

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 371 - L2 Version 4  
Chandra X-Ray Center

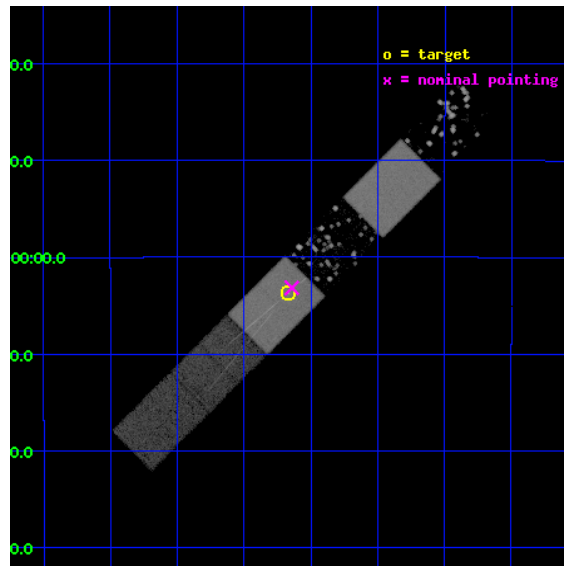
L2 Processing Date : Aug 31 2012

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# 1 Front

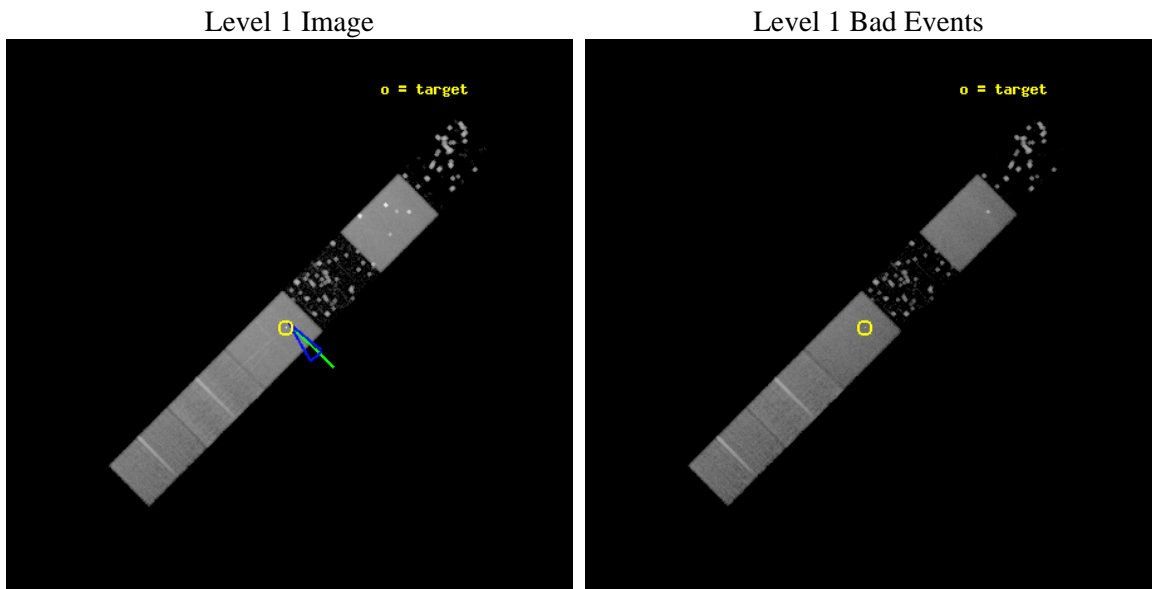
seq_num	700043	Sequence number
obs_id	371	Observation id
title	ACIS STUDY OF GRAVITATIONALLY LENSED QUASARS	Proposal title
observer	Professor Gordon Garmire	Principal investigator
object	PKS 1830-211	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.416417	Observer's specified target RA [deg]
dec_targ	-21.061028	Observer's specified target Dec [deg]
ra_nom	278.4103684293	Nominal RA [deg]
dec_nom	-21.052807056504	Nominal Dec [deg]
roll_nom	135.05445461384	Nominal Roll [deg]
revision	4	Processing version of data
ontime	48283.200119913	Sum of GTIs [s]
livetime	47471.4385212	Livetime [s]
ontime4	9983.8536378741	Sum of GTIs [s]
ontime5	48283.200119913	Sum of GTIs [s]
ontime6	13242.677315384	Sum of GTIs [s]
ontime7	48283.200119913	Sum of GTIs [s]
ontime8	36048.976751566	Sum of GTIs [s]
ontime9	35470.463326275	Sum of GTIs [s]
l2events	291679	Number of level 2 events



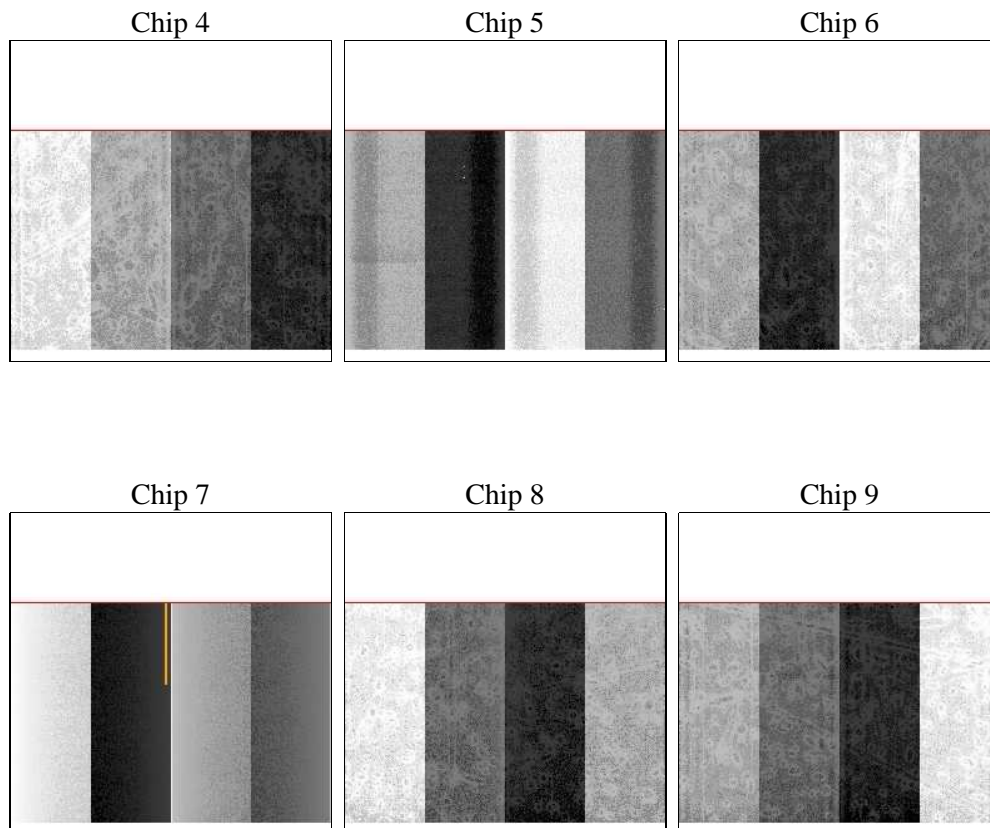
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	48000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	48283.200119913	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	9983.8536378741	Sum of GTIs [s]
date	2012-08-30T13:23:18	Date and time of file creation	ontime5	48283.200119913	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	13242.677315384	Sum of GTIs [s]
			ontime7	48283.200119913	Sum of GTIs [s]
			ontime8	36048.976751566	Sum of GTIs [s]
			ontime9	35470.463326275	Sum of GTIs [s]
			l1events	8543225	Number of level 1 events

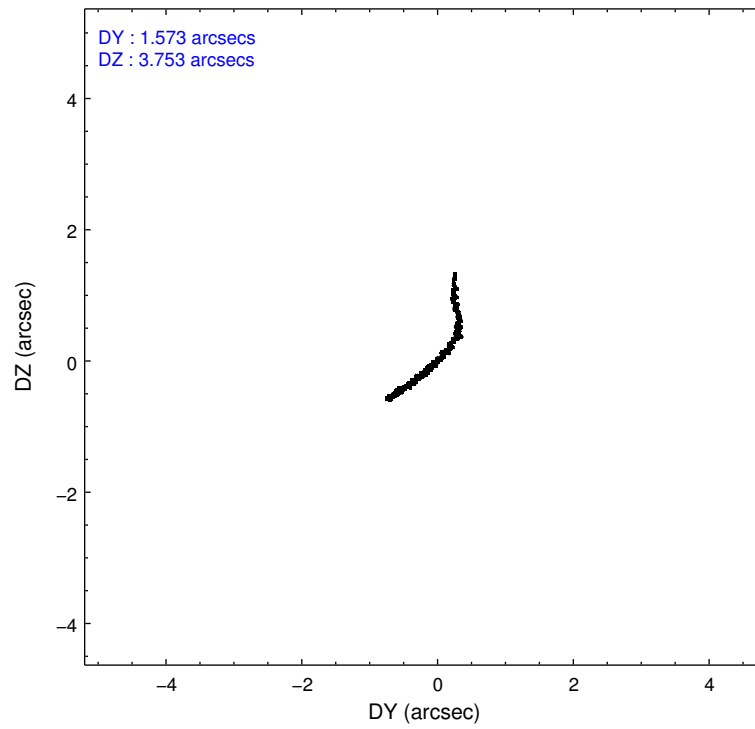
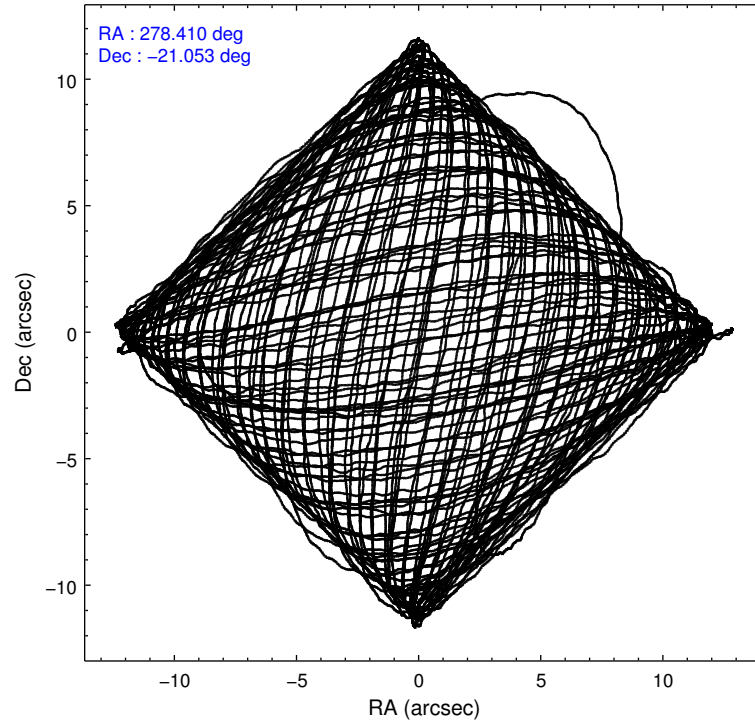
### 2.1.4 Events

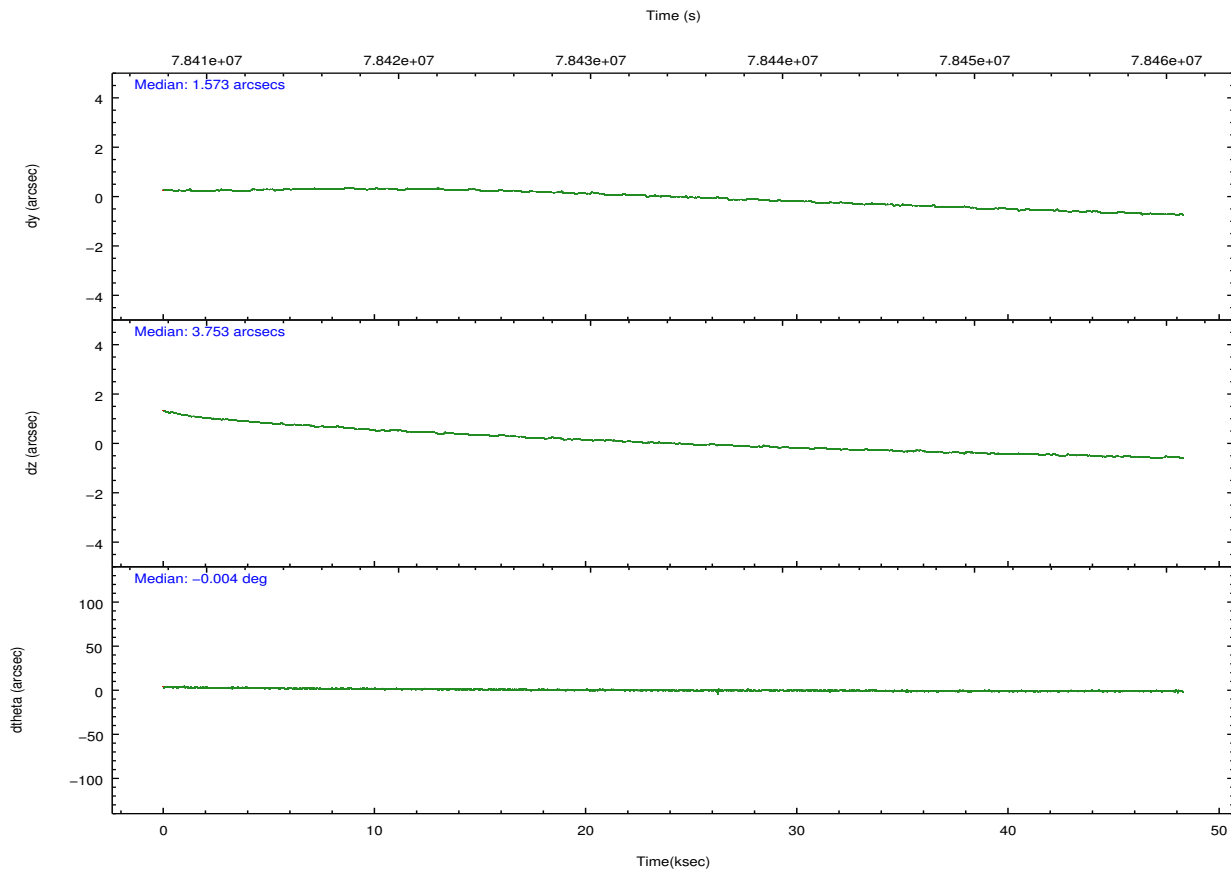
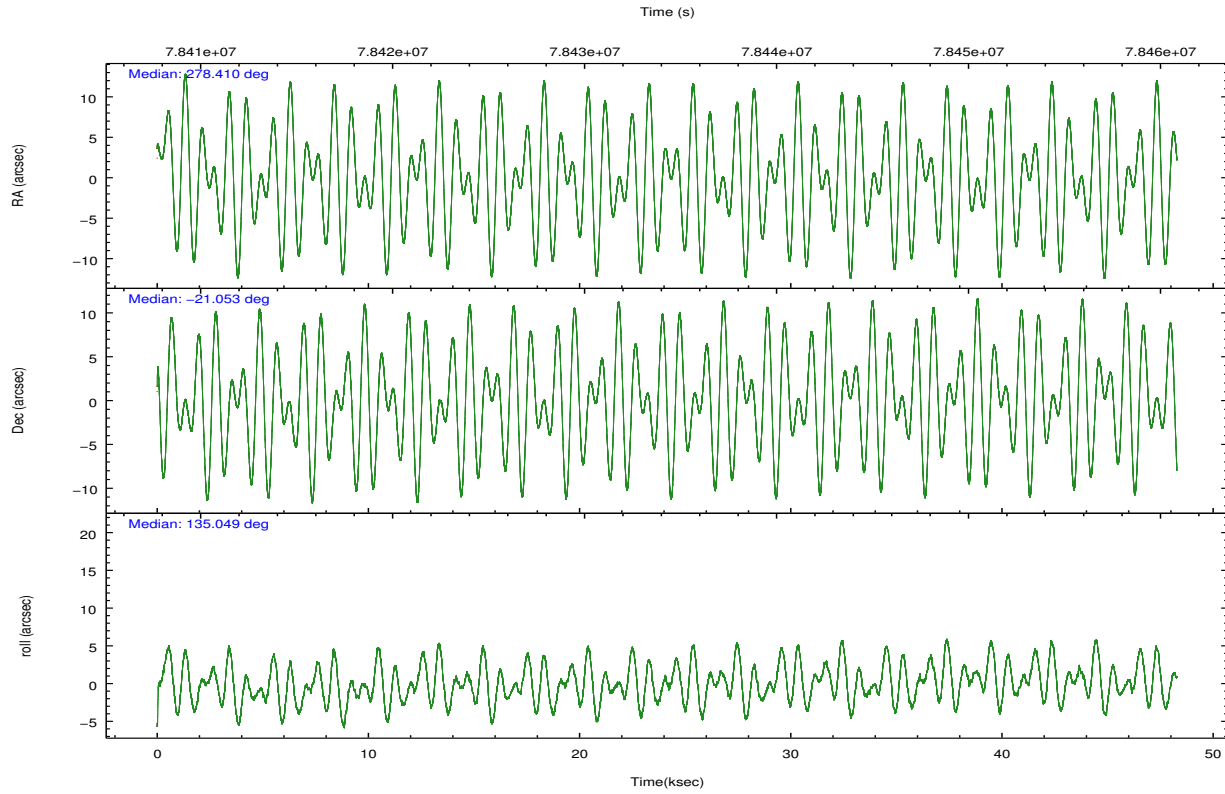
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	3850971	320335	3748629	258142	212023	153125	grade 0 events	3819610	53435	3723783	11755	14722	7477
rejected events	81301	150709	20985	143389	166926	135487		99%	16%	99%	4%	6%	4%
rejected %	2%	47%	0%	55%	78%	88%	grade 1 events	5684	398	3866	277	104	49
								0%	0%	0%	0%	0%	0%
							grade 2 events	2037	39433	1546	23977	8909	3400
								0%	12%	0%	9%	4%	2%
							grade 3 events	1614	6897	1048	11353	5577	1988
								0%	2%	0%	4%	2%	1%
							grade 4 events	1155	6556	784	11050	5234	1958
								0%	2%	0%	4%	2%	1%
							grade 5 events	3315	22455	2393	23976	7452	6030
								0%	7%	0%	9%	3%	3%
							grade 6	1454	65185	1052	58003	11531	3401

## 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	278.438777	278.4103684292997	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-21.059760	-21.05280705650434	Subarray start row	37	37
[deg] Pointing Roll	134.908033	135.0544546138372	Subarray row count	700	700
[deg] Roll angle	140.000000	140.000000	Alternating exposures requested	N	N
[deg] Roll tolerance	10.000000	10.000000	[s] Primary exposure time	0.000000	2.4
Roll constraint allows 180D rotation	N	N			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-187.132523	-187.1228876879999			
[mm] SIM translation stage offset	-3	-3.009634895007935			
[s] Observation start time (MET)	78410437.184000	78409432.27546699			
Observation start date	2000-06-26T12:39:33	2000-06-26T12:23:52			
[s] Observation end time (MET)	78458437.184000	78459081.739797			
Observation end date	2000-06-27T01:59:33	2000-06-27T02:11:21			
Read mode	TIMED	TIMED			

## 2.3 Aspect



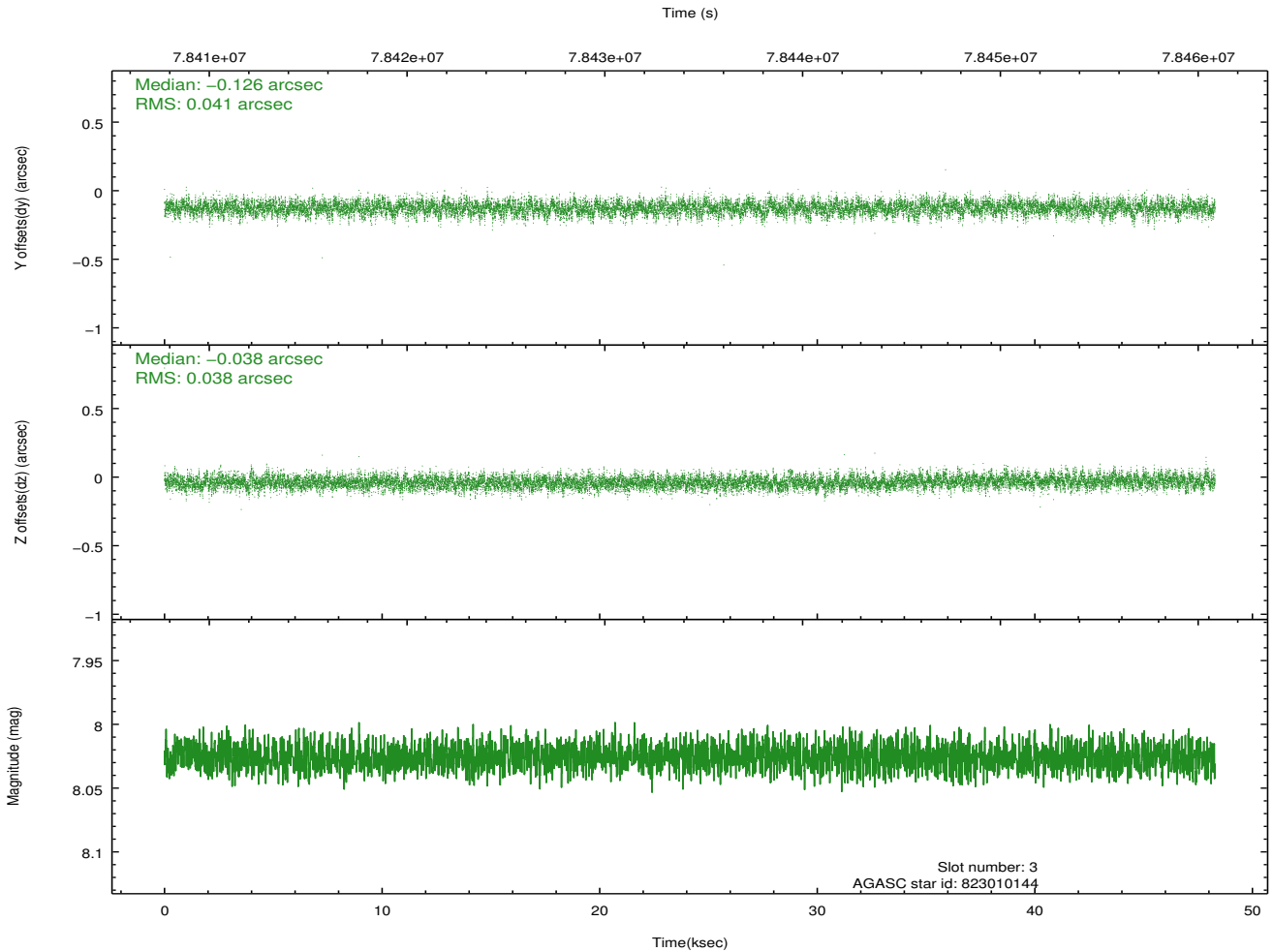
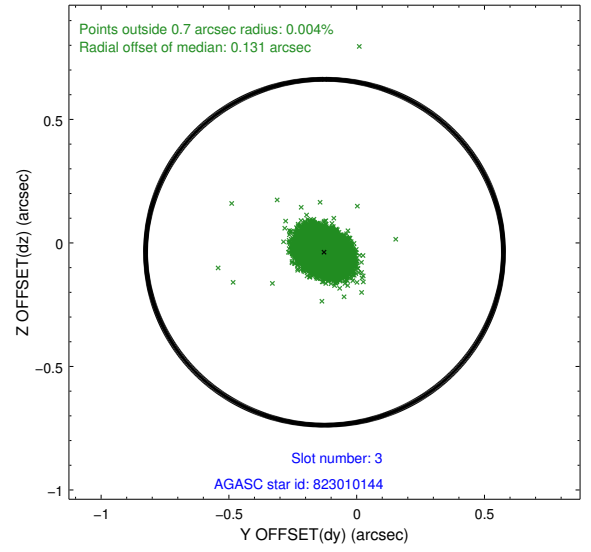
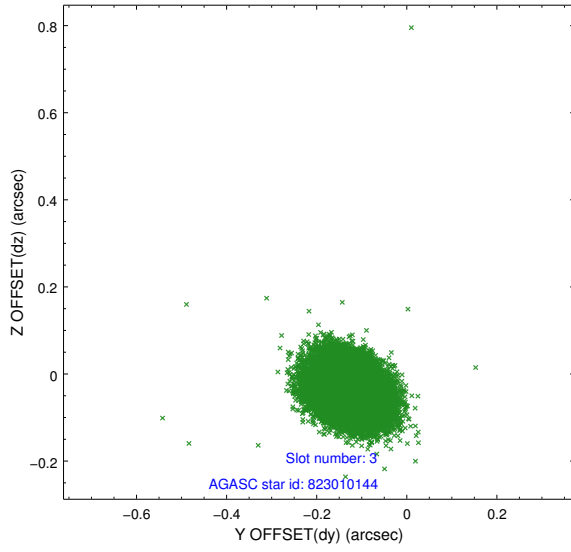


### Slot Statistics

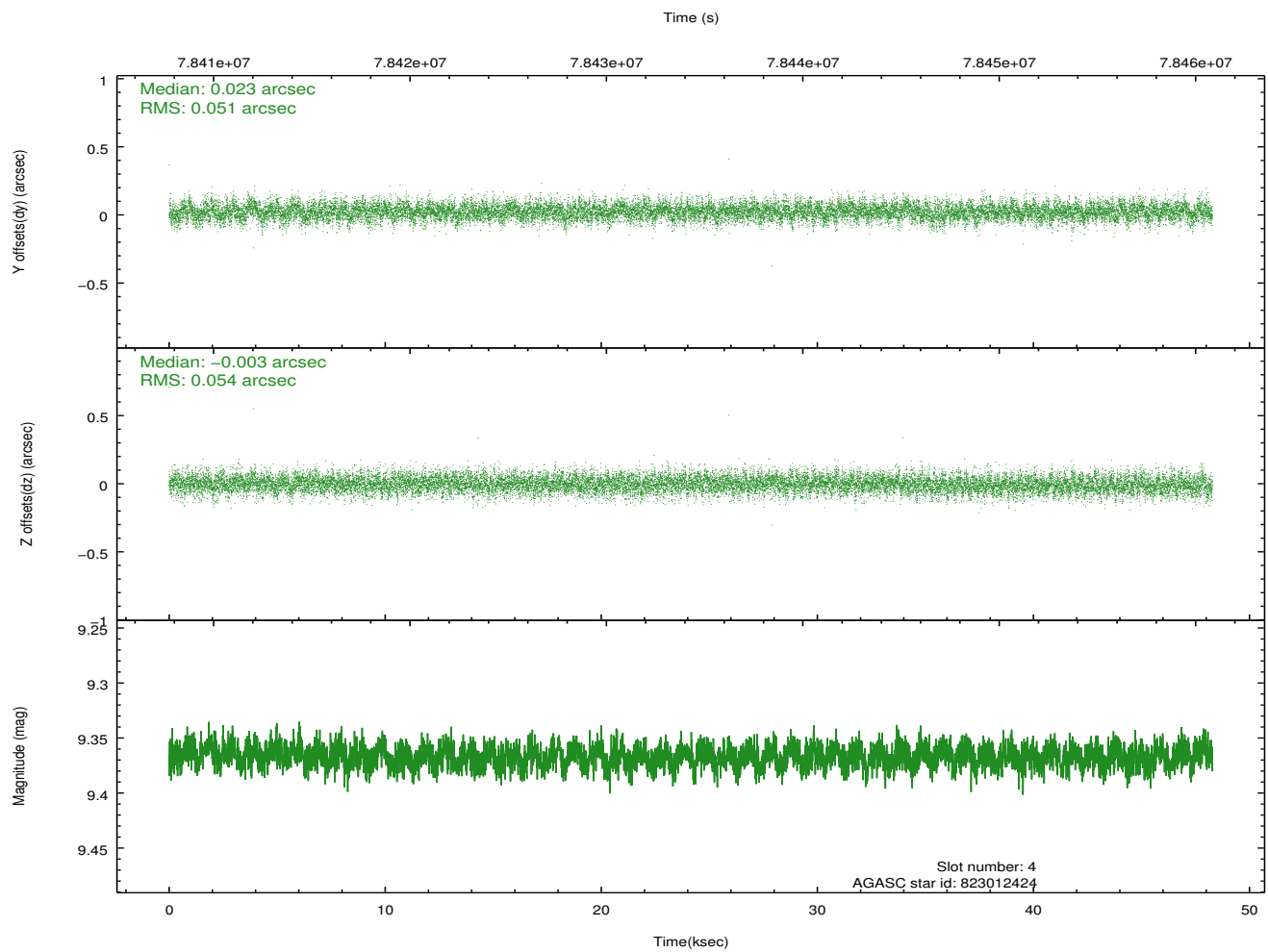
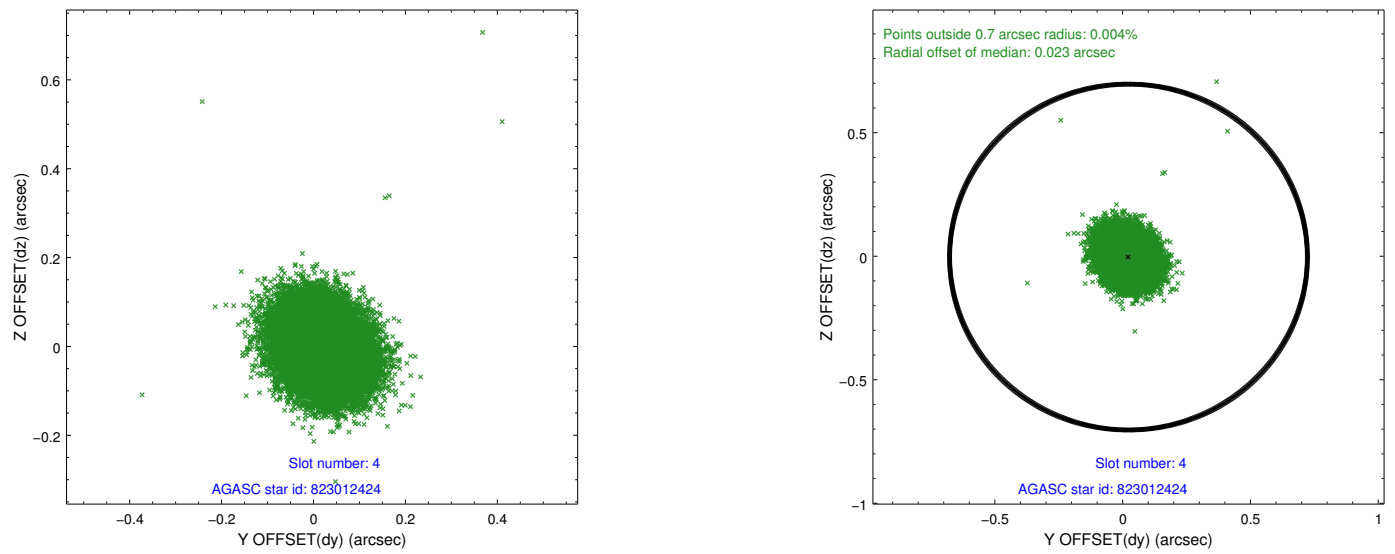
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	11778	-0.059	-0.034	0.016	0.024	0.000000	0.000000	-753.95	-1787.10
1	FID	ACIS-S-4	7.20	11778	0.005	0.036	0.017	0.047	0.000000	0.000000	2159.41	121.46
2	FID	ACIS-S-5	7.23	11778	0.018	0.004	0.018	0.028	0.000000	0.000000	-1806.73	115.09
3	GUIDE	823010144	8.03	23551	-0.126	-0.038	0.059	0.096	278.155693	-21.242957	203.07	1138.40
4	GUIDE	823012424	9.37	23546	0.023	-0.003	0.078	0.128	278.931338	-21.033948	-1103.88	-1236.56
5	GUIDE	823012184	9.76	23544	0.078	-0.016	0.099	0.162	278.400868	-21.233961	-353.96	532.22
6	GUIDE	822483376	10.14	23512	0.007	-0.012	0.142	0.233	278.442018	-20.280015	1981.02	-1989.85
7	GUIDE	823013984	9.85	23536	0.016	0.069	0.116	0.187	278.586146	-21.553686	-1607.43	905.35

## 2.4 Star Slots

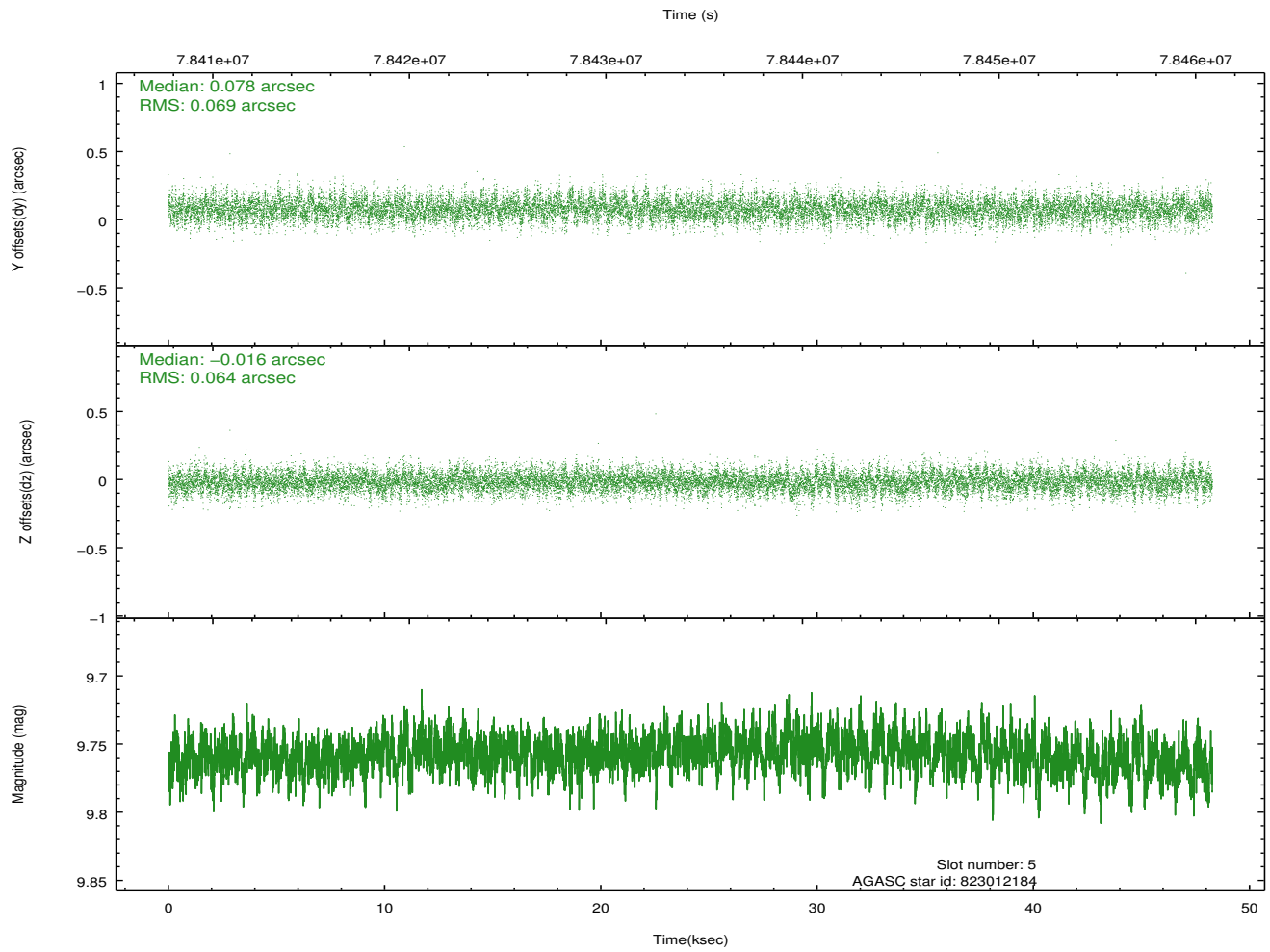
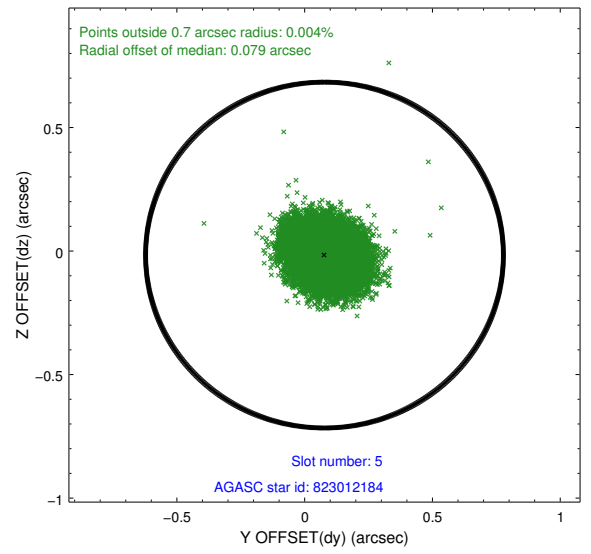
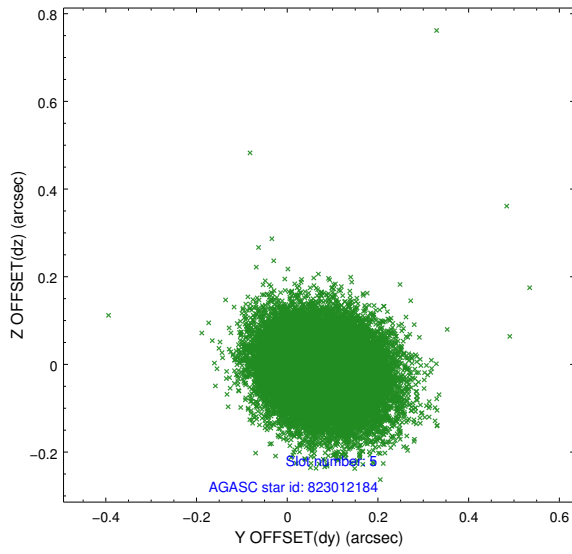
### 2.4.1 Slot 3



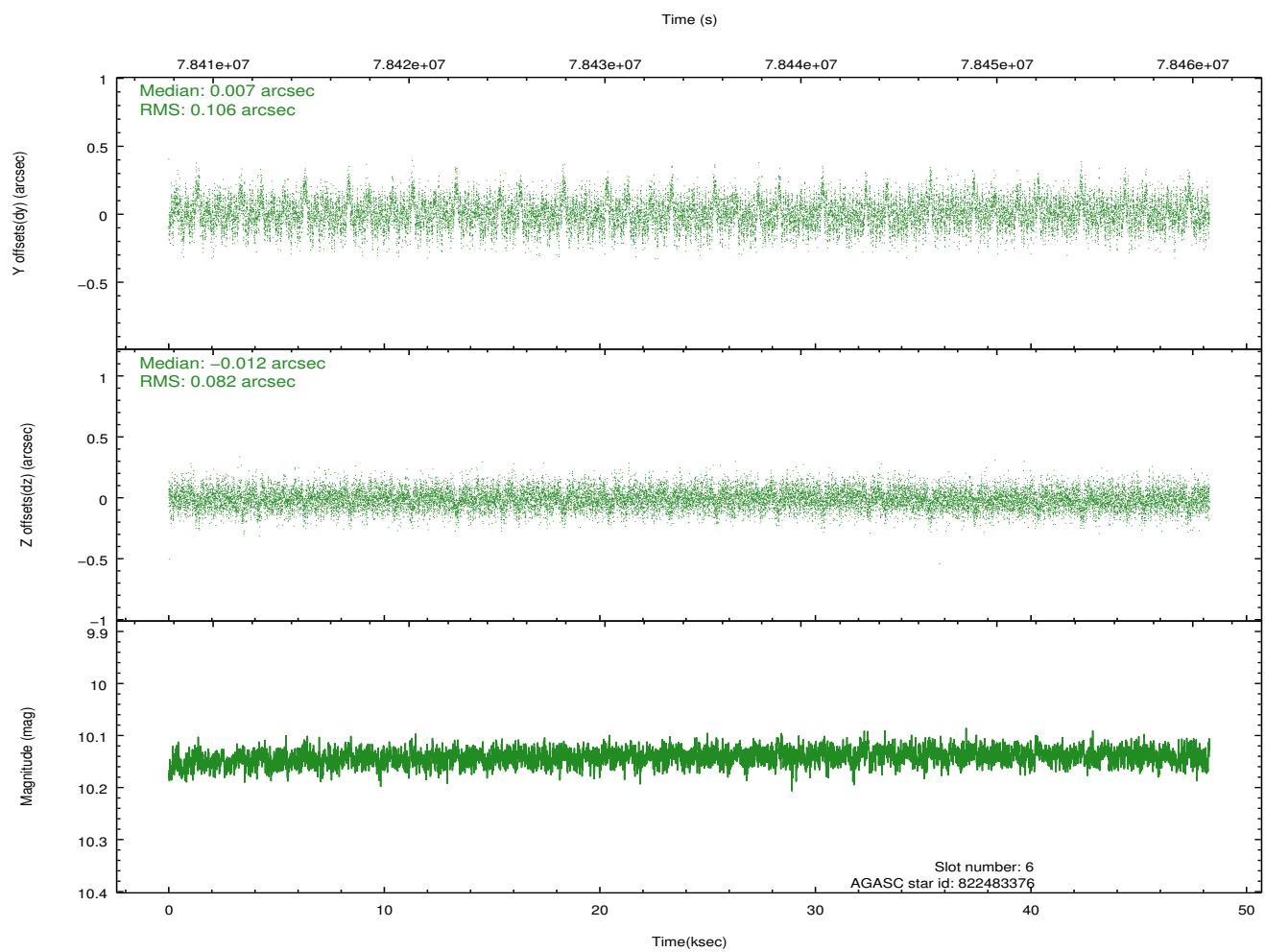
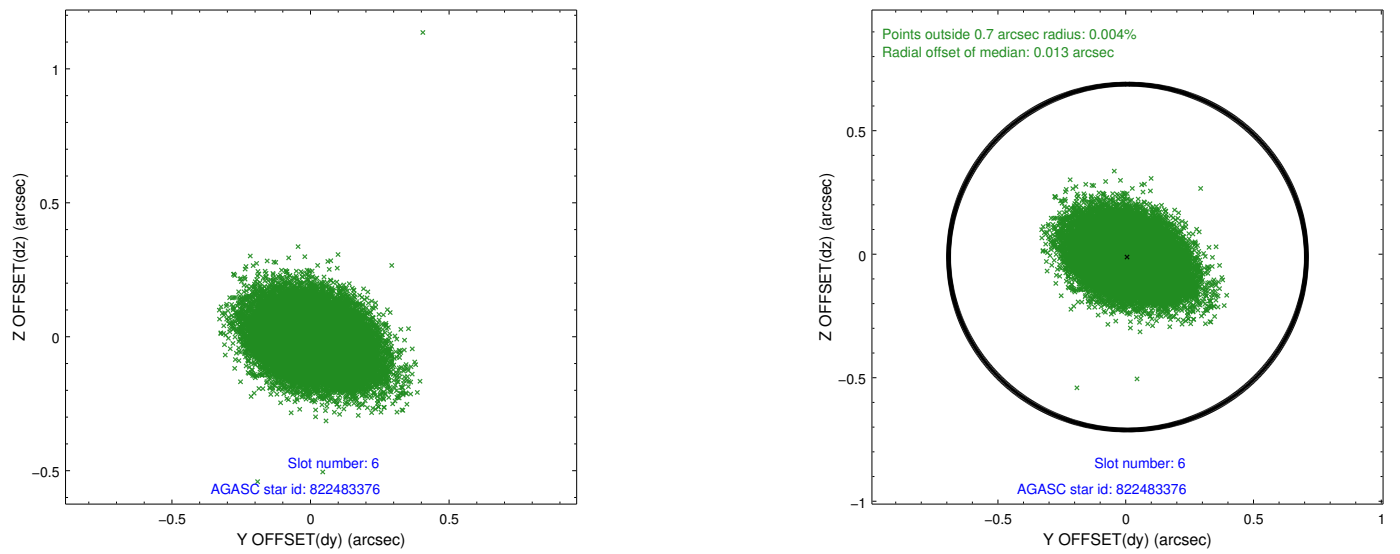
## 2.4.2 Slot 4



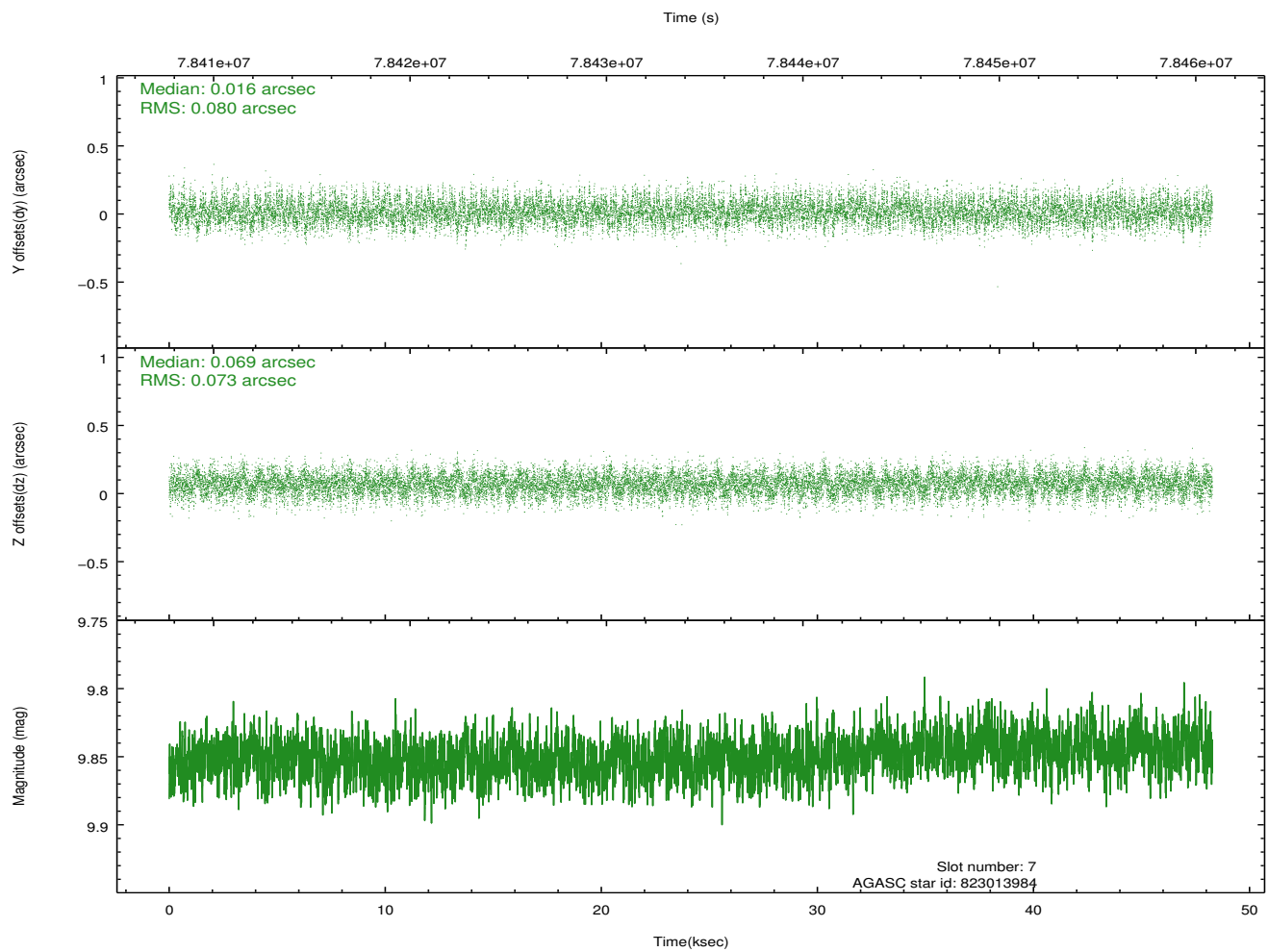
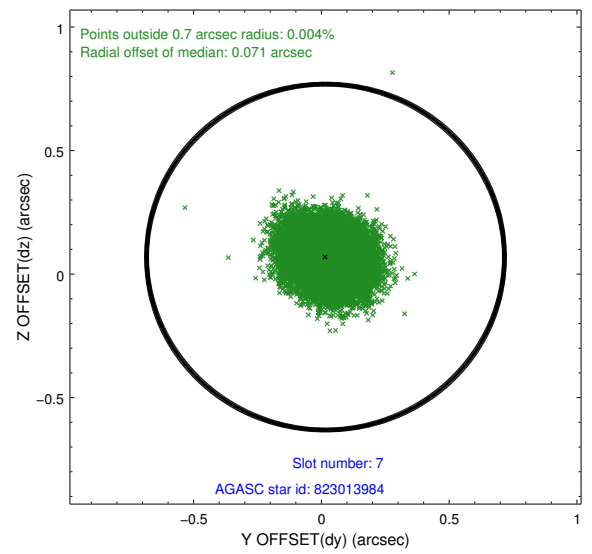
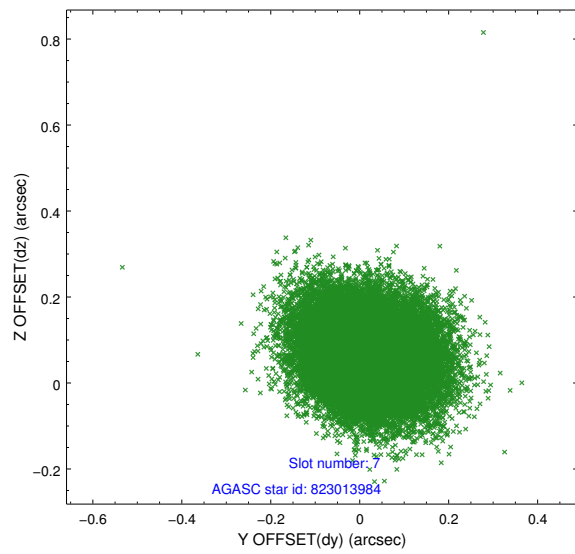
### 2.4.3 Slot 5



## 2.4.4 Slot 6

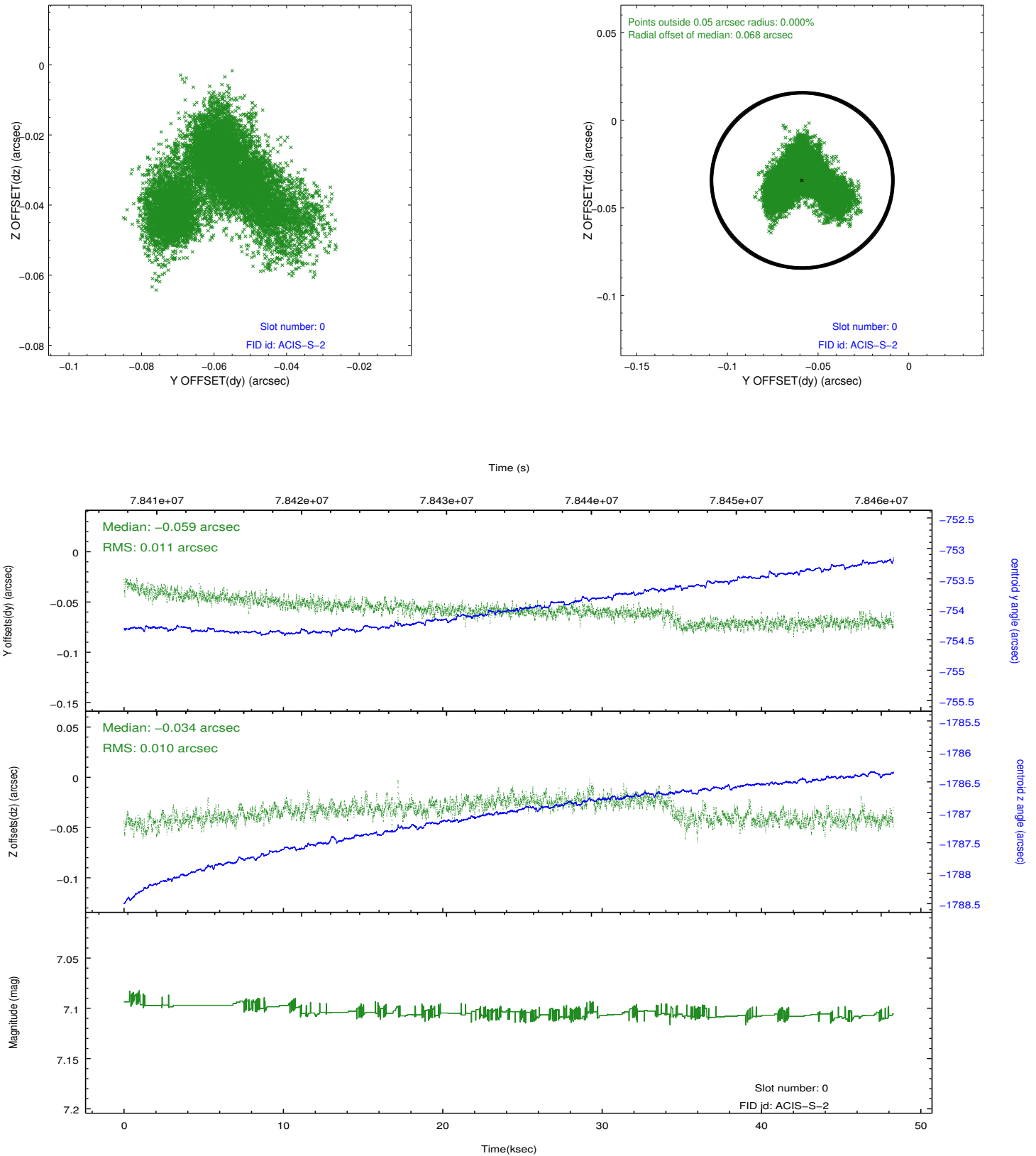


## 2.4.5 Slot 7

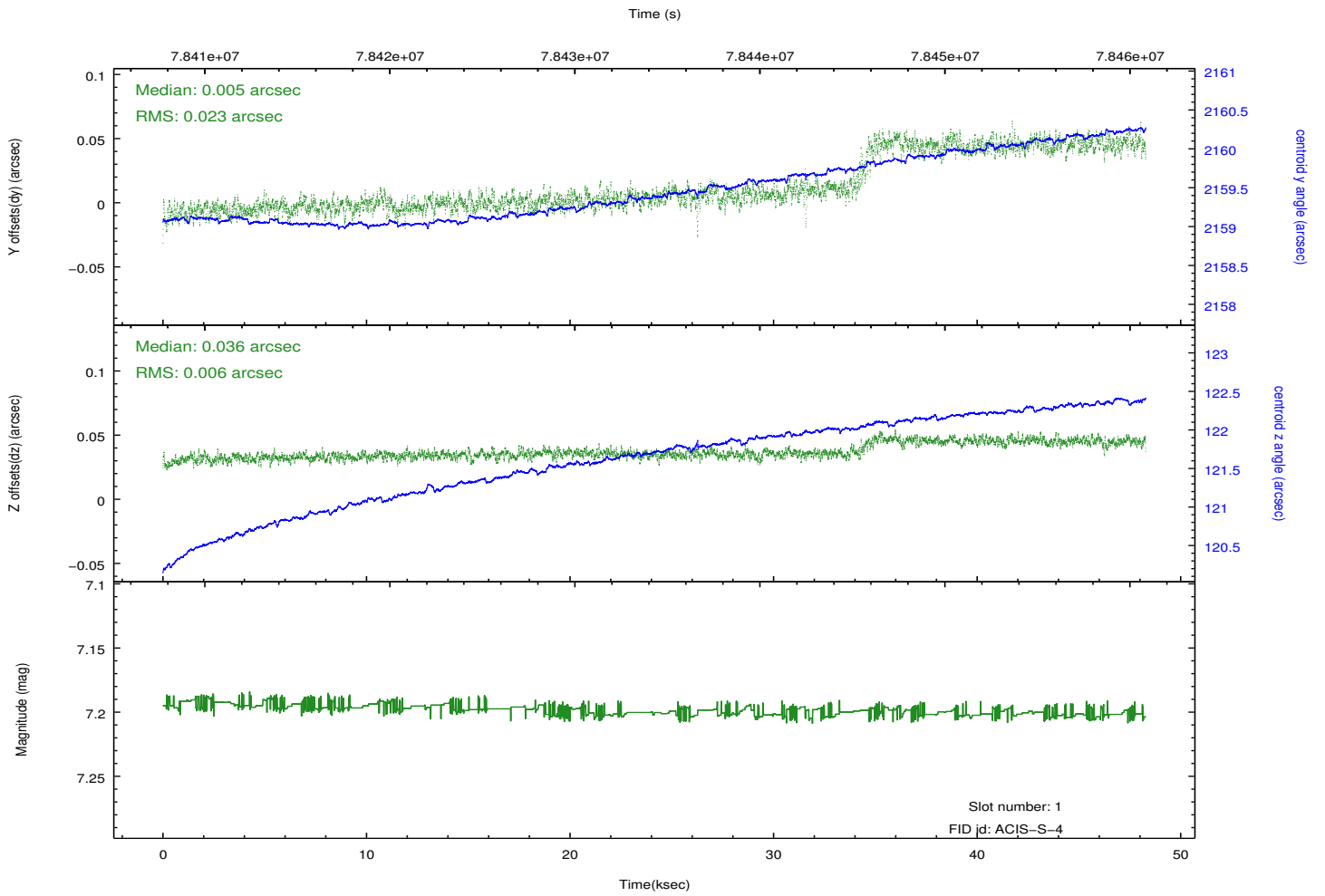
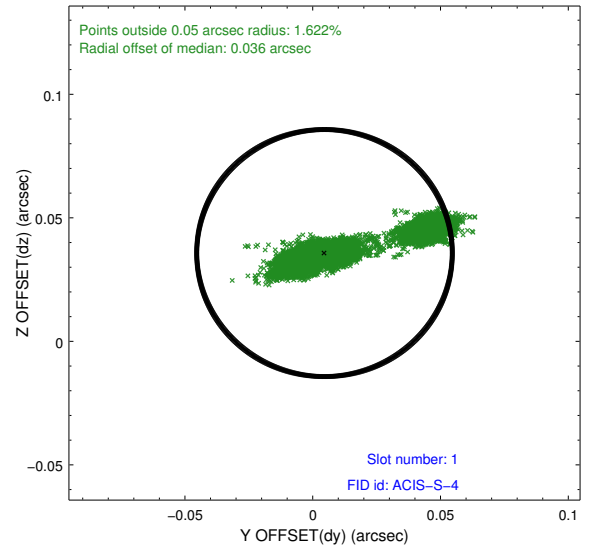
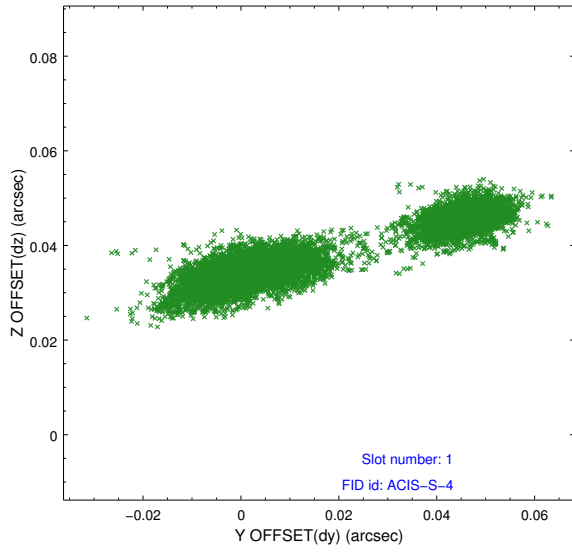


## 2.5 FID Slots

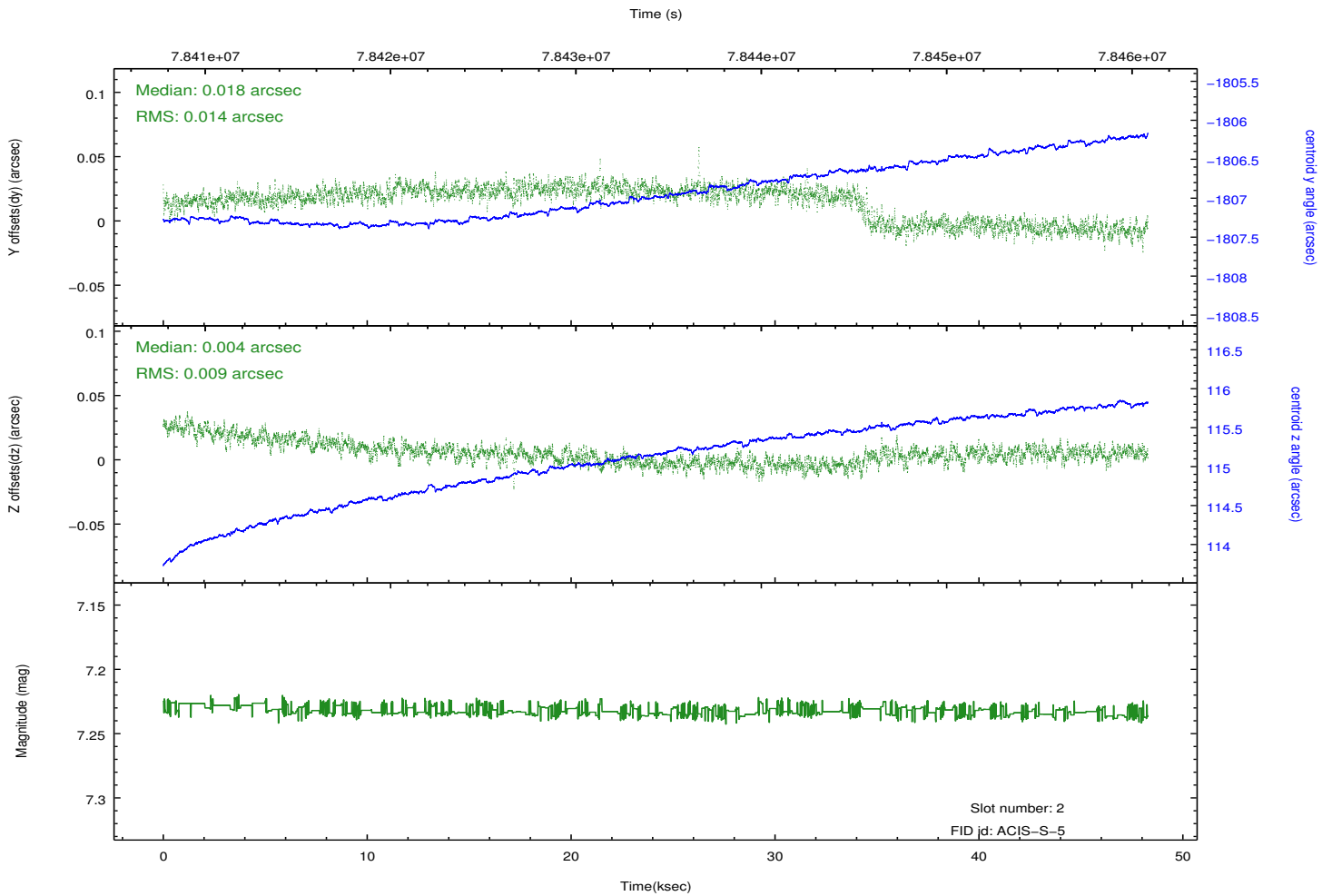
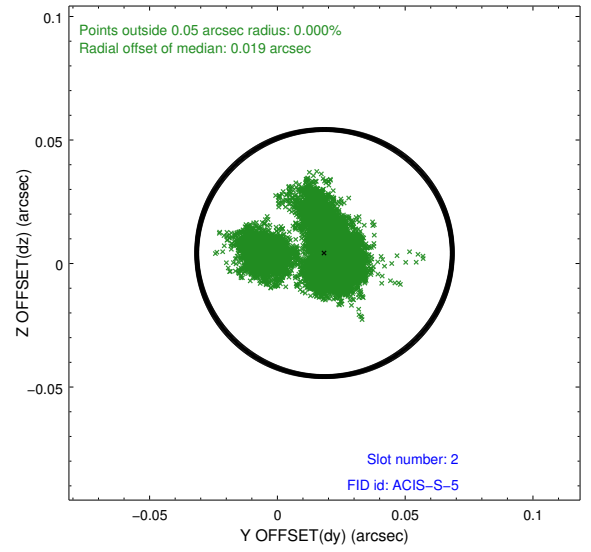
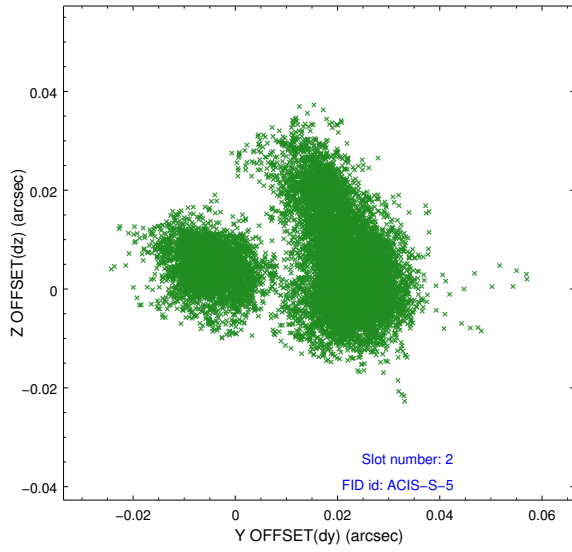
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

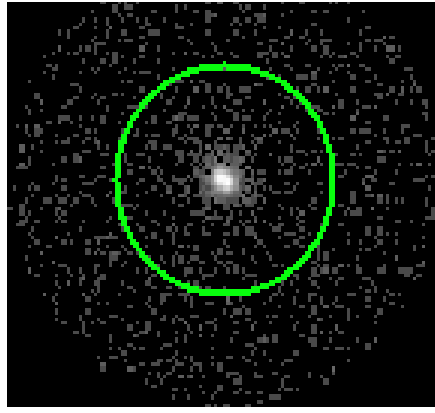


# 3 Gratings

## 3.1 HEG Arm



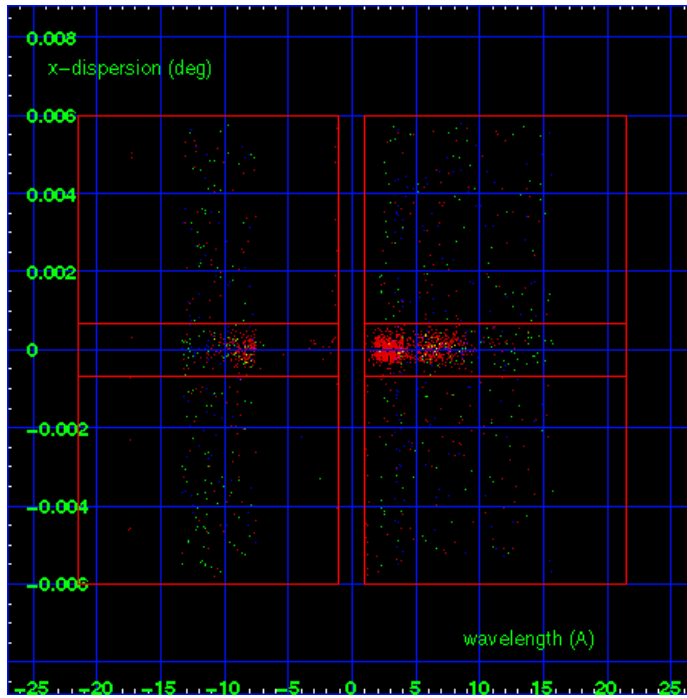
HEG Order Sort 123



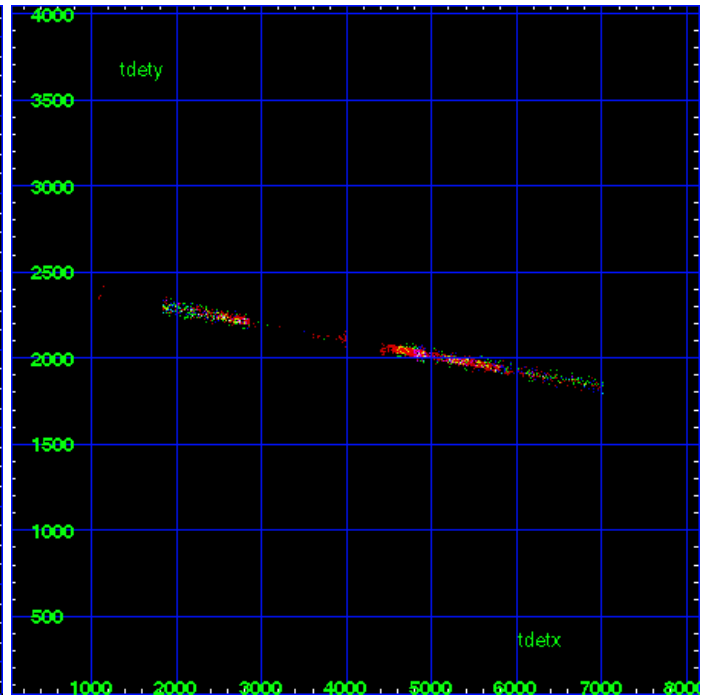
HEG Zero Order



HEG Order Sort ALL

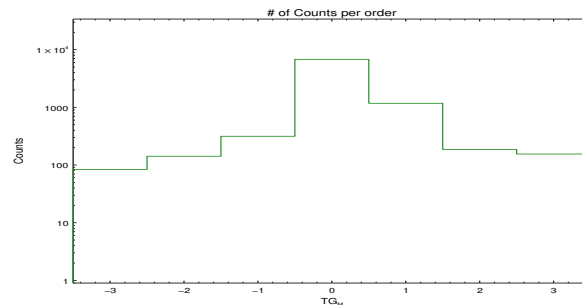


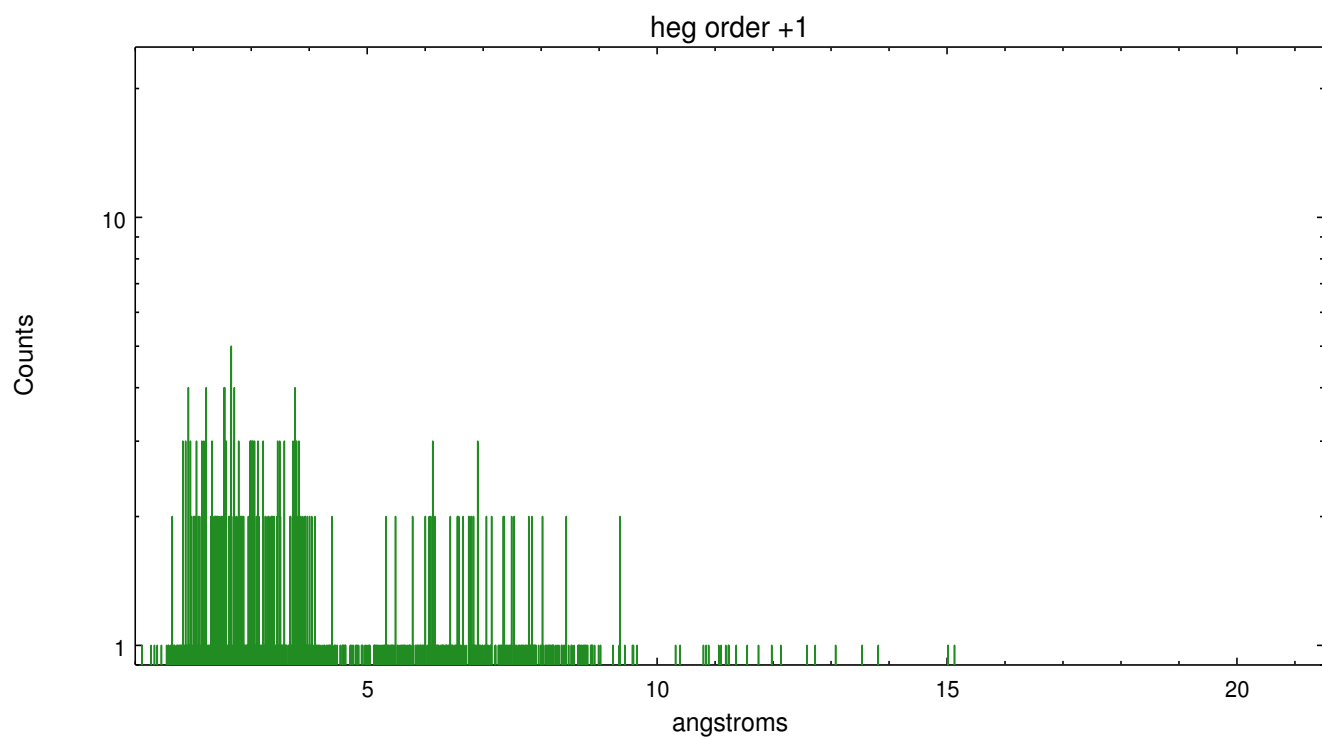
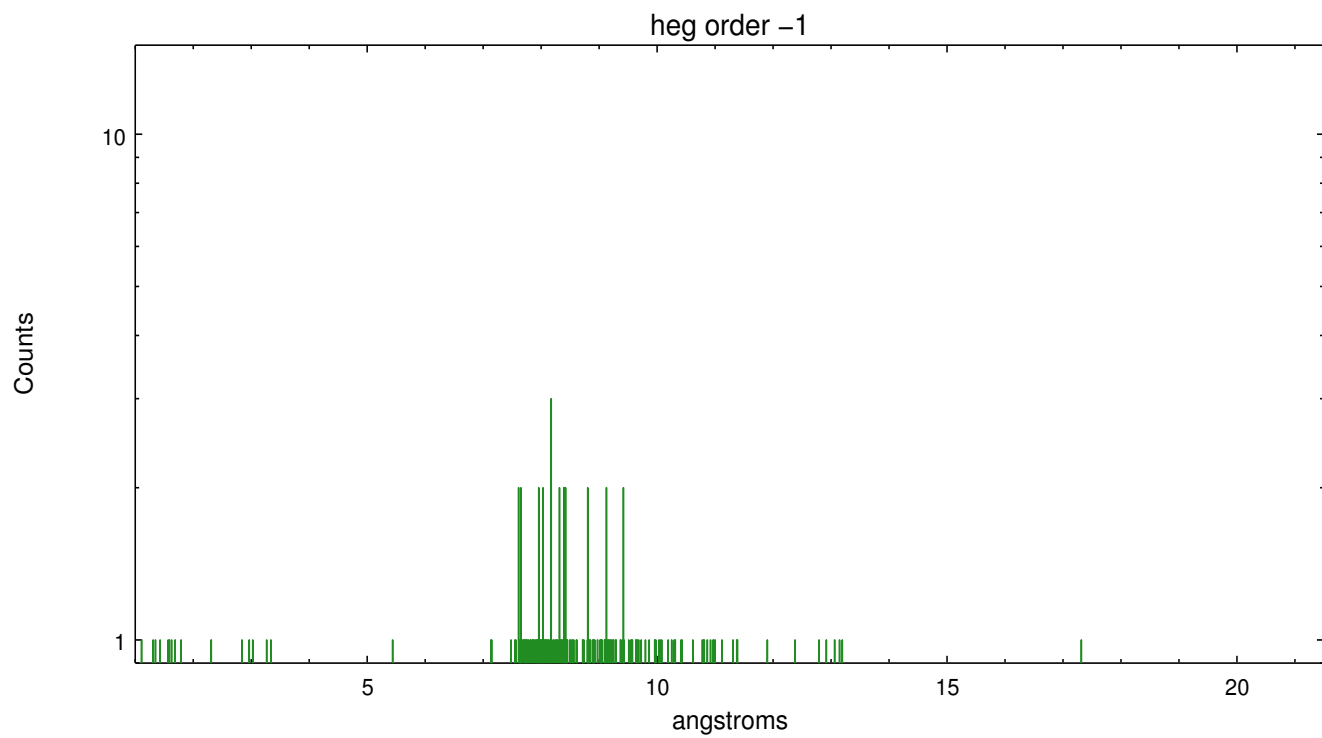
Spot Image HEG



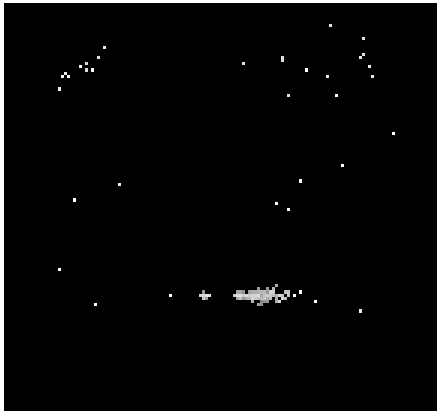
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	84	142	315	6784	1175	186	155

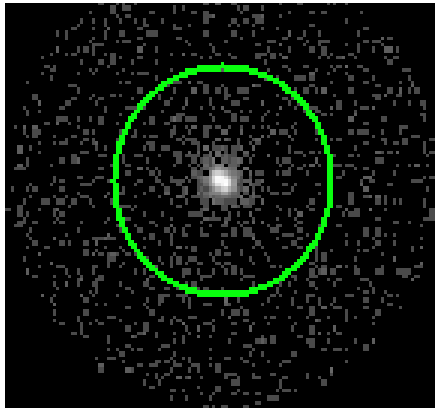




### 3.2 MEG Arm



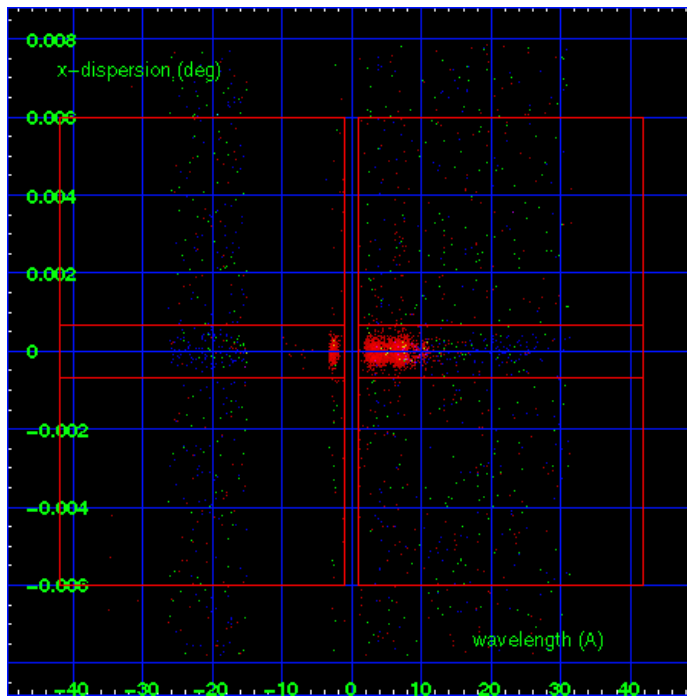
MEG Order Sort 123



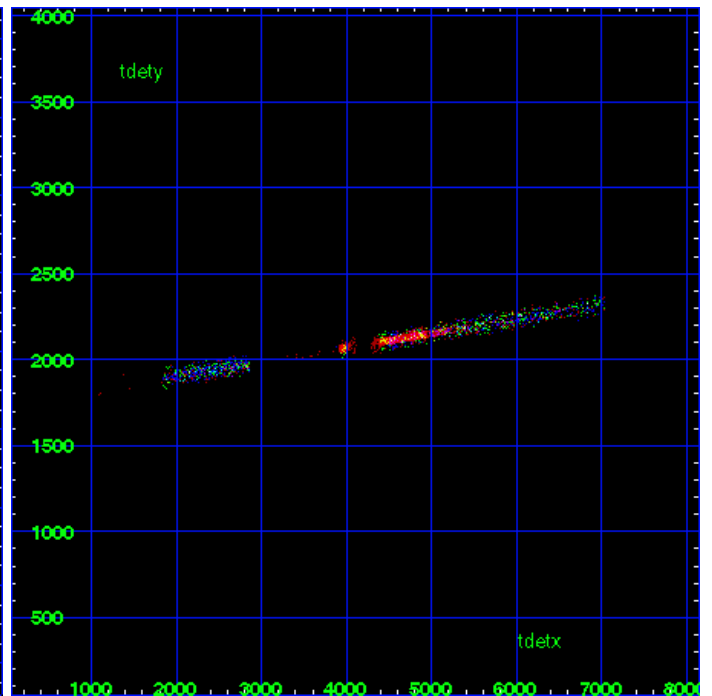
MEG Zero Order



MEG Order Sort ALL

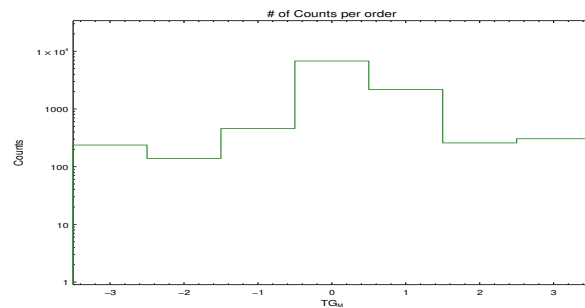


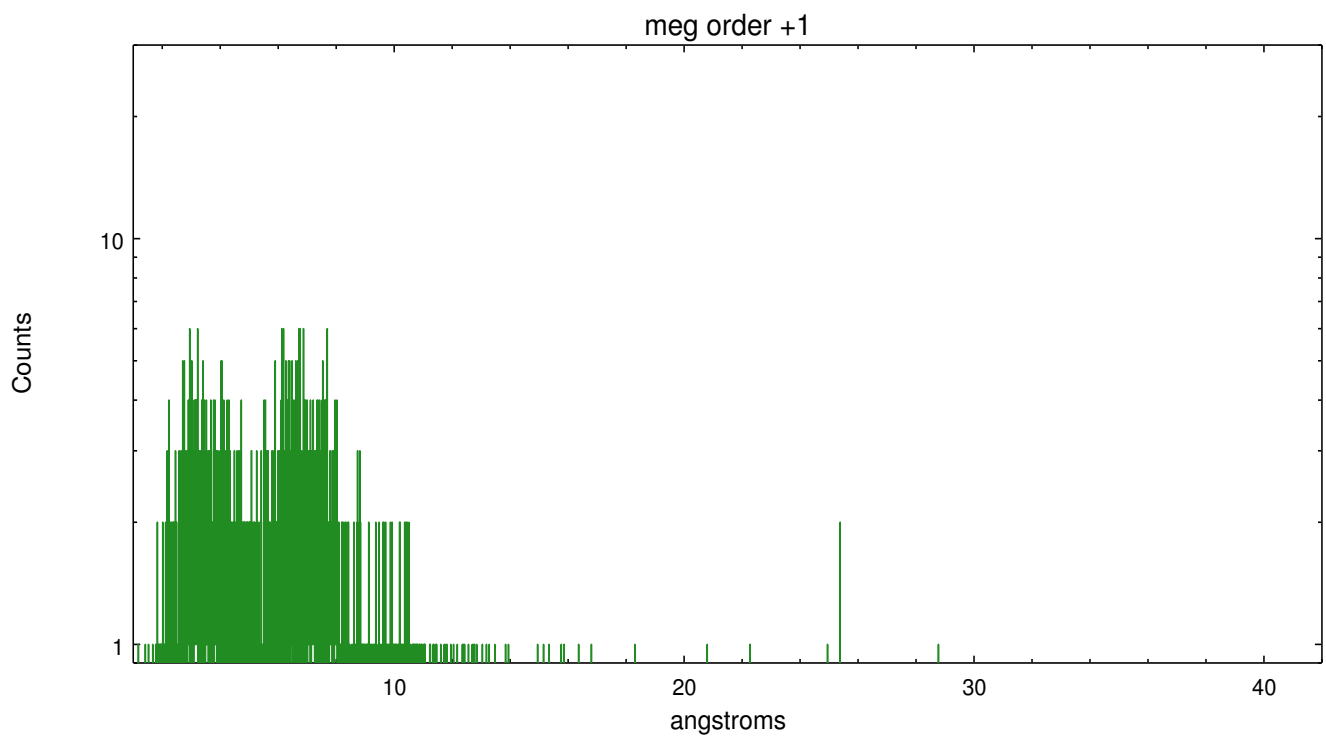
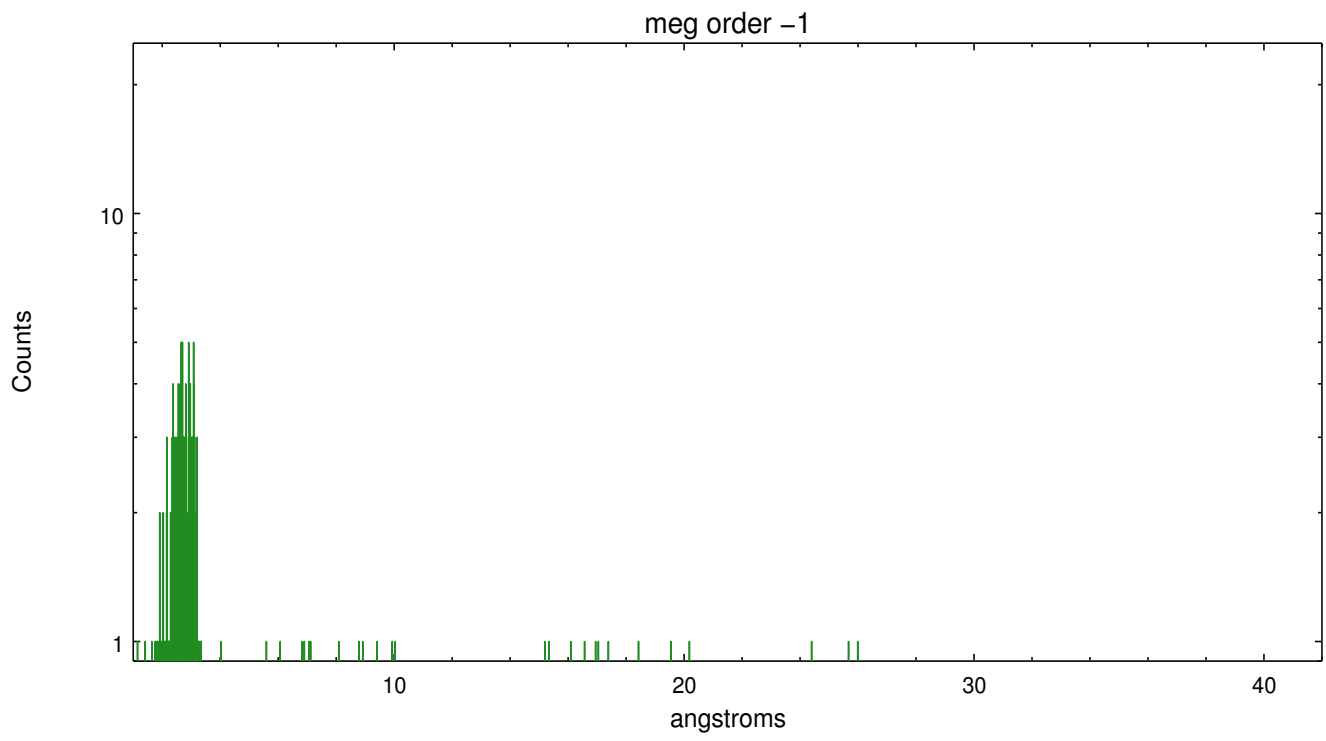
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	237	139	457	6784	2174	258	305





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.08.31
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	48.283

## A.2 Comments

Slightly extended source.

===

An instrument anomaly occurred during this observation. A condition called 'T-plane latchup' in ACIS caused 2 CCD chips (4 and 6) to be off for the entire observation. The chips affected have zero counts from the astronomical source, although predicted bright pixels can be seen on a displayed image as squares mapping the telescope dithering of the positions of the hot pixels. The positive spectral orders are not affected by the anomaly, because they fall on chips 7, 8, and 9. The negative spectral orders have little coverage due to the anomaly on chips 4 and 6. An additional anomaly is that the effective exposure on chips 8 and 9 is low (36 and 35 ks), caused by a large number of dropped frames. Due to these problems, this observation was redone as ObsID 2417.