

# V&V Reference Report

## L2 ASCDS Version : 8.4.4

Observation 9703 - L2 Version 3  
Chandra X-Ray Center

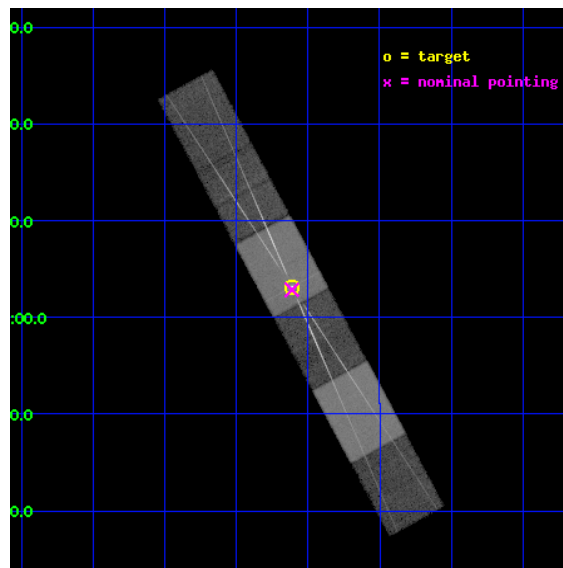
L2 Processing Date : May 14 2012

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# 1 Front

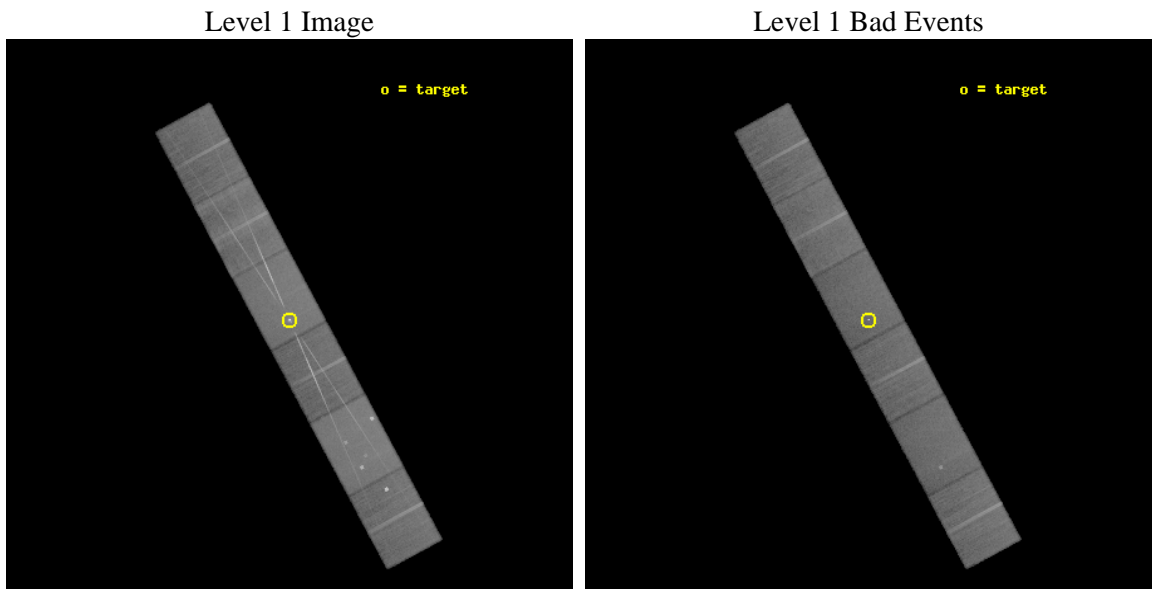
seq_num	790180	Sequence number
obs_id	9703	Observation id
title	AO9 Calibration Observations of 3C273	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	3C273	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	187.277917	Observer's specified target RA [deg]
dec_targ	2.052389	Observer's specified target Dec [deg]
ra_nom	187.27821035074	Nominal RA [deg]
dec_nom	2.0475416035547	Nominal Dec [deg]
roll_nom	241.70019569099	Nominal Roll [deg]
revision	3	Processing version of data
ontime	30185.0	Sum of GTIs [s]
liveltime	29697.486068696	Livetime [s]
ontime4	30185.0	Sum of GTIs [s]
ontime5	30185.0	Sum of GTIs [s]
ontime6	30185.0	Sum of GTIs [s]
ontime7	30185.0	Sum of GTIs [s]
ontime8	30185.0	Sum of GTIs [s]
ontime9	30185.0	Sum of GTIs [s]
l2events	478576	Number of level 2 events



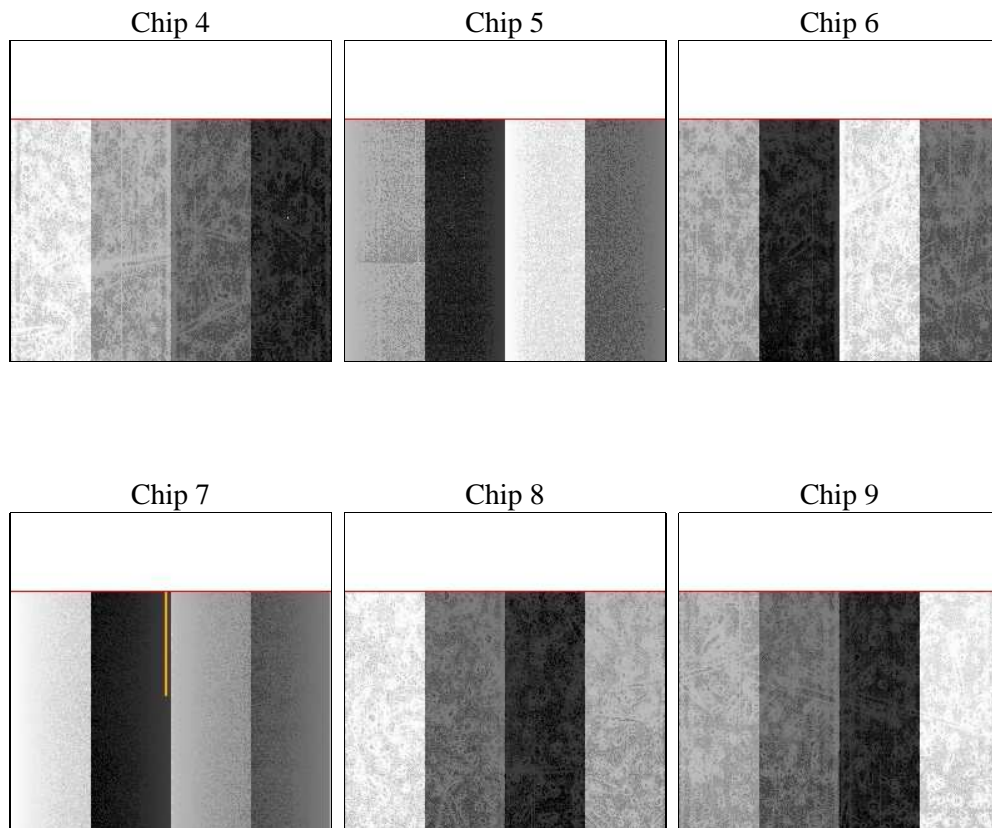
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	30000.718000	[s] Scheduled observation exposure time
ascdsver	8.4.4	Processing system revision	ontime	30185.0	Sum of GTIs [s]
caldbver	4.4.9	&#160	ontime4	30185.0	Sum of GTIs [s]
date	2012-05-14T03:32:15	Date and time of file creation	ontime5	30185.0	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	30185.0	Sum of GTIs [s]
			ontime7	30185.0	Sum of GTIs [s]
			ontime8	30185.0	Sum of GTIs [s]
			ontime9	30185.0	Sum of GTIs [s]
			l1events	1801706	Number of level 1 events

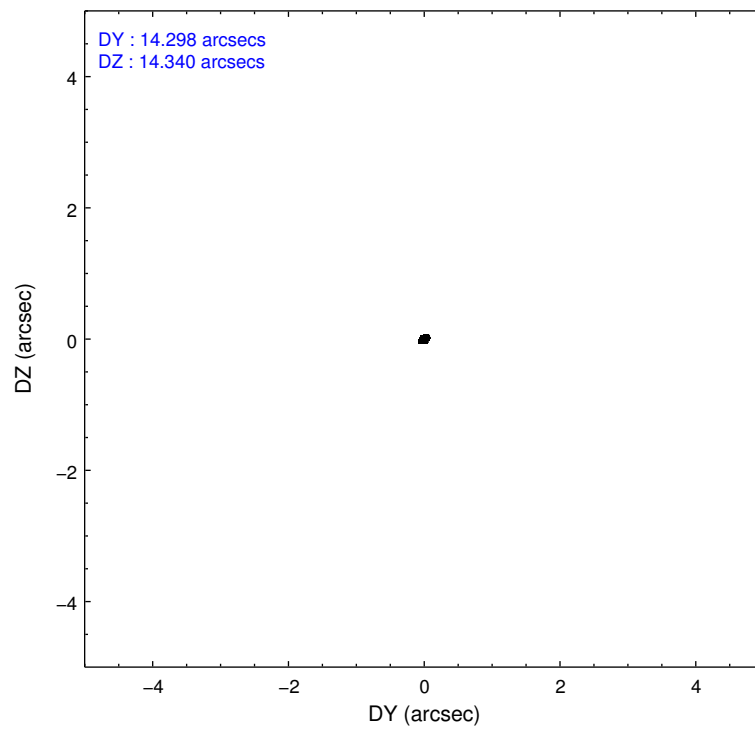
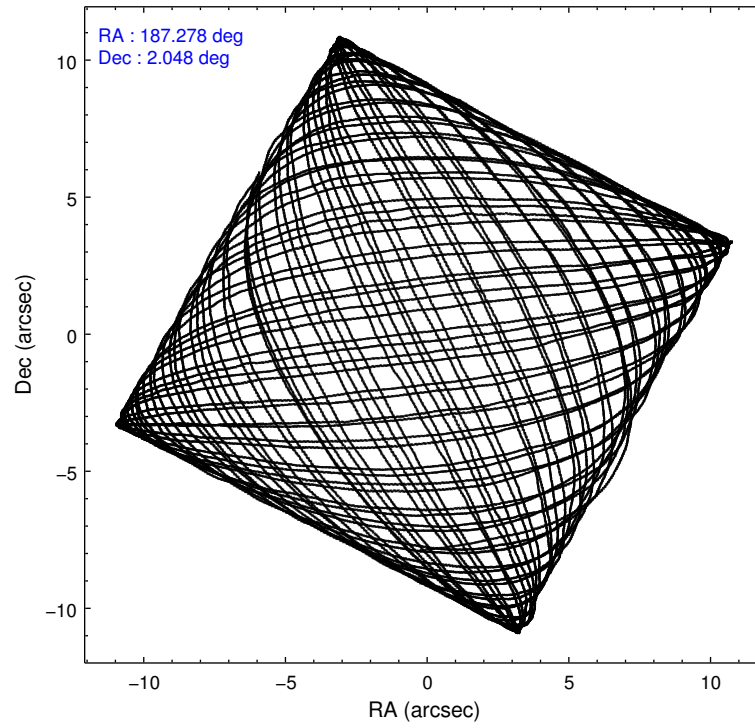
### 2.1.4 Events

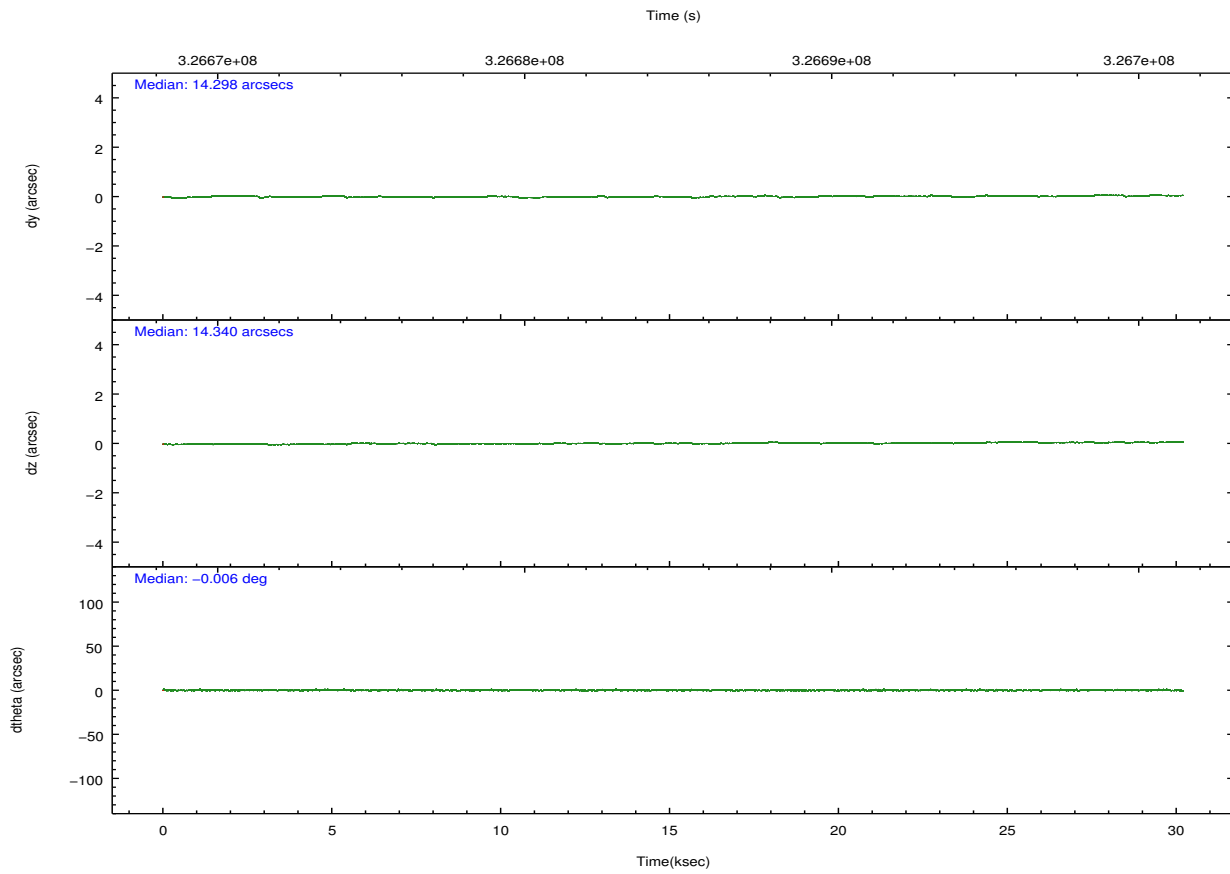
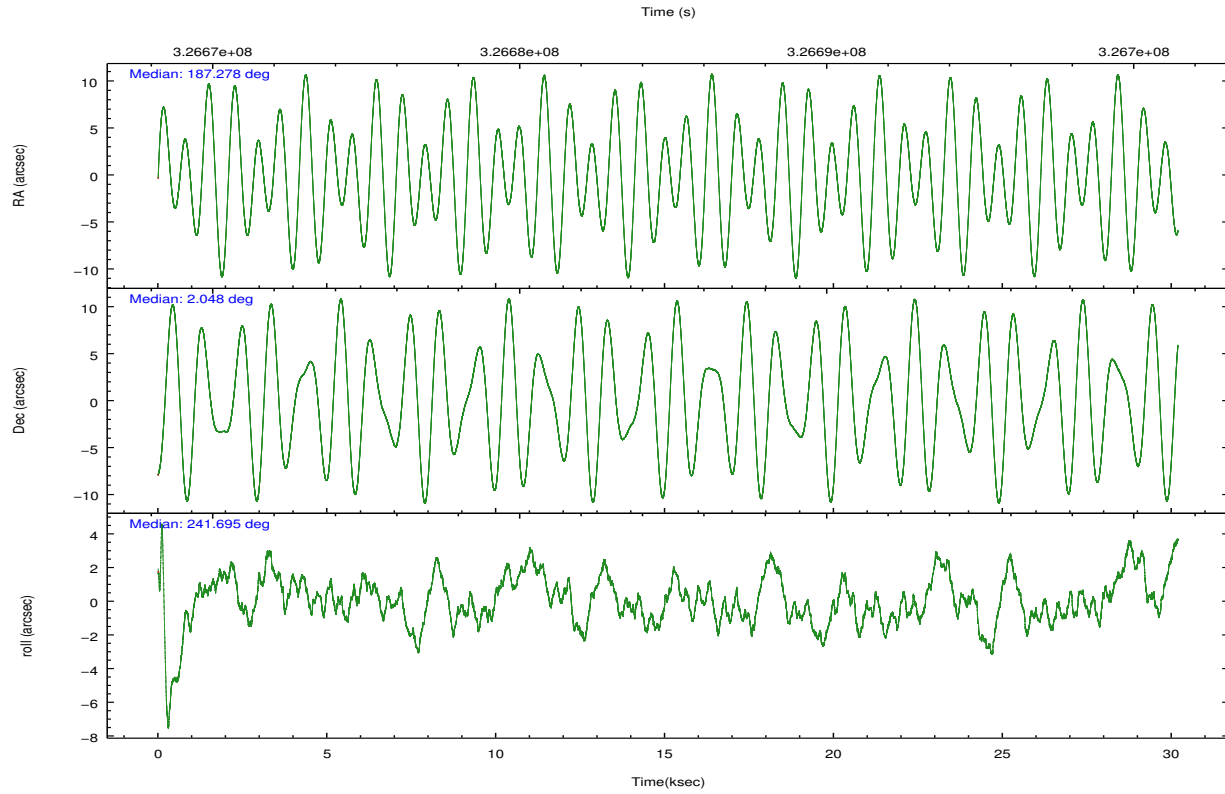
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	262998	372263	265612	362478	309906	228449	grade 0 events	25658	21767	40277	20778	36373	15021
rejected events	221292	197879	201139	193887	226654	197022		9%	5%	15%	5%	11%	6%
rejected %	84%	53%	75%	53%	73%	86%	grade 1 events	237	520	254	561	264	161
								0%	0%	0%	0%	0%	0%
							grade 2 events	6877	58169	10199	37039	16788	6208
								2%	15%	3%	10%	5%	2%
							grade 3 events	3183	8004	4164	16020	7715	2956
								1%	2%	1%	4%	2%	1%
							grade 4 events	3003	7486	4182	15802	7330	2990
								1%	2%	1%	4%	2%	1%
							grade 5 events	10206	26207	10818	30931	14254	11337
								3%	7%	4%	8%	4%	4%
							grade 6 events	4701	86258	6996	84675	17993	5513
								1%	23%	2%	23%	5%	2%
							grade 7 events	209133	163852	188722	156672	209189	184263
								79%	44%	71%	43%	67%	80%

## 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	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	187.277018	187.278210350735	CCD I2 on	N	N
[deg] Pointing Dec	2.074871	2.047541603554688	CCD I3 on	N	N
[deg] Pointing Roll	241.543614	241.7001956909946	CCD S0 on	Y	Y
[s] Window start time (MET)	325987265.184000	325987265.184000	CCD S1 on	Y	Y
[s] Window stop time (MET)	336528065.184000	336528065.184000	CCD S2 on	Y	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S3 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S4 on	Y	Y
[mm] SIM translation stage pos	-186.772523	-186.7859694375908	CCD S5 on	O1	Y
[mm] SIM translation stage offset	-3.36	-3.346553145416976	Number of optional ACIS chips dropped	0	0
[s] Observation start time (MET)	326669927.184000	326668157.21896	On-chip summing requested	N	N
Observation start date	2008-05-08T21:37:42	2008-05-08T21:09:17	Subarray requested	CUSTOM	CUSTOM
[s] Observation end time (MET)	326699928.184000	326700153.62052	Subarray start row	1	1
Observation end date	2008-05-09T05:57:43	2008-05-09T06:02:33	Subarray row count	774	774
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	2.5

## 2.3 Aspect



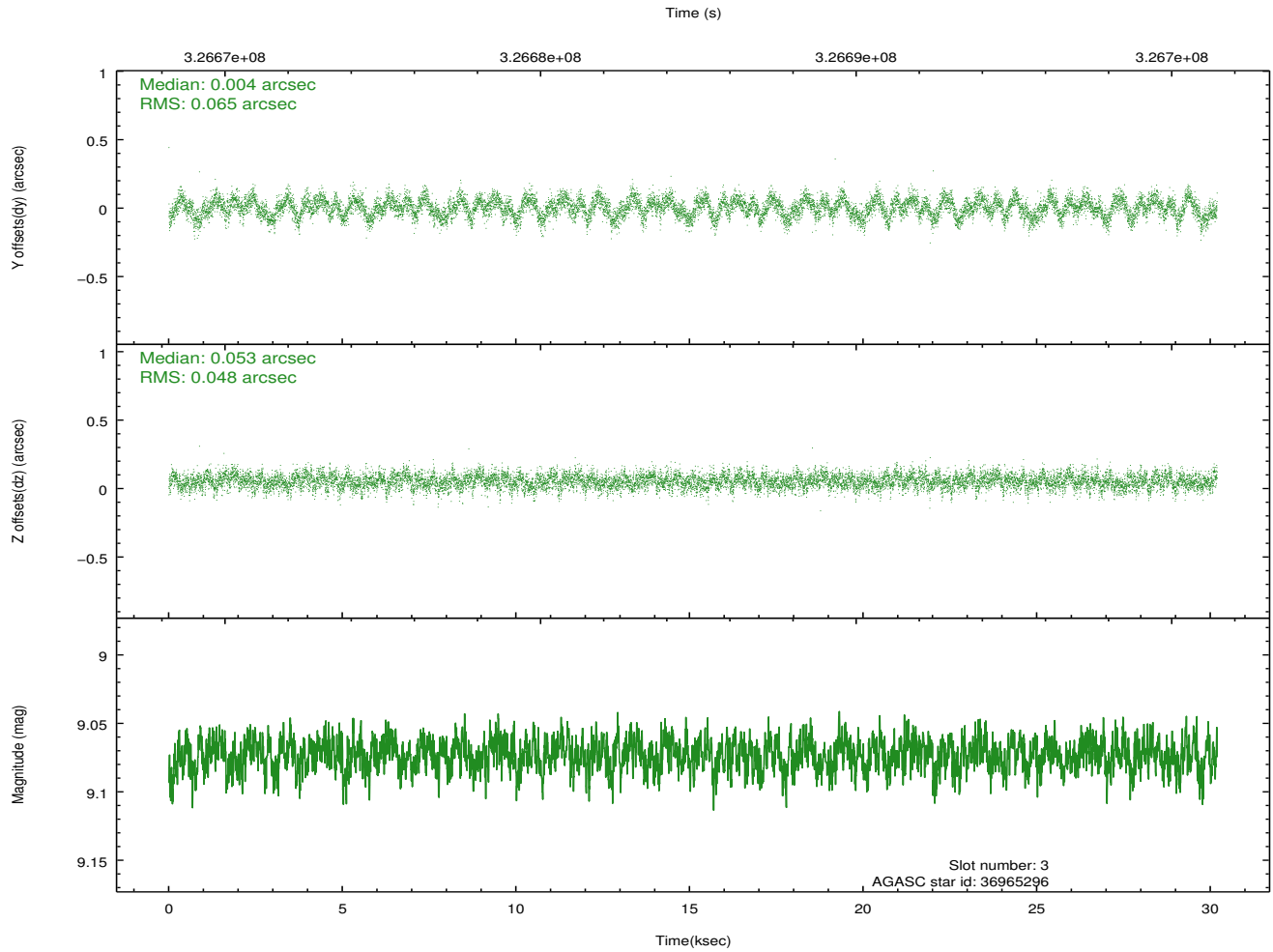
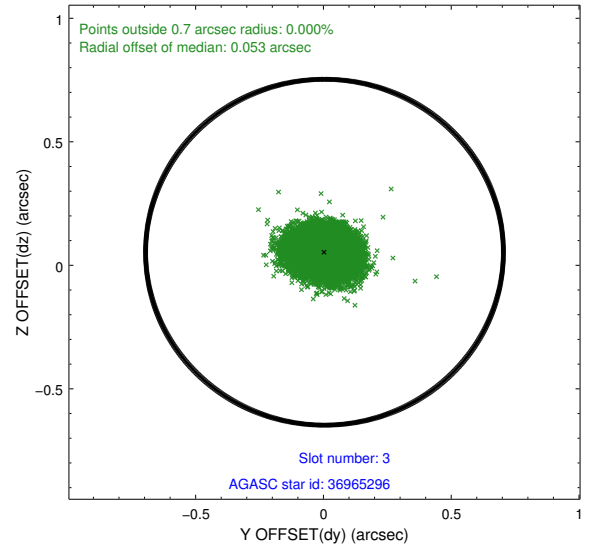
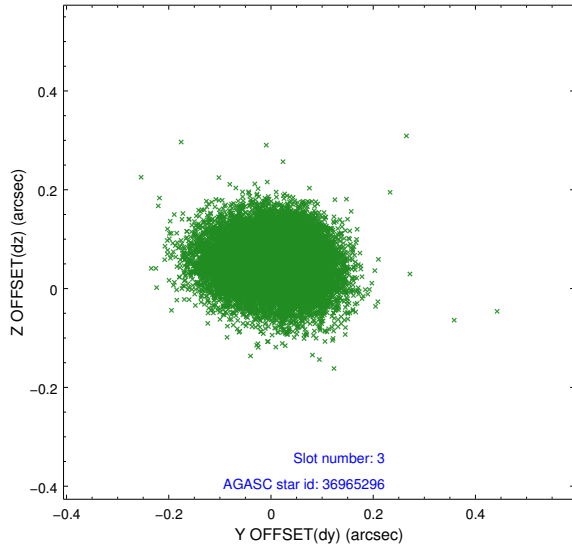


### Slot Statistics

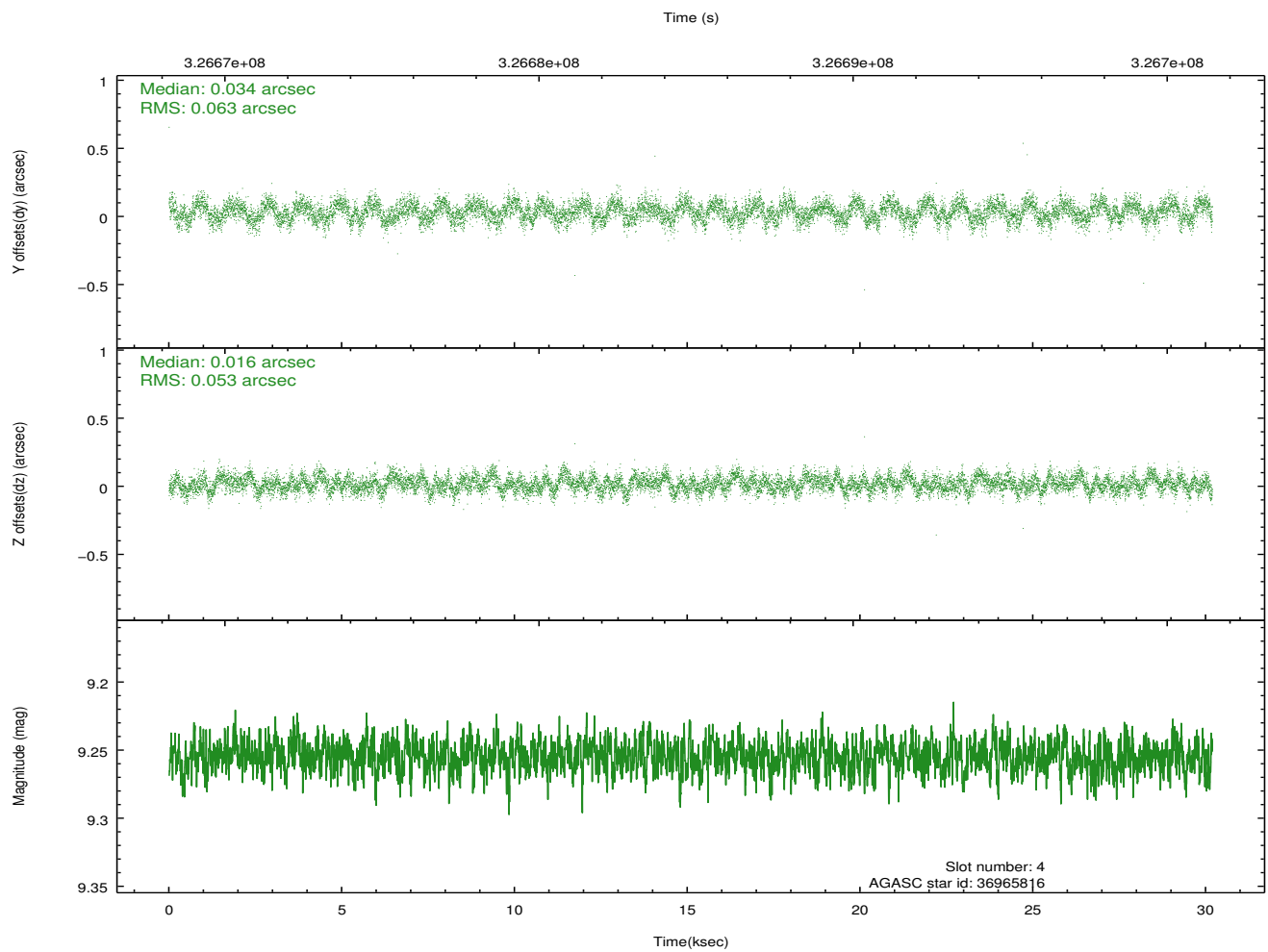
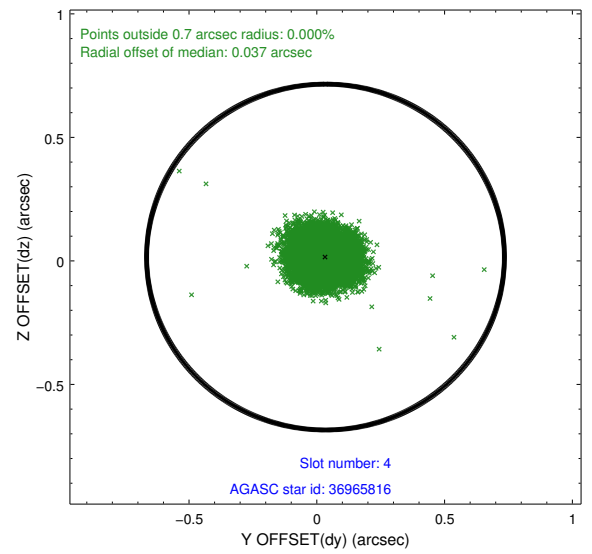
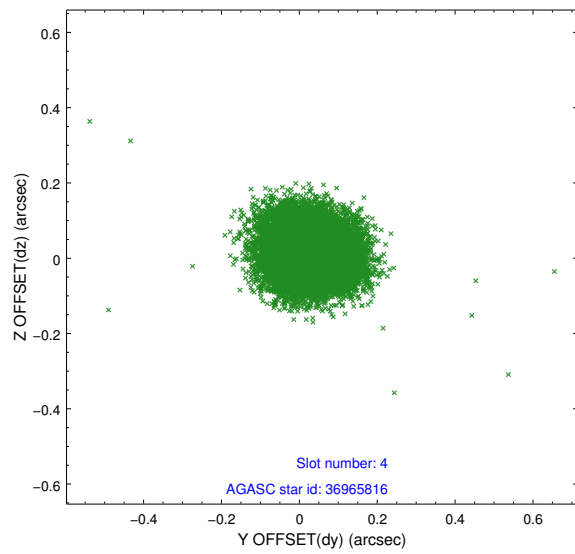
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.01	7362	0.038	0.057	0.006	0.011	0.000000	0.000000	929.07	-1800.34
1	FID	ACIS-S-5	7.05	7364	-0.124	0.034	0.006	0.010	0.000000	0.000000	-1820.06	97.08
2	FID	ACIS-S-6	7.18	7364	0.065	-0.079	0.006	0.010	0.000000	0.000000	394.56	741.03
3	GUIDE	36965296	9.07	14714	0.004	0.053	0.086	0.138	186.926292	1.837429	1353.08	-702.29
4	GUIDE	36965816	9.25	14712	0.034	0.016	0.088	0.139	186.823353	1.771455	1738.46	-914.70
5	GUIDE	36965896	9.68	14709	-0.005	-0.122	0.117	0.188	187.153754	1.617178	1660.32	395.11
6	GUIDE	37356352	7.65	14721	-0.247	-0.140	0.062	0.097	187.433784	2.618460	-1988.96	-437.12
7	GUIDE	37883040	9.99	14701	0.211	0.201	0.143	0.230	187.575516	1.280402	2002.93	2307.78

## 2.4 Star Slots

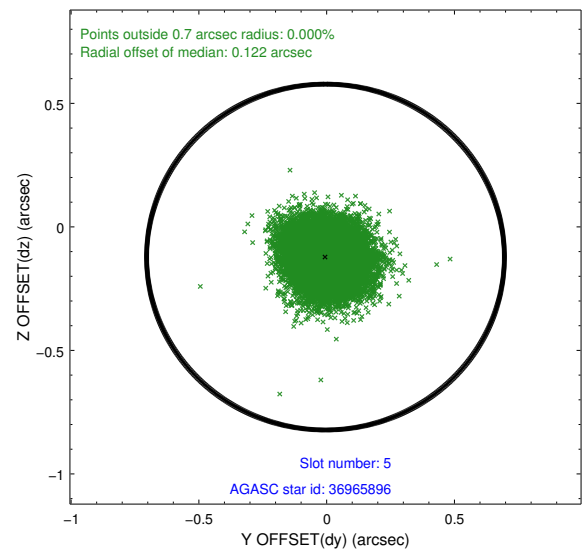
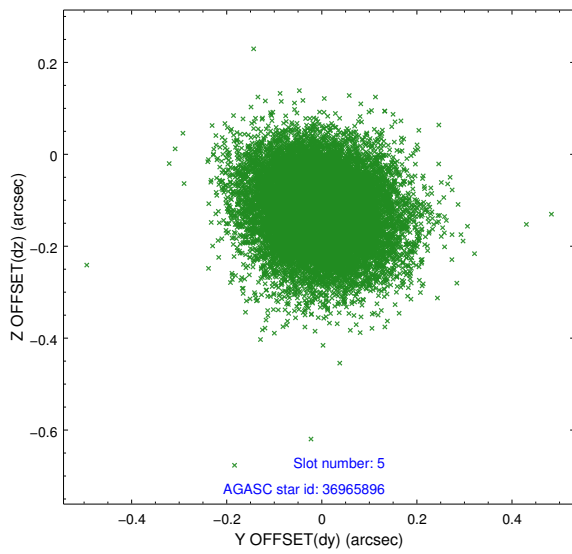
### 2.4.1 Slot 3



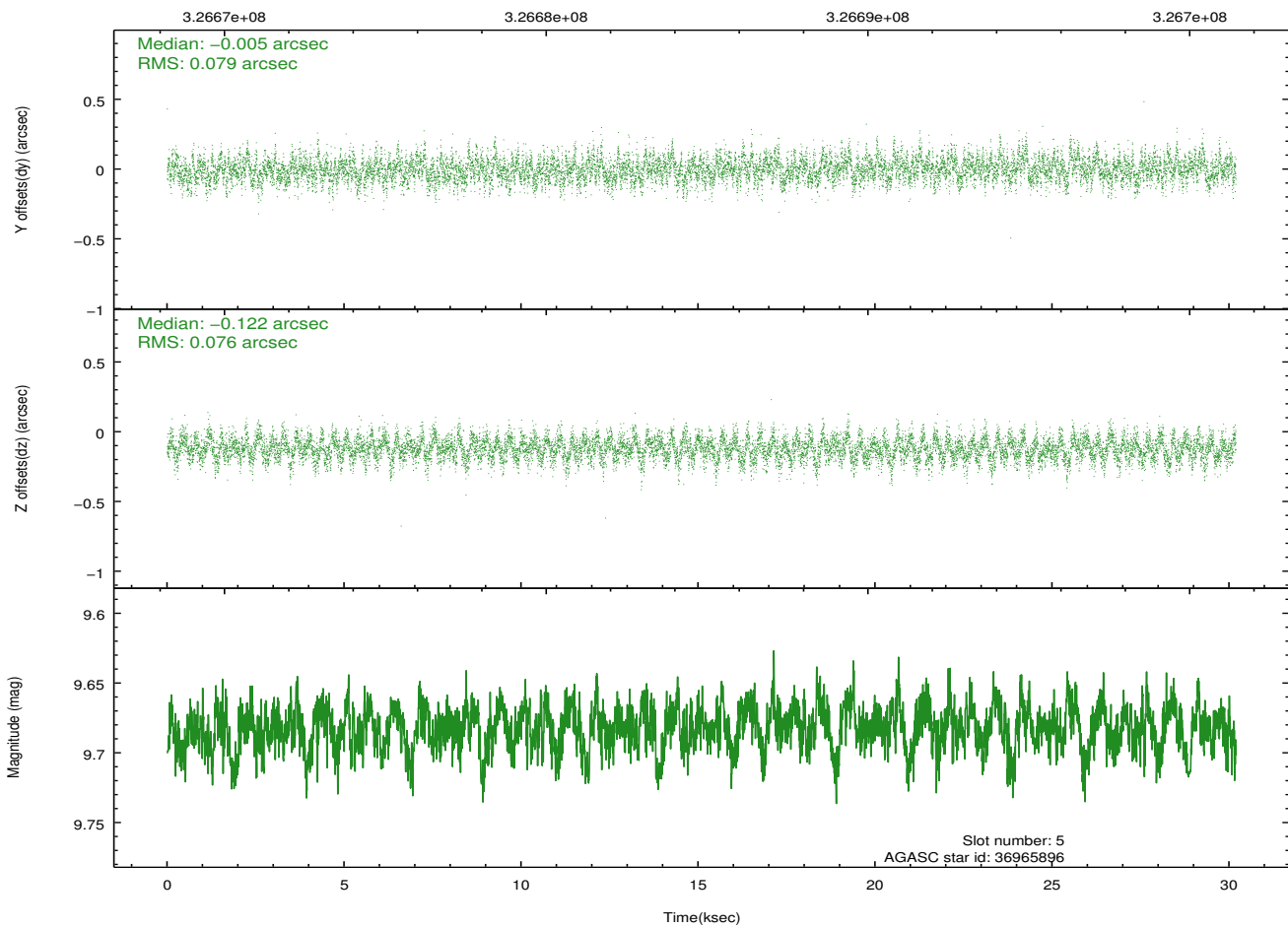
## 2.4.2 Slot 4



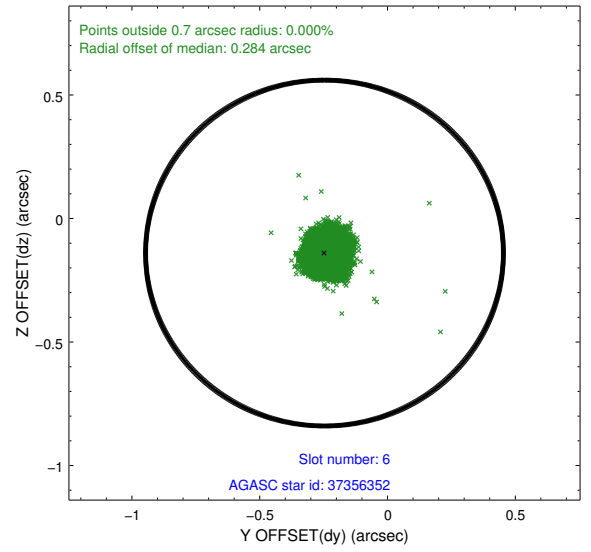
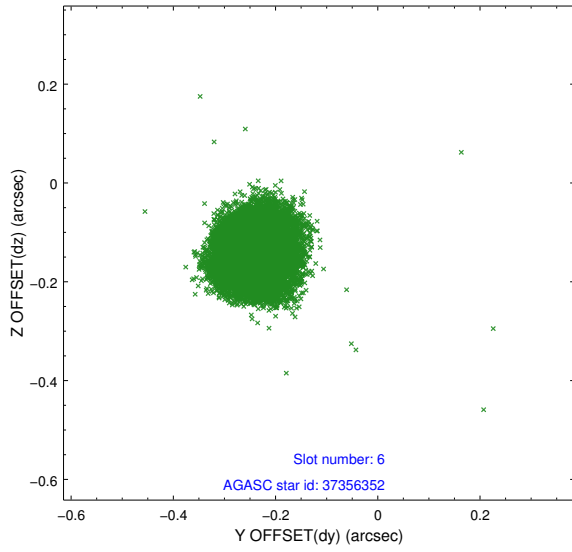
### 2.4.3 Slot 5



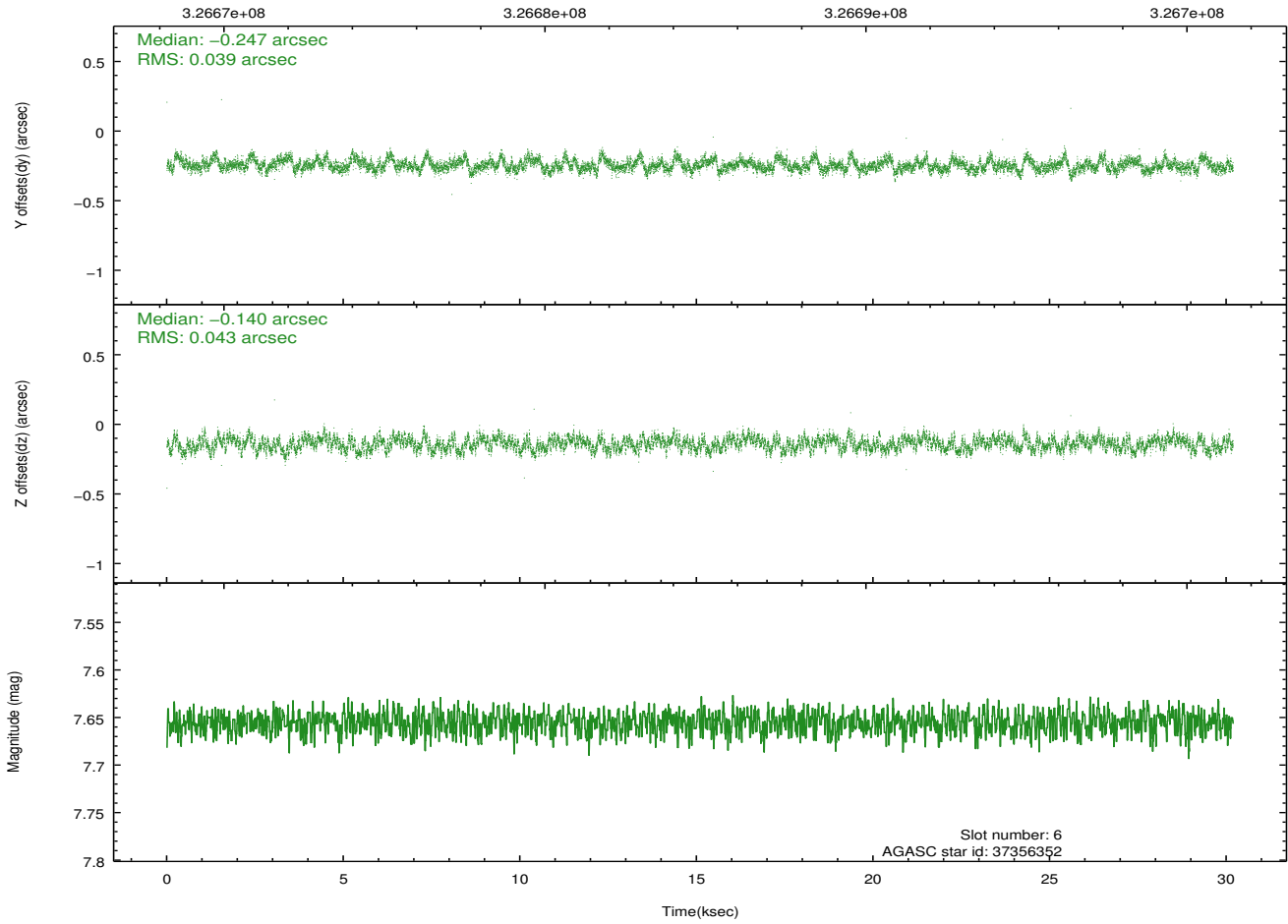
Time (s)



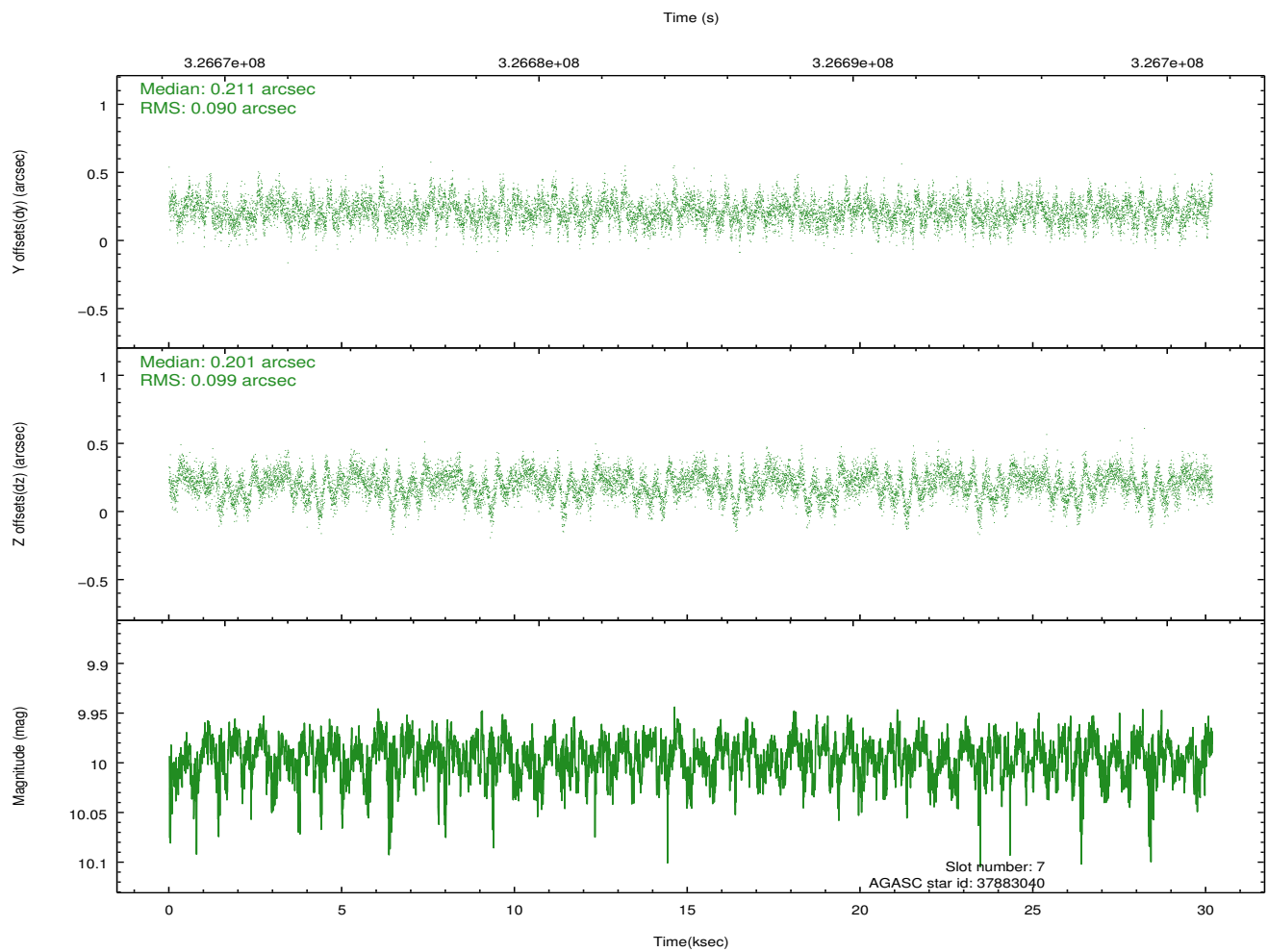
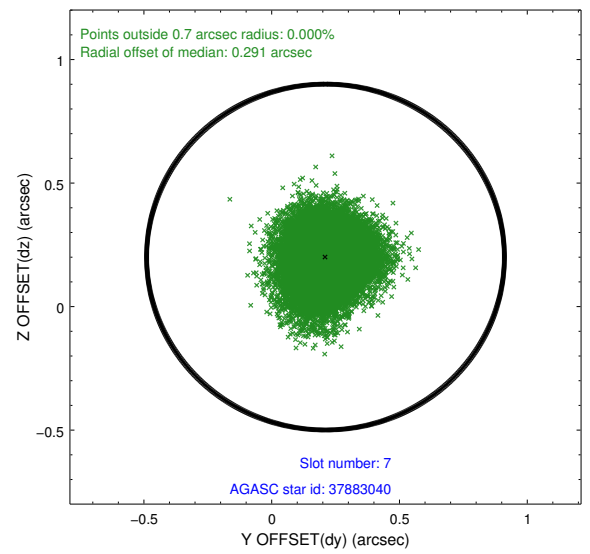
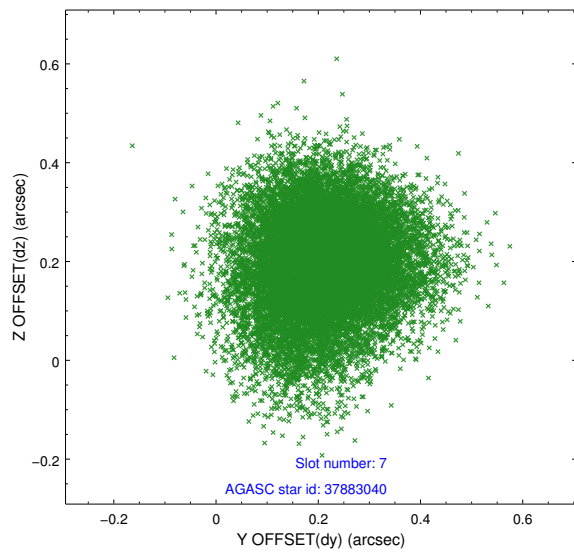
### 2.4.4 Slot 6



Time (s)

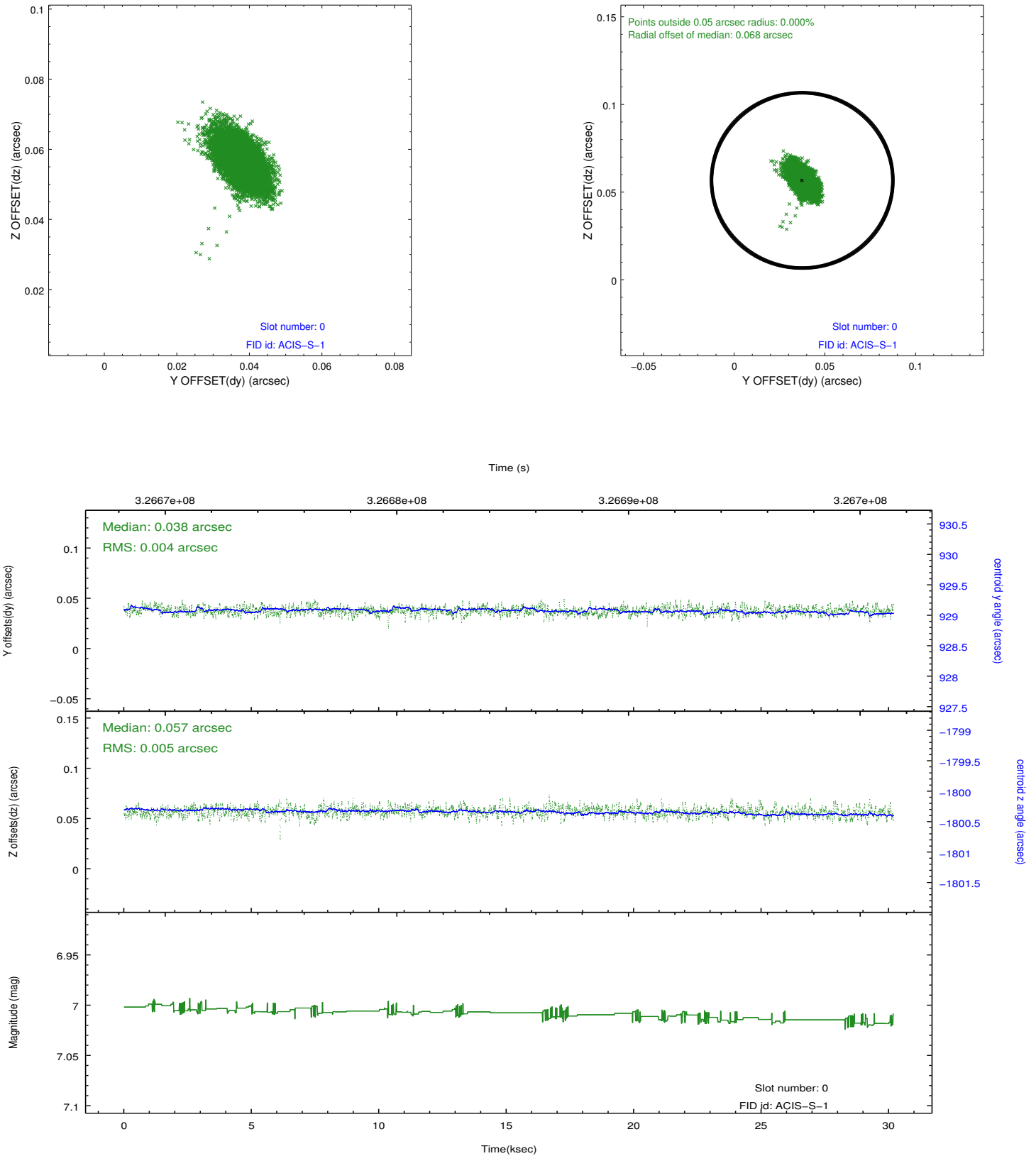


## 2.4.5 Slot 7

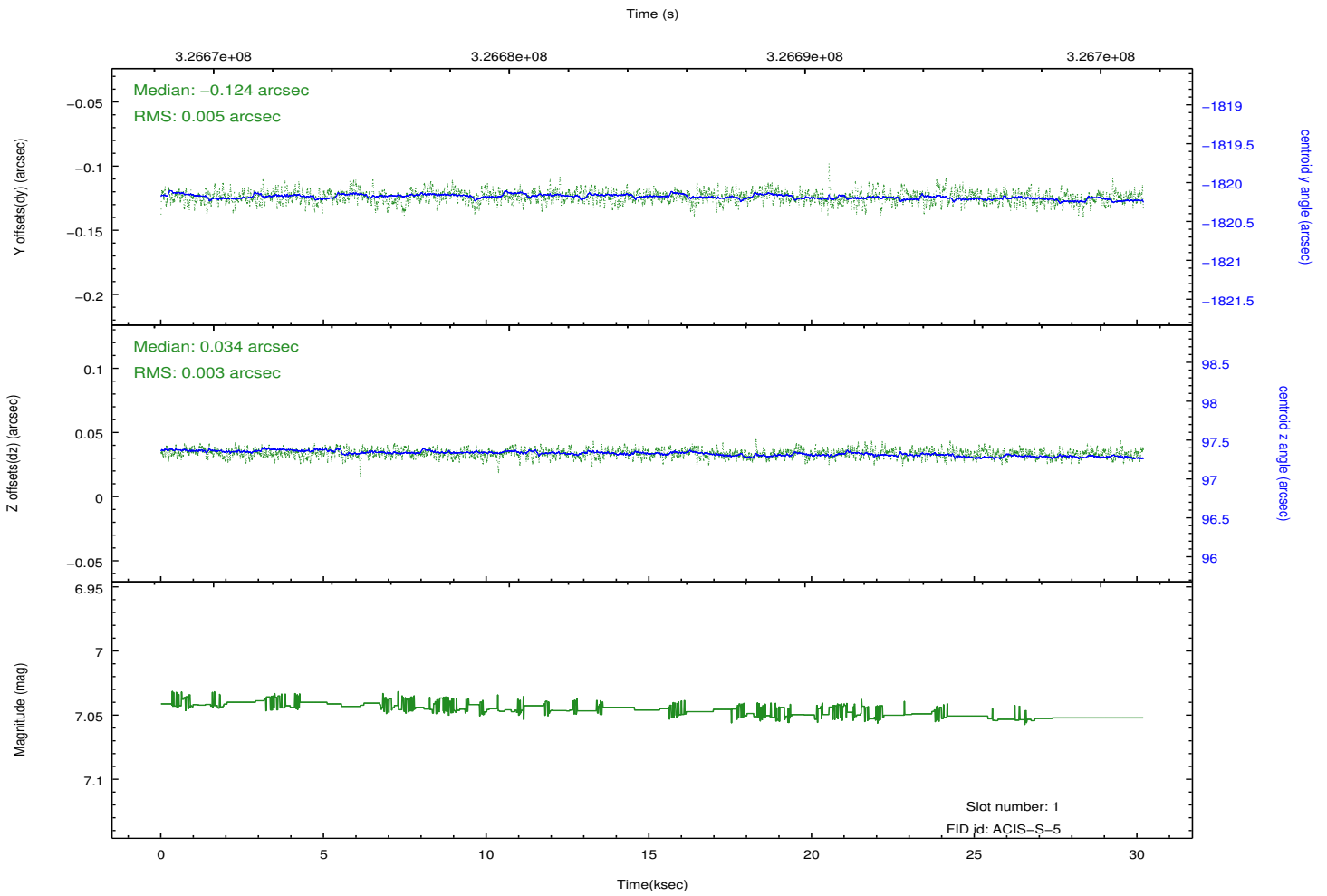
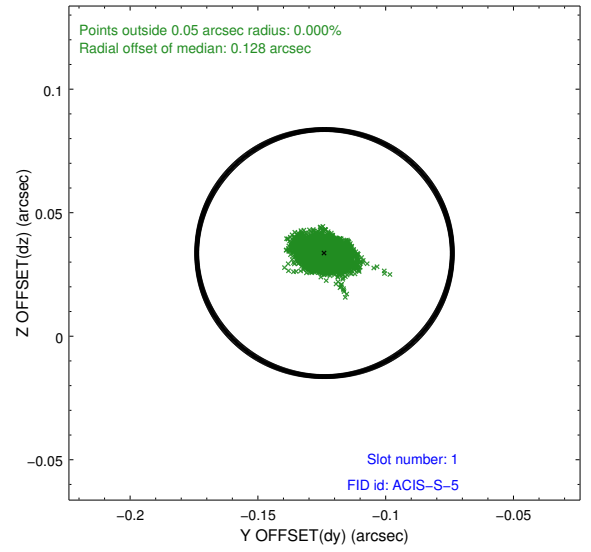
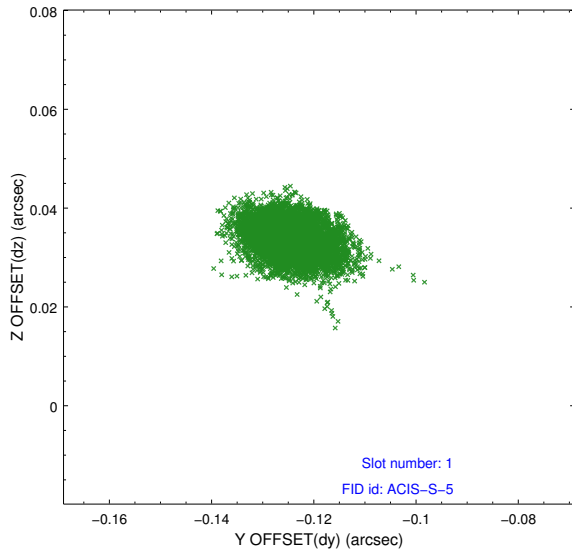


## 2.5 FID Slots

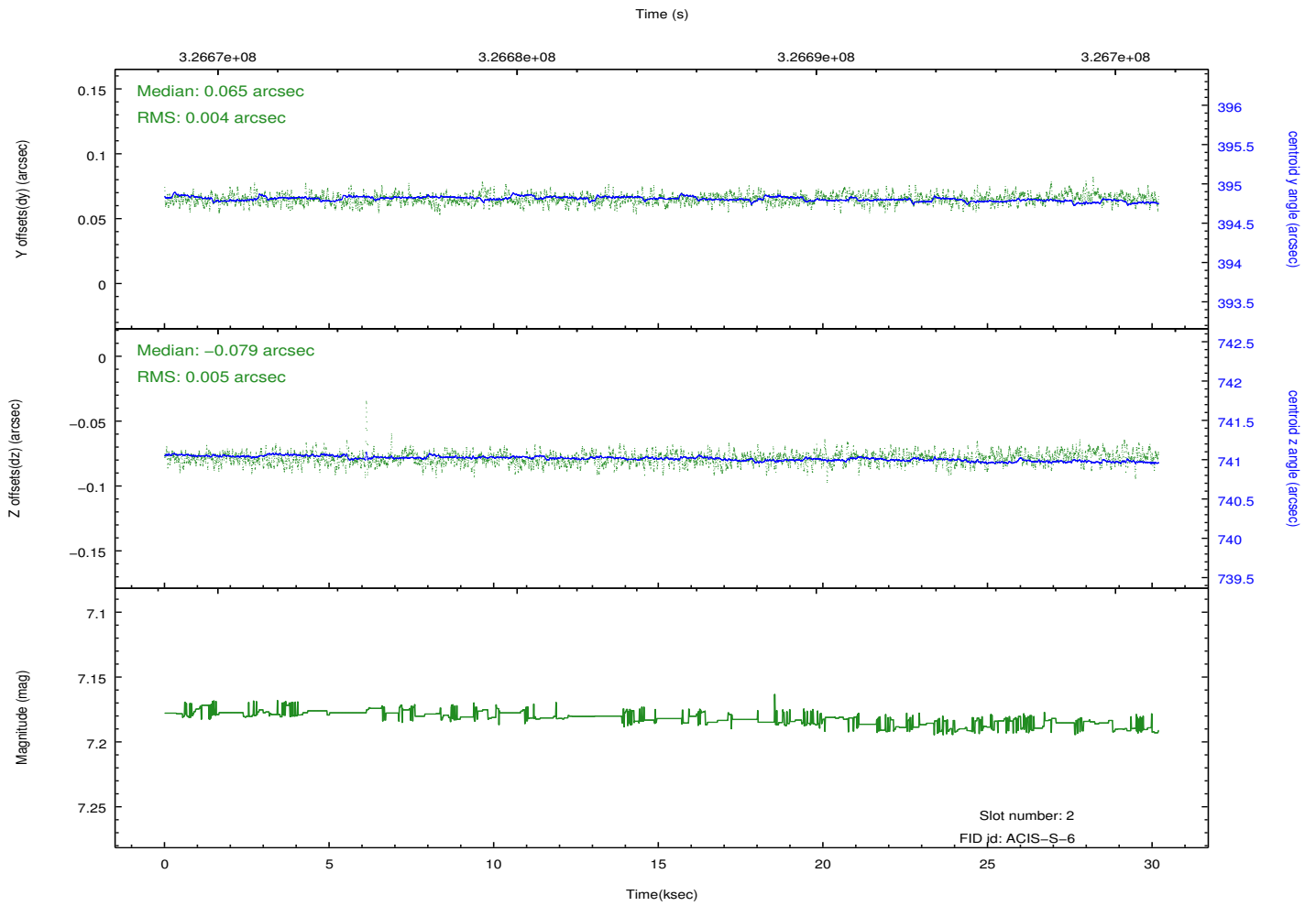
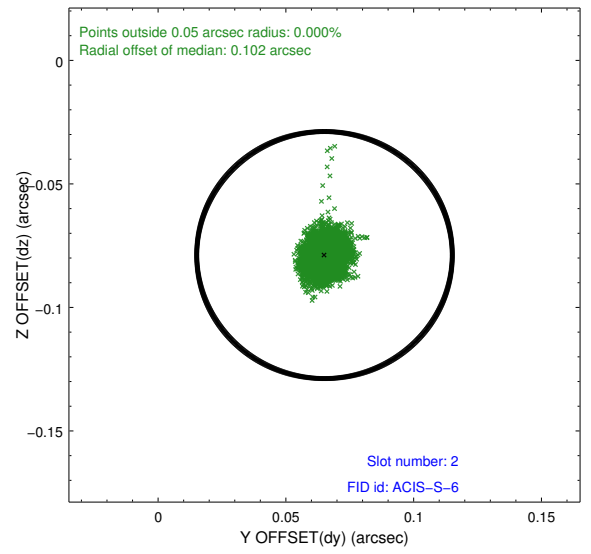
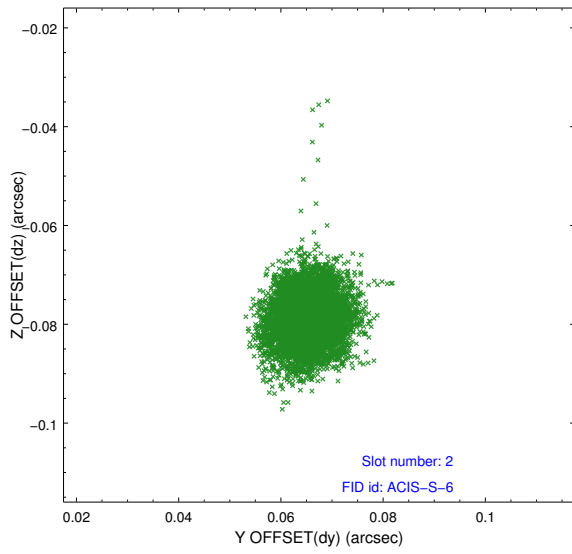
### 2.5.1 Slot 0



## 2.5.2 Slot 1

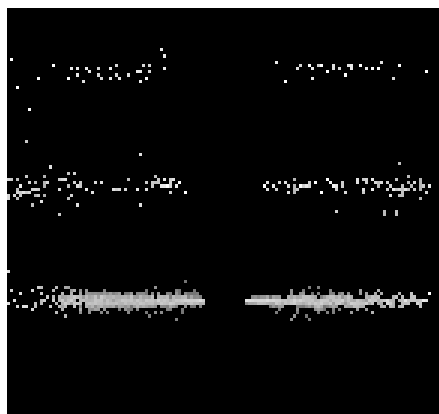


### 2.5.3 Slot 2

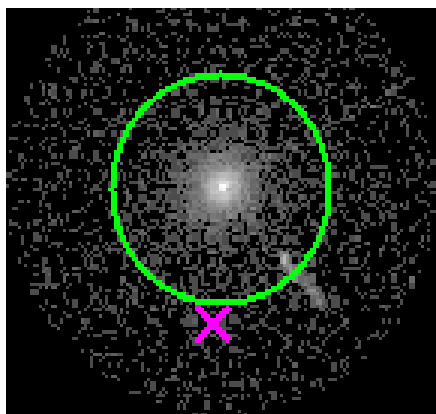


# 3 Gratings

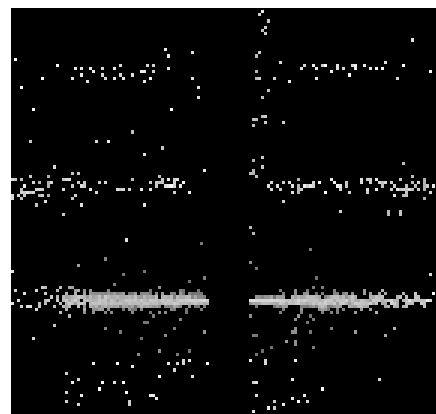
## 3.1 HEG Arm



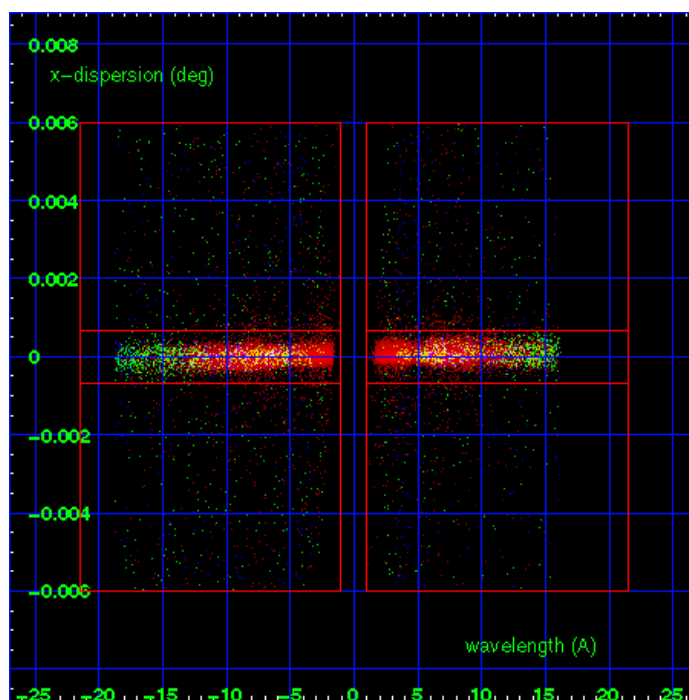
HEG Order Sort 123



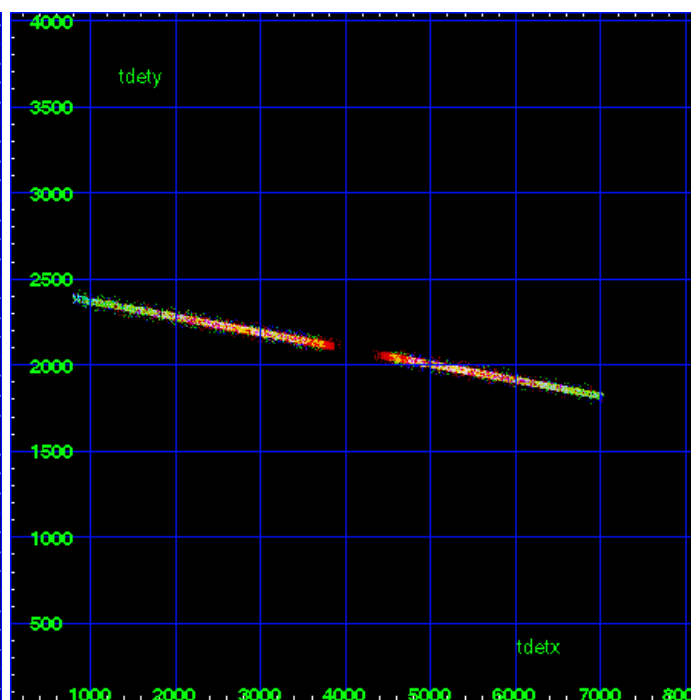
HEG Zero Order



HEG Order Sort ALL

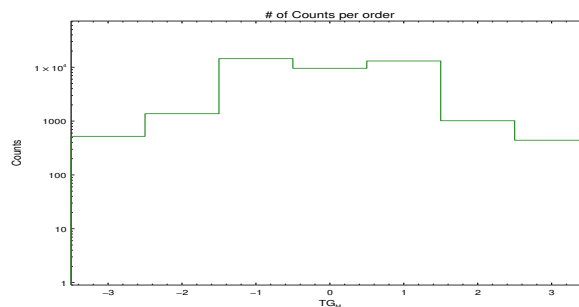


Spot Image HEG

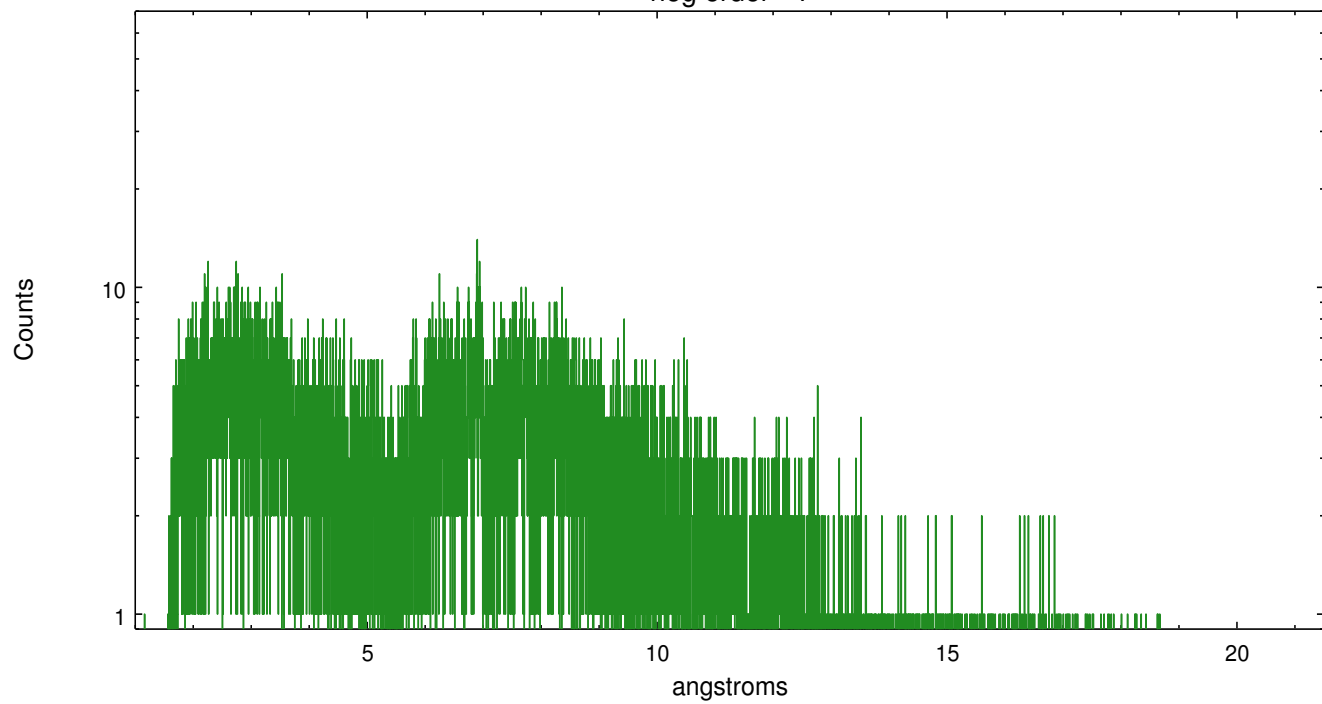


Full Detector HEG

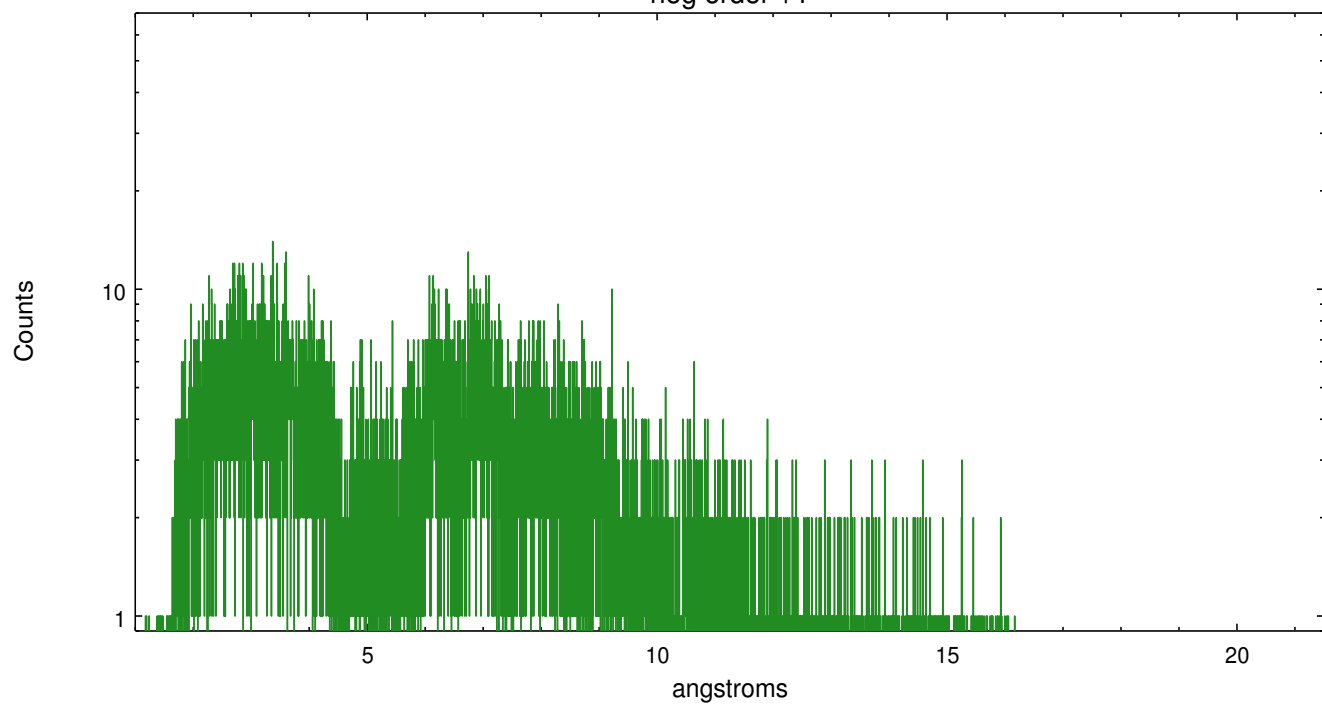
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	521	1371	14442	9573	13080	1015	441



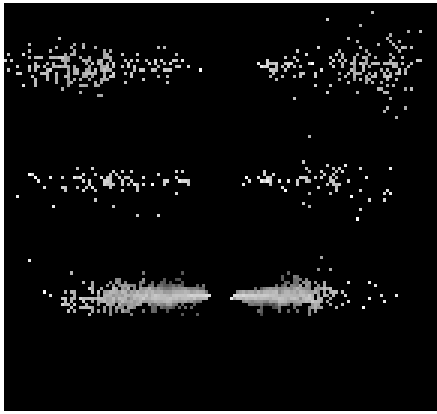
heg order -1



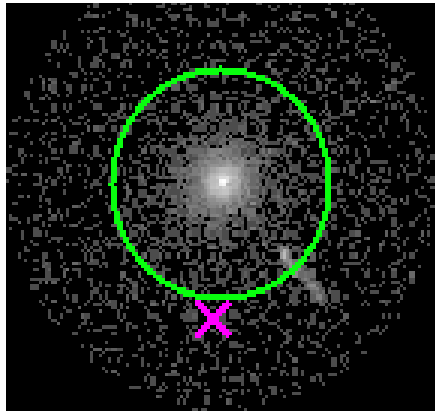
heg order +1



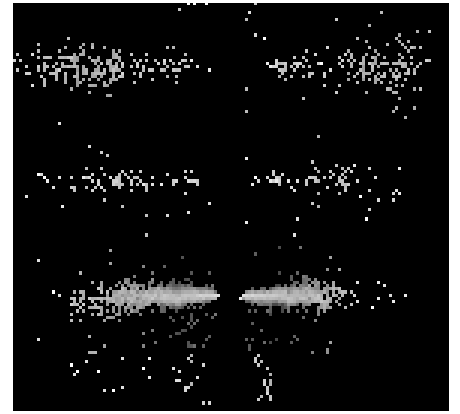
### 3.2 MEG Arm



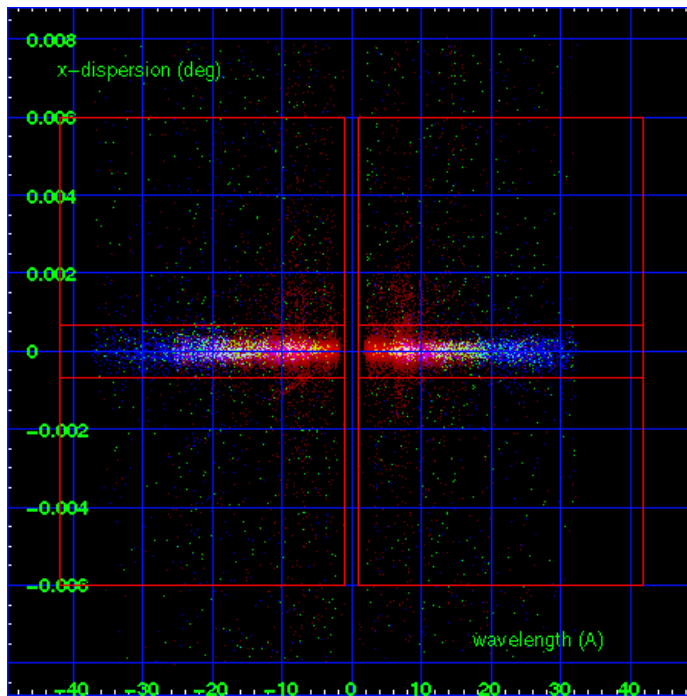
MEG Order Sort 123



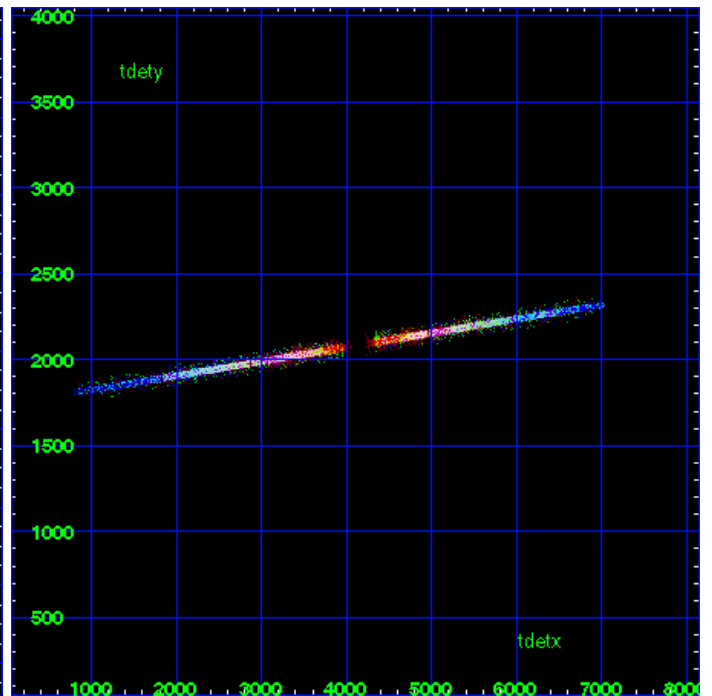
MEG Zero Order



MEG Order Sort ALL

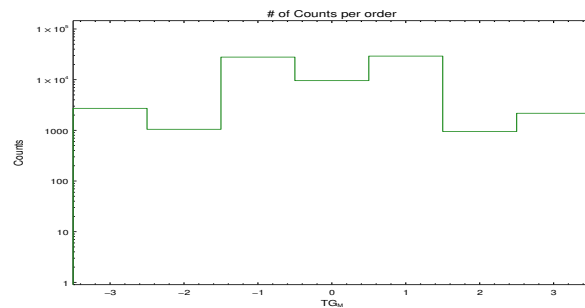


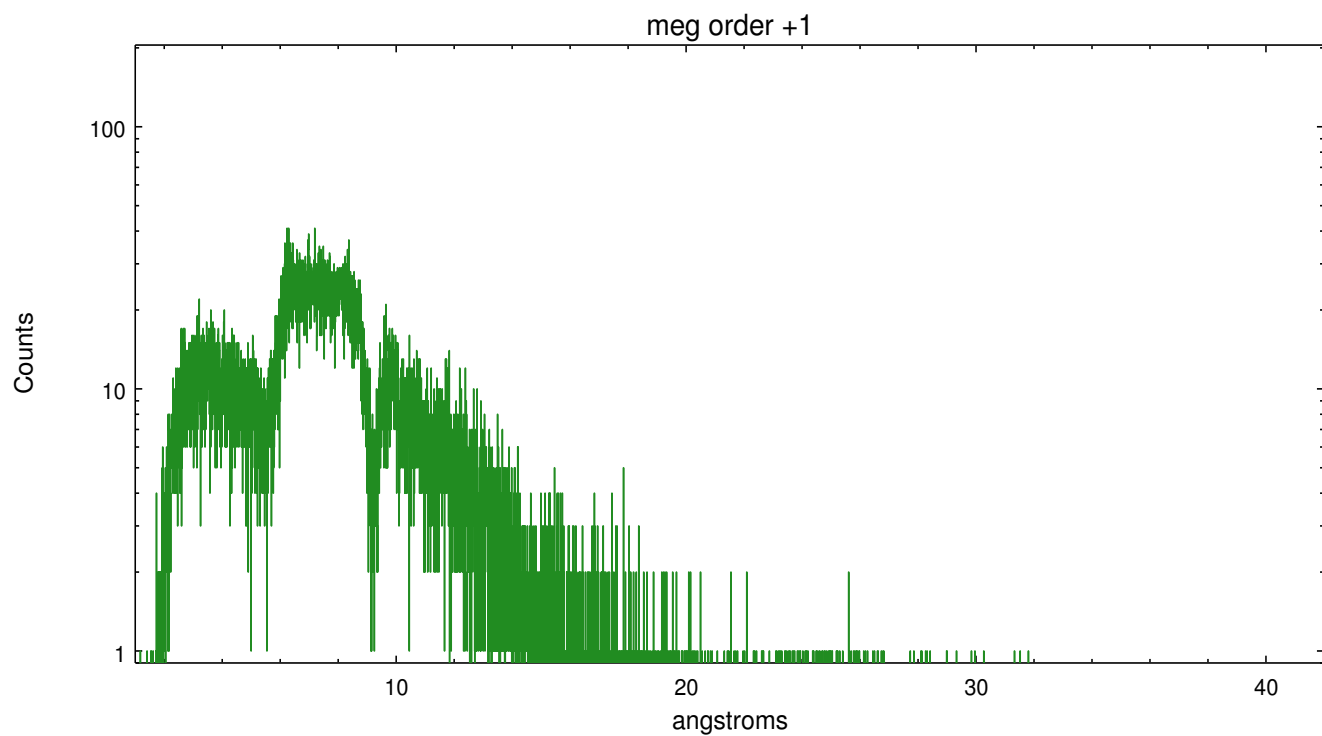
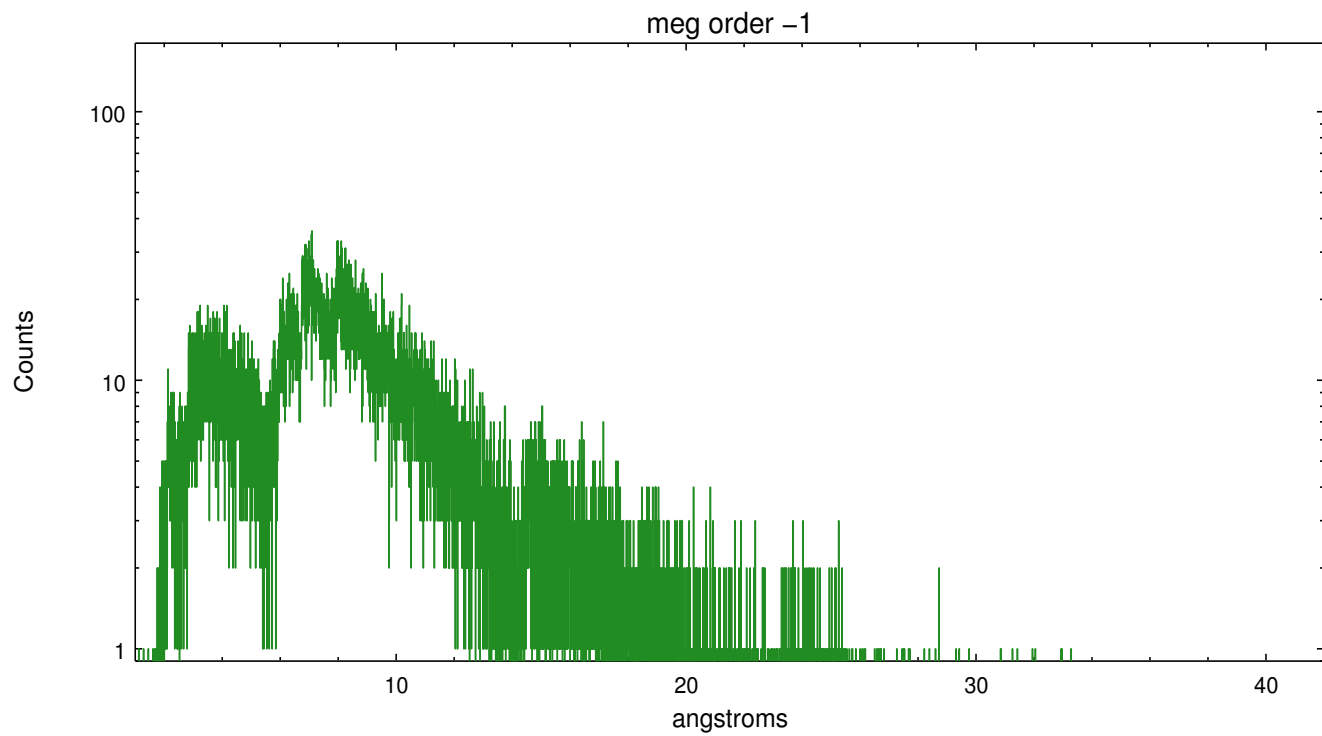
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2715	1048	27870	9573	29161	949	2171





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.05.17
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.185

## A.2 Comments

Narrow collimated jet structure separated from source by about 8 arcsec toward

the southwest. The jet is about 8 arcsec in length. This jet structure lies approximately along the spectral dispersion direction and could cause contamination in the dispersed spectrum.

===

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=4098.5, y=4132.24) 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 (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 \*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.