

# V&V Reference Report

## L2 ASCDS Version : 10.8.1

Observation 22892 - L2 Version 2  
Chandra X-Ray Center

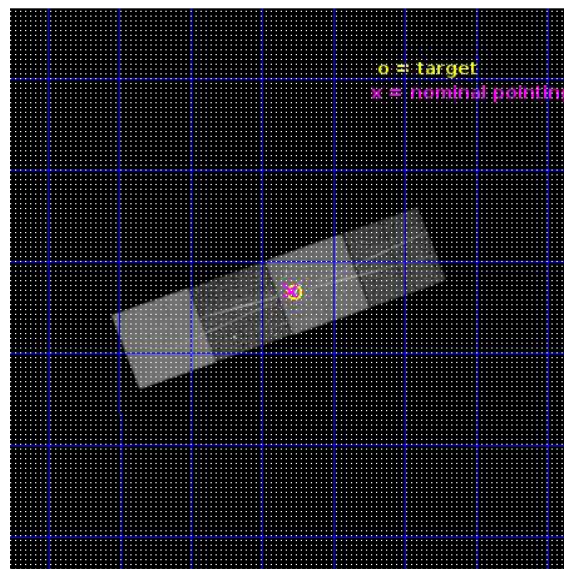
L2 Processing Date : Jan 2 2020

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# 1 Front

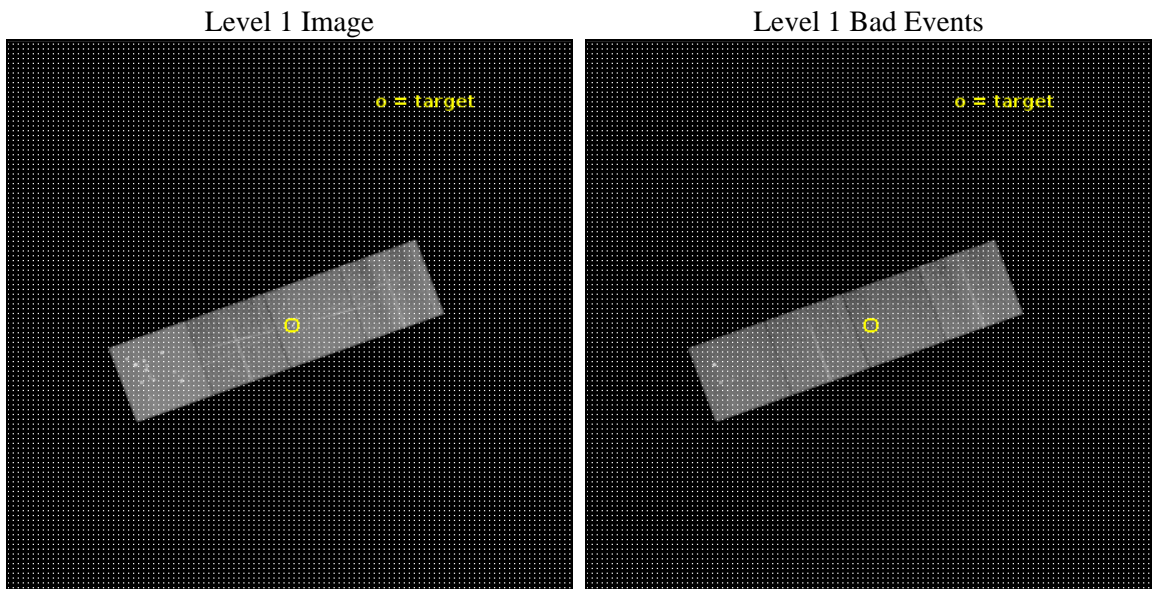
seq_num	201298	Sequence number
obs_id	22892	Observation id
title	THE TRUE NATURE OF X-RAYS FROM THE ORION TRAPEZIUM	Proposal title
observer	Norbert Schulz	Principal investigator
object	Orion Nebula Cluster	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.81875	Observer's specified target RA [deg]
dec_targ	-5.38975	Observer's specified target Dec [deg]
ra_nom	83.823954395938	Nominal RA [deg]
dec_nom	-5.3868266984108	Nominal Dec [deg]
roll_nom	339.79183299709	Nominal Roll [deg]
revision	2	Processing version of data
ontime	31062.000239015	Sum of GTIs [s]
livetime	30656.15233838	Livetime [s]
ontime5	31062.000239015	Sum of GTIs [s]
ontime6	31062.000239015	Sum of GTIs [s]
ontime7	31062.000239015	Sum of GTIs [s]
ontime8	31055.718088388	Sum of GTIs [s]
l2events	438764	Number of level 2 events



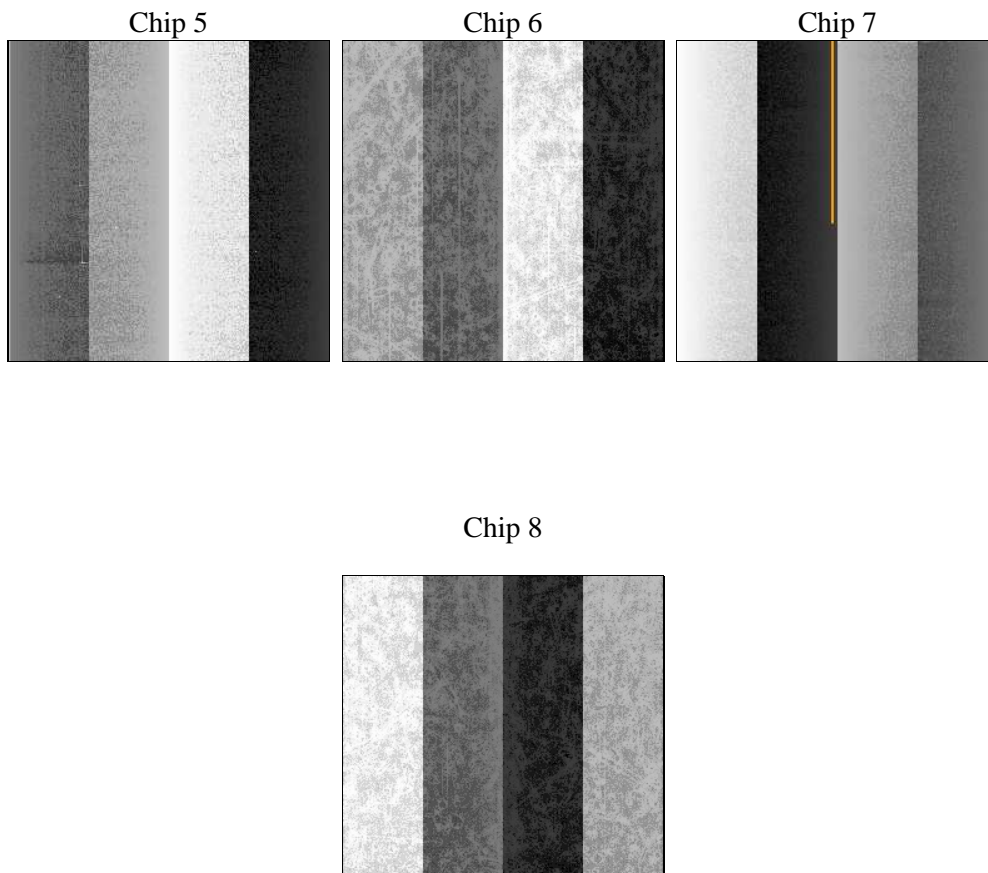
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	31000.000000	[s] Scheduled observation exposure time
ascdsver	10.8.1	Processing system revision	ontime	31062.000239015	Sum of GTIs [s]
caldsver	4.8.4.2	&#160	ontime5	31062.000239015	Sum of GTIs [s]
date	2020-01-02T21:34:13	Date and time of file creation	ontime6	31062.000239015	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	31062.000239015	Sum of GTIs [s]
			ontime8	31055.718088388	Sum of GTIs [s]
			l1events	1398203	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			zo_pos	(4135.49, 4074.96)	src1a sky pixel position

### 2.1.4 Events

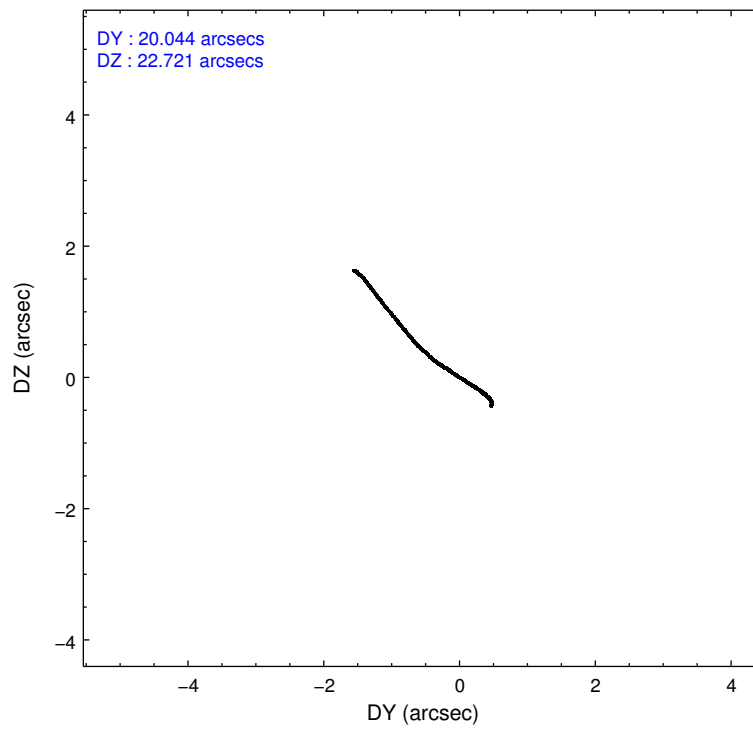
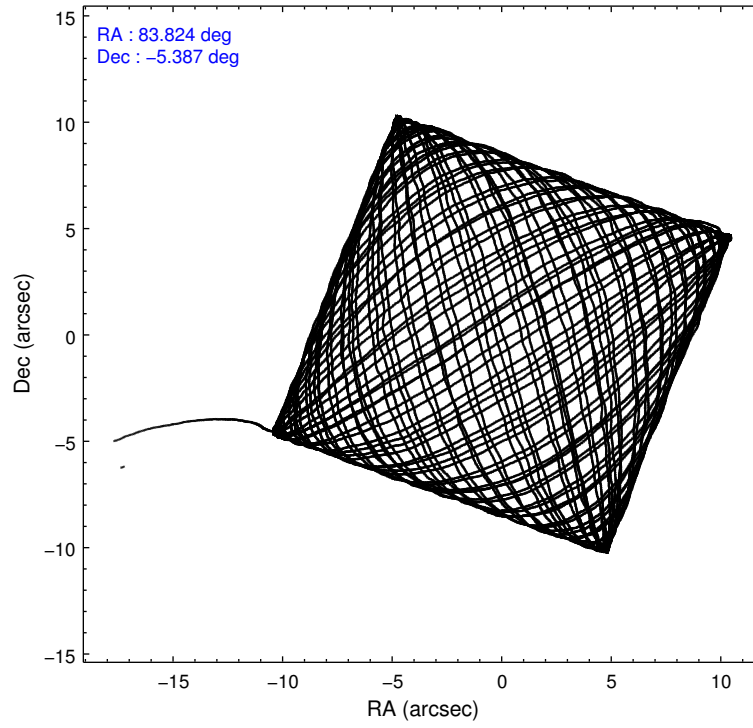
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	448861	264747	361202	323393
rejected events	213505	214192	180410	231227
rejected %	47%	80%	49%	71%

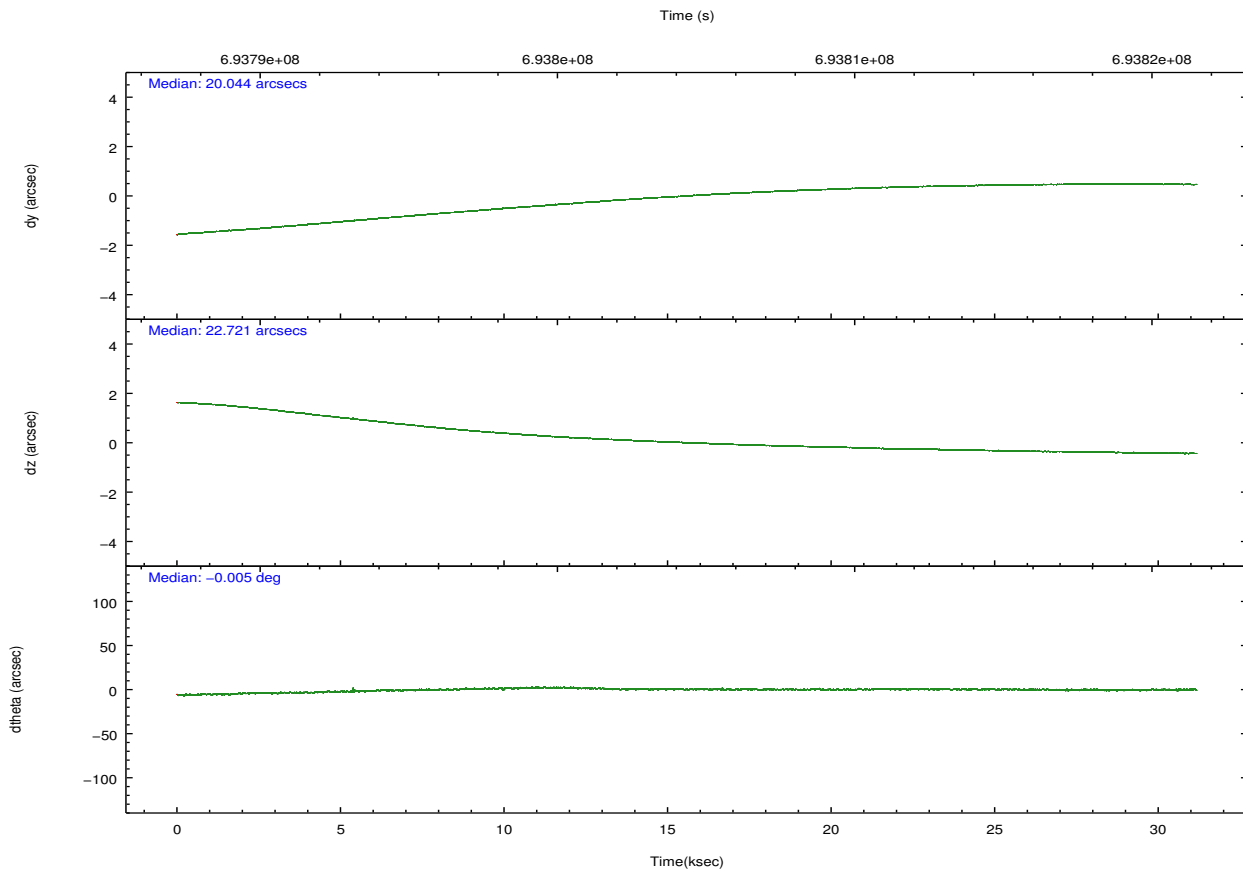
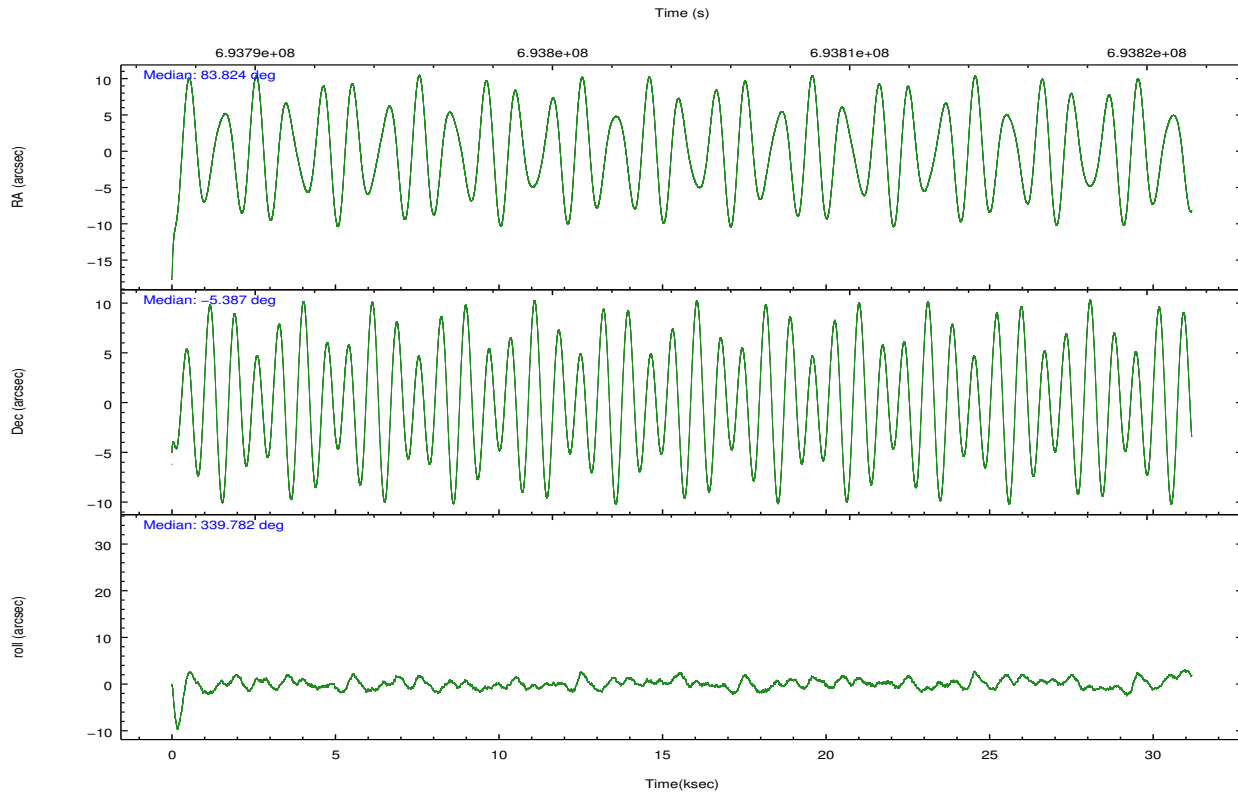
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	49735	26706	20770	31289
	11%	10%	5%	9%
grade 1 events	974	218	629	332
	0%	0%	0%	0%
grade 2 events	70153	9607	40675	21304
	15%	3%	11%	6%
grade 3 events	6815	3386	15419	8723
	1%	1%	4%	2%
grade 4 events	5567	3315	15450	8270
	1%	1%	4%	2%
grade 5 events	27031	10979	31767	17390
	6%	4%	8%	5%
grade 6 events	103155	7545	88510	22592
	22%	2%	24%	6%
grade 7 events	185431	202991	147982	213493
	41%	76%	40%	66%

## 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	83.796861	83.82395439593842	CCD I2 on	N	N
[deg] Pointing Dec	-5.391853	-5.386826698410826	CCD I3 on	N	N
[deg] Pointing Roll	339.632660	339.7918329970899	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)	693788920.184000	693787682.11669	CCD S5 on	O2	N
Observation start date	2019-12-26T23:07:31	2019-12-26T22:48:02	Number of optional ACIS chips dropped	2	2
[s] Observation end time (MET)	693819920.184000	693820940.8062	On-chip summing requested	N	N
Observation end date	2019-12-27T07:44:11	2019-12-27T08:02:20	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





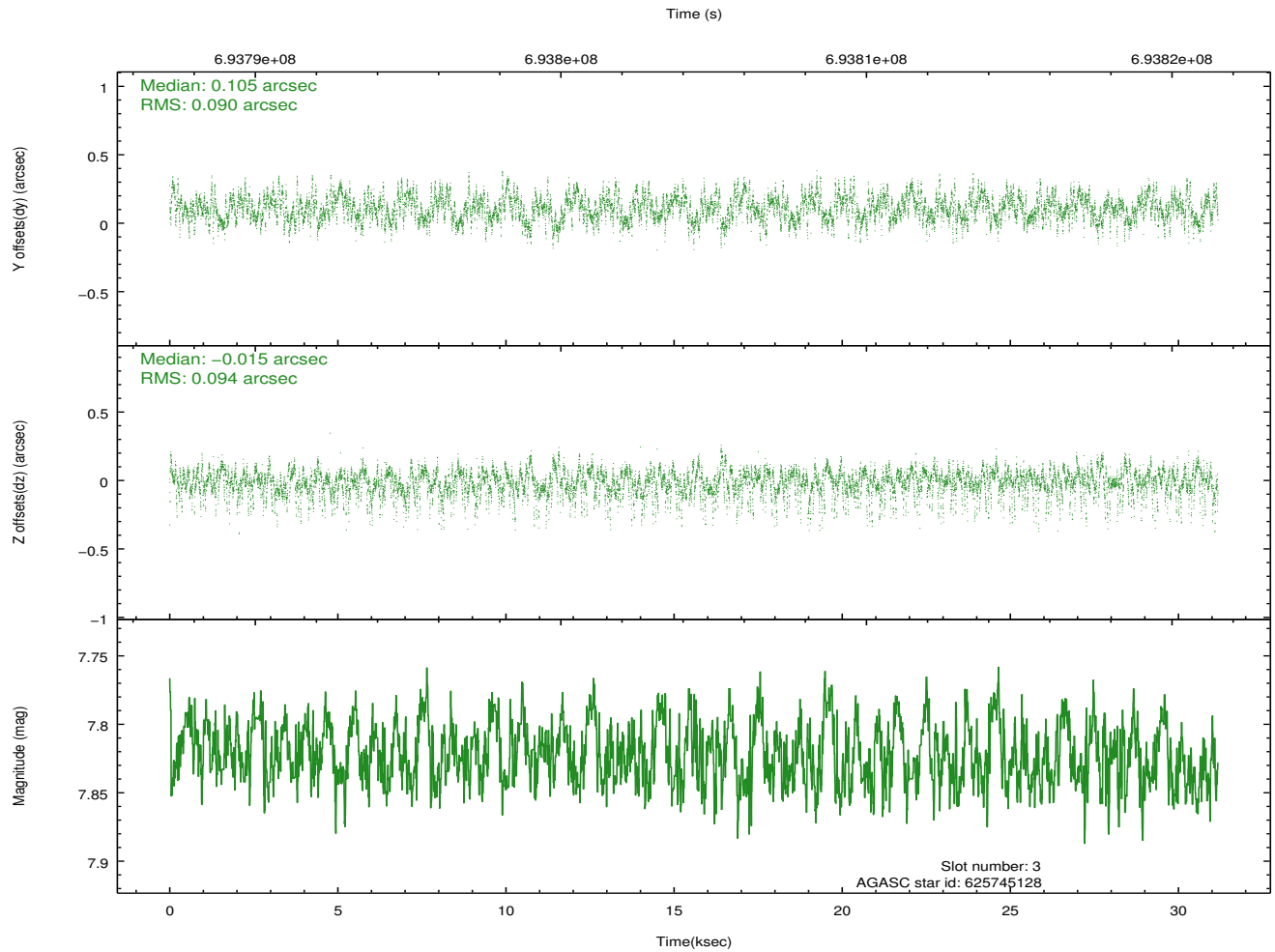
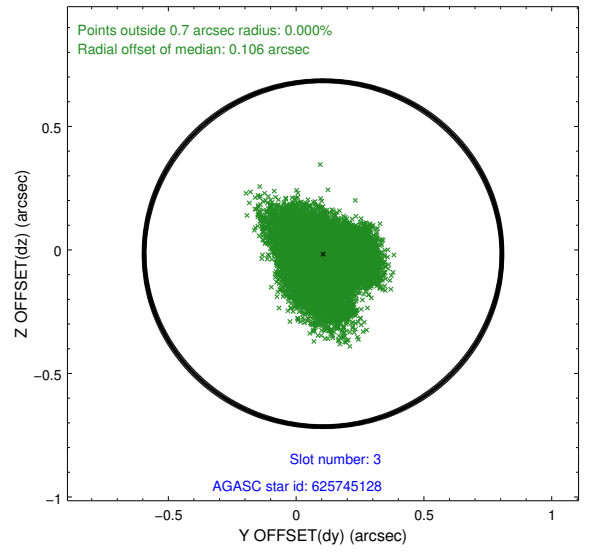
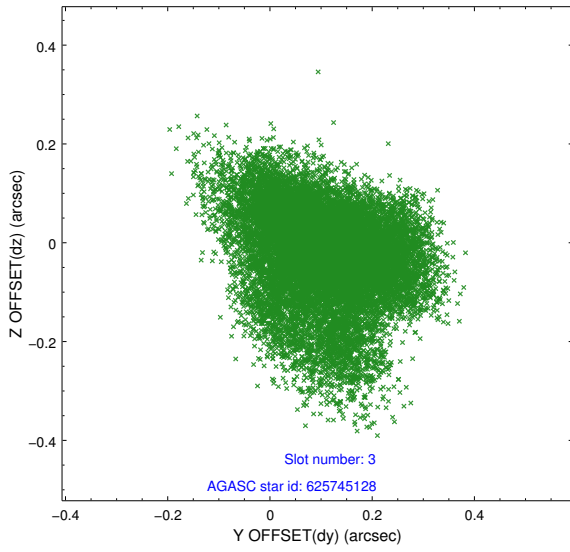
### Slot Statistics

slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-S-2	7.11	7605	1.000	-0.363	-0.312	0.025	0.087	0.000000	0.000000	-773.26	-1744
1	FID		ACIS-S-4	7.19	7603	1.000	0.814	0.260	0.019	0.037	0.000000	0.000000	2141.12	164
2	FID		ACIS-S-5	7.17	7604	1.000	-0.483	0.062	0.020	0.056	0.000000	0.000000	-1826.19	157
3	GUIDE	used	625745128	7.82	15201	1.000	0.105	-0.015	0.140	0.226	83.769930	-4.731835	-917.53	2193
4	GUIDE	used	625745136	7.20	15206	1.000	-0.100	0.203	0.110	0.186	83.600341	-4.804339	-1397.00	1737
5	GUIDE	used	625874672	7.69	15204	1.000	-0.223	-0.716	0.125	0.203	84.403143	-4.934124	1465.12	2300
6	GUIDE	used	626272880	7.67	15207	1.000	0.101	0.260	0.140	0.220	83.815609	-6.032748	866.83	-2139
7	GUIDE	used	626272976	7.95	15202	1.000	0.116	0.291	0.145	0.240	83.795875	-5.926912	667.90	-1807

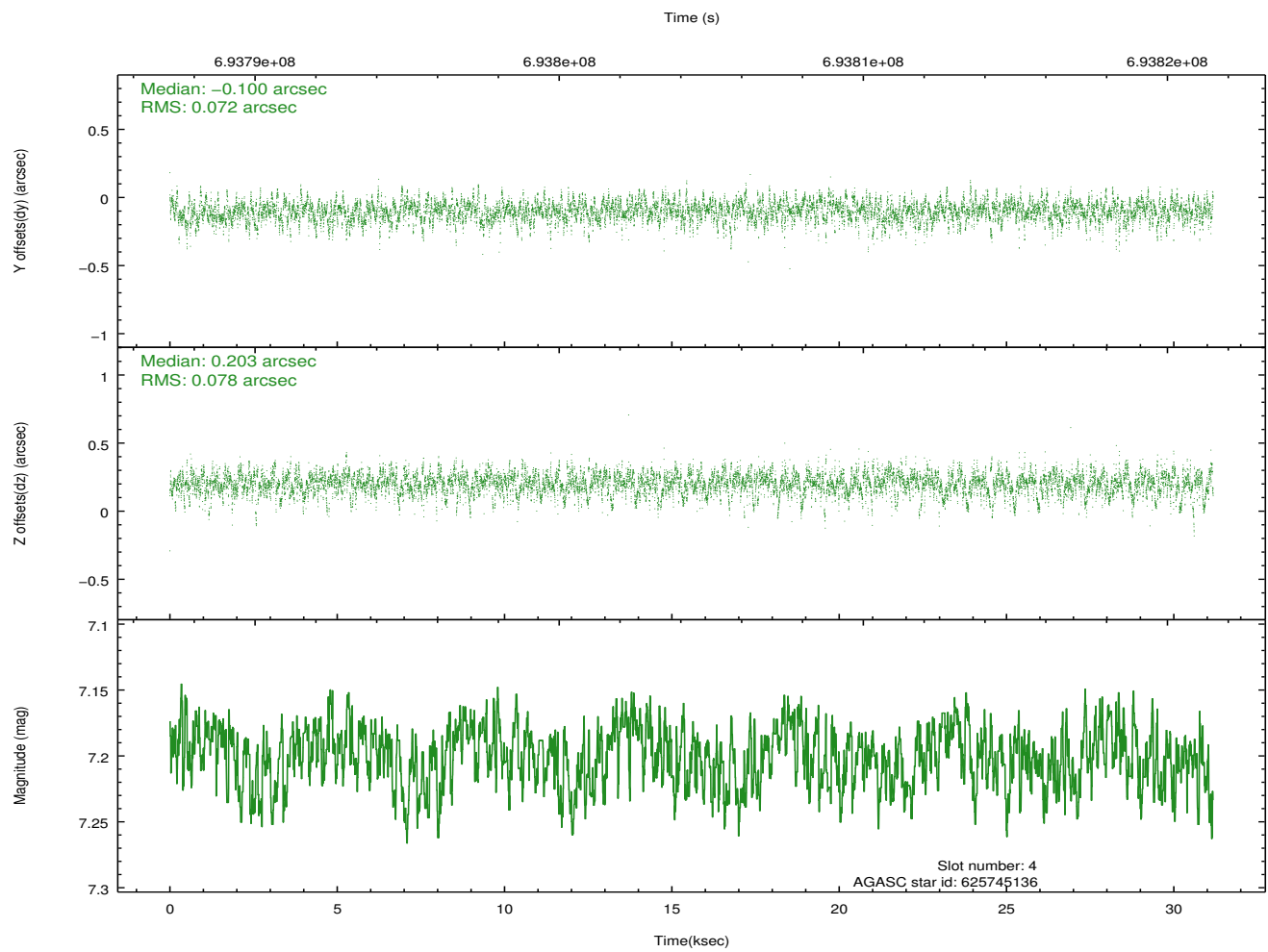
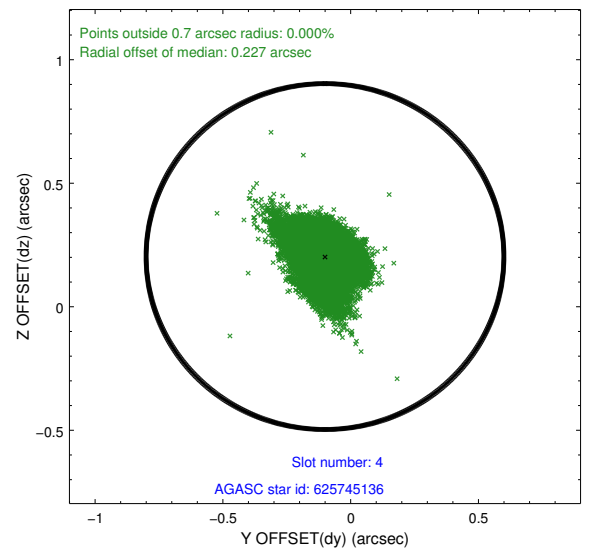
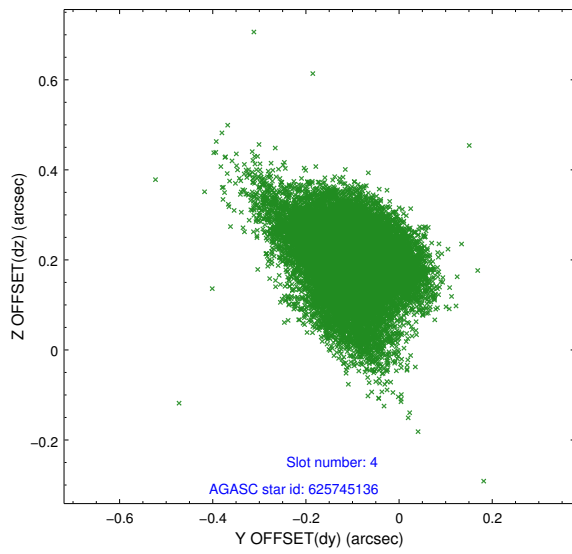
∞

## 2.4 Star Slots

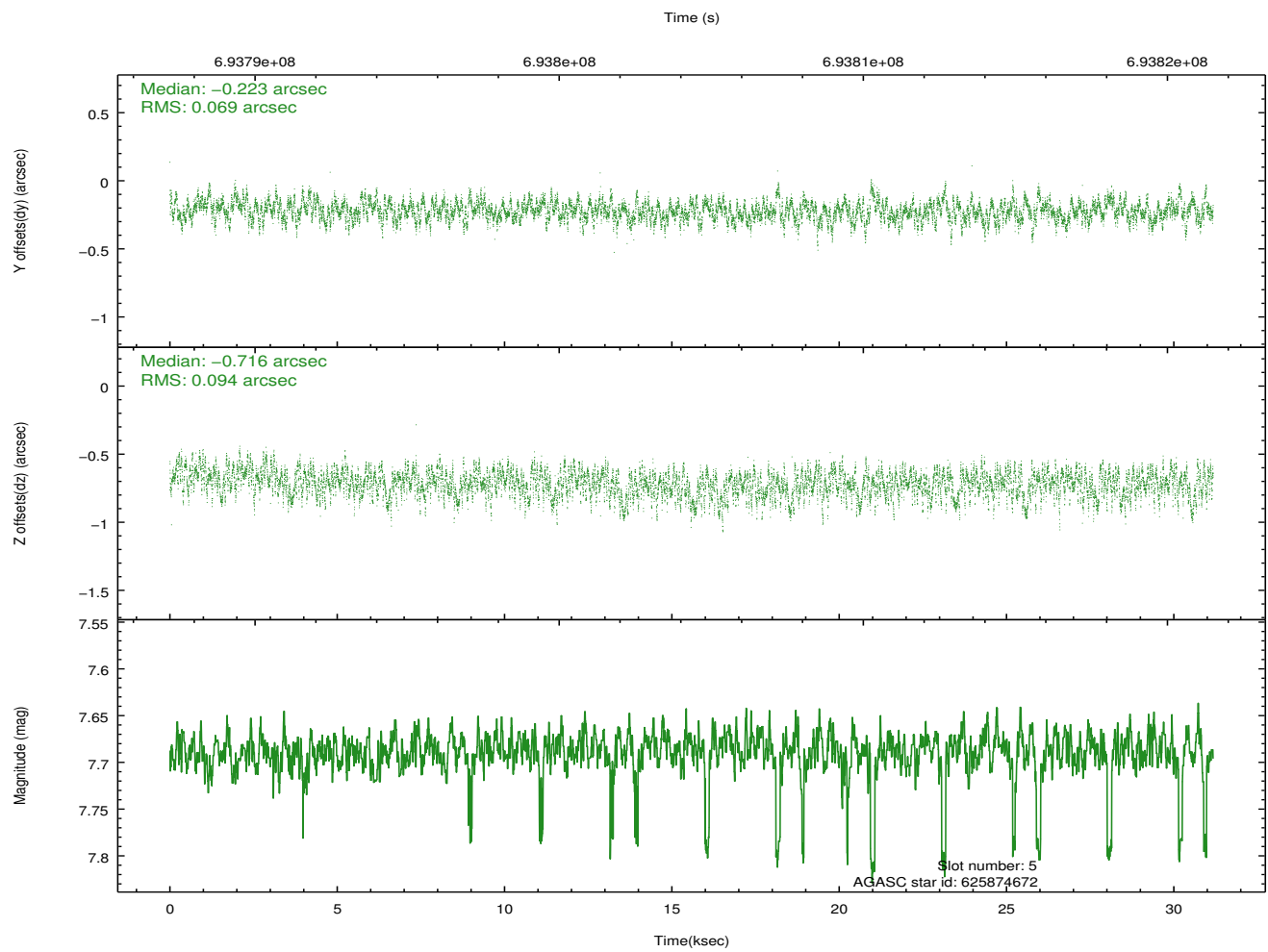
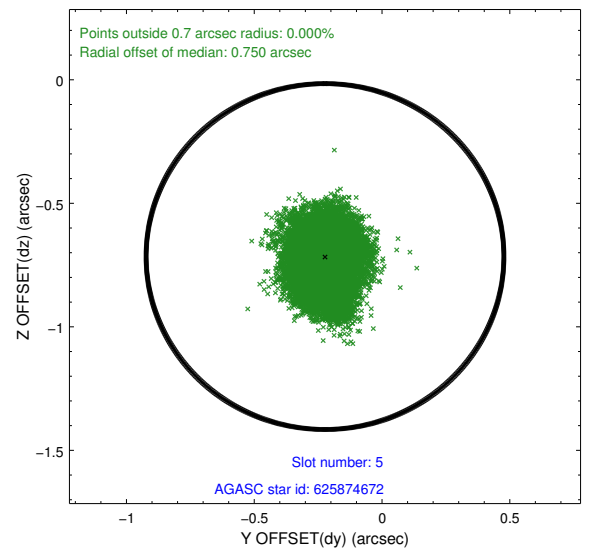
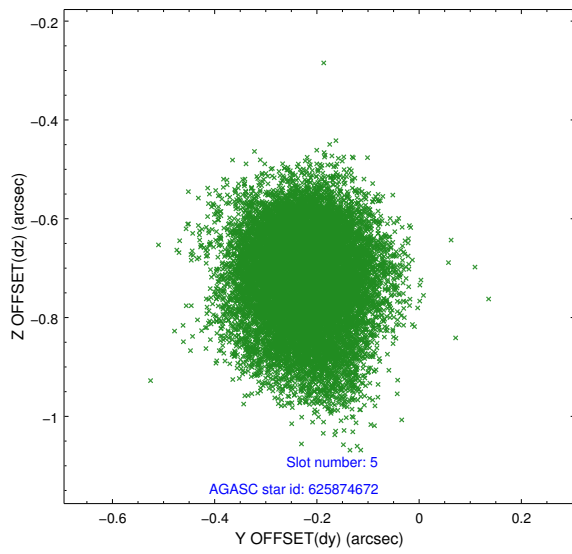
### 2.4.1 Slot 3



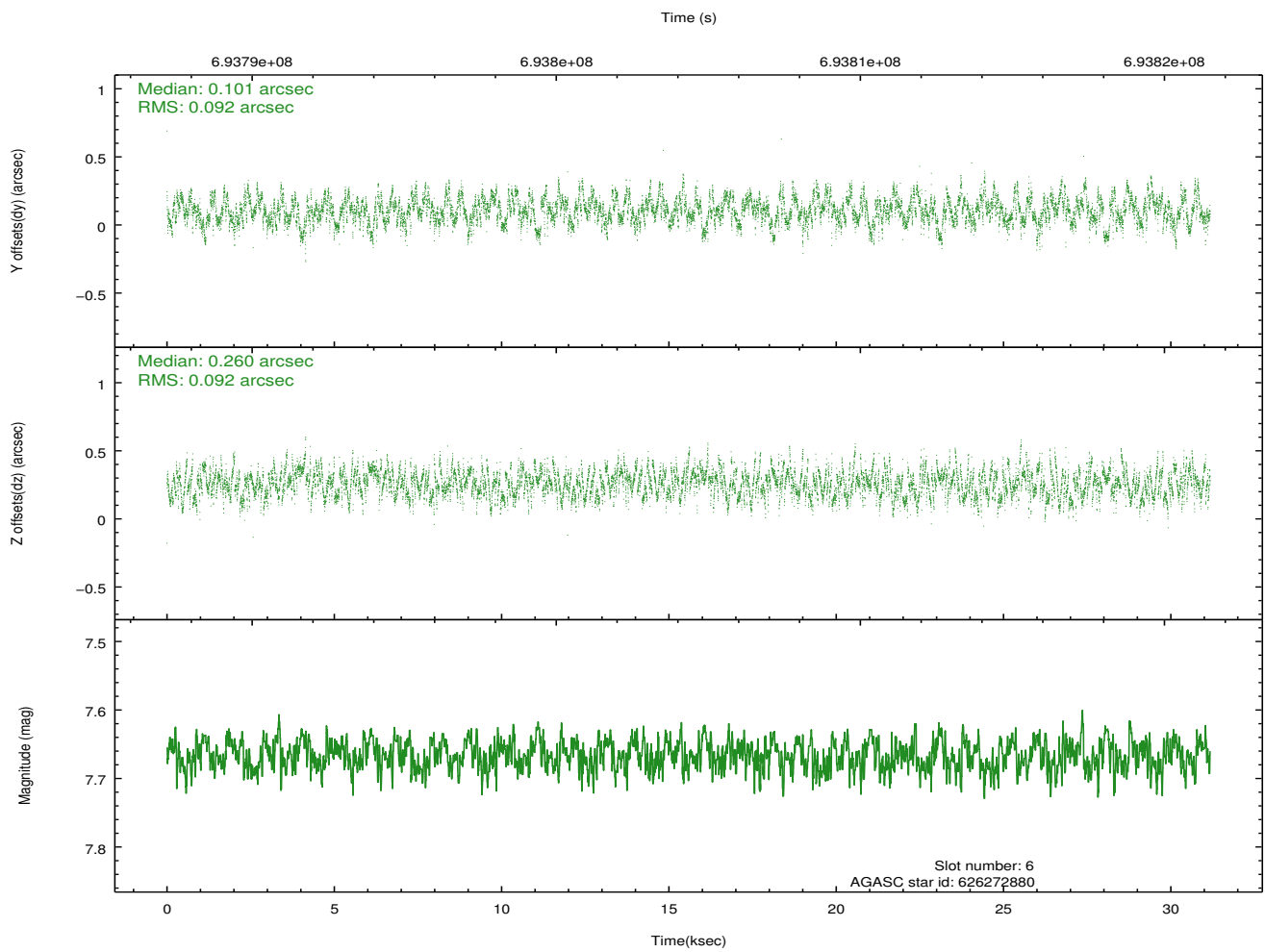
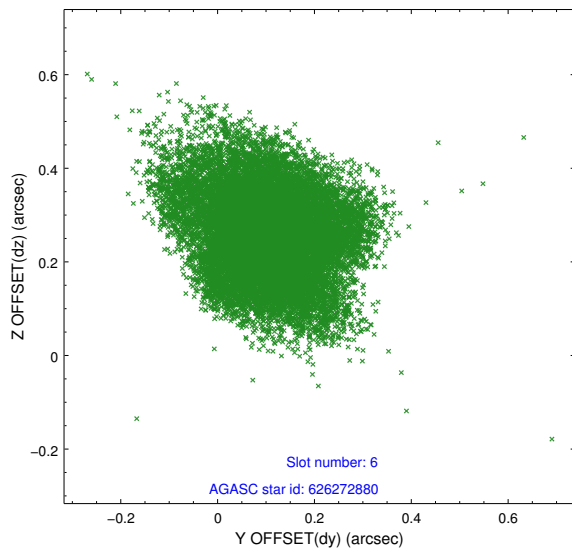
## 2.4.2 Slot 4



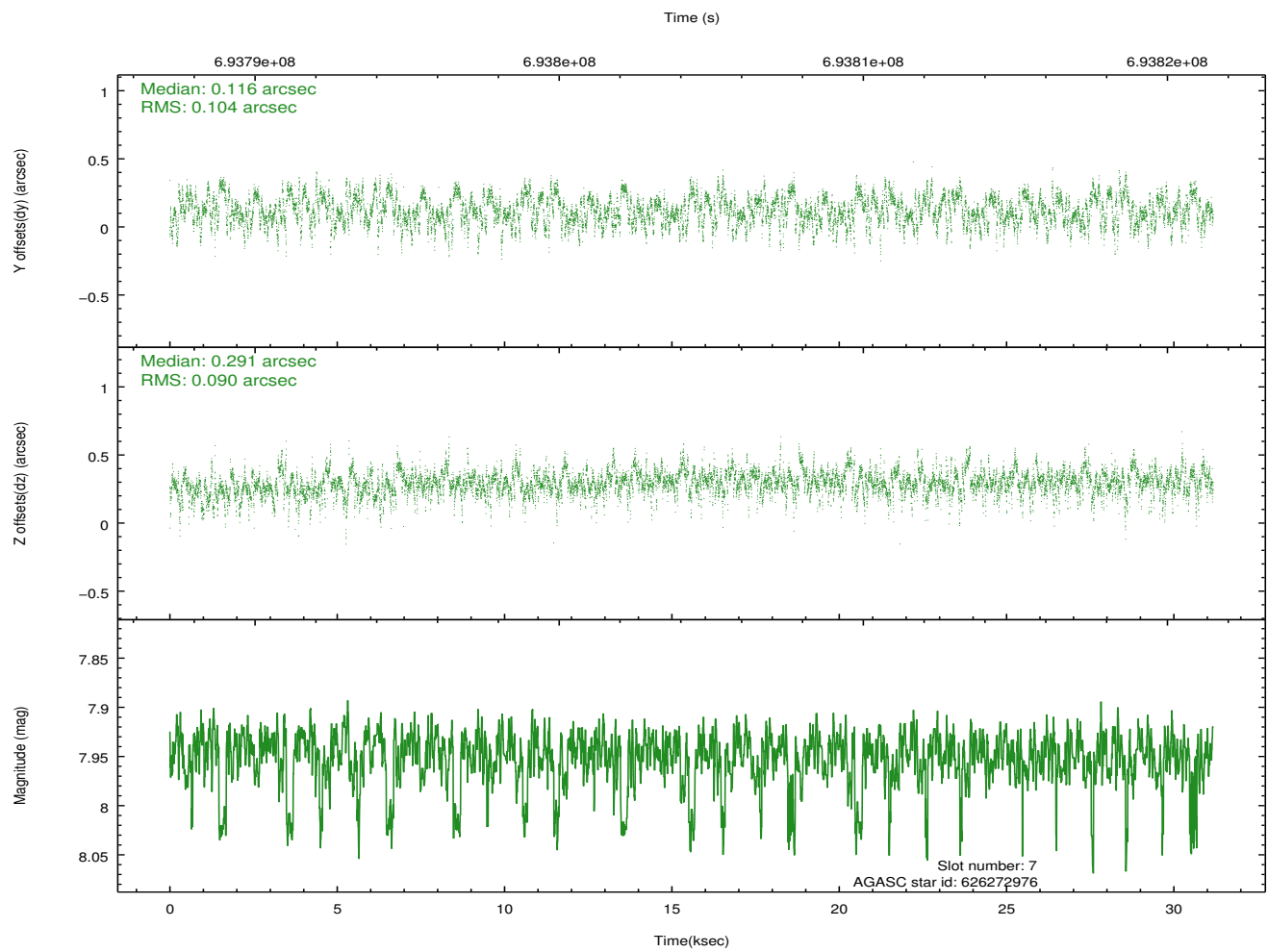
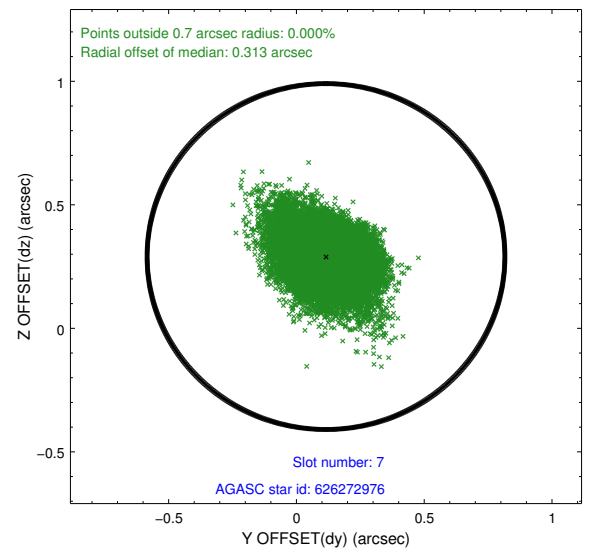
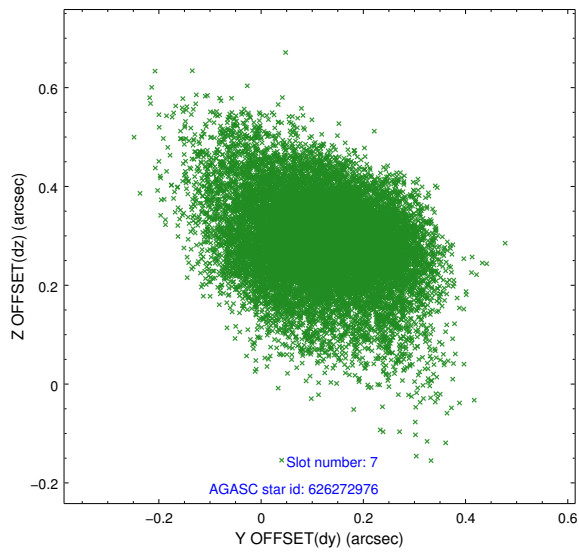
### 2.4.3 Slot 5



## 2.4.4 Slot 6

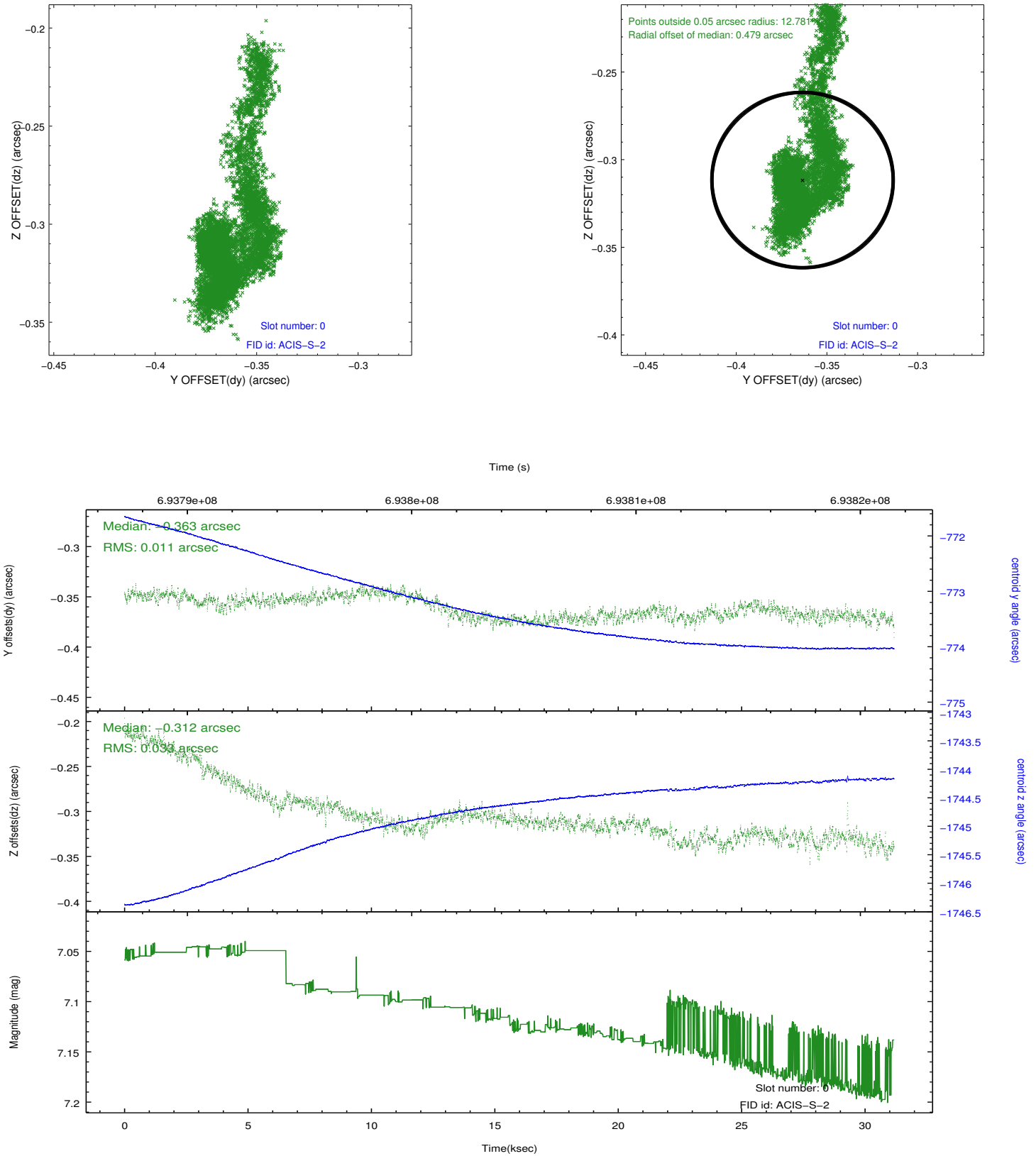


## 2.4.5 Slot 7

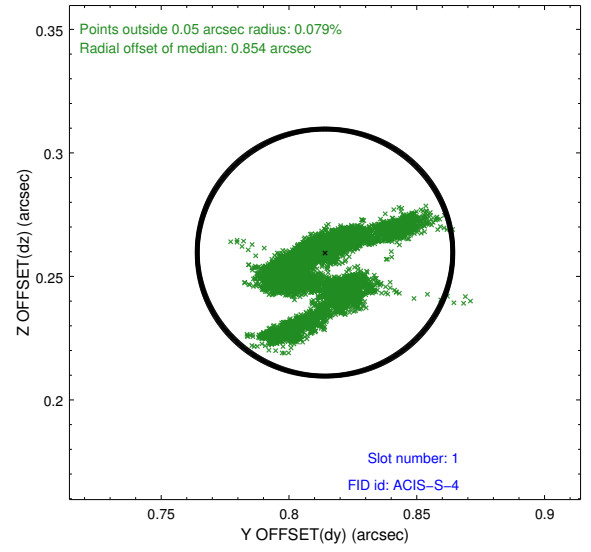
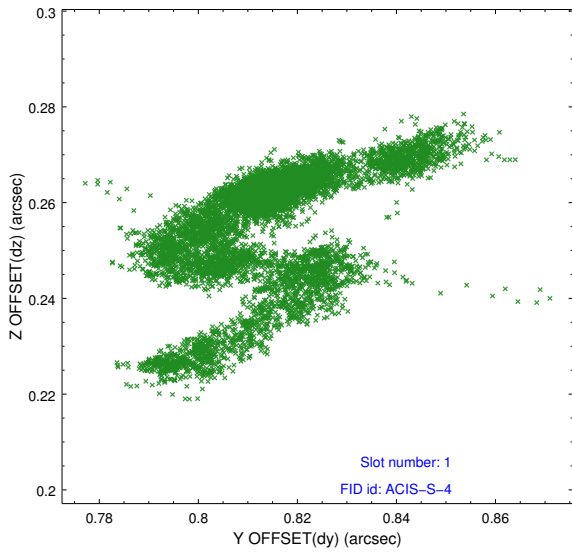


## 2.5 FID Slots

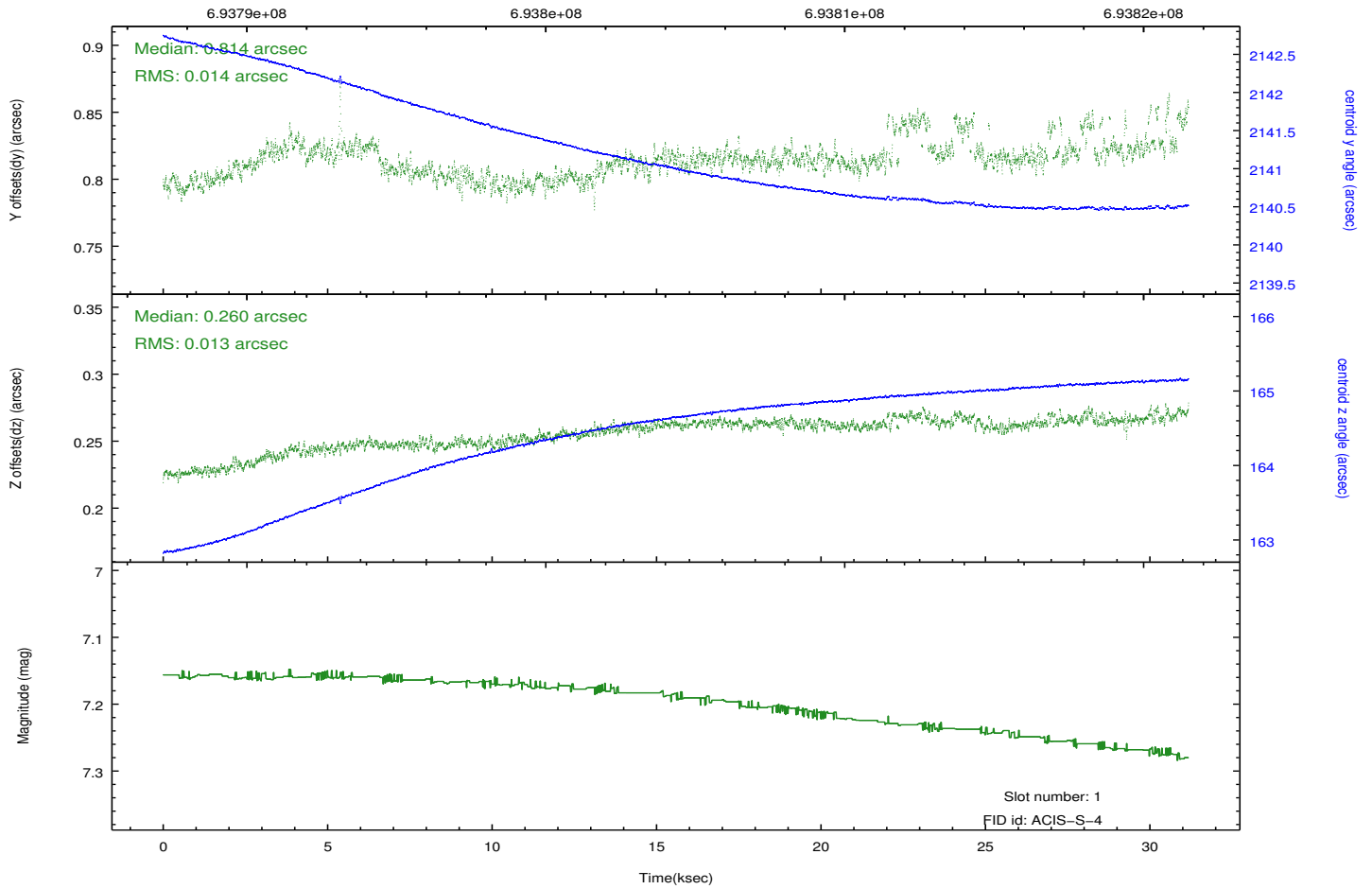
### 2.5.1 Slot 0



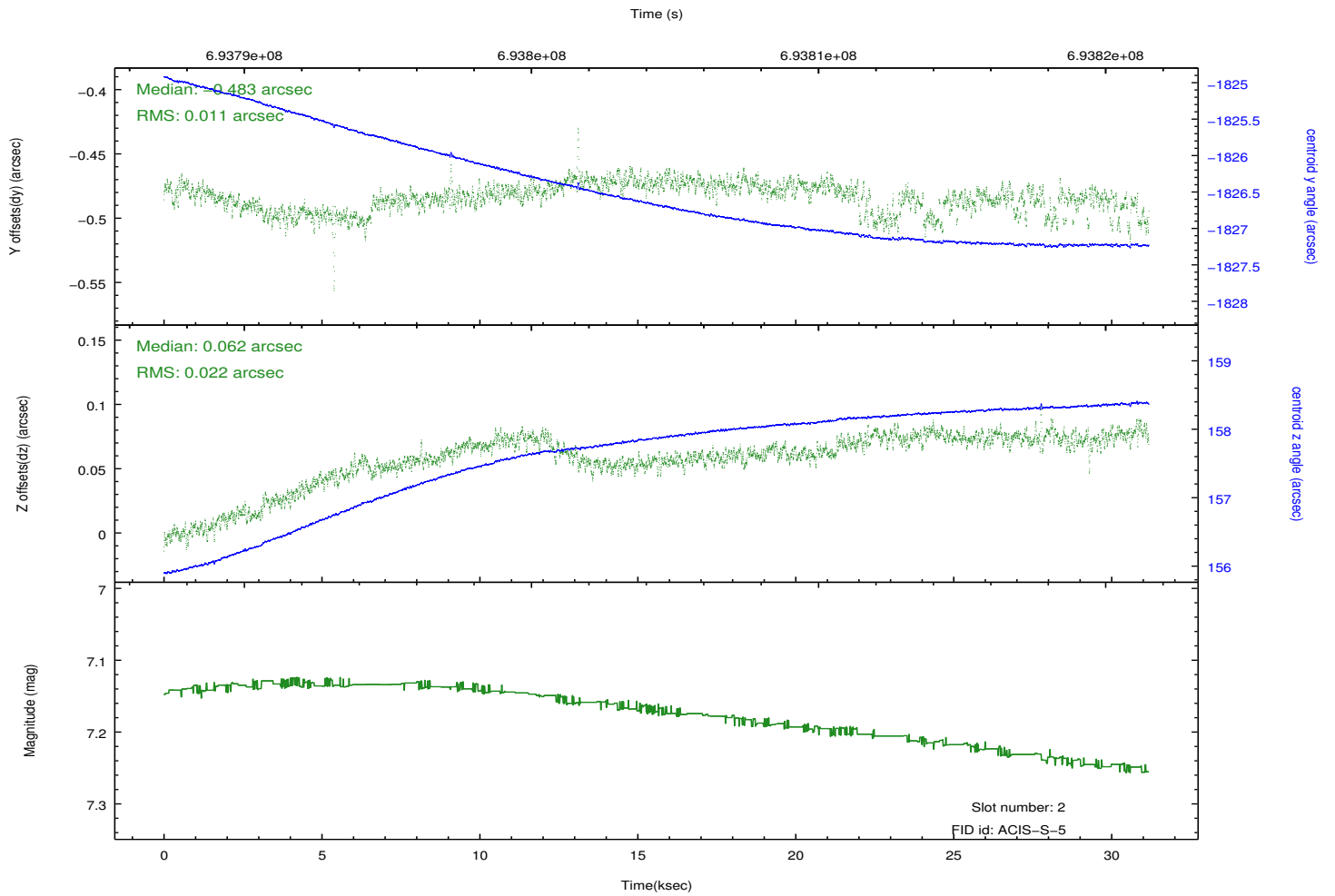
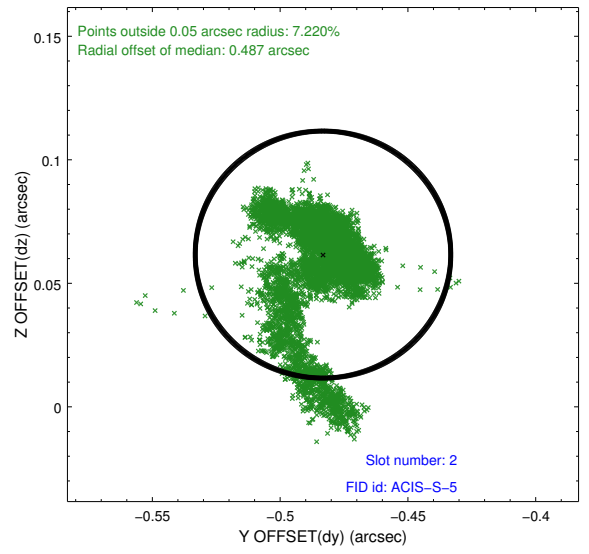
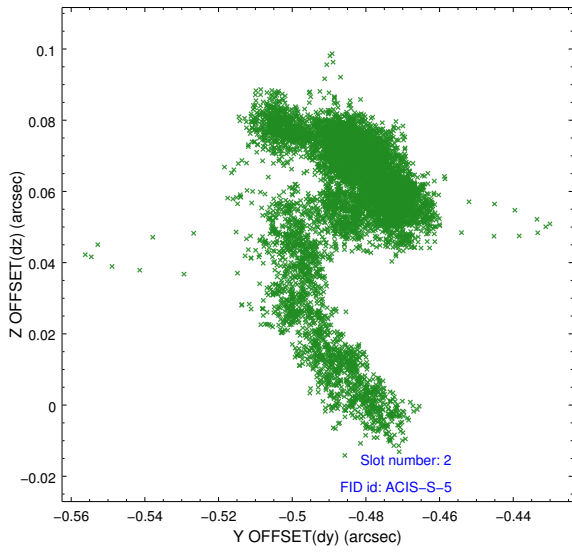
## 2.5.2 Slot 1



Time (s)

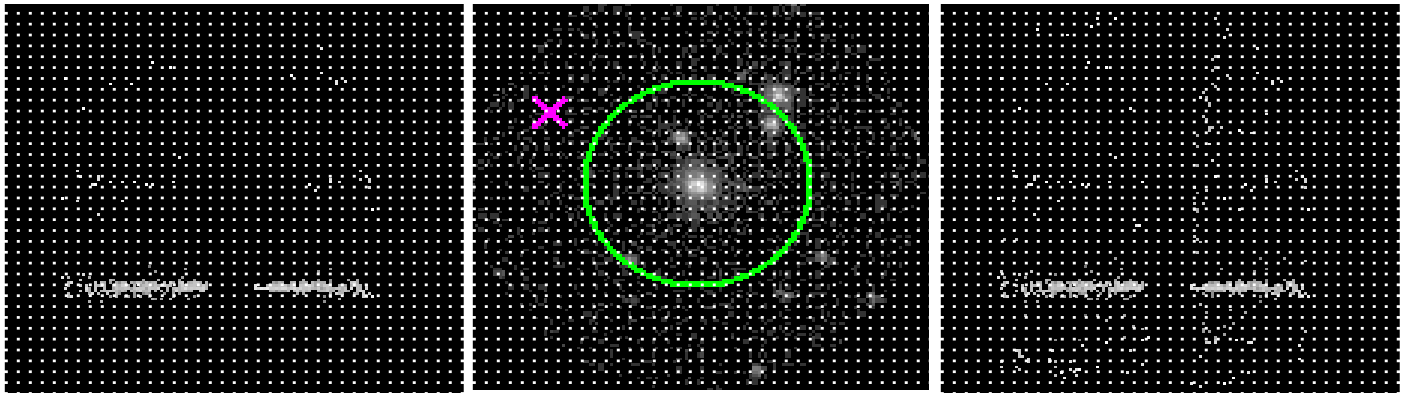


### 2.5.3 Slot 2



# 3 Gratings

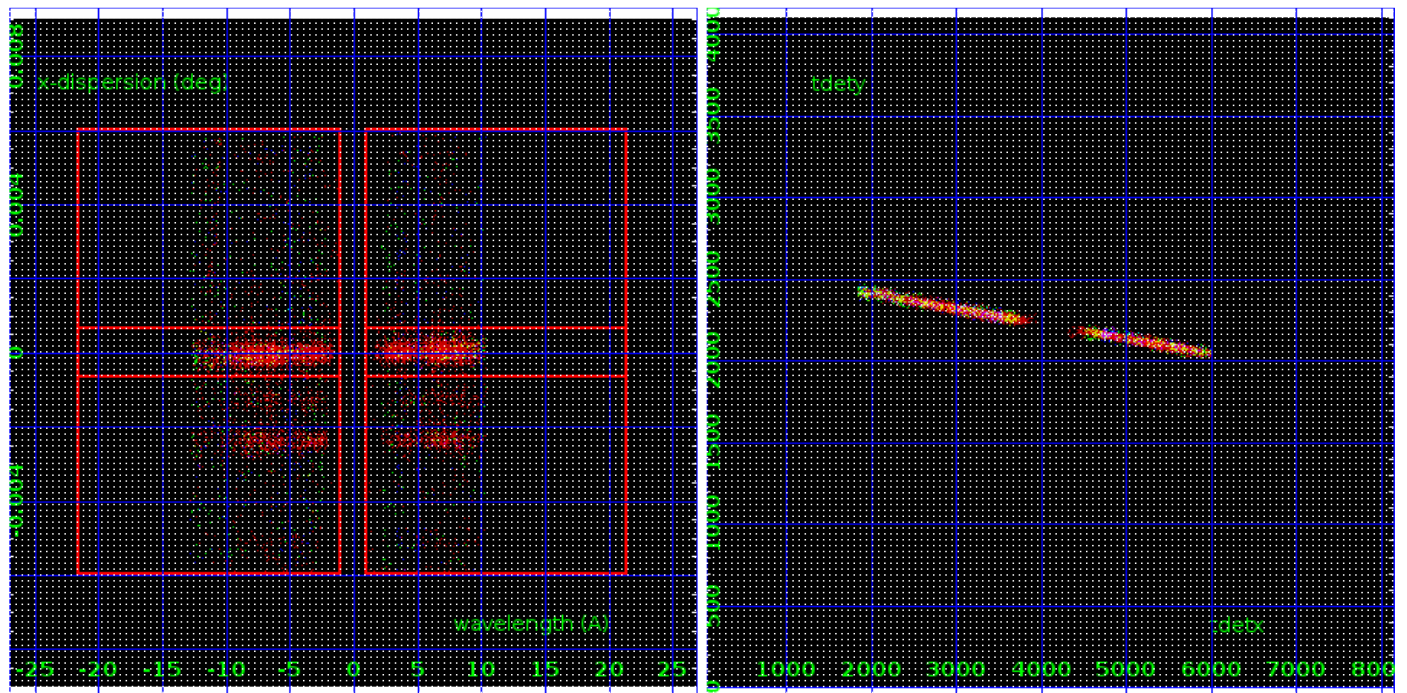
## 3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

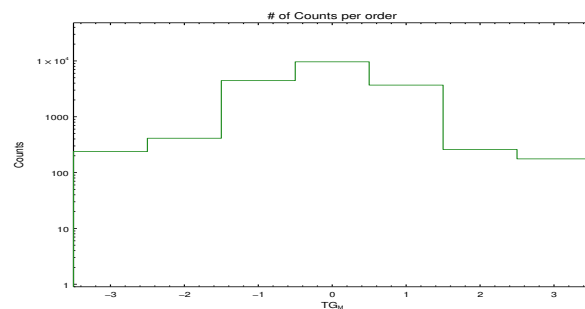
HEG Order Sort ALL

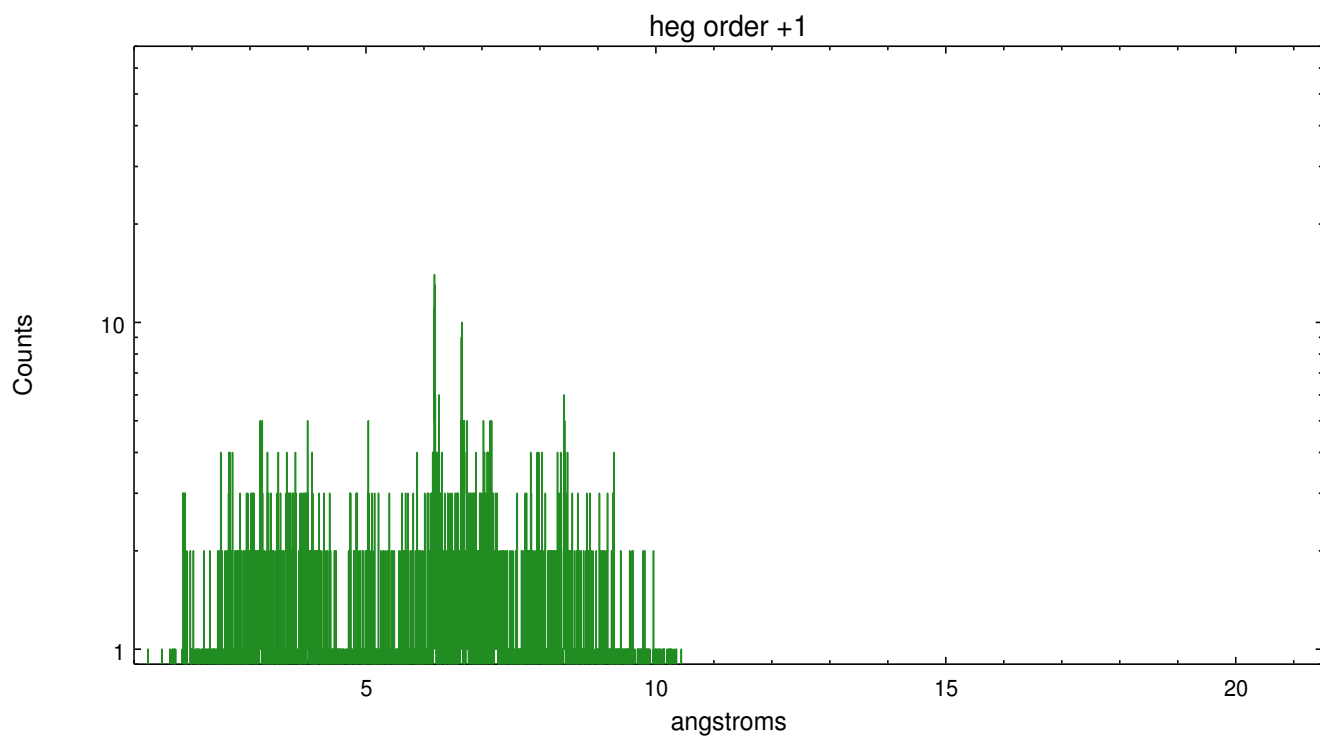
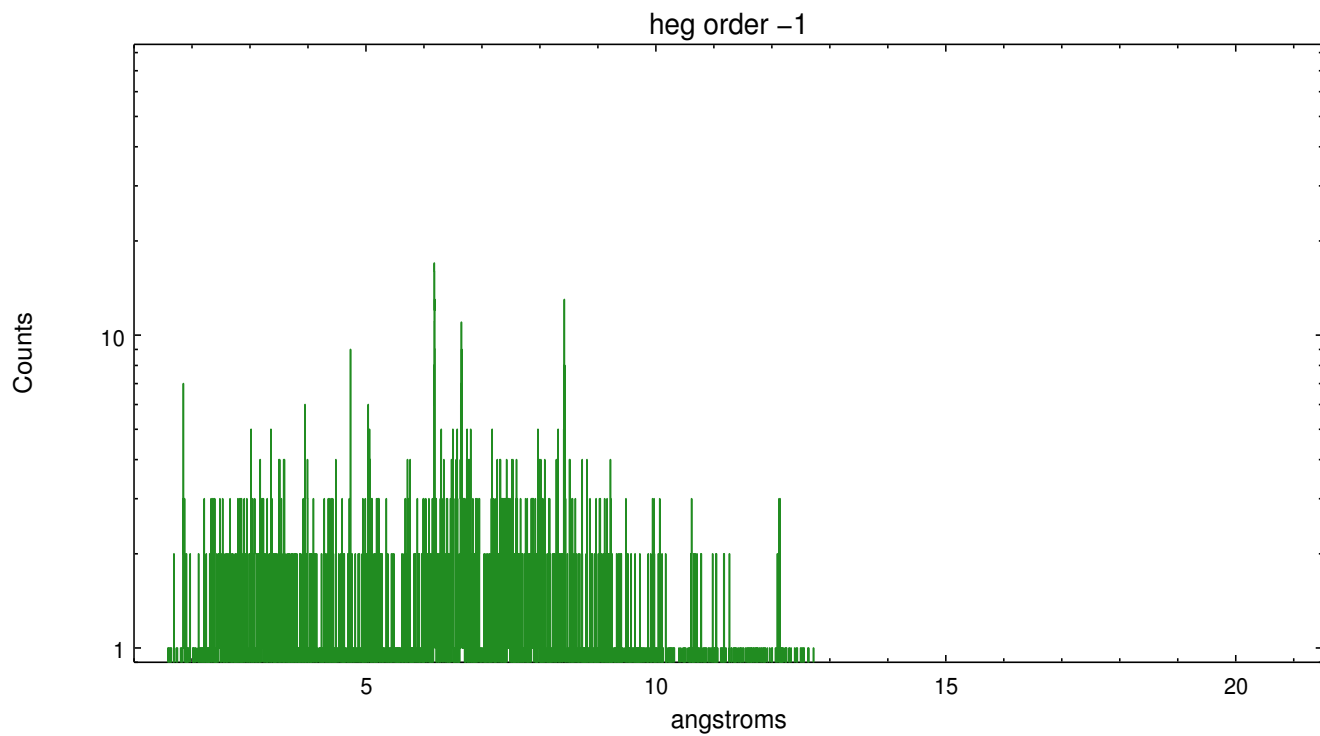


Spot Image HEG

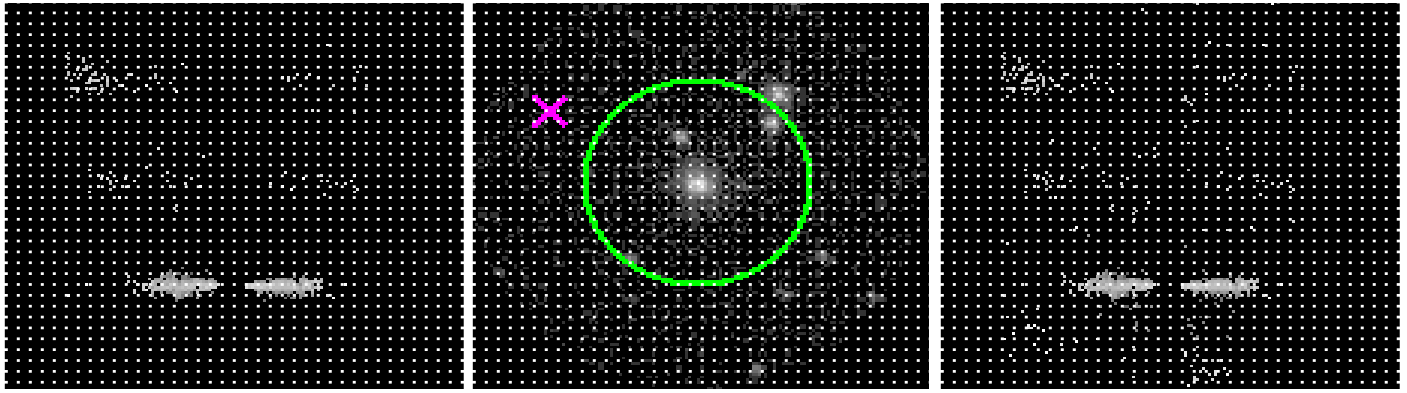
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	238	412	4441	9642	3688	259	176





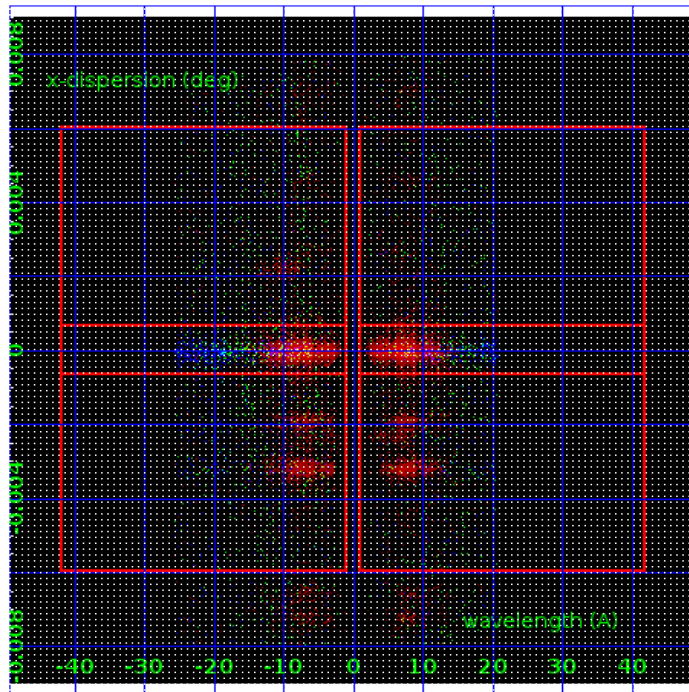
### 3.2 MEG Arm



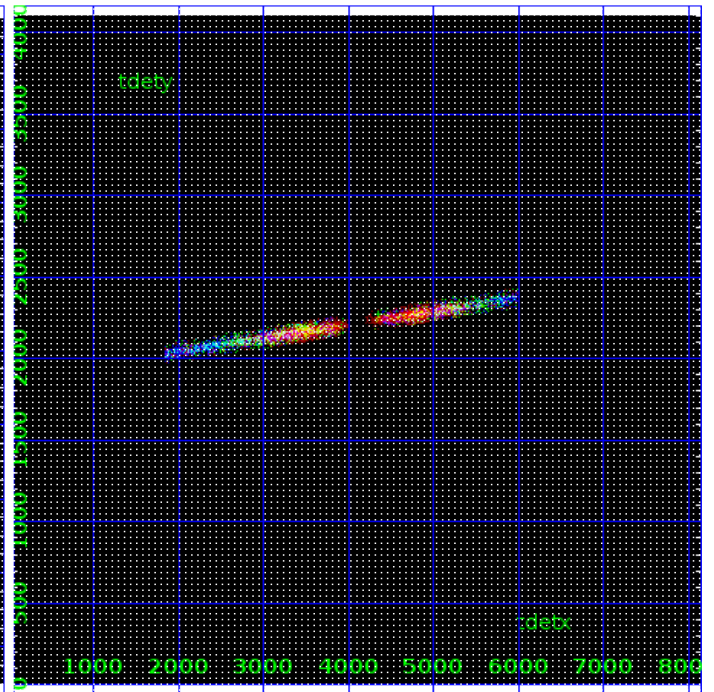
MEG Order Sort 123

MEG Zero Order

MEG Order Sort ALL

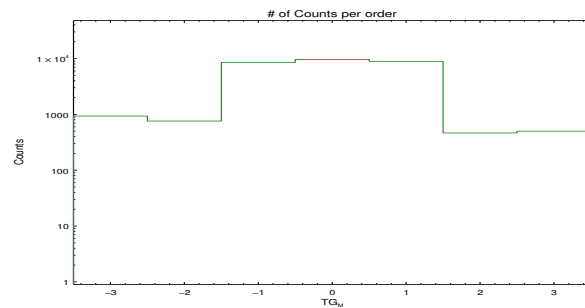


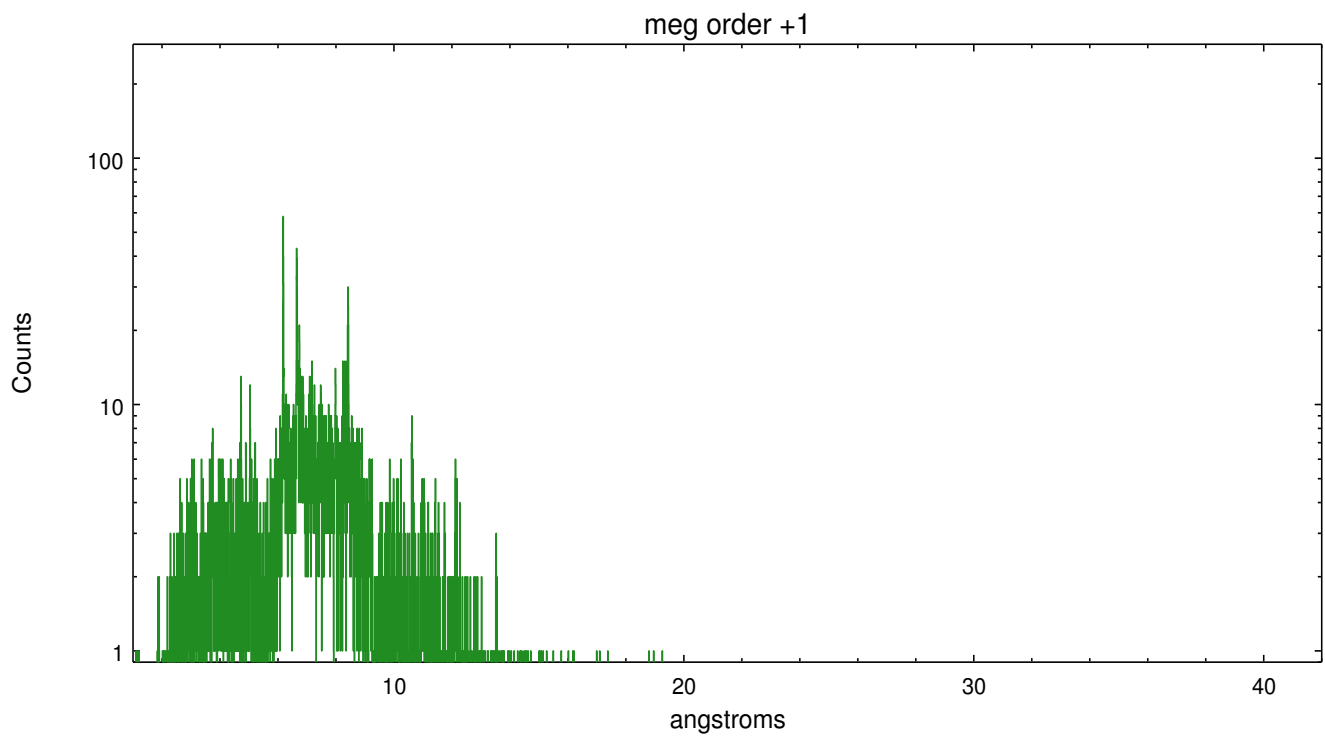
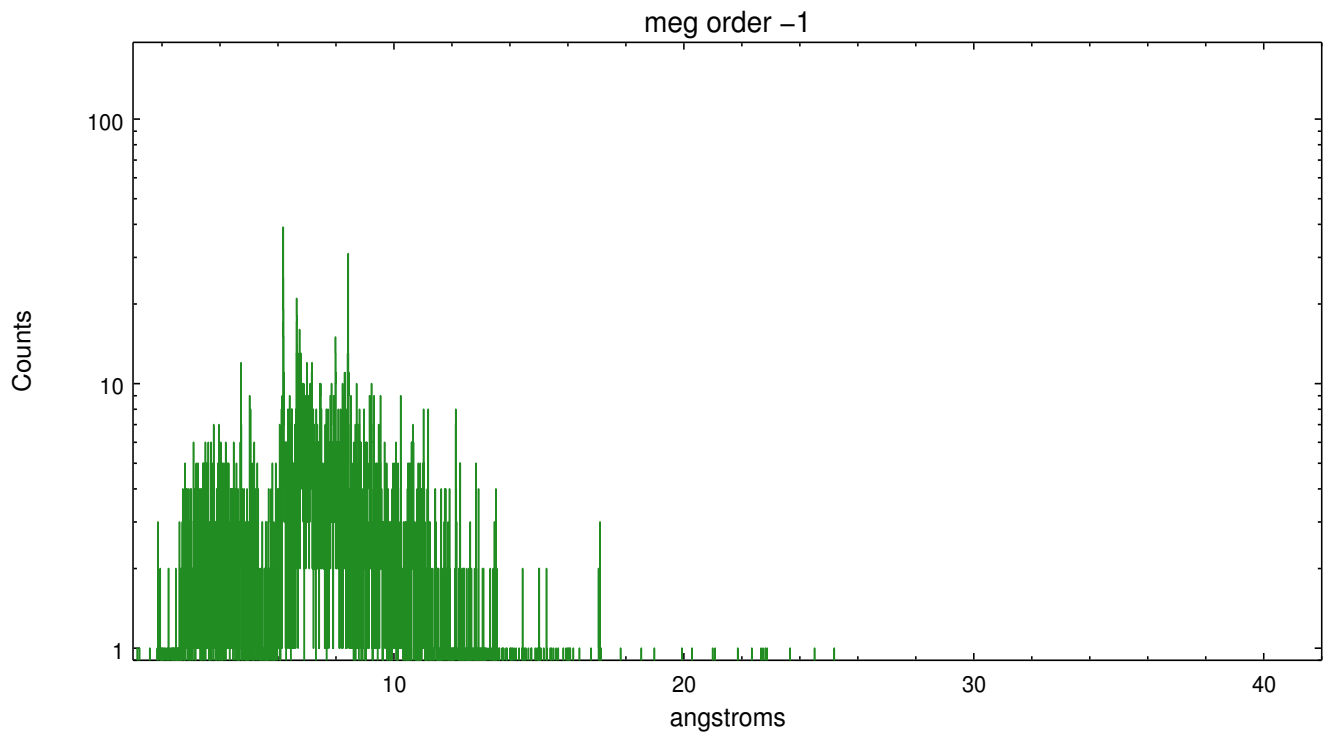
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	933	760	8545	9642	8921	465	500





# A Summary

## A.1 Status

V&V Scientist	Melania Nynka
V&V Date (YYYY-MM-DD)	2020.01.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	31.062000239015

## A.2 Comments

To compensate for a few bad pixels not marked as bad that were not removed in the Level 2 processing, a custom bad pixel file with additional bad pixels at (chipx, chipy) = (232:234,322:339) in S1 was added in this processing. As a result, the user will NOT find a relatively bright square of pixels on the S1 chip for level 2 data caused by the application of the dither algorithm to the bad pixels in question, as opposed to previous processing(s).