

MPE Test Report

of

Product Name

Notebook Personal Computer
(with Intel PRO/Wireless 2200BG Network Connection inside)

Model

W130
(Brand:MITAC)

Applied by:

MITAC Technology Corporation
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Hsinchu Science-Based industrial Park, Hsinchu 300
Taiwan,R. O. C.

Test Performed by:

International Standards Laboratory
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HC LAB :NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

ISL-T10-R29-1

Contents of Report

1.	General	1
1.1	Certification of Accuracy of Test Data	1
2.	Description of Equipment Under Test (EUT)	2
2.1	General Test Conditions	4
3.	RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]	5
3.1	Applied Standards	5
3.2	Test Procedure	5
3.3	Test Setup	5
3.4	Calculation for Maximum Permissible Exposure (MPE)	5
4.	Appendix : Test Equipment	7
4.1	Test Equipment List	7

1. General

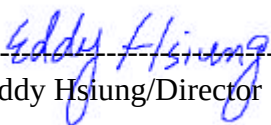
1.1 Certification of Accuracy of Test Data

Standards:	CFR 47 Part 15 Subpart B Class B CFR 47 Part 15 Subpart C (Section 15.247)
Test Procedure:	ANSI C63.4:2003
Equipment Tested:	Notebook Personal Computer (with Intel PRO/Wireless 2200BG Network Connection inside)
Model:	W130
Applied by:	MITAC Technology Corporation
Sample received Date:	2005/01/17
Final test Date :	2005/01/21
Test Result	PASS
Test Site:	Chamber 02, Conduction 02
Temperature	Refer to each site test data
Humidity:	Refer to each site test data
Test Engineer:	Mailes Hsieh

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

Approve & Signature



Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 9 pages, including 1 cover page, 1 contents page, and 7 pages for the test description. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test data shown below is traceable to NIST or national or international standard. International Standards Laboratory certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

2. Description of Equipment Under Test (EUT)

Description:	Notebook Personal Computer (with Intel PRO/Wireless 2200BG Network Connection inside)
Model No.:	W130
FCC ID:	MAU014
Brand:	MITAC
Wireless LAN Module:	Intel, Model: WM3B2200BG
Frequency Range 802.11b/g:	2400 - 2483.5 MHz
Support channel: 802.11b/g	11 Channels
Modulation Skill:	802.11b DBPSK(1Mbps), DQPSK(2Mbps), CCK(5.5/11Mbps) 802.11g OFDM (6M - 54Mbps)
Antennas Type:	PIFA Type in Metal made by Tonyo Electronics Co., Ltd.
Antenna Connected:	Connected to RF connector on the PCB of the 802.11b/g WLAN Adapter. The user is not possible to change the antenna without disassembling the notebook computer.
Antenna peak Gain:	
Main antenna	0.15 dBi (11b/g)
Power Type of LAN module:	3.3V DC from Notebook PC

The channel and the operation frequency of 802.11b and 802.11g is listed below:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437		

Adapter Type:	Delta (Model:ADP-90FB REV:F)
Hard Disk Driver:	Toshiba (Model:MK4021GAS)
Modem Card:	Askey (Model: V1456 VQL-P1(INT))
SDRAM :	Infineon (Model:HYB25D256800BT-7)
USB Connector:	two 4 Pins
RJ11 Connector:	one 2 Pins
RJ45 Connector:	one 8 Pins
VGA Connector:	one 15 Pins
PCMCIA Slot:	one
Line out Port:	one
Line-in Port:	one
Serial Port:	one
DC IN Port:	one
Battery:	Li-ION, DC 11.1Volt 6000mAh
	REV: R00032412007
LCD:	(Model: 12X12054DT037)
Display:	LCD & CRT (1024*768)
Maximum Resolution :	LCD & CRT (1024*768)
Speed & CPU	
Speed	CPU
100MHz	Pentium 3 1GHz

EMI Noise Source:

Crystal: 25.0MHz (X2), 14.318MHz (X3), 16.0MHz (X5)

Clock Generator: U24

EMI Solution:

1. Add one filter core in RJ11 cable.
2. Add gasket in low case and contact with I/O bracket near the RJ45 connector.
3. Add gasket in low case and contact with I/O bracket near the USB connector.
4. Add gasket in low case and contact with Hard disk Cable.

2.1 General Test Conditions

1. During the test, the EUT was set in continuously transmitting mode with a duty cycle of 94%.for 802.11b.
2. The EUT was set in continuously transmitting mode with a duty cycle of 93%.for 802.11g.
3. The channel 1, 6, 11 of 802.11b/g of EUT were all tested.

3. RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

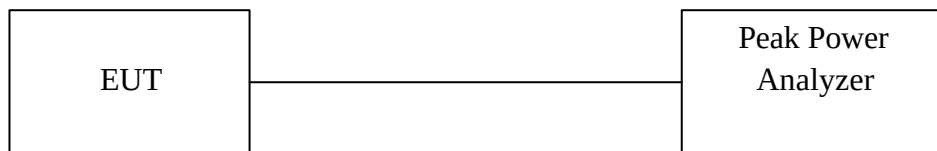
3.1 Applied Standards

FCC PART 1.1307, 1.1310, 2.1091, 2.1093 RF EXPOSURE

3.2 Test Procedure

The Transmitter output of EUT was connected to the Peak Power Analyzer

3.3 Test Setup



3.4 Calculation for Maximum Permissible Exposure (MPE)

From FCC 1.1310 Table 1B, the maximum permissible RF exposure for an uncontrolled environment is 1 mW/cm². The actual power density for the EUT with the antenna is calculated as shown below.

$$S = (P \times G) / (4 \times \pi \times d^2)$$

where:

S = power density

P = transmitter conducted power in (W)

G = antenna numeric gain

d = distance to radiation center (m)

802.11b

Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance (cm)	Power Density (W/m2)	Power Density (mW/cm2)
0.15	1.04	2412	16.337	43.02	20	0.0886	0.00886
		2437	15.506	35.53	20	0.0732	0.00732
		2462	15.215	33.23	20	0.0684	0.00684

802.11g

Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance (cm)	Power Density (W/m2)	Power Density (mW/cm2)
0.15	1.04	2412	16.824	48.13	20	0.0991	0.00991
		2437	16.285	42.51	20	0.0875	0.00875
		2462	15.803	38.05	20	0.0783	0.00783

WARNING:

It is the responsibility of the installer to ensure that the EUT is a WLAN module and a specified antenna inside. Only the specified antennas listed above may be used. The use of any other antenna is expressly forbidden in accordance with FCC rules CFR 47 part 15.204.

NOTICE:

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits for an uncontrolled environment when installed as directed. This equipment should be installed and operated with the specified antenna listed in this report.

4. Appendix : Test Equipment

4.1 Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Rad. Above 1Ghz	Peak Power Analyzer	HP	8990A	3621A01269	01/02/2005	01/02/2006

Note: Calibration traceable to NIST or national or international standards.