

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 2699 - L2 Version 4  
Chandra X-Ray Center

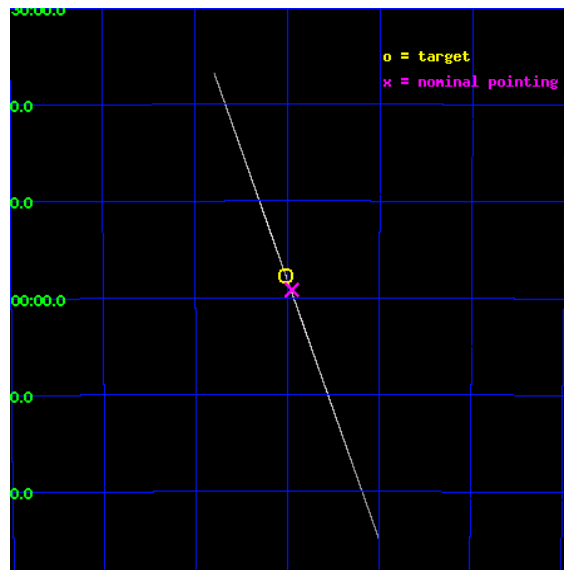
L2 Processing Date : Sep 26 2012

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# 1 Front

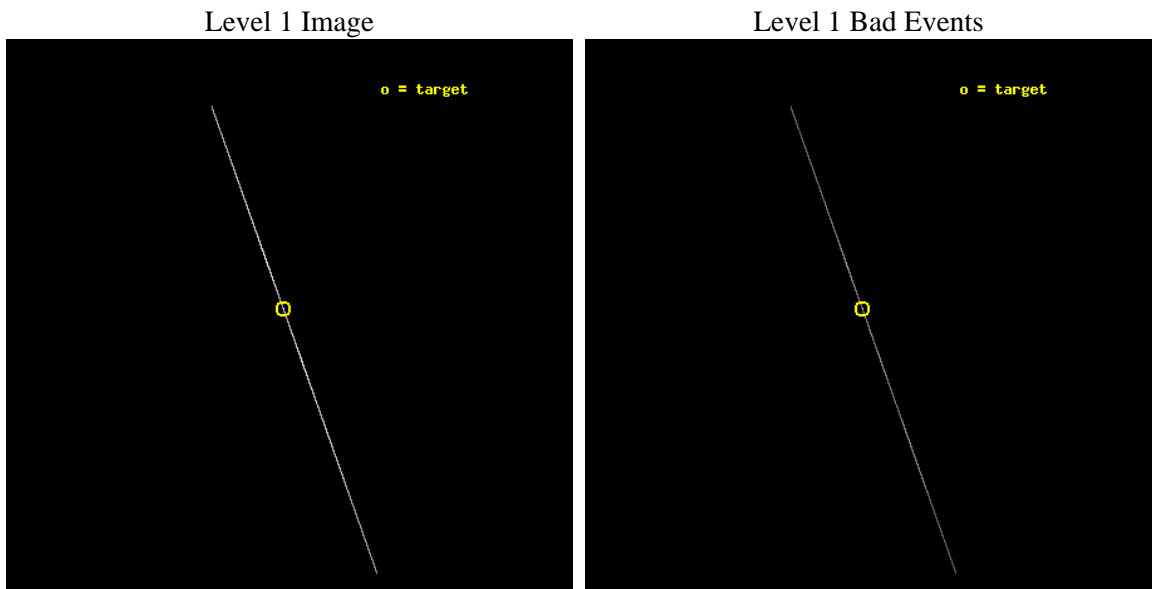
seq_num	400179	Sequence number
obs_id	2699	Observation id
title	RESOLVING GALACTIC BLACK HOLE ACCRETION GEOMETRY WITH CHANDRA	Prop
observer	Prof. Walter Lewin	Principal investigator
object	XTE J1650-500	Source name
ra_targ	252.504167	Observer's specified target RA [deg]
dec_targ	-49.9625	Observer's specified target Dec [deg]
ra_nom	252.48776998125	Nominal RA [deg]
dec_nom	-49.98662315246	Nominal Dec [deg]
roll_nom	250.25957226885	Nominal Roll [deg]
revision	4	Processing version of data
ontime	19283.863816828	Sum of GTIs [s]
livetime	19208.536223793	Livetime [s]
ontime4	26724.18838428	Sum of GTIs [s]
ontime5	30553.0	Sum of GTIs [s]
ontime6	13854.25541769	Sum of GTIs [s]
ontime7	19283.863816828	Sum of GTIs [s]
ontime8	15736.606285721	Sum of GTIs [s]
ontime9	29422.146182671	Sum of GTIs [s]
l2events	10461835	Number of level 2 events



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	1	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	19283.863816828	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	26724.18838428	Sum of GTIs [s]
date	2012-09-25T05:58:24	Date and time of file creation	ontime5	30553.0	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	13854.25541769	Sum of GTIs [s]
			ontime7	19283.863816828	Sum of GTIs [s]
			ontime8	15736.606285721	Sum of GTIs [s]
			ontime9	29422.146182671	Sum of GTIs [s]
			l1events	11472299	Number of level 1 events

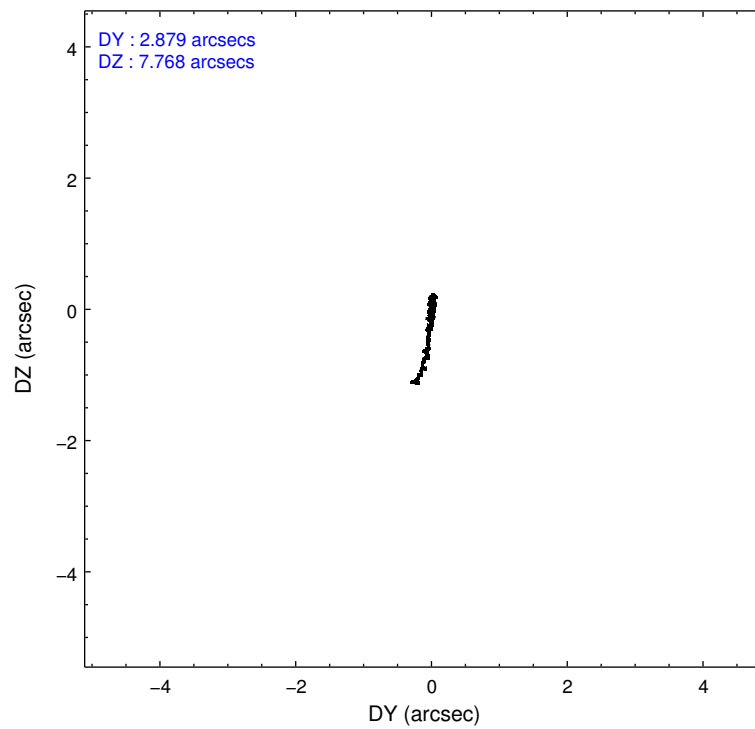
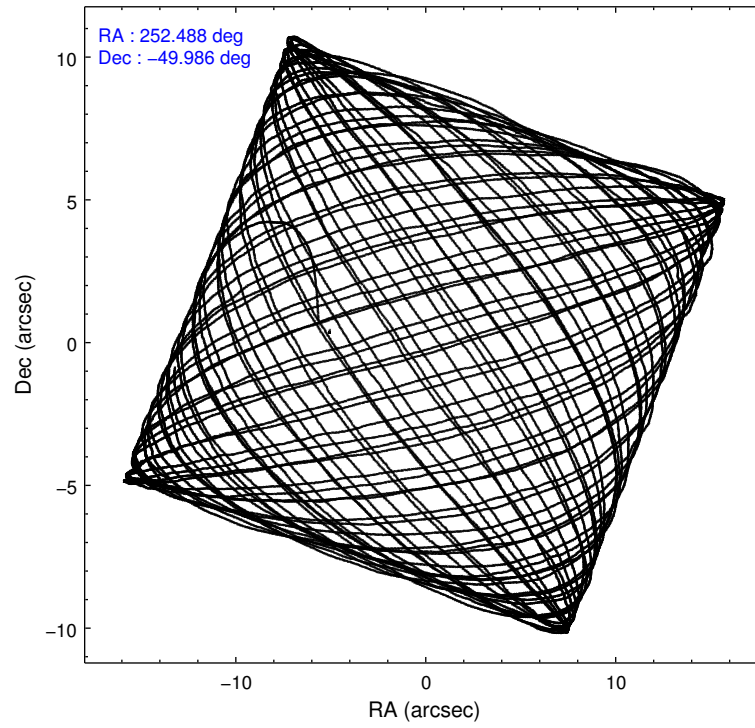
### 2.1.3 Events

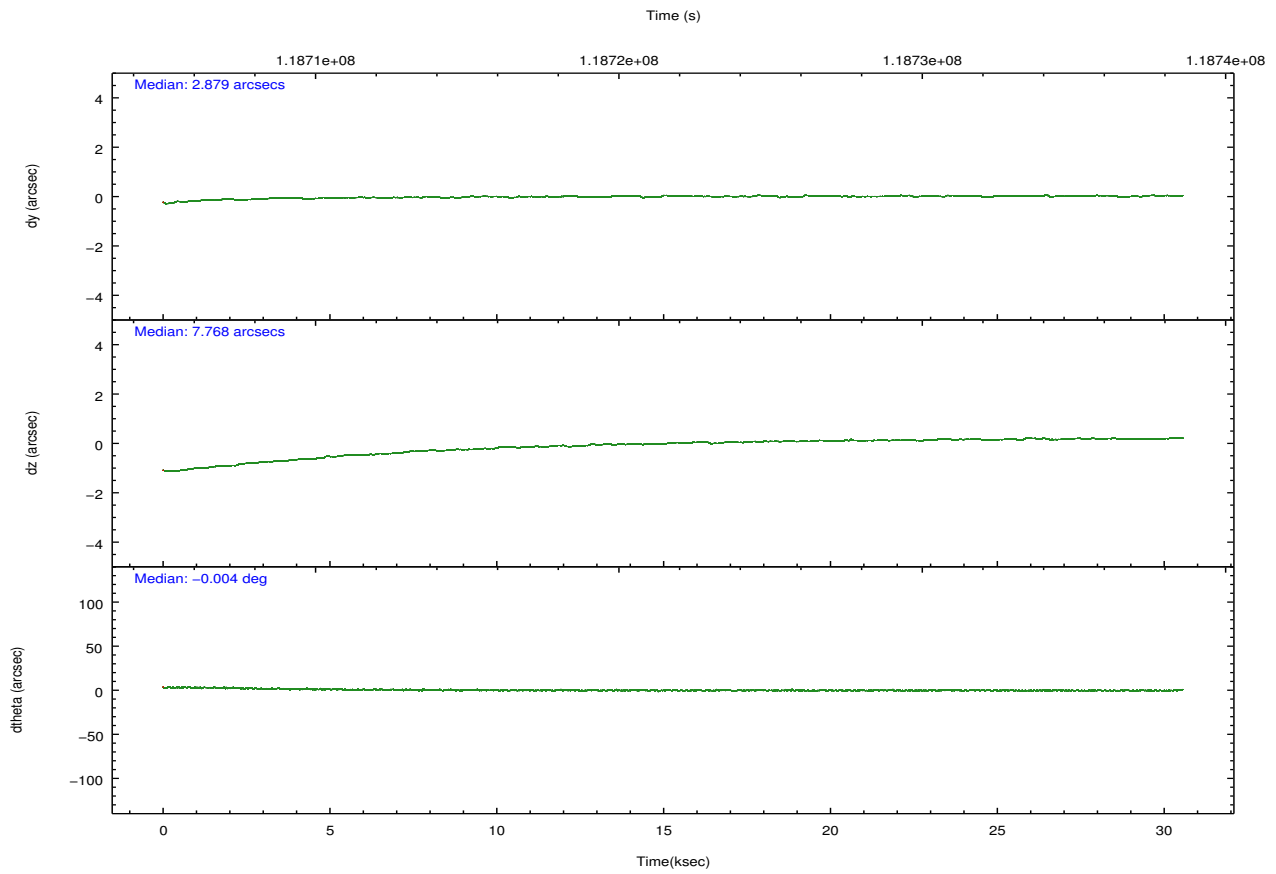
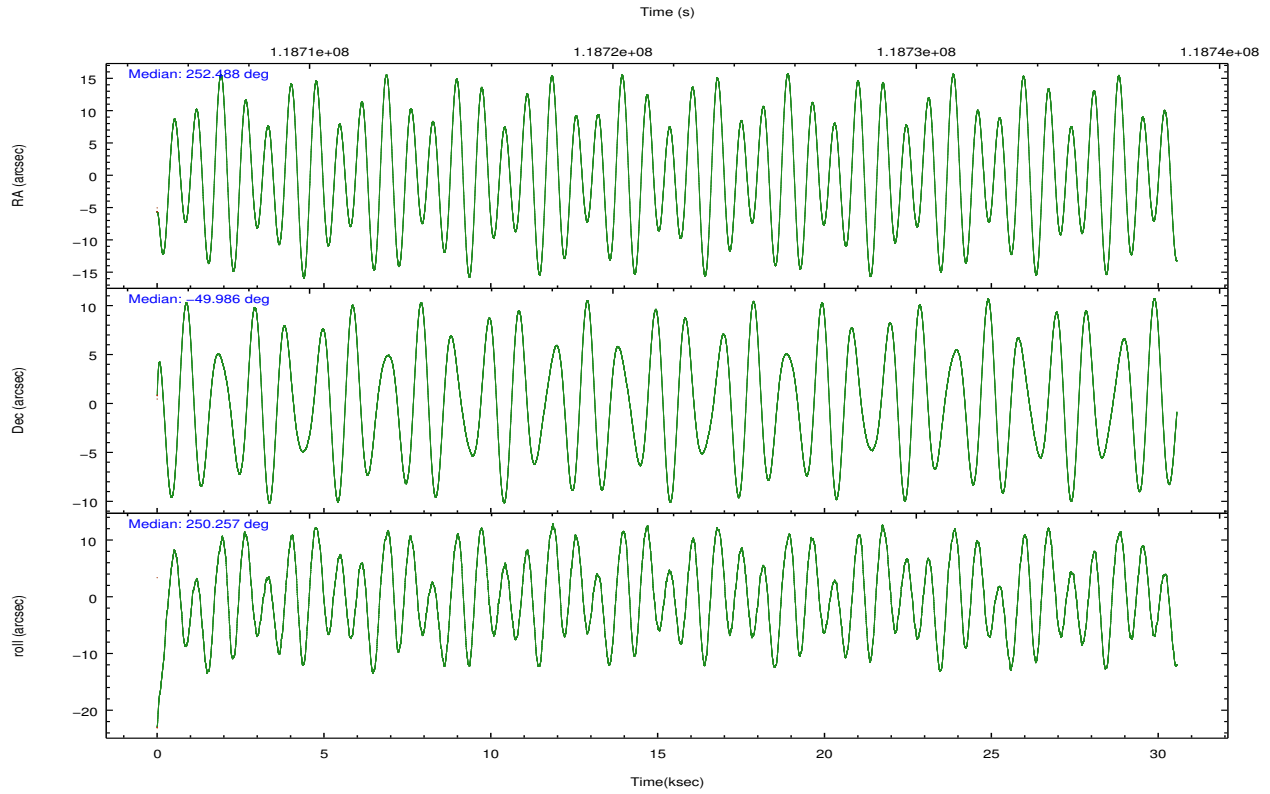
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	418747	1666145	3148516	2370131	2936437	932323	grade 0 events	5689	190363	16783	250437	41594	81494
rejected events	8412	47614	33532	77533	32227	13722		1%	11%	0%	10%	1%	8%
rejected %	2%	2%	1%	3%	1%	1%	grade 1 events	100	369	132	3961	221	258
								0%	0%	0%	0%	0%	0%
							grade 2 events	371244	883150	2890872	843514	2675738	774074
								88%	53%	91%	35%	91%	83%
							grade 3 events	4069	41858	2593	145592	8091	6172
								0%	2%	0%	6%	0%	0%
							grade 4 events	4305	41298	2539	142460	7914	6266
								1%	2%	0%	6%	0%	0%
							grade 5 events	6912	37559	16005	59921	16963	10687
								1%	2%	0%	2%	0%	1%
							grade 6 events	26428	471548	219592	924246	185916	53372
								6%	28%	6%	38%	6%	5%
							grade 7 events	0	0	0	0	0	0
								0%	0%	0%	0%	0%	0%

## 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	CC33_GRADED	CC33_GRADED	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	252.479763	252.4877699812499	Subarray requested	NONE	NONE
[deg] Pointing Dec	-49.959844	-49.9866231524597	Alternating exposures requested	N	N
[deg] Pointing Roll	250.096814	250.2595722688486	[s] Primary exposure time	0.000000	0
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-194.132523	-194.1227414875429			
[mm] SIM translation stage offset	4	3.990218904535112			
[s] Observation start time (MET)	118707066.184000	118705924.56155			
Observation start date	2001-10-05T22:10:02	2001-10-05T21:52:04			
[s] Observation end time (MET)	118737066.184000	118737608.8503			
Observation end date	2001-10-06T06:30:02	2001-10-06T06:40:08			
Read mode	CONTINUOUS	CONTINUOUS			

## 2.3 Aspect



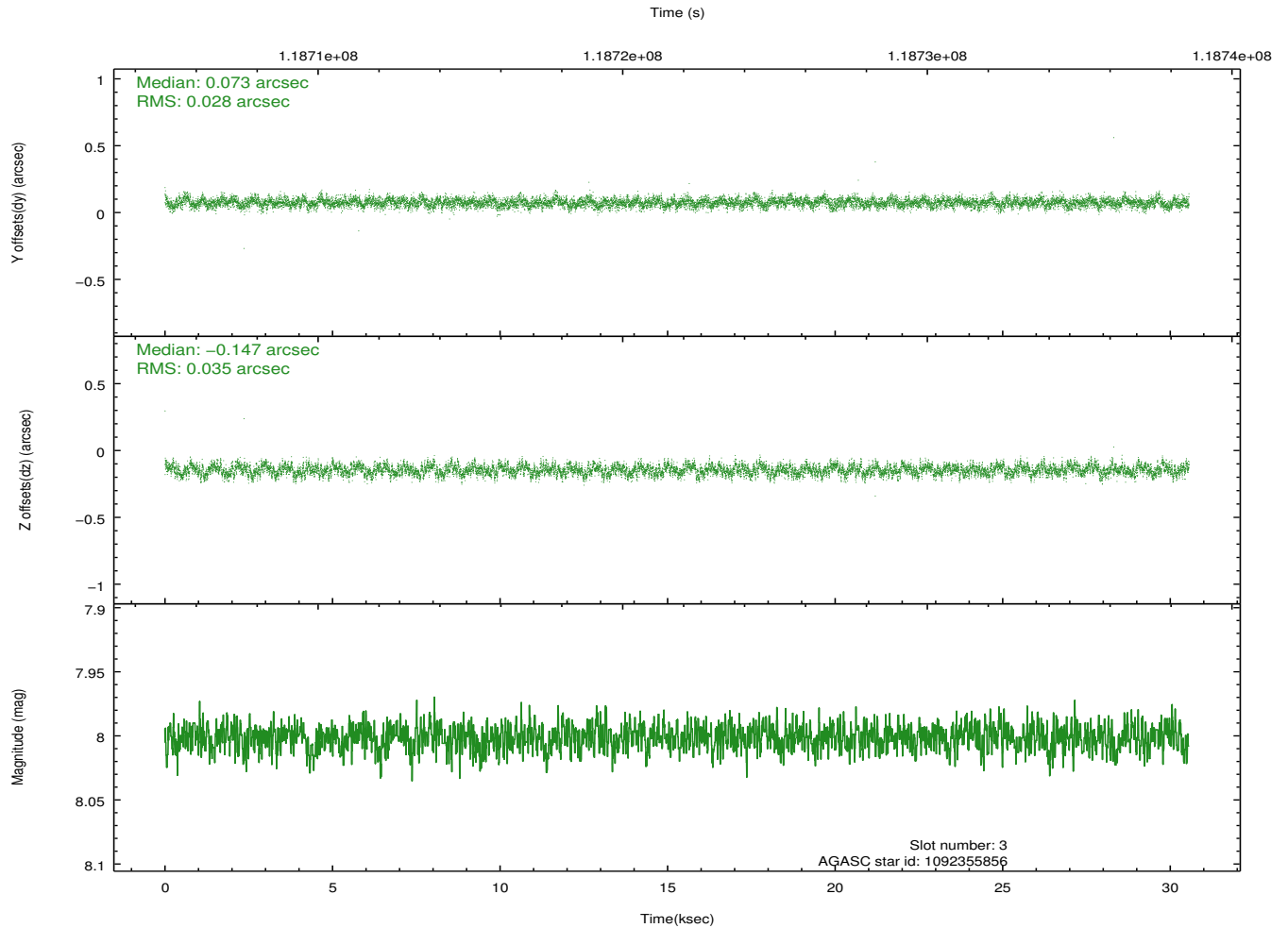
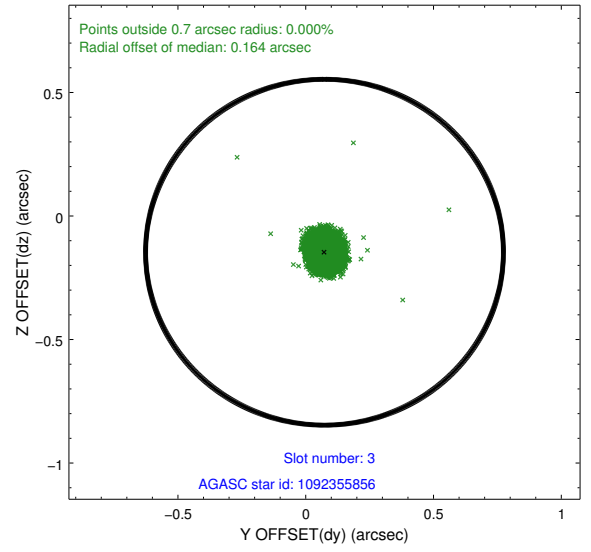
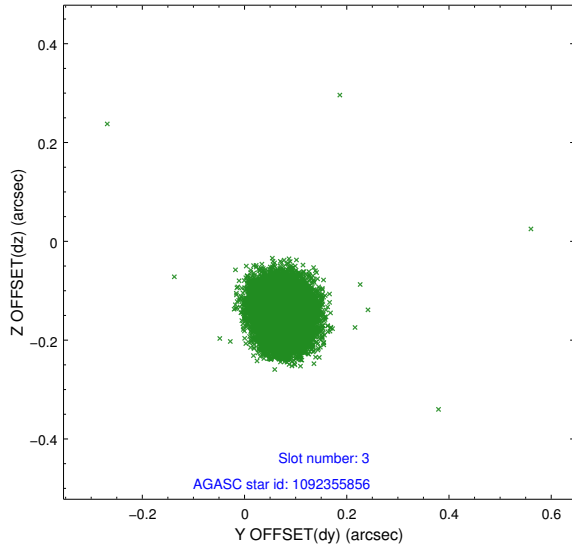


### Slot Statistics

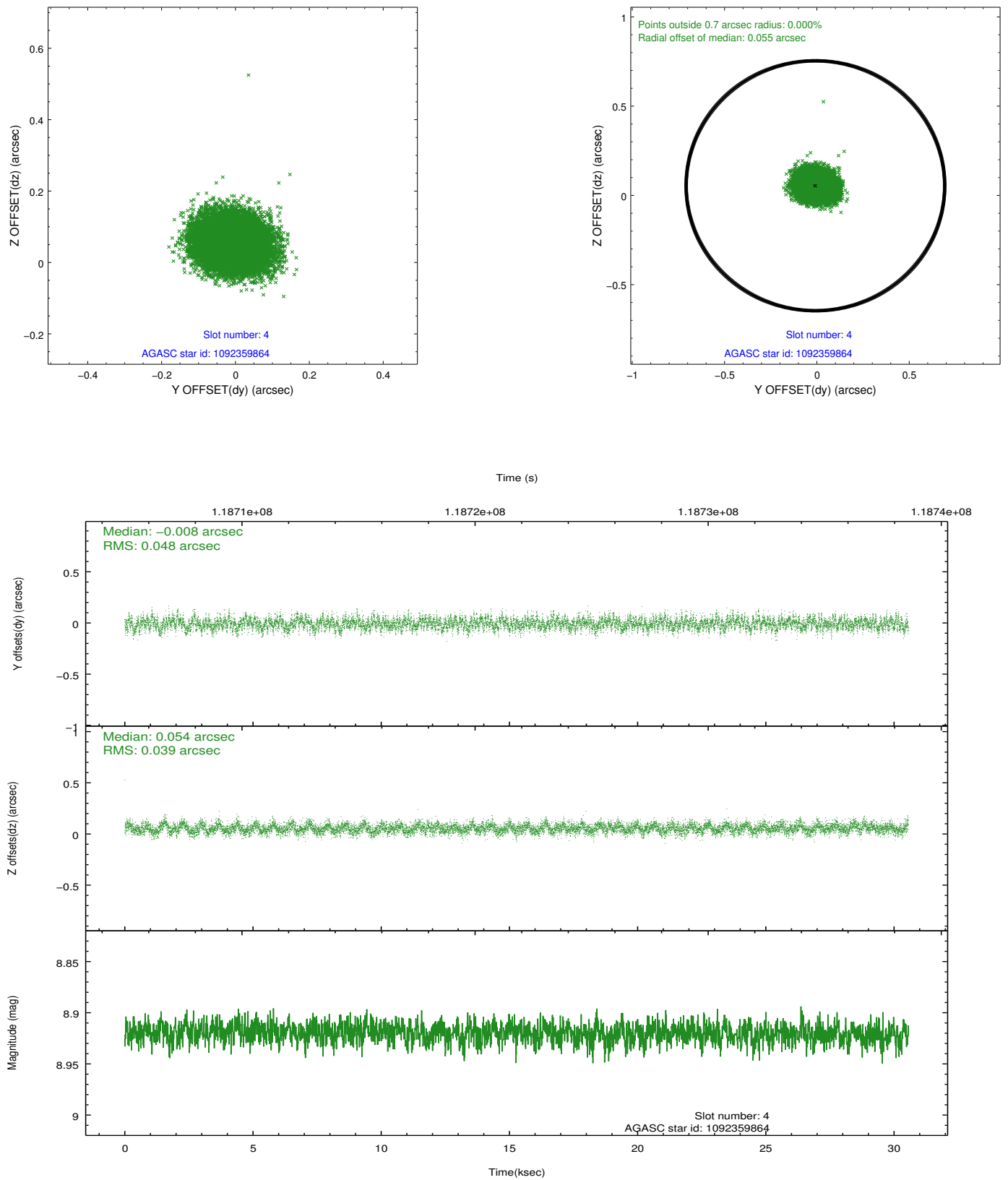
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.12	7454	-0.004	0.048	0.008	0.019	0.000000	0.000000	-755.75	-1646.67
1	FID	ACIS-S-4	7.21	7454	-0.018	-0.011	0.007	0.015	0.000000	0.000000	2157.47	261.71
2	FID	ACIS-S-5	7.24	7452	-0.011	-0.027	0.007	0.012	0.000000	0.000000	-1808.52	255.43
3	GUIDE	1092355856	8.00	14906	0.073	-0.147	0.047	0.076	252.380362	-50.402230	1575.71	328.22
4	GUIDE	1092359864	8.92	14903	-0.008	0.054	0.066	0.107	252.576059	-50.620094	2160.65	1016.78
5	GUIDE	1092358808	8.77	14903	0.019	0.156	0.088	0.134	252.937913	-50.296249	783.58	1404.87
6	GUIDE	1092355456	9.92	14893	0.017	-0.114	0.115	0.184	252.219249	-49.433813	-1571.44	-1217.41
7	GUIDE	1092357952	8.64	14903	-0.104	0.049	0.062	0.101	252.624295	-49.307047	-2324.64	-480.59

## 2.4 Star Slots

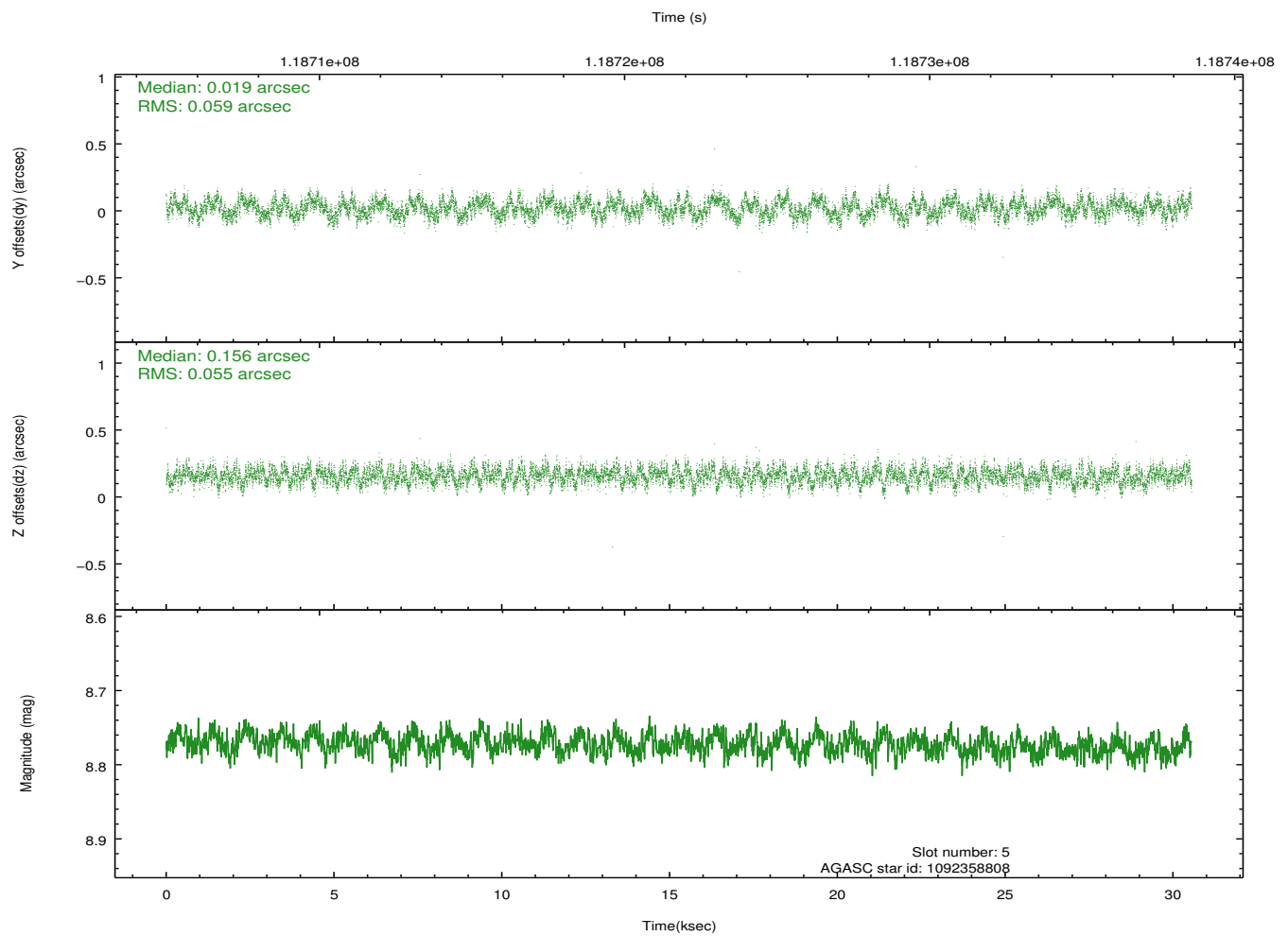
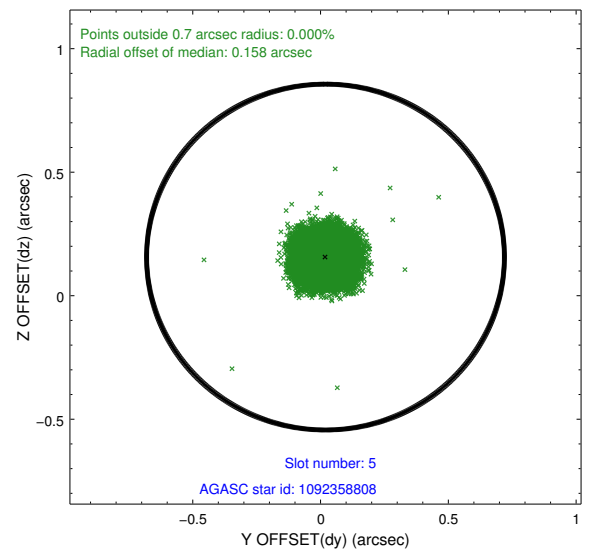
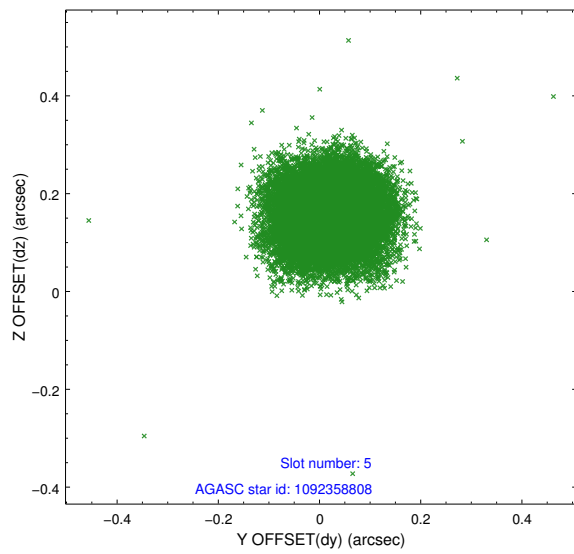
### 2.4.1 Slot 3



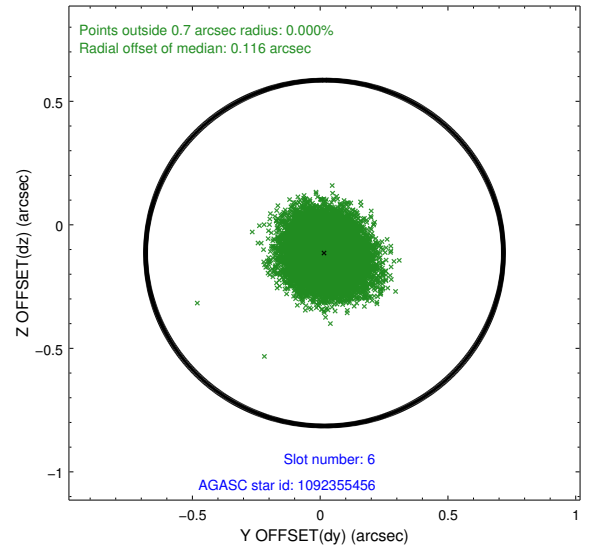
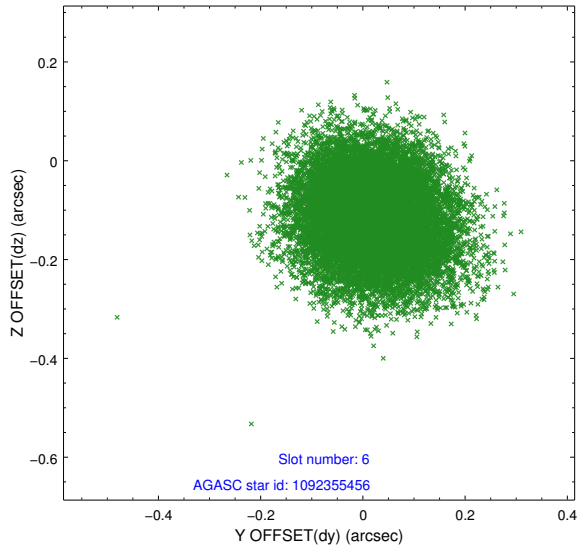
## 2.4.2 Slot 4



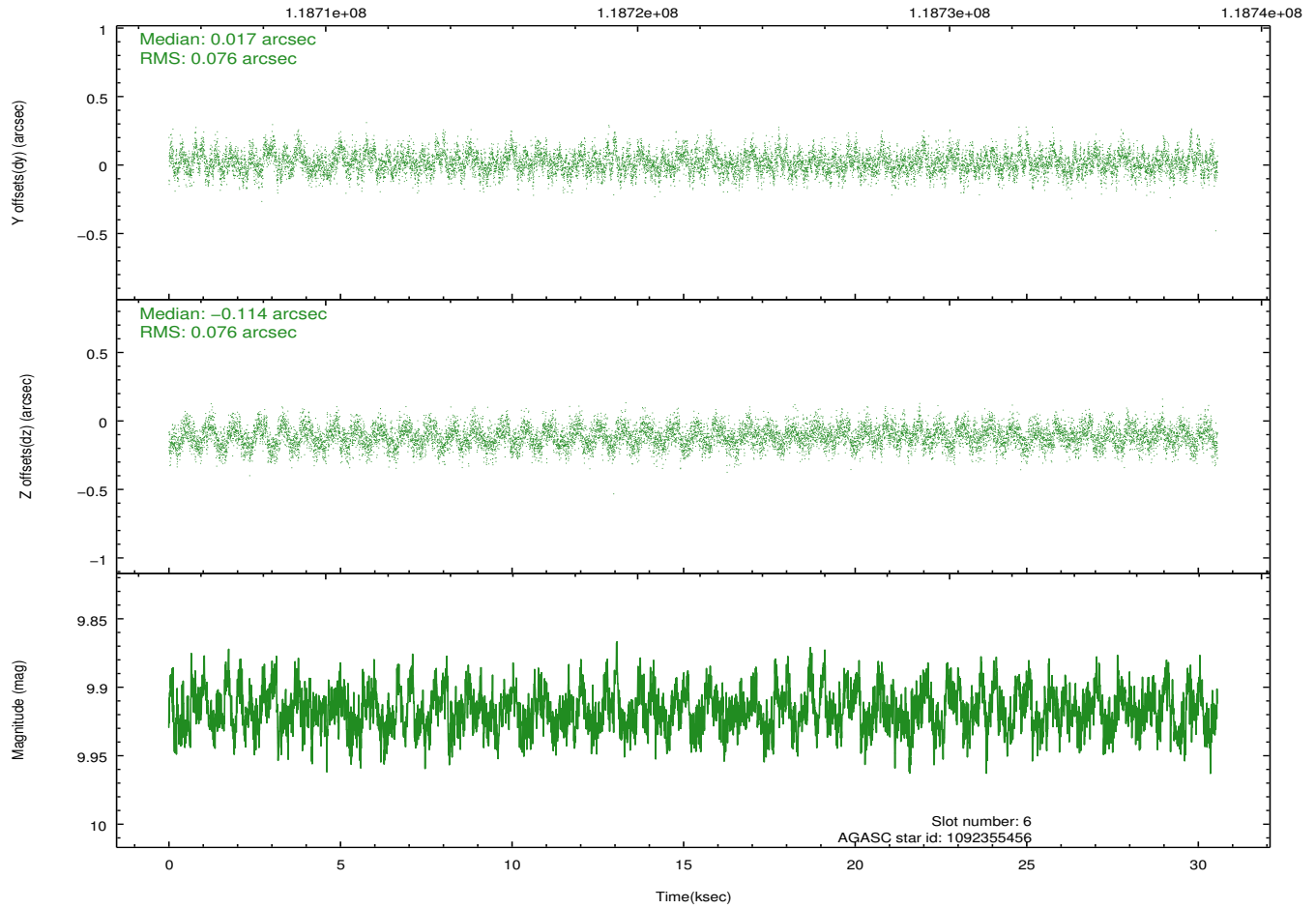
### 2.4.3 Slot 5



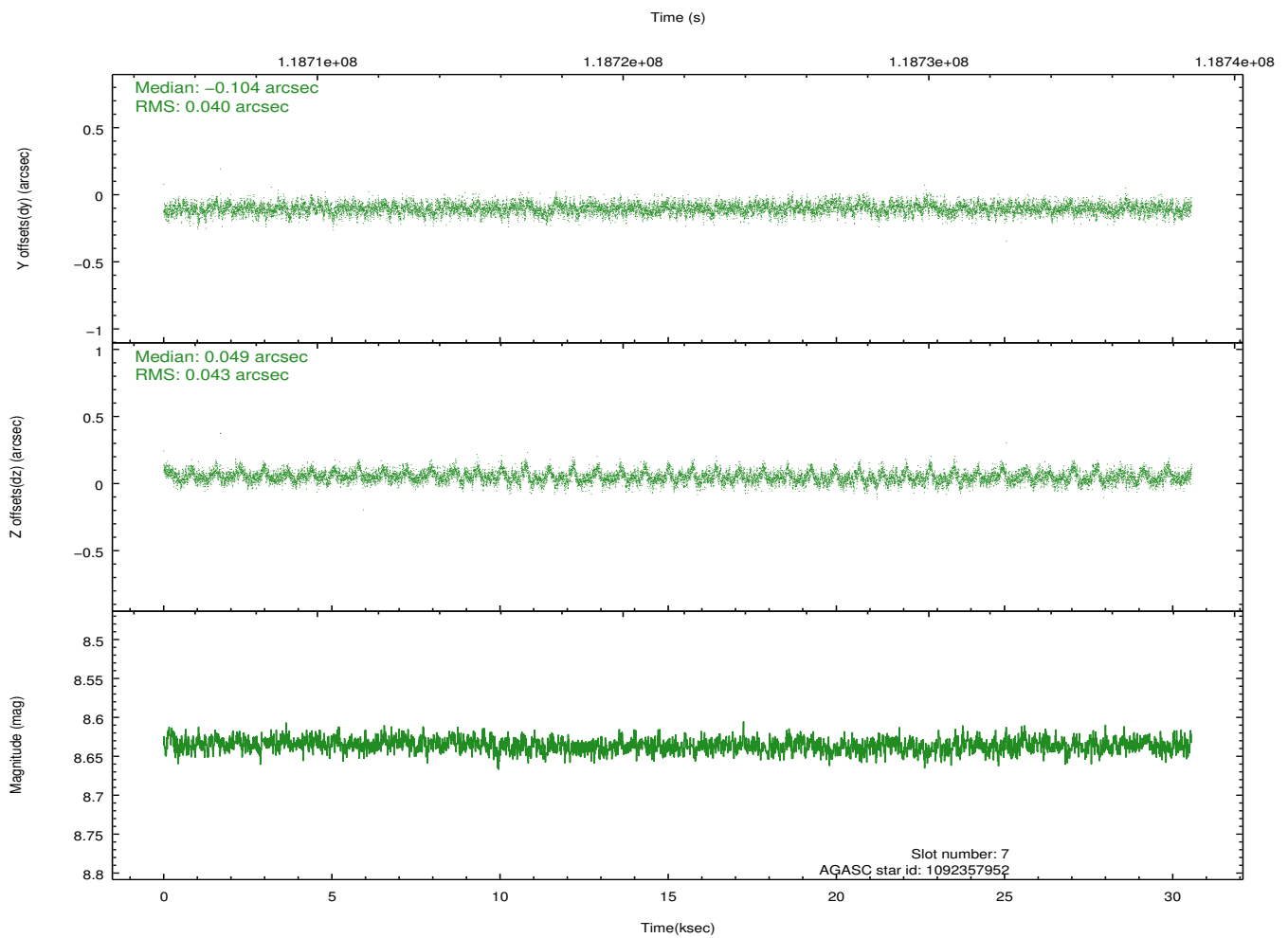
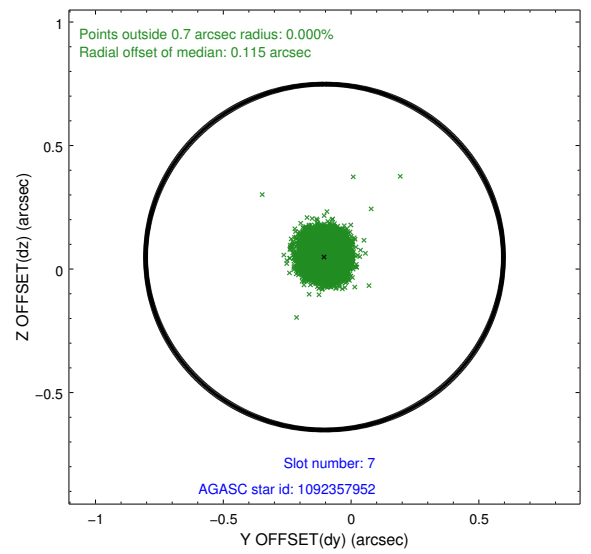
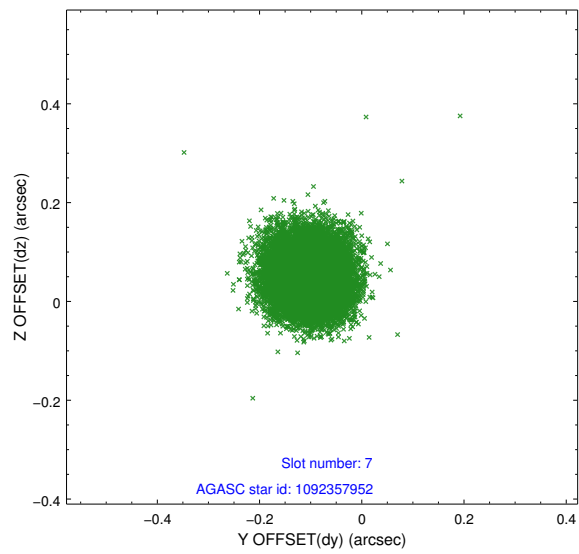
## 2.4.4 Slot 6



Time (s)

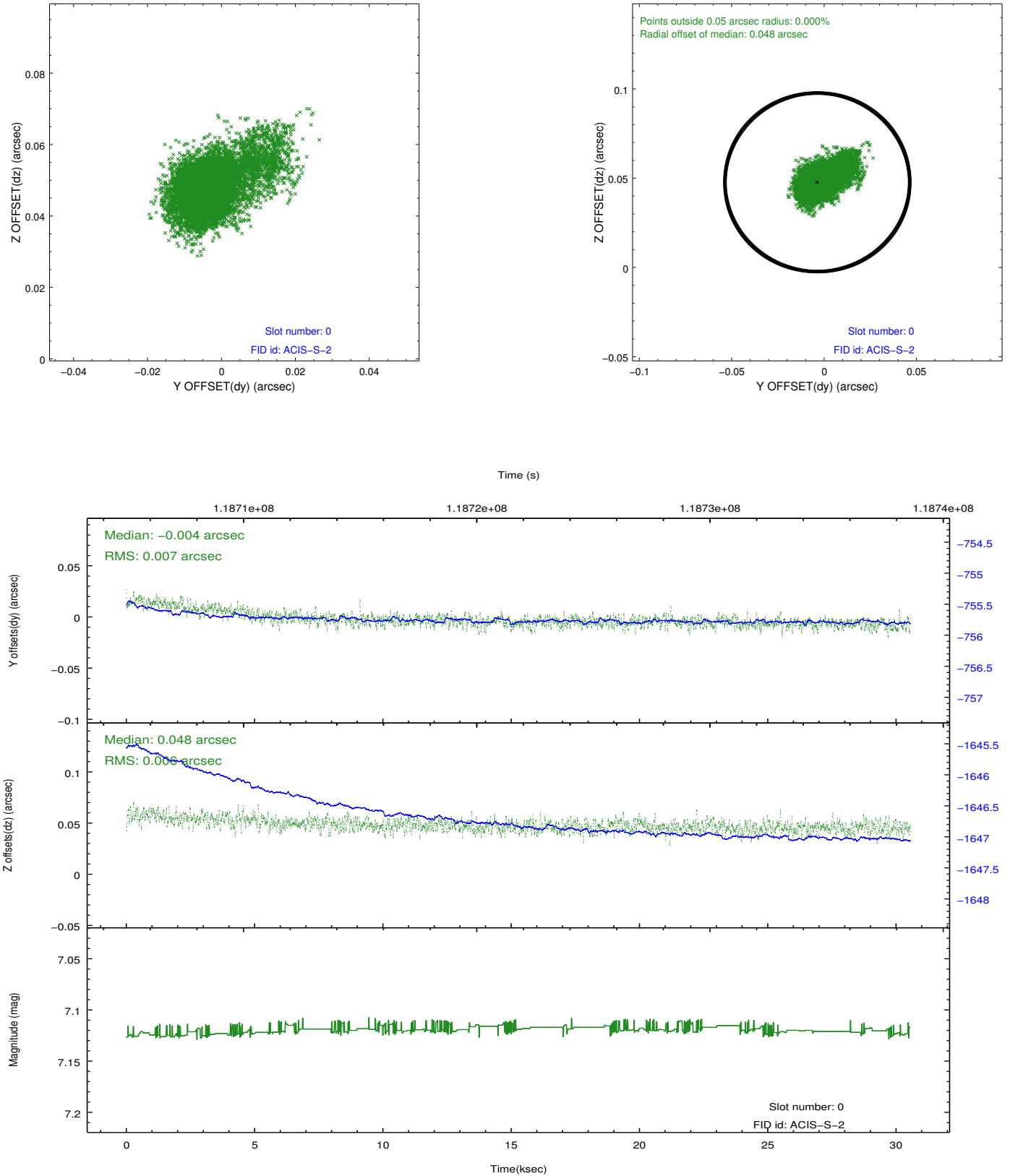


## 2.4.5 Slot 7

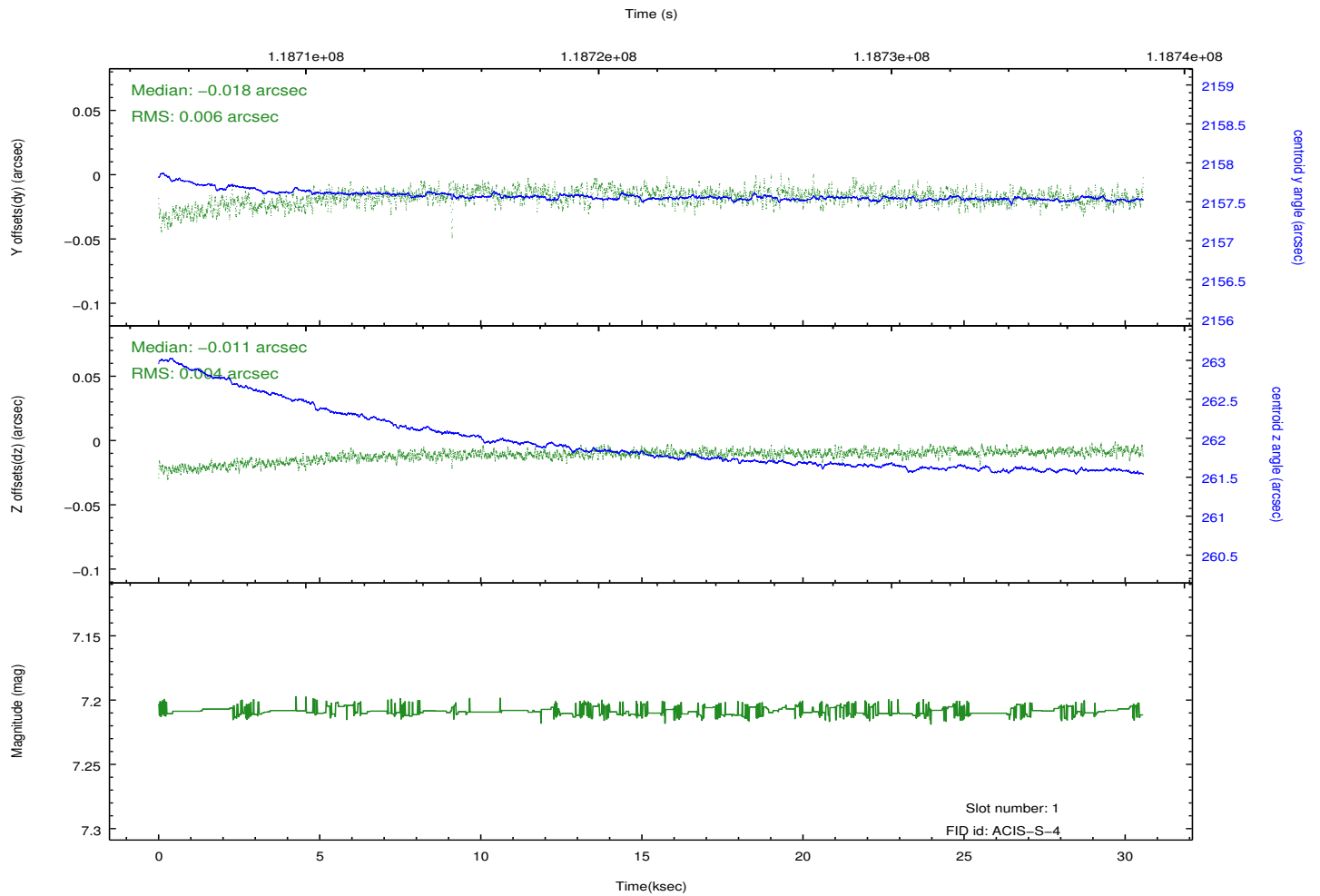
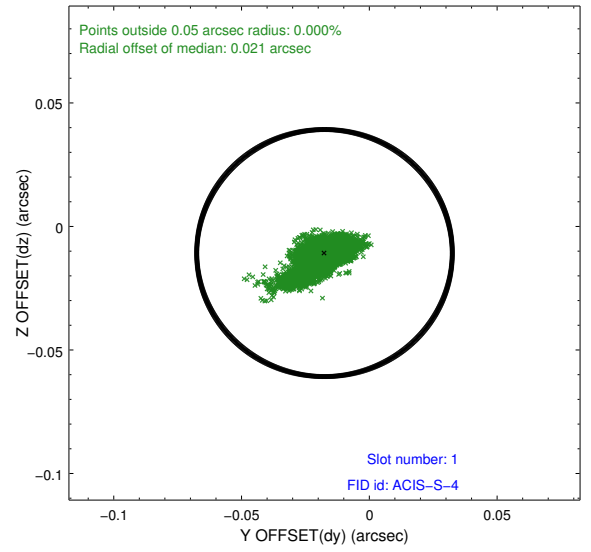
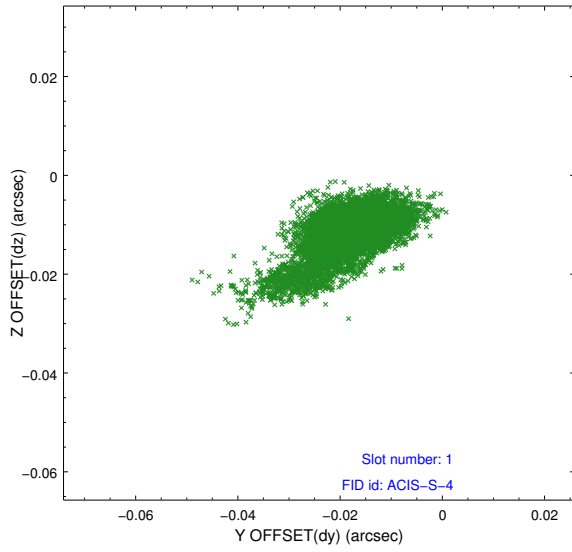


## 2.5 FID Slots

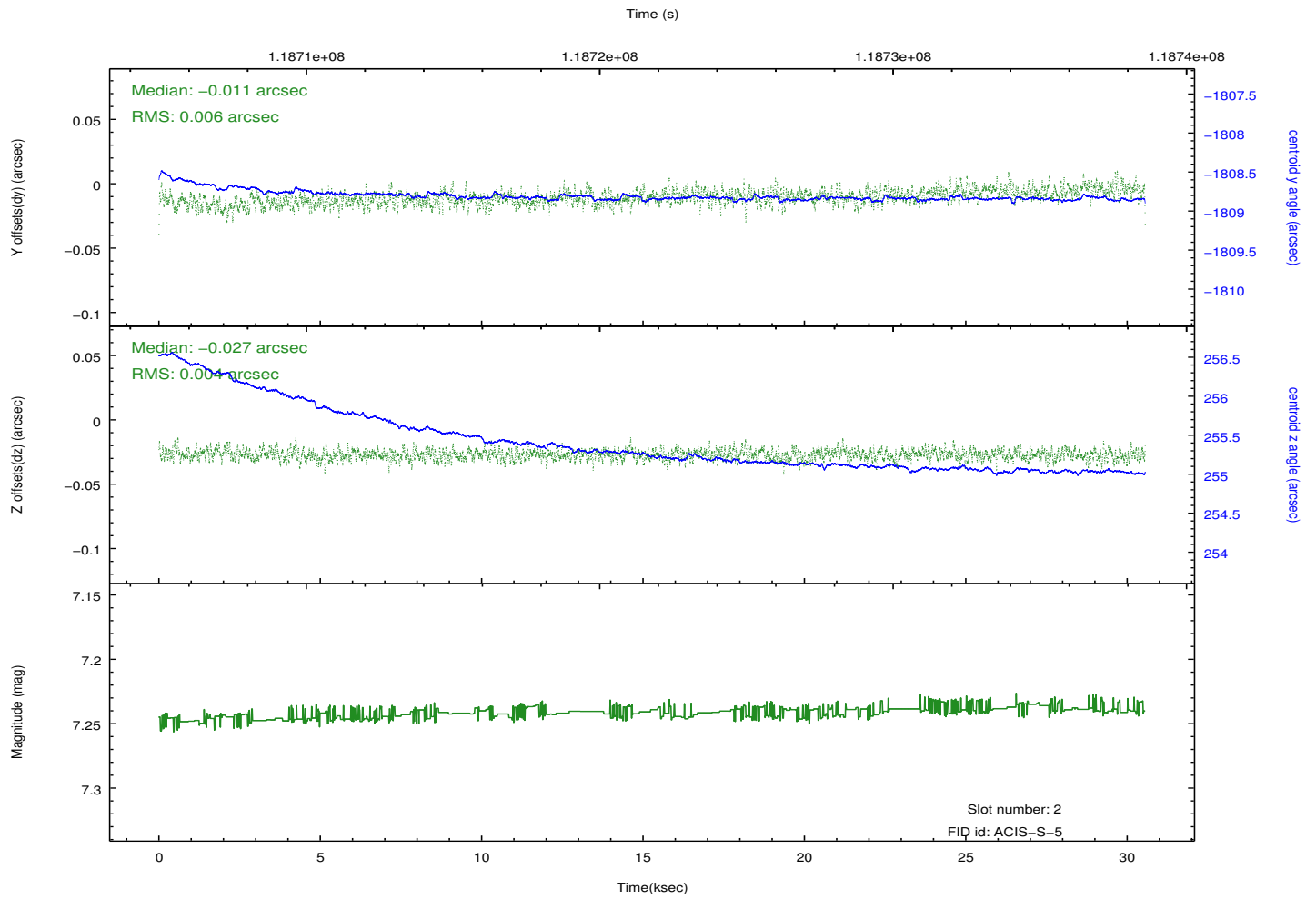
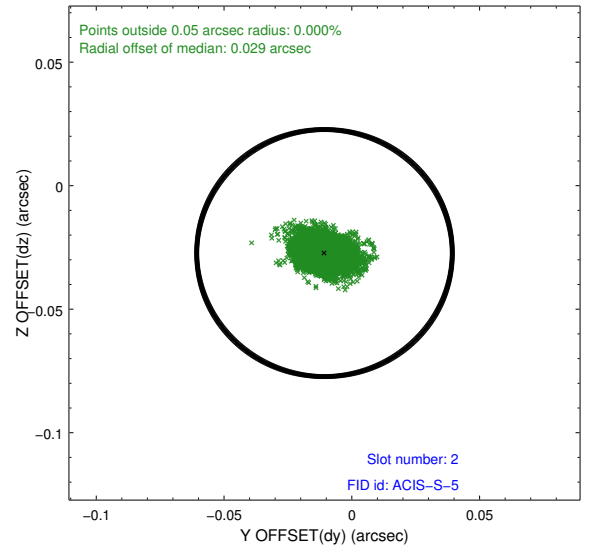
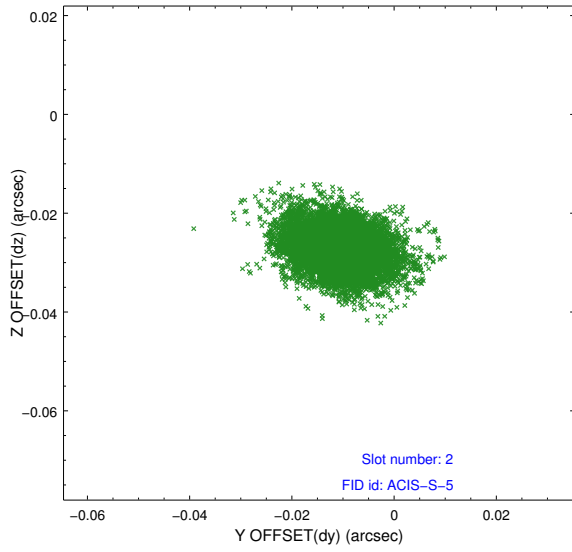
### 2.5.1 Slot 0



## 2.5.2 Slot 1

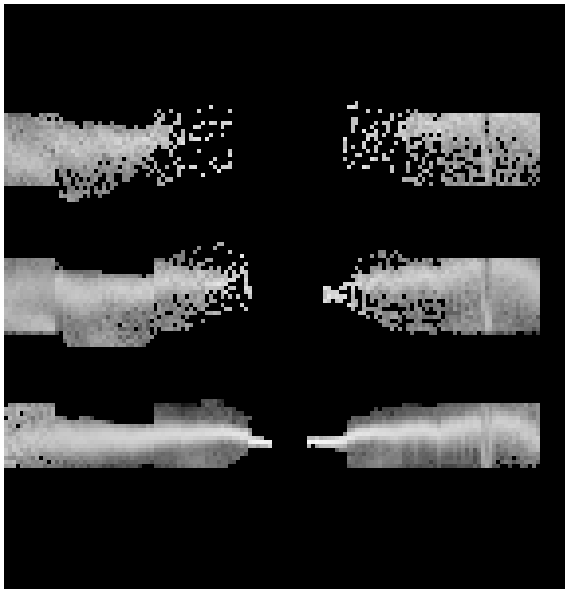


### 2.5.3 Slot 2



# 3 Gratings

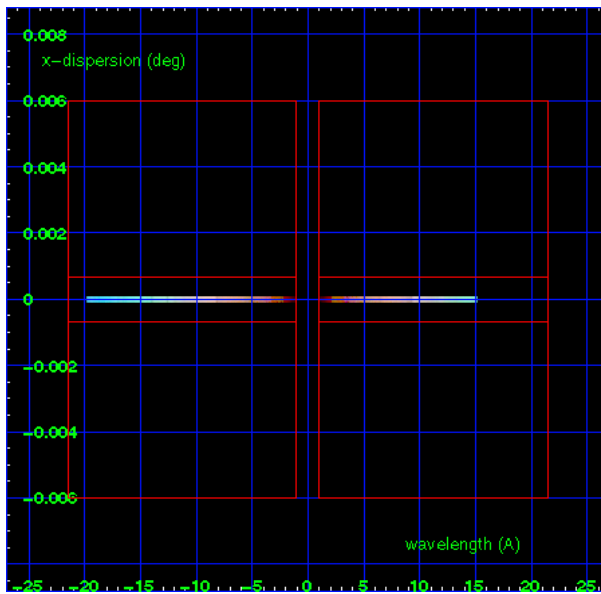
## 3.1 HEG Arm



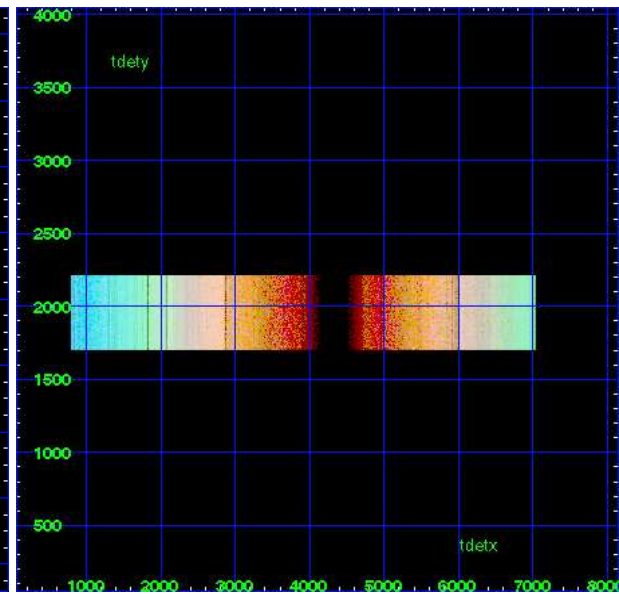
HEG Order Sort 123



HEG Order Sort ALL

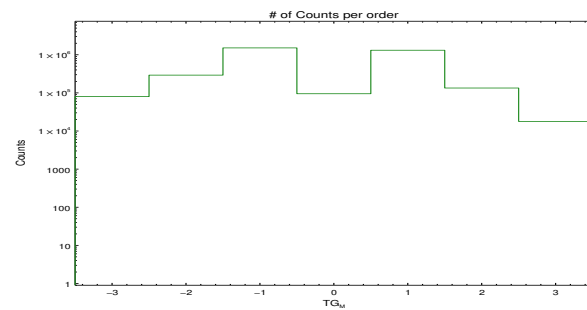


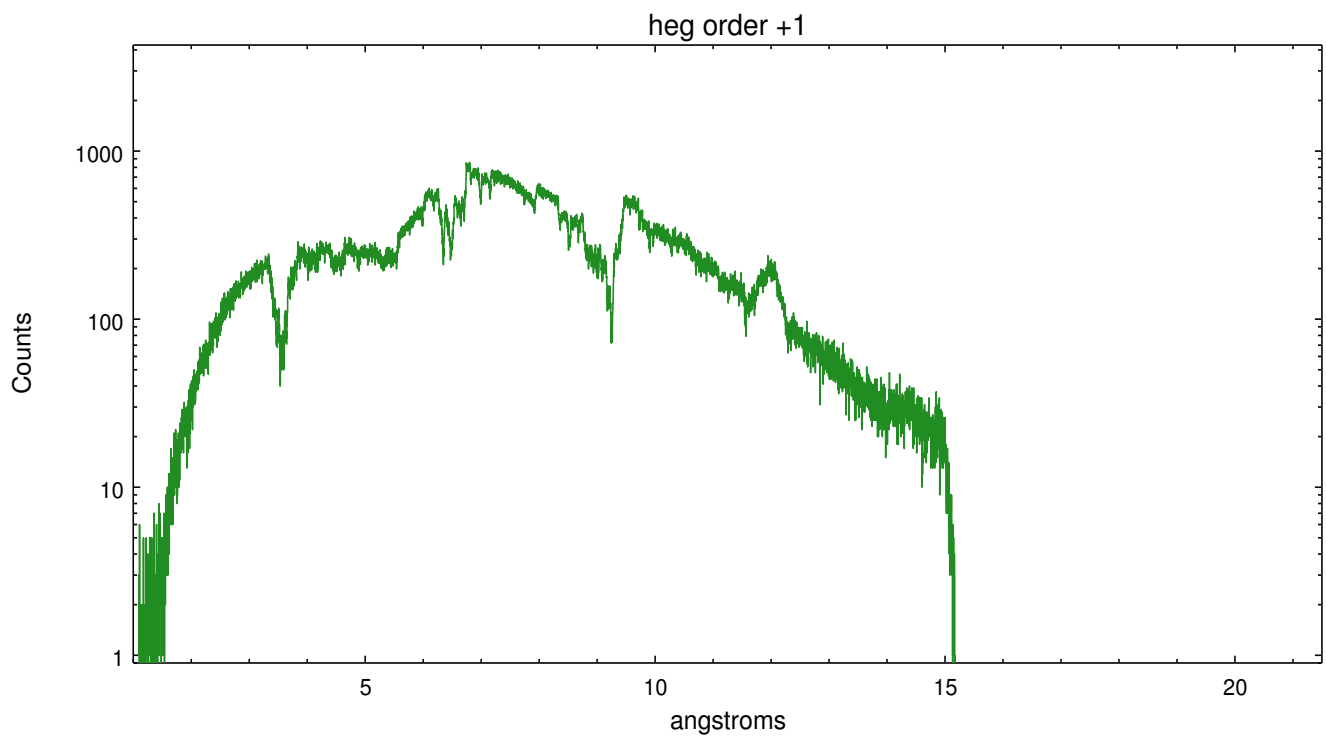
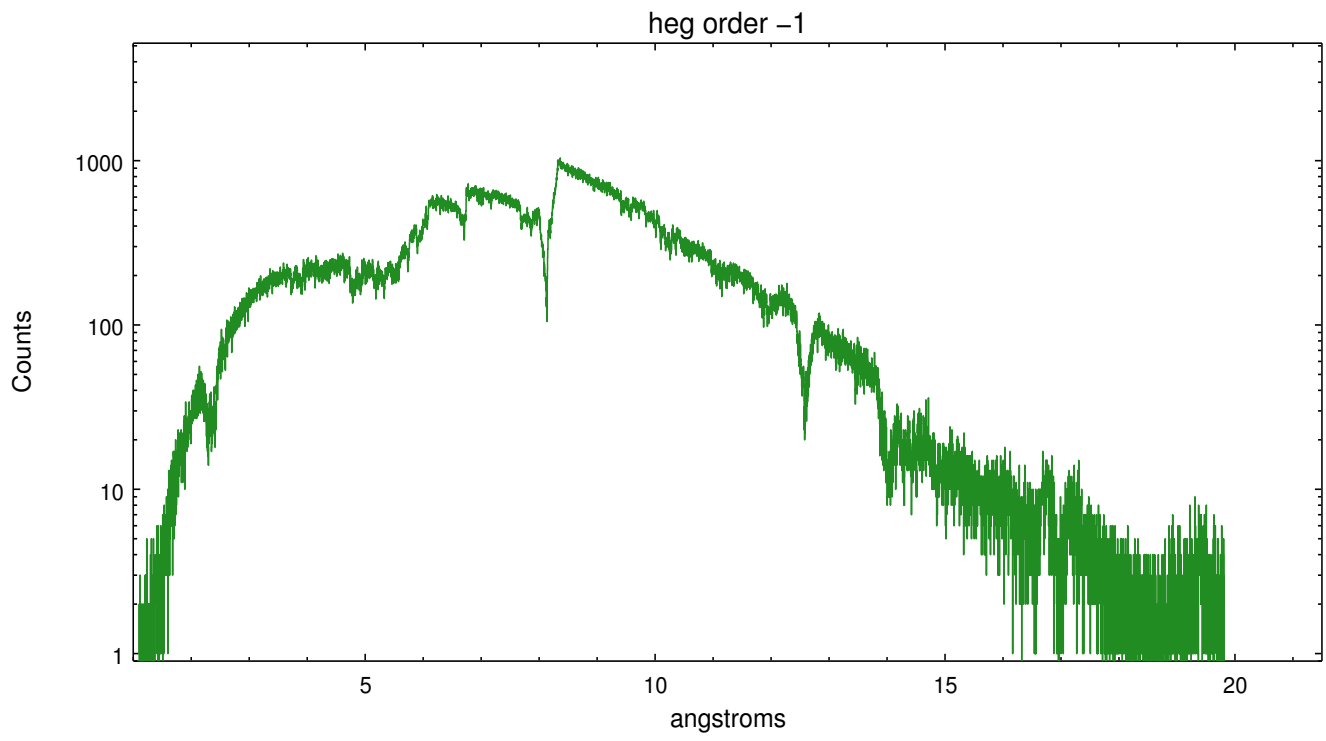
Spot Image HEG



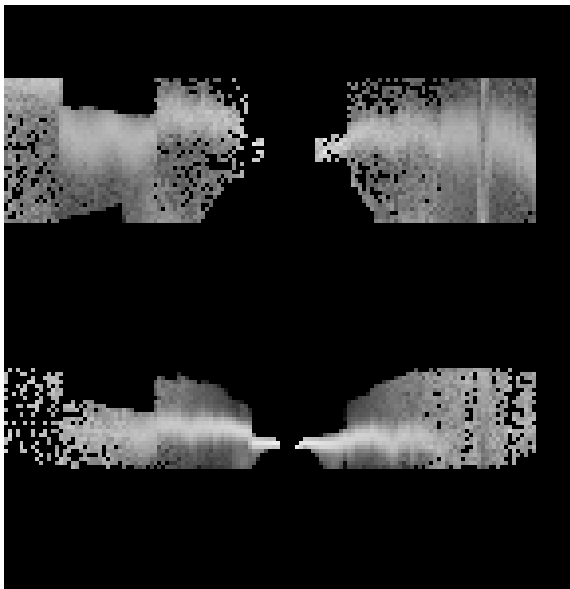
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	79907	292041	1513873	95058	1312918	134128	17827





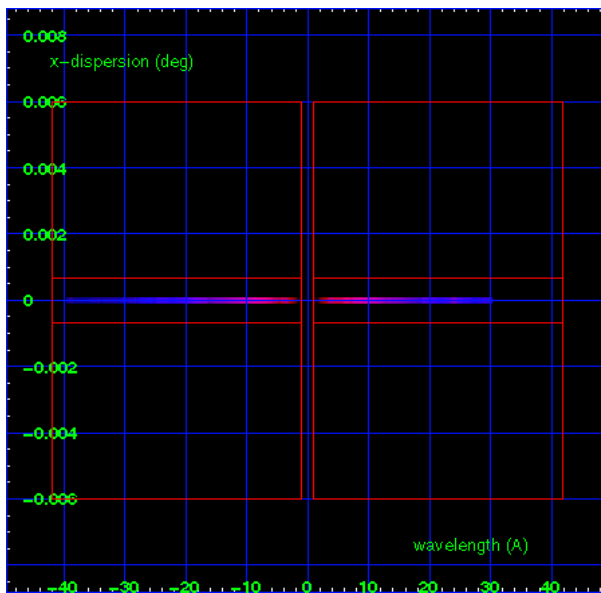
### 3.2 MEG Arm



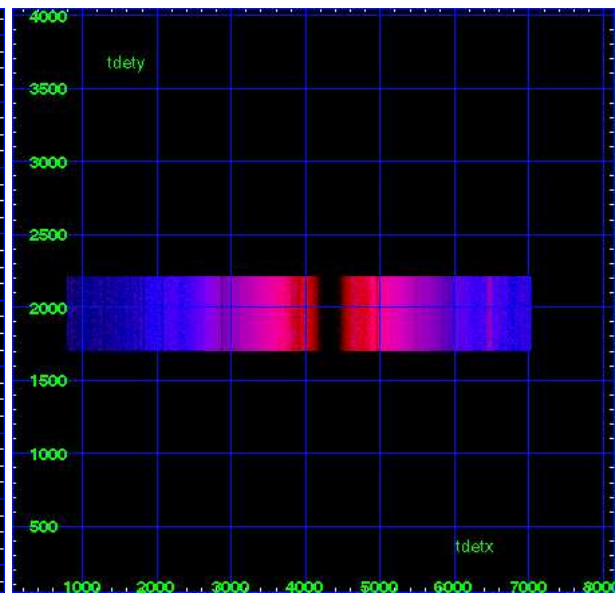
MEG Order Sort 123



MEG Order Sort ALL

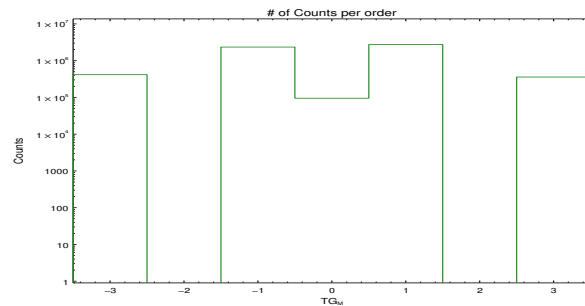


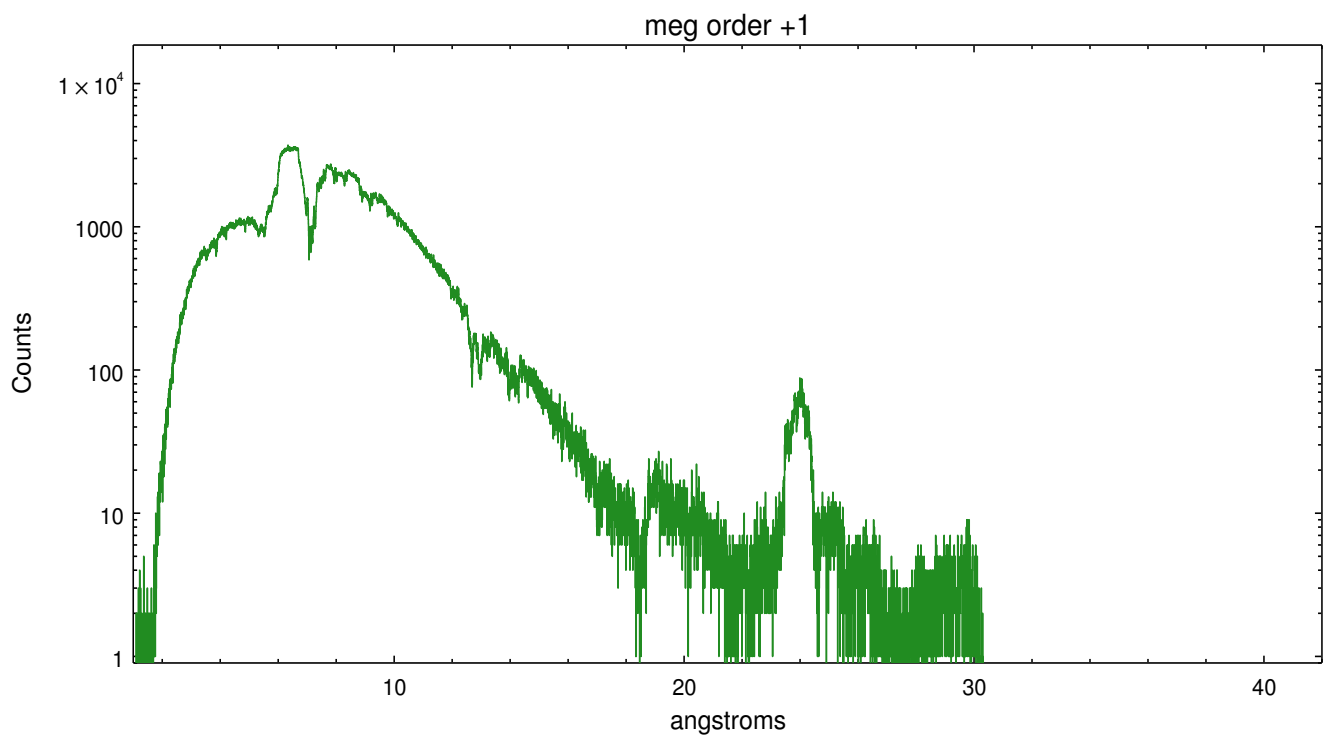
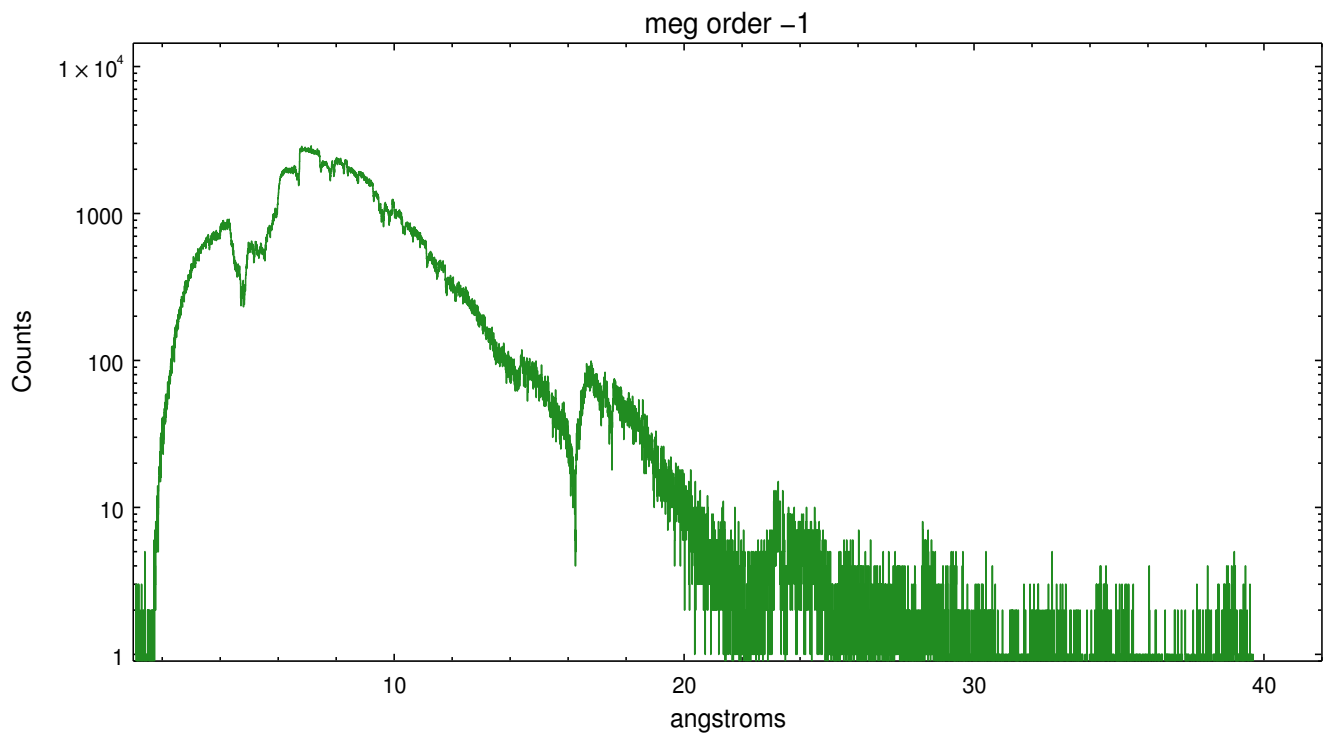
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	415892	0	2342241	95058	2737153	0	358831





# A Summary

## A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2012.10.03
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.55

## A.2 Comments

Charge time:

Using time from longest exposed chip, which represents the exposure. telemetry saturation limits effective exposure on other chips.

New charge time is less than existing charge time used in previously distributed version

NEW CHARGE TIME = 19.283864 ks, 1 Obis

EXISTING CHARGE TIME = 30.000000 ks, 1 Obis.

Variation in Chips > 15% threshold.

Low Chip 6, ONTIME=13854.255418 seconds

High Chip 5, ONTIME=30553.000000 seconds

Chip 8, ONTIME=15736.606286 seconds is less than 80% of scheduled time=30000.000000 seconds

Chip 7, ONTIME=19283.863817 seconds is less than 80% of scheduled time=30000.000000 seconds

Chip 6, ONTIME=13854.255418 seconds is less than 80% of scheduled time=30000.000000 seconds

ONTIME of 19283.863816828 seconds is less than 85% of expected scheduled time of 30000 seconds