

V&V Reference Report

L2 ASCDS Version : 10.4

Observation 17392 - L2 Version 1
Chandra X-Ray Center

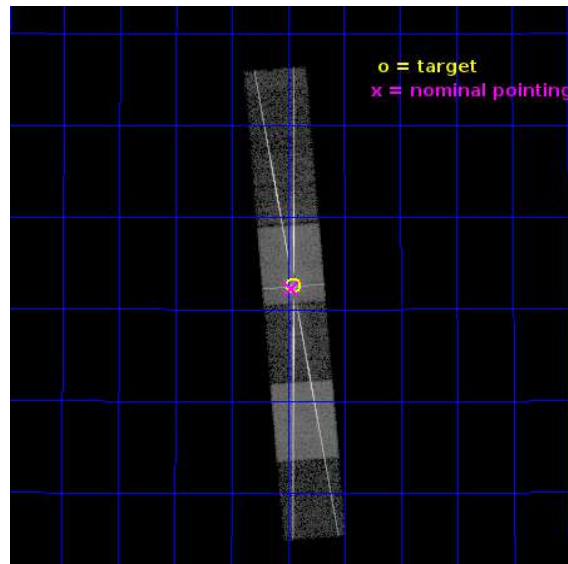
L2 Processing Date : Jul 2 2015

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

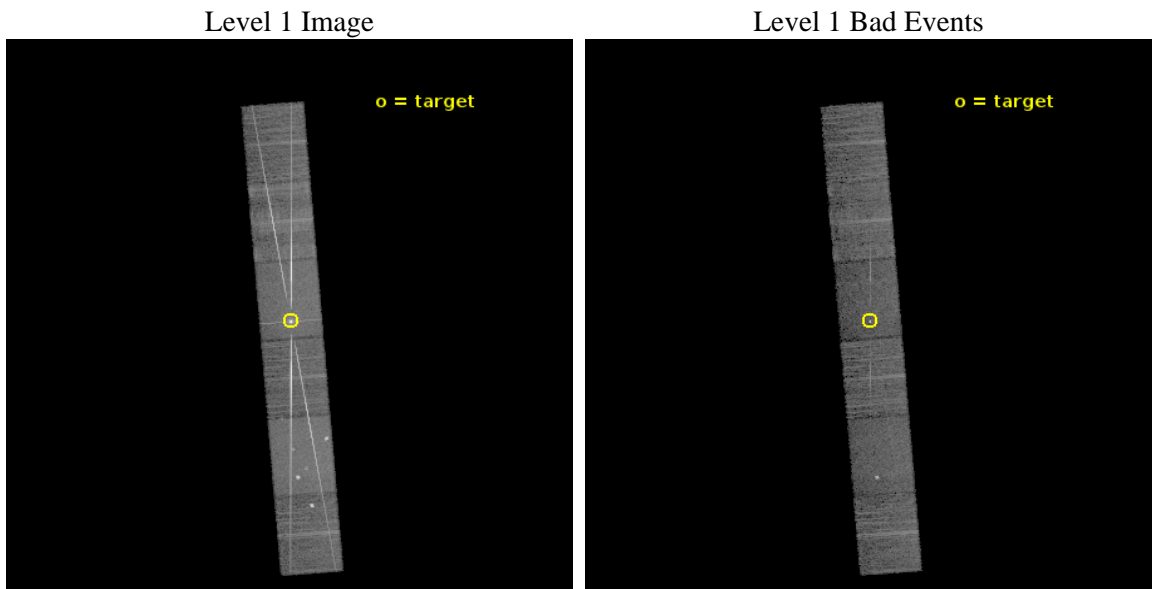
seq_num	790283	Sequence number
obs_id	17392	Observation id
title	AO-16 Calibration Observations of Mkn421	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.11726312152	Nominal RA [deg]
dec_nom	38.204280337025	Nominal Dec [deg]
roll_nom	265.32928528482	Nominal Roll [deg]
revision	1	Processing version of data
ontime	14062.5	Sum of GTIs [s]
livetime	13835.37842773	Livetime [s]
ontime4	14062.5	Sum of GTIs [s]
ontime5	14062.5	Sum of GTIs [s]
ontime6	14062.5	Sum of GTIs [s]
ontime7	14062.5	Sum of GTIs [s]
ontime8	14062.5	Sum of GTIs [s]
ontime9	14062.5	Sum of GTIs [s]
l2events	323262	Number of level 2 events



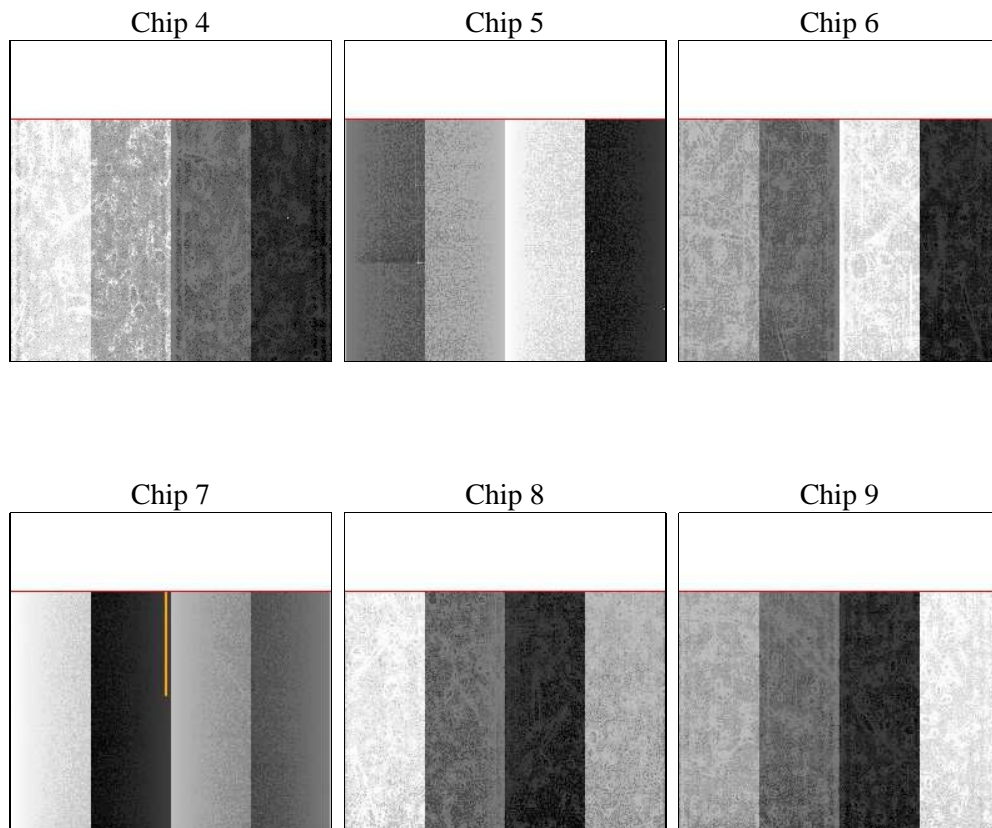
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	14039.669000	[s] Scheduled observation exposure time
ascdsver	10.4	Processing system revision	ontime	14062.5	Sum of GTIs [s]
caldsver	4.6.7	 	ontime4	14062.5	Sum of GTIs [s]
date	2015-07-02T18:46:21	Date and time of file creation	ontime5	14062.5	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	14062.5	Sum of GTIs [s]
			ontime7	14062.5	Sum of GTIs [s]
			ontime8	14062.5	Sum of GTIs [s]
			ontime9	14062.5	Sum of GTIs [s]
			l1events	662936	Number of level 1 events
			tgmetho	FINDZO	Method used to create src1a file
				64115.60	

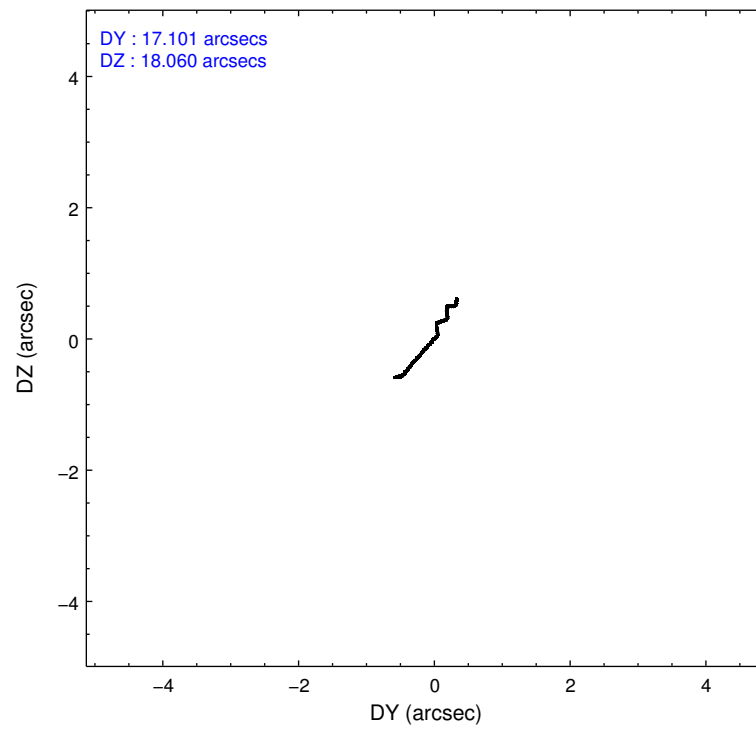
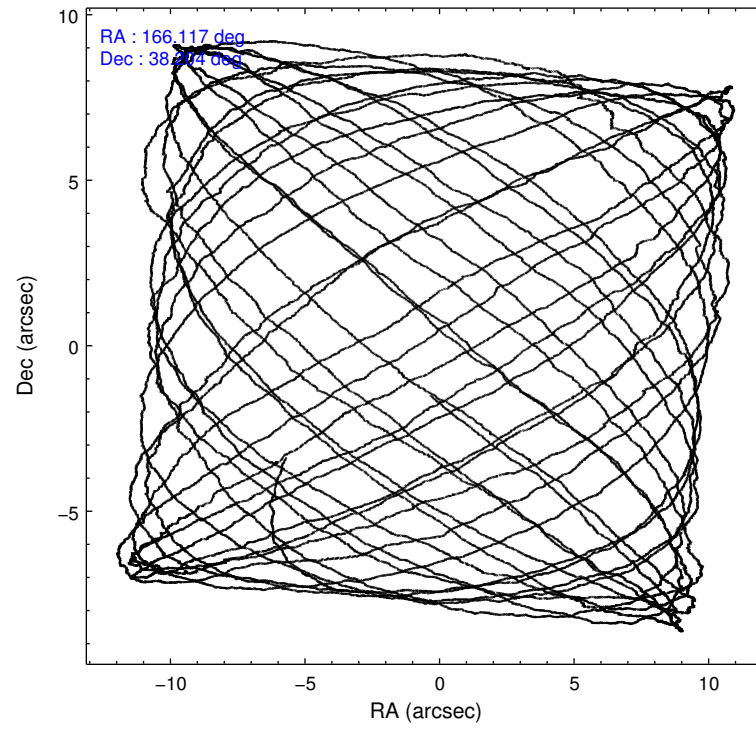
2.1.4 Events

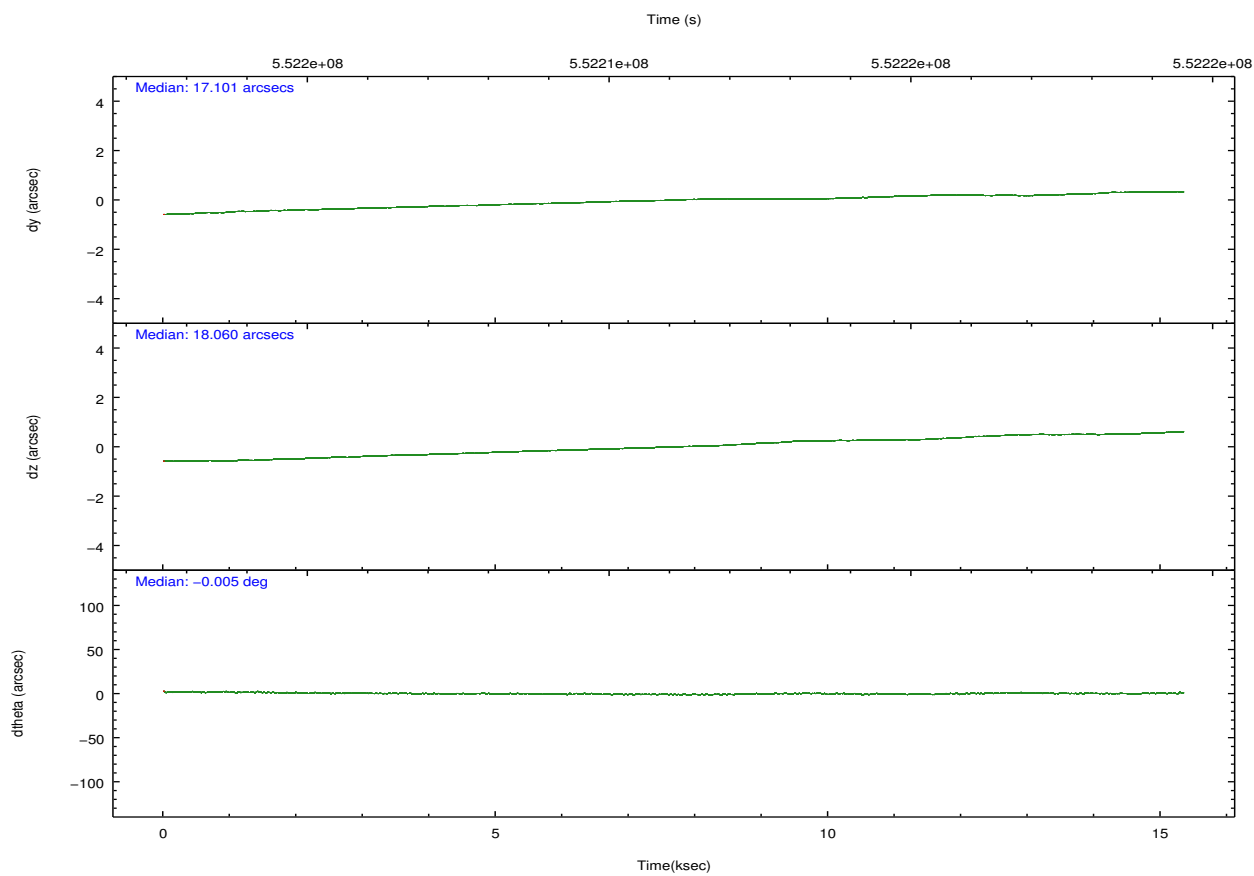
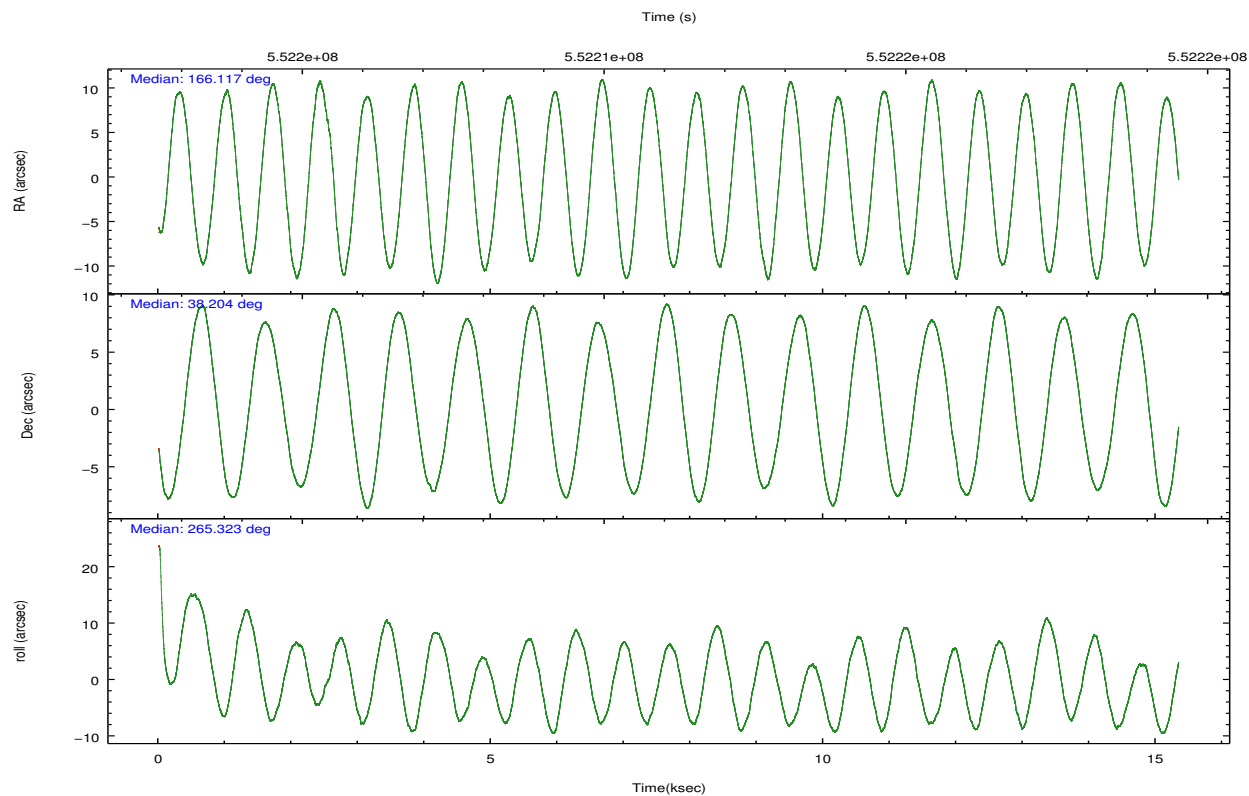
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	68210	121493	136580	147628	123646	65379	grade 0 events	11824	16966	65349	22020	44611	10004
rejected events	50717	46845	50825	43100	54408	49366		17%	13%	47%	14%	36%	15%
rejected %	74%	38%	37%	29%	44%	75%	grade 1 events	62	199	560	462	270	52
								0%	0%	0%	0%	0%	0%
							grade 2 events	2470	23296	10158	25315	9690	2465
								3%	19%	7%	17%	7%	3%
							grade 3 events	894	4149	3564	11005	3940	963
								1%	3%	2%	7%	3%	1%
							grade 4 events	918	3997	3404	10813	3812	924
								1%	3%	2%	7%	3%	1%
							grade 5 events	2744	7578	2976	8791	4162	3022
								4%	6%	2%	5%	3%	4%
							grade 6 events	1390	26264	3323	35404	7238	1661
								2%	21%	2%	23%	5%	2%
							grade 7 events	47908	39044	47246	33818	49923	46288
								70%	32%	34%	22%	40%	70%

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	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	166.101871	166.1172631215225	CCD I2 on	N	N
[deg] Pointing Dec	38.228966	38.20428033702523	CCD I3 on	N	N
[deg] Pointing Roll	265.182167	265.3292852848189	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	-187.132523	-187.1228876879999	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-3	-3.009634895007935	CCD S4 on	Y	Y
[s] Observation start time (MET)	552204710.184000	552203087.45868	CCD S5 on	O2	Y
Observation start date	2015-07-02T06:10:42	2015-07-02T05:44:47	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	552218749.184000	552218971.88457	On-chip summing requested	N	N
Observation end date	2015-07-02T10:04:41	2015-07-02T10:09:31	Subarray requested	CUSTOM	CUSTOM
Read mode	TIMED	TIMED	Subarray start row	1	1
			Subarray row count	774	774
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	2.5

2.3 Aspect



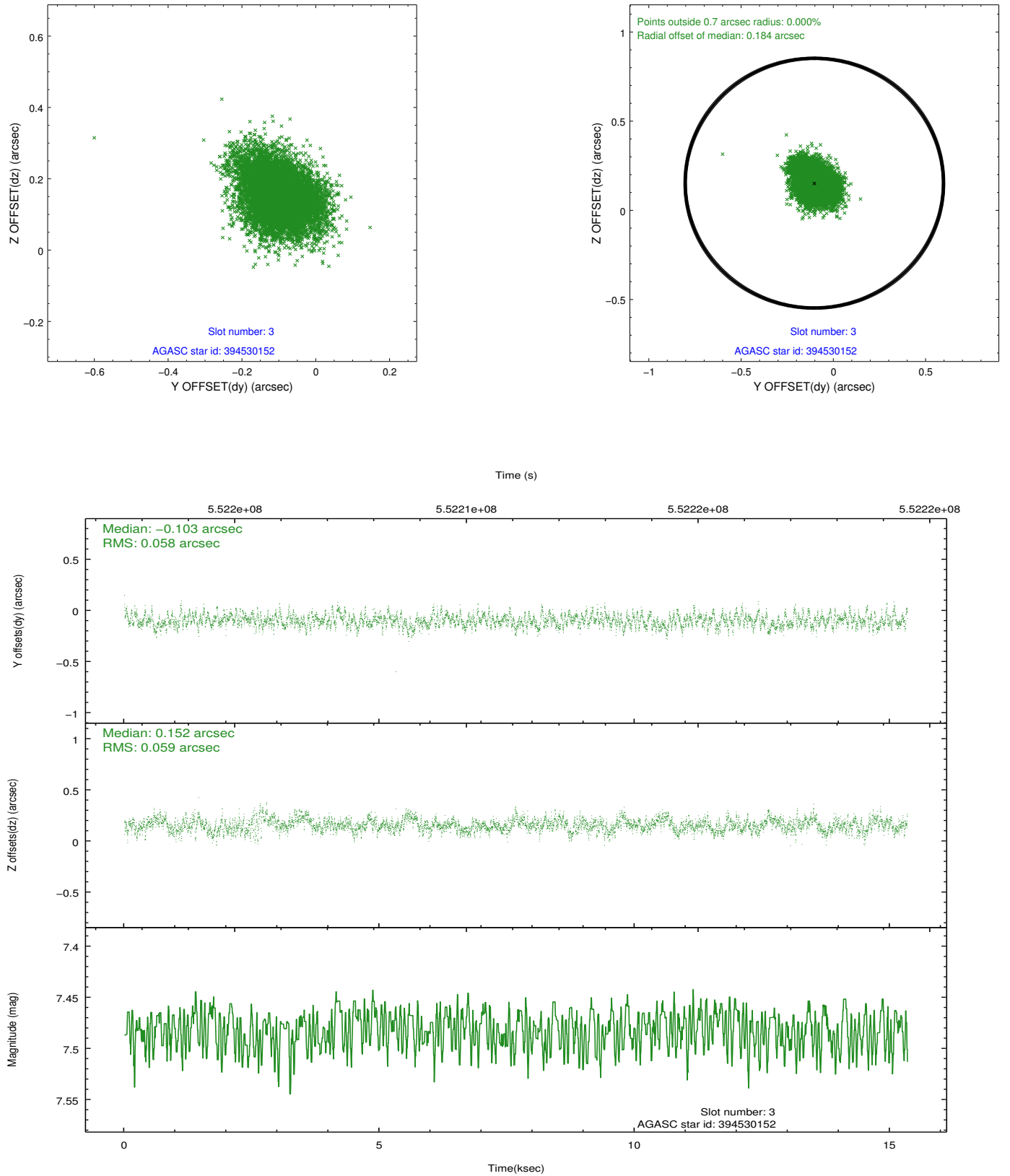


Slot Statistics

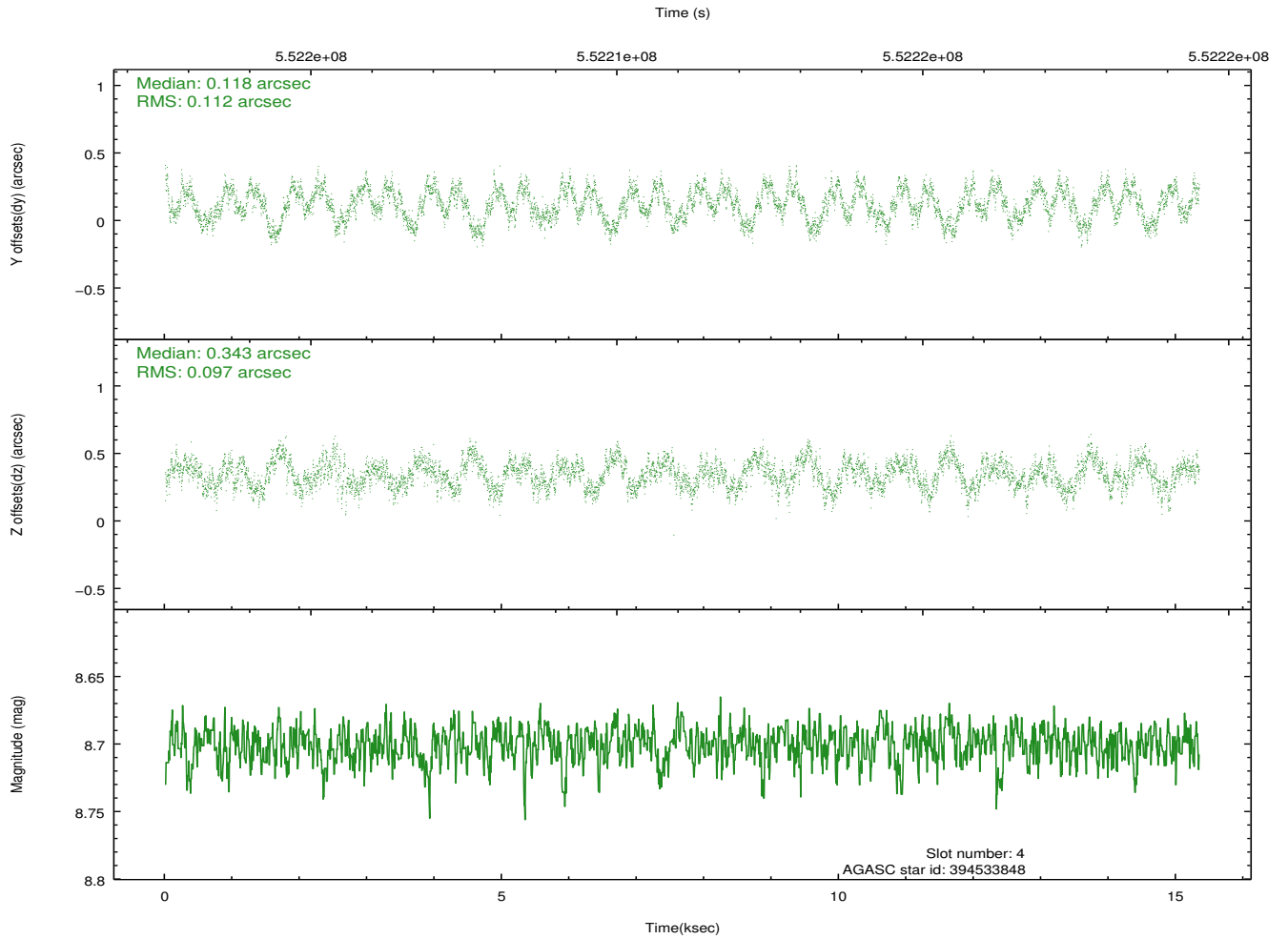
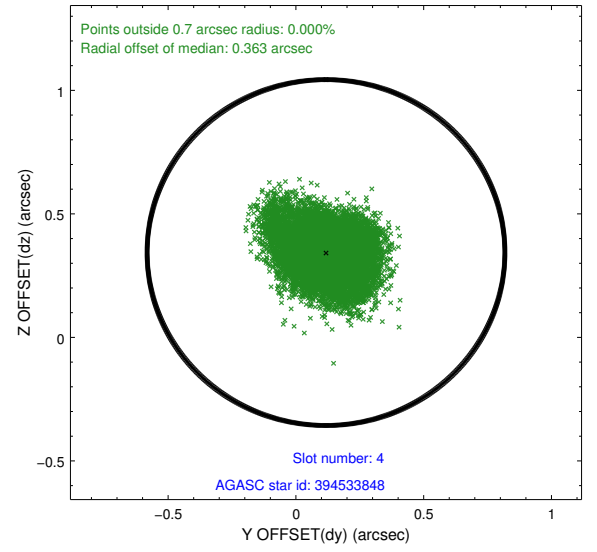
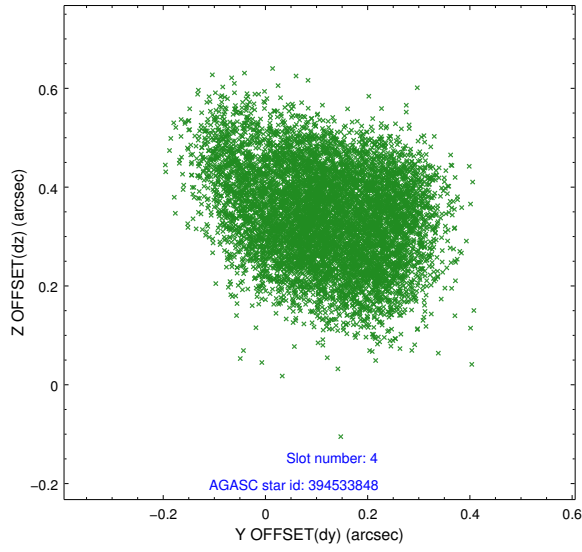
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.86	3742	-0.127	0.004	0.010	0.015	0.000000	0.000000	-769.94	-1801.68
1	FID		ACIS-S-4	6.94	3739	0.256	0.060	0.006	0.011	0.000000	0.000000	2143.54	106.60
2	FID		ACIS-S-5	6.96	3742	-0.161	-0.056	0.009	0.016	0.000000	0.000000	-1822.49	100.40
3	GUIDE	used	394530152	7.48	7483	-0.103	0.152	0.086	0.145	166.075805	38.868252	-2287.05	-266.09
4	GUIDE	used	394533848	8.70	7480	0.118	0.343	0.161	0.245	166.382906	38.276007	-237.24	772.23
5	GUIDE	used	394543960	9.74	7477	0.139	0.255	0.200	0.315	165.802757	37.787371	1654.62	-713.95
6	GUIDE	used	394546712	6.59	7483	-0.224	0.335	0.083	0.137	166.451462	38.394357	-677.55	931.86
7	GUIDE	used	394546720	6.42	7481	0.074	-1.093	0.124	0.196	166.130115	38.241361	-51.01	74.98

2.4 Star Slots

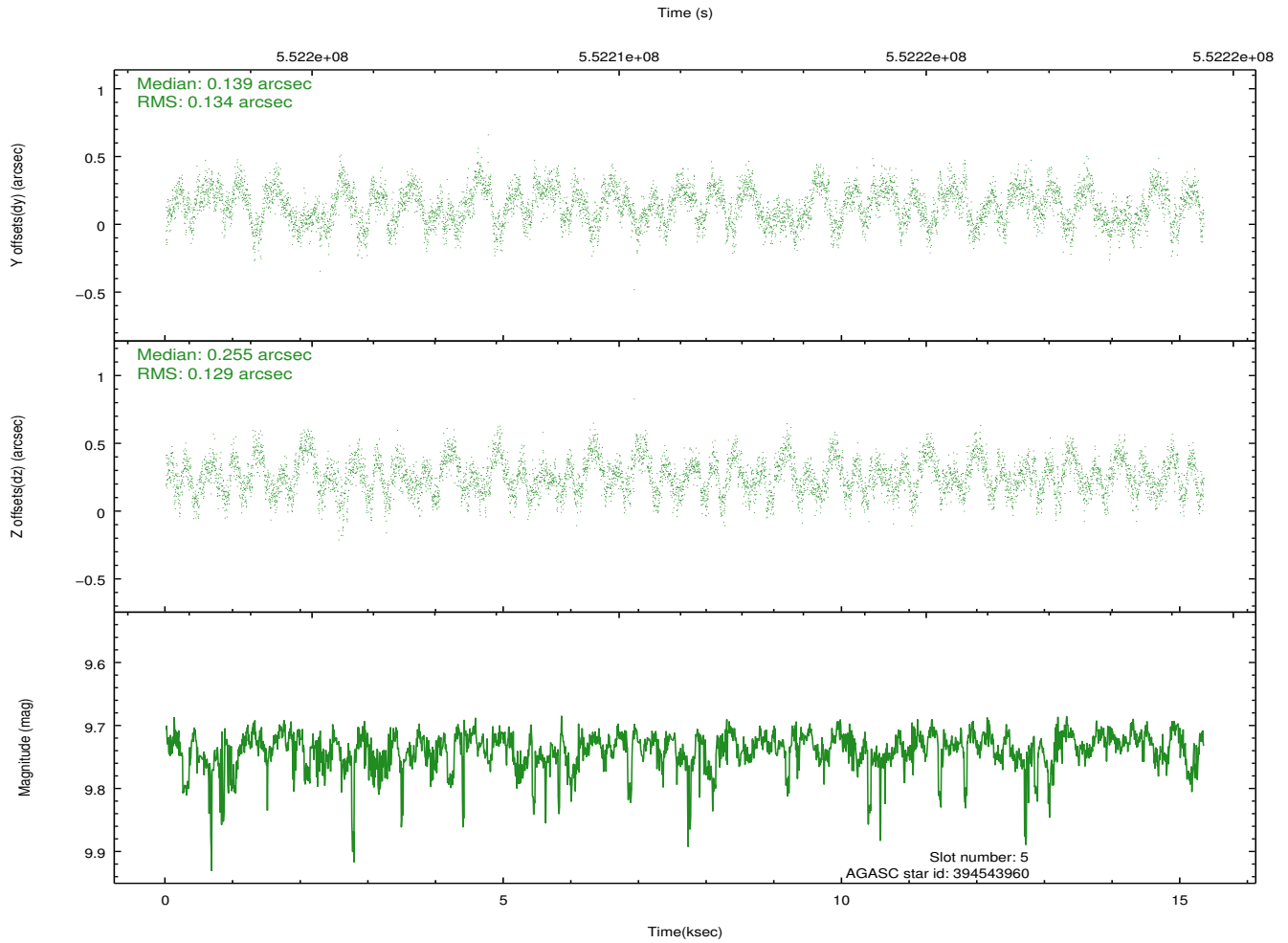
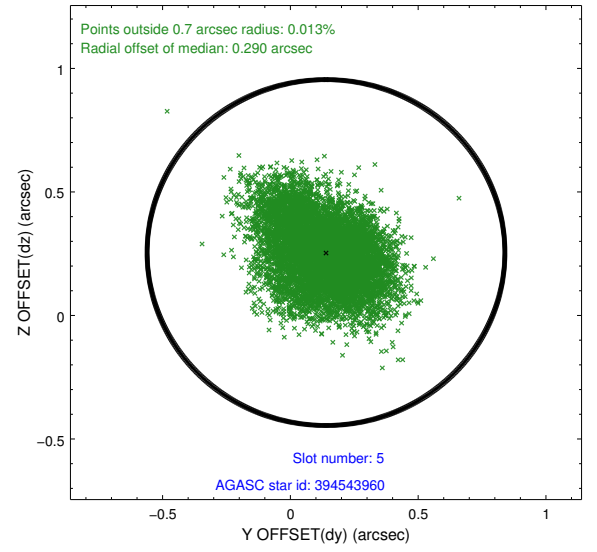
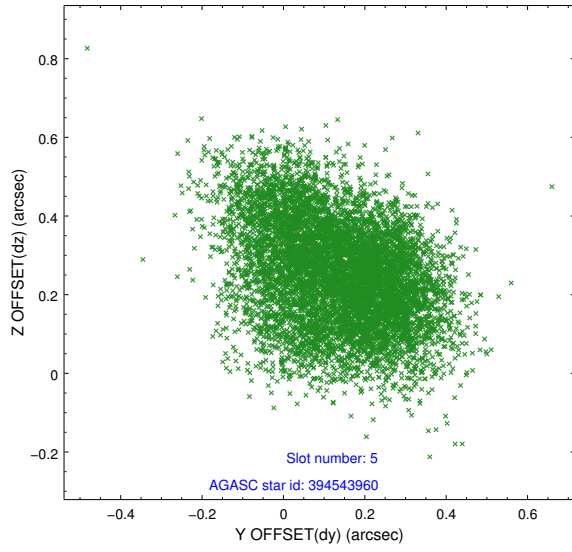
2.4.1 Slot 3



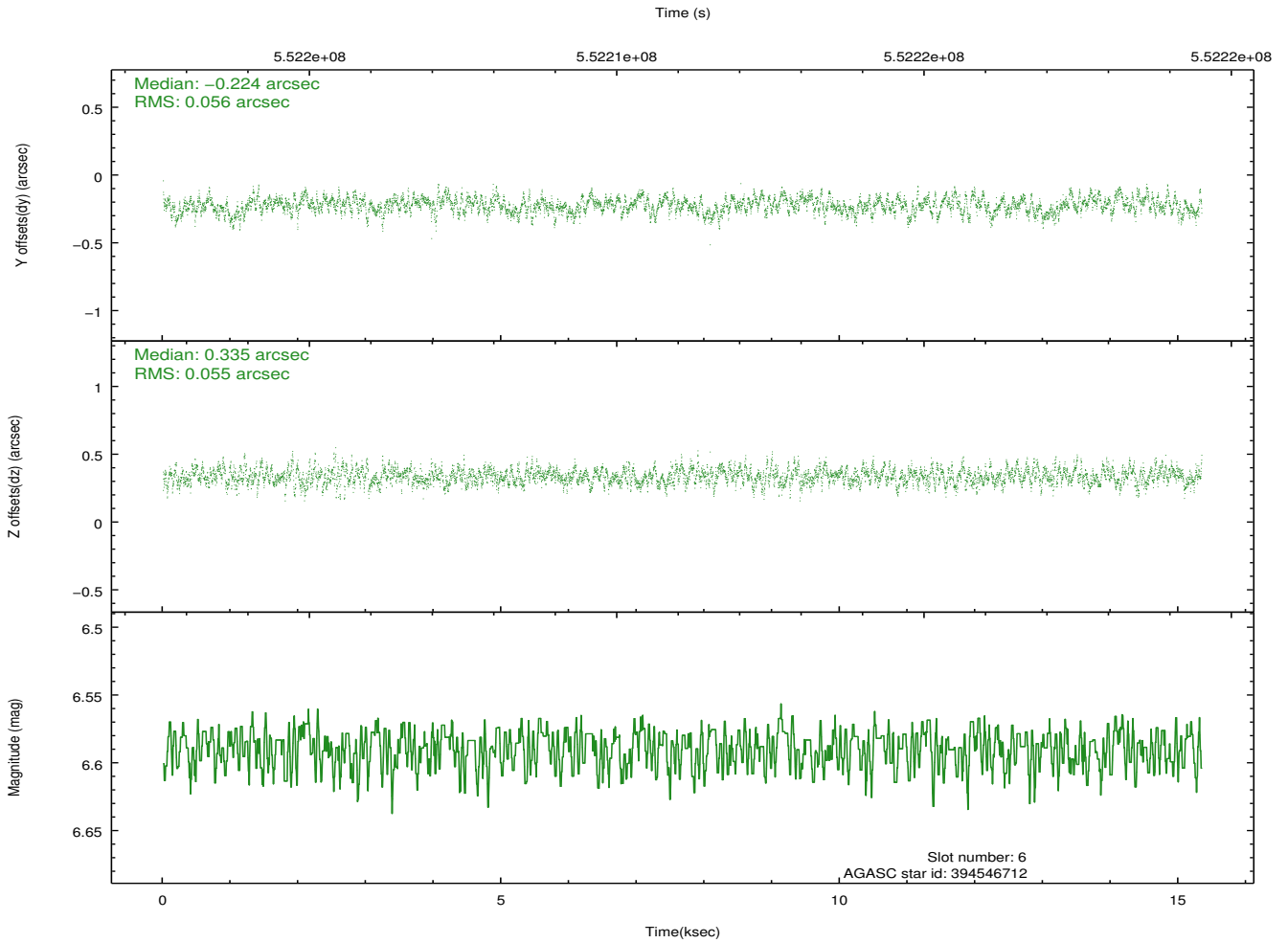
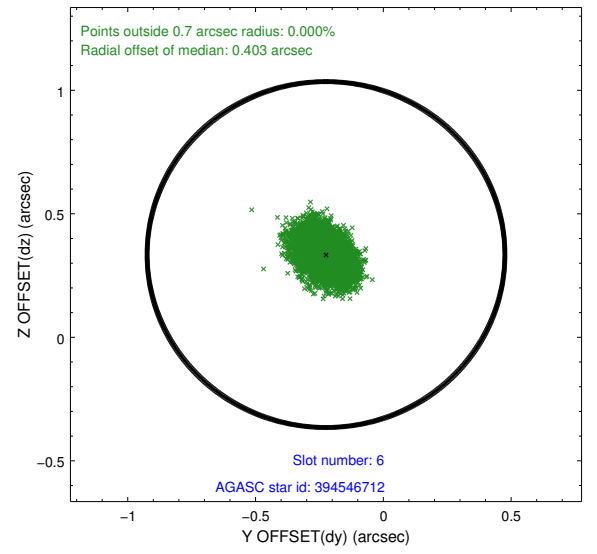
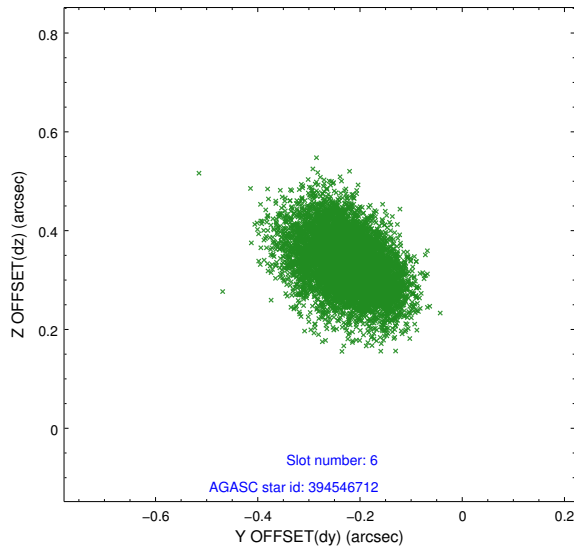
2.4.2 Slot 4



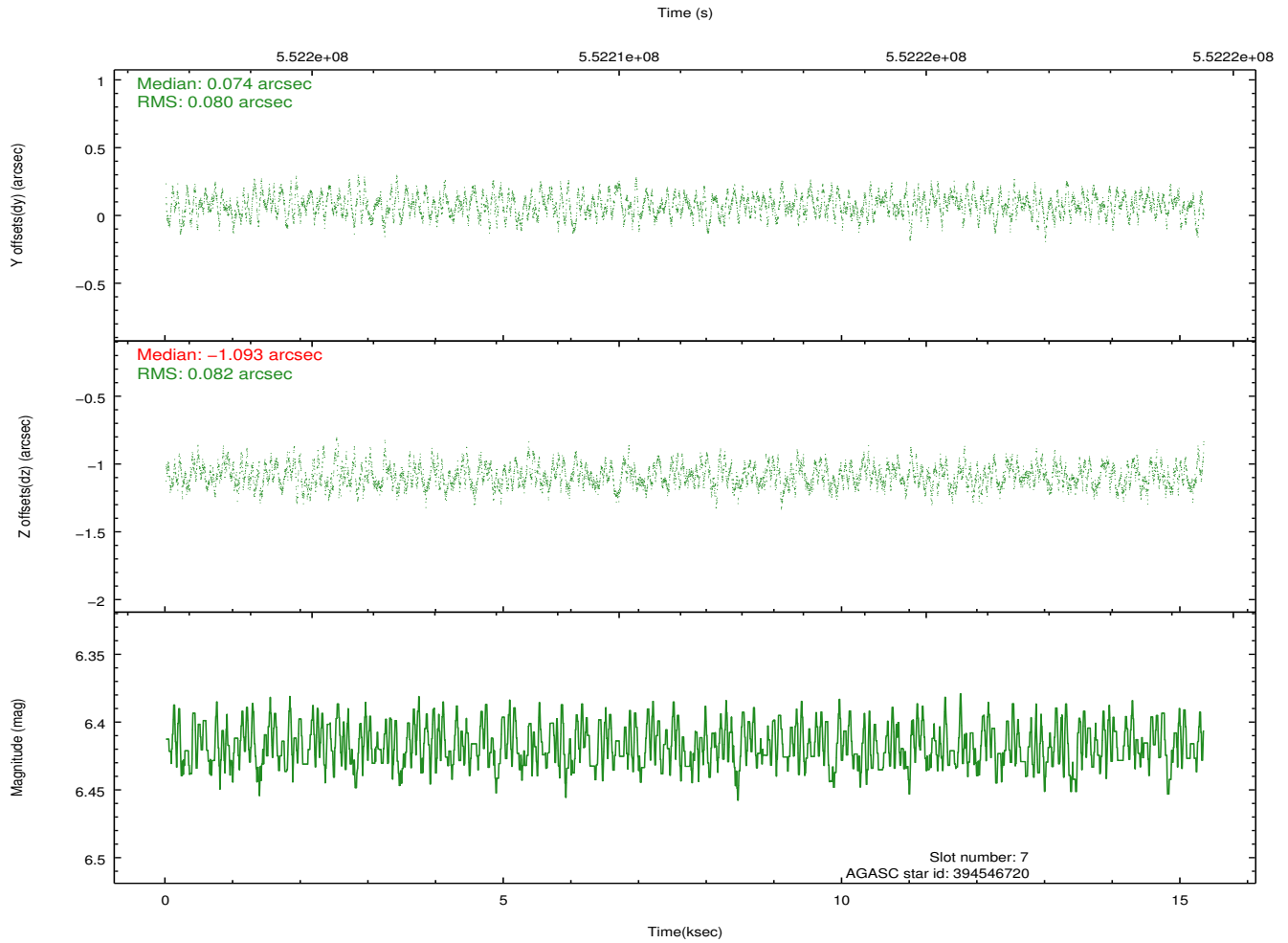
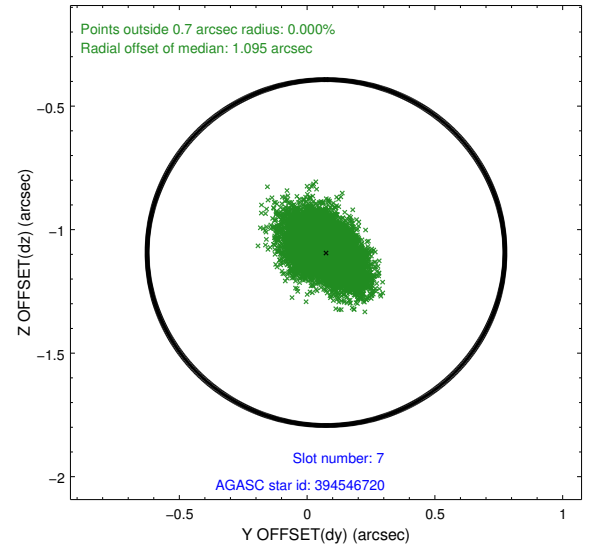
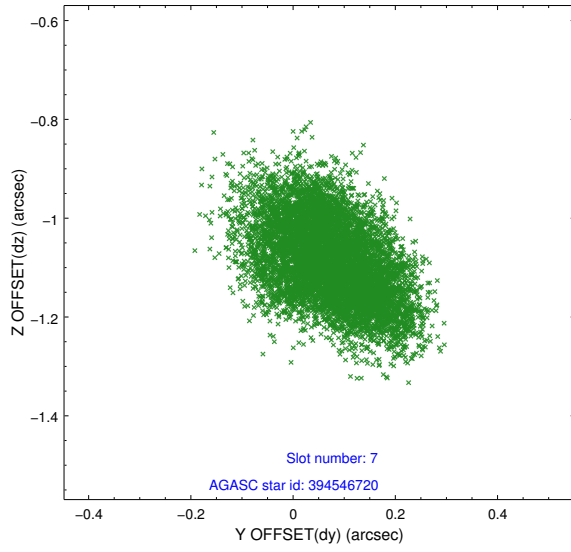
2.4.3 Slot 5



2.4.4 Slot 6

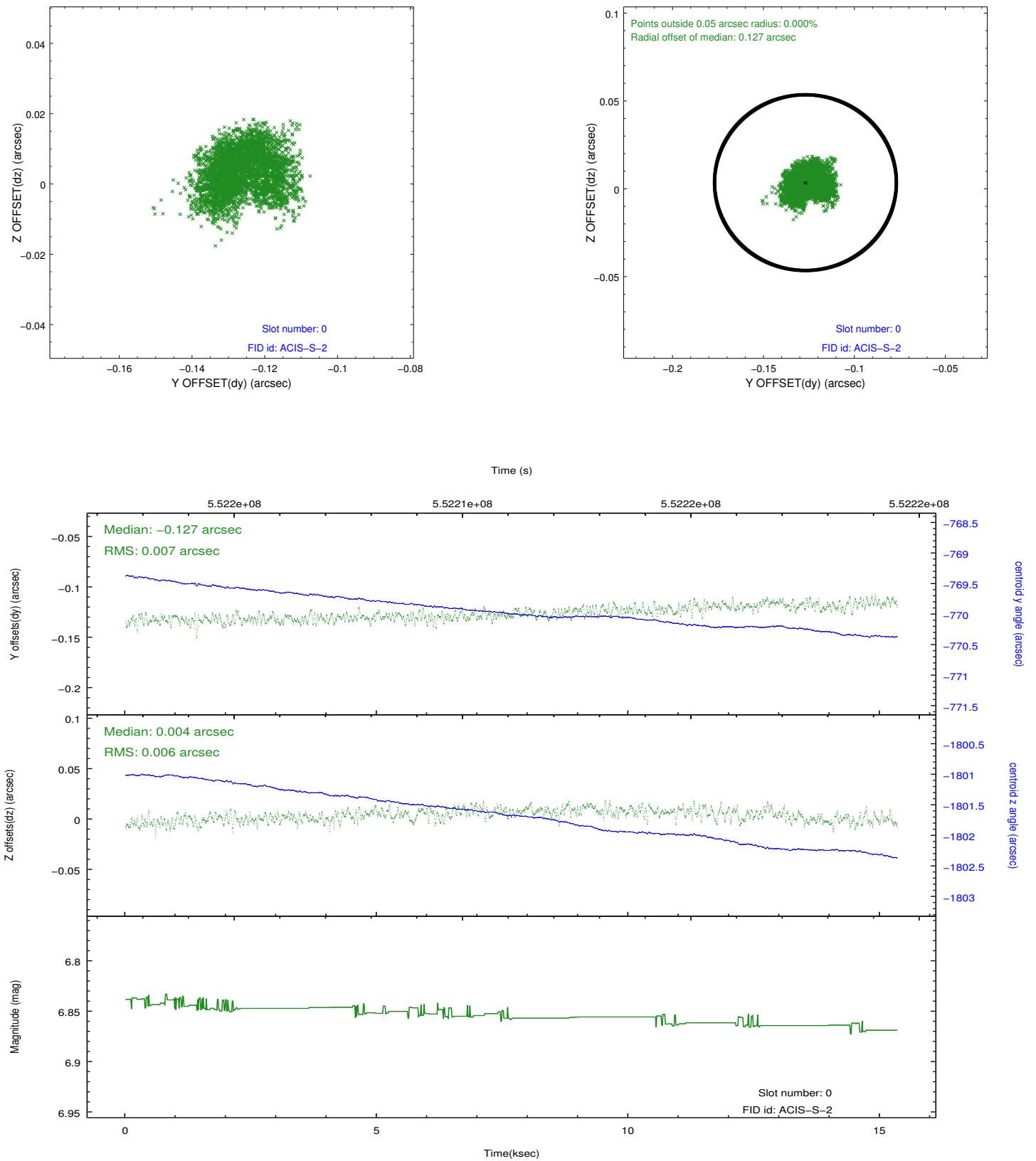


2.4.5 Slot 7

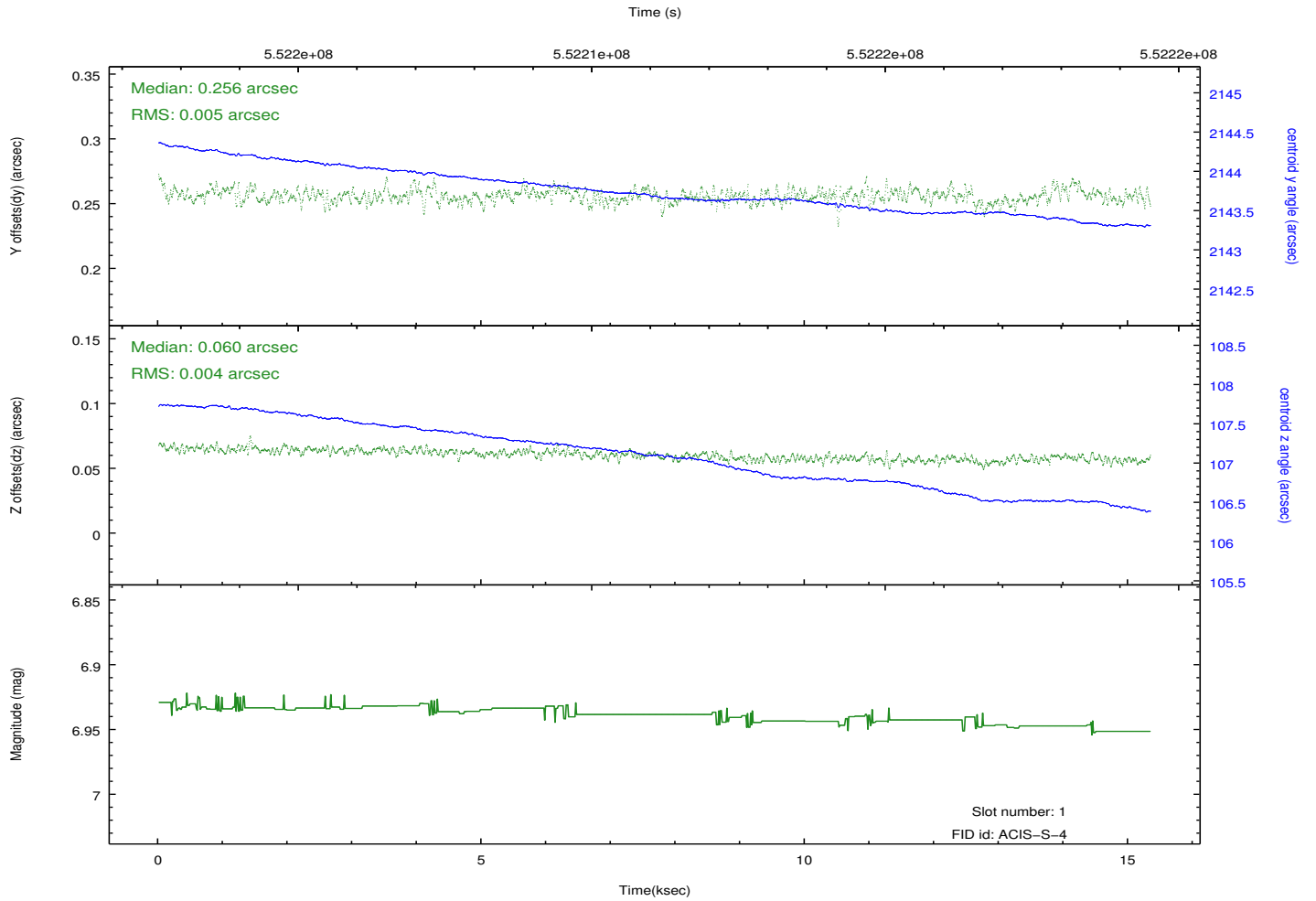
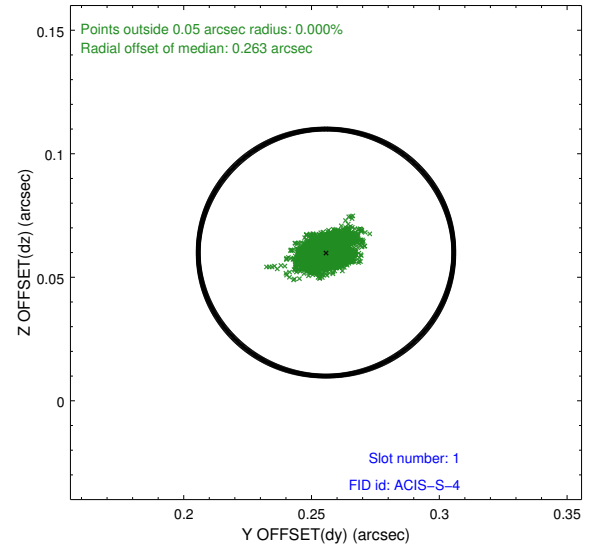
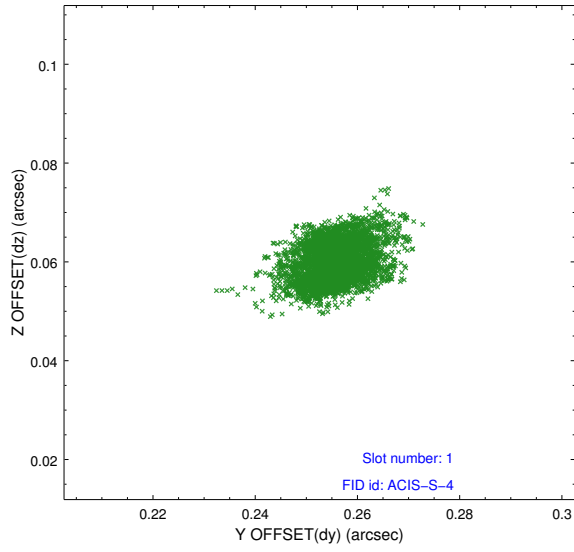


2.5 FID Slots

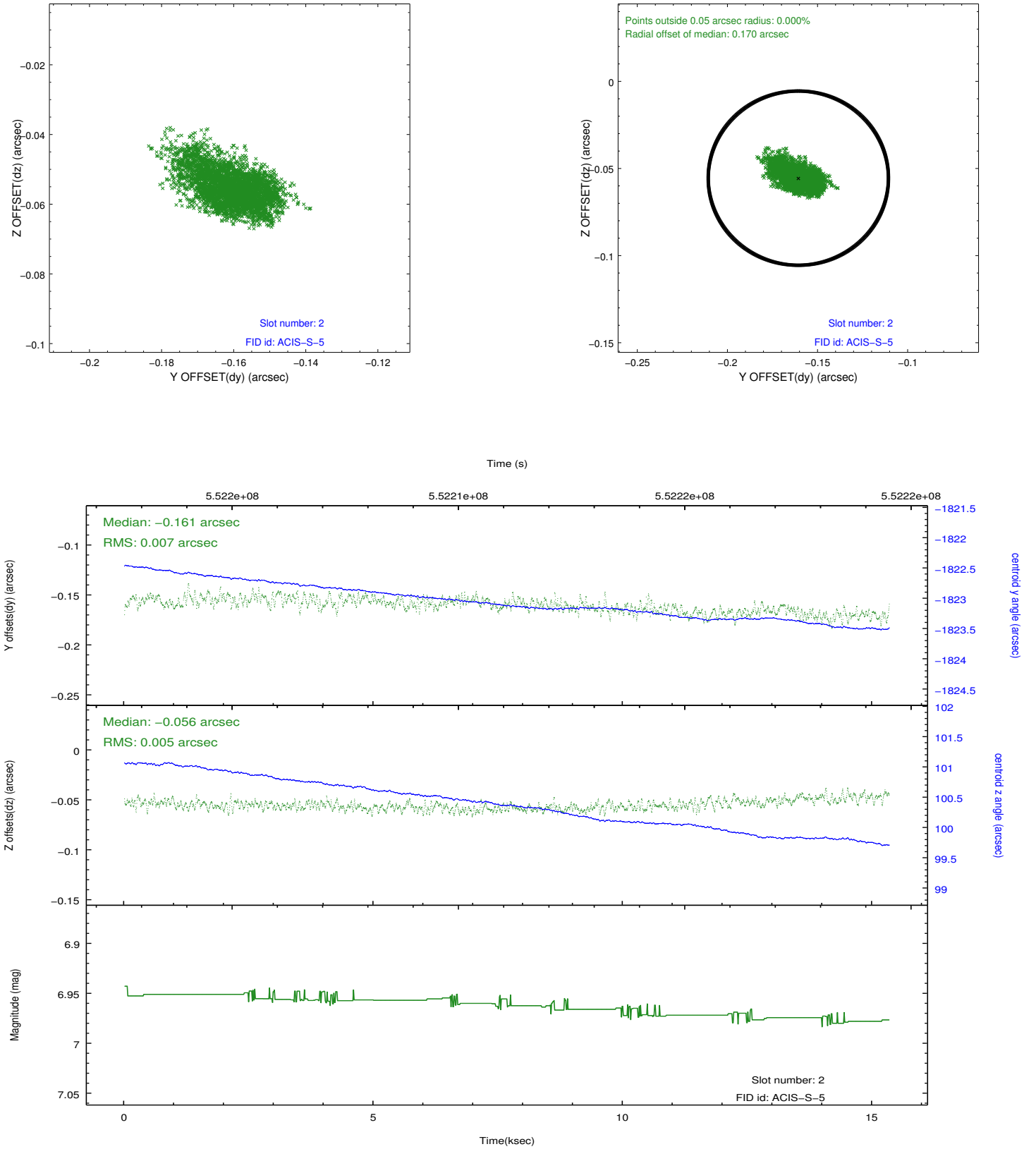
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2

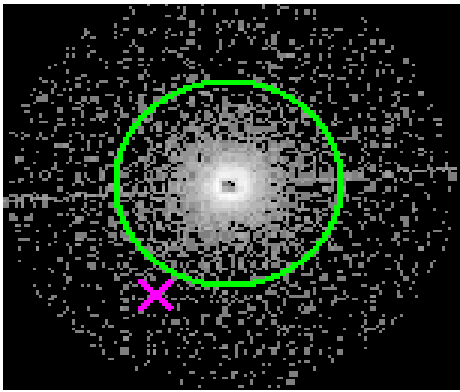


3 Gratings

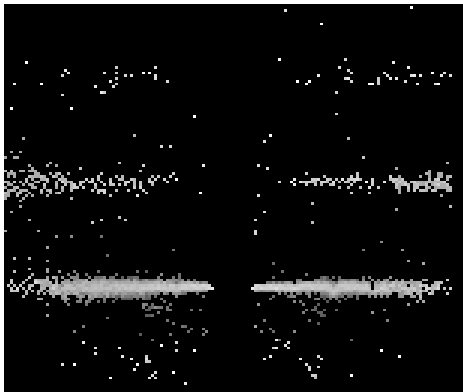
3.1 HEG Arm



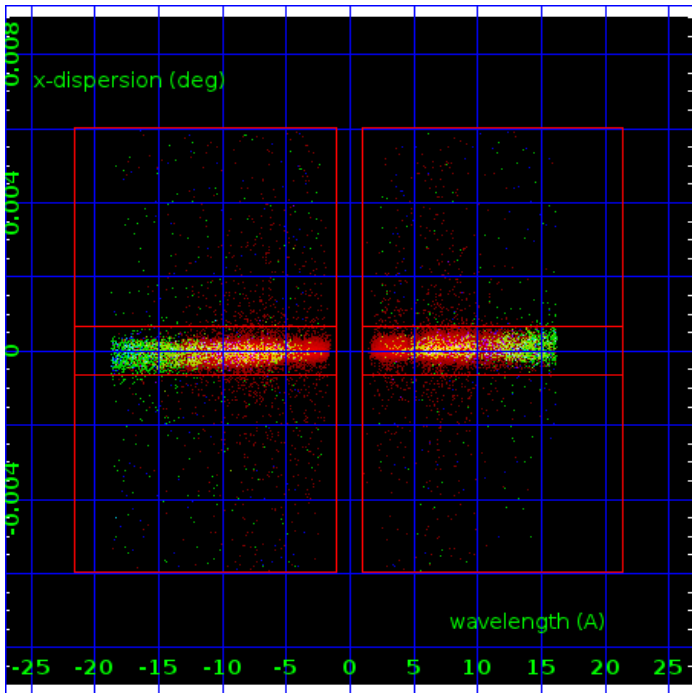
HEG Order Sort 123



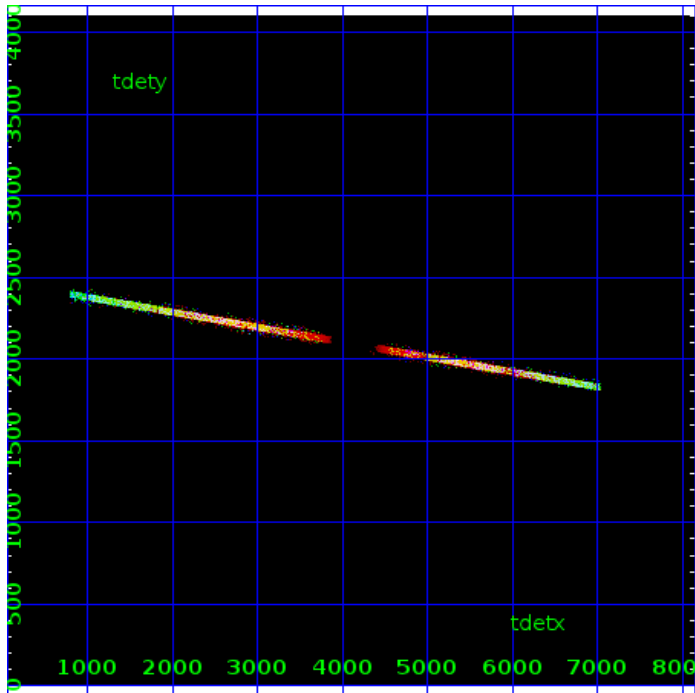
HEG Zero Order



HEG Order Sort ALL

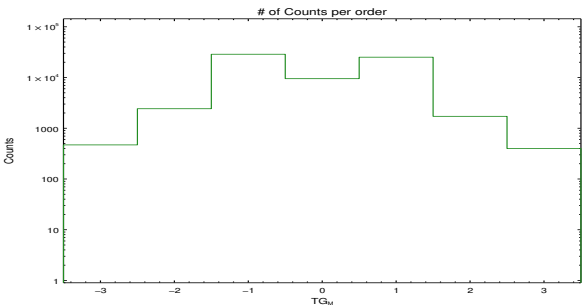


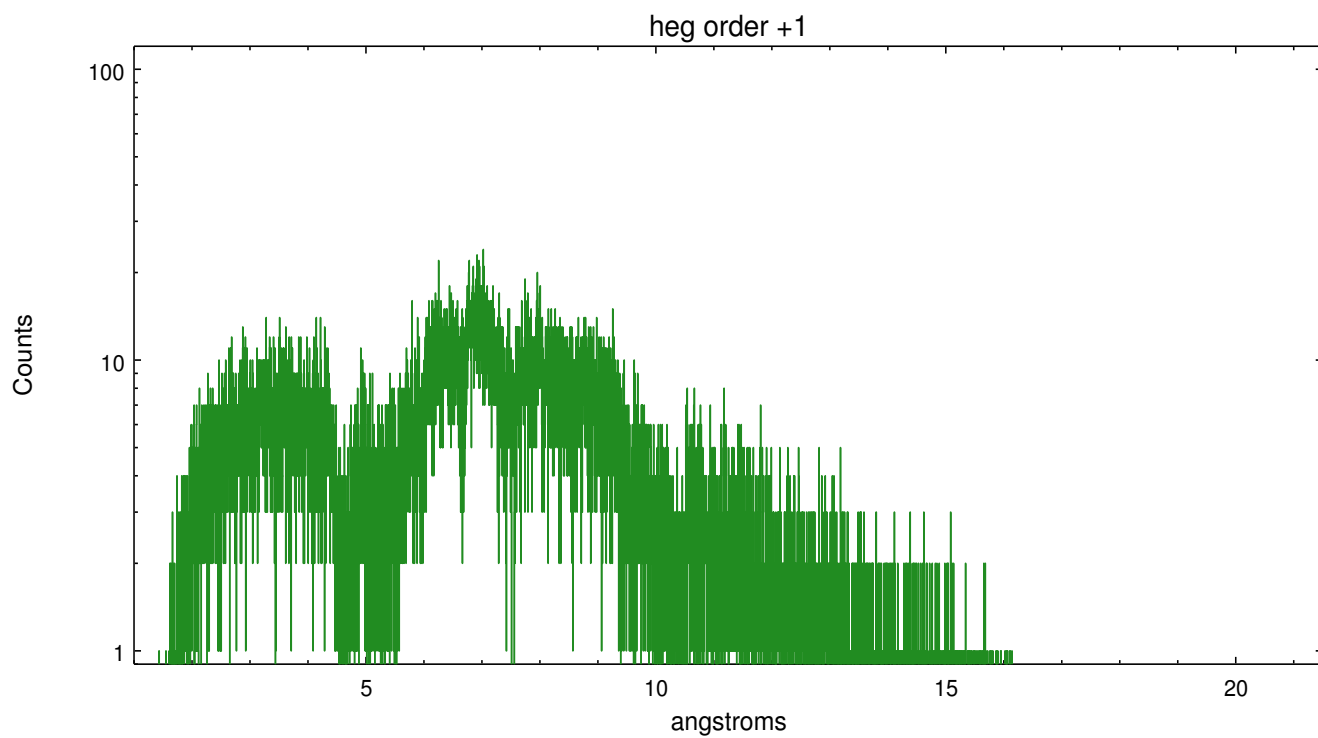
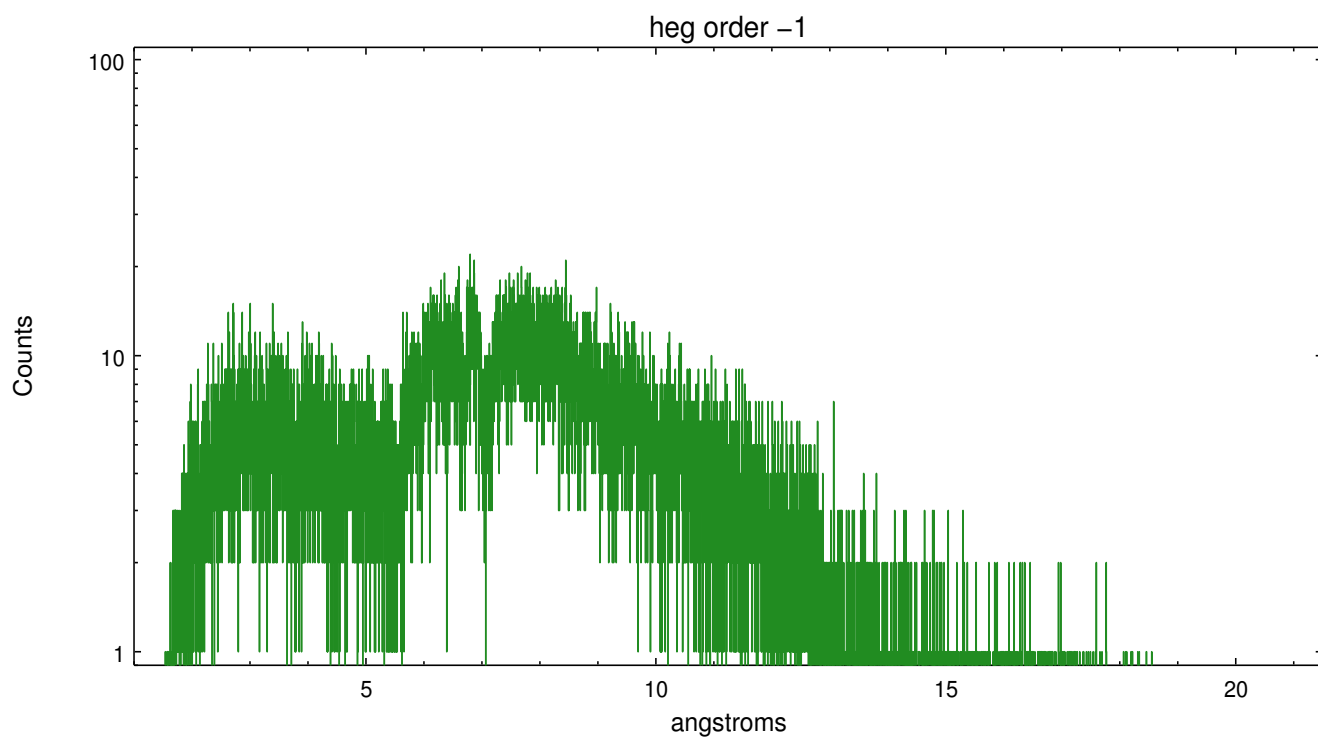
Spot Image HEG



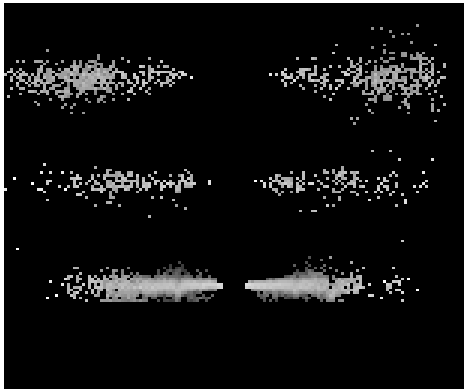
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	470	2428	28752	9497	25151	1717	398

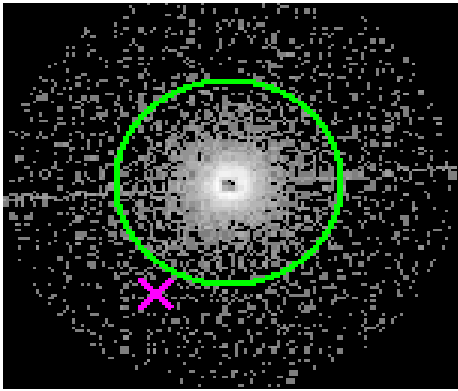




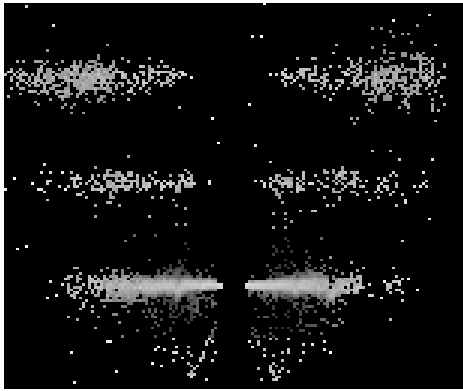
3.2 MEG Arm



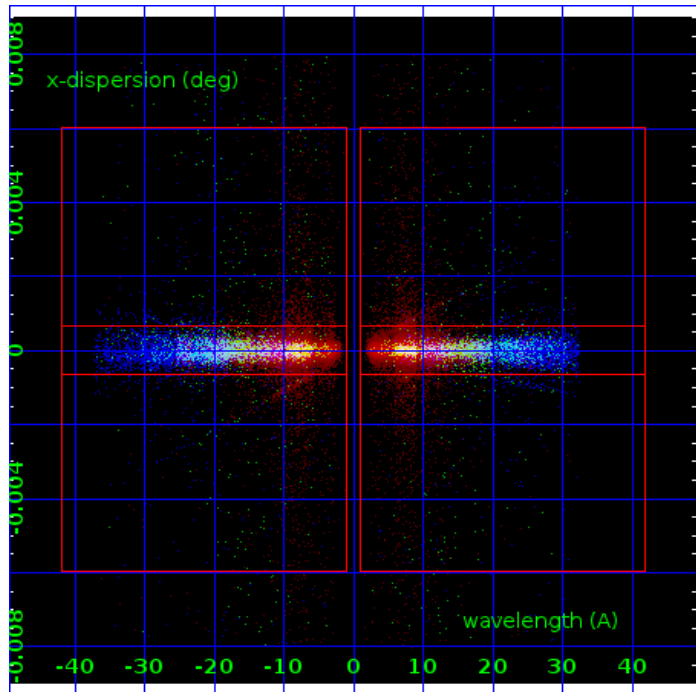
MEG Order Sort 123



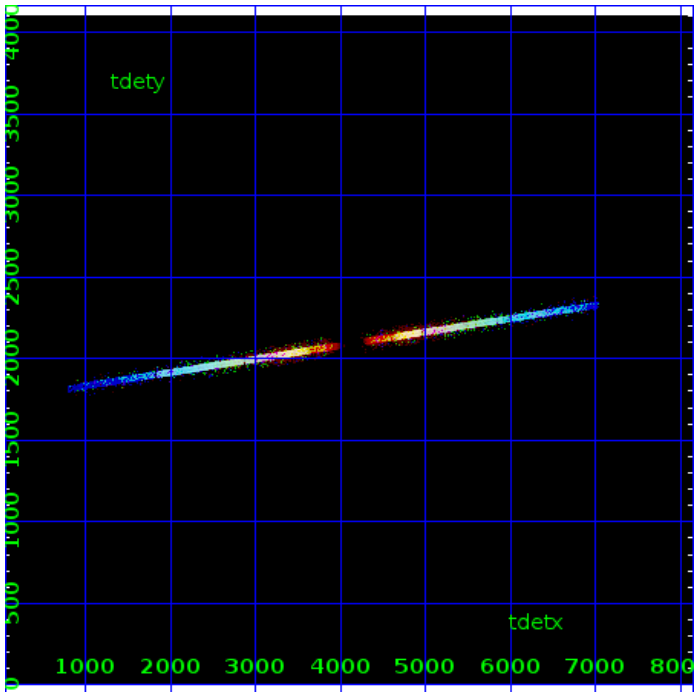
MEG Zero Order



MEG Order Sort ALL

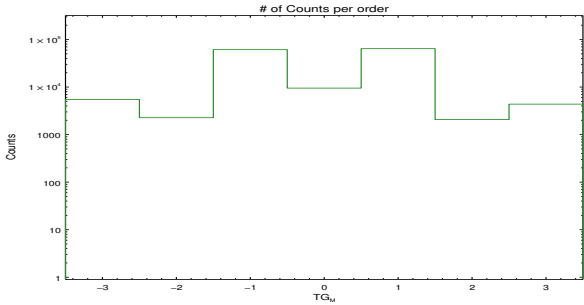


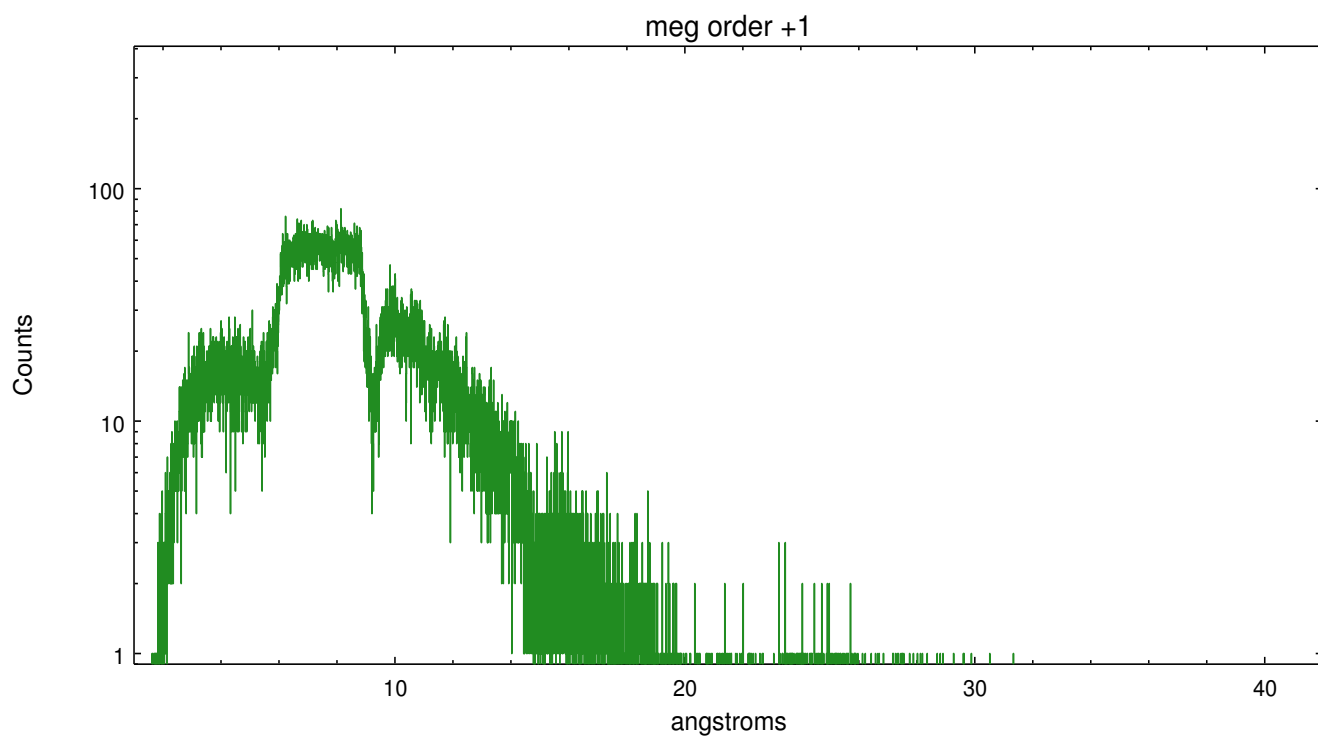
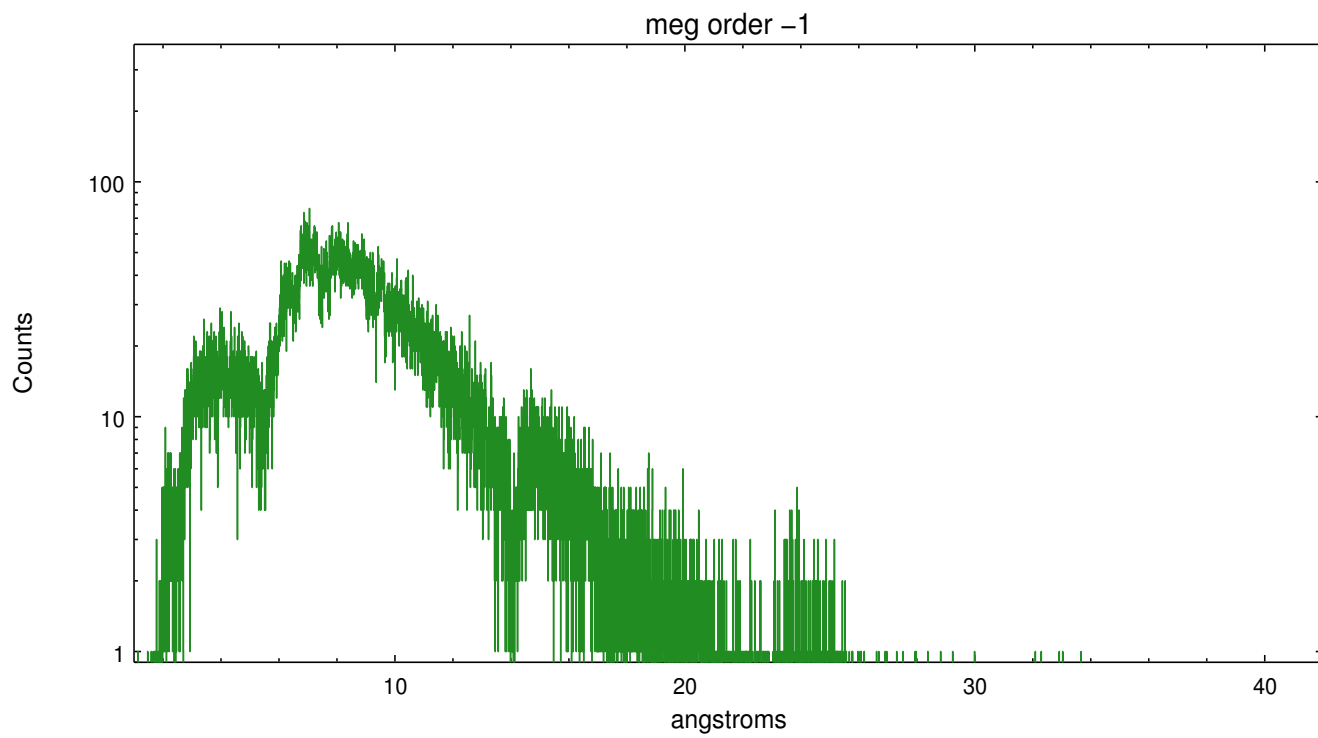
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	5467	2267	61185	9497	64162	2078	4373





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.07.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	14.0625

A.2 Comments

Zeroth order piled up. The zeroth order sky position was determined using a software tool developed by CXC called findzero, which is available in CIAO as part of the tgdetect2 tool. The tool calculates the point of intersection of the readout streak on the ACIS CCD and the meg dispersed spectral arm, rather than using a centroid position of the source. The findzero results are more accurate than source centroid in this case.