

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Robot Brain V2 with Bluetooth 5.0 BLE function operating in 2402-2480MHz. The EUT is powered by DC 7.2V by rechargeable battery. For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna

Modulation Type: GFSK

Antenna Gain: 0dBi

Bluetooth Version: 5.0 BLE (Single Mode)

The nominal conducted output power specified: 1.2 dBm (± 3 dB)

The nominal radiated output power (e.i.r.p) specified: 1.2 dBm (± 3 dB)

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 99.4 dB μ V/m at 3m in the frequency 2402MHz

The EIRP = $[(FS^*D)^2 / 30]$ mW = 4.17dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 99.2 dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS^*D)^2 / 30]$ mW = 3.97dBm
which is within the production variation.

The maximum conducted output power specified is 4.2dBm= 2.630mW

The source- based time-averaging conducted output power
=2.630* Duty cycle mW <2.630 mW(Duty cycle <100%)

The SAR Exclusion Threshold Level:

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

Since max. power of the source-based time-averaging conducted output power and effective radiated power (ERP) is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.