

# V&V Reference Report

## L2 ASCDS Version : 8.4.4

Observation 10832 - L2 Version 3  
Chandra X-Ray Center

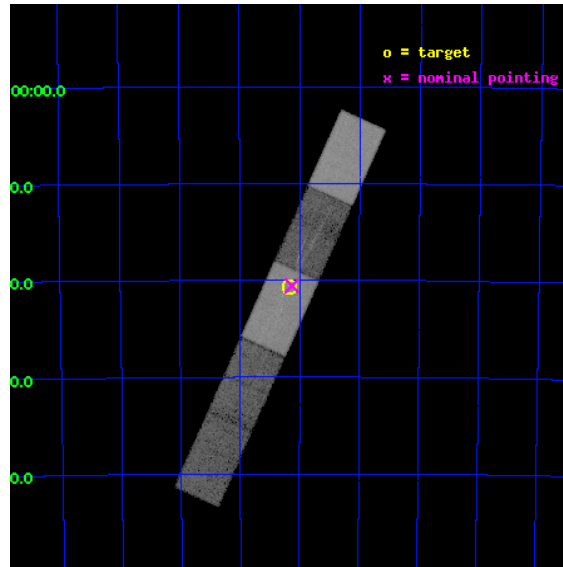
L2 Processing Date : May 29 2012

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# 1 Front

seq_num	501150	Sequence number
obs_id	10832	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
dtcycle	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	213.28201447469	Nominal RA [deg]
dec_nom	-65.342959921747	Nominal Dec [deg]
roll_nom	114.14785631385	Nominal Roll [deg]
revision	3	Processing version of data
ontime	21053.117851079	Sum of GTIs [s]
livetime	20607.985367148	Livetime [s]
ontime5	21053.076811075	Sum of GTIs [s]
ontime6	21053.035771072	Sum of GTIs [s]
ontime7	21053.117851079	Sum of GTIs [s]
ontime8	21051.053750873	Sum of GTIs [s]
ontime9	21052.953691065	Sum of GTIs [s]
l2events	213475	Number of level 2 events

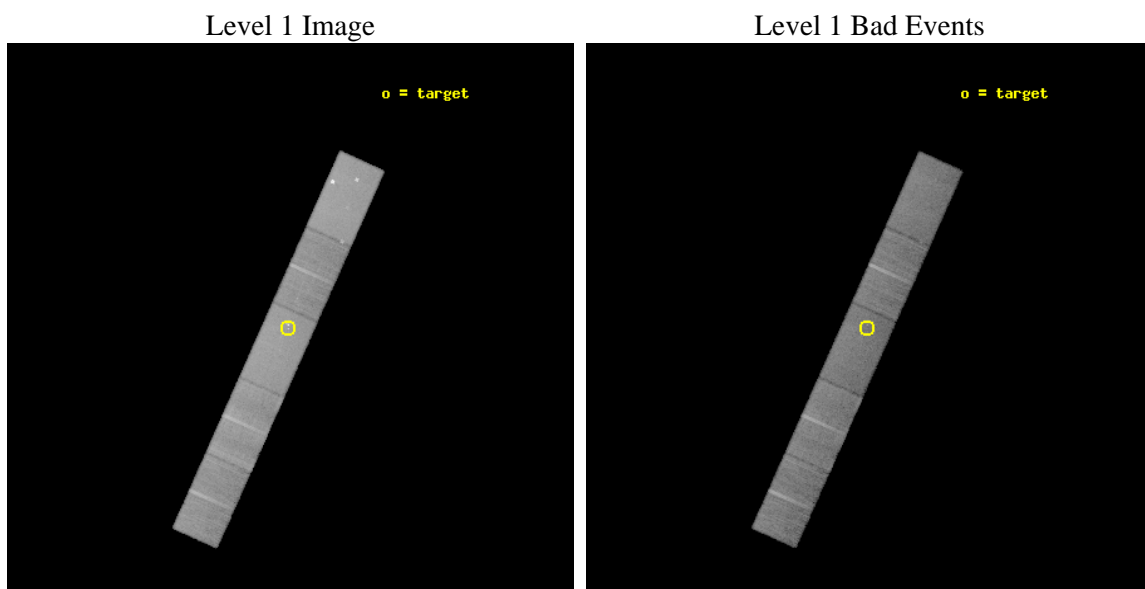




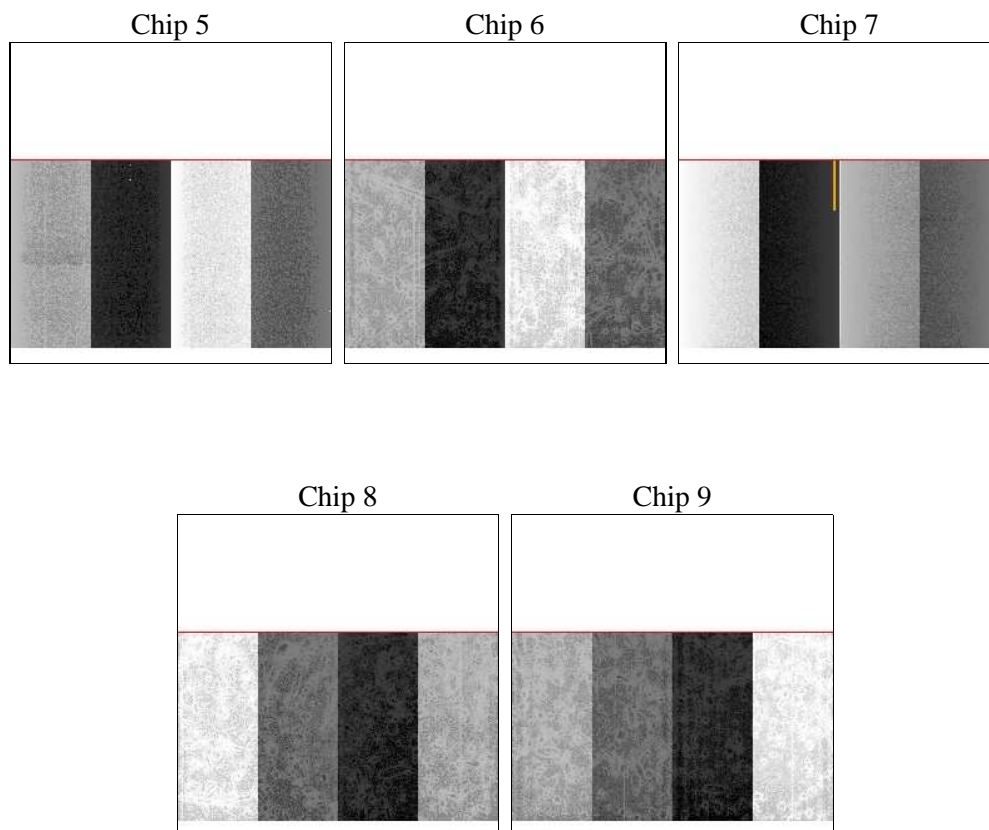
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	21024.863000	[s] Scheduled observation exposure time
ascdsver	8.4.4	Processing system revision	ontime	21053.117851079	Sum of GTIs [s]
caldsver	4.4.9	&#160	ontime5	21053.076811075	Sum of GTIs [s]
date	2012-05-26T06:32:00	Date and time of file creation	ontime6	21053.035771072	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	21053.117851079	Sum of GTIs [s]
			ontime8	21051.053750873	Sum of GTIs [s]
			ontime9	21052.953691065	Sum of GTIs [s]
			l1events	819362	Number of level 1 events

### 2.1.4 Events

	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	208874	132372	182445	167762	127909
rejected events	105984	114527	101715	127869	111132
rejected %	50%	86%	55%	76%	86%

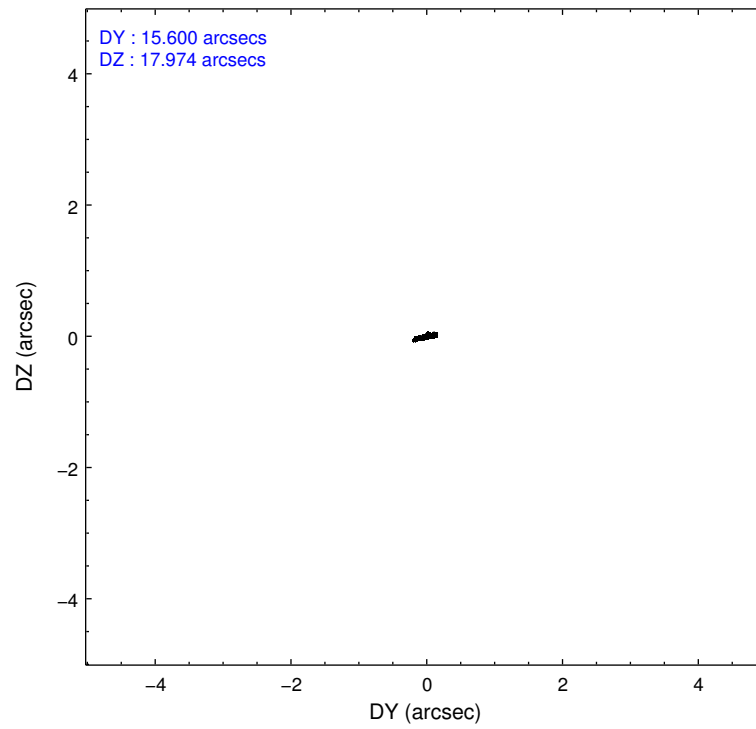
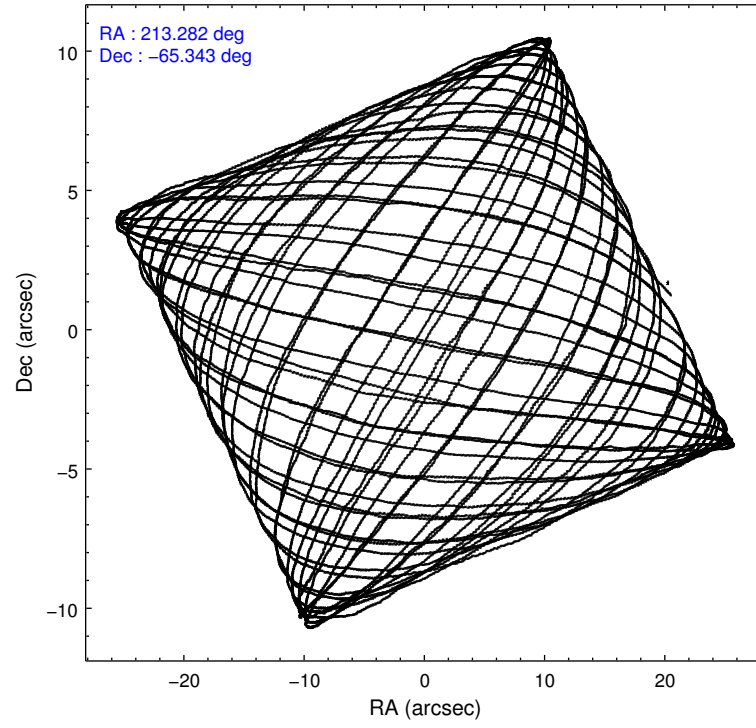
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	18393	7198	7717	12238	6651
	8%	5%	4%	7%	5%
grade 1 events	523	62	205	103	72
	0%	0%	0%	0%	0%
grade 2 events	28228	3693	16798	9000	3332
	13%	2%	9%	5%	2%
grade 3 events	4421	1800	7492	4207	1853
	2%	1%	4%	2%	1%
grade 4 events	4242	1781	7226	3977	1691
	2%	1%	3%	2%	1%
grade 5 events	15170	5954	16791	7980	6514
	7%	4%	9%	4%	5%
grade 6 events	47620	3374	41511	10477	3256
	22%	2%	22%	6%	2%
grade 7 events	90277	108510	84705	119780	104540
	43%	81%	46%	71%	81%

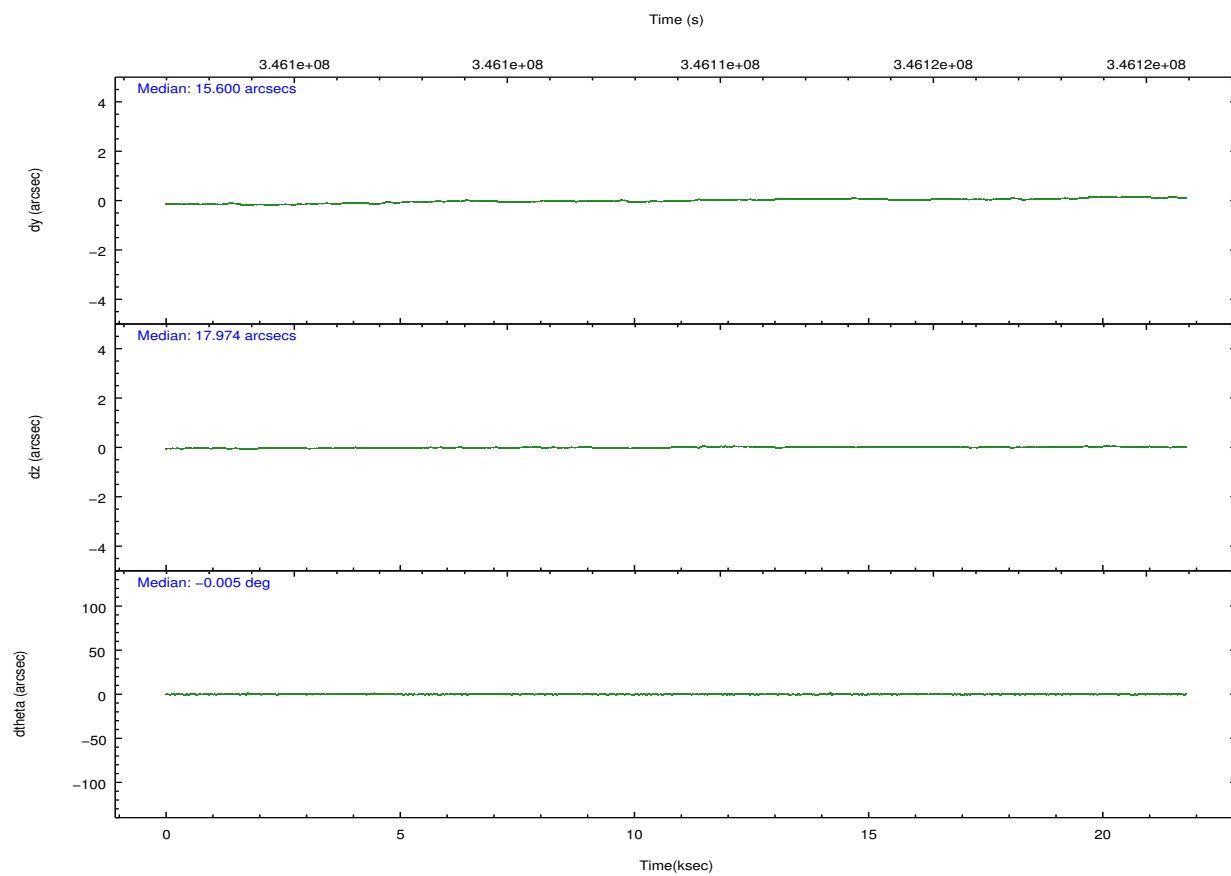
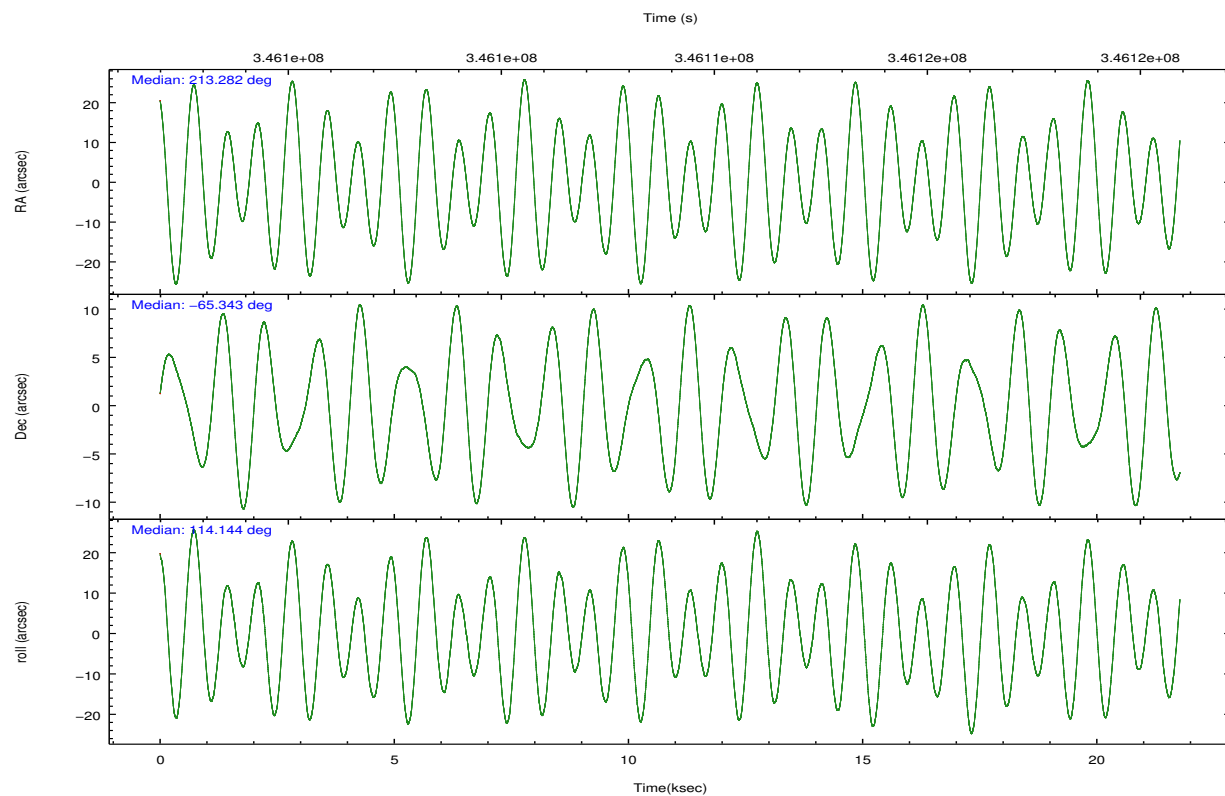
## 2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-56789	ACIS-56789
Grating	HETG	HETG
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	213.335719	213.2820144746893
[deg] Pointing Dec	-65.358678	-65.34295992174718
[deg] Pointing Roll	114.040042	114.1478563138452
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-186.132523	-186.1423047203915
[mm] SIM translation stage offset	-4	-3.990217862616333
[s] Observation start time (MET)	346098829.184000	346097773.5079
Observation start date	2008-12-19T18:32:44	2008-12-19T18:16:13
[s] Observation end time (MET)	346119854.184000	346120069.8215
Observation end date	2008-12-20T00:23:09	2008-12-20T00:27:49
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	Y	Y
Number of optional ACIS chips dropped	1	1
On-chip summing requested	N	N
Subarray requested	CUSTOM	CUSTOM
Subarray start row	50	50
Subarray row count	600	600
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	1.9

## 2.3 Aspect



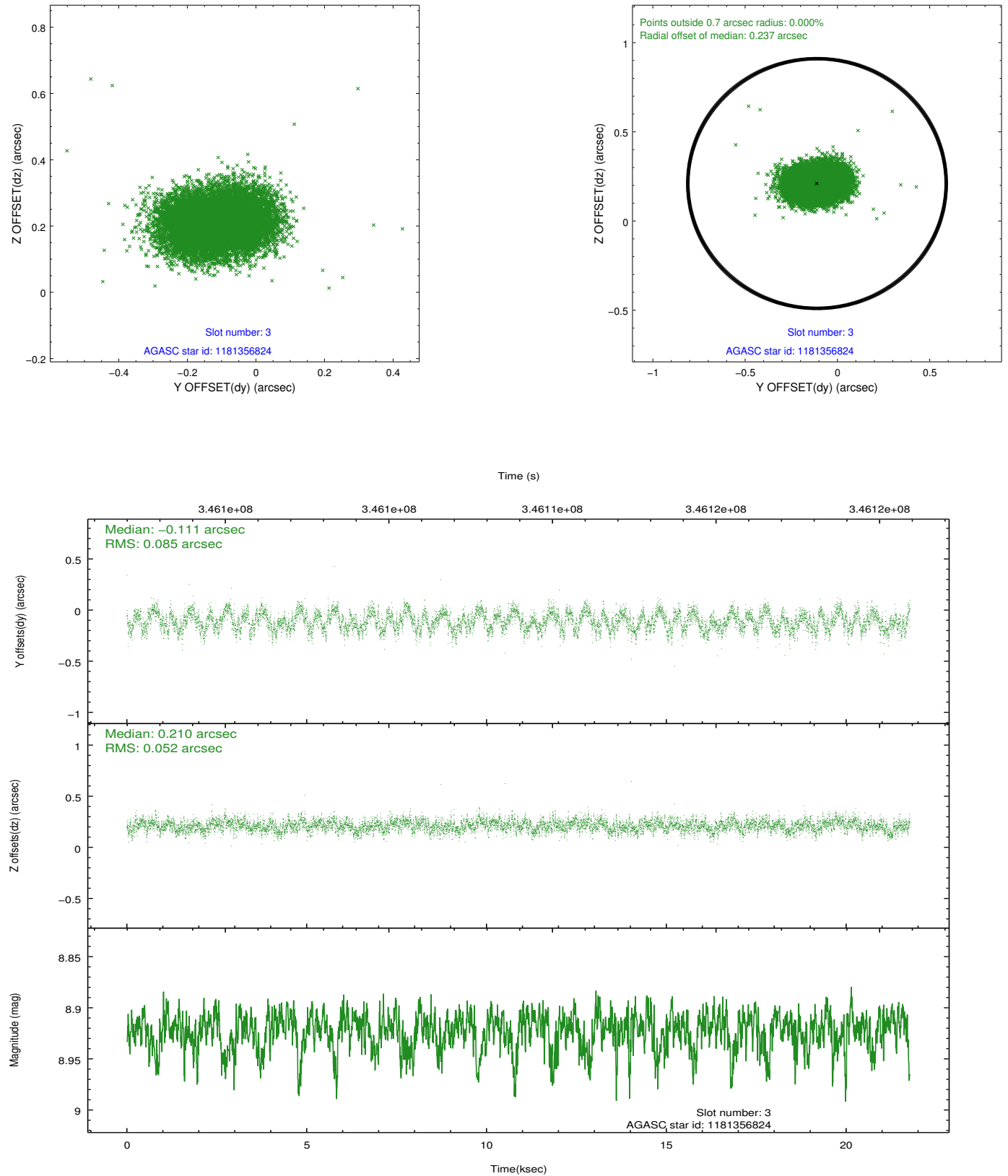


### Slot Statistics

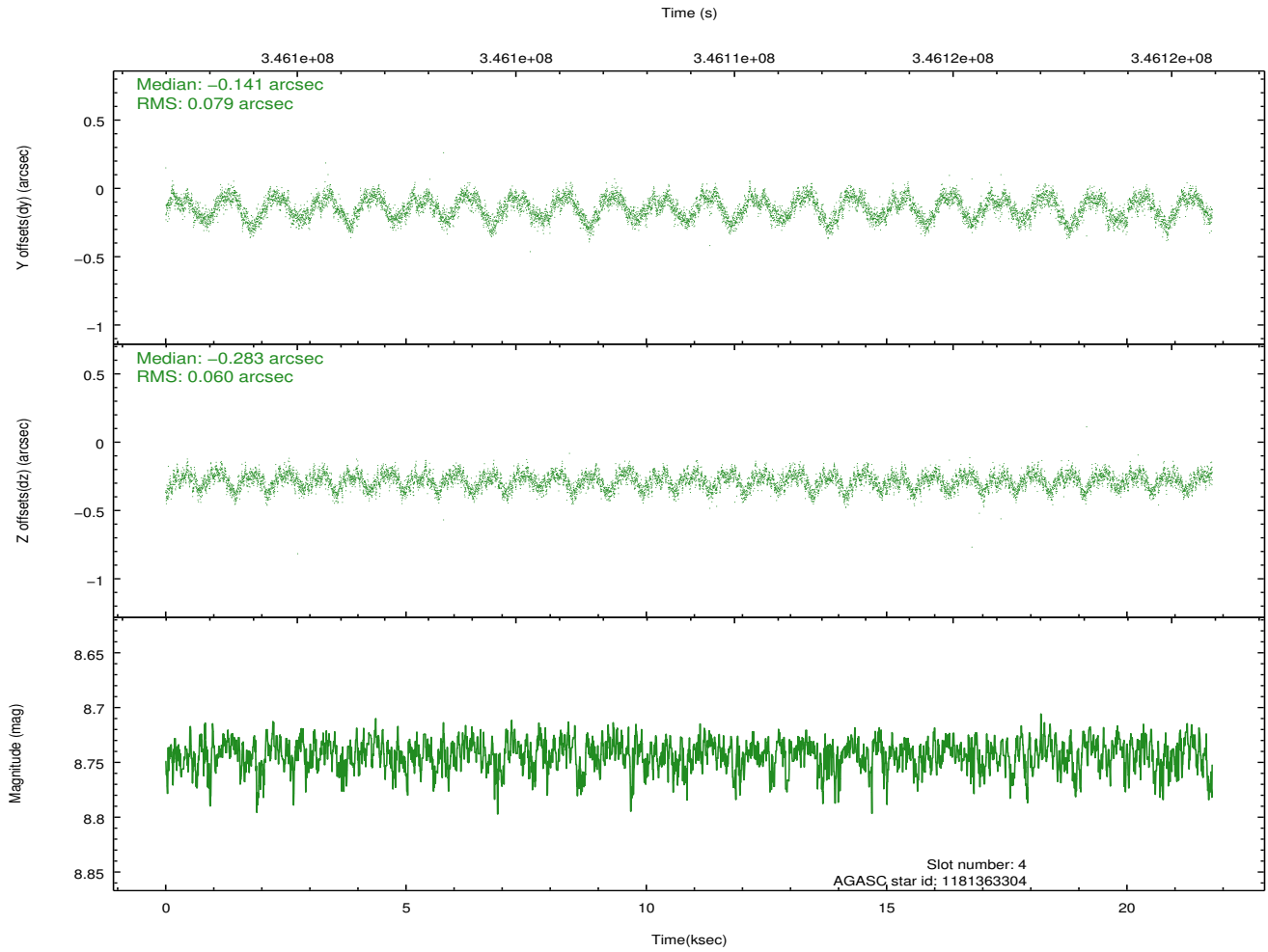
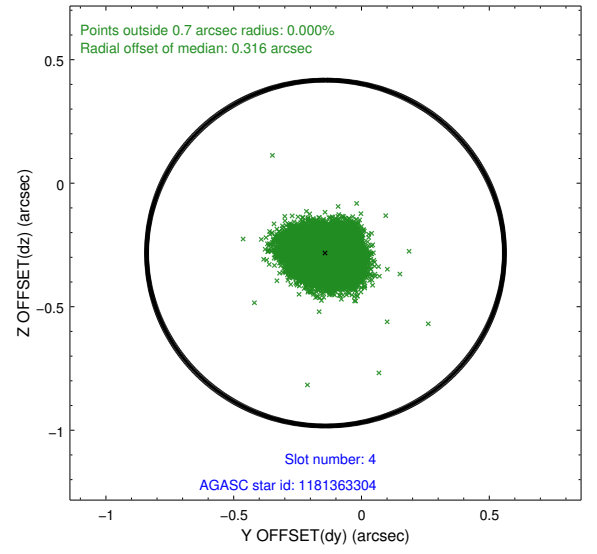
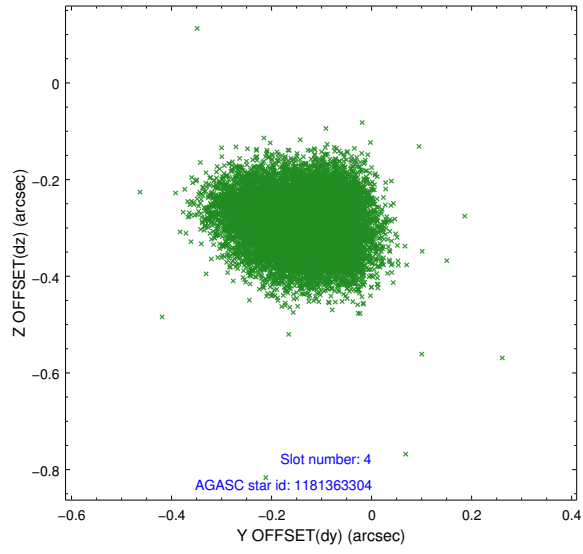
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.88	5311	-0.112	-0.035	0.006	0.010	0.000000	0.000000	-768.39	-1821.80
1	FID	ACIS-S-4	6.95	5310	0.195	0.064	0.007	0.012	0.000000	0.000000	2145.10	86.63
2	FID	ACIS-S-5	6.99	5310	-0.114	-0.020	0.007	0.012	0.000000	0.000000	-1821.05	80.35
3	GUIDE	1181356824	8.92	10610	-0.111	0.210	0.107	0.168	213.100076	-64.682630	2369.99	-659.37
4	GUIDE	1181363304	8.74	10617	-0.141	-0.283	0.108	0.161	212.741873	-65.071033	1309.27	403.16
5	GUIDE	1181492872	9.07	10616	0.091	0.171	0.104	0.164	214.965330	-65.517798	-1541.66	-1973.56
6	GUIDE	1181885760	9.38	10611	0.108	-0.058	0.110	0.188	213.150845	-65.847105	-1495.22	965.85
7	GUIDE	1181888328	9.12	10612	0.066	-0.033	0.085	0.139	213.100875	-66.006078	-1989.01	1263.89

## 2.4 Star Slots

### 2.4.1 Slot 3

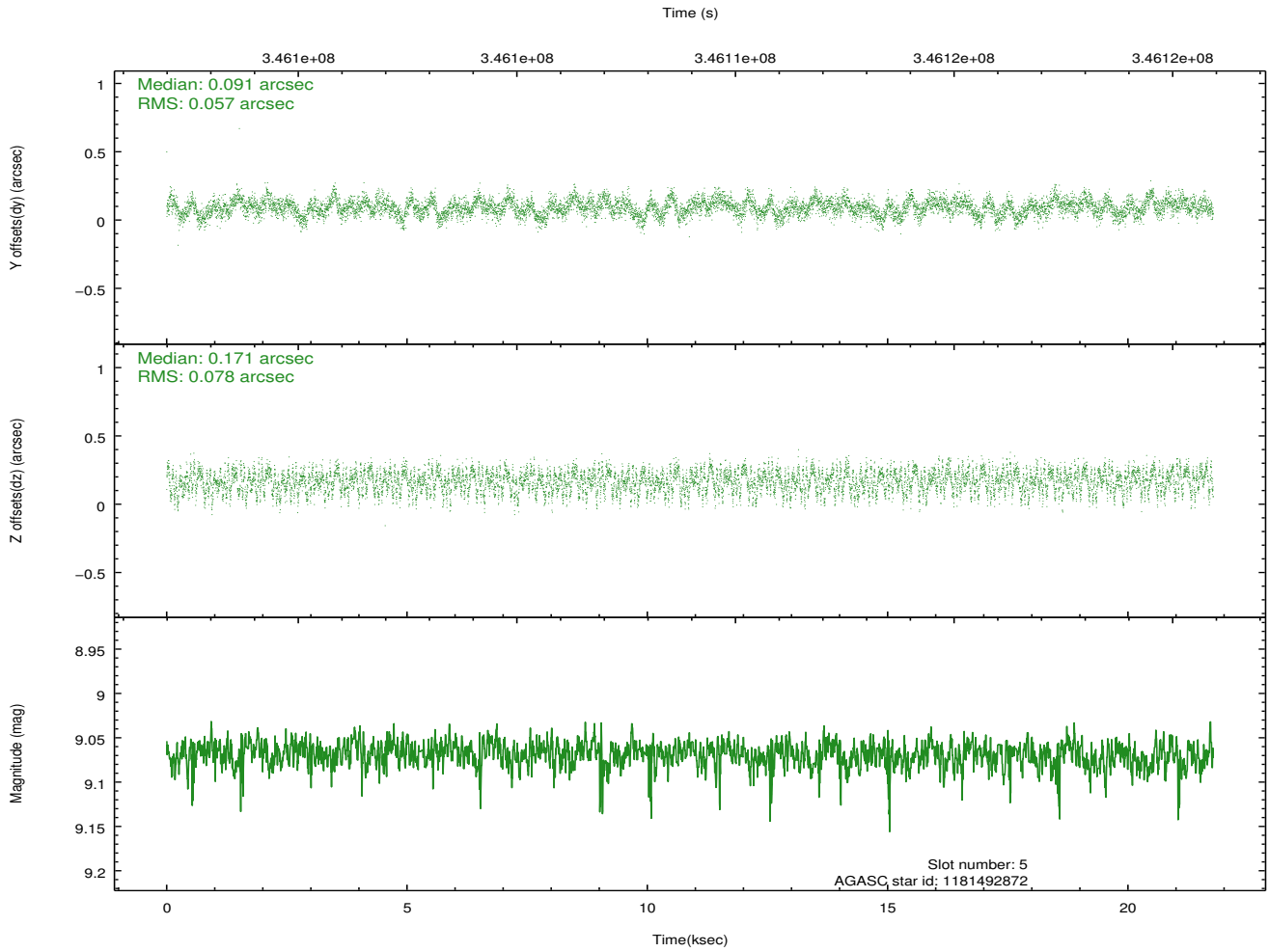
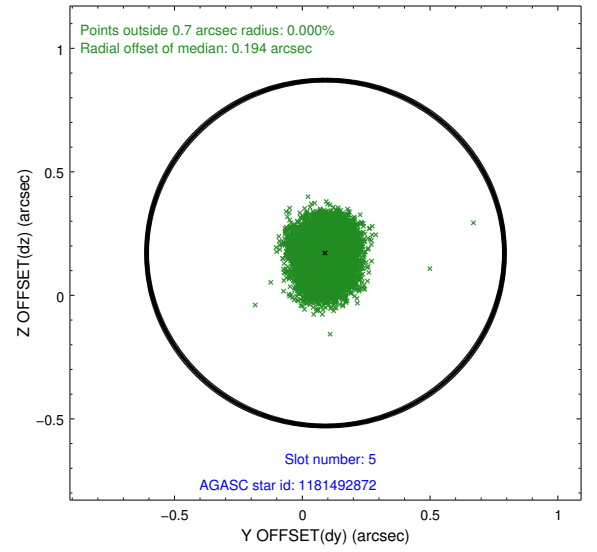
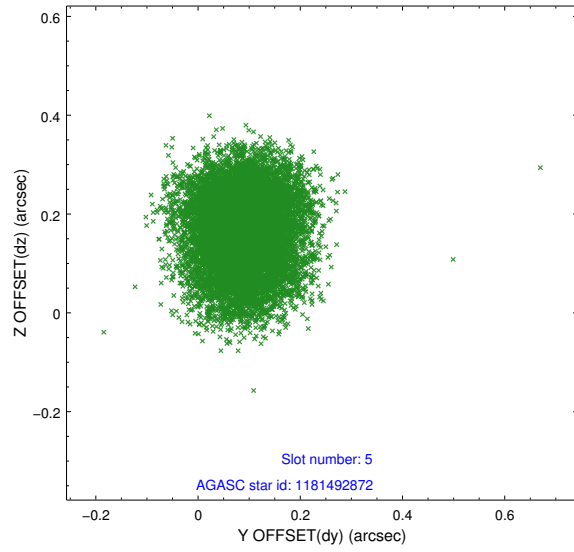


## 2.4.2 Slot 4

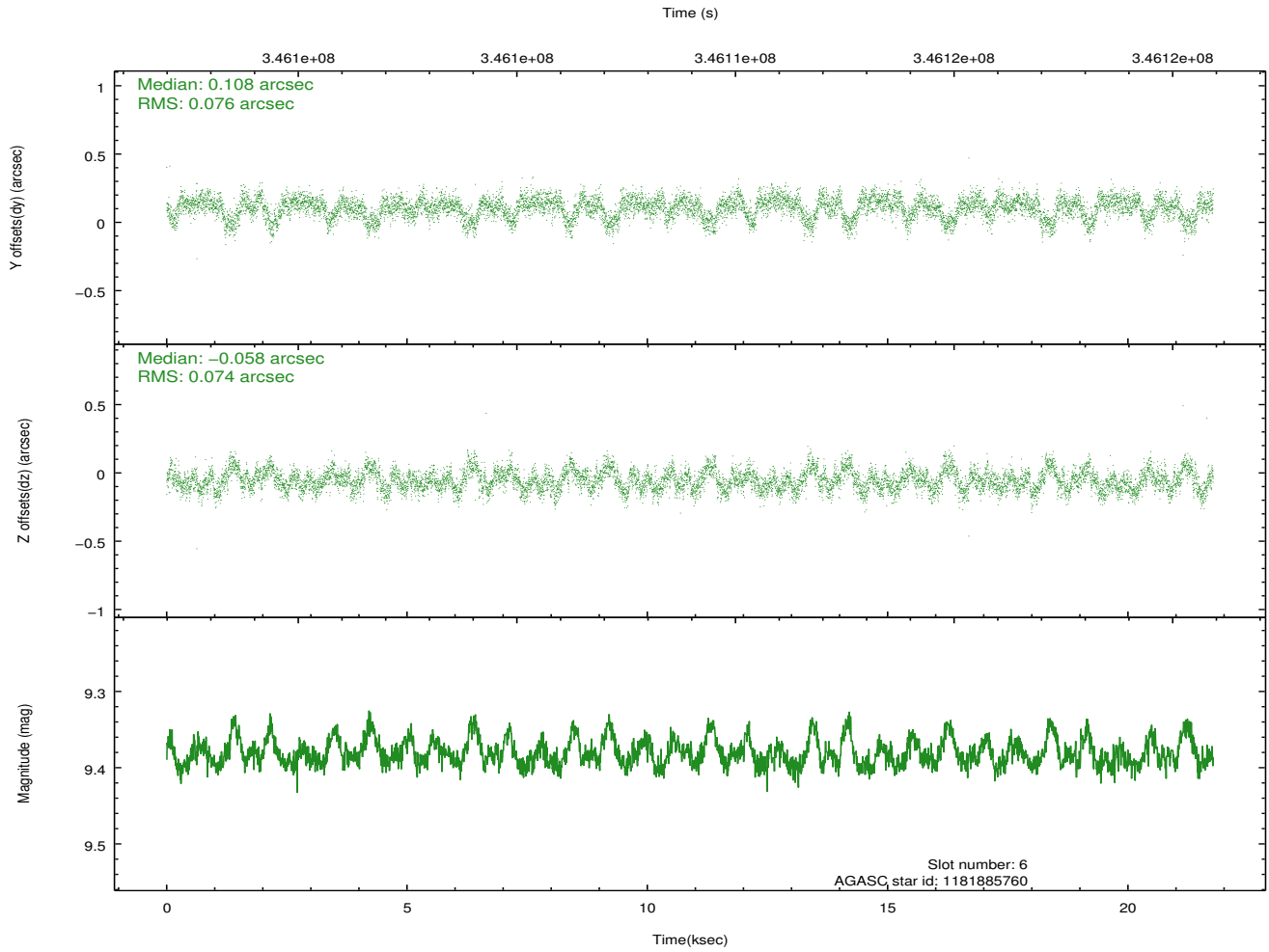
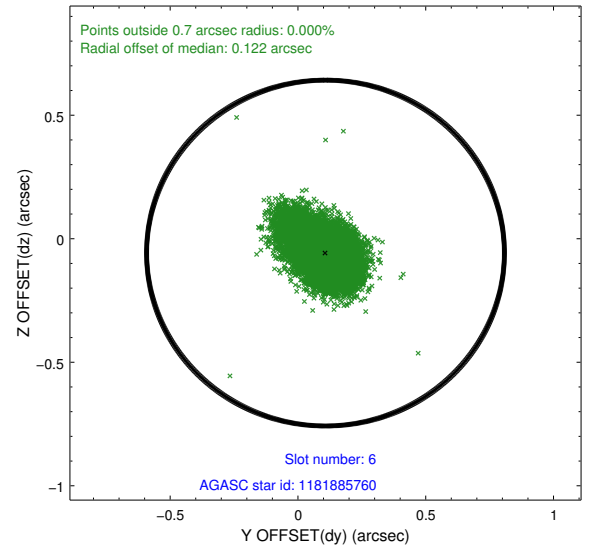
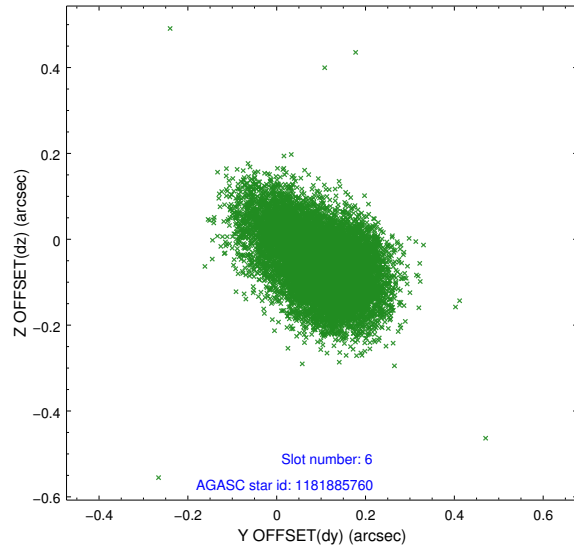




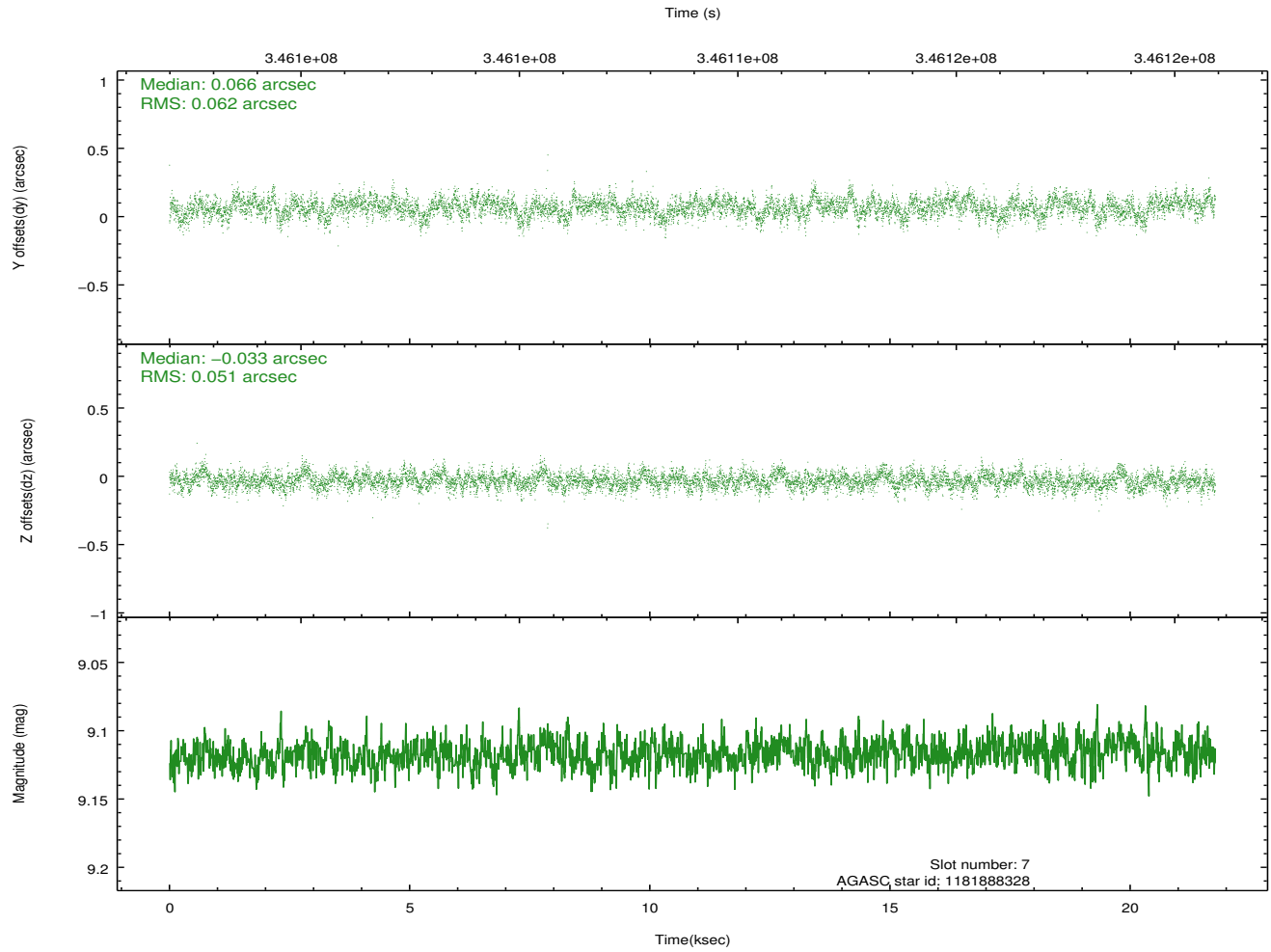
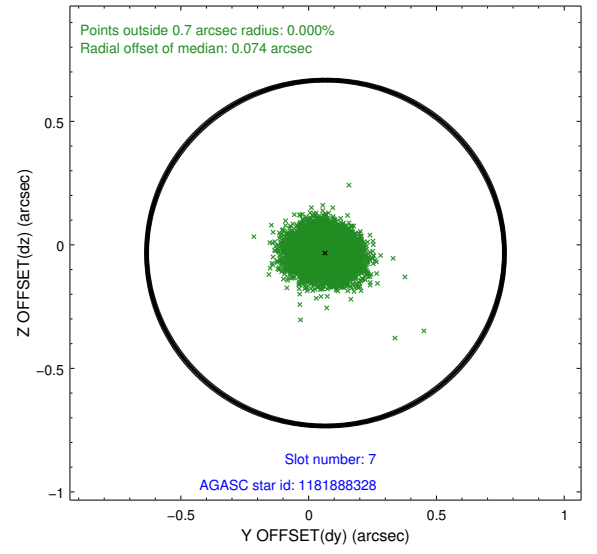
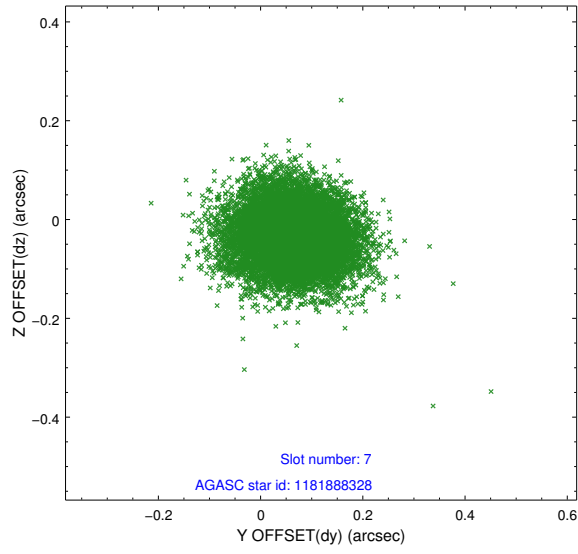
### 2.4.3 Slot 5



## 2.4.4 Slot 6

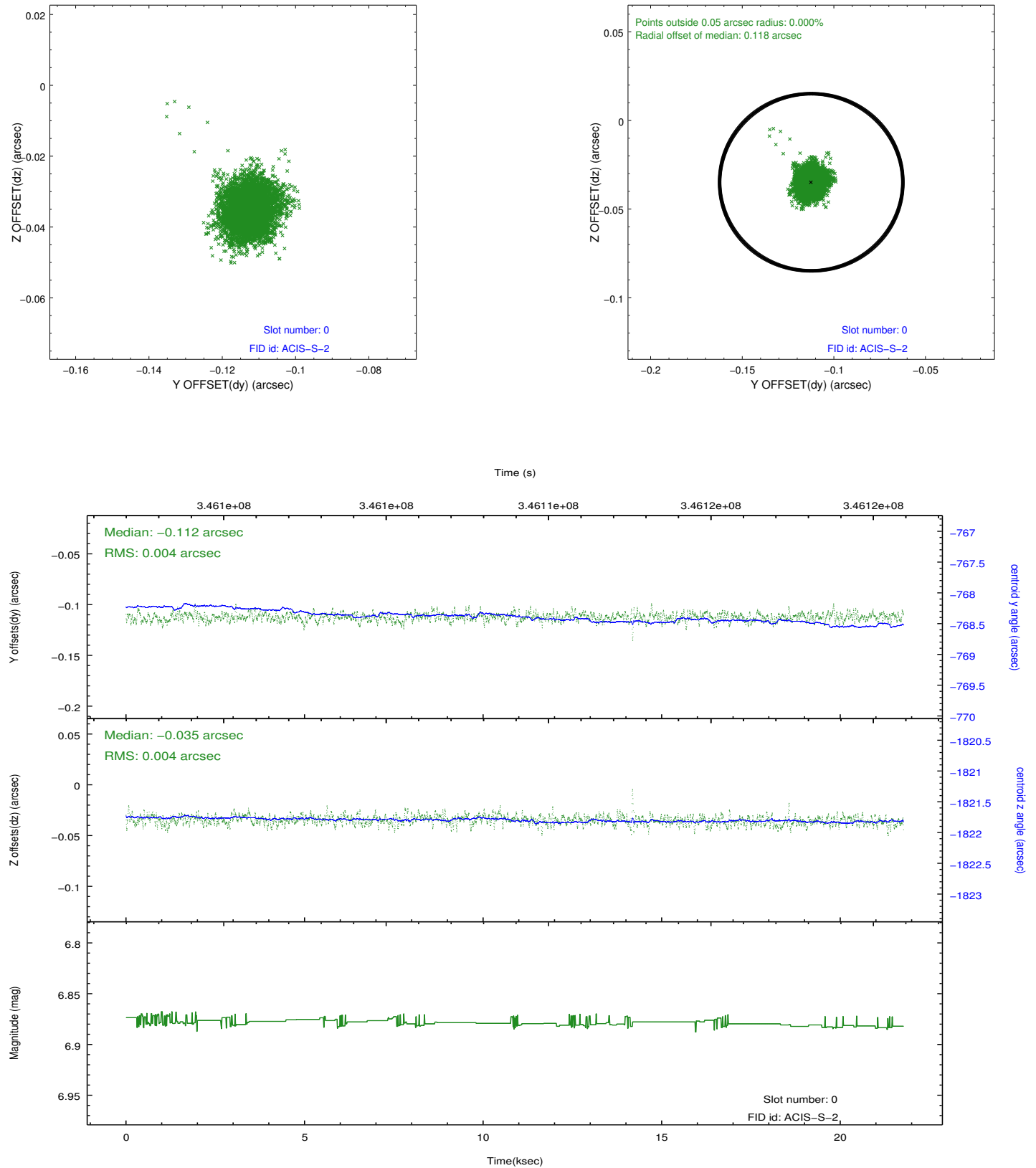


### 2.4.5 Slot 7

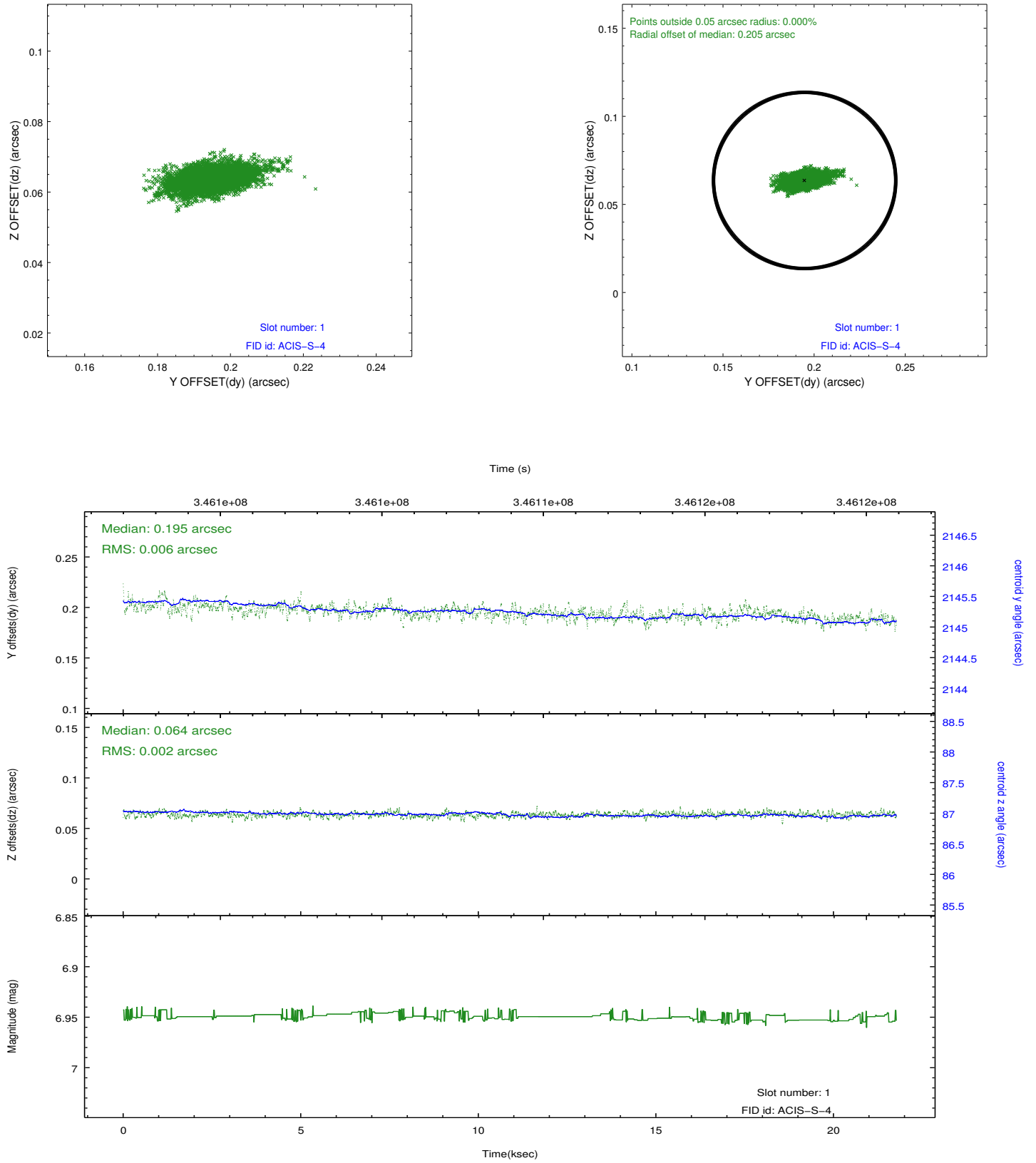


## 2.5 FID Slots

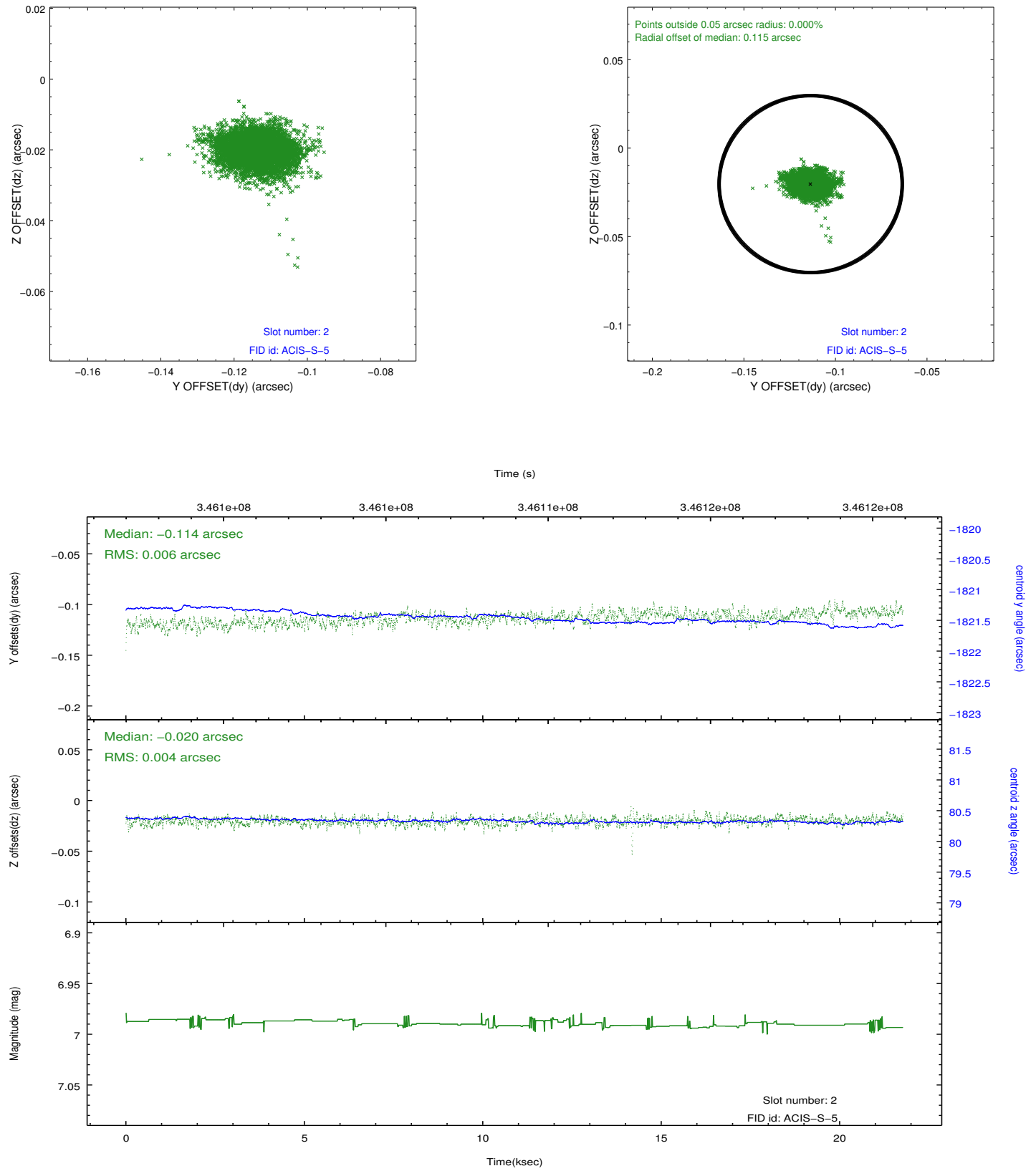
### 2.5.1 Slot 0



## 2.5.2 Slot 1

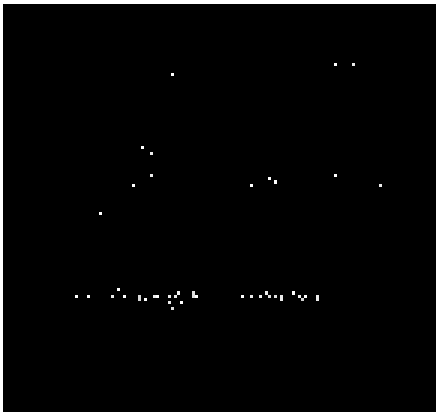


### 2.5.3 Slot 2

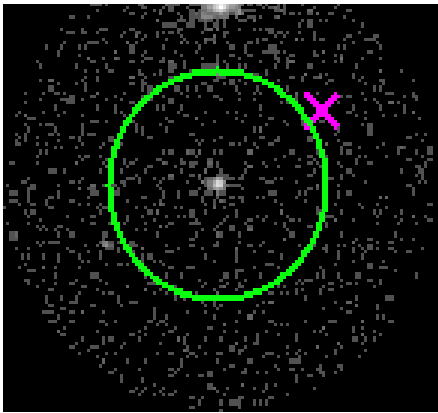


# 3 Gratings

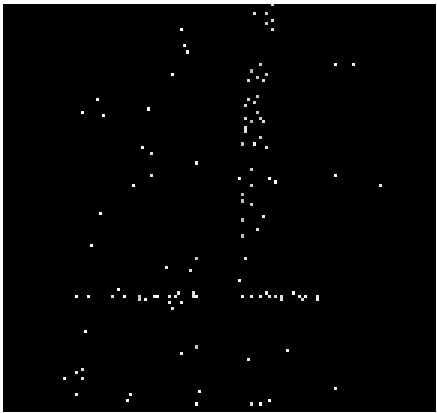
## 3.1 HEG Arm



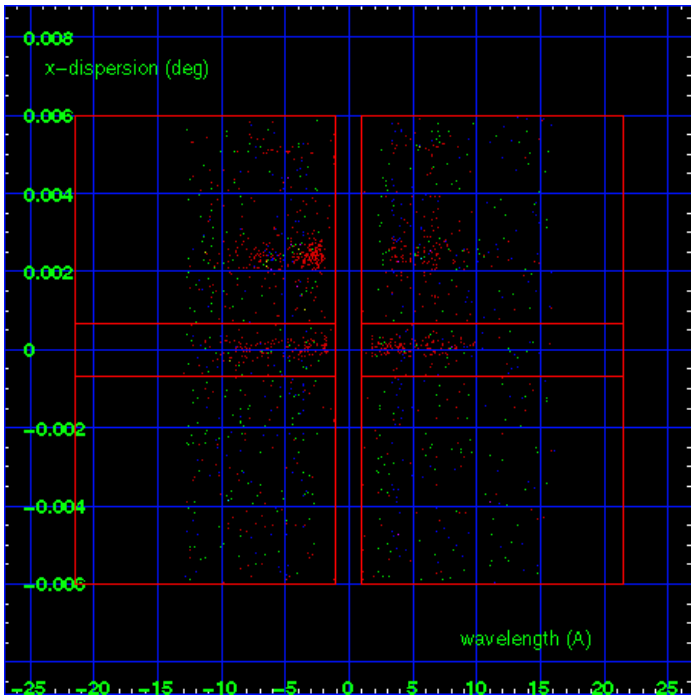
HEG Order Sort 123



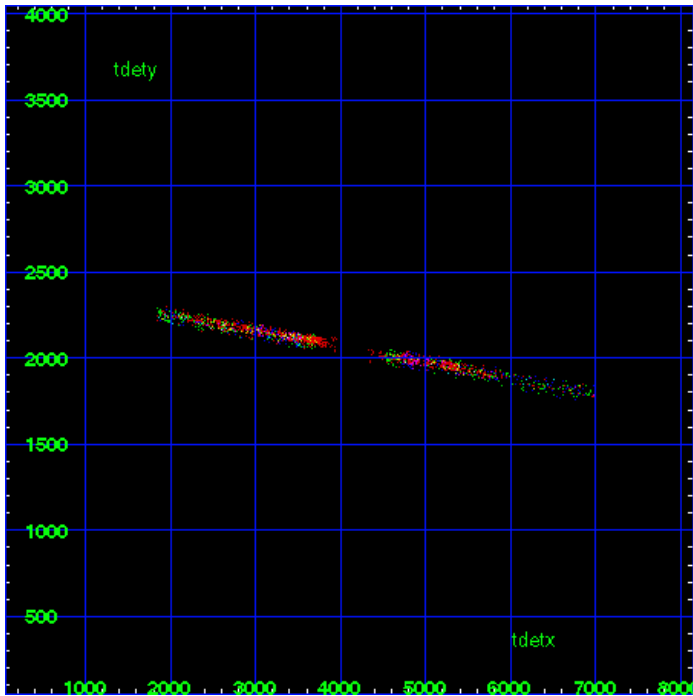
HEG Zero Order



HEG Order Sort ALL

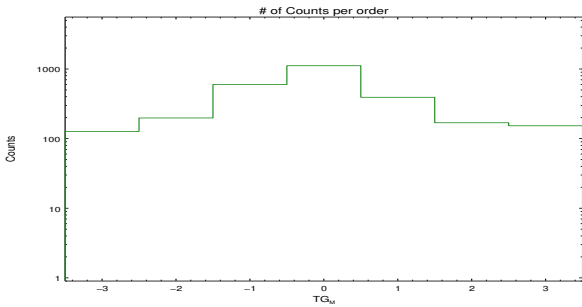


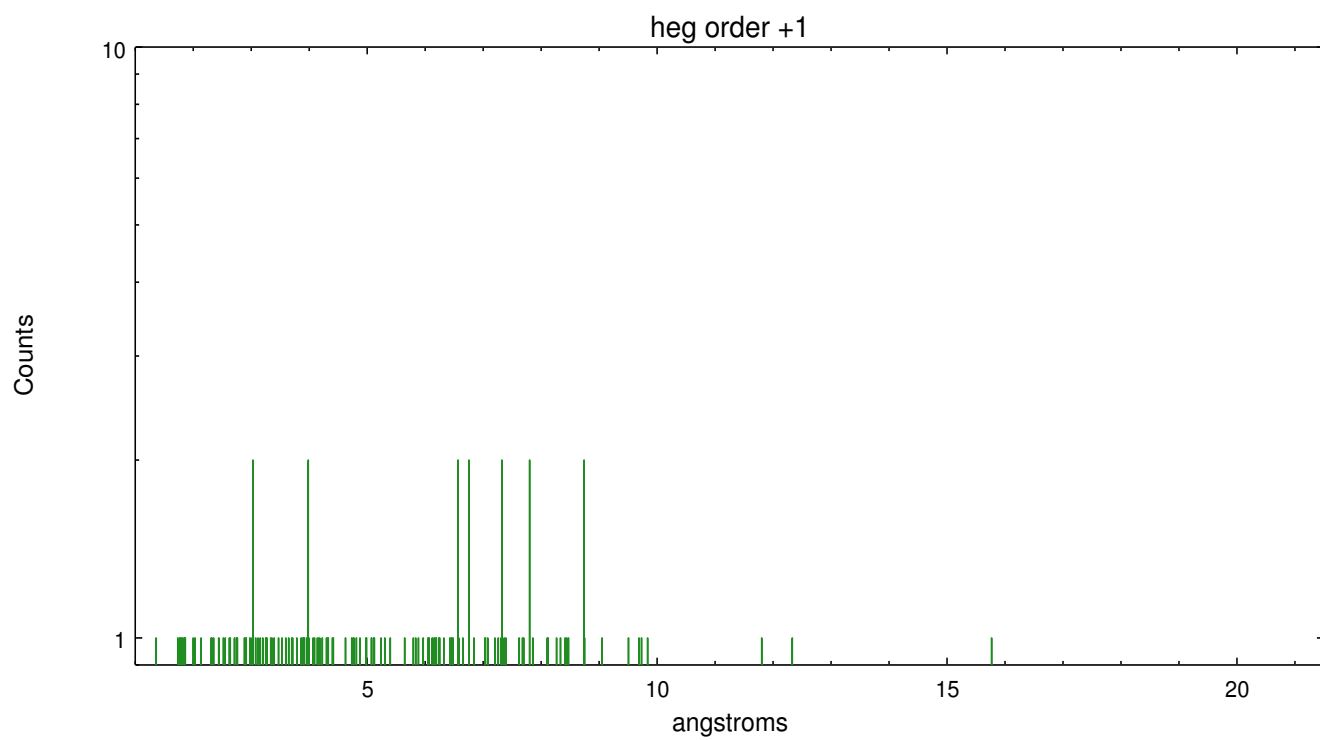
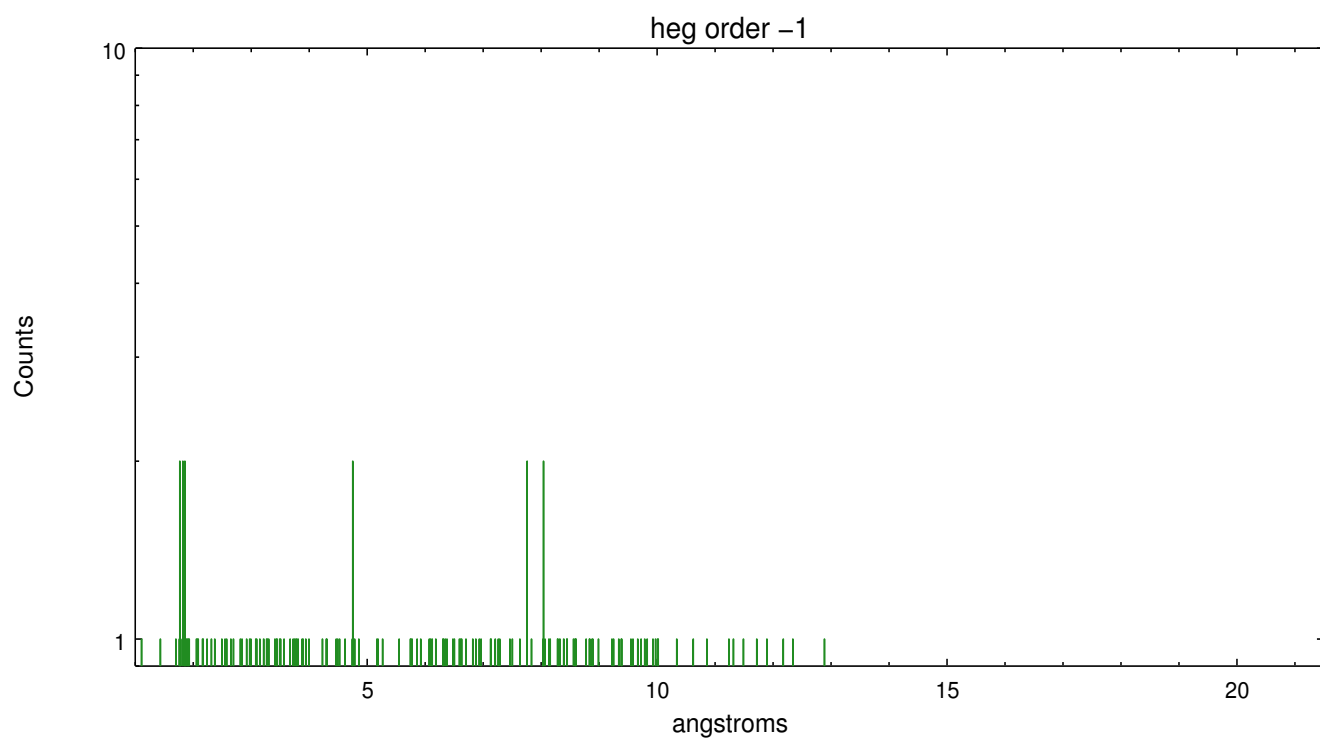
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	127	198	599	1115	392	169	153



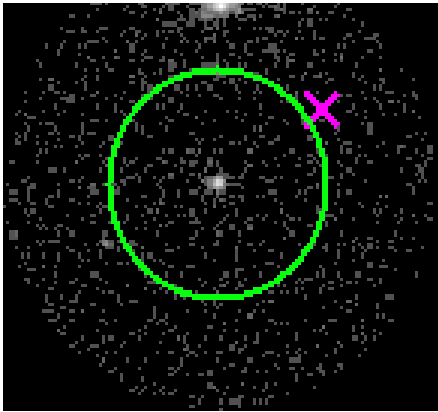




3.2 MEG Arm



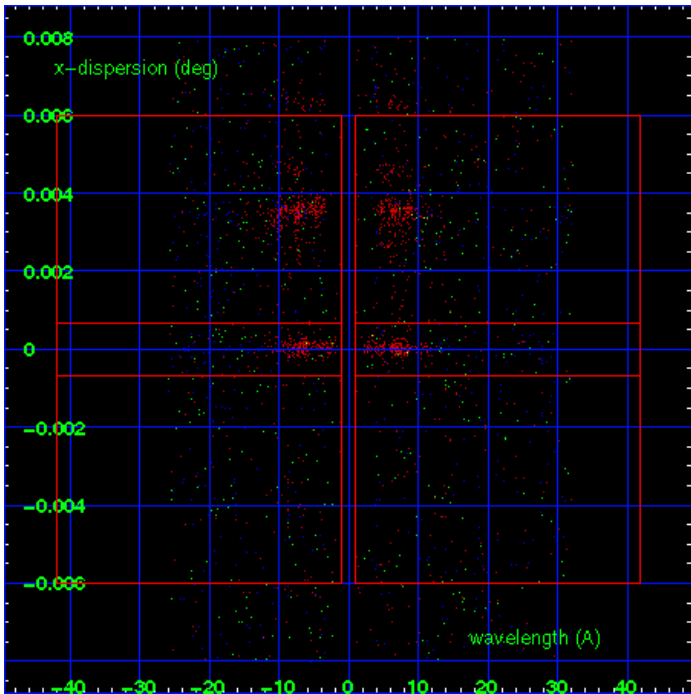
MEG Order Sort 123



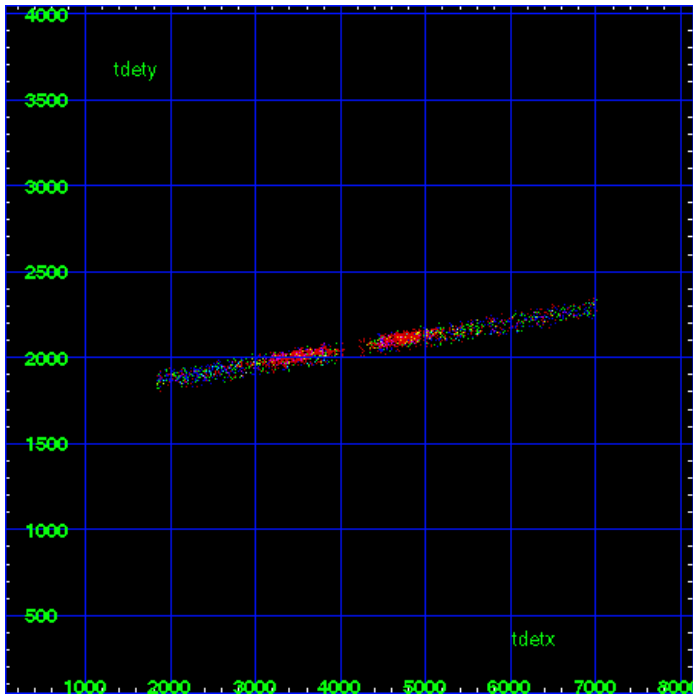
MEG Zero Order



MEG Order Sort ALL

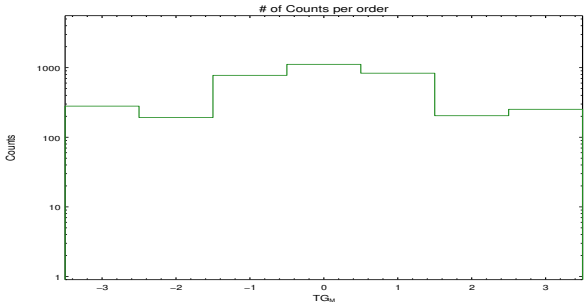


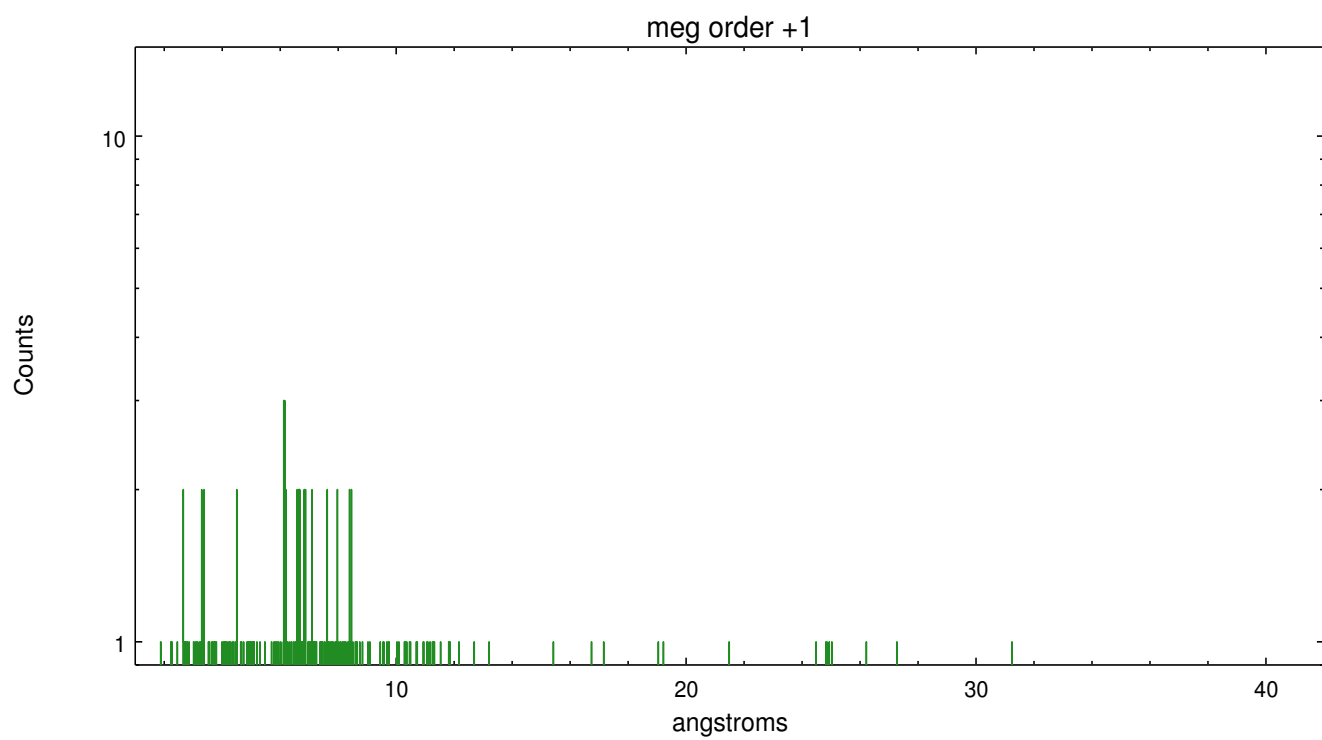
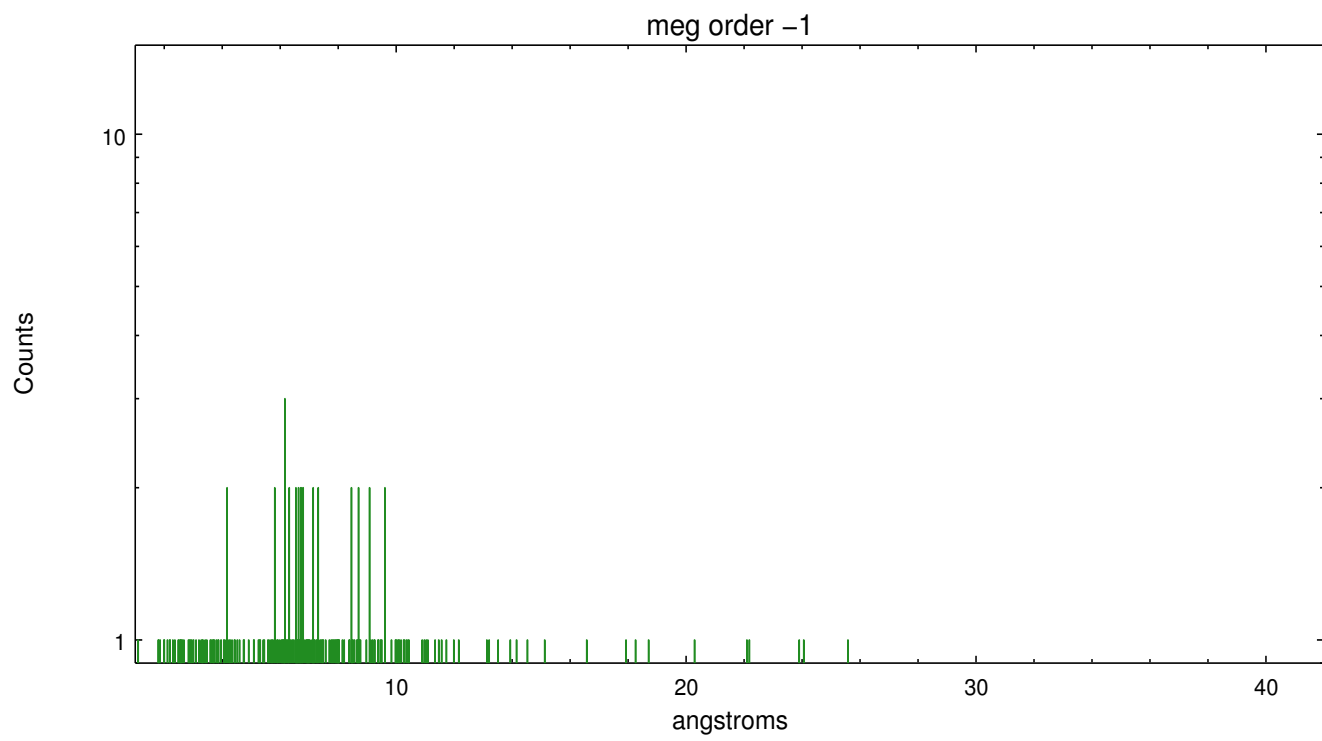
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	280	192	775	1115	832	204	252





# 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	21.0538997

## 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=4067.03, y=4076.46 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.

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