

INTERTEK TESTING SERVICES

RF Exposure report

The equipment under test (EUT) is a Rockin' Roller 3 Speaker with Bluetooth function operating in 2402-2480MHz. The EUT was powered by an internal DC 12V, 9.0AH Lead-acid Battery that can be recharged from AC 120V, 60Hz. For more detail information pls. refer to the user manual.

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

Bluetooth Version: 4.2

Antenna Type: Integral antenna

Antenna Gain: 0dBi.

The nominal radiated output power (e.i.r.p.) specified: 13dBm (Tolerance: +/-3dB)

The maximum fundamental radiated emission for the EUT is 108.8 dB μ V/m at 3m in the frequency 2.440GHz = $[(FS \cdot D)^2 / 30]$ mW
= 13.57 dBm which is within the production variation.

The minimum fundamental radiated emission for the EUT is 106.0 dB μ V/m at 3m in the frequency 2.402GHz = $[(FS \cdot D)^2 / 30]$ mW
= 10.77 dBm 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 FCC Part 1.1310.

The maximum radiated output power (e.i.r.p.) = 16.0 dBm = 39.8mW

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:

$$= 39.8 \text{ mW} / 4\pi R^2$$

$$= 0.008 \text{ mW/cm}^2$$

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.

The following RF exposure statement 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.”