

# V&V Reference Report

## L2 ASCDS Version : 10.5.4

Observation 19957 - L2 Version 1  
Chandra X-Ray Center

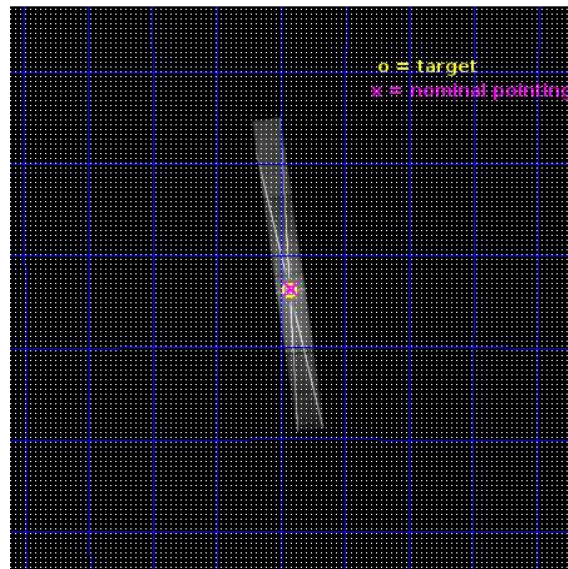
L2 Processing Date : May 1 2017

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# 1 Front

seq_num	901341	Sequence number
obs_id	19957	Observation id
title	Detect Broad High Z Lines in GX 3+1	Proposal title
observer	Claude Canizares	Principal investigator
object	GX 3+1	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	266.983333	Observer's specified target RA [deg]
dec_targ	-26.5635	Observer's specified target Dec [deg]
ra_nom	266.97977189942	Nominal RA [deg]
dec_nom	-26.560061976772	Nominal Dec [deg]
roll_nom	82.155050427231	Nominal Roll [deg]
revision	1	Processing version of data
ontime	30076.801195145	Sum of GTIs [s]
livetime	29082.190287319	Livetime [s]
ontime5	30076.801195145	Sum of GTIs [s]
ontime6	30076.801195145	Sum of GTIs [s]
ontime7	30076.801195145	Sum of GTIs [s]
ontime8	30076.801195145	Sum of GTIs [s]
l2events	2706101	Number of level 2 events

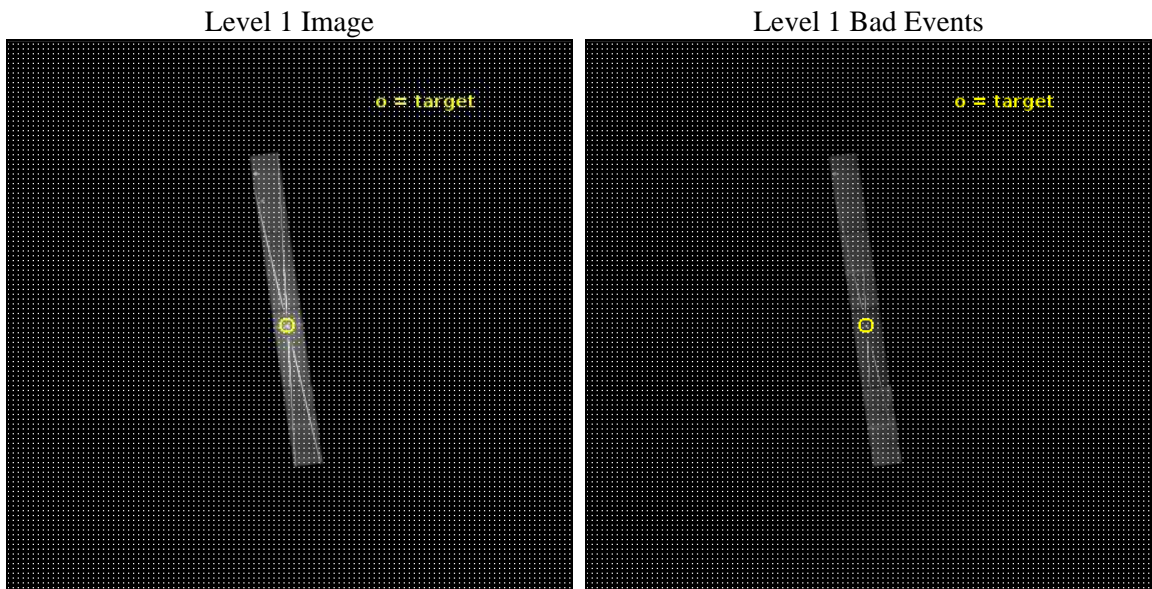




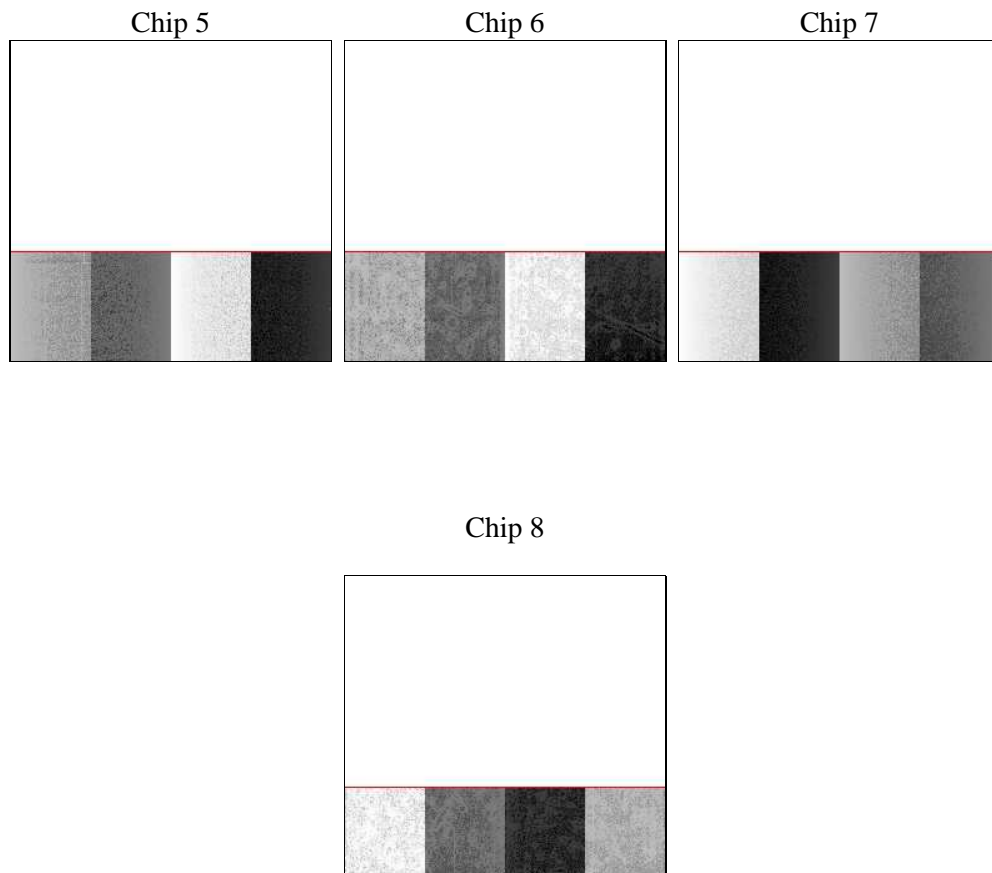
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	10.5.4	Processing system revision	ontime	30076.801195145	Sum of GTIs [s]
caldsver	4.7.3	&#160	ontime5	30076.801195145	Sum of GTIs [s]
date	2017-05-01T13:23:25	Date and time of file creation	ontime6	30076.801195145	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	30076.801195145	Sum of GTIs [s]
			ontime8	30076.801195145	Sum of GTIs [s]
			l1events	3212983	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4070.36, 4069.95)	src1a sky pixel position
			zo_pos_tgd	(4071.76, 4071.06)	src1a sky pixel position via todetect

### 2.1.4 Events

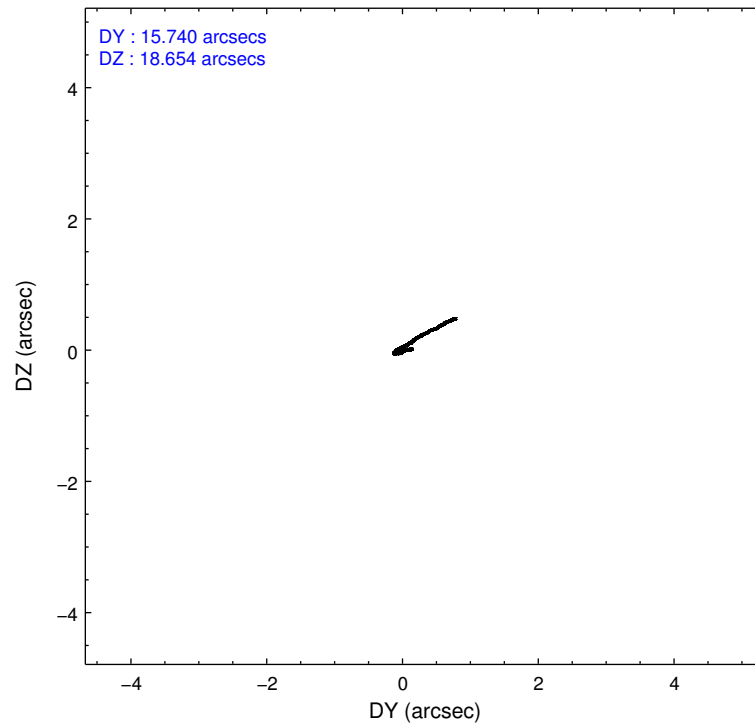
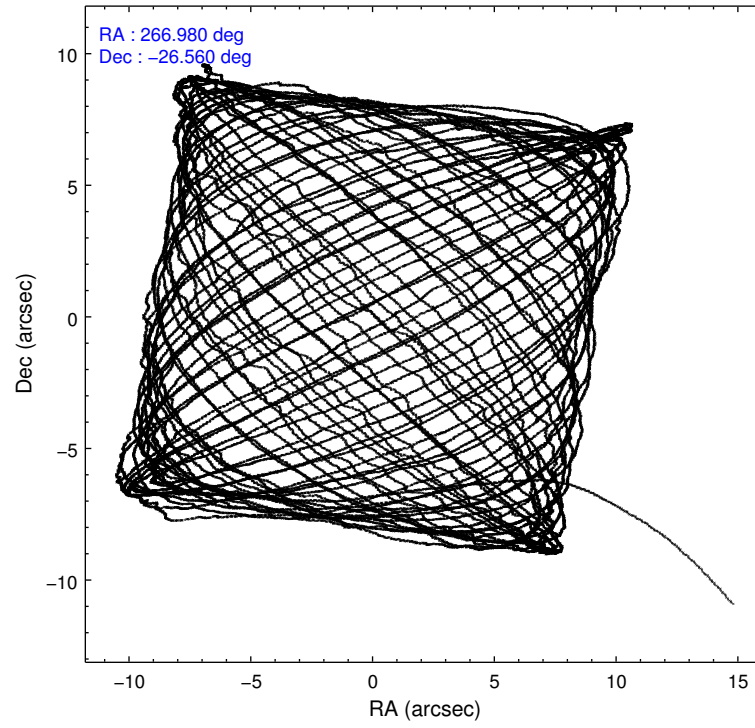
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	245869	1126889	1495899	344326
rejected events	66719	109052	123926	81047
rejected %	27%	9%	8%	23%

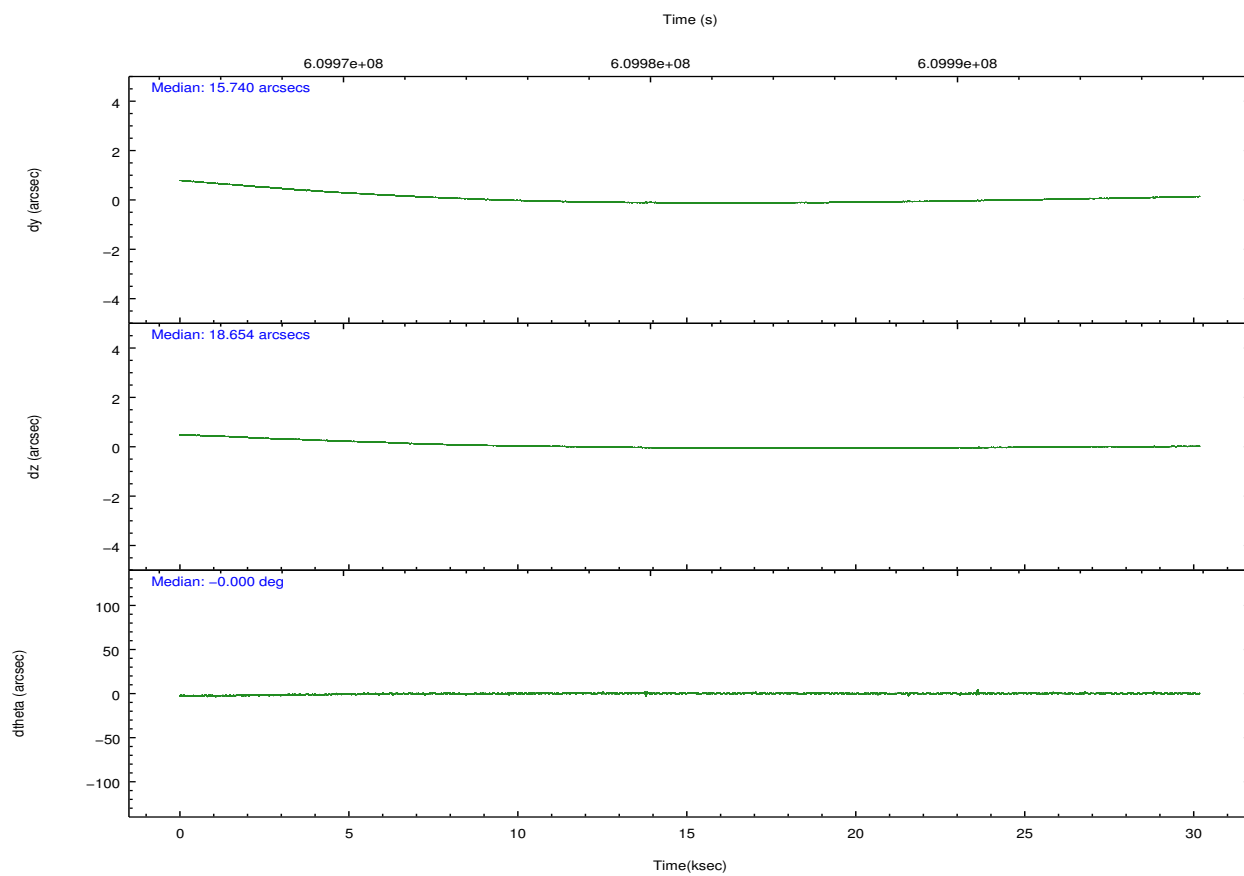
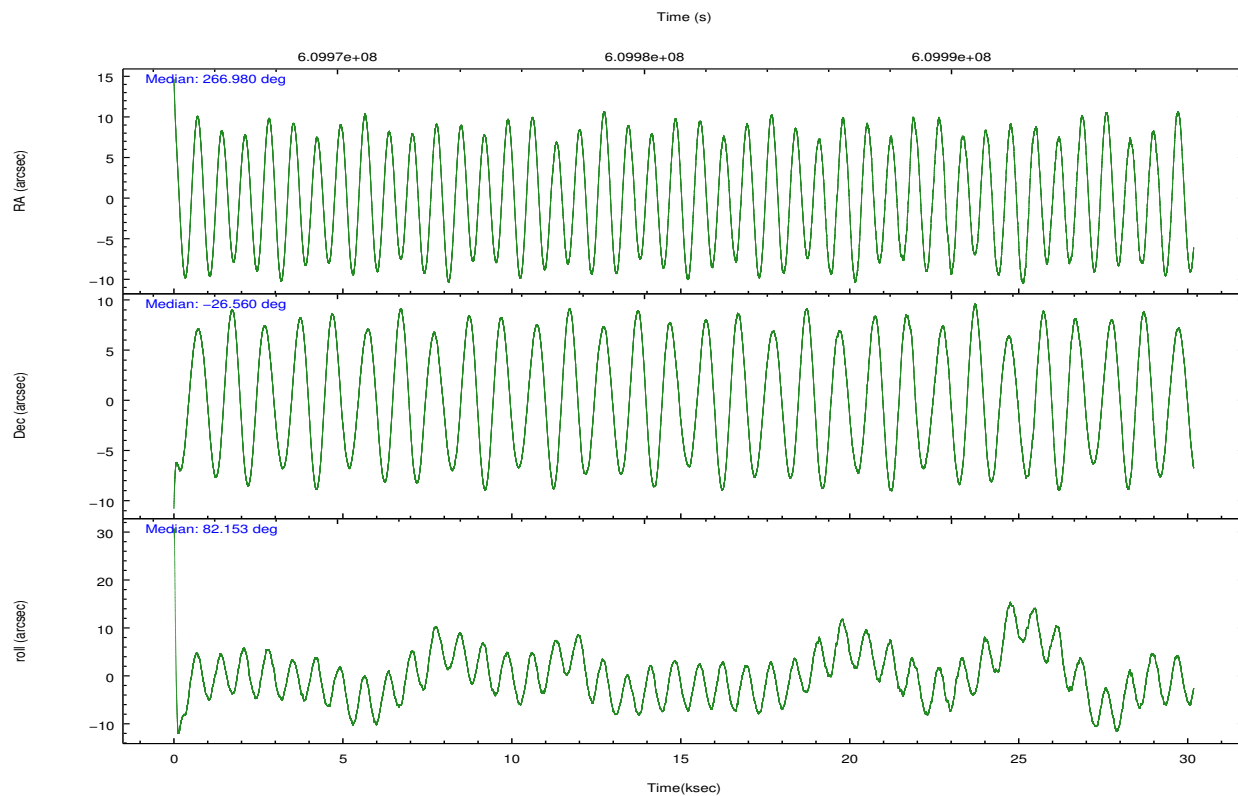
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	45771	721355	256620	191664
	18%	64%	17%	55%
grade 1 events	3741	11763	5666	1014
	1%	1%	0%	0%
grade 2 events	59369	141067	335799	33224
	24%	12%	22%	9%
grade 3 events	11401	47567	142538	11844
	4%	4%	9%	3%
grade 4 events	10985	46997	142091	11631
	4%	4%	9%	3%
grade 5 events	9576	13625	36494	5446
	3%	1%	2%	1%
grade 6 events	51638	60944	495045	14942
	21%	5%	33%	4%
grade 7 events	53388	83571	81646	74561
	21%	7%	5%	21%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	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	266.991728	266.9797718994175	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-26.585335	-26.56006197677176	Subarray start row	1	1
[deg] Pointing Roll	82.003754	82.15505042723075	Subarray row count	350	350
[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	1.2
[mm] SIM translation stage pos	-182.132523	-182.1370004450064			
[mm] SIM translation stage offset	-8	-7.995522138001405			
[s] Observation start time (MET)	609966369.184000	609964756.0759701			
Observation start date	2017-04-30T19:05:00	2017-04-30T18:39:16			
[s] Observation end time (MET)	609996369.184000	609997832.31539			
Observation end date	2017-05-01T03:25:00	2017-05-01T03:50:32			
Read mode	TIMED	TIMED			

## 2.3 Aspect



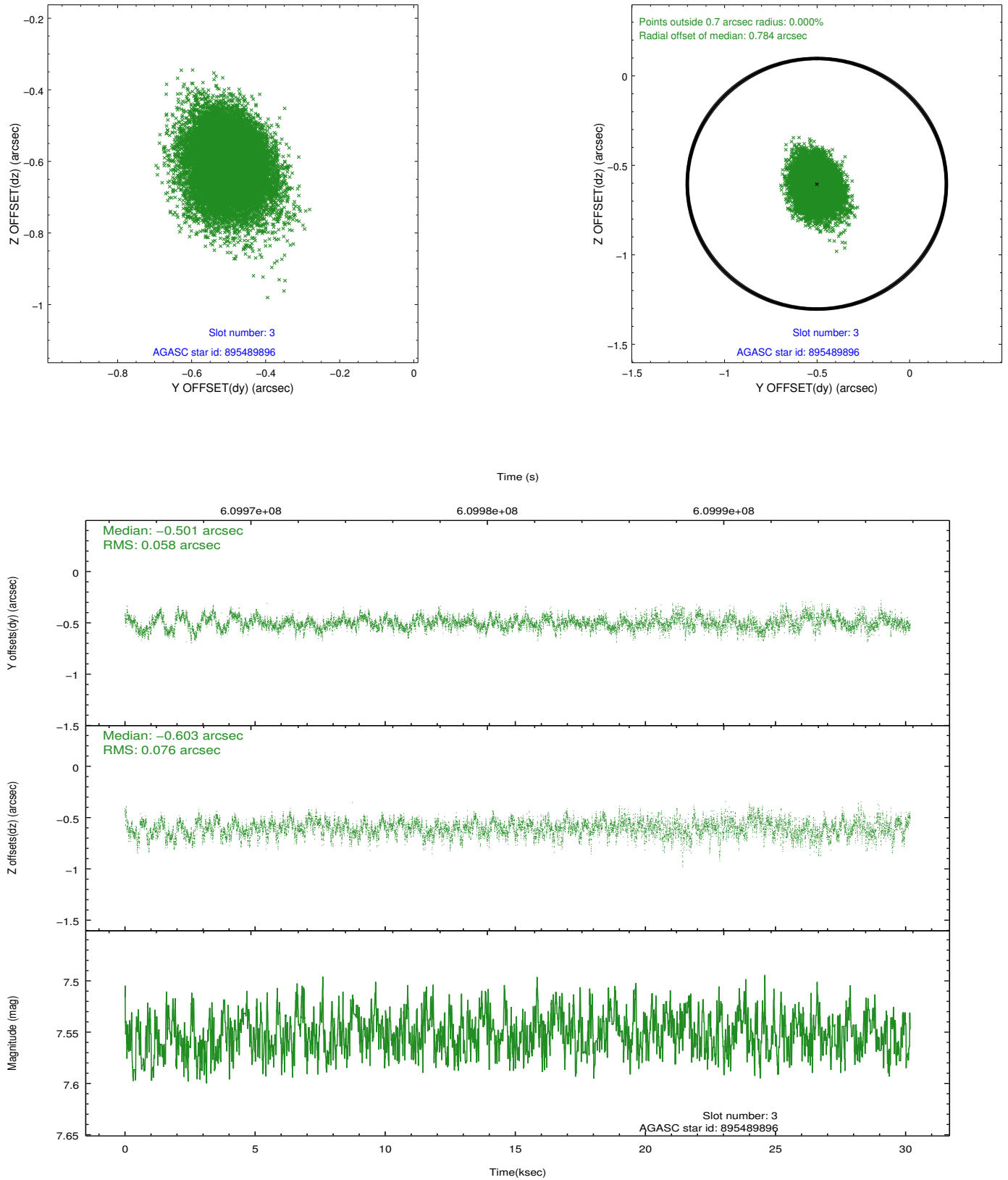


### Slot Statistics

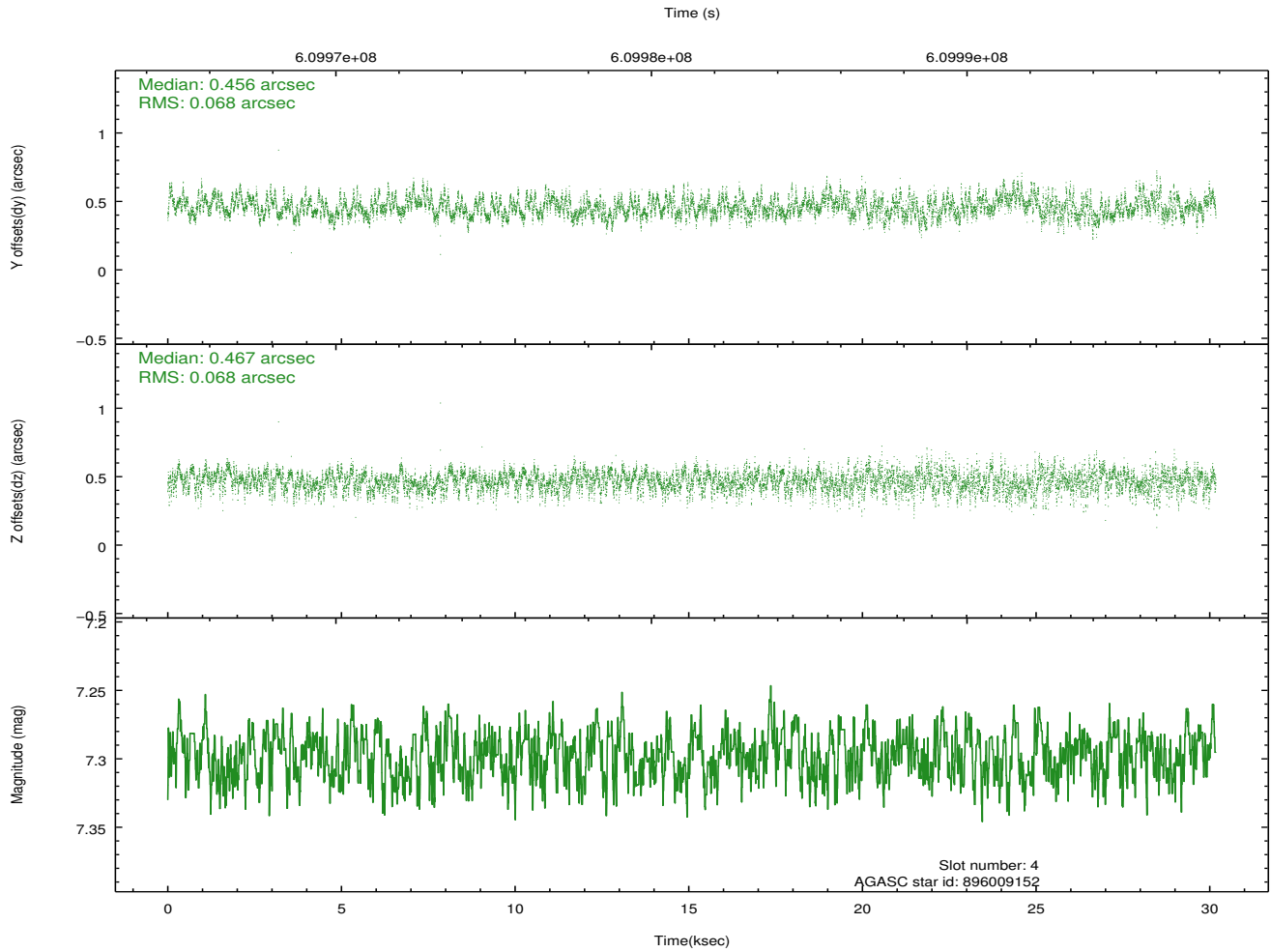
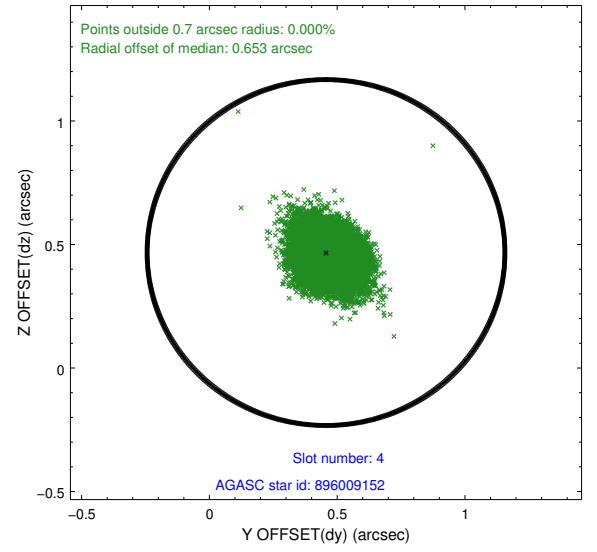
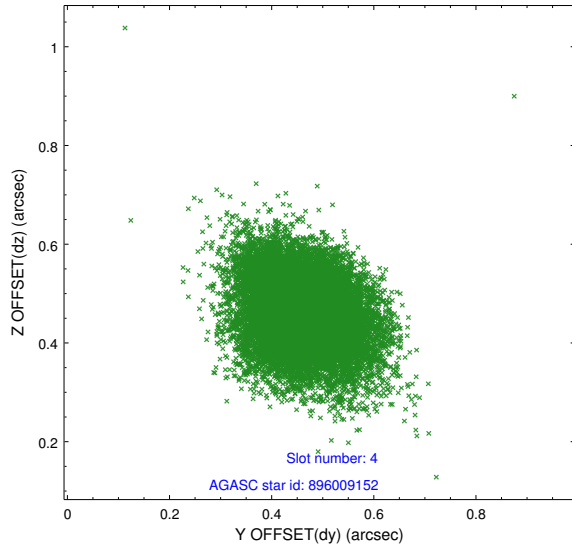
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.12	7361	-0.373	-0.243	0.007	0.013	0.000000	0.000000	-768.73	-1905.10
1	FID		ACIS-S-4	7.22	7361	0.401	0.224	0.007	0.012	0.000000	0.000000	2145.41	3.55
2	FID		ACIS-S-6	7.45	7360	-0.055	0.026	0.008	0.013	0.000000	0.000000	393.82	640.95
3	GUIDE	used	895489896	7.55	14717	-0.501	-0.603	0.101	0.166	266.605795	-26.200300	1197.11	1426.62
4	GUIDE	used	896009152	7.30	14720	0.456	0.467	0.101	0.166	267.588100	-27.061669	-1436.55	-2131.73
5	GUIDE	used	896013040	7.33	14721	0.067	-0.265	0.097	0.169	266.506589	-26.972299	-1598.83	1346.84
6	GUIDE	used	896015112	9.16	14703	-0.467	-0.358	0.156	0.250	266.684847	-26.286161	927.25	1130.43
7	GUIDE	used	896008728	9.18	14705	0.439	0.767	0.117	0.188	267.399580	-27.194977	-1992.97	-1598.07

## 2.4 Star Slots

### 2.4.1 Slot 3

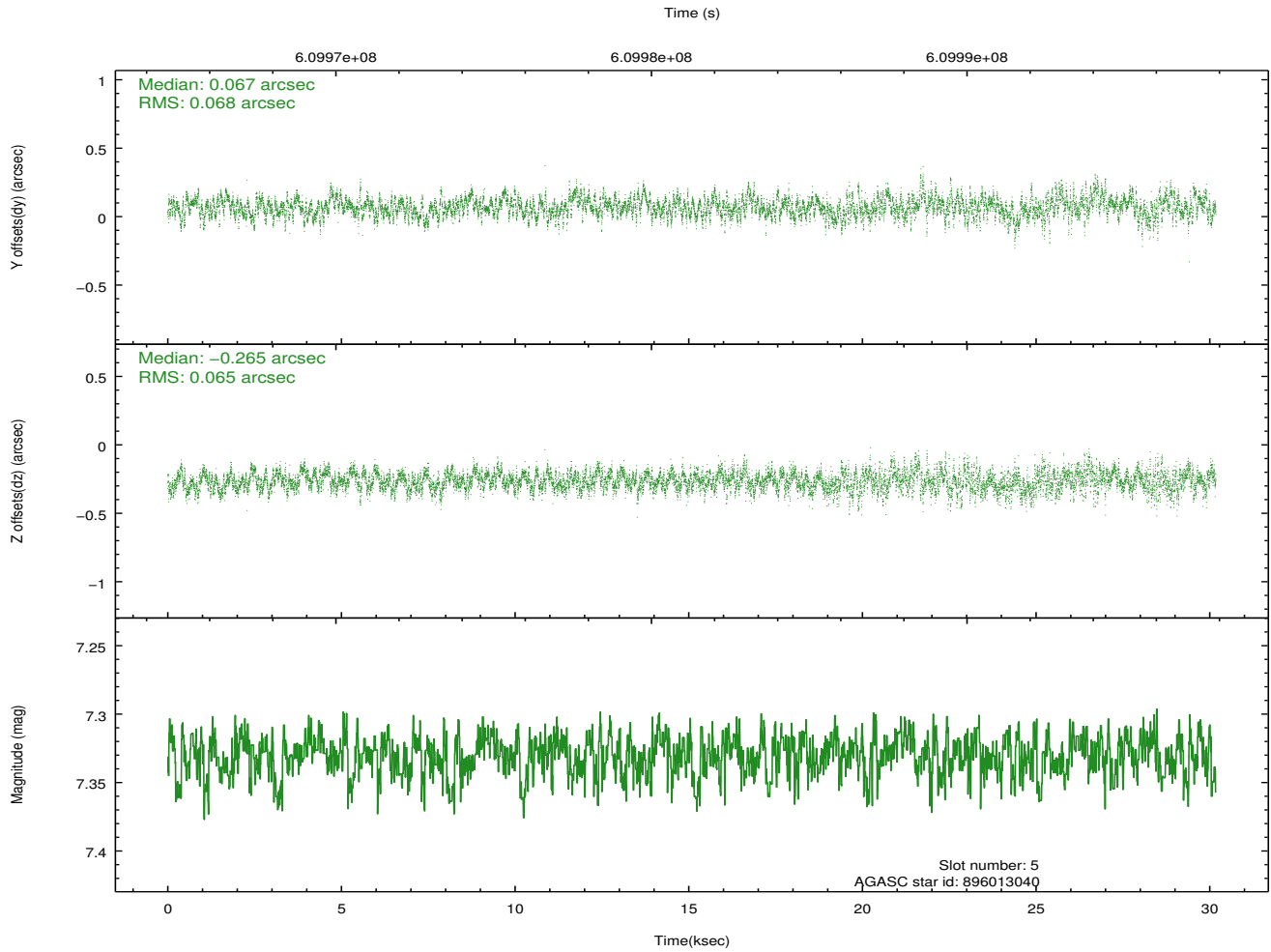
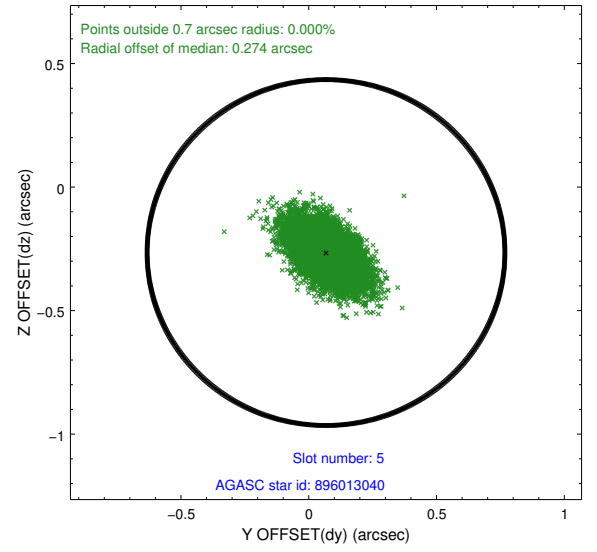
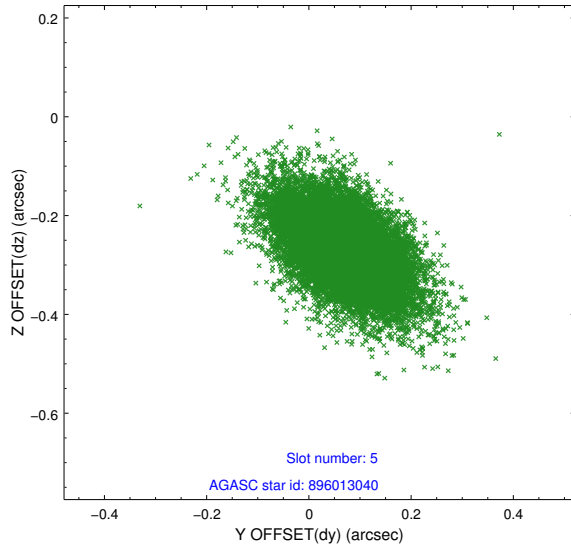


## 2.4.2 Slot 4

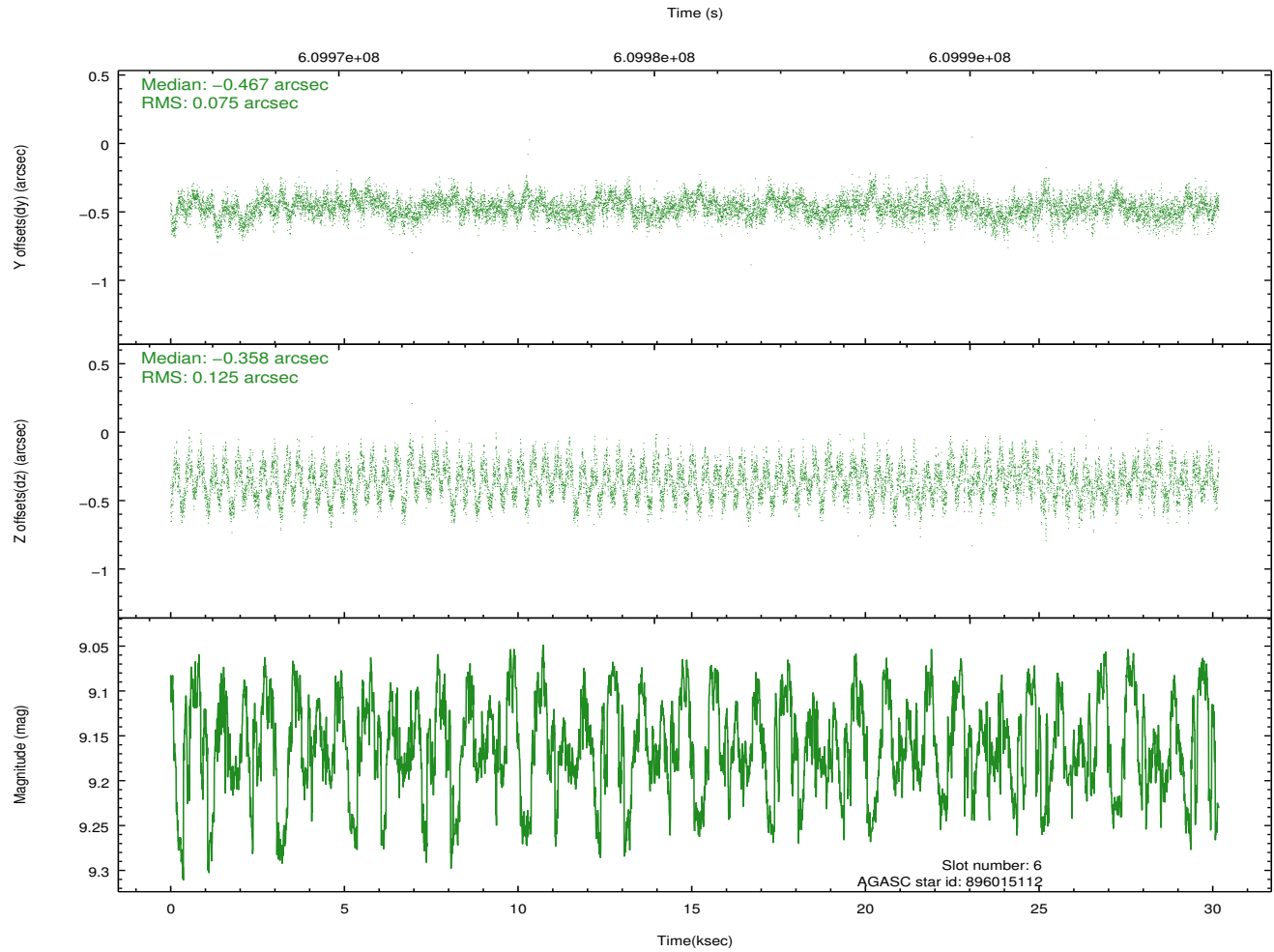
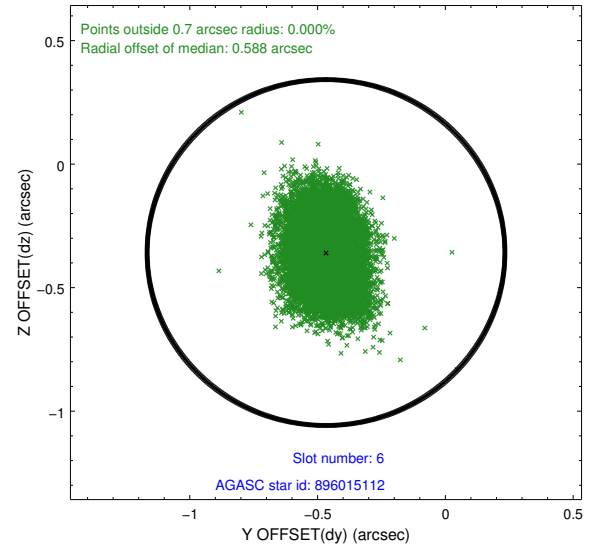
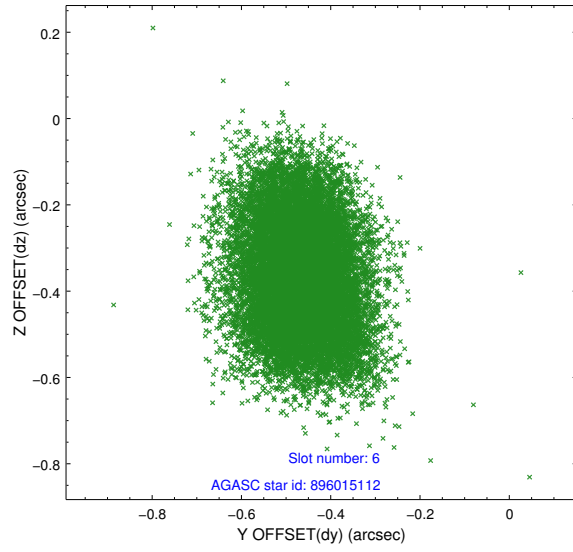




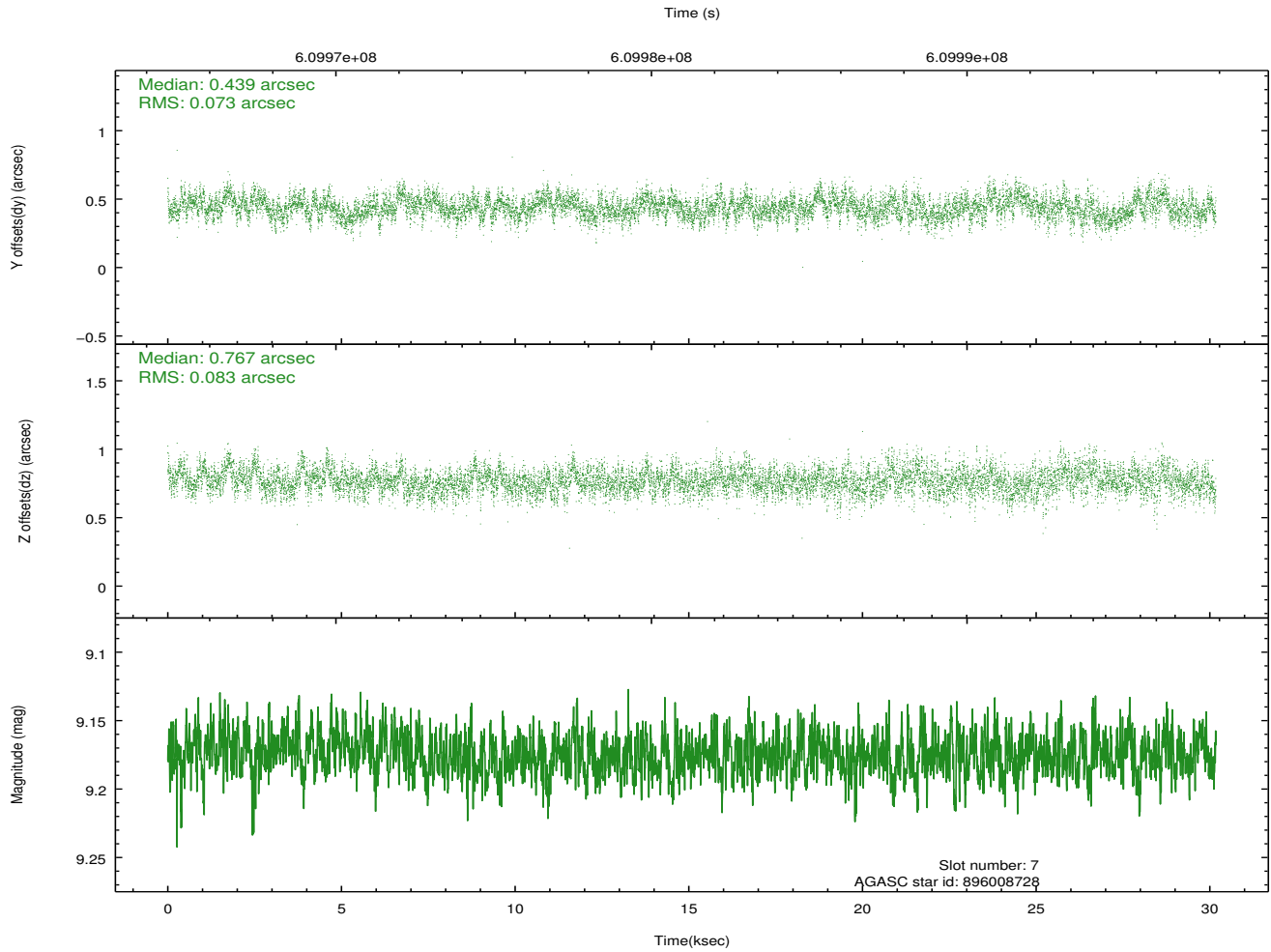
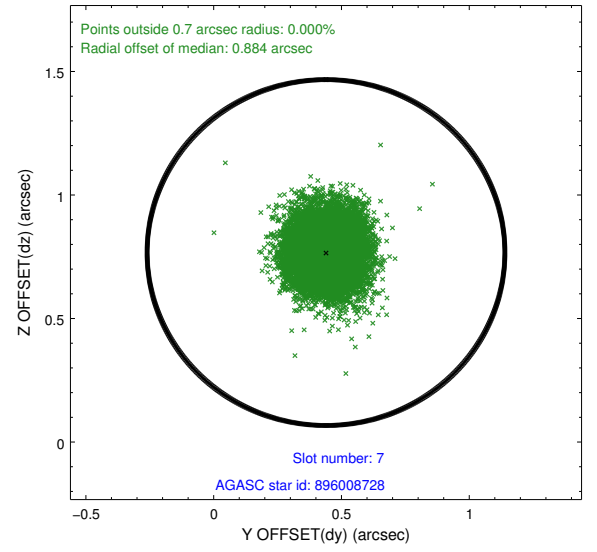
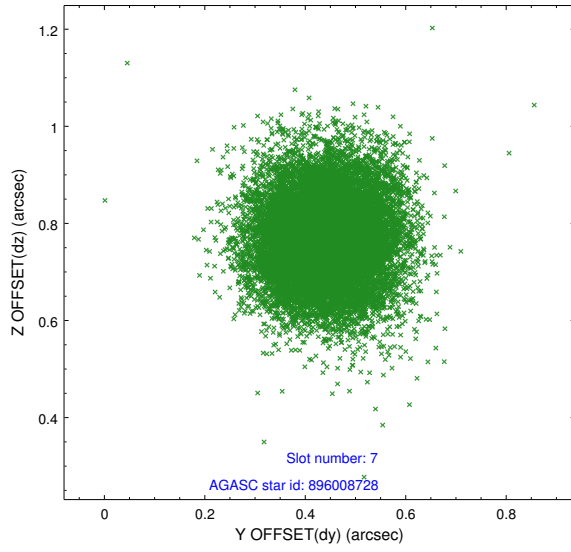
### 2.4.3 Slot 5



## 2.4.4 Slot 6

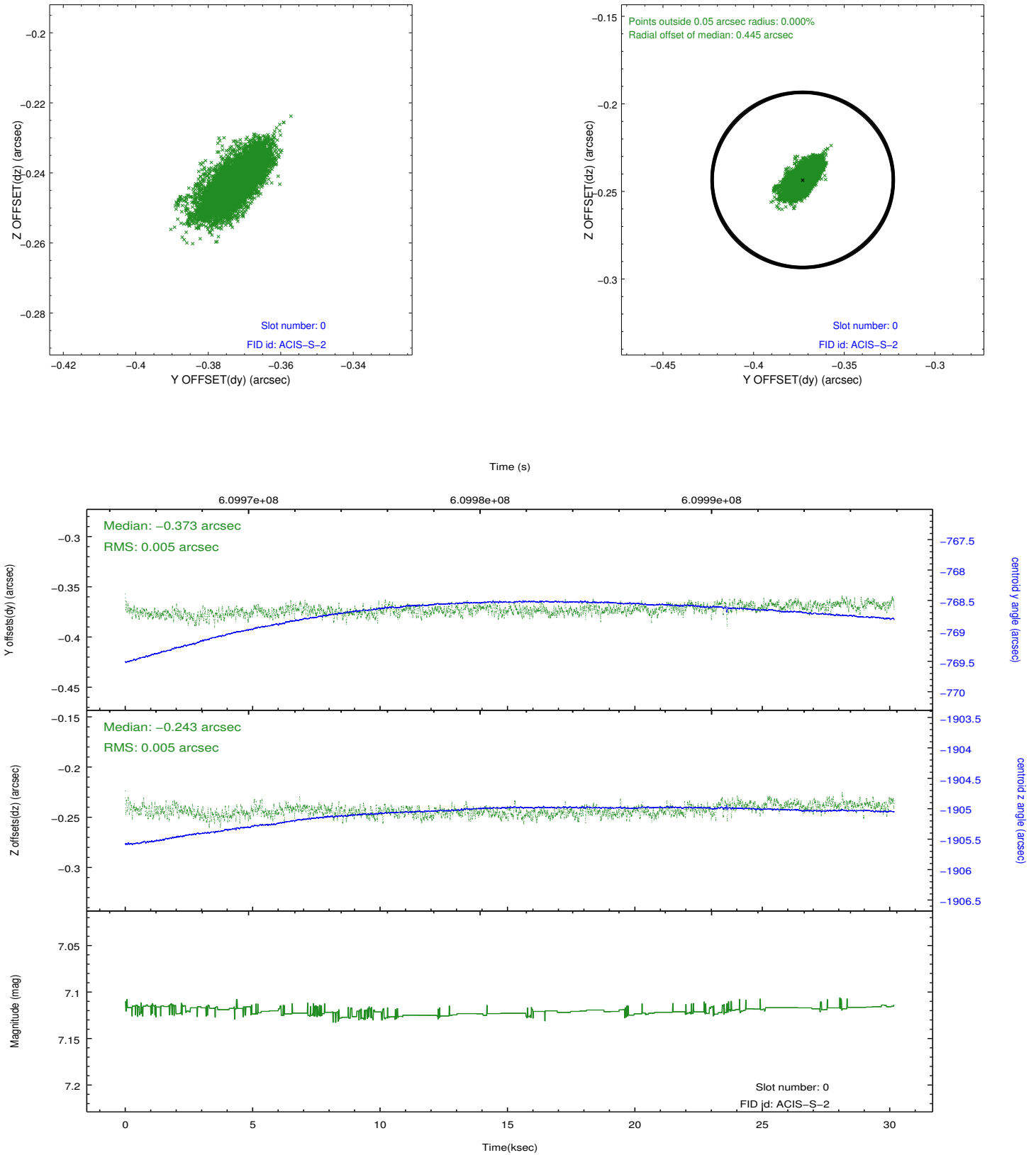


## 2.4.5 Slot 7

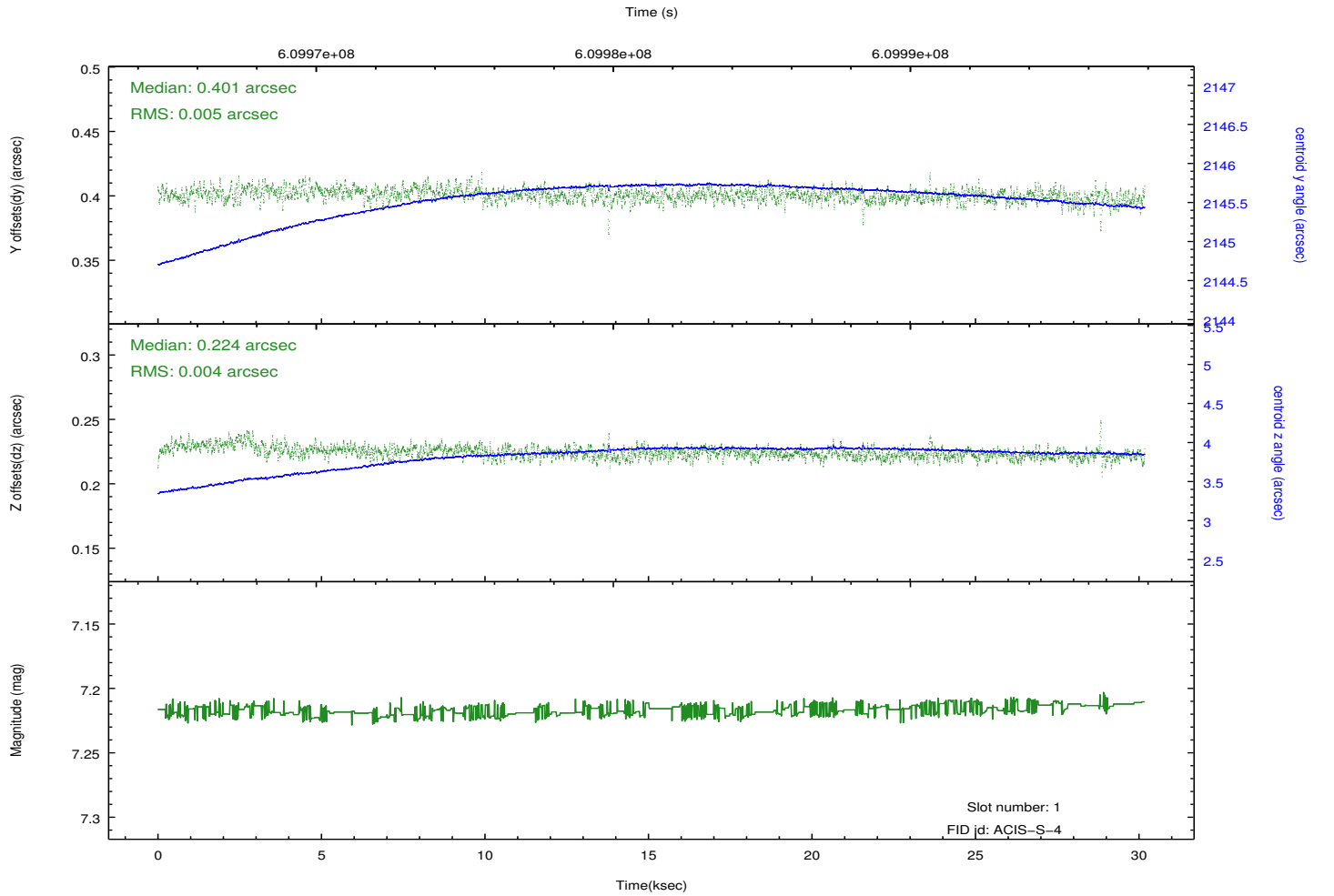
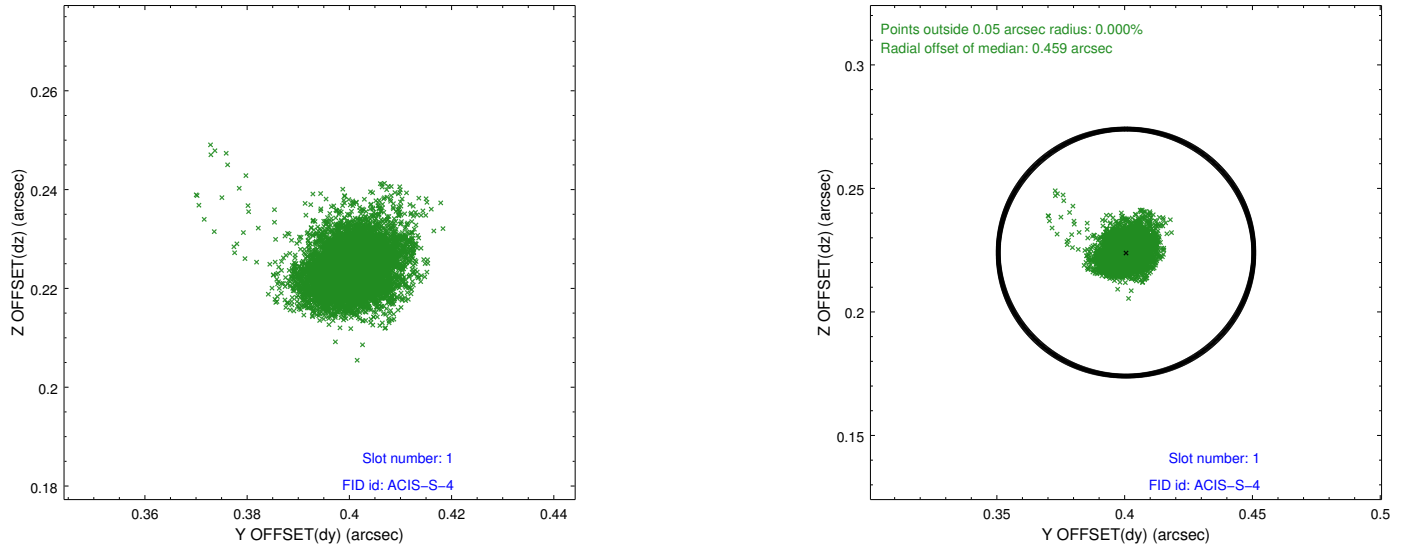


## 2.5 FID Slots

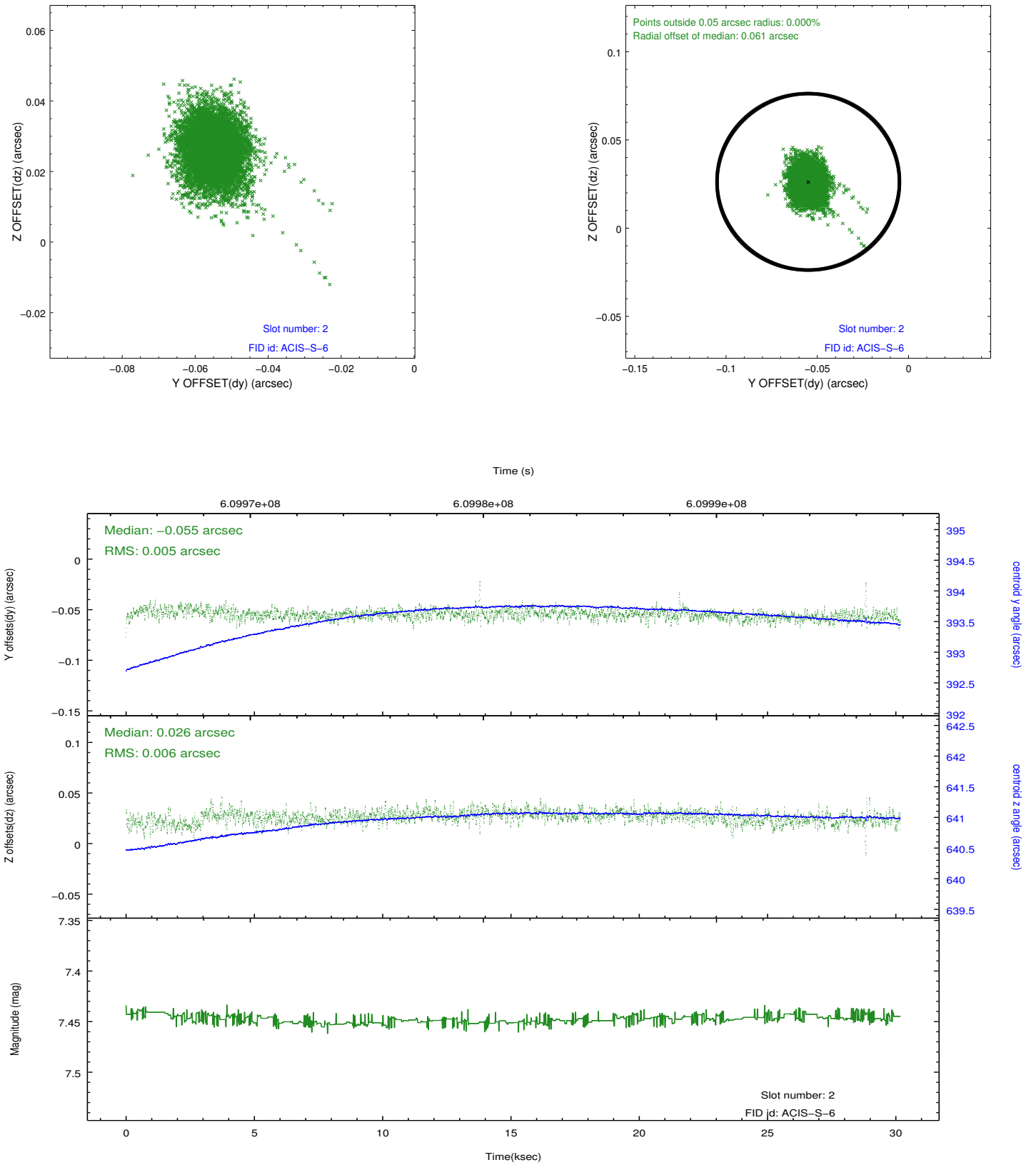
### 2.5.1 Slot 0



## 2.5.2 Slot 1

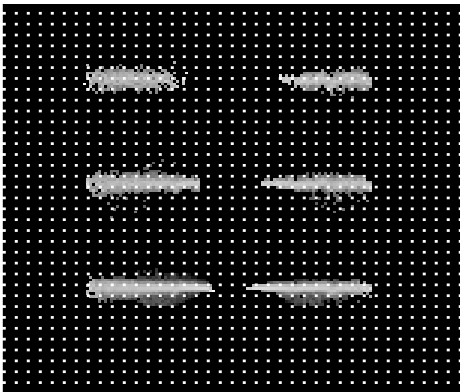


### 2.5.3 Slot 2

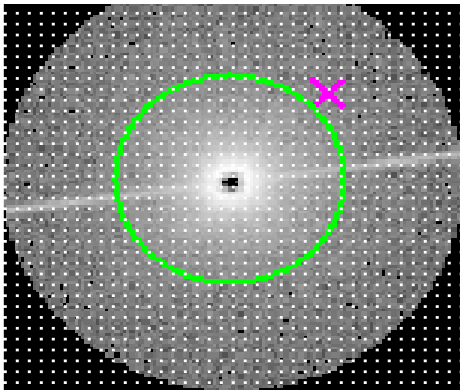


# 3 Gratings

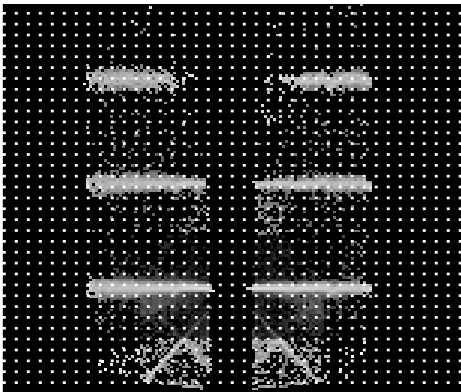
## 3.1 HEG Arm



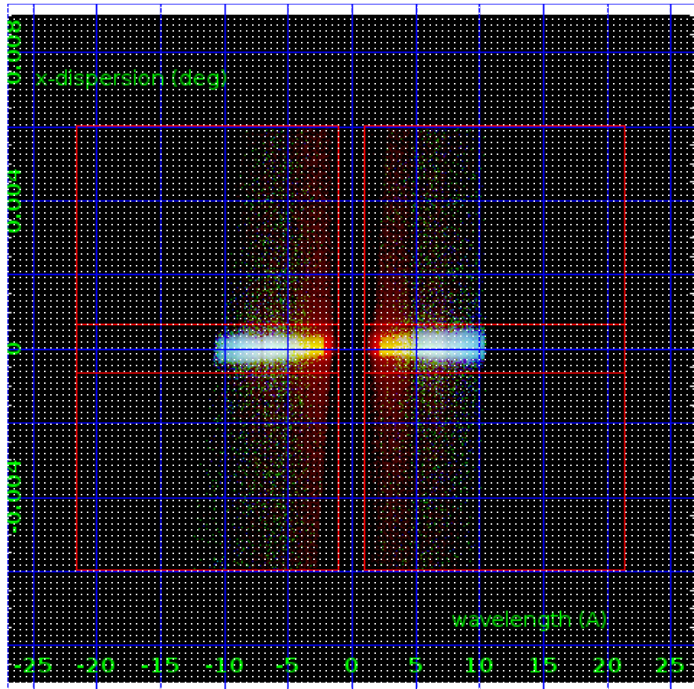
HEG Order Sort 123



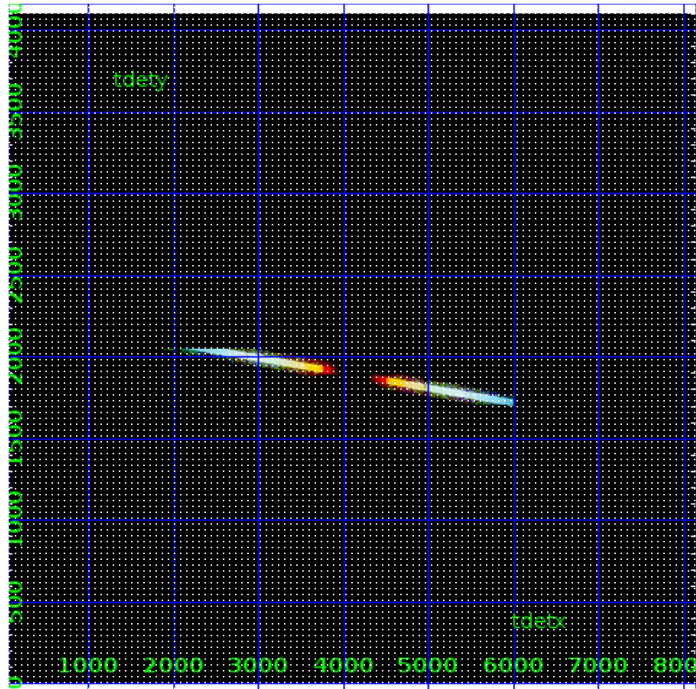
HEG Zero Order



HEG Order Sort ALL

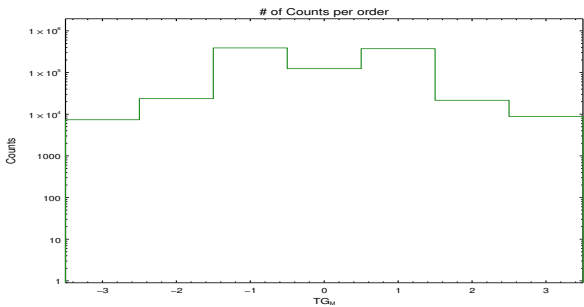


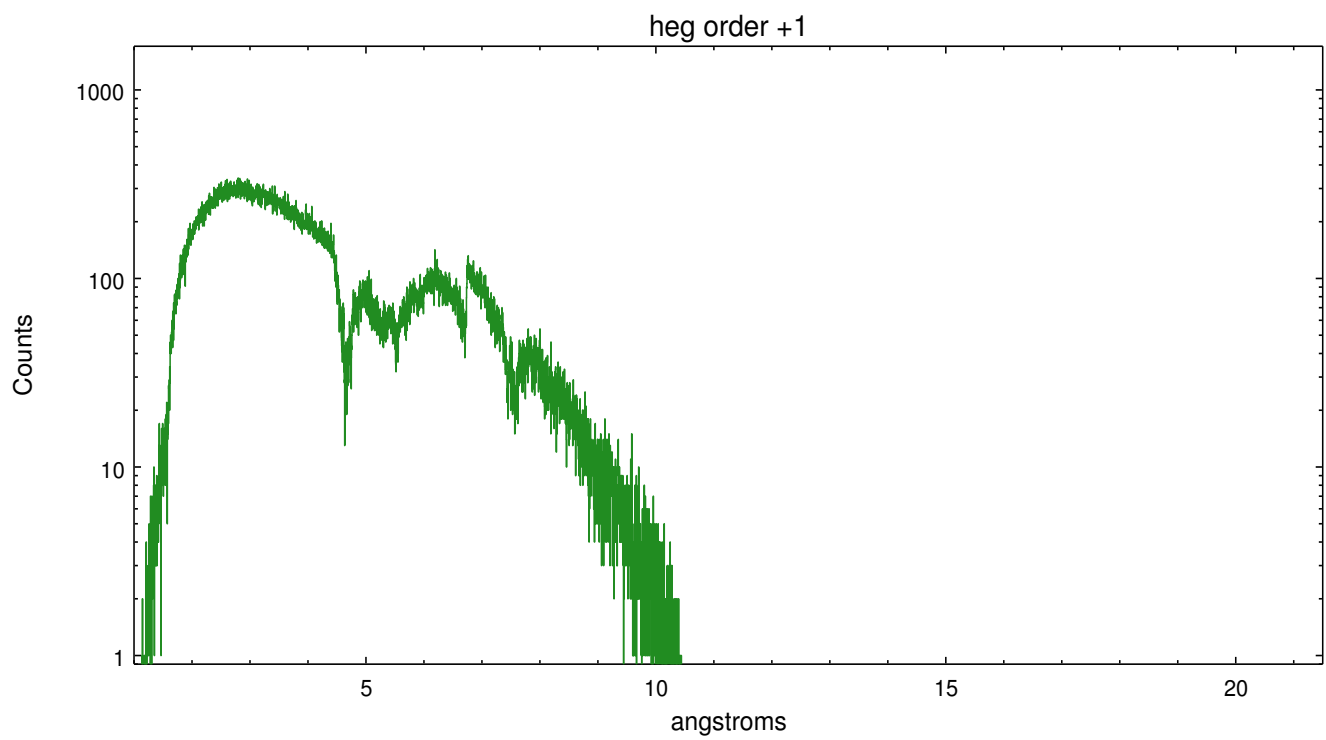
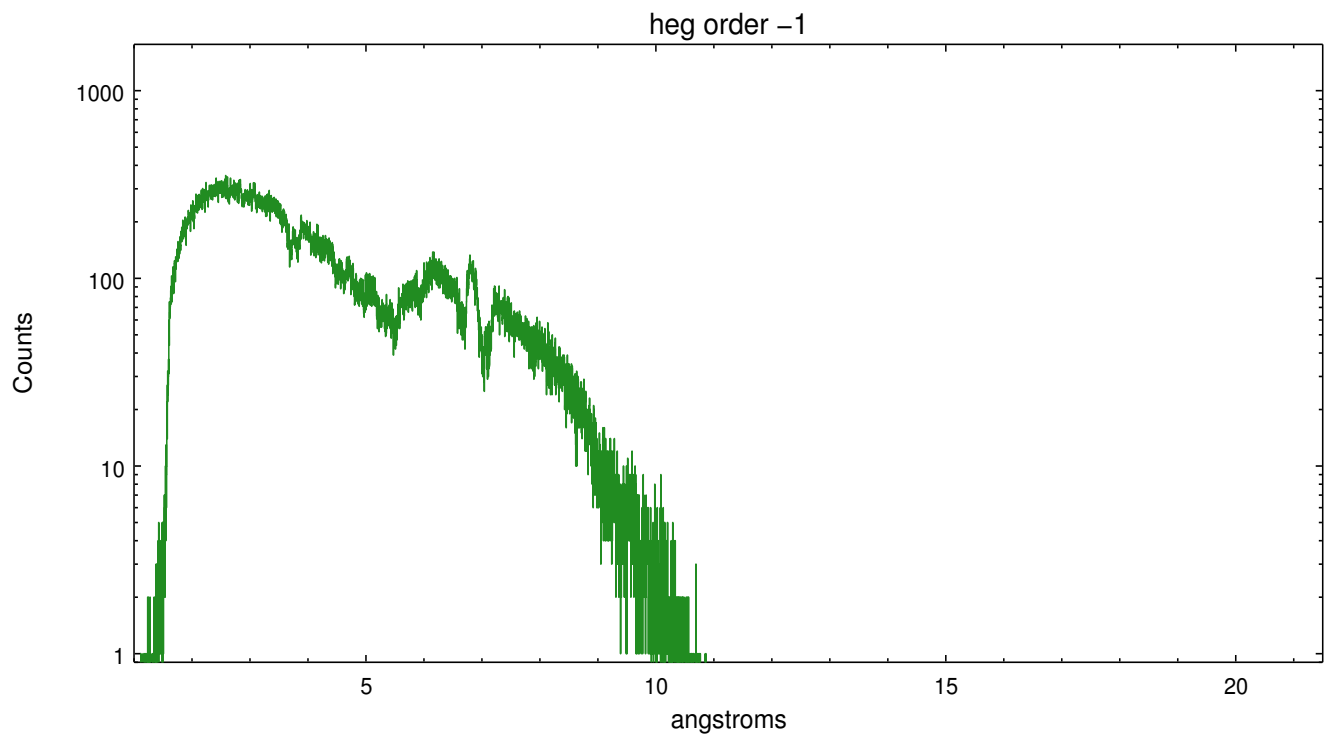
Spot Image HEG



Full Detector HEG

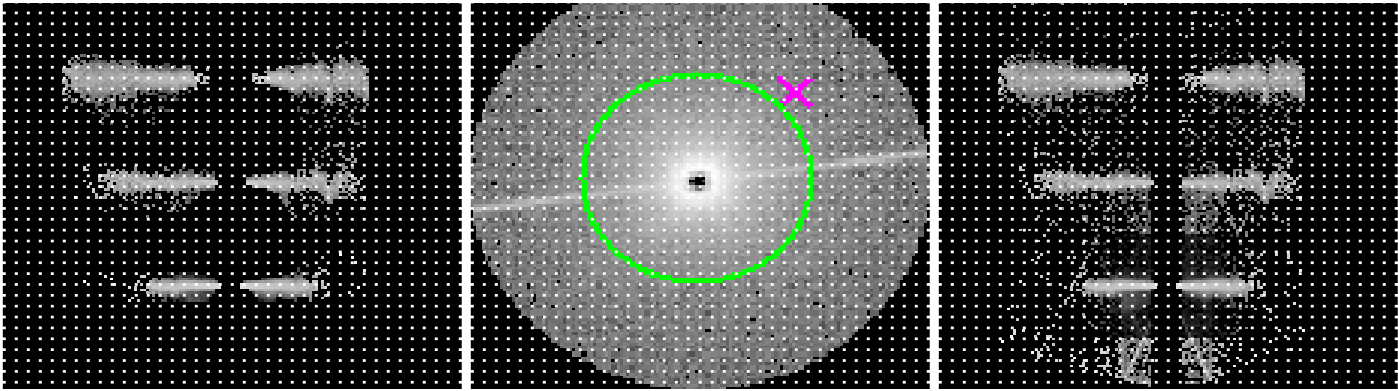
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	7361	23633	389218	123719	373117	21545	8812







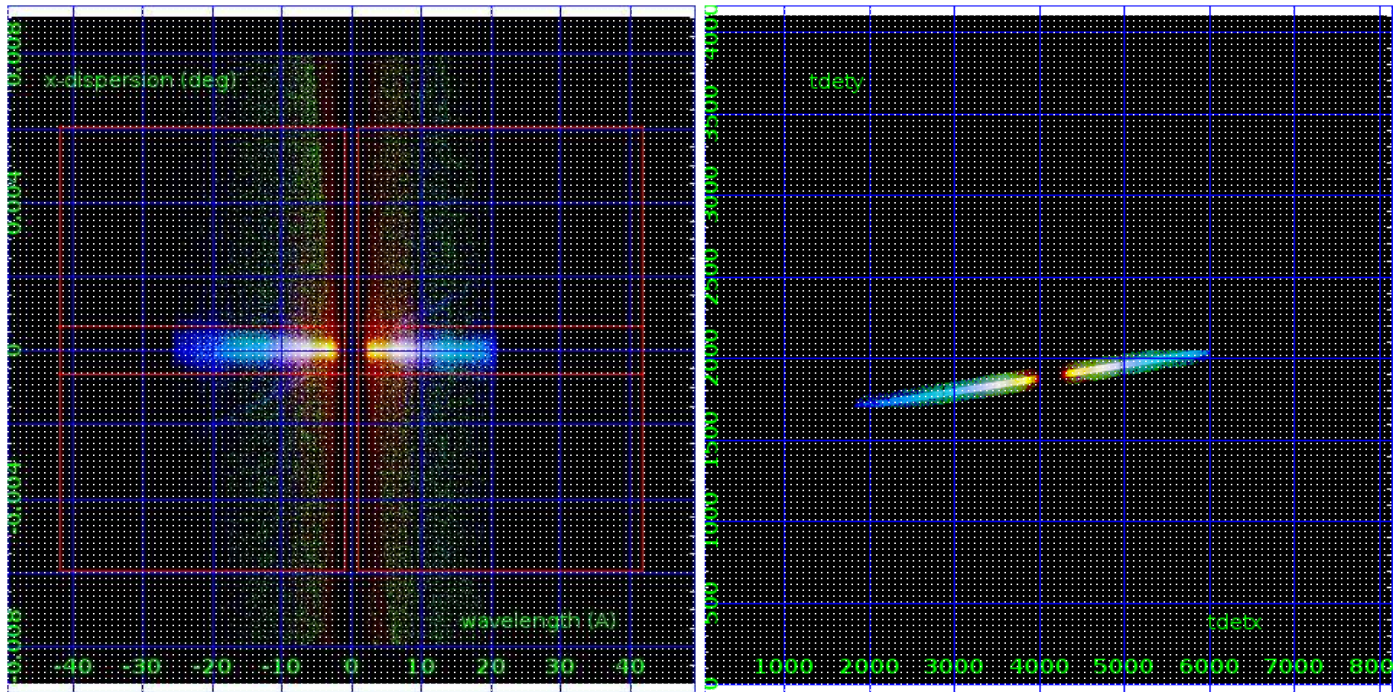
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

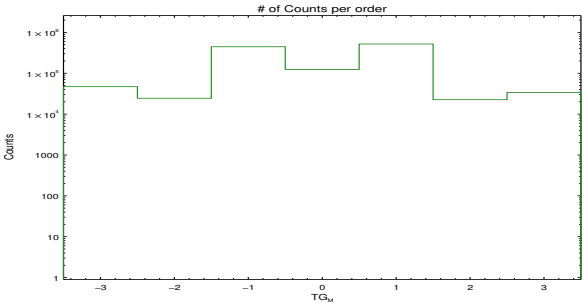
MEG Order Sort ALL

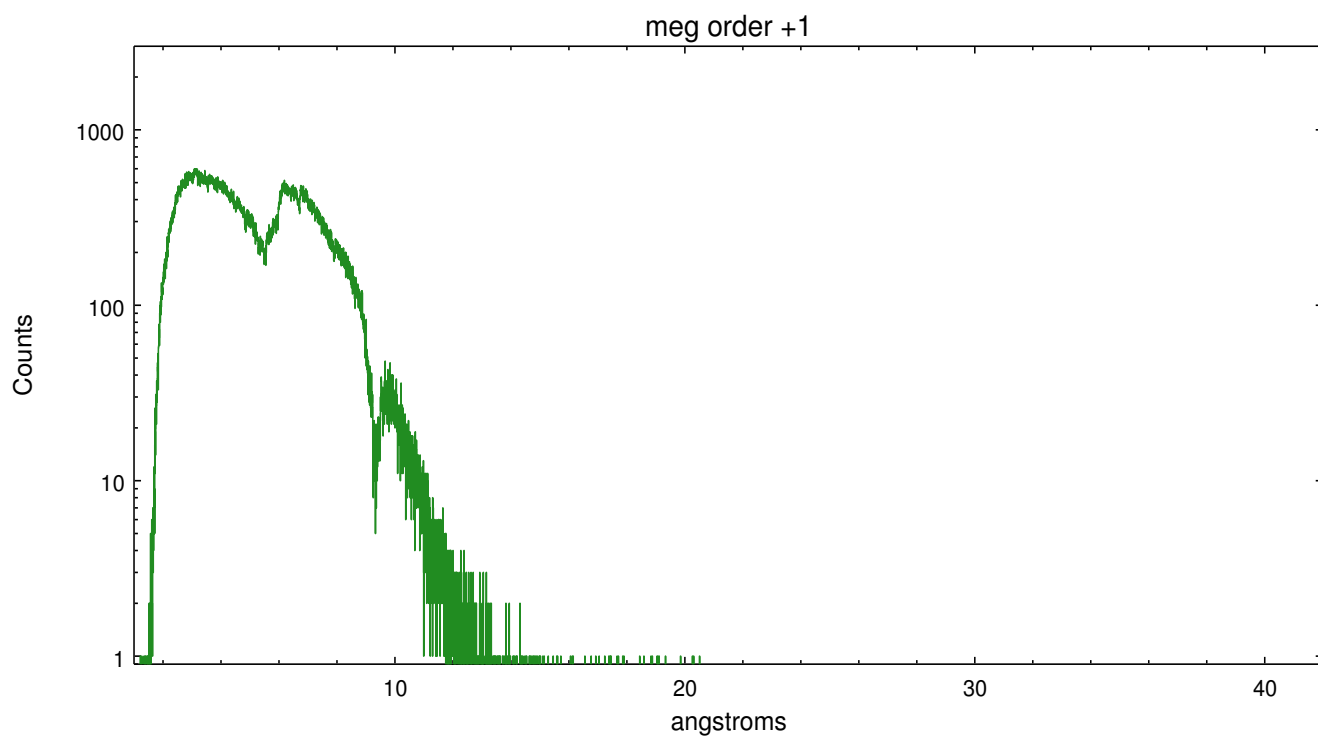
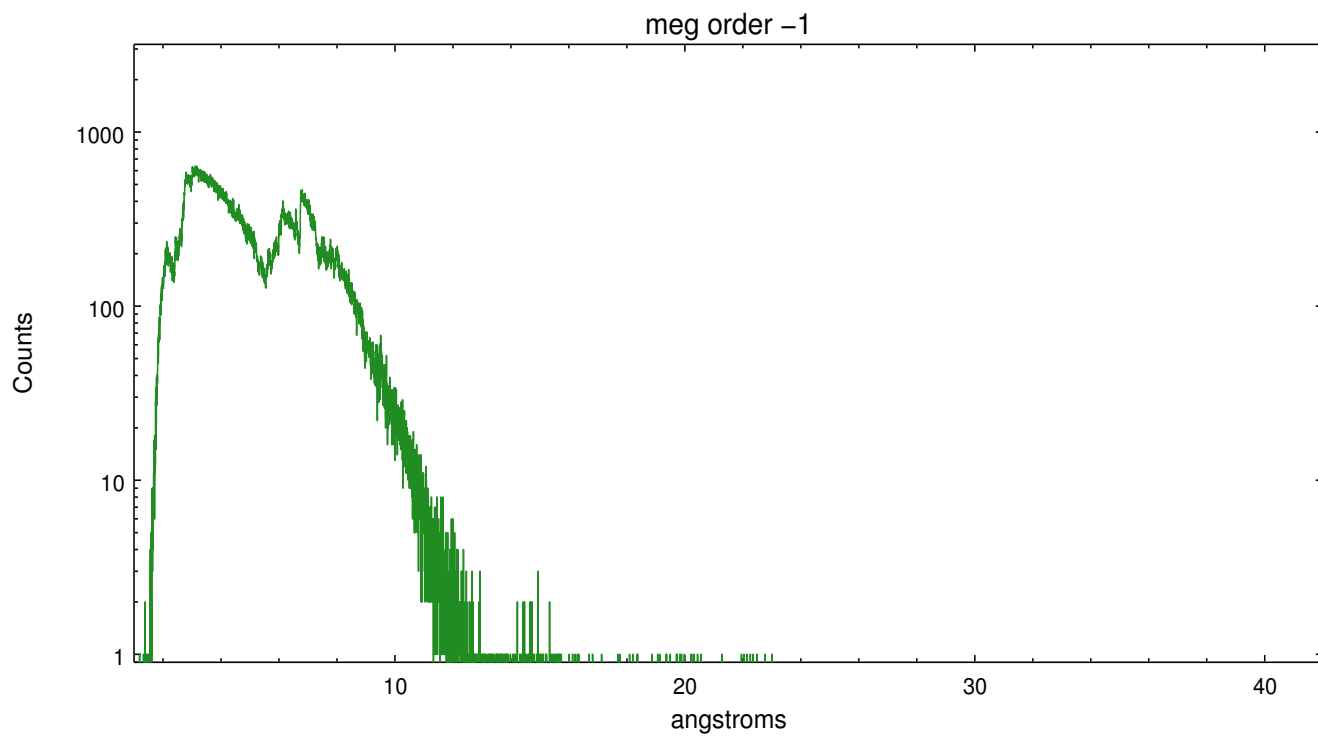


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	47026	24467	446079	123719	520966	22574	34004





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2017.05.01
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.076801195145

## A.2 Comments

Zeroth order piled up. The zeroth order sky position was determined using a software tool developed by CXC called findzero, which is available in CIAO as part of the tgdetect2 tool. The tool calculates the point of intersection of the readout streak on the ACIS CCD and the meg or leg dispersed spectral arm, rather than using a centroid position of the source. The findzero results are more accurate than source centroid in this case.

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Faint grating spectra can be seen in an image of bad events. This is probably due to pileup in the spectrum, causing migration to bad grades. This should be considered in analysis.