

# V&V Reference Report

## L2 ASCDS Version : 8.4.4

Observation 10842 - L2 Version 3  
Chandra X-Ray Center

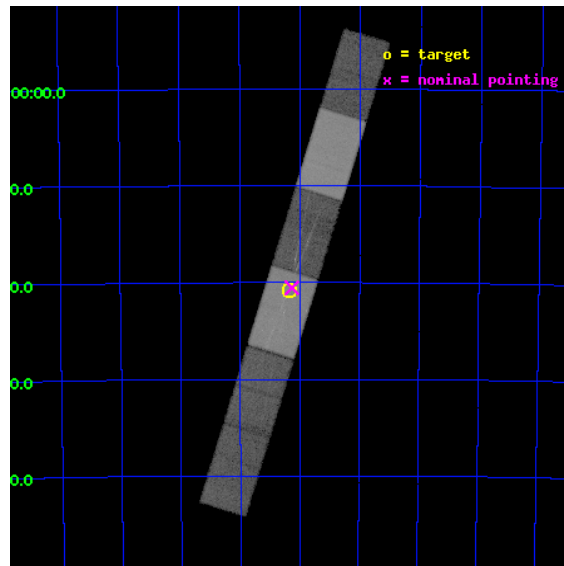
L2 Processing Date : May 30 2012

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# 1 Front

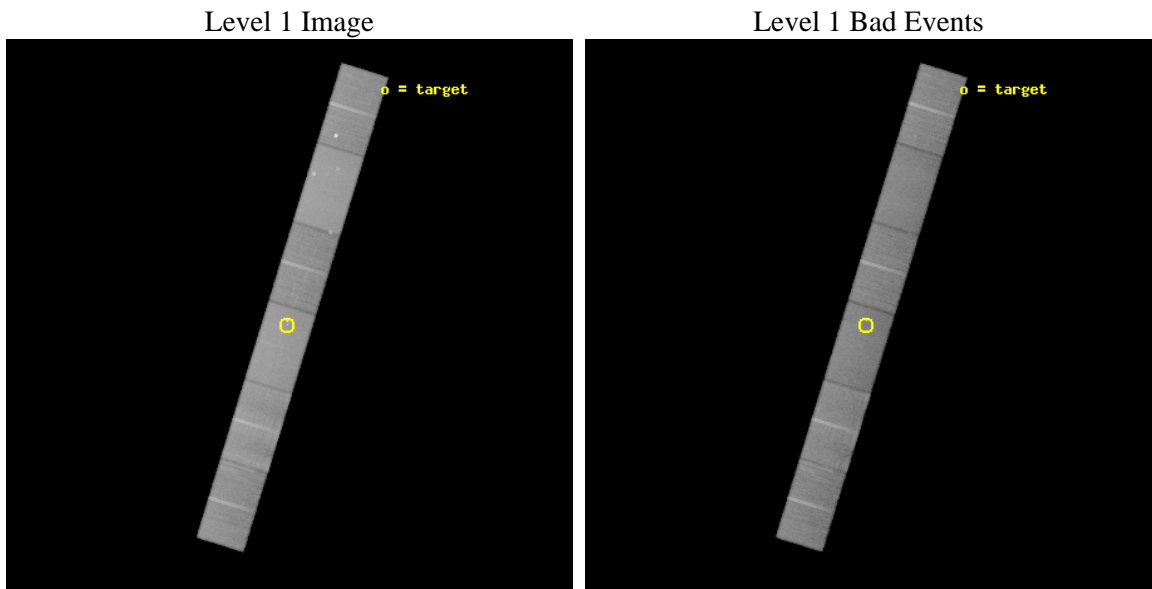
seq_num	501150	Sequence number
obs_id	10842	Observation id
title	A Deep HETG Probe of the CSM Interaction in SN1996cr	Proposal titl
observer	Dr. Franz Bauer	Principal investigator
object	SN1996cr	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	213.291667	Observer's specified target RA [deg]
dec_targ	-65.345694	Observer's specified target Dec [deg]
ra_nom	213.28293595883	Nominal RA [deg]
dec_nom	-65.342511437832	Nominal Dec [deg]
roll_nom	107.14867895318	Nominal Roll [deg]
revision	3	Processing version of data
ontime	37497.958959758	Sum of GTIs [s]
livetime	36743.972641162	Livetime [s]
ontime4	37500.0	Sum of GTIs [s]
ontime5	37500.0	Sum of GTIs [s]
ontime6	37500.0	Sum of GTIs [s]
ontime7	37497.958959758	Sum of GTIs [s]
ontime8	37497.958979785	Sum of GTIs [s]
ontime9	37495.917959511	Sum of GTIs [s]
l2events	407516	Number of level 2 events



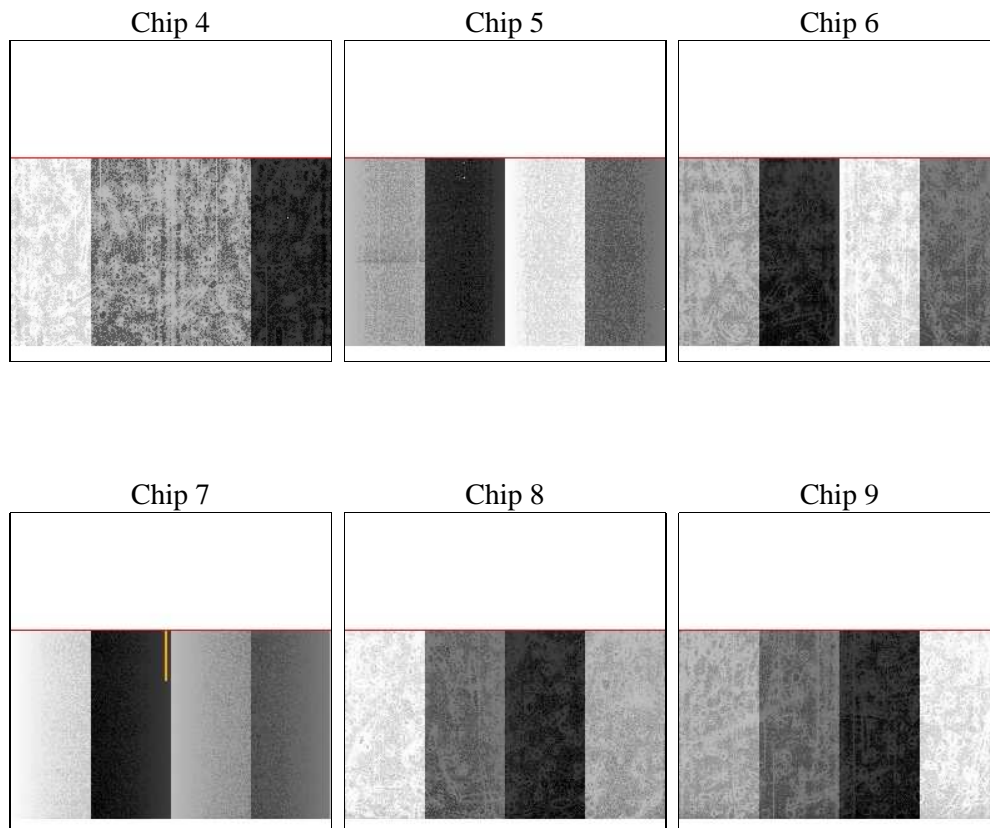
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	37341.681000	[s] Scheduled observation exposure time
ascdsver	8.4.4	Processing system revision	ontime	37497.958959758	Sum of GTIs [s]
caldbver	4.4.9	&#160	ontime4	37500.0	Sum of GTIs [s]
date	2012-05-29T15:07:10	Date and time of file creation	ontime5	37500.0	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	37500.0	Sum of GTIs [s]
			ontime7	37497.958959758	Sum of GTIs [s]
			ontime8	37497.958979785	Sum of GTIs [s]
			ontime9	37495.917959511	Sum of GTIs [s]
			l1events	1739345	Number of level 1 events

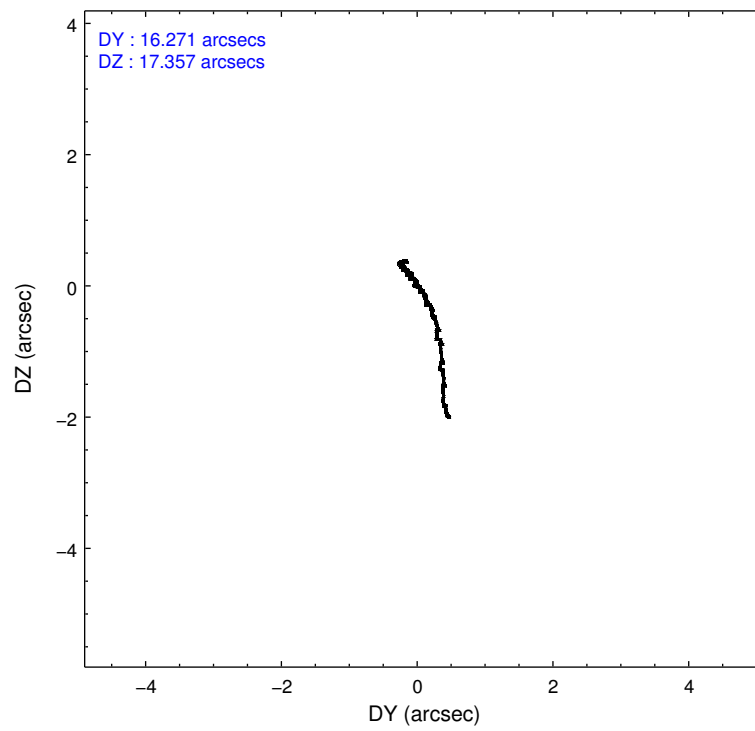
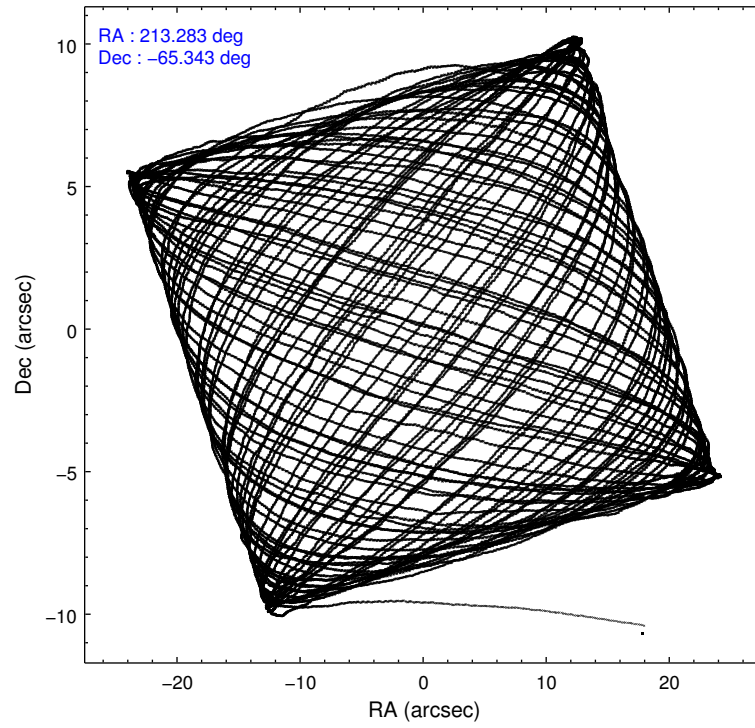
### 2.1.4 Events

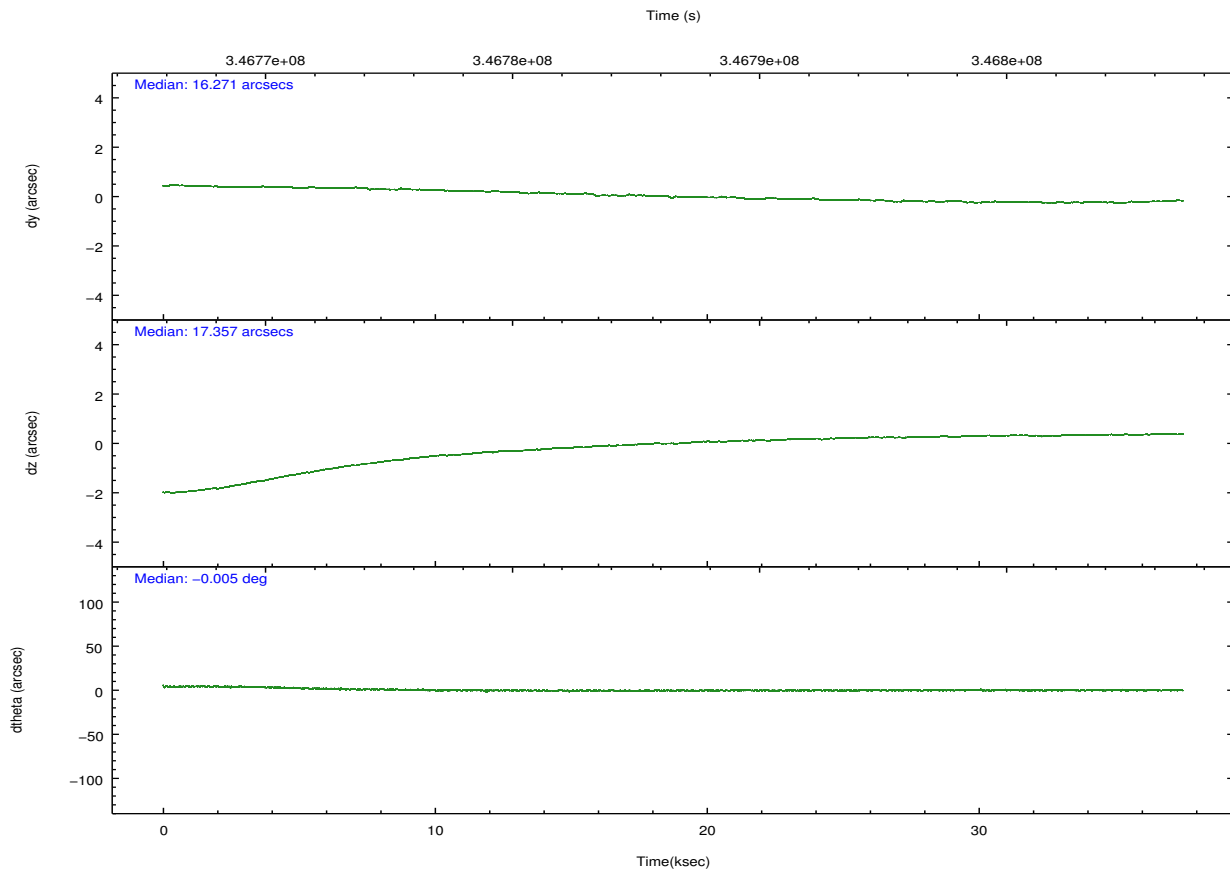
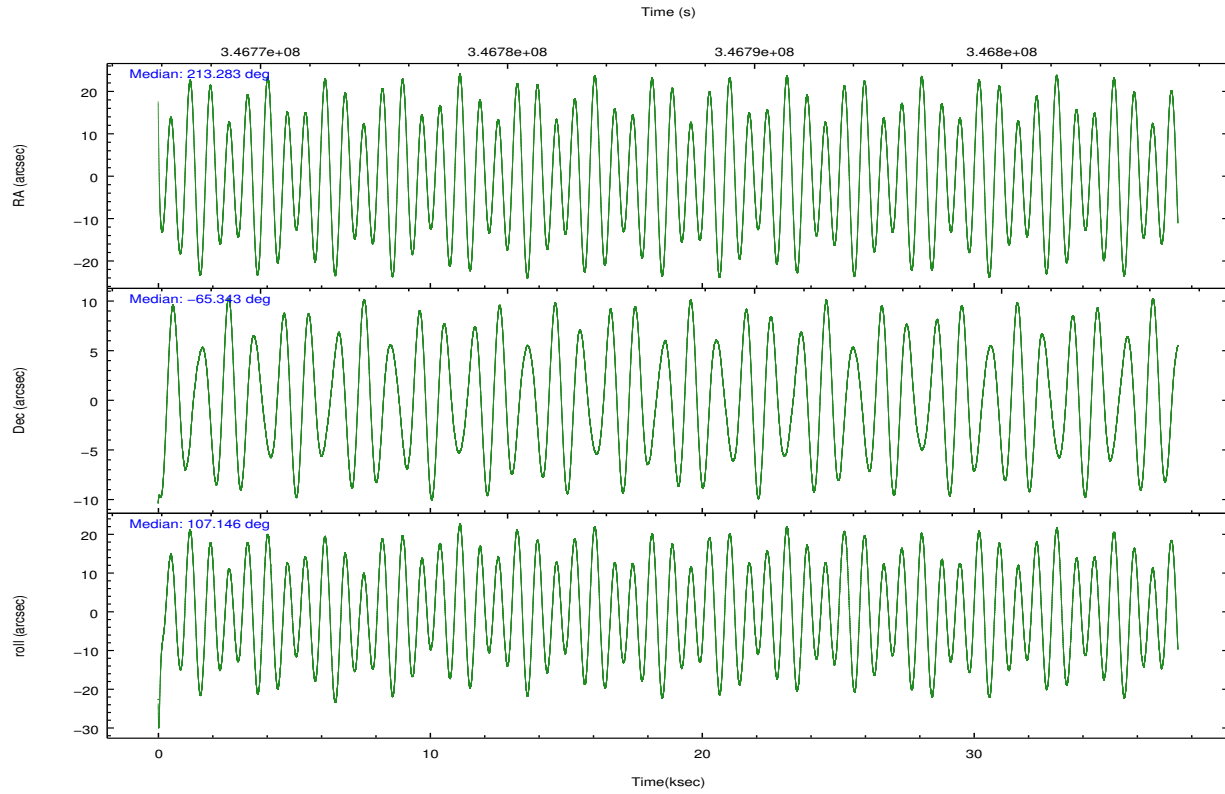
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	267717	362069	236725	332268	305988	234578	grade 0 events	21894	17426	13236	14313	22745	12347
rejected events	227850	195728	204942	187325	233584	204540		8%	4%	5%	4%	7%	5%
rejected %	85%	54%	86%	56%	76%	87%	grade 1 events	234	725	104	373	195	127
								0%	0%	0%	0%	0%	0%
							grade 2 events	7005	49555	6625	30907	16653	6216
								2%	13%	2%	9%	5%	2%
							grade 3 events	3320	7913	3216	13435	7923	3179
								1%	2%	1%	4%	2%	1%
							grade 4 events	3165	7706	3197	13415	7402	3146
								1%	2%	1%	4%	2%	1%
							grade 5 events	10739	27425	10840	30380	14813	11618
								4%	7%	4%	9%	4%	4%
							grade 6 events	5249	87113	6077	75315	18763	5669
								1%	24%	2%	22%	6%	2%
							grade 7 events	216111	164206	193430	154130	217494	192276
								80%	45%	81%	46%	71%	81%

## 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	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	213.331601	213.2829359588289	CCD I2 on	N	N
[deg] Pointing Dec	-65.360830	-65.34251143783197	CCD I3 on	N	N
[deg] Pointing Roll	107.036301	107.1486789531794	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	-186.132523	-186.1397904050899	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-4	-3.992732177917873	CCD S4 on	Y	Y
[s] Observation start time (MET)	346767895.184000	346766671.11597	CCD S5 on	Y	Y
Observation start date	2008-12-27T12:23:50	2008-12-27T12:04:31	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	346805236.184000	346805455.06789	On-chip summing requested	N	N
Observation end date	2008-12-27T22:46:11	2008-12-27T22:50:55	Subarray requested	CUSTOM	CUSTOM
Read mode	TIMED	TIMED	Subarray start row	50	50
			Subarray row count	600	600
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	2

## 2.3 Aspect





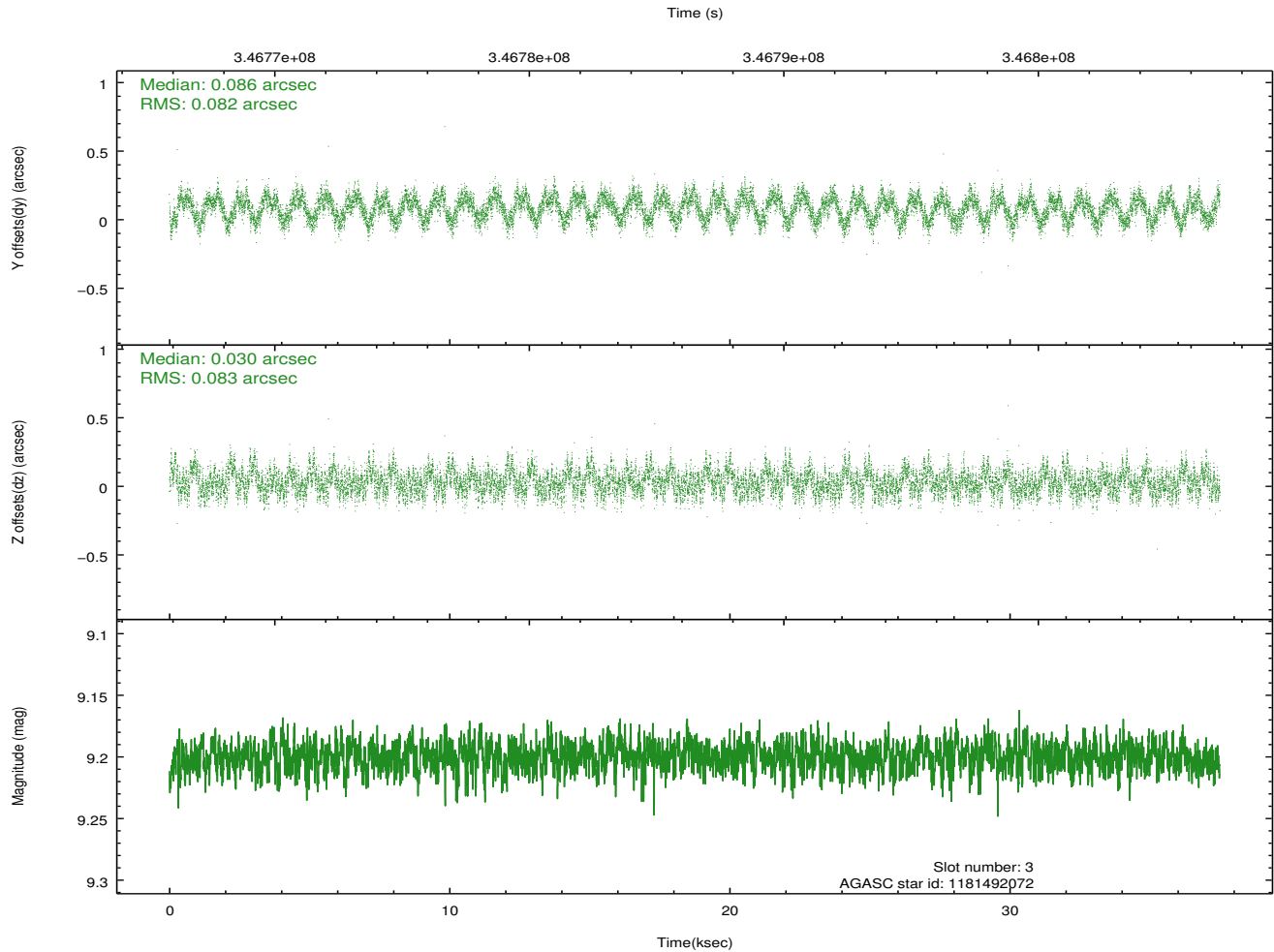
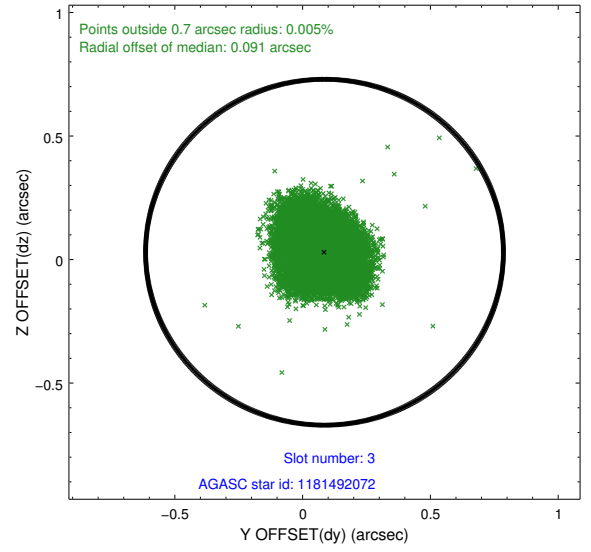
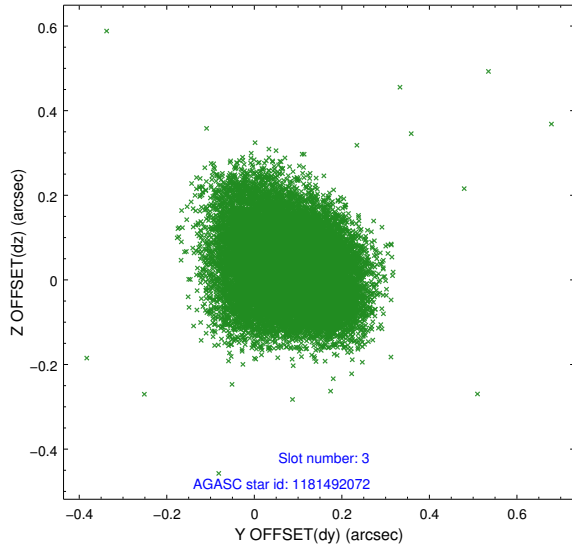
### Slot Statistics

slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.95	9147	-0.116	-0.041	0.014	0.063	0.000000	0.000000	-769.13	-1820.96
1	FID	ACIS-S-4	7.02	9146	0.175	0.066	0.021	0.030	0.000000	0.000000	2144.40	87.64
2	FID	ACIS-S-5	7.06	9146	-0.102	-0.019	0.017	0.057	0.000000	0.000000	-1821.95	81.20
3	GUIDE	1181492072	9.20	18274	0.086	0.030	0.125	0.197	214.479575	-65.592809	-1313.17	-1383.18
4	GUIDE	1181492872	9.09	18274	0.108	0.144	0.110	0.175	214.965330	-65.517798	-1284.08	-2154.87
5	GUIDE	1181888328	9.11	18261	0.135	-0.069	0.083	0.136	213.100875	-66.006078	-2122.28	1003.84
6	GUIDE	1181362720	8.23	18288	-0.243	-0.280	0.060	0.097	212.359703	-64.776136	2438.35	812.54
7	GUIDE	1181356824	8.94	18279	-0.082	0.164	0.102	0.168	213.100076	-64.682630	2438.61	-373.67

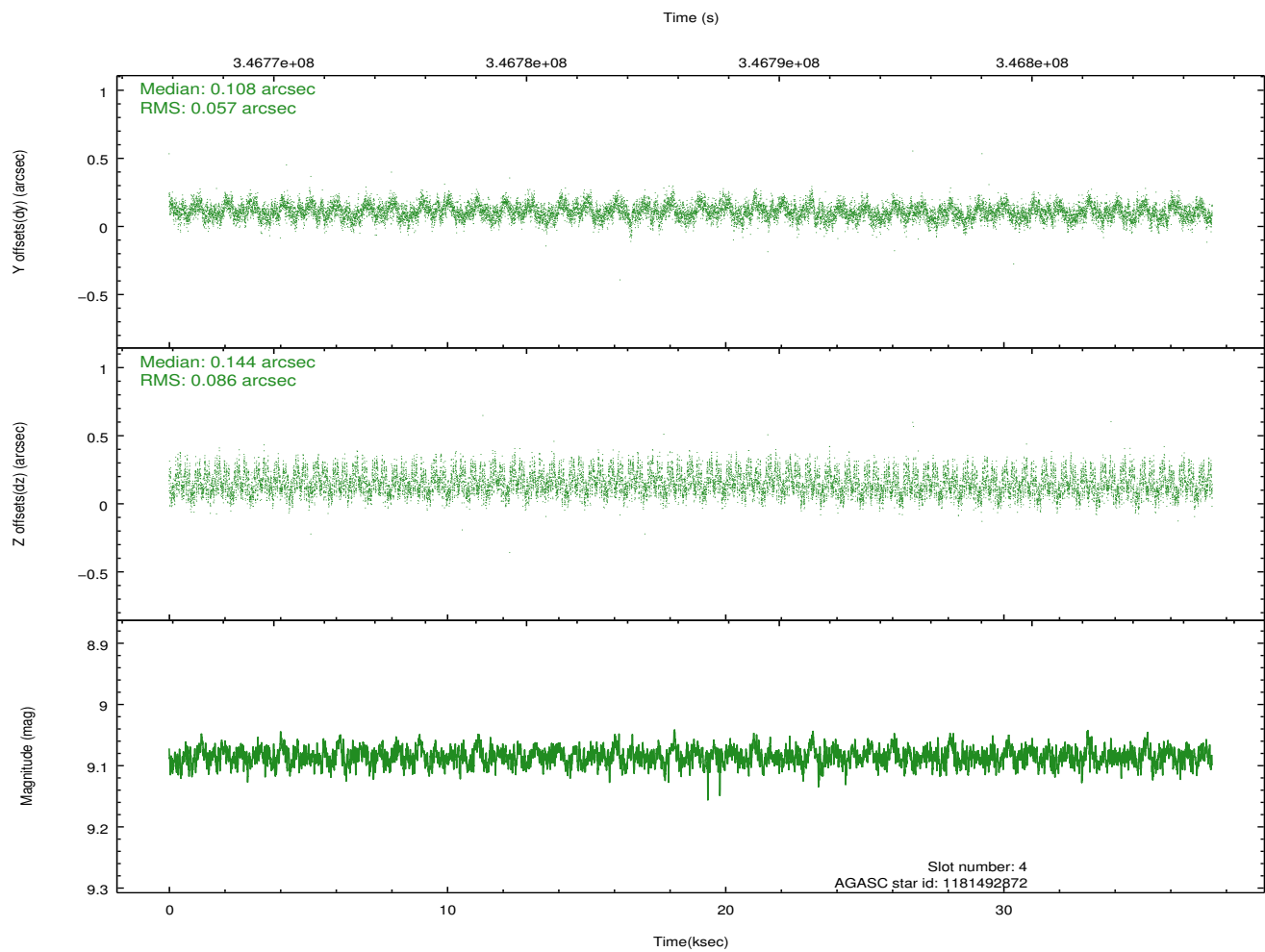
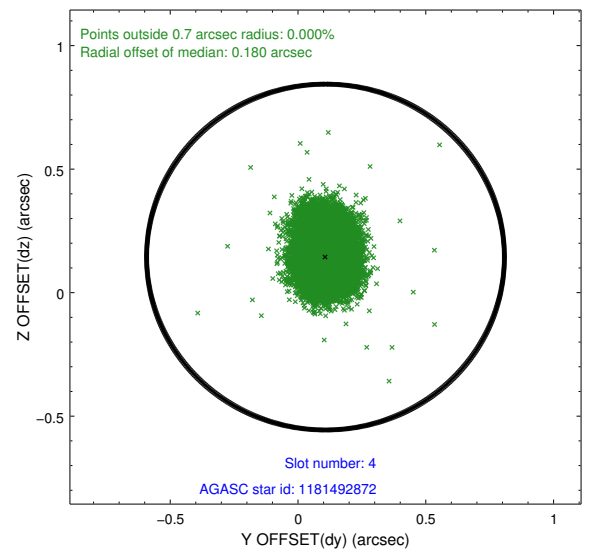
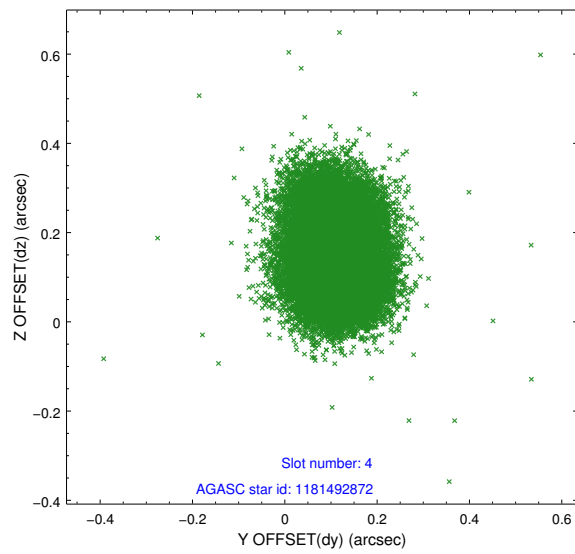
∞

## 2.4 Star Slots

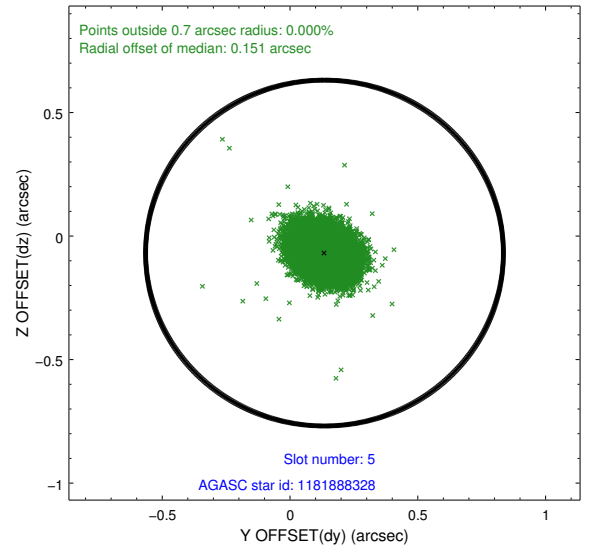
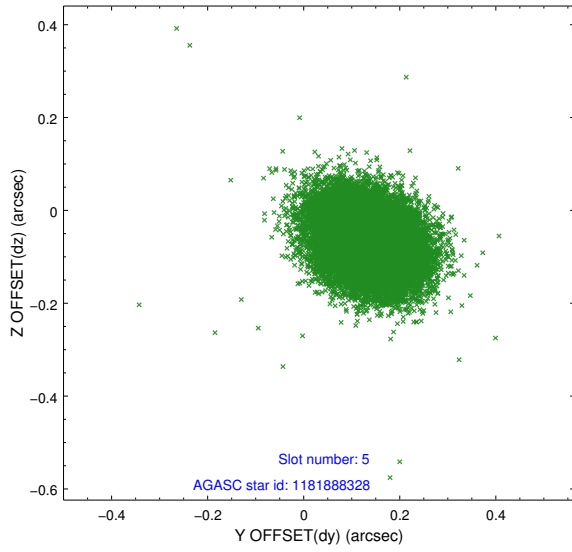
### 2.4.1 Slot 3



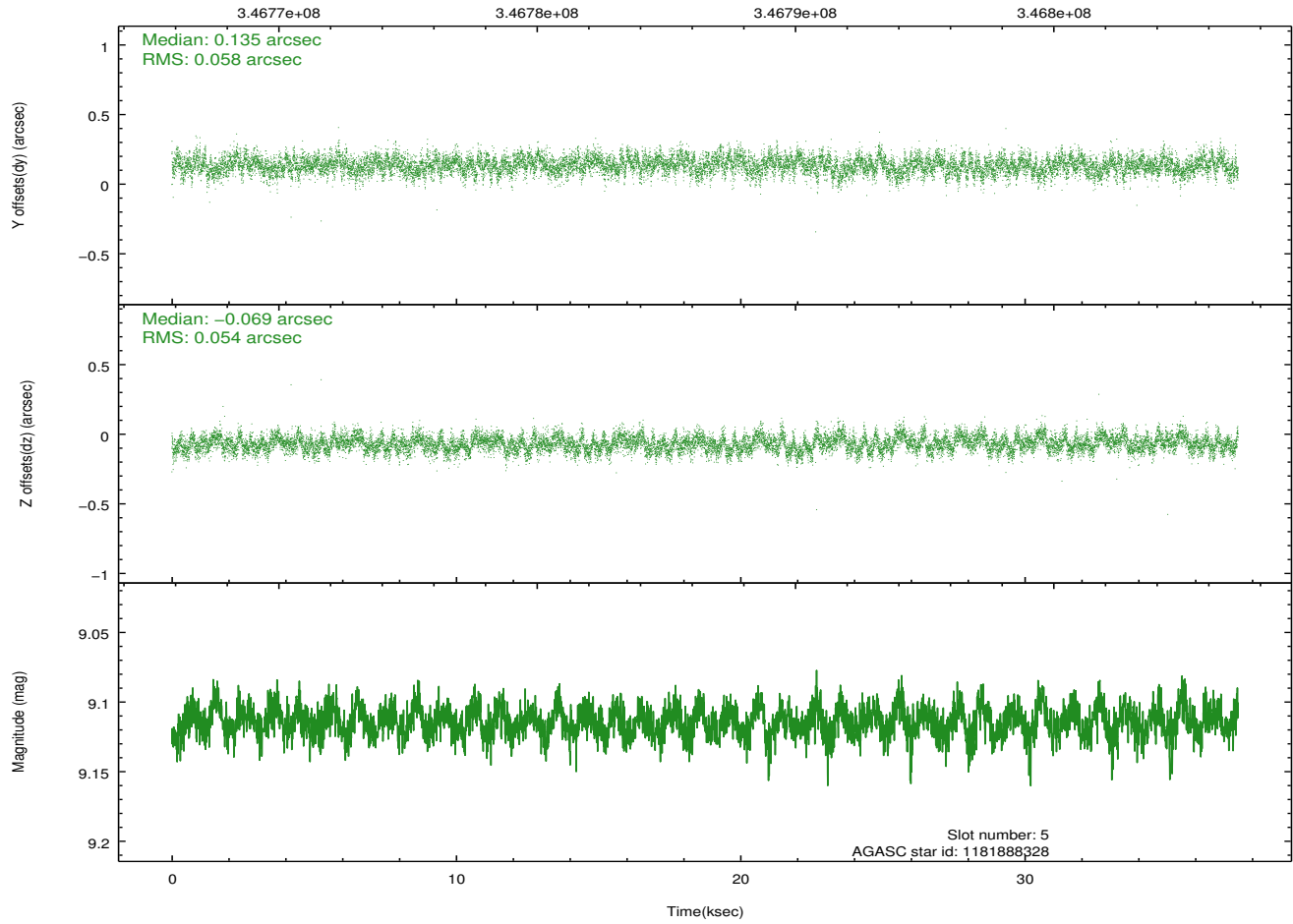
## 2.4.2 Slot 4



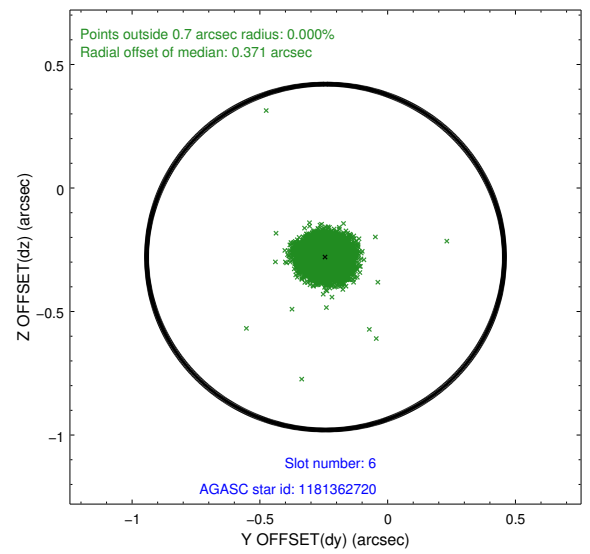
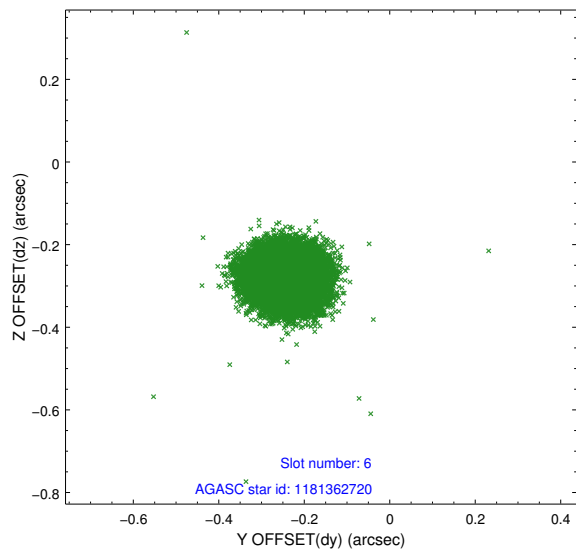
### 2.4.3 Slot 5



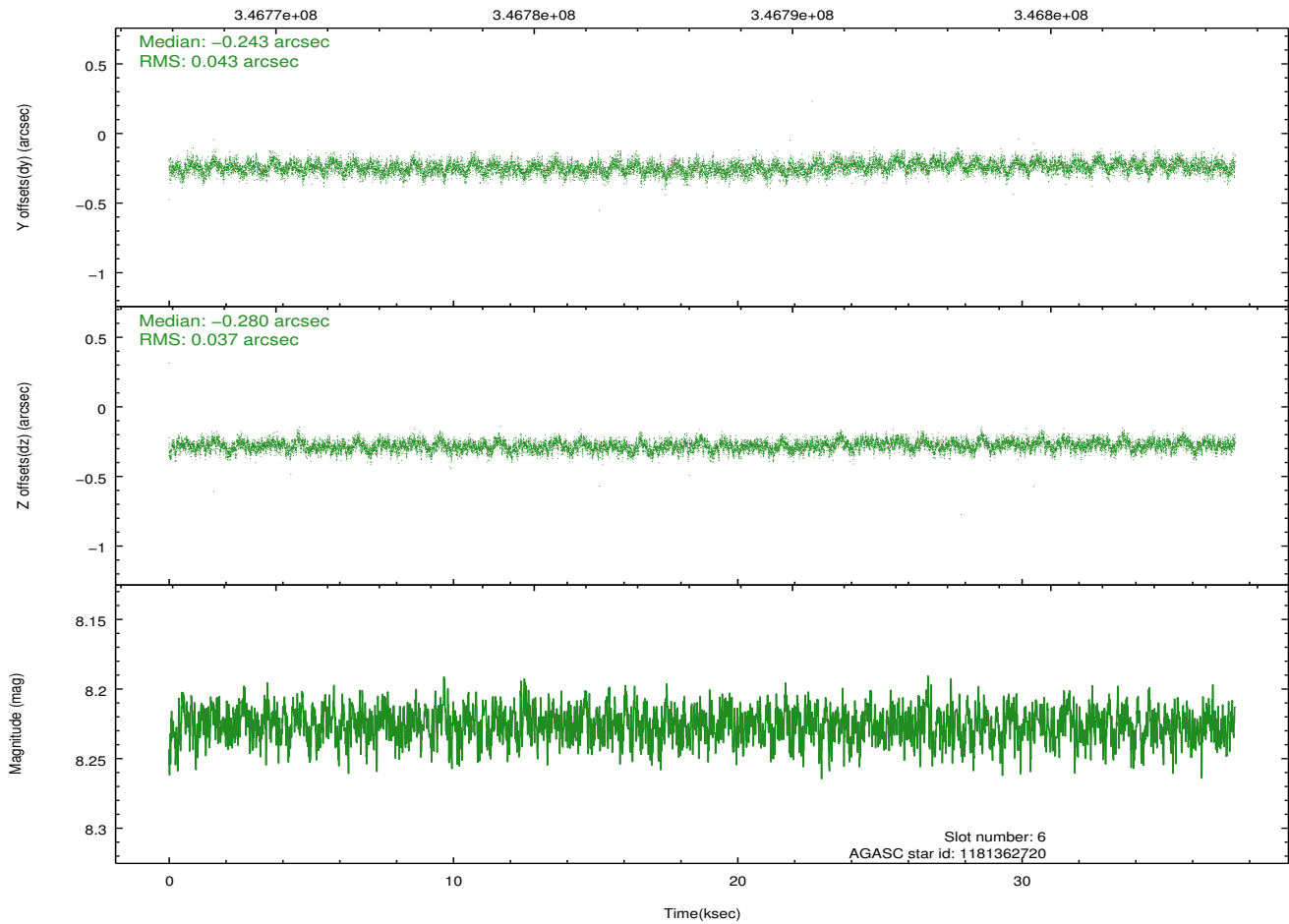
Time (s)



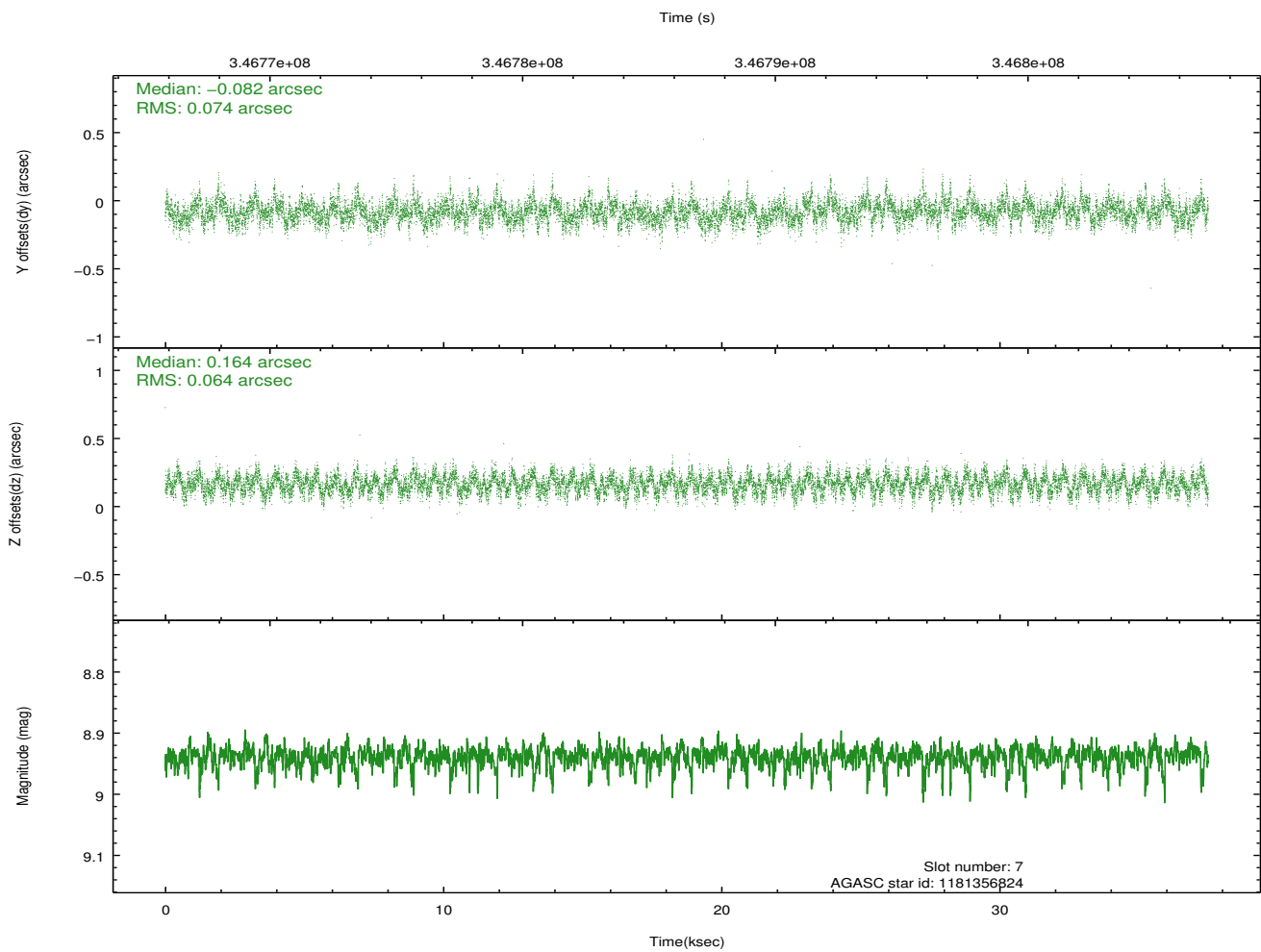
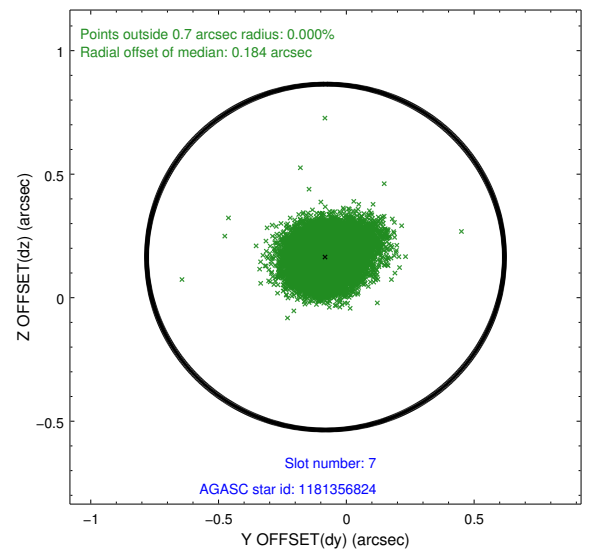
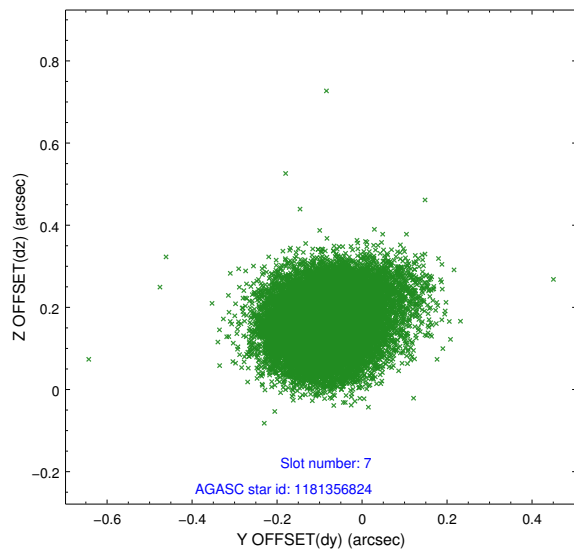
## 2.4.4 Slot 6



Time (s)

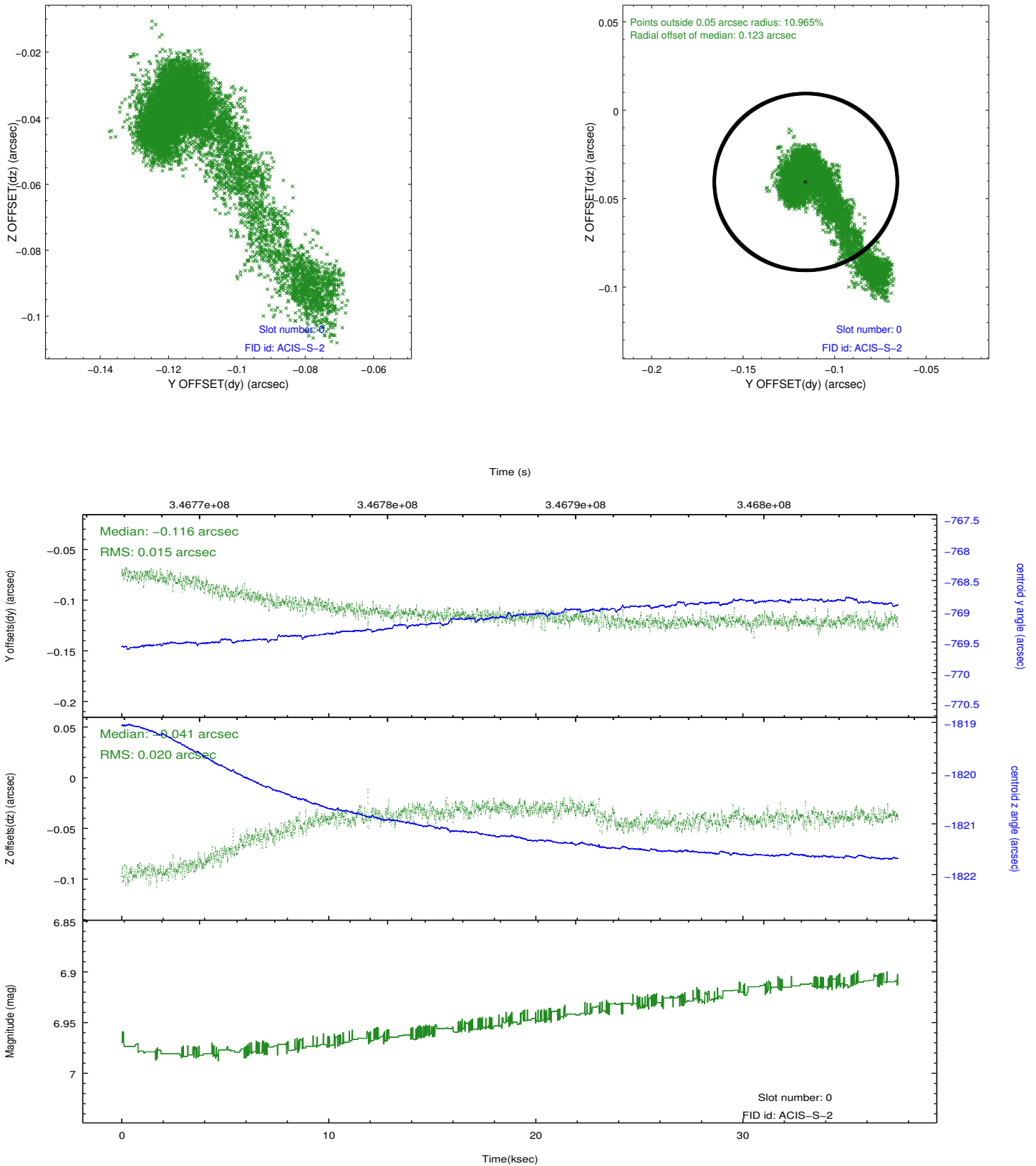


## 2.4.5 Slot 7

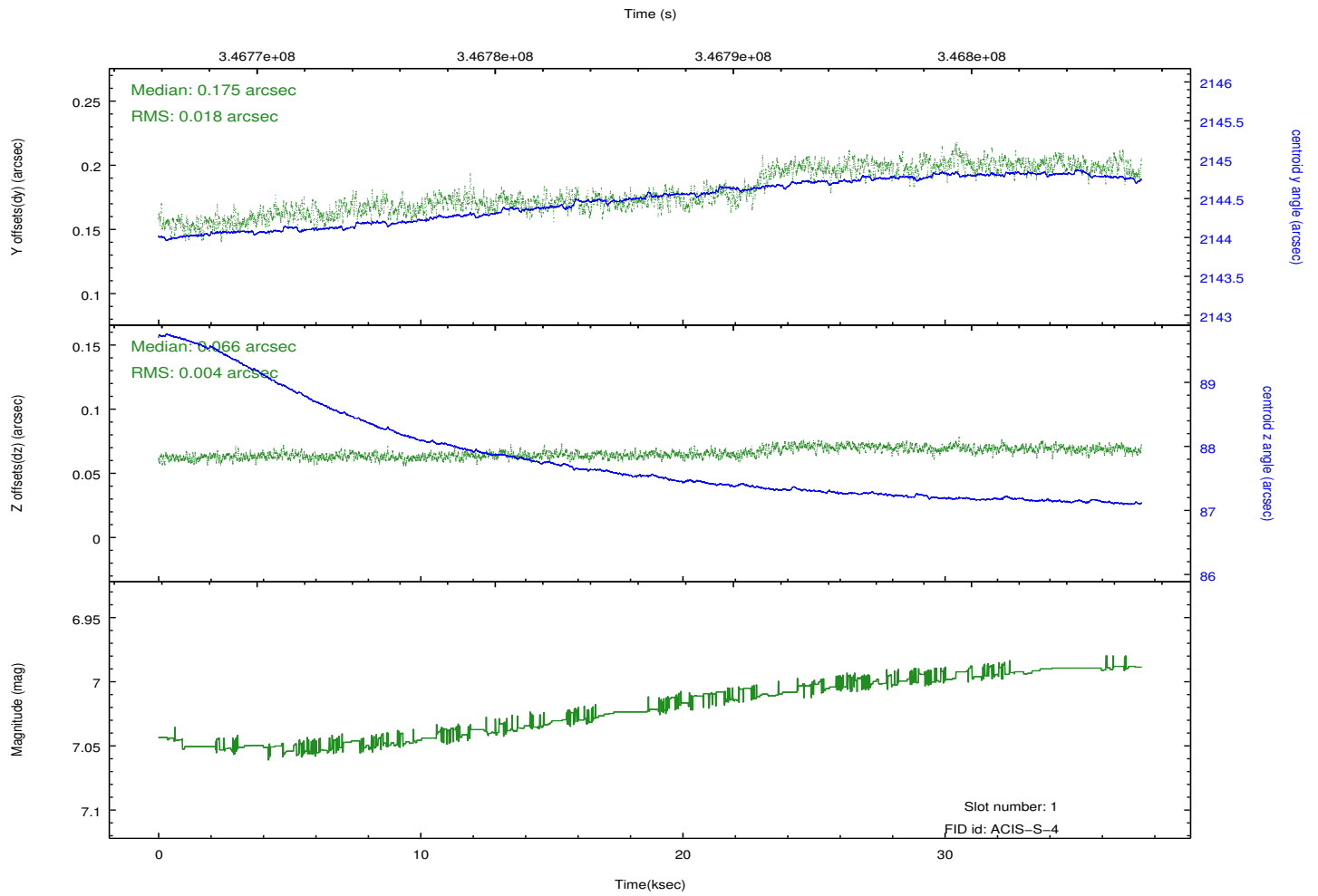
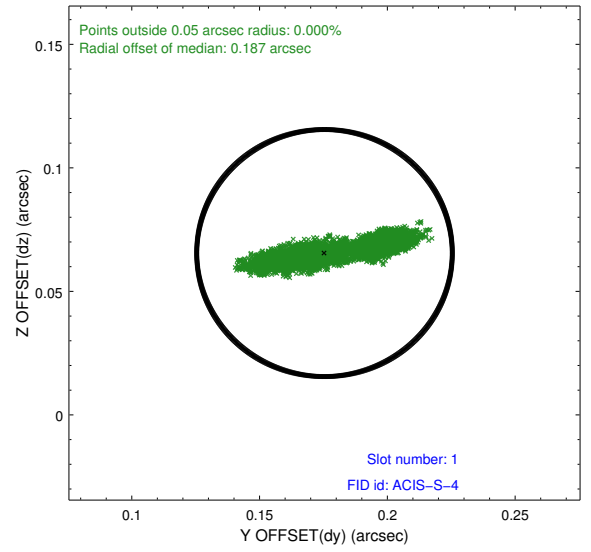
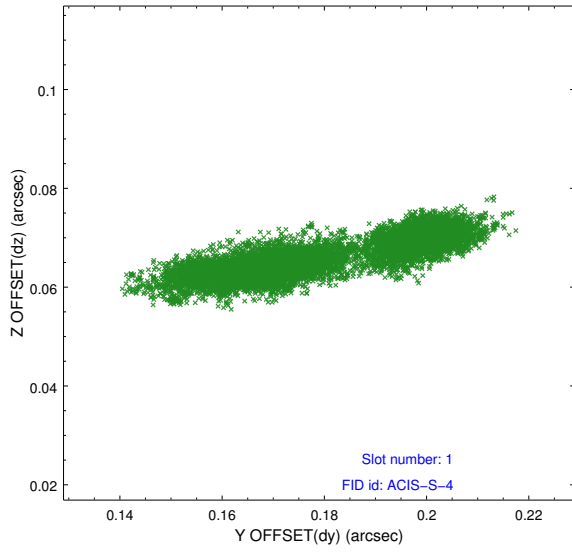


## 2.5 FID Slots

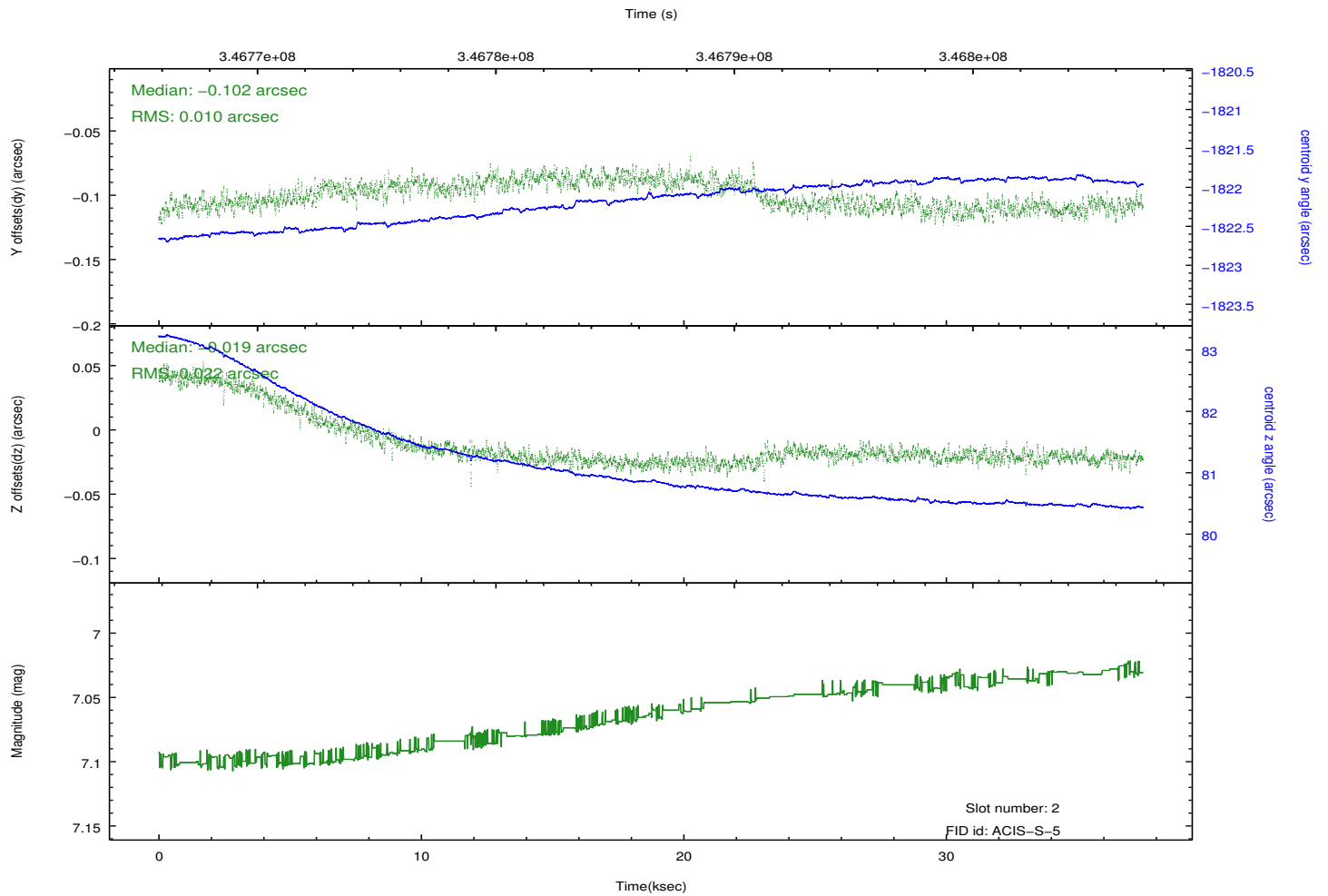
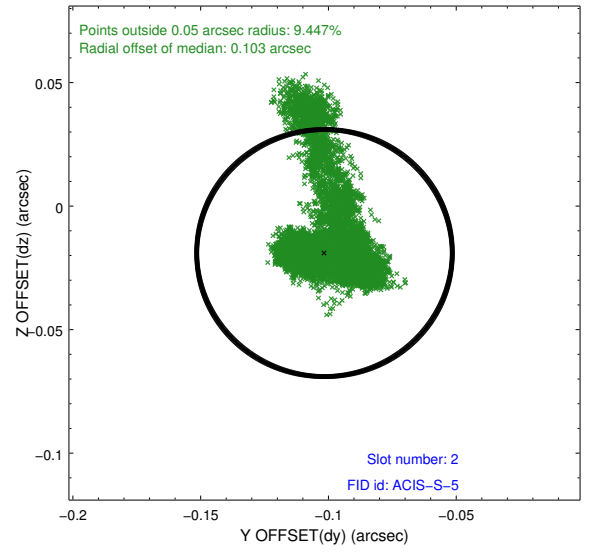
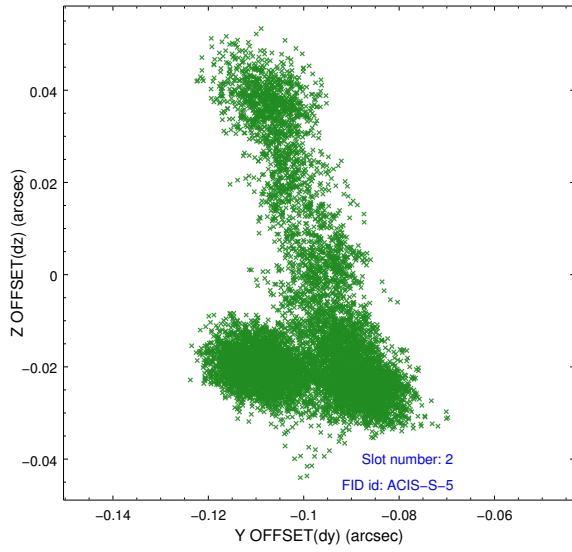
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

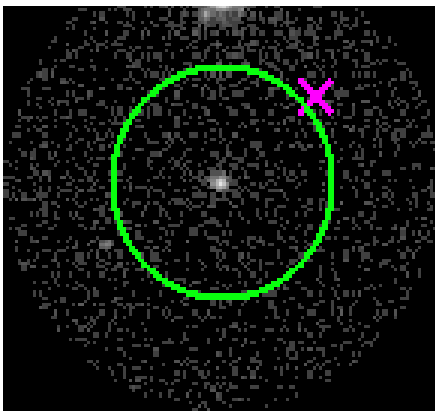


### 3 Gratings

#### 3.1 HEG Arm



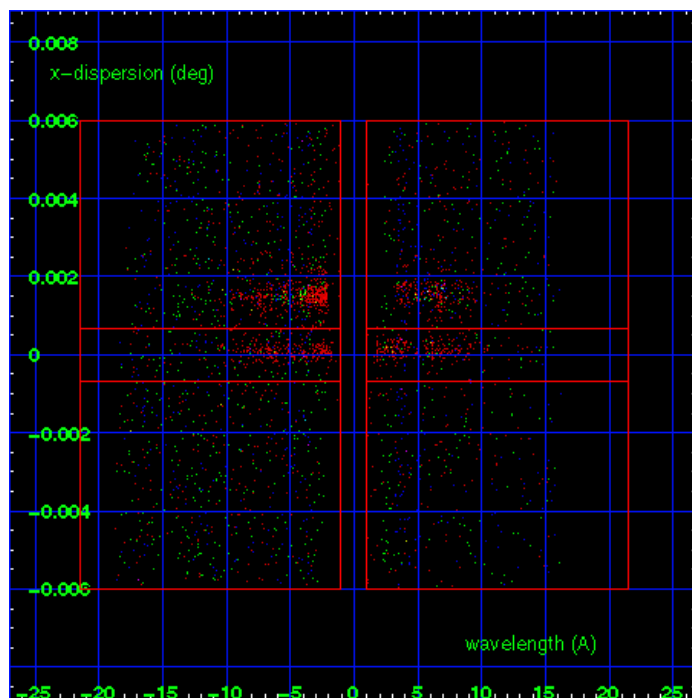
HEG Order Sort 123



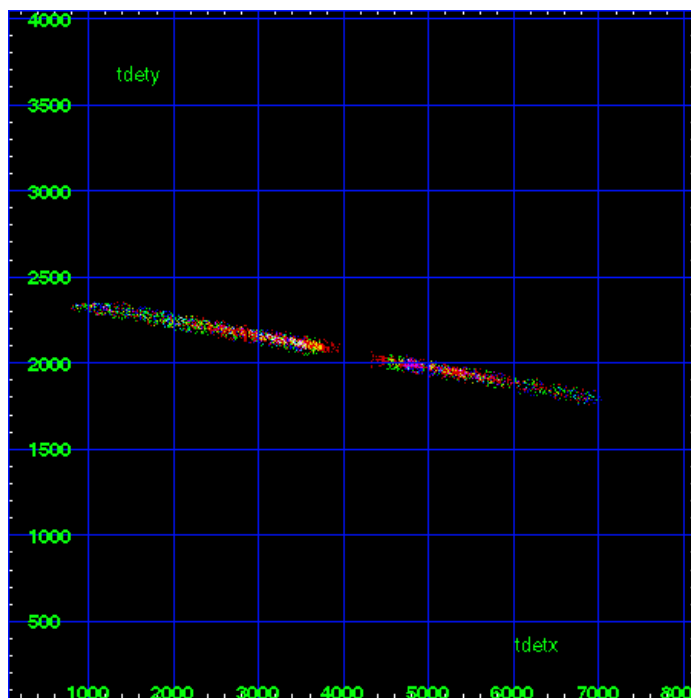
HEG Zero Order



HEG Order Sort ALL

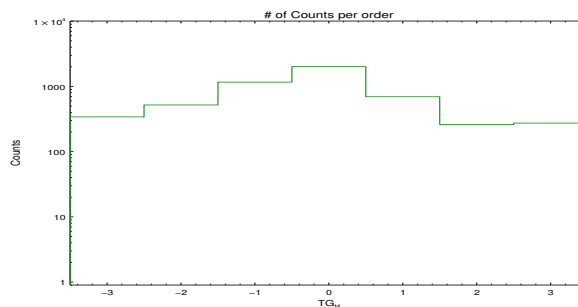


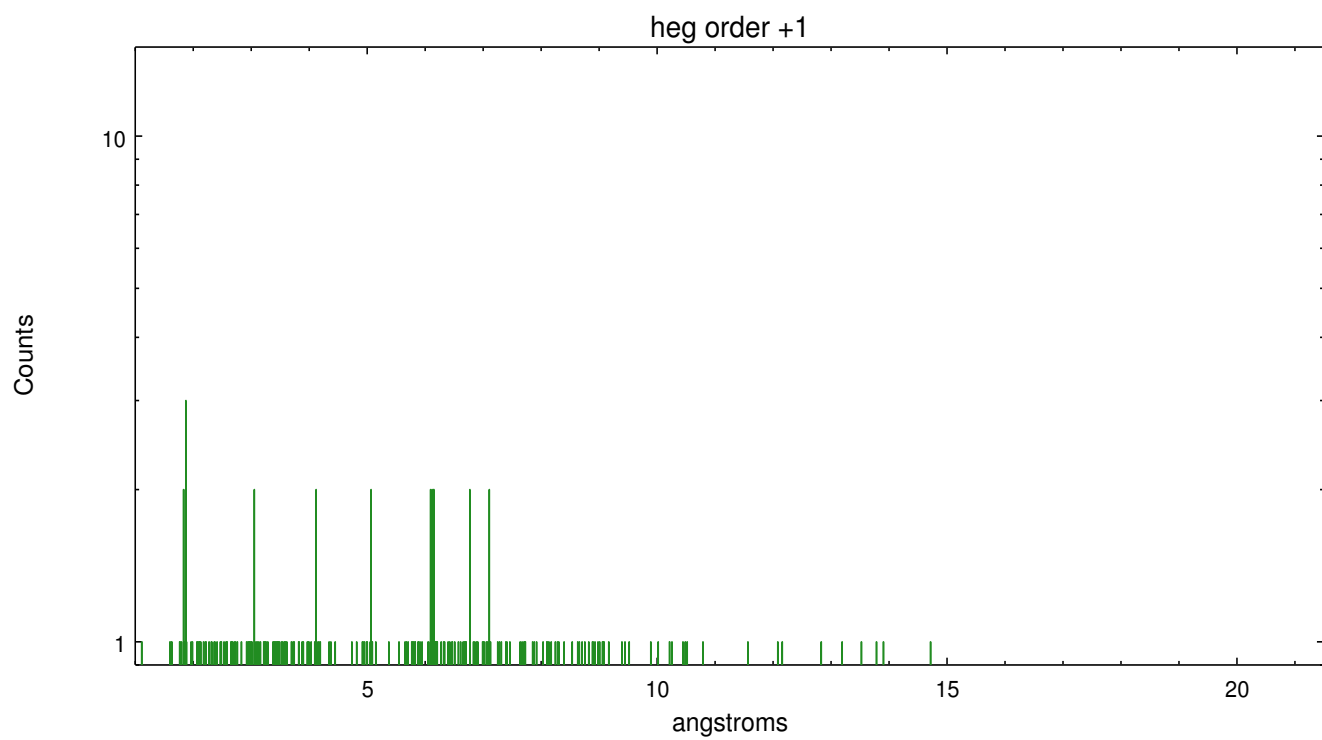
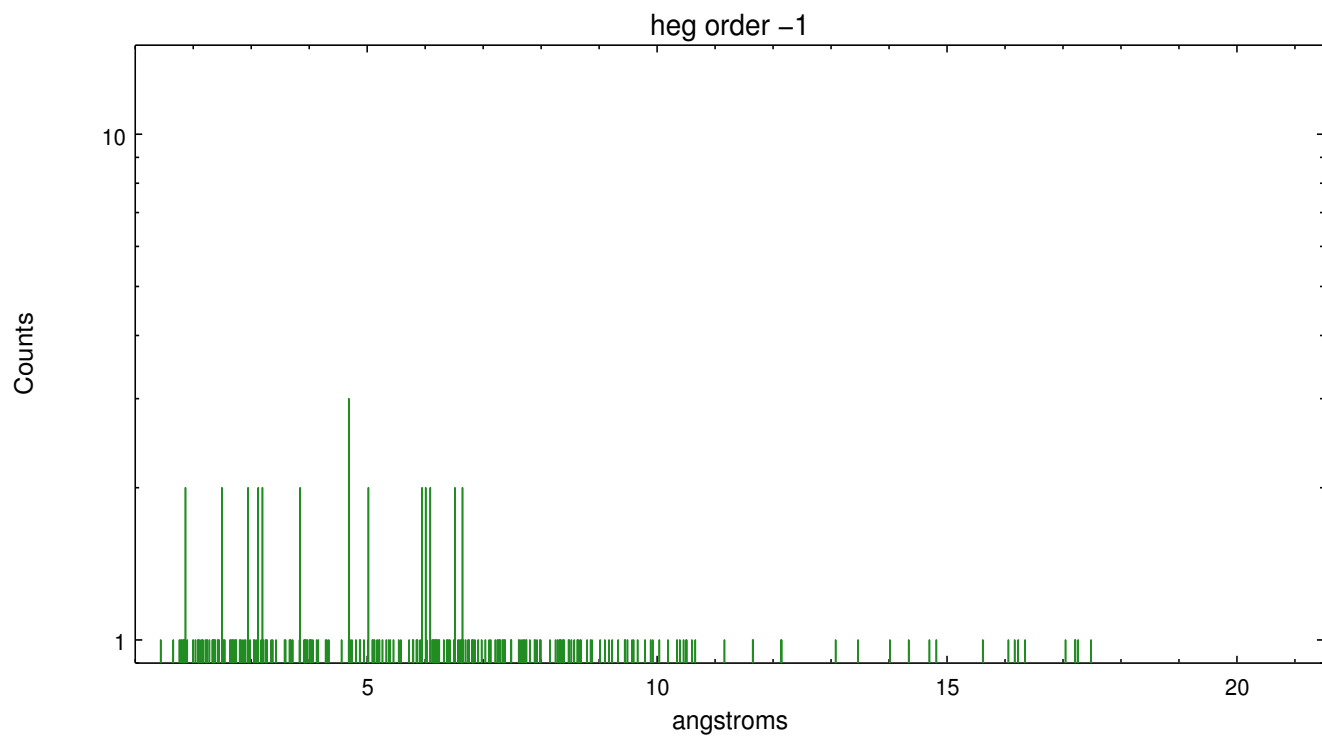
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	341	520	1163	2012	695	261	274

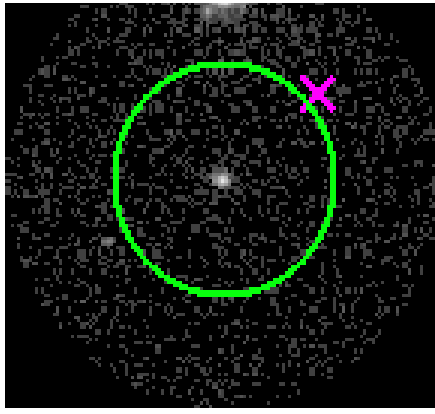




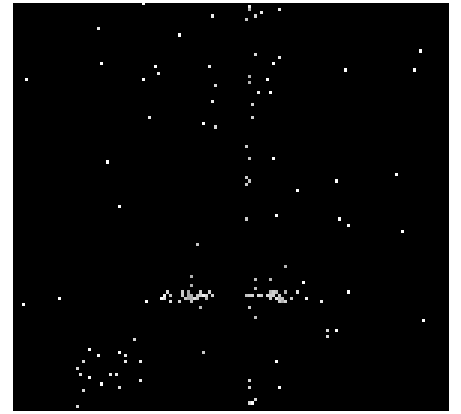
### 3.2 MEG Arm



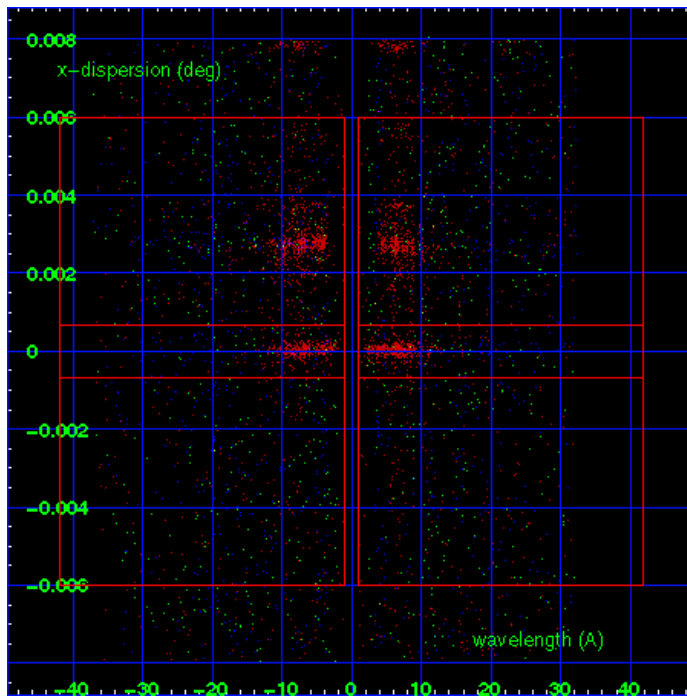
MEG Order Sort 123



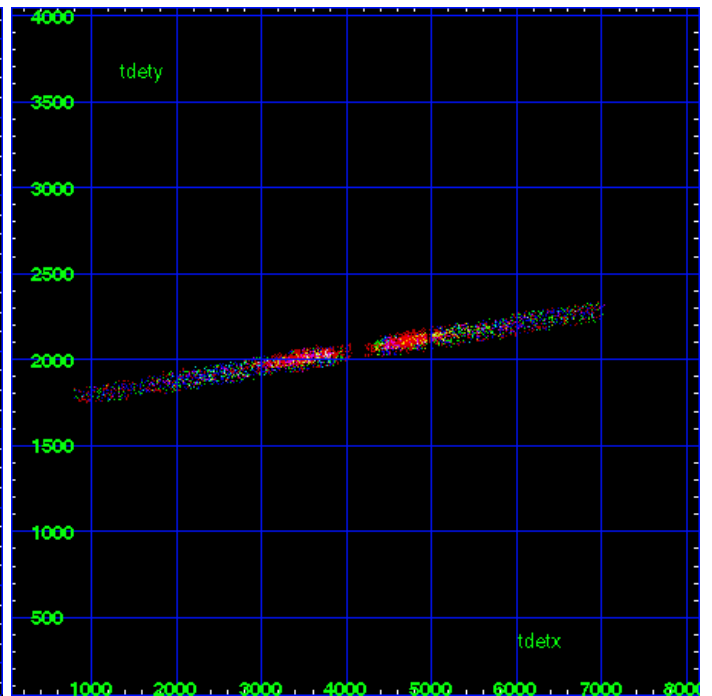
MEG Zero Order



MEG Order Sort ALL

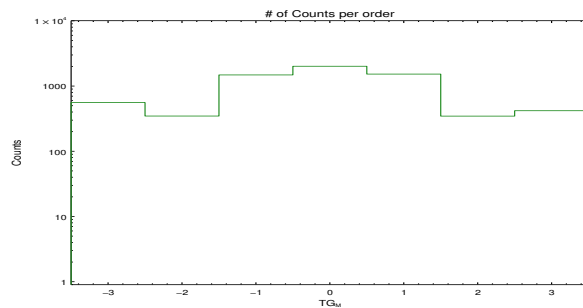


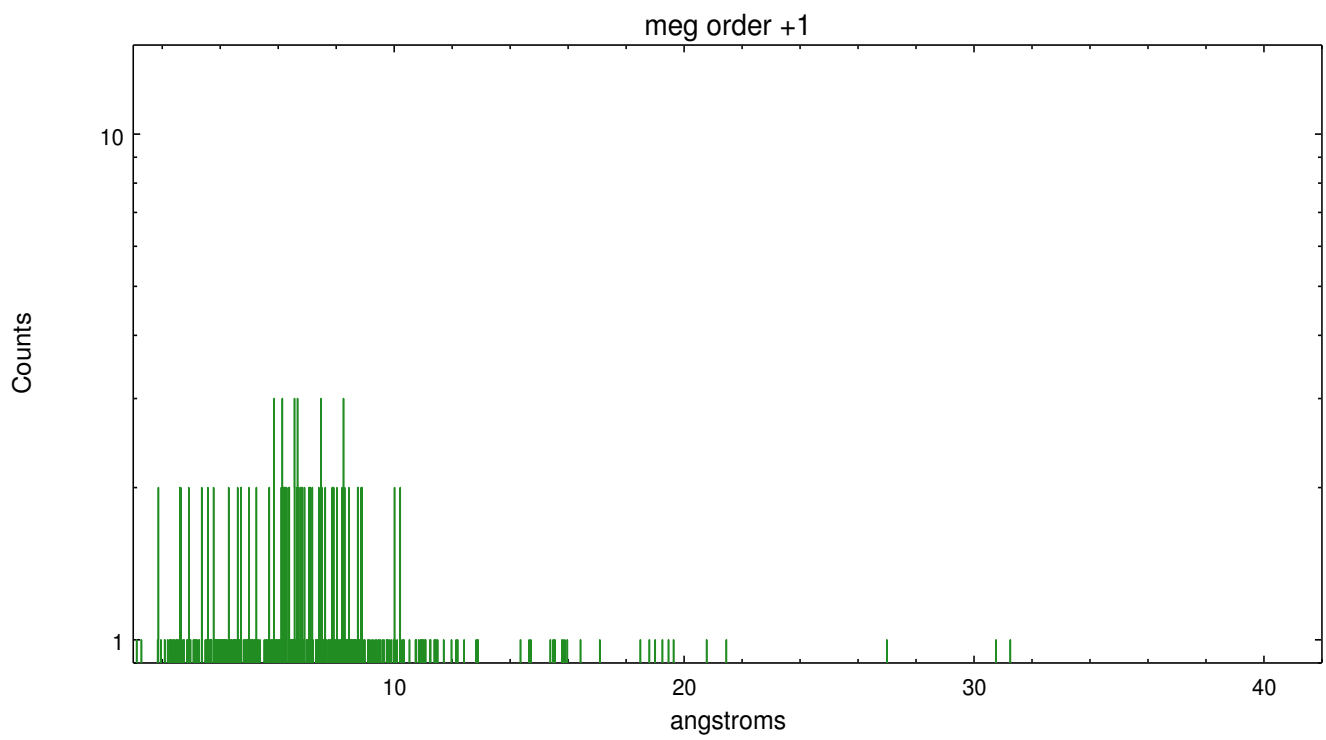
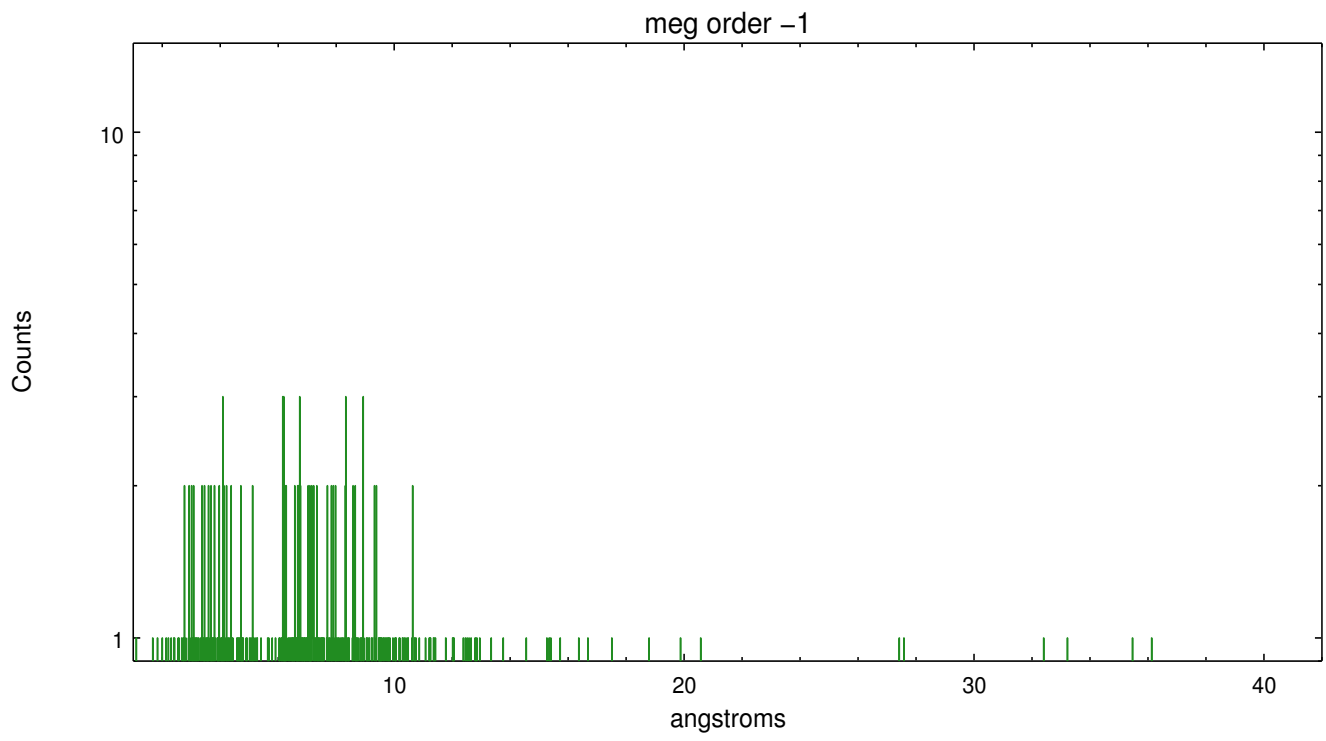
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	559	347	1482	2012	1526	346	419





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.05.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	37.4979589

## A.2 Comments

The HETG dispersed spectra for these data products have been extracted using the position of SN1996cr as the position of the zeroth order. The sky coordinates x=4069.83, y=4073.23 were manually input to the tg\_create\_mask tool. The newly determined zeroth order coordinates have been placed in the \*src1a.fits file, replacing the coordinates determined by tgdetect. Therefore the extracted spectra correspond to the supernova remnant, not the center of the galaxy. There are multiple dispersed spectra associated with different sources in this observation. The ciao tool tgextract2 can be used to create non-standard background regions. ===== In future analysis, if the ciao tool tgdetect is used on this observation to locate the zeroth order source, the center of the Cir galaxy will be found, not SN 1996cr, which is not as X-ray-bright.

===

Data products for spectral extractions of other targets in this field can be found in TGCat.