MPE Calculation

FCC ID: 2AI6DX92

Remark: Average ≤ Peak, which means that calculating the power density applying Peak power is worst case. The worst case operation mode generating the highest power in each frequency range is taken for calculation.

For 11bgn(HT20, HT40):

Frequency range: **2412-2462** MHz Typical use distance: d ≥ 20 cm

Power density limit for mobile devices at 2.4 GHz: S ≤ 1 mW/cm^2

Maximum measured conducted power (Peak): $P_{conducted}$ = **22.52** dBm = 178.65 mW

Antenna Gain: G = **2** dBi = 1.58 on the linear scale

Calculation: $P_{radiated} = P_{conducted} + G_{linear}$ = 22.52 dBm + 2 dBi = 24.52 dBm = 283.14 mW

Power density S = $(P_{radiated}) / (4\pi \times d^2)$ = 283.14 / 5026 = 0.0563 mW/cm^2 < 1 => below limit

For 11an/ac (5.2G):

Frequency range: **5180-5240** MHz Typical use distance: d ≥ 20 cm

Power density limit for mobile devices at 2.4 GHz: S ≤ 1 mW/cm^2

Maximum measured conducted power (Peak): $P_{conducted}$ = **19.73** dBm = 93.97 mW

Antenna Gain: G = **2** dBi = 1.58 on the linear scale

Calculation: $P_{radiated} = P_{conducted} + G_{linear}$ = 19.73 dBm + 2 dBi = 21.73 dBm = 148.94 mW

Power density S = $(P_{radiated}) / (4\pi \times d^2)$ = 148.94 / 5026 = 0.0296 mW/cm^2 < 1 => below limit

For 11an/ac (5.8G):

Frequency range: **5180-5240** MHz Typical use distance: d ≥ 20 cm

Power density limit for mobile devices at 2.4 GHz: S ≤ 1 mW/cm^2

Maximum measured conducted power (Peak): $P_{conducted}$ = **29.31** dBm = 853.1 mW

Antenna Gain: G = **2** dBi = 1.58 on the linear scale

Calculation: $P_{radiated} = P_{conducted} + G_{linear}$ = 29.31 dBm + 2 dBi = 31.31 dBm = 1352.07 mW

Power density S = $(P_{radiated}) / (4\pi \times d^2)$ = 1352.07 / 5026 = 0.2690 mW/cm^2 < 1 => below limit

For BT:

Frequency range: **2402-2480** MHz Typical use distance: d ≥ 20 cm

Power density limit for mobile devices at 2.4 GHz: S ≤ 1 mW/cm^2

Maximum measured conducted power (Peak): $P_{conducted}$ = **3.083** dBm = 2.03 mW

Antenna Gain: G = **2** dBi = 1.58 on the linear scale

Calculation: $P_{radiated} = P_{conducted} + G_{linear}$ = 3.08 dBm + 2 dBi = 5.08 dBm = 3.22 mW

Power density S = $(P_{radiated}) / (4\pi \times d^2)$ = 3.22 / 5026 = 0.0006 mW/cm^2 < 1 => below limit

Remark: Only BT can transmit simultaneous with either one of the WiFi modes, however the sum of power and sum of power densitiy of BT and any WiFi mode is below the limit. The WiFi channel/modes can only transmit separately, but not at the same time.