

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 3173 - L2 Version 5  
Chandra X-Ray Center

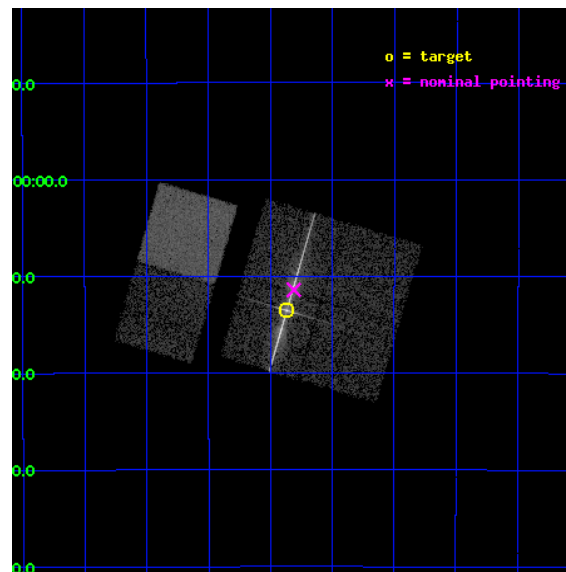
L2 Processing Date : Nov 9 2012

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# 1 Front

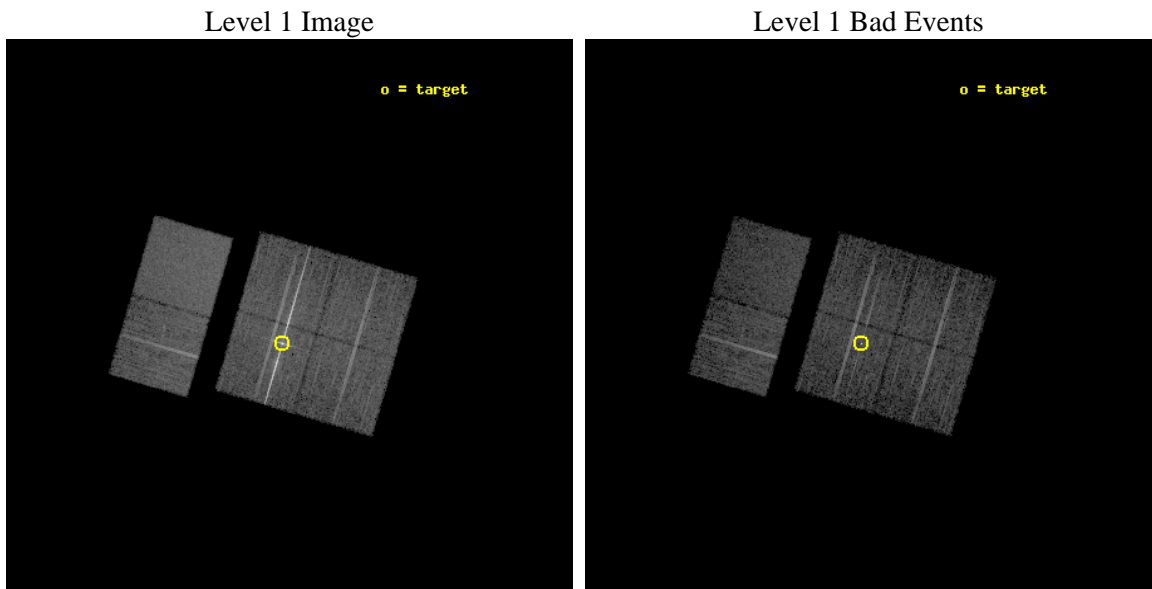
seq_num	790067	Sequence number
obs_id	3173	Observation id
title	AO3 LETG/ACIS-I CALIBRATION OBSERVATIONS OF PKS2155-304	Proposal t
observer	Dr. CXC Calibration	Principal investigator
object	PKS2155-304	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	329.716667	Observer's specified target RA [deg]
dec_targ	-30.225556	Observer's specified target Dec [deg]
ra_nom	329.70258228452	Nominal RA [deg]
dec_nom	-30.190148524808	Nominal Dec [deg]
roll_nom	286.39211131718	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7721.6000071764	Sum of GTIs [s]
livetime	7623.8244584962	Livetime [s]
ontime0	7721.6000071764	Sum of GTIs [s]
ontime1	7721.6000071764	Sum of GTIs [s]
ontime2	7721.6000071764	Sum of GTIs [s]
ontime3	7721.6000071764	Sum of GTIs [s]
ontime6	7721.6000071764	Sum of GTIs [s]
ontime7	7721.6000071764	Sum of GTIs [s]
l2events	107431	Number of level 2 events



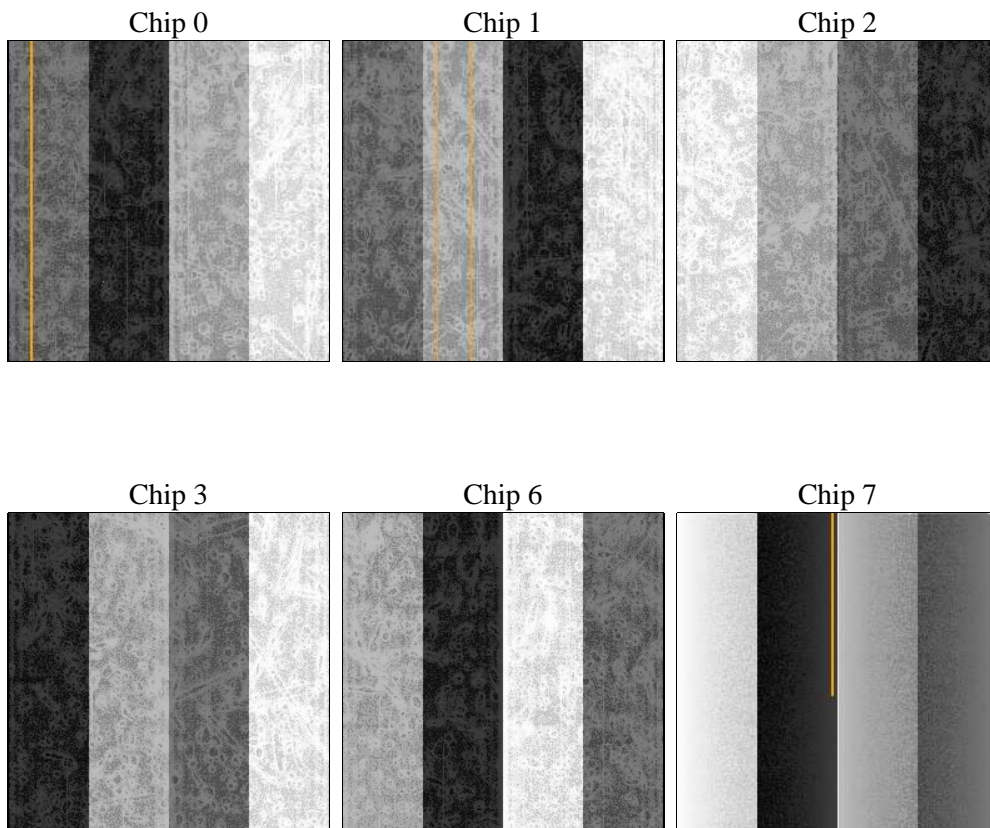
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	8000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7721.6000071764	Sum of GTIs [s]
caldsver	4.5.2	&#160	ontime0	7721.6000071764	Sum of GTIs [s]
date	2012-09-28T06:15:28	Date and time of file creation	ontime1	7721.6000071764	Sum of GTIs [s]
revision	3	Processing version of data	ontime2	7721.6000071764	Sum of GTIs [s]
			ontime3	7721.6000071764	Sum of GTIs [s]
			ontime6	7721.6000071764	Sum of GTIs [s]
			ontime7	7721.6000071764	Sum of GTIs [s]
			l1events	370862	Number of level 1 events

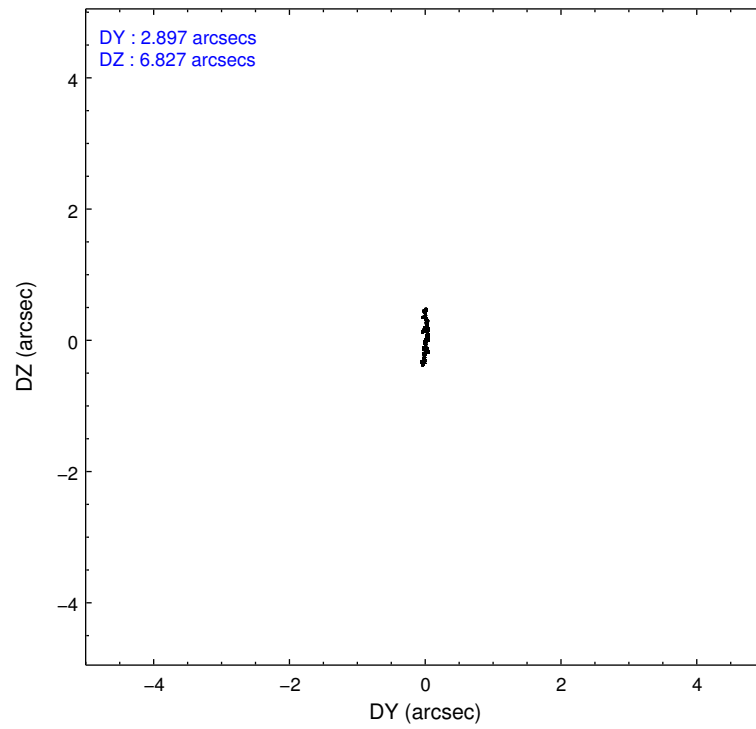
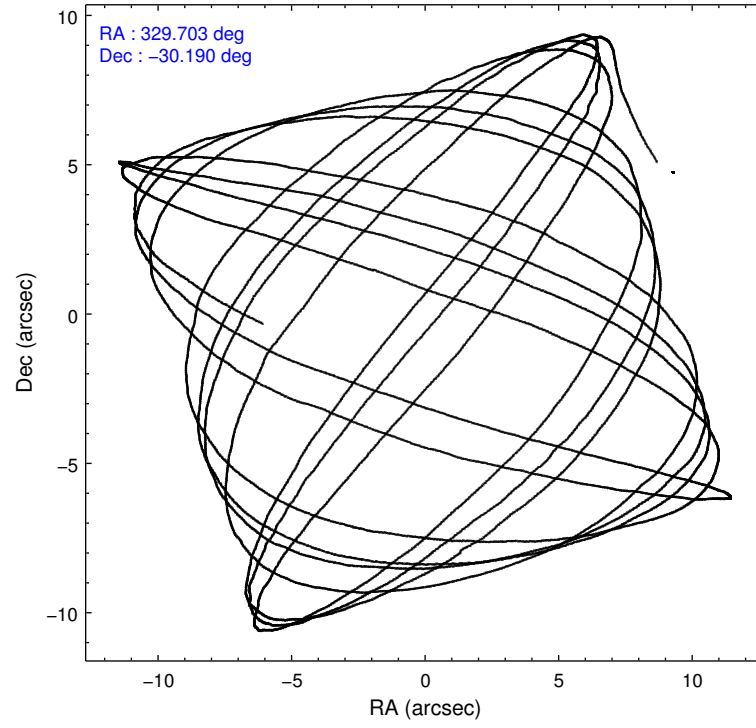
### 2.1.4 Events

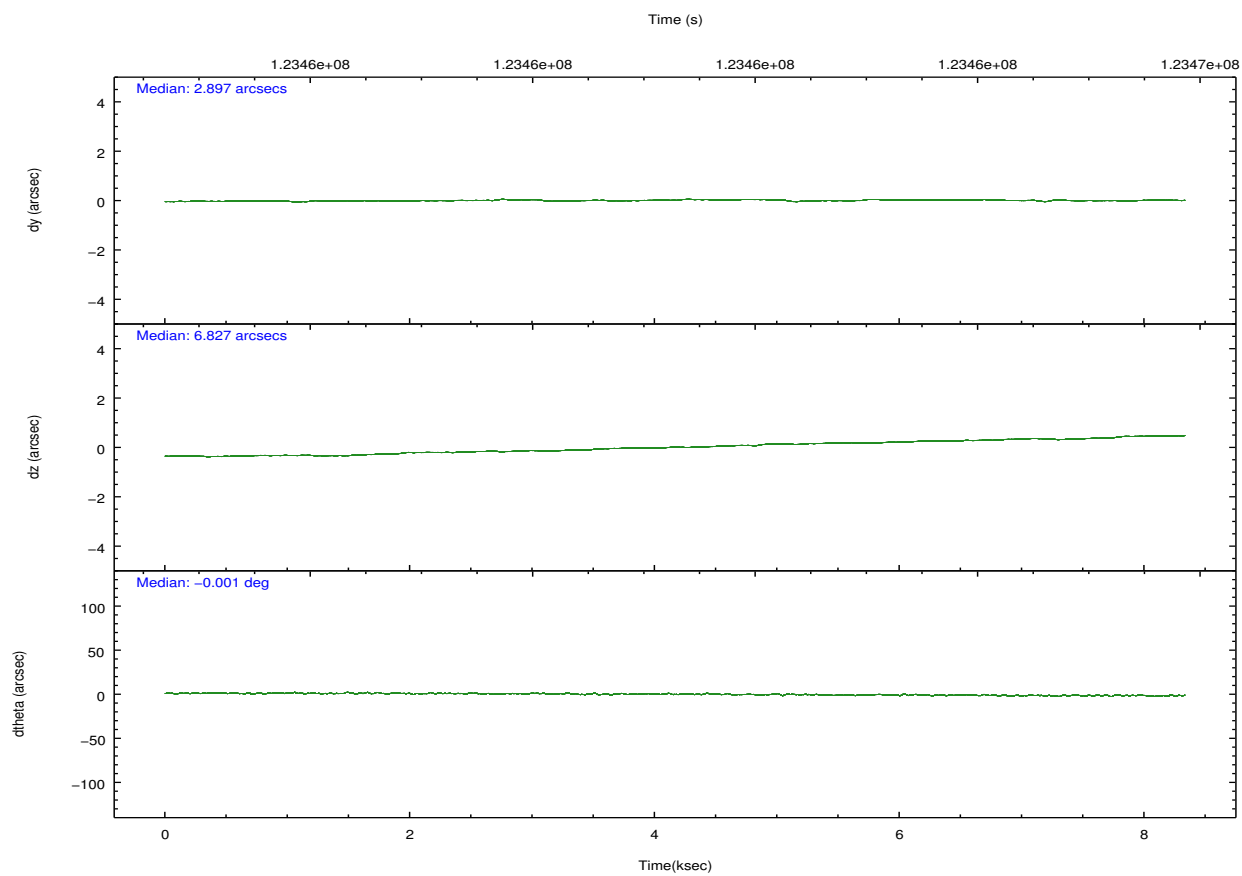
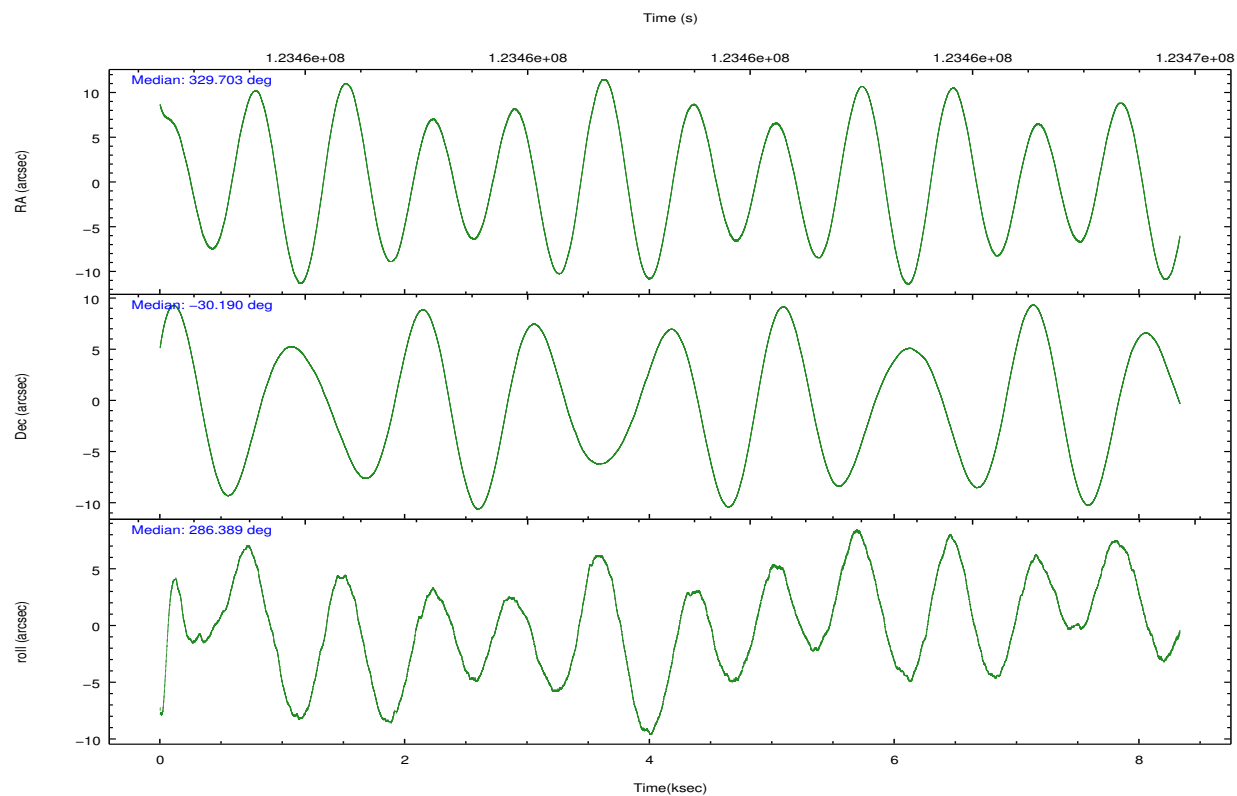
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	46808	46918	89308	69905	53455	64468	grade 0 events	2555	2382	32853	20311	2307	2407
rejected events	40762	40887	46182	43438	47521	37910		5%	5%	36%	29%	4%	3%
rejected %	87%	87%	51%	62%	88%	58%	grade 1 events	20	18	775	214	21	50
								0%	0%	0%	0%	0%	0%
							grade 2 events	1324	1325	4933	2874	1225	5165
								2%	2%	5%	4%	2%	8%
							grade 3 events	575	602	1677	1038	574	2457
								1%	1%	1%	1%	1%	3%
							grade 4 events	564	589	1555	1051	585	2376
								1%	1%	1%	1%	1%	3%
							grade 5 events	1866	1884	2432	2110	2221	6267
								3%	4%	2%	3%	4%	9%
							grade 6 events	1033	1136	2127	1207	1245	14160
								2%	2%	2%	1%	2%	21%
							grade 7 events	38871	38982	42956	41100	45277	31586
								83%	83%	48%	58%	84%	48%

## 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	329.679588	329.7025822845162	Subarray requested	NONE	NONE
[deg] Pointing Dec	-30.171341	-30.19014852480838	Alternating exposures requested	N	N
[deg] Pointing Roll	286.171877	286.3921113171838	[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)	123457448.184000	123456414.35069			
Observation start date	2001-11-29T21:43:04	2001-11-29T21:26:54			
[s] Observation end time (MET)	123465448.184000	123465581.95106			
Observation end date	2001-11-29T23:56:24	2001-11-29T23:59:41			
Read mode	TIMED	TIMED			

## 2.3 Aspect



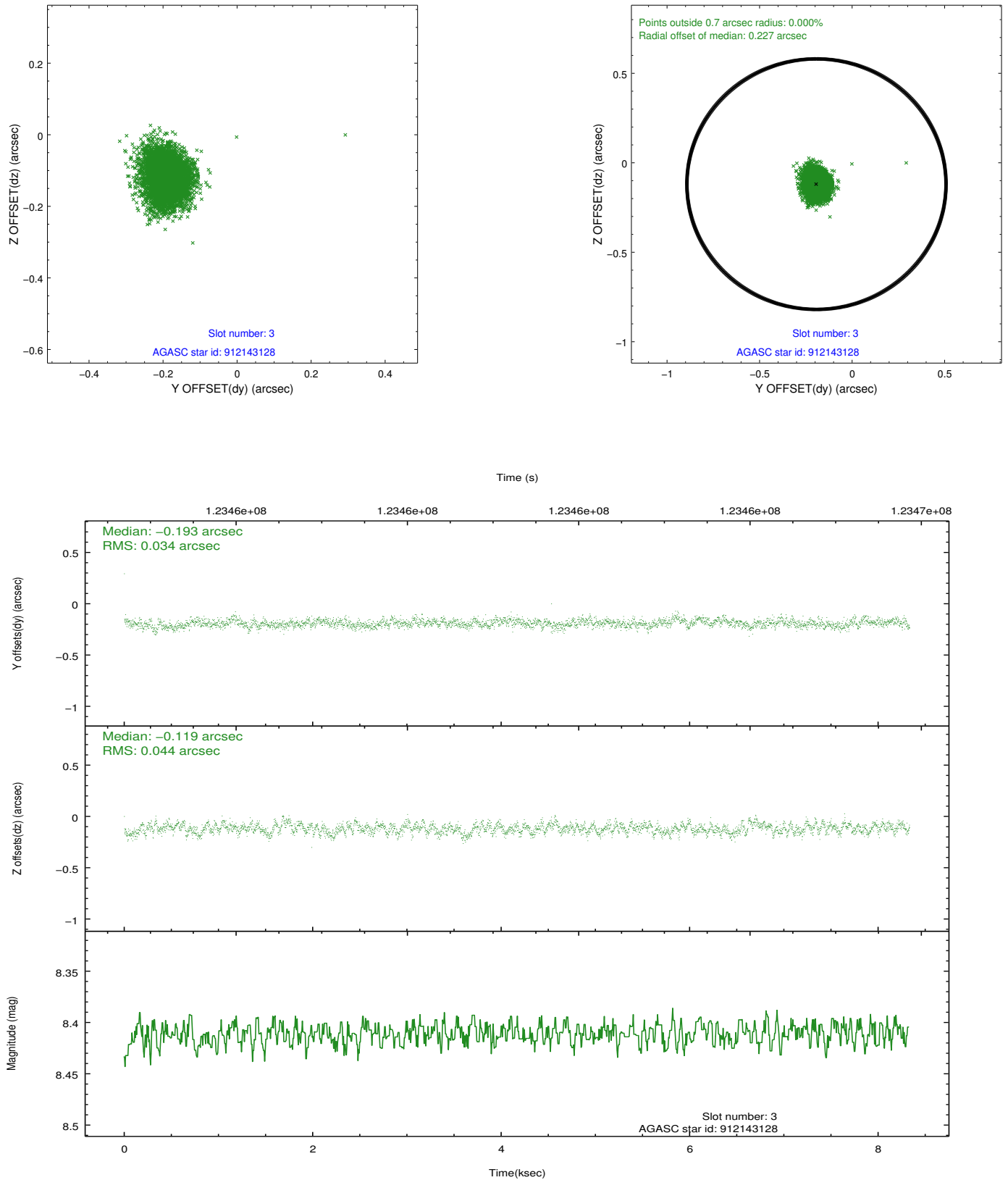


### Slot Statistics

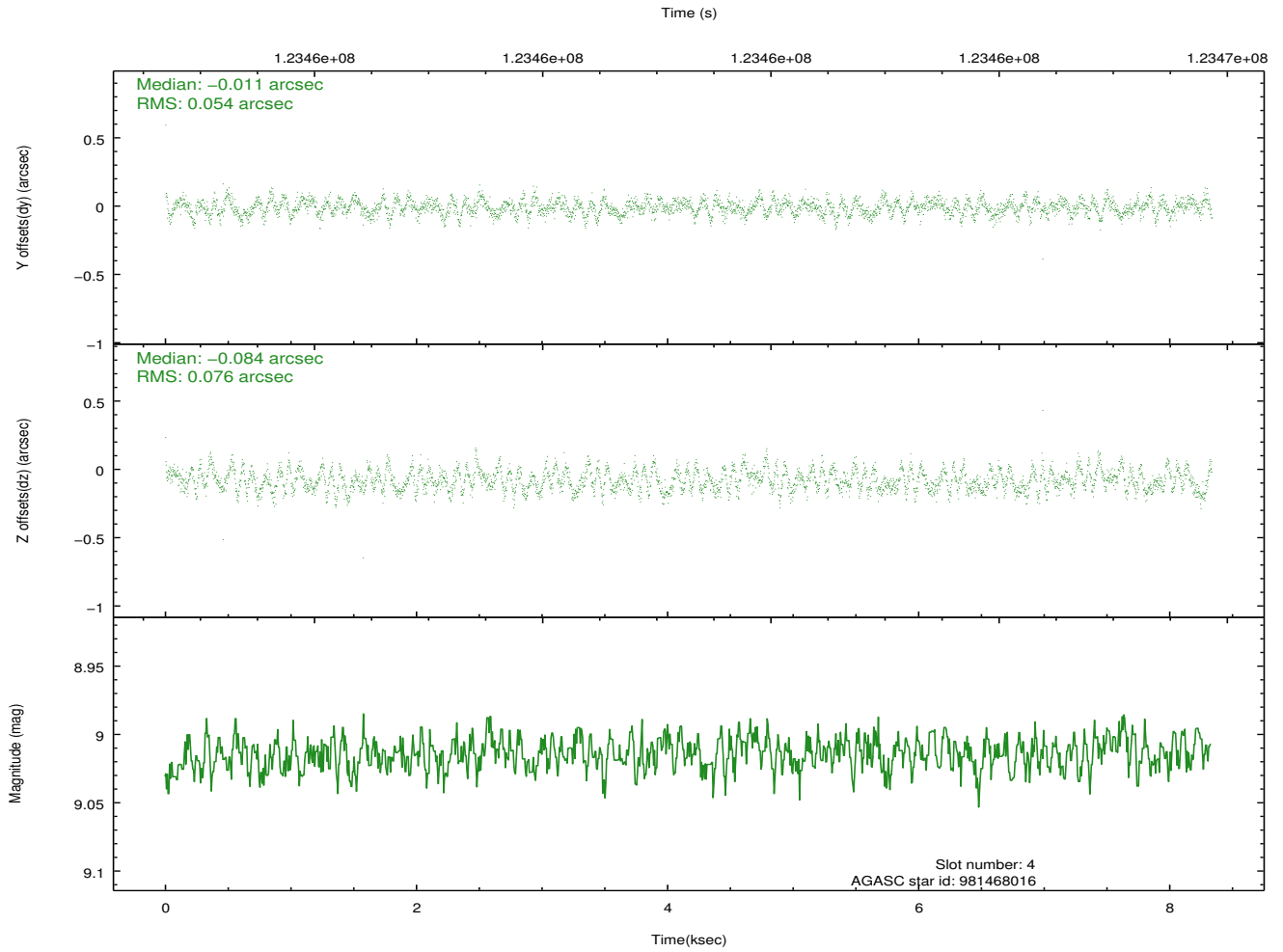
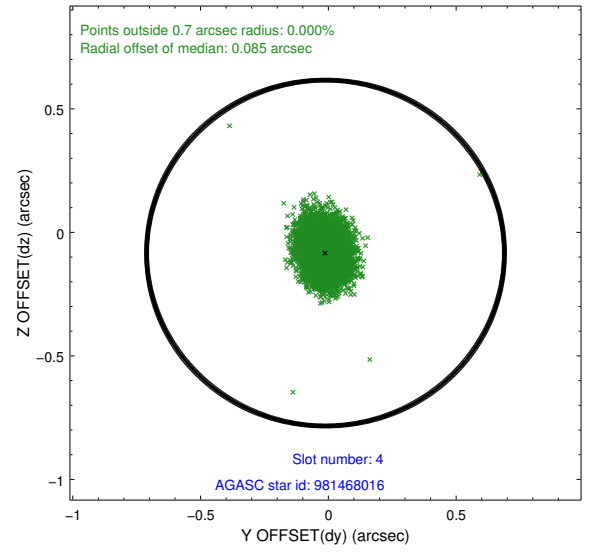
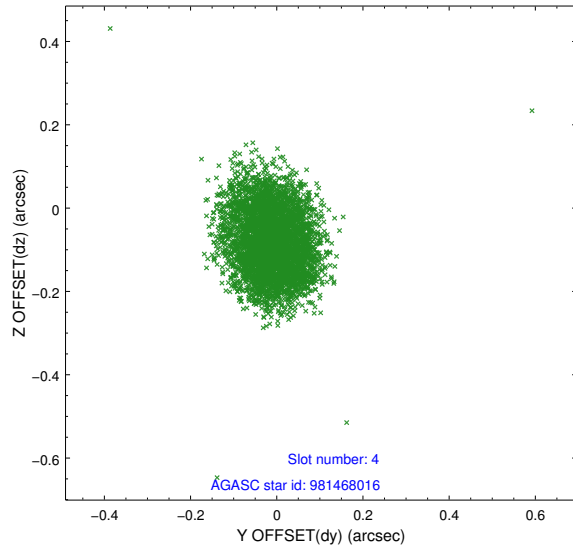
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.23	2033	0.071	-0.023	0.015	0.023	0.000000	0.000000	936.82	-980.61
1	FID	ACIS-I-5	7.23	2032	-0.165	0.091	0.010	0.018	0.000000	0.000000	-1811.13	916.61
2	FID	ACIS-I-6	7.26	2032	0.004	0.004	0.010	0.016	0.000000	0.000000	401.60	1561.77
3	GUIDE	912143128	8.41	4065	-0.193	-0.119	0.059	0.094	328.924992	-29.706140	-2257.89	-1802.36
4	GUIDE	981468016	9.01	4066	-0.011	-0.084	0.100	0.154	328.842457	-30.034984	-1189.32	-2372.44
5	GUIDE	912275088	9.04	4065	0.023	0.021	0.071	0.119	329.619228	-29.738698	-1548.61	251.77
6	GUIDE	981478152	9.41	4064	0.076	0.118	0.081	0.133	329.415589	-30.057192	-623.07	-675.86
7	GUIDE	981469488	9.59	4054	0.102	0.062	0.107	0.172	329.261199	-30.045155	-797.07	-1126.68

## 2.4 Star Slots

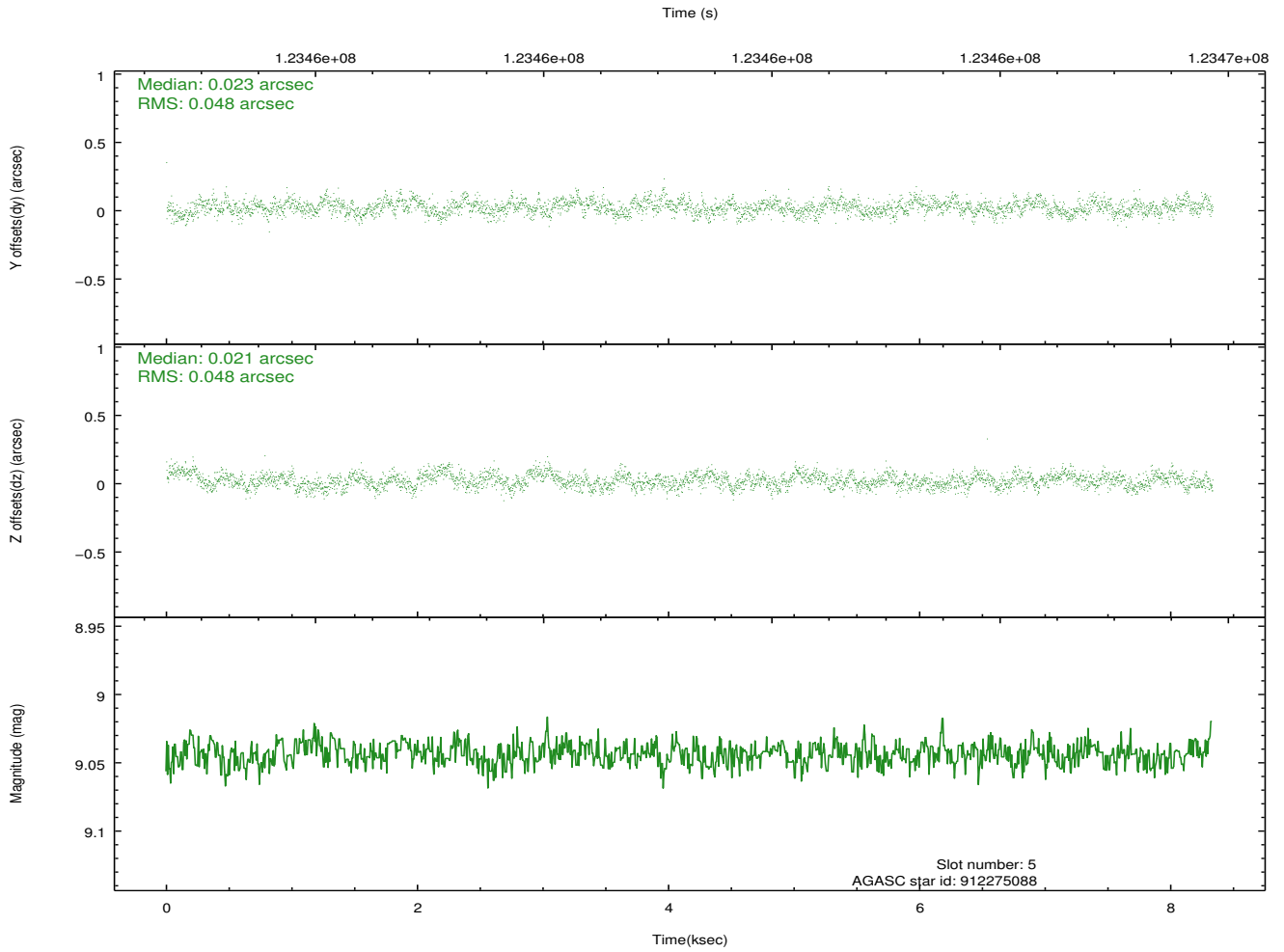
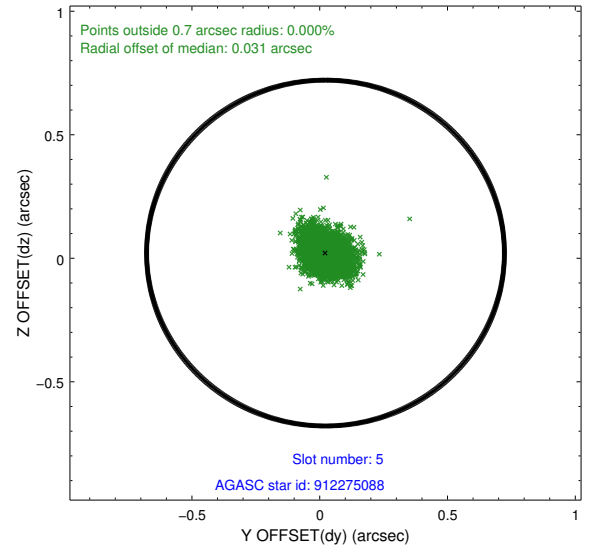
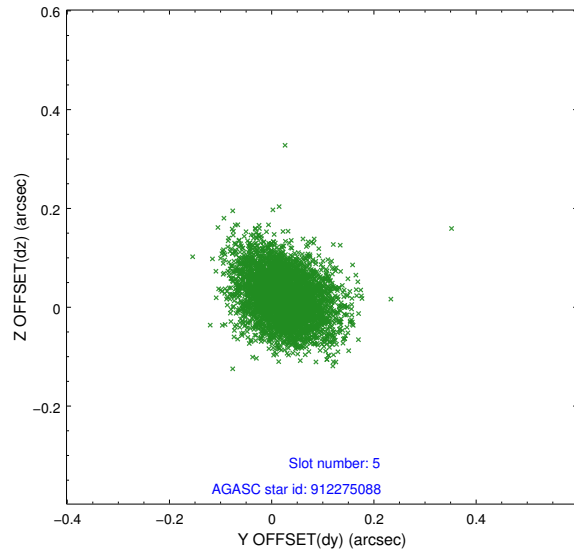
### 2.4.1 Slot 3



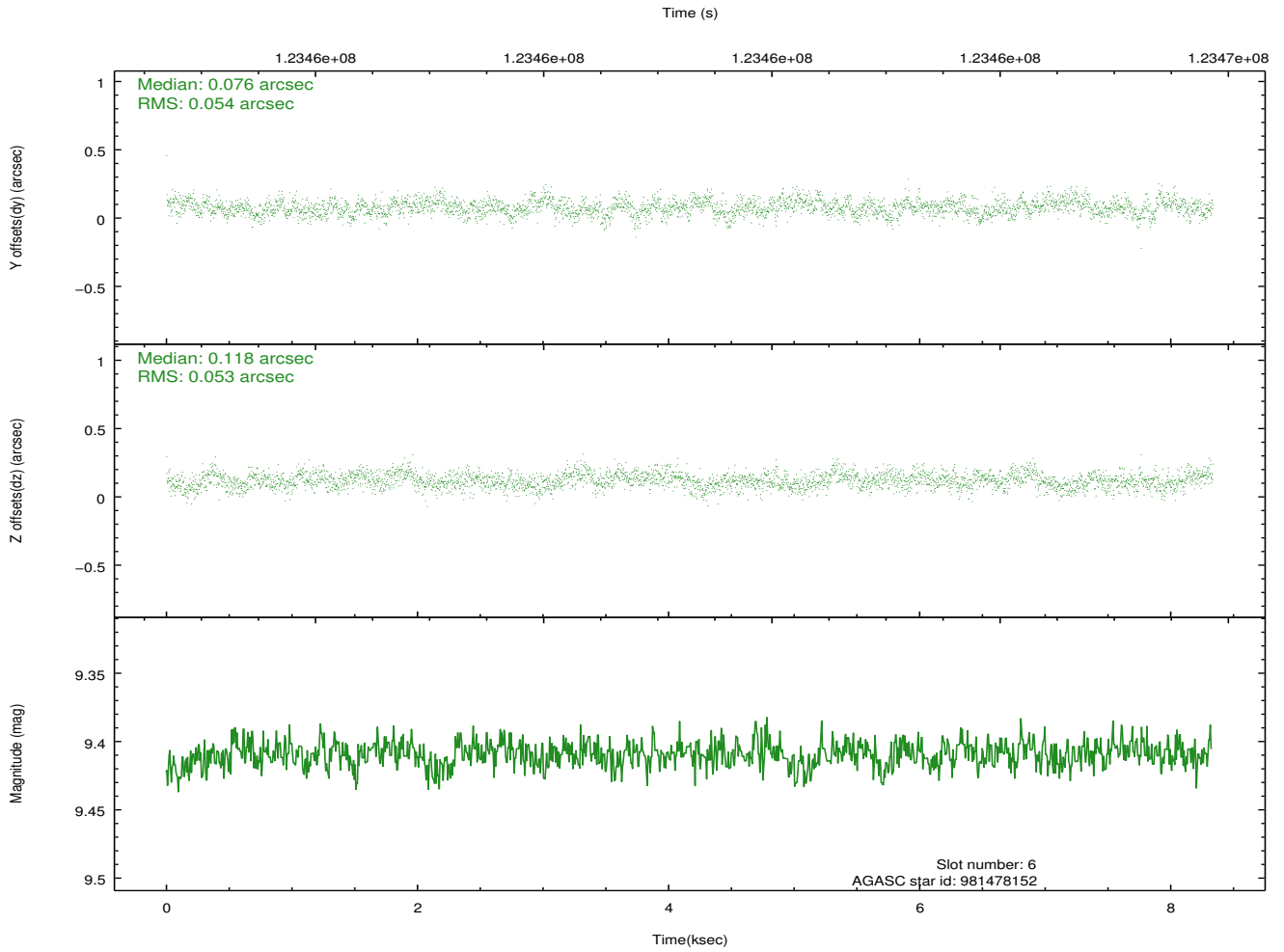
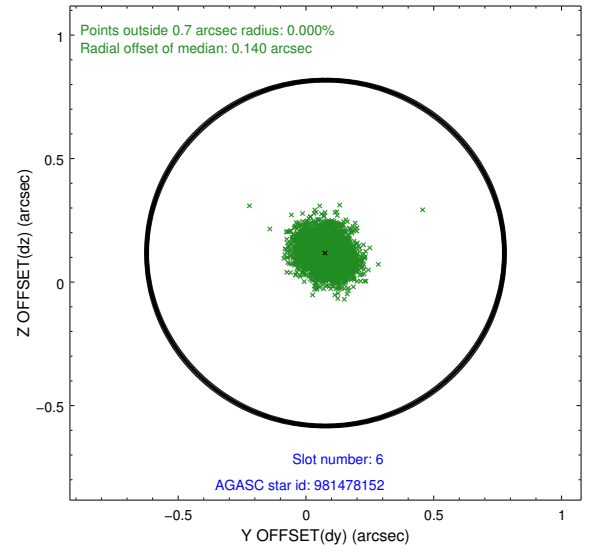
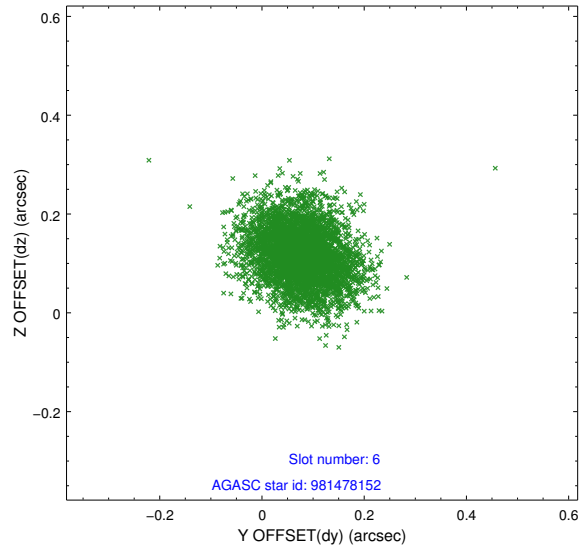
## 2.4.2 Slot 4



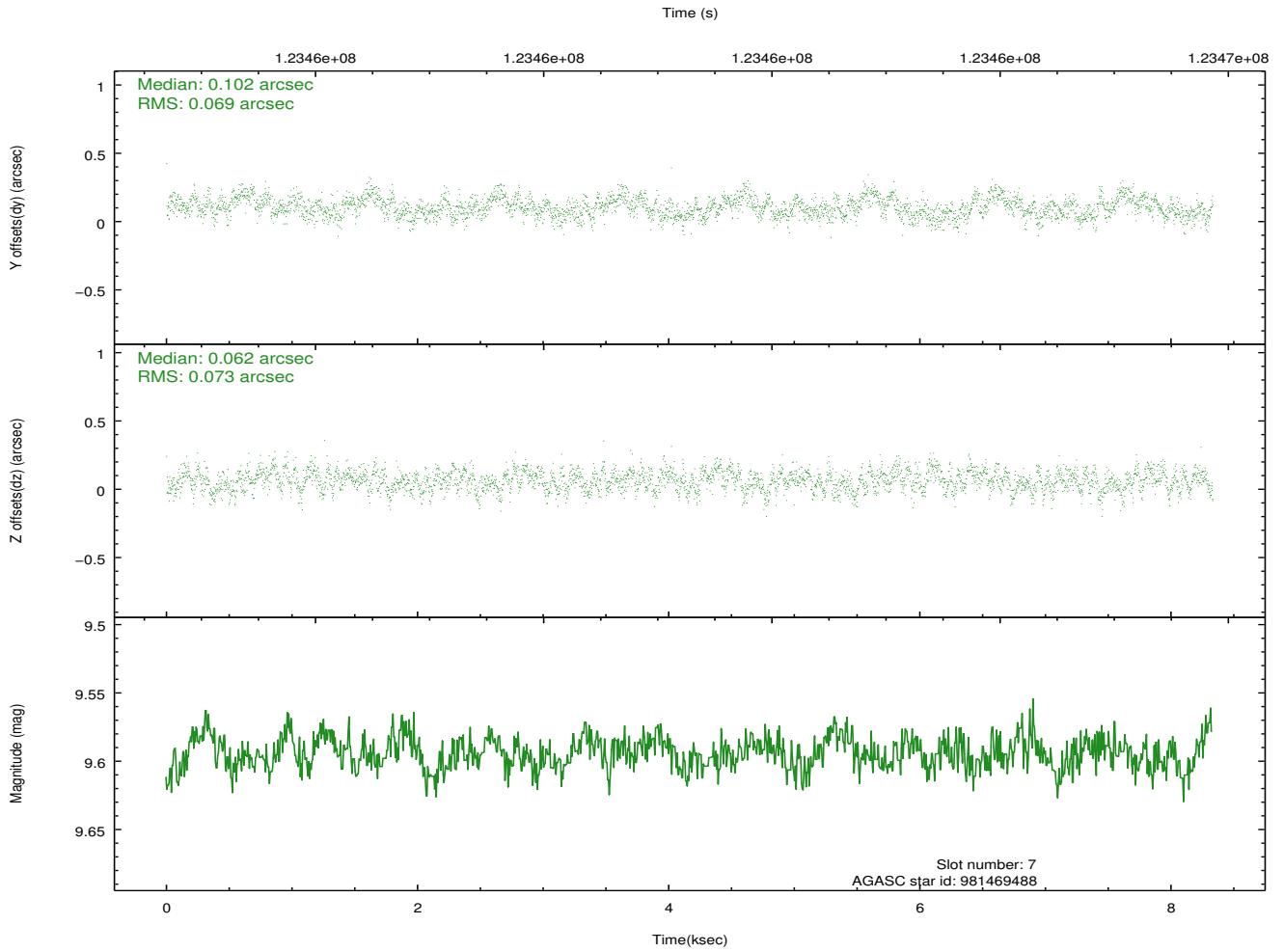
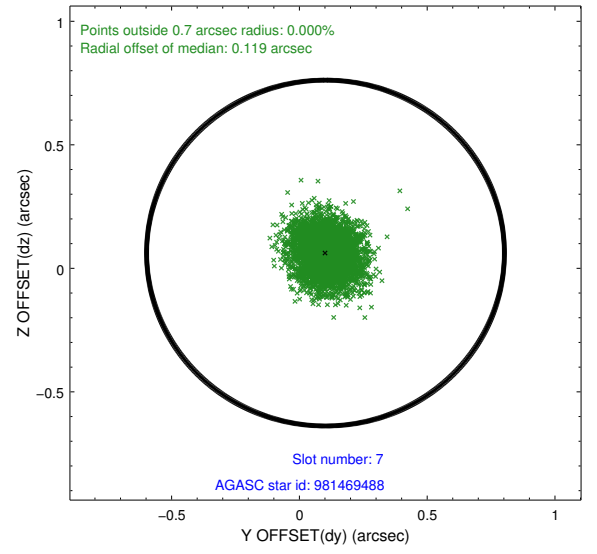
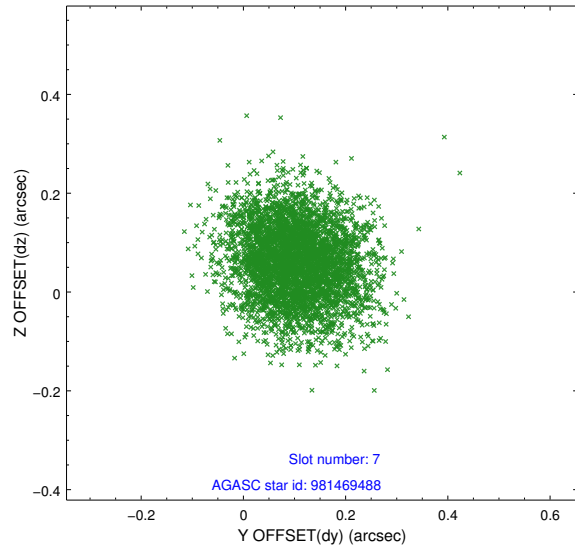
### 2.4.3 Slot 5



## 2.4.4 Slot 6

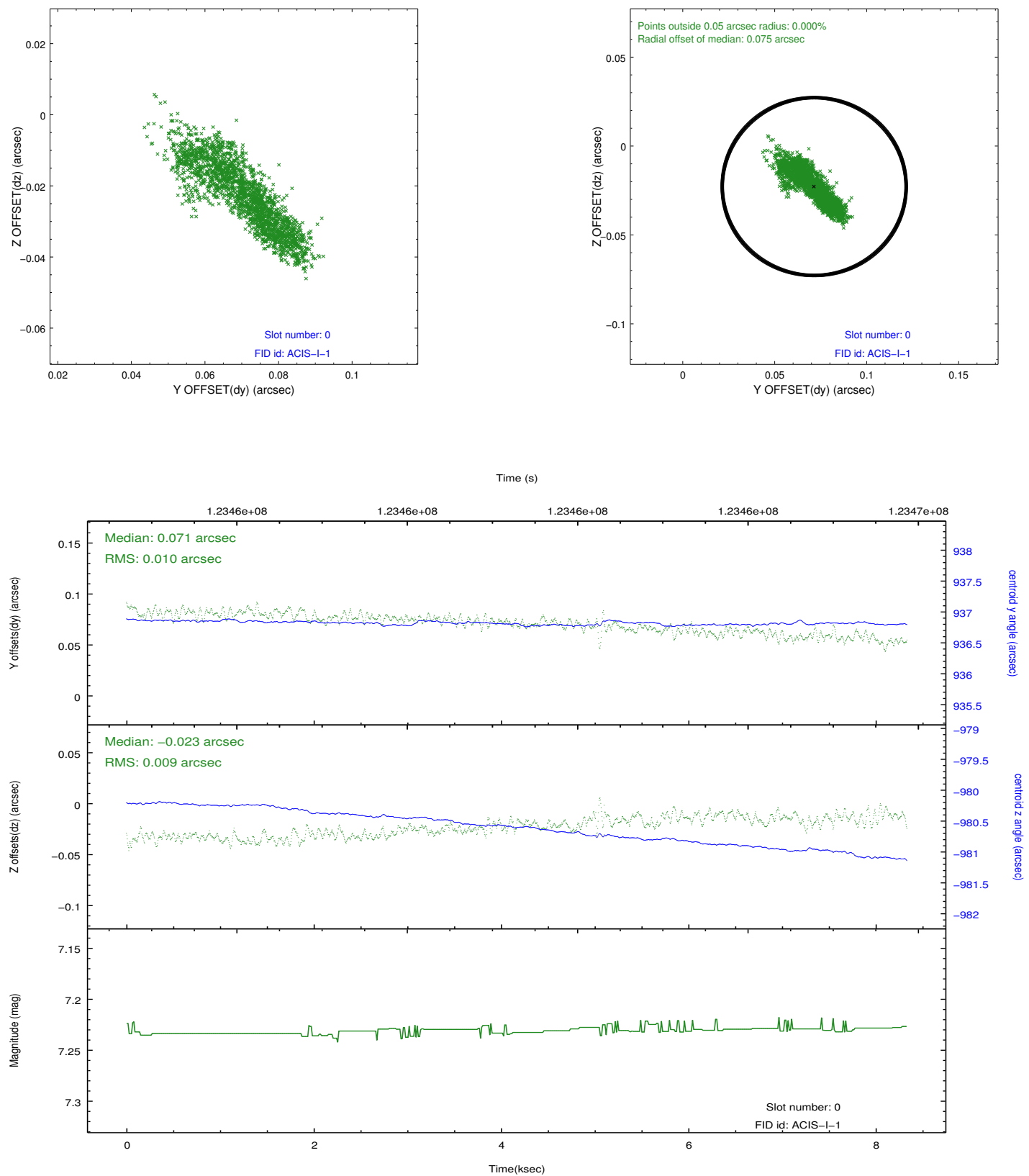


## 2.4.5 Slot 7

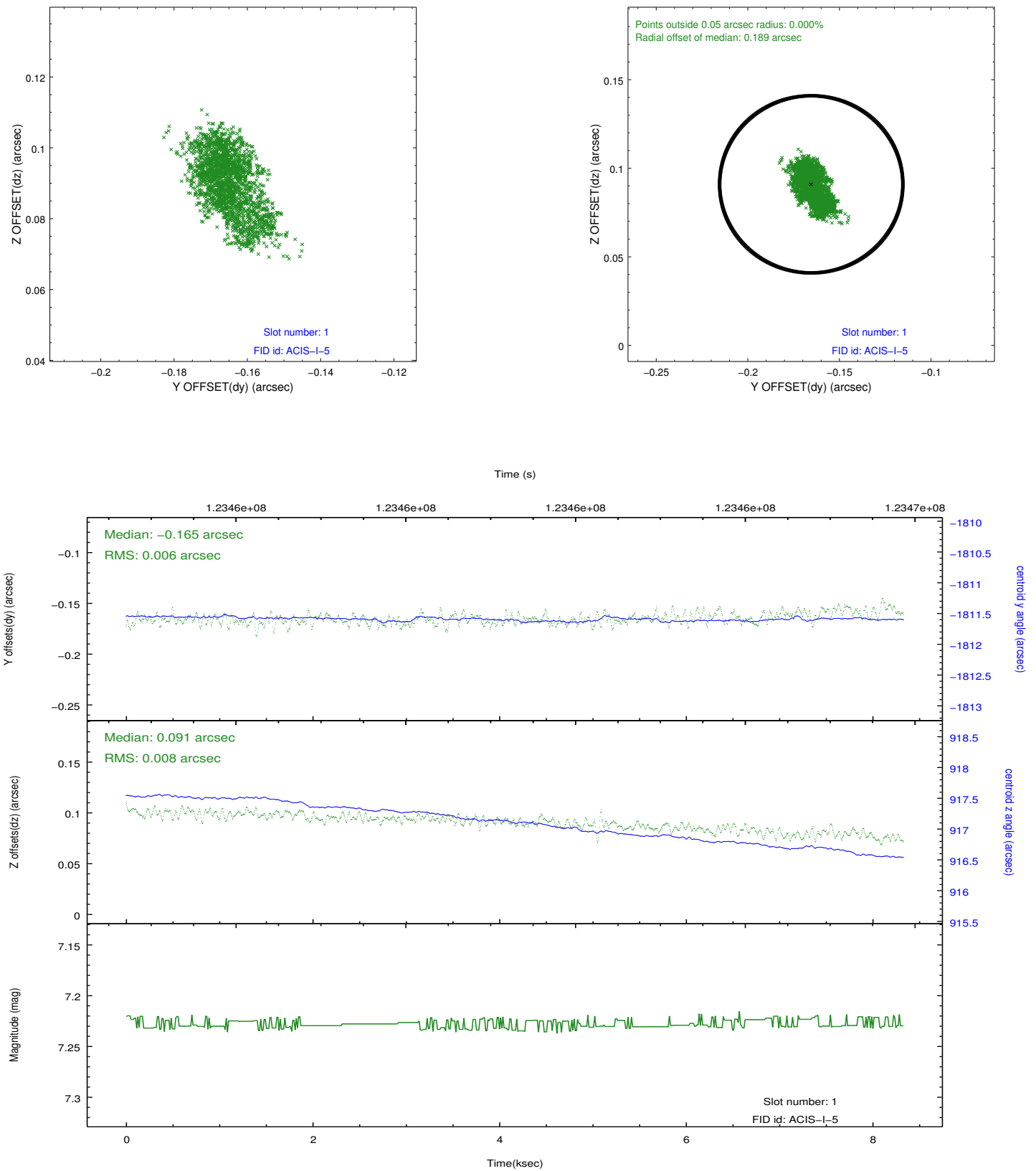


## 2.5 FID Slots

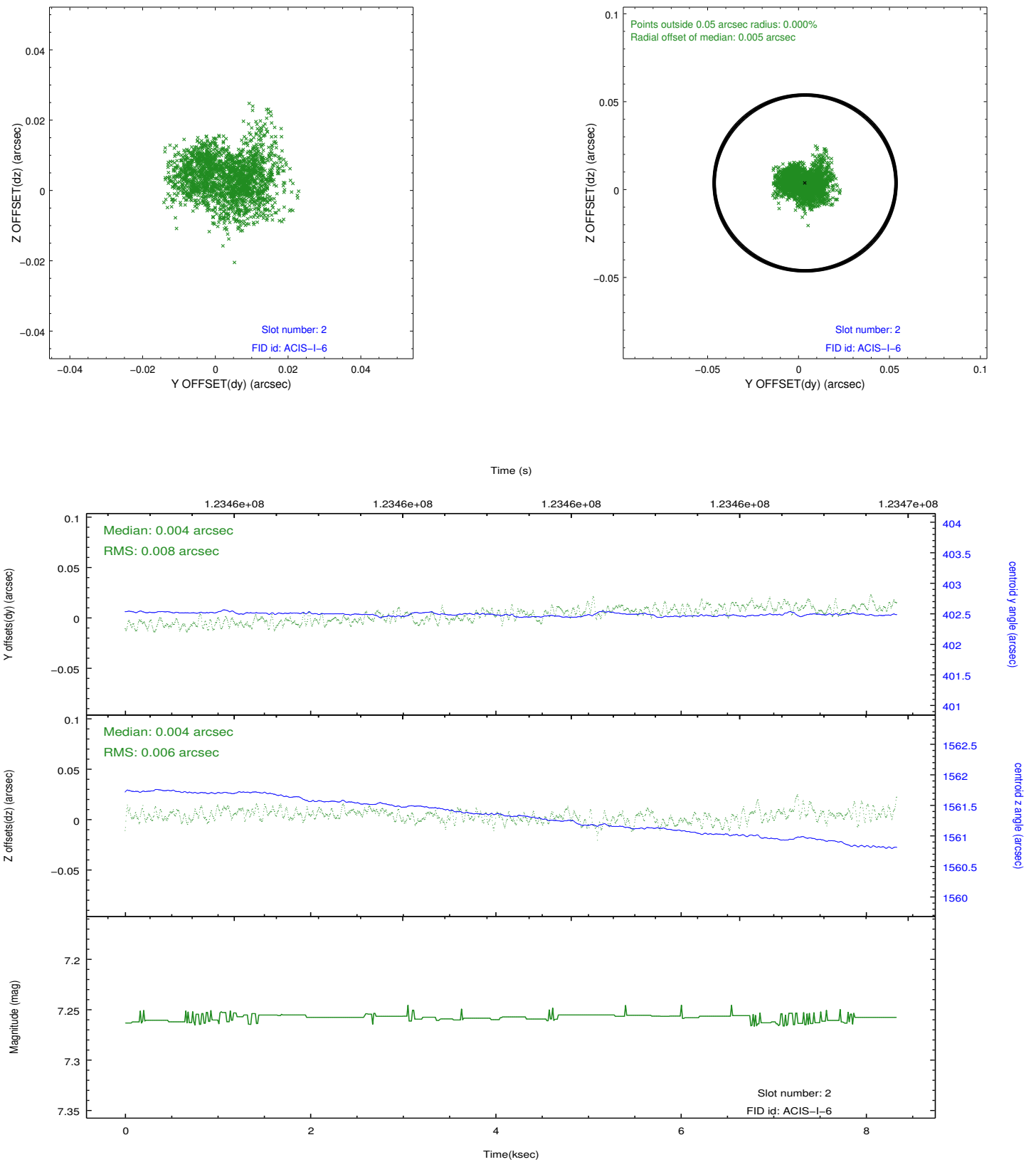
### 2.5.1 Slot 0



## 2.5.2 Slot 1

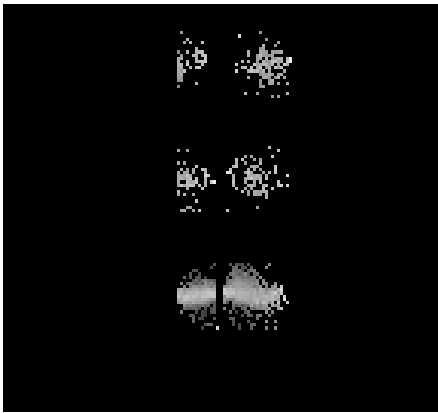


### 2.5.3 Slot 2

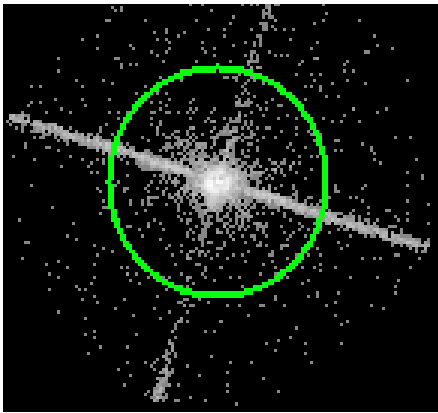


# 3 Gratings

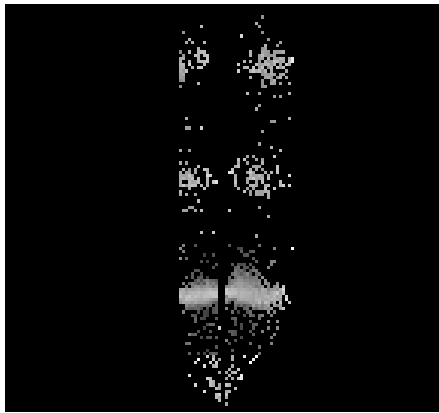
## 3.1 LETG Arm



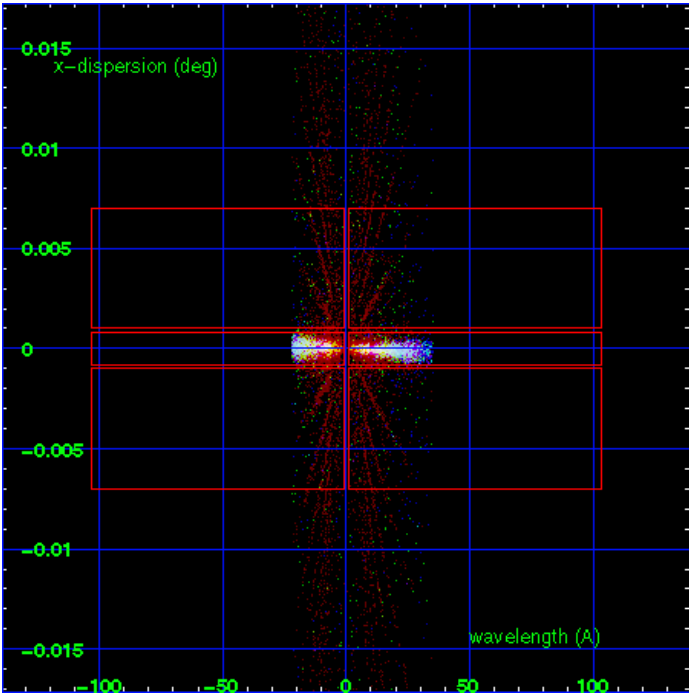
LETG Order Sort 123



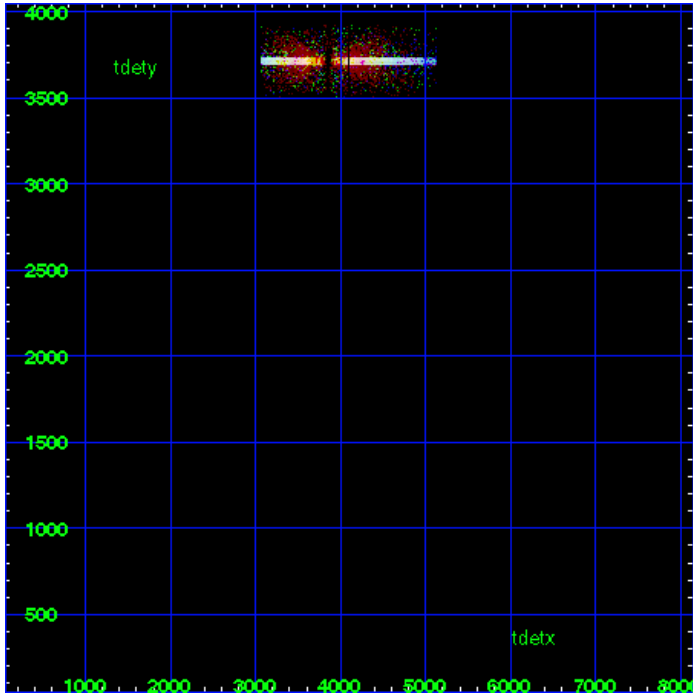
LETG Zero Order



LETG Order Sort ALL

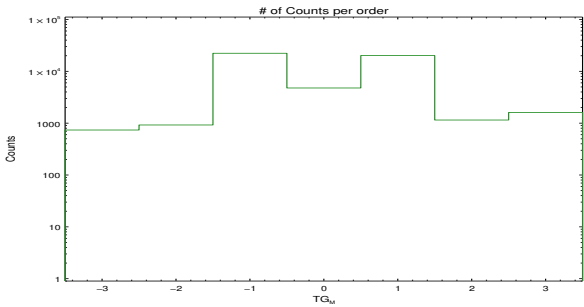


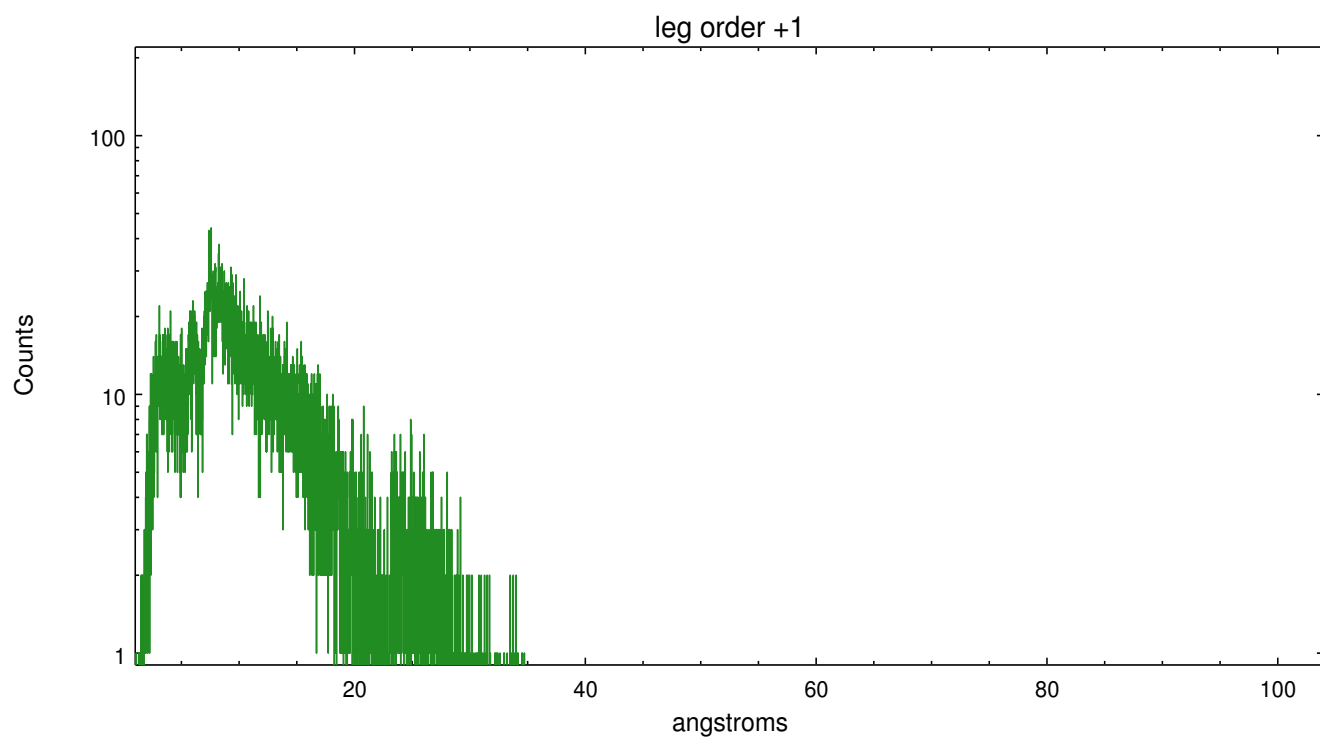
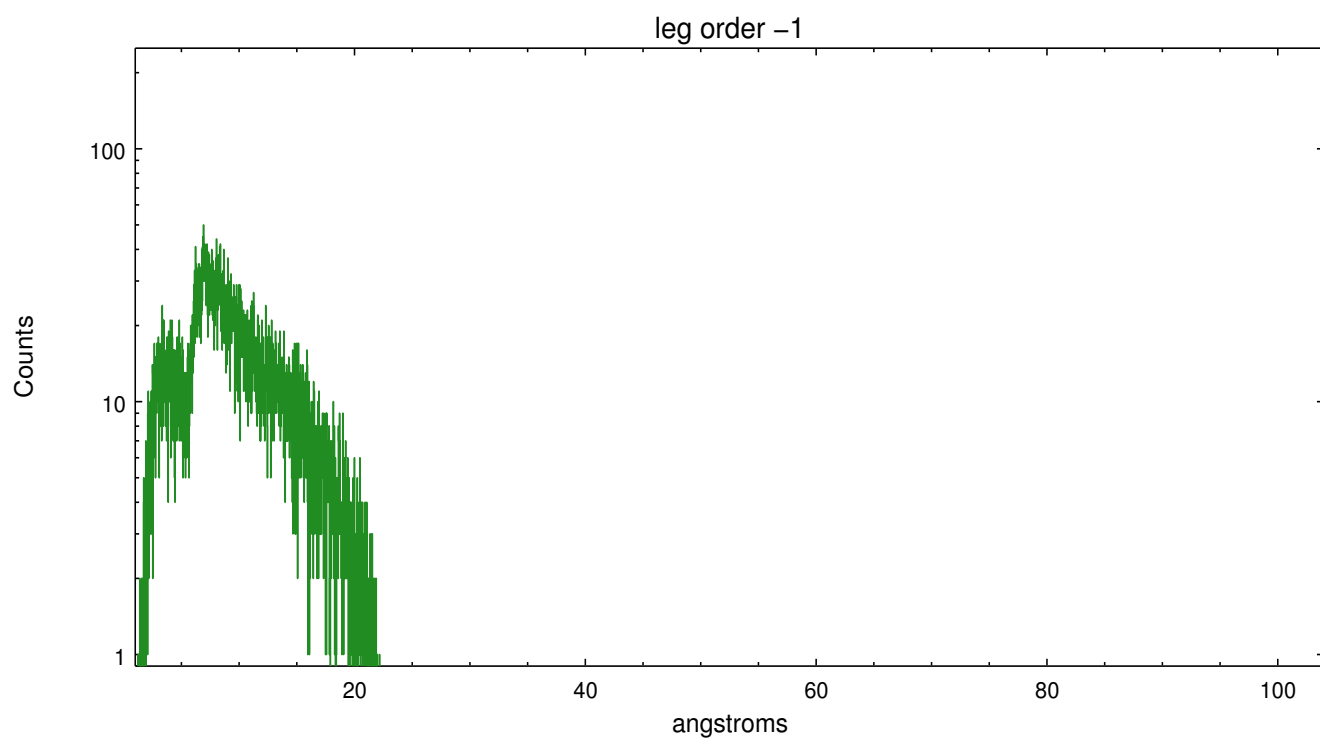
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	738	923	22312	4774	20147	1150	1609





# 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	7.724

## 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 ( $x=4005.81$ ,  $y=3836.01$ ) 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.