INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Really Rad Robots Turbo Bot operating at 2.4G Band. The EUT can be powered by DC 4.5V (3 x 1.5V AA 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: -5.0dBm (tolerance: +/- 3dB).
The normal conducted output power is -5.0dBm (tolerance: +/- 3dB).
Modulation Type: GFSK.

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 89.1 dBμV/m at 3m in the frequency 2413MHz
The EIRP = [(FS*D) ^2 / 30] mW = -6.13dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 87.0 dBμV/m at 3m in the frequency 2471MHz
The EIRP = [(FS*D) ^2 / 30] mW = -8.23dBm
which is within the production variation.

The maximum conducted output power specified is -2dBm= 0.631mW
The source- based time-averaging conducted output power
=0.631* Duty cycle mW <0.631mW (Duty cycle <100%)

The SAR Exclusion Threshold Level:
= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)
= 3.0 * 5 / sqrt (2.471) 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 = 20.3623ms
Effective period of the cycle = 87.0μs = 0.087ms
DC =0.087ms / 20.3623ms =0.0043 or 0.43%

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