

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 3174 - L2 Version 5  
Chandra X-Ray Center

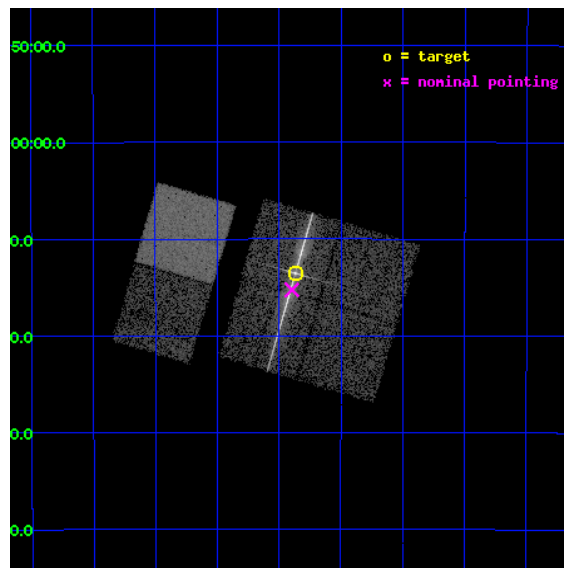
L2 Processing Date : Nov 9 2012

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# 1 Front

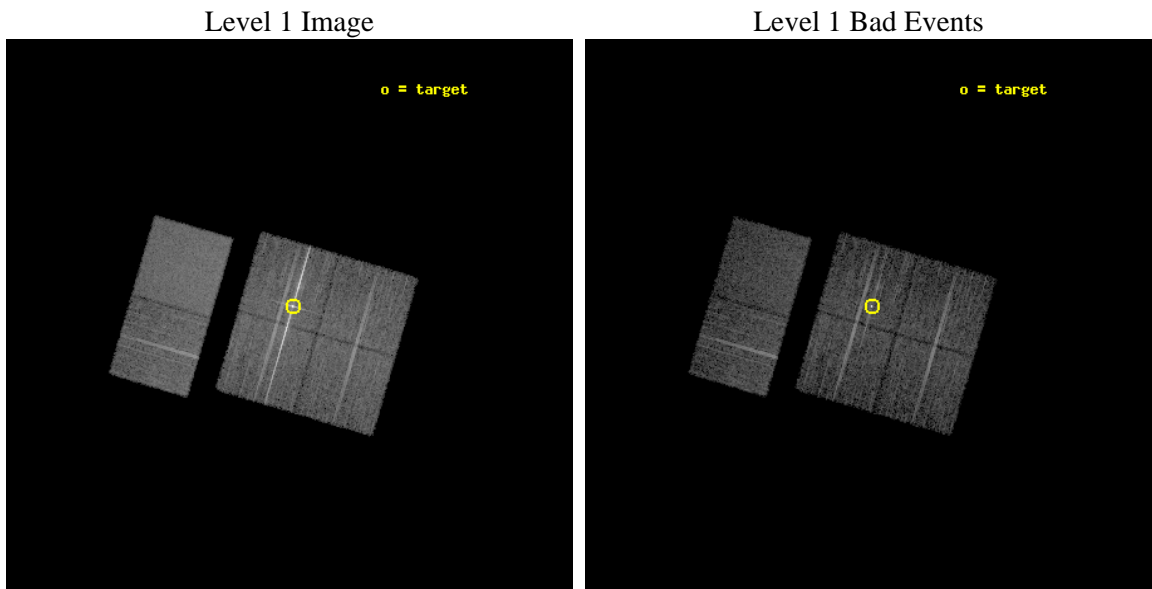
seq_num	790068	Sequence number
obs_id	3174	Observation id
title	AO3 LETG/ACIS-I CALIBRATION OBSERVATIONS OF PKS2155-304	Proposal t
observer	Dr. CXC Calibration	Principal investigator
object	PKS2155-304	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	329.716667	Observer's specified target RA [deg]
dec_targ	-30.225556	Observer's specified target Dec [deg]
ra_nom	329.72404299217	Nominal RA [deg]
dec_nom	-30.254287126543	Nominal Dec [deg]
roll_nom	286.35196548237	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7792.000007242	Sum of GTIs [s]
livetime	7693.3330113711	Livetime [s]
ontime0	7792.000007242	Sum of GTIs [s]
ontime1	7792.000007242	Sum of GTIs [s]
ontime2	7792.000007242	Sum of GTIs [s]
ontime3	7792.000007242	Sum of GTIs [s]
ontime6	7792.000007242	Sum of GTIs [s]
ontime7	7792.000007242	Sum of GTIs [s]
l2events	107260	Number of level 2 events



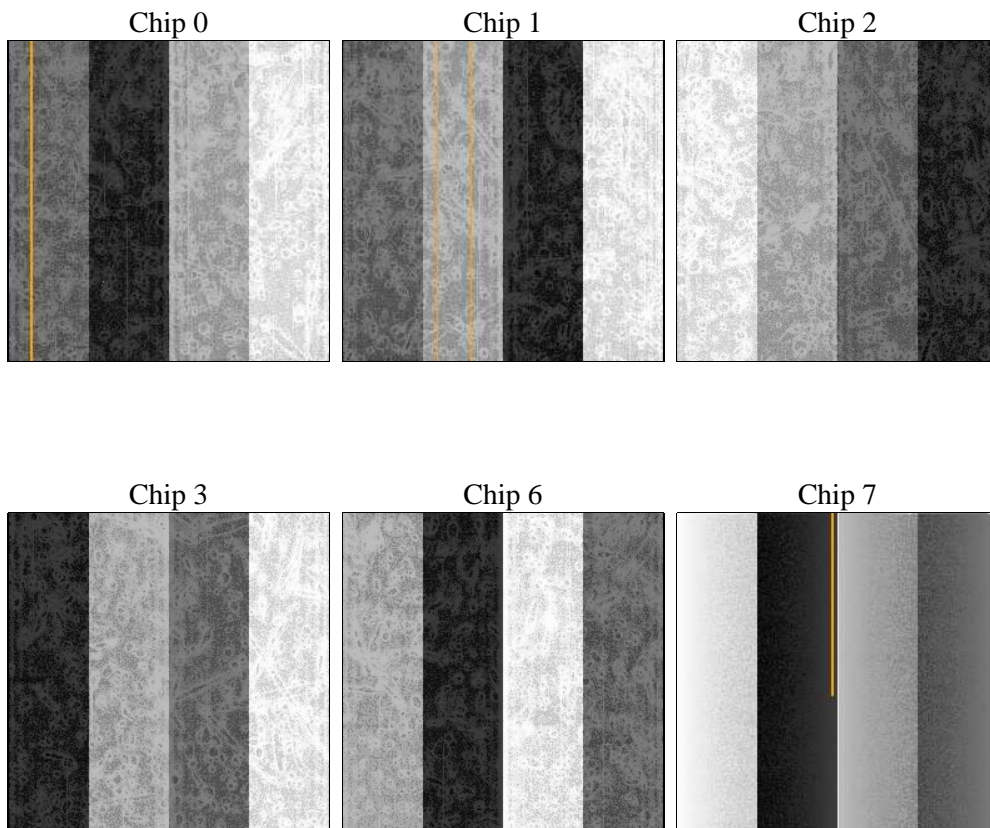
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	8037.161000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7792.000007242	Sum of GTIs [s]
caldsver	4.5.2	&#160	ontime0	7792.000007242	Sum of GTIs [s]
date	2012-09-28T06:11:12	Date and time of file creation	ontime1	7792.000007242	Sum of GTIs [s]
revision	3	Processing version of data	ontime2	7792.000007242	Sum of GTIs [s]
			ontime3	7792.000007242	Sum of GTIs [s]
			ontime6	7792.000007242	Sum of GTIs [s]
			ontime7	7792.000007242	Sum of GTIs [s]
			l1events	374378	Number of level 1 events

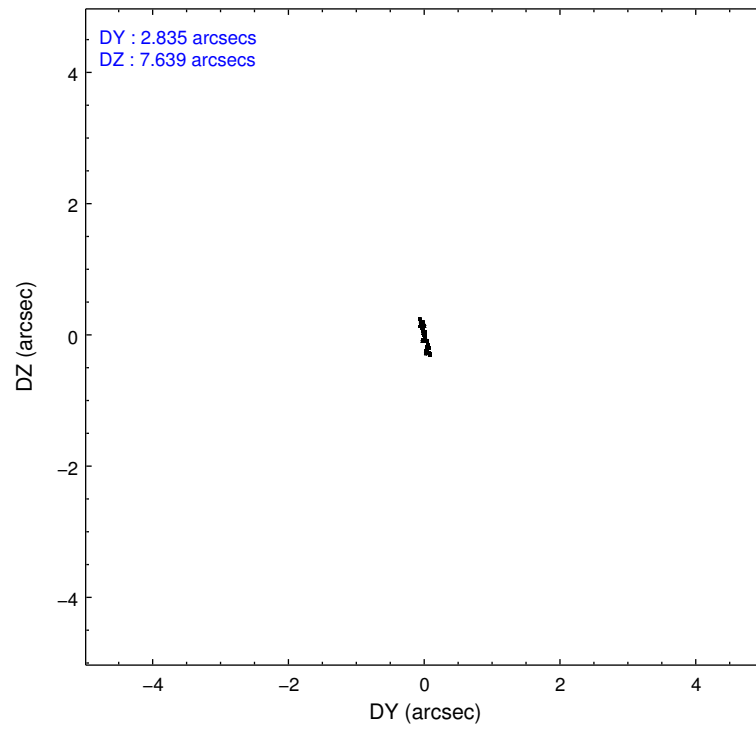
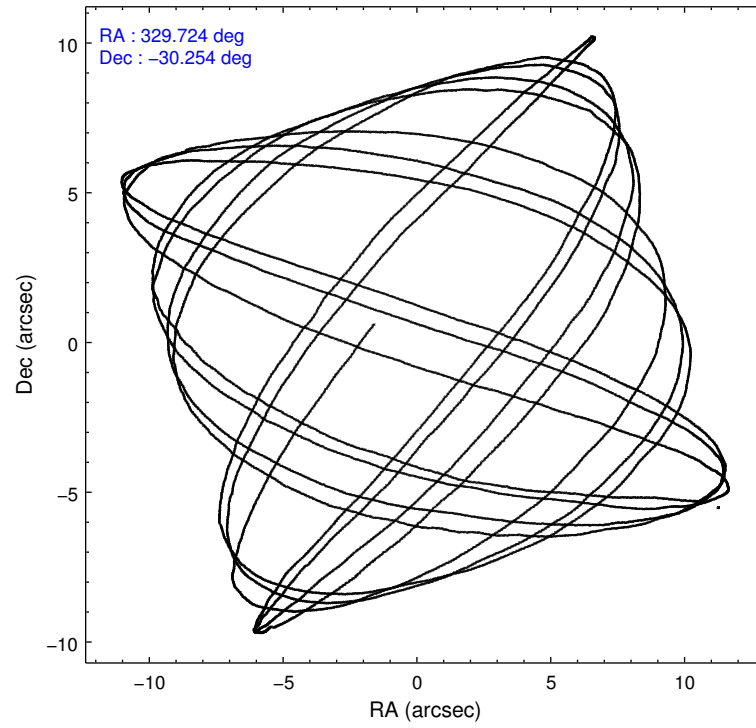
### 2.1.4 Events

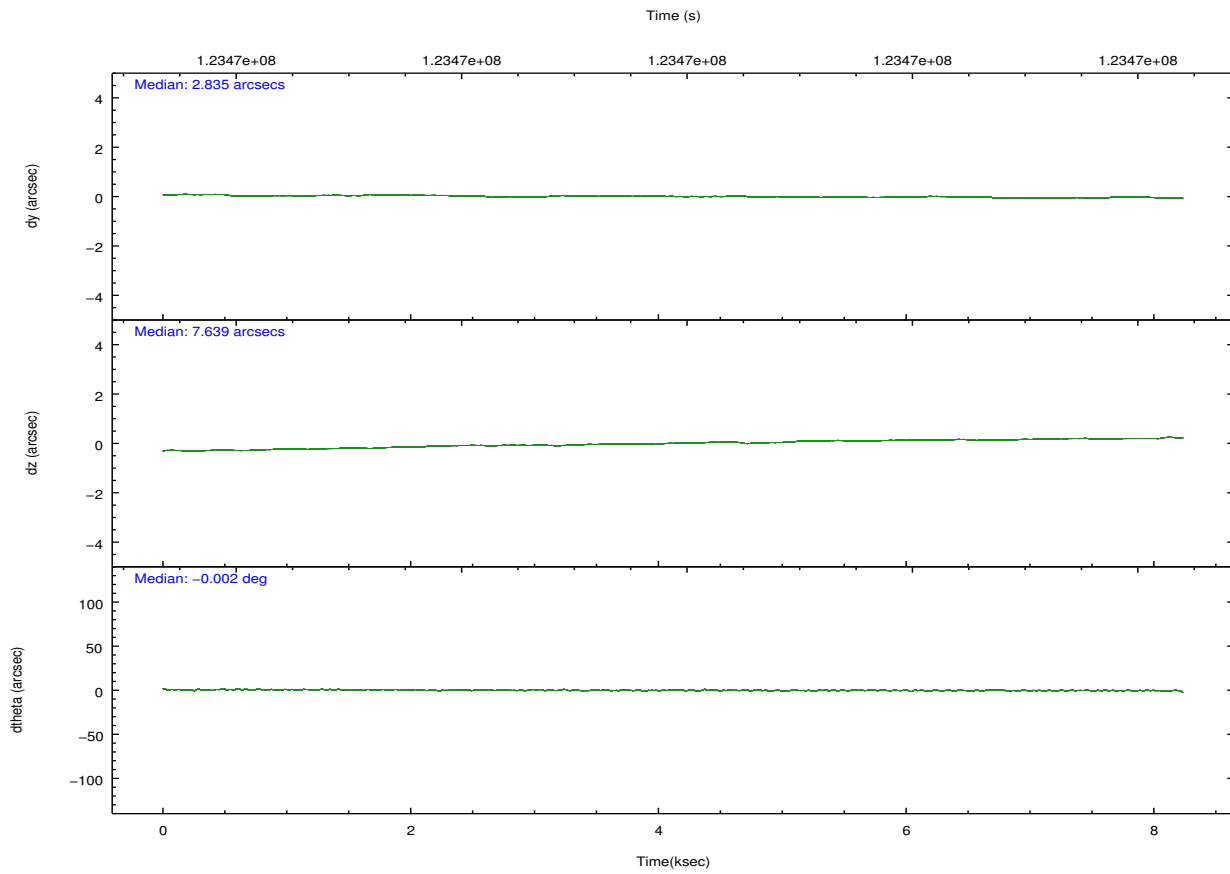
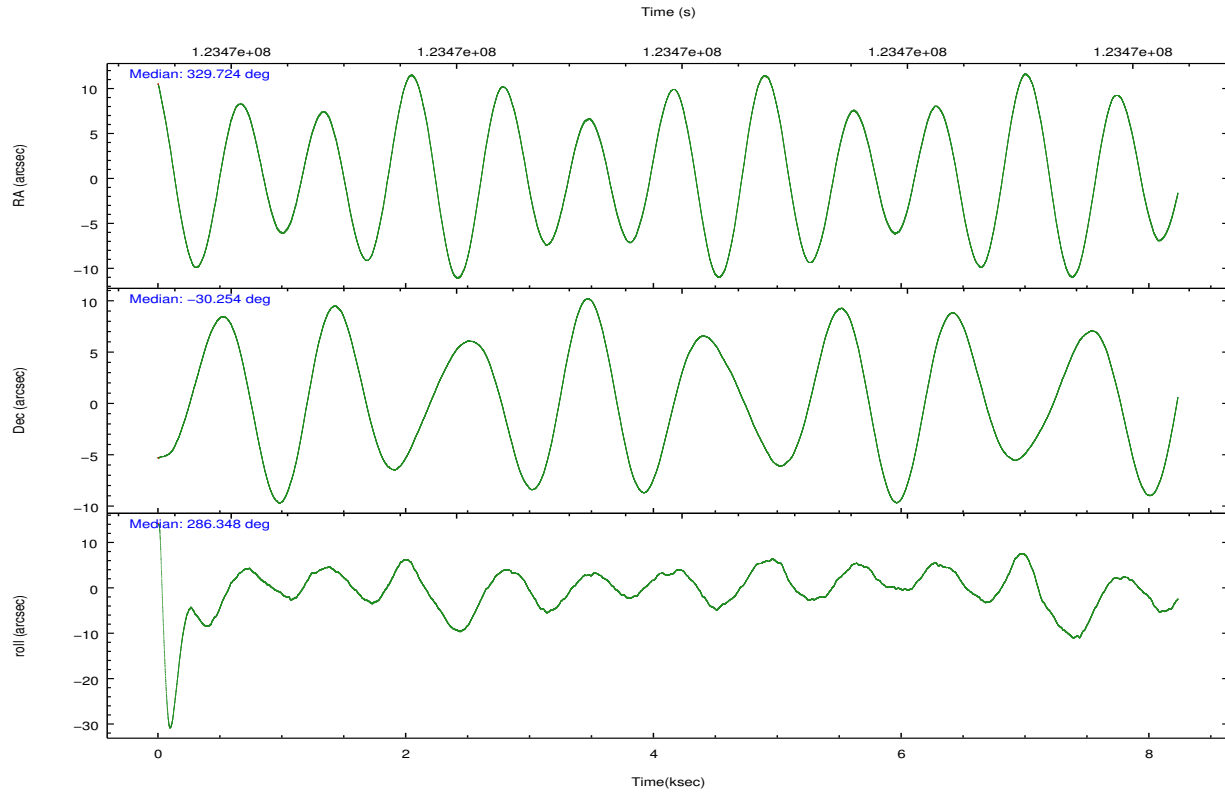
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	46968	47642	71044	89993	52935	65796	grade 0 events	2453	2571	20300	32443	2216	2396
rejected events	41072	41227	44438	46950	47072	38874		5%	5%	28%	36%	4%	3%
rejected %	87%	86%	62%	52%	88%	59%	grade 1 events	22	21	222	758	26	62
								0%	0%	0%	0%	0%	0%
							grade 2 events	1263	1332	3021	4986	1219	5317
								2%	2%	4%	5%	2%	8%
							grade 3 events	556	646	1000	1690	609	2404
								1%	1%	1%	1%	1%	3%
							grade 4 events	551	643	1025	1728	569	2326
								1%	1%	1%	1%	1%	3%
							grade 5 events	1829	2021	1861	2756	2192	6291
								3%	4%	2%	3%	4%	9%
							grade 6 events	1077	1234	1273	2225	1259	14495
								2%	2%	1%	2%	2%	22%
							grade 7 events	39217	39174	42342	43407	44845	32505
								83%	82%	59%	48%	84%	49%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-012367	ACIS-012367	Obspar file type	PREDICTED	ACTUAL
Grating	LETG	LETG	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	329.701067	329.7240429921746	Subarray requested	NONE	NONE
[deg] Pointing Dec	-30.235359	-30.25428712654276	Alternating exposures requested	N	N
[deg] Pointing Roll	286.131639	286.3519654823735	[s] Primary exposure time	0.000000	3.2
[s] Window start time (MET)	120960064.184000	120960064.184000			
[s] Window stop time (MET)	126144064.184000	126144064.184000			
[mm] SIM focus pos	-0.782348	-0.7809083437167272			
[mm] SIM defocus	0	0.001439871863259334			
[mm] SIM translation stage pos	-226.272463	-226.2682626179875			
[mm] SIM translation stage offset	-7.32	-7.32419038494217			
[s] Observation start time (MET)	123465958.184000	123465581.95106			
Observation start date	2001-11-30T00:04:54	2001-11-29T23:59:41			
[s] Observation end time (MET)	123473995.184000	123474220.65141			
Observation end date	2001-11-30T02:18:51	2001-11-30T02:23:40			
Read mode	TIMED	TIMED			

## 2.3 Aspect



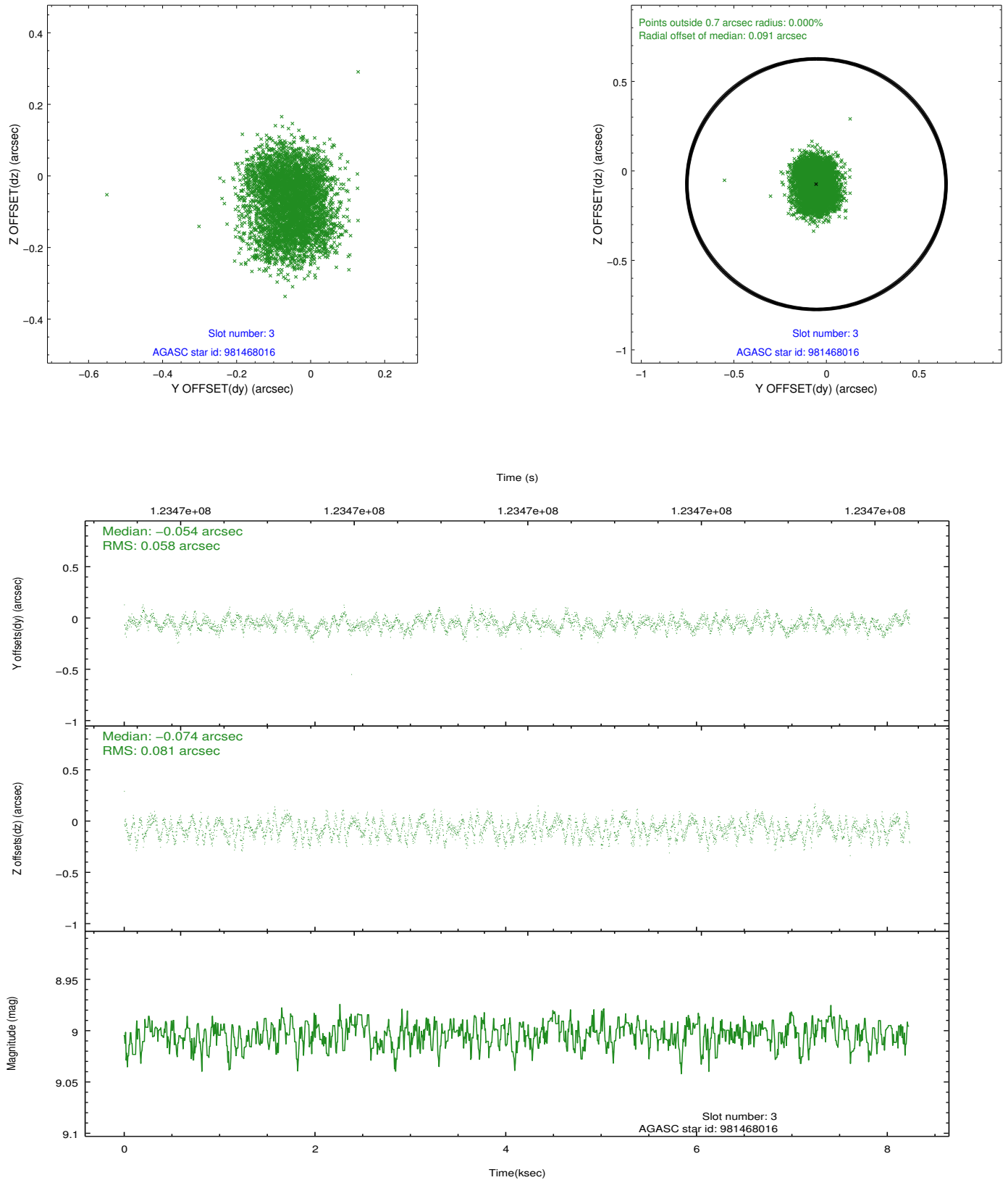


### Slot Statistics

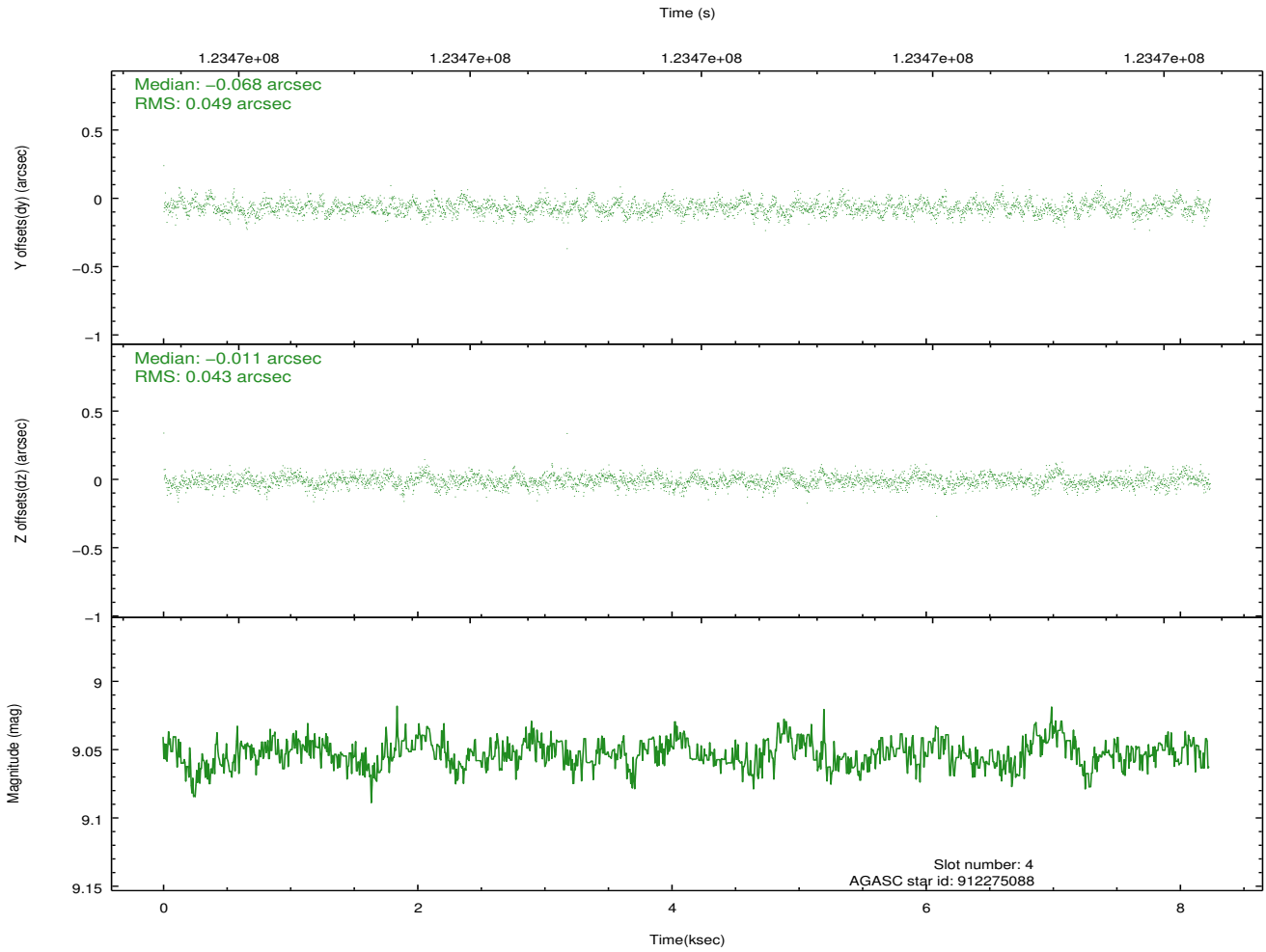
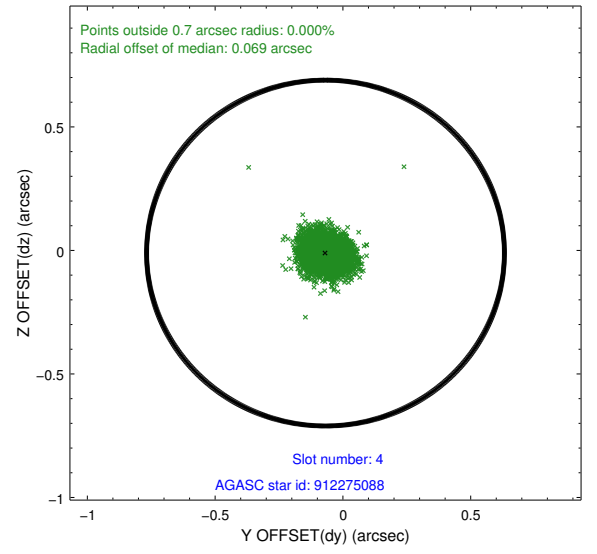
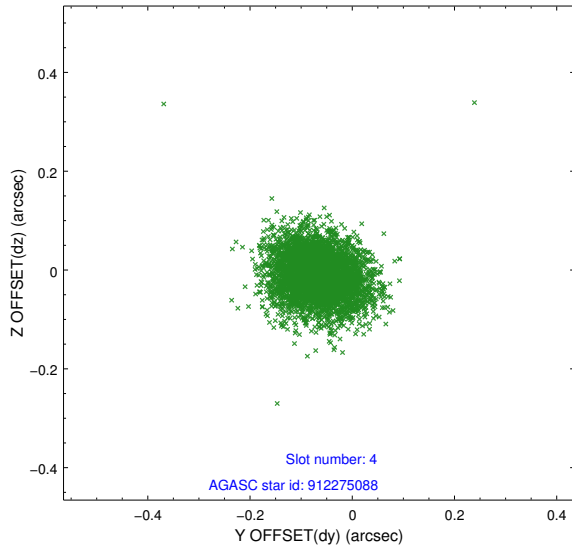
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.23	2009	0.048	-0.002	0.007	0.013	0.000000	0.000000	936.87	-981.39
1	FID	ACIS-I-5	7.23	2009	-0.154	0.072	0.007	0.012	0.000000	0.000000	-1811.06	915.76
2	FID	ACIS-I-6	7.26	2009	0.014	0.001	0.007	0.011	0.000000	0.000000	401.65	1560.97
3	GUIDE	981468016	9.00	4015	-0.054	-0.074	0.110	0.166	328.842457	-30.034984	-1426.73	-2372.89
4	GUIDE	912275088	9.05	4012	-0.068	-0.011	0.068	0.111	329.619228	-29.738698	-1789.08	250.53
5	GUIDE	981478152	9.40	4015	0.001	0.100	0.089	0.140	329.415589	-30.057192	-862.68	-676.25
6	GUIDE	981468128	9.36	4015	0.047	-0.018	0.081	0.130	329.756350	-30.158334	-218.73	242.41
7	GUIDE	981469488	9.60	4013	0.073	0.006	0.093	0.150	329.261199	-30.045155	-1036.06	-1127.03

## 2.4 Star Slots

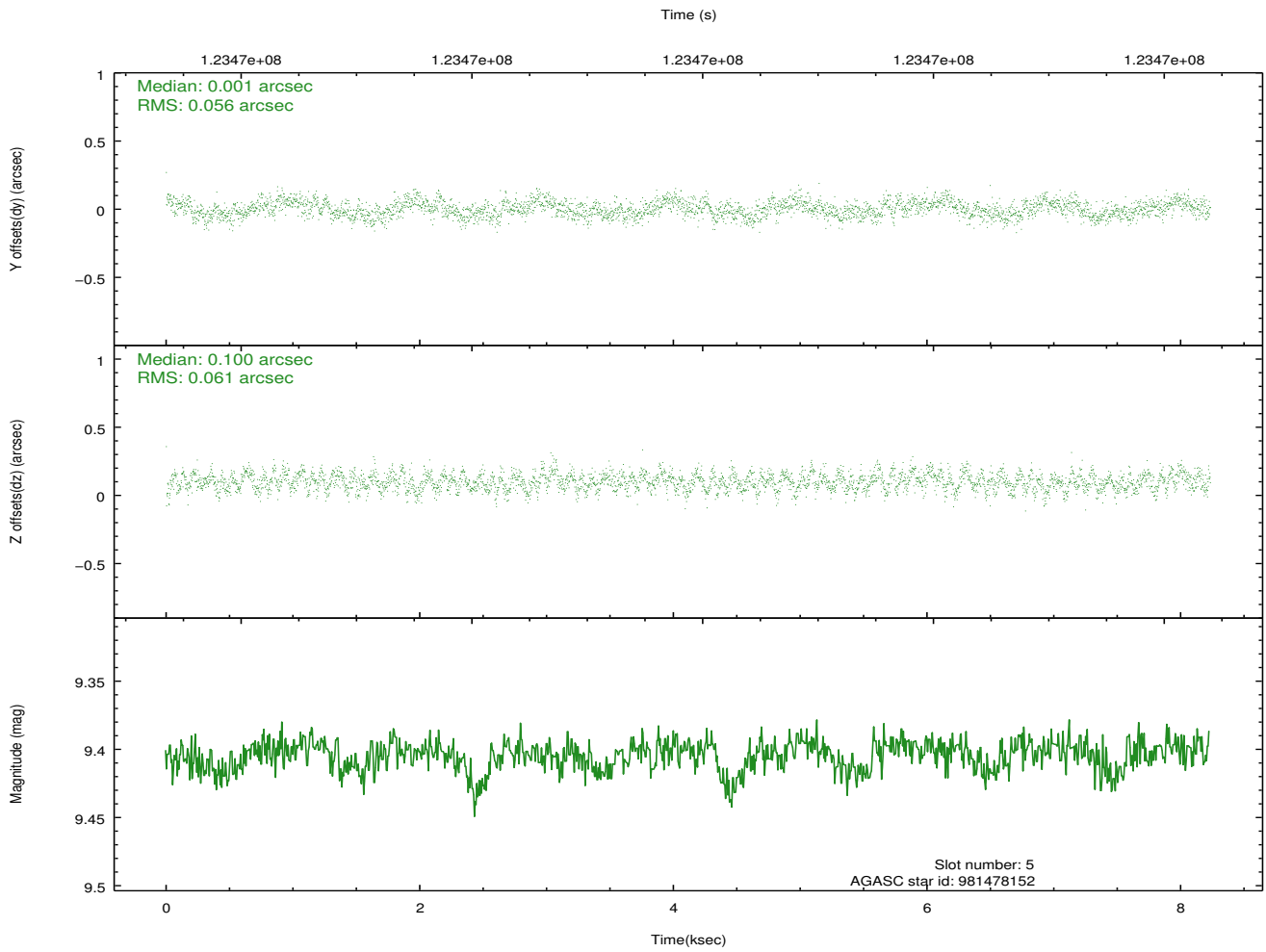
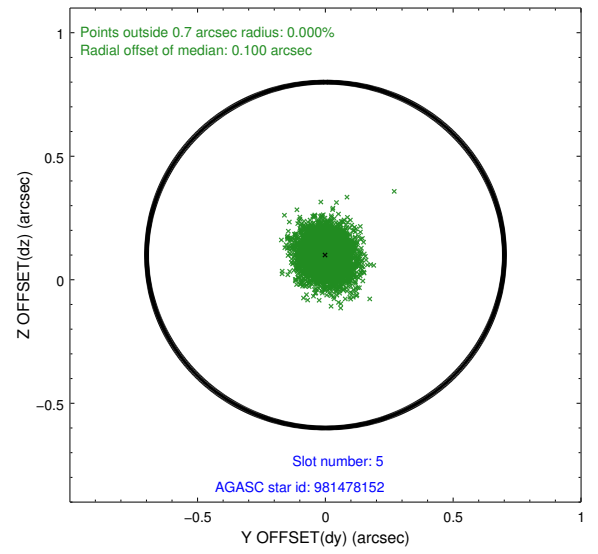
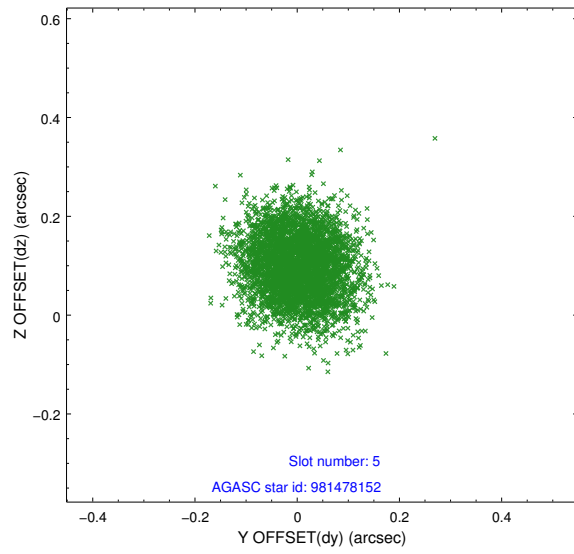
### 2.4.1 Slot 3



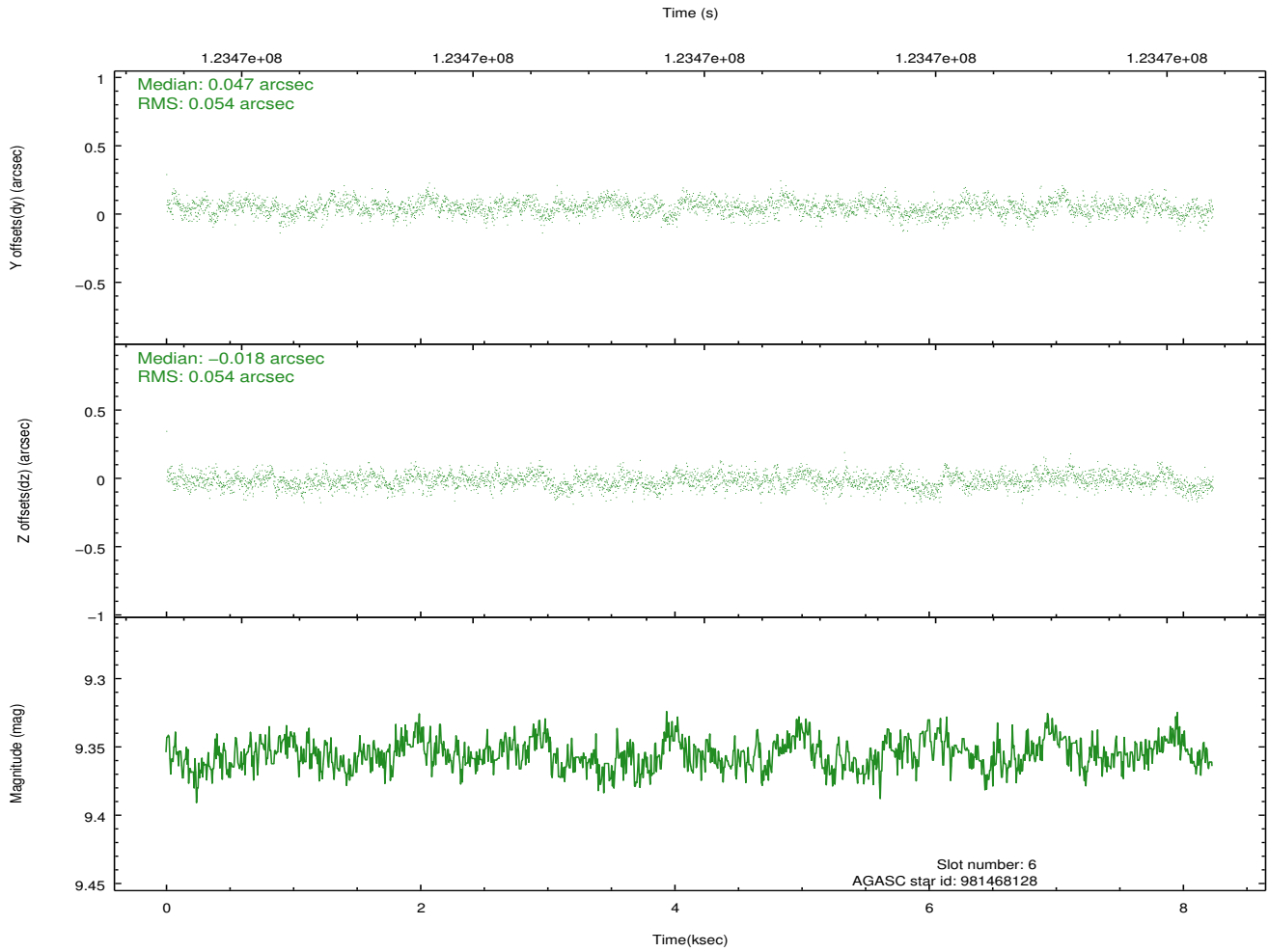
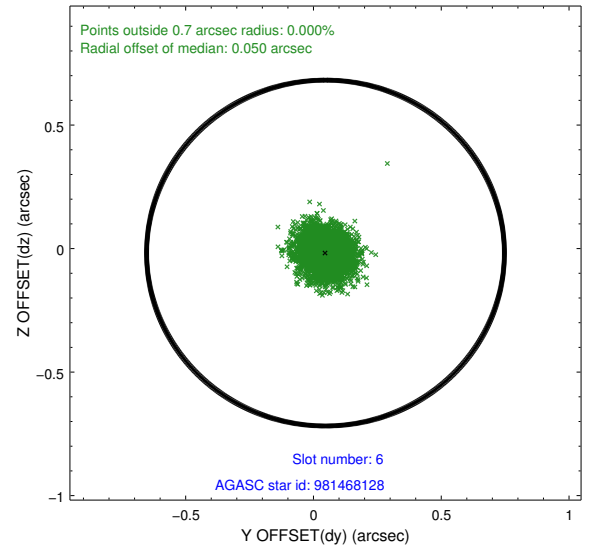
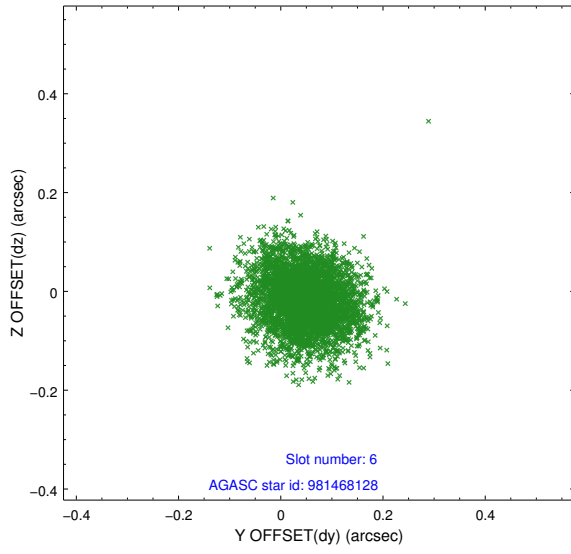
## 2.4.2 Slot 4



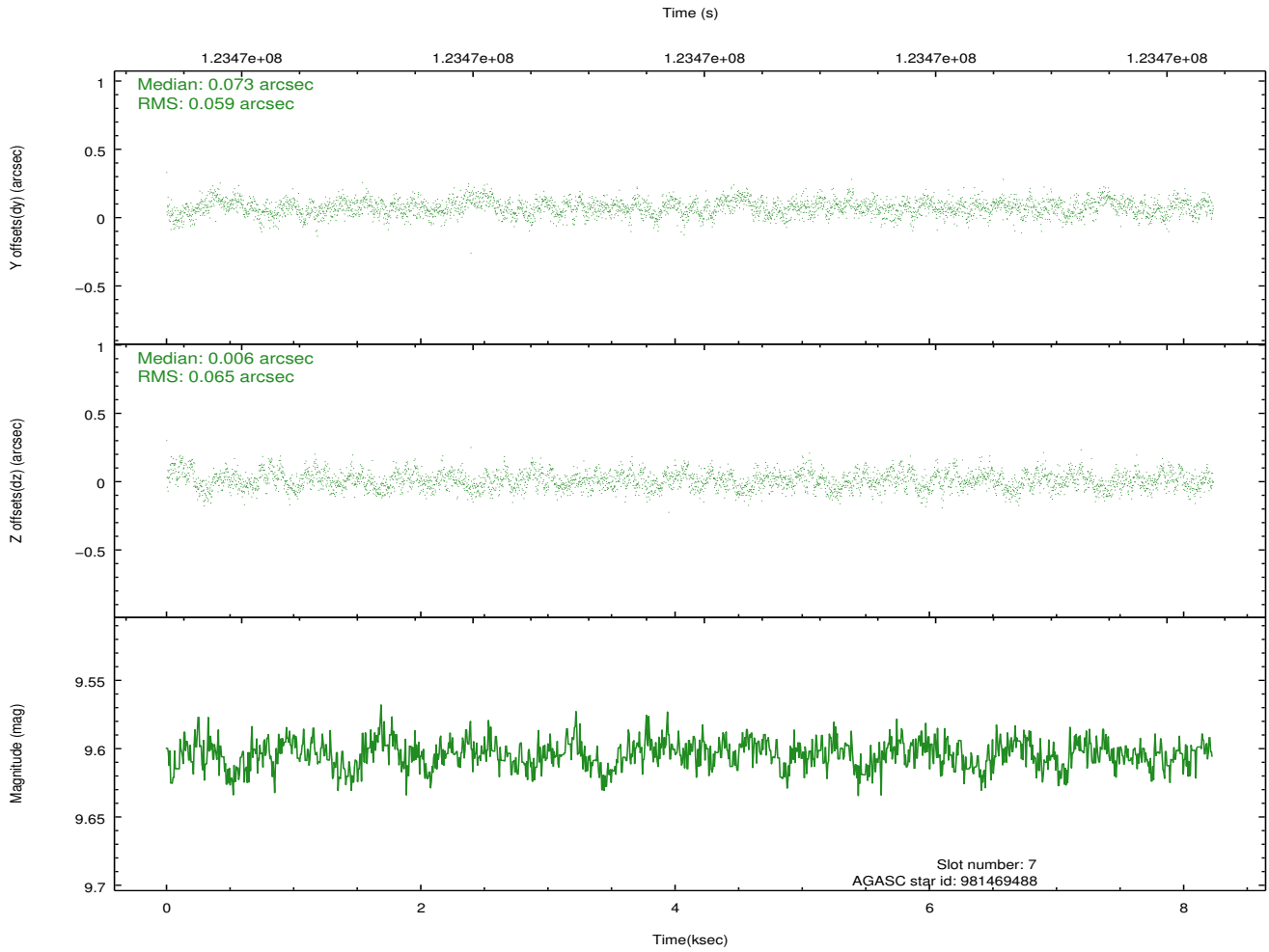
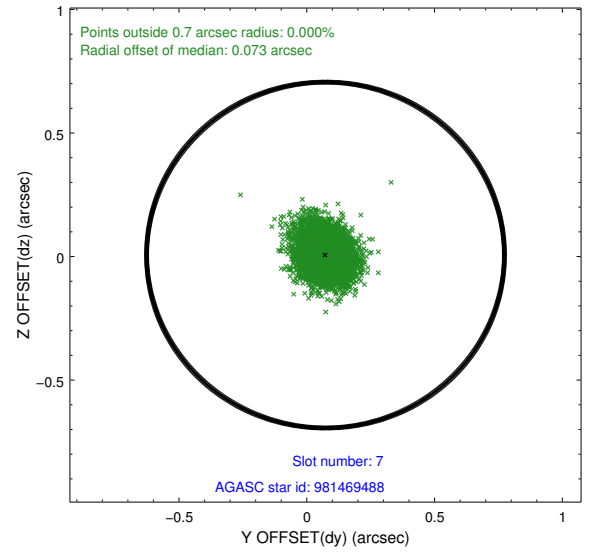
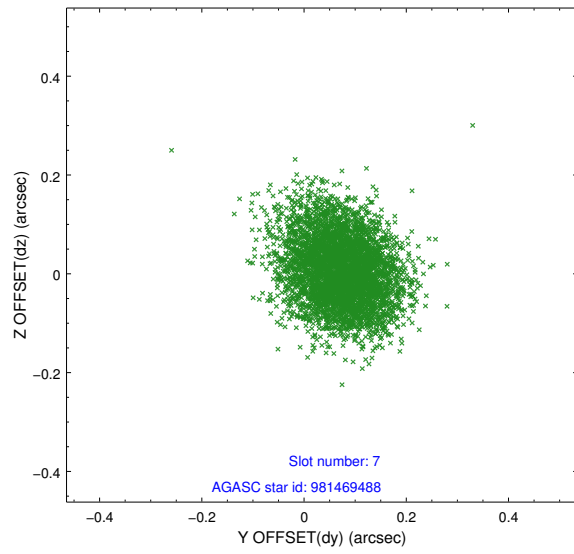
### 2.4.3 Slot 5



## 2.4.4 Slot 6

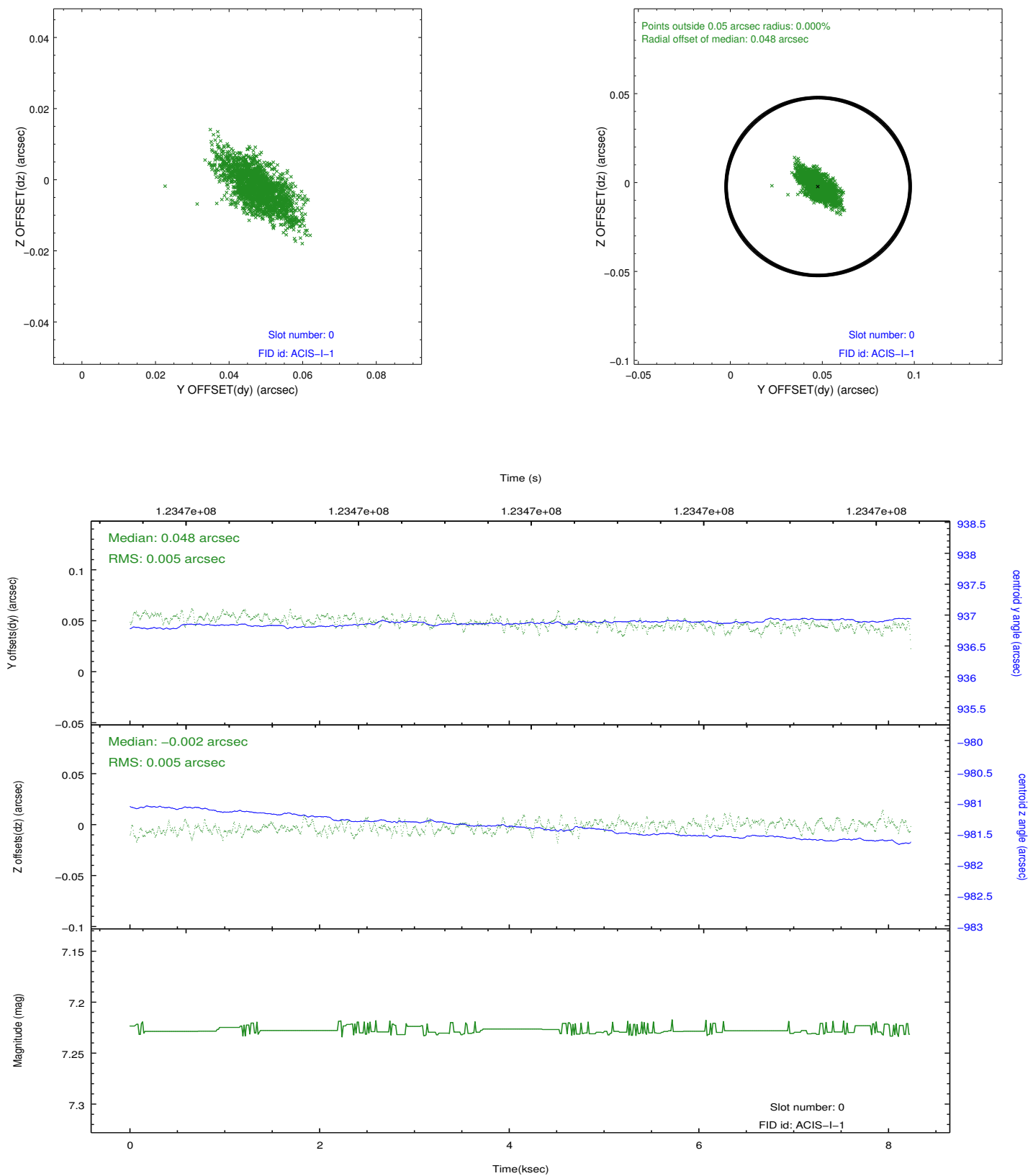


### 2.4.5 Slot 7

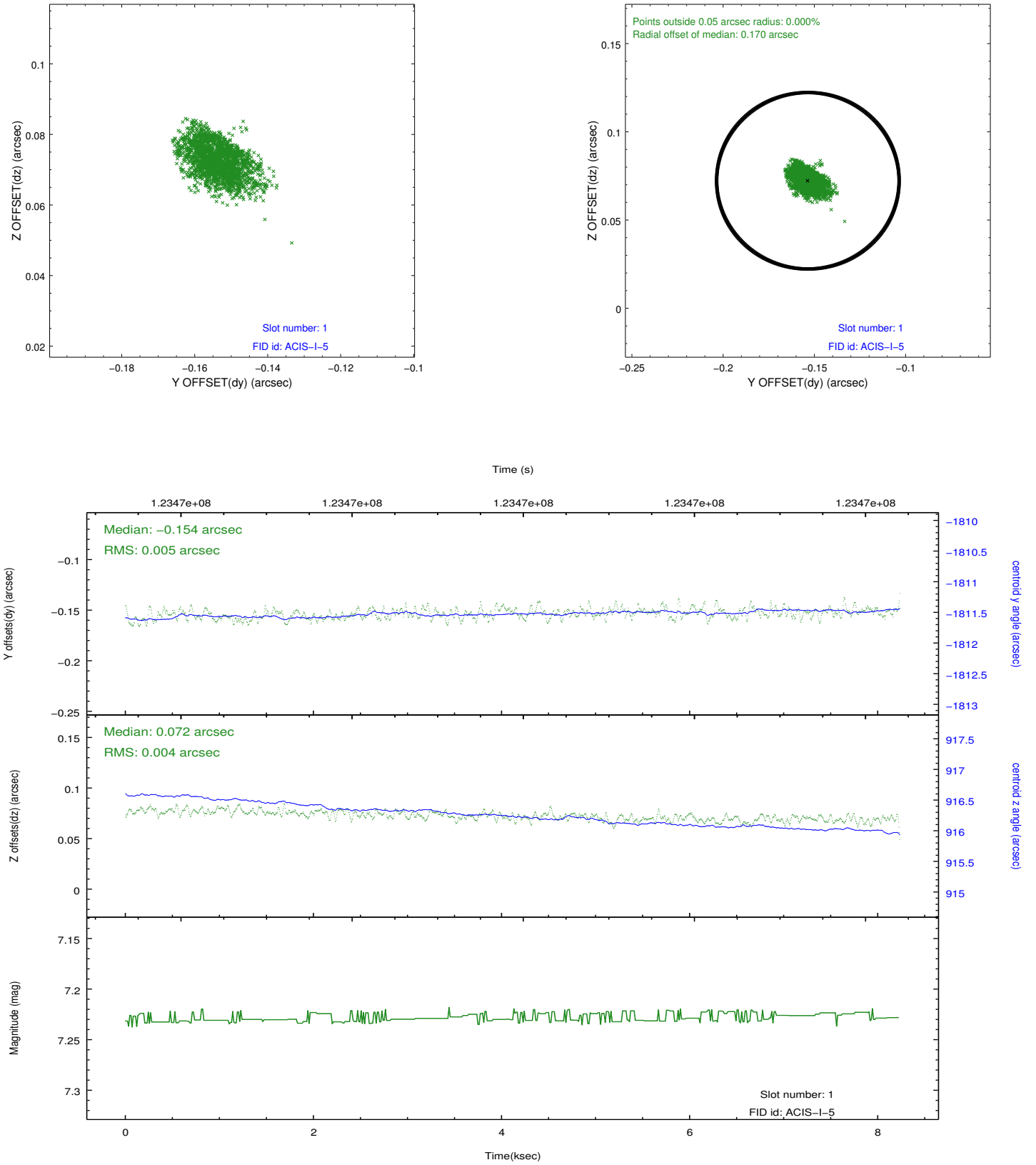


## 2.5 FID Slots

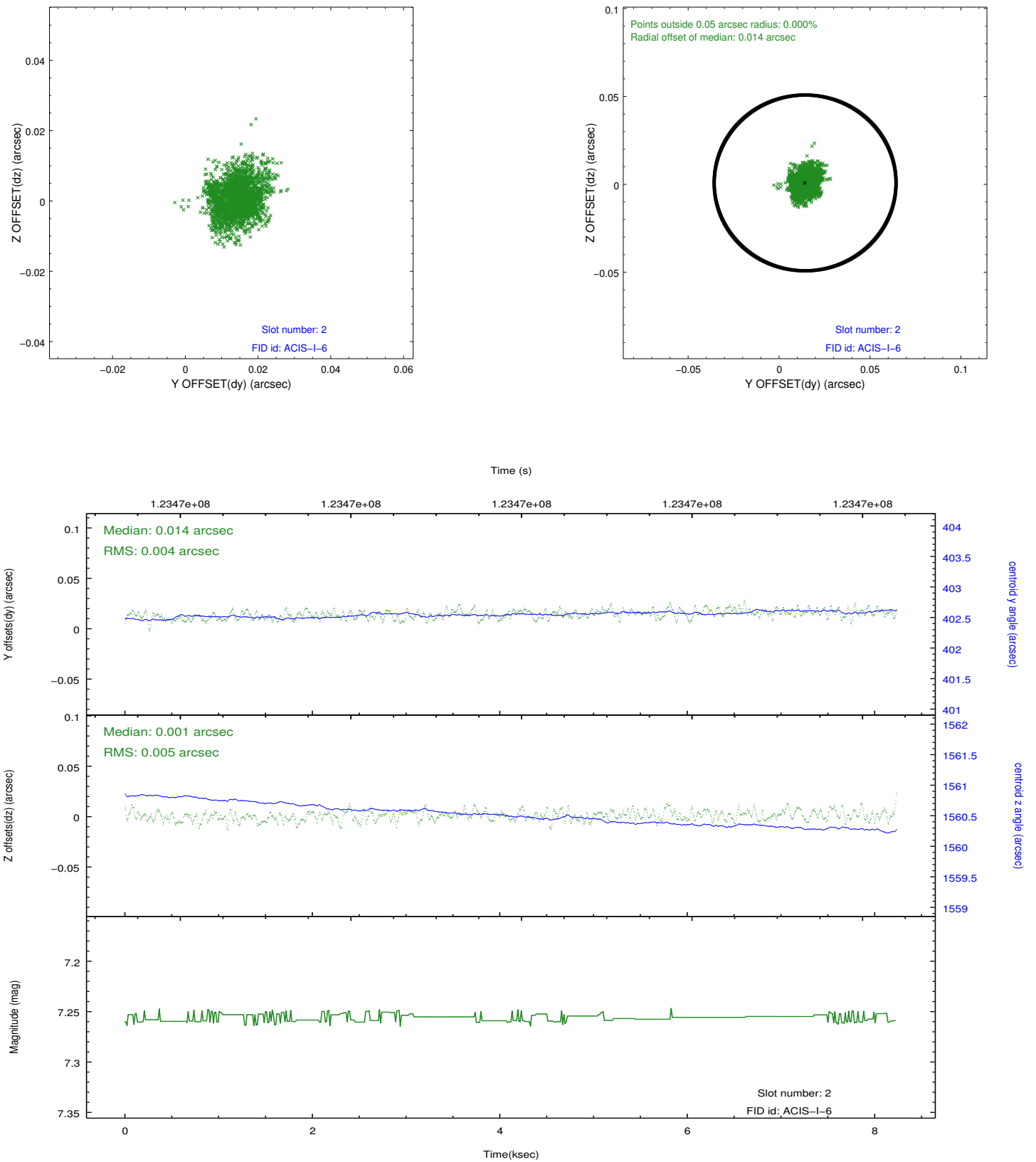
### 2.5.1 Slot 0



## 2.5.2 Slot 1

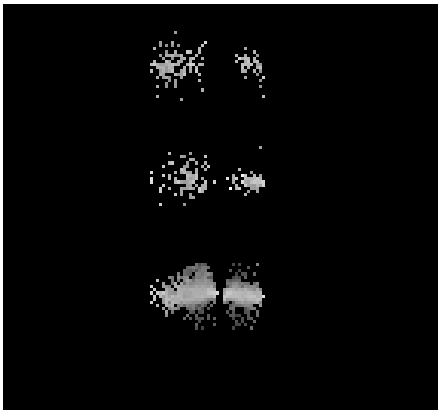


### 2.5.3 Slot 2

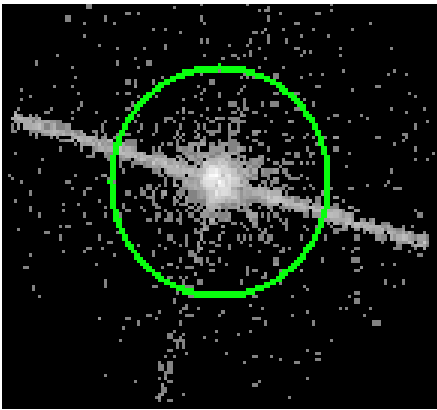


# 3 Gratings

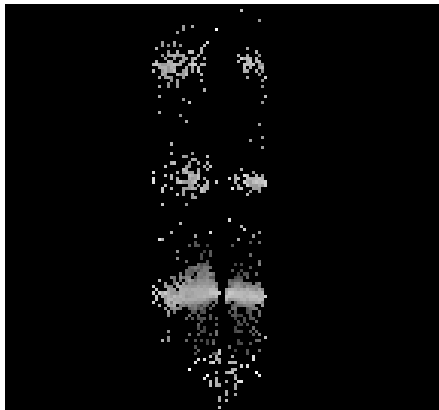
## 3.1 LETG Arm



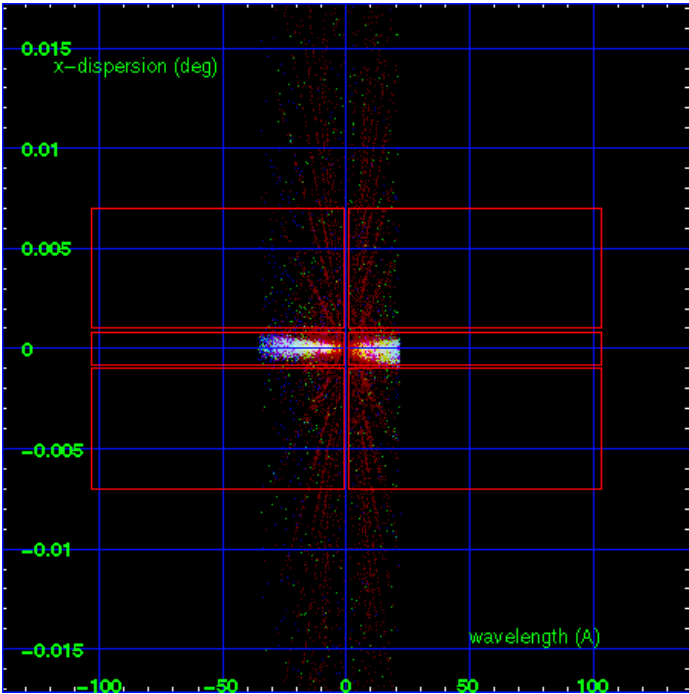
LETG Order Sort 123



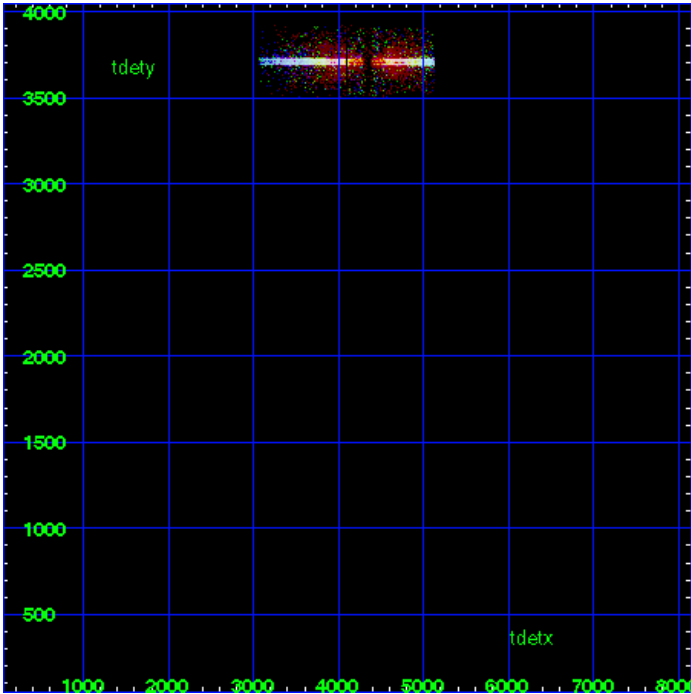
LETG Zero Order



LETG Order Sort ALL

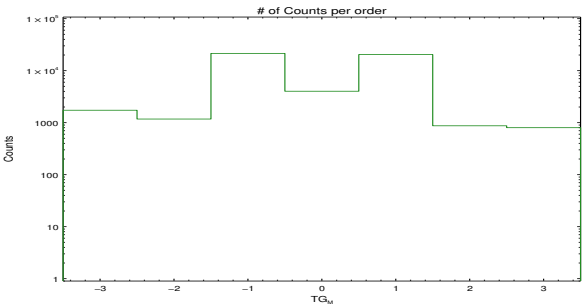


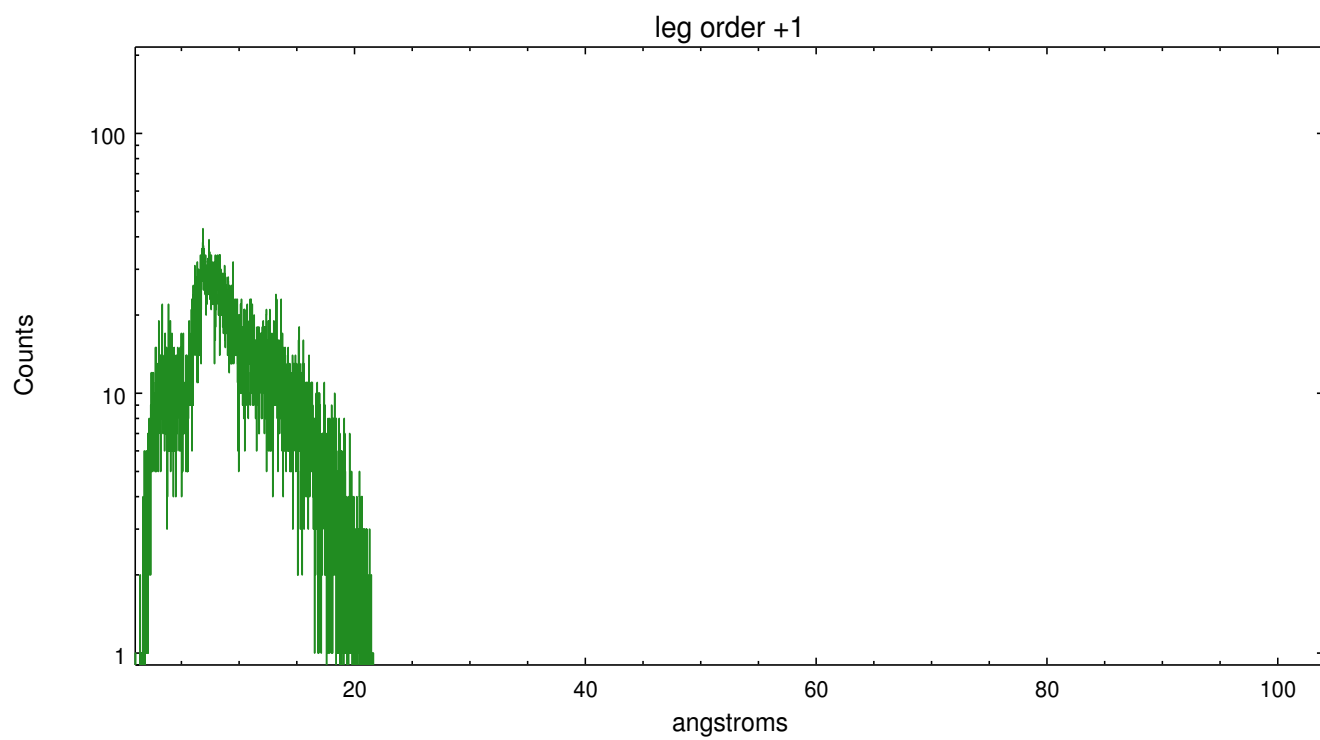
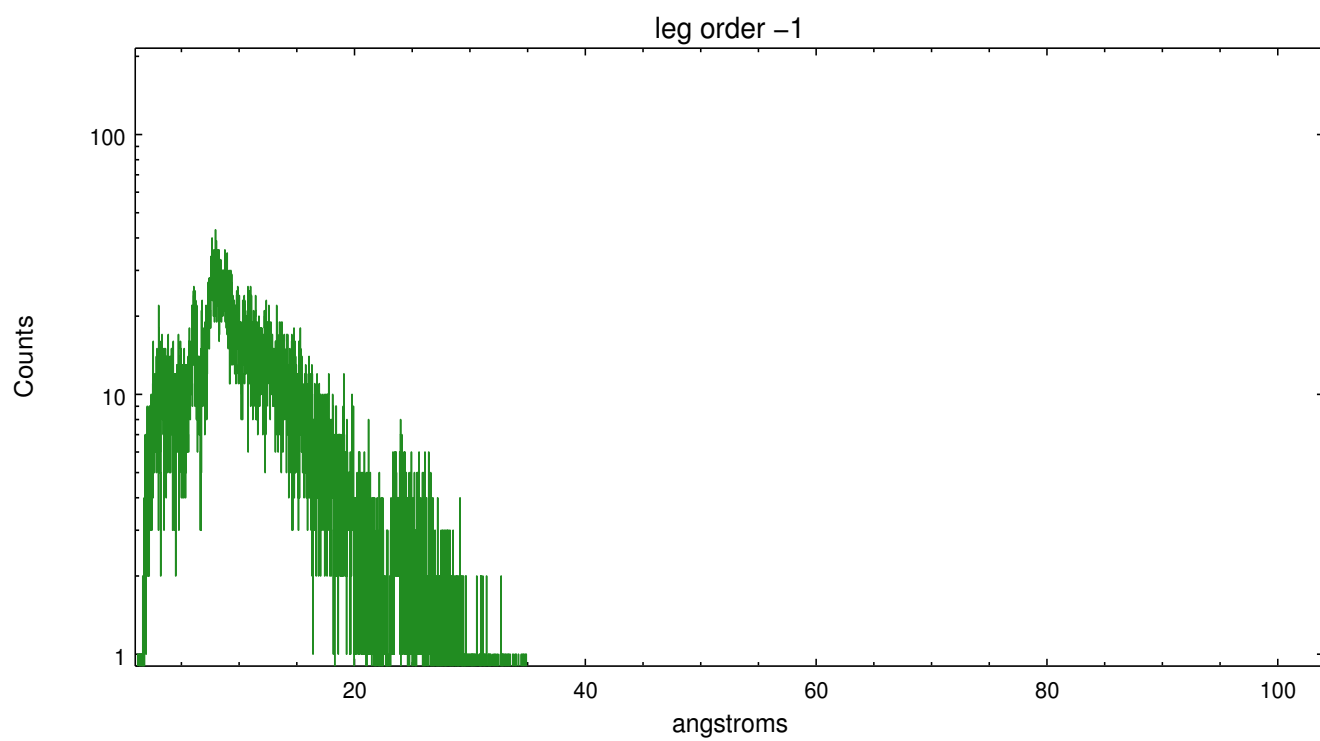
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1733	1174	21481	4020	20404	871	801





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.12.18
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	7.795

## A.2 Comments

Non-standard grating/detector combination required custom parameters. Used flat order-sorting in `tg_resolve_events`, since there is no 'osip' table for ACIS-I. `=== pset grt_lev15 osipfile=None=== pset grt_lev15 osort_lo=0.3=== pset grt_lev15 osort_hi=0.3===` Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates ( $x=4141.44$ ,  $y=4304.94$ ) into the `*src1a.fits` file table. These corrected coordinates were determined by eye because neither the pipeline tool `tgdetect` nor the `findzero` tool was successful in identifying the piled up zeroth order so close to a chip boundary. The determination of the position by eye is expected to be in error by up to 1-2 pixels. The newly determined zeroth order coordinates have been placed in the `*src1a.fits` file, replacing the coordinates determined by `tgdetect`. Note that these corrected coordinates of the zeroth order cannot be reproduced by running `tgdetect` on the data.