

INTERTEK TESTING SERVICES

RF Exposure report

The Equipment Under Test (EUT) is a Smart Signboard with WiFi function operating at 2412-2462MHz for 802.11b/g/n-HT20, 11 channels with 5MHz channel spacing and 2422-2452MHz for 802.11n-HT40, 9 channels with 5MHz channel spacing. The EUT was powered by AC/DC adaptor through AC120V/60Hz or PoE. For more detailed features description, please refer to the user's manual.

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

Antenna Type: Integral antenna

Antenna Gain: 2.2dBi

The nominal conducted output power specified: 21dBm (Tolerance: +/-3dB)

The maximum conducted output power for the EUT is 22.62dBm in the frequency 2.462GHz 802.11g mode which is within the production variation.

The minimum conducted output power for the EUT is 19.49dBm in the frequency 2.412GHz 802.11b mode 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.

For Maximum Permissible Exposure (MPE) evaluation of the product, the maximum power density at 20 cm from this transmitter shall be less than the General Population / Uncontrolled MPE limit in FCC Part 1.1310.

The maximum EIRP= 21+3+2.2=26.2dBm=416.9mW

The source-based time averaged maximum radiated power = 416.9 mW x Duty Cycle = 416.9mW

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

$$= PG/4\pi R^2$$

$$= EIRP/4\pi R^2 = 416.9/ 4\pi R^2$$

$$= 0.08 \text{ mW/cm}^2$$

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The MPE limit is 1.0 mW/cm² for general population and uncontrolled exposure in the WiFi 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.

Transmitter Duty Cycle Calculation

The EUT transmit continuously during the test, the duty cycle is 100%.

The following RF exposure statement or similar sentence is proposed to be included in the user manual:

“FCC RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.”