

## 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: 2AQA6-H6119

### EUT Specification

| EUT                               | LED Strip Light                                                                                                                                                                                                                             |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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: 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>          | 3.425 dBm (0.0022W)                                                                                                                                                                                                                         |
| <b>Antenna gain (Max)</b>         | 2.1 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>         |                              |                              |                                    |              |
| 300-1500                                                     | --                           | --                           | F/300                              | 6            |
| 1500-100000                                                  | --                           | --                           | 5                                  | 6            |
| <b>(B) Limits for General Population/Uncontrol Exposures</b> |                              |                              |                                    |              |
| 300-1500                                                     | --                           | --                           | F/1500                             | 6            |
| 1500-100000                                                  | --                           | --                           | 1                                  | 30           |

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

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> ) |
|----------------|-------------------------|----------------------|-------------------------|--------------------------|--------------------|----------------------------------------------|--------------------------------------------|
| BLE            | 2402                    | 3.425                | 3.425±1                 | 4.425                    | 2.1                | 0.0009                                       | 1                                          |
|                | 2440                    | 2.959                | 2.959±1                 | 3.959                    | 2.1                | 0.0008                                       | 1                                          |
|                | 2480                    | 2.284                | 2.284±1                 | 3.284                    | 2.1                | 0.0007                                       | 1                                          |