



FCC TEST REPORT

FCC ID: 2ATOQ-R30

Product	:	Robotic Vacuum Cleaner
Model Name	:	R30,R31,R32,R33,R34,R35,R36,R37,R38,R39,K30,K31
Brand	:	N/A
Report No.	:	PTC21081205903E-FC03
Prepared for		
Dongguan Xinsu Technology Co., Ltd		
Room 106, Chuangtou Building, No.8th Industrial South Road, Songshan Lake High-tech Industrial Development Zone,Dongguan		
Prepared by		
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TEST RESULT CERTIFICATION

Applicant's name : Dongguan Xinsu Technology Co., Ltd
Address : Room 106, Chuangtou Building, No.8th Industrial South Road,
Songshan Lake High-tech Industrial Development Zone,Dongguan
Manufacture's name : Dongguan Xinsu Technology Co., Ltd. Dalingshan Branch
Address : Room 103,building5,No.136 Yongjun Road,Dalingshan Town,Dongguan
City,Guangdong Province
Product name : Robotic Vacuum Cleaner
Model name : R30,R31,R32,R33,R34,R35,R36,R37,R38,R39,K30,K31
Test procedure : KDB 447498 D01 General RF Exposure Guidance v06
Test Date : Oct. 18, 2021 to Nov. 02, 2021
Date of Issue : Nov. 03, 2021
Test Result : Pass

This device described above has been tested by PTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Test Engineer:

A handwritten signature in black ink that reads 'Leo Yang'.

Leo Yang / Engineer

Technical Manager:

A handwritten signature in black ink that appears to read 'Chris Du'.

Chris Du / Manager



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2 Test Summary

Test Items	Test Requirement	Result
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS
Remark:		
N/A: Not Applicable		



3 General Information

3.1 General Description of E.U.T.

Product Name	:	Robotic Vacuum Cleaner
Model Name	:	R30
Additional model	:	R31,R32,R33,R34,R35,R36,R37,R38,R39,K30,K31 Note: The appearance and color of the product are different, and the electrical principle is the same. The main test model is Simum6
Specification	:	802.11b/g/n HT20 BT 4.0-BLE(GFSK)
Operation Frequency	:	2412-2462MHz for 802.11b/g;/ n(HT20) 2402-2480MHz for BT
Number of Channel	:	11 channels for 802.11b/g; n(HT20) 40CH for BLE
Type of Modulation	:	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n; GFSK for BT-BLE
Antenna installation	:	FPCB antenna
Antenna Gain	:	2.5dBi/2.5dBi
Power supply	:	Li-18650 3200mAh 14.8V 4S1P/47.36Wh(J&Y TECHNOLOGY CO., LTD) 19V DC 600mA via Adaptor input:100-240~50/60HZ 0.4A MAX (model: KA121900600EU/Shenzhen Keyu Power Supply Technology Co.,Ltd)
Hardware Version	:	V1.0
Software Version	:	V1.0



4 RF Exposure

Test Requirement : FCC Part 1.1307(b)(1)

Evaluation Method : FCC Part 2.1091

4.1 Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

4.2 The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range	Electric Field	Magnetic Field	Power Density (S)	Averaging Time
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range	Electric Field	Magnetic Field	Power Density (S)	Averaging Time
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density



4.3 MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

4.4 Test Result

Item	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Peak Output Power (mw)	Power Density (mW/cm ²)	Total	Limit of Power Density	Result
2462	1.778	16.82	48.08	0.017	0.01775	1	Pass
2440	1.778	3.24	2.11	0.00075			

*******THE END REPORT*******