

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 11966 - L2 Version 2
Chandra X-Ray Center

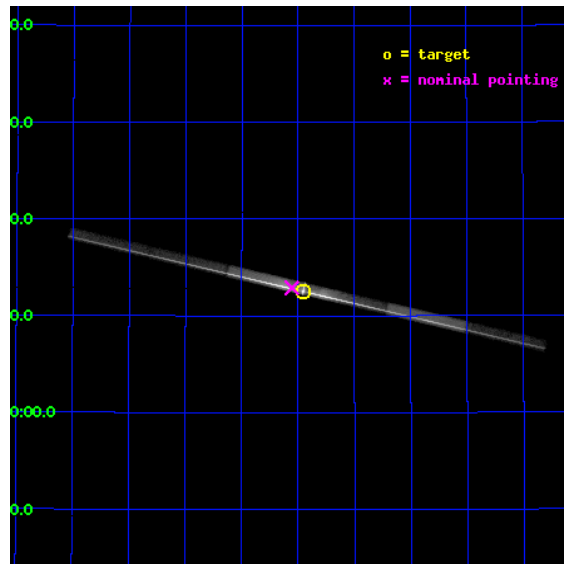
L2 Processing Date : Jun 25 2012

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1 Front

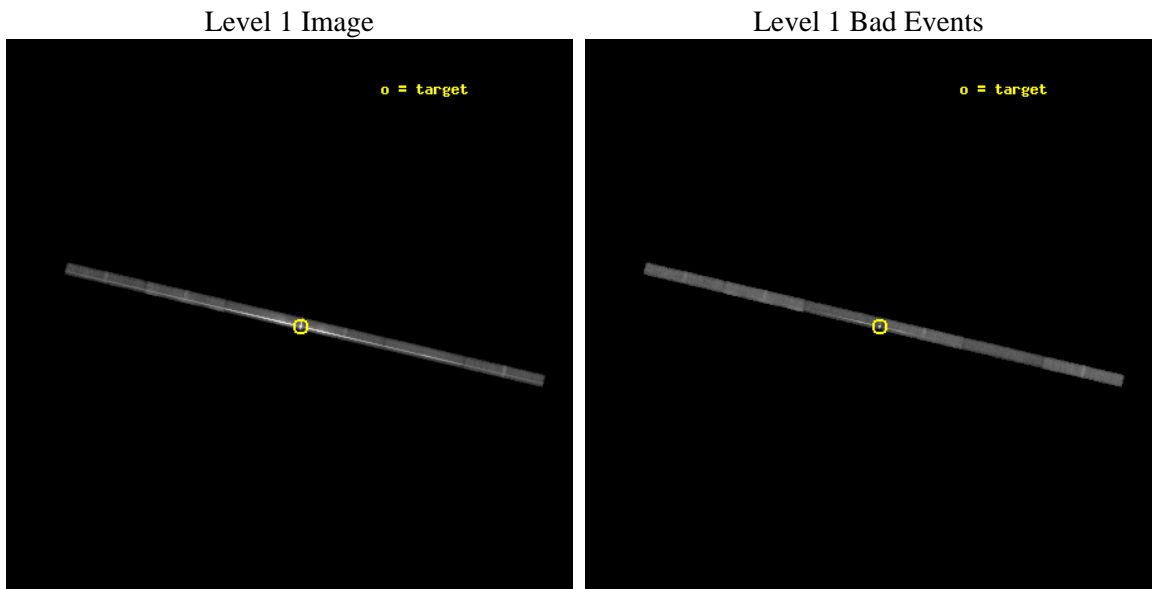
seq_num	790215	Sequence number
obs_id	11966	Observation id
title	AO-11 Calibration Observations of Mkn421	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.13876281103	Nominal RA [deg]
dec_nom	38.215040134621	Nominal Dec [deg]
roll_nom	193.11698116588	Nominal Roll [deg]
revision	2	Processing version of data
ontime	30064.801194668	Sum of GTIs [s]
livetime	28140.023581681	Livetime [s]
ontime4	30064.801194668	Sum of GTIs [s]
ontime5	30064.801194668	Sum of GTIs [s]
ontime6	30064.801194668	Sum of GTIs [s]
ontime7	30064.801194668	Sum of GTIs [s]
ontime8	30064.160164475	Sum of GTIs [s]
ontime9	30064.772144675	Sum of GTIs [s]
l2events	1039946	Number of level 2 events



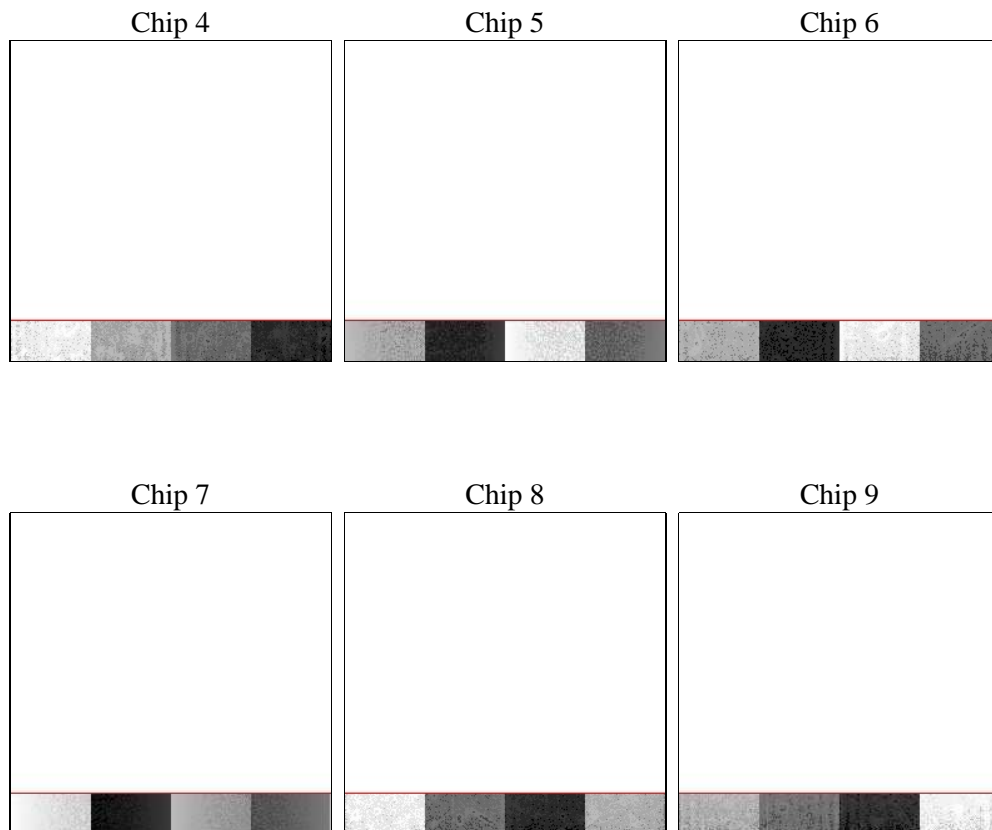
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	30064.801194668	Sum of GTIs [s]
caldbver	4.4.10	 	ontime4	30064.801194668	Sum of GTIs [s]
date	2012-06-22T17:42:46	Date and time of file creation	ontime5	30064.801194668	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	30064.801194668	Sum of GTIs [s]
			ontime7	30064.801194668	Sum of GTIs [s]
			ontime8	30064.160164475	Sum of GTIs [s]
			ontime9	30064.772144675	Sum of GTIs [s]
			l1events	1322883	Number of level 1 events

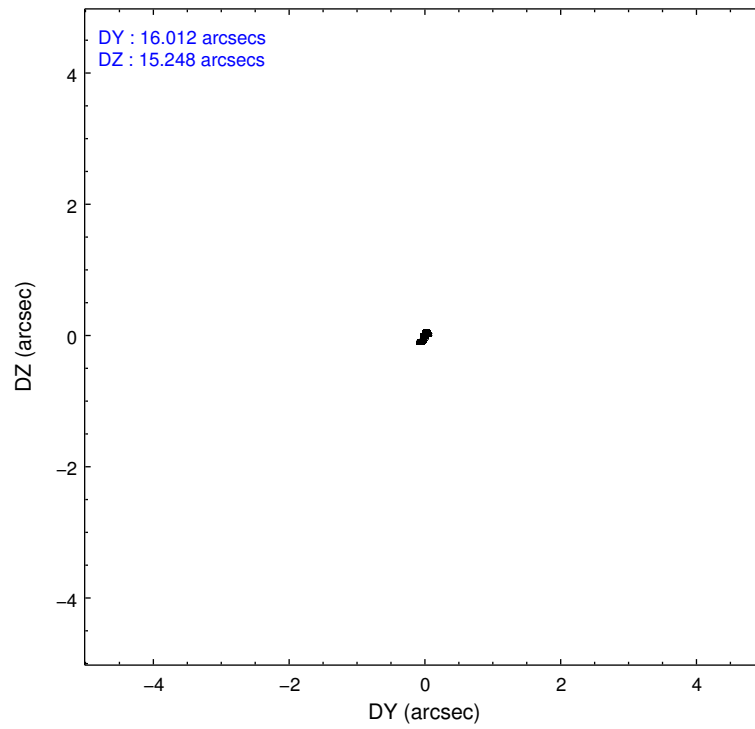
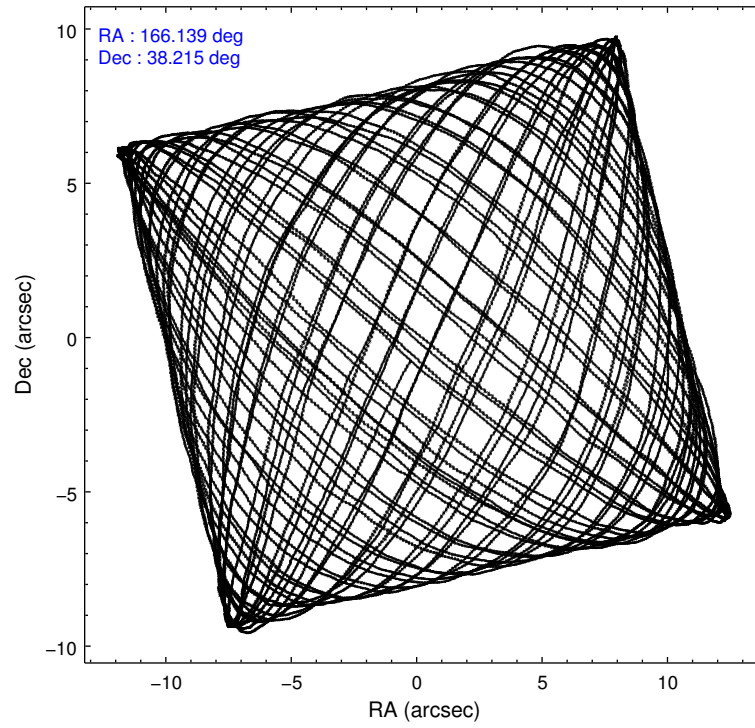
2.1.4 Events

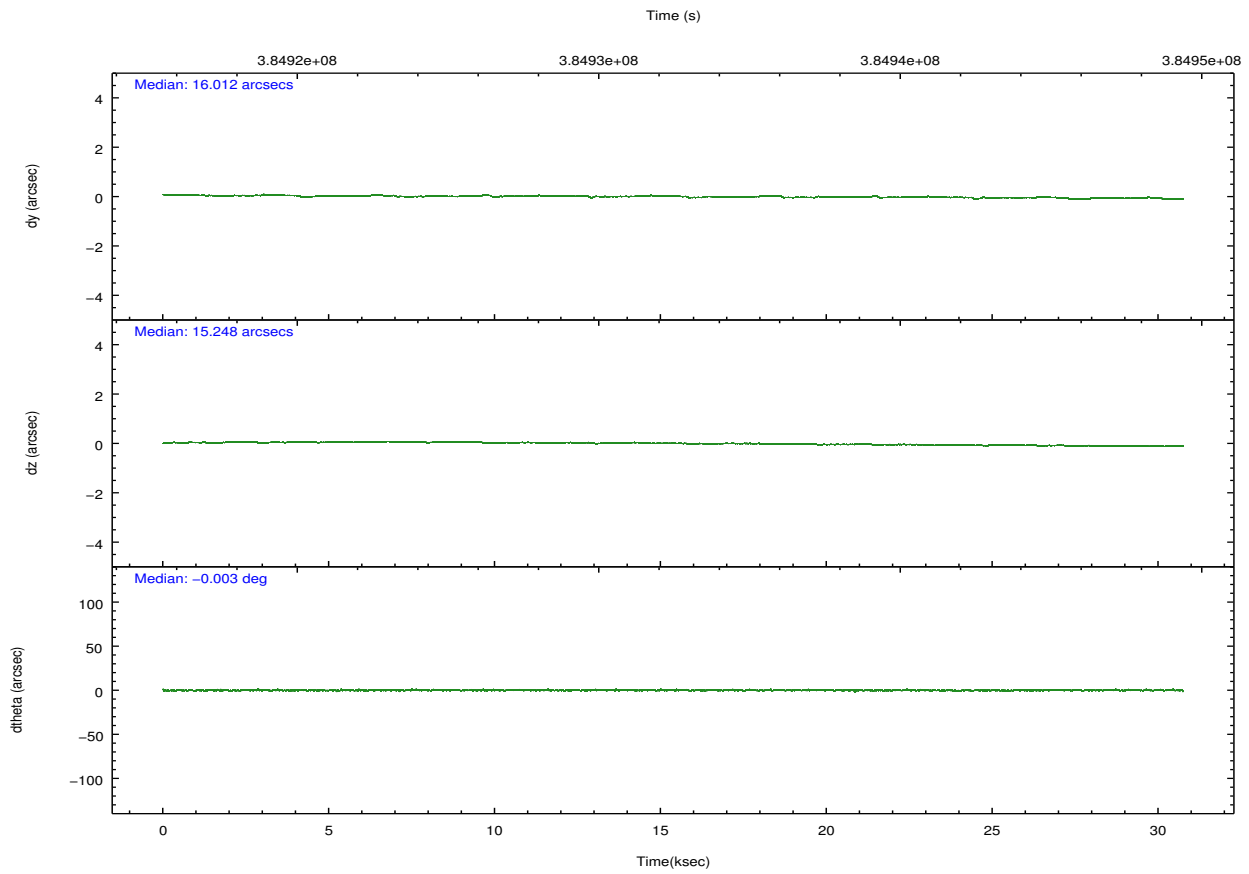
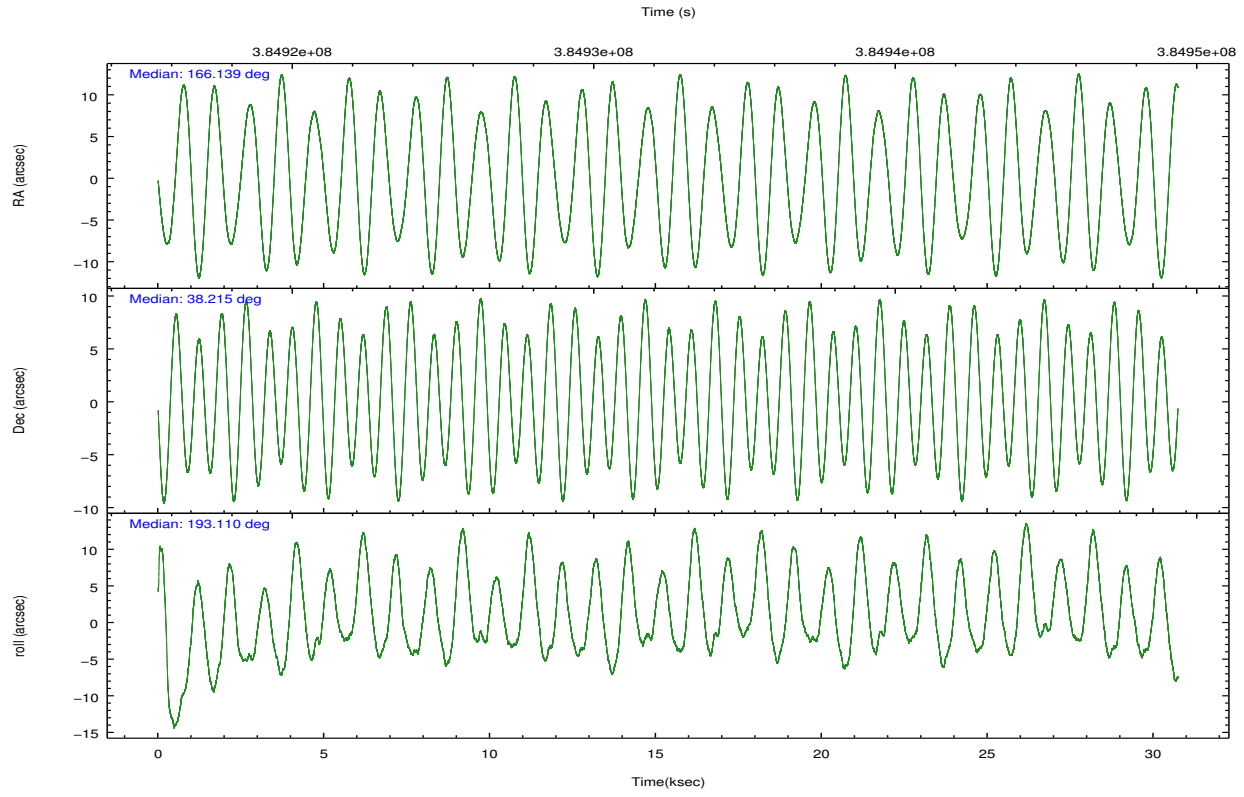
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	56680	97359	411414	625963	84531	46936	grade 0 events	9106	30958	288589	130305	26355	9826
rejected events	42470	21823	42182	63617	44282	32223		16%	31%	70%	20%	31%	20%
rejected %	74%	22%	10%	10%	52%	68%	grade 1 events	24	94	2289	2357	57	26
								0%	0%	0%	0%	0%	0%
							grade 2 events	1951	16728	40278	142914	5095	1691
								3%	17%	9%	22%	6%	3%
							grade 3 events	1111	6274	14225	65562	2436	1110
								1%	6%	3%	10%	2%	2%
							grade 4 events	1040	6089	14119	64935	2288	1113
								1%	6%	3%	10%	2%	2%
							grade 5 events	1202	4344	2896	14492	1688	1259
								2%	4%	0%	2%	1%	2%
							grade 6 events	1002	15490	12037	158641	4077	973
								1%	15%	2%	25%	4%	2%
							grade 7 events	41244	17382	36981	46757	42535	30938
								72%	17%	8%	7%	50%	65%

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	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	166.163849	166.1387628110276	CCD I2 on	N	N
[deg] Pointing Dec	38.234012	38.2150401346213	CCD I3 on	N	N
[deg] Pointing Roll	192.944835	193.1169811658776	CCD S0 on	O1	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-179.132523	-179.1374222902453	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-11	-10.99510029276249	CCD S4 on	Y	Y
[s] Observation start time (MET)	384917659.184000	384916772.76458	CCD S5 on	Y	Y
Observation start date	2010-03-14T01:33:13	2010-03-14T01:19:32	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	384947659.184000	384948094.71617	On-chip summing requested	N	N
Observation end date	2010-03-14T09:53:13	2010-03-14T10:01:34	Subarray requested	CUSTOM	1/8
Read mode	TIMED	TIMED	Subarray start row	1	1
			Subarray row count	128	128
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	0.6

2.3 Aspect



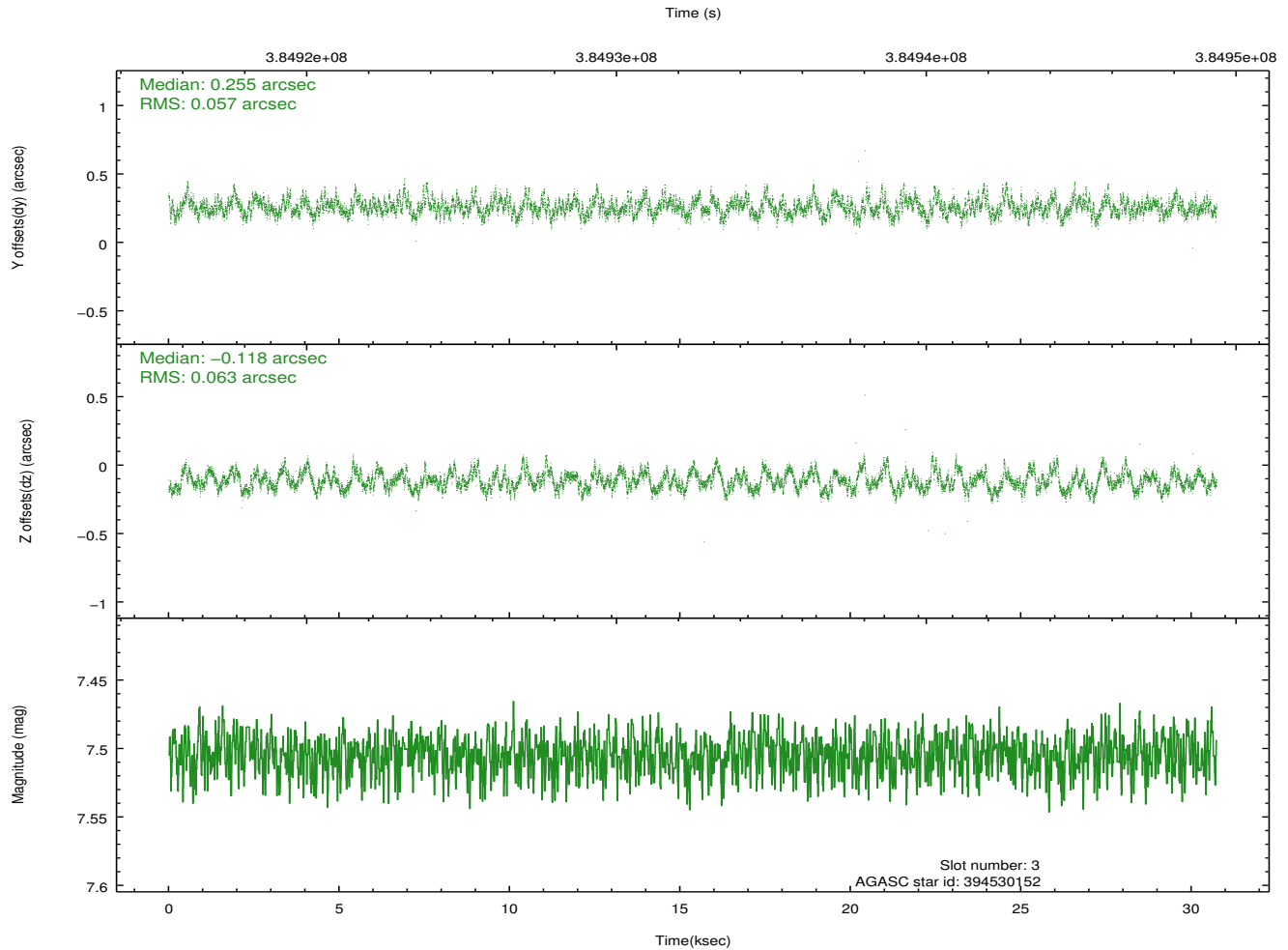
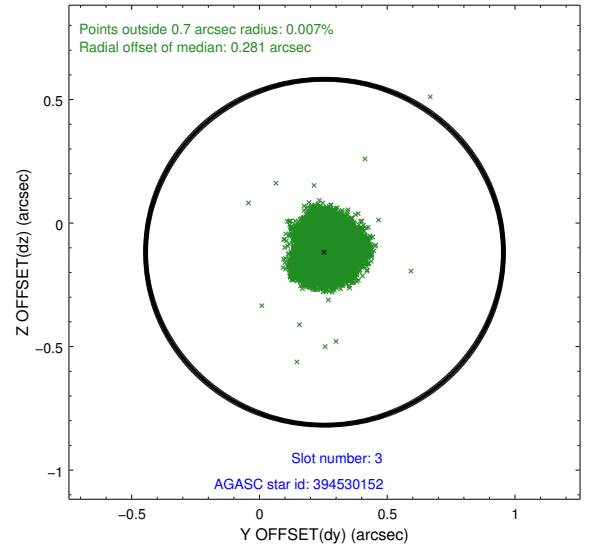
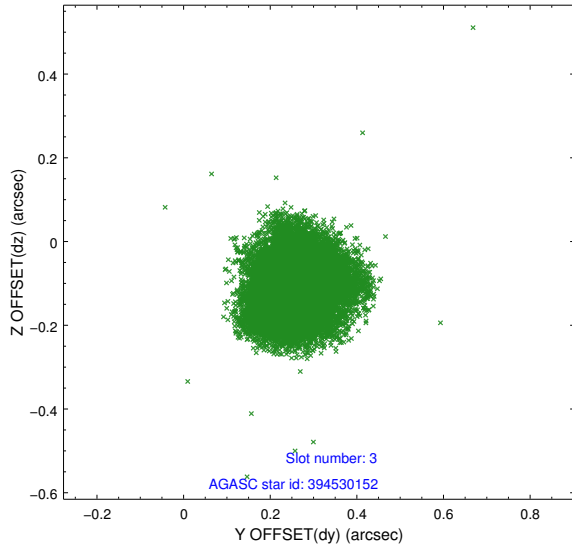


Slot Statistics

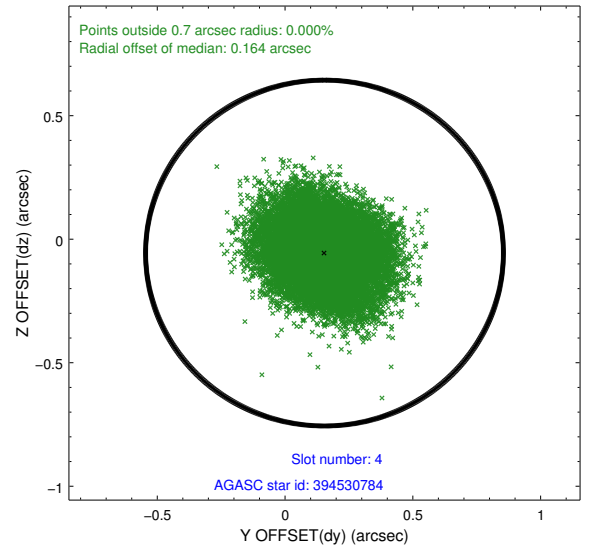
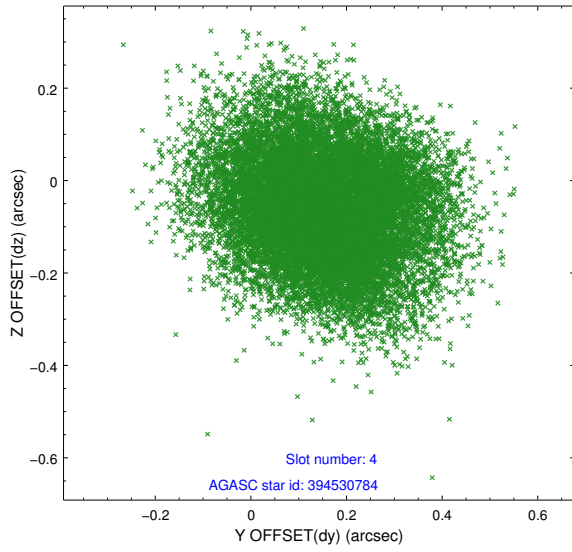
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.03	7498	0.181	0.066	0.006	0.011	0.000000	0.000000	927.94	-1958.59
1	FID	ACIS-S-5	7.08	7498	-0.200	0.178	0.006	0.010	0.000000	0.000000	-1821.31	-60.91
2	FID	ACIS-S-6	7.24	7497	-0.003	-0.233	0.007	0.011	0.000000	0.000000	393.36	582.61
3	GUIDE	394530152	7.50	14993	0.255	-0.118	0.091	0.143	166.075805	38.868252	-270.10	-2280.60
4	GUIDE	394530784	10.16	14887	0.154	-0.056	0.180	0.282	165.569172	38.418674	1485.22	-1028.77
5	GUIDE	394531368	9.97	14958	-0.193	0.111	0.176	0.271	165.794613	38.837127	522.83	-2349.72
6	GUIDE	394543960	9.76	14960	0.009	-0.061	0.166	0.264	165.802757	37.787371	1361.26	1335.11
7	GUIDE	394546712	6.62	14995	-0.219	0.116	0.101	0.155	166.451462	38.394357	-919.38	-381.73

2.4 Star Slots

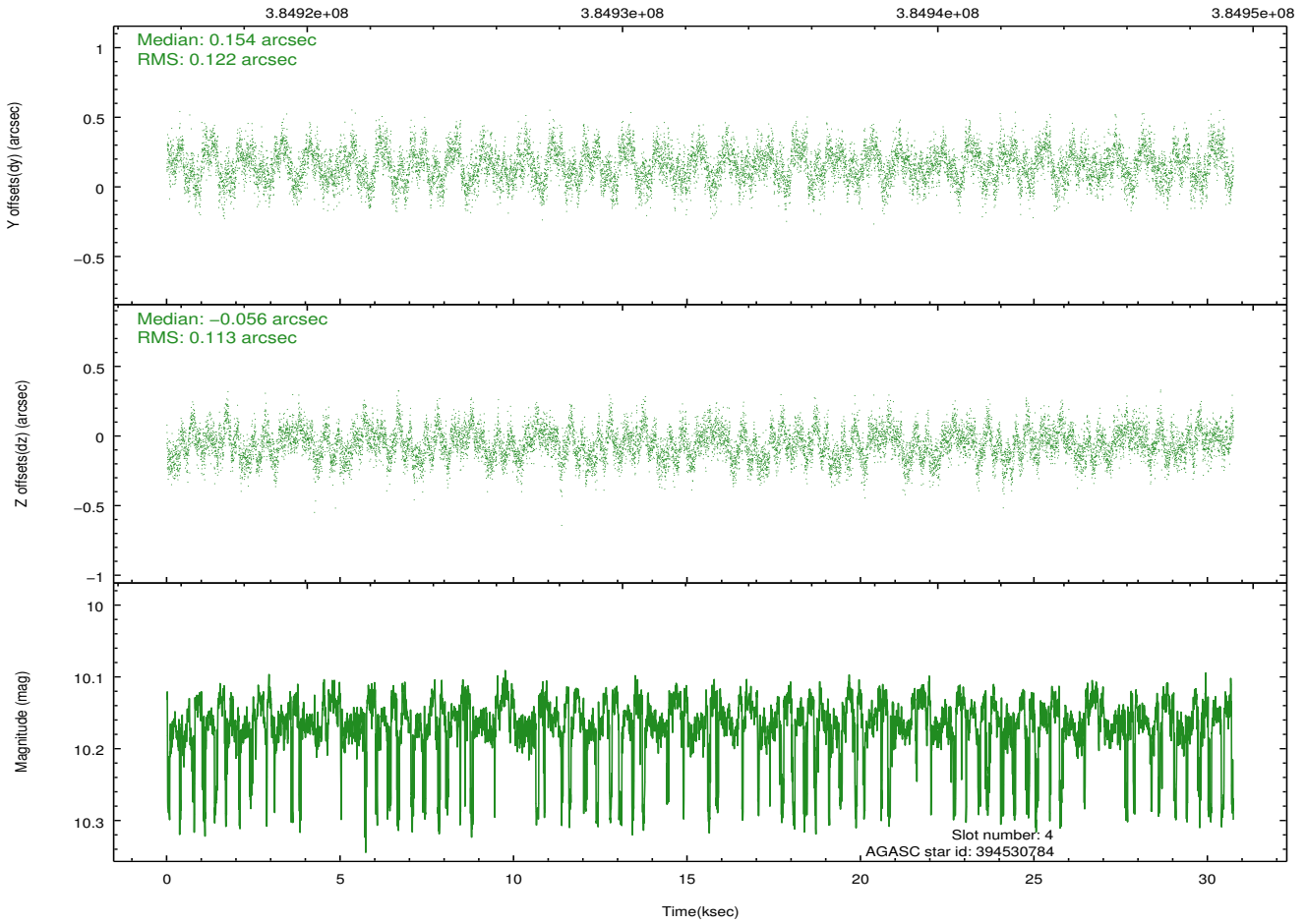
2.4.1 Slot 3



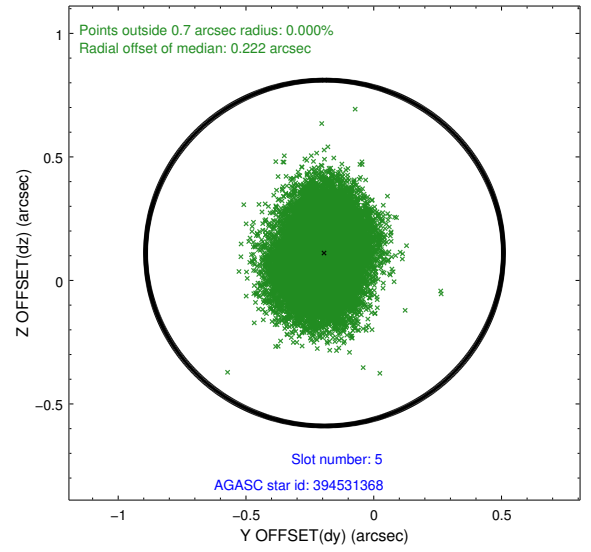
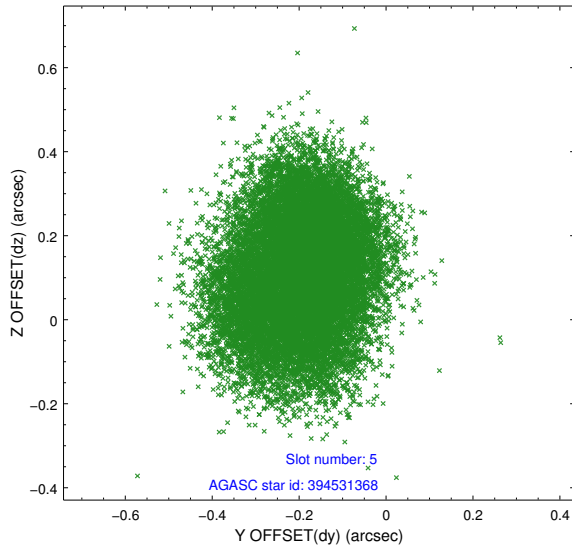
2.4.2 Slot 4



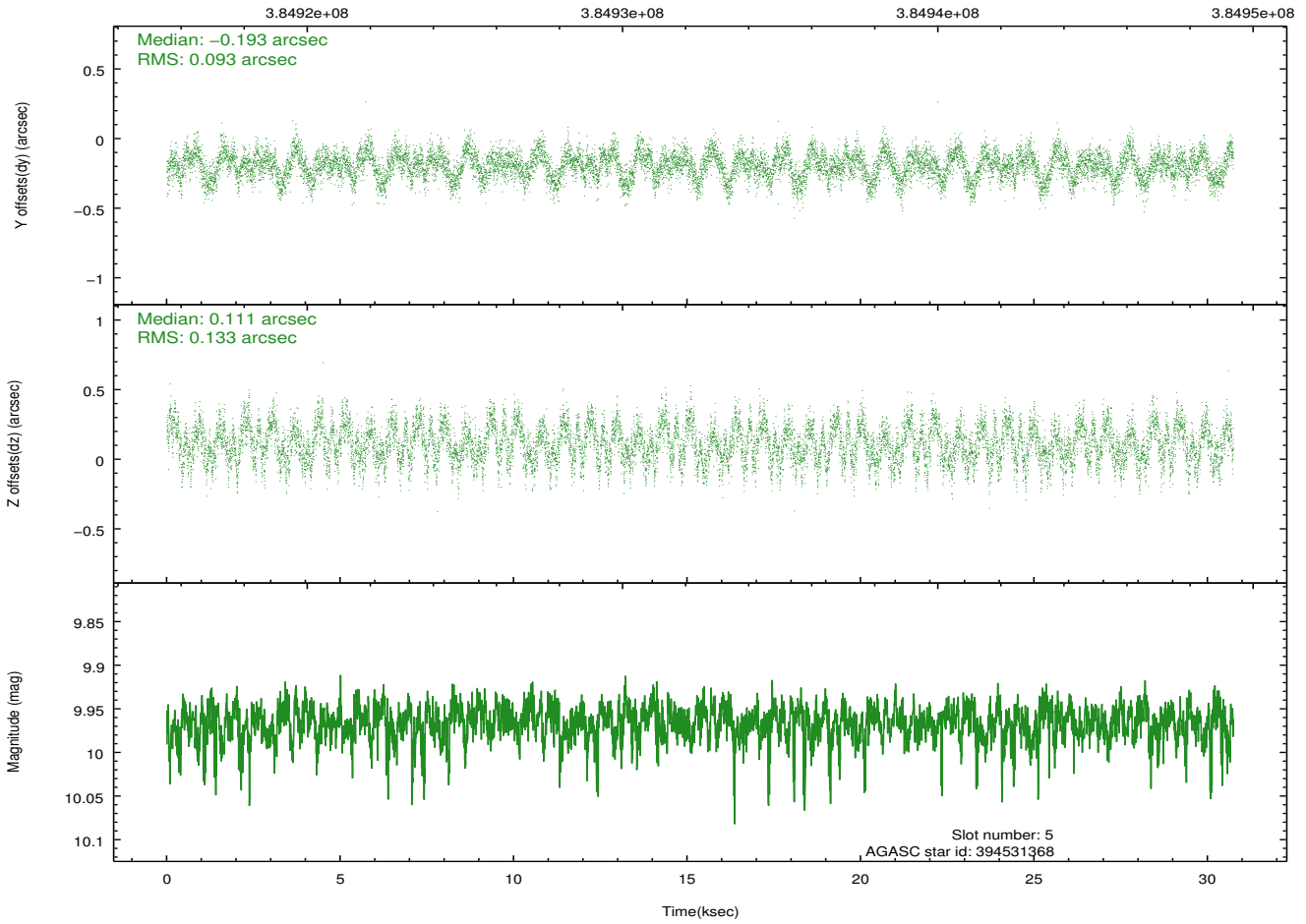
Time (s)



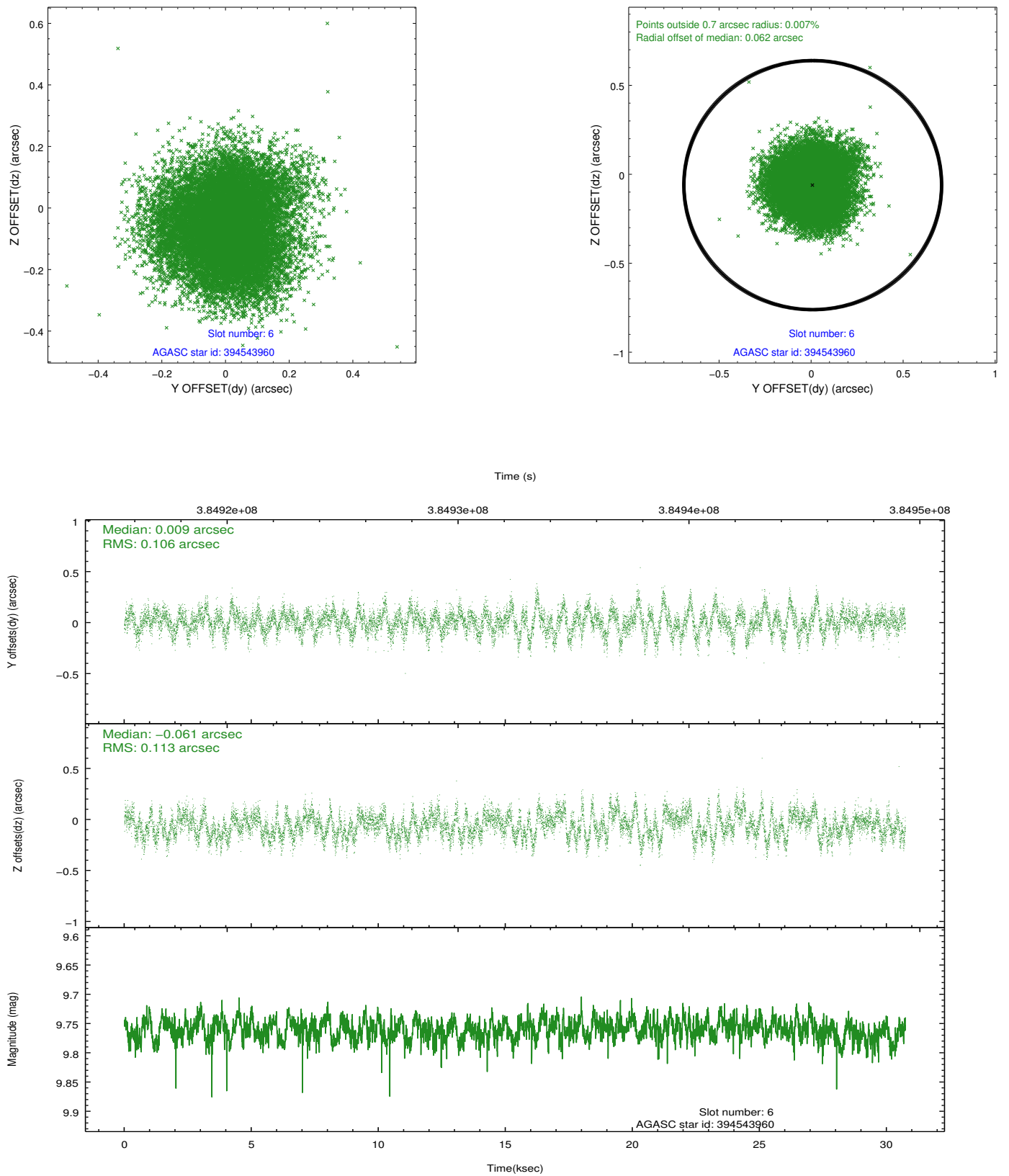
2.4.3 Slot 5



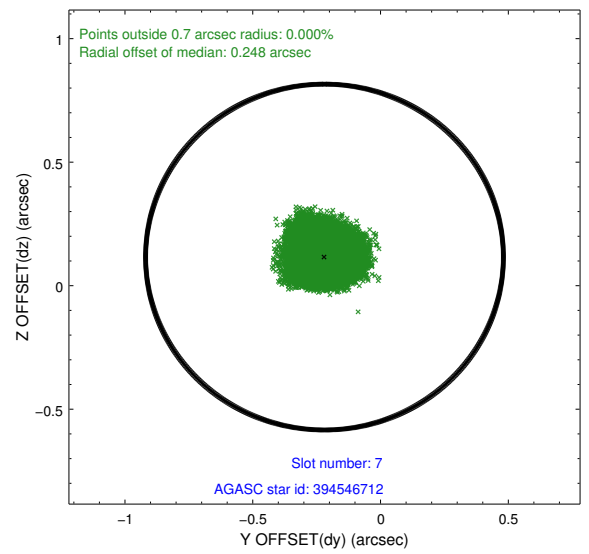
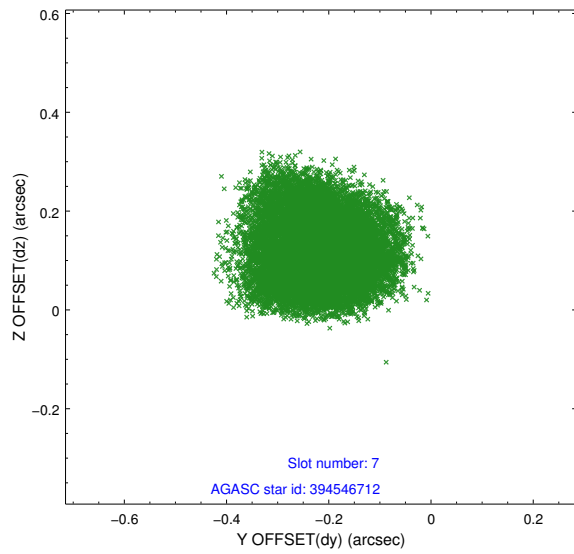
Time (s)



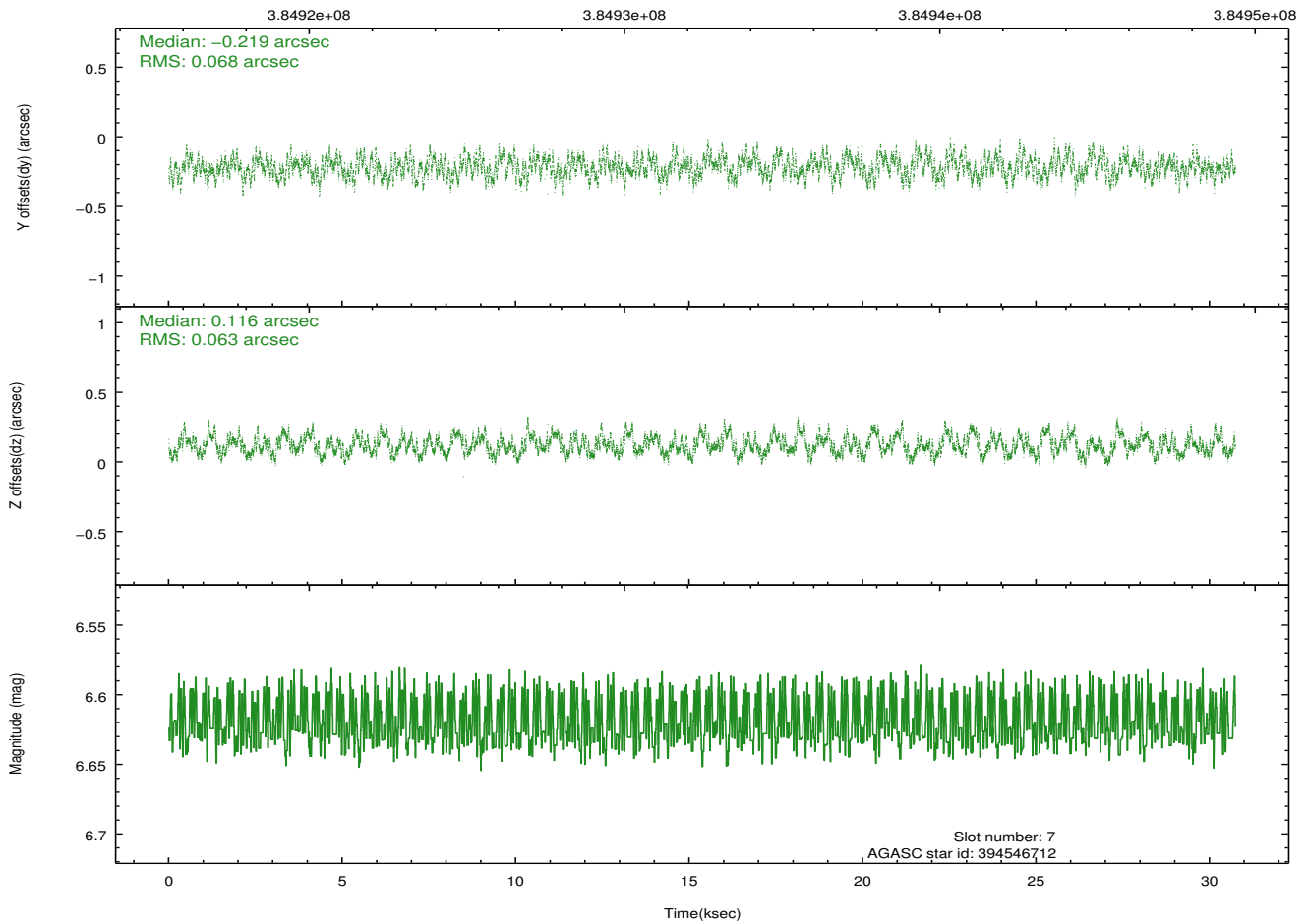
2.4.4 Slot 6



2.4.5 Slot 7

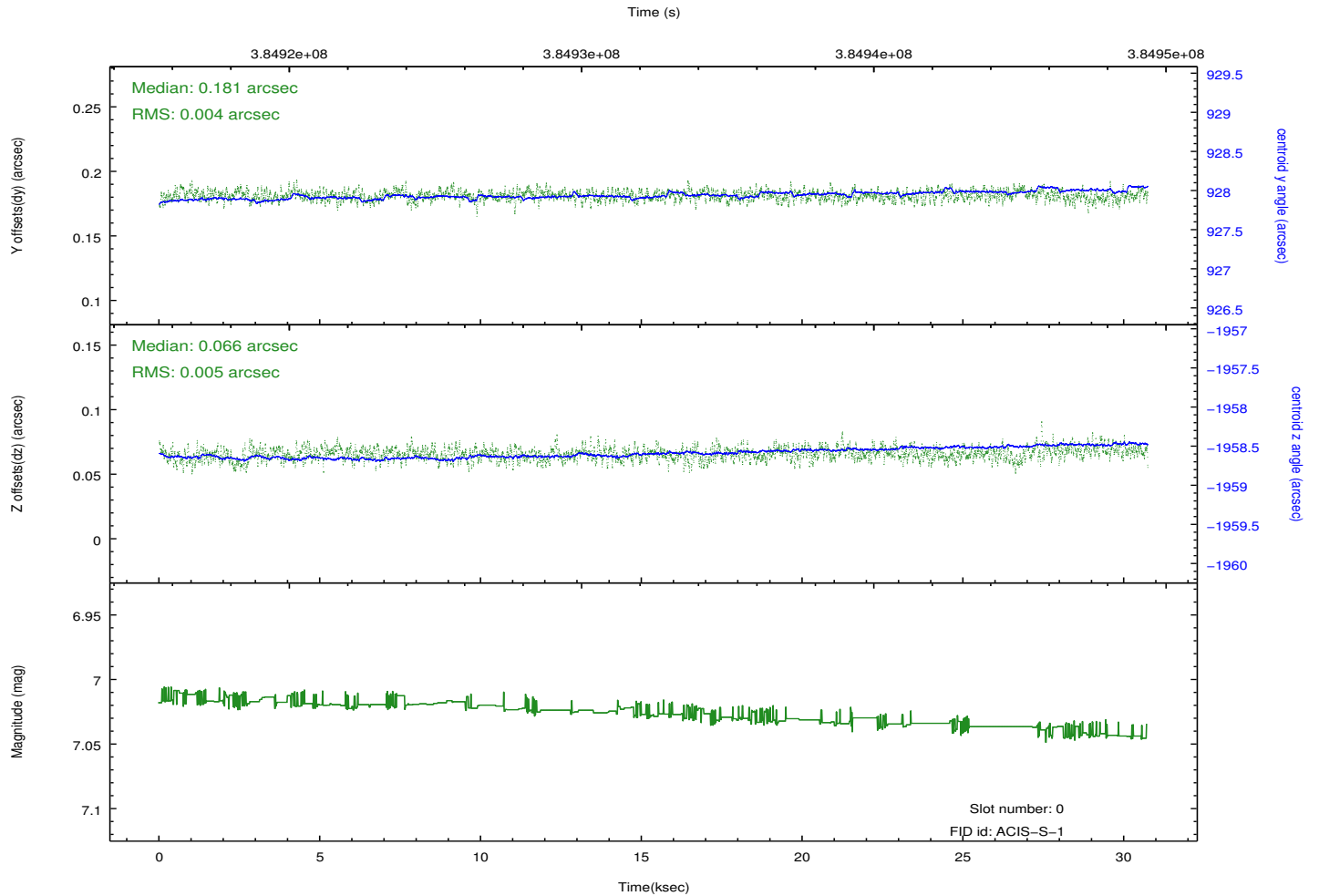
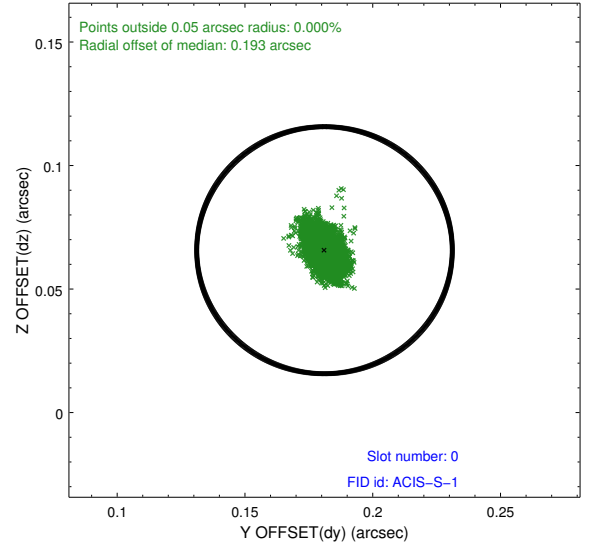
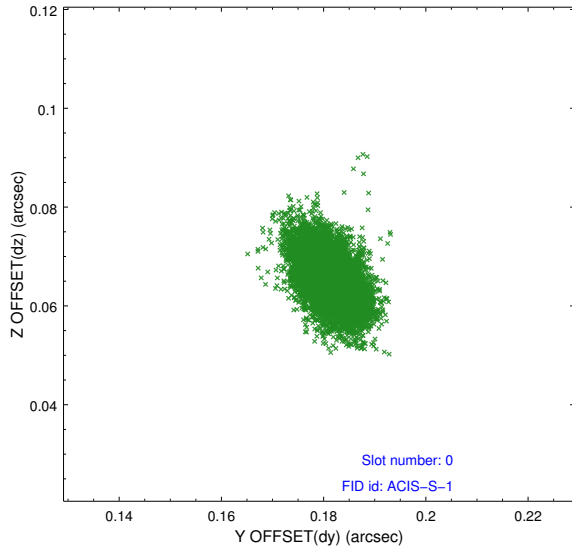


Time (s)

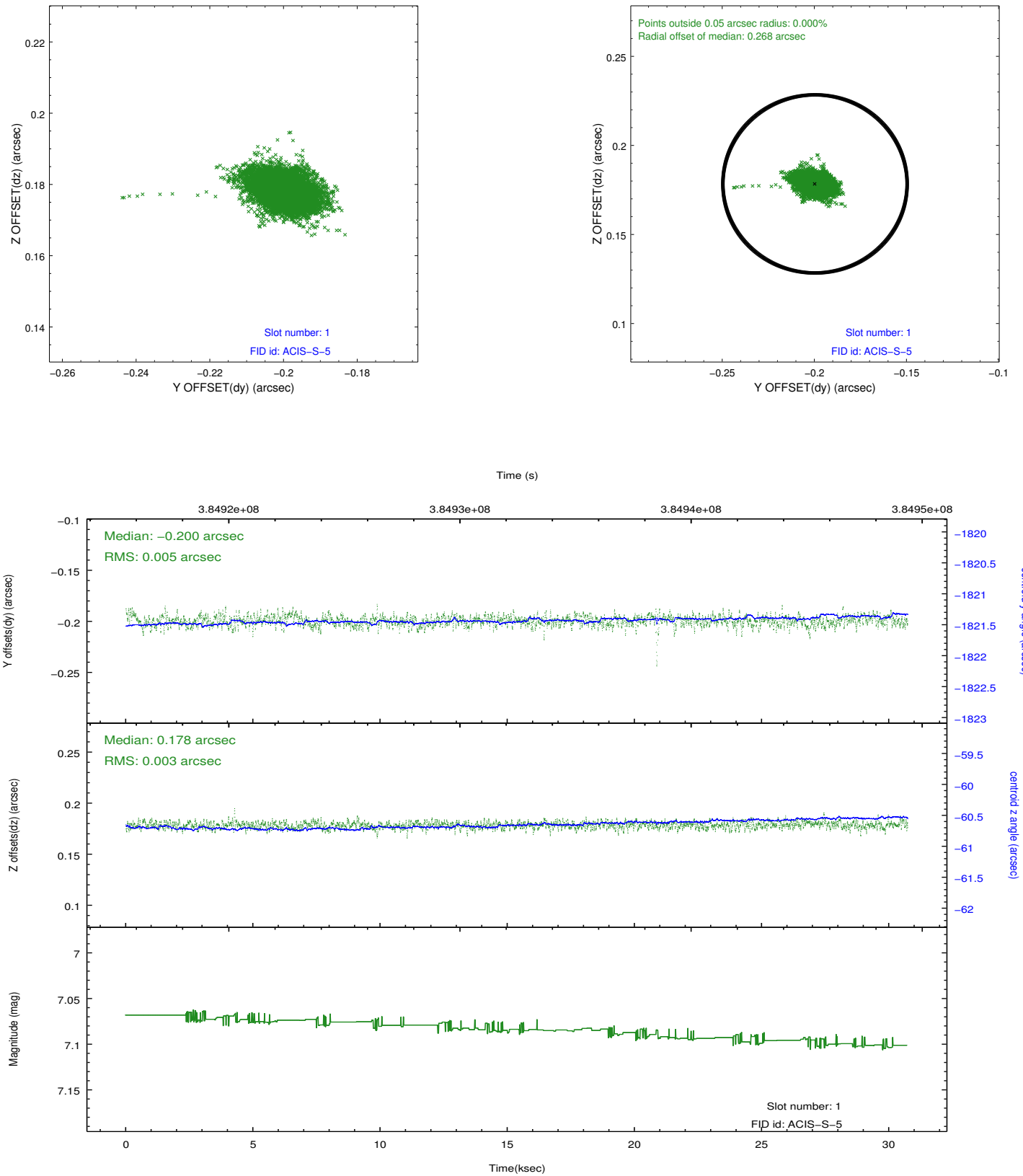


2.5 FID Slots

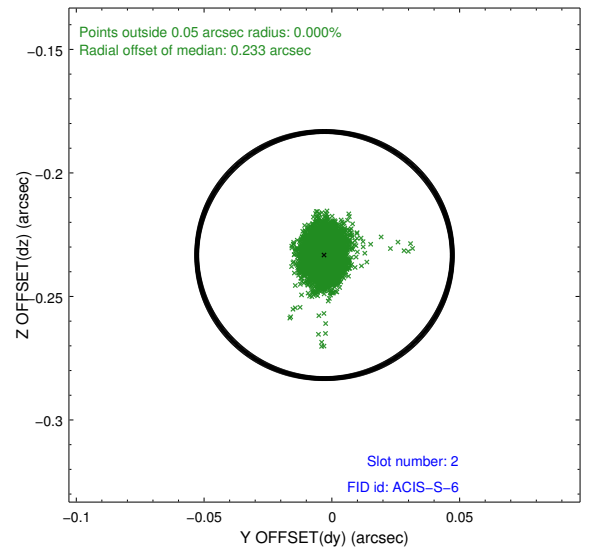
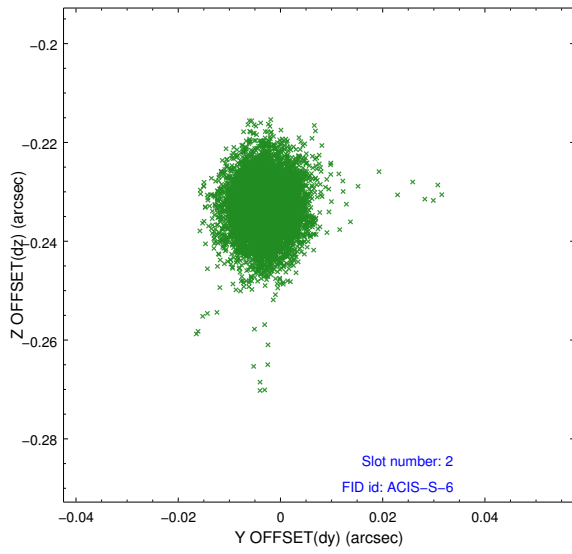
2.5.1 Slot 0



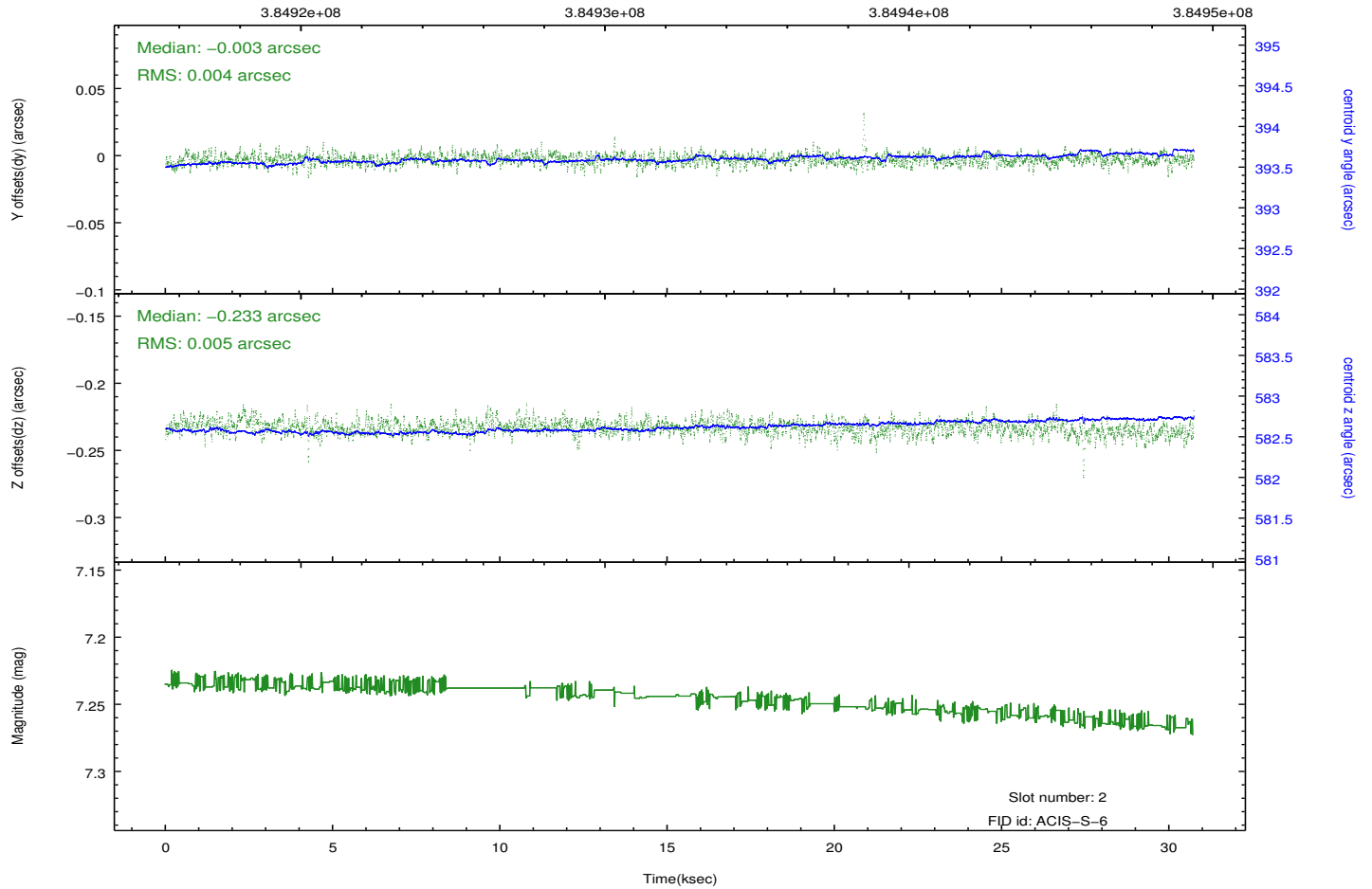
2.5.2 Slot 1



2.5.3 Slot 2



Time (s)

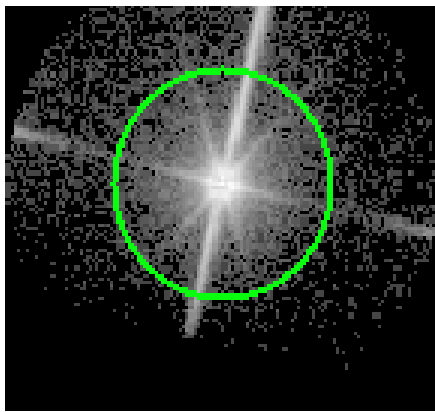


3 Gratings

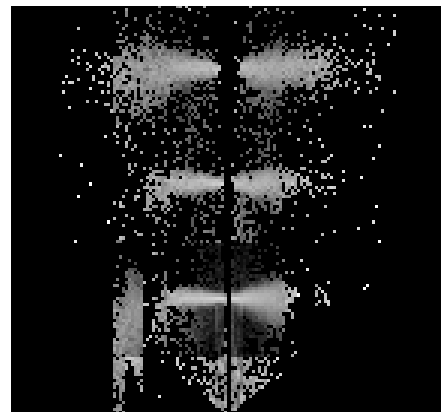
3.1 LETG Arm



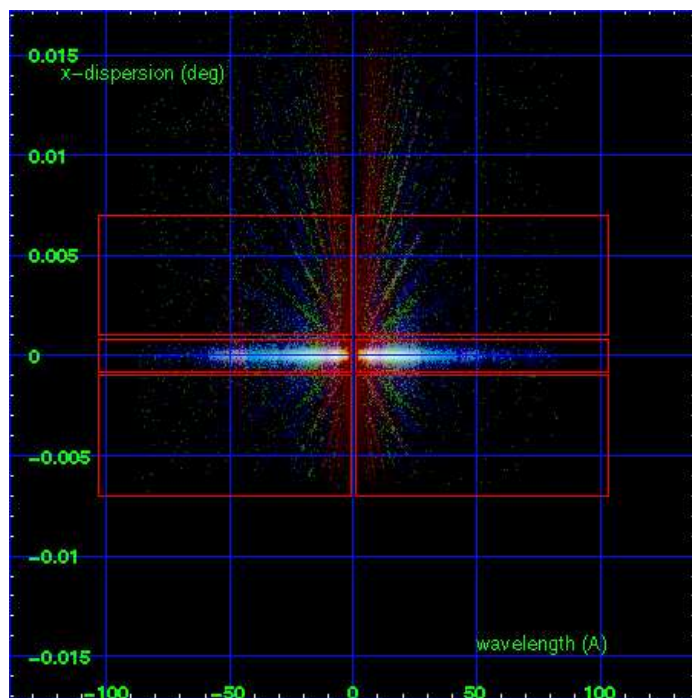
LETG Order Sort 123



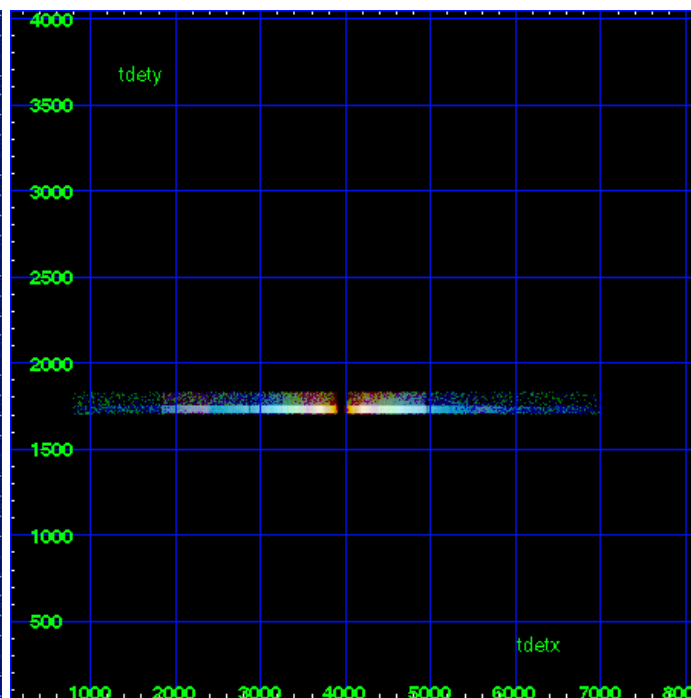
LETG Zero Order



LETG Order Sort ALL

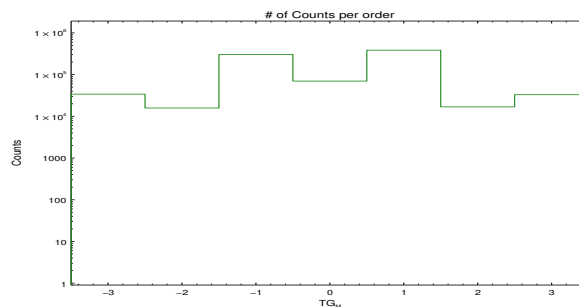


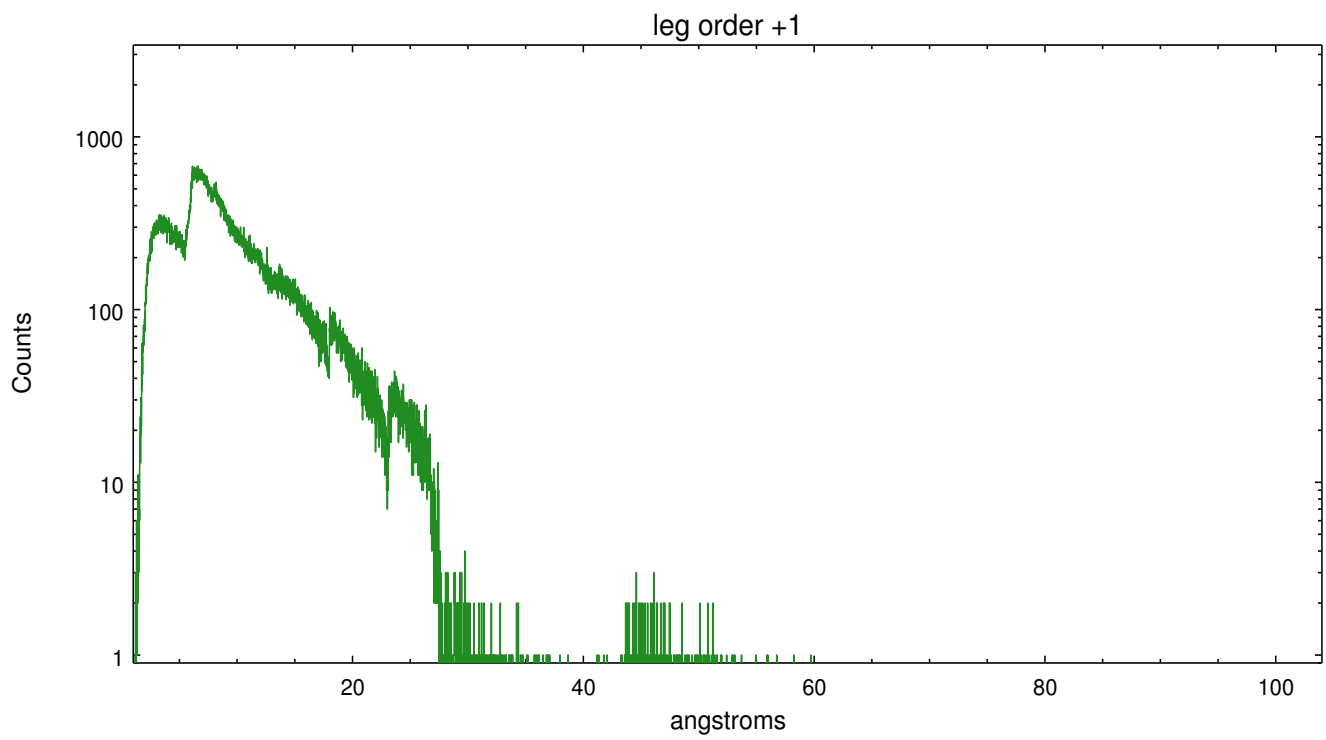
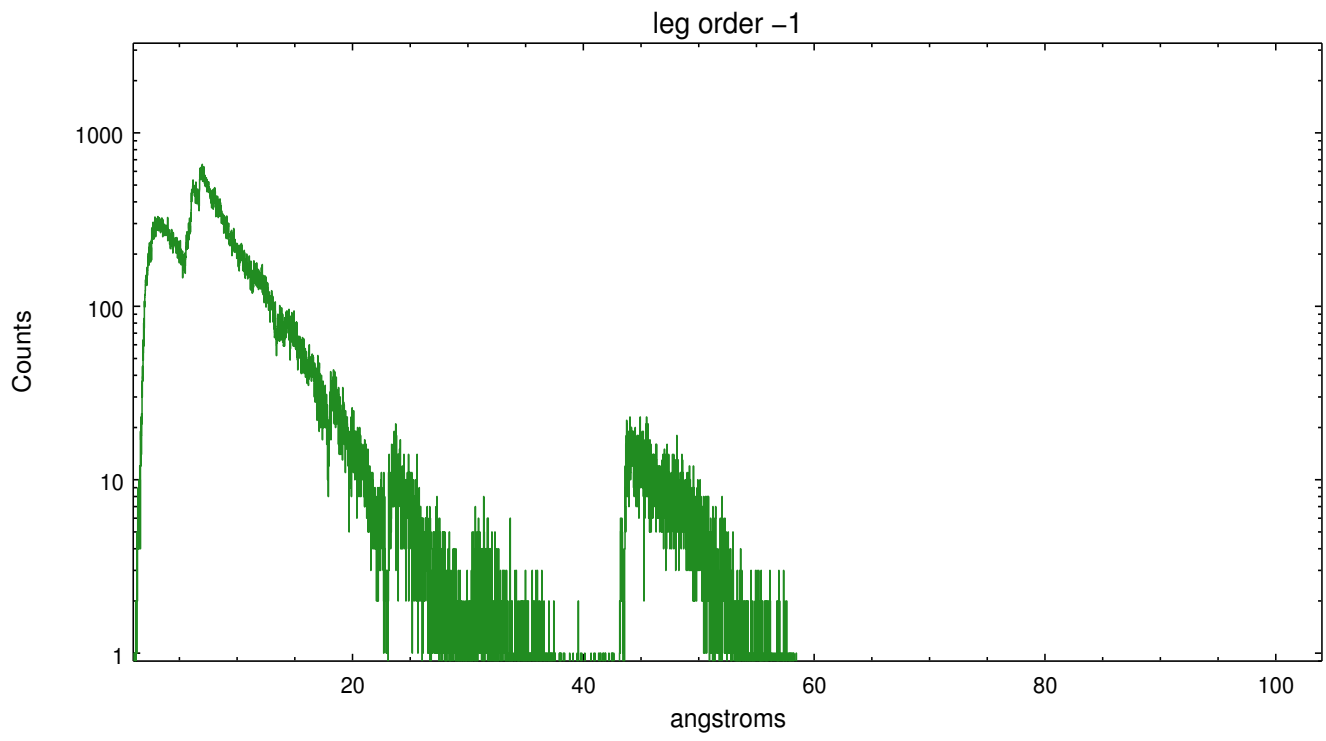
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	33999	15822	303481	69955	385104	16834	33030





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	30.064801194668

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=4239.51, y=4051.07) 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.