

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 11970 - L2 Version 4
Chandra X-Ray Center

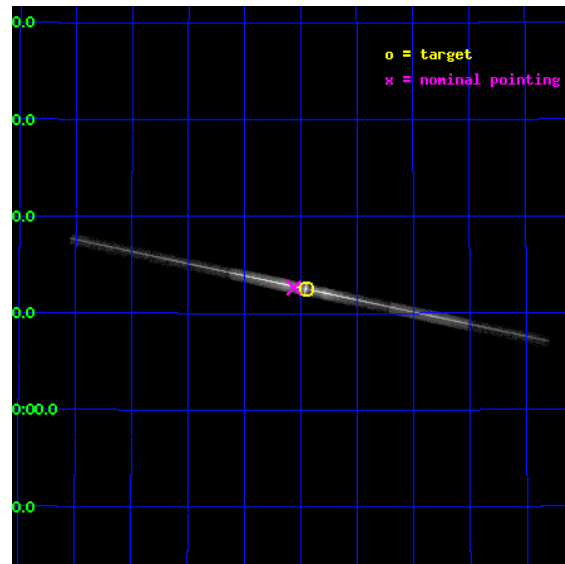
L2 Processing Date : Jun 25 2012

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1 Front

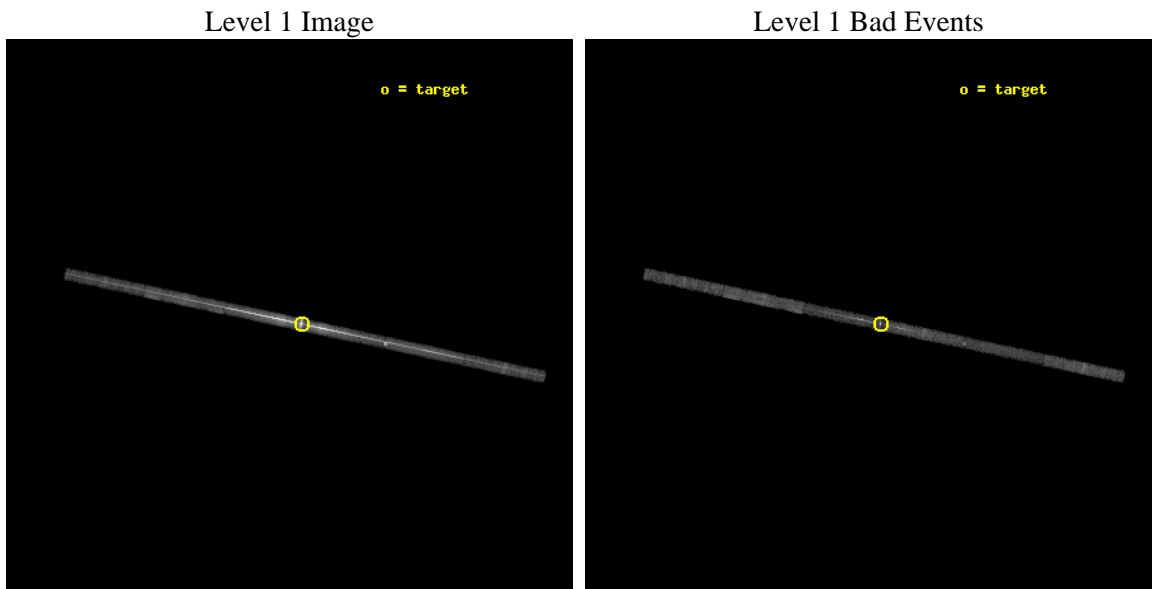
seq_num	790219	Sequence number
obs_id	11970	Observation id
title	AO-11 Calibration Observations of Mkn421	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.14001531183	Nominal RA [deg]
dec_nom	38.21057007317	Nominal Dec [deg]
roll_nom	191.99615612224	Nominal Roll [deg]
revision	4	Processing version of data
ontime	10065.272037685	Sum of GTIs [s]
liveltime	9507.8409078854	Livetime [s]
ontime4	10065.299828529	Sum of GTIs [s]
ontime5	10065.230997682	Sum of GTIs [s]
ontime6	10065.189957678	Sum of GTIs [s]
ontime7	10065.272037685	Sum of GTIs [s]
ontime8	10065.148917675	Sum of GTIs [s]
ontime9	10065.107877672	Sum of GTIs [s]
l2events	431349	Number of level 2 events



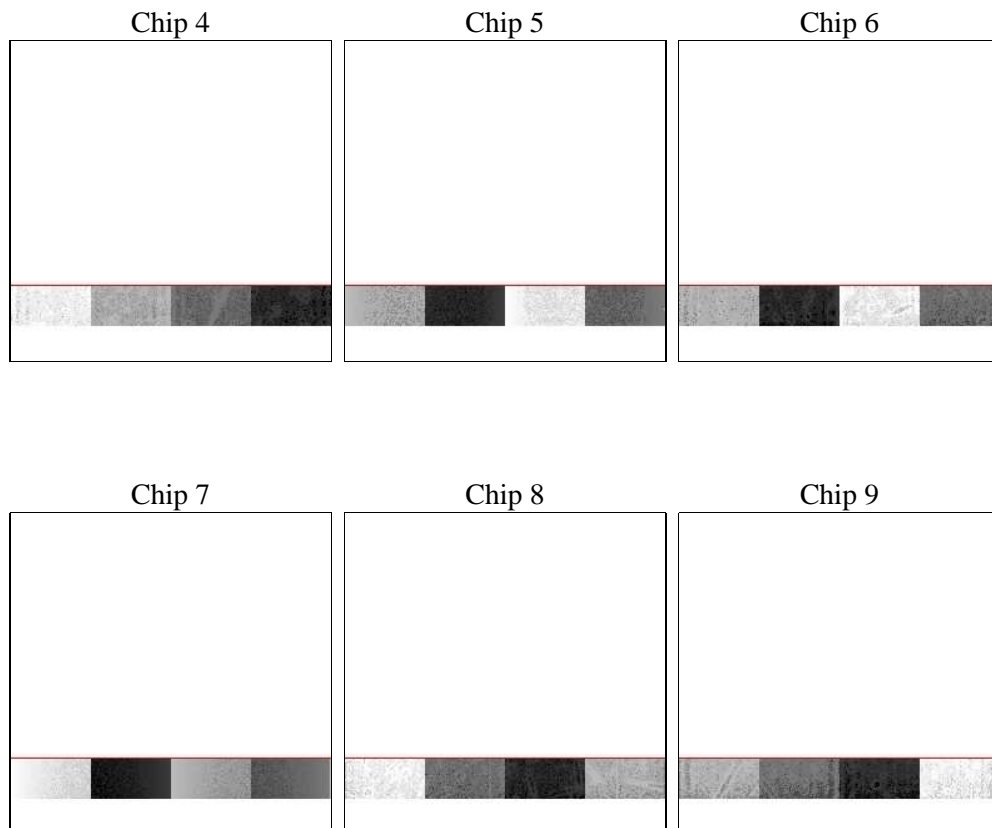
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	10065.272037685	Sum of GTIs [s]
caldsver	4.4.10	 	ontime4	10065.299828529	Sum of GTIs [s]
date	2012-06-22T16:18:49	Date and time of file creation	ontime5	10065.230997682	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	10065.189957678	Sum of GTIs [s]
			ontime7	10065.272037685	Sum of GTIs [s]
			ontime8	10065.148917675	Sum of GTIs [s]
			ontime9	10065.107877672	Sum of GTIs [s]
			l1events	525625	Number of level 1 events

2.1.4 Events

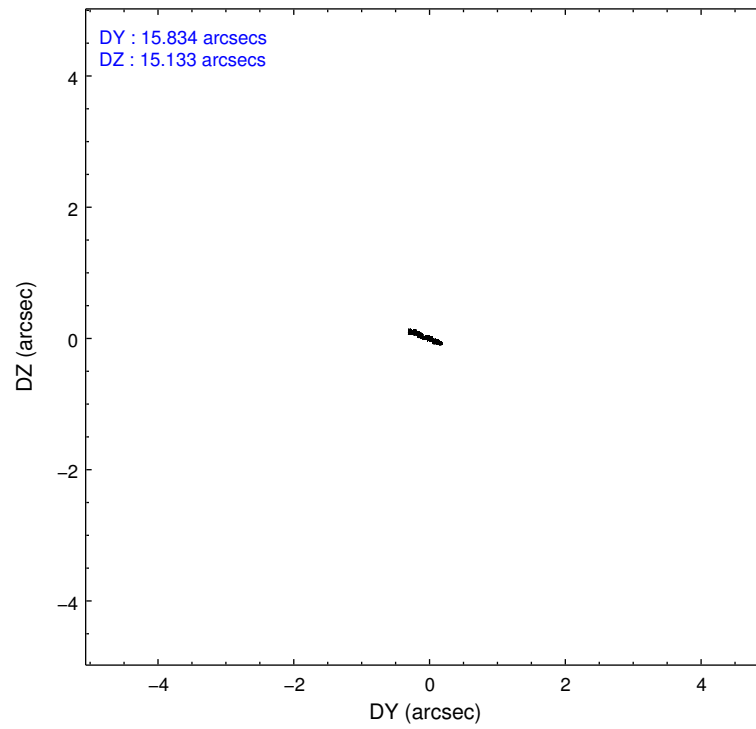
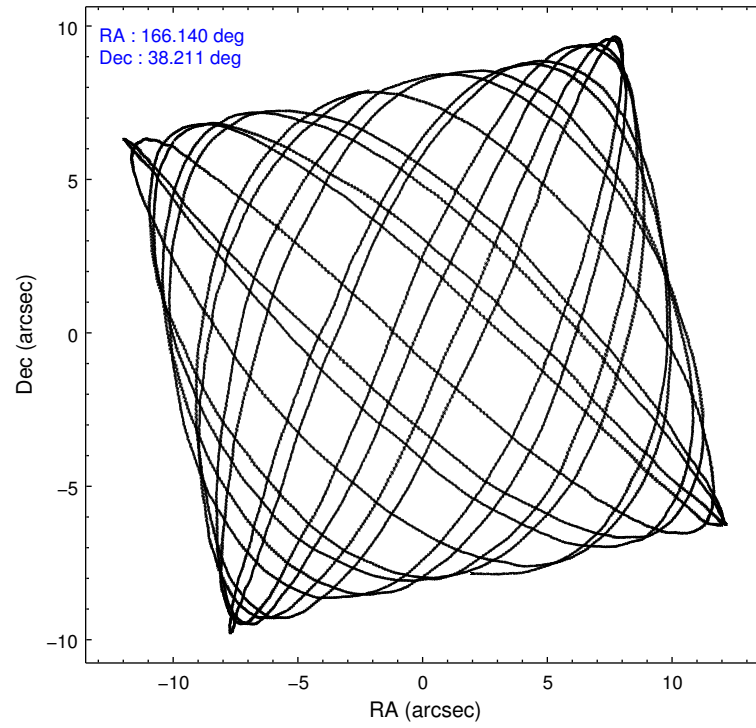
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	18127	46537	160951	253212	30850	15948	grade 0 events	4026	20622	118294	63391	11425	4062
rejected events	12431	7426	13017	18214	14294	10200		22%	44%	73%	25%	37%	25%
rejected %	68%	15%	8%	7%	46%	63%	grade 1 events	4	341	1080	1093	25	9
								0%	0%	0%	0%	0%	0%
							grade 2 events	748	7382	15347	60322	1999	668
								4%	15%	9%	23%	6%	4%
							grade 3 events	356	2556	5182	27582	759	365
								1%	5%	3%	10%	2%	2%
							grade 4 events	286	3040	5125	27217	755	339
								1%	6%	3%	10%	2%	2%
							grade 5 events	424	1563	1080	5469	595	401
								2%	3%	0%	2%	1%	2%
							grade 6 events	280	5515	3993	56506	1621	314
								1%	11%	2%	22%	5%	1%
							grade 7 events	12003	5518	10850	11632	13671	9790
								66%	11%	6%	4%	44%	61%

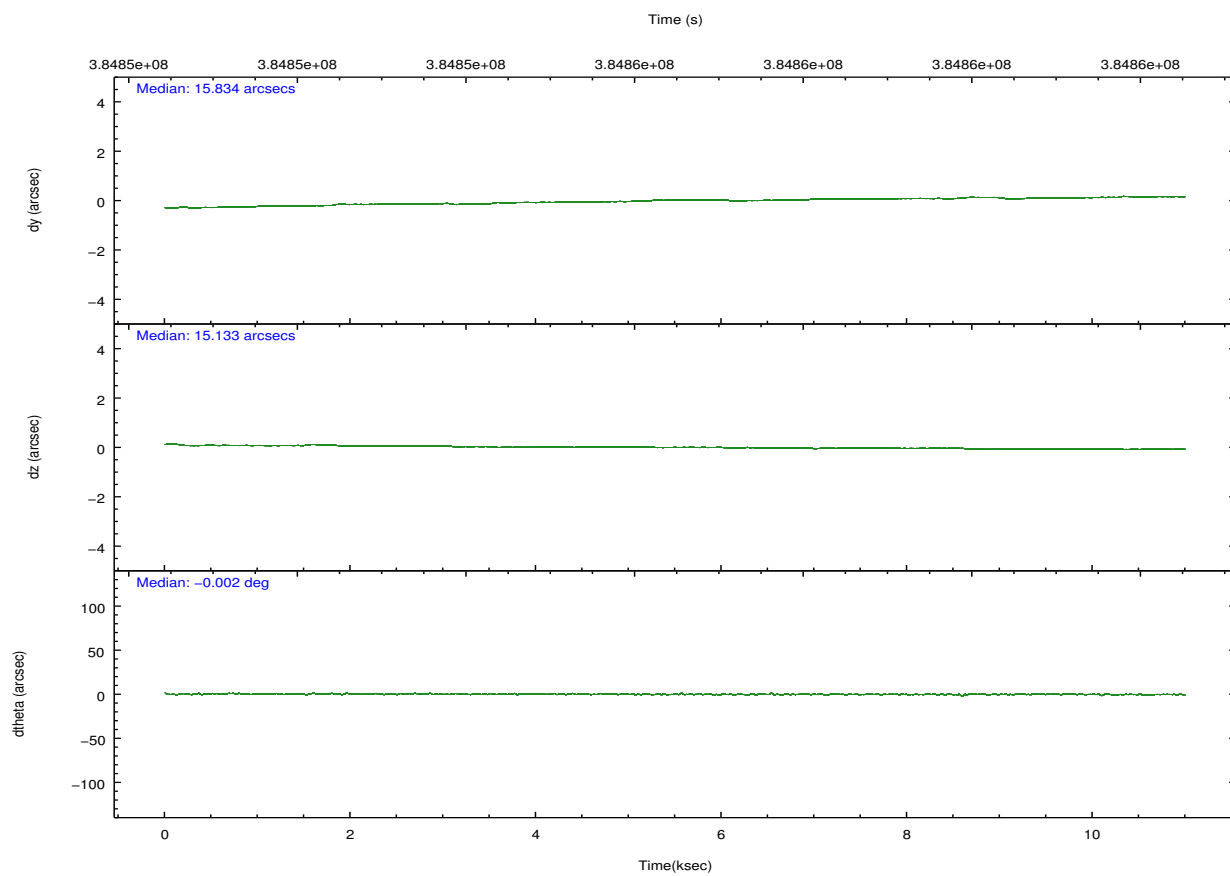
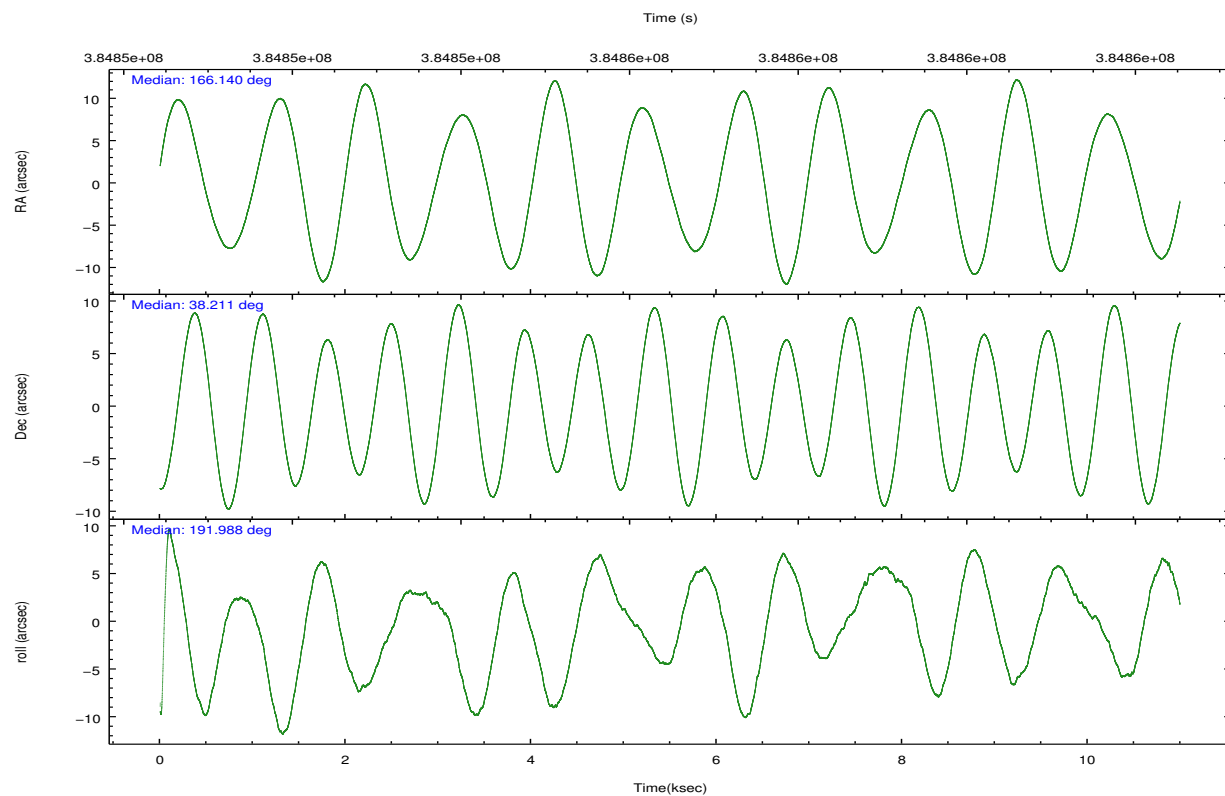
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	LETG	LETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	166.165555	166.1400153118273
[deg] Pointing Dec	38.229154	38.21057007317025
[deg] Pointing Roll	191.823727	191.996156122237
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-182.132523	-182.1370004450064
[mm] SIM translation stage offset	-8	-7.995522138001405
[s] Observation start time (MET)	384851978.184000	384850677.17373
Observation start date	2010-03-13T07:18:32	2010-03-13T06:57:57
[s] Observation end time (MET)	384861978.184000	384862201.76181
Observation end date	2010-03-13T10:05:12	2010-03-13T10:10:01
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	O1	Y
CCD S1 on	Y	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	Y	Y
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/8
Subarray start row	113	113
Subarray row count	128	128
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0.7

2.3 Aspect



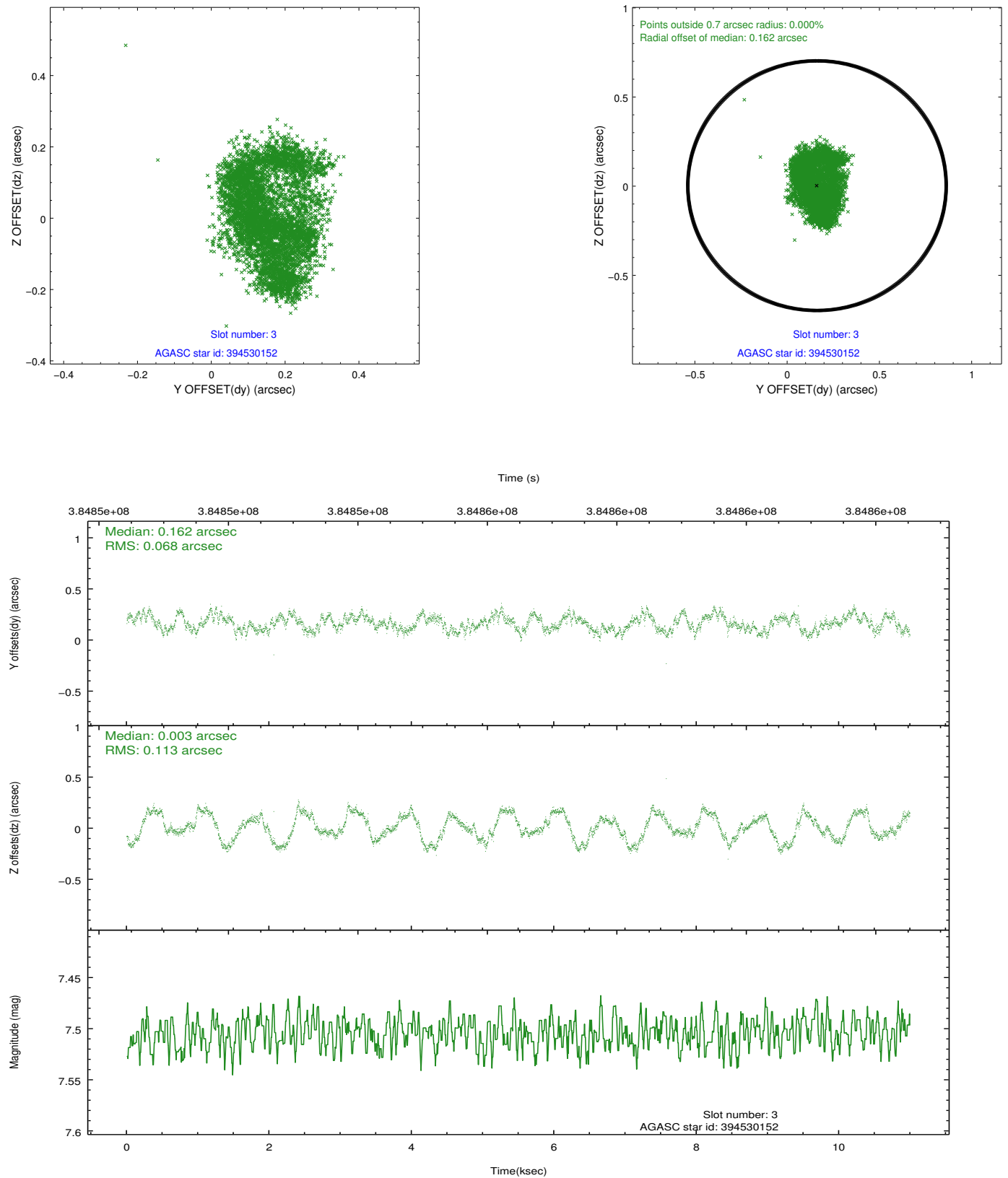


Slot Statistics

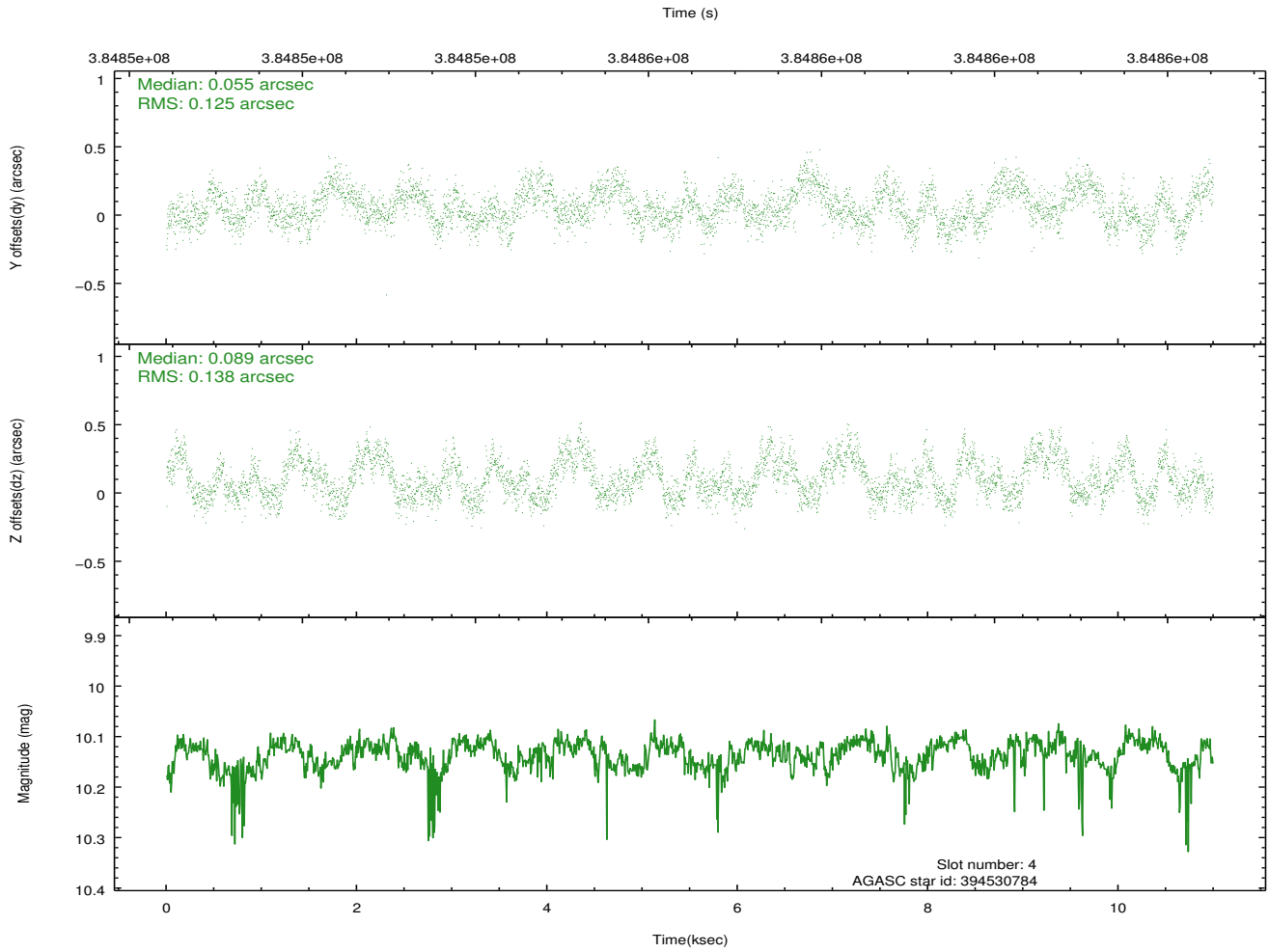
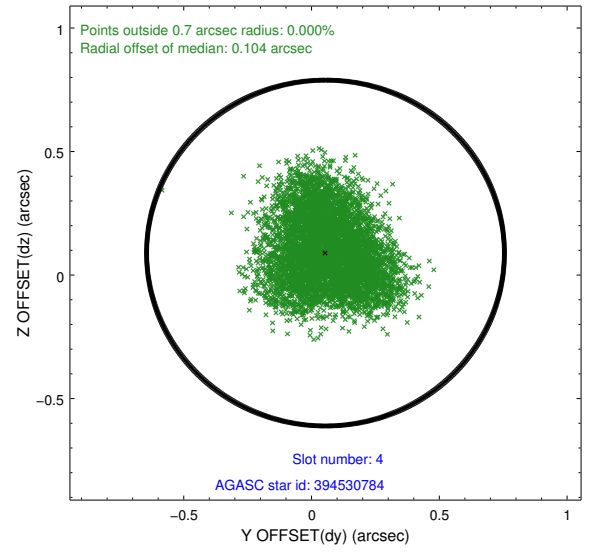
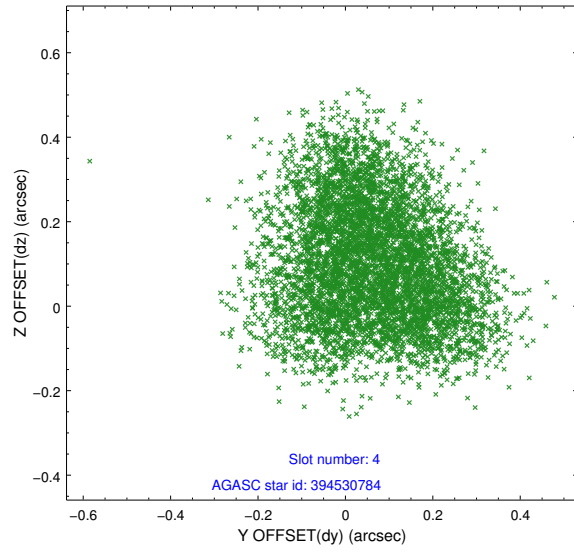
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.92	2682	-0.158	-0.097	0.006	0.011	0.000000	0.000000	-768.43	-1901.30
1	FID	ACIS-S-4	6.99	2681	0.123	0.109	0.006	0.010	0.000000	0.000000	2144.97	6.73
2	FID	ACIS-S-6	7.22	2682	0.007	-0.006	0.007	0.012	0.000000	0.000000	394.39	644.60
3	GUIDE	394530152	7.50	5363	0.162	0.003	0.151	0.206	166.075805	38.868252	-224.33	-2303.48
4	GUIDE	394530784	10.13	5356	0.055	0.089	0.203	0.308	165.569172	38.418674	1506.12	-1017.77
5	GUIDE	394543960	9.78	5356	-0.011	-0.024	0.141	0.227	165.802757	37.787371	1336.27	1343.35
6	GUIDE	394546712	6.61	5364	-0.252	0.186	0.132	0.187	166.451462	38.394357	-910.42	-417.56
7	GUIDE	394528824	10.05	5351	0.035	-0.285	0.196	0.294	165.824970	38.140431	1009.23	113.22

2.4 Star Slots

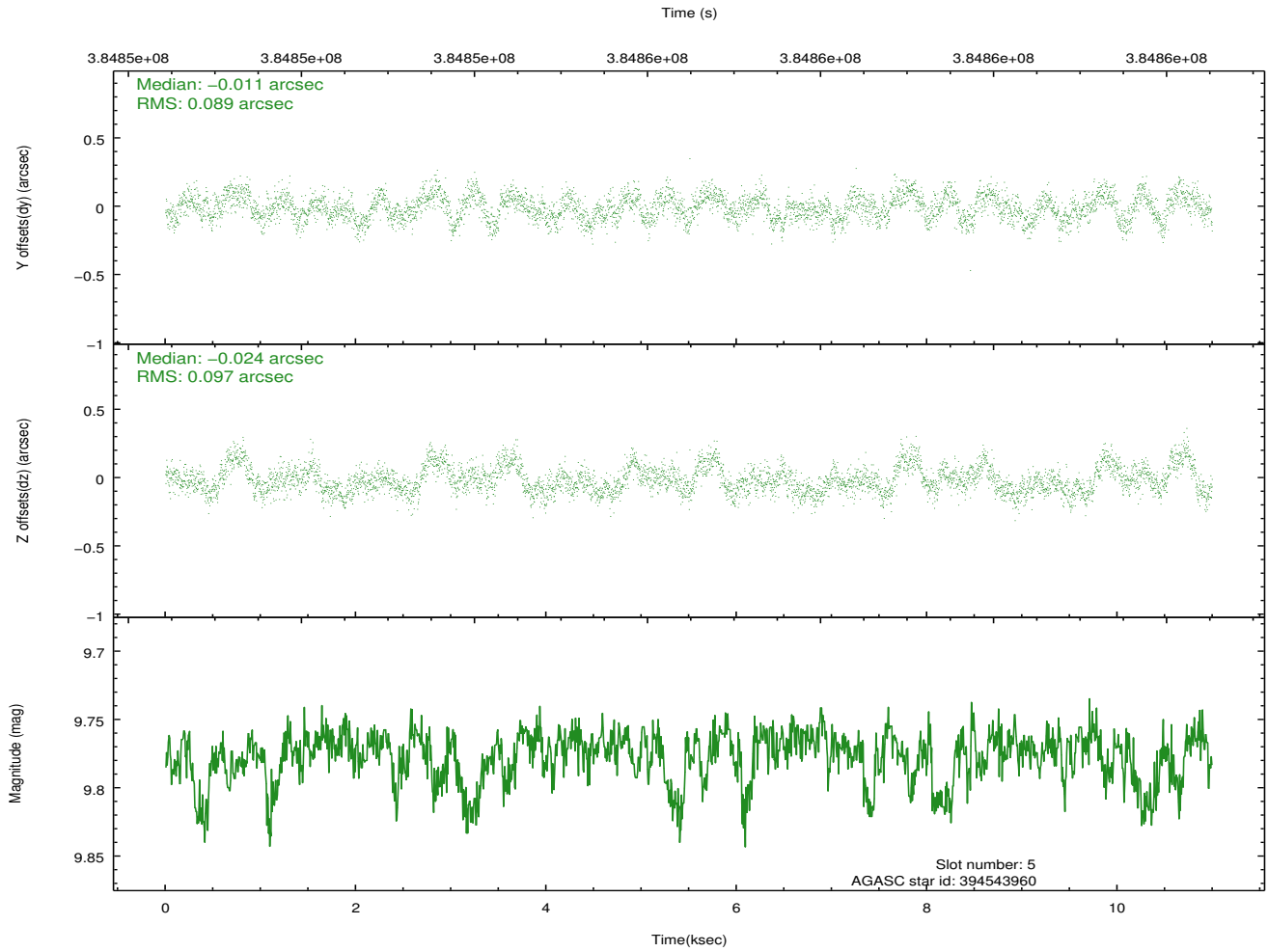
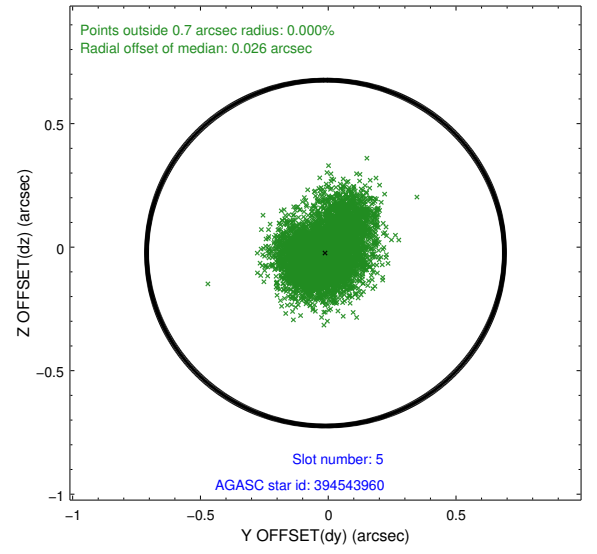
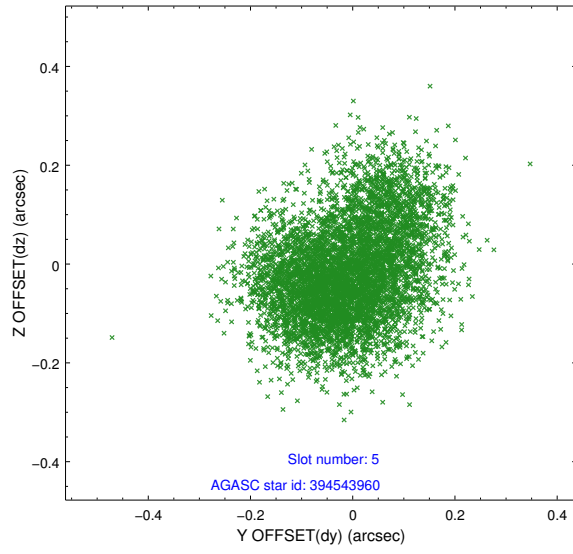
2.4.1 Slot 3



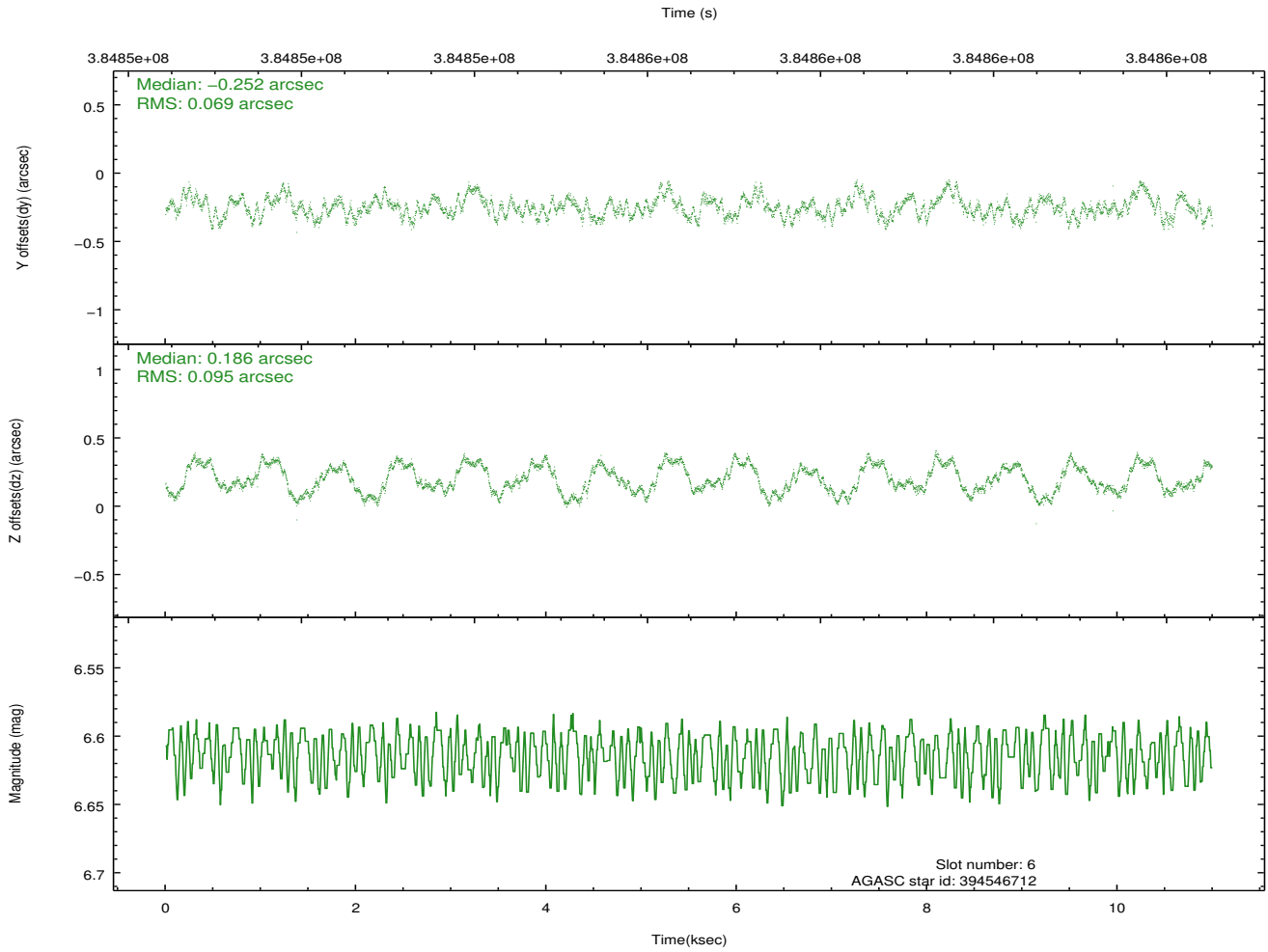
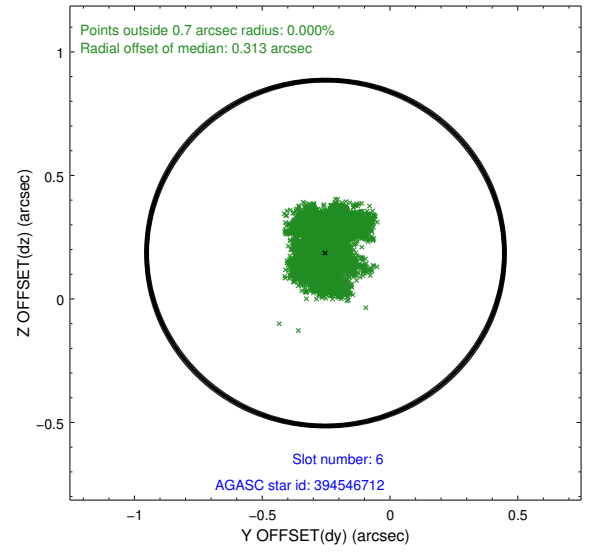
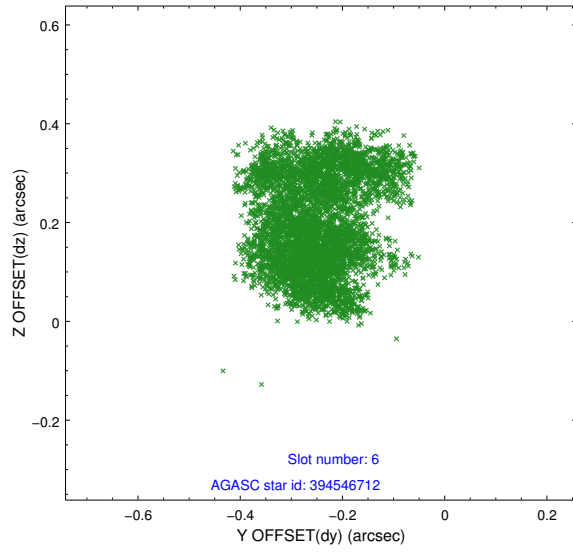
2.4.2 Slot 4



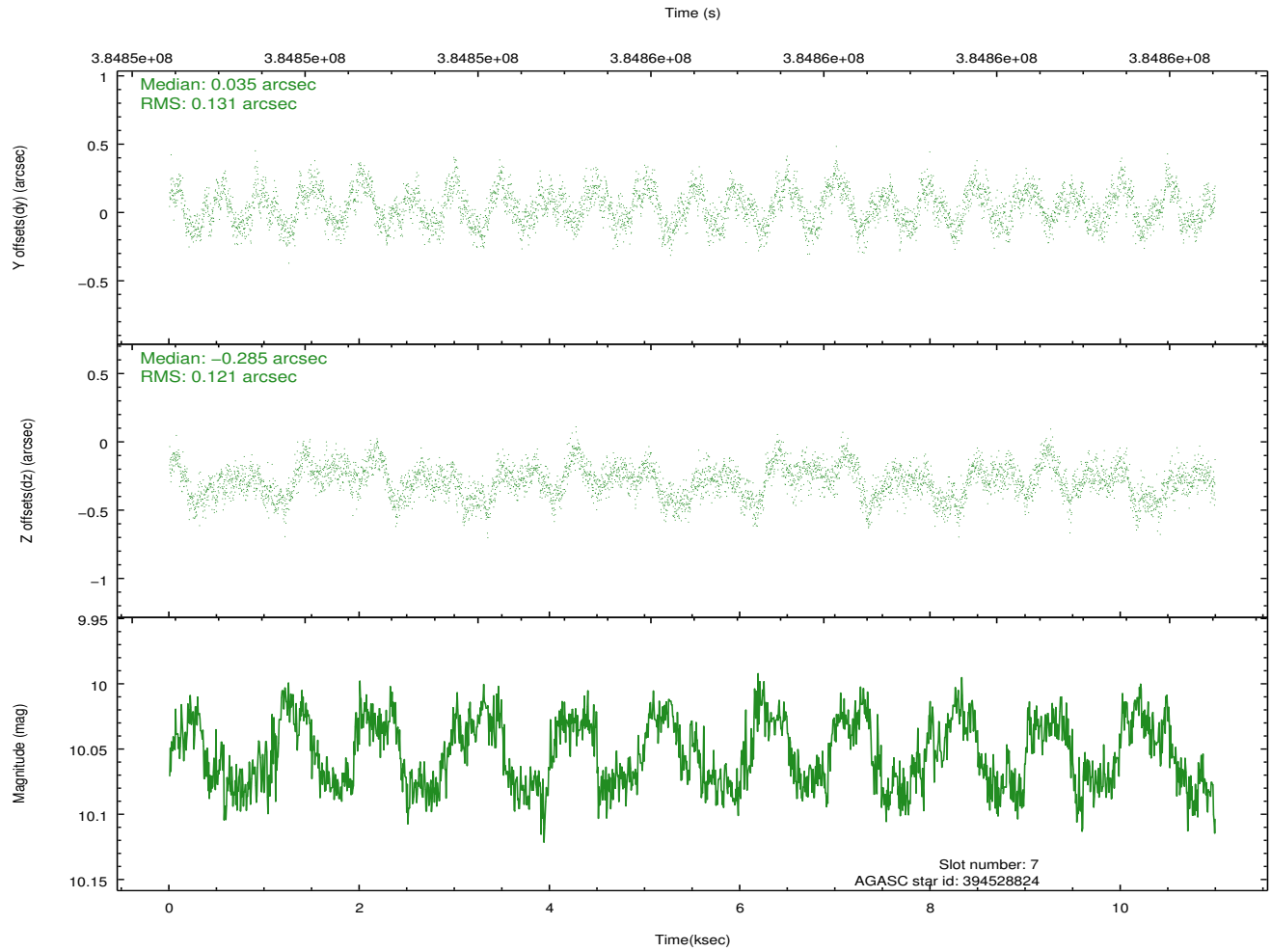
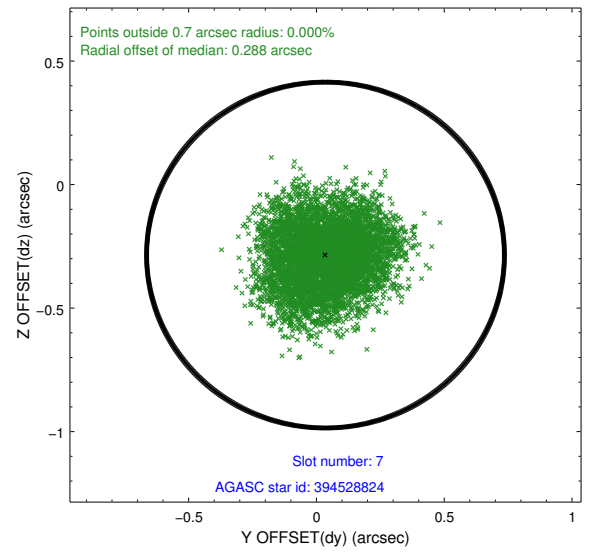
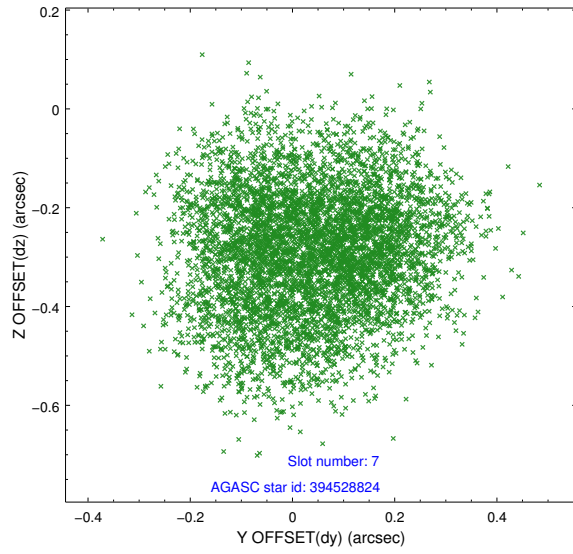
2.4.3 Slot 5



2.4.4 Slot 6

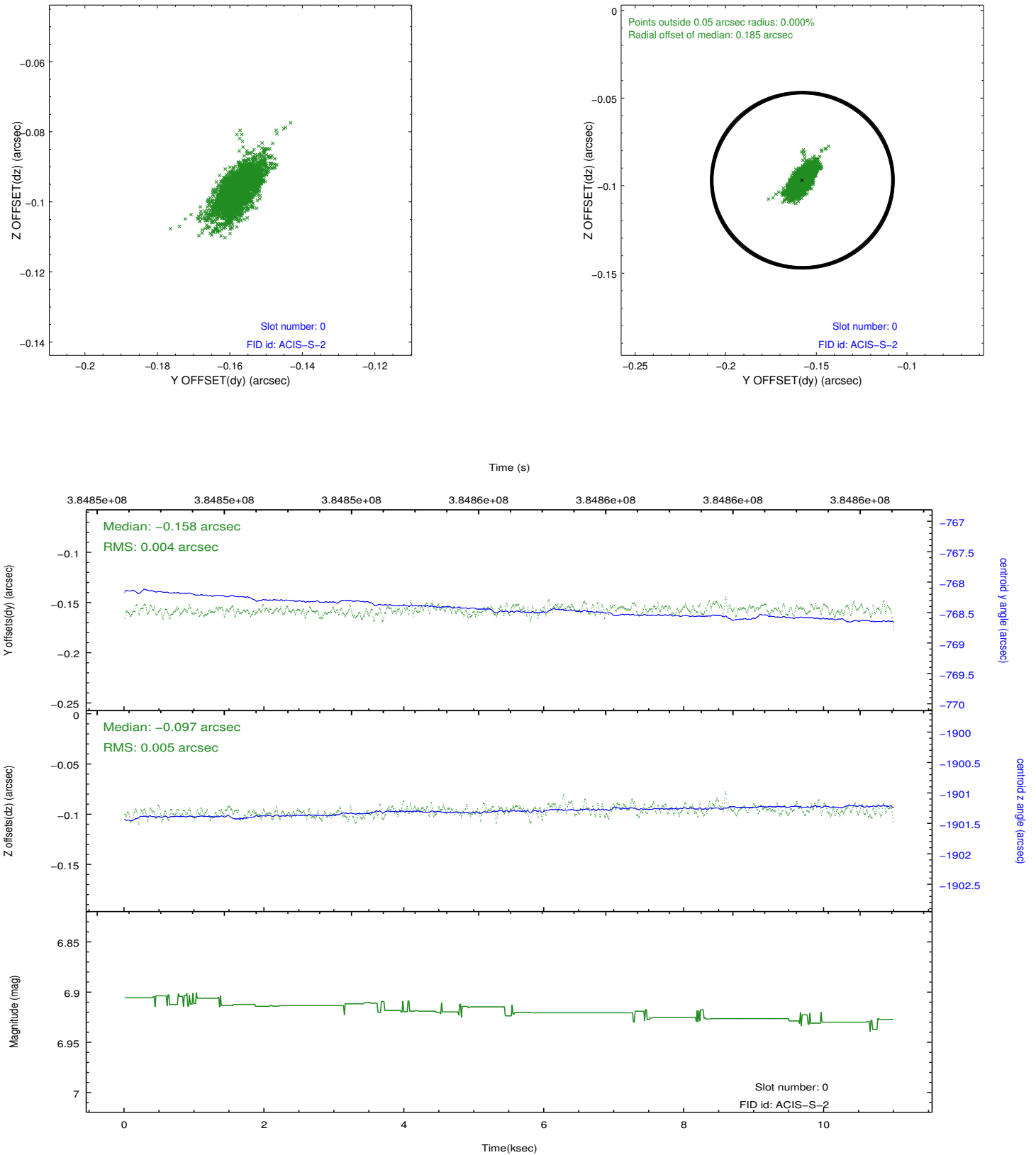


2.4.5 Slot 7

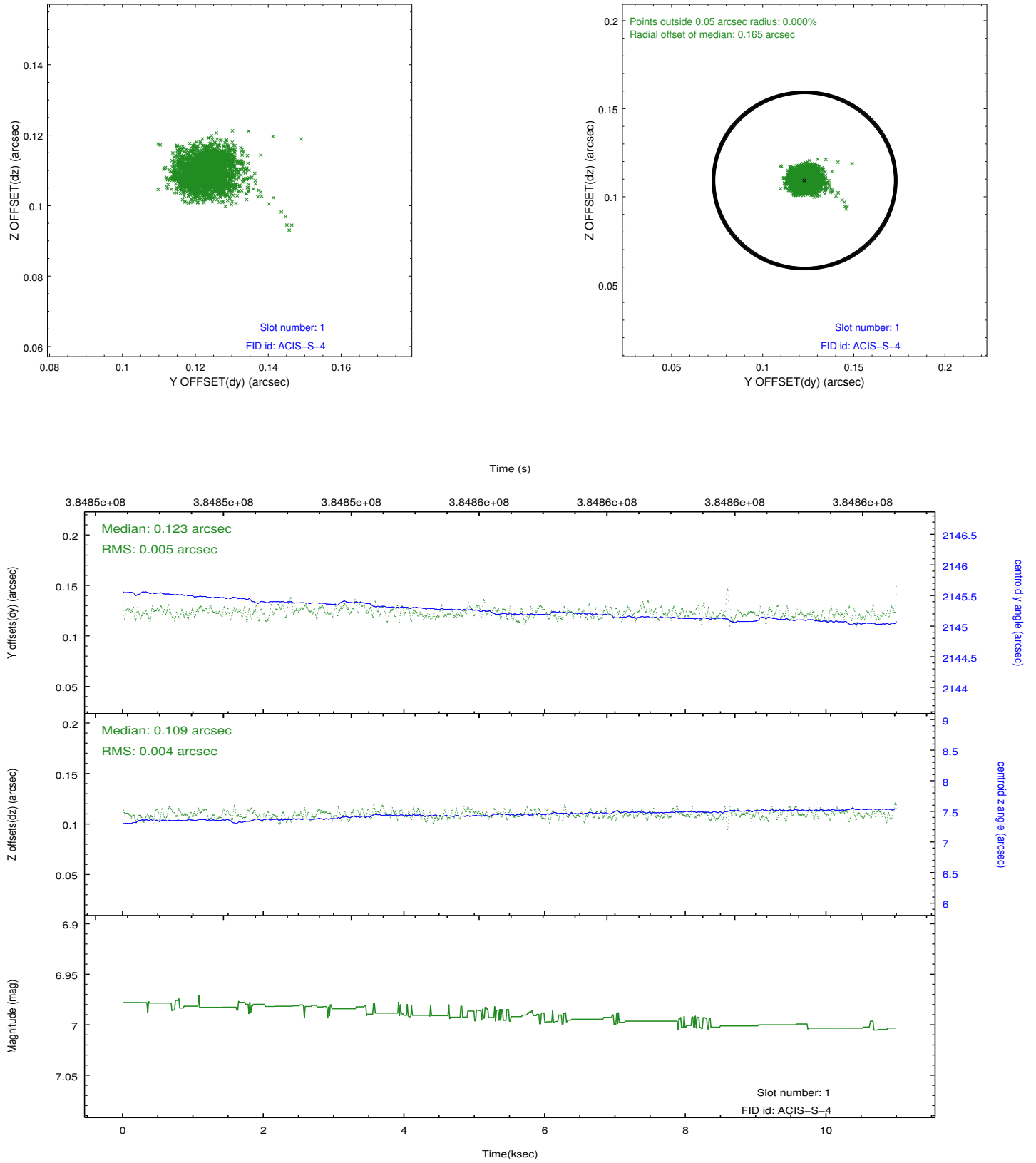


2.5 FID Slots

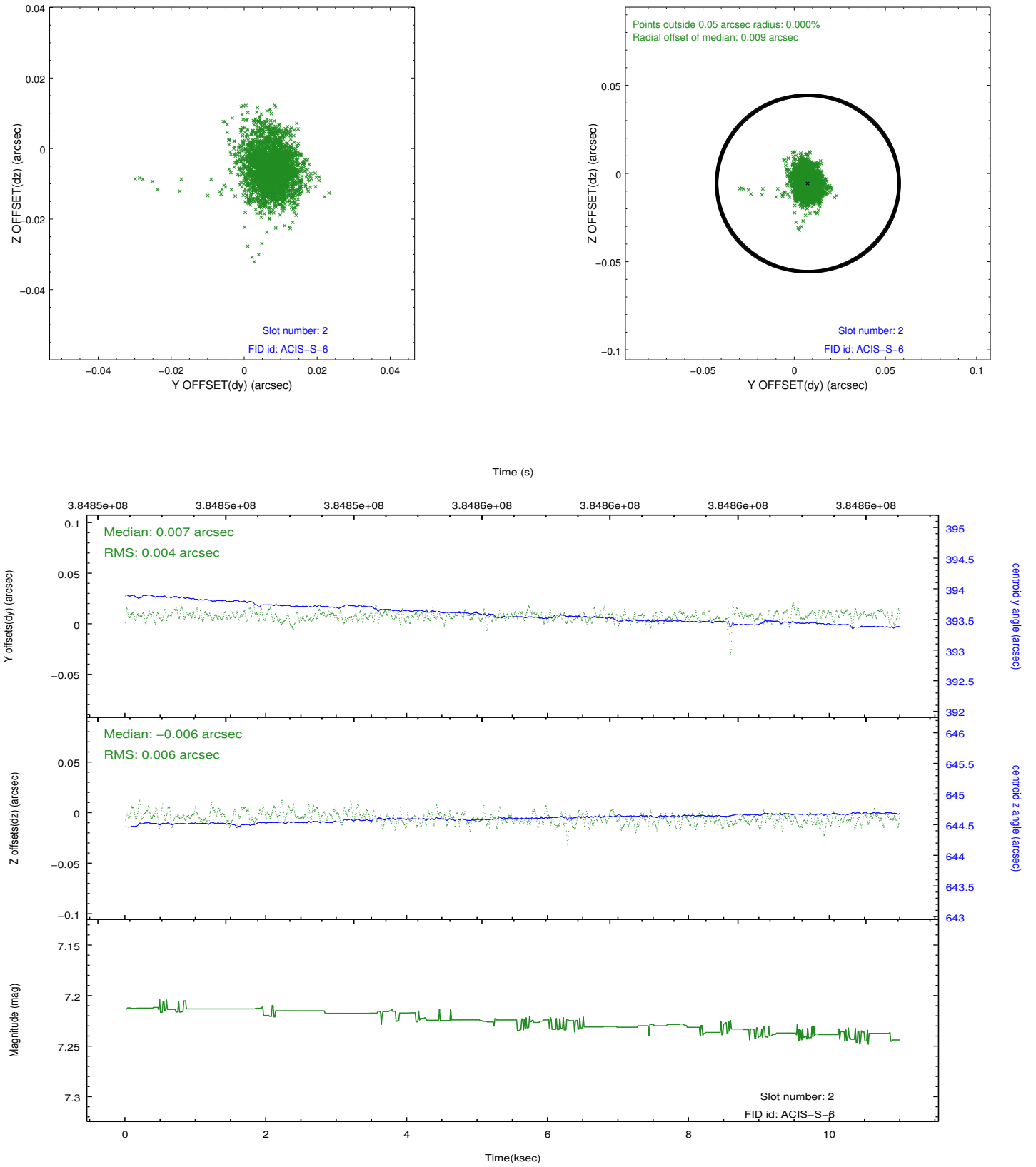
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

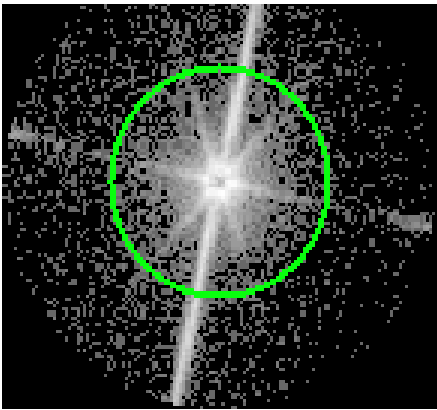


3 Gratings

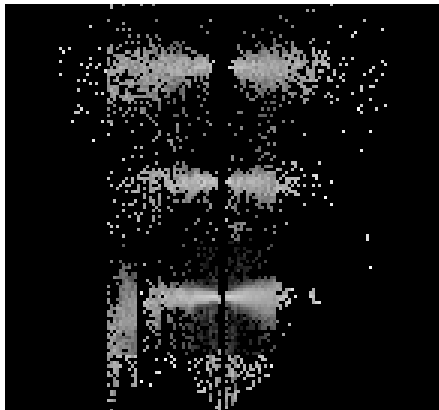
3.1 LETG Arm



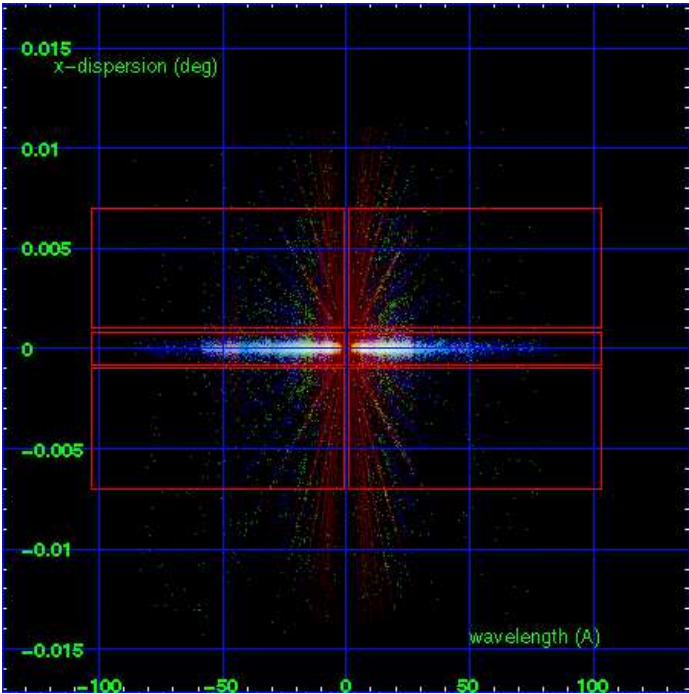
LETG Order Sort 123



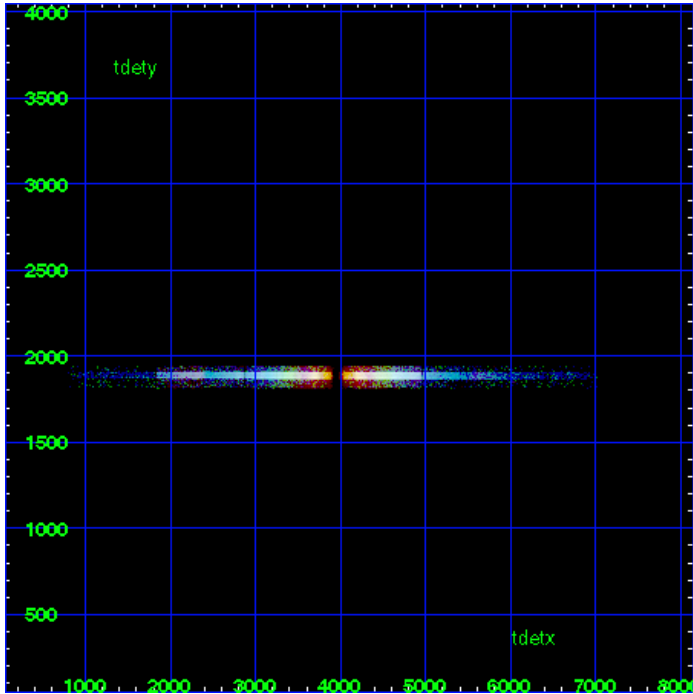
LETG Zero Order



LETG Order Sort ALL

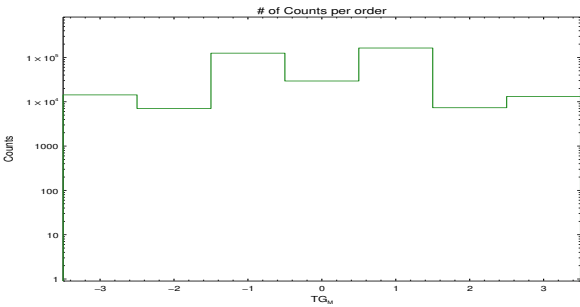


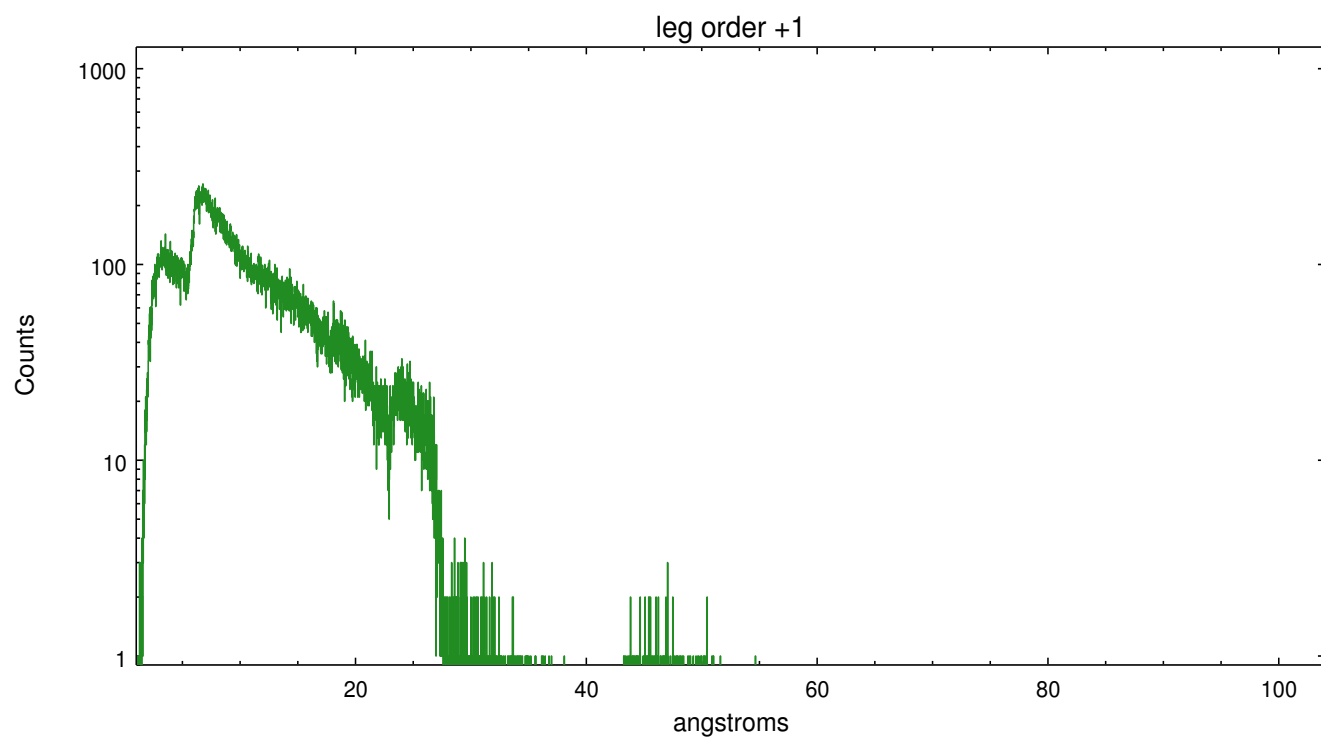
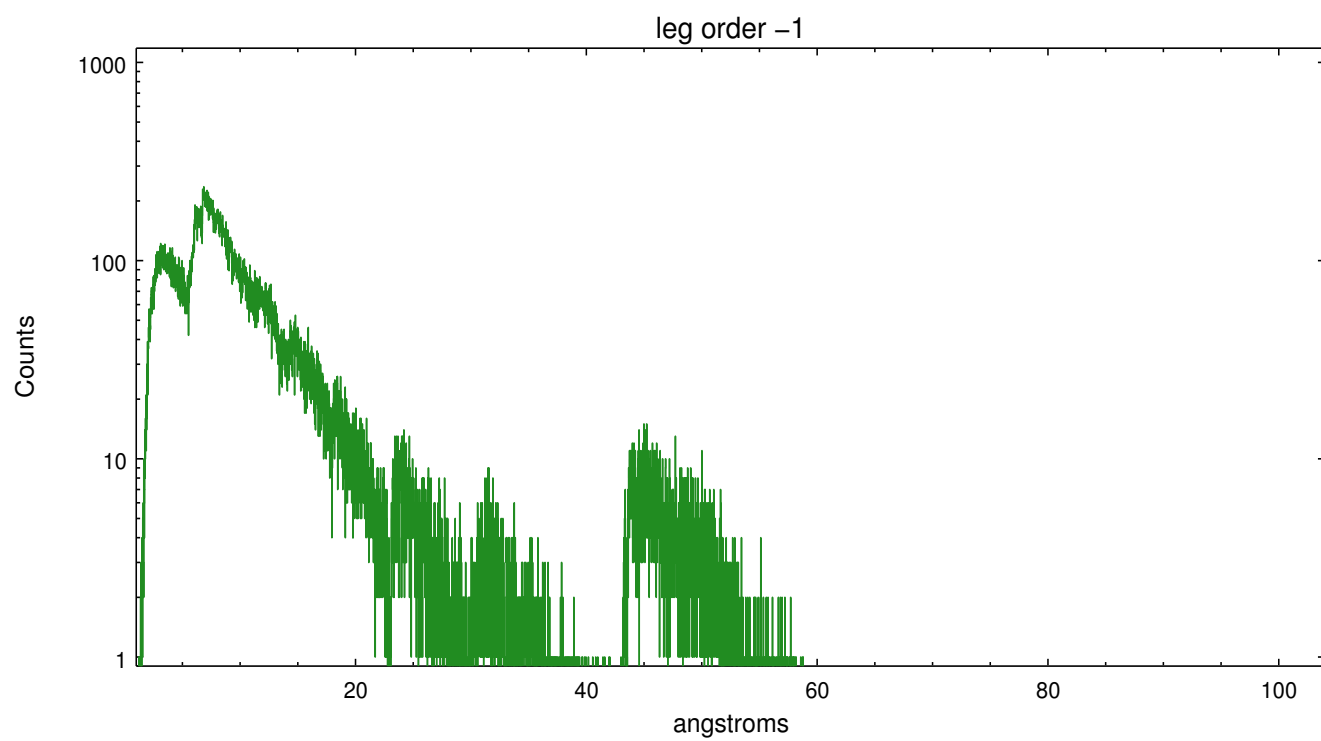
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	14297	7052	124919	29413	163251	7342	13139





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.06.26
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.065272039533

A.2 Comments

Note: spectrum shows faintly in bad-events image, meaning pileup might be an issue. 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=4246.72, y=4083.9) into the *src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called findzero, which is expected to be released in CIAO (currently in ISIS). The tool calculates the point of intersection of the readout streak and the meg arm (preferred position), or the readout streak and the heg 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.