



RF EXPOSURE Test Report

Report No.: MTi240424012-55E3

Date of issue: 2024-10-17

Applicant: SHENZHEN POWEROAK NEWENER CO., LTD

Product: Portable Power Station

Model(s): Elite 200 V2

FCC ID: 2AYT3-ELITE200V2

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>



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Test Result Certification	
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
Product description	
Product name:	Portable Power Station
Trademark:	BLUETTI
Model name:	Elite 200 V2
Serial Model:	N/A
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2024-09-05 to 2024-10-13
Test result:	Pass

Test Engineer :

James Qin

(James Qin)

Reviewed By :

David. Lee

(David Lee)

Approved By :

Leon Chen

(Leon Chen)



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.

Measurement Result

BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm²

2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

802.11n HT40: 2422-2452MHz,

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

Antenna gain: 3.37dBi

R=20cm

$mW=10^{(dBm/10)}$

Antenna gain Numeric= $10^{(dBi/10)}=10^{(3.37/10)}=2.17$

BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE-1M	12.3	12±1	13	19.953	3.37	2.17	0.0086	1
2440		12.41	12±1	13	19.953	3.37	2.17	0.0086	1
2480		12.19	12±1	13	19.953	3.37	2.17	0.0086	1
2402	BLE-2M	12.16	12±1	13	19.953	3.37	2.17	0.0086	1
2440		12.39	12±1	13	19.953	3.37	2.17	0.0086	1
2480		12.23	12±1	13	19.953	3.37	2.17	0.0086	1
2402	BLE-125K	12.19	12±1	13	19.953	3.37	2.17	0.0086	1
2440		12.2	12±1	13	19.953	3.37	2.17	0.0086	1
2480		12.03	12±1	13	19.953	3.37	2.17	0.0086	1
2402	BLE-500K	12.19	12±1	13	19.953	3.37	2.17	0.0086	1
2440		12.39	12±1	13	19.953	3.37	2.17	0.0086	1
2480		12.14	12±1	13	19.953	3.37	2.17	0.0086	1

2.4GWiFi:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	Numeric		
2412	802.11b	17.72	17±1	18	63.096	2.17	0.02727	1
2437		17.53	17±1	18	63.096	2.17	0.02727	1
2462		17.46	17±1	18	63.096	2.17	0.02727	1
2412	802.11g	16.55	17±1	18	63.096	2.17	0.02727	1
2437		16.62	17±1	18	63.096	2.17	0.02727	1
2462		16.58	17±1	18	63.096	2.17	0.02727	1
2412	802.11n H20	15.82	15±1	16	39.811	2.17	0.01721	1
2437		15.63	15±1	16	39.811	2.17	0.01721	1
2462		15.51	15±1	16	39.811	2.17	0.01721	1
2422	802.11n H40	14.64	15±1	16	39.811	2.17	0.01721	1
2437		14.72	15±1	16	39.811	2.17	0.01721	1
2452		14.62	15±1	16	39.811	2.17	0.01721	1

Conclusion:

Simultaneous transmit:

 $BLE+2.4G\ WIFI = 0.0086 + 0.02727 = 0.03587$

 For the max result: $0.03587 \leq 1.0\ SAR$, No SAR is required.

----END OF REPORT----