RF Exposure

The equipment under test (EUT) is a Wireless Subwoofer 2.4GHz function operating in 2402-2480MHz. The EUT can be powered by AC 100-240V~ 50/60Hz. For more detail information pls. refer to the user manual.

MPE for 2.4G function:

Antenna Type: Integral antenna
Antenna Gain: 2.77 dBi max
Modulation Type: GFSK

The nominal conducted output power specified: 4.23dBm (+/-3dB).
The nominal radiated output power (e.i.r.p) specified: 7dBm (+/- 3dB).

According to the KDB 447498 V06:

The maximun peak radiated emission for the EUT is 105.0dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = 9.8dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 100.1dBμV/m at 3m in the frequency 2441MHz
The EIRP = [(FS*D) ^2 / 30] mW = 4.9dBm
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 = 10 dBm = 10 mW

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 5.8G mode can be calculated according to OET 65 as follow:
= 10 mW/ 4πR^2
= 0.00199 mW/cm^2
<1mW/cm^2

The MPE limit is 1.0 mW/cm^2 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.