

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21681 - L2 Version 3
Chandra X-Ray Center

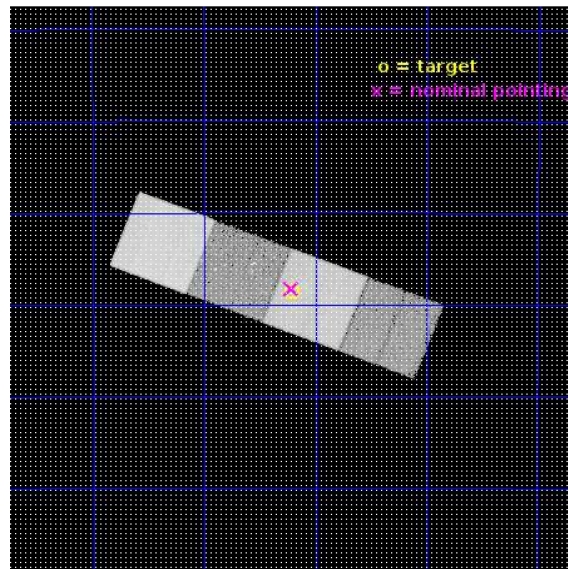
L2 Processing Date : May 22 2019

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1 Front

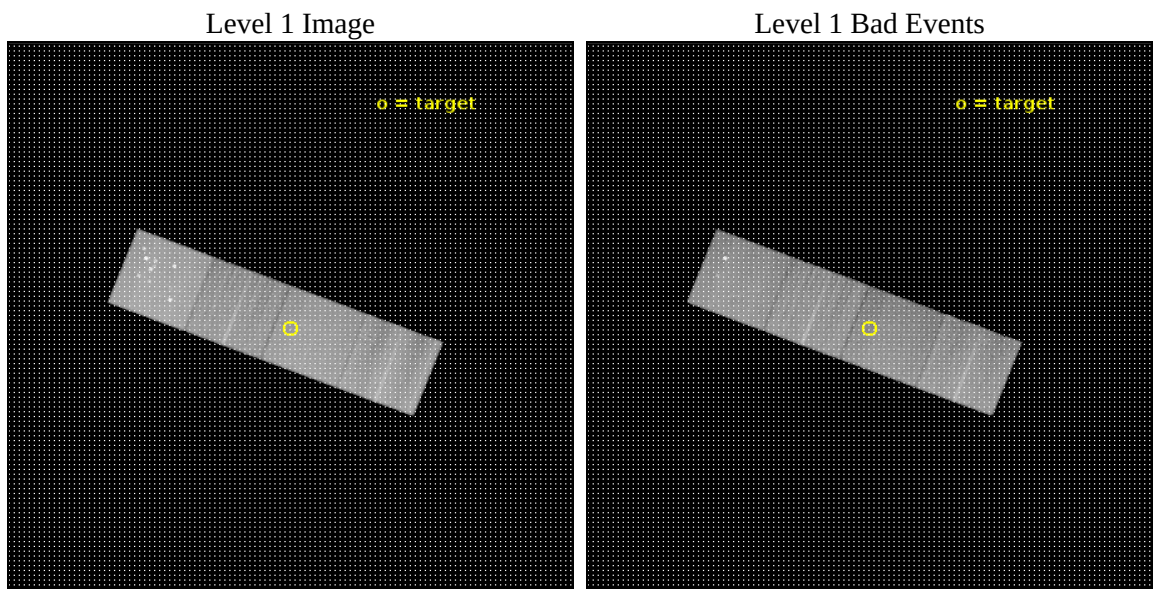
seq_num	201260	Sequence number
obs_id	21681	Observation id
title	Identifying Accretion at a Key Stage of Pre-main Sequence Stellar Evolution	Proposal title
observer	Dr. Claude Canizares	Principal investigator
object	SZ 96	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	242.052667	Observer's specified target RA [deg]
dec_targ	-39.142633	Observer's specified target Dec [deg]
ra_nom	242.05403642369	Nominal RA [deg]
dec_nom	-39.138043129291	Nominal Dec [deg]
roll_nom	21.157494587047	Nominal Roll [deg]
revision	3	Processing version of data
ontime	30017.30023098	Sum of GTIs [s]
livetime	29625.102105047	Livetime [s]
ontime5	30017.30023098	Sum of GTIs [s]
ontime6	30011.018070102	Sum of GTIs [s]
ontime7	30017.30023098	Sum of GTIs [s]
ontime8	30014.159160733	Sum of GTIs [s]
l2events	331461	Number of level 2 events



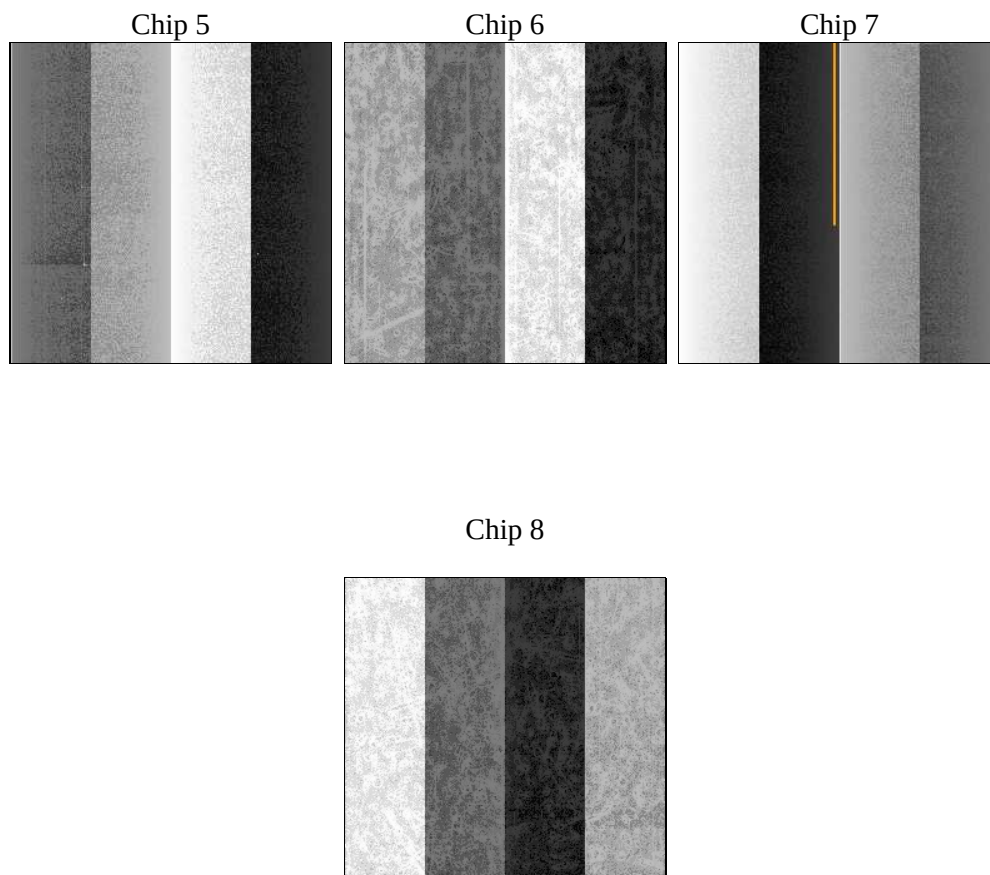
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	30017.30023098	Sum of GTIs [s]
caldsver	4.8.2	 	ontime5	30017.30023098	Sum of GTIs [s]
date	2019-05-22T15:42:13	Date and time of file creation	ontime6	30011.018070102	Sum of GTIs [s]
revision	3	Processing version of data	ontime7	30017.30023098	Sum of GTIs [s]
			ontime8	30014.159160733	Sum of GTIs [s]
			l1events	1203964	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			zo_pos	(4105.14, 4061.95)	src1a sky pixel position

2.1.4 Events

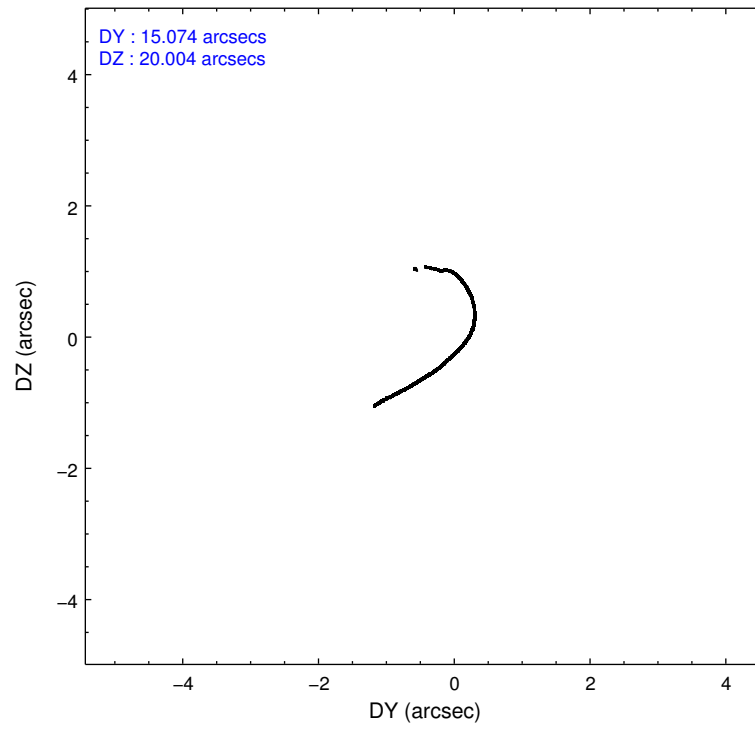
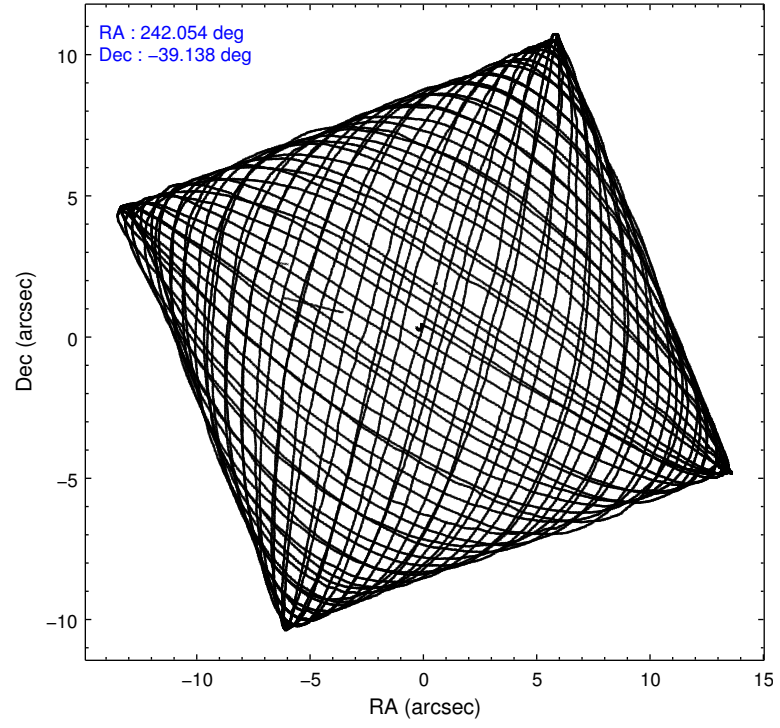
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	397554	229424	287050	289936
rejected events	196577	202660	162845	210517
rejected %	49%	88%	56%	72%

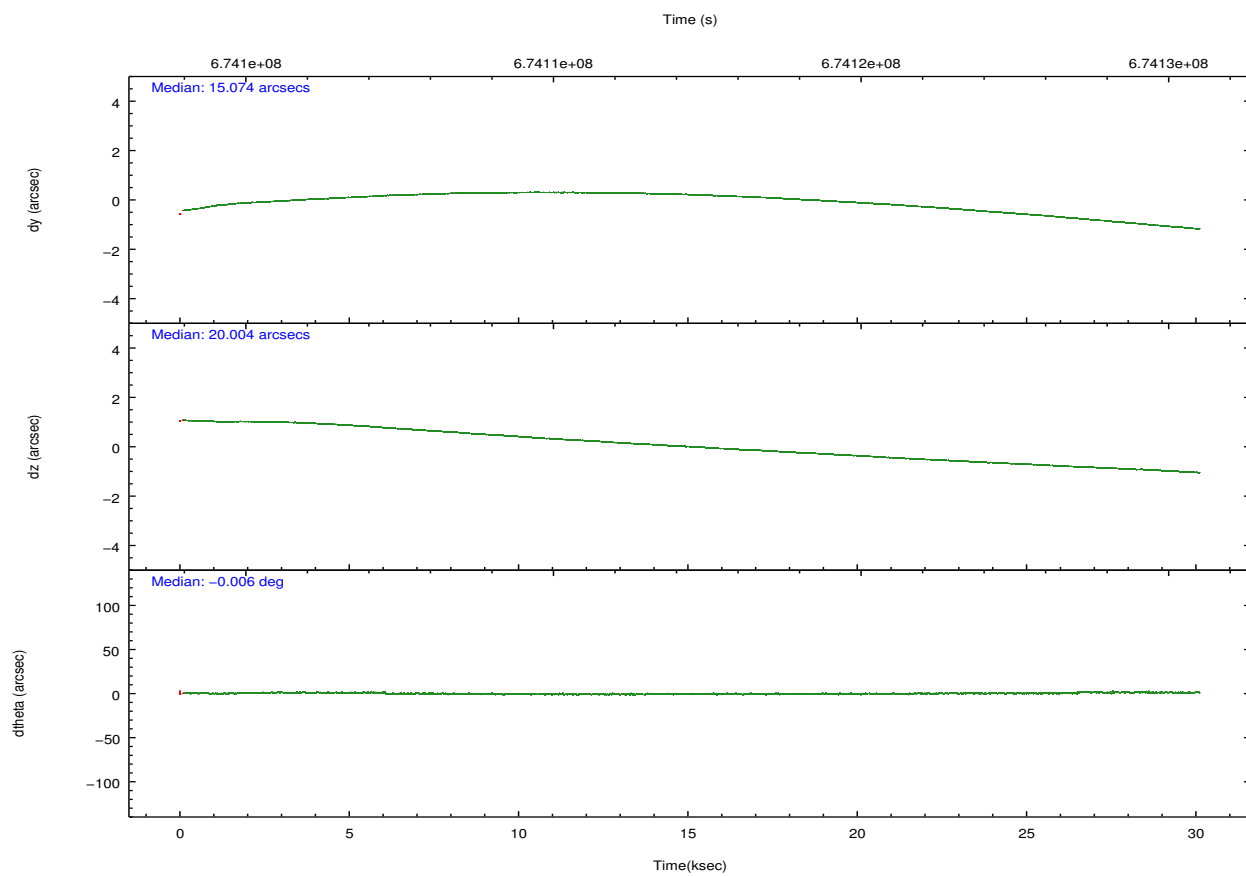
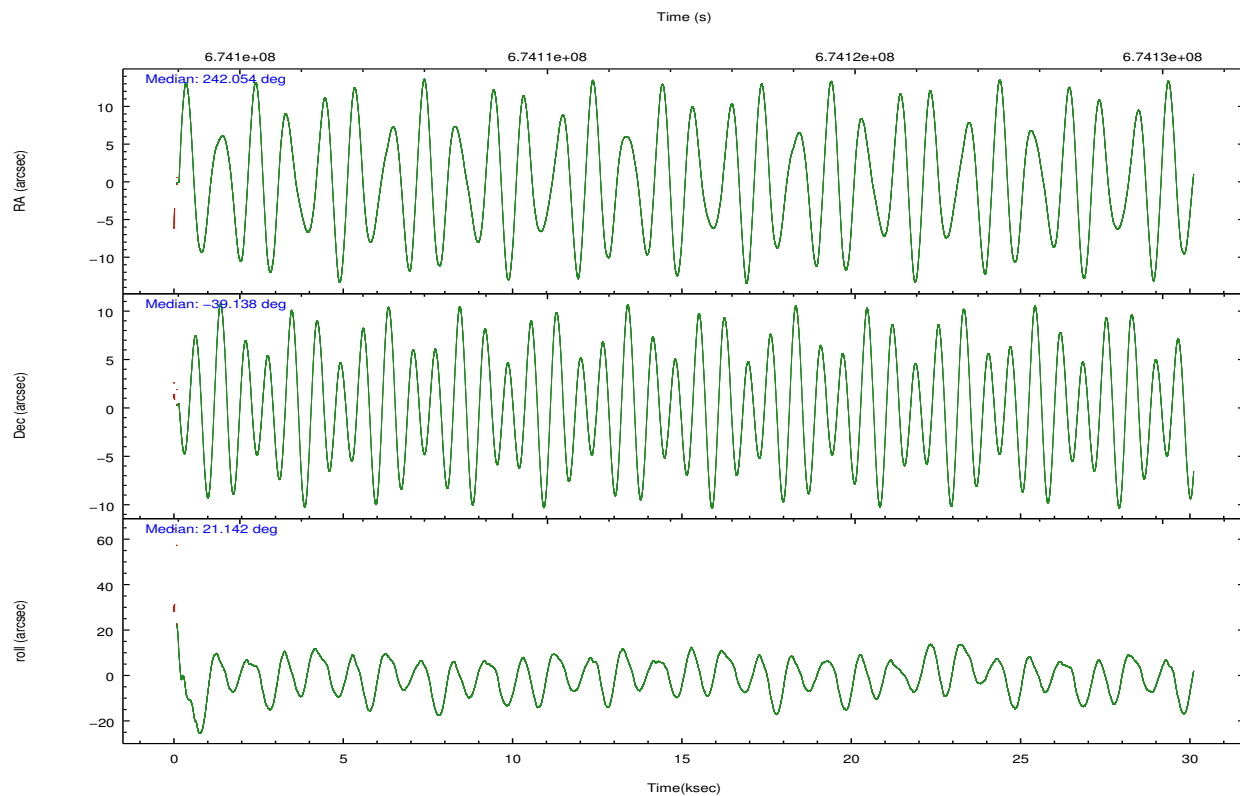
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	37142	9413	10303	22428
	9%	4%	3%	7%
grade 1 events	928	101	450	216
	0%	0%	0%	0%
grade 2 events	59198	6162	26676	19363
	14%	2%	9%	6%
grade 3 events	5726	2522	9746	8301
	1%	1%	3%	2%
grade 4 events	4831	2528	9652	7795
	1%	1%	3%	2%
grade 5 events	24860	10210	28068	15802
	6%	4%	9%	5%
grade 6 events	94408	6191	68073	21687
	23%	2%	23%	7%
grade 7 events	170461	192297	134082	194344
	42%	83%	46%	67%

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	FAINT	FAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	242.032202	242.0540364236864	CCD I2 on	N	N
[deg] Pointing Dec	-39.159631	-39.13804312929118	CCD I3 on	N	N
[deg] Pointing Roll	20.987079	21.15749458704663	CCD S0 on	O2	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	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	Y	Y
[s] Observation start time (MET)	674099501.184000	674098195.58196	CCD S5 on	O1	N
Observation start date	2019-05-13T01:50:32	2019-05-13T01:29:55	Number of optional ACIS chips dropped	2	2
[s] Observation end time (MET)	674129501.184000	674130201.72138	On-chip summing requested	N	N
Observation end date	2019-05-13T10:10:32	2019-05-13T10:23:21	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



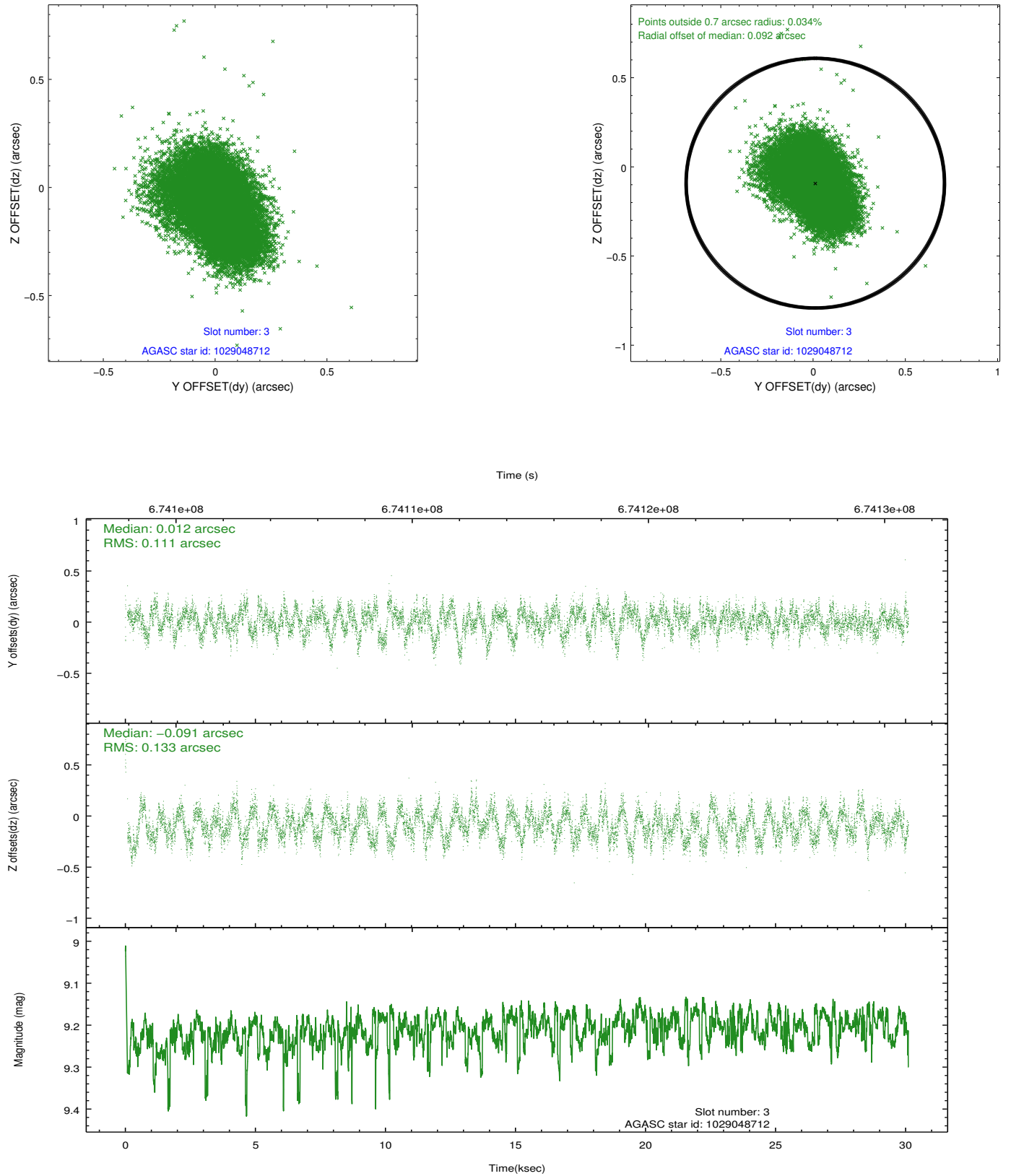


Slot Statistics

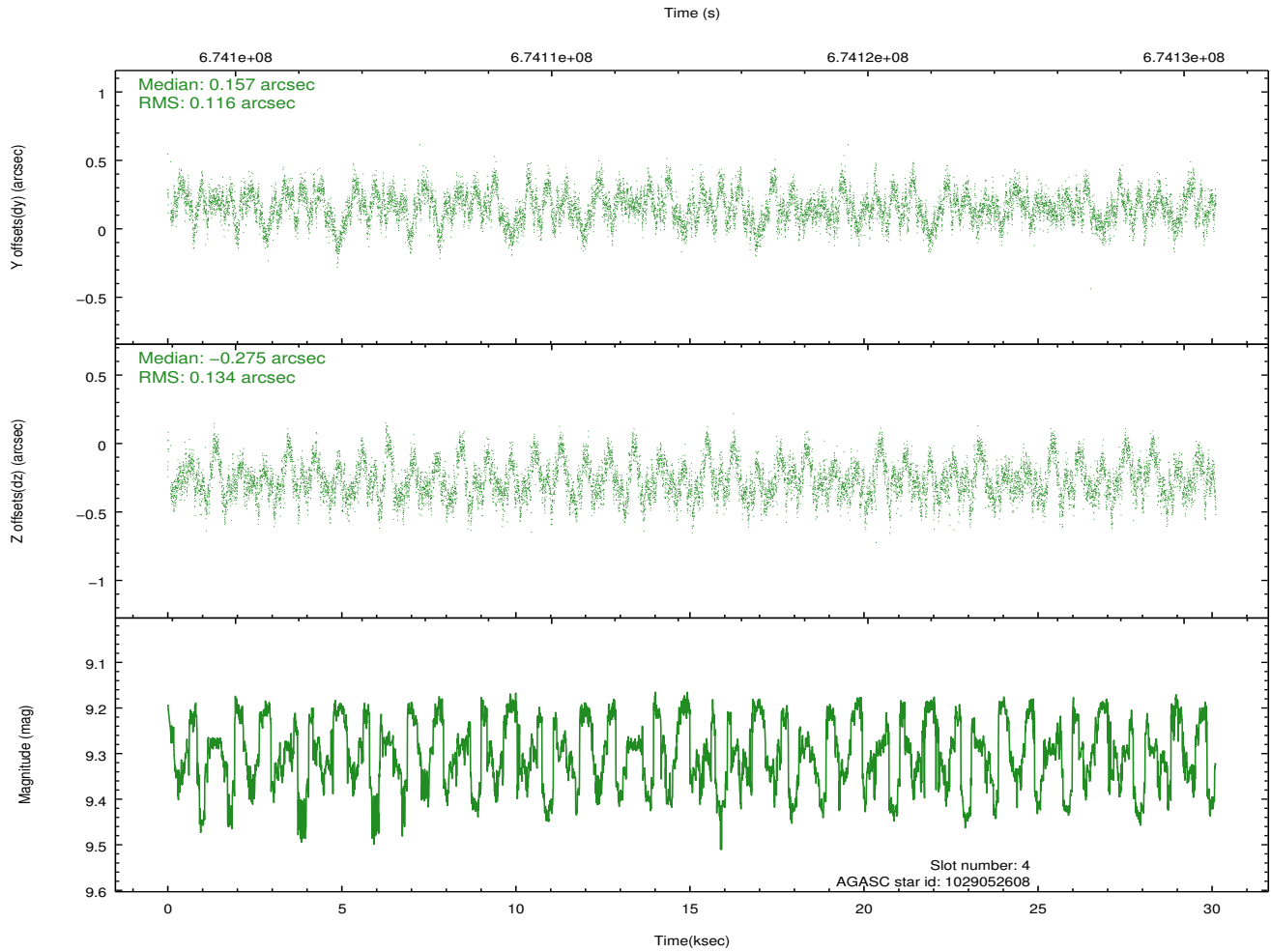
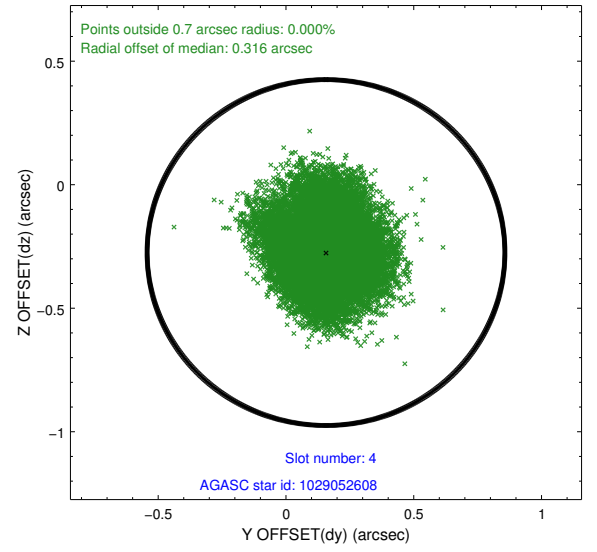
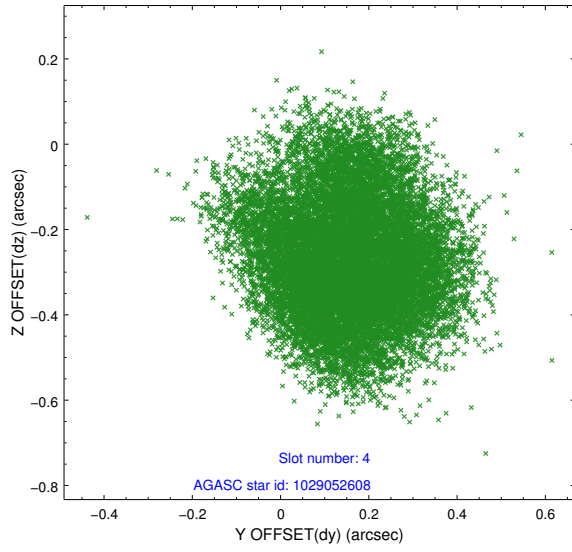
id	status	used	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		7.01	7329	1.000	-0.350	-0.178	0.017	0.057	0.000000	0.000000	-768.19	-1741
1	FID		7.13	7329	1.000	0.810	0.216	0.018	0.032	0.000000	0.000000	2146.13	167
2	FID		7.09	7329	1.000	-0.489	-0.030	0.022	0.057	0.000000	0.000000	-1821.16	160
3	GUIDE	used	9.21	14638	1.000	0.012	-0.091	0.185	0.290	241.237794	-38.954366	-1815.44	1476
4	GUIDE	used	9.30	14623	1.000	0.157	-0.275	0.193	0.292	241.909057	-39.099888	-244.50	323
5	GUIDE	used	8.28	14615	1.000	-0.032	-0.022	0.113	0.185	241.638388	-39.259513	-1154.00	55
6	GUIDE	used	9.15	14636	1.000	-0.146	0.400	0.236	0.376	242.322361	-39.646406	123.55	-1924
7	MONITOR	unused	0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

2.4 Star Slots

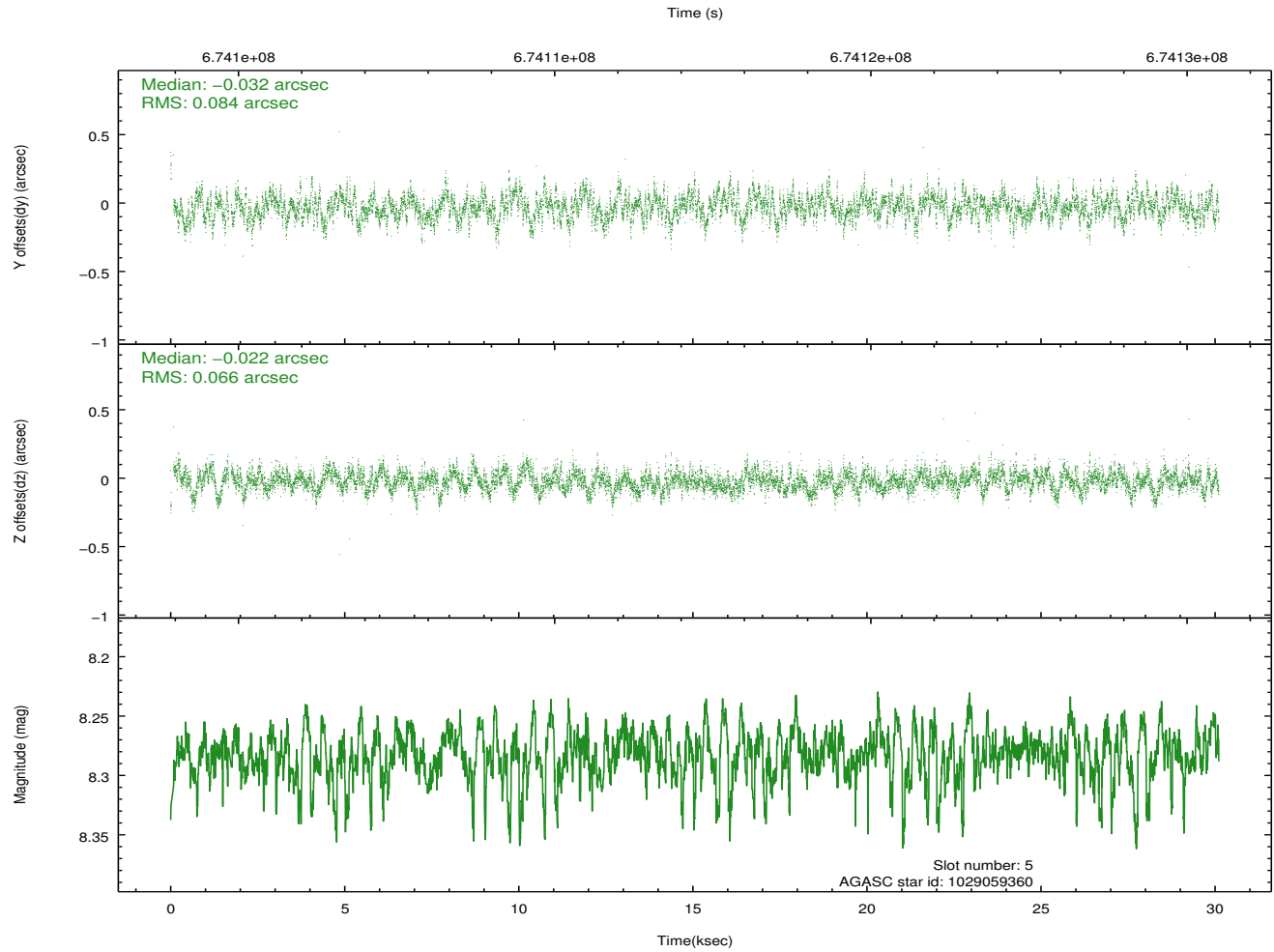
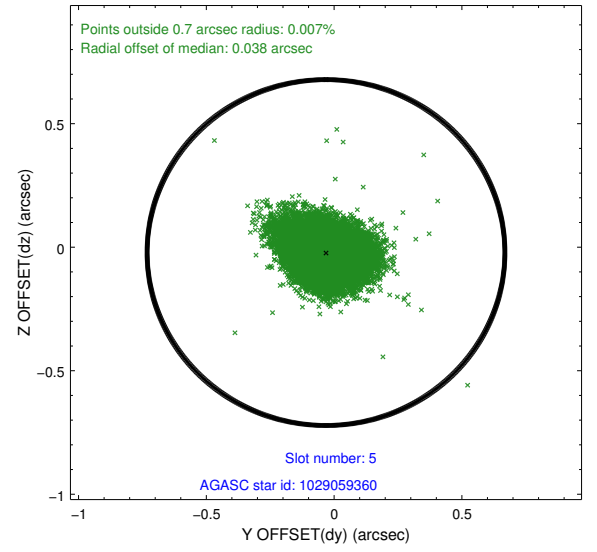
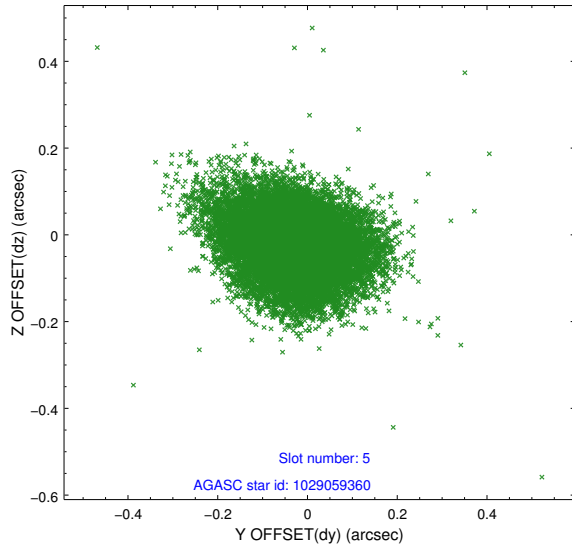
2.4.1 Slot 3



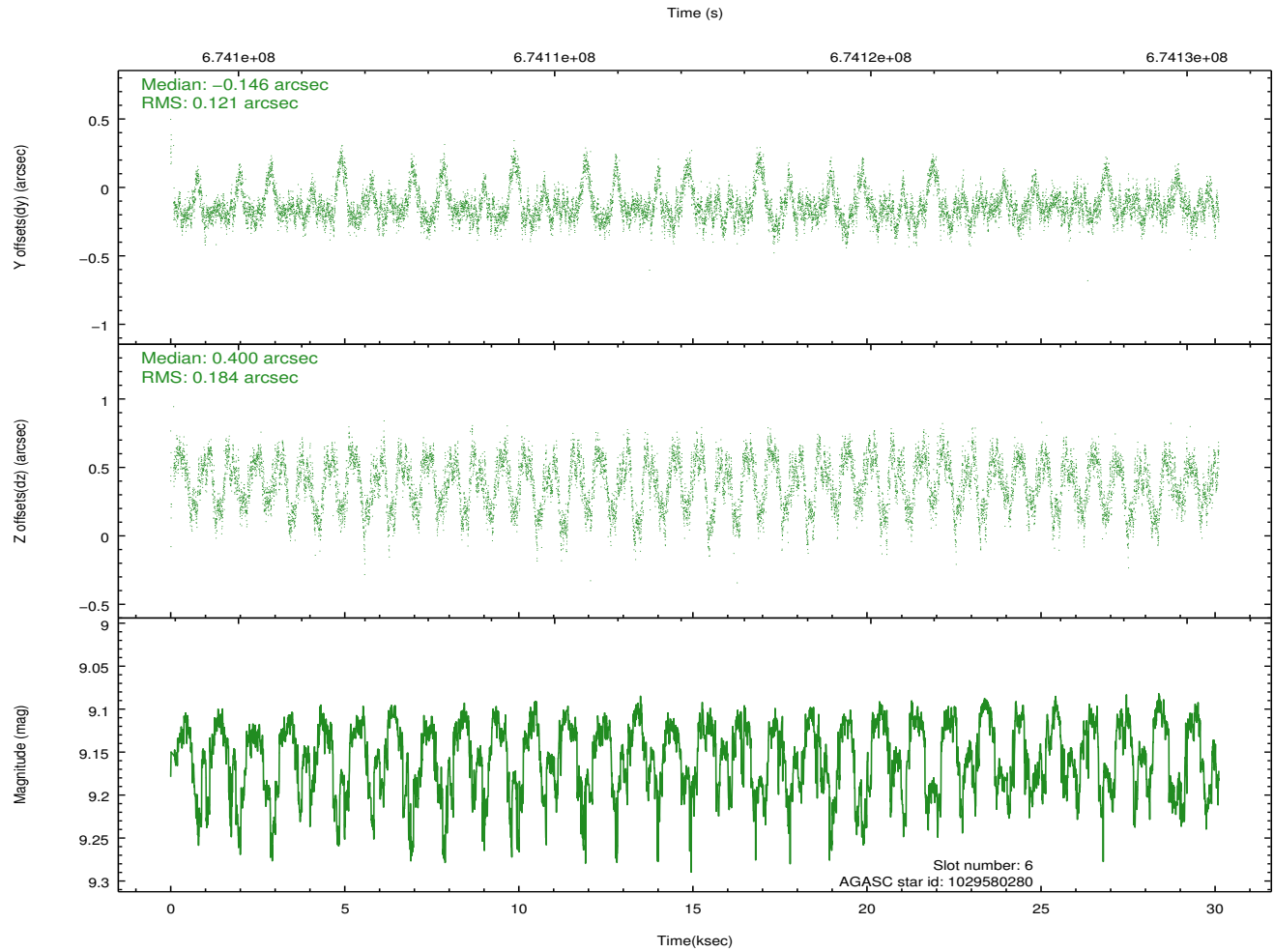
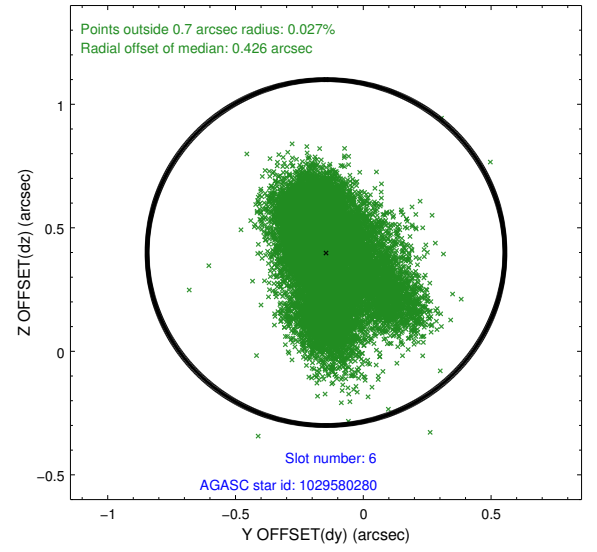
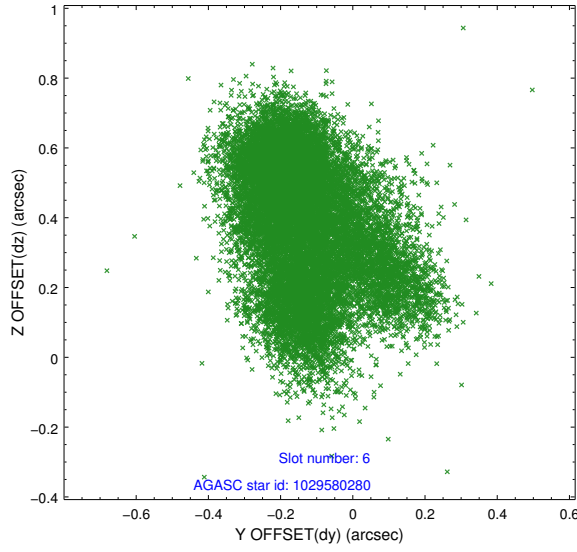
2.4.2 Slot 4



2.4.3 Slot 5

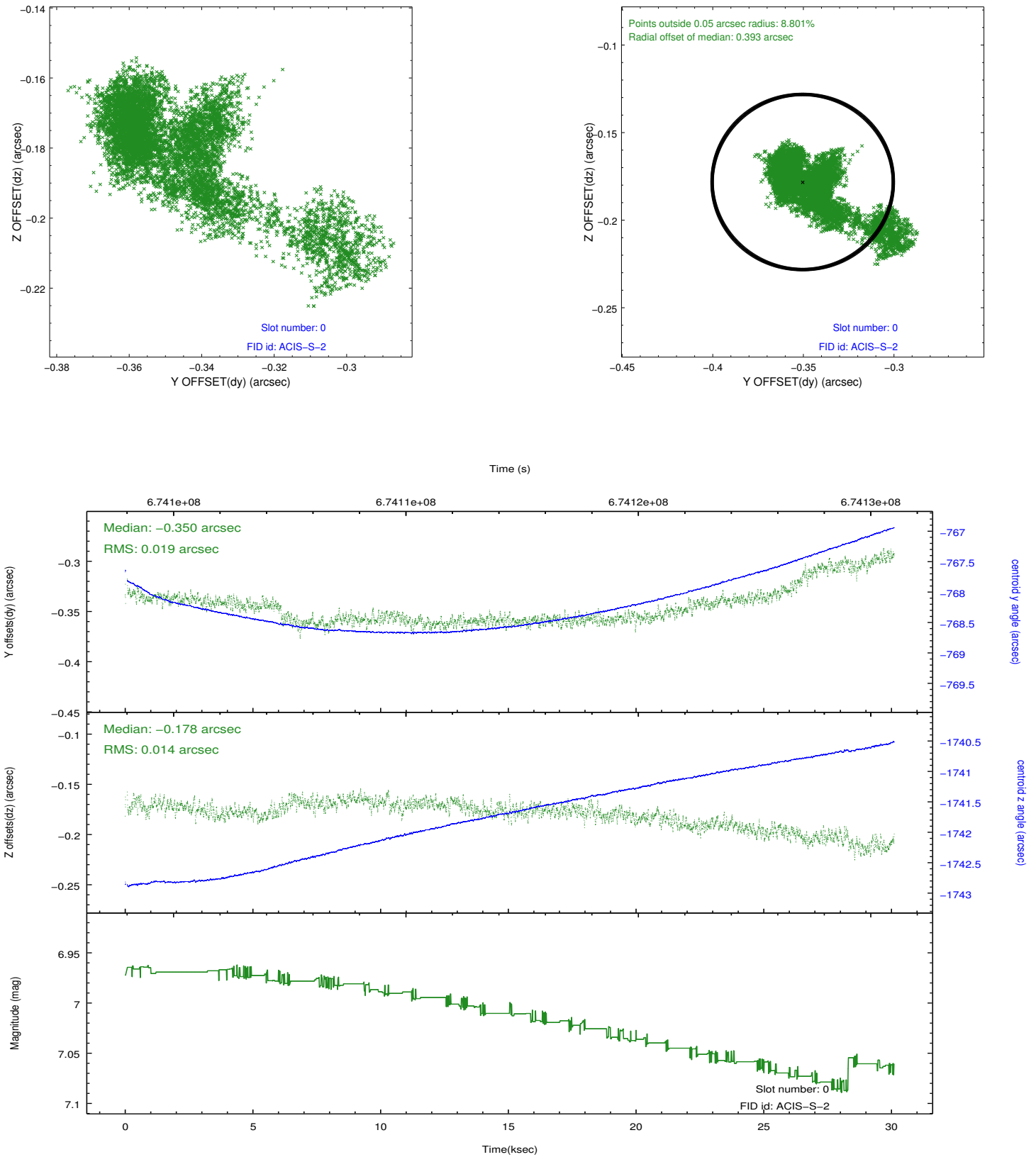


2.4.4 Slot 6

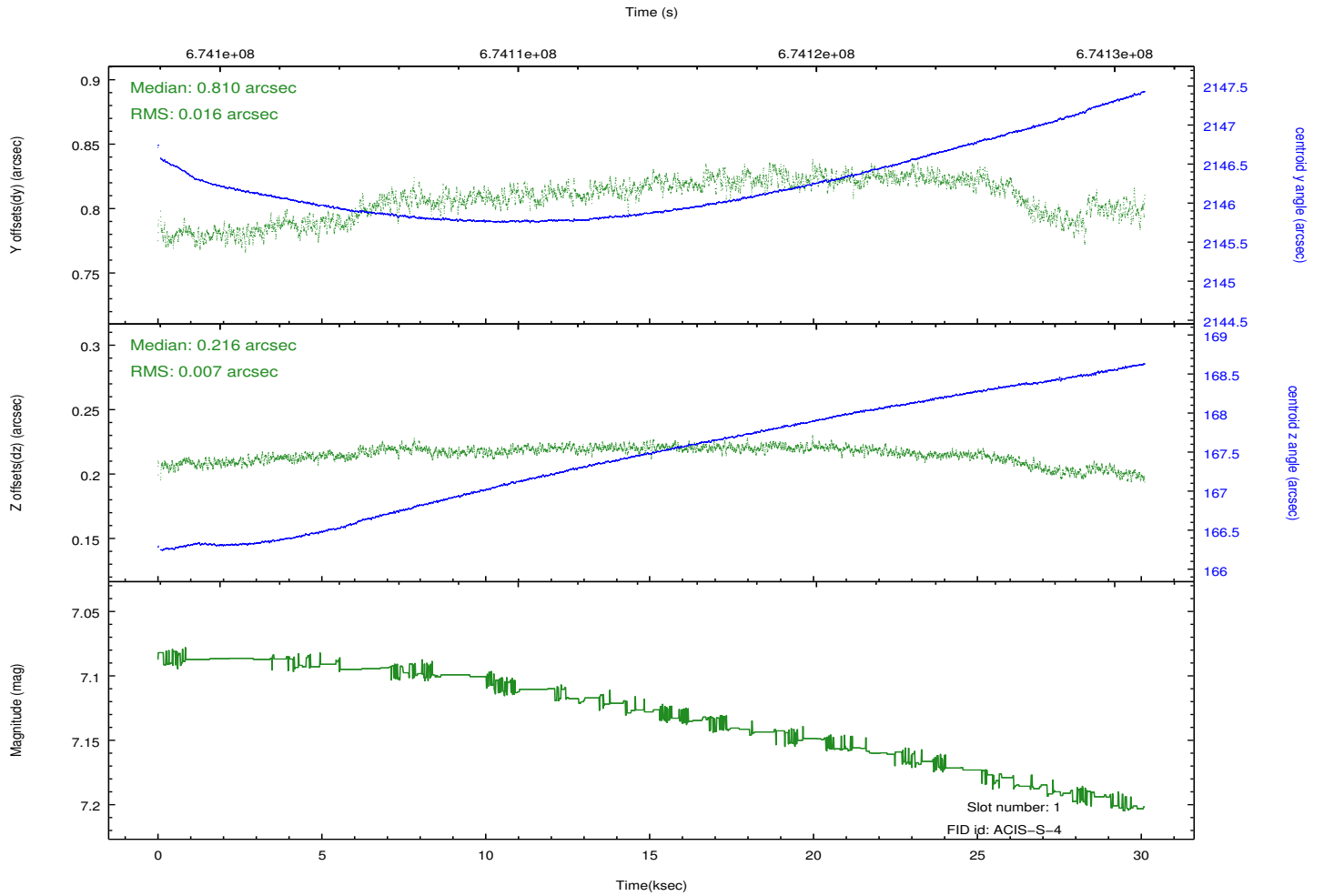
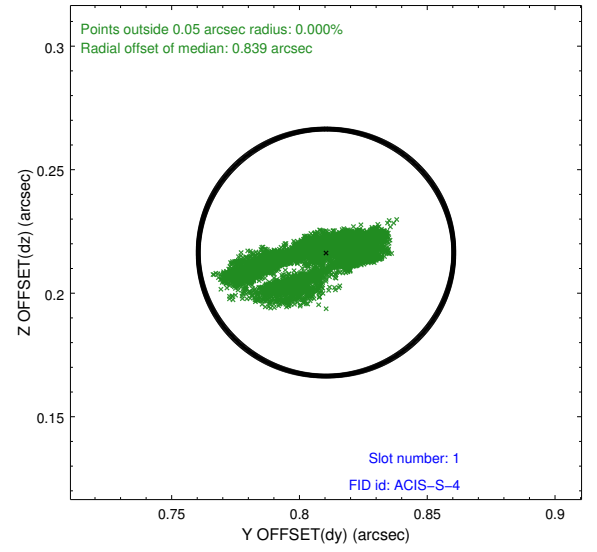
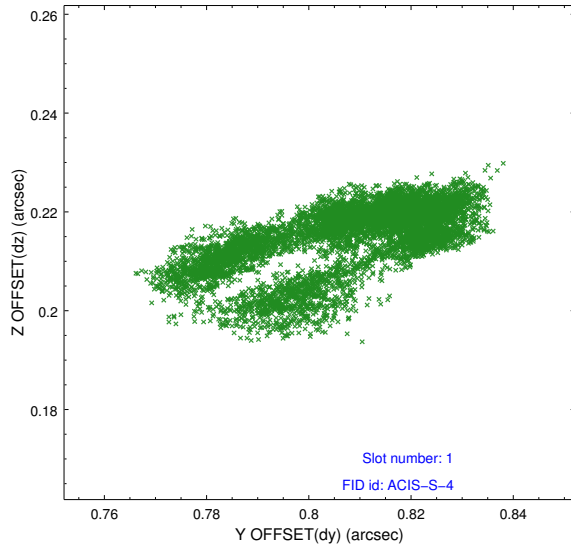


2.5 FID Slots

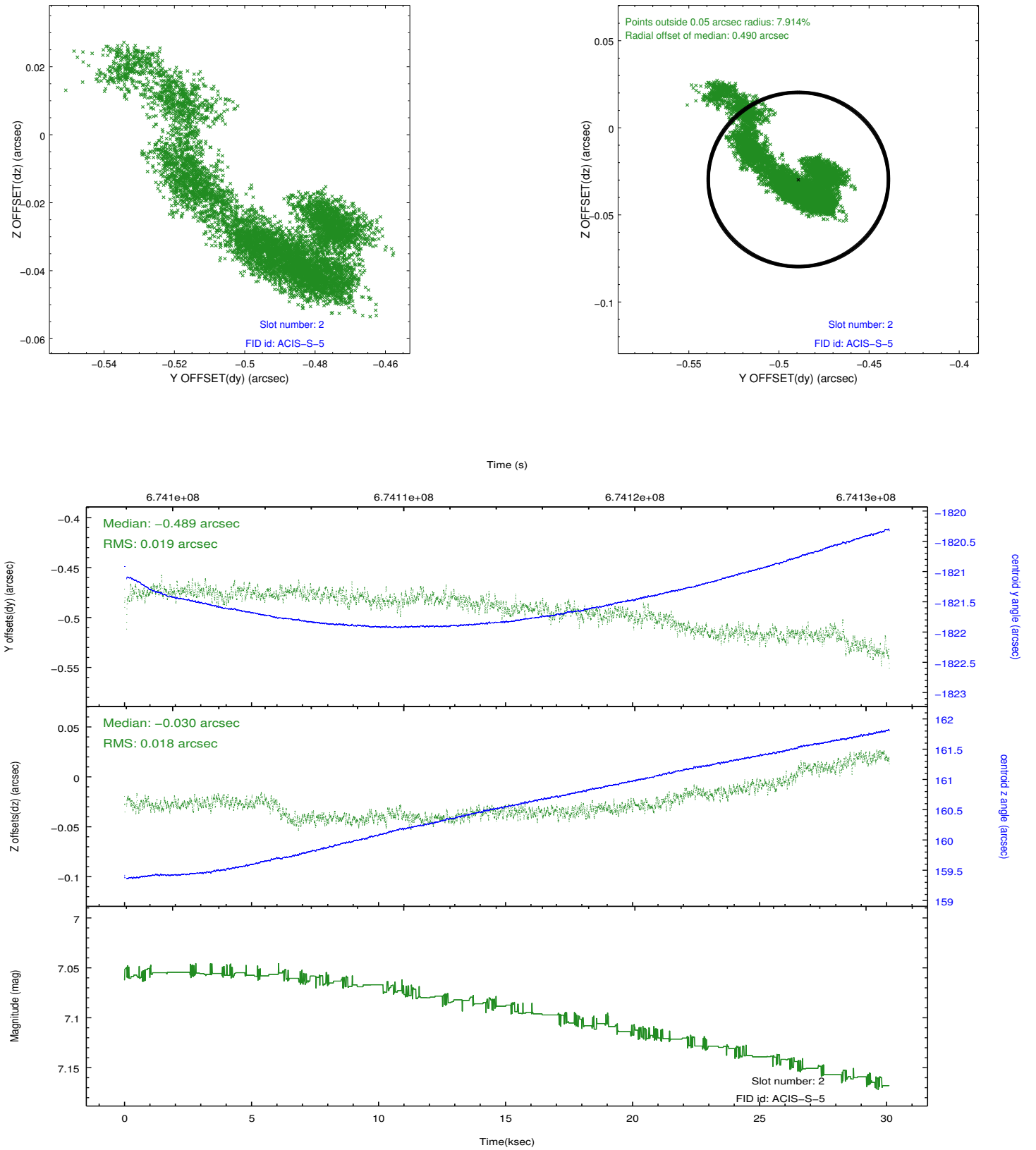
2.5.1 Slot 0



2.5.2 Slot 1

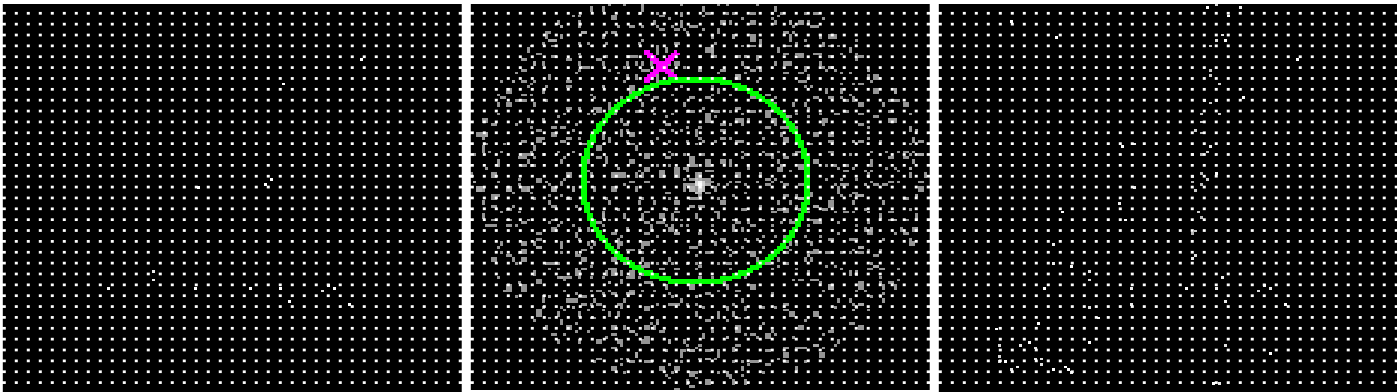


2.5.3 Slot 2



3 Gratings

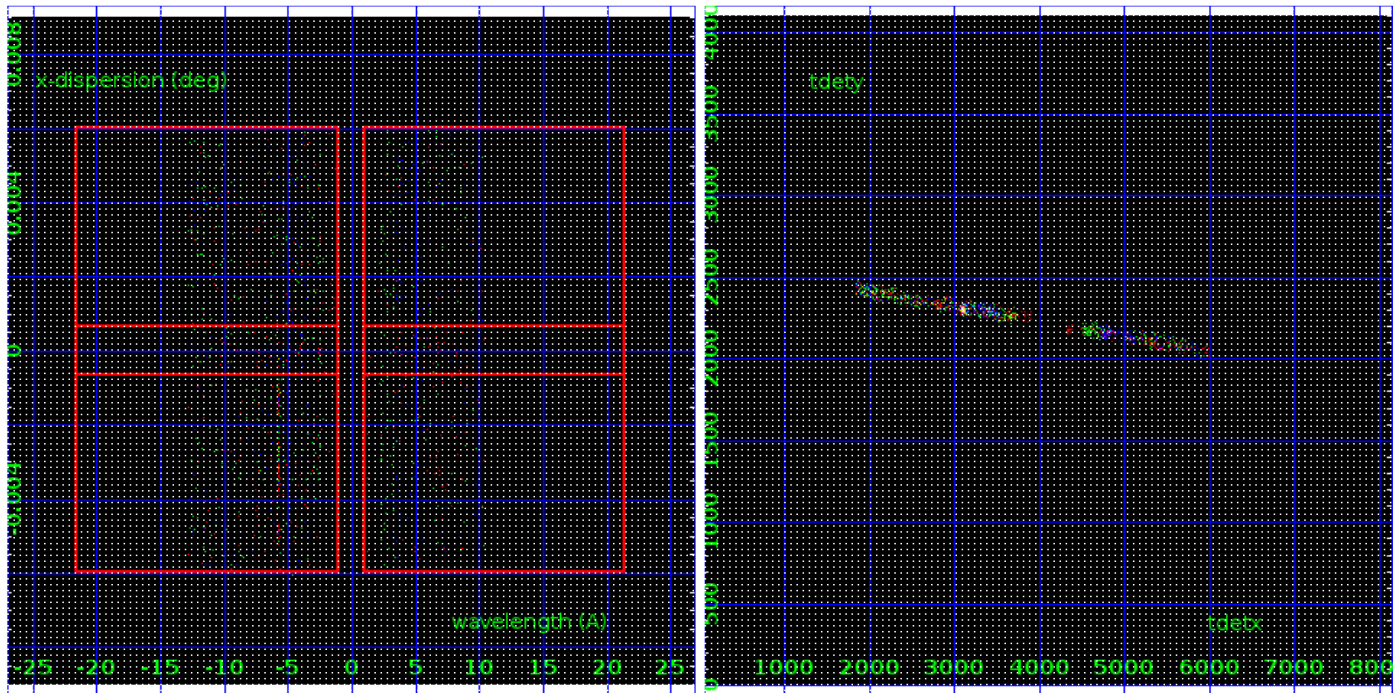
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

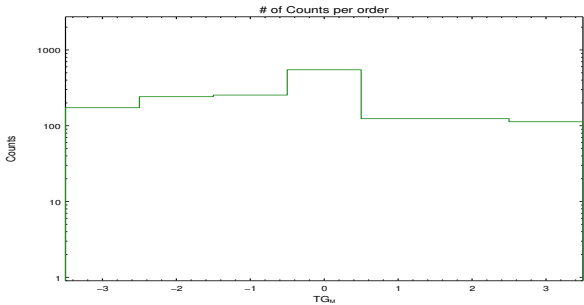
HEG Order Sort ALL

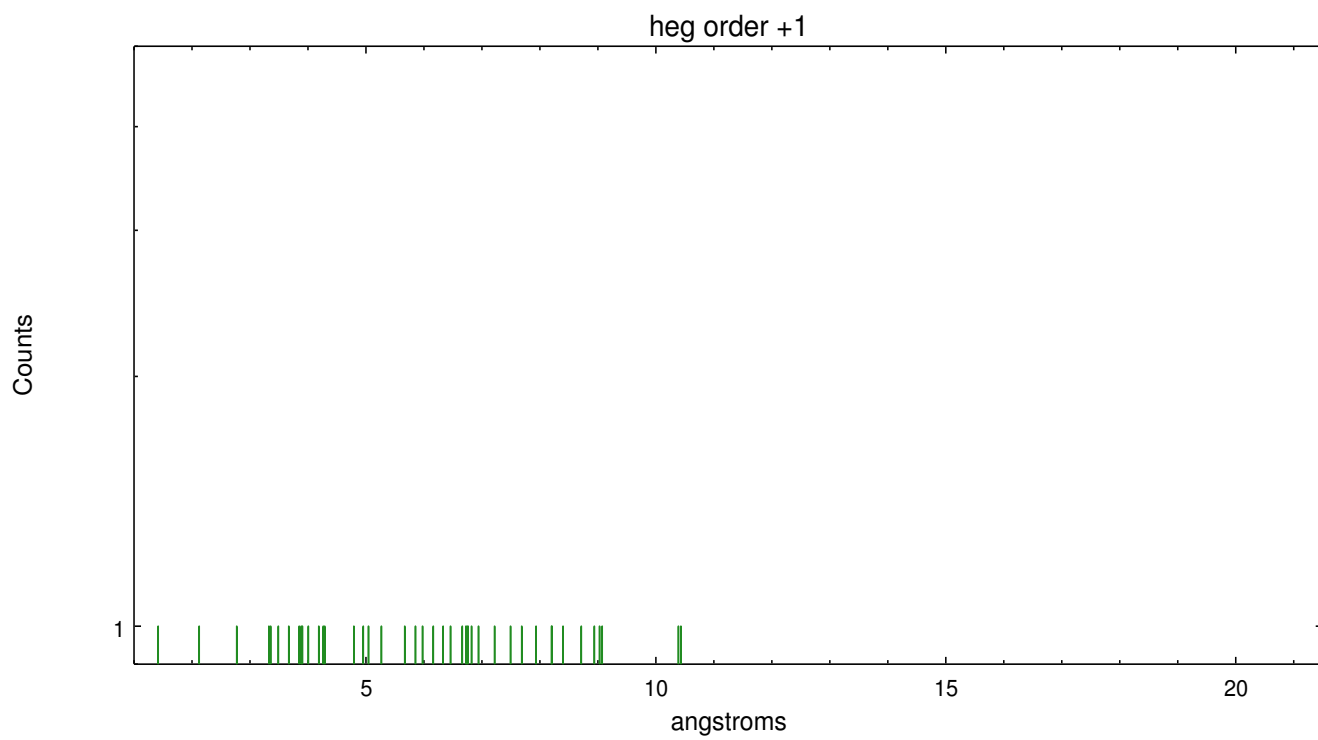
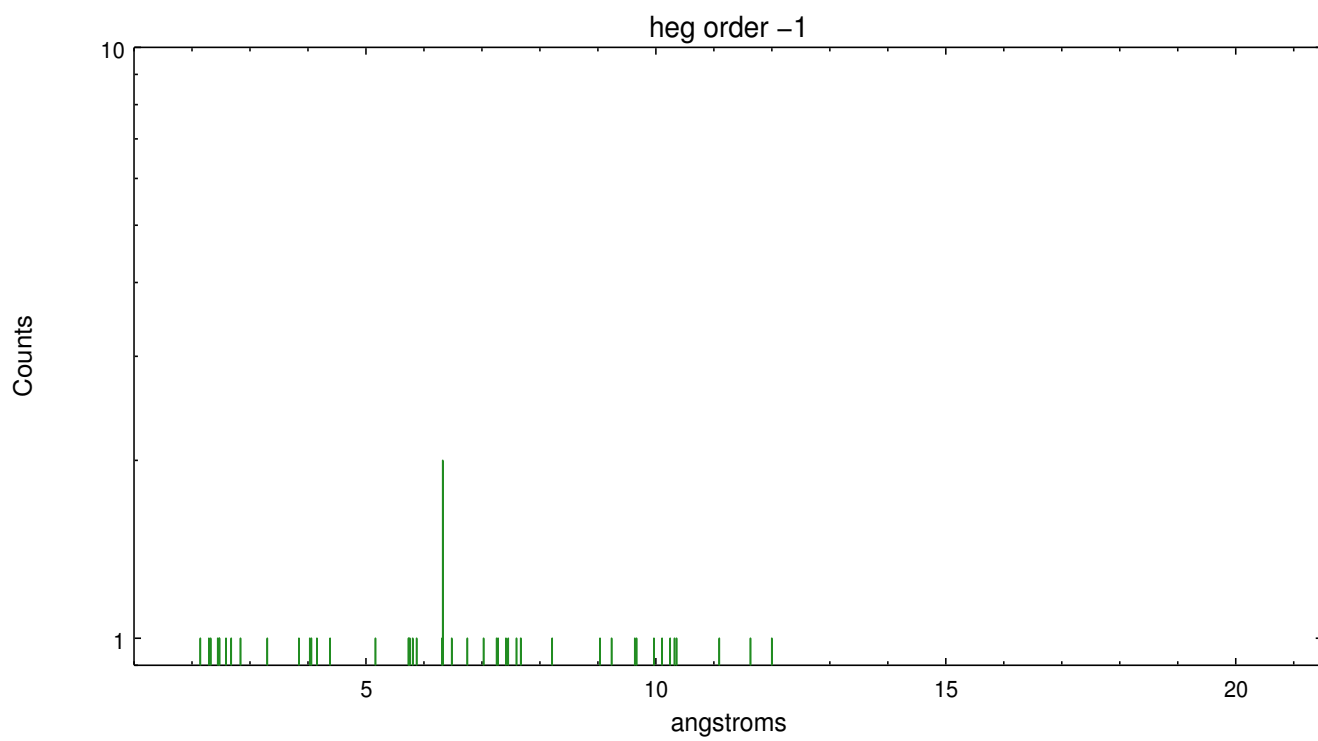


Spot Image HEG

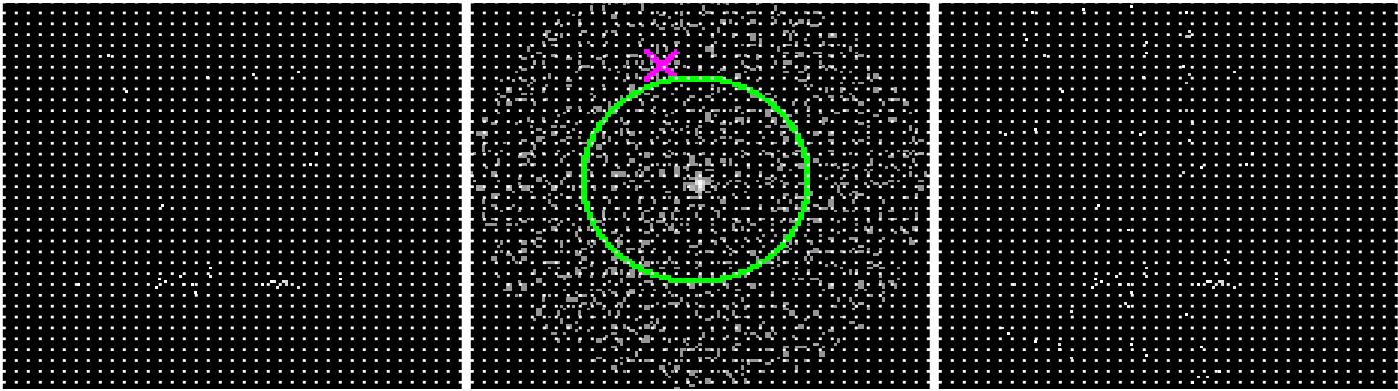
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	173	242	254	548	124	124	113





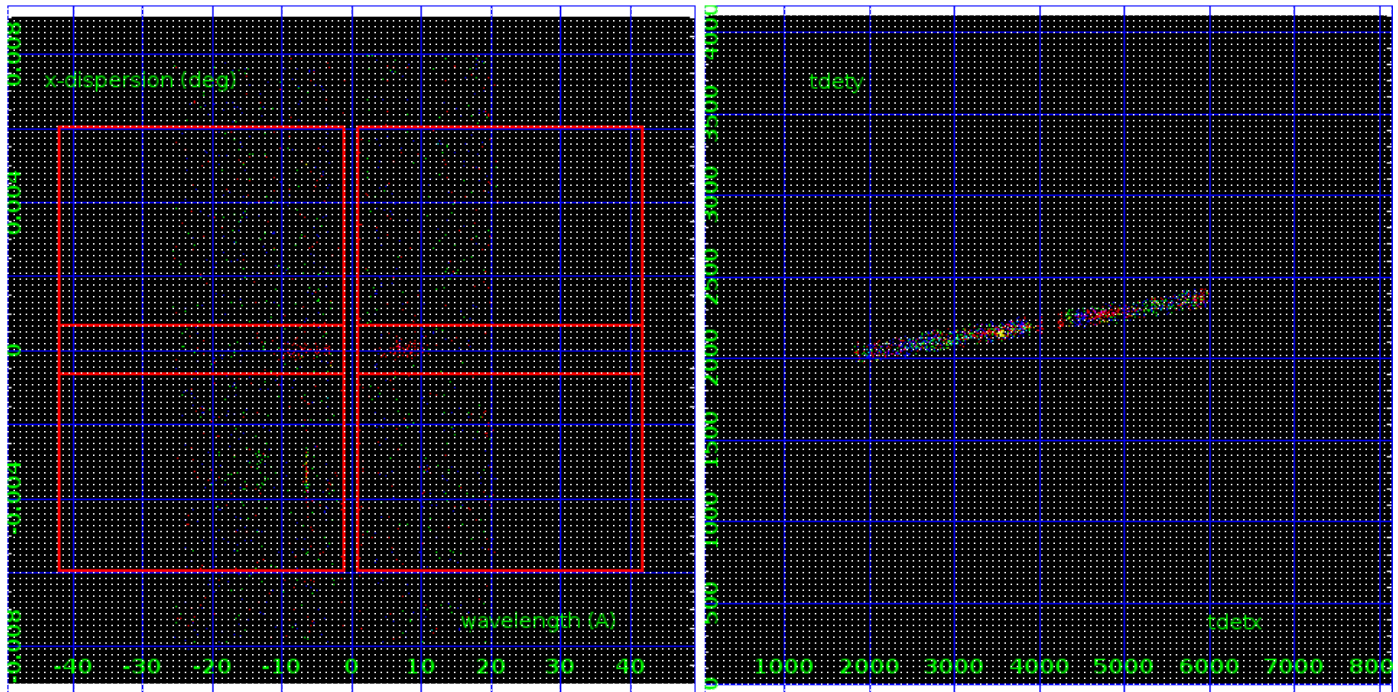
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

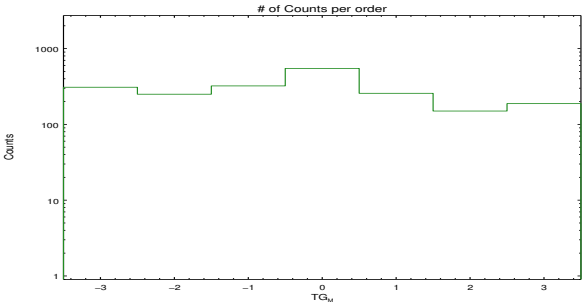
MEG Order Sort ALL

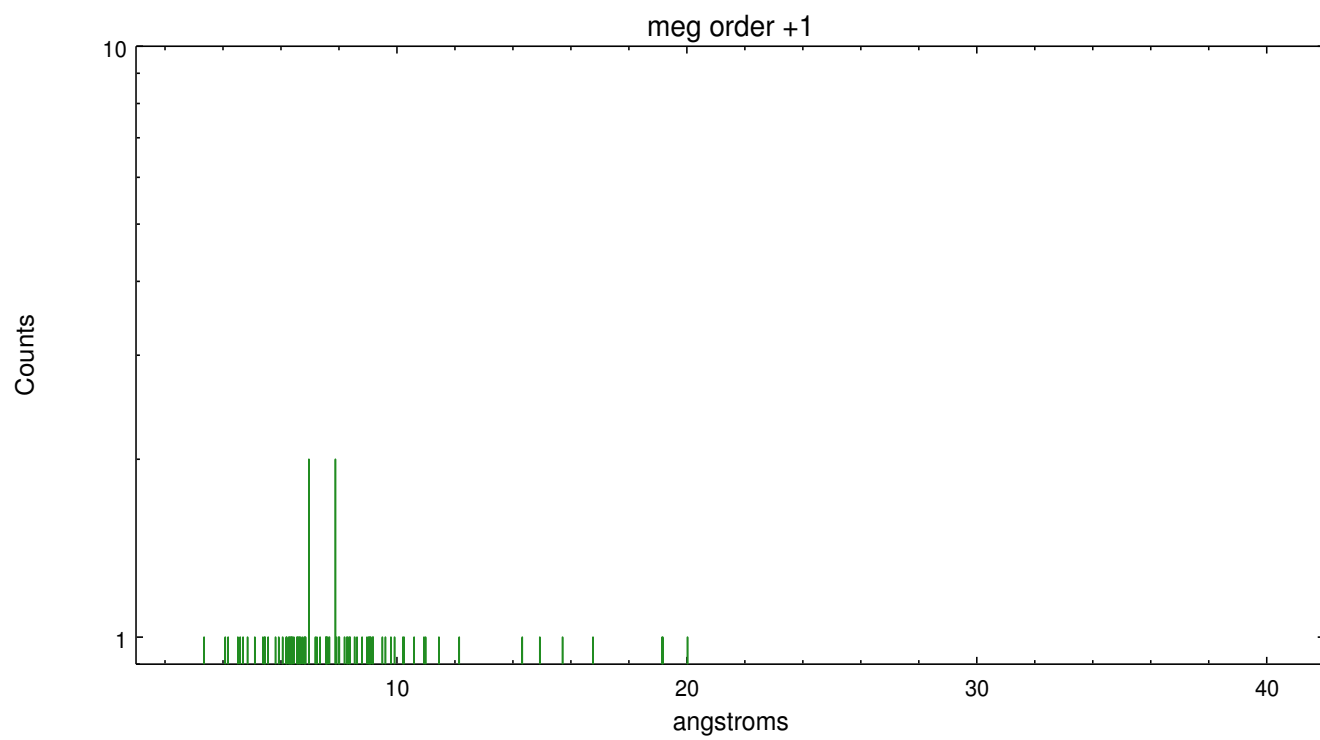
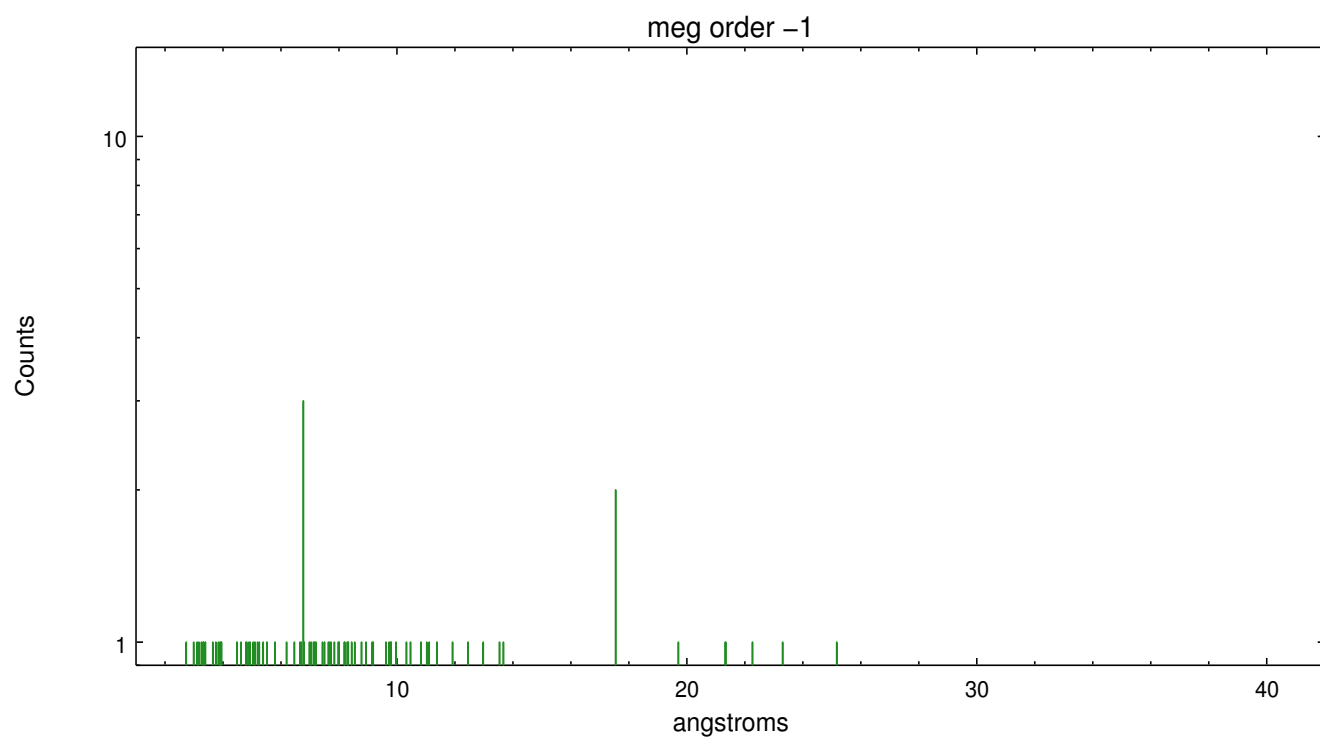


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	309	250	322	548	257	150	188





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.05.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.01730023098

A.2 Comments

The aspect data files were trimmed at the beginning of the observation by about 13.25 sec to eliminate some bad data. Aspect data only at/after 674099389.372 was used in this processing.

===

The target is optically monitored in slot 7. 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. Two monitor slots would increase the diameter by about 50 - 60%, but this configuration is not operationally allowed under normal circumstances. 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.