

Ecovacs Home Service Robotics Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:

FCC Part §2.1091, §2.1093 and §1.1307(b) assessment report

Model:

DEX86

REPORT NUMBER:

230302476SHA-003

ISSUE DATE:

June 6, 2023

DOCUMENT CONTROL NUMBER:

TTRFFCCMPE-01_V1 © 2018 Intertek





Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North) Caohejing Development Zone Shanghai 200233, China

Telephone: 86 21 6127 8200

www.intertek.com

Report no.: 230302476SHA-003

Applicant: Ecovacs Home Service Robotics Co., Ltd.

No.518 Songwei Road, Wusongjiang industry Park, Guoxiang Street,

Wuzhong District, Suzhou, Jiangsu, China.

Manufacturer: Ecovacs Home Service Robotics Co., Ltd.

No.518 Songwei Road, Wusongjiang industry Park, Guoxiang Street,

Wuzhong District, Suzhou, Jiangsu, China.

Factory 1: Ecovacs Robotics Co., Ltd.

No.518 Songwei Road, Wusongjiang industry Park, Guoxiang Street,

Wuzhong District, Suzhou, Jiangsu, China

Factory 2: Ecovacs Home Service Robotics Co., Ltd.

No.518 Songwei Road, Wusongjiang industry Park, Guoxiang Street,

Wuzhong District, Suzhou, Jiangsu, China.

FCC ID: 2A64B-DEX86

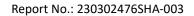
SUMMARY:

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:	
Zrie. li	JK:W	
Project Engineer Eric Li	Reviewer Wakeyou Wang	

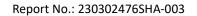
This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.





Revision History

Report No.	Version	Description	Issued Date
230302476SHA-003	Rev. 01	Initial issue of report	June 6, 2023





1 GENERAL INFORMATION

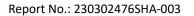
1.1 Description of Equipment Under Test (EUT)

Product name:	Floor Cleaning Robot
Type/Model:	DEX86
Description of EUT:	The EUT is a Floor Cleaning Robot, it supports WIFI and Bluetooth functions, 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.:	0230505-03-001
Sample received date:	2023.05.05
Date of test:	2023.05.10-2023.05.29

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:	FPC Antenna, 3.87dBi		

Frequency Band:	2402MHz to 2480MHz
Support Standards:	Bluetooth Low Energy
Type of Modulation:	GFSK
Channel Number:	40
Data Rate	1MHz
Channel Separation:	2MHz
Antenna Information:	FPC Antenna, 3.87dBi

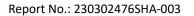




1.3 Description of Test Facility

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,	CNAS Accreditation Lab Registration No. CNAS L0139
certified, or accredited by these organizations:	FCC Accredited Lab Designation Number: CN0175
o Garness of the	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





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	-	$3,2 \times 10^4$	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 \leq 1.0



Report No.: 230302476SHA-003

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)

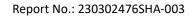
As we can see from the test report 230302476SHA-001, 230302476SHA-002:

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	14.08	3.87	20	0.0124	1
BLE	2402-2480	3.09	6.96	20	0.0050	1

Note: 1 mW/cm2 from 1.310 Table 1

This device exposure for simultaneous transmission operations: the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is $0.0124/1+0.0050/1=0.0174 \le 1.0$, 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.
