

INTERTEK TESTING SERVICES

For Maximum Permissible Exposure (MPE) evaluation of the base unit, 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.

1) For the RF4CE Zigbee portion of Base unit of tested model: FCCB, the maximum field strength measured (FS) was 92.6 dB μ V/m. 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:

$$\begin{aligned}\text{The radiated power} &= (FS \cdot D)^2 / 30 \\ &= 0.546 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The radiated (EIRP) source-based time-averaging output power} &= (0.546 \cdot 1) \text{ mW} \\ &= 0.546 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The power density at 20 cm from the antenna} &= \text{EIRP} / 4\pi R^2 \\ &= 0.00011 \text{ mW cm}^{-2}\end{aligned}$$

2) For the DECT portion of Base Unit of tested model: FCCB, the maximum field strength measured (FS) was 107.1 dB μ V/m. The distance (D) between the antenna and the equipment under test (EUT) was 3 meters. And the maximum source-based time-averaging duty factor in 8 devices operation is 70.8%. 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:

$$\begin{aligned}\text{The radiated power (EIRP)} &= (FS \cdot D)^2 / 30 \\ &= 15.39 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The radiated (EIRP) source-based time-averaging output power} &= (15.39 \cdot 0.708) \text{ mW} \\ &= 10.89 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The power density at 20 cm from the antenna} &= \text{EIRP} / 4\pi R^2 \\ &= 0.0022 \text{ mW cm}^{-2}\end{aligned}$$

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.

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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 baby unit at least 20cm from nearby persons.”

In addition, for this multiple transmitters and antennas (both DECT & RF4CE portion), the requirement of Simultaneous Transmission evaluation has also been considered and has complied with the following conditions of the worse case;

$$MPE1/Limit1 + MPE2/Limit2 + MPE3/Limit3 \leq 1$$

Thus,

$$0.00011/1 \text{ (RF4CE)} + 0.0022/1 \text{ (Antenna 0 of DECT)} + 0.0022/1 \text{ (Antenna 1 of DECT)}$$

$$= 0.00451$$

It is concluded that no Simultaneous Transmission evaluation is required.