

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 57 - L2 Version 4  
Chandra X-Ray Center

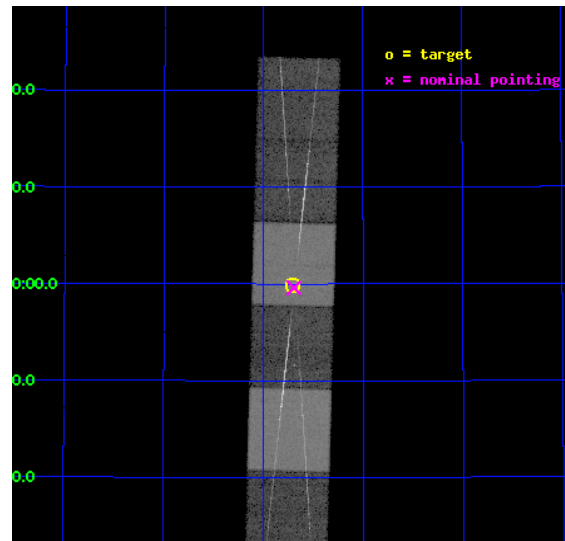
L2 Processing Date : Aug 24 2012

## 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	290026	Sequence number
obs_id	57	Observation id
title	GRATINGS CALIBRATION OBSERVATION OF AN EMISSION LINE SOURCE: CAPELLA	&#160
observer	Dr. CXC Calibration	Principal investigator
object	CAPELLA	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	79.17625	Observer's specified target RA [deg]
dec_targ	45.997889	Observer's specified target Dec [deg]
ra_nom	79.173778356592	Nominal RA [deg]
dec_nom	45.993449138606	Nominal Dec [deg]
roll_nom	271.5383696774	Nominal Roll [deg]
revision	4	Processing version of data
ontime	29205.179319784	Sum of GTIs [s]
livetime	28835.365753989	Livetime [s]
ontime4	29205.220359787	Sum of GTIs [s]
ontime5	29205.138279781	Sum of GTIs [s]
ontime6	29205.097239792	Sum of GTIs [s]
ontime7	29205.179319784	Sum of GTIs [s]
ontime8	29205.056199789	Sum of GTIs [s]
ontime9	29205.015159786	Sum of GTIs [s]
l2events	366307	Number of level 2 events

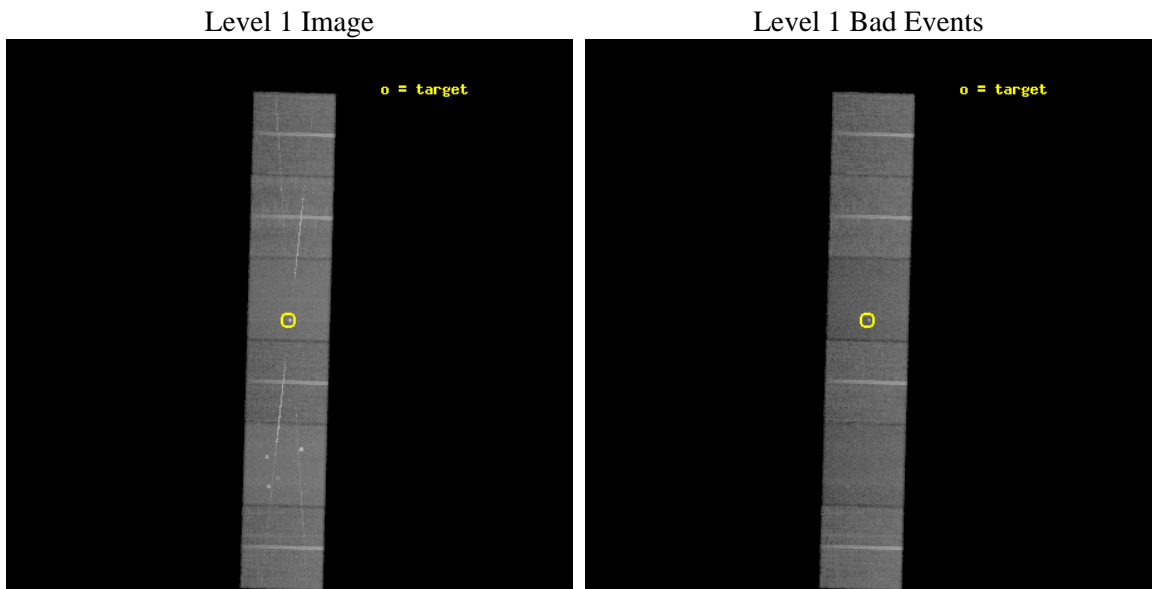




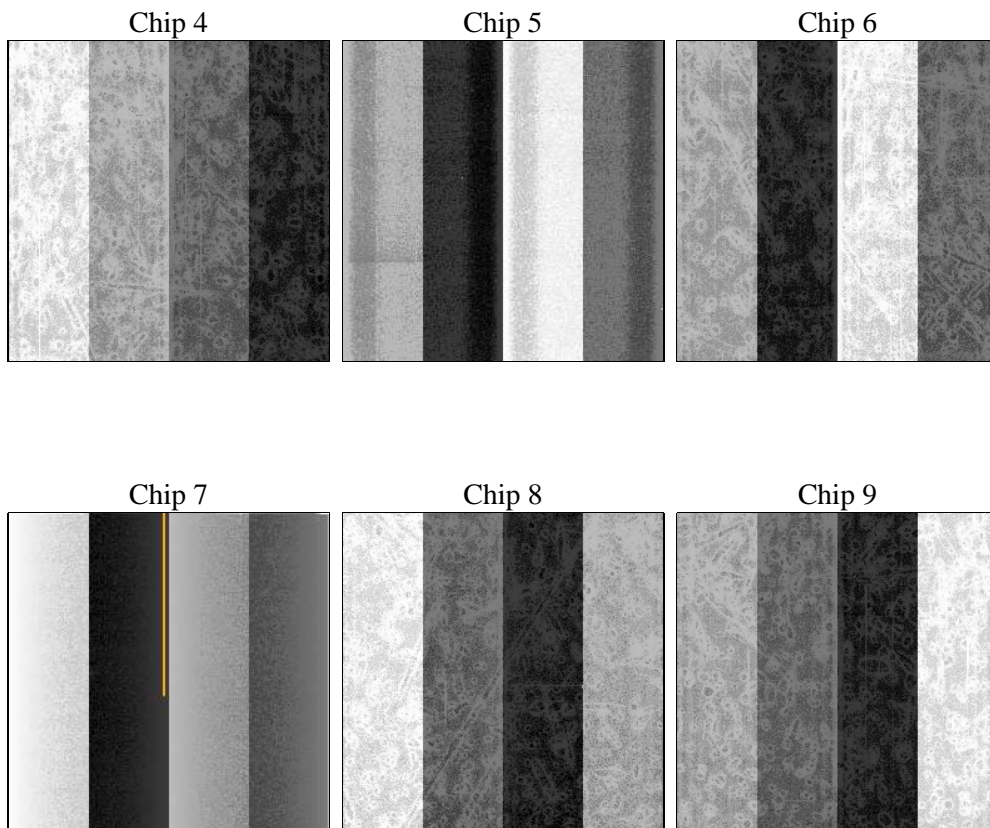
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30161.089000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	29205.179319784	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	29205.220359787	Sum of GTIs [s]
date	2012-08-23T20:00:07	Date and time of file creation	ontime5	29205.138279781	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	29205.097239792	Sum of GTIs [s]
			ontime7	29205.179319784	Sum of GTIs [s]
			ontime8	29205.056199789	Sum of GTIs [s]
			ontime9	29205.015159786	Sum of GTIs [s]
			l1events	1541872	Number of level 1 events

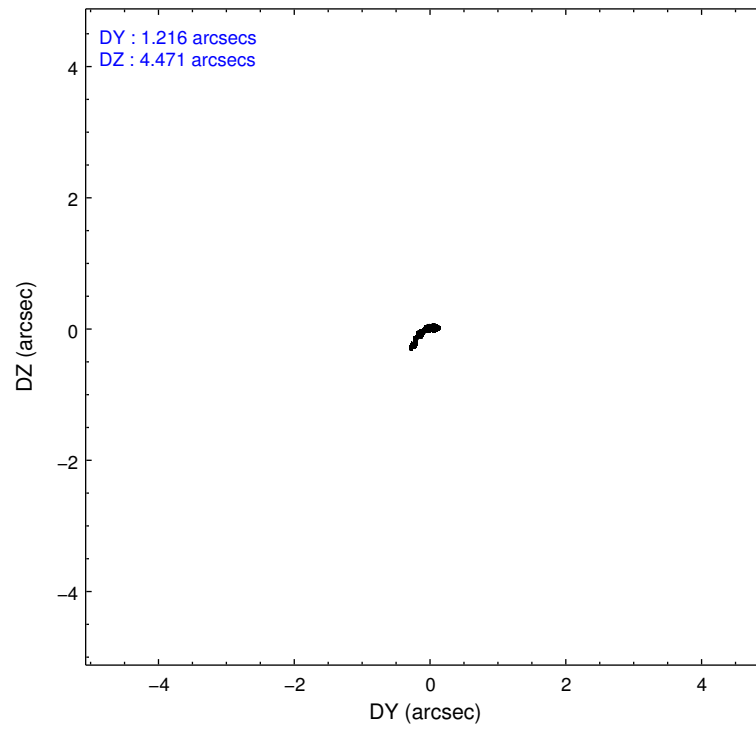
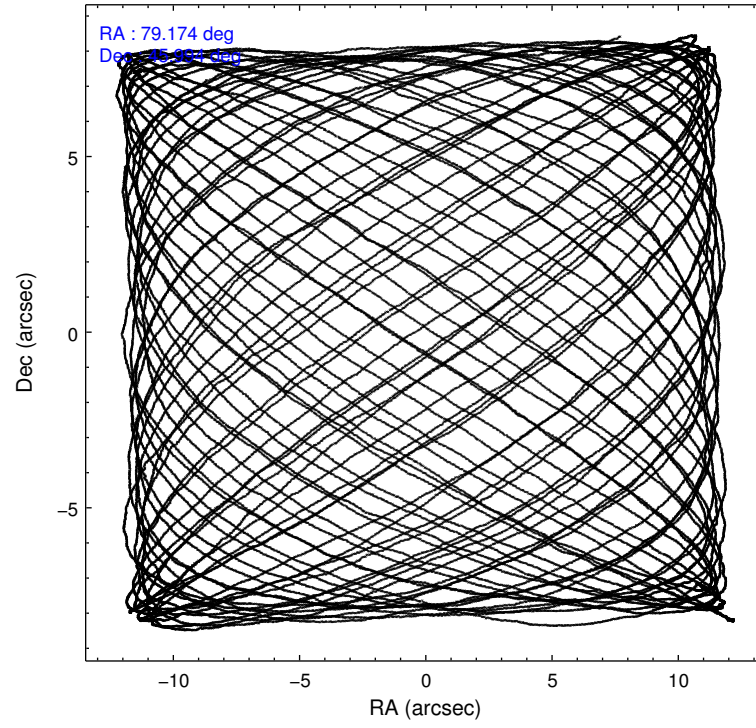
### 2.1.4 Events

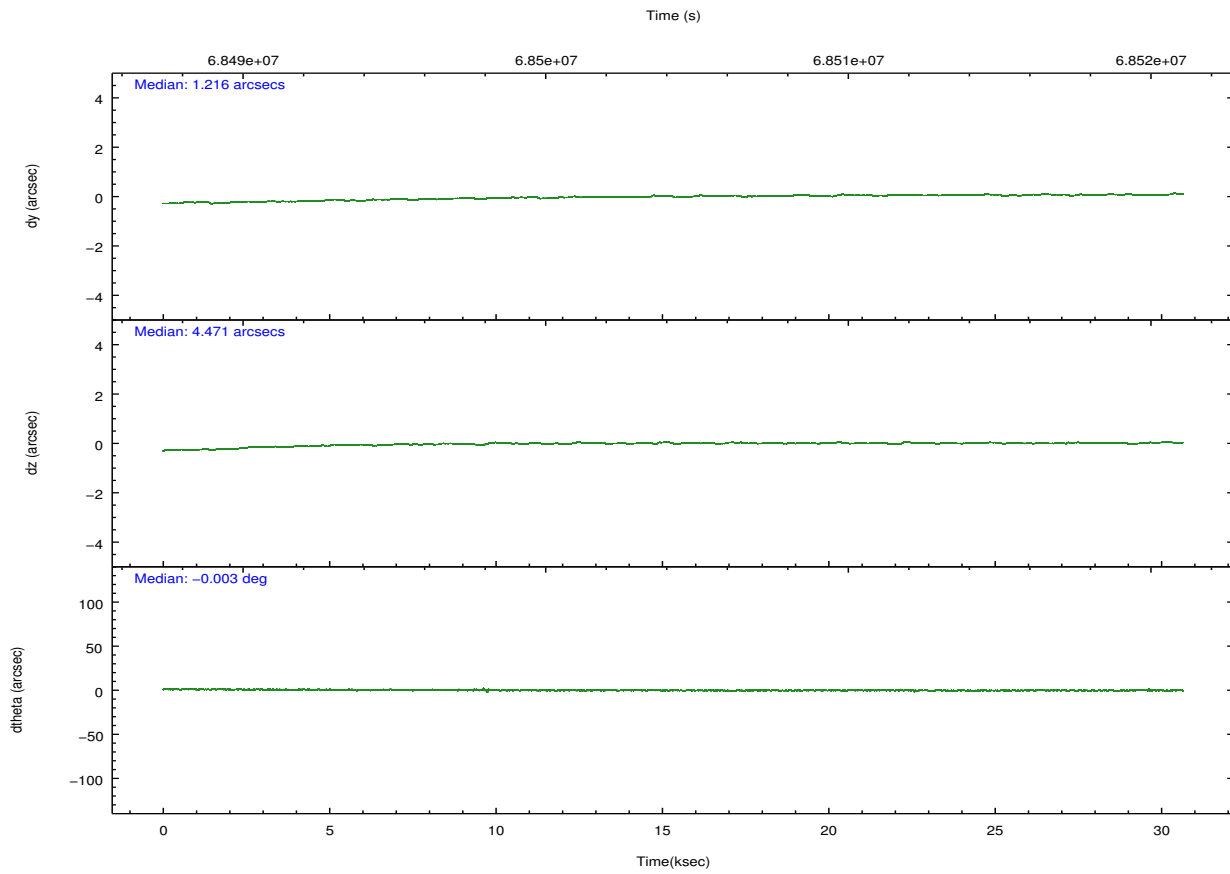
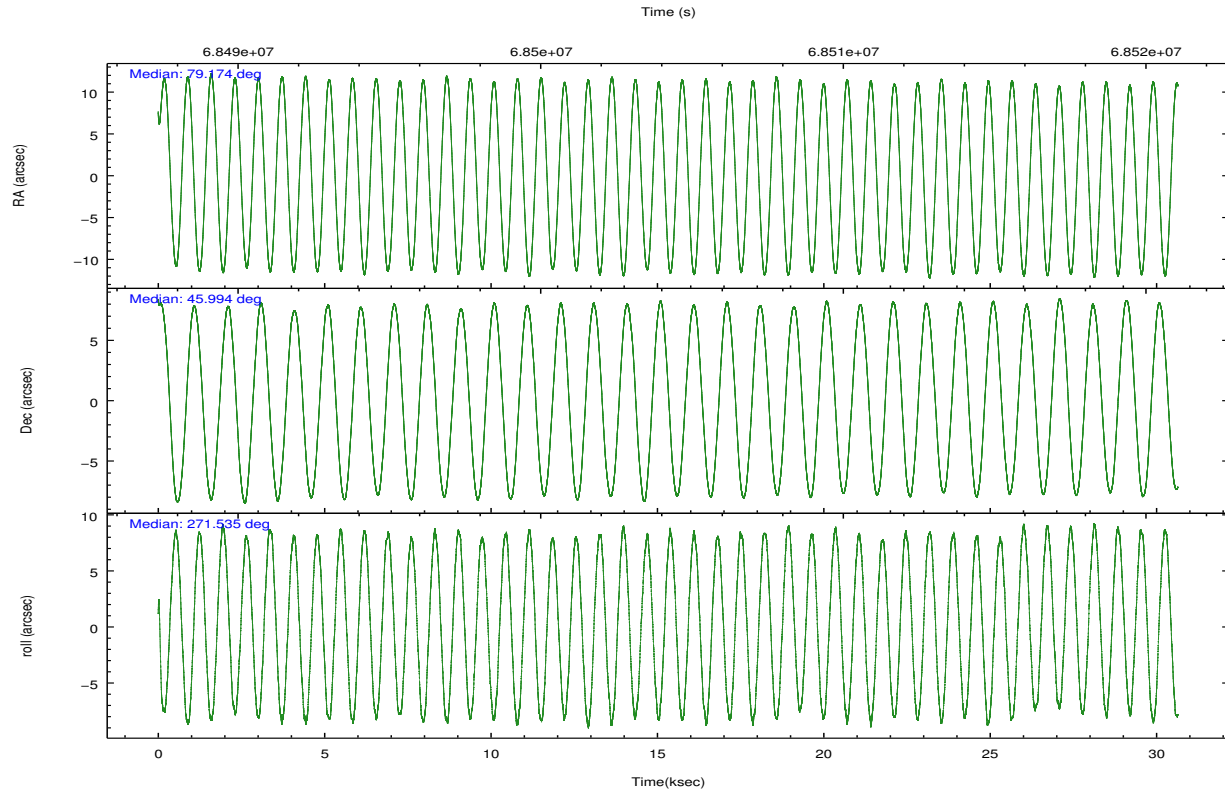
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	244460	294373	237227	264618	285465	215729	grade 0 events	12948	27093	24375	12086	33895	13389
rejected events	217314	146553	197121	150289	215679	188604		5%	9%	10%	4%	11%	6%
rejected %	88%	49%	83%	56%	75%	87%	grade 1 events	134	612	182	397	285	116
								0%	0%	0%	0%	0%	0%
							grade 2 events	5717	39896	5741	22887	12095	4662
								2%	13%	2%	8%	4%	2%
							grade 3 events	2338	7203	2780	10651	5568	2483
								0%	2%	1%	4%	1%	1%
							grade 4 events	2219	7091	2732	10558	5191	2352
								0%	2%	1%	3%	1%	1%
							grade 5 events	6625	20969	7940	24676	9916	7972
								2%	7%	3%	9%	3%	3%
							grade 6 events	3938	66574	4489	58169	13047	4248
								1%	22%	1%	21%	4%	1%
							grade 7 events	210541	124935	188988	125194	205468	180507
								86%	42%	79%	47%	71%	83%

## 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	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	79.153024	79.17377835659232	Subarray requested	NONE	NONE
[deg] Pointing Dec	46.016832	45.9934491386063	Alternating exposures requested	N	N
[deg] Pointing Roll	271.396671	271.5383696774003	[s] Primary exposure time	0.000000	3.2
[s] Window start time (MET)	67910464.184000	67910464.184000			
[s] Window stop time (MET)	69206464.184000	69206464.184000			
[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)	68489367.184000	68488133.5239			
Observation start date	2000-03-03T16:48:23	2000-03-03T16:28:53			
[s] Observation end time (MET)	68519528.184000	68519883.412559			
Observation end date	2000-03-04T01:11:04	2000-03-04T01:18:03			
Read mode	TIMED	TIMED			

## 2.3 Aspect



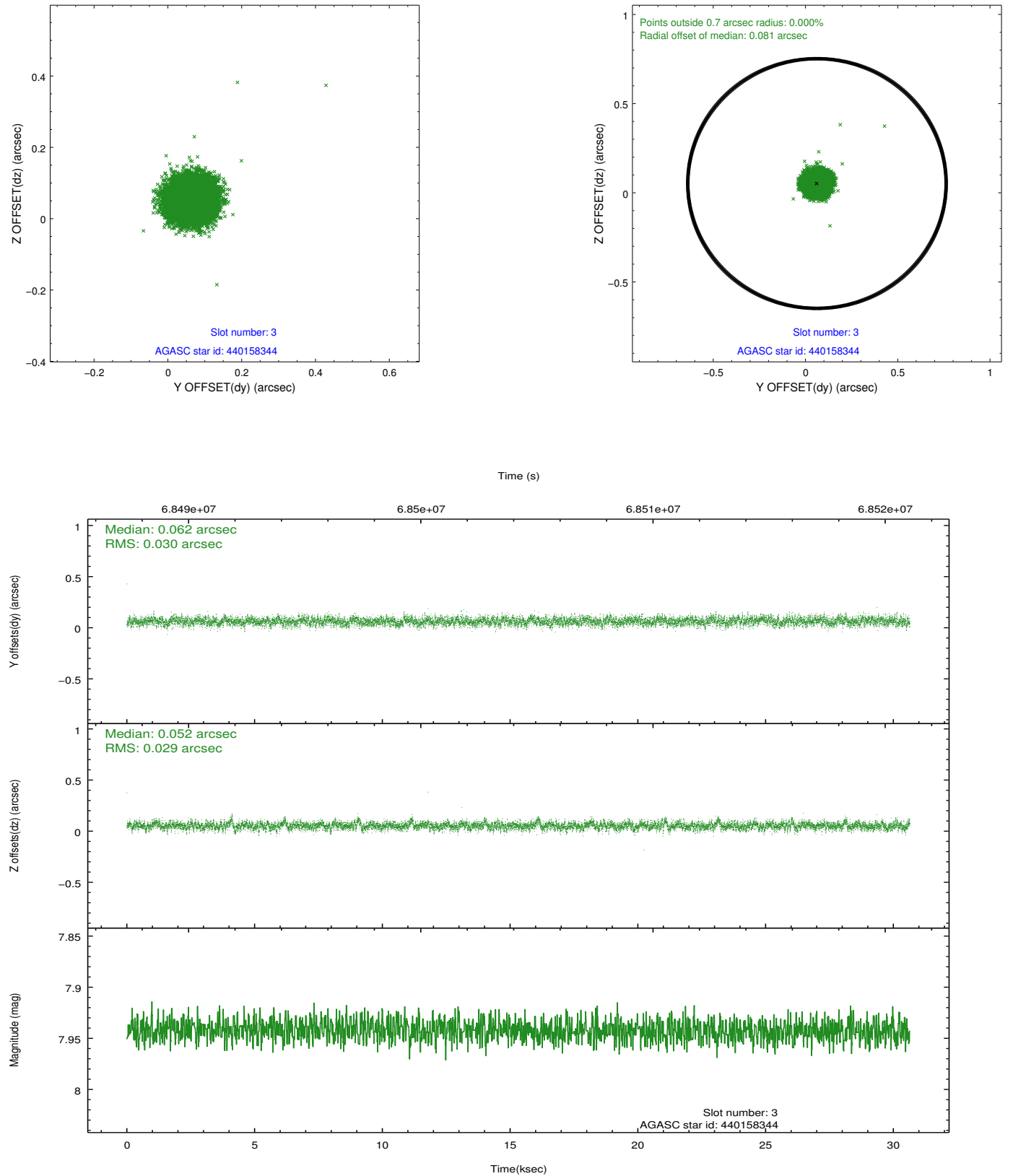


### Slot Statistics

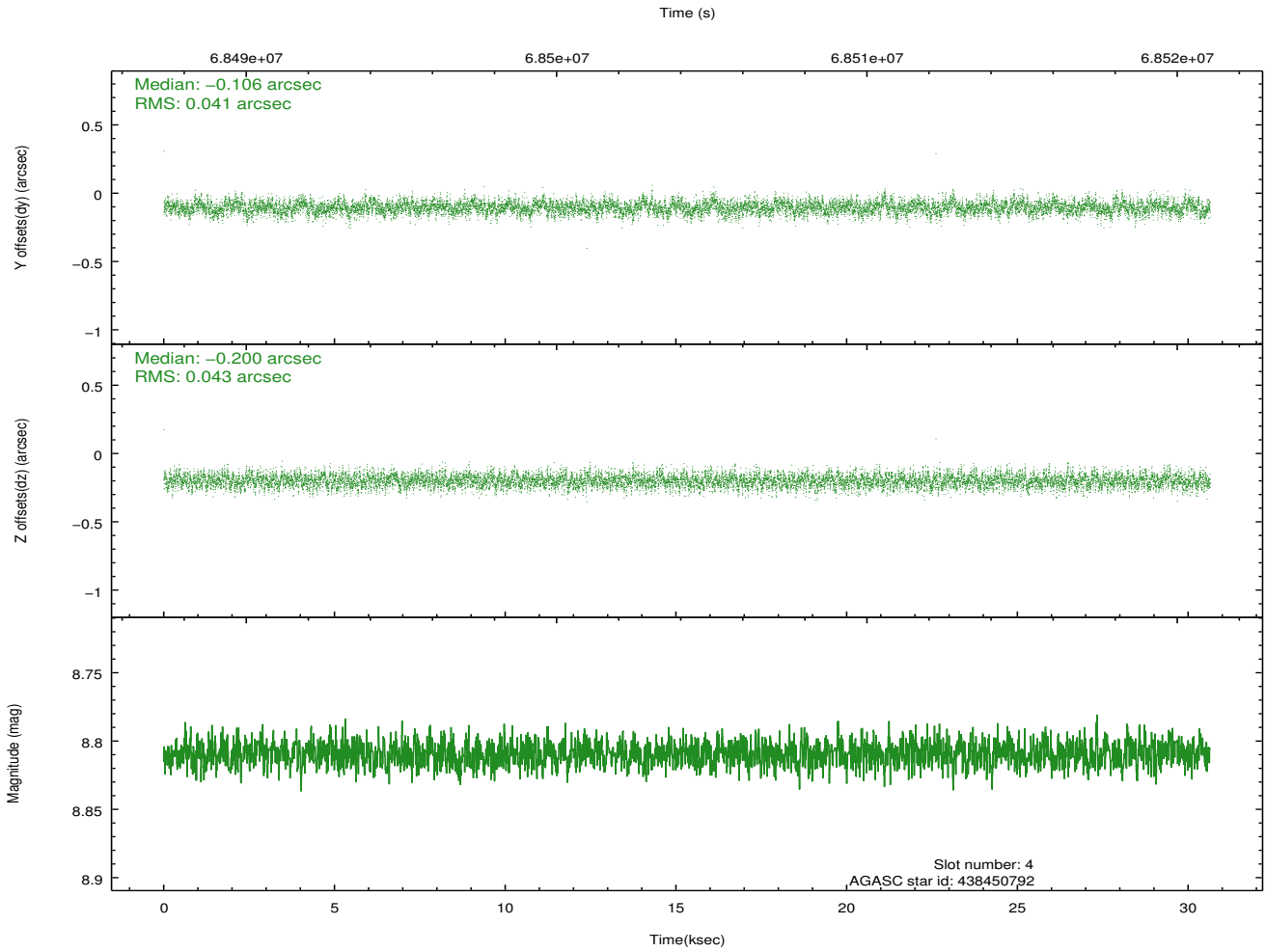
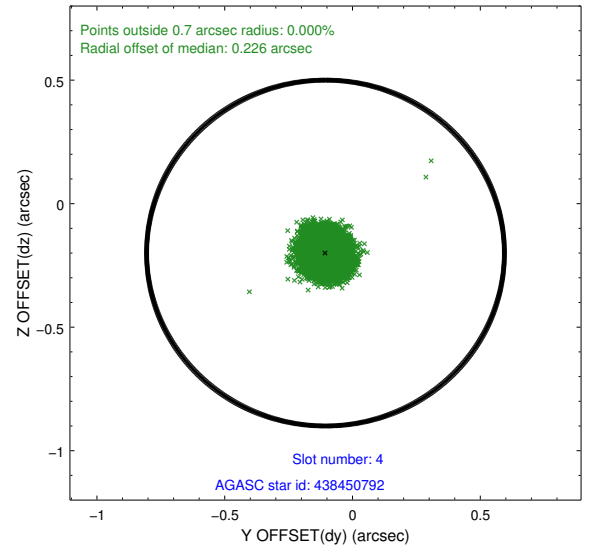
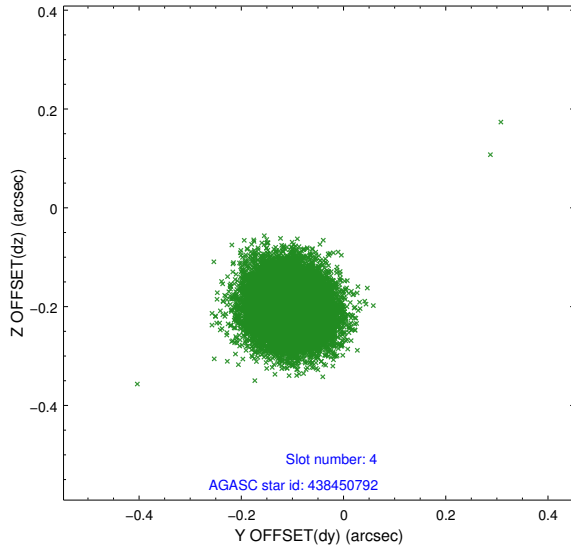
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	7474	-0.026	-0.018	0.007	0.012	0.000000	0.000000	-753.82	-1725.54
1	FID	ACIS-S-4	7.21	7475	0.018	0.017	0.006	0.012	0.000000	0.000000	2159.49	182.87
2	FID	ACIS-S-5	7.24	7474	-0.023	0.010	0.008	0.013	0.000000	0.000000	-1806.55	176.66
3	GUIDE	440158344	7.94	14948	0.062	0.052	0.044	0.071	79.344888	45.394991	2250.35	430.62
4	GUIDE	438450792	8.81	14945	-0.106	-0.200	0.063	0.102	78.654240	46.382628	-1349.34	-1206.31
5	GUIDE	440145944	9.10	14941	0.329	0.333	0.077	0.123	80.083717	45.428844	2161.05	2299.92
6	GUIDE	438440232	9.46	14941	-0.282	-0.179	0.080	0.129	78.262303	46.626220	-2258.18	-2147.86
7	GUIDE	440163560	9.55	14937	-0.004	-0.004	0.097	0.155	79.359509	46.135242	-413.35	525.27

## 2.4 Star Slots

### 2.4.1 Slot 3

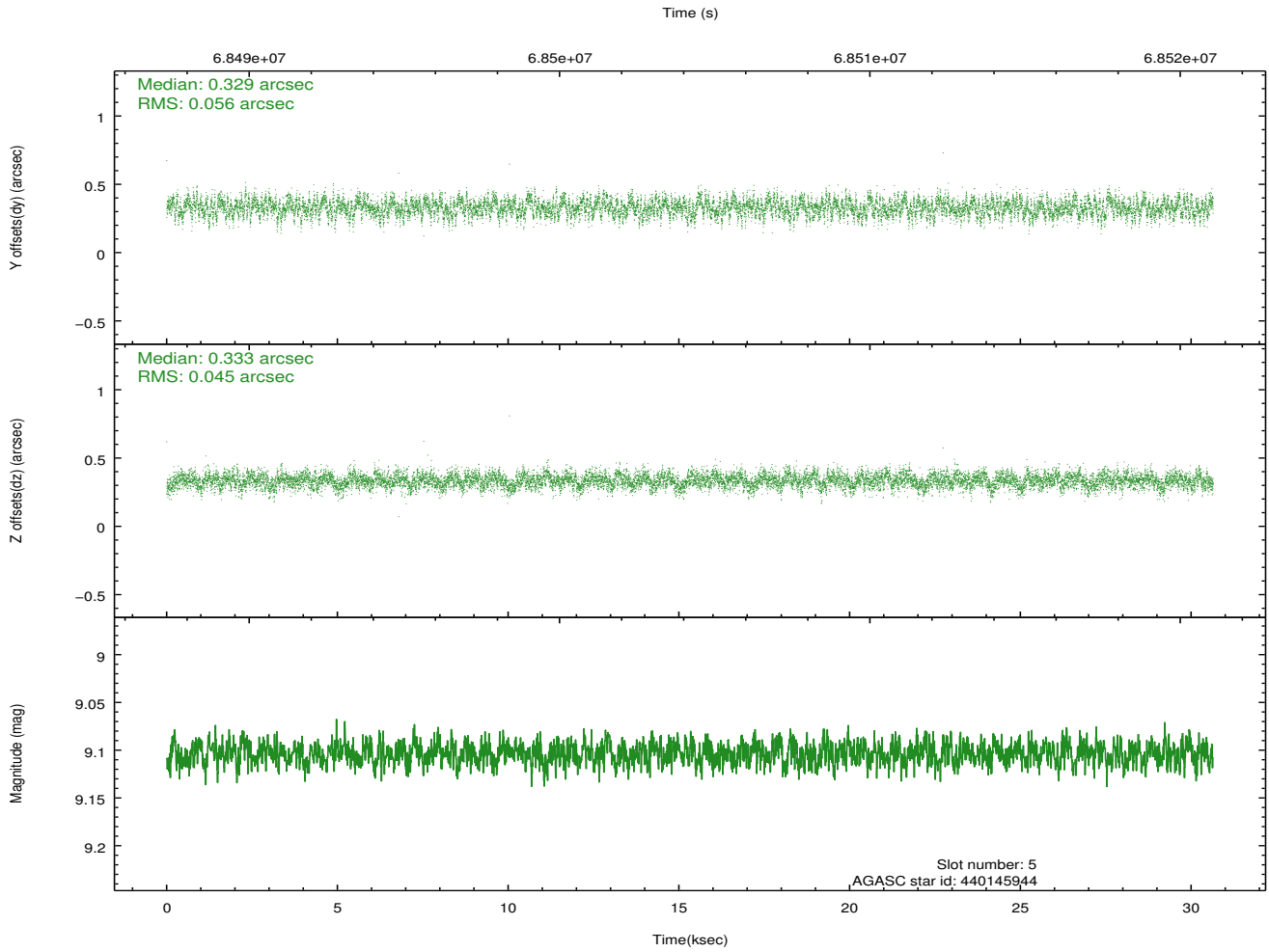
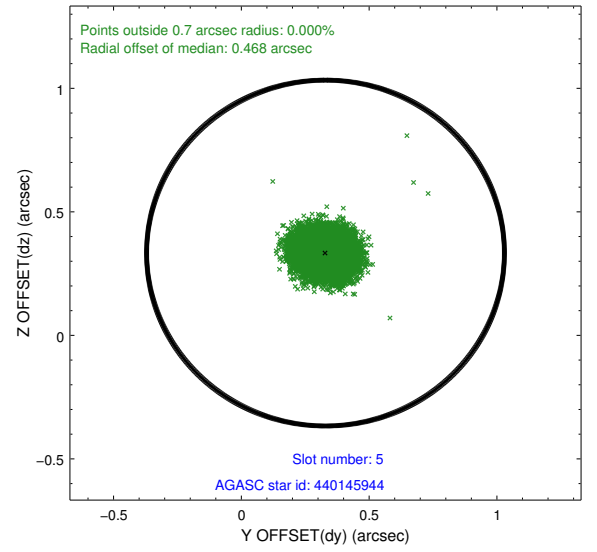
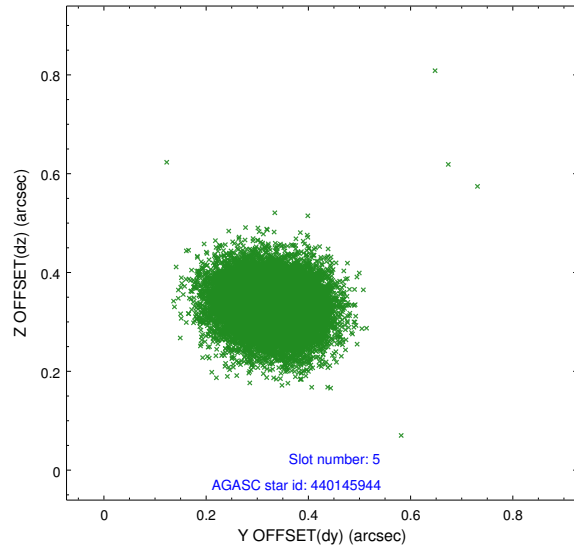


## 2.4.2 Slot 4

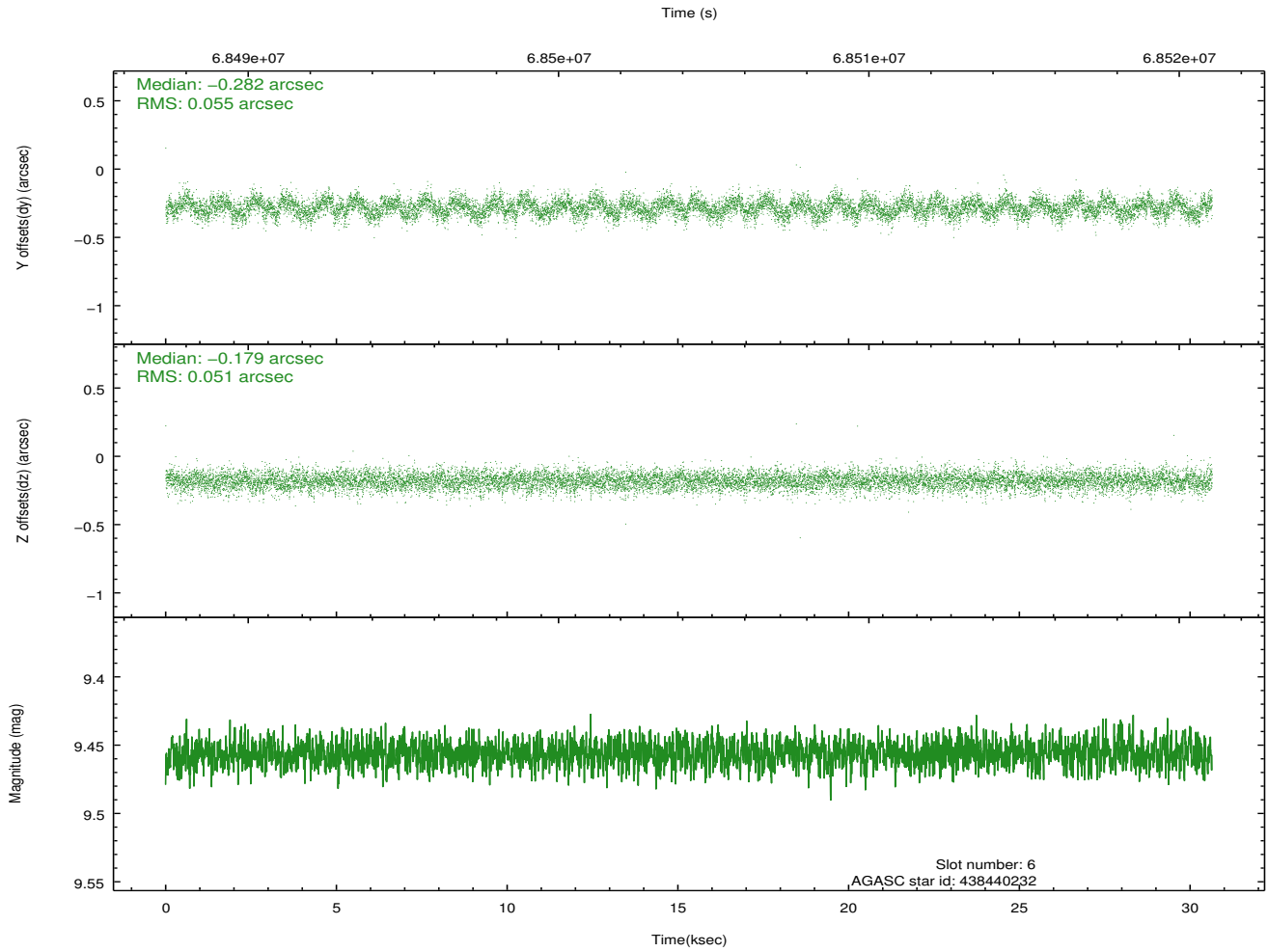
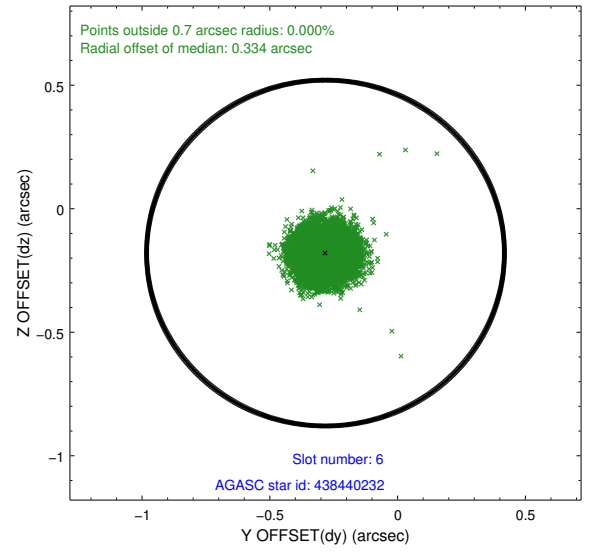
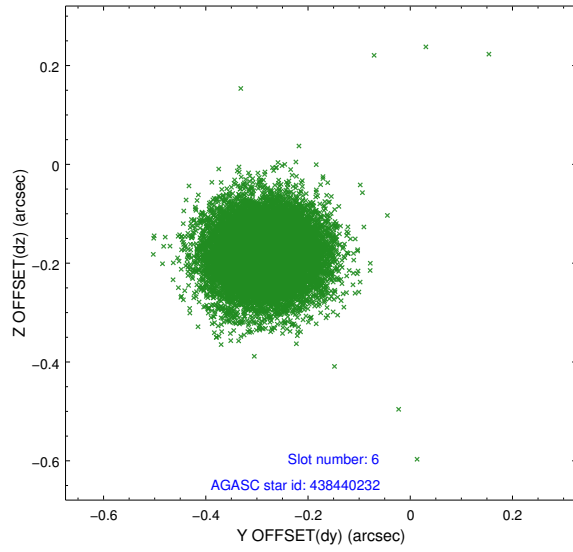




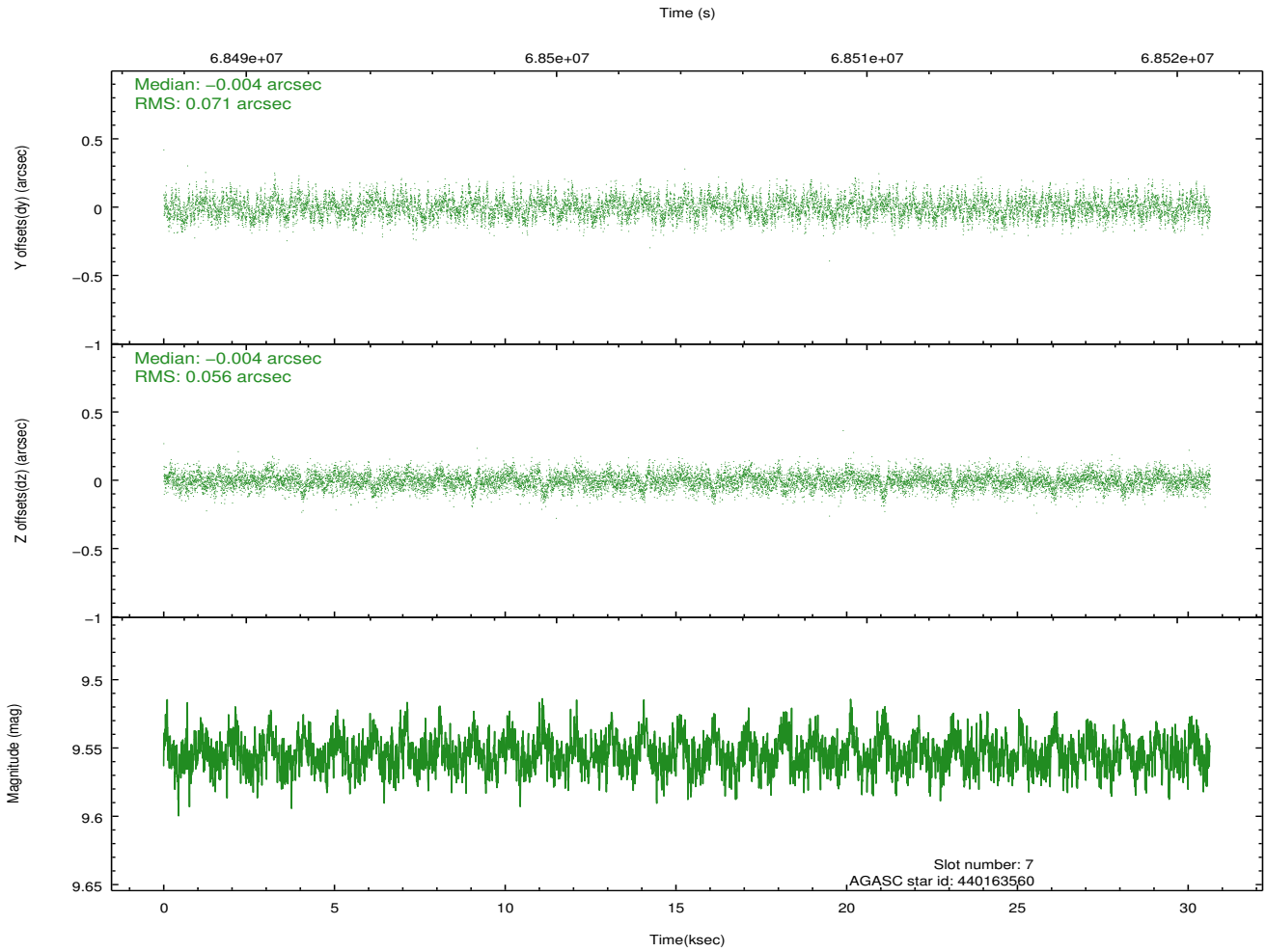
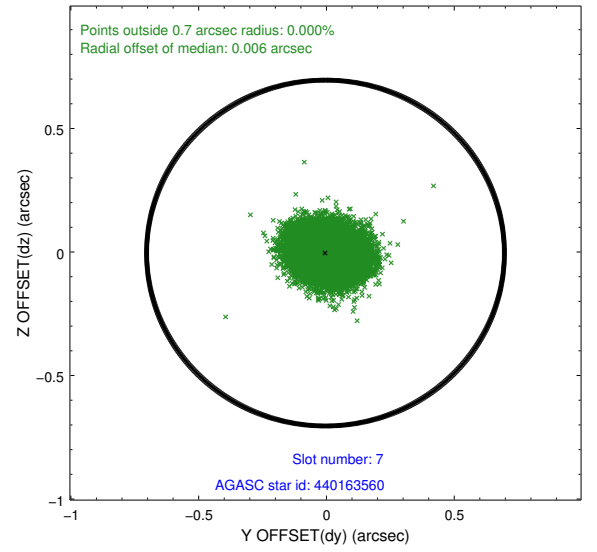
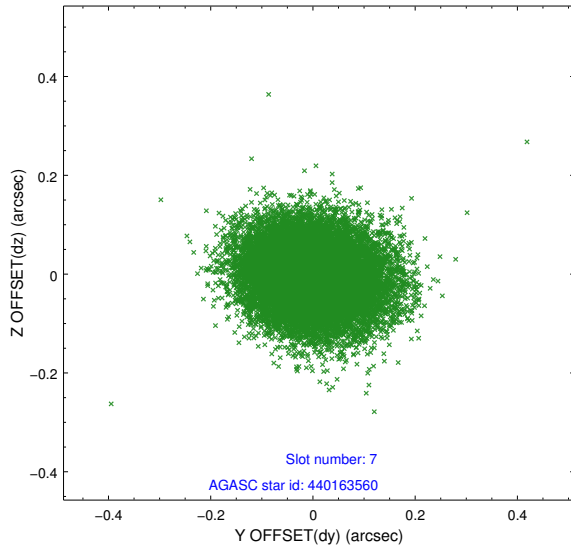
### 2.4.3 Slot 5



## 2.4.4 Slot 6

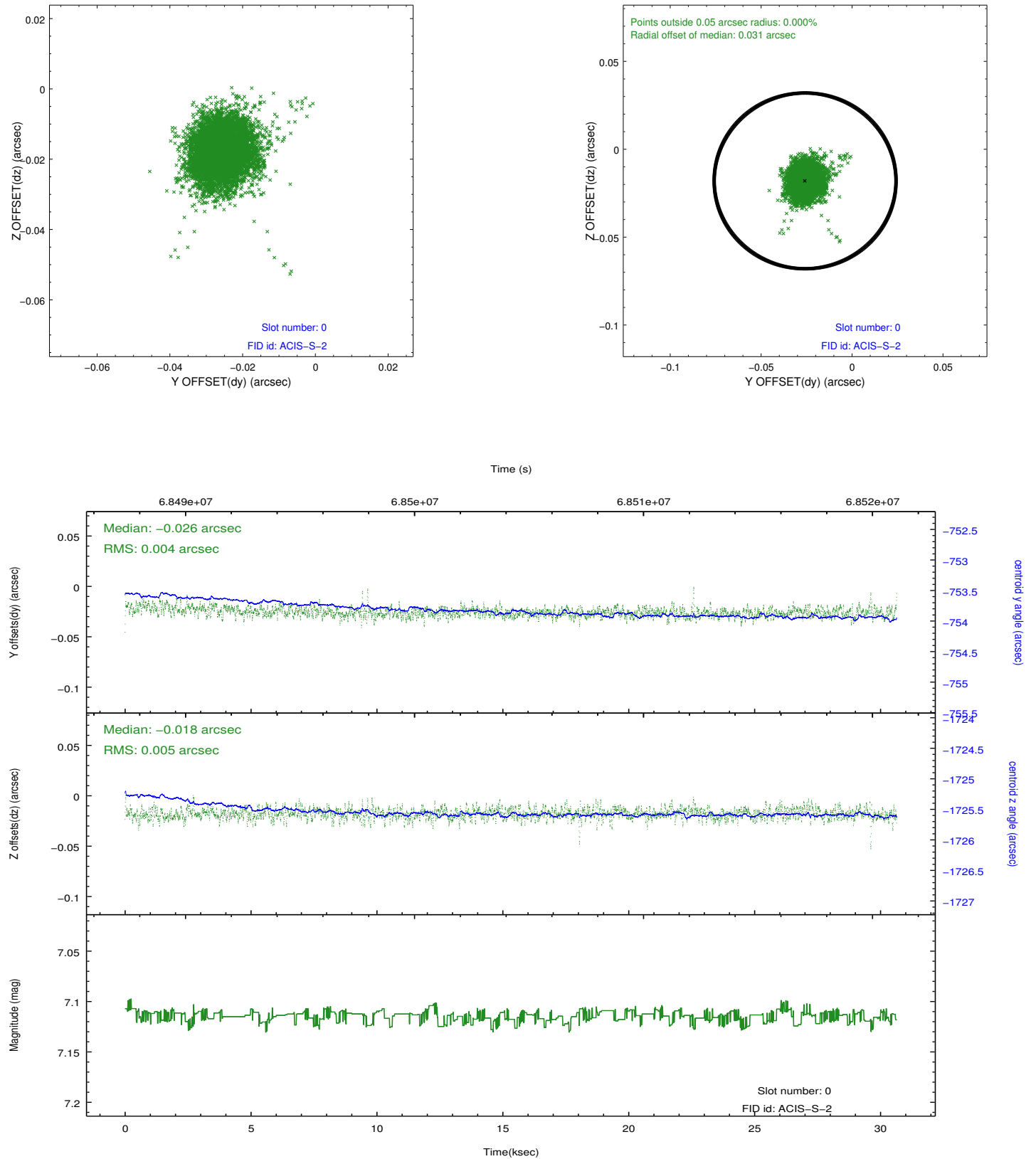


## 2.4.5 Slot 7

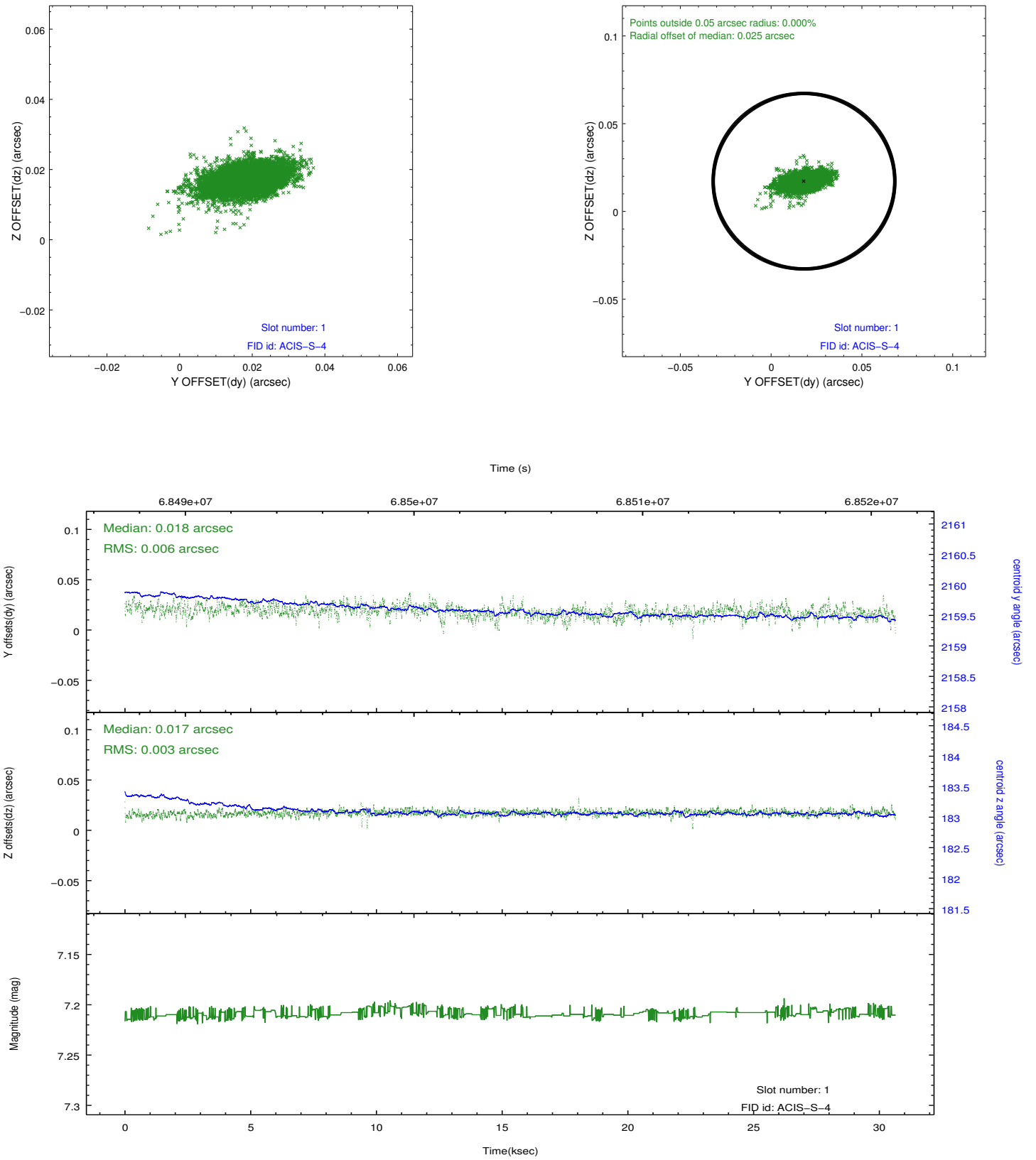


## 2.5 FID Slots

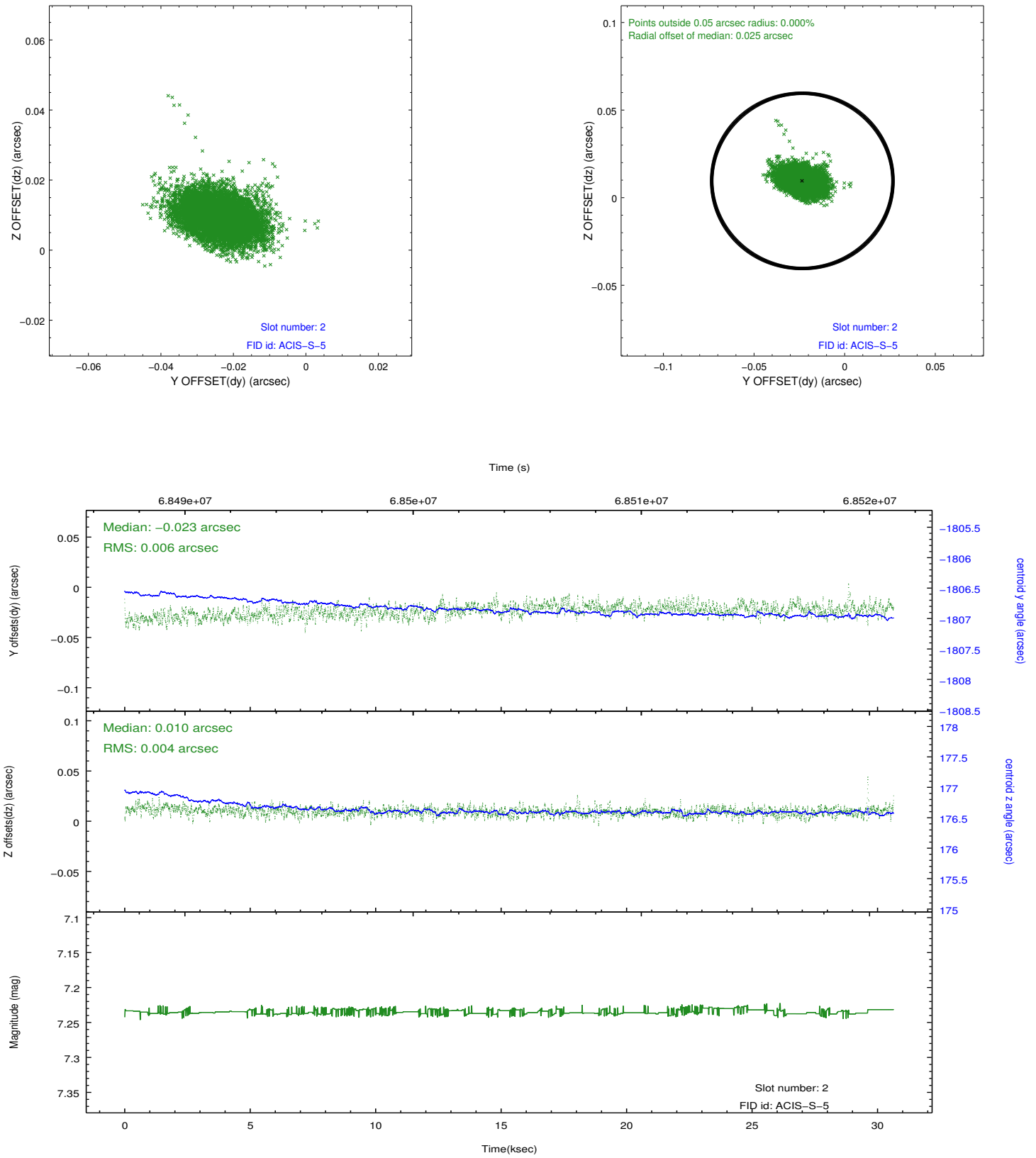
### 2.5.1 Slot 0



## 2.5.2 Slot 1

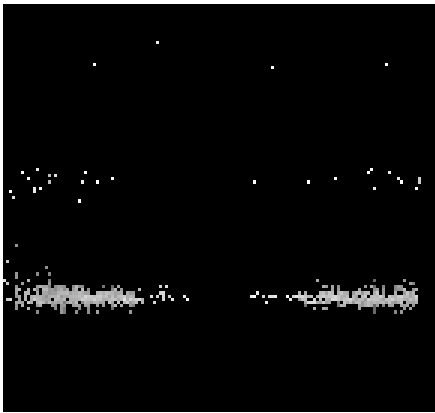


### 2.5.3 Slot 2

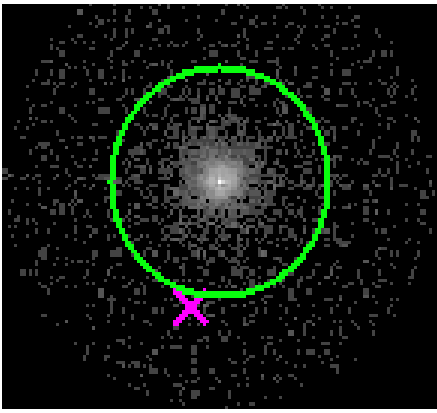


# 3 Gratings

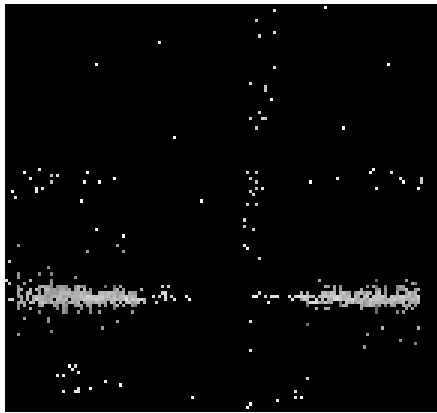
## 3.1 HEG Arm



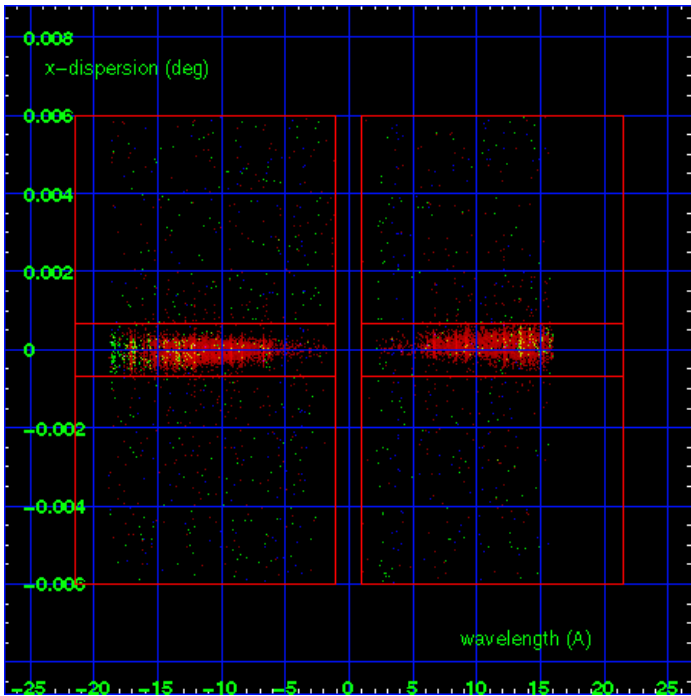
HEG Order Sort 123



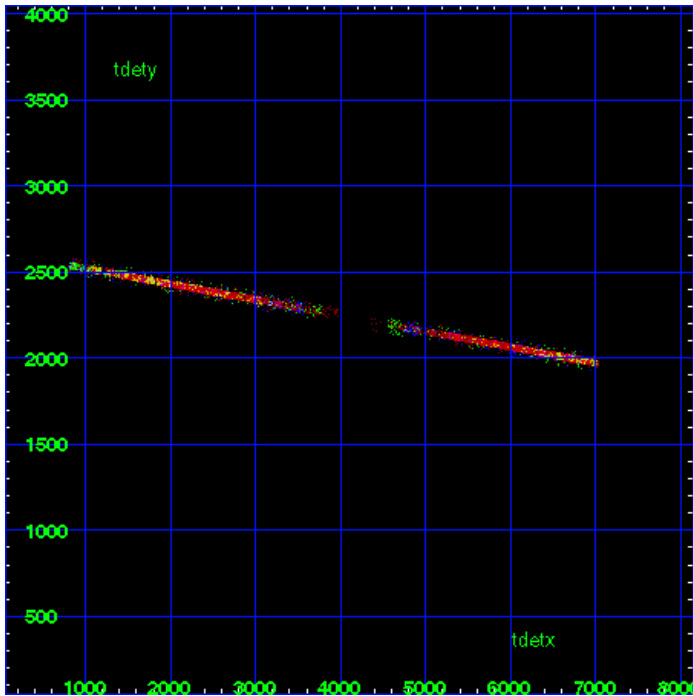
HEG Zero Order



HEG Order Sort ALL

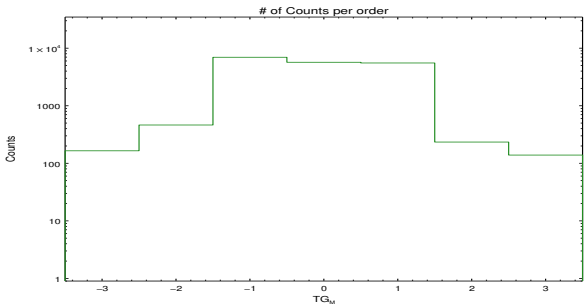


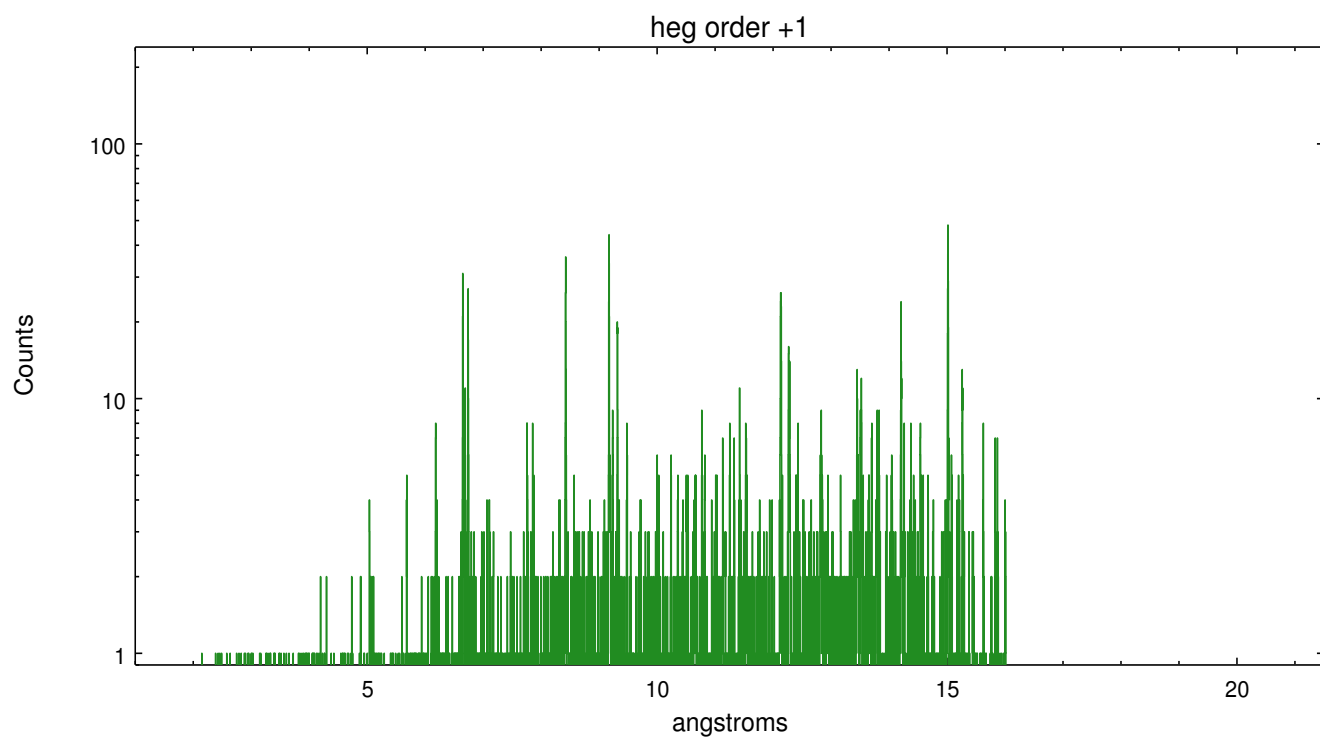
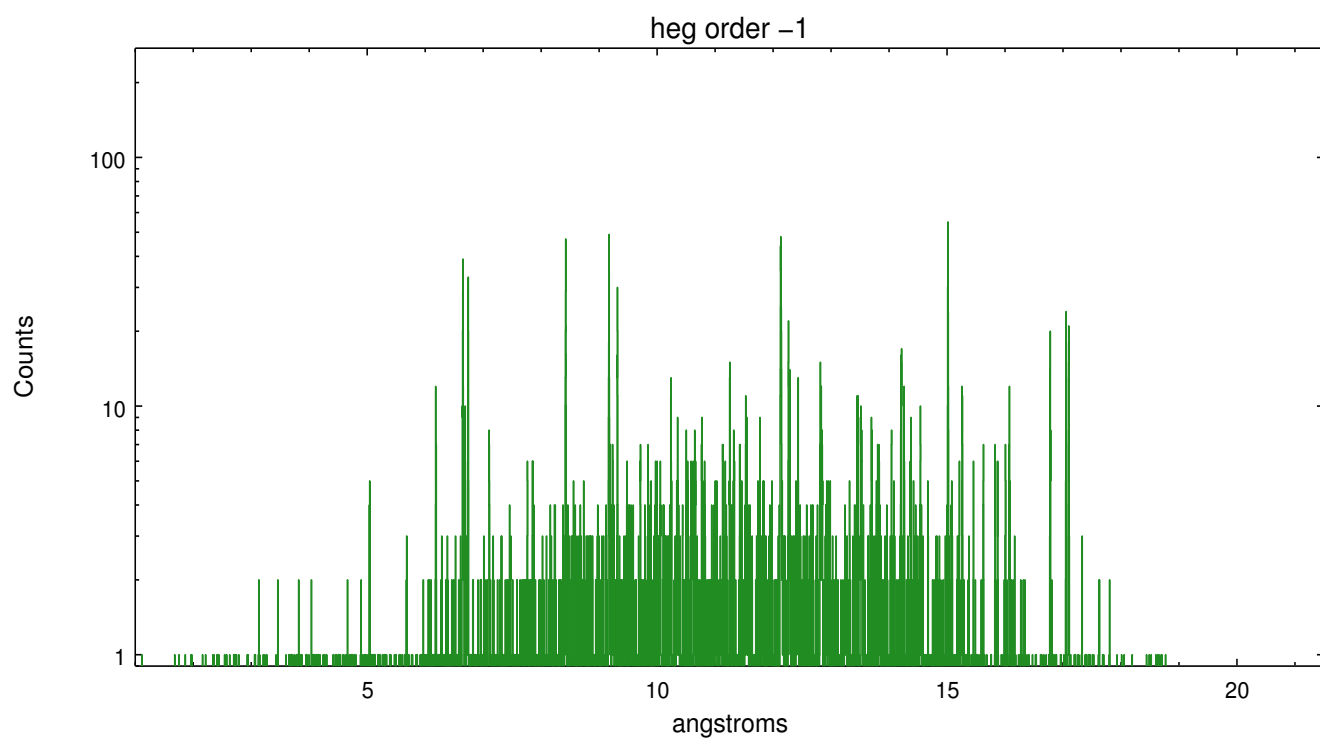
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	165	463	6956	5693	5538	234	139



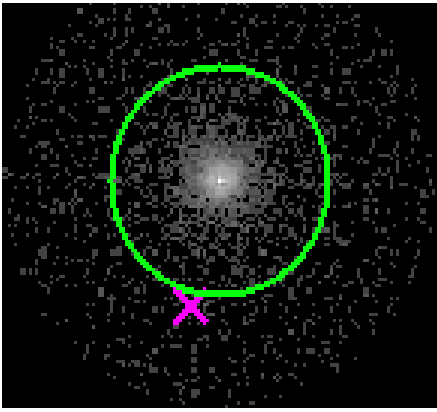




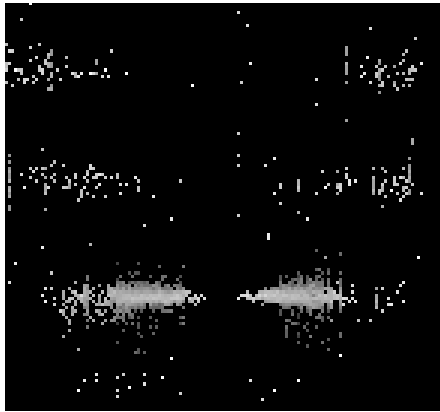
3.2 MEG Arm



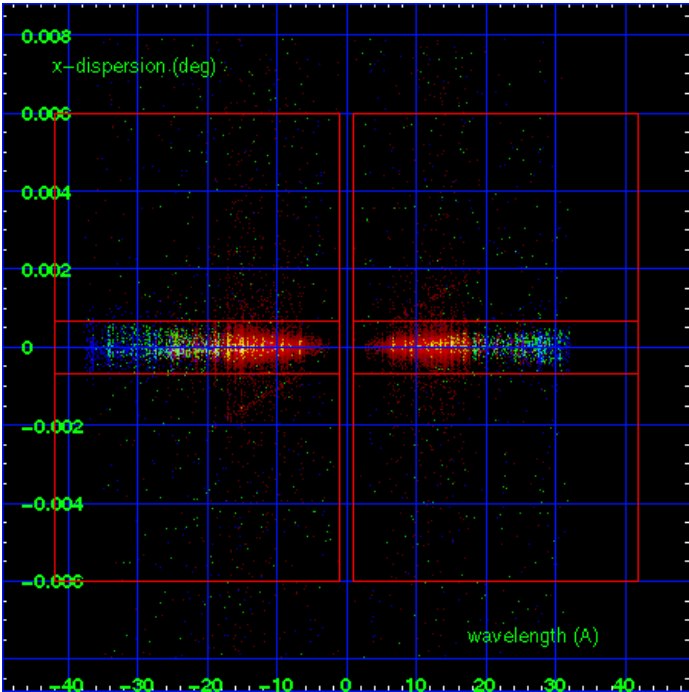
MEG Order Sort 123



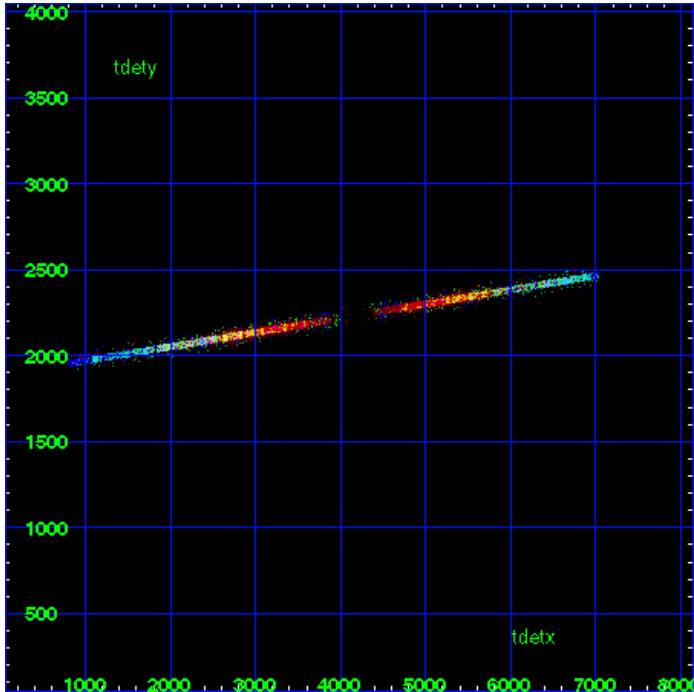
MEG Zero Order



MEG Order Sort ALL

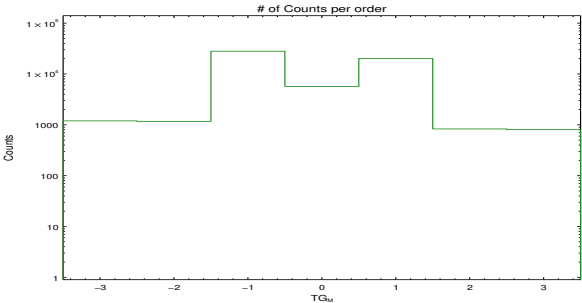


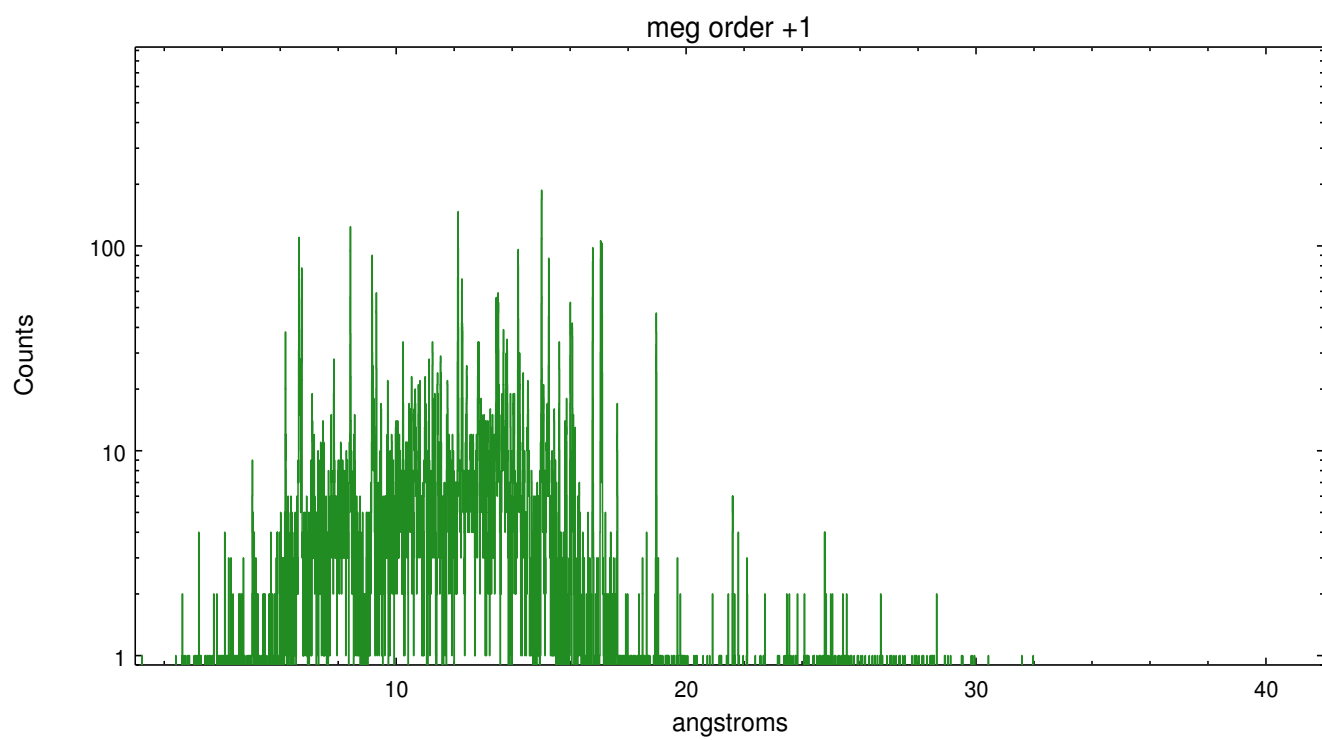
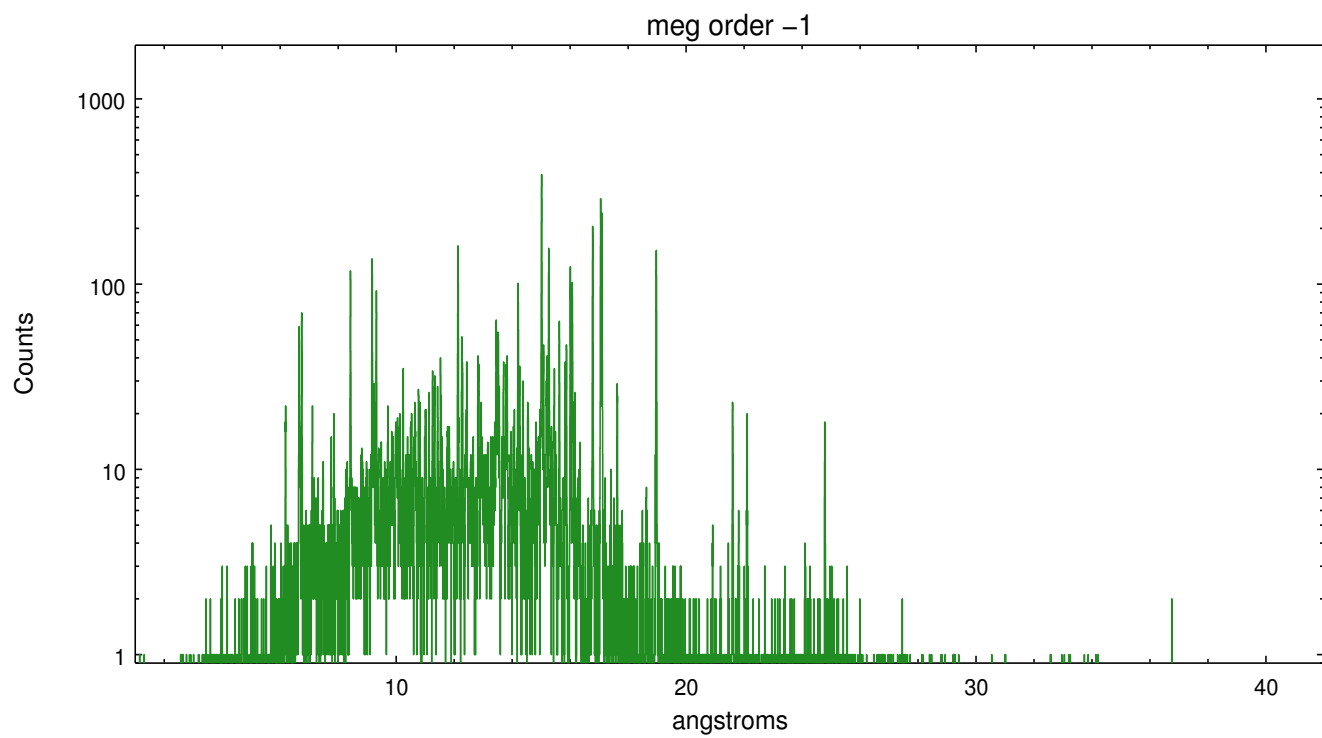
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1196	1170	28024	5693	20133	830	804





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.08.24
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	29.196

## A.2 Comments

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates (x=4103.93, y=4129.72) into the \*src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called findzero, which is expected to be released in CIAO (currently in ISIS). The tool calculates the point of intersection of the readout streak and the meg arm. The zeroth order source position determined by the standard pipeline processing using the tool tgdetect was not used in this processing. The newly determined zeroth order coordinates have been placed in the \*src1a.fits file, replacing the coordinates determined by tgdetect. Note that these corrected coordinates of the zeroth order cannot be reproduced by running tgdetect on the data.