

Intertek Testing Services

For SAR evaluation of the handset, refer to TCB Exclusions List Revised on 17 July 2002. Transmitter with output power less than 60/fGHz ($d < 2.5\text{cm}$) can be certified by TCB without the SAR evaluation.

In fact, the Output power for transmitters is the higher of the conducted or radiated (EIRP) source-based time-averaged output. And the $f\text{GHz}$ is mid-band frequency in GHz, and d is the distance to a person's body, excluding hands, wrists, feet, and ankles.

For the tested model of WME (base unit), the measured peak conducted power was 11.14mW and the source-based time averaged output power was 2.48mW as TX duty cycle of the handset is 22.3%.

The maximum field strength (FS) was 107.2dB $\mu\text{V/m}$ at 5731.920MHz. The distance (D) between the antenna and the equipment under test (EUT) was 3 meters.

From these data, the EIRP can be calculated by:

$$\text{EIRP} = (\text{FS} \cdot \text{D})^2 / 30$$

$$= 15.74\text{mW}$$

$$\text{Source-based time averaged output power} = (15.74 \cdot 0.223) \text{ mW}$$

$$= 3.51\text{mW}$$

For the tested model of WHE (handset unit), the measured peak conducted power was 40.09mW and the source-based time averaged output power was 1.49mW as TX duty cycle of the handset is 3.714%.

The maximum field strength (FS) was 109.8dB $\mu\text{V/m}$ at 5791.824MHz. The distance (D) between the antenna and the equipment under test (EUT) was 3 meters.

From these data, the EIRP can be calculated by:

$$\text{EIRP} = (\text{FS} \cdot \text{D})^2 / 30$$

$$= 28.65\text{mW}$$

$$\text{Source-based time averaged output power} = (28.65 \cdot 0.03714) \text{ mW}$$

$$= 1.06\text{mW}$$

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For the tested model of WDE (desktop unit), the measured peak conducted power was 6.08mW and the source-based time averaged output power was 0.23mW as TX duty cycle of the handset is 3.714%.

The maximum field strength (FS) was 102.6dBμV/m at 5791.824MHz. The distance (D) between the antenna and the equipment under test (EUT) was 3 meters.

From these data, the EIRP can be calculated by:

$$\text{EIRP} = (\text{FS} \times \text{D})^2 / 30$$

$$= 5.46\text{mW}$$

$$\text{Source-based time averaged output power} = (5.46 \times 0.03714) \text{ mW}$$

$$= 0.20\text{mW}$$

Based on the above calculation, it is concluded that the base unit, the handset unit, and the desktop unit can be certified by TCB without the SAR evaluation.