

INTERTEK TESTING SERVICES

RF Exposure

C5401-3 is a Vanity Light with 2.4GHz Bluetooth function operating in 2402-2480MHz and 5.8GHz wireless transmission function operating in centre frequency 5741MHz which is powered by AC120/60Hz. For more detail information please refer to the user manual.

2.4GHz

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

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

The nominal conducted output power specified: -6dBm $\pm$ 3dB.

Test radiated output power: -9dBm ~ -3dBm

According to the KDB 447498:

The maximum conducted output power specified is -3dBm = 0.5mW

The source-based time-averaging conducted output power
= 0.5 * Duty Cycle mW = 0.4mW

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: 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

5.8GHz

Antenna Type: Integral antenna.

Antenna Gain: -0.5dBi.

The nominal conducted output power specified: -1dBm $\pm$ 3dB.

Test radiated output power: -4.5dBm ~ 1.5dBm

According to the KDB 447498:

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The maximum conducted output power specified is 1.5dBm = 1.4mW
The source-based time-averaging conducted output power
= 1.4 * Duty Cycle mW = 1.4mW

The SAR Exclusion Threshold Level:
= $3.0 * (\text{min. test separation distance, mm}) / \sqrt{\text{freq. in GHz}}$
= $3.0 * 5 / \sqrt{5.741}$ mW
= 6.3 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, the Duty Cycle is 100%.