

MPE Analysis Report

The Equipment Under Test (EUT) is a portable 2.4GHz WiFi RC Car operated at 2412-2462MHz with 5MHz Channel Spacing. The EUT is powered by 1 X 9.9V rechargeable battery. After switch on the EUT and paired with Phone Device with Phone Application, the EUT can be controlled to move forward, backward, turning left/right direction by the controller. The camera on EUT can be displayed on Phone Application.

WiFi Module

Antenna Type: Internal,
Integral Antenna Gain: 0dBi

Operating mode	Nominal Conducted Power	Production Tolerance	Modulation Type
802.11b	18.96 dBm	+/-2dBm	DSSS
802.11g	22.29 dBm	+/-2dBm	OFDM
802.11n (HT20)	21.72 dBm	+/-2dBm	mcs0

For Maximum Permissible Exposure (MPE) evaluation of the FKM40, the maximum power density at 20 cm from this mobile transmitter shall be less than the General Population / Uncontrolled MPE limit in OET Bulletin 65.

For the WLAN (WiFi), maximum conducted power measured within its production tolerance was 24.29dBm (maximum). The antenna gain is 0 dBi = 1 (num gain) and the maximum source-based time-averaging duty factor is 100%. From these data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna can be calculated according to OET Bulletin 65 as follow:

The conducted power (Peak) = 24.29dBm (268.53mW)

$$\begin{aligned} &= (268.53 * 1 * 1 \text{ mW}) \\ &= 268.53\text{mW} \end{aligned}$$

The power density at 20 cm from the antenna

$$\begin{aligned} &= \text{EIRP} / 4\pi R^2 \\ &= 0.053422 \text{ mW cm}^{-2} \end{aligned}$$

In the frequency range of 1,500 - 100,000MHz, the MPE limit is 1.0 mWcm⁻² for general population and uncontrolled exposure. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structures and body of the user or nearby persons. The following RF exposure statement is proposed to be included in the user manual:

“ FCC RF Radiation Exposure Statement

Caution: To maintain compliance with the FCC’s RF exposure guidelines, place the product at least 20cm from nearby persons.”