

# V&V Reference Report

## L2 ASCDS Version : 7.6.7.2

Observation 4900 - L2 Version 001  
Chandra X-Ray Center

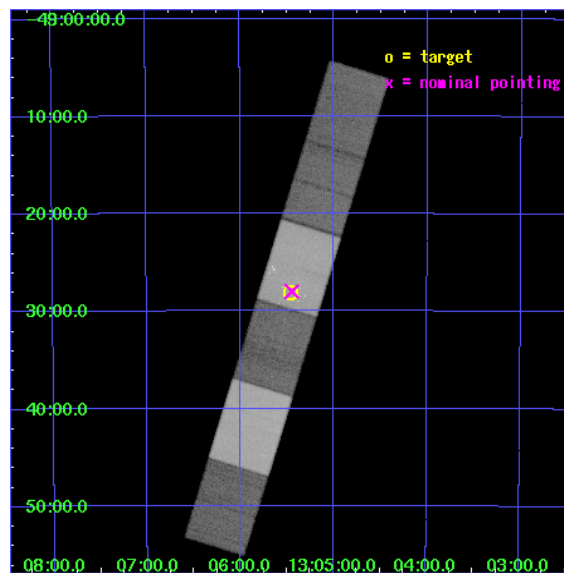
L2 Processing Date : May 15 2006

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# 1 Front

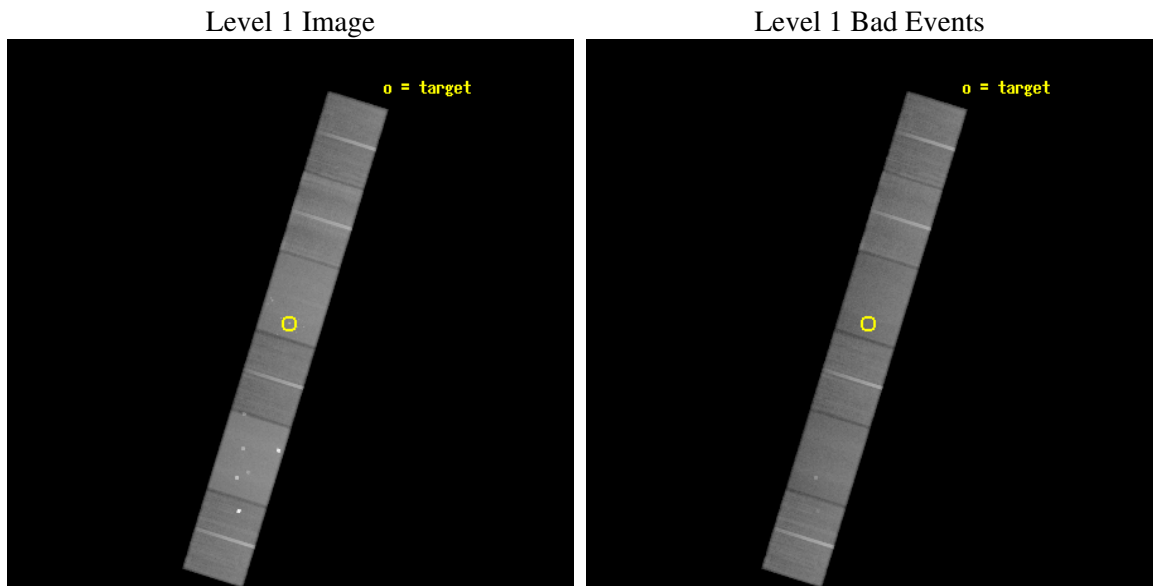
seq_num	700981
obs_id	4900
title	X-ray Spectroscopy of the Nuclear Region of the Seyfert 2 Galaxy NGC 4945
observer	Dr. Greg Madejski
object	NGC 4945
dtcycle	0
cycle	P
ra_targ	196.364583
dec_targ	-49.4675
ra_nom	196.36146215787
dec_nom	-49.466561361597
roll_nom	287.15426152302
revision	2
ontime	97167.5
livetime	95598.160595661
ontime4	97159.877029449
ontime5	97167.5
ontime6	97167.5
ontime7	97167.5
ontime8	97164.959009737
ontime9	97164.958999813
l2events	837886



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images

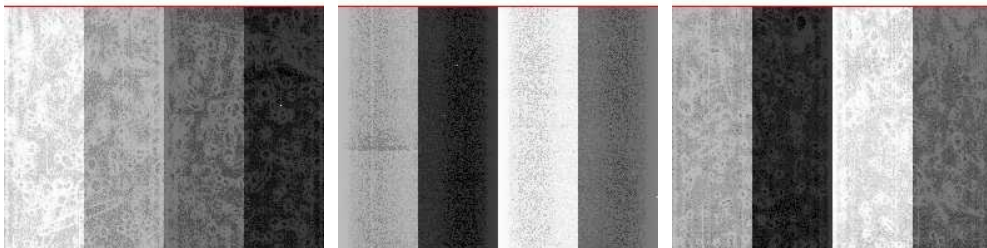


#### 2.1.2 Bias

Chip 4

Chip 5

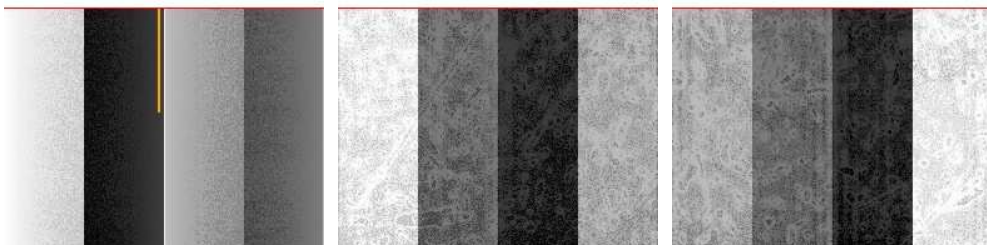
Chip 6



Chip 7

Chip 8

Chip 9



### 2.1.3 Parameters

obi_num	1
ascdsver	7.6.7.2
caldsver	3.2.2
date	2006-05-15T01:14:01
revision	2

sched_exp_time	97000.000000
ontime	97369.209121108
ontime4	97361.586150557
ontime5	97369.209121108
ontime6	97369.209121108
ontime7	97369.209121108
ontime8	97366.668130845
ontime9	97366.668120921
l1events	3955999

### 2.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	634722	822452	547977	728840	689415	532593
rejected events	530958	445049	482504	440534	543334	467695
rejected %	83%	54%	88%	60%	78%	87%

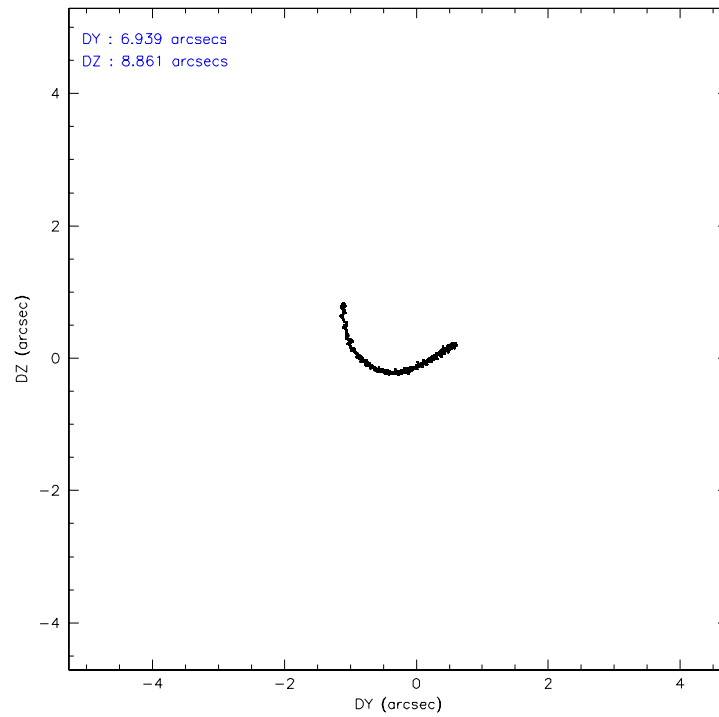
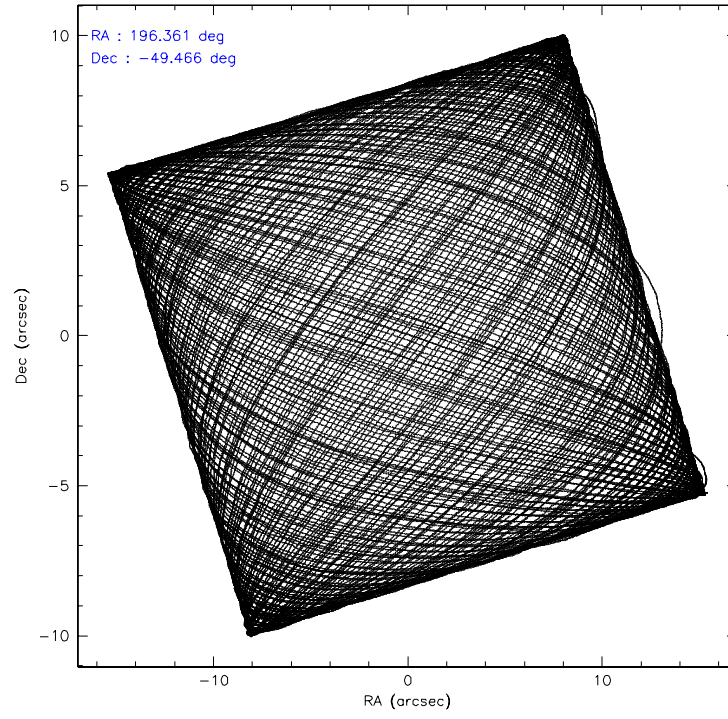
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	64943	52286	25941	17766	44615	26006
	10%	6%	4%	2%	6%	4%
grade 1 events	604	641	238	477	432	251
	0%	0%	0%	0%	0%	0%
grade 2 events	14139	108307	13154	70009	31737	12602
	2%	13%	2%	9%	4%	2%
grade 3 events	7219	9661	6804	17334	15927	6827
	1%	1%	1%	2%	2%	1%
grade 4 events	6824	8616	6769	16868	15032	6752
	1%	1%	1%	2%	2%	1%
grade 5 events	22914	40578	24203	52170	31692	25355
	3%	4%	4%	7%	4%	4%
grade 6 events	10853	199376	12946	166894	39026	12836
	1%	24%	2%	22%	5%	2%
grade 7 events	507226	402987	457922	387322	510954	441964
	79%	48%	83%	53%	74%	82%

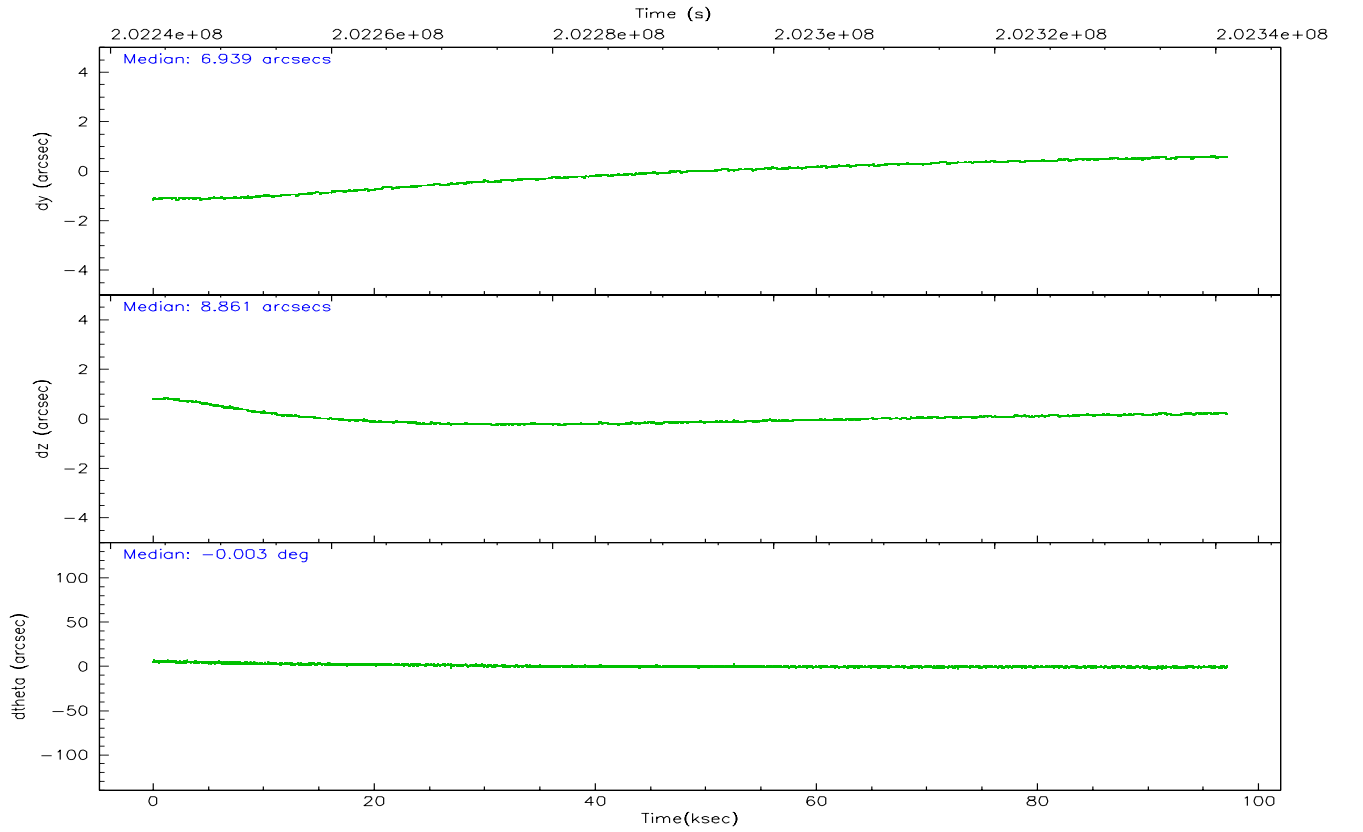
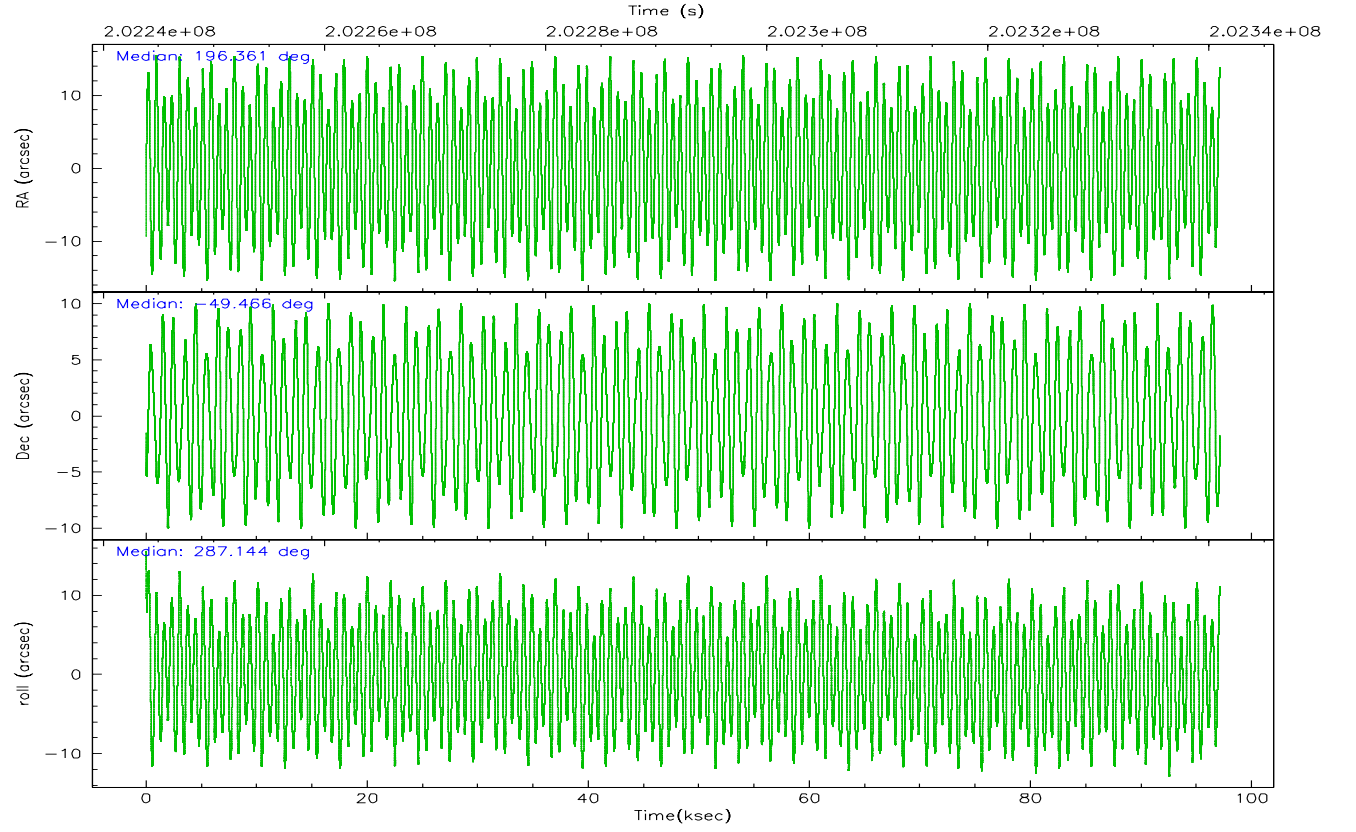


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	6	6
Detector	ACIS-456789	ACIS-456789	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	On-chip summing requested	N	N
Observation mode	POINTING	POINTING	Subarray requested	CUSTOM	CUSTOM
Pointing RA	196.330379	196.3614621578672	Subarray start row	1	1
Pointing Dec	-49.448324	-49.46656136159746	Subarray row count	774	774
Pointing Roll	286.974008	287.154261523015	Alternating exposures requested	N	N
SIM focus pos (mm)	-0.684267	-0.6828225247311905	Primary exposure time	0.000000	2.5
SIM defocus (mm)	0	0.001444936568705701			
SIM translation stage pos (mm)	-187.132523	-187.1228876879999			
SIM translation stage offset (mm)	-3	-3.009634895007935			
Observation start time	202244045.184000	202242982.19073			
Observation start date	2004-05-29T18:53:01	2004-05-29T18:36:22			
Observation end time	202341045.184000	202342667.03264			
Observation end date	2004-05-30T21:49:41	2004-05-30T22:17:47			
Read mode	TIMED	TIMED			

## 2.3 Aspect



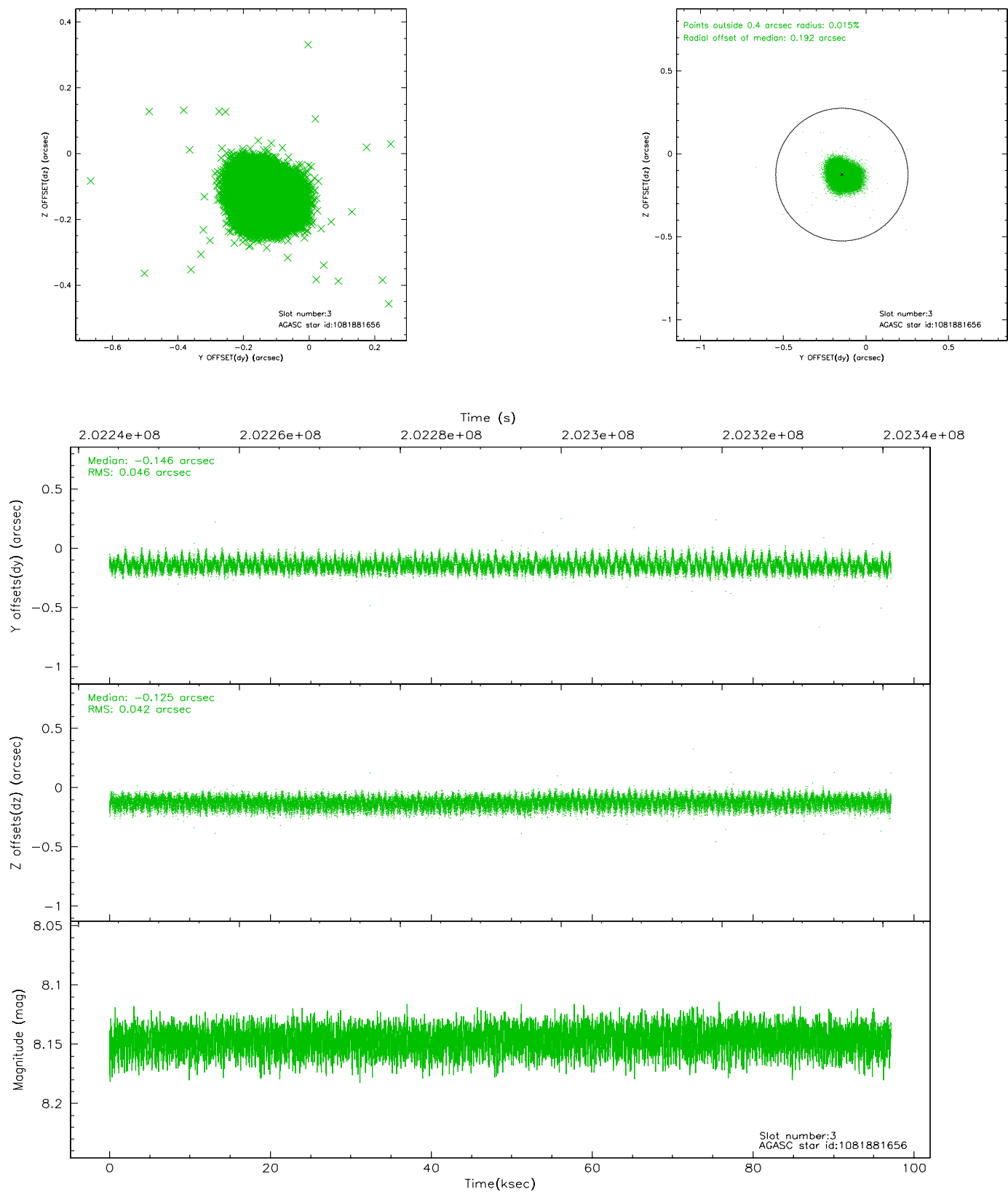


### Slot Statistics

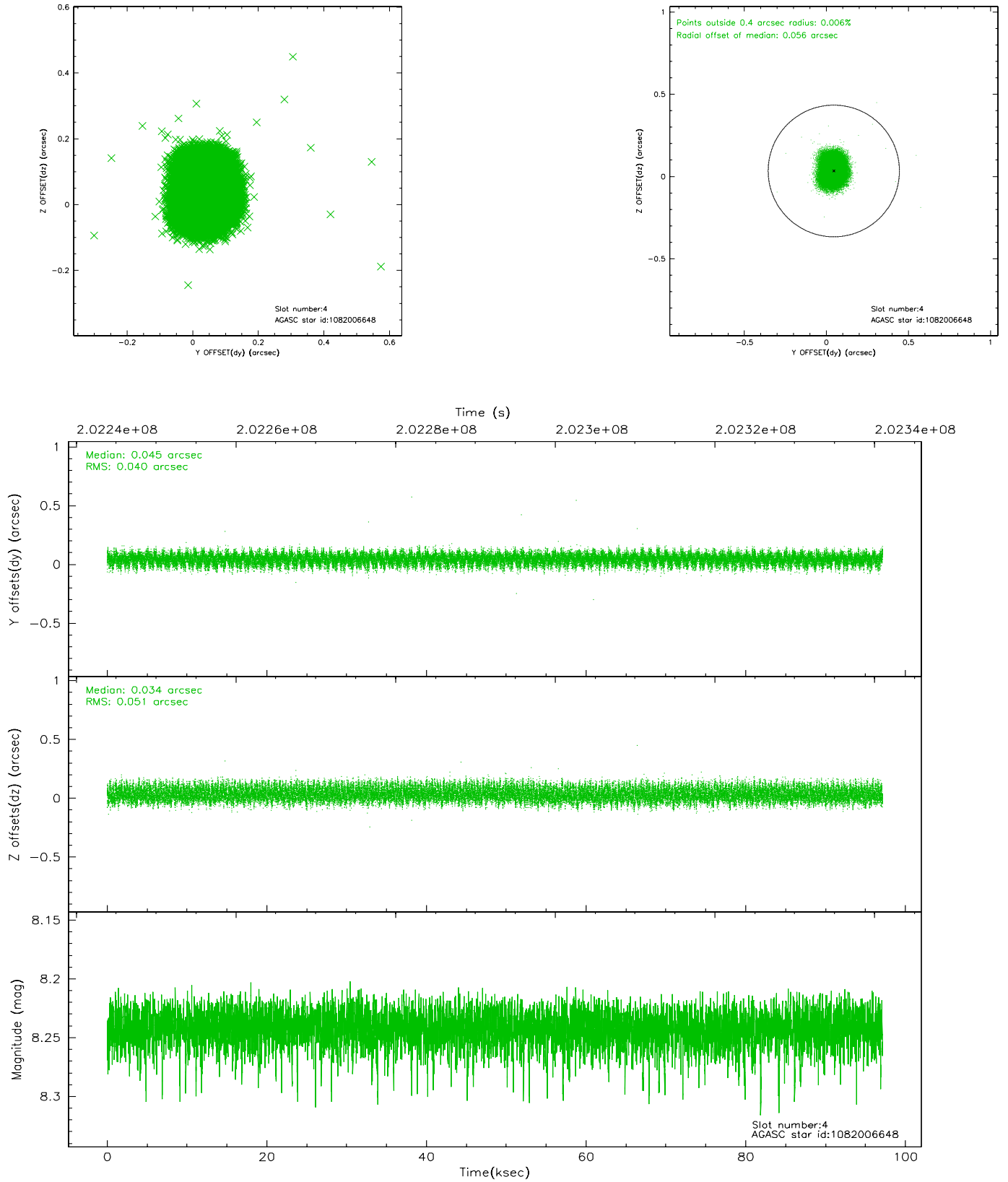
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	23699	-0.025	-0.010	0.010	0.017	0.000000	0.000000	-759.39	-1792.25
1	FID	ACIS-S-5	7.23	23700	-0.024	-0.014	0.013	0.021	0.000000	0.000000	-1812.44	109.82
2	FID	ACIS-S-6	7.37	23701	0.027	0.030	0.016	0.022	0.000000	0.000000	402.40	753.64
3	GUIDE	1081881656	8.15	47395	-0.146	-0.125	0.067	0.106	196.213950	-49.649201	612.86	-470.87
4	GUIDE	1082006648	8.24	47390	0.045	0.034	0.070	0.111	197.274351	-49.494968	818.16	2057.88
5	GUIDE	1082007984	8.19	47395	0.081	0.008	0.058	0.093	196.927081	-49.725914	1366.62	1034.95
6	GUIDE	1082011856	8.16	47395	-0.054	-0.028	0.064	0.099	197.058878	-49.171293	-445.49	1928.48
7	GUIDE	1081871496	9.30	47373	0.071	0.110	0.085	0.139	196.322420	-49.798146	1199.43	-384.98

## 2.4 Star Slots

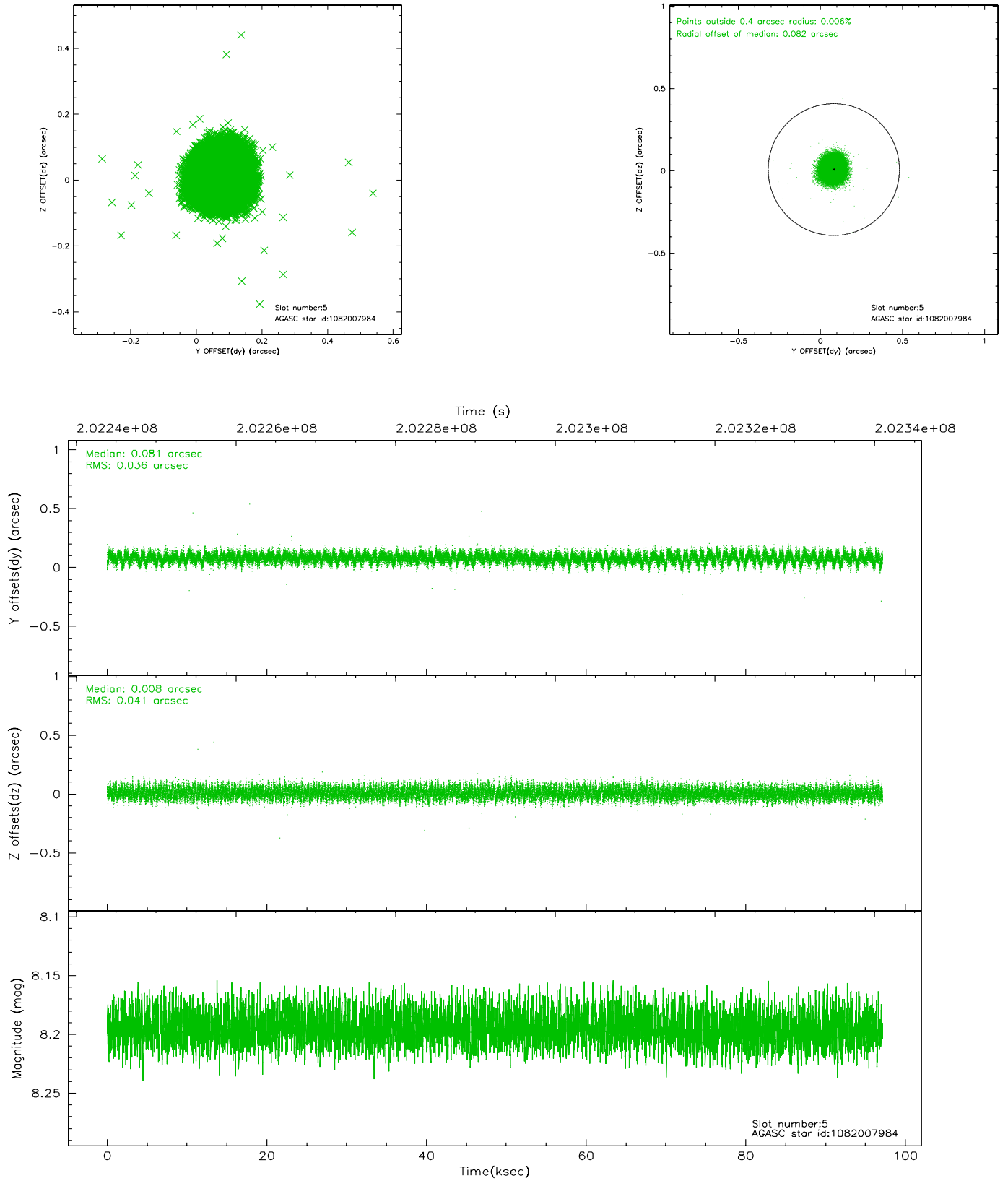
### 2.4.1 Slot 3



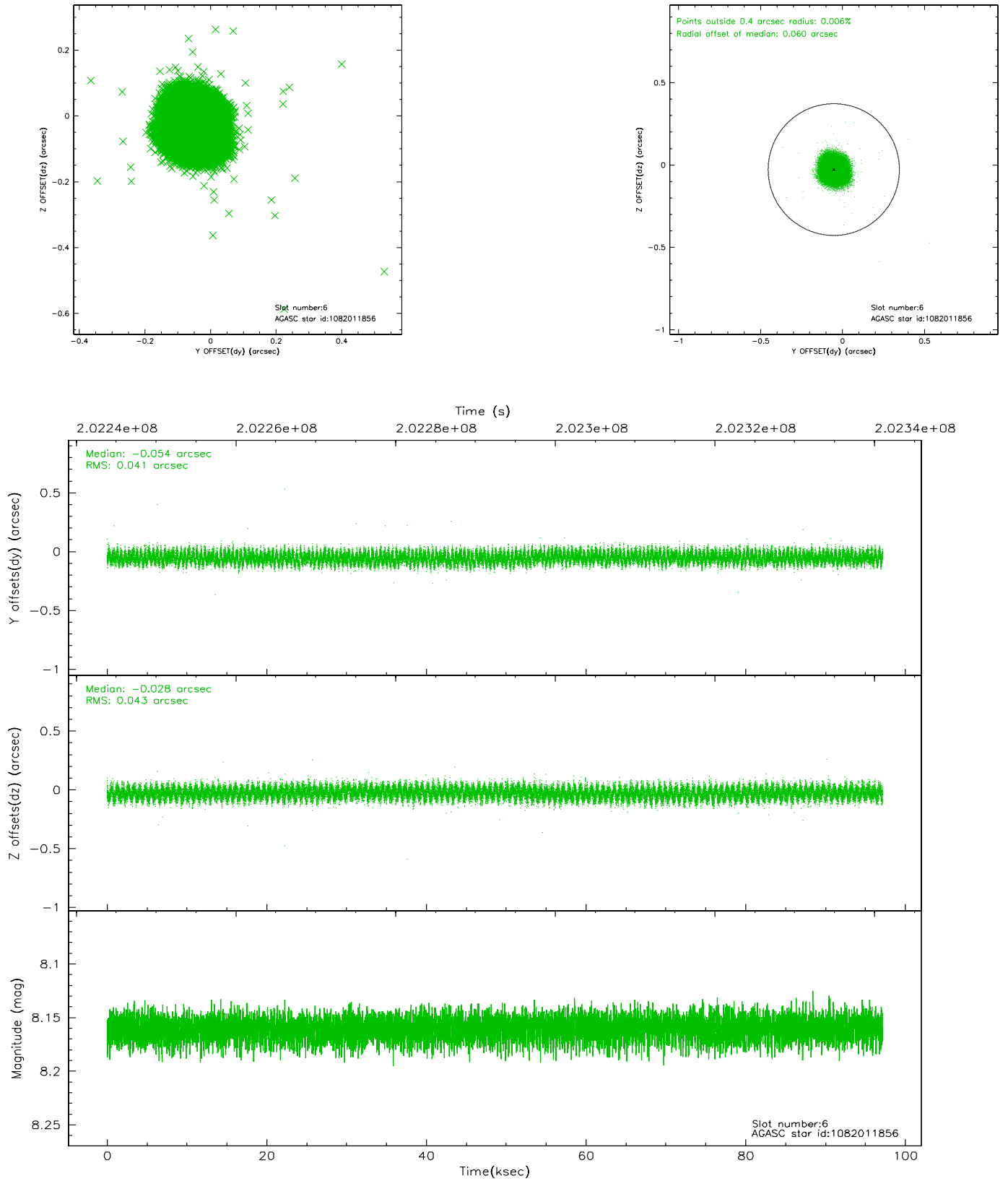
## 2.4.2 Slot 4



### 2.4.3 Slot 5

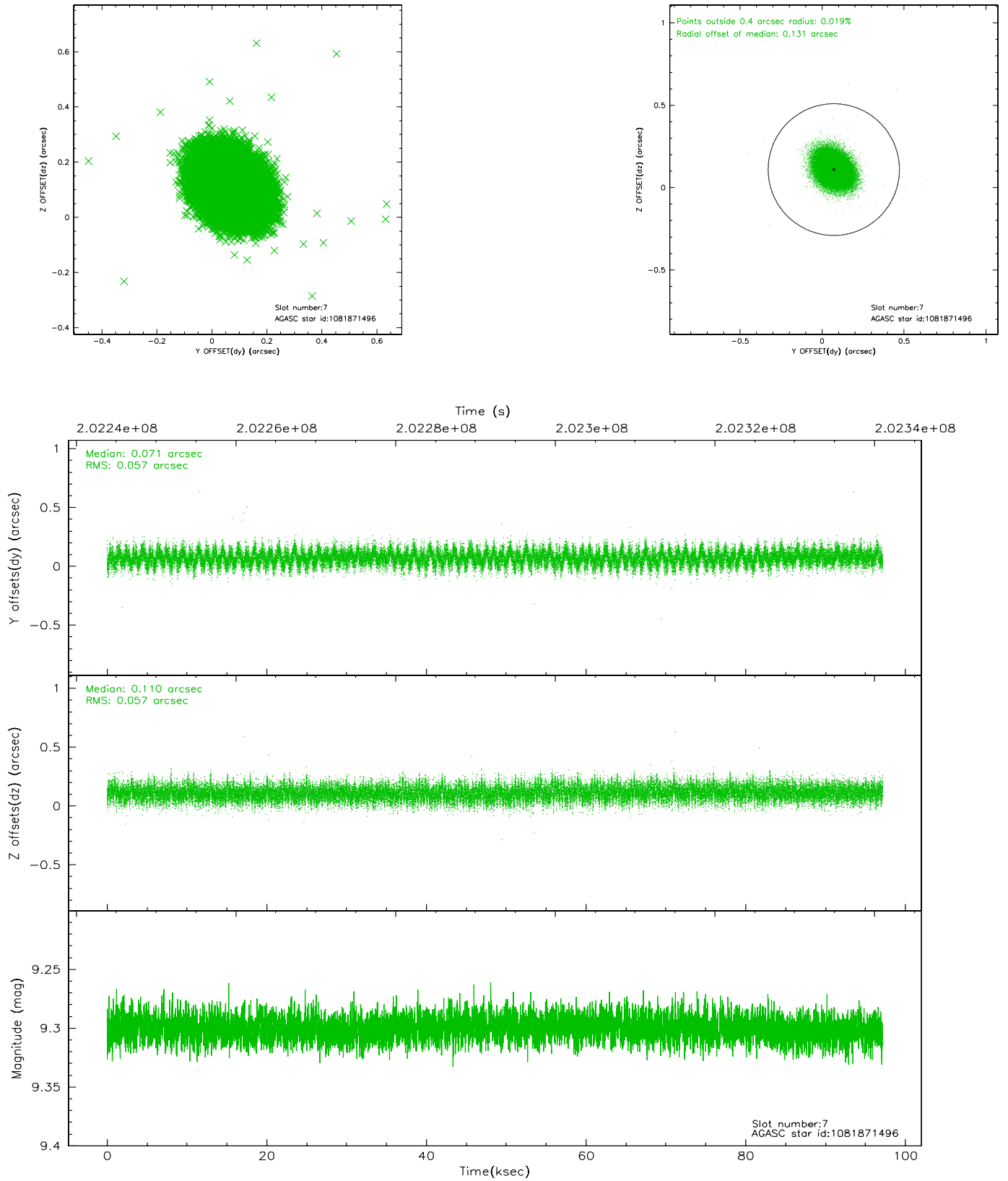


## 2.4.4 Slot 6



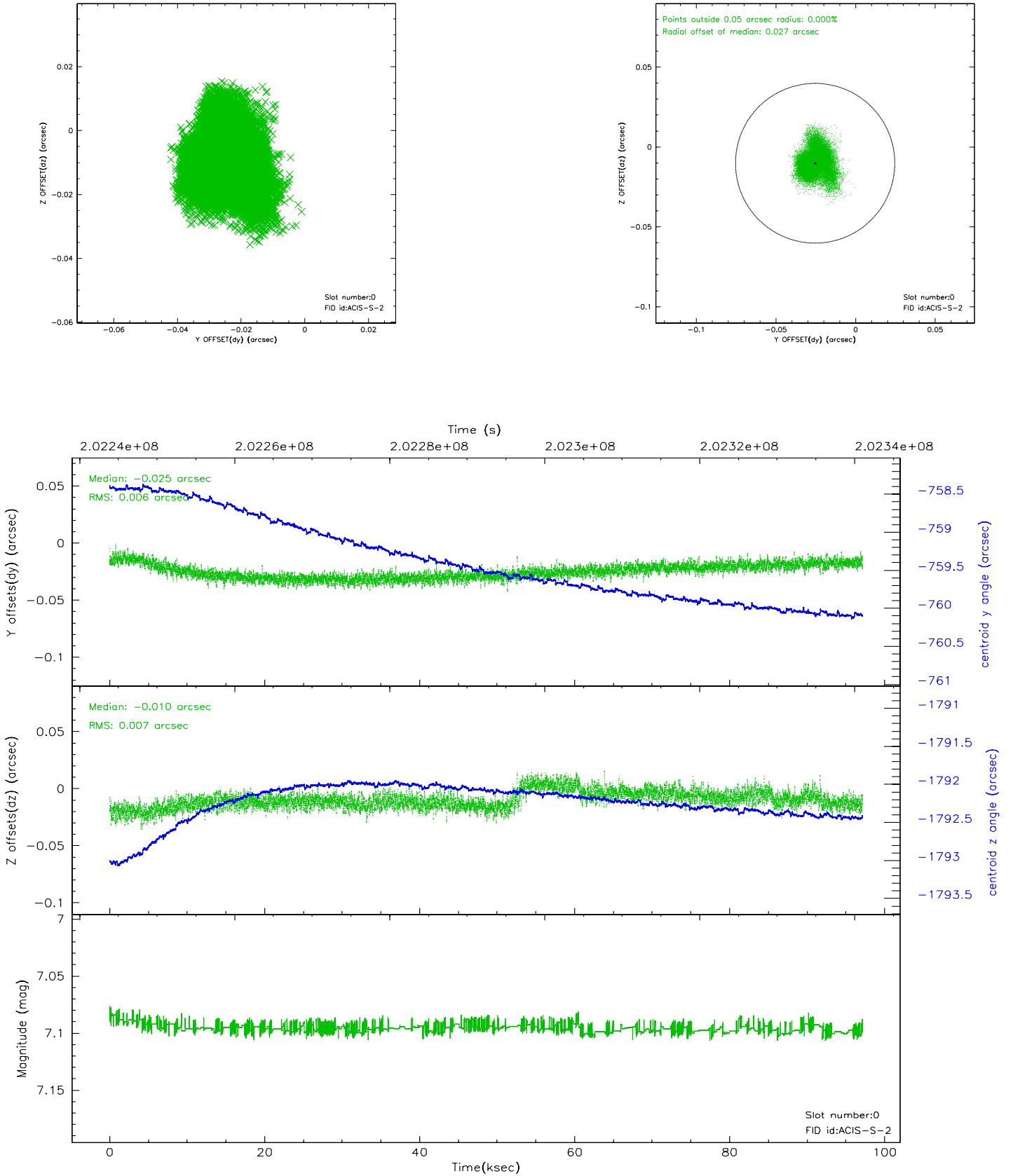


## 2.4.5 Slot 7

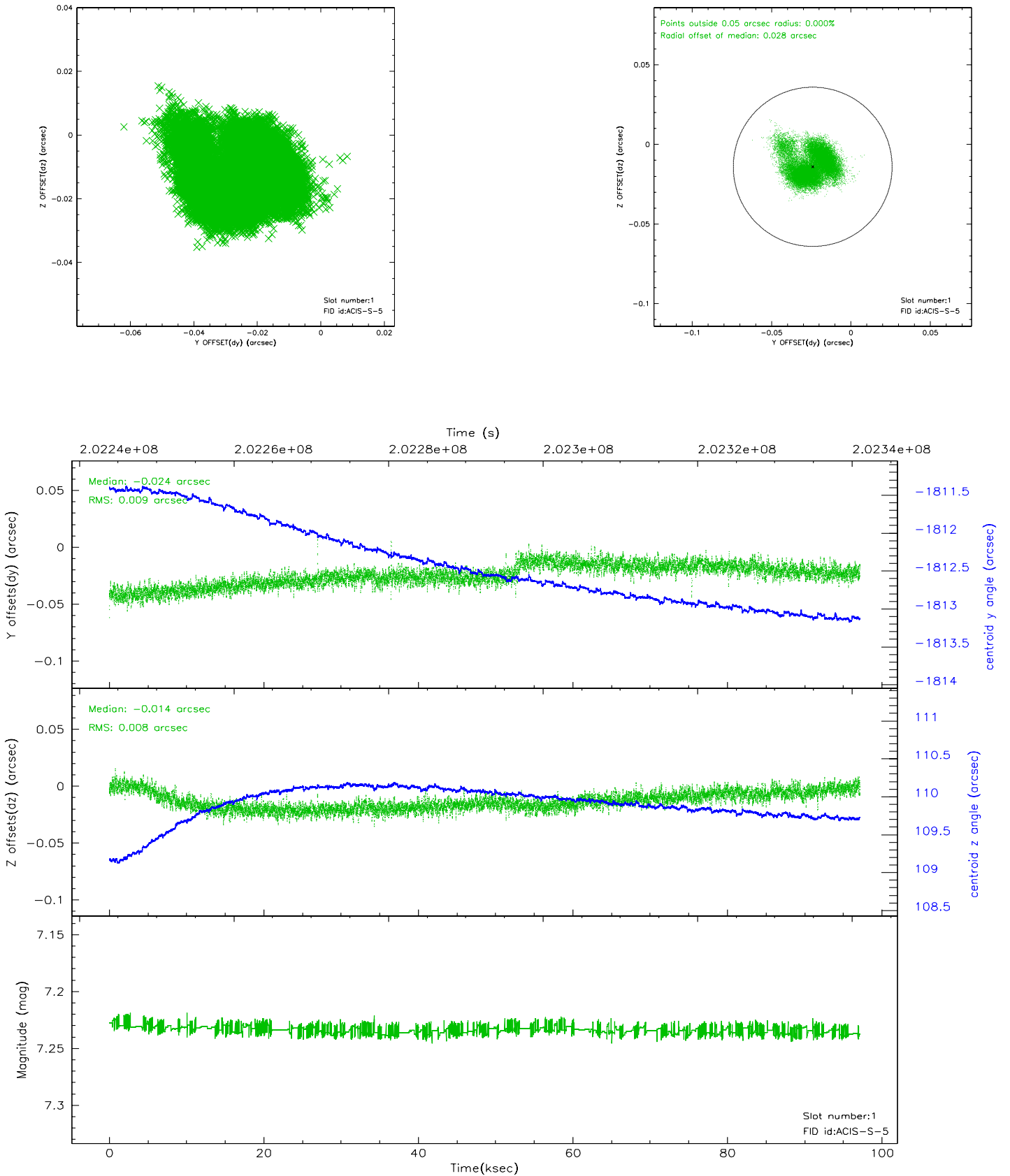


## 2.5 FID Slots

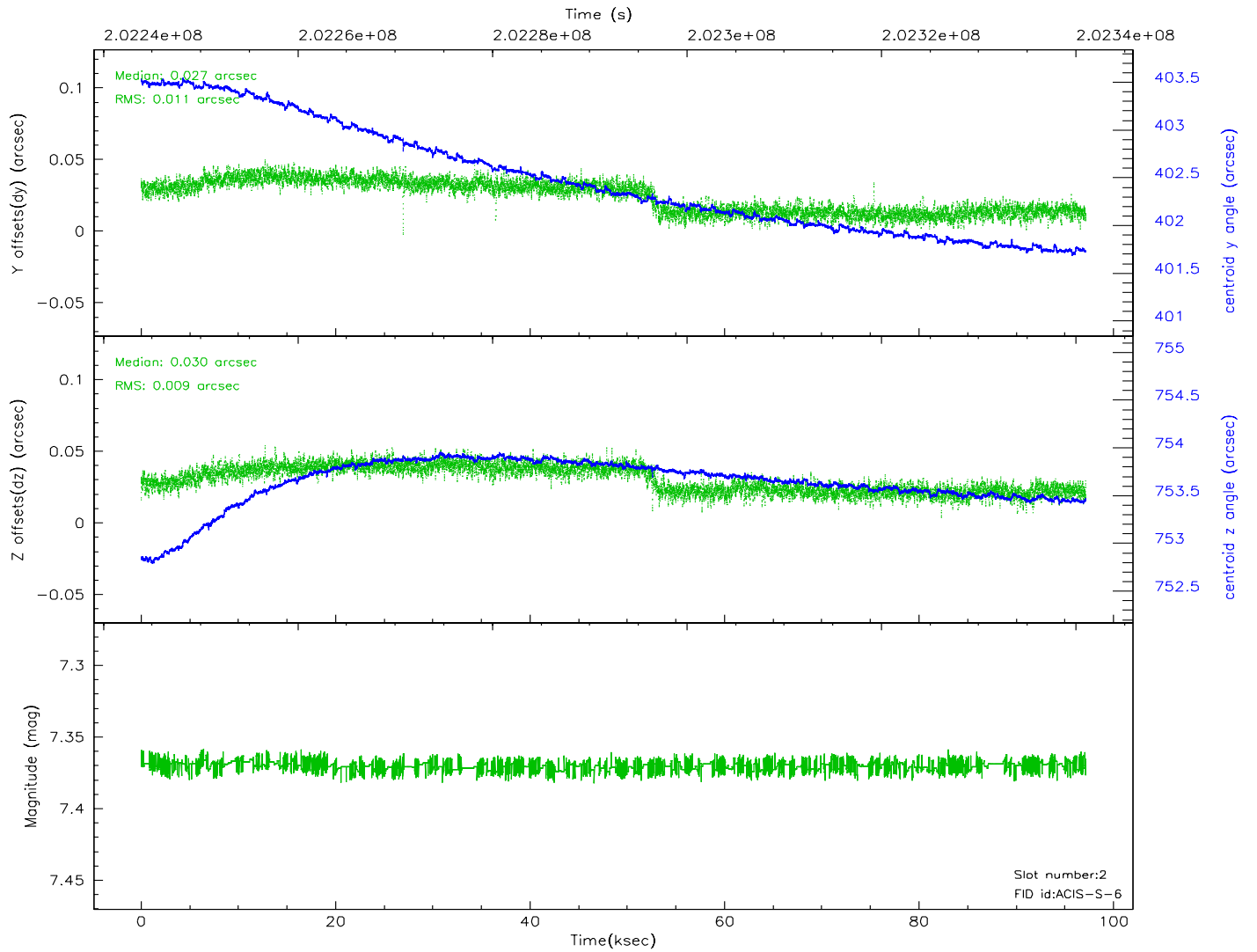
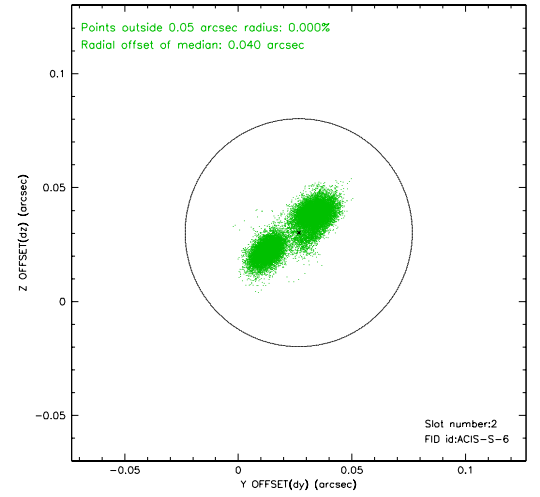
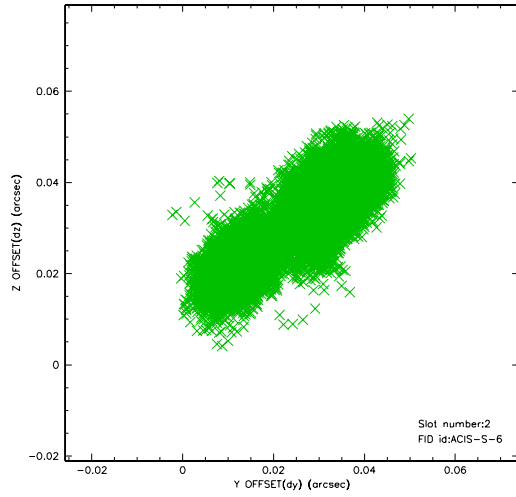
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

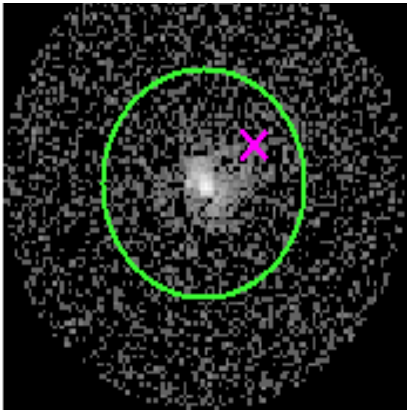


# 3 Gratings

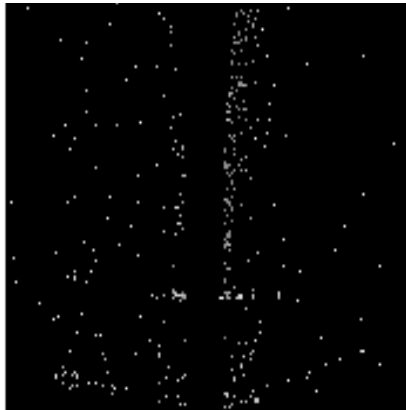
## 3.1 HEG Arm



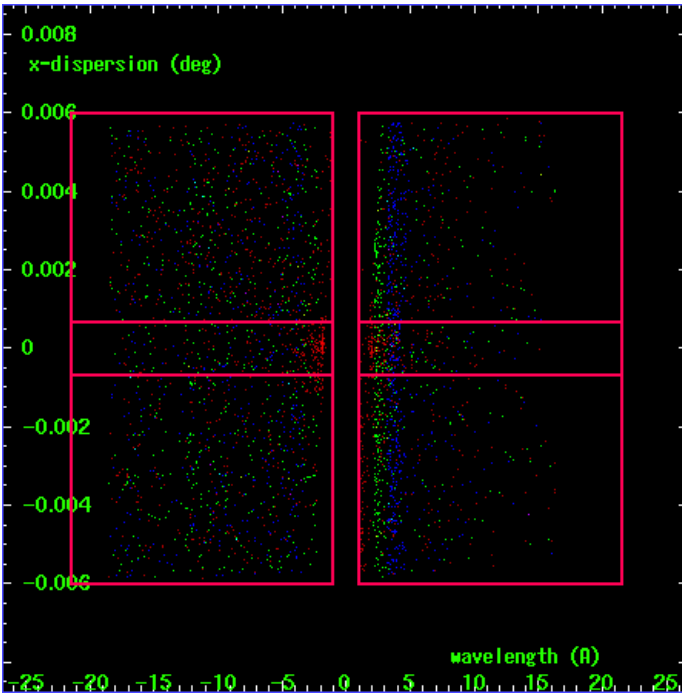
HEG Order Sort 123



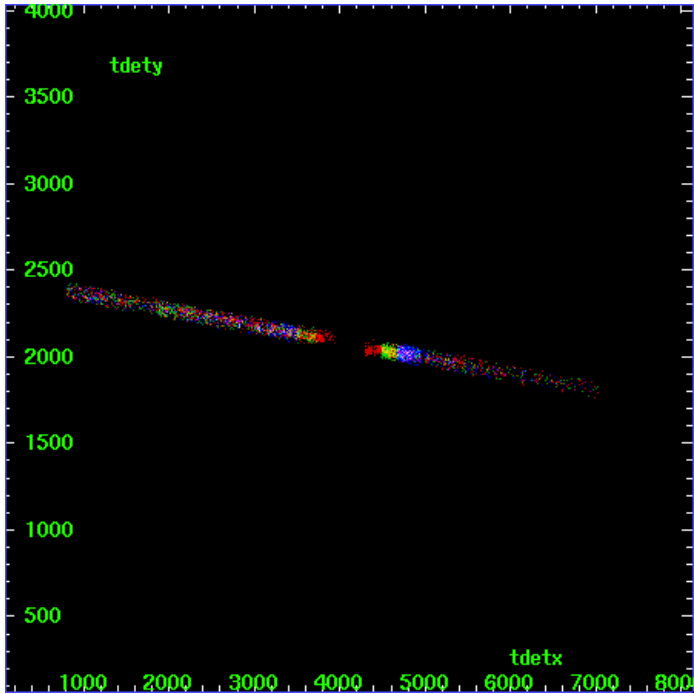
HEG Zero Order



HEG Order Sort ALL

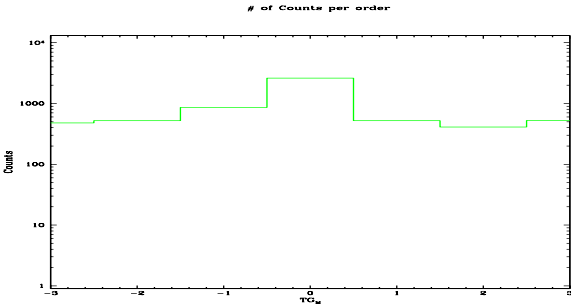


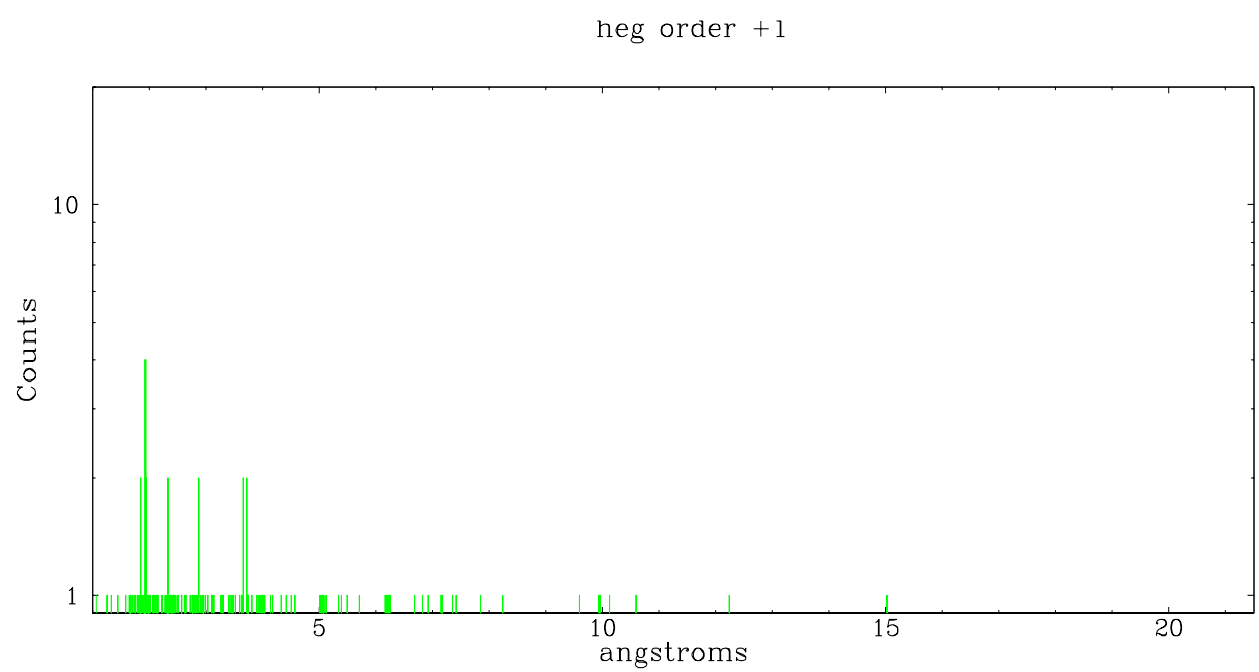
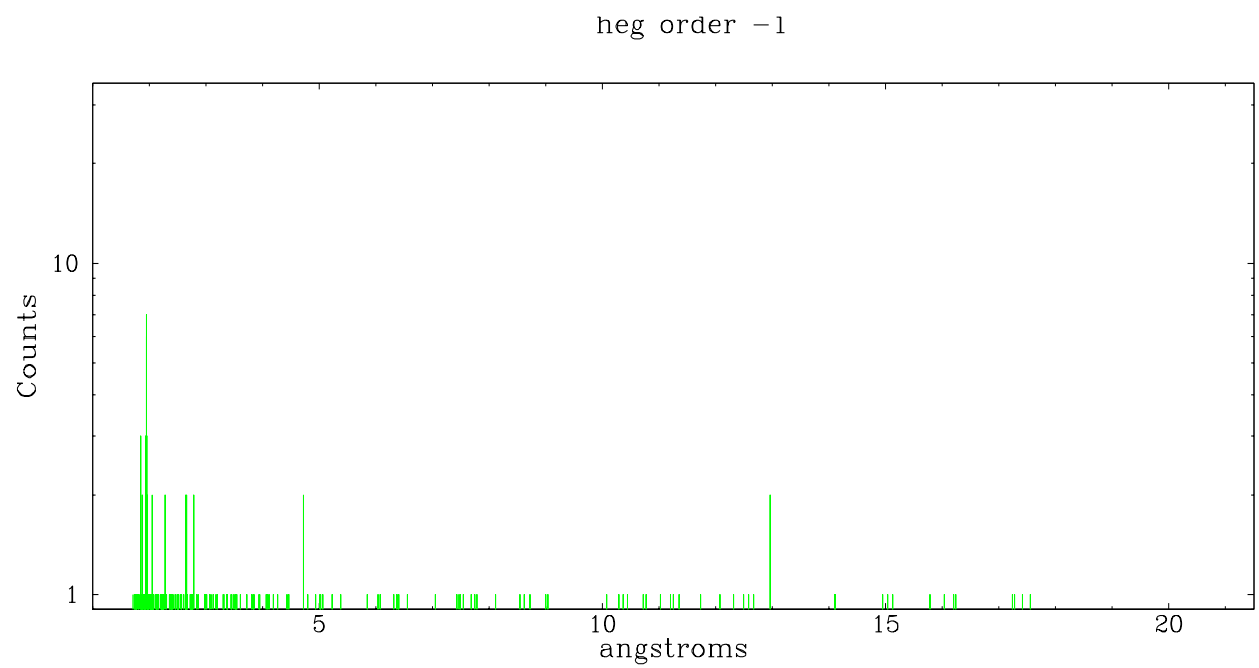
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	479	521	861	2613	520	409	526

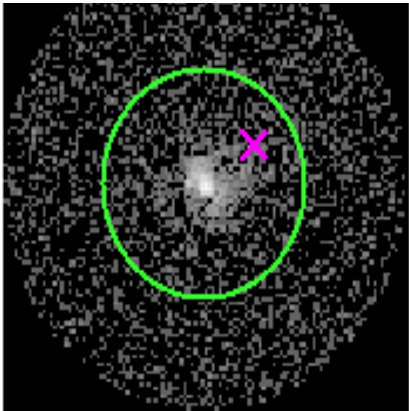




### 3.2 MEG Arm



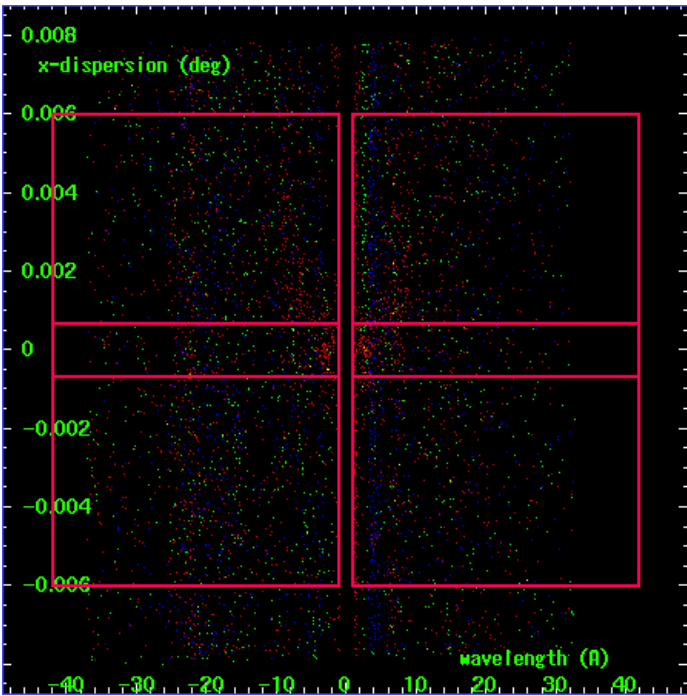
MEG Order Sort 123



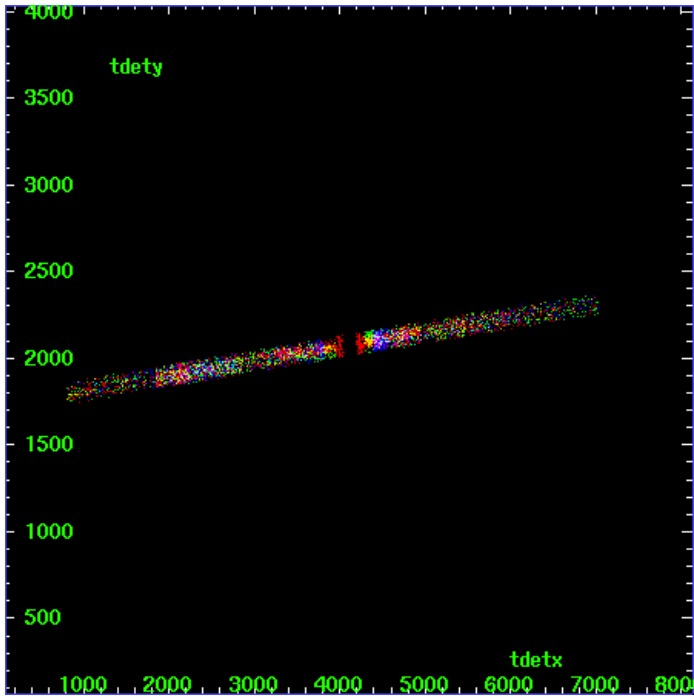
MEG Zero Order



MEG Order Sort ALL

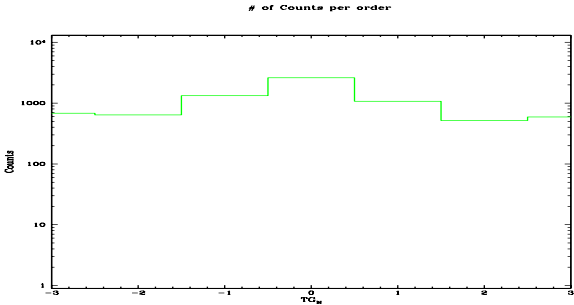


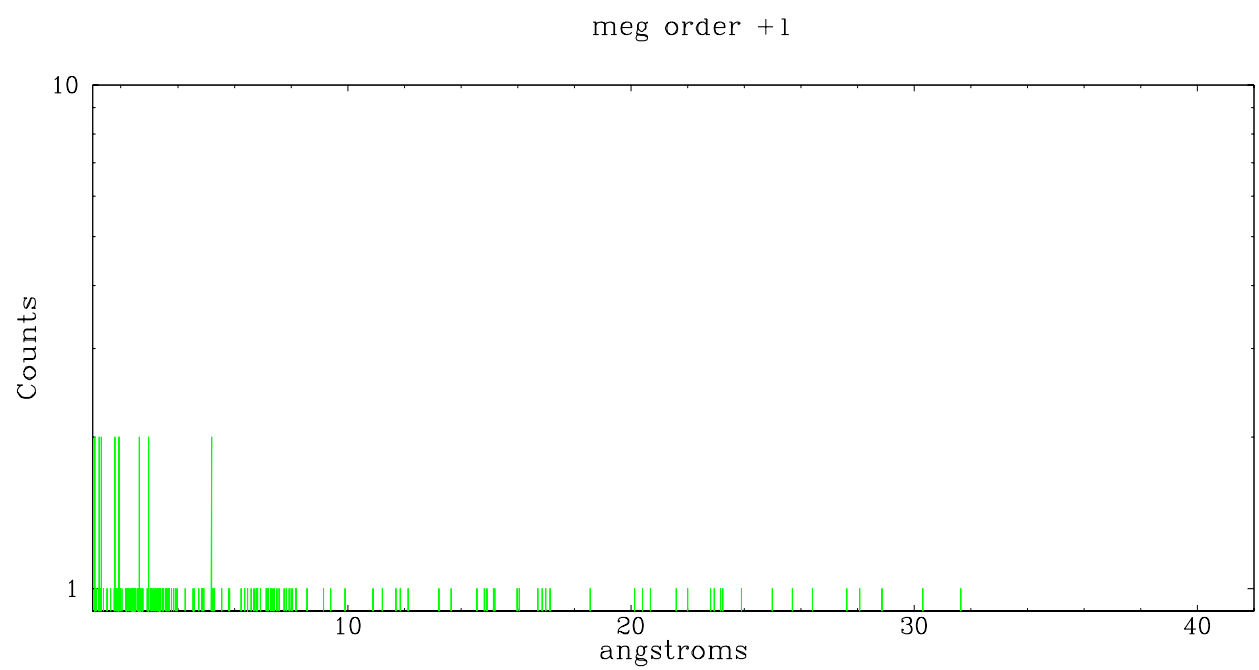
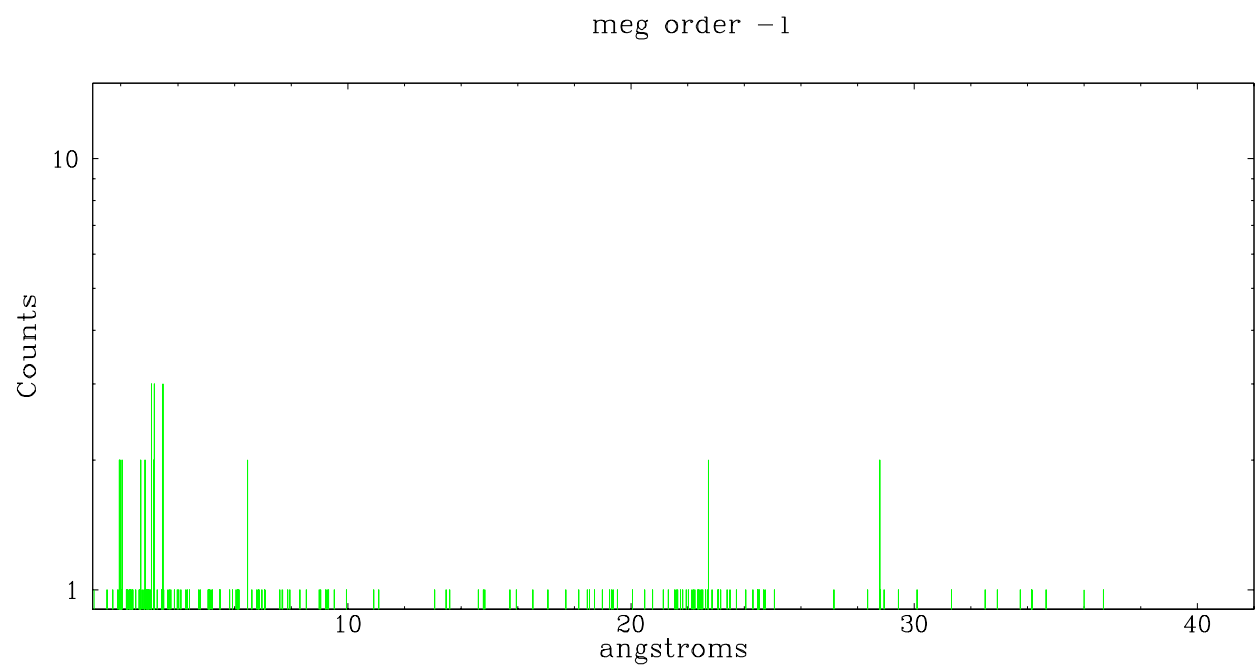
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	682	639	1323	2613	1070	516	593







# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2006.06.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	95.797

## A.2 Comments

Zeroth order is extended and may be multiple sources. Zeroth order of brightest source may not be centered in extraction slit because of extended nature.

Multiple sources are have dispersed spectra in this observation. Some of the dispersed spectral arms from different sources may intersect.