

Analysis Report

The Equipment Under Test (EUT), is a 2.4GHz BLE Transceiver for a Bluetooth toy with RFID which operates at a single channel 13.56MHz. The sample supplied operated on 40 channels (BLE), normally at 2402 - 2480MHz. The channels are separated with 2MHz spacing. Simultaneous emissions of BLE and RFID are not available for this EUT.

The EUT is powered by 2 x 1.5V AAA batteries. After switching on EUT, it can play different songs when a black disk is put on top of it. Songs can be downloaded from the app through BLE.

Antenna Gain: 0 dBi

RFID Portion

Frequency Range: 13.56MHz

Peak Radiated range: 35.9 dBµV/m to 41.9dBµV/m

Bluetooth BLE Portion

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

Average Radiated range: 73.8dBµV/m to 81.0dBµV/m

According to the KDB447498 D01 v06:

For RFID portion

Radiated Power (maximum)

= 41.9 dBµV/m (0.00000468 mW)

The SAR Exclusion Threshold Level 13.56MHz when the minimum test separation distance is < 50mm:

= $[474 * (1 + \log_{10}(f(\text{MHz})))]/2$

= $[474 * (1 + \log_{10}(13.56))]/2$ mW

= 442.65 mW

For Bluetooth BLE portion

Radiated Power (maximum)

= 81.0 dBµV/m (0.0380 mW)

The SAR Exclusion Threshold Level:

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

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

= 9.525 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.