

# INTERTEK TESTING SERVICES

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## RF Exposure

The equipment under test (EUT) is a WIRELESS EARPHONES with Bluetooth 5.2 (Single Mode BLE) function operating in 2402-2480MHz. The EUT is powered by DC 3.7V by rechargeable battery. For more detail information pls. refer to the user manual.

Bluetooth Version: 5.2 (Single Mode BLE)

Antenna Type: Integral antenna

Modulation Type: GFSK

Antenna Gain: -2.25dBi Max

The nominal conducted output power specified: 1.25 dBm ( $\pm 3$ dB)

The nominal radiated output power (e.i.r.p) specified: -1 dBm ( $\pm 3$ dB)

According to the KDB 447498 D01 General RF Exposure Guidance v05 The 1-g and 10-g SAR test exclusion thresholds for 100MHz to 6GHz at test separation distance  $\leq 50$ mm are determined by:

$$[(\text{max.power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where } f(\text{GHz}) \text{ is the RF channel transmit frequency in GHz}$$

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

$$\text{eirp} = \text{pt} \times \text{gt} = (\text{Exd})^2 / 30$$

Where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, ---  $10^{((\text{dB } \mu\text{V/m})/20)} / 10^6$

D = measurement distance in meters(m) --- 3m

$$\text{Sopt} = (\text{EXd})^2 / 30 \times \text{gt}$$

Ant gain = -2.25dBi; so Ant numeric gain = 0.596

Field strength = 69.3dB  $\mu$  V/m @3m

$$\text{So Pt} = \{ [10^{(69.3/20)} / 10^6 \times 3]^2 / 30 \times 0.596 \} \times 1000 \text{ mW} = 0.0043 \text{ mW}$$

$$\text{So } (0.0043 \text{ mW} / 5\text{mm}) \times \sqrt{2.441(\text{GHz})} = 0.0013 < 3$$

The SAR evaluation is not required.