

RF EXPOSURE Test Report

Report No. : MTi241228003-02E4
Date of Issue : 2025-02-17
Applicant : PT POWEROAK ENERGY INDONESIA
Product : Portable power Station
Model(s) : AC180
FCC ID : 2BNDH-AC180

Shenzhen Microtest Co., Ltd.

TEST REPORT

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Test Result Certification		
Applicant	PT POWEROAK ENERGY INDONESIA	
Applicant Address	Horizon Industrial Park Type A Lot 07, Sungai Pelunggut Village, Sagulung District, Batam City 29439 Riau Islands Province, Indonesia	
Manufacturer	PT POWEROAK ENERGY INDONESIA	
Manufacturer Address	Horizon Industrial Park Type A Lot 07, Sungai Pelunggut Village, Sagulung District, Batam City 29439 Riau Islands Province, Indonesia	
Product description		
Product name	Portable power Station	
Trademark	BLUETTE	
Model name	AC180	
Series Model(s)	N/A	
Standards	47 CFR Part 2.1091	
Test method	KDB 447498 D01 v06	
Testing Information		
Date of test	2025-01-11 to 2025-01-15	
Test Result	Pass	
Prepared by	James Qin	<i>James Qin</i>
Reviewed by	David Lee	<i>David. Lee</i>
Approved by	Leon Chen	<i>Leon Chen</i>

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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.

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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	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Numeric		
2402	BLE-1M	0.48	0±1	1	1.259	-2.31	0.59	0.0001	1
2440		0.96	0±1	1	1.259	-2.31	0.59	0.0001	1
2480		0.57	0±1	1	1.259	-2.31	0.59	0.0001	1
2402	BLE-2M	0.51	0±1	1	1.259	-2.31	0.59	0.0001	1
2440		0.93	0±1	1	1.259	-2.31	0.59	0.0001	1
2480		0.58	0±1	1	1.259	-2.31	0.59	0.0001	1

Evaluation result(mW/cm ²)	Power density Limits(mW/cm ²)	Max rate(%)
0.0001	1	0.0001
H-field(A/m)	Limit	Max rate(%)
0.03	1.63	0.0184

Conclusion:

Simultaneous:

BLE+ WPT: 0.0001+0.0184=0.0185

For the max result: 0.0185≤ 1.0 test exclusion threshold, No SAR is required.

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