

## RF Exposure Evaluation declaration

Product Name	PR1 Receiver
Model No.	PR1 Receiver
FCC ID	PPQ-PR1RECEIVER

Applicant	Lite-On Technology Corp.
Address	4F, 90, Chien 1 Road, Chung-Ho, Taipei Hsien 235, Taiwan, R.O.C.

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Report No.	12B228R-RFUSP42V01

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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 : PR1 Receiver  
 Test Item : RF Exposure Evaluation  
 Test Site : No.3 OATS

#### Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.29 dBi in logarithm scale.

#### main chip\_162

##### 802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	51.2861	0.027399
6	2437.00	45.6037	0.024363
11	2462.00	33.6512	0.017978

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

##### 802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	75.5092	0.040340
6	2437.00	73.4514	0.039240
11	2462.00	59.7035	0.031896

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

#### 802.11n-20MHz\_14.4Mbps

##### Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	81.0961	0.043324
6	2437.00	79.6159	0.042533
11	2462.00	81.6582	0.043625

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

### 802.11n-40MHz\_30Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2422.00	78.5236	0.041950
4	2437.00	83.1764	0.044436
7	2452.00	76.3836	0.040807

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

### main chip\_166

#### 802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	55.9758	0.029904
6	2437.00	44.8745	0.023973
11	2462.00	37.5837	0.020078

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

#### 802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	83.1764	0.044436
6	2437.00	73.7904	0.039421
11	2462.00	62.9506	0.033630

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

### 802.11n-20MHz\_14.4Mbps

#### Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	88.3080	0.047177
6	2437.00	87.0964	0.046530
11	2462.00	88.7156	0.047395

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

**802.11n-40MHz\_30Mbps****Output Power Into Antenna & RF Exposure Evaluation Distance (4.29dBi):**

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2422.00	85.5067	0.045680
4	2437.00	89.1251	0.047614
7	2452.00	82.0352	0.043826

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).