RF Exposure

The equipment under test (EUT) is a Bluetooth earbud, with Bluetooth FHSS technology operating in 2402-2480MHz. The EUT is powered by DC 3.7V lithium battery and charged by DC 5V USB port. For more detail information pls. refer to the user manual.

Bluetooth Version: 4.1(without BLE function)
Antenna Type: Ceramic antenna
Antenna Gain: 2 dBi
Modulation Type: GFSK, π/4-DQPSK and 8-DPSK

The nominal conducted output power specified: -2.0dBm (Tolerance: +/-3dB)

According to the KDB 447498:

The maximum conducted output power for the EUT is -2. 1dBm in the frequency 2402MHz and the minimum conducted output power for the EUT is -3.0dBm in the frequency 2480MHz which are within the production variation.

The maximun conducted output power specified is 1.0dBm = 1.26mW
The source- based time-averaging conducted output power
= 1.26* Duty Cycle mW (where Duty Cycle < 100%) < 1.26 mW

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 5 / sqrt (2.480) mW
= 9.5 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: 4.1), transmitter ON time is independent of packet type (DH1, DH3 and DH5). For one period for a pseudo-random hopping through all 79 RF channels, for DH5:
One hopset consists of 5 TX slot and 1 RX slot.
Duty factor = 5 / 6 = 0.833

This requirement is according to KDB 865664 D02.