

# V&V Reference Report

## L2 ASCDS Version : 8.4.4

Observation 10226 - L2 Version 3  
Chandra X-Ray Center

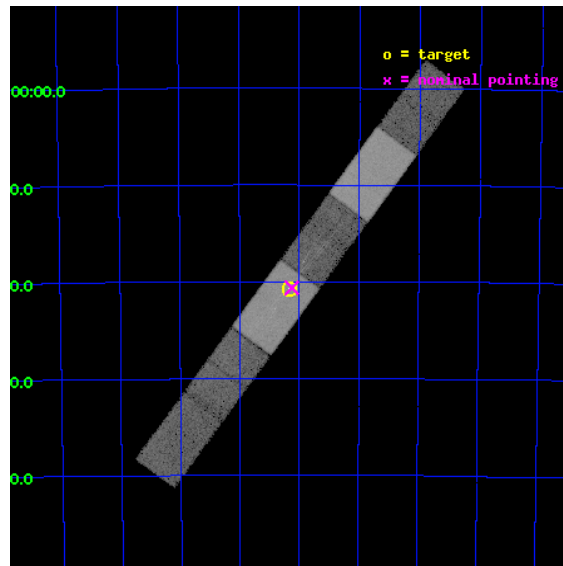
L2 Processing Date : May 29 2012

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI</b>	<b>3</b>
2.1	OBI . . . . .	3
2.1.1	Images . . . . .	3
2.1.2	Bias . . . . .	3
2.1.3	Parameters . . . . .	4
2.1.4	Events . . . . .	4
2.2	Compared Parameters . . . . .	5
2.3	Aspect . . . . .	6
2.4	Star Slots . . . . .	9
2.4.1	Slot 3 . . . . .	9
2.4.2	Slot 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>3</b>	<b>Gratings</b>	<b>17</b>
3.1	HEG Arm . . . . .	17
3.2	MEG Arm . . . . .	19
<b>A</b>	<b>Summary</b>	<b>21</b>
A.1	Status . . . . .	21
A.2	Comments . . . . .	21

# 1 Front

seq_num	501150	Sequence number
obs_id	10226	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	213.28094644794	Nominal RA [deg]
dec_nom	-65.343906555153	Nominal Dec [deg]
roll_nom	126.3601589778	Nominal Roll [deg]
revision	3	Processing version of data
ontime	20076.0	Sum of GTIs [s]
livetime	19672.323913299	Livetime [s]
ontime4	20073.959009767	Sum of GTIs [s]
ontime5	20076.0	Sum of GTIs [s]
ontime6	20076.0	Sum of GTIs [s]
ontime7	20076.0	Sum of GTIs [s]
ontime8	20076.0	Sum of GTIs [s]
ontime9	20073.959009707	Sum of GTIs [s]
l2events	211315	Number of level 2 events

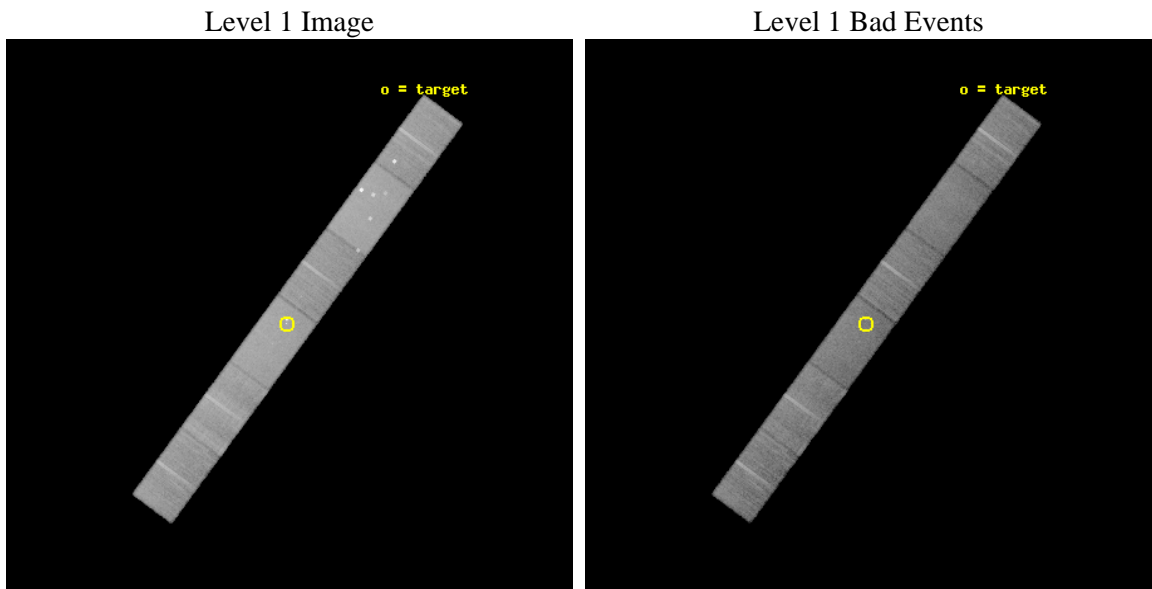




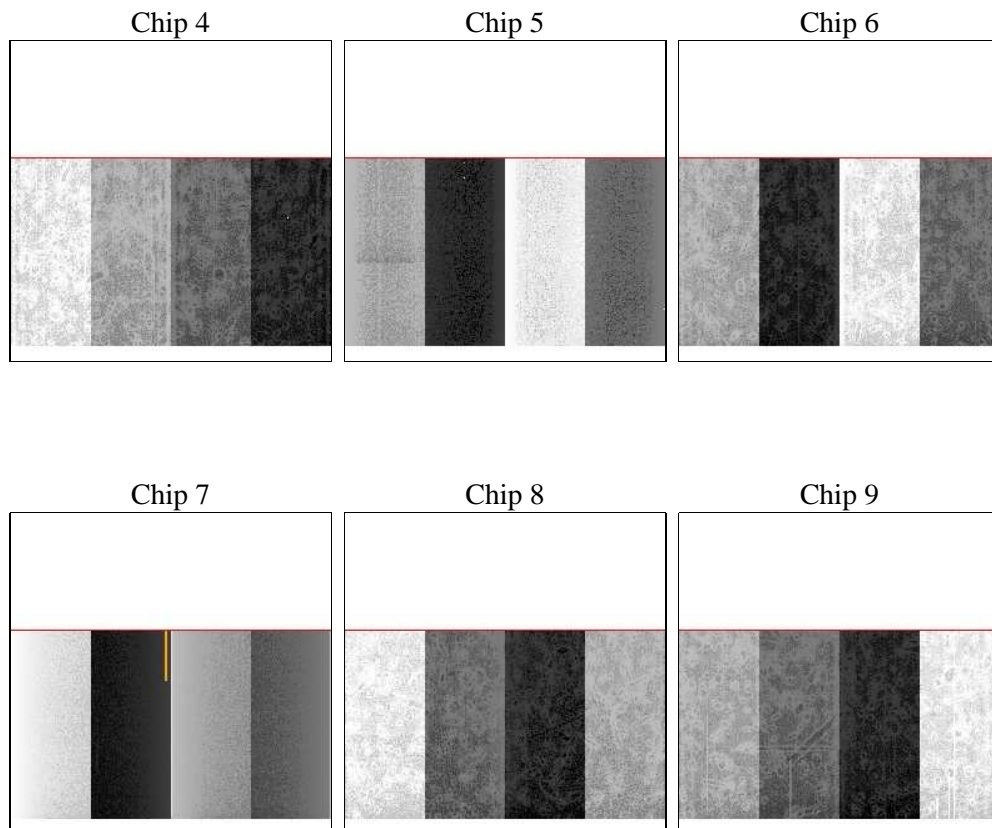
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	20000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.4	Processing system revision	ontime	20076.0	Sum of GTIs [s]
caldsver	4.4.9	&#160	ontime4	20073.959009767	Sum of GTIs [s]
date	2012-05-25T20:30:21	Date and time of file creation	ontime5	20076.0	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	20076.0	Sum of GTIs [s]
			ontime7	20076.0	Sum of GTIs [s]
			ontime8	20076.0	Sum of GTIs [s]
			ontime9	20073.959009707	Sum of GTIs [s]
			l1events	898034	Number of level 1 events

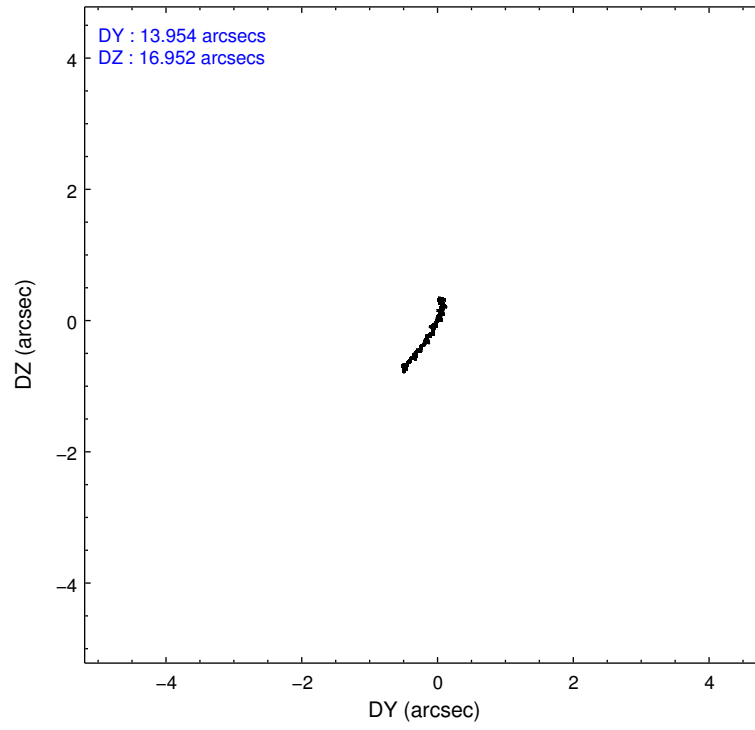
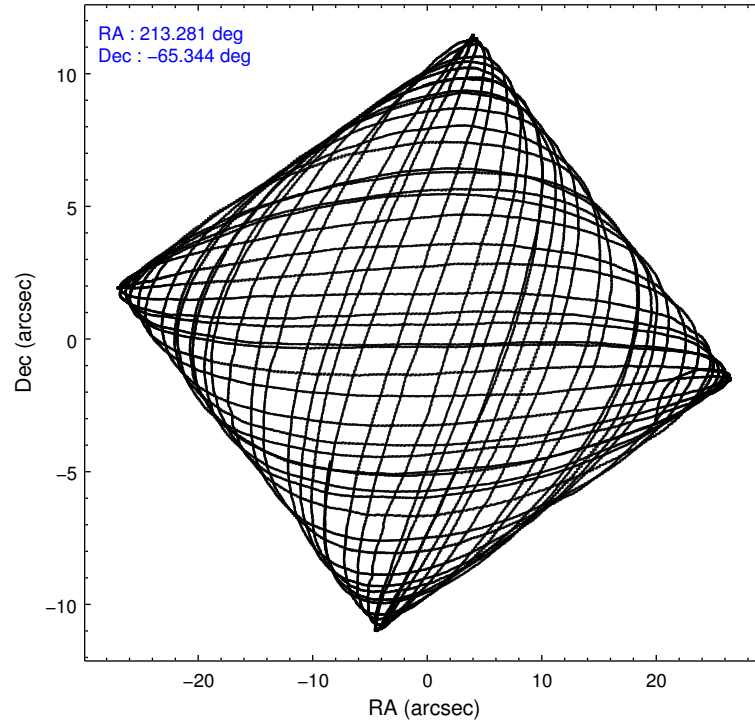
### 2.1.4 Events

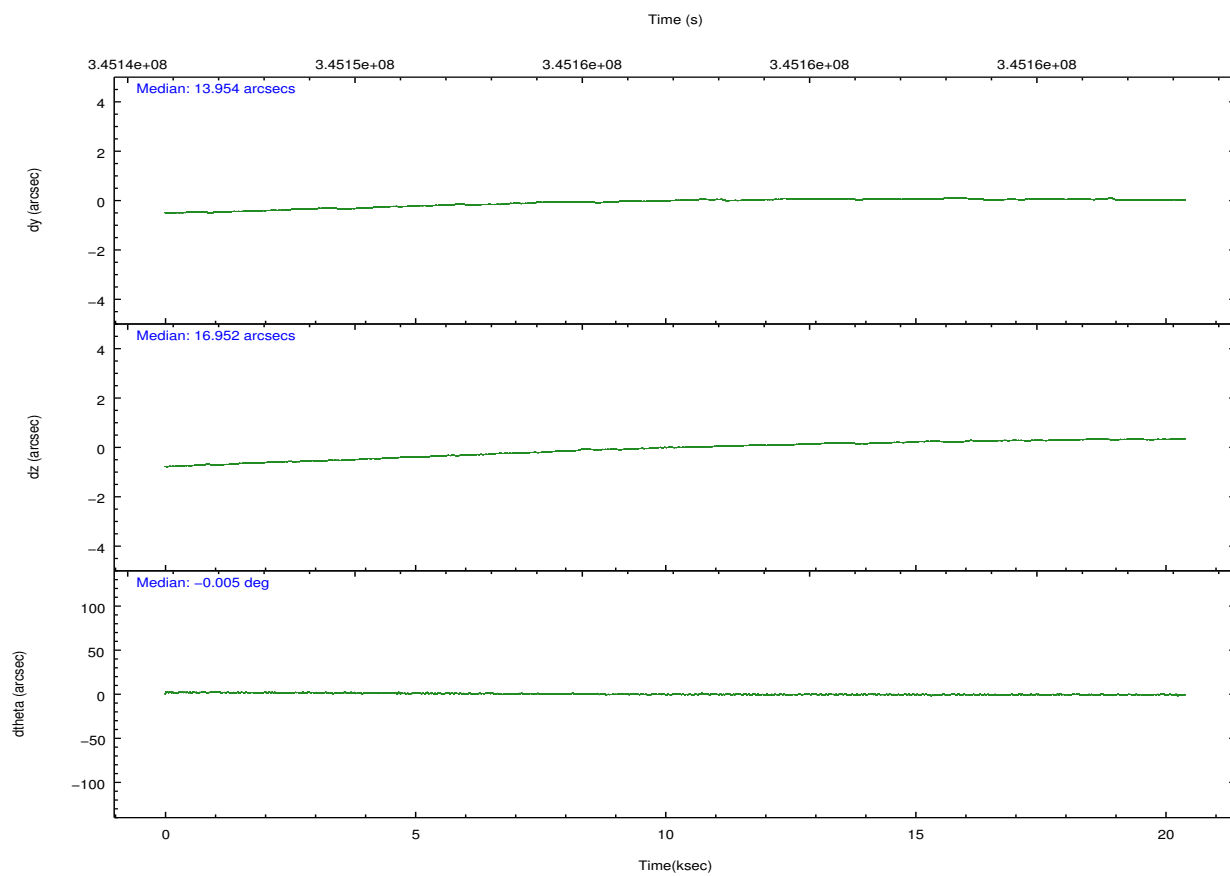
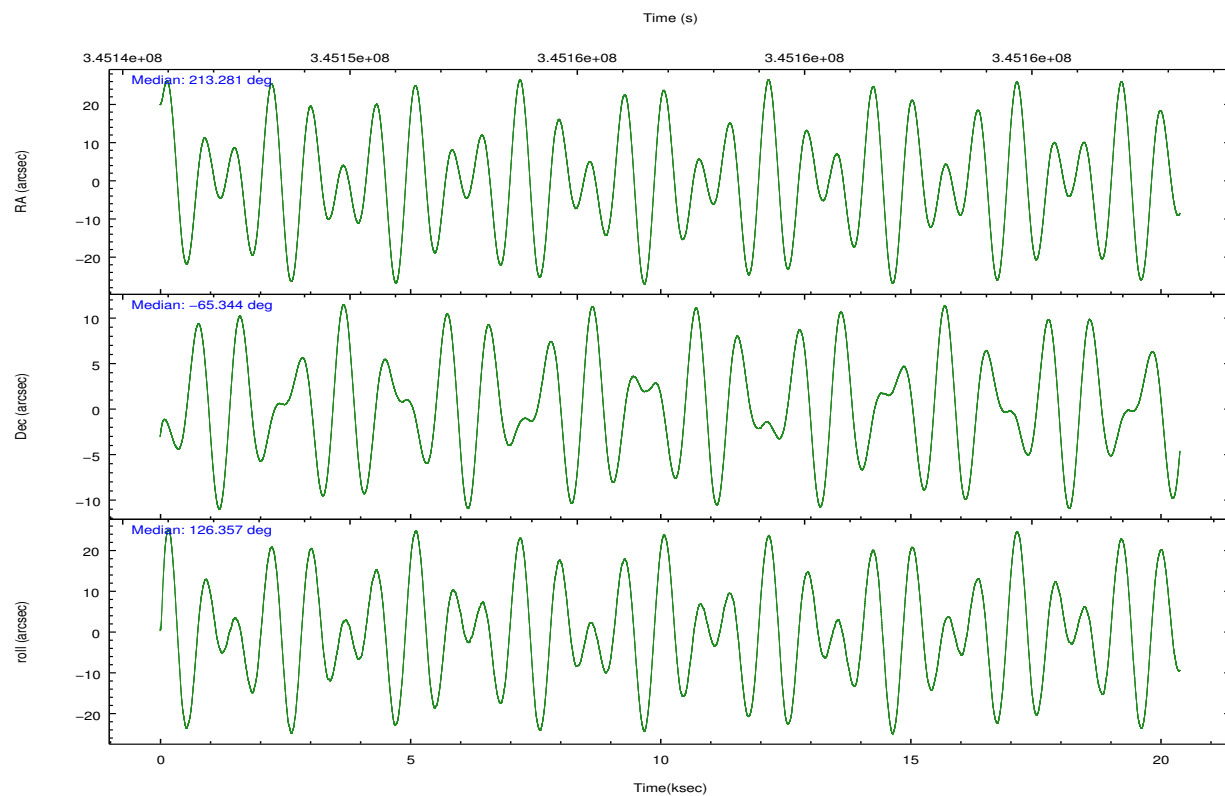
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	138580	197875	120388	170294	154188	116709	grade 0 events	12320	20305	6656	7270	11356	6364
rejected events	116871	98585	104149	94758	116882	101309		8%	10%	5%	4%	7%	5%
rejected %	84%	49%	86%	55%	75%	86%	grade 1 events	124	291	57	190	75	45
								0%	0%	0%	0%	0%	0%
							grade 2 events	3506	26817	3373	16009	8367	2963
								2%	13%	2%	9%	5%	2%
							grade 3 events	1725	4036	1657	6880	3980	1589
								1%	2%	1%	4%	2%	1%
							grade 4 events	1605	3817	1602	6824	3774	1542
								1%	1%	1%	4%	2%	1%
							grade 5 events	5433	14142	5541	15798	7558	5990
								3%	7%	4%	9%	4%	5%
							grade 6 events	2555	44346	2954	38561	9830	2947
								1%	22%	2%	22%	6%	2%
							grade 7 events	111312	84121	98548	78762	109248	95269
								80%	42%	81%	46%	70%	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	213.341314	213.2809464479414	CCD I2 on	N	N
[deg] Pointing Dec	-65.354487	-65.34390655515335	CCD I3 on	N	N
[deg] Pointing Roll	126.258406	126.360158977797	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	-186.1372760897884	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-4	-3.99524649321944	CCD S4 on	Y	Y
[s] Observation start time (MET)	345147227.184000	345146291.07334	CCD S5 on	Y	Y
Observation start date	2008-12-08T18:12:42	2008-12-08T17:58:11	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	345167227.184000	345168545.36194	On-chip summing requested	N	N
Observation end date	2008-12-08T23:46:02	2008-12-09T00:09:05	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



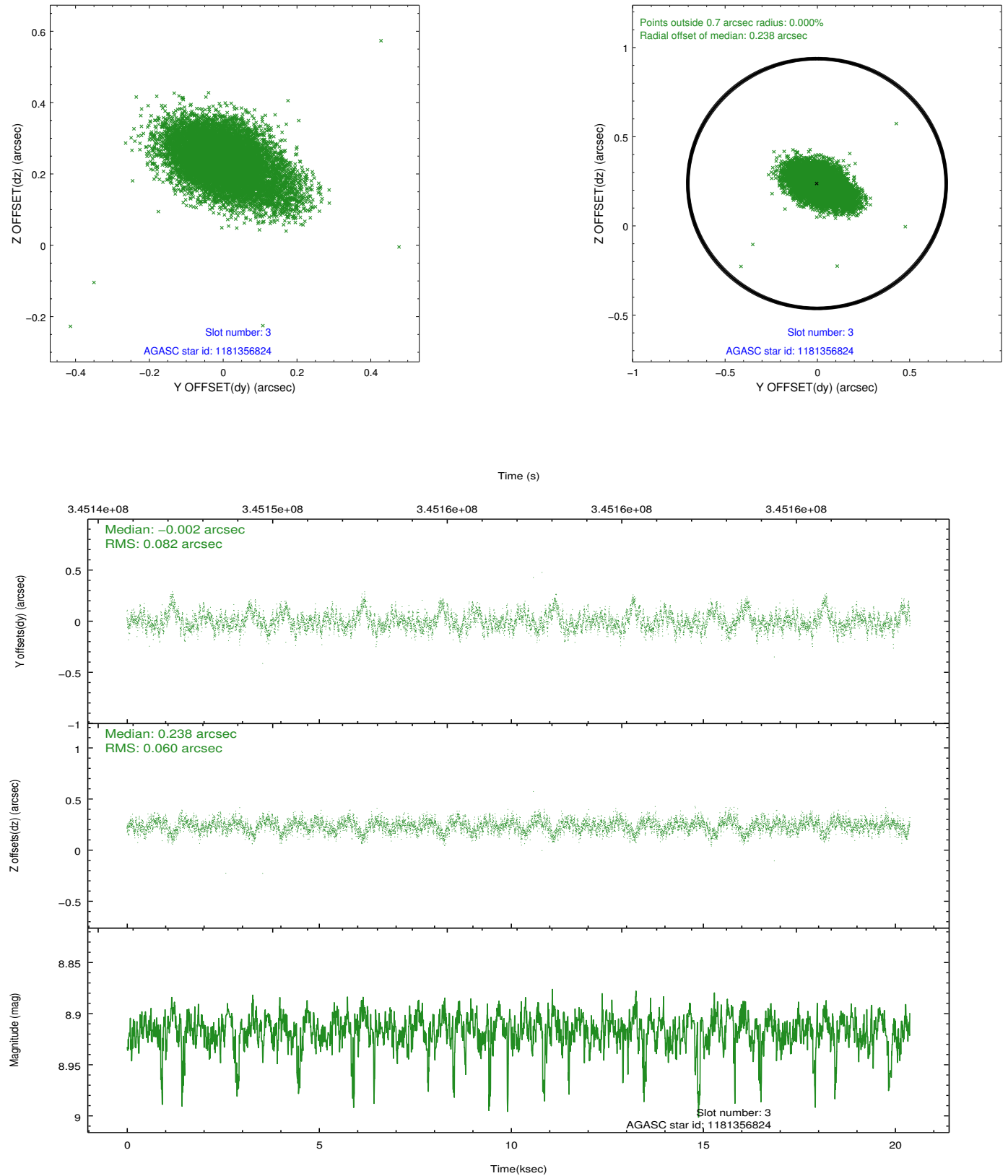


### Slot Statistics

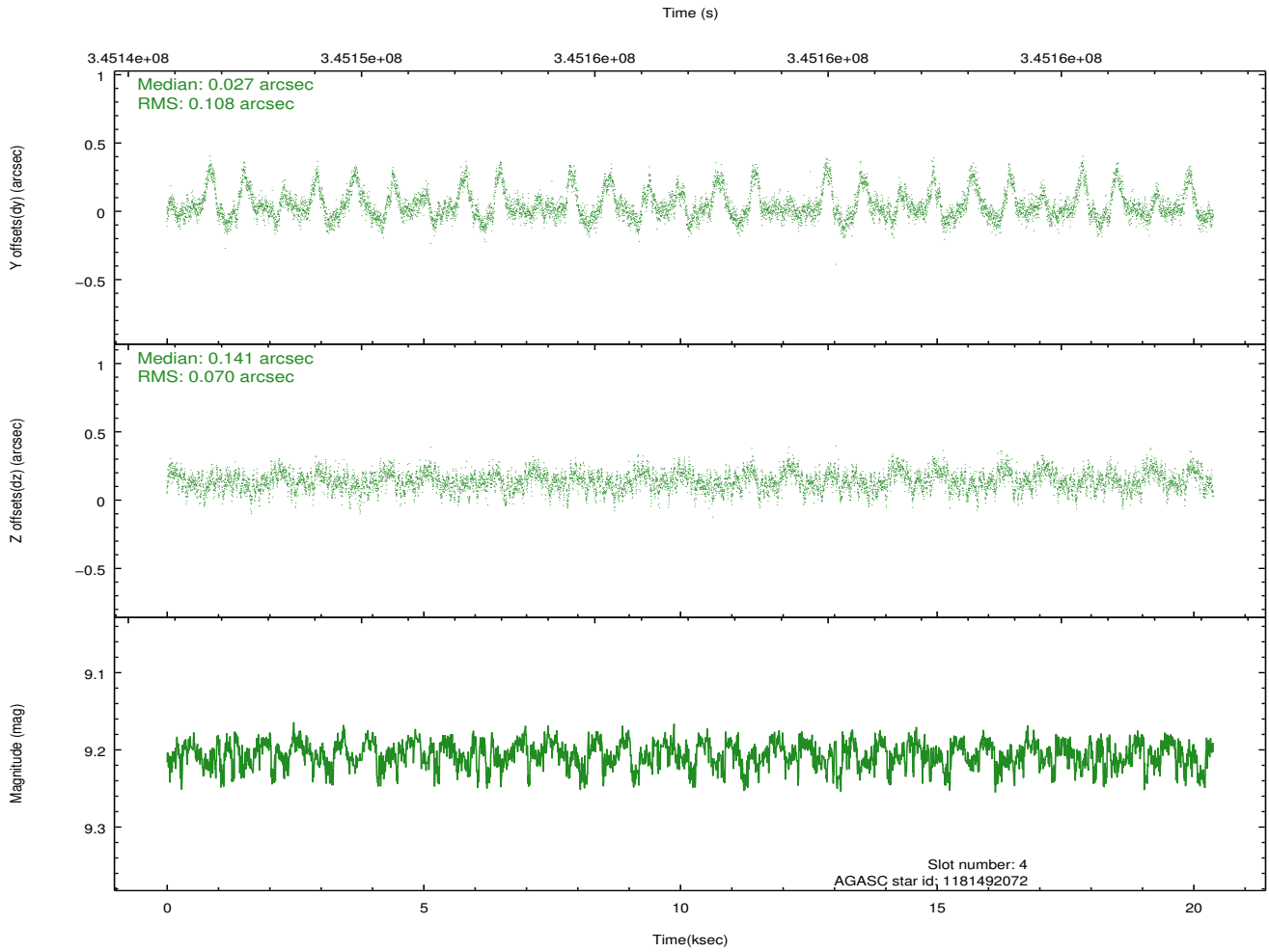
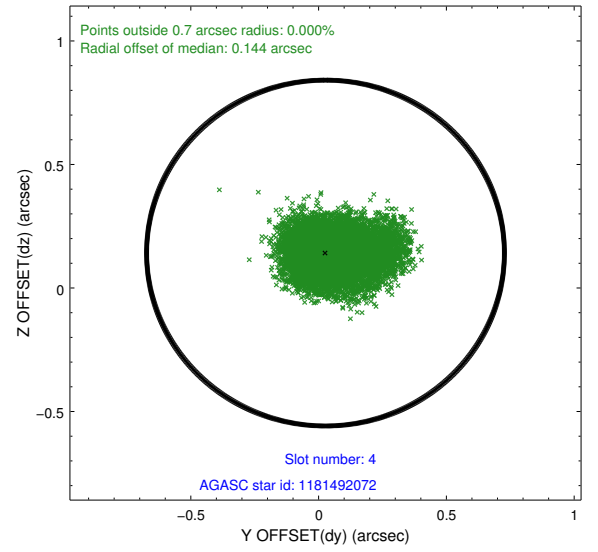
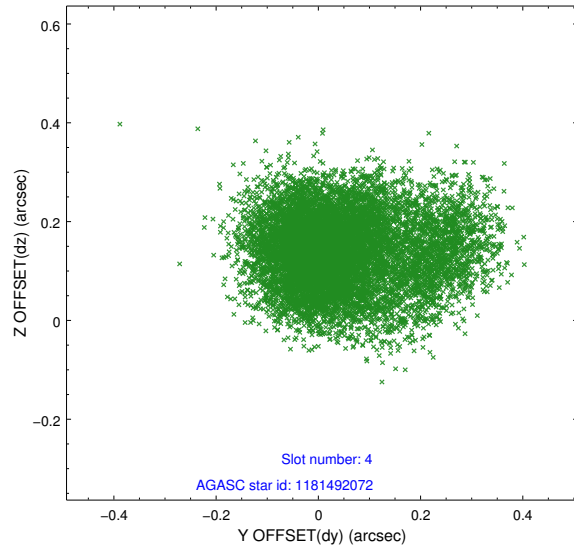
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.89	4973	-0.083	-0.044	0.013	0.024	0.000000	0.000000	-766.58	-1820.78
1	FID	ACIS-S-4	6.96	4972	0.197	0.051	0.009	0.021	0.000000	0.000000	2146.86	87.63
2	FID	ACIS-S-5	7.00	4973	-0.145	-0.000	0.012	0.022	0.000000	0.000000	-1819.28	81.40
3	GUIDE	1181356824	8.92	9940	-0.002	0.238	0.103	0.186	213.100076	-64.682630	2169.89	-1129.97
4	GUIDE	1181492072	9.21	9938	0.027	0.141	0.129	0.245	214.479575	-65.592809	-1704.85	-848.63
5	GUIDE	1181492872	9.07	9937	0.035	0.107	0.106	0.166	214.965330	-65.517798	-1931.71	-1587.00
6	GUIDE	1181888328	9.13	9935	0.106	-0.019	0.102	0.165	213.100875	-66.006078	-1683.68	1671.71
7	GUIDE	1181353952	8.89	9933	-0.190	-0.463	0.091	0.141	211.658427	-65.506998	1015.50	2369.73

## 2.4 Star Slots

### 2.4.1 Slot 3

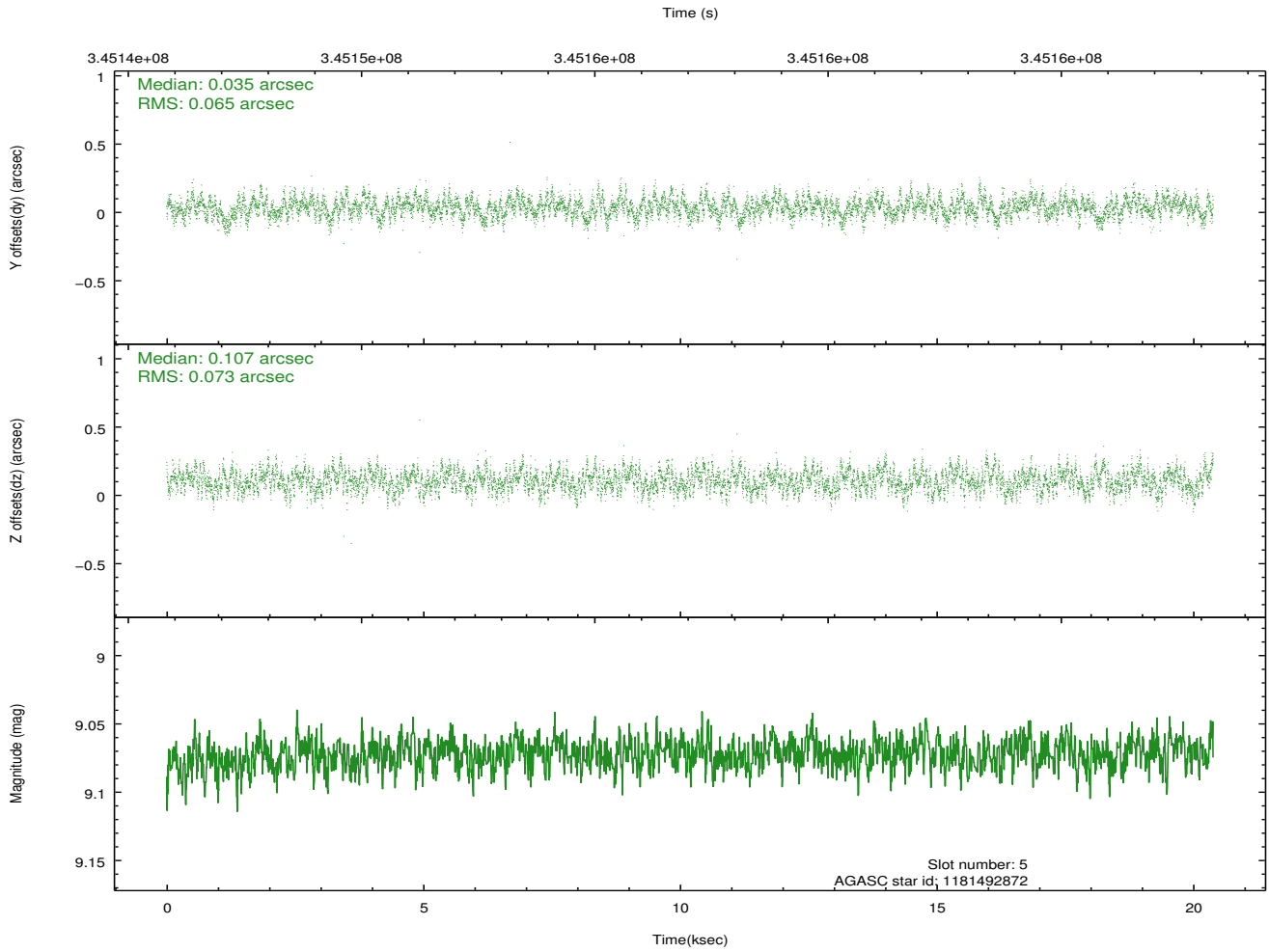
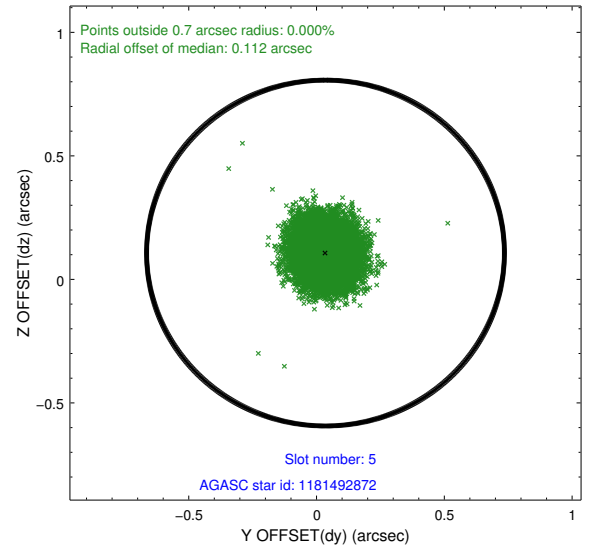
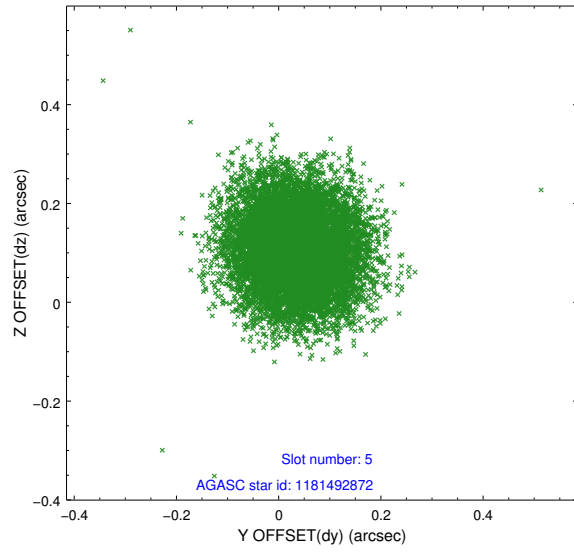


## 2.4.2 Slot 4

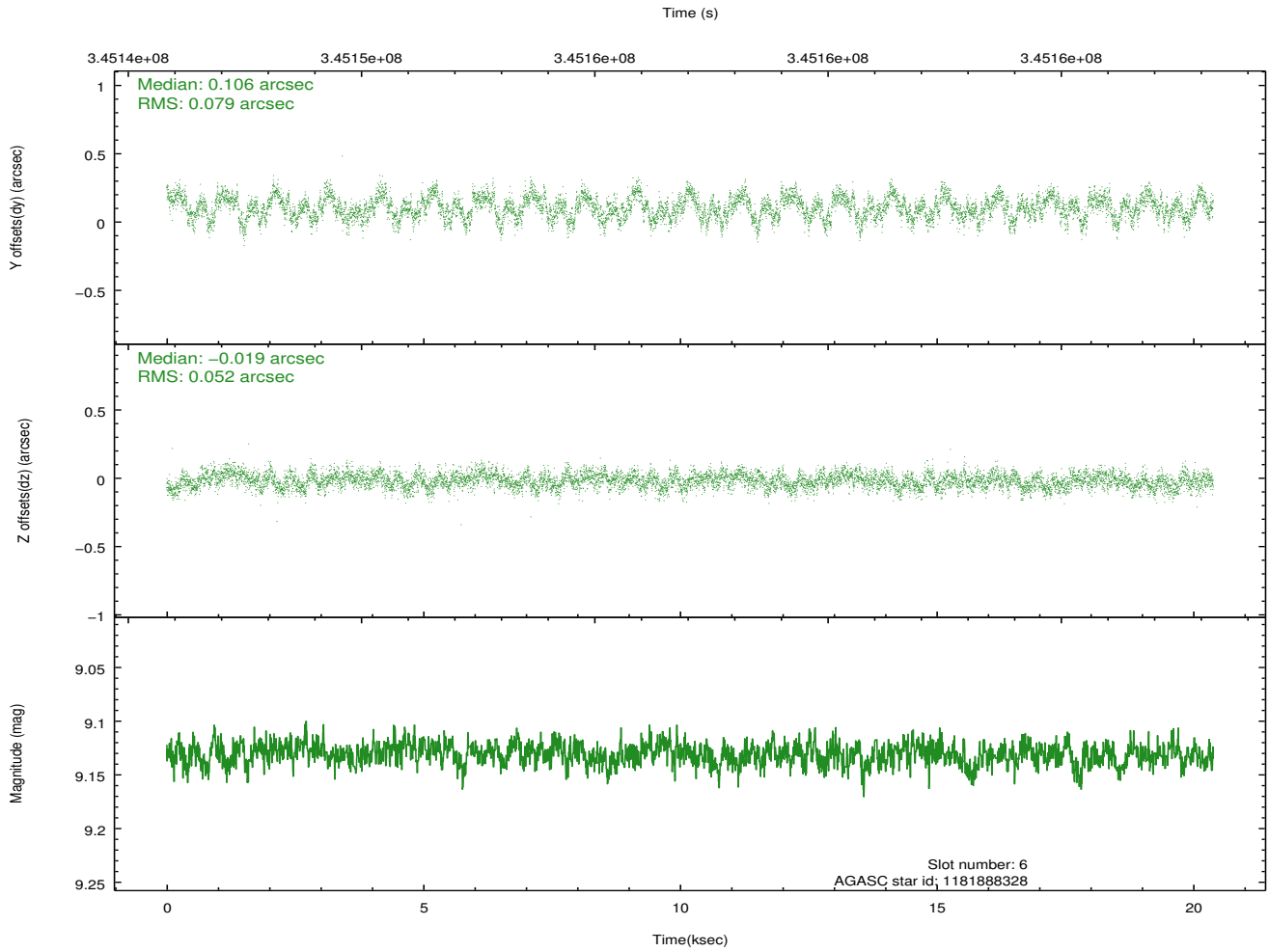
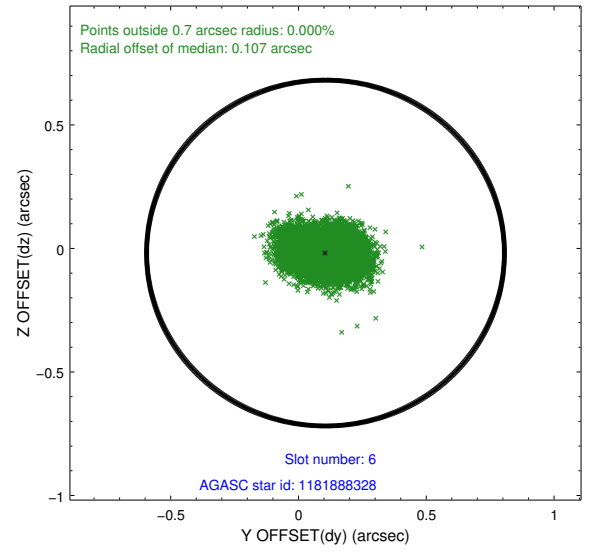
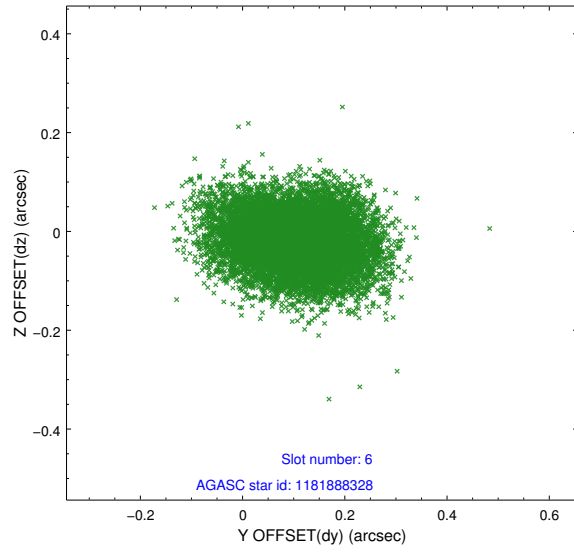




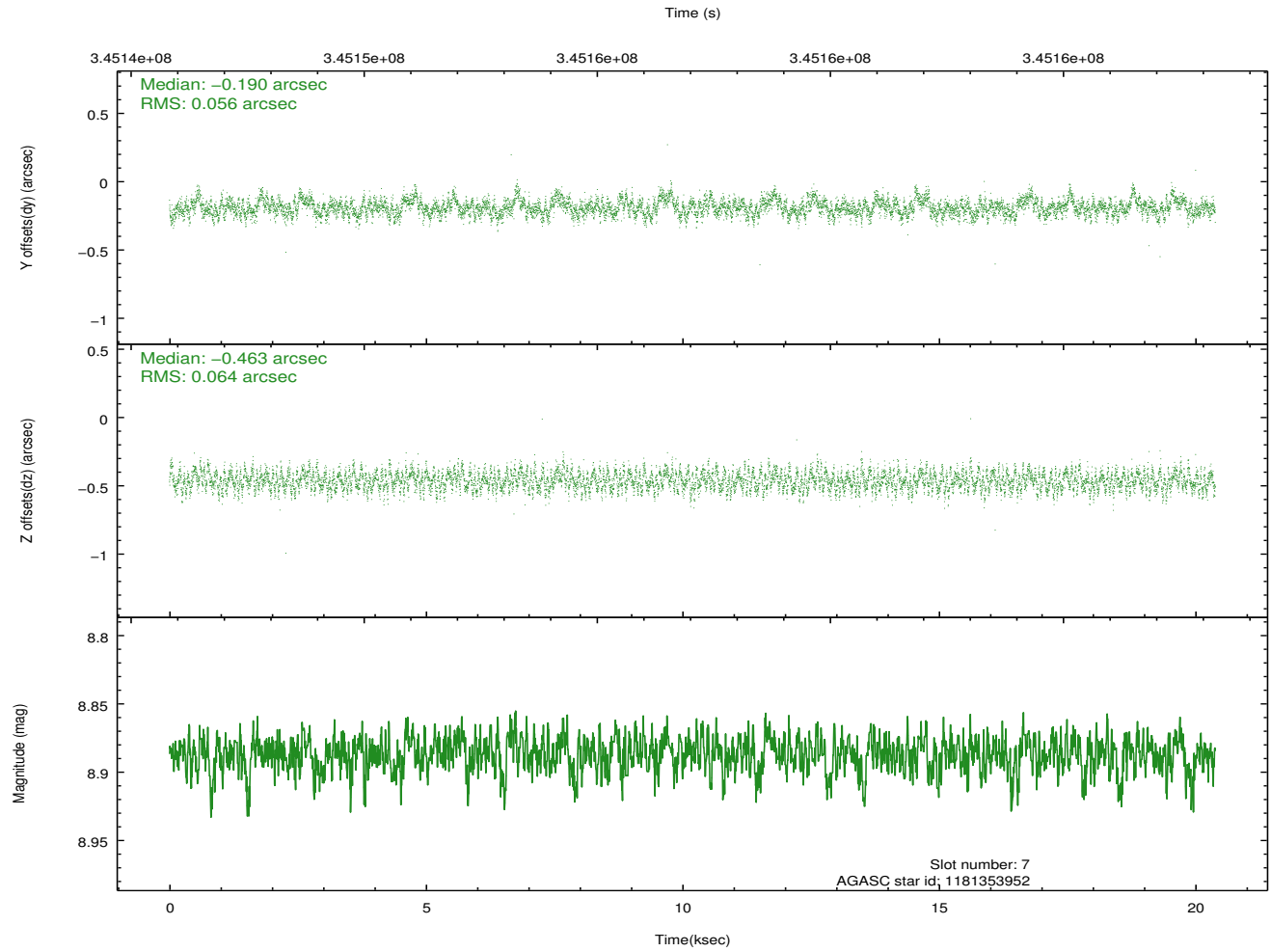
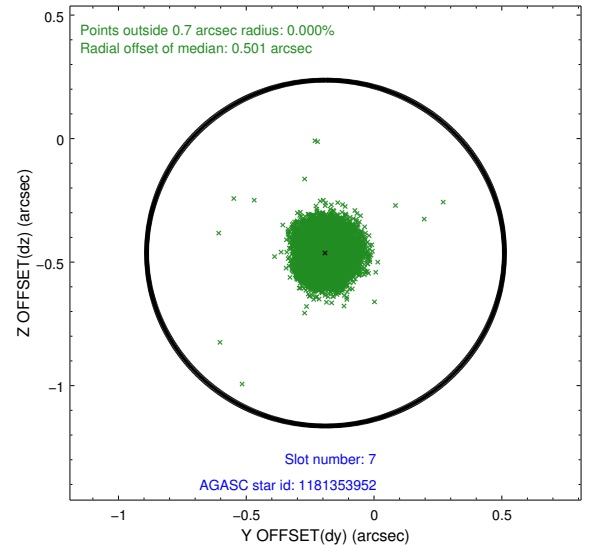
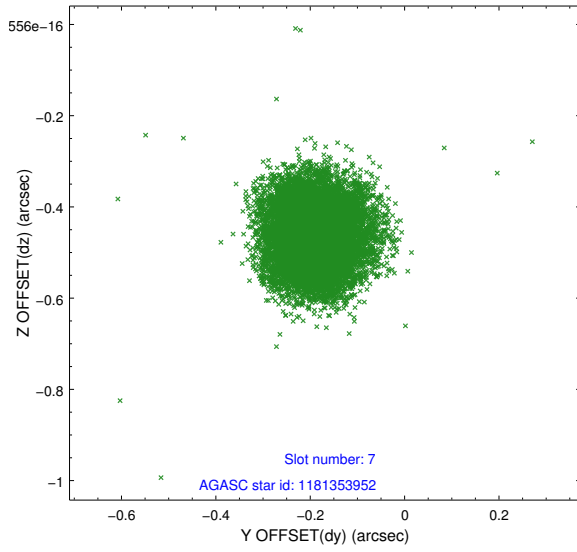
### 2.4.3 Slot 5



## 2.4.4 Slot 6

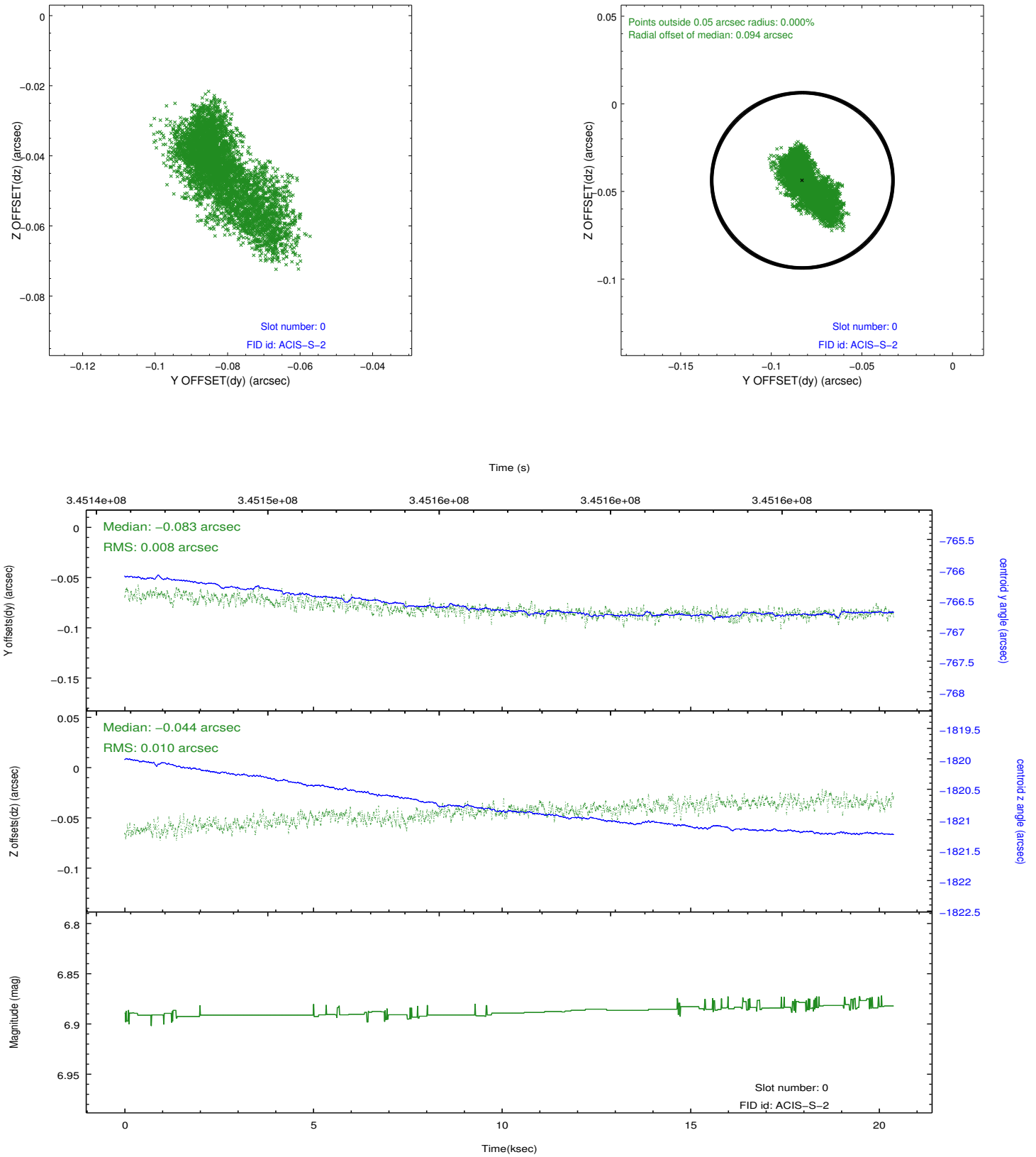


## 2.4.5 Slot 7

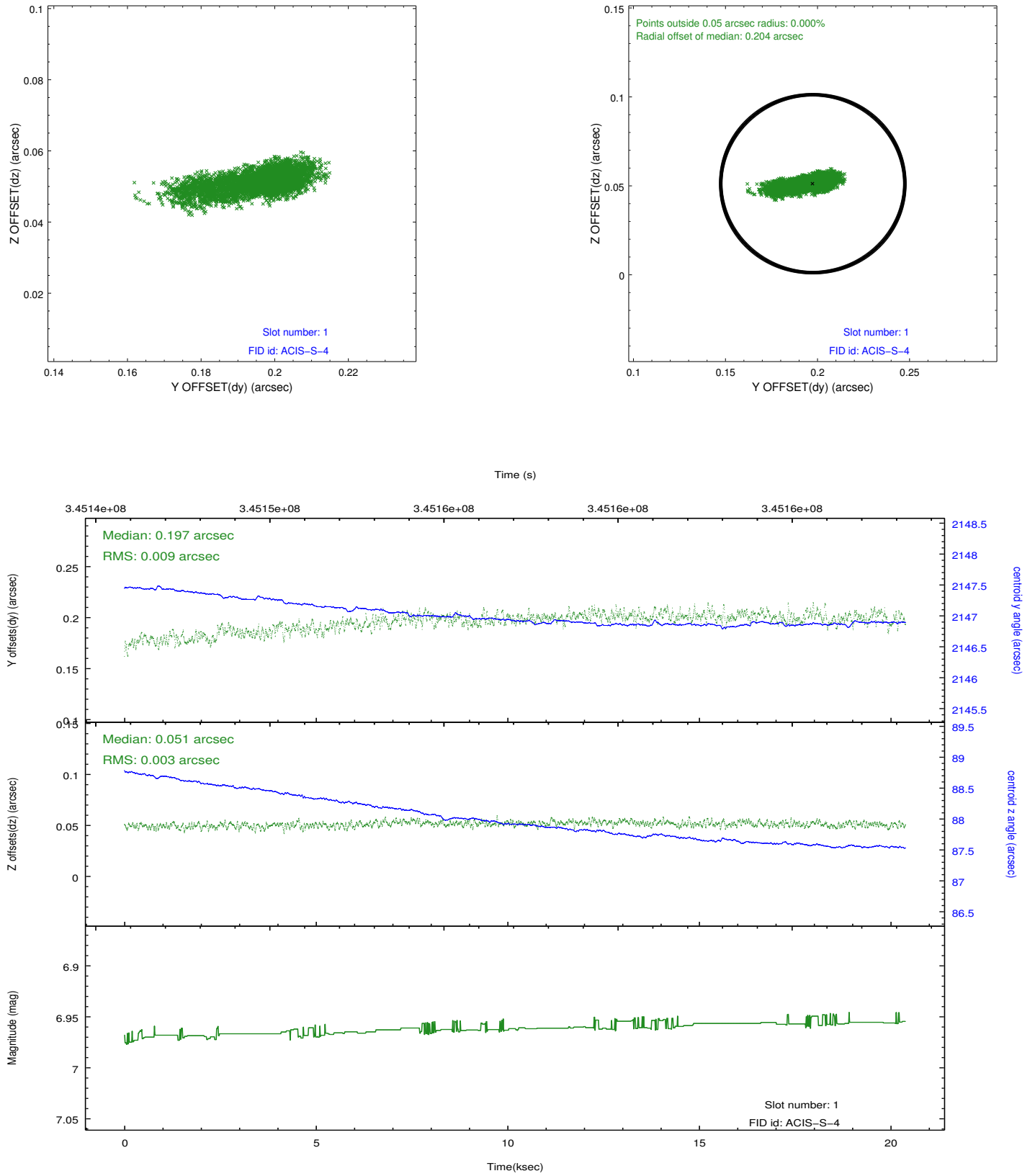


## 2.5 FID Slots

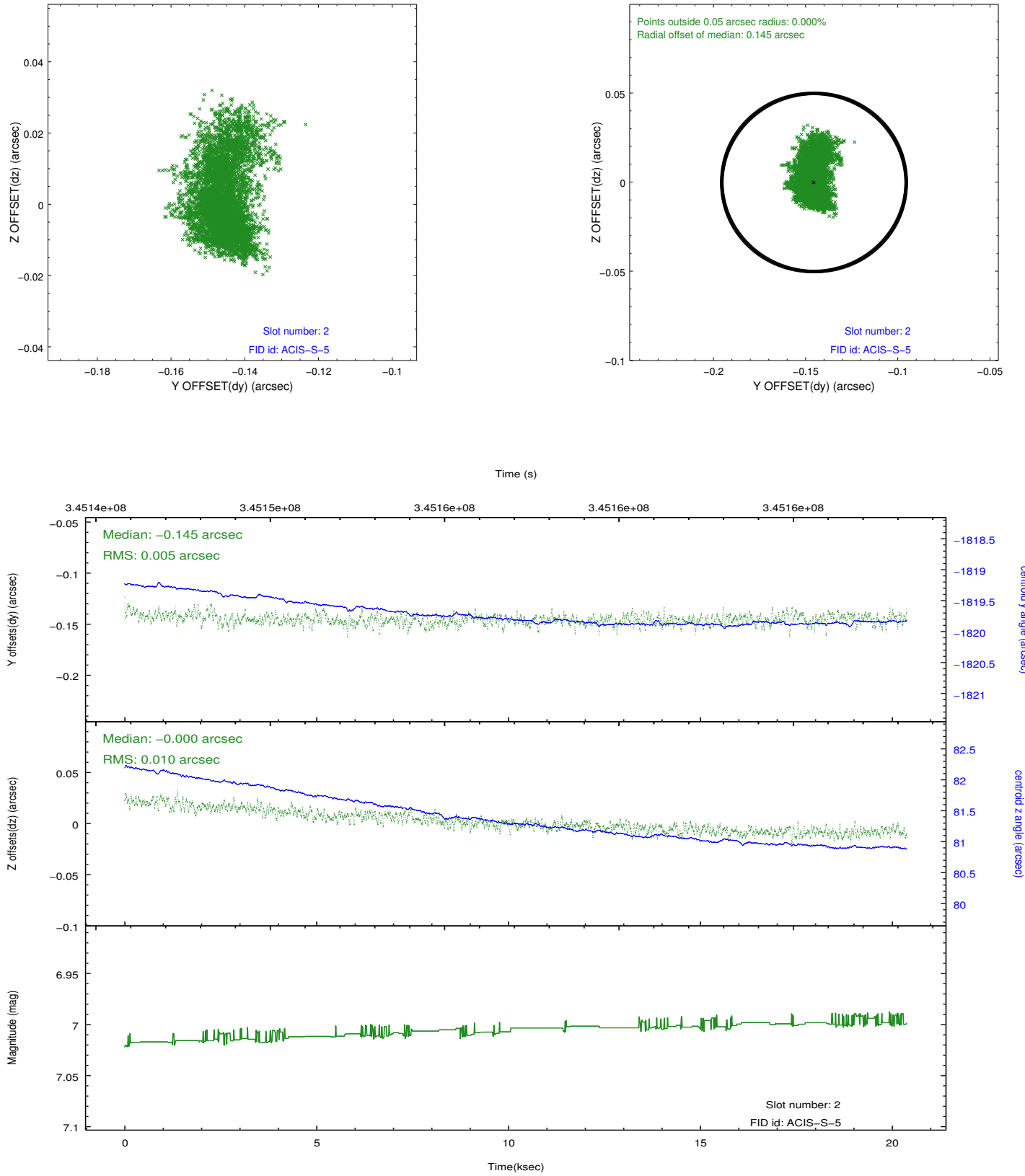
### 2.5.1 Slot 0



## 2.5.2 Slot 1

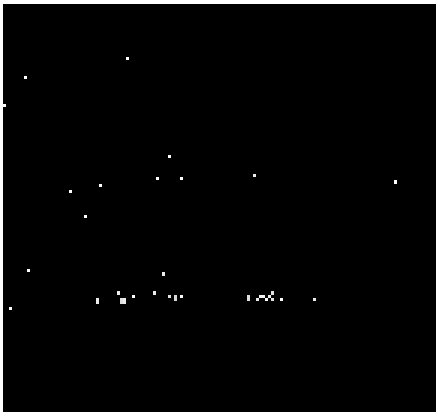


### 2.5.3 Slot 2

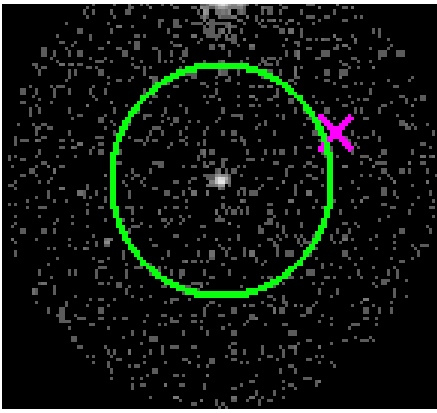


# 3 Gratings

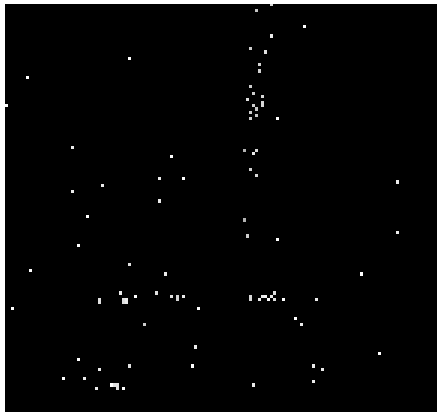
## 3.1 HEG Arm



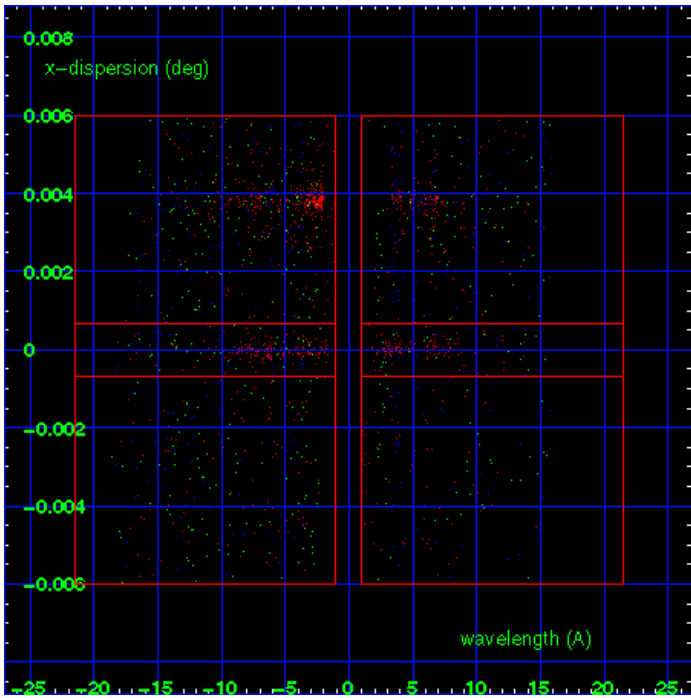
HEG Order Sort 123



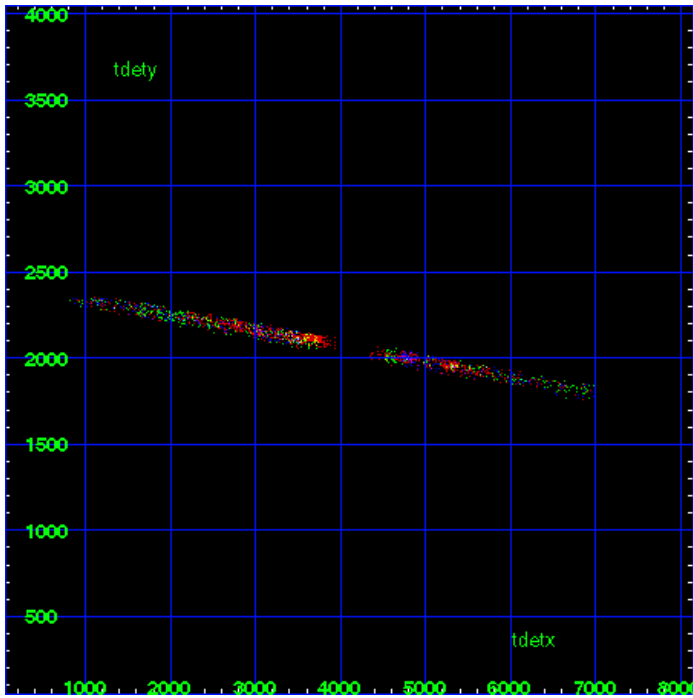
HEG Zero Order



HEG Order Sort ALL

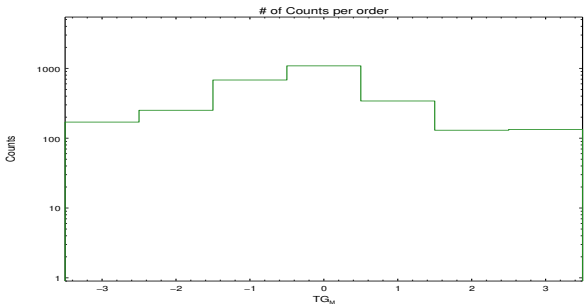


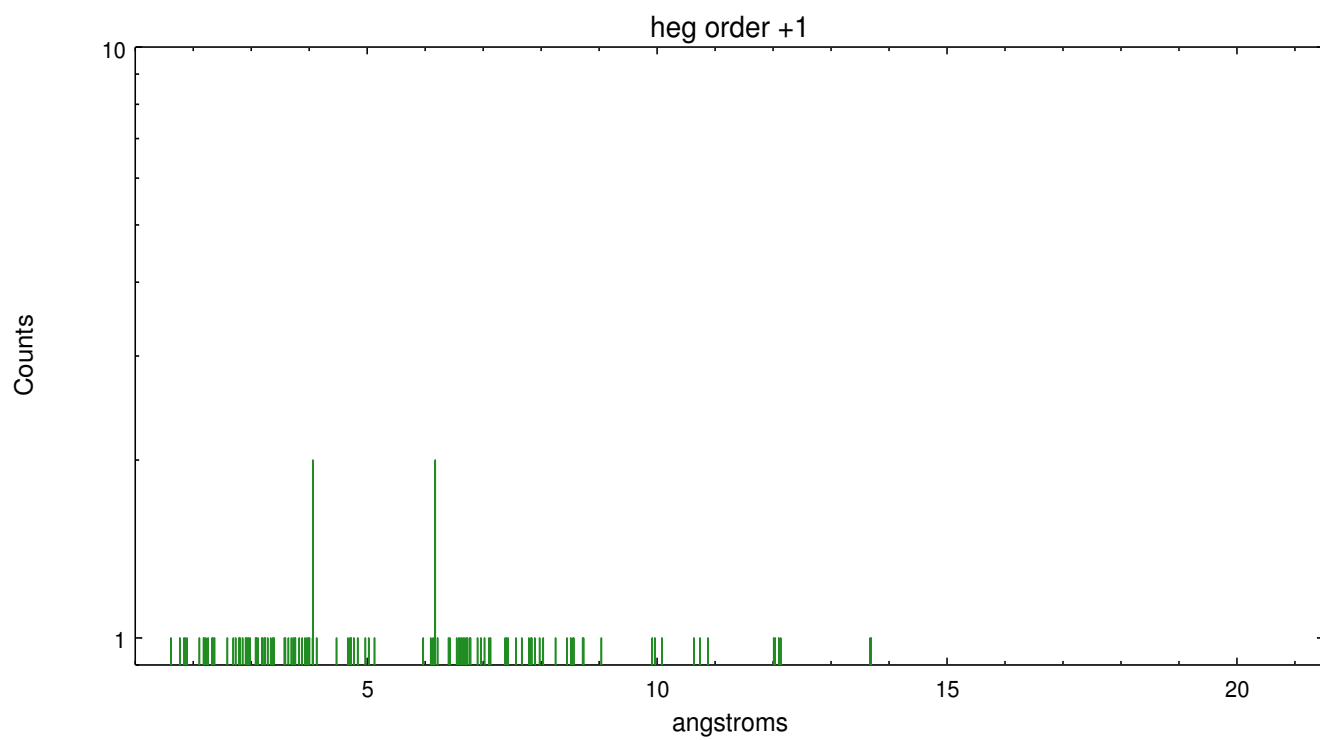
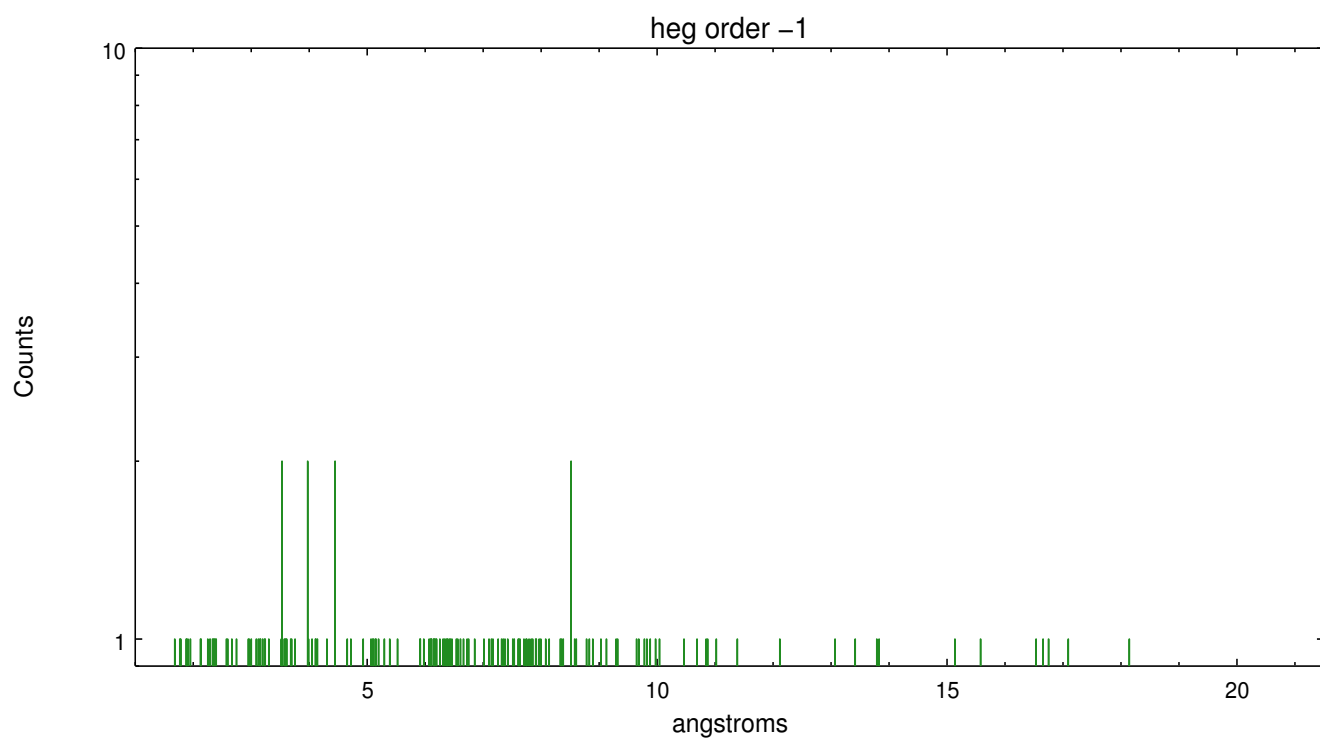
Spot Image HEG



Full Detector HEG

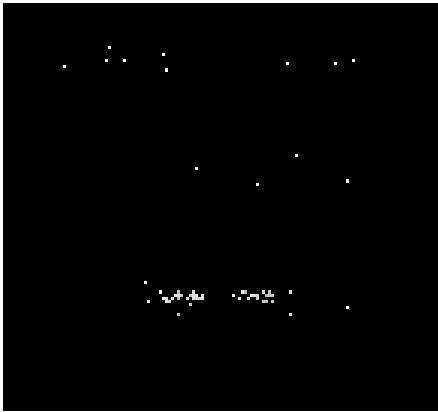
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	170	251	681	1086	341	130	133



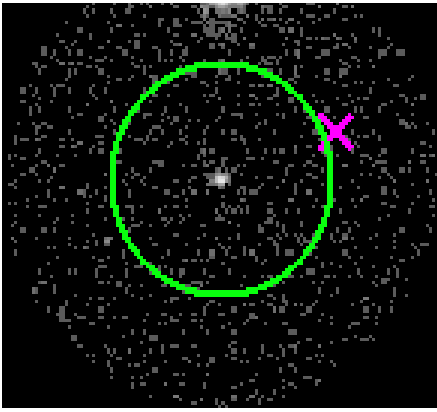




3.2 MEG Arm



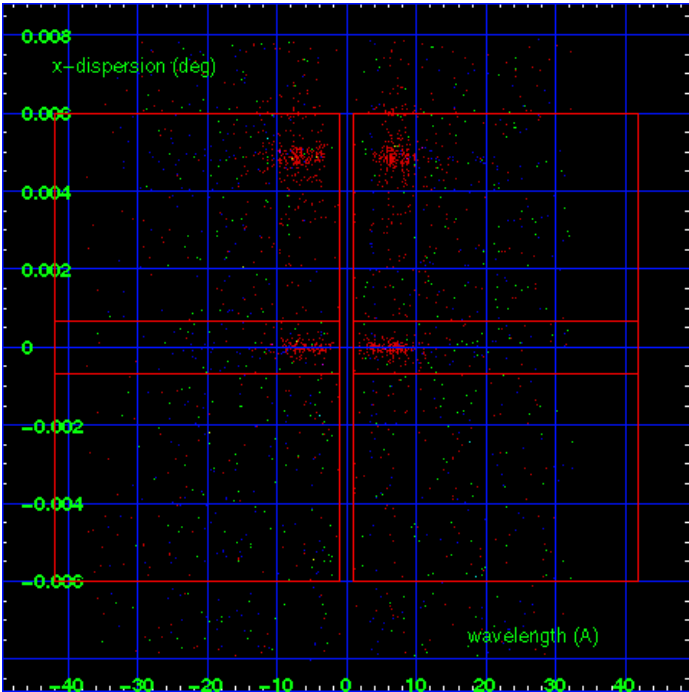
MEG Order Sort 123



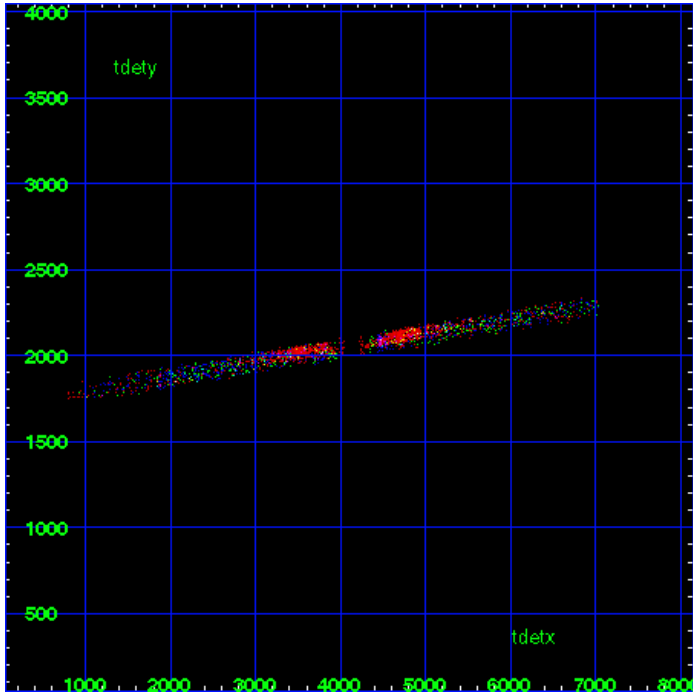
MEG Zero Order



MEG Order Sort ALL

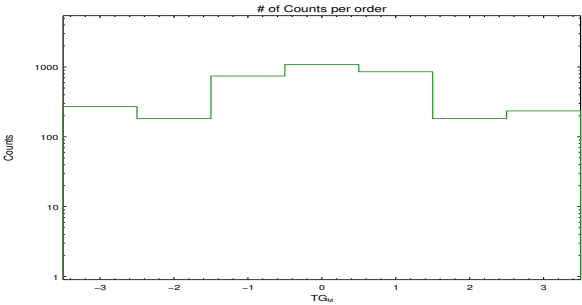


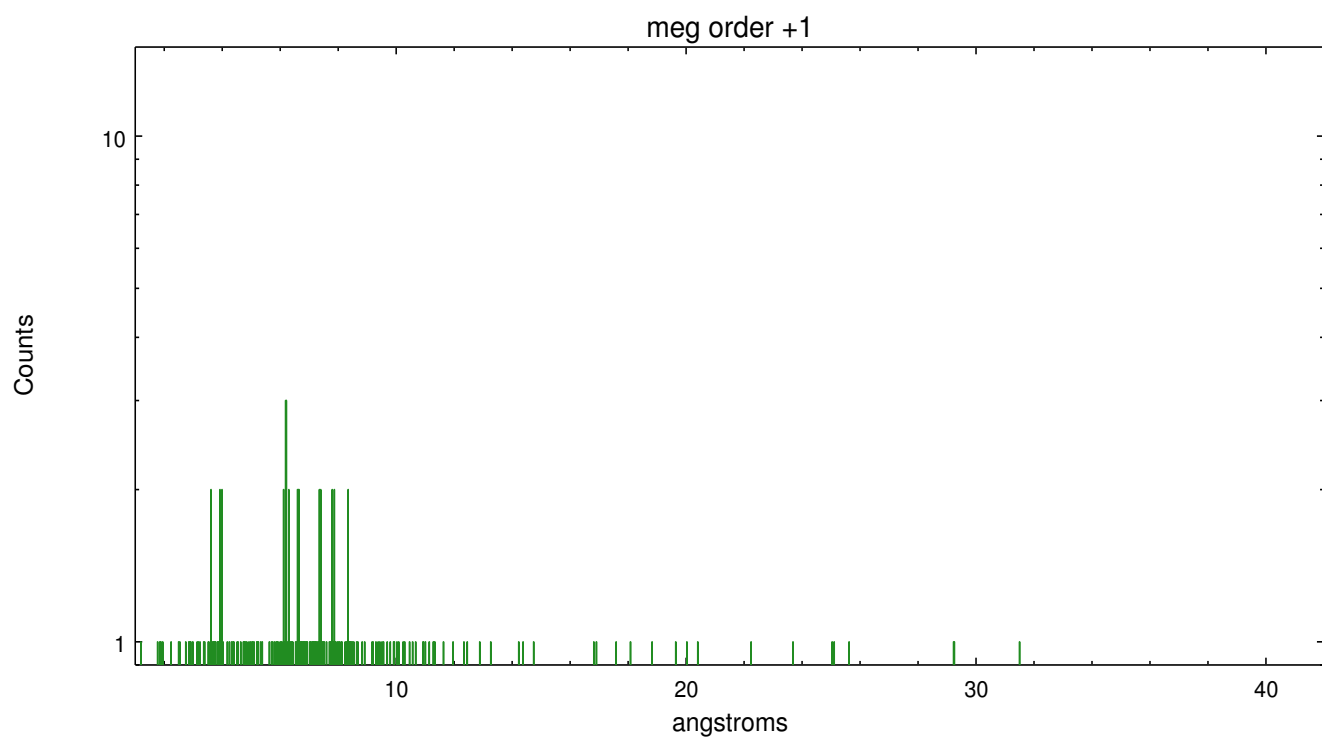
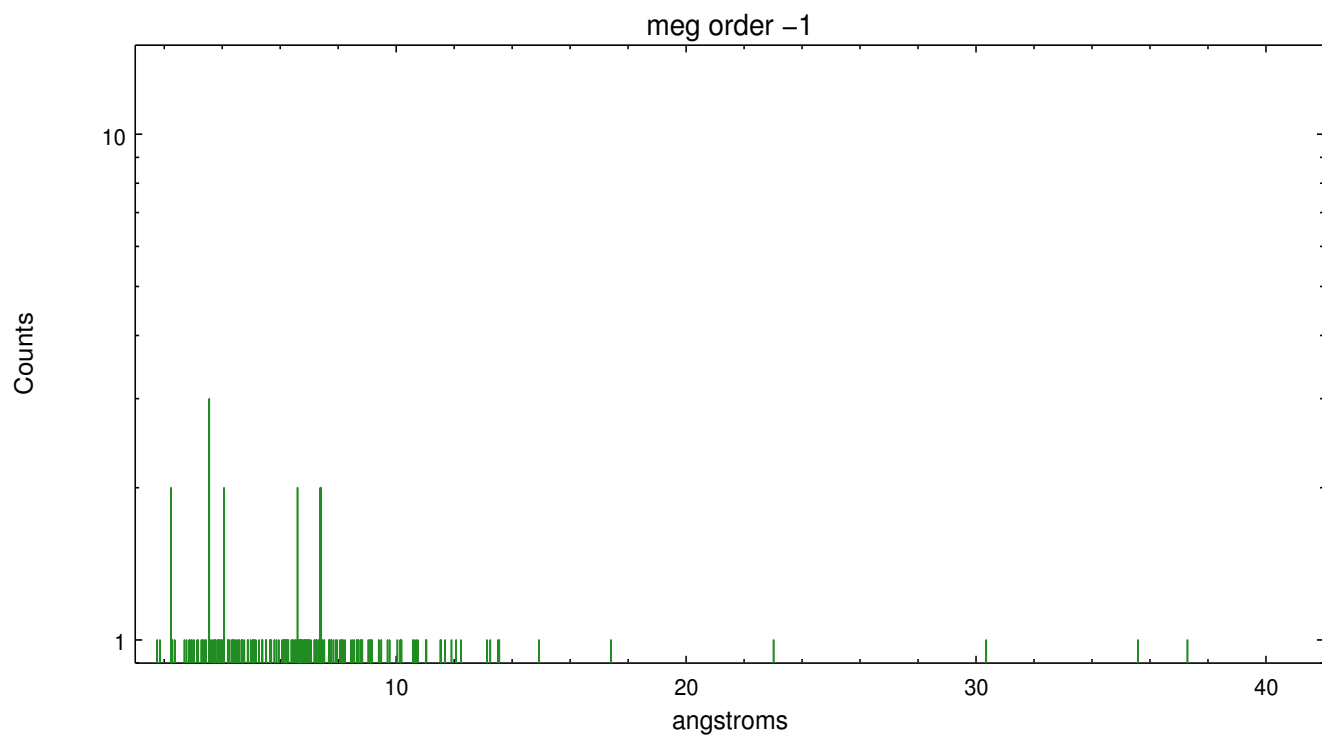
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	271	183	742	1086	855	183	235





# 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	20.076

## A.2 Comments

Roll preference not precisely met. Request was for 120 degrees +/- 5 degrees. Observed roll angle is 126.36 degrees.=====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=4063.77, y=4083.44 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.