

Analysis Report

The Equipment Under Test (EUT) is a 2.4GHz Transceiver (Train) for a Train Set. The EUT is powered by 6 x 1.5V C batteries. The 2.4GHz module is operating at the frequencies (2413; 2435; 2436; 2438; 2439; 2440; 2441; 2442; 2443; 2444; 2445; 2468; 2469; 2470; and 2471MHz). After switching on the EUT, the corresponding Transceiver (Controller) can control the EUT (Train) moving forward and backward.

Antenna Type: Internal integral antenna

Antenna Gain: 0dBi

Nominal rated field strength: 91.4dB 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 94.4dB μ V/m at 3m.

Thus, it below calculated field strength according to minimum SAR exclusion threshold level as follows:

The worst case of SAR Exclusion Threshold Level:

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

$$= 3.0 * 5 / \sqrt{2.483.5} \text{ mW}$$

$$= 9.52 \text{ mW}$$

According to the KDB 412172 D01:

$$\text{EIRP} = [(FS^2 * D) / 30]$$

Calculated Field Strength for 9.52mW is 105dB μ V/m @3m

Since maximum field strength plus production tolerance \leq 105dB μ V/m @3m and antenna gain is \geq 0.0dBi, it is concluded that maximum Conducted Power and Field Strength are well below the SAR Exclusion threshold level, so the EUT is considered to comply with SAR requirement without testing.