Test Report

Report No.: MTi210804004-11E2

Date of issue: Dec. 15, 2021

Applicant: SHENZHEN POWEROAK NEWENER CO., LTD

Product: Portable Power Station

Model(s): PS200A, PPS2000W01

FCC ID: 2AYT3-PS200A

Shenzhen Microtest Co., Ltd.

http://www.mtitest.com

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Instructions

1. This test report shall not be partially reproduced without the written consent of the laboratory.

2. The test results in this test report are only responsible for the samples submitted

3. This test report is invalid without the seal and signature of the laboratory.

4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.

5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

Contents

Test Result Certification	
Applicant:	**SHENZHEN POWEROAK NEWENER CO., LTD**
Address:	Room 701-3, Building B, CADRE Building, Tongsha Road, Nanshan District, Shenzhen City, Guangdong Province, P.R. China
Manufacturer:	**SHENZHEN POWEROAK NEWENER CO., LTD**
Address:	Room 701-3, Building B, CADRE Building, Tongsha Road, Nanshan District, Shenzhen City, Guangdong Province, P.R. China
Factory:	**Huizhou PowerOak Innovation Co., Ltd.**
Address:	(No.1 Workshop)Longsheng 5th Road, Laoshe Village, Dayawan West Zone, Huizhou, Guangdong, Chin
Product description	
Product name:	Portable Power Station
Trademark:	N/A
Model name:	PS200A
Serial Model:	PPS2000W01
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 v03r01
Date of Test	
Date of test:	2021-11-02 ~ 2021-11-23
Test result:	Pass

Test Engineer : Danny Xu

(Danny Xu)

Reviewed By: : Leon Chen

(Leon Chen)

Approved By: : Tom Xue

(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	Portable Power Station
Model name:	PS200A
Series Model:	PPS2000W01
Model difference:	All the models are the same circuit and module, except the model name
Electrical rating:	Input: DC port: 10-145VDC, 15A Adapter: 58.8VDC, 8A Output: AC*6: 100-110VAC, 50/60Hz, 2000W Total; 110-120VAC, 50/60Hz, 2100W Total Aviation Sockets*1: 12VDC, 30A USB-A*2: 5-12VDC, 3A*2, 18W*2 USB-A*2: 5VDC, 3A, 15W Total USB-C*1: 5-15VDC, 3A; 20VDC, 5A; 100W Cigarette Lighter*1: 12VDC, 10A DC 5521*2: 12VDC, 10A Total (DC 5521 and Cigarette Lighter 10A Total) Wireless Charging*2: 5/7.5/10/15W*2
Accessories:	Adapter: Model: T500-588A800-00 Input: 100-240VAC, 50/60Hz, 7.5A Max Output: 58.8V⎓, 8.0A
RF specification:	
Operation frequency:	transmitter 1: 115 kHz – 205 kHz transmitter 2: 115 kHz – 205 kHz
Modulation type:	FSK
Antenna type:	Coil Antenna

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

No.	Emission test modes
Mode 1	Stand-by mode
Mode 2	Charging + Simultaneous Operating mode (load 5W+ load 5W)
Mode 3	Charging + Simultaneous Operating mode (load 5W+ load 7.5W)
Mode 4	Charging + Simultaneous Operating mode (load 5W+ load 10W)
Mode 5	Charging + Simultaneous Operating mode (load 5W+ load 15W)
Mode 6	Charging + Simultaneous Operating mode (load 7.5W+ load 7.5W)
Mode 7	Charging + Simultaneous Operating mode (load 7.5W+ load 10W)

Mode 8	Charging + Simultaneous Operating mode (load 7.5W+ load 15W)
Mode 9	Charging + Simultaneous Operating mode (load 10W+ load 10W)
Mode 10	Charging + Simultaneous Operating mode (load 10W+ load 15W)
Mode 11	Charging + Simultaneous Operating mode (load 15W+ load 15W)
The test data only show worst test mode: Mode 11	

1.3 Description of support units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support equipment list			
Description	Model	Serial No.	Manufacturer
Mobile phone	S9+	/	SAMSUNG
Mobile phone	S9+	/	SAMSUNG
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Test facilities and accreditations

2.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

3 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTI-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	2021/06/02	2022/06/01

4 Test result

4.1.1 Requirement

§1.1310: 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 §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

Table 1 to §1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)

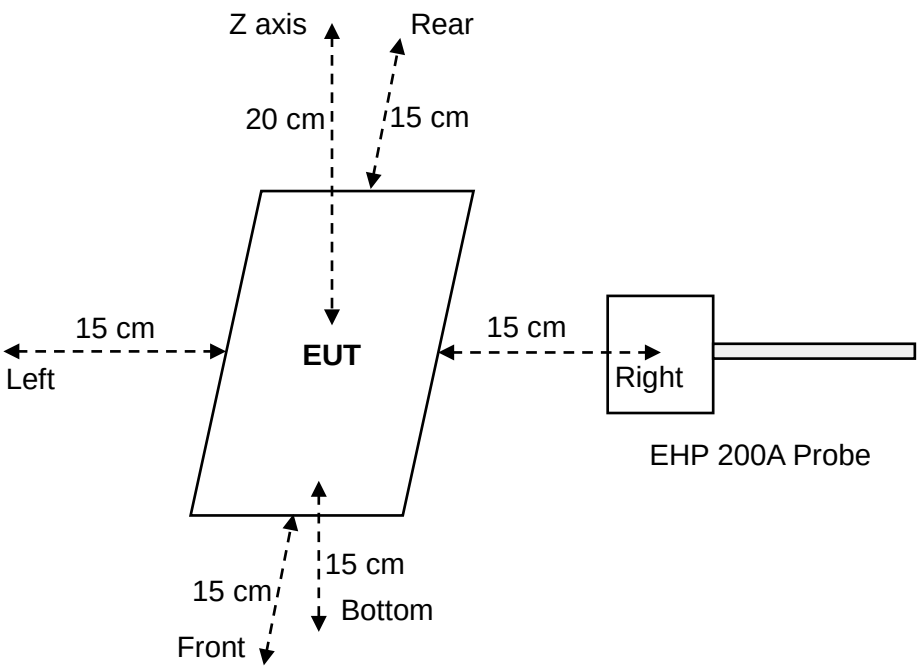
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*($900/f^2$)	<6
30-300	61.4	0.163	1.0	<6
300-1500			f/300	<6
1500-100000			5	<6
(ii) 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
1500-100000			1.0	<30

f = frequency in MHz
* = Plane-wave equivalent power density

Note 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

Note 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

4.2 Test setup



4.3 Test Procedures

a. The RF exposure test was performed in anechoic chamber.

b. E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the device and 20 cm above the top surface of the primary/client pair.

c. The highest emission level was recorded and compared with limit.

d. The EUT was measured according to the dictates of KDB 680106 v03r01.

4.4 Equipment Approval Considerations item 5 b) of KDB 680106 D01 v03r01

Requirement	Device
1. Power transfer frequency is less than 1 MHz.	Yes. The operating frequencies are: transmitter 1: 115 kHz – 205 kHz transmitter 2: 115 kHz – 205 kHz
2. Output power from each primary coil is less than or equal to 15 watts	Yes. The maximum output power is: 15W
3. The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.	Yes. The EUT has two source primary coils.
4. Client device is placed directly in contact with the transmitter.	Yes. The client device is placed directly in contact with the transmitter.
5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes. Mobile exposure conditions only.
6. The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.	Yes. See the test result in item 4.5.

4.5 Test results

Test condition 1: Mode 11 operating mode with client device (1 % battery status of client device)

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
1	Z axis	0.8451	614	0.25%	0.0492	1.63	3.50%
	Left	0.7780			0.0561		
	Right	1.5238			0.0570		
	Front	1.3647			0.0496		
	Rear	0.8852			0.0505		
	Bottom	0.4818			0.0492		
Conclusion: The Measurement value is less than 50% MPE limit, which meets the requirements.							

Test condition 2: Mode 11 operating mode with client device (50 % battery status of client device)

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
1	Z axis	0.8630	614	0.23%	0.0525	1.63	3.44%
	Left	0.8015			0.0493		
	Right	1.4321			0.0559		
	Front	1.3056			0.0512		
	Rear	0.9031			0.0520		
	bottom	0.4621			0.0561		
Conclusion: The Measurement value is less than 50% MPE limit, which meets the requirements.							

Test condition 3: Mode 11 operating mode with client device (99 % battery status of client device)

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
1	Z axis	0.8366	614	0.24%	0.0519	1.63	3.60%
	Left	0.7893			0.0521		
	Right	1.5025			0.0494		
	Front	1.3740			0.0561		
	Rear	0.9011			0.0506		
	bottom	0.4875			0.0587		
Conclusion: The Measurement value is less than 50% MPE limit, which meets the requirements.							

Photographs of the test setup

See the APPENDIX - Test Setup Photos.

Photographs of the EUT

See the APPENDIX - EUT Photos.

----End of Report----