RF EXPOSURE EVALUATION REPORT

Application No.:	SZCR2304001017AT
Applicant:	Wyze Labs, Inc.
Address of Applicant:	5808 Lake Washington Blvd NE Ste 300, Kirkland, Washington, 98033 United States
Manufacturer:	ShenZhen Dophigo IoT Technology Co., Ltd
Address of Manufacturer:	2801 floor, room 01-04, Minzhi stock business center block C, North station community, Minzhi street, Longhua district, Shenzhen
Factory:	Shenzhen Point Electronics Tech Co., Ltd.
Address of Factory:	Room 301, building 3, shangyuan industrial park, liantang industrial city, shangcun community, gongming street, guangming new district, shenzhen
Equipment Under Test (EUT):	
EUT Name:	Wyze Video Doorbell Pro, WIRE-FREE VIDEO DOORBELL & CHIME SE
Model No.:	WWVDP, DB1000X ♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark:	WYZE, Roku
FCC ID:	2AUIUWWVDP
Standard(s) :	47 CFR Part 1.1307 47 CFR Part 1.1310 47 CFR Part 2.1091
Date of Receipt:	2023-04-11
Date of Test:	2023-04-20
Date of Issue:	2023-04-24
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2023-04-24		Original

Authorized for issue by:				
		Charlie Dai		
		Charlie Dai/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

2 Test Summary

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

Remark:

New model No. in report SZCR230400101704: WWVDP, DB1000X

Since according to the declaration from the applicant, the electrical circuit design, PCB layout, components used and internal wiring and functions were identical for the above models, with only difference on model.

Since according to the declaration of the applicant, the model in this report were identical in the electrical circuit design, layout, components used and internal wiring with the models in original report, only difference on changed the antenna supplier.

Items	Original Antenna	New Antenna
Supplier	Suzhou Speed Communication Technology Ltd.	Shenzhen Yingjiachuang Electronic Technology Co., Ltd
BLE Gain	3.24dBi	3.22dBi
2.4G WIFI Gain	3.58dBi	2.5dBi
5G WIFI Gain	3.88dBi	3.52dBi
Antenna Type:	FPC Antenna	FPC Antenna

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:	Lithium-ion rechargeable battery (DC 7.2V 3050mAh) which can be charged by Micro-USB port. Input1: DC 5V/2A Input2: AC 10-24V
For BLE:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0 LE
Modulation Type:	GFSK
Data Rate:	1M/bit
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	FPC Antenna
Antenna Gain:	3.22dBi
For 2.4G WIFI:	
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK); 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11
Channel Spacing:	5MHz
Antenna Type:	FPC Antenna
Antenna Gain:	2.5dBi

For 5G WIFI:	
Operation Frequency (20MHz):	U-NII-1: 5180-5240MHz; U-NII-3: 5745-5825MHz
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing:	802.11a/n(HT20): 20MHz
DFS Function:	Without DFS function
TPC Function:	Without TPC function
Antenna Type:	FPC Antenna
Antenna Gain:	3.52dBi

4.2 Test Location

All tests were sub-contracted to:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

4.3 Test Facility

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

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None

4.5 Abnormalities from Standard Conditions

None

5 Radio Spectrum Technical Requirement

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R 2)

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

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 BLE

Antenna Gain: 3.22dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit	MPE Ratios	Result
2480	8.19	13.84	0.0028	1.0	0.0028	PASS

Note: Refer to report No. GZCR211102133301 for EUT test Max Conducted Peak Output Power value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

For 2.4G WIFI

Antenna Gain: 2.5dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit	MPE Ratios	Result
2437	20.21	186.64	0.0371	1.0	0.0371	PASS

Note: Refer to report No. GZCR211102133302 for EUT test Max Conducted Peak Output Power value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

For 5G WIFI

Antenna Gain: 3.52dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit	MPE Ratios	Result
5745	17.48	125.89	0.0250	1.0	0.0250	PASS

Note: Refer to report No. GZCR211102133303 for EUT test Max Conducted Peak Output Power value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

exposure conditions for simultaneous transmission operations

The EUT has two modules: Bluetooth module and WIFI module, they can simultaneous transmission at the same time.

So, Simultaneous transmission SAR test is not required, because the Max. sum of the MPE ratios is 0.0028+0.0371=0.0399<1

6 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for SZCR2304001017AT.

- End of the Report -