

Analysis Report

Report No.: 18121067HKG-001

The equipment under test (EUT) is a portable BLE sword, which is designed to be operated at the frequency range of 2402 – 2480 MHz with 2 MHz spacing. The EUT is power by DC 4.5V (3 × 1.5V AAA batteries). After being paired with the mobile app, it could interact with the mobile, act as a game controller, adjust the color of sword and produce sound.

Antenna Type: Internal, Integral

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Antenna Gain: 0dBi

Nominal rated field strength: 82.9dBμV/m at 3m

Maximum allowed field strength of production tolerance: +/- 3dB

According to the KDB 447498:

Based on the Maximum allowed field strength of production tolerance was 85.9dBμV/m at 3m.

Thus, it below calculated field strength according to minimum SAR exclusion threshold level as follows:

The worst case of SAR Exclusion Threshold Level:

$$= 3.0 * (\text{min. test separation distance, mm}) / \text{sqrt}(\text{freq. in GHz})$$

$$= 3.0 * 5 / \text{sqrt}(2.483.5) \text{ mW}$$

$$= 9.52 \text{ mW}$$

According to the KDB 412172 D01:

$$\text{EIRP} = [(\text{FS} * \text{D})^2 * 1000 / 30]$$

Calculated Field Strength for 9.52mW is 105dBμV/m at 3m

Since maximum field strength plus production tolerance $\leq$ 105dBμV/m at 3m and antenna gain is $\geq$ 0.0dBi, it is concluded that maximum Conducted Power and Field Strength are well below the SAR Exclusion threshold level, so the EUT is considered to comply with SAR requirement without testing.