



# FCC TEST REPORT

## FCC ID: 2ATOQ-R20

Product	:	Robotic Vacuum Cleaner
Model Name	:	R20,R21, R22, R23, R24, R25, R26, R27, R28, R29, KK7, KK71
Brand	:	N/A
Report No.	:	PTC20112006102E-FC02
<b>Prepared for</b>		
Dongguan Xinsu Technology Co., Ltd.		
Room 106, Chuangtou Building, No.8 Industrial South Road, Songshan Lake High-tech Industrial Development Zone, Dongguan		
<b>Prepared by</b>		
Precise Testing & Certification Co., Ltd		
Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China		



### TEST RESULT CERTIFICATION

Applicant's name : Dongguan Xinsu Technology Co., Ltd.  
Address : Room 106, Chuangtou Building, No.8 Industrial South Road,  
Songshan Lake High-tech Industrial Development  
Zone,Dongguan  
Manufacture's name : Dongguan Xinsu Technology Co., Ltd. Dalingshan Branch  
Address : Room 103, building 5, No. 136, Yongjun Road, Dalingshan Town,  
Dongguan City, Guangdong Province  
Product name : Robotic Vacuum Cleaner  
Model name : R20,R21, R22, R23, R24, R25, R26, R27, R28, R29, KK7, KK71  
Test procedure : KDB 447498 D01 General RF Exposure Guidance v06  
Test Date : December 24, 2020 to January 08,2021  
Date of Issue : January 08,2021  
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	:	R20,R21, R22, R23, R24, R25, R26, R27, R28, R29, KK7, KK71 Note:Product appearance colors are different, others are the same
Specification	:	802.11b/g/n HT20/HT40
Operating frequency	:	2412-2462MHz for 802.11b; 2412-2462MHz for 802.11g; 2412-2462MHz for 802.11n(HT20); 2422-2452MHz for 802.11n(HT40) ;
Number of Channel	:	11 Channels for 802.11b; 11 Channels for 802.11g; 11 Channels for 802.11n(HT20); 7 Channels for 802.11n(HT40);
Antenna installation	:	FIPA antenna
Antenna Gain	:	3Bi
Type of Modulation	:	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
Hardware Version	:	N/A
Software Version	:	N/A
Power supply	:	Model : GQ12-190060-AU AC 100-240V DC19V 600MA(battery:14.8V 3200mA) Model : KA1201A-1900600US AC 100-240V DC19V 600MA(battery:14.8V 3200mA)



## 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 <sup>2</sup> )	Limit of Power Density (mW/cm <sup>2</sup> )	Result
WIFI	2.00	18.52	71.12	0.0282	1	Pass

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