

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is V5 Controller operating at 2.4G Band. The EUT can be powered by DC3.7V (1 x 3.7V rechargeable battery), and it has two antennas but can't simultaneously transmitting. For more detail information pls. refer to the user manual.

2.4G transceiver function:

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

The normal radiated output power (e.i.r.p) is: 2.0dBm (tolerance: +/- 3dB).

The normal conducted output power is 2.0dBm (tolerance: +/- 3dB).

Modulation Type: GFSK.

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 98.6 dB μ V/m at 3m in the frequency 2402MHz

The EIRP = [(FS*D) ^2 / 30] mW = 3.37dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 95.1 dB μ V/m at 3m in the frequency 2480MHz

The EIRP = [(FS*D) ^2 / 30] mW = -0.13dBm
which is within the production variation.

The maximum conducted output power specified is 5dBm= 3.162mW

The source- based time-averaging conducted output power
=3.162* Duty cycle mW <3.162 mW(Duty cycle <100%)

The SAR Exclusion Threshold Level:

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

= 3.0 * 5 / sqrt (2.480) 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 = 25.072ms

Effective period of the cycle = 1.449ms

DC =1.449ms / 25.072ms =0.0578 or 5.78%

BLE function:

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

The normal radiated output power (e.i.r.p) is: -15.0dBm (tolerance: +/- 3dB).

The normal conducted output power is -15.0dBm (tolerance: +/- 3dB).

Modulation Type: GFSK.

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 80.0 dB μ V/m at 3m in the frequency 2402MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -15.23dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 78.1 dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -17.13dBm
which is within the production variation.

The maximum conducted output power specified is -12dBm= 0.063mW

The source- based time-averaging conducted output power
=0.063* Duty cycle mW = 0.063mW (Duty cycle =100%)

The SAR Exclusion Threshold Level:

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

= 3.0 * 5 / sqrt (2.480) 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.
