Analysis Report

FCC ID: 2AGFQ4ARI0102

The Equipment-Under-Test (EUT) is a ARiNA Bluetooth Speaker that contains a Bluetooth module with Bluetooth 4.0 BLE and Bluetooth 3.0 features. The EUT can accept analog audio signal and wireless audio signal via external Bluetooth mobile device (such as iphone). The EUT is powered by a 3.7V rechargeable battery and/or USB port (5VDC). Another USB port is also equipped for charging external mobile device (such as iphone).

For Bluetooth module:
For Bluetooth 4.0 BLE mode, it occupies a frequency range from 2402MHz to 2480MHz (40 channels with channel spacing of 2MHz). It transmits via GFSK modulation.

For Bluetooth 3.0 mode, it occupies a frequency range from 2402MHz to 2480MHz (79 channels with channel spacing of 1MHz). It transmits via GFSK modulation.

Antenna Type: Internal, Integral
Antenna Gain: 0dBi

Operating mode	Nominal Radiated Field Strength	Production Tolerance	Modulation Type
Bluetooth 3.0	98.5 dBµV/m at 3m	+/- 3dB	GFSK
Bluetooth 4.0 BLE	100.7 dBµV/m at 3m	+/- 3dB	GFSK

According to the KDB 447498:

For Bluetooth 3.0:
Based on the Maximum allowed field strength of production tolerance was 101.5dBµV/m at 3m in frequency 2.480GHz, thus;

The EIRP = [(FS*D) ^2*1000 / 30] = 4.238mW

Conducted power = Radiated Power (EIRP) – Antenna Gain
So;
Conducted Power = 4.238mW.

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 5 / sqrt (2.480) mW
= 9.53 mW

For Bluetooth 4.0 BLE:
Based on the Maximum allowed field strength of production tolerance was 103.7dBμV/m at 3m in frequency 2.480GHz, thus;

The EIRP = [(FS*D) ^2*1000 / 30] = 7.033mW

Conducted power = Radiated Power (EIRP) – Antenna Gain
So;
Conducted Power = 7.033mW.

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 5 / sqrt (2.480) mW
= 9.53 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.