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 * (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 average 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.

Analysis Report

For 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 * (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 average 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.