Dreame Trading (Tianjin) Co.,Ltd.

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
RPM1GA

REPORT NUMBER:
2309A0774SHA-003

ISSUE DATE:
Dec 11, 2023

DOCUMENT CONTROL NUMBER:
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TEST REPORT

Report no.: 2309A0774SHA-003

Applicant:	Dreame Trading (Tianjin) Co., Ltd. Room 2112-1-1, South District, Finance and trade Center, 6975 Yazhou Road, Dongjiang Bonded Port Area, Tianjin Pilot Free Trade Zone, 300463 Tianjin, China
Manufacturer:	Dreame Trading (Tianjin) Co., Ltd. Room 2112-1-1, South District, Finance and trade Center, 6975 Yazhou Road, Dongjiang Bonded Port Area, Tianjin Pilot Free Trade Zone, 300463 Tianjin, China
FCC ID:	2AXGD-RPM1GA

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:
KDB447498 D01 General RF Exposure Guidance v06 FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

PREPARED BY:	**REVIEWED BY:**
Teddy yin	
Project Engineer Teddy Yin	Reviewer Wakeyou Wang

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Revision History

Report No.	Version	Description	Issued Date
2309A0774SHA-003	Rev. 01	Initial issue of report	Dec 11, 2023

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Robot vacuum cleaner
Type/Model/PMN/HVIN:	RPM1GA
Description of EUT:	The appliance covered by this report is automatically battery-powered vacuum cleaner and dry pick up for household indoor use only. The EUT contains WIFI mode and BLE mode. This report is for BLE mode.
Rating:	DC 14,4V Charging dock: RCM11 Input: DC 20V, 0,9A Output: DC 20V, 0,9A Adaptor: SA182H-200090V Input: 100-240V~, 50/60Hz, 0,4A; Output: 20,0VDC, 0,9A, 18W. Class II Adaptor: CZH024200090EUWM Input: 100-240V~, 50/60Hz, 0,8A Max; Output: 20,0VDC, 0,9A, 18W. Class II
EUT type:	☐ Table top ☒ Floor standing
Software Version:	V1.0
Hardware Version:	WSDK.20Q2.0000.00
Sample No.:	0230910-04-003
Sample received date:	Oct 26, 2023
Date of test:	Oct 26~Nov 19, 2023

1.2 Technical Specification

WIFI

Frequency Range:	2412MHz ~ 2462MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20, IEEE 802.11n-HT40
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT40: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Channel Number:	11 Channels for 802.11b, 802.11g and 802.11n(HT20) 7 Channels for 802.11n(HT40)
Data Rate:	IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7 IEEE 802.11n-HT40: Up to MCS7
Channel Separation:	5 MHz
Antenna Information:	2.37dBi, FPCB antenna

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BLE

Frequency Range:	2402-2480MHz
Support Standards:	Bluetooth LE 5.0
Type of Modulation:	GFSK
Channel Number:	40
Data Rate:	1Mbps
Channel Separation:	2MHz
Antenna Information:	2.37dBi, FPCB antenna

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m^2)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	250/f	4/f	5/f	-
0,8-3 kHz	250/f	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	0,73/f	0,92/f	-
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

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2.2 Assessment Results

Power density (S) is calculated according to the formula:

$S = PG / (4\pi R^2)$

Where S = power density in mW/cm^2

P = Radiated transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 2309A0774SHA-001:
The maximum WIFI radiated power = 16.87dBm = 48.64 mW;
Here R is chosen to be 20cm,

$S = PG / (4\pi R^2) = 48.64/ (4 * 3.14 * 20 * 20) = 0.0097 mW/cm^2$

As we can see from the test report 2309A0774SHA-002:
The maximum BLE radiated power = 8.59dBm = 7.23 mW;
Here R is chosen to be 20cm,

$S = PG / (4\pi R^2) = 7.23/ (4 * 3.14 * 20 * 20) = 0.0014 mW/cm^2$

$S_{sum}=0.0097+0.0014=0.0111\ mW/cm^2 < 1\ mW/cm^2$

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Appendix I

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

********** END **********