

## RF Exposure Considerations for the u-sense vibration

### **FCC ID: 2BAKG-US67-V1T-BLE**

The u-sense vibration equipment operates using 2.4GHz Bluetooth LE

#### **The following FCC Rule Parts are applicable:**

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

Part 1.1307(b)(3)(i)(C) - SAR test exemption (ii)

Part 1.1307(b)(3)(i)(B) - SAR test exemption (iii)

KDB 447498 D04 – RF Exposure Procedures

#### **For the u-sense vibration**

##### **BT Operating Frequency: 2402 – 2480MHz**

Tx Power: +8.0dBm

Antenna gain 0.5dBi

EIRP = +8.5dBm

**ERP = 8.5 - 2.15dBm = 6.35dBm (4.31mW)**

**Minimum separation distance (R) = 20cm (0.2m)**

#### **Evaluation**

From Part 2.1093(c)(1). RF exemption applies if the maximum transmitted power is less than the maximum of the following three criteria:

- i) Less than 1 mw Blanket exemption.  $P_{TH} = 0.001 \text{ W}$  – (The BT32D is not compliant)
- ii) determination of exemption under the MPE-based §1.1307(b)(3)(i)(C), if i) not met
- iii) determination of exemption under the SAR-based §1.1307(b)(3)(i)(B) if both i) and ii) are not met;

Determination of threshold power ( $P_{TH}$ ) under the MPE-based §1.1307(b)(3)(i)(C)

This is only applicable at a separation distance greater than  $\lambda/2\pi$

#### **For the u-sense vibration:**

2.4GHz operation -  $\lambda/2\pi = 0.02\text{m}$

The separation distance is 0.2m, therefore §1.1307(b)(3)(i)(C), is applicable

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From §1.1307(b)(3)(i)(C), Table 1:

Threshold ERP  $P_{TH\ (2.4GHz)} = 19.2R^2$  watts (R = metres)

ie:  $P_{TH} = 19.2 \times 0.2^2$

$$P_{TH} = 0.768W$$

**ie: Threshold Power  $P_{TH} = 768mW$  ERP**

The u-sense vibration max. transmitter power = 4.31mW, so is therefore exempt from MPE evaluation in accordance with §1.1307(b)(3)(i)(C).