Maximum Permissible Exposure Evaluation

FCC ID: 2AU8R-RMS7688A

1. Client Information

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

2. General Description of EUT

EUT Name	:	RMS7688A IOT Router Module	
Models No.	:	RMS7688A	
Model Different		----	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		Number of Channel:	802.11b/g/n(HT20): 11 channels 802.11n(HT40): 7 channels
		Antenna Gain:	1.78dBi FPC Antenna
Power Rating	:	Intput DC3.3V	
Software Version	:	1.0	
Hardware Version	:	1.0	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	the evaluation report used the EUT(202210-0264-4-2#).	

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MPE Calculations for WIFI

1. **Antenna Gain:**
   FPC Antenna: 1.82 dBi.

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:**

2.4G WiFi

2.4G WiFi MPE Result								
Mode	N_{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]
802.11b	1	2412	16.183	16±1	17	1.78	20	0.01502
		2437	17.229	17±1	18	1.78	20	0.01891
		2462	16.278	16±1	17	1.78	20	0.01502
802.11g	1	2412	14.216	14±1	15	1.78	20	0.00948
		2437	13.115	13±1	14	1.78	20	0.00753
		2462	12.597	12±1	13	1.78	20	0.00598
802.11n20	1	2412	12.414	12±1	13	1.78	20	0.00598
		2437	12.338	12±1	13	1.78	20	0.00598
		2462	12.098	12±1	13	1.78	20	0.00598
802.11n40	1	2422	13.967	13±1	14	1.78	20	0.00753
		2437	12.797	12±1	13	1.78	20	0.00598
		2452	13.692	13±1	14	1.78	20	0.00753

Note:
N_{TX}= Number of Transmit Antennas
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 2.4GWiFi:2412~2462 MHz

MPE limit S: 1mW/ cm^2

The MPE is calculated as ***0.01891 mW / cm2 < limit 1mW / 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.

6. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF REPORT-----