MPE Calculation

FCC ID: 2ABX8SH-000000001

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.

<u>2.4G portion:</u>

2.4G emission:

Frequency range: **2402-2482** 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): $_{Pconducted}$ = **3.521** dBm = 2.25 mW

Antenna Gain: G = **3.1** dBi = 2.04 on the linear scale

Calculation: $P_{radiated}$ = $P_{conducted}$ + G_{linear} = 3.52 dBm + 3.1 dBi = 6.62 dBm = 4.59 mW

Power density S = ($P_{radiated}$) / (4π x d^2) = 4.59 / 5026 = 0.0009 mW/cm^2 < 1 => <u>below limit</u>

<u>5G portion:</u>

5.2G emission:

Frequency range: **5150-5250** 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): $_{Pconducted}$ = **9.75** dBm = 9.44 mW

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

Calculation: $P_{radiated}$ = $P_{conducted}$ + G_{linear} = 9.75 dBm + 2 dBi = 11.75 dBm = 14.96 mW

Power density S = ($P_{radiated}$) / (4π x d^2) = 14.96 / 5026 = 0.0030 mW/cm^2 < 1 => <u>below limit</u>

5.8G emission:

Frequency range: **5725-5825** 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): $_{Pconducted}$ = **14.05** dBm = 25.41 mW

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

Calculation: $P_{radiated}$ = $P_{conducted}$ + G_{linear} = 14.05 dBm + 3 dBi = 17.05 dBm = 50.7 mW

Power density S = ($P_{radiated}$) / (4π x d^2) = 50.7 / 5026 = 0.0101 mW/cm^2 < 1 => <u>below limit</u>

Evaluation:

2.4G can emit at the same time with 5.2G or 5.8G, but 5.2G and 5.8G cannot transmit at the same time. The sum of worst case 2.4G power and worst case 5G (highest power occurs in the 5.8G band) and the sum of the related power densities remain far below the limits: **PASS**