

RF Exposure Evaluation Report

Applicant: Hangzhou Roombanker Technology Co., Ltd.

Address of Applicant: A#801 Wantong center, Hangzhou, China

Equipment Under Test (EUT)

Product Name: Indoor Nodle Miner

Model No.: DSGW-210N

Trade mark: N/A

FCC ID: 2AUXBDSGW-210N

Applicable standards: FCC CFR Title 47 Part 2 Subpart J Section 2.1091

Date of sample receipt: 23 Mar., 2022

Date of Test: 24 Mar., to 11 Apr., 2022

Date of report issue: 18 Apr., 2022

Test Result: PASS*

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	12 Apr., 2022	Original
01	18 Apr., 2022	1. Updated Page 7.

Tested by: Mike OU
Test Engineer

Date: 18 Apr., 2022

Reviewed by: Winner Zhang
Project Engineer

Date: 18 Apr., 2022

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4 General Information

4.1 Client Information

Applicant:	Hangzhou Roombanker Technology Co., Ltd.
Address:	A#801 Wantong center, Hangzhou, China
Manufacturer:	Hangzhou Roombanker Technology Co., Ltd.
Address:	A#801 Wantong center, Hangzhou, China

4.2 General Description of E.U.T.

Product Name:	Indoor Nodle Miner
Model No.:	DSGW-210N
Operation Frequency:	2.4G Wi-Fi: 2412MHz~2462MHz 5.2G Wi-Fi Band 1: 5180MHz~5240MHz 5.8G Wi-Fi Band 4: 5725MHz~5875MHz Bluetooth/ BLE: 2402MHz~2480MHz GSM850: 824.2 MHz - 848.8 MHz PCS1900: 1850.2 MHz - 1909.8 MHz WCADM Band II: 1852.4 MHz - 1907.6 MHz WCADM Band IV: 1712.4 MHz - 1752.6 MHz WCADM Band V: 826.4 MHz - 846.6 MHz LTE Band 2: 1850 MHz - 1910 MHz LTE Band 7: 2500 MHz - 2570 MHz LTE Band 25: 1850 MHz - 1915 MHz LTE Band 41: 2496 MHz - 2690 MHz
Modulation technology:	802.11b: DSSS, 802.11a/g/n/ac: OFDM Bluetooth BDR /BLE: GFSK, Bluetooth EDR: $\pi/4$ -DQPSK, 8DPSK GSM 850/PCS 1900: GPRS, EGPRS WCDMA Band II/IV/V: RMC/HSUPA/HSDPA LTE Band 2/7/25/41: QPSK, 16QAM, 64QAM
Antenna Type:	BT/ BLE/ 2.4GWi-Fi/ 5GWi-Fi: External Antenna GSM 850/ PCS 1900/ WCDMA Band II/IV/V/ LTE Band 2/7/25/41: FPC Antenna
Antenna gain:	BT/ BLE: 4 dBi; 2.4GWi-Fi: 4 dBi; 5GWi-Fi: 5 dBi GSM 850/ PCS 1900/ WCDMA Band II/IV/V/ LTE Band 2/7/25/41: 2.84 dBi
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

4.3 Operating Modes

Operating mode	Detail description
BLE mode	Keep the EUT in continuously transmitting in BLE mode
BT mode	Keep the EUT in continuously transmitting in BT mode
2.4G WIFI mode	Keep the EUT in continuously transmitting in 2.4G WIFI mode
5G WIFI mode	Keep the EUT in continuously transmitting in 5G WIFI mode
GSM mode	Keep the EUT in continuously transmitting in GSM mode
WCDMA mode	Keep the EUT in continuously transmitting in WCDMA mode
LTE mode	Keep the EUT in continuously transmitting in LTE mode

4.4 Additions to, deviations, or exclusions from the method

No

4.5 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

● **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

● **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

4.6 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info-JYTee@lets.com, Website: <http://jyt.lets.com>

5 Technical Requirements Specification in FCC CFR Title 47 Part 2.1091

5.1 Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

5.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

5.3 Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm ²)	Limits for General Population/ Uncontrolled Exposure (mW/cm ²)
2.4G Wi-Fi							
2412	16.29	42.56	4	2.51	30.00	0.009	1.00
5.2G Wi-Fi							
5240	8.84	7.66	5	3.16	30.00	0.002	1.00
5.8G Wi-Fi							
5825	10.06	10.14	5	3.16	30.00	0.003	1.00
BLE							
2402	5.01	3.17	4	2.51	30.00	0.001	1.00
BT							
2402	5.11	3.24	4	2.51	30.00	0.001	1.00
GSM850							
836.6	32.53	1790.61	2.84	1.92	30.00	0.304	0.56
PCS1900							
1850.2	29.66	924.70	2.84	1.92	30.00	0.157	1.00
WCDMA Band II							
1852.4	23.88	244.34	2.84	1.92	30.00	0.042	1.00
WCDMA Band IV							
1712.4	23.82	240.99	2.84	1.92	30.00	0.041	1.00
WCDMA Band V							
826.4	23.86	243.22	2.84	1.92	30.00	0.041	0.55
LTE Band 2							
1851.5	24.64	291.07	2.84	1.92	30.00	0.050	1.00
LTE Band 7							
2535	23.87	243.78	2.84	1.92	30.00	0.041	1.00
LTE Band 25							
1882.5	24.12	258.23	2.84	1.92	30.00	0.044	1.00
LTE Band 41							
2501	23.86	243.22	2.84	1.92	30.00	0.041	1.00

Simultaneous transmission(Worse mode):

ANT No.	Mode	Ratio	Total Ratio	Limit
Main ANT	GSM 850	0.54	0.55	1.0
Secondary ANT	802.11b	0.01		

Note: Just the worst case mode was shown in report.

5.4 Conclusion

The device is exempt from the test and satisfies RF exposure evaluation.

-----End of report-----