RF Exposure Evaluation Report

Report No.:	JYTSZ-R12-2301718
Applicant:	Hangzhou Roombanker Technology Co., Ltd.
Address of Applicant:	A#801 Wantong center, Hangzhou, China.
Equipment Under Test (EUT)	
Product Name:	Home Security Hub(Station)
Model No.:	RBGW-202-915(US), RBGW-202-915(LA), RBGW-202-915(AU), RBGW-202-915(XX)/YYY:(X:0~9 or X:A~Z)/(Y:0~9 or Y:A~Z), RBGW-202-915(XX)/YYY:(X:0~9 or X:A~Z)/(Y:0~9 or Y:A~Z or blank)
Trade mark:	Roombanker
FCC ID:	2AUXBRBGW-202
Applicable standards:	FCC CFR Title 47 Part 2 (§2.1091)
Date of sample receipt:	23 Nov., 2023
Date of Test:	24 Nov., 2023 to 19 Jan., 2024
Date of report issue:	22 Jan., 2024
Test Result:	PASS

Project by:	Project Engineer	***Date:***	*22 Jan., 2024*
Reviewed by:	Senior Engineer	***Date:***	*22 Jan., 2024*
Approved by:	Manager	***Date:***	*22 Jan., 2024*

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

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1 Version

Version No.	Date	Description
00	*22 Jan., 2024*	*Original*

2 Contents

3 General Information

3.1 Client Information

Applicant:	Hangzhou Roombanker Technology Co., Ltd.
Address:	A#801 Wantong center, Hangzhou, China.
Manufacturer/Factory:	Zhejiang dusun electron co., ltd
Address:	No.640 Feng Qing St,DeQing Zhejiang China

3.2 General Description of E.U.T.

Product Name:	Home Security Hub(Station)
Model No.:	RBGW-202-915(US), RBGW-202-915(LA), RBGW-202-915(AU), RBGW-202-915(XX)/YYY: (X:0~9 or X:A~Z)/(Y:0~9 or Y:A~Z), RBGW-202-915(XX)/YYY:(X:0~9 or X:A~Z)/(Y:0~9 or Y:A~Z or blank)
Operation Frequency:	LTE(Tx): LTE band 2: 1850 MHz - 1910 MHz LTE band 4: 1710 MHz - 1755 MHz LTE band 5: 824 MHz - 849 MHz LTE band 12: 699 MHz - 716 MHz LTE band 13: 777 MHz - 787 MHz LTE band 66: 1710 MHz - 1780 MHz 2.4G Wi-Fi: 2412MHz~2462MHz BLE: 2402MHz~2480MHz Sub-G:903MHz-927MHz ZigBee: 2405MHz~2480MHz
Modulation technology:	LTE:QPSK, 16QAM 802.11b: DSSS, 802.11a/g/n/ac: OFDM Zigbee:OQPSK BLE: GFSK Sub-G:FSK
Antenna Type:	Internal Antenna PCB Antenna
Antenna gain:	LTE: LTE band 2:4.76 dBi, LTE band 4: 5.36 dBi, LTE band 5: 0.16 dBi, LTE band 12: -0.84 dBi, LTE band 13: 1.62 dBi, LTE band 66: 5.36 dBi (declare by Applicant) 2.4GWi-Fi: ANT1:-3.8 dBi, ANT2:-4.2 dBi(declare by applicant) Zigbee: -4.2 dBi(declare by applicant) BLE: -4.0dBi (declare by applicant) Sub-G: ANT:0.54dBi, ANT1: -0.46dBi(declare by applicant)
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

3.3 Operating Modes

Operating mode	Detail description
BLE mode	Keep the EUT in continuously transmitting in BLE mode
Zigbee mode	Keep the EUT in continuously transmitting in Zigbee mode
2.4G WIFI mode	Keep the EUT in continuously transmitting in 2.4G WIFI mode
Sub-G mode	Keep the EUT in continuously transmitting in Sub-G mode
LTE mode	Keep the EUT in continuously transmitting in LTE Band2/4/5/12/13/66 mode

3.4 Additions to, deviations, or exclusions from the method

No

3.5 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

3.6 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

4 Technical Requirements Specification

4.1 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

4.2 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

4.3 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)	Verdict
2.4G Wi-Fi								
2462	18.57	71.945	-3.8	0.42	20.00	0.0060	1.0	Pass
BLE								
2442	8.338	6.820	-4.0	0.40	20.00	0.0005	1.0	Pass
Zigbee								
2405	10.04	10.093	-4.2	0.38	20.00	0.0008	1.0	Pass
Sub-G								
903	12.03	15.959	0.54	1.13	20.00	0.0036	0.60	Pass
LTE								
Band 2	25.0	316.228	4.76	2.99	20.00	0.1883	1.0	Pass
Band 4	25.0	316.228	5.36	3.436	20.00	0.2161	1.0	Pass
Band 5	25.0	316.228	0.16	1.04	20.00	0.0653	0.55	Pass
Band 12	25.0	316.228	-0.84	0.82	20.00	0.0519	0.47	Pass
Band 13	25.0	316.228	1.62	1.45	20.00	0.0914	0.52	Pass
Band 66	25.0	316.228	5.36	3.44	20.00	0.2161	1.0	Pass

Note:

1. The LTE maximum output power reference report: SEWM2305000159RG01, FCC ID:XMR2023EG915QNA, which is issued by SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

2. Just the worst case mode was shown in report.

Simultaneous transmission(Worse mode):

Mode	Ratio	Total Ratio	Limit	Verdict
LTE Band 4/66	0.2161	0.2221	1.00	Pass
2.4G WIFI	0.0060			

4.4 Conclusion

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

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