

# V&V Reference Report

## L2 ASCDS Version : 10.3.3

Observation 16709 - L2 Version 1  
Chandra X-Ray Center

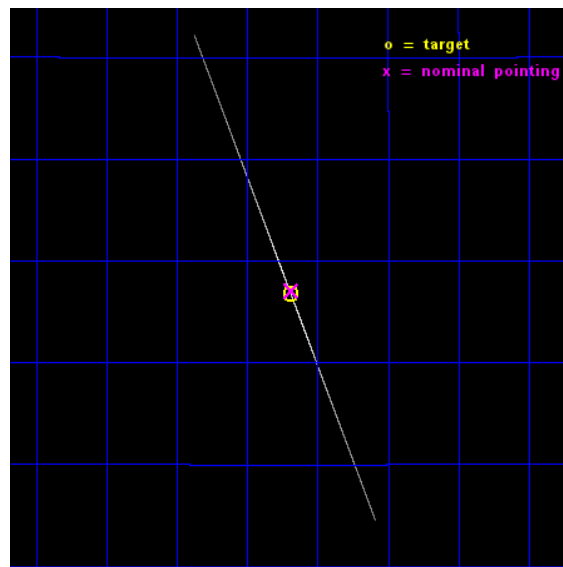
L2 Processing Date : Feb 24 2015

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# 1 Front

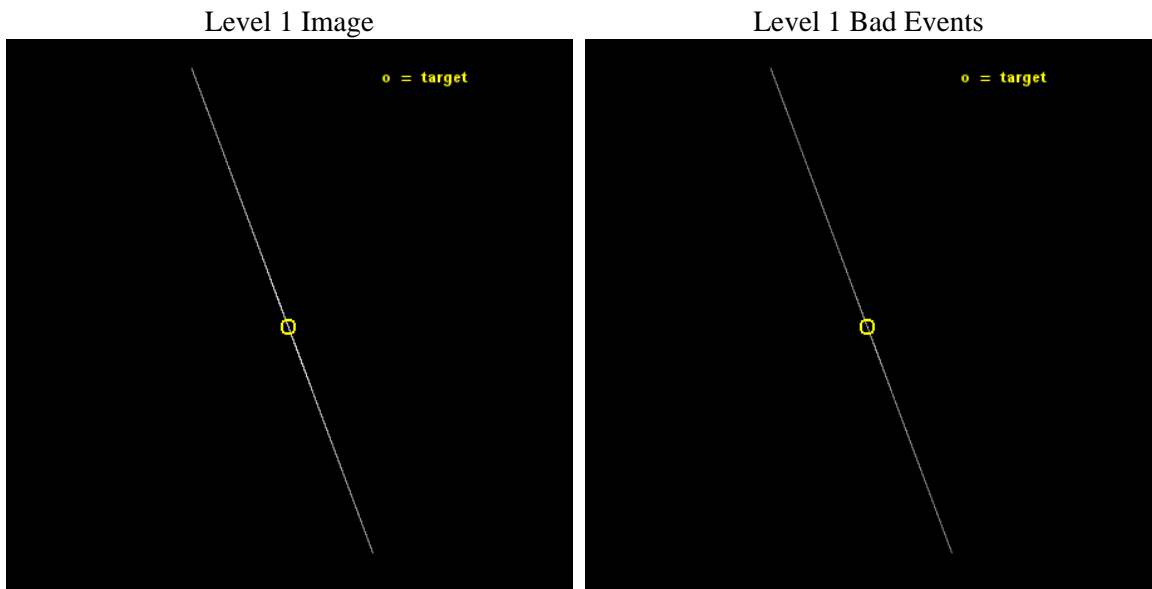
seq_num	401631	Sequence number
obs_id	16709	Observation id
title	Wind-Triggered Disk Wind Spectroscopy of GRS 1915+105	Proposal tit
observer	Dr. Jon Miller	Principal investigator
object	GRS 1915+105	Source name
ra_targ	288.798333	Observer's specified target RA [deg]
dec_targ	10.945778	Observer's specified target Dec [deg]
ra_nom	288.79669309487	Nominal RA [deg]
dec_nom	10.950962878287	Nominal Dec [deg]
roll_nom	68.275858153431	Nominal Roll [deg]
revision	1	Processing version of data
ontime	40063.75	Sum of GTIs [s]
livetime	39907.250976562	Livetime [s]
ontime4	40063.75	Sum of GTIs [s]
ontime5	40063.75	Sum of GTIs [s]
ontime6	40063.75	Sum of GTIs [s]
ontime7	40063.75	Sum of GTIs [s]
ontime8	40063.75	Sum of GTIs [s]
ontime9	40063.75	Sum of GTIs [s]
l2events	10068311	Number of level 2 events



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	40000.000000	[s] Scheduled observation exposure time
ascdsver	10.3.3	Processing system revision	ontime	40063.75	Sum of GTIs [s]
caldbver	4.6.7	&#160	ontime4	40063.75	Sum of GTIs [s]
date	2015-02-24T17:11:49	Date and time of file creation	ontime5	40063.75	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	40063.75	Sum of GTIs [s]
			ontime7	40063.75	Sum of GTIs [s]
			ontime8	40063.75	Sum of GTIs [s]
			ontime9	40063.75	Sum of GTIs [s]
			l1events	12797182	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
				1408184	

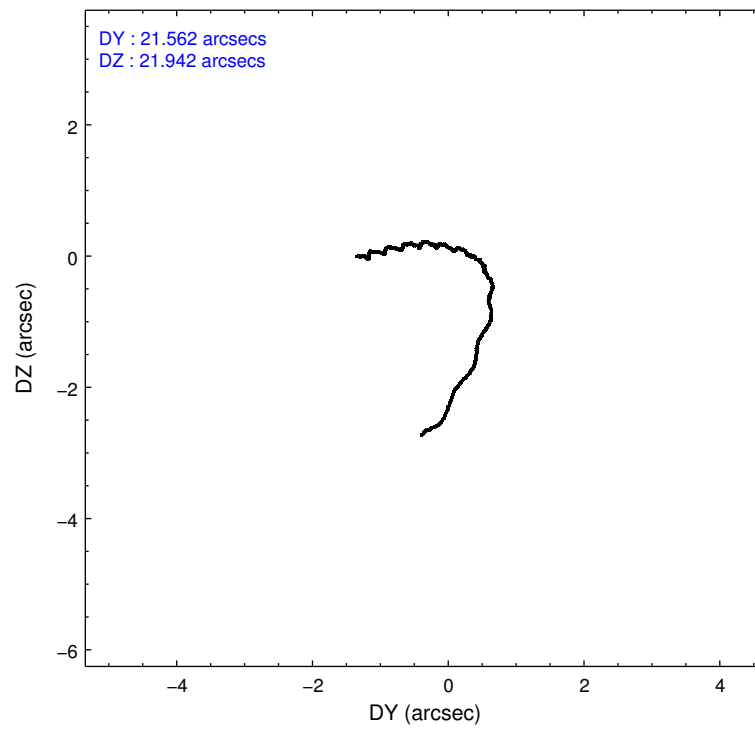
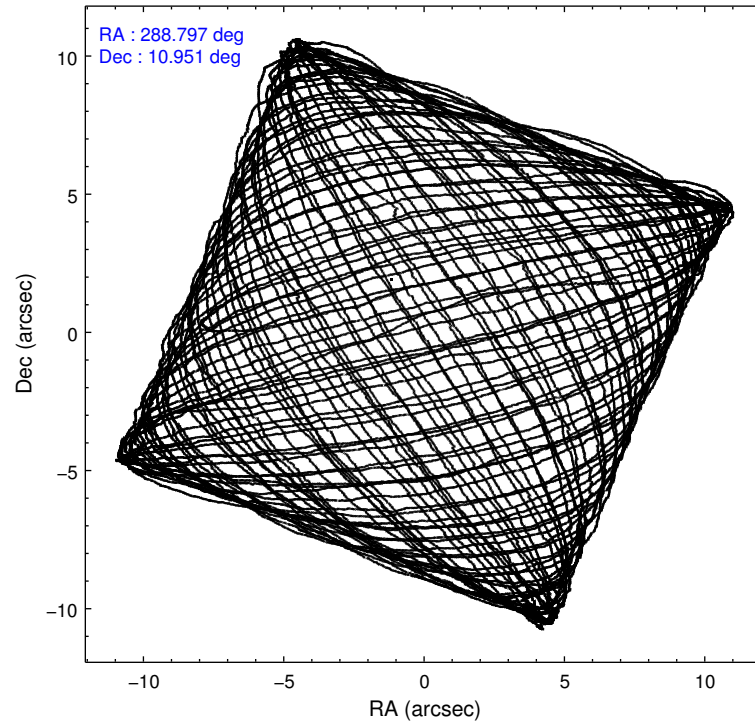
### 2.1.3 Events

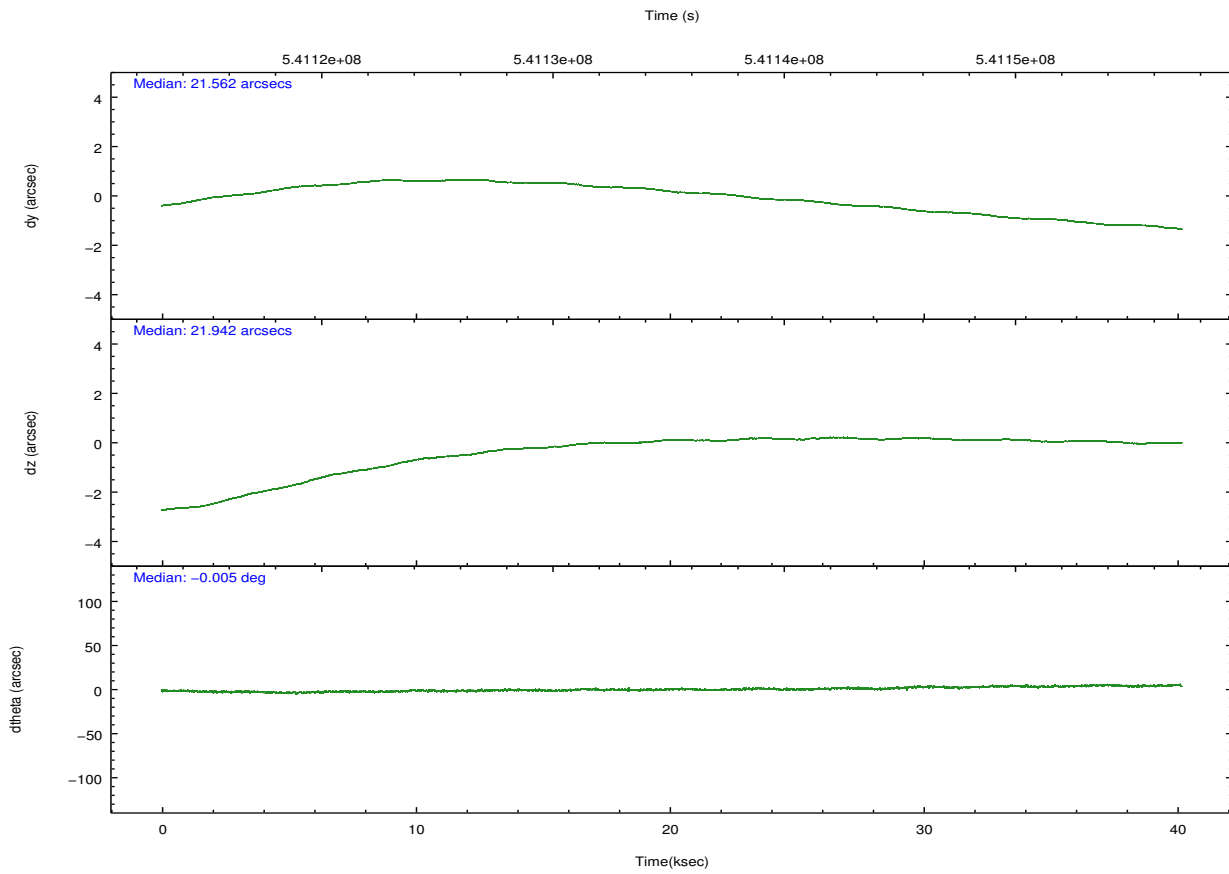
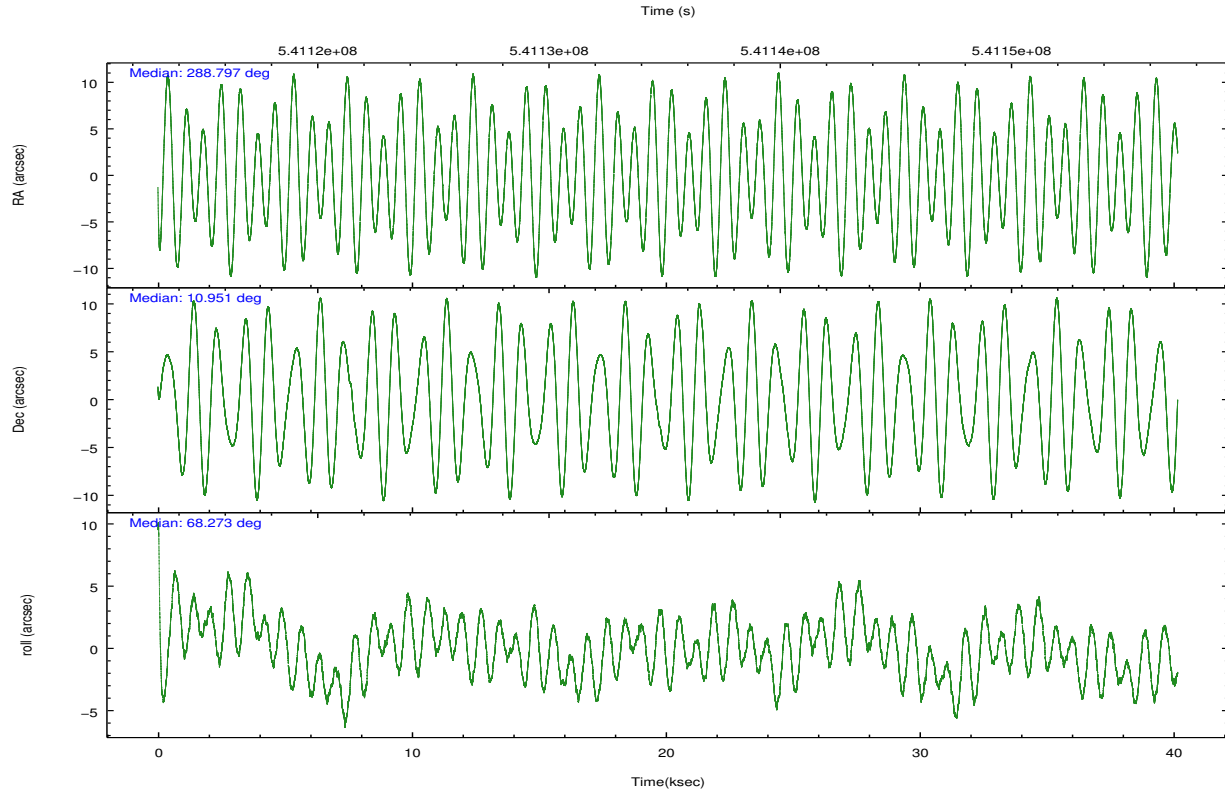
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	439244	782687	4122482	5727568	1218663	506538	grade 0 events	5062	31963	32562	303488	44912	6895
rejected events	202459	236921	311257	804220	284854	207798		1%	4%	0%	5%	3%	1%
rejected %	46%	30%	7%	14%	23%	41%	grade 1 events	137	268	278	5443	419	169
								0%	0%	0%	0%	0%	0%
							grade 2 events	206571	307225	3327414	2317742	783244	260655
								47%	39%	80%	40%	64%	51%
							grade 3 events	4611	4831	5901	173111	11949	4088
								1%	0%	0%	3%	0%	0%
							grade 4 events	4753	4475	5684	169846	11592	4357
								1%	0%	0%	2%	0%	0%
							grade 5 events	9130	19804	24148	94551	16837	11236
								2%	2%	0%	1%	1%	2%
							grade 6 events	15802	197293	439837	1959422	82143	22755
								3%	25%	10%	34%	6%	4%
							grade 7 events	193178	216828	286658	703965	267567	196383
								43%	27%	6%	12%	21%	38%

## 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	CC33_GRADED	CC33_GRADED	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	288.801073	288.7966930948725	CCD I2 on	N	N
[deg] Pointing Dec	10.923858	10.95096287828712	CCD I3 on	N	N
[deg] Pointing Roll	68.118399	68.27585815343086	CCD S0 on	O1	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	Y	Y
[s] Observation start time (MET)	541115211.184000	541114200.18701	CCD S5 on	Y	Y
Observation start date	2015-02-23T21:45:44	2015-02-23T21:30:00	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	541155211.184000	541156220.06436	On-chip summing requested	N	N
Observation end date	2015-02-24T08:52:24	2015-02-24T09:10:20	Subarray requested	NONE	NONE
Read mode	CONTINUOUS	CONTINUOUS	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	0

## 2.3 Aspect



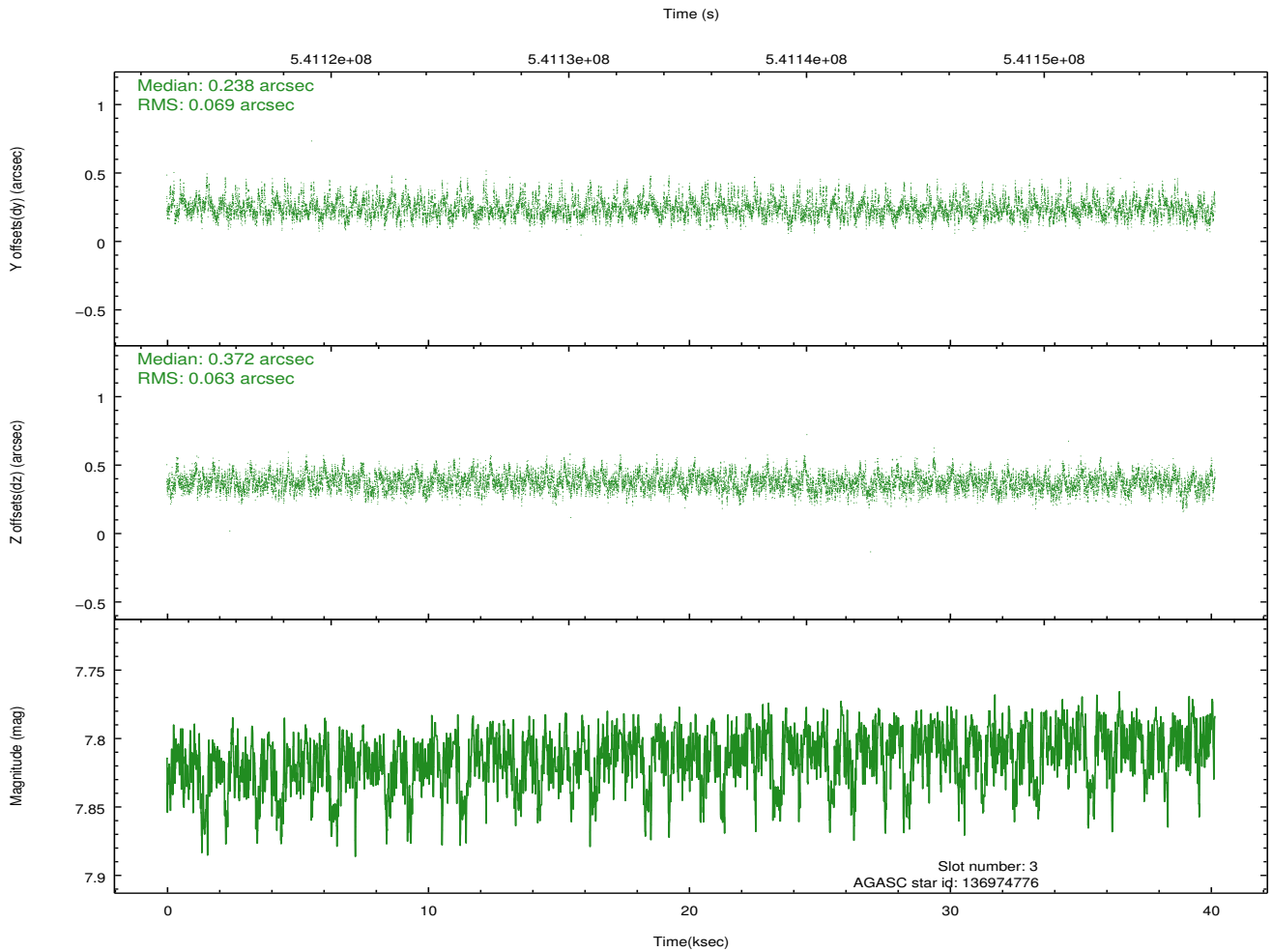
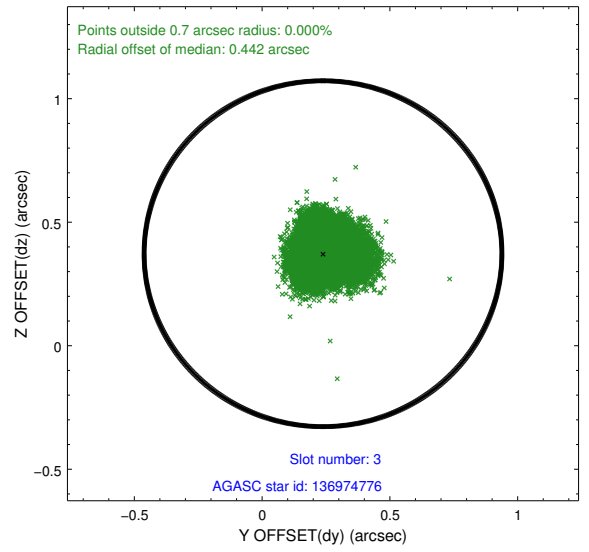
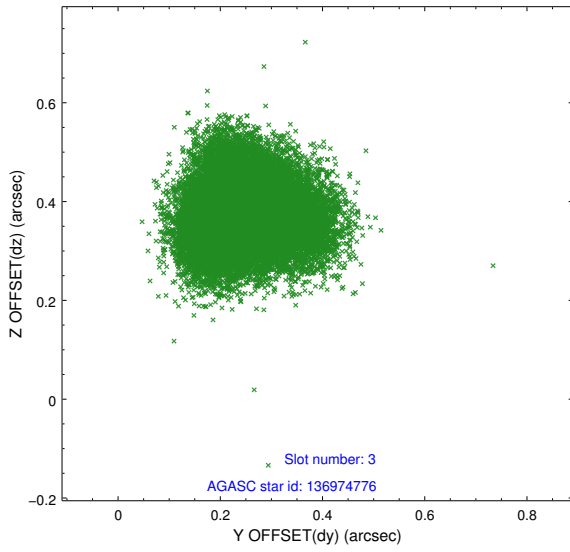


### Slot Statistics

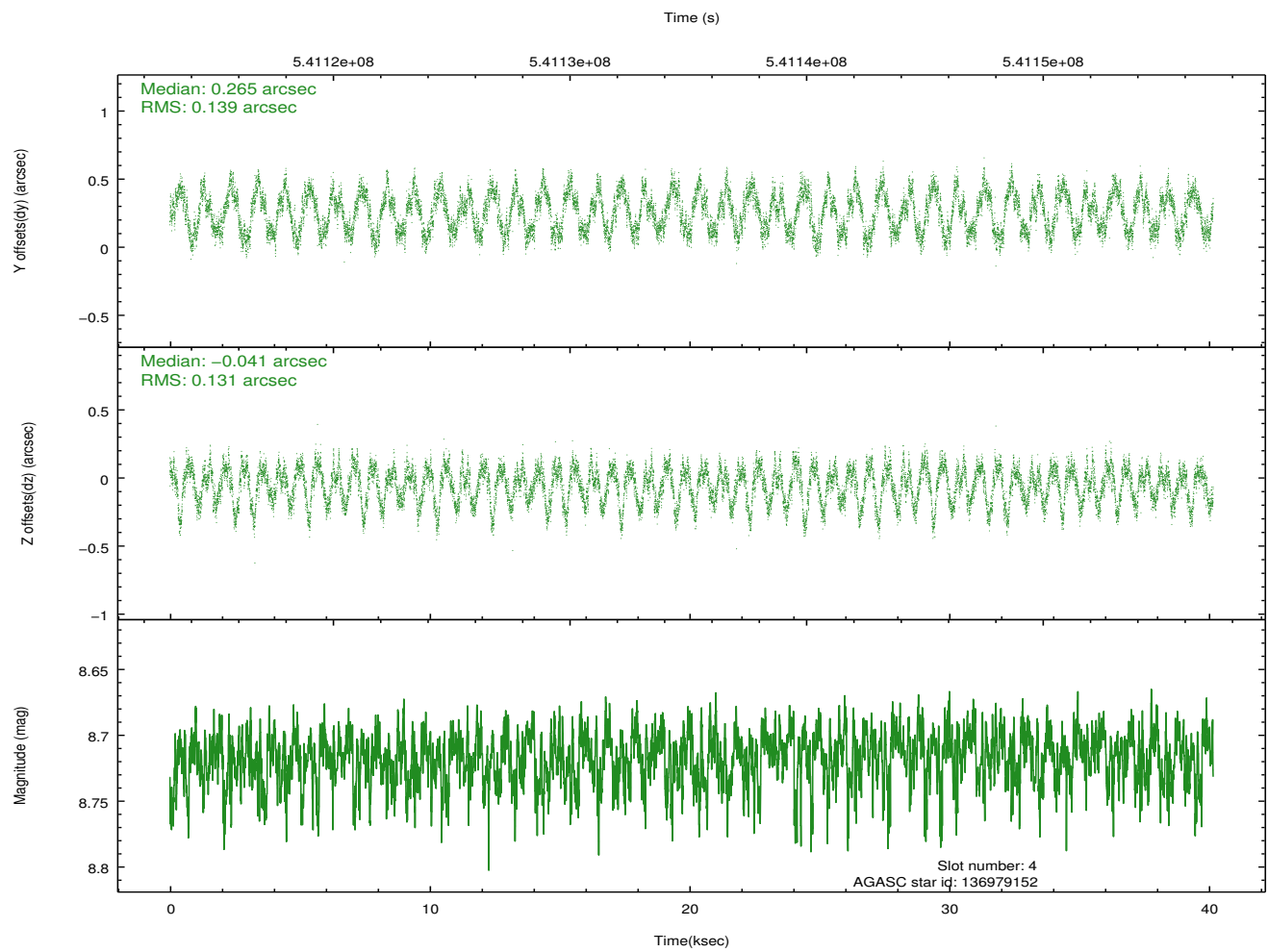
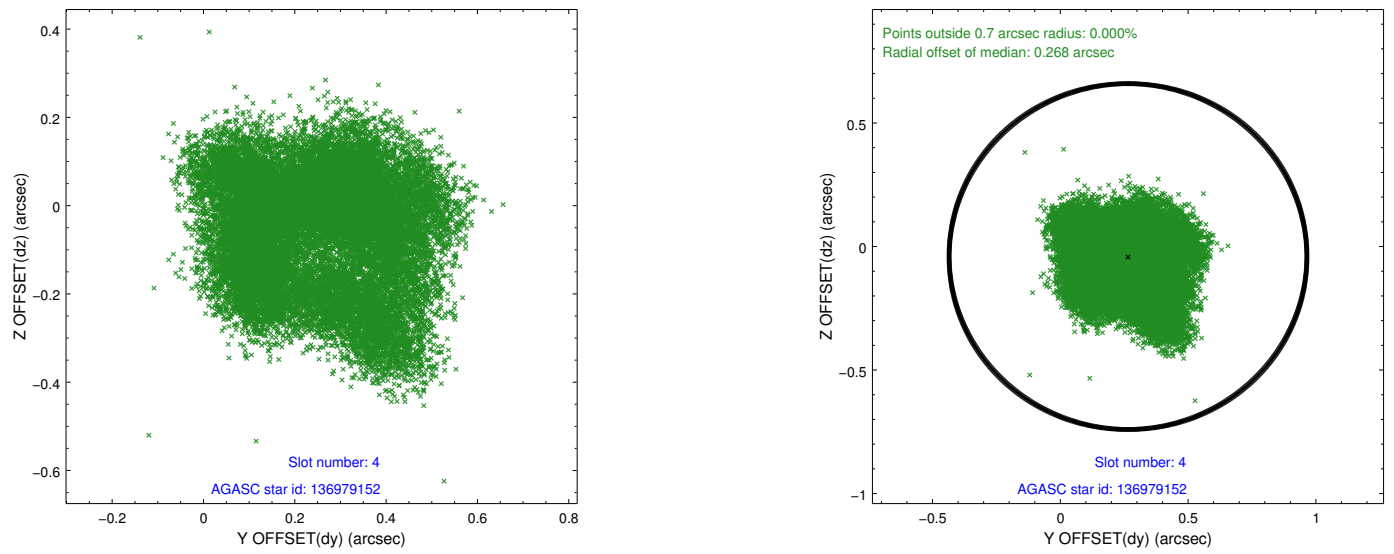
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-1	7.05	9796	-0.045	-0.048	0.021	0.045	0.000000	0.000000	921.39	-1738.74
1	FID		ACIS-S-4	7.06	9797	0.137	0.026	0.013	0.025	0.000000	0.000000	2138.98	165.48
2	FID		ACIS-S-6	7.20	9797	-0.117	0.035	0.020	0.037	0.000000	0.000000	387.27	802.86
3	GUIDE	used	136974776	7.81	19587	0.238	0.372	0.099	0.160	288.742109	10.409402	-1795.88	-495.95
4	GUIDE	used	136979152	8.72	19584	0.265	-0.041	0.211	0.301	288.538081	10.461256	-1891.60	243.54
5	GUIDE	used	137102976	8.54	19591	0.186	0.367	0.118	0.180	289.193436	10.979652	704.44	-1210.87
6	GUIDE	used	137497048	7.98	19591	-0.324	-0.250	0.105	0.164	288.896055	11.554718	2230.94	532.12
7	GUIDE	used	137498872	7.05	19593	-0.368	-0.435	0.089	0.137	288.350862	11.344926	815.12	2039.62

## 2.4 Star Slots

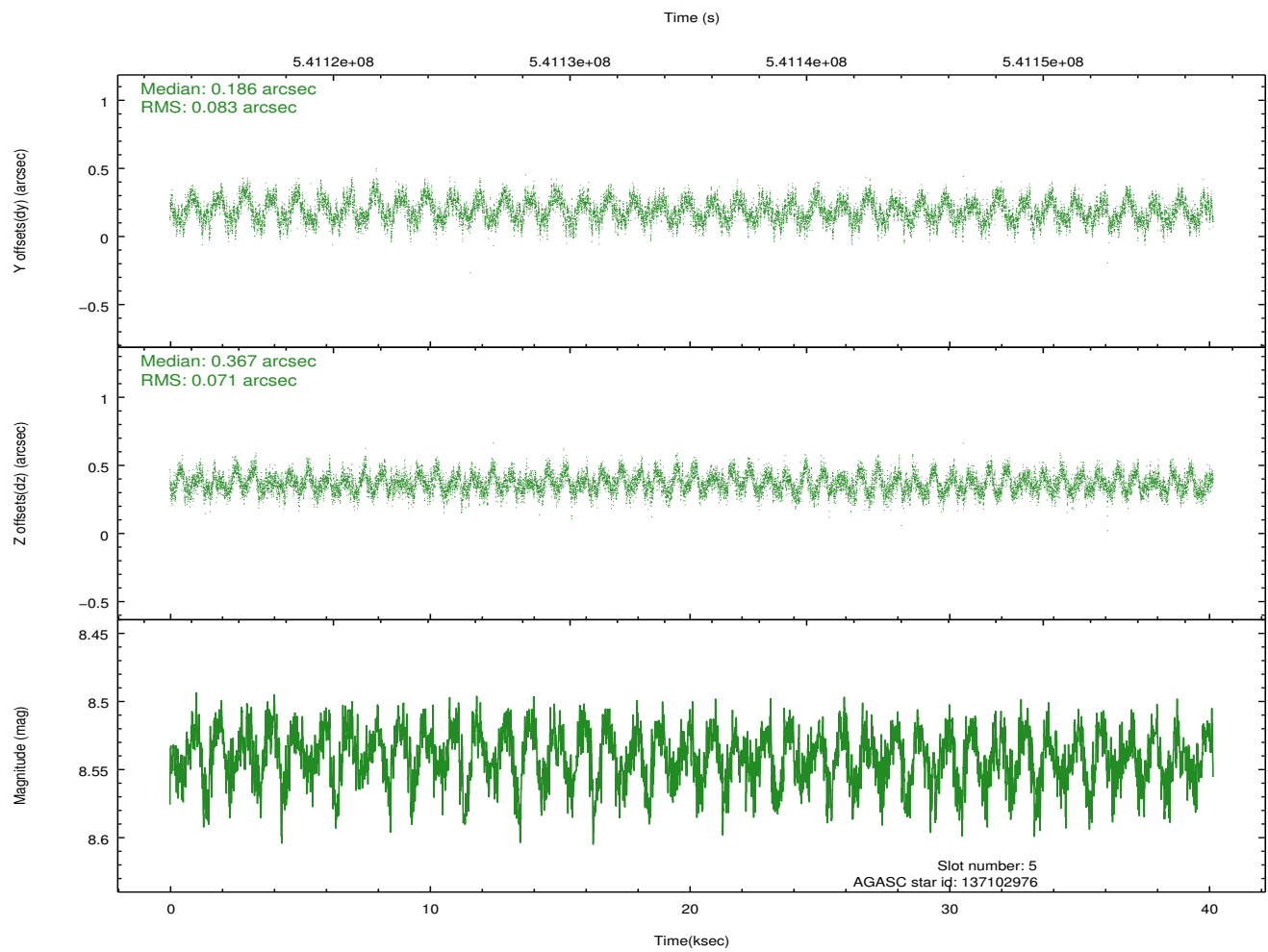
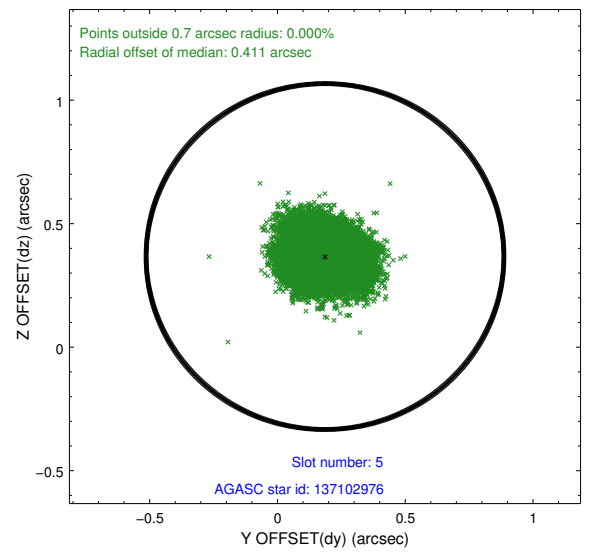
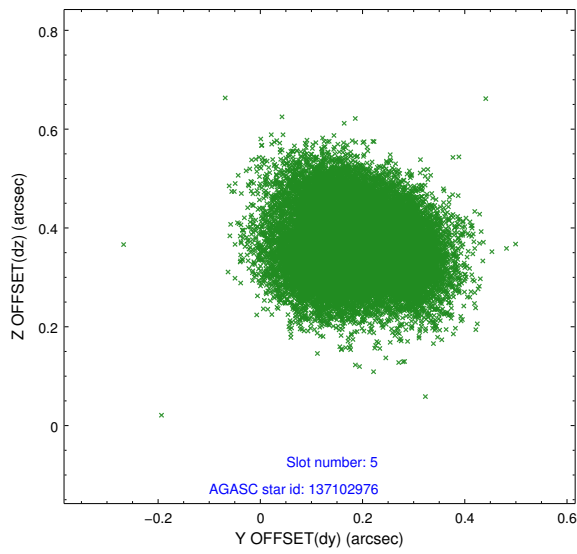
### 2.4.1 Slot 3



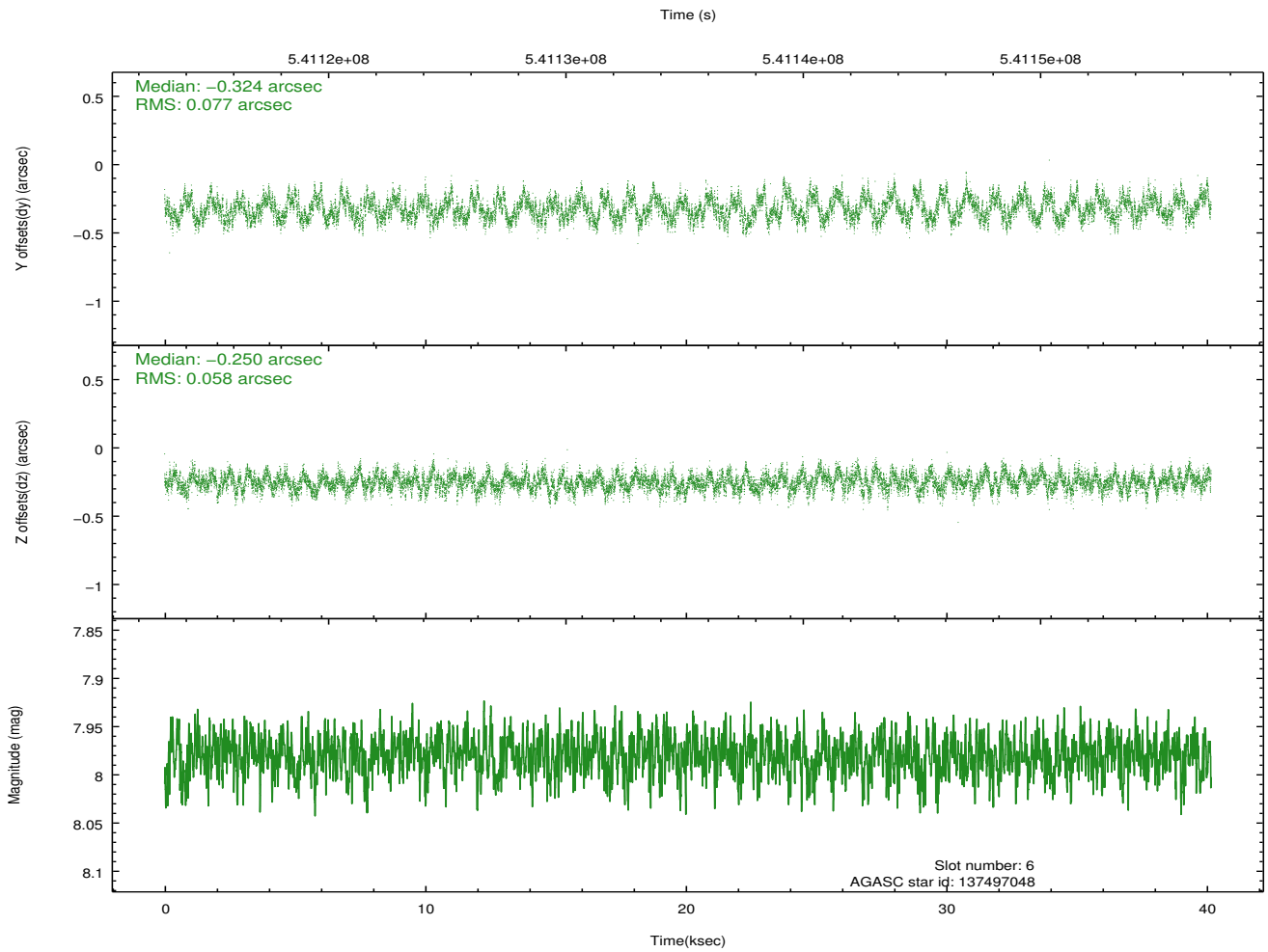
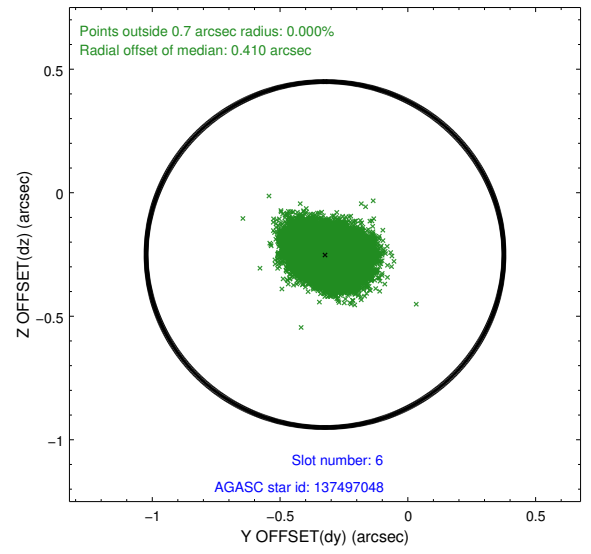
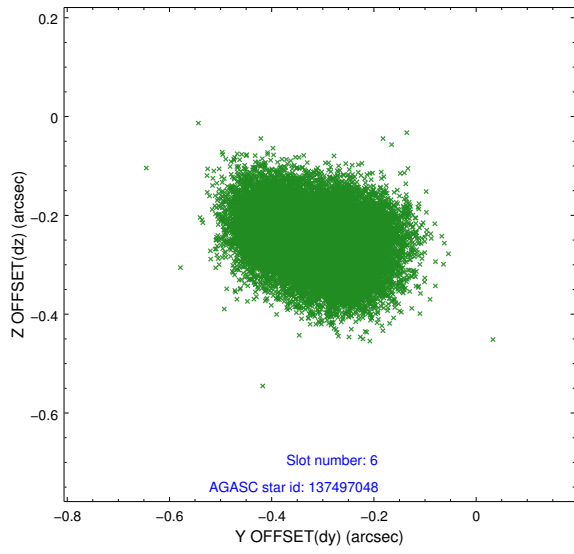
## 2.4.2 Slot 4



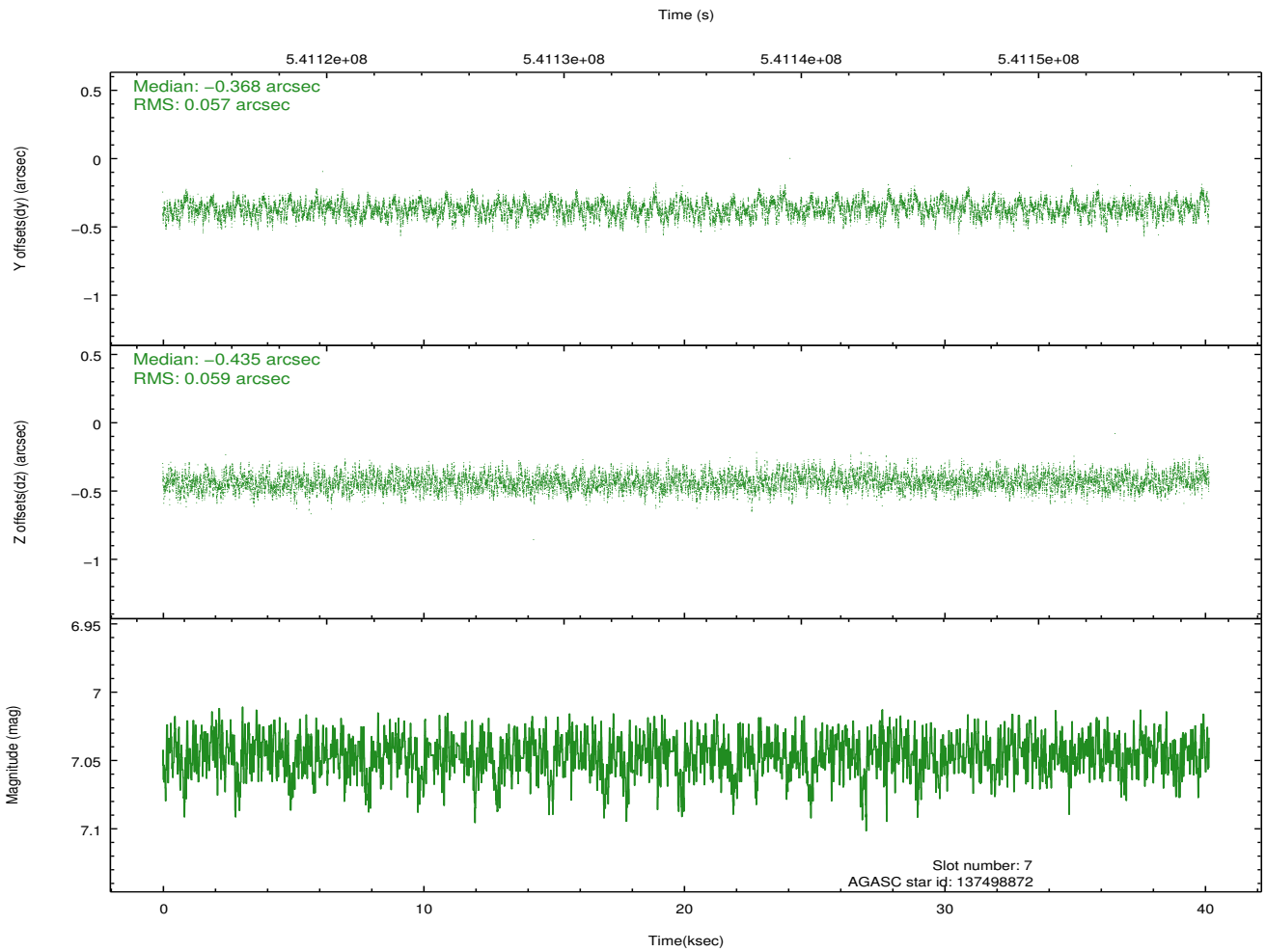
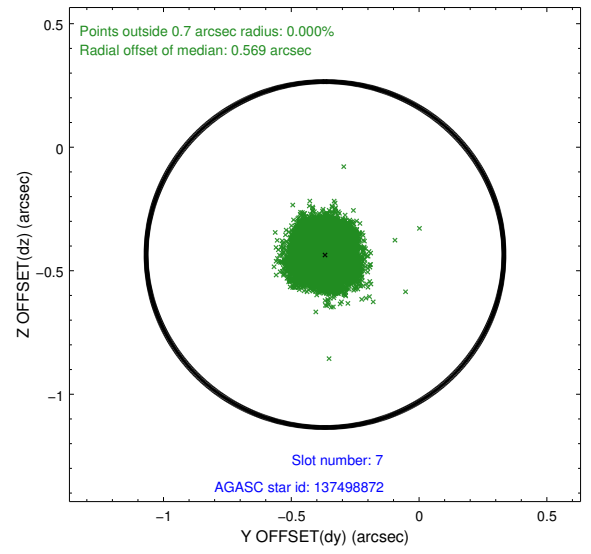
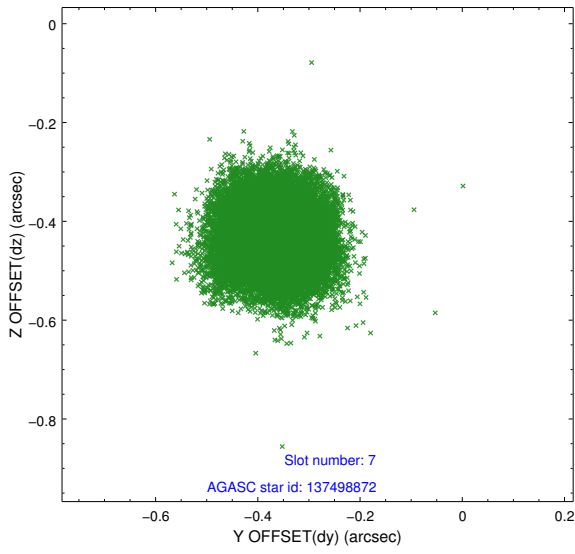
### 2.4.3 Slot 5



## 2.4.4 Slot 6

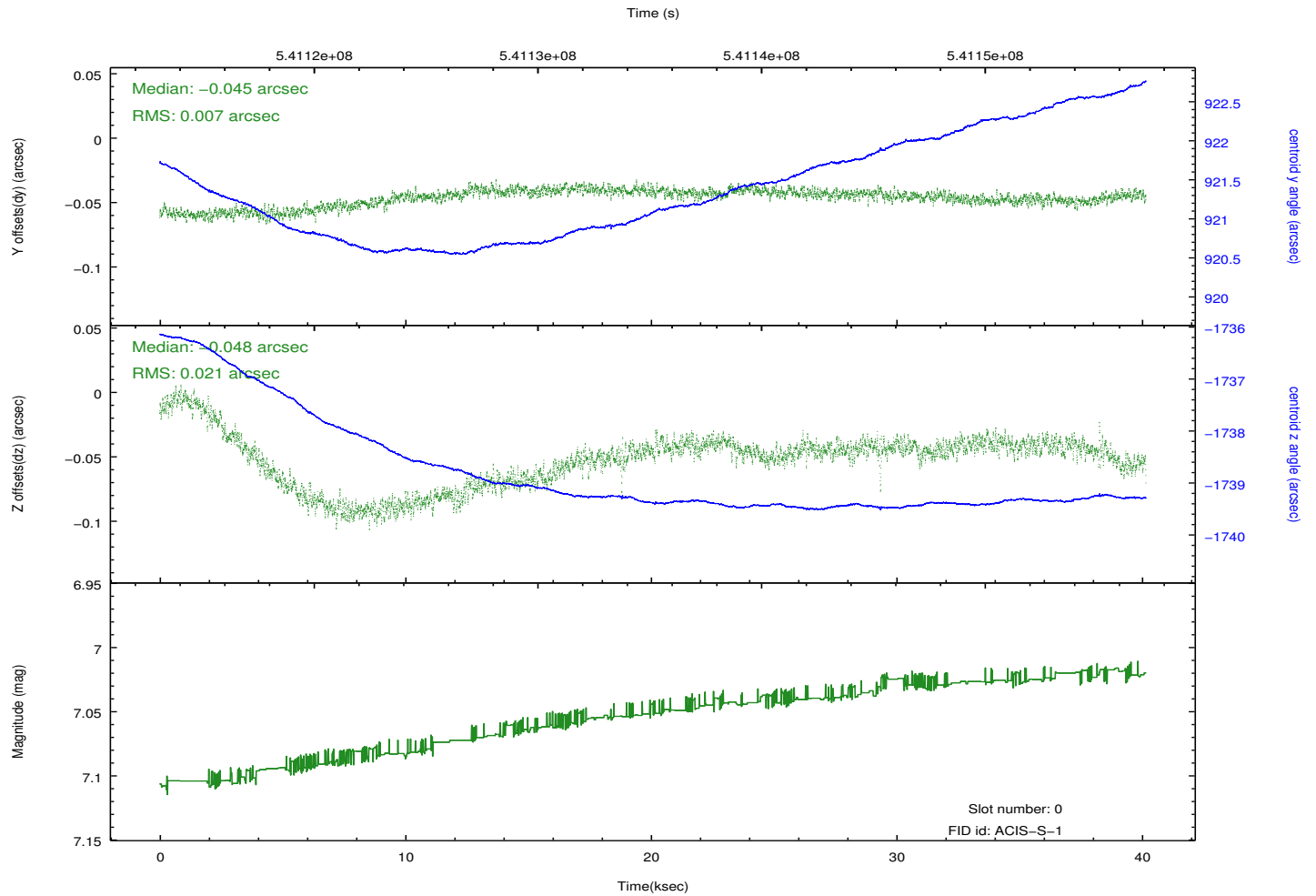
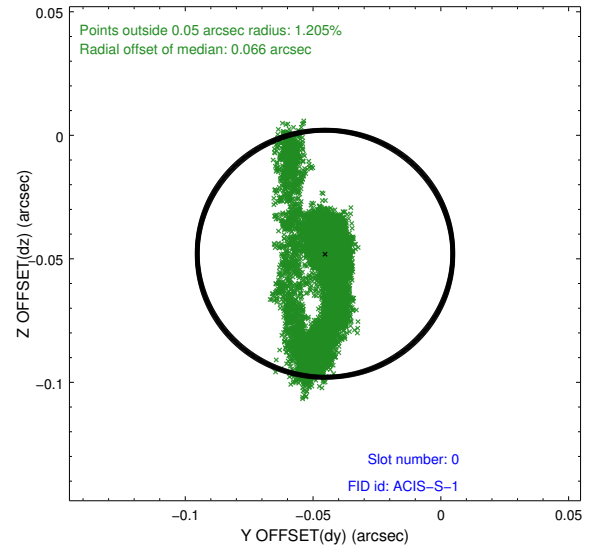
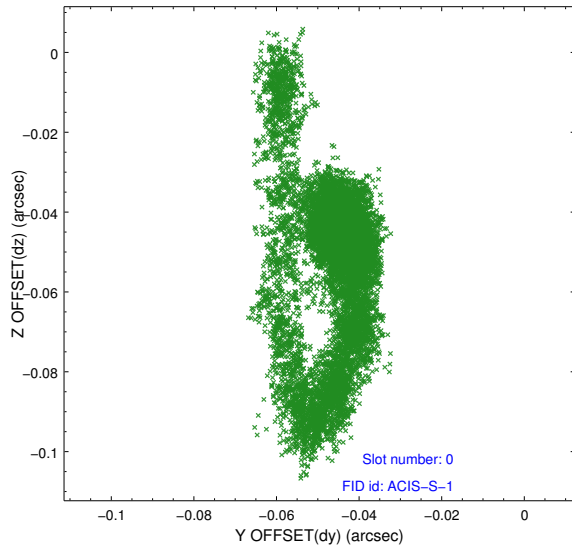


### 2.4.5 Slot 7

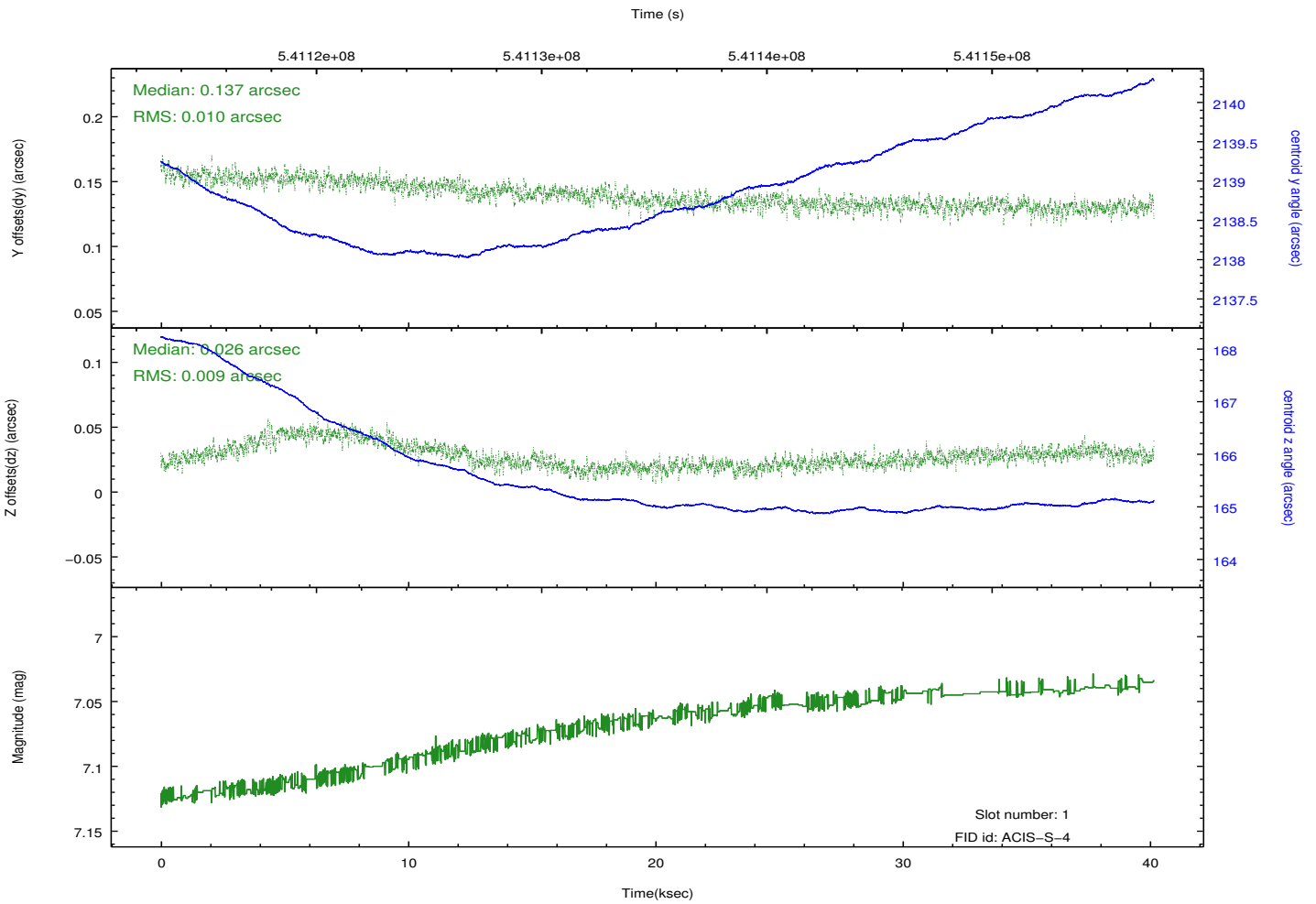
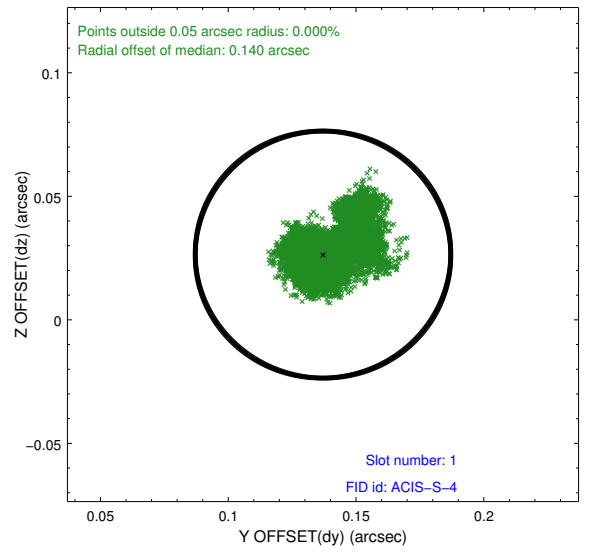
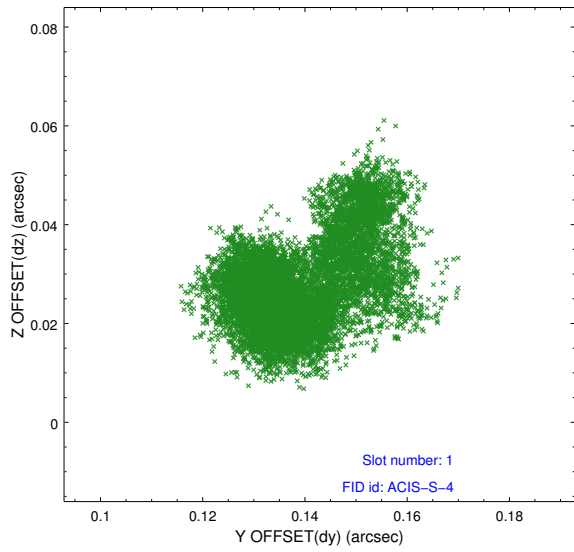


## 2.5 FID Slots

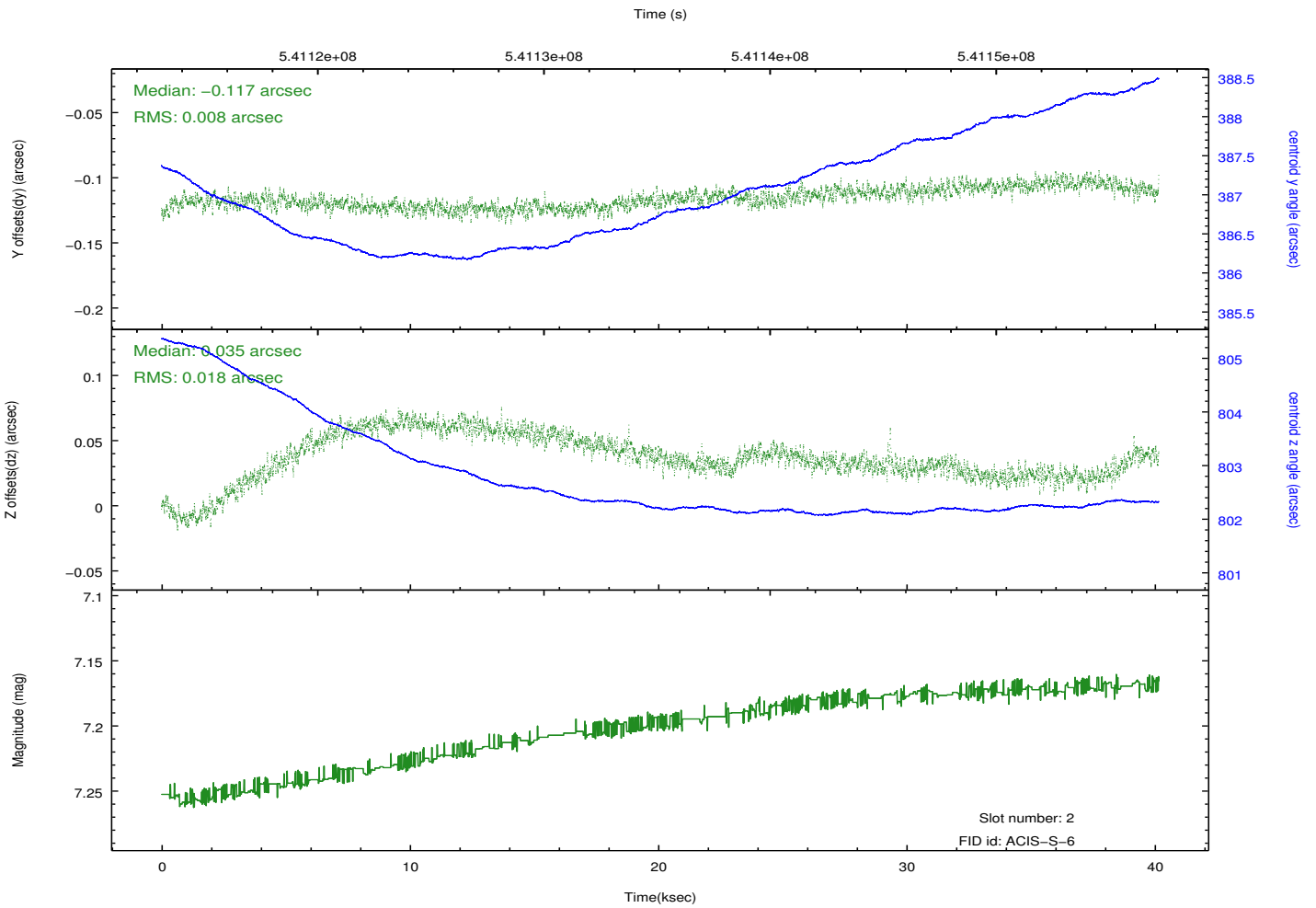
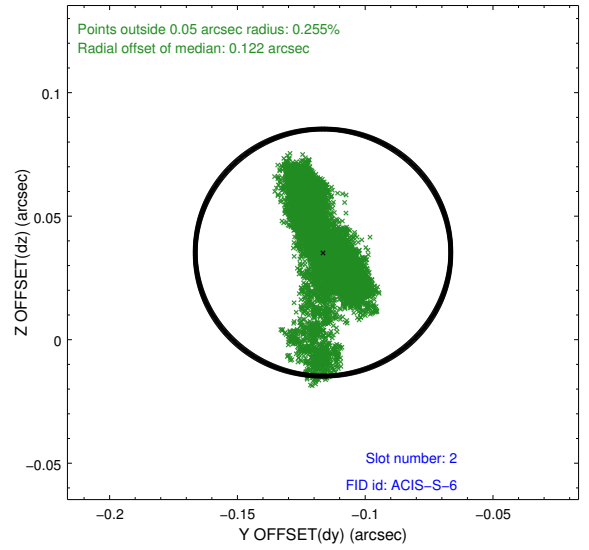
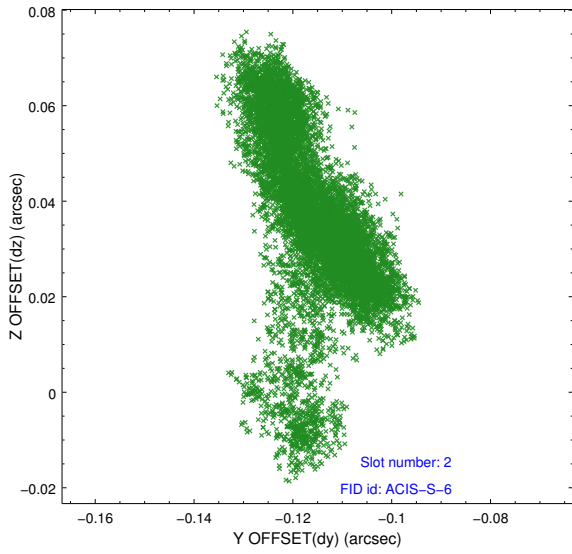
### 2.5.1 Slot 0



## 2.5.2 Slot 1

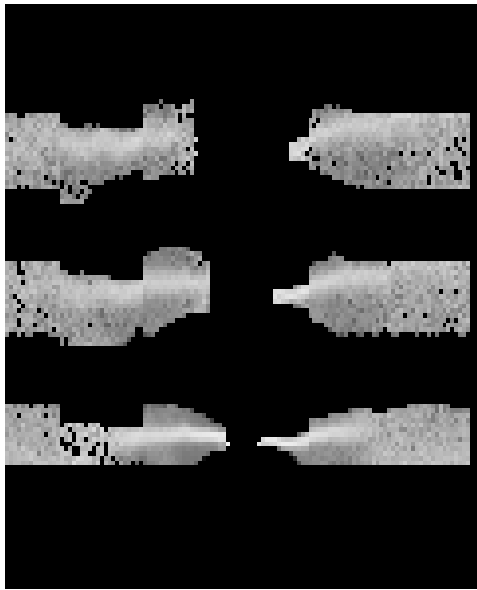


### 2.5.3 Slot 2

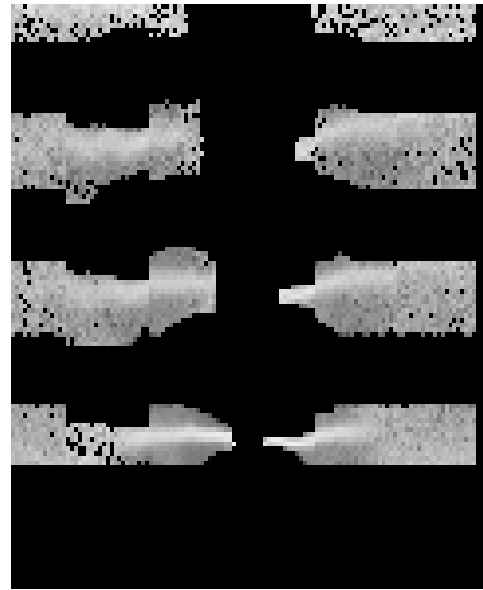


# 3 Gratings

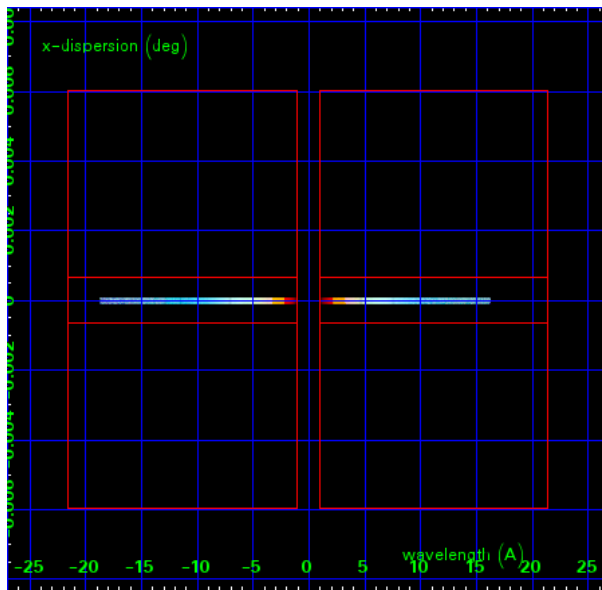
## 3.1 HEG Arm



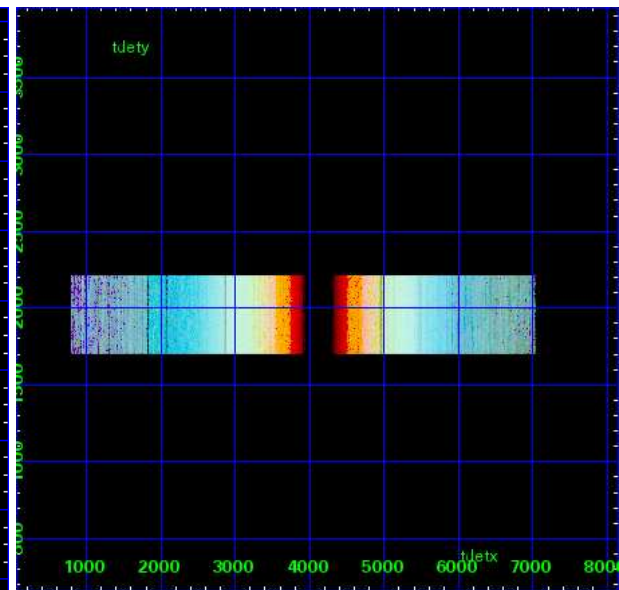
HEG Order Sort 123



HEG Order Sort ALL

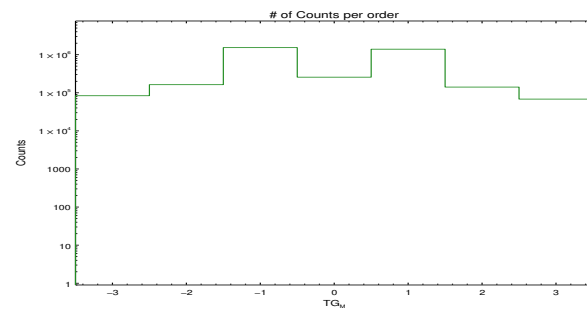


Spot Image HEG

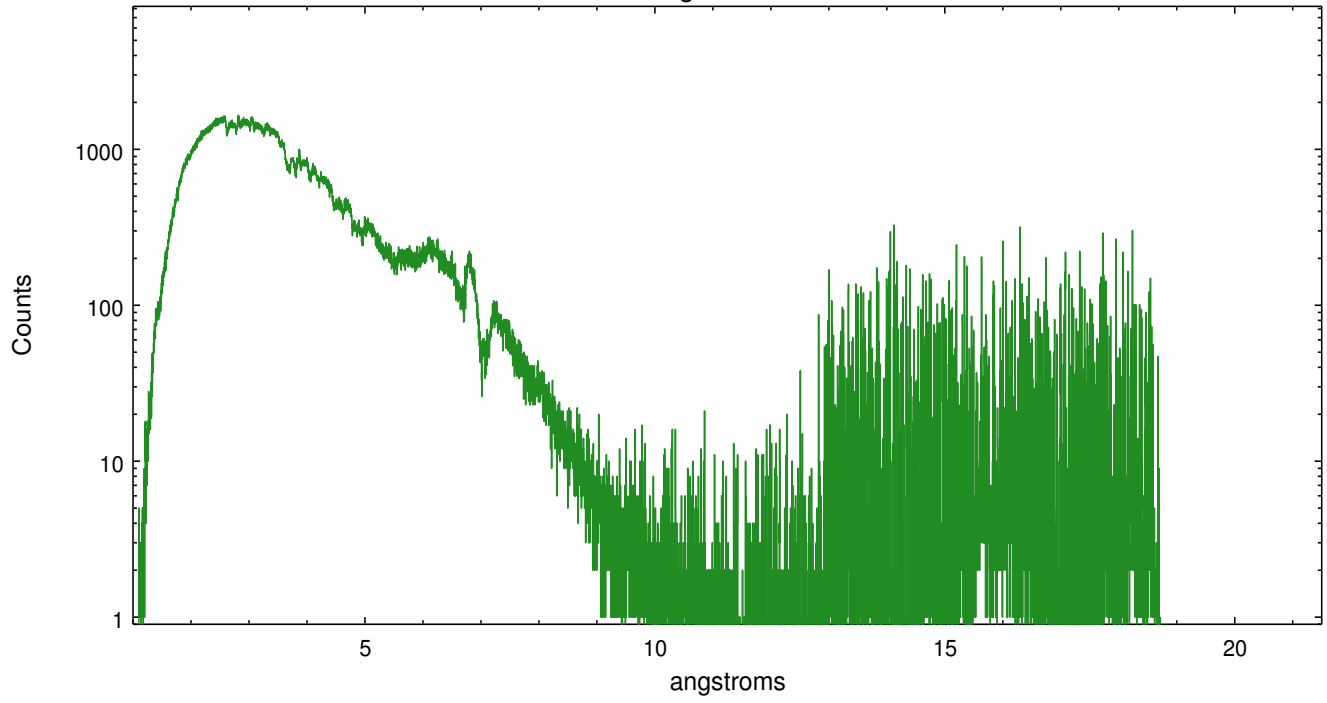


Full Detector HEG

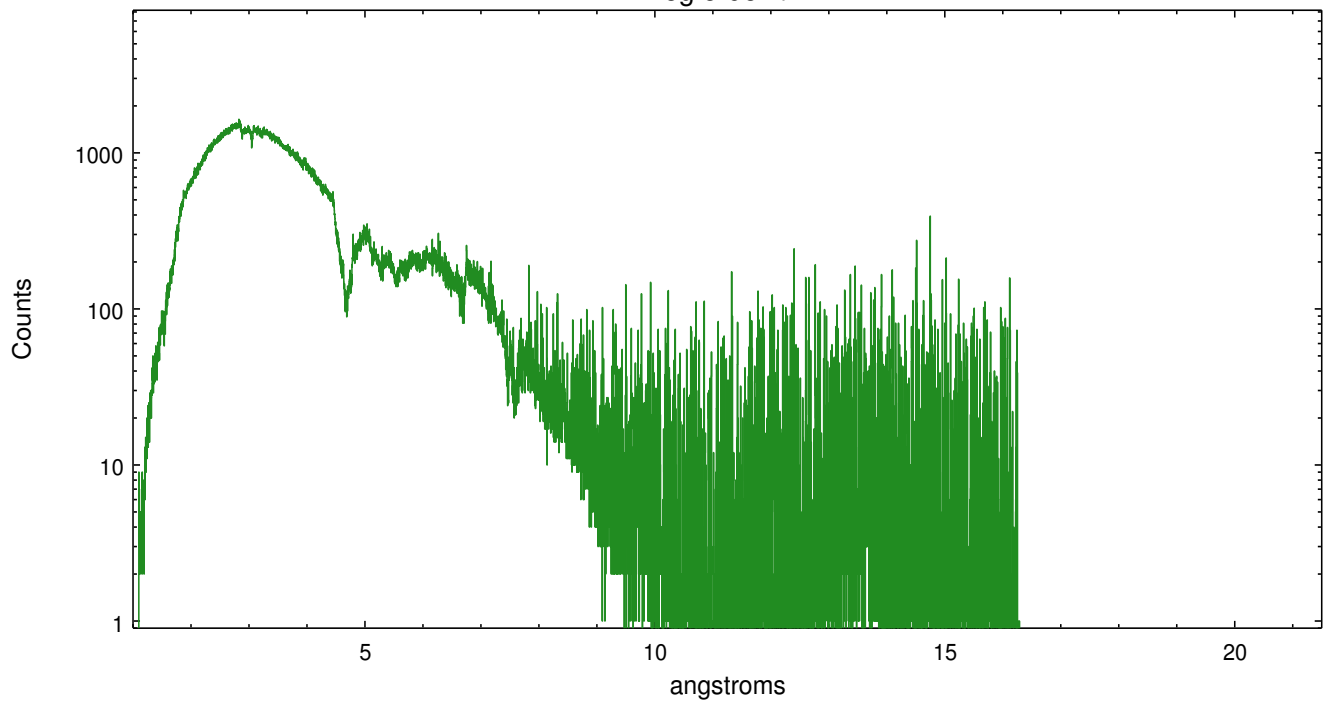
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	83678	163240	1533155	256634	1393273	141073	68189



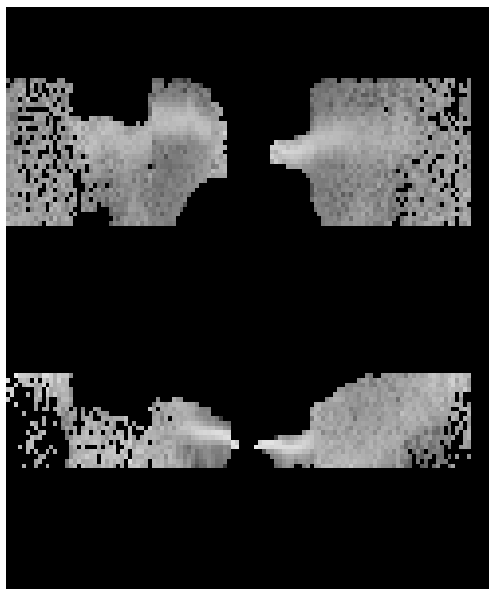
heg order -1



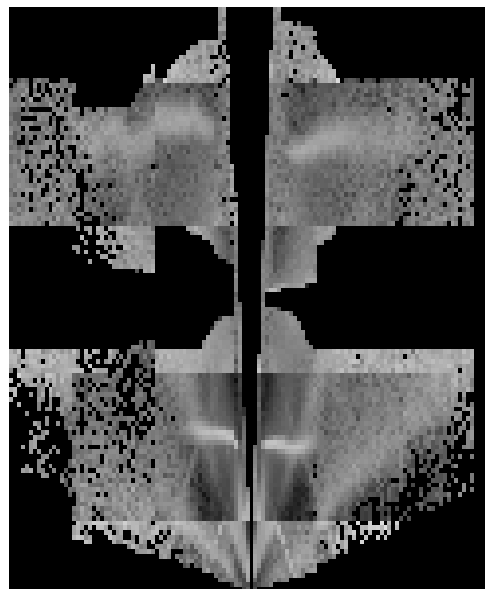
heg order +1



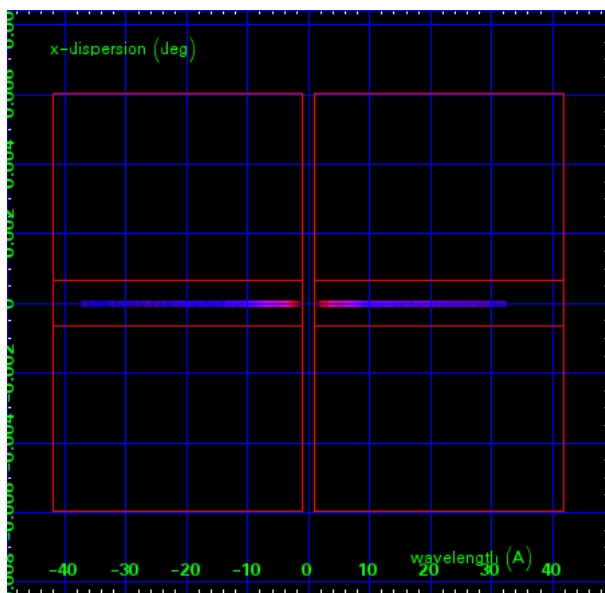
### 3.2 MEG Arm



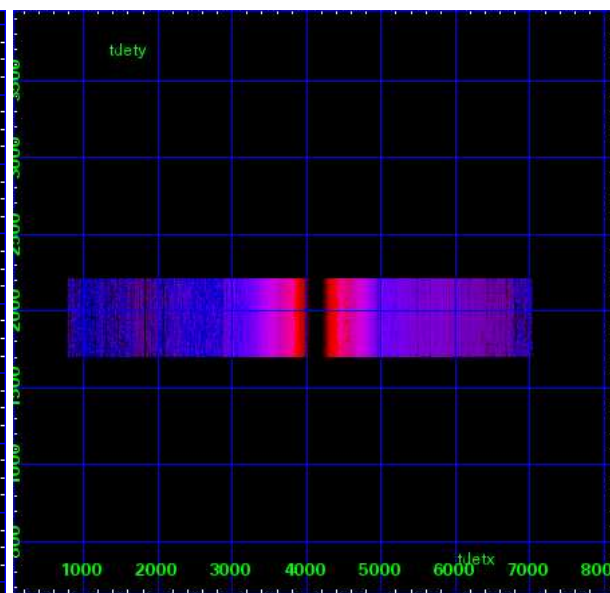
MEG Order Sort 123



MEG Order Sort ALL

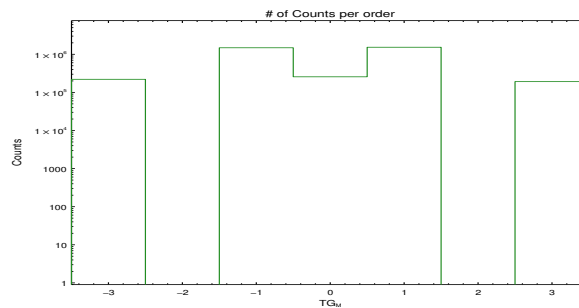


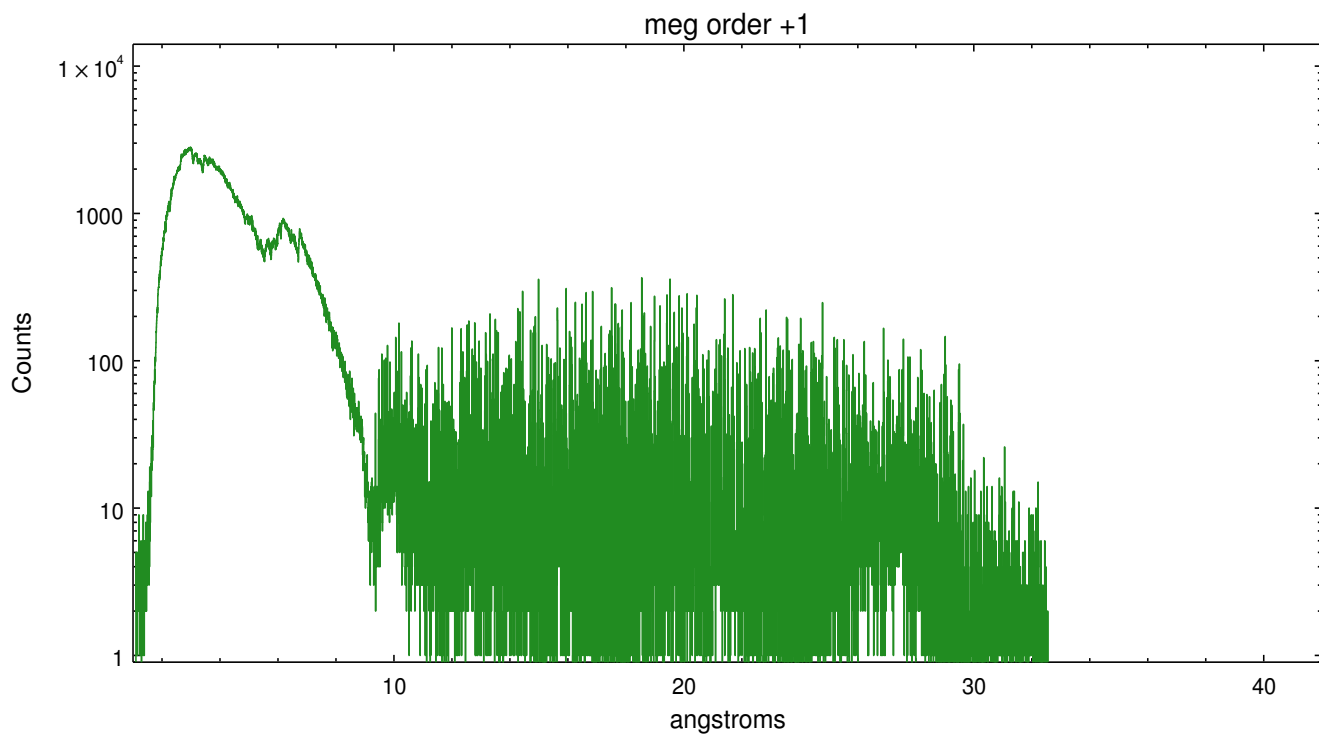
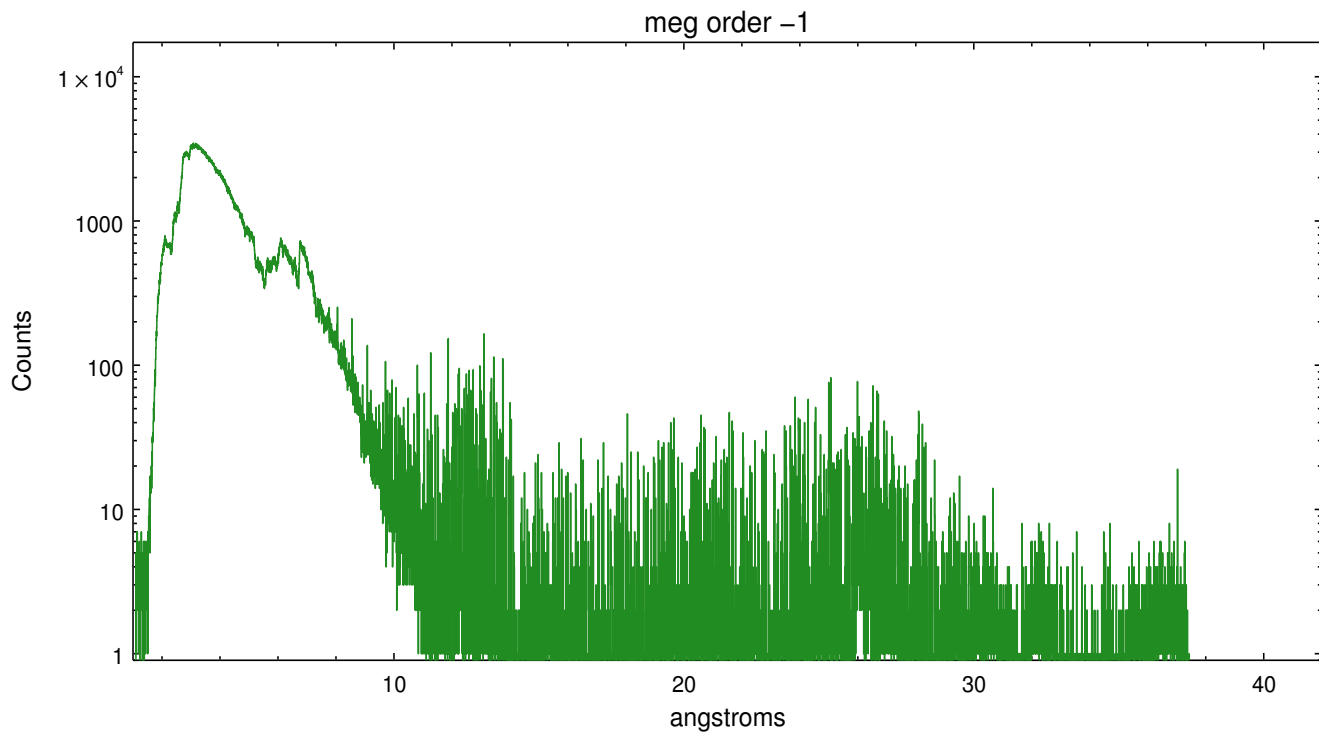
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	220406	0	1484136	256634	1529829	0	191789





# A Summary

## A.1 Status

V&V Scientist	Glenn Allen
V&V Date (YYYY-MM-DD)	2015.02.25
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	40.06375

## A.2 Comments

The chipy-dependent times, coordinates, and pulse heights of continuous-clocking mode event data are based upon the assumption that the unknown chipy coordinates are at the projected instantaneous (dithered) chipy location of the target source (i.e. at the location specified by the keywords `ra_targ` and `dec_targ`). Provided these coordinates are accurate, the times of arrival, coordinates, and pulse heights should be accurate except for events along the arms of the hetg spectrum. For such events, the chipy location of zeroth order is used instead of the order- and grating-dependent chipy location. The accuracy of the times and pulse heights of these grating events decreases as the distance between the location of zeroth order and the location of the dispersed photon increases. Changes to `acis_process_events` and `tg_resolve_events` are being implemented to address the problem with continuous-clocking mode hetg data.