

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is an LumiTek Xtreme Stunado operating at 2.4G Band. The EUT can be powered by DC 7.4V (1 x 7.4V rechargeable battery). And the RF function will be shut down and it can't transmit RF signals while charging. 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: -16.0 dBm (± 3 dB)

The nominal radiated output power (e.i.r.p) specified: -16.0 dBm (± 3 dB)

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 80.3 dB μ V/m at 3m in the frequency 2408MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -14.93dBm

which is within the production variation.

The Minimum peak radiated emission for the EUT is 76.7 dB μ V/m at 3m in the frequency 2470MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -18.53dBm

which is within the production variation.

The maximum conducted output power specified is -13.0dBm= 0.050mW

The source- based time-averaging conducted output power = $0.050 \cdot \text{Duty cycle}$ mW < 0.050 mW (Duty cycle < 100%)

The SAR Exclusion Threshold Level:

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

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 = 1.54348ms

Effective period of the cycle = 173.91 μ s x 1 = 0.17391ms

DC = $0.17391\text{ms} / 1.54348\text{ms}$ = 0.1127 or 11.27%