Analysis Report

Report No.: 13090108HKG-001

The equipment under test (EUT) is a portable Bluetooth cassette player. The EUT equipped with a USB interface, magnetic head and contains a Bluetooth module. The Bluetooth module in the EUT complies with Bluetooth version 3.0 and 4.0 standards. It operates in 2.4GHz ISM frequency band (2400MHz – 2483.5MHz).The EUT is powered by 1 X 3.7V rechargeable battery (Li-Poly). The EUT can accept audio signal from Bluetooth enabled devices once paired. The audio signal is transferred and fed to typical cassette player via the magnetic head. The EUT is using non-adaptive frequency hopping for Bluetooth version 3.0 in the Bluetooth module as declared by the applicant. The USB interface of the EUT does not contain PC Connectivity which is for charging use only.

Bluetooth Antenna Type: Internal, Integral (single antenna)

Bluetooth version 3.0
2402MHz – 2480MHz, 79 channels, 1MHz spacing

Bluetooth version 4.0:
2402MHz – 2480MHz, 39 channels, 2MHz spacing

The Bluetooth module was tested in according with the following power output and in actual application the below limit shall not be exceeded.

Operating Mode	Nominal Radiated Field Strength	Production Tolerance	Antenna Gain
Bluetooth v3.0	99.0dBµV/m at 3m	±2dB	0dBi
Bluetooth v4.0	100.6dBµV/m at 3m	±2dB	0dBi

According to the KDB 447498:

Based on the Maximum allowed field strength of production tolerance was 102.6BµV/m at 3m in frequency 2.402GHz at Bluetooth version 4.0 mode, thus;

The EIRP = [(FS*D) ^2*1000 / 30] = 5.459mW

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

Conducted Power = 5.459mW.

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.