

INTERTEK TESTING SERVICES

For Specific Absorption Rate (SAR) evaluation of the transmitter, 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 $(60/f_{\text{GHz}})$ 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 transmitter of the tested model of 33-1253, the measured peak conducted power was 1.28 mW. The maximum source-based time averaging duty factor in 45.5172%.

$$\begin{aligned}\text{The conducted source-based time averaging output power} \\ &= (1.28 * 0.45517) \text{ mW} \\ &= 0.58262 \text{ mW}\end{aligned}$$

The measured maximum field strength (FS) was 103.2 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:

$$\begin{aligned}\text{The radiated power} &= (FS * D)^2 / 30 \text{ mW} \\ &= 6.2679 \text{ mW}\end{aligned}$$

$$\begin{aligned}\text{The radiated (EIRP) source-based time-averaging output power} \\ &= (6.2679 * 0.45517) \text{ mW} \\ &= 2.85296 \text{ mW}\end{aligned}$$

The low threshold in the 2400-2483.5 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 transmitter can be certified by TCB without the SAR evaluation.