

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Clock Radio with Bluetooth function. The EUT was powered by AC 100-240V, 50/60Hz. For more detail information pls. refer to the user manual.

Modulation Type: GFSK, $\pi/4$ -DQPSK and 8-DPSK.
Bluetooth Version: 2.1 with EDR function.

Antenna Type: Integral antenna.

Antenna Gain: 2dBi.

The nominal conducted output power specified: 2dBm +/-3dB.

The nominal radiated output power (e.i.r.p) specified: 4dBm (+/- 3dB)

According to the KDB 447498:

The maximum peak radiated emission for the EUT is 97.8dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 2.57dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 97.1dB μ V/m at 3m in the frequency 2402MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 1.87dBm
which is within the production variation.

The maximum conducted output power specified is 5dBm = 3.2mW

The source- based time-averaging conducted output power
= $3.2 \cdot \text{Duty Cycle}$ mW = 2.7 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: 2.1 + EDR), the duty factor 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 factor = $5 / 6 = 0.833$

This requirement is according to KDB 865664 D02