

## 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: 2A7VD-H6641

### EUT Specification

<b>EUT</b>	<b>Govee Neon Rope Light for Wall Lining</b>
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.24GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input checked="" type="checkbox"/> Others: 2.402GHz~2.480GHz BLE
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others _____
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	2.4G WiFi: 21.22dBm (0.1324W) BLE: 1.70dBm (0.0015W)
<b>Antenna gain (Max)</b>	2.4G WiFi: 1.51 dBi BLE: 3.85 dBi
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation <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	--	--	<b>F/300</b>	<b>6</b>
1500-100000	--	--	<b>5</b>	<b>6</b>
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
300-1500	--	--	<b>F/1500</b>	<b>6</b>
1500-100000	--	--	<b>1</b>	<b>30</b>

## Friis transmission formula: $Pd=(Pout \cdot G) \cdot (4 \cdot \pi \cdot R^2)$

Where

$Pd$ = Power density in  $mW/cm^2$

$Pout$ =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

$Pd$  the limit of MPE,  $1mW/cm^2$ . 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

### 2.4GHz WiFi worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits ( $mW/cm^2$ )
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	( $mW/cm^2$ )	
802.11n (HT20)	2412	21.22	$21.22 \pm 1$	22.22	1.51	0.0470	1

### BLE worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits ( $mW/cm^2$ )
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	( $mW/cm^2$ )	
BLE	2402	1.70	$1.70 \pm 1$	2.70	3.85	0.0009	1

**Note: 2.4G WiFi and BLE do not support simultaneous transmission.**