

RF Exposure

The Equipment Under Test (EUT) is a Monochrome Laser Multifunction Printer with 2.4G Wi-Fi function operating at 2412-2462MHz. The EUT is powered by AC120V/60Hz. For more detailed features description, please refer to the user's manual.

2.4GHz WiFi:

Antenna Type: Integral Antenna.

Antenna Gain: 2.0dBi

Modulation Type: BPSK, QPSK, 16QAM, 64QAM for OFDM; CCK, DQPSK, DBPSK for DSSS.

The nominal conducted output power specified: 18dBm (Tolerance: ± 3 dB).

The maximum conducted output power for the EUT is 20.61dBm in the frequency 2462MHz (IEEE 802.11n20) which is within the production variation.

The minimum conducted output power for the EUT is 15.30dBm in the frequency 2462MHz (IEEE 802.11b) which is within the production variation.

According to FCC Part 2.1091, this unlicensed transmitting devices is categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, According to the KDB 447498 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = 21dBm + 2dBi = 23dBm = 199.53mW

At the distance (R) of 20cm to 40cm and in 0.3 GHz to 6 GHz, MPE Exclusion Threshold Level:

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

The MPE limit is 3060mW for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1307. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.

The following RF exposure statement or similar sentence is proposed to be included in the user manual:

“FCC RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”