

Intertek Testing Services

For SAR evaluation of the hand-held unit (so called controller unit), refer to TCB Exclusions List Revised on 17 July 2002. Portable 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 portable 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 JS109HT1, the measured peak conducted power was 3.5mW and the source-based time averaged output power was 0.32mW as TX duty cycle is 9%.

The maximum field strength (FS) was $89.7\text{dB}\mu\text{V/m}$ at 2440.430MHz. The distance (D) between the antenna and the equipment under test (EUT) was 3 meters.

From these data, the EIRP can be calculated by:

$$\begin{aligned}\text{EIRP} &= (\text{FS} \cdot \text{D})^2 / 30 \\ &= 0.28\text{mW}\end{aligned}$$

$$\begin{aligned}\text{Source-based time averaged output power} &= (0.28 \cdot 0.09) \text{ mW} \\ &= 0.025\text{mW}\end{aligned}$$

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