**RF Exposure Report**

The equipment under test (EUT) is a Robotic Vacuum with 2.4GHz Transmitter function operating in 2402-2480MHz and contains a certified WIFI module which can be operated in the frequency band of 2412-2462MHz. The EUT can be powered by DC 14.4V, 2500mAh rechargeable battery and/or DC 20V with recharging base and/or DC 20V with Adapter. The EUT can't transmit while charged by adapter directly. For more detail information pls. refer to the user manual.

**2.4G RF Transmitter:**
Modulation Type: GFSK
Antenna Type: PCB antenna
Antenna Gain: 2dBi.
The normal radiated output power (e.i.r.p) is: -3 dBm (tolerance: ± 1dB).
The normal conducted output power is: -5 dBm (tolerance: ± 1dB).

According to the KDB 447498:
The Maximum peak radiated emission for the EUT is 92.4 dBμV/m at 3m in the frequency 2402MHz
The EIRP = [(FS*D) ^2 / 30] mW = -2.83 dBm
which is within the production variation.

The Minimum peak radiated emission for the EUT is 91.9 dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = -3.33 dBm
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 maximum E.I.R.P = -2dBm = 0.631mW

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 Bulletin 65 as follow:
= 0.631mW / 4πR^2
= 0.0001 mW/cm^2

The MPE limit is 1.0 mW/cm^2 for general population and uncontrolled exposure in the 2.4G 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.

**Simultaneous Transmission Evaluation**

For Simultaneous transmitting of 2.4GHz Transmitter and WiFi function incorporated in the device, According to 865664D02 2.2 d) 1):

For WIFI function, based on the FCC ID:2AHMRESP12S test report, The MPE estimated value is 0.01mW/cm^2.

For 2.4GHz transmitter function, based on above calculated, the MPE estimated value is 0.0001 mW/cm^2.

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits = 0.0001/1 + 0.01/1 = 0.0101 < 1

The EUT can work with charging base which has 2.4GHz transmitting function, therefore, transmit simultaneously with all antennas incorporated in the EUT and charging base need to be evaluated. According to 865664D02 2.2 d) 1):

For 2.4GHz transmitter function of the charging base, based on the FCC ID:2ATRE-QQ6-BASE test report, the MPE estimated value is 0.000006 mW/cm^2.

The sum of the ratios of the spatially averaged results to the applicable frequency dependent MPE limits = 0.0001/1 + 0.01/1 + 0.000006/1 = 0.010106 < 1

Since the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in the device is $\leqslant$ 1.0, the EUT is considered to satisfy MPE 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."**