

MPE TEST REPORT

of

Product Name

WLAN a+b+g mini-PCI Module

Model

CM9

Applied by:

3e Technologies International Inc.
700 King Farm Blvd., Suite 600
Rockville, MD 20850
U. S. A

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: ISL-05LR010FCMPE

Issue Date: 2005/06/01

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

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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)
 CFR 47 Part 15 Subpart E (Section 15.407)

Test Procedure: ANSI C63.4: 2003

Equipment Tested: WLAN a+b+g mini-PCI Module

Model: CM9

Applied by: 3e Technologies International Inc.

Sample received Date: 2005/04/15

Final test Date : 2005/05/16-2005/05/27

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 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 a+b+g Mini- PCI module
Model No.:	CM9
FCC ID:	QVT-WLAN-MP2
Frequency Range 802.11a:	5725~5825 MHz
Frequency Range 802.11b/g:	2400~2483.5 MHz
Support channel:	
802.11a Normal mode	4 Channels
802.11a Turbo mode	2 Channels
802.11b/g	11 Channels
Modulation Skill:	
802.11a Normal mode	OFDM (6 Mbps – 54 Mbps)
802.11a Turbo mode	OFDM (12 Mbps – 108 Mbps)
802.11b	DBPSK(1Mbps), DQPSK(2Mbps), CCK(5.5/11Mbps)
802.11g	OFDM (6M - 54Mbps)
Antennas Type:	
Antenna 1: Corner Ant.	(4010 , made by Nearson Co.)
Antenna 2: Directional	(HG5822G,made by HyperLink Technologies, Inc)
Antenna Connected:	The antenna is connected to the RF connector of the WLAN adapter.
Antenna peak Gain:	
Antenna 1:	12 dBi (11b/g)
Antenna 2:	22 dBi (5725MHz~5850MHz)
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		

The channel and the operation frequency of 802.11a Normal Mode is listed below:

Channel	Frequency(MHz)
09	5745
10	5765
11	5785
12	5805

The channel and the operation frequency of 802.11a Turbo Mode is listed below:

Channel	Frequency(MHz)
04	5760
05	5800

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 99%.for 802.11a.
2. During the test, the EUT was set in continuously transmitting mode with a duty cycle of 99%.for 802.11b.
3. The EUT was set in continuously transmitting mode with a duty cycle of 99%.for 802.11g.
4. 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)

802.11a

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)
HyperLink Technologies, Inc Model: HG5822G	Directional	22	158.49	5745 (Normal Mode)	20.012	100.28	40	7.9044	0.79044
				5805 (Normal Mode)	20.043	101.00	40	7.9610	0.79610
				5760 (Turbo Mode)	19.293	84.98	40	6.6984	0.66984
				5800 (Turbo Mode)	17.262	53.24	40	4.1963	0.41963

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)
Nearson Co. Model:4010	Corner Antenna	12	15.85	2412	22.599	181.93	20	5.7363	0.57363
				2437	22.724	187.24	20	5.9038	0.59038
				2462	22.724	187.24	20	5.9038	0.59038

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)
Nearson Co. Model:4010	Corner Antenna	12	15.85	2412	22.881	194.13	20	6.1211	0.61211
				2437	22.631	183.27	20	5.7787	0.57787
				2462	22.912	195.52	20	6.1650	0.61650

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.