

V&V Reference Report

L2 ASCDS Version : 8.4.4

Observation 10829 - L2 Version 3
Chandra X-Ray Center

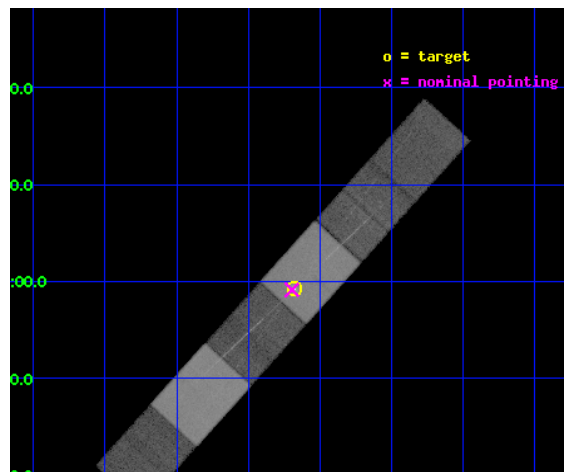
L2 Processing Date : Jun 5 2012

Contents

1	Front	2
2	OBI	3
2.1	OBI	3
2.1.1	Images	3
2.1.2	Bias	3
2.1.3	Parameters	4
2.1.4	Events	4
2.2	Compared Parameters	5
2.3	Aspect	6
2.4	Star Slots	9
2.4.1	Slot 3	9
2.4.2	Slot 4	10
2.4.3	Slot 5	11
2.4.4	Slot 6	12
2.4.5	Slot 7	13
2.5	FID Slots	14
2.5.1	Slot 0	14
2.5.2	Slot 1	15
2.5.3	Slot 2	16
3	Gratings	17
3.1	HEG Arm	17
3.2	MEG Arm	19
A	Summary	21
A.1	Status	21
A.2	Comments	21

1 Front

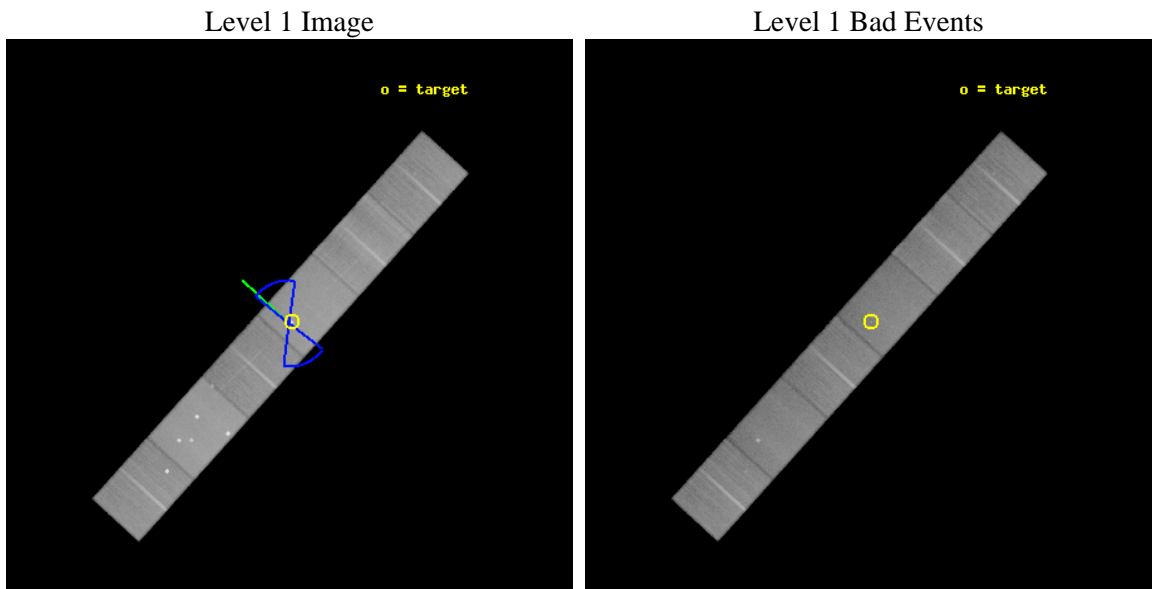
seq_num	701591	Sequence number
obs_id	10829	Observation id
title	NGC 1068: Photo-ionized gas in the nucleus, and ionization cone	Pr
observer	Prof Claude Canizares	Principal investigator
object	NGC 1068	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	40.669583	Observer's specified target RA [deg]
dec_targ	-0.013333	Observer's specified target Dec [deg]
ra_nom	40.674246874342	Nominal RA [deg]
dec_nom	-0.01467872221604	Nominal Dec [deg]
roll_nom	312.15662201864	Nominal Roll [deg]
revision	3	Processing version of data
ontime	39070.0	Sum of GTIs [s]
livetime	38438.98561219	Livetime [s]
ontime4	39070.0	Sum of GTIs [s]
ontime5	39070.0	Sum of GTIs [s]
ontime6	39067.458959758	Sum of GTIs [s]
ontime7	39070.0	Sum of GTIs [s]
ontime8	39070.0	Sum of GTIs [s]
ontime9	39067.458959639	Sum of GTIs [s]
l2events	528493	Number of level 2 events



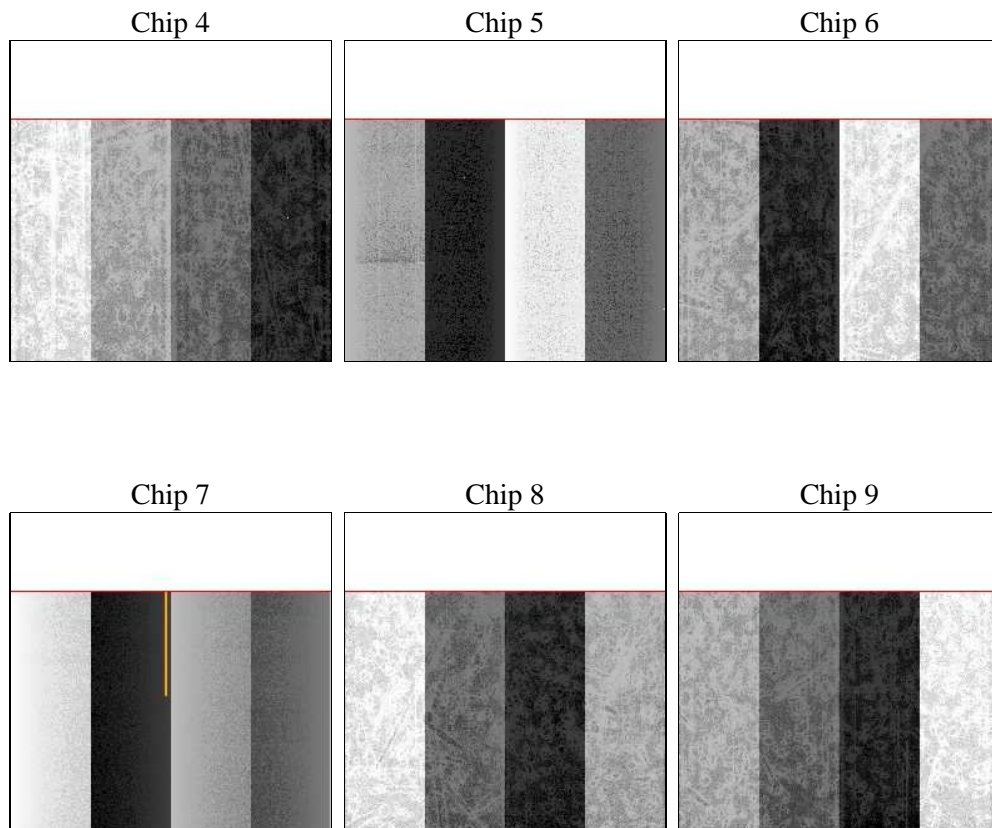
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	38930.000000	[s] Scheduled observation exposure time
ascdsver	8.4.4	Processing system revision	ontime	39070.0	Sum of GTIs [s]
caldbver	4.4.9	 	ontime4	39070.0	Sum of GTIs [s]
date	2012-05-25T19:53:05	Date and time of file creation	ontime5	39070.0	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	39067.458959758	Sum of GTIs [s]
			ontime7	39070.0	Sum of GTIs [s]
			ontime8	39070.0	Sum of GTIs [s]
			ontime9	39067.458959639	Sum of GTIs [s]
			l1events	2332513	Number of level 1 events

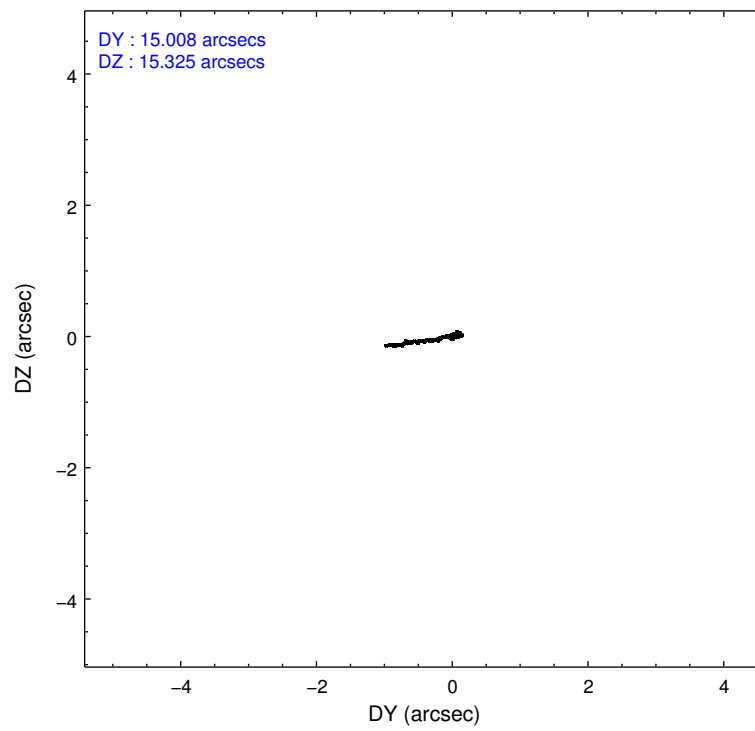
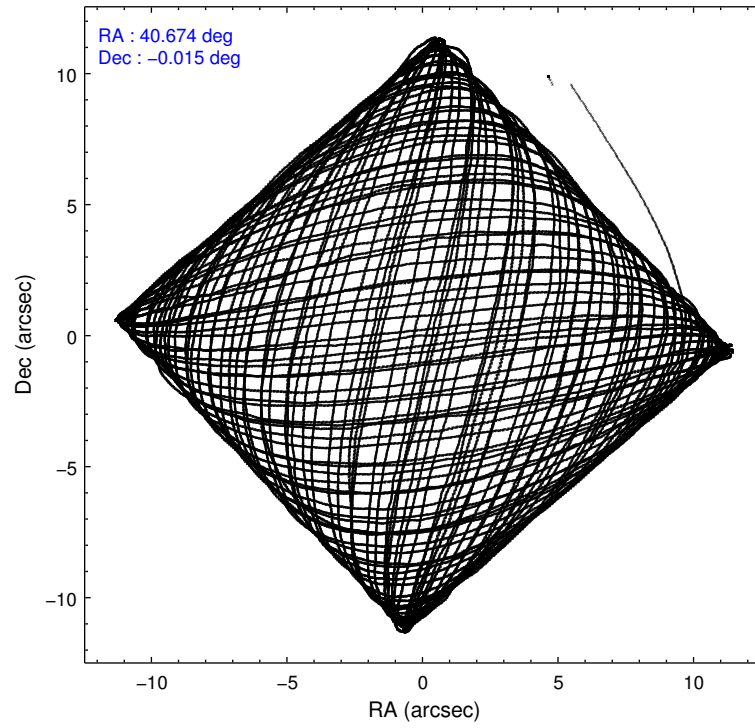
2.1.4 Events

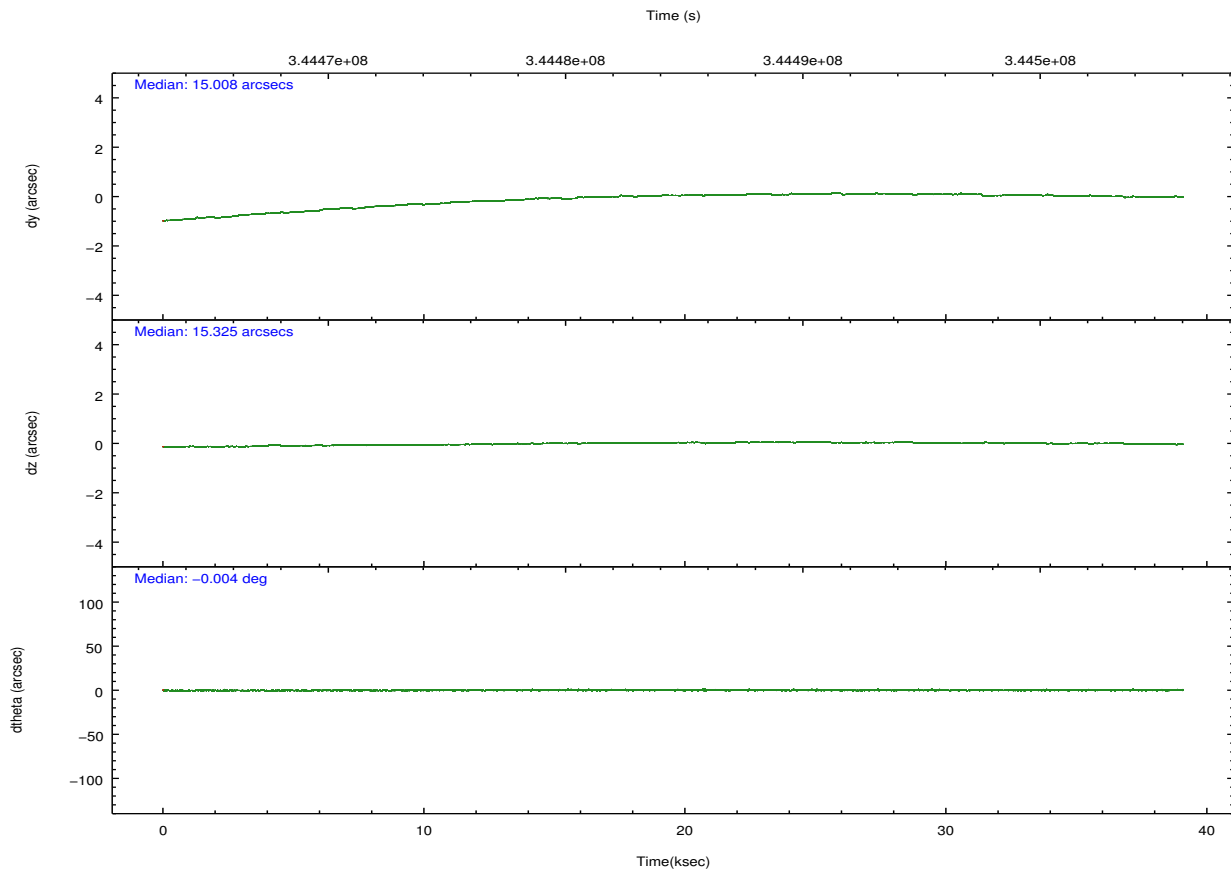
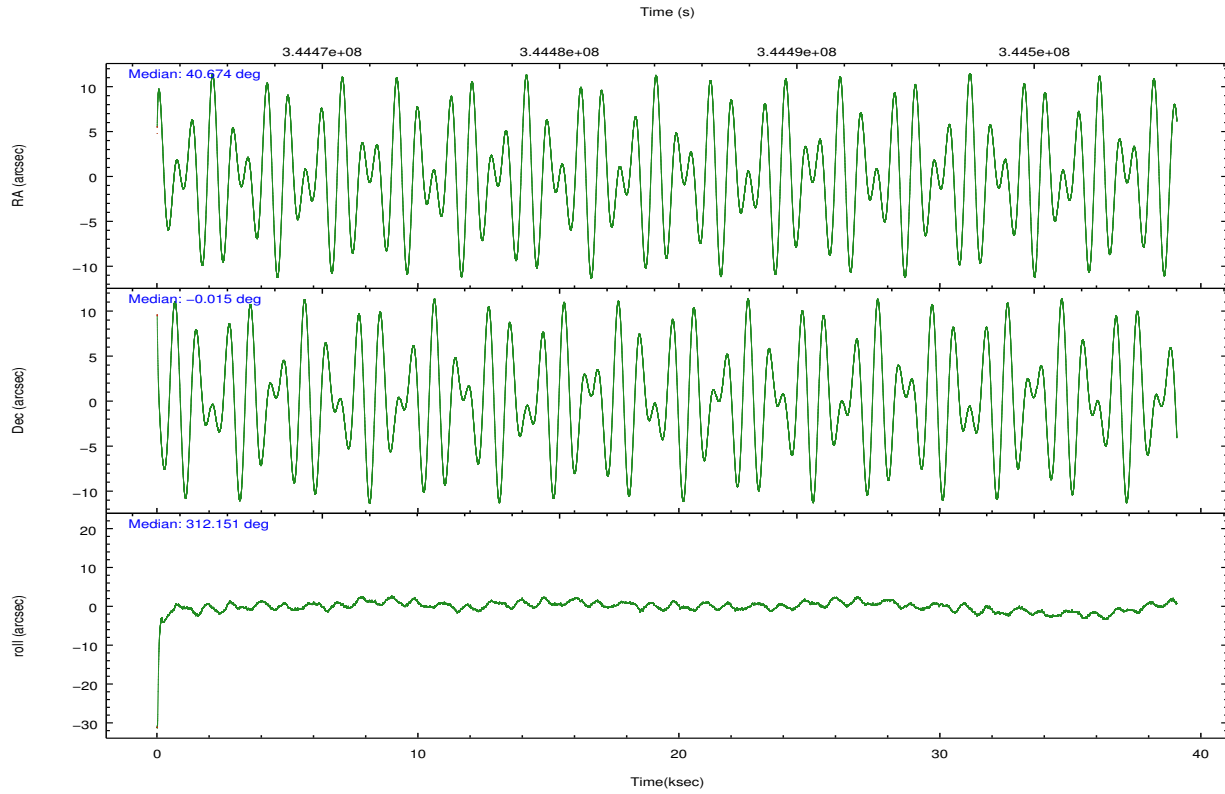
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	357483	507305	315943	441155	397176	313451	grade 0 events	29804	41573	17478	18960	30982	16505
rejected events	305929	267167	275346	254762	304250	274577		8%	8%	5%	4%	7%	5%
rejected %	85%	52%	87%	57%	76%	87%	grade 1 events	334	790	135	475	251	197
								0%	0%	0%	0%	0%	0%
							grade 2 events	8648	71025	8753	39881	21389	7890
								2%	14%	2%	9%	5%	2%
							grade 3 events	4087	9303	3845	17270	9887	3948
								1%	1%	1%	3%	2%	1%
							grade 4 events	3990	8723	3704	16845	9229	3871
								1%	1%	1%	3%	2%	1%
							grade 5 events	14069	35672	14737	40350	19670	15557
								3%	7%	4%	9%	4%	4%
							grade 6 events	6429	116418	7928	98677	24329	7846
								1%	22%	2%	22%	6%	2%
							grade 7 events	290122	223801	259363	208697	281439	257637
								81%	44%	82%	47%	70%	82%

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	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	40.648106	40.67424687434161	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-0.006660	-0.01467872221604026	Subarray start row	1	1
[deg] Pointing Roll	311.999994	312.1566220186422	Subarray row count	774	774
[deg] Roll angle	338.000000	338.000000	Alternating exposures requested	N	N
[deg] Roll tolerance	30.000000	30.000000	[s] Primary exposure time	0.000000	2.5
Roll constraint allows 180D rotation	Y	Y			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-186.772523	-186.7834551222893			
[mm] SIM translation stage offset	-3.36	-3.349067460718516			
[s] Observation start time (MET)	344465146.184000	344463469.8646			
Observation start date	2008-11-30T20:44:41	2008-11-30T20:17:49			
[s] Observation end time (MET)	344504076.184000	344505070.00415			
Observation end date	2008-12-01T07:33:31	2008-12-01T07:51:10			
Read mode	TIMED	TIMED			

2.3 Aspect



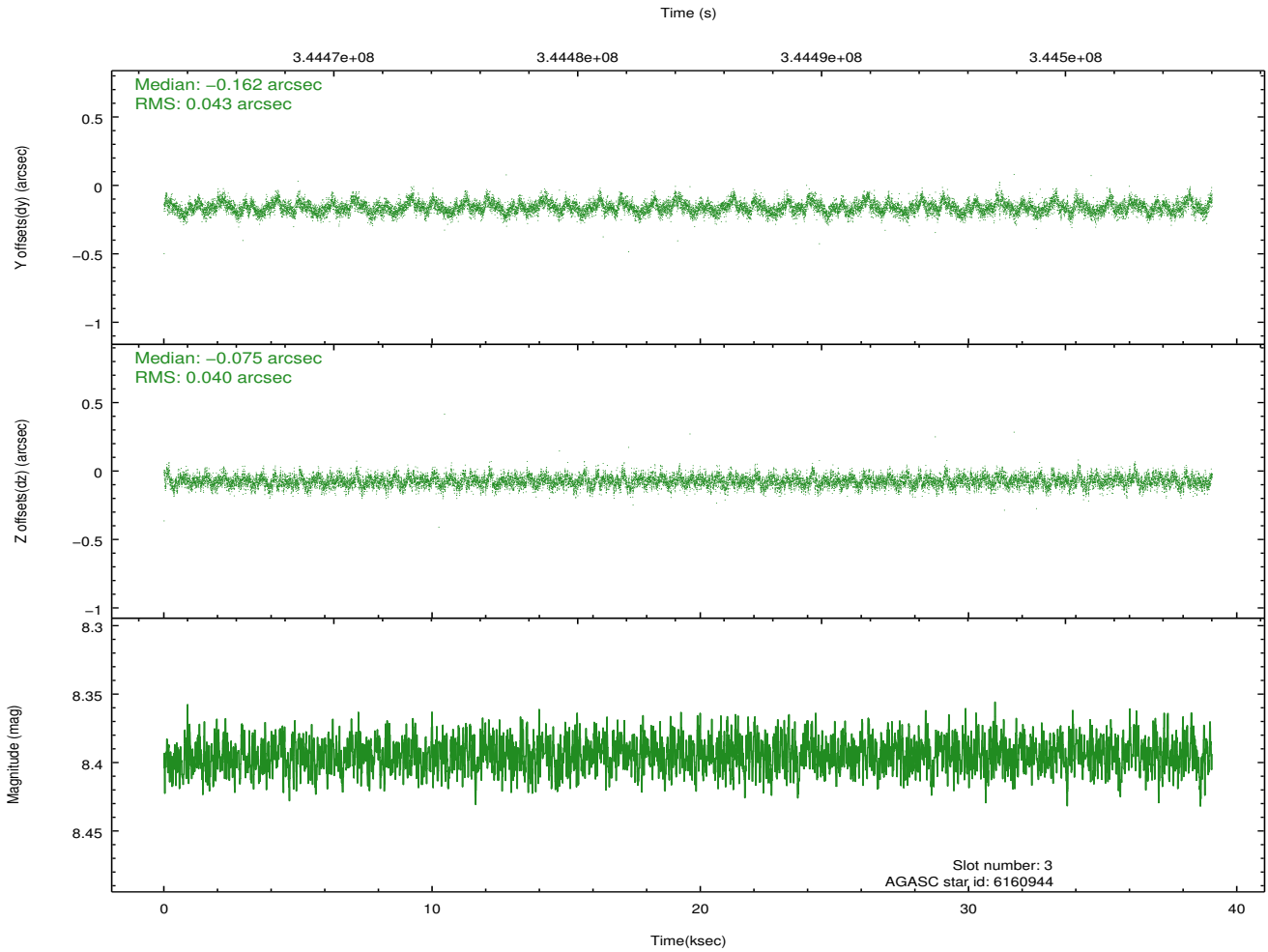
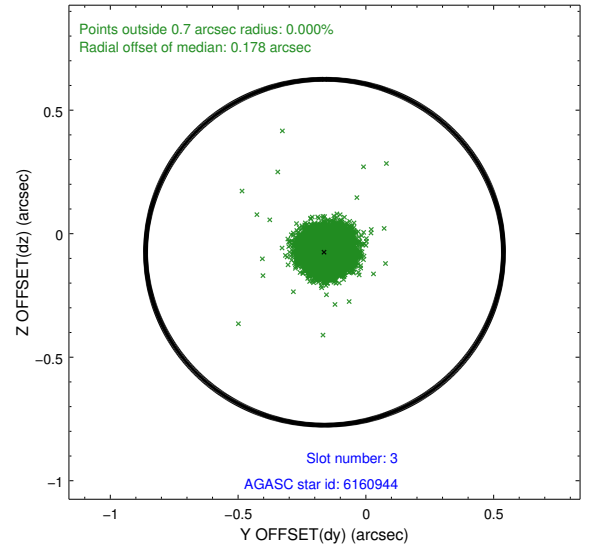
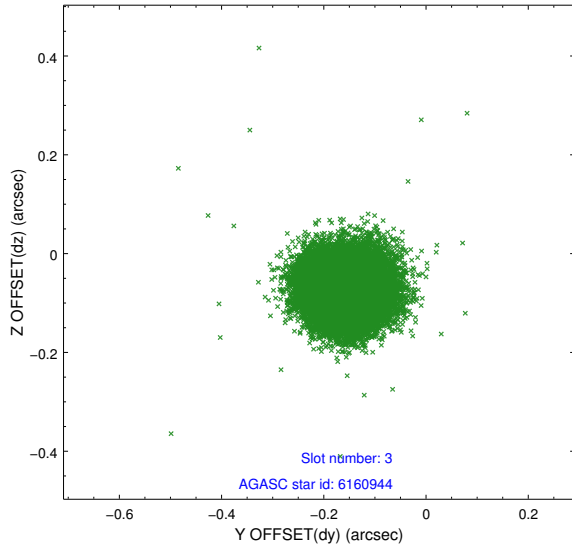


Slot Statistics

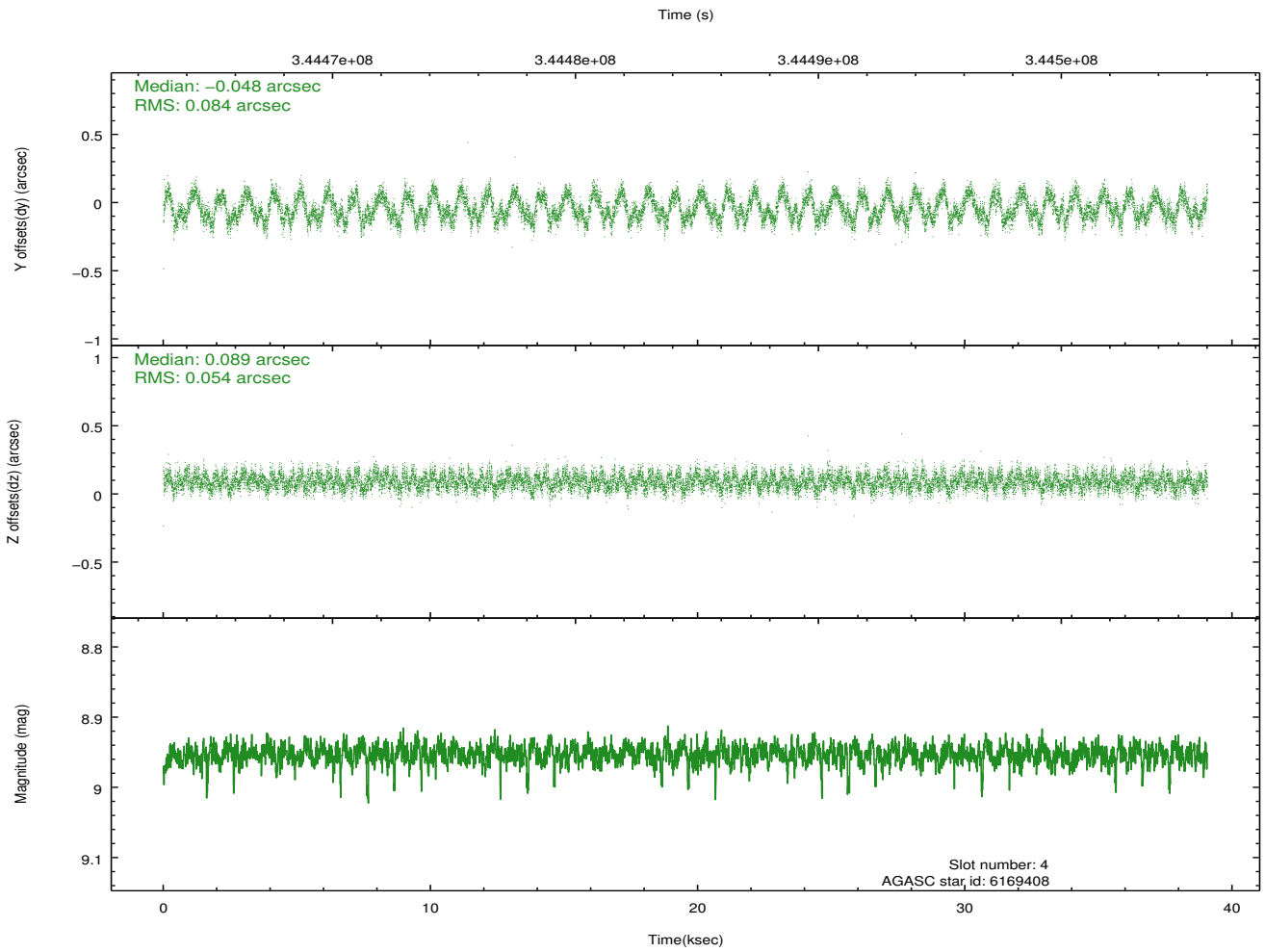
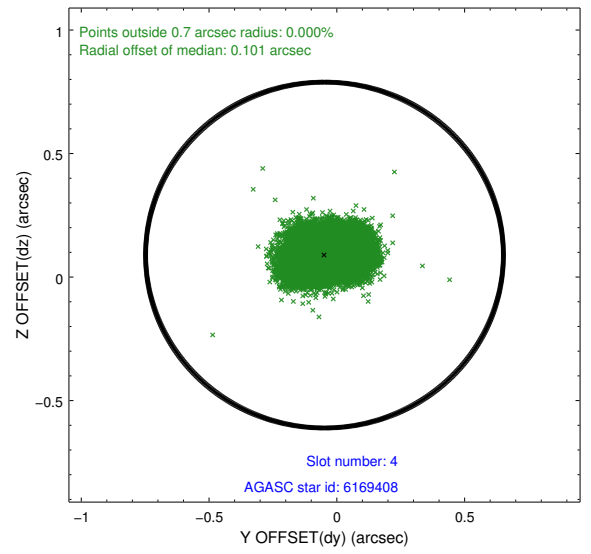
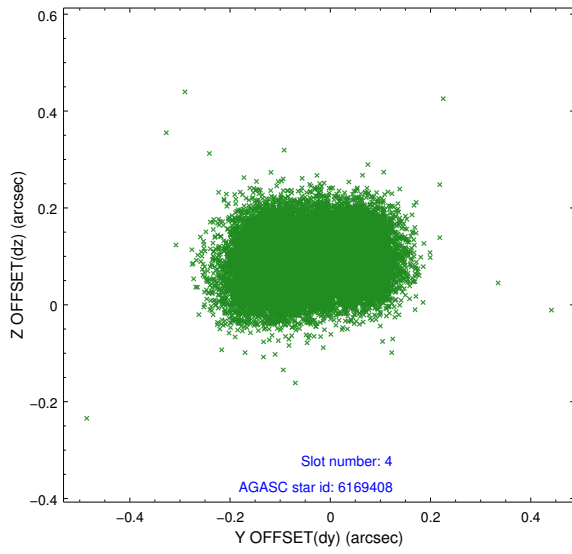
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.95	9531	-0.117	-0.050	0.010	0.024	0.000000	0.000000	-767.70	-1805.87
1	FID	ACIS-S-4	7.03	9531	0.207	0.070	0.007	0.013	0.000000	0.000000	2145.89	102.71
2	FID	ACIS-S-5	7.06	9530	-0.121	-0.012	0.011	0.029	0.000000	0.000000	-1820.53	96.31
3	GUIDE	6160944	8.39	19056	-0.162	-0.075	0.061	0.101	40.821496	0.087247	166.61	690.05
4	GUIDE	6169408	8.95	19046	-0.048	0.089	0.108	0.166	40.937839	0.210390	117.34	1297.80
5	GUIDE	615907528	7.75	19055	-0.018	-0.073	0.070	0.109	41.252710	-0.191636	1951.45	1172.11
6	GUIDE	615909768	9.06	19050	0.126	0.081	0.088	0.142	40.904100	-0.344520	1521.05	-129.08
7	GUIDE	615913552	8.71	19048	0.092	-0.020	0.121	0.180	41.235237	-0.003650	1406.71	1578.10

2.4 Star Slots

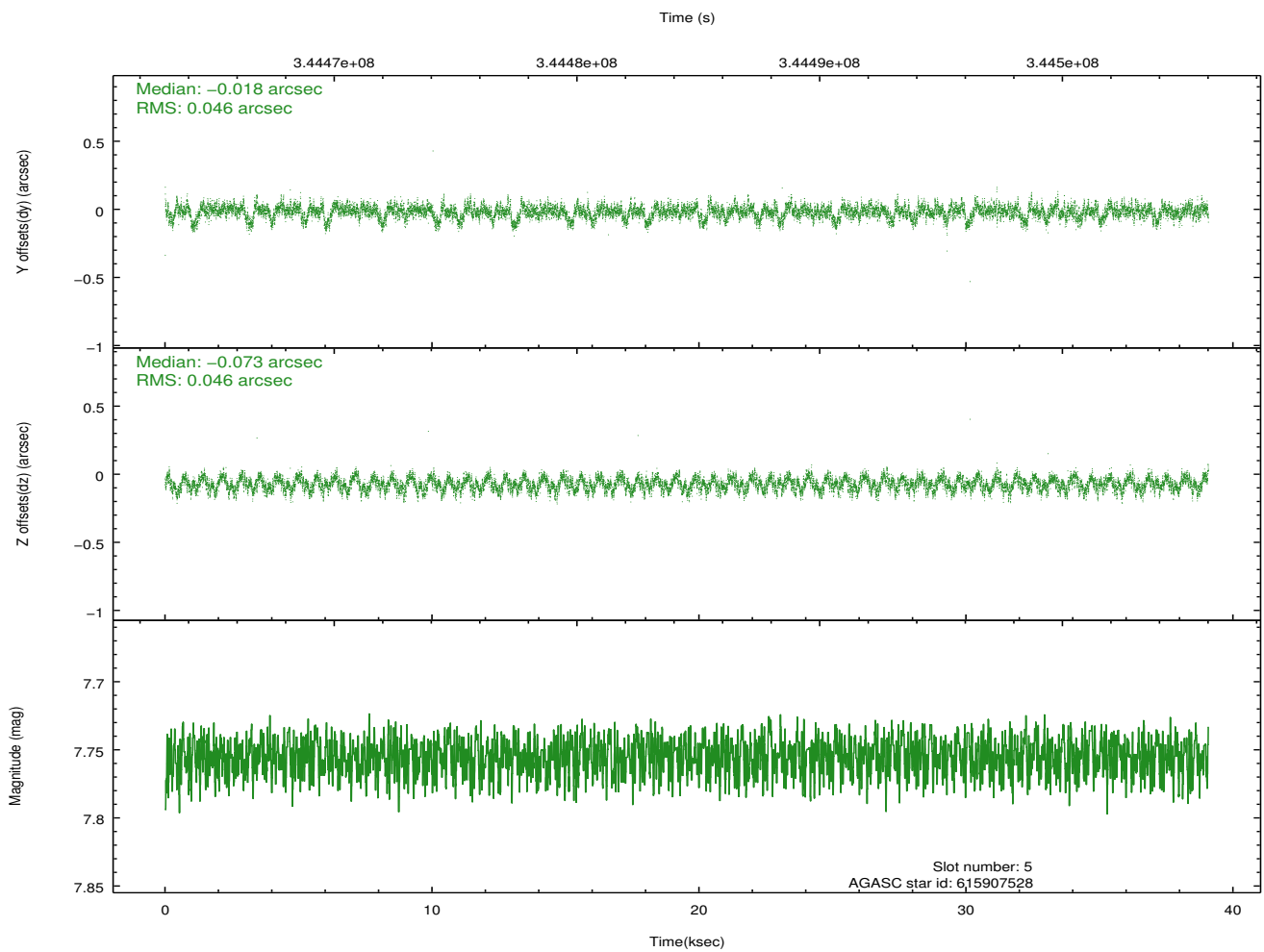
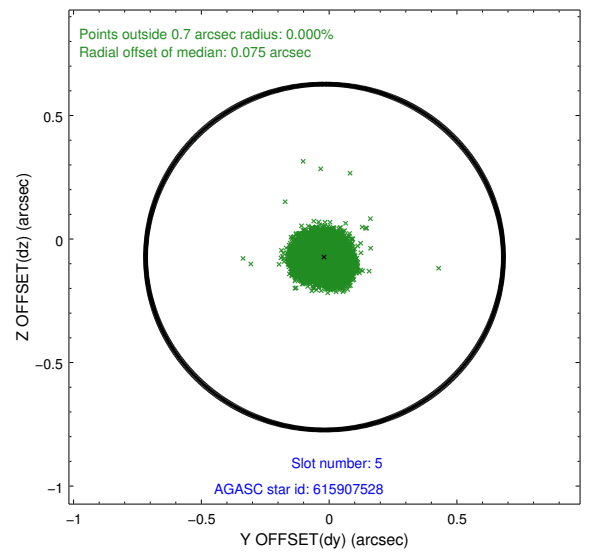
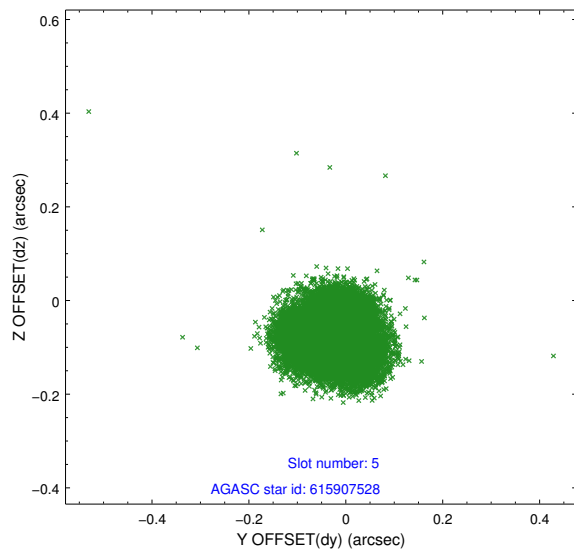
2.4.1 Slot 3



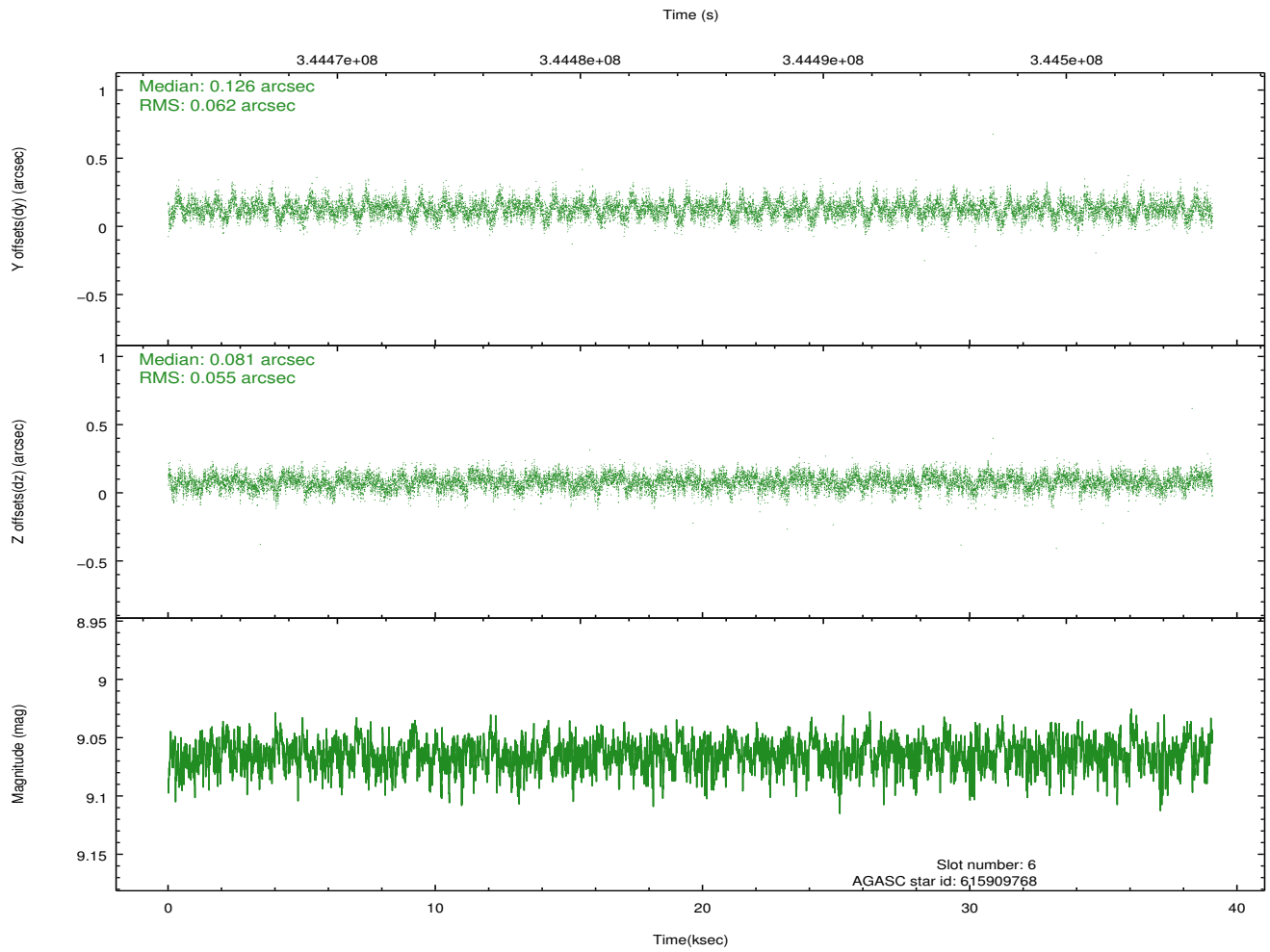
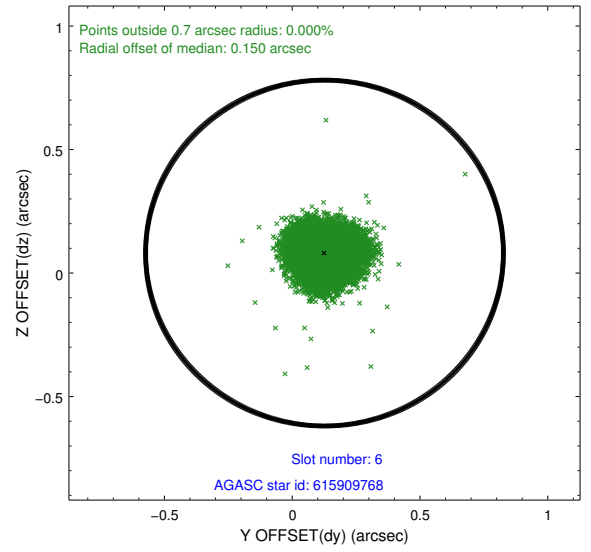
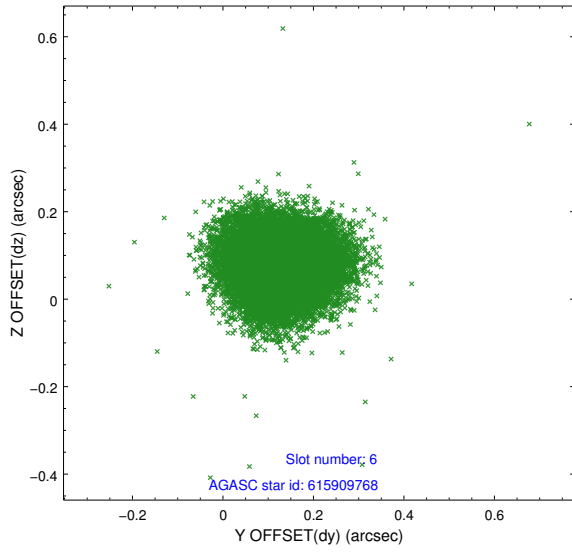
2.4.2 Slot 4



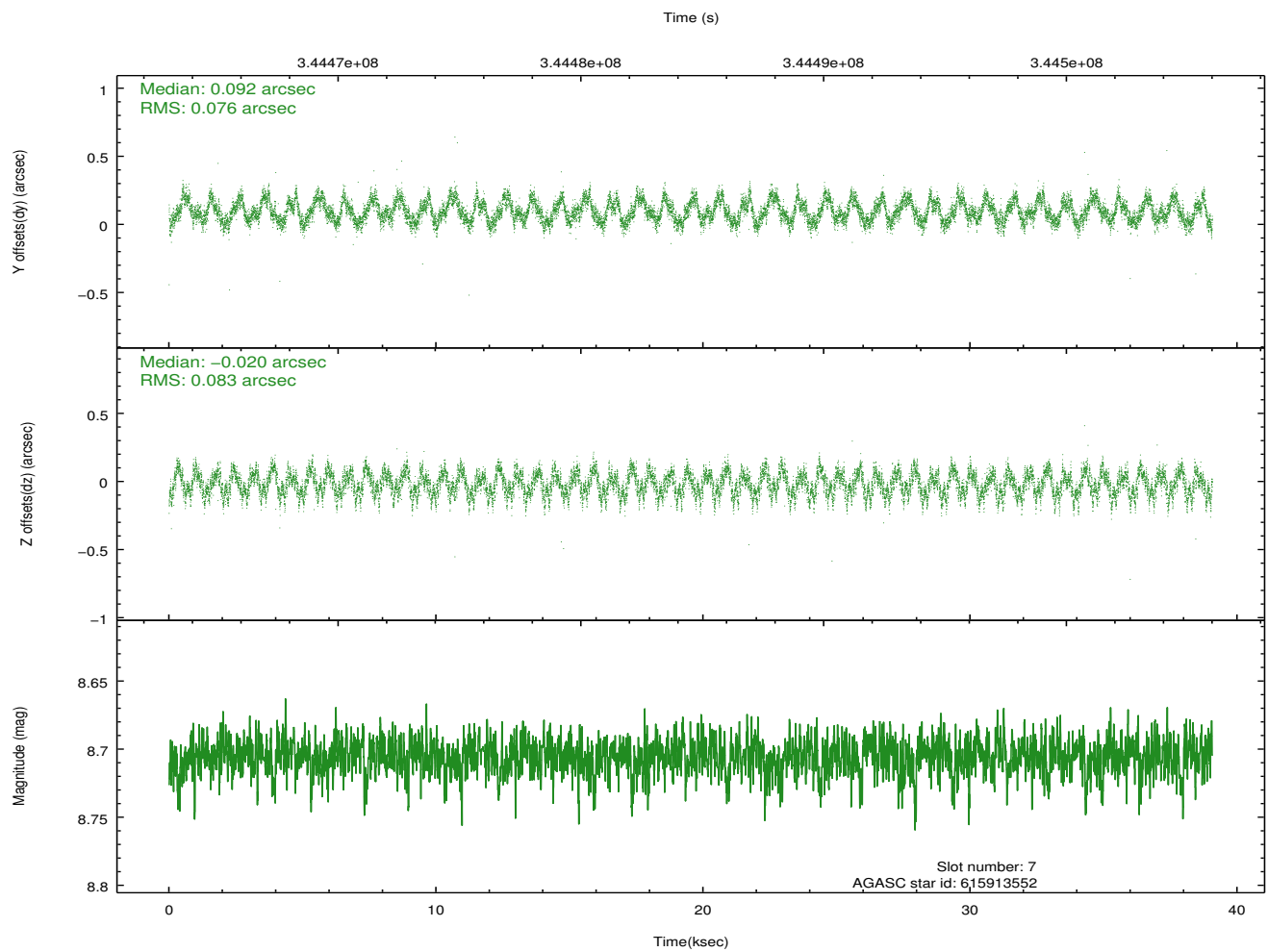
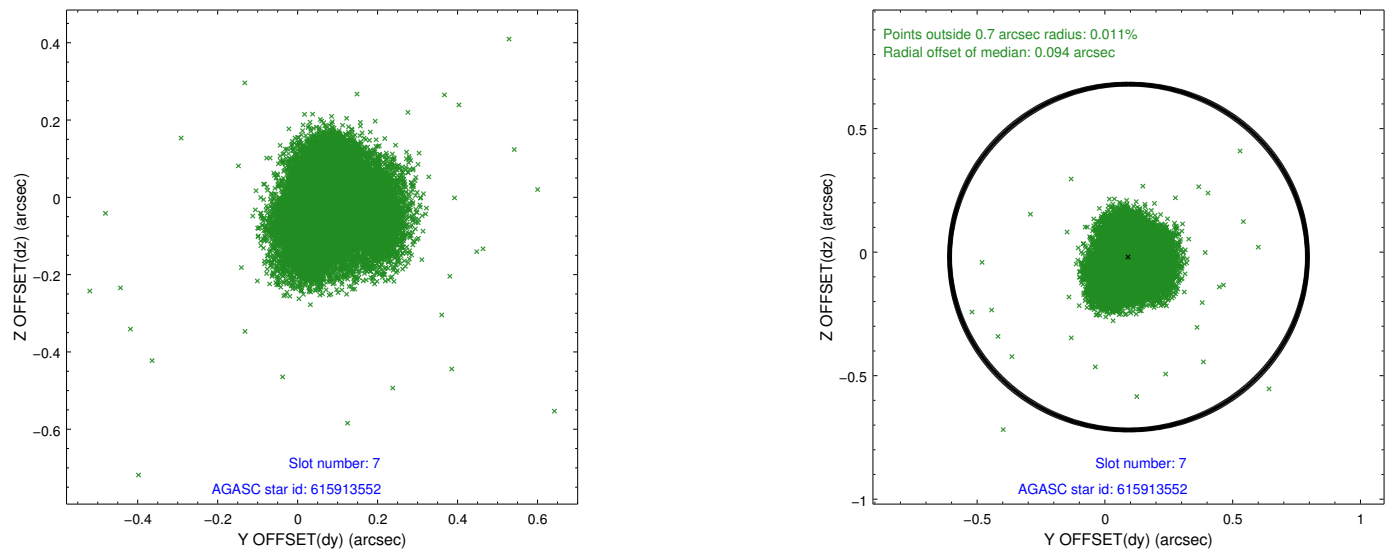
2.4.3 Slot 5



2.4.4 Slot 6

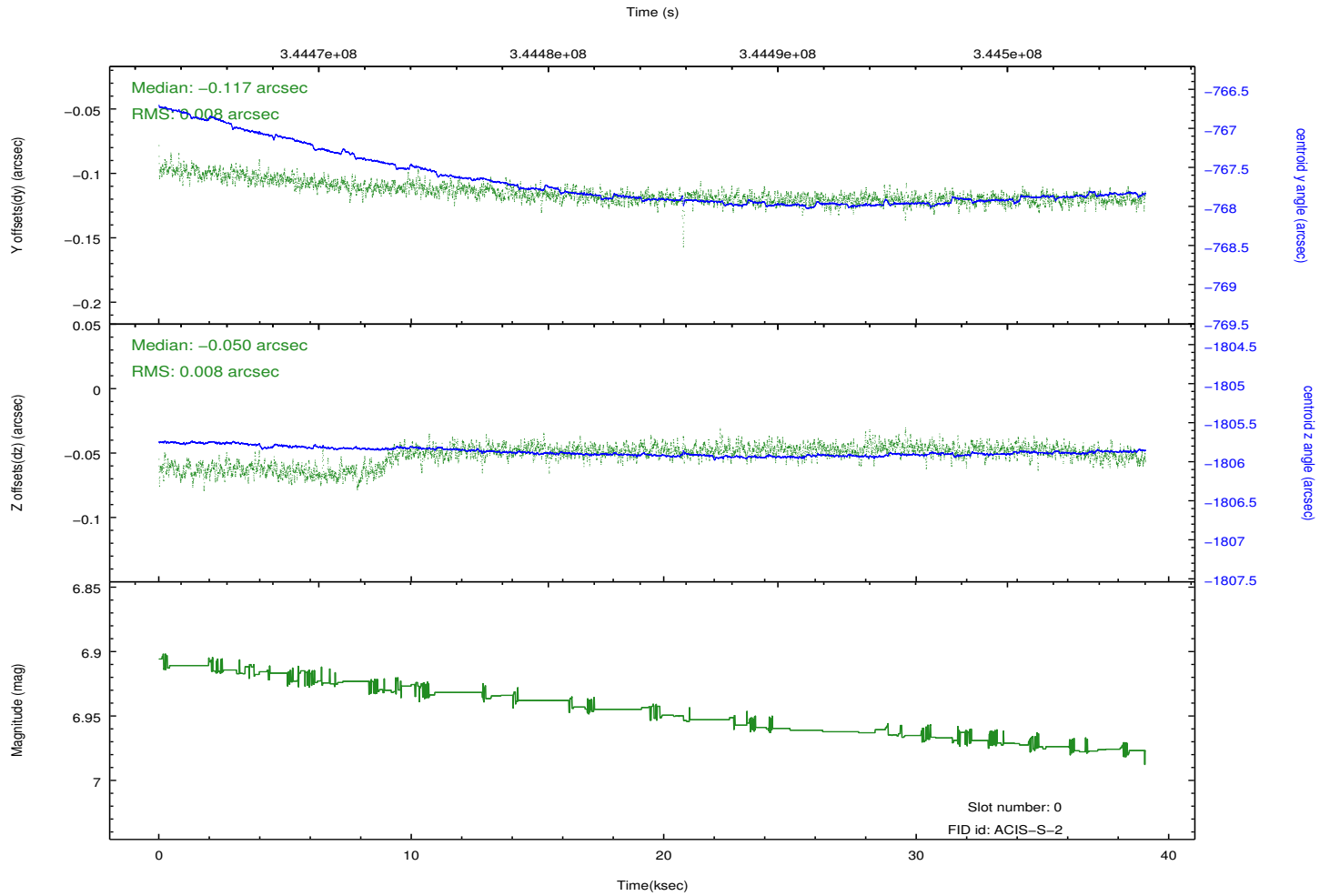
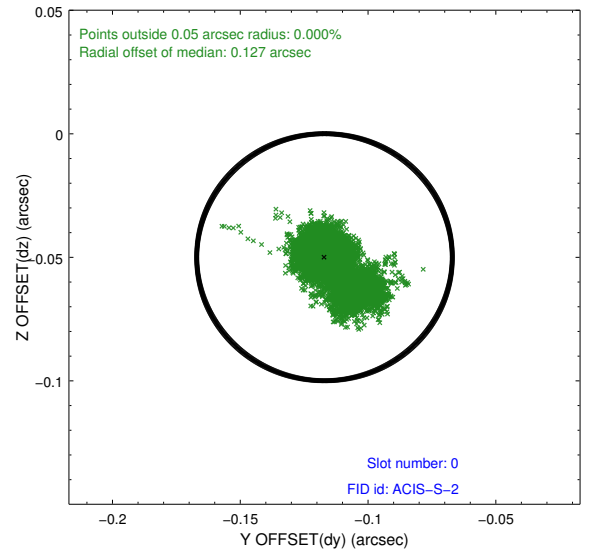
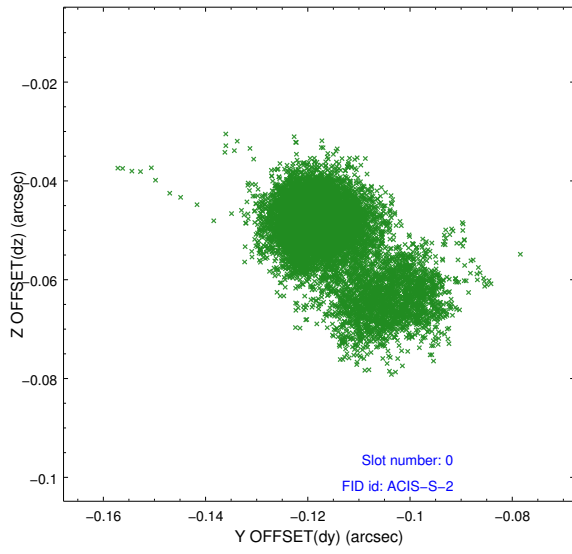


2.4.5 Slot 7

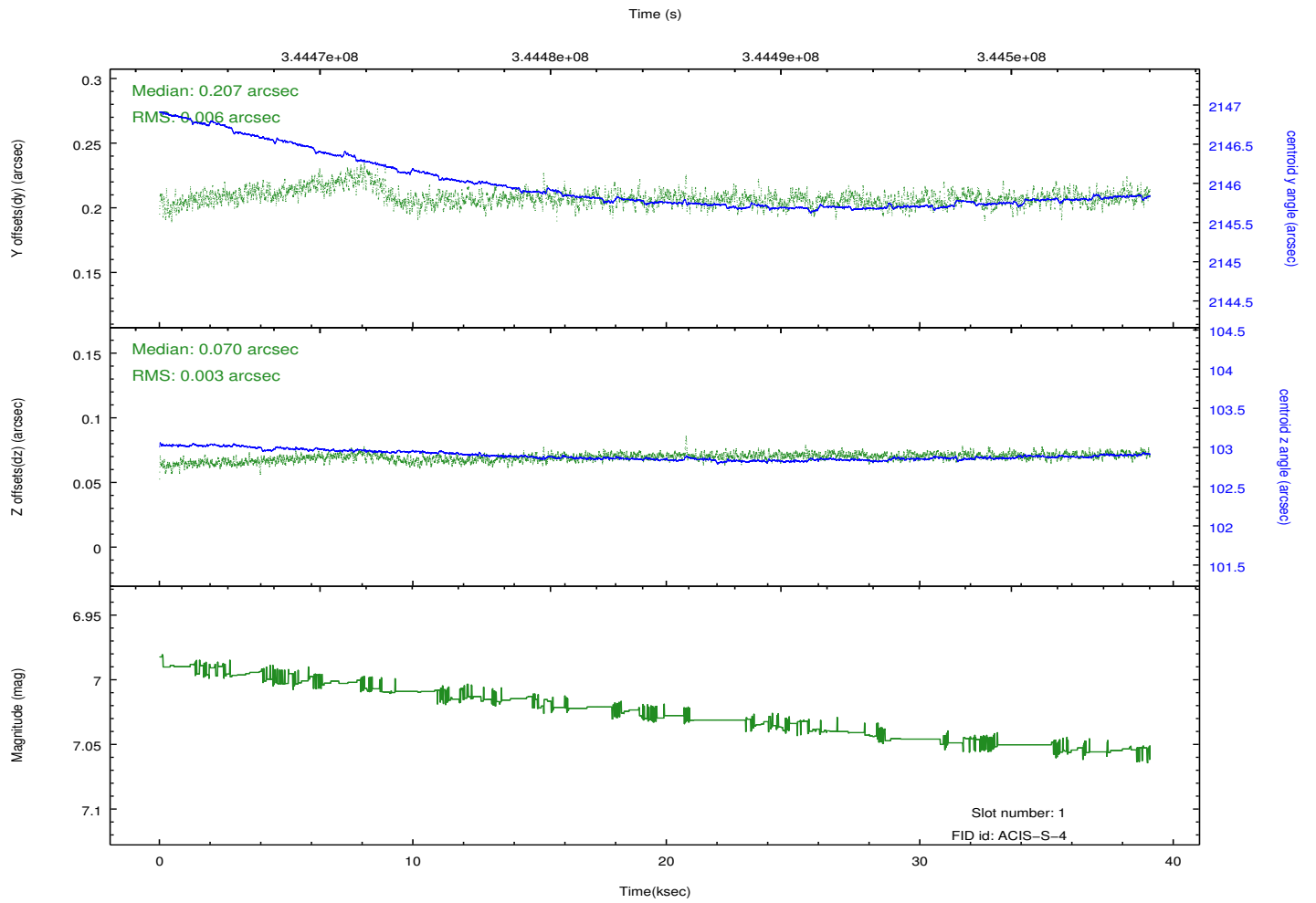
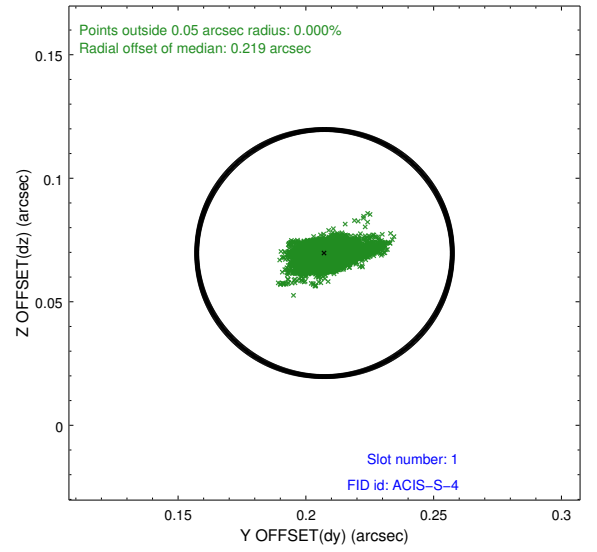
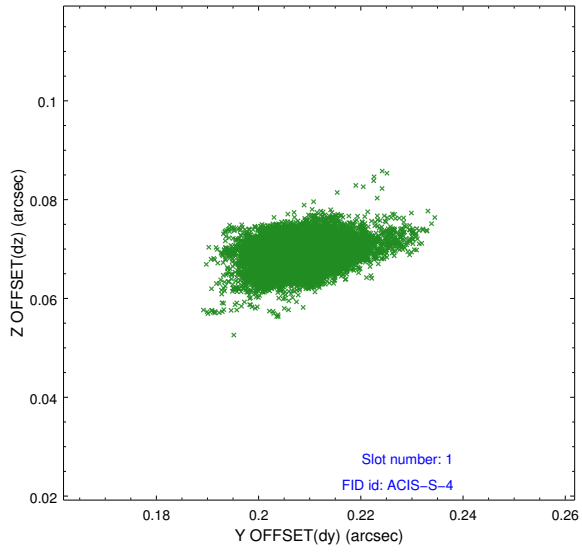


2.5 FID Slots

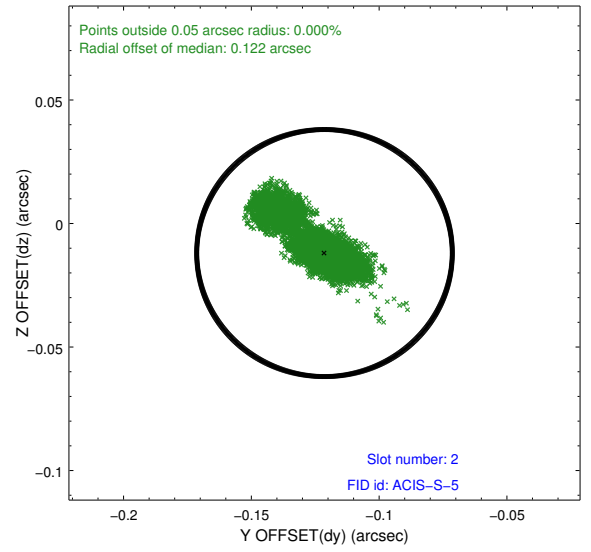
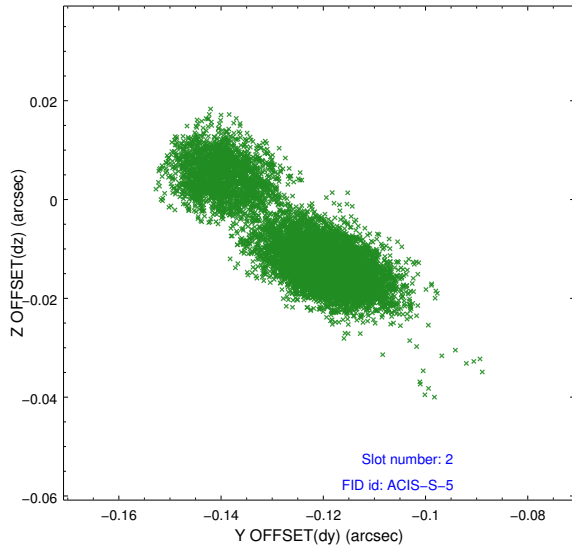
2.5.1 Slot 0



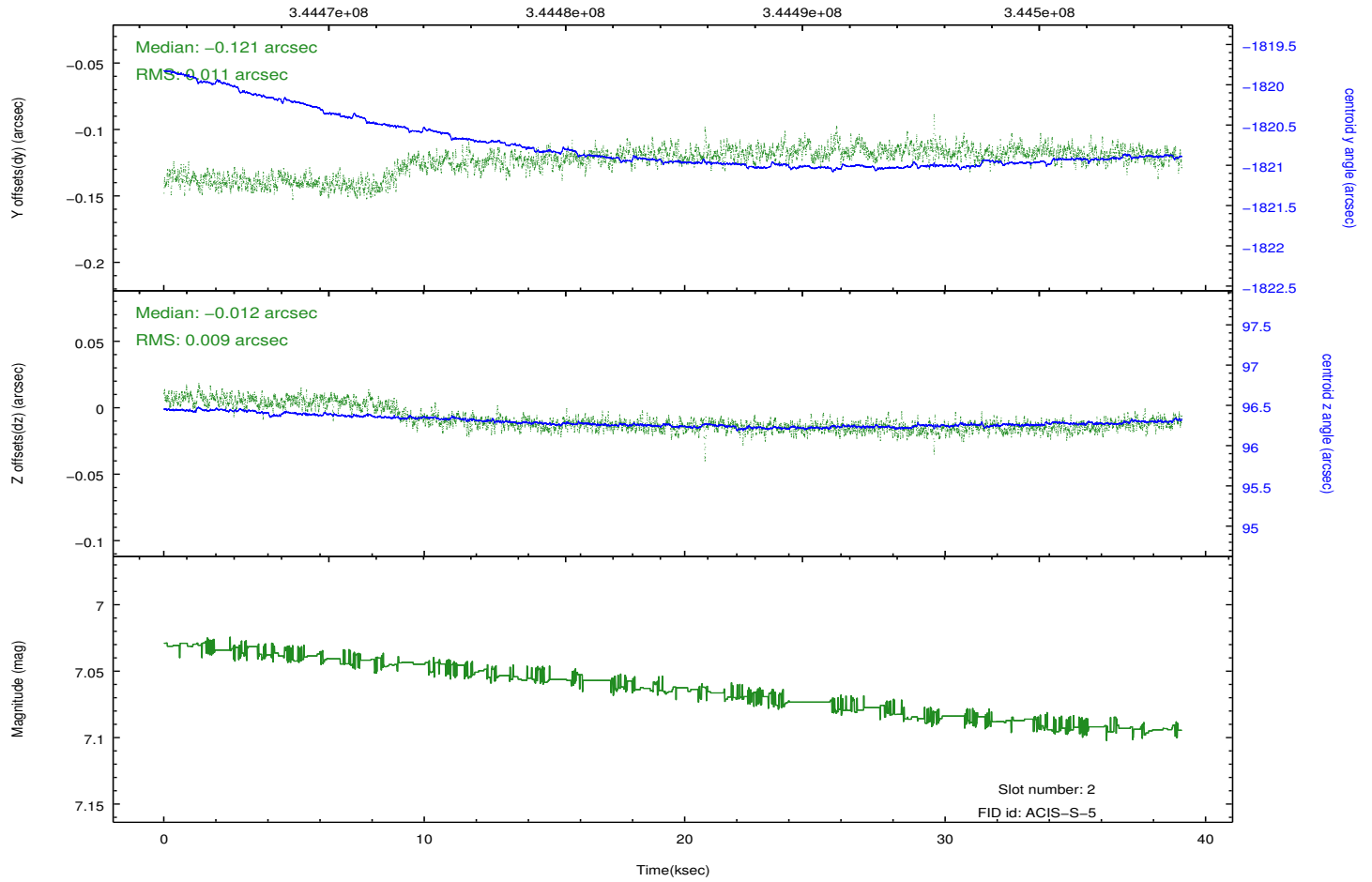
2.5.2 Slot 1



2.5.3 Slot 2



Time (s)

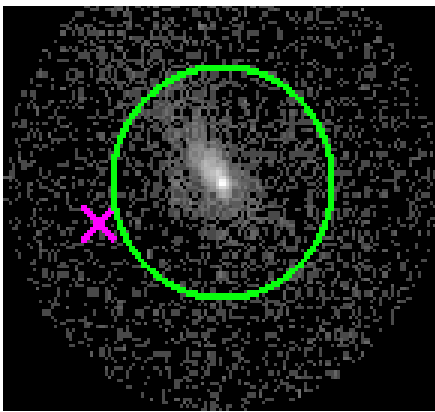


3 Gratings

3.1 HEG Arm



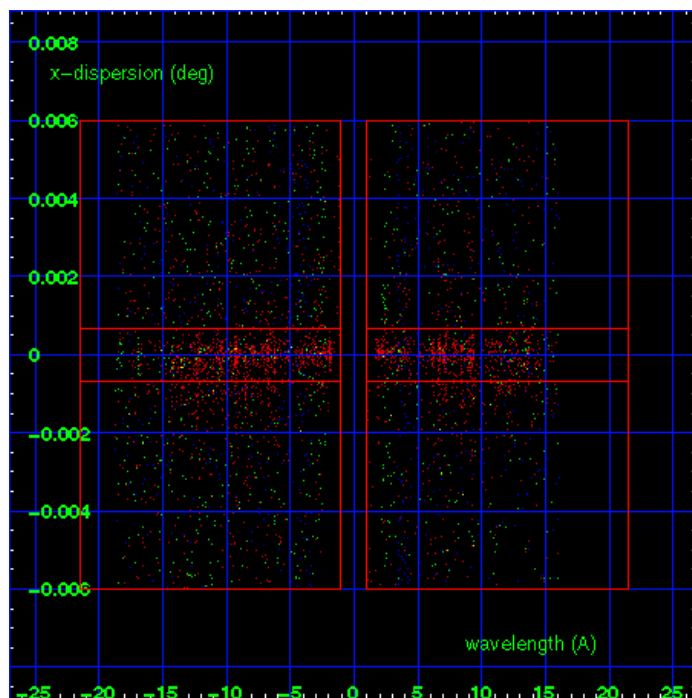
HEG Order Sort 123



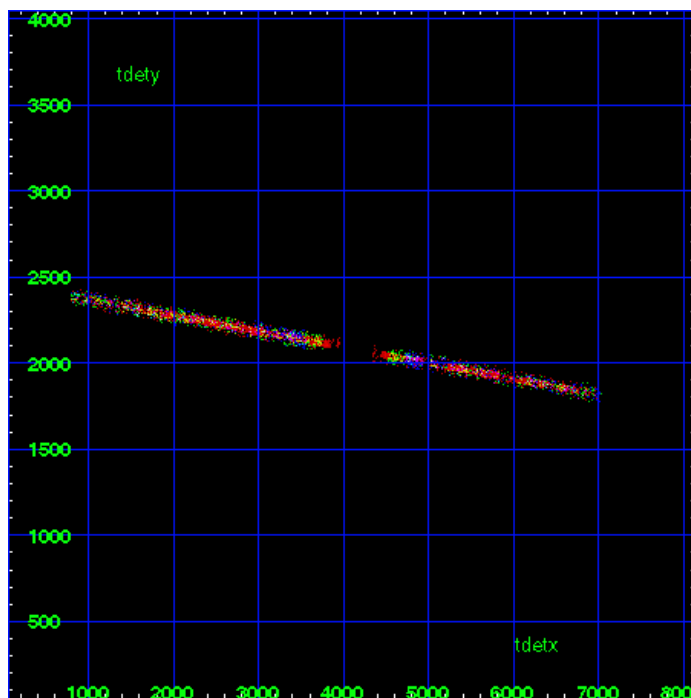
HEG Zero Order



HEG Order Sort ALL

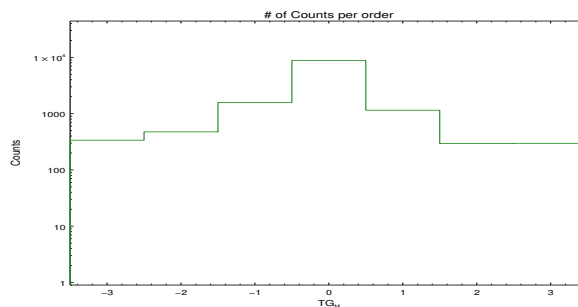


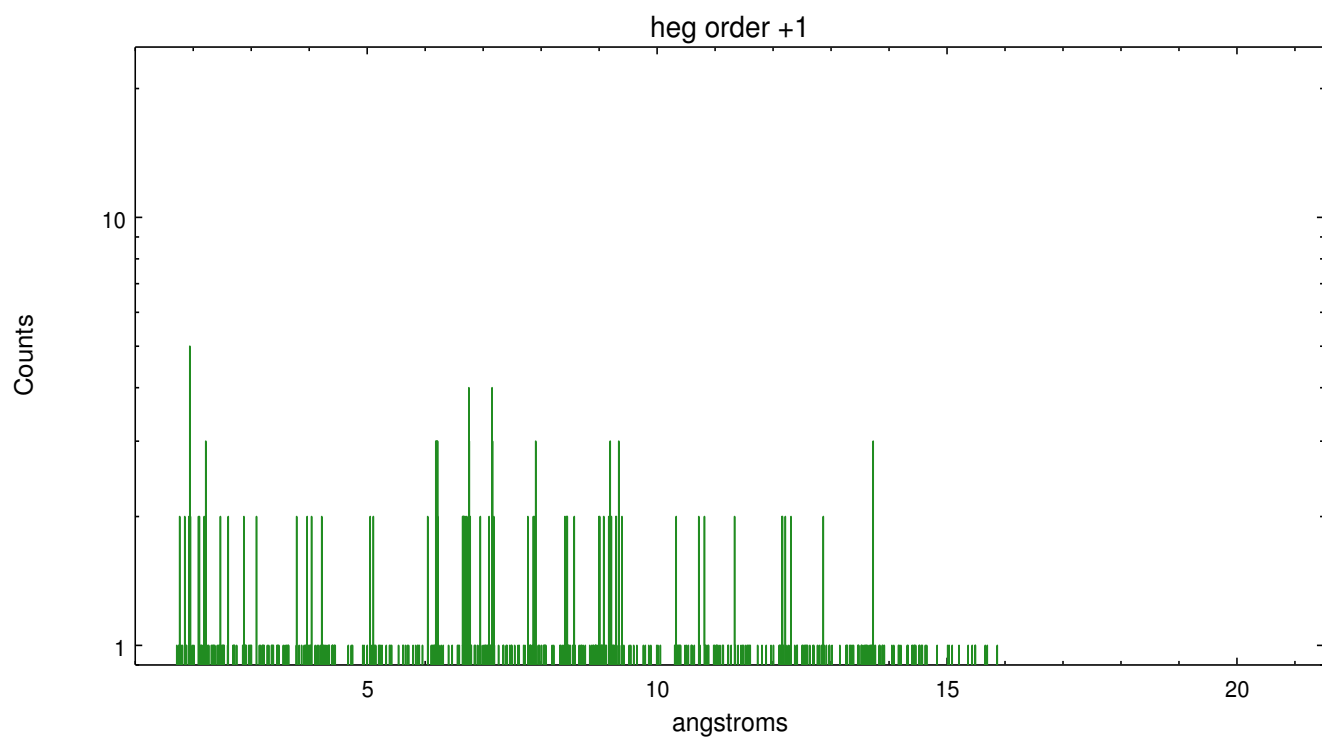
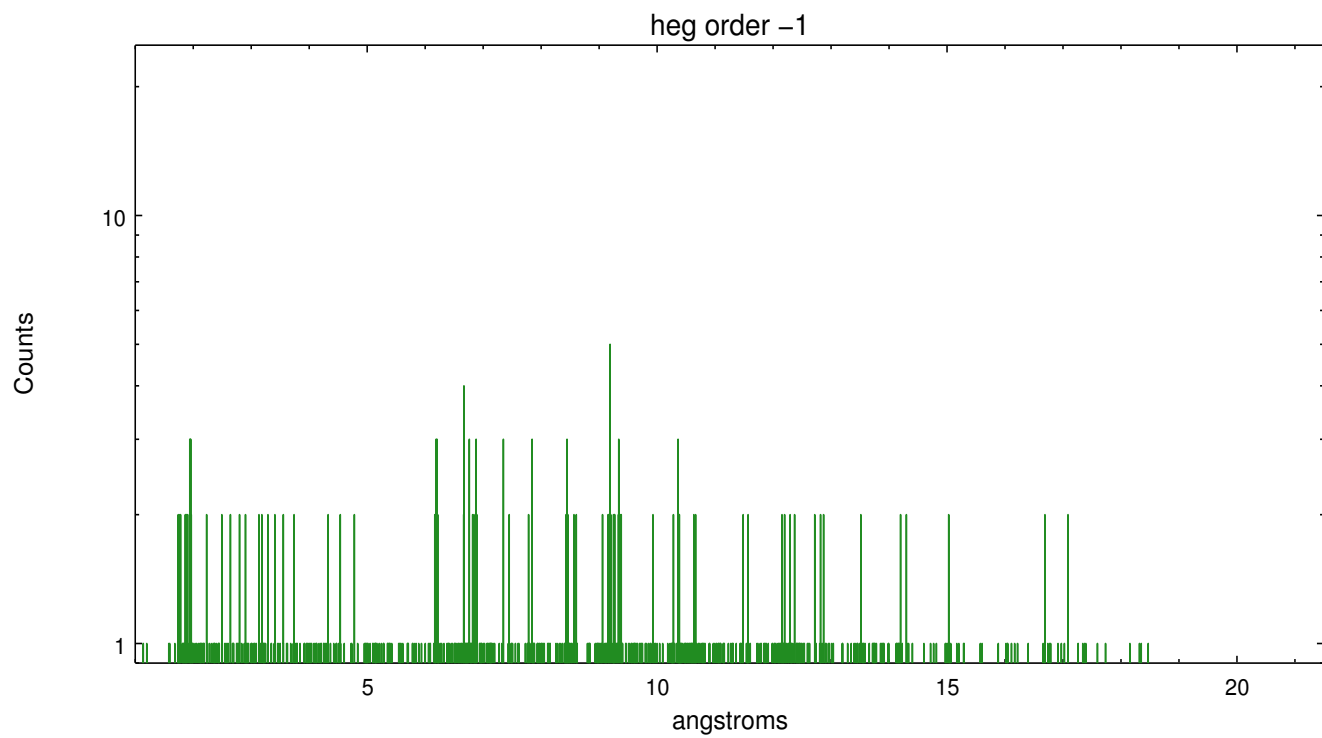
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	337	474	1582	8838	1151	294	297

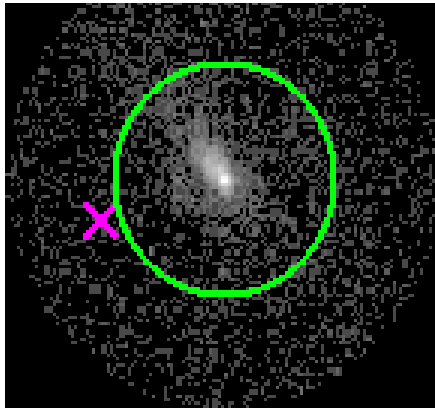




3.2 MEG Arm



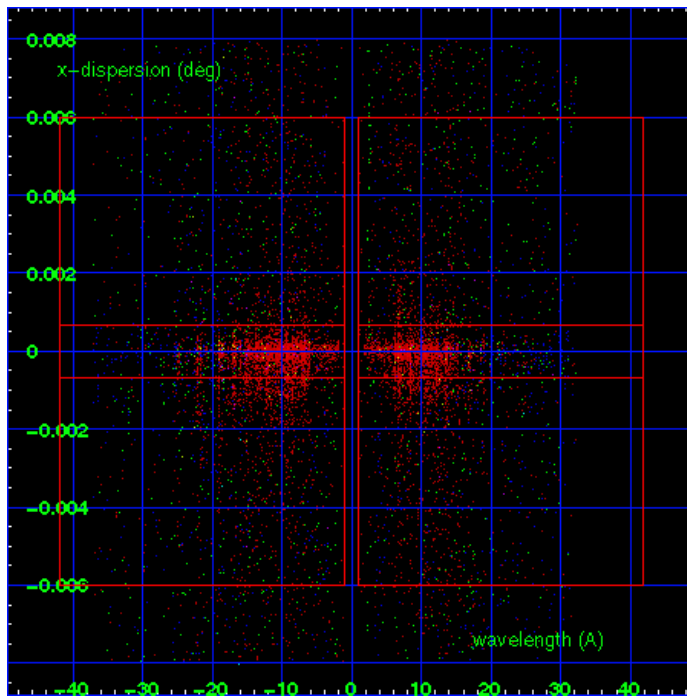
MEG Order Sort 123



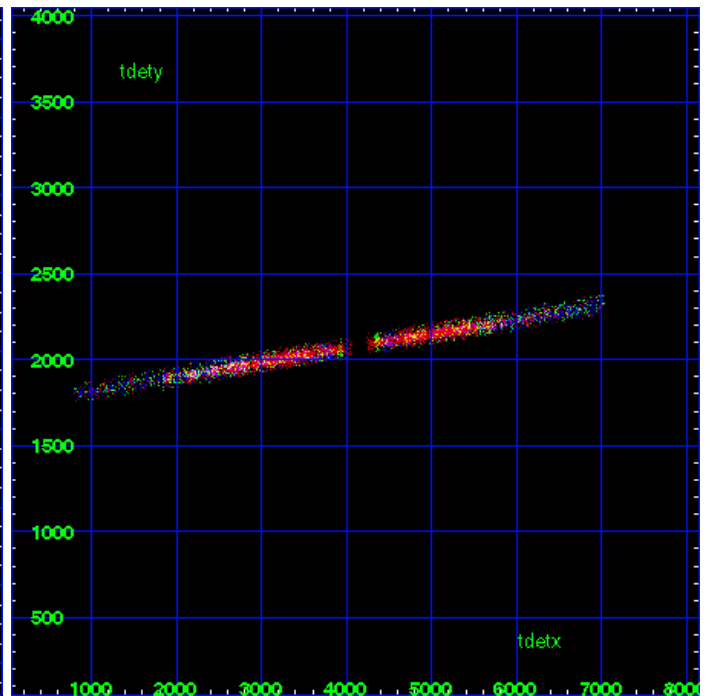
MEG Zero Order



MEG Order Sort ALL

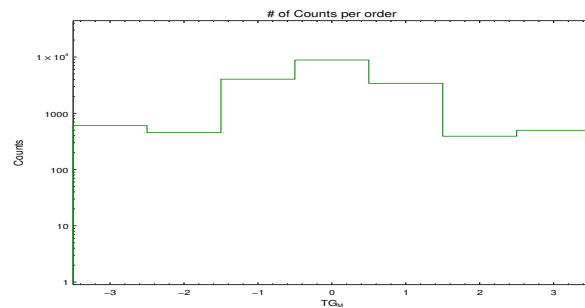


Spot Image MEG

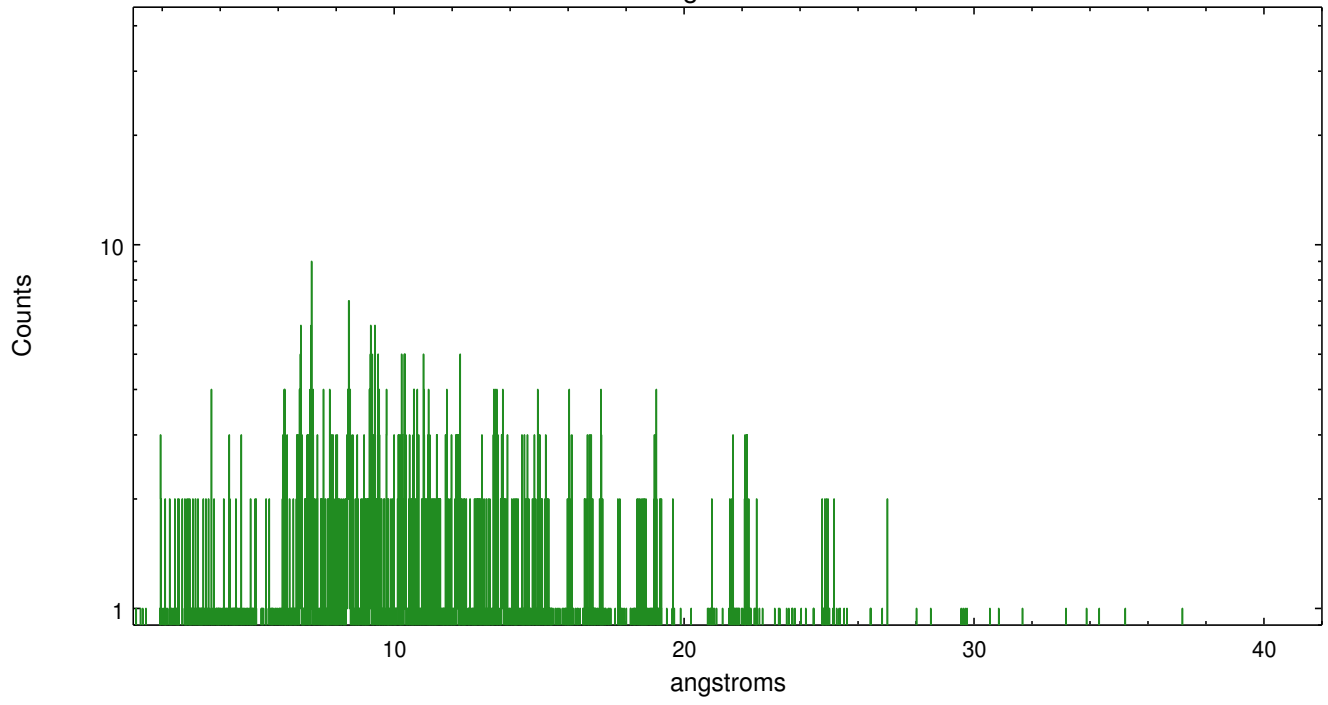


Full Detector MEG

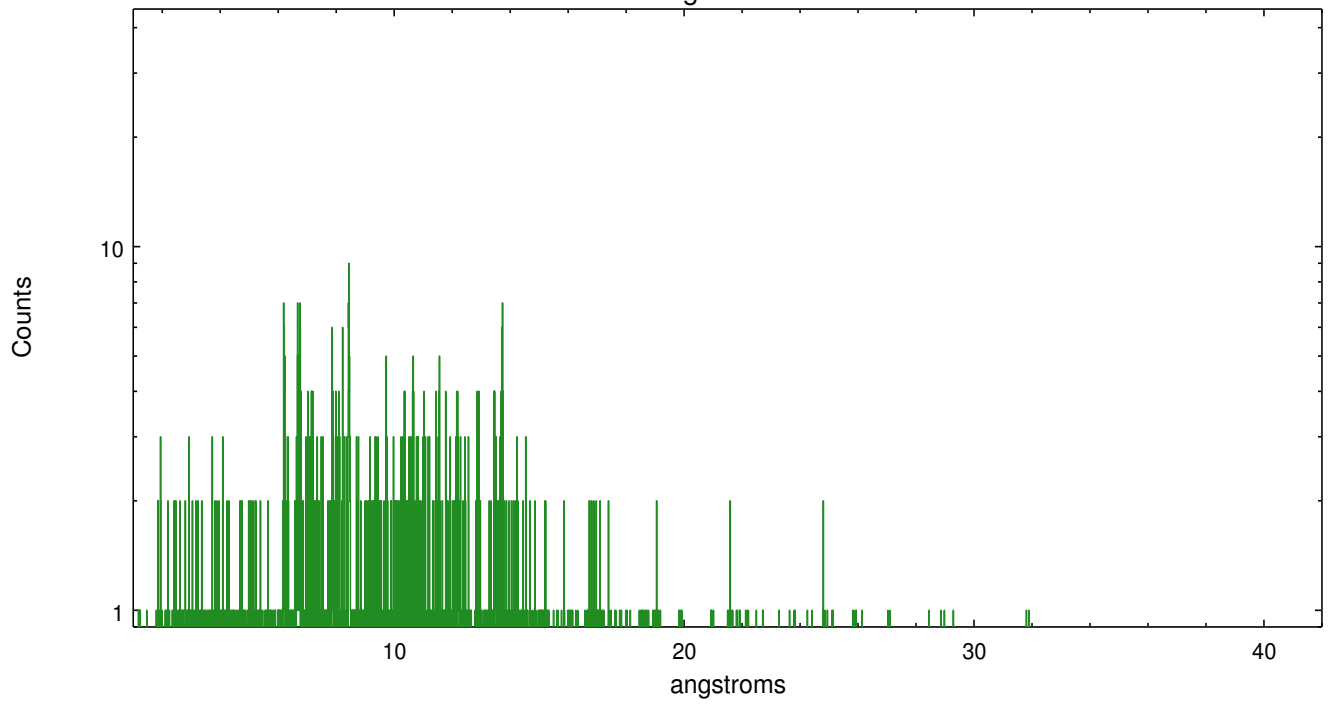
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	604	455	4033	8838	3403	391	498



meg order -1



meg order +1



A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.06.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	39.07

A.2 Comments

Source is extended and asymmetric. Standard software processing technique using the tool `tgdetect` did not give an accurate position for the zeroth order. The zeroth order position used in this processing was manually determined to be the brightest position in the nucleus. The newly determined zeroth order coordinates ($x=4130.25$, $y=4107.375$) have been placed in the `*src1a.fits` file, replacing the coordinates determined by `tgdetect`. Please note that rerunning `tgdetect` for analysis purposes will not give the same zeroth order position as that used in this processing.

===

Roll constraint met.

===

WARNING: there are no standard ciao tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle.