

INTERTEK TESTING SERVICES

Analysis Report

The equipment under test (EUT) is a Air Purifier with Bluetooth function operating in 2402-2480MHz and WiFi function operating in 2412-2462MHz. The EUT is powered by AC 120V, 60Hz. For more detail information pls. refer to the user manual.

Bluetooth Version: V4.2(Dual Mode)

Modulation Type(EDR): GFSK, $\pi/4$ -DQPSK, 8-DPSK

Modulation Type(BLE): GFSK

Antenna Type: PCB antenna (Gain: 3.7dBi)

The nominal Radiated output power specified (EDR): 1.0dBm (Tolerance: +/-3.0dBm)

The nominal Radiated output power specified (BLE): -12.0dBm (Tolerance: +/-3.0dBm)

WIFI Function:

Modulation Type: BPSK, QPSK, 16QAM, 64QAM for OFDM; CCK, DQPSK, DBPSK for DSSS

Antenna Type: PCB antenna

Antenna Gain: 3.7 dBi

The nominal conducted output power specified: 14.0dBm (Tolerance: +/- 2dB)

According to the KDB 447498:

The maximum Radiated emission for the EUT is 97.3dBuV/m (2.07dBm) for at the frequency 2.402GHz(EDR mode) which is within the production variation.

The minimum Radiated emission for the EUT is 96.3dBuV/m(1.07dBm) at the frequency 2.441GHz(EDR mode) which is within the production variation

The maximum Radiated emission for the EUT is 83.6dBuV/m (-11.63dBm) for at the frequency 2.480GHz(BLE mode) which is within the production variation.

INTERTEK TESTING SERVICES

The minimum Radiated emission for the EUT is 81.4dBuV/m(-13.83dBm) at the frequency 2.441GHz(BLE mode) which is within the production variation

The maximum conducted output power for the EUT is 15.2dBm in the frequency 2412MHz at IEEE 802.11B which is within the production variation.

The minimum conducted output power for the EUT is 14.1dBm in the frequency 2422MHz at IEEE 802.11N40 which is within the production variation.

BT(EDR):

The source-based time averaged maximum radiated power = 4dBm+3.7dBi
=7.7dBm =5.88mW

BT(BLE):

The source-based time averaged maximum radiated power = -9.0dBm+3.7dBi
=-5.3dBm = 0.295mW

WIFI:

The source-based time averaged maximum radiated power = 16dBm+3.7dBi
=19.7dBm = 93.32mW

BT(EDR):

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz BT band can be calculated according to OET 65 as follow:

$$\begin{aligned} &= 5.88\text{mW} / 4\pi R^2 \\ &= 0.00117 \text{ mW/cm}^2 \end{aligned}$$

BT(BLE)

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz BT band can be calculated according to OET 65 as follow:

$$\begin{aligned} &=0.295\text{mW} / 4\pi R^2 \\ &= 0.000059 \text{ mW/cm}^2 \end{aligned}$$

WiFi:

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz WIFI band can be calculated according to OET 65 as follow:

$$\begin{aligned} &= 93.32\text{mW} / 4\pi R^2 \\ &= 0.0185 \text{ mW/cm}^2 \end{aligned}$$

Simultaneous ejaculation

BT(EDR)+WiFi:

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz (WIFI and BT) band can be calculated according to OET 65 as follow:

$$\begin{aligned} &= 0.00117 \text{ mW/cm}^2/1.0+0.0185 \text{ mW/cm}^2/1.0 \\ &= 0.01967 \text{ mW/cm}^2 \end{aligned}$$

BT(BLE)+WiFi:

From above data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna for 2.4GHz(WIFI and BT) band can be calculated according to OET 65 as follow:

$$\begin{aligned} &= 0.000059 \text{ mW/cm}^2/1.0+0.0185 \text{ mW/cm}^2/1.0 \\ &= 0.018559 \text{ mW/cm}^2 \end{aligned}$$

The MPE limit is 1.0 mW/cm² for general population and uncontrolled exposure in the 2.4GHz Wi-Fi frequency range according to FCC Part 1.1310. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.