

INTERTEK TESTING SERVICES

RF Exposure

The Equipment under Test (EUT) is a control unit for the TOY RC ROBOTIC ARM WITH WHEELS model: 1001985 operating at 2.4GHz band. It is powered by DC 9.0V (1 x 9.0V 6F22 battery). For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

The normal radiated output power (e.i.r.p) is: -12.0dBm (tolerance: +/- 3dB).

The normal conducted output power is: -12.0dBm (tolerance: +/- 3dB).

Modulation Type: GFSK.

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 82.5dBμV/m at 3m in the frequency 2407MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -12.73dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 82.2dBμV/m at 3m in the frequency 2477MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -13.03dBm
which is within the production variation.

The maximum conducted output power specified is -9.0dBm = 0.13mW

The source- based time-averaging conducted output power
= $0.13 \cdot \text{Duty cycle}$ mW < 0.13 mW (Duty cycle < 100%)

The SAR Exclusion Threshold Level:

= $3.0 \cdot (\text{min. test separation distance, mm}) / \sqrt{\text{freq. in GHz}}$
= $3.0 \cdot 5 / \sqrt{2.477}$ mW
= 9.53 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.

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

The duration of one cycle = 30.2899 ms

Effective period of the cycle = 1.2319ms

DC = $1.2319\text{ms} / 30.2899\text{ms}$ = 0.0407 or 4.07 %