
RF Exposure Report

Report No.: AGC01741231101FH01

FCC ID : 2AYT3-AC200PL

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION : Portable Power Station

BRAND NAME : BLUETTI

MODEL NAME : AC200P L

APPLICANT : SHENZHEN POWEROAK NEWENER CO., LTD

DATE OF ISSUE : Mar. 04, 2024

STANDARD(S) : KDB680106 D01 RF Exposure Wireless Charging Base App v03r01

REPORT VERSION : V 1.0



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Attestation of Global Compliance(Shenzhen)Co., Ltd
Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: <http://www.agccert.com/>



REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Mar. 04 2024	Valid	Initial Release

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1. GENERAL INFORMATION

Applicant	SHENZHEN POWEROAK NEWENER CO., LTD
Address	F19, BLD No.1, Kaidaer Tongsha Rd No.168, Xili Street, Nanshan, Shenzhen, China
Manufacturer	SHENZHEN POWEROAK NEWENER CO., LTD
Address	F19, BLD No.1, Kaidaer Tongsha Rd No.168, Xili Street, Nanshan, Shenzhen, China
Factory	Huizhou PowerOak Innovation Co.,Ltd
Address	(No.1 Workshop)Longsheng 5th Road, Laoshe Village, Dayawan West Zone, Huizhou, Guangdong, China
Product Designation	Portable Power Station
Brand Name	BLUETTI
Test Model	AC200P L
Series Model(s)	N/A
Difference Description	N/A
Deviation from Standard	No any deviation from the test method
Date of receipt of test item	Jan. 02, 2024
Date of Test:	Jan. 02, 2024 – Mar. 01, 2024
Test Result	Pass

Prepared By Alan Duan
 Alan Duan
 (Project Engineer) Mar. 04, 2024

Reviewed By Calvin Liu
 Calvin Liu
 (Reviewer) Mar. 04, 2024

Approved By Max Zhang
 Max Zhang
 (Authorized Officer) Mar. 04, 2024

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2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Equipment Specification	WPT
Frequency Band	110.5kHz-205kHz
Operation Frequency	113.4kHz, 118.7kHz
Hardware Version	V6.0
Software Version	2034
Modulation Type	ASK
Number of channels	1
Field Strength of Fundamental	75.69dBuV/m (Max) at 3m distance
Antenna Designation	Coil Antenna
Antenna Gain	0dBi
Input Rating	AC: 120V~50/60Hz, 20A Max. DC: 12V-30V=8A PV: 12V-145V=15A Max. Battery Expansion: 51.2V=60A Max.
Output Rating	AC: 120V~50/60Hz, 2400W Max. Aviation Sockets: 48V=8A USB-A: 5V=3A, 9V=2A, 12V=1.5A, 18W Each USB-C: 5/9/12/15/20V=3A, 20V=5A Cigarette Lighter Port: 12V=10A Wireless Charging: 5/7.5/10/15W AC and DC Output: 2500W Total Battery Expansion: 51.2V=60A Max.

2.2 TEST FREQUENCY LIST

Frequency Band	Channel Number	Frequency
110.5kHz-205kHz	01	113.4kHz
	02	118.7kHz

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3. TEST ENVIRONMENT

3.1 ADDRESS OF THE TEST LABORATORY

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 TEST FACILITY

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

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

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3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS	EXTREME CONDITIONS
Temperature range (°C)	15 - 35	--
Relative humidity range	20 % - 75 %	--
Pressure range (kPa)	86 - 106	--
Power supply	--	--

Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.

3.4 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
E-Field Strength(0.003-0.4MHz)	$\pm 1.5\text{dB}$
E-Field Strength(0.4-10MHz)	$\pm 1.3\text{dB}$
H-Field Strength(0.003-0.4MHz)	$\pm 1.3\text{dB}$
H-Field Strength(0.4-10MHz)	$\pm 1.2\text{dB}$

3.5 LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Broadband Field Meter	WAVECONTROL	SMP2	J-0004	Feb. 24, 2023	Feb. 23, 2024
Broadband Field Meter	WAVECONTROL	SMP2	J-0004	Feb. 22, 2024	Feb. 21, 2025
Probe FHP	WAVECONTROL	WP400	J-0015	Feb. 24, 2023	Feb. 23, 2024
Probe FHP	WAVECONTROL	WP400	J-0015	Feb. 22, 2024	Feb. 21, 2025

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4. EQUIPMENT USED IN TESTED SYSTEM

The Following Peripheral Devices And Interface Cables Were Connected During The Measurement:

Test Accessories Come From The Laboratory

Item	Equipment	Model No.	Identifier	Note
1	wireless charging load	Huawei	-	Accessories

Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	Portable Power Station	AC200P L	2AYT3-AC200PL	EUT

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5. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION	Exposure Conditions
1	Battery powered or AC input + EUT + Wireless load (Full Load)	Mobile
2	Battery powered or AC input + EUT + Wireless load (Half Load)	Mobile
3	Battery powered or AC input + EUT + Wireless load (Null Load)	Mobile
4	Battery powered or AC input + EUT (Null Load)	Mobile

Note:

1. The report only records the AC input as the worst-case test result, if there are no other circumstances.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

6. RF EXPOSURE MEASUREMENT

6.1 REFER EVALUATION METHOD

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

FCC KDB publication 680106 D01v03r01 RF Exposure Wireless Charging Apps v03: RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications

FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.

FCC CFR 47 part2 2.1091: Radiofrequency radiation exposure evaluation: mobile devices.

FCC CFR 47 part 18.107: Industrial, Scientific, and Medical Equipment.

6.2 TEST LIMITS

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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
300-1,500	/	/	f/300	6
1,500-100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

According to FCC KDB 680106 D01v03r01 Section 3. RF Exposure Requirements clause 3 the Emission-Limits in the frequency range from 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of CFR 47 – Section1.310 as following (measured distance shall be 15cm from the center of the probe to the edge of the device):

	E-Field	*/*	B-Field
Frequency	V/m	A/m	uT
0.3 MHz – 3.0 MHz	614	1.613	2.0
3.0 MHz – 30 MHz	824/f (=27.5 _{30MHz})	2.19/f (=0.073 _{30MHz})	--

A KDB inquire was required to determine/confirm the applicable limits below 100 kHz.

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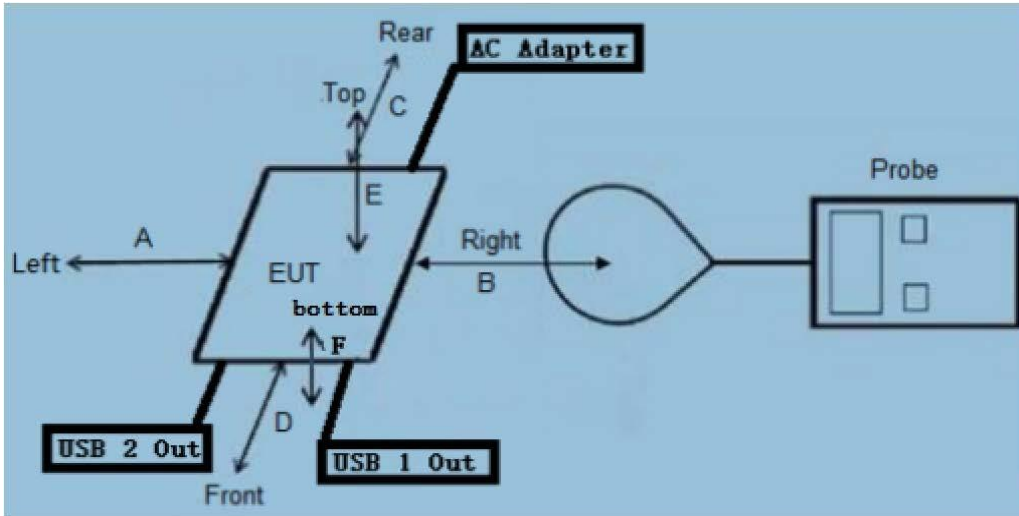
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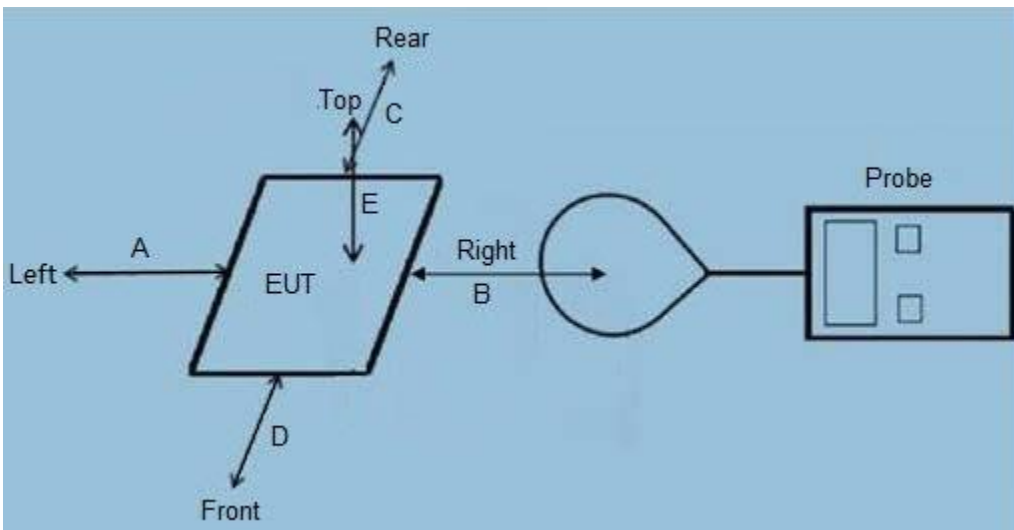
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6.3 MEASUREMENT SETUP

Mobile:



Portable:



Note:

- RF exposure assessment tests are conducted in a shielded room.
- Refer to the following test method description for the test distance between the edge of the charger and the measuring probe.
- As shown in the above picture, the test layout is not for the real object, only the requirements of the test layout listed in the standard requirements are presented, for reference only.
- The actual test EUT distinguishes the test type according to the requirements as shown in the figure above.
- The mobile schematic device under test may not be connected to the power supply reference.

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6.4 MEASUREMENT PROCEDURE

For mobile RF exposure:

- a) The RF exposure test was performed on 360 degree turn table in anechoic chamber.
- b) The measurement probe was placed at test distance (15cm) which is between the edge of the charger and the geometric center of probe. And a test distance (20cm) which is between the Top of the charger and the geometric center of probe.
- c) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
- d) The EUT were measured according to the dictates of KDB 680106 D01v03r01.

For portable RF exposure:

- a) The RF exposure test was performed on 360 degree turn table in anechoic chamber.
- b) The measurement probe was placed at test distance (from 0 cm to 20 cm, in 2 cm maximum increment) which is between the edge of the charger and the geometric center of probe.
- c) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E, F,) were completed.
- d) The EUT were measured according to the dictates of KDB 680106 D01v03r01

Remark: The diameter size of the probe is 11.5cm.

6.5 MEASUREMENT RESULTS

Mobile devices are evaluated as follows:

Operate Mode	Field Strength	Measured H-Field Strength Values (A/m) Measured E-Field Strength Values (V/m)					FCC Limit	50%_FCC limit
		Test Position A	Test Position B	Test Position C	Test Position D	Test Position E		
Mode 1	nT	815.26	908.42	649.51	867.49	915.49	--	--
Mode 1	A/m	0.65	0.72	0.52	0.69	0.73	1.63	0.815
Mode 1	V/m	0.34	0.35	0.41	0.45	0.50	614	307

Note: Unit conversion formula: 1A/m =1.25nT

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APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC01741231101AP03

-----END OF REPORT-----

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3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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