

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is an AM/FM RADIO CASSETTE RECORDER with Bluetooth 5.0 function operating in 2402-2480MHz. The EUT is powered by DC 4*1.5V UM-2 battery and charged by AC 120V/60Hz. For more detailed features description, please refer to the user's manual.

Standalone SAR evaluation for BT function

Bluetooth Version: 5.0 BR/EDR

Antenna Type: Integral antenna

Modulation Type: GFSK, p/4-DQPSK

Antenna Gain: -0.58dBi Max

The nominal conducted output power specified: 0.58dBm (+/-3dB)

The nominal radiated output power (e.i.r.p) specified: 0dBm (+/- 3dB)

According to the KDB 447498:

The maximum peak radiated emission for the EUT is 94.7dBμV/m at 3m in the frequency 2441MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -0.53dBm

which is within the production variation.

The minimum peak radiated emission for the EUT is 93.9dBμV/m at 3m in the frequency 2402MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -1.33dBm

which is within the production variation.

The maximum conducted output power specified is 3.58dBm = 2.28mW

The source- based time-averaging conducted output power

= $2.28 \cdot \text{Duty factor mW}$ (where Duty Factor ≤ 1)

= 2.28mW

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.

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Bluetooth Version: 5.0 BLE mode

Antenna Type: Integral antenna

Modulation Type: GFSK

Antenna Gain: -0.58dBi Max

The nominal conducted output power specified: 0.58dBm (+/-3dB)

The nominal radiated output power (e.i.r.p) specified: 0dBm (+/- 3dB)

According to the KDB 447498:

The maximum peak radiated emission for the EUT is 93.7dBμV/m at 3m in the frequency 2402MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -1.53dBm

which is within the production variation.

The minimum peak radiated emission for the EUT is 93.1dBμV/m at 3m in the frequency 2440MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -2.13dBm

which is within the production variation.

The maximum conducted output power specified is 3.58dBm = 2.28mW

The source- based time-averaging conducted output power

= 2.28 * Duty factor mW (where Duty Factor ≤ 1)

= 2.28mW

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.