

# MPE Test Report

of

*Product Name*

**Notebook Personal Computer**

**(with Intel PRO/Wireless 2200BG Network Connection inside)**

*Model*

**A770**

**(Brand:MITAC)**

*Applied by:*

MITAC Technology Corporation  
4F, No.1, R&D Road 2,,  
Hsinchu Science-Based industrial Park, Hsinchu 3000  
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: ISL-05LR002MPE**

**Issue Date:2005/02/01**

**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

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

**Equipment Tested:**

**Model:** A770

**Applied by:** MITAC Technology Corporation

**Sample received Date:** 2005/01/20

**Final test Date :** 2005/01/21~2005/01/28

**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.: A770

FCC ID: **MAU016**

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, 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: 0.06 dBi (11b/g)

Main antenna

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))
Floppy Driver:	TEAC (Model: FD-05HG)
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:	two
Line out Port:	one
Line- in Port:	one
Serial Port:	one
Parallel Port:	one 25 Pins
1392 Port:	one 6 Pins
DC IN Port:	one
Battery:	Li-ION, DC 11.1Volt 8800mAh
LCD:	(Model: HT12X12-100)
Display:	LCD & CRT (1024*768)
Maximum Resolution :	LCD & CRT (1024*768)

Speed & CPU

Speed	CPU
100MHz	Pentium 4 1.6GHz

EMI Noise Source:

Crystal: 14.318MHz (X1), 16.0MHz (X2), 24.576MHz (X1, X2, in PCMCIA BD)  
Clock Generator: U3

EMI Solution:

1. Add one filter core in RJ11 cable.
2. Add two sheet metals in motherboard and with contact low case.

## 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 of 802.11b/g of EUT were all tested.

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

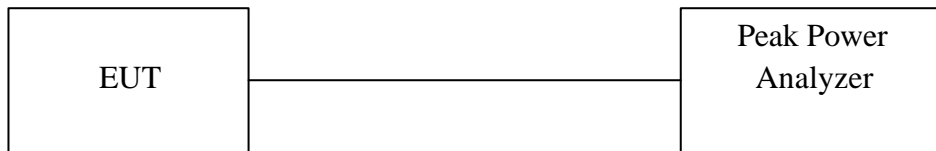
#### 3.1 Applied Standards

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/cm<sup>2</sup>. 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/m <sup>2</sup> )	Power Density (mW/cm <sup>2</sup> )
0.06	1.01	2412	17.318	53.93	20	0.1088	0.01088
		2437	16.756	47.38	20	0.0956	0.00956
		2462	16.443	44.09	20	0.0889	0.00889

802.11g

Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance (cm)	Power Density (W/m <sup>2</sup> )	Power Density (mW/cm <sup>2</sup> )
0.06	1.01	2412	19.006	79.54	20	0.1604	0.01604
		2437	18.631	72.96	20	0.1472	0.01472
		2462	18.256	66.93	20	0.1350	0.01350

**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.