

# V&V Reference Report

## L2 ASCDS Version : 7.6.10

Observation 2324 - L2 Version 001  
Chandra X-Ray Center

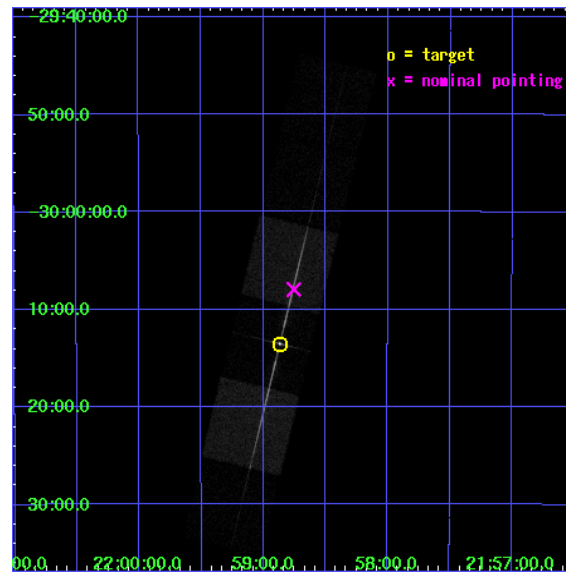
L2 Processing Date : Jun 19 2007

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# 1 Front

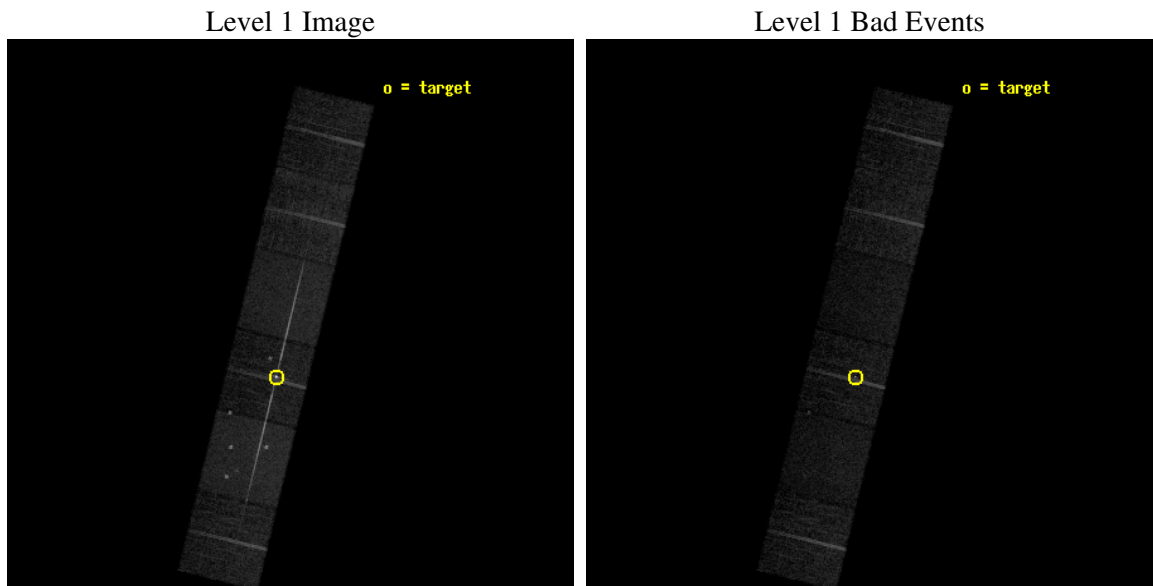
seq_num	390021
obs_id	2324
title	GRATINGS CALIBRATION OBSERVATIONS OF PKS2155-304
observer	Dr. CXC Calibration
object	PKS2155-304
dtcycle	0
cycle	P
ra_targ	329.716667
dec_targ	-30.225556
ra_nom	329.68866222236
dec_nom	-30.1328035185
roll_nom	283.73546007643
revision	2
ontime	8755.2000081539
livetime	8644.3363939021
ontime4	8755.2000081539
ontime5	8755.2000081539
ontime6	8755.2000081539
ontime7	8755.2000081539
ontime8	8755.2000081539
ontime9	8755.2000081539
l2events	118920



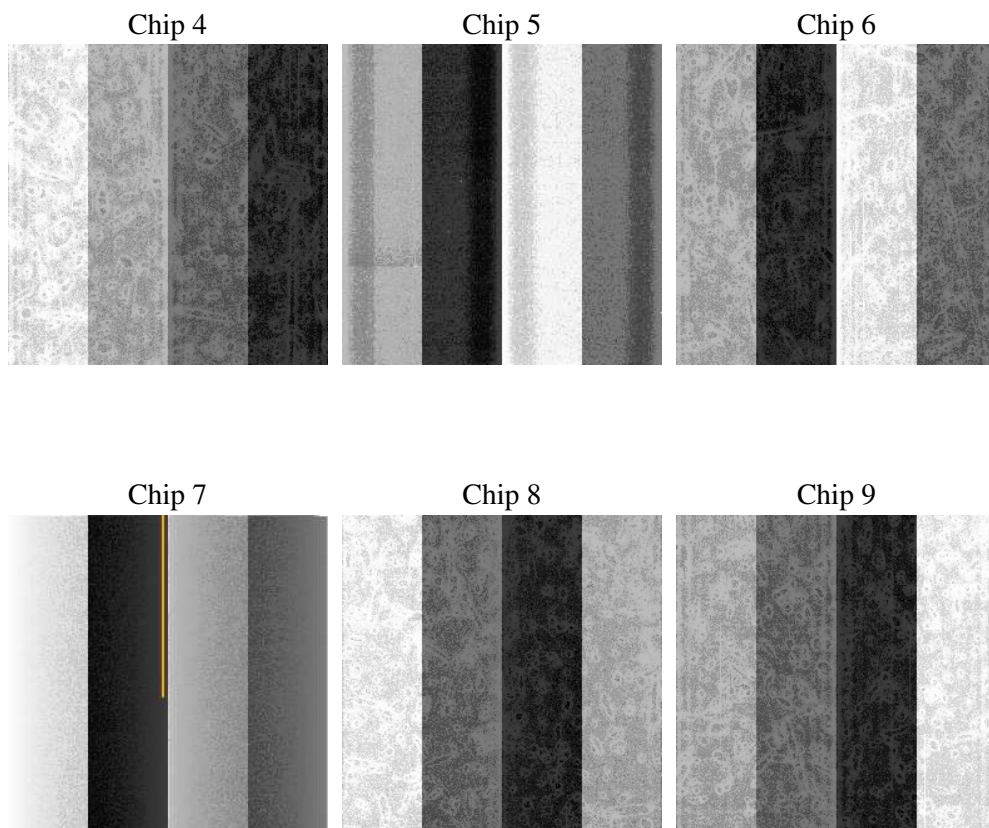
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0
ascdsver	7.6.10
caldsver	3.4.0
date	2007-06-19T20:25:13
revision	2

sched_exp_time	9000.000000
ontime	8755.2000081539
ontime4	8755.2000081539
ontime5	8755.2000081539
ontime6	8755.2000081539
ontime7	8755.2000081539
ontime8	8755.2000081539
ontime9	8755.2000081539
l1events	401253

### 2.1.4 Events

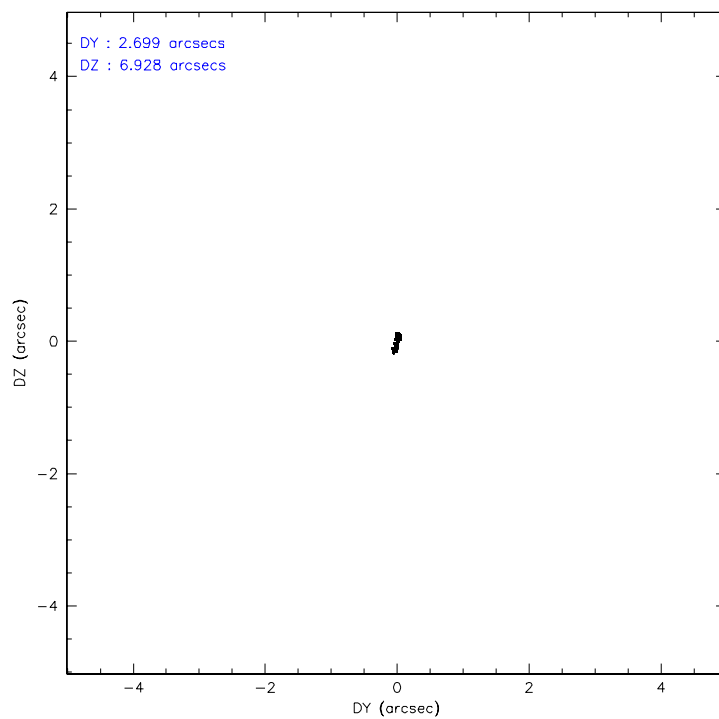
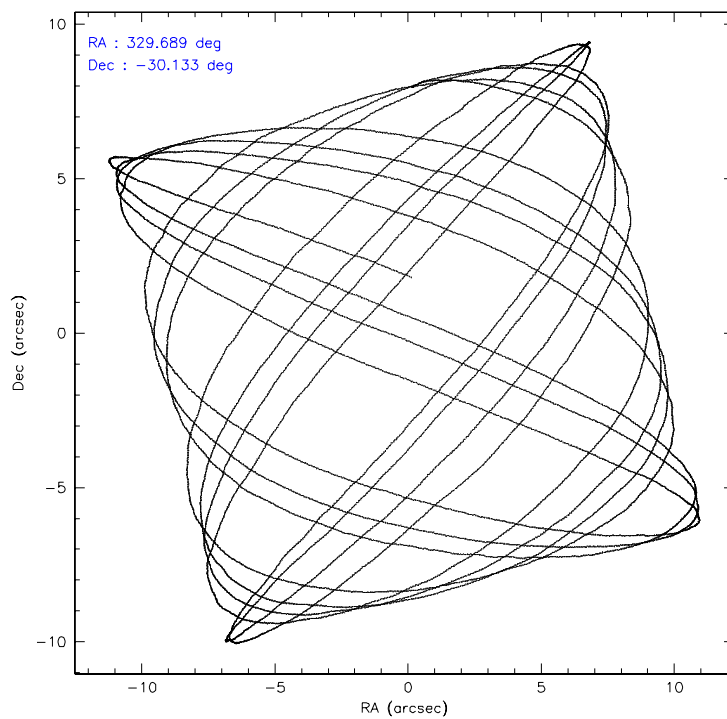
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	55492	82417	73566	73407	65463	50908
rejected events	49176	38188	44587	36468	52391	44929
rejected %	88%	46%	60%	49%	80%	88%

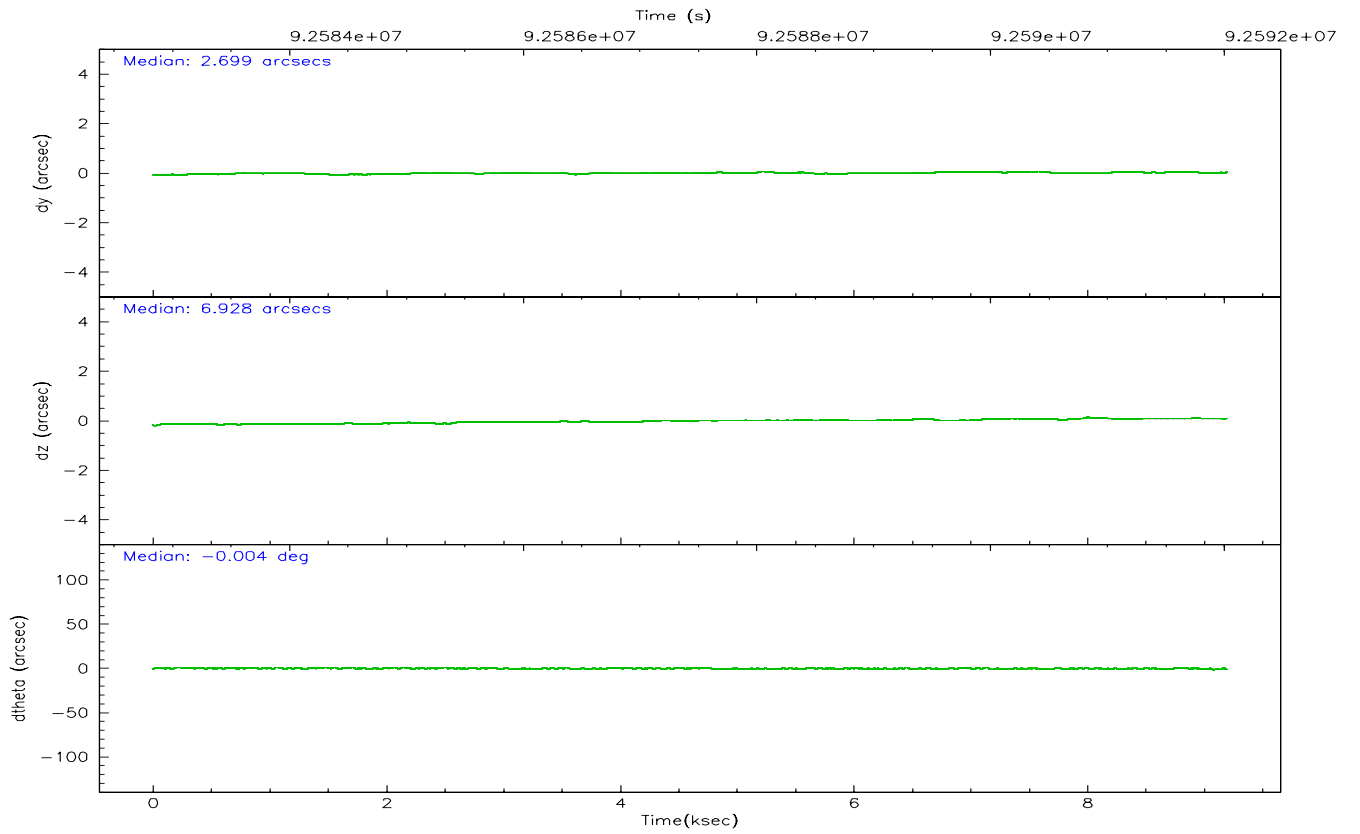
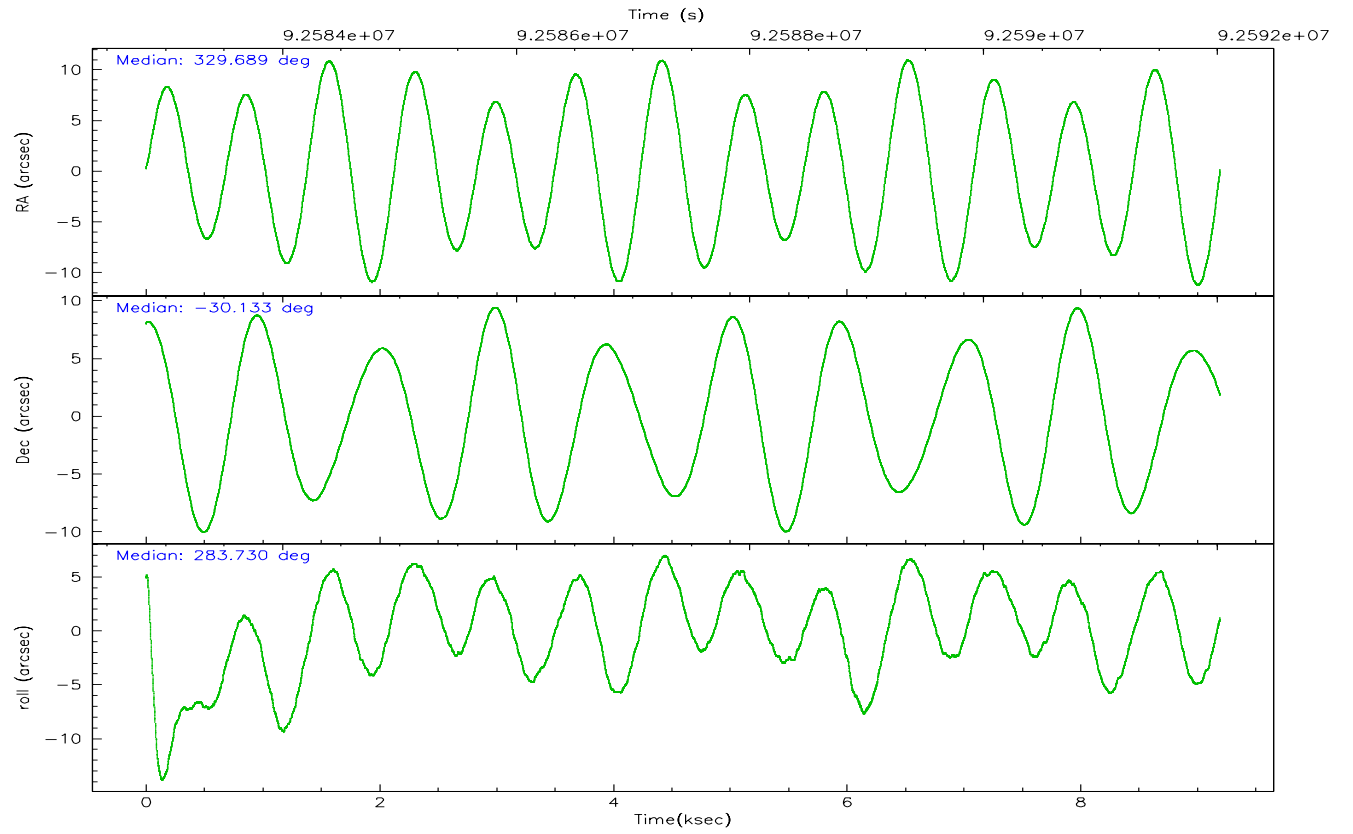
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	2790	11424	21926	7034	4307	2483
	5%	13%	29%	9%	6%	4%
grade 1 events	26	226	599	58	31	16
	0%	0%	0%	0%	0%	0%
grade 2 events	1446	11525	3275	7878	2788	1203
	2%	13%	4%	10%	4%	2%
grade 3 events	566	2186	1137	3614	1303	591
	1%	2%	1%	4%	1%	1%
grade 4 events	527	2096	1206	3519	1218	537
	0%	2%	1%	4%	1%	1%
grade 5 events	1764	5461	2275	6112	2567	2049
	3%	6%	3%	8%	3%	4%
grade 6 events	989	17016	1443	14907	3458	1166
	1%	20%	1%	20%	5%	2%
grade 7 events	47384	32483	41705	30285	49791	42863
	85%	39%	56%	41%	76%	84%

## 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	329.666644	329.6886622223582	Subarray requested	NONE	NONE
Pointing Dec	-30.113233	-30.13280351849964	Alternating exposures requested	N	N
Pointing Roll	283.567785	283.7354600764268	Primary exposure time	0.000000	3.2
SIM focus pos (mm)	-0.684267	-0.6828225247311905			
SIM defocus (mm)	0	0.001444936568705701			
SIM translation stage pos (mm)	-193.132523	-193.1371298893314			
SIM translation stage offset (mm)	3	3.004607306323607			
Observation start time	92583026.184000	92582649.52048901			
Observation start date	2000-12-07T13:29:22	2000-12-07T13:24:09			
Observation end time	92592026.184000	92592924.120882			
Observation end date	2000-12-07T15:59:22	2000-12-07T16:15:24			
Read mode	TIMED	TIMED			

## 2.3 Aspect





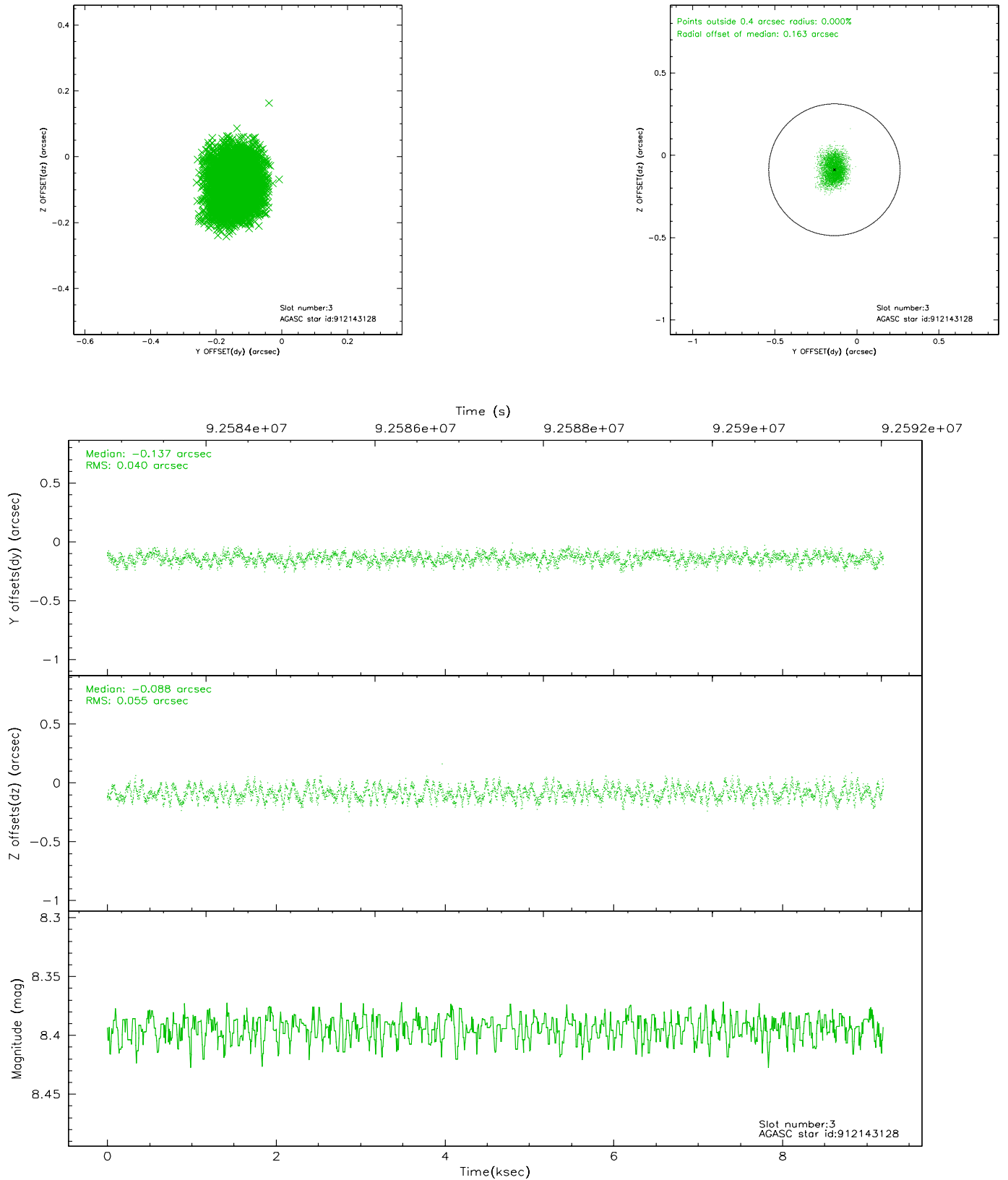
### Slot Statistics

slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	2243	-0.013	0.057	0.007	0.012	0.000000	0.000000	-755.55	-1666.24
1	FID	ACIS-S-4	7.21	2242	-0.054	-0.009	0.008	0.016	0.000000	0.000000	2157.43	241.58
2	FID	ACIS-S-5	7.23	2242	0.036	-0.039	0.008	0.013	0.000000	0.000000	-1807.57	235.92
3	GUIDE	912143128	8.39	4485	-0.137	-0.088	0.073	0.116	328.924992	-29.706140	-1961.75	-1912.82
4	GUIDE	981468016	9.01	4487	-0.028	-0.094	0.111	0.168	328.842457	-30.034984	-868.21	-2433.87
5	GUIDE	912275088	9.05	4486	-0.006	0.017	0.064	0.106	329.619228	-29.738698	-1346.17	171.35
6	GUIDE	981478152	9.41	4485	0.072	0.116	0.075	0.124	329.415589	-30.057192	-379.48	-713.41
7	GUIDE	981469488	9.60	4486	0.093	0.051	0.092	0.145	329.261199	-30.045155	-532.88	-1171.63

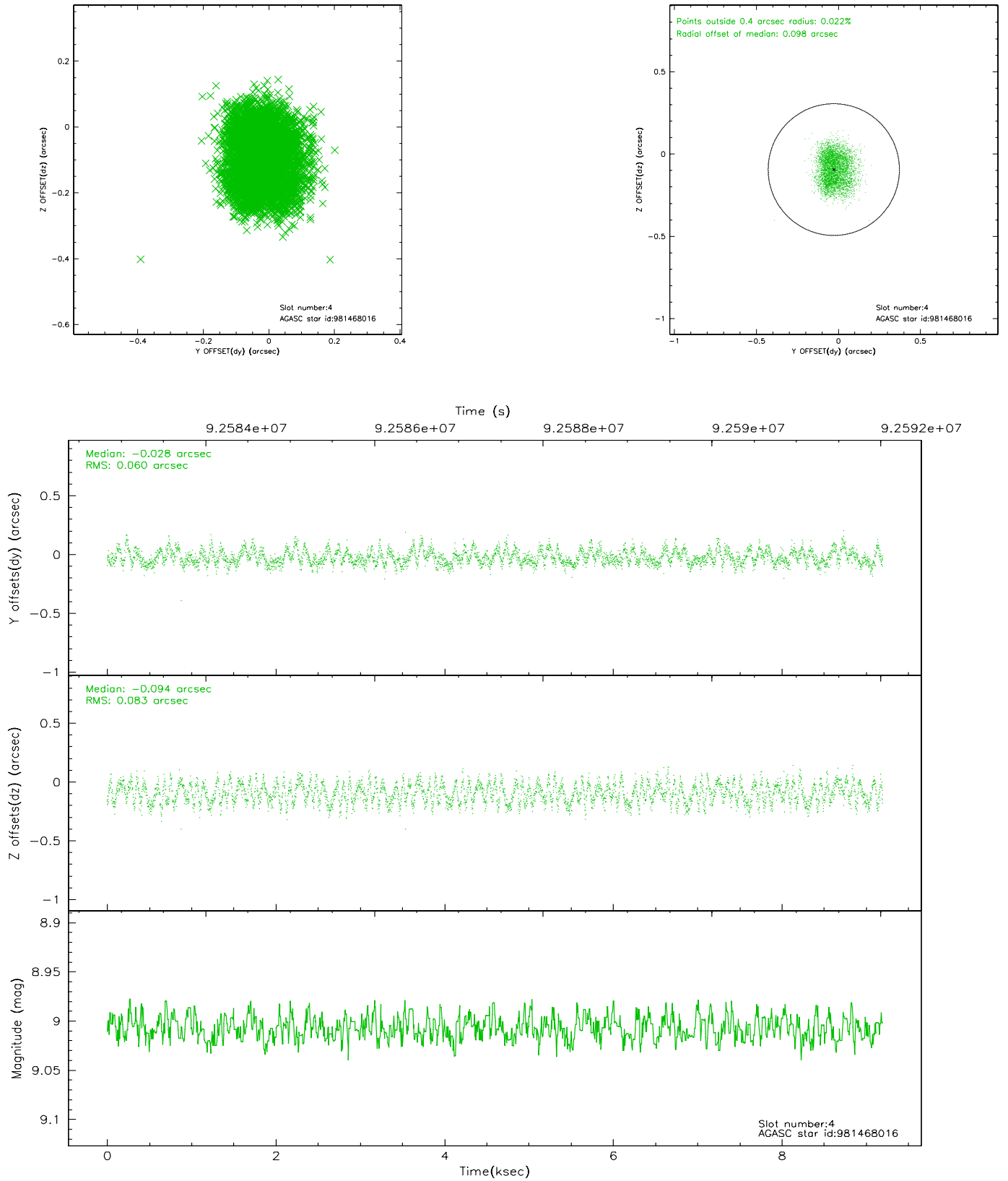


## 2.4 Star Slots

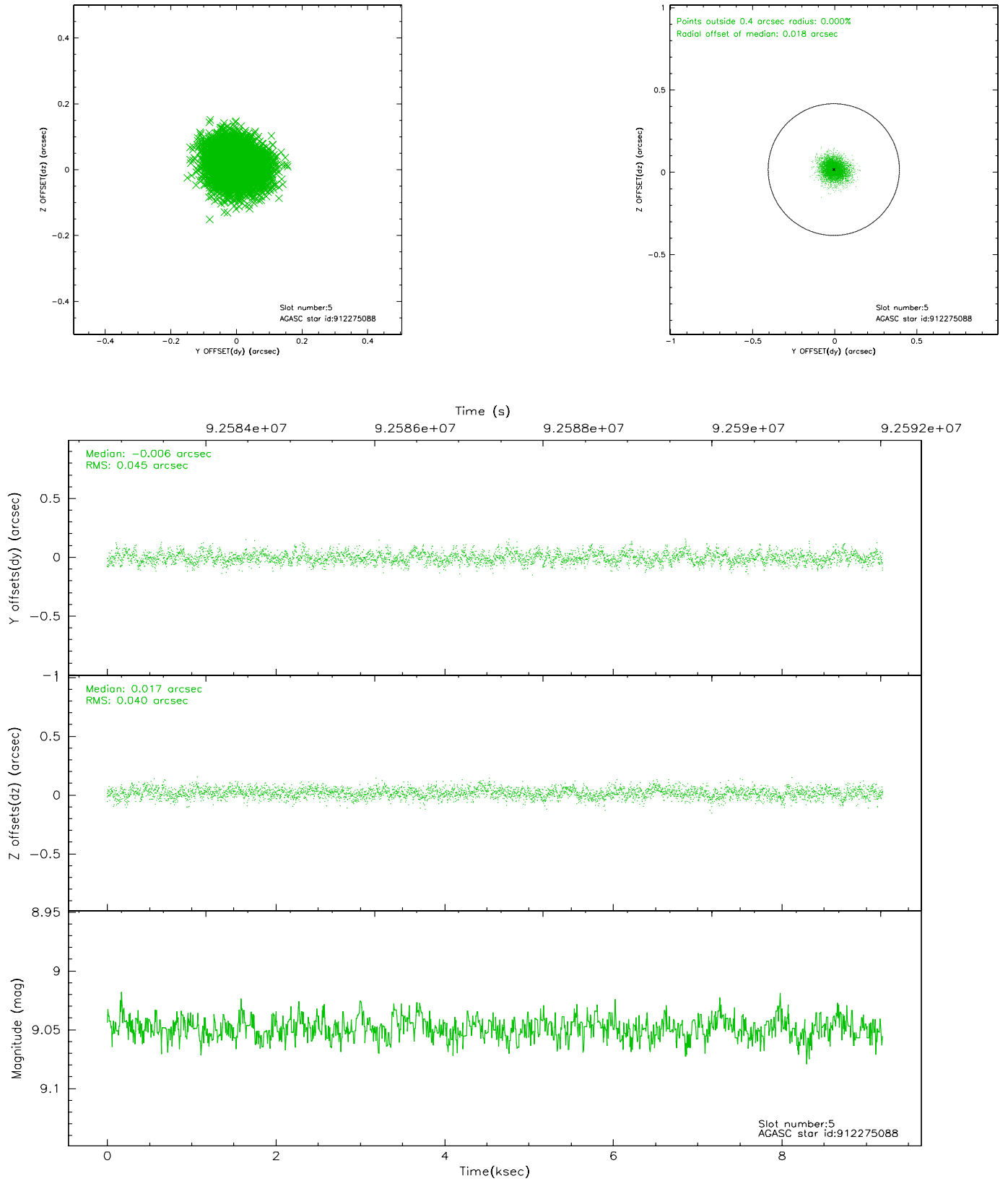
### 2.4.1 Slot 3



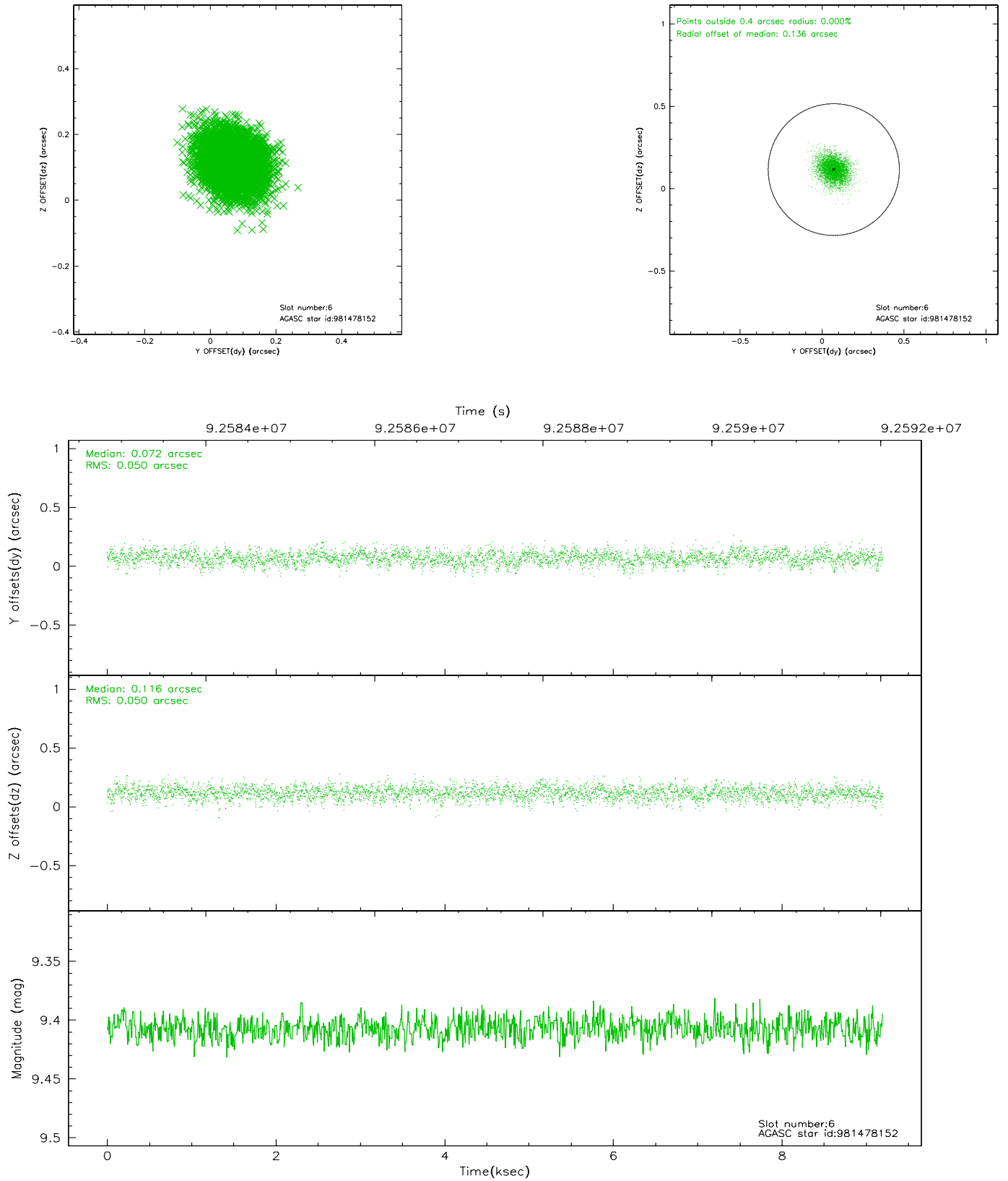
## 2.4.2 Slot 4



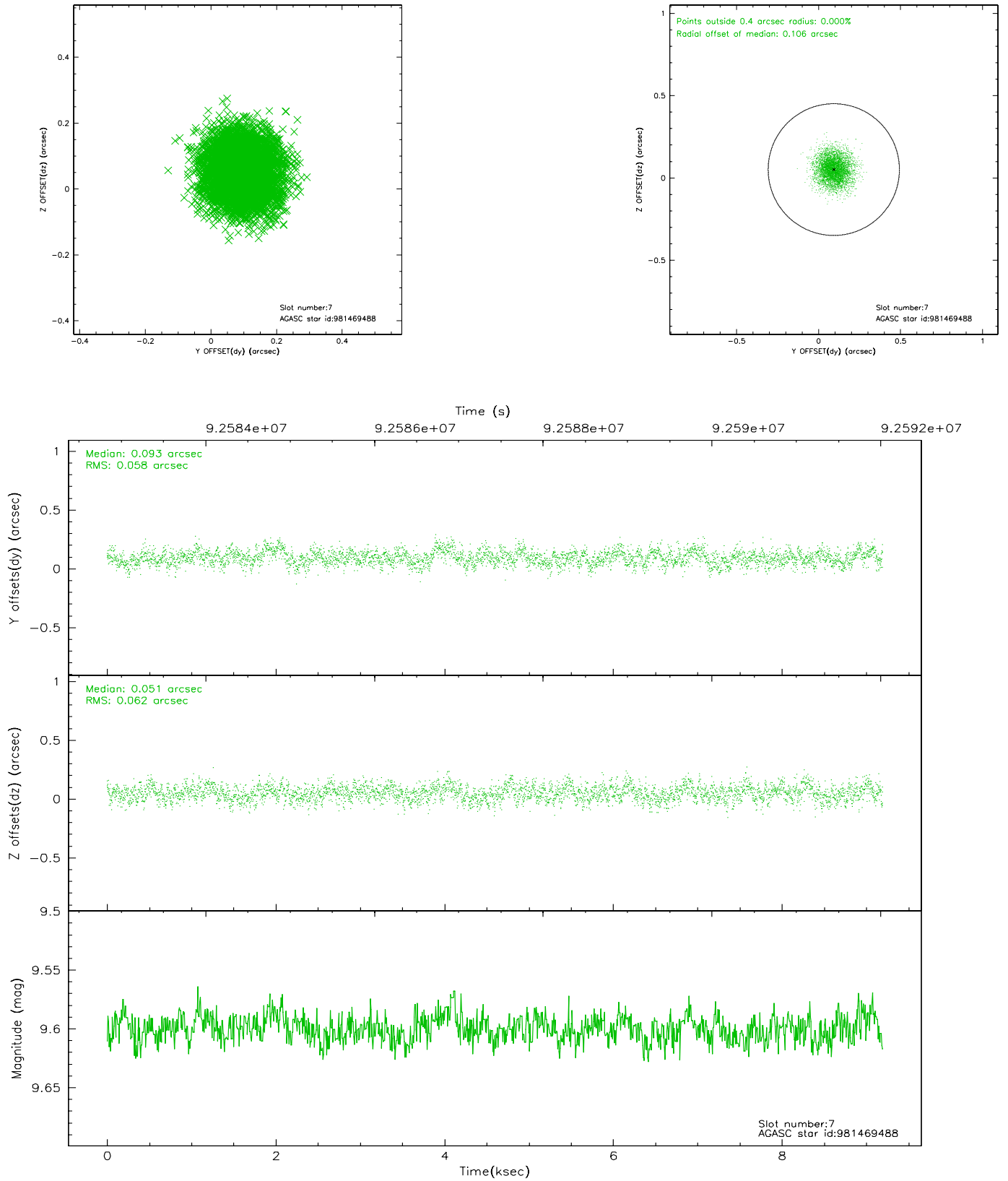
### 2.4.3 Slot 5



## 2.4.4 Slot 6

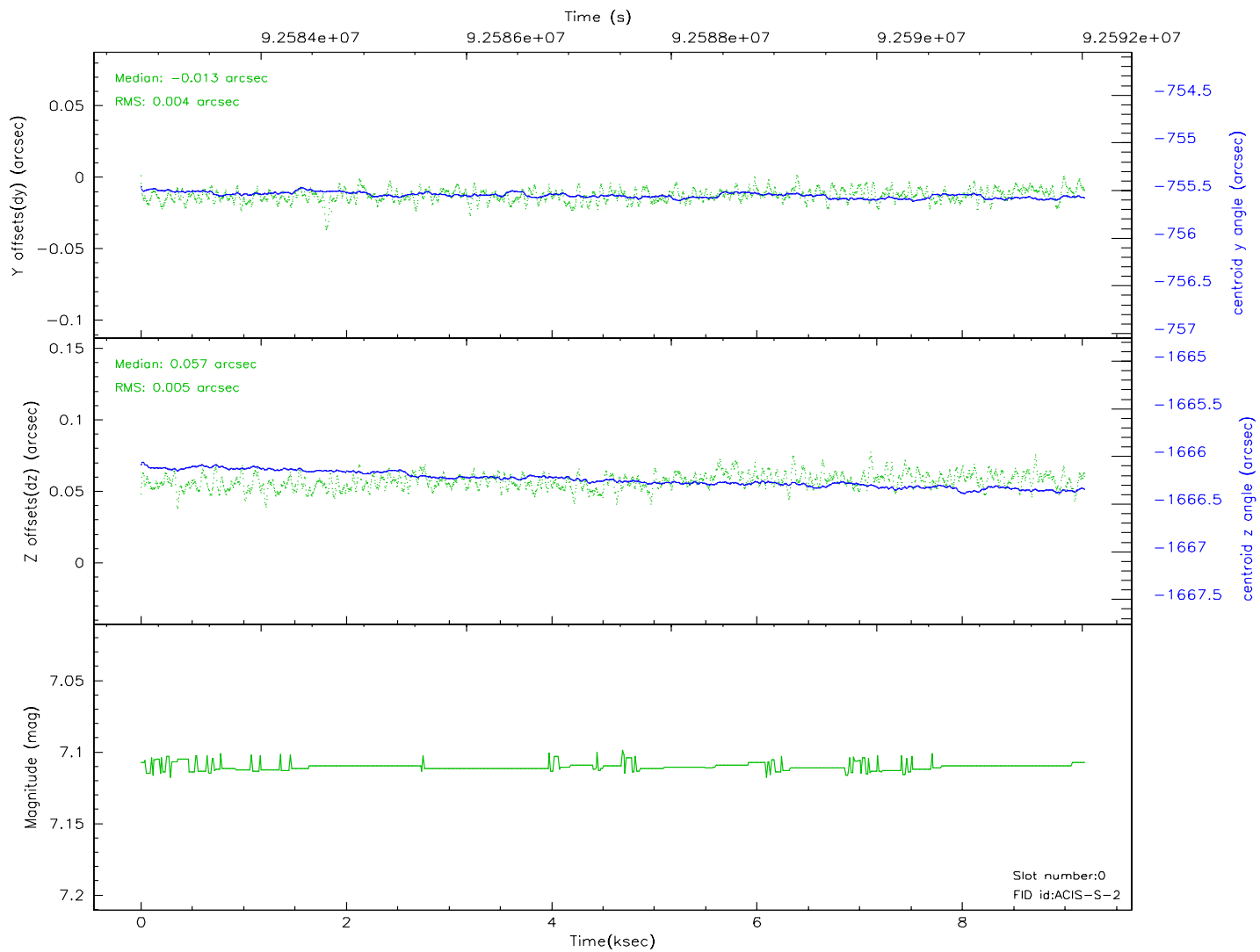
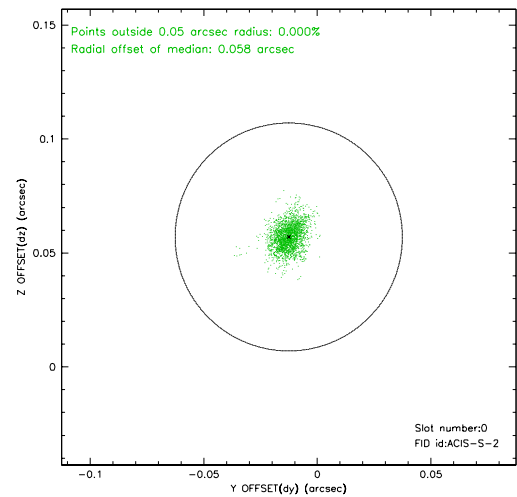
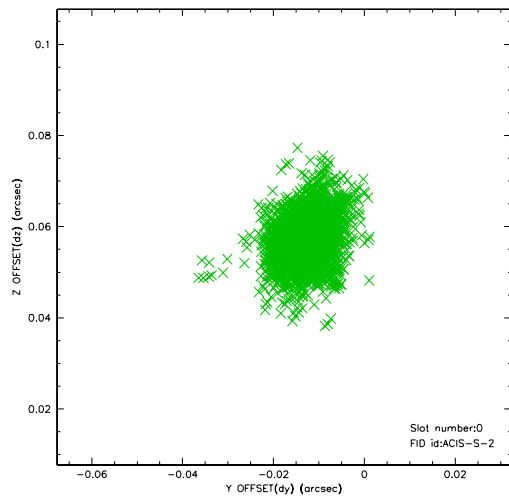


## 2.4.5 Slot 7

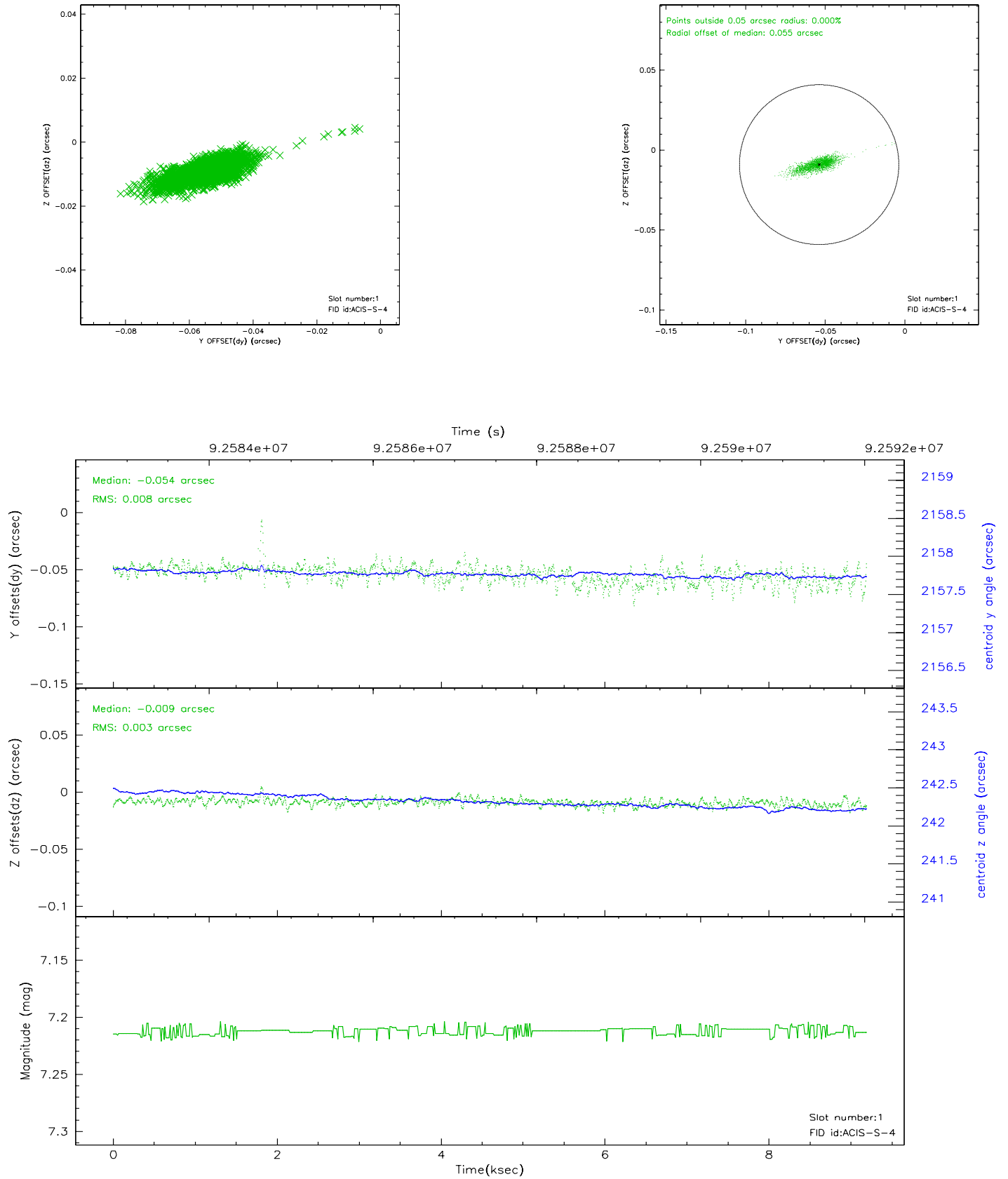


## 2.5 FID Slots

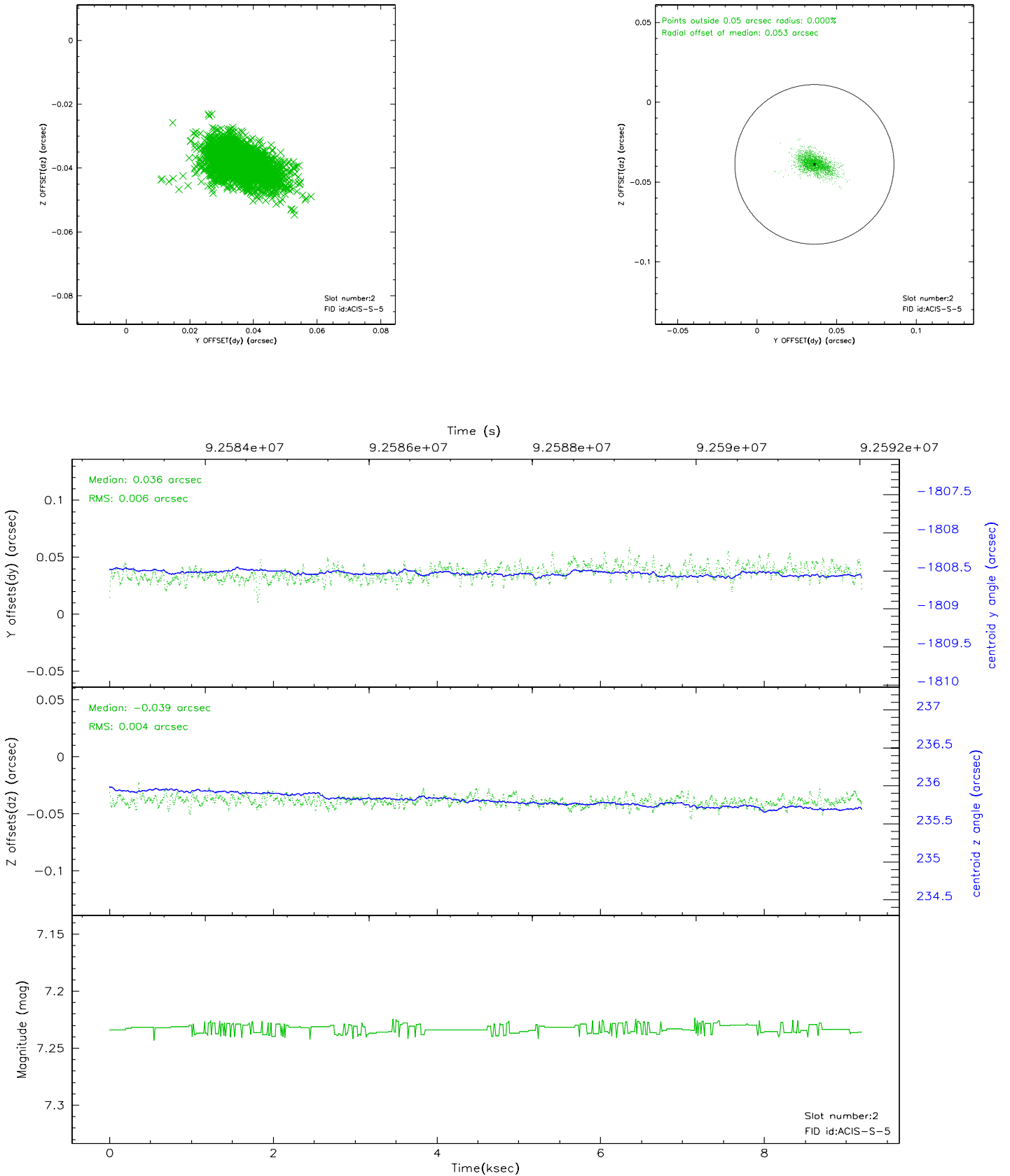
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



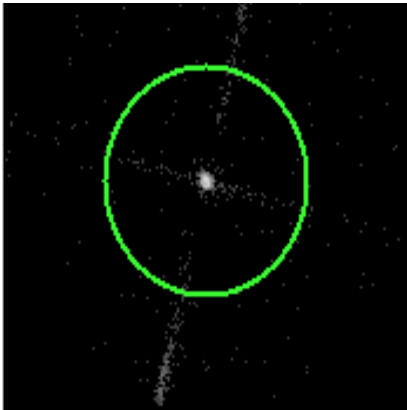


# 3 Gratings

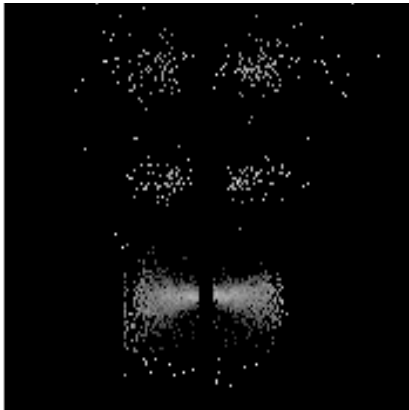
## 3.1 LETG Arm



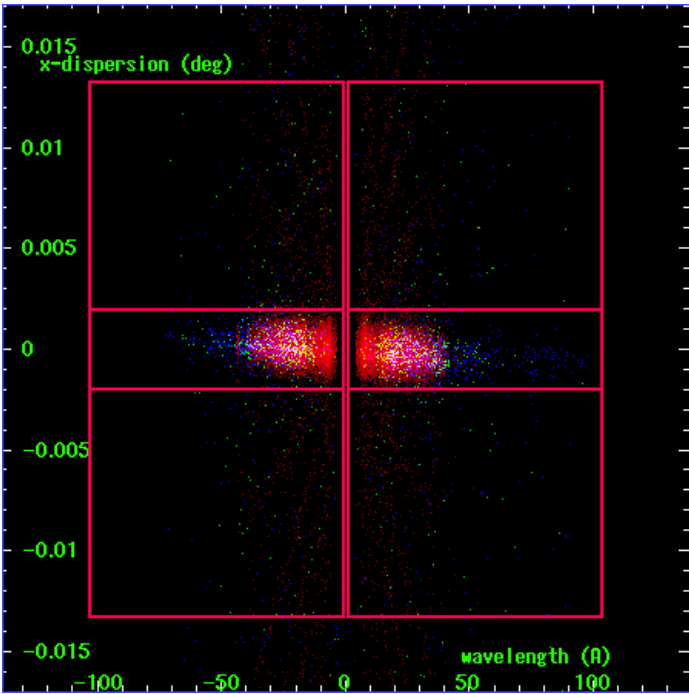
LETG Order Sort 123



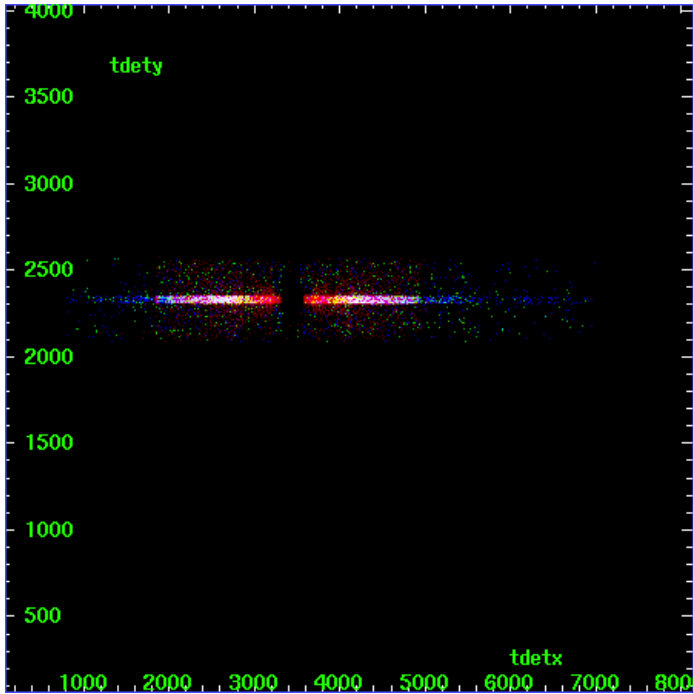
LETG Zero Order



LETG Order Sort ALL

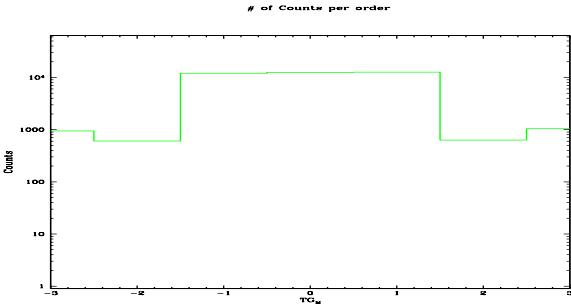


Spot Image LETG

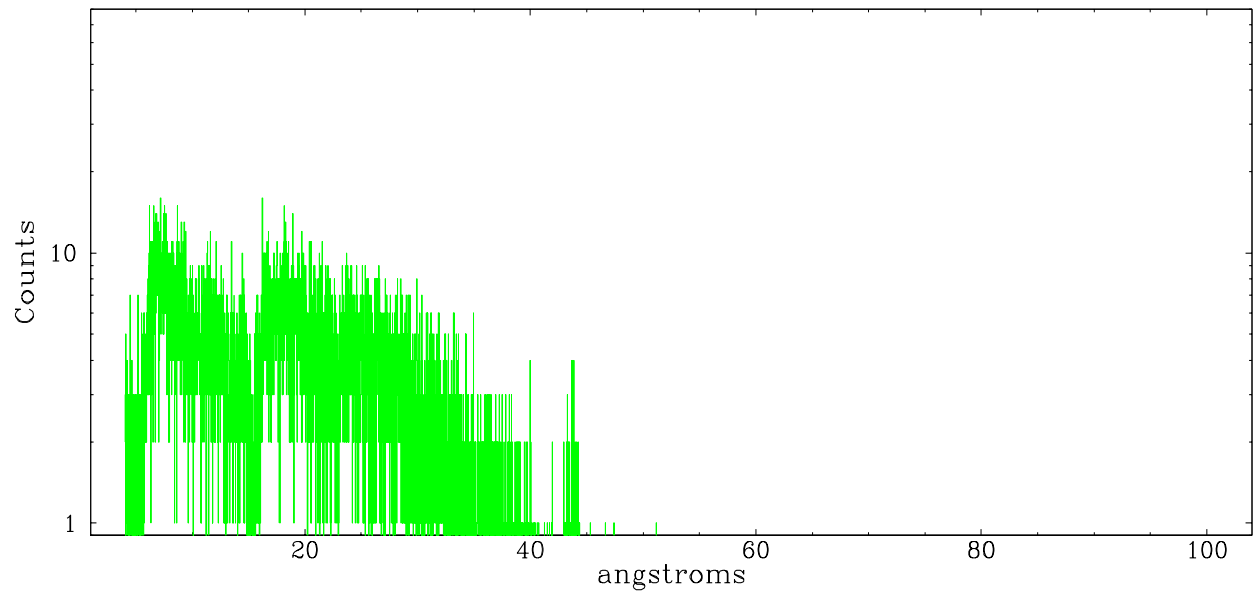


Full Detector LETG

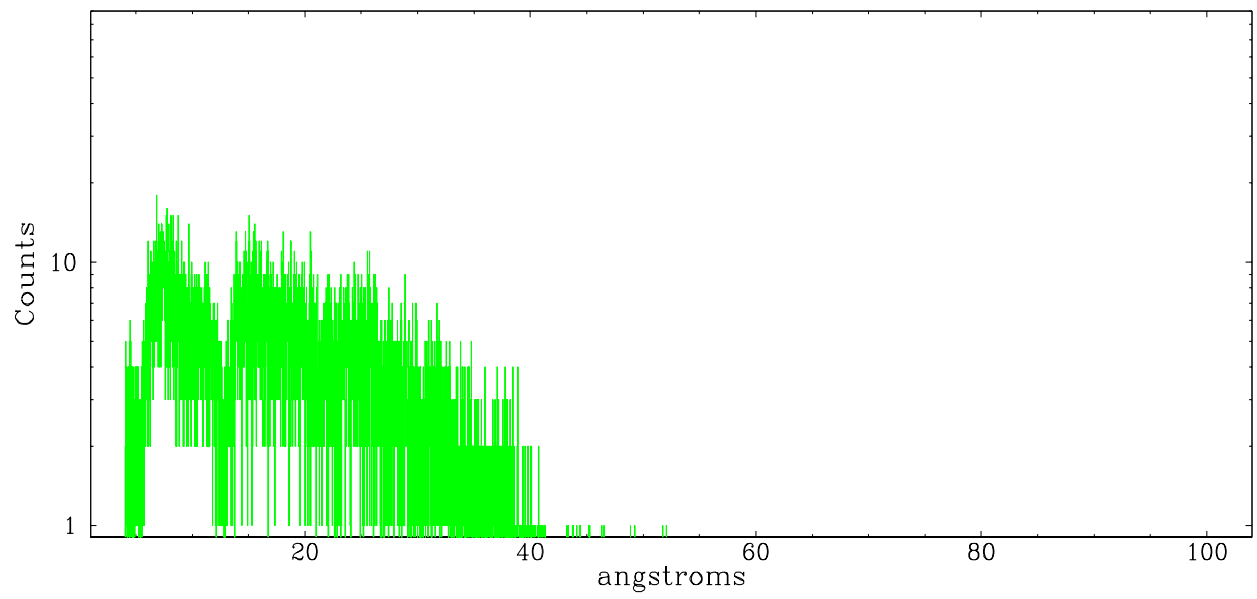
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	947	606	12058	12516	12639	631	1042



leg order  $-1$



leg order  $+1$



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2007.07.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.755

## A.2 Comments

Off-axis source gratings observation. WARNING: there are no standard ciao tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle. WARNING: The user will need to deconvolve the PSF of the off-axis source to get an accurate determination of the zeroth order position, then use software tools such as CIAO to specify the coordinates of the zeroth order before running the tools to resolve the dispersed events. The spectral data supplied in this processing are only energy-calibrated for the results of tgdetect, which uses the source-detection tool celldetect.