Analysis Report

The equipment under test (EUT) is a transmitter for a R/C CAR operating at 27.145 MHz which is controlled by a crystal. The EUT is powered by two 1.5V AA batteries. For more detail information pls. refer to the user manual.

Antenna Type: dedicated antenna
Antenna Gain: 0dBi
Modulation Type: Pulse modulation

The nominal conducted output power specified: -48.0dBm (+/- 3dB)

The nominal radiated output power (e.r.p) specified: -50.15dBm (+/- 3dB)

According to the KDB 447498:

The worst-case peak radiated emission for the EUT is 47.3dBuV/m at 3m in the frequency 27.145MHz
The EIRP = [(FS*D) ^2 / 30] mW= -47.93dBm
The ERP = EIRP – 2.15 = -50.08 dBm
which is within the production variation.

The maximun conducted output power specified is -45dBm =0.00003mW
The source- based time-averaging conducted output power
= 0.00003* Duty Cycle mW < 0.00003mW (Duty Cycle<100%)

The SAR Exclusion Threshold Level for 27.145MHz when the minimum test separation distance is < 50mm:
= 474 * [1 + log(100/f(MHz)]/2
= 371.2 mW

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.

Transmitter Duty Cycle Calculation

The duration of one cycle = 17.2029ms
Effective period of the cycle = 1.3333ms x 4 + 463.8μs x10=9.9712ms
DC =9.9712ms / 17.2029ms =0.5796 or 57.96%