

Analysis Report

The Equipment Under Test (EUT), is a portable 2.4GHz Transceiver (Controller Unit) for a RC car. The operation frequency range is between 2410MHz and 2470MHz with following 21 channels used.

Channel	Frequency (MHz)
0	2410
1	2413
2	2416
3	2419
4	2422
5	2425
6	2428
7	2431
8	2434
9	2437
10	2440
11	2443
12	2446
13	2449
14	2452
15	2455
16	2458
17	2461
18	2464
19	2467
20	2470

The EUT is powered by 1 x 9.0V battery.

After switch on the EUT, the car will be moved forward or backward, turned left or right based on the switches pressed in the controller.

Antenna Type: Internal antenna

Antenna Gain: 0dBi

Nominal rated field strength is 98.7 dB μ V/m at 3m

Maximum allowed production tolerance: +/- 3dB

According to the KDB 447498:

Based on the Maximum allowed field strength of production tolerance was $101.7\text{dB}\mu\text{V/m}$ at 3m in frequency 2.465GHz, thus;

$$\text{The EIRP} = [(\text{FS} * \text{D})^2 * 1000 / 30] = 4.44\text{mW}$$

Conducted power = Radiated Power (EIRP) – Antenna Gain
So;

$$\text{Conducted Power} = 4.44\text{mW}.$$

The SAR Exclusion Threshold Level:

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

$$= 3.0 * 5 / \text{sqrt}(2.470) \text{ mW}$$

$$= 9.54 \text{ mW}$$

Since the above conducted output power is well below the SAR Exclusion threshold level, so the EUT is considered to comply with SAR requirement without testing.