

Radio Frequency Human Exposure Evaluation:

The Highest radiated Power measured was 109.54dBuV/m at 2480MHz when all the modules in the EUT were operating at 2480MHz.

109.54dBuV/m is equivalent to 27mW i.e 16.5dBm

The highest RF output power of the EUT was measured below 16.5 dBm at 2480 MHz According to §1.1310 of the FCC rules, the power density limit for General Population/Uncontrolled Exposure at 2480 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:

$$Pd = P * G / (4 * \pi * R^2)$$

Where:

Pd = Power Density

P = Output Power at the Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna

To solve for the minimum mounting distance required:

$$R = \text{Sqrt} ((P G) / (4 * \pi * Pd))$$

For the EUT, the calculation is as follows:

Pd = 0.005374 mW/cm²

P = Output Power = 27 mW

G = Worst Case Gain = 1 dBi

$$R = \text{Sqrt} ((27 * 1) / (4 * \pi * 1))$$

R=1.46 cm (Based on continuous transmission) which is less than 20cm