

February 16, 1999

WYSE Technology EN 55022-B Test Record

for

Window Based Terminal

Model Number: WT3350SE

Tests performed by WYSE Technology

4399 Lick Mill Blvd. San Jose, CA

Test completed: February 16, 1999

Test Engineer: Harinder Phul

Approved by: Masood Abrishamcar

February 16, 1999

1.0 INTRODUCTION

1.1 Scope

This record is intended to document conformance with the EMC Directive (89/336/EEC) and details the results of testing performed on February 16, 1999 on the WYSE WINTERM model: WT3350SE.

1.2 Purpose

Testing was performed to evaluate the emissions performance of the WT3350SE with respect to EN 55022 Class B.

1.3 Summary

The Power Adapter WT3350SE was found to be compliant to EN 55022 Class B Emission Requirements.

1.4 Testing Requirements

Testing was performed using procedures and criteria contained in EN 550022.

2.0 TEST ENVIRONMENT

2.1 Test Sample Description

WT3350SE is designed to communicate with a host system via Twisted Pair LAN interface on NT Windows Server.

Test Software

The software used during the test was a continuous loop batch file on Windows NT station. The program creates an entire page of "H"'s and writes the entire page to the screen, and it also prints to the serial and parallel devices as used in the test setup. The cables were moved around to find the maximum emission from the EUT.

2.2 Test Facilities

2.2.1 Emissions Test Site

Radiated emissions testing was performed on a weather protected Open Area Test Site. The description of **OATS** is filed at the WYSE Regulatory Engineering Department. The **OATS** is located at 4399 Lick Mill Blvd., San Jose, California, USA. Conducted emission testing was performed inside a shielded enclosure (**Screen Room**) in the WYSE RFI laboratory. The description of screen room is filed at WYSE Regulatory Engineering Department. The Screen Room is located at 3471 N. First Street, San Jose, California, USA.

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2.3 Test Equipment

The following are the list of equipment used during the radiation and conducted testing.

Radiated:

HP Receiver model 84560A (RES BW: 30 KHz-100KHz, VBW: 10KHz – 30KHz)

Conducted:

HP 85650A Quasi-Peak Adapter

HP 8566B Spectrum Analyzer (RES BW: 30KHz –100KHz, VBW: 10KHz – 30KHz)

SETUP:

In accordance with WYSE Technology test procedure.

PROCEDURE:

Biconilog antenna was used for frequency range 30MHz - 2 GHz. The frequency range was checked for signals strength. The antenna was then raised and lowered for final maximization. The frequency range was checked with antennas in the horizontal and vertical polarization.

3.0 TEST RESULTS

3.1 Test Description

CISPR Publication 22:1985, limits and methods of measurements of radio interface of information technology equipment, was the guiding document for the test. The product's radiated emissions from 30 MHz to 1000 MHz and its power mains conducted emissions from 150 KHz to 30 MHz were measured.

3.2 Test Configuration

The EUT was configured with a typical mix of available peripherals which fully configured all types of communications ports of the EUT and exercised it in a typical manner.

3.3 Test Procedure

For radiated emissions testing, the equipment is installed on a 0.8 meter high non-conductive turntable 10 meter from the receiving antenna mast. The EUT is fully exercised during the test to maximize emissions. The receiving antenna is scanned over the height range of 1 to 4 meters in both polarities and the turntable is rotated with emissions level observed at each frequency. During the process the equipment configuration is also modified by moving the interconnecting cables to find the typical configuration that maximizes emissions at each frequency.

The frequency range from 30 MHz to 1000 MHz is explored. Measurement data is compared to Class **B** limit.

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For conducted emissions testing the equipment is moved to a 0.4 meter high platform and the EUT and Configurations equipment are powered from a different LISNs. Both sides of the AC line are measured and the results compared to the Class **B** limit.

3.4 Test Results

A comparison of the measured data with the Class **B** limit of **CISPR** shows that Power Adapter **WT3350SE** was **3.44 dB** below the limits at the worst case frequency of **355.49 MHz** in a Vertical Polarization.

3.5 Product Specification

Model: **WT3350SE (Logic Board P/N 991337-01 Rev. 4D)**

Clock Circuit:

U21 = MK1492-03, P/N 205565-50

Filters:

33 MHZ CLK Line:

R85 = 100 Ohm, P/N 370508-97; Z61 = 15pF (not loaded)

R86 = 100 Ohm, P/N 370508-97; Z58 = 15pF (not loaded)

R87 = 100 Ohm, P/N 370508-97; Z64 = 15pF (not loaded)

R88 = 100 Ohm, P/N 370508-97; Z59 = 15pF (not loaded)

14.3 MHZ CLK Line:

R89 = 33 Ohm, P/N 370513-13; Z60 = 15pF (not loaded)

48 MHZ CLK Line:

R90 = 33 Ohm, P/N 370513-13; Z51 = 15pF (not loaded)

24.5 MHZ (Audio) CLK Line:

R91 = 33 Ohm, P/N 370513-13; Z52 = 22pF, P/N 320310-21

Y4 = 14 MHZ, P/N 392010-51

Filters:

R94 = 33 Ohm; Z56 = 15pF

L21 = 2 Kohm, P/N 400032-31; C432, C449 = 0.1uF

Y5 = 25 MHZ, P/N 392010-54

Filters:

R95 = 33 Ohm; Z57 = 37pF

L24 = 2 Kohm, P/N 400032-31; C311 = 0.1uF, P/N 320338-24;

C450 = 0.1uF

U2 = GXM200, P/N 200062-50

Power Filter

U1 = CX5530, P/N 205122-50

Filters:

R13 = 68 Ohm, P/N 370513-21; Z6 = 15pF (not loaded)

R12 = 68 Ohm, P/N 370513-21; Z5 = 15pF (not loaded)

L17, L18 = 2 Kohm, P/N 400032-31

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Video Circuit:

U1 = CX5530, P/N 205122-50

Filters:

L1 = 43MTL, P/N 400021-01; C4, C5 = 33pF, P/N 320313-25

L2 = 43MTL, P/N 400021-01; C3, C6 = 33pF, P/N 320313-25

L3 = 43MTL, P/N 400021-01; C2, C7 = 33pF, P/N 320313-25

Termination:

R4, R5, R6 = 75 Ohm, P/N 370508-85

Audio Circuit:

U15 = LM4546, P/N 205123-53

Filters:

L13, L22, L23 = 2 Kohm, P/N 400032-31

C19 = 100 pF, P/N 320313-37

Driving Transistor:

Q3, Q4 = MMBT3904, P/N 270010-50

Network:

U4 = MX98715, P/N 205125-50

Filters:

R70, R71 = 49.9 Ohm, P/N 370508-68

U17 = Transformer, P/N 429099-50

Filters:

C32, C33 = .1 uF, P/N 320338-24

C34 = .01 uF, P/N 320046-48

R72, R73, R74, R75 = 75 Ohm, P/N 370513-22

Zero Ohm Jumpers:

RJE = 0 Ohm; Z13, Z14 = 0 Ohm, P/N 370457-99

RJF = (not loaded)

Test Description

Model: WT3350SE

Support Devices:

- 1) Serial Printer: HP Printer: FCC ID: DSI6XU2225**
- 2) Parallel Printer:Parallel Printer 890C: FCC ID: B94C4602X**
- 3) USB Port: Intel Camera; FCC ID: EDUYC76**
- 4) PCMCIA Port: Modem DATA Link: FCC ID: LNQ750814**
- 5) Monitor: NEC 21", FCC ID: A3DJC-2145UMA**
- 6) Power adaptor: DVE Model DSA-0301-05**
- 7) Speaker and Mic Port: One sets of Speaker and SUN Mic.**
- 8) Server HP Brio: FCC DOC**

Software: scrolling H-program at 1280 X 1024

RESULTS: PASSED

Test Procedure Definition

Title	WT3350SE
Configuration	WYSE 10M OATS
Frequency range	30MHz to 2000MHz
Operations to perform	Maximize & Measure ;
Initial settings	Table angle: 0 degrees
	Tower height: 100 cms
	Antenna polarity: Vertical
Limit:	EN55022 Class B

Final Vertical SA [31/925]

Frequency MHz	Peak dBuV/m	DelLim-Pk dB	QP dBuV/m	DelLim-QP dB	Angle deg	Hgt cm	Pol
46.382188	22.90	-7.10	--.--	--.--	0	100	Vert
61.838392	17.35	-12.65	--.--	--.--	325	100	Vert
108.192030	18.58	-11.42	--.--	--.--	256	100	Vert
139.111619	27.73	-2.27	26.31	-3.69	166	100	Vert
150.349190	17.38	-12.62	--.--	--.--	191	100	Vert
154.574747	23.78	-6.22	--.--	--.--	35	100	Vert
167.037608	20.08	-9.92	--.--	--.--	343	100	Vert
170.005666	22.28	-7.72	--.--	--.--	145	100	Vert
185.469459	24.98	-5.02	24.26*	-5.74	100	100	Vert
211.015777	15.83	-14.17	--.--	--.--	320	100	Vert
216.388899	27.46	-2.54	25.68	-4.32	339	100	Vert
222.276596	13.83	-16.17	--.--	--.--	106	100	Vert
233.887723	25.16	-11.84	--.--	--.--	146	100	Vert
247.293995	20.24	-16.76	--.--	--.--	287	100	Vert
293.663683	24.57	-12.43	--.--	--.--	144	100	Vert
324.551029	26.41	-10.59	--.--	--.--	287	100	Vert
336.063462	28.46	-8.54	--.--	--.--	271	100	Vert
340.023593	24.82	-12.18	--.--	--.--	288	100	Vert
355.494920	34.67	-2.33	33.56	-3.44	310	100	Vert
367.476725	31.68	-5.32	--.--	--.--	339	100	Vert
370.933164	27.62	-9.38	--.--	--.--	180	100	Vert
401.829452	23.38	-13.62	--.--	--.--	155	100	Vert
432.775493	30.89	-6.11	--.--	--.--	165	100	Vert
448.241406	23.43	-13.57	--.--	--.--	194	100	Vert
463.665358	27.26	-9.74	--.--	--.--	17	100	Vert
479.125210	23.47	-13.53	--.--	--.--	178	100	Vert
494.574822	20.37	-16.63	--.--	--.--	358	100	Vert
540.928401	24.33	-12.67	--.--	--.--	304	100	Vert
587.297509	25.84	-11.16	--.--	--.--	119	100	Vert
649.102548	24.55	-12.45	--.--	--.--	219	100	Vert
855.064359	27.46	-9.54	--.--	--.--	305	100	Vert

Final Horizontal SA [31/925]

Frequency MHz	Peak dBuV/m	DelLim-Pk dB	QP dBuV/m	DelLim-QP dB	Angle deg	Hgt cm	Pol
46.331678	14.81	-15.19	--.--	--.--	281	300	Hoz
61.841401	14.42	-15.58	--.--	--.--	110	300	Hoz
108.195039	14.63	-15.37	--.--	--.--	303	300	Hoz
139.107765	19.74	-10.26	--.--	--.--	101	300	Hoz
150.346123	12.94	-17.06	--.--	--.--	347	300	Hoz
154.571738	16.36	-13.64	--.--	--.--	240	300	Hoz
167.028233	15.74	-14.26	--.--	--.--	225	300	Hoz
170.017934	17.07	-12.93	--.--	--.--	0	300	Hoz
185.468488	20.13	-9.87	--.--	--.--	199	300	Hoz
211.018844	15.24	-14.76	--.--	--.--	356	300	Hoz
216.382827	25.39	-4.61	23.49	-6.51	221	300	Hoz
222.279662	14.11	-15.89	--.--	--.--	273	300	Hoz
233.893857	28.39	-8.61	--.--	--.--	166	300	Hoz
247.287861	19.42	-17.58	--.--	--.--	145	300	Hoz
293.657549	22.97	-14.03	--.--	--.--	250	300	Hoz
324.563298	28.01	-8.99	--.--	--.--	151	300	Hoz
336.057328	22.59	-14.41	--.--	--.--	157	300	Hoz
340.023593	25.10	-11.90	--.--	--.--	237	300	Hoz
355.483866	34.18	-2.82	32.03	-4.97	52	300	Hoz
367.482857	26.65	-10.35	--.--	--.--	52	300	Hoz
370.939298	27.66	-9.34	--.--	--.--	244	300	Hoz
401.832519	23.15	-13.85	--.--	--.--	56	300	Hoz
432.772484	26.41	-10.59	--.--	--.--	5	300	Hoz
448.249990	20.35	-16.65	--.--	--.--	174	300	Hoz
463.659299	24.81	-12.19	--.--	--.--	289	300	Hoz
479.140545	19.95	-17.05	--.--	--.--	73	300	Hoz
494.584023	20.52	-16.48	--.--	--.--	269	300	Hoz
540.922267	22.44	-14.56	--.--	--.--	62	300	Hoz
587.297509	25.77	-11.23	--.--	--.--	119	300	Hoz
649.099481	23.91	-13.09	--.--	--.--	229	300	Hoz
855.067424	29.68	-7.32	--.--	--.--	231	300	Hoz

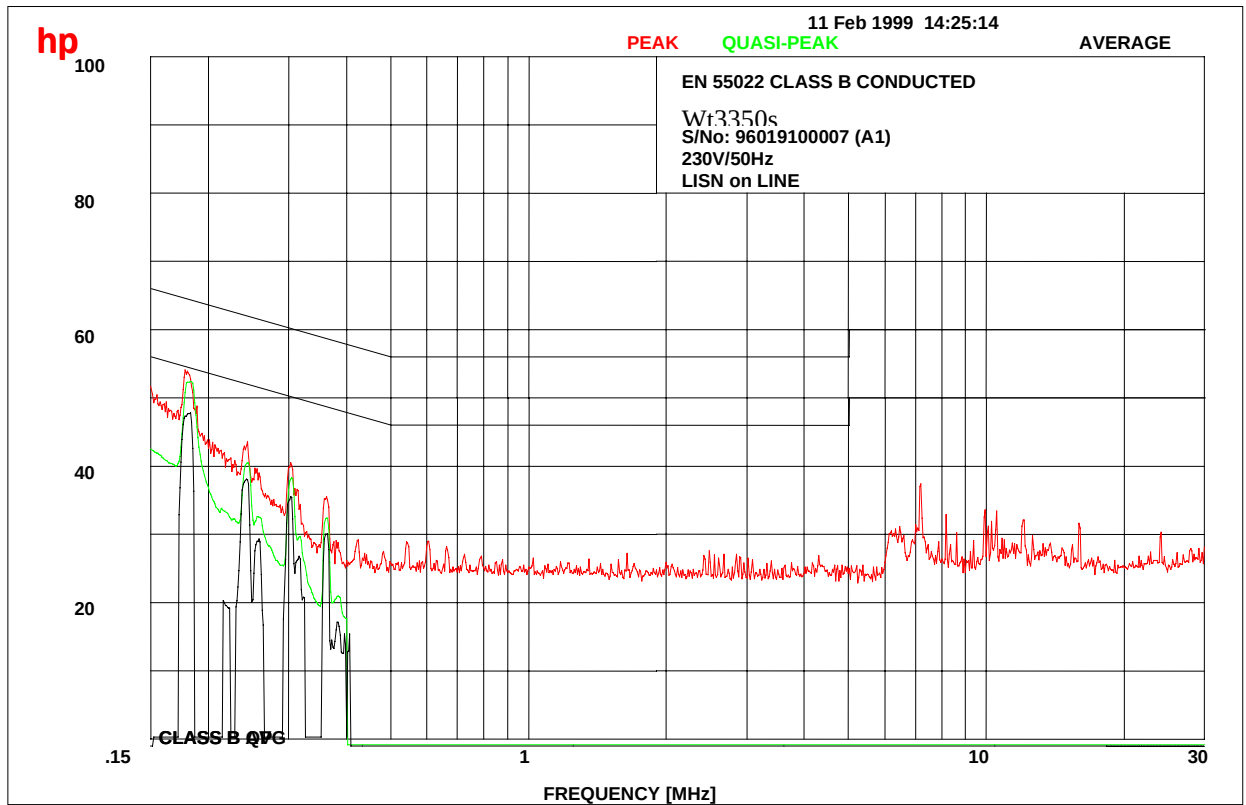
CONDUCTED EMISSION 0.15 MHz - 30 MHz

Date :02/11/99 2:36 PM

Product :Wyse window based terminal model : WT3350SE

Title : EN55022B

Line side at 230V input



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Title : EN55022B
Neutral side at 230V input

