

## MPE Calculation Method

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

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

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

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

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)

5G WIFI:

Directional Antenna Gain (Numeric)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2.63 (4.2dBi)	83.18 (19.20dBm)	0.04354	1	Complies

2.4G WIFI:

Directional Antenna Gain (Numeric)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2.512 (4 dBi)	136.1 (21.34dBm)	0.06805	1	Complies

2.4G BT:

Directional Antenna Gain (Numeric)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
1.26 (1 dBi)	2.44 (3.880dBm)	0.000612	1	Complies

$$0.04354 + 0.06805 + 0.000612 = 0.1122 < 1$$