MPE Calculation

FCC ID: 2AGKH-PD-BYRD-0102

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 11b/g/n(HT20):

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): $P_{conducted}$ = **19.37** dBm = 86.5 mW

Antenna Gain: G = **3** dBi = 2 on the linear scale

Calculation: $P_{radiated} = P_{conducted} + G_{linear}$ = 19.37 dBm + 3 dBi = 22.37 dBm = 172.58 mW

Power density S = $(P_{radiated}) / (4\pi \times d^2)$ = 172.58 / 5026 = 0.0343 mW/cm^2 < 1 => below limit

For 16Ch. GFSK:

Frequency range: **2405.5-2438** 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): $P_{conducted}$ = **9.99** dBm = 9.98 mW

Antenna Gain: G = **3** dBi = 2 on the linear scale

Calculation: $P_{radiated} = P_{conducted} + G_{linear}$ = 9.99 dBm + 3 dBi = 12.99 dBm = 19.91 mW

Power density S = $(P_{radiated}) / (4\pi \times d^2)$ = 19.91 / 5026 = 0.0040 mW/cm^2 < 1 => below limit

Remark: Both Tx portions can transmit simultaneously, however the sum of both Power Densities (0.0343 + 0.004 < 1 mW/cm^2) and the sum of both Powers (0.17258 + 0.0191 < 1 W) remain far below the indicated limits.