RF EXPOSURE
Test Report

Report No.: MTi230907002-11E2

Date of issue: 2023-11-07

Applicant: SHENZHEN POWEROAK NEWENER CO., LTD

Product: Portable Power Station

Model(s): AC2A, AC2P

FCC ID: 2AYT3-AC2A

Shenzhen Microtest Co., Ltd.

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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:	AC2A
Series Model:	AC2P
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2023-09-17 to 2023-10-10
Test result:	Pass

Test Engineer : Eugene Qiu

(Eugene)

Reviewed By: : Leon Chen

(Leon Chen)

Approved By: : Tom Xue

(Tom Xue)

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: $Pd= (Pout*G)\ (4*pi*R^2)$

Where

Pd= Power density in mW/cm^2

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1415926

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

Pd the limit of MPE, $1mW/cm^2$. 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/ cm^2

Antenna Type: PCB Antenna

Antenna gain: -2.31 dBi

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	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm^2)	(mW/cm^2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE-1M	0.92	0±1	1	1.259	-2.31	0.59	0.00015	1
2440		0.99	0±1	1	1.259	-2.31	0.59	0.00015	1
2480		0.56	0±1	1	1.259	-2.31	0.59	0.00015	1
2402	BLE- 2M	0.87	0±1	1	1.259	-2.31	0.59	0.00015	1
2440		0.99	0±1	1	1.259	-2.31	0.59	0.00015	1
2480		0.57	0±1	1	1.259	-2.31	0.59	0.00015	1

Conclusion:

For the max result: 0.00015≤ 1.0 SAR, No SAR is required.

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