

Analysis Report

The Equipment Under Test (EUT) is a Bluetooth Wireless Speaker which equips a 2.4GHz Frequency Hopping Spread Spectrum Transceiver (Bluetooth 2.1). It operates at frequency range of 2402MHz to 2480MHz. There are total 79 channels with 1MHz channel spacing. The EUT can accept analog audio (AUX-in) and wireless audio when paired with a Bluetooth devices. The audio signal is amplified and driving internal loudspeaker. The EUT is powered by a 3.7V internal rechargeable battery. The internal battery can be charged via USB port. USB charging cable is supplied in the final product for end-user. But no AC/DC adaptor will be included in the product package.

Based on the Maximum allowed field strength of production tolerance was 100.8dBμV/m at 3m in frequency 2.4GHz. The distance (D) between the antenna and the equipment under test (EUT) was 3 meters. And the maximum source-based time-averaging duty factor is 100%. From these 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:

$$\begin{aligned}\text{The radiated power} &= (FS \cdot D)^2 / 30 \\ &= 3.6 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The radiated (EIRP) source-based time-averaging output power} \\ &= (3.6 \cdot 1) \text{ mW} \\ &= 3.6 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The power density at 20 cm from the antenna} \\ &= \text{EIRP} / 4\pi R^2 \\ &= 0.00072 \text{ mW cm}^{-2}\end{aligned}$$

In the frequency range of 1,500 - 100,000MHz, the MPE limit is 1.0 mWcm⁻² for general population and uncontrolled exposure. 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 structures 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: To maintain compliance with the FCC’s RF exposure guidelines, place the unit at least 20cm from nearby persons.”