

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 426 - L2 Version 8  
Chandra X-Ray Center

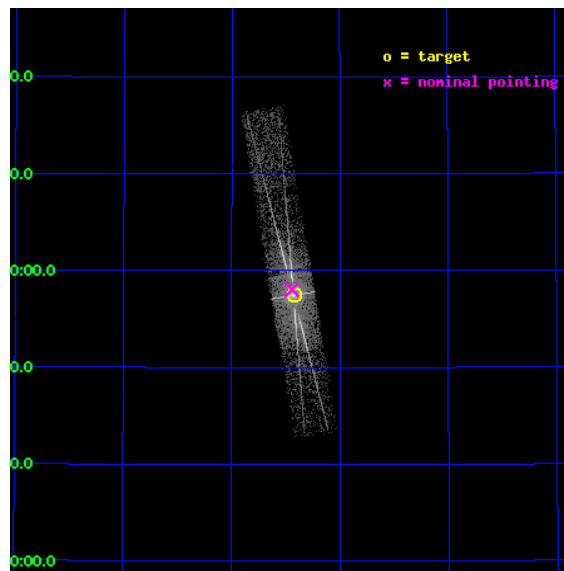
L2 Processing Date : Aug 28 2012

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# 1 Front

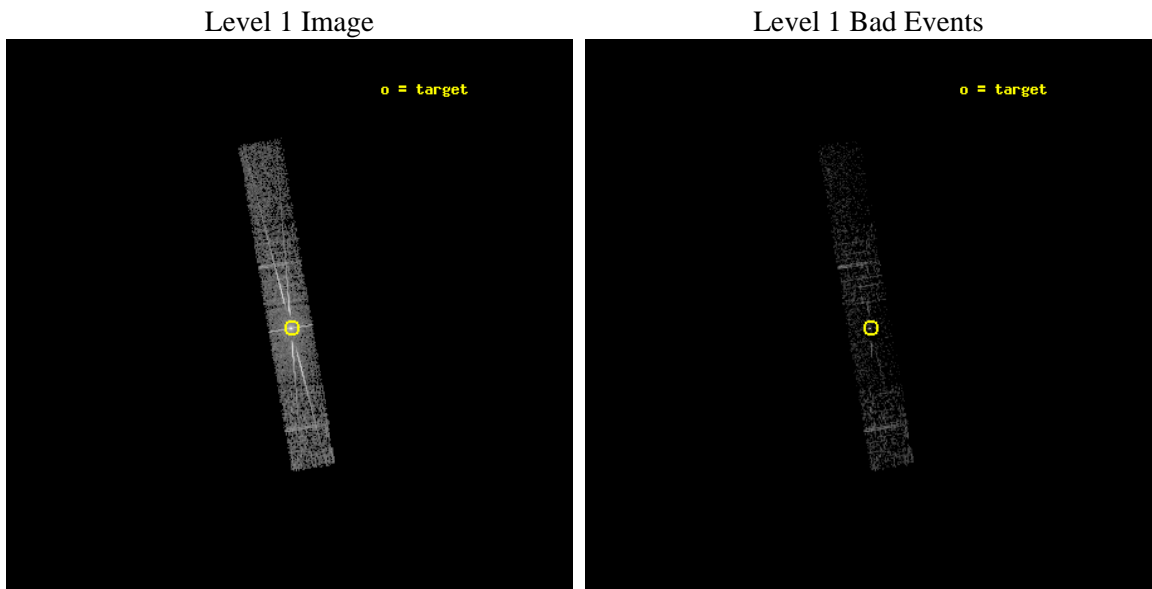
seq_num	400093	Sequence number
obs_id	426	Observation id
title	TOO OBSERVATION OF THE RELATIVISTIC JET SOURCE CYGNUS X-3	Proposal
observer	Dr. Michael McCollough	Principal investigator
object	CYG X-3	Source name
dtcycle	0	&#160
cycle	P	events are from which exps? P[rimary] S[econdar]
ra_targ	308.10625	Observer's specified target RA [deg]
dec_targ	40.957694	Observer's specified target Dec [deg]
ra_nom	308.1108259499	Nominal RA [deg]
dec_nom	40.967130529901	Nominal Dec [deg]
roll_nom	80.553090830254	Nominal Roll [deg]
revision	8	Processing version of data
ontime	2277.3606829047	Sum of GTIs [s]
livetime	326.09813606577	Livetime [s]
ontime5	2277.3606829047	Sum of GTIs [s]
ontime6	2277.3606829047	Sum of GTIs [s]
ontime7	2277.3606829047	Sum of GTIs [s]
ontime8	2277.3606829047	Sum of GTIs [s]
l2events	31506	Number of level 2 events



## 2 OBI Primary

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	18000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	2277.3606829047	Sum of GTIs [s]
caldsver	4.5.1.1	&#160	ontime5	2277.3606829047	Sum of GTIs [s]
date	2012-08-25T15:30:11	Date and time of file creation	ontime6	2277.3606829047	Sum of GTIs [s]
revision	6	Processing version of data	ontime7	2277.3606829047	Sum of GTIs [s]
			ontime8	2277.3606829047	Sum of GTIs [s]
			l1events	50255	Number of level 1 events

### 2.1.3 Events

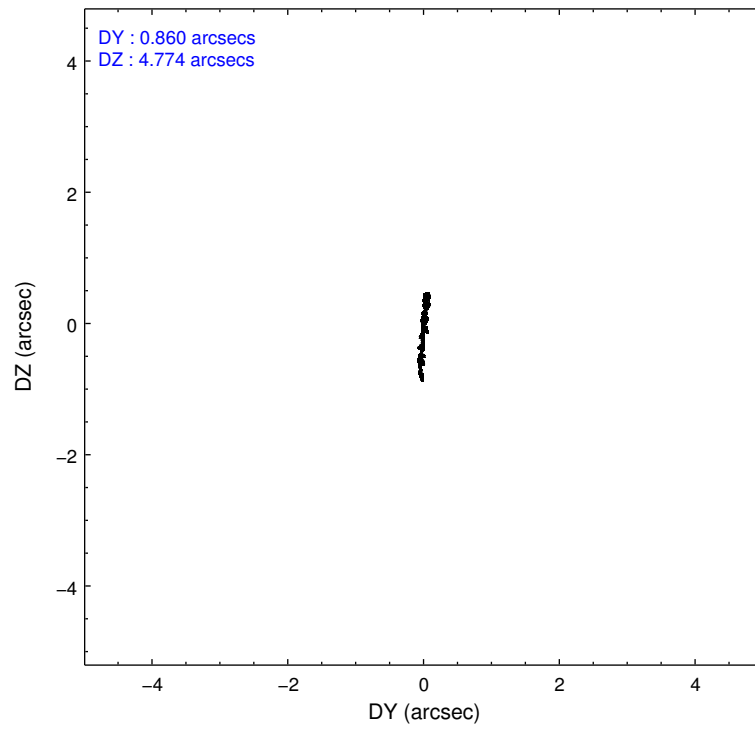
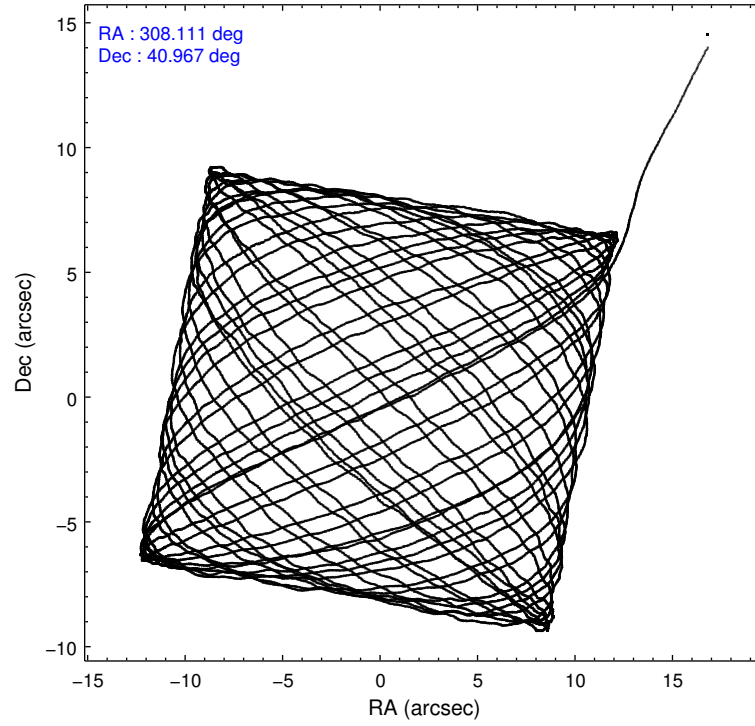
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	4236	13317	23825	8877
rejected events	2426	5140	3422	6075
rejected %	57%	38%	14%	68%

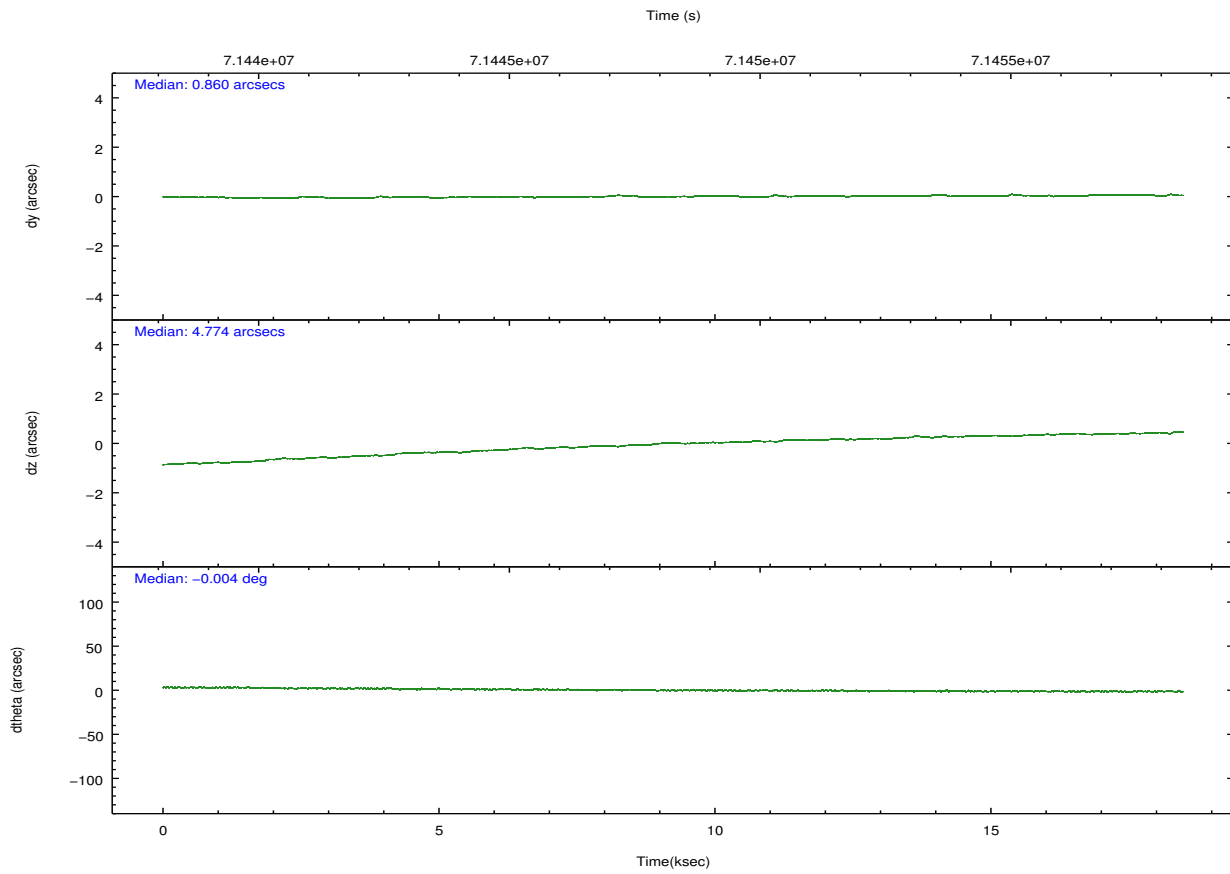
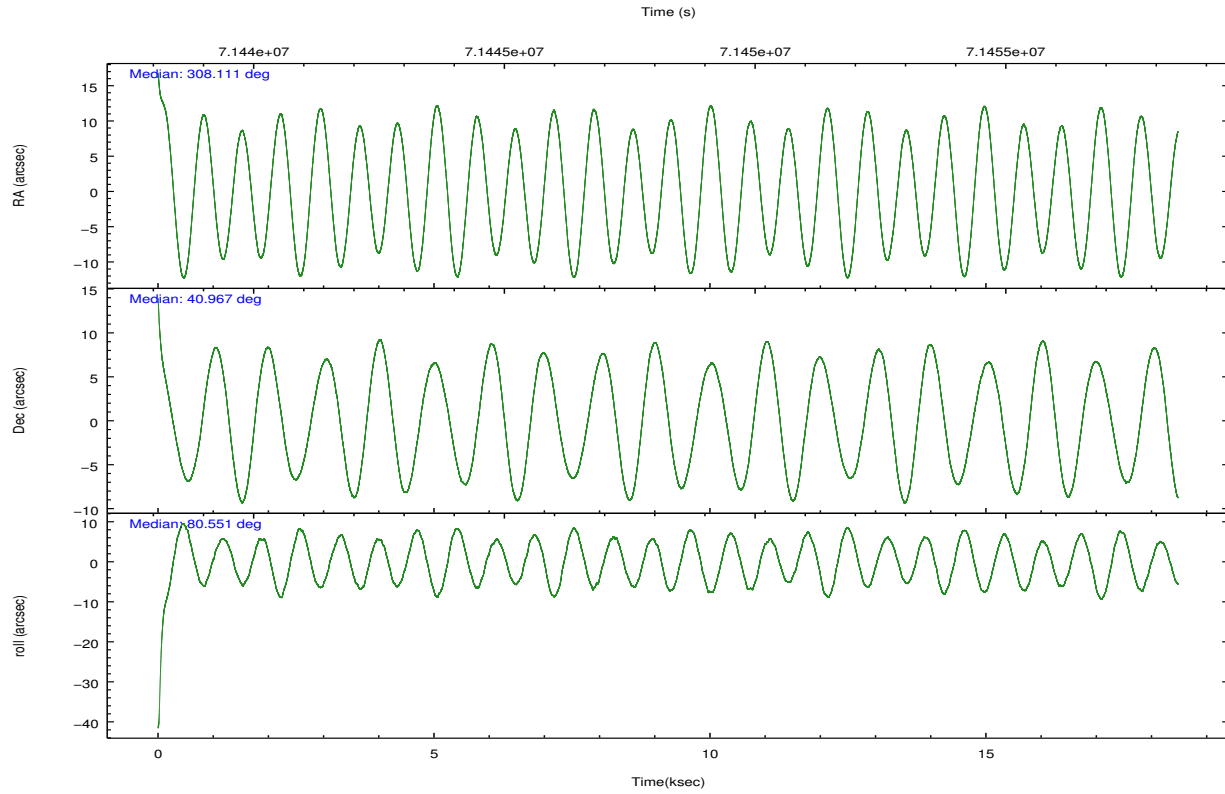
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	127	5234	3478	1539
	2%	39%	14%	17%
grade 1 events	0	22	41	3
	0%	0%	0%	0%
grade 2 events	613	1360	5599	468
	14%	10%	23%	5%
grade 3 events	88	414	1876	258
	2%	3%	7%	2%
grade 4 events	96	460	1740	221
	2%	3%	7%	2%
grade 5 events	207	118	539	131
	4%	0%	2%	1%
grade 6 events	894	720	7733	319
	21%	5%	32%	3%
grade 7 events	2211	4989	2819	5938
	52%	37%	11%	66%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	GRADED	GRADED	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	308.123643	308.1108259499045	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	40.941440	40.96713052990139	Subarray start row	249	249
[deg] Pointing Roll	80.388080	80.55309083025371	Subarray row count	542	542
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	Y	Y
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.300000	0.3
[mm] SIM translation stage pos	-190.132523	-190.1400660498719	[s] Secondary exposure time	1.700000	1.8
[mm] SIM translation stage offset	0	0.00754346686406393	Duty cycle	8	8
[s] Observation start time (MET)	71439503.184000	71438480.30677301			
Observation start date	2000-04-06T20:17:19	2000-04-06T20:01:20			
[s] Observation end time (MET)	71457503.184000	71458435.520004			
Observation end date	2000-04-07T01:17:19	2000-04-07T01:33:55			
Read mode	TIMED	TIMED			

## 2.3 Aspect



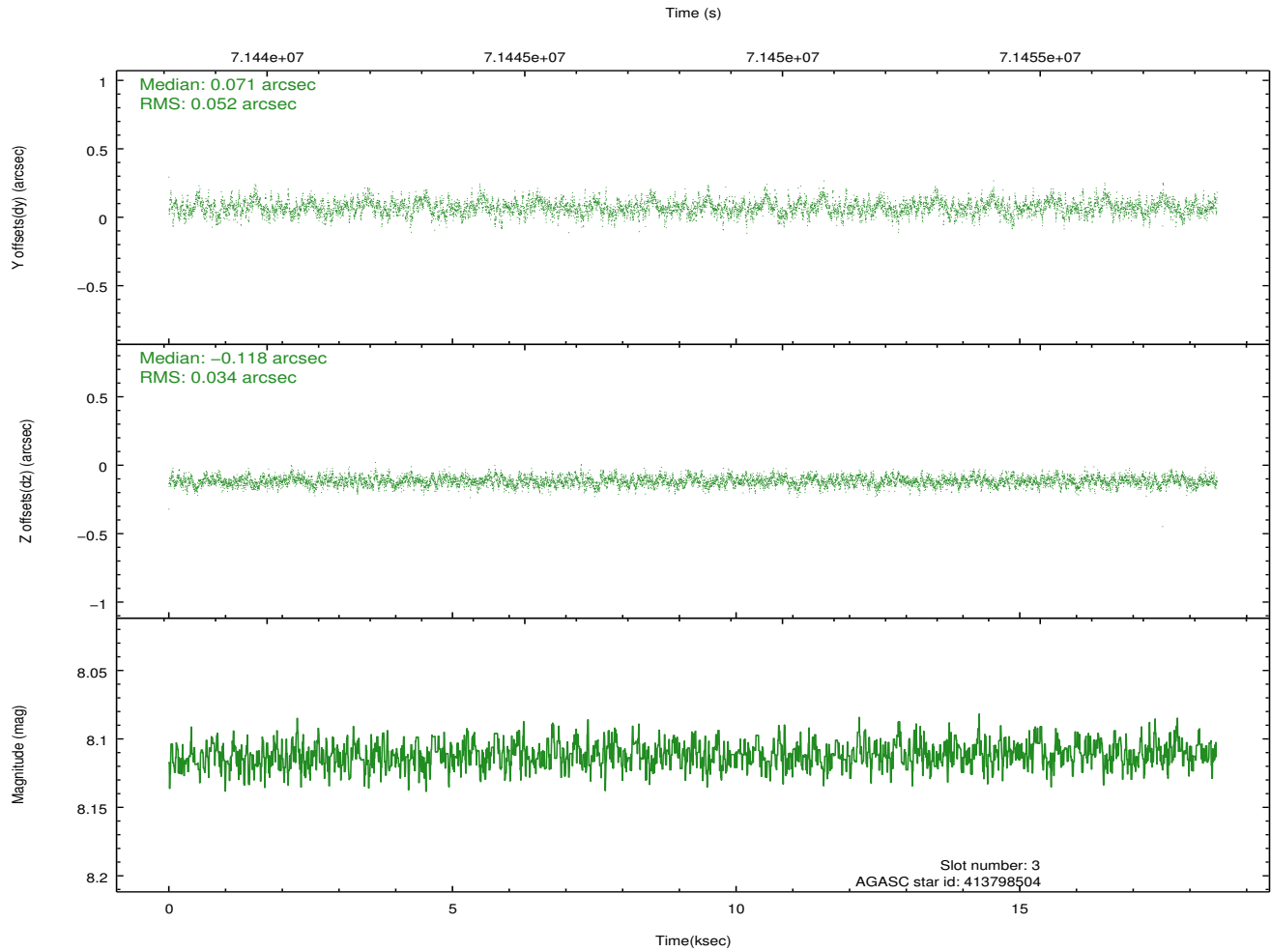
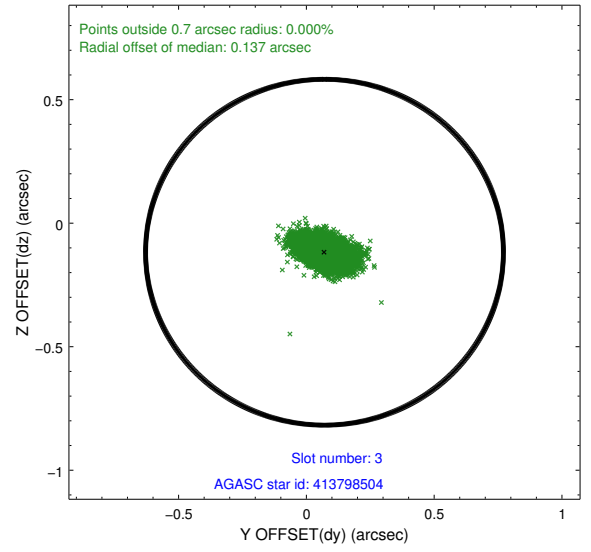
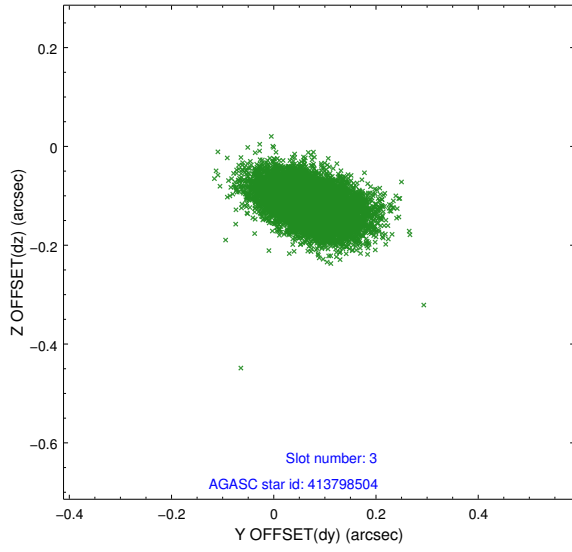


### Slot Statistics

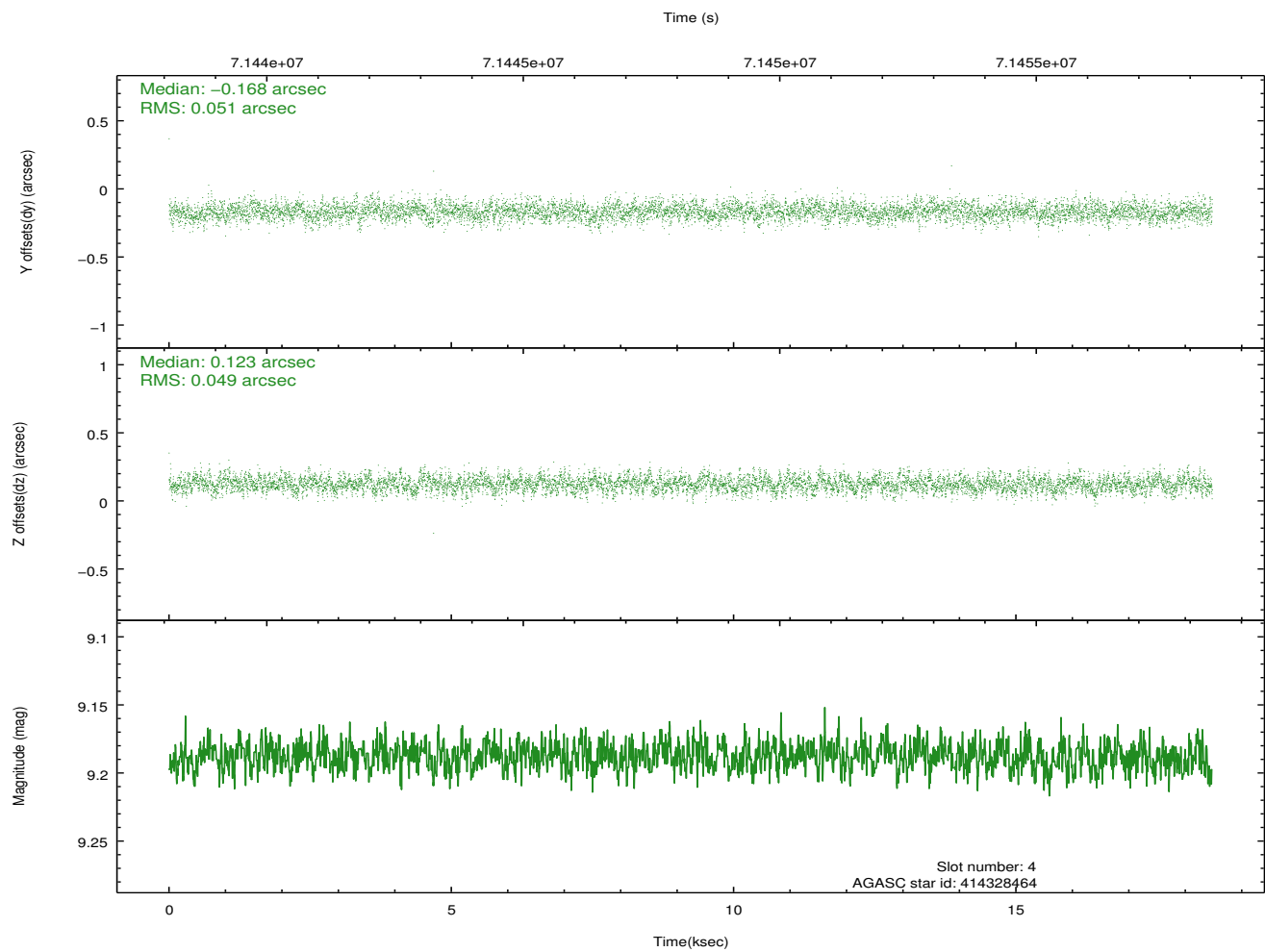
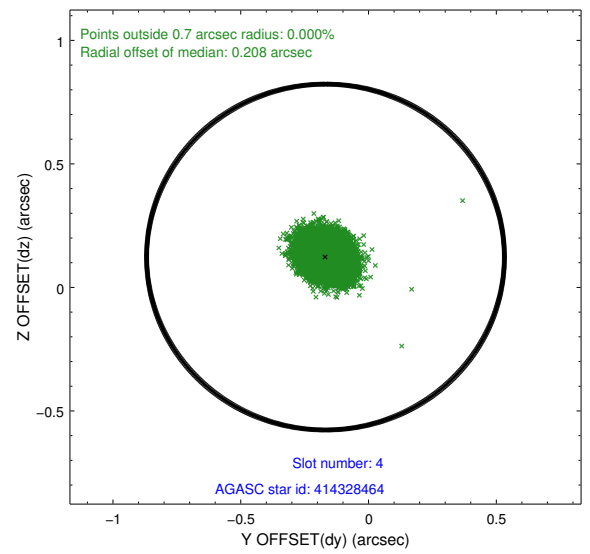
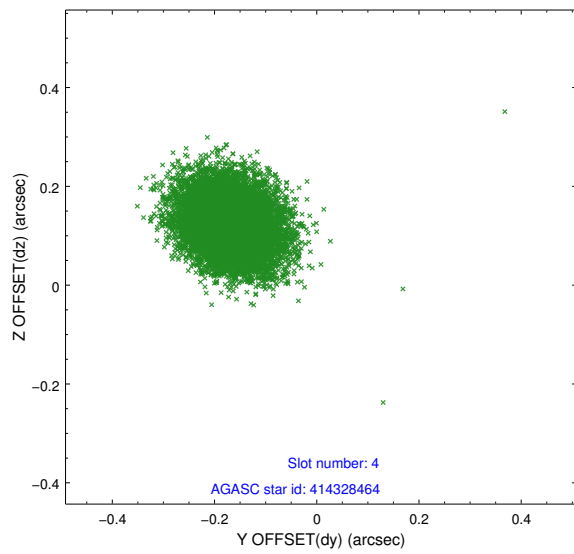
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	4505	-0.027	-0.006	0.011	0.019	0.000000	0.000000	-753.49	-1725.78
1	FID	ACIS-S-4	7.21	4507	0.006	0.014	0.007	0.012	0.000000	0.000000	2159.74	182.47
2	FID	ACIS-S-5	7.23	4507	-0.012	-0.000	0.012	0.020	0.000000	0.000000	-1806.02	176.41
3	GUIDE	413798504	8.11	9012	0.071	-0.118	0.064	0.112	307.761525	40.426565	-1991.19	668.78
4	GUIDE	414328464	9.19	9009	-0.168	0.123	0.075	0.121	308.778827	41.333671	1694.17	-1509.43
5	GUIDE	413805632	9.05	9013	0.117	0.076	0.075	0.124	308.281827	40.295563	-2219.30	-816.98
6	GUIDE	414329112	9.21	9006	-0.020	-0.012	0.079	0.128	307.717084	41.328937	1194.10	1316.61
7	GUIDE	414329664	9.29	9008	-0.000	-0.071	0.077	0.125	307.941690	41.290854	1158.64	695.17

## 2.4 Star Slots

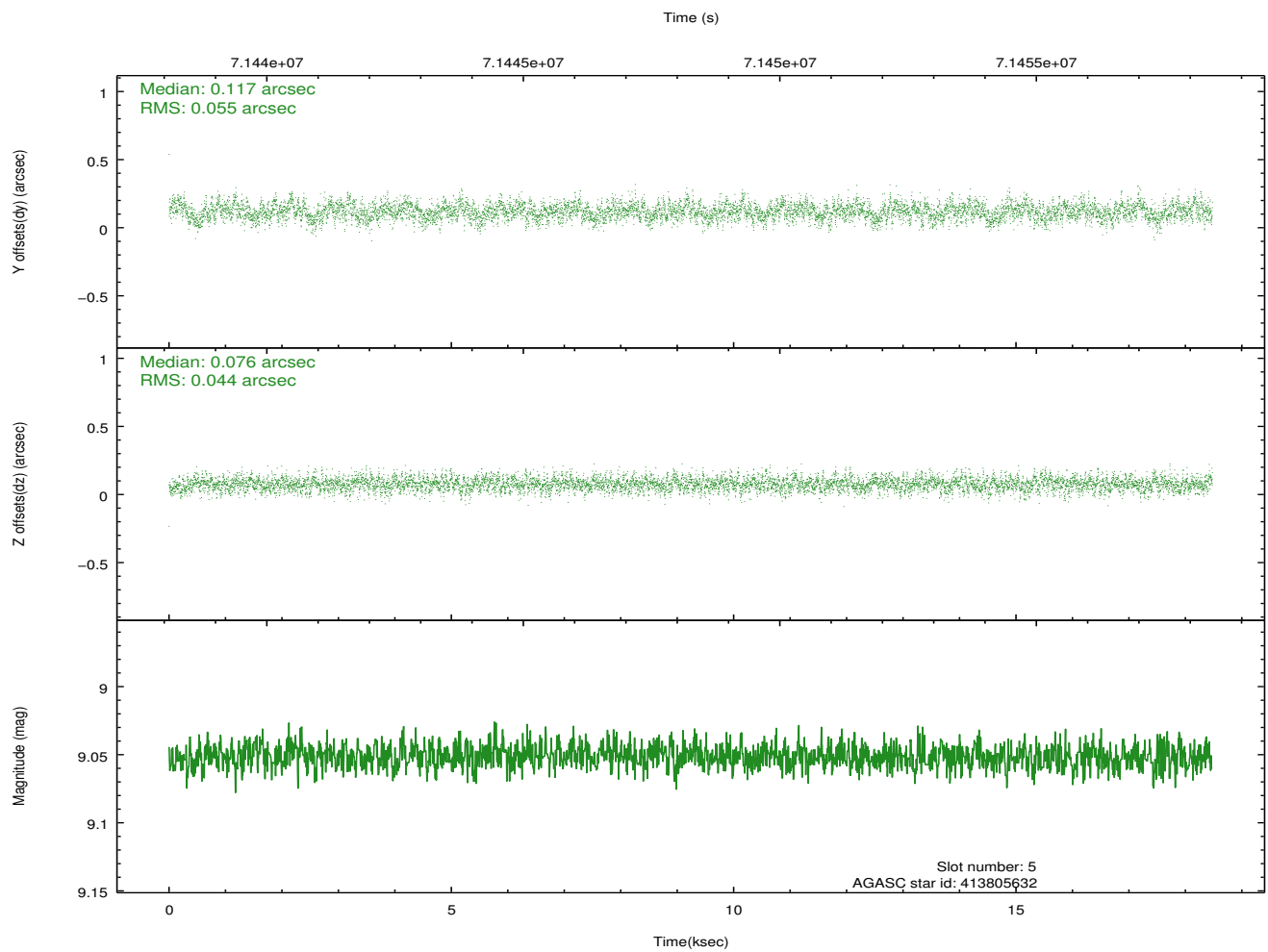
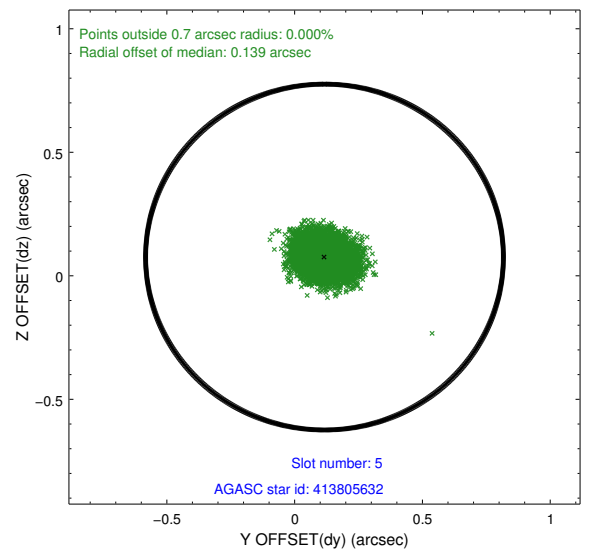
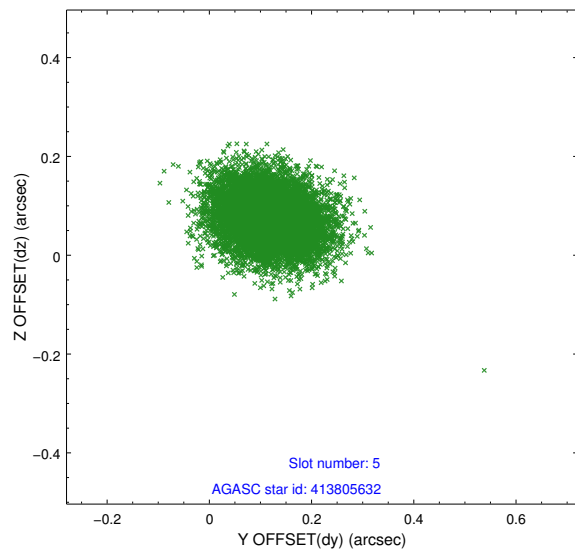
### 2.4.1 Slot 3



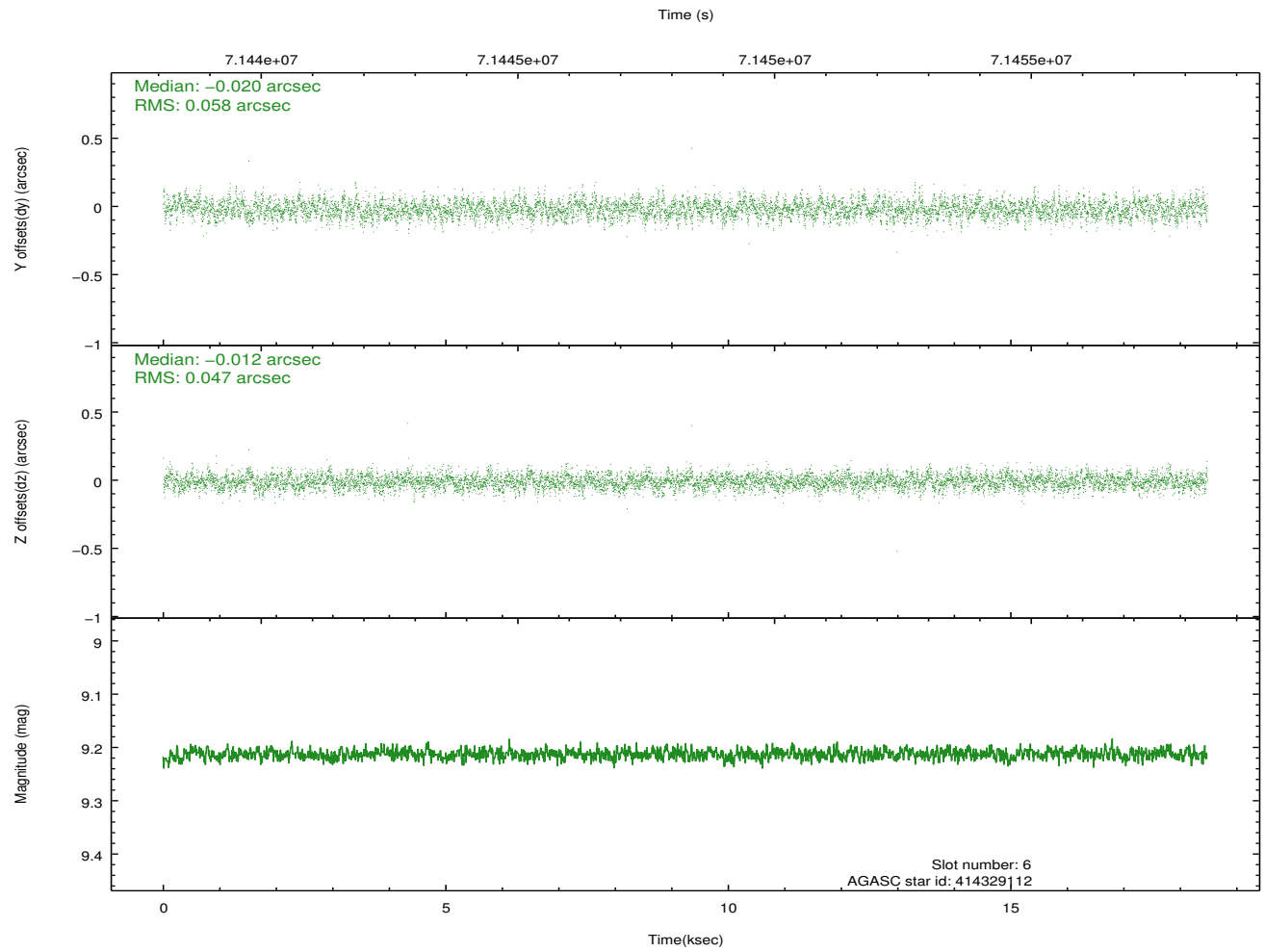
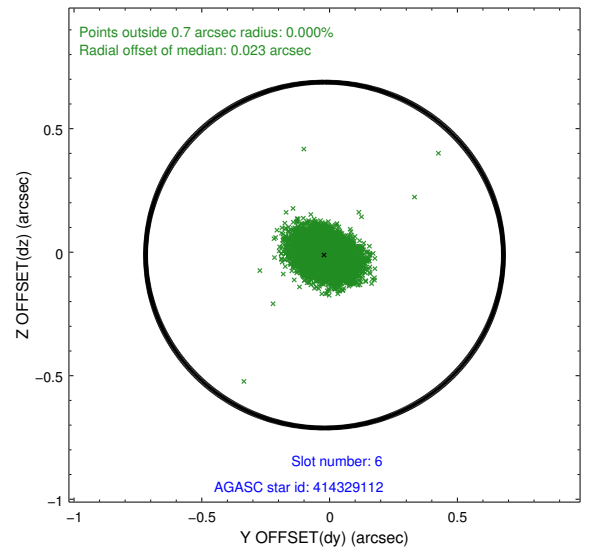
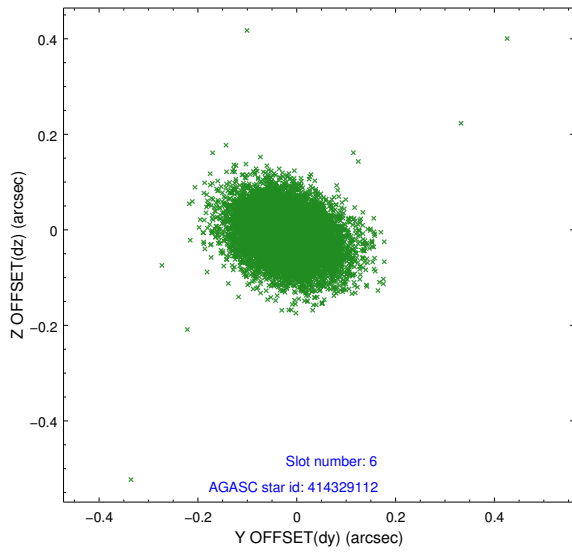
## 2.4.2 Slot 4



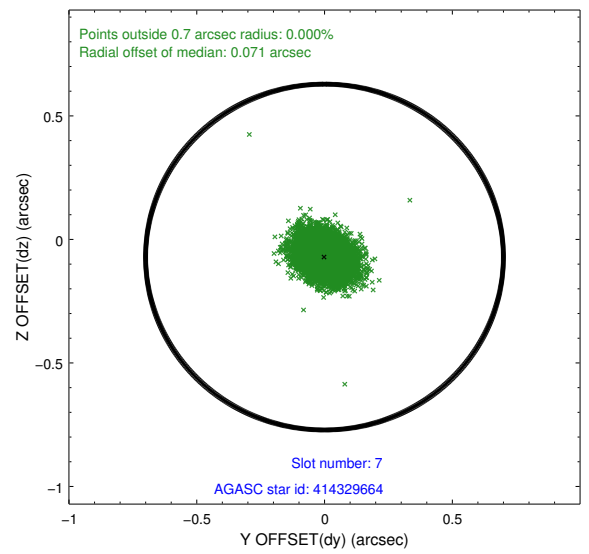
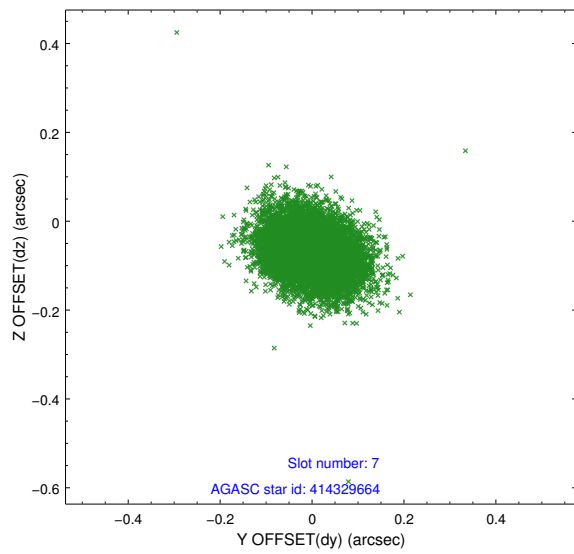
### 2.4.3 Slot 5



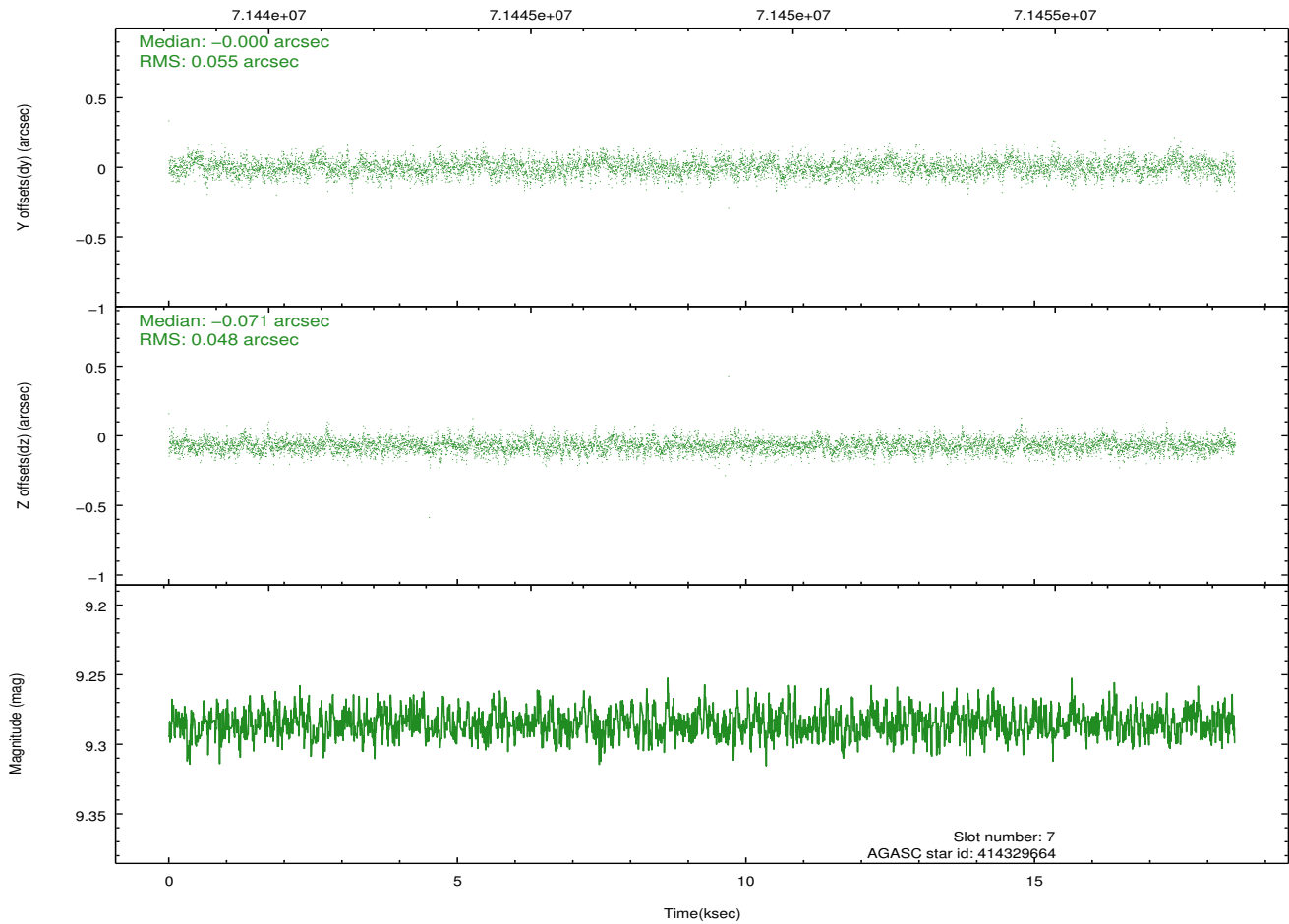
### 2.4.4 Slot 6



## 2.4.5 Slot 7

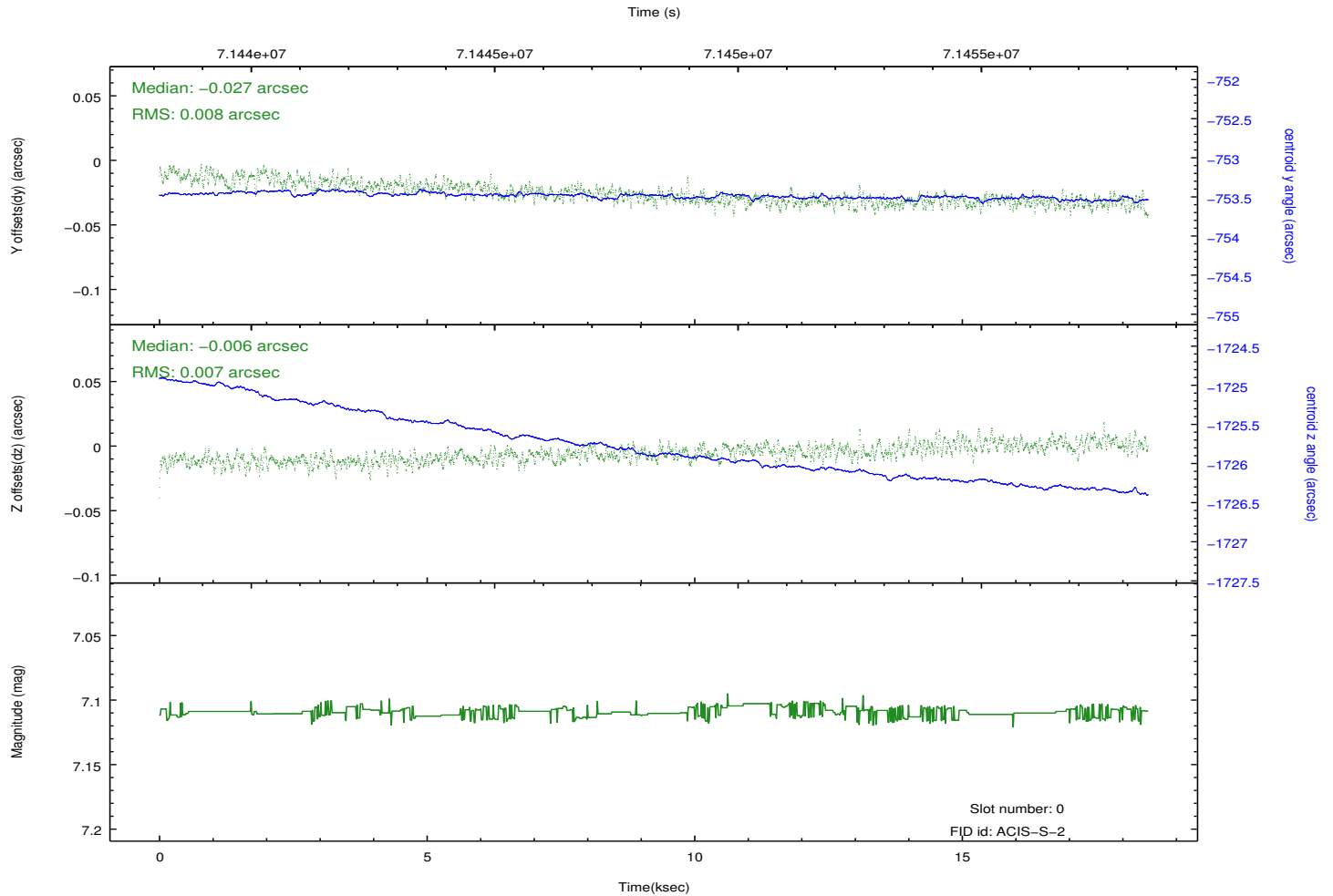
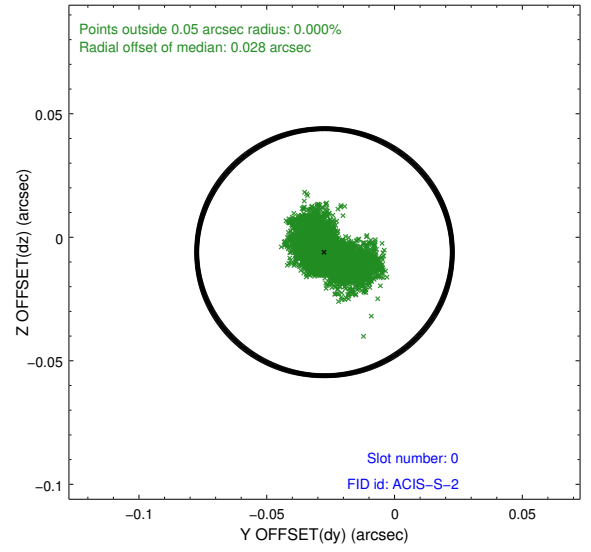
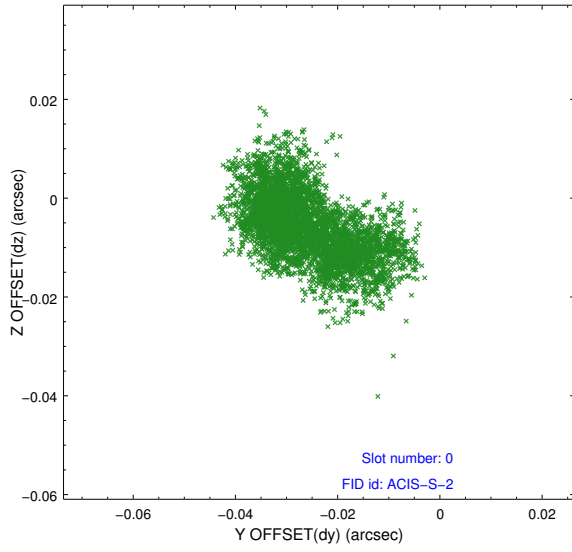


Time (s)

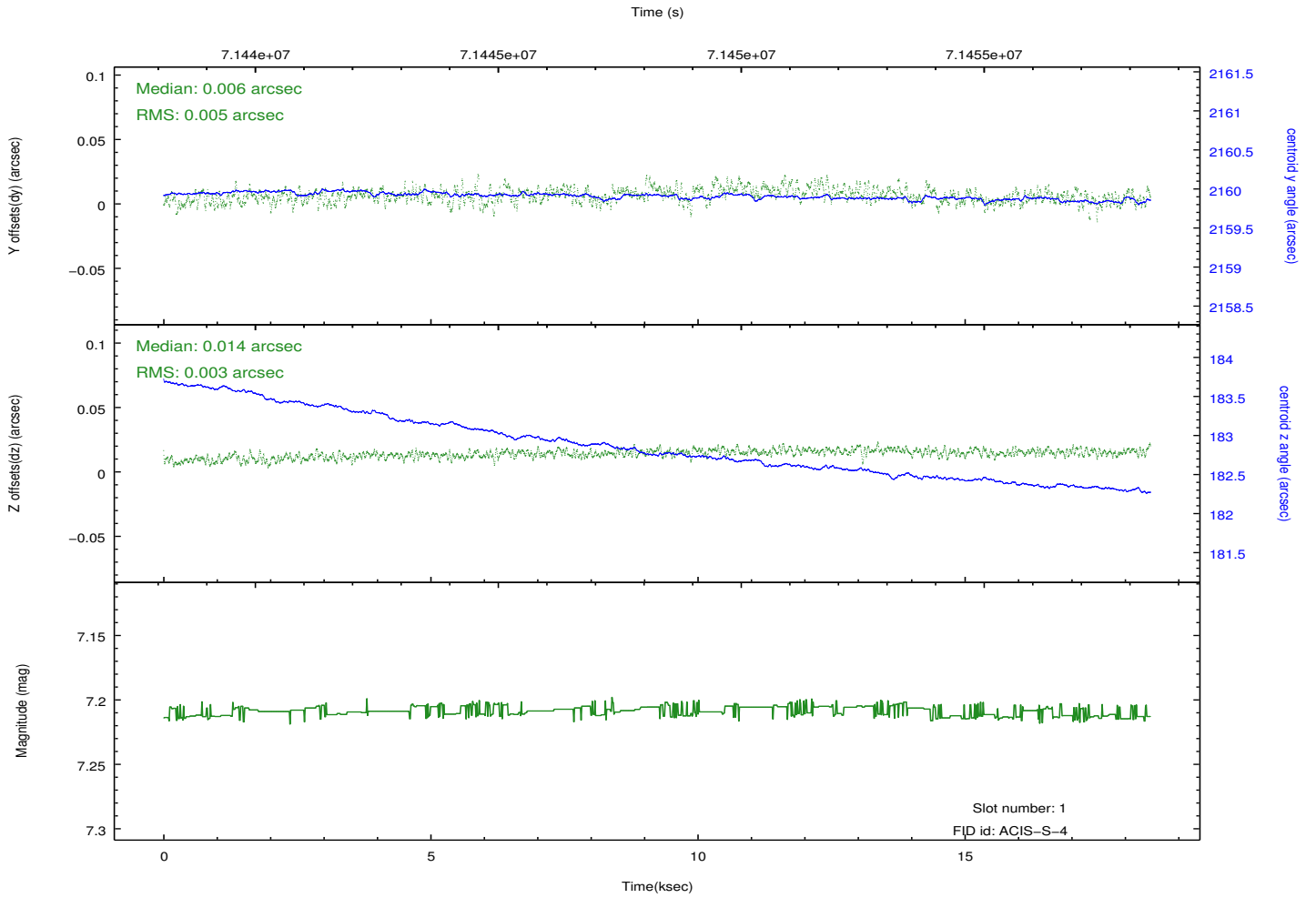
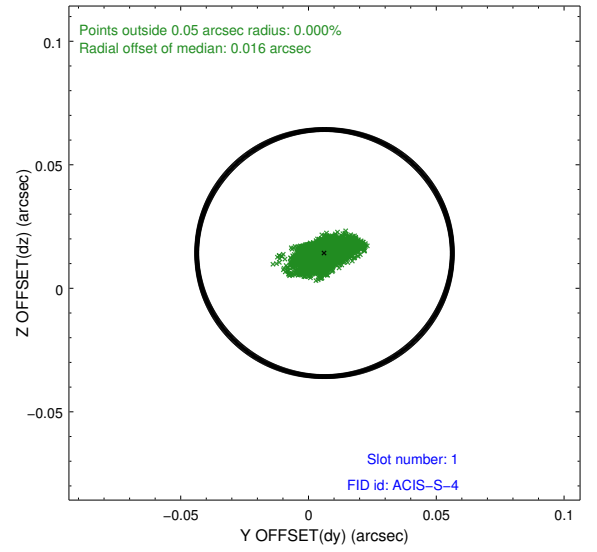
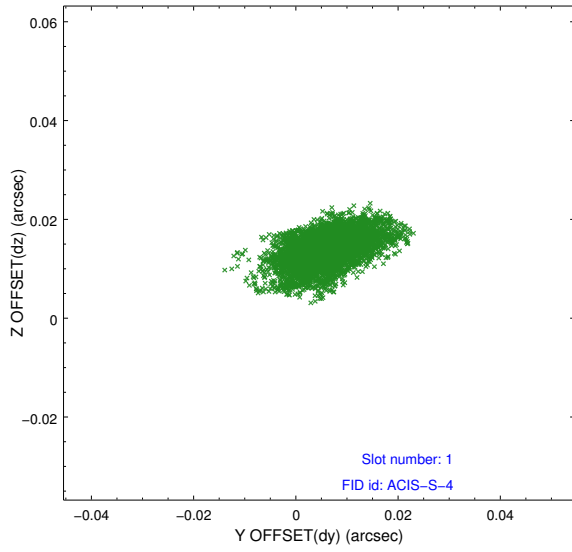


## 2.5 FID Slots

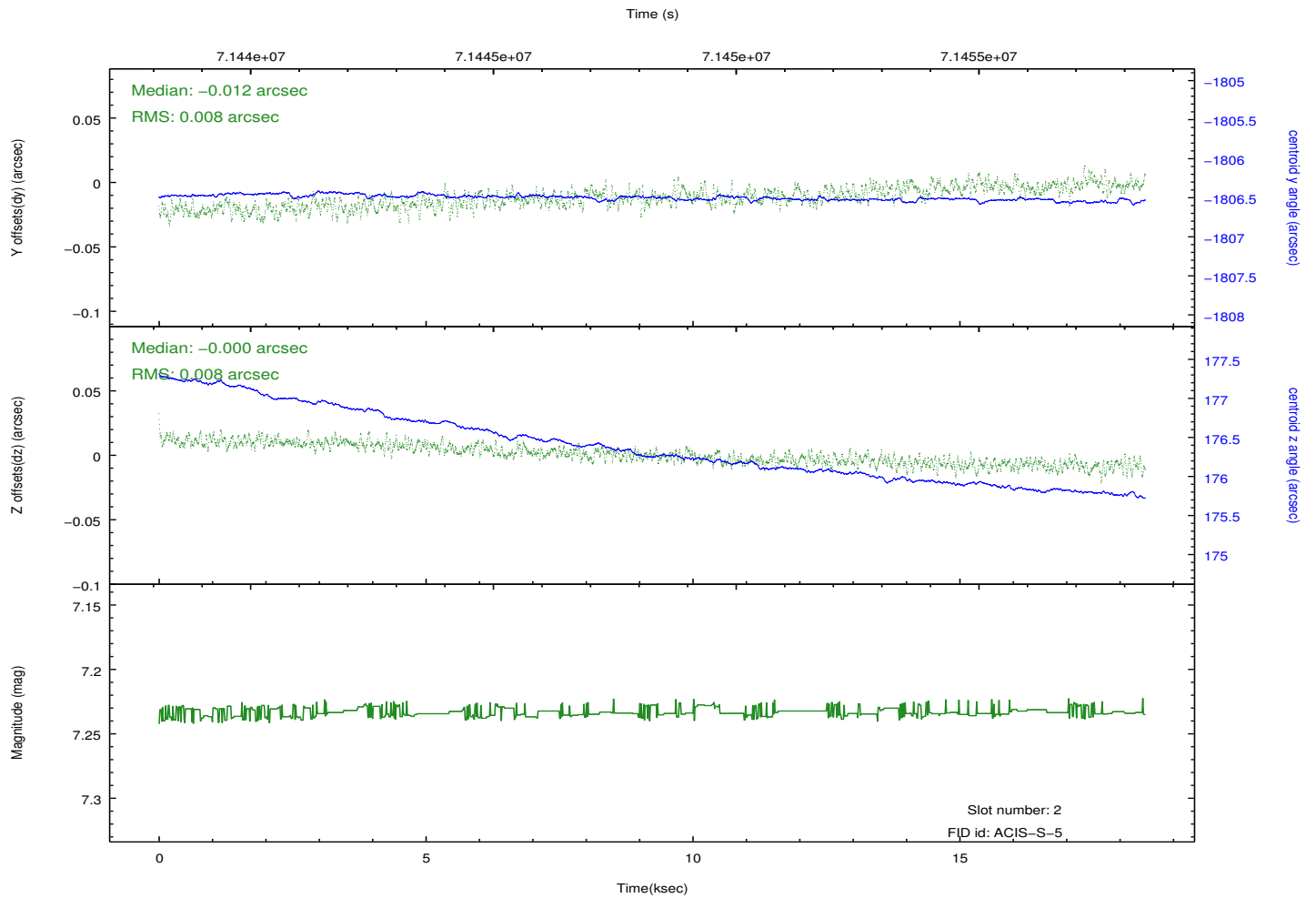
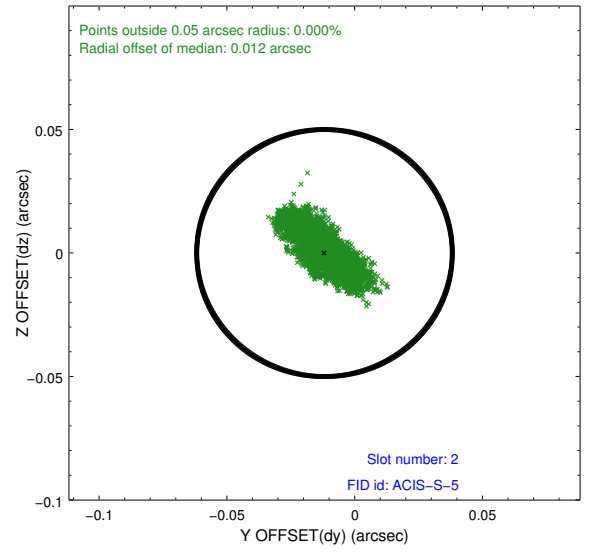
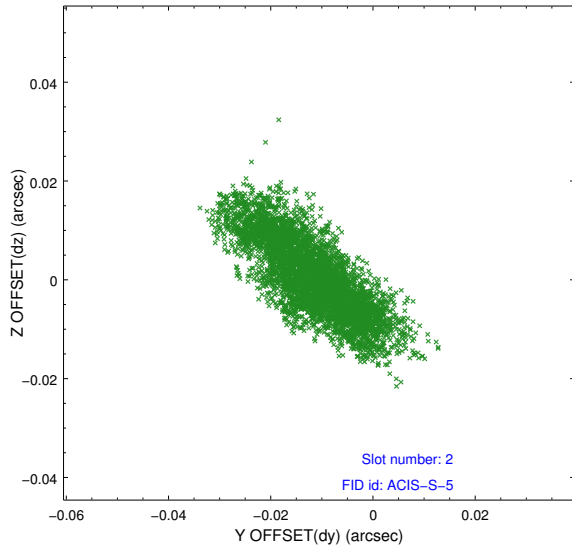
### 2.5.1 Slot 0



## 2.5.2 Slot 1



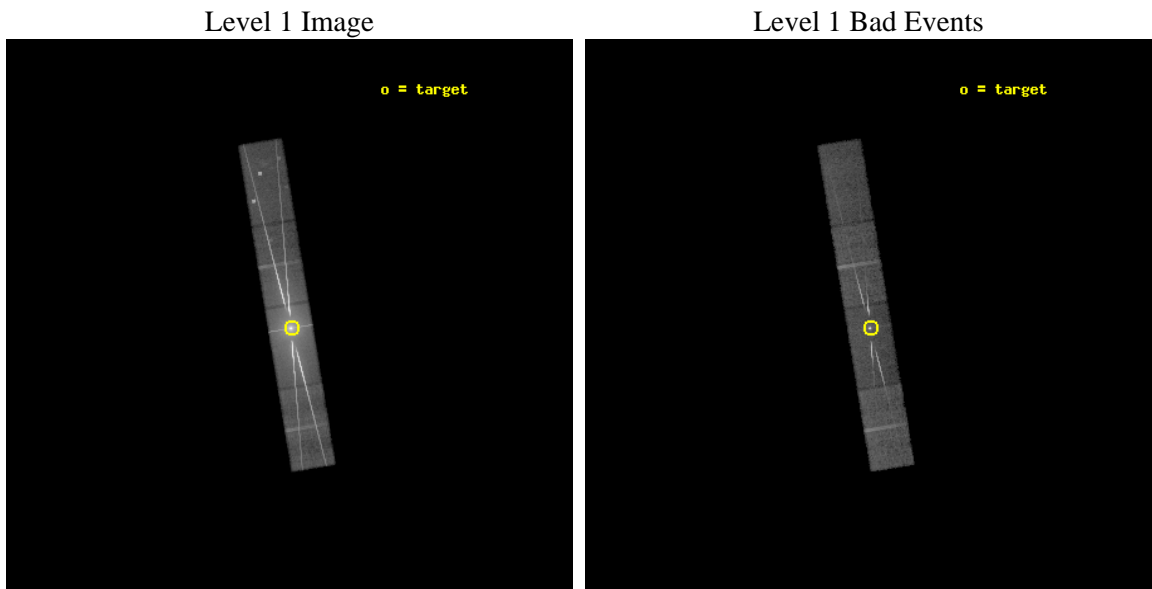
### 2.5.3 Slot 2



### 3 OBI Secondary

#### 3.1 OBI

##### 3.1.1 Images



### 3.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	18000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	16039.193344653	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime5	16039.193255097	Sum of GTIs [s]
date	2012-08-25T15:36:17	Date and time of file creation	ontime6	16039.193405017	Sum of GTIs [s]
revision	6	Processing version of data	ontime7	16039.193344653	Sum of GTIs [s]
			ontime8	16039.193364859	Sum of GTIs [s]
			l1events	1568614	Number of level 1 events

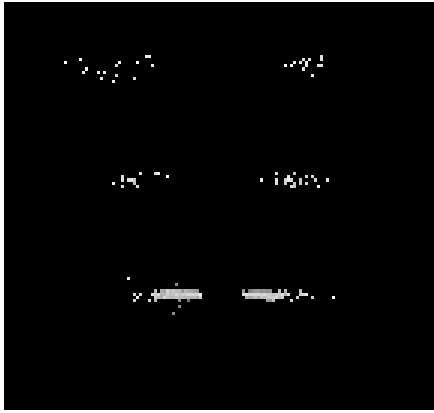
### 3.1.3 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	118872	411524	859174	179044
rejected events	44344	76925	103315	73062
rejected %	37%	18%	12%	40%

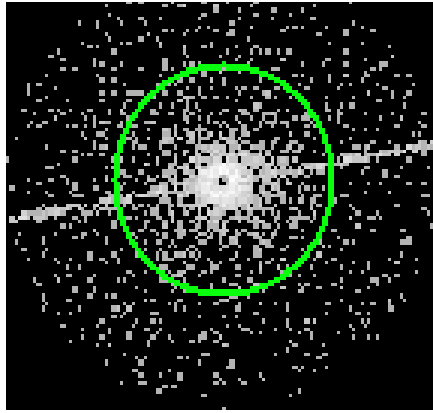
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	20190	217179	125577	64105
	16%	52%	14%	35%
grade 1 events	110	4008	2962	325
	0%	0%	0%	0%
grade 2 events	22590	56044	206489	16251
	19%	13%	24%	9%
grade 3 events	2388	16445	66298	7600
	2%	3%	7%	4%
grade 4 events	2200	16577	65378	7146
	1%	4%	7%	3%
grade 5 events	4330	6644	22460	2968
	3%	1%	2%	1%
grade 6 events	27167	28381	292168	10886
	22%	6%	34%	6%
grade 7 events	39897	66246	77842	69763
	33%	16%	9%	38%

# 4 Gratings

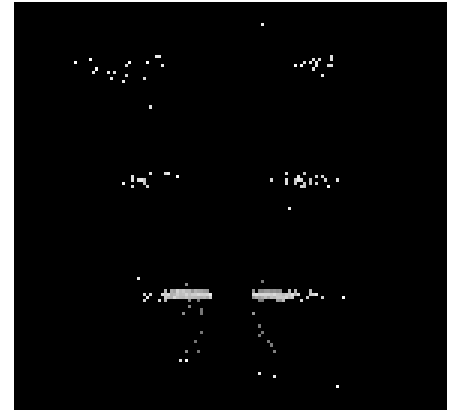
## 4.1 HEG Arm



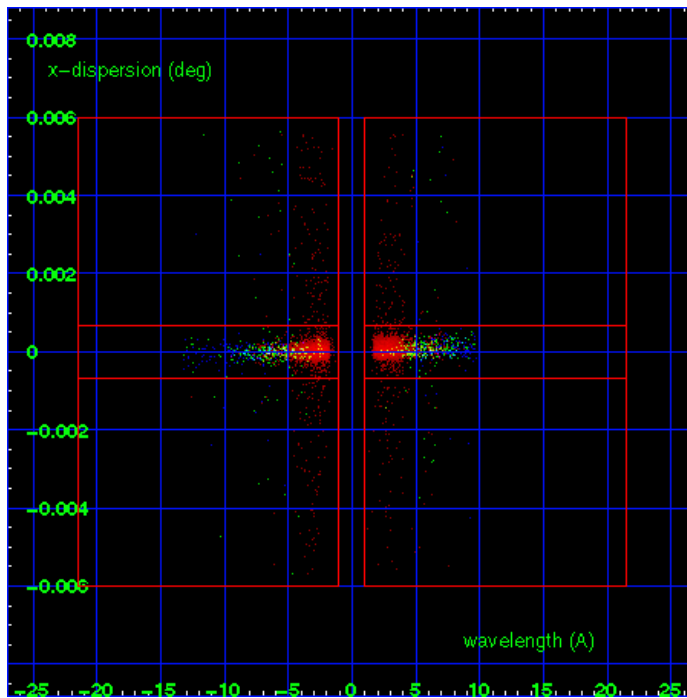
HEG Order Sort 123



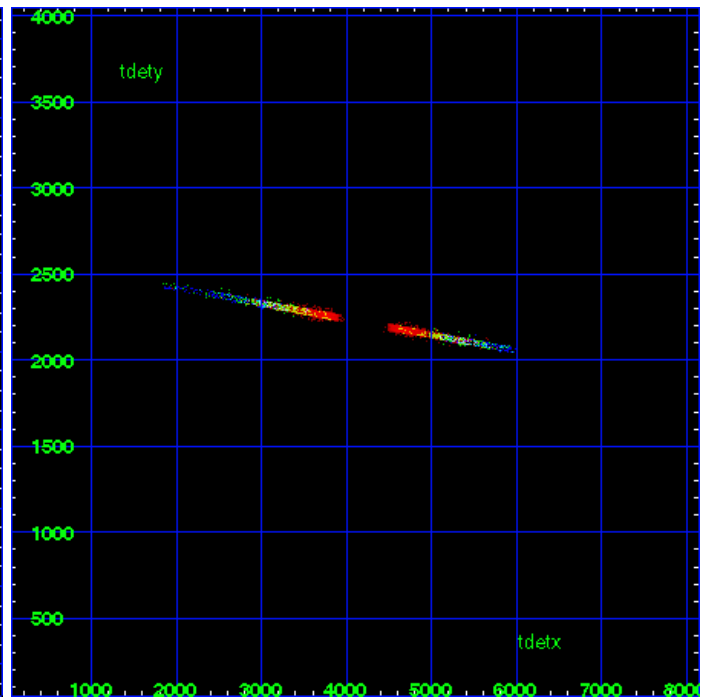
HEG Zero Order



HEG Order Sort ALL

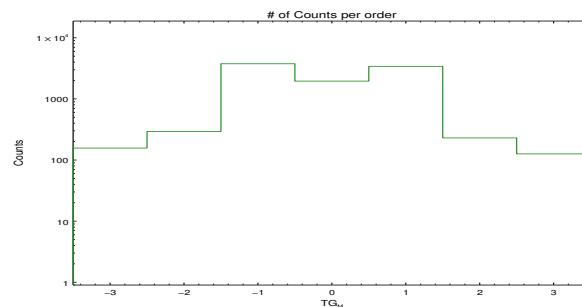


Spot Image HEG

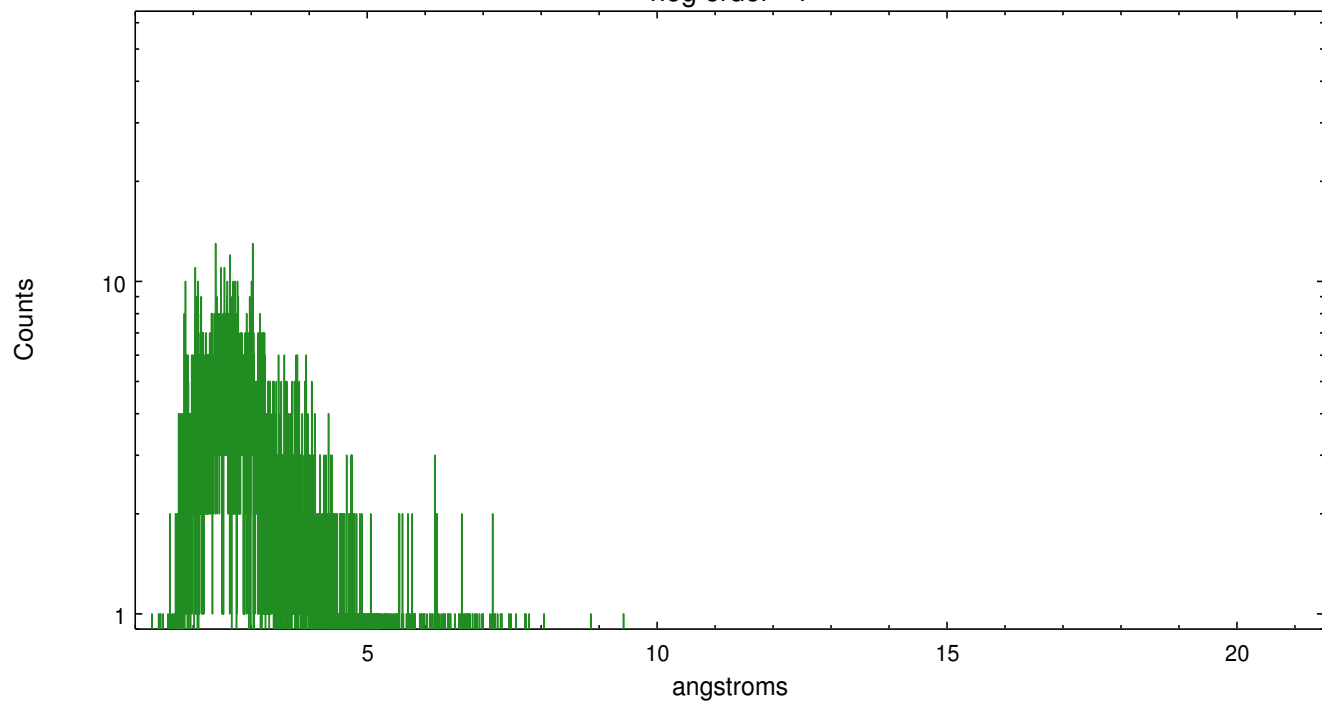


Full Detector HEG

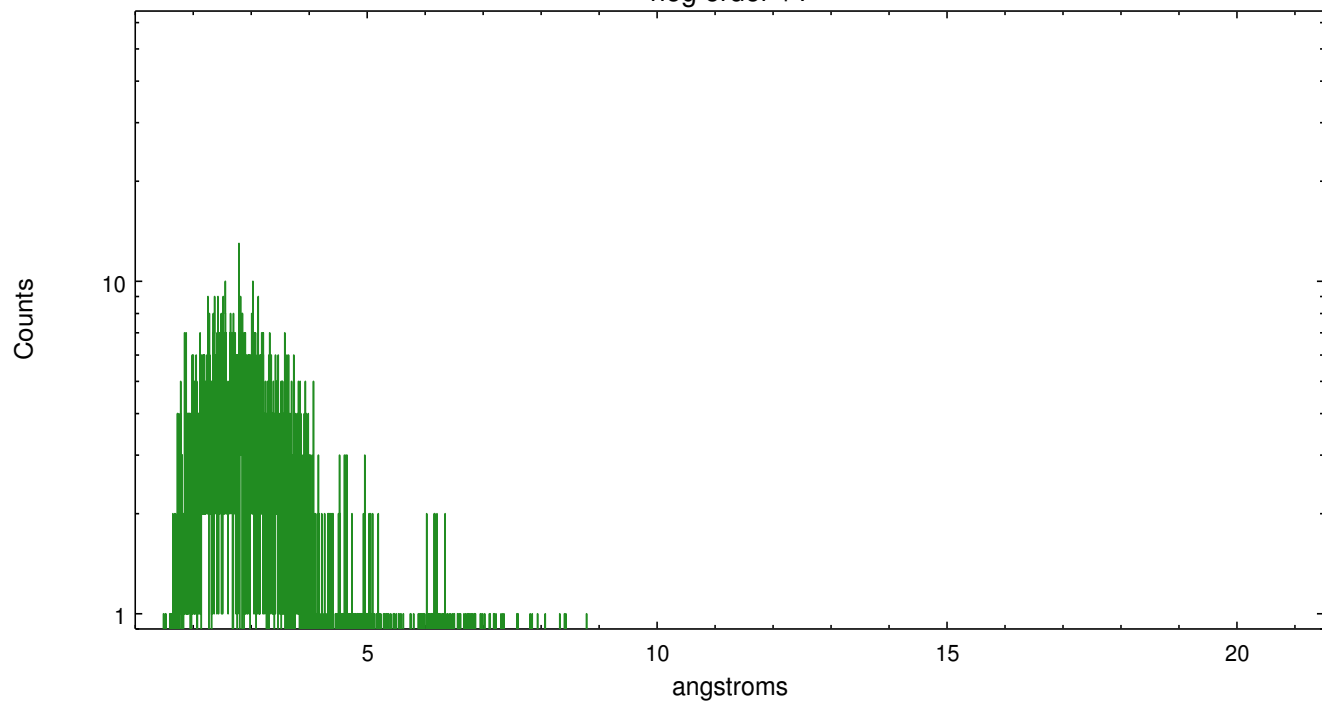
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	157	293	3762	1956	3414	230	126



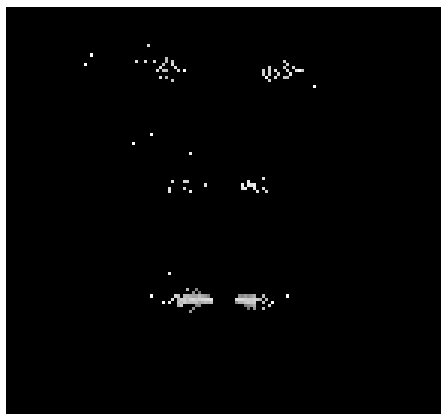
heg order -1



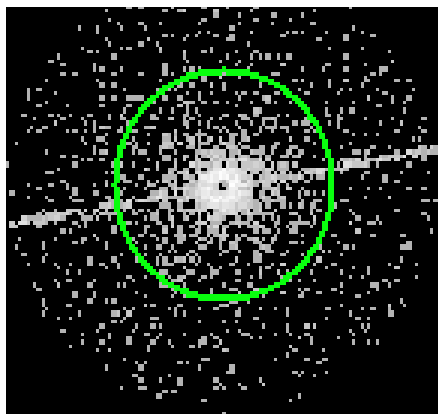
heg order +1



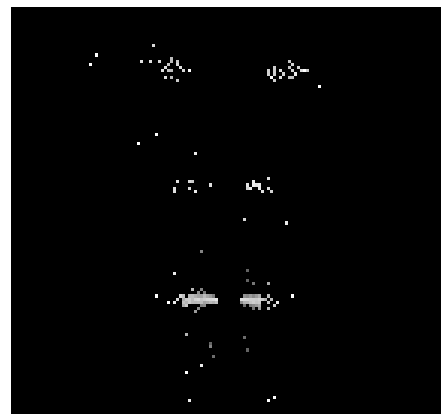
## 4.2 MEG Arm



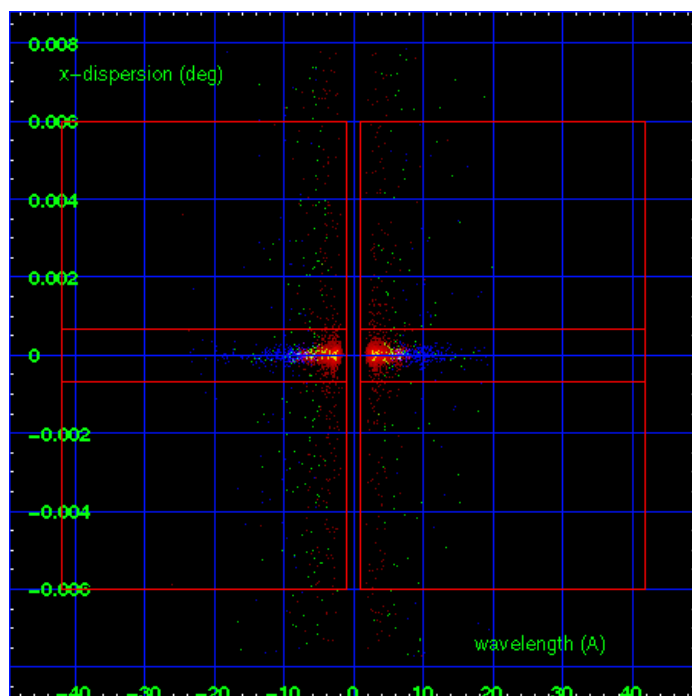
MEG Order Sort 123



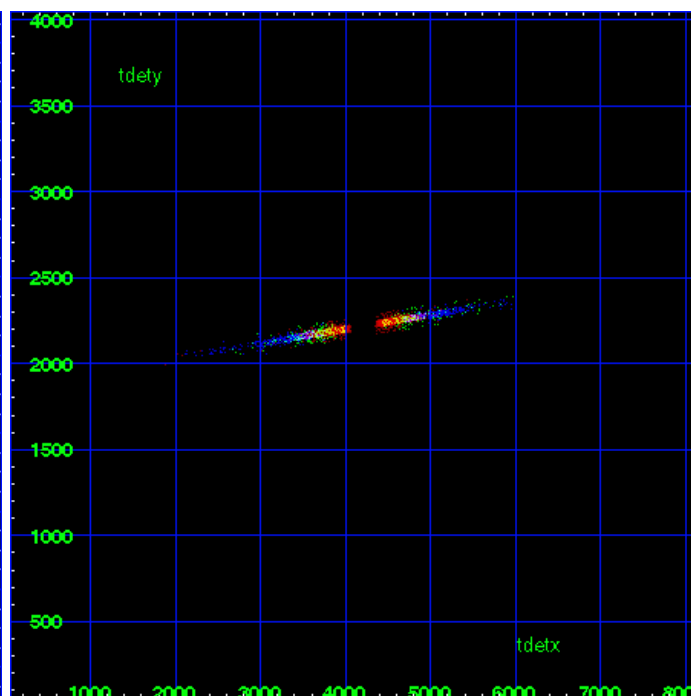
MEG Zero Order



MEG Order Sort ALL

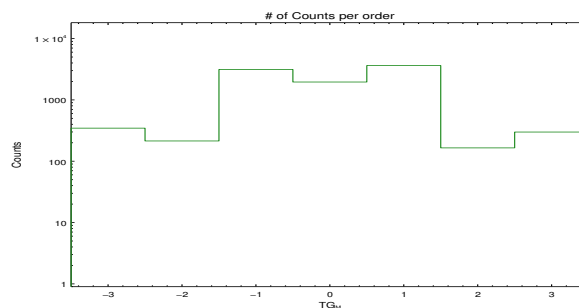


Spot Image MEG

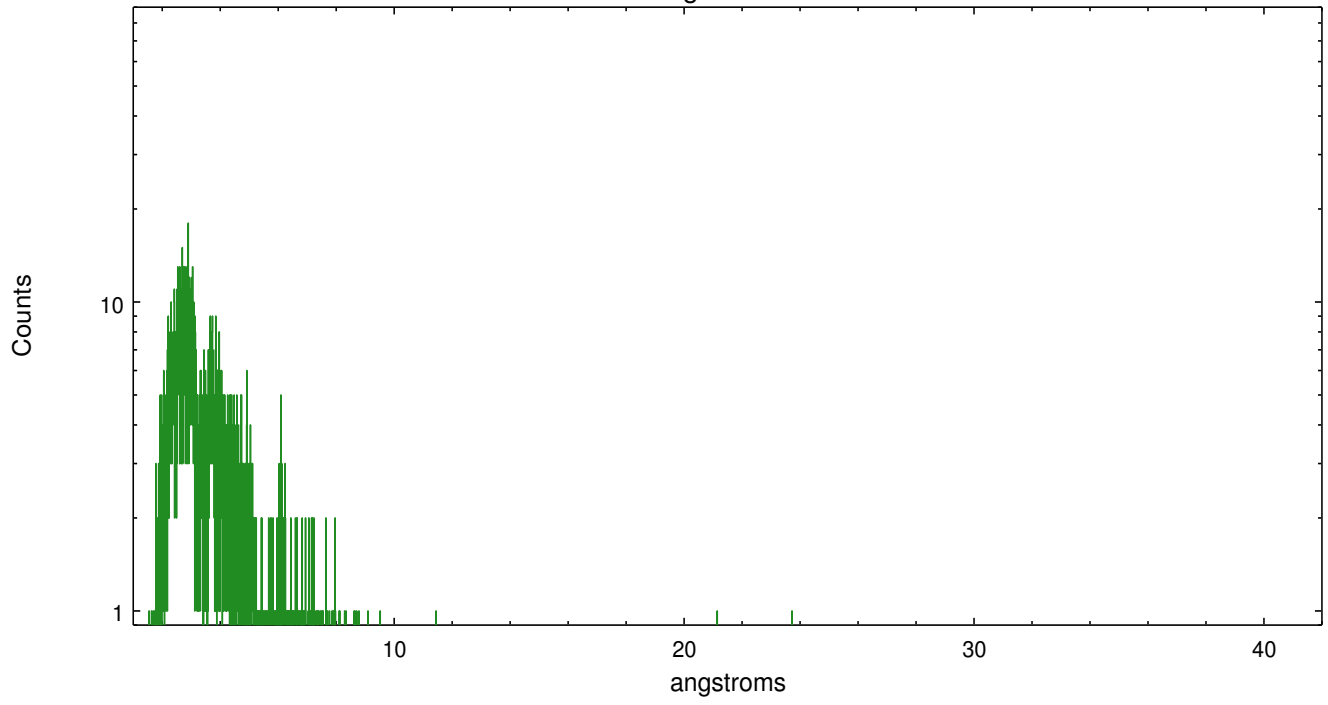


Full Detector MEG

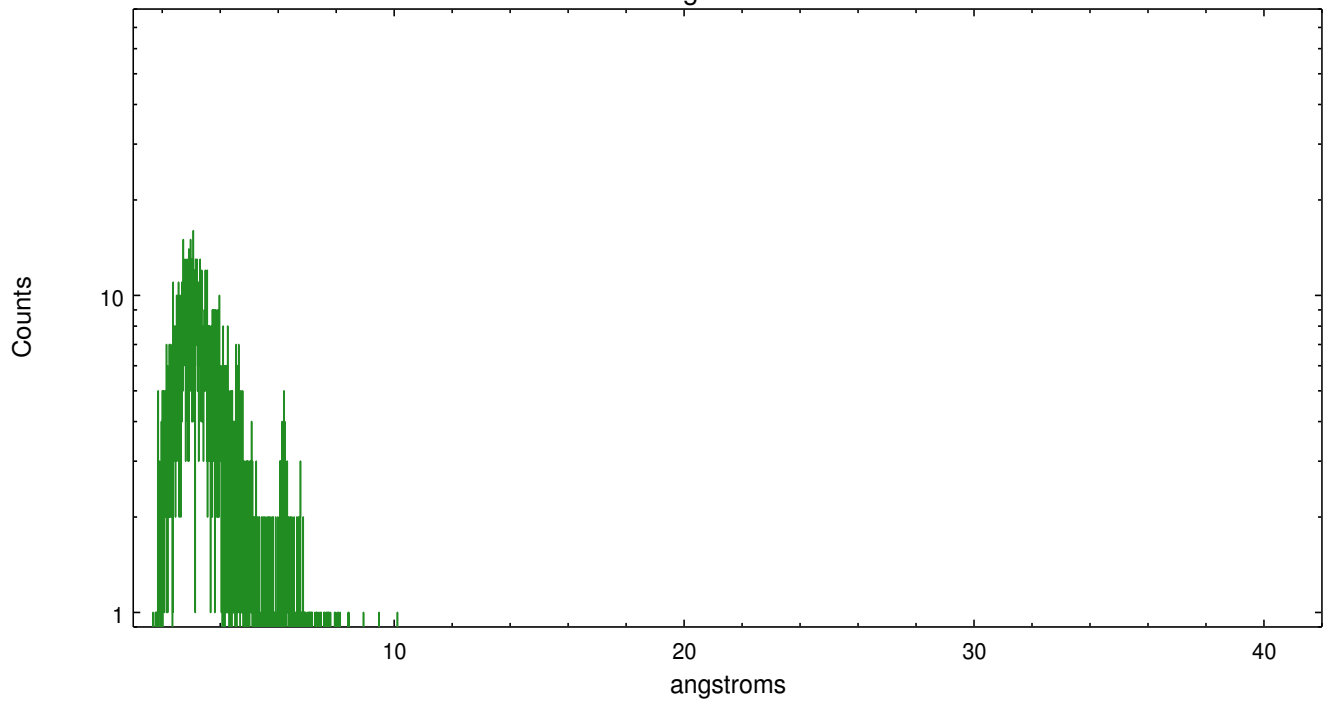
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	346	214	3132	1956	3630	165	299



meg order -1



meg order +1



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.08.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	18.318

## A.2 Comments

This is an interleaved-mode observation. The primary exposure (e1) is shorter than the secondary exposure (e2). Therefore the longer exposure was used to determine the zeroth order position, then that position was applied to both exposures.

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=4115.54, y=4027.93) into the \*srcla.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 as tg\_findzo (currently in ISIS as findzo). 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 \*srcla.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.