

## 5. RF EXPOSURE EVALUATION

### 5.1 Applicable Standard

According to §1.1307(b)(3)(i)

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold  $P_{th}$  (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

$d$  = the separation distance (cm);

## 5.2 Measurement Result

| Operation Modes | Frequency (MHz) | Distance (mm) | P <sub>th</sub> |              | Maximum Conducted Power including Tune-up Tolerance (dBm) | Antenna Gain (dBi) | ERP (P) (dBm) | ERP (P) (mW) | Exemption |
|-----------------|-----------------|---------------|-----------------|--------------|-----------------------------------------------------------|--------------------|---------------|--------------|-----------|
|                 |                 |               | (mW)            | (dBm)        |                                                           |                    |               |              |           |
| WLAN 2.4G       | 2412-2462       | 200           | 3060            | <b>34.86</b> | 25                                                        | 7.84               | 30.69         | 1172.20      | Compliant |
| WLAN 5G         | 5150-5250       | 200           | 3060            | <b>34.86</b> | 22                                                        | 8.93               | 28.78         | 755.09       | Compliant |
|                 | 5250-5350       | 200           | 3060            | <b>34.86</b> | 24                                                        | 6.02               | 27.87         | 612.35       | Compliant |
|                 | 5725-5850       | 200           | 3060            | <b>34.86</b> | 25                                                        | 8.34               | 31.19         | 1315.22      | Compliant |

Note:

Antenna gain includes beamforming gain for WLAN 2.4G and 5150-5250MHz/5725-5850MHz(the maximum power at 802.11a mode for 5250-5350MHz band was used for RF exposure evaluation). The Maximum Conducted Power including Tune-up Tolerance was declared by manufacturer.

WLAN 2.4G and 5G can transmit simultaneously.

$$\sum_{i=1}^a \left( \frac{P_i}{P_{th-i}} \right) + \sum_{j=1}^b \left( \frac{ERP_j}{ERP_{th-j}} \right) + \sum_{k=1}^c \left( \frac{Evaluated_k}{Exposure Limit_k} \right)$$

$$= P_{2.4G}/P_{th-2.4G} + P_{5G}/P_{th-5G}$$

$$= 1172.20/3060 + 1315.22/3060$$

$$= 0.81$$

**Result:** The device compliant the Exemption at 20cm distances.

**===== END OF REPORT =====**