

V&V Reference Report

L2 ASCDS Version : 10.5

Observation 17766 - L2 Version 1
Chandra X-Ray Center

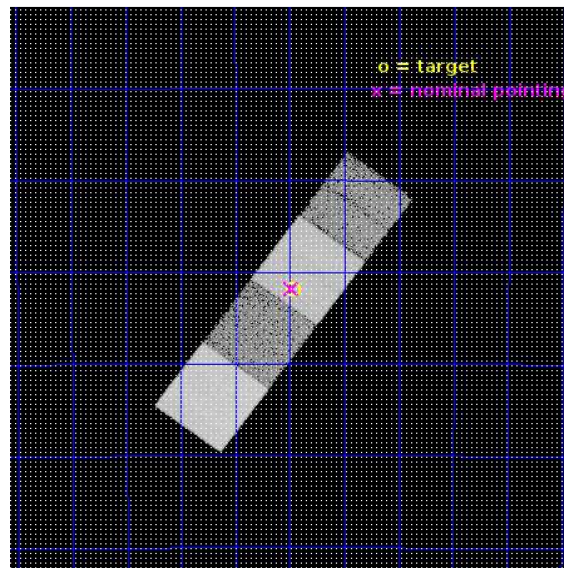
L2 Processing Date : Jun 14 2016

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1 Front

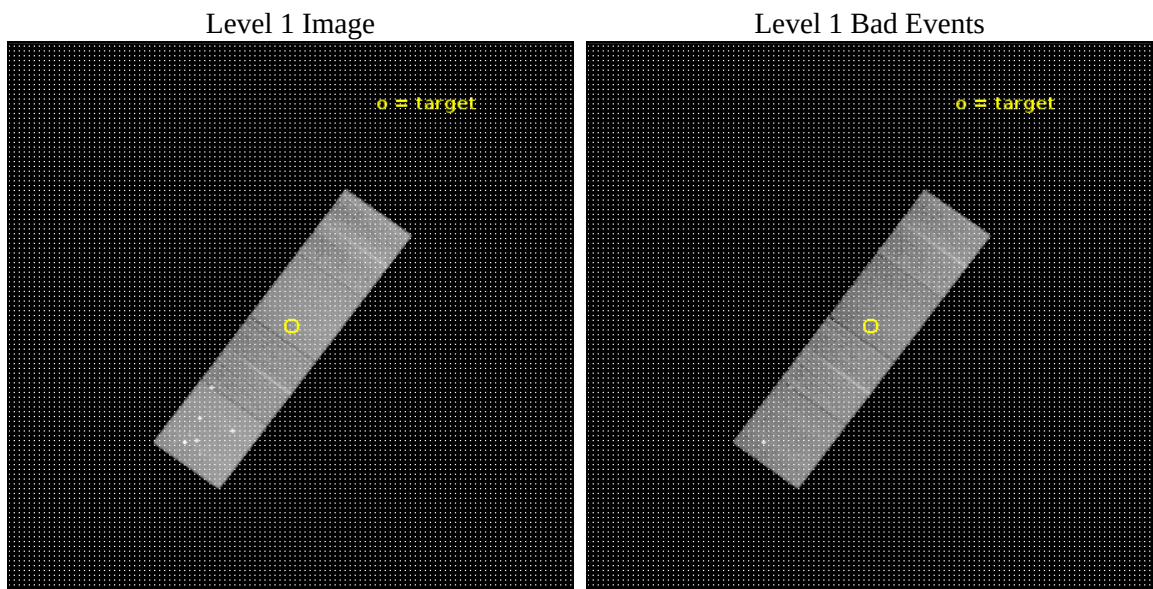
seq_num	201074	Sequence number
obs_id	17766	Observation id
title	Heating the Primordial Soup: X-raying the Circumstellar Disk of RY Lupi	Proposal title
observer	David Principe	Principal investigator
object	RY Lup	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	239.868333	Observer's specified target RA [deg]
dec_targ	-40.364222	Observer's specified target Dec [deg]
ra_nom	239.87169614438	Nominal RA [deg]
dec_nom	-40.363491402525	Nominal Dec [deg]
roll_nom	306.11846649877	Nominal Roll [deg]
revision	1	Processing version of data
ontime	19455.600149751	Sum of GTIs [s]
livetime	19201.39841079	Livetime [s]
ontime5	19455.600149751	Sum of GTIs [s]
ontime6	19455.600149751	Sum of GTIs [s]
ontime7	19455.600149751	Sum of GTIs [s]
ontime8	19452.459049106	Sum of GTIs [s]
l2events	182356	Number of level 2 events



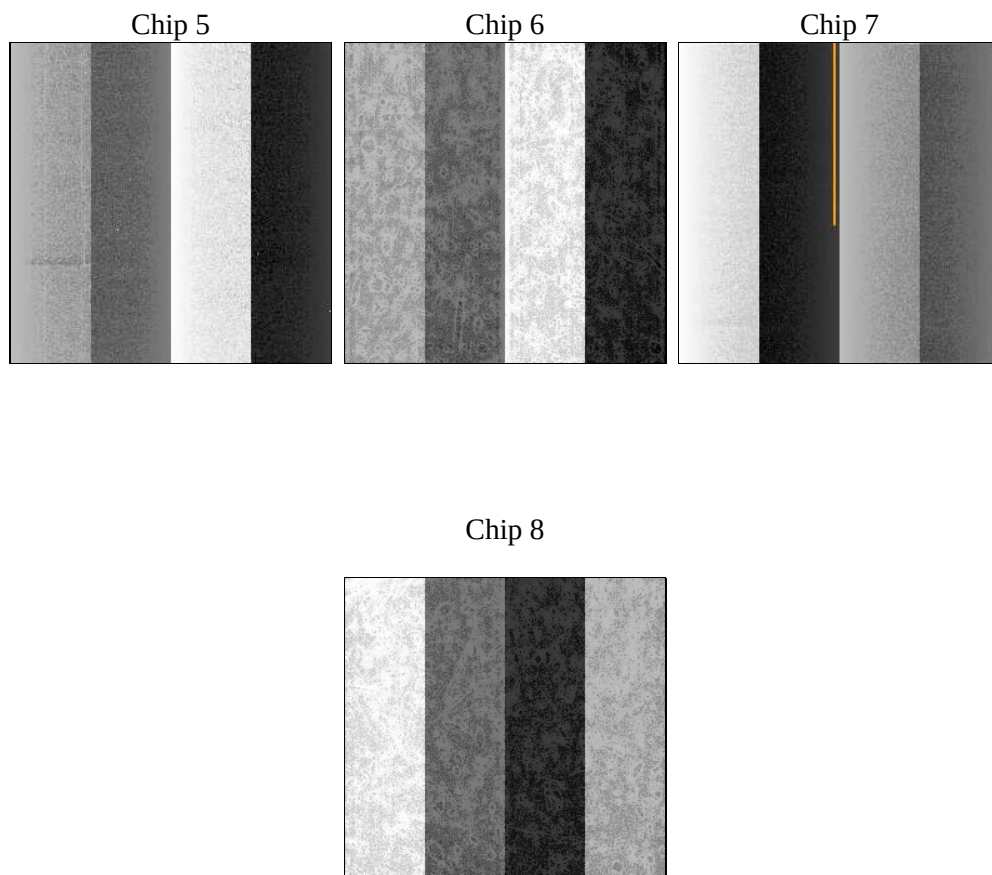
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	20000.000000	[s] Scheduled observation exposure time
ascdsver	10.5	Processing system revision	ontime	19455.600149751	Sum of GTIs [s]
caldsver	4.7.2	 	ontime5	19455.600149751	Sum of GTIs [s]
date	2016-06-14T23:28:57	Date and time of file creation	ontime6	19455.600149751	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	19455.600149751	Sum of GTIs [s]
			ontime8	19452.459049106	Sum of GTIs [s]
			l1events	682334	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			zo_pos	(4115.39, 4090.45)	src1a sky pixel position

2.1.4 Events

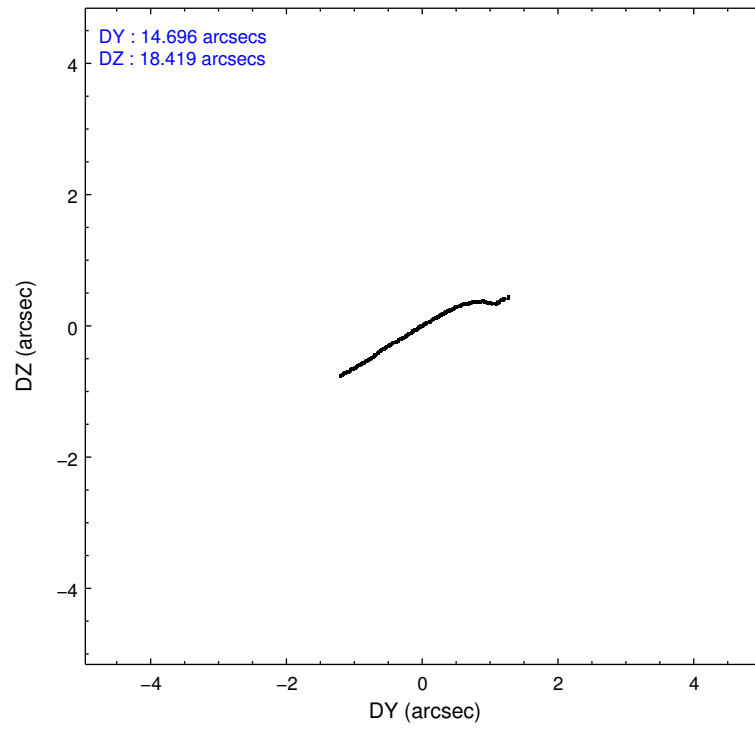
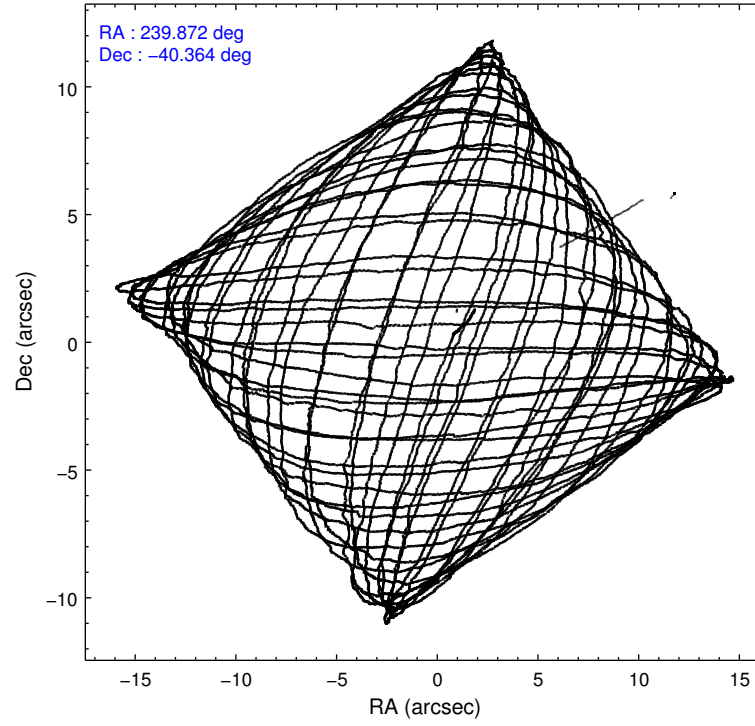
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	229156	127662	161629	163887
rejected events	108672	113577	92889	122437
rejected %	47%	88%	57%	74%

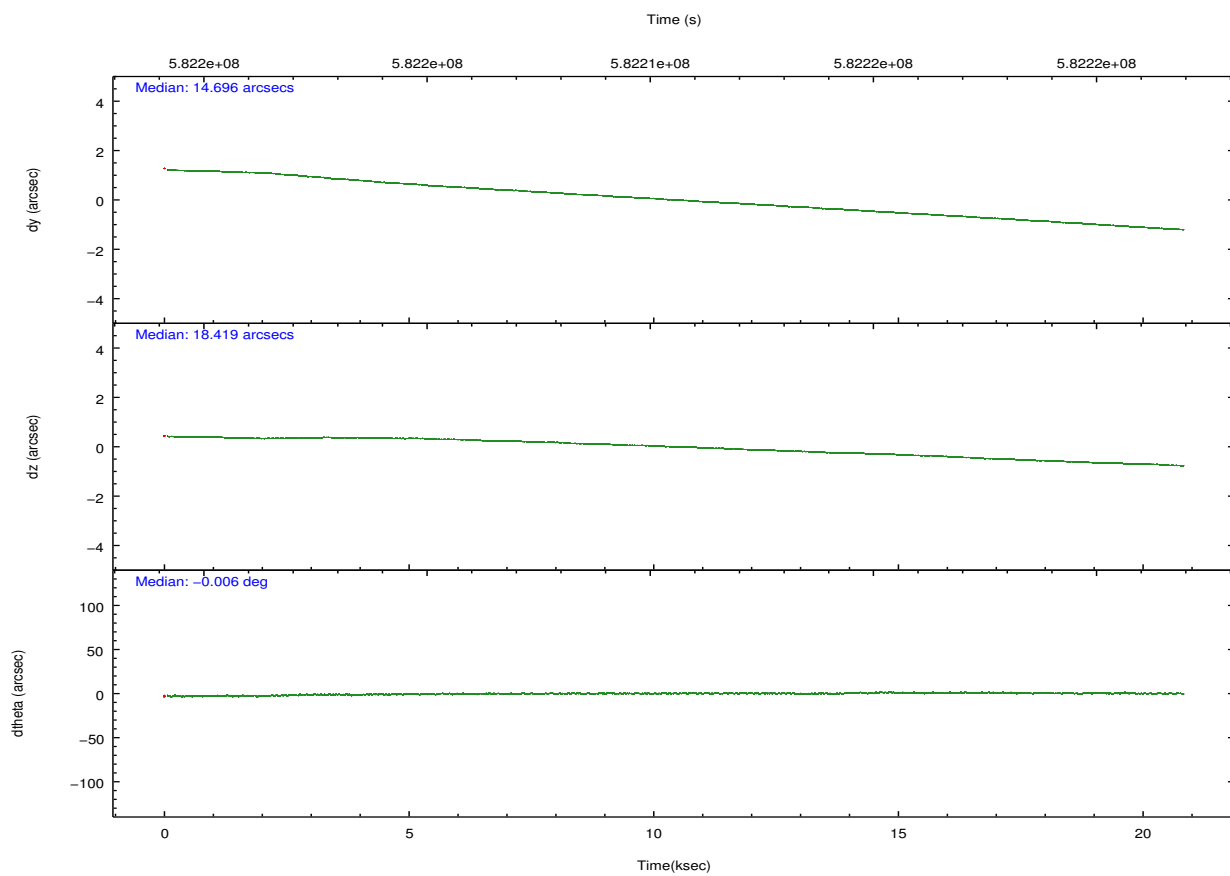
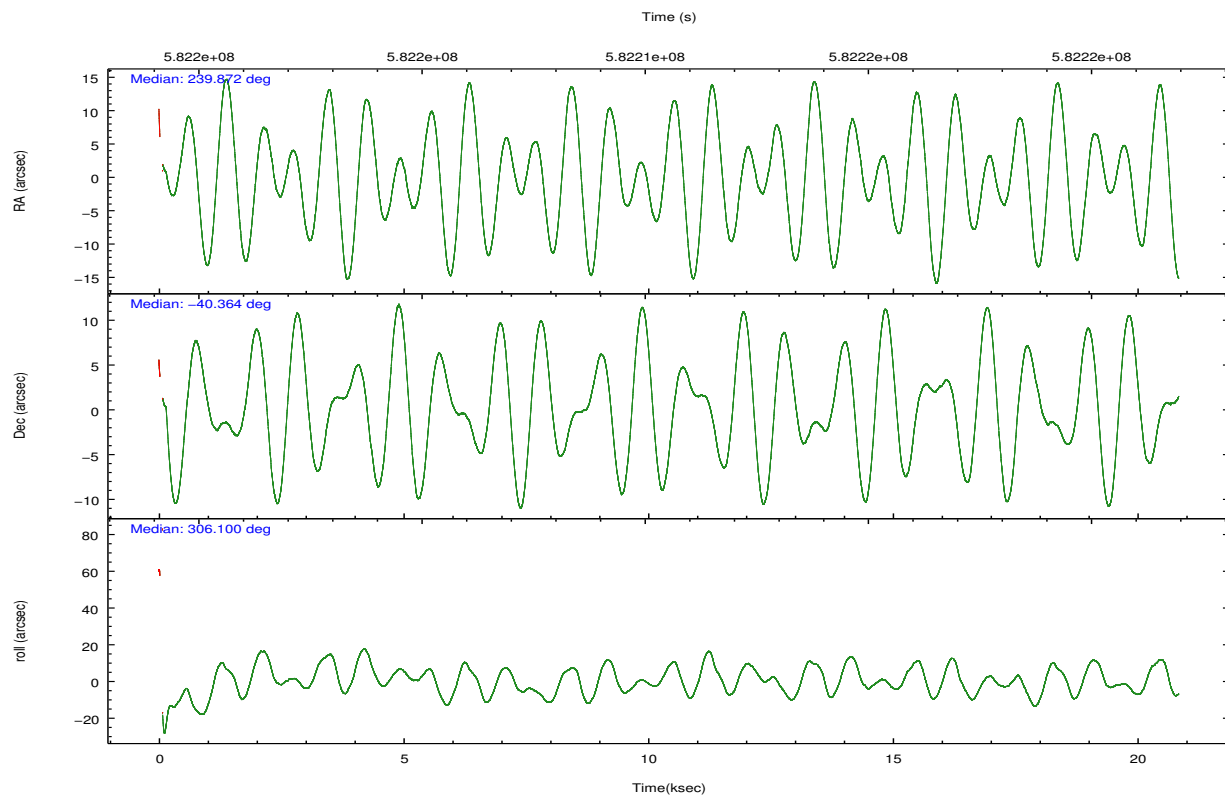
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	25591	4439	5362	11452
	11%	3%	3%	6%
grade 1 events	624	58	189	106
	0%	0%	0%	0%
grade 2 events	33789	3418	14446	10172
	14%	2%	8%	6%
grade 3 events	4328	1361	5240	4313
	1%	1%	3%	2%
grade 4 events	3334	1349	5155	4010
	1%	1%	3%	2%
grade 5 events	13480	5829	15730	8849
	5%	4%	9%	5%
grade 6 events	53491	3522	38562	11511
	23%	2%	23%	7%
grade 7 events	94519	107686	76945	113474
	41%	84%	47%	69%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	239.838568	239.8716961443798	CCD I2 on	N	N
[deg] Pointing Dec	-40.352683	-40.36349140252494	CCD I3 on	N	N
[deg] Pointing Roll	305.940371	306.1184664987732	CCD S0 on	O1	N
[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	-190.132523	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	Y	Y
[s] Observation start time (MET)	582200957.184000	582199476.57319	CCD S5 on	O2	N
Observation start date	2016-06-13T10:28:09	2016-06-13T10:04:36	Number of optional ACIS chips dropped	2	2
[s] Observation end time (MET)	582220957.184000	582222493.46201	On-chip summing requested	N	N
Observation end date	2016-06-13T16:01:29	2016-06-13T16:28:13	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



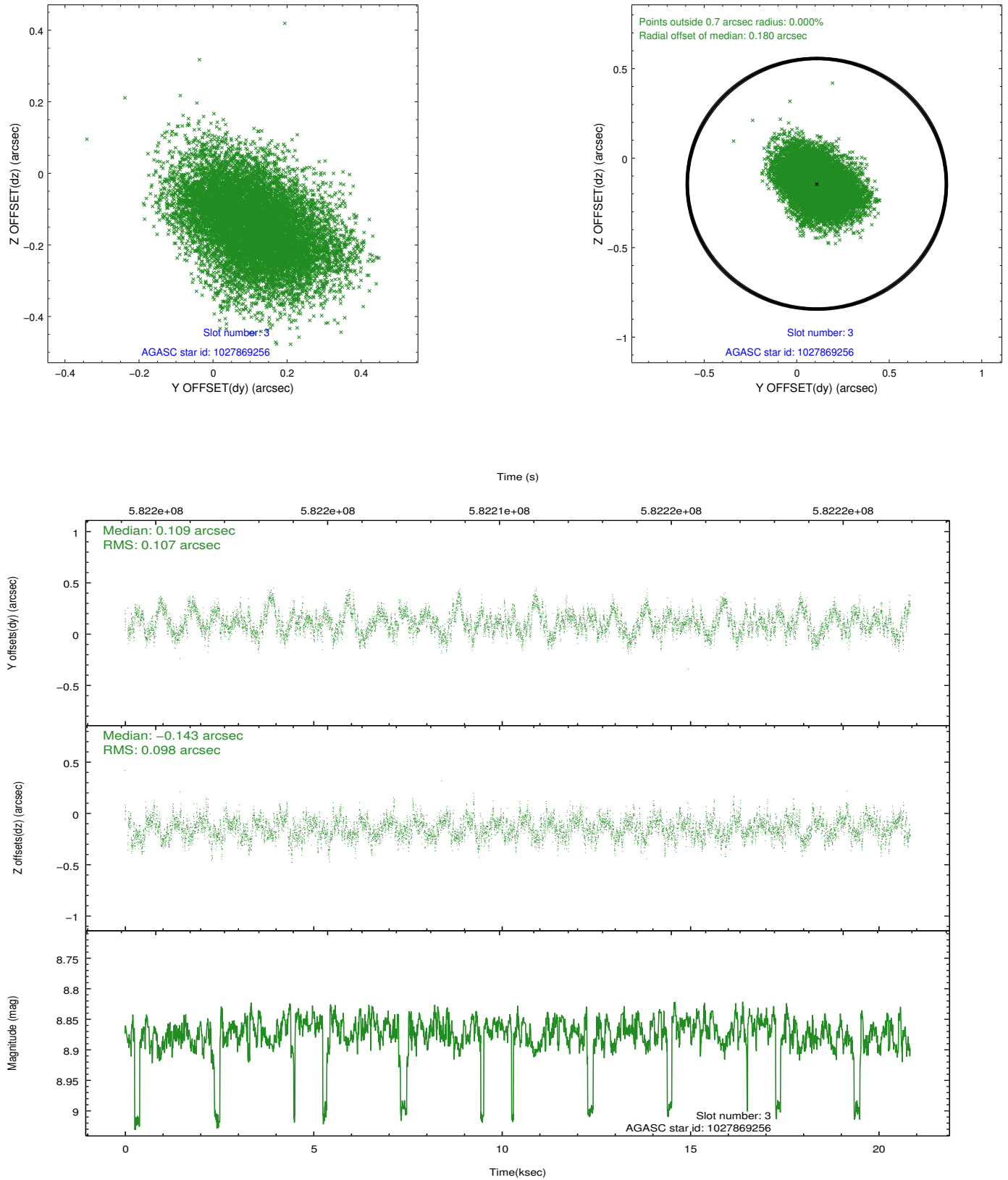


Slot Statistics

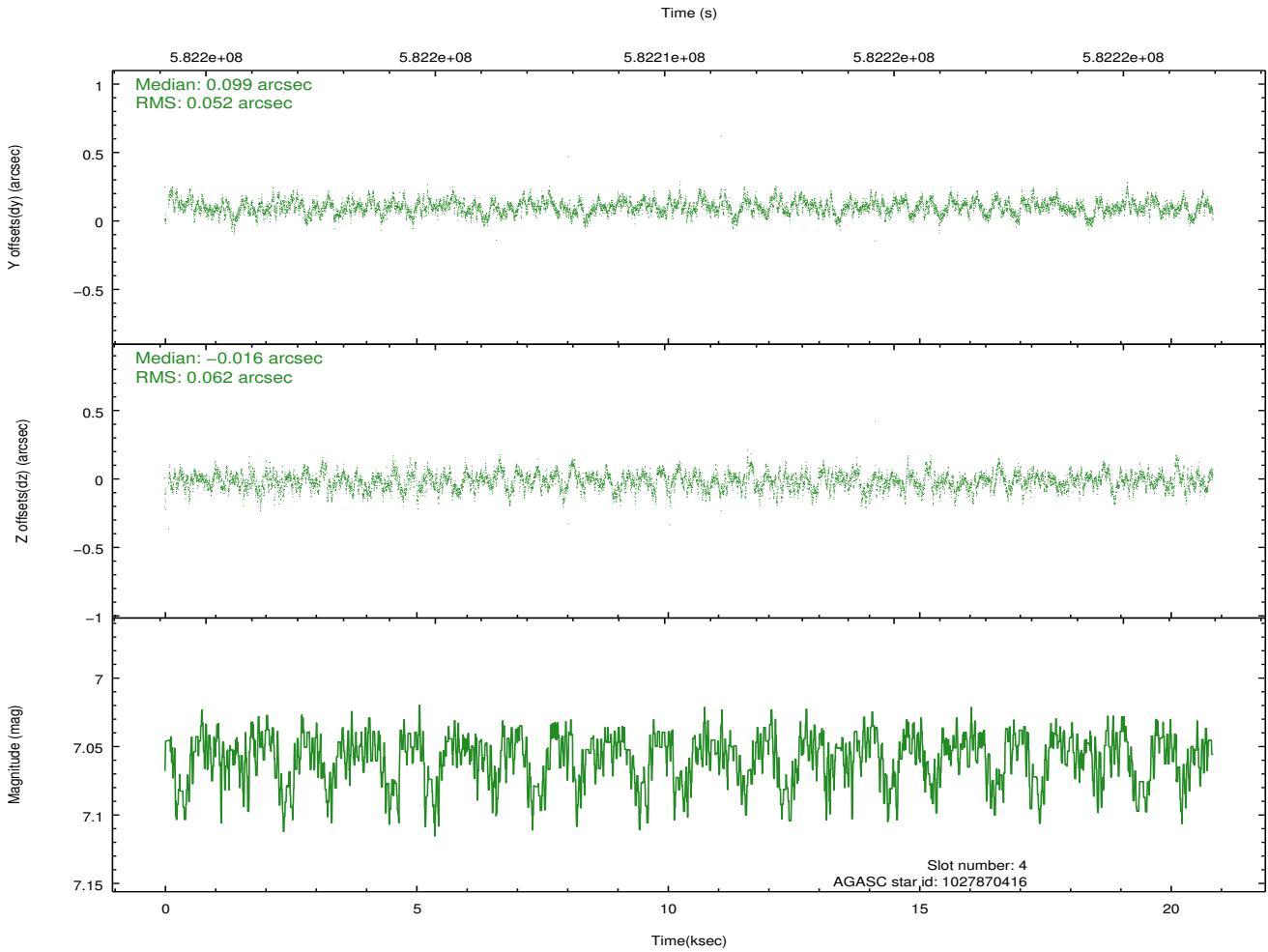
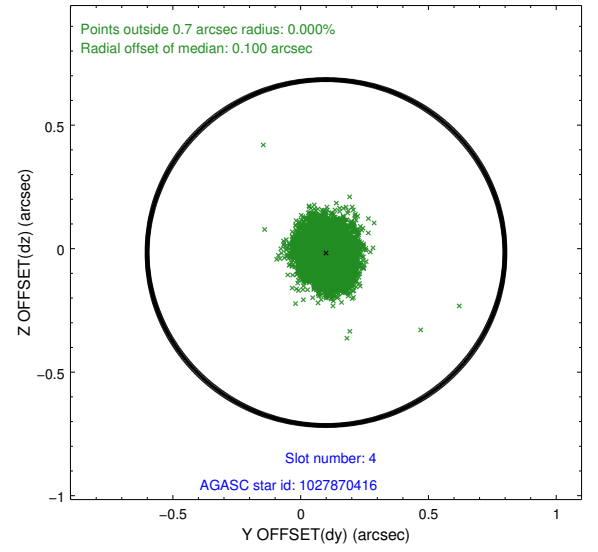
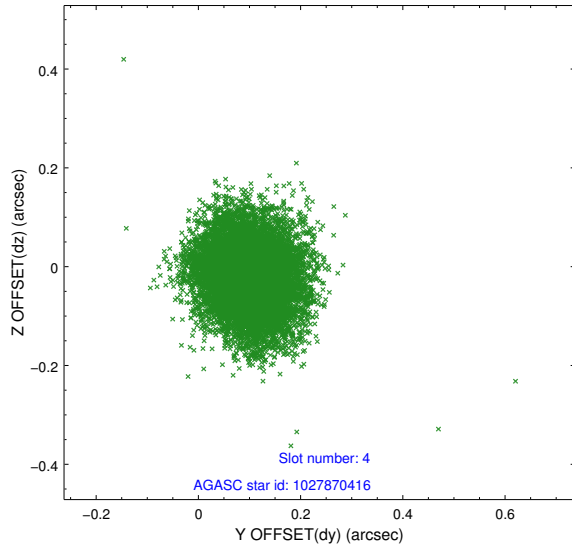
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-1	7.21	5071	0.043	-0.026	0.025	0.045	0.000000	0.000000	928.43	-1735.48
1	FID		ACIS-S-4	7.23	5070	0.325	-0.003	0.017	0.029	0.000000	0.000000	2146.17	168.54
2	FID		ACIS-S-5	7.23	5070	-0.401	0.035	0.023	0.031	0.000000	0.000000	-1820.70	162.31
3	GUIDE	used	1027869256	8.87	10134	0.109	-0.143	0.156	0.249	239.454969	-40.997193	1269.56	-2206.75
4	GUIDE	used	1027870416	7.06	10139	0.099	-0.016	0.085	0.138	239.373148	-40.360546	-723.05	-1052.46
5	GUIDE	used	1027874552	8.11	10137	-0.115	0.043	0.101	0.162	239.330920	-40.927418	868.64	-2334.22
6	GUIDE	used	1029576200	9.66	10127	-0.106	0.119	0.225	0.370	240.164152	-39.881469	-844.59	1722.62
7	MONITOR	unused		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00

2.4 Star Slots

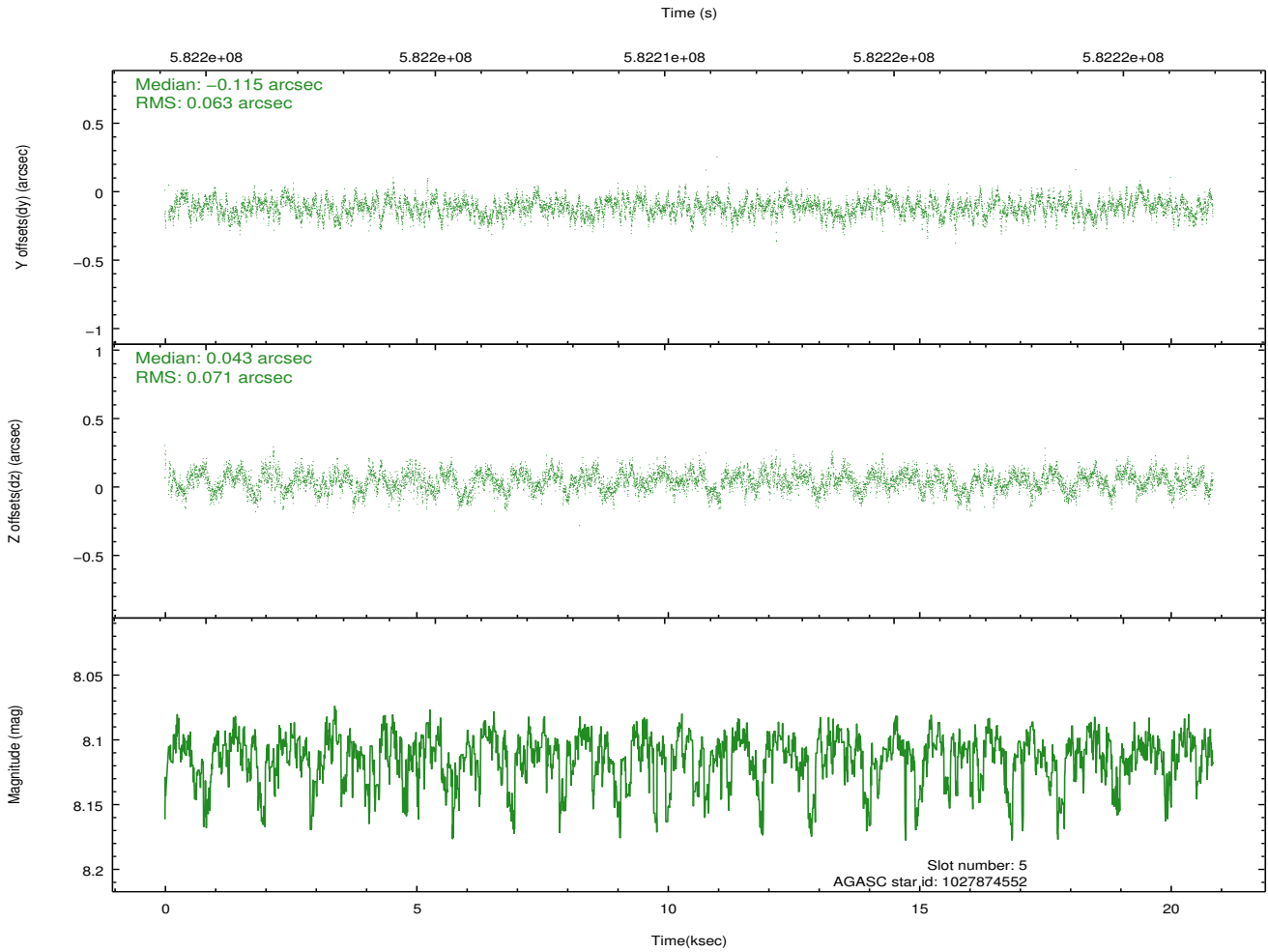
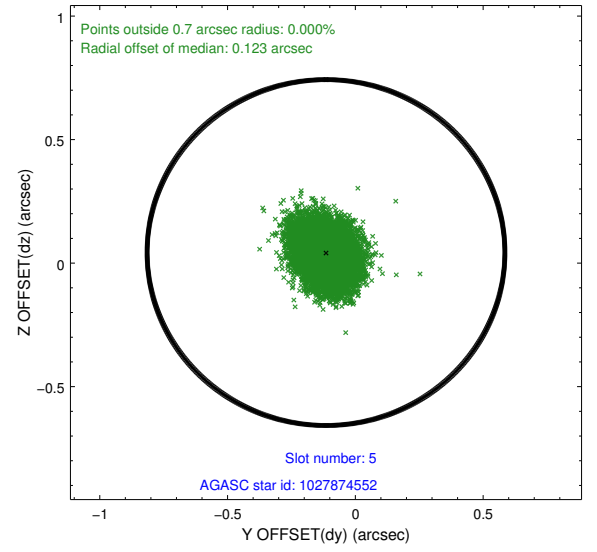
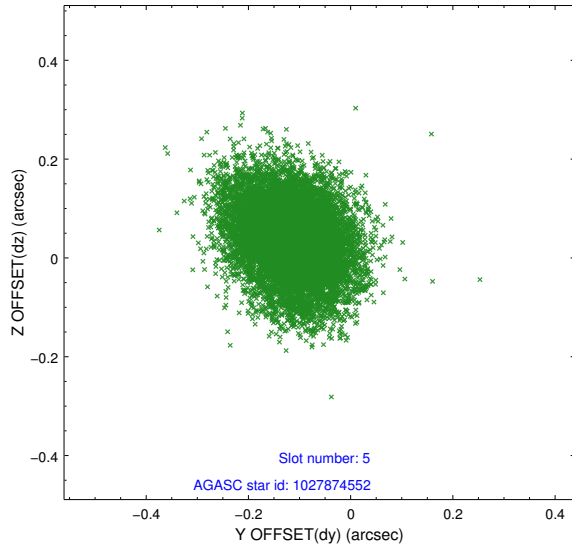
2.4.1 Slot 3



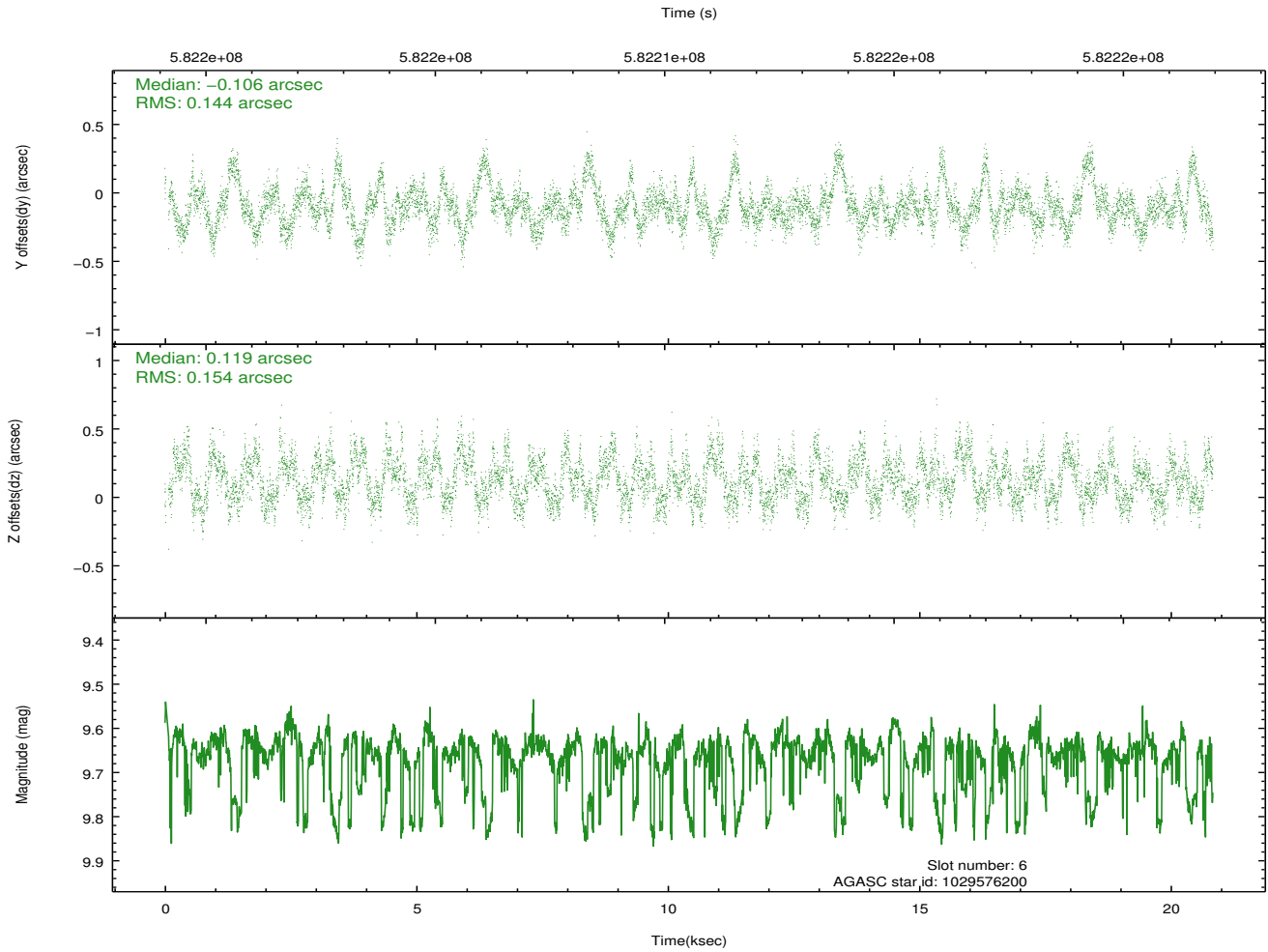
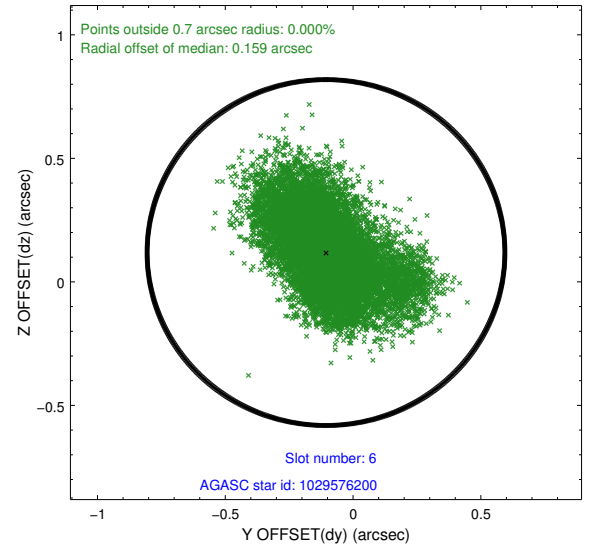
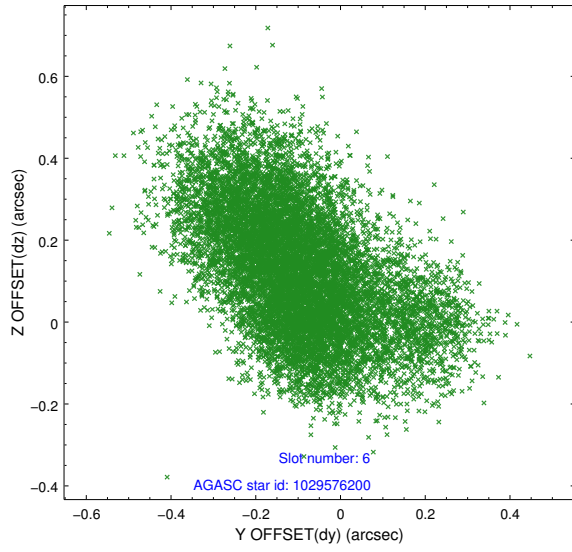
2.4.2 Slot 4



2.4.3 Slot 5

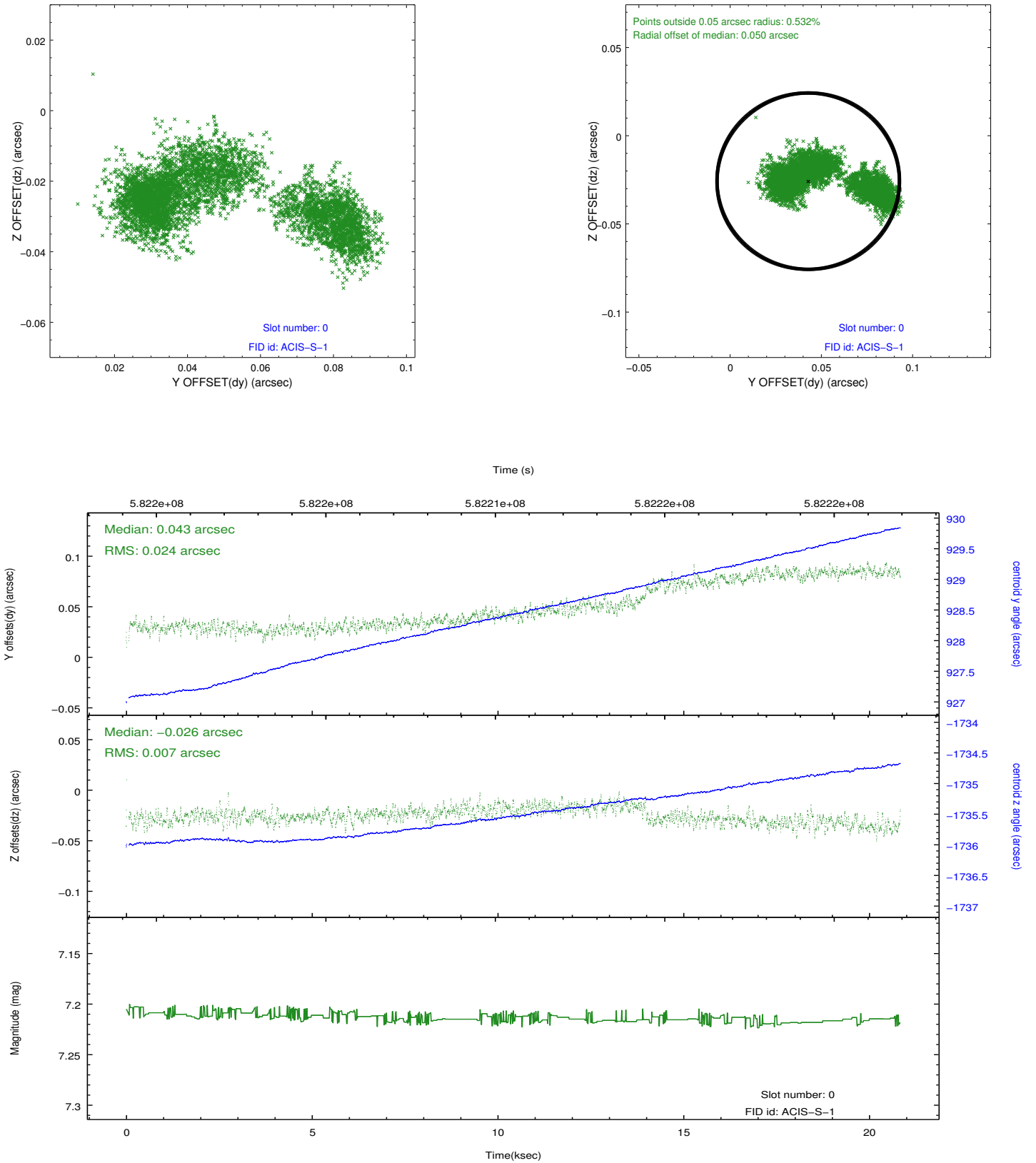


2.4.4 Slot 6

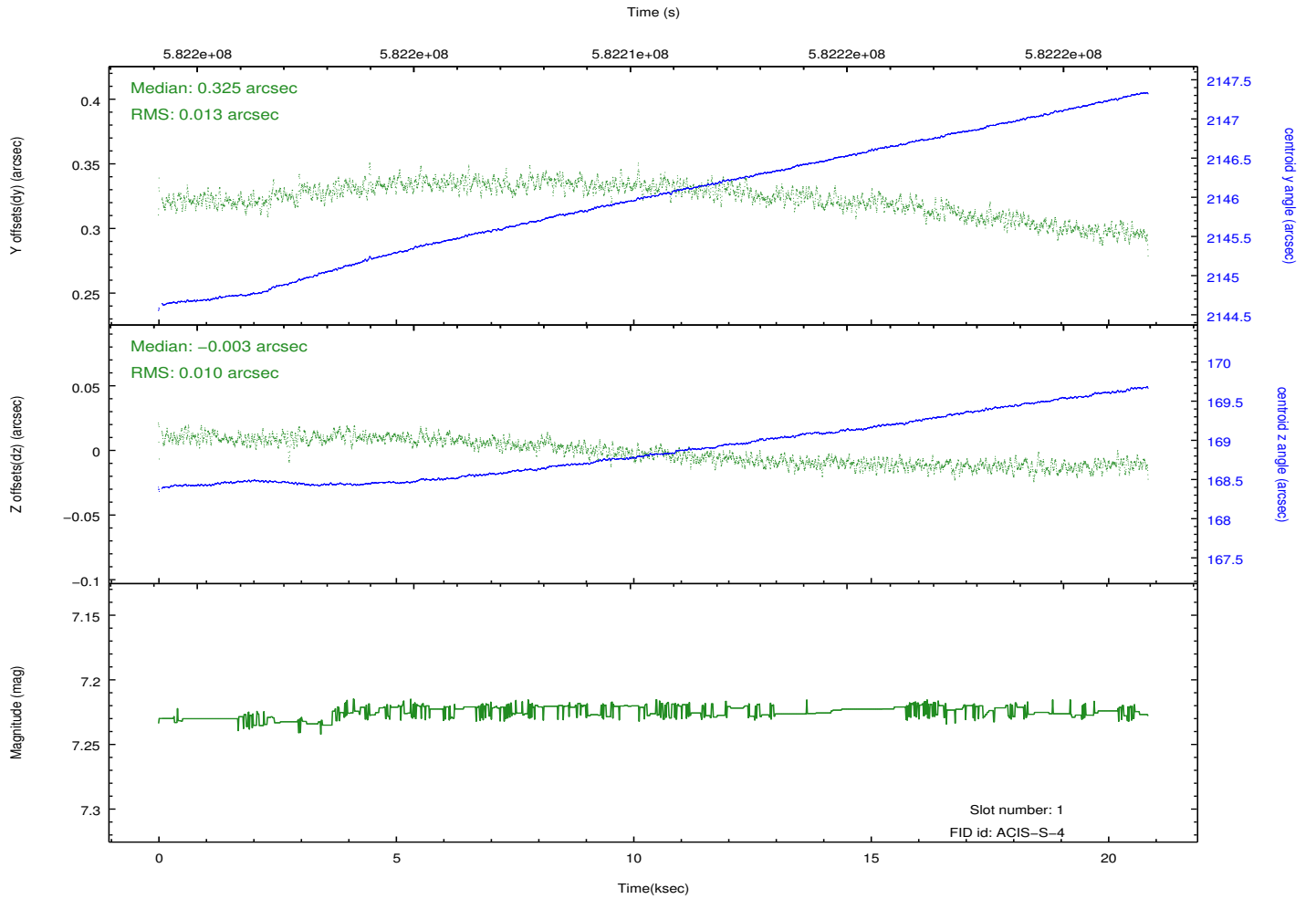
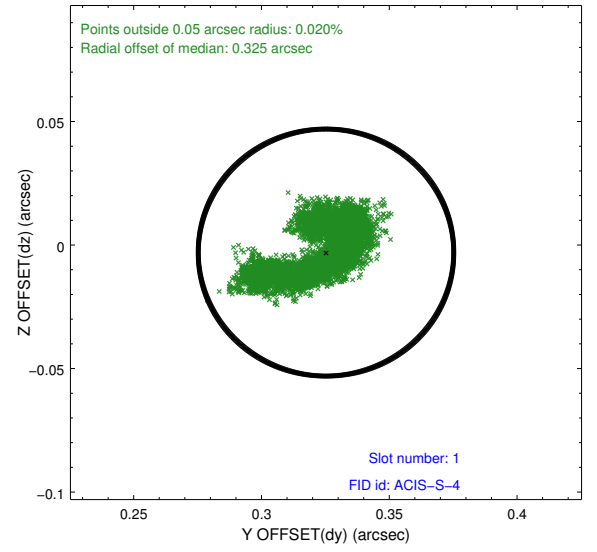
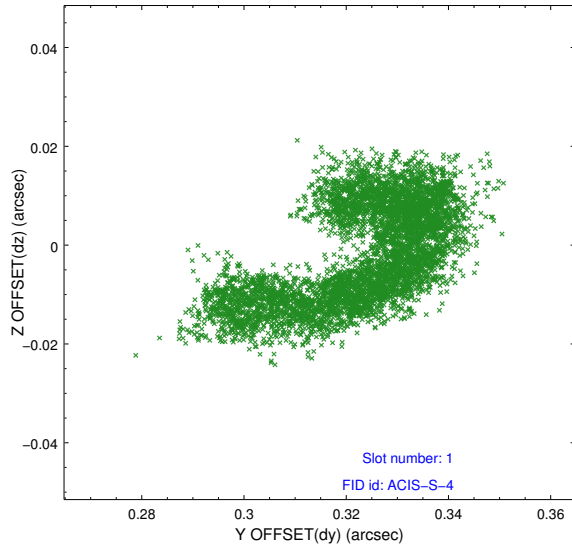


2.5 FID Slots

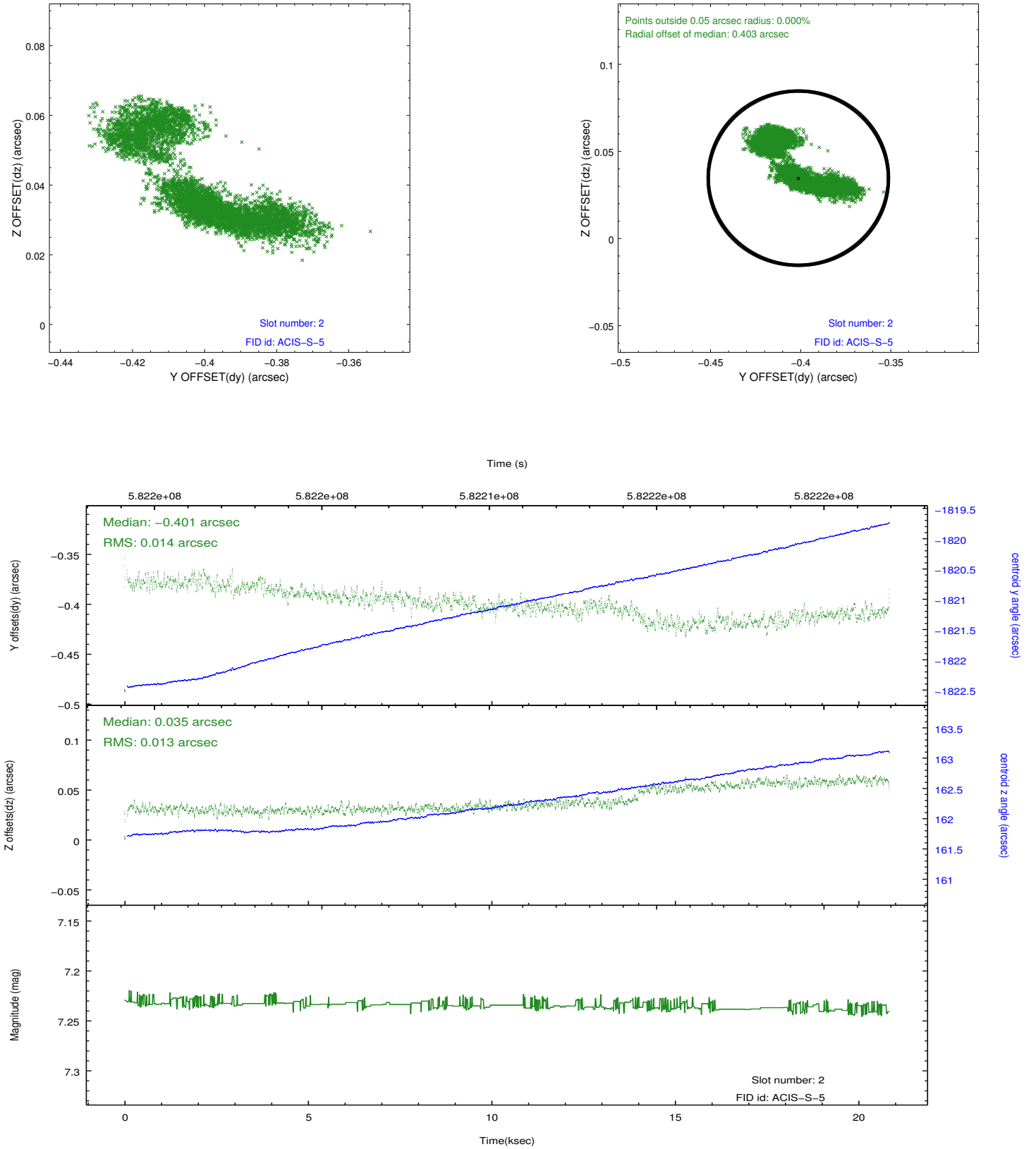
2.5.1 Slot 0



2.5.2 Slot 1

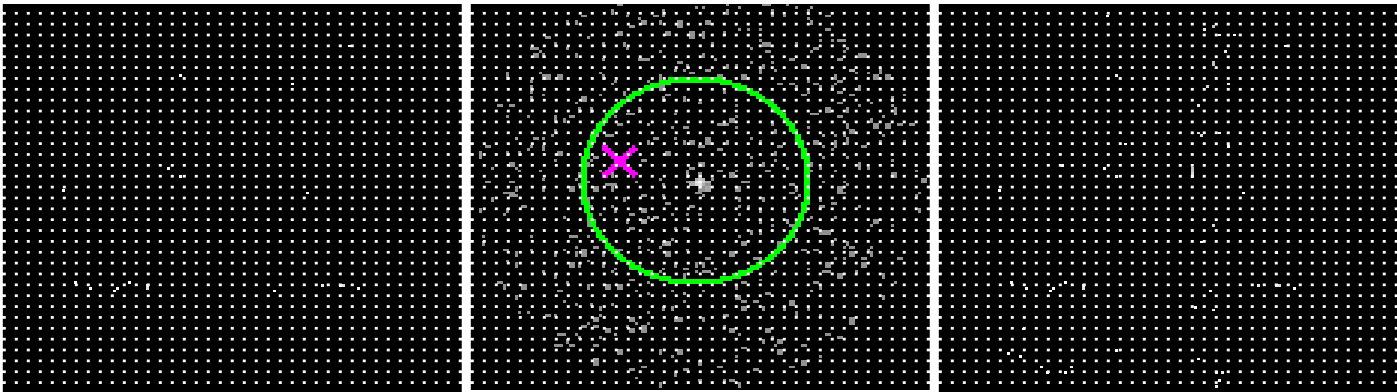


2.5.3 Slot 2



3 Gratings

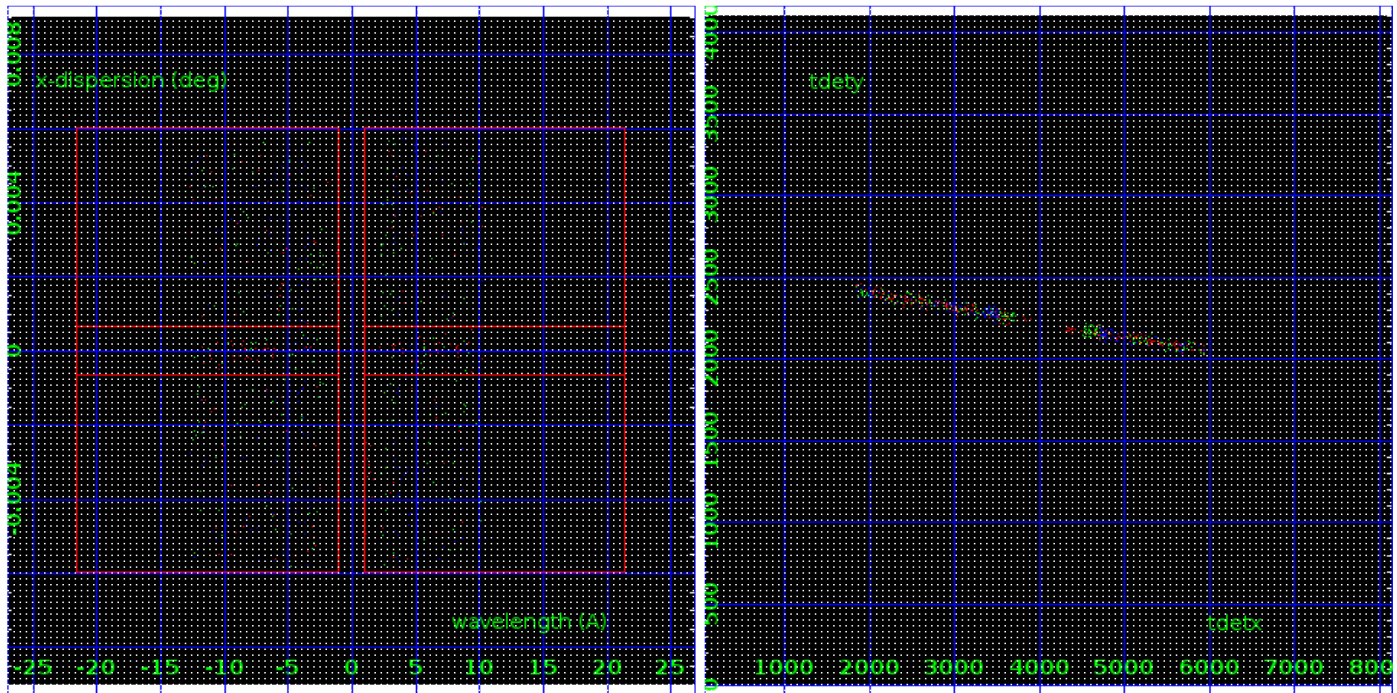
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

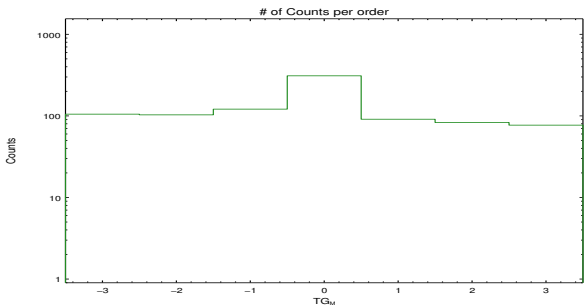
HEG Order Sort ALL

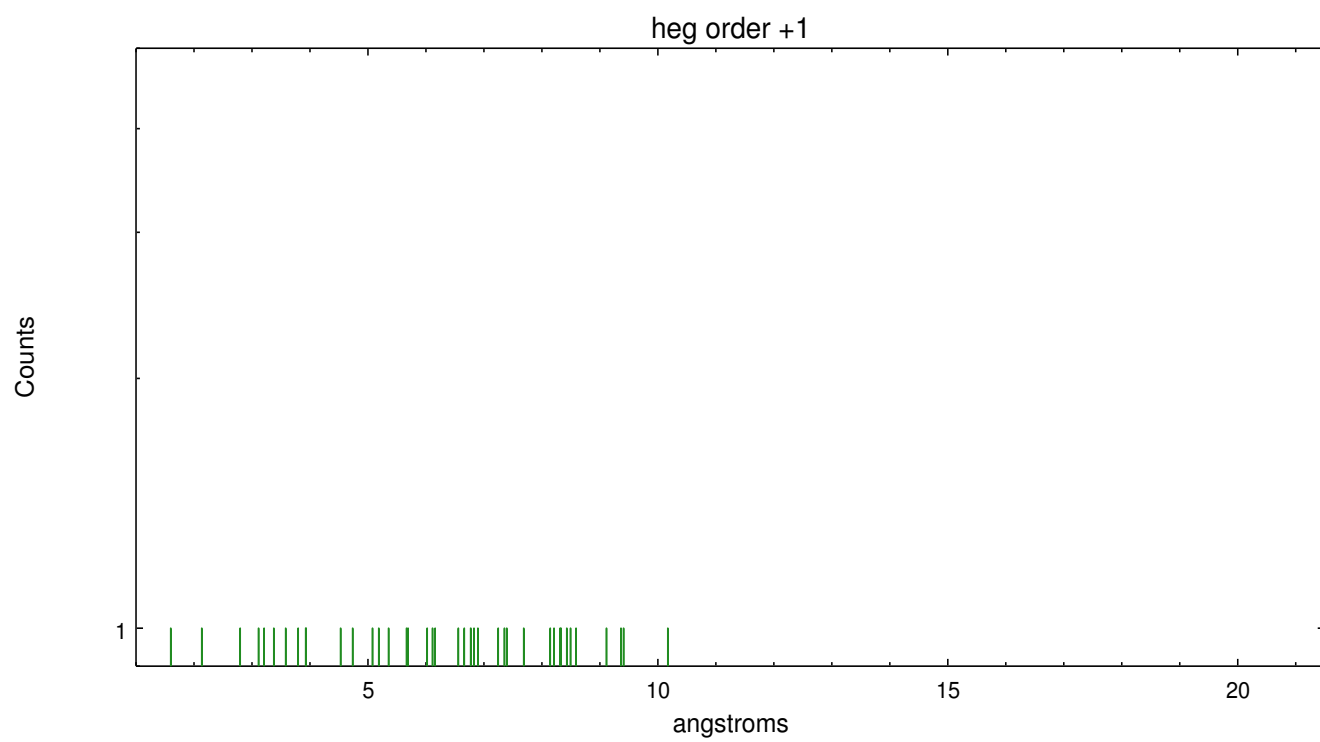
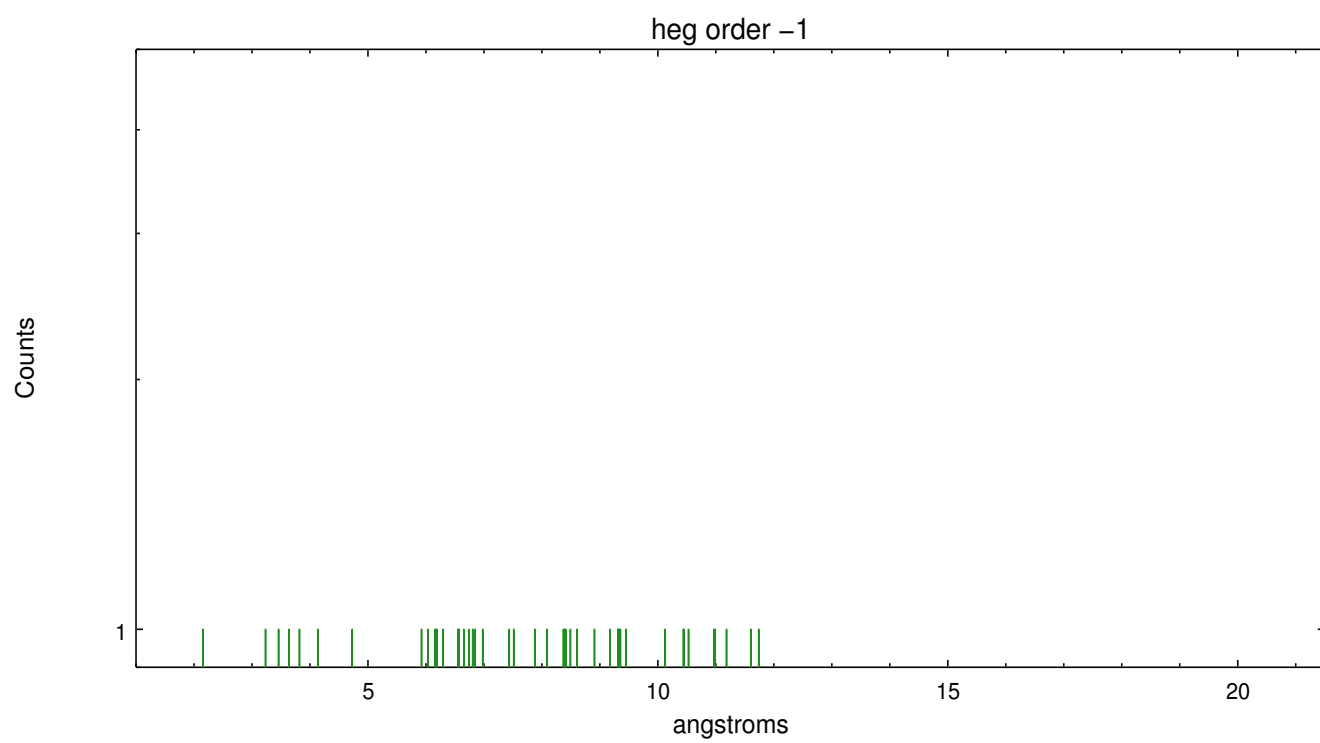


Spot Image HEG

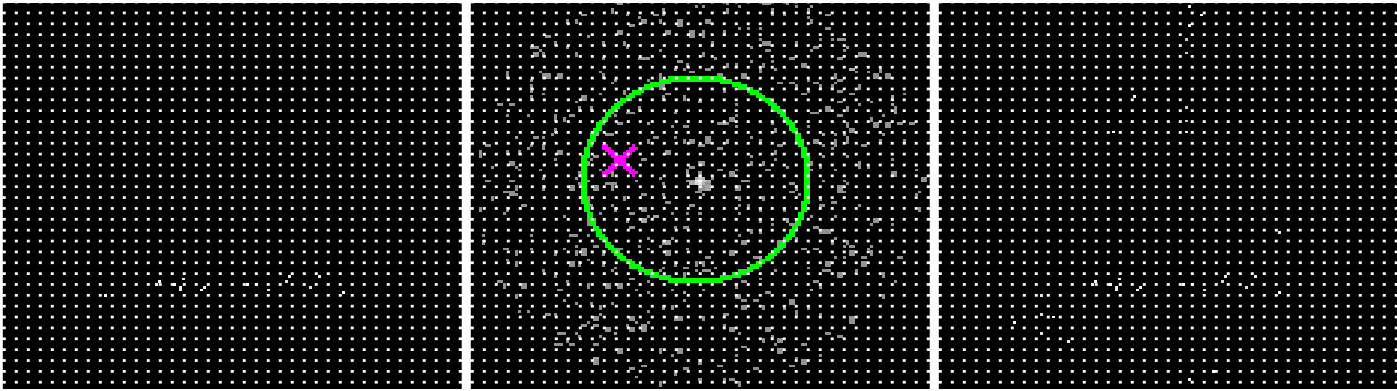
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	105	103	121	310	91	83	77





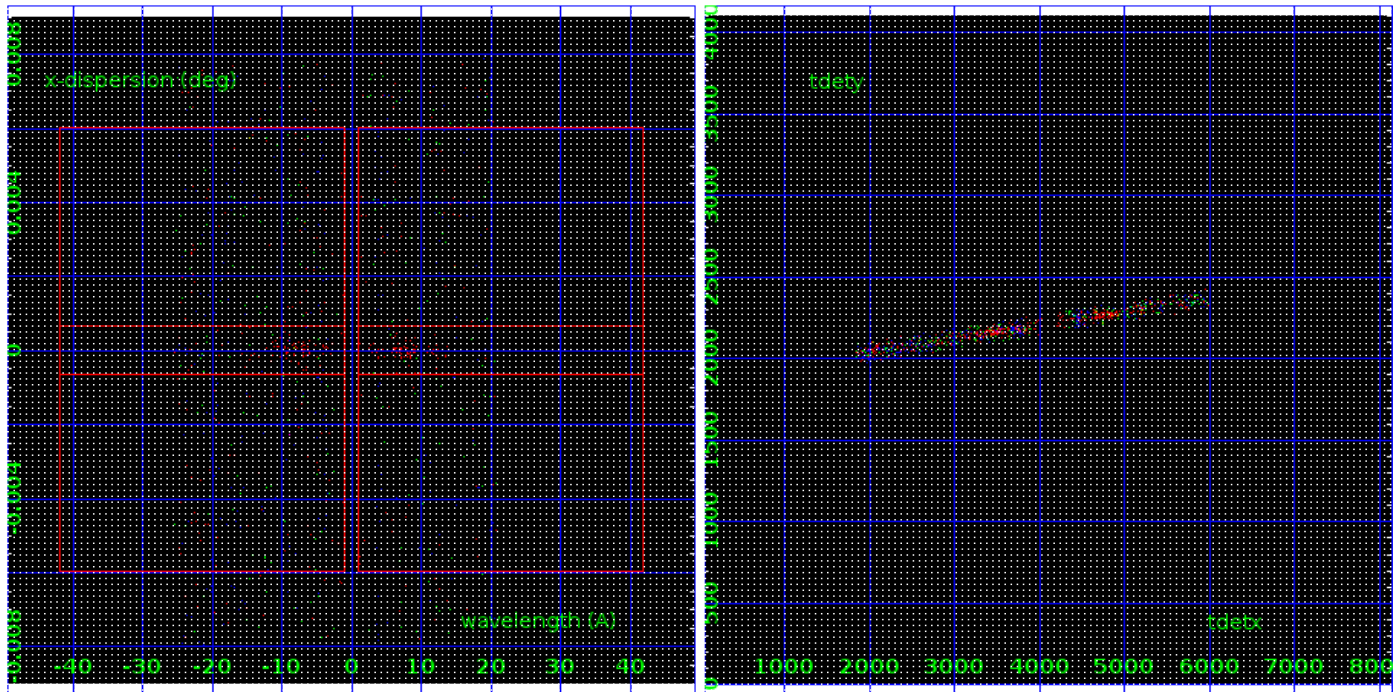
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

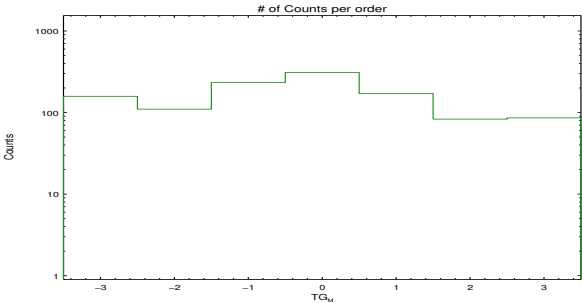
MEG Order Sort ALL

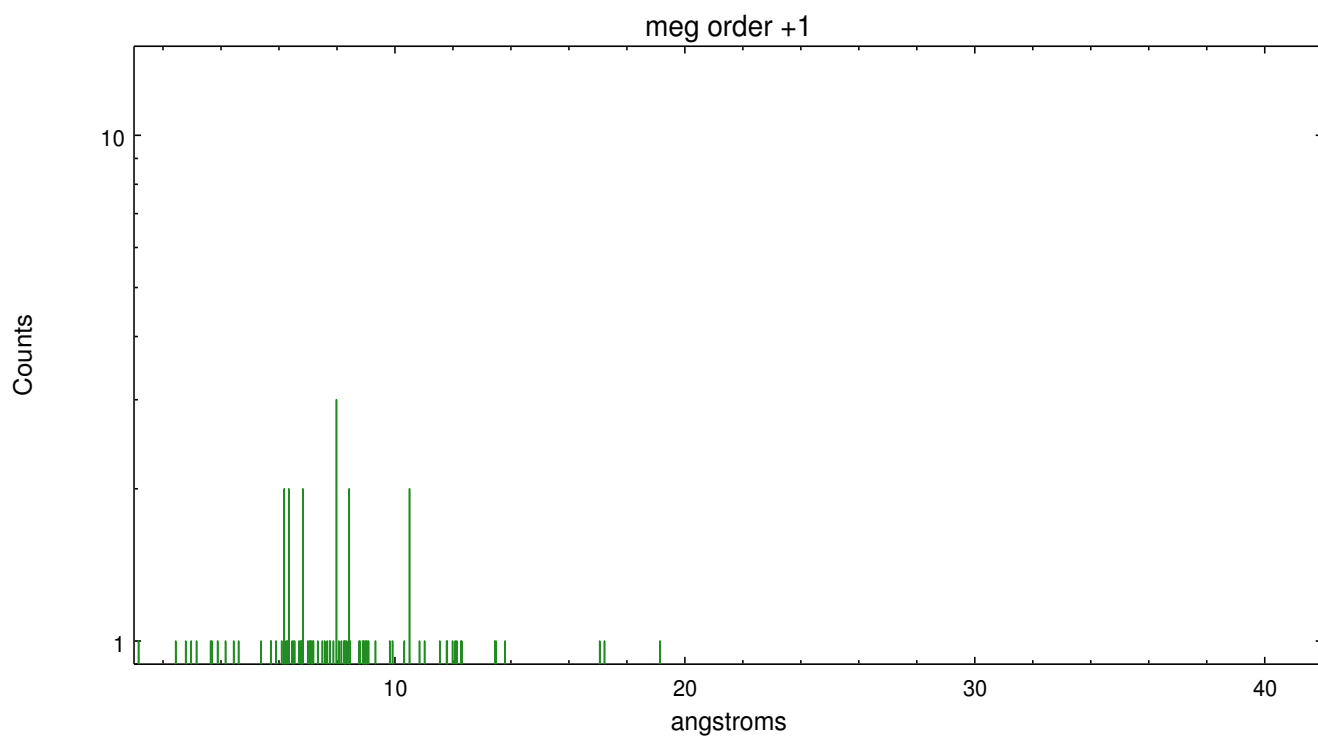
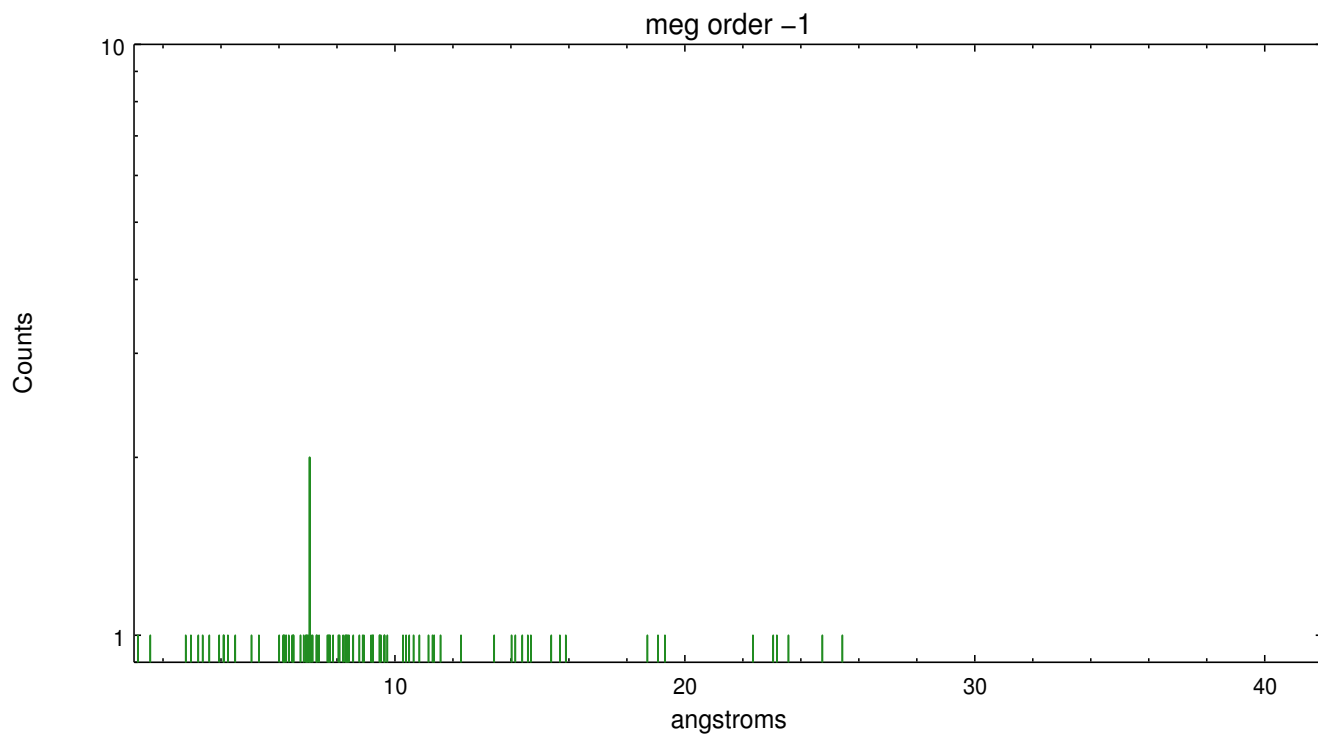


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	158	110	233	310	171	83	86





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2016.06.16
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	19.455600149751

A.2 Comments

The ACA has the capability to devote one or more of the eight image slots to "monitor" particular sky locations. This allows simultaneous optical photometry of one or more targets in the ACA field of view. These optical sources can be slightly fainter than the ACA guide star limit of $m_{ACA} = 10.2$ mag. The bright-end limit for monitor star photometry is $m_{ACA}=6.2$ mag. However, since there are a fixed number of image slots, devoting a slot to photometry instead of tracking a guide star results in a degradation of the image reconstruction and celestial location accuracy (Section 5.4). Using one monitor slot represents a 15 - 25% increase in the aspect image reconstruction RMS diameter, depending on the particular guide star configuration. The photometric accuracy which can be achieved depends primarily on the star magnitude, integration time, CCD dark current, CCD read noise, sky background, and the CCD dark current uncertainty.