

INTERTEK TESTING SERVICES

RF Exposure

The Equipment Under Test (EUT) is a Convoy Air Hub (Wireless Gateway) operating at 2410-2476MHz. The EUT is powered by DC9V-36V. For more detailed features description, please refer to the user's manual.

Antenna Type: integral antenna.

Antenna Gain: 5dBi.

Modulation Type: QPSK.

The nominal conducted output power specified: 7.0dBm (+/-2dB)

The nominal radiated output power (e.i.r.p) specified: 12.0dBm (Tolerance: +/-2dB).

According to the KDB 447498 D04 v01:

The maximum peak radiated emission for the EUT is 108.4dBμV/m at 3m in the frequency 2410MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 13.17dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 106.3dBμV/m at 3m in the frequency 2445MHz

The EIRP = $[(FS \cdot D)^2 / 30]$ mW = 11.07dBm
which is within the production variation.

According to FCC Part 2.1091, this unlicensed transmitting devices is categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, According to the KDB 447498 D04 v01 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = 12.0dBm + 2dB = 14.0dBm = 25.12mW

At the distance (R) of 20cm to 40cm and in 0.3 GHz to 6 GHz, MPE Exclusion Threshold Level:

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

The exemption threshold ERP limit is 3060mW for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1307. 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.