

MPE Calculation : Buletooth LE

RF function or Mode	Frequency range (MHz)	Max Target Power (dBm)	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm ²)	Requriment (mW/cm ²)
LE	2402.00 ~ 2480.00	3.50	1.20	4.70	2.9499	0.0006	1.0000
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The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE sample calculation for this exposure is shown below.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 2.9499 / (4 \times 20^2 \times \pi) \\
 &= 0.0006 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenna(20cm)

▪ Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric Field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm ²)	Averageing time (minutes)
0.3 ~ 1.34	614	1.63	*100	30
1.34 ~ 30	824/f	2.19 / f	*180 / f ²	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1,500			f / 1500	30
1,500 ~ 100,000			1.0	30

Conclusion : The exposure condition of this device is compliant with FCC

MPE Calculation : WLAN

RF function or Mode	Frequency range (MHz)	Max Target Power (dBm)	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm ²)	Requirement (mW/cm ²)
802.11b	2412.00 ~ 2462.00	11.00	1.20	12.20	16.5883	0.0034	1.0000
802.11g	2412.00 ~ 2462.00	11.50	1.20	12.70	18.6123	0.0038	1.0000
802.11n(HT20)	2412.00 ~ 2462.00	11.50	1.20	12.70	18.6130	0.0038	1.0000
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The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE sample calculation for this exposure is shown below.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 16.5883 / (4 \times 20^2 \times \pi) \\
 &= 0.0034 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenna(20cm)

▪ Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric Field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm ²)	Averageing time (minutes)
0.3 ~ 1.34	614	1.63	*100	30
1.34 ~ 30	824/f	2.19 / f	*180 / f ²	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1,500			f / 1500	30
1,500 ~ 100,000			1.0	30

Conclusion : The exposure condition of this device is compliant with FCC

RF Exposure Compliance for simultaneous operations

- **Configurations for simultaneous operations**

- **Configuration :** BT+ WLAN

- Note: Above configuration was declared from applicant.

- **Configurations for simultaneous operations**

RF function or mode	Bluetooth LE	WLAN	Σ of MPE ratios
Band	2.4GHz	2.4GHz	
Power Density (mW/cm ²)	0.0006	0.0038	
Requirement (mW/cm ²)	1.0000	1.0000	
MPE ratio (Power Density/Requirement)	0.0006	0.0038	
Configuration (MPE ratio)	0.0006	0.0038	0.0044

Note: The maximum power density in each RF function was used for above table.

- **Requirement = Σ of MPE ratios ≤ 1**

Conclusion : The exposure condition of this device is compliant with FCC rules.