

MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d$$

$$\text{Power Density: } P_d \text{ (W/m}^2\text{)} = E^2 / 377$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$P_d = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

Calculated Result and Limit (WORSE CASE IS AS BELOW)

BLE:

Directional Antenna Gain (Numeric)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.585 (2dBi)	1.97 (2.939 dBm)	0.0013	1	Complies

2.4G WIFI:

Directional Antenna Gain (Numeric)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.17 (5.01dBi)	26.8 (14.28 dBm)	0.017	1	Complies

5GWIFI:

Directional Antenna Gain (Numeric)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.17 (5.01dBi)	21.13 (13.25 dBm)	0.013	1	Complies