
INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Bluetooth earbud, with Bluetooth FHSS technology operating in 2402-2480MHz. The EUT is powered by DC 3.7V lithium battery and charged by DC 5V USB port. For more detail information pls. refer to the user manual.

Bluetooth Version: 4.1 single mode (Not including 4.0 LE mode)

Antenna Type: Integral antenna

Antenna Gain: 2 dBi

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

The nominal conducted output power specified: -5.0dBm (Tolerance: +/-3dB)

According to the KDB 447498:

The maximum conducted output power for the EUT is -2.91dBm in the frequency 2441MHz and the minimum conducted output power for the EUT is -4.41dBm in the frequency 2402MHz which are within the production variation.

The maximum conducted output power specified is -2.0dBm = 0.63mW
The source-based time-averaging conducted output power
= 0.63 * Duty Cycle mW (where Duty Cycle < 100%) < 0.63mW

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:

Based on the Bluetooth Specification (BT version: 4.1), transmitter ON time is independent of packet type (DH1, DH3 and DH5). For one period for a pseudo-random hopping through all 79 RF channels, for DH5:

One hopset consists of 5 TX slot and 1 RX slot.

Duty Cycle = 5 / 6 = 0.833