

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 12406 - L2 Version 3  
Chandra X-Ray Center

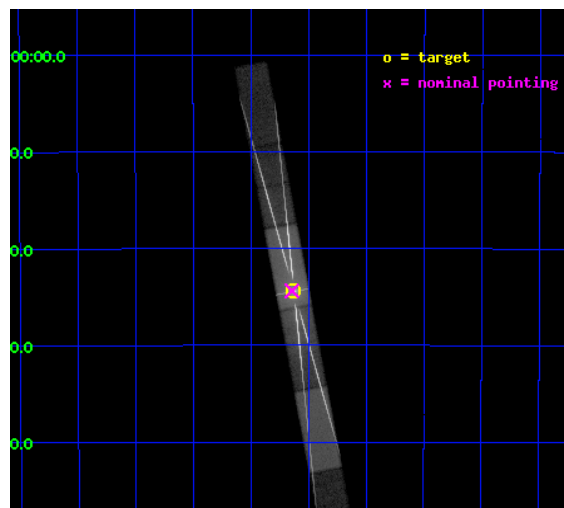
L2 Processing Date : Feb 28 2012

## 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

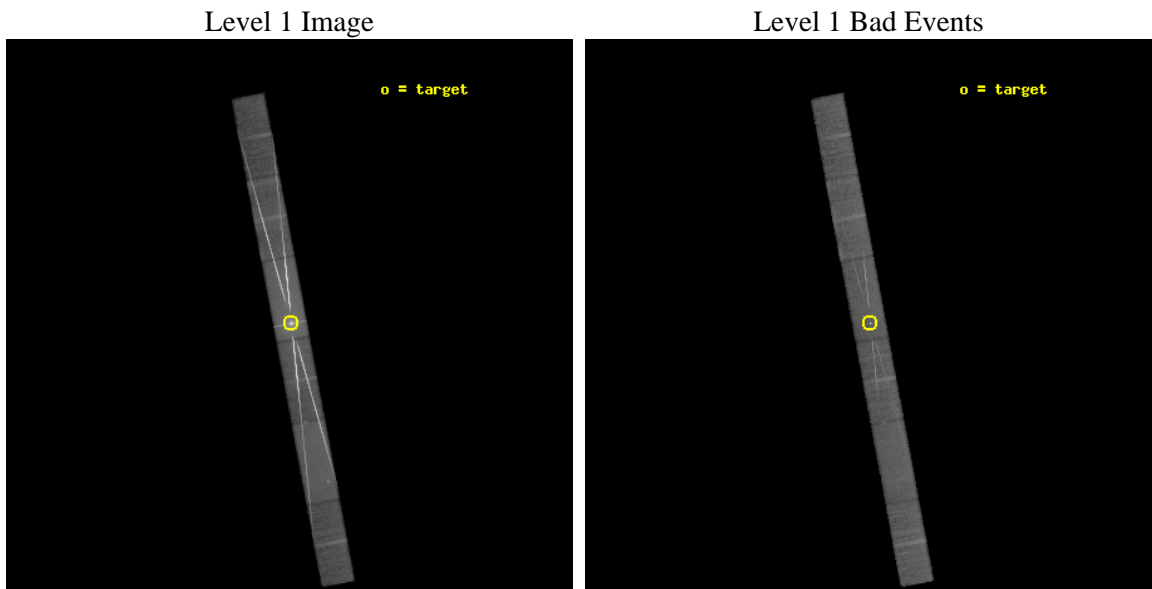
seq_num	401147	Sequence number
obs_id	12406	Observation id
title	High Resolution Spectroscopy of a Black Hole Transient	Proposal ti
observer	Dr. Jon Miller	Principal investigator
object	IGR J17091-3624	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	257.283	Observer's specified target RA [deg]
dec_targ	-36.407	Observer's specified target Dec [deg]
ra_nom	257.28641298613	Nominal RA [deg]
dec_nom	-36.406278608636	Nominal Dec [deg]
roll_nom	259.35104512049	Nominal Roll [deg]
revision	3	Processing version of data
ontime	28086.588616073	Sum of GTIs [s]
livetime	27286.698538904	Livetime [s]
ontime4	28086.629656076	Sum of GTIs [s]
ontime5	28086.54757607	Sum of GTIs [s]
ontime6	28086.506536067	Sum of GTIs [s]
ontime7	28086.588616073	Sum of GTIs [s]
ontime8	28086.465496063	Sum of GTIs [s]
ontime9	28086.42445606	Sum of GTIs [s]
l2events	1276422	Number of level 2 events



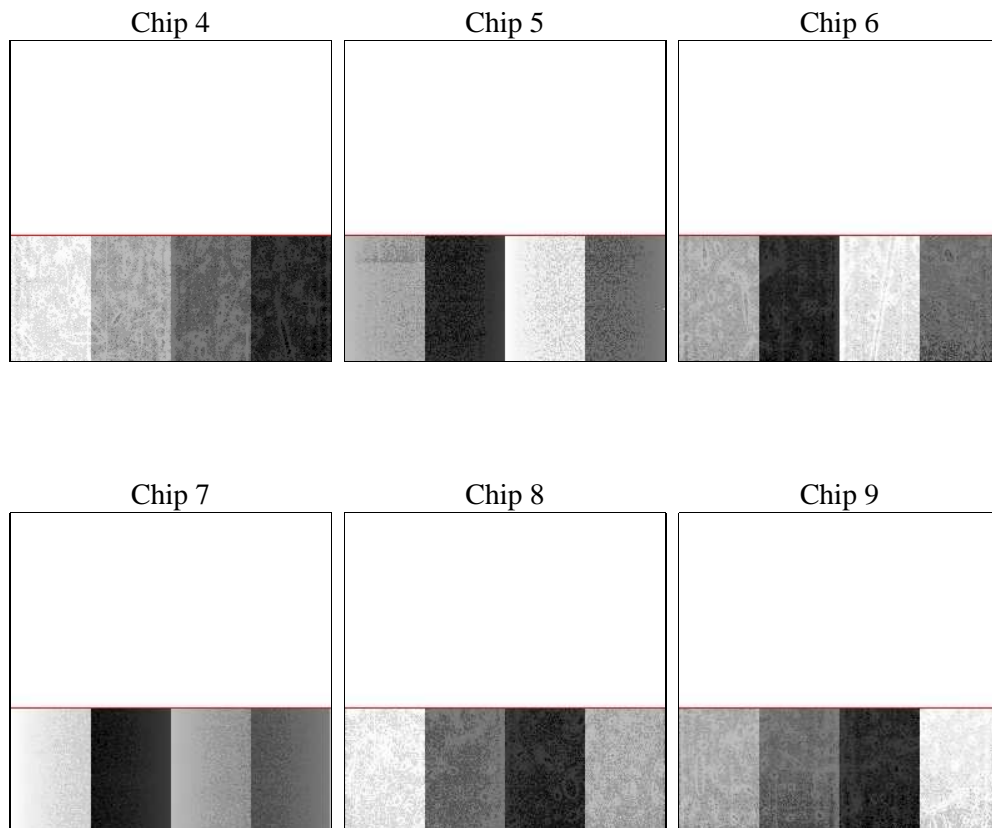
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	28000.886000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	28086.588616073	Sum of GTIs [s]
caldbver	4.4.8	&#160	ontime4	28086.629656076	Sum of GTIs [s]
date	2012-02-24T04:51:29	Date and time of file creation	ontime5	28086.54757607	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	28086.506536067	Sum of GTIs [s]
			ontime7	28086.588616073	Sum of GTIs [s]
			ontime8	28086.465496063	Sum of GTIs [s]
			ontime9	28086.42445606	Sum of GTIs [s]
			l1events	1823213	Number of level 1 events

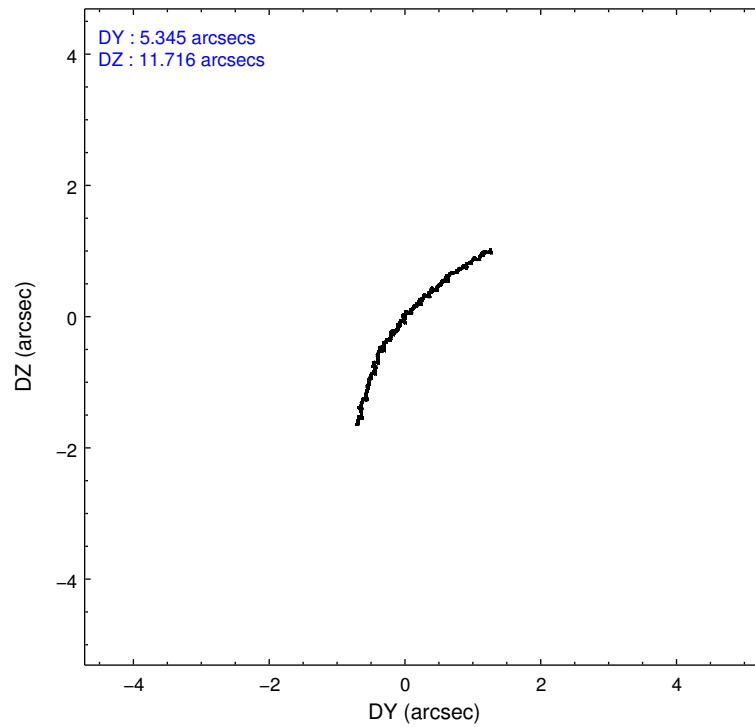
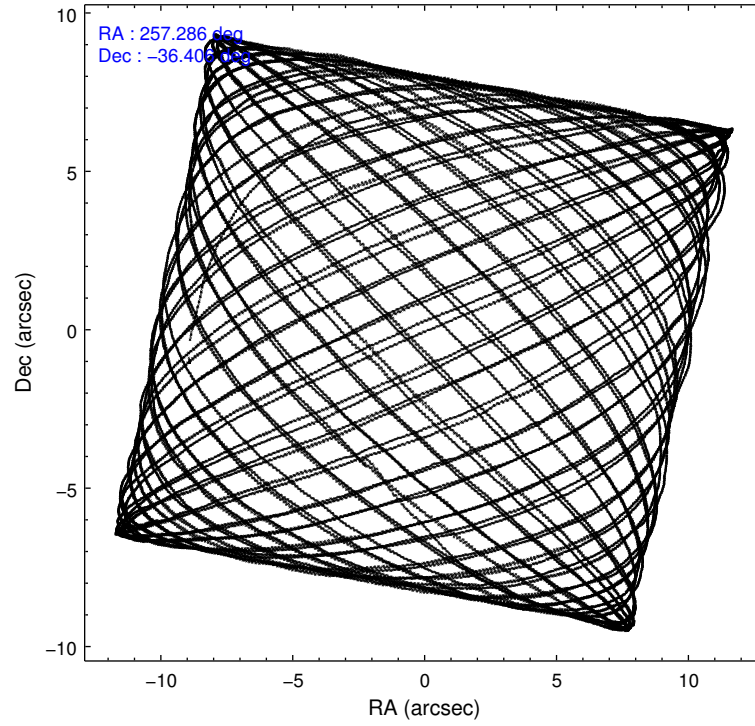
### 2.1.4 Events

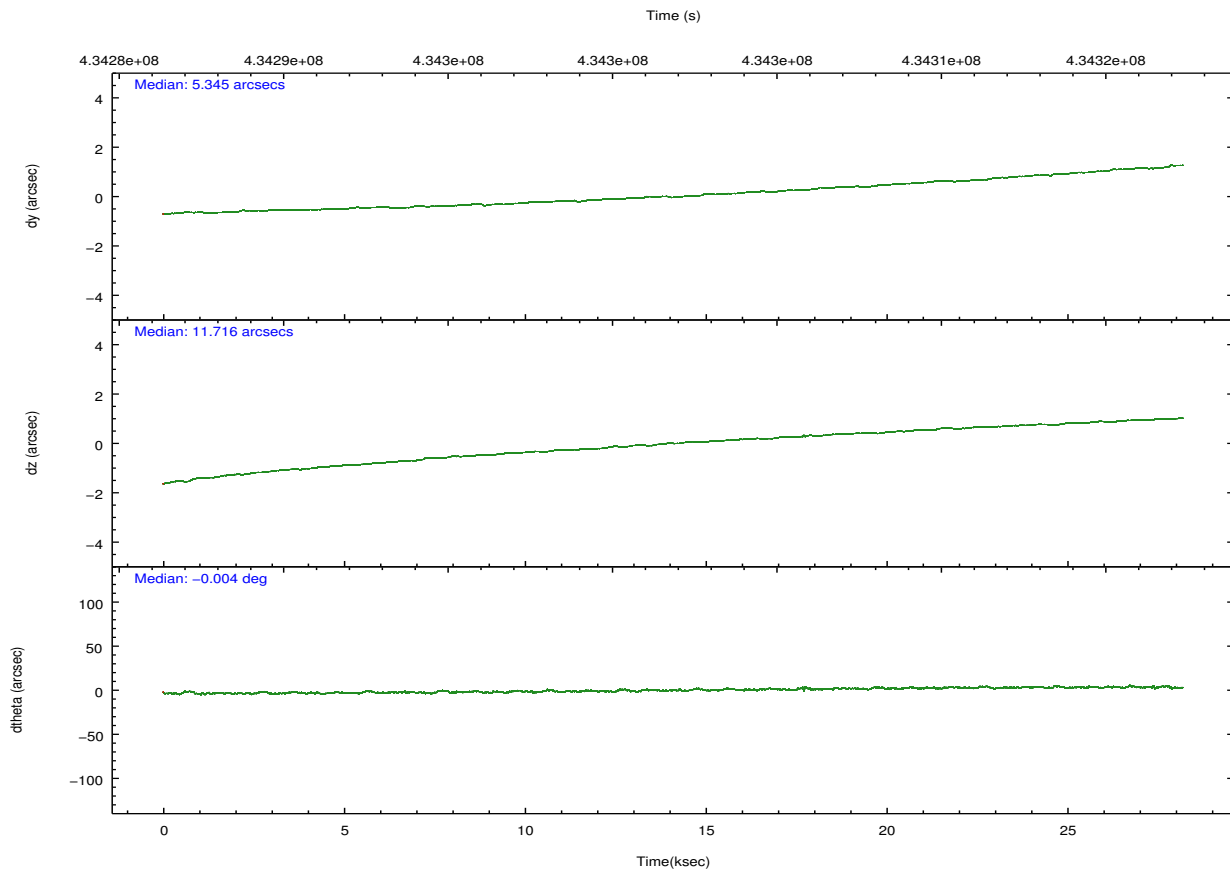
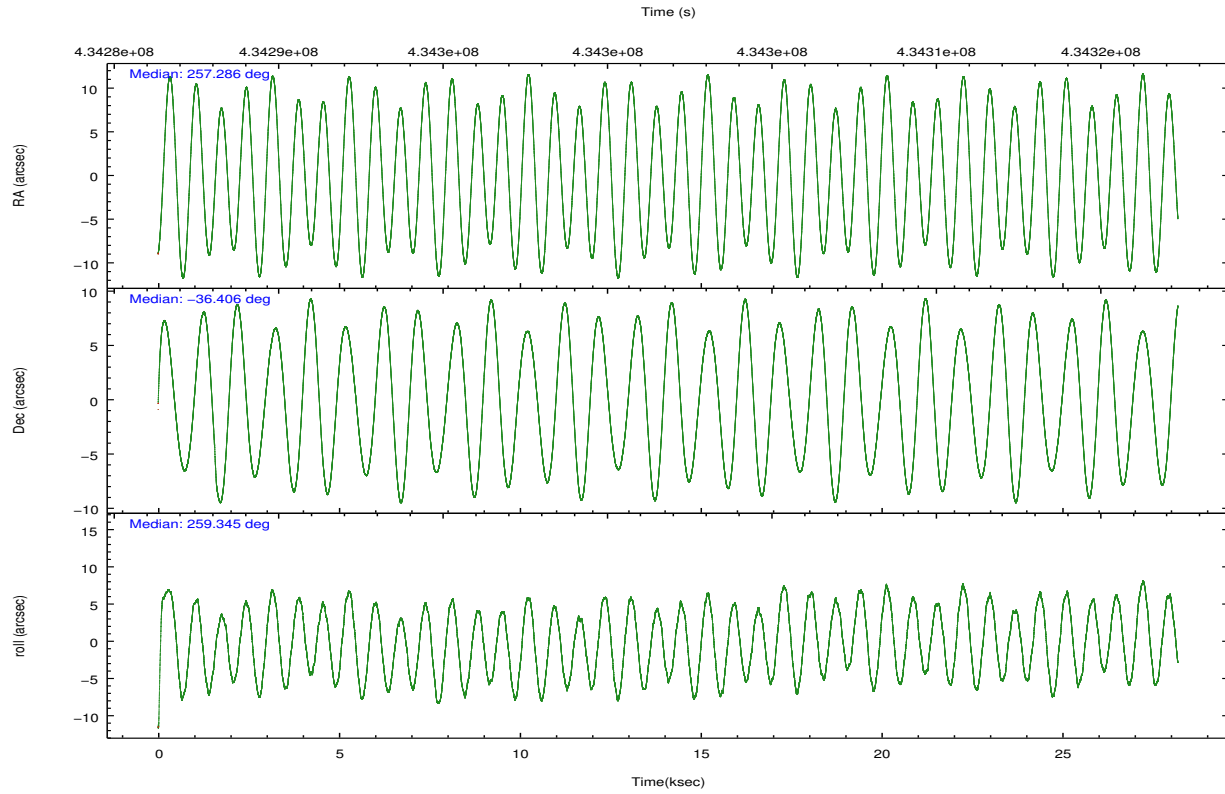
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	96504	210408	526253	649804	246951	93293	grade 0 events	8781	31653	330469	109203	115425	15033
rejected events	79287	74854	79935	91223	85469	68265		9%	15%	62%	16%	46%	16%
rejected %	82%	35%	15%	14%	34%	73%	grade 1 events	60	434	3106	1870	511	57
								0%	0%	0%	0%	0%	0%
							grade 2 events	3331	39139	56412	137649	20366	3874
								3%	18%	10%	21%	8%	4%
							grade 3 events	1550	10200	19274	60541	7431	1772
								1%	4%	3%	9%	3%	1%
							grade 4 events	1442	10012	19430	60579	7552	1754
								1%	4%	3%	9%	3%	1%
							grade 5 events	4048	11367	6924	19798	6008	4520
								4%	5%	1%	3%	2%	4%
							grade 6 events	2114	44551	20751	190628	10717	2598
								2%	21%	3%	29%	4%	2%
							grade 7 events	75178	63052	69887	69536	78941	63685
								77%	29%	13%	10%	31%	68%

## 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	257.274717	257.2864129861266	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-36.380612	-36.40627860863631	Subarray start row	1	1
[deg] Pointing Roll	259.187485	259.3510451204898	Subarray row count	400	400
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	1.4
[mm] SIM translation stage pos	-182.632523	-182.6398635053184			
[mm] SIM translation stage offset	-7.5	-7.49265907768941			
[s] Observation start time (MET)	434287922.184000	434287022.31475			
Observation start date	2011-10-06T11:30:56	2011-10-06T11:17:02			
[s] Observation end time (MET)	434315923.184000	434316146.66628			
Observation end date	2011-10-06T19:17:37	2011-10-06T19:22:26			
Read mode	TIMED	TIMED			

## 2.3 Aspect



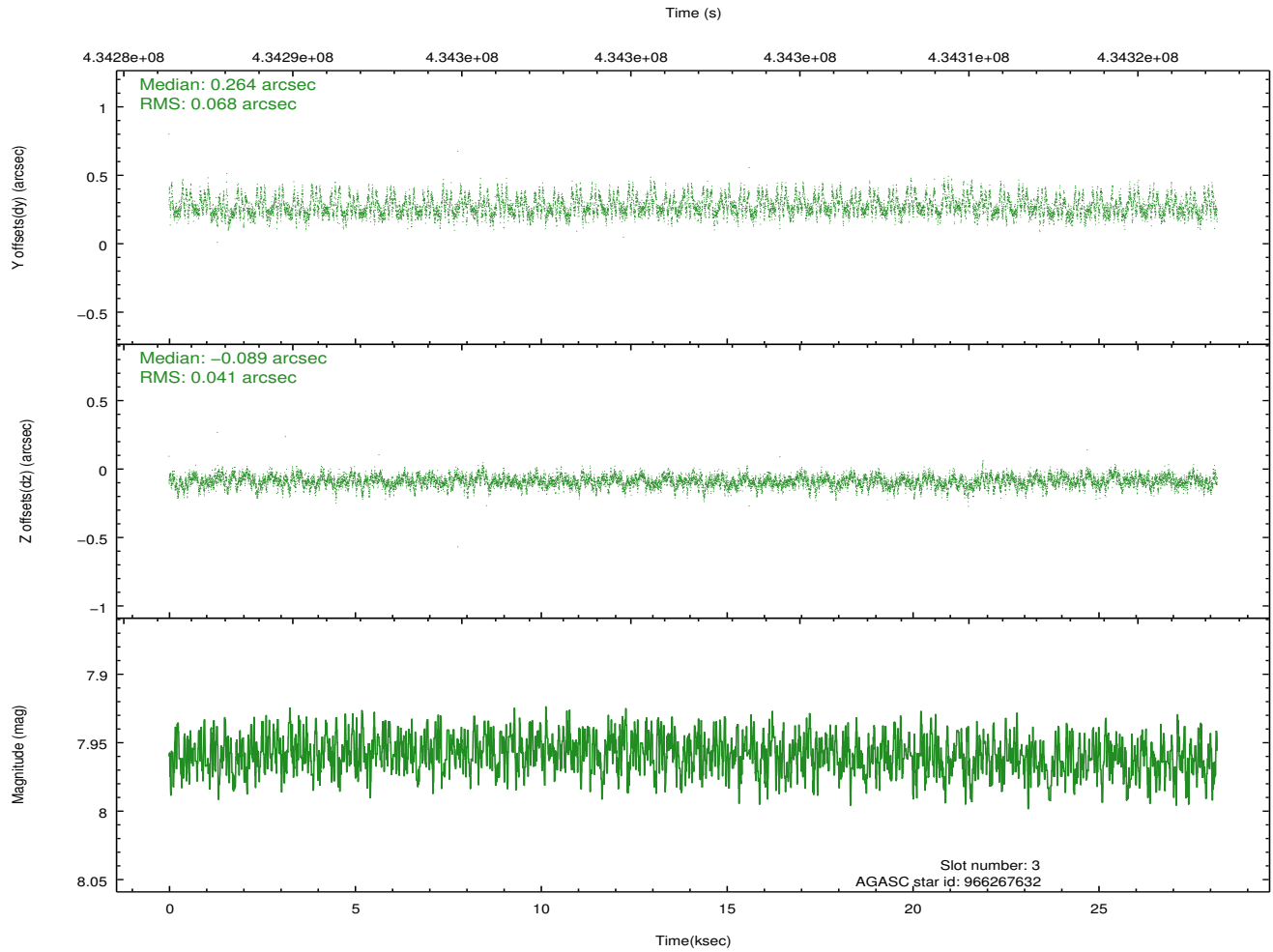
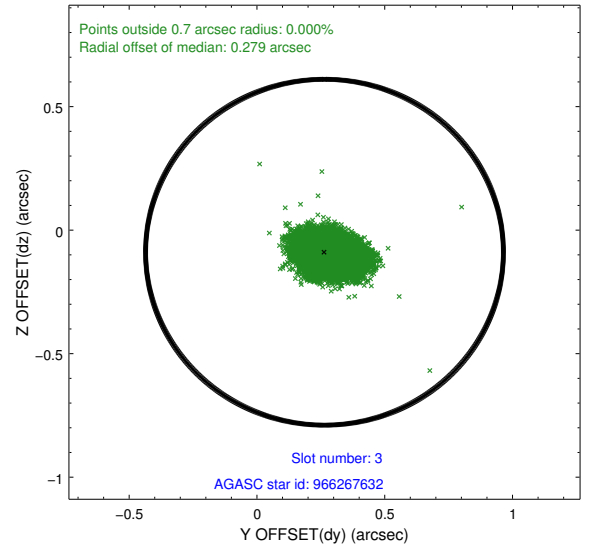
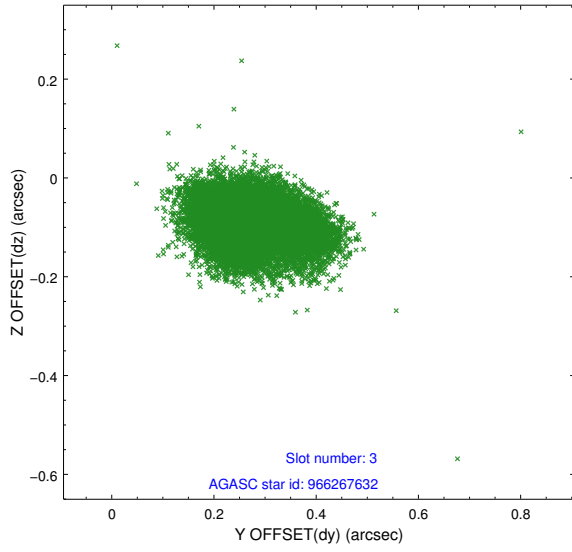


### Slot Statistics

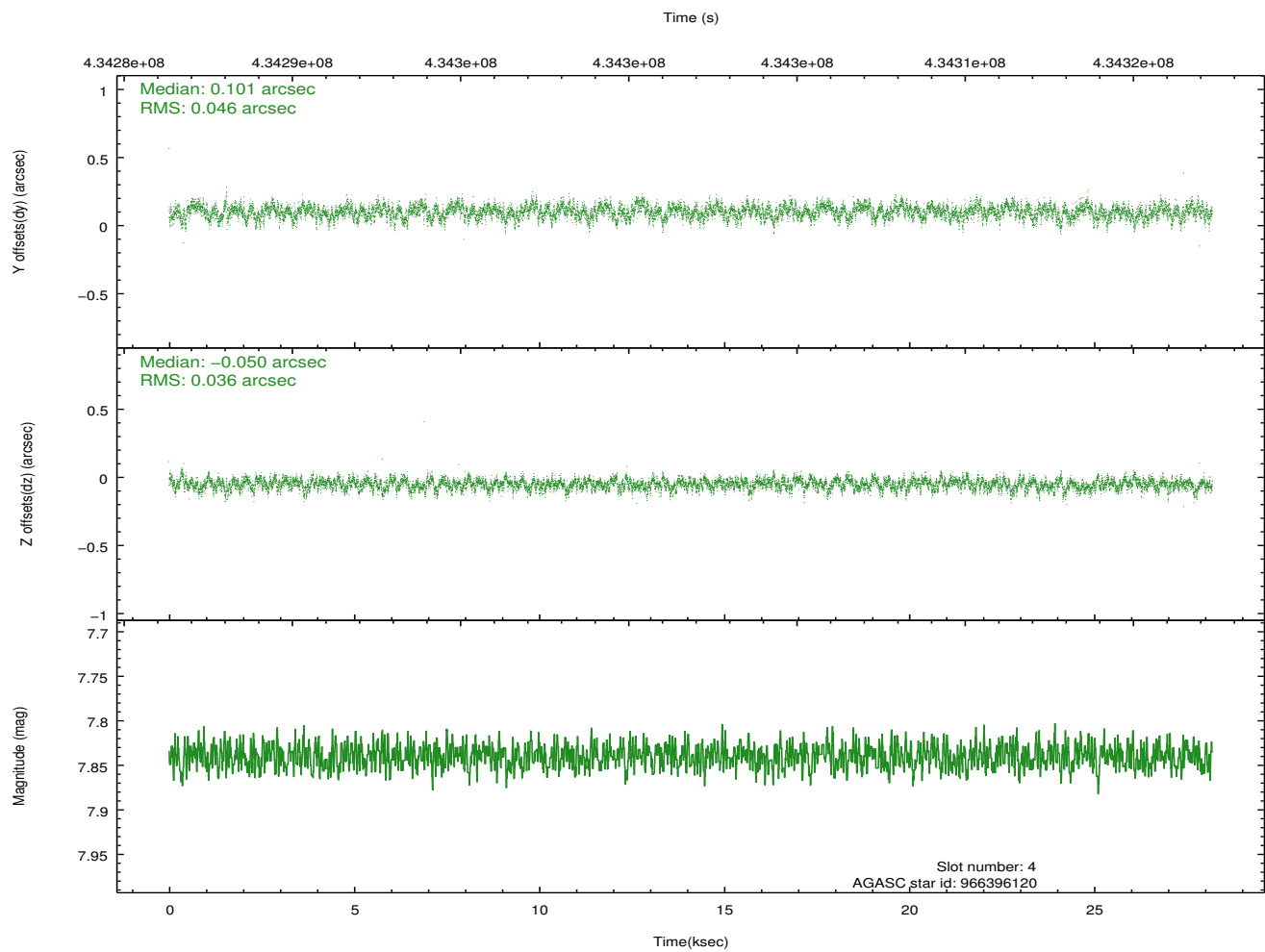
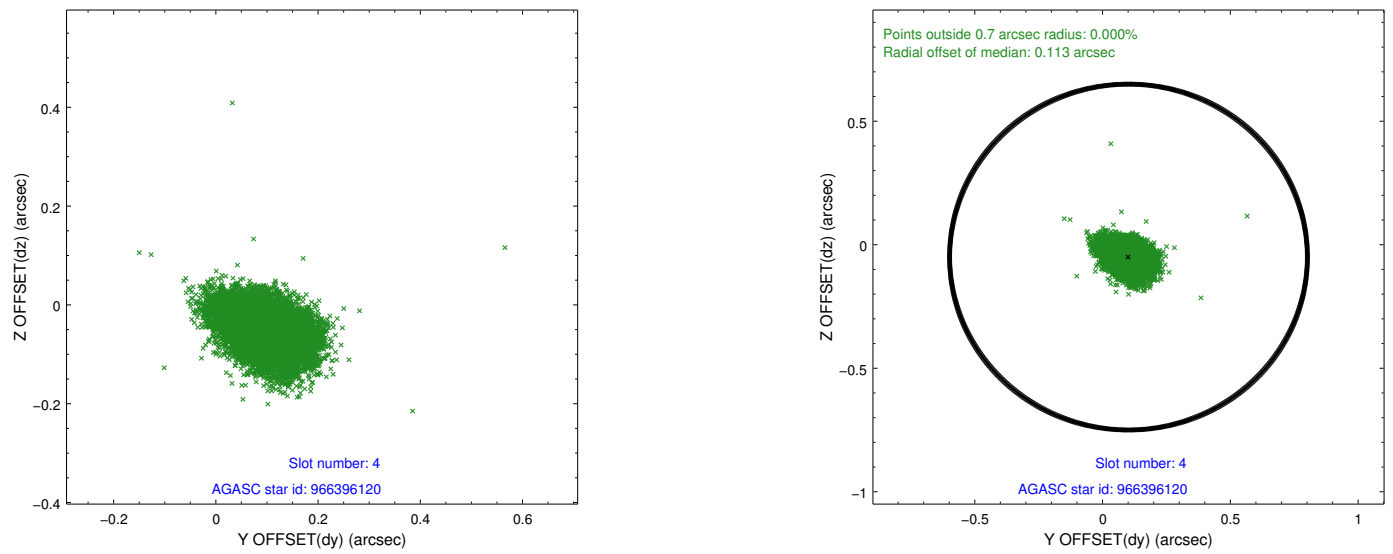
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.03	6877	0.006	0.098	0.023	0.044	0.000000	0.000000	938.37	-1882.84
1	FID	ACIS-S-4	7.02	6877	0.053	-0.065	0.012	0.019	0.000000	0.000000	2155.91	20.99
2	FID	ACIS-S-6	7.24	6877	-0.083	-0.023	0.016	0.034	0.000000	0.000000	404.39	658.53
3	GUIDE	966267632	7.96	13753	0.264	-0.089	0.082	0.141	256.428991	-36.740525	1741.88	-2151.16
4	GUIDE	966396120	7.84	13749	0.101	-0.050	0.061	0.102	256.737004	-36.720258	1497.28	-1293.63
5	GUIDE	966398520	8.31	13748	-0.048	-0.028	0.066	0.104	256.842646	-35.892866	-1484.50	-1566.37
6	GUIDE	966401448	7.81	13750	-0.172	0.024	0.060	0.093	256.771484	-35.758991	-1918.29	-1863.26
7	GUIDE	966402904	8.09	13751	-0.150	0.147	0.061	0.100	257.709598	-36.005094	-1562.64	991.01

## 2.4 Star Slots

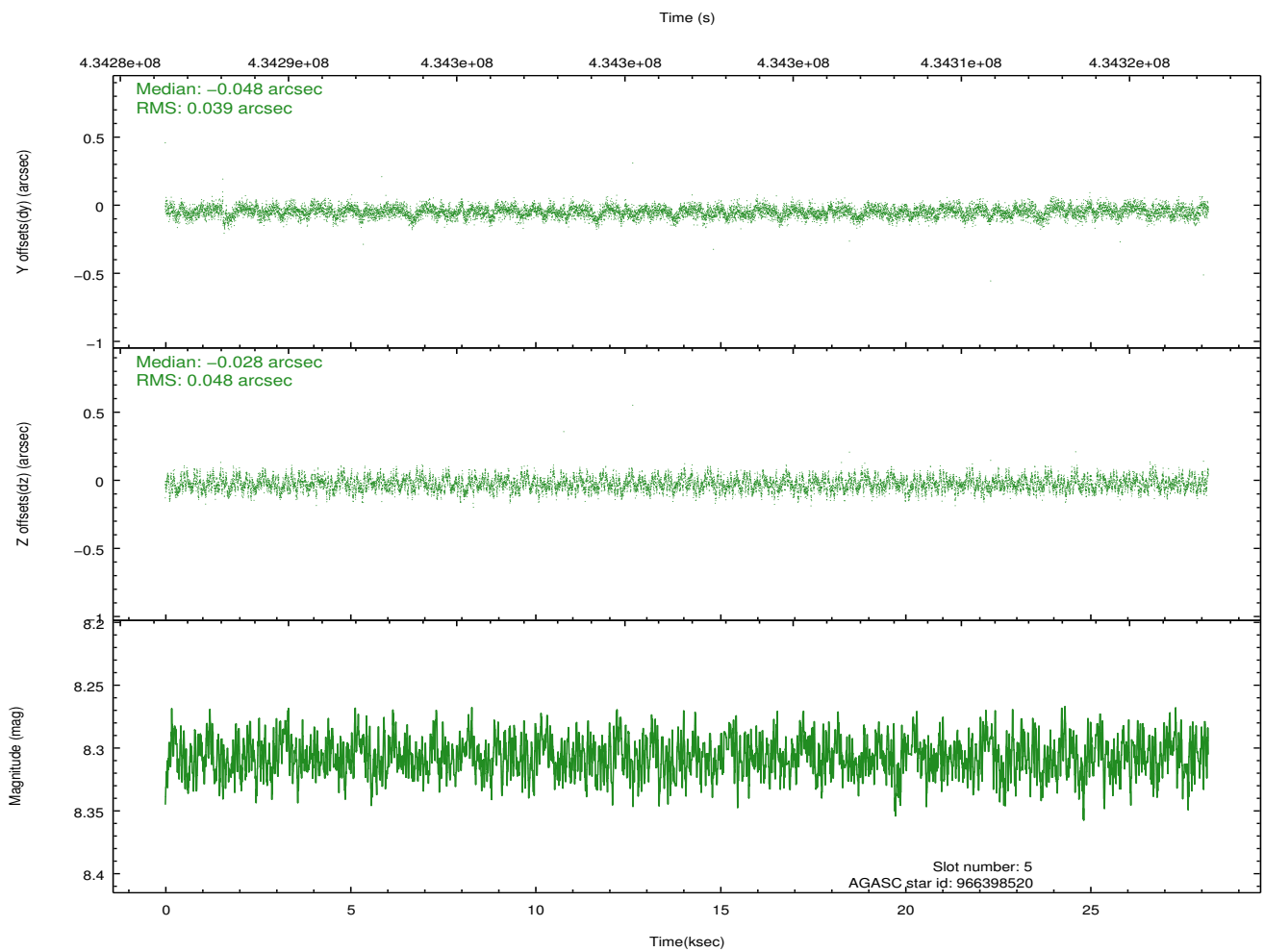
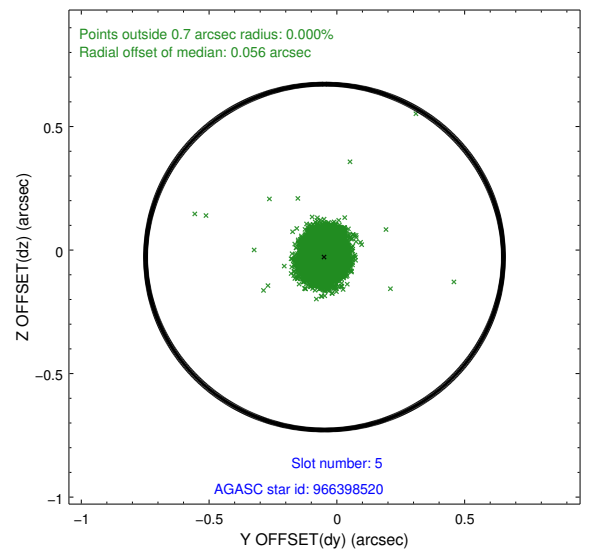
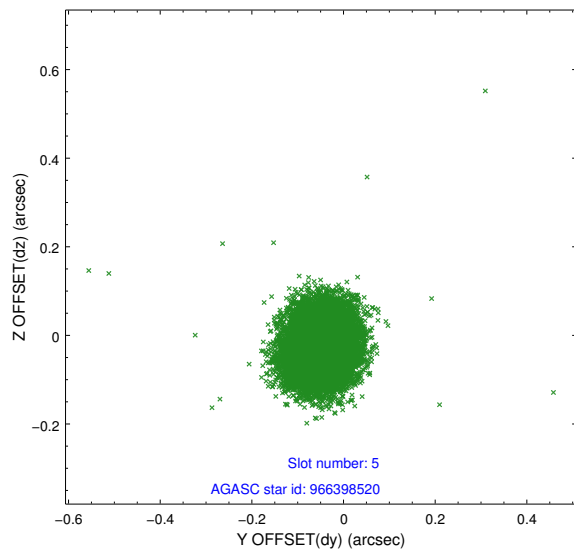
### 2.4.1 Slot 3



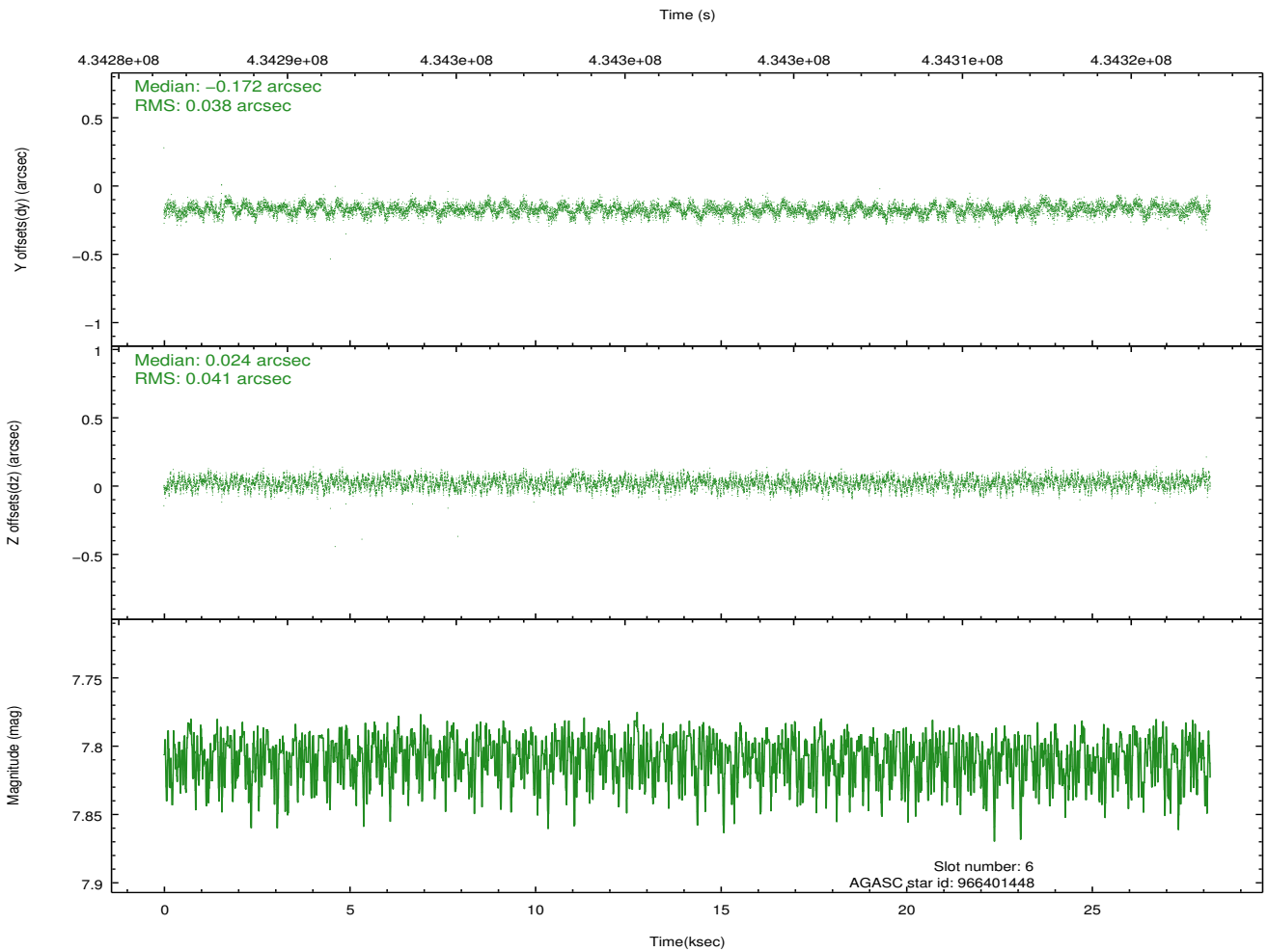
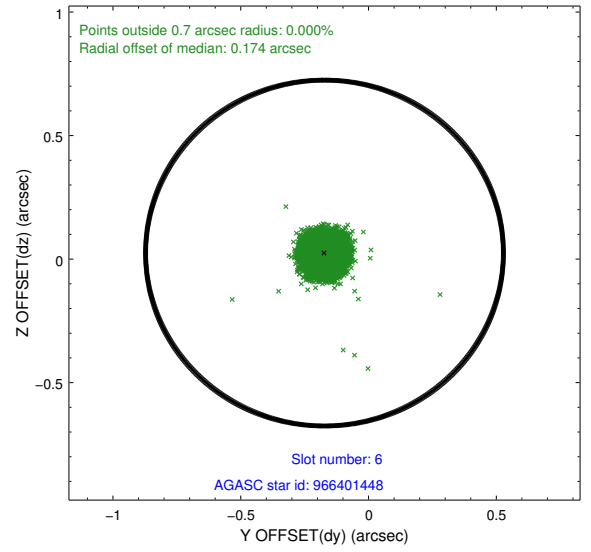
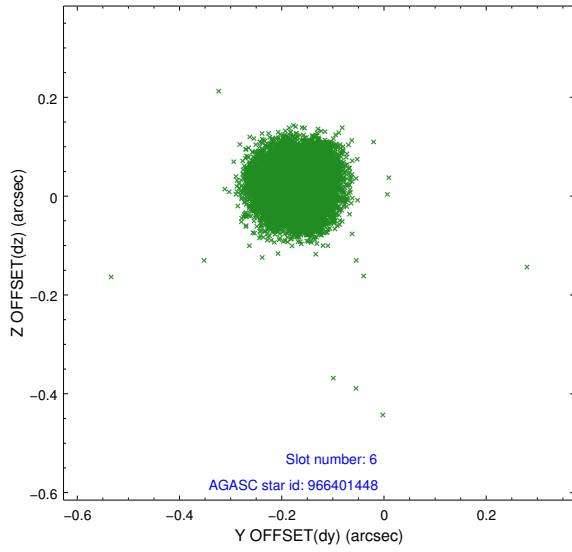
## 2.4.2 Slot 4



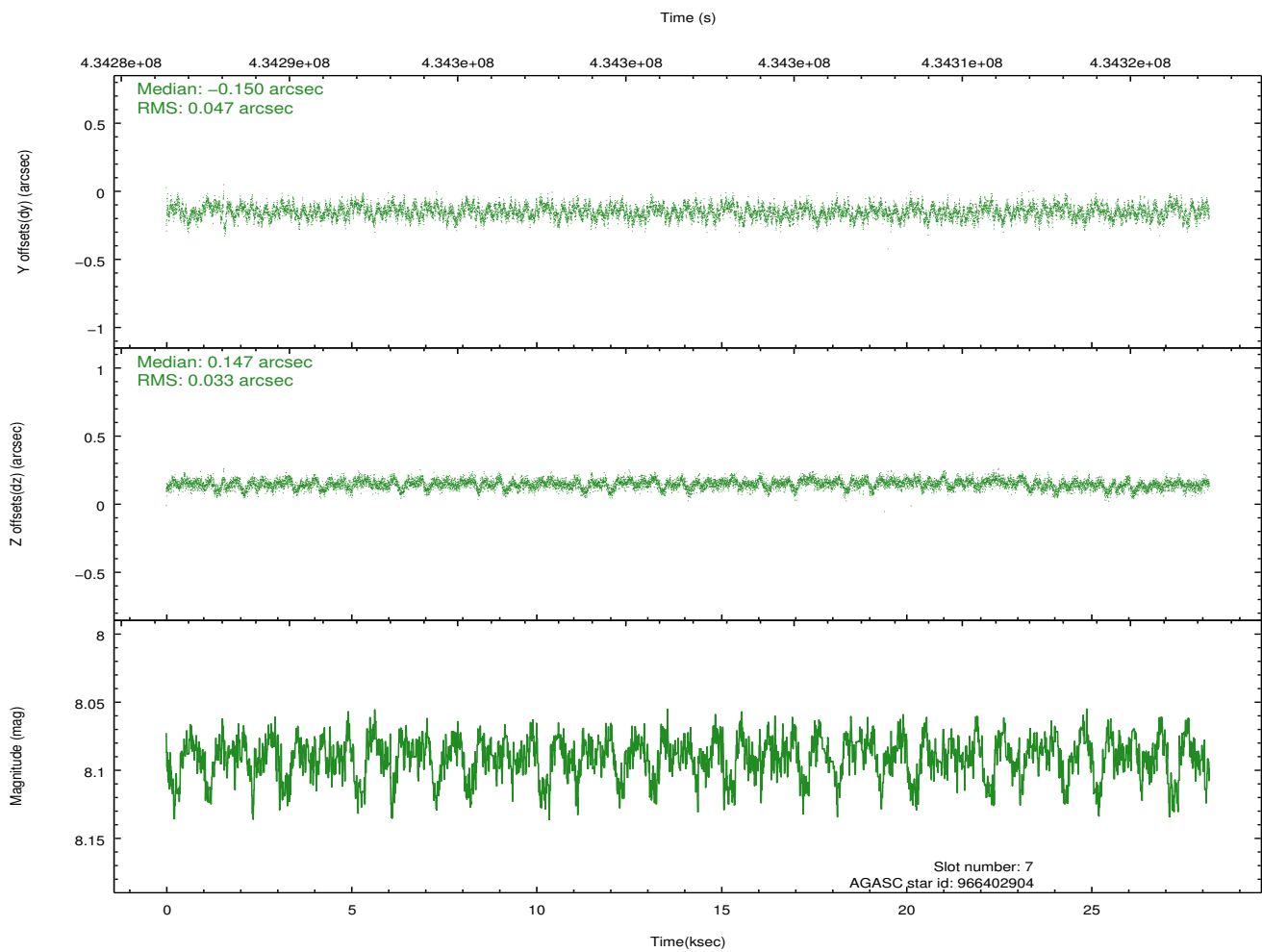
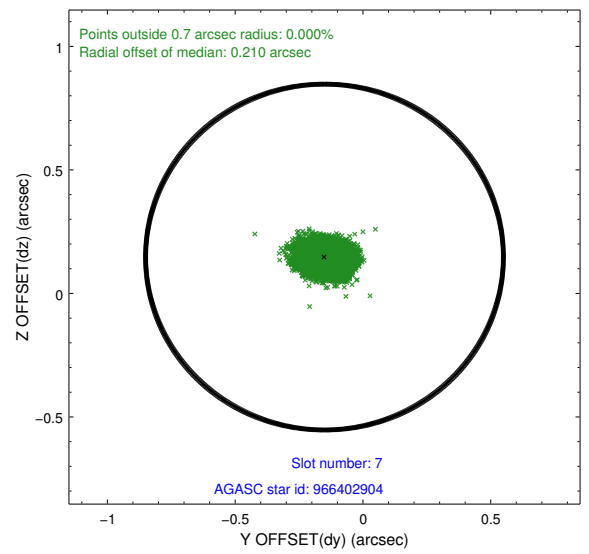
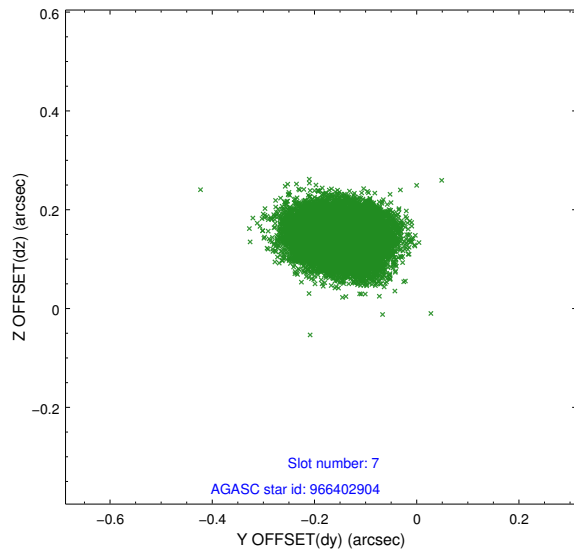
### 2.4.3 Slot 5



### 2.4.4 Slot 6

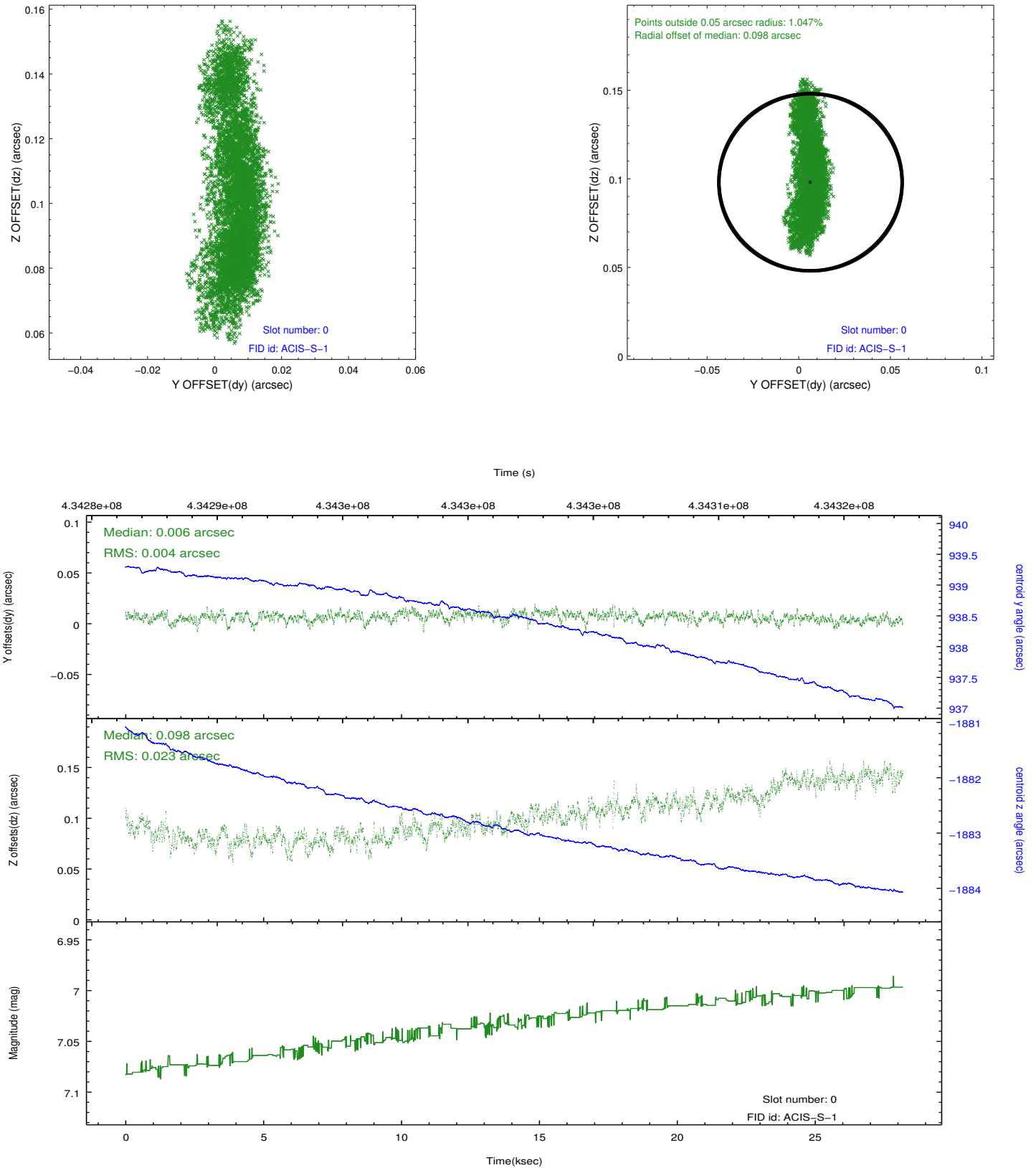


## 2.4.5 Slot 7

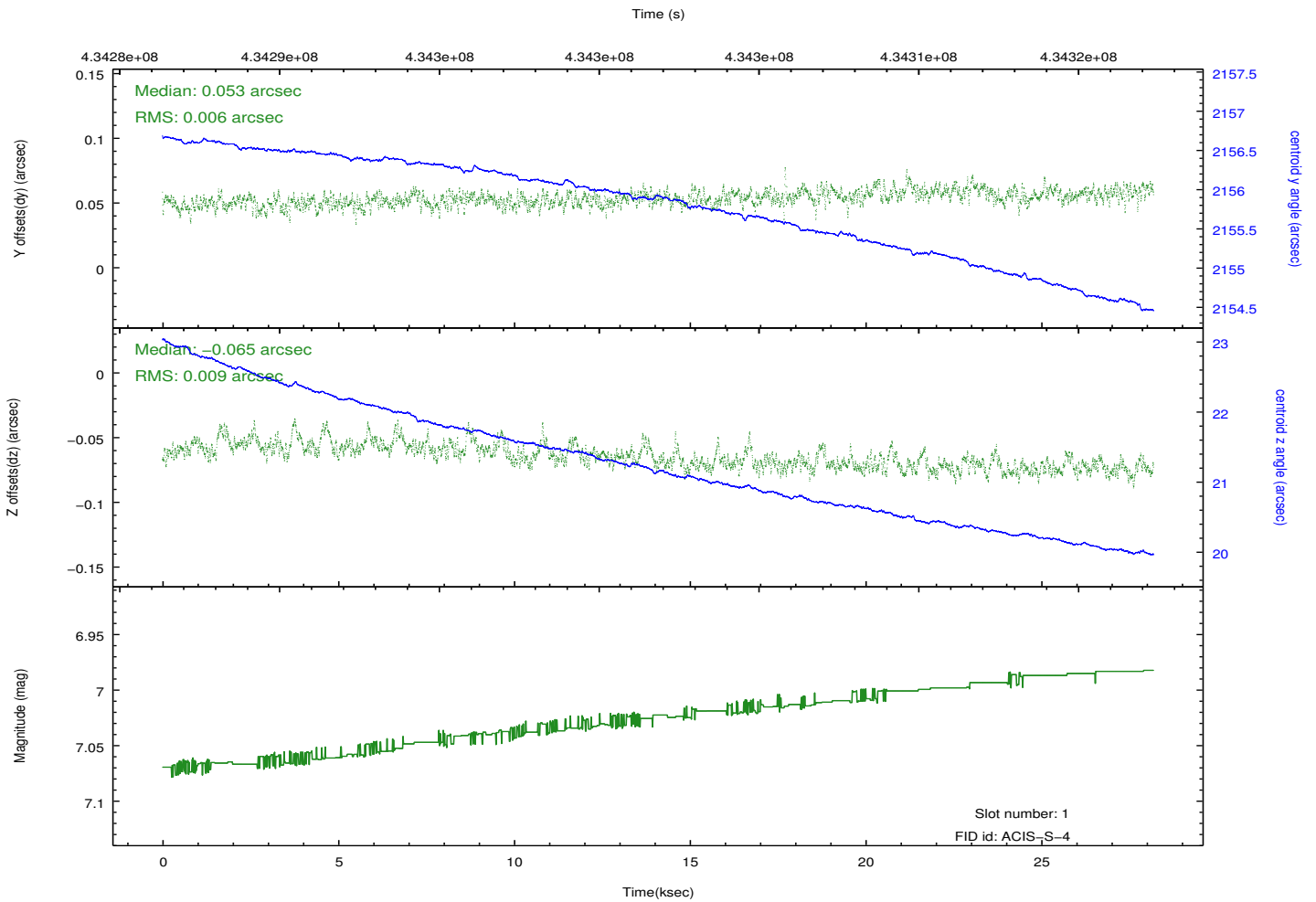
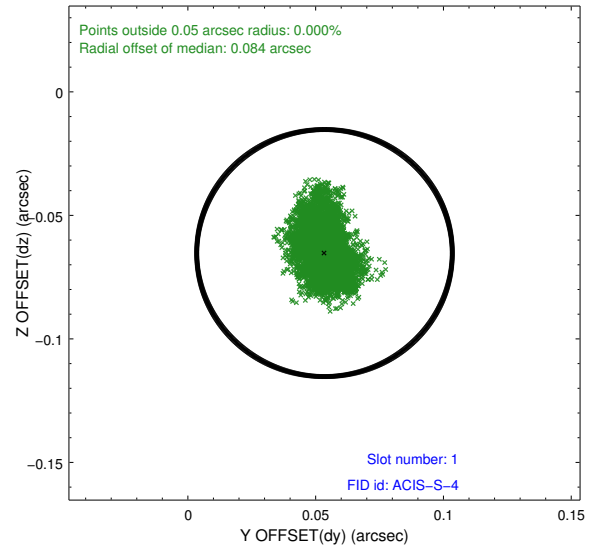
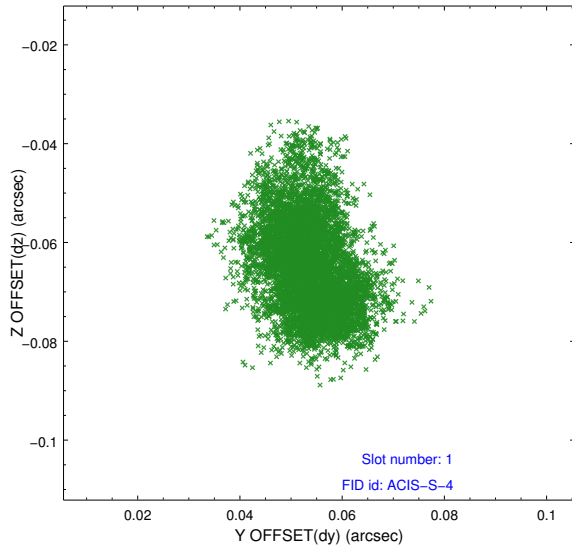


## 2.5 FID Slots

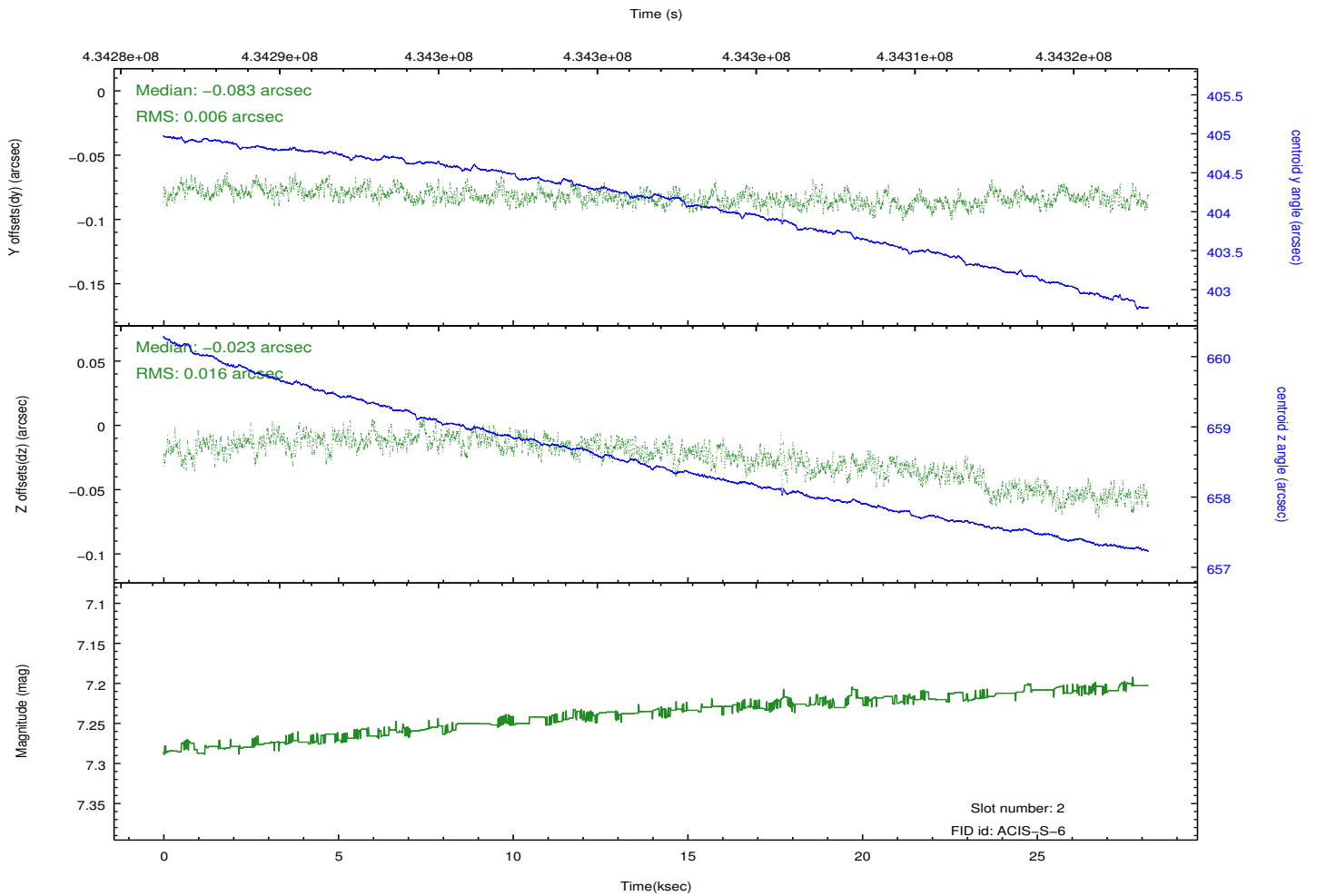
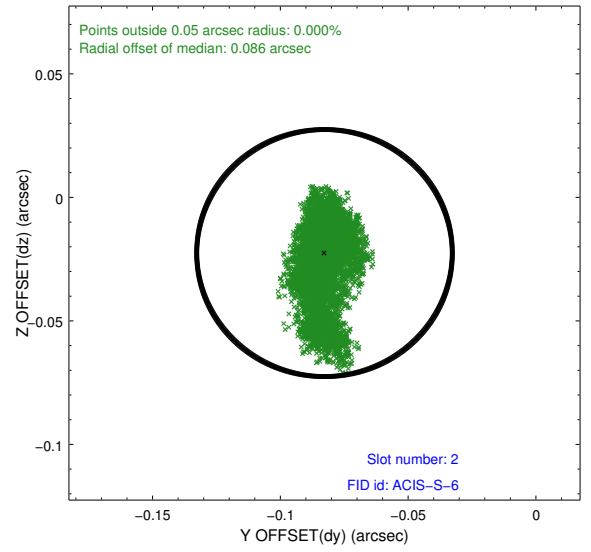
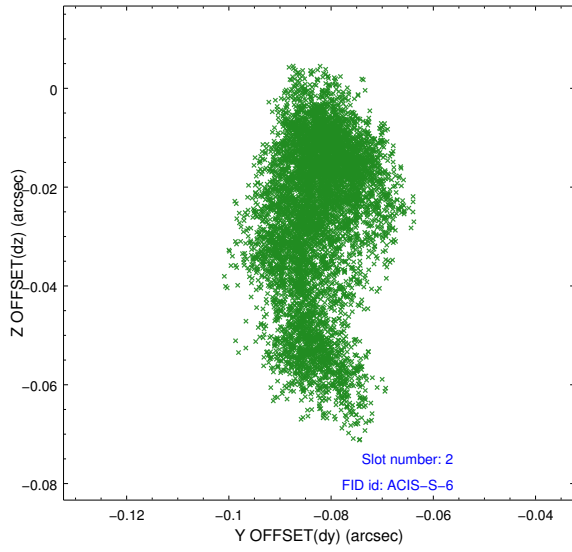
### 2.5.1 Slot 0



## 2.5.2 Slot 1

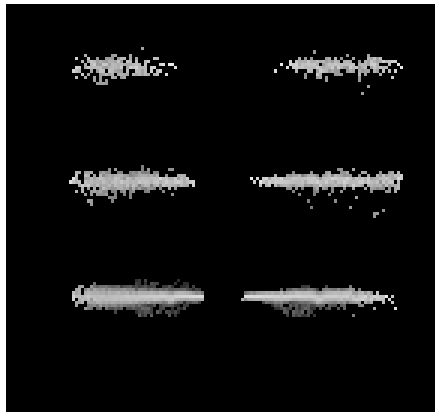


### 2.5.3 Slot 2

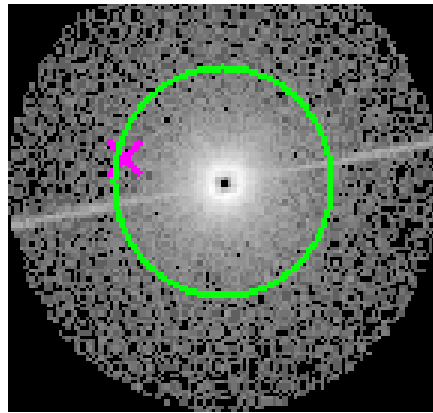


# 3 Gratings

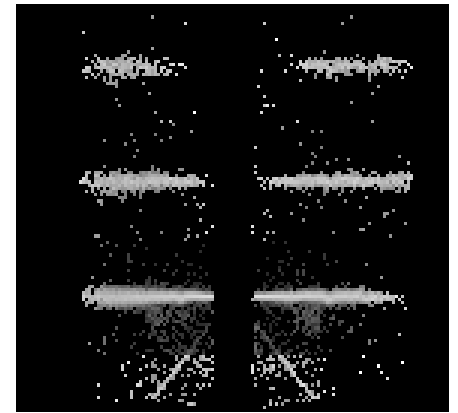
## 3.1 HEG Arm



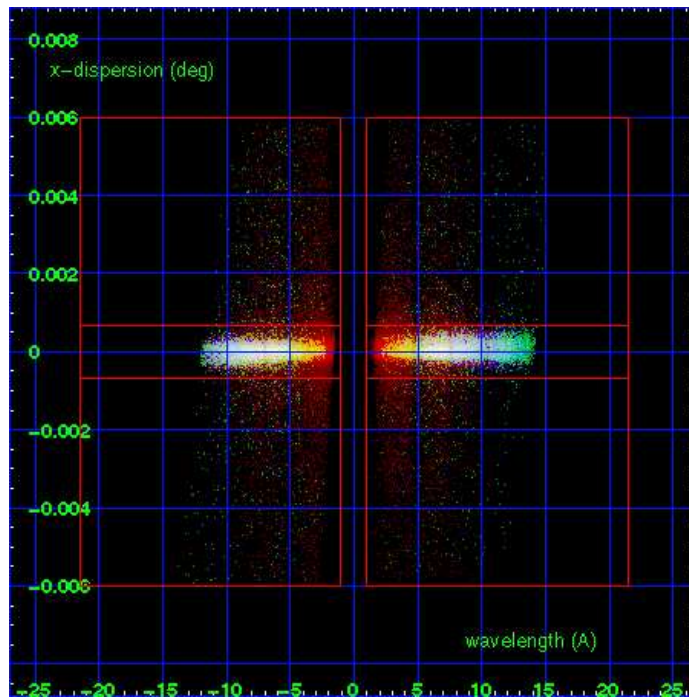
HEG Order Sort 123



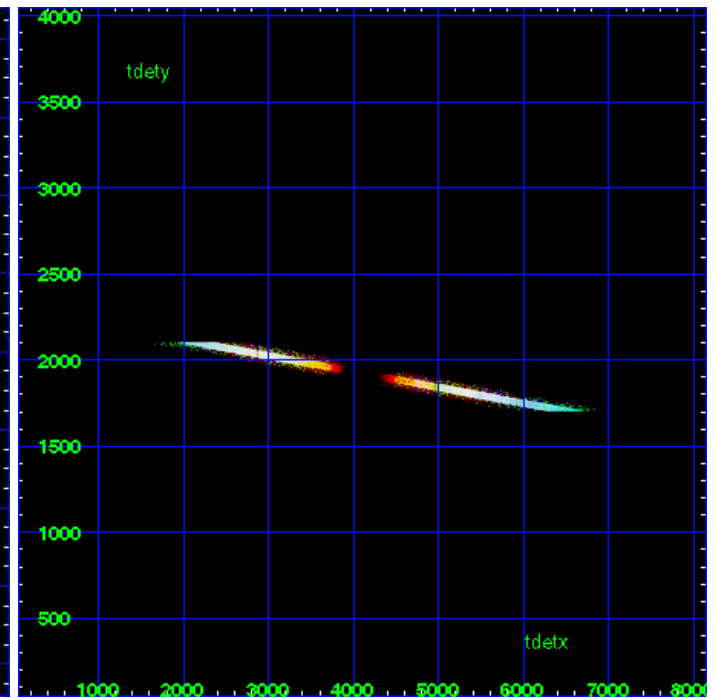
HEG Zero Order



HEG Order Sort ALL

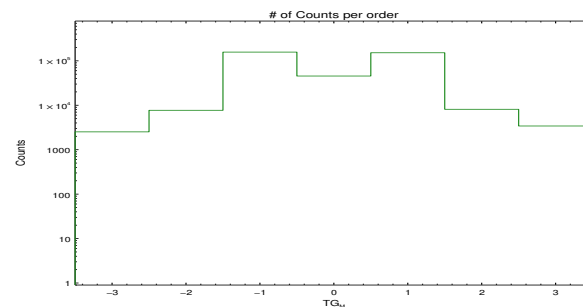


Spot Image HEG

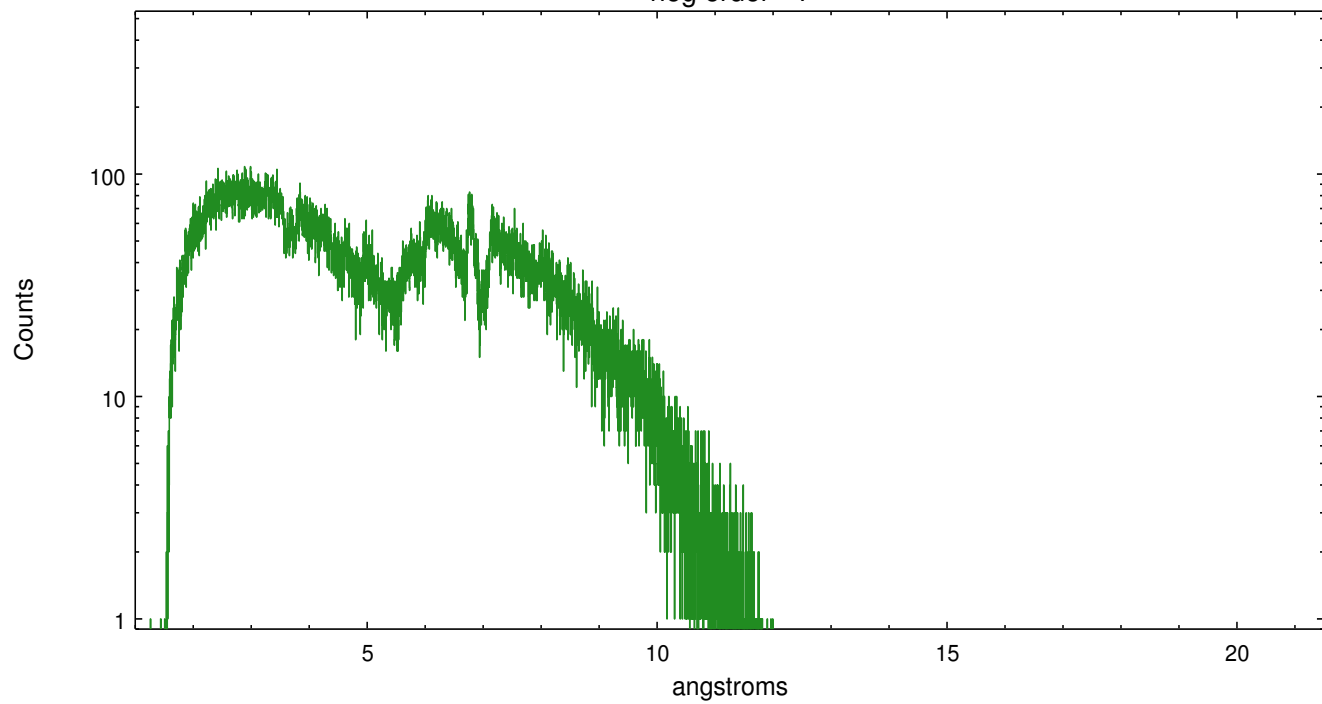


Full Detector HEG

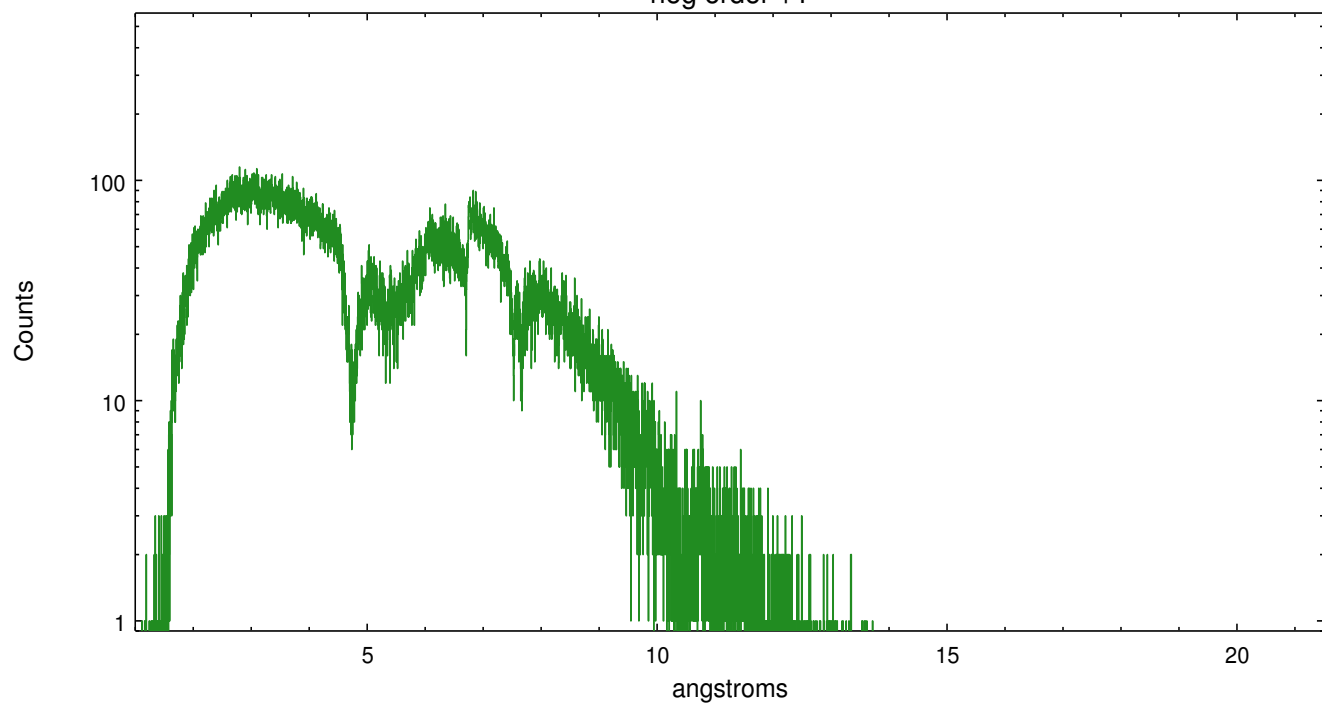
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2521	7701	157128	45482	151946	8111	3416



heg order -1



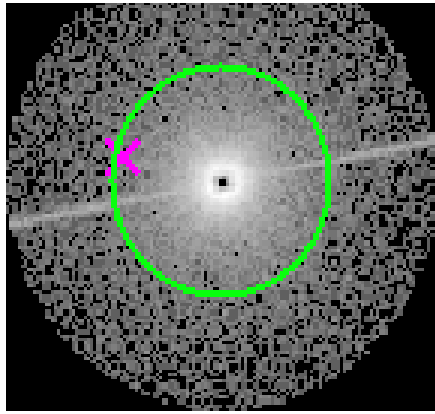
heg order +1



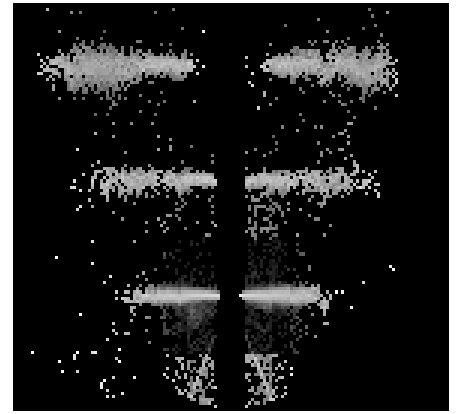
### 3.2 MEG Arm



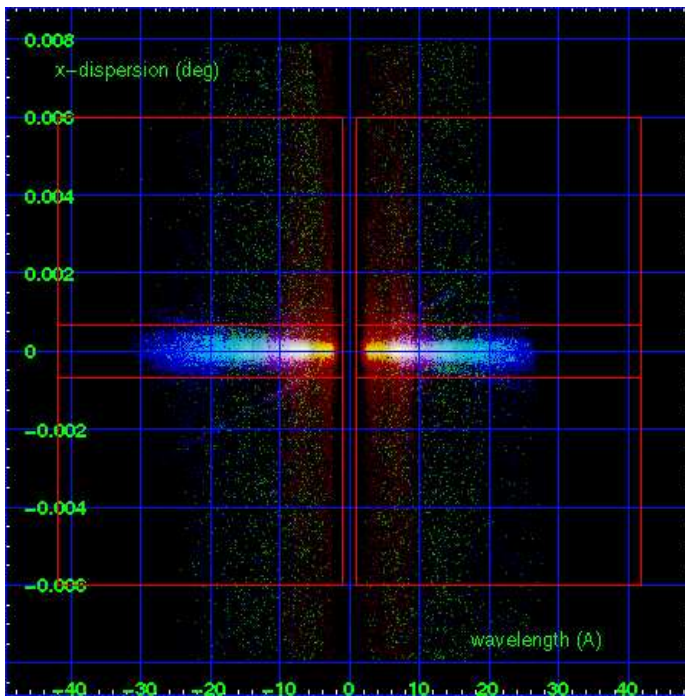
MEG Order Sort 123



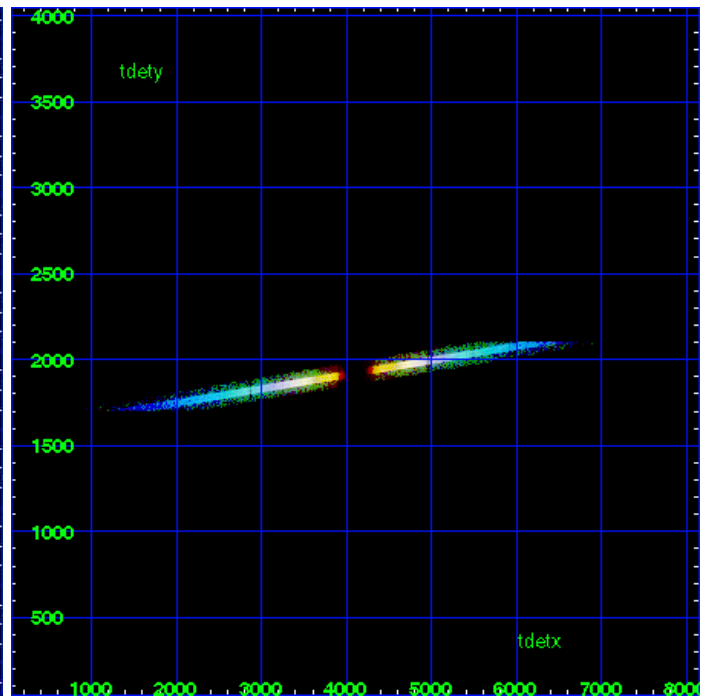
MEG Zero Order



MEG Order Sort ALL

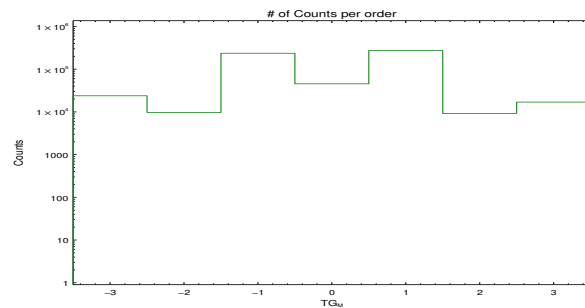


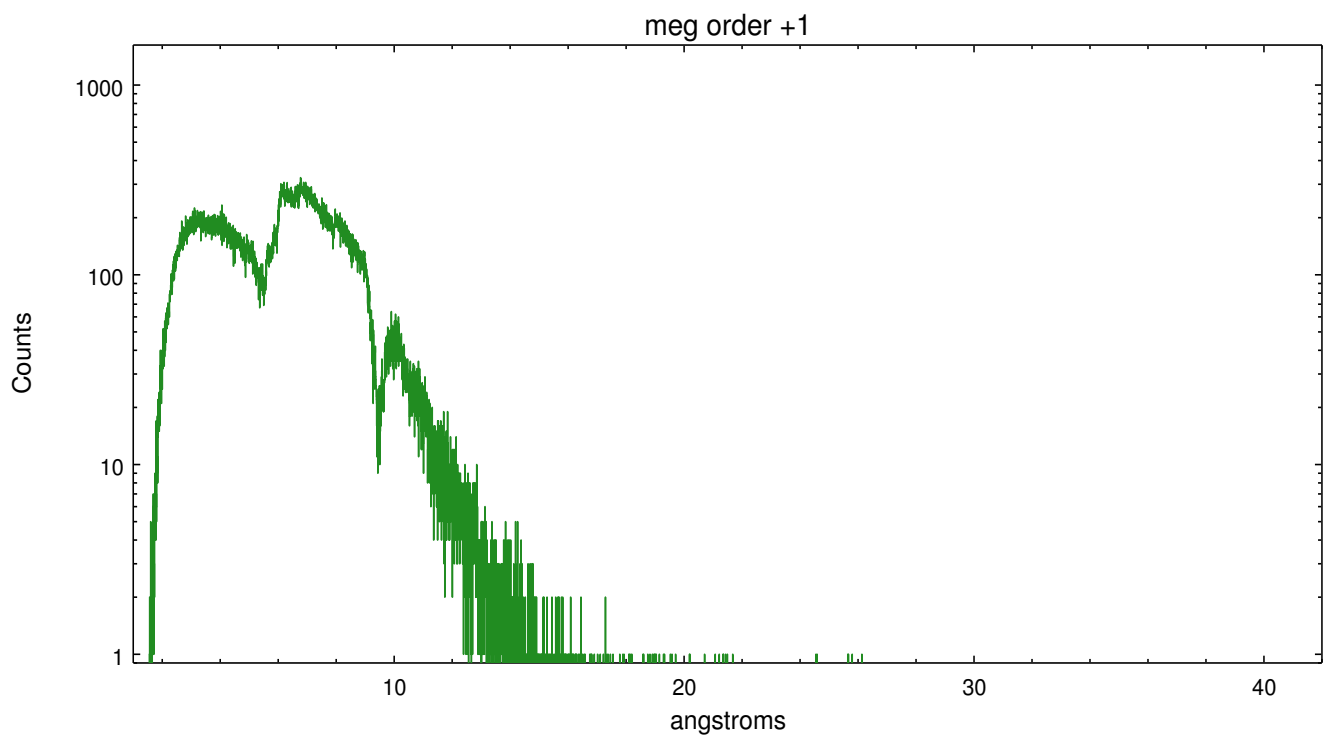
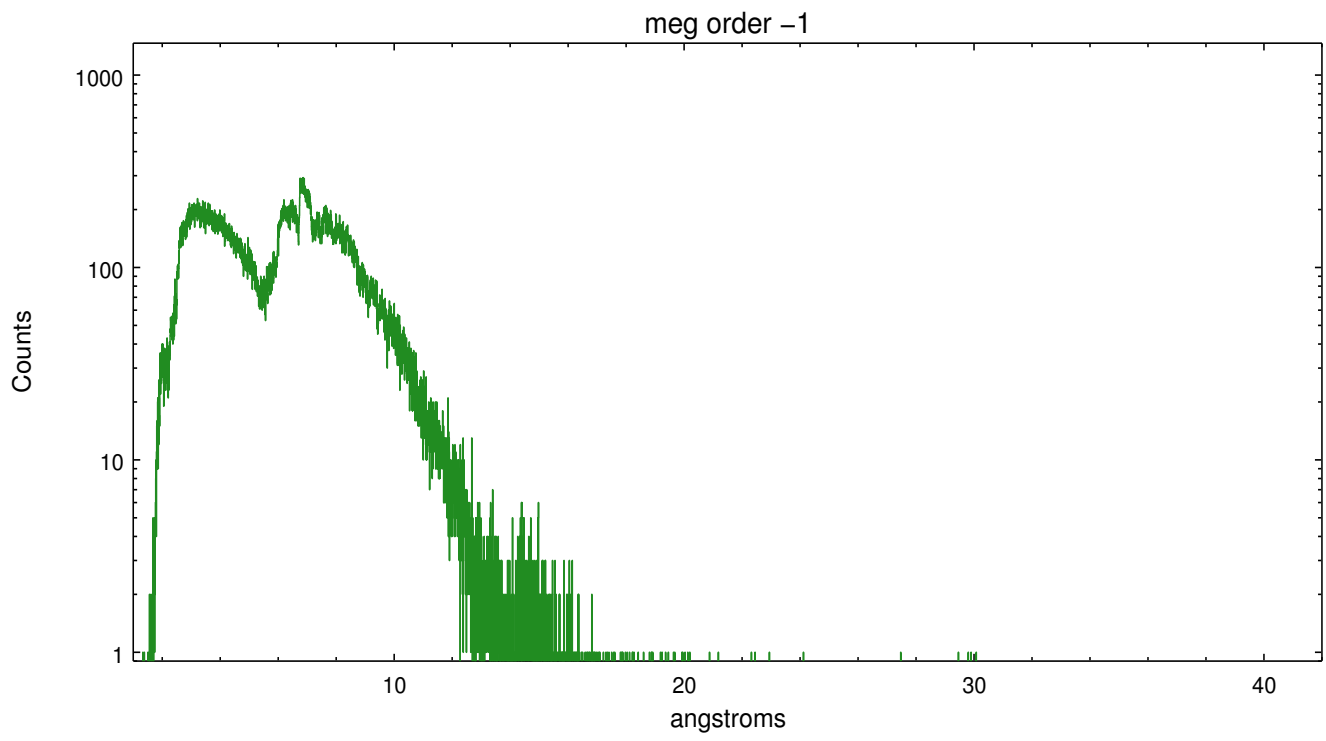
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	23864	9733	235760	45482	273298	9217	16953





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.03.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	28.086588612914

## 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=4123.4, y=4089.05) 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 (preferred position), or the readout streak and the heg 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.