

# INTERTEK TESTING SERVICES

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## RF Exposure

The Equipment Under Test (EUT) is a CUBE with Bluetooth module operating at 2402-2480MHz for Bluetooth, 40 channels with 2MHz channel spacing. The CUBE is a portable color measurement tool, it enable the user to quickly measure the color of virtually any surface, The Cube interfaces with smart-phones through Bluetooth Low Energy technology, a feature now widely available in phones, A Cube smart-phone application reads the sent color data and displays the color data on the screen. It is powered by battery DC3.7V and charged by PC USB port or adapter 5Vdc output. For more detailed features description, please refer to the user's manual.

Modulation Type: GFSK.

Bluetooth Version: 4.0 single mode.

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

The nominal conducted output power specified: -1.0dBm (+/-2dB).

The nominal radiated output power (e.i.r.p) specified: -1.0dBm (+/- 2dB)

According to the KDB 447498:

The maximum peak radiated emission for the EUT is 94.5dBμV/m at 3m in the frequency 2480MHz

The EIRP =  $[(FS \cdot D)^2 / 30]$  mW = -0.73dBm

which is within the production variation.

The minimum peak radiated emission for the EUT is 93.1dBμV/m at 3m in the frequency 2402MHz

The EIRP =  $[(FS \cdot D)^2 / 30]$  mW = -2.13dBm

which is within the production variation.

The maximum conducted output power specified is 1.0dBm = 1.3mW

The source- based time-averaging conducted output power

=  $1.3 \cdot \text{Duty Cycle}$  mW = 1.3 mW

The SAR Exclusion Threshold Level:

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

=  $3.0 \cdot 5 / \sqrt{2.480}$  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 test signal of the EUT is Continuous emission, so the Duty Cycle is 100%.