

## 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-H6121

### EUT Specification

<b>EUT</b>	RGB LED Strip Lights
<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
<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 checked="" type="checkbox"/> Single antenna <input 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>	BLE: 1.167dBm (0.0013W); 2.4G WIFI: 14.61dBm (0.0289W)
<b>Antenna gain (Max)</b>	BLE: 2.1 dBi; 2.4G WIFI: 1.5 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: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

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	13.98	13.98 ±1	14.98	1.5	0.0089	1
	2437	14.07	14.07 ±1	15.07	1.5	0.0090	1
	2462	14.27	14.27 ±1	15.27	1.5	0.0095	1
802.11g	2412	14.20	14.20 ±1	15.20	1.5	0.0093	1
	2437	14.26	14.26 ±1	15.26	1.5	0.0094	1
	2462	14.61	14.61 ±1	15.61	1.5	0.0102	1
802.11n (HT20)	2412	13.55	13.55 ±1	14.55	1.5	0.0080	1
	2437	13.82	13.82 ±1	14.82	1.5	0.0085	1
	2462	13.99	13.99 ±1	14.99	1.5	0.0089	1
BLE	2402	-1.323	-1.323 ±1	-0.32	2.1	0.0003	1
	2440	-1.231	-1.231 ±1	-0.23	2.1	0.0003	1
	2480	1.167	1.167 ±1	2.17	2.1	0.0005	1

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