

MPE Calculation : Bluetooth, WLAN

RF function(Mode)	Frequency range (MHz)	Max Target Power (dBm)	ANT Gain (dBi)	Maximum EIRP (dBm)	Maximum EIRP (mW)	Maximum power density (mW/cm ²)	Requirment (mW/cm ²)
BT(1Mbps)	2402.00 ~ 2480.00	2.00	2.90	4.90	3.09030	0.00062	1.000
BT(2, 3Mbps)	2402.00 ~ 2480.00	1.00	2.90	3.90	2.45471	0.00049	1.000
WLAN(802.11b)	2412.00 ~ 2462.00	18.00	2.90	20.90	123.027	0.025	1.000
WLAN(802.11g)	2412.00 ~ 2462.00	15.00	2.90	17.90	61.660	0.013	1.000
WLAN(802.11n)	2412.00 ~ 2462.00	14.00	2.90	16.90	48.978	0.010	1.000
WLAN(802.11a)	5745.00 ~ 5825.00	16.00	2.90	18.90	77.625	0.016	1.000
WLAN(802.11n)	5745.00 ~ 5825.00	16.00	2.90	18.90	77.625	0.016	1.000
	~						

Note: This device does not transmit simultaneoulsy.

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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 3.0903 / (4 \times 20^2 \times \pi) \\
 &= 0.00062 \text{ mW/cm}^2
 \end{aligned}$$

- 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.