

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.

For the base unit of tested model of V1010, the maximum field strength measured (FS) was 114.5 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 four-handset operation is 31.2%. 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:

$$\begin{aligned}\text{The radiated power} &= (\text{FS} * \text{D})^2 / 30 \\ &= 84.55 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The radiated (EIRP) source-based time-averaging output power} &= (84.55 * 0.312) \text{ mW} \\ &= 26.38 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The power density at 20 cm from the antenna} &= \text{EIRP} / 4\pi R^2 \\ &= 0.0052 \text{ mW cm}^{-2}\end{aligned}$$

In the frequency range of 1,500 - 100,000MHz, the MPE limit is 1.0 mW cm^{-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 base unit at least 20cm from nearby persons.”

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For Specific Absorption Rate (SAR) evaluation of the handset, with reference to TCB Exclusions List revised on July 17, 2002, portable transmitters with output power less than low threshold and operating within 2.5cm from person's body can be certified by TCB without the SAR evaluation. The output power for portable transmitters is defined as the higher of the conducted or radiated (EIRP) source-based time averaging output power. And the low threshold is equal to $(60/f_{GHz})$ mW for $d < 2.5\text{cm}$, where f_{GHz} is mid-band frequency in GHz, and d is the distance from the portable transmitter to a person's body, excluding hands, wrists, feet, and ankles.

For the handset of the tested model of V1010, the measured peak conducted power was 49.77 mW. The maximum source-based time averaging duty factor in double slot operation is 15.6%.

$$\begin{aligned}\text{The conducted source-based time averaging output power} \\ &= (49.77 * 0.1560) \text{ mW} \\ &= 7.76 \text{ mW}\end{aligned}$$

The measured maximum field strength (FS) was 115.0 dB μ V/m. The distance (D) between the antenna and the equipment under test (EUT) was 3 meters. From these data, the radiated (EIRP) source-based time-averaging output power can be calculated by:

$$\begin{aligned}\text{The radiated power} &= (FS*D)^2 / 30 \text{ mW} \\ &= 94.87 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The radiated (EIRP) source-based time-averaging output power} \\ &= (94.87 * 0.1560) \text{ mW} \\ &= 14.80 \text{ mW}\end{aligned}$$

The low threshold in the 2400 – 2483.5MHz band is 24.57 mW.

From the above calculation, output power obtained in both method is less than low threshold, it is concluded that the handset can be certified by TCB without the SAR evaluation.