

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 11606 - L2 Version 3
Chandra X-Ray Center

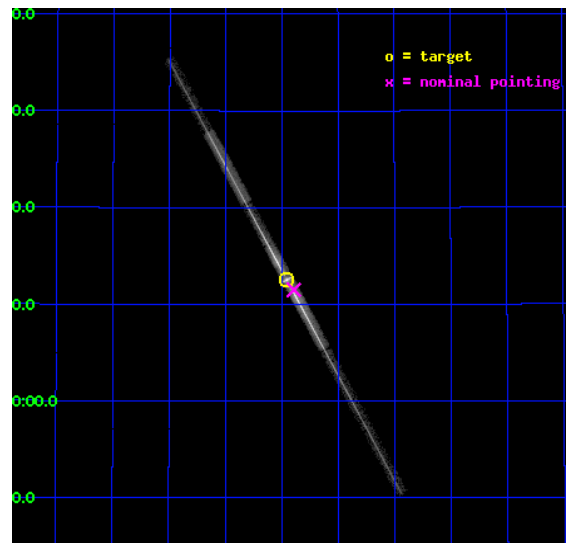
L2 Processing Date : Jun 18 2012

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1 Front

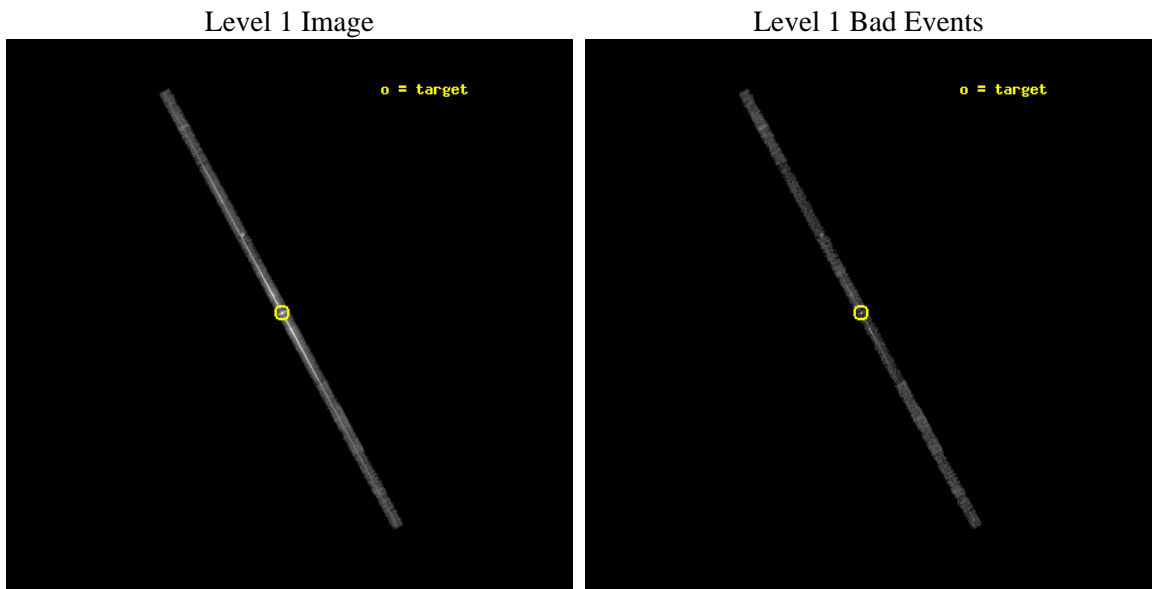
seq_num	702192	Sequence number
obs_id	11606	Observation id
title	A Joint Chandra, Fermi, MAGIC, and VERITAS Broadband Study of One High-Energy Blazar in A Major Outburst	Proposal title
observer	Prof Alexander Konopelko	Principal investigator
object	Mrk 421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.11375	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.09814284789	Nominal RA [deg]
dec_nom	38.191756149844	Nominal Dec [deg]
roll_nom	61.480263771044	Nominal Roll [deg]
revision	3	Processing version of data
ontime	5244.3999106288	Sum of GTIs [s]
livetime	4953.9565171113	Livetime [s]
ontime4	5244.3999106288	Sum of GTIs [s]
ontime5	5244.3999106288	Sum of GTIs [s]
ontime6	5244.3999106288	Sum of GTIs [s]
ontime7	5244.3999106288	Sum of GTIs [s]
ontime8	5244.3999106288	Sum of GTIs [s]
ontime9	5244.3999106288	Sum of GTIs [s]
l2events	191079	Number of level 2 events



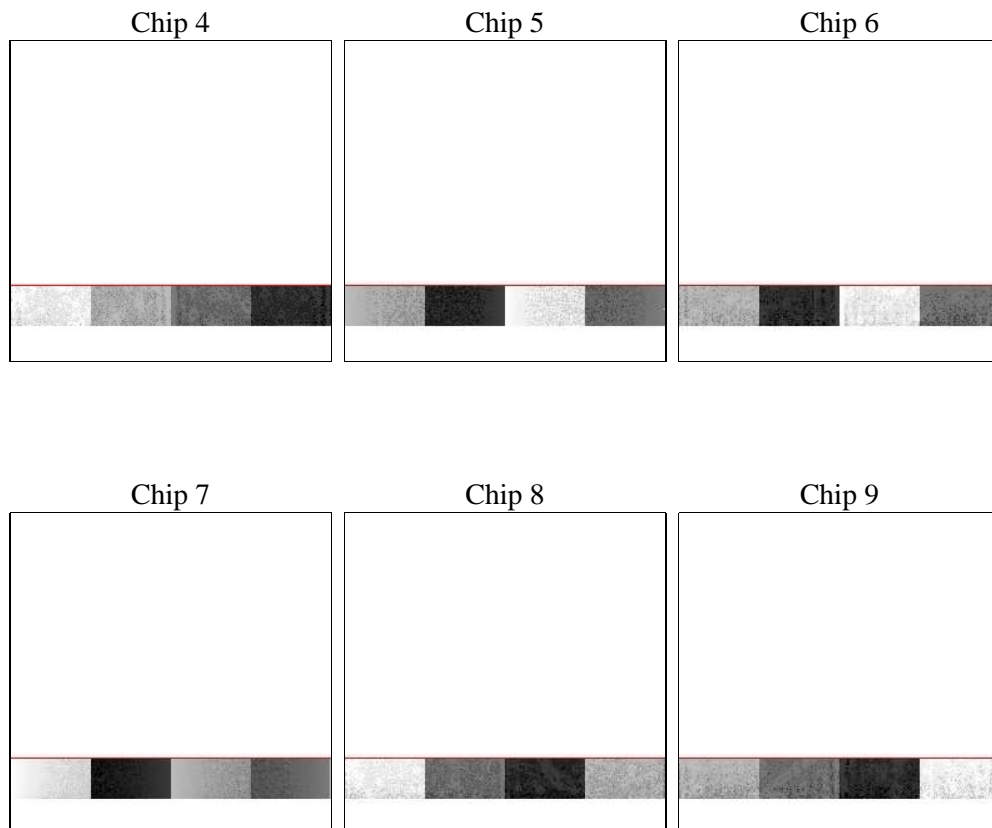
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	5000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	5244.3999106288	Sum of GTIs [s]
caldsver	4.4.10	 	ontime4	5244.3999106288	Sum of GTIs [s]
date	2012-06-16T16:51:33	Date and time of file creation	ontime5	5244.3999106288	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	5244.3999106288	Sum of GTIs [s]
			ontime7	5244.3999106288	Sum of GTIs [s]
			ontime8	5244.3999106288	Sum of GTIs [s]
			ontime9	5244.3999106288	Sum of GTIs [s]
			l1events	242993	Number of level 1 events

2.1.4 Events

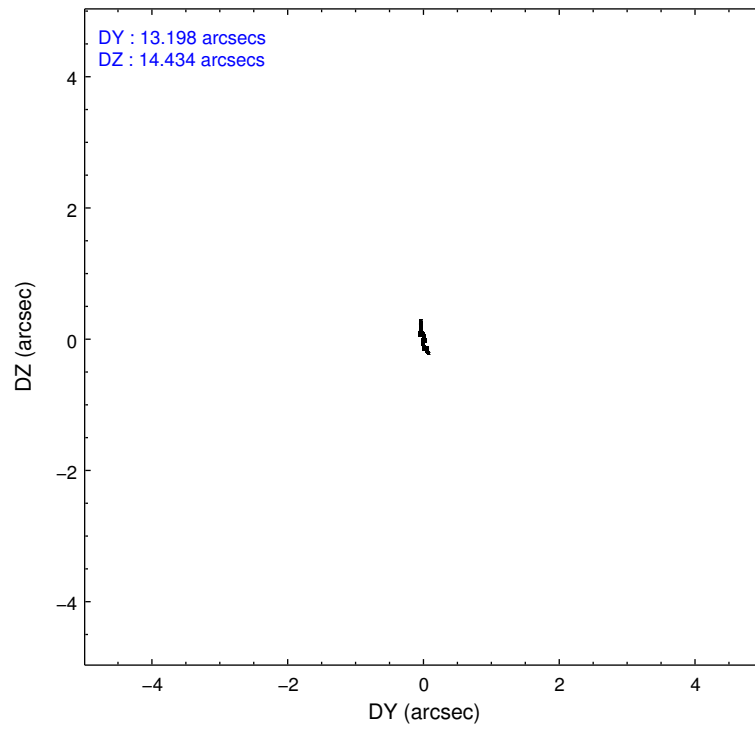
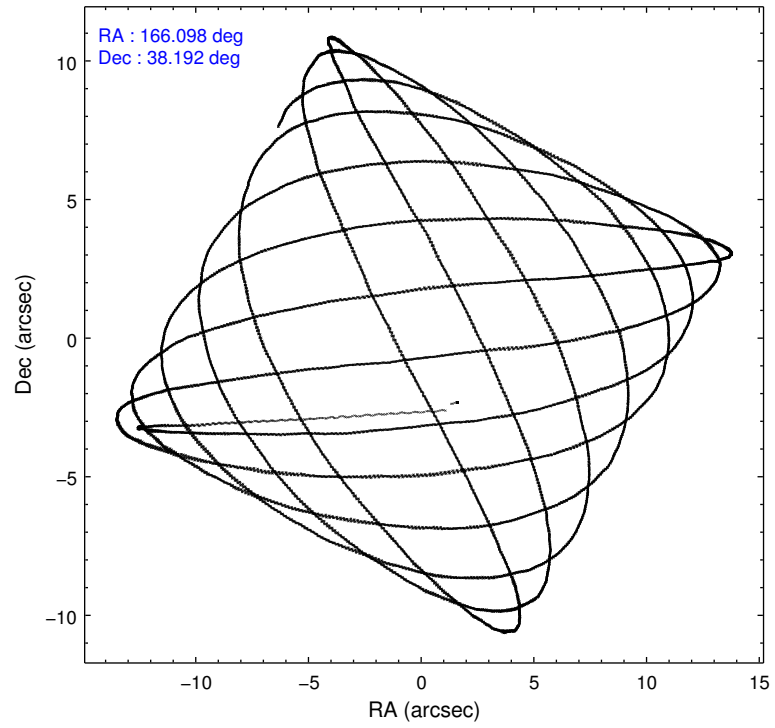
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	10262	21652	71879	114107	16300	8793
rejected events	7591	4422	7647	10008	8387	6044
rejected %	73%	20%	10%	8%	51%	68%

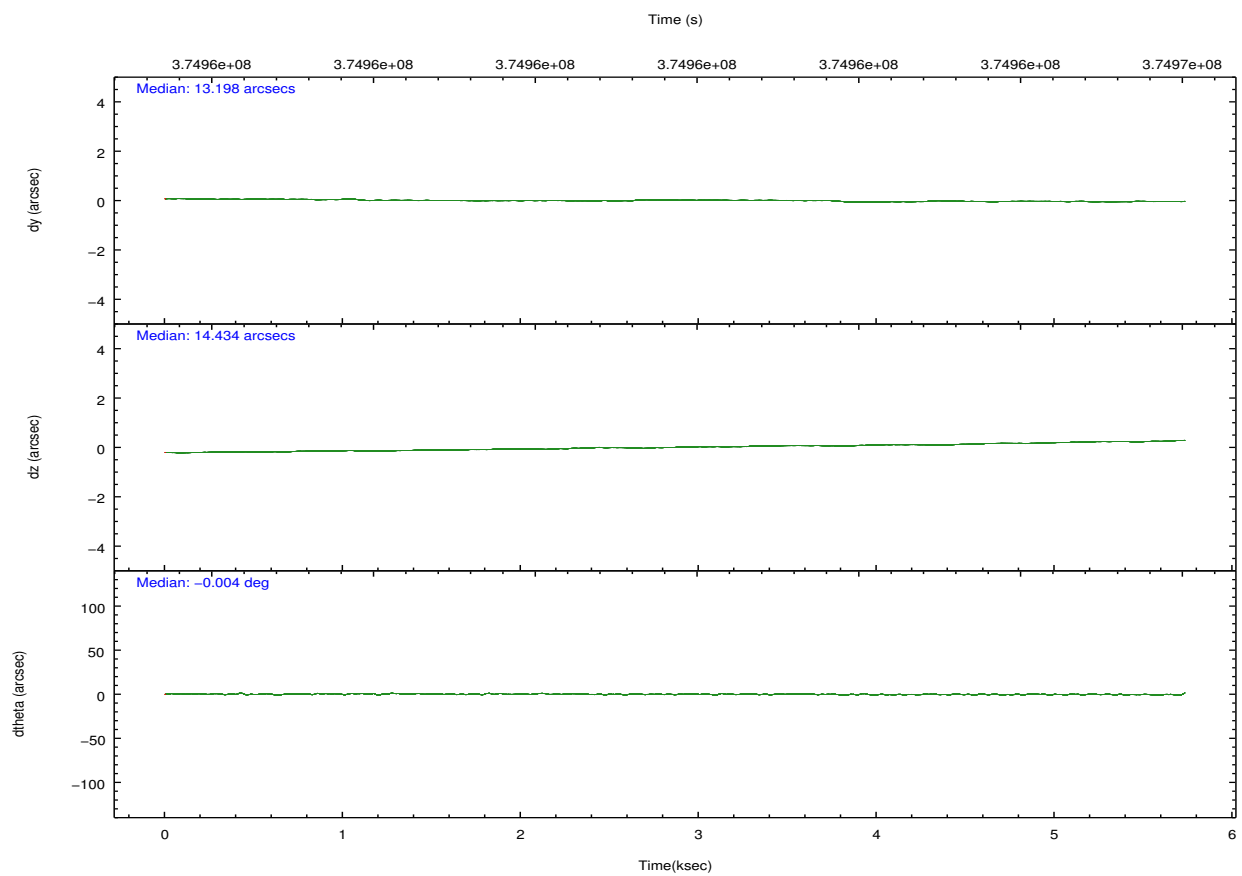
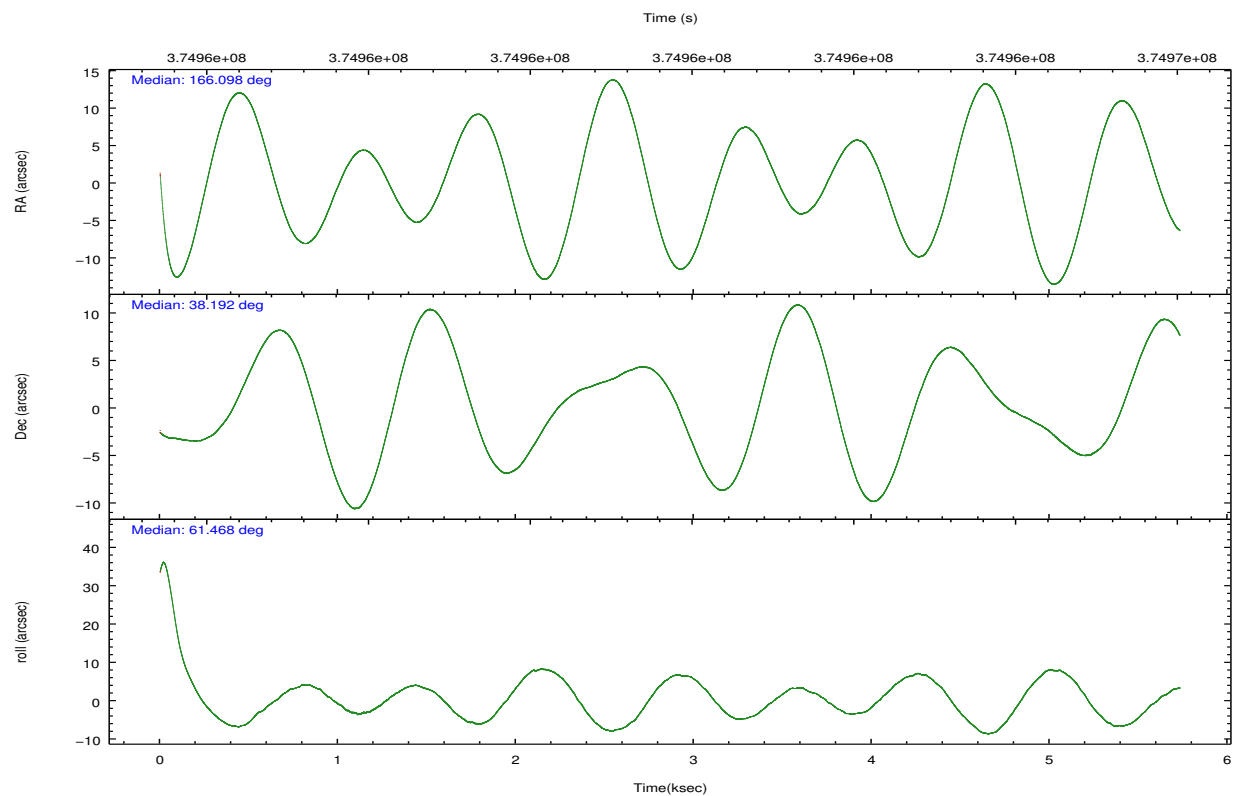
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	1781	8271	51237	28199	5185	1871
	17%	38%	71%	24%	31%	21%
grade 1 events	6	277	413	500	16	5
	0%	1%	0%	0%	0%	0%
grade 2 events	357	3500	6589	26831	969	342
	3%	16%	9%	23%	5%	3%
grade 3 events	193	1291	2313	12355	448	186
	1%	5%	3%	10%	2%	2%
grade 4 events	189	1257	2271	11961	418	180
	1%	5%	3%	10%	2%	2%
grade 5 events	210	883	547	2675	355	242
	2%	4%	0%	2%	2%	2%
grade 6 events	151	2916	1837	24777	895	171
	1%	13%	2%	21%	5%	1%
grade 7 events	7375	3257	6672	6809	8014	5796
	71%	15%	9%	5%	49%	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	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	166.099514	166.0981428478933	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	38.164386	38.19175614984363	Subarray start row	113	113
[deg] Pointing Roll	61.322711	61.48026377104438	Subarray row count	128	128
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	0.7
[mm] SIM translation stage pos	-182.132523	-182.1344861297048			
[mm] SIM translation stage offset	-8	-7.998036453302973			
[s] Observation start time (MET)	374960556.184000	374959073.56079			
Observation start date	2009-11-18T19:41:30	2009-11-18T19:17:53			
[s] Observation end time (MET)	374965556.184000	374966495.07366			
Observation end date	2009-11-18T21:04:50	2009-11-18T21:21:35			
Read mode	TIMED	TIMED			

2.3 Aspect



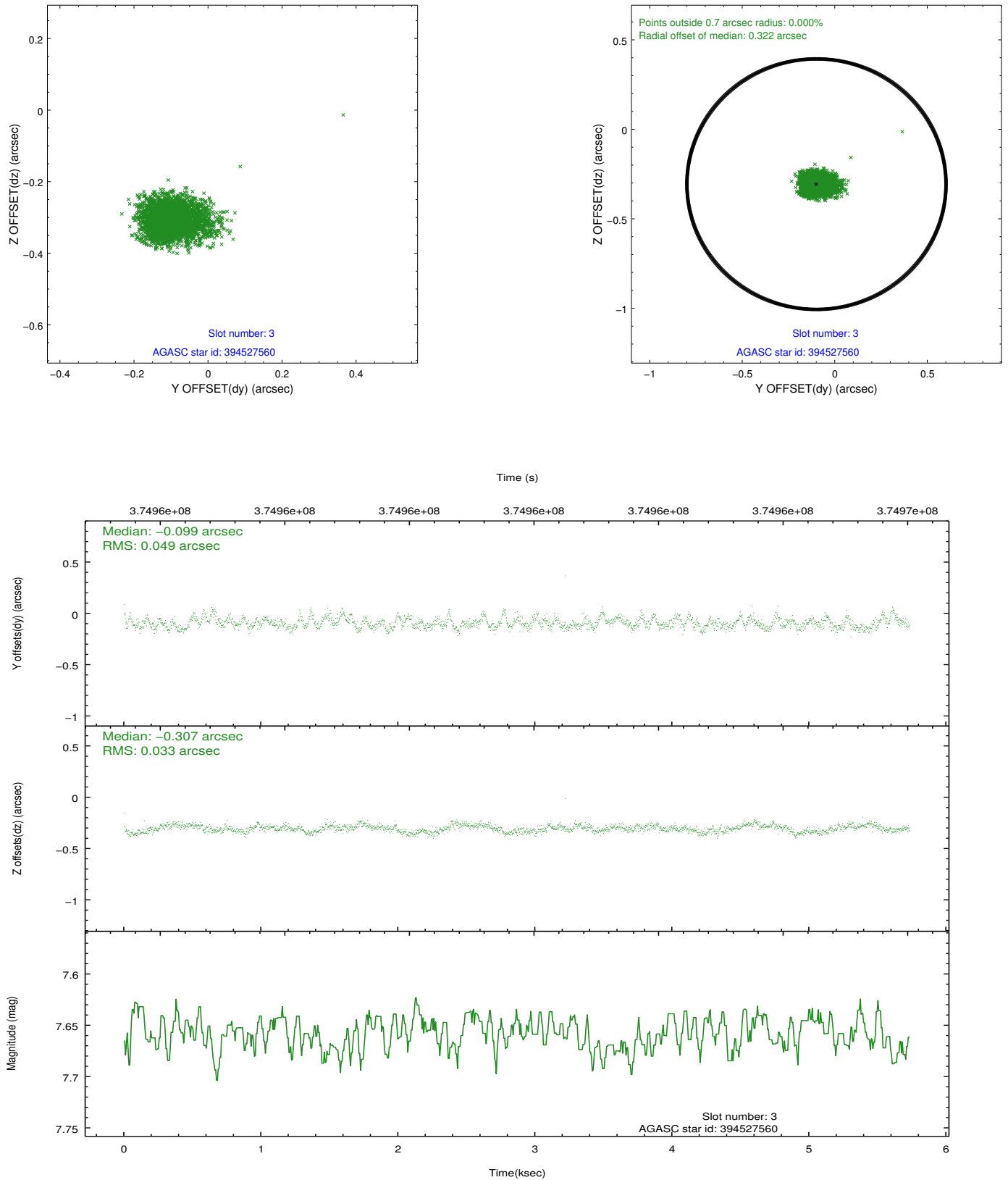


Slot Statistics

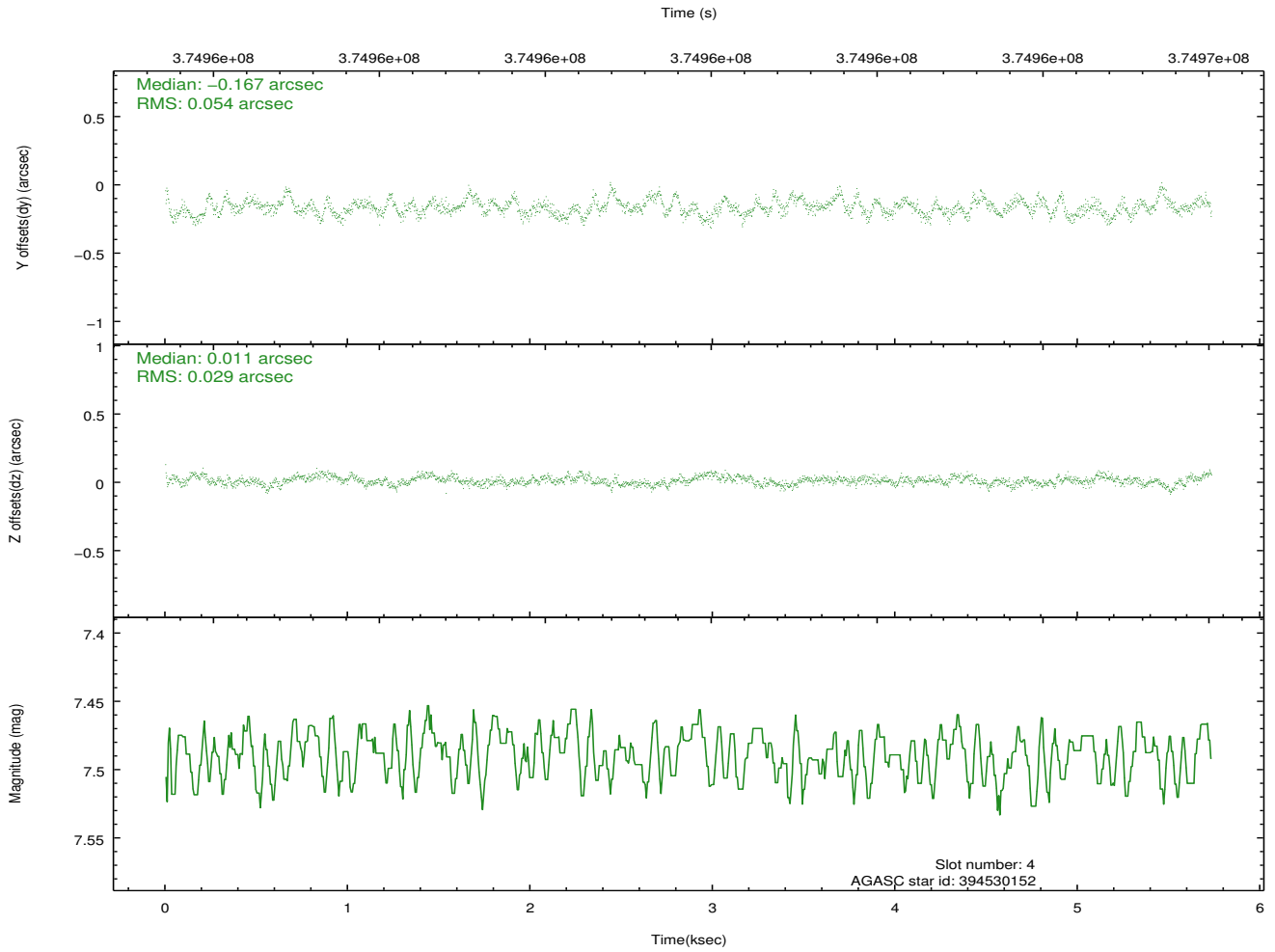
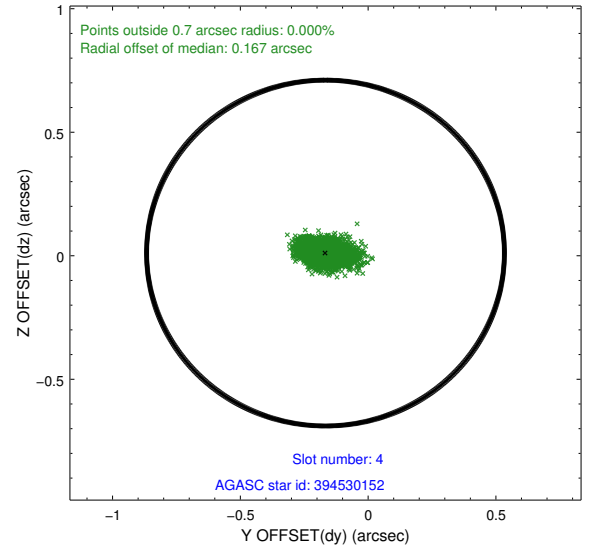
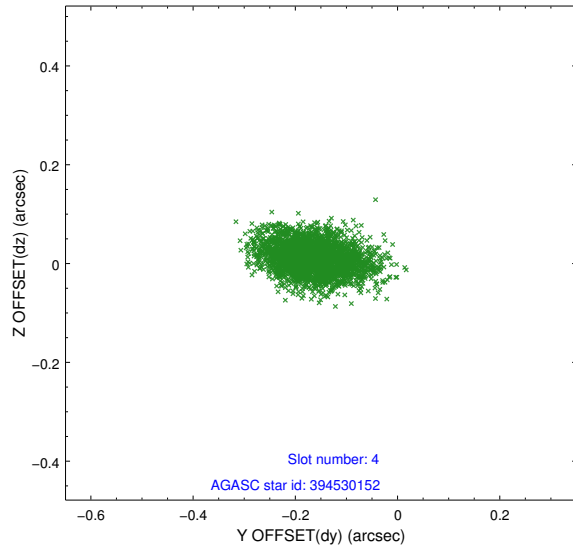
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.85	1399	-0.110	-0.063	0.005	0.009	0.000000	0.000000	-765.66	-1900.63
1	FID	ACIS-S-4	6.92	1398	0.112	0.066	0.006	0.010	0.000000	0.000000	2147.37	6.75
2	FID	ACIS-S-6	7.15	1399	-0.029	0.004	0.006	0.010	0.000000	0.000000	397.75	645.28
3	GUIDE	394527560	7.66	2797	-0.099	-0.307	0.061	0.102	165.970713	38.960939	2342.65	1692.48
4	GUIDE	394530152	7.49	2797	-0.167	0.011	0.063	0.111	166.075805	38.868252	2191.66	1275.08
5	GUIDE	394533848	8.71	2790	0.265	-0.001	0.066	0.104	166.382906	38.276007	738.07	-505.76
6	GUIDE	394546712	6.60	2797	0.140	0.035	0.049	0.083	166.451462	38.394357	1204.56	-472.67
7	GUIDE	394546720	6.39	2796	-0.150	0.261	0.075	0.135	166.130115	38.241361	284.96	56.89

2.4 Star Slots

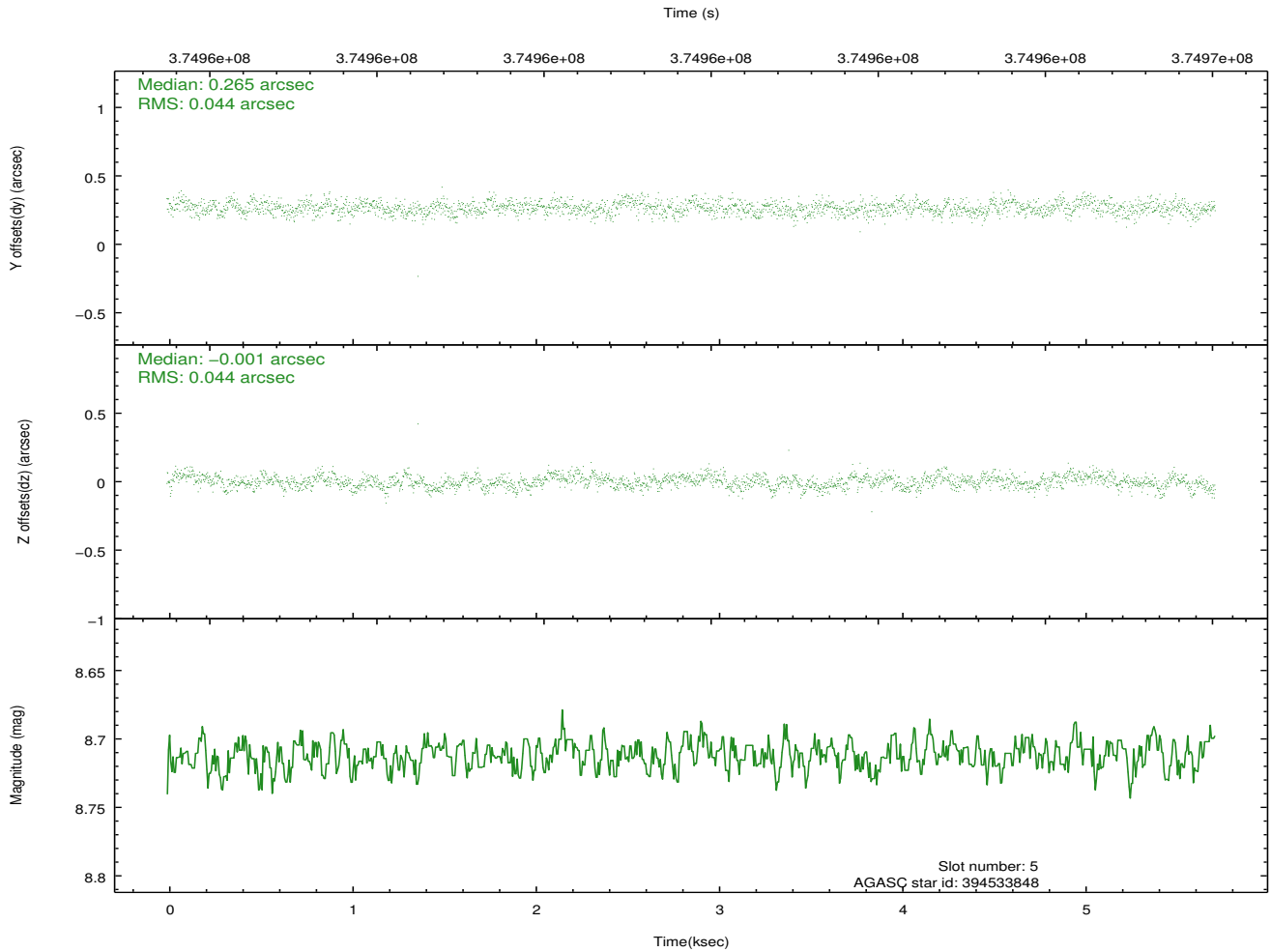
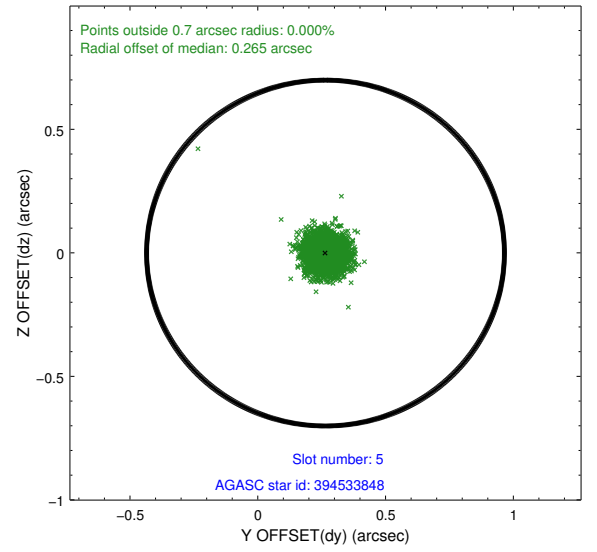
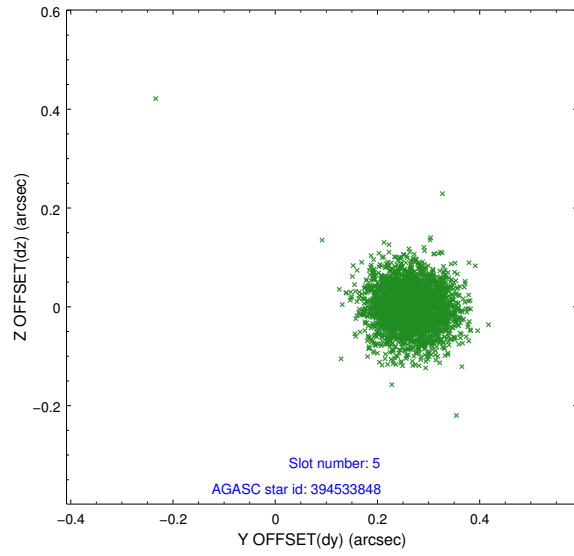
2.4.1 Slot 3



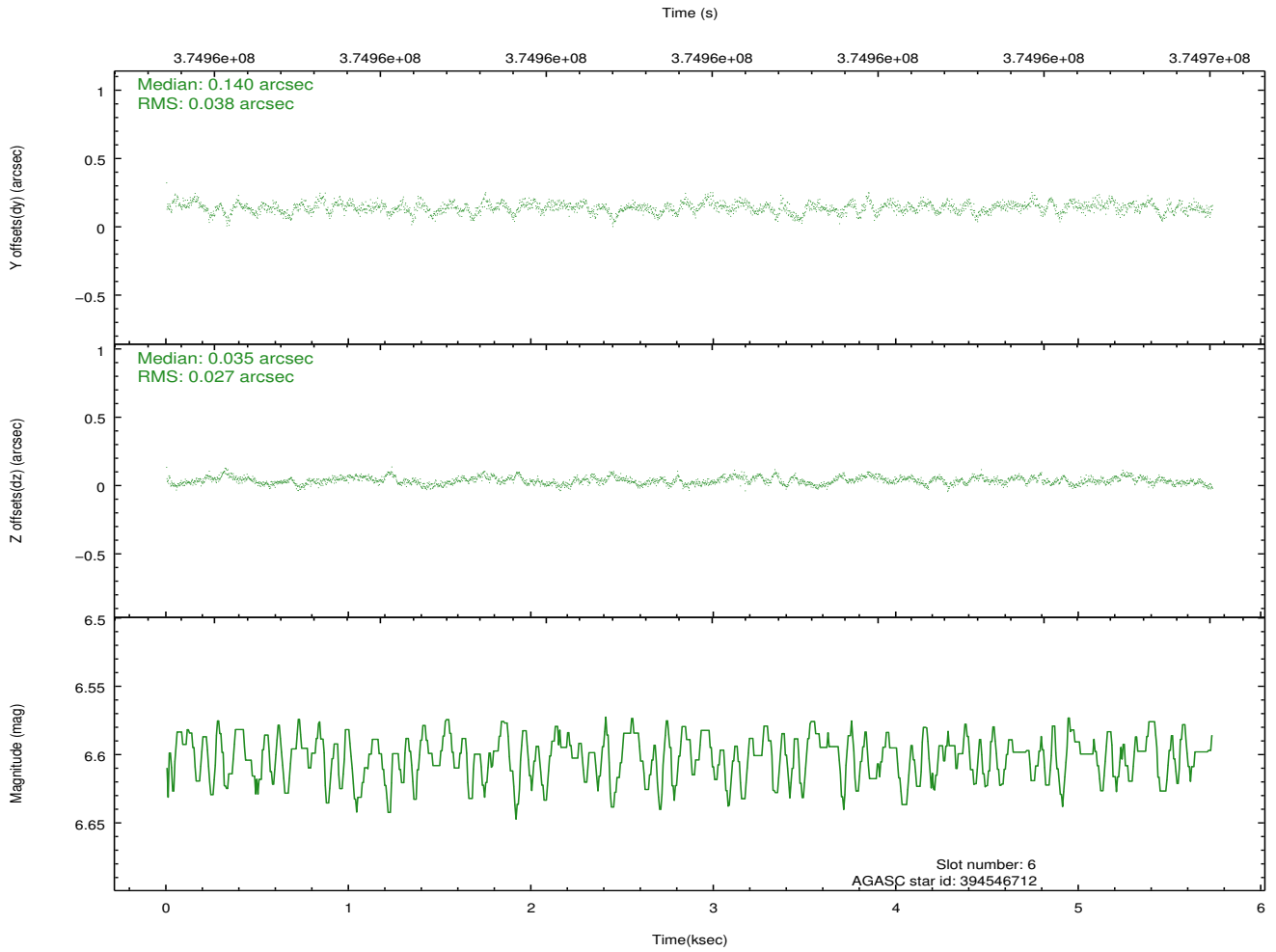
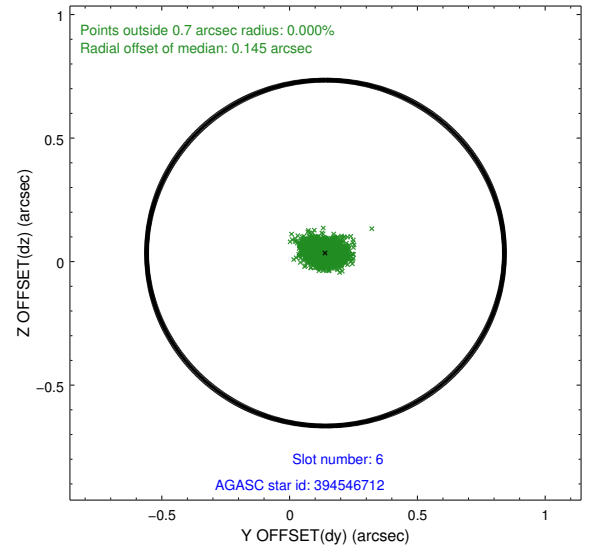
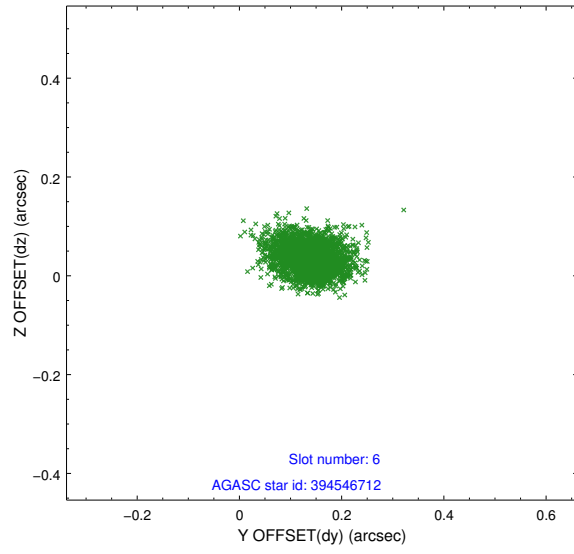
2.4.2 Slot 4



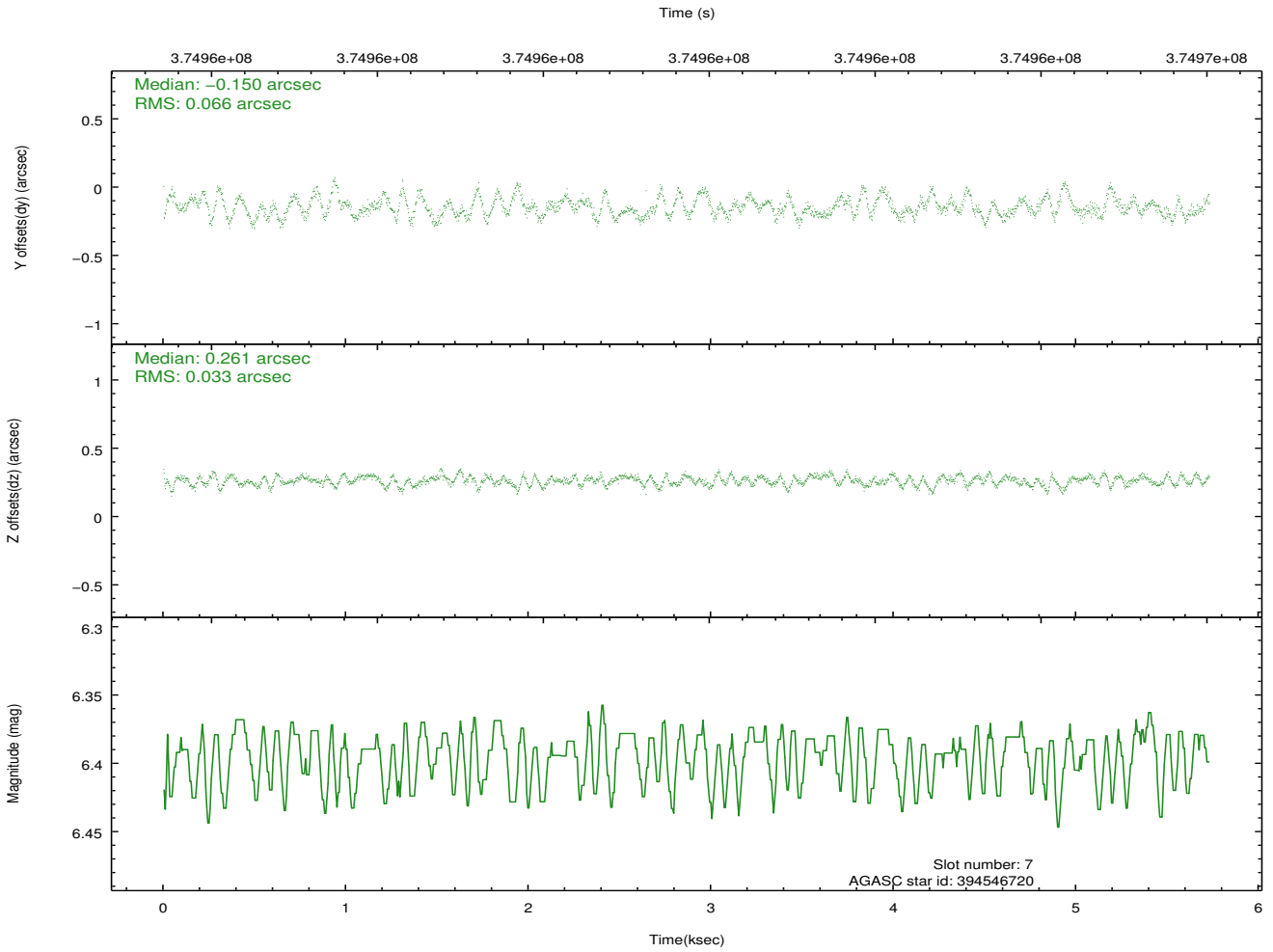
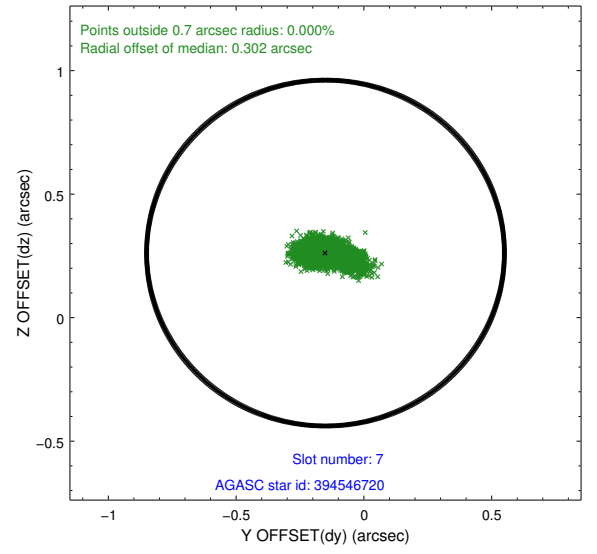
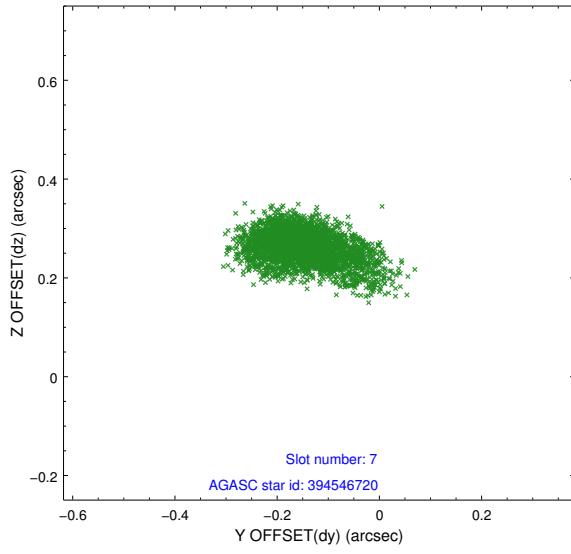
2.4.3 Slot 5



2.4.4 Slot 6

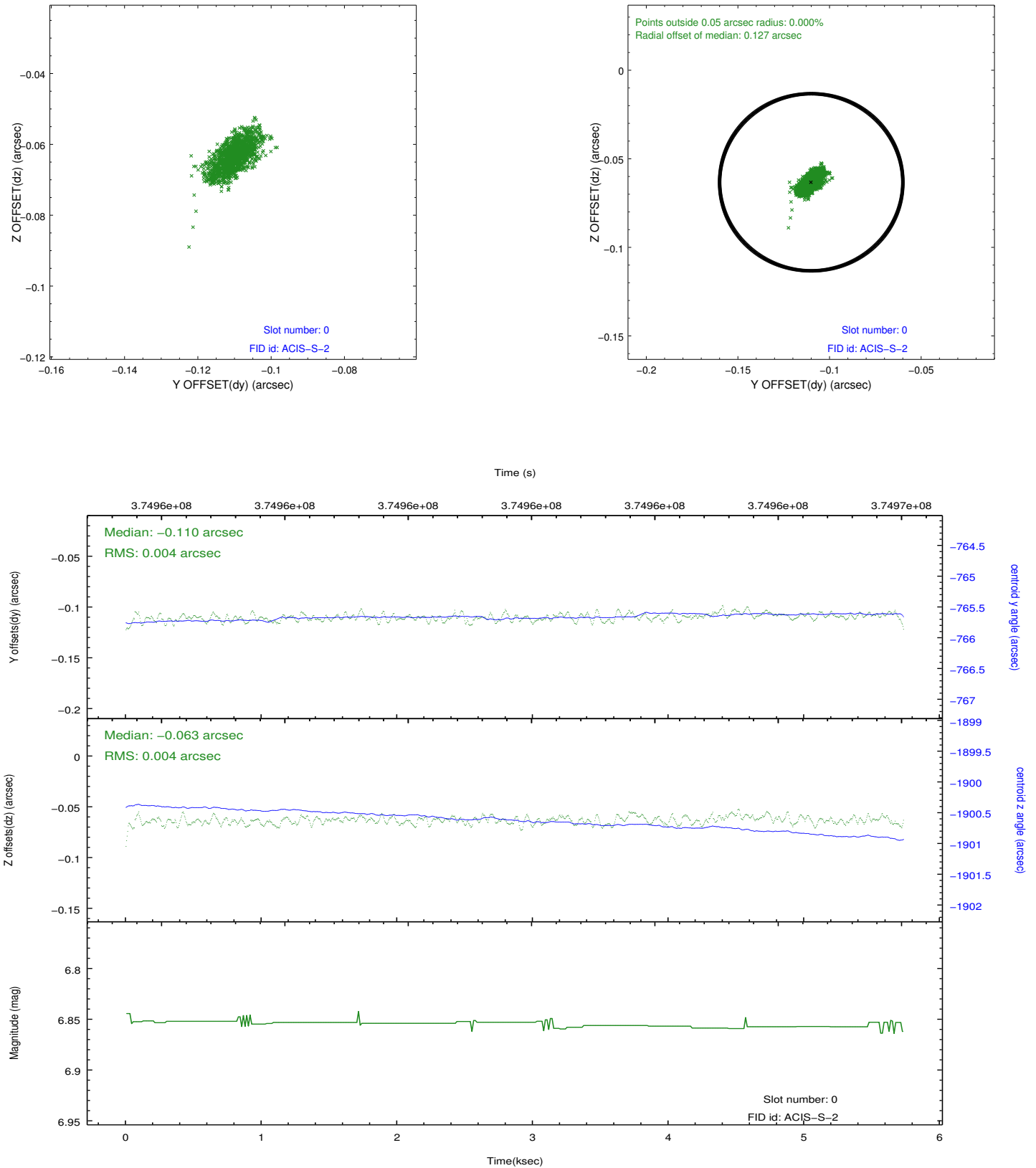


2.4.5 Slot 7

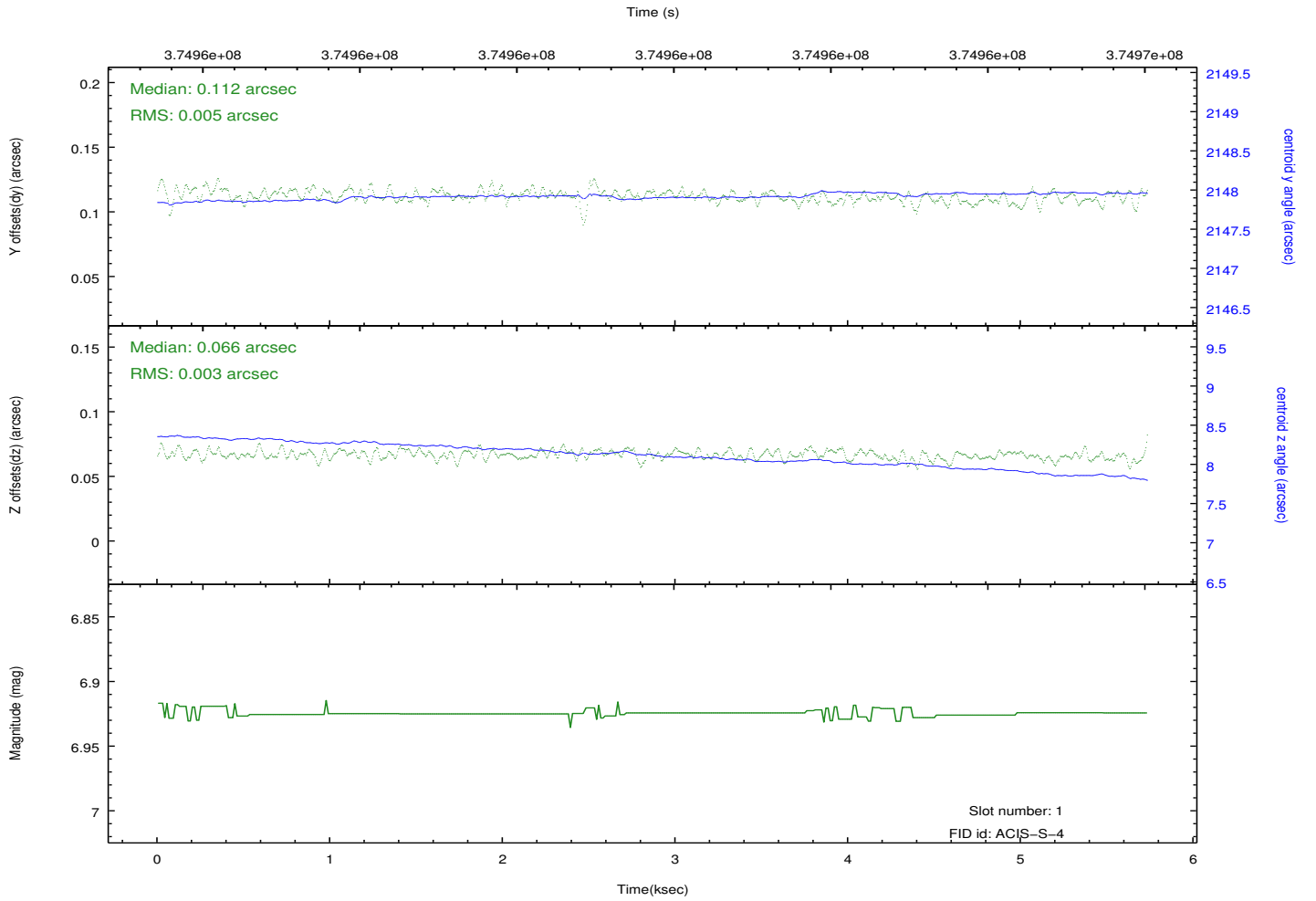
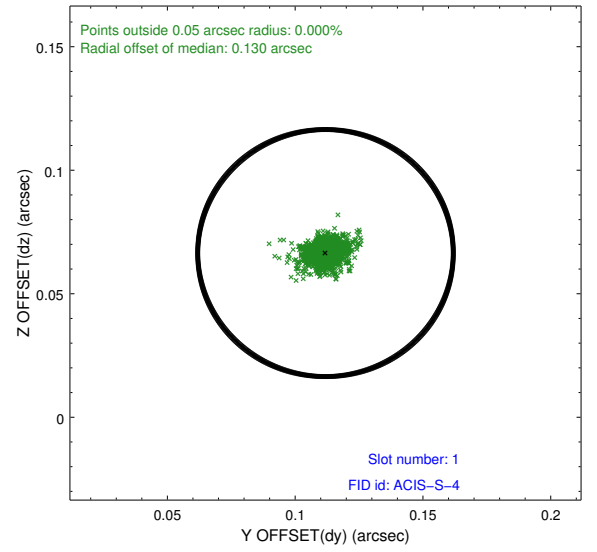
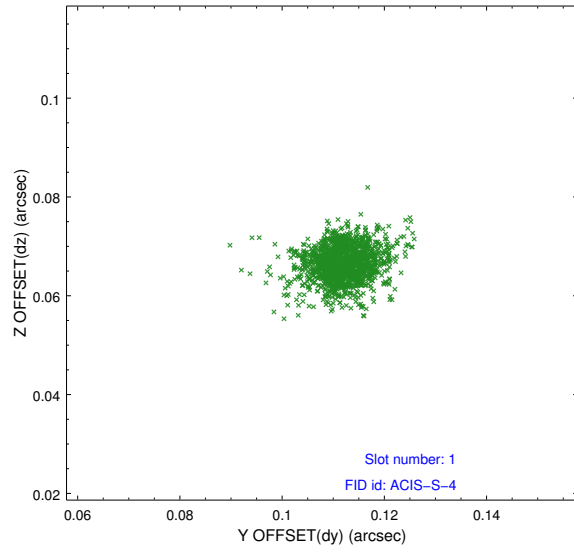


2.5 FID Slots

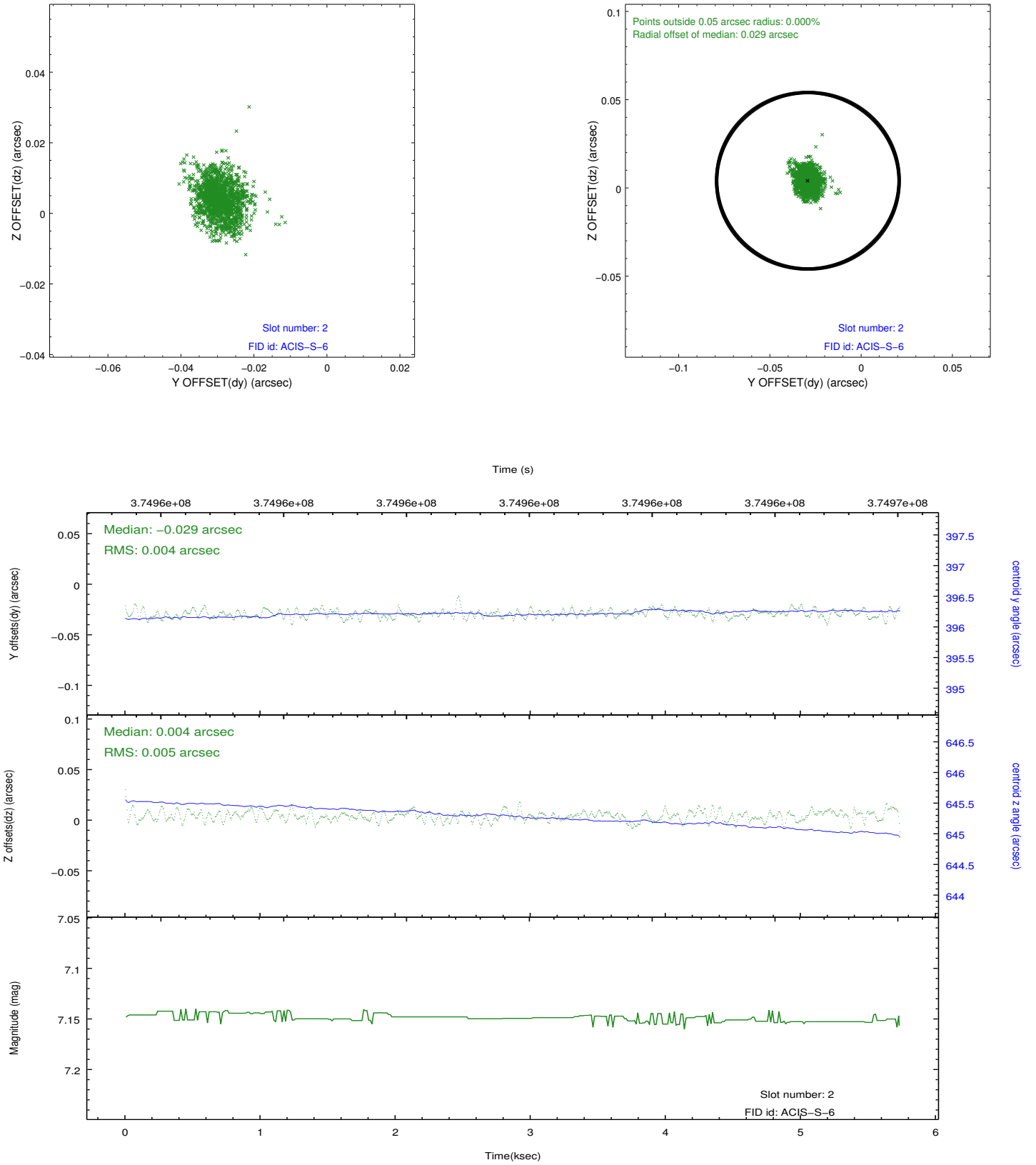
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

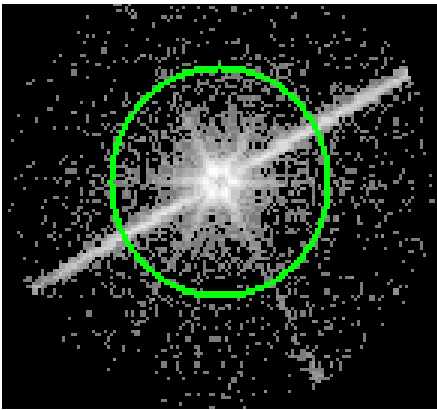


3 Gratings

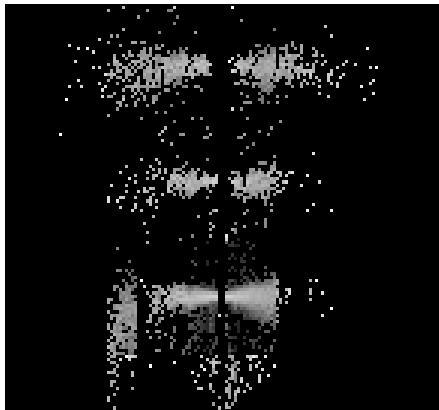
3.1 LETG Arm



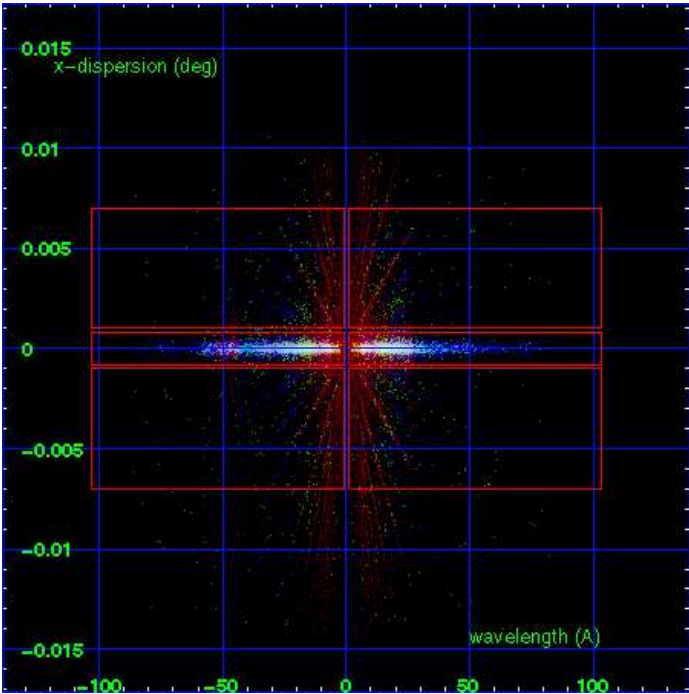
LETG Order Sort 123



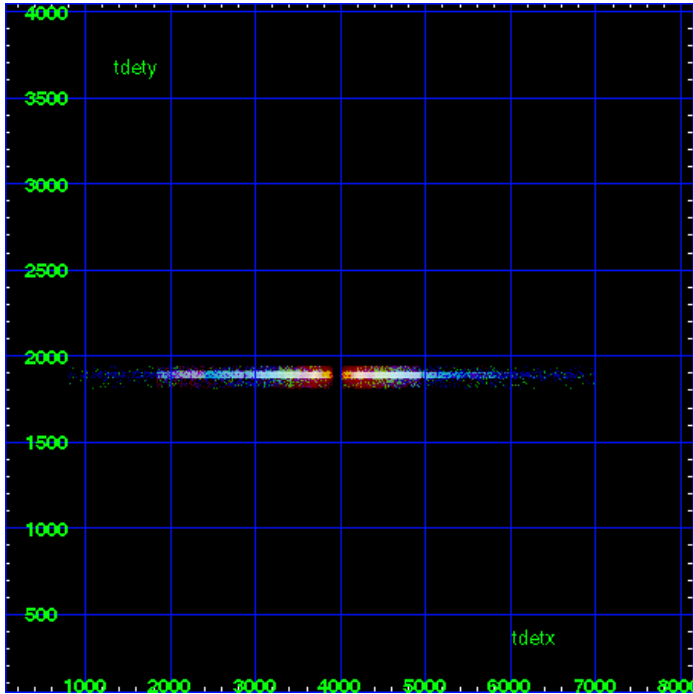
LETG Zero Order



LETG Order Sort ALL

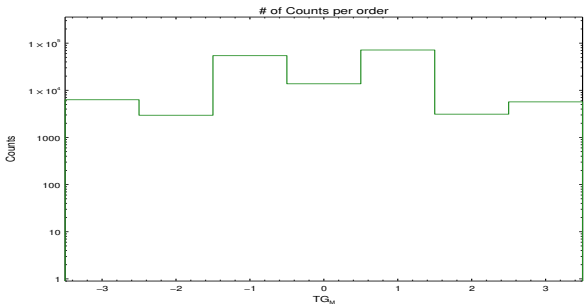


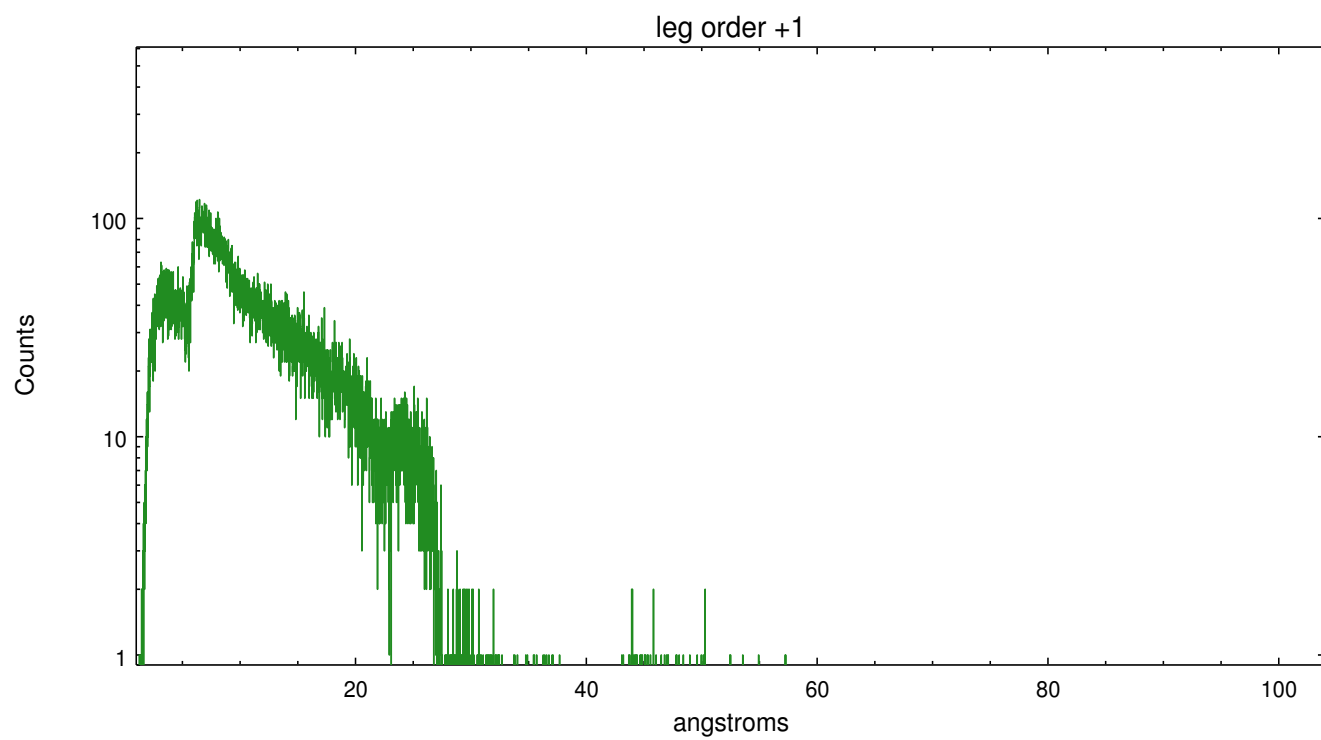
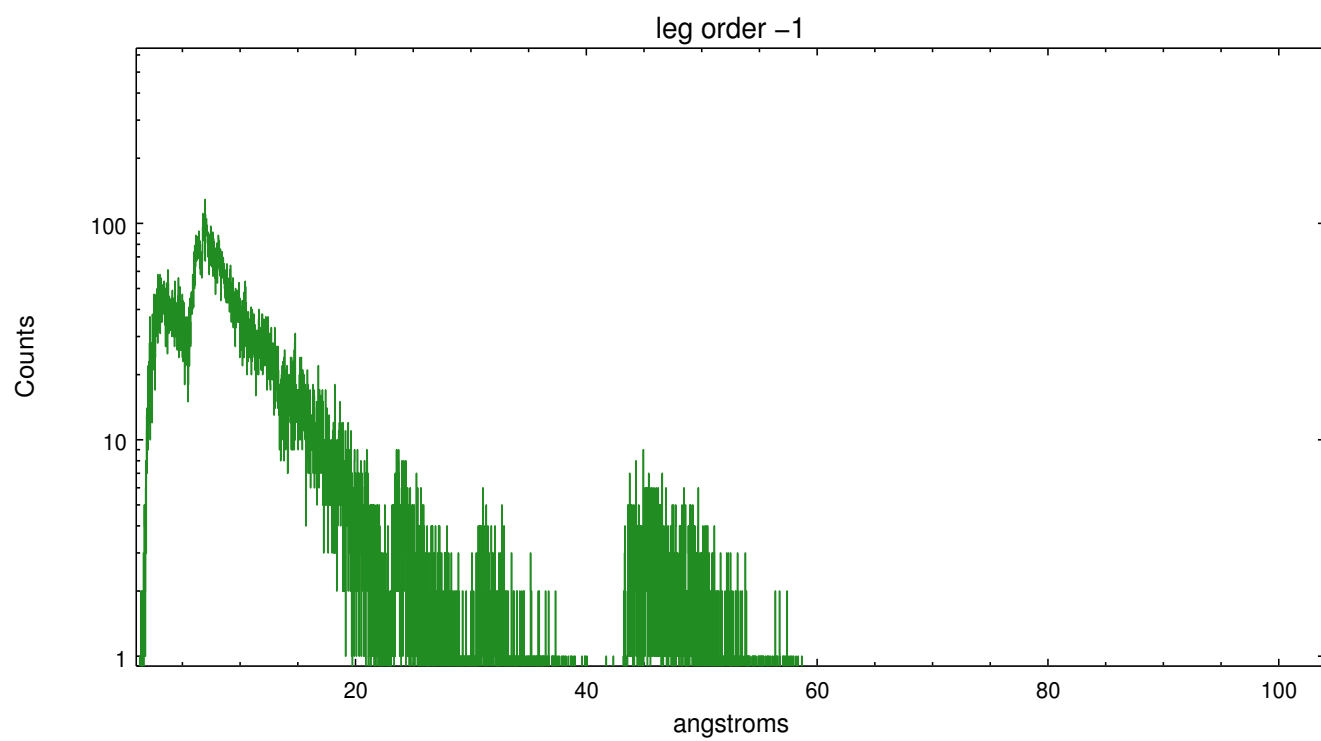
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	6306	2958	54276	13745	71597	3117	5683





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	5.2443999106288

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=4006.01, y=4221.89) 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.