

# V&V Reference Report

## L2 ASCDS Version : 10.4.3

Observation 18735 - L2 Version 1  
Chandra X-Ray Center

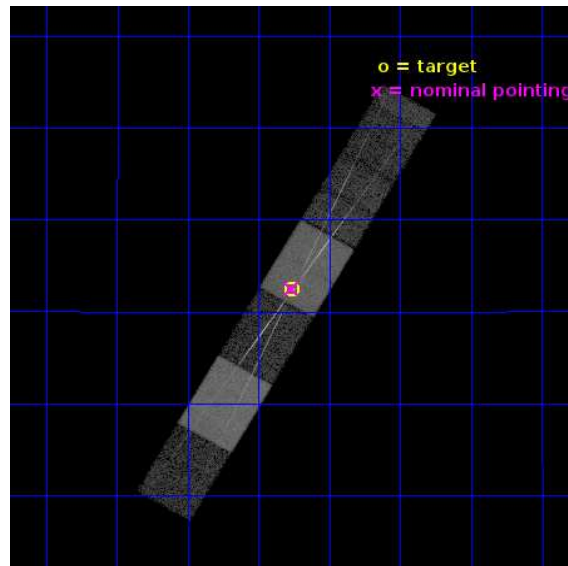
L2 Processing Date : Jan 1 2016

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# 1 Front

seq_num	703293	Sequence number
obs_id	18735	Observation id
title	Deciphering the ionised outflows in NGC 7469	Proposal title
observer	Prof Jelle Kaastra	Principal investigator
object	NGC 7469	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	345.815	Observer's specified target RA [deg]
dec_targ	8.873917	Observer's specified target Dec [deg]
ra_nom	345.817160329	Nominal RA [deg]
dec_nom	8.8750270791806	Nominal Dec [deg]
roll_nom	300.15628273067	Nominal Roll [deg]
revision	1	Processing version of data
ontime	21497.5	Sum of GTIs [s]
livetime	21150.296728898	Livetime [s]
ontime4	21497.5	Sum of GTIs [s]
ontime5	21497.5	Sum of GTIs [s]
ontime6	21497.5	Sum of GTIs [s]
ontime7	21497.5	Sum of GTIs [s]
ontime8	21497.5	Sum of GTIs [s]
ontime9	21497.5	Sum of GTIs [s]
l2events	184391	Number of level 2 events

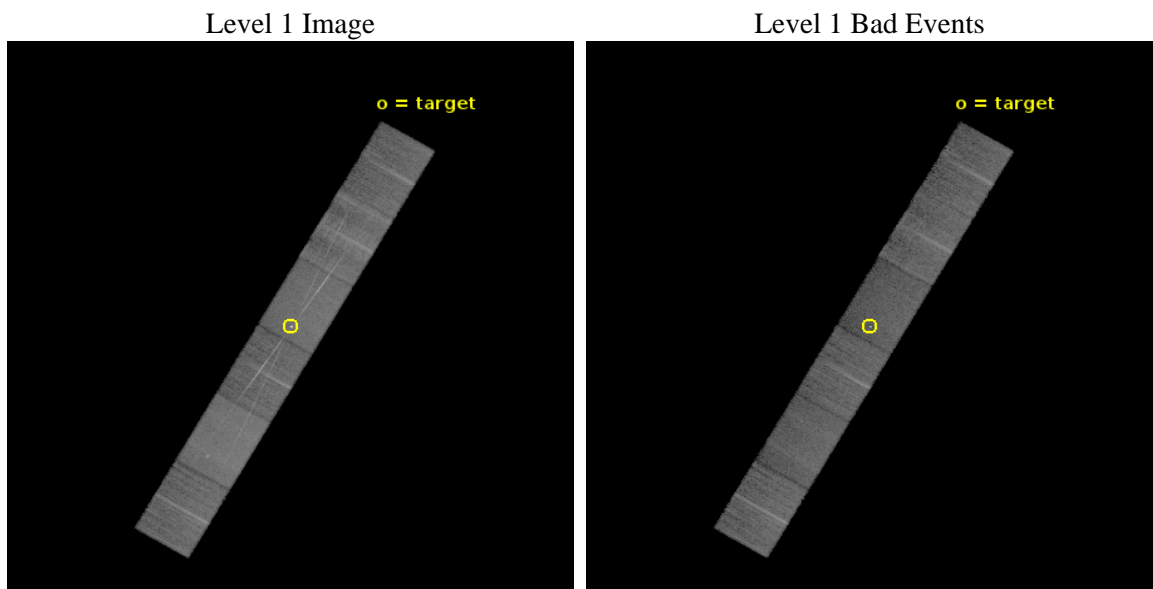




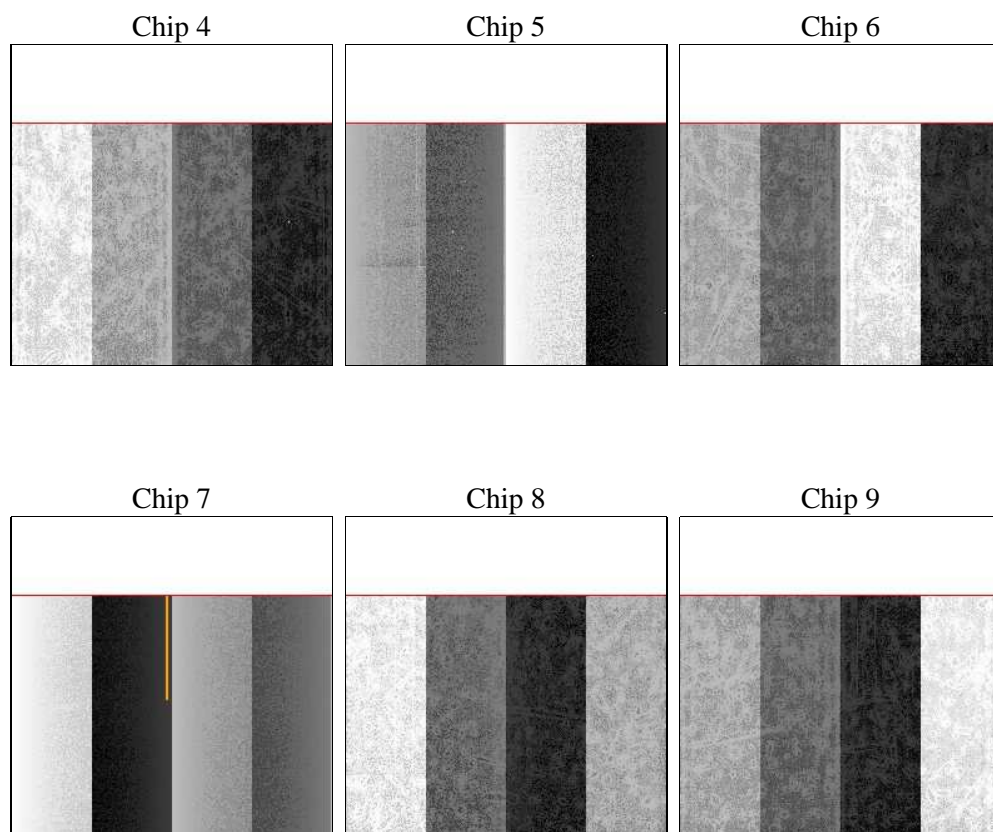
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	21471.288000	[s] Scheduled observation exposure time
ascdsver	10.4.3	Processing system revision	ontime	21497.5	Sum of GTIs [s]
caldsver	4.7.0	&#160	ontime4	21497.5	Sum of GTIs [s]
date	2016-01-01T16:15:27	Date and time of file creation	ontime5	21497.5	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	21497.5	Sum of GTIs [s]
			ontime7	21497.5	Sum of GTIs [s]
			ontime8	21497.5	Sum of GTIs [s]
			ontime9	21497.5	Sum of GTIs [s]
			l1events	706279	Number of level 1 events
			tgmetho	FINDZO	Method used to create src1a file
				411184	

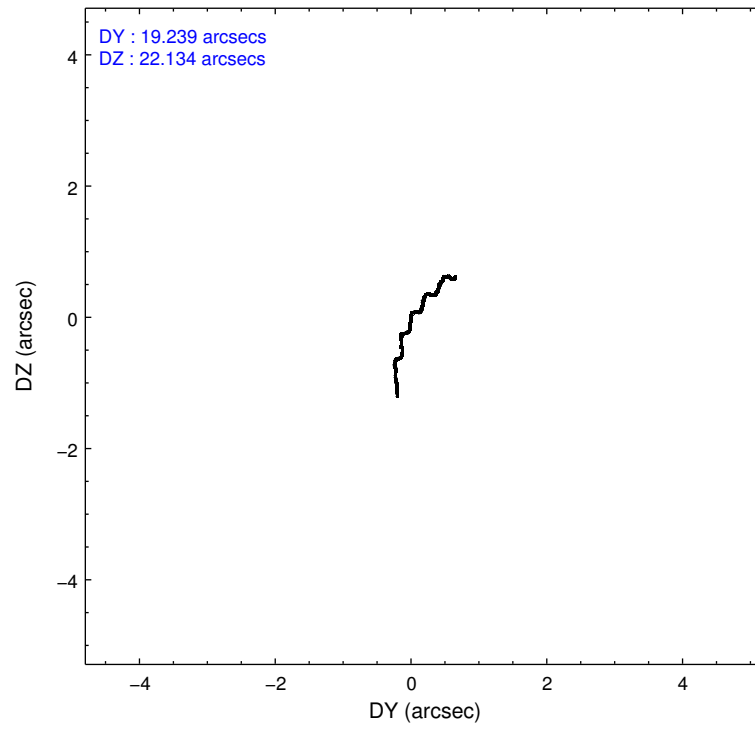
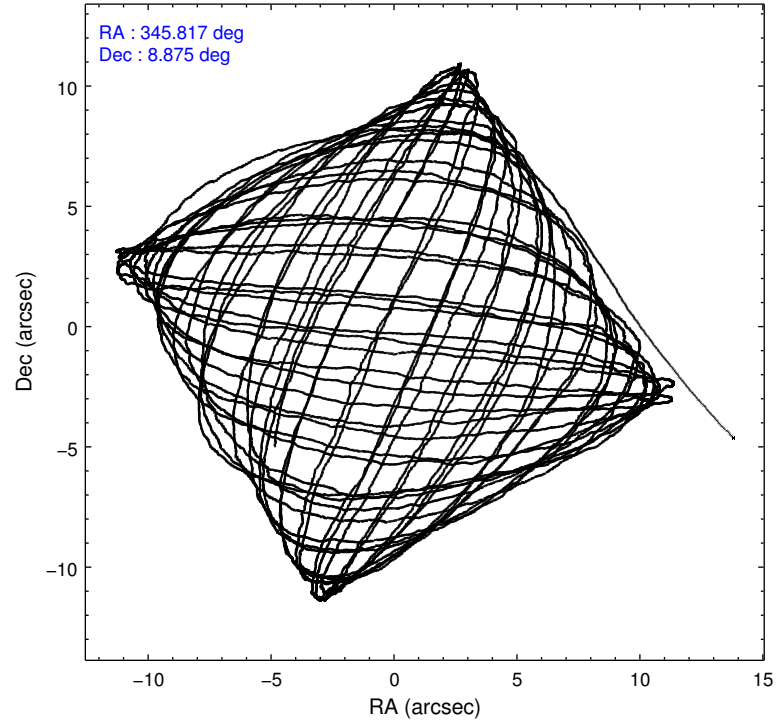
### 2.1.4 Events

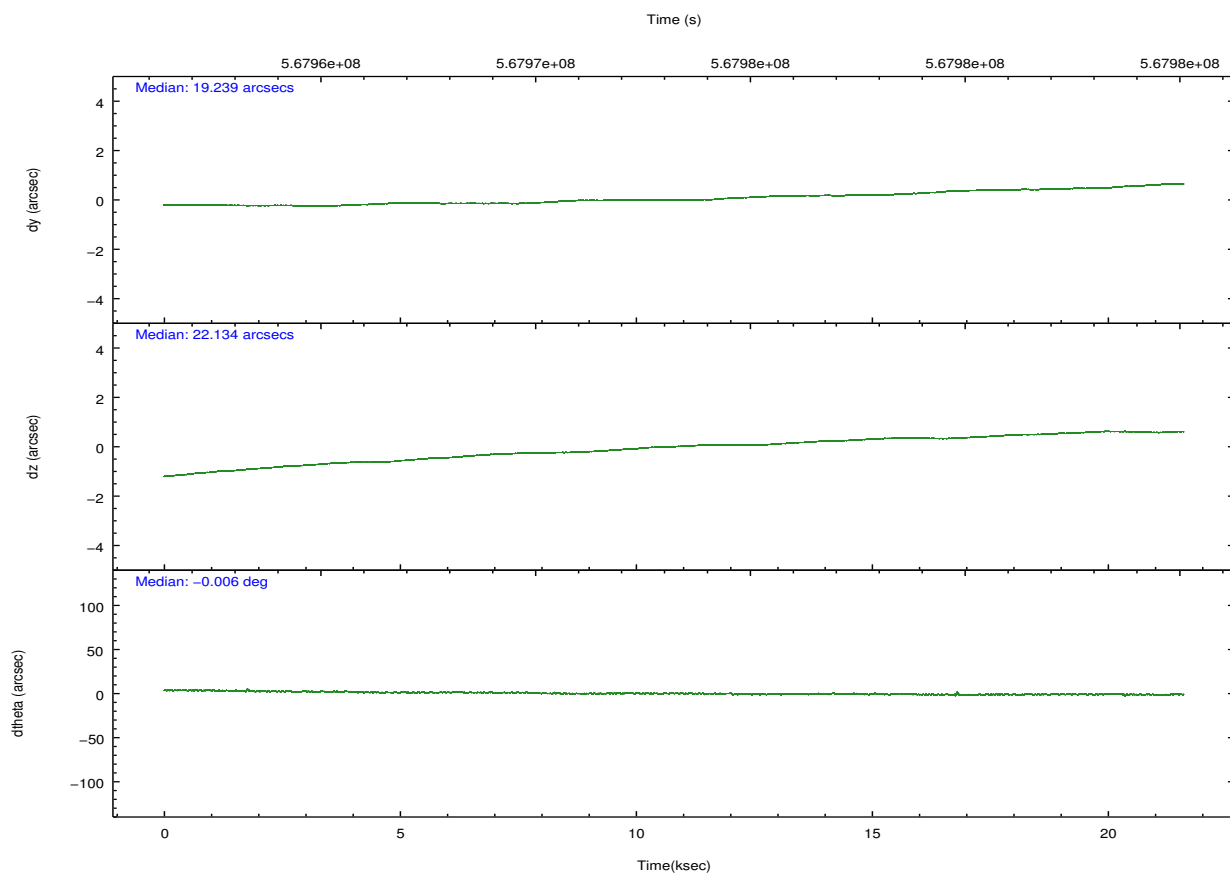
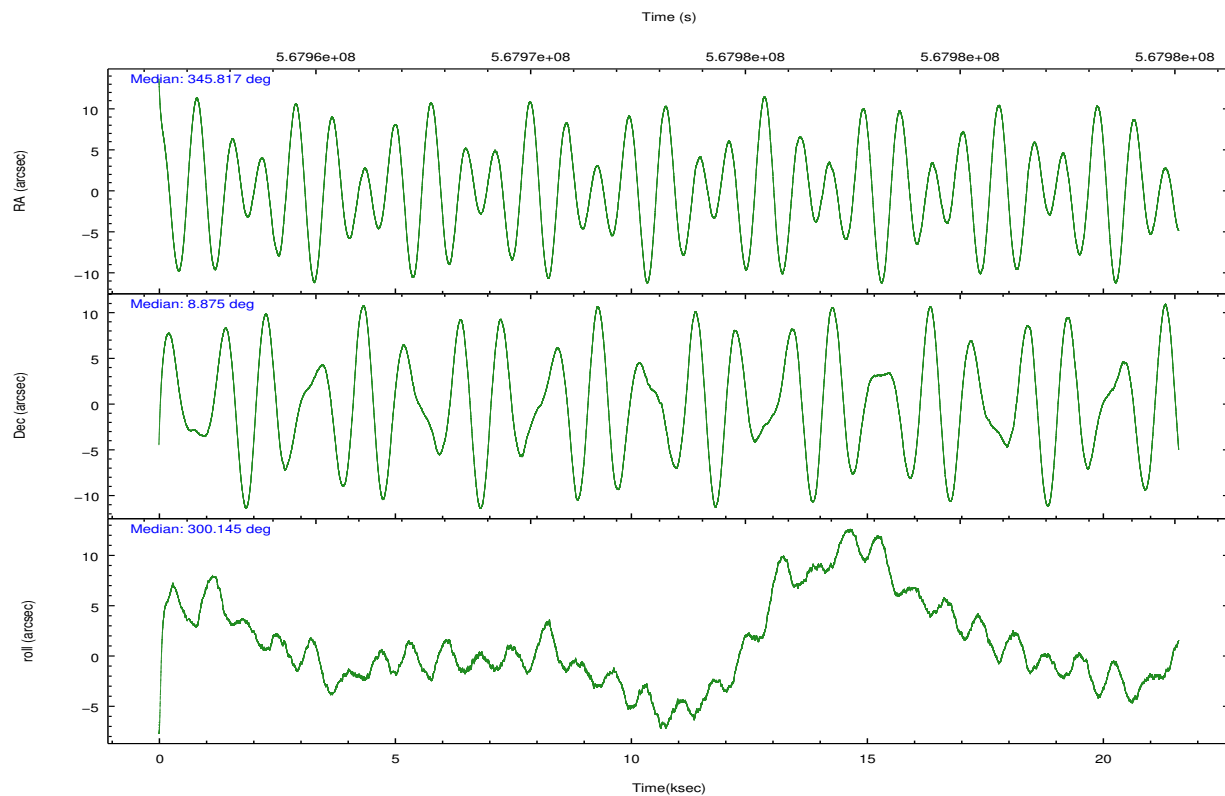
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	103580	146567	103449	134277	126722	91684	grade 0 events	4815	5307	9334	7195	12691	4486
rejected events	91419	75589	85087	68251	89953	79656		4%	3%	9%	5%	10%	4%
rejected %	88%	51%	82%	50%	70%	86%	grade 1 events	72	263	51	284	84	53
								0%	0%	0%	0%	0%	0%
							grade 2 events	2871	21609	3396	14146	7960	2617
								2%	14%	3%	10%	6%	2%
							grade 3 events	1235	2756	1466	5983	3750	1221
								1%	1%	1%	4%	2%	1%
							grade 4 events	1198	2655	1448	5857	3541	1237
								1%	1%	1%	4%	2%	1%
							grade 5 events	4386	10650	4429	12602	6560	4967
								4%	7%	4%	9%	5%	5%
							grade 6 events	2045	38667	2719	32868	8831	2468
								1%	26%	2%	24%	6%	2%
							grade 7 events	86958	64660	80606	55342	83305	74635
								83%	44%	77%	41%	65%	81%

## 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	345.792893	345.8171603290014	CCD I2 on	N	N
[deg] Pointing Dec	8.888339	8.875027079180638	CCD I3 on	N	N
[deg] Pointing Roll	300.003412	300.156282730674	CCD S0 on	O1	Y
[s] Window start time (MET)	567075668.184000	567075668.184000	CCD S1 on	Y	Y
[s] Window stop time (MET)	568000868.184000	568000868.184000	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	-187.132523	-187.1254020033014	CCD S5 on	Y	Y
[mm] SIM translation stage offset	-3	-3.007120579706367	Number of optional ACIS chips dropped	0	0
[s] Observation start time (MET)	567962556.184000	567961102.93803	On-chip summing requested	N	N
Observation start date	2015-12-31T15:21:28	2015-12-31T14:58:22	Subarray requested	CUSTOM	CUSTOM
[s] Observation end time (MET)	567984028.184000	567984250.51434	Subarray start row	1	1
Observation end date	2015-12-31T21:19:20	2015-12-31T21:24:10	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



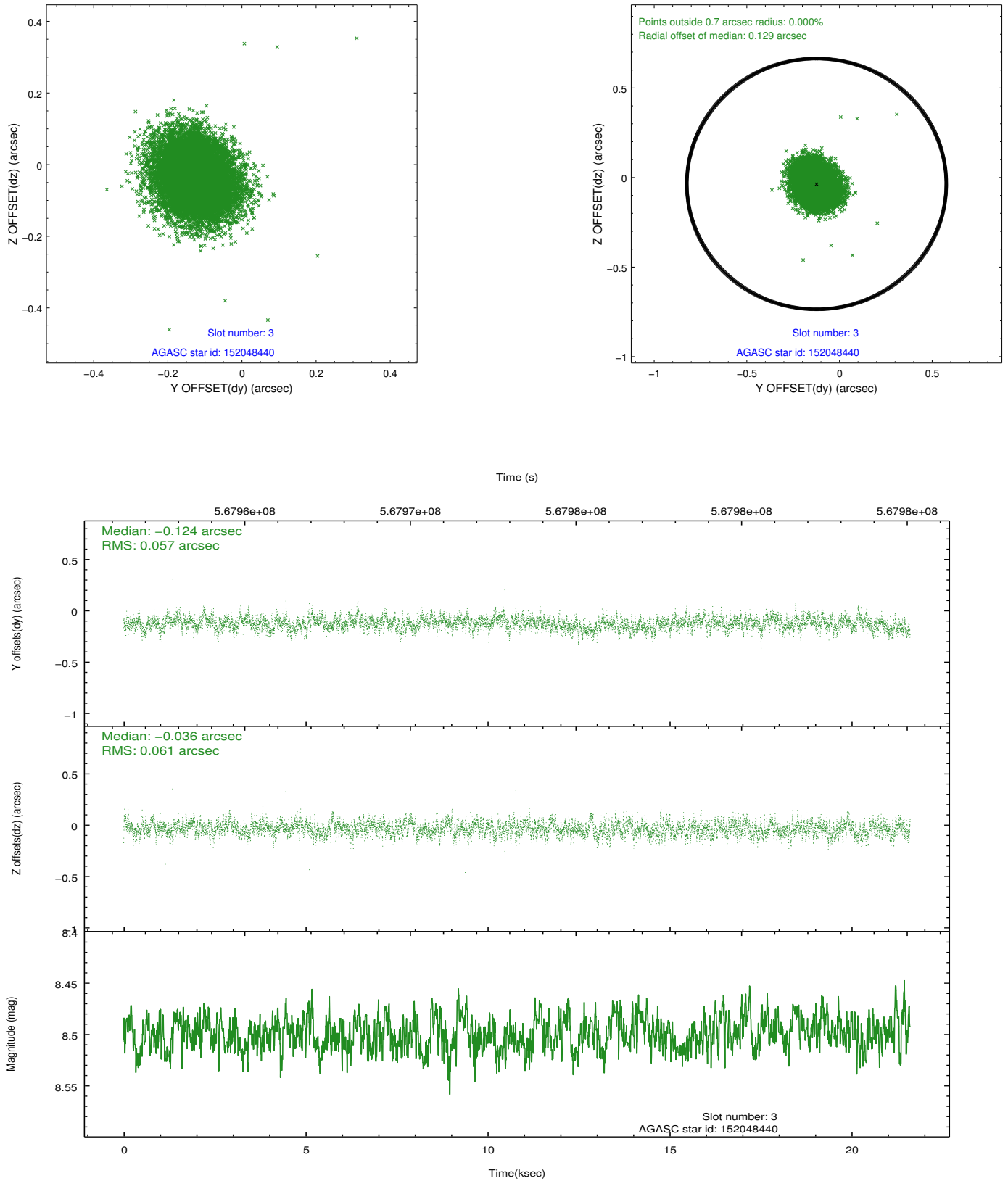


### Slot Statistics

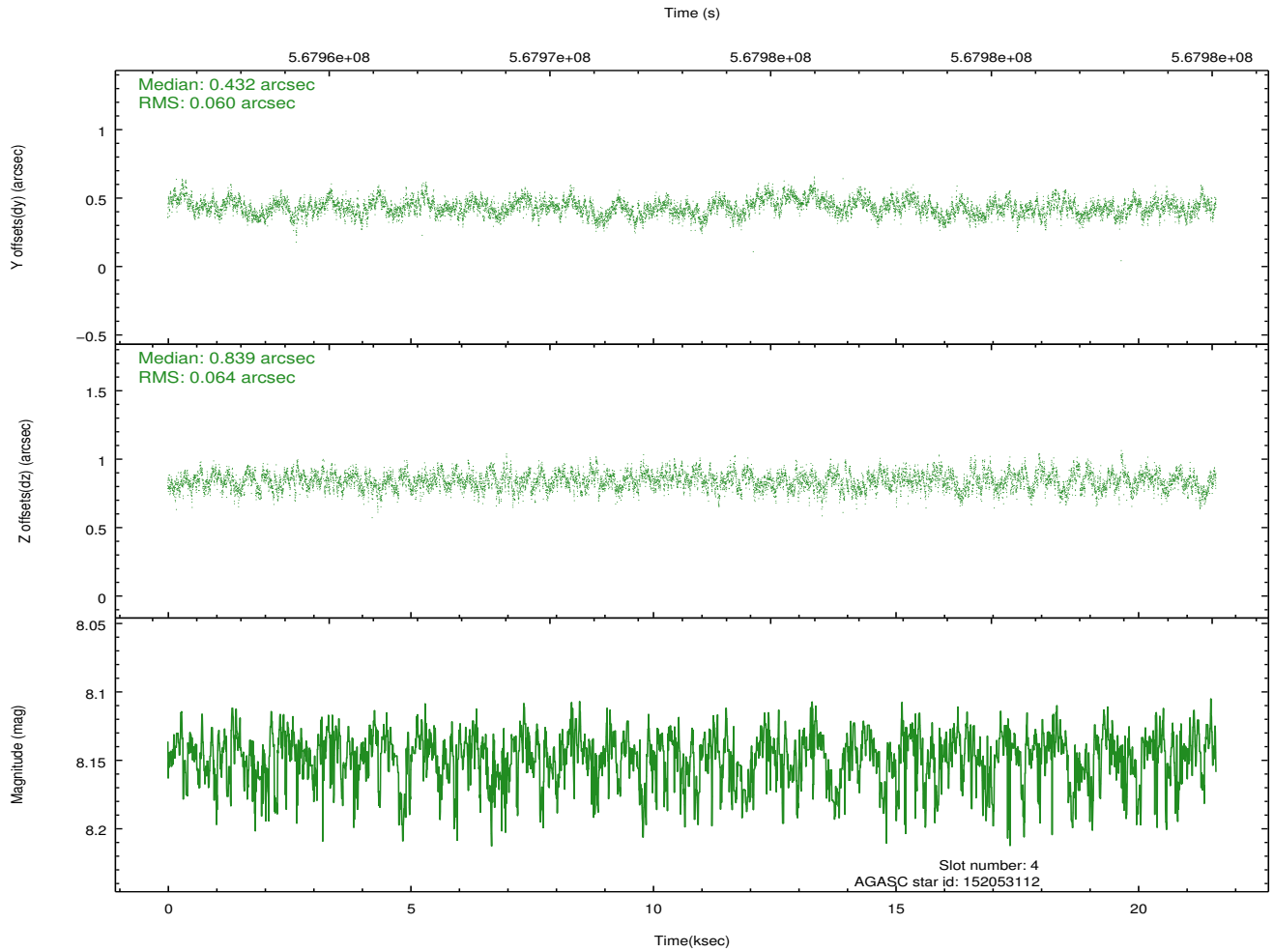
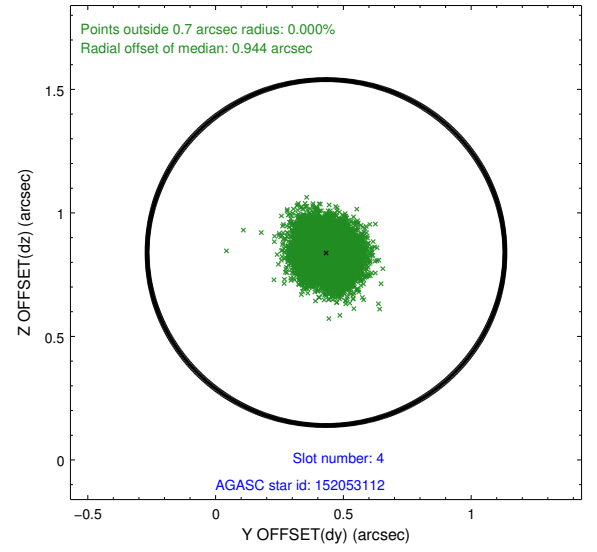
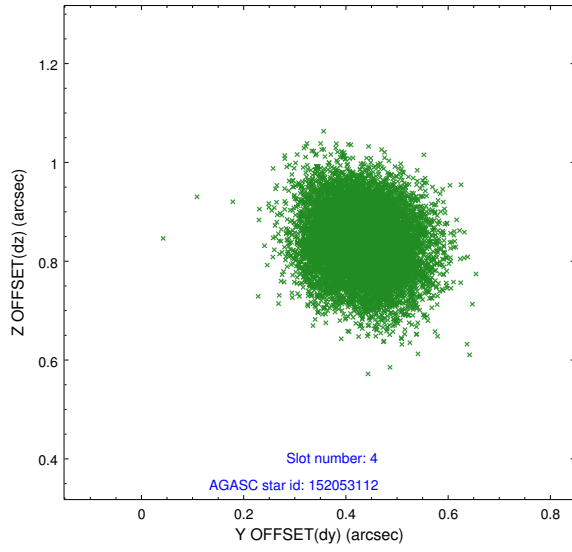
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.12	5271	-0.243	-0.068	0.024	0.055	0.000000	0.000000	-772.38	-1805.80
1	FID		ACIS-S-4	7.21	5269	0.511	0.136	0.010	0.017	0.000000	0.000000	2141.51	102.80
2	FID		ACIS-S-5	7.23	5271	-0.300	-0.060	0.022	0.051	0.000000	0.000000	-1825.14	96.34
3	GUIDE	used	152048440	8.50	10534	-0.124	-0.036	0.089	0.143	346.200519	9.070077	157.45	1582.78
4	GUIDE	used	152053112	8.15	10539	0.432	0.839	0.094	0.149	345.154715	8.750450	-705.93	-2212.52
5	GUIDE	used	152051576	8.85	10534	-0.064	-0.134	0.114	0.180	345.475827	8.657019	156.99	-1393.85
6	GUIDE	used	152052088	8.98	10523	-0.095	-0.151	0.112	0.182	345.509667	8.677615	153.25	-1251.98
7	GUIDE	used	152056136	6.64	10540	-0.146	-0.518	0.084	0.133	346.466795	8.896005	1172.72	2089.90

## 2.4 Star Slots

### 2.4.1 Slot 3

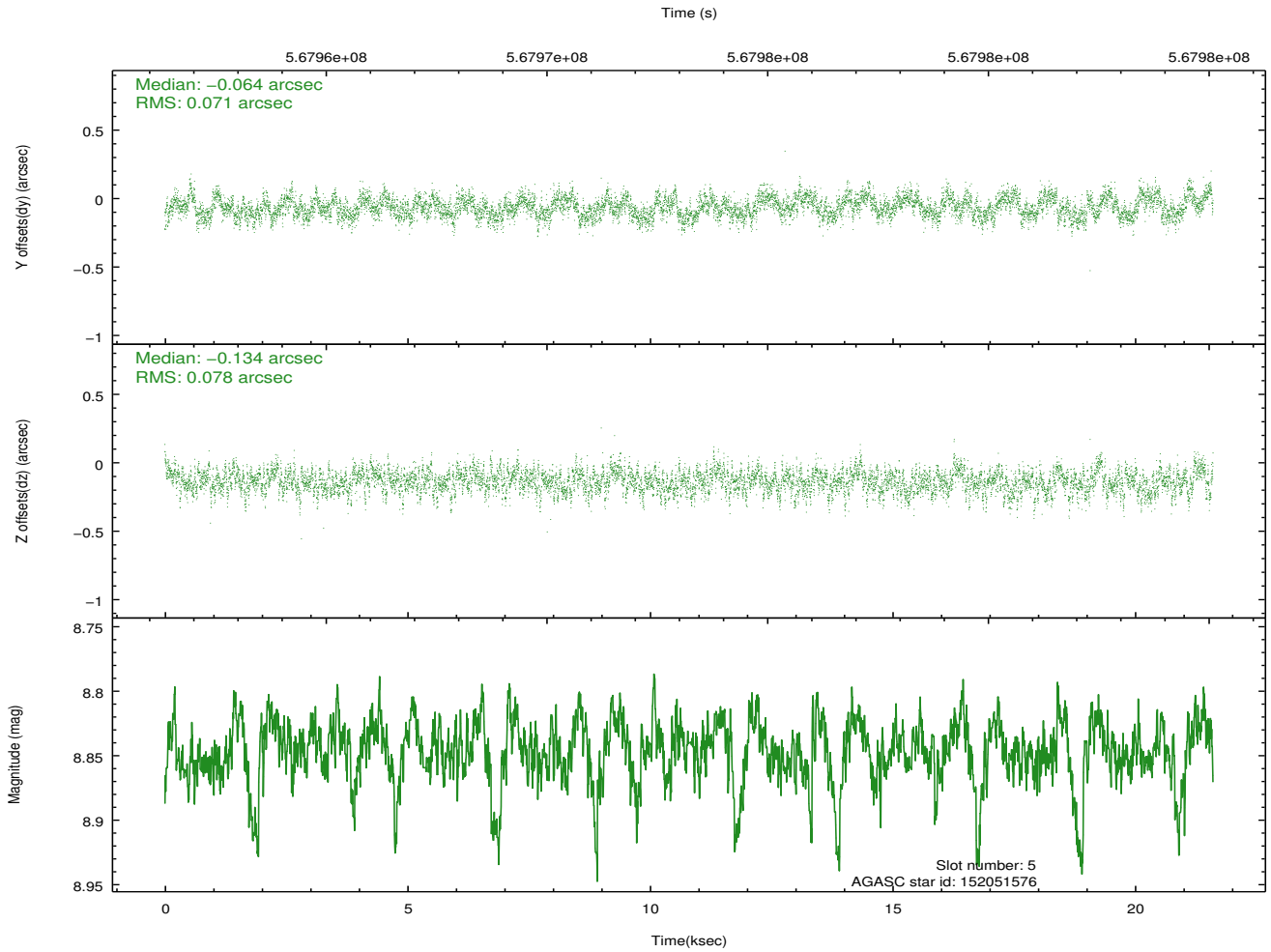
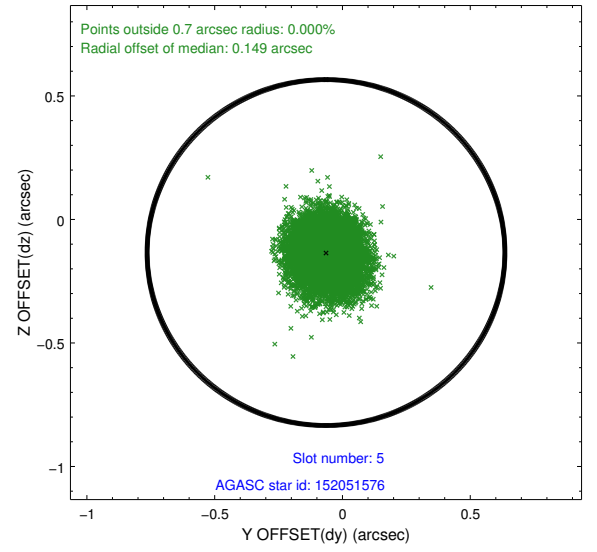
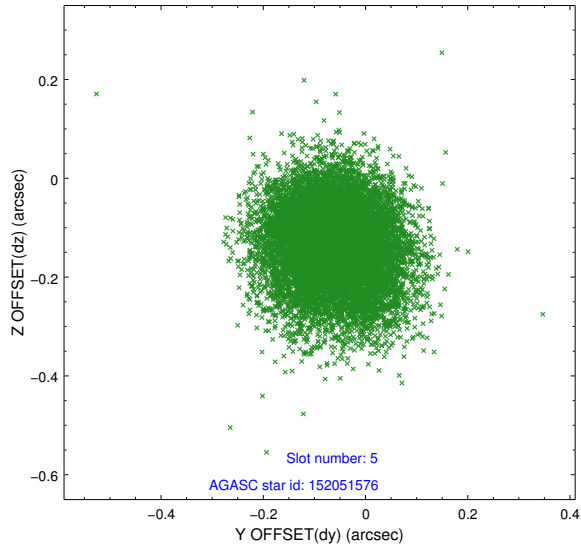


## 2.4.2 Slot 4

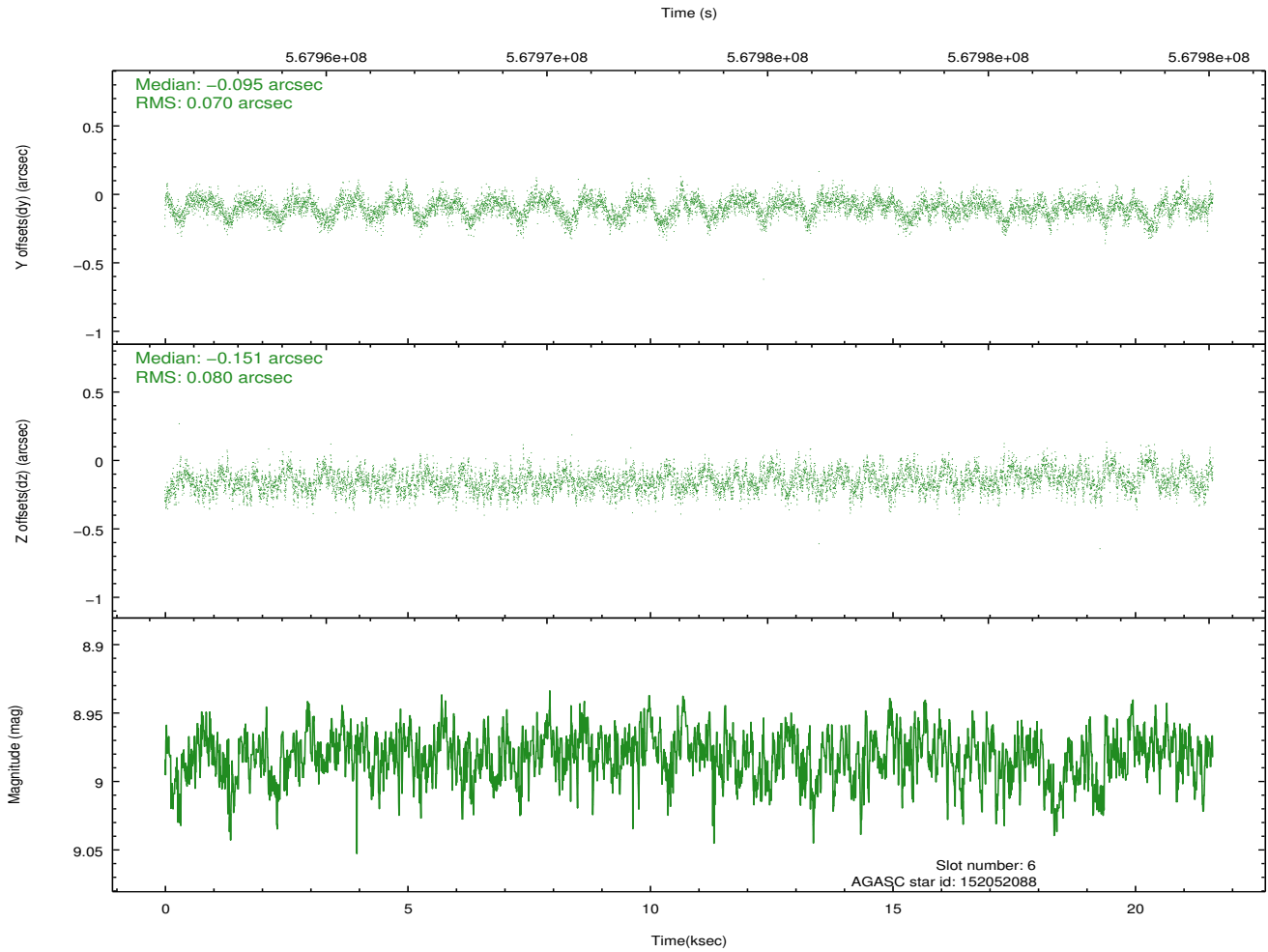
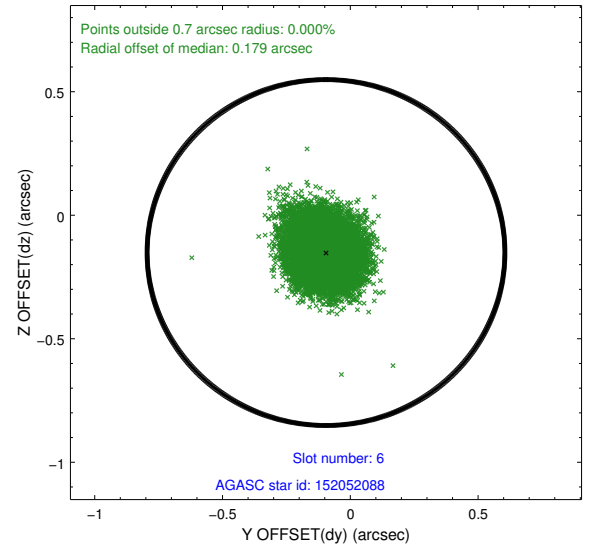
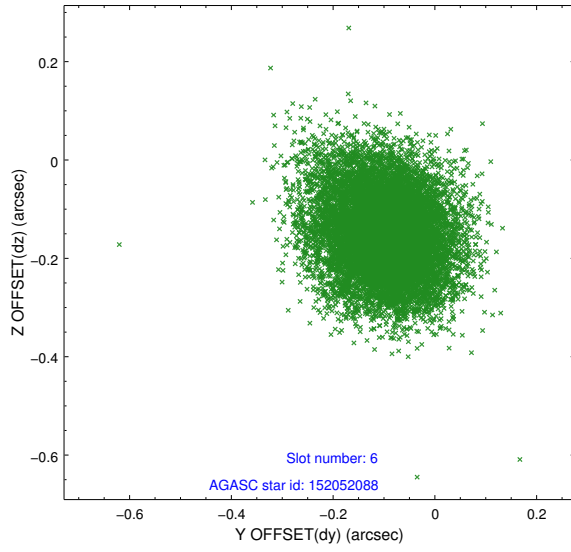




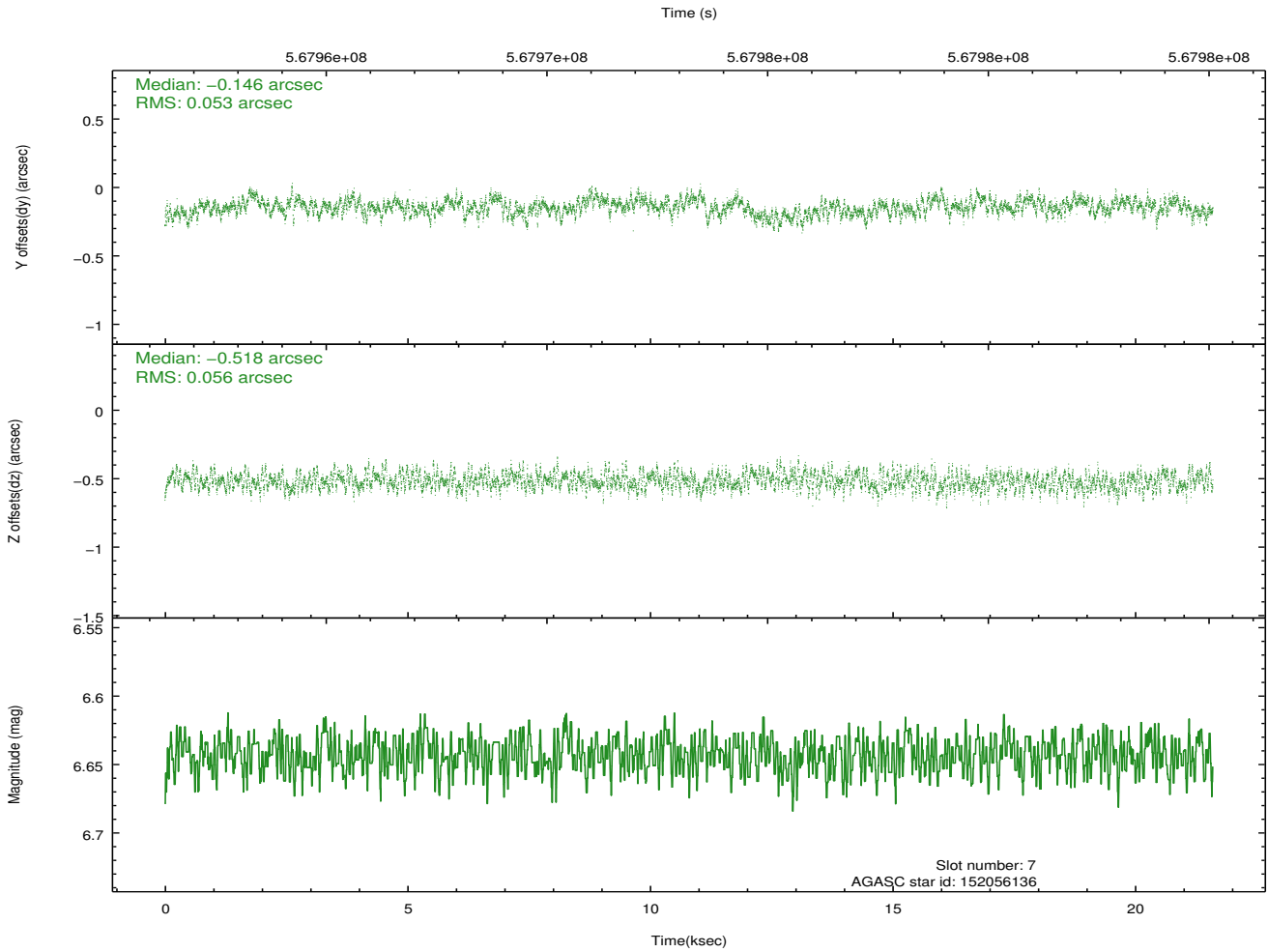
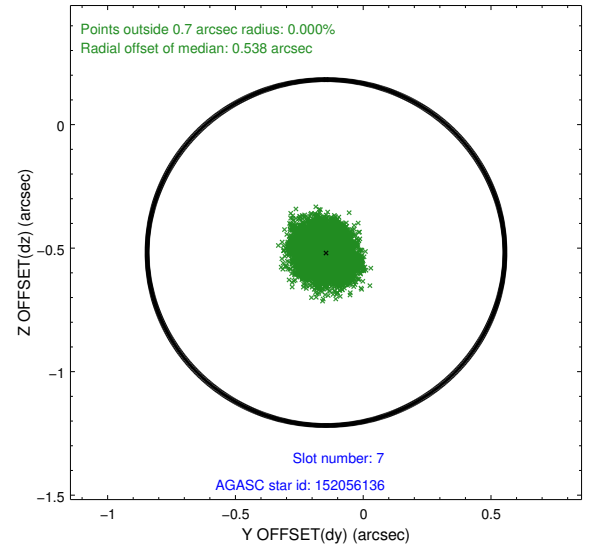
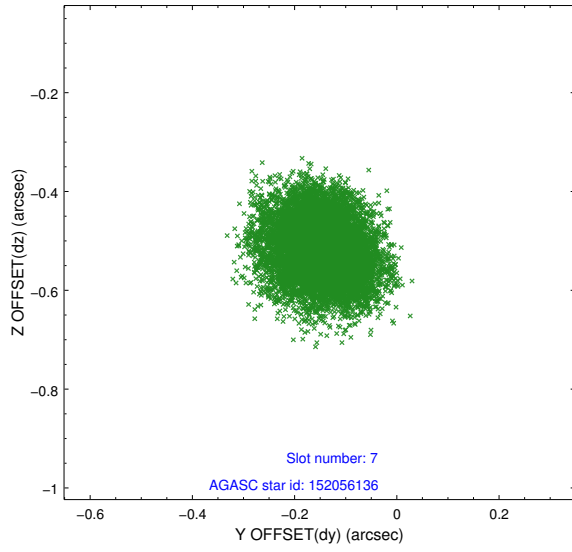
### 2.4.3 Slot 5



## 2.4.4 Slot 6

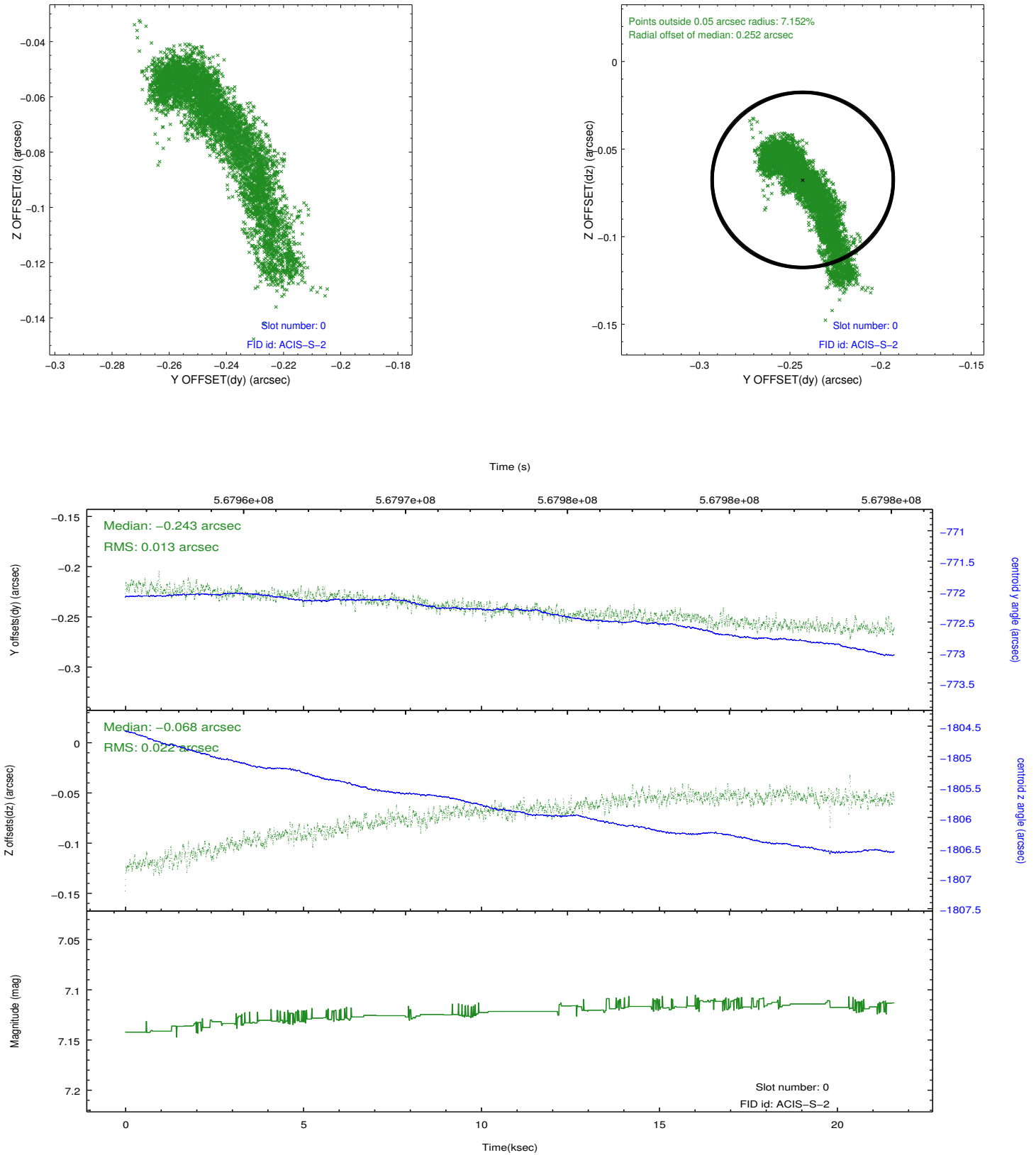


## 2.4.5 Slot 7

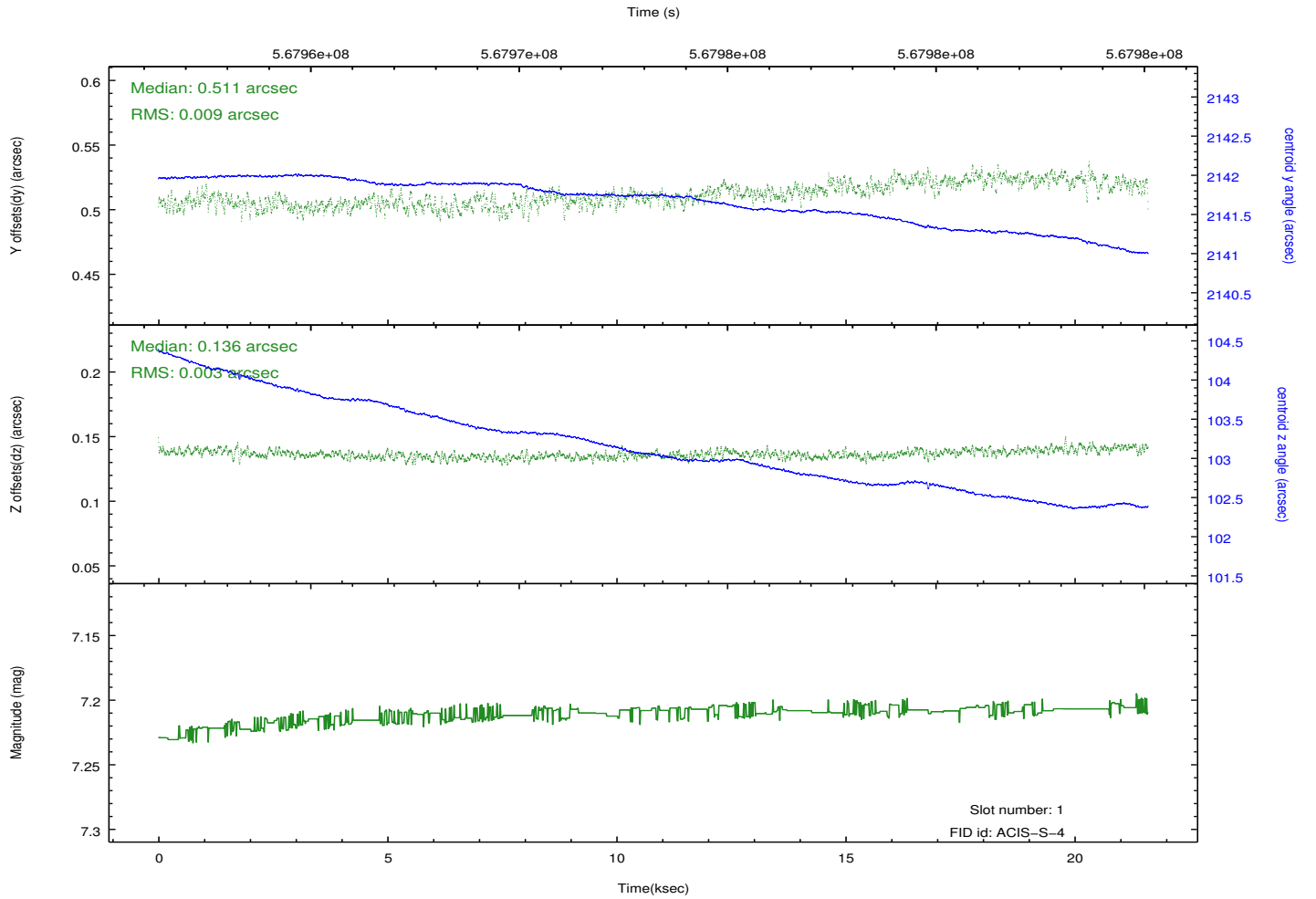
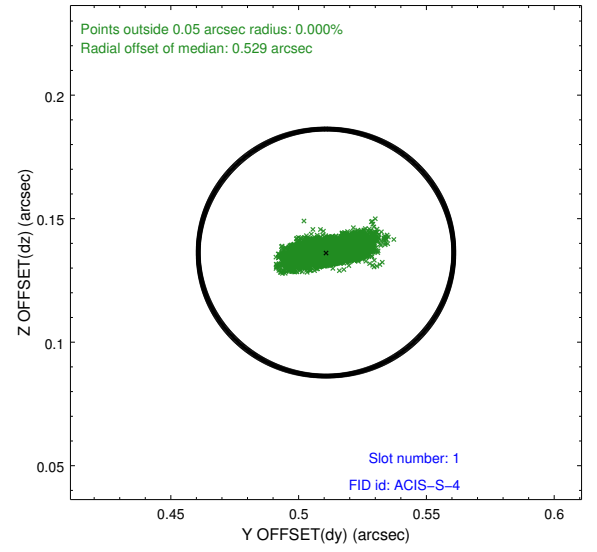
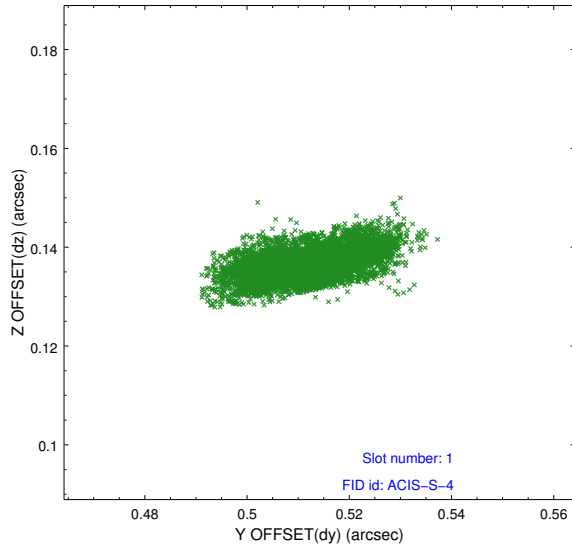


## 2.5 FID Slots

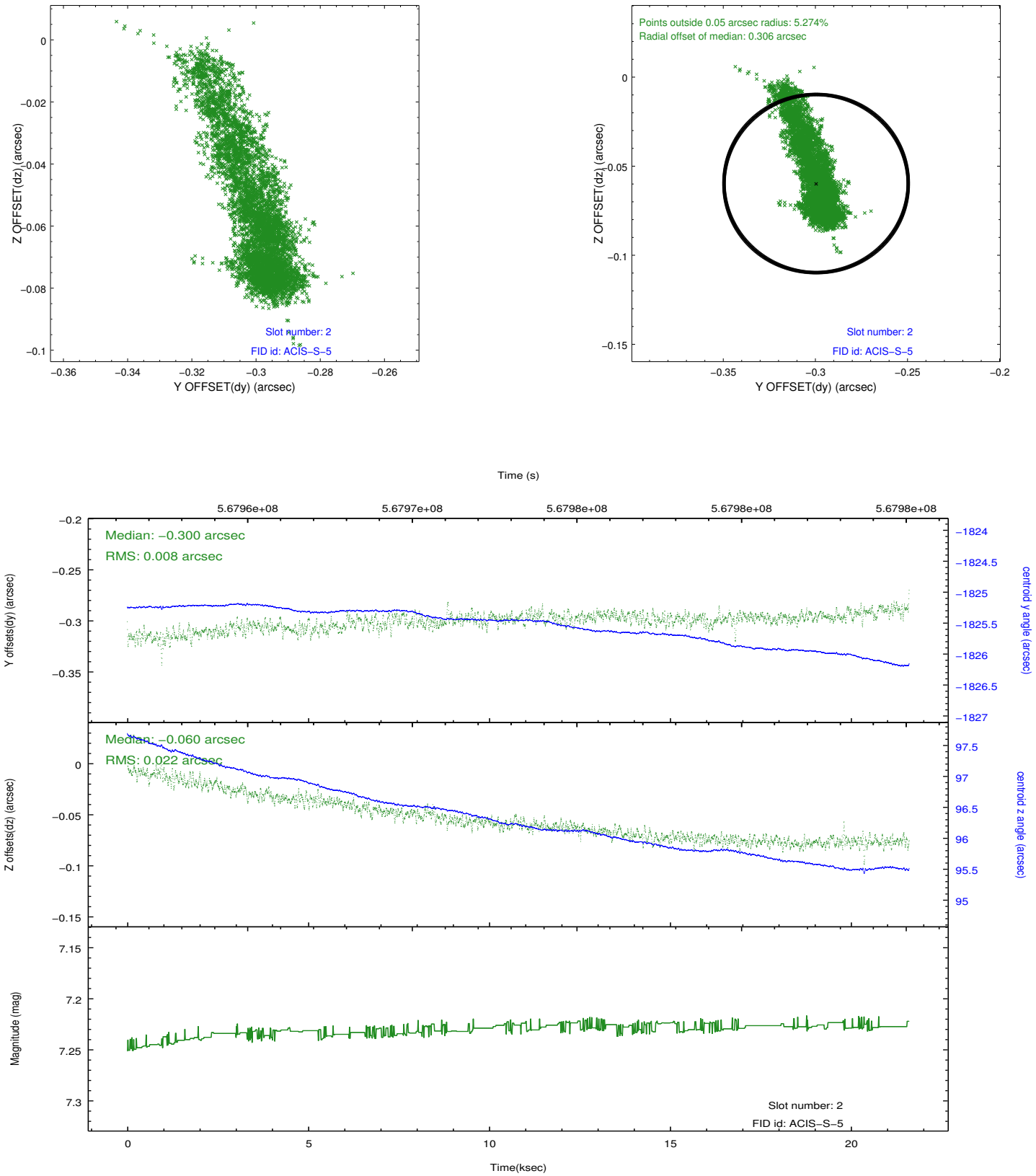
### 2.5.1 Slot 0



## 2.5.2 Slot 1

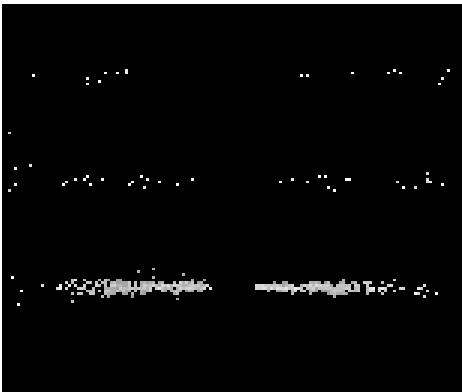


### 2.5.3 Slot 2

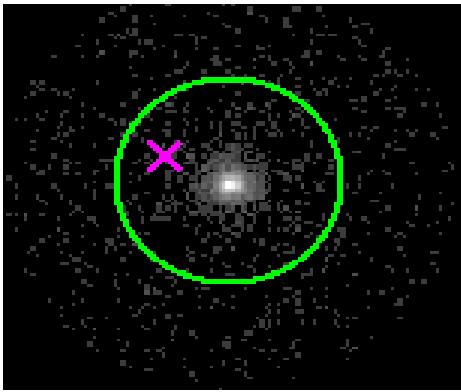


# 3 Gratings

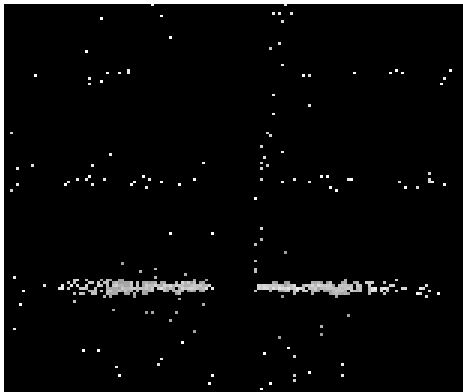
## 3.1 HEG Arm



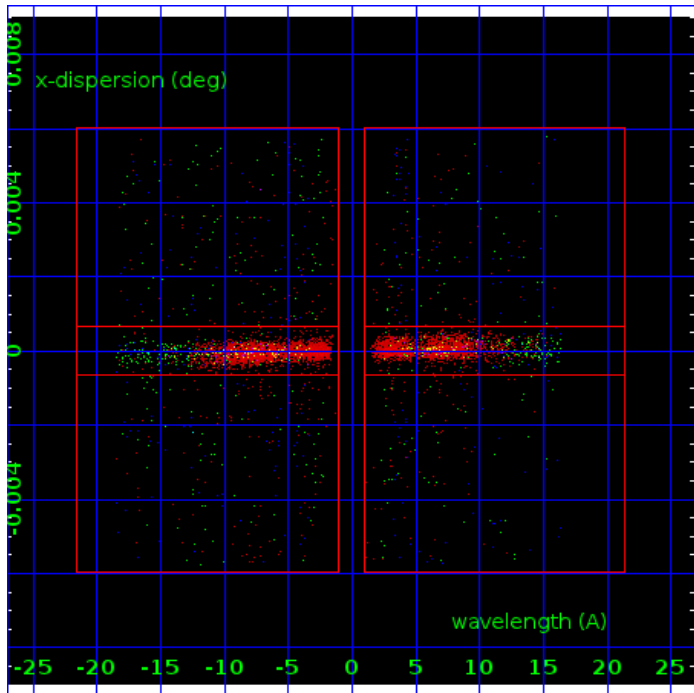
HEG Order Sort 123



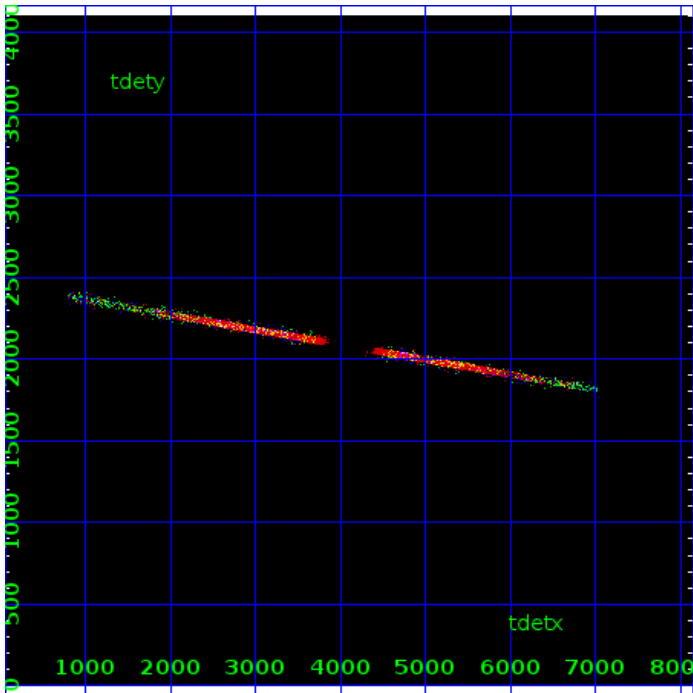
HEG Zero Order



HEG Order Sort ALL

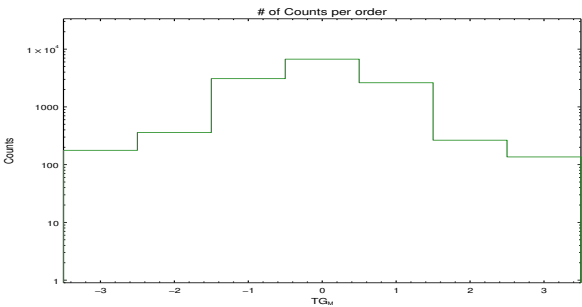


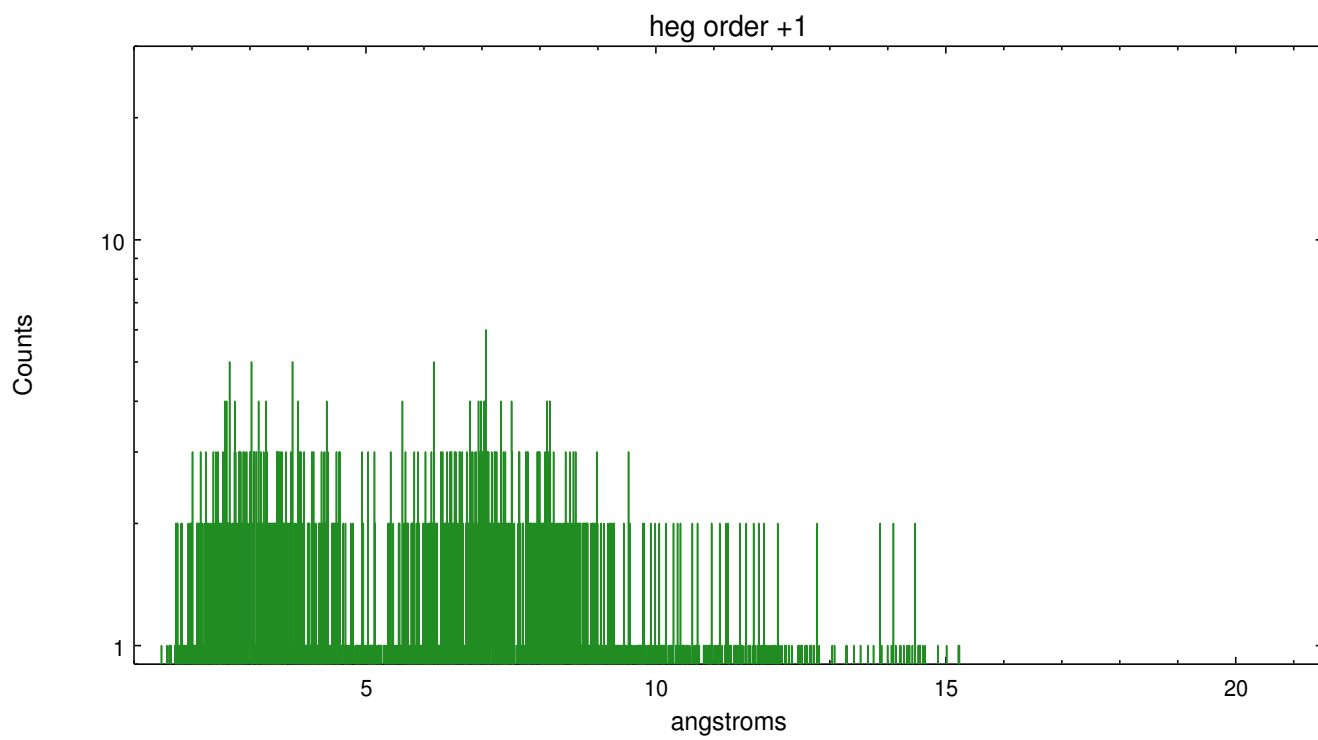
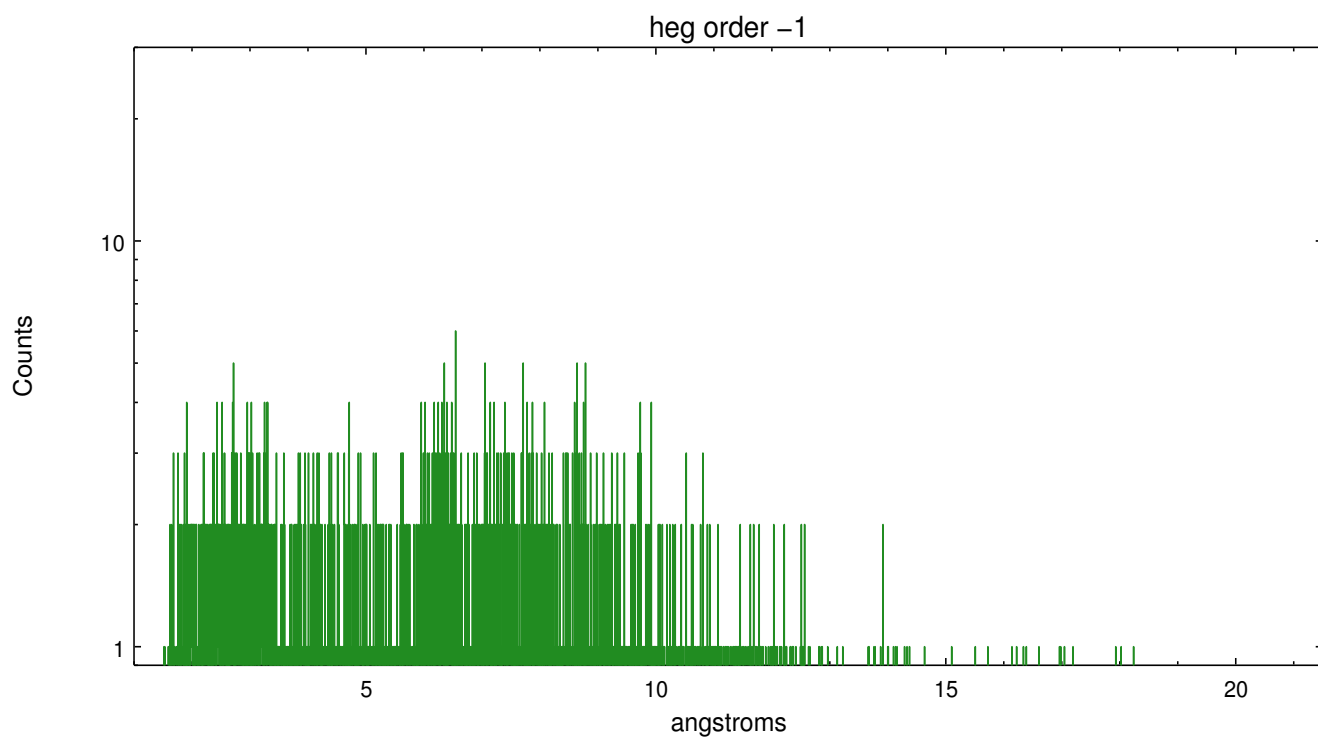
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	177	360	3085	6709	2619	265	136



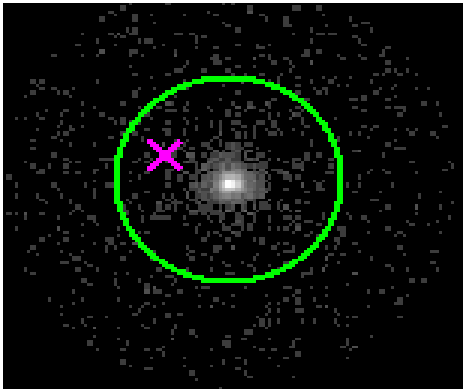




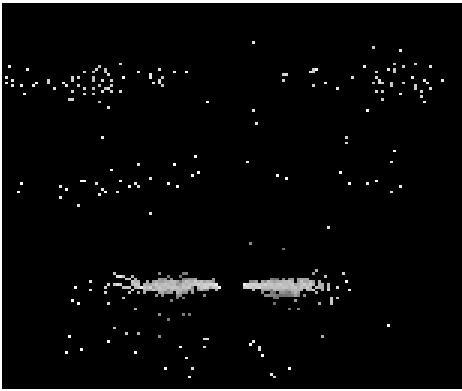
3.2 MEG Arm



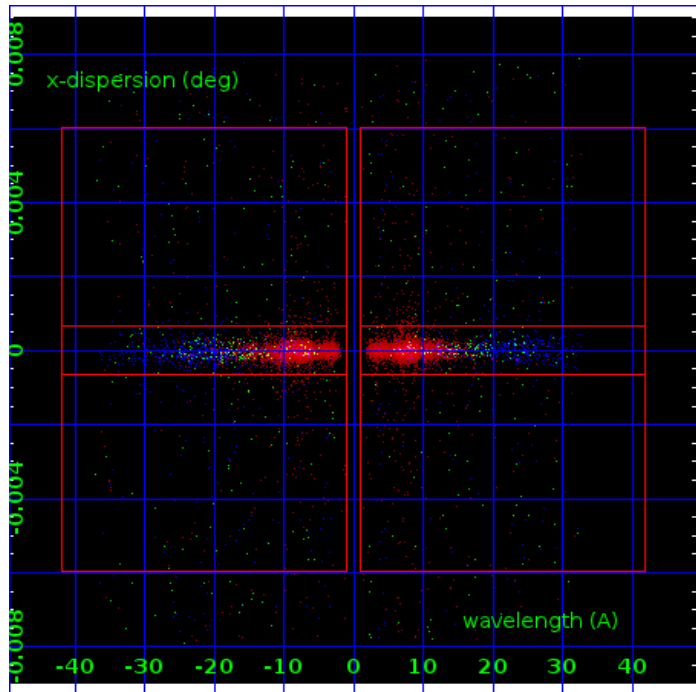
MEG Order Sort 123



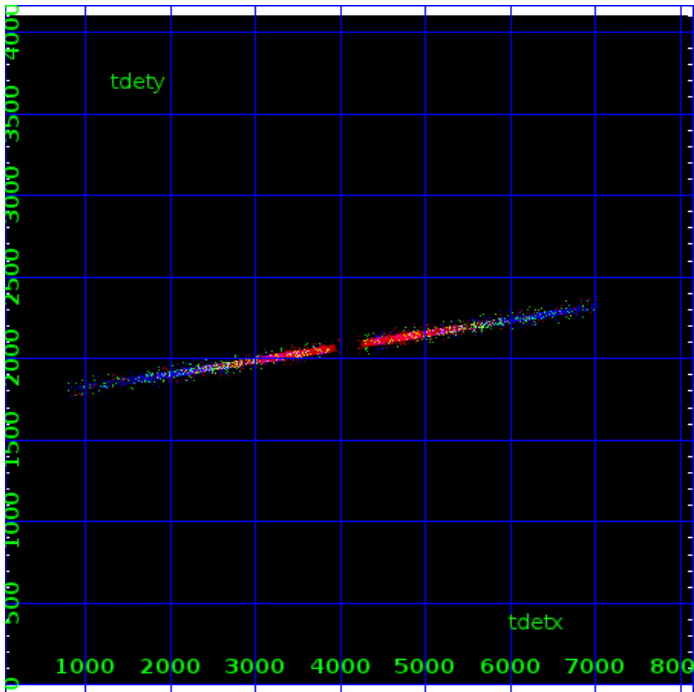
MEG Zero Order



MEG Order Sort ALL

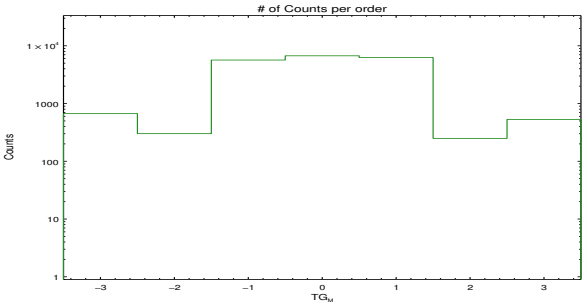


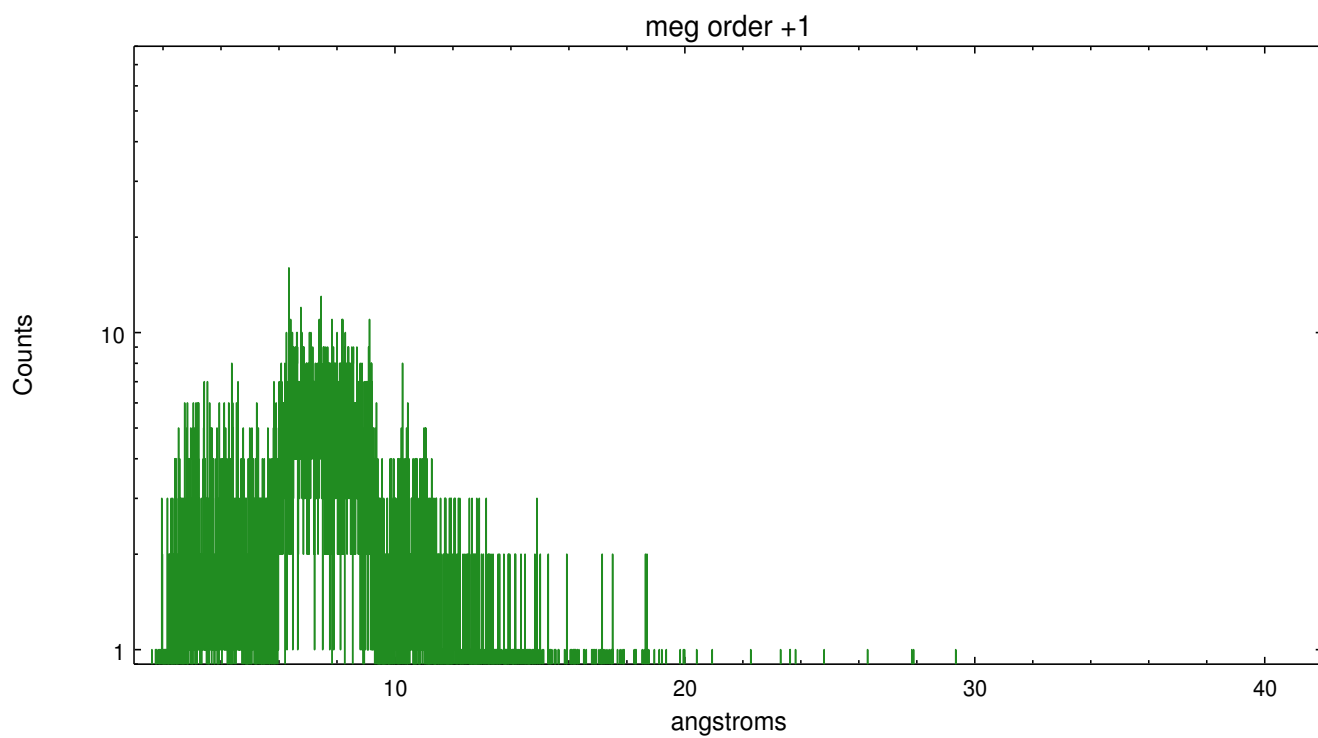
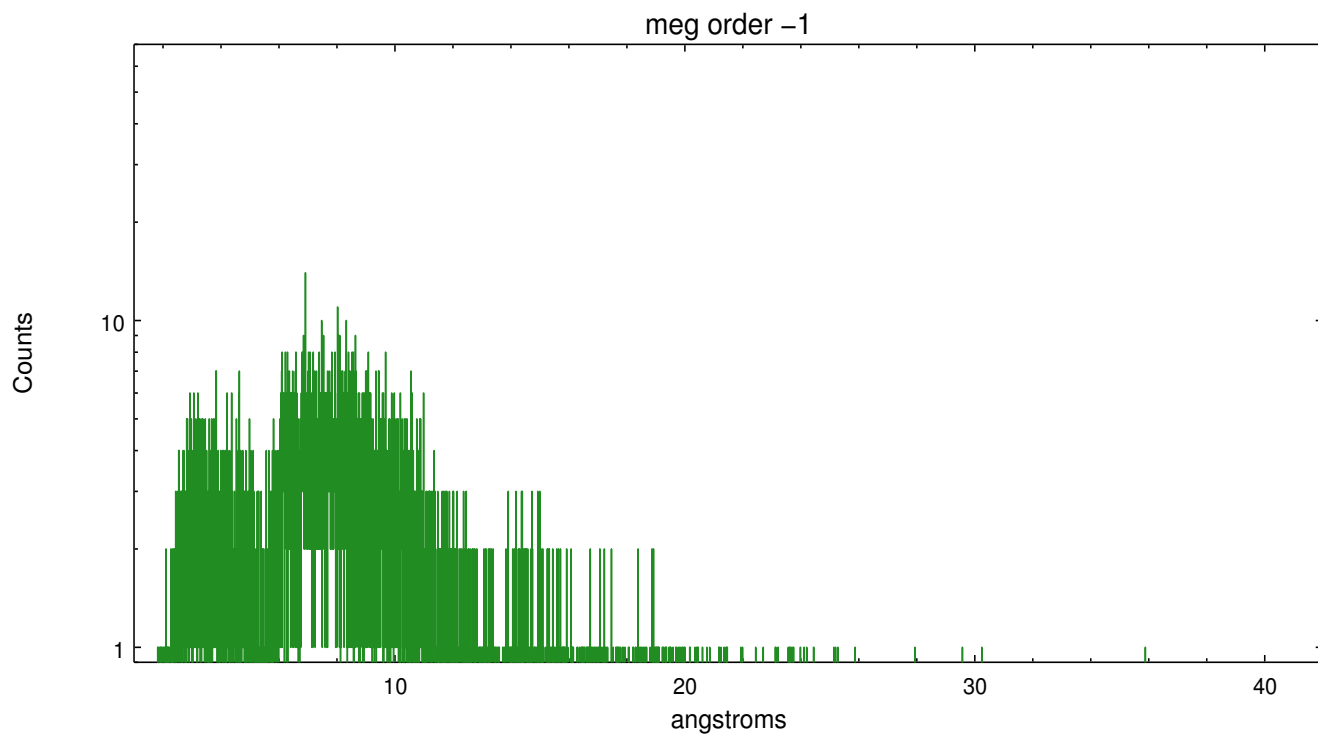
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	669	301	5664	6709	6255	249	529





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2016.01.02
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	21.4975

## A.2 Comments

Zeroth order piled up. The zeroth order sky position was determined using a software tool developed by CXC called findzero, which is available in CIAO as part of the tgdetect2 tool. The tool calculates the point of intersection of the readout streak on the ACIS CCD and the meg or leg dispersed spectral arm, rather than using a centroid position of the source. The findzero results are more accurate than source centroid in this case.