

Test Report for FCC Part 15 Subpart B & C & E

*of
Product Name*

Notebook Personal Computer
(with Intel PRO/Wireless 2915ABG Network Connection inside)

Model

IX600
(Brand: Itronix)

Applied by:

Itronix Corporation
801 South Stevens Street
Spokane Washington, 99204
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-05LR019FCMPE

Issue Date: 2005/08/19

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	6
3.	RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]	7
3.1	Applied Standards.....	7
3.2	Test Procedure	7
3.3	Test Setup.....	7
3.4	Calculation for Maximum Permissible Exposure (MPE)	7
4.	Appendix : Test Equipment.....	10
4.1	Test Equipment List.....	10

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:	Notebook Personal Computer
Model:	IX600
Applied by:	Itronix Corporation
Sample received Date:	2005/04/18
Final test Date :	2005/04/11-2005/04/29
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 11 pages, including 1 cover page, 1 contents page, and 9 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)

EUT

Description:	Notebook Personal Computer (with Intel PRO/Wireless 2915ABG Network Connection and Broadcom USB Bluetooth Module BCM92035NMD inside)
Condition:	Pre-Production
Model:	IX600
FCC ID:	KBCIX600-IWLBT
Serial Number:	N/A
Brand:	Itronix Corporatio
Wireless LAN Module:	Intel, Model: WM3B2915ABG
Frequency Range 802.11a:	5150~5350 MHz, 5725~5825 MHz
Frequency Range 802.11b/g:	2400 - 2483.5 MHz
Support channel:	
802.11a Normal mode	12 Channels
802.11b	11 Channels
802.11g	11 Channels
Modulation Skill:	
802.11a Normal mode	OFDM (6 Mbps – 54 Mbps)
802.11b	DBPSK(1Mbps), DQPSK(2Mbps), CCK(5.5/11Mbps)
802.11g	OFDM (6M - 54Mbps)
Antennas Type:	
Main antenna	PIFA(P/N: 25.90215.001), made by Wistron NeWeb Corp.
Aux antenna	PIFA(P/N: 25.90216.001), made by Wistron NeWeb Corp.
Antenna Connected:	Connected to RF connector on the PCB of the 802.11a/b/g WLAN Adapter. The user is not possible to change the antenna without disassembling the notebook computer.
Antenna peak Gain:	
Main antenna	2.41 dBi (11b/g), 2.26 dBi (11a)
Aux antenna	1.53 dBi (11b/g), 0.59 dBi (11a)
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		

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

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	5180	07	5300
02	5200	08	5320
03	5220	09	5745
04	5240	10	5765
05	5260	11	5785
06	5280	12	5805

Bluetooth Module: Broadcom, Model: BCM92035NMD
 Frequency Range: 2402 ~ 2480 MHz
 Support channel: 79 Channels
 Modulation Skill: GFSK (1Mbps)
 Antennas Type: AccuWave Antenna made by Etenna Corp.
 Model No.: EA2400
 Antenna Connected: The antenna is mounted to the PCB of the Bluetooth Module.
 The user is not possible to change the antenna .
 Antenna peak Gain: 3.0 dBi

Power Type of Bluetooth module: 3.3V DC from Notebook PC

The channels and the operation frequency of Bluetooth is listed below:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
00	2402	01	2403
02	2404	03	2405
04	2406	05	2407
.....			
75	2477	76	2478
77	2479	78	2480

Power Supply Type: Auto Switching AC Adapter
 Delta (Model: SADP-65KB D) or
 Liteon(Model: PA-1700-02)
 CPU Type: Pentium M Dothan 1.8GHz
 Hard Disk Device: HGST (Model: HTS424040M9AT00)
 DDR 512mb
 Hynix (Model: HYMP564S64P6-C4) or
 Micron (Model: MT8HTF6464HDY-53EA3) or
 1024 MB
 Infineon (Model: HYS64T128021HDL-3.7-A)
 DVD-Multi: TEAC (Model: DW-224E-B83)
 DVD-RAM TEAC(Model: DV-W28EA)
 MDC modem: Liteon (Model: MDC-003#/A1A)
 DC-In: one
 VGA Port: one
 USB2.0 Connector: two
 LAN Connector: one
 Modem Port: one
 PCIMCIA Connector: one
 Docking Connector: one
 Line in: one
 Line out: one
 RS-232 Port: one
 Smart Connector : one
 Express Connector : one

Battery:	Simplo 6 cell or Simplo 9 cell
LCD:	Enhanced 14.1" XGA TFT (Model: LTD121EC5S)
Inverter:	Sumida (Model : IV12087/T)
Maximum display Resolution:	1024X786 Non-interlaced

EMI Noise Source:

Crystal: 14.318M (X1),32.768M (X2),32.768M(X3), 24.576M(X4),25M(X5),24.576M(X6)
Clock Generator: U44

EMI Solution:

- 1.Heatsink add two gasket
- 2.HDD DOOR add seven gasket

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)]

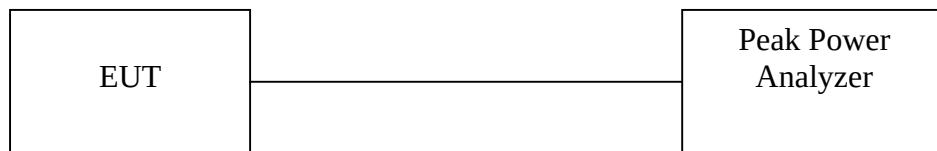
3.1 Applied Standards

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)
Wistron NeWeb Corp. P/N: 25.90215.001	PIFA	2.26	1.682674	5180 (Normal Mode)	12.72	18.71	20	0.0626	0.00626
				5240 (Normal Mode)	12.31	17.02	20	0.0570	0.00570
				5260 (Normal Mode)	18.38	68.87	20	0.2305	0.02305
				5320 (Normal Mode)	20.03	100.69	20	0.3371	0.03371
				5745 (Normal Mode)	17.34	54.20	20	0.1814	0.01814
				5805 (Normal Mode)	17.83	60.67	20	0.2031	0.02031

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)
Wistron NeWeb Corp. P/N: 25.90215.001	PIFA	2.41	1.74	2412	18.2	66.07	20	0.2289	0.02289
				2437	19.34	85.90	20	0.2977	0.02977
				2462	19.68	92.90	20	0.3219	0.03219

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)
Wistron NeWeb Corp. P/N: 25.90215.001	PIFA	2.41	1.74	2412	16.92	49.20	20	0.1705	0.01705
				2437	17.04	50.58	20	0.1753	0.01753
				2462	17.39	54.83	20	0.1900	0.01900

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.