

Analysis Report

The Equipment Under Test (EUT), is a portable 2.4GHz Transceiver (Train Unit) for a RC Train. Two versions of train are tested, including ultrasonic version and without ultrasonic version. The sample supplied operated on 10 channels, normally at 2420 - 2465MHz. The channels are shown in below table.

2420	2425	2429	2435	2440
2445	2450	2455	2460	2465

The EUT is powered by 6 x 1.5V C batteries. After switching on the EUT, the train will be moved forward or backward and turned left and right based on the switches pressed in the controller.

Train with ultrasonic function

Antenna Type: Internal, Integral antenna

Antenna Gain: 0dBi

Nominal rated field strength is 94.8dBμV/m at 3m (Peak), 71.1dBμV/m at 3m (Average)

Maximum allowed production tolerance: +/- 3dB

According to the KDB 447498:

Based on the maximum average field strength of production tolerance was 74.1dBμV/m at 3m in frequency 2.440GHz.

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:

$$\text{EIRP} = [(\text{FS} * \text{D})^2 * 1000 / 30]$$

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

Since maximum average field strength plus production tolerance $\leq 105\text{dBuV/m @3m}$ and antenna gain is $\geq 0.0\text{dBi}$, 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.