

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Wireless Subwoofer with 2.4GHz Transmitter function operating in 2404-2476MHz. The EUT is powered by AC 100-240V~ 50/60Hz. The EUT contains two antennas, which cannot be transmitted simultaneously. For more detail information pls. refer to the user manual.

Standalone SAR evaluation for 2.4GHz transmitter

2.4GHz transmitter:

Antenna Type: Integral Antenna.

Antenna Gain: 2.95 dBi.

Modulation Type: GFSK.

The nominal conducted output power specified: 4dBm (+/-2dB).

The nominal radiated output power (e.i.r.p) specified: 6.95dBm (+/- 2dB).

The maximum conducted output power for the EUT is 4.31dBm in the frequency 2476MHz (ANT A) which is within the production variation.

The minimum conducted output power for the EUT is 2.59dBm in the frequency 2404MHz (ANT B) 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 = 6.95dBm+2dB
= 8.95dBm = 7.852mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz band can be calculated according to OET 65 as follow:

$$= 7.852\text{mW} / 4\pi R^2$$

$$= 0.0016 \text{ mW/cm}^2$$

$$< 1\text{mW/cm}^2$$

The MPE limit is 1.0 mW/cm² for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1310. 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.