

# RF Exposure Evaluation declaration

Product Name : Wireless LAN Card

Model No.: WL-127

Applicant : ASUSTeK COMPUTER INC.

Address : 4FL., No, 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt : May 27, 2003

Date of Declaration : May 27, 2003

Report No. : 036L303FI

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 : Wireless LAN Card  
 Test Item : RF Exposure Evaluation  
 Test Site : No.3 OATS  
 Test Mode : Normal Operation

#### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.07dBi, 2.45dBi in linear scale.

#### Output Power Into Antenna & RF Exposure Evaluation Distance (2.07dBi):

| Channel | Frequency (MHz) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) |
|---------|-----------------|------------------------------|--|
| 1       | 2414.00         | 54.9541                      | 0.0176   |
| 6       | 2438.90         | 47.3151                      | 0.0152   |
| 11      | 2463.90         | 39.0841                      | 0.0125   |

#### Output Power Into Antenna & RF Exposure Evaluation Distance (2.45dBi):

| Channel | Frequency (MHz) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) |
|---------|-----------------|------------------------------|--|
| 1       | 2414.00         | 54.9541                      | 0.0192   |
| 6       | 2438.90         | 47.3151                      | 0.0165   |
| 11      | 2463.90         | 39.0841                      | 0.0137   |

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