



November 11, 2013

UL Japan, Inc.
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

FCC ID: Z7W-L1

To whom it may concern,

We, UL Japan, Inc., hereby declare that TOCOS wireless engine, model : TWE-001 Lite (FCC ID: Z7W-L1) of TOKYO COSMOS ELECTRIC CO., LTD. is exempt from RF exposure SAR evaluation as its output power meets the exclusion limits stated in FCC Part 2 §2.1093.

KDB 447498D01(v05r01) has the following exclusion for portable devices:
The 1g and 10g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\frac{[(\text{measured maximum equivalent isotropic radiated power(mW)})/(\text{Minimum separation distance(mm)})] \cdot \sqrt{f \text{ (GHz)}}}{\leq 3.0 \text{ for 1g SAR and } \leq 7.5 \text{ for 10g extremity SAR where}}$$

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

This device $f = 2.48$ GHz, distance = 5mm (minimum separation distance: 5 mm was used in the calculation) and the measured maximum equivalent isotropic radiated power was 2.63 mW

So for this device:

$2.63 \text{ mW} [\text{measured maximum equivalent isotropic radiated power}] / 5 \text{ mm} [\text{minimum separation distance}] \cdot (\sqrt{2.48}) = 0.83$

* calculation: measured maximum equivalent isotropic radiated power = $10^{((\text{maximum peak output power [dBm]} + \text{antenna gain [dBi]}) / 10)}$
 $= 10^{((2.2 \text{ [dBm]} + 2 \text{ [dBi]}) / 10)}$

*This is less than 3.0, so no SAR is required.

Thank you for your attention to this matter.

Toyokazu Imamura
Leader of Shonan EMC Lab.
WiSE Japan
UL Verification Service
UL Japan, Inc.

UL Japan, Inc.
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
Telephone: +81 463 50 6400
Facsimile: +81 463 50 6401