

## 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-H610A

### EUT Specification

|                                   |                                                                                                                                                                                                                                          |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | <b>Govee RGBIC LED Neon Rope Lights</b>                                                                                                                                                                                                  |
| <b>Frequency band (Operating)</b> | <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.24GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz<br><input checked="" type="checkbox"/> Others: 2.402GHz~2.480GHz |
| <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 type="checkbox"/> Single antenna<br><input checked="" 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:-0.12dBm (0.0010W); 2.4G WIFI: 14.81dBm (0.0303W)                                                                                                                                                                                    |
| <b>Antenna gain (Max)</b>         | BLE: 2 dBi; 2.4G WIFI: 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 | Measured Power | Tune up tolerance | Max. Tune up Power | Antenna Gain | Power density at 20cm  | Power density Limits (mW/cm <sup>2</sup> ) |
|----------------|-------------------|----------------|-------------------|--------------------|--------------|------------------------|--------------------------------------------|
|                | (MHz)             | (dBm)          | (dBm)             | (dBm)              | (dBi)        | (mW/ cm <sup>2</sup> ) |                                            |
| 802.11b        | 2412              | 13.89          | 13.89 ±1          | 14.89              | 1            | 0.0077                 | 1                                          |
|                | 2437              | 12.18          | 12.18 ±1          | 13.18              | 1            | 0.0052                 | 1                                          |
|                | 2462              | 12.14          | 12.14 ±1          | 13.14              | 1            | 0.0052                 | 1                                          |
| 802.11g        | 2412              | 13.91          | 13.91 ±1          | 14.91              | 1            | 0.0078                 | 1                                          |
|                | 2437              | 14.73          | 14.73 ±1          | 15.73              | 1            | 0.0094                 | 1                                          |
|                | 2462              | 14.81          | 14.81 ±1          | 15.81              | 1            | 0.0095                 | 1                                          |
| 802.11n (HT20) | 2412              | 14.05          | 14.05 ±1          | 15.05              | 1            | 0.0080                 | 1                                          |
|                | 2437              | 14.81          | 14.81 ±1          | 15.81              | 1            | 0.0095                 | 1                                          |
|                | 2462              | 14.79          | 14.79 ±1          | 15.79              | 1            | 0.0095                 | 1                                          |
| BLE            | 2402              | -0.97          | -0.97 ±1          | 0.03               | 2            | 0.0003                 | 1                                          |
|                | 2440              | -2.05          | -2.05 ±1          | -1.05              | 2            | 0.0002                 | 1                                          |
|                | 2480              | -0.12          | -0.12 ±1          | 0.88               | 2            | 0.0004                 | 1                                          |

**Note: BT & 2.4G WIFI cannot support simultaneous transmission.**