

## 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: 2AHNV-PL-4210

### EUT Specification

| EUT                               | Speaker  |
|-----------------------------------|--|
| <b>Frequency band (Operating)</b> | <input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz<br><input checked="" type="checkbox"/> Others  |
| <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>          | 1.849dBm (0.0015W)   |
| <b>Antenna gain (Max)</b>         | 1 dBi  |
| <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.

## Measurement Result

| Operating Mode | Channel Frequency (MHz) | Measured Power (dBm) | Tune up tolerance (dBm) | Max. Tune up Power (dBm) | Antenna Gain (dBi) | Power density at 20cm (mW/ cm <sup>2</sup> ) | Power density Limits (mW/cm <sup>2</sup> ) |
|----------------|-------------------------|----------------------|-------------------------|--------------------------|--------------------|--|--|
| BT3.0          | 2402                    | 0.894                | 0.894±1                 | 1.894                    | 1                  | 0.0004                                       | 1  |
|                | 2441                    | 1.212                | 1.212±1                 | 2.212                    | 1                  | 0.0004                                       | 1  |
|                | 2480                    | 1.849                | 1.849±1                 | 2.849                    | 1                  | 0.0005                                       | 1  |
|                | 2402                    | 0.584                | 0.584±1                 | 1.584                    | 1                  | 0.0004                                       | 1  |
|                | 2441                    | 0.715                | 0.715±1                 | 1.715                    | 1                  | 0.0004                                       | 1  |
|                | 2480                    | 1.455                | 1.455±1                 | 2.455                    | 1                  | 0.0004                                       | 1  |