

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is an Twinkle Car Black R/C USA operating at 2.4G Band. The EUT can be powered by DC 3.0V (2 x 1.5V AAA batteries). 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: -26.0dBm (tolerance: +/- 3dB).

The normal conducted output power is -26.0dBm (tolerance: +/- 3dB).

Modulation Type: GFSK.

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 69.4dBμV/m at 3m in the frequency 2420MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -25.83dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 66.9dBμV/m at 3m in the frequency 2470MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -28.33dBm
which is within the production variation.

The maximum conducted output power specified is -23.0dBm= 0.005mW

The source- based time-averaging conducted output power
= $0.005 \cdot \text{Duty cycle}$ mW < 0.005 mW (Duty cycle < 100%)

The SAR Exclusion Threshold Level:

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

= $3.0 \cdot 5 / \sqrt{2.470}$ mW

= 9.54 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 = 8.1739ms

Effective period of the cycle = $347.8\mu\text{s} \times 1 = 0.3478\text{ms}$

DC = $0.3478\text{ms} / 8.1739\text{ms} = 0.0426$ or 4.26%

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