

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Ultra High-Definition Wireless Speaker. The EUT was powered by 3.7V from internal rechargeable battery and can be charged by PC via USB cable. For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

The nominal conducted output power specified: -5dBm (+/- 3dB)

The nominal radiated output power (e.i.r.p) specified: -5dBm (+/- 3dB)

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

According to the KDB 447498:

The maximum peak radiated emission for the EUT is 89.4dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -5.8dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 89.1dB μ V/m at 3m in the frequency 2441MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -6.1dBm
which is within the production variation.

The maximum conducted output power specified is -2dBm = 0.6mW

The source- based time-averaging conducted output power
= $0.6 \cdot \text{Duty Cycle}$ mW = 0.5 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 + EDR), 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