

MPE Calculation

FCC ID: I88VMG1312T10C

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

Frequency range: **2412-2462** MHz

Typical use distance: $d \geq 20$ cm

Power density limit for mobile devices at 2.4 GHz: $S \leq 1$ mW/cm²

Maximum measured conducted power (Peak): $P_{\text{conducted}} = 21.15$ dBm = 130.32 mW

Antenna Gain: $G = 5$ dBi = 3.16 on the linear scale

Calculation: $P_{\text{radiated}} = P_{\text{conducted}} + G_{\text{linear}} = 21.15$ dBm + 5 dBi = 26.15 dBm = 412.1 mW

Power density $S = (P_{\text{radiated}}) / (4\pi \times d^2) = 412.1 / 5026 = 0.0820$ mW/cm² $< 1 \Rightarrow$ below limit

Frequency range: **2422-2452** MHz

Typical use distance: $d \geq 20$ cm

Power density limit for mobile devices at 2.4 GHz: $S \leq 1$ mW/cm²

Maximum measured conducted power (Peak): $P_{\text{conducted}} = 21.25$ dBm = 133.35 mW

Antenna Gain: $G = 5$ dBi = 3.16 on the linear scale

Calculation: $P_{\text{radiated}} = P_{\text{conducted}} + G_{\text{linear}} = 21.25$ dBm + 5 dBi = 26.25 dBm = 421.7 mW

Power density $S = (P_{\text{radiated}}) / (4\pi \times d^2) = 421.7 / 5026 = 0.0839$ mW/cm² $< 1 \Rightarrow$ below limit

NOTE:

Total (Chain0+Chain1) , the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density