

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a soundbar with BT 4.2 BR+EDR function operating in 2402-2480MHz. The EUT is powered by DC 24V by AC/DC adapter. For more detail information pls. refer to the user manual.

Modulation Type: GFSK, $\pi/4$ -DQPSK, 8DPSK
Bluetooth Version: 4.2 (Single Mode BR+EDR)

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

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

The nominal radiated output power (e.i.r.p) specified: 4dBm (+/- 2dB).

According to the KDB 447498:

The maximum conducted output power for the EUT is 5.96dBm in the frequency 2402MHz which is within the production variation.

The minimum conducted output power for the EUT is 5.90dBm in the frequency 2480MHz 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:

For Maximum Permissible Exposure (MPE) evaluation of the product, the maximum power density at 20 cm from this transmitter shall be less than the General Population / Uncontrolled MPE limit in OET Bulletin 65.

The maximum E.I.R.P= 4dBm+2dB+0dBi=6dBm = 3.98mW

The source-based time averaged maximum radiated power = 3.98mW x Duty Cycle($\leq 100\%$) $\leq 3.98\text{mW}$

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

$$= 3.98\text{mW} / 4\pi R^2$$

$$= 0.0008 \text{ mW/cm}^2$$

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.

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.”