

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is an Rock Crawler 6x6 R/C operating at 2.4G Band. The EUT can be powered by DC 9.0V (6 x 1.5V AA batteries). For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna

Modulation Type: GFSK

Antenna Gain: 0dBi

The nominal conducted output power specified: 3.0 dBm (± 3 dB)

The nominal radiated output power (e.i.r.p) specified: 3.0 dBm (± 3 dB)

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 99.9 dB μ V/m at 3m in the frequency 2475MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 4.67dBm

which is within the production variation.

The Minimum peak radiated emission for the EUT is 98.8 dB μ V/m at 3m in the frequency 2442MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 3.57dBm

which is within the production variation.

The maximum conducted output power specified is 6.0dBm= 3.981mW

The source- based time-averaging conducted output power

= $3.981 \cdot \text{Duty cycle mW} = 3.981 \cdot 0.1872 \text{mW} = 0.75 \text{mW}$ (Duty cycle < 100%)

The SAR Exclusion Threshold Level:

$$\begin{aligned} P_{\text{th}}(\text{mW}) &= \text{ERP}_{20\text{cm}} * (d/20\text{cm})^x \quad (X = -\log_{10} \left(\frac{60}{\text{ERP}_{20\text{cm}} \sqrt{f}} \right)) \\ &= 3060 * (0.5/20)^{1.9} \text{ mW} \\ &= 2.72 \text{ mW} \end{aligned}$$

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.

The duty cycle is simply the on-time divided by the period:

The duration of one cycle = 5.8841ms

Effective period of the cycle = 1101.4 μ s x1 = 1.1014ms

DC = 1.1014ms / 5.8841ms = 0.1872 or 18.72%