MPE Analysis Report

The Equipment Under Test (EUT) is a Wireless Subwoofer which equipped a 2.4GHz Frequency Hopping Spread Spectrum Transceiver. It operates at frequency range of 2403.585MHz to 2477.313MHz. There are total 15 channels. During normal operation, the EUT is paired with another 2.4GHz transceiver Model: PL5561-S (FCC ID: OP5PL5568 / IC:3534A-PL5568) that is connecting to PC or notebook computer. The EUT can accept audio signal via this 2.4GHz radio link. The audio signal is amplified and driving internal loudspeaker. The EUT is powered by 100-240VAC.

Antenna Type: Internal, Integral
Antenna Gain: 2dBi
Nominal Conducted Power = 10.42dBm
Production Tolerance is +/-3dB

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

Maximum conducted power measured within its production tolerance was 13.42dBm (maximum). The antenna gain is 2 dBi = 1.58 (num gain) 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:

The conducted power = 13.42dBm (21.98mW)

The radiated (EIRP) source-based time-averaging output power (with antenna gain)
= (21.98 * 1 * 1.58) mW
= 34.7 mW

The power density at 20 cm from the antenna
= EIRP / 4πR^2
= 0.007 mW cm-2

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 product at least 20cm from nearby persons.”