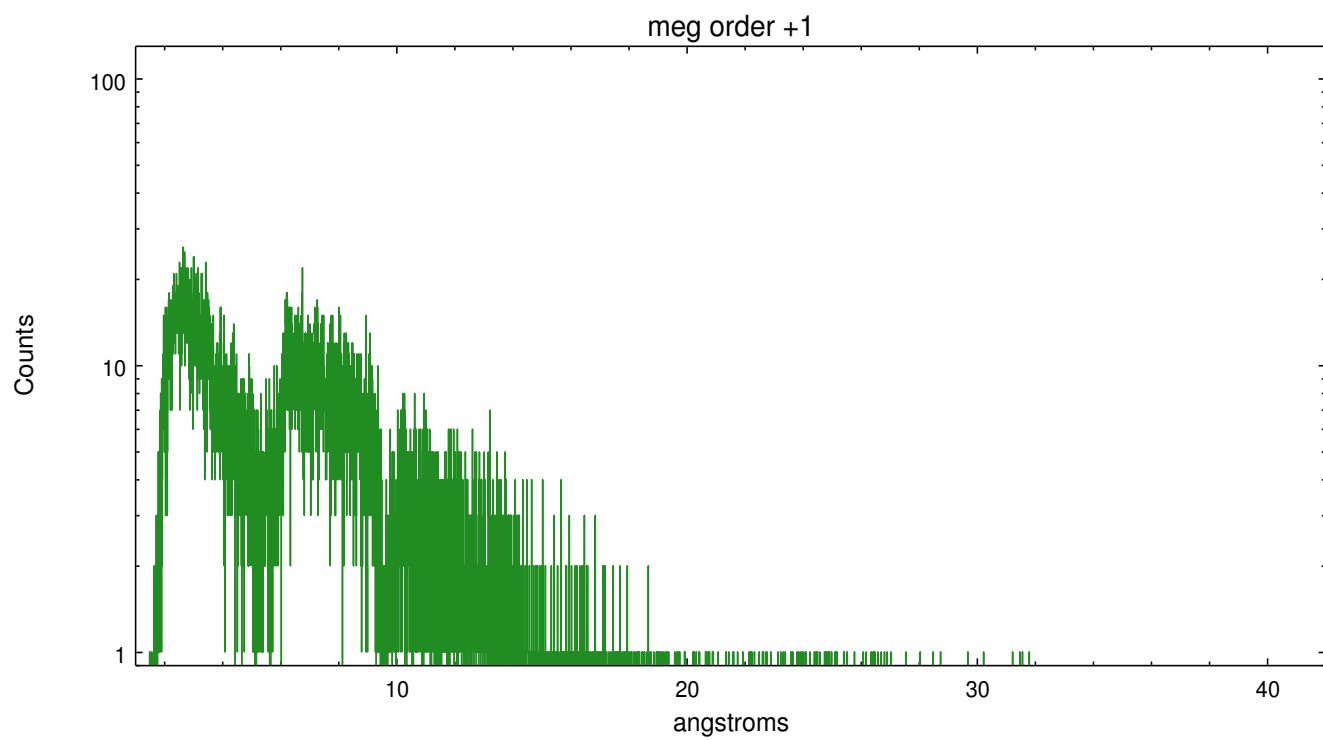
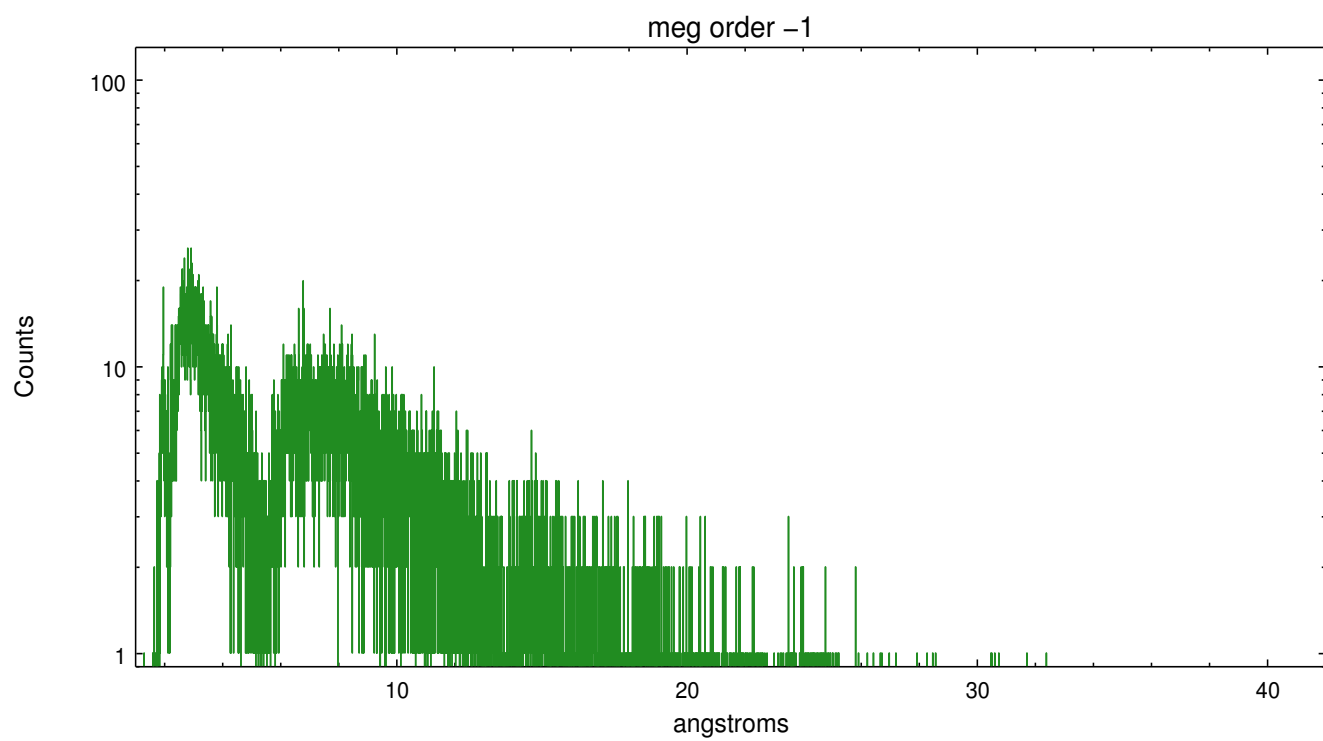
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1575	649	15050	8084	15896	586	1259





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.155

## 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=4082.51, y=4105.16) 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.