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: 97.4dBμV/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 100.4dBμV/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 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 5 / sqrt (2.483.5) mW
= 9.52 mW

According to the KDB 412172 D01:
EIRP = [(FS*D) ^2*1000 / 30]

Calculated Field Strength for 9.52mW is 105dBuV/m @3m

Since maximum field strength plus production tolerance < = 105dBuV/m @3m and antenna gain is > = 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.