

# RF Exposure Evaluation declaration

Product Name : Mini PCI Card

Model No. : MS-6833

FCC ID : I4L-MS6833

Applicant : MICRO-STAR INT'L Co., LTD

Address : No 69, Li-De st., Jung-He City, Taipei Hsien,  
Taiwan, R.O.C

Date of Receipt : Sep. 08. 2004

Date of Declaration : Sep. 13. 2004

Report No. : 049L072FI

The declaration results relate only to the samples calculated.

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## 1. RF Exposure Evaluation

### 1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b) LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

### 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product : Mini PCI Card  
 Test Item : RF Exposure Evaluation  
 Test Site : No.3 OATS

#### (802.11b FAVORTRON, 223IIO Antenna)

##### Output Power Into Antenna & RF Exposure Evaluation Distance (1.97 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	19.2309	0.0060
6	2437.00	18.8365	0.0059
11	2462.00	21.5278	0.0067

#### (802.11g FAVORTRON, 223IIO Antenna)

##### Output Power Into Antenna & RF Exposure Evaluation Distance (1.97 dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R =20 cm (mW/cm <sup>2</sup> )
1	2412.00	21.3304	0.0067
6	2437.00	19.4536	0.0061
11	2462.00	21.8273	0.0068

**(802.11b FOXCONN, N245 Antenna)****Output Power Into Antenna & RF Exposure Evaluation Distance (0.99 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R =20 cm (mW/cm <sup>2</sup> )
1	2412.00	19.2309	0.0048
6	2437.00	18.8365	0.0047
11	2462.00	21.5278	0.0054

**(802.11g FOXCONN, N245 Antenna)****Output Power Into Antenna & RF Exposure Evaluation Distance (0.99 dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R =20 cm (mW/cm <sup>2</sup> )
1	2412.00	21.3304	0.0053
6	2437.00	19.4536	0.0049
11	2462.00	21.8273	0.0055

**(802.11b FAVORTRON, 255 Series/ 259 Series Antenna)**
**Output Power Into Antenna & RF Exposure Evaluation Distance (1.61 dBi -259 Series):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	19.2309	0.0055
6	2437.00	18.8365	0.0054
11	2462.00	21.5278	0.0062

**(802.11g FAVORTRON, 255 Series/ 259 Series Antenna)**
**Output Power Into Antenna & RF Exposure Evaluation Distance (1.61 dBi -259 Series):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R =20 cm (mW/cm <sup>2</sup> )
1	2412.00	21.3304	0.0061
6	2437.00	19.4536	0.0056
11	2462.00	21.8273	0.0063

The distance r (4<sup>th</sup> column) calculated from the Friis transmission formula is far shorter than 20 cm separation requirement.