

V&V Reference Report

L2 ASCDS Version : 8.5

Observation 5332 - L2 Version 3
Chandra X-Ray Center

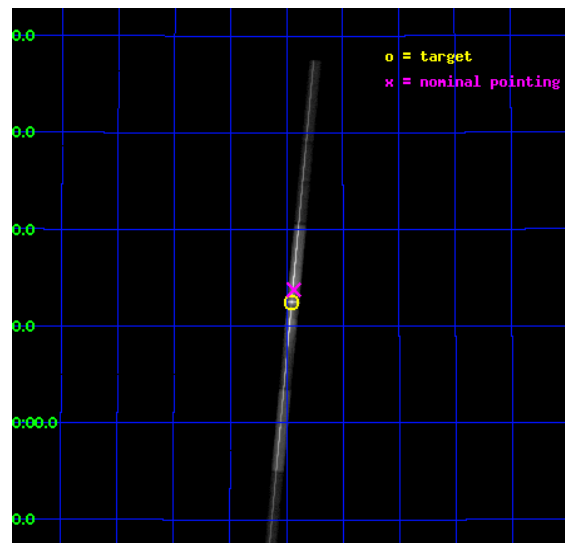
L2 Processing Date : Dec 15 2012

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1 Front

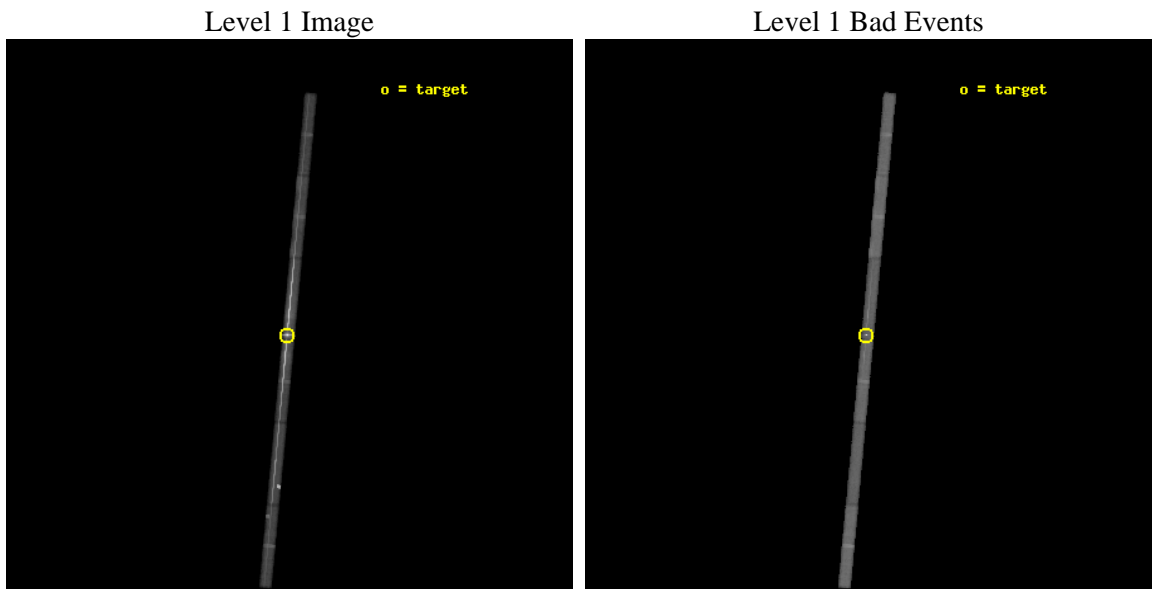
seq_num	790096	Sequence number
obs_id	5332	Observation id
title	Measuring the spatial variation in the depth and composition of the ACIS contaminant with PKS 2155-304.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	Mkn 421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.10883039517	Nominal RA [deg]
dec_nom	38.229534318901	Nominal Dec [deg]
roll_nom	275.29352092829	Nominal Roll [deg]
revision	3	Processing version of data
ontime	67063.22809568	Sum of GTIs [s]
livetime	63349.157490792	Livetime [s]
ontime4	67062.528095692	Sum of GTIs [s]
ontime5	67062.446095377	Sum of GTIs [s]
ontime6	67063.146095395	Sum of GTIs [s]
ontime7	67063.22809568	Sum of GTIs [s]
ontime8	67061.622955501	Sum of GTIs [s]
ontime9	67063.063965648	Sum of GTIs [s]
l2events	1580719	Number of level 2 events



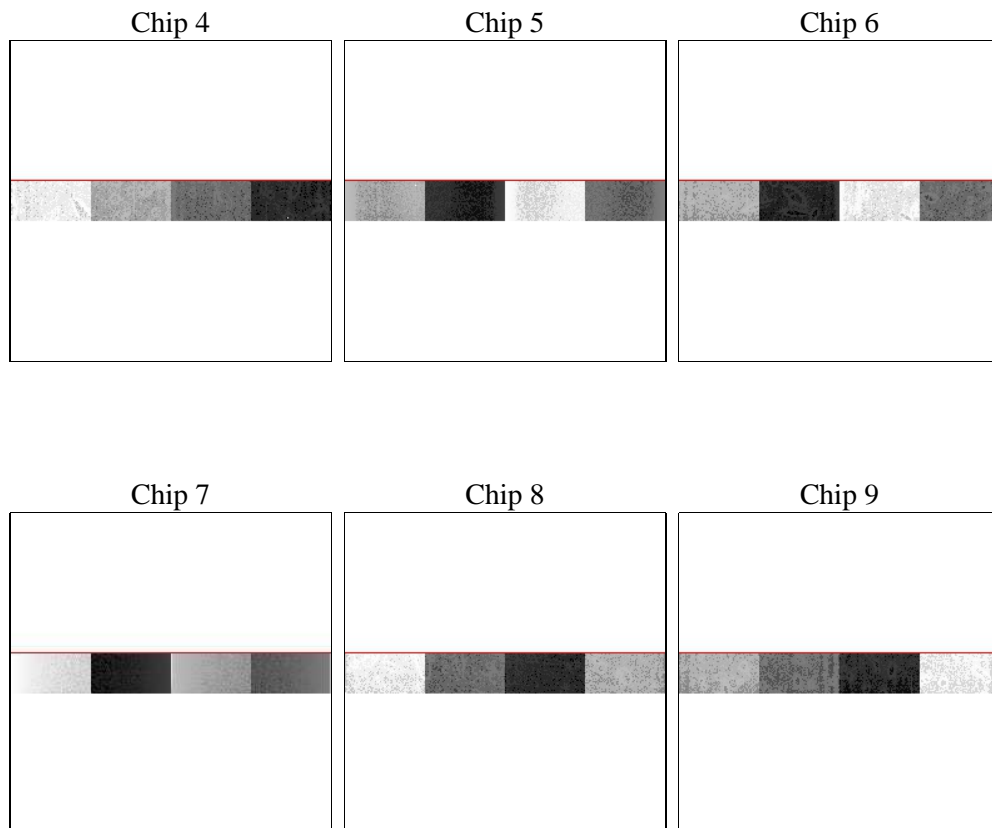
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	67000.000000	[s] Scheduled observation exposure time
ascdsver	8.5	Processing system revision	ontime	67063.22809568	Sum of GTIs [s]
caldsver	4.5.4	 	ontime4	67062.528095692	Sum of GTIs [s]
date	2012-12-06T12:03:09	Date and time of file creation	ontime5	67062.446095377	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	67063.146095395	Sum of GTIs [s]
			ontime7	67063.22809568	Sum of GTIs [s]
			ontime8	67061.622955501	Sum of GTIs [s]
			ontime9	67063.063965648	Sum of GTIs [s]
			l1events	2279395	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	120577	284591	578857	1033287	164090	97993	grade 0 events	21374	150853	408140	267201	43918	17249
rejected events	90573	53249	82220	160646	98292	72268		17%	53%	70%	25%	26%	17%
rejected %	75%	18%	14%	15%	59%	73%	grade 1 events	108	248	2050	4662	76	29
								0%	0%	0%	0%	0%	0%
							grade 2 events	3177	34705	47530	221705	7679	2816
								2%	12%	8%	21%	4%	2%
							grade 3 events	1858	9154	15230	100000	3493	1895
								1%	3%	2%	9%	2%	1%
							grade 4 events	1754	9311	14980	98874	3448	1821
								1%	3%	2%	9%	2%	1%
							grade 5 events	3170	8660	4282	27338	3971	2954
								2%	3%	0%	2%	2%	3%
							grade 6 events	1841	27325	10769	184869	7261	1944
								1%	9%	1%	17%	4%	1%
							grade 7 events	87295	44335	75876	128638	94244	69285
								72%	15%	13%	12%	57%	70%

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	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	166.088418	166.1088303951704	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	38.251555	38.22953431890127	Subarray start row	449	449
[deg] Pointing Roll	275.149528	275.2935209282905	Subarray row count	128	128
[s] Window start time (MET)	205027264.184000	205027264.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	207705604.184000	207705604.184000	[s] Primary exposure time	0.000000	0.7
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1400660498719			
[mm] SIM translation stage offset	0	0.00754346686406393			
[s] Observation start time (MET)	206196071.184000	206194972.36574			
Observation start date	2004-07-14T12:40:07	2004-07-14T12:22:52			
[s] Observation end time (MET)	206263071.184000	206263701.69379			
Observation end date	2004-07-15T07:16:47	2004-07-15T07:28:21			
Read mode	TIMED	TIMED			

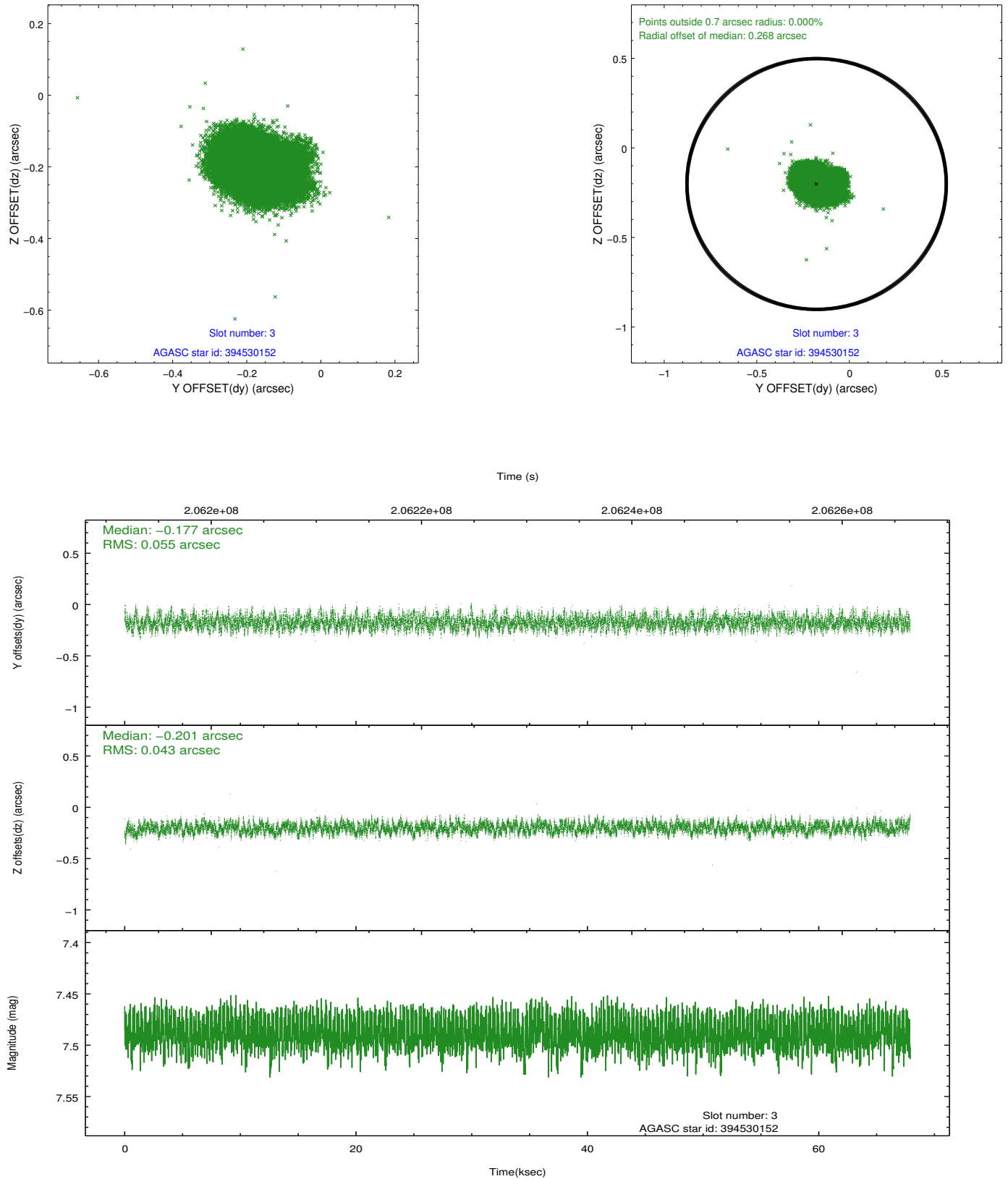
2.3 Aspect

Slot Statistics

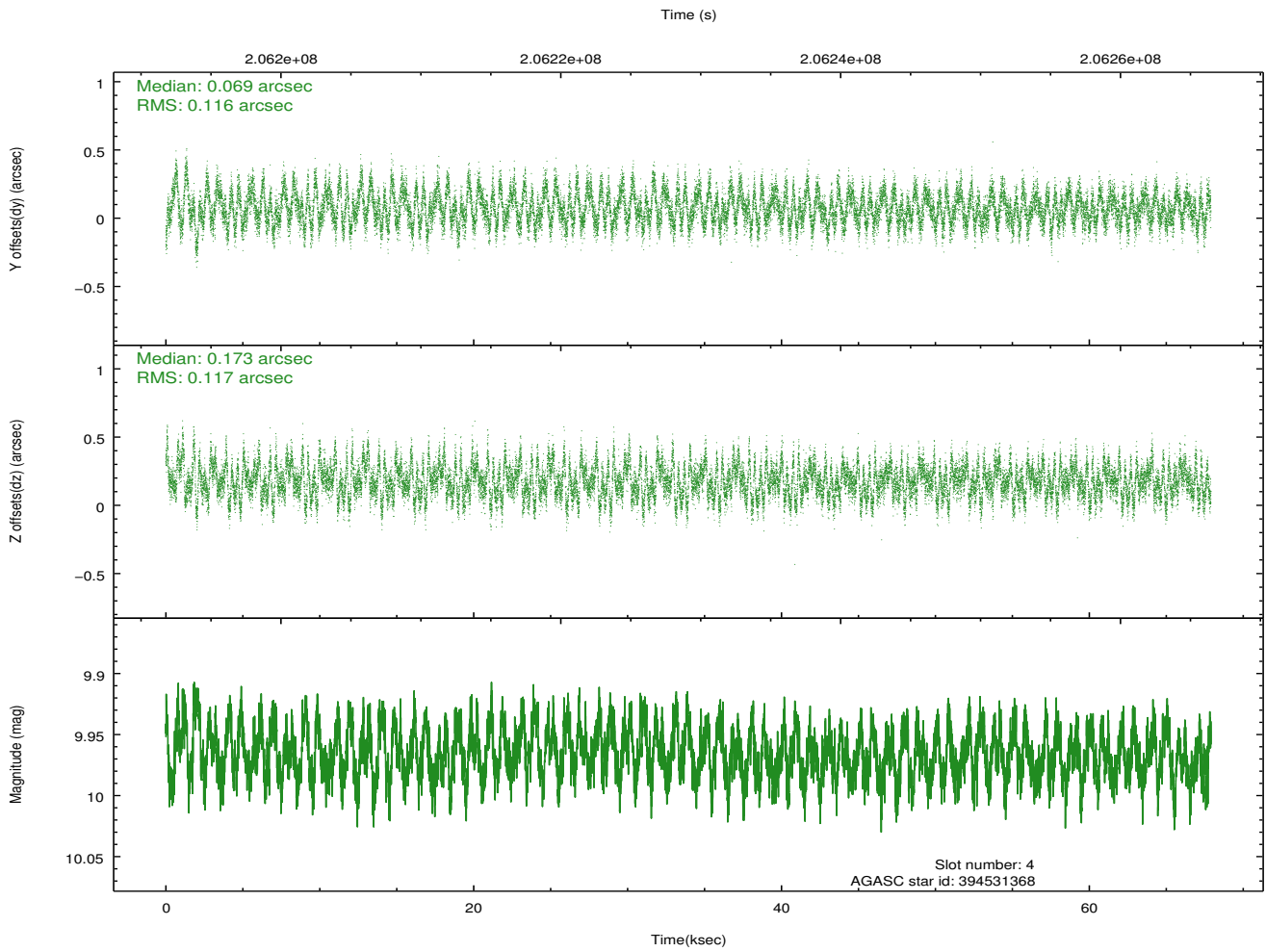
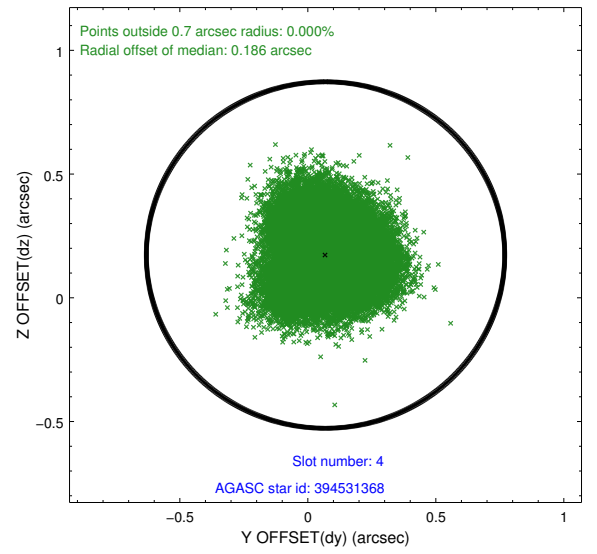
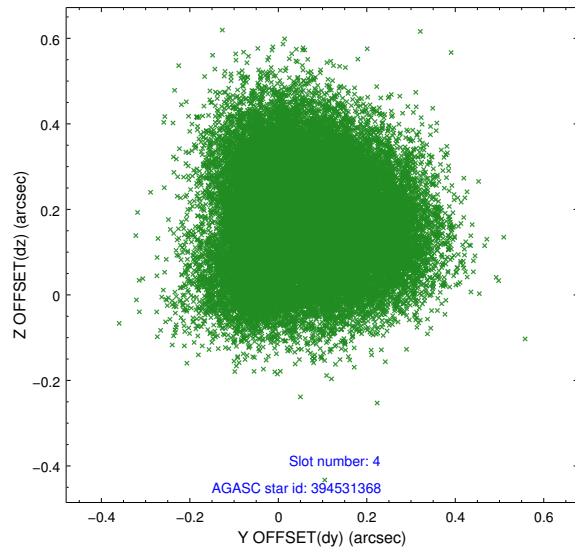
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	16560	-0.065	-0.029	0.007	0.011	0.000000	0.000000	-758.40	-1732.49
1	FID	ACIS-S-4	7.20	16559	0.103	0.039	0.006	0.011	0.000000	0.000000	2155.05	176.14
2	FID	ACIS-S-5	7.23	16558	-0.069	-0.002	0.007	0.011	0.000000	0.000000	-1811.34	169.68
3	GUIDE	394530152	7.49	33122	-0.177	-0.201	0.075	0.120	166.075805	38.868252	-2214.32	163.98
4	GUIDE	394531368	9.97	33086	0.069	0.173	0.179	0.276	165.794613	38.837127	-2174.58	-630.95
5	GUIDE	394533848	8.72	33116	0.122	0.079	0.074	0.121	166.382906	38.276007	-14.51	835.73
6	GUIDE	394543960	9.78	33095	0.053	-0.100	0.151	0.246	165.802757	37.787371	1590.44	-959.08
7	GUIDE	394546712	6.59	33122	-0.094	0.055	0.066	0.102	166.451462	38.394357	-421.95	1066.42

2.4 Star Slots

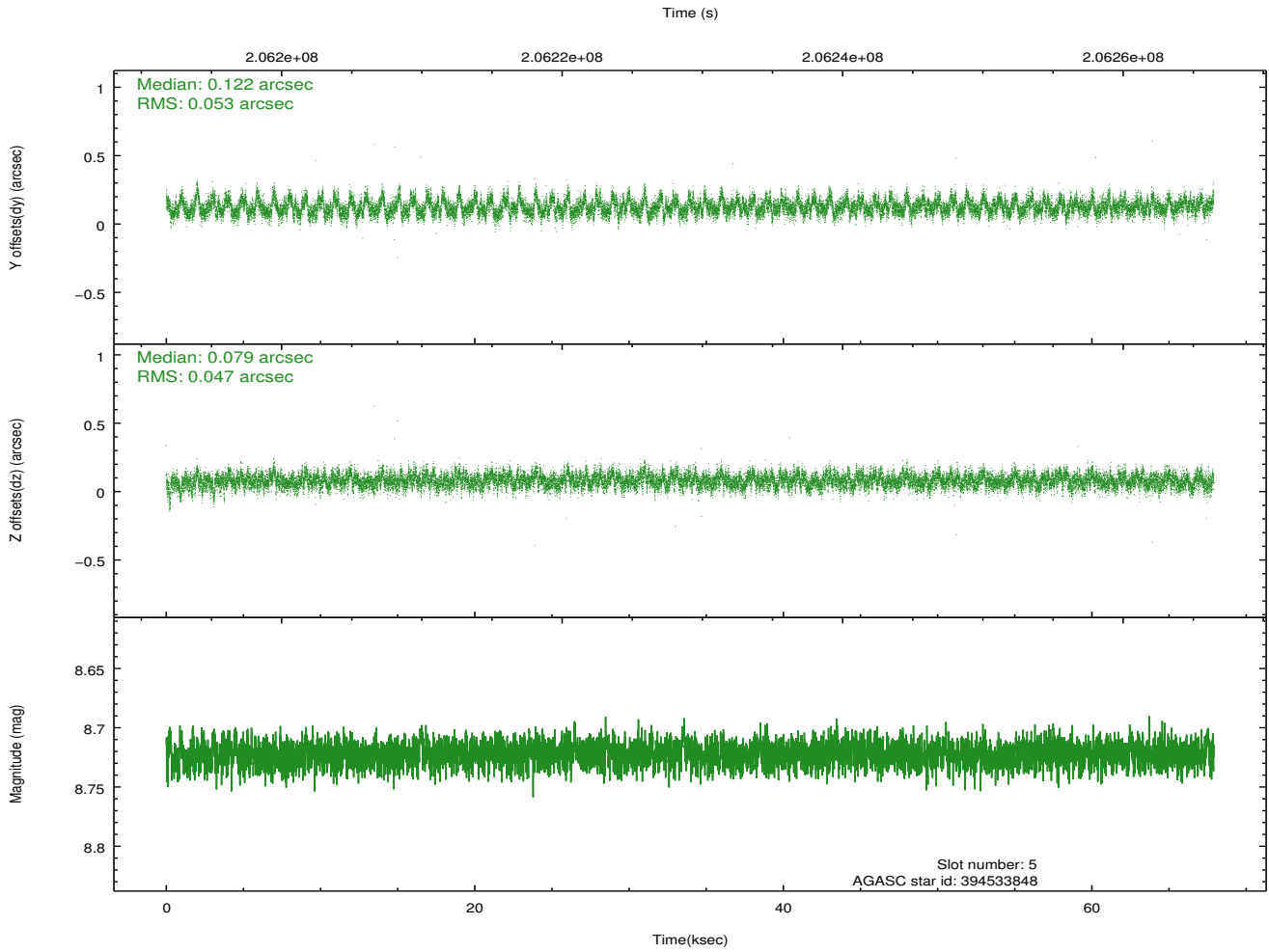
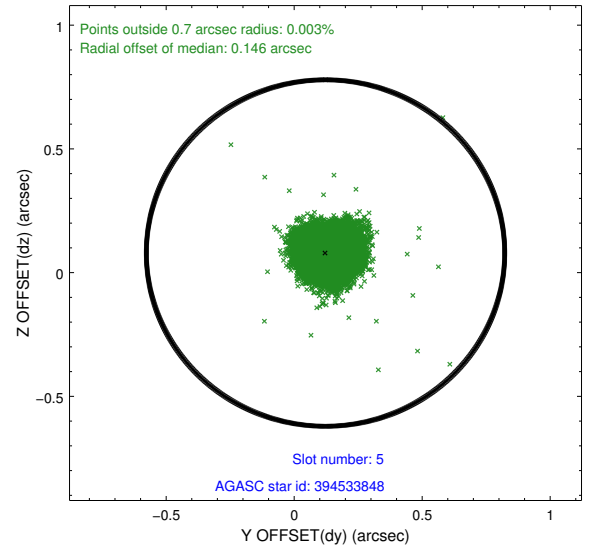
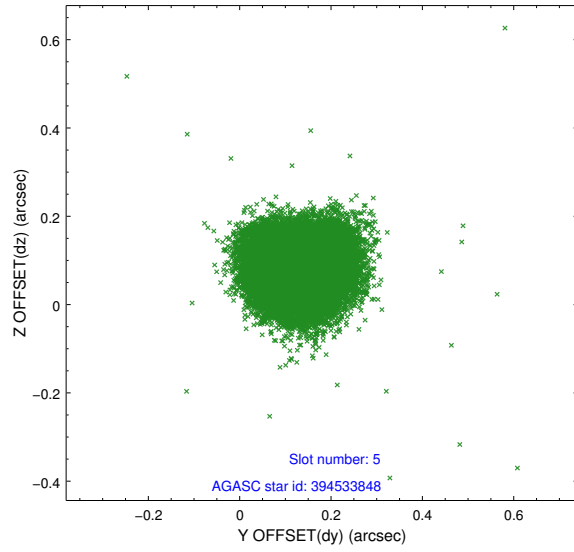
2.4.1 Slot 3



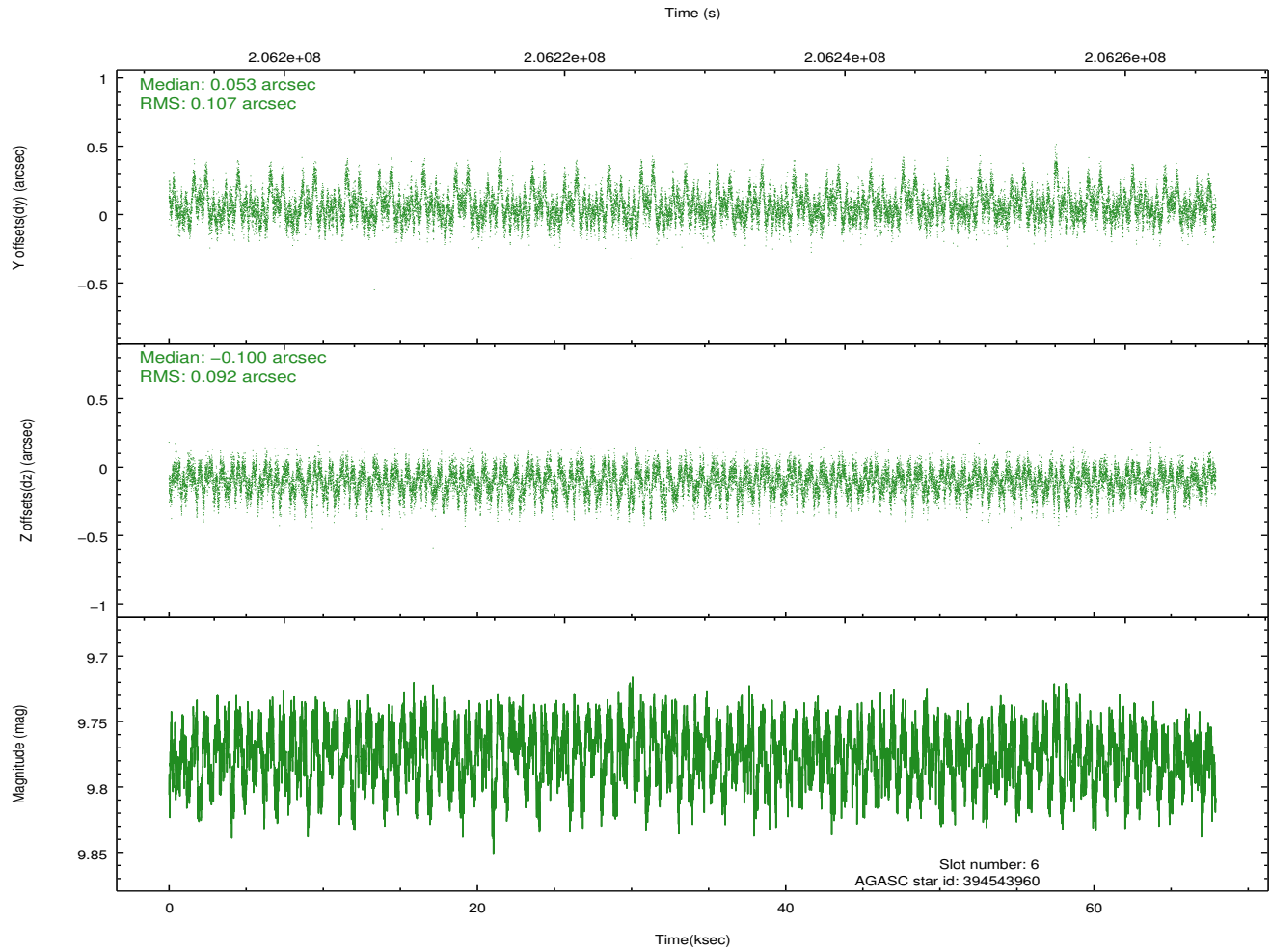
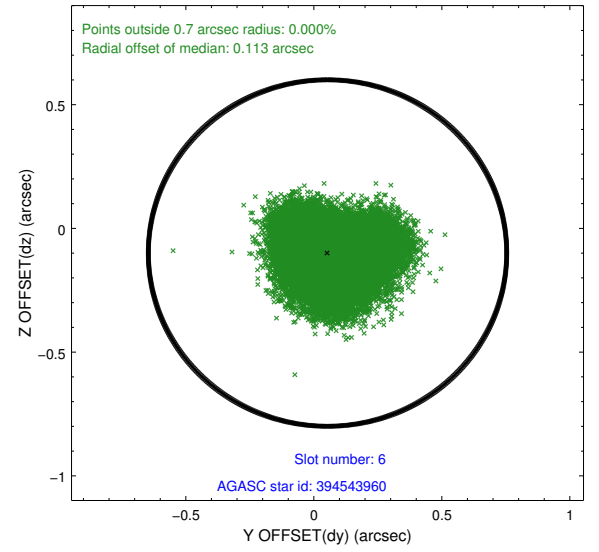
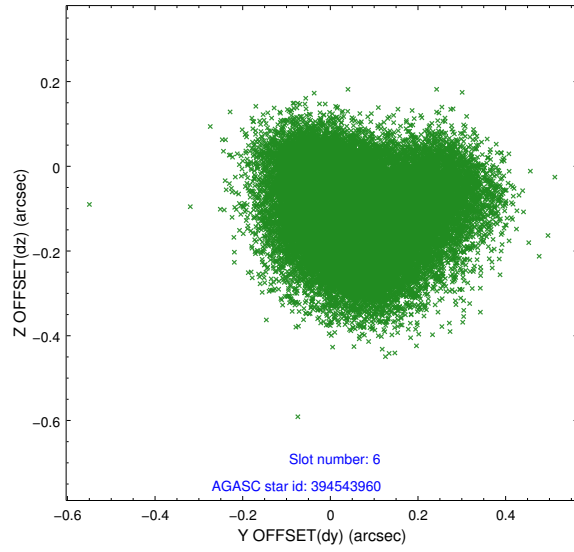
2.4.2 Slot 4



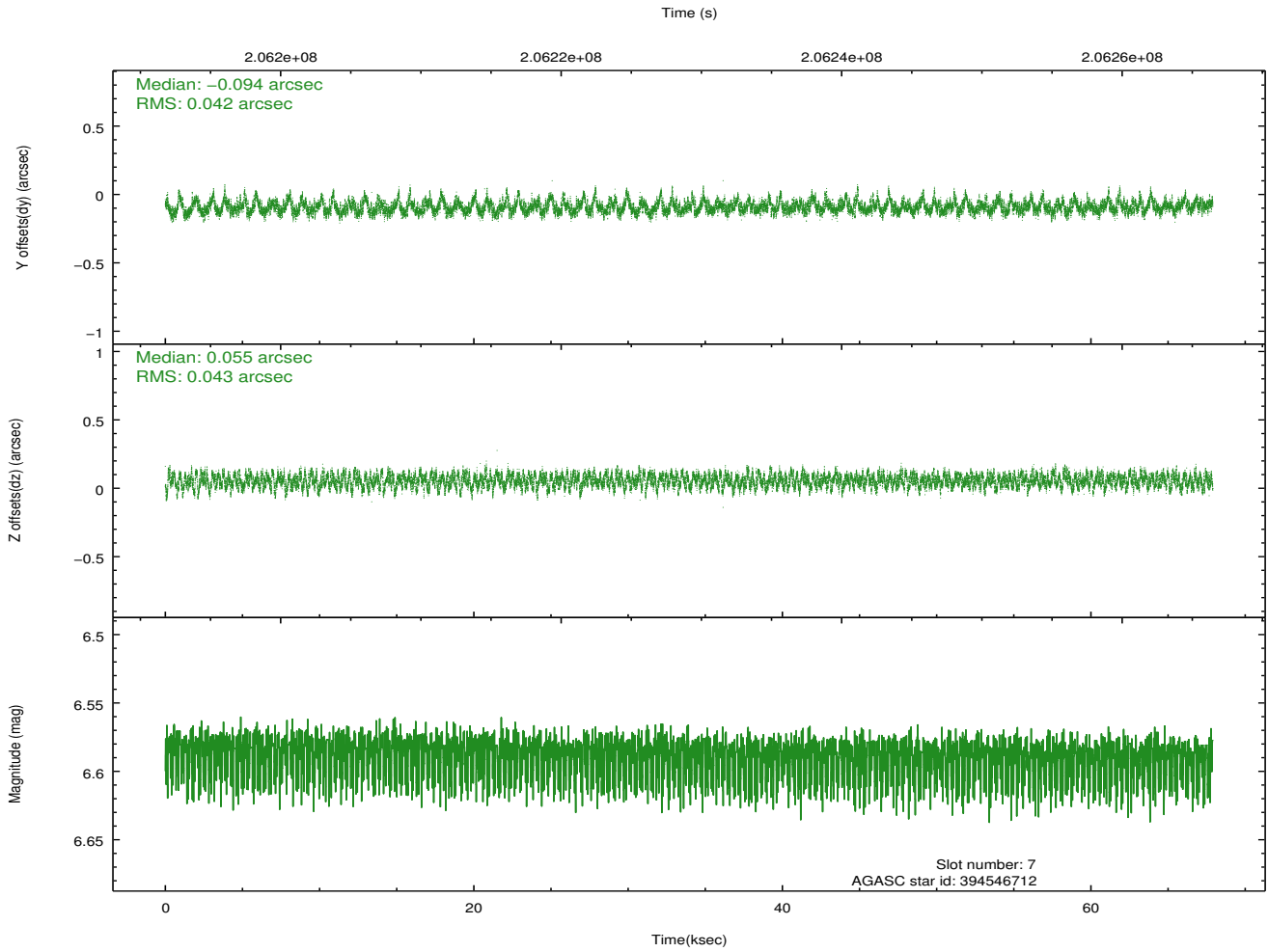
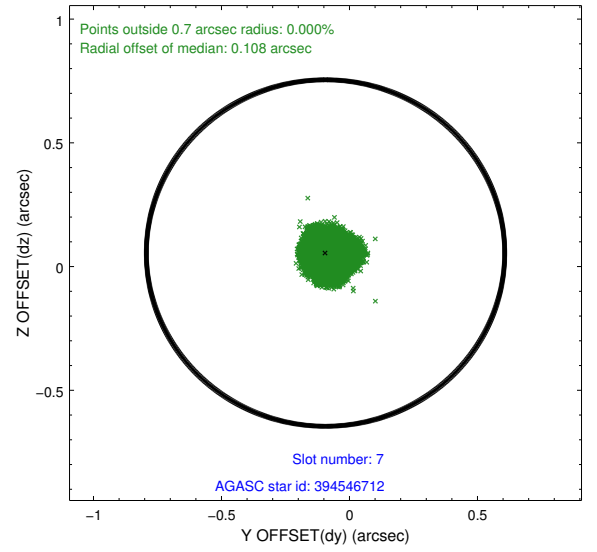
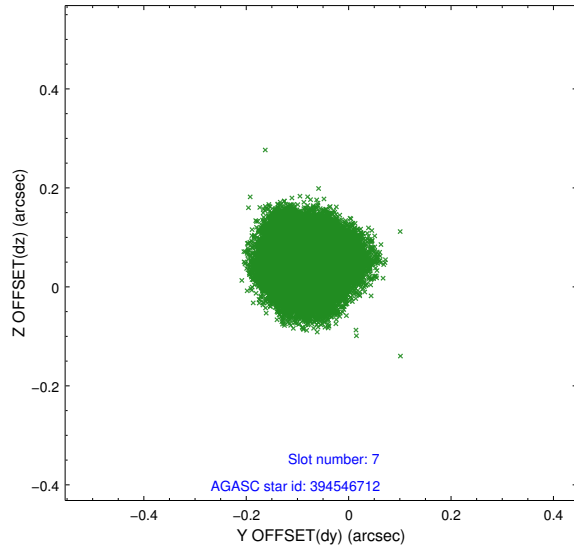
2.4.3 Slot 5



2.4.4 Slot 6

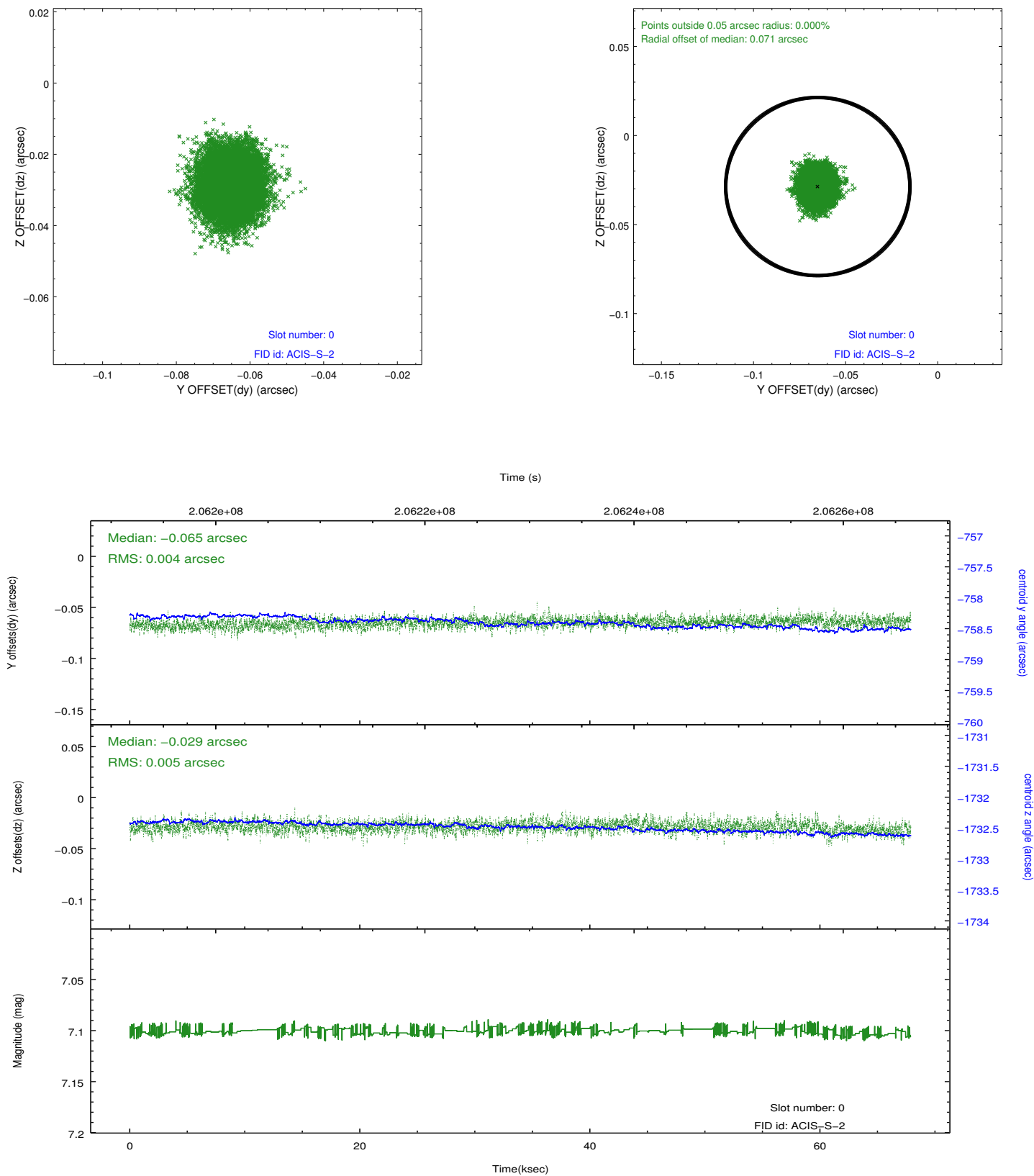


2.4.5 Slot 7

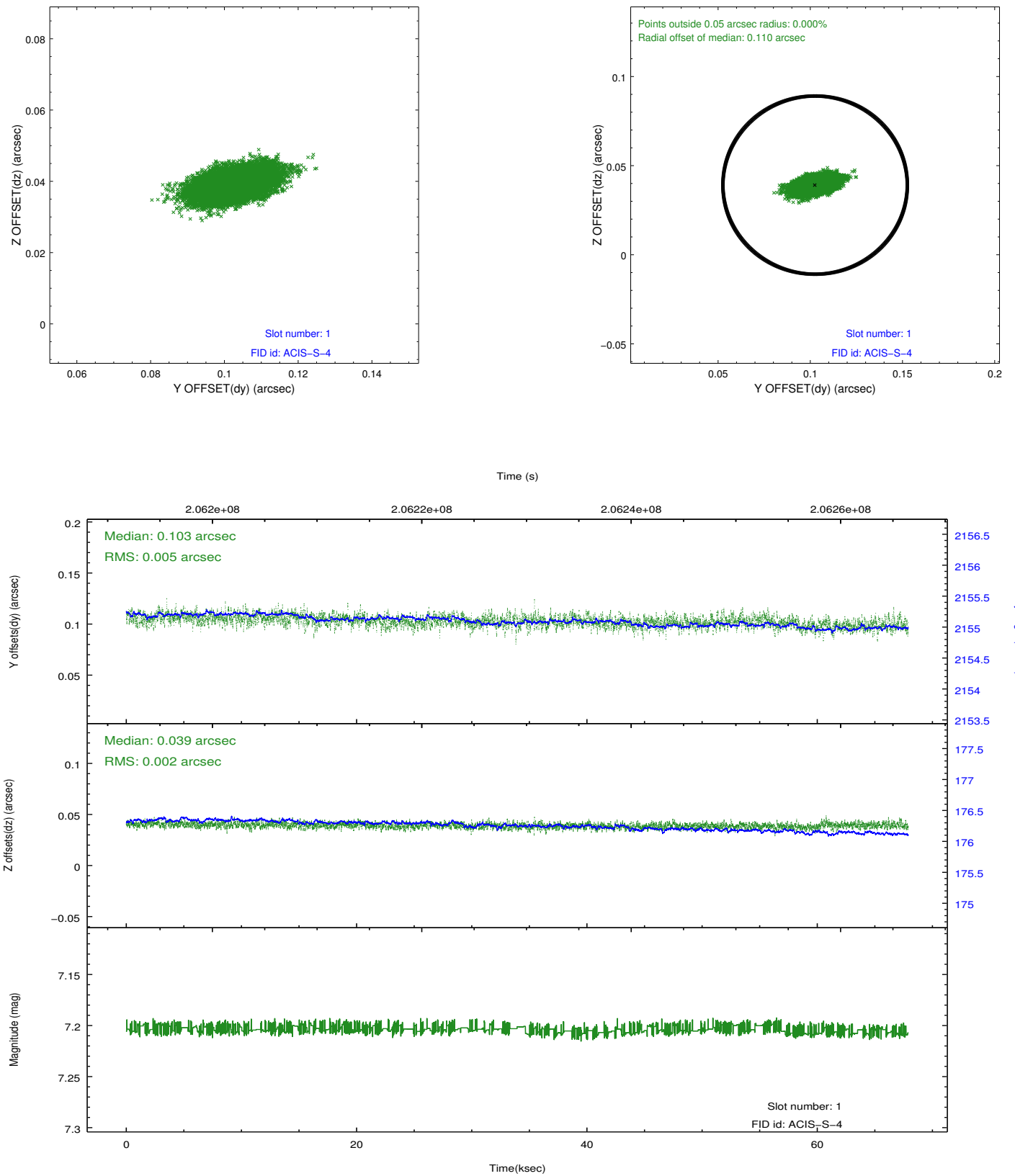


2.5 FID Slots

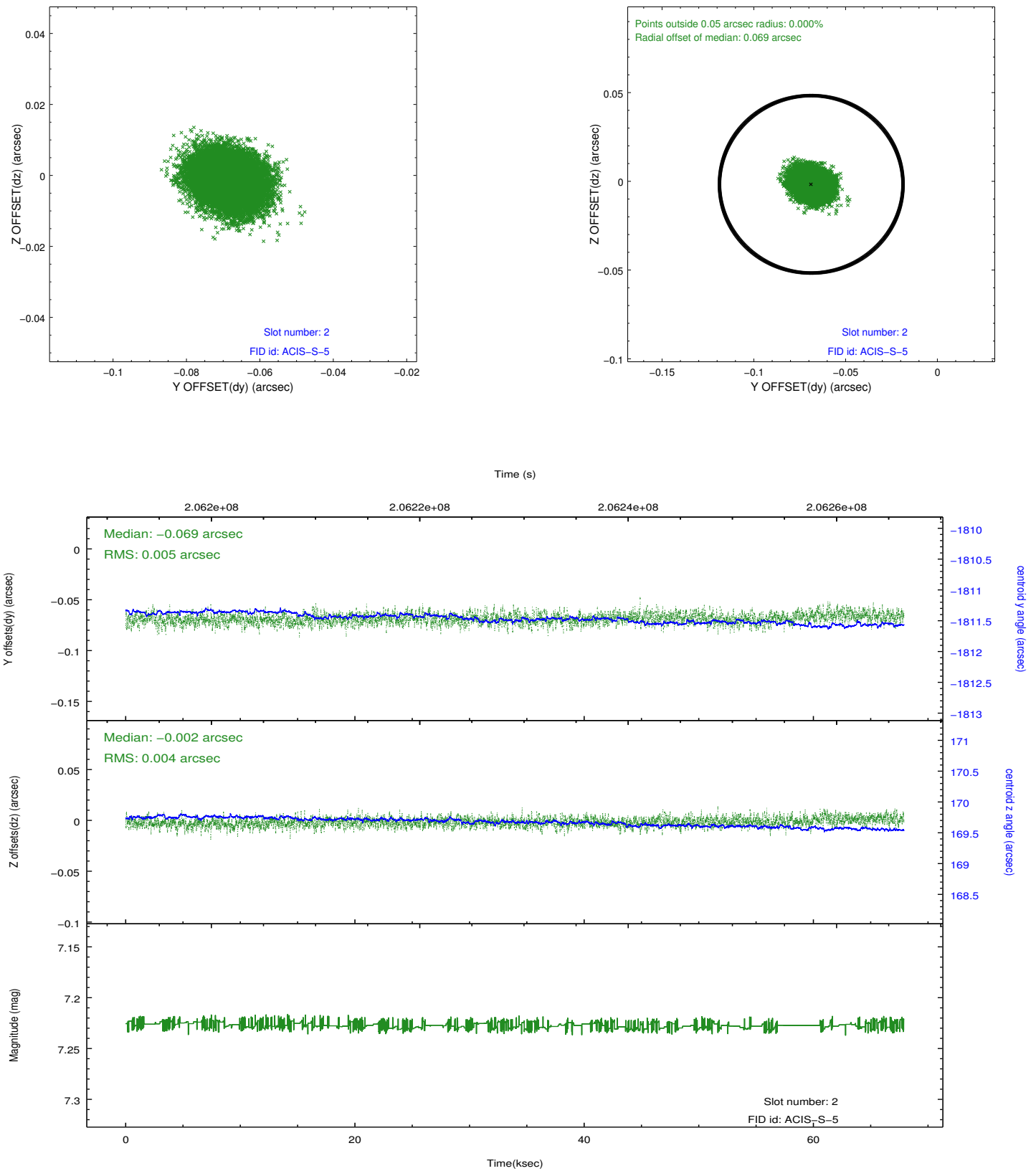
2.5.1 Slot 0



2.5.2 Slot 1

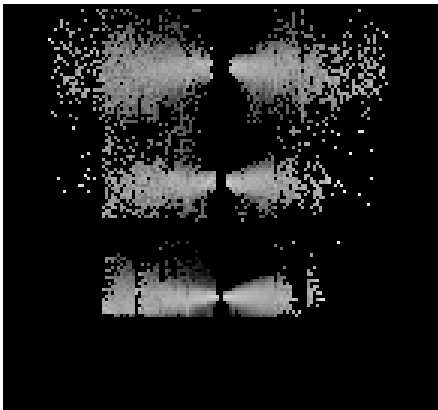


2.5.3 Slot 2

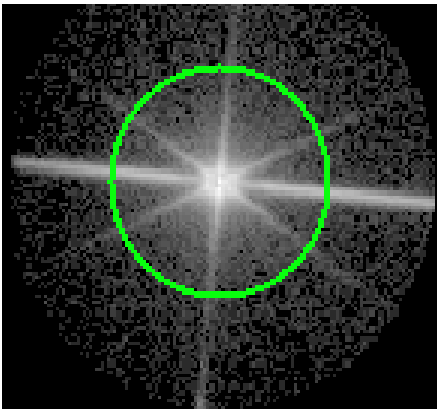


3 Gratings

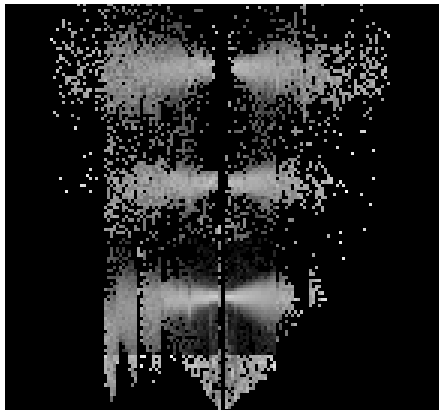
3.1 LETG Arm



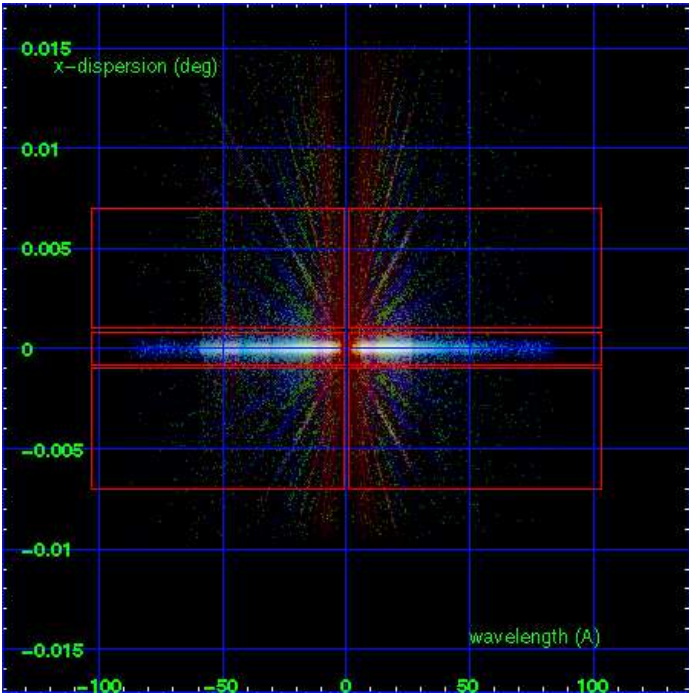
LETG Order Sort 123



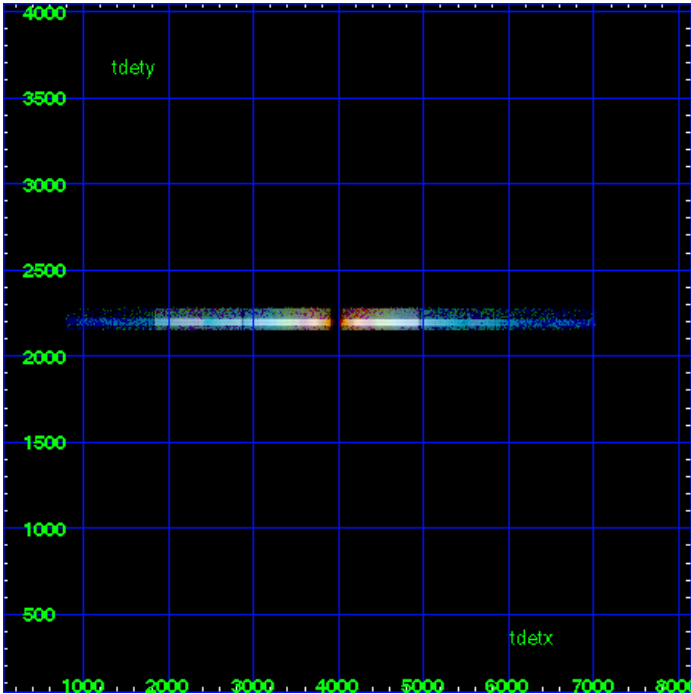
LETG Zero Order



LETG Order Sort ALL

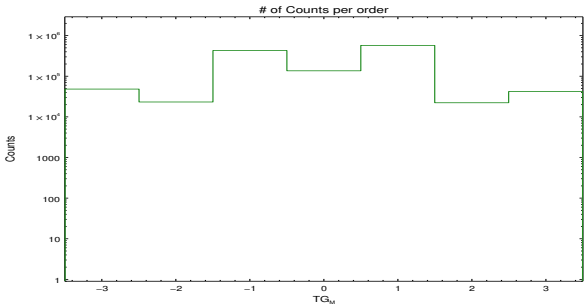


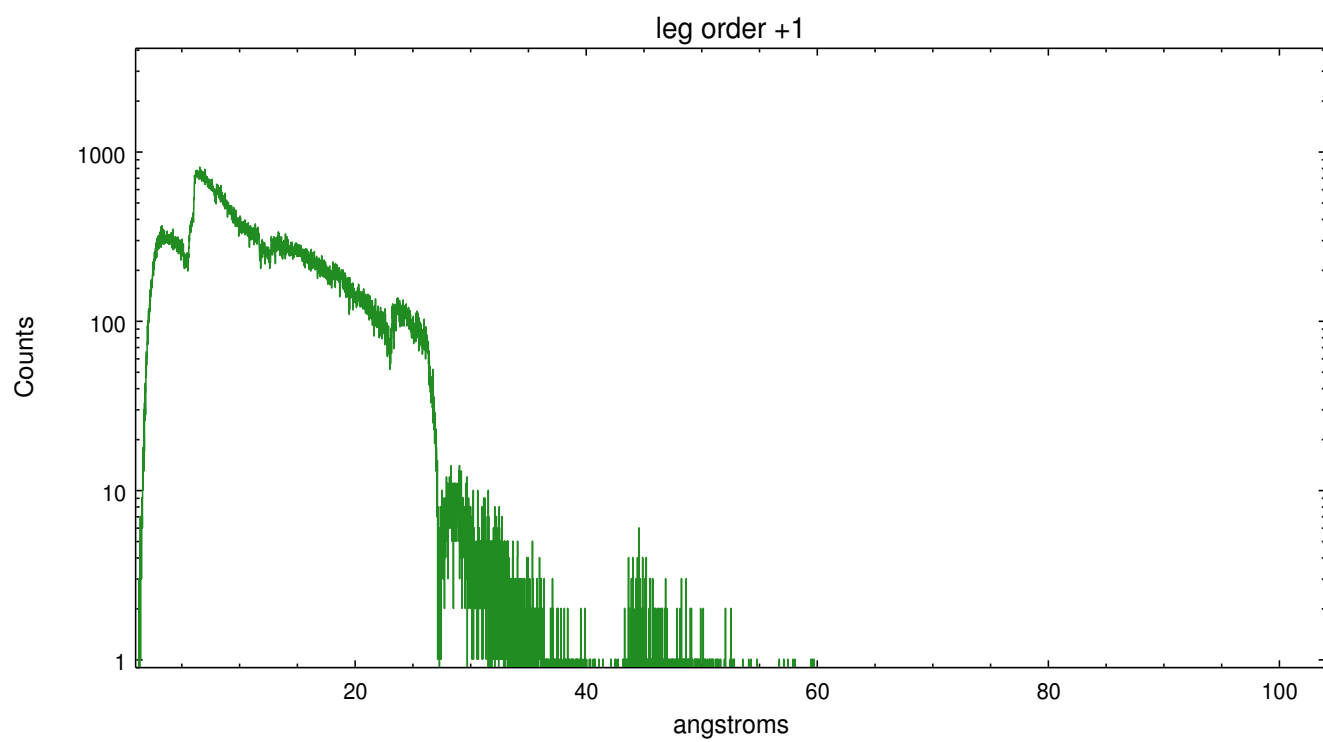
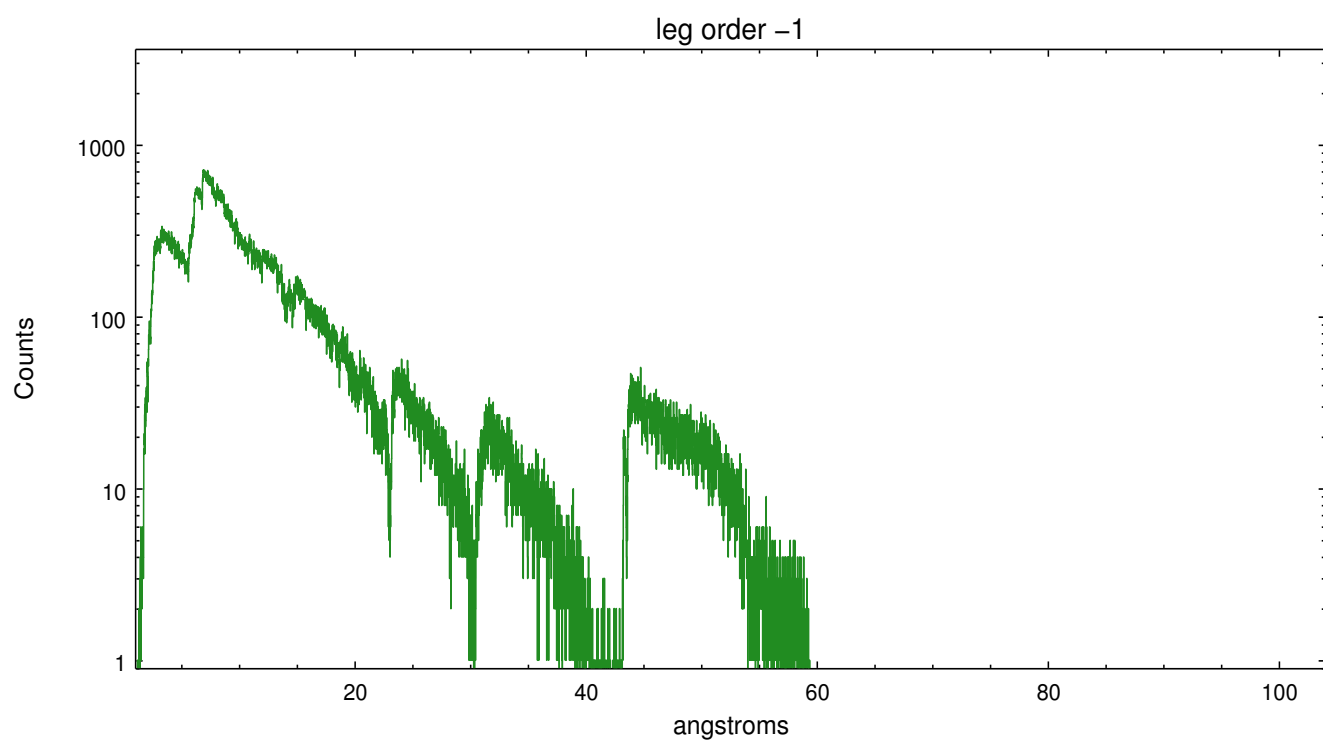
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	48582	23357	433848	137242	580054	22379	42252





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.15
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	67.063

A.2 Comments

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=4067.43, y=3945.02) into the *src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called tg_findzo, available in CIAO. The tool calculates the point of intersection of the readout streak and the leg arm. The zeroth order source position determined by the standard pipeline processing using the tool tgdetect was not used in this processing. 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.

===

Gain and CTI correction are not well calibrated on CCD_ID 5 (ACIS-S1). Default order sorting can clip some regions, particularly longward of 30A (first order). User-specified custom processing parameters may be required in tg_resolve_events (osipfile=None, osort_lo, osort_hi ~0.5) though this can allow more zeroth order background at short wavelengths.