

MPE Analysis Report

The Equipment-Under-Test (EUT) VAULT 2i is a Network Streamer, CD-Ripper & Music Library. The EUT contains a Bluetooth module which has Bluetooth 4.0 BLE and Bluetooth 3.0 features. The EUT can accept analog audio signal, digital audio signal, music content from CD, harddisk and wireless audio signal via Bluetooth devices. The EUT is powered by 100-240VAC.

Antenna Type: Internal, Integral
Antenna Gain: 2dBi

Bluetooth 3.0 and Bluetooth 4.0 BLE
EIRP range is 0dBm to 8dBm
Modulation type: GFSK

For Maximum Permissible Exposure (MPE) evaluation of the VAULT 2i, 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.

For Bluetooth 3.0 and 4.0 BLE, maximum EIRP power is 8 dBm (6.31 mW). 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 radiated (EIRP) source-based time-averaging output power
= $(6.31 * 1)$ mW
= 6.31 mW

The power density at 20 cm from the antenna
= $EIRP / 4\pi R^2$
= 0.00126 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.”