

INTERTEK TESTING SERVICES

RF Exposure

The equipment under test (EUT) is a Bluetooth Keyboard with Bluetooth 5.1 EDR function operating in 2402-2480MHz. The EUT is powered by DC 3.7V by rechargeable battery which can be charged by DC 5V via USB port. For more detail information pls. refer to the user manual.

Antenna Type: Integral antenna

Modulation Type: GFSK, $\pi/4$ -DQPSK and 8-DPSK

Antenna Gain: 0 dBi

Bluetooth Version: 5.1 EDR (Single Mode)

The nominal conducted output power specified: -16 dBm (± 2 dB)

The nominal radiated output power (e.i.r.p) specified: -16 dBm (± 2 dB)

According to the KDB 447498:

The Maximum peak radiated emission for the EUT is 79.2 dB μ V/m at 3m in the frequency 2402MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -16.03dBm

which is within the production variation.

The Minimum peak radiated emission for the EUT is 77.6 dB μ V/m at 3m in the frequency 2480MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = -17.63dBm

which is within the production variation.

The maximum conducted output power specified is -14dBm= 0.040mW

The SAR Exclusion Threshold Level:

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

Since max. 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.

Note: EIRP is higher than ERP, thus EIRP is compared with the Exclusion Threshold.