

Appendix 10

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Radio Frequency Human Exposure Evaluation:

The Highest RF output power of the EUT was measured 23.02 dBm (200.58mW) at 2437 MHz. According to §1.1310 of the FCC rules, the power density limit for General Population/Uncontrolled Exposure at 2437 MHz is 1 mW/cm². The maximum permissible exposure (MPE) is calculated to show the required separation distance that must be maintained during installation to maintain compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = Distance between observation point and the center of radiator in cm

$$P_d = 0.08743 \text{ mW/cm}^2$$

To solve for the minimum mounting distance required:

Frequency: 2437MHz, Measured Power 23.02dBm & Gain 3 dBi

$$R = \sqrt{(P * G) / (4 * \pi * P_d)}$$

For the EUT, the calculation is as follows:

$$P_d = 0.08742 \text{ mW/cm}^2$$

P = Output Power = 200.48 mW

G = Worst Case Gain = 3.4dBi = 2.19 in Linear scale.

$$R = \sqrt{(200.48 * 2.19) / (4 * 3.1416 * 1)}$$

R = 5.91 cm (Based on continuous transmission) which is less than 20cm.

Frequency: 5240MHz, Measured Power 21.6dBm & Gain 5dBi

R = 6.0494 cm (Based on continuous transmission) which is less than 20cm.