

INTERTEK TESTING SERVICES

RF Exposure

The Equipment Under Test (EUT) is a Bluetooth Speaker Side Table with BT function operating at 2402-2480MHz and wireless charger function operating at 112-205KHz. The EUT is powered by DC 3.7V rechargeable battery which can be charged by adapter with DC 5V/3A, 9V/2A, 12V/1.5A. The wireless function will be disabled or stop transmission during powered by battery. For more detailed features description, please refer to the user's manual.

Antenna Type: Integral Antenna

Antenna Gain: -0.58dBi

Modulation Type: GFSK, $\pi/4$ DQPSK, 8-DPSK

The normal radiated output power (e.i.r.p) is: -4.58dBm (tolerance: +/-3dB).

The normal conducted output power is: -4dBm (tolerance: +/-3dB).

The minimum peak radiated emission for the EUT is 89.7dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -5.53dBm

which is within the production variation.

The maximum peak radiated emission for the EUT is 91.7dB μ V/m at 3m in the frequency 2402MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -3.53dBm

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 = -4.58dBm+3dB= -1.58dBm = 0.695mW

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

$$= 0.695\text{mW} / 4\pi R^2$$

$$= 0.0001\text{mW}/\text{cm}^2$$

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

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.

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Simultaneous Transmission

For Simultaneous transmitting of Bluetooth and wireless charger, according to 865664D02 2.2 d) 1):

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits = $0.0001/1 + 0.3554/1.63 = 0.2181 < 1$
(Wireless charger refer to Report: 220621025SZN-003)

Since the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in the device is ≤ 1.0 , the EUT is considered to satisfy MPE compliance for simultaneous transmission operations.

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.”