

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 12297 - L2 Version 3  
Chandra X-Ray Center

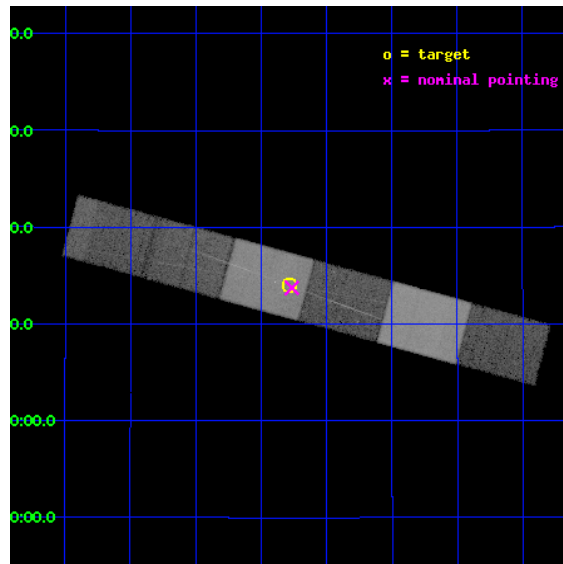
L2 Processing Date : Feb 8 2012

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# 1 Front

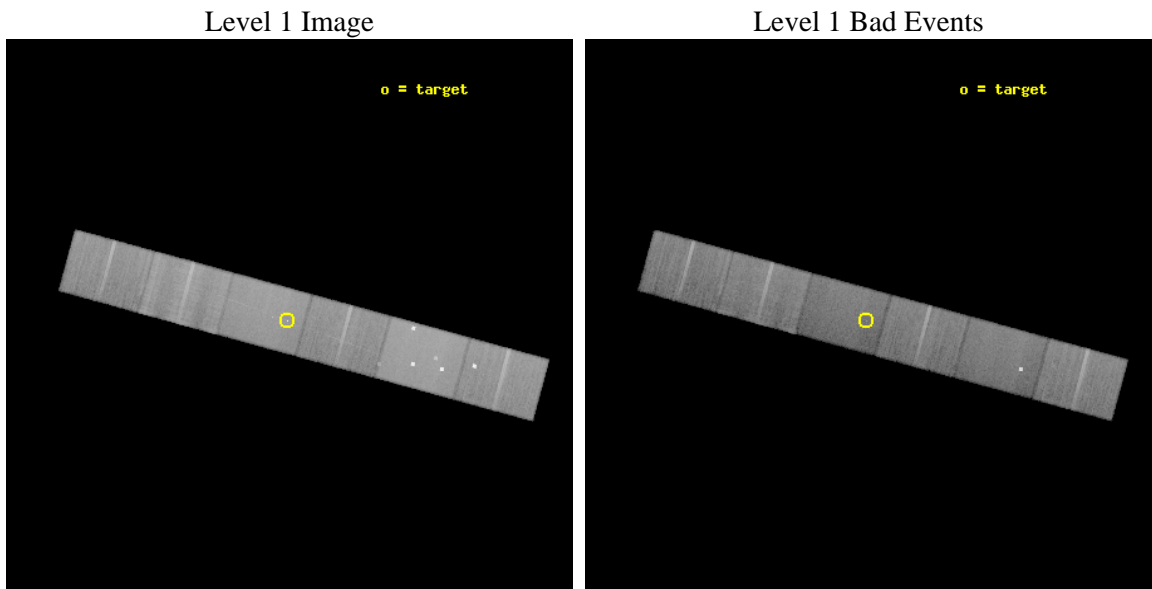
seq_num	200659	Sequence number
obs_id	12297	Observation id
title	FK Comae, King of Spin: the Movie	Proposal title
observer	Dr. Thomas Ayres	Principal investigator
object	FK COMAE	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	202.695	Observer's specified target RA [deg]
dec_targ	24.232667	Observer's specified target Dec [deg]
ra_nom	202.69134318343	Nominal RA [deg]
dec_nom	24.229132455648	Nominal Dec [deg]
roll_nom	195.15811310487	Nominal Roll [deg]
revision	3	Processing version of data
ontime	40145.0	Sum of GTIs [s]
livetime	39496.623429777	Livetime [s]
ontime4	40145.0	Sum of GTIs [s]
ontime5	40145.0	Sum of GTIs [s]
ontime6	40145.0	Sum of GTIs [s]
ontime7	40145.0	Sum of GTIs [s]
ontime8	40145.0	Sum of GTIs [s]
ontime9	40145.0	Sum of GTIs [s]
l2events	337139	Number of level 2 events



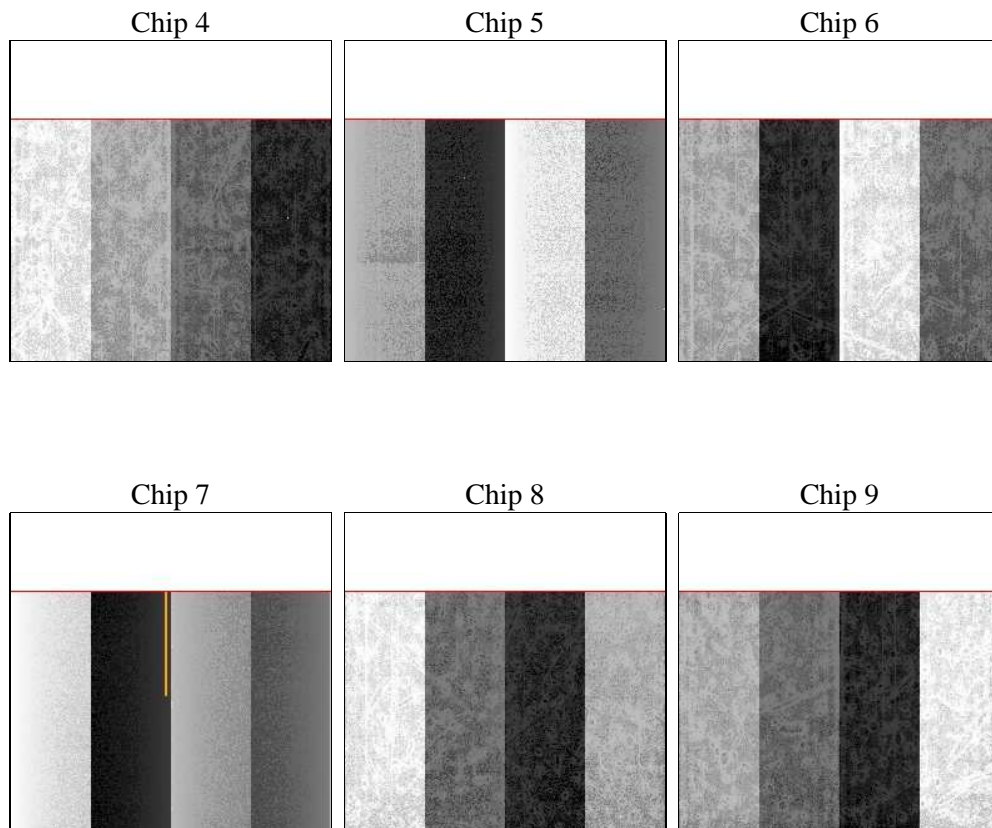
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	40000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	40145.0	Sum of GTIs [s]
caldbver	4.4.7	&#160	ontime4	40145.0	Sum of GTIs [s]
date	2012-02-09T00:15:17	Date and time of file creation	ontime5	40145.0	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	40145.0	Sum of GTIs [s]
			ontime7	40145.0	Sum of GTIs [s]
			ontime8	40145.0	Sum of GTIs [s]
			ontime9	40145.0	Sum of GTIs [s]
			l1events	1465907	Number of level 1 events

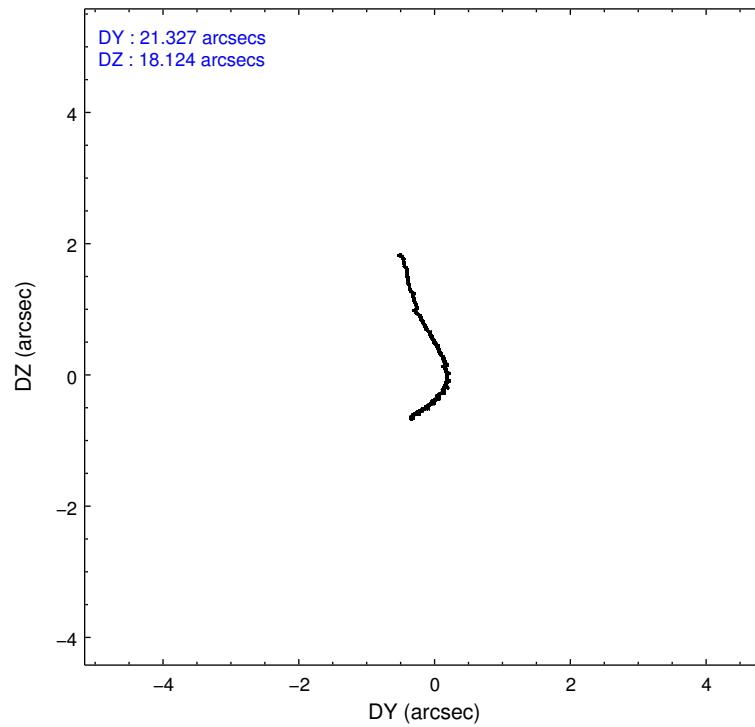
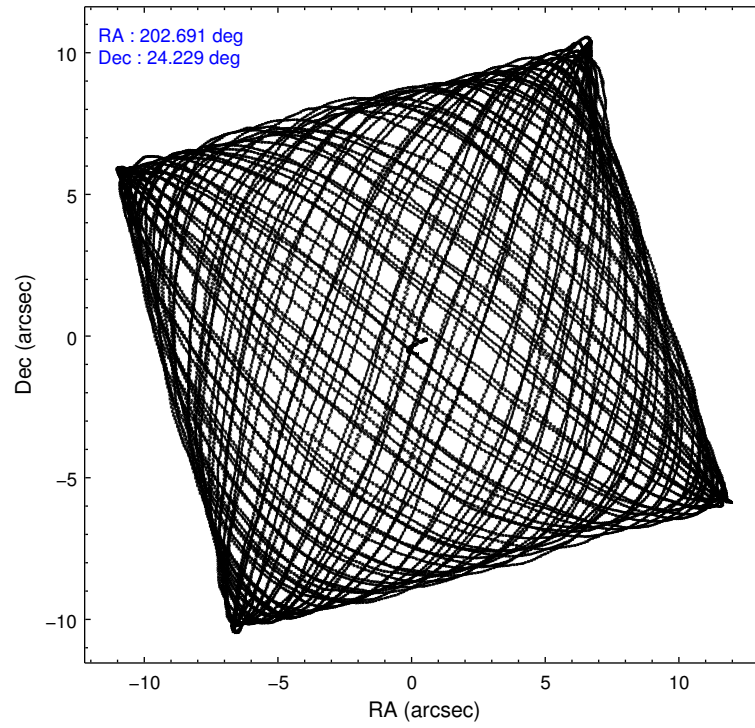
### 2.1.4 Events

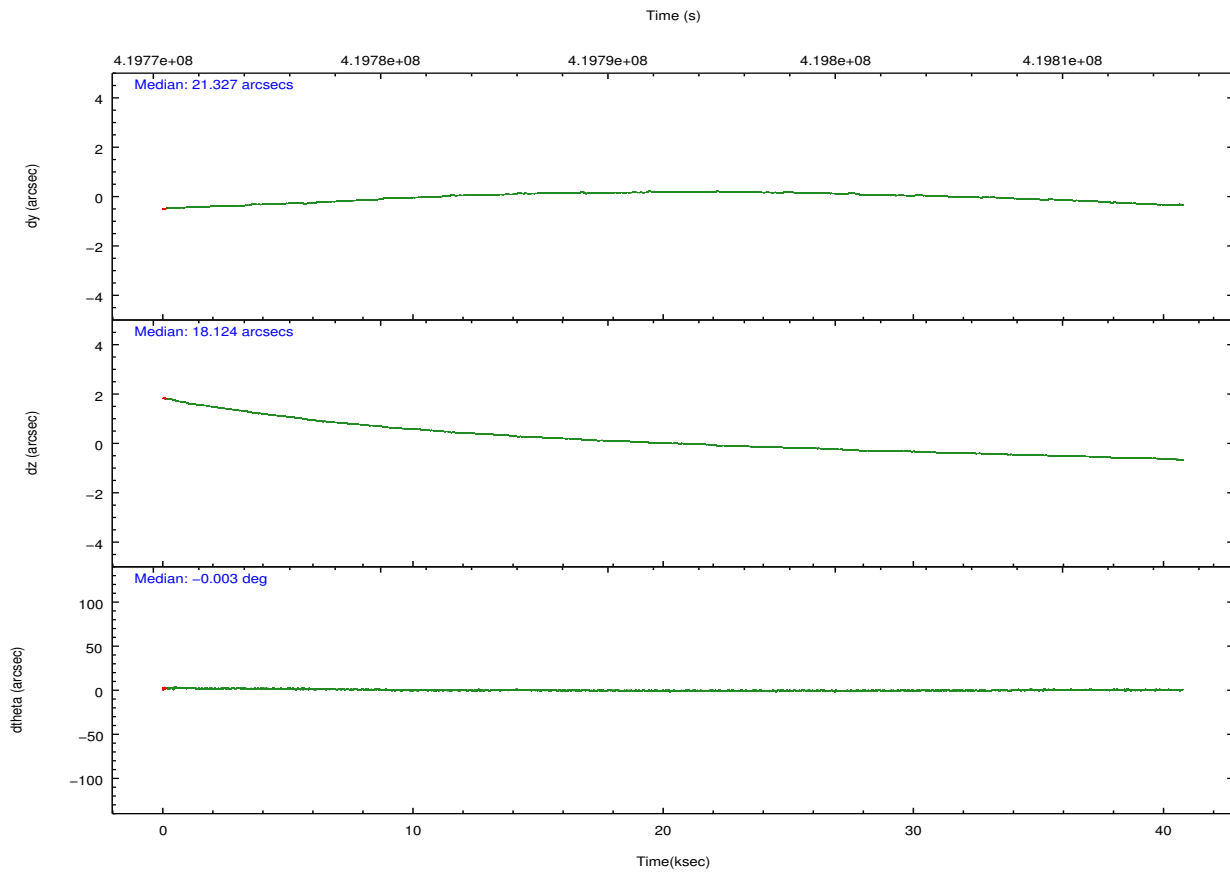
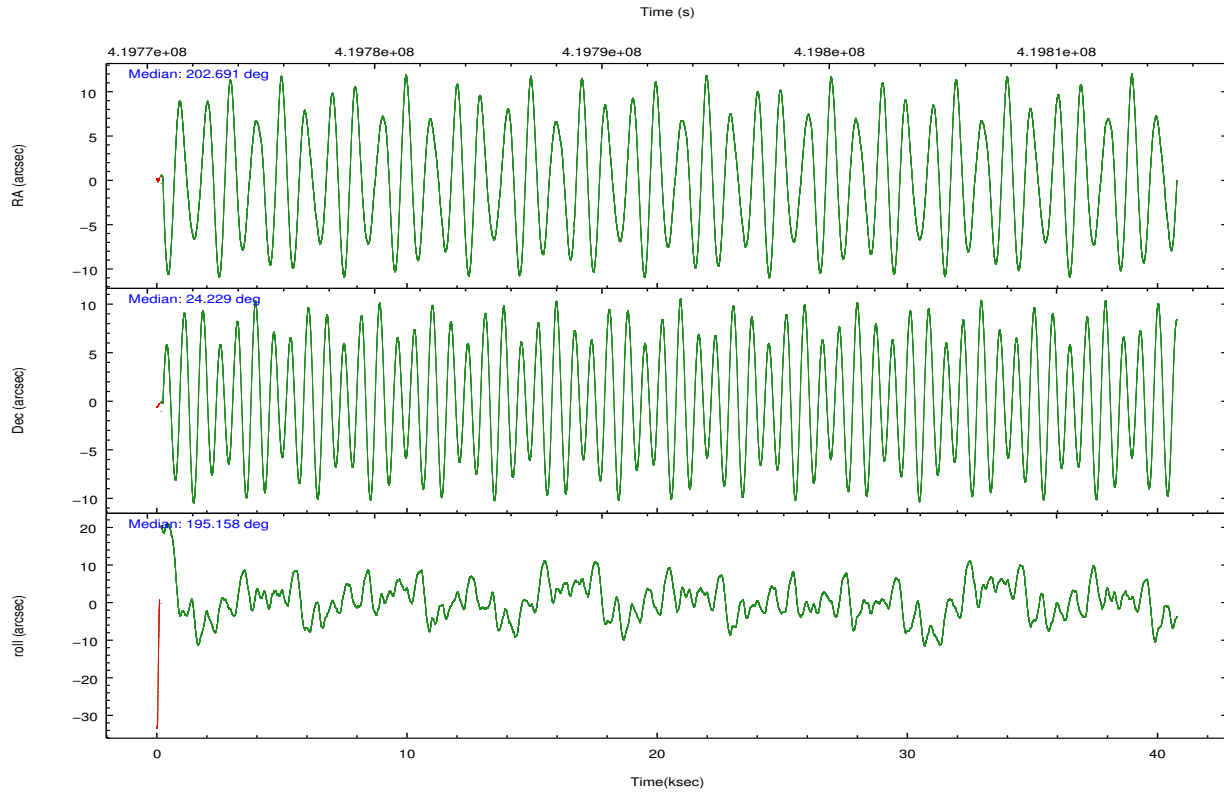
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	235197	336367	193724	249398	257293	193928	grade 0 events	20059	35726	9159	10822	18560	8480
rejected events	199580	161840	169055	134525	190517	169751		8%	10%	4%	4%	7%	4%
rejected %	84%	48%	87%	53%	74%	87%	grade 1 events	172	581	93	295	163	107
								0%	0%	0%	0%	0%	0%
							grade 2 events	6060	47046	5363	23835	16119	5256
								2%	13%	2%	9%	6%	2%
							grade 3 events	2592	7075	2596	10599	6934	2731
								1%	2%	1%	4%	2%	1%
							grade 4 events	2617	6629	2483	10751	6534	2545
								1%	1%	1%	4%	2%	1%
							grade 5 events	9139	26512	8987	26112	13075	9916
								3%	7%	4%	10%	5%	5%
							grade 6 events	4293	78070	5071	58884	18635	5168
								1%	23%	2%	23%	7%	2%
							grade 7 events	190265	134728	159972	108100	177273	159725
								80%	40%	82%	43%	68%	82%

## 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	202.712215	202.6913431834293	CCD I2 on	N	N
[deg] Pointing Dec	24.248782	24.22913245564786	CCD I3 on	N	N
[deg] Pointing Roll	194.992927	195.1581131048676	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	-187.132523	-187.1254020033014	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-3	-3.007120579706367	CCD S4 on	Y	Y
[s] Observation start time (MET)	419773255.184000	419771918.51674	CCD S5 on	Y	Y
Observation start date	2011-04-21T11:39:49	2011-04-21T11:18:38	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	419813255.184000	419814300.21894	On-chip summing requested	N	N
Observation end date	2011-04-21T22:46:29	2011-04-21T23:05:00	Subarray requested	CUSTOM	CUSTOM
Read mode	TIMED	TIMED	Subarray start row	1	1
			Subarray row count	774	774
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	2.5

## 2.3 Aspect





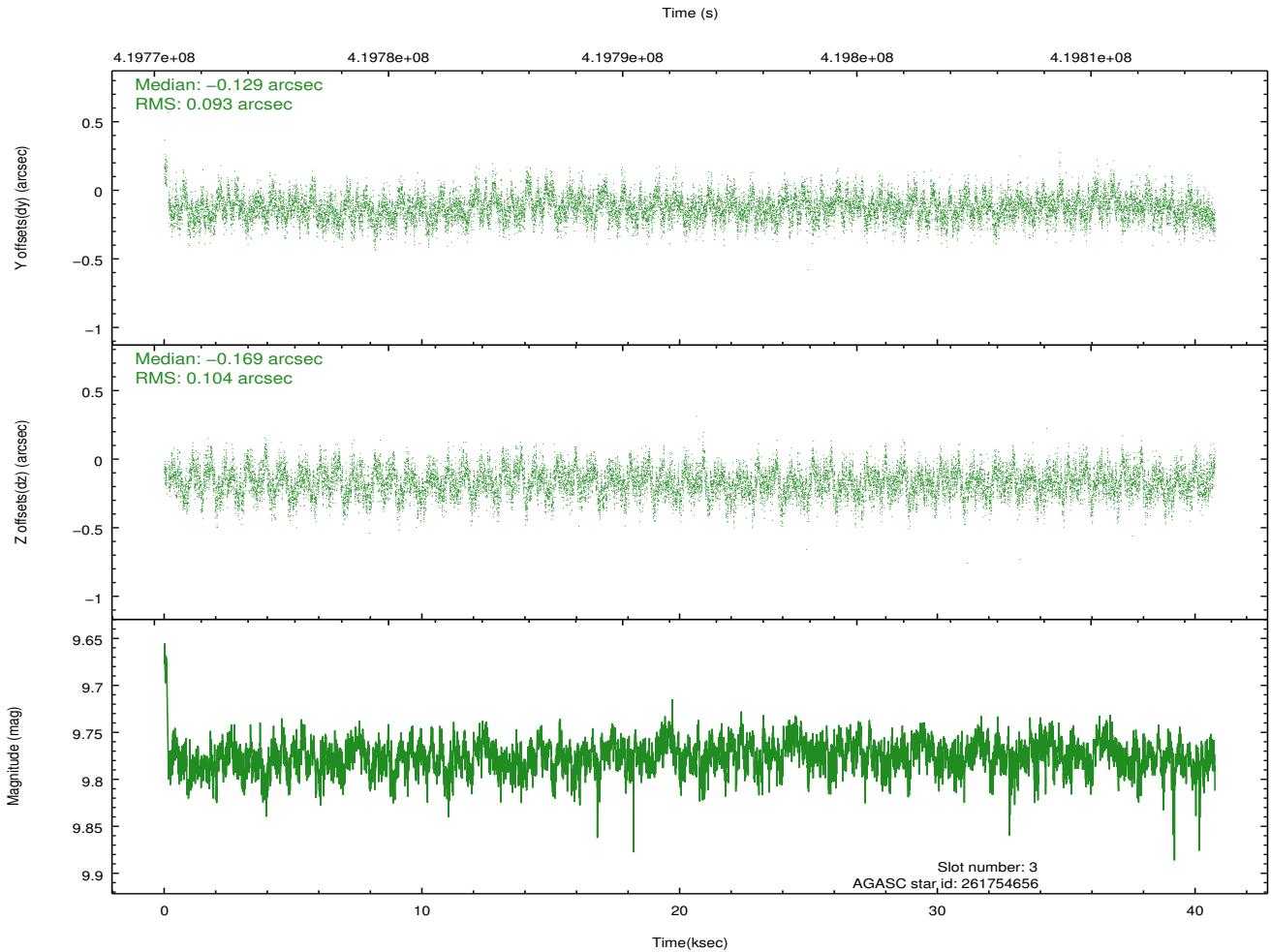
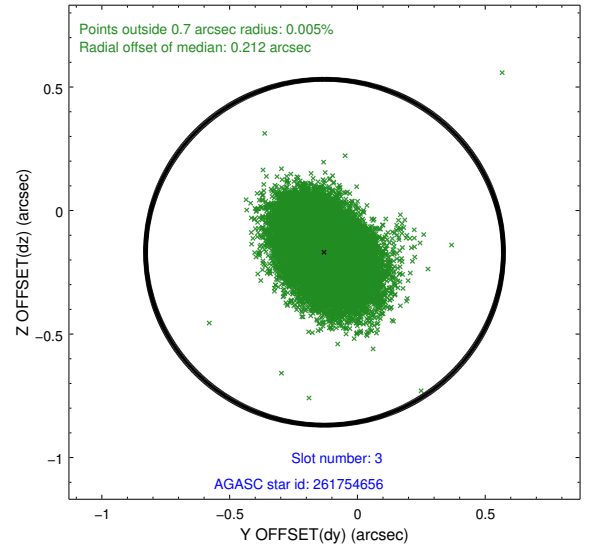
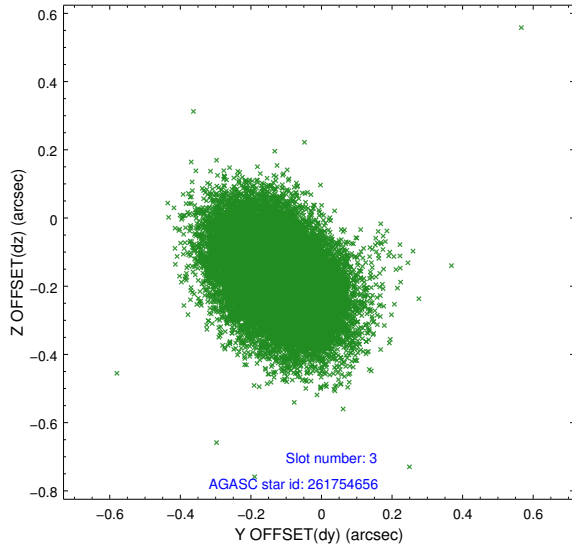
### Slot Statistics

	status	id	mag	n_pts	med_dy	med_dz	dr1
	FID	ACIS-S-2	6.94	9927	-0.155	-0.095	0.013
	FID	ACIS-S-4	7.01	9927	0.152	0.093	0.010
	FID	ACIS-S-6	7.20	9927	-0.025	0.007	0.017
	GUIDE	261754656	9.78	19816	-0.129	-0.169	0.147
	GUIDE	261754936	8.89	19852	0.002	0.036	0.158
	GUIDE	261755088	10.29	19777	-0.205	0.146	0.229
	GUIDE	261756656	9.53	19670	0.335	-0.011	0.116
0.000	0.000	0.000	0.000000	0.000000	0.00	0.00	

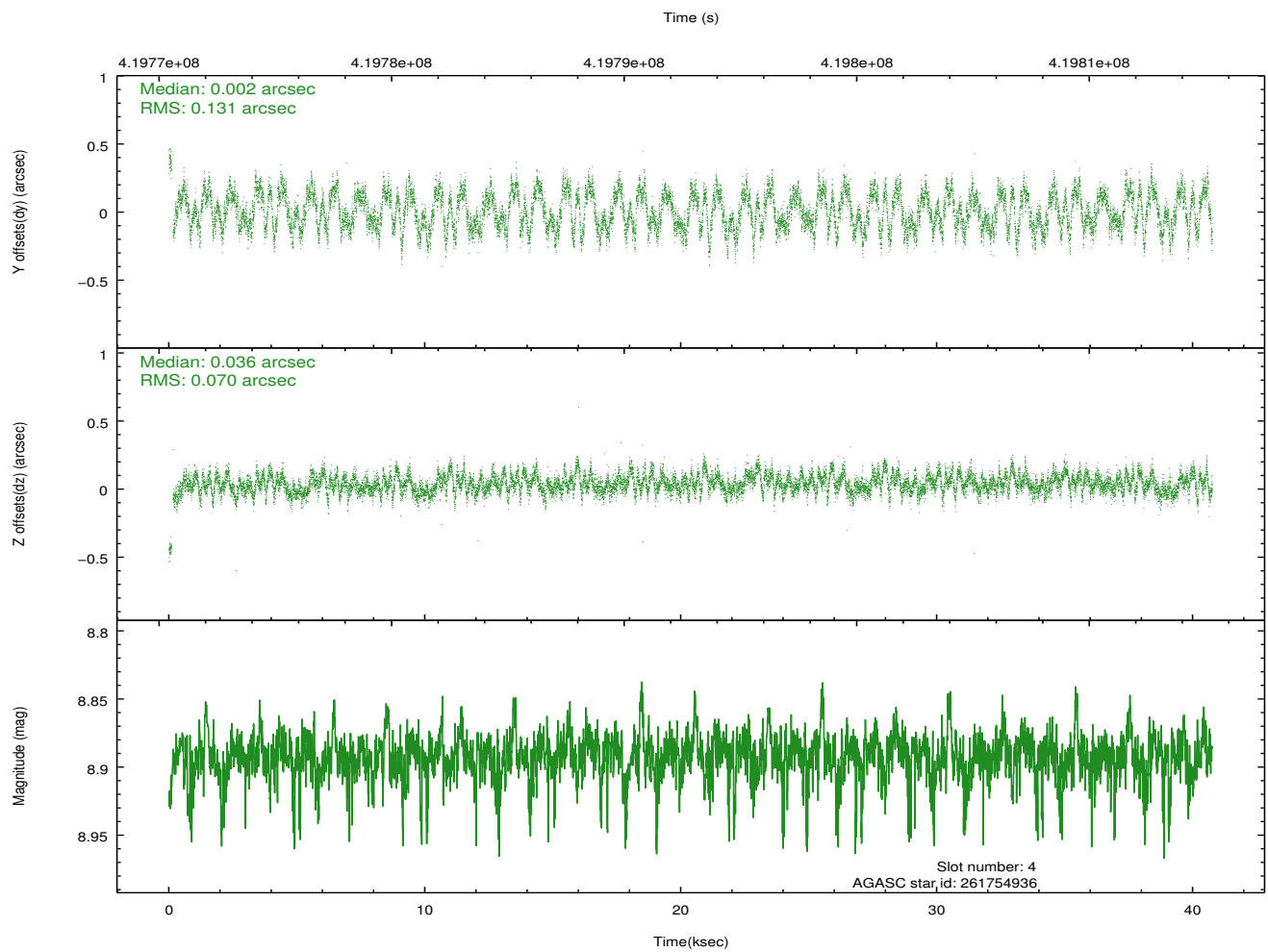
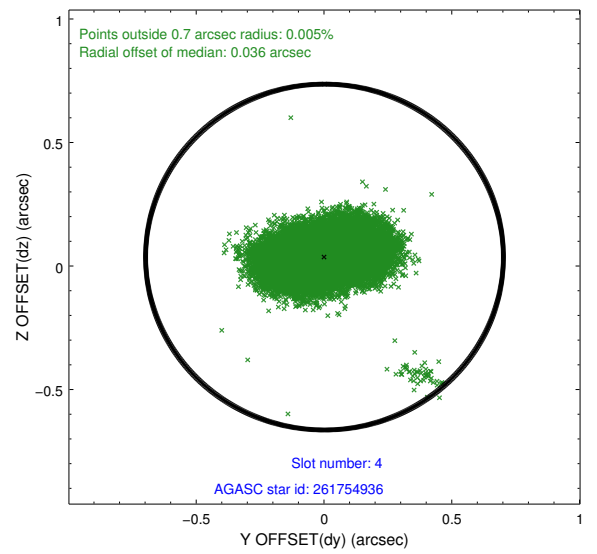
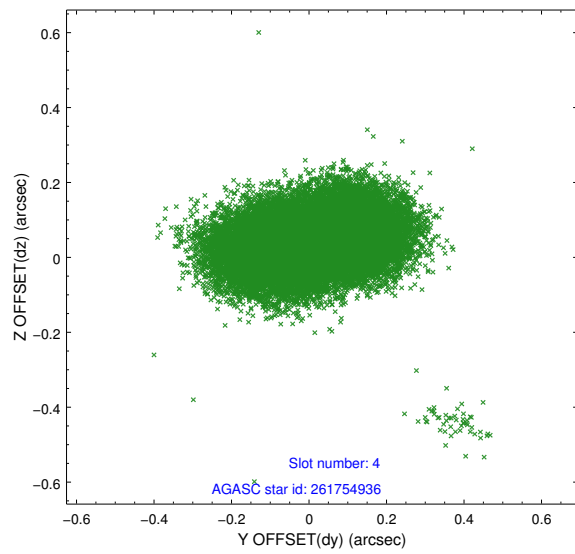
∞

## 2.4 Star Slots

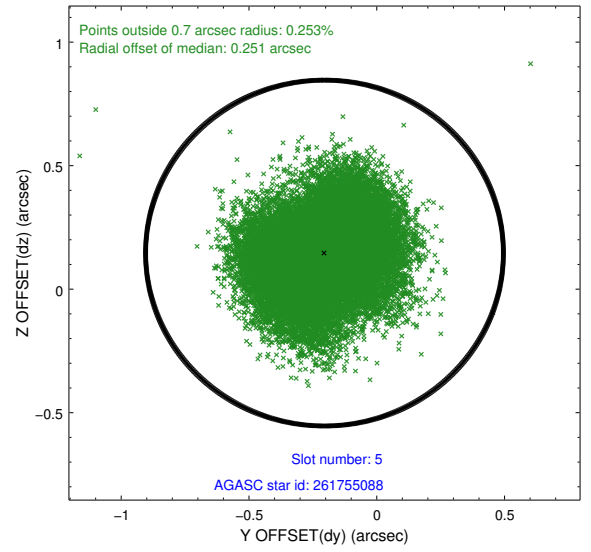
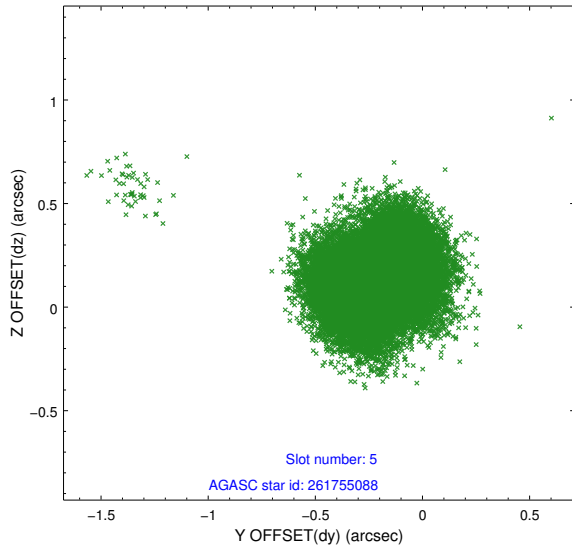
### 2.4.1 Slot 3



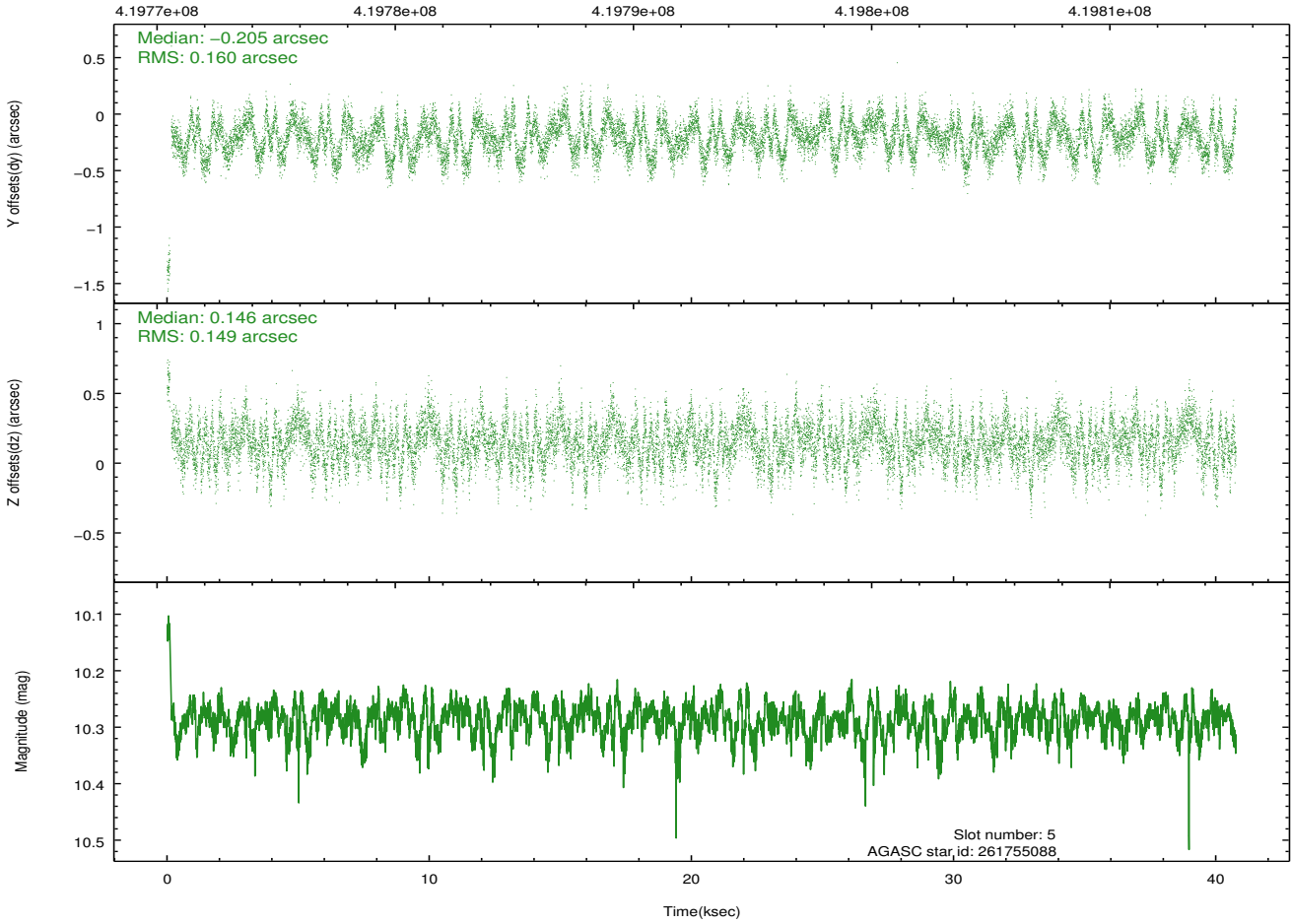
## 2.4.2 Slot 4



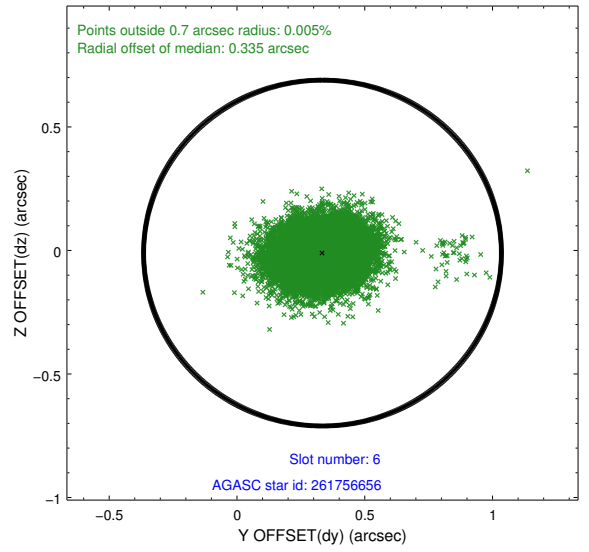
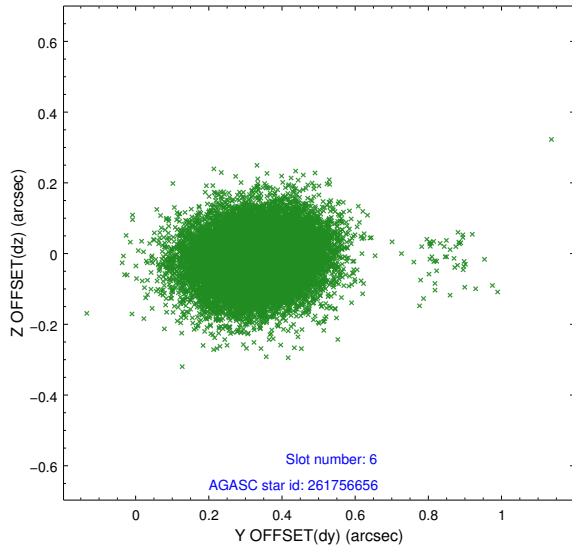
### 2.4.3 Slot 5



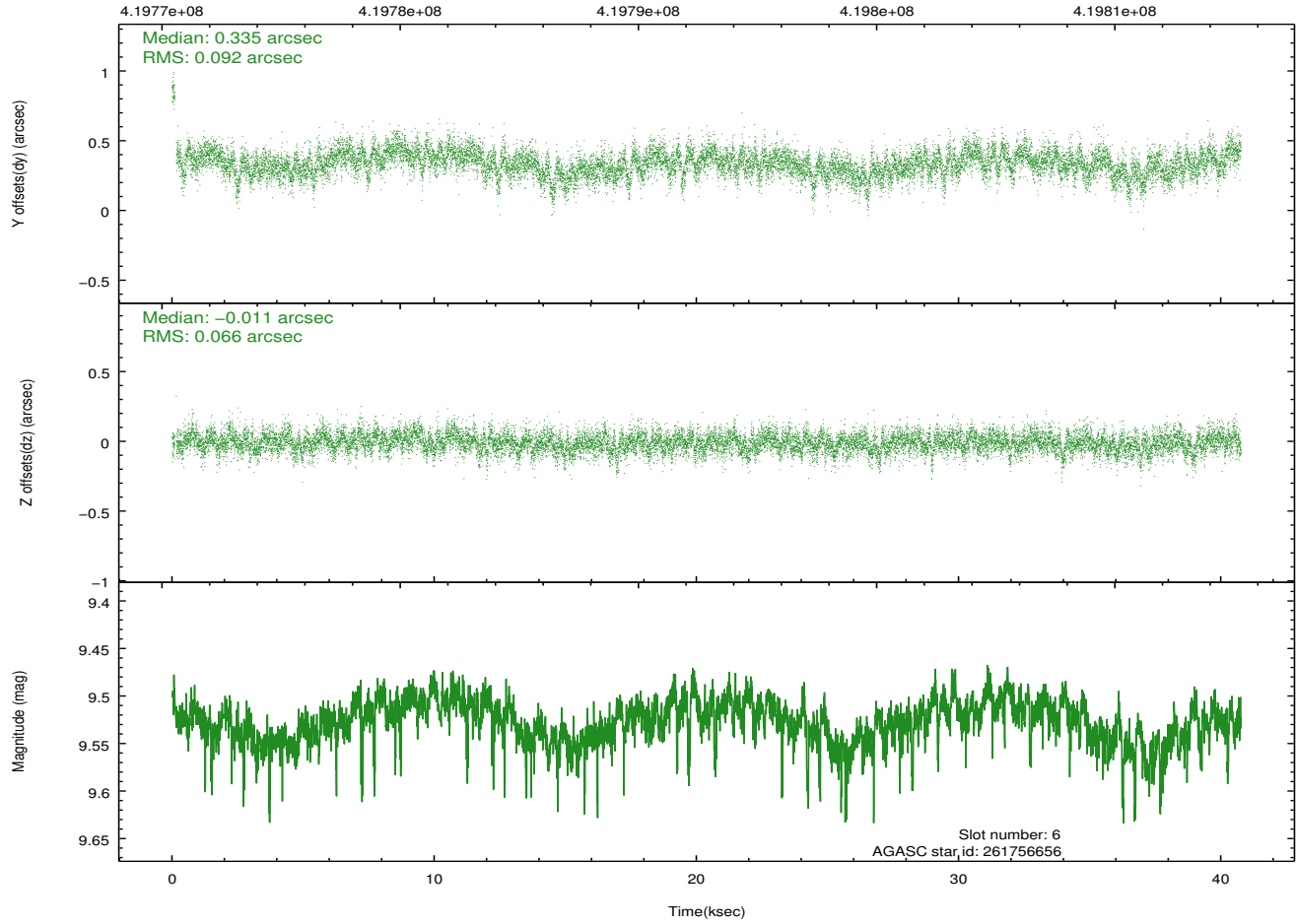
Time (s)



### 2.4.4 Slot 6

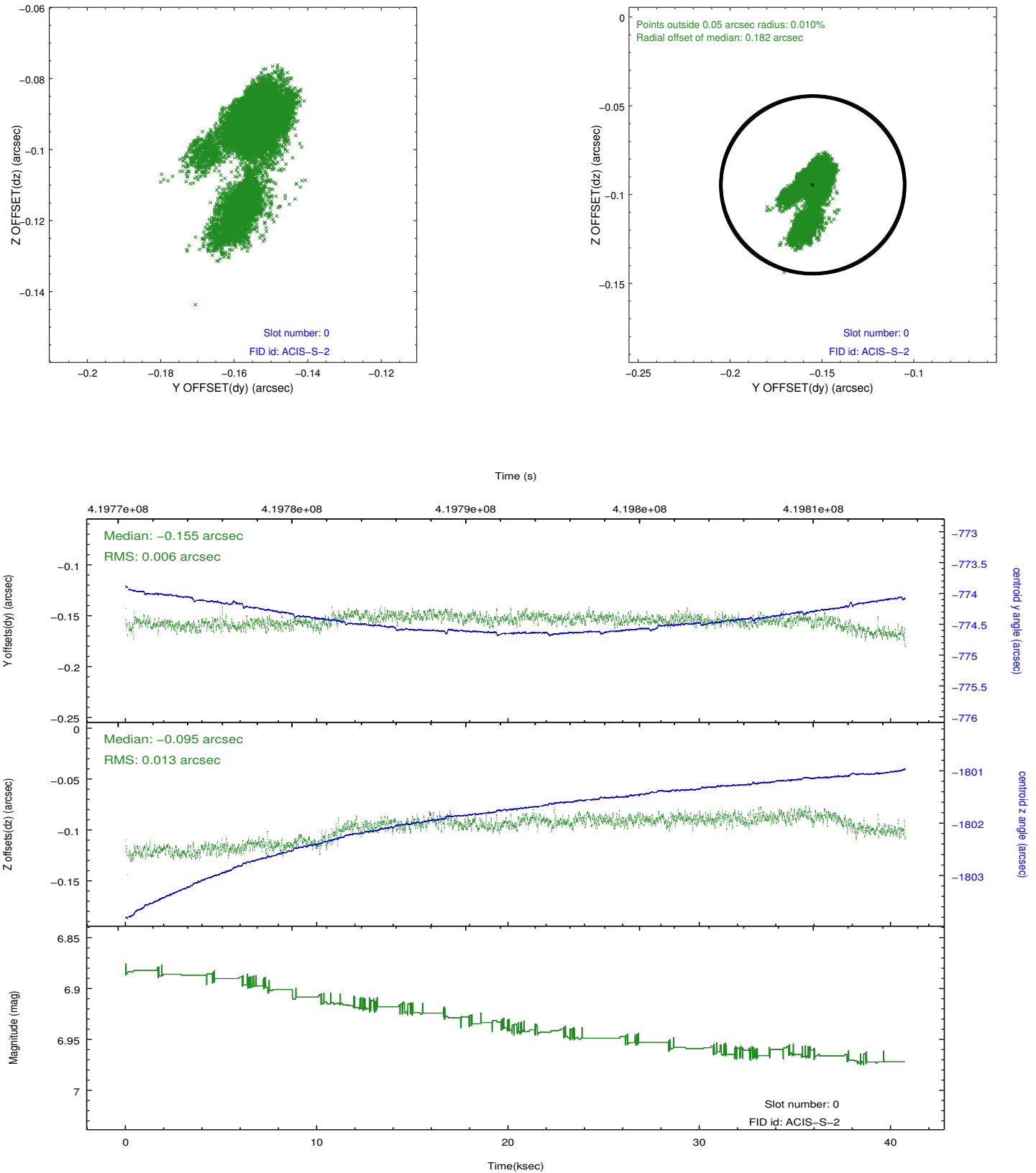


Time (s)

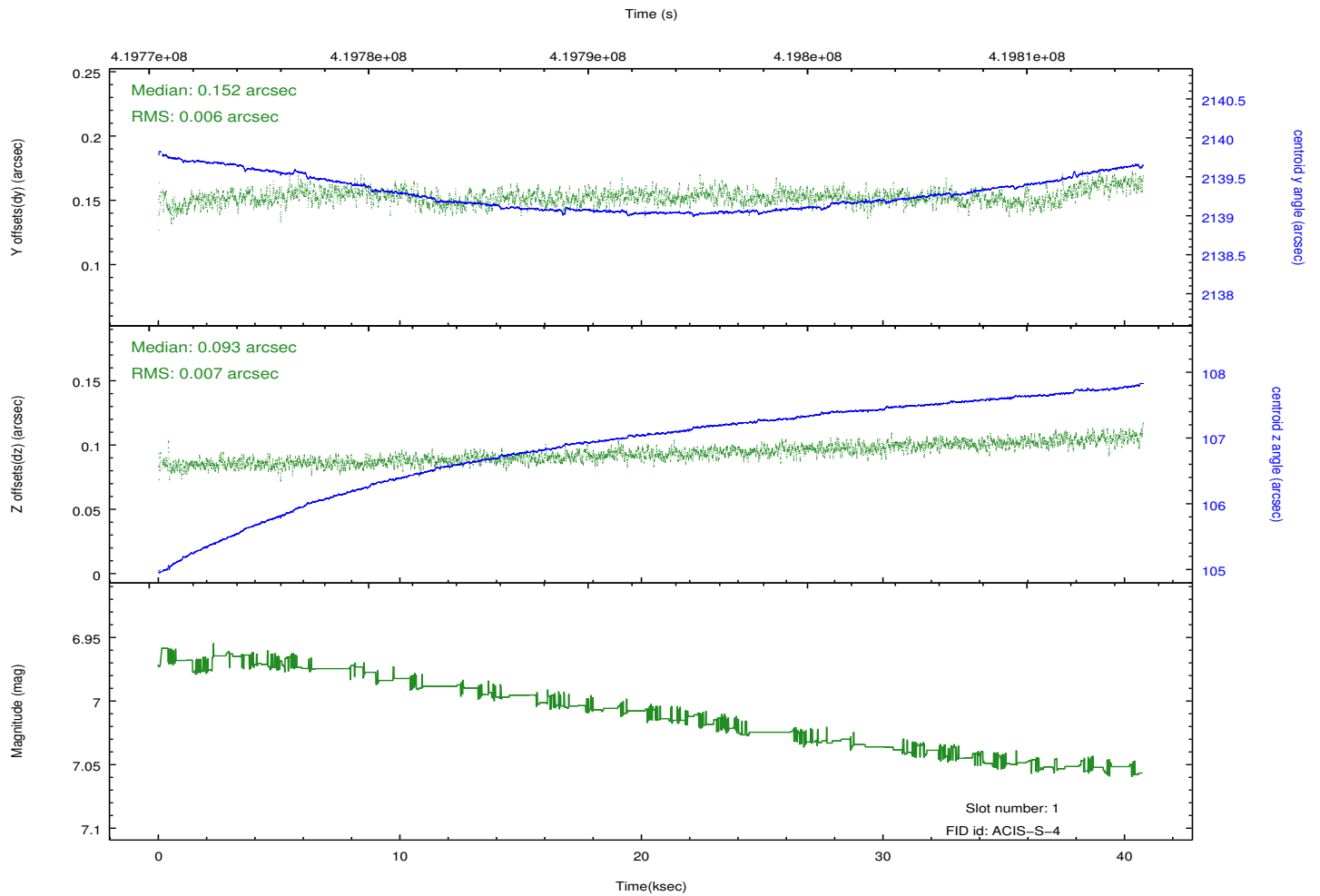
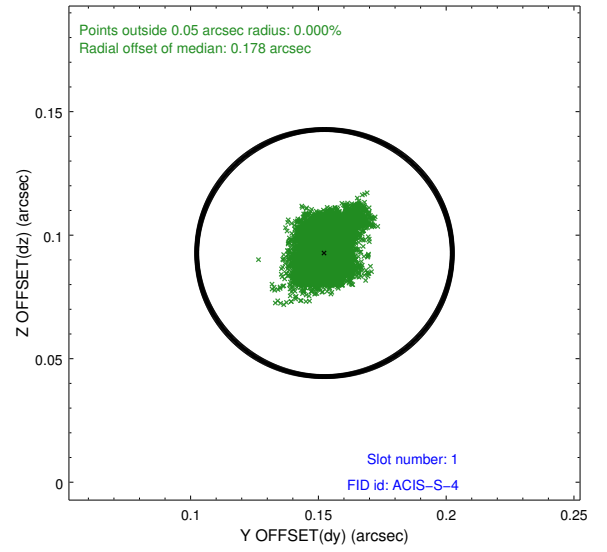
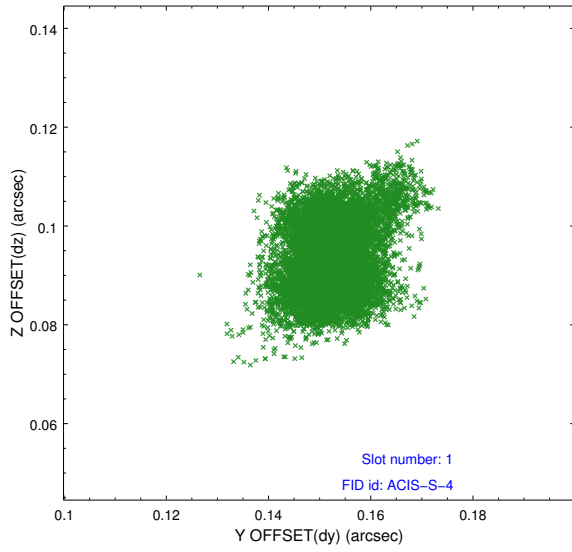


## 2.5 FID Slots

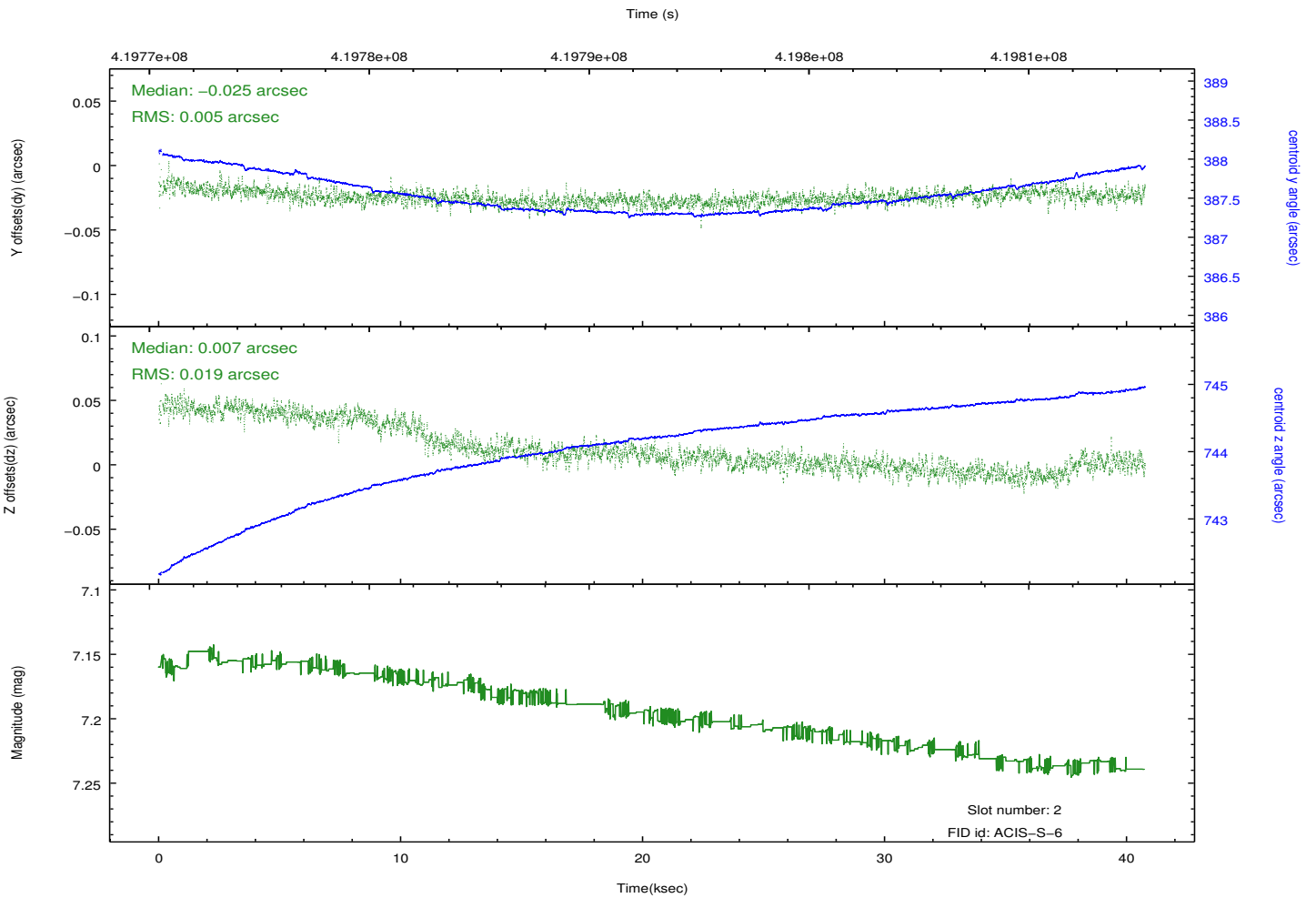
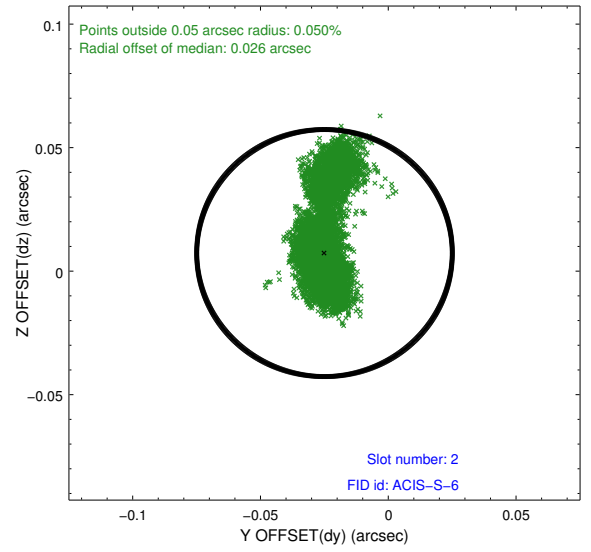
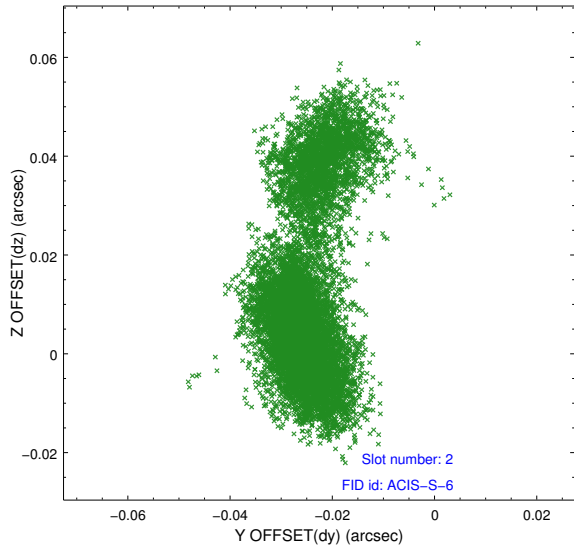
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

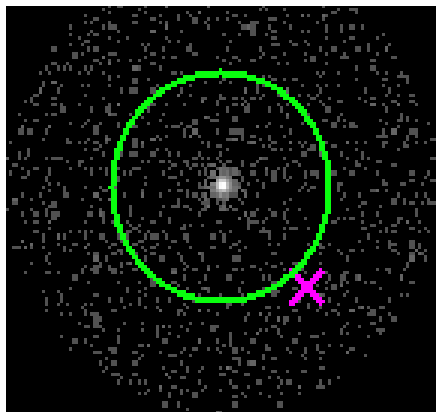


### 3 Gratings

#### 3.1 HEG Arm



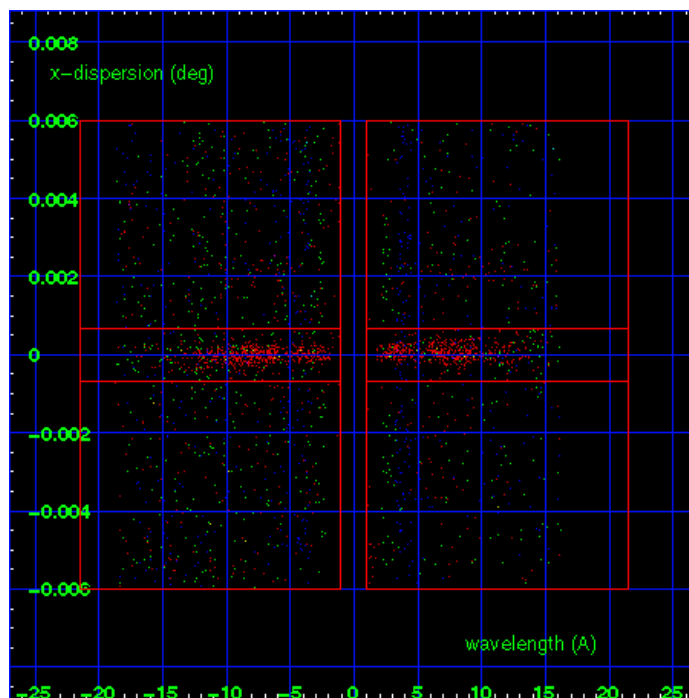
HEG Order Sort 123



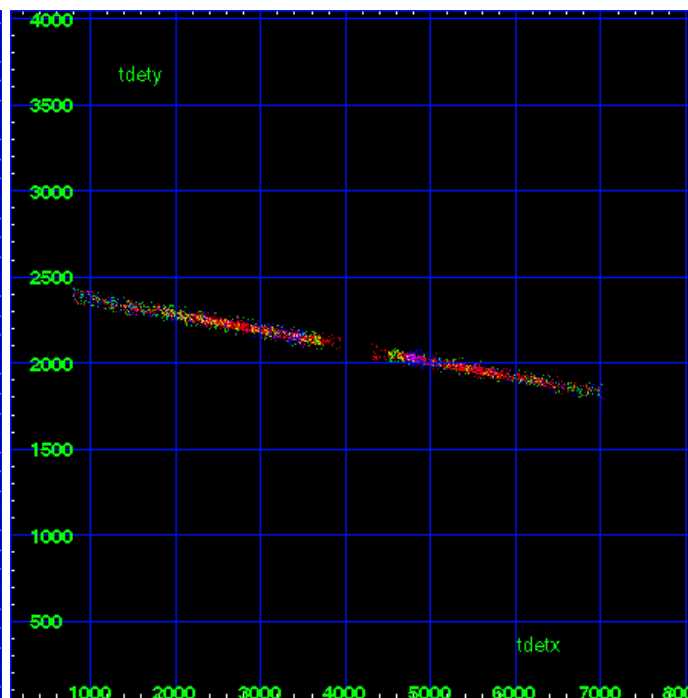
HEG Zero Order



HEG Order Sort ALL

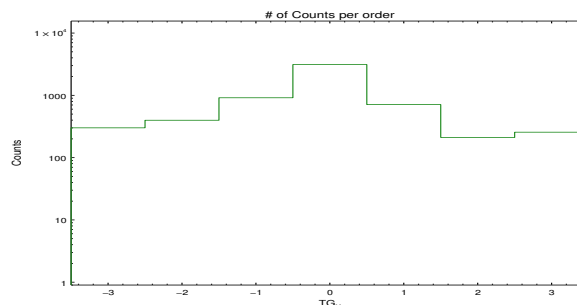


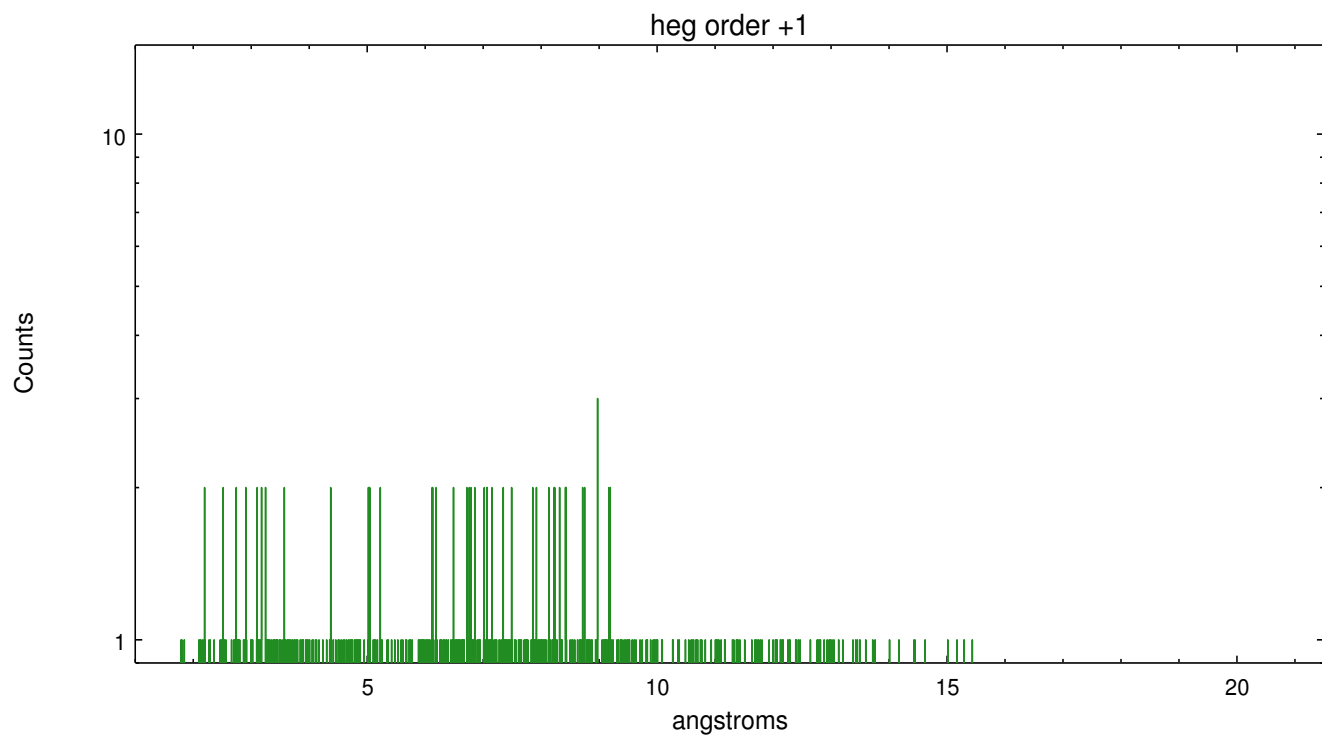
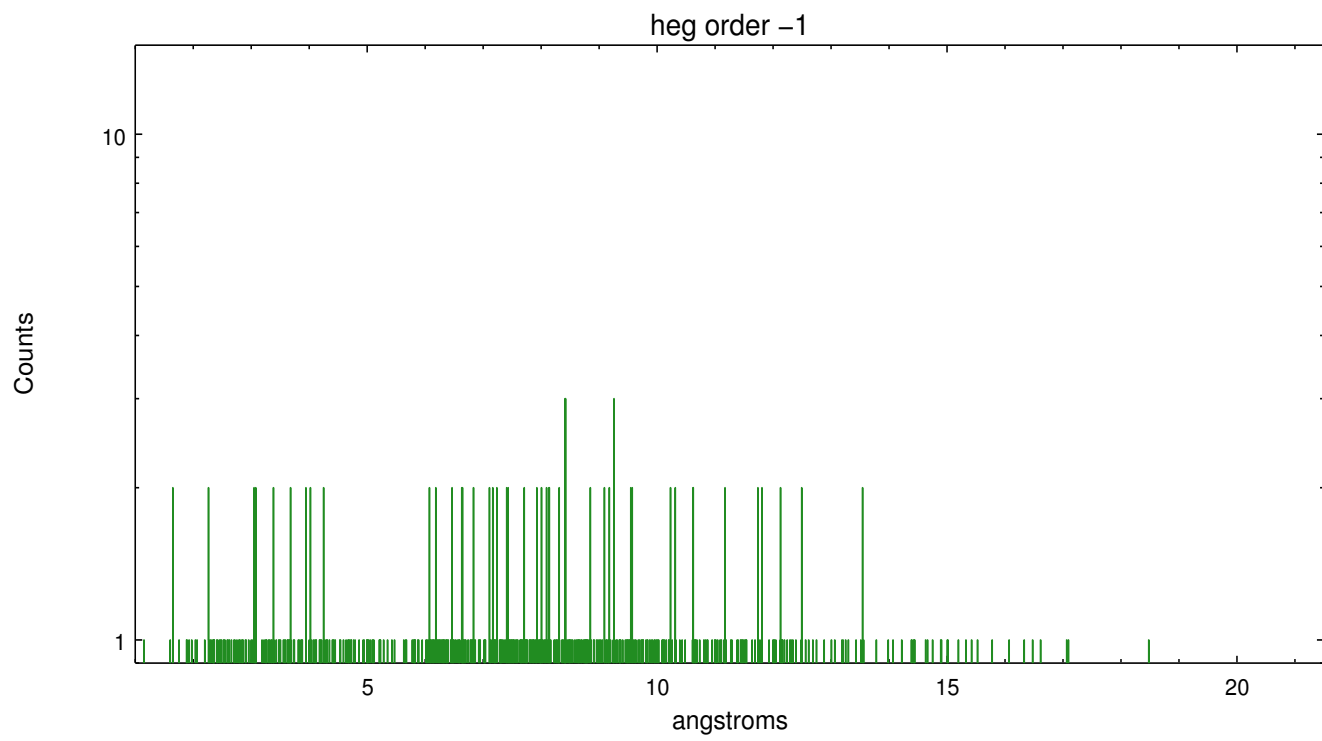
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	301	398	915	3119	711	211	256

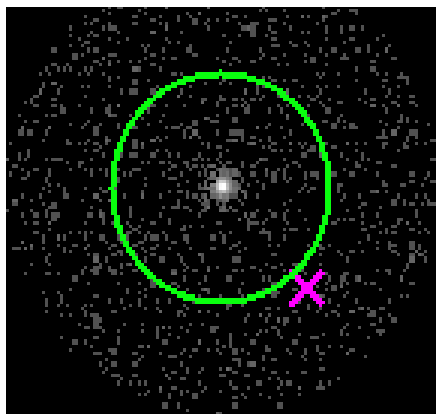




### 3.2 MEG Arm



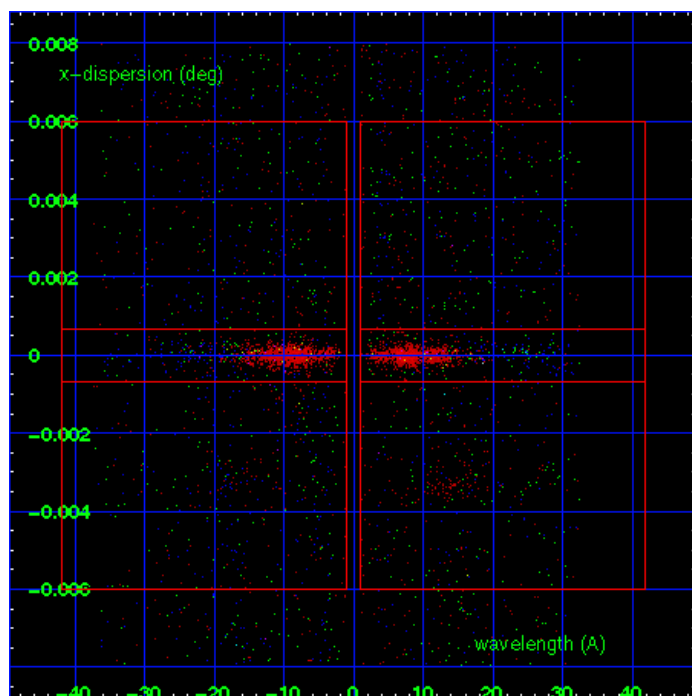
MEG Order Sort 123



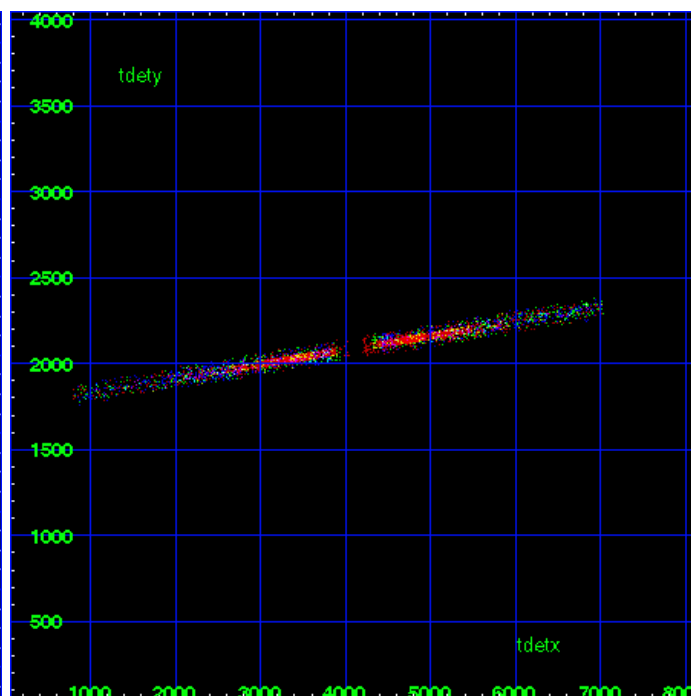
MEG Zero Order



MEG Order Sort ALL

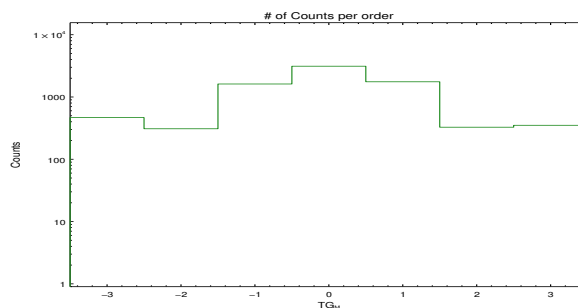


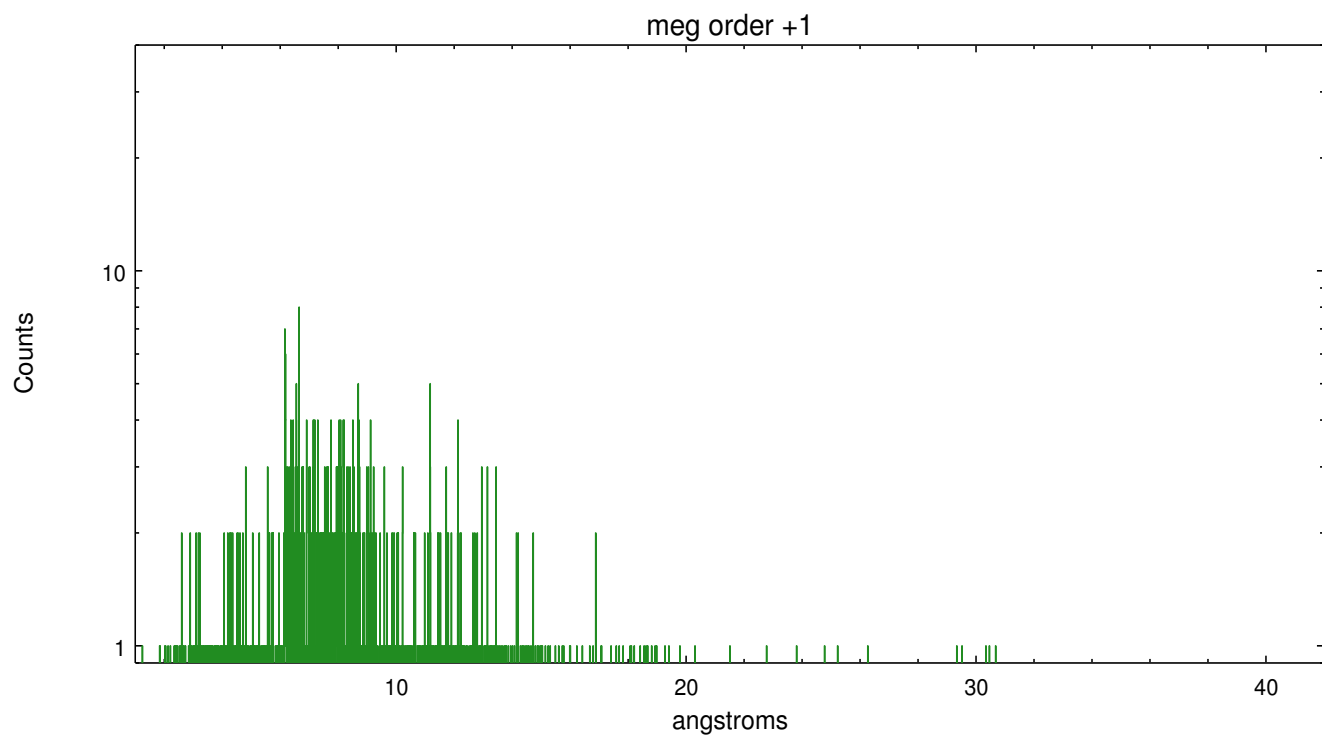
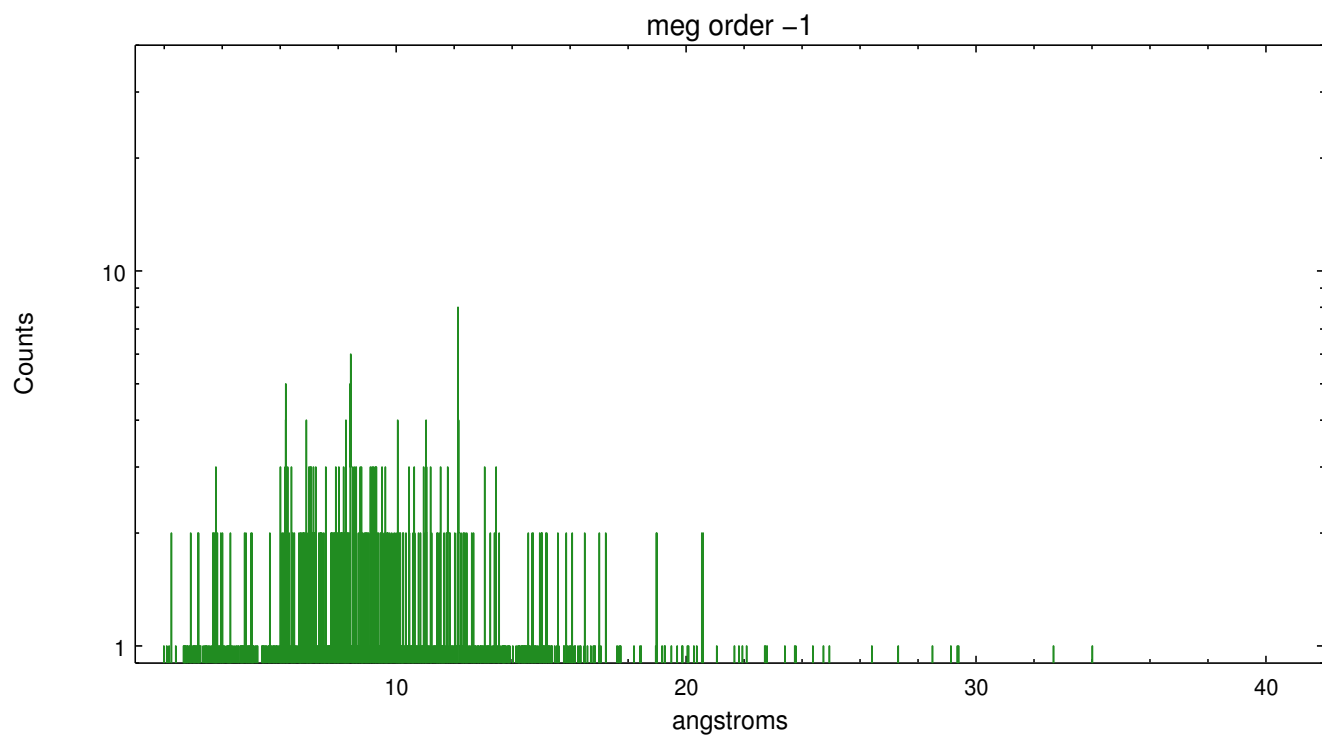
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	467	309	1617	3119	1755	327	351





# A Summary

## A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2012.02.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	40.145

## A.2 Comments

Guide star slot 7 used for optical photometry of the target.

===

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use `acis_process_events` to reprocess the data with the parameter `pix_adj=NONE` or `RANDOMIZE`, respectively.

=====

A spatial region of the original bias map for CCD = 4 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 4 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords:  
(202.36595,24.10607), (202.37028,24.10715), (202.36119,24.13743), (202.35568,24.14029)