Report No.: DDT-R22062308-2E03

Issued Date: Jul. 25, 2022

RF EXPOSURE REPORT

FOR

Applicant	**:**	HangZhou TaRen Robotics Technology CO.,LTD
Address	**:**	3F JieLi Building JiChang Road Shangcheng Hangzhou Zhejiang China
Equipment under Test	**:**	Commercial Floor Scrubber
Model No.	**:**	M2 Pro
Trade Mark	**:**	iTR
FCC ID		2ARKV-ITRMM620228
IC	**:**	28428-ITRMM620228
Manufacturer	**:**	JiaXing IT-Robotics Technology Co.,Ltd
Address	**:**	Room 102, Building 13, NO.36 ChangSheng South Road, Economic and Technological Development Zone, Jiaxing Zhejiang China

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, **E-mail:** ddt@dgddt.com, http://www.dgddt.com

REPORT

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Test Report Declare

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Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No:	DDT-R22062308-2E03		
Date of Receipt:	Jul. 09, 2022	**Date of Test:**	Jul. 09, 2022 ~ Jul. 25, 2022

Prepared By:

Sanvin Zheng

Sanvin Zheng/Engineer

Approved By:

DONGGUAN DONGDIAN TESTING SERVICE CO.,LTD. DDT Damon Hu APPROVED

Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Jul. 25, 2022	

1. General Information

1.1. Description of equipment

EUT* Name	:	Commercial Floor Scrubber
Model Number	:	M2 Pro
EUT function description	:	Please reference user manual of this device
Power supply	:	DC powered by a power supply or a built-in 24V lithium battery
Radio Technology	:	IEEE 802.11b/g/n
Operation frequency	:	IEEE 802.11b: 2412 MHz - 2462 MHz IEEE 802.11g: 2412 MHz - 2462 MHz IEEE 802.11n HT20: 2412 MHz - 2462 MHz IEEE 802.11n HT40: 2422 MHz - 2452 MHz
Modulation	:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Transmitter rate	:	IEEE 802.11b: 1, 2, 5.5, 11 Mbps IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: up to 144.4 Mbps IEEE 802.11n HT40: up to 300 Mbps
Antenna Gain	:	Antenna 1: 5.94 dBi Antenna 2: 5.94 dBi
Sample Number	:	S22062308-01

Note: EUT is the abbreviation of equipment under test.

Antenna information			
	Ant1 gain	Ant2 gain	MIMO
IEEE 802.11b	5.94	5.94	/
IEEE 802.11g	5.94	5.94	/
IEEE 802.11n HT20	5.94	5.94	8.95
IEEE 802.11n HT40	5.94	5.94	8.95

1.2. Assess laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2. RF Exposure Evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. Calculation method

$$E(V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } S(mW/cm^2) = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (mW)
G = EUT Antenna numeric gain (numeric)=
d = Separation distance between radiator and human body (m)
The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d= 0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation result

P3310 module

Mode	PK Output power (dBm)	Output power (mW)	Duty Cycle (%)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm^2)	MPE Limit (mW/cm^2)
BT	8.65	7.33	76.4	2.86	1.93	0.00369	1
BLE	5.26	3.30	62.0	2.86	1.93	0.00208	1
2.4G WIFI	18.44	69.82	98.7	2.86	1.93	0.02721	1
5G WIFI	19.31	85.31	93.5	5.49	3.54	0.06423	1

Note: PK Output power includes the duty cycle factor.

MT7620A module

Mode	PK Output power (dBm)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm^2)	MPE Limit (mW/cm^2)
2.4G WIFI	16.19	41.59	5.94	3.93	0.03252	1

Simultaneous:
2.4G WIFI (MT7620A) + BT (P3310) = 0.03252/1 + 0.00369/1 = 0.03621<1
2.4G WIFI (MT7620A) + BLE (P3310) = 0.03252/1 + 0.00208/1 = 0.03460<1
2.4G WIFI (MT7620A) + 2.4G WIFI (P3310) = 0.03252/1 +0.02721/1 =0.05973<1
2.4G WIFI (MT7620A) + 5G WIFI (P3310) = 0.03252/1 + 0.06423/1 = 0.09675<1

Note: The estimation distance is 20 cm

Conclusion: The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

END OF REPORT