

# Maximum Permissible Exposure Evaluation

**FCC ID: SUZ-WB02 & IC: 5923A-WB02**

## 1. Client Information

<b>Applicant</b>	:	Coretronic Corp.
<b>Address</b>	:	No. 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, Taiwan 300
<b>Manufacturer</b>	:	Shenzhen SDMC Technology Co., Ltd.
<b>Address</b>	:	19/F, Changhong Science & Technology Mansion, No.18, Keji South 12th Road, High-tech Industrial Park, Nanshan District, Shenzhen, China, 518000

## 2. General Description of EUT

<b>EUT Name</b>	:	Network Media Players
<b>HVIN/Models No.</b>	:	HK0202
<b>Model Different</b>	:	----
<b>Sample ID</b>	:	20211203-11-1#&20211203-11-2#
<b>Product Description</b>	:	Operation Frequency: U-NII-1: 5180MHz~5240MHz U-NII-2A: 5260MHz~5320MHz U-NII-2C: 5500MHz~5700MHz U-NII-3: 5745MHz~5825MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz-2452MHz Bluetooth 4.2(BER+EDR): 2402MHz~2480MHz Bluetooth 4.2(BLE): 2402MHz~2480MHz
	:	Antenna Gain: Bluetooth&BLE: 2.0dBi Internal Antenna 2.4g wifi: 2.0dBi Internal Antenna1 2.0dBi Internal Antenna2 5g wifi: 2.0dBi Internal Antenna1 2.0dBi Internal Antenna2
<b>Power Rating</b>	:	USB Input: 5V, 1.5A
<b>Software Version</b>	:	V10.1.22
<b>Hardware Version</b>	:	LPDDR4
<b>Remark</b>	:	The adapter and antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.

## Method Of Measurement for FCC

### 1. Max. Antenna Gain:

BT Antenna: 2.0dBi.  
2.4G WIFI Antenna: 2.0dBi.  
5G WIFI Antenna: 2.0dBi.

### 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

### Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is  $\leq 1.0$ .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$

**4. Test Result:**

Bluetooth MPE Result								
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
GFSK	1	2402	7.00	7±1	8	2.0	20	0.0019
		2441	6.36	6±1	7	2.0	20	0.0015
		2480	6.06	6±1	7	2.0	20	0.0015
π/4-DQPSK	1	2402	8.54	8±1	9	2.0	20	0.0025
		2441	7.85	7±1	8	2.0	20	0.0019
		2480	7.70	7±1	8	2.0	20	0.0019
8-DPSK	1	2402	8.76	8±1	9	2.0	20	0.0025
		2441	8.19	8±1	9	2.0	20	0.0025
		2480	7.51	7±1	8	2.0	20	0.0019

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted Peak Output Power.

BLE MPE Result								
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
GFSK	1	2402	2.31	2±1	3	2.0	20	0.0006
		2440	2.22	2±1	3	2.0	20	0.0006
		2480	2.02	2±1	3	2.0	20	0.0006

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted Peak Output Power.

**2.4G WiFi MPE Result Antenna 1**

Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11b	1	2412	14.66	14±1	15	2	20	0.0099
		2437	14.13	14±1	15	2	20	0.0099
		2462	14.29	14±1	15	2	20	0.0099
802.11g	1	2412	13.29	13±1	14	2	20	0.0079
		2437	12.61	12±1	13	2	20	0.0063
		2462	12.66	12±1	13	2	20	0.0063
802.11n2 0	1	2412	13.26	13±1	14	2	20	0.0079
		2437	14.69	14±1	15	2	20	0.0099
		2462	13.34	13±1	14	2	20	0.0079
802.11n4 0	1	2422	12.88	12±1	13	2	20	0.0063
	1	2437	14.05	14±1	14	2	20	0.0079
	1	2452	14.82	14±1	15	2	20	0.0099

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Peak Output Power.

**2.4G WiFi MPE Result Antenna 2**

Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11b	1	2412	12.59	12±1	13	2	20	0.0063
		2437	12.82	12±1	13	2	20	0.0063
		2462	12.79	12±1	13	2	20	0.0063
802.11g	1	2412	13.68	13±1	14	2	20	0.0079
		2437	11.95	11±1	12	2	20	0.0049
		2462	11.81	11±1	12	2	20	0.0049
802.11n2 0	1	2412	13.28	13±1	14	2	20	0.0079
		2437	13.20	13±1	14	2	20	0.0079
		2462	11.89	11±1	12	2	20	0.0049
802.11n4 0	1	2422	12.61	12±1	13	2	20	0.0063
	1	2437	12.90	12±1	13	2	20	0.0063
	1	2452	12.89	12±1	13	2	20	0.0063

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Peak Output Power.

5.2G WiFi MPE Result Antenna 1								
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11a	1	5180	12.60	12±1	13	2	20	0.0063
		5200	12.60	12±1	13	2	20	0.0063
		5240	11.80	11±1	12	2	20	0.0049
802.11n20	1	5180	12.58	12±1	13	2	20	0.0063
		5200	11.67	11±1	12	2	20	0.0049
		5240	11.86	11±1	12	2	20	0.0049
802.11n40	1	5190	11.62	11±1	12	2	20	0.0049
		5230	11.36	11±1	12	2	20	0.0049
802.11ac20	1	5180	12.37	12±1	13	2	20	0.0063
		5200	12.19	12±1	13	2	20	0.0063
		5240	12.14	12±1	13	2	20	0.0063
802.11ac40	1	5190	11.95	11±1	12	2	20	0.0049
		5230	11.36	11±1	12	2	20	0.0049
802.11ac80	1	5210	11.99	11±1	12	2	20	0.0049

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted average Output Power.

5.2G WiFi MPE Result Antenna 2								
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11a	1	5180	13.27	13±1	14	2	20	0.0079
		5200	11.29	11±1	12	2	20	0.0049
		5240	12.47	12±1	13	2	20	0.0063
802.11n20	1	5180	11.66	11±1	12	2	20	0.0049
		5200	12.54	12±1	13	2	20	0.0063
		5240	12.99	12±1	13	2	20	0.0063
802.11n40	1	5190	11.01	11±1	12	2	20	0.0049
		5230	11.58	11±1	12	2	20	0.0049
802.11ac20	1	5180	12.58	12±1	13	2	20	0.0063
		5200	12.51	12±1	13	2	20	0.0063
		5240	13.16	13±1	14	2	20	0.0079
802.11ac40	1	5190	12.25	12±1	13	2	20	0.0063
		5230	12.43	12±1	13	2	20	0.0063
802.11ac80	1	5210	11.05	11±1	12	2	20	0.0049

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.

5.3G WiFi MPE Result Antenna 1								
Mode	N <sub>T</sub> x	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 <sup>2</sup> ) [S]
802.11a	1	5260	12.23	13±1	14	2	20	0.0079
		5280	12.10	11±1	12	2	20	0.0049
		5320	12.10	12±1	13	2	20	0.0063
802.11n20	1	5260	11.57	11±1	12	2	20	0.0049
		5280	11.68	12±1	13	2	20	0.0063
		5320	12.41	12±1	13	2	20	0.0063
802.11n40	1	5270	11.73	11±1	12	2	20	0.0049
		5310	11.56	11±1	12	2	20	0.0049
802.11ac2 0	1	5260	12.12	12±1	13	2	20	0.0063
		5280	11.71	12±1	13	2	20	0.0063
		5320	12.15	13±1	14	2	20	0.0079
802.11ac4 0	1	5270	12.70	12±1	13	2	20	0.0063
		5310	12.40	12±1	13	2	20	0.0063
802.11ac8 0	1	5290	11.53	11±1	12	2	20	0.0049

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted average Output Power.



5.3G WiFi MPE Result Antenna 2								
Mode	N <sub>T</sub> x	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 <sup>2</sup> ) [S]
802.11a	1	5260	13.91	13±1	14	2	20	0.0079
		5280	13.03	11±1	12	2	20	0.0049
		5320	13.91	12±1	13	2	20	0.0063
802.11n20	1	5260	12.34	11±1	12	2	20	0.0049
		5280	12.03	12±1	13	2	20	0.0063
		5320	12.48	12±1	13	2	20	0.0063
802.11n40	1	5270	11.21	11±1	12	2	20	0.0049
		5310	11.43	11±1	12	2	20	0.0049
802.11ac20	1	5260	12.89	12±1	13	2	20	0.0063
		5280	12.00	12±1	13	2	20	0.0063
		5320	11.87	13±1	14	2	20	0.0079
802.11ac40	1	5270	12.23	12±1	13	2	20	0.0063
		5310	11.50	12±1	13	2	20	0.0063
802.11ac80	1	5290	11.15	11±1	12	2	20	0.0049

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.

5.5G WiFi MPE Result Antenna1								
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11a	1	5500	11.87	11±1	12	2	20	0.0049
		5580	12.53	12±1	13	2	20	0.0063
		5700	11.96	11±1	12	2	20	0.0049
802.11n20	1	5500	14.89	14±1	15	2	20	0.0099
		5580	12.01	12±1	13	2	20	0.0063
		5700	11.75	11±1	12	2	20	0.0049
802.11n40	1	5510	12.14	12±1	13	2	20	0.0063
		5550	11.27	11±1	12	2	20	0.0049
		5670	11.93	11±1	12	2	20	0.0049
802.11ac20	1	5500	13.58	13±1	14	2	20	0.0079
		5580	12.10	12±1	13	2	20	0.0063
		5700	13.05	13±1	14	2	20	0.0079
802.11ac40	1	5510	13.06	13±1	14	2	20	0.0079
		5550	12.95	12±1	13	2	20	0.0063
		5670	12.52	12±1	13	2	20	0.0063
802.11ac80	1	5530	12.93	12±1	13	2	20	0.0063
		5610	12.06	12±1	13	2	20	0.0063

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.

5.5G WiFi MPE Result Antenna2								
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11a	1	5500	14.59	14±1	15	2	20	0.0099
		5580	14.28	14±1	15	2	20	0.0099
		5700	13.55	13±1	14	2	20	0.0079
802.11n20	1	5500	12.11	12±1	13	2	20	0.0063
		5580	11.71	11±1	12	2	20	0.0049
		5700	13.68	13±1	14	2	20	0.0079
802.11n40	1	5510	11.41	11±1	12	2	20	0.0049
		5550	11.47	11±1	12	2	20	0.0049
		5670	13.82	13±1	14	2	20	0.0079
802.11ac20	1	5500	12.38	12±1	13	2	20	0.0063
		5580	13.74	13±1	14	2	20	0.0079
		5700	14.67	14±1	15	2	20	0.0099
802.11ac40	1	5510	11.76	11±1	12	2	20	0.0049
		5550	12.53	12±1	12	2	20	0.0049
		5670	13.56	13±1	13	2	20	0.0063
802.11ac80	1	5530	12.10	12±1	12	2	20	0.0049
		5610	13.62	13±1	14	2	20	0.0079

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.

5.8G WiFi MPE Result Antenna 1								
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11a	1	5745	12.00	12±1	13	2	20	0.0063
		5785	11.95	12±1	13	2	20	0.0063
		5825	11.94	12±1	13	2	20	0.0063
802.11n20	1	5745	13.14	13±1	14	2	20	0.0079
		5785	13.34	13±1	14	2	20	0.0079
		5825	13.61	13±1	14	2	20	0.0079
802.11n40	1	5755	13.58	13±1	14	2	20	0.0079
		5795	13.61	13±1	14	2	20	0.0079
802.11ac20	1	5745	13.37	13±1	14	2	20	0.0079
		5785	13.98	13±1	14	2	20	0.0079
		5825	14.18	14±1	15	2	20	0.0099
802.11ac40	1	5755	14.04	14±1	15	2	20	0.0099
		5795	13.78	14±1	15	2	20	0.0099
802.11ac80	1	5775	14.28	14±1	15	2	20	0.0099

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.

**5.8G WiFi MPE Result Antenna 2**

Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]
802.11a	1	5745	14.15	14±1	15	2	20	0.0099
		5785	13.45	13±1	14	2	20	0.0079
		5825	12.49	12±1	13	2	20	0.0063
802.11n20	1	5745	11.86	11±1	12	2	20	0.0049
		5785	11.19	11±1	12	2	20	0.0049
		5825	11.71	11±1	12	2	20	0.0049
802.11n40	1	5755	12.46	12±1	13	2	20	0.0063
		5795	11.73	11±1	12	2	20	0.0049
802.11ac20	1	5745	12.35	12±1	13	2	20	0.0063
		5785	11.98	11±1	12	2	20	0.0049
		5825	12.87	12±1	13	2	20	0.0063
802.11ac40	1	5755	12.11	12±1	13	2	20	0.0063
		5795	11.77	11±1	12	2	20	0.0049
802.11ac80	1	5775	13.34	13±1	14	2	20	0.0079

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average 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:2402~2480MHz&2412~2462MHz&5180~5825MHz  
MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as **0.0099mW / cm<sup>2</sup> < limit 1mW / cm<sup>2</sup>**.

WiFi and Bluetooth support Synchronization transmit the

$$\sum \text{MPE}_{\text{ratios}} = 0.0025 + 0.0099 + 0.0099 = 0.0223 < 1$$

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.

## Method Of Measurement for IC

### 1. Applicable Standard

[Radio Standards Specification 102](#), Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands), sets out the requirements and measurement techniques used to evaluate radio frequency (RF) exposure compliance of radio communication apparatus designed to be used within the vicinity of the human body.

[ANSI C95.1–1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB publication 447498 D01 General RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

### 2. Evaluation Method and Limit

According to RSS-102 §4 Table 4, RF Filed Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m <sup>2</sup> )	Reference Period (minutes)
0.003-10 <sup>21</sup>	83	90	-	Instantaneous*
0.1-10	-	0.73/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> <sup>0.5</sup>	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ <i>f</i> <sup>0.25</sup>	0.1540/ <i>f</i> <sup>0.25</sup>	8.944/ <i>f</i> <sup>0.5</sup>	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> <sup>0.3417</sup>	0.008335 <i>f</i> <sup>0.3417</sup>	0.02619 <i>f</i> <sup>0.6834</sup>	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> <sup>1.2</sup>
150000-300000	0.158 <i>f</i> <sup>0.5</sup>	4.21 x 10 <sup>-4</sup> <i>f</i> <sup>0.5</sup>	6.67 x 10 <sup>-5</sup> <i>f</i>	616000/ <i>f</i> <sup>1.2</sup>

Note: *f* is frequency in MHz.  
\*Based on nerve stimulation (NS).  
\*\* Based on specific absorption rate (SAR).

Frequency Band	<i>f</i> (MHz)	Limit of Power Density (W/m <sup>2</sup> )
2.4G WLAN	2412	5.37
Bluetooth	2402	5.35
5G WLAN	5180	9.05

**Note: Limit=0.02619*f*<sup>0.6834</sup> (where *f* is in MHz).  
The *f* in the limit is the frequency of the lowest Channel.**

#### 4.1 Calculation Formula

Prediction of power density at the distance of the applicable MPE limit:

**S=PG/4πR<sup>2</sup>**=Power density(in appropriate units, e.g W/m<sup>2</sup>)

**P**=power input to antenna (in appropriate units, e.g W)

**G**=power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

**R**=distance to the center of radiation of the antenna(in appropriate units, e.g m)

#### Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.

This means that:

∑ of MPE ratios ≤ 1.0



## 5. Evaluation Results

### Standalone MPE Evaluation:

Bluetooth MPE Result								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
GFSK	1	2402	7.00	7±1	8	2	0.2	0.019
		2441	6.36	6±1	7	2	0.2	0.015
		2480	6.06	6±1	7	2	0.2	0.015
π/4-DQPSK	1	2402	8.54	8±1	9	2	0.2	0.025
		2441	7.85	7±1	8	2	0.2	0.019
		2480	7.70	7±1	8	2	0.2	0.019
8-DPSK	1	2402	8.76	8±1	9	2	0.2	0.025
		2441	8.19	8±1	9	2	0.2	0.025
		2480	7.51	7±1	8	2	0.2	0.019

Note:

N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Peak Output Power.

BLE MPE Result								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
GFSK	1	2402	2.31	2±1	3	2.0	0.2	0.006
		2440	2.22	2±1	3	2.0	0.2	0.006
		2480	2.02	2±1	3	2.0	0.2	0.006

Note:

N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Peak Output Power.

2.4G WiFi MPE Result Antenna 1								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
802.11b	1	2412	14.66	14±1	15	2	0.2	0.099
		2437	14.13	14±1	15	2	0.2	0.099
		2462	14.29	14±1	15	2	0.2	0.099
802.11g	1	2412	13.29	13±1	14	2	0.2	0.079
		2437	12.61	12±1	13	2	0.2	0.063
		2462	12.66	12±1	13	2	0.2	0.063
802.11n2 0	1	2412	13.26	13±1	14	2	0.2	0.079
		2437	14.69	14±1	15	2	0.2	0.099
		2462	13.34	13±1	14	2	0.2	0.079
802.11n4 0	1	2422	12.88	12±1	13	2	0.2	0.063
	1	2437	14.05	14±1	14	2	0.2	0.079
	1	2452	14.82	14±1	15	2	0.2	0.099

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted Peak Output Power.

2.4G WiFi MPE Result Antenna 2								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
802.11b	1	2412	12.59	12±1	13	2	0.2	0.063
		2437	12.82	12±1	13	2	0.2	0.063
		2462	12.79	12±1	13	2	0.2	0.063
802.11g	1	2412	13.68	13±1	14	2	0.2	0.079
		2437	11.95	11±1	12	2	0.2	0.049
		2462	11.81	11±1	12	2	0.2	0.049
802.11n2 0	1	2412	13.28	13±1	14	2	0.2	0.079
		2437	13.20	13±1	14	2	0.2	0.079
		2462	11.89	11±1	12	2	0.2	0.049
802.11n4 0	1	2422	12.61	12±1	13	2	0.2	0.063
	1	2437	12.90	12±1	13	2	0.2	0.063
	1	2452	12.89	12±1	13	2	0.2	0.063

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted Peak Output Power.

5.2G WiFi MPE Result Antenna 1								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (mW/ m <sup>2</sup> ) [S]
802.11a	1	5180	12.60	12±1	13	2	0.2	0.063
		5200	12.60	12±1	13	2	0.2	0.063
		5240	11.80	11±1	12	2	0.2	0.049
802.11n20	1	5180	12.58	12±1	13	2	0.2	0.063
		5200	11.67	11±1	12	2	0.2	0.049
		5240	11.86	11±1	12	2	0.2	0.049
802.11n40	1	5190	11.62	11±1	12	2	0.2	0.049
		5230	11.36	11±1	12	2	0.2	0.049
802.11ac20	1	5180	12.37	12±1	13	2	0.2	0.063
		5200	12.19	12±1	13	2	0.2	0.063
		5240	12.14	12±1	13	2	0.2	0.063
802.11ac40	1	5190	11.95	11±1	12	2	0.2	0.049
		5230	11.36	11±1	12	2	0.2	0.049
802.11ac80	1	5210	11.99	11±1	12	2	0.2	0.049

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted average Output Power.

5.2G WiFi MPE Result Antenna 2								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
802.11a	1	5180	13.27	13±1	14	2	0.2	0.079
		5200	11.29	11±1	12	2	0.2	0.049
		5240	12.47	12±1	13	2	0.2	0.063
802.11n20	1	5180	11.66	11±1	12	2	0.2	0.049
		5200	12.54	12±1	13	2	0.2	0.063
		5240	12.99	12±1	13	2	0.2	0.063
802.11n40	1	5190	11.01	11±1	12	2	0.2	0.049
		5230	11.58	11±1	12	2	0.2	0.049
802.11ac20	1	5180	12.58	12±1	13	2	0.2	0.063
		5200	12.51	12±1	13	2	0.2	0.063
		5240	13.16	13±1	14	2	0.2	0.079
802.11ac40	1	5190	12.25	12±1	13	2	0.2	0.063
		5230	12.43	12±1	13	2	0.2	0.063
802.11ac80	1	5210	11.05	11±1	12	2	0.2	0.049

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted average Output Power.

5.3G WiFi MPE Result Antenna 1								
Mode	N <sub>Tx</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
802.11a	1	5260	12.23	13±1	14	2	0.2	0.079
		5280	12.10	11±1	12	2	0.2	0.049
		5320	12.10	12±1	13	2	0.2	0.063
802.11n20	1	5260	11.57	11±1	12	2	0.2	0.049
		5280	11.68	12±1	13	2	0.2	0.063
		5320	12.41	12±1	13	2	0.2	0.063
802.11n40	1	5270	11.73	11±1	12	2	0.2	0.049
		5310	11.56	11±1	12	2	0.2	0.049
802.11ac20	1	5260	12.12	12±1	13	2	0.2	0.063
		5280	11.71	12±1	13	2	0.2	0.063
		5320	12.15	13±1	14	2	0.2	0.079
802.11ac40	1	5270	12.70	12±1	13	2	0.2	0.063
		5310	12.40	12±1	13	2	0.2	0.063
802.11ac80	1	5290	11.53	11±1	12	2	0.2	0.049

**Note:**  
 N<sub>Tx</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted average Output Power.

5.3G WiFi MPE Result Antenna 2								
Mode	N <sub>Tx</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
802.11a	1	5260	13.91	13±1	14	2	0.2	0.079
		5280	13.03	11±1	12	2	0.2	0.049
		5320	13.91	12±1	13	2	0.2	0.063
802.11n20	1	5260	12.34	11±1	12	2	0.2	0.049
		5280	12.03	12±1	13	2	0.2	0.063
		5320	12.48	12±1	13	2	0.2	0.063
802.11n40	1	5270	11.21	11±1	12	2	0.2	0.049
		5310	11.43	11±1	12	2	0.2	0.049
802.11ac20	1	5260	12.89	12±1	13	2	0.2	0.063
		5280	12.00	12±1	13	2	0.2	0.063
		5320	11.87	13±1	14	2	0.2	0.079
802.11ac40	1	5270	12.23	12±1	13	2	0.2	0.063
		5310	11.50	12±1	13	2	0.2	0.063
802.11ac80	1	5290	11.15	11±1	12	2	0.2	0.049

**Note:**  
 N<sub>Tx</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted average Output Power.

5.5G WiFi MPE Result Antenna1								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/m <sup>2</sup> ) [S]
802.11a	1	5500	11.87	11±1	12	2	0.2	0.049
		5580	12.53	12±1	13	2	0.2	0.063
		5700	11.96	11±1	12	2	0.2	0.049
802.11n20	1	5500	14.89	14±1	15	2	0.2	0.099
		5580	12.01	12±1	13	2	0.2	0.063
		5700	11.75	11±1	12	2	0.2	0.049
802.11n40	1	5510	12.14	12±1	13	2	0.2	0.063
		5550	11.27	11±1	12	2	0.2	0.049
		5670	11.93	11±1	12	2	0.2	0.049
802.11ac20	1	5500	13.58	13±1	14	2	0.2	0.079
		5580	12.10	12±1	13	2	0.2	0.063
		5700	13.05	13±1	14	2	0.2	0.079
802.11ac40	1	5510	13.06	13±1	14	2	0.2	0.079
		5550	12.95	12±1	13	2	0.2	0.063
		5670	12.52	12±1	13	2	0.2	0.063
802.11ac80	1	5530	12.93	12±1	13	2	0.2	0.063
		5610	12.06	12±1	13	2	0.2	0.063

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.



5.5G WiFi MPE Result Antenna2								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/m <sup>2</sup> ) [S]
802.11a	1	5500	14.59	14±1	15	2	0.2	0.099
		5580	14.28	14±1	15	2	0.2	0.099
		5700	13.55	13±1	14	2	0.2	0.079
802.11n20	1	5500	12.11	12±1	13	2	0.2	0.063
		5580	11.71	11±1	12	2	0.2	0.049
		5700	13.68	13±1	14	2	0.2	0.079
802.11n40	1	5510	11.41	11±1	12	2	0.2	0.049
		5550	11.47	11±1	12	2	0.2	0.049
		5670	13.82	13±1	14	2	0.2	0.079
802.11ac20	1	5500	12.38	12±1	13	2	0.2	0.063
		5580	13.74	13±1	14	2	0.2	0.079
		5700	14.67	14±1	15	2	0.2	0.099
802.11ac40	1	5510	11.76	11±1	12	2	0.2	0.049
		5550	12.53	12±1	12	2	0.2	0.049
		5670	13.56	13±1	13	2	0.2	0.063
802.11ac80	1	5530	12.10	12±1	12	2	0.2	0.049
		5610	13.62	13±1	14	2	0.2	0.079

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.

5.8G WiFi MPE Result Antenna 1								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/ m <sup>2</sup> ) [S]
802.11a	1	5745	12.00	12±1	13	2	0.2	0.063
		5785	11.95	12±1	13	2	0.2	0.063
		5825	11.94	12±1	13	2	0.2	0.063
802.11n20	1	5745	13.14	13±1	14	2	0.2	0.079
		5785	13.34	13±1	14	2	0.2	0.079
		5825	13.61	13±1	14	2	0.2	0.079
802.11n40	1	5755	13.58	13±1	14	2	0.2	0.079
		5795	13.61	13±1	14	2	0.2	0.079
802.11ac20	1	5745	13.37	13±1	14	2	0.2	0.079
		5785	13.98	13±1	14	2	0.2	0.079
		5825	14.18	14±1	15	2	0.2	0.099
802.11ac40	1	5755	14.04	14±1	15	2	0.2	0.099
		5795	13.78	14±1	15	2	0.2	0.099
802.11ac80	1	5775	14.28	14±1	15	2	0.2	0.099

**Note:**

 N<sub>TX</sub>= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted average Output Power.

5.8G WiFi MPE Result Antenna 2								
Mode	N <sub>TX</sub>	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (m) [R]	Power Density (W/m <sup>2</sup> ) [S]
802.11a	1	5745	14.15	14±1	15	2	0.2	0.099
		5785	13.45	13±1	14	2	0.2	0.079
		5825	12.49	12±1	13	2	0.2	0.063
802.11n20	1	5745	11.86	11±1	12	2	0.2	0.049
		5785	11.19	11±1	12	2	0.2	0.049
		5825	11.71	11±1	12	2	0.2	0.049
802.11n40	1	5755	12.46	12±1	13	2	0.2	0.063
		5795	11.73	11±1	12	2	0.2	0.049
802.11ac20	1	5745	12.35	12±1	13	2	0.2	0.063
		5785	11.98	11±1	12	2	0.2	0.049
		5825	12.87	12±1	13	2	0.2	0.063
802.11ac40	1	5755	12.11	12±1	13	2	0.2	0.063
		5795	11.77	11±1	12	2	0.2	0.049
802.11ac80	1	5775	13.34	13±1	14	2	0.2	0.079

**Note:**  
 N<sub>TX</sub>= Number of Transmit Antennas  
 RF Output power specifies that Maximum Conducted average Output Power.

Maximum Simultaneous transmission MPE Ratios for Bluetooth and WiFi support

Maximum MPE ratio Bluetooth	Maximum MPE ratio 5.2GWiFi ANT 1	Maximum MPE ratio 5.2GWiFi ANT 2	∑MPE ratios	Limit	Results
0.025	0.099	0.099	0.223	1	PASS

Remark:

1. Output power including turn-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.

**Note**

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

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