

# V&V Reference Report

## L2 ASCDS Version : 10.4.1

Observation 16703 - L2 Version 2  
Chandra X-Ray Center

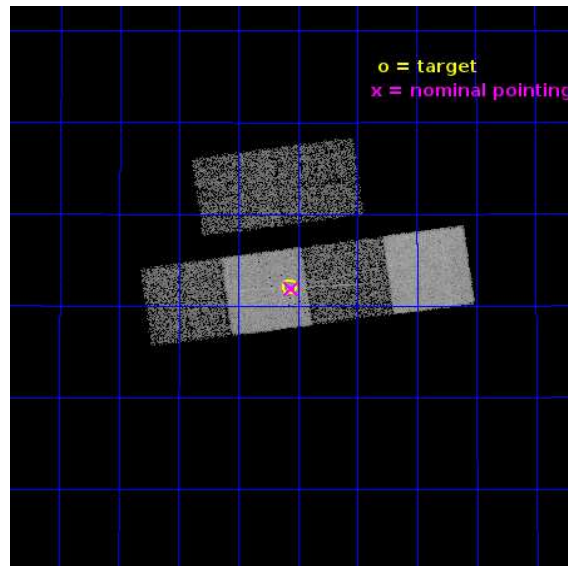
L2 Processing Date : Jul 22 2015

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# 1 Front

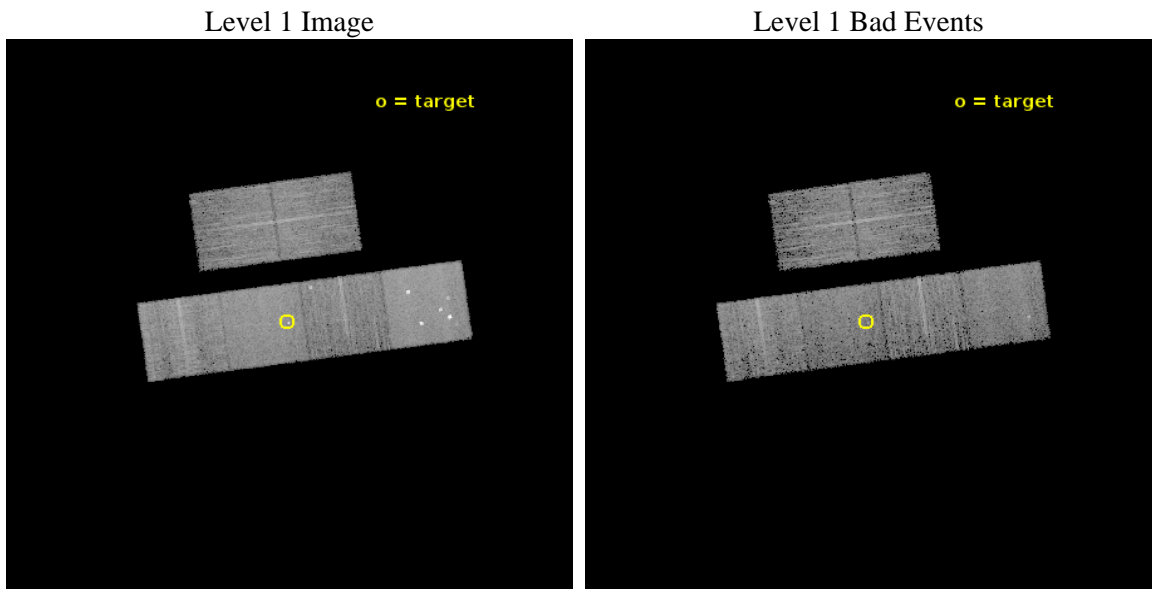
seq_num	401625	Sequence number
obs_id	16703	Observation id
title	Following a black hole X-ray transient through the transition into quiescence	Proposal title
observer	Dr. RICHARD PLOTKIN	Principal investigator
object	V404Cyg	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	306.015958	Observer's specified target RA [deg]
dec_targ	33.867281	Observer's specified target Dec [deg]
ra_nom	306.01339429638	Nominal RA [deg]
dec_nom	33.864953562369	Nominal Dec [deg]
roll_nom	172.11057401367	Nominal Roll [deg]
revision	2	Processing version of data
ontime	8956.8001334667	Sum of GTIs [s]
livetime	8843.3837370392	Livetime [s]
ontime2	8953.5590531826	Sum of GTIs [s]
ontime3	8956.8001334667	Sum of GTIs [s]
ontime5	8956.8001334667	Sum of GTIs [s]
ontime6	8953.5590430498	Sum of GTIs [s]
ontime7	8956.8001334667	Sum of GTIs [s]
ontime8	8956.8001334667	Sum of GTIs [s]
l2events	80857	Number of level 2 events



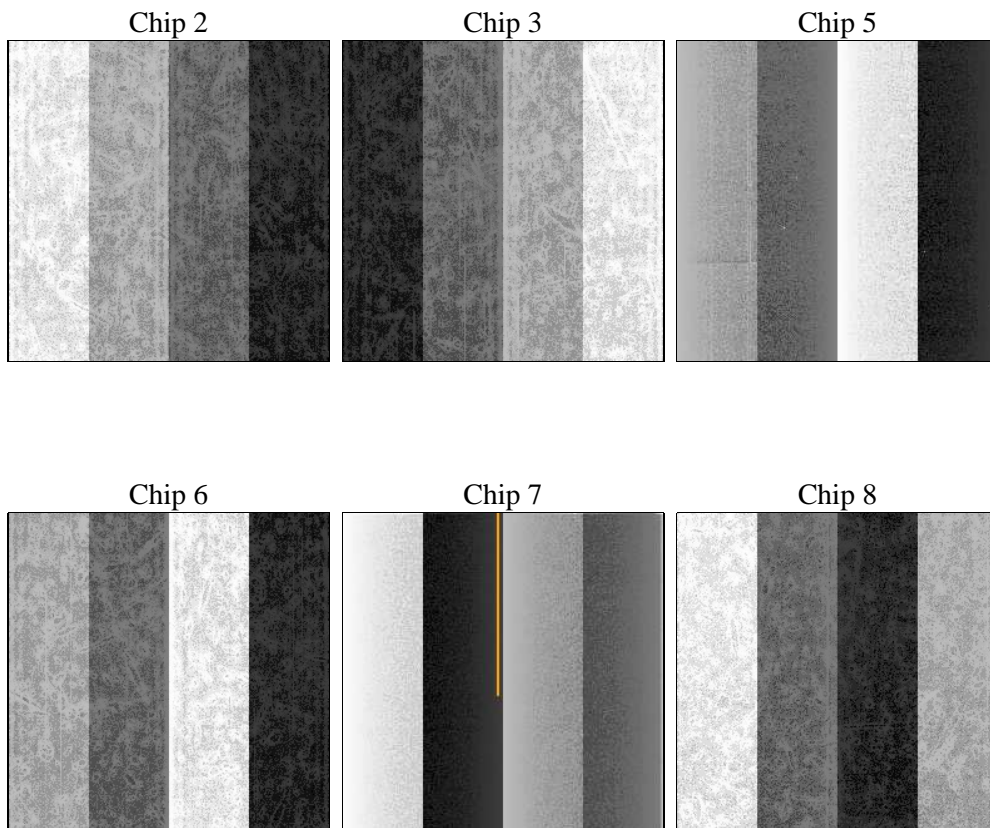
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	9000.000000	[s] Scheduled observation exposure time
ascdsver	10.4.1	Processing system revision	ontime	8956.8001334667	Sum of GTIs [s]
caldbver	4.6.8	&#160	ontime2	8953.5590531826	Sum of GTIs [s]
date	2015-07-22T21:26:15	Date and time of file creation	ontime3	8956.8001334667	Sum of GTIs [s]
revision	2	Processing version of data	ontime5	8956.8001334667	Sum of GTIs [s]
			ontime6	8953.5590430498	Sum of GTIs [s]
			ontime7	8956.8001334667	Sum of GTIs [s]
			ontime8	8956.8001334667	Sum of GTIs [s]
			l1events	349715	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			ra_pos	(4081.60, 4112.65)	src1a sky pixel position

### 2.1.4 Events

	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	48425	44811	85836	46802	63795	60046
rejected events	43162	39588	40256	40192	36364	45180
rejected %	89%	88%	46%	85%	57%	75%

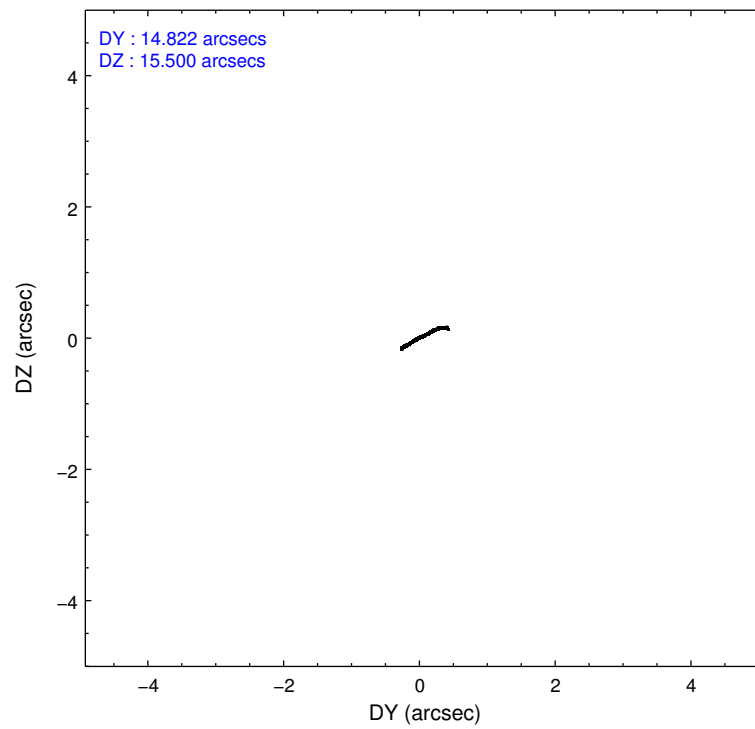
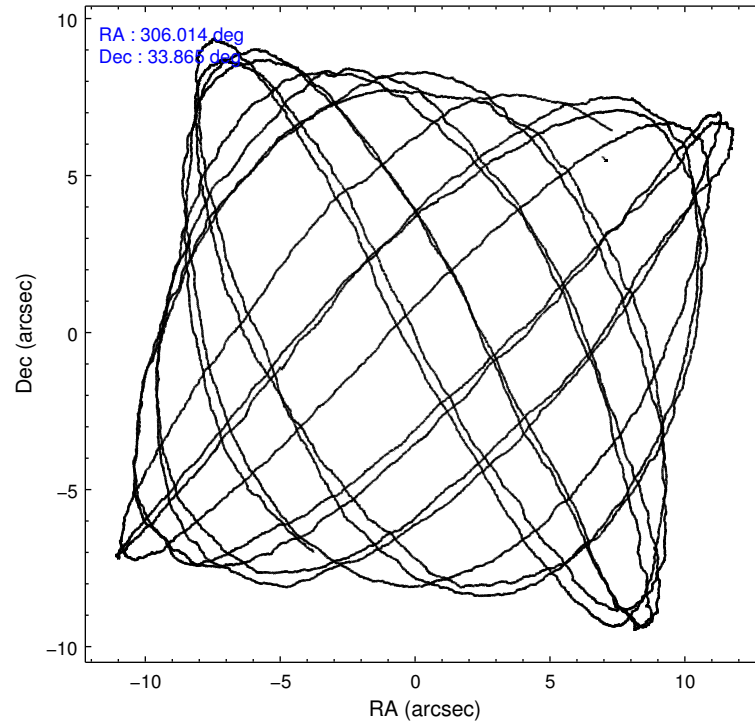
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	2106	1942	9455	2612	2395	4378
	4%	4%	11%	5%	3%	7%
grade 1 events	30	23	324	32	69	46
	0%	0%	0%	0%	0%	0%
grade 2 events	1134	1068	13784	1541	5965	3599
	2%	2%	16%	3%	9%	5%
grade 3 events	503	544	1036	534	2100	1456
	1%	1%	1%	1%	3%	2%
grade 4 events	501	559	995	501	2103	1342
	1%	1%	1%	1%	3%	2%
grade 5 events	1930	2258	4900	2205	5805	3370
	3%	5%	5%	4%	9%	5%
grade 6 events	1021	1110	20322	1423	14873	4092
	2%	2%	23%	3%	23%	6%
grade 7 events	41200	37307	35020	37954	30485	41763
	85%	83%	40%	81%	47%	69%

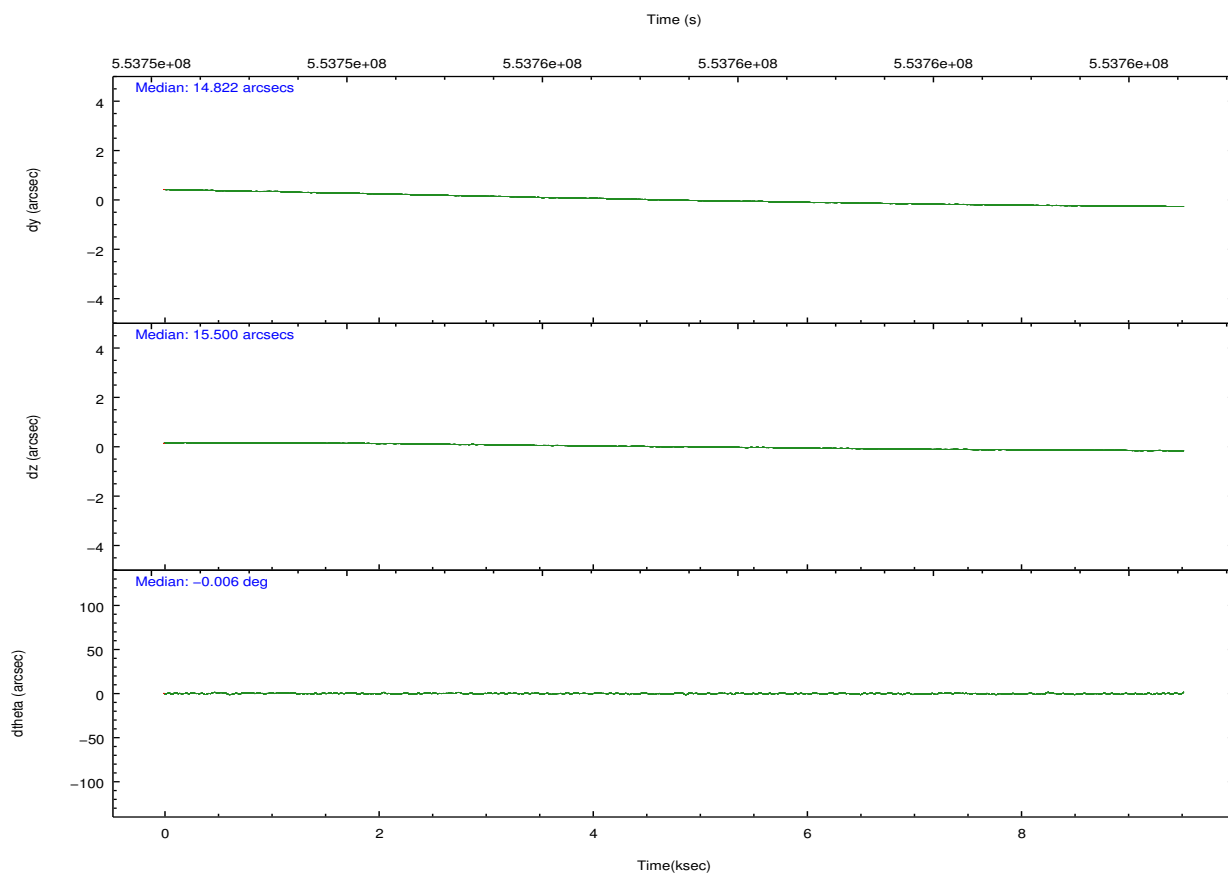
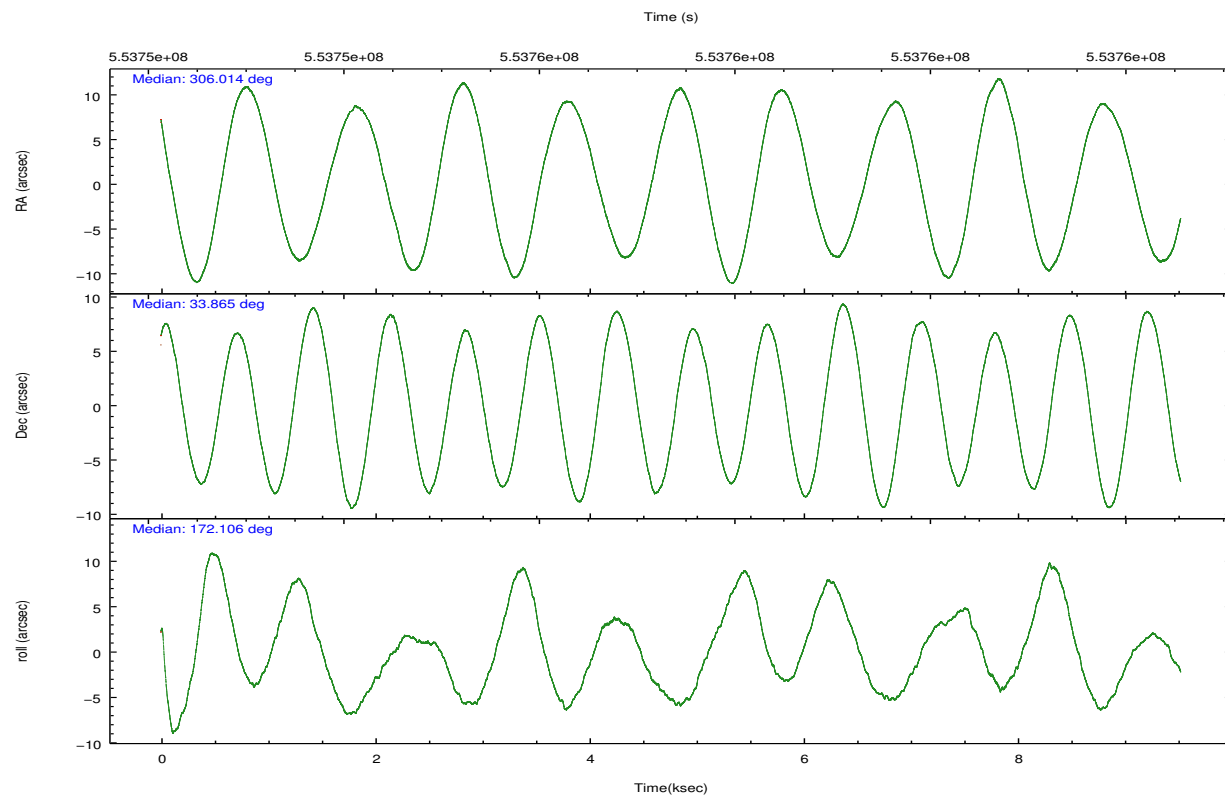


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-235678	ACIS-235678	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	306.043937	306.0133942963801	CCD I2 on	Y	Y
[deg] Pointing Dec	33.875599	33.86495356236941	CCD I3 on	Y	Y
[deg] Pointing Roll	171.936909	172.110574013673	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	O2	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	O1	Y
[s] Observation start time (MET)	553753093.184000	553751816.93334	CCD S5 on	N	N
Observation start date	2015-07-20T04:17:05	2015-07-20T03:56:56	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	553762093.184000	553762995.58397	On-chip summing requested	N	N
Observation end date	2015-07-20T06:47:05	2015-07-20T07:03:15	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.2

## 2.3 Aspect



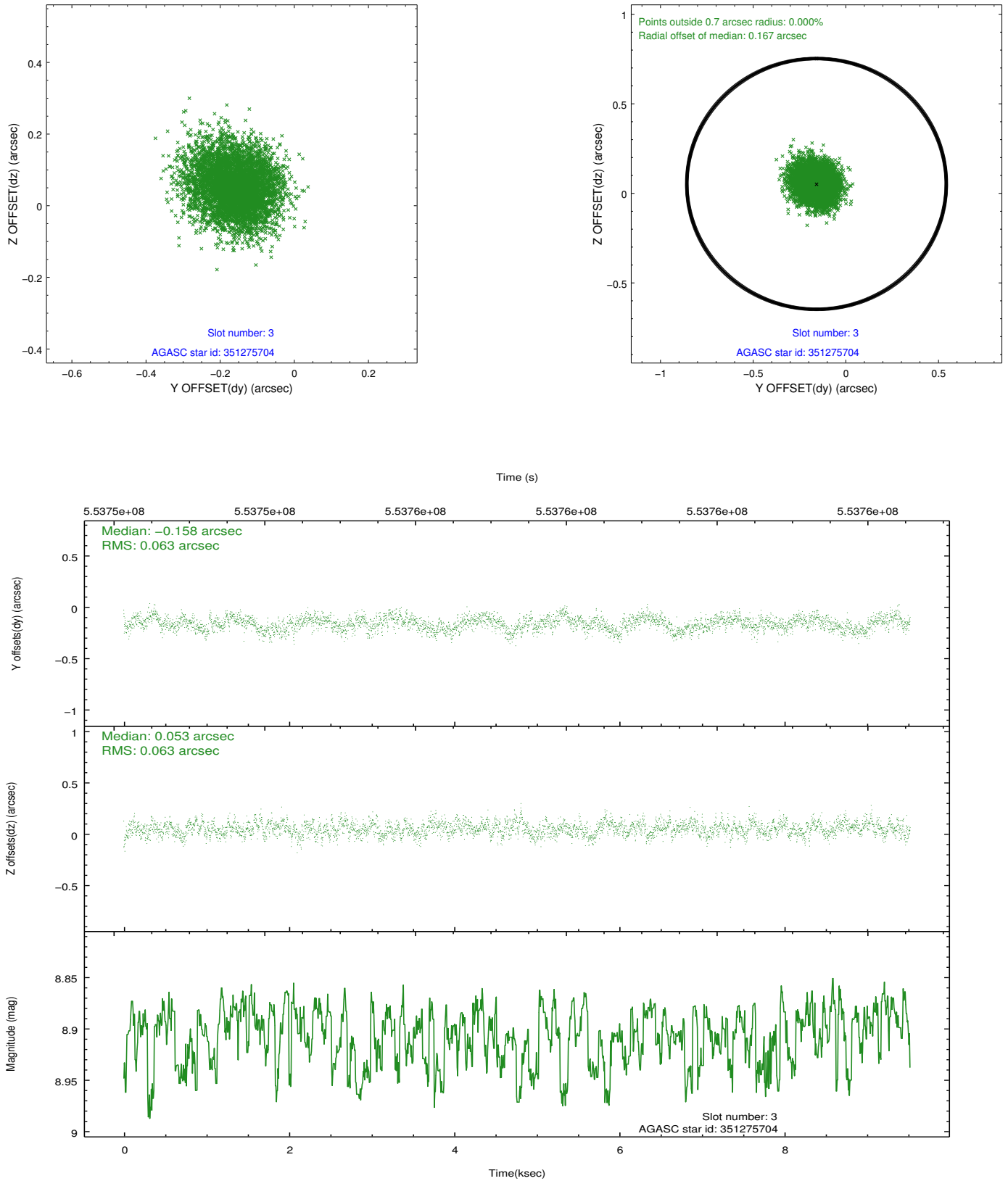


### Slot Statistics

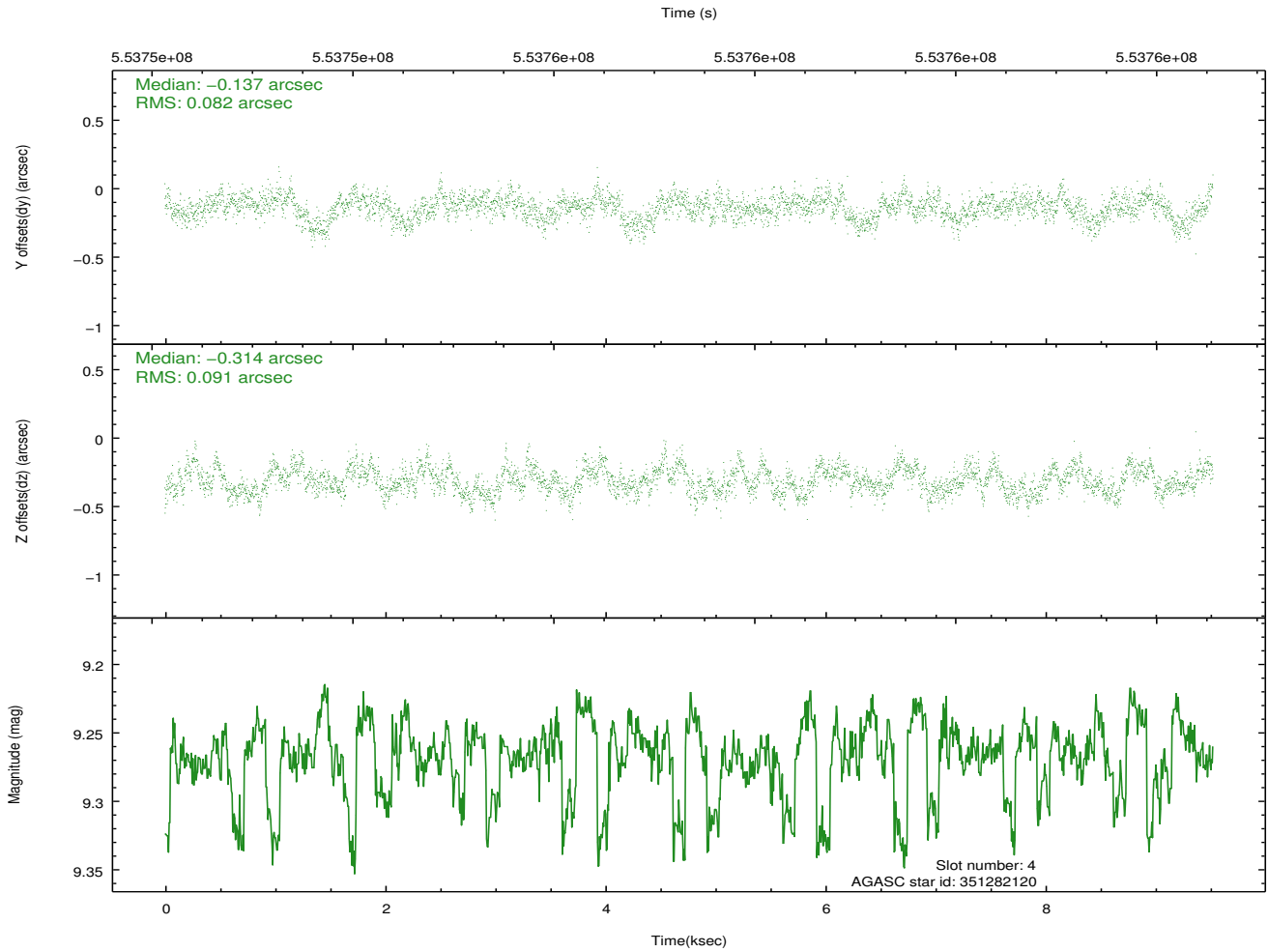
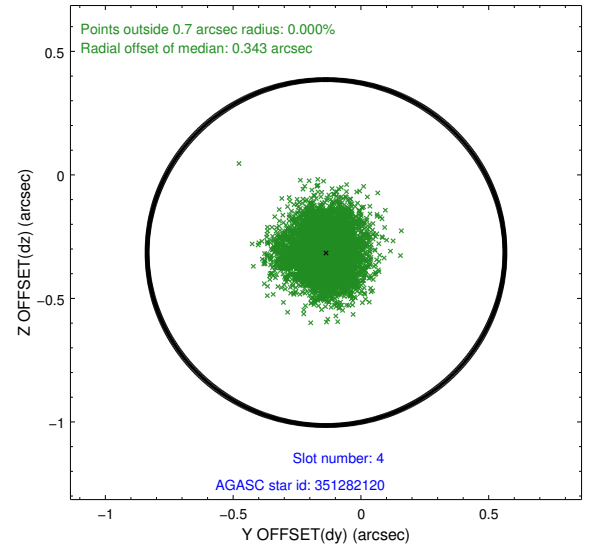
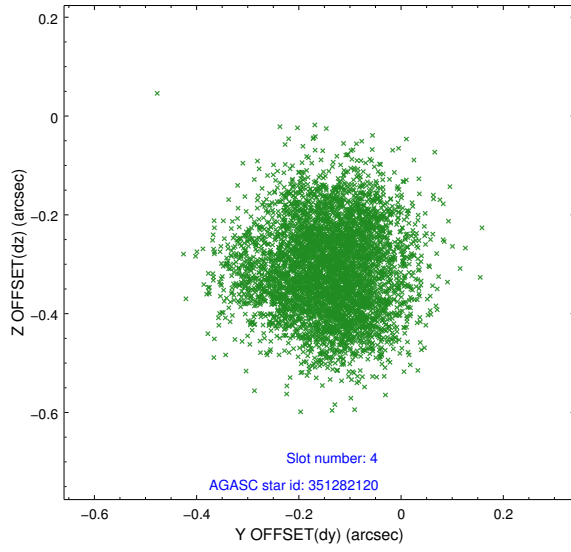
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-4	7.21	2324	0.282	-0.002	0.007	0.011	0.000000	0.000000	2145.81	171.87
1	FID		ACIS-S-5	7.24	2324	-0.318	-0.004	0.008	0.014	0.000000	0.000000	-1820.25	165.30
2	FID		ACIS-S-6	7.35	2324	0.006	0.020	0.008	0.013	0.000000	0.000000	393.17	809.12
3	GUIDE	used	351275704	8.91	4644	-0.158	0.053	0.096	0.152	305.844848	34.142436	722.25	-868.03
4	GUIDE	used	351282120	9.27	4643	-0.137	-0.314	0.133	0.206	305.232648	33.763598	2348.90	732.47
5	GUIDE	used	351283304	8.78	4644	0.047	0.037	0.120	0.191	305.363456	34.187296	2165.55	-832.75
6	GUIDE	used	352985512	8.89	4645	0.255	0.097	0.087	0.143	306.411799	34.272698	-881.74	-1570.69
7	GUIDE	used	351277912	8.71	4644	-0.001	0.122	0.096	0.162	305.316013	34.433041	2422.77	-1691.15

## 2.4 Star Slots

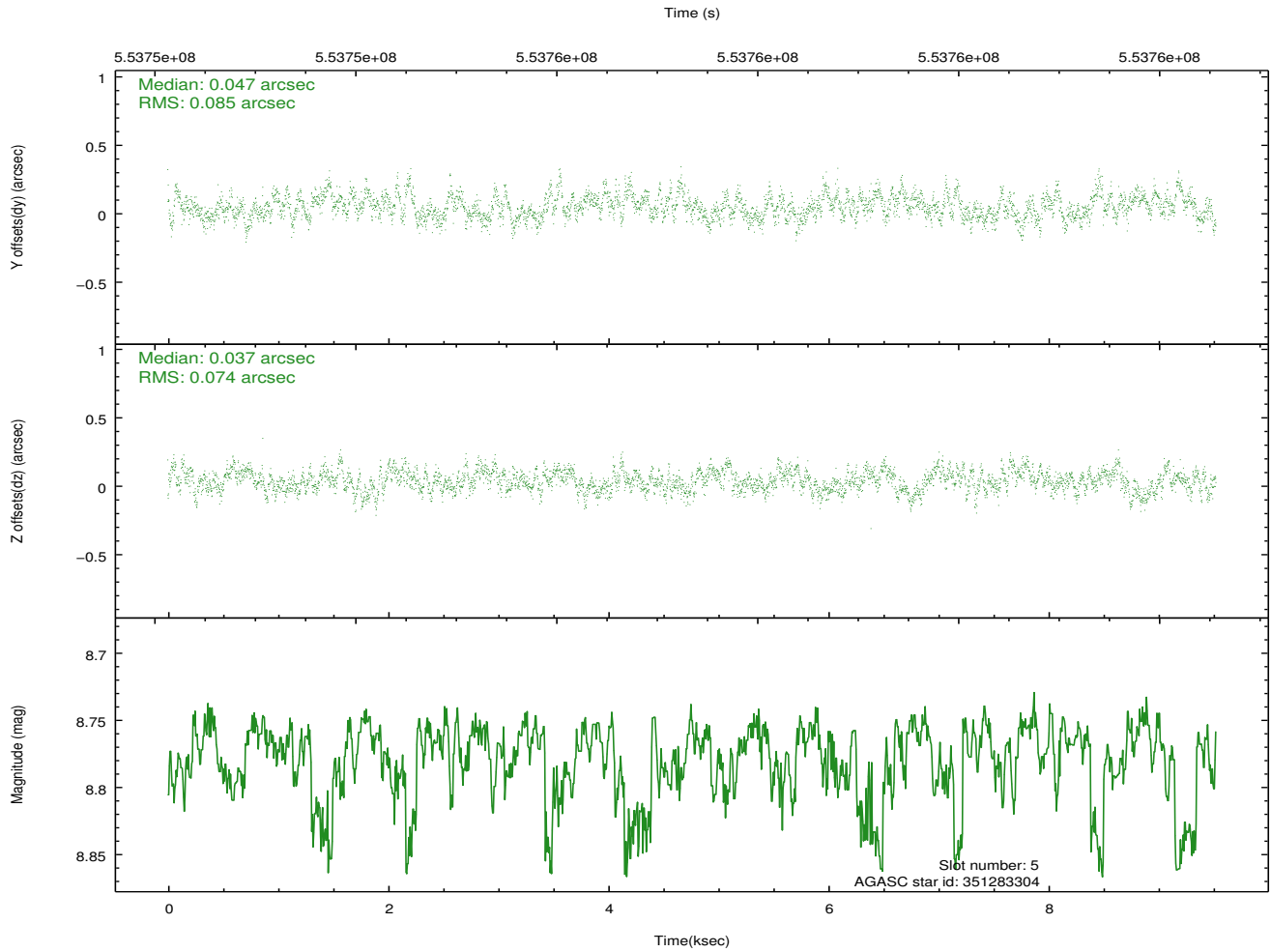
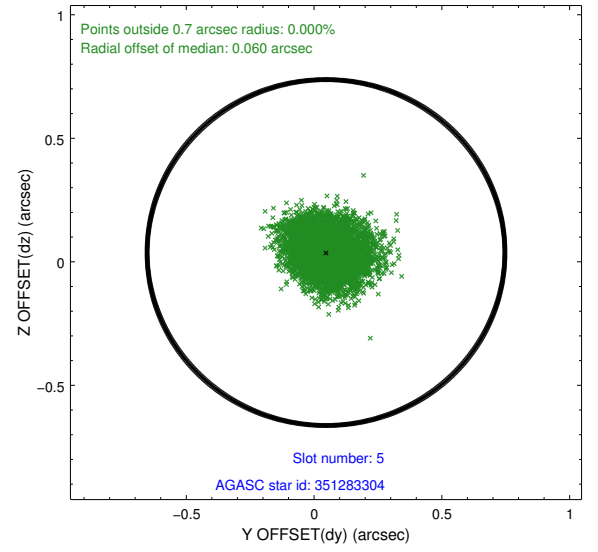
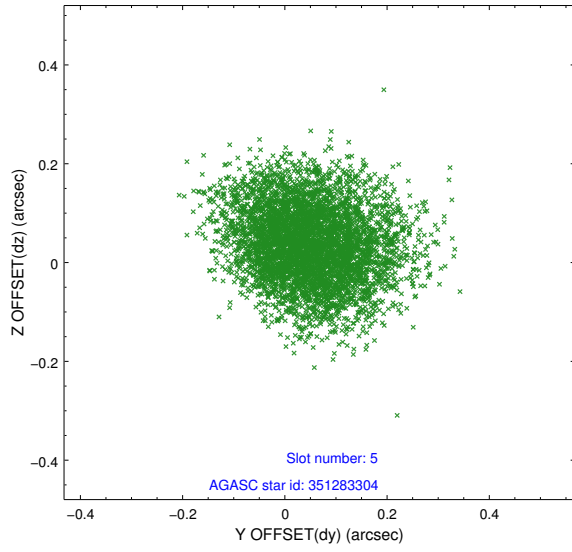
### 2.4.1 Slot 3



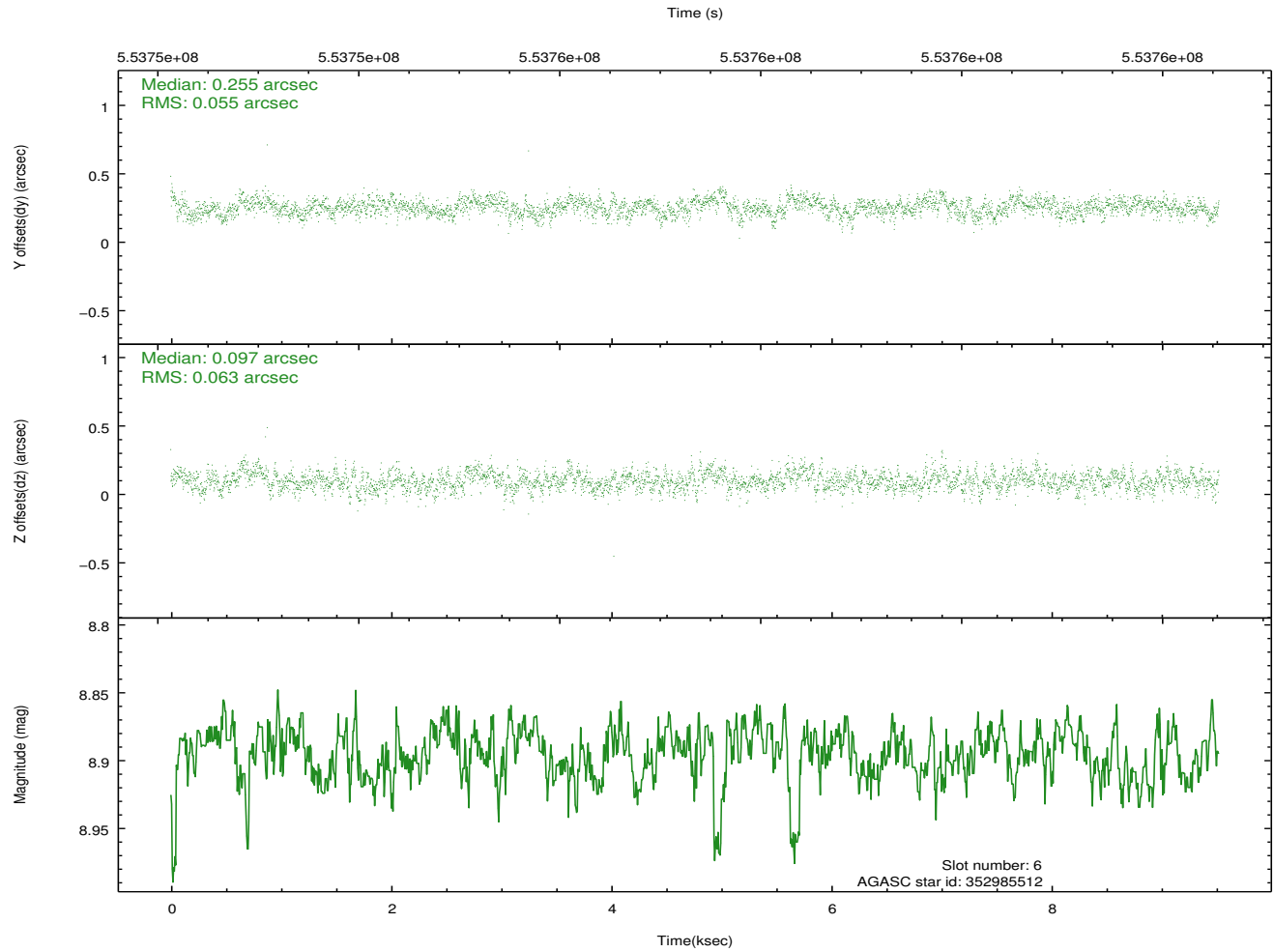
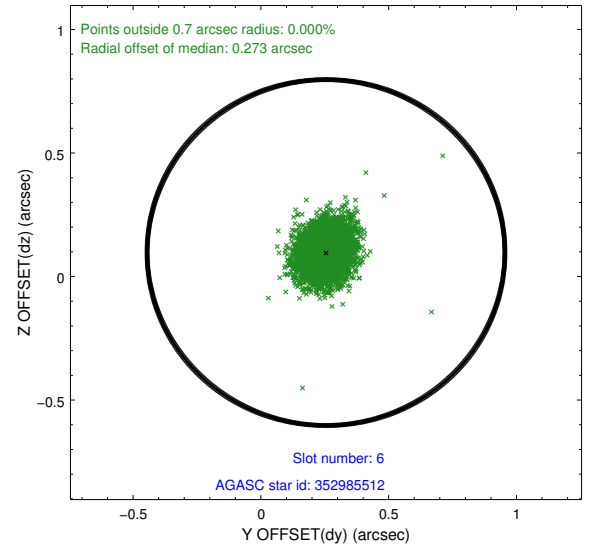
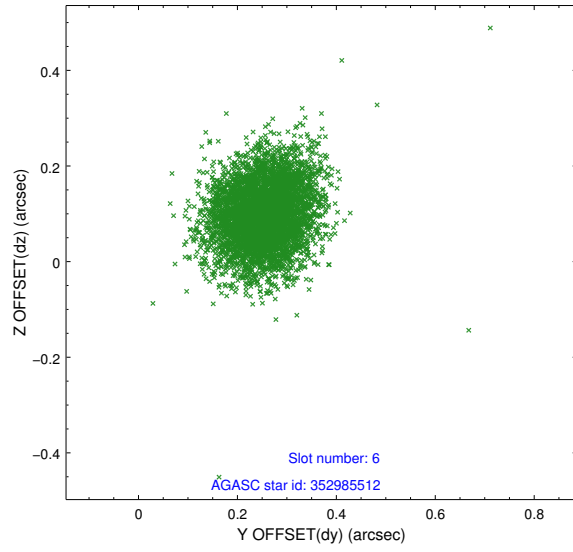
## 2.4.2 Slot 4



### 2.4.3 Slot 5

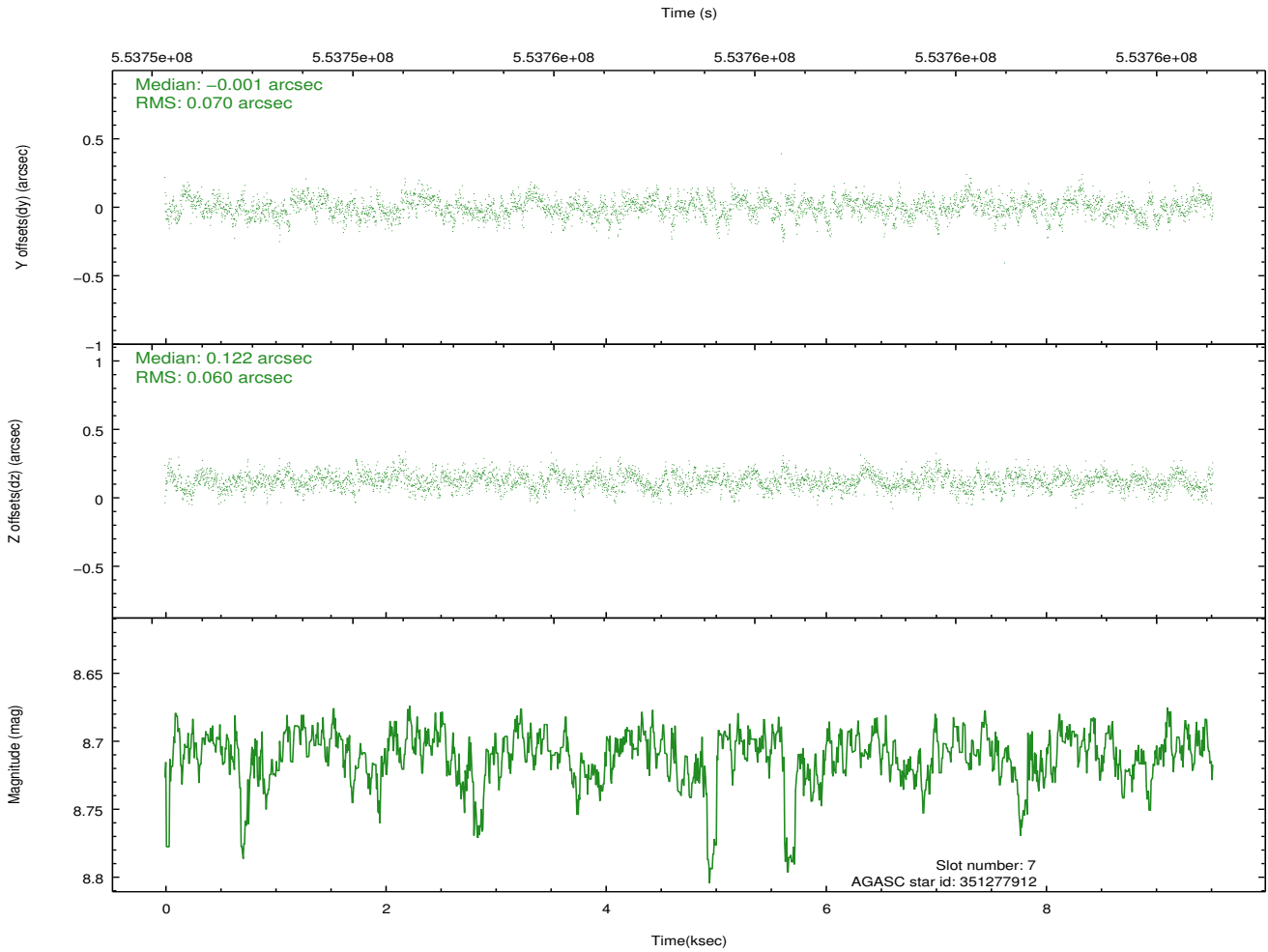
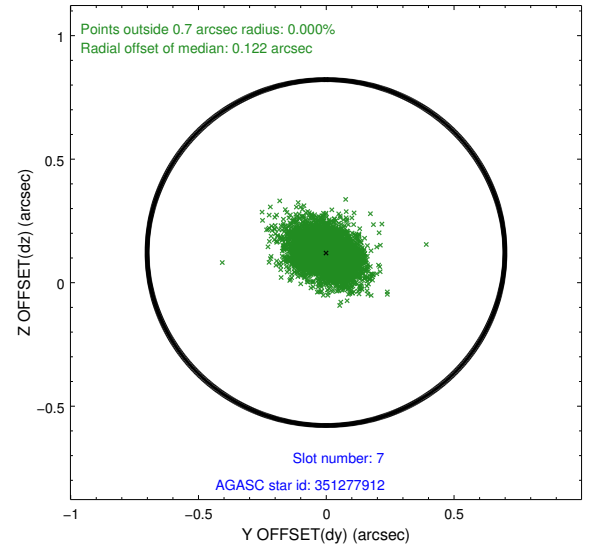
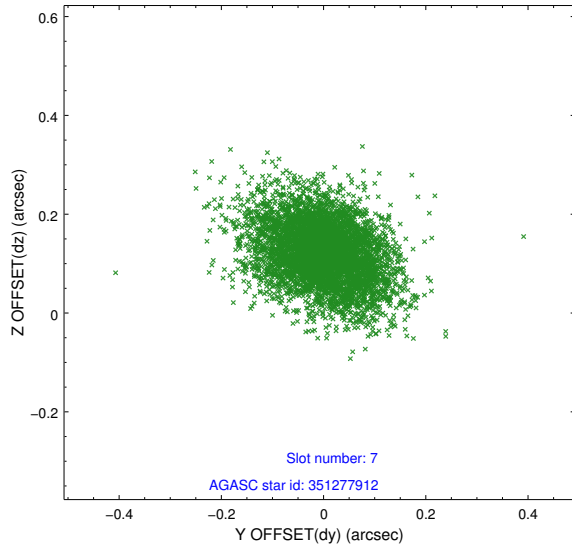


## 2.4.4 Slot 6



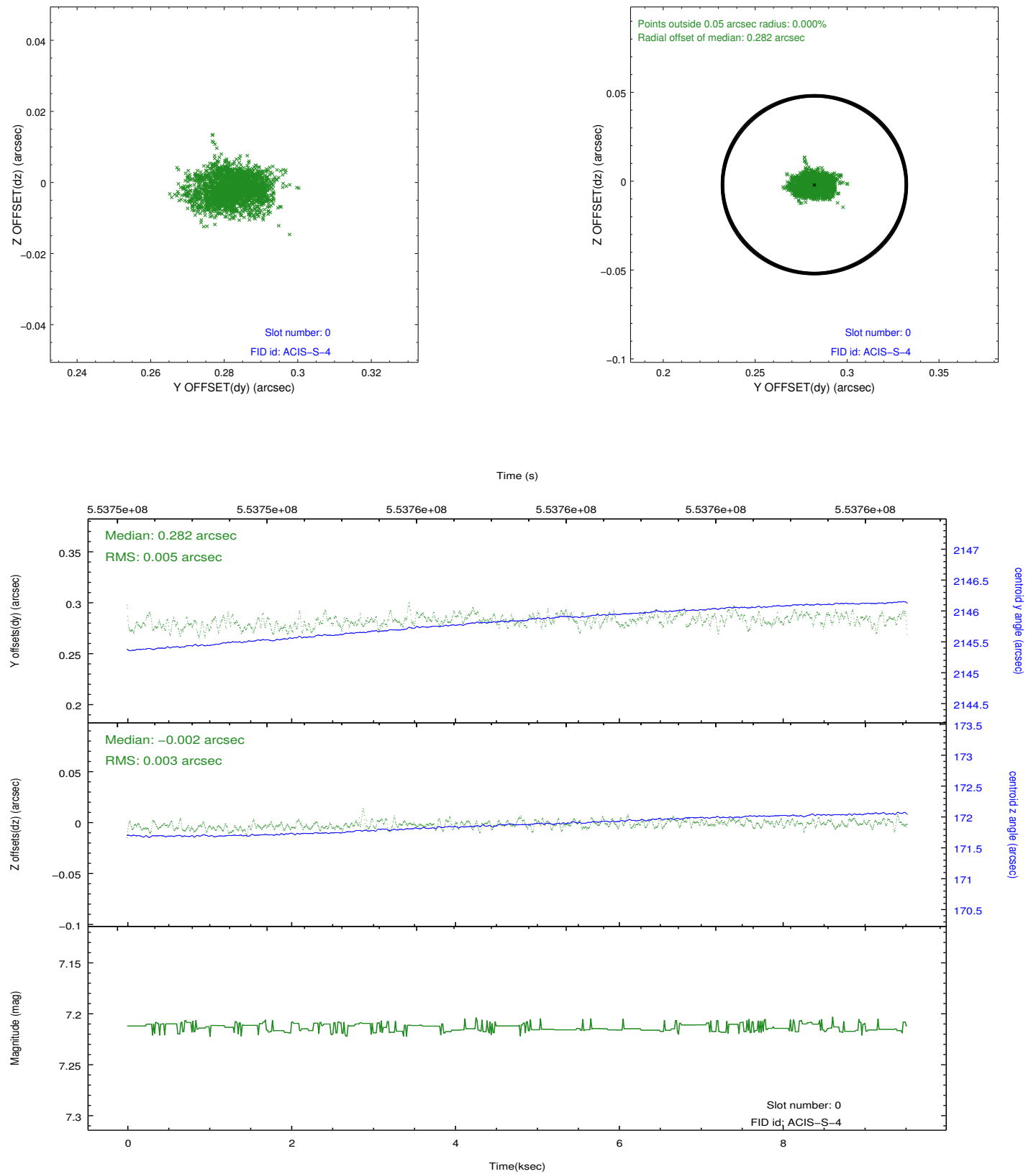


## 2.4.5 Slot 7

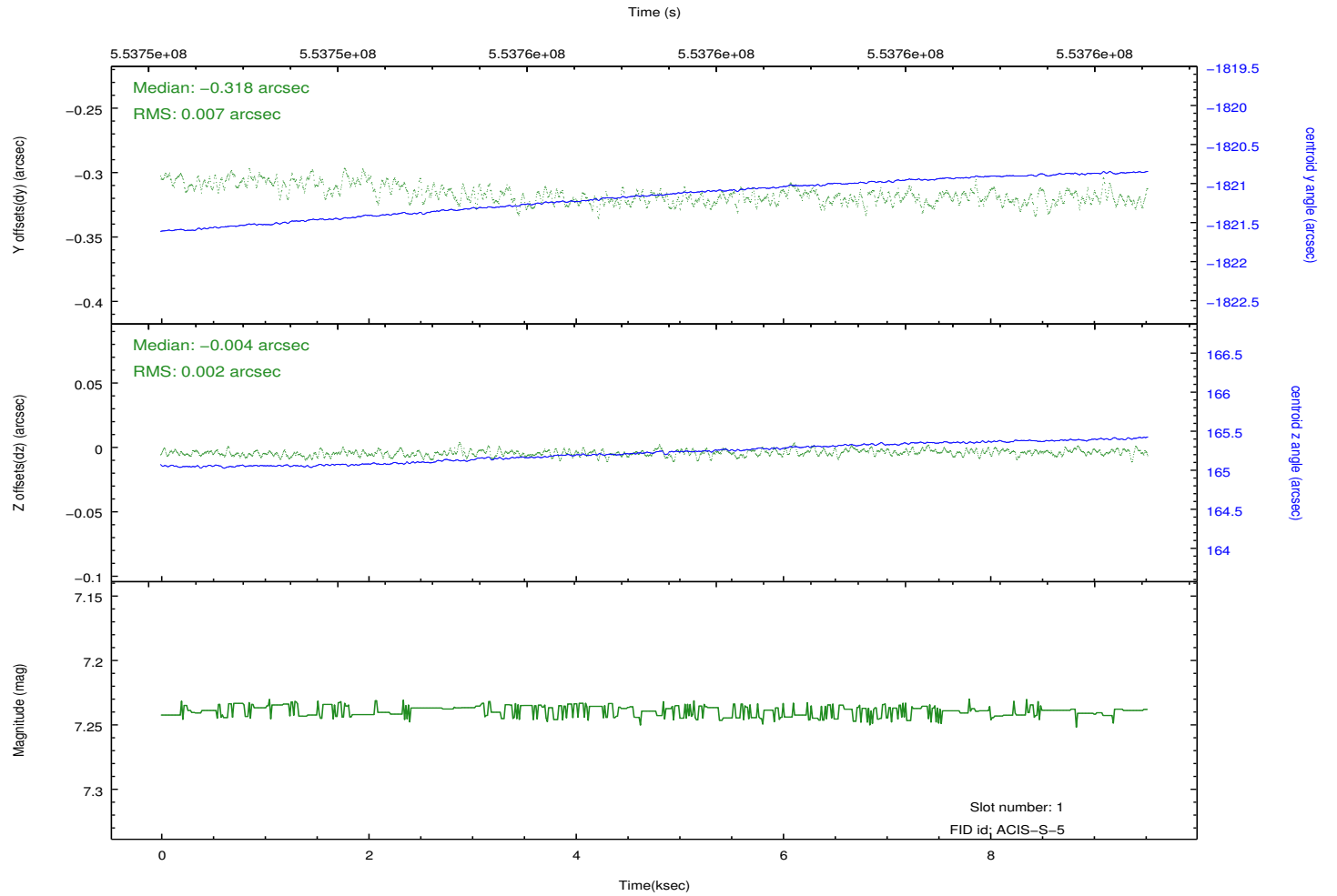
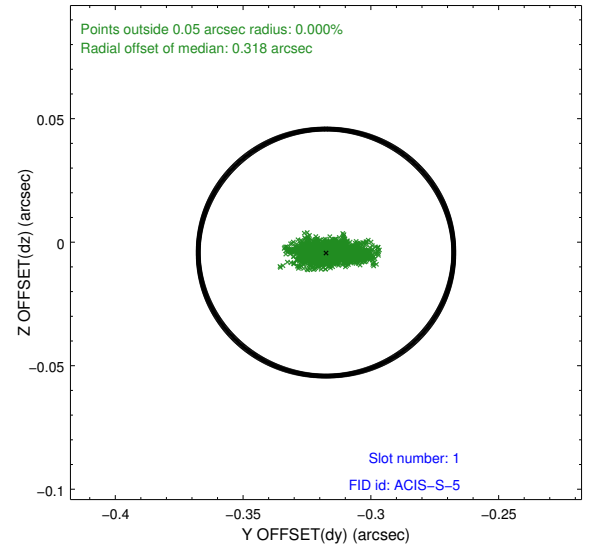
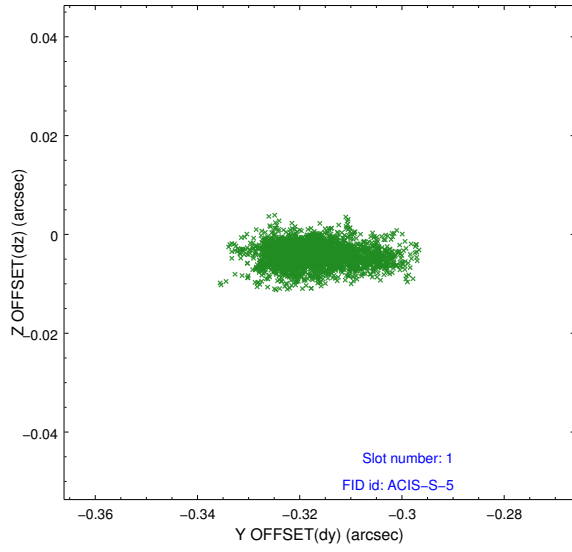


## 2.5 FID Slots

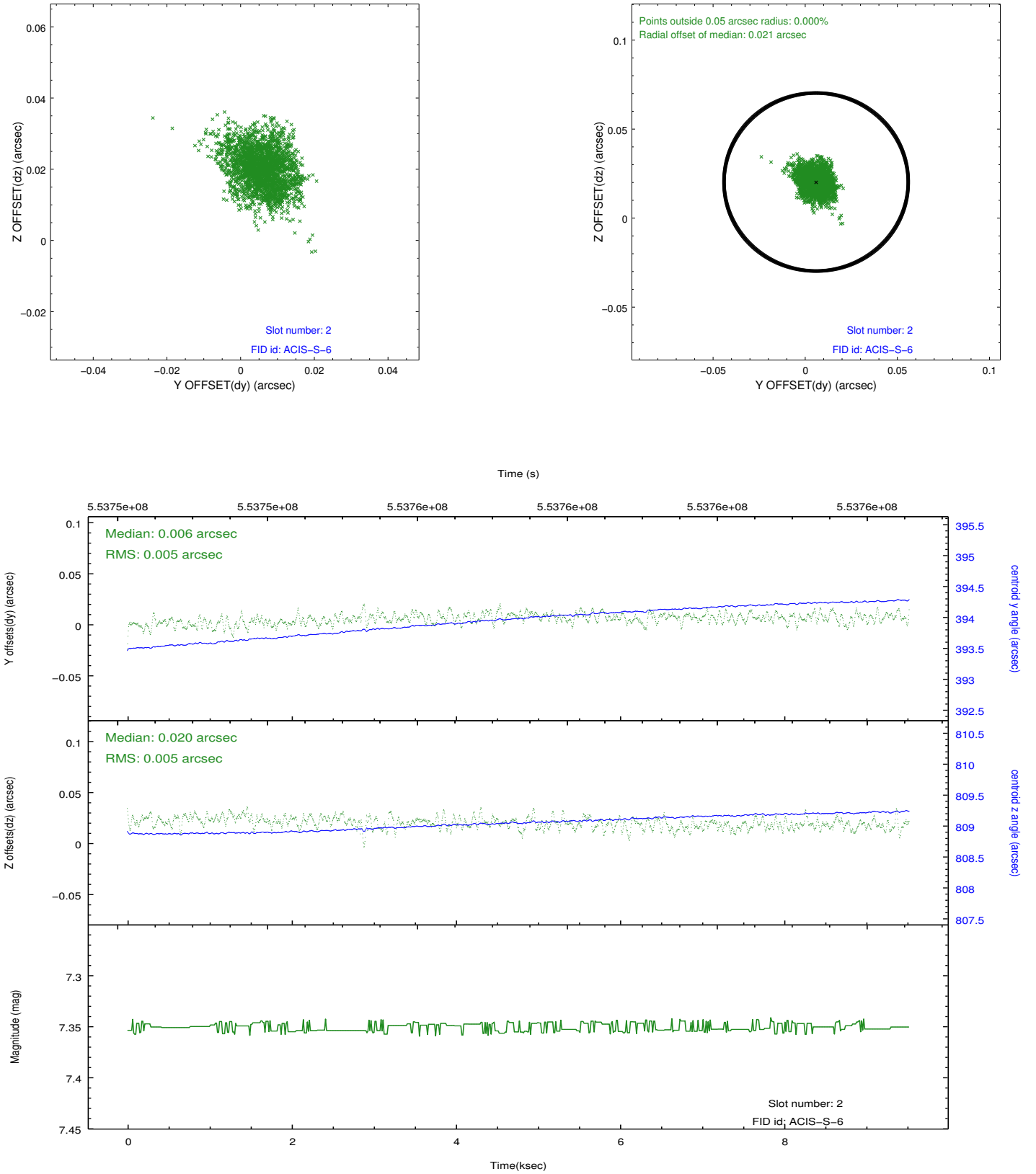
### 2.5.1 Slot 0



## 2.5.2 Slot 1

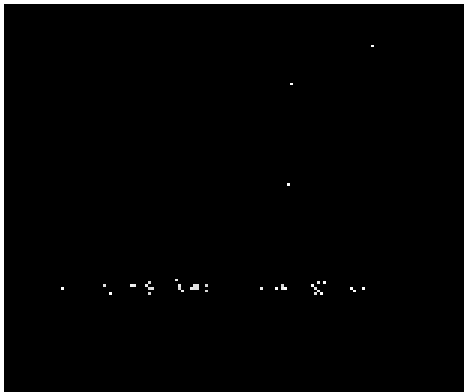


### 2.5.3 Slot 2

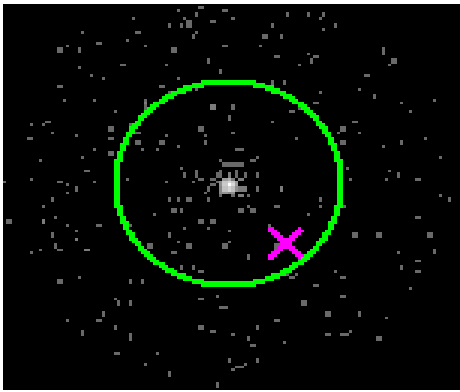


# 3 Gratings

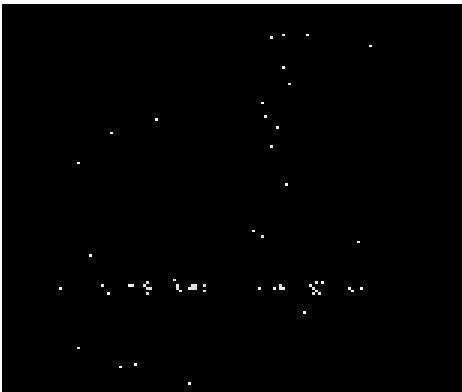
## 3.1 HEG Arm



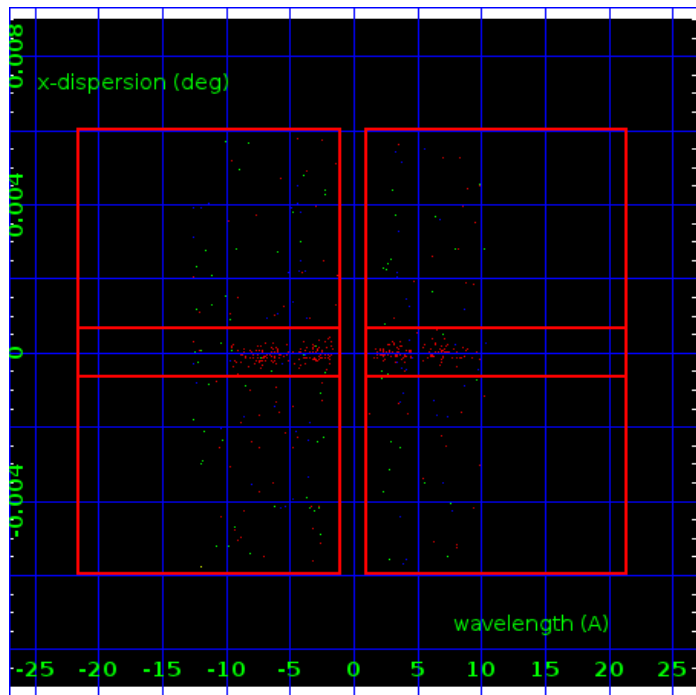
HEG Order Sort 123



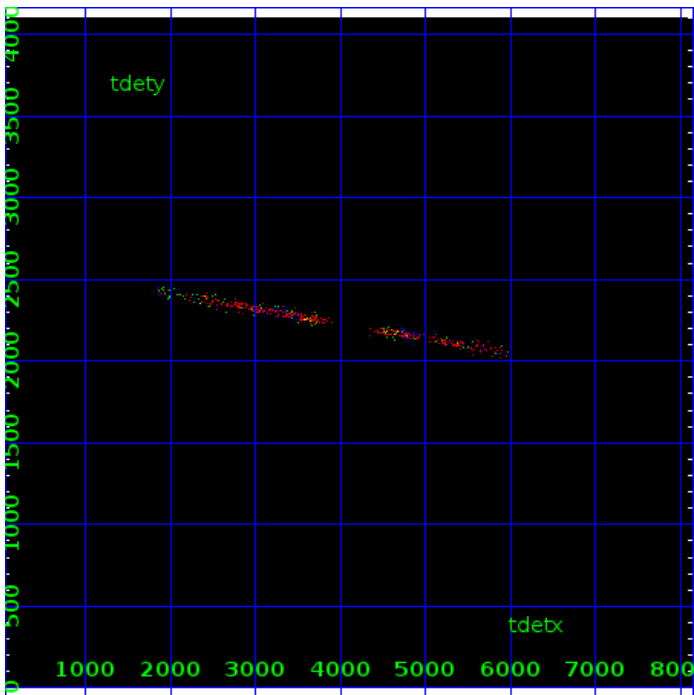
HEG Zero Order



HEG Order Sort ALL

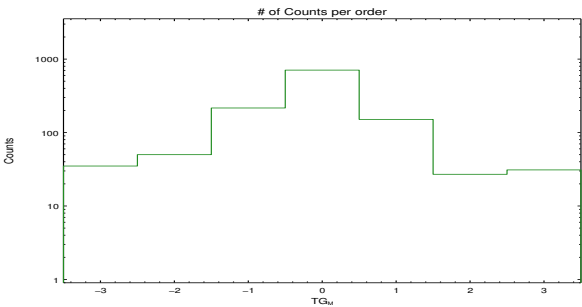


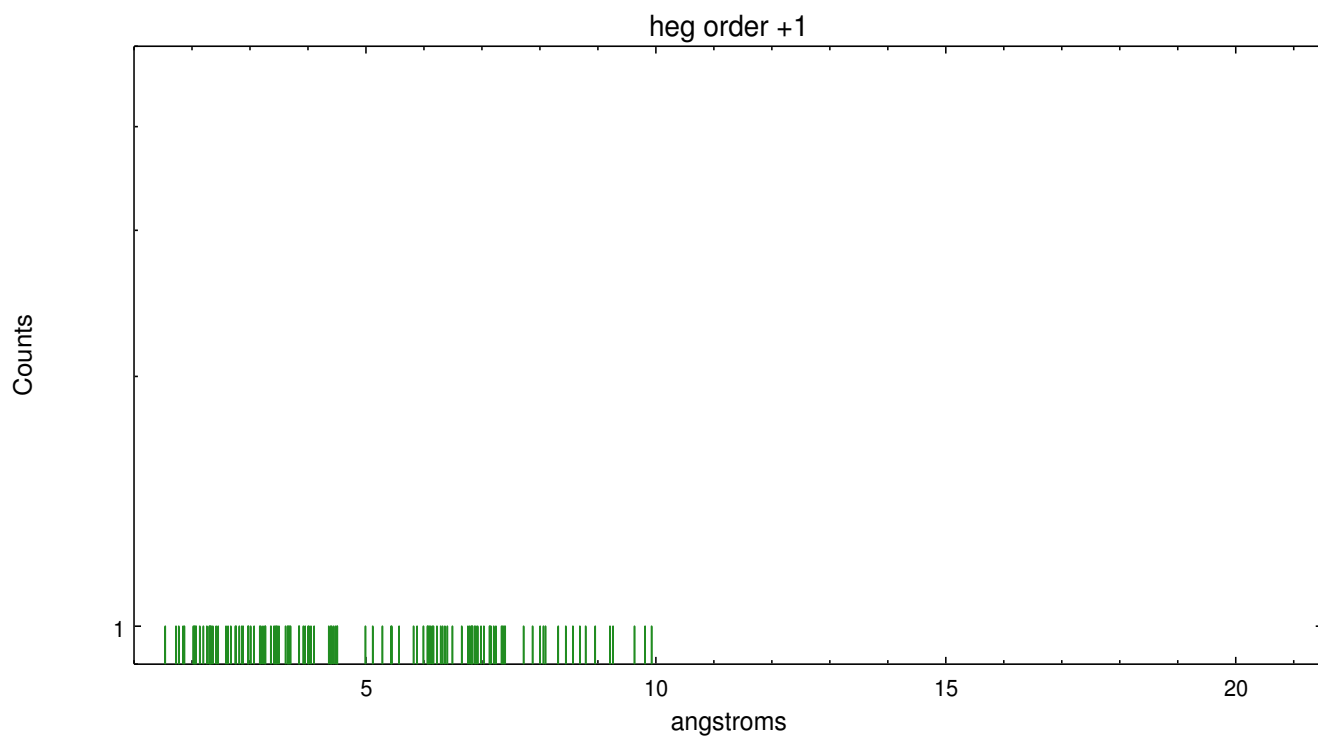
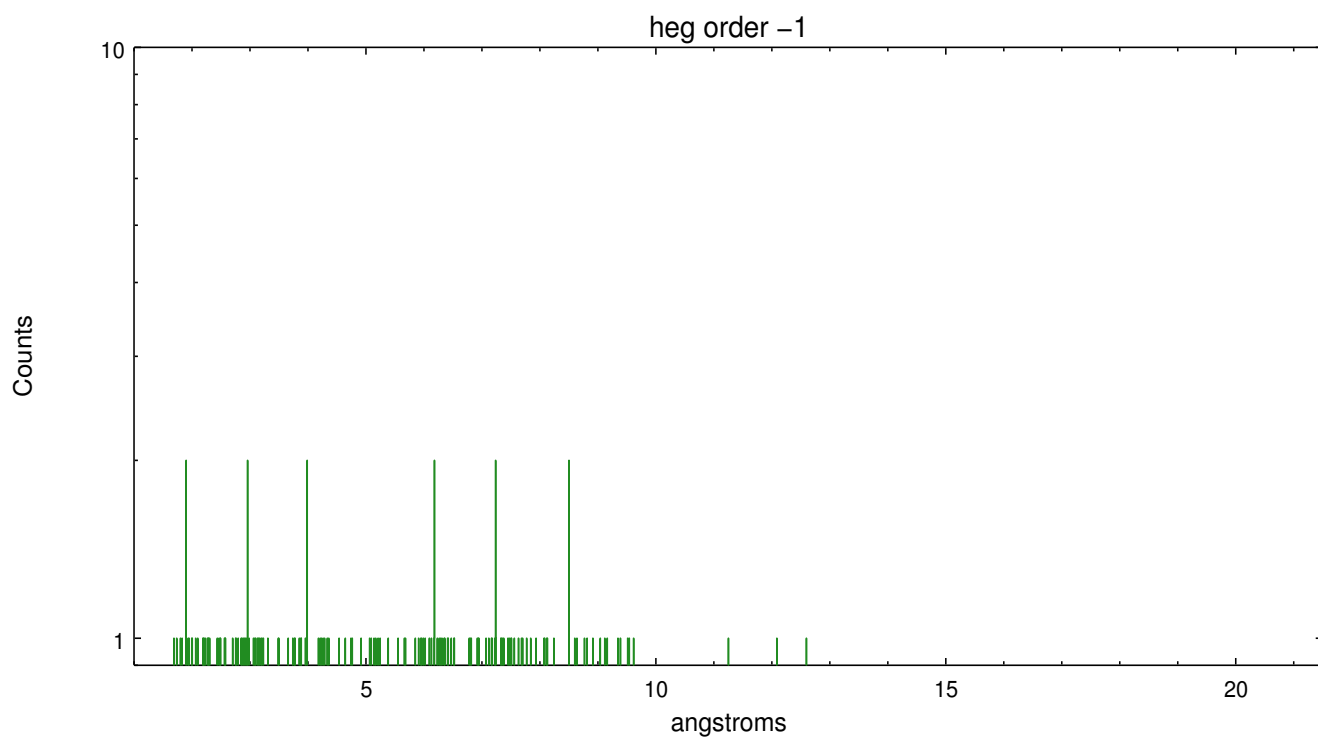
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	35	50	216	708	151	27	31

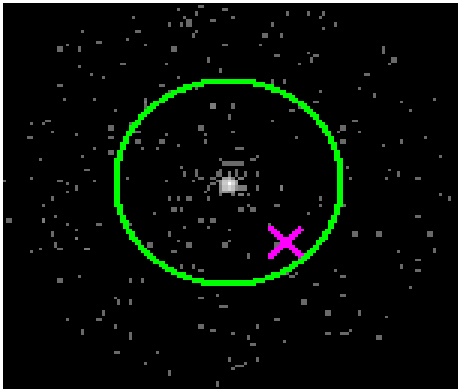




3.2 MEG Arm



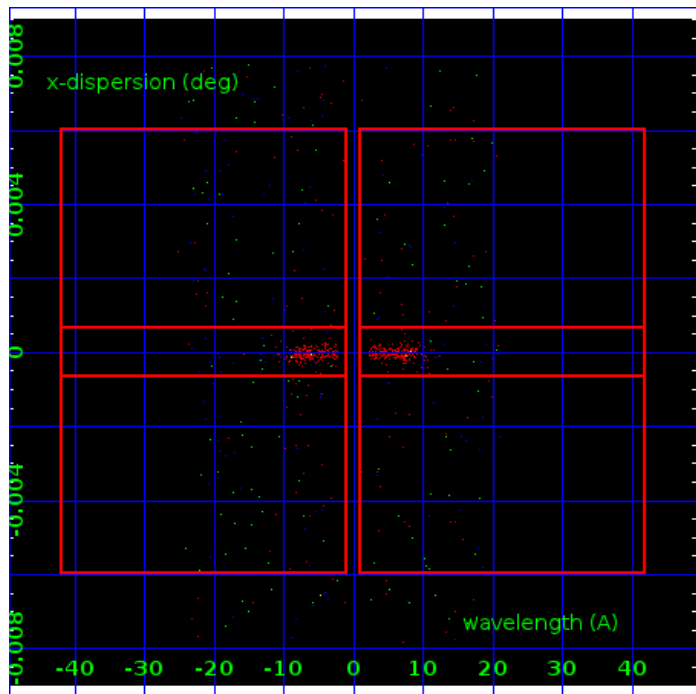
MEG Order Sort 123



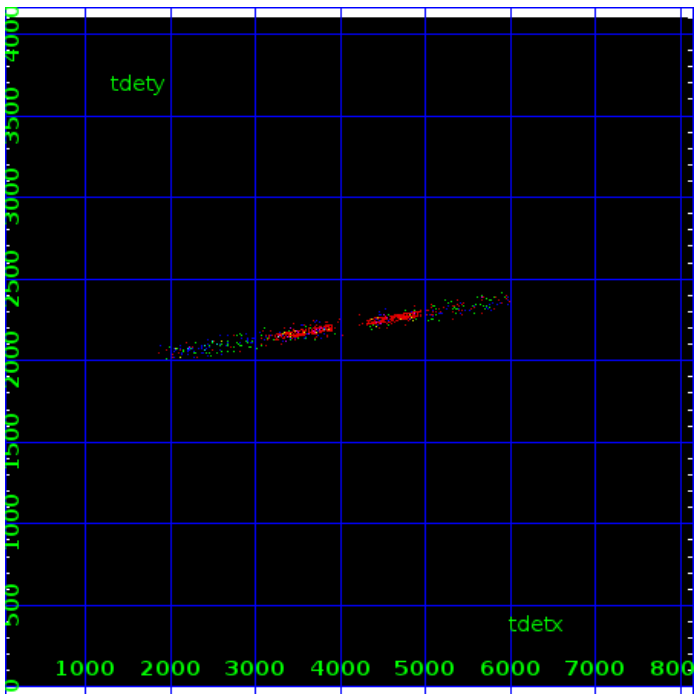
MEG Zero Order



MEG Order Sort ALL

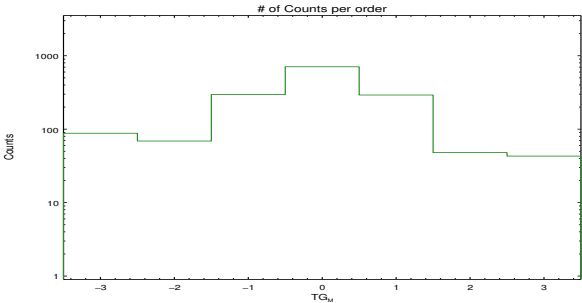


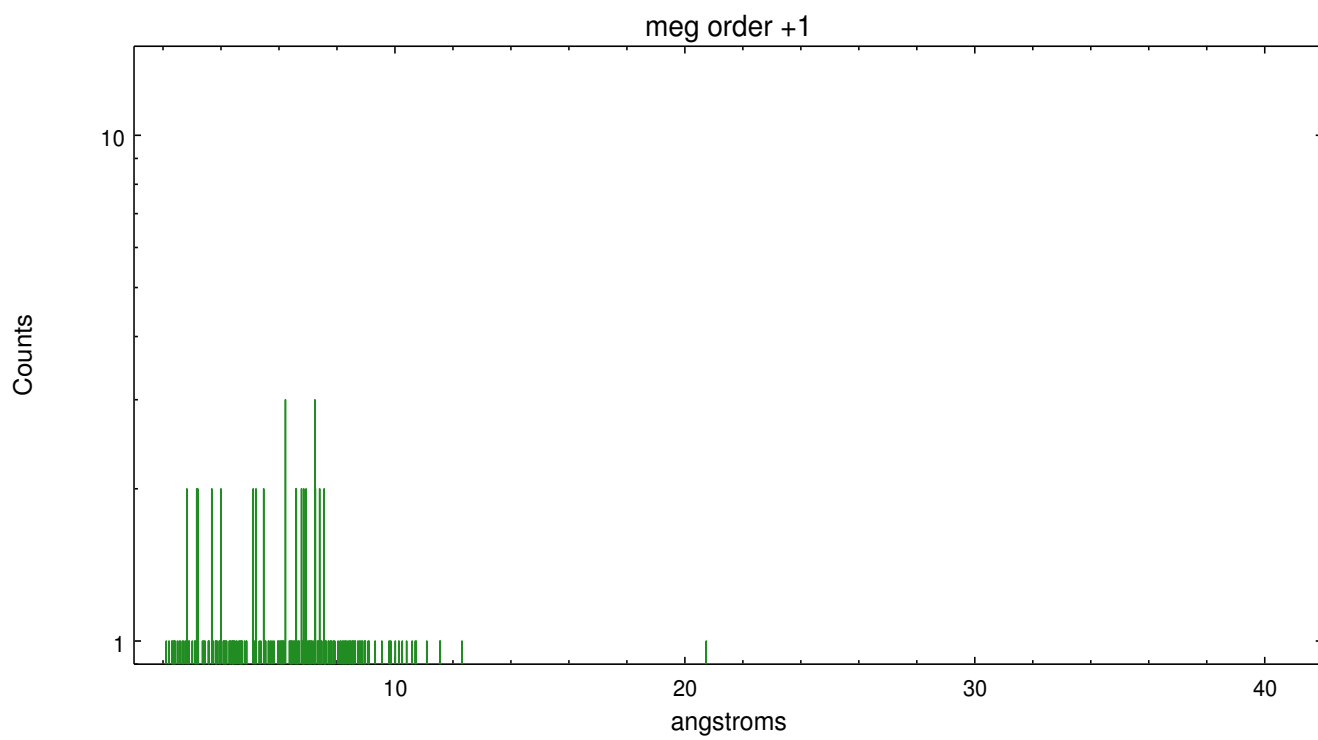
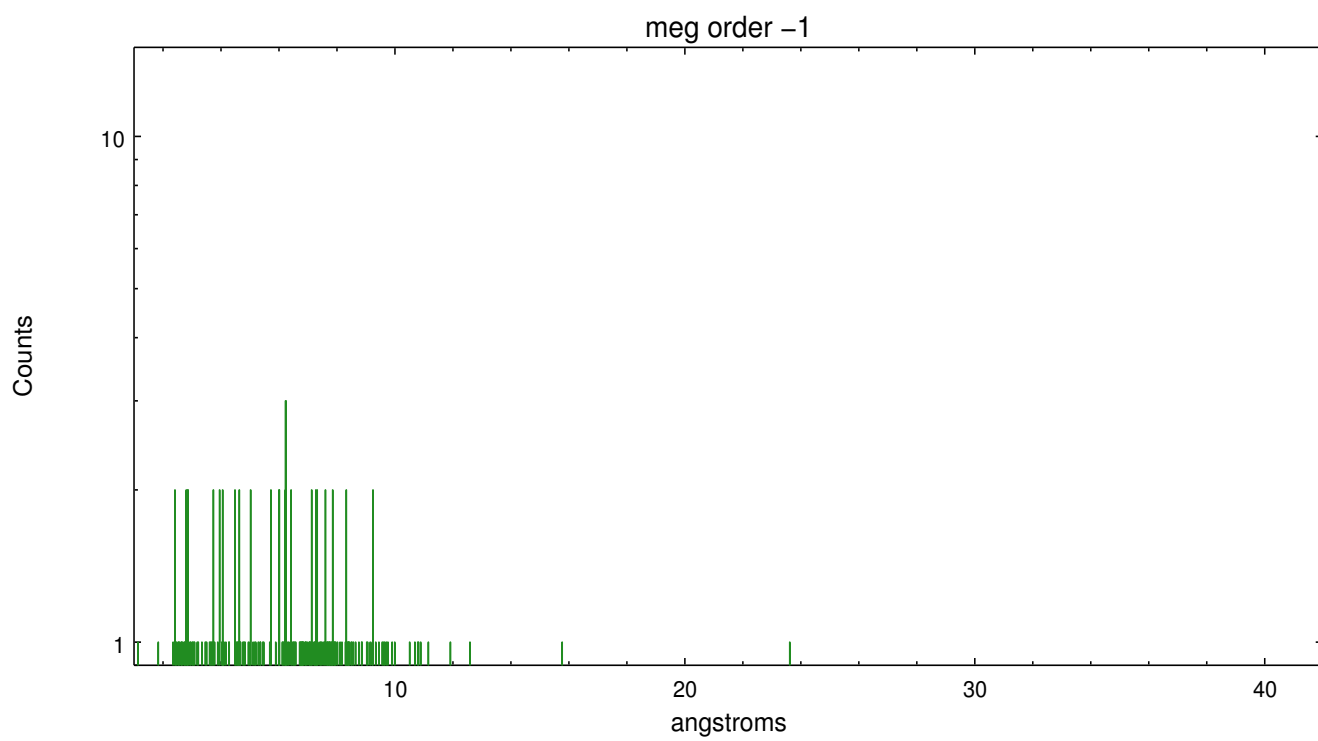
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	88	69	296	708	292	48	43







# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.08.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.9568001334667

## A.2 Comments

The bias map for CCD\_ID = 3 suffers from anomalously high bias values in an 'exacto-knife'-shaped area of the bias file. Pixels in the event data that have been bias-corrected by one of the affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small ( $\sim 20$  eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD\_ID = 3 has been recreated for this processing to remove this anomaly.

Bias map for chip 3 was reconstructed using scaled data from a comparable bias map for another observation to replace pixels affected by the anomaly.