



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

EMC-TRF-03 Rev 1.1

Report No.: GZCR231100119903

Page: 1 of 9

FCC ID: 2AHVL-EWBTWIFI01

# RF EXPOSURE EVALUATION REPORT

**Application No.:** GZCR2311001199HS  
**Applicant:** Dyaco International Inc.  
**Address of Applicant:** 12F, No.111, Songjiang Road, Taipei 104, Taiwan, China  
**Manufacturer:** Dyaco International Inc.  
**Address of Manufacturer:** 12F, No.111, Songjiang Road, Taipei 10486, Taiwan, China  
**Factory:** Dyaco International Inc.  
**Address of Factory:** No.1, Gong 1st Rd., Cyuan Sing Industrial Park, Hemei Town, Changhua County, 50843, Taiwan, China  
**Product Name:** Bluetooth & WiFi module  
**Model No.:** EWBTWIFI-01  
**Standard(s) :** 47 CFR Part 1.1310  
KDB447498 D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2023-11-23  
**Date of Evaluation:** 2023-12-08 to 2024-01-04  
**Date of Issue:** 2024-06-12

<b>Evaluation Result:</b>	<b>Pass*</b>
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\* In the configuration evaluated, the EUT complied with the standards specified above.

Ricky Liu

Ricky Liu  
Manager



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

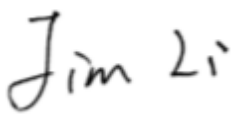
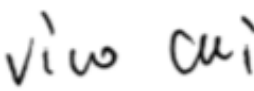
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Revision Record			
Version	Report No.	Date	Remark
01	GZCR231100119903	2024-06-12	Original

Authorized for issue by:			
			
		<div>Jim Li/Project Engineer</div>	
			
		<div>Vico Cui/Reviewer</div>	

## 2 Evaluation Summary

Item	Standard	Method	Requirement	Result
RF Exposure	KDB447498 D01 General RF Exposure Guidance v06	KDB447498 D01 General RF Exposure Guidance v06	47 CFR Part 1.1310	Pass

**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.

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## 4 General Information

### 4.1 Details of E.U.T.

Power supply: DC 12V  
 Cable(s): N/A  
 RF characters: Refer to report GZCR231100119901 for BT detail.  
 Refer to report GZCR231100119902 for 2.4G Wi-Fi detail.

### 4.2 Evaluating Location

All tests were performed at:  
 SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
 No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,  
 Guangdong, China 510663  
 Tel: +86 20 82155555  
 No tests were sub-contracted.

### 4.3 Facility

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

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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### 4.4 Deviation from Standards

None

### 4.5 Abnormalities from Standard Conditions

None



## 5 Technical Requirements Specification

### 5.1 General Description of Applied Standards

KDB447498D01 General RF Exposure Guidance v06

#### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

### 5.2 RF Exposure Evaluation

#### 5.2.1 Limit & Test Method

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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	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:  $P_d = (P_{out} * G) / (4 * P_i * R^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$P_i$  = 3.1416

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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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.



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## 5.2.2 Conclusion

Normal use condition for  
Distance between antenna and body: 20cm declared by applicant

Antenna Gain: 2.16 dBi

For Bluetooth Classic

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2402	1.64	-10.77	0.08	0.00003	1	Complies
2441	1.64	-11.28	0.07	0.00002	1	Complies
2480	1.64	-13.5	0.04	0.00001	1	Complies

For 2.4 GHz Wi-Fi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
11B						
2412	1.64	12.62	18.28	0.00598	1	Complies
2442	1.64	12.8	19.05	0.00623	1	Complies
2462	1.64	12.33	17.10	0.00559	1	Complies
11G						
2412	1.64	15.05	31.99	0.01046	1	Complies
2442	1.64	14.98	31.48	0.01030	1	Complies
2462	1.64	14.53	28.38	0.00928	1	Complies
11N20						
2412	1.64	15.59	36.22	0.01185	1	Complies
2442	1.64	15.59	36.22	0.01185	1	Complies
2462	1.64	15.27	33.65	0.01101	1	Complies

The Bluetooth and Wi-Fi can be transmitted together, the result is

0.00003 /1+

0.01185 /1=

0.01188 <1

So SAR report is not required.

Note:

Refer to report No. GZCR231100119901 for BT test Max Conducted Peak Output Power value.

Refer to report No. GZCR231100119902 for 2.4G Wi-Fi test Max Conducted Peak Output Power value.



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## 6 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZCR2311001199HS

- End of the Report -



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