

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 4430 - L2 Version 3  
Chandra X-Ray Center

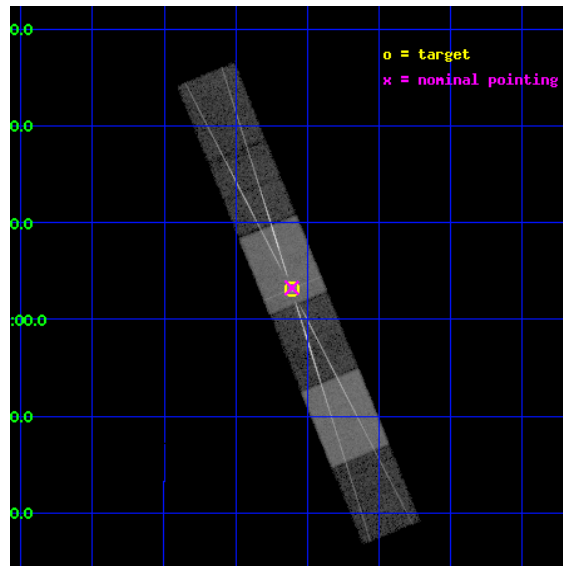
L2 Processing Date : Nov 5 2012

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI</b>	<b>3</b>
2.1	OBI . . . . .	3
2.1.1	Images . . . . .	3
2.1.2	Bias . . . . .	3
2.1.3	Parameters . . . . .	4
2.1.4	Events . . . . .	4
2.2	Compared Parameters . . . . .	5
2.3	Aspect . . . . .	6
2.4	Star Slots . . . . .	9
2.4.1	Slot 3 . . . . .	9
2.4.2	Slot 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>3</b>	<b>Gratings</b>	<b>17</b>
3.1	HEG Arm . . . . .	17
3.2	MEG Arm . . . . .	19
<b>A</b>	<b>Summary</b>	<b>21</b>
A.1	Status . . . . .	21
A.2	Comments . . . . .	21

# 1 Front

seq_num	790087	Sequence number
obs_id	4430	Observation id
title	AO4 CALIBRATION OBSERVATIONS OF 3C273	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	3C273	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	187.277917	Observer's specified target RA [deg]
dec_targ	2.052389	Observer's specified target Dec [deg]
ra_nom	187.27693528529	Nominal RA [deg]
dec_nom	2.0543791034557	Nominal Dec [deg]
roll_nom	247.6364664146	Nominal Roll [deg]
revision	3	Processing version of data
ontime	27600.0	Sum of GTIs [s]
livetime	27154.236060825	Livetime [s]
ontime4	27600.0	Sum of GTIs [s]
ontime5	27600.0	Sum of GTIs [s]
ontime6	27600.0	Sum of GTIs [s]
ontime7	27600.0	Sum of GTIs [s]
ontime8	27600.0	Sum of GTIs [s]
ontime9	27600.0	Sum of GTIs [s]
l2events	317323	Number of level 2 events

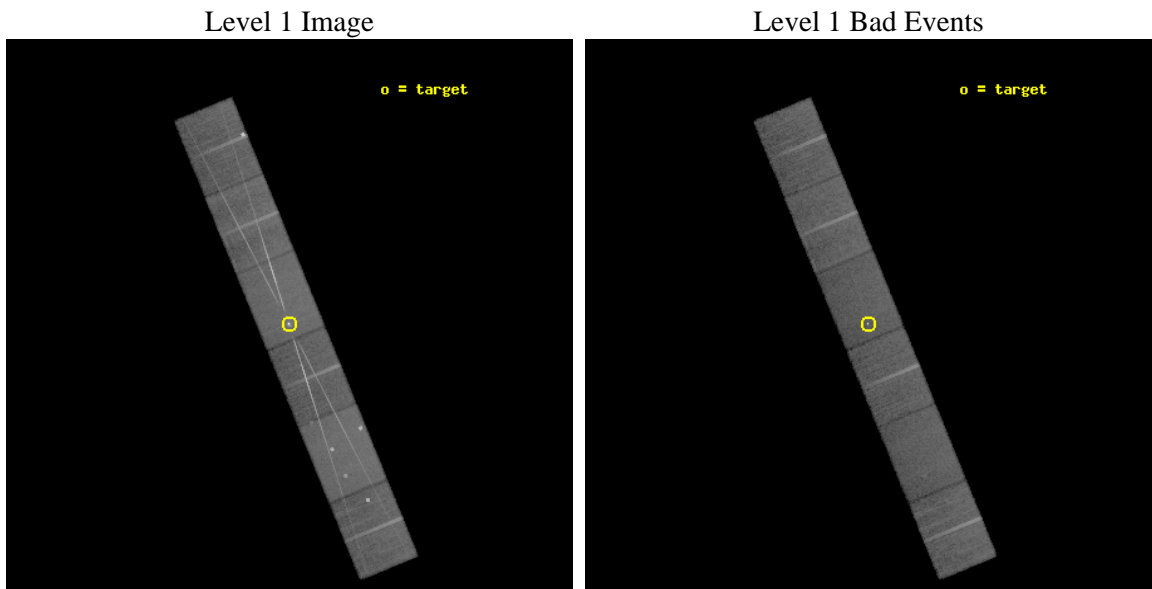




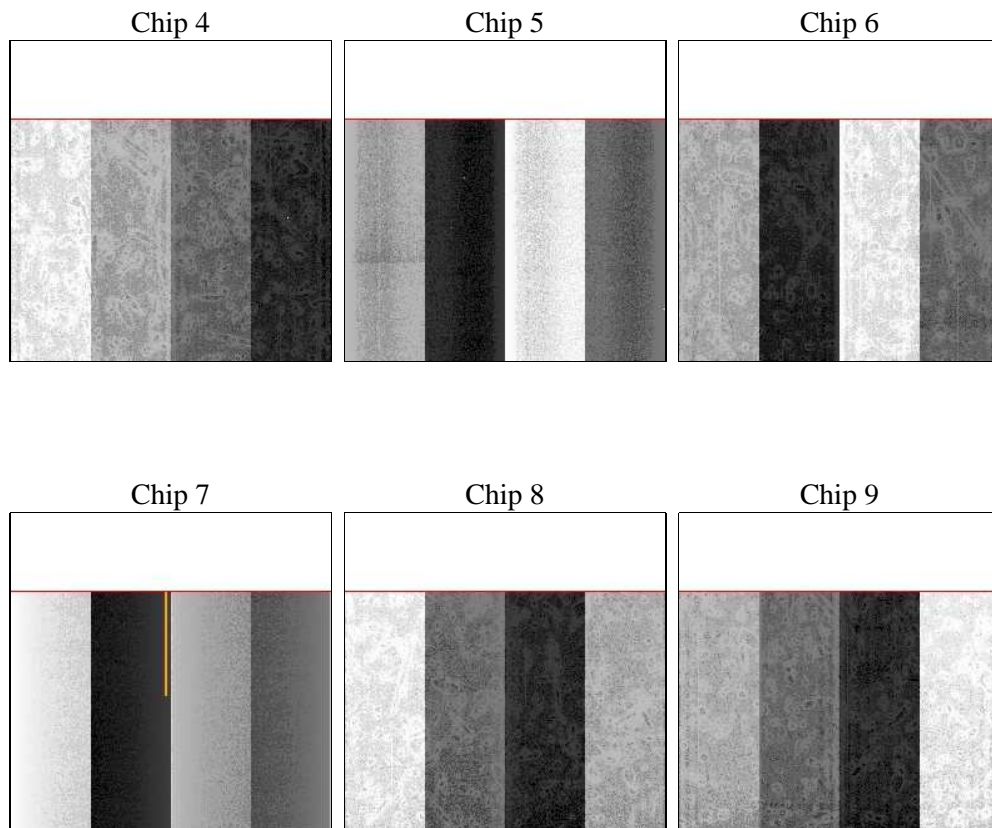
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	27459.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	27600.0	Sum of GTIs [s]
caldsver	4.5.2	&#160	ontime4	27600.0	Sum of GTIs [s]
date	2012-10-31T05:25:50	Date and time of file creation	ontime5	27600.0	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	27600.0	Sum of GTIs [s]
			ontime7	27600.0	Sum of GTIs [s]
			ontime8	27600.0	Sum of GTIs [s]
			ontime9	27600.0	Sum of GTIs [s]
			l1events	1082382	Number of level 1 events

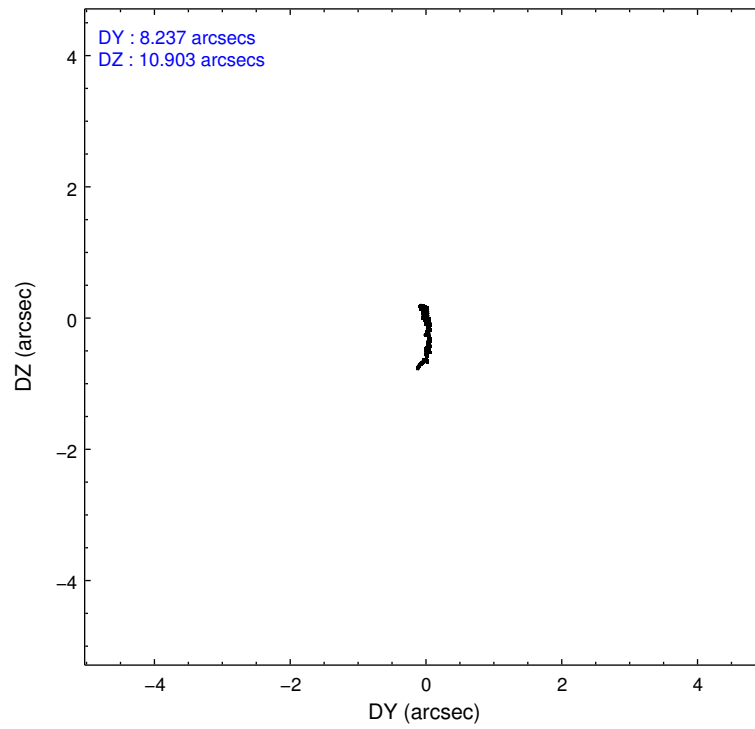
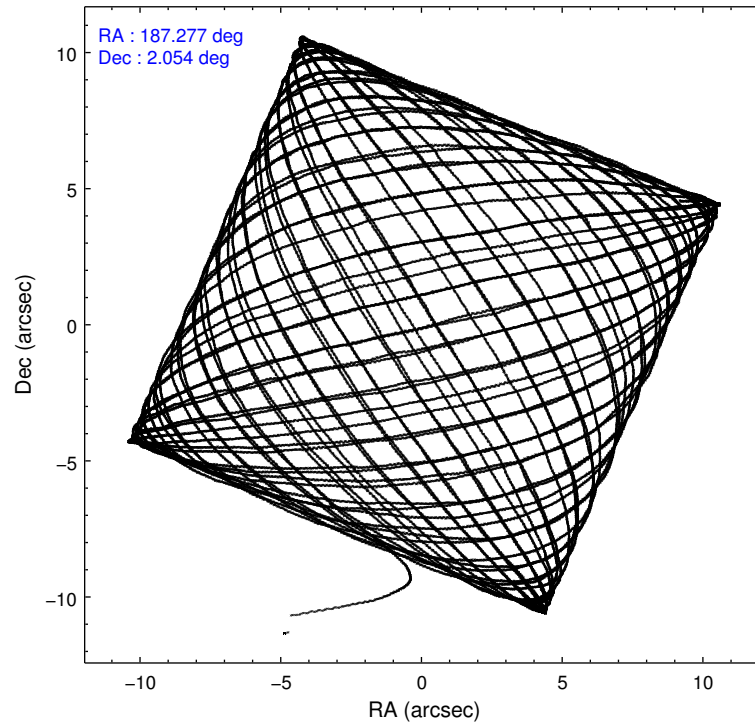
### 2.1.4 Events

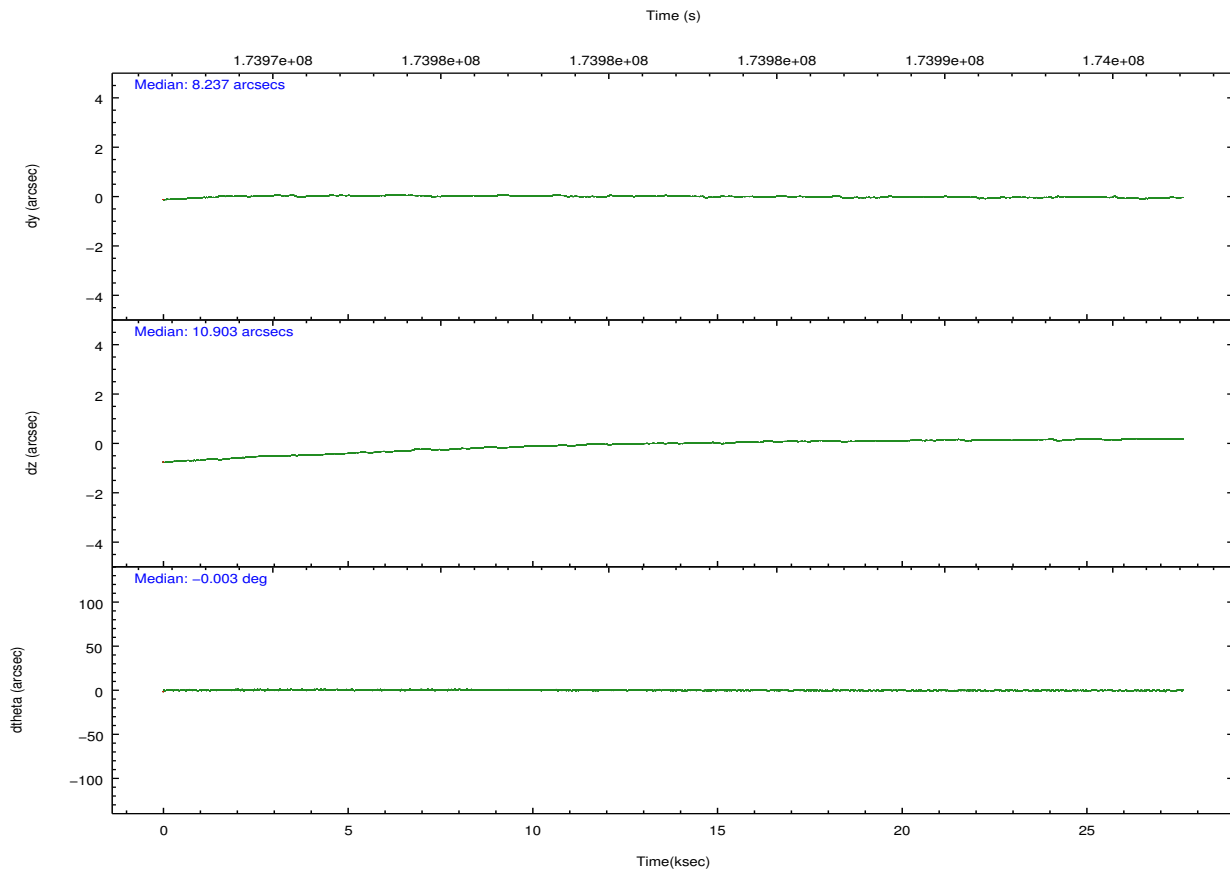
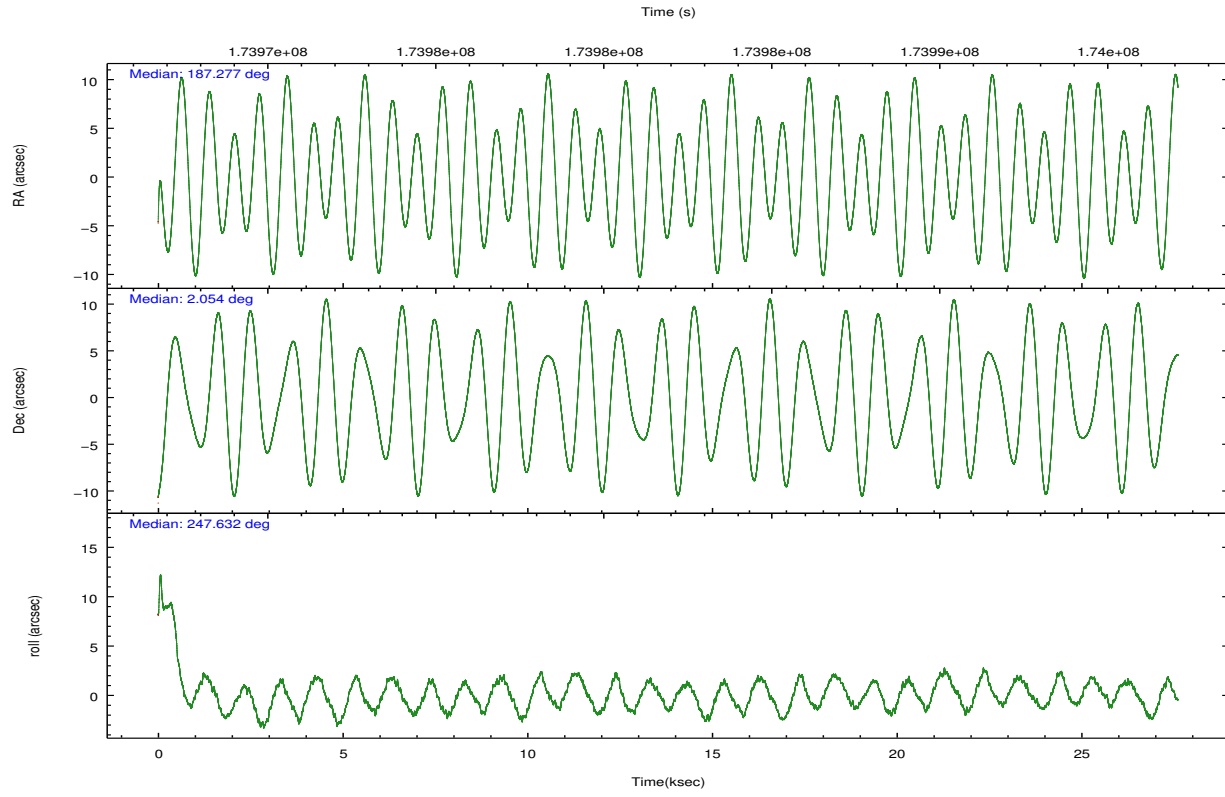
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	151948	213286	169245	221214	183224	143465	grade 0 events	15357	24649	36456	16218	26978	20527
rejected events	127313	105574	115582	109740	130425	113297		10%	11%	21%	7%	14%	14%
rejected %	83%	49%	68%	49%	71%	78%	grade 1 events	130	402	196	388	146	113
								0%	0%	0%	0%	0%	0%
							grade 2 events	3709	28156	7486	24316	9004	3485
								2%	13%	4%	10%	4%	2%
							grade 3 events	1780	5615	2952	10931	4185	1859
								1%	2%	1%	4%	2%	1%
							grade 4 events	1687	5290	2939	11050	4005	1844
								1%	2%	1%	4%	2%	1%
							grade 5 events	5330	14834	5914	17509	7484	6022
								3%	6%	3%	7%	4%	4%
							grade 6 events	2533	46334	4270	50820	9377	3041
								1%	21%	2%	22%	5%	2%
							grade 7 events	121422	88006	109032	89982	122045	106574
								79%	41%	64%	40%	66%	74%

## 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	187.272955	187.276935285294	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	2.081329	2.054379103455661	Subarray start row	1	1
[deg] Pointing Roll	247.479989	247.6364664145962	Subarray row count	774	774
[s] Window start time (MET)	170812864.184000	170812864.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	175910464.184000	175910464.184000	[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)	173968253.184000	173967002.45081			
Observation start date	2003-07-07T12:29:49	2003-07-07T12:10:02			
[s] Observation end time (MET)	173995712.184000	173996176.00205			
Observation end date	2003-07-07T20:07:28	2003-07-07T20:16:16			
Read mode	TIMED	TIMED			

## 2.3 Aspect



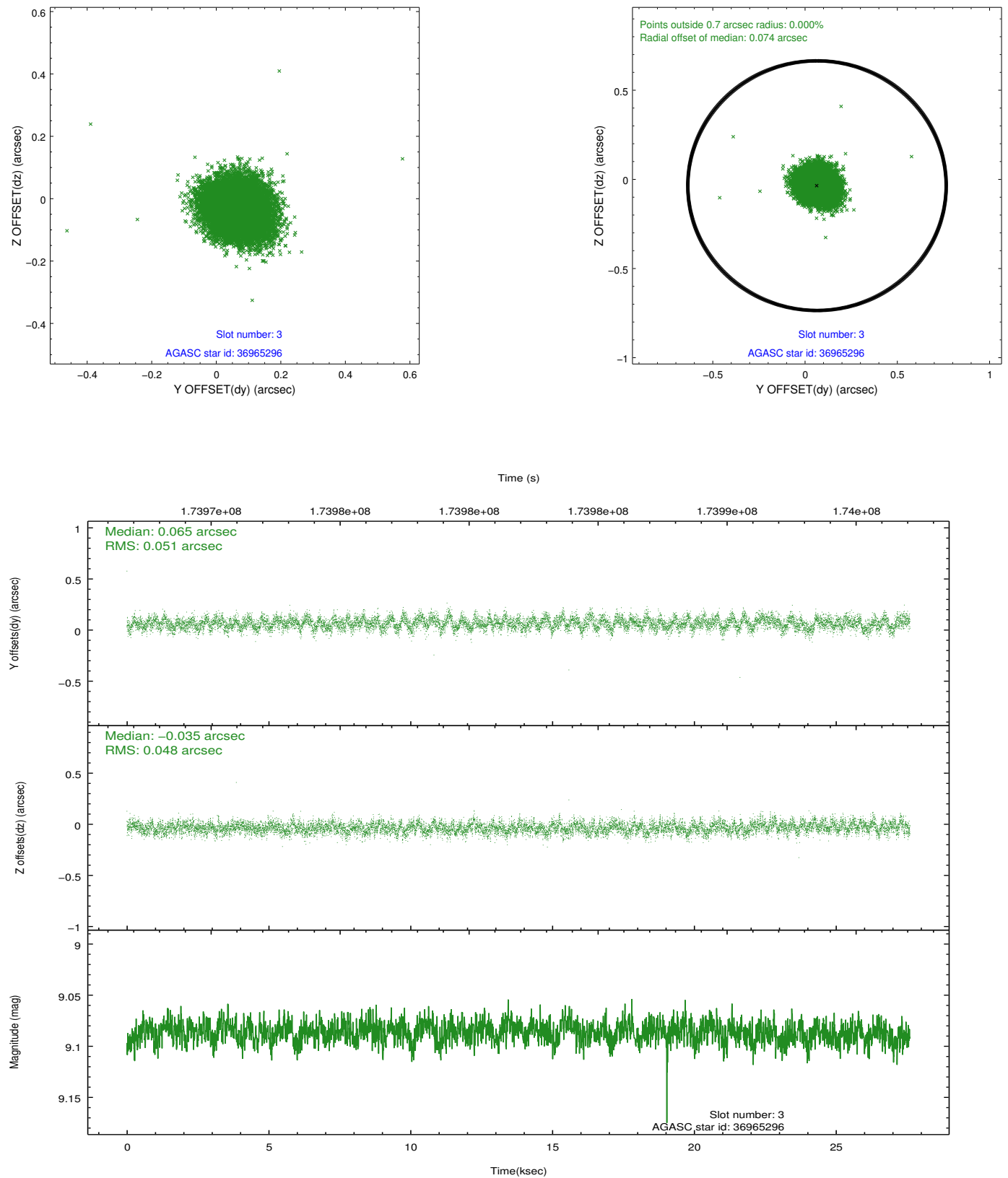


### Slot Statistics

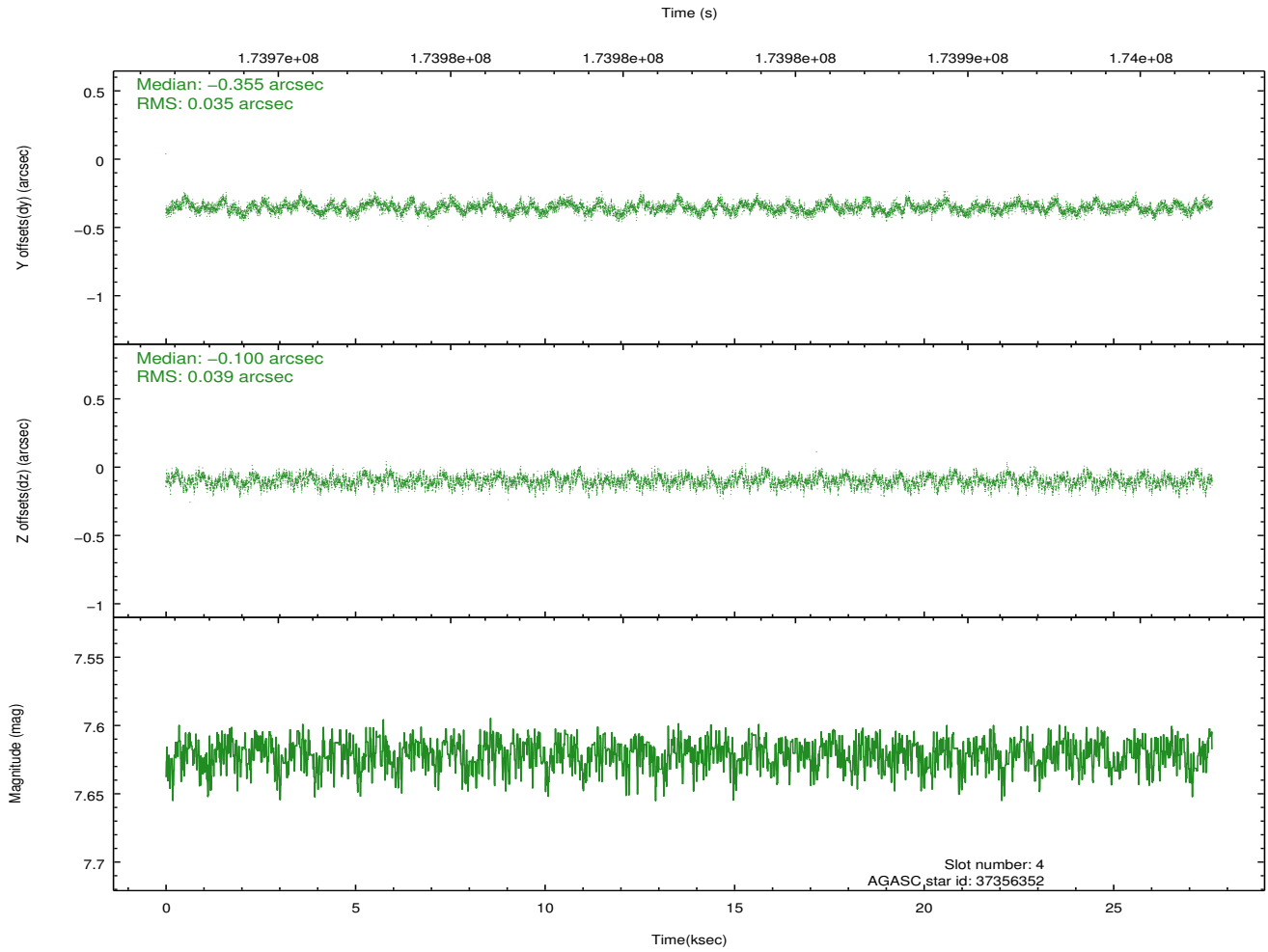
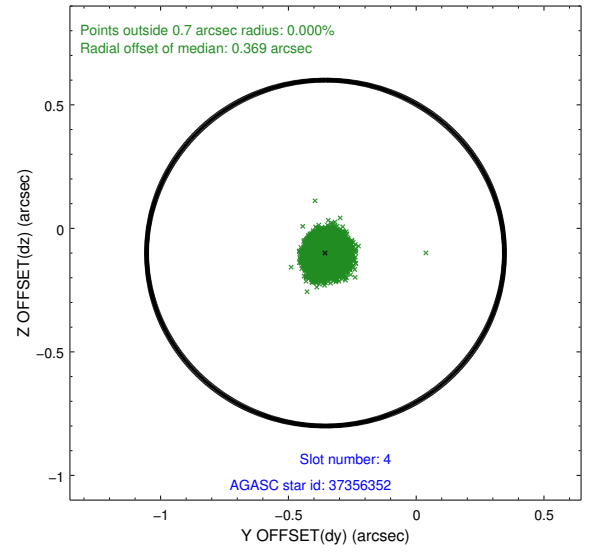
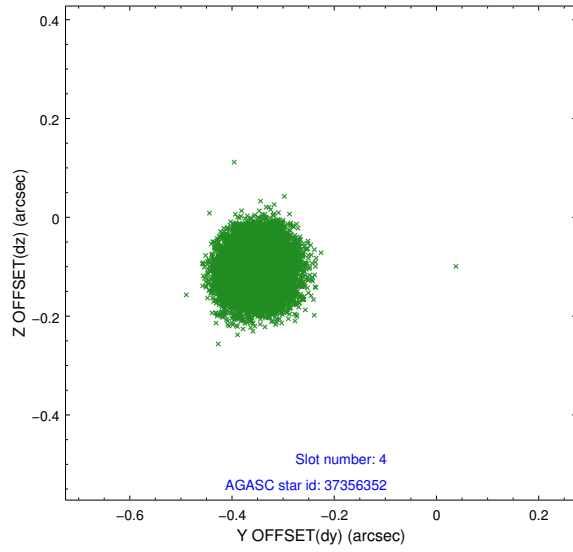
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	6734	-0.025	-0.070	0.008	0.014	0.000000	0.000000	-760.85	-1794.22
1	FID	ACIS-S-4	7.18	6734	0.069	0.031	0.006	0.012	0.000000	0.000000	2152.49	114.23
2	FID	ACIS-S-5	7.23	6734	-0.075	0.047	0.007	0.012	0.000000	0.000000	-1813.61	108.06
3	GUIDE	36965296	9.09	13463	0.065	-0.035	0.074	0.121	186.926292	1.837429	1289.08	-815.87
4	GUIDE	37356352	7.62	13467	-0.355	-0.100	0.056	0.089	187.433784	2.618460	-2007.78	-206.53
5	GUIDE	37883040	10.03	13460	0.267	0.317	0.146	0.247	187.575516	1.280402	2246.63	2110.96
6	GUIDE	36965896	9.70	13459	0.033	-0.113	0.160	0.243	187.153754	1.617178	1708.23	244.06
7	GUIDE	36963696	9.87	13458	-0.015	-0.069	0.101	0.165	186.971396	1.870472	1117.10	-711.42

## 2.4 Star Slots

### 2.4.1 Slot 3

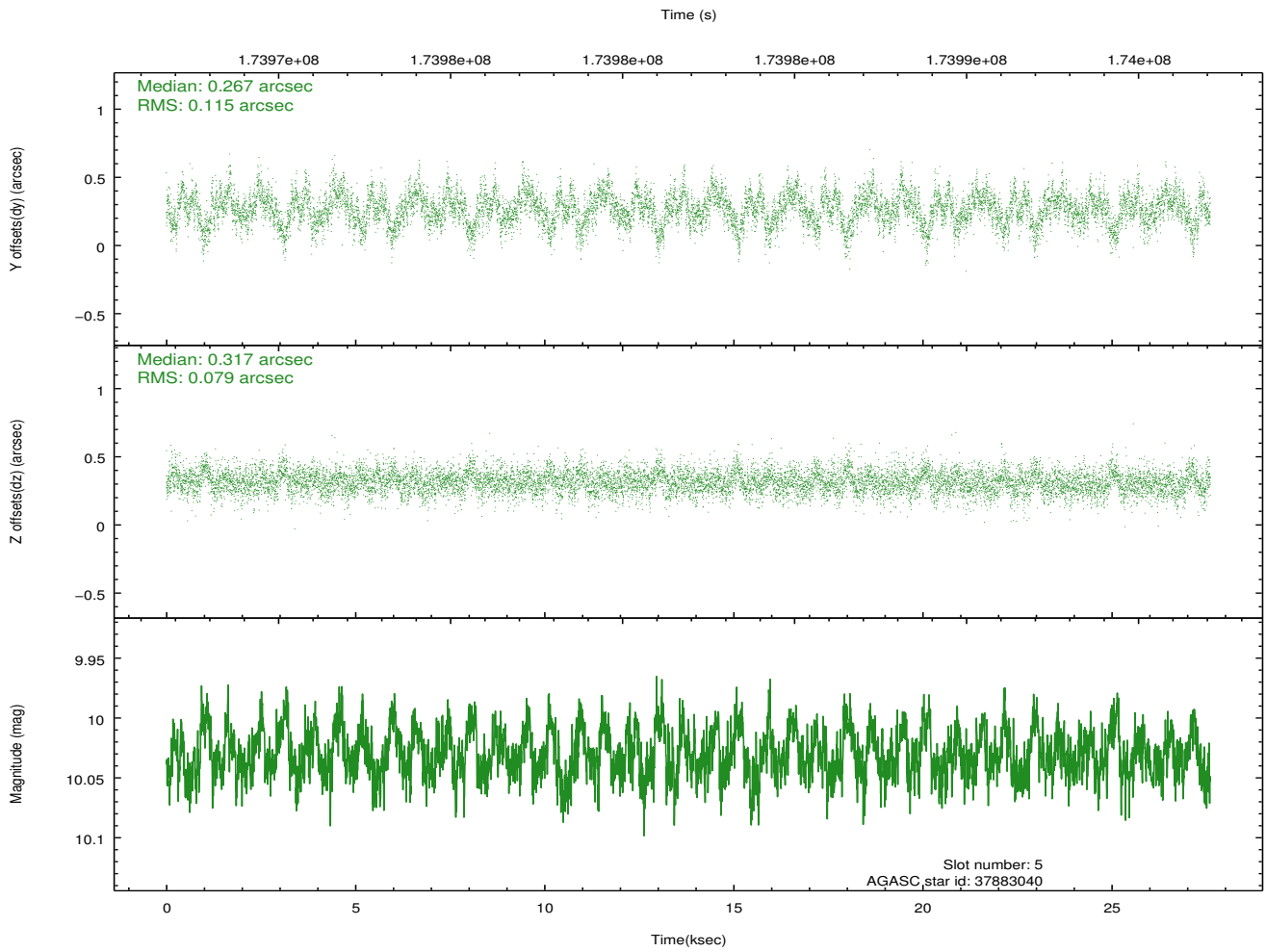
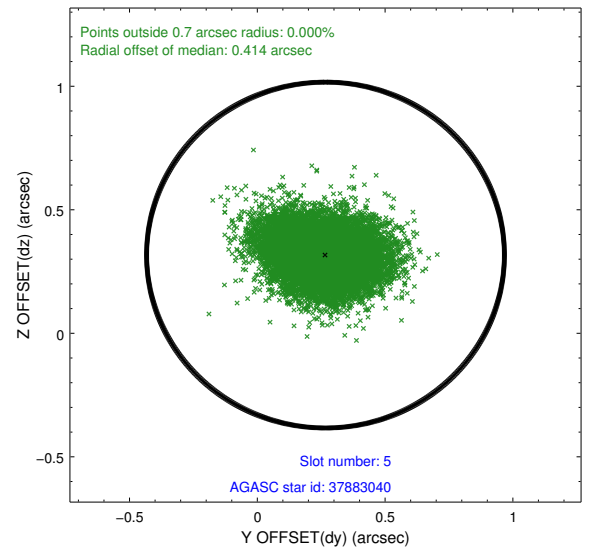
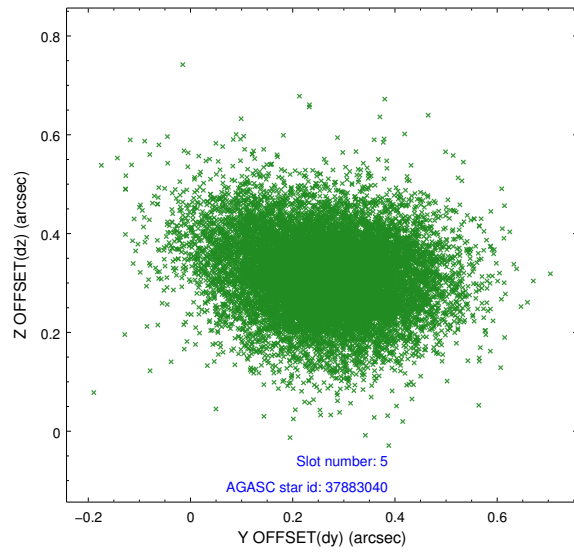


## 2.4.2 Slot 4

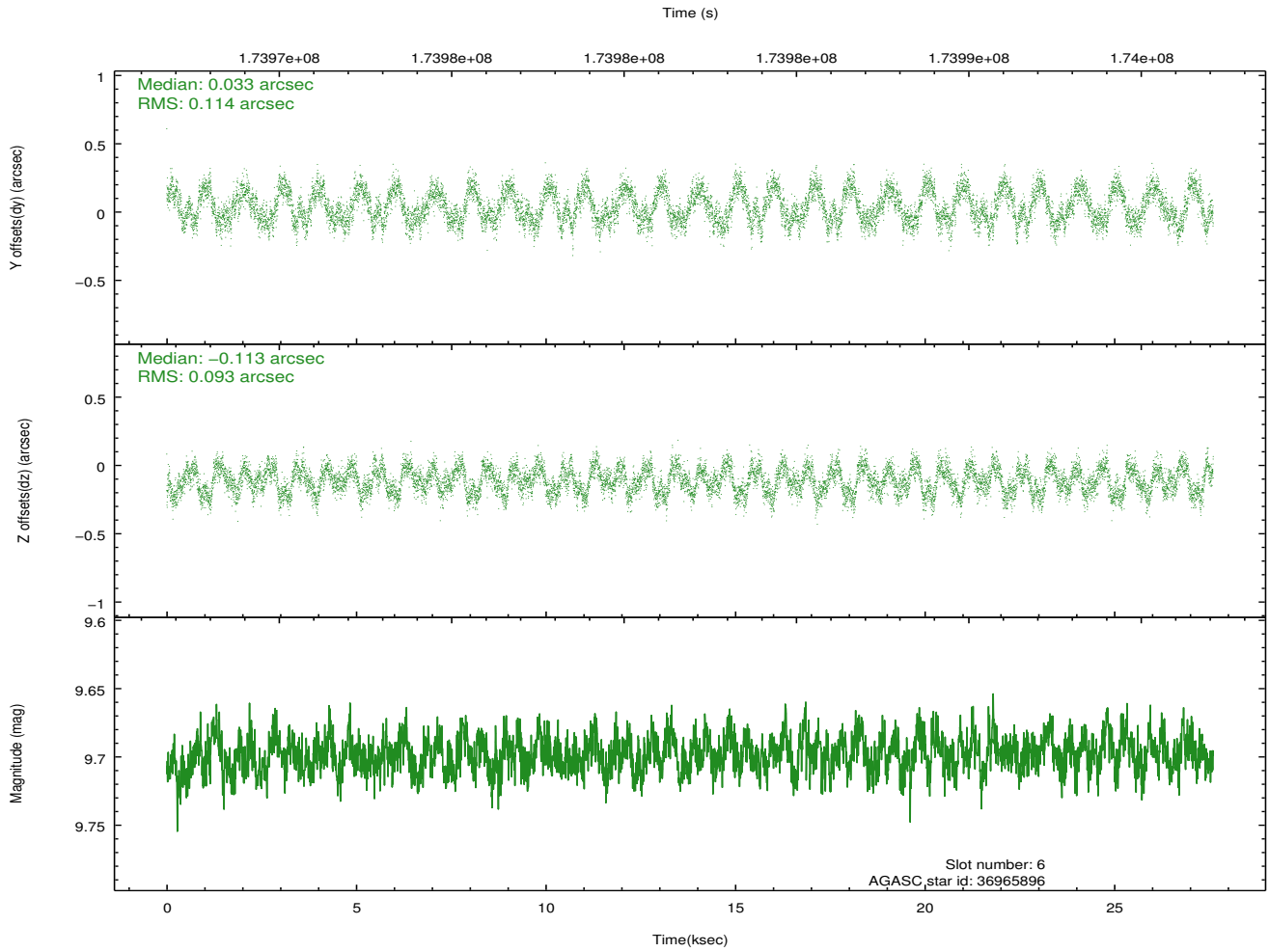
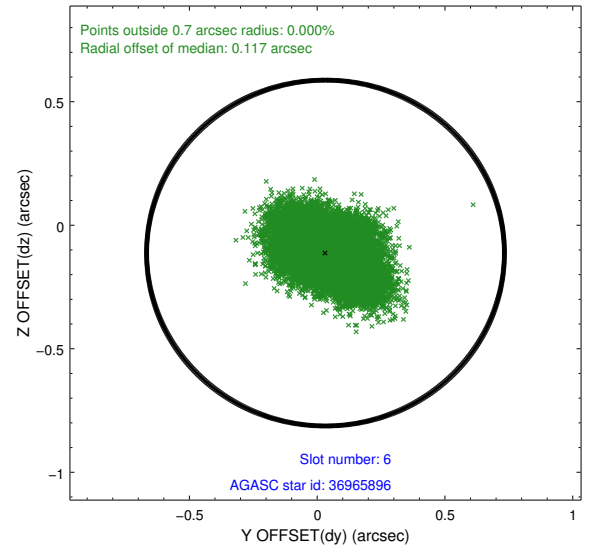
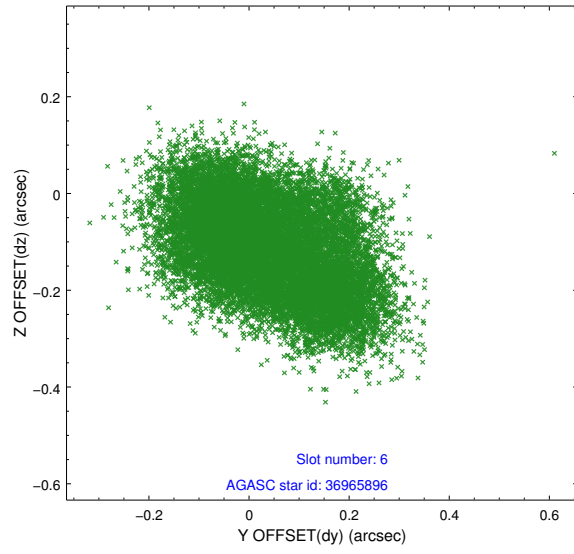




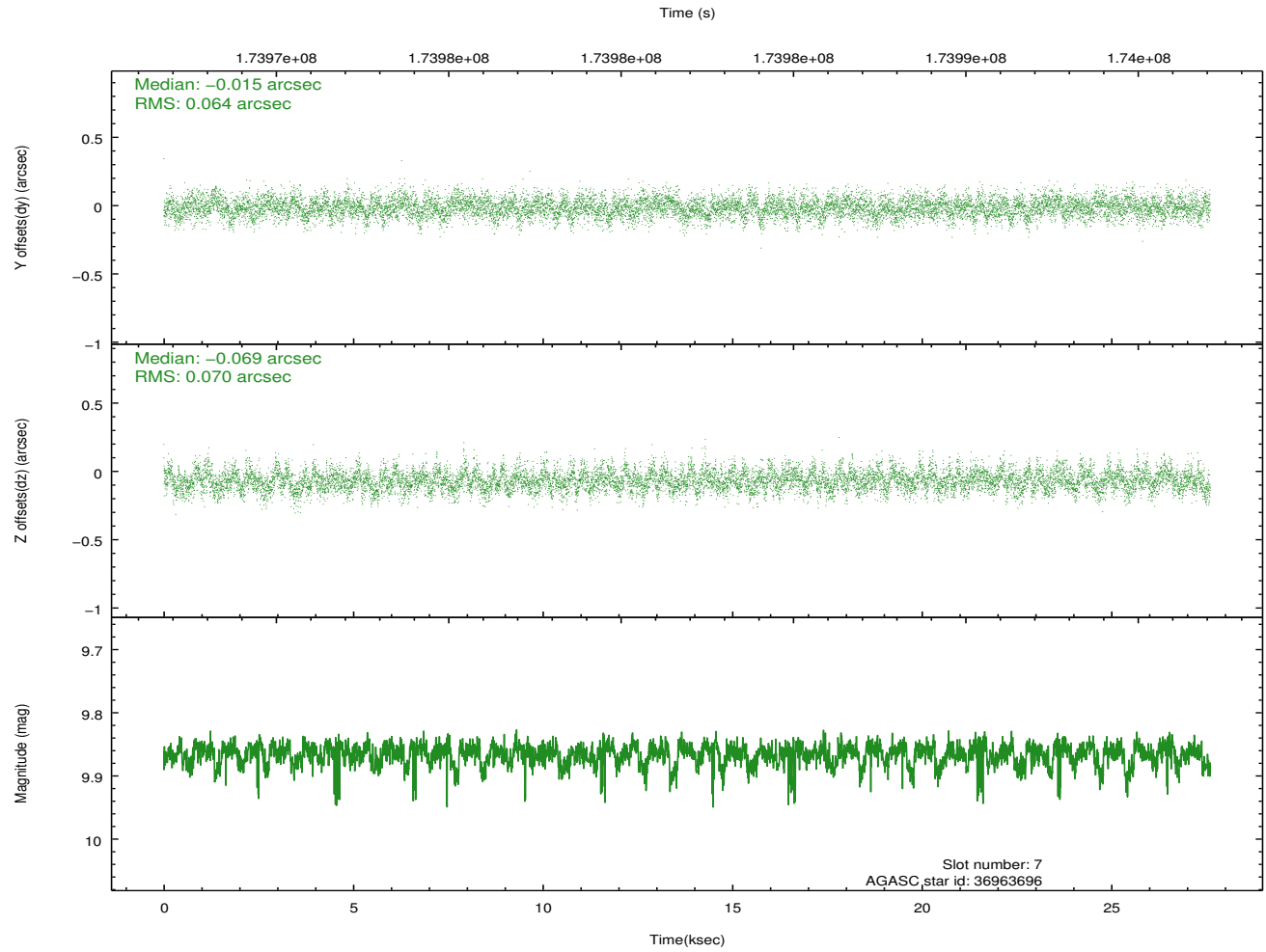
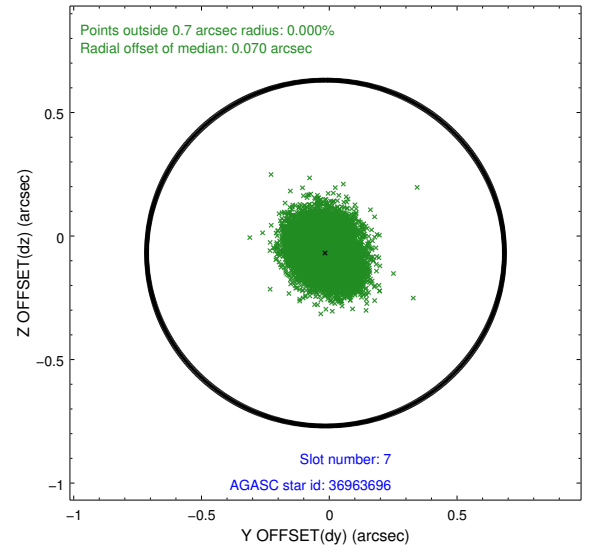
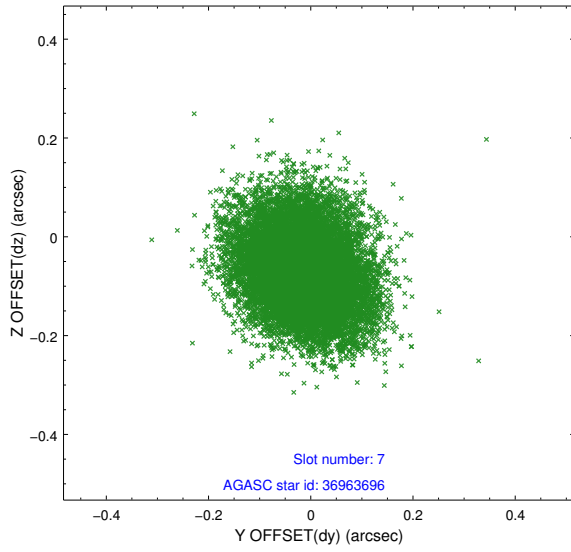
### 2.4.3 Slot 5



## 2.4.4 Slot 6

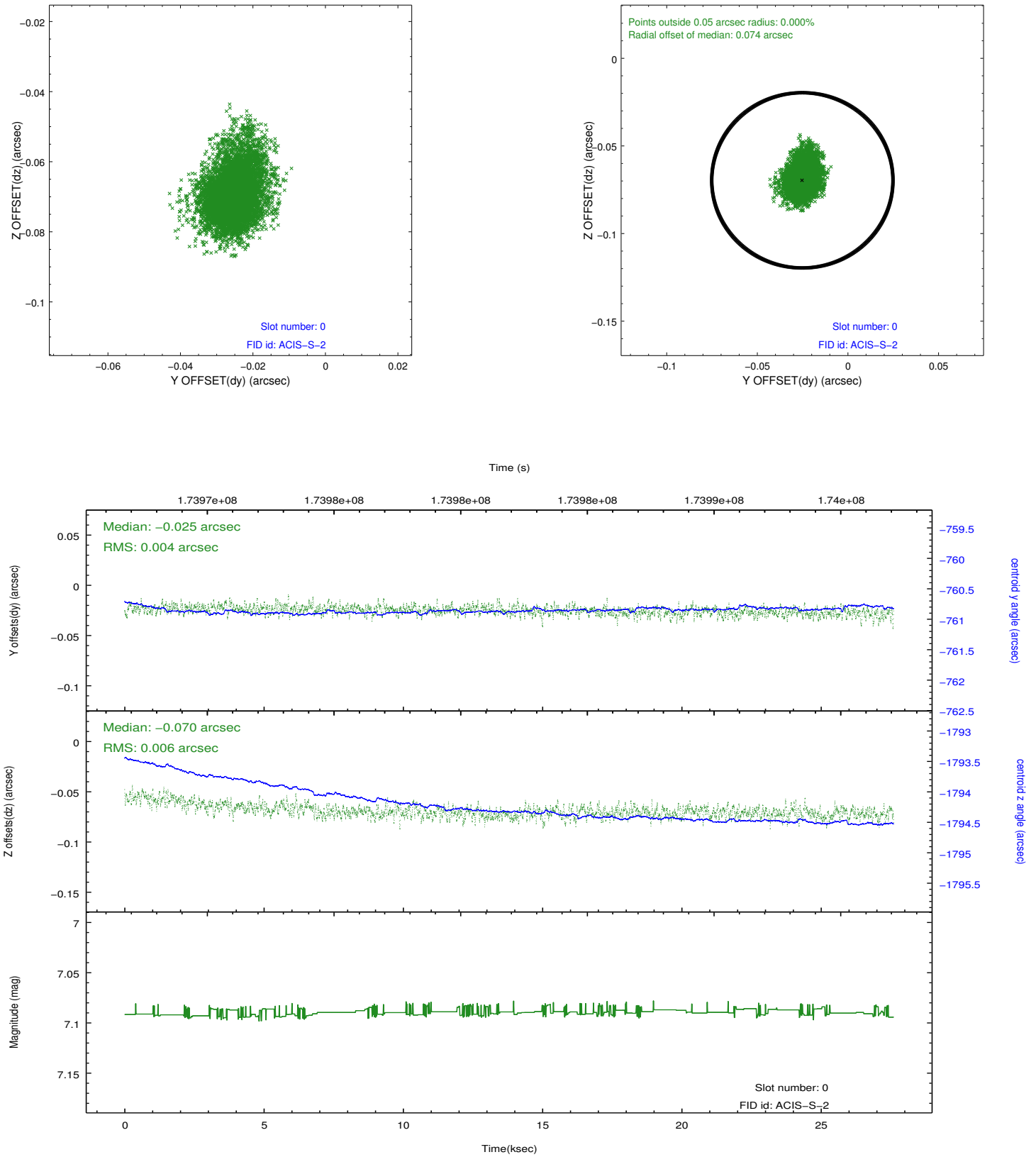


## 2.4.5 Slot 7

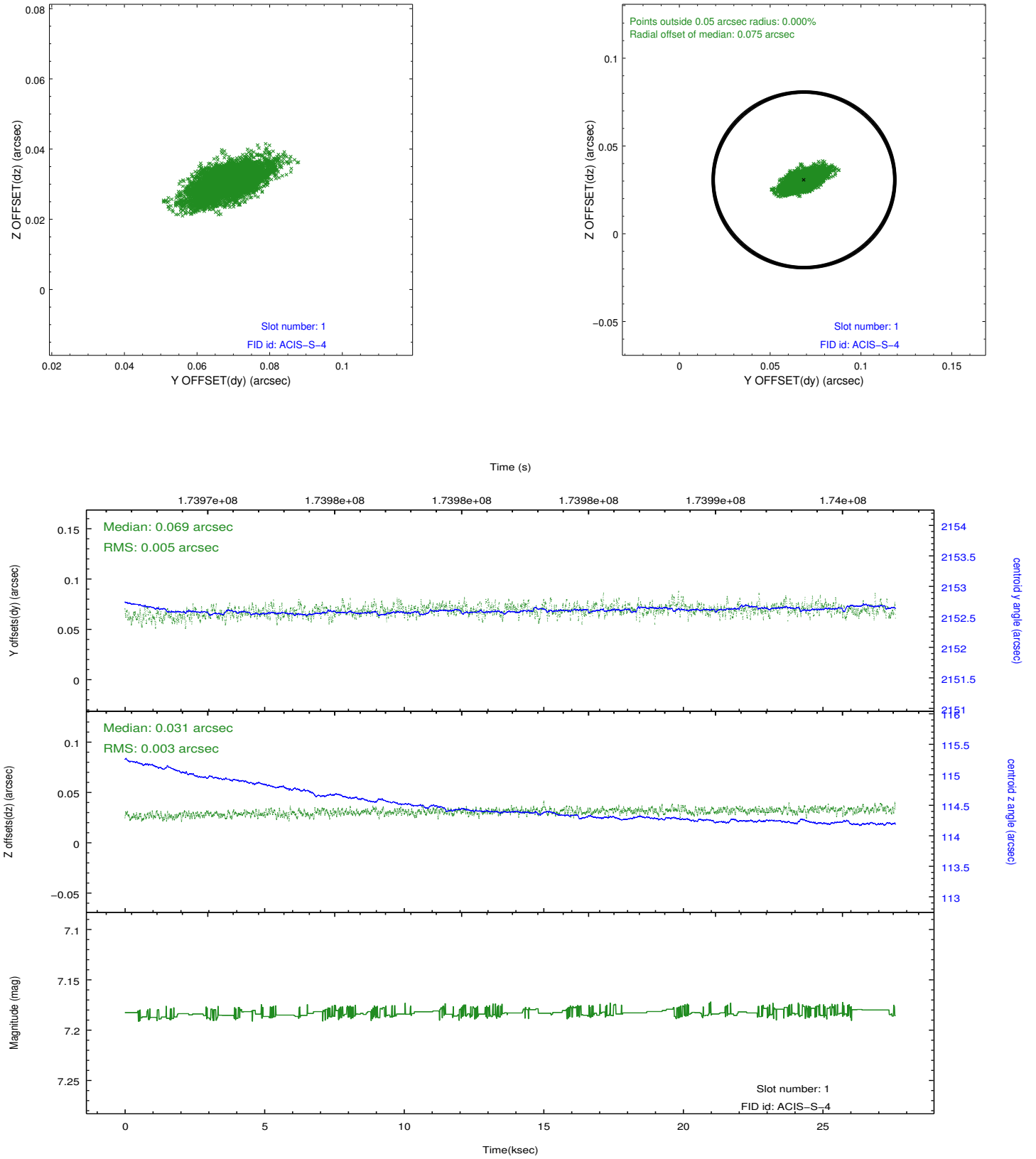


## 2.5 FID Slots

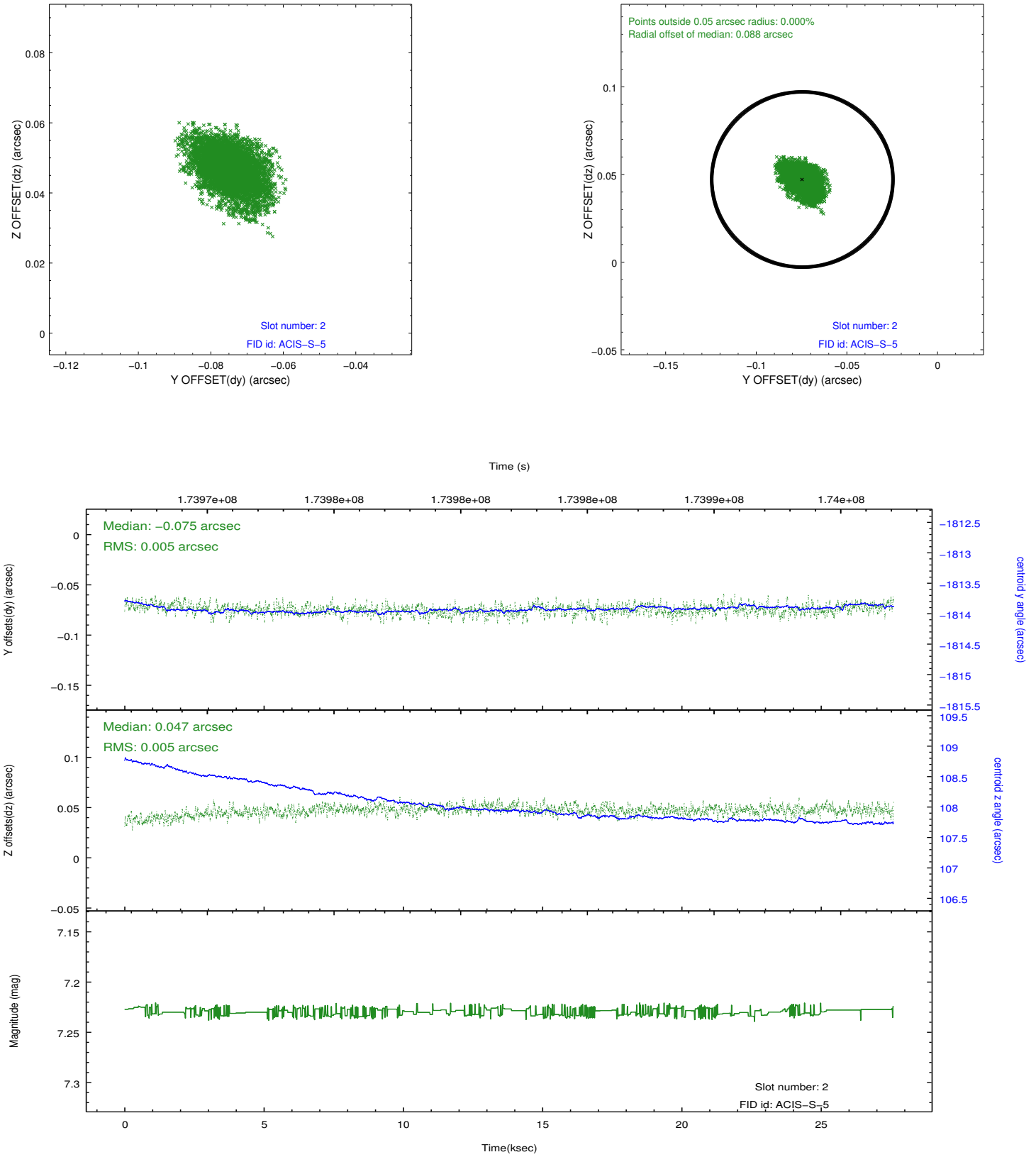
### 2.5.1 Slot 0



## 2.5.2 Slot 1

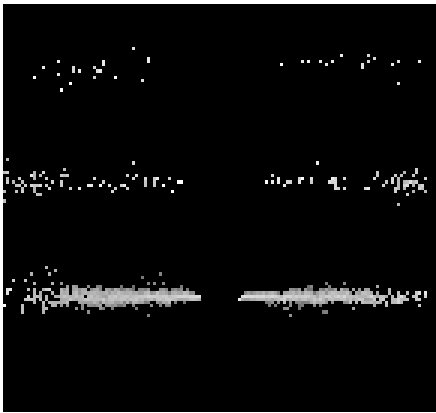


### 2.5.3 Slot 2

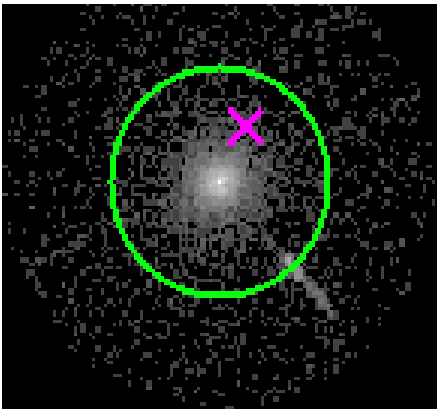


# 3 Gratings

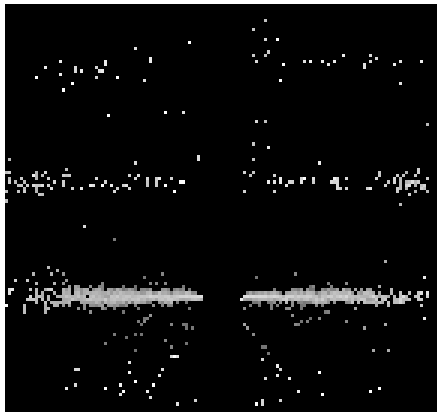
## 3.1 HEG Arm



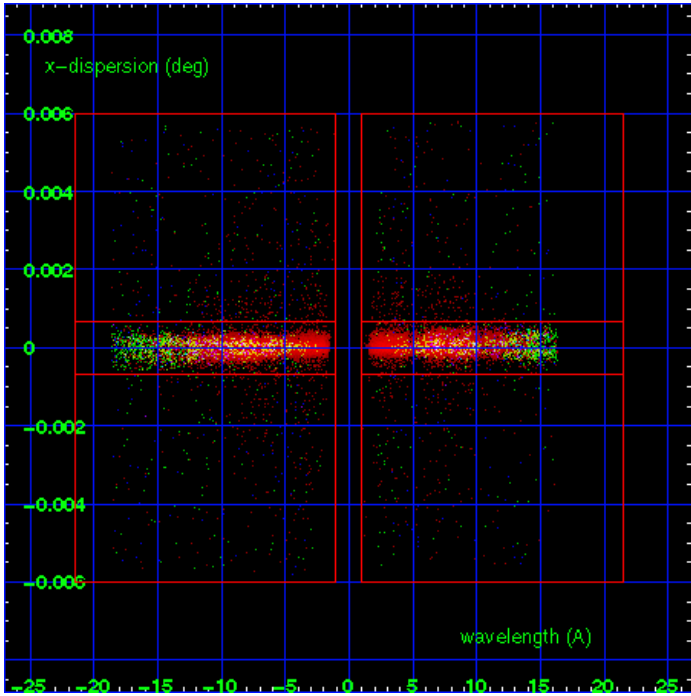
HEG Order Sort 123



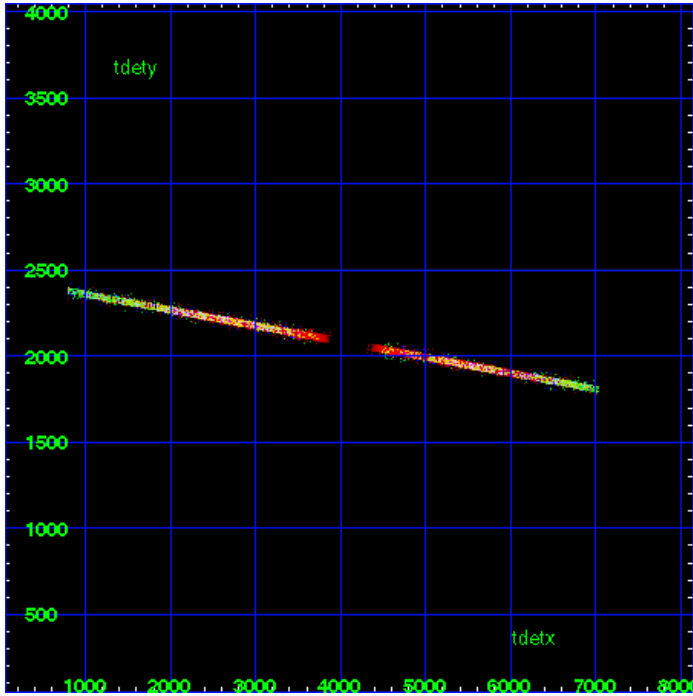
HEG Zero Order



HEG Order Sort ALL

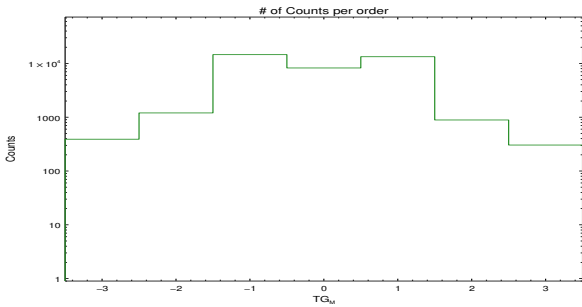


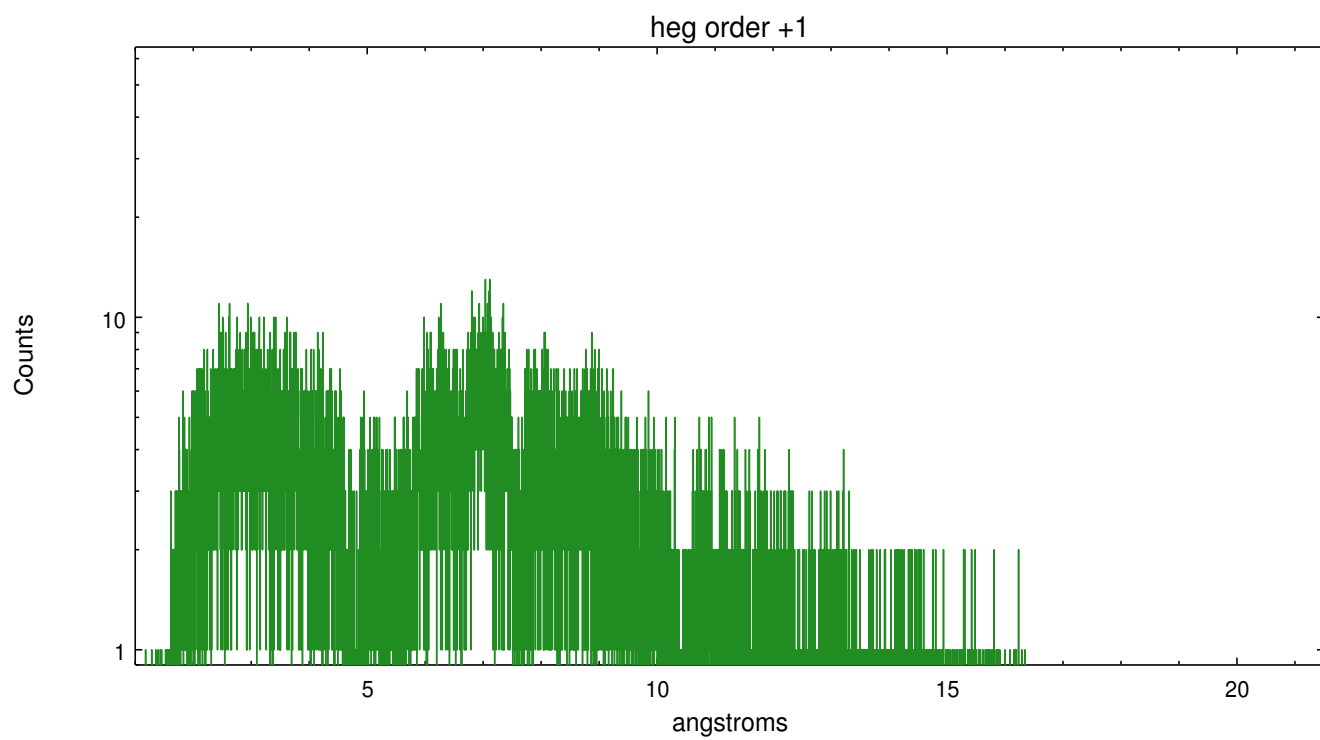
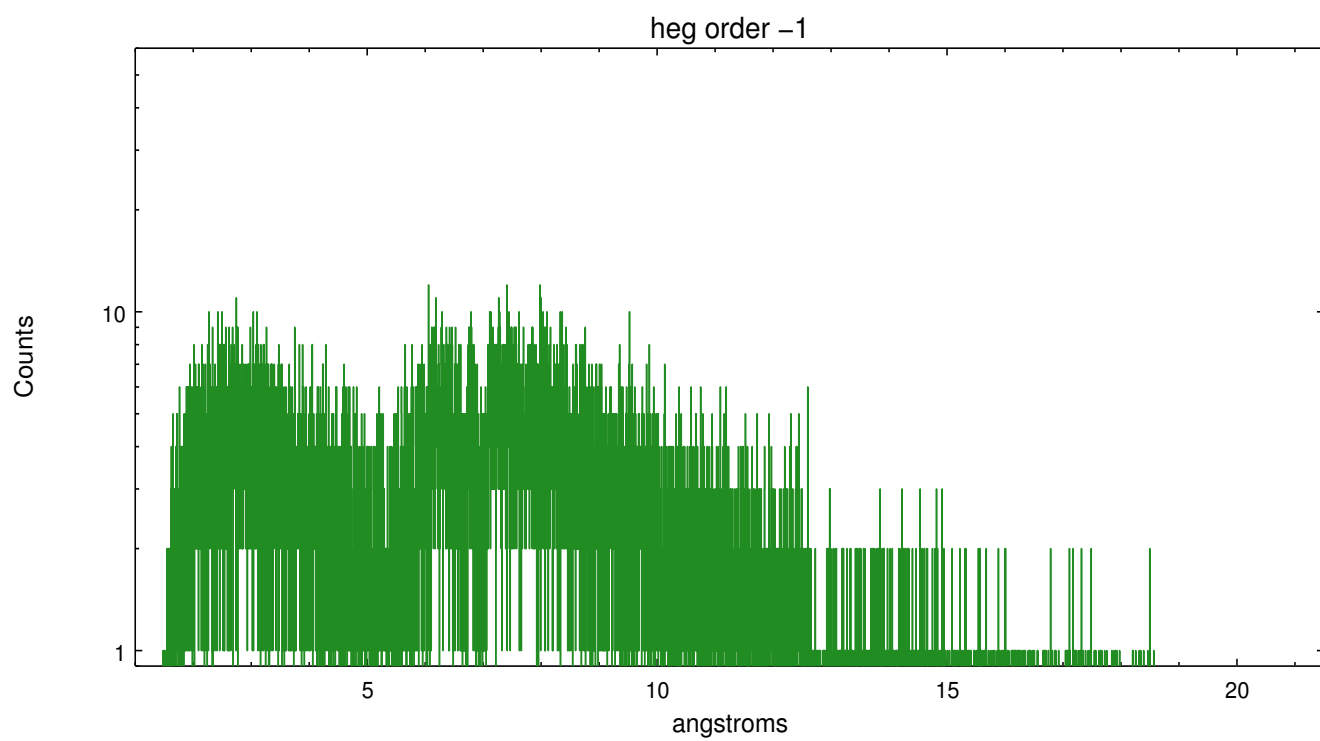
Spot Image HEG



Full Detector HEG

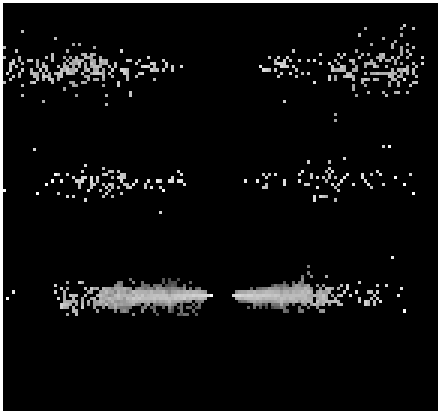
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	390	1202	14574	8240	13335	889	304



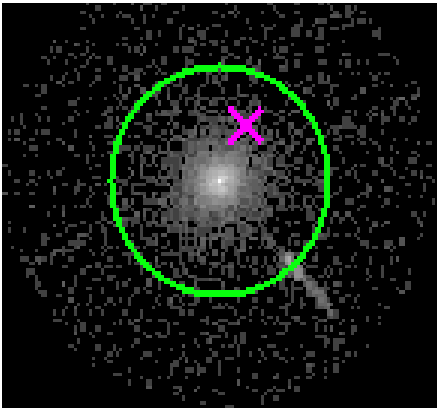




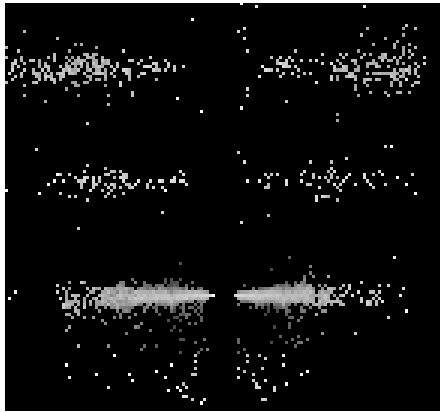
3.2 MEG Arm



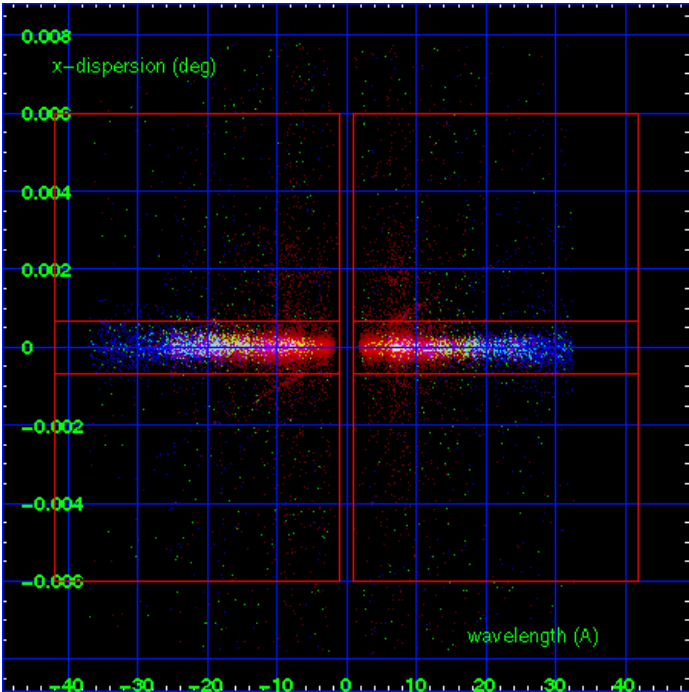
MEG Order Sort 123



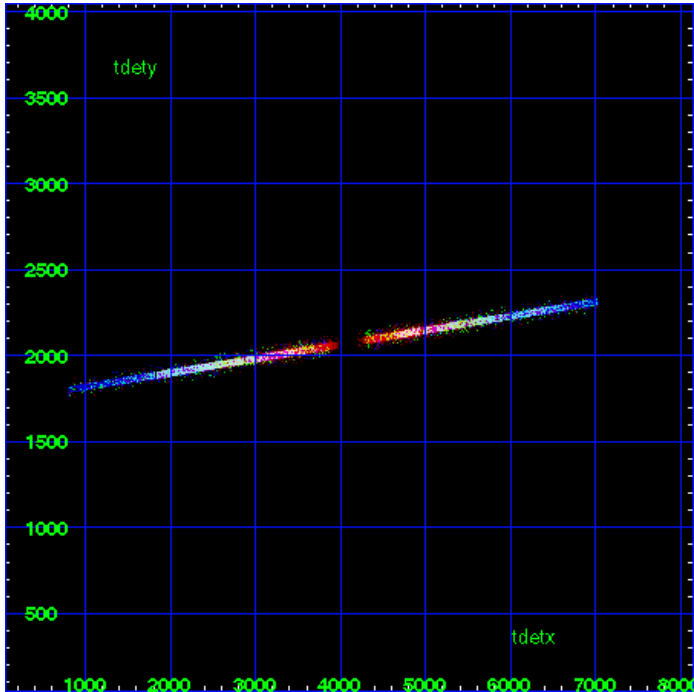
MEG Zero Order



MEG Order Sort ALL

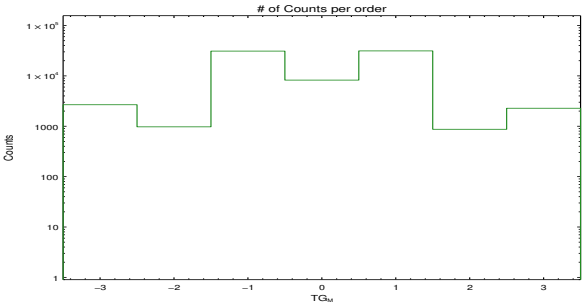


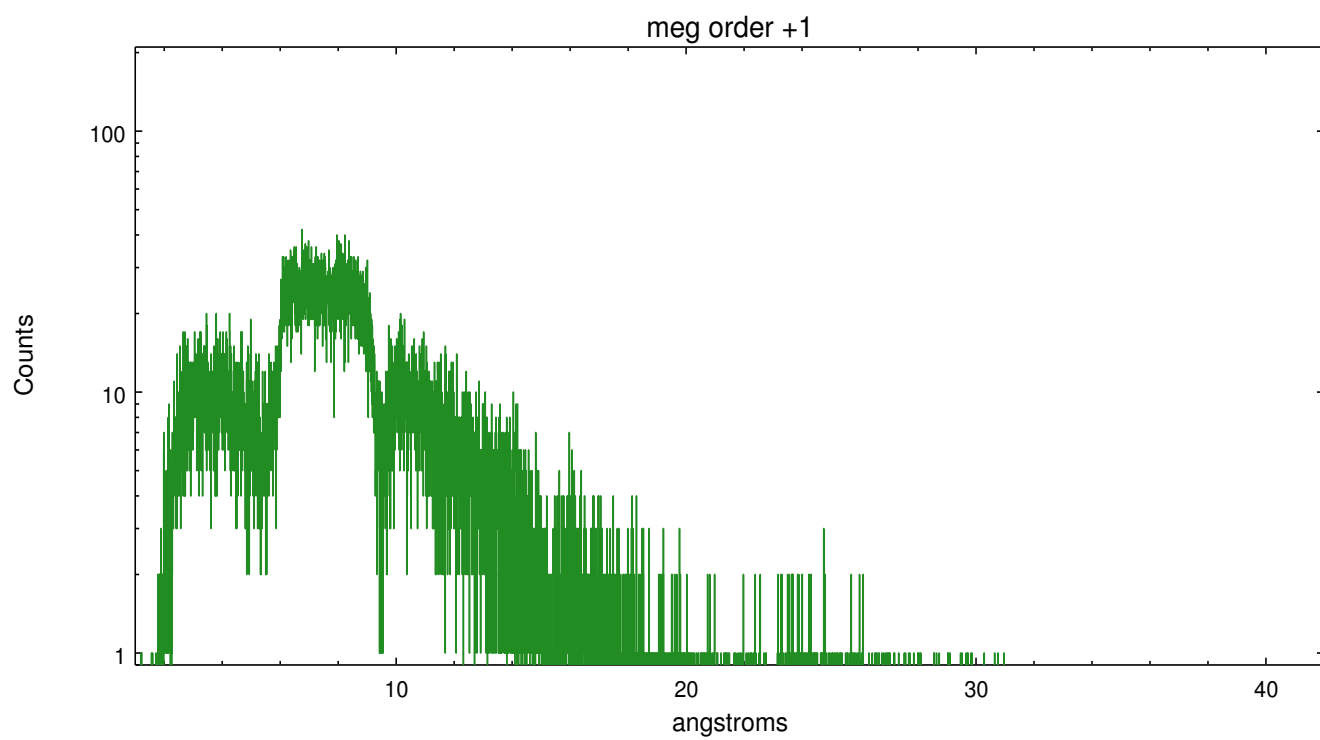
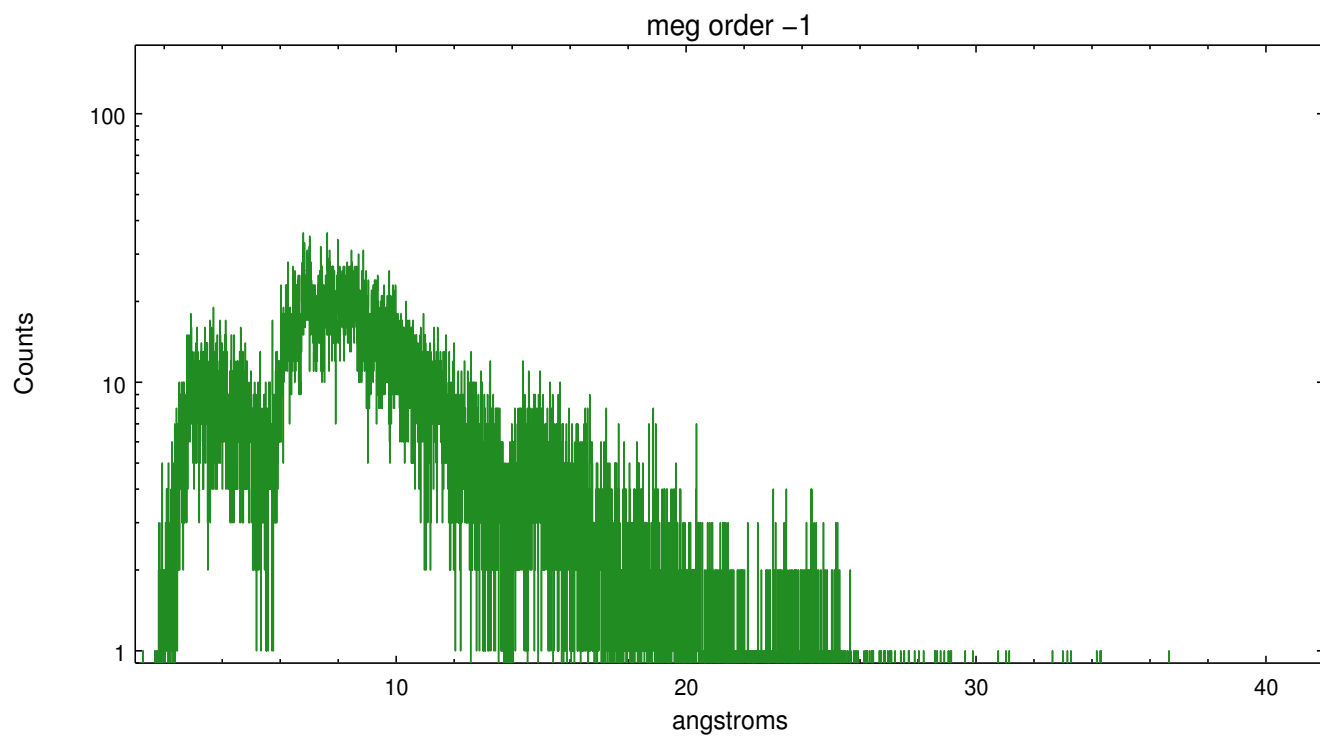
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2674	974	31021	8240	31321	870	2276





# 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	27.6

## 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=4089.096, y=4082.696) 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.