

# V&V Reference Report

## L2 ASCDS Version : 8.5

Observation 4552 - L2 Version 3  
Chandra X-Ray Center

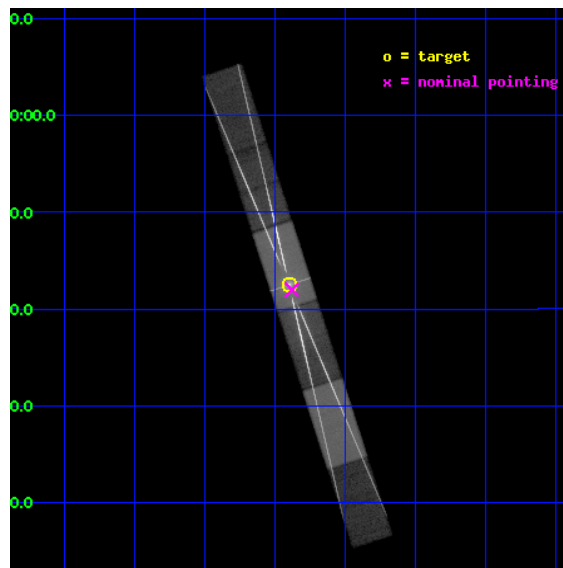
L2 Processing Date : Dec 16 2012

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# 1 Front

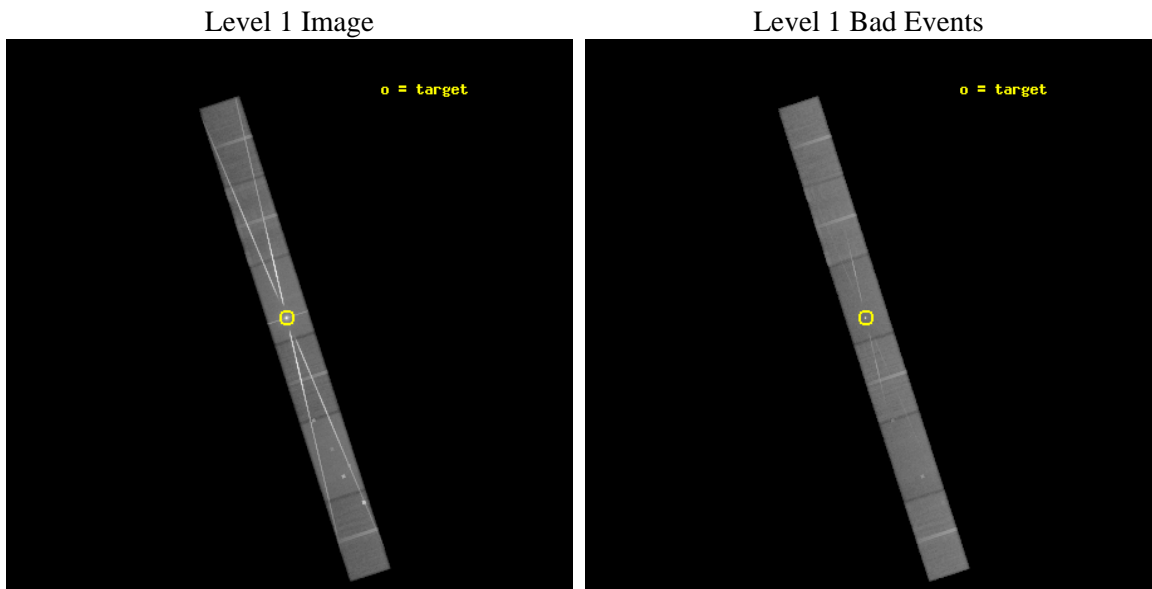
seq_num	400335	Sequence number
obs_id	4552	Observation id
title	The Winds of Warps	Proposal title
observer	Prof Claude Canizares	Principal investigator
object	4U 1957+11 (=V1408 Aql)	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	299.849583	Observer's specified target RA [deg]
dec_targ	11.708333	Observer's specified target Dec [deg]
ra_nom	299.84493458962	Nominal RA [deg]
dec_nom	11.699785804623	Nominal Dec [deg]
roll_nom	252.02722082176	Nominal Roll [deg]
revision	3	Processing version of data
ontime	67182.299528897	Sum of GTIs [s]
livetime	65598.670449343	Livetime [s]
ontime4	67182.299528897	Sum of GTIs [s]
ontime5	67182.299528897	Sum of GTIs [s]
ontime6	67180.558508784	Sum of GTIs [s]
ontime7	67182.299528897	Sum of GTIs [s]
ontime8	67182.299528897	Sum of GTIs [s]
ontime9	67180.558508784	Sum of GTIs [s]
l2events	2276469	Number of level 2 events



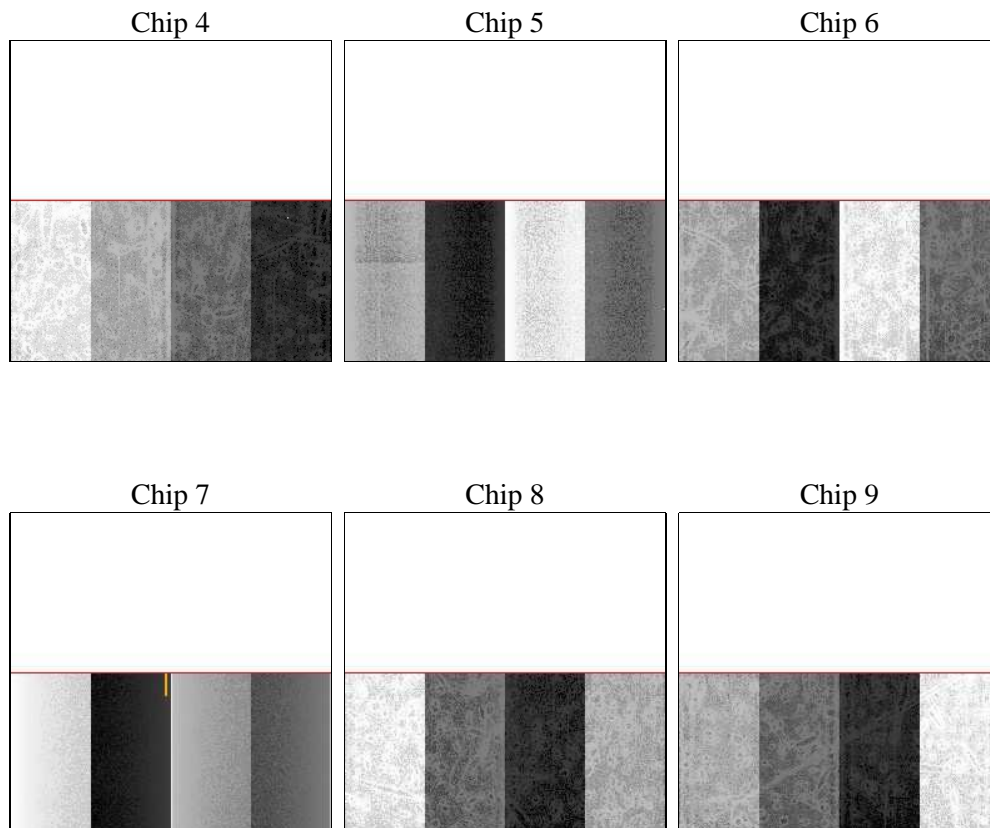
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	2	Obi number	sched_exp_time	67000.000000	[s] Scheduled observation exposure time
ascdsver	8.5	Processing system revision	ontime	67182.299528897	Sum of GTIs [s]
caldbver	4.5.4	&#160	ontime4	67182.299528897	Sum of GTIs [s]
date	2012-12-08T12:39:53	Date and time of file creation	ontime5	67182.299528897	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	67180.558508784	Sum of GTIs [s]
			ontime7	67182.299528897	Sum of GTIs [s]
			ontime8	67182.299528897	Sum of GTIs [s]
			ontime9	67180.558508784	Sum of GTIs [s]
			l1events	3986615	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	356360	562003	976925	1055805	700989	334533	grade 0 events	62922	83082	538116	158381	304586	61406
rejected events	268683	215002	268694	229373	283289	241963		17%	14%	55%	15%	43%	18%
rejected %	75%	38%	27%	21%	40%	72%	grade 1 events	381	1056	4726	2861	1740	276
								0%	0%	0%	0%	0%	0%
							grade 2 events	9696	98530	84407	200157	49736	12488
								2%	17%	8%	18%	7%	3%
							grade 3 events	4550	26274	29428	90303	18884	5688
								1%	4%	3%	8%	2%	1%
							grade 4 events	4602	25298	29139	89273	18393	5518
								1%	4%	2%	8%	2%	1%
							grade 5 events	11007	34101	14966	44859	16231	12328
								3%	6%	1%	4%	2%	3%
							grade 6 events	5933	113922	27337	288527	26233	7503
								1%	20%	2%	27%	3%	2%
							grade 7 events	257269	179740	248806	181444	265186	229326
								72%	31%	25%	17%	37%	68%

## 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	299.838772	299.8449345896154	Subarray requested	CUSTOM	1/2
[deg] Pointing Dec	11.726361	11.69978580462307	Subarray start row	1	1
[deg] Pointing Roll	251.871848	252.0272208217607	Subarray row count	512	512
[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	1.7
[mm] SIM translation stage pos	-183.992523	-183.9875365069546			
[mm] SIM translation stage offset	-6.14	-6.144986076053243			
[s] Observation start time (MET)	210965417.184000	210964413.91542			
Observation start date	2004-09-07T17:29:13	2004-09-07T17:13:33			
[s] Observation end time (MET)	211032417.184000	211033279.05599			
Observation end date	2004-09-08T12:05:53	2004-09-08T12:21:19			
Read mode	TIMED	TIMED			

## 2.3 Aspect

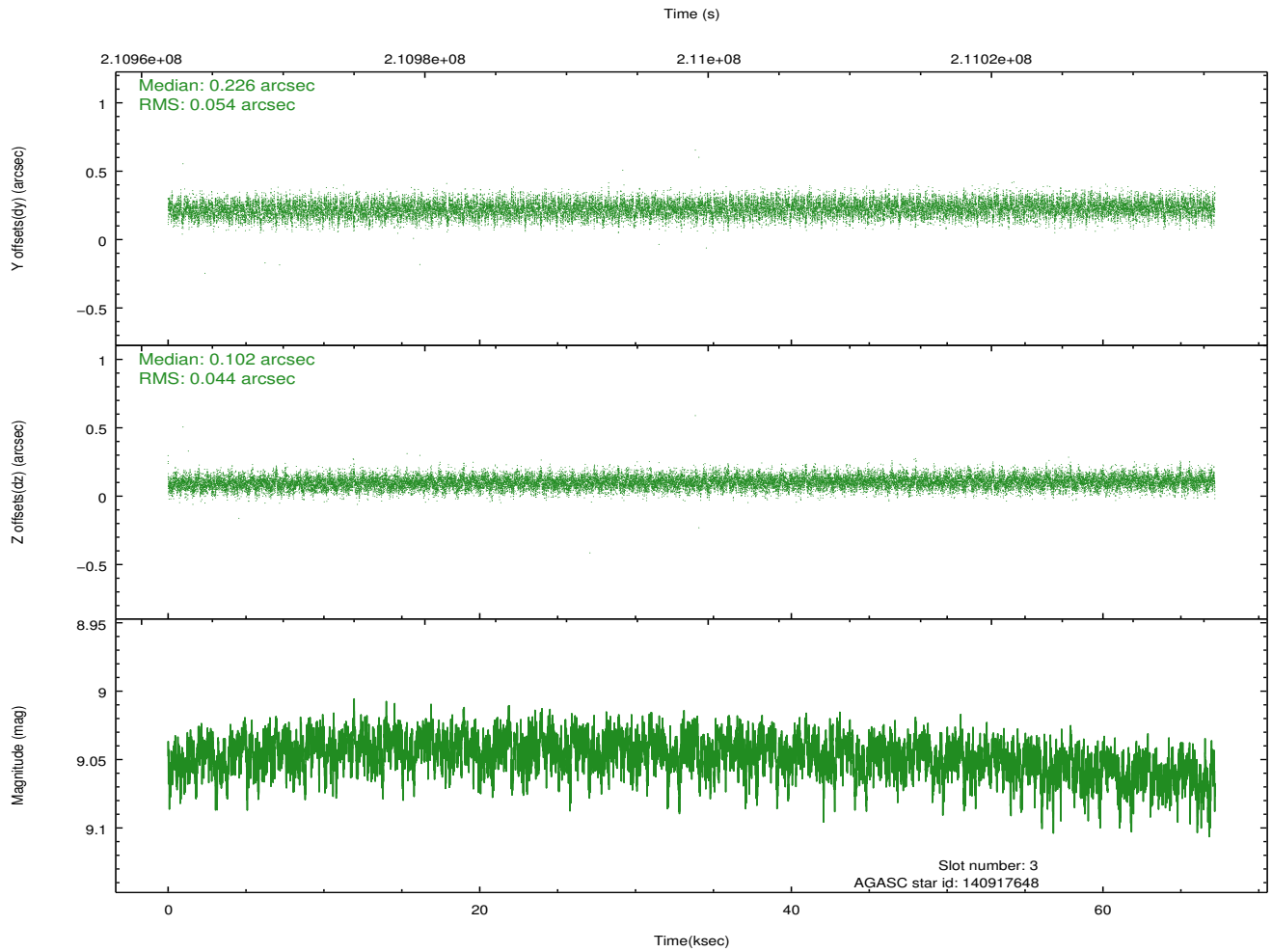
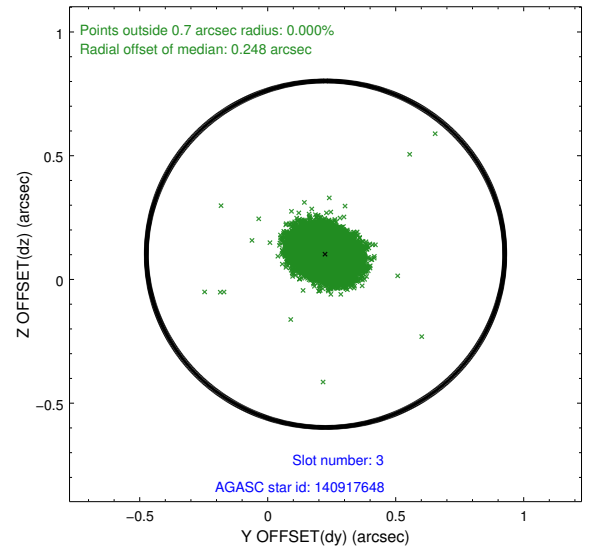
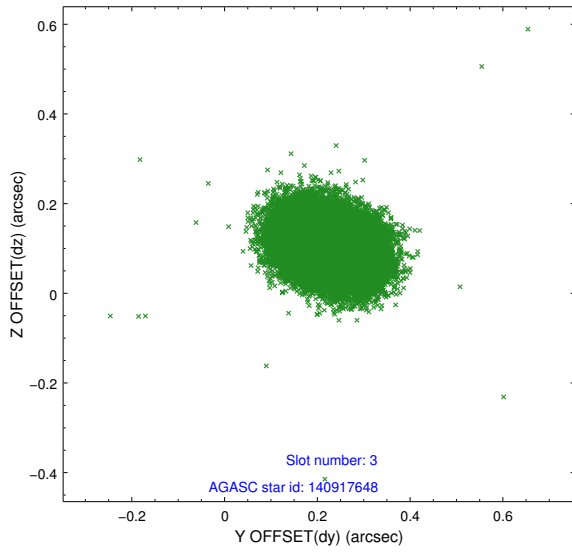


### Slot Statistics

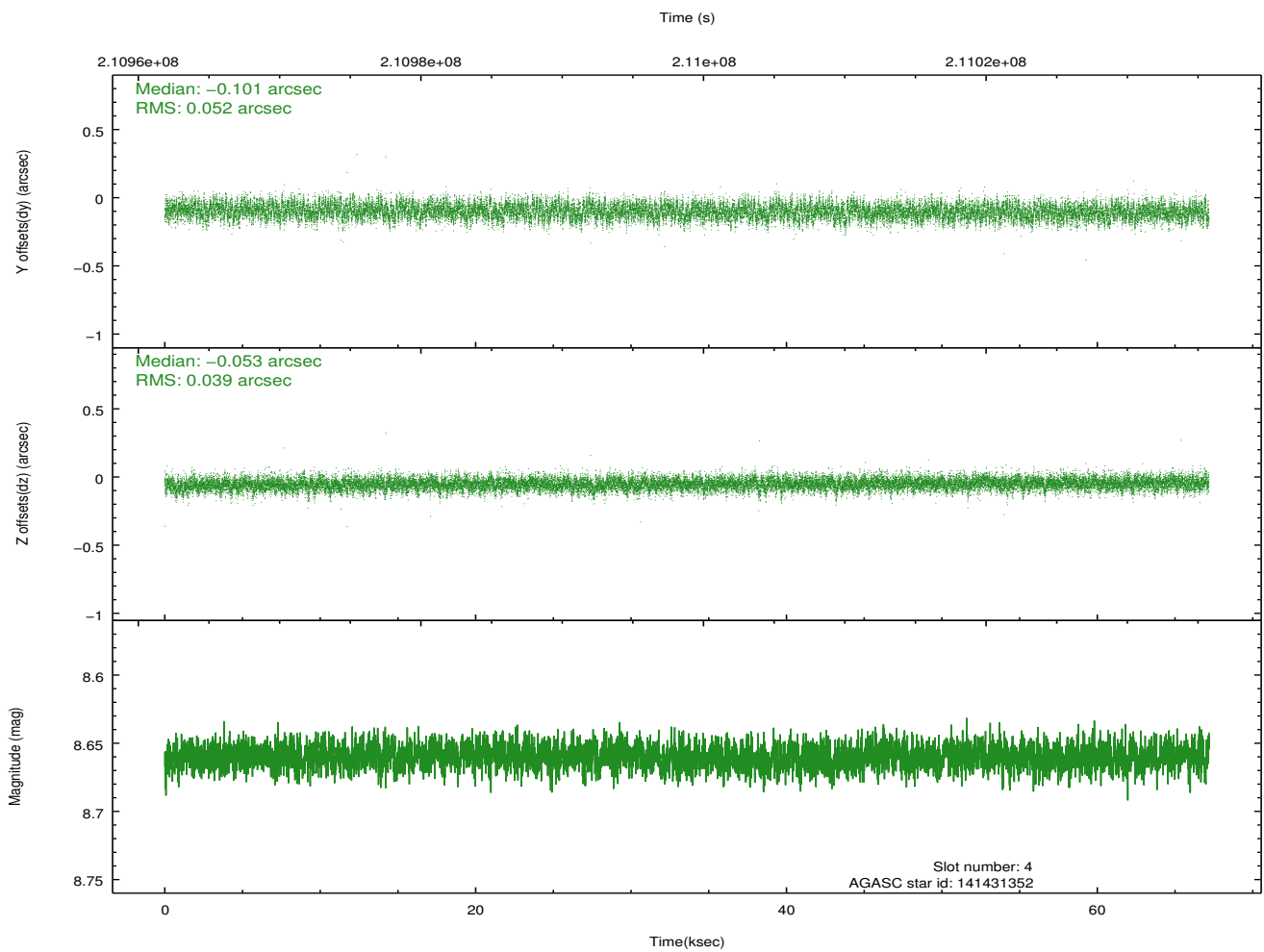
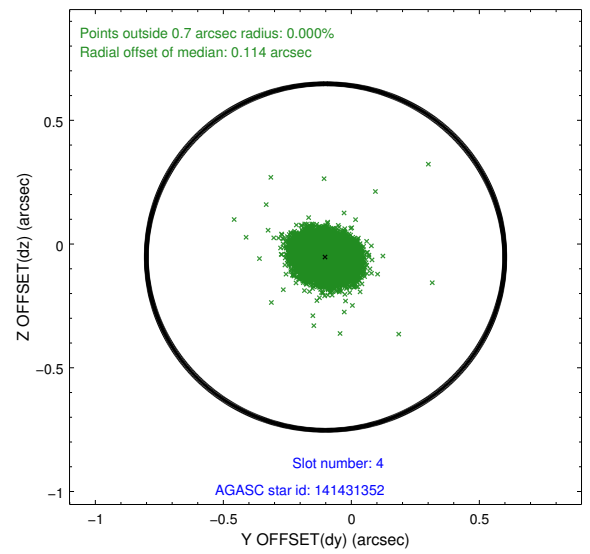
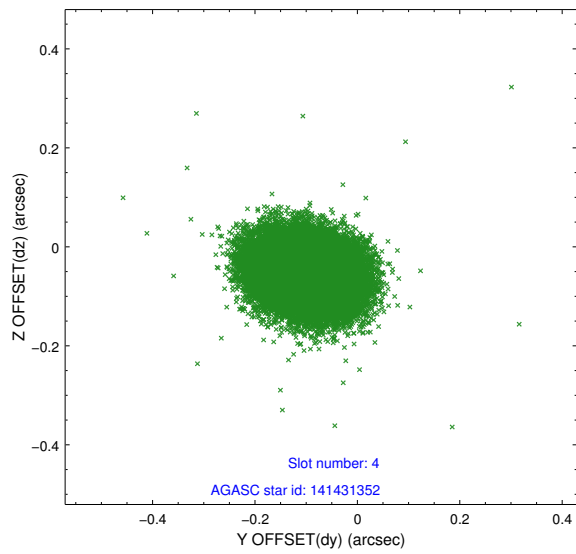
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.08	16388	-0.052	-0.126	0.009	0.017	0.000000	0.000000	-761.26	-1858.32
1	FID	ACIS-S-4	7.18	16387	0.125	0.059	0.013	0.030	0.000000	0.000000	2152.23	50.36
2	FID	ACIS-S-5	7.23	16387	-0.103	0.075	0.011	0.031	0.000000	0.000000	-1814.20	44.02
3	GUIDE	140917648	9.05	32753	0.226	0.102	0.074	0.120	300.185586	11.031854	1994.45	1942.89
4	GUIDE	141431352	8.66	32762	-0.101	-0.053	0.068	0.111	300.478891	12.146567	-2141.09	1669.69
5	GUIDE	141453064	7.91	32769	0.117	0.056	0.058	0.093	299.483987	11.414705	1455.38	-840.55
6	GUIDE	141446792	8.92	32756	-0.096	-0.088	0.080	0.128	299.284509	11.937274	-115.67	-2092.05
7	GUIDE	141453280	8.53	32761	-0.145	-0.014	0.062	0.098	299.888387	12.264129	-1894.12	-436.49

## 2.4 Star Slots

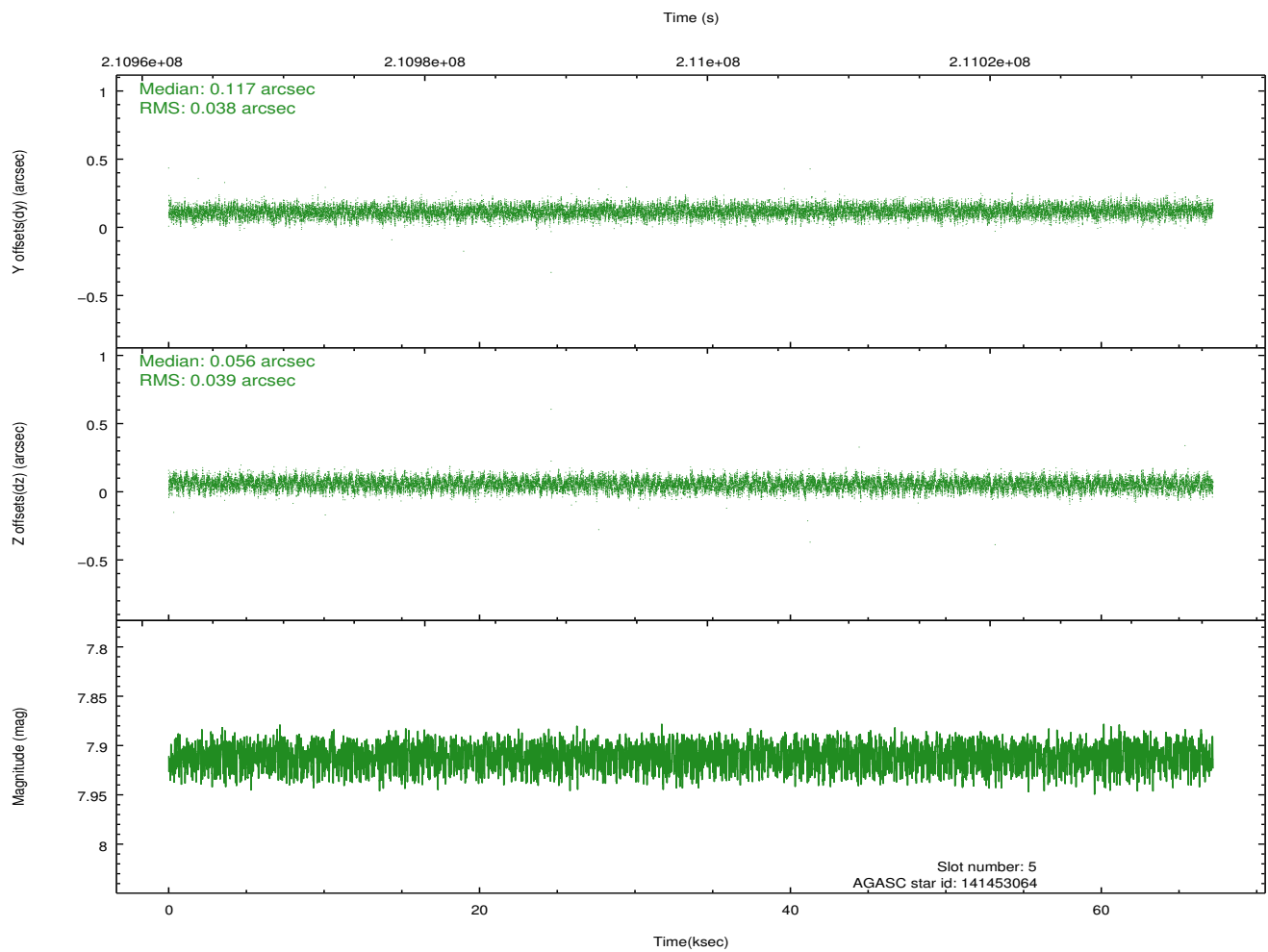
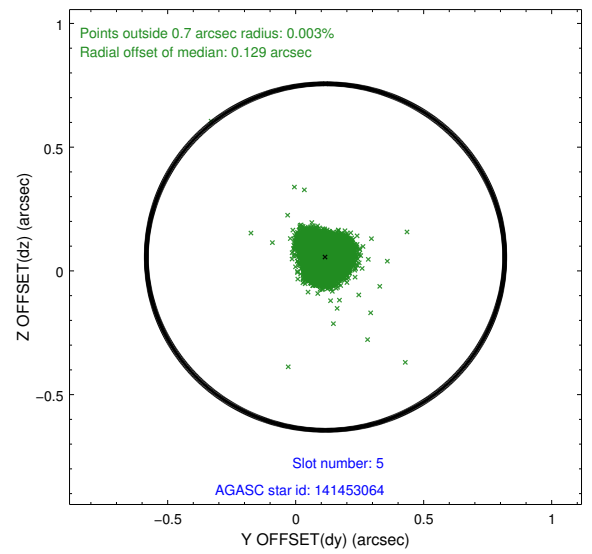
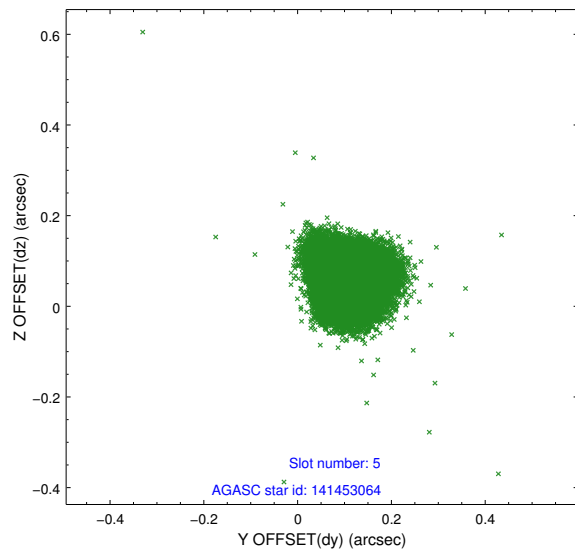
### 2.4.1 Slot 3



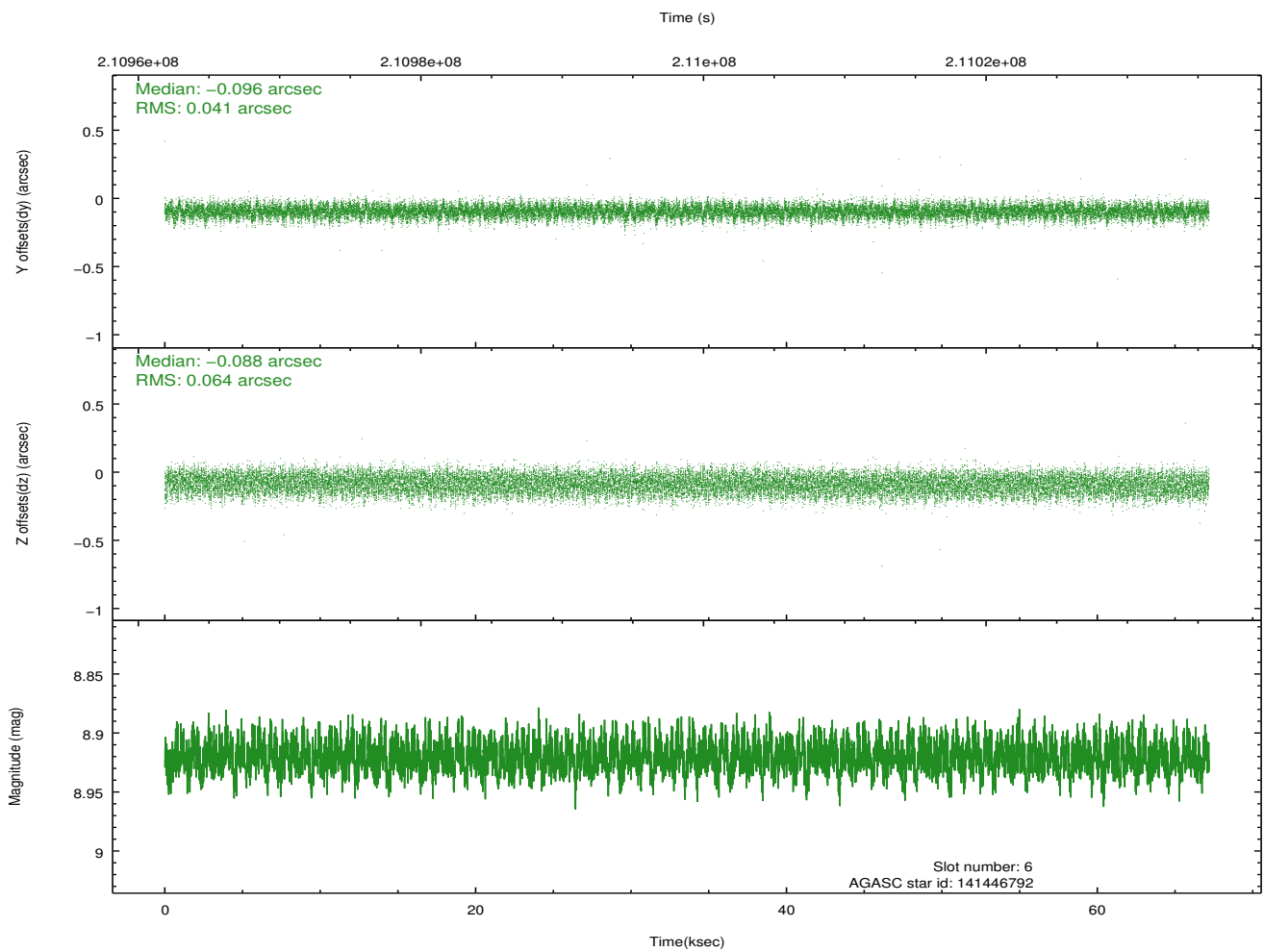
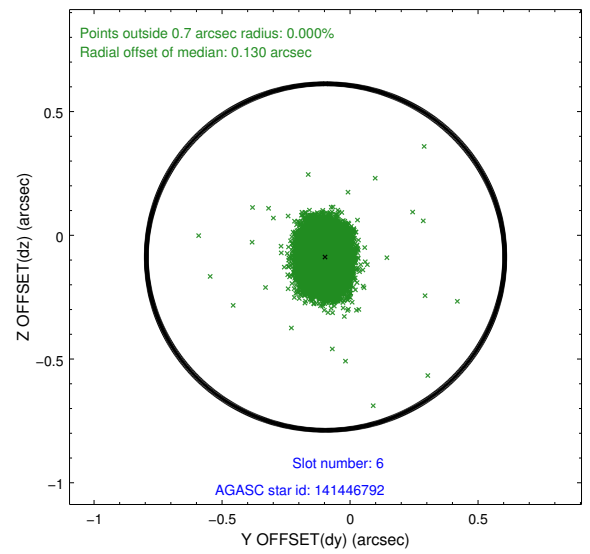
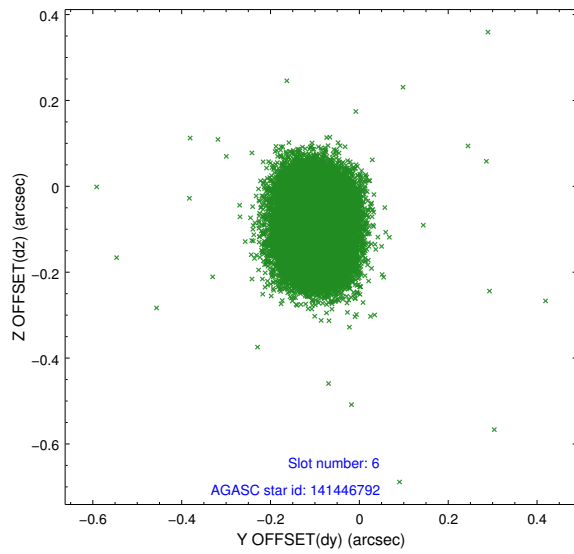
## 2.4.2 Slot 4



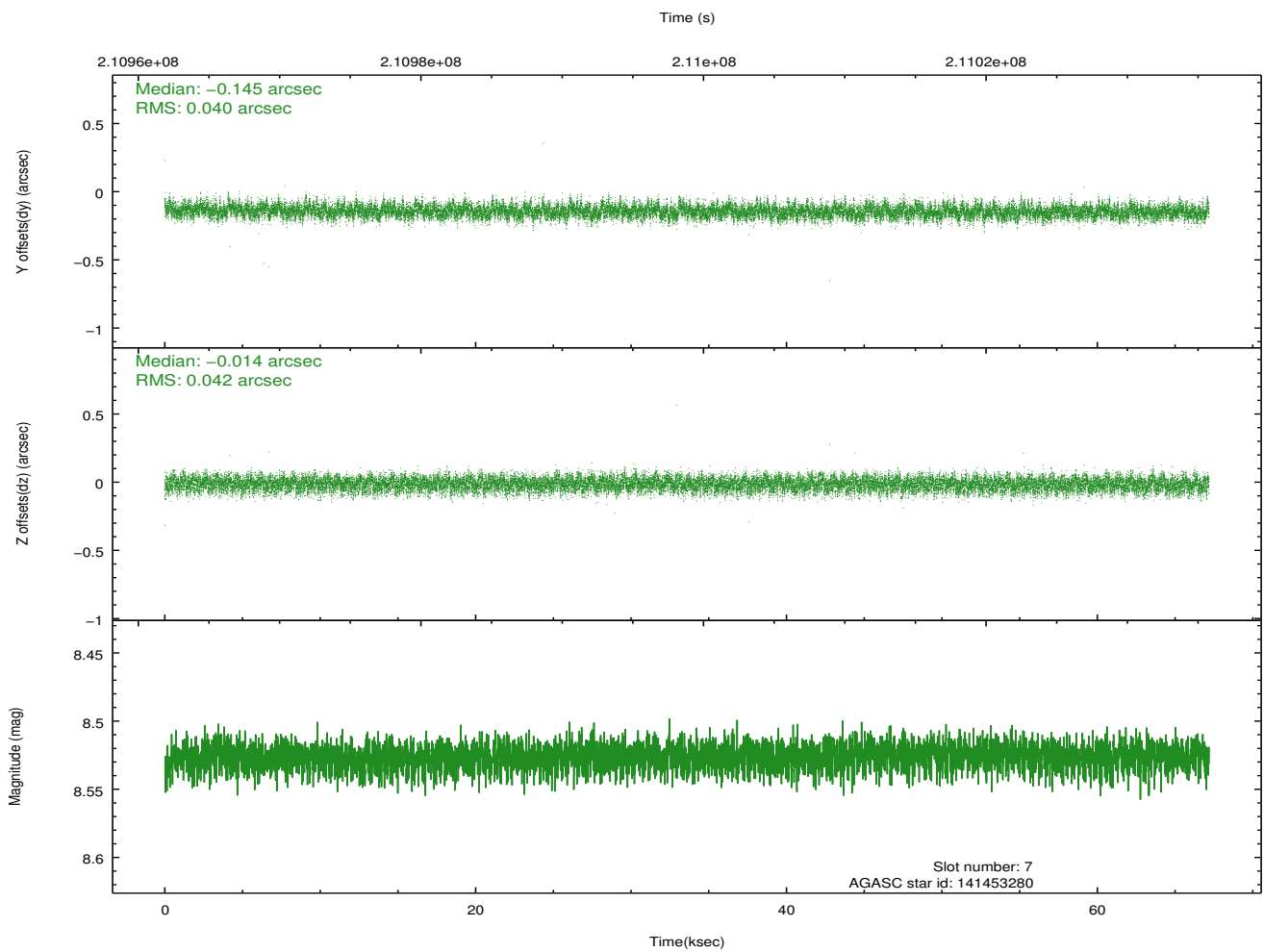
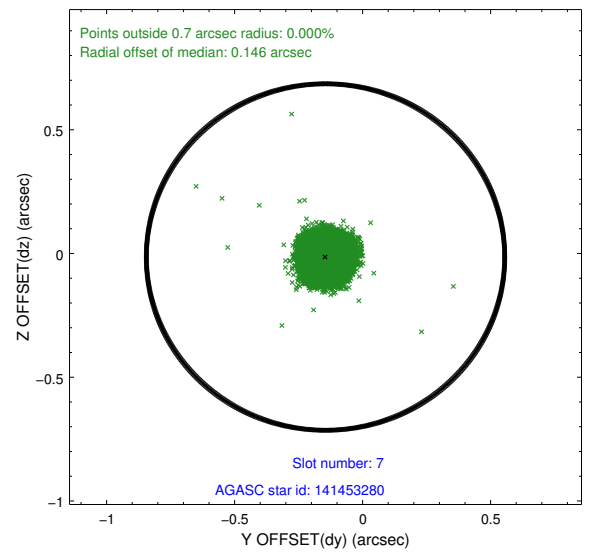
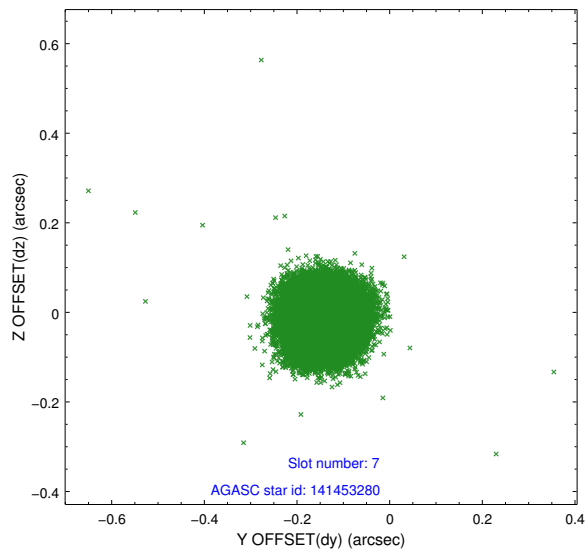
### 2.4.3 Slot 5



## 2.4.4 Slot 6

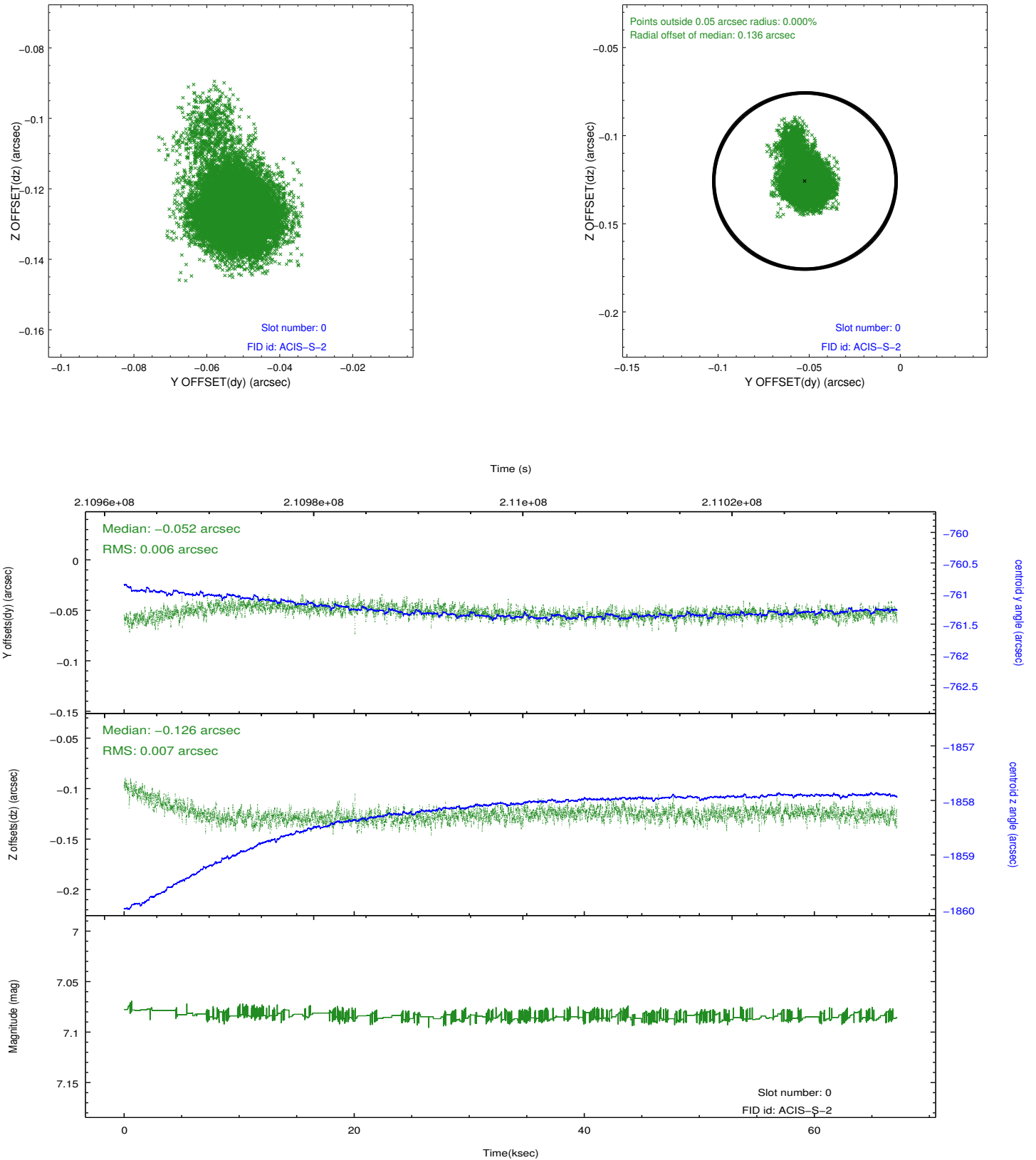


## 2.4.5 Slot 7

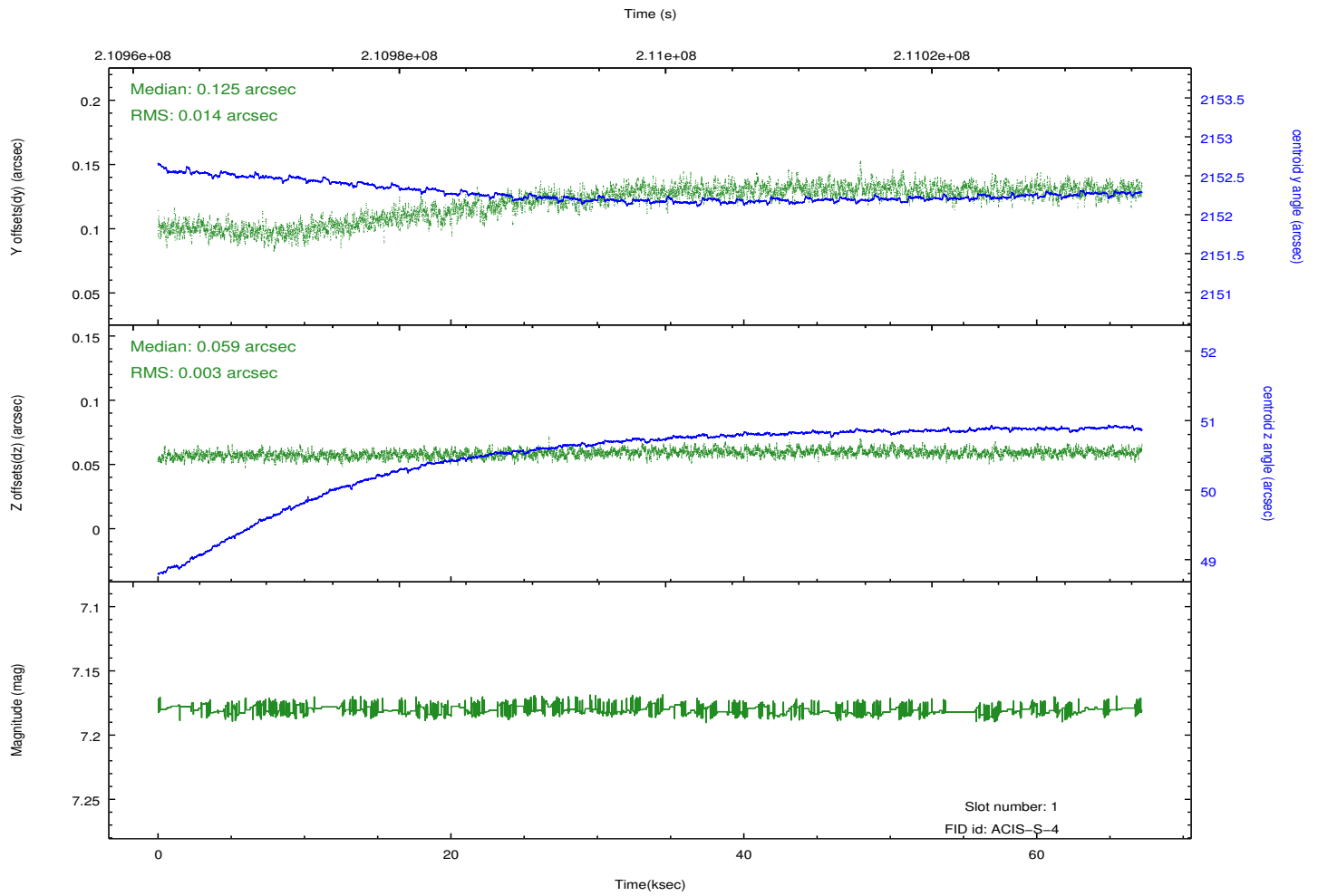
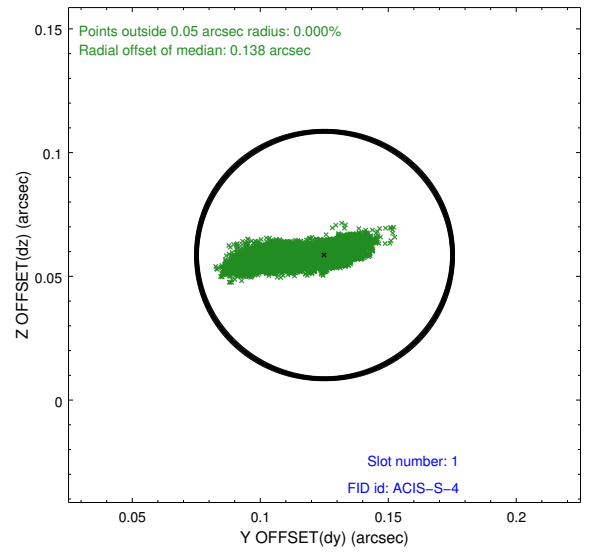
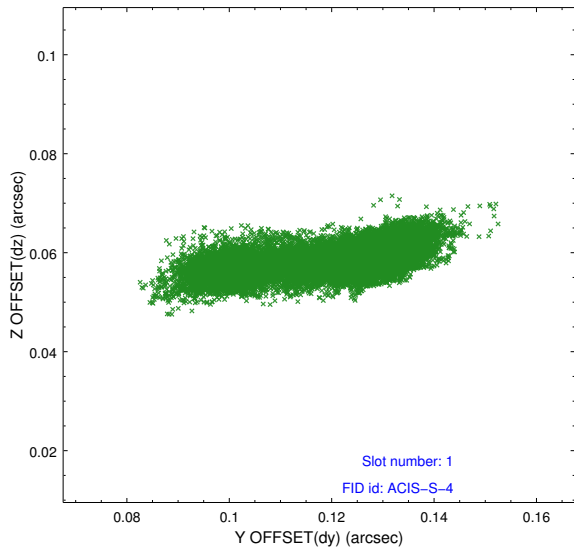


## 2.5 FID Slots

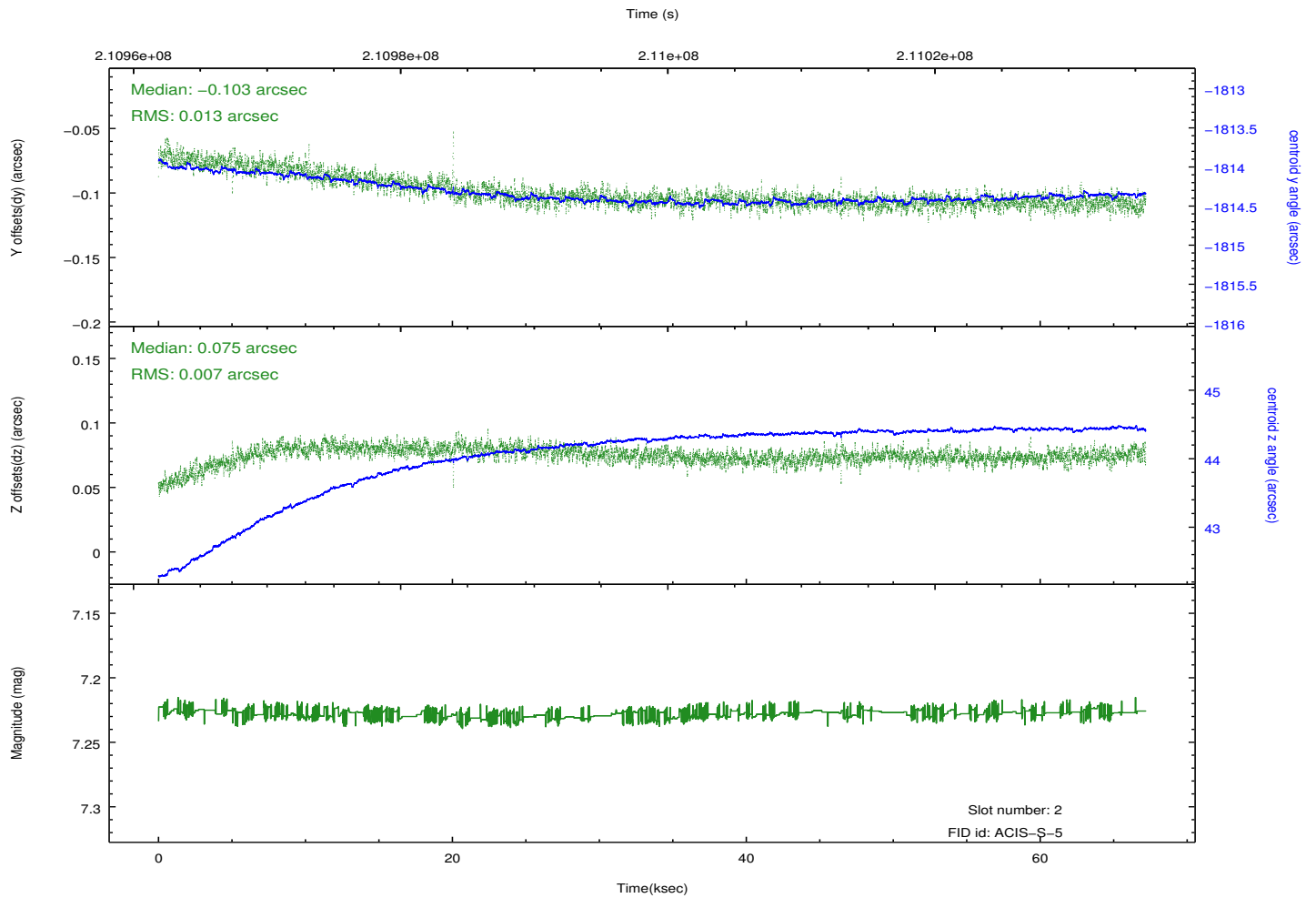
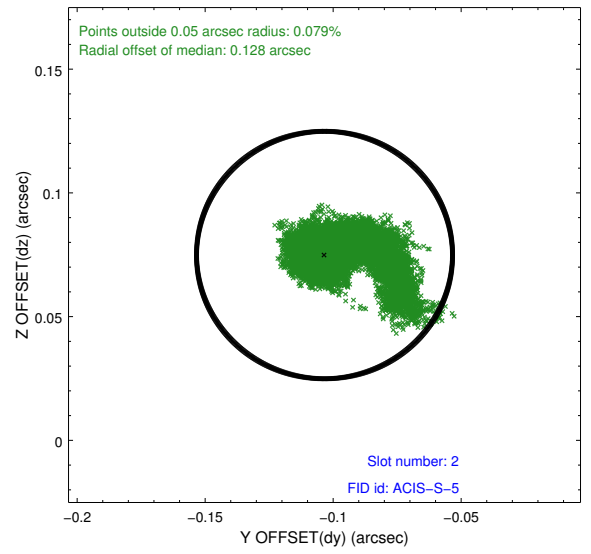
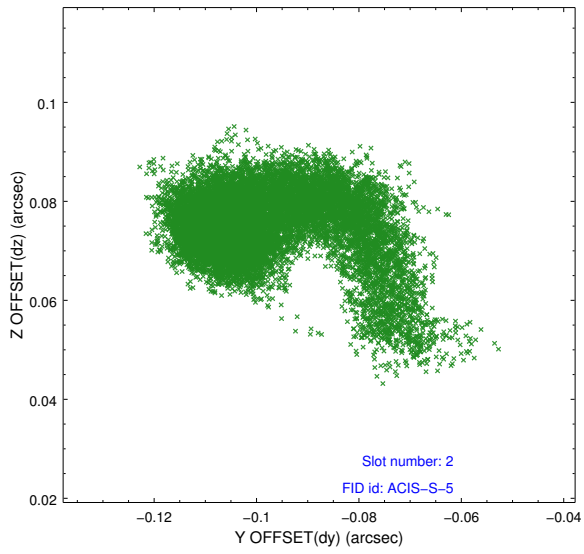
### 2.5.1 Slot 0



## 2.5.2 Slot 1

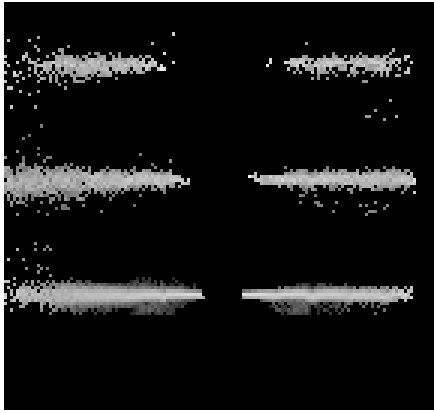


### 2.5.3 Slot 2

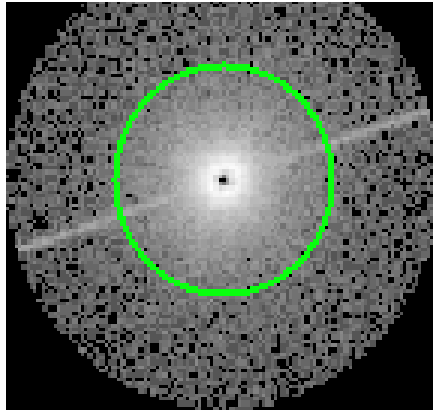


# 3 Gratings

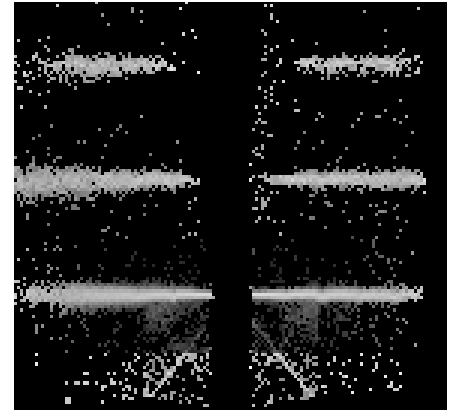
## 3.1 HEG Arm



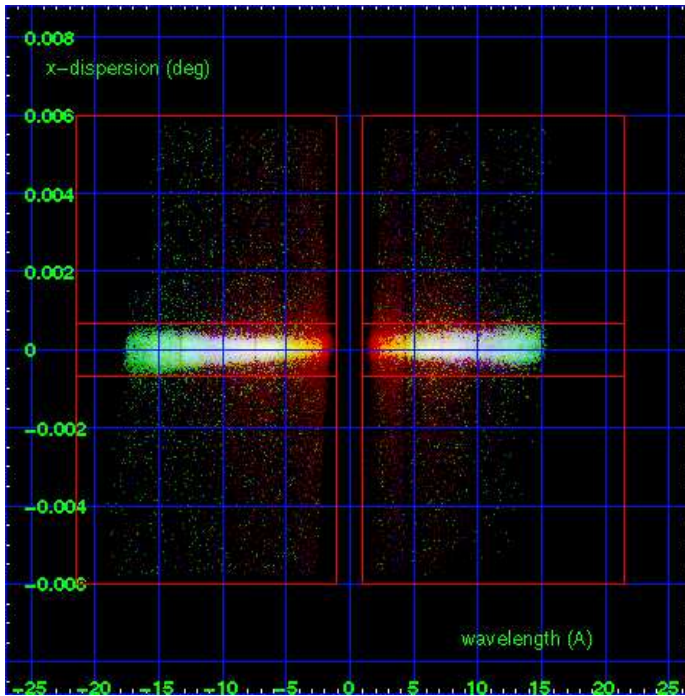
HEG Order Sort 123



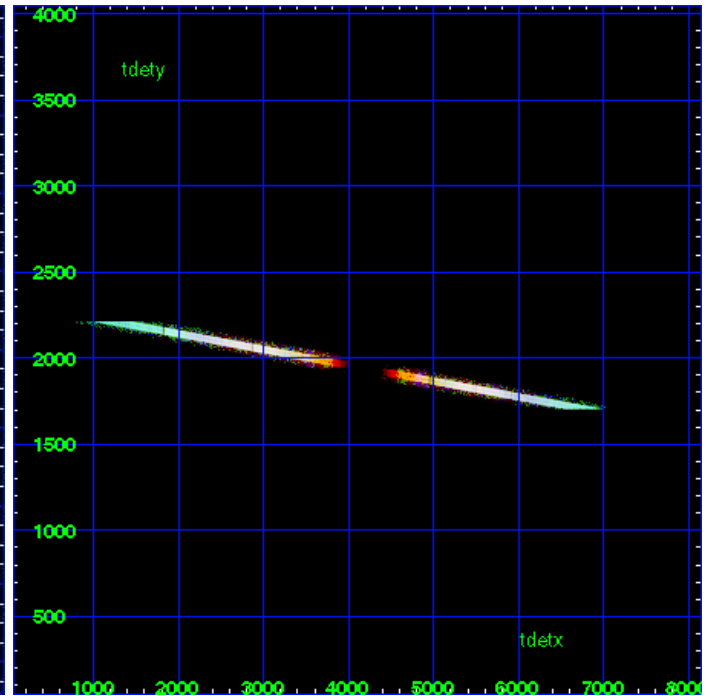
HEG Zero Order



HEG Order Sort ALL

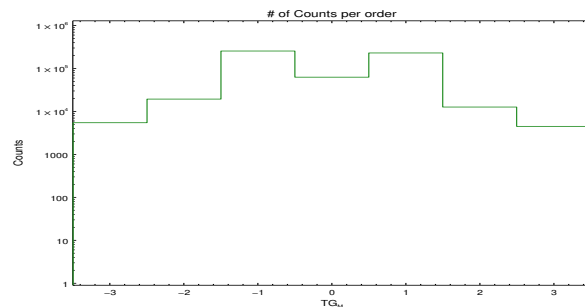


Spot Image HEG

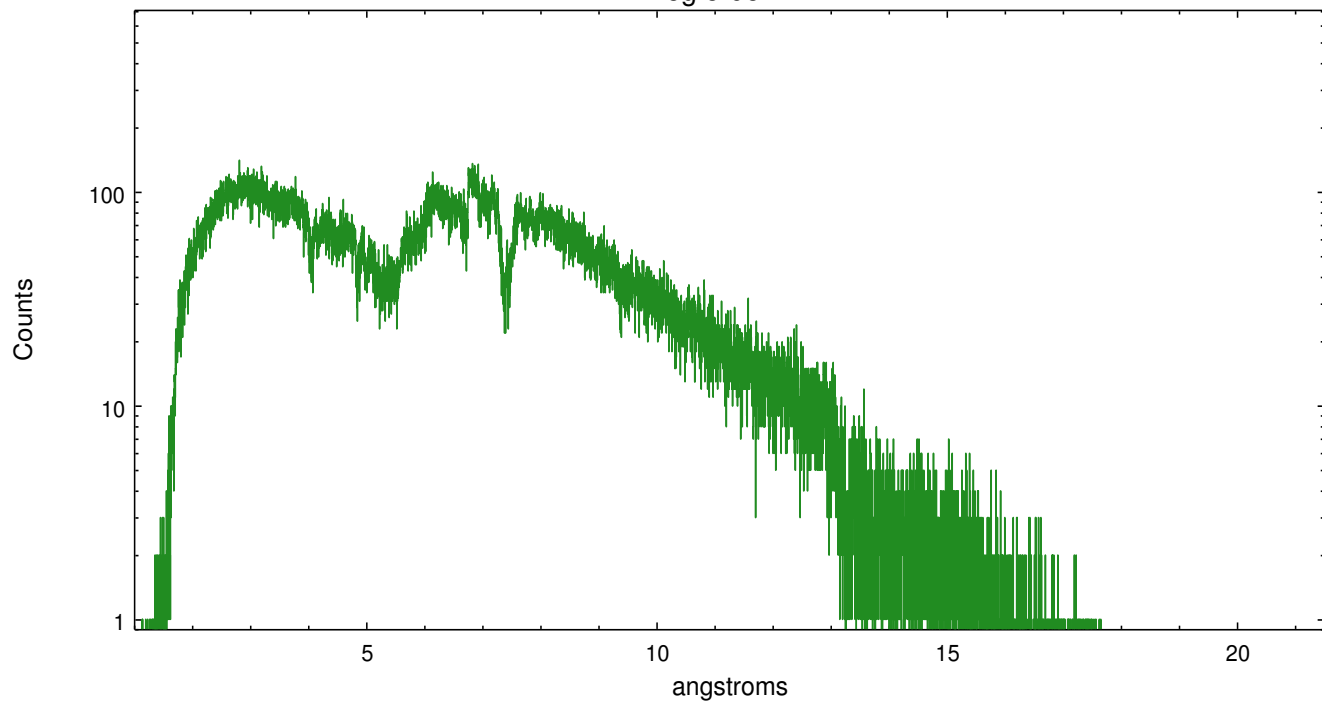


Full Detector HEG

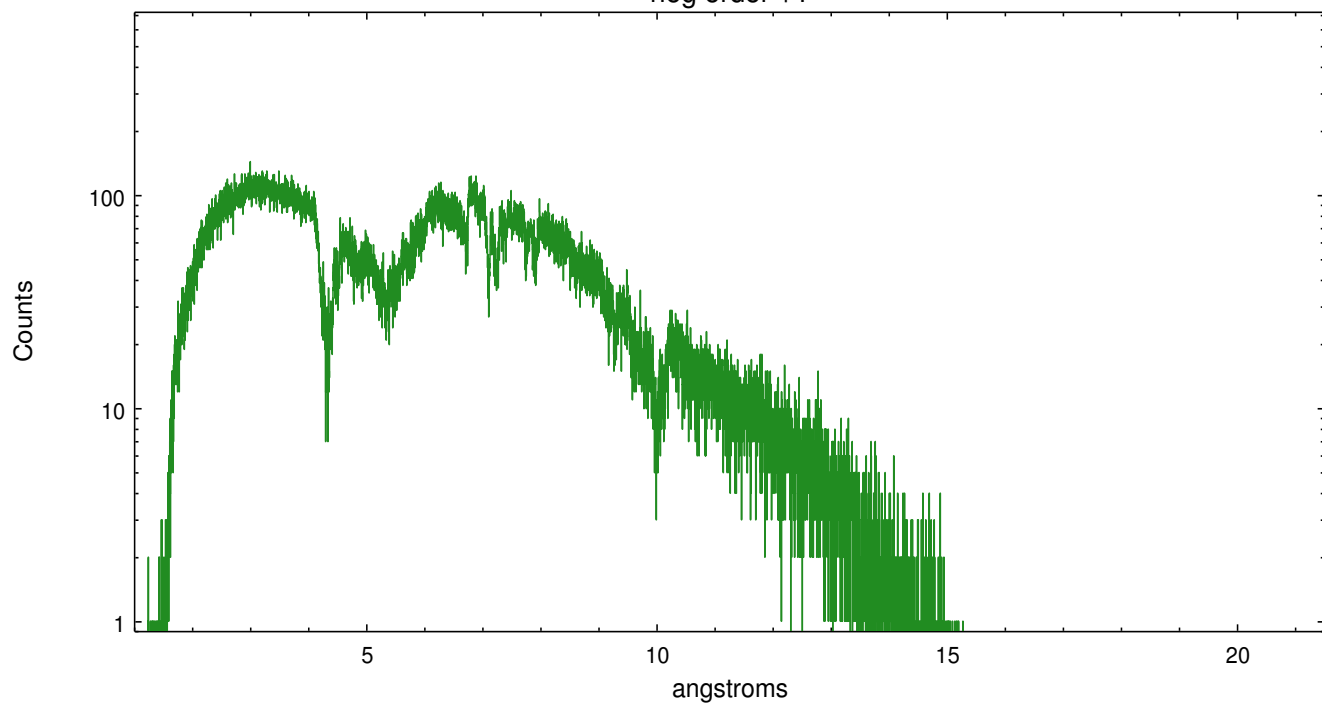
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	5490	19498	257642	63215	232197	12724	4505



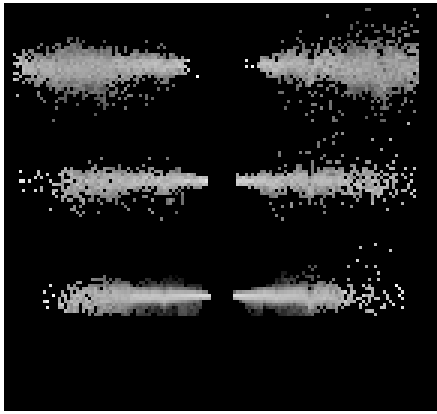
heg order -1



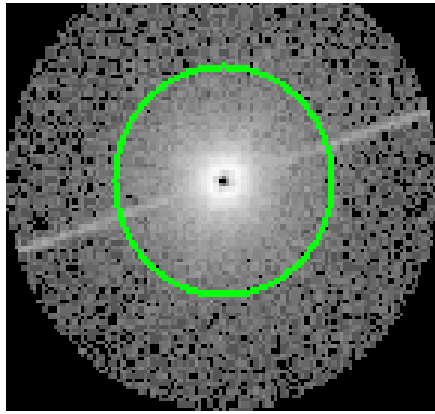
heg order +1



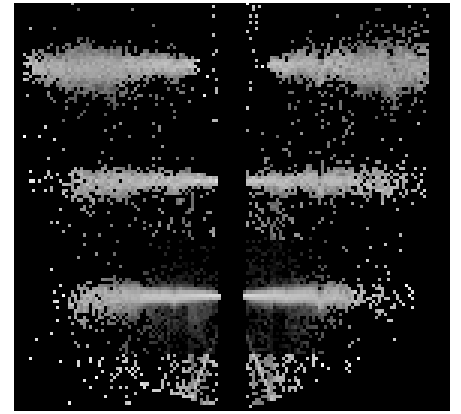
### 3.2 MEG Arm



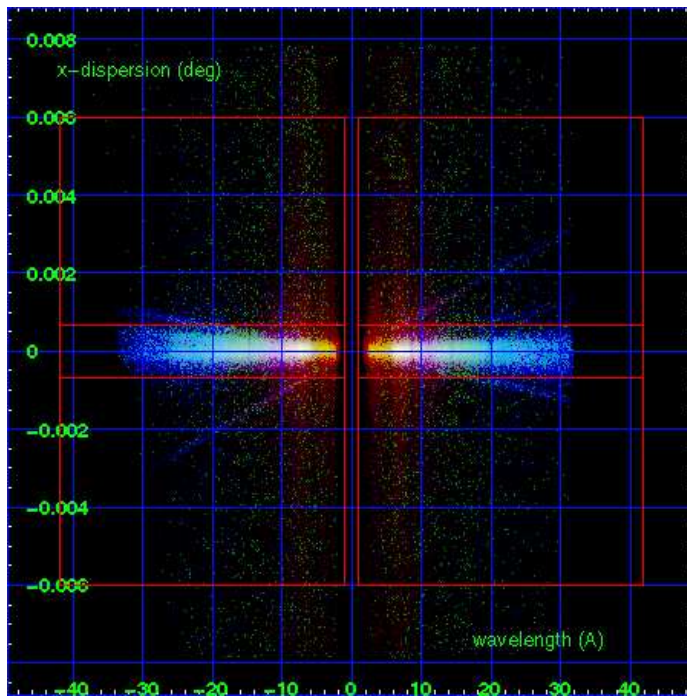
MEG Order Sort 123



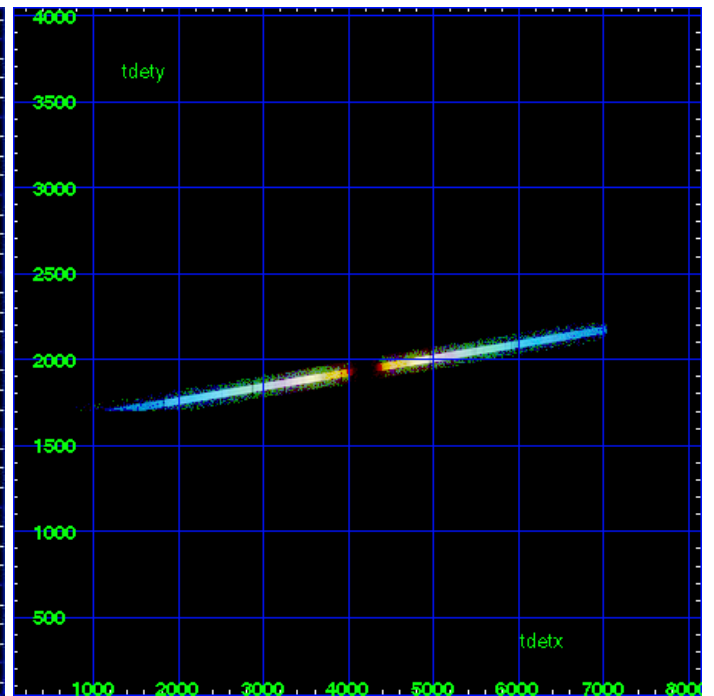
MEG Zero Order



MEG Order Sort ALL

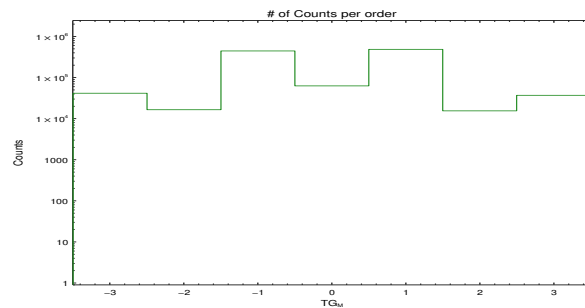


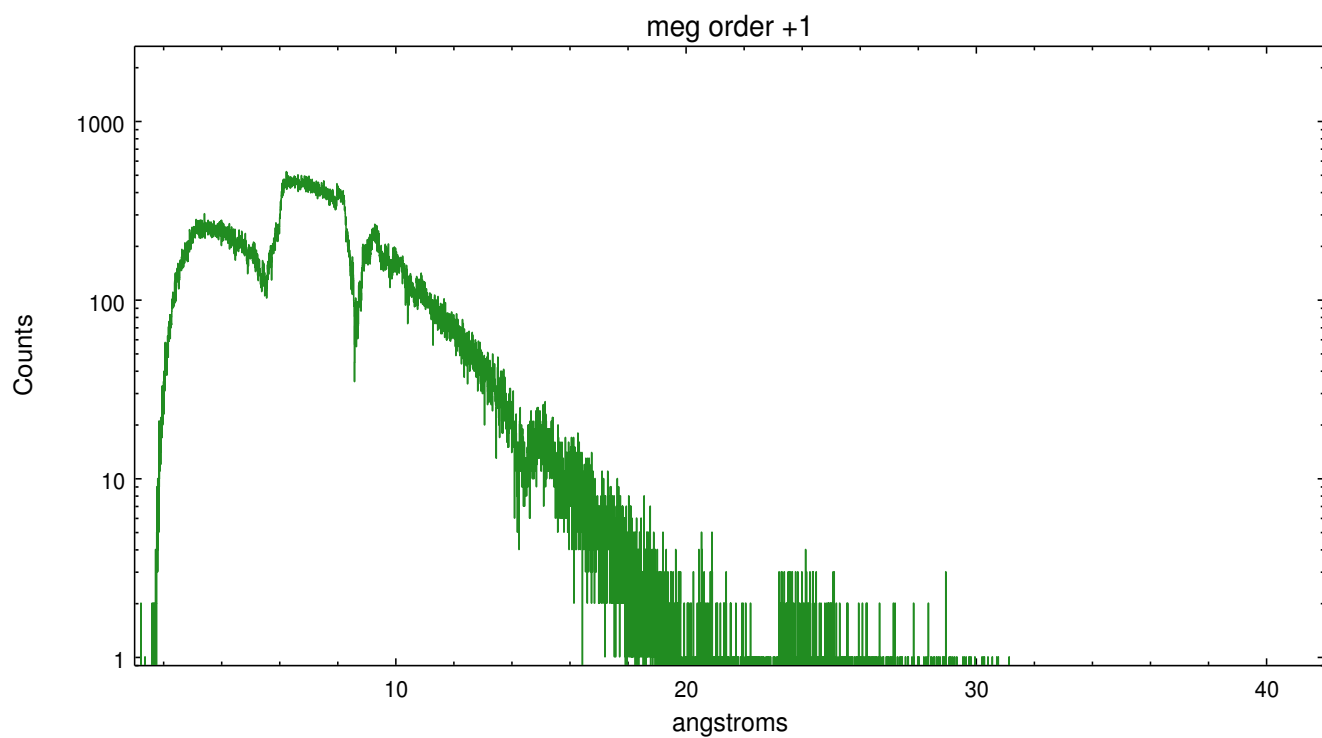
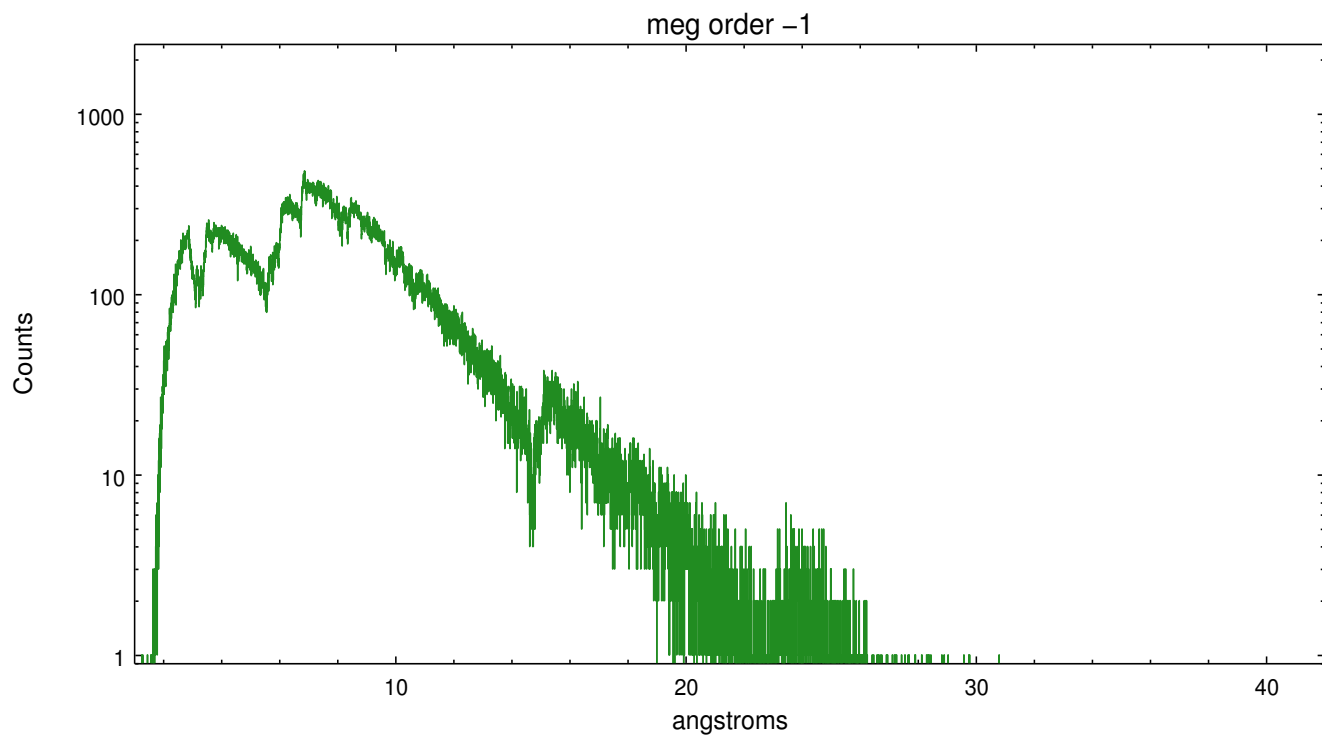
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	41821	16590	449356	63215	491074	15562	37201





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.09
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	67.182

## 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 ( $x=4060.08$ ,  $y=4159.11$ ) 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.