



FCC TEST REPORT

FCC ID: 2AMYQ-202012GD500

Product	:	Robotic Vacuum Cleaner
Model Name	:	X500,X500i,X500w,X500r,X500Pro,X520,X530,X550,X580,X-503, X500s,X500u,Robvacuum8 X500t,D5,D51,D52,D5s,D5Pro,X500e,S15, N5,S15 SERIES,E5,E5S,E5W,E550,E560,E570,X521,X531,X551,X561, M1,M1PRO
Brand	:	N/A
Report No.	:	PTC20120301603E-FC02
Prepared for		
Shenzhen Hua Xin Information Technology Co.,Ltd.		
Section A,10/F,Block 1,No.7 Industrial Park,Yulu Community,Yutang,Guangming New District,Shenzhen,China		
Prepared by		
Precise Testing & Certification Co., Ltd		
Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China		



TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Hua Xin Information Technology Co.,Ltd.
Address : Section A,10/F,Block 1,No.7 Industrial Park,Yulu
Community,Yutang,Guangming New District,Shenzhen,China
Manufacture's name : Shenzhen Hua Xin Information Technology Co.,Ltd.
Address : Section A,10/F,Block 1,No.7 Industrial Park,Yulu
Community,Yutang,Guangming New District,Shenzhen,China
Product name : Robotic Vacuum Cleaner
Model name : X500,X500i,X500w,X500r,X500Pro,X520,X530,X550,X580,X-503,
X500s,X500u,Robvacuum8 X500t,D5,D51,D52,D5s,D5Pro,X500e,
S15,N5,S15 SERIES,E5,E5S,E5W,E550,E560,E570,X521,X531
,X551,X561,M1,M1PRO
Test procedure : KDB 447498 D01 General RF Exposure Guidance v06
Test Date : Dec 08, 2020 to Dec 16, 2020
Date of Issue : Dec 16, 2020
Test Result : Pass

This device described above has been tested by PTS, 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.

This report shall not be reproduced except in full, without the written approval of PTS, this document may be altered or revised by PTS, personal only, and shall be noted in the revision of the document.

Test Engineer:

Leo Yang / Engineer

Technical Manager:

Chris Du / Manager



Contents

	Page
2 TEST SUMMARY.....	4
3 GENERAL INFORMATION.....	5
3.1 GENERAL DESCRIPTION OF E.U.T.....	5
4 RF EXPOSURE.....	6
4.1 REQUIREMENTS.....	6
4.2 THE PROCEDURES / LIMIT.....	6
4.3 MPE CALCULATION METHOD.....	7
4.4 TEST RESULT.....	7



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	:	X500,X500i,X500w,X500r,X500Pro,X520,X530,X550,X580,X-503, X500s,X500u,Robvacuum8 X500t,D5,D51,D52,D5s,D5Pro,X500e,S15, N5,S15 SERIES,E5,E5S,E5W,E550,E560,E570,X521,X531,X551,X561, M1,M1PRO NOTE:(X500 is the main test model, other models and main test models have different appearance colors, others are the same)
Bluetooth Version	:	WiFi
Operating frequency	:	802.11b/g/n HT20: 2412-2462MHz
Type of Modulation	:	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
Antenna installation:	:	PCB
Antenna Gain:	:	3 dBi
Power supply	:	AC100-240V 50/60HZ 19V/0.6A(14.4V 2500mAh,battery)

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

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

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

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

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)	Limit of Power Density (mW/cm ²)	Result
WIFI	2.00	18.06	63.97	0.0254	1	Pass

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