

MPE Calculation : Bluetooth

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)
Bluetooth(BDR)	2402.00	~	2480.00	4.50	3.50	8.00	6.310	0.002	1.000
Bluetooth(EDR)	2402.00	~	2480.00	-2.00	3.50	1.50	1.413	0.001	1.000
LE	2402.00	~	2480.00	1.50	3.50	5.00	3.163	0.001	1.000
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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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 6.31 / (4 \times 20^2 \times \pi) \\
 &= 0.002 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenn

▪ 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 (2.4GHz)

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	13.00	3.50	16.50	44.669	0.009	1.000
802.11g	2412.00	~	2462.00	15.50	3.50	19.00	79.433	0.016	1.000
802.11n(HT20)	2412.00	~	2462.00	15.50	3.50	19.00	79.433	0.016	1.000
802.11n(HT40)	2422.00	~	2452.00	15.00	3.50	18.50	70.795	0.015	1.000
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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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 79.433 / (4 \times 20^2 \times \pi) \\
 &= 0.016 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenn

▪ 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 (5GHz)

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)
802.11a/n(HT20)/ac(VHT20)	5180.00	~	5240.00	11.00	2.30	13.30	21.380	0.005	1.000
802.11n(HT40)/ac(VHT40)	5190.00	~	5230.00	13.00	2.30	15.30	33.885	0.007	1.000
802.11ac(VHT80)	5210.00	~	5210.00	12.50	2.30	14.80	30.200	0.007	1.000
802.11a/n(HT20)/ac(VHT20)	5260.00	~	5320.00	11.00	2.30	13.30	21.380	0.005	1.000
802.11n(HT40)/ac(VHT40)	5270.00	~	5310.00	13.00	2.30	15.30	33.885	0.007	1.000
802.11ac(VHT80)	5290.00	~	5290.00	12.50	2.30	14.80	30.200	0.007	1.000
802.11a/n(HT20)/ac(VHT20)	5500.00	~	5700.00	11.00	2.30	13.30	21.380	0.005	1.000
802.11n(HT40)/ac(VHT40)	5510.00	~	5670.00	13.00	2.30	15.30	33.885	0.007	1.000
802.11ac(VHT80)	5530.00	~	5530.00	12.50	2.30	14.80	30.200	0.007	1.000
802.11a/n(HT20)/ac(VHT20)	5745.00	~	5825.00	11.00	2.30	13.30	21.380	0.005	1.000
802.11n(HT40)/ac(VHT40)	5755.00	~	5795.00	13.00	2.30	15.30	33.885	0.007	1.000
802.11ac(VHT80)	5775.00		5775.00	12.50	2.30	14.80	30.200	0.007	1.000
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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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 21.38 / (4 \times 20^2 \times \pi) \\
 &= 0.005 \text{ mW/cm}^2
 \end{aligned}$$

- Note

S= Maximum power density(mW/cm²)

EIRP= Equivalent Isotropic Radiated Power(mW)

R= Distance to the center of the radiation of the antenna

▪ Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric Field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm ²)	Averaging 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