

Ecovacs Robotics Co., Ltd. MPE ASSESSMENT REPORT

Report Type:

FCC Part §2.1091 and §1.1307(b) assessment report

Model: DLX32

REPORT NUMBER: 2311A1369SHA-002

ISSUE DATE: January 8, 2024

DOCUMENT CONTROL NUMBER: TTRFFCCMPE-01_V1 © 2018 Intertek





Telephone: 86 21 6127 8200 www.intertek.com

Report no.: 2311A1369SHA-002

Applicant:	Ecovacs Robotics Co., Ltd.
	No.518 Songwei Road, Wusongjiang industry Park, Guoxiang Street, Wuzhong District, Suzhou, Jiangsu, China.
Manufacturer:	Ecovacs Robotics Co., Ltd.
	No.518 Songwei Road, Wusongjiang industry Park, Guoxiang Street, Wuzhong District, Suzhou, Jiangsu, China.
Factory:	Shenzhen Jashen Technology Co., Ltd.
	No.201, Building 3, Second Industrial Zone, Wantou, Hongxing Community, Songgang Street, BAOAN DISTRICT, Shenzhen 518105 China
FCC ID:	2AZAT-DLX32

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

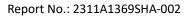
KDB447498 D01 General RF Exposure Guidance v06 FCC Part2.1091, FCC Part1.1307(b)

PREPARED BY:

REVIEWED BY:

Frie. li

Project Engineer Eric Li Reviewer Wakeyou Wang





Revision History

Report No.	Version	Description	Issued Date
2311A1369SHA-002	Rev. 01	Initial issue of report	January 8, 2024

intertek Total Quality. Assured.

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Floor Cleaning Robot
Type/Model:	DLX32
Description of EUT:	The EUT is a Floor Cleaning Robot, it supports WIFI function, there is only one model. we test them and list the worst results in this report.
Rating:	20V DC 2.0A
EUT type:	Table top 🛛 Floor standing
Software Version:	/
Hardware Version:	/
Sample Identification No.:	0231125-01-001
Sample received date:	2023.11.25
Date of test:	2023.11.28-2023.12.05

1.2 Technical Specification

Frequency Band:	2400MHz ~ 2483.5MHz			
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n-HT20, IEEE 802.11n-HT40			
	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)			
Type of Modulation:	IEEE 802.11n-HT40: OFDM (64-QAM, 16-QAM, QPSK, BPSK)			
	11 Channels for 802.11b, 802.11g and 802.11n(HT20)			
Channel Number:	7 Channels for 802.11n(HT40)			
Channel Separation:	5 MHz			
Antenna:	PCB Antenna, 2.25dBi			

Total Quality. Assured. TEST REPORT

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 Member No: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

Total Quality. Assured.

2 MPE Assessment

Test result: Pass

2.1 MPE Assessment Limit

Mobile device exposure for standalone operations:

Frequency range	E-field strength	H-field strength B-field		Equivalent plane wave	
	(V/m)	(A/m)	(uT)	power density	
				S _{eq} (W/m²)	
0-1 Hz	-	3,2 × 10 ⁴	4×10^{4}	-	
1-8 Hz	10 000	3,2 × 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 \leq 1.0

intertek Total Quality. Assured.

TEST REPORT

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/cm² P = Radiated transmit power in mWG = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 2311A1369SHA-001:

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Mode	Frequency band	Max Power	Antenna Gain	R	S	Limits
	(MHz)	dBm	dBi	(cm)	(mW/cm2)	(mW/cm2)
WIFI	2412-2462	14.54	2.25	20	0.0097	1

Note: 1 mW/cm2 from 1.310 Table 1

The MPE assessment value is 0.0097 < 1.0, therefore, the MPE requirement is deemed to be satisfied without test.



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.