

# V&V Reference Report

## L2 ASCDS Version : 7.6.10

Observation 1701 - L2 Version 6  
Chandra X-Ray Center

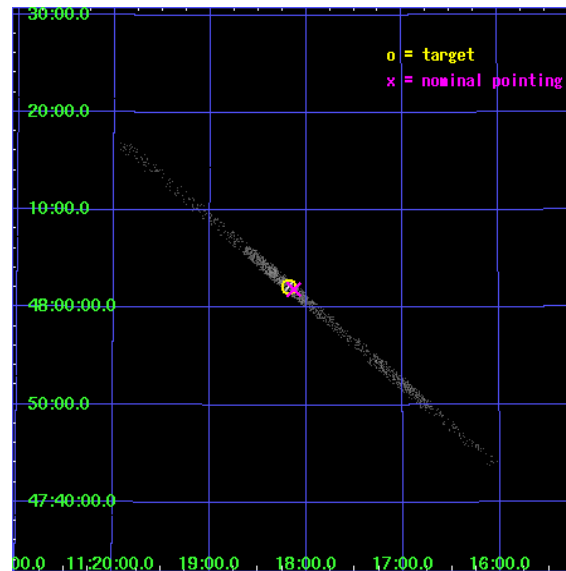
L2 Processing Date : Sep 22 2007

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# 1 Front

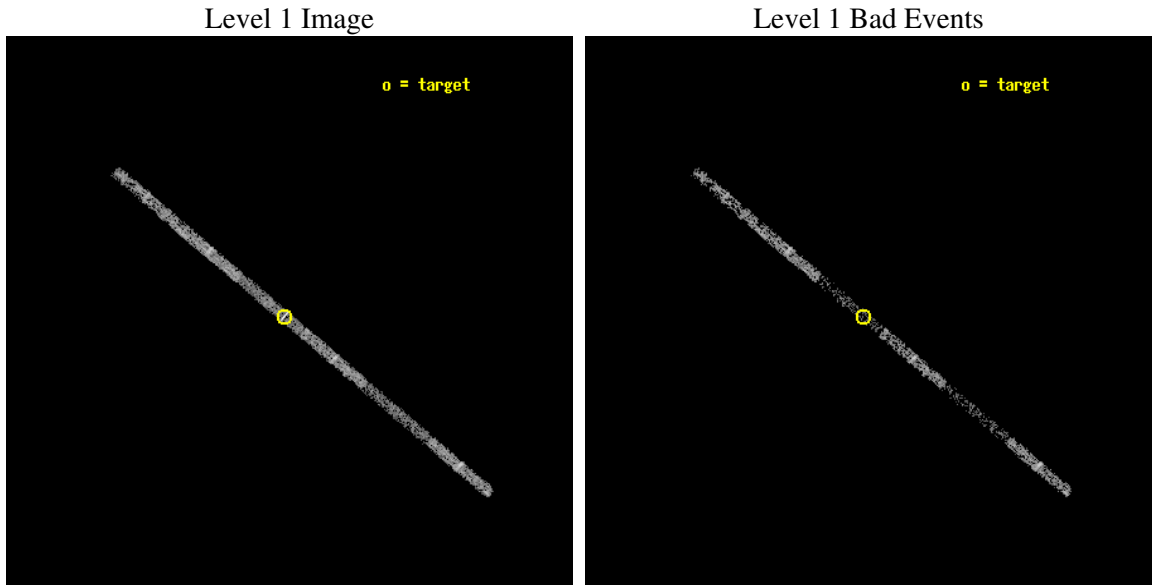
seq_num	400110
obs_id	1701
title	CHANDRA ACIS/LETG OBSERVATIONS OF THE LEAST ABSORBED X-RAY NOVA: XTE J1118+48
observer	Dr. Jeffrey McClintock
object	XTE J1118+48
dtcycle	0
cycle	P
ra_targ	169.545
dec_targ	48.036389
ra_nom	169.53195789997
dec_nom	48.031442711828
roll_nom	220.26444274594
revision	6
ontime	2930.0342755169
livetime	373.19572492318
ontime4	2930.067823112
ontime5	2929.9932355136
ontime6	2929.9521955252
ontime7	2930.0342755169
ontime8	2929.9111555219
ontime9	2929.8701155186
l2events	2467



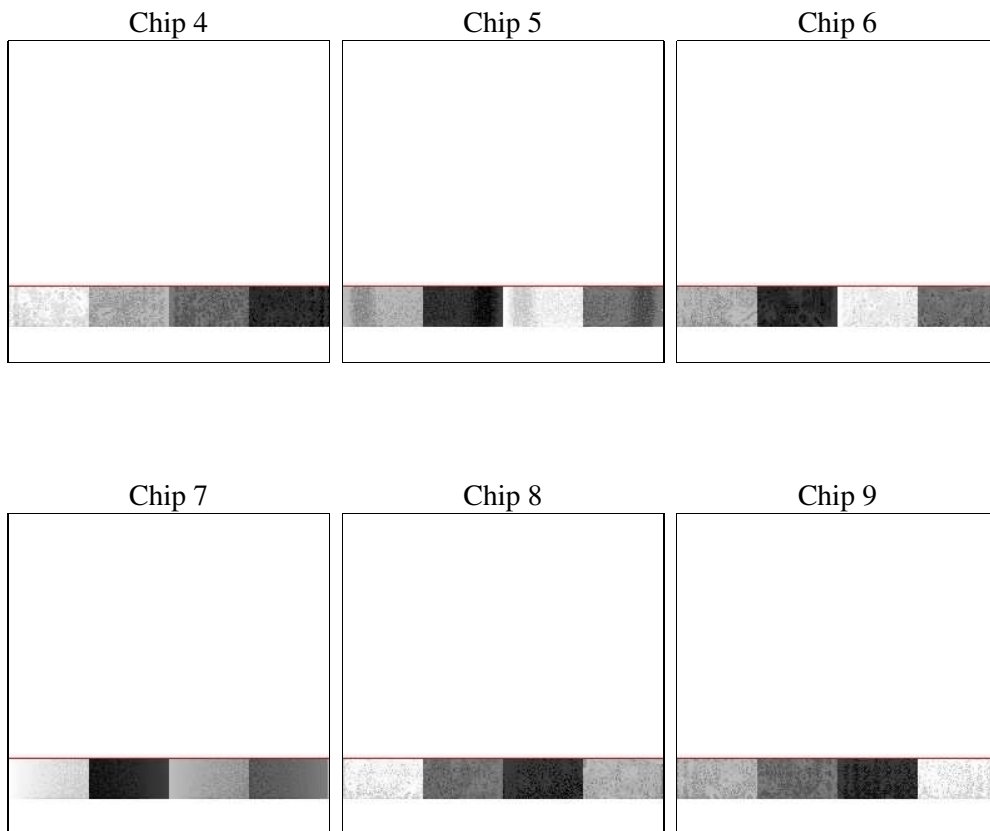
## 2 OBI Primary

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0
ascdsver	7.6.10
caldsver	3.3.0
date	2007-05-11T23:45:33
revision	4

sched_exp_time	27000.000000
ontime	2930.0342755169
ontime4	2930.067823112
ontime5	2929.9932355136
ontime6	2929.9521955252
ontime7	2930.0342755169
ontime8	2929.9111555219
ontime9	2929.8701155186
l1events	15963

### 2.1.4 Events

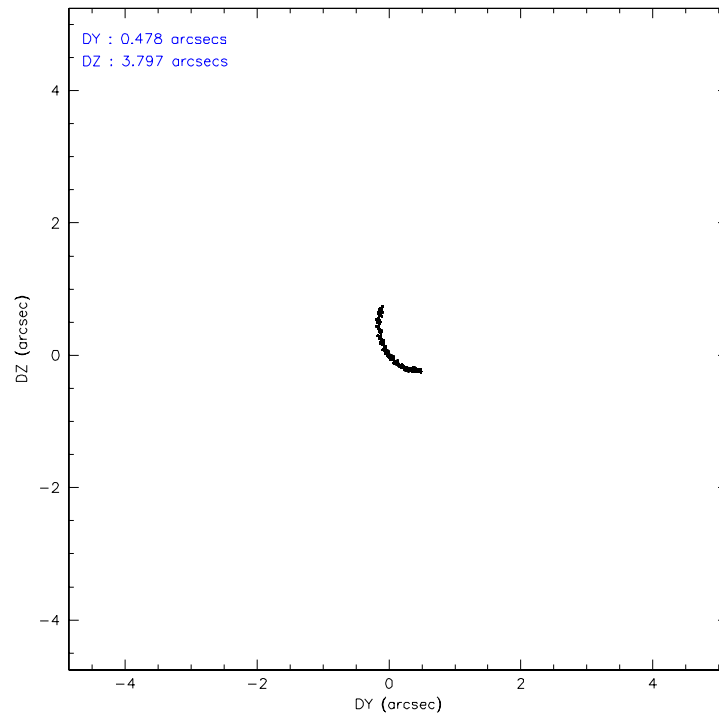
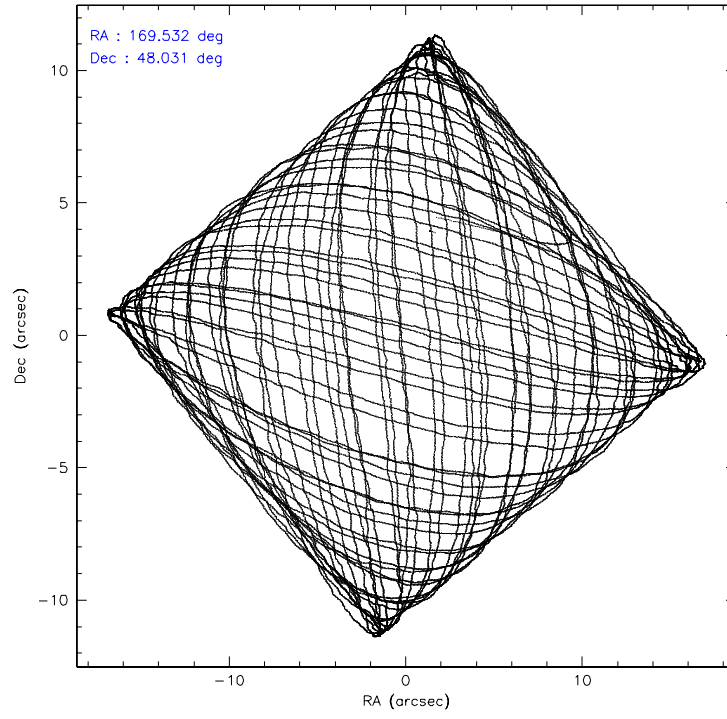
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	3095	1153	3112	2432	3632	2539
rejected events	2932	743	2778	833	3299	2401
rejected %	94%	64%	89%	34%	90%	94%

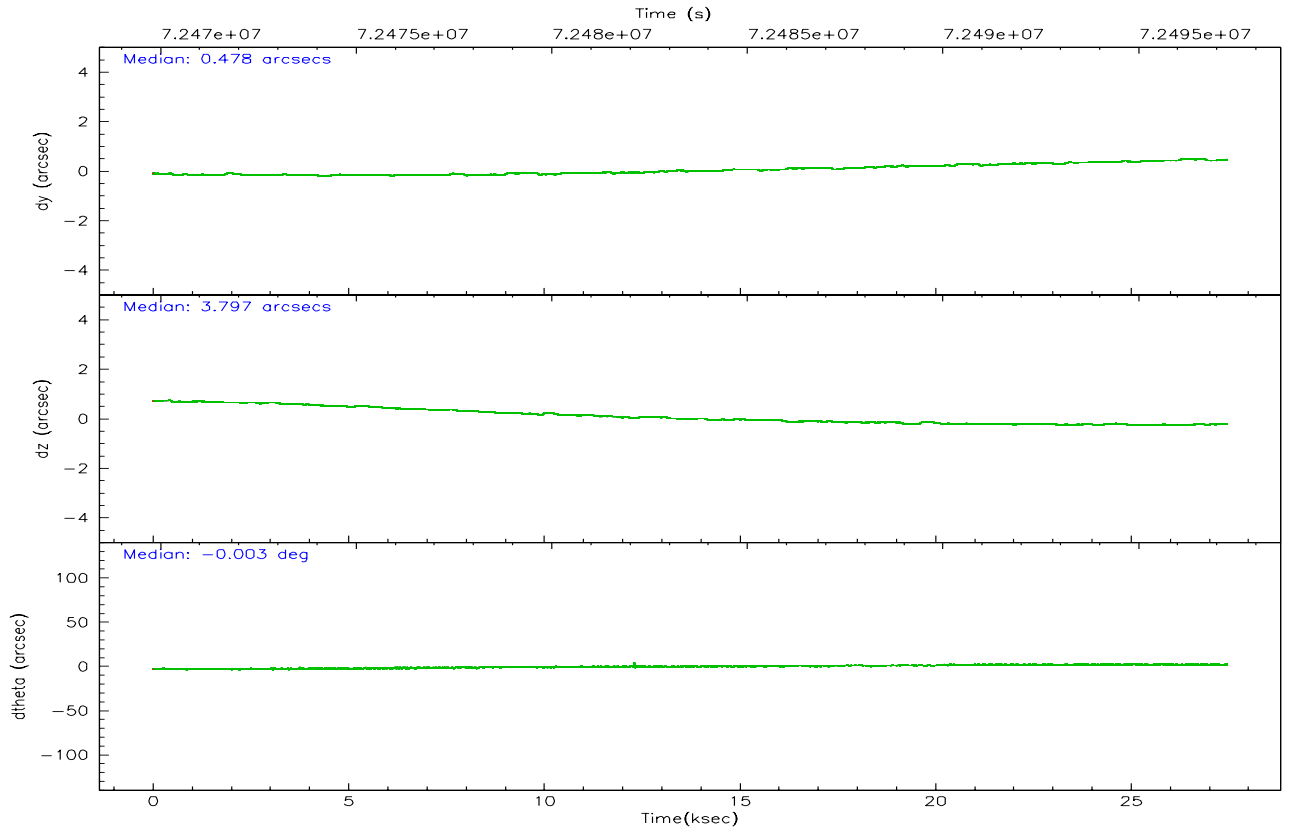
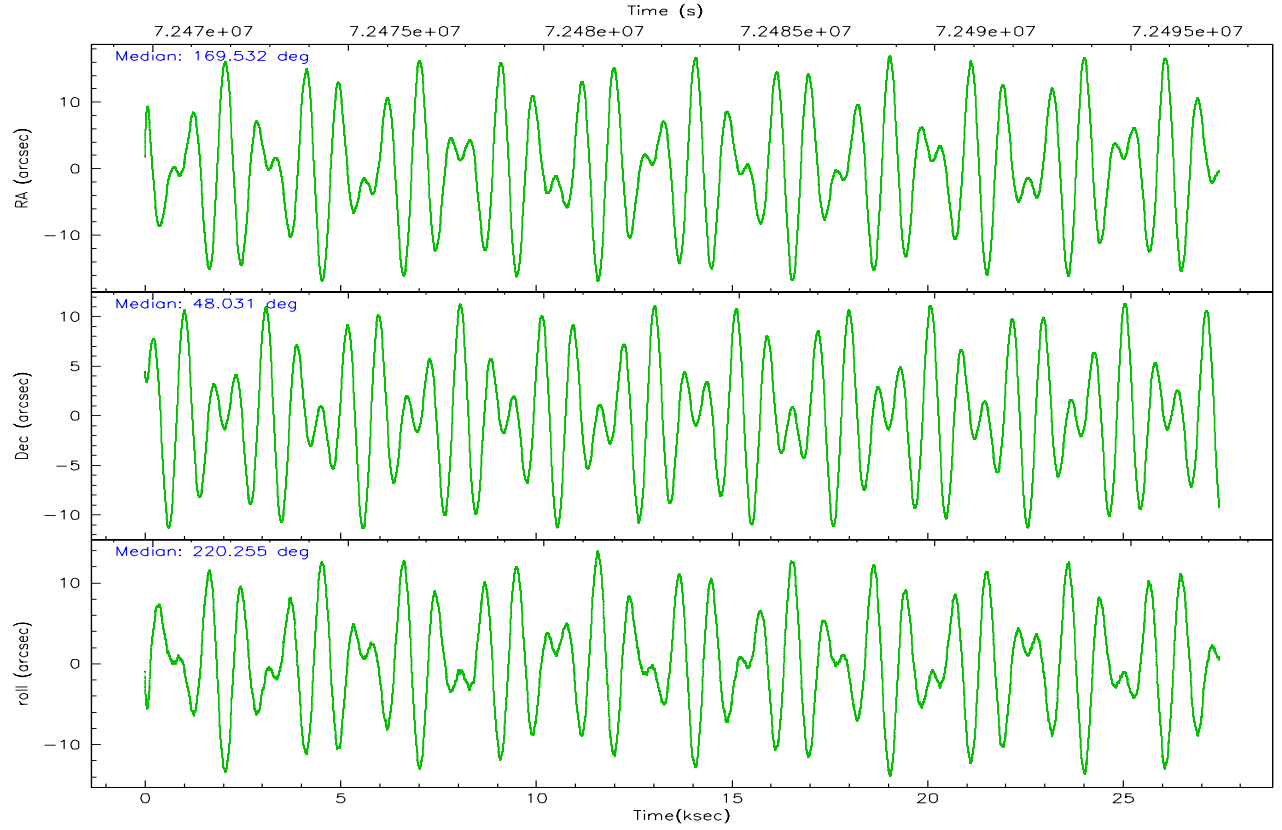
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	23	70	152	389	57	25
	0%	6%	4%	15%	1%	0%
grade 1 events	0	1	0	5	0	0
	0%	0%	0%	0%	0%	0%
grade 2 events	16	75	45	341	38	11
	0%	6%	1%	14%	1%	0%
grade 3 events	55	47	70	218	62	51
	1%	4%	2%	8%	1%	2%
grade 4 events	44	48	55	208	56	37
	1%	4%	1%	8%	1%	1%
grade 5 events	31	69	32	89	30	29
	1%	5%	1%	3%	0%	1%
grade 6 events	26	175	17	460	125	17
	0%	15%	0%	18%	3%	0%
grade 7 events	2900	668	2741	722	3264	2369
	93%	57%	88%	29%	89%	93%

## 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	LETG	LETG	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	169.545734	169.5319578999706	Subarray requested	CUSTOM	1/8
Pointing Dec	48.057274	48.03144271182813	Subarray start row	115	115
Pointing Roll	220.097564	220.2644427459422	Subarray row count	128	128
SIM focus pos (mm)	-0.684267	-0.6828225247311905	Alternating exposures requested	Y	Y
SIM defocus (mm)	0	0.001444936568705701	Primary exposure time	0.100000	0.1
SIM translation stage pos (mm)	-182.132523	-182.1344861297048	Secondary exposure time	0.700000	0.7
SIM translation stage offset (mm)	-8	-7.998036453302973	Duty cycle	9	9
Observation start time	72470261.184000	72468962.55704799			
Observation start date	2000-04-18T18:36:37	2000-04-18T18:16:02			
Observation end time	72497261.184000	72497757.883104			
Observation end date	2000-04-19T02:06:37	2000-04-19T02:15:57			
Read mode	TIMED	TIMED			

## 2.3 Aspect





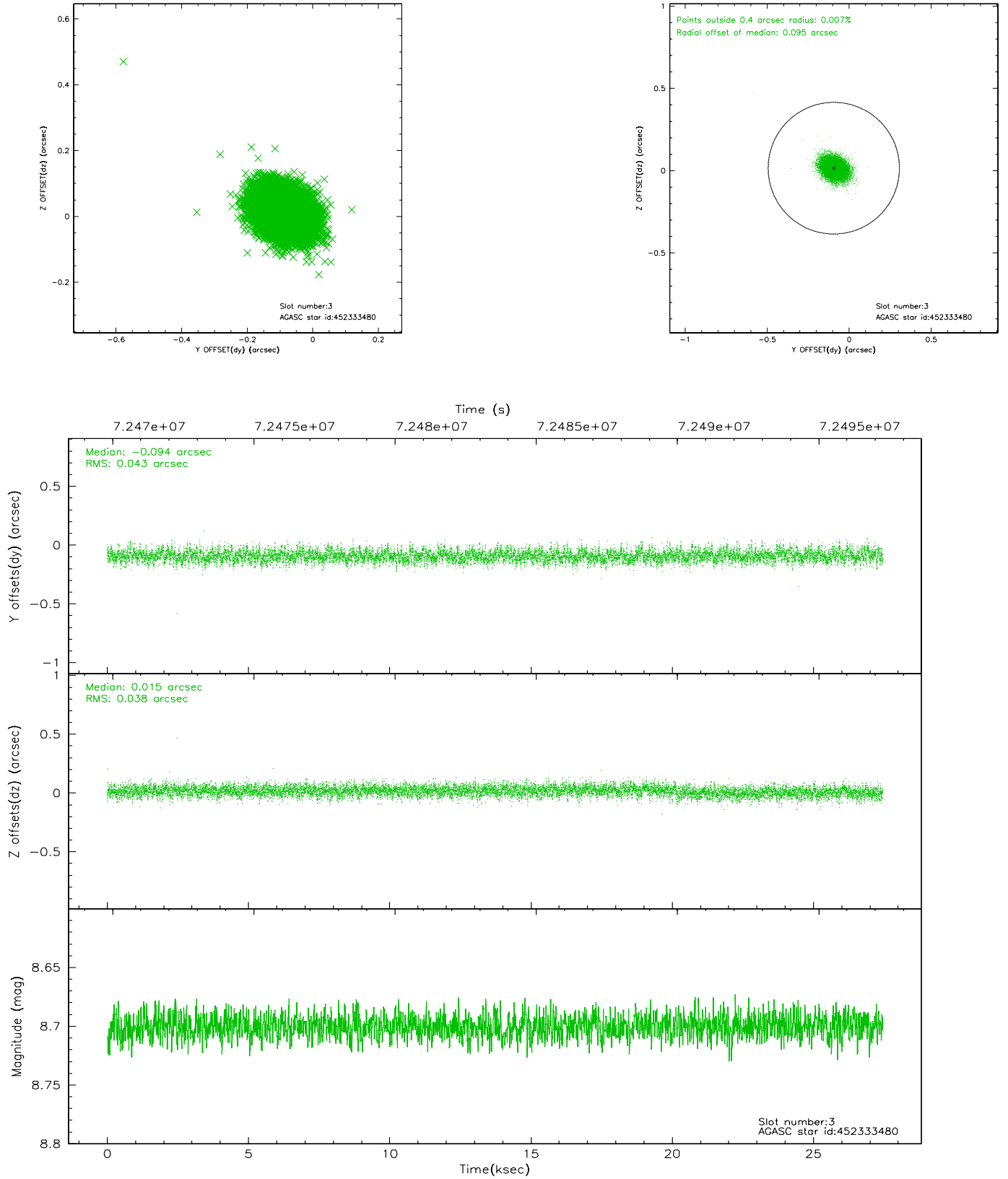
### Slot Statistics

slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	6698	-0.052	-0.088	0.019	0.034	0.000000	0.000000	-752.63	-1889.82
1	FID	ACIS-S-4	7.18	6698	0.050	0.046	0.012	0.027	0.000000	0.000000	2160.74	18.60
2	FID	ACIS-S-5	7.22	6698	-0.025	0.051	0.018	0.033	0.000000	0.000000	-1805.29	12.46
3	GUIDE	452333480	8.70	13394	-0.094	0.015	0.060	0.100	170.336265	47.786774	-843.03	1969.17
4	GUIDE	452330912	9.20	13392	-0.125	0.123	0.079	0.130	170.294974	48.205150	-1724.72	744.20
5	GUIDE	451813352	9.22	13391	0.063	-0.112	0.085	0.137	168.440366	48.076848	1975.51	-1780.38
6	GUIDE	452332560	9.11	13392	0.103	-0.061	0.065	0.109	168.907013	48.101061	1068.63	-1114.22
7	GUIDE	452335688	9.62	13369	0.051	0.035	0.086	0.142	169.560165	48.223525	-412.59	-435.33

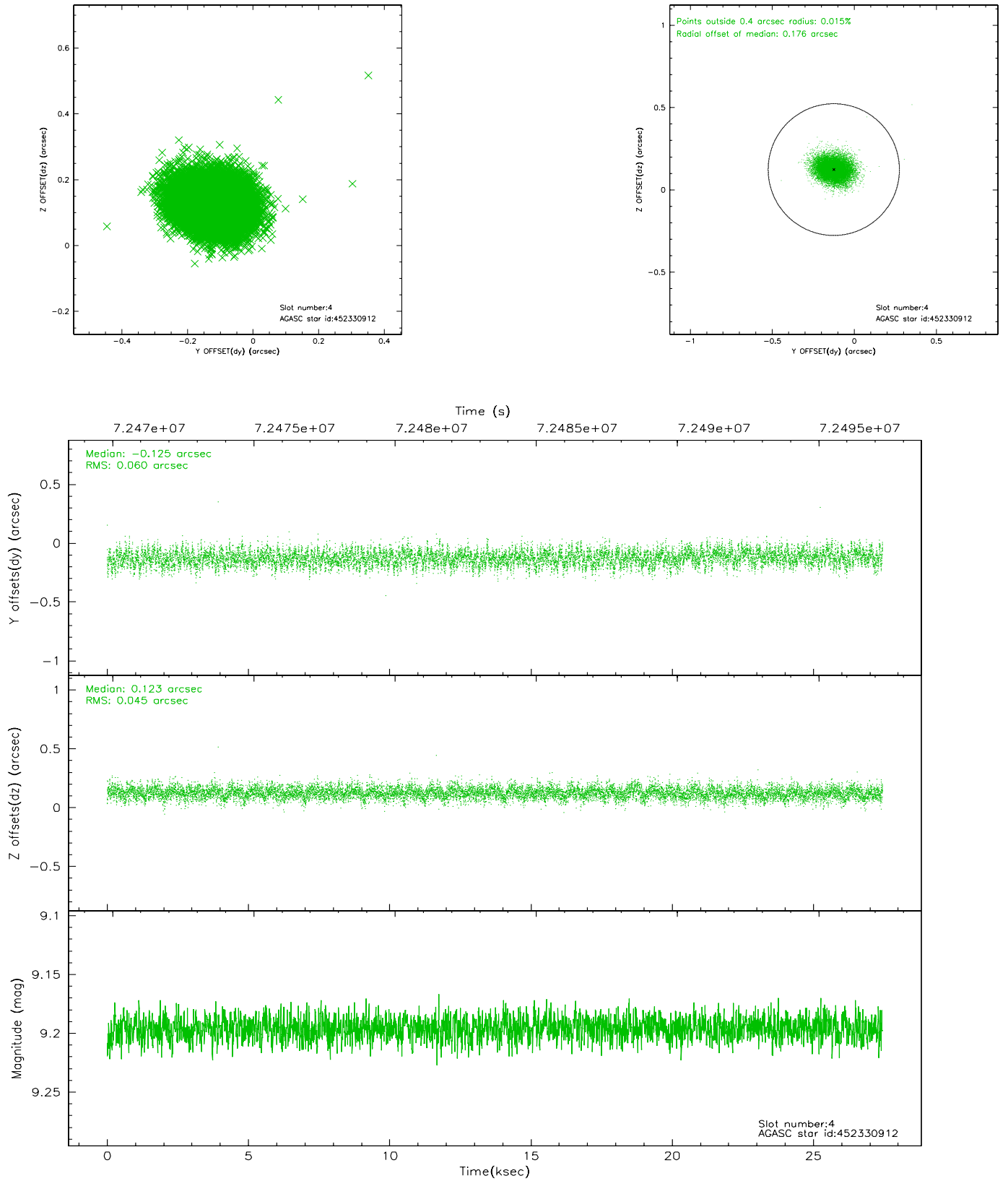


## 2.4 Star Slots

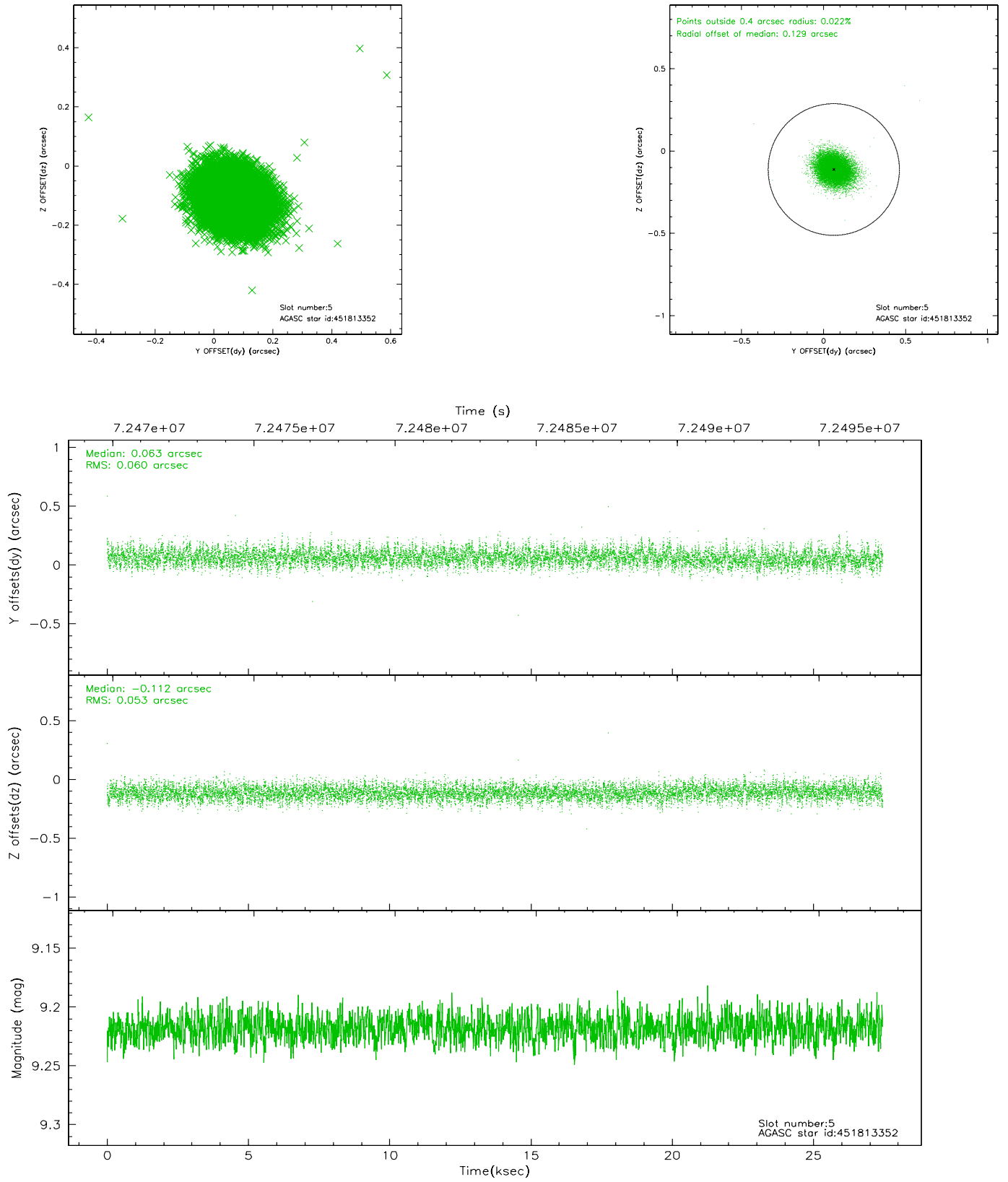
### 2.4.1 Slot 3



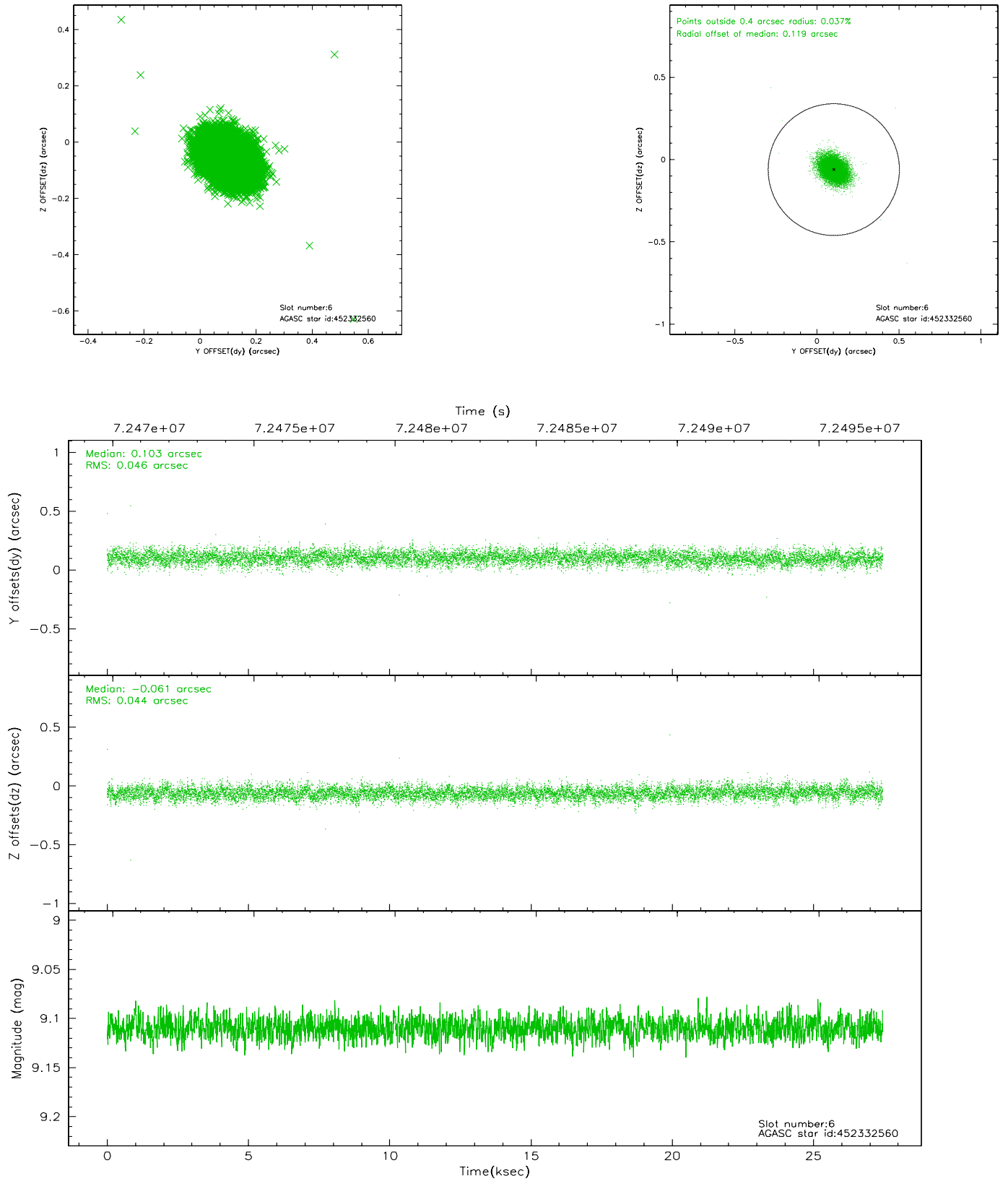
## 2.4.2 Slot 4



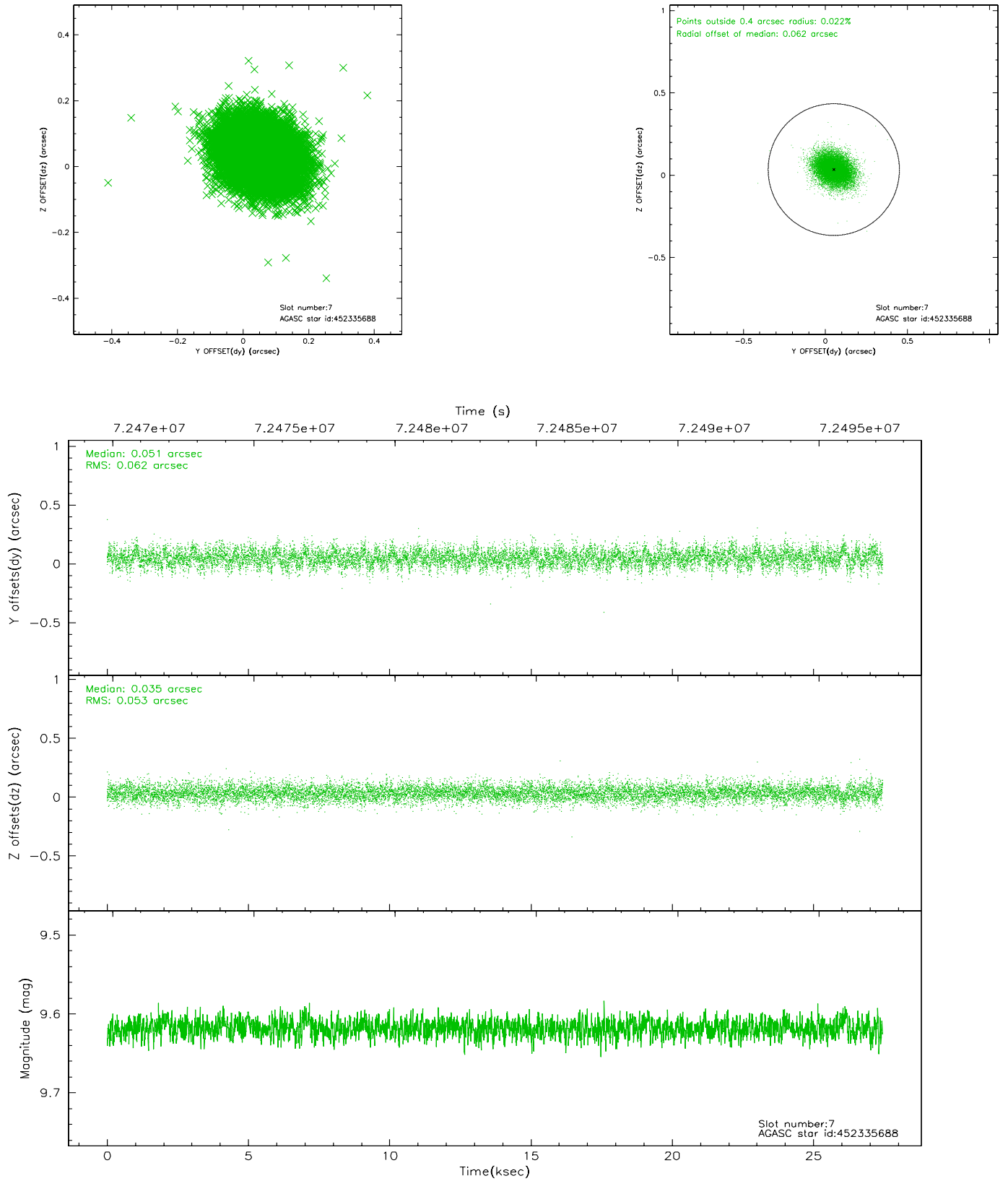
### 2.4.3 Slot 5



## 2.4.4 Slot 6

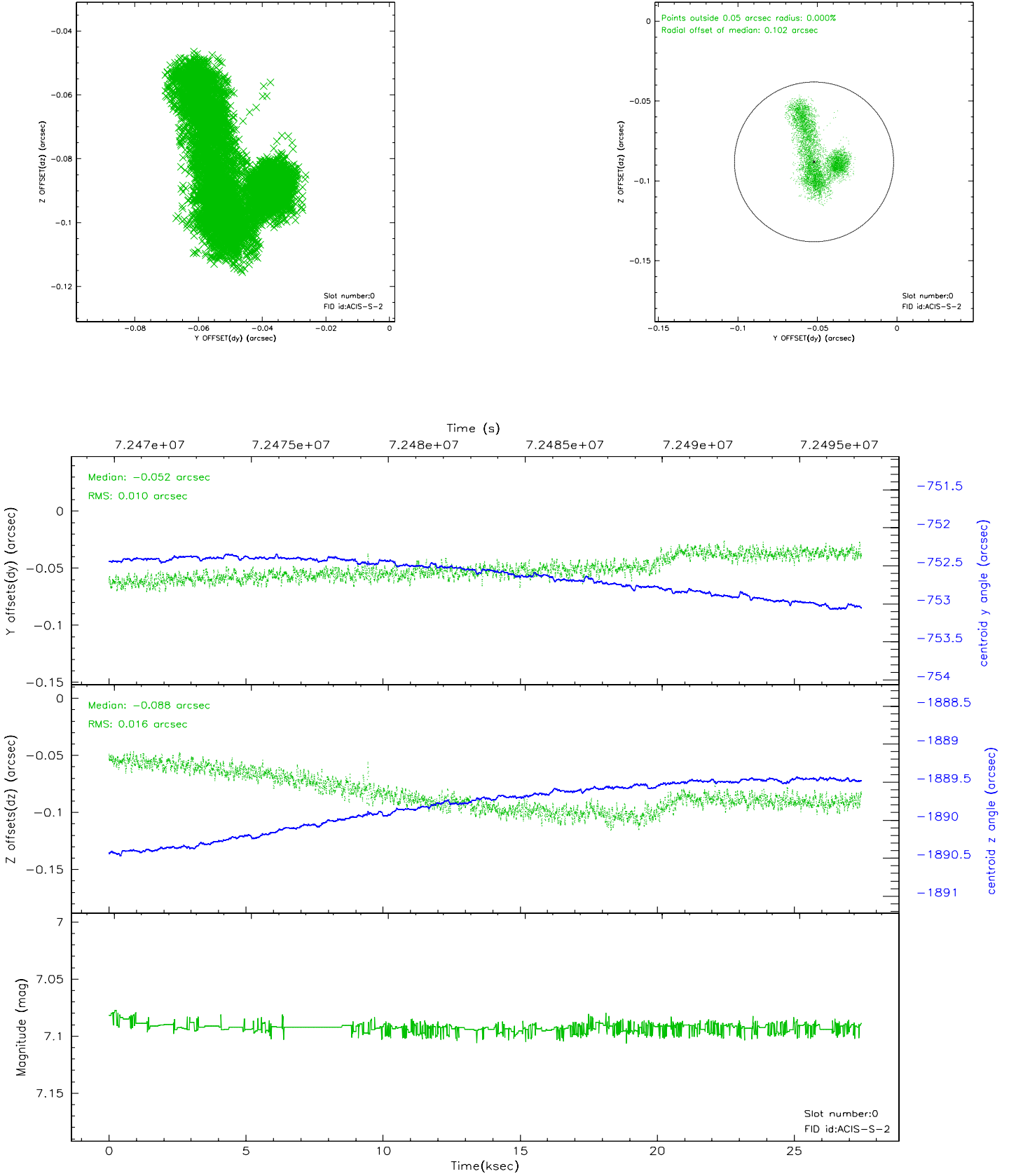


## 2.4.5 Slot 7

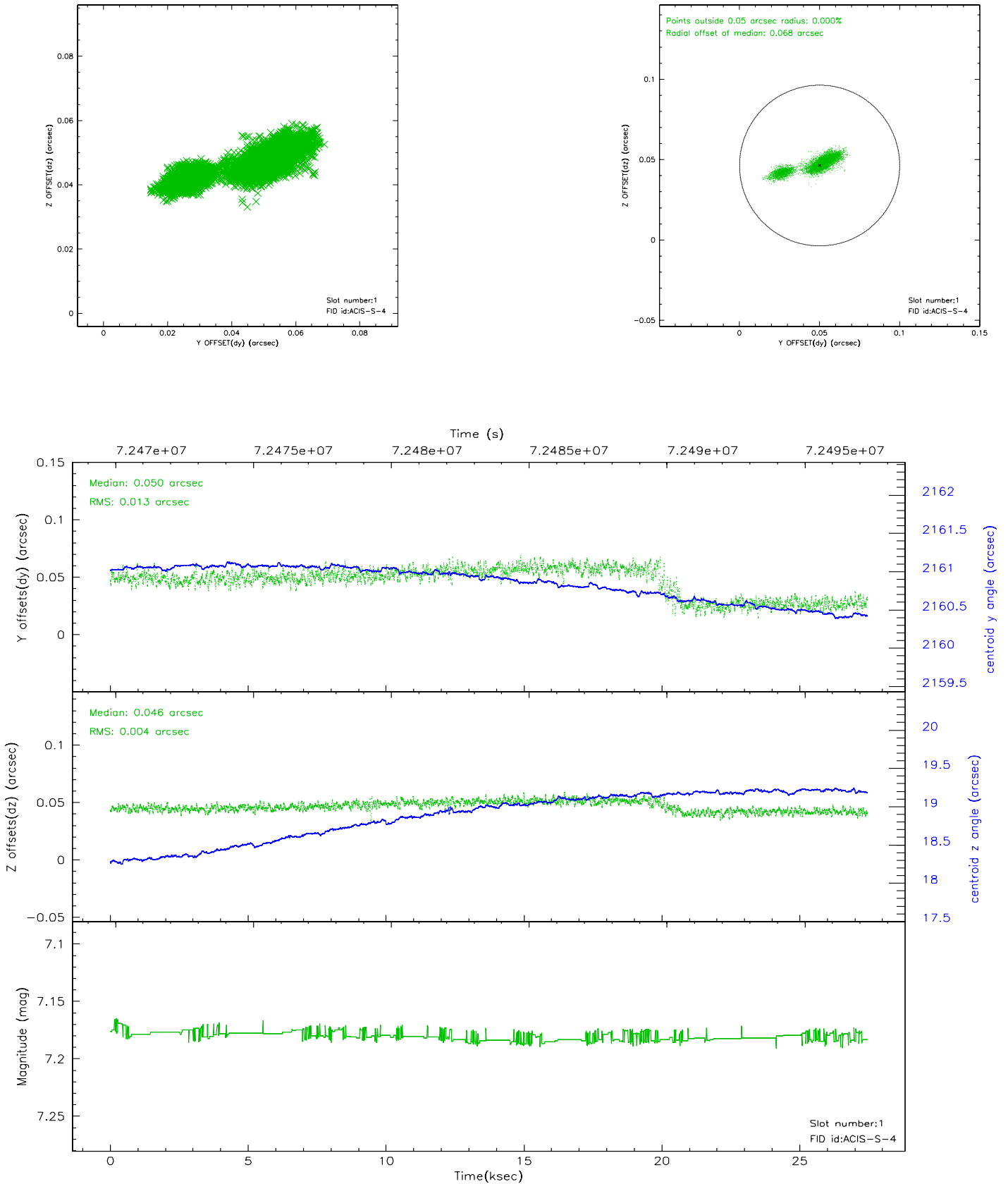


## 2.5 FID Slots

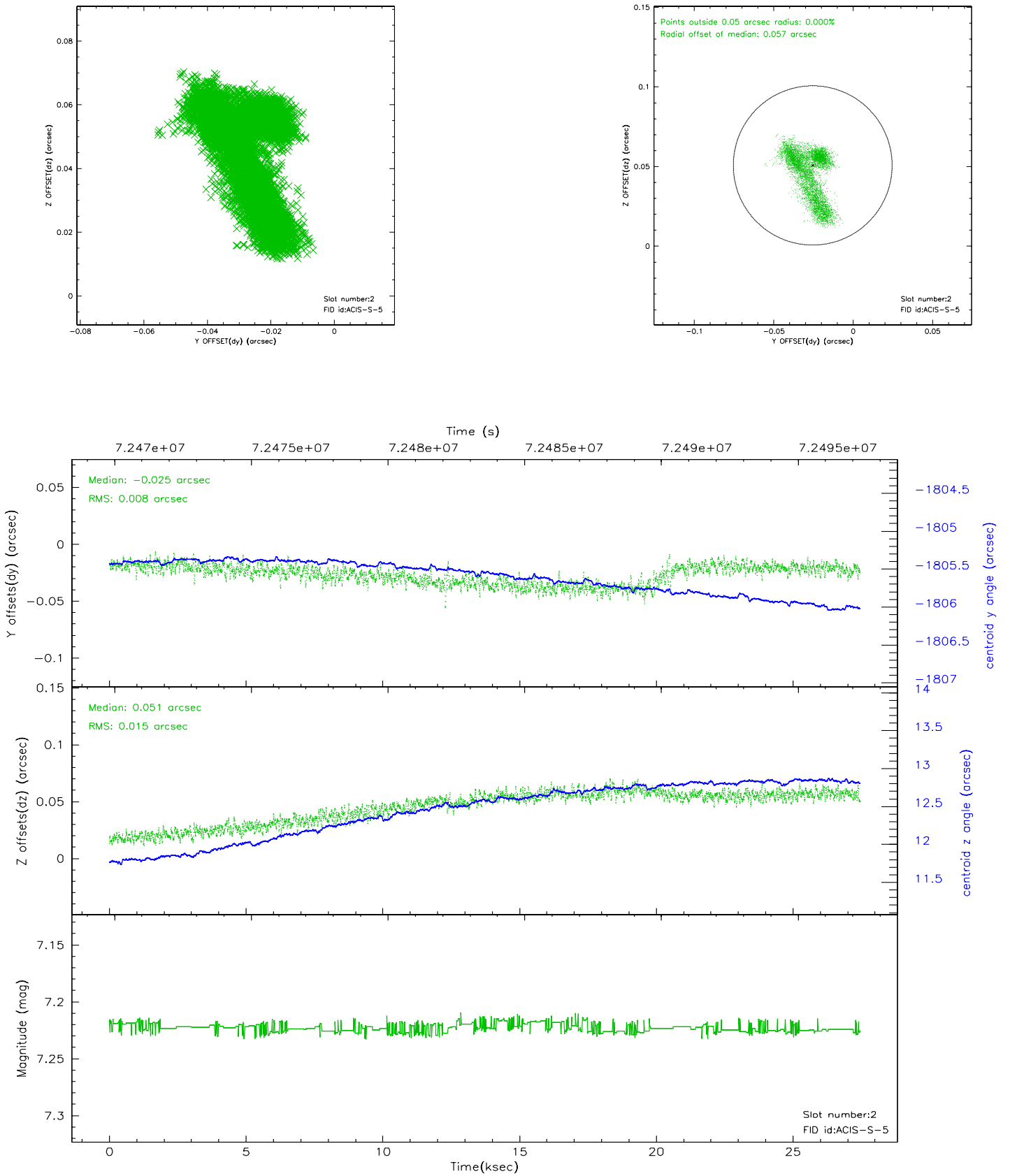
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

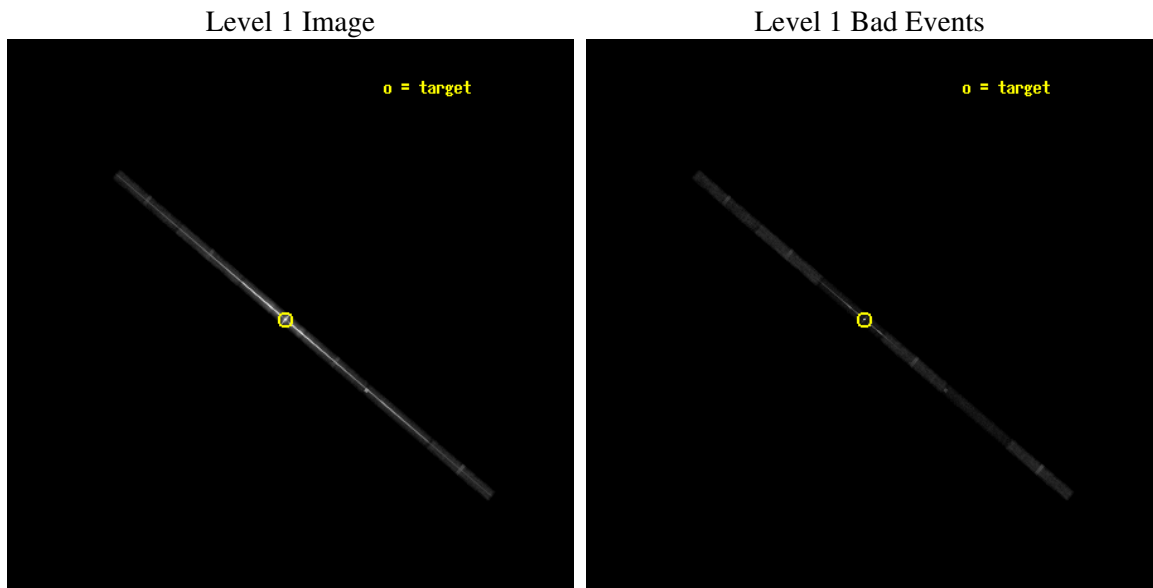




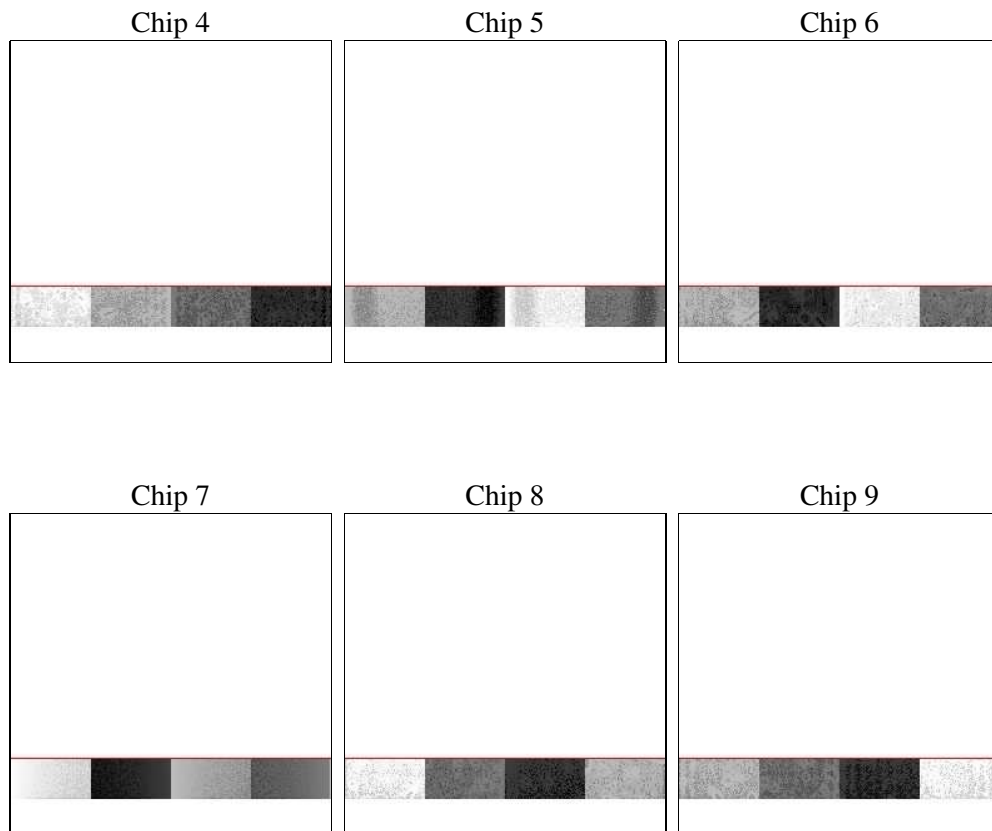
## 3 OBI Secondary

### 3.1 OBI

#### 3.1.1 Images



#### 3.1.2 Bias



### 3.1.3 Parameters

obi_num	0
ascdsver	7.6.10
caldbver	3.3.0
date	2007-05-11T23:56:50
revision	4

sched_exp_time	27000.000000
ontime	24897.76552403
ontime4	24897.765794128
ontime5	24897.766153499
ontime6	24897.766003653
ontime7	24897.76552403
ontime8	24897.766682044
ontime9	24897.766472682
l1events	1266060

### 3.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	46984	117962	212427	747424	97172	44091
rejected events	35277	17856	34332	51378	39269	28378
rejected %	75%	15%	16%	6%	40%	64%

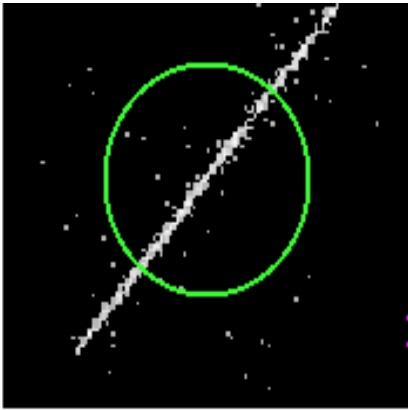
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	8422	63336	153018	179430	46593	11936
	17%	53%	72%	24%	47%	27%
grade 1 events	14	910	742	3354	77	16
	0%	0%	0%	0%	0%	0%
grade 2 events	1338	15190	14514	176505	5343	1619
	2%	12%	6%	23%	5%	3%
grade 3 events	704	6523	4590	81167	2004	829
	1%	5%	2%	10%	2%	1%
grade 4 events	734	5992	4375	80017	1893	831
	1%	5%	2%	10%	1%	1%
grade 5 events	729	3085	1197	14859	1062	745
	1%	2%	0%	1%	1%	1%
grade 6 events	606	9977	2388	182278	2475	611
	1%	8%	1%	24%	2%	1%
grade 7 events	34437	12949	31603	29814	37725	27504
	73%	10%	14%	3%	38%	62%

# 4 Gratings

## 4.1 LETG Arm



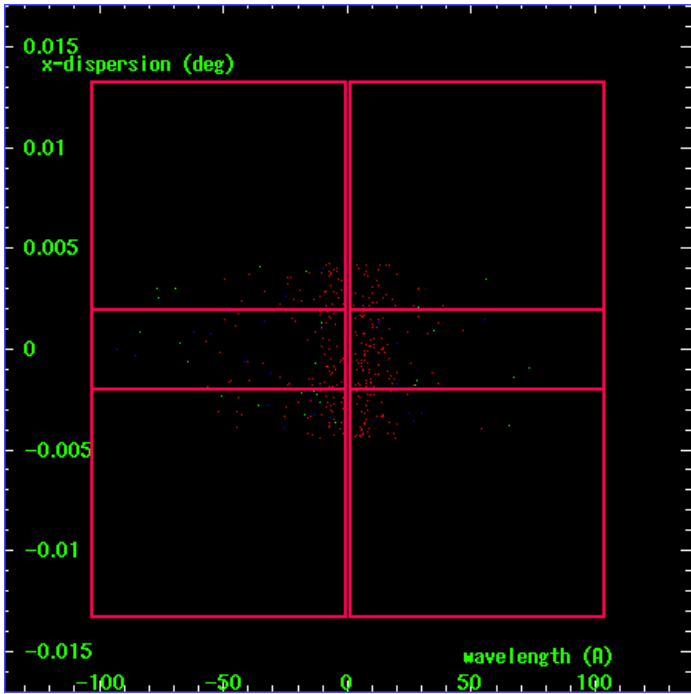
LETG Order Sort 123



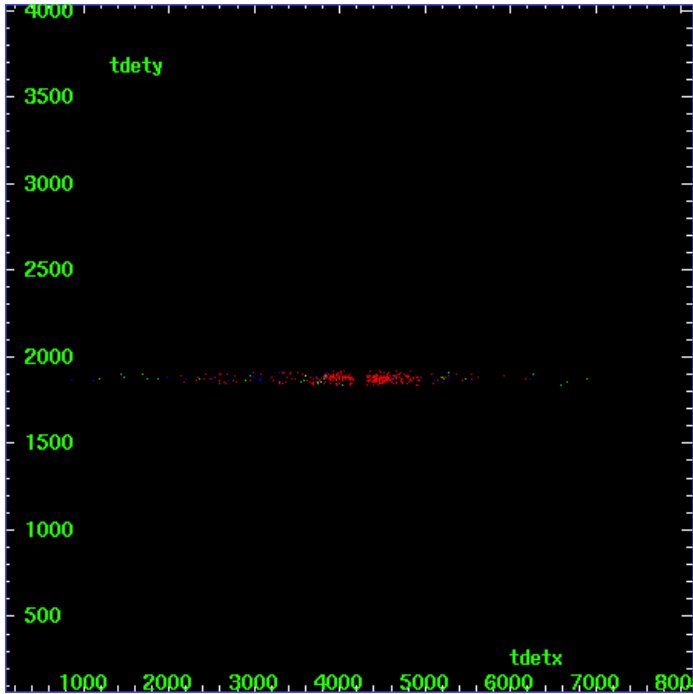
LETG Zero Order



LETG Order Sort ALL

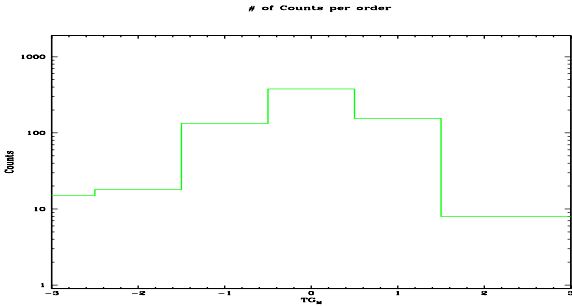


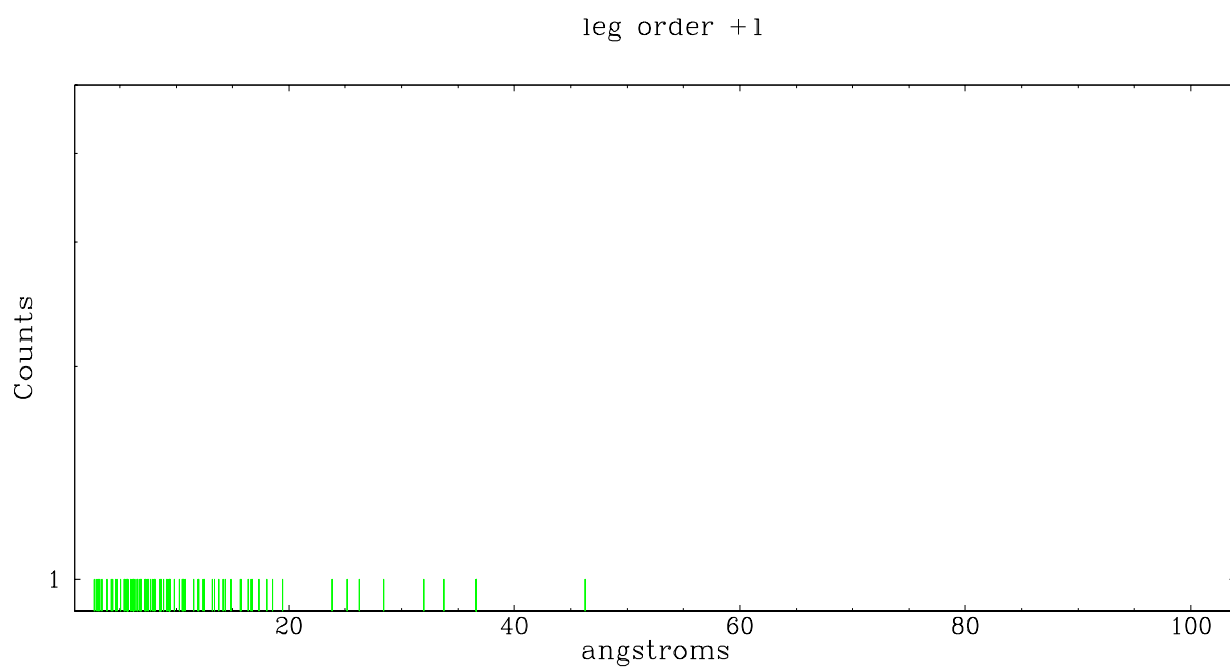
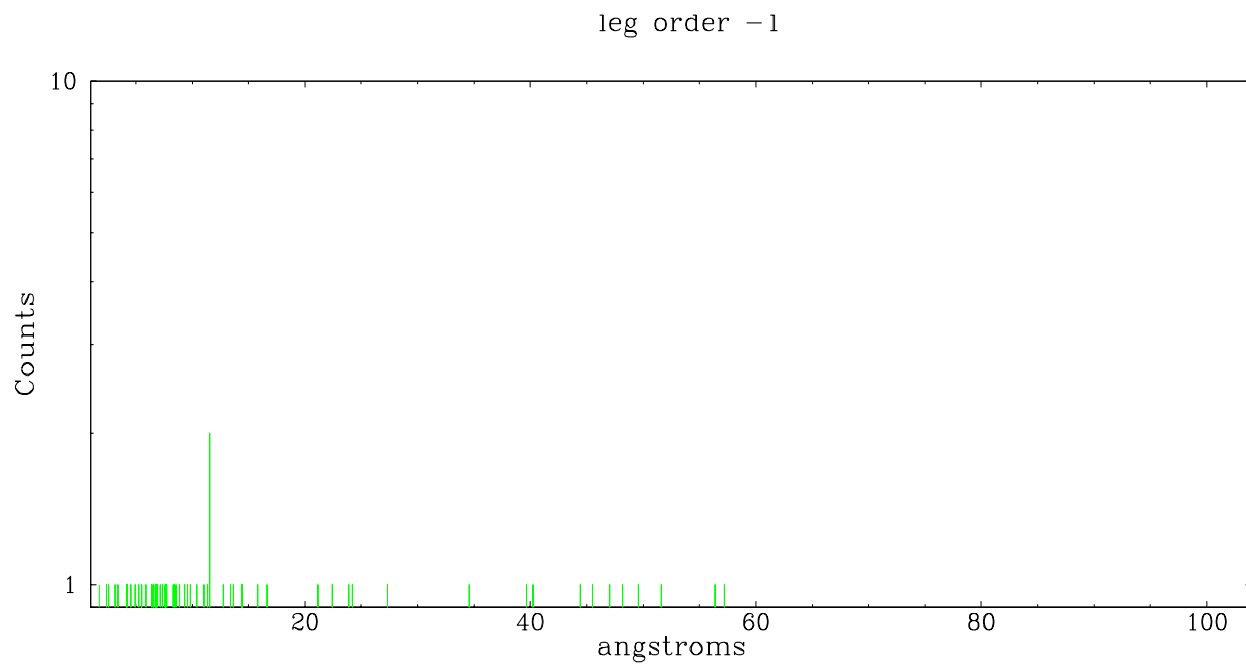
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	15	18	133	379	155	8	8





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2007.09.24
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	27.83

## A.2 Comments

ACIS was commanded to make timed exposures of 0.1 and 0.7 seconds with a 1:9 duty cycle. Since 6 CCDs were used, the 0.1 second exposures violated a minimum exposure time constraint -- 'e >= 0.04104\*(n-1)' -- where 'e' is the primary or secondary exposure time and 'n' the number of CCDs. The flight s/w reacts to a violation of the rule by setting the appropriate exposure time to zero. The effect, in the case of OBSID 1701, was to reduce the events in the 0.1 second exposure frames to those few that were collected during the 0.04104-sec-per-frame smear interval. There is no usable dispersed spectral data in the primary exposure (e1).=====

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup of the secondary exposure set. Manual intervention was used to input the correct sky coordinates (x=4032.91, y=4135.49) into the \*src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXO called findzero, which is expected to be released in CIAO (currently in ISIS). The tool calculates the point of intersection of the readout streak and the meg arm (preferred position), or the readout streak and the heg arm. The zeroth order source position determined by the standard pipeline processing using the tool tgdetect was not used in this processing. The same zeroth order position was used in the processing of both the primary and secondary datasets, although the primary dataset has no dispersed spectral data or zeroth order. Note that these corrected coordinates of the zeroth order cannot be reproduced by running

tgdetect on the data.