

RF Exposure

The equipment under test (EUT) is a Drone Stealth Recon 15.85inch with Camera Streaming operating at 2.4G Band and 2.4G WIFI function operating in 2412-2462MHz function. The EUT can be powered by DC 3.7V (1 x 3.7V rechargeable battery).Once use the USB cable charging to the EUT, the wireless function will be disabled. For more detail information pls. refer to the user manual.

2.4G Transmitter function

Antenna Type: Integral antenna.

Antenna Gain: 0dBi.

Modulation Type: GFSK.

The normal radiated output power (e.i.r.p) is: 5.0dBm (tolerance: +/- 3dB).

The normal conducted output power is 5.0dBm (tolerance: +/- 3dB)..

The maximum conducted output power for the EUT is 7.87dBm in the frequency 2440MHz which is within the production variation.

The minimum conducted output power for the EUT is 3.87dBm in the frequency 2459MHz 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 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = 5.0dBm+3dB= 8.0dBm = 6.3mW. The maximum ERP= 8dBm-2.15dB= 5.85dBm = 3.85mW

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 ERP Threshold is 3060mW for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1307. As the maximum ERP at 20cm from the transmitter is lower than the ERP Threshold, the compliance to the ERP Threshold can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.

2.4G Wi-Fi function:

Type of Modulation: CCK, BPSK, QPSK, 16QAM, 64QAM.

Antenna Type: Integral antenna

Antenna Gain: 1.8dBi

For 802.11b:

The normal radiated output power (e.i.r.p) is: 18.8dBm (tolerance: +/- 3dB).

The normal conducted output power is 17.0dBm (tolerance: +/- 3dB).

For 802.11g and 802.11n-HT20:

The normal radiated output power (e.i.r.p) is: 21.8dBm (tolerance: +/- 3dB).

The normal conducted output power is 20.0dBm (tolerance: +/- 3dB).

The maximum conducted output power for the EUT is 20.5dBm in the frequency 2.462GHz 802.11g mode which is within the production variation.

The minimum conducted output power for the EUT is 15.00dBm 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, According to the KDB 447498 and OET 65, the simple calculation as below:

The source-based time averaged maximum radiated power = 21.8dBm+3dB= 24.8dBm = 302.0mW. The maximum ERP= 24.8dBm-2.15dB= 22.65dBm = 184.1mW

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 ERP Threshold is 3060mW for general population and uncontrolled exposure in the 2.4GHz frequency range according to FCC Part 1.1307. As the maximum ERP at 20cm from the transmitter is lower than the ERP Threshold, the compliance to the ERP Threshold can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structure and body of the user or nearby persons.

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Simultaneous Transmission

For Simultaneous transmitting of 2.4G Transmitter and WIFI transmitter. According to KDB 447498 D04 v01:

The sum of the ratios of the spatially averaged results to the applicable frequency dependent ERP Thresholds = $3.85\text{mW}/3060\text{ mW} + 184.1\text{mW}/3060\text{mW} = 0.06142 < 1$

Since the sum of the ratios for all simultaneously transmitting antennas incorporated in the device is ≤ 1.0 , the EUT is considered to satisfy RF exposure compliance for simultaneous transmission operations.

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.”

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