

# MPE TEST REPORT

Product : **Internet Radio Receiver**

Model(s): **IRF**

Applicant: **BEHAVIOR TECH COMPUTER CORP.**

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Taiwan**

Test Performed by:

**International Standards Laboratory**

<Lung-Tan LAB>

\*Site Registration No.

BSMI: SL2-IN-E-0013; TAF: 0997; IC: IC4164-1 ;

VCCI: R-1435, C-1440, T-299, R-2598, C-2845; NEMKO: ELA 113B

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Report No.: **ISL-08LR016FCMPE**

Issue Date : **2008/05/30**

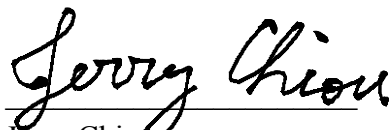
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## 1. General

### 1.1 Certification of Accuracy of Test Data

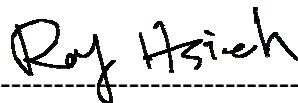
<b>Standards:</b>	CFR 47 Part 15 Subpart B Class B CFR 47 Part 15 Subpart C (Section 15.247)
<b>Test Procedure:</b>	ANSI C63.4:2003
<b>Equipment Tested:</b>	Internet Radio Receiver
<b>Model:</b>	IRF
<b>Applied by:</b>	BEHAVIOR TECH COMPUTER CORP.
<b>Sample received Date:</b>	2008/05/15
<b>Final test Date :</b>	2008/05/21
<b>Test Result</b>	PASS
<b>Test Site:</b>	Chamber 12, Conduction 03
<b>Temperature</b>	Refer to each site test data
<b>Humidity:</b>	Refer to each site test data
<b>Test Engineer:</b>	

  
Jerry Chion

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

  
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Roy Hsieh / Manager

<p>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.</p>
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## 2. Description of Equipment Under Test (EUT)

Description:	Internet Radio Receiver
Condition:	Pre-Production
Model:	IRF, Wireless connection
Brand:	BTC ; EMPREX ; MaxD
Frequency Range of 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: WLAN Main antenna:	PIFA (Model: RFA-02-C2H1), made by Aristotle.
Antenna Connected:	Connected to RF connector on the PCB of the WLAN module .The user is not possible to change the antenna without disassembling the notebook computer.
Antenna peak Gain: WLAN Main antenna	2.5dBi(11b,11g)
Power Type of wireless module:	3.3V DC from EUT

The channel and the operation frequency of 802.11b and 802.11g 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		

Power Supply:	UNIFIVE Power Devices Inc. (Model:US300520) Input AC100-240V, 50/60Hz , 0.3A With Core
USB Port:	one 4-pins
USB Data Cable:	one
LAN Port:	one 8-pin(10Mbps)
Wireless antenna LAN Port:	one
AUDIO OUT Port:	one
DC Power Port:	one
Remote control:	one

EMI Noise Source:

Crystal: 12.888MHz (Y1), Crystal: 25.000MHz (Y2), Crystal: 24.000MHz (Y3), Crystal: 32.768KHz (Y4), Crystal: 8MHz(Y5)

EMI Solution:

1. Added one Ferrite Core on the Wireless antenna LAN cable.
2. Added one Ferrite Core on the USB Data cable.
3. Added five CLIP on the Motherboard contact with chassis Ground.
4. Added one Ferrite Core on the Power Supply cable.

### 3. Description of Support Equipment

#### 3.1 Description of Support Equipment

None

##### 3.1.1 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
DC Power Cord	SPS to DC Power Port of EUT	1.8M	Non-shielded, Non-detachable	Metal Head

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

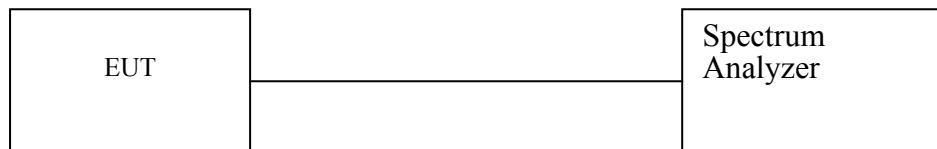
### 4.1 Applied Standards

FCC PART 1.1307, 1.1310, 2.1091, 2.1093 RF EXPOSURE

### 4.2 Test Procedure

The Transmitter output of EUT was connected to the Spectrum Analyzer

### 4.3 Test Setup



### 4.4 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

Antenna Manufacturer	Antenna Type	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> )
Aristotle Model: RFA-02-C2H1	PIFA in Metal	2.50	1.78	2412	15.58	36.14	20	0.1279	0.01279
				2437	15.63	36.56	20	0.1293	0.01293
				2462	15.17	32.89	20	0.1163	0.01163

## 802.11g

Antenna Manufacturer	Antenna Type	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> )
Aristotle Model: RFA-02-C2H1	PIFA in Metal	2.50	1.78	2412	11.79	15.10	20	0.0534	0.00534
				2437	11.8	15.14	20	0.0535	0.00535
				2462	11.66	14.66	20	0.0518	0.00518

**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.



## 5. Appendix : Test Equipment

### 5.1 Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Radiation	Spectrum Analyzer 19	R&S	FSP40	100116	09/12/2007	09/12/2008

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