



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR230800170103

Page: 1 of 8

1 Cover Page

RF Exposure Evaluation Report

Application No.: SHCR2308001701BA
FCC ID: 2BC6W00001
Applicant: SUMEC Hardware & Tools.Co., Ltd.
Address of Applicant: No.1 Xinghuo Road, Jiangbei New Area Nanjing Jiangsu P.R.China
Manufacturer: SUMEC Hardware & Tools.Co., Ltd.
Address of Manufacturer: No.1 Xinghuo Road, Jiangbei New Area Nanjing Jiangsu P.R.China
Factory: Xuzhou Hengyuan Electrical Appliances Co.,Ltd.
Address of Factory: No.47, Zhujiang Road, National High-Tech Zone, Xuzhou City, Jiangsu Province, China

Equipment Under Test (EUT):

EUT Name: Portable Power Station
Model No.: PB-300
Standard(s) : FCC Rules 47 CFR §2.1091
KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt: 2023-08-28
Date of Test: 2023-09-12 to 2024-01-29
Date of Issue: 2024-02-27

Test Result:	Pass*
---------------------	--------------

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR230800170103

Page: 2 of 8

Revision Record			
Version	Description	Date	Remark
00	Original	2024-02-27	/

Authorized for issue by:			
Tested By	<i>Wade Zhang</i>		
	_____ Wade Zhang/Project Engineer		
Approved By	<i>Parlam Zhan</i>		
	_____ Parlam Zhan / Reviewer		



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR230800170103

Page: 3 of 8

2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS	3
3 GENERAL INFORMATION.....	4
3.1 GENERAL DESCRIPTION OF E.U.T.....	4
3.2 TECHNICAL SPECIFICATIONS	4
3.3 TEST LOCATION.....	5
3.4 TEST FACILITY	5
4 TEST STANDARDS AND LIMITS	6
4.1 FCC RADIOFREQUENCY RADIATION EXPOSURE LIMITS:	6
5 MEASUREMENT AND CALCULATION	7
5.1 MAXIMUM TRANSMIT POWER	7
5.2 RF EXPOSURE CALCULATION.....	7

3 General Information

3.1 General Description of E.U.T.

Power supply:	AC 120V 60Hz 100W Max / DC 10-30V, 100W Max Battery Capacity: 230Wh(25.6V DC) Lithium iron phosphate Wireless Charging: 15W
---------------	-----------------------------------------------------------------------------------------------------------------------------------

3.2 Technical Specifications

WPC

Operation frequency:	110kHz to 205kHz
Modulation type:	Load modulation
Antenna type:	Inductive Loop Coil Antenna

BT (For WLT3266)

Operation Frequency:	2402MHz to 2480MHz
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum (FHSS)
Antenna Type:	PCB Antenna
Antenna Gain:	3dBi (Provided by manufacturer)

BLE (For WLT3266)

Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0 LE
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	PCB Antenna
Antenna Gain:	3dBi (Provided by manufacturer)

2.4GHz WiFi (For ESP32-C3-WROOM-02)

Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz;802.11n(HT40): 2422MHz to 2452MHz
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;802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Type:	PCB Antenna
Antenna Gain:	3.26dBi (Provided by manufacturer)
Antenna Number:	1
Date Rate:	802.11b:1/2/5.5./11Mbps 802.11g:6/9/12/18/24/36/48/54Mbps 802.11n:MCS0-MCS7

3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).
3. Sample source: sent by customer.

3.4 Test Facility

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

- **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory
Company Number: 8617A

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
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

Note: Limit for 2.4GHz is 1.0 mW/cm²

5 Measurement and Calculation

5.1 Maximum transmit power

The device using a WiFi module (ESP32-C3-WROOM-02) has been certified. The WiFi module FCC ID: 2AC7Z-ESPC3WROOM.

Test Mode	Result [dBm]	Result (mW)
2.4GHz WiFi	17.56	57.02

The device using a BT & BLE module (WLT3266) has been certified. The WiFi module FCC ID: 2A006-WLT3266.

Test Mode	Result [dBm]	Result (mW)
BT	1.19	1.32
BLE	-1.26	0.75

For WPC:

For Electric Field Emissions: The max Measure Value 2.232 (V/m)

For Magnetic Field Emissions: The max Measure Value 0.984(A/m)

5.2 RF Exposure Calculation

According to the formula $S=P/4\pi R^2$, we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm²

For WIFI

The max. antenna gain is 3.26 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
57.02	2.118	20	0.02403	1	Pass

For BT

The max. antenna gain is 3 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
1.32	1.995	20	0.00052	1	Pass

For BLE

The max. antenna gain is 3 dBi

Max. Conducted Power P(mW)	Gain in Linear Scale G	Operation Distance R(cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
0.75	1.995	20	0.00030	1	Pass

For WPC:

For Electric Field Emissions:

The max Measure Value 2.232 (V/m) Limit 614(V/m)

For Magnetic Field Emissions:

The max Measure Value 0.984(A/m) Limit 1.63(A/m)

The 2.4GHz WiFi and BT modules can transmit simultaneously, but the maximum rate of MPE is

$$0.02403/1+0.00052/1+0.0003/1+2.232/614 = 0.028 \leq 1;$$

$$0.02403/1+0.00052/1+0.0003/1+0.984/1.63 = 0.629 \leq 1.$$

So the device is exclusion from SAR test.

Remark: we used the maximum power between the conducted power and ERP/EIRP to perform RF exposure exemption evaluation.

--End of the Report--