

RF EXPOSURE & MPE CALCULATION

RF EXPOSURE CALCULATION

According to §15.247(e)(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to TCB Exclusions list, no SAR required if power is lower than the flowing threshold:

Frequency Range		Center frequency (MHz)	60/f SAR Limitation (mW)
Low Frequency (MHz)	High Frequency(MHz)		
2402	2480	2442	25

Maximum measured transmitter power:

Mode	Conducted Power (mW)	Max Antenna Gain (dBi)	EIRP (mW)
BT LE	1.007	3	2.009

Threshold at which no SAR required is 25 mW. Maximum Tx power is 2.009 mW EIRP.

Conclusion: No SAR is required.

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MPE CALCULATION

RF Exposure Requirements:	47 CFR §1.1307(b)
RF Radiation Exposure Limits:	47 CFR §1.1310
RF Radiation Exposure Guidelines:	FCC OST/OET Bulletin Number 65
EUT Frequency Band:	2402-2480 MHz
Limits for General Population/Uncontrolled Exposure in the band of:	1500 - 100,000 MHz
Power Density Limit:	1 mW / cm ²

Equation: $S = PG / 4\pi R^2$ or $R = \sqrt{PG / 4\pi S}$

Where, S = Power Density

P = Power Input to Antenna

G = Antenna Gain

R = distance to the center of radiated antenna

Prediction distance 20cm

BT LE radio (2402-2480MHz): Power = 0.03 dBm, antenna gain = 3 dBi, Power density = 0.0004 mW/cm²

Maximum MPE is 0.0004 mW/cm², which is less than 1.

The Above Result had shown that Device complied with MPE requirement.

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