Dreame Trading (Tianjin) Co.,Ltd.

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
RLE22SA, RLE22SD, RLE32GD

REPORT NUMBER:
2407B0578SHA-002

ISSUE DATE:
Aug 26, 2024

DOCUMENT CONTROL NUMBER:
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TEST REPORT

Report no.: 2407B0578SHA-002

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-UAW6158

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:**
Project Engineer Teddy Yin	Reviewer Wakeyou Wang

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Revision History

Report No.	Version	Description	Issued Date
2407B0578SHA-002	Rev. 01	Initial issue of report	Aug 26, 2024

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1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Robotic Vacuum Cleaner
Type/Model/PMN/HVIN:	RLE22SA, RLE22SD, RLE32GD
Description of EUT:	The appliance covered by this report is automatically battery-powered vacuum cleaner and dry pick up for household indoor use only. RLE22SA and RLE22SD are fully same except that RLE22SA is used with Charging dock(RCEA0103) and adaptor(BZ015-190060-AU), but RLE22SD is used with Base Station with Auto-Empty(RCED0105). RLE32GD and RLE22SD are same except that RLE22SD has Line Laser function, but RLE32GD has no Line Laser function. RLE32GD is used with Base Station with Auto-Empty(RCED0104). Base Station with Auto-Empty: RCED0105 and RCED0104 are fully same except for the model name. RLE32GD and RLE22SD were tested as representative and the worst data is listed in the report.
Rating:	DC 19V Charging dock: RCEA0103 Input: DC 19V, 0.6A; Output: DC 19V, 0.6A Adaptor: BZ015-190060-AU Input: 100-240V~, 50/60Hz, Max 0.35A; Output: 19VDC, 0.6 A. Class II Base Station with Auto-Empty: RCED0105, RCED0104 Input: 120V~, 60Hz, 5.2A; Output: 19VDC, 0.7A. Class II
EUT type:	☐ Table top ☒ Floor standing
Software Version:	/
Hardware Version:	/
Sample No.:	A240703-53-001
Sample received date:	Jul 15, 2024
Date of test:	Jul 15~29, 2024

1.2 Technical Specification

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:	1.80dBi, PIFA antenna

1.3 Description of Test Facility

Name:	Intertek Testing Services (Shanghai FTZ) Co., Ltd.
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
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The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L21189
	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 2407B0578SHA-001:
The maximum EIRP = 22.60dBm = 181.97mW;
Here R is chosen to be 20cm,

$S = PG / (4\pi R^2) = 181.97/ (4 * 3.14 * 20 * 20) = 0.0362 mW/cm^2$

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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 **********