

# Analysis Report

## For without ultrasonic:

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 46 channels, normally at 2420 - 2465MHz. The channels are separated with 1MHz spacing.

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.

Antenna Type: Internal, Integral antenna

Antenna Gain: 0dBi

Nominal rated field strength is 91.3dBμV/m at 3m (Peak), 70.6dBμV/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 73.6dBμV/m at 3m in frequency 2.465GHz.

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

The worst case of SAR Exclusion Threshold Level:

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

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

$= 9.52 \text{ mW}$

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.