

MPE Calculation : BT, BLE

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)	Requirment (mW/cm ²)
Bluetooth(1Mbps)	2402.00	~	2480.00	9.00	1.85	10.85	12.162	0.0025	1.000
Bluetooth(2, 3Mbps)	2402.00	~	2480.00	6.50	1.85	8.35	6.840	0.0014	1.000
BLE(1Mbps)	2402.00	~	2480.00	6.00	1.85	7.85	6.096	0.0013	1.000
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Note: Please refer to the operation description for Max tune-up power.

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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 12.162 / (4 \times 20^2 \times \pi) \\
 &= 0.0025 \text{ mW/cm}^2
 \end{aligned}$$

- 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

Mode(Worst case)	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)
802.11b	2412.00	~	2462.00	11.00	2.03	13.03	20.091	0.0040	1.000
802.11a	5180.00	~	5240.00	11.50	1.34	12.84	19.231	0.0039	1.000
802.11a	5745.00	~	5825.00	12.50	1.04	13.54	22.595	0.0045	1.000
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Note: Please refer to the operation description for Max tune-up power.

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.

$$\begin{aligned}
 S &= \text{EIRP} / (4 R^2 \pi) \\
 &= 19.231 / (4 \times 20^2 \times \pi) \\
 &= 0.004 \text{ mW/cm}^2
 \end{aligned}$$

- 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

RF Exposure Compliance for simultaneous operations

- Worst case for simultaneous operations
- BT(BDR) + WLAN(5GHz)

RF function or mode	BT	WLAN 5GHz	WLAN 5GHz	-	-	-	-	Σ of MPE ratios
Band(Worst case)	1Mbps	NII-1	NII-3	-	-	-	-	
Power Density (mW/cm2)	0.0025	0.0039	0.0045	-	-	-	-	
Requirement (mW/cm2)	1.0000	1.0000	1.0000	-	-	-	-	
MPE ratio (Power Density/Requirement)	0.0025	0.0039	0.0045	-	-	-	-	
Configuration 1 (MPE ratio)	0.0025	0.0039						0.0064
Configuration 2 (MPE ratio)	0.0025	-	0.0045	-	-	-	-	0.0070
Configuration 3 (MPE ratio)	-	-	-	-	-	-	-	-
Configuration 4 (MPE ratio)	-	-	-	-	-	-	-	-

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.