

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 3171 - L2 Version 6  
Chandra X-Ray Center

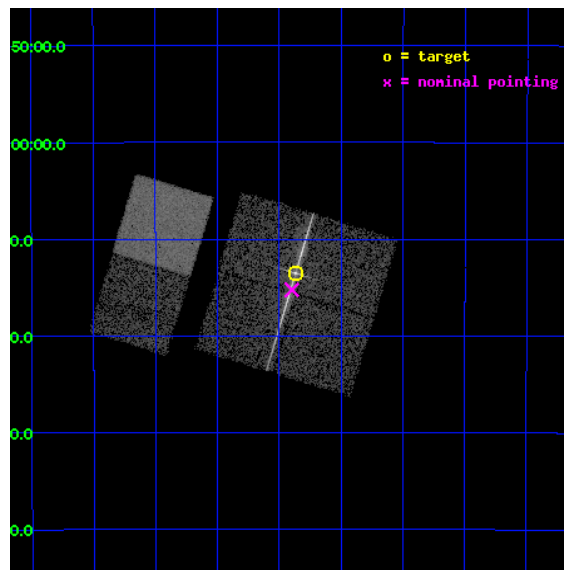
L2 Processing Date : Feb 9 2013

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# 1 Front

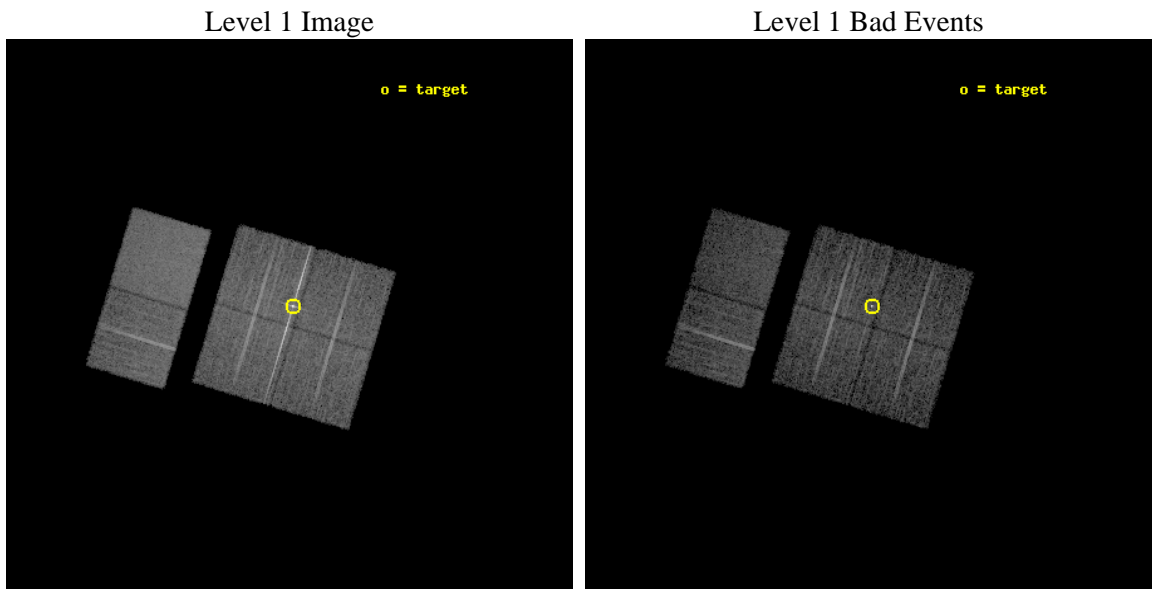
seq_num	790065	Sequence number
obs_id	3171	Observation id
title	AO3 LETG/ACIS-I CALIBRATION OBSERVATIONS OF PKS2155-304	Proposal t
observer	Dr. CXC Calibration	Principal investigator
object	PKS2155-304	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	329.716667	Observer's specified target RA [deg]
dec_targ	-30.225556	Observer's specified target Dec [deg]
ra_nom	329.72437132739	Nominal RA [deg]
dec_nom	-30.254162437591	Nominal Dec [deg]
roll_nom	286.91085332954	Nominal Roll [deg]
revision	6	Processing version of data
ontime	8156.8000075817	Sum of GTIs [s]
livetime	8053.5136944504	Livetime [s]
ontime0	8156.8000075817	Sum of GTIs [s]
ontime1	8156.8000075817	Sum of GTIs [s]
ontime2	8156.8000075817	Sum of GTIs [s]
ontime3	8156.8000075817	Sum of GTIs [s]
ontime6	8156.8000075817	Sum of GTIs [s]
ontime7	8156.8000075817	Sum of GTIs [s]
l2events	85538	Number of level 2 events



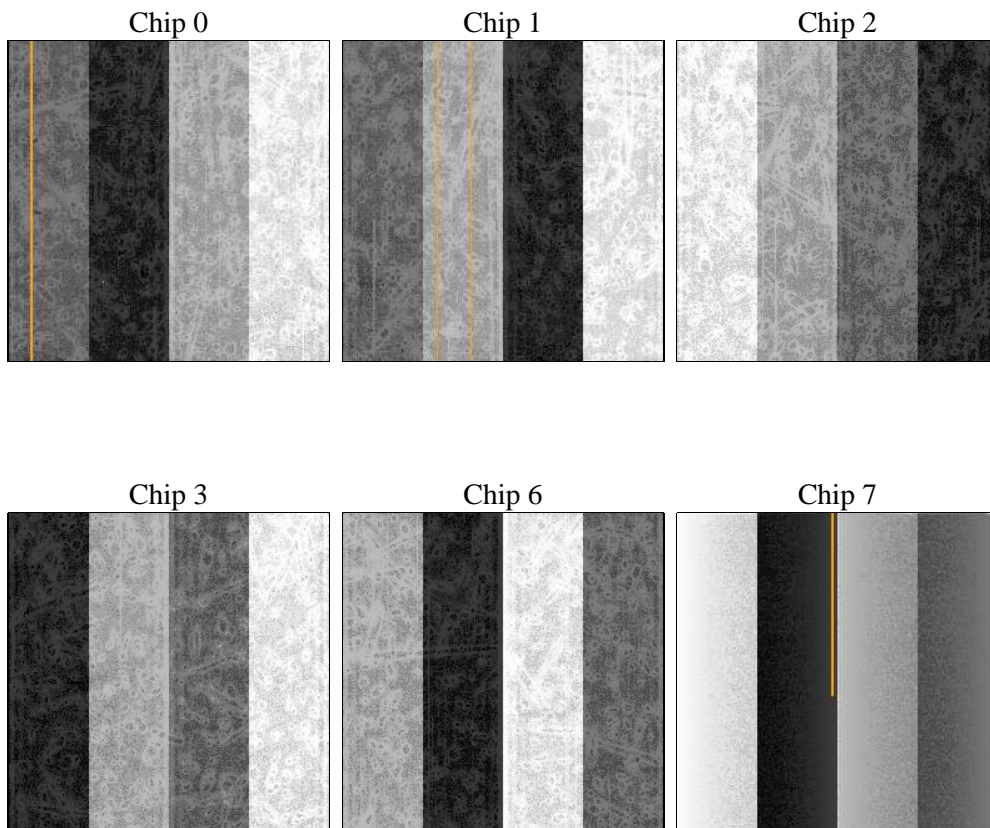
## 2 OBI

### 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	8.5.1.1	Processing system revision	ontime	8156.8000075817	Sum of GTIs [s]
caldsver	4.5.5	&#160	ontime0	8156.8000075817	Sum of GTIs [s]
date	2013-02-09T22:07:42	Date and time of file creation	ontime1	8156.8000075817	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	8156.8000075817	Sum of GTIs [s]
			ontime3	8156.8000075817	Sum of GTIs [s]
			ontime6	8156.8000075817	Sum of GTIs [s]
			ontime7	8156.8000075817	Sum of GTIs [s]
			l1events	365999	Number of level 1 events

### 2.1.4 Events

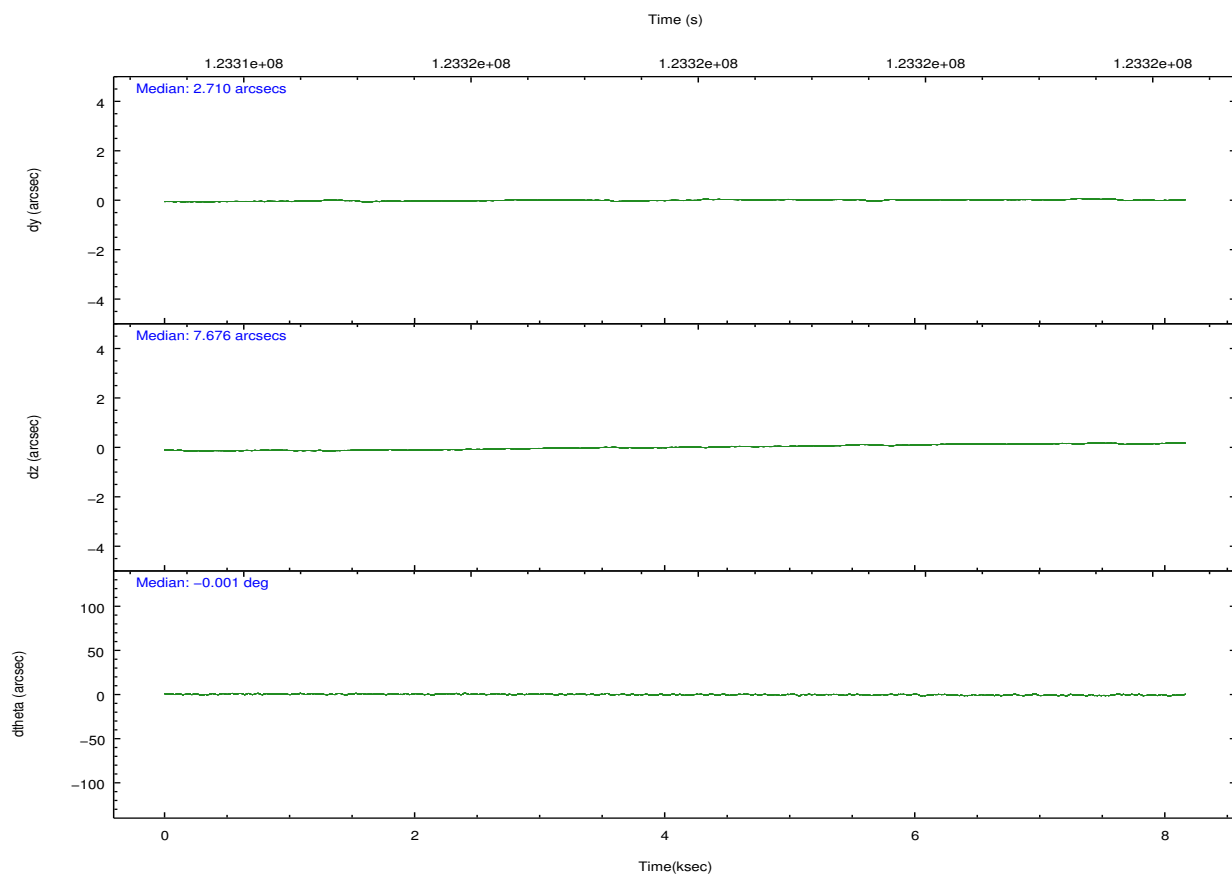
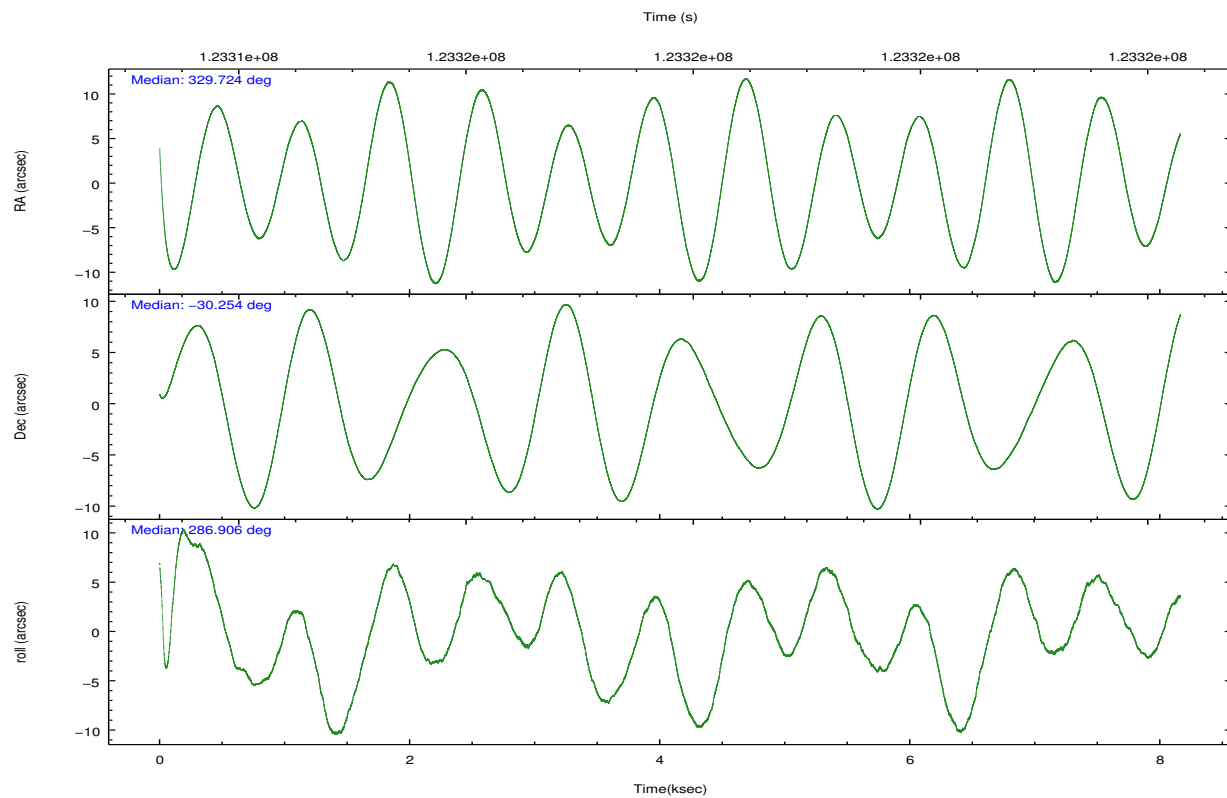
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	48983	49293	64055	78514	54643	70511	grade 0 events	2882	3170	12286	18487	2532	2725
rejected events	42519	42264	46812	52553	48398	42408		5%	6%	19%	23%	4%	3%
rejected %	86%	85%	73%	66%	88%	60%	grade 1 events	17	21	95	513	28	68
								0%	0%	0%	0%	0%	0%
							grade 2 events	1478	1492	2357	3417	1363	5922
								3%	3%	3%	4%	2%	8%
							grade 3 events	616	703	807	1270	628	2648
								1%	1%	1%	1%	1%	3%
							grade 4 events	554	643	851	1144	590	2604
								1%	1%	1%	1%	1%	3%
							grade 5 events	2008	1991	1853	2858	2319	6648
								4%	4%	2%	3%	4%	9%
							grade 6 events	1192	1289	1286	2110	1385	15798
								2%	2%	2%	2%	2%	22%
							grade 7 events	40236	39984	44520	48715	45798	34098
								82%	81%	69%	62%	83%	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	329.701183	329.7243713273872	Subarray requested	NONE	NONE
[deg] Pointing Dec	-30.235484	-30.25416243759075	Alternating exposures requested	N	N
[deg] Pointing Roll	286.690488	286.9108533295379	[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	-233.592463	-233.5874344608287			
[mm] SIM translation stage offset	0	-0.005018542100998502			
[s] Observation start time (MET)	123313878.184000	123312605.30744			
Observation start date	2001-11-28T05:50:14	2001-11-28T05:30:05			
[s] Observation end time (MET)	123321878.184000	123322012.24531			
Observation end date	2001-11-28T08:03:34	2001-11-28T08:06:52			
Read mode	TIMED	TIMED			

## 2.3 Aspect

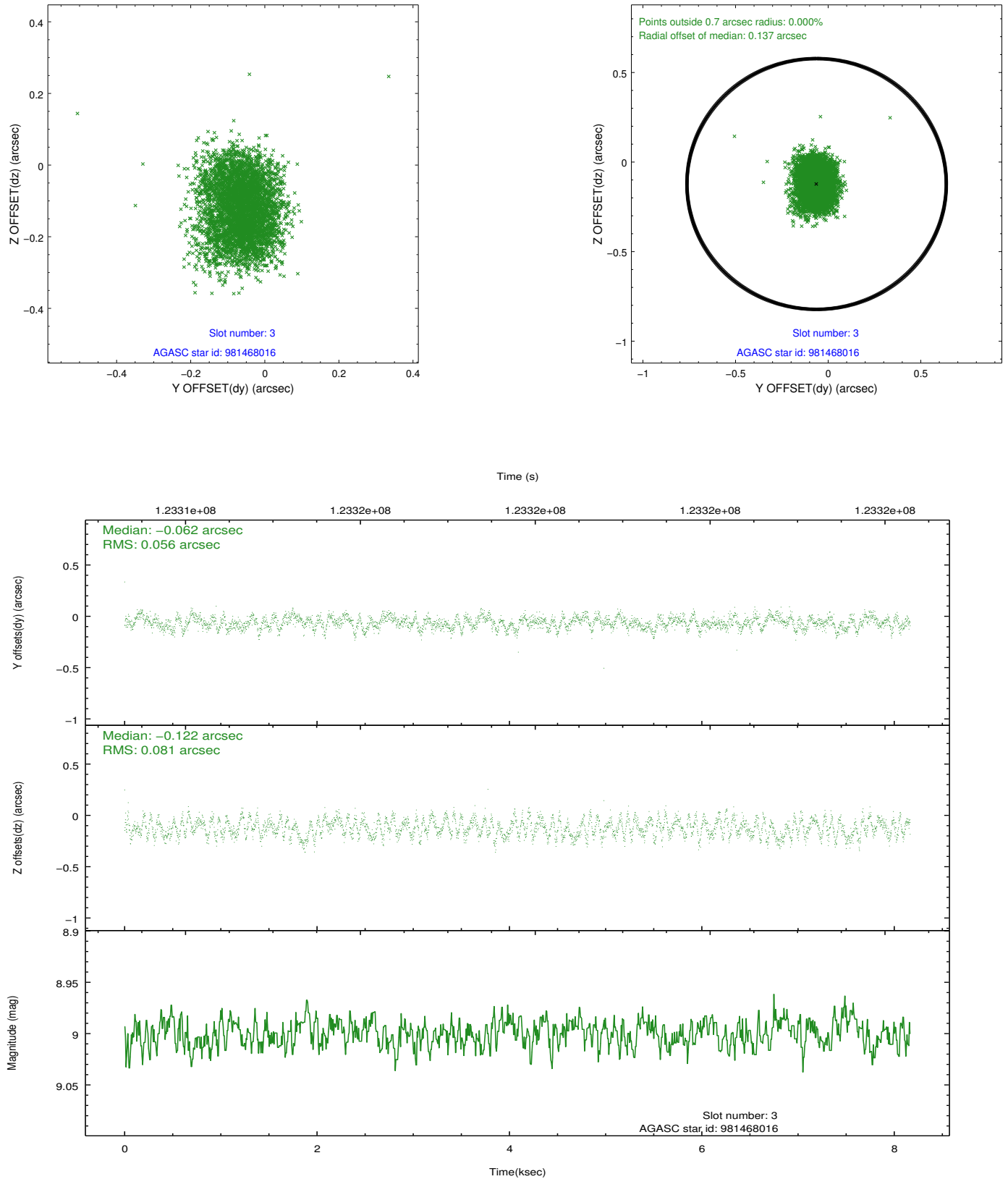


### Slot Statistics

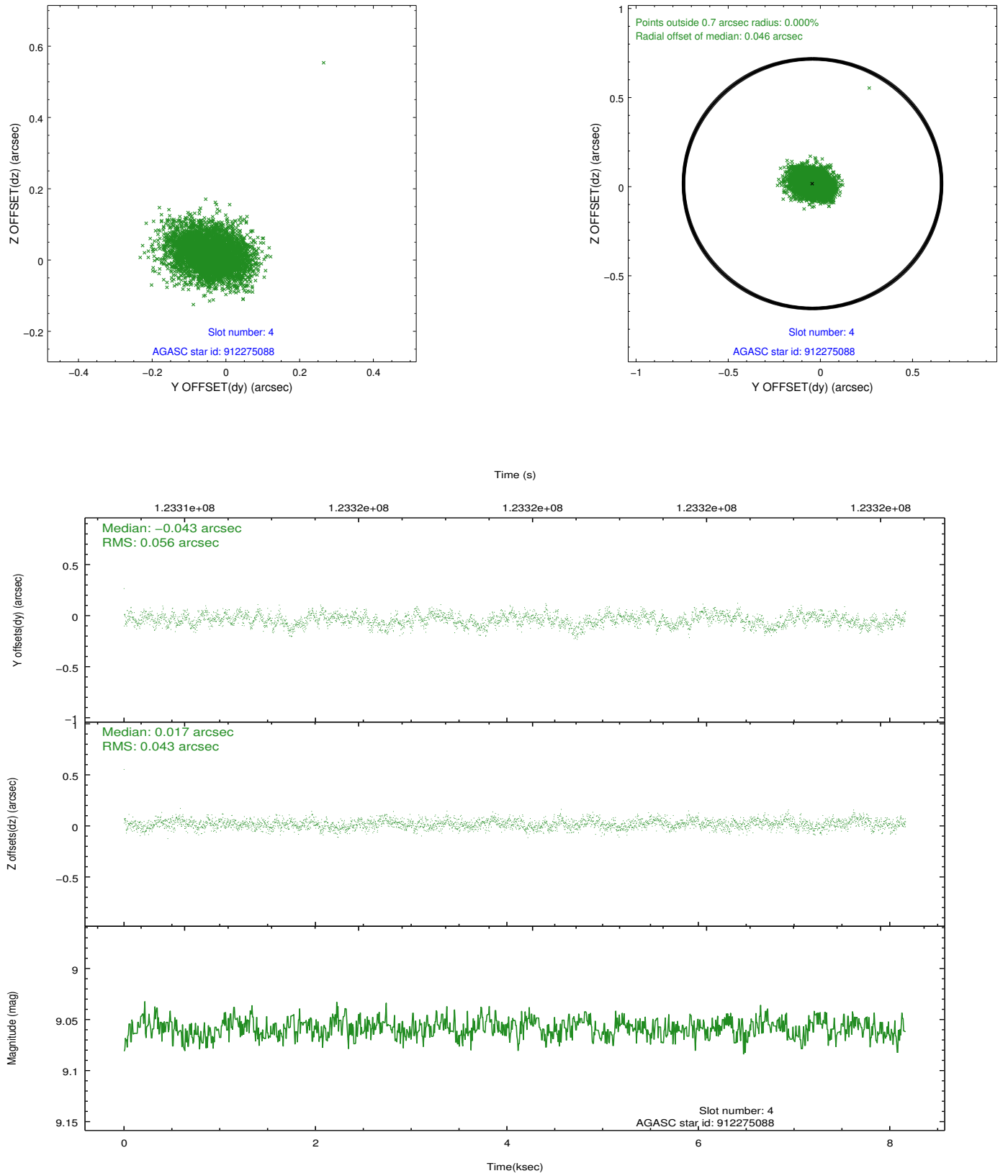
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.24	1992	-0.025	0.021	0.005	0.010	0.000000	0.000000	937.06	-831.09
1	FID	ACIS-I-5	7.24	1992	-0.036	0.029	0.005	0.010	0.000000	0.000000	-1810.65	1066.11
2	OMITTED		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
3	GUIDE	981468016	9.00	3984	-0.062	-0.122	0.106	0.164	328.842457	-30.034984	-1449.26	-2358.57
4	GUIDE	912275088	9.06	3984	-0.043	0.017	0.074	0.123	329.619228	-29.738698	-1785.99	268.32
5	GUIDE	981478152	9.40	3981	-0.008	0.116	0.093	0.150	329.415589	-30.057192	-868.71	-667.45
6	GUIDE	981468128	9.36	3981	0.029	-0.001	0.088	0.142	329.756350	-30.158334	-215.84	244.90
7	GUIDE	981469488	9.60	3979	0.087	-0.008	0.083	0.138	329.261199	-30.045155	-1046.44	-1116.54

## 2.4 Star Slots

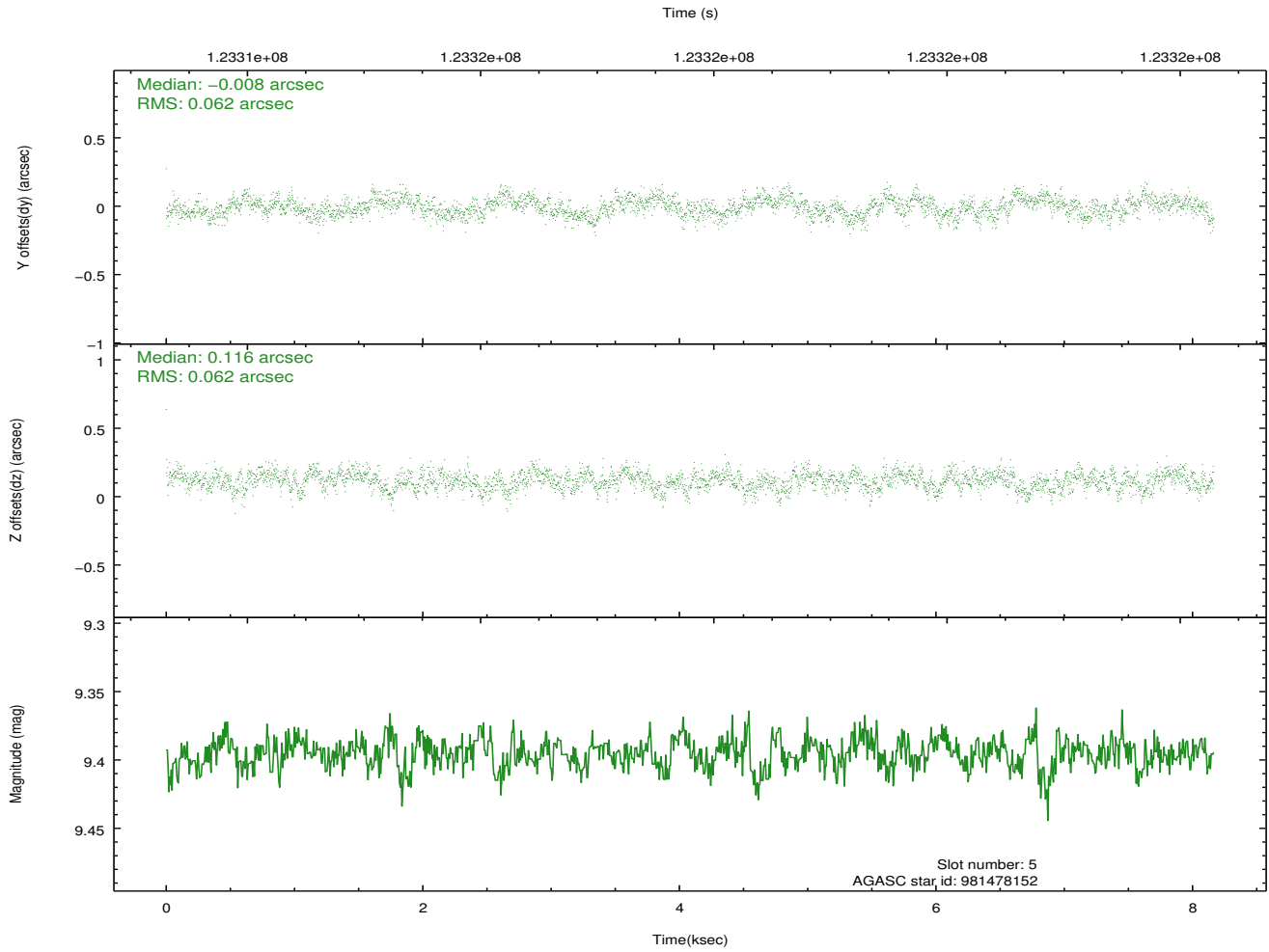
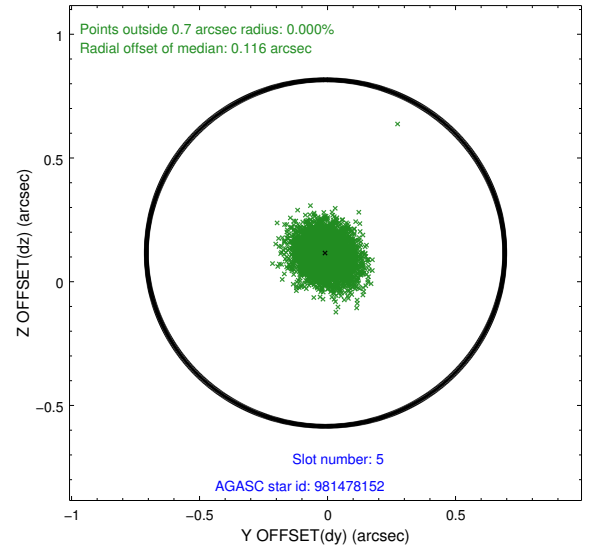
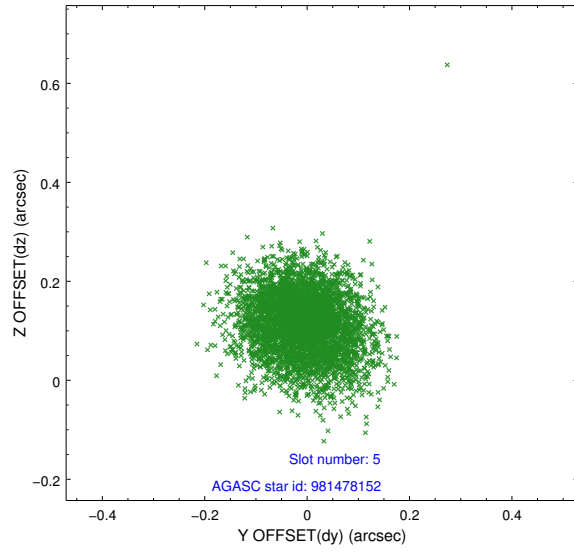
### 2.4.1 Slot 3



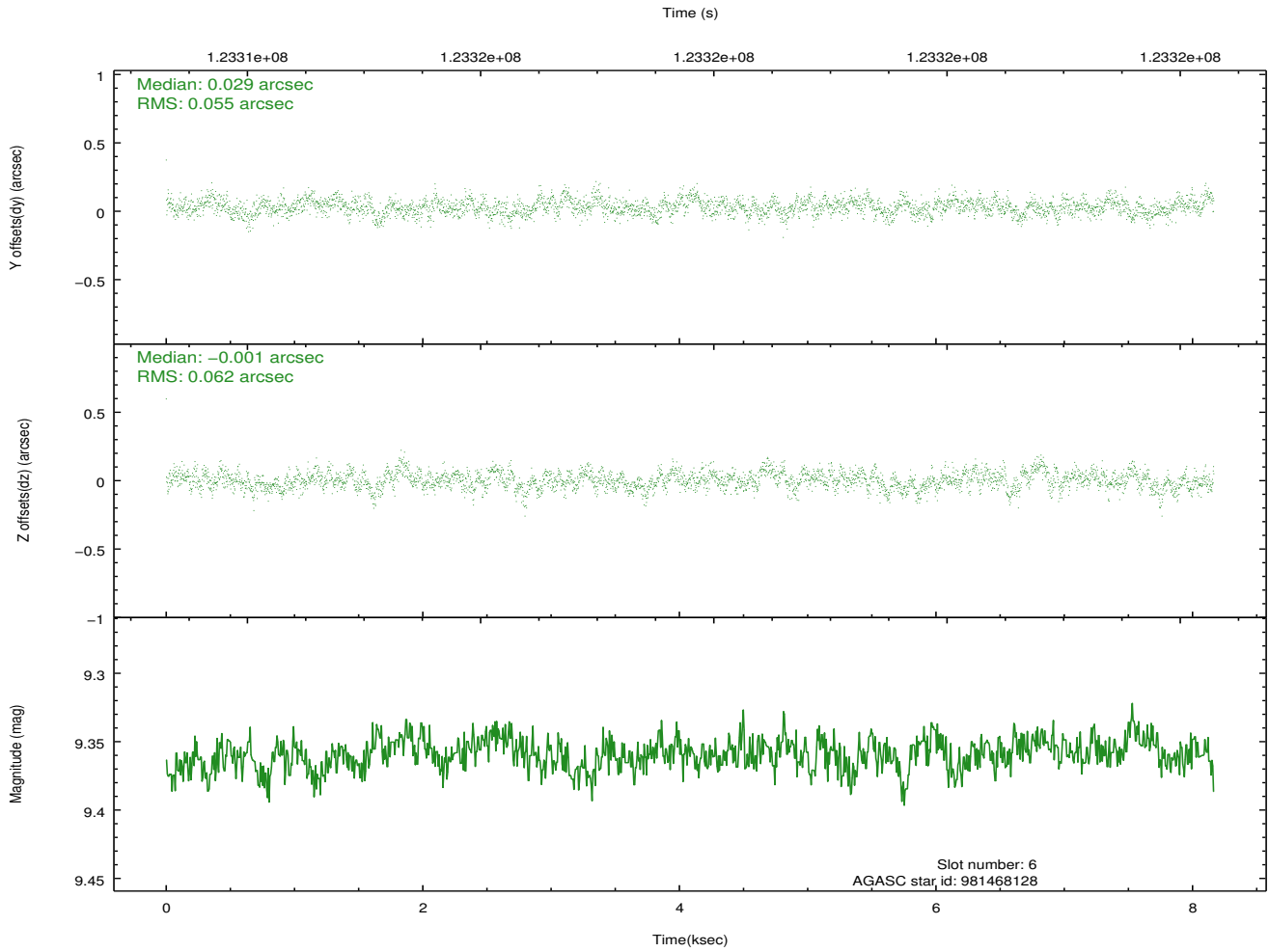
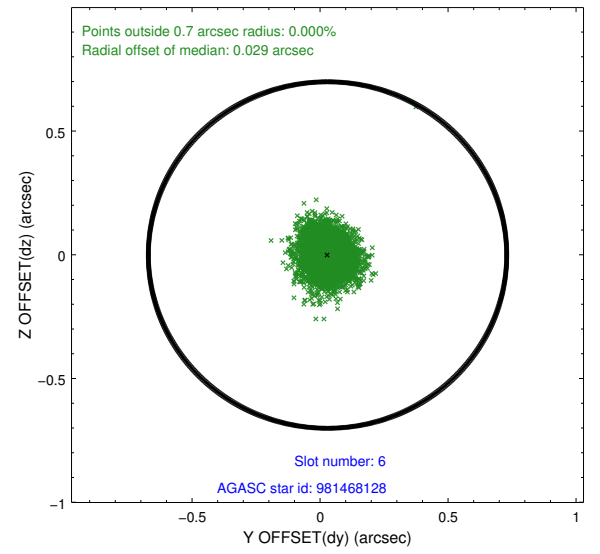
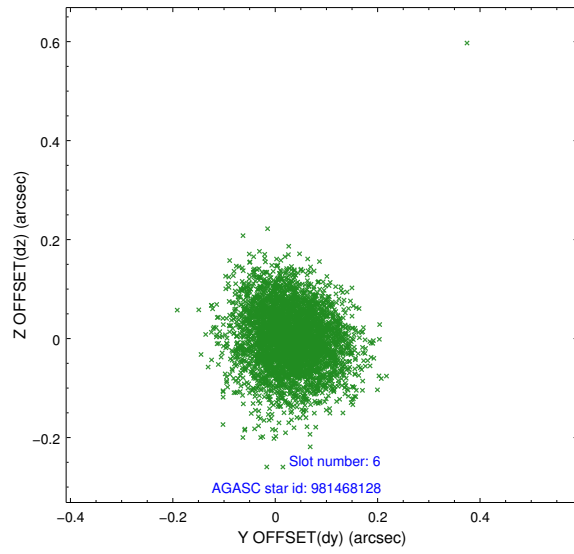
## 2.4.2 Slot 4



### 2.4.3 Slot 5

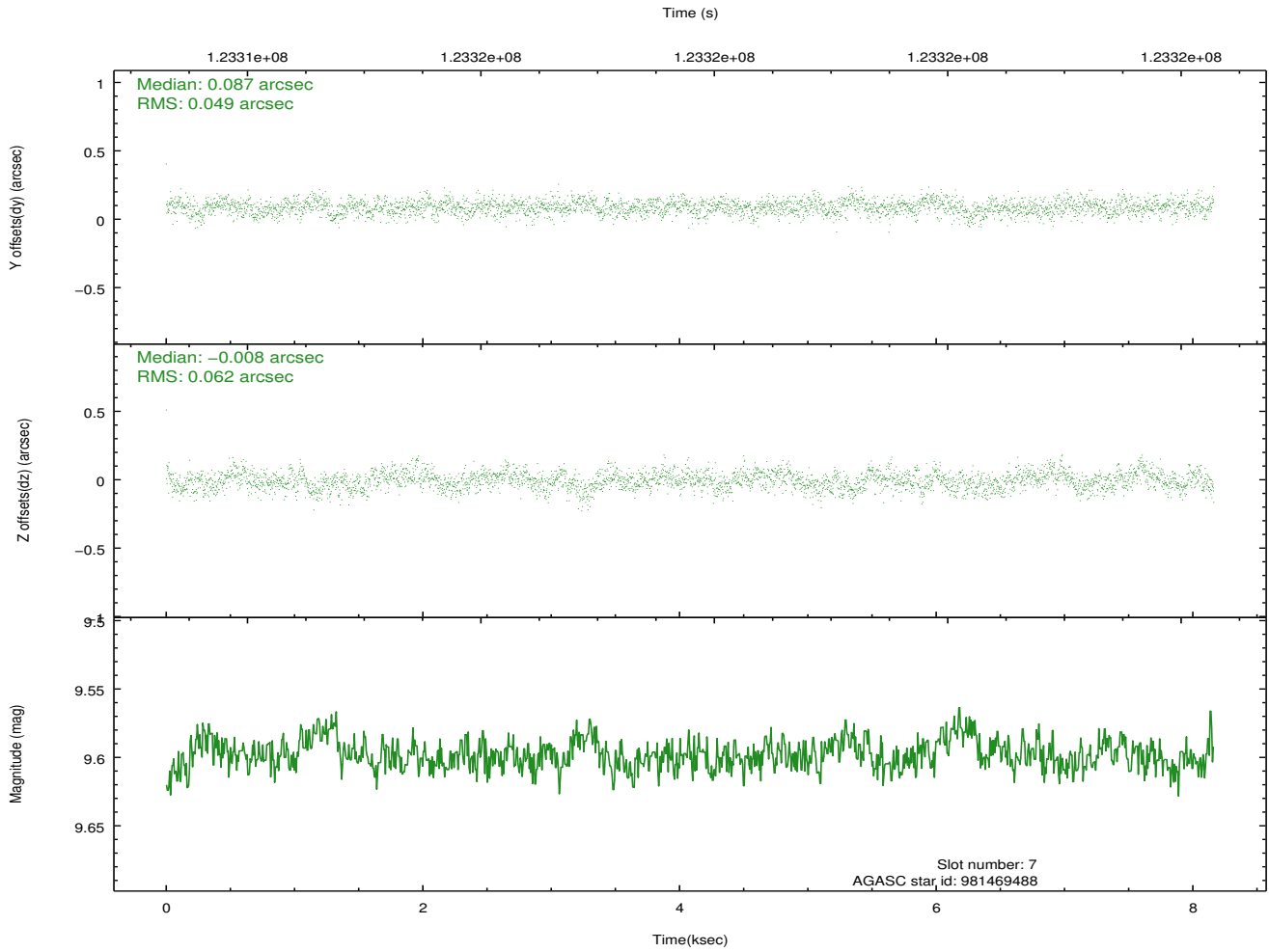
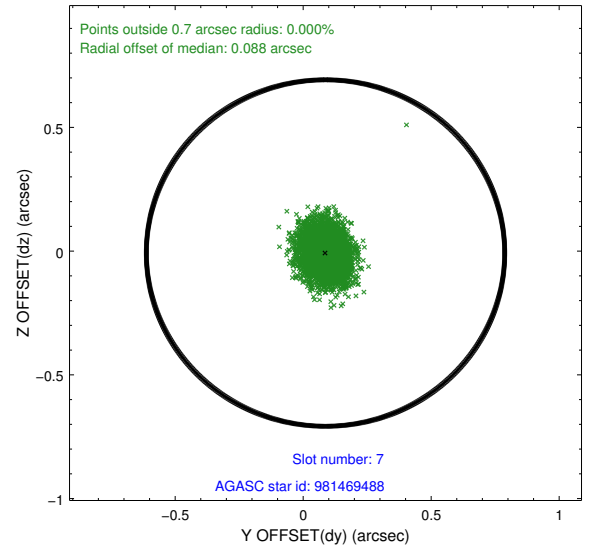
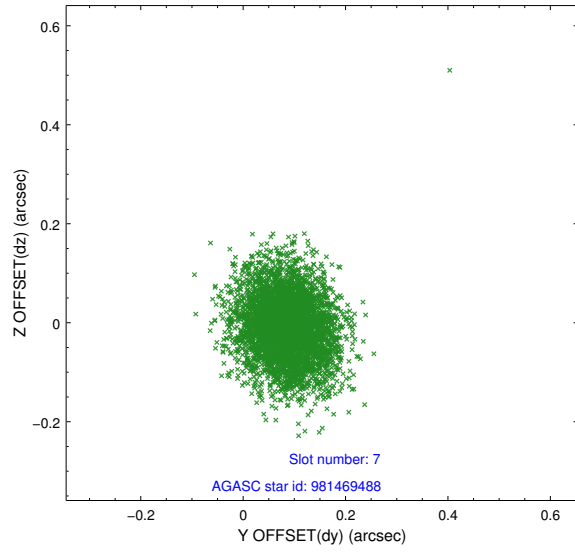


## 2.4.4 Slot 6



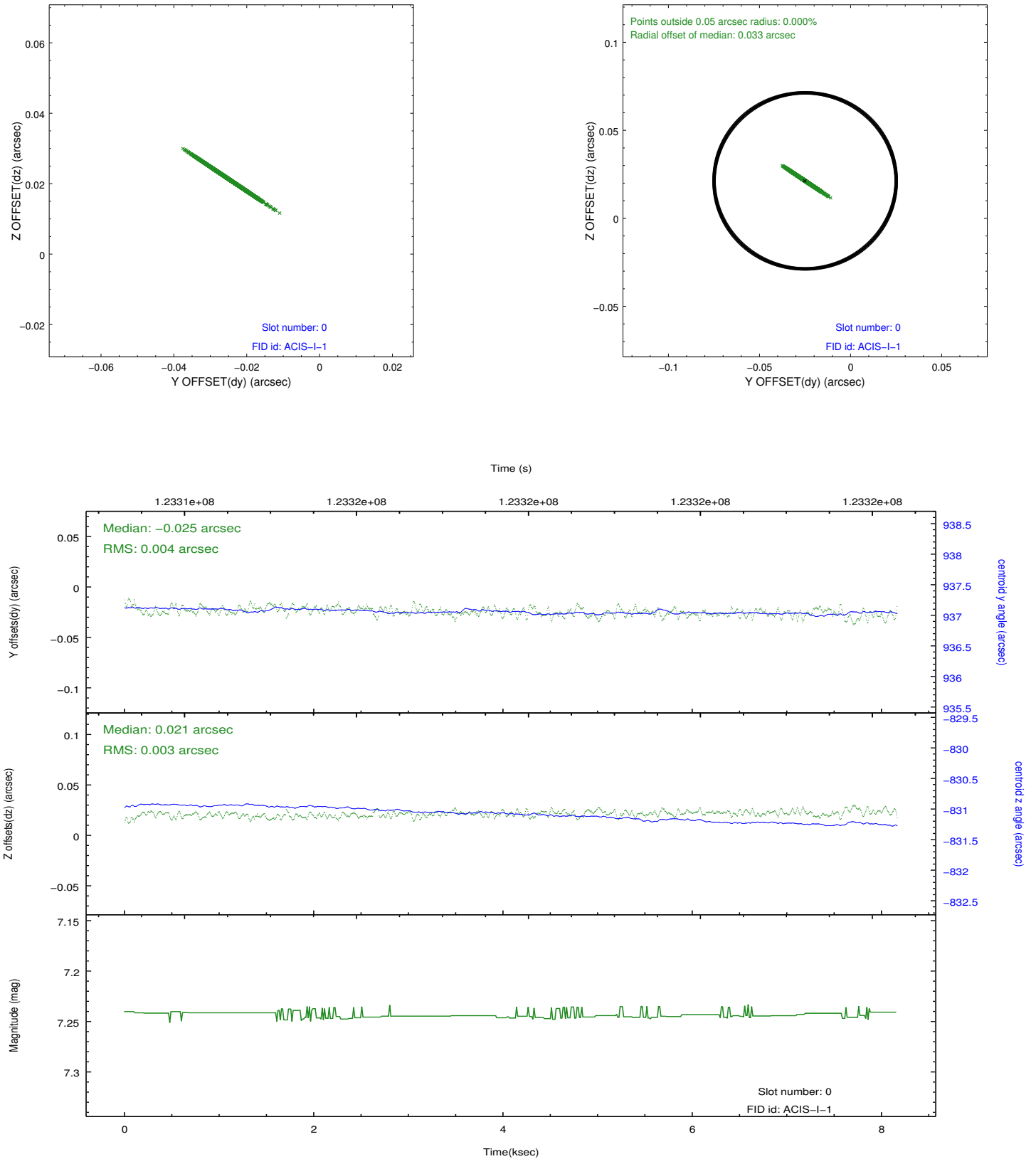


## 2.4.5 Slot 7

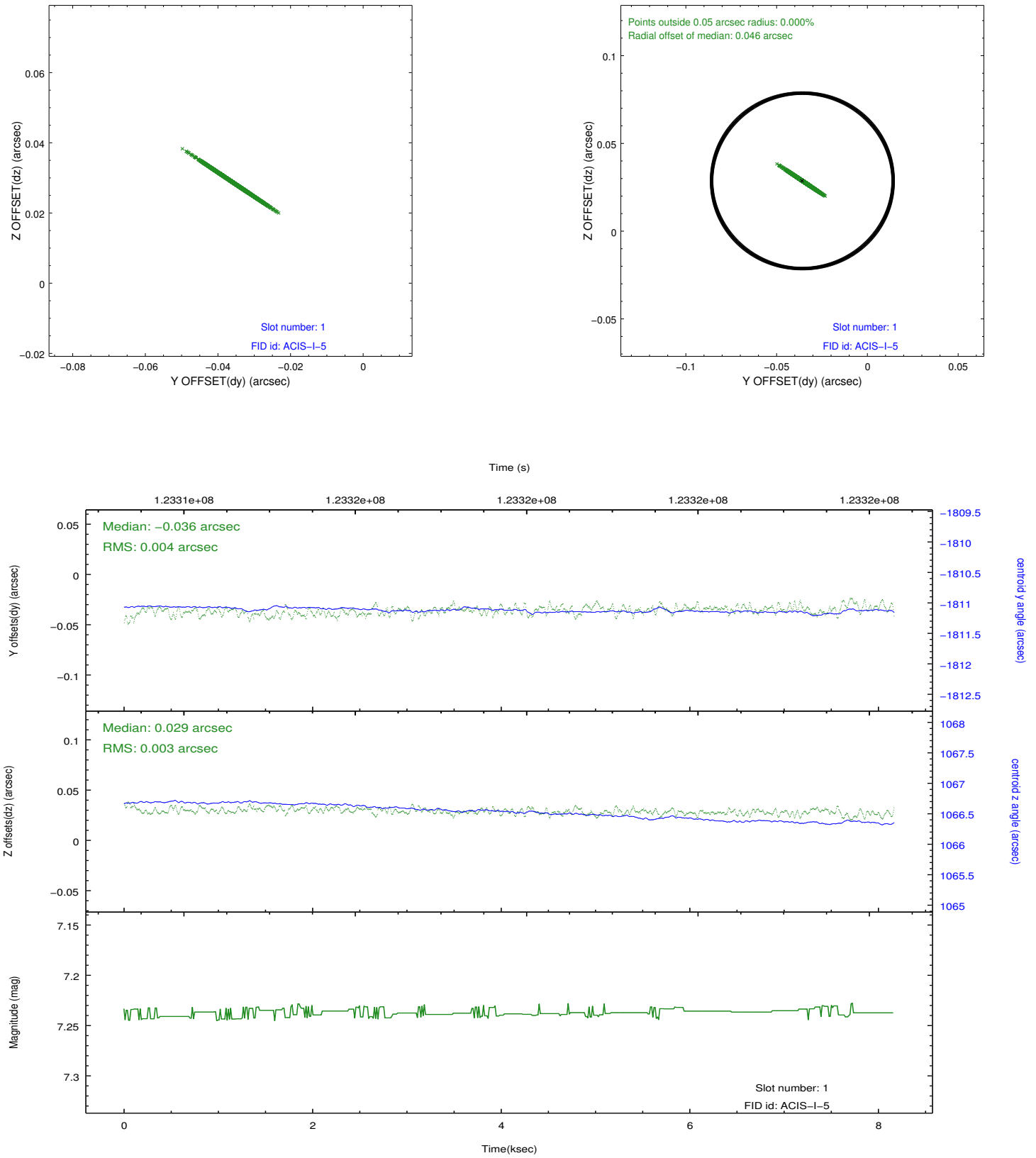


## 2.5 FID Slots

### 2.5.1 Slot 0



## 2.5.2 Slot 1

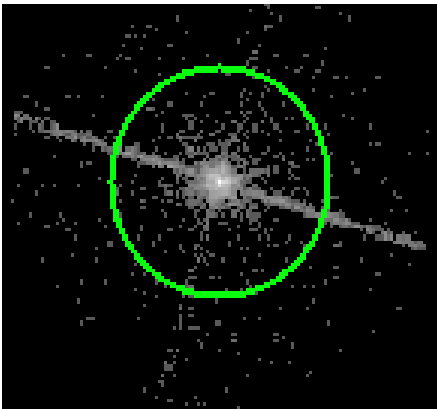


# 3 Gratings

## 3.1 LETG Arm



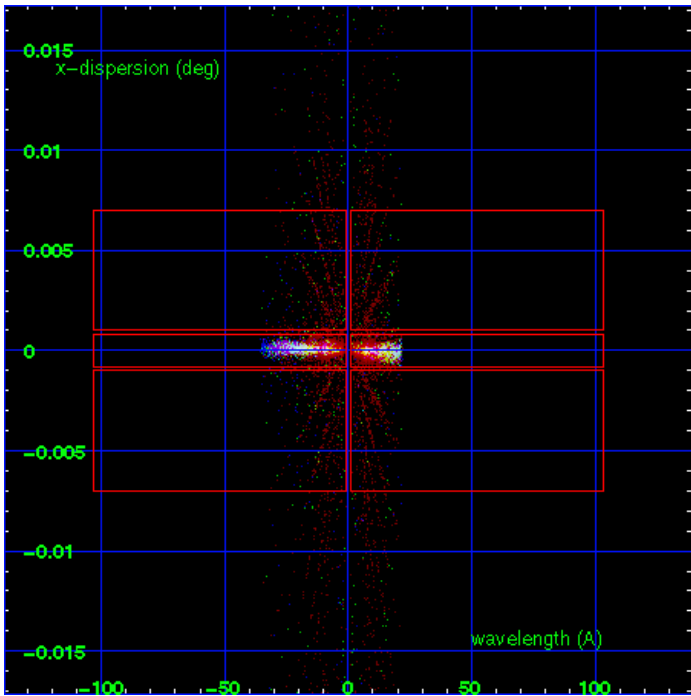
LETG Order Sort 123



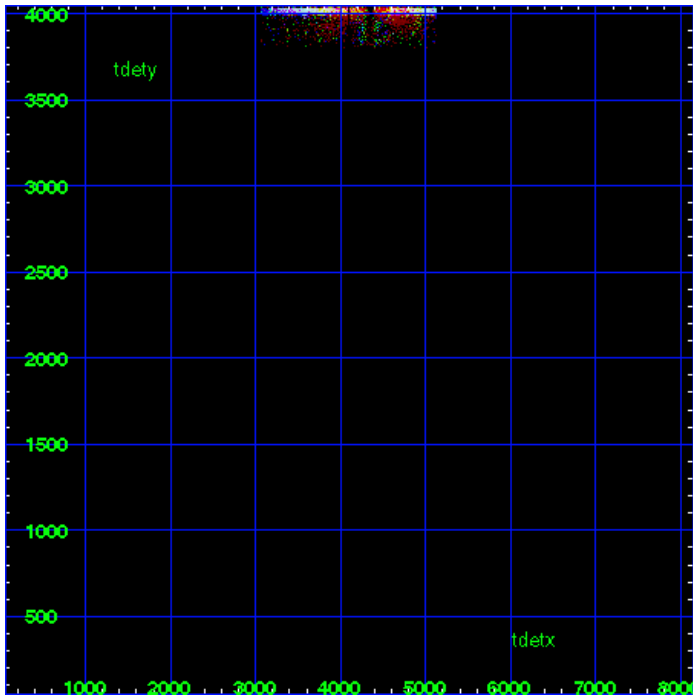
LETG Zero Order



LETG Order Sort ALL

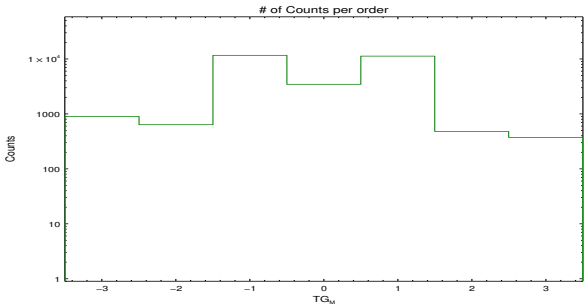


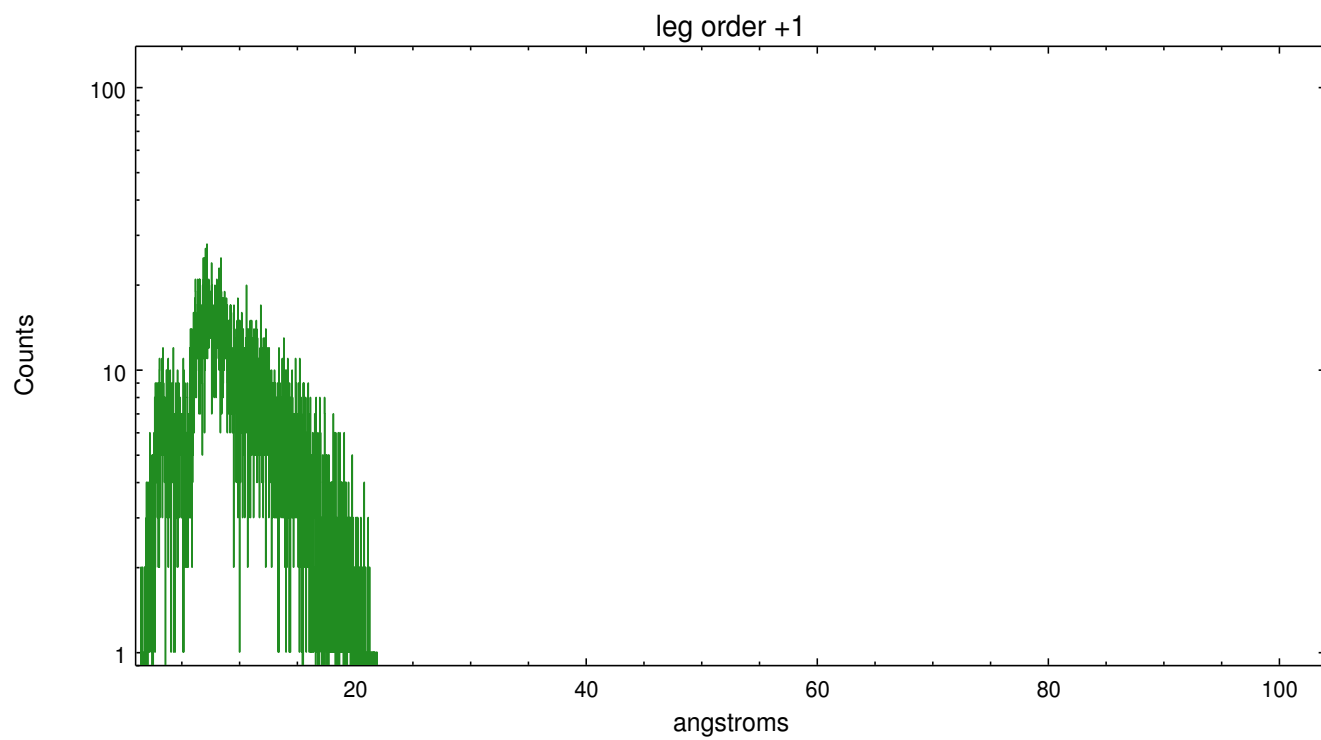
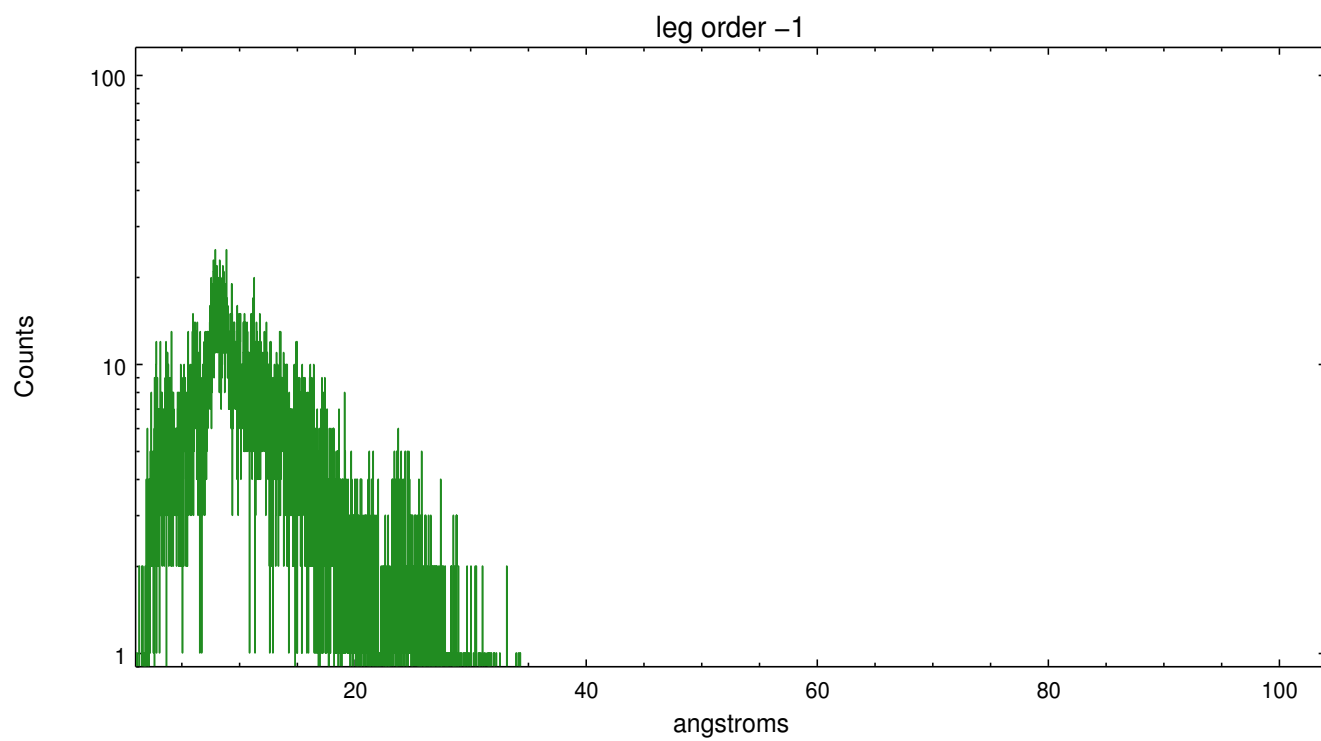
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	902	639	11707	3472	11342	481	374





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.02.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.156

## 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=4143.3`, `y=4305.813`) 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.

===

The fid light in slot 2 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this fid light from the solution.