



# FCC TEST REPORT

## FCC ID: 2ATOQ-X8PRO-A

Product	:	Robotic Vacuum Cleaner
Model Name	:	X8 Pro,X8Plus,X8,X81,X82,X83,X84,X85,X86,X87,X88,X89,X81-A,X82-A,X83-A,X84-A,X85-A, X86-A
Brand	:	N/A
Report No.	:	PTC21062401820E-FC02
<b>Prepared for</b>		
Dongguan Xinsu Technology Co., Ltd		
Room 106, Chuangtou Building, No.8th Industrial South Road, Songshan Lake High-tech Industrial Development Zone,Dongguan		
<b>Prepared by</b>		
Precise Testing & Certification Co., Ltd		
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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 : X8 Pro,X8Plus,X8,X81,X82,X83,X84,X85,X86,X87,X88,X89,X81-  
A,X82-A,X83-A,X84-A,X85-A, X86-A  
Test procedure : KDB 447498 D01 General RF Exposure Guidance v06  
Test Date : Nov. 02, 2021 to Nov. 16, 2021  
Date of Issue : Nov. 17, 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 reads "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	:	X8 Pro
Additional model	:	X8Plus,X8,X81,X82,X83,X84,X85,X86,X87,X88,X89,X81-A,X82-A,X83-A,X84-A,X85-A, X86-A  Note: All models have the same RF module and Antenna, except for decorative parts in front panels, color of enclosure, are the trade mark and model no. for trading purpose.. The main test model is X8 Pro.
Specification	:	802.11b
Operation Frequency	:	2412-2462MHz
Number of Channel	:	11 channels
Type of Modulation	:	DSSS with DBPSK/DQPSK/CCK
Antenna installation	:	FPCB antenna
Antenna Gain	:	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: GQ12-190060-AG)
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/cm2)	Limit of Power Density	Result
2412	1.778	15.4	34.67	0.012263	1	Pass

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