



FCC TEST REPORT

FCC ID: 2AXAN-ZD24W

Product	:	Robotic Vacuum Cleaner
Model Name	:	M680GMA
Additional mode	:	V660GMA, Pacer
Brand	:	Miravac
Report No.	:	PTC20090302601E-FC03
Prepared for		
ADDA International		
3045 S Archibald Ave STE S222, Ontario CA 91761 USA		
Prepared by		
Precise Testing & Certification Co., Ltd		
Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China		



TEST RESULT CERTIFICATION

Applicant's name : ADDA International
Address : 3045 S Archibald Ave STE S222, Ontario CA 91761 USA
Manufacture's name : Matsutek Enterprises CO., LTD
Address : 2F., No.2, Ln. 15, Ziqiang St., Tucheng Dist., New Taipei City 236, Taiwan (R.O.C.)
Product name : Robotic Vacuum Cleaner
Model name : M680GMA
Additional mode : V660GMA, Pacer
Test procedure : KDB 447498 D01 General RF Exposure Guidance v06
Test Date : Sep. 04, 2020 to Sep. 10, 2020
Date of Issue : Sep. 10, 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.

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Test Engineer:

A handwritten signature in black ink that reads "Leo Yang" with a checkmark-like flourish at the end.

Leo Yang / Engineer

Technical Manager:

A handwritten signature in black ink that appears to read "Chris Du" in a stylized, cursive font.

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	:	M680GMA
Additional model	:	V660GMA, Pacer Note:All samples are the same except appearance colour and model number.
Specification	:	802.11b/g/n HT20/40
Operation Frequency	:	2412-2462MHz for 802.11b/g; n(HT20) 2422-2452MHz for 802.11n(HT40);
Number of Channel	:	11 channels for 802.11b/g; n(HT20) 7channels for 802.11n(HT40);
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
Antenna Gain	:	0 dBi
Power supply	:	Adapter: Model:ZD24W200120US Input:100-240VAC, output:DC 20V,1.2A Battery: Model:INR18650 4S1P 14.6V 2500mAh Input:DC 14.6V, 2500mAh
Hardware Version	:	M680GM_CB V0.5
Software Version	:	M680GMA1_6.13R81_full



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	1	17.19	52.36	0.0104	1	Pass

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