

RF Exposure Evaluation Report

Product : Laser Robotic Vacuum Cleaner
Trade mark : N/A
Model/Type reference : L7S
Serial Number : N/A
Report Number : EED32P81807103
FCC ID : 2BDLT-L7S
Date of Issue : Nov. 30, 2023
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

Zhongshan jianduan intelligent robot Co.,Ltd
3rd Floor, No 3 Jiangong 3rd Street, South District, Zhongshan,
guangdong, China

Prepared by:

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Check No.: 7614101123

2 Version

Version No.	Date	Description
00	Nov. 30, 2023	Original

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4 General Information

4.1 Client Information

Applicant:	Zhongshan jianduan intelligent robot Co.,Ltd
Address of Applicant:	3rd Floor, No 3 Jiangong 3rd Street, South District, Zhongshan, guangdong, China
Manufacturer:	Zhongshan jianduan intelligent robot Co.,Ltd
Address of Manufacturer:	3rd Floor, No 3 Jiangong 3rd Street, South District, Zhongshan, guangdong, China

4.2 General Description of EUT

Product Name:	Laser Robotic Vacuum Cleaner
Model No.(EUT):	L7S
Trade Mark:	N/A

4.3 Product Specification subjective to this standard

Frequency Range:	BLE: 2402MHz~2480MHz 2.4G WIFI: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz	
Modulation Type:	BLE: GFSK 2.4G WIFI: IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM,QPSK,BPSK)	
Test Power Grade:	Default	
Test Software of EUT:	ADB	
Antenna Type:	FPC Antenna	
Antenna Gain:	2.67dBi	
Power Supply:	Adapter:	Model:BZ015-190060-AU Input:100-240V~50/60Hz 0.35A Max Output:19.0V --- 0.6A
Sample Received Date:	Nov. 10, 2023	
Sample tested Date:	Nov. 10, 2023 to Nov. 14, 2023	
Remark: Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.		

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation

For Stand alone:

For BLE

Frequency (MHz)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Result
2402	2.99	2.67	5.66	3.51	2.244	3060	PASS

For 2.4G WIFI

Frequency (MHz)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Result
2422	17.34	2.67	20.01	17.86	61.094	3060	PASS

Note:

- ① EIRP=conducted power+antenna gain;
- ② ERP=EIRP-2.15
- ③ The test data refer to the report of EED32P81807101 and EED32P81807102. Only the worst case data was recorded in the report.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***