RF Exposure

The Equipment Under Test (EUT) is a DRAGONFLY (Portable Electric Vehicle) with Wi-Fi function operating at 2412-2462MHz and BT function at 2402-2480MHz. The EUT is powered by AC 120V/60Hz from adaptor or DC 48V20Ah 960Wh from internal battery. For more detailed features description, please refer to the user's manual.

Antenna Type: Integral antenna
Modulation Type: GFSK
Antenna Gain: 2.0dBi
Bluetooth Version: 4.0 BLE (Single Mode)
The nominal conducted output power specified: -7.0 dBm (±4dB)
The nominal radiated output power (e.i.r.p) specified: -5.0 dBm (±4dB)

According to the KDB 447498 V07:

The Maximum peak radiated emission for the EUT is 91.6 dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = -3.63dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 85.4 dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = -9.83dBm
which is within the production variation.

The maximum EIRP specified is -1 dBm= 0.794mW
The maximum conducted output power specified is -3dBm = 0.50mW
The maximum ERP is -3.15dBm = 0.48mW

The SAR Exclusion Threshold Level:

P_{th}(mW) = ERP_{20cm} * $(d/20cm)^{x}$ (X= $-\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right)$)

= 3060 * $(14/20)^{1.9}$ mW

= 1550.2 mW

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.

Antenna Type: Integral antenna
Modulation Type: CCK, BPSK, QPSK, 16QAM, 64QAM
Antenna Gain: 3.21dBi

According to the KDB 447498 V07:
For WIFI 802.11n-HT20:
The normal radiated output power (e.i.r.p) is: 19.21dBm (tolerance: +/-5dB).
The normal conducted output power is 16.0dBm (tolerance: +/-5dB).

The maximum conducted output power for the EUT is 20.6dBm in the frequency 2.412GHz 802.11n-HT20 mode which is within the production variation.
The minimum conducted output power for the EUT is 13.4dBm in the frequency 2.412GHz 802.11b mode which is within the production variation.

which is within the production variation.

The maximum conducted output power specified is 21dBm= 125.893mW
The maximum EIRP specified is 24.21dBm = 263.633mW
The maximum ERP is 22.06dBm = 160.694mW
The SAR Exclusion Threshold Level:

P_{th}(mW) = ERP_{20cm} * $(d/20cm)^{x}$ (X= $-\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right)$)

= 3060 * $(14/20)^{1.9}$ mW

= 1550.2 mW

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.

Separation Distance Description:

Minimum distance between the user and/or bystander and the antenna and/or radiating element of the device is 14cm.

Simultaneous Transmission Evaluation

For Simultaneous transmitting of 2.4GHz Wi-Fi and Bluetooth BLE , according to KDB 447498 V07.

The sum of the ratios of the spatially averaged results to the applicable frequency dependent TER = 263.633/1550.2 + 0.794/1550.2=0.171 < 1

Since the sum of ratios for all simultaneously transmitting antennas incorporated in the device is ≤ 1.0, the EUT is considered to satisfy TER 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 14 cm from all persons.”