

Analysis Report

FCC ID: YJ7DWST08810

The Equipment Under Test (EUT) is a ToughSystem Music + Charger. It can accept analog input source (3.5mm phone jack aux-in), AM/FM and wireless Bluetooth device. The Bluetooth module in the EUT is operating in the frequency range from 2402MHz to 2480MHz (79 channels with 1MHz channel spacing). The audio signal is amplified and fed to the built-in passive loudspeakers. The EUT is powered by an AC/DC adaptor (24VDC 2A) and/or 10.8VDC 2Ah rechargeable battery. The EUT has an USB port (for charging purpose only). The Applicant declared that Bluetooth 4.0 BLE will not be used in this product.

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

Antenna Type: Internal integral antenna
Antenna Gain: 0dBi

Operating mode	Nominal Radiated Field Strength	Production Tolerance	Modulation Type
Bluetooth 3.0	97.8 dBμV/m at 3m	+3/-3dB	GFSK

According to the KDB 447498:

For Bluetooth:
Based on the Maximum allowed field strength of production tolerance was 100.8dBμV/m at 3m in frequency 2.480GHz, thus;

$$\text{The EIRP} = [(FS \cdot D)^2 \cdot 1000 / 30] = 3.6\text{mW}$$

Conducted power = Radiated Power (EIRP) – Antenna Gain
So;
Conducted Power = 3.6mW.

The SAR Exclusion Threshold Level:
= $3.0 \cdot (\text{min. test separation distance, mm}) / \sqrt{\text{freq. in GHz}}$
= $3.0 \cdot 5 / \sqrt{2.480}$ 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.