

# RF Exposure Evaluation declaration

Product Name : 802.11 b/g/n module

Model No. : WN4606A

FCC ID : PPQ-WN4606A

Applicant : Lite-On Technology Corp.

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Date of Receipt : Apr. 06, 2011

Date of Declaration : Apr. 14, 2011

Report No. : 114113R-RFUSP29V01

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  $\text{mW/cm}^2$

$P_{out}$  = 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,  $1 \text{ mW/cm}^2$ . 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:  $18^\circ\text{C}$  and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product : 802.11 b/g/n module  
 Test Item : RF Exposure Evaluation  
 Test Site : No.3 OATS

#### 802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (1.98dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	116.6810	0.036621
6	2437.00	127.6439	0.040062
11	2462.00	117.7606	0.036960

#### 802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (1.98dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	194.0886	0.060916
6	2437.00	306.9022	0.096323
11	2462.00	264.2409	0.082934

#### 802.11n-20MHz Output Power Into Antenna & RF Exposure Evaluation Distance (1.98dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	171.3957	0.053794
6	2437.00	302.6913	0.095002
11	2462.00	243.2204	0.076336

#### 802.11n-40MHz Output Power Into Antenna & RF Exposure Evaluation Distance (1.98dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2422.00	108.3927	0.034020
6	2437.00	310.4560	0.097438
11	2452.00	114.5513	0.035953