

## RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

FCC ID: 2ABC5-E0025

### EUT Specification

|                                   |                                                                                                                                                                                                                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | Android Tablet                                                                                                                                                                                                                                                  |
| <b>Frequency band (Operating)</b> | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input checked="" type="checkbox"/> WLAN: 5.150GHz ~ 5.250GHz<br><input checked="" type="checkbox"/> WLAN: 5.725GHz ~ 5850GHz<br><input checked="" type="checkbox"/> Others: BLE: 2402-2480MHz |
| <b>Device category</b>            | <input type="checkbox"/> Portable (<20cm separation)<br><input checked="" type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others ____                                                                                                   |
| <b>Exposure classification</b>    | <input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> )<br><input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )                                                                   |
| <b>Antenna diversity</b>          | <input checked="" type="checkbox"/> Single antenna<br><input type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity                                  |
| <b>Max. output power</b>          | BLE: 2.22 dBm (0.0017W)<br>WiFi 2.4G: 22.53 dBm (0.1791W)<br>WiFi 5.2G: 19.67dBm(0.0927W)<br>WiFi 5.8G: 19.4dBm(0.0871W)                                                                                                                                        |
| <b>Antenna gain (Max)</b>         | BLE/ WiFi 2.4G: 2.23dBi<br>WiFi 5G: 2.64dBi                                                                                                                                                                                                                     |
| <b>Evaluation applied</b>         | <input checked="" type="checkbox"/> MPE Evaluation<br><input type="checkbox"/> SAR Evaluation                                                                                                                                                                   |

Limits for Maximum Permissible Exposure(MPE)

| Frequency Range(MHz)                                         | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density(mW/cm <sup>2</sup> ) | Average Time |
|--------------------------------------------------------------|------------------------------|------------------------------|------------------------------------|--------------|
| <b>(A) Limits for Occupational/Control Exposures</b>         |                              |                              |                                    |              |
| <b>300-1500</b>                                              | --                           | --                           | <b>F/300</b>                       | <b>6</b>     |
| <b>1500-100000</b>                                           | --                           | --                           | <b>5</b>                           | <b>6</b>     |
| <b>(B) Limits for General Population/Uncontrol Exposures</b> |                              |                              |                                    |              |
| <b>300-1500</b>                                              | --                           | --                           | <b>F/1500</b>                      | <b>6</b>     |
| <b>1500-100000</b>                                           | --                           | --                           | <b>1</b>                           | <b>30</b>    |

## **Friis transmission formula: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$**

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in Mw

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

## **Max Measurement Result**

| Operating Mode | Measured Power | Tune up tolerance | Max. Tune up Power | Antenna Gain | Power density at 20cm  | Power density Limits  |
|----------------|----------------|-------------------|--------------------|--------------|------------------------|-----------------------|
|                | (dBm)          | (dBm)             | (dBm)              | (dBi)        | (mW/ cm <sup>2</sup> ) | (mW/cm <sup>2</sup> ) |
| BLE            | 2.22           | 2.22 ±1           | 3.22               | 2.23         | 0.0007                 | 1                     |
| WiFi 2.4G      | 22.53          | 22.53 ±1          | 23.53              | 2.23         | 0.0749                 | 1                     |
| WiFi 5.2G      | 19.67          | 19.67 ±1          | 20.67              | 2.64         | 0.0426                 | 1                     |
| WiFi 5.8G      | 19.4           | 19.4 ±1           | 20.4               | 2.64         | 0.0401                 | 1                     |

**The WLAN 2.4G, WLAN 5G and BLE can't transmit simultaneously**