

Analysis Report

Report No.: 15010656HKG-001

The Equipment Under Test (EUT) is an ATLANTIS Bluetooth Speaker that can accept audio signal from Bluetooth devices. The Bluetooth module in the EUT is operating in the frequency range from 2402MHz to 2480MHz, which can support Bluetooth 3.0 (79 channels with 1MHz channel spacing) and Bluetooth 4.0 BLE (40 channels with 2MHz channel spacing). The EUT is powered by a 9V AC/DC adaptor and/or internal 7.4V rechargeable battery. The adaptor can accept 100-240VAC input.

For Bluetooth 3.0:

Modulation Type: GFSK

Antenna Type: Integral, Internal (PCB Trace)

Frequency Range: 2402MHz - 2480MHz, 1MHz channel spacing, 79 channels

Nominal field strength is 101.6dB μ V/m @ 3m

Production Tolerance of field strength is +/- 3dB

Antenna gain is 0dBi

For Bluetooth 4.0 BLE:

Modulation Type: GFSK

Antenna Type: Integral, Internal (PCB Trace)

Frequency Range: 2402MHz - 2480MHz, 2MHz channel spacing, 40 channels

Nominal field strength is 100.6dB μ V/m @ 3m

Production Tolerance of field strength is +/- 3dB

Antenna gain is 0dBi

According to the KDB 447498:

For Bluetooth 3.0:

Based on the Maximum allowed field strength of production tolerance was 104.6dB μ V/m at 3m in frequency 2.4GHz, thus;

$$\text{The EIRP} = [(FS \cdot D)^2 \cdot 1000 / 30] = 8.652\text{mW}$$

Conducted power = Radiated Power (EIRP) – Antenna Gain

So;

Conducted Power = 8.652mW.

For Bluetooth 4.0 BLE:

Based on the Maximum allowed field strength of production tolerance was 103.6dB μ V/m at 3m in frequency 2.4GHz, thus;

$$\text{The EIRP} = [(FS \cdot D)^2 \cdot 1000 / 30] = 6.873\text{mW}$$

Conducted power = Radiated Power (EIRP) – Antenna Gain

So;

Conducted Power = 6.873mW.

The SAR Exclusion Threshold Level:

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

$$= 3.0 * 5 / \sqrt{2.480} \text{ mW}$$

$$= 9.53 \text{ mW}$$

Since the above conducted output power is well below the SAR Exclusion threshold level, so the EUT is considered to comply with SAR requirement without testing.

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