

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	:	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)
Power Supply	:	Voltage Input: DC 3.3V	
Software Version	:	1.0	
Hardware Version	:	1.1	
Connecting Port(S)	I/O :	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

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

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									
Mode	Freq. (MHz)	Conducted Power(max) (dBm) [P]	Tune up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Dista-nce (cm) [R]	Power Density (mW/ cm ²) [S]	Power Density Limit (mW/ cm ²)	Result
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 ²)		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 ²)
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/ cm²

The MPE is calculated as $0.01822817 \text{ mW} / \text{cm}^2 < \text{limit } 1 \text{ mW} / \text{cm}^2$. 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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