

# Maximum Permissible Exposure Evaluation

## FCC ID: 2AU8R-L107

### 1. Client Information

Applicant	:	Shenzhen BOJINGnet Technology Co., Ltd
Address	:	3a11, floor 4, building C, Baoyuan Huafeng headquarters economic building, Xixiang Avenue, Xixiang street, Baoan District, Shenzhen, China
Manufacturer	:	Shenzhen BOJINGnet Technology Co., Ltd
Address	:	3a11, floor 4, building C, Baoyuan Huafeng headquarters economic building, Xixiang Avenue, Xixiang street, Baoan District, Shenzhen, China

### 2. General Description of EUT

EUT Name	:	BOJINGnet L107 IOT Router Module								
Models No.	:	L107								
Model Different	:	N/A								
Product Description	:	<table><tr><td>Operation Frequency:</td><td>802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n (HT40): 2422MHz~2452MHz</td></tr><tr><td>RF Output Power:</td><td>802.11b: 15.62 dBm 802.11g: 14.47 dBm 802.11n (HT20): 13.80 dBm 802.11n (HT40): 12.60 dBm</td></tr><tr><td>Antenna Gain:</td><td>3dBi Wire Antenna</td></tr><tr><td>Modulation Type:</td><td>802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)</td></tr></table>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n (HT40): 2422MHz~2452MHz	RF Output Power:	802.11b: 15.62 dBm 802.11g: 14.47 dBm 802.11n (HT20): 13.80 dBm 802.11n (HT40): 12.60 dBm	Antenna Gain:	3dBi Wire Antenna	Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)
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Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)									
Power Supply	:	Voltage Input: DC 3.3V								
Software Version	:	1.0								
Hardware Version	:	1.1								
Connecting I/O Port(S)	:	Please refer to the User's Manual								

## MPE Calculations for WIFI

### 1. Antenna Gain:

Wire Antenna: 3dBi.

### 2. EUT Operation Condition:

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

### 3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = (P_G) / (4\pi R^2)$$

Where

**S**: power density

**P**: power input to the antenna

**G**: power gain of the antenna in the direction of interest relative to an isotropic radiator.

**R**: distance to the center of radiation of the antenna

## 4. Test Result:

Worst Maximum MPE Result								Power Density Limit (mW/cm <sup>2</sup> )	Result
Mode	Freq. (MHz)	Conducted Power(max) (dBm) [P]	Tune up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm <sup>2</sup> ) [S]		
B	2412	15.57	15.57±1	16.57	3	20	0.01801951	1	PASS
	2437	15.62	15.62±1	16.62			0.01822817		
	2462	15.57	15.57±1	16.57			0.01801951		
G	2412	14.15	14.15±1	15.15			0.01299400		
	2437	14.47	14.47±1	15.47			0.01398759		
	2462	14.06	14.06±1	15.06			0.01272750		
N20	2412	13.80	13.80±1	14.8			0.01198790		
	2437	13.31	13.31±1	14.31			0.01070885		
	2462	13.54	13.54±1	14.54			0.01129127		
N40	2422	12.60	12.60±1	13.6			0.00909375		
	2437	12.11	12.11±1	13.11			0.00812350		
	2452	12.20	12.20±1	13.2			0.00829360		
Max Power Density(mW/cm <sup>2</sup> )		Power Density=0.01822817							

Note:

RF Output power specifies that Maximum Conducted Peak Output Power.

**5. Conclusion:**

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

**Limits for General Population/ Uncontrolled Exposure**

Frequency Range (MHz)	Power density (mW/ cm <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

For 802.11b/g/n(HT20):2412~2462 MHz

802.11n(HT40):2412~2462 MHz

MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as **0.01822817mW / cm<sup>2</sup> < limit 1mW / cm<sup>2</sup>**. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

**Note**

For a more detailed features description, please refer to the RF Test Report.

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