

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 12104 - L2 Version 2  
Chandra X-Ray Center

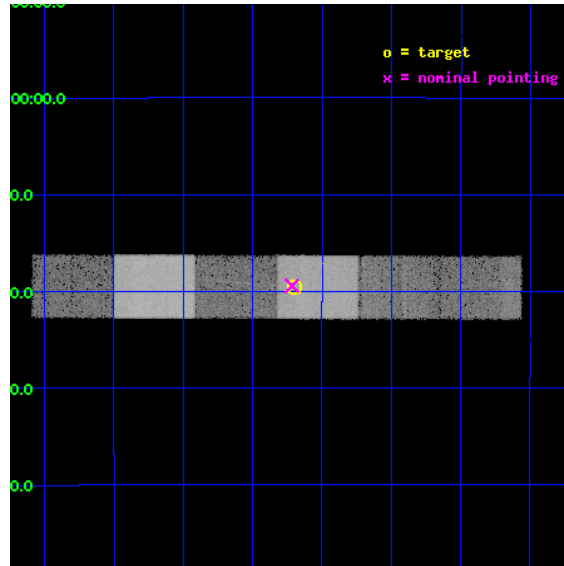
L2 Processing Date : Jun 21 2012

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# 1 Front

seq_num	702305	Sequence number
obs_id	12104	Observation id
title	Investigating the Complexity of NGC 2992 with HETG	Proposal title
observer	Prof Claude Canizares	Principal investigator
object	NGC 2992	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	146.425	Observer's specified target RA [deg]
dec_targ	-14.326389	Observer's specified target Dec [deg]
ra_nom	146.42923539827	Nominal RA [deg]
dec_nom	-14.323836604214	Nominal Dec [deg]
roll_nom	0.15765915052246	Nominal Roll [deg]
revision	2	Processing version of data
ontime	22142.5	Sum of GTIs [s]
livetime	21784.87941945	Livetime [s]
ontime4	22142.5	Sum of GTIs [s]
ontime5	22142.5	Sum of GTIs [s]
ontime6	22142.5	Sum of GTIs [s]
ontime7	22142.5	Sum of GTIs [s]
ontime8	22142.5	Sum of GTIs [s]
ontime9	22142.5	Sum of GTIs [s]
l2events	218122	Number of level 2 events

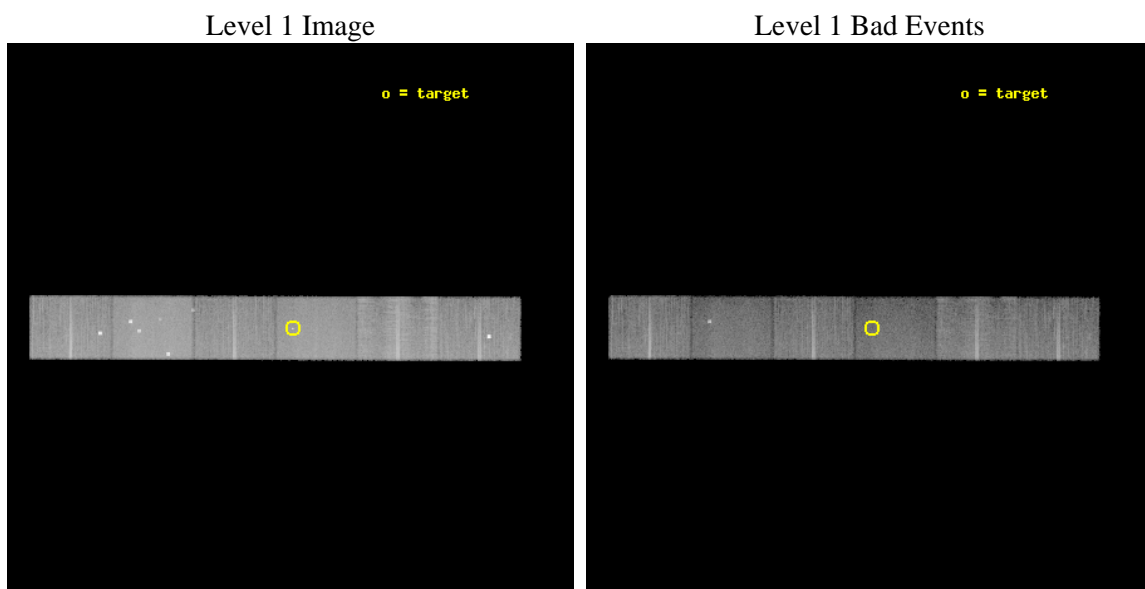




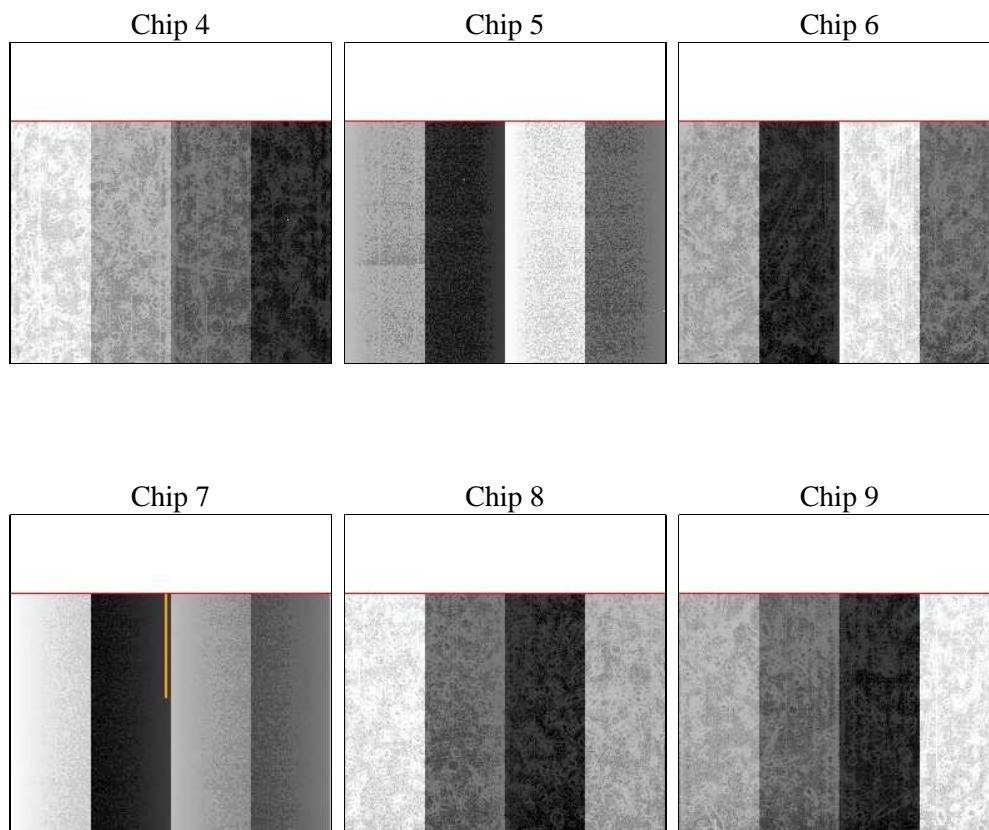
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	22000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	22142.5	Sum of GTIs [s]
caldsver	4.4.10	&#160	ontime4	22142.5	Sum of GTIs [s]
date	2012-06-21T15:07:17	Date and time of file creation	ontime5	22142.5	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	22142.5	Sum of GTIs [s]
			ontime7	22142.5	Sum of GTIs [s]
			ontime8	22142.5	Sum of GTIs [s]
			ontime9	22142.5	Sum of GTIs [s]
			l1events	984680	Number of level 1 events

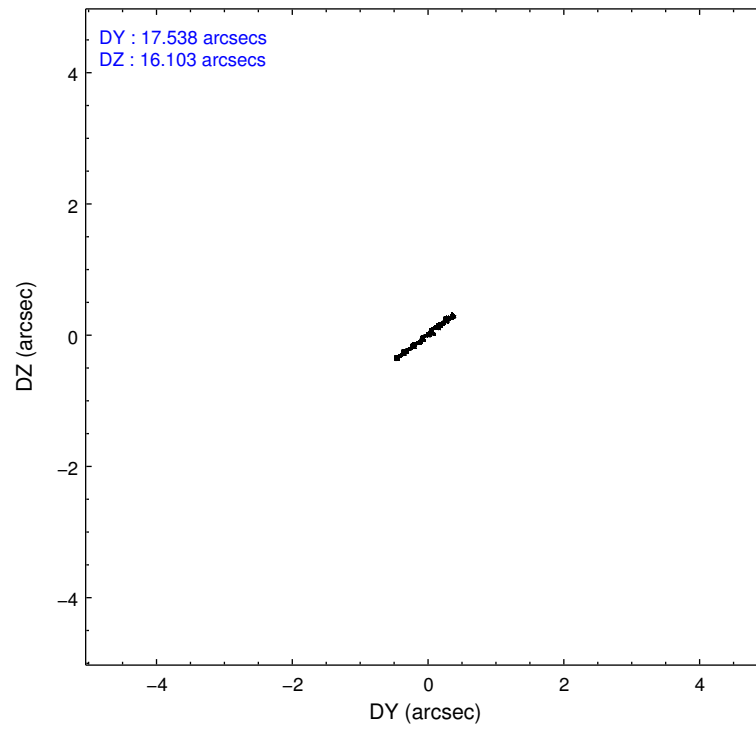
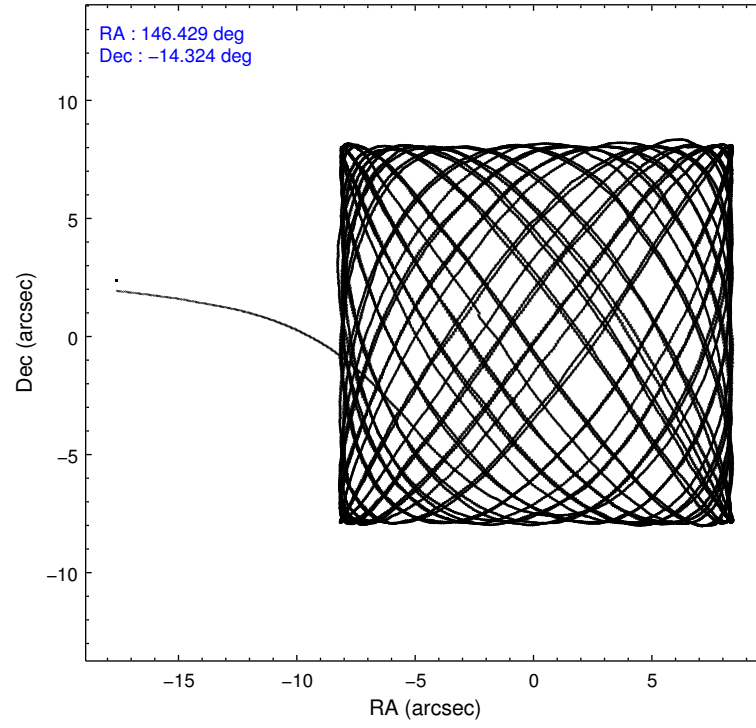
### 2.1.4 Events

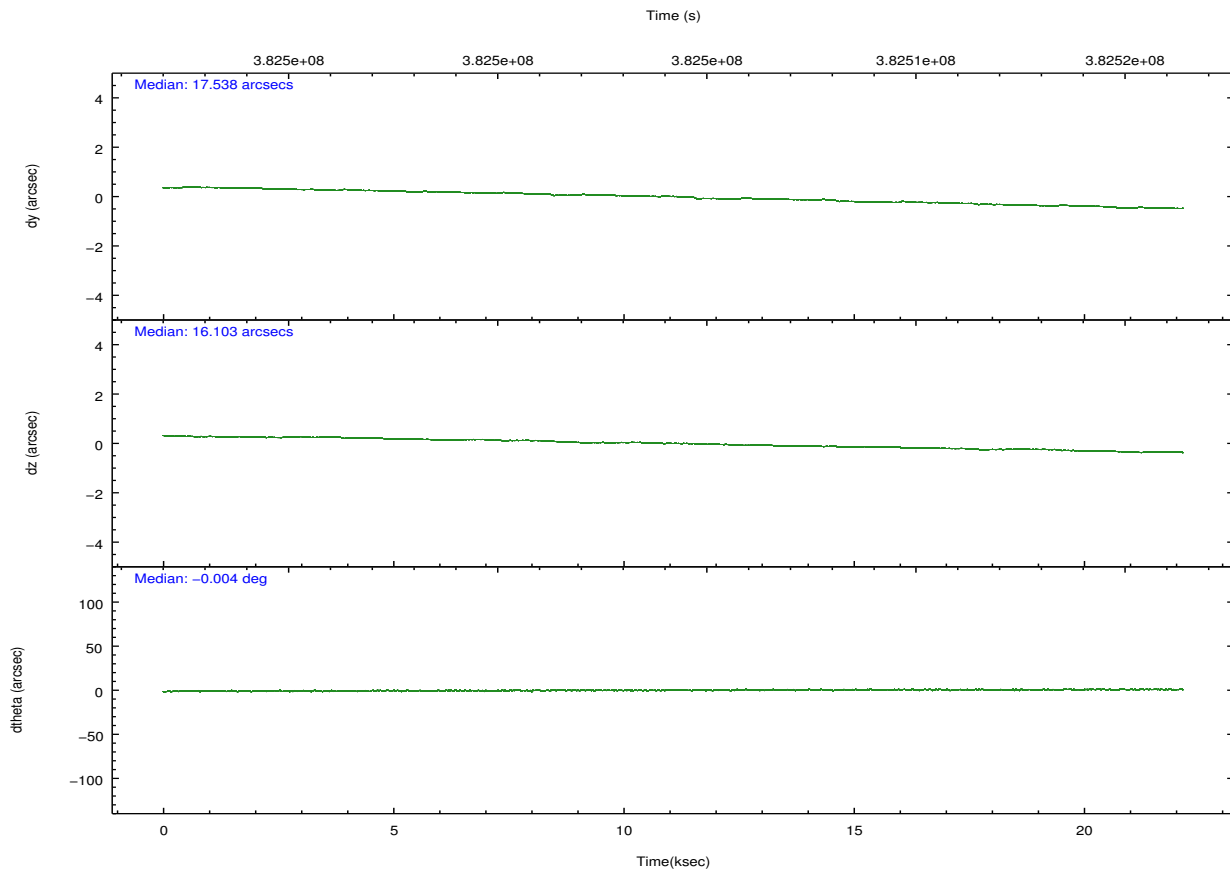
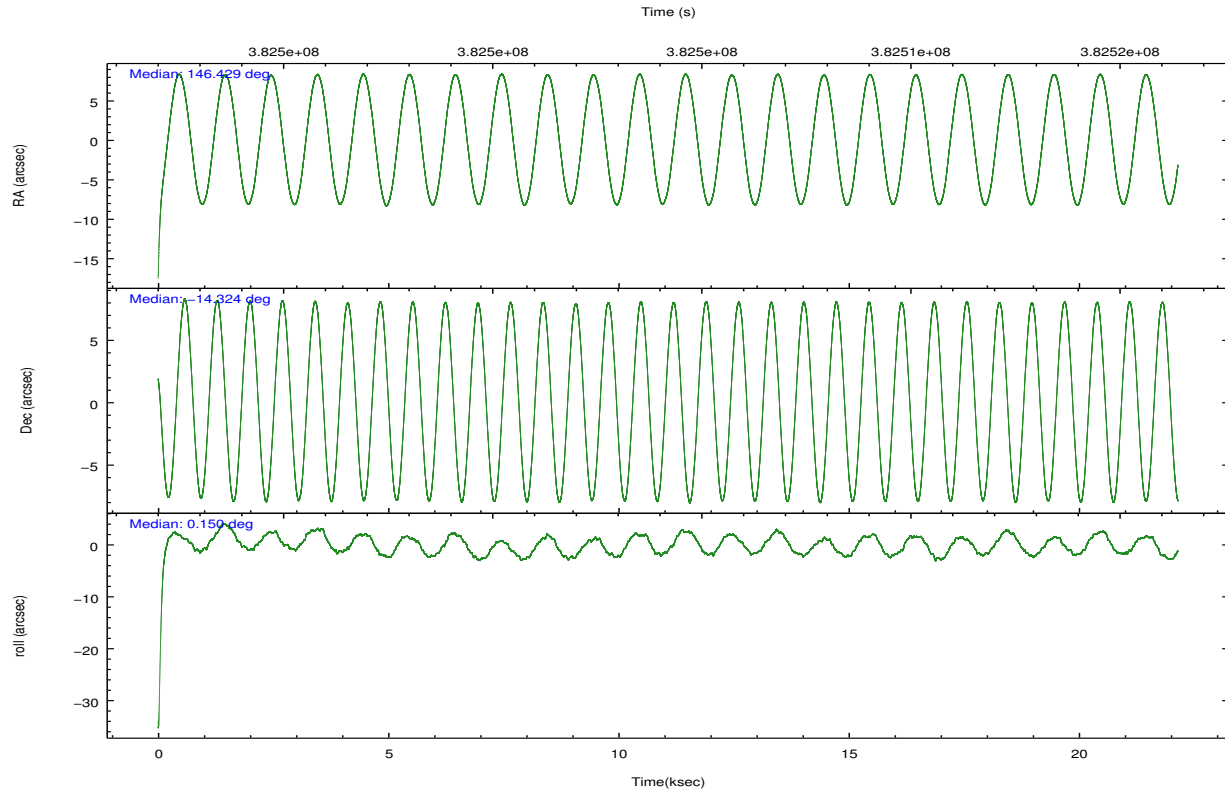
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	161064	208204	136241	160221	178959	139991	grade 0 events	10864	15889	5177	6899	13142	14148
rejected events	140336	101611	121197	86216	133330	115821		6%	7%	3%	4%	7%	10%
rejected %	87%	48%	88%	53%	74%	82%	grade 1 events	127	540	59	184	138	120
								0%	0%	0%	0%	0%	0%
							grade 2 events	3808	30748	3309	15342	10519	3353
								2%	14%	2%	9%	5%	2%
							grade 3 events	1793	5048	1662	7024	5052	1776
								1%	2%	1%	4%	2%	1%
							grade 4 events	1648	4520	1622	6840	4797	1690
								1%	2%	1%	4%	2%	1%
							grade 5 events	5699	17392	5500	16881	8343	6371
								3%	8%	4%	10%	4%	4%
							grade 6 events	2725	50974	3342	38293	12348	3324
								1%	24%	2%	23%	6%	2%
							grade 7 events	134400	83093	115570	68758	124620	109209
								83%	39%	84%	42%	69%	78%

## 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	146.405046	146.4292353982657	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-14.337889	-14.32383660421446	Subarray start row	1	1
[deg] Pointing Roll	359.995054	0.1576591505224601	Subarray row count	774	774
[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	2.5
[mm] SIM translation stage pos	-187.132523	-187.1228876879999			
[mm] SIM translation stage offset	-3	-3.009634895007935			
[s] Observation start time (MET)	382493259.184000	382491494.51658			
Observation start date	2010-02-14T00:06:33	2010-02-13T23:38:14			
[s] Observation end time (MET)	382515259.184000	382515607.64281			
Observation end date	2010-02-14T06:13:13	2010-02-14T06:20:07			
Read mode	TIMED	TIMED			

## 2.3 Aspect



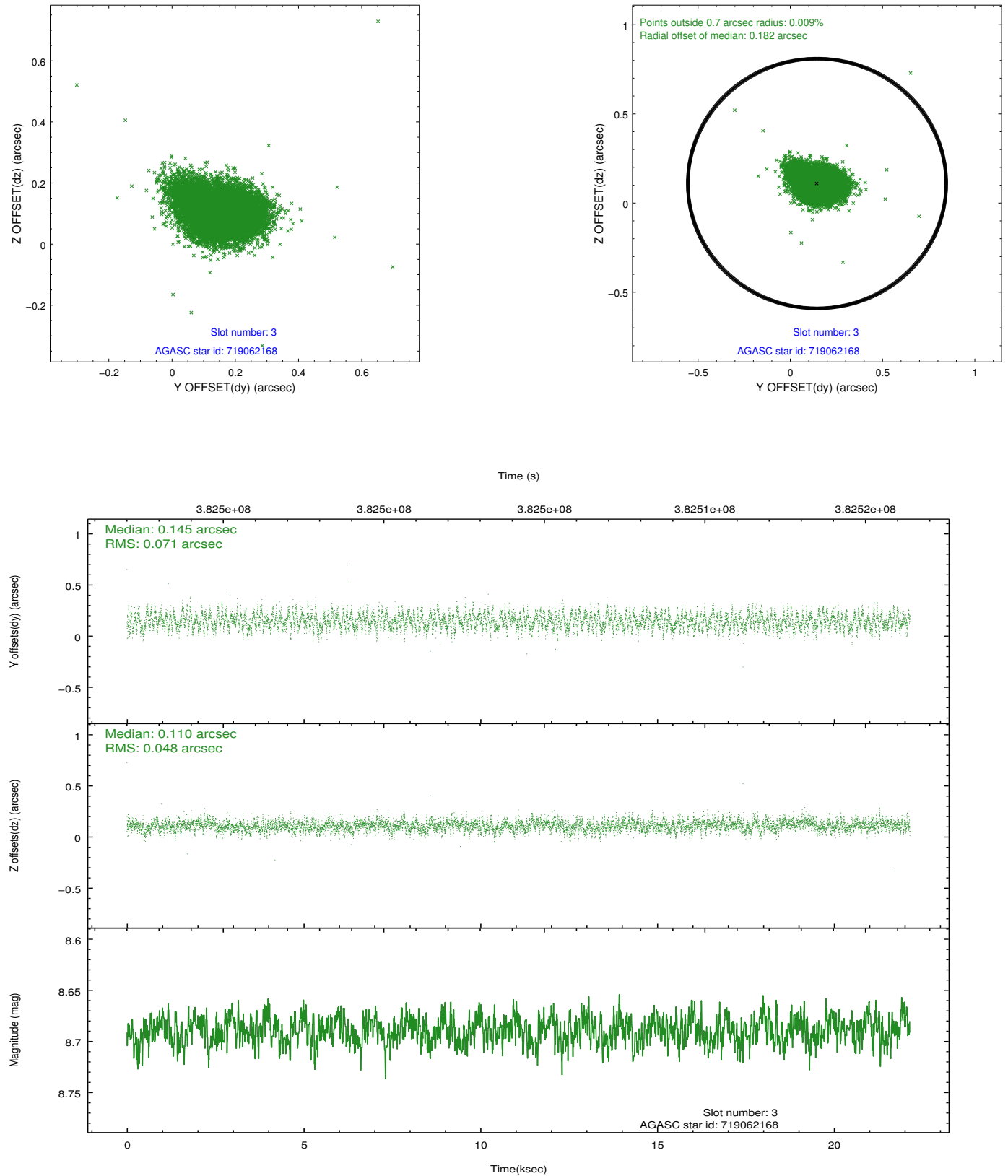


### Slot Statistics

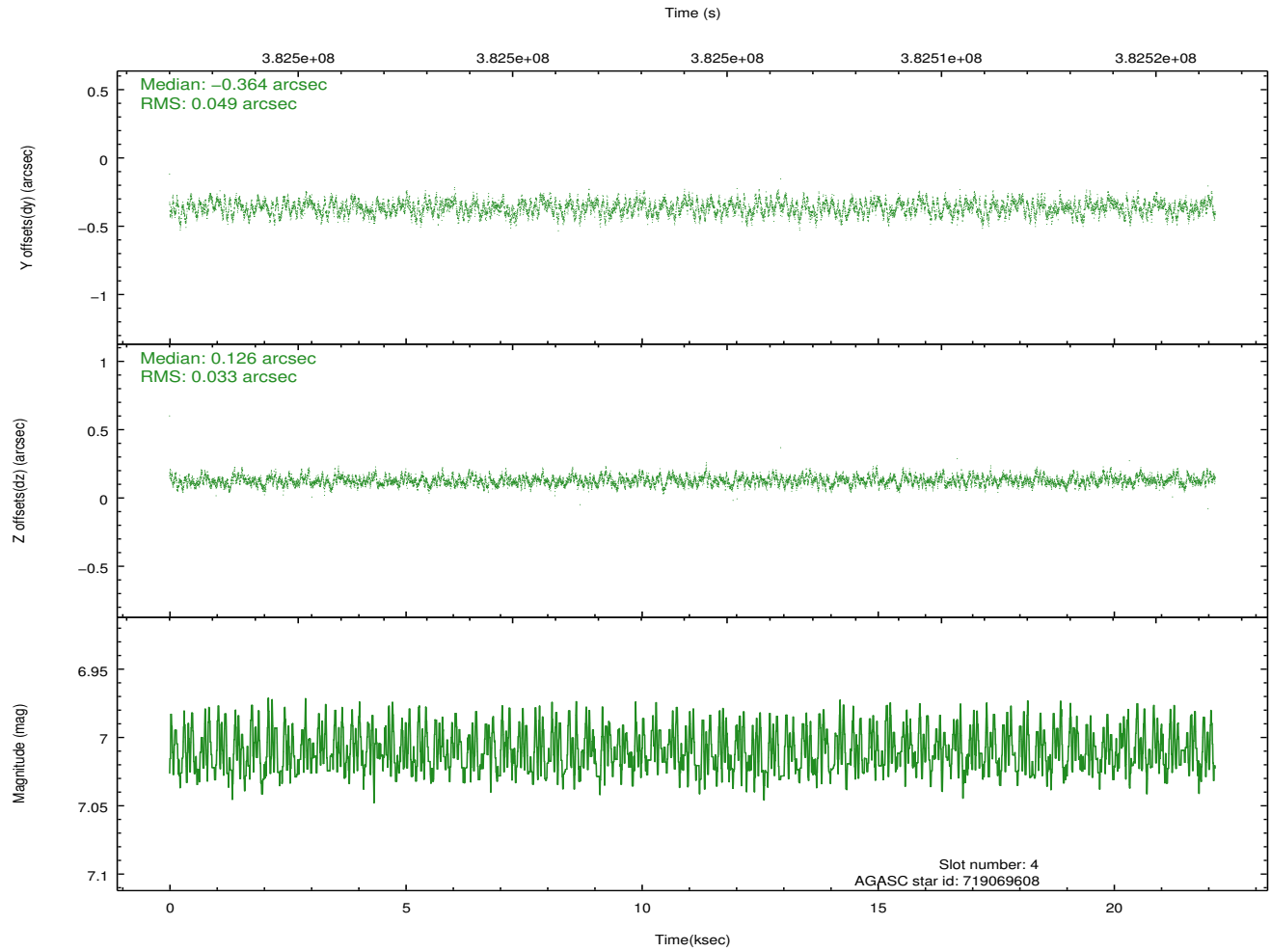
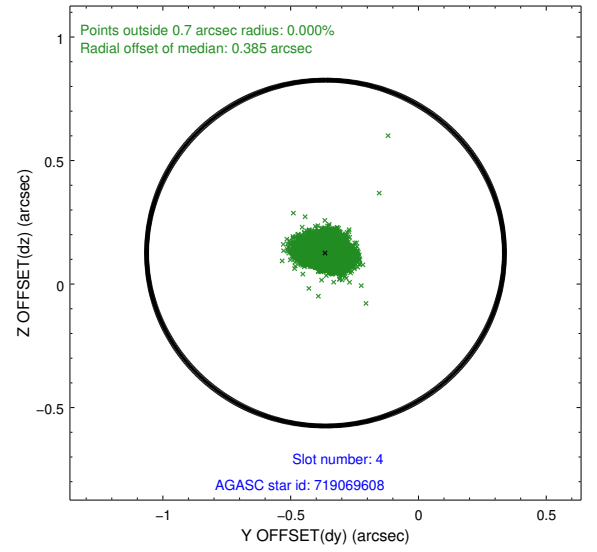
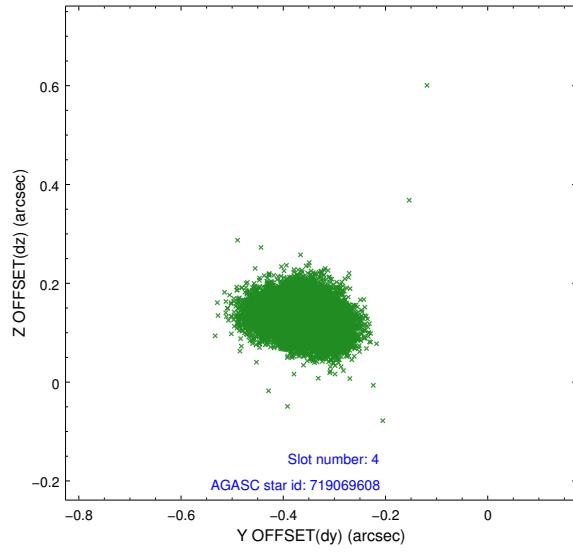
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.91	5401	-0.086	-0.090	0.007	0.012	0.000000	0.000000	-770.43	-1799.73
1	FID	ACIS-S-4	6.99	5402	0.204	0.066	0.019	0.029	0.000000	0.000000	2143.07	108.73
2	FID	ACIS-S-5	7.03	5401	-0.150	0.033	0.016	0.025	0.000000	0.000000	-1823.14	102.55
3	GUIDE	719062168	8.69	10794	0.145	0.110	0.089	0.147	146.982073	-14.934546	2008.04	-2149.83
4	GUIDE	719069608	7.01	10805	-0.364	0.126	0.063	0.100	146.560429	-14.589983	541.56	-907.48
5	GUIDE	719072032	7.78	10802	-0.022	-0.032	0.053	0.083	146.772063	-14.036413	1281.67	1084.51
6	GUIDE	719068024	7.74	10803	0.115	-0.054	0.061	0.099	145.876734	-13.695740	-1847.85	2309.14
7	GUIDE	719065304	8.31	10796	0.126	-0.148	0.065	0.107	146.031410	-13.723490	-1307.21	2210.98

## 2.4 Star Slots

### 2.4.1 Slot 3

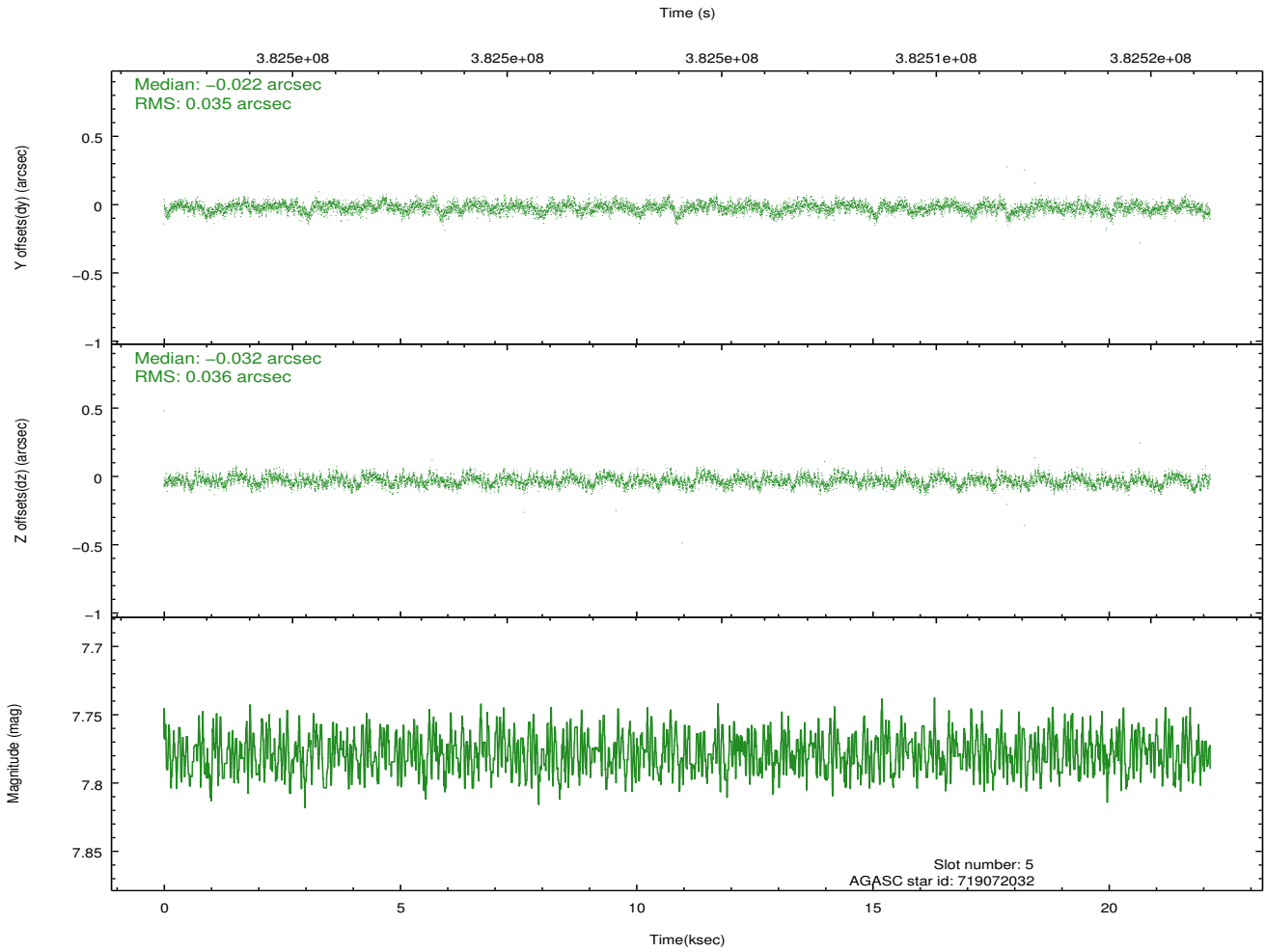
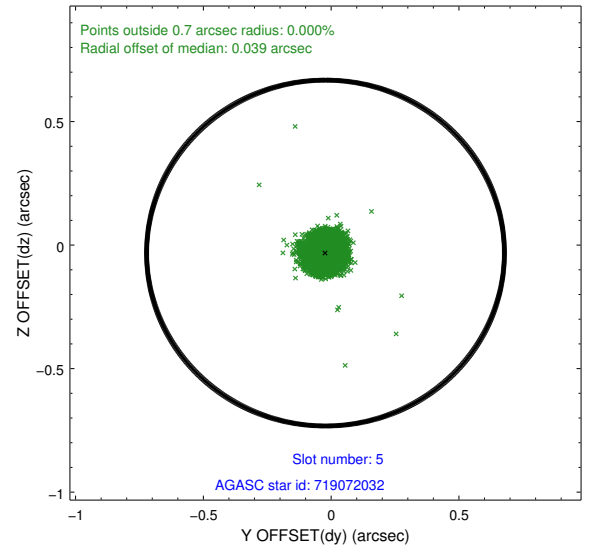
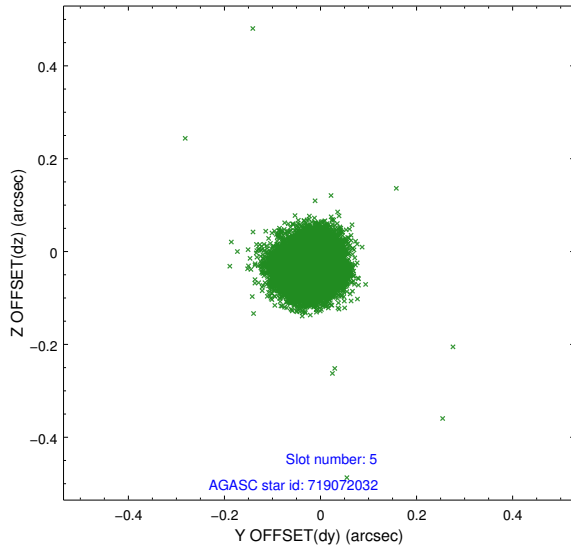


## 2.4.2 Slot 4

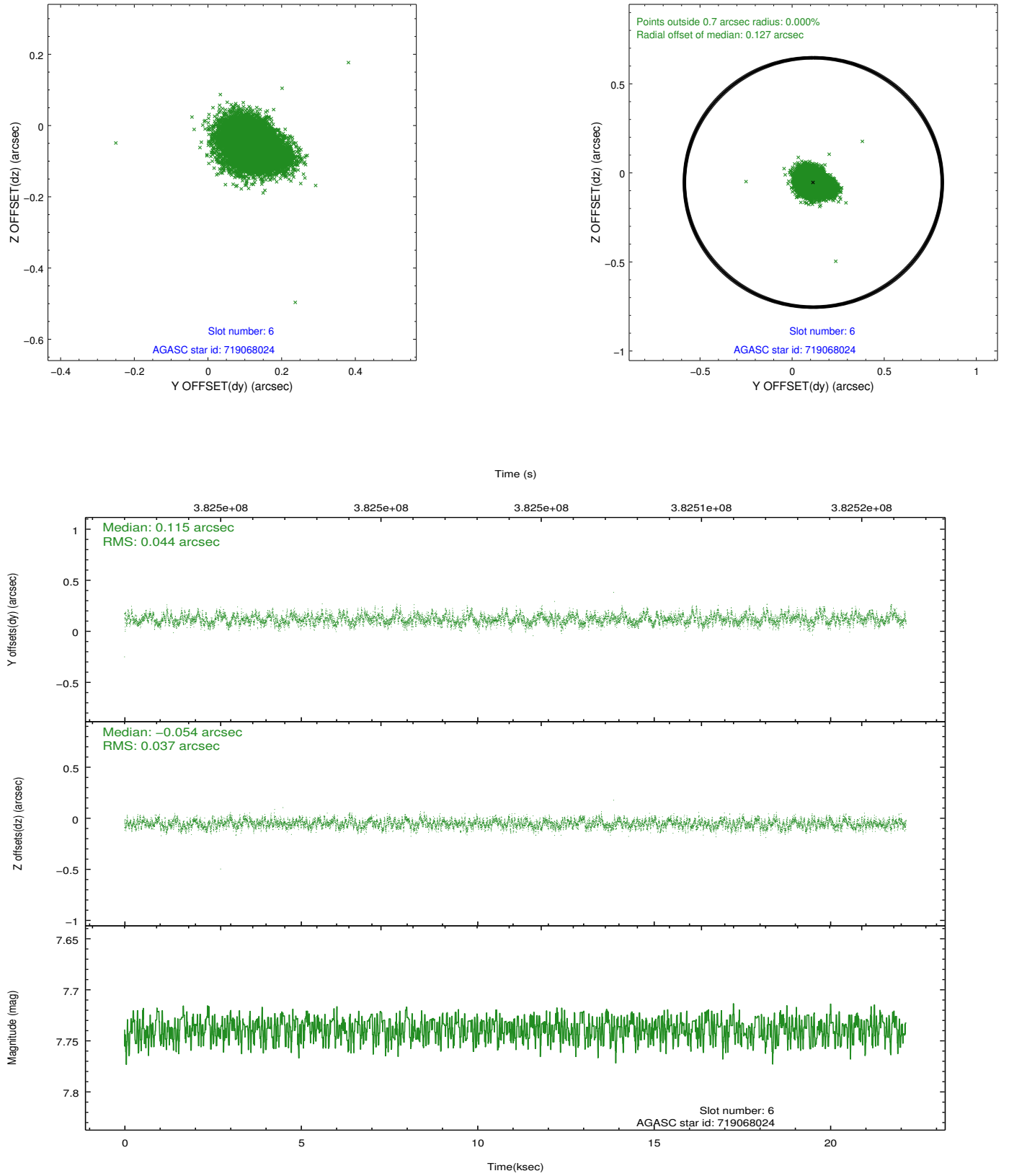




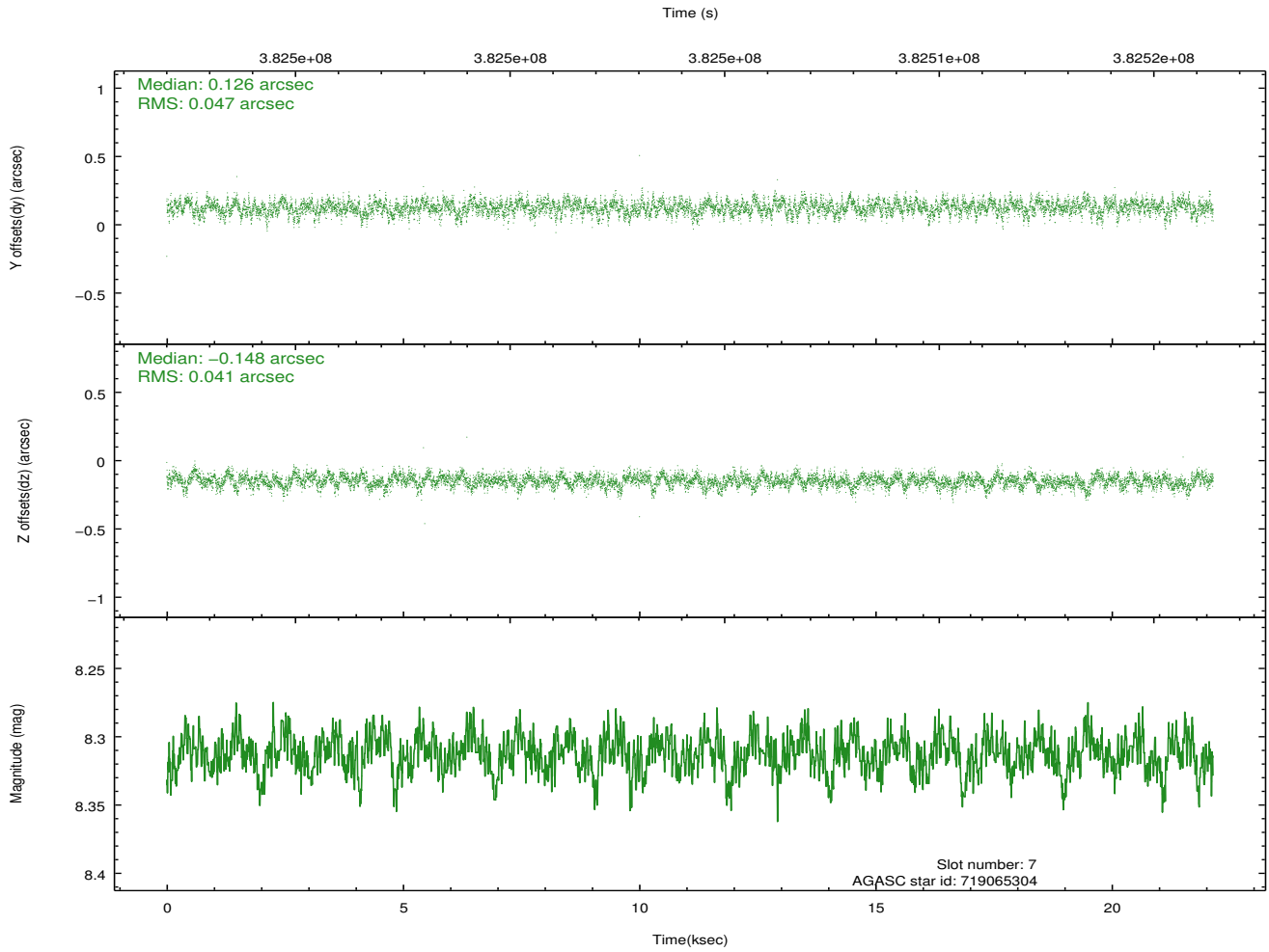
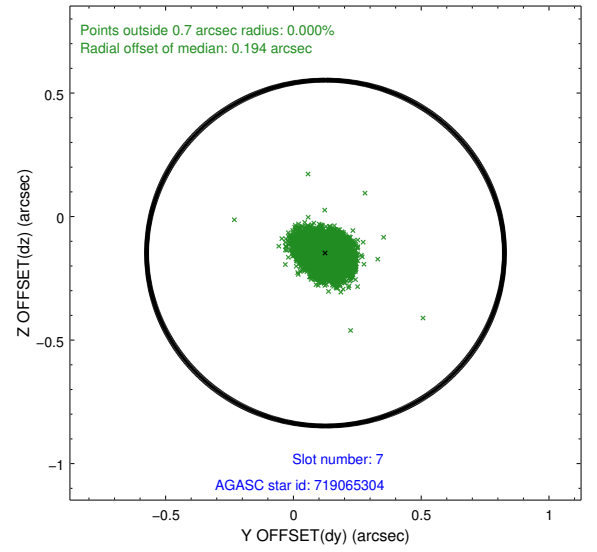
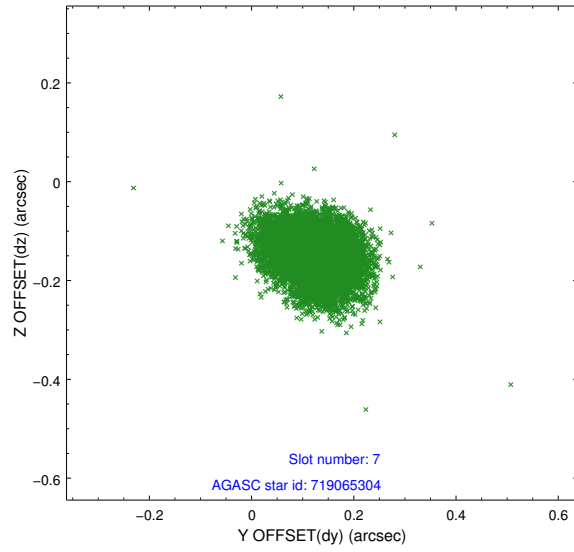
### 2.4.3 Slot 5



## 2.4.4 Slot 6

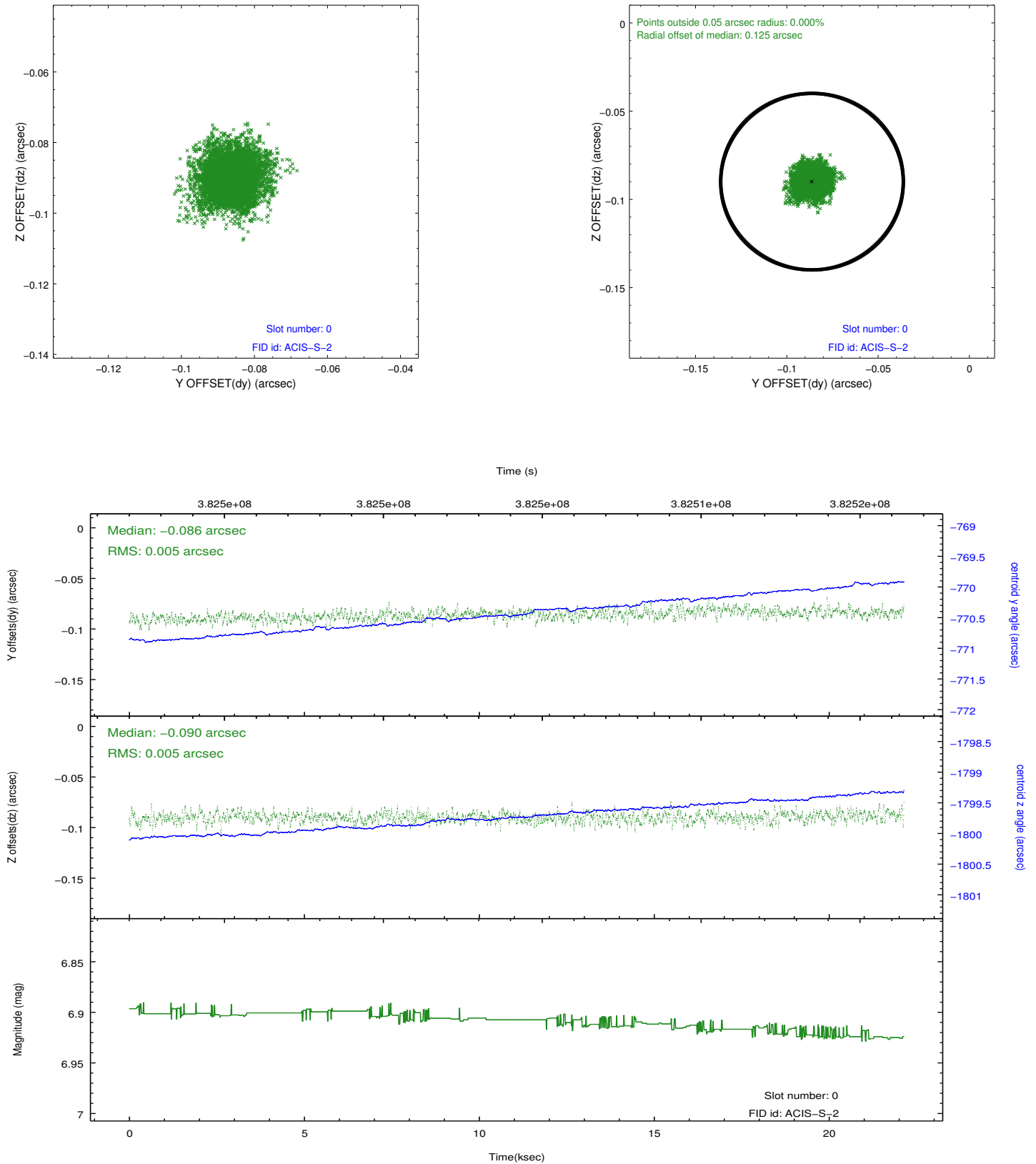


## 2.4.5 Slot 7

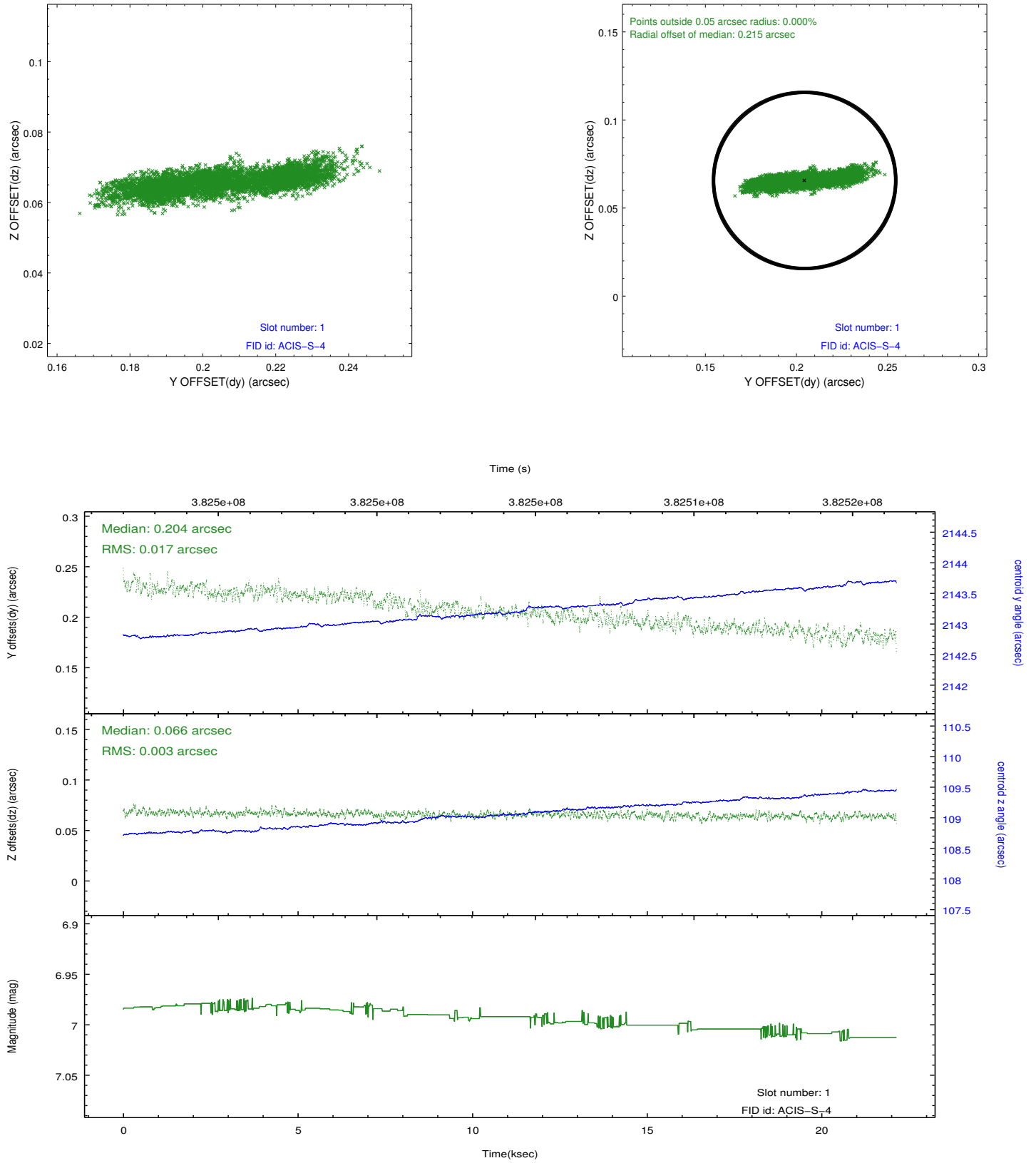


## 2.5 FID Slots

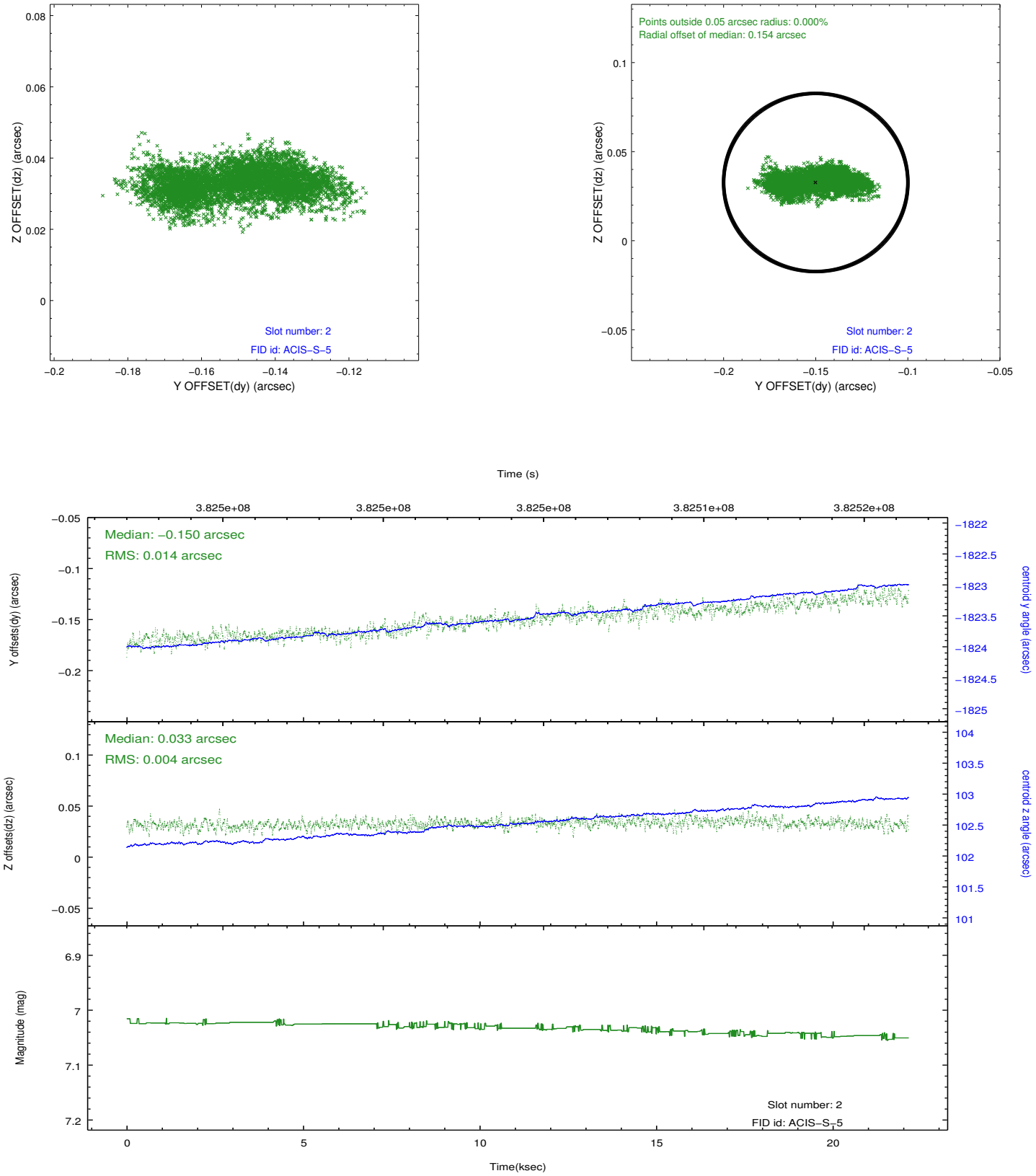
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

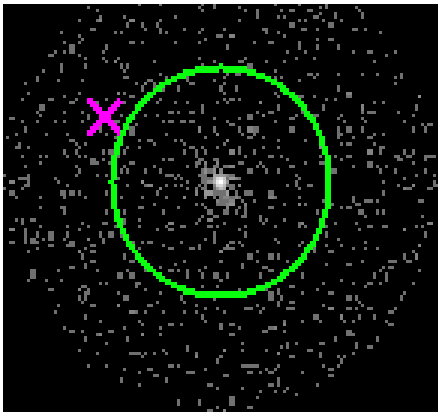


# 3 Gratings

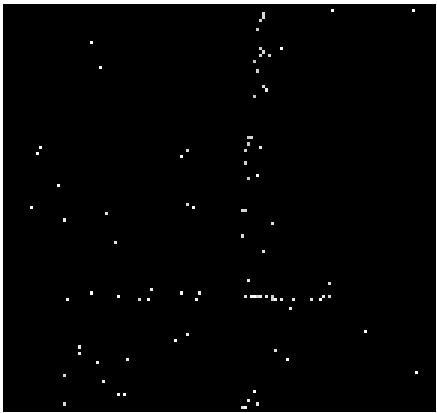
## 3.1 HEG Arm



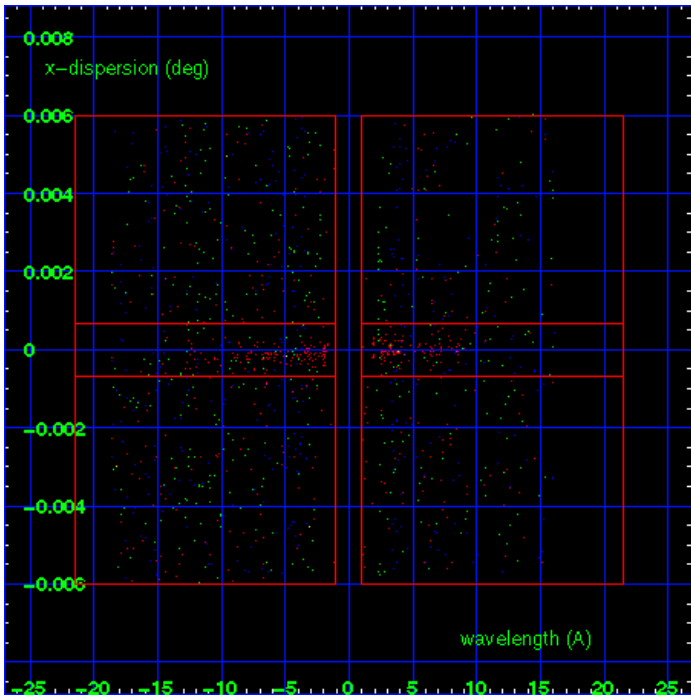
HEG Order Sort 123



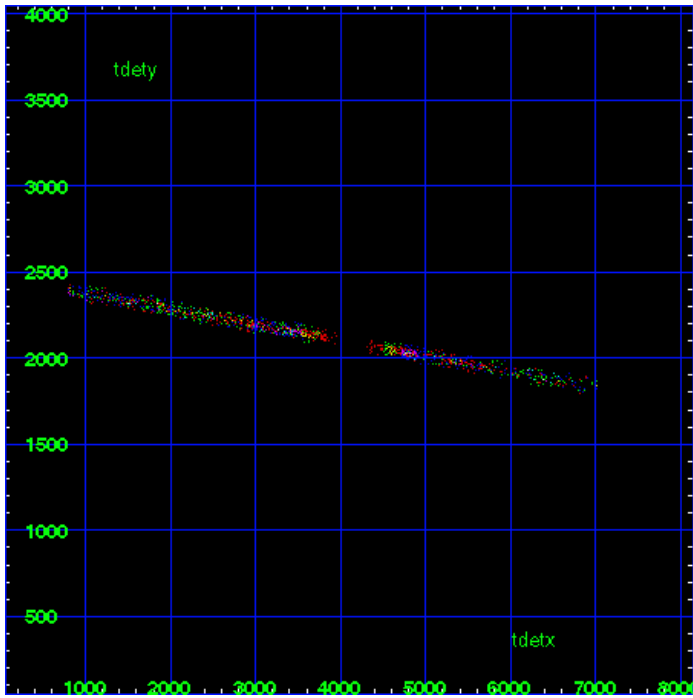
HEG Zero Order



HEG Order Sort ALL

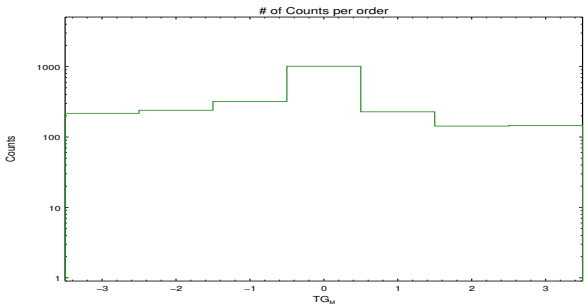


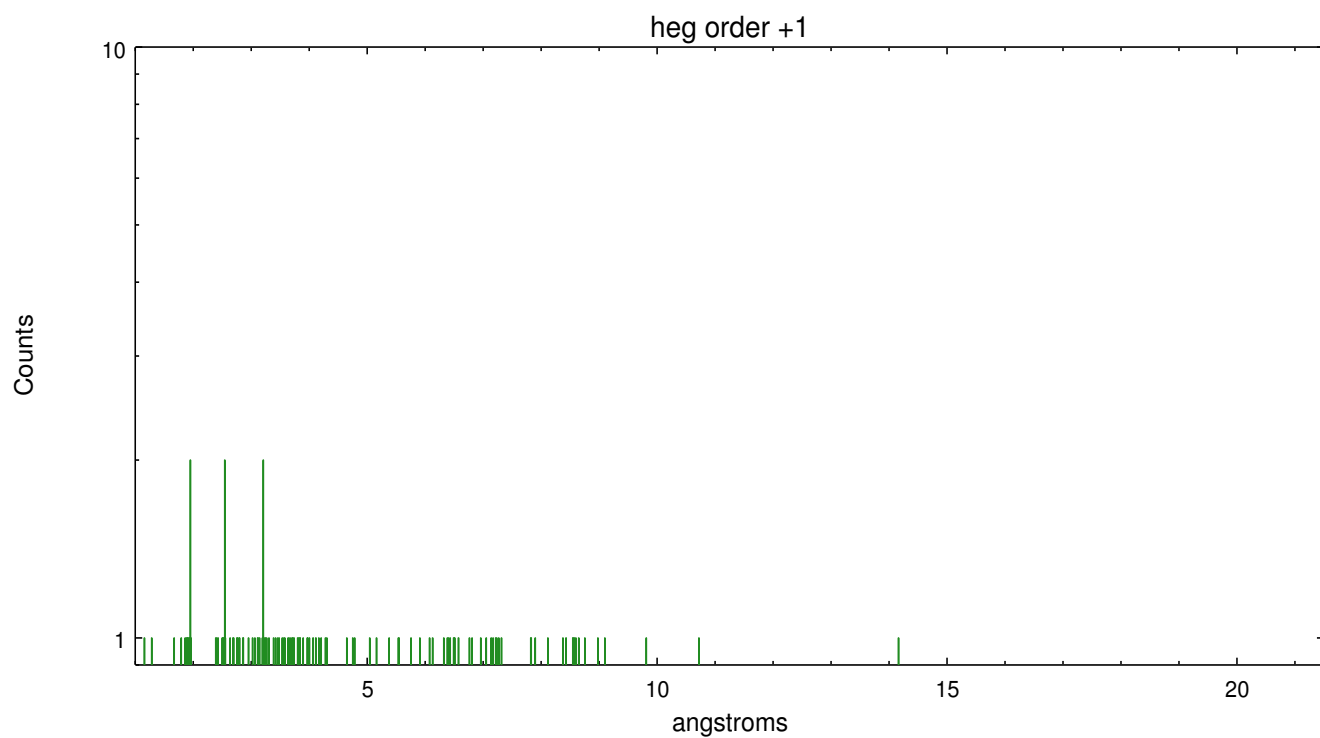
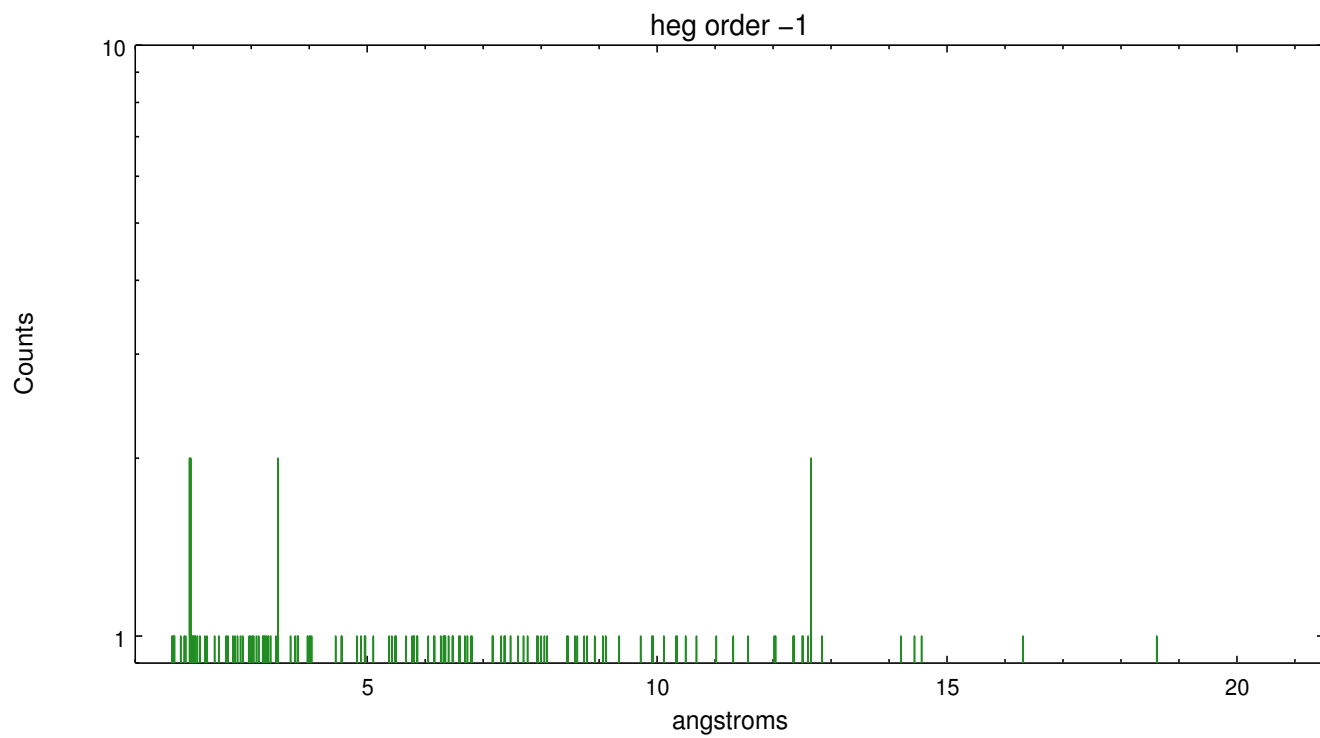
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	217	240	320	1012	228	143	146



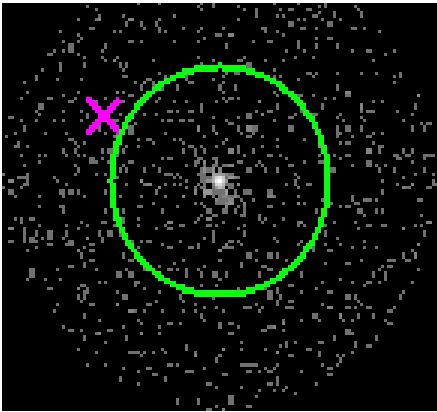




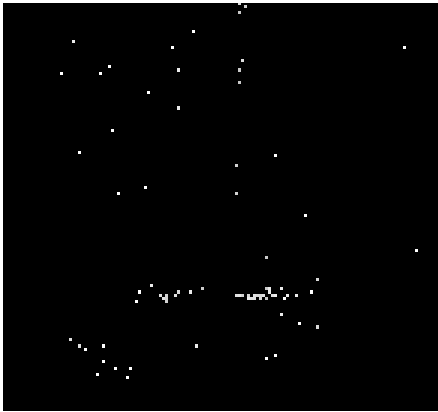
3.2 MEG Arm



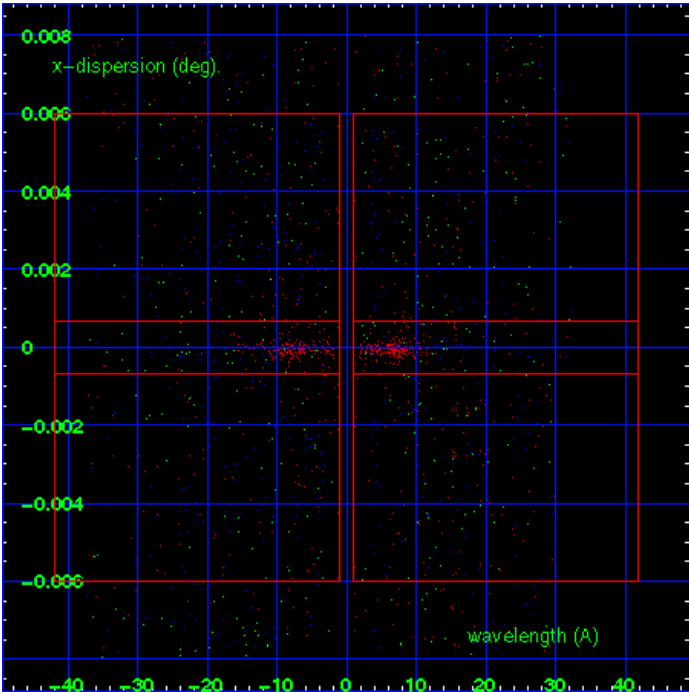
MEG Order Sort 123



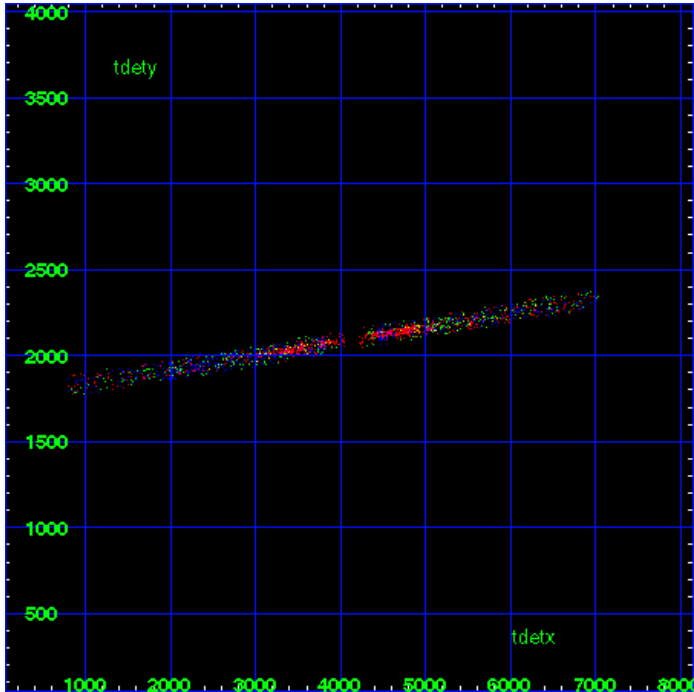
MEG Zero Order



MEG Order Sort ALL

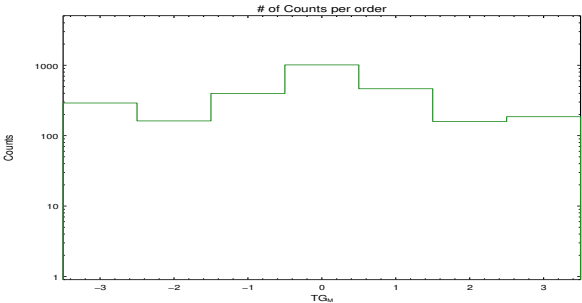


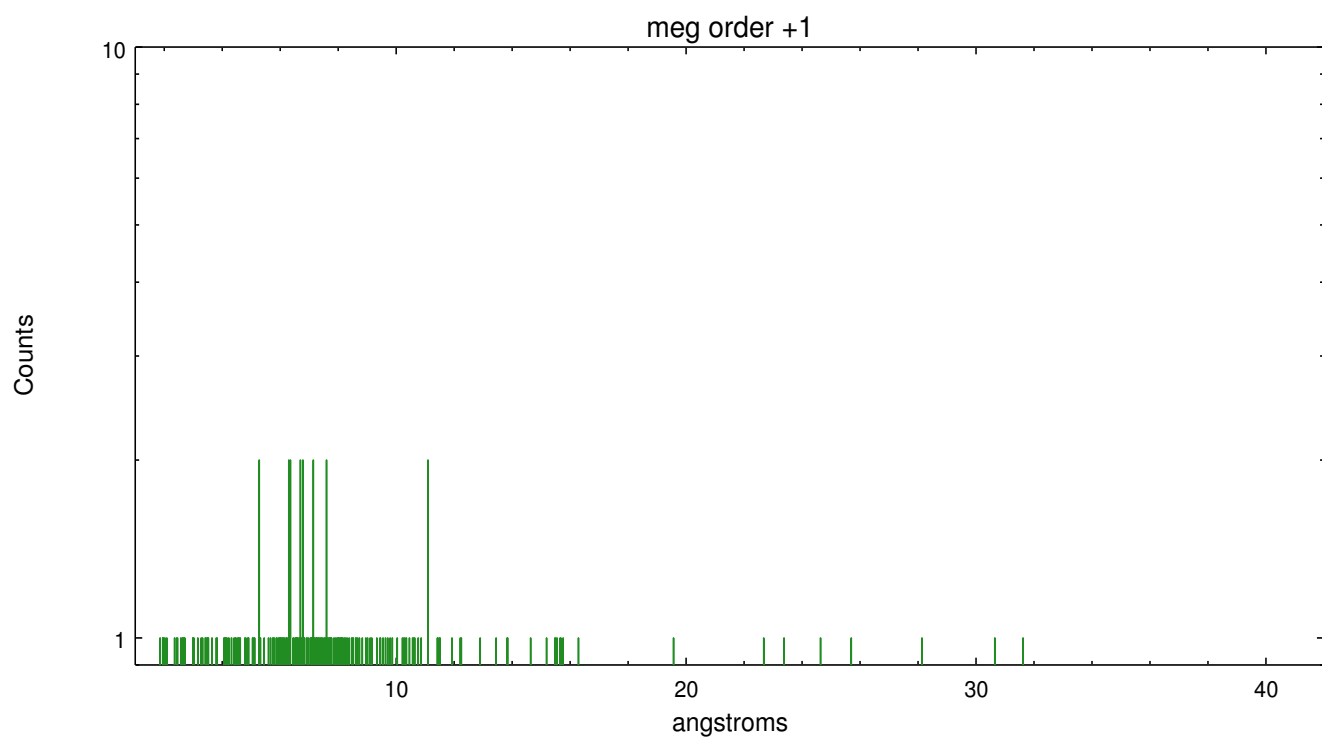
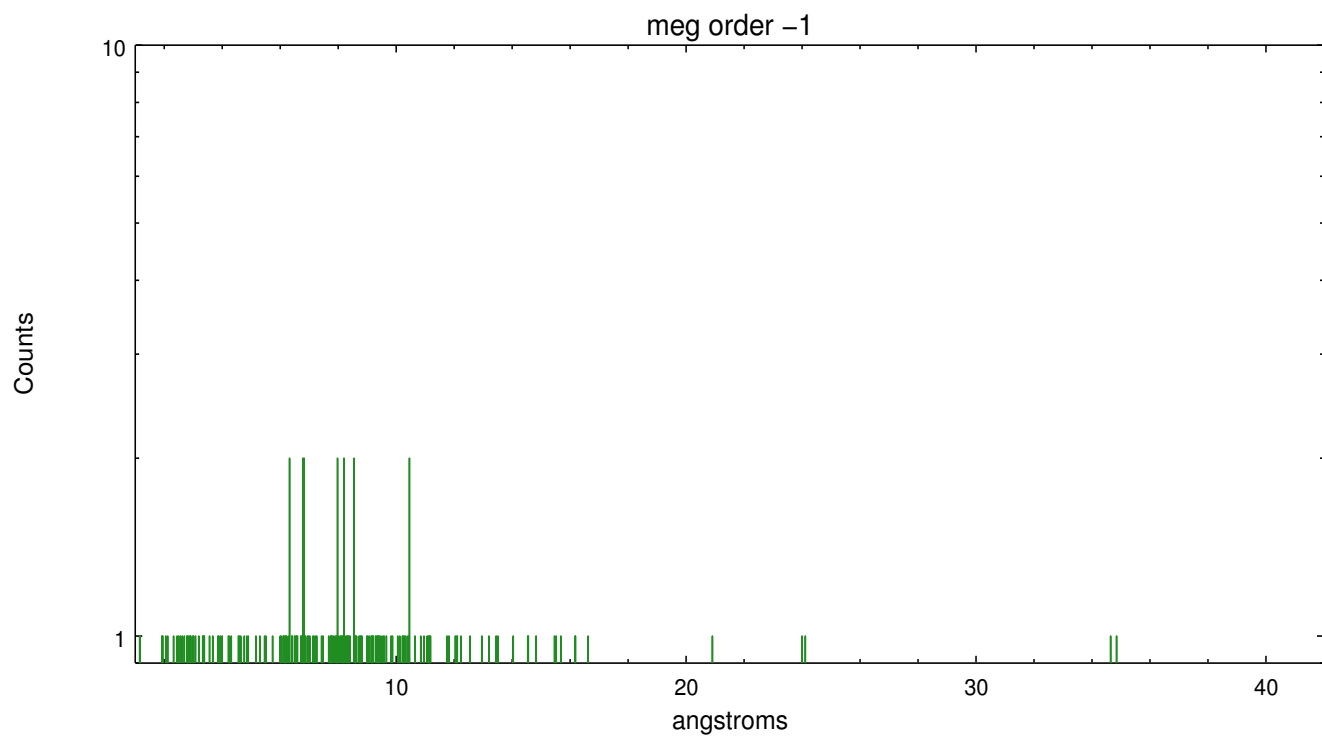
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	291	162	398	1012	464	159	186





## A Summary

### A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.06.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	22.1425

### A.2 Comments

Zeroth order image is possibly asymmetric.