

INTERTEK TESTING SERVICES

RF Exposure

The Equipment under Test (EUT) is a VEXnet Key 2.0 unit model: 276-3245 operating at 2.4GHz band. The EUT is powered by USB port of Robot Brain and the Robot Brain is powered by a 7.2V rechargeable battery (This 7.2V rechargeable battery should be charged by external charger). For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

The normal radiated output power (e.i.r.p) is: 15.0dBm (tolerance: +/- 3dB).

The normal conducted output power is 15.0dBm (tolerance: +/- 3dB).

Modulation Type: GFSK.

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 112.4dB μ V/m at 3m in the frequency 2441MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 17.2dBm

which is within the production variation.

The Minimum peak radiated emission for the EUT is 107.6dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 12.4dBm

which is within the production variation.

The maximum conducted output power specified is 18.0dBm = 63.1 mW

The source- based time-averaging conducted output power

= 63.1 * Duty Cycle mW= 3.6 mW

The SAR Exclusion Threshold Level:

= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)

= 3.0 * 5 / sqrt (2.480) mW

= 9.5 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.

Transmitter Duty Cycle Calculation

The duration of one cycle = 25.12ms

Effective period of the cycle= 1.44ms

DC = $1.44\text{ms} / 25.12\text{ms} = 0.0573$ or 5.73%

This requirement is according to KDB 865664 D02