

Analysis Report

The Equipment Under Test (EUT) is a 2.4GHz transceiver (i.e. Controller) for a RC Train. The EUT is powered by DC3.0V (2X1.5V AA batteries). The operating frequencies are 2425MHz, 2445MHz, and 2465MHz. After pairing with the train, the train can be controlled to run forward and backward. There are also a light and a sound buttons on the EUT, which can control the light and the sound for the train.

Antenna Type: Internal antenna

Antenna Gain: 0dBi

Nominal rated field strength: 77.7 dB μ V/m at 3m

Maximum allowed field strength of production tolerance: +/- 3dB

According to the KDB 447498:

Based on the Maximum allowed field strength of production tolerance was 80.7dB μ V/m at 3m in frequency 2.4GHz, thus;

The EIRP = $[(FS \cdot D)^2 \cdot 1000 / 30] = 0.035\text{mW}$

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

Conducted Power = 0.035mW.

The SAR Exclusion Threshold Level:

$$\begin{aligned} &= 3.0 * (\text{min. test separation distance, mm}) / \text{sqrt}(\text{freq. in GHz}) \\ &= 3.0 * 5 / \text{sqrt}(2.465) \text{ mW} \\ &= 9.55 \text{ mW} \end{aligned}$$

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.