

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a 36 in. 2.1 soundbar with external subwoofer with Bluetooth 5.0 EDR function operating in 2402-2480MHz. The EUT is powered by AC 120V/60Hz. For more detail information pls. refer to the user manual.

Bluetooth Version: 5.0 EDR mode

Antenna Type: Integral antenna

Modulation Type: GFSK, p/4-DQPSK, 8DPSK

Antenna Gain: 1.0dBi Max

The nominal conducted output power specified: 4.0dBm (+/-3dB)

The nominal radiated output power (e.i.r.p) specified: 5.0dBm (+/- 3dB)

According to the KDB 447498:

The maximum peak radiated emission for the EUT is 103.1dB μ V/m at 3m in the frequency 2402MHz

The EIRP = [(FS*D) ^2 / 30] mW = 7.87dBm

which is within the production variation.

The minimum peak radiated emission for the EUT is 99.6dB μ V/m at 3m in the frequency 2480MHz

The EIRP = [(FS*D) ^2 / 30] mW = 4.37dBm

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 = 5dBm+3dB= 8dBm = 6.31mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 5.0 BLE mode can be calculated according to OET 65 as follow:

= 6.31mW/ 4 π R²

= 0.0013 mW/cm²

The MPE limit is 1.0 mW/cm² for general population and uncontrolled exposure in the Bluetooth 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.

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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.”