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 detail information pls. refer to the user manual.

Standalone SAR evaluation for BT function

Bluetooth Version: 5.0 BR/EDR mode
Antenna Type: Integral antenna
Modulation Type: GFSK, p/4-DQPSK
Antenna Gain: -0.58dBi Max
The nominal conducted output power specified: -3.42dBm (+/-3dB)
The nominal radiated output power (e.i.r.p) specified: -4dBm (+/- 3dB)

According to the KDB 447498:

The maximun peak radiated emission for the EUT is 93.6dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = -1.63dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 88.9dBμV/m at 3m in the frequency 2441MHz
The EIRP = [(FS*D) ^2 / 30] mW = -6.33dBm
which is within the production variation.

The maximun conducted output power specified is -0.42dBm = 0.91mW
The source- based time-averaging conducted output power
= 0.91 * Duty factor mW (where Duty Factor$\leqslant$1)
= 0.91mW

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 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.

Bluetooth Version: 5.0 BLE mode
Antenna Type: Integral antenna
Modulation Type: GFSK
Antenna Gain: -0.58dBi Max
The nominal conducted output power specified: -0.42dBm (+/-3dB)
The nominal radiated output power (e.i.r.p) specified: -1dBm (+/- 3dB)

According to the KDB 447498:

The maximun peak radiated emission for the EUT is 94.5dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = -0.73dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 91.8dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = -3.43dBm
which is within the production variation.

The maximun conducted output power specified is 2.58dBm = 1.81mW
The source- based time-averaging conducted output power
= 1.81 * Duty factor mW (where Duty Factor≤1)
= 1.81mW

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 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.