

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 12121 - L2 Version 3
Chandra X-Ray Center

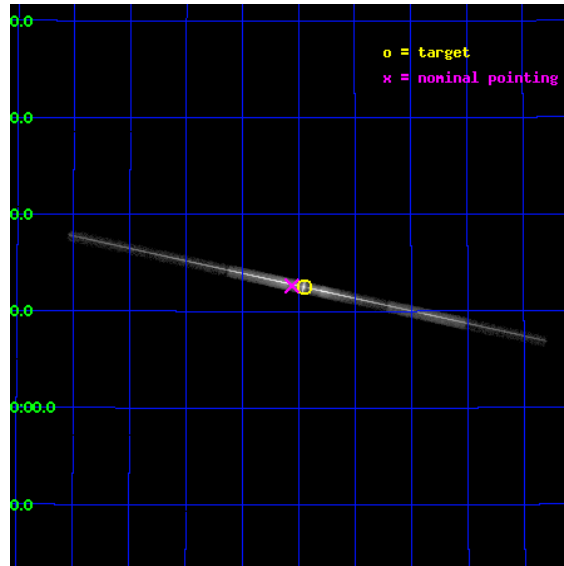
L2 Processing Date : Jun 25 2012

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1 Front

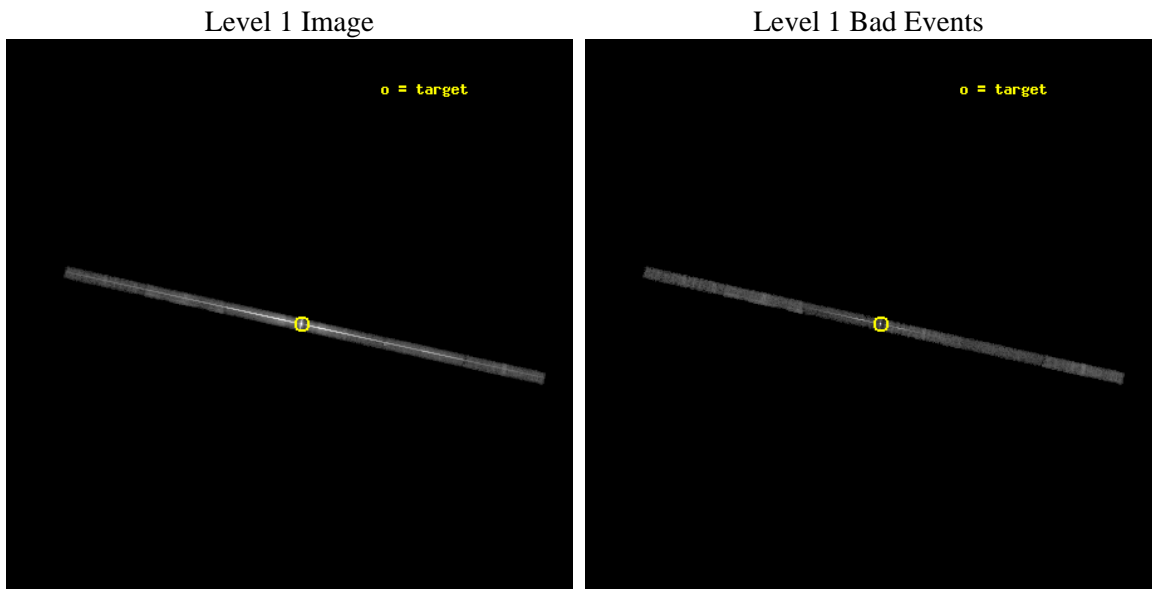
seq_num	790224	Sequence number
obs_id	12121	Observation id
title	AO-11 Calibration Observations of Mkn 421	Proposal title
observer	Calibration Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.1399243867	Nominal RA [deg]
dec_nom	38.210704338325	Nominal Dec [deg]
roll_nom	192.37861377421	Nominal Roll [deg]
revision	3	Processing version of data
ontime	10065.046581089	Sum of GTIs [s]
livetime	9507.6279374428	Livetime [s]
ontime4	10065.087621093	Sum of GTIs [s]
ontime5	10065.005541086	Sum of GTIs [s]
ontime6	10064.964501083	Sum of GTIs [s]
ontime7	10065.046581089	Sum of GTIs [s]
ontime8	10064.92346108	Sum of GTIs [s]
ontime9	10064.882421076	Sum of GTIs [s]
l2events	405596	Number of level 2 events



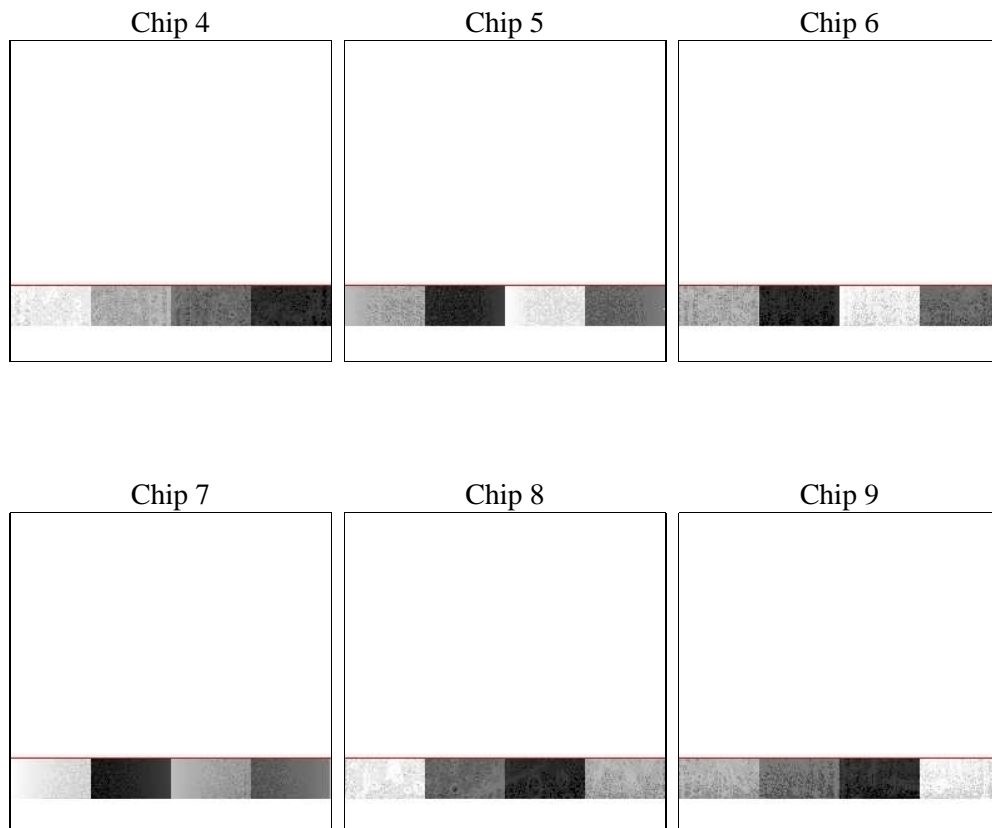
2 OBI

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	10065.046581089	Sum of GTIs [s]
caldsver	4.4.10	 	ontime4	10065.087621093	Sum of GTIs [s]
date	2012-06-22T16:28:23	Date and time of file creation	ontime5	10065.005541086	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	10064.964501083	Sum of GTIs [s]
			ontime7	10065.046581089	Sum of GTIs [s]
			ontime8	10064.92346108	Sum of GTIs [s]
			ontime9	10064.882421076	Sum of GTIs [s]
			l1events	494870	Number of level 1 events

2.1.4 Events

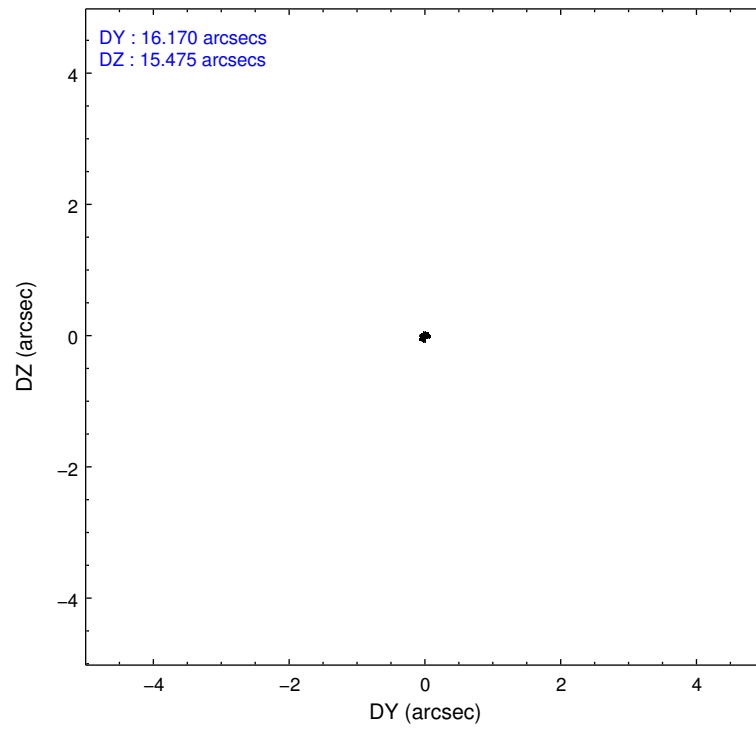
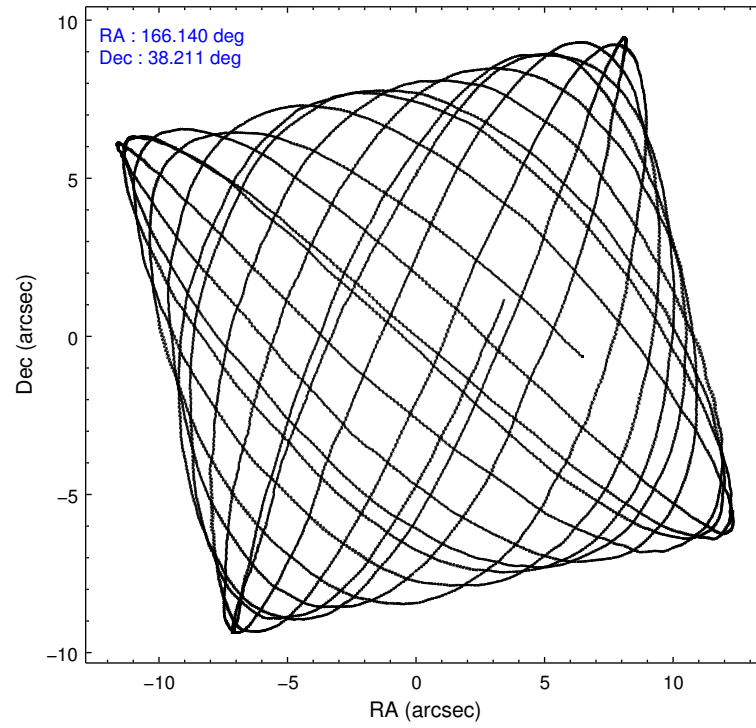
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	18189	40933	151332	239311	29522	15583	grade 0 events	3738	16524	109779	60010	10800	3988
rejected events	12802	7471	13590	18257	13633	9983		20%	40%	72%	25%	36%	25%
rejected %	70%	18%	8%	7%	46%	64%	grade 1 events	9	67	984	1029	16	8
								0%	0%	0%	0%	0%	0%
							grade 2 events	626	6820	14668	57192	1922	625
								3%	16%	9%	23%	6%	4%
							grade 3 events	366	2394	4812	25966	896	343
								2%	5%	3%	10%	3%	2%
							grade 4 events	342	2434	4805	25628	842	351
								1%	5%	3%	10%	2%	2%
							grade 5 events	414	1504	1030	5309	578	405
								2%	3%	0%	2%	1%	2%
							grade 6 events	316	5293	3703	52289	1429	295
								1%	12%	2%	21%	4%	1%
							grade 7 events	12378	5897	11551	11888	13039	9568
								68%	14%	7%	4%	44%	61%

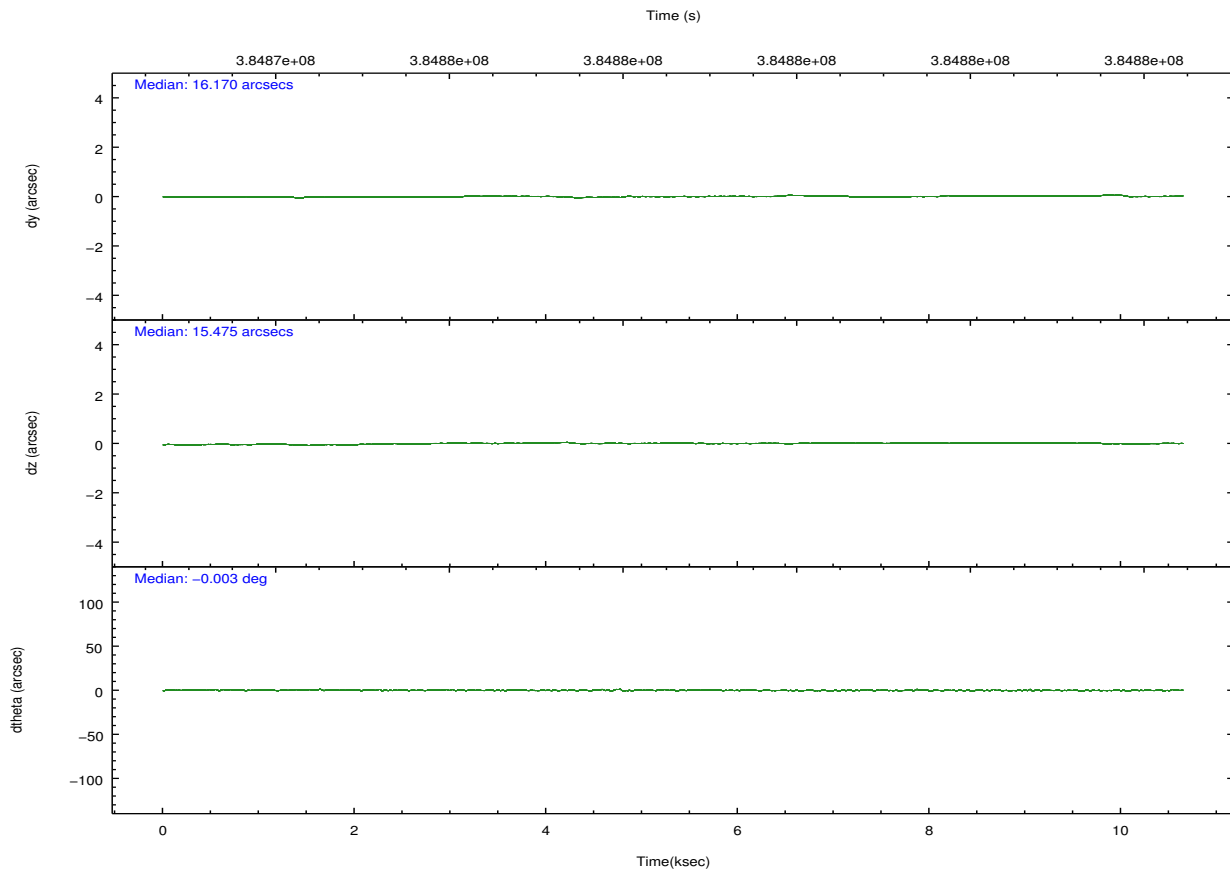
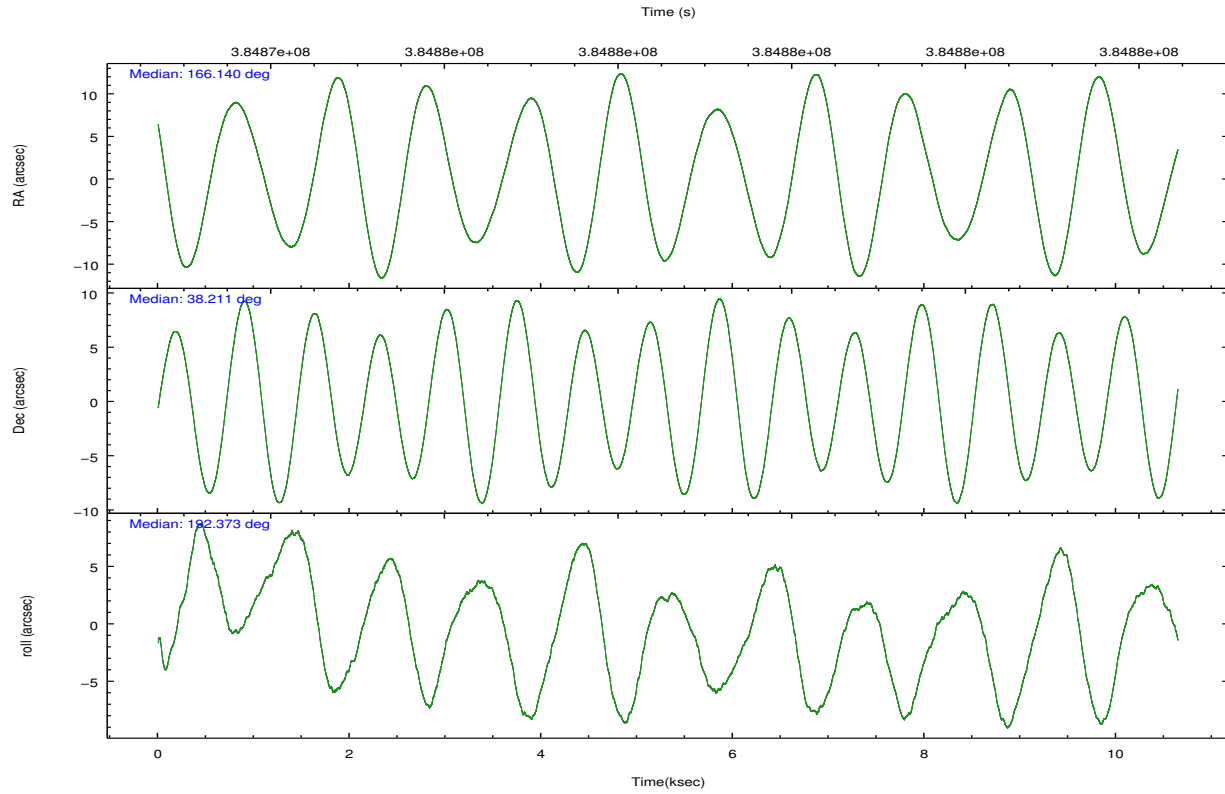
2.2 Compared Parameters

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	166.165380	166.1399243866983
[deg] Pointing Dec	38.229424	38.21070433832487
[deg] Pointing Roll	192.206232	192.3786137742139
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-182.132523	-182.1344861297048
[mm] SIM translation stage offset	-8	-7.998036453302973
[s] Observation start time (MET)	384873900.184000	384872929.41236
Observation start date	2010-03-13T13:23:54	2010-03-13T13:08:49
[s] Observation end time (MET)	384883900.184000	384884123.95042
Observation end date	2010-03-13T16:10:34	2010-03-13T16:15:23
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



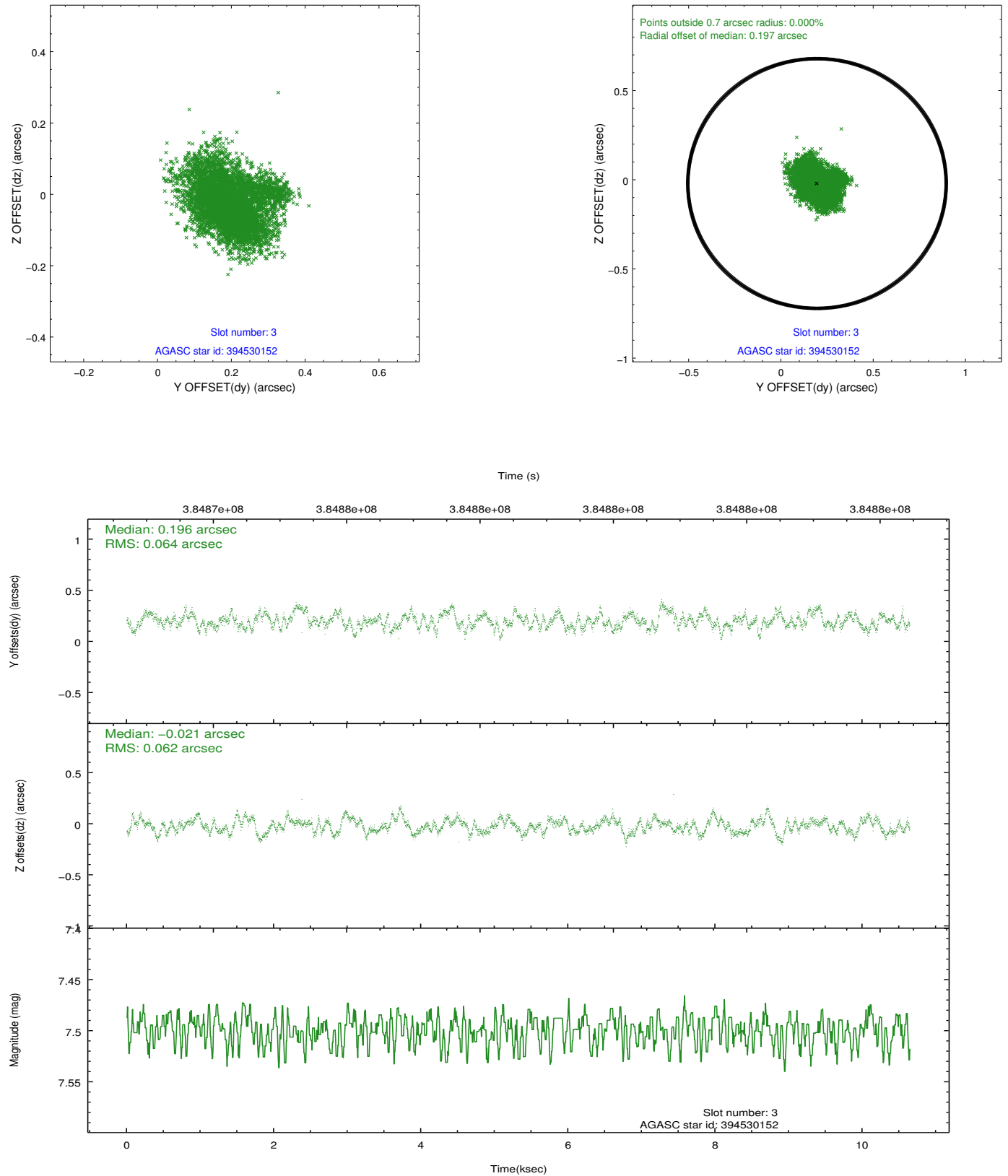


Slot Statistics

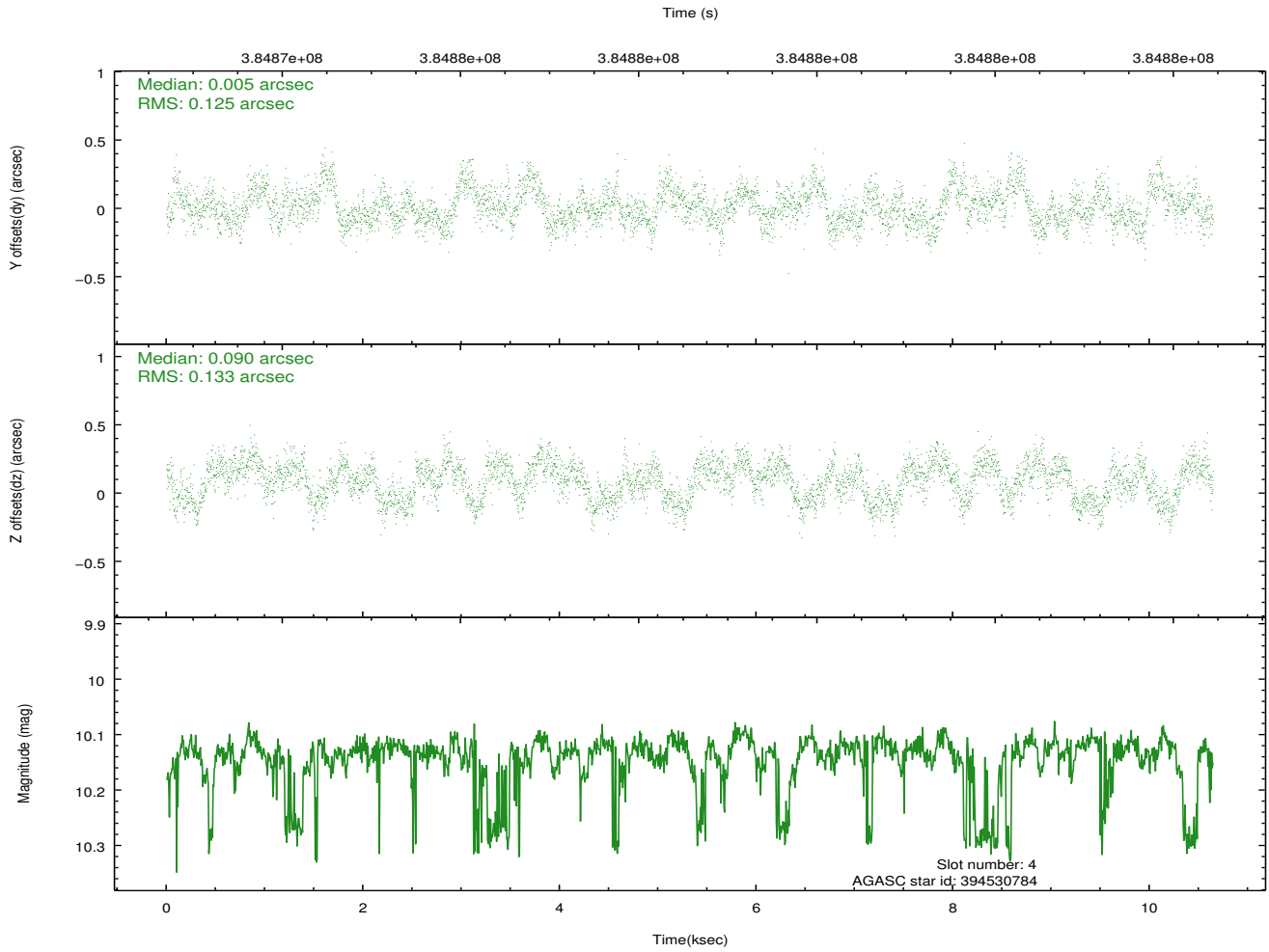
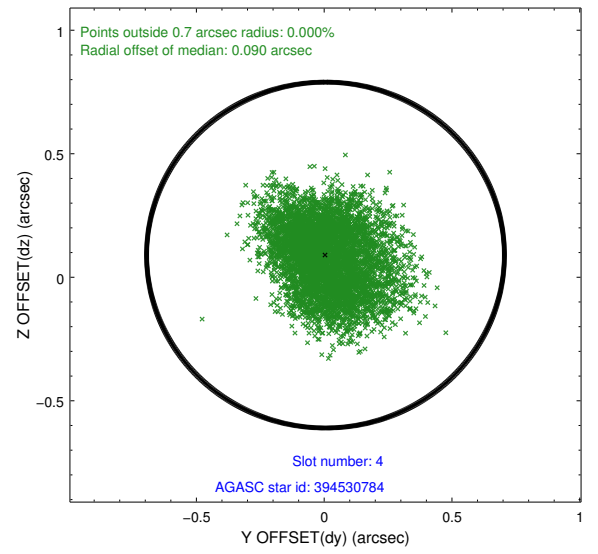
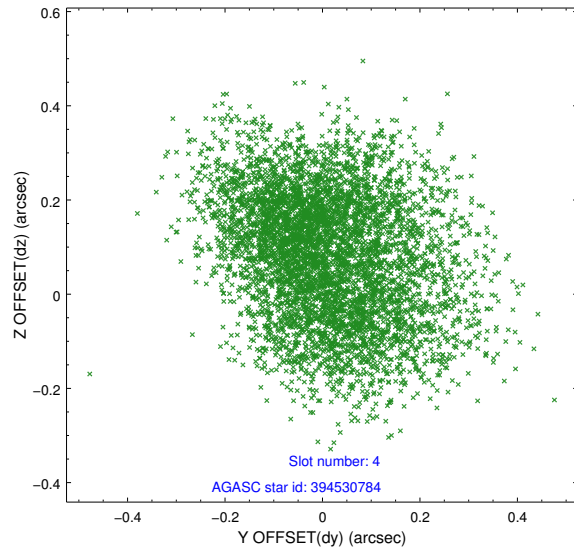
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.93	2597	-0.174	-0.122	0.006	0.010	0.000000	0.000000	-768.81	-1901.73
1	FID	ACIS-S-4	7.01	2597	0.141	0.109	0.006	0.011	0.000000	0.000000	2144.60	6.34
2	FID	ACIS-S-6	7.23	2597	0.005	0.020	0.007	0.011	0.000000	0.000000	394.03	644.24
3	GUIDE	394530152	7.50	5192	0.196	-0.021	0.095	0.152	166.075805	38.868252	-240.27	-2300.92
4	GUIDE	394530784	10.14	5173	0.005	0.090	0.196	0.311	165.569172	38.418674	1498.68	-1026.86
5	GUIDE	394543960	9.78	5186	0.068	0.018	0.168	0.264	165.802757	37.787371	1344.80	1335.42
6	GUIDE	394546712	6.62	5193	-0.272	0.179	0.079	0.126	166.451462	38.394357	-913.75	-410.42
7	GUIDE	394528824	10.05	5180	0.014	-0.249	0.172	0.308	165.824970	38.140431	1009.37	107.53

2.4 Star Slots

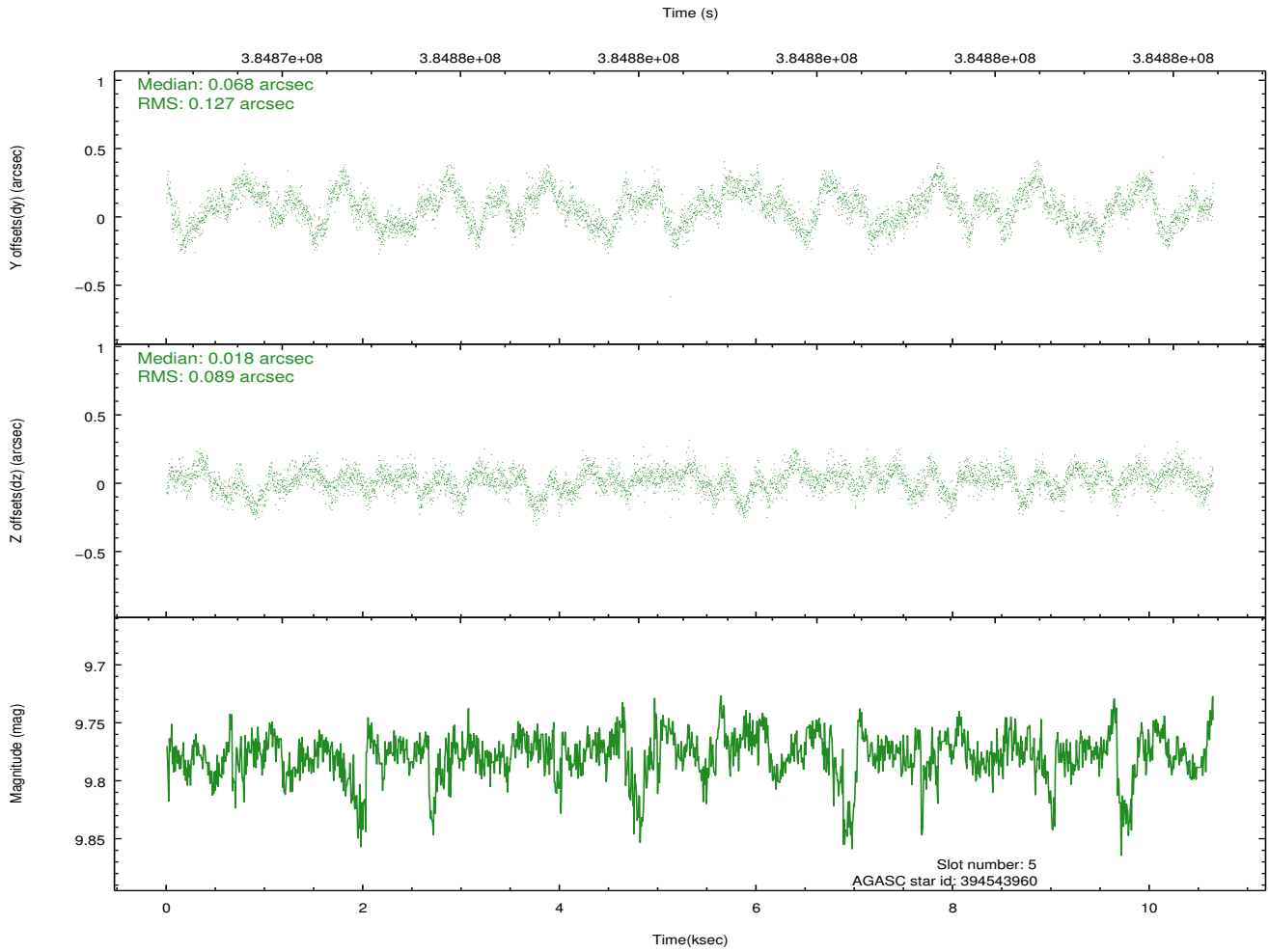
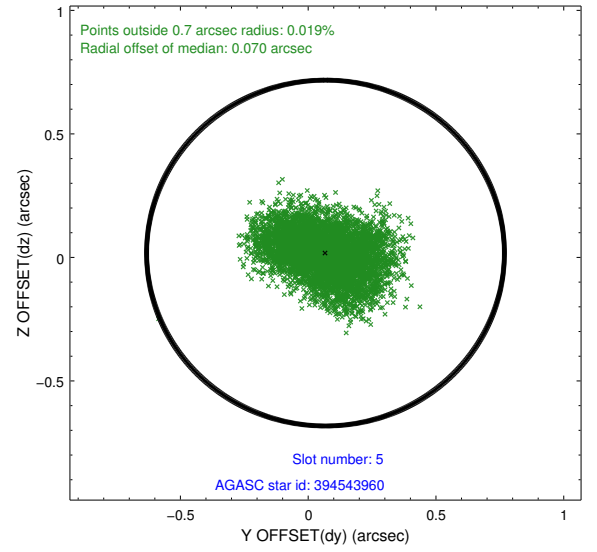
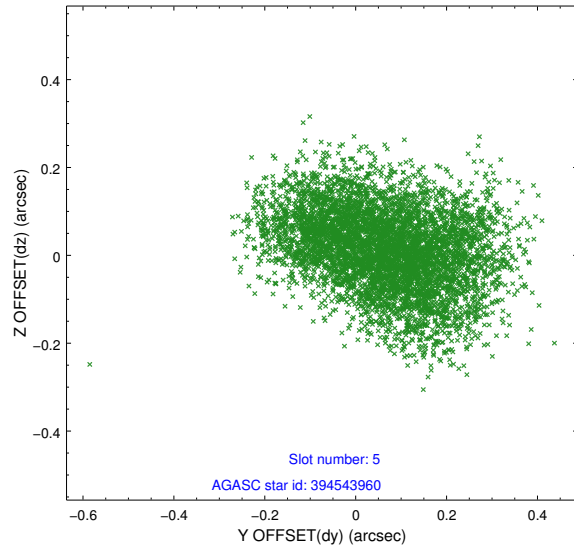
2.4.1 Slot 3



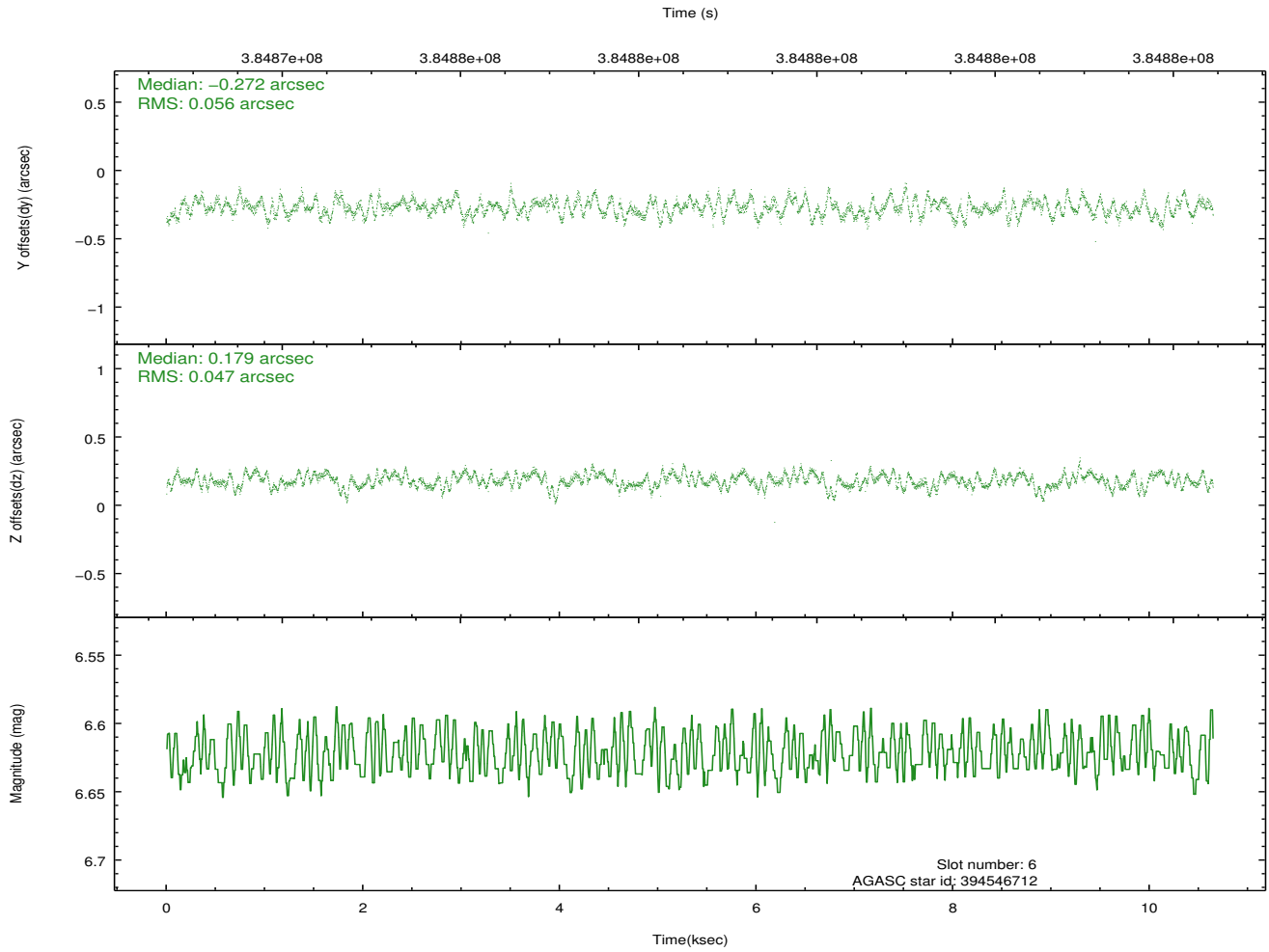
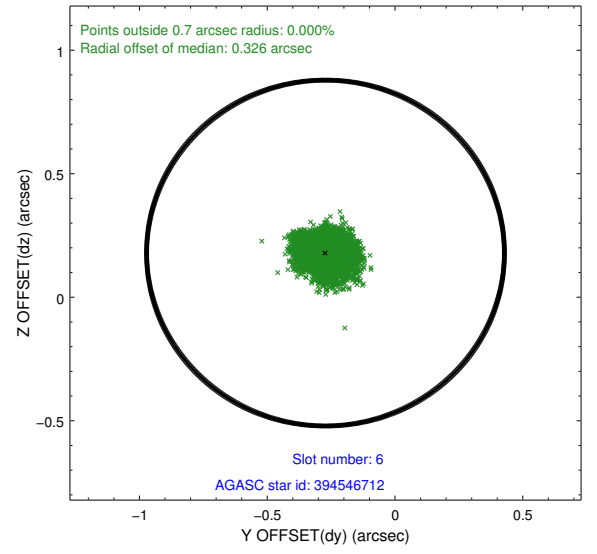
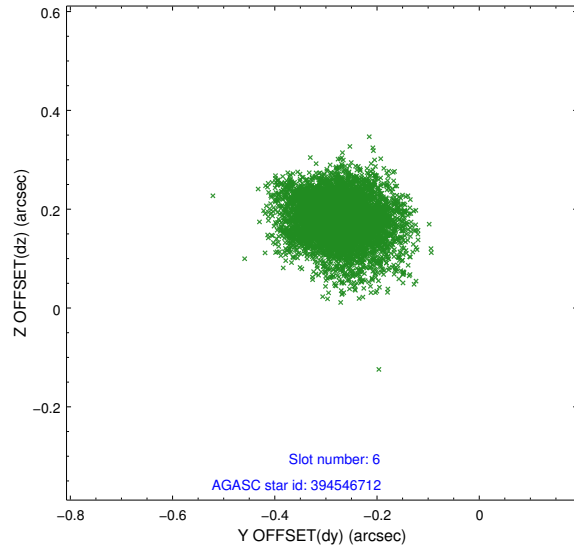
2.4.2 Slot 4



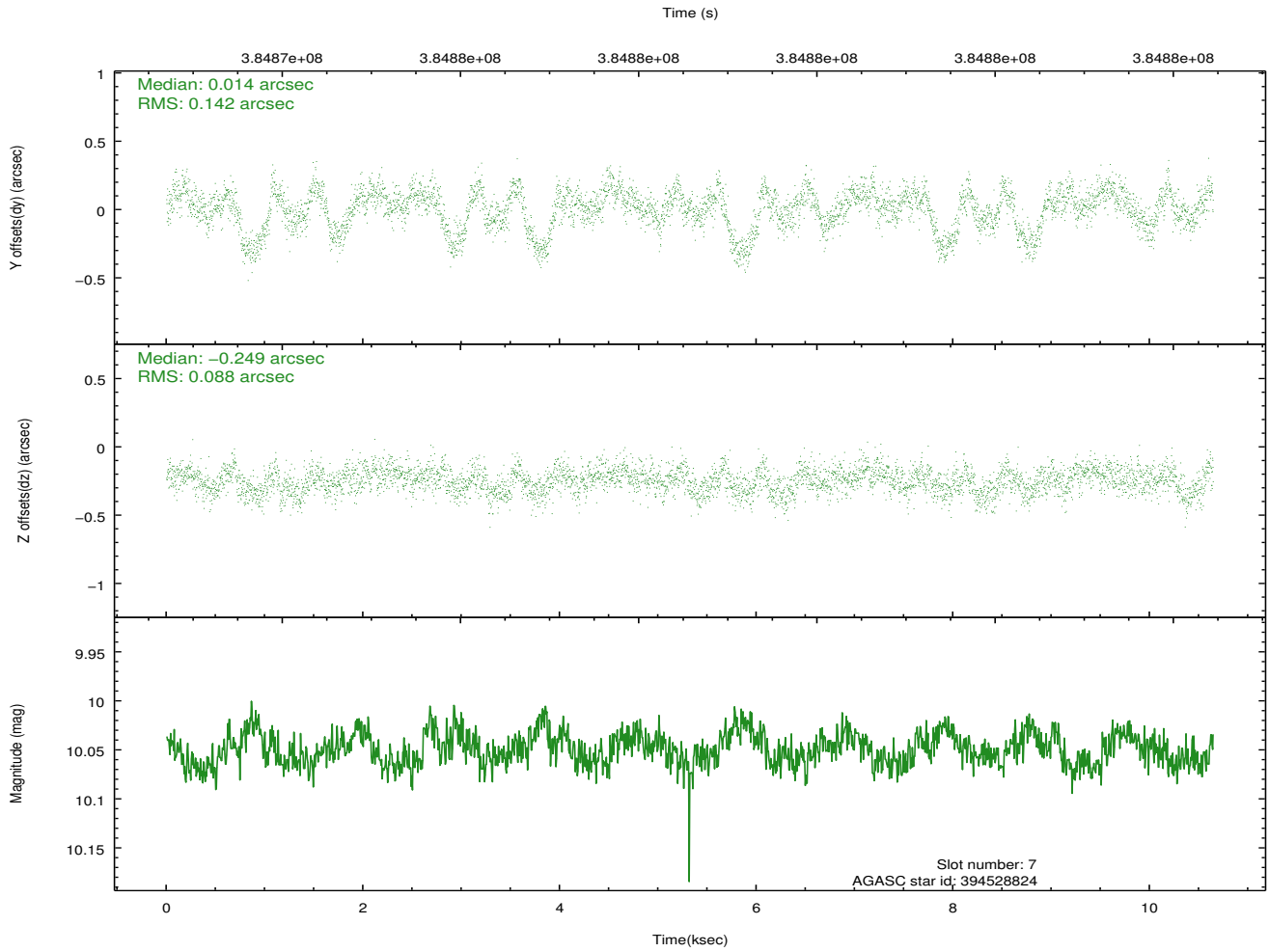
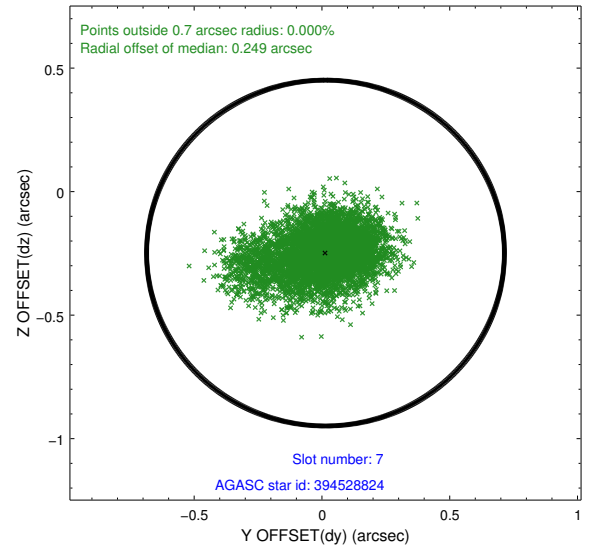
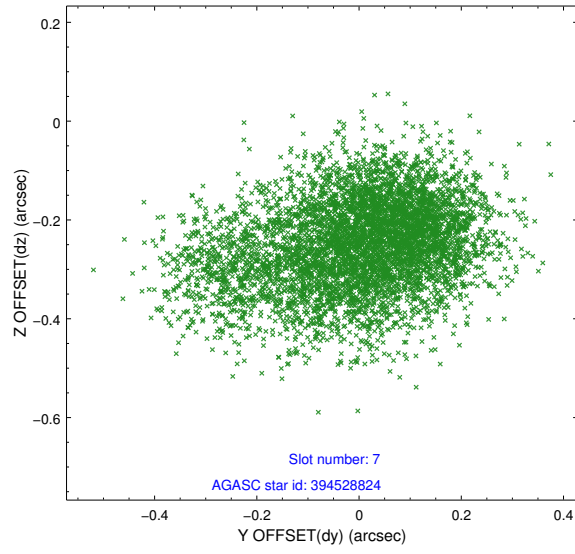
2.4.3 Slot 5



2.4.4 Slot 6

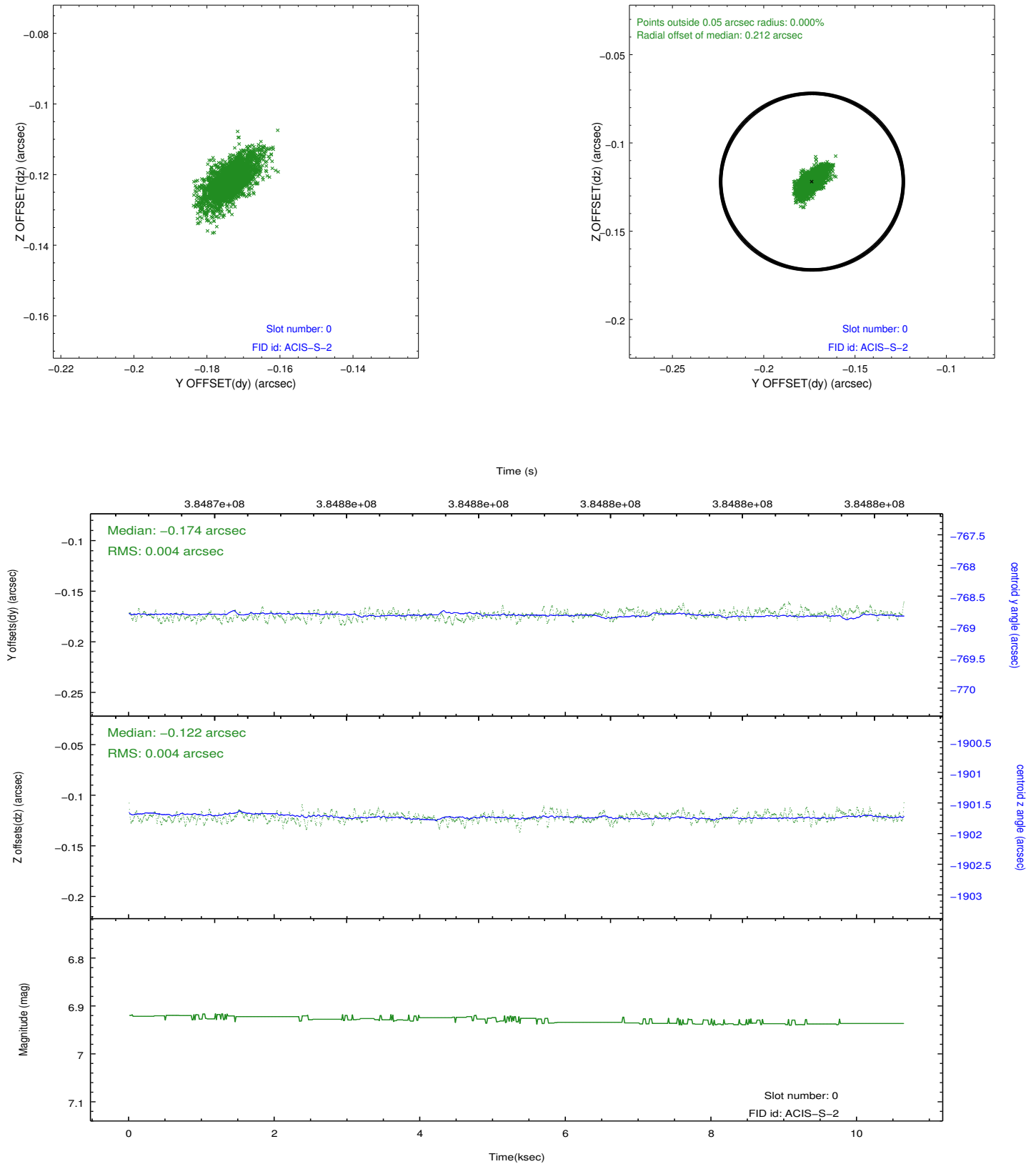


2.4.5 Slot 7

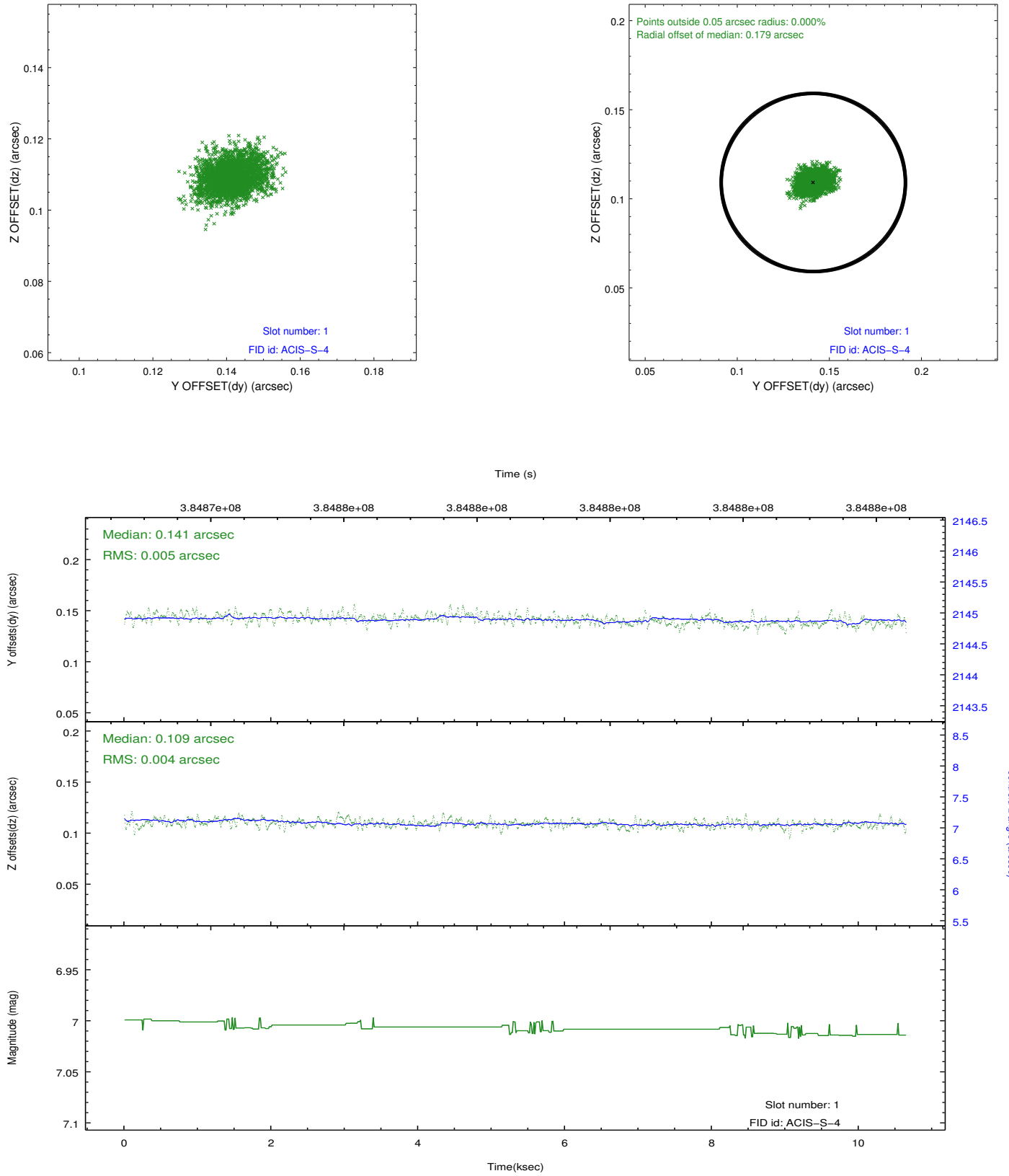


2.5 FID Slots

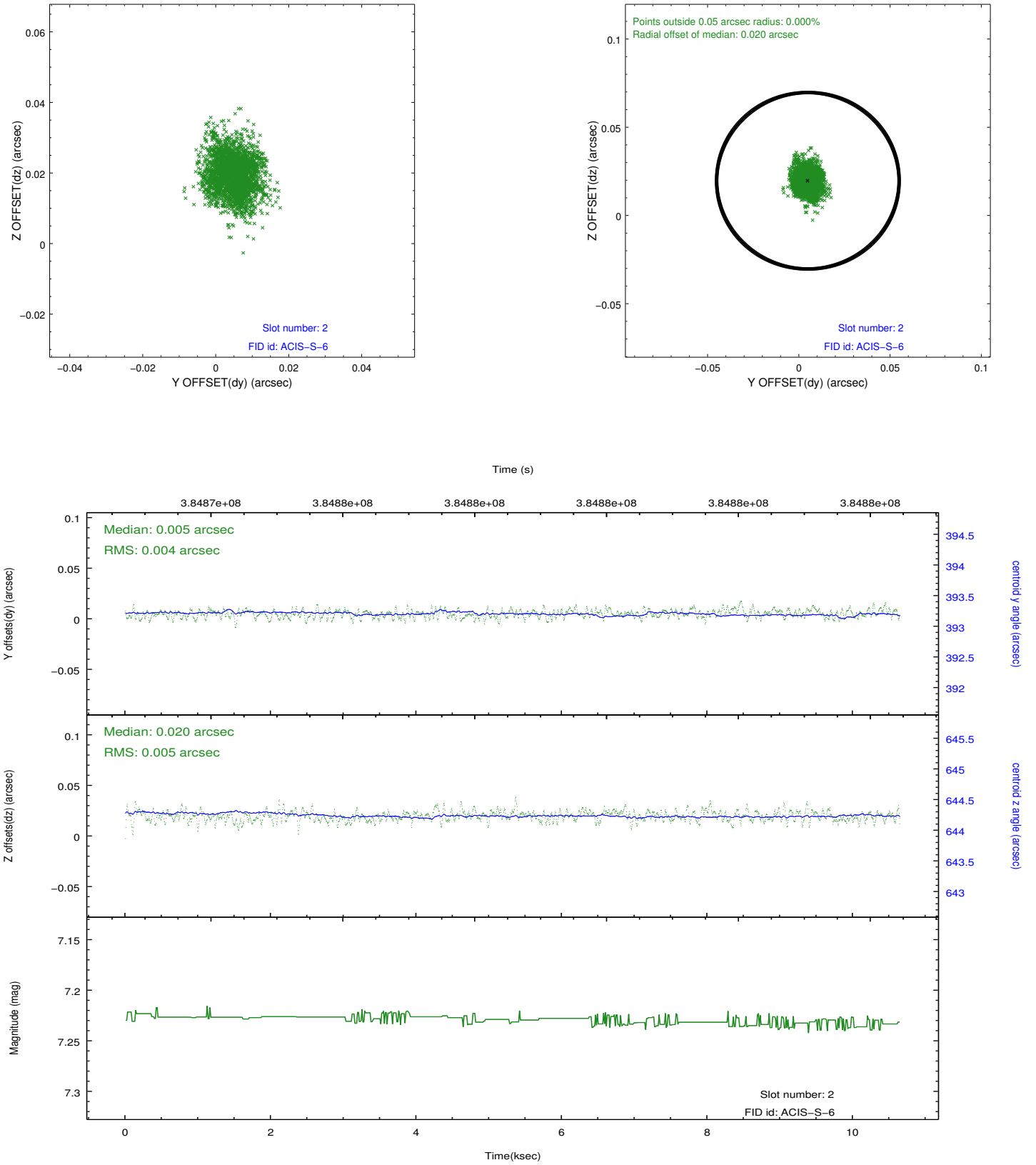
2.5.1 Slot 0



2.5.2 Slot 1

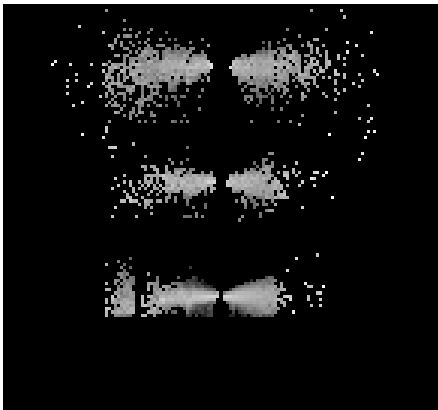


2.5.3 Slot 2

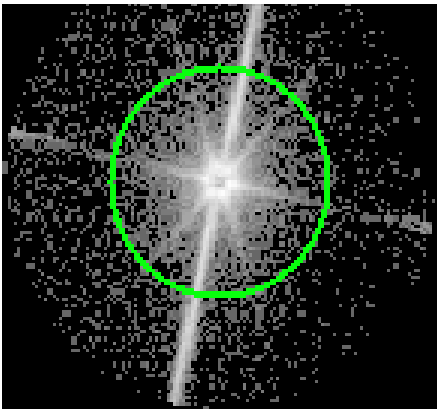


3 Gratings

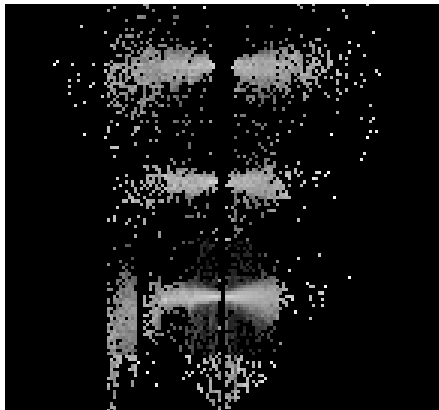
3.1 LETG Arm



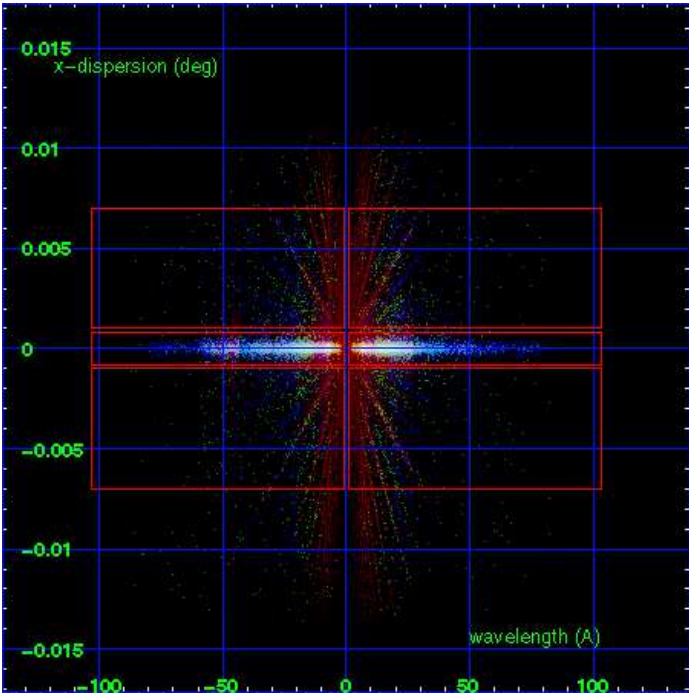
LETG Order Sort 123



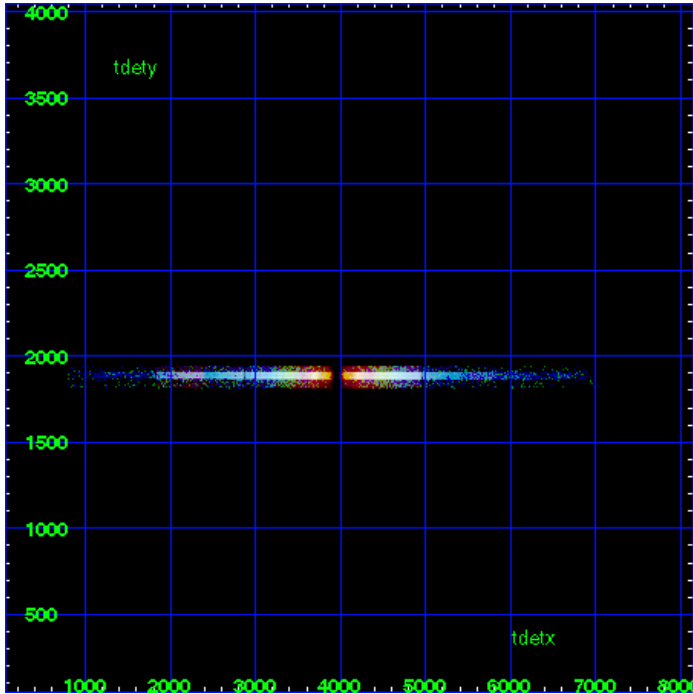
LETG Zero Order



LETG Order Sort ALL

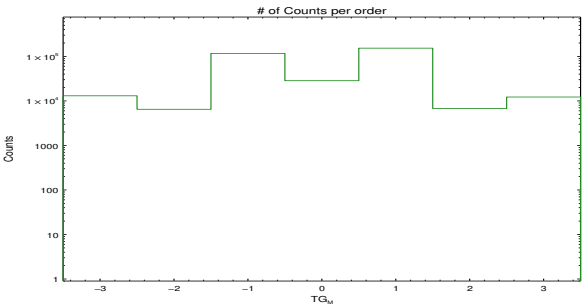


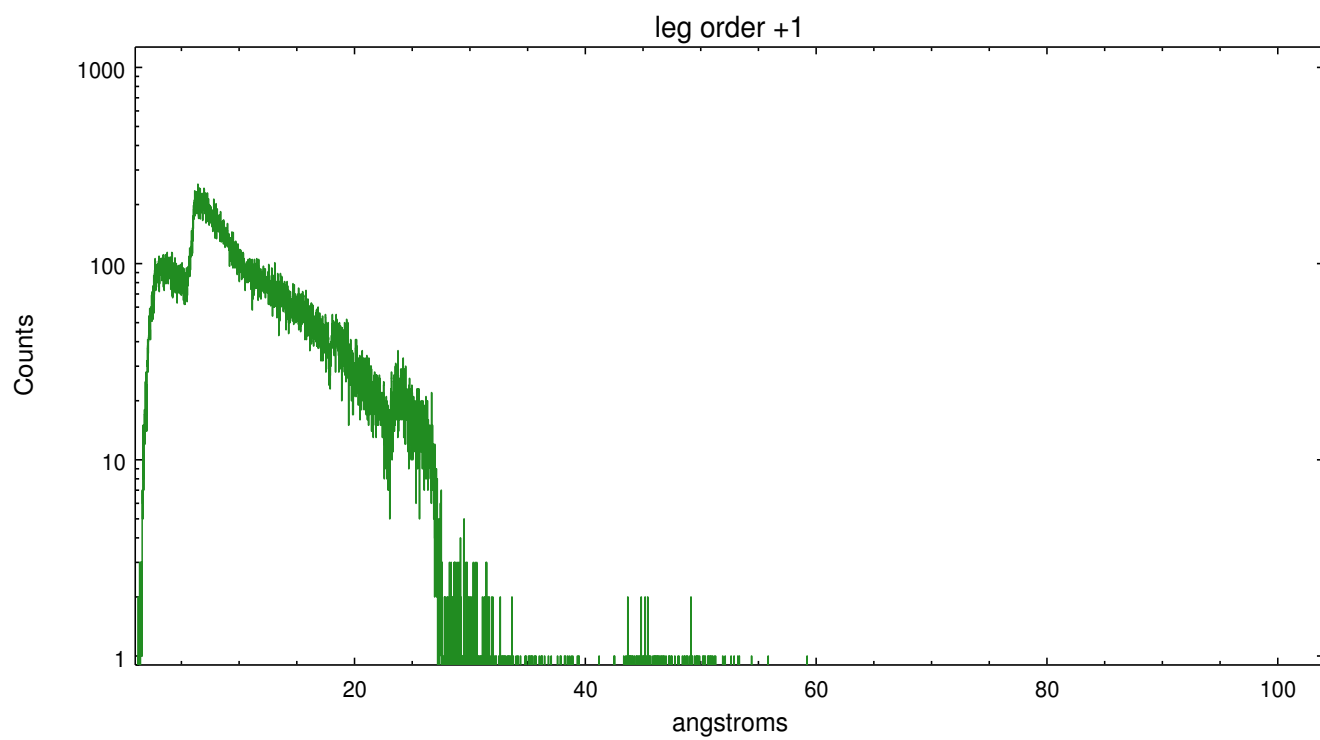
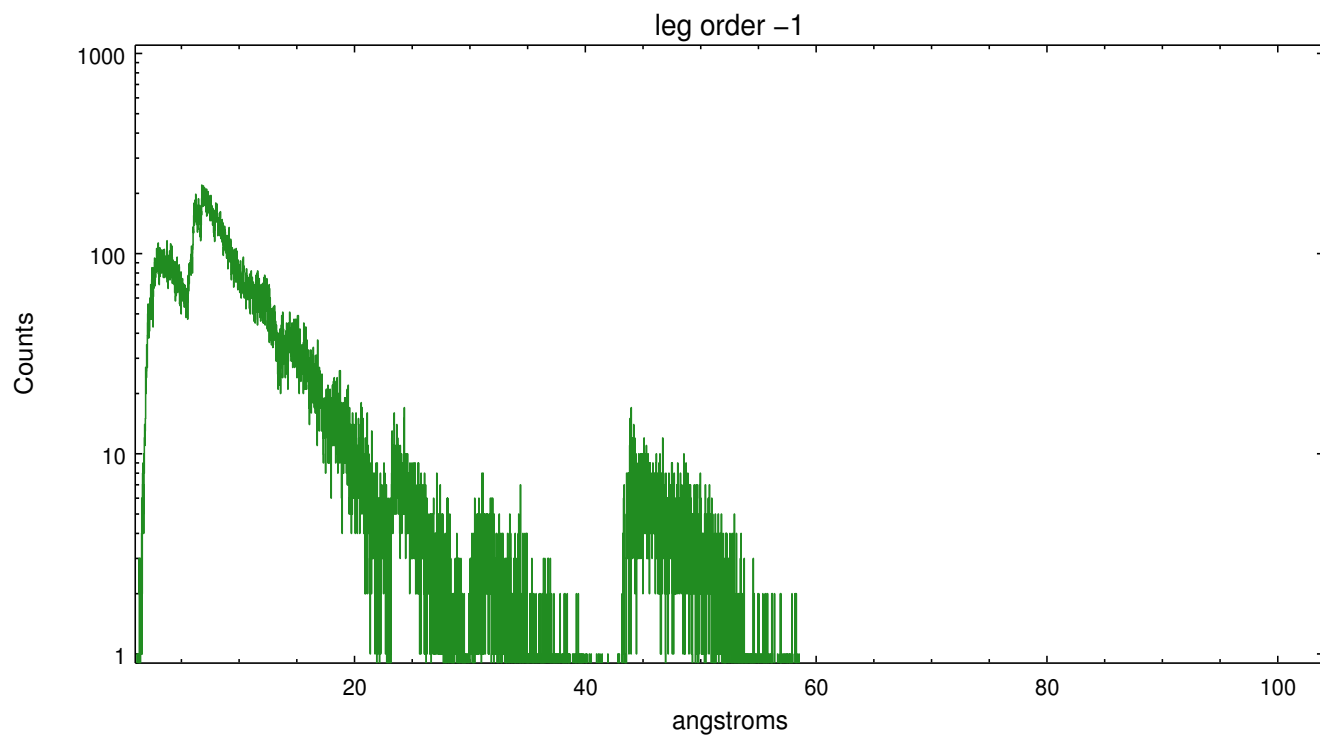
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	13039	6483	116811	28478	153088	6764	12242





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	10.065046582103

A.2 Comments

Note: spectrum appears 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=4246.2, y=4083.03) 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.

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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.