

INTERTEK TESTING SERVICES

RF Exposure

The Equipment under Test (EUT) is a Control unit for Thomas and Friends Remote set model: 6-30190 operating at 2.4GHz band. It is powered by DC 4.5V (3 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: 1.0dBm (tolerance: +/- 3dB).

The normal conducted output power is 1.0dBm (tolerance: +/- 3dB).

Modulation Type: GFSK.

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 96.0dB μ V/m at 3m in the frequency 2438MHz

The EIRP = $[(FS * D)^2 / 30]$ mW = 0.77dBm

which is within the production variation.

The Minimum peak radiated emission for the EUT is 94.5dB μ V/m at 3m in the frequency 2401MHz

The EIRP = $[(FS * D)^2 / 30]$ mW = -0.73dBm

which is within the production variation.

The maximum conducted output power specified is 4.0dBm = 2.5mW

The source- based time-averaging conducted output power

= 2.5 * Duty Cycle mW = 0.35 mW < 0.4mW

The SAR Exclusion Threshold Level:

= 3.0 * (min. test separation distance, mm) / sqrt(freq. in GHz)

= 3.0 * 5 / sqrt (2.480) mW

= 9.5 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 = 17.22ms

Effective period of the cycle = 480us x 5 = 2.4ms

DC = 5 x 480us / 17.220ms = 0.1394 or 13.94%