

# V&V Reference Report

## L2 ASCDS Version : 10.2.2

Observation 16622 - L2 Version 2  
Chandra X-Ray Center

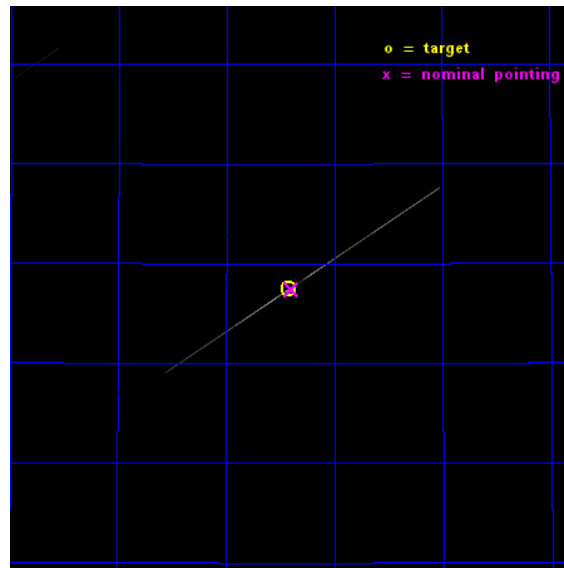
L2 Processing Date : Dec 11 2014

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# 1 Front

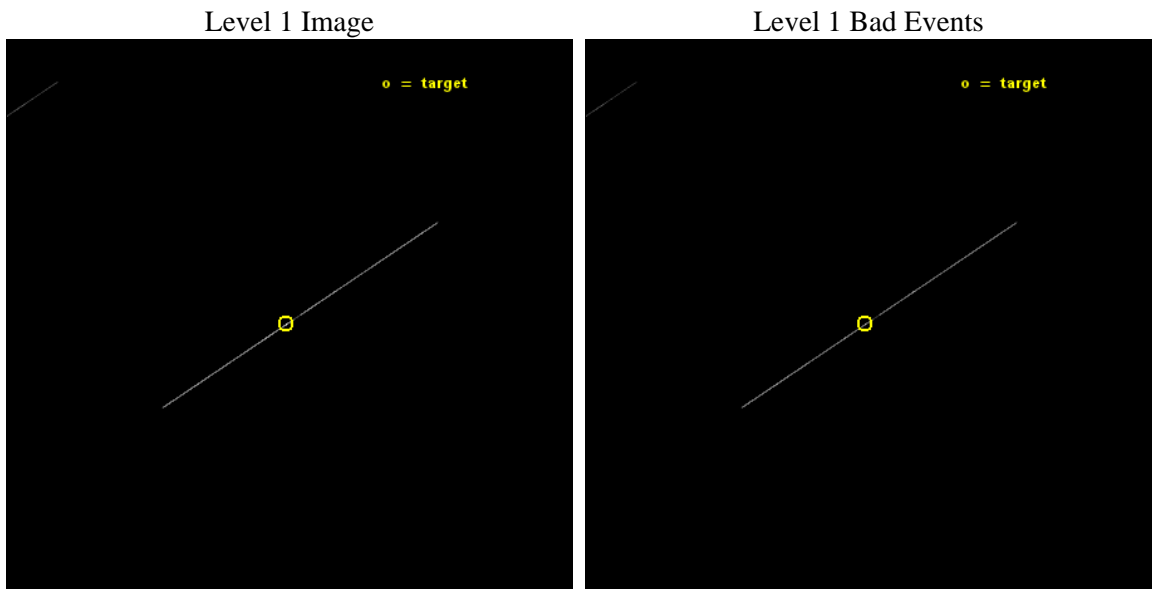
seq_num	490024	Sequence number
obs_id	16622	Observation id
title	Simultaneous Chandra/XMM-Newton/Swift observations of Cyg X-3	Prop
observer	Dr. CXC Calibration	Principal investigator
object	Cyg X-3	Source name
ra_targ	308.10625	Observer's specified target RA [deg]
dec_targ	40.957694	Observer's specified target Dec [deg]
ra_nom	308.09924642695	Nominal RA [deg]
dec_nom	40.957080368476	Nominal Dec [deg]
roll_nom	147.07325852698	Nominal Roll [deg]
revision	2	Processing version of data
ontime	28625.0	Sum of GTIs [s]
livetime	28513.18359375	Livetime [s]
ontime5	28625.0	Sum of GTIs [s]
ontime6	28625.0	Sum of GTIs [s]
ontime7	28625.0	Sum of GTIs [s]
ontime8	28625.0	Sum of GTIs [s]
l2events	738697	Number of level 2 events



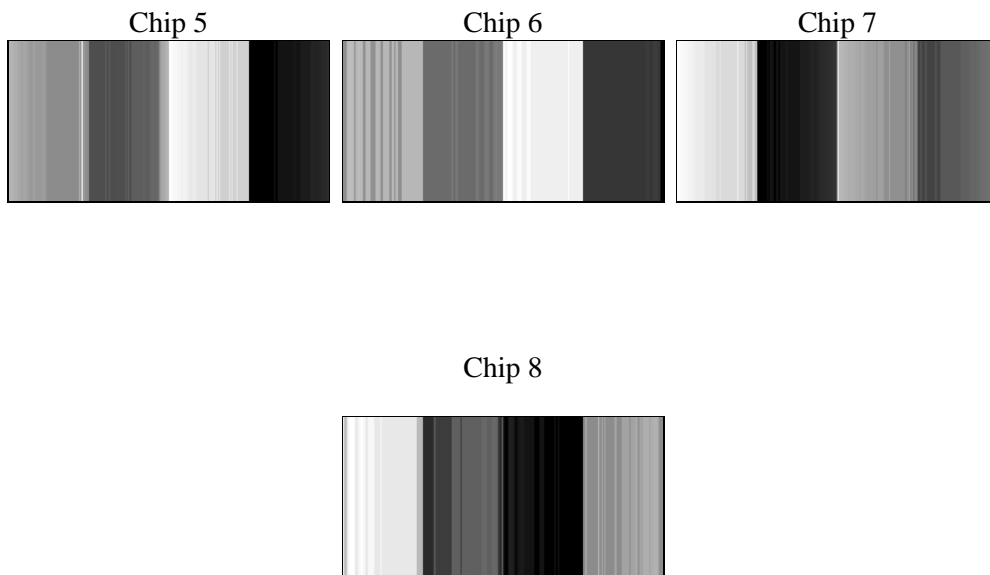
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	28500.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	28625.0	Sum of GTIs [s]
caldsver	4.6.4	&#160	ontime5	28625.0	Sum of GTIs [s]
date	2014-12-12T01:50:08	Date and time of file creation	ontime6	28625.0	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	28625.0	Sum of GTIs [s]
			ontime8	28625.0	Sum of GTIs [s]
			l1events	1744894	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			zo_pos	(4053.26, 4098.07)	src1a sky pixel position

### 2.1.4 Events

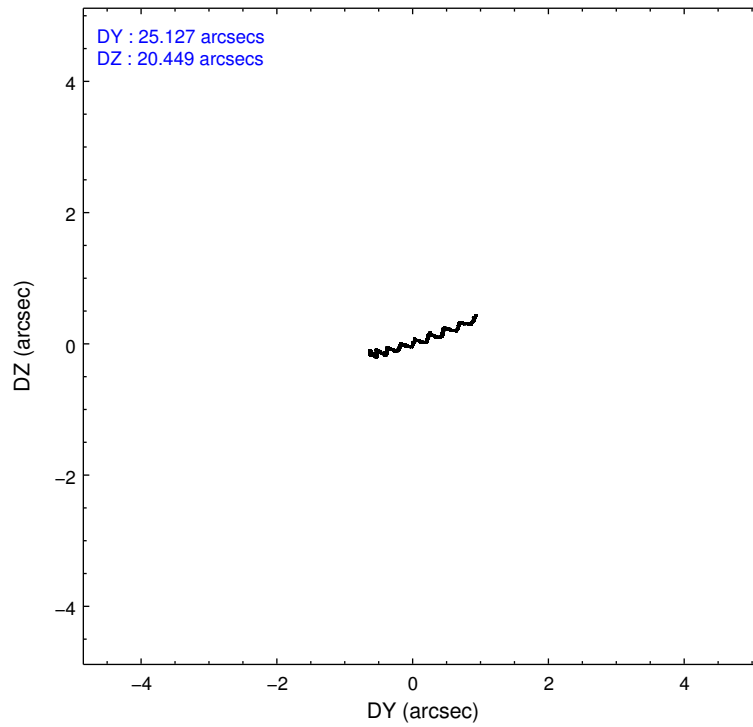
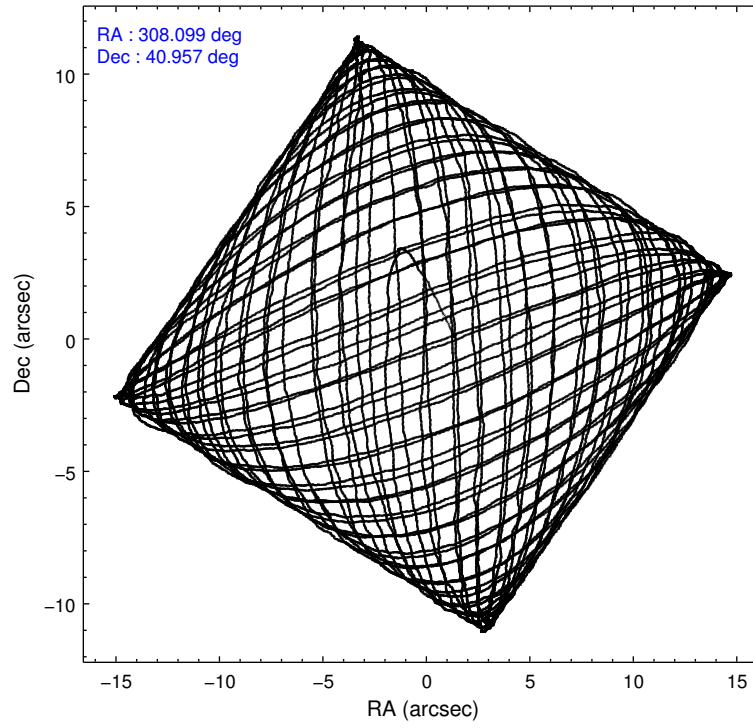
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	342496	350556	670740	381102
rejected events	195687	209000	201093	303633
rejected %	57%	59%	29%	79%

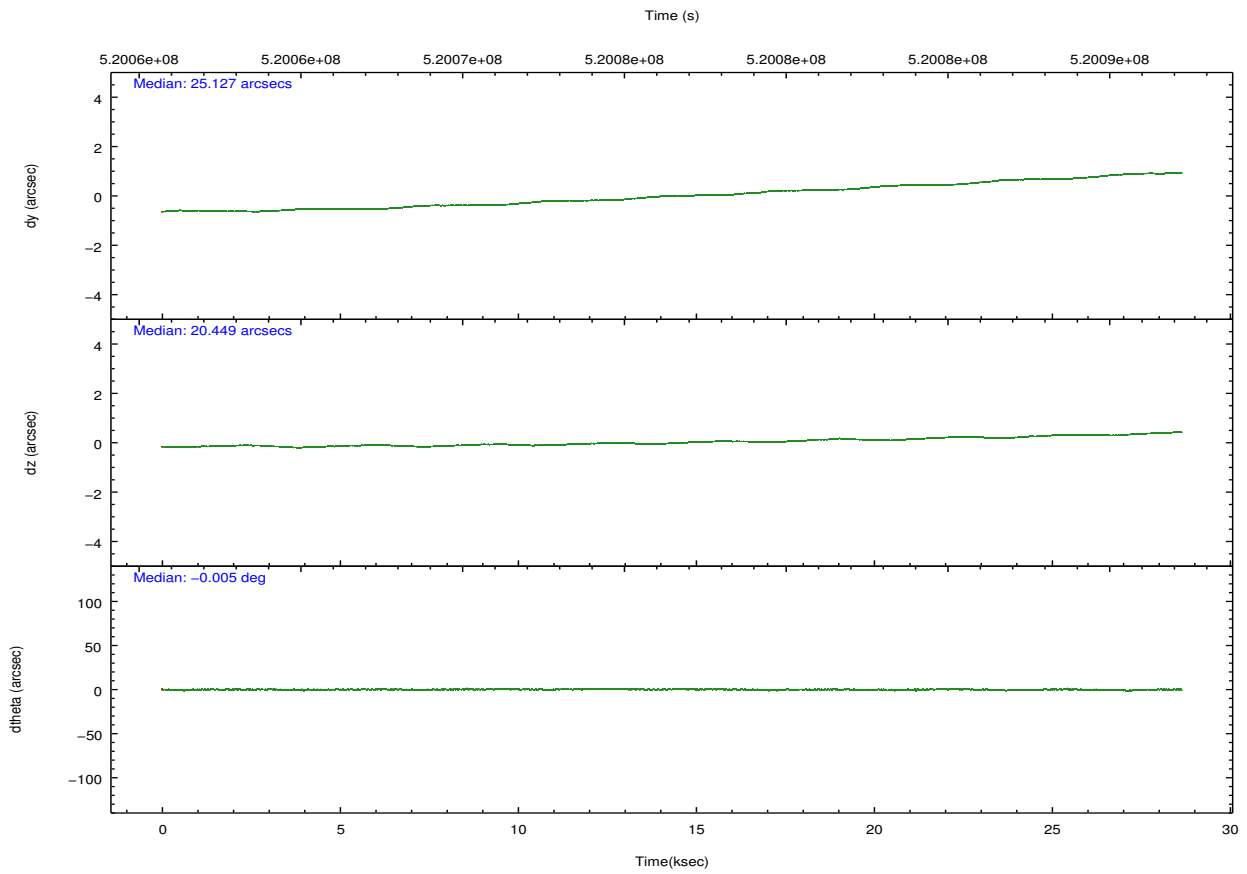
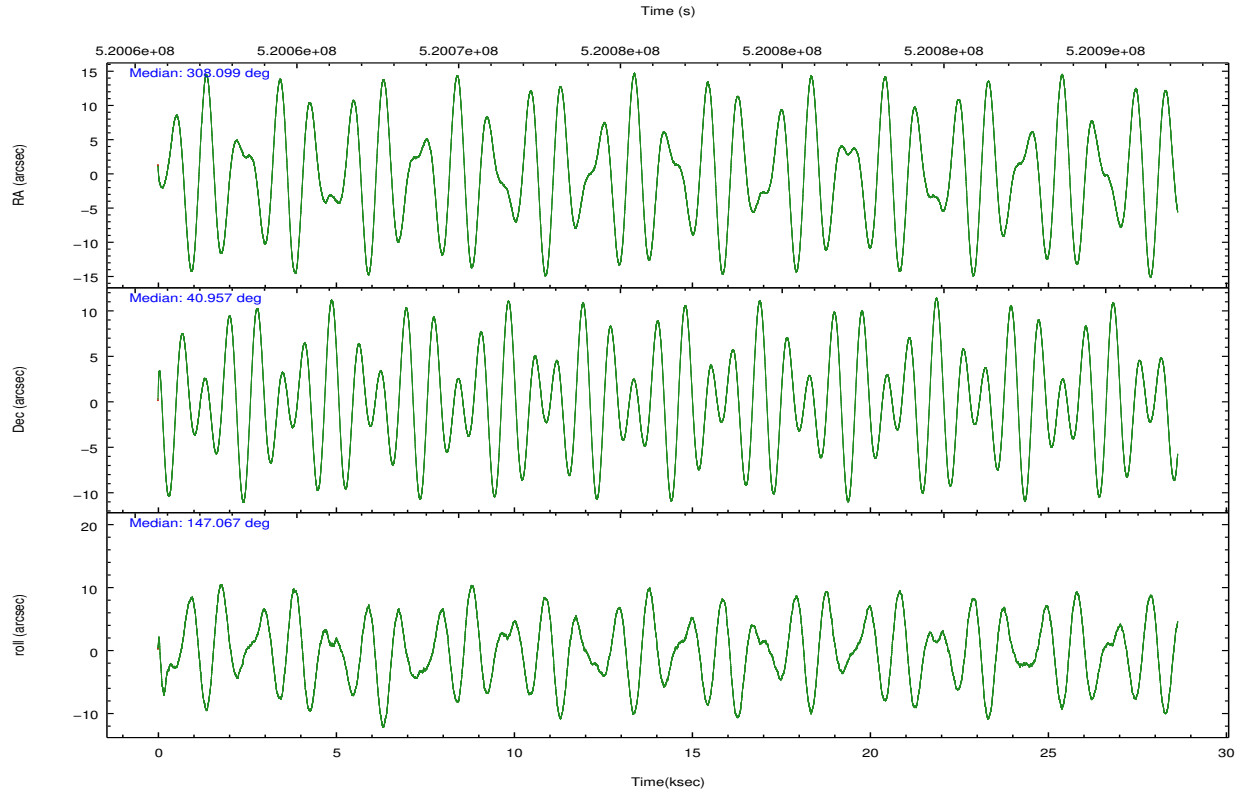
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	30618	57065	69484	19527
	8%	16%	10%	5%
grade 1 events	223	252	1796	250
	0%	0%	0%	0%
grade 2 events	42602	44740	121941	24601
	12%	12%	18%	6%
grade 3 events	2338	8113	37417	6979
	0%	2%	5%	1%
grade 4 events	2171	8104	36159	6813
	0%	2%	5%	1%
grade 5 events	13041	7554	21482	10210
	3%	2%	3%	2%
grade 6 events	69084	23538	204737	19549
	20%	6%	30%	5%
grade 7 events	182419	201190	177724	293173
	53%	57%	26%	76%

## 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	CC33_FAINT	CC33_FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	308.135399	308.0992464269548	Subarray requested	NONE	NONE
[deg] Pointing Dec	40.956070	40.95708036847602	Alternating exposures requested	N	N
[deg] Pointing Roll	146.892934	147.0732585269801	[s] Primary exposure time	0.000000	0
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-177.832523	-177.8324926487357			
[mm] SIM translation stage offset	-12.3	-12.30002993427212			
[s] Observation start time (MET)	520062274.184000	520061064.42864			
Observation start date	2014-06-25T05:43:27	2014-06-25T05:24:24			
[s] Observation end time (MET)	520090774.184000	520091744.73033			
Observation end date	2014-06-25T13:38:27	2014-06-25T13:55:44			
Read mode	CONTINUOUS	CONTINUOUS			

## 2.3 Aspect





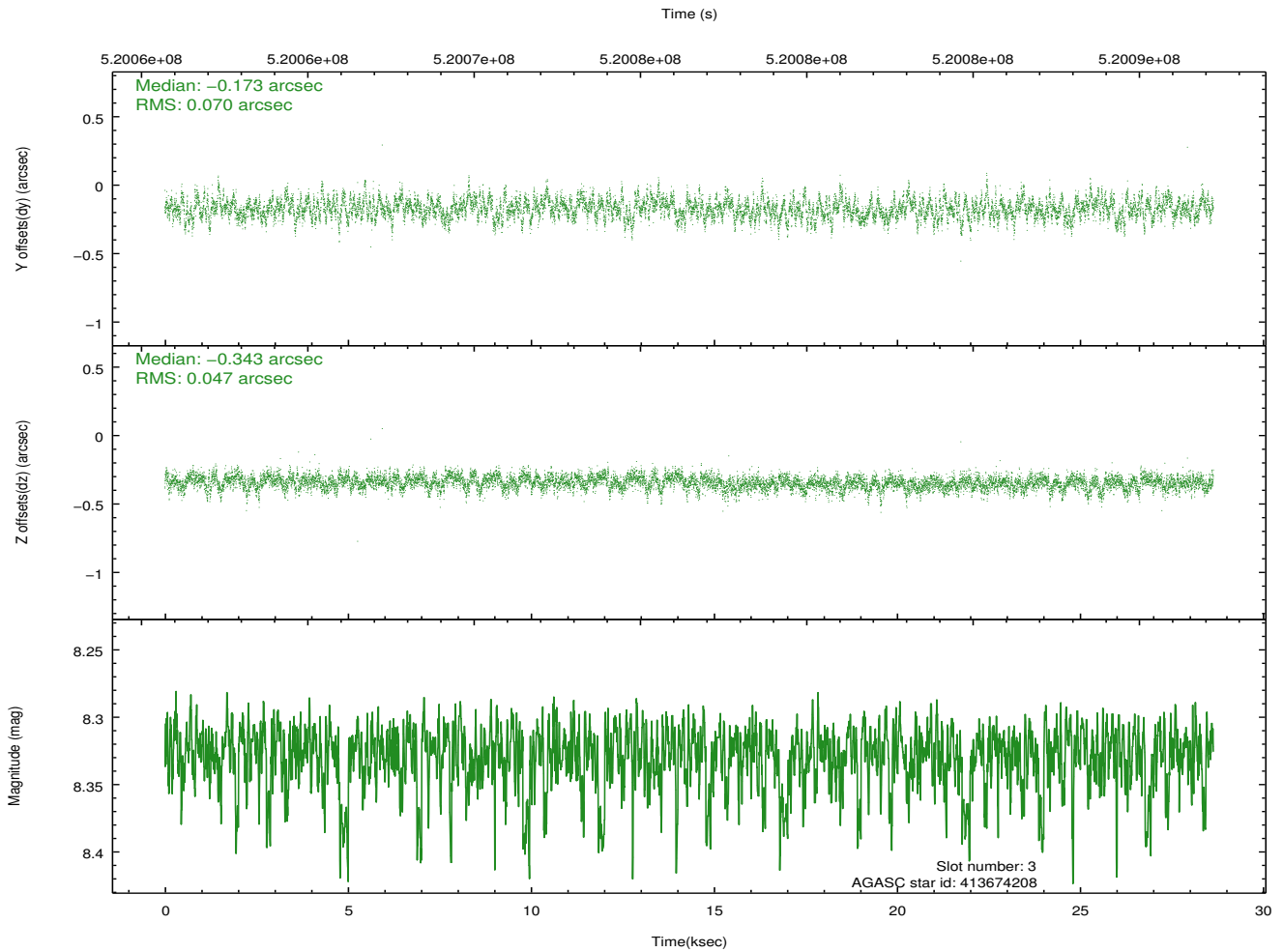
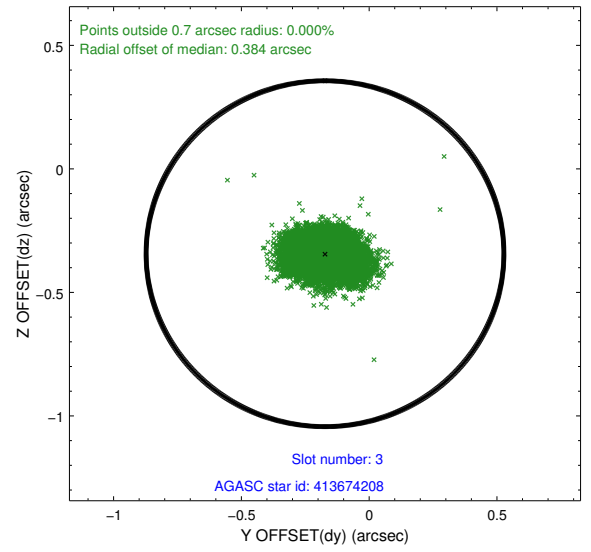
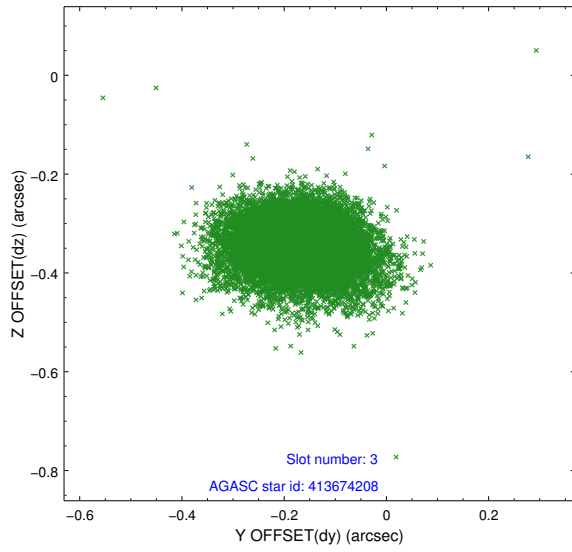
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.95	6987	-0.236	-0.409	0.020	0.030	0.000000	0.000000	-777.68	-1995.60
1	FID		ACIS-S-4	7.02	6987	0.426	0.222	0.018	0.027	0.000000	0.000000	2136.18	-86.59
2	FID		ACIS-S-5	7.10	6987	-0.218	0.195	0.008	0.014	0.000000	0.000000	-1830.43	-92.91
3	GUIDE	used	413674208	8.33	13970	-0.173	-0.343	0.087	0.149	307.139504	40.901877	2171.74	1630.59
4	GUIDE	used	413805792	7.30	13973	-0.064	-0.143	0.075	0.119	307.778748	40.858024	622.28	823.96
5	GUIDE	used	414326136	7.37	13973	0.093	0.327	0.069	0.110	308.256176	41.473642	745.69	-1738.91
6	GUIDE	used	413803288	7.00	13974	-0.312	-0.439	0.110	0.173	307.629978	40.506899	277.66	2106.32
7	GUIDE	used	413798232	8.27	13967	0.456	0.602	0.090	0.138	309.116117	41.044272	-2048.00	-1731.96

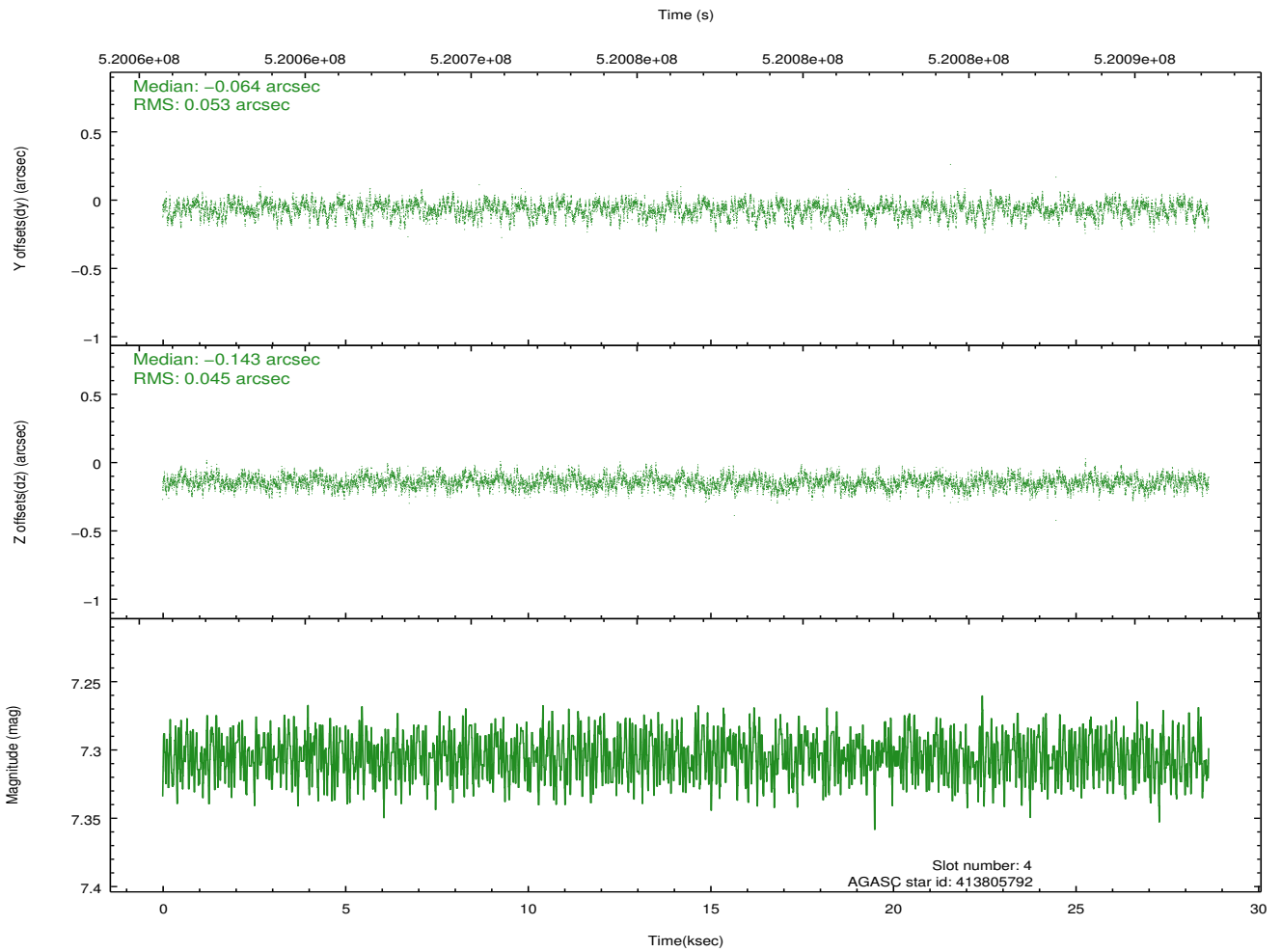
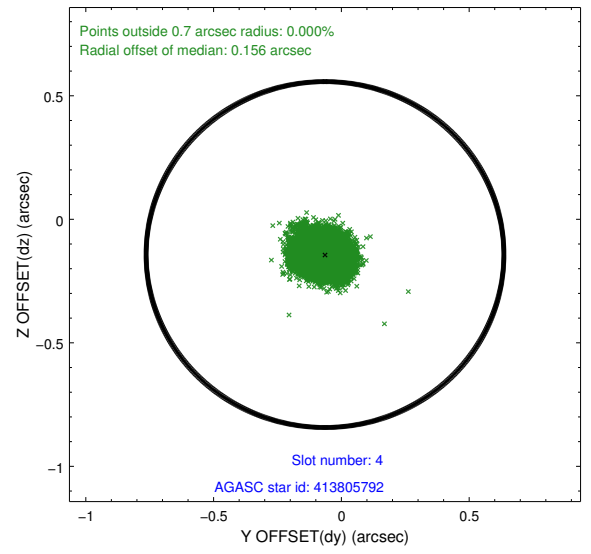
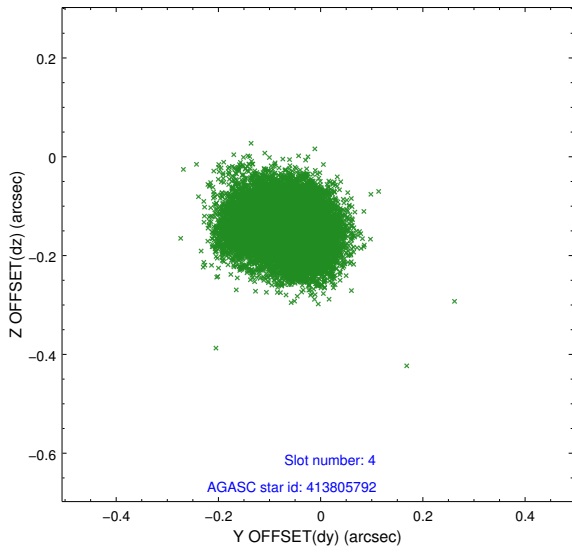
∞

## 2.4 Star Slots

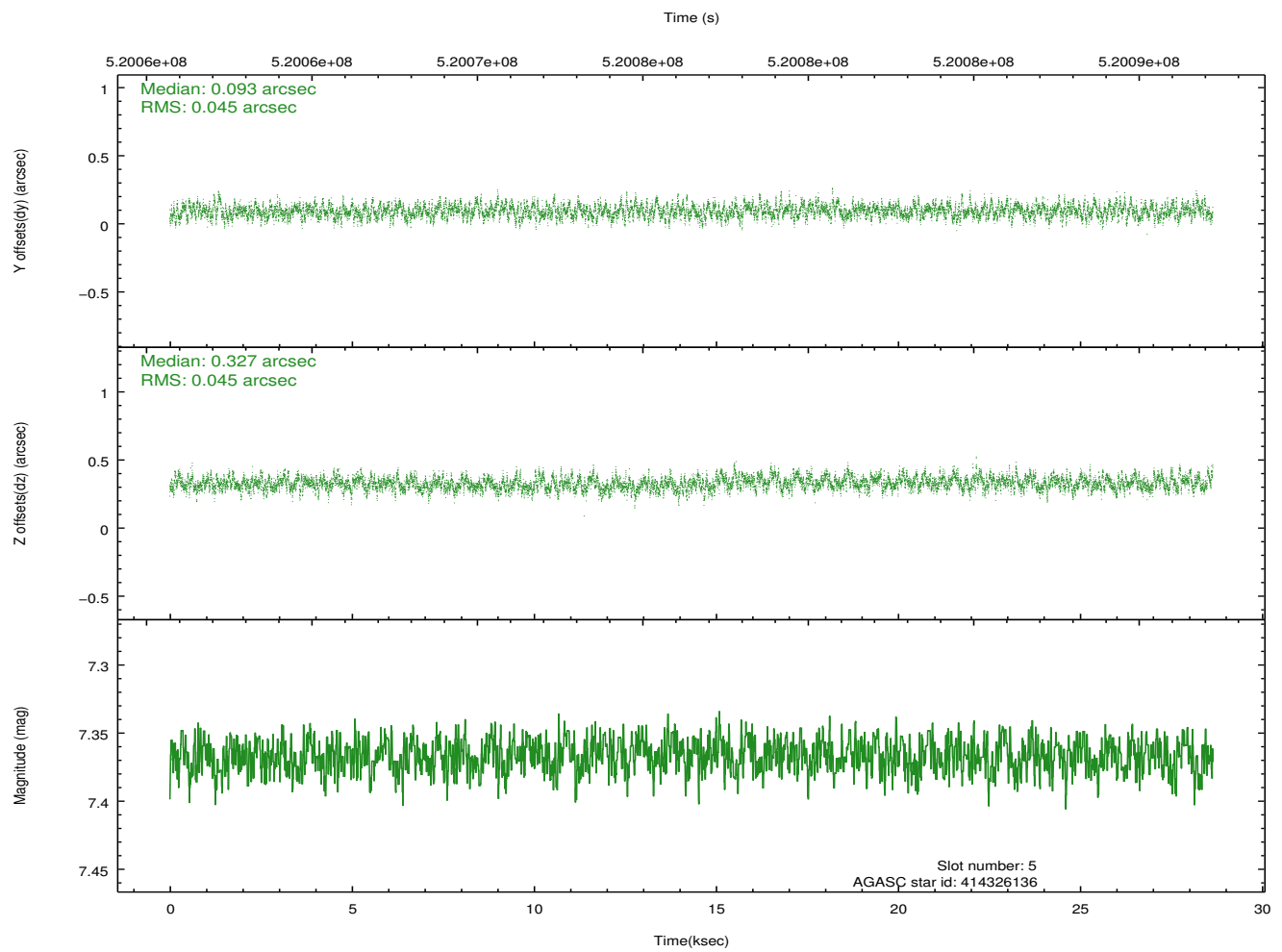
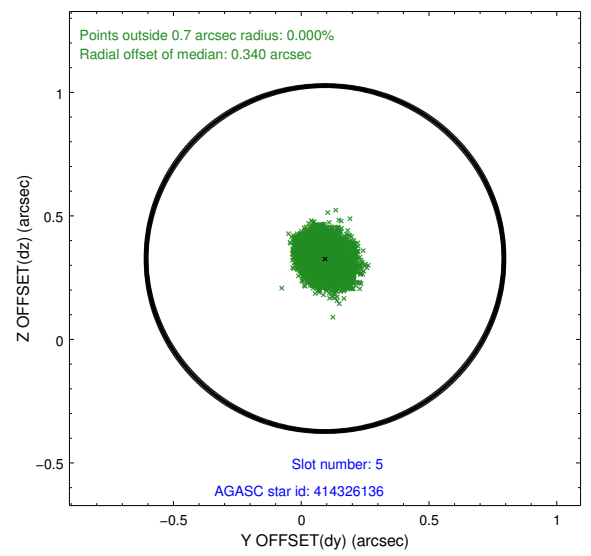
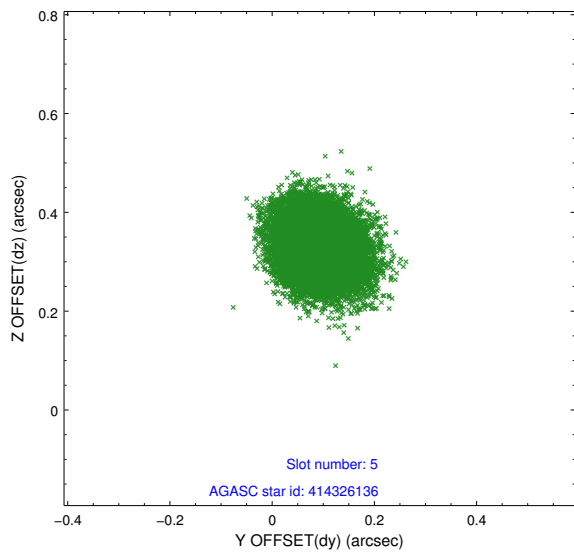
### 2.4.1 Slot 3



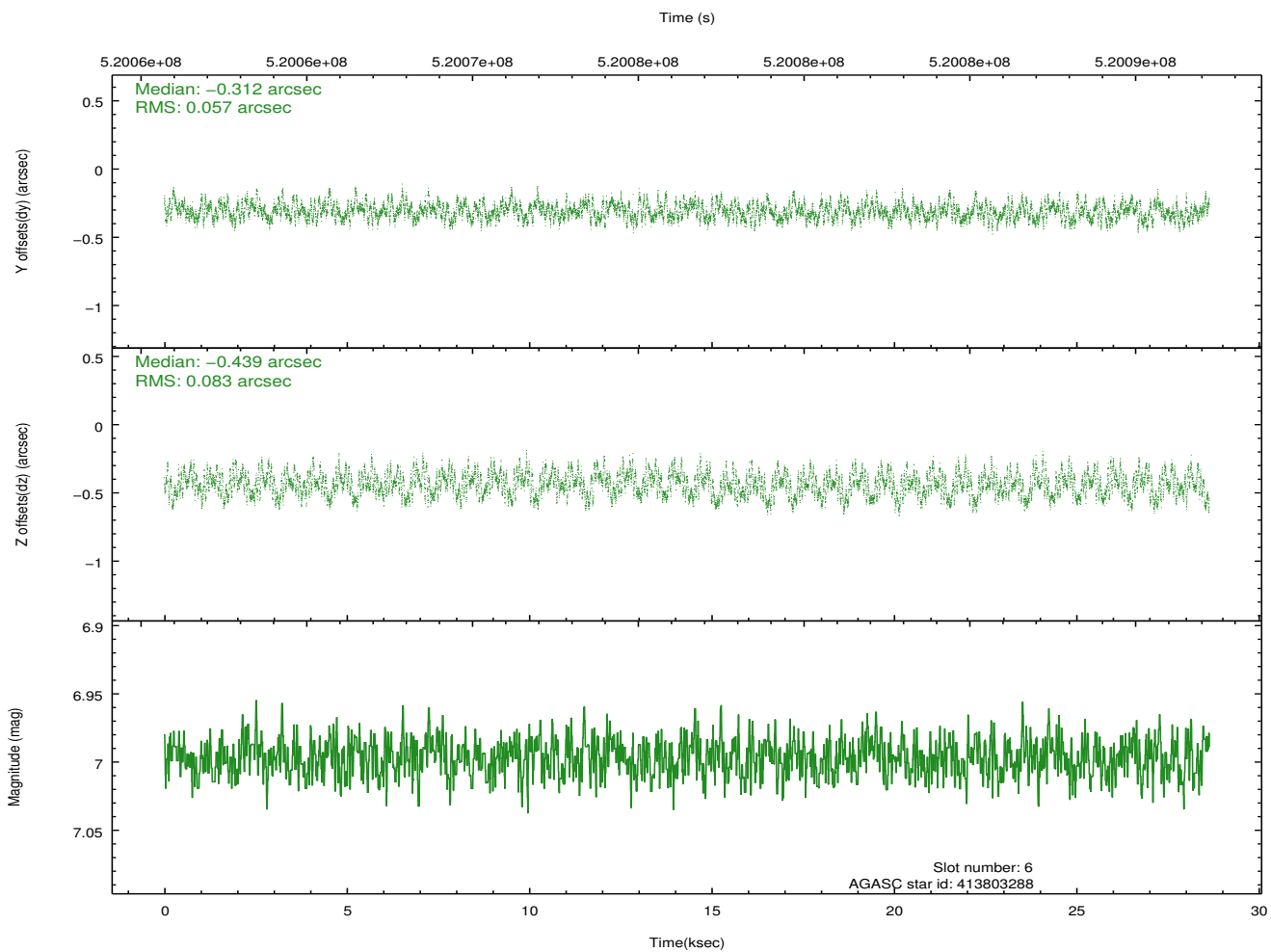
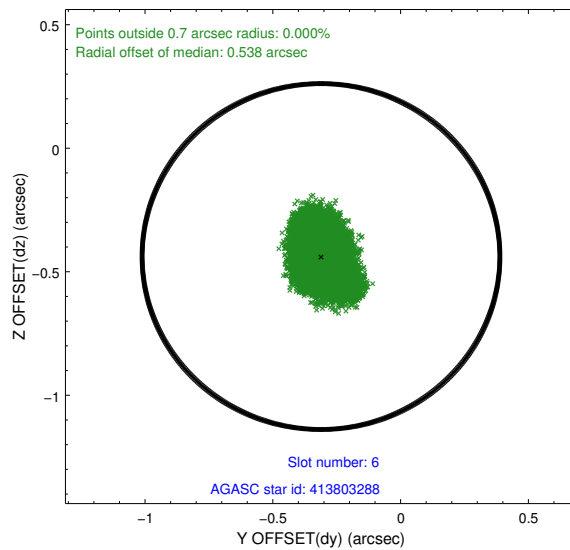
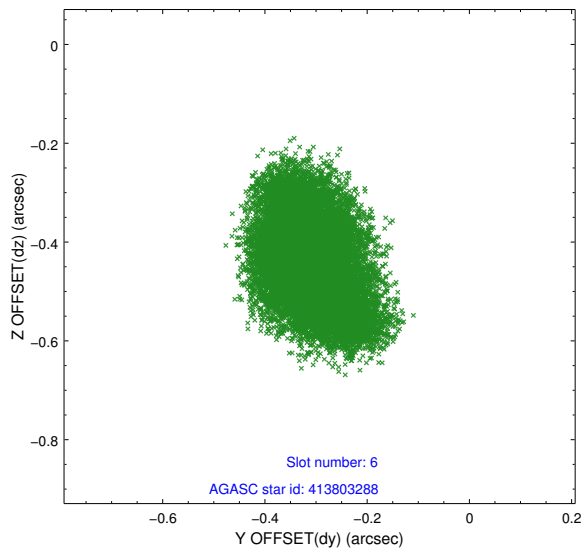
### 2.4.2 Slot 4



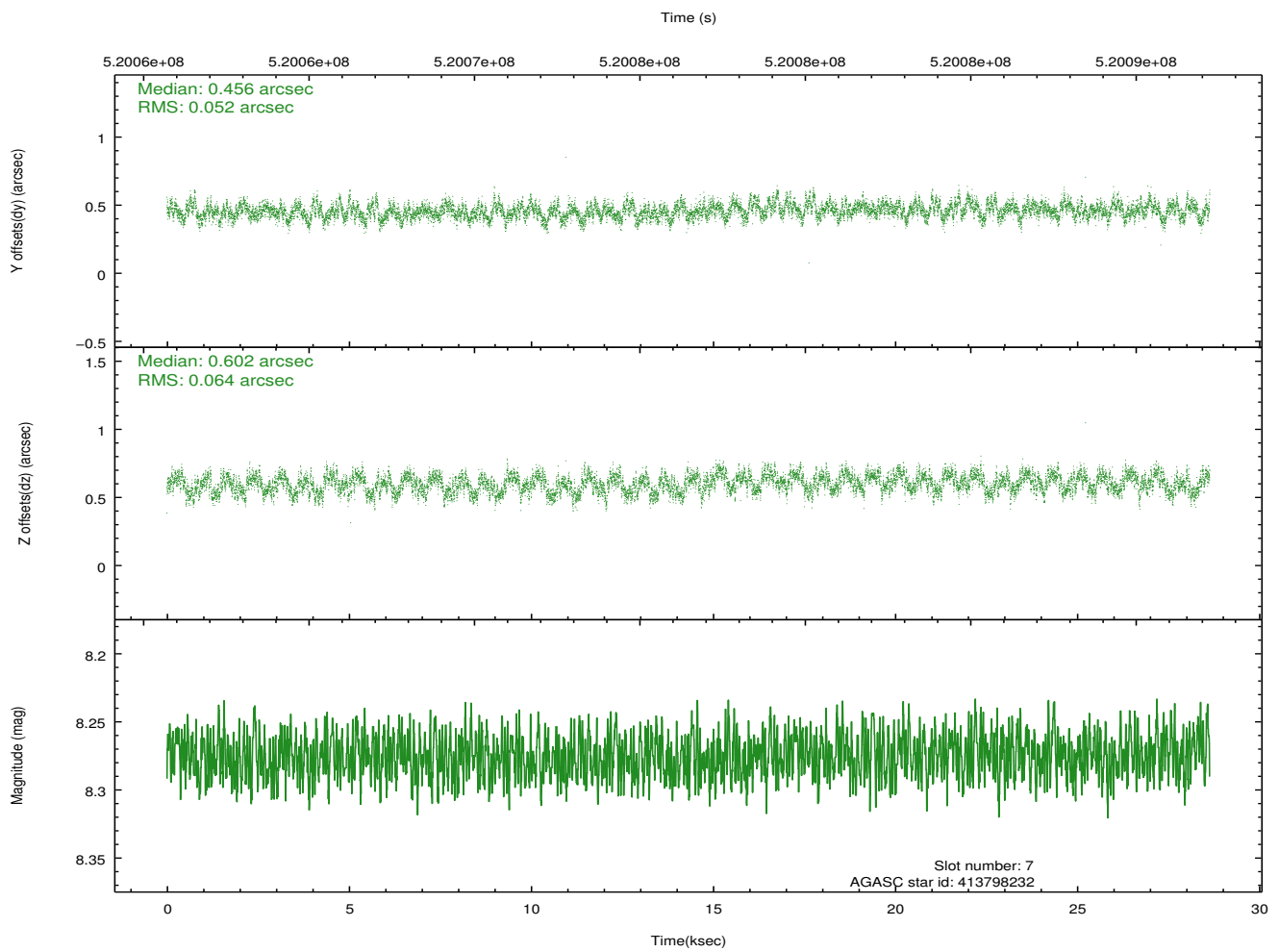
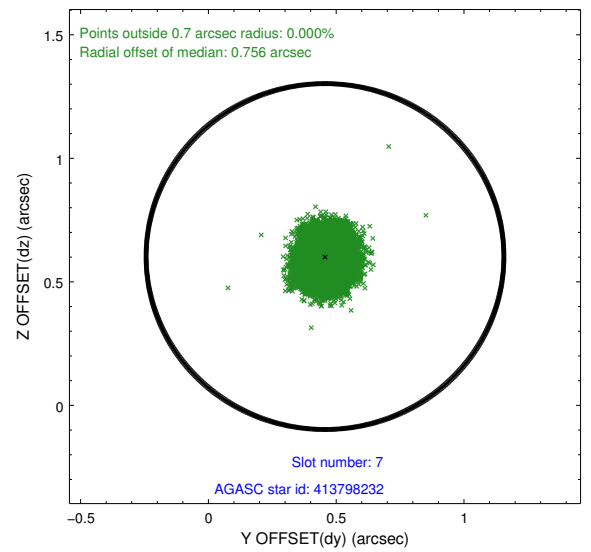
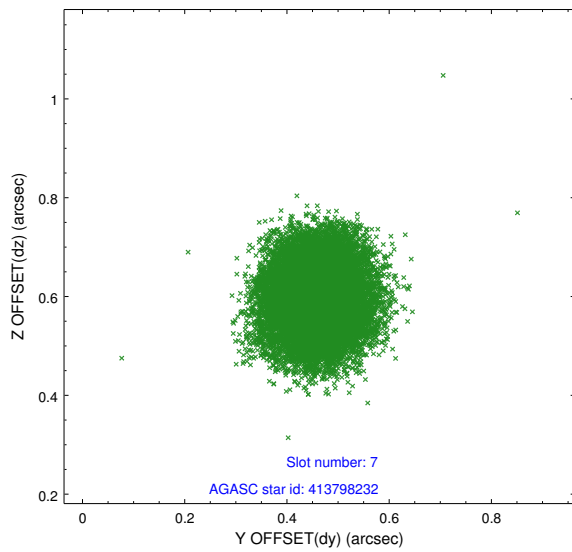
### 2.4.3 Slot 5



## 2.4.4 Slot 6

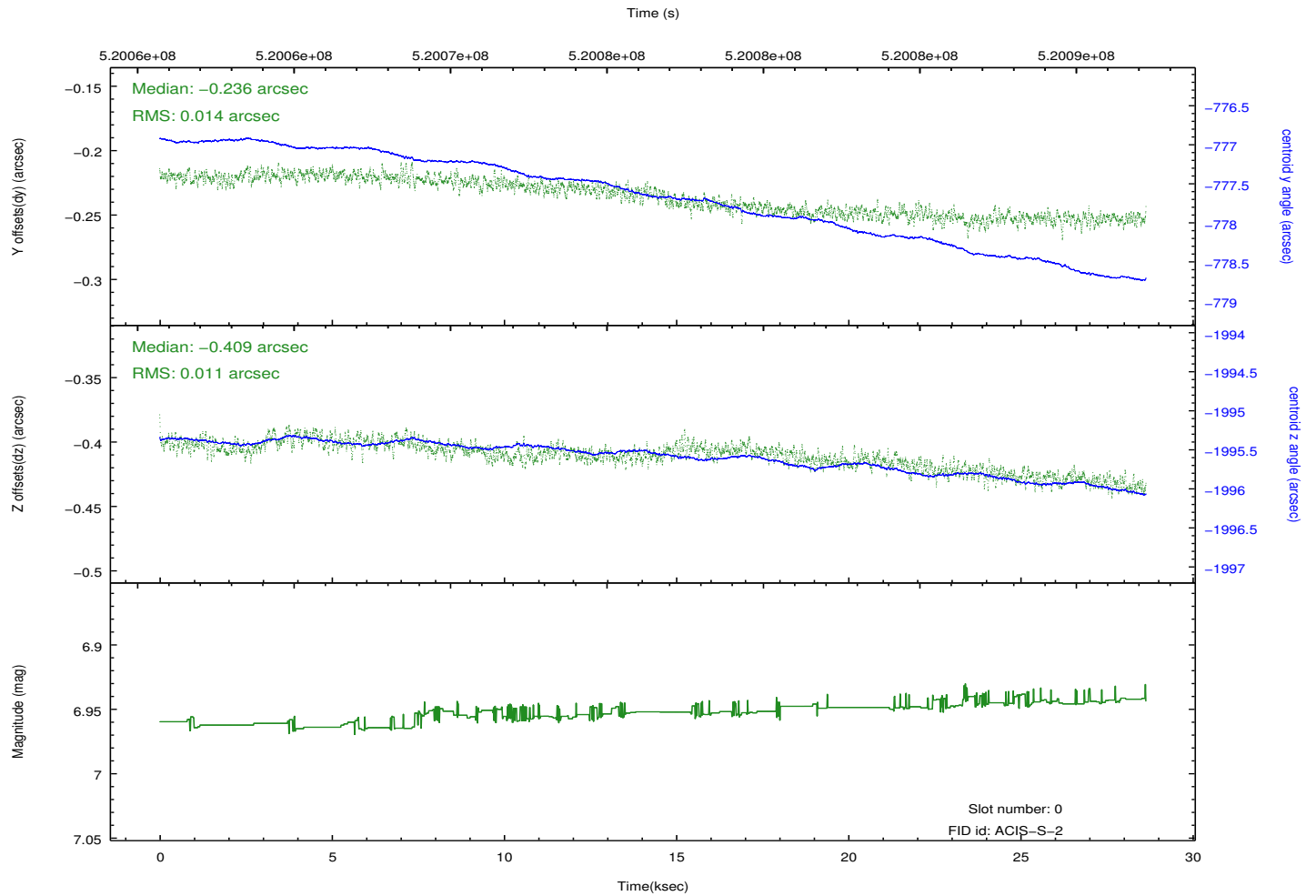
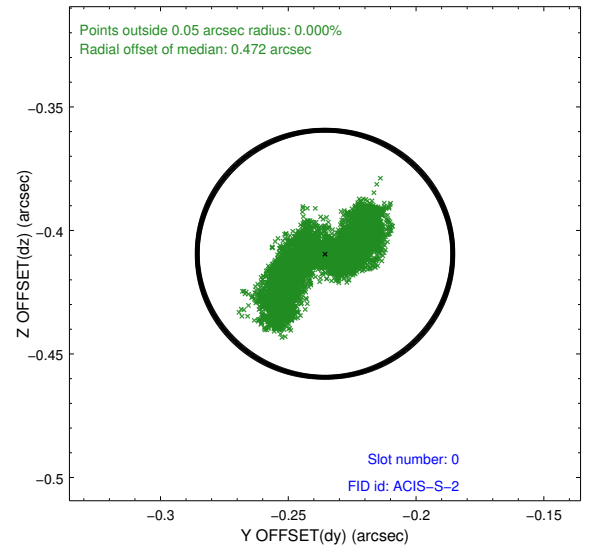
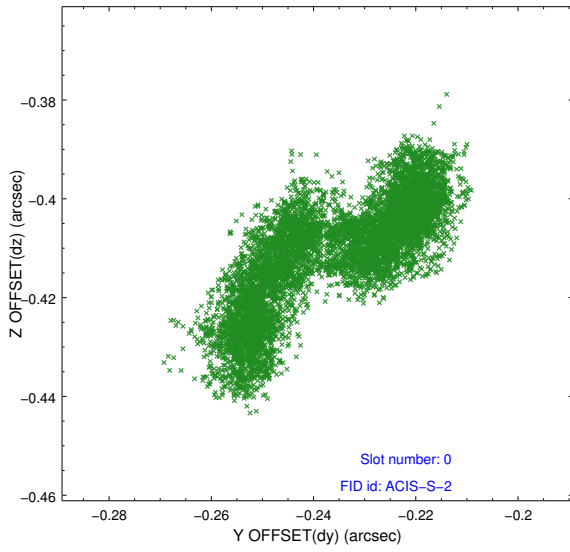


## 2.4.5 Slot 7

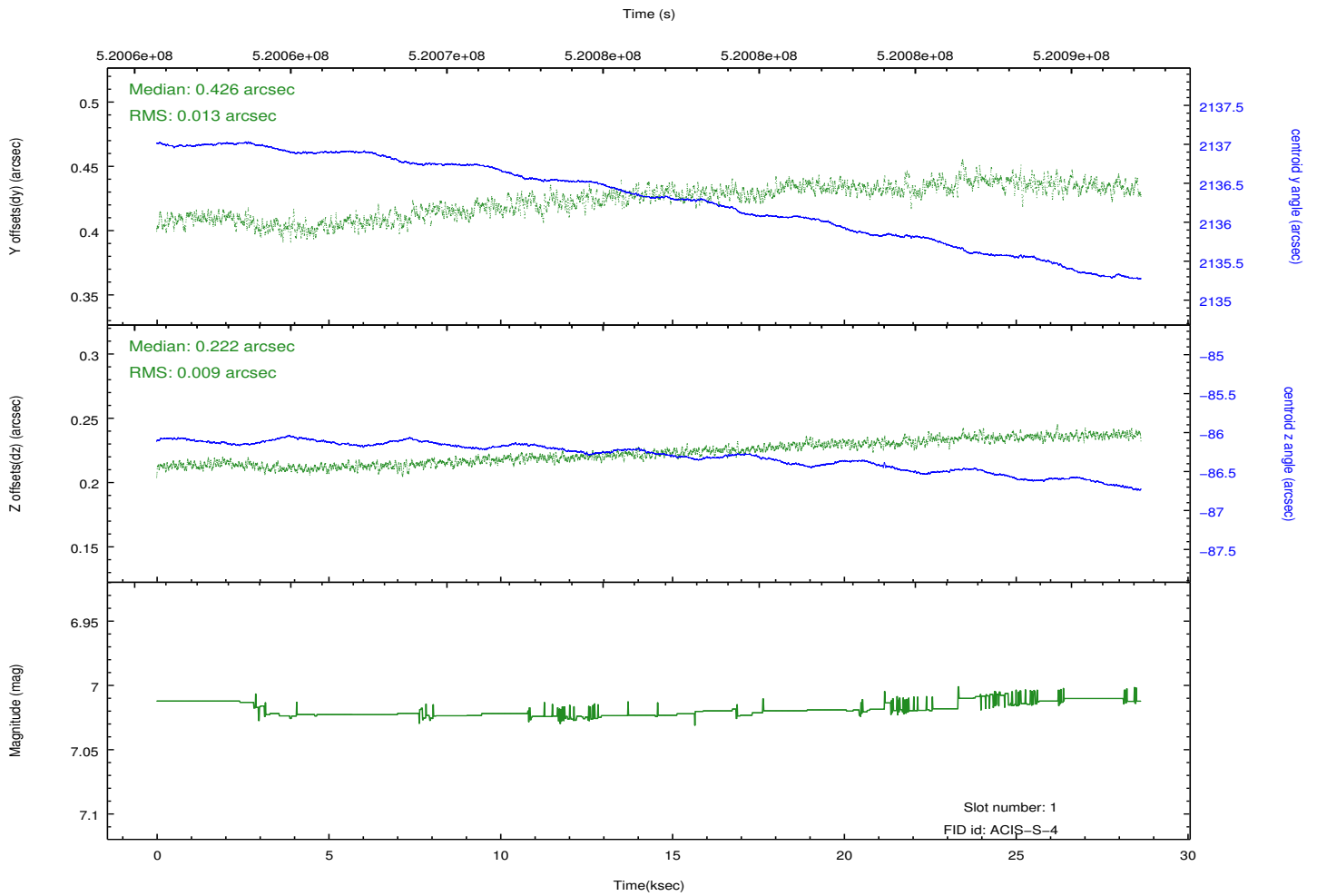
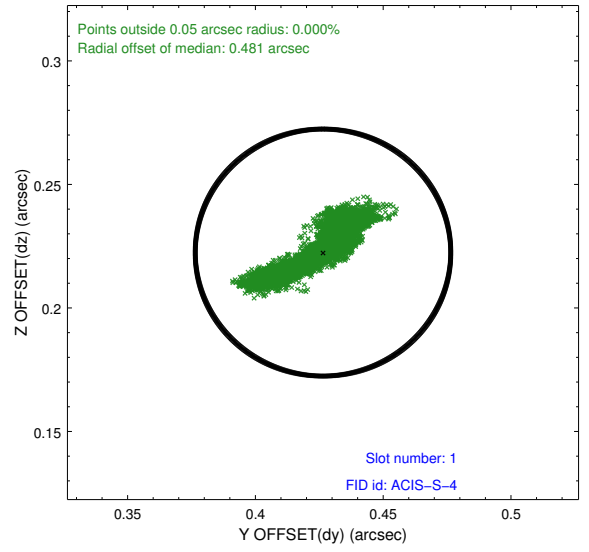
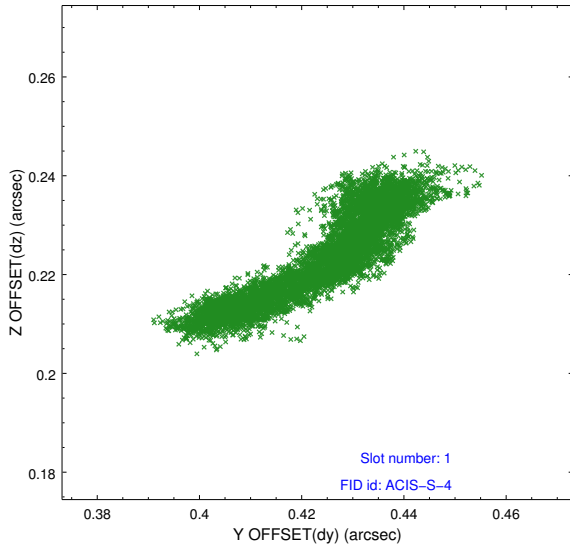


## 2.5 FID Slots

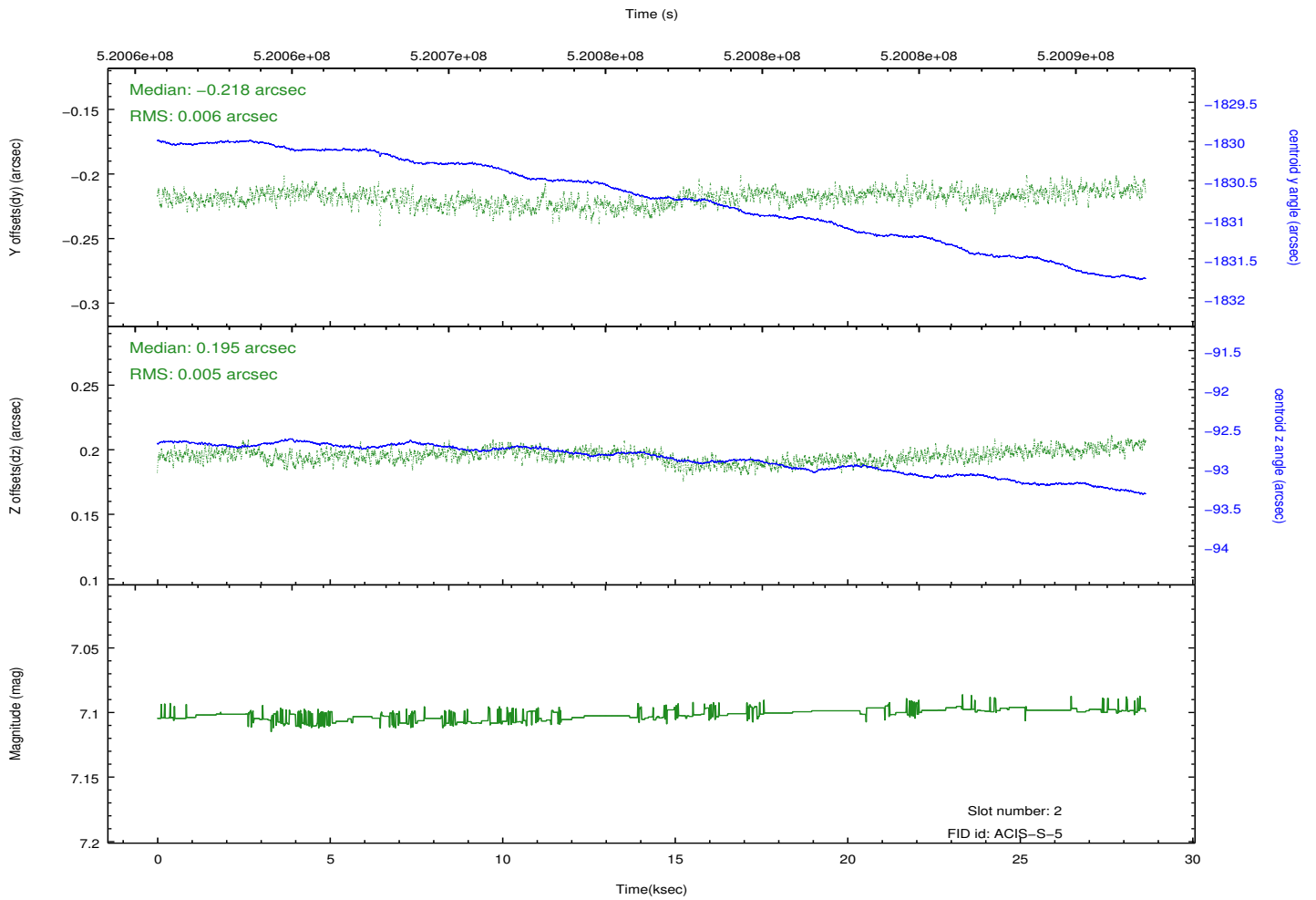
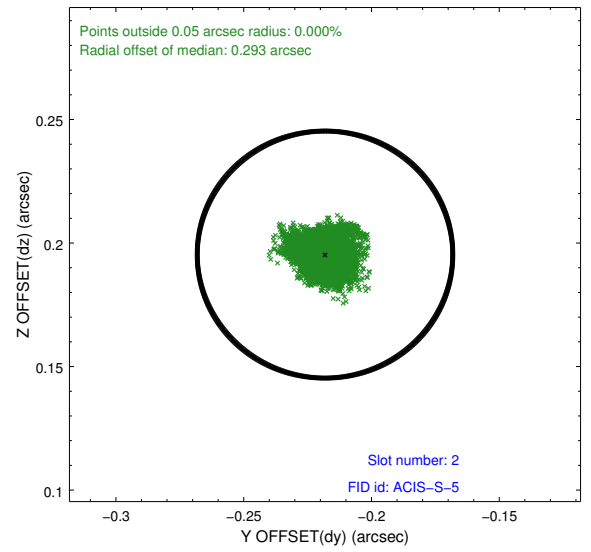
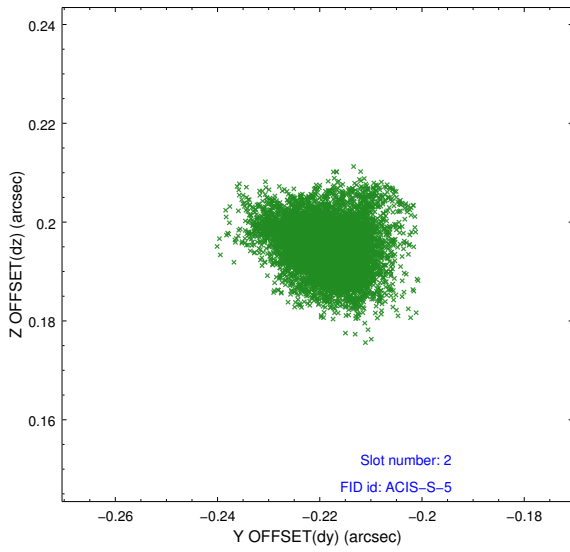
### 2.5.1 Slot 0



## 2.5.2 Slot 1

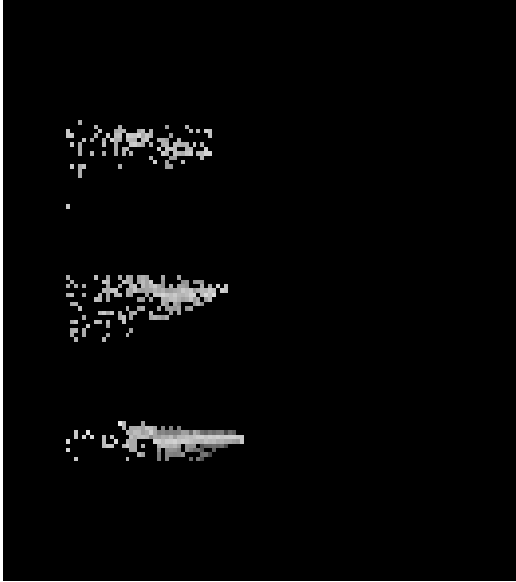


### 2.5.3 Slot 2

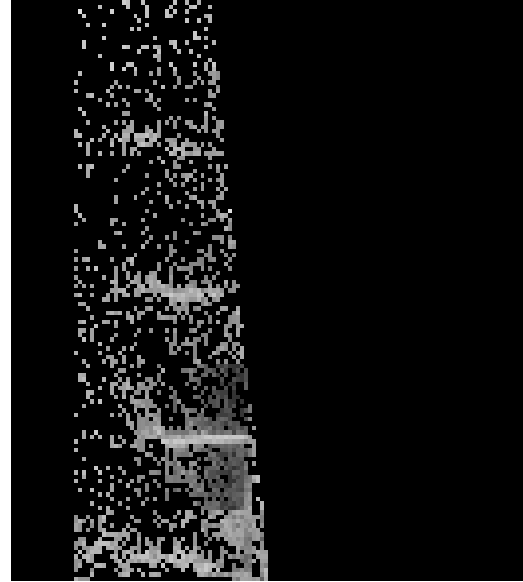


# 3 Gratings

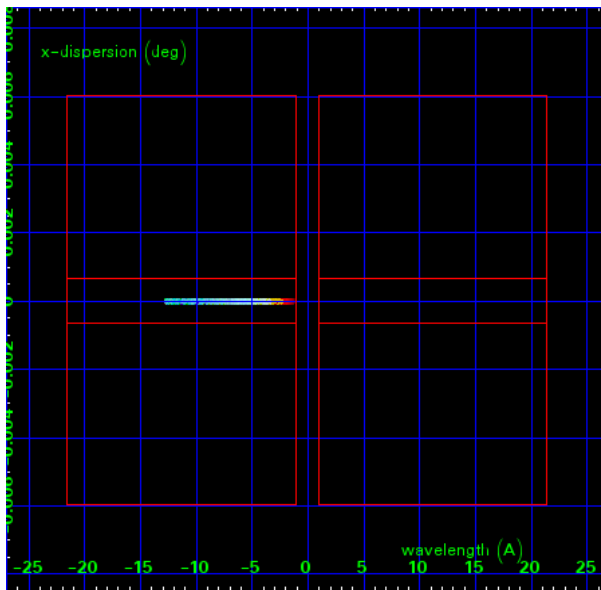
## 3.1 HEG Arm



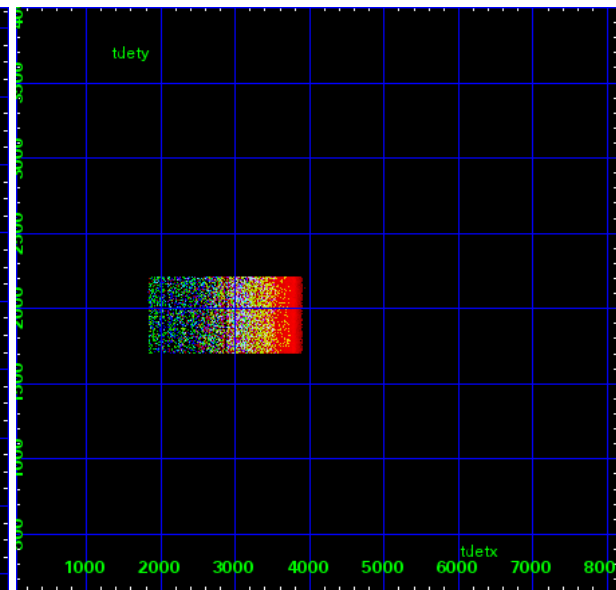
HEG Order Sort 123



HEG Order Sort ALL

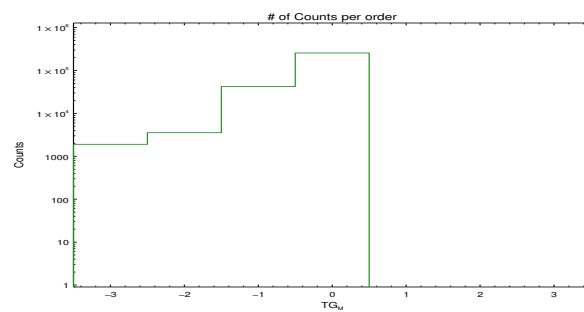


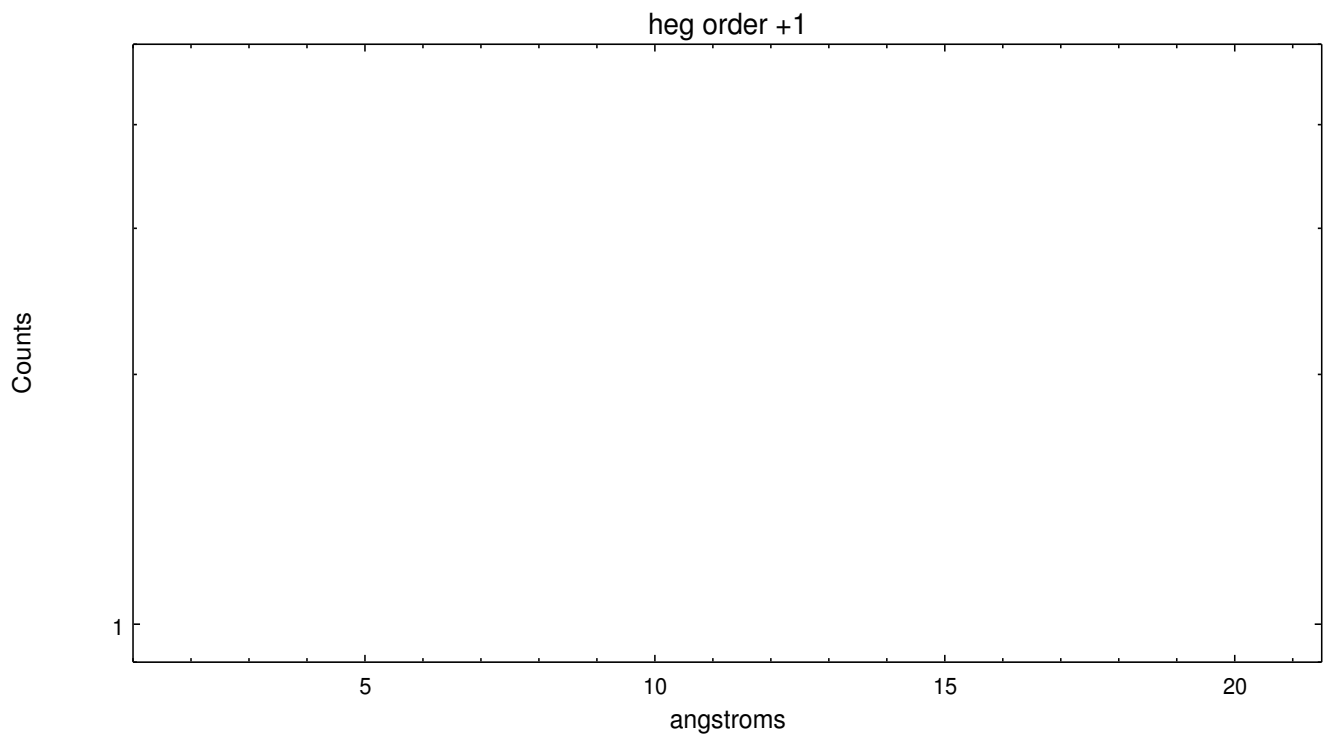
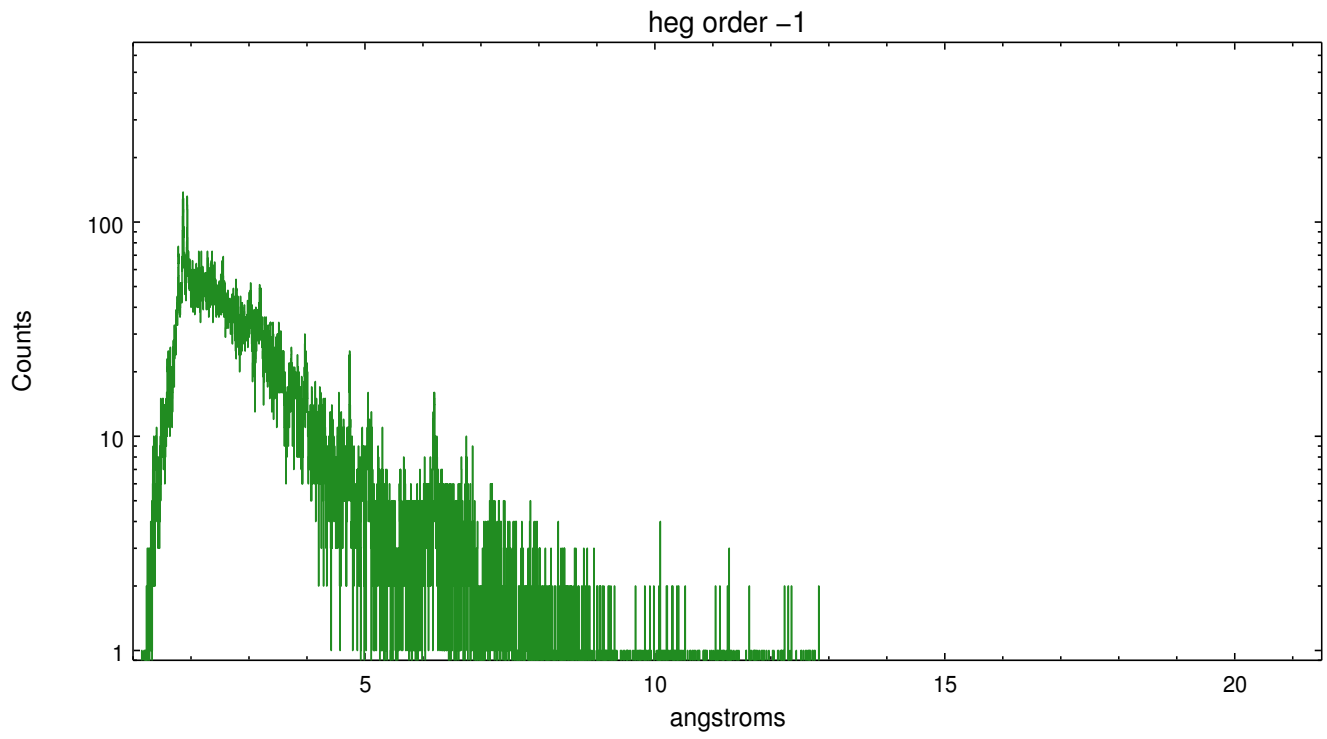
Spot Image HEG



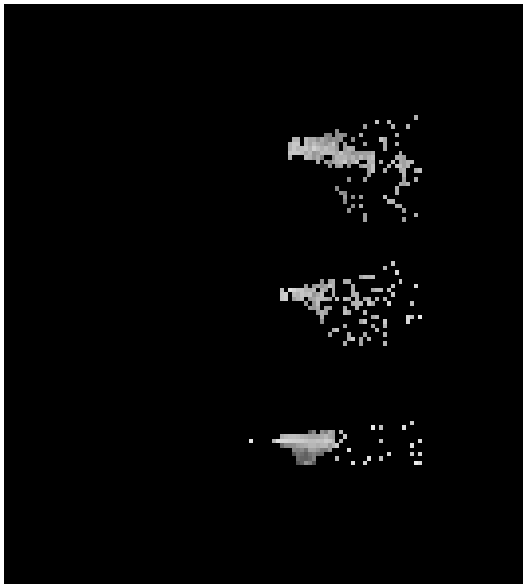
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1901	3545	42191	255667	0	0	0

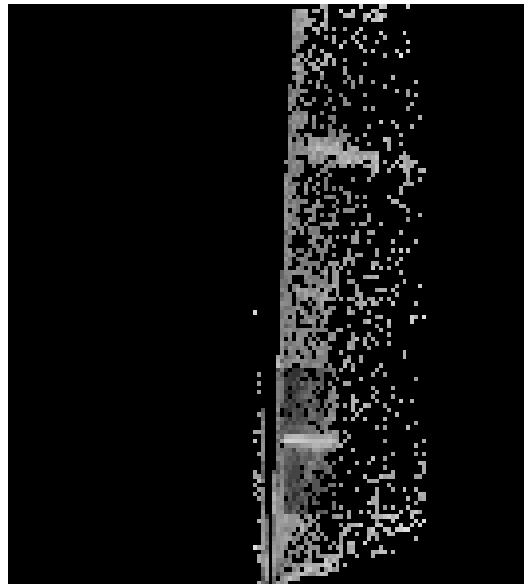




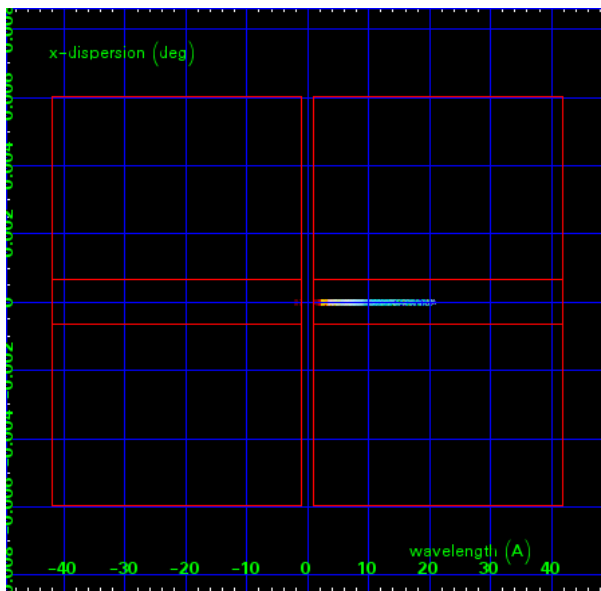
### 3.2 MEG Arm



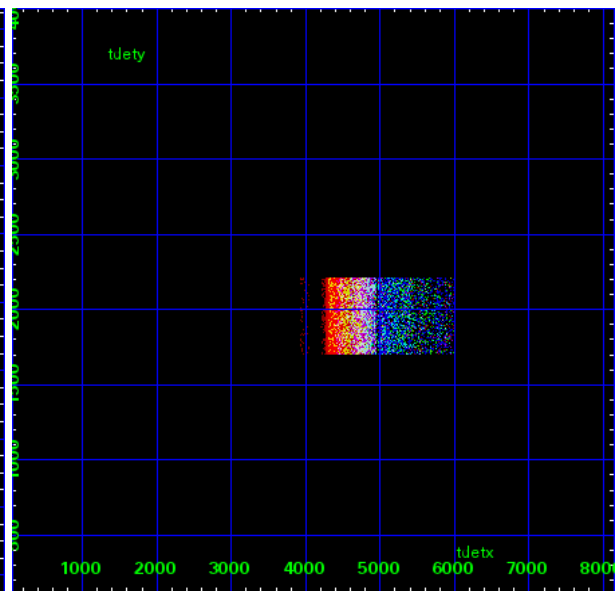
MEG Order Sort 123



MEG Order Sort ALL

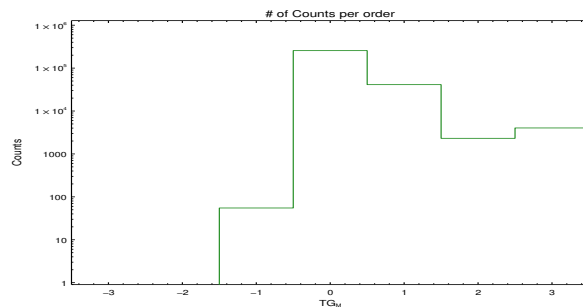


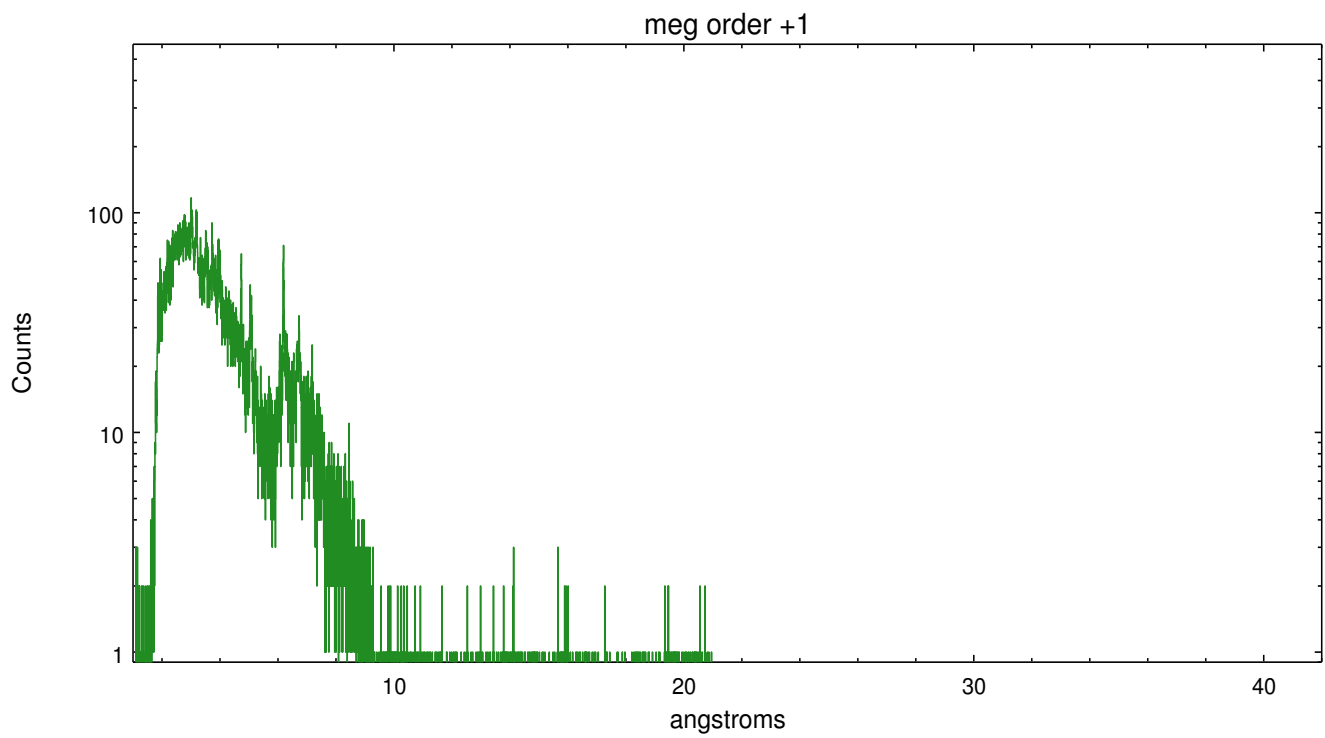
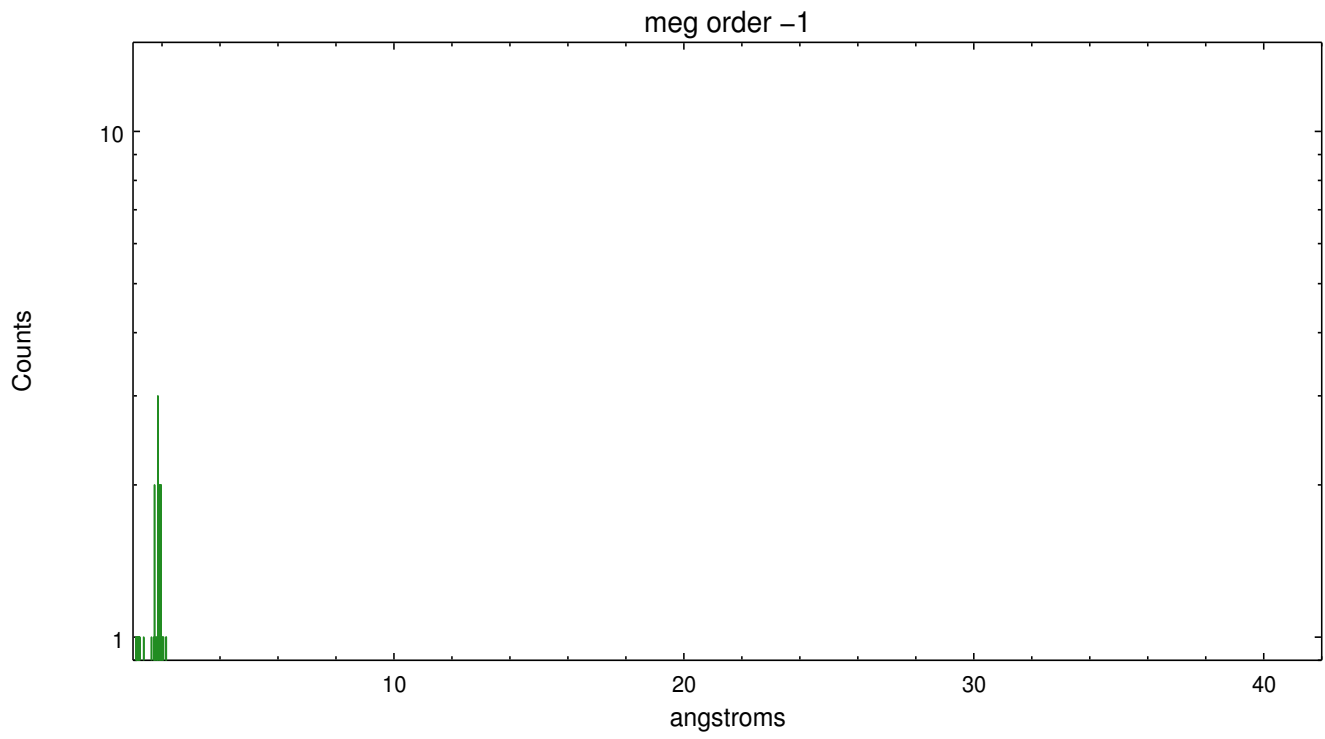
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	55	255667	41201	2310	4032





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.10.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	28.625

## A.2 Comments

NOTE: SIM offset is such that only HEG negative and MEG positive orders are on the array.

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These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.

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For ACIS/CC-mode w/ HETG, at with no SIM-Z offset, there are no MEG even order counts. MEG even orders overlap with HEG orders in energy, but MEG even order efficiencies are very low. Since HEG and MEG cannot be spatially separated, events are preferentially assigned to HEG. (MEG odd orders can be resolved.) For observations with a SIM-Z offset, MEG negative and MEG positive orders will be missing (off the array), and remove some of the ambiguity.