

# V&V Reference Report

## L2 ASCDS Version : 10.6.4.1

Observation 21950 - L2 Version 1  
Chandra X-Ray Center

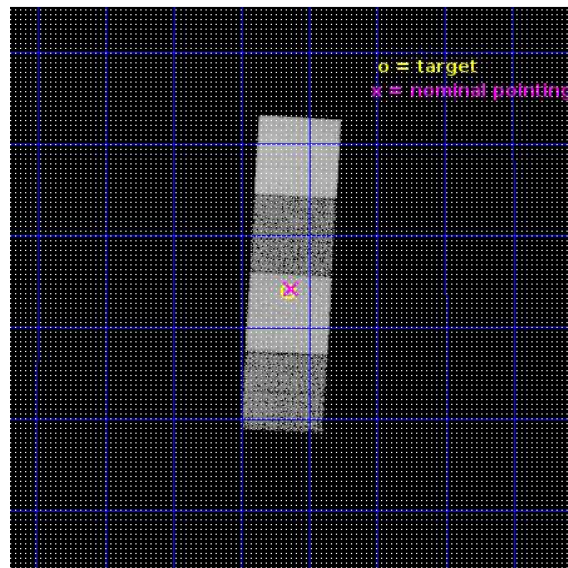
L2 Processing Date : Oct 31 2018

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# 1 Front

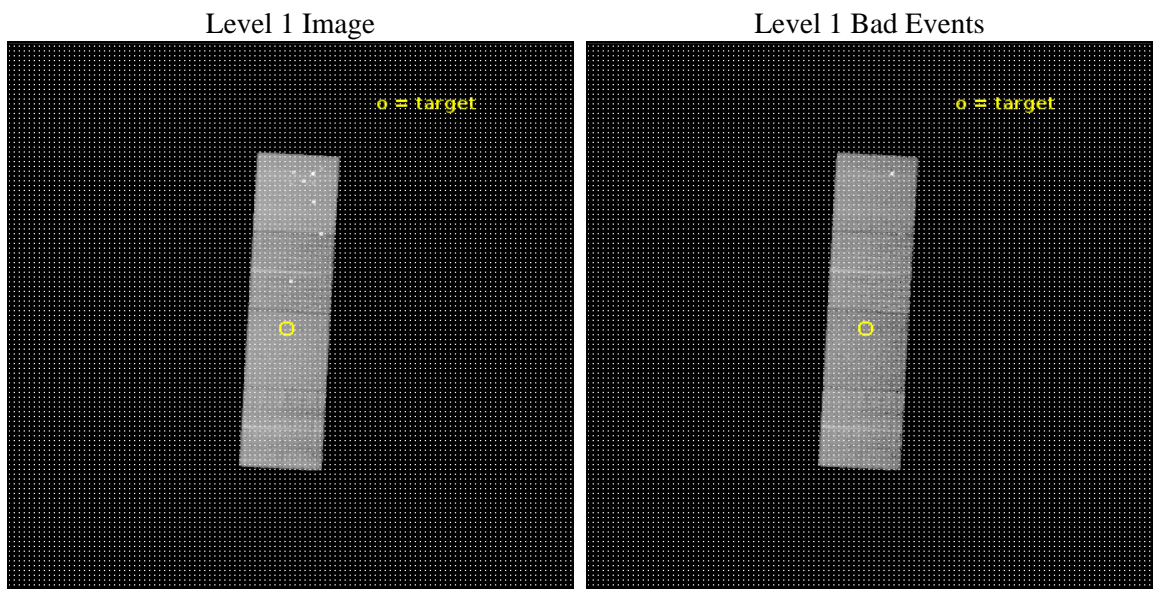
seq_num	201178	Sequence number
obs_id	21950	Observation id
title	An (X-ray Gratings) Tale of Two Young Stellar Objects	Proposal tit
observer	David Principe	Principal investigator
object	XZ Tau and HL Tau	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	67.91375	Observer's specified target RA [deg]
dec_targ	18.232028	Observer's specified target Dec [deg]
ra_nom	67.908060327842	Nominal RA [deg]
dec_nom	18.237029486429	Nominal Dec [deg]
roll_nom	93.158483972587	Nominal Roll [deg]
revision	1	Processing version of data
ontime	12154.717027903	Sum of GTIs [s]
livetime	11995.906701761	Livetime [s]
ontime5	12154.675987959	Sum of GTIs [s]
ontime6	12148.352746964	Sum of GTIs [s]
ontime7	12154.717027903	Sum of GTIs [s]
ontime8	12154.593907952	Sum of GTIs [s]
l2events	137009	Number of level 2 events



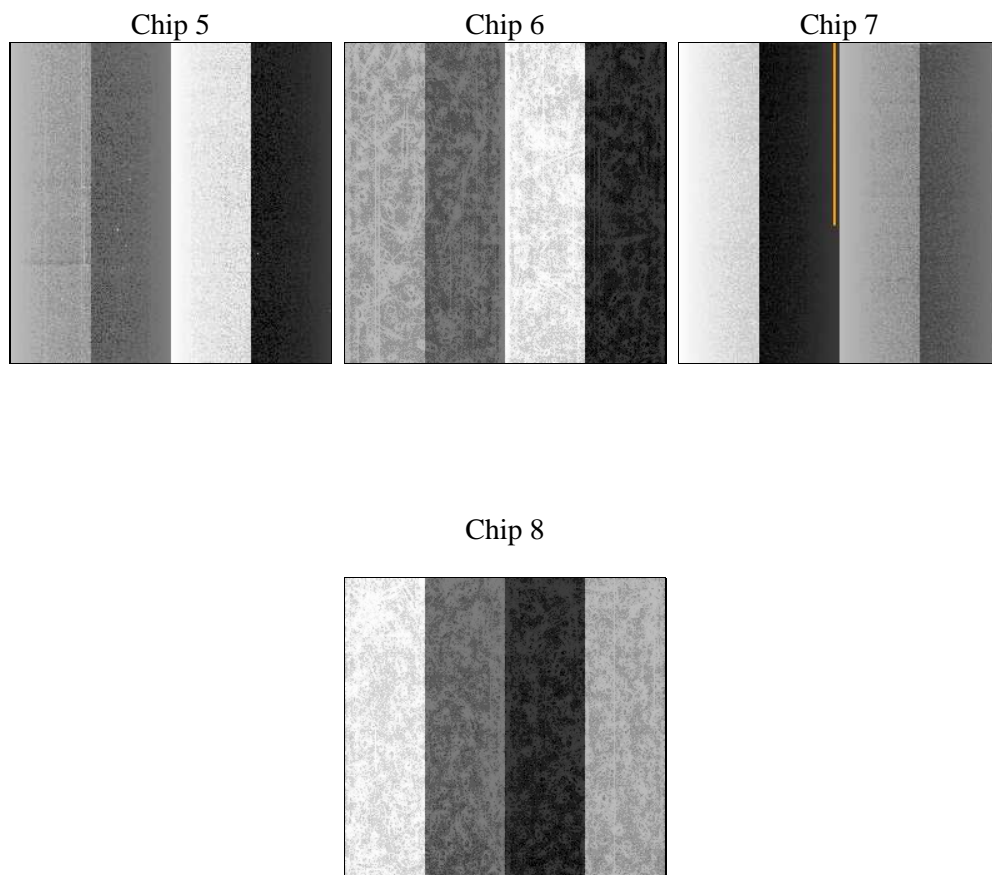
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number			
ascdsver	10.6.4.1	Processing system revision	sched_exp_time	12094.838000	[s] Scheduled observation exposure time
caldbver	4.8.0.1	&#160	ontime	12154.717027903	Sum of GTIs [s]
date	2018-10-31T03:25:29	Date and time of file creation	ontime5	12154.675987959	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	12148.352746964	Sum of GTIs [s]
			ontime7	12154.717027903	Sum of GTIs [s]
			ontime8	12154.593907952	Sum of GTIs [s]
			l1events	508098	Number of level 1 events
			tgmethod	DEADRECKONING	Method used to create src1a file
			zo_pos	(4082.62, 4063.62)	src1a skv pixel position

### 2.1.4 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	167644	101102	119976	119376
rejected events	83432	86422	68628	89856
rejected %	49%	85%	57%	75%

	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	12748	3346	4283	7931
	7%	3%	3%	6%
grade 1 events	460	45	186	80
	0%	0%	0%	0%
grade 2 events	24037	6625	10742	7417
	14%	6%	8%	6%
grade 3 events	3155	915	3984	2957
	1%	0%	3%	2%
grade 4 events	3908	939	3942	2831
	2%	0%	3%	2%
grade 5 events	9825	3785	11321	6181
	5%	3%	9%	5%
grade 6 events	40394	2858	28409	8387
	24%	2%	23%	7%
grade 7 events	73117	82589	57109	83592
	43%	81%	47%	70%

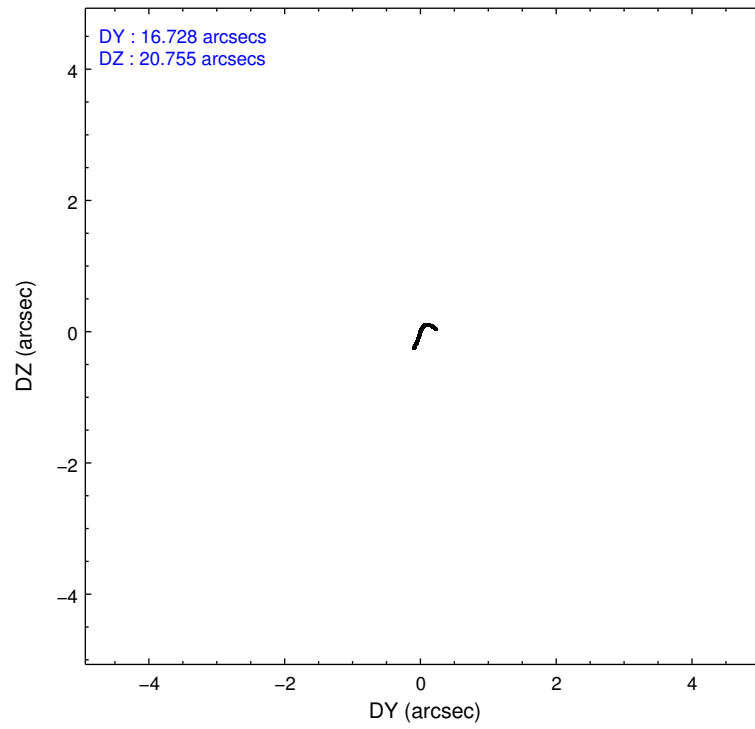
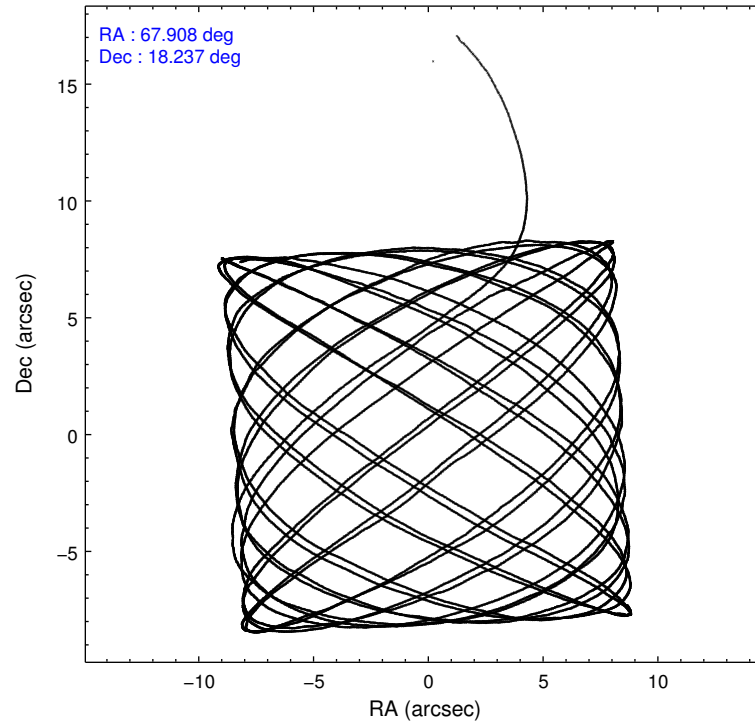


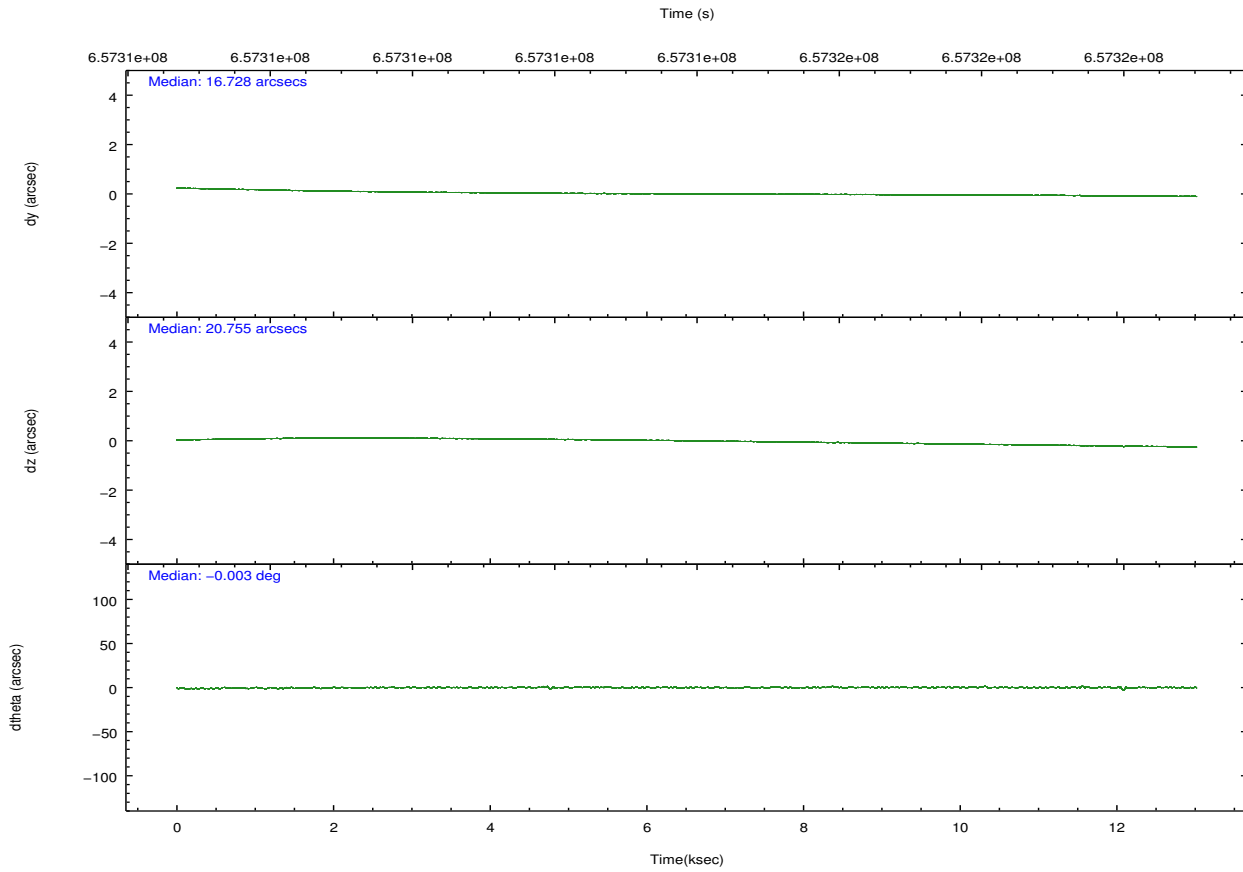
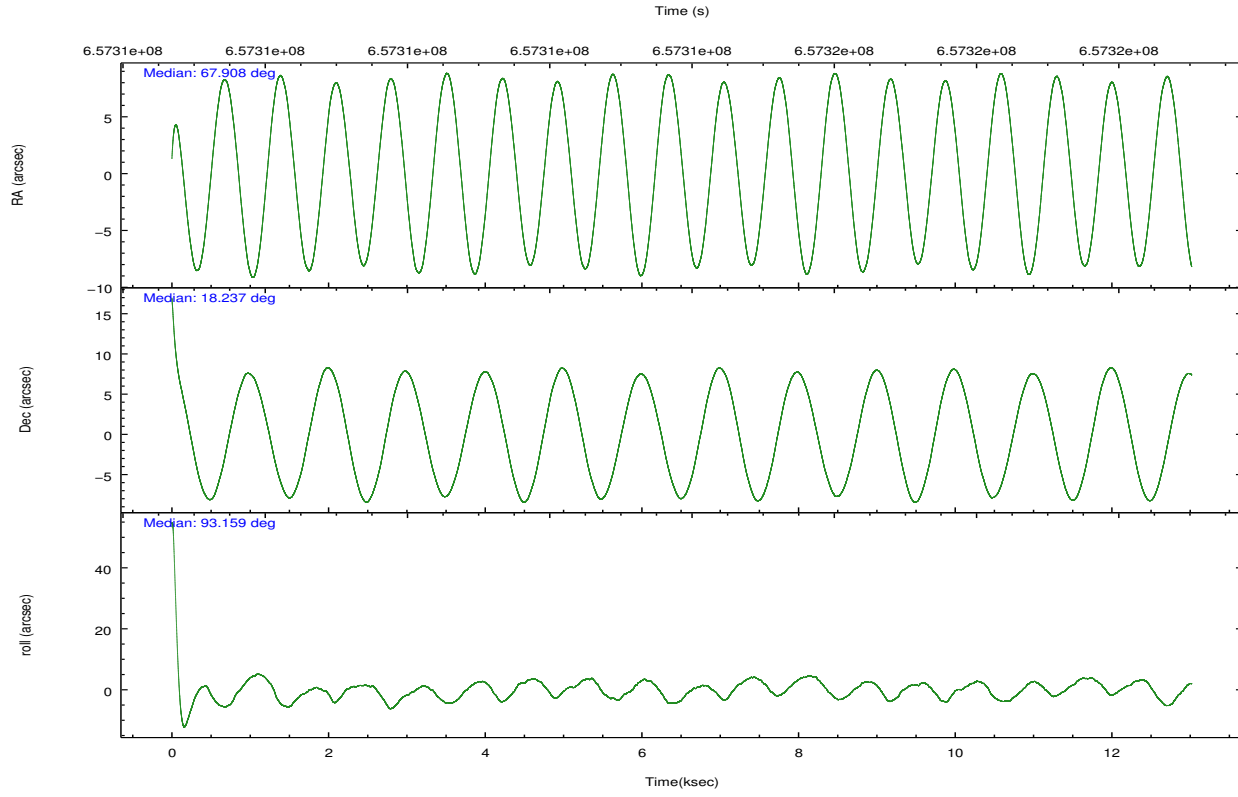
## 2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-5678	ACIS-5678
Grating	HETG	HETG
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	67.924201	67.90806032784199
[deg] Pointing Dec	18.214239	18.23702948642892
[deg] Pointing Roll	92.996734	93.15848397258675
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-190.132523	-190.1400660498719
[mm] SIM translation stage offset	0	0.00754346686406393
[s] Observation start time (MET)	657308287.184000	657306864.4414999
Observation start date	2018-10-30T17:36:58	2018-10-30T17:14:24
[s] Observation end time (MET)	657320382.184000	657320806.4923199
Observation end date	2018-10-30T20:58:33	2018-10-30T21:06:46
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	O1	N
CCD S1 on	Y	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	O2	N
Number of optional ACIS chips dropped	2	2
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



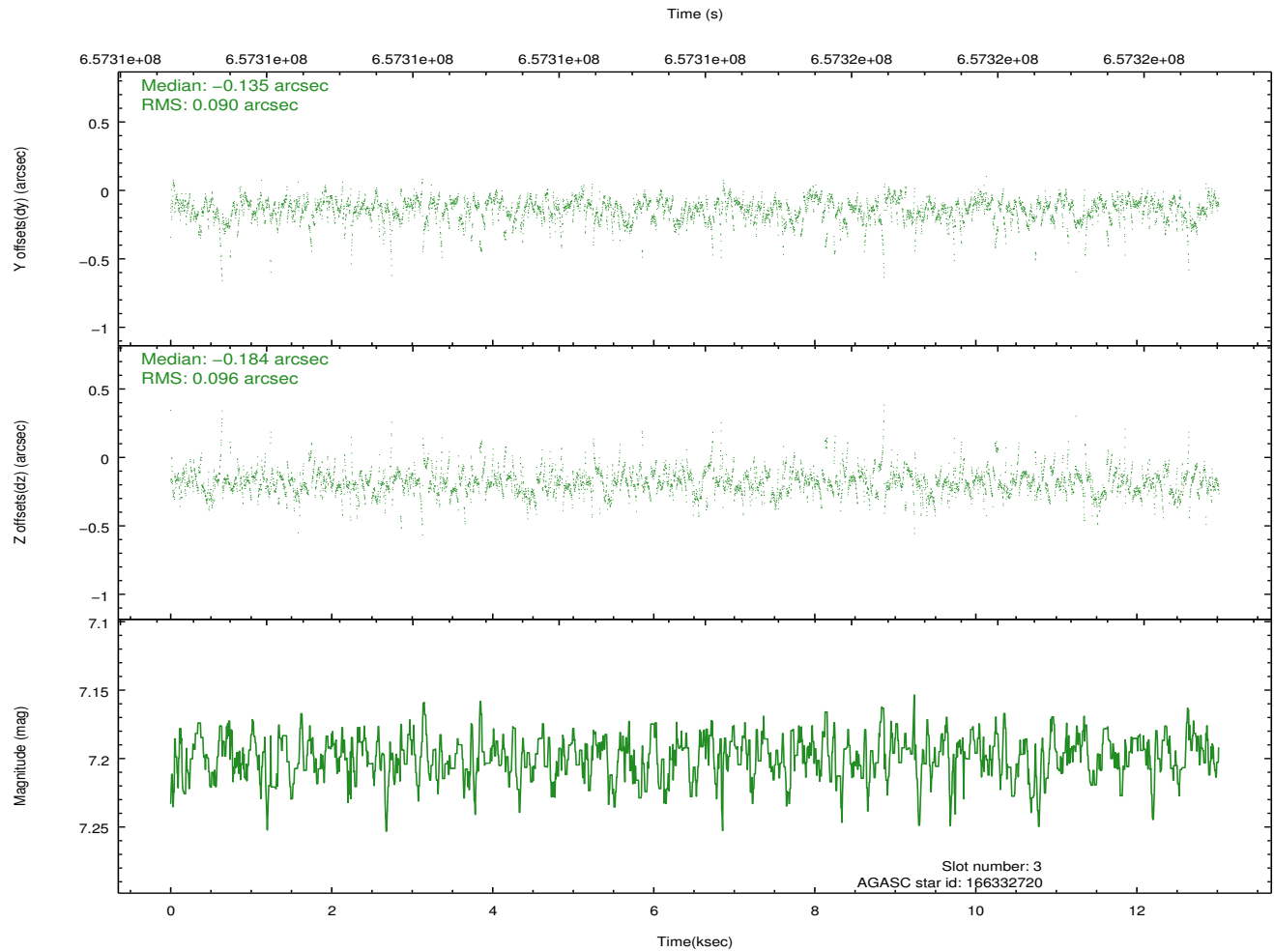
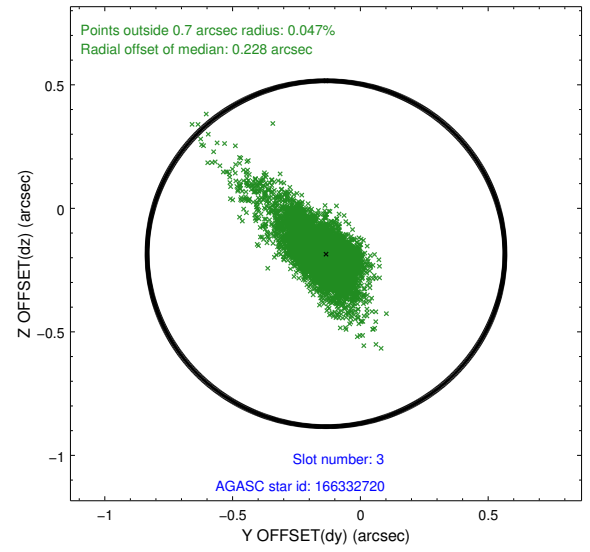
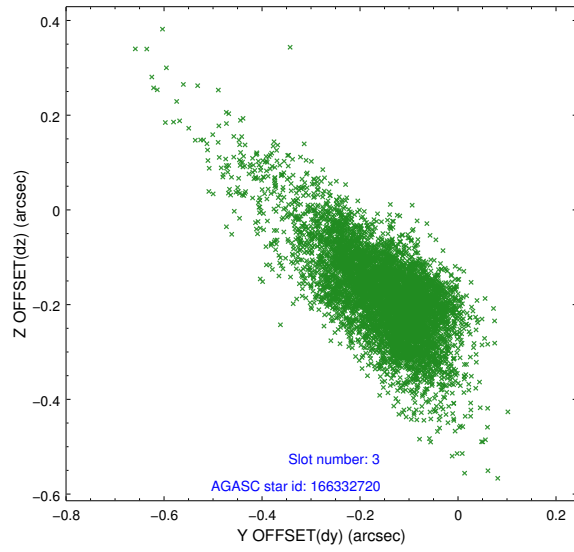


Slot Statistics

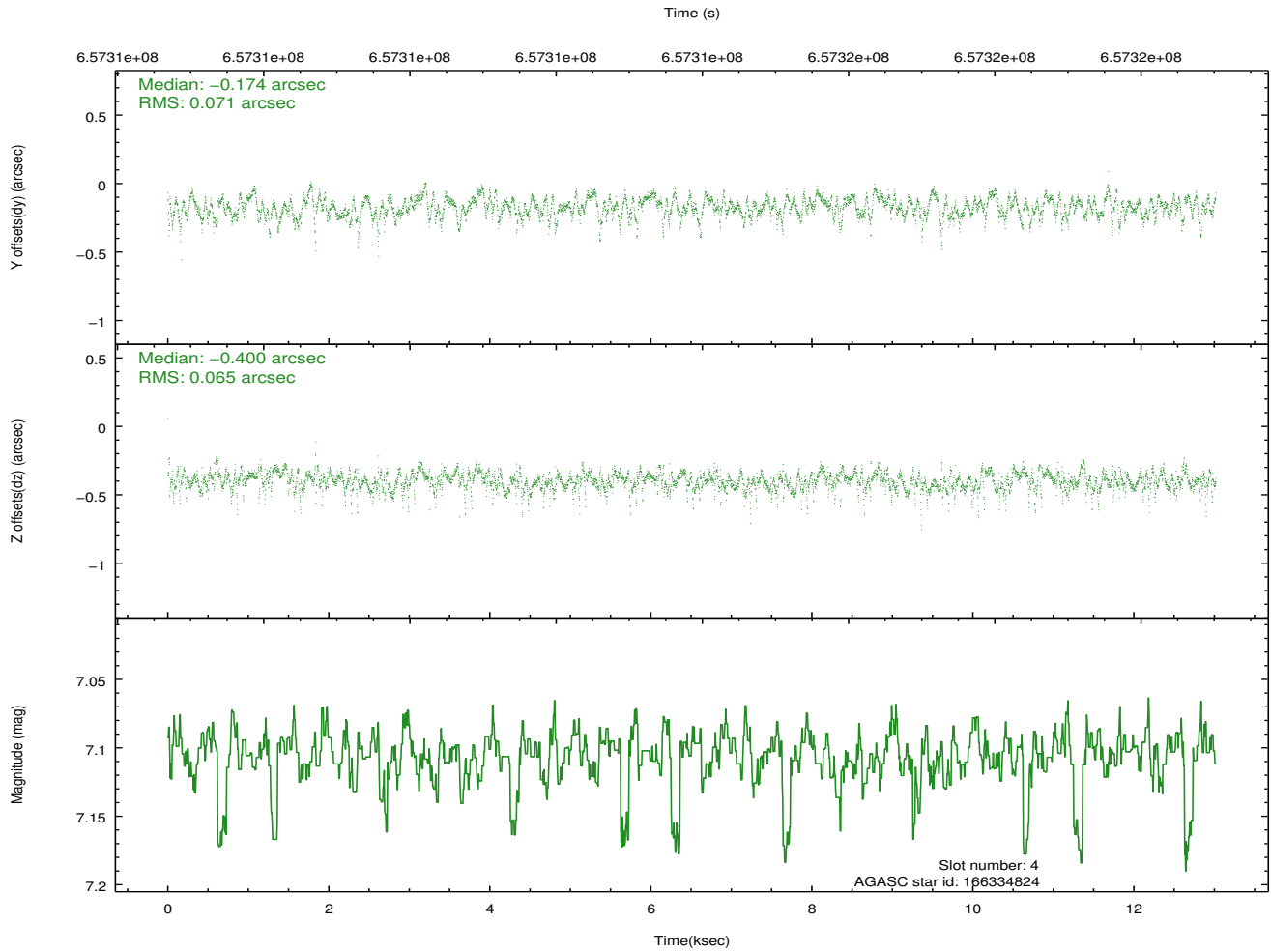
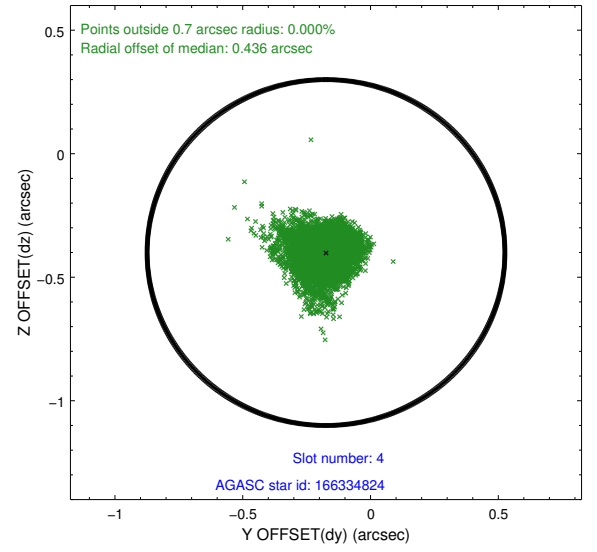
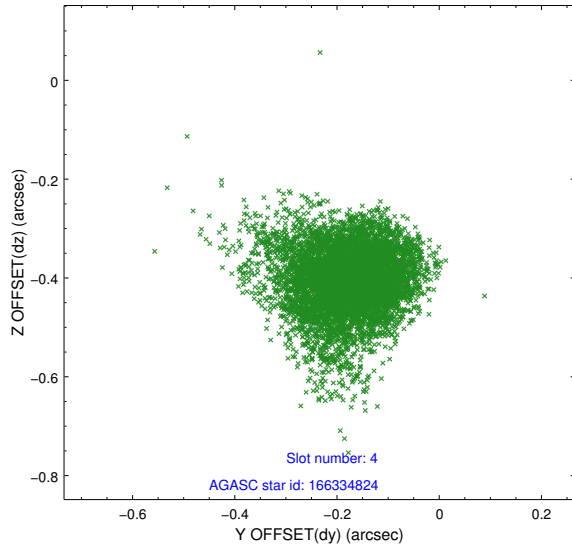
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.12	3176	1.000	-0.521	-0.383	0.007	0.014	0.000000	0.000000	-770.31	-1742
1	FID		ACIS-S-4	7.24	3176	1.000	0.537	0.296	0.009	0.016	0.000000	0.000000	2143.88	166
2	FID		ACIS-S-6	7.40	3175	1.000	-0.044	0.095	0.007	0.012	0.000000	0.000000	392.66	803
3	GUIDE	used	166332720	7.20	6350	1.000	-0.135	-0.184	0.118	0.249	67.335629	17.544937	-2297.56	2141
4	GUIDE	used	166334824	7.11	6352	1.000	-0.174	-0.400	0.099	0.170	67.376458	17.863163	-1161.79	1938
5	GUIDE	used	166468240	9.01	6345	1.000	0.472	0.567	0.144	0.231	68.167699	17.861525	-1310.46	-765
6	GUIDE	used	166996584	9.11	6345	1.000	-0.314	-0.199	0.138	0.221	68.020035	18.861675	2310.79	-448
7	GUIDE	used	166333056	8.21	6347	1.000	0.175	0.211	0.093	0.159	67.813257	17.557208	-2340.80	504

## 2.4 Star Slots

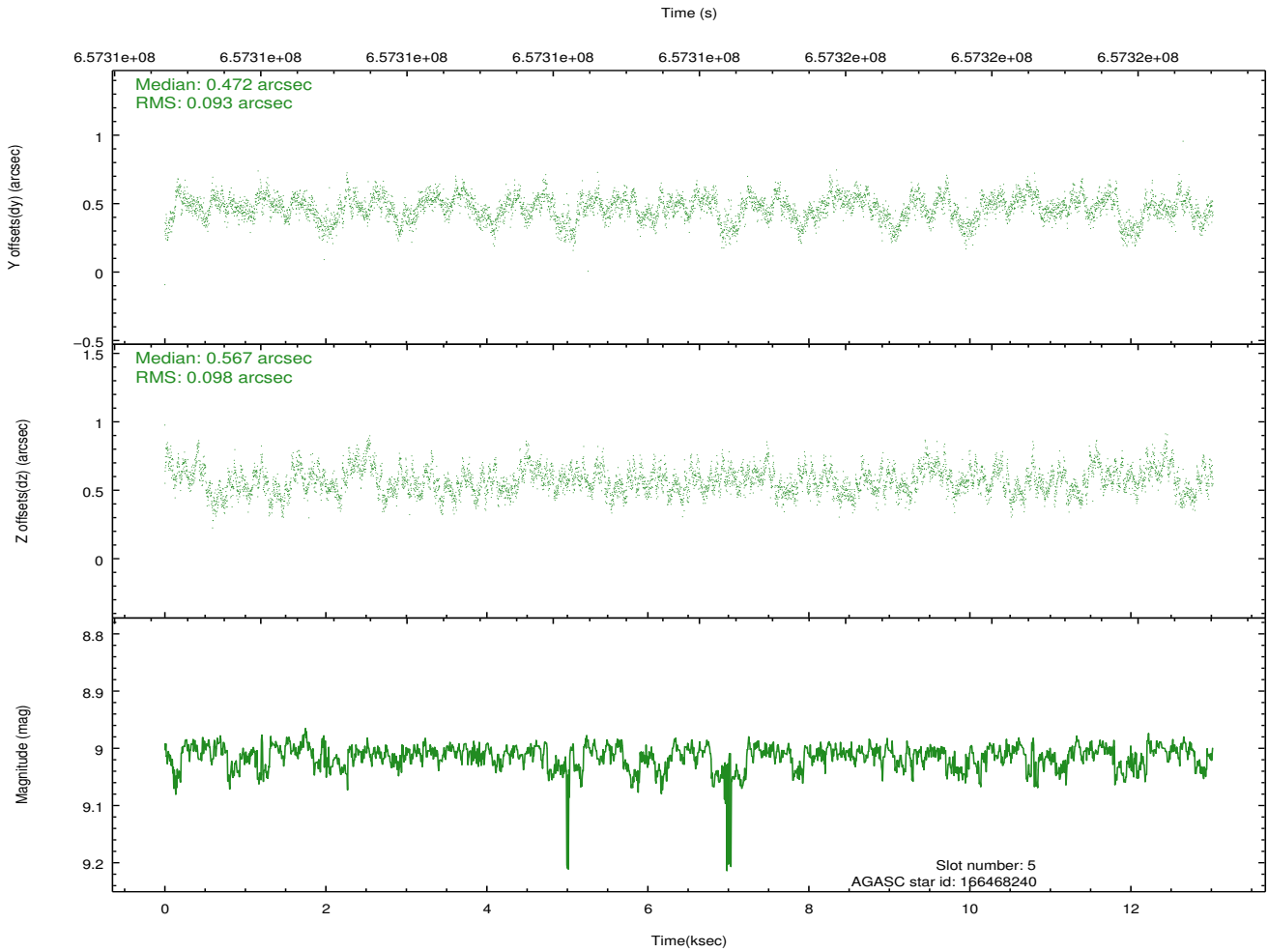
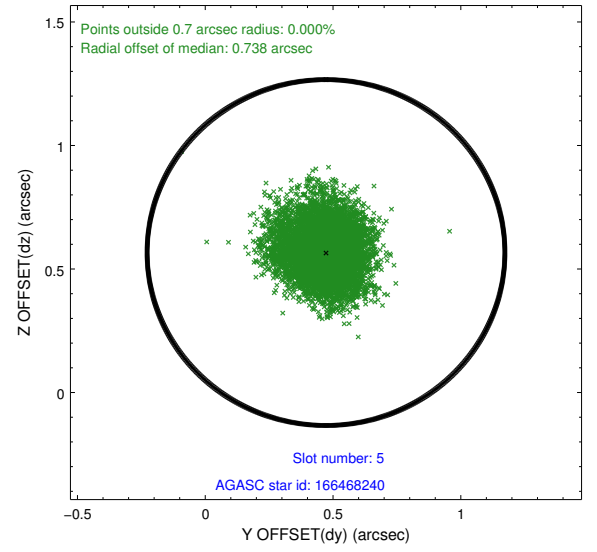
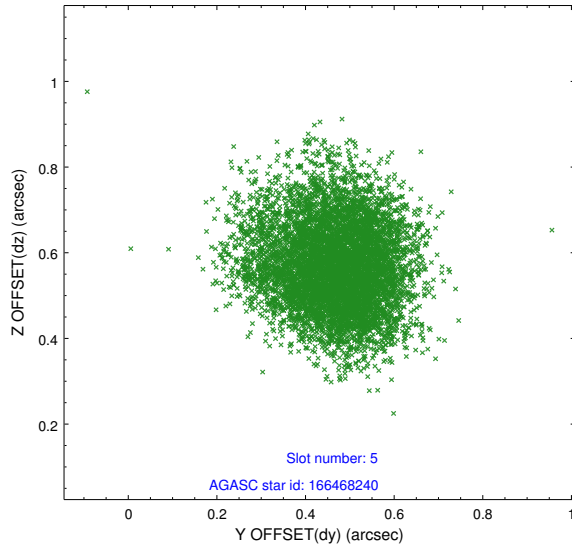
### 2.4.1 Slot 3



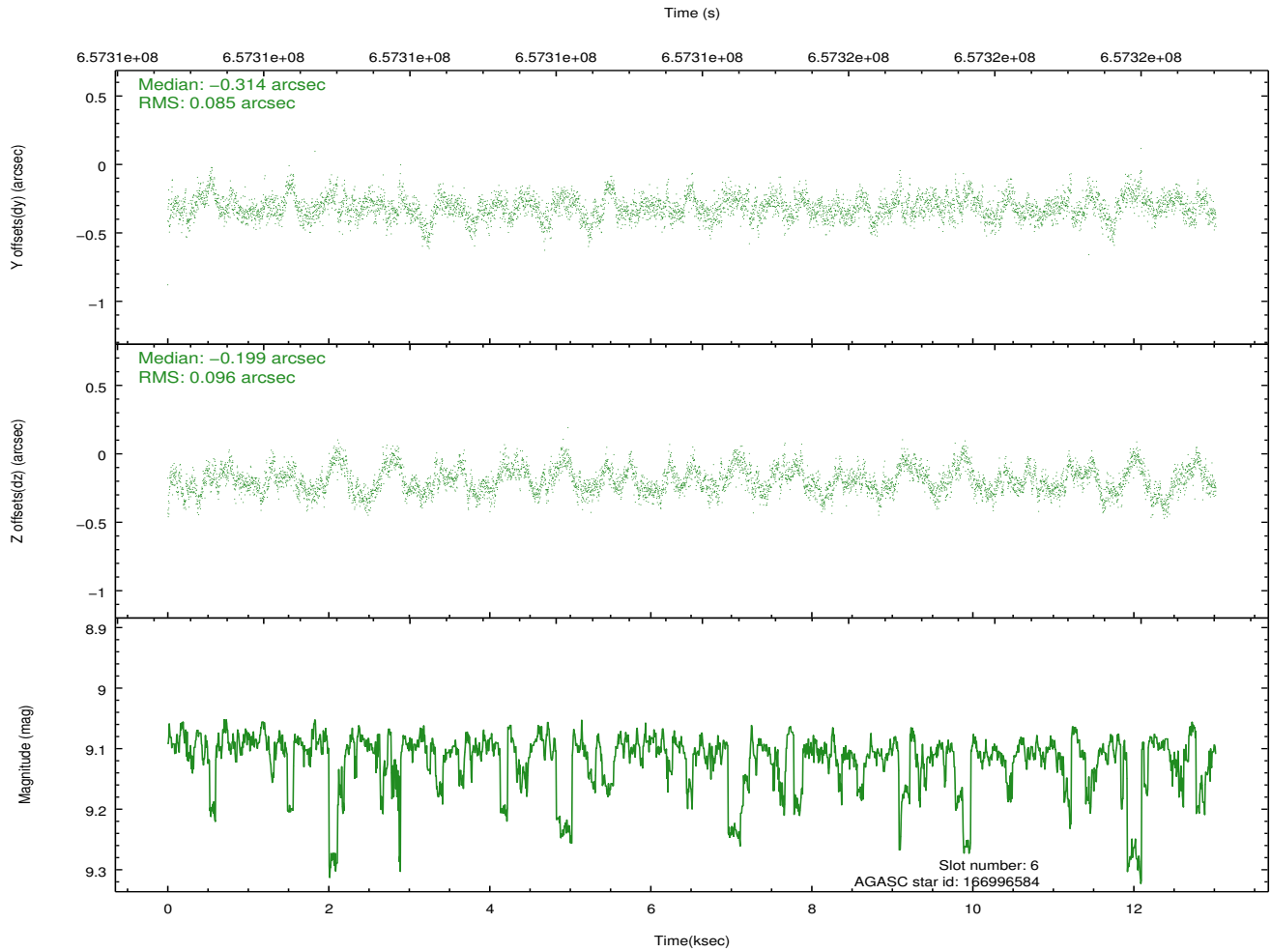
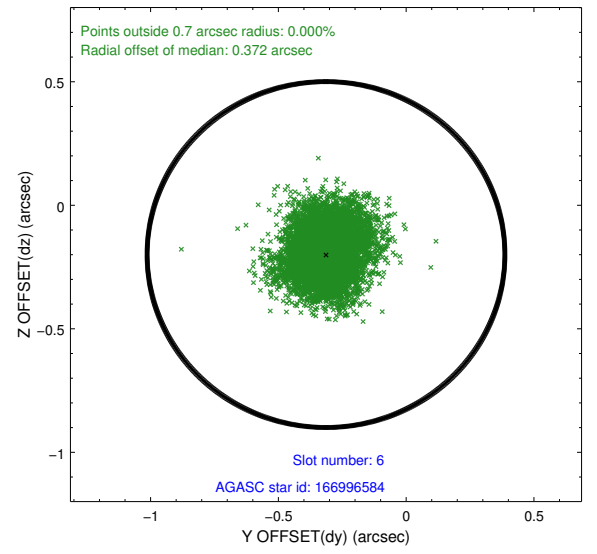
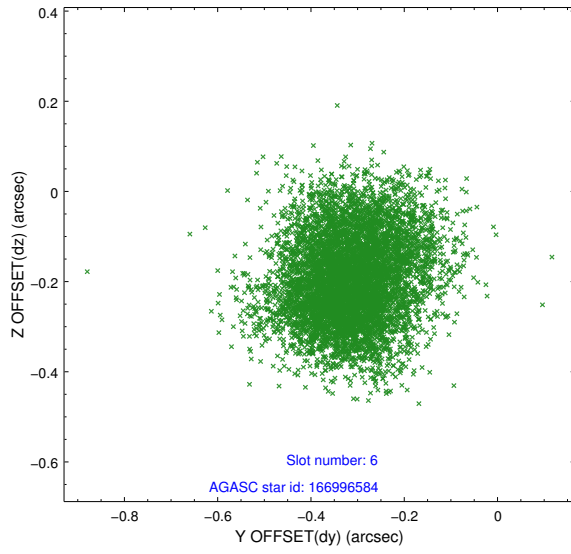
## 2.4.2 Slot 4



### 2.4.3 Slot 5

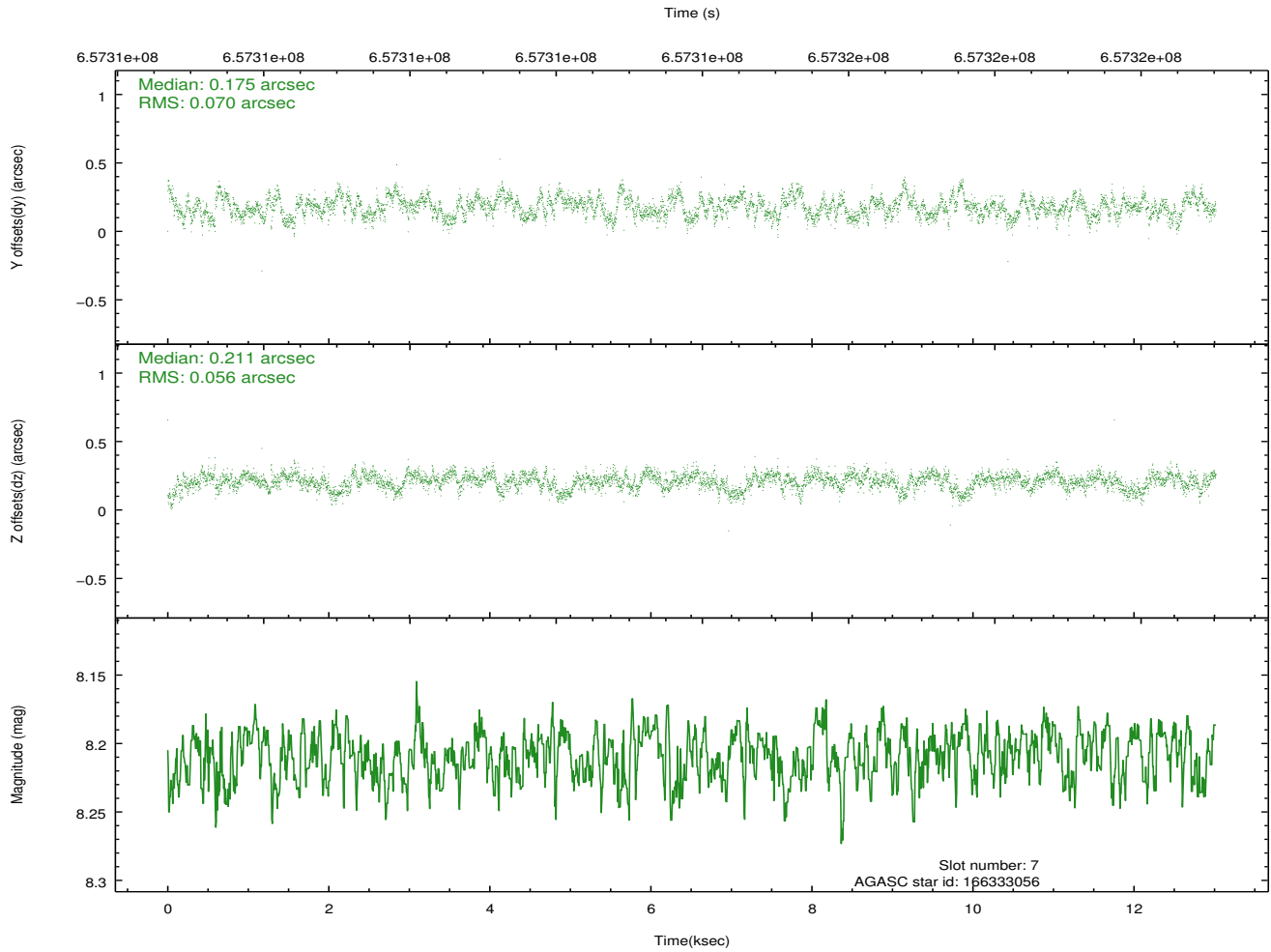
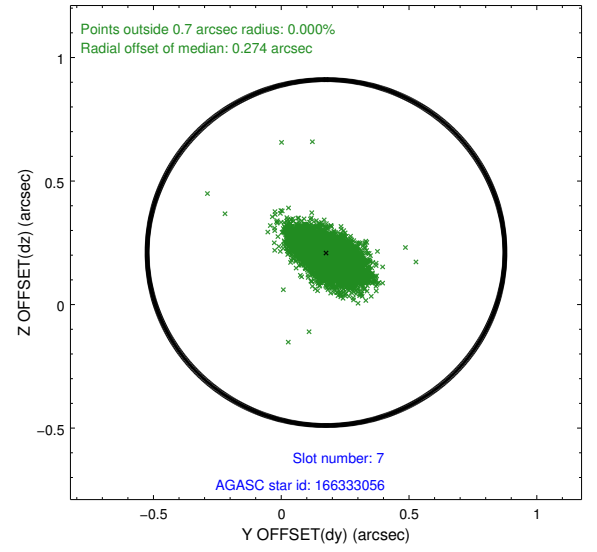
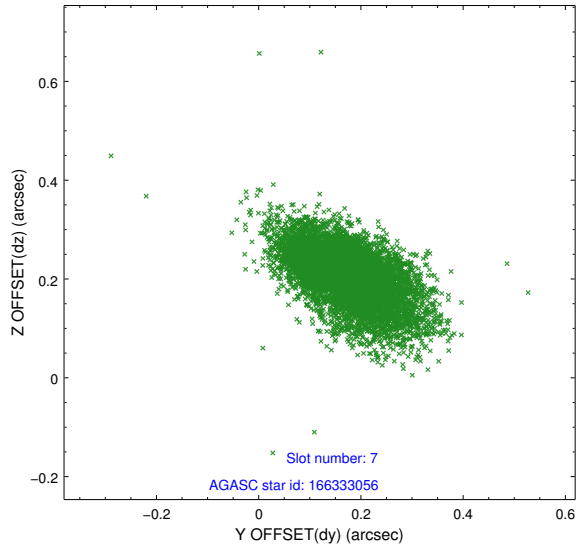


## 2.4.4 Slot 6



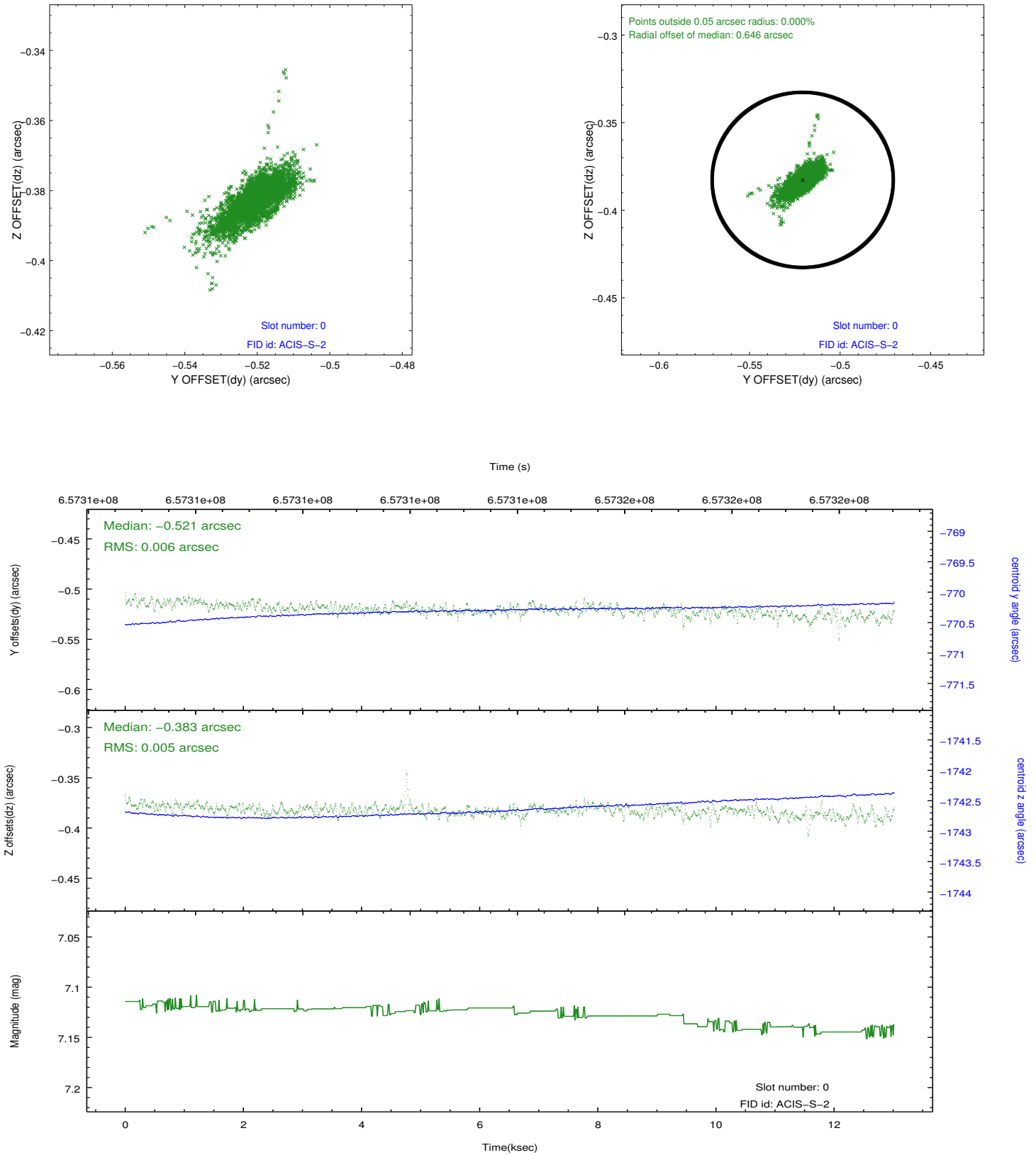


## 2.4.5 Slot 7

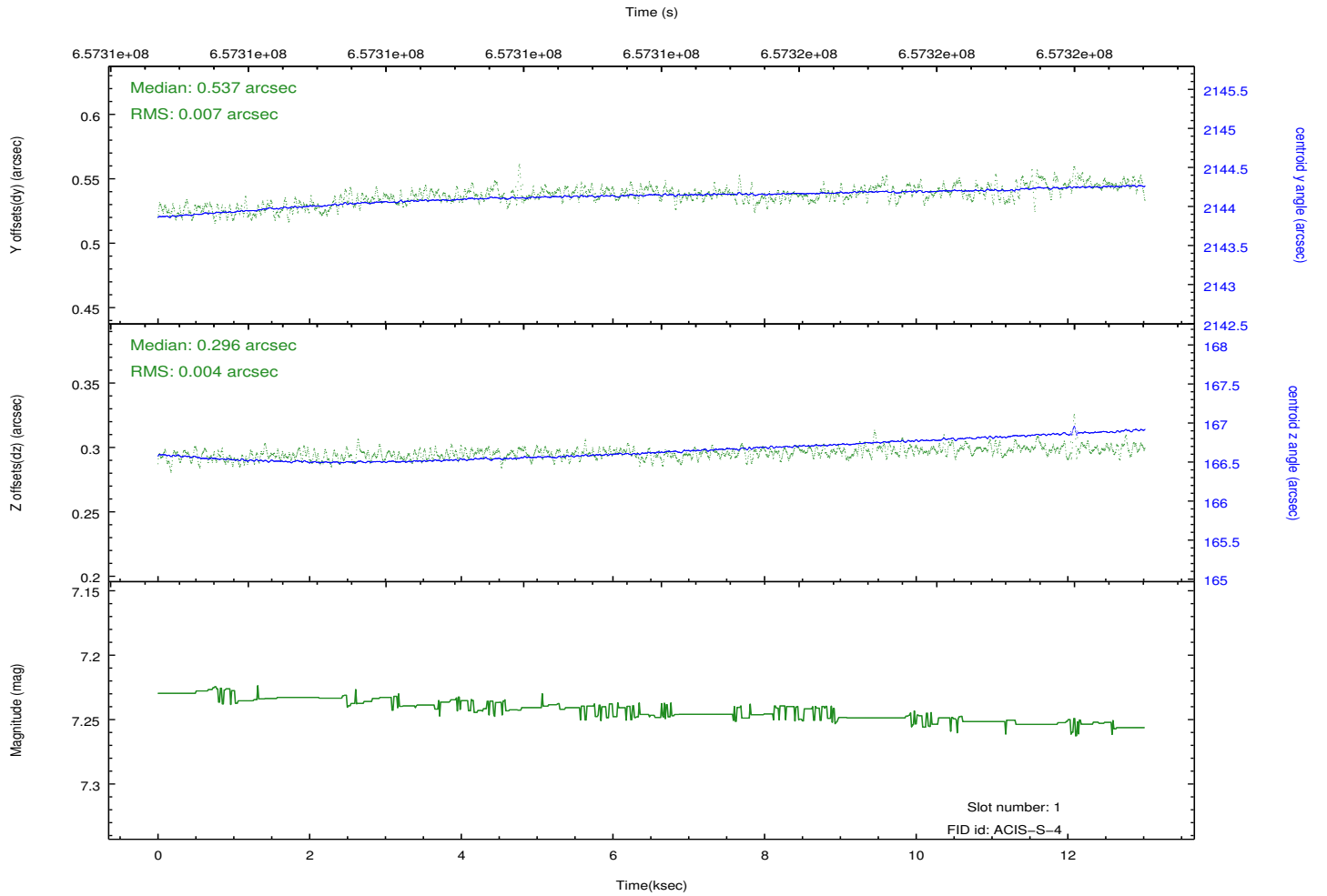
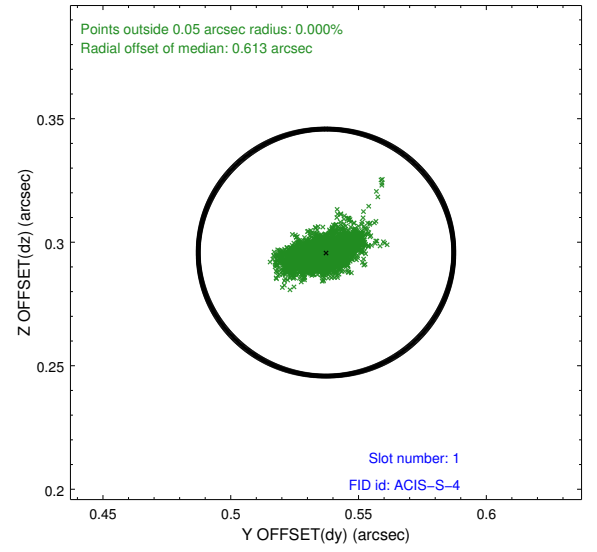
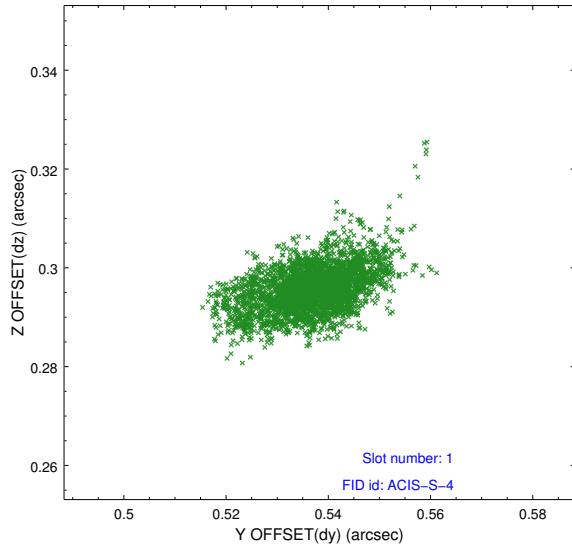


## 2.5 FID Slots

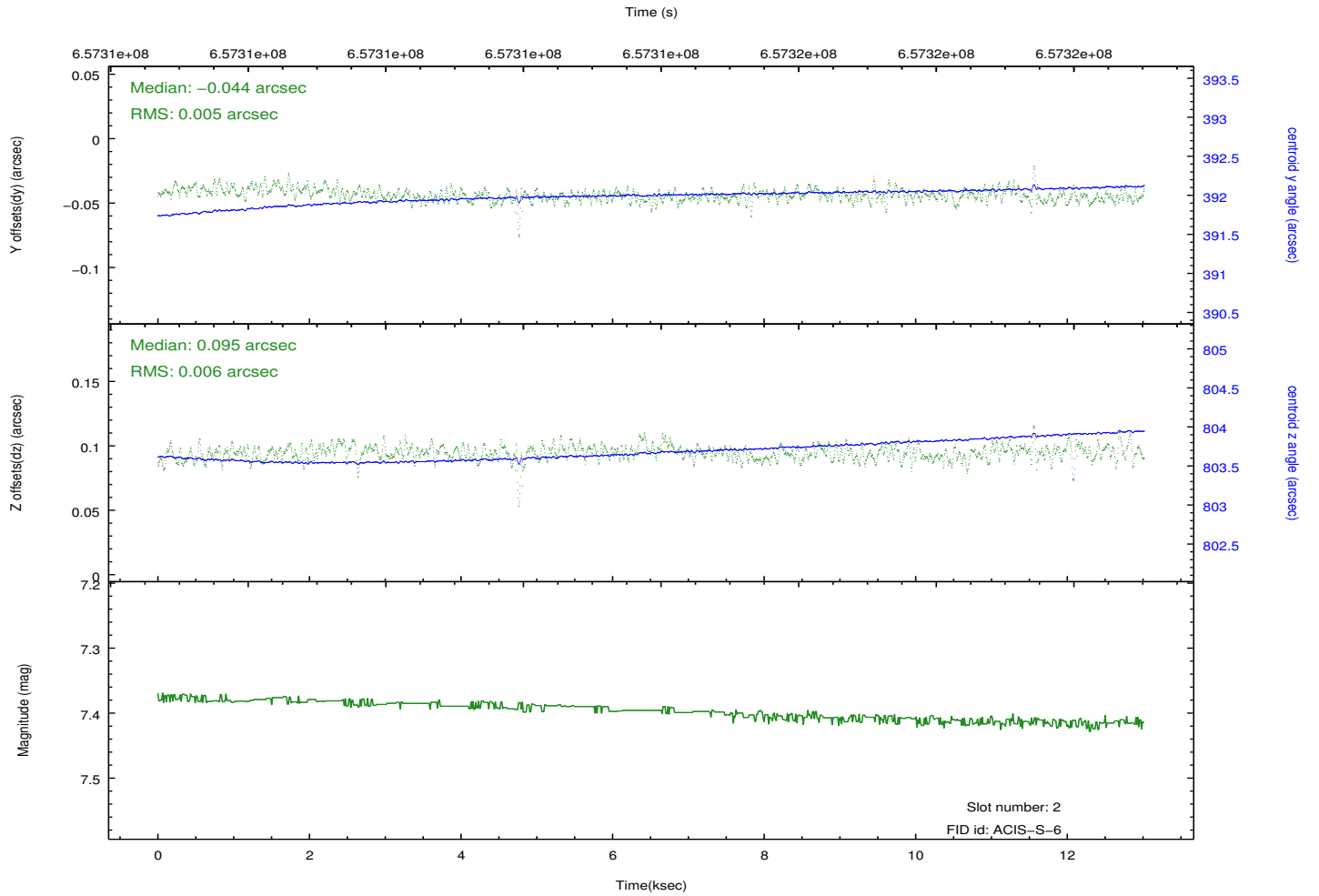
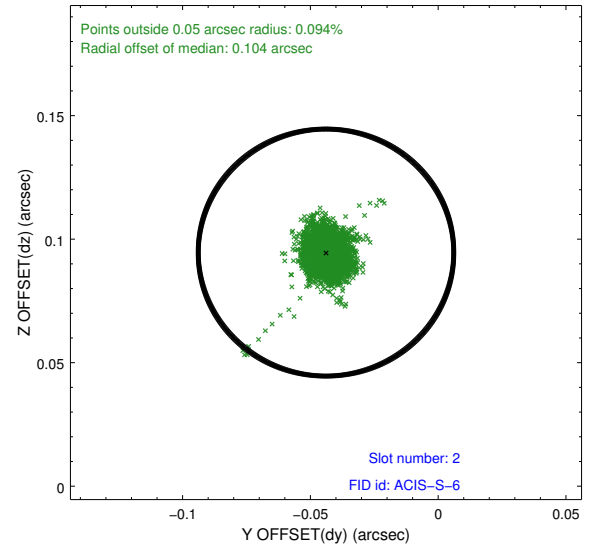
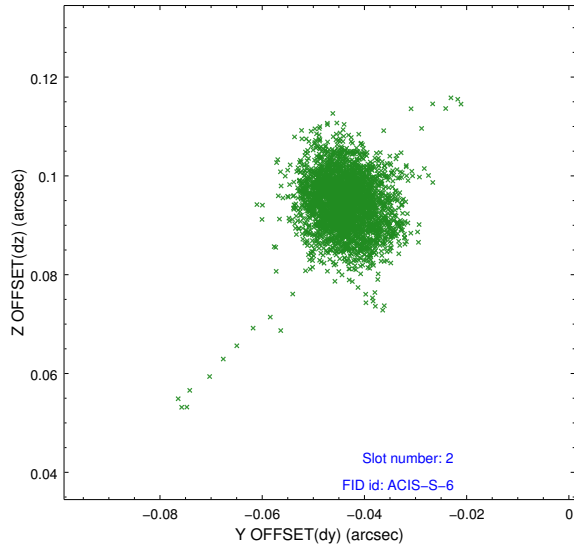
### 2.5.1 Slot 0



## 2.5.2 Slot 1

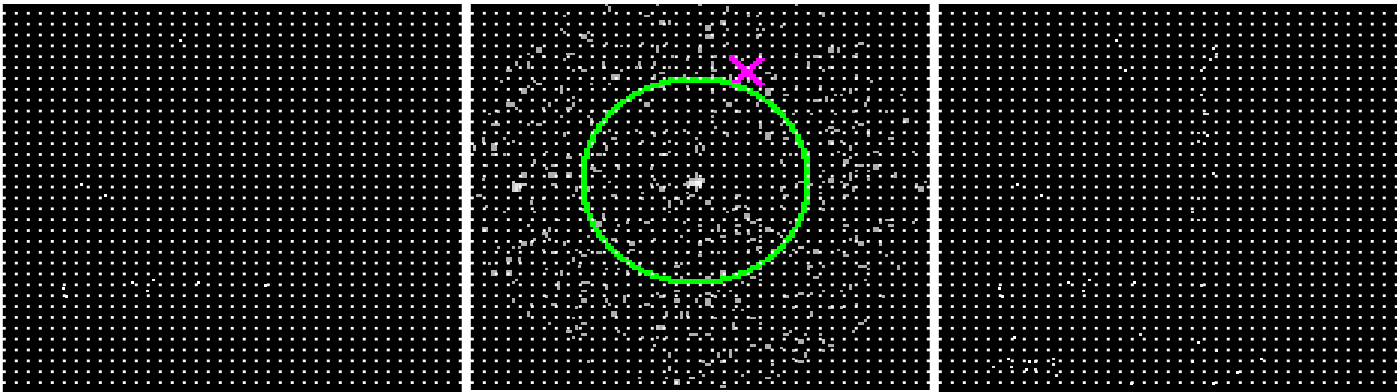


### 2.5.3 Slot 2



# 3 Gratings

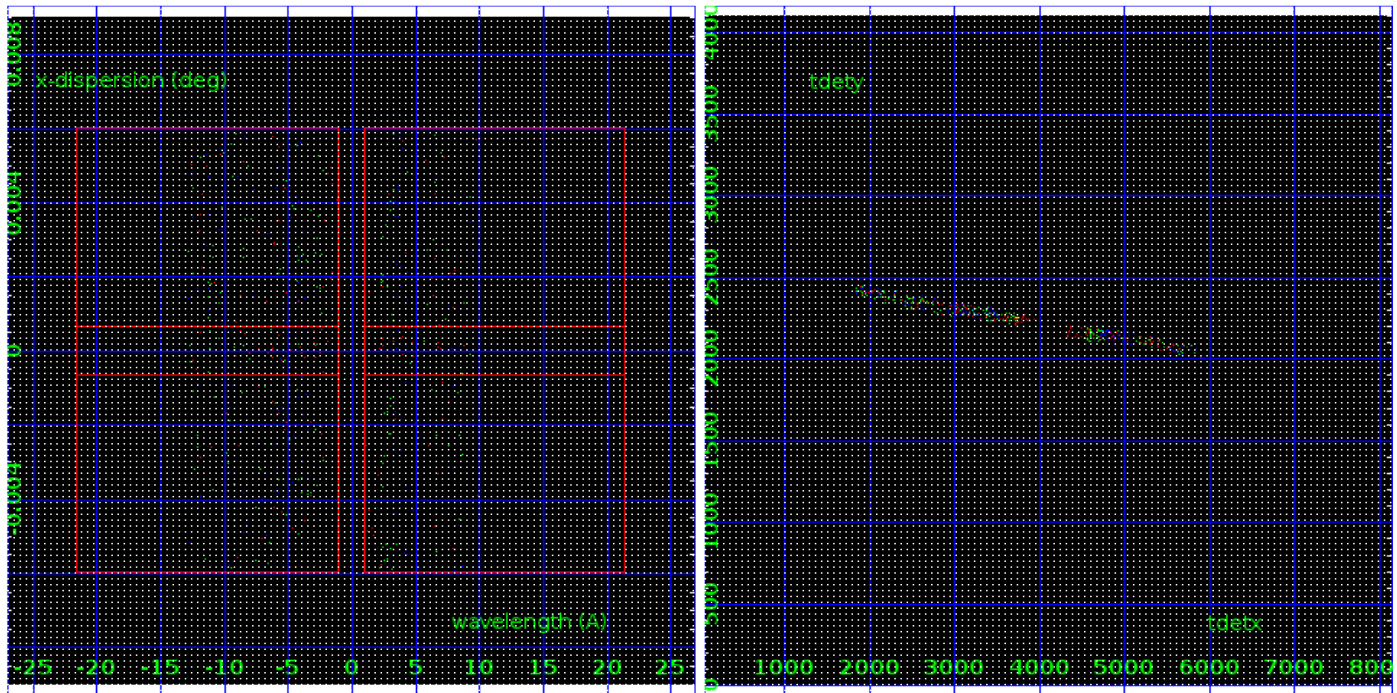
## 3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

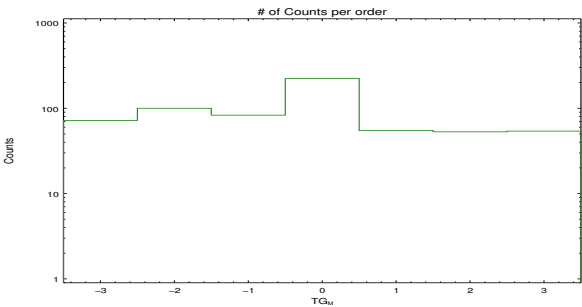
HEG Order Sort ALL

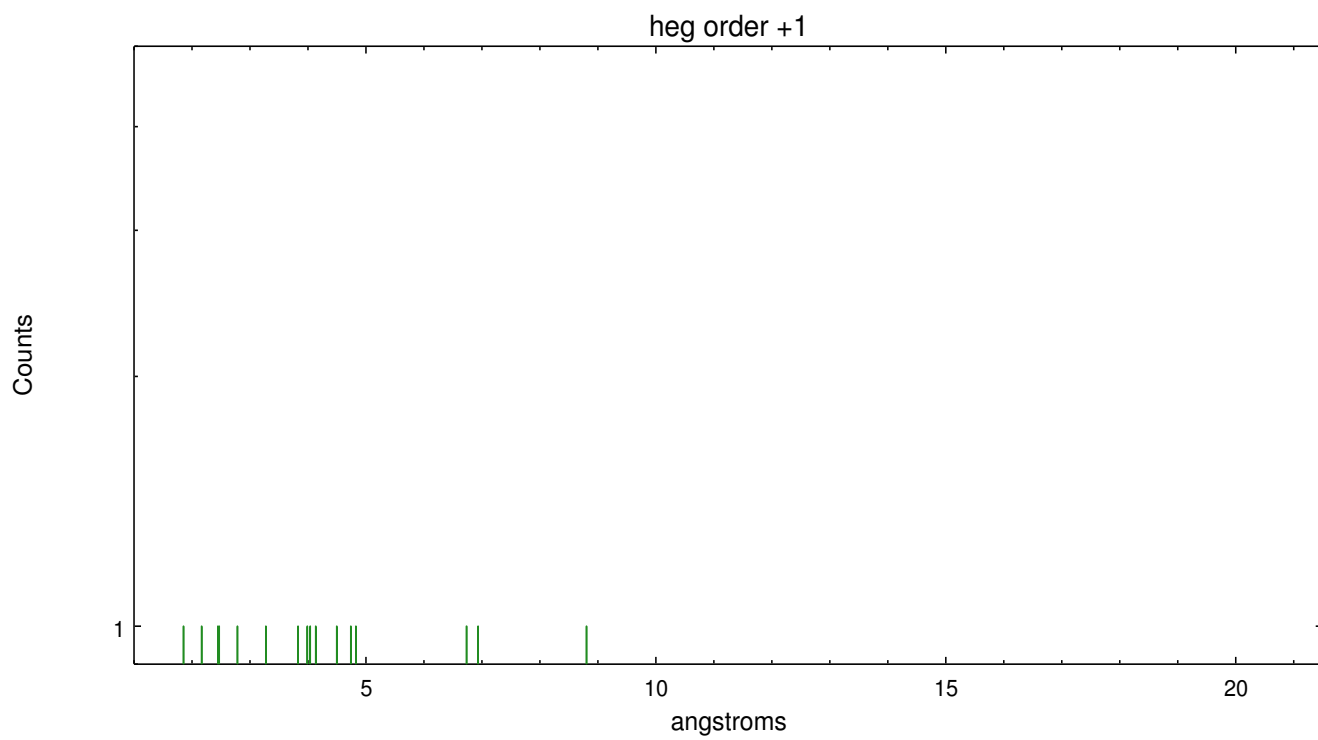
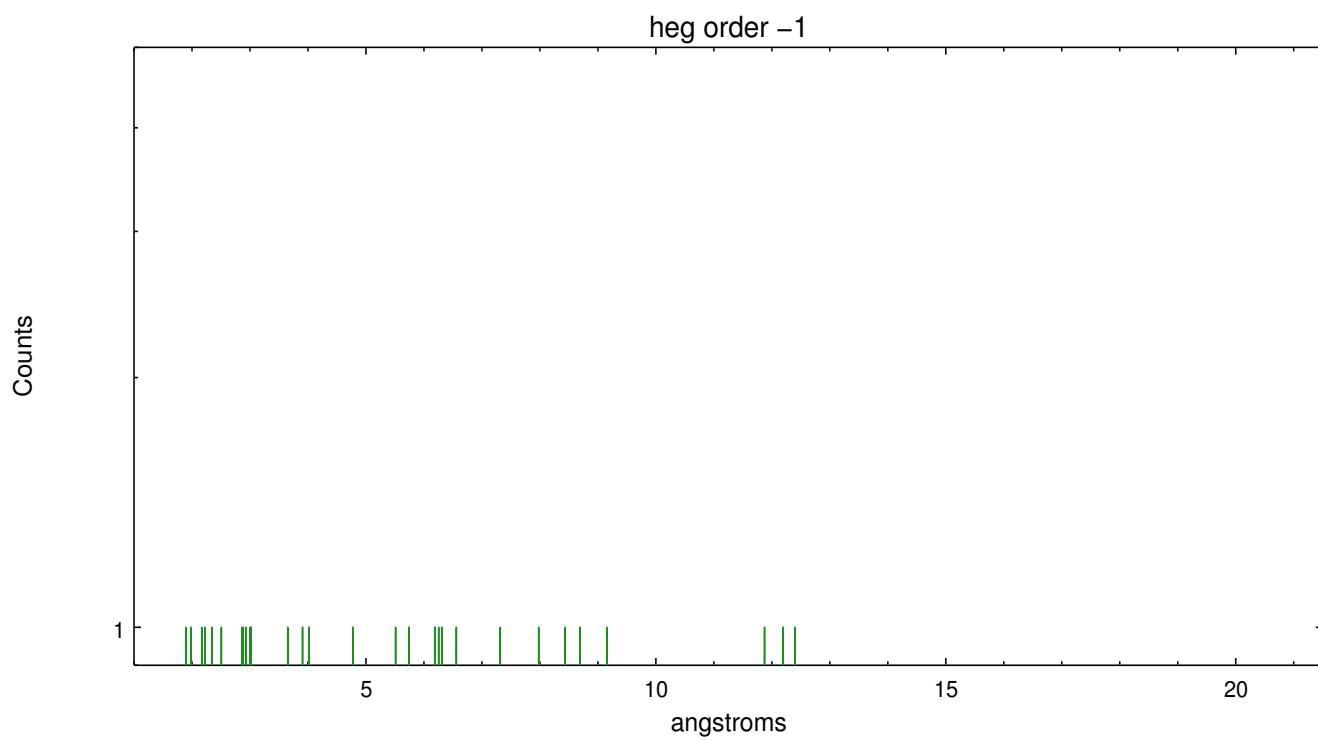


Spot Image HEG

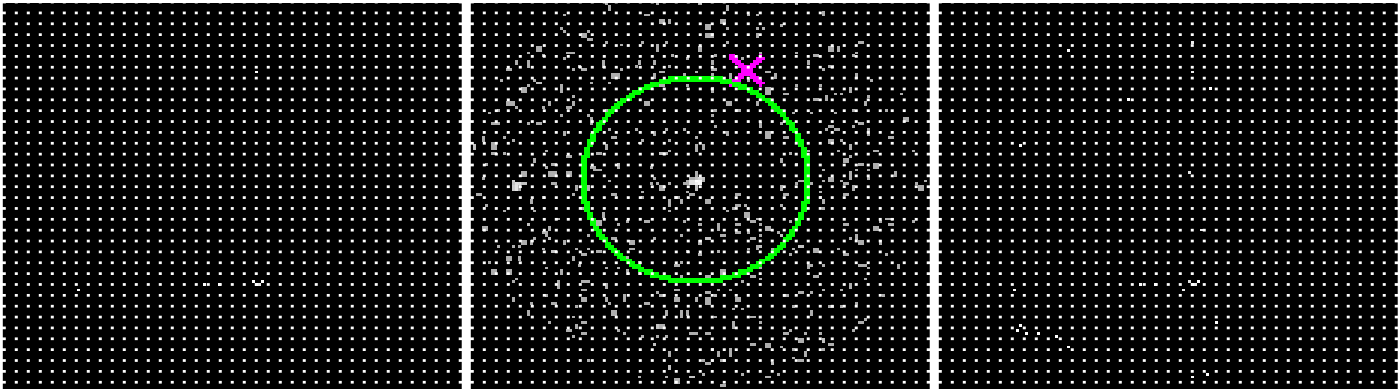
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	72	100	83	224	55	53	54





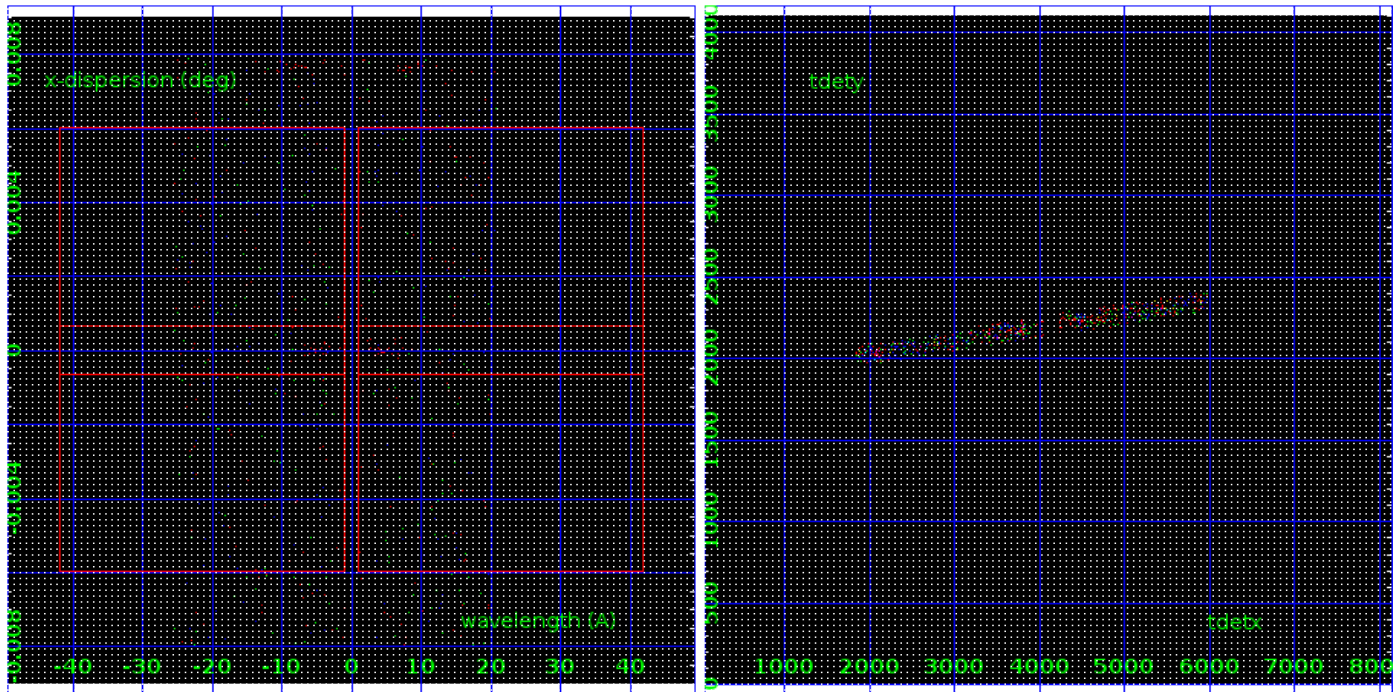
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

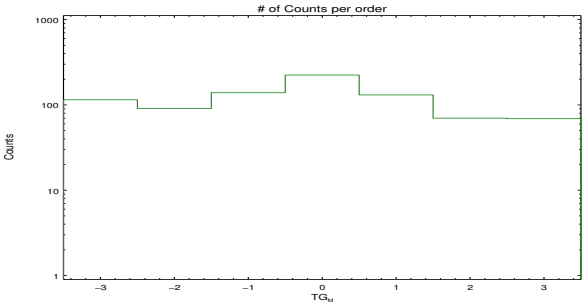
MEG Order Sort ALL

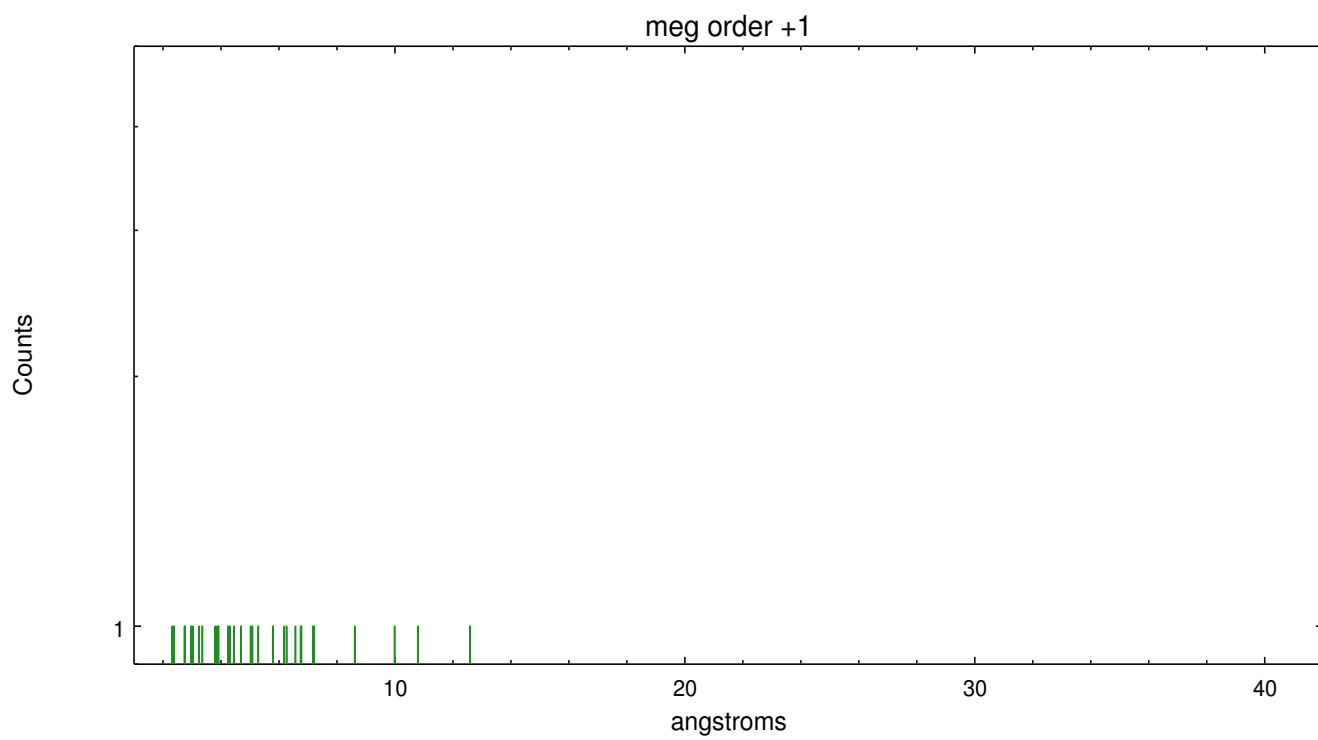
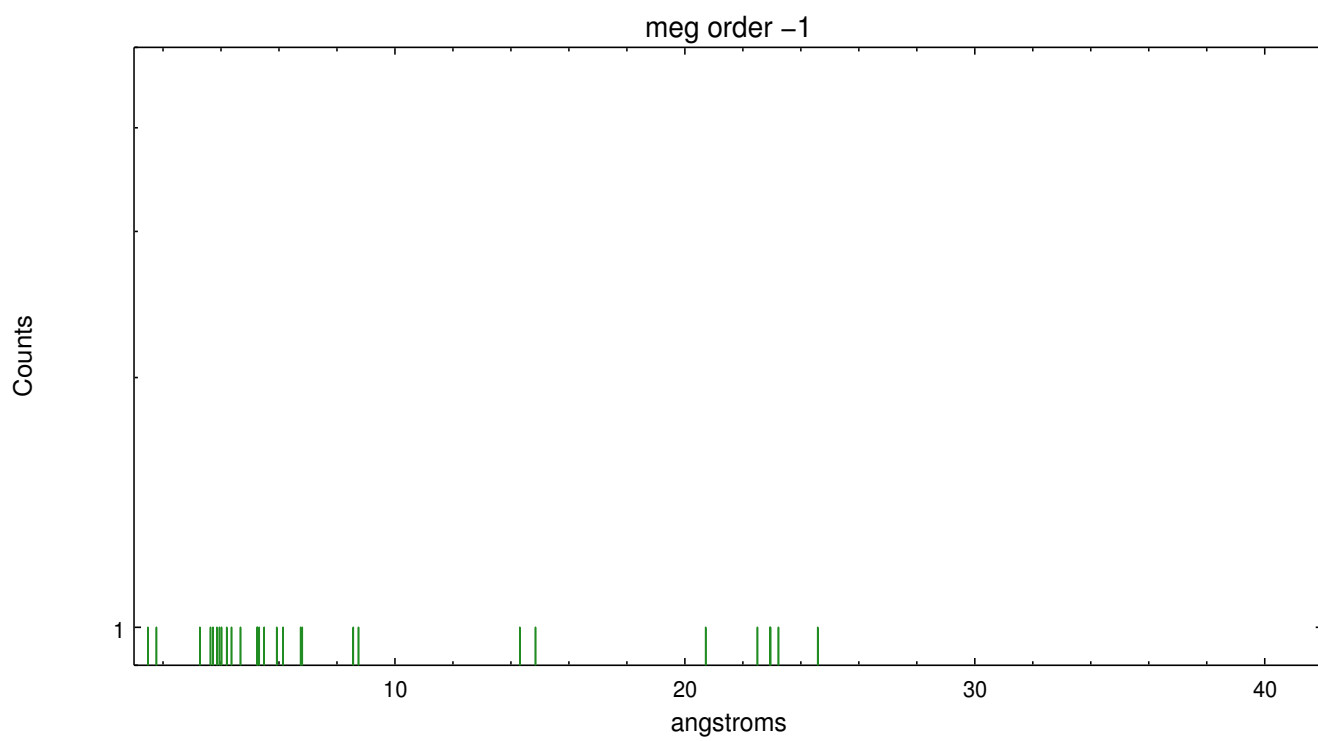


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	115	91	139	224	131	70	69







# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2018.10.31
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	12.154717027903

## A.2 Comments

Standard software processing technique using the tools `tgdetect` and `findzo` could not locate a target near the aim point, because the aimpoint was placed between 2 stars of interest. The star HL Tau was chosen as the source for the spectral extraction in this processing of the data. The zeroth order position was specified manually as the brightest X-ray emission in the source. The investigator will want to verify that the zeroth order position is at the desired position for extraction of the spectrum. The nearby star XZ Tau can also be the source for a spectral extraction using `TGCat` or `CIAO` tools.