

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 12314 - L2 Version 2
Chandra X-Ray Center

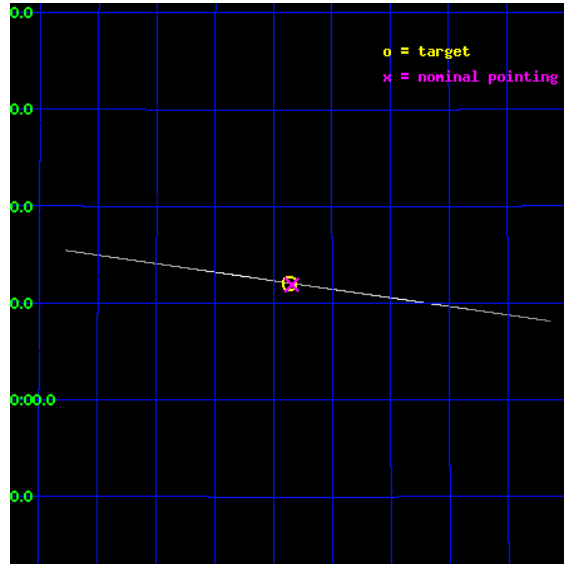
L2 Processing Date : Jun 30 2012

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1 Front

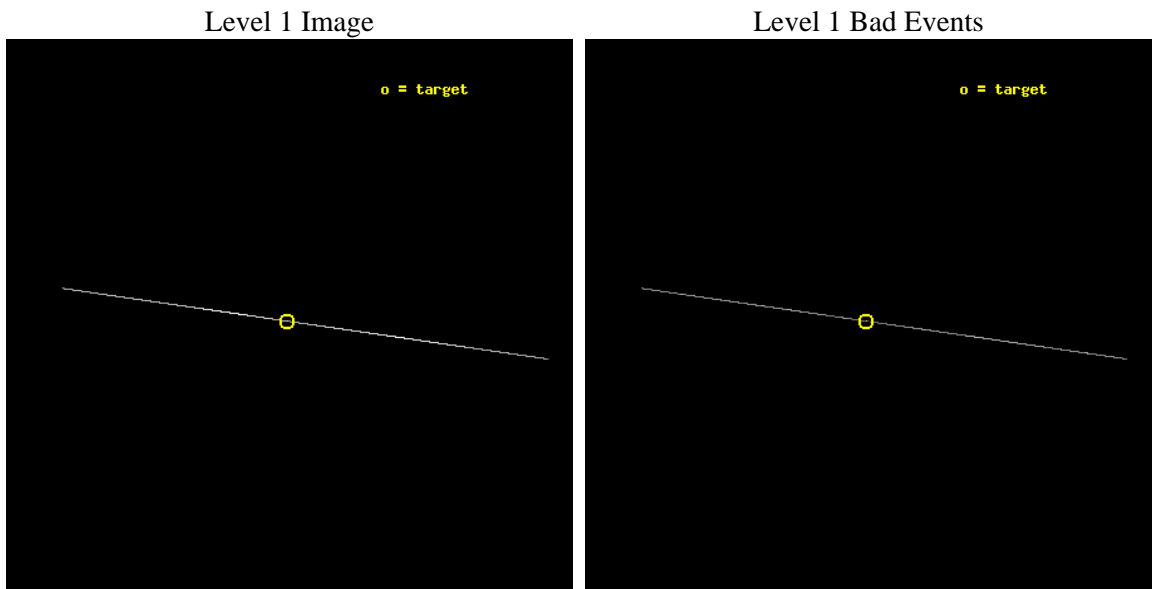
seq_num	401145	Sequence number
obs_id	12314	Observation id
title	Measuring the spin of the black hole Cygnus X-1	Proposal title
observer	Dr. Jeffrey McClintock	Principal investigator
object	Cyg X-1	Source name
ra_targ	299.590417	Observer's specified target RA [deg]
dec_targ	35.201667	Observer's specified target Dec [deg]
ra_nom	299.58581609031	Nominal RA [deg]
dec_nom	35.198603908692	Nominal Dec [deg]
roll_nom	188.15933838068	Nominal Roll [deg]
revision	2	Processing version of data
ontime	901.15725064278	Sum of GTIs [s]
livetime	897.63710513245	Livetime [s]
ontime4	1652.6552740932	Sum of GTIs [s]
ontime5	2649.2878522873	Sum of GTIs [s]
ontime6	1300.9801693559	Sum of GTIs [s]
ontime7	901.15725064278	Sum of GTIs [s]
ontime8	1279.0898413658	Sum of GTIs [s]
ontime9	1675.9992727041	Sum of GTIs [s]
l2events	921726	Number of level 2 events



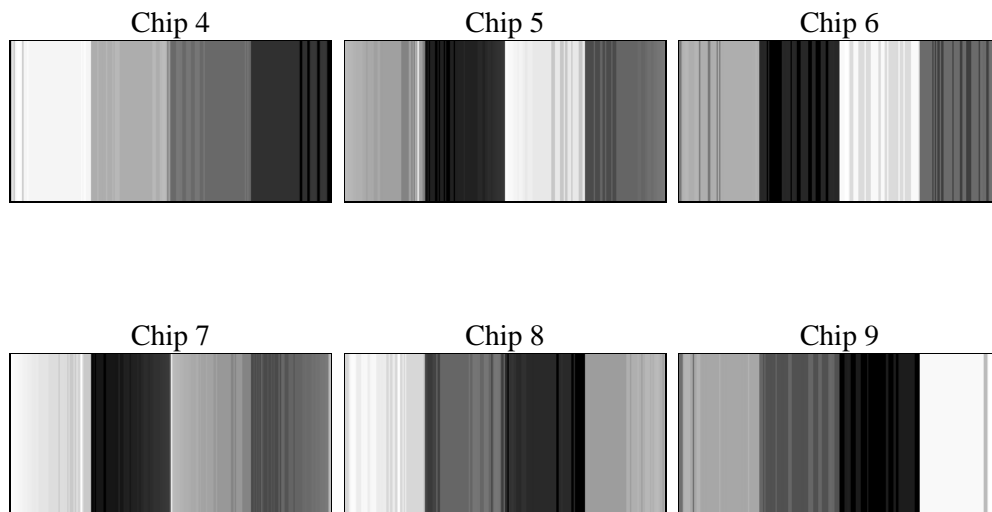
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	6001.035000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	901.15725064278	Sum of GTIs [s]
caldsver	4.5.0	 	ontime4	1652.6552740932	Sum of GTIs [s]
date	2012-06-30T13:52:58	Date and time of file creation	ontime5	2649.2878522873	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	1300.9801693559	Sum of GTIs [s]
			ontime7	901.15725064278	Sum of GTIs [s]
			ontime8	1279.0898413658	Sum of GTIs [s]
			ontime9	1675.9992727041	Sum of GTIs [s]
			l1events	1138346	Number of level 1 events

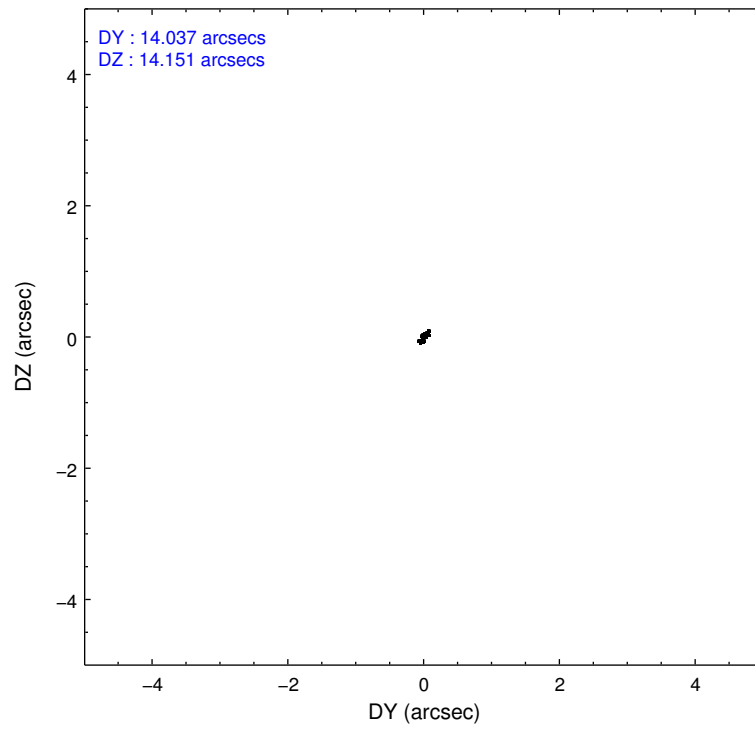
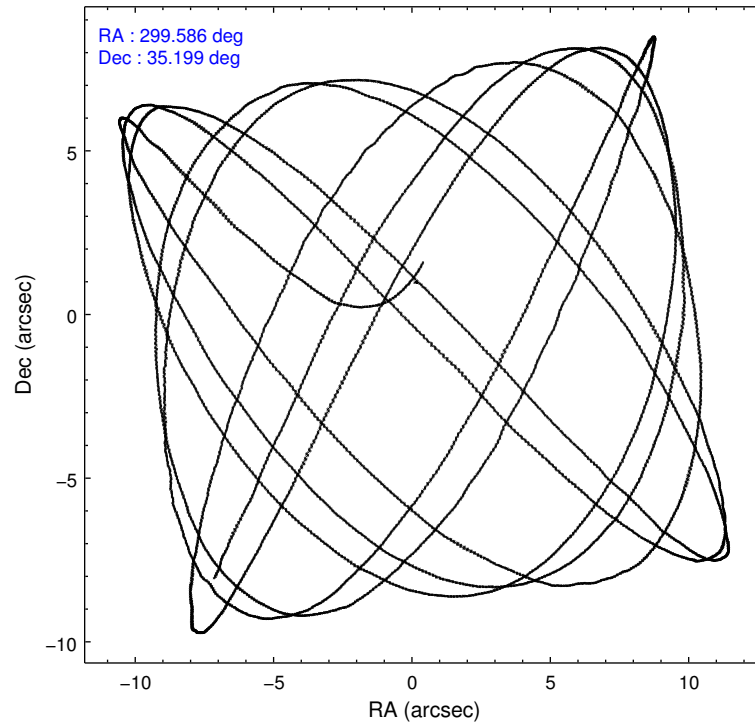
2.1.4 Events

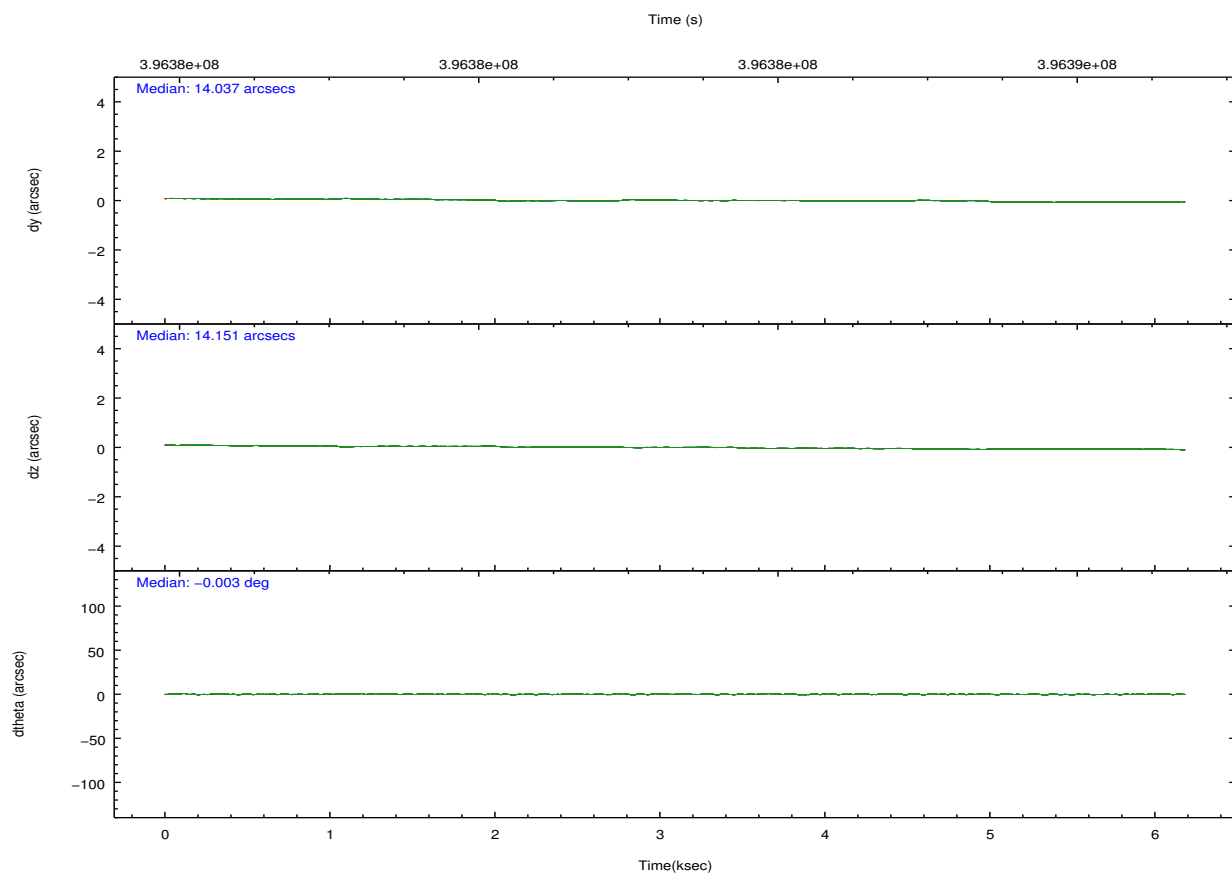
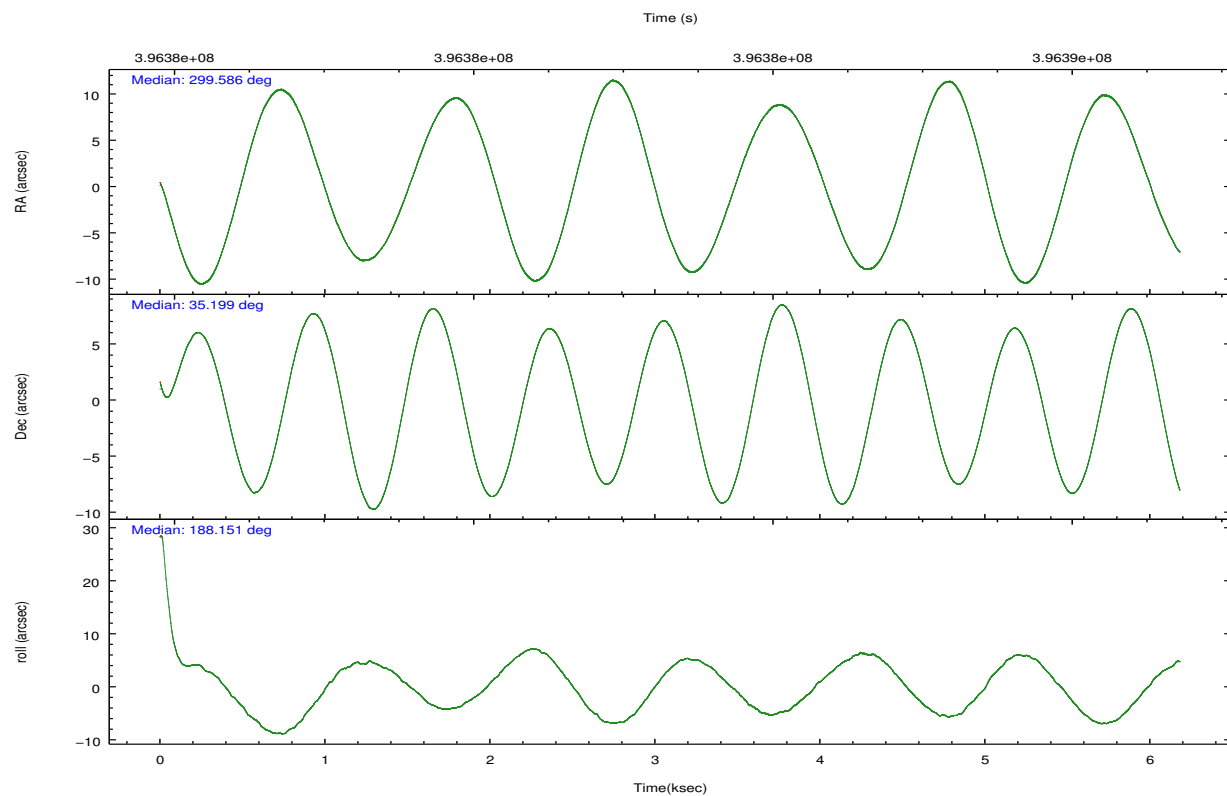
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	49413	336150	164147	335826	178246	74564	grade 0 events	1426	75958	91262	69389	121264	16009
rejected events	20658	44027	19082	19232	26702	23311		2%	22%	55%	20%	68%	21%
rejected %	41%	13%	11%	5%	14%	31%	grade 1 events	13	162	394	681	635	45
								0%	0%	0%	0%	0%	0%
							grade 2 events	24349	116948	36779	88938	20100	30194
								49%	34%	22%	26%	11%	40%
							grade 3 events	354	19528	4772	34495	3694	1151
								0%	5%	2%	10%	2%	1%
							grade 4 events	383	19536	4830	34561	3702	1118
								0%	5%	2%	10%	2%	1%
							grade 5 events	620	5114	1092	3822	1196	829
								1%	1%	0%	1%	0%	1%
							grade 6 events	2313	60845	7671	89983	3047	2904
								4%	18%	4%	26%	1%	3%
							grade 7 events	19955	38059	17347	13957	24608	22314
								40%	11%	10%	4%	13%	29%

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	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	CC33_FAINT	CC33_FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	299.611890	299.5858160903127	Subarray requested	NONE	NONE
[deg] Pointing Dec	35.215737	35.19860390869161	Alternating exposures requested	N	N
[deg] Pointing Roll	187.987620	188.1593383806753	[s] Primary exposure time	0.000000	0
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-177.832523	-177.8324926487357			
[mm] SIM translation stage offset	-12.3	-12.30002993427212			
Phase constraints	Y	Y			
[d] Phase period	5.599829	5.599829			
[d] Phase epoch (MJD)	51729.949000	51729.949000			
Phase start	0.300000	0.300000			
Phase end	0.700000	0.700000			
Phase start error	0.100000	0.100000			
Phase end error	0.100000	0.100000			
[s] Observation start time (MET)	396380405.184000	396379303.76081			
Observation start date	2010-07-24T17:38:59	2010-07-24T17:21:43			
[s] Observation end time (MET)	396386406.184000	396386628.41118			
Observation end date	2010-07-24T19:19:00	2010-07-24T19:23:48			
Read mode	CONTINUOUS	CONTINUOUS			

2.3 Aspect



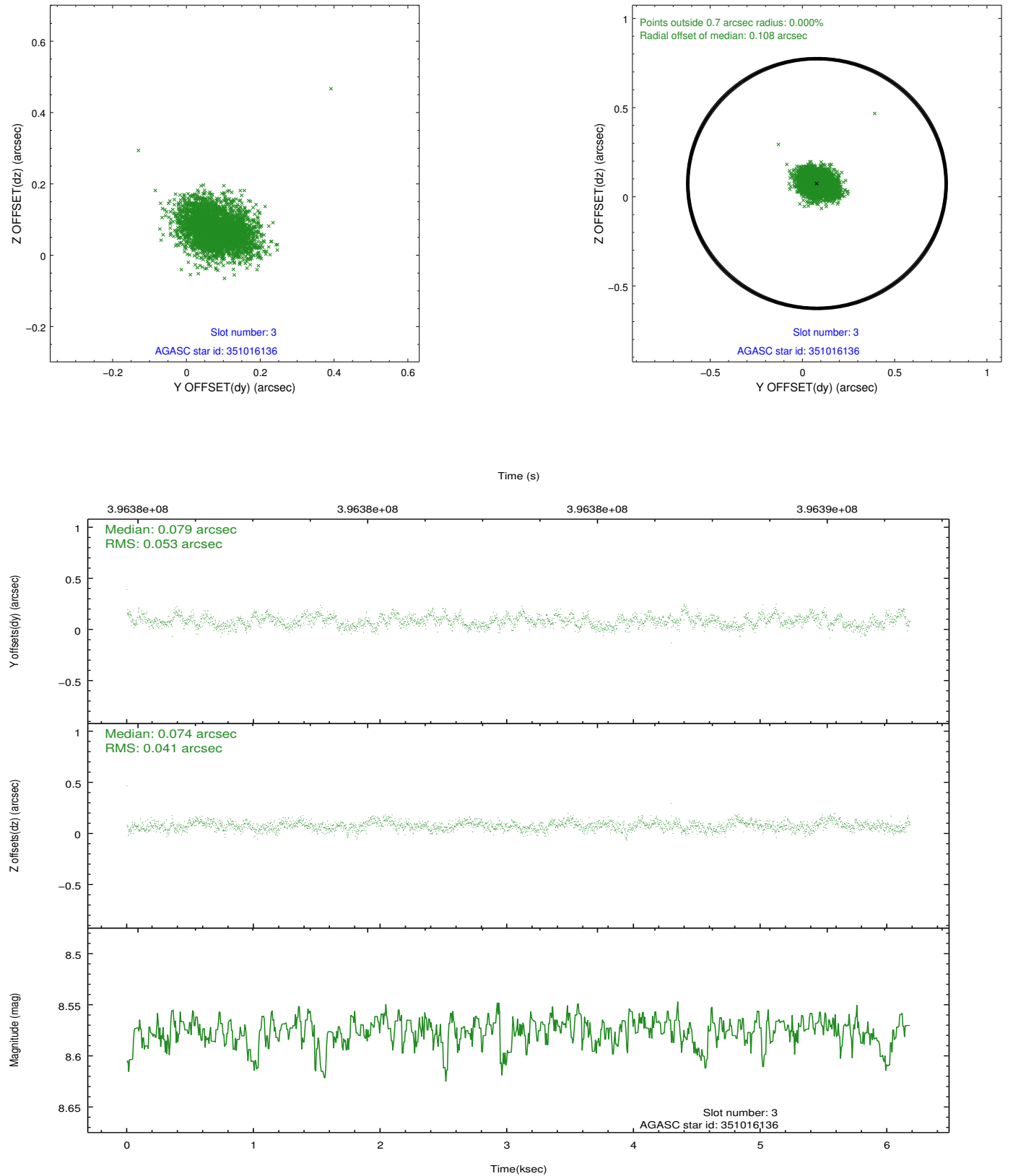


Slot Statistics

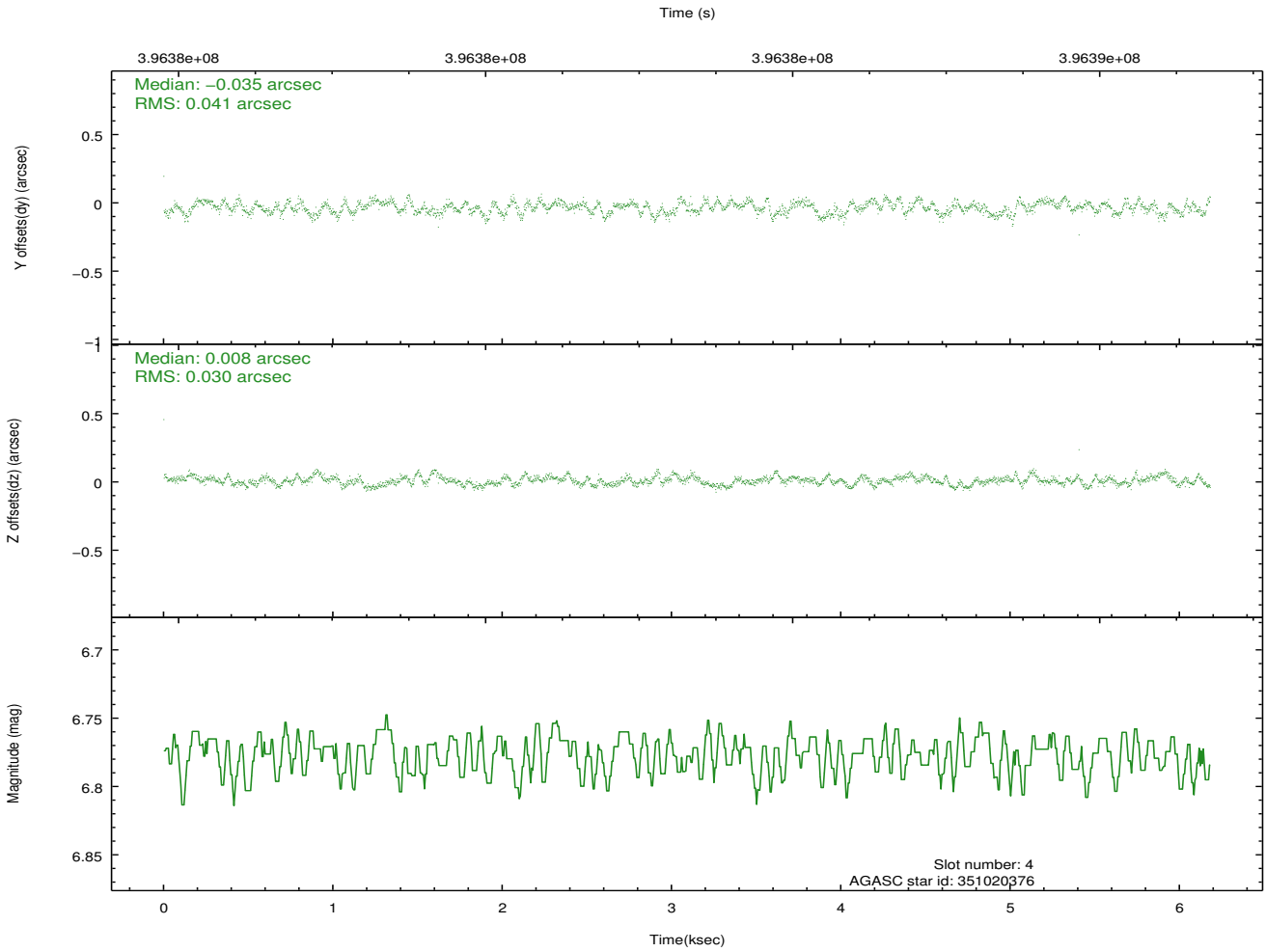
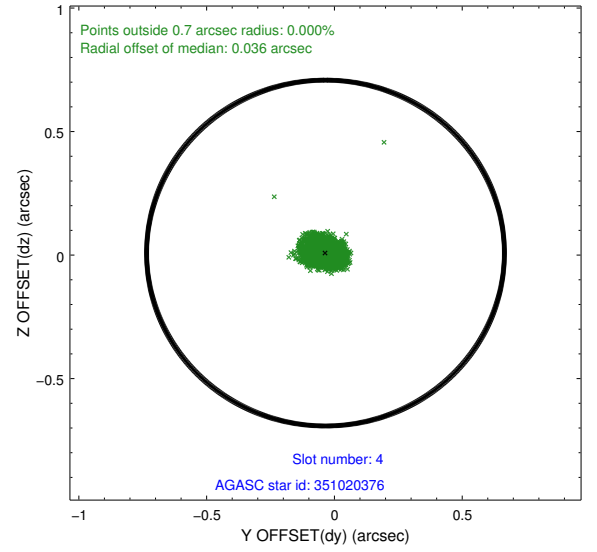
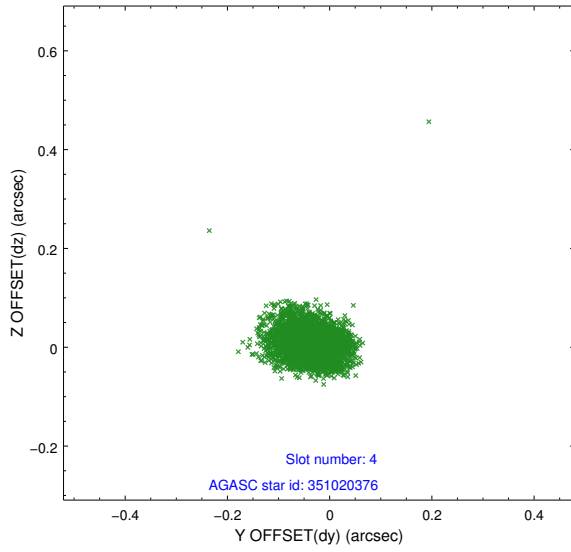
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.92	1508	-0.089	-0.408	0.006	0.010	0.000000	0.000000	-766.19	-1989.06
1	FID	ACIS-S-4	6.98	1508	0.211	0.151	0.007	0.013	0.000000	0.000000	2146.98	-81.25
2	FID	ACIS-S-5	7.05	1508	-0.154	0.264	0.007	0.011	0.000000	0.000000	-1817.84	-86.31
3	GUIDE	351016136	8.58	3014	0.079	0.074	0.070	0.115	300.302636	34.786391	-1808.72	1807.89
4	GUIDE	351020376	6.78	3016	-0.035	0.008	0.054	0.084	299.982490	35.296494	-1119.46	-137.57
5	GUIDE	351406096	8.90	3016	0.035	0.119	0.080	0.138	299.076637	35.711249	1301.12	-1987.32
6	GUIDE	350889584	8.49	3015	0.026	-0.113	0.072	0.118	299.222293	35.536921	969.89	-1306.25
7	GUIDE	351018080	8.33	3015	-0.111	-0.091	0.069	0.112	299.327312	34.581247	1152.67	2143.86

2.4 Star Slots

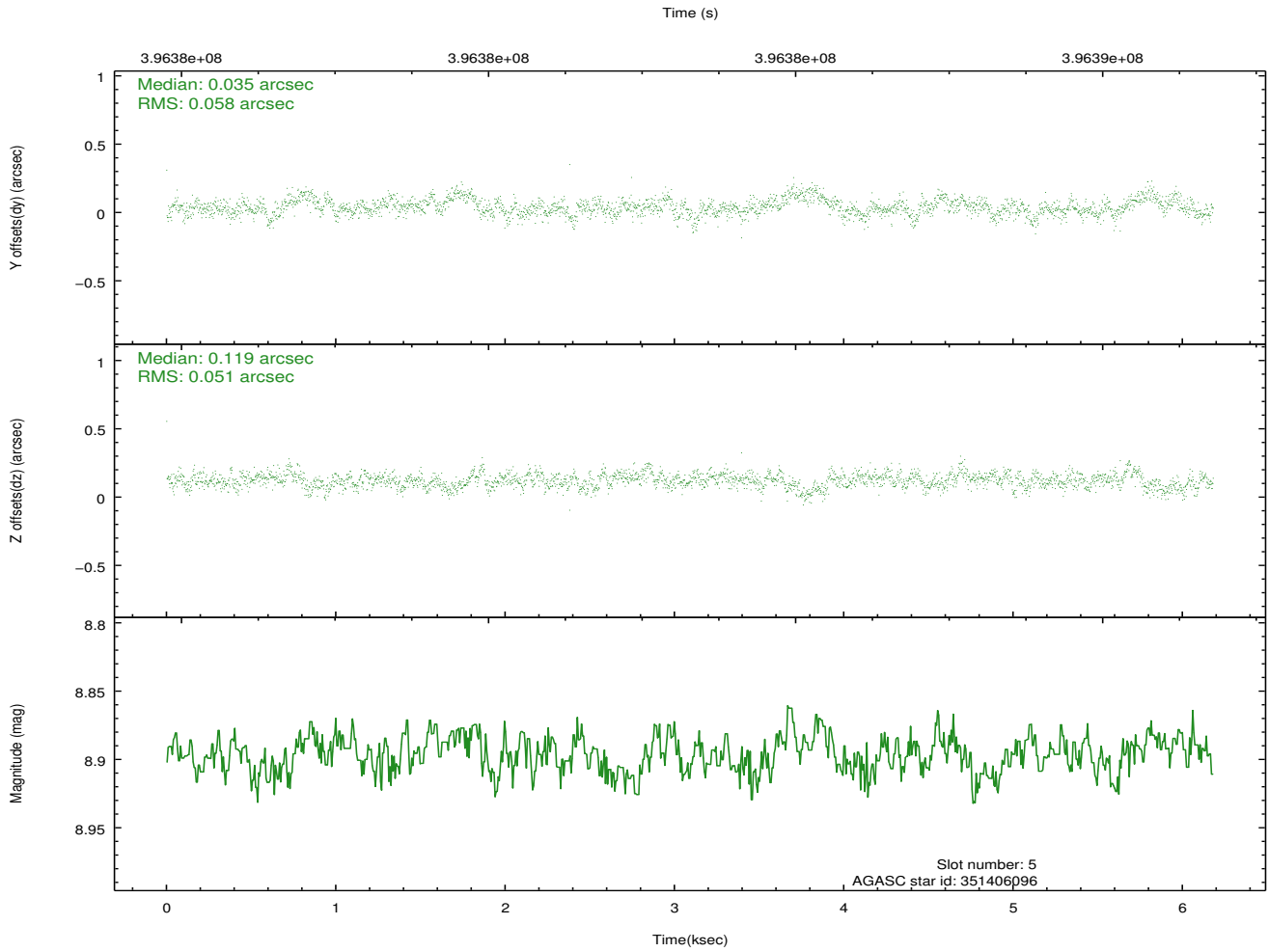
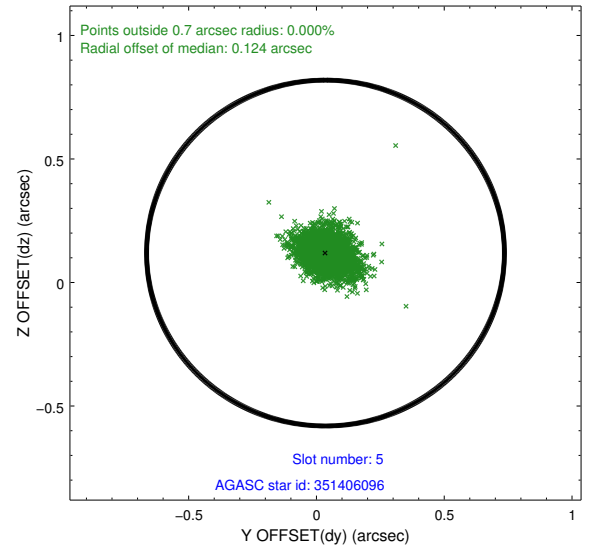
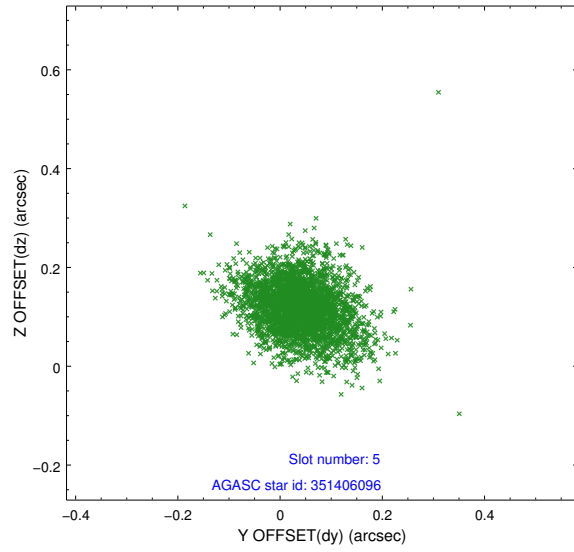
2.4.1 Slot 3



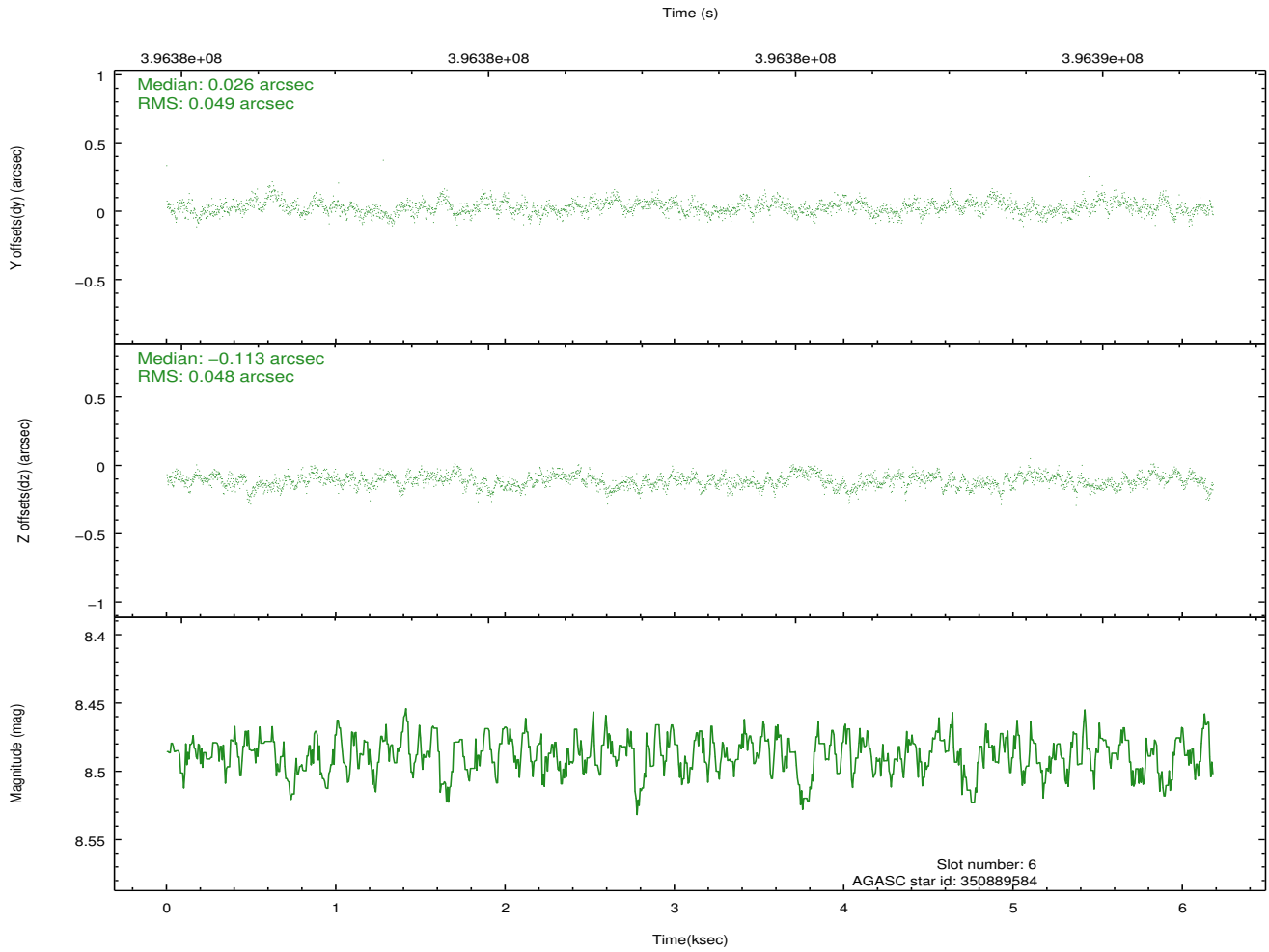
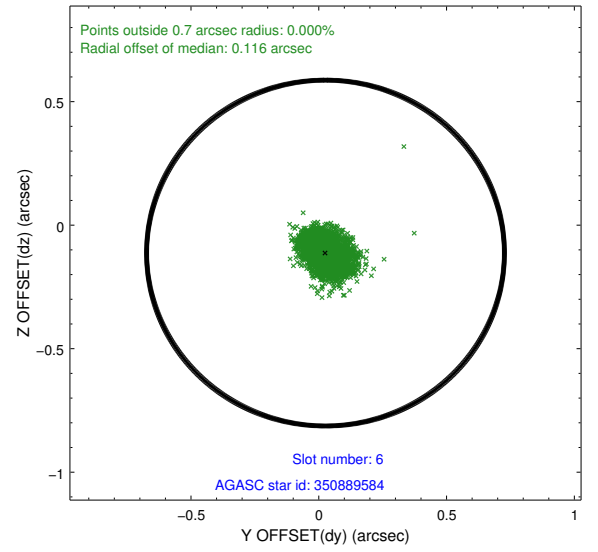
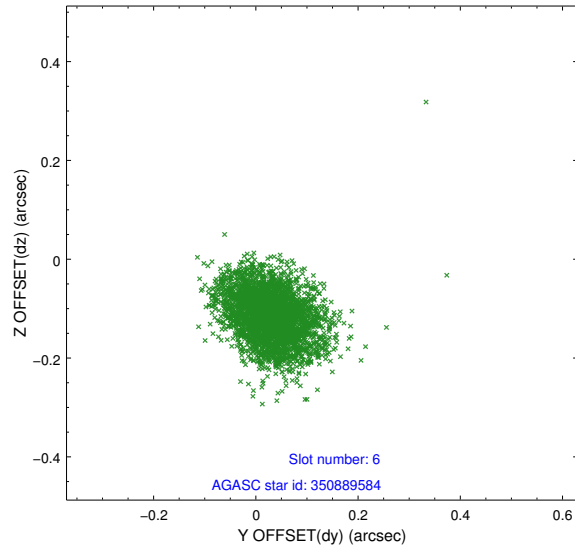
2.4.2 Slot 4



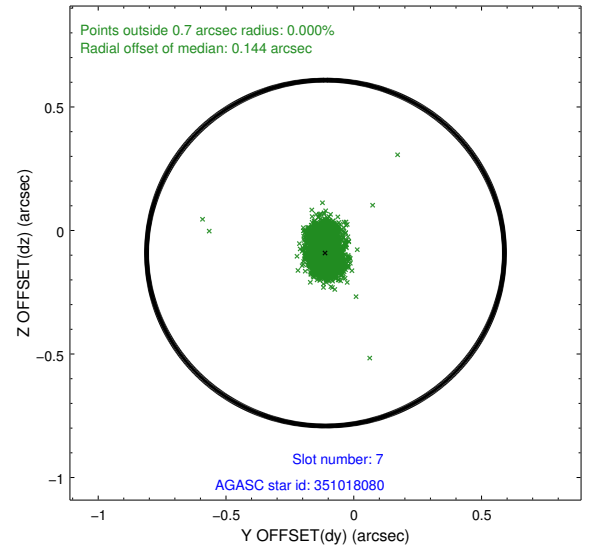
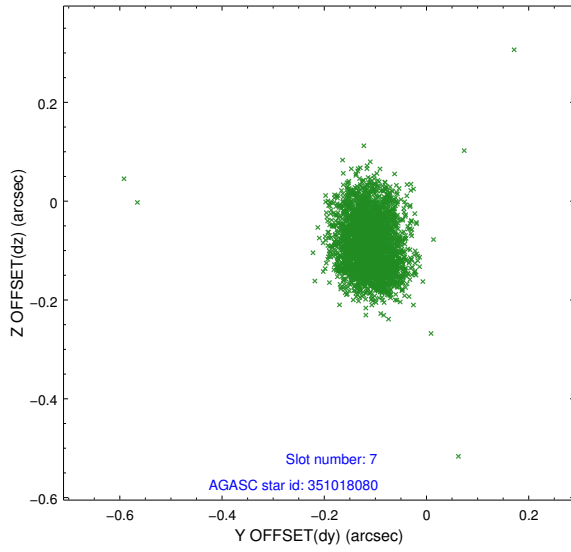
2.4.3 Slot 5



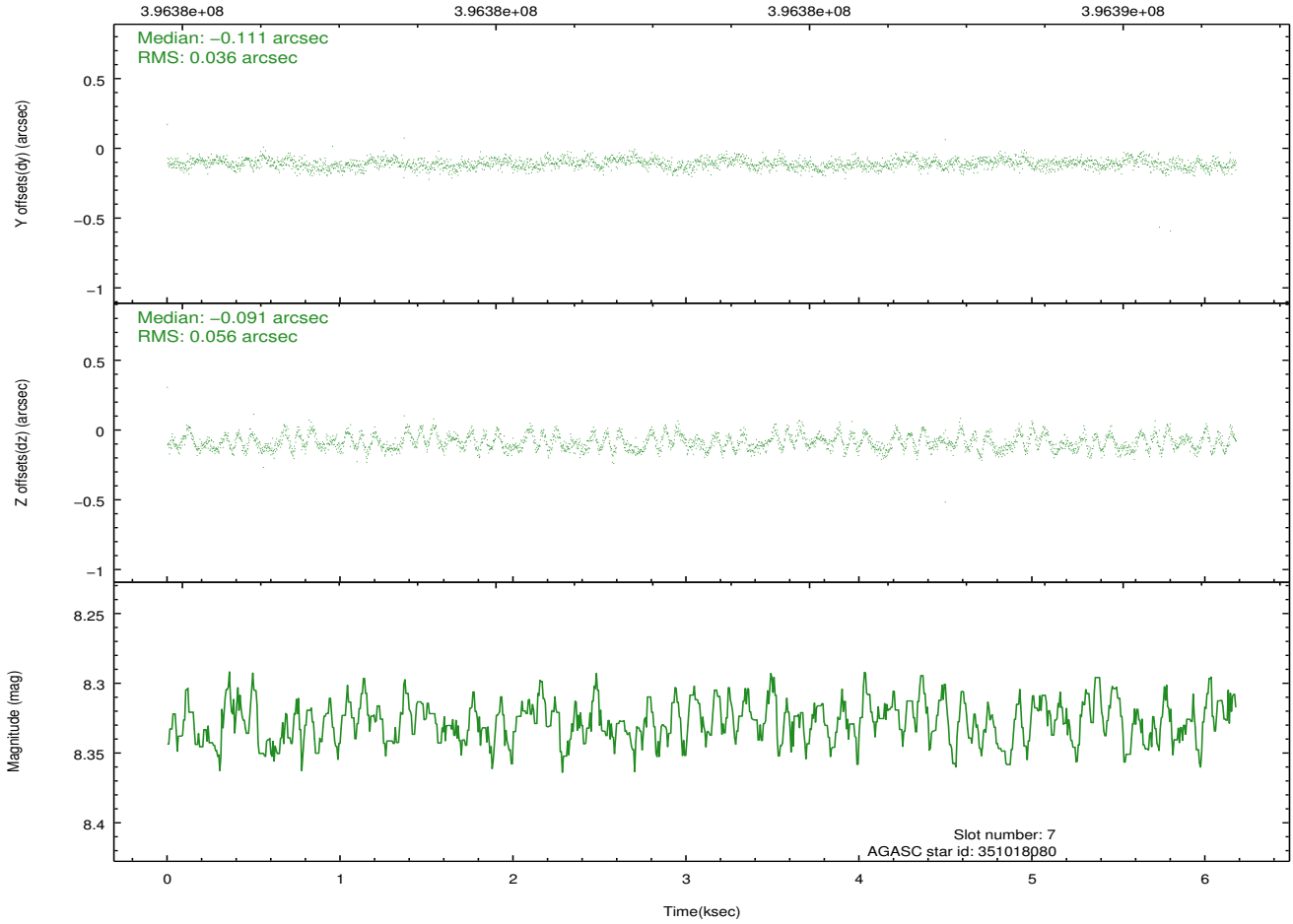
2.4.4 Slot 6



2.4.5 Slot 7

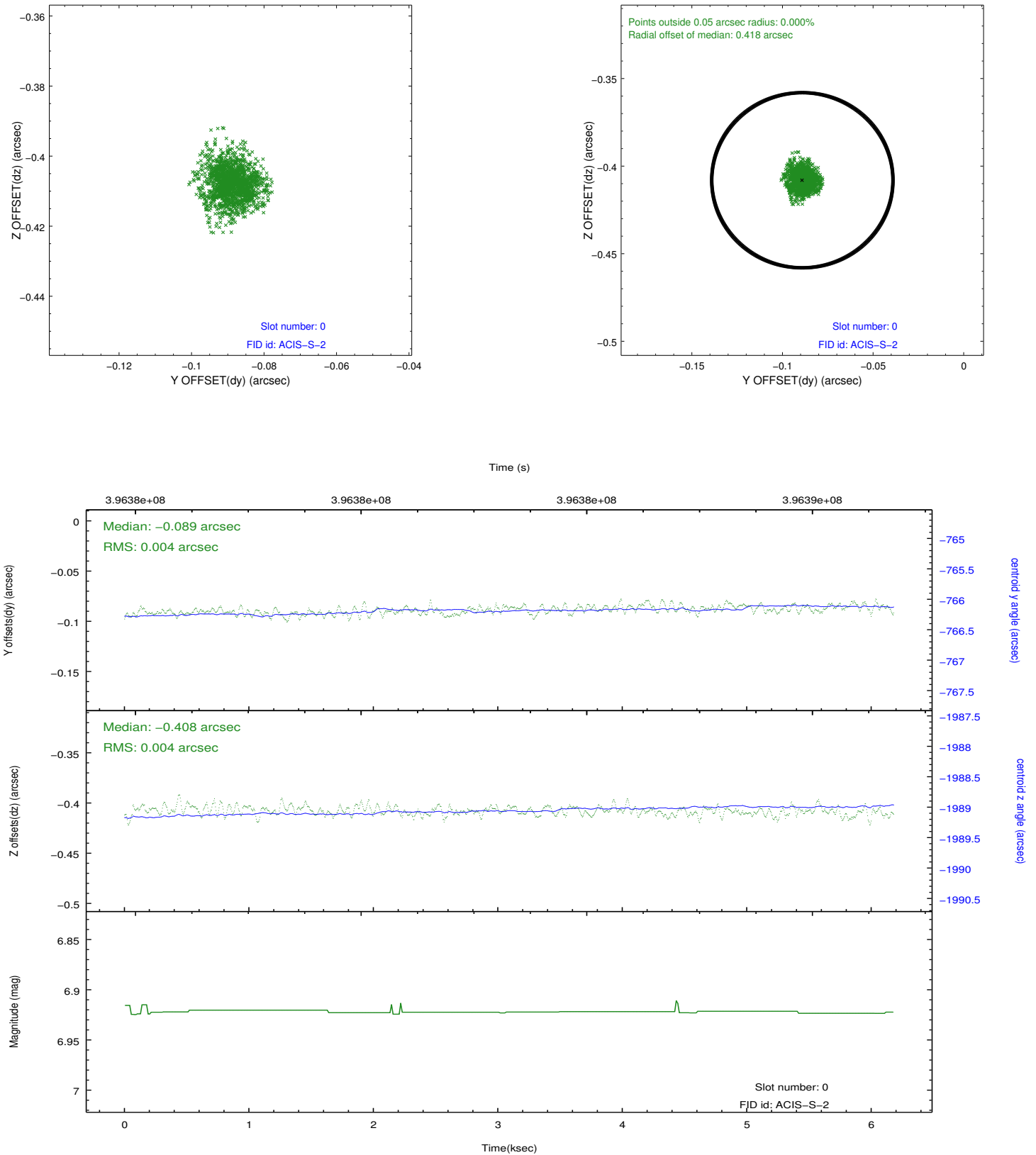


Time (s)

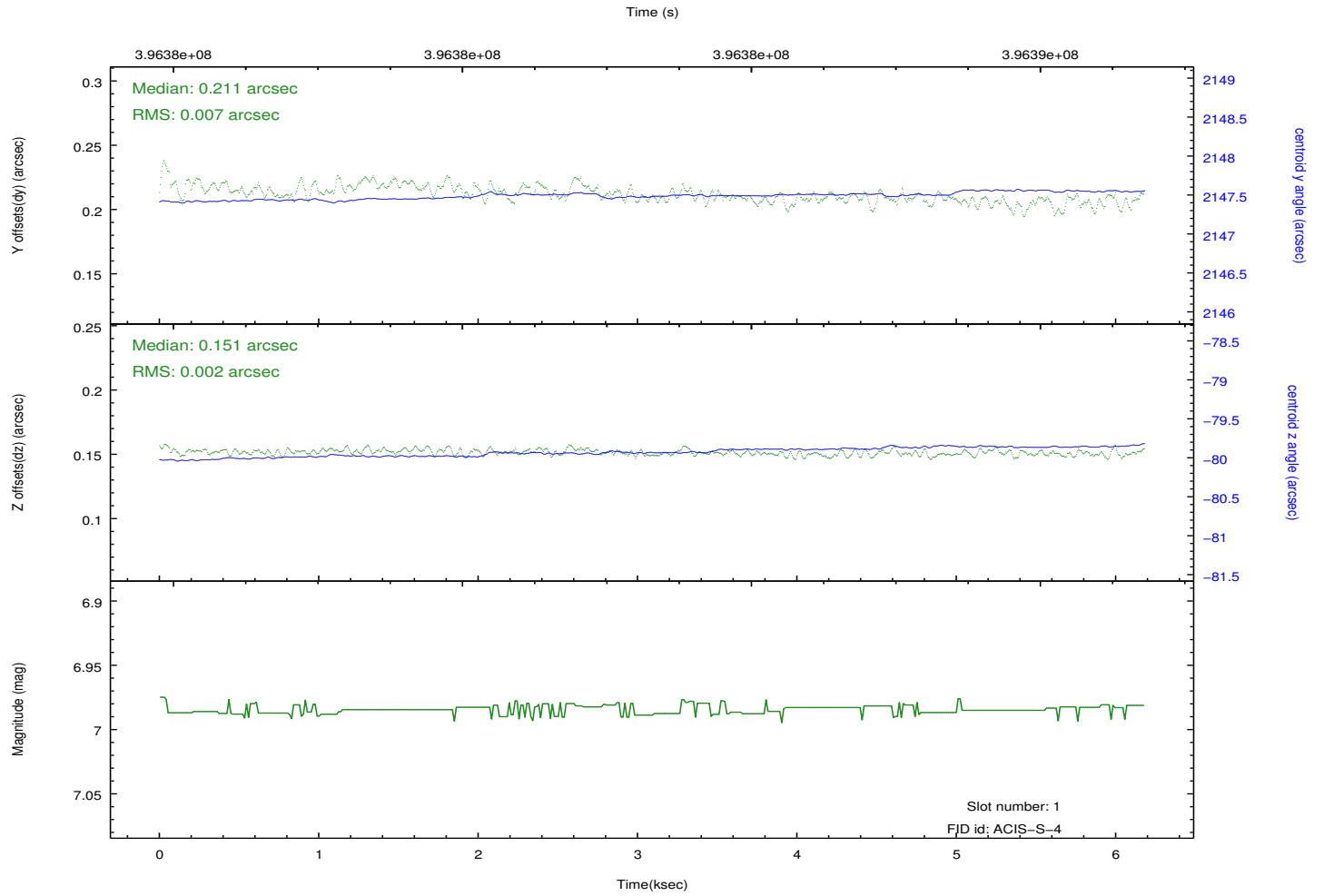
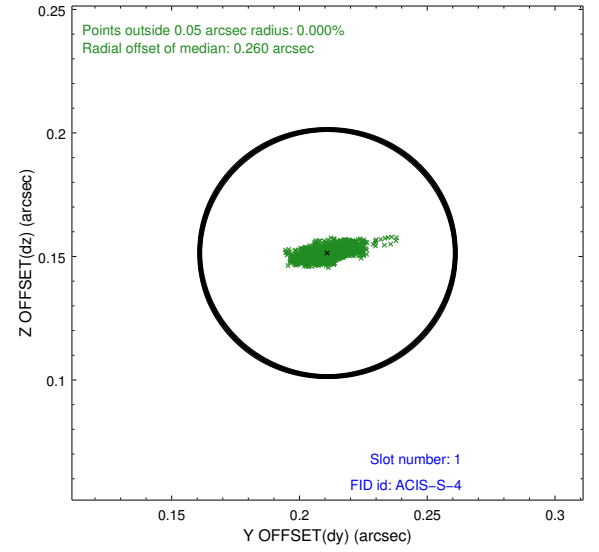
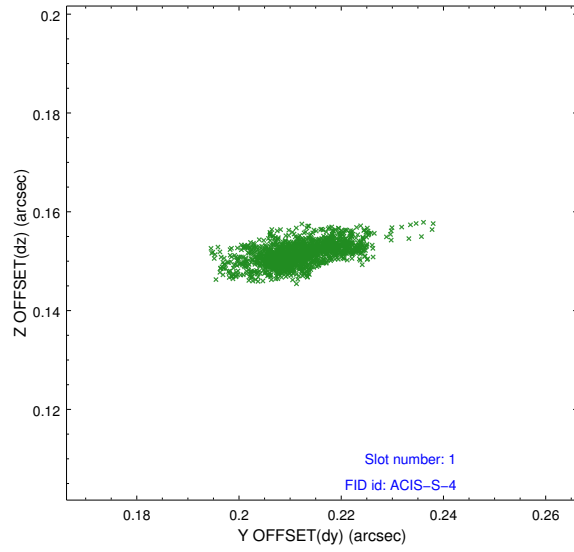


2.5 FID Slots

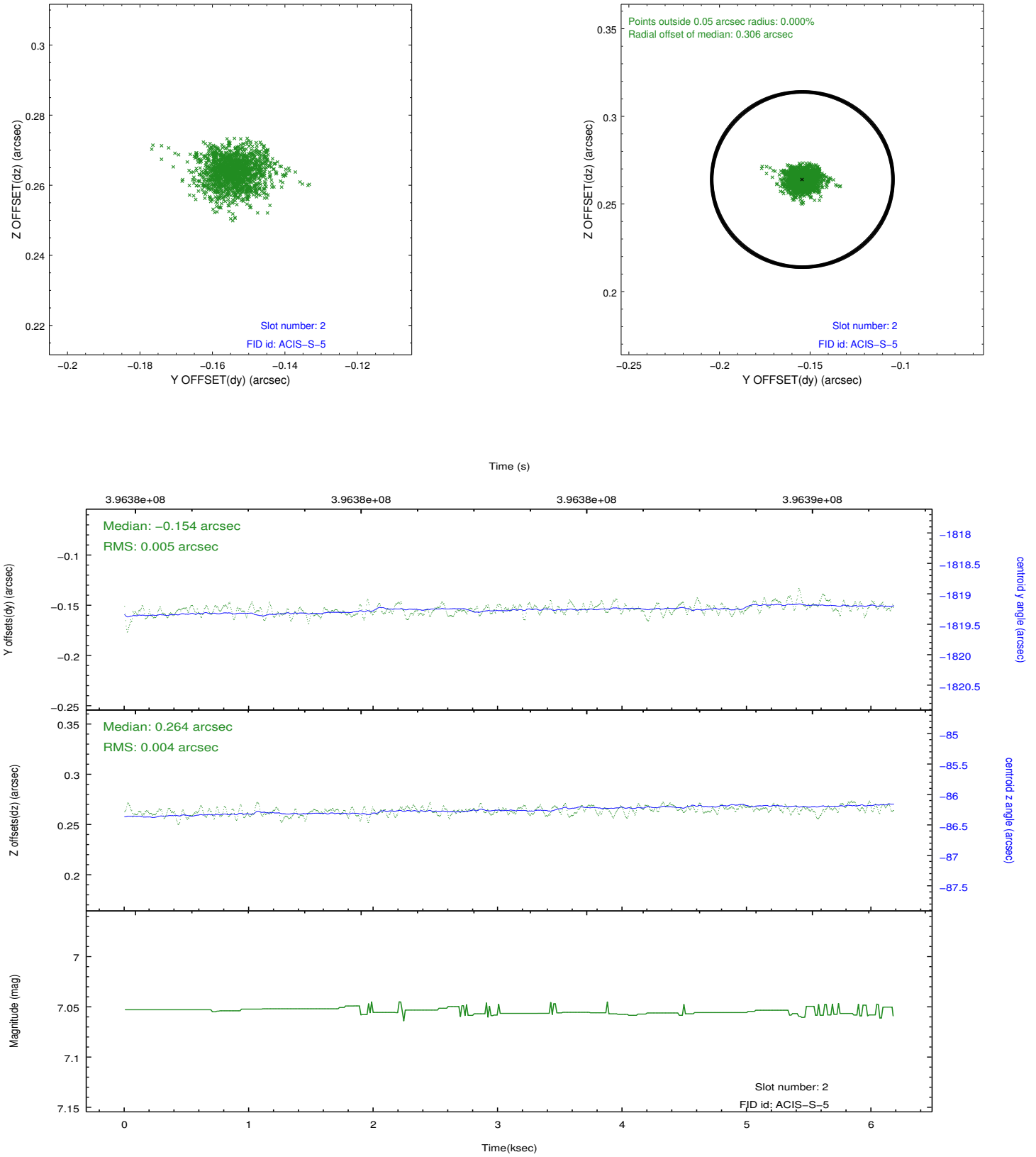
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

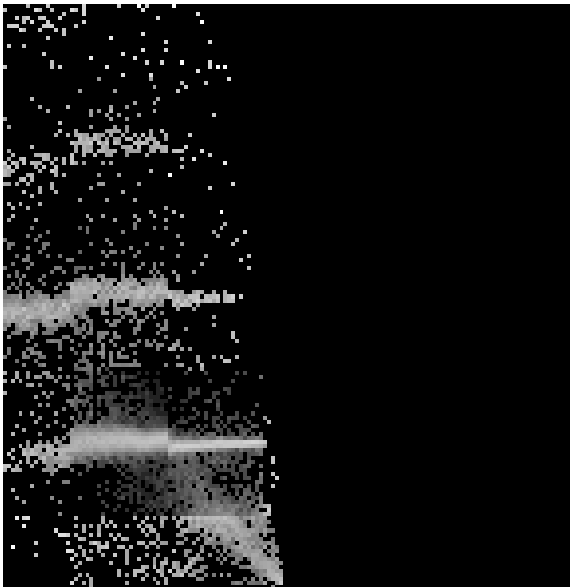


3 Gratings

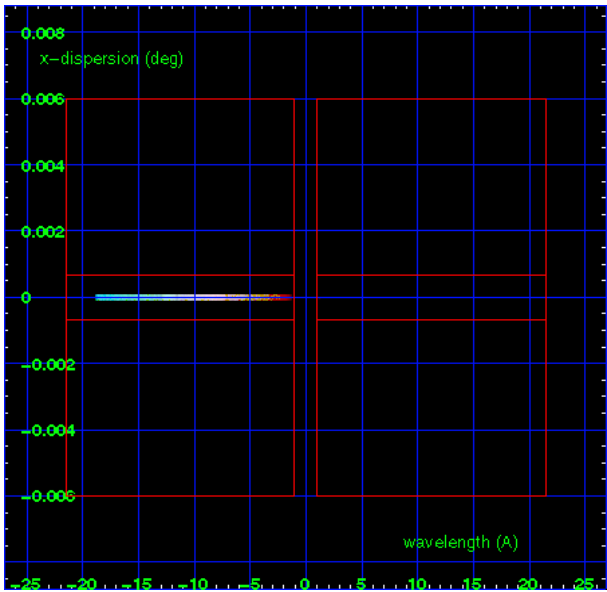
3.1 HEG Arm



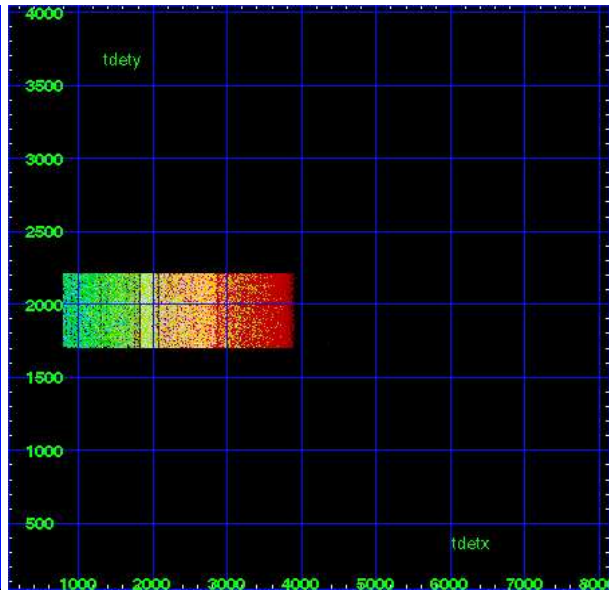
HEG Order Sort 123



HEG Order Sort ALL

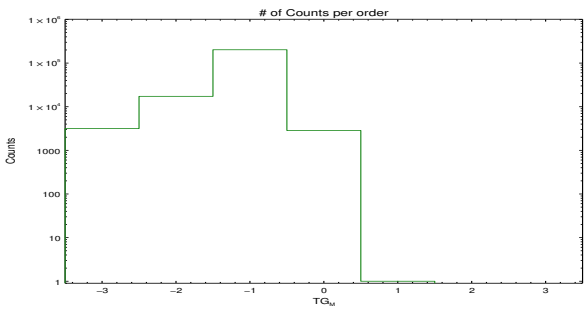


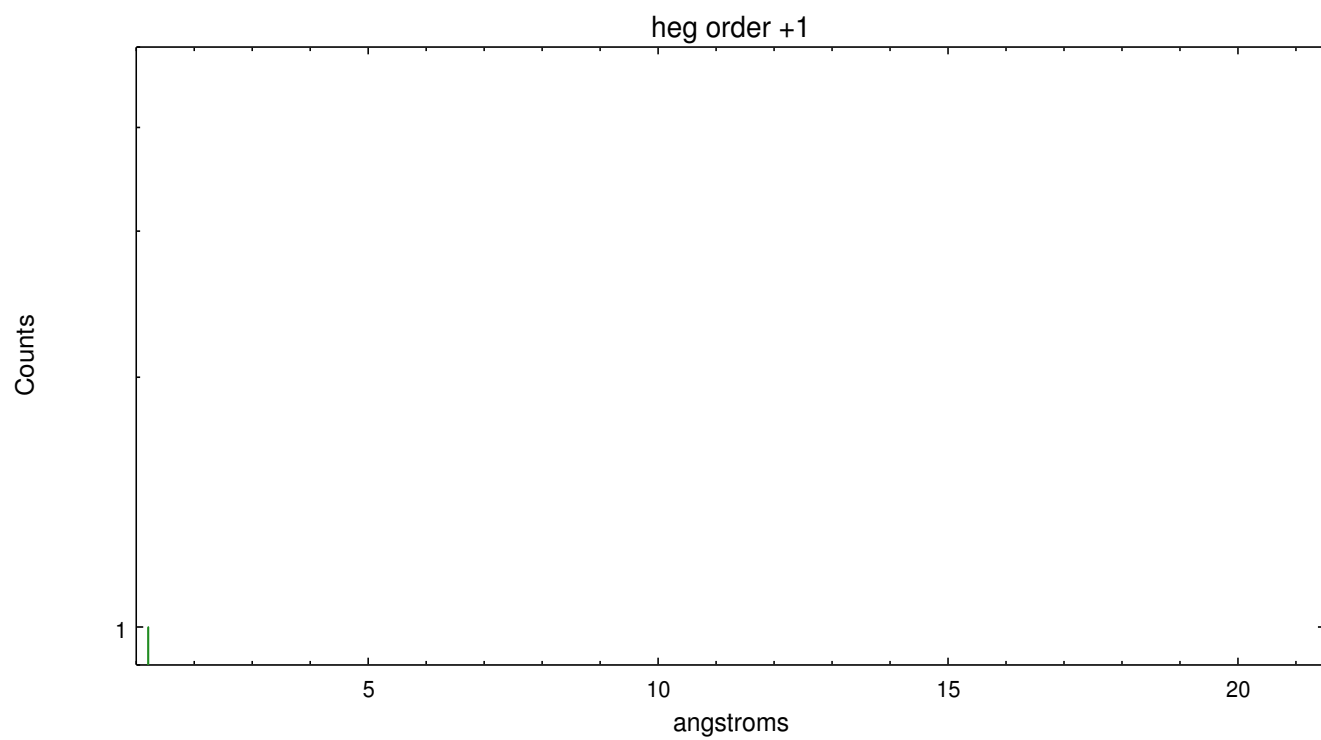
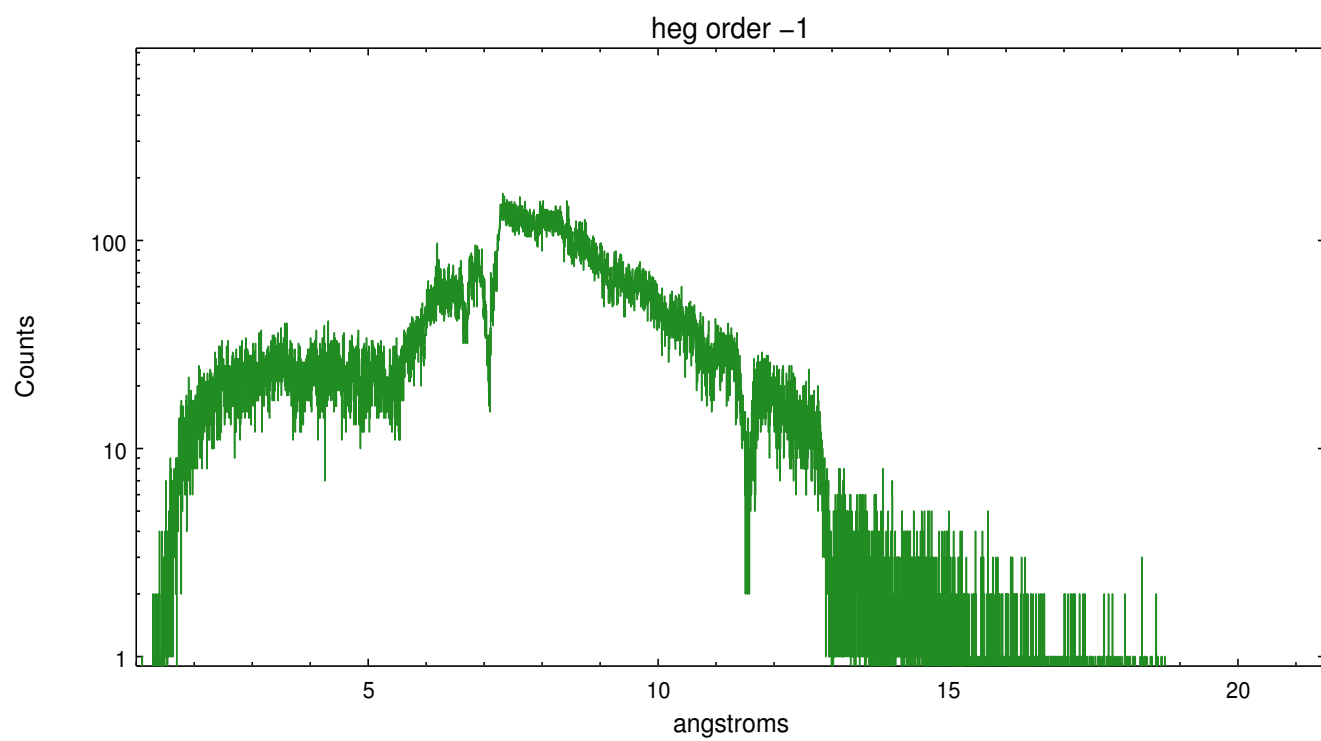
Spot Image HEG



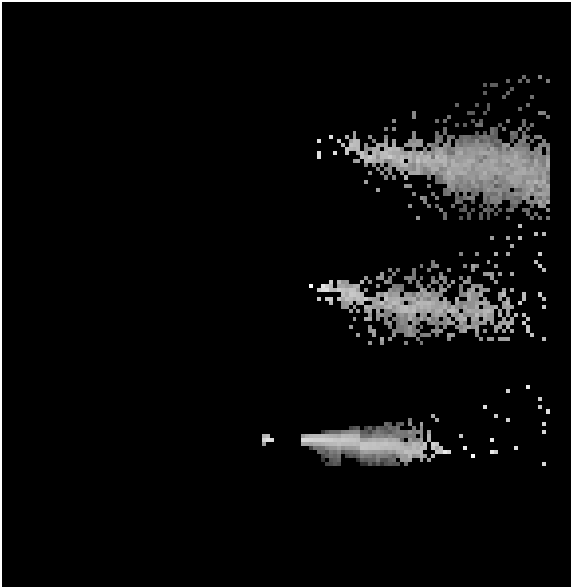
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	3159	17285	202327	2854	1	0	0

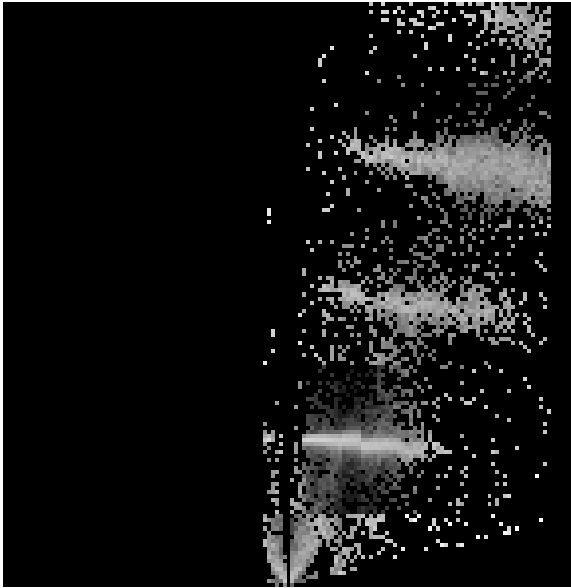




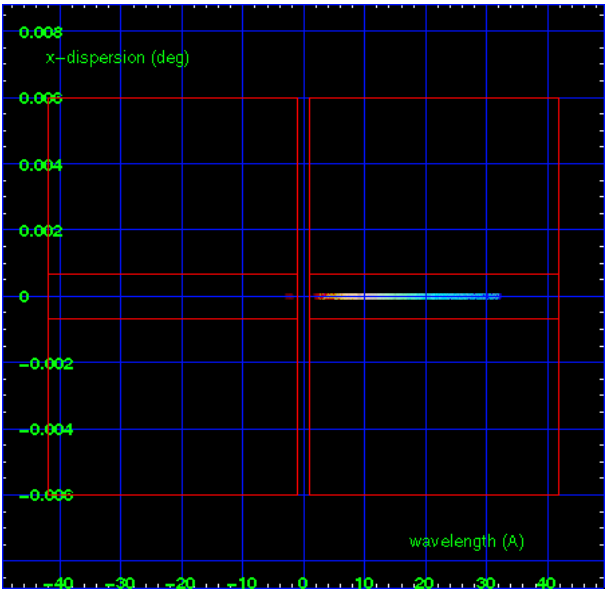
3.2 MEG Arm



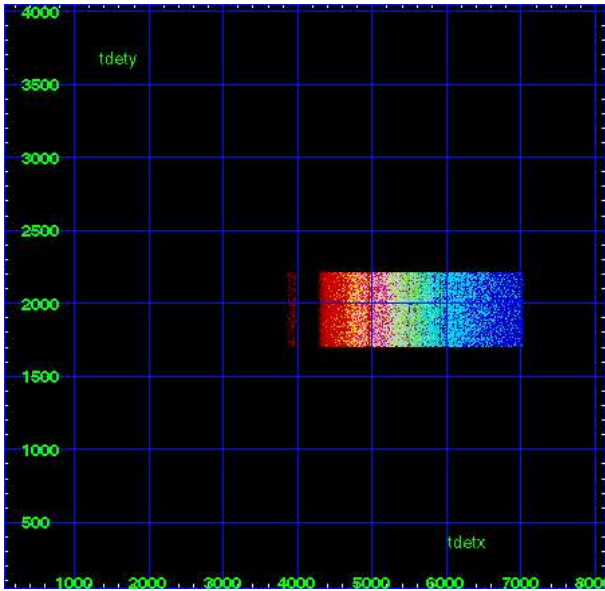
MEG Order Sort 123



MEG Order Sort ALL

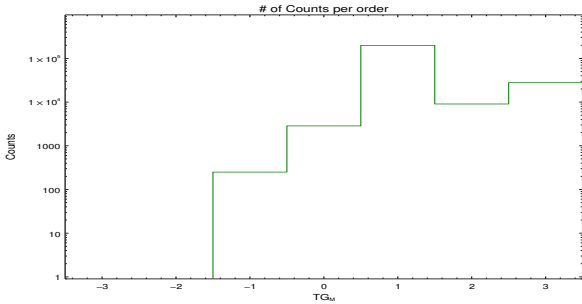


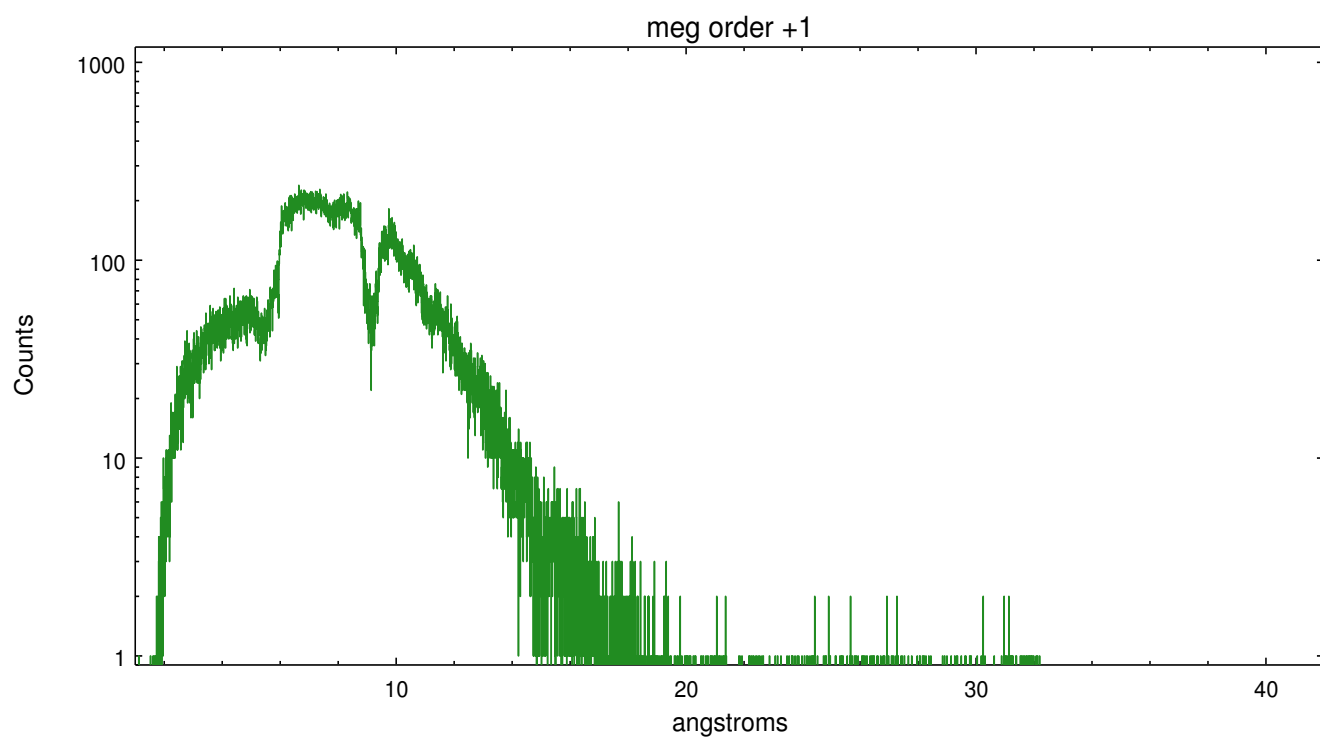
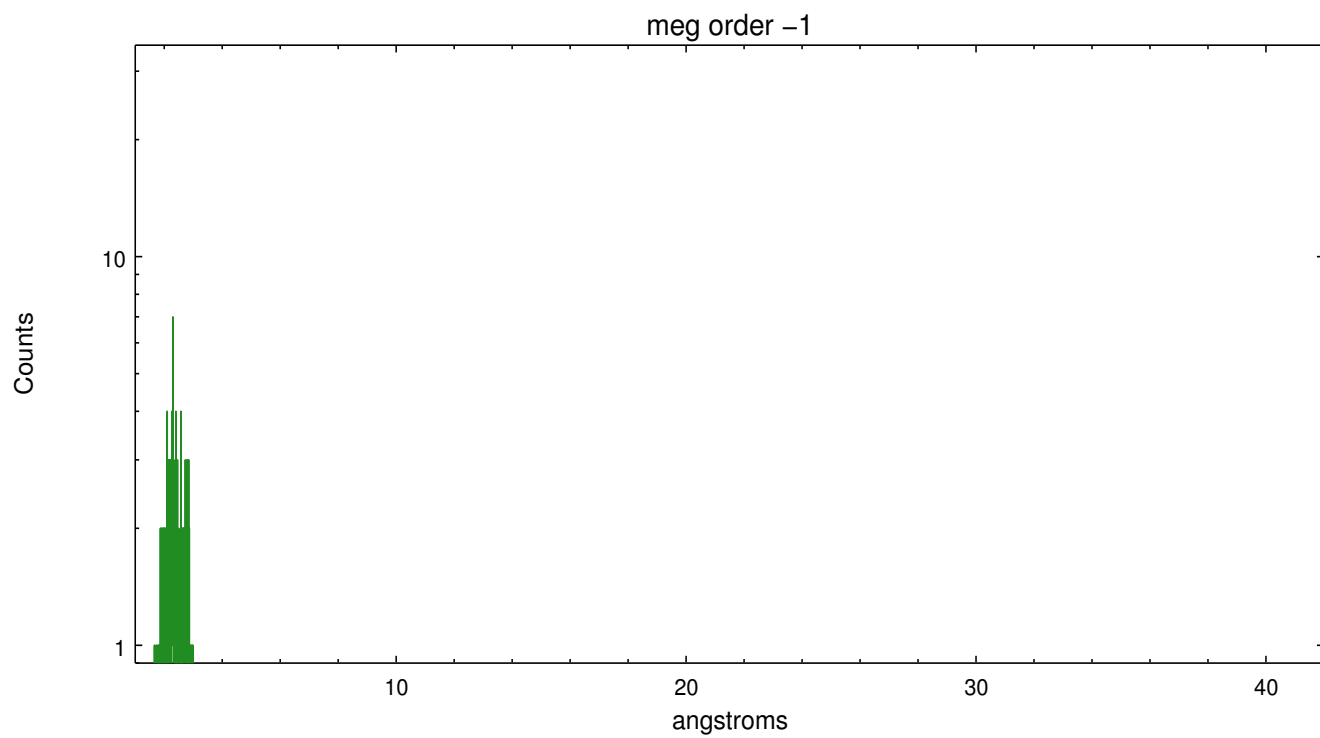
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	250	2854	198002	9051	27890





A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2012.07.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	6

A.2 Comments

Comment: detector intentionally offset to place two spectral arms off the array; spectrum is primarily HEG negative and MEG positive orders.

Comment: phase constraint met.