

RF EXPOSURE Test Report

Report No. : MTi250109034-0104E2
Date of Issue : 2025-04-14
Applicant : SHENZHEN POWEROAK NEWENER CO., LTD
Product : Portable Power Station
Model(s) : Premium 20C
FCC ID : 2AYT3-PREMIUM20C

Shenzhen Microtest Co., Ltd.

TEST REPORT

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Test Result Certification		
Applicant	SHENZHEN POWEROAK NEWENER CO., LTD	
Applicant Address	F19, BLD No.1, Kaidaer, Tongsha Rd No.168, Xili Street, Nanshan, Shenzhen, China	
Manufacturer	SHENZHEN POWEROAK NEWENER CO., LTD	
Manufacturer Address	F19, BLD No.1, Kaidaer, Tongsha Rd No.168, Xili Street, Nanshan, Shenzhen, China	
Product description		
Product name	Portable Power Station	
Trademark	BLUETTI	
Model name	Premium 20C	
Series Model(s)	N/A	
Standards	47 CFR Part 2.1091	
Test method	KDB 447498 D01 v06	
Testing Information		
Date of test	2025-03-27 to 2025-04-05	
Test Result	Pass	
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Reviewed by	David Lee	<i>David. Lee</i>
Approved by	Leon Chen	<i>lewis lion</i>

1 RF EXPOSURE EVALUATION

According to FCC 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)

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 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
(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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm (20cm)

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

2 Measurement Result

BLE:

Operation Frequency: 2402-2480MHz,
Power density limited: 1mW/ cm²
Antenna Type: PCB Antenna
Antenna gain: -2.31dBi
R=20cm
 $mW=10^{(dBm/10)}$
Antenna gain Numeric= $10^{(dBi/10)}=10^{(-2.31/10)}=0.59$

BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
		(dBm)		tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE-1M	1.79	1±1	2	1.585	-2.31	0.59	0.0002	1
2440		1.72	1±1	2	1.585	-2.31	0.59	0.0002	1
2480		1.08	1±1	2	1.585	-2.31	0.59	0.0002	1
2402	BLE-2M	1.81	1±1	2	1.585	-2.31	0.59	0.0002	1
2440		1.72	1±1	2	1.585	-2.31	0.59	0.0002	1
2480		1.08	1±1	2	1.585	-2.31	0.59	0.0002	1

Conclusion:

Simultaneous:

For the max result: $0.0002 \leq 1.0$ test exclusion threshold, No SAR is required.

Statement

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2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
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5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

***** END OF REPORT *****