

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a NSW ENWL CONTROLLER - BLACK – RB with Bluetooth function operating in 2402-2480MHz. The EUT is powered by DC 3.7V by rechargeable battery or DC 5V by USB port. For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna

Modulation Type: GFSK, $\pi/4$ -DQPSK and 8-DPSK

Antenna Gain: -3.5dBi Max

Bluetooth Version: 5.0(Single mode)

The normal radiated output power (e.i.r.p) is: -9.0dBm (tolerance: +/- 3dB).

The normal conducted output power is -5.5dBm (tolerance: +/- 3dB).

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 86.3 dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -8.93dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 85.3dB μ V/m at 3m in the frequency 2441MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -9.93dBm
which is within the production variation.

The maximum conducted output power specified is -2.5dBm=0.562mW

The source- based time-averaging conducted output power
=0.562* Duty cycle mW <0.562 mW(Duty cycle <100%)

The SAR Exclusion Threshold Level:

= $3.0 * (\text{min. test separation distance, mm}) / \text{sqrt}(\text{freq. in GHz})$

= $3.0 * 5 / \text{sqrt} (2.480)$ mW

= 9.53 mW

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.