

MPE Test Report

of

Product Name

FCC Part 15 Subpart B & C & E

of

WLAN b+g mini-PCI Module

Model

RM1

(Brand: Wistron NeWeb)

Applied by:

Wistron Neweb Corporation
No. 10-1, Li-hsin Road 1,
Science-based Indus
Taiwan, R. O. C.

Test Performed by:

International Standards Laboratory
No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd.
Lung-Tan Hsiang, Tao Yuan County 325
Taiwan, R.O.C.
Tel:(03)407-1718 Fax:(03)407-1738

Report Number: 04LR024MPE

Issue Date: 2004/06/18

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

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	3
3.	RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]	4
3.1	Applied Standards	4
3.2	Test Procedure	4
3.3	Test Setup	4
3.4	Calculation for Maximum Permissible Exposure (MPE)	4
4.	Appendix : Test Equipment	6
4.1	Test Equipment List	6

1. General

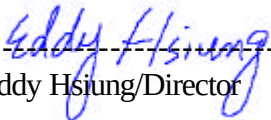
1.1 Certification of Accuracy of Test Data

Standards:	CFR 47 Part 15 Subpart B Class B CFR 47 Part 15 Subpart C (Section 15.247)
Test Procedure:	ANSI C63.4: 2001
Equipment Tested:	WLAN b+g mini-PCI Module
Model:	RM1
Applied by:	Wistron Neweb Corporation
Sample received Date:	2004/06/10
Final test Date :	2004/06/18
Test Site:	Chamber 02, Conduction 02
Temperature	Refer to each site test data
Humidity:	Refer to each site test data
 Test Engineer:	 Jerry Chiou

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 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 8 pages, including 1 cover page , 1 contents page, and 6 pages for the test description.
This report must not be use 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:	WLAN 802.11g miniPCI Module
Model No.:	RM1
FCC ID:	NKRRM1
Brand:	Wistron NeWeb
Frequency Range 802.11b/g:	2400~2483.5 MHz
Support channel: 802.11b/g	11 Channels
Modulation Skill: 802.11b 802.11g	DBPSK(1Mbps), DQPSK(2Mbps), CCK(5.5/11Mbps) OFDM (6M - 54Mbps)
Antennas Type:	Monopole ,reverse SMA (Model: Wss002, made by WanShih Electronic CO.)
Antenna Connected:	The antenna is connected to the RF connector of the WLAN adapter.
Antenna peak Gain:	2.31 dBi (11b/g)
WLAN Power Type :	3.3V DC from the EUT

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		

During the test, the EUT was tested as a modular device of a notebook PC using a PCMCIA extender board to extend the EUT outside the notebook PC enclosure.

2.1 General Test Conditions

1. During the test, the EUT was set in continuously transmitting mode with a duty cycle of 100%.
2. 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

1. 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:

Antenna Manufacturer	Antenna Type	Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance (cm)	Power Density (W/m ²)	Power Density (mW/cm ²)
WanShih Electronic CO. Model: Wss002	Monopole	2.31	1.7	2412	16.006	39.87	20	0.1348	0.01348
				2437	16.443	44.09	20	0.1491	0.01491
				2462	16.756	47.38	20	0.1602	0.01602

802.11g:

Antenna Manufacturer	Antenna Type	Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance (cm)	Power Density (W/m ²)	Power Density (mW/cm ²)
WanShih Electronic CO. Model: Wss002	Monopole	2.31	1.7	2412	18.537	71.40	20	0.2414	0.02414
				2437	18.943	78.40	20	0.2651	0.02651
				2462	19.037	80.11	20	0.2709	0.02709

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 antennas (vendor: WanShih Electronic CO., model: Wss002) in a fixed-mount configuration, installed with a maximum of 19.037 dBm of radiated output power during normal operation.

4. Appendix : Test Equipment

4.1 Test Equipment List

Equipment Name: Spectrum Analyzer 08
Brand: Advantest
Model: R3132
S/N: 111000867
Last Cal. Date: 11/21/2003
Next Cal. Date: 11/21/2004

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