

# V&V Reference Report

## L2 ASCDS Version : 7.6.10

Observation 3143 - L2 Version <sub>e</sub>1  
Chandra X-Ray Center

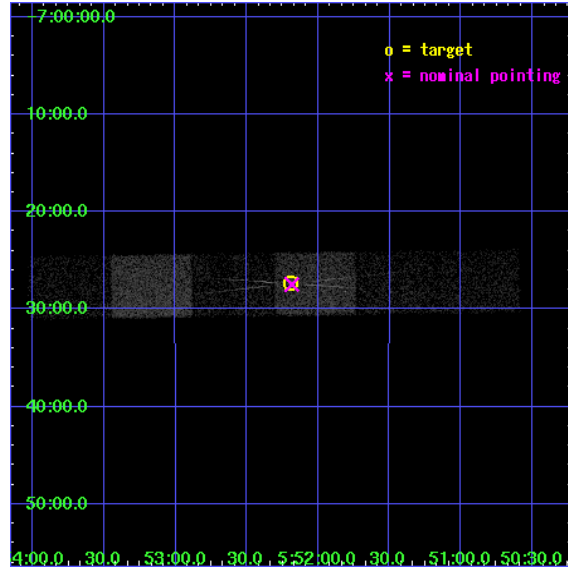
L2 Processing Date : Jan 18 2007

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# 1 Front

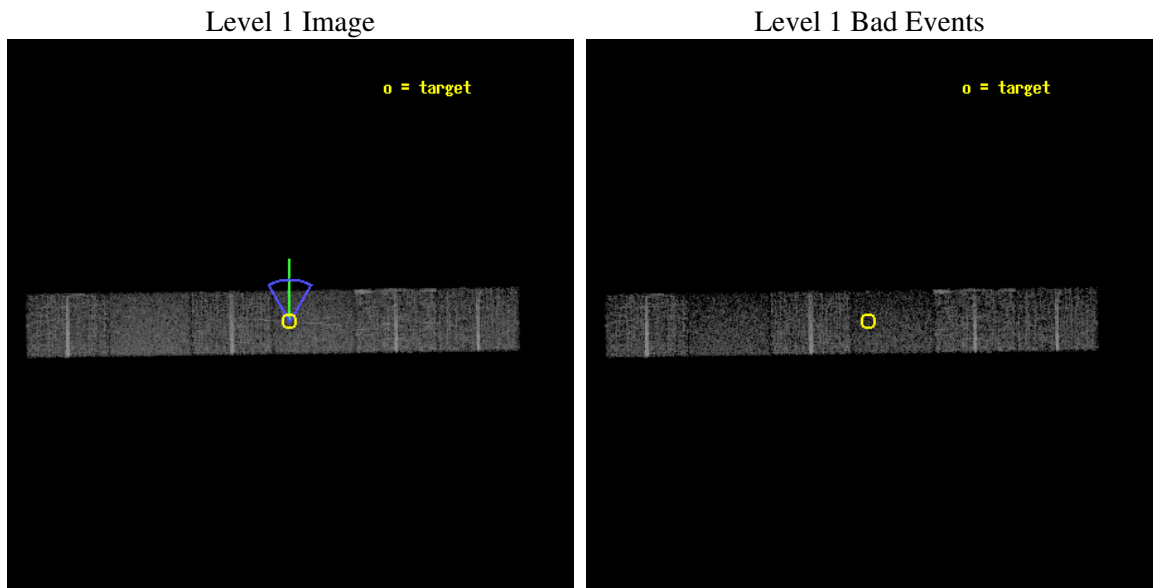
seq_num	700582
obs_id	3143
title	PROBING UNIFICATION WITH ACIS-HETG OBSERVATION OF COMPTON-THIN SEYFERT 2 NGC 2110
observer	Prof Julia Lee
object	NGC2110
dtcycle	0
cycle	P
ra_targ	88.0475
dec_targ	-7.456111
ra_nom	88.046032173243
dec_nom	-7.4577766486419
roll_nom	359.1564427182
revision	3
ontime	8606.7257363051
livetime	2087.1999991039
ontime4	8606.7257363051
ontime5	8606.7257363051
ontime6	8606.7122116983
ontime7	8606.7257363051
ontime8	8606.6711916029
ontime9	8600.0324316025
l2events	24248



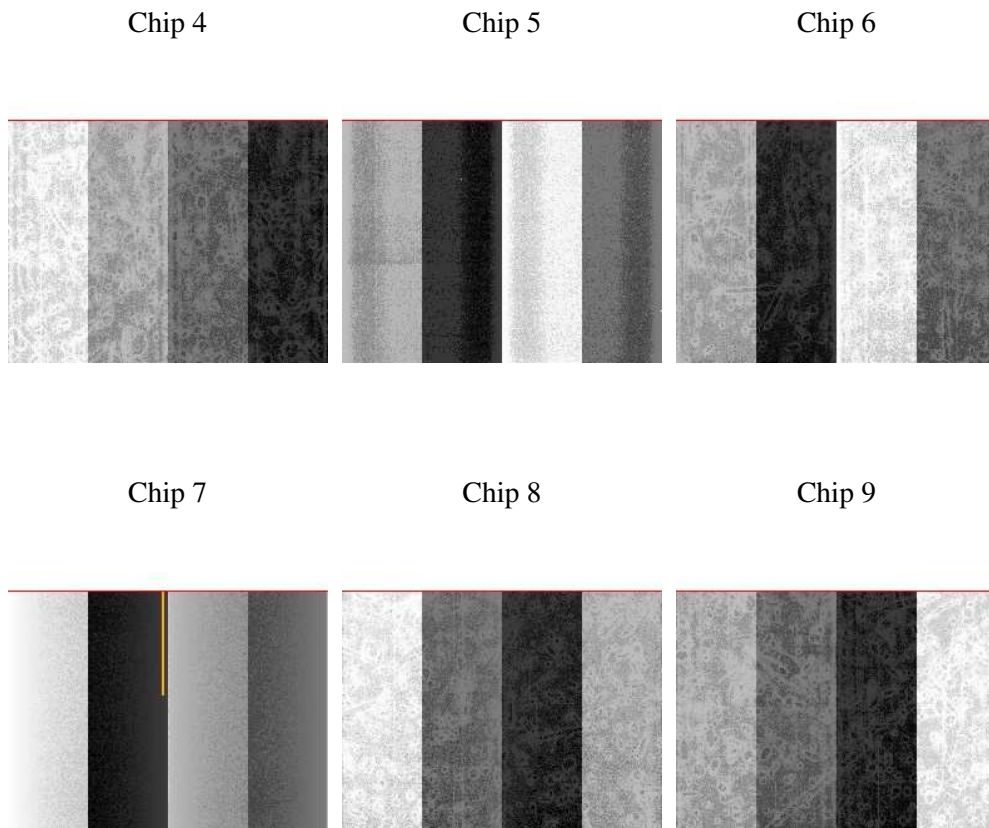
## 2 OBI Primary

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0
ascdsver	7.6.10
caldbver	3.3.0
date	2007-01-18T06:47:11
revision	3

sched_exp_time	33830.248000
ontime	8606.7257363051
ontime4	8606.7257363051
ontime5	8606.7257363051
ontime6	8606.7122116983
ontime7	8606.7257363051
ontime8	8606.6711916029
ontime9	8600.0324316025
l1events	150211

### 2.1.4 Events

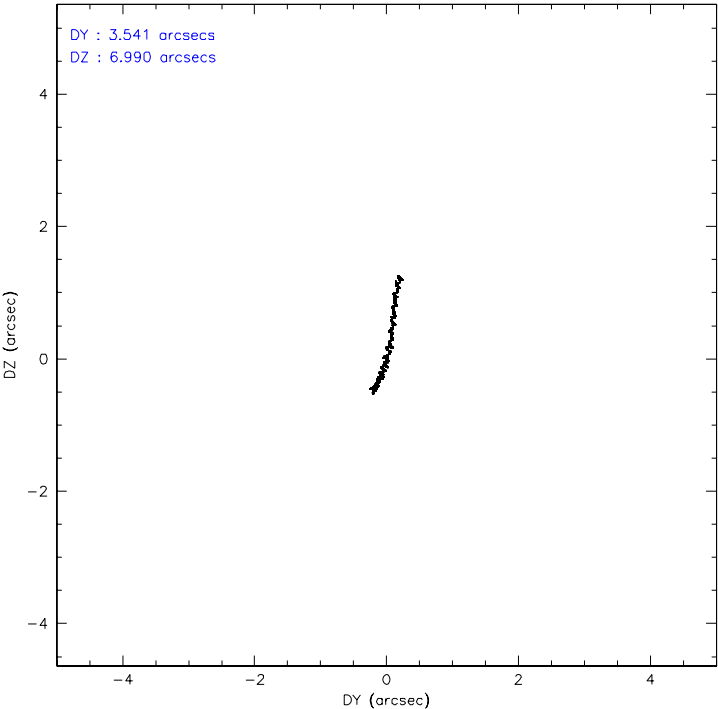
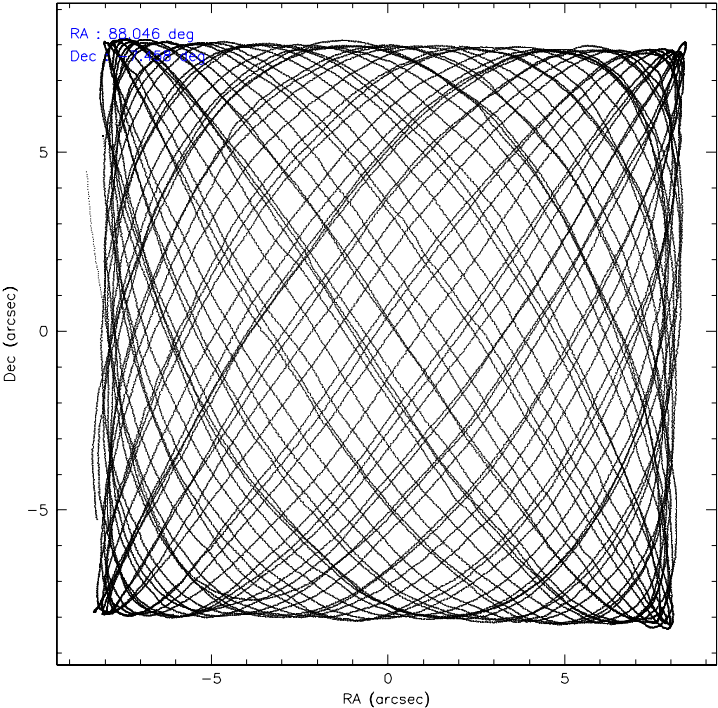
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	25794	23389	25736	23518	28717	23057
rejected events	23602	14475	23239	14911	24459	21024
rejected %	91%	61%	90%	63%	85%	91%

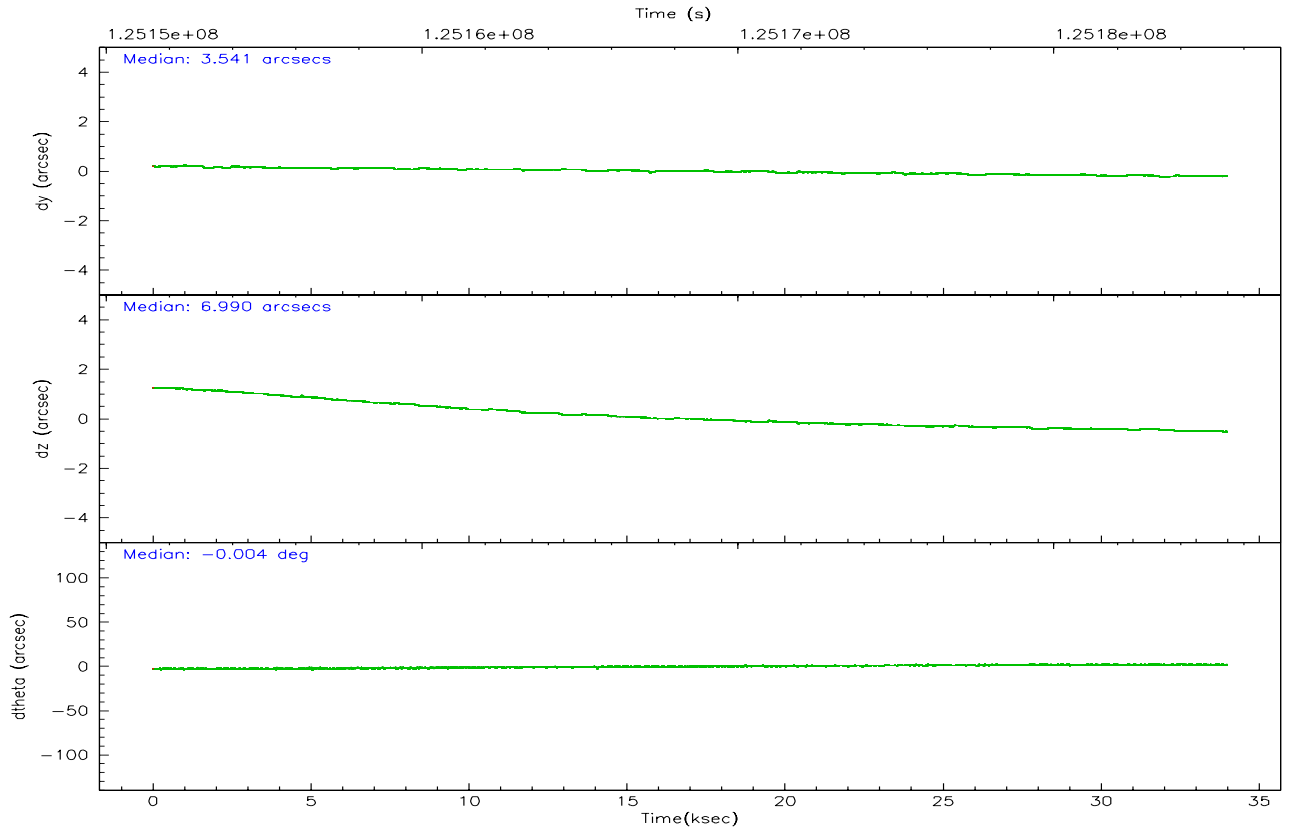
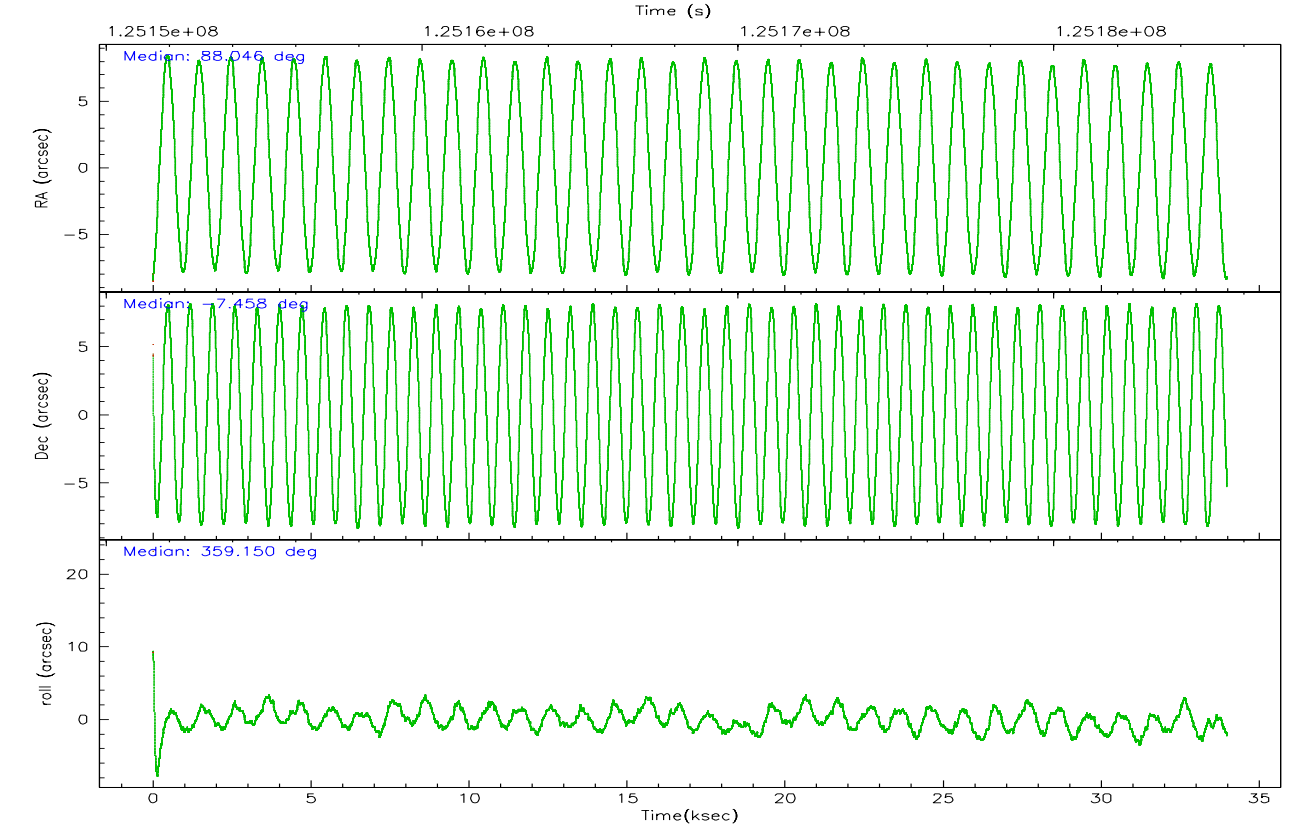
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	696	606	949	929	1183	688
	2%	2%	3%	3%	4%	2%
grade 1 events	6	15	10	35	7	5
	0%	0%	0%	0%	0%	0%
grade 2 events	547	2456	501	1891	914	447
	2%	10%	1%	8%	3%	1%
grade 3 events	284	503	309	890	474	270
	1%	2%	1%	3%	1%	1%
grade 4 events	277	476	337	852	452	283
	1%	2%	1%	3%	1%	1%
grade 5 events	662	1790	758	1880	918	768
	2%	7%	2%	7%	3%	3%
grade 6 events	400	4915	412	4094	1250	357
	1%	21%	1%	17%	4%	1%
grade 7 events	22922	12628	22460	12947	23519	20239
	88%	53%	87%	55%	81%	87%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	6	6
Detector	ACIS-456789	ACIS-456789	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
Pointing RA	88.022184	88.04603217324349	Subarray requested	CUSTOM	CUSTOM
Pointing Dec	-7.471345	-7.457776648641866	Subarray start row	1	1
Pointing Roll	358.996706	359.1564427182019	Subarray row count	774	774
Roll angle	0.000000	0.000000	Alternating exposures requested	Y	Y
Roll tolerance	30.000000	30.000000	Primary exposure time	0.800000	0.8
Roll constraint allows 180D rotation	N	N	Secondary exposure time	0.000000	3.2
SIM focus pos (mm)	-0.684267	-0.6828225247311905	Duty cycle	3	3
SIM defocus (mm)	0	0.001444936568705701			
SIM translation stage pos (mm)	-187.132523	-187.1254020033014			
SIM translation stage offset (mm)	-3	-3.007120579706367			
Observation start time	125151649.184000	125150550.81853			
Observation start date	2001-12-19T12:19:45	2001-12-19T12:02:30			
Observation end time	125185479.184000	125185793.39494			
Observation end date	2001-12-19T21:43:35	2001-12-19T21:49:53			
Read mode	TIMED	TIMED			

2.3 Aspect





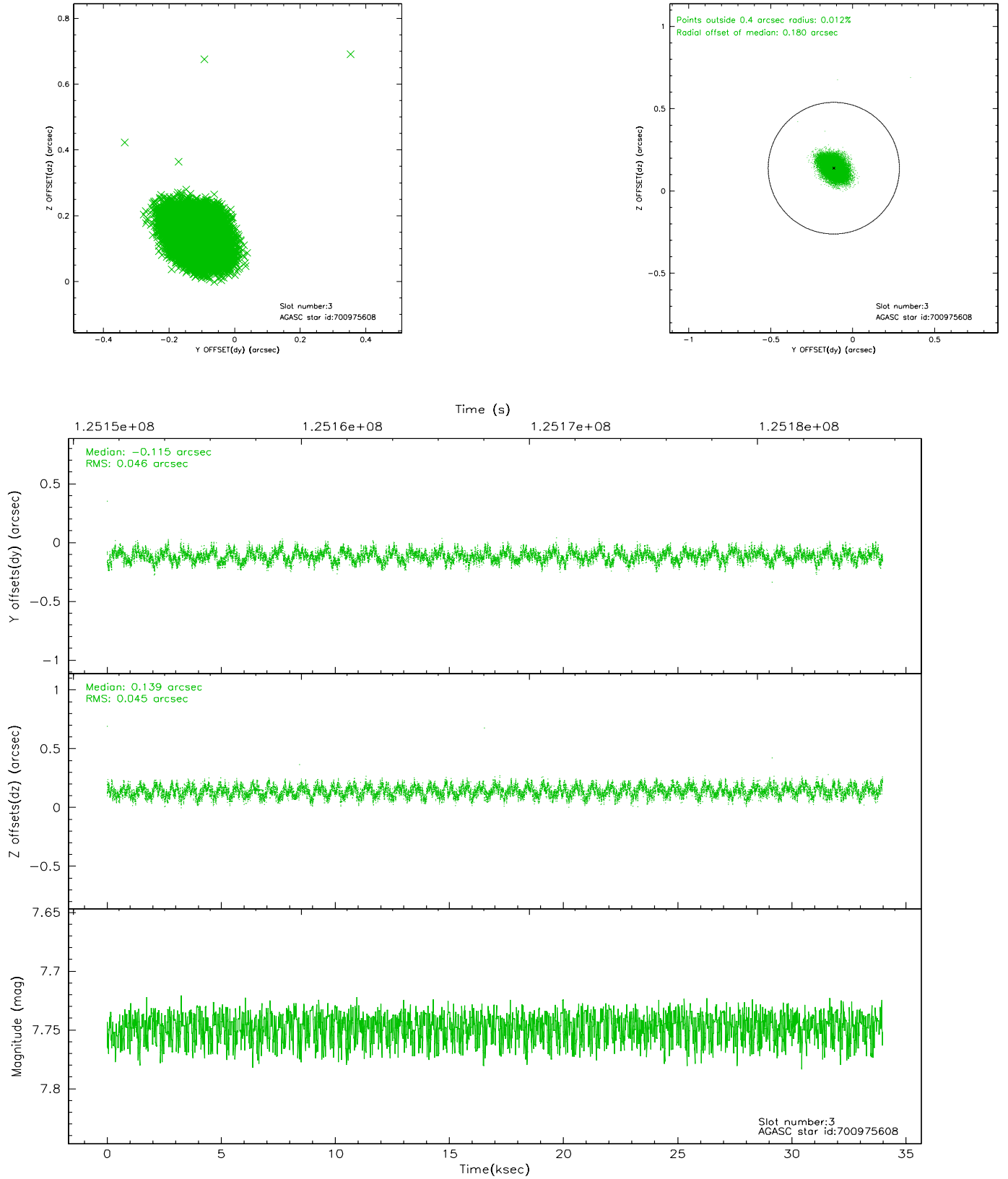
### Slot Statistics

slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	8289	-0.033	-0.026	0.016	0.031	0.000000	0.000000	-756.00	-1790.42
1	FID	ACIS-S-4	7.20	8286	-0.014	0.023	0.010	0.017	0.000000	0.000000	2157.26	118.08
2	FID	ACIS-S-5	7.24	8287	0.018	0.012	0.015	0.027	0.000000	0.000000	-1808.75	111.75
3	GUIDE	700975608	7.75	16573	-0.115	0.139	0.069	0.108	88.344260	-8.111712	1188.31	-2285.38
4	GUIDE	626524448	8.67	16575	0.010	0.017	0.080	0.133	87.380980	-6.987266	-2321.33	1700.01
5	GUIDE	700844704	8.71	16576	0.102	-0.020	0.086	0.137	87.931803	-7.921073	-293.71	-1624.73
6	GUIDE	626527888	9.39	16567	0.017	-0.127	0.103	0.167	87.940640	-6.806336	-333.65	2387.94
7	GUIDE	626656280	9.52	16563	-0.016	-0.008	0.142	0.229	88.685870	-7.378153	2363.23	375.22

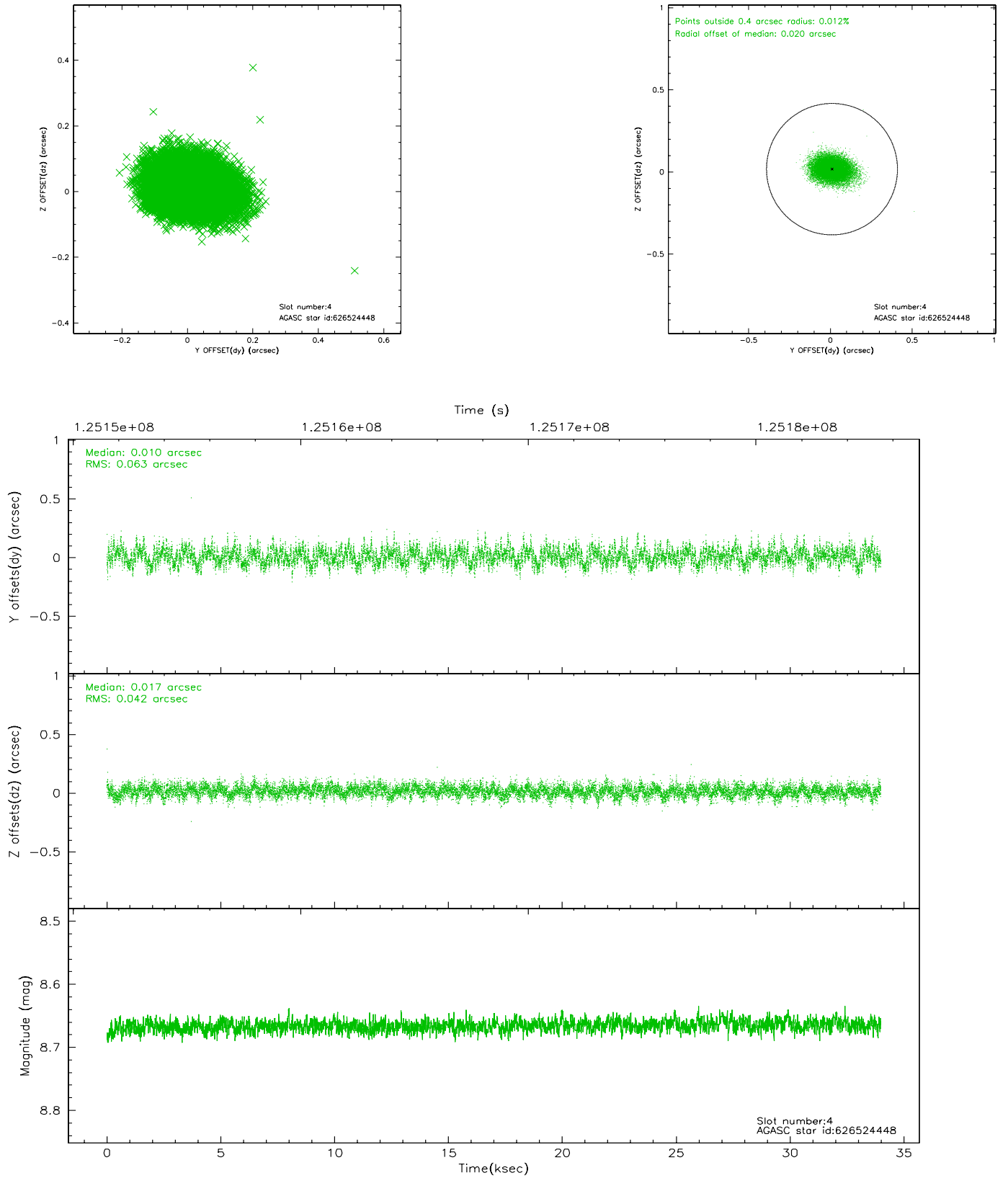


## 2.4 Star Slots

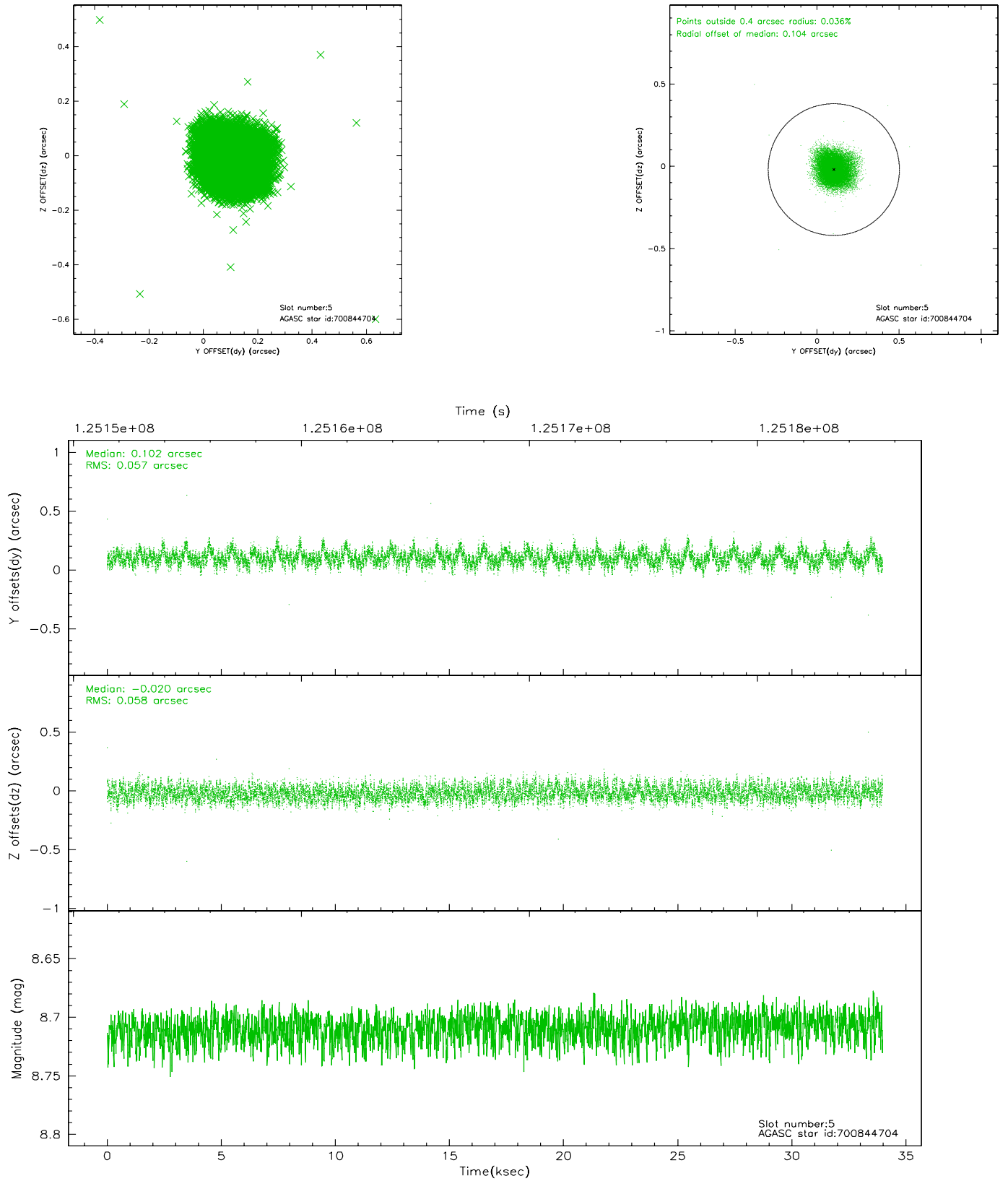
### 2.4.1 Slot 3



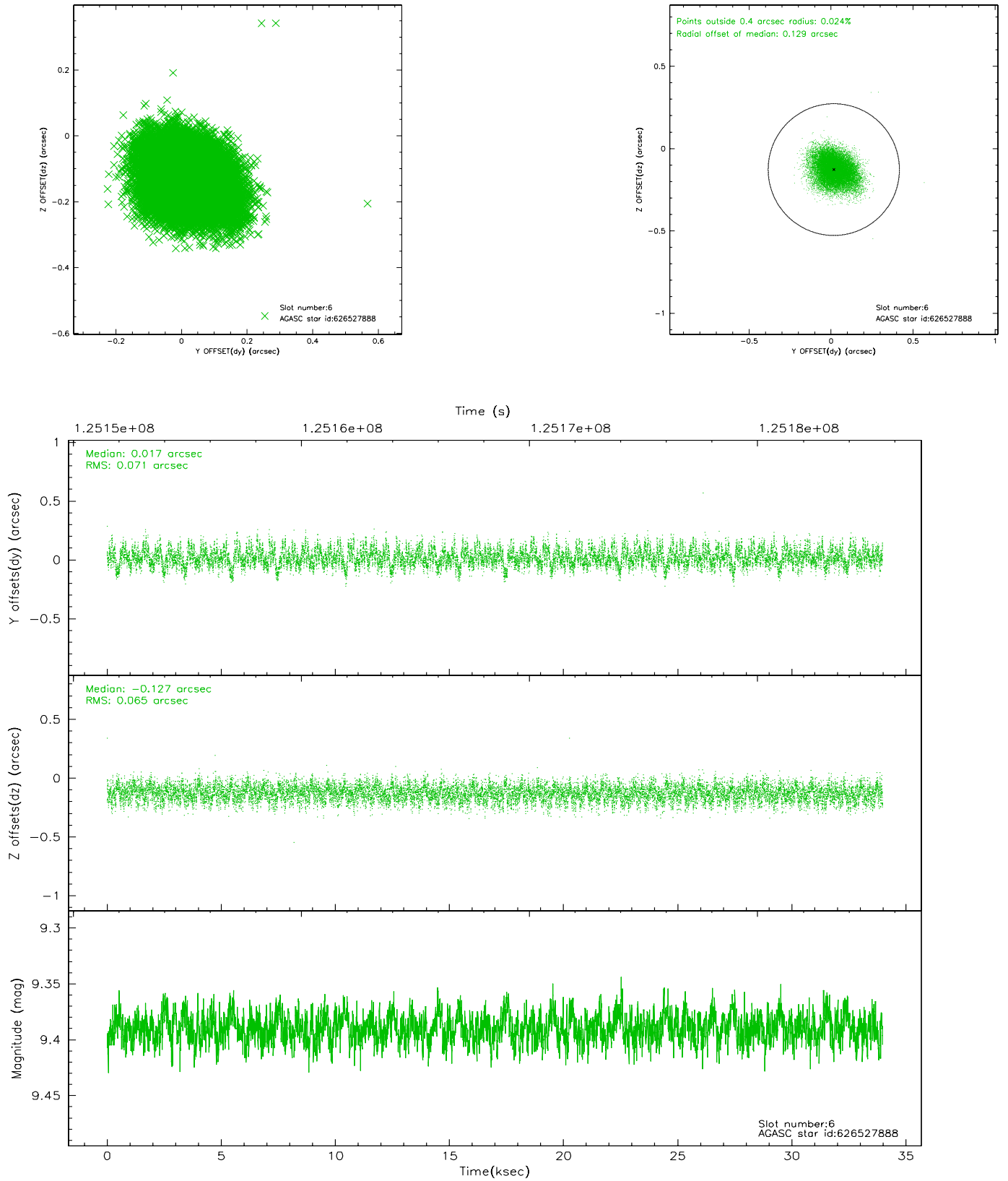
## 2.4.2 Slot 4



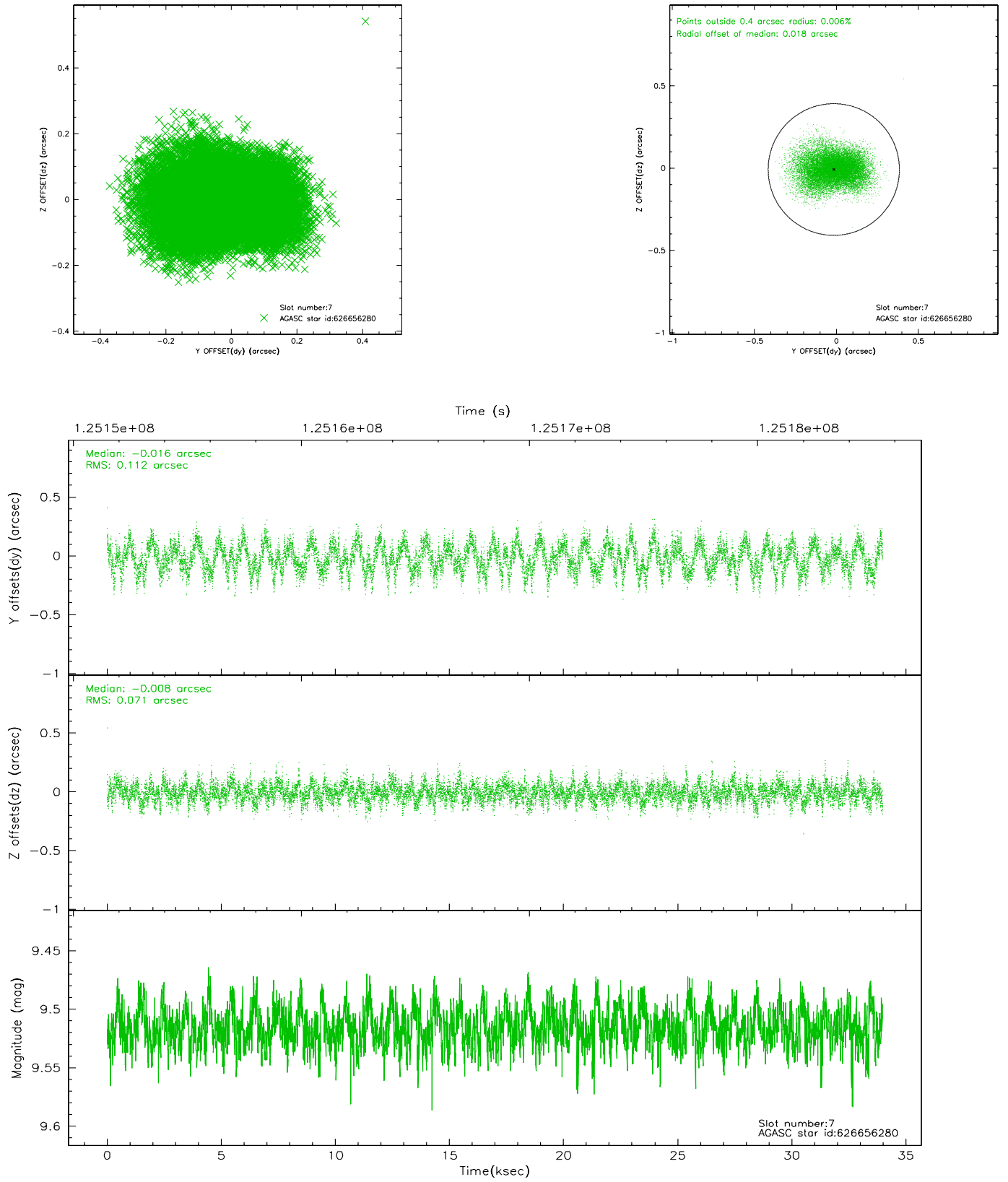
### 2.4.3 Slot 5



## 2.4.4 Slot 6

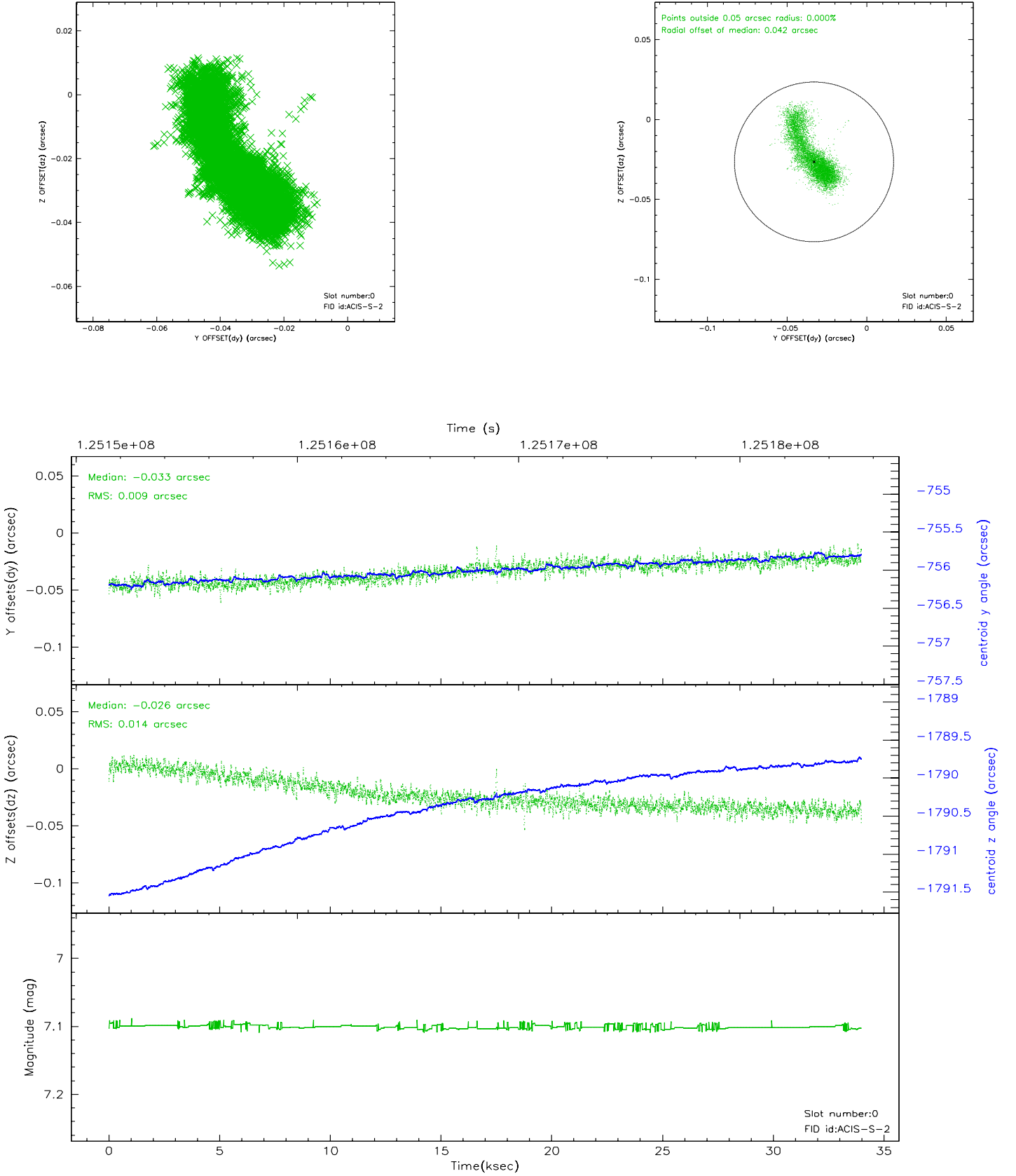


## 2.4.5 Slot 7

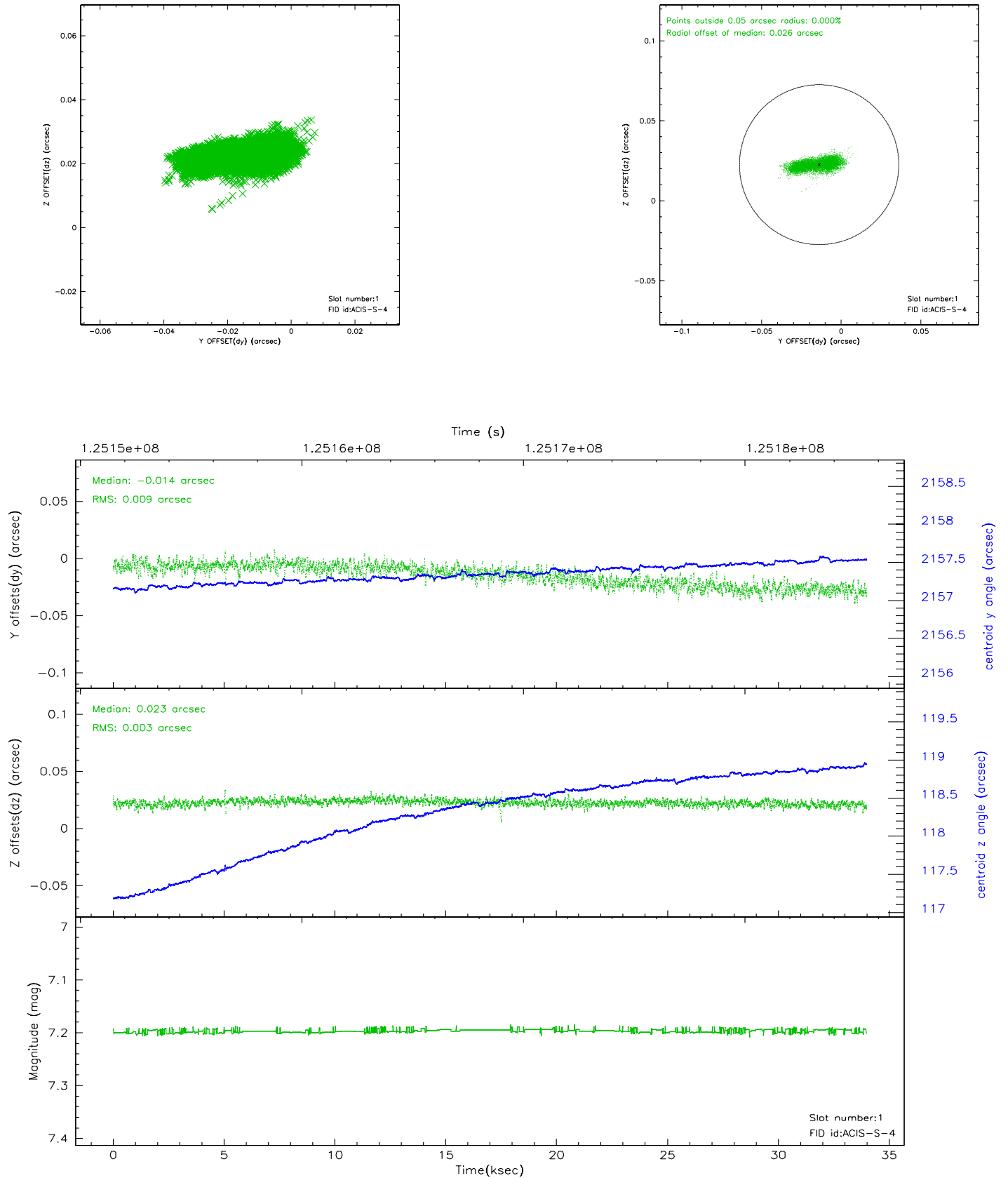


## 2.5 FID Slots

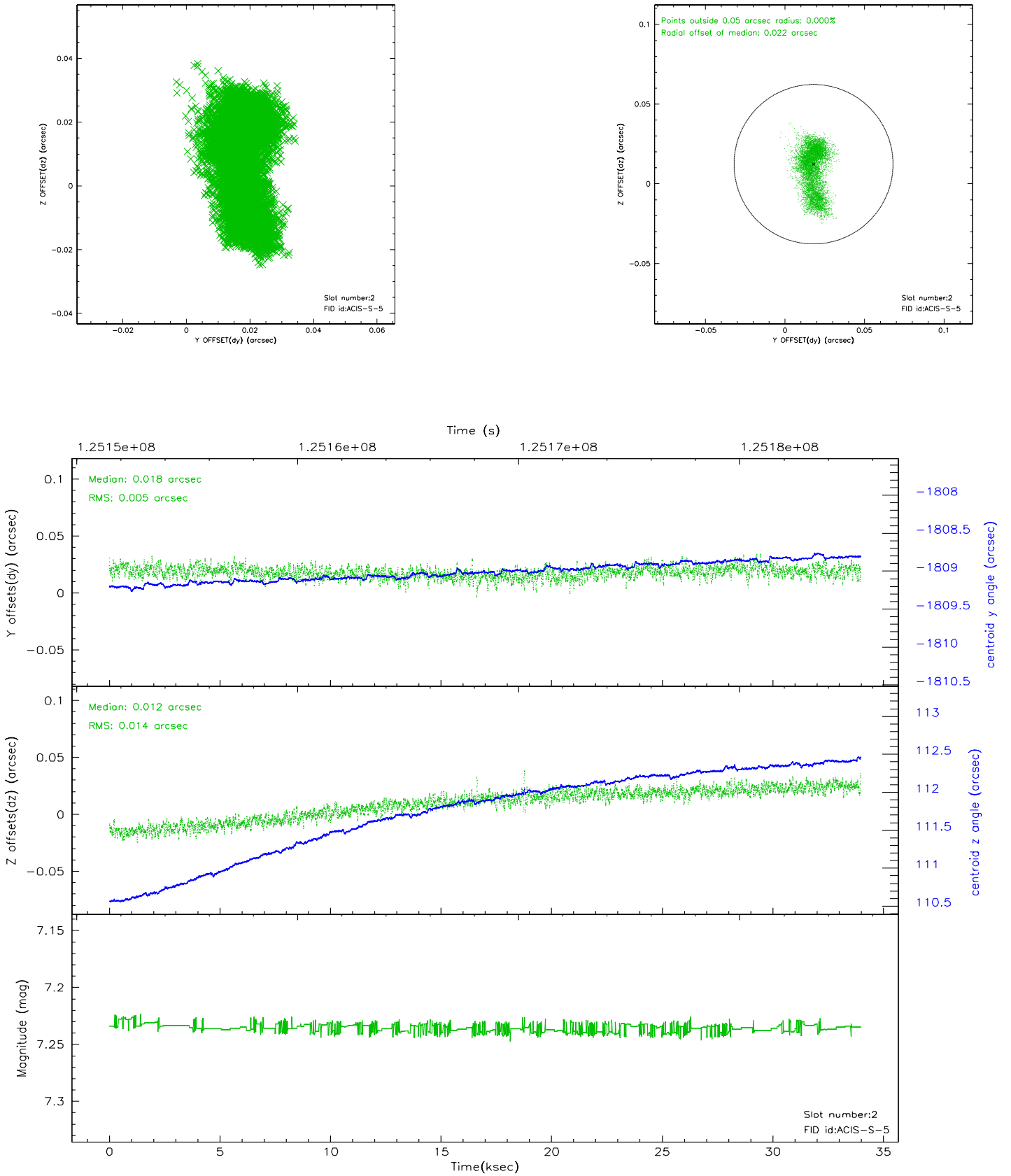
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

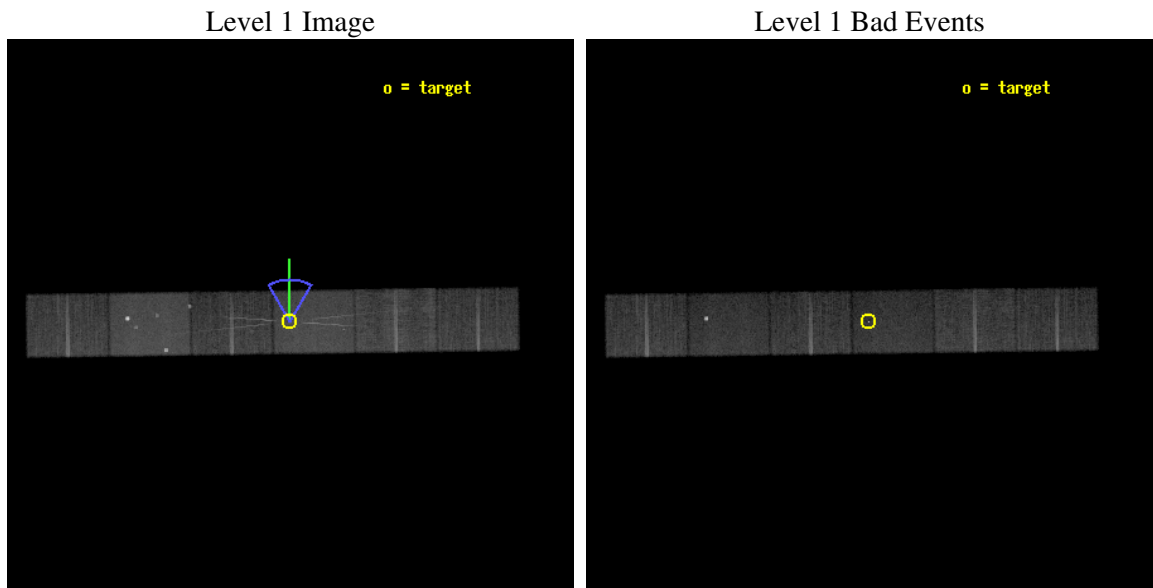




### 3 OBI Secondary

#### 3.1 OBI

##### 3.1.1 Images

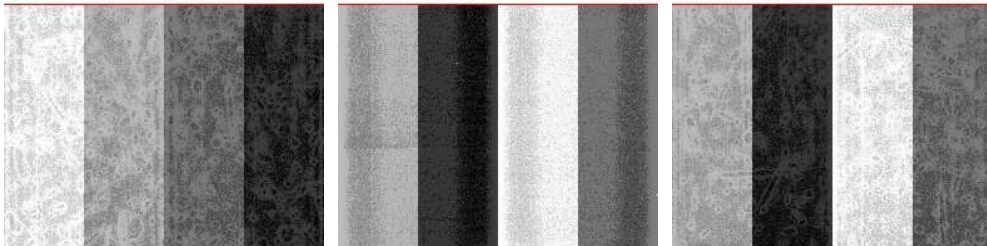


##### 3.1.2 Bias

Chip 4

Chip 5

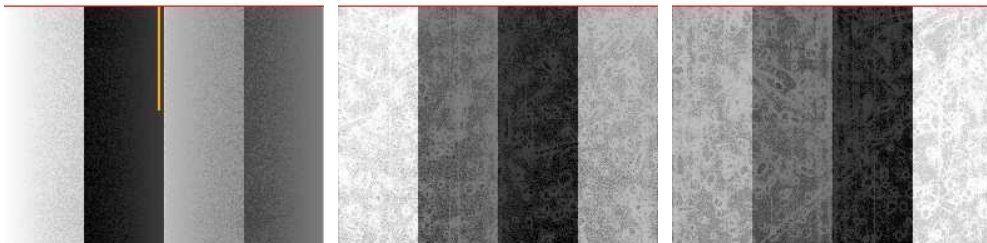
Chip 6



Chip 7

Chip 8

Chip 9



### 3.1.3 Parameters

obi_num	0
ascdsver	7.6.10
caldsver	3.3.0
date	2007-01-18T07:02:14
revision	3

sched_exp_time	33830.248000
ontime	25373.462677032
ontime4	25370.221238077
ontime5	25373.462985158
ontime6	25370.221746102
ontime7	25373.462677032
ontime8	25373.462158635
ontime9	25366.981393546
l1events	866509

### 3.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	127690	184749	120420	168612	148428	116610
rejected events	112774	96764	101234	90259	114470	101902
rejected %	88%	52%	84%	53%	77%	87%

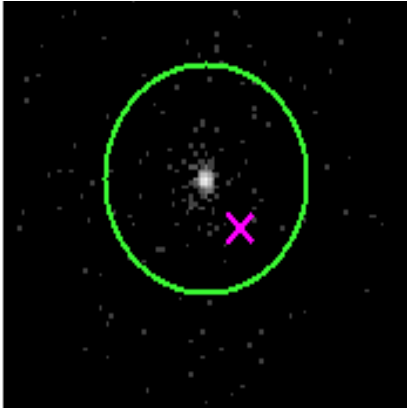
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	6068	14305	9453	8088	11235	5994
	4%	7%	7%	4%	7%	5%
grade 1 events	39	683	79	266	98	54
	0%	0%	0%	0%	0%	0%
grade 2 events	3640	23782	3452	16411	7096	2896
	2%	12%	2%	9%	4%	2%
grade 3 events	1396	5029	1639	7400	3753	1459
	1%	2%	1%	4%	2%	1%
grade 4 events	1327	4274	1665	7259	3484	1472
	1%	2%	1%	4%	2%	1%
grade 5 events	4357	17568	4976	15783	6546	5190
	3%	9%	4%	9%	4%	4%
grade 6 events	2555	41111	3103	39590	8531	2964
	2%	22%	2%	23%	5%	2%
grade 7 events	108308	77997	96053	73815	107685	96581
	84%	42%	79%	43%	72%	82%

# 4 Gratings

## 4.1 HEG Arm



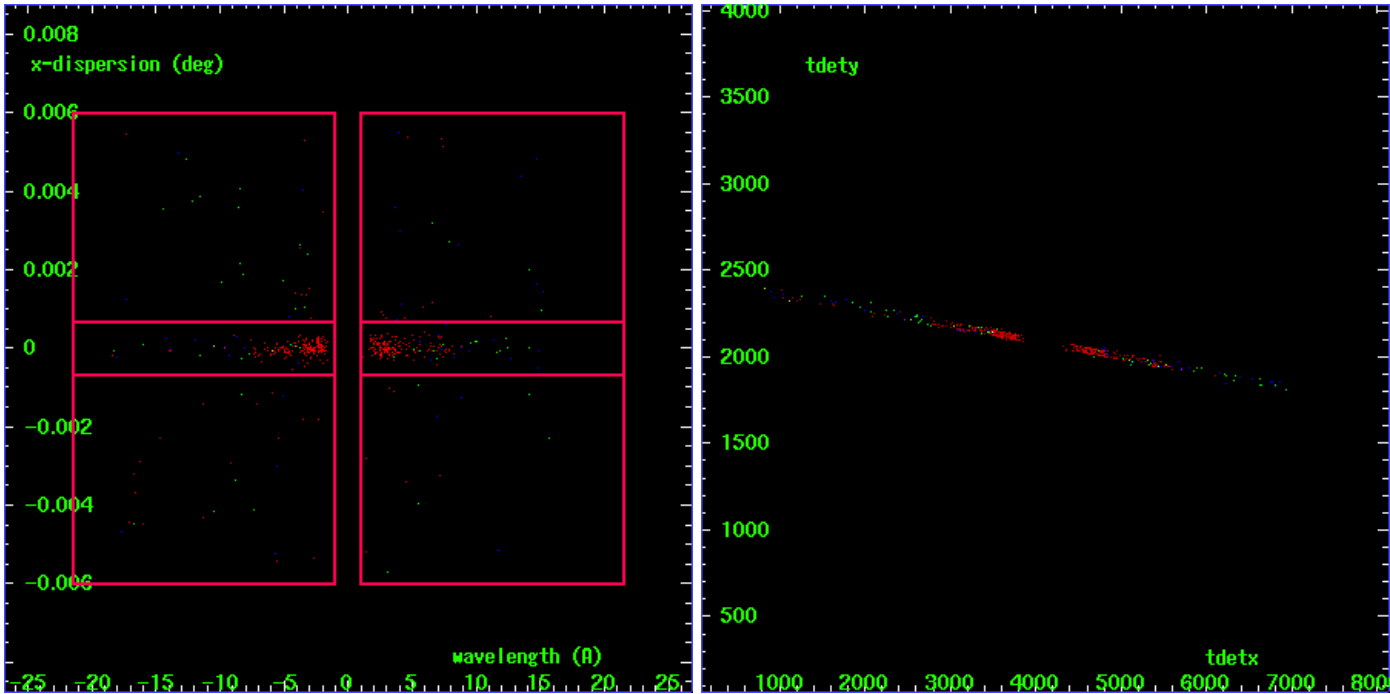
HEG Order Sort 123



HEG Zero Order



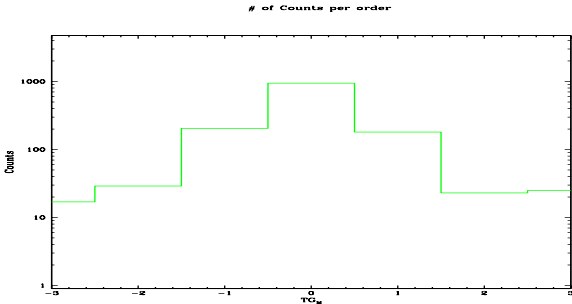
HEG Order Sort ALL

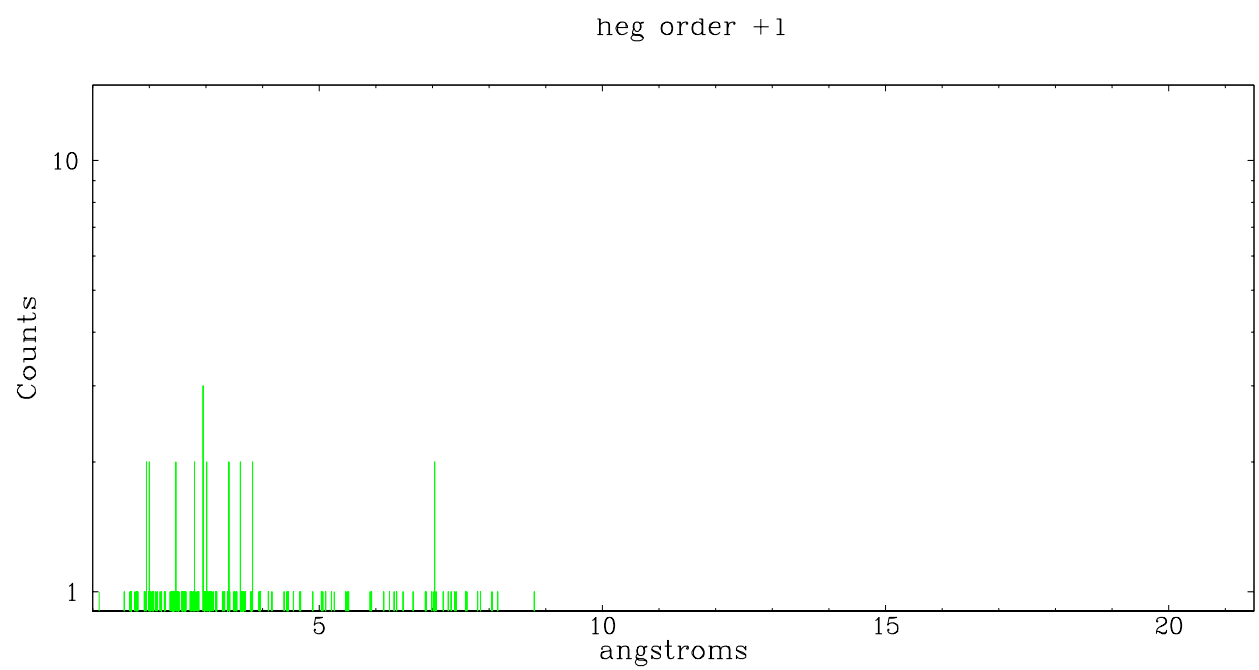
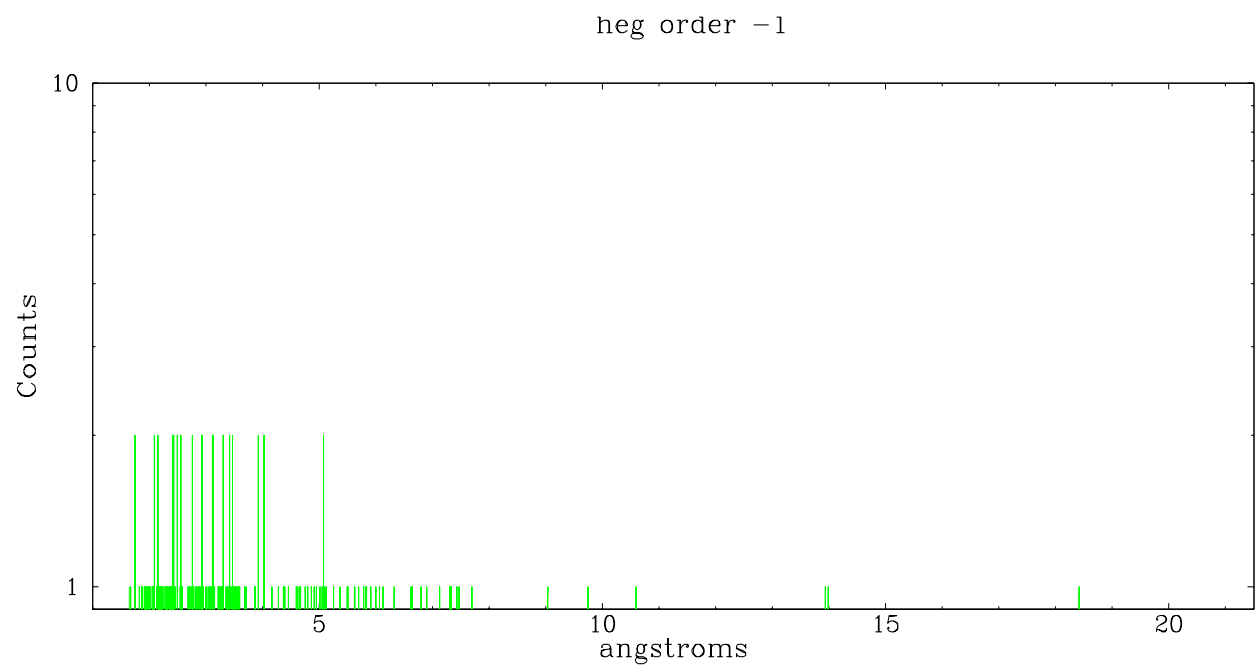


Spot Image HEG

Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	17	29	205	944	180	23	25

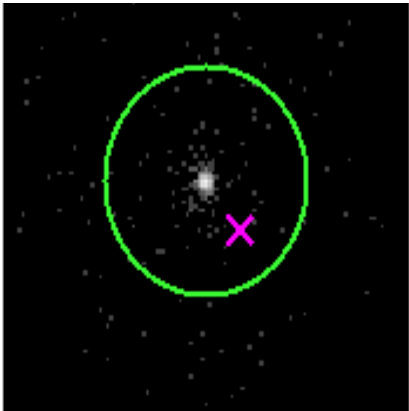




4.2 MEG Arm



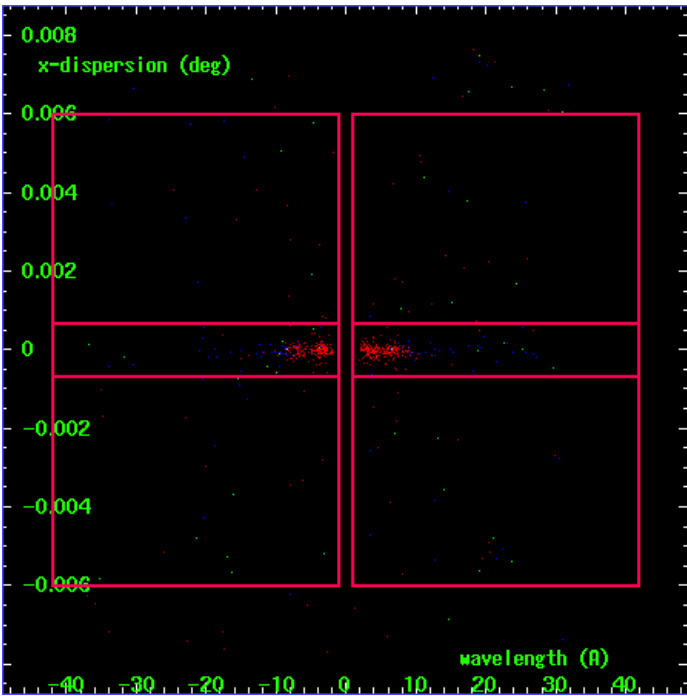
MEG Order Sort 123



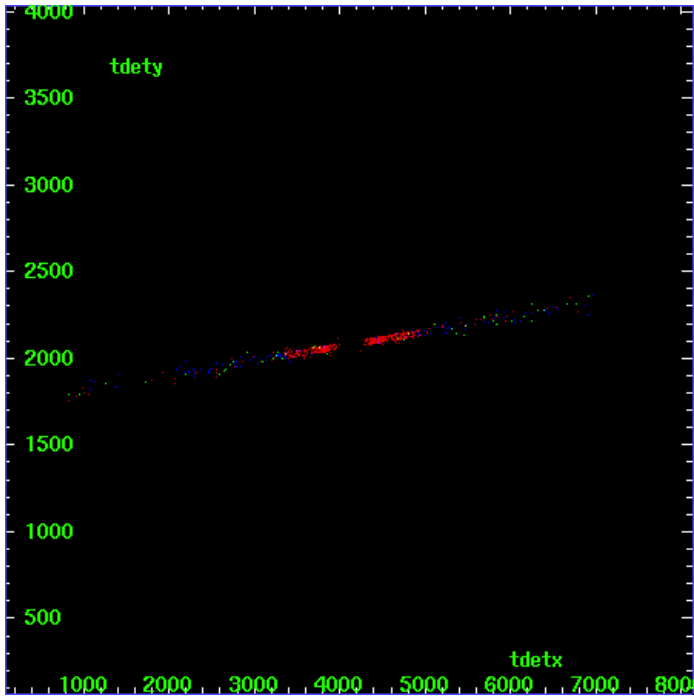
MEG Zero Order



MEG Order Sort ALL

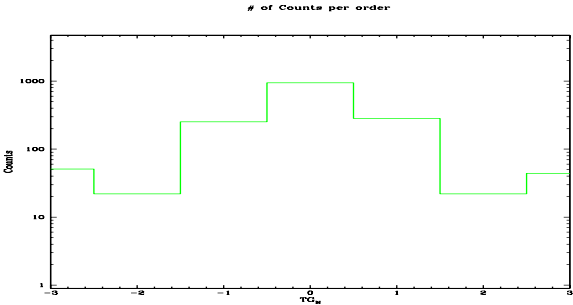


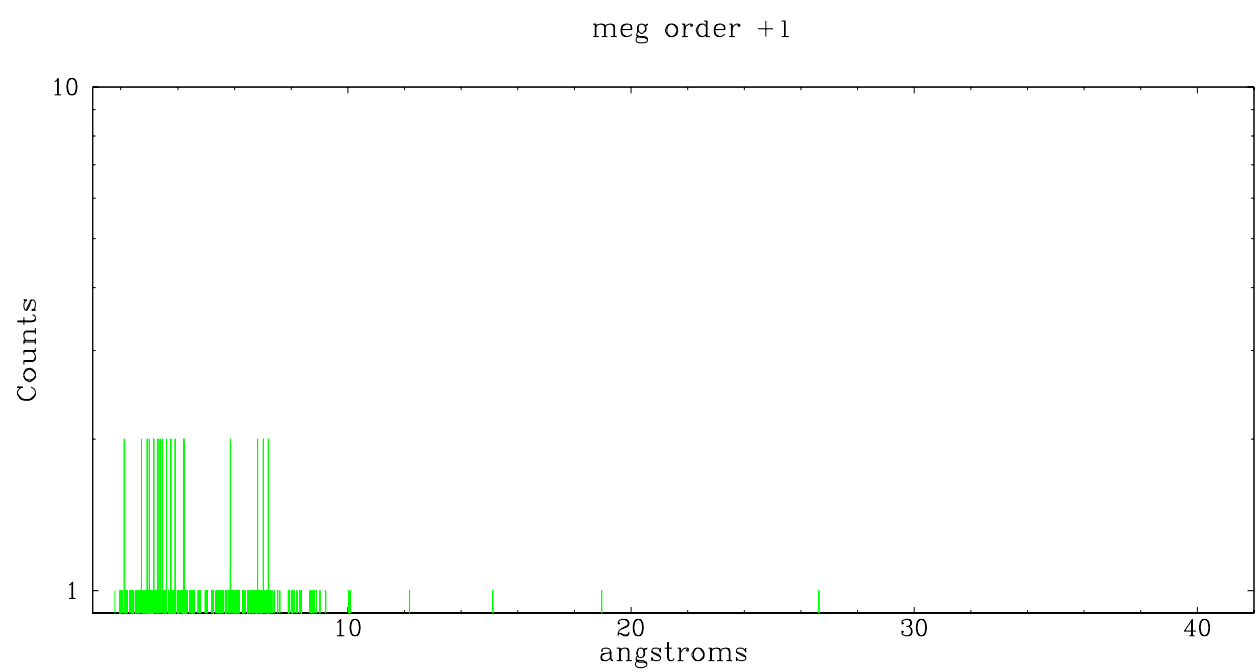
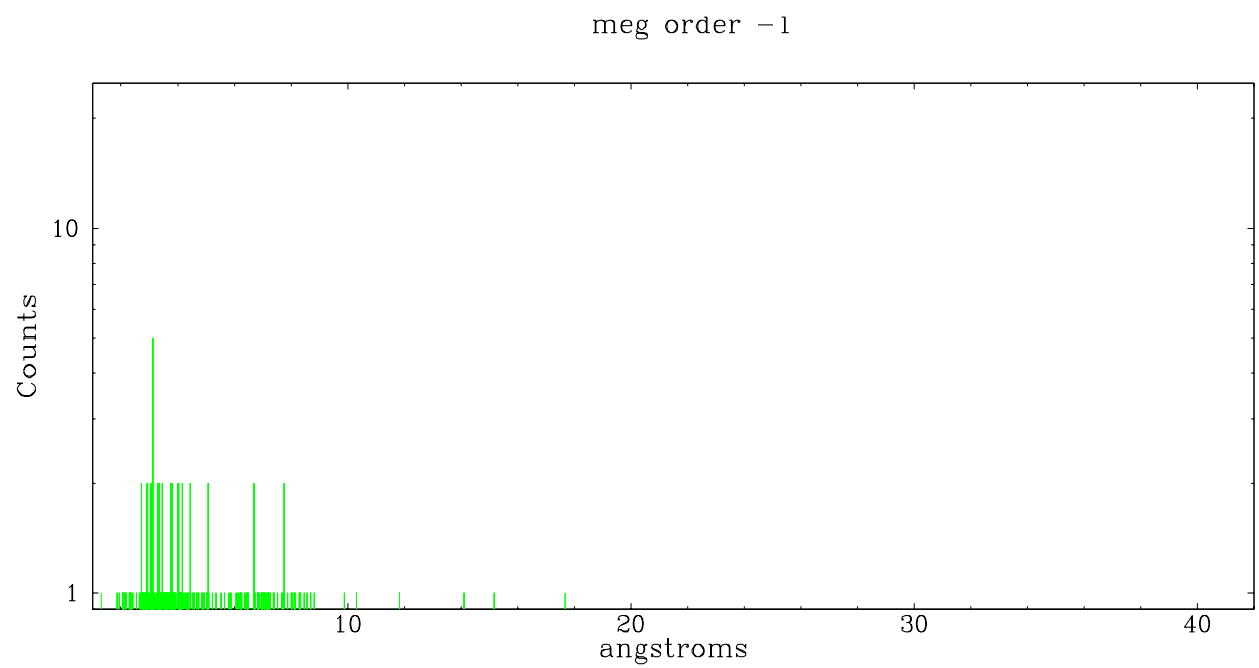
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	51	22	252	944	283	22	44





## A Summary

### A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2007.01.26
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	33.98

### A.2 Comments

Roll constraint met.