RF Exposure

The equipment under test (EUT) is a Bluetooth Speaker with Bluetooth 5.0 (Dual mode) function operating in 2402-2480MHz. The EUT is powered by DC 3.7V by rechargeable battery. The Bluetooth function can not work when AUX port be connected. For more detail information pls. refer to the user manual.

BT 5.0 EDR Mode:

Modulation Type: GFSK, π/4-DQPSK and 8-DPSK
Bluetooth Version: 5.0

Antenna Type: Integral antenna.
Antenna Gain: -0.58dBi Max.
The nominal conducted output power specified: -4.45dBm (+/-3dB).
The nominal radiated output power (e.i.r.p) specified: -5.03dBm (+/- 3dB).

According to the KDB 447498:

The maximun peak radiated emission for the EUT is 92.2dBμV/m at 3m in the frequency 2441MHz
The EIRP = [(FS*D) ^2 / 30] mW = -3.03dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 88.2dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = -7.03dBm
which is within the production variation.

The maximun conducted output power specified is -1.45dBm = 0.72mW
The source- based time-averaging conducted output power
= 0.72 * Duty factor mW (where Duty Factor≤1)
= 0.72 mW

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.

BT 5.0 BLE Mode:

Modulation Type: GFSK
Bluetooth Version: 5.0

Antenna Type: Integral antenna.
Antenna Gain: -0.58dBi Max.
The nominal conducted output power specified: 1.58dBm (+/-3dB).
The nominal radiated output power (e.i.r.p) specified: 1.0dBm (+/- 3dB).

According to the KDB 447498:

The maximun peak radiated emission for the EUT is 97.7dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = 2.47dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 93.4dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = -1.83dBm
which is within the production variation.

The maximun conducted output power specified is 4.58dBm = 2.87mW
The source- based time-averaging conducted output power
= 2.87 * Duty factor mW (where Duty Factor≤1)
= 2.87 mW

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.