

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test is a Bluetooth headset with Bluetooth function and NFC function. The NFC function will enable the connection or disconnection of the Bluetooth communication by touching the headset to the NFC-enabled device. The EUT will play music from mobile phone, computer or other devices through Bluetooth function. The Bluetooth module is BT 4.0 of dual mode and downward compatible. It's operating in 2402-2480 MHz. The EUT is designed to be powered by a DC 3.7 V internal rechargeable battery which can be charged by USB source or AC/DC adapter with DC 5V output. For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna.

Antenna Gain: 2dBi.

The nominal conducted output power specified: -10dBm (+/-3dB)

The nominal radiated output power (e.i.r.p) specified: -8dBm (+/- 3dB)

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

According to the KDB 447498:

The maximum peak radiated emission for the EUT is 85.5dB μ V/m at 3m in the frequency 2402MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -9.7dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 84.6dB μ V/m at 3m in the frequency 2441MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -10.6dBm
which is within the production variation.

The maximum conducted output power specified is -1 dBm = 0.2mW

The source- based time-averaging conducted output power
= $0.2 \cdot \text{Duty Cycle}$ mW = 0.07 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
= 9.53 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.

Transmitter Duty Cycle Calculation

Based on the Bluetooth Specification (BT version: 3.0), the duty cycle is dependent of packet type (DH1, DH3 and DH5). For one period for a pseudo-random hopping through all 79 RF channels, for DH5:

One hop set consists of 5 TX slot and 1 RX slot.

Duty cycle = $5 / 6 = 0.833$

This requirement is according to KDB 865664 D02

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