

EXPOSURE REPORT

FCC ID: 2AYT3-AC200

Date of issue: Dec. 22, 2020

Report Number: MTi20072005-5E2

Sample Description: ESS (Energy Storage System)

Model(s): AC200, AC200P

Applicant: SHENZHEN POWEROAK NEWENER CO., LTD

Address: Room 701-3, Building B, CADRE Building, Tongsha Road,
Nanshan District, Shenzhen City, Guangdong Province, P.R. China

Date of Test: July 21, 2020 – Dec. 22, 2020

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China.

Test Result Certification

Applicant's name: SHENZHEN POWEROAK NEWENER CO., LTD

Address: Room 701-3, Building B, CADRE Building, Tongsha Road, Nanshan District, Shenzhen City, Guangdong Province, P.R. China

Manufacture's name: SHENZHEN POWEROAK NEWENER CO., LTD

Address: Room 701-3, Building B, CADRE Building, Tongsha Road, Nanshan District, Shenzhen City, Guangdong Province, P.R. China

Factory: Huizhou PowerOak Innovation Co., Ltd.

Address: 1st, 2nd, 4th & 5th FL (No.1 Workshop) Longsheng 5th Road, Laoshe Village, Dayawan West Zone, Huizhou, Guangdong, China

Product name: ESS (Energy Storage System)

Trademark: N/A

Model name: AC200, AC200P

Standard: FCC CFR 47 PART 1 , 1.1310

RF Exposure Procedures: KDB 680106 D01 RF Exposure Wireless Charging App v03r01

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

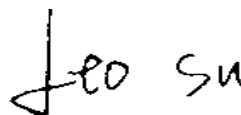
Tested by:



Danny Xu

Dec. 22, 2020

Reviewed by:



Leo Su

Dec. 22, 2020

Approved by:



Tom Xue

Dec. 22, 2020

1 General Information

1.1 Description of EUT

Product name:	ESS (Energy Storage System)
Brand name:	N/A
Model name:	AC200
Series model:	AC200P
Deference in serial model:	All the models are of the same circuit and RF module, except the model No..
Operation frequency:	115–205 kHz
Operational mode:	Wireless charging
Modulation type:	FSK
Antenna type:	Coil Antenna
Power source:	DC 58.8V from adapter AC 120V/60Hz or DC 50V from battery
Battery:	DC 50V, 40Ah, 2000Wh
Adapter information:	N/A

1.2 Ancillary equipment list

Equipment	Model	S/N	Manufacturer
Load	/	/	/
Load	/	/	/

1.3 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, $U=2 \times U_c(y)$

Radiated emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	± 1 degree
Humidity	± 5 %

2 Testing site

Test Site	Shenzhen Microtest Co., Ltd
Test Site Location	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China.
FCC Registration No.:	448573



3 List of test equipment

Equipment No.	Equipment Name	Manufacturer	Model	Serial No.	Calibration date	Due date
MTI-E115	Electric and Magnetic Field Probe - Analyzer	Narda Safety Test Solutions GmbH	EHP-200A	/	2020/11/12	2021/11/11

4 Test Results

4.4 Maximum permissible exposure

4.4.1 Limit

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	6
300-1500			f/300	6
1500-100000			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
300-1500			f/1500	30
1500-100000			1	30

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

4.4.2 Test Procedures

E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the device and 20 cm above the top surface of the primary/client pair.

These measurements should be repeated for three different client battery levels, 1%, 50%, and 99%.

Record the test results.

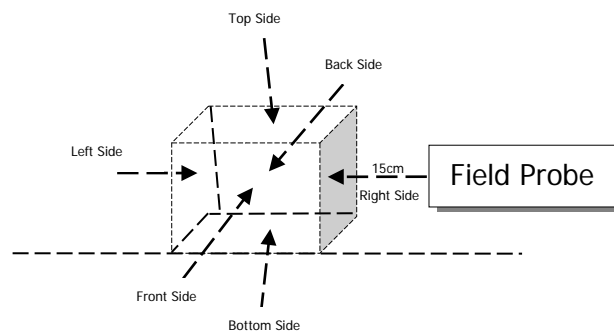
KDB 680106 D01 RF Exposure Wireless Charging App v03r01:

- (1) Power transfer frequency is less than 1MHz.
- (2) Output power from each primary coil is less than or equal to 15 watts.
- (3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
- (4) Client device is placed directly in contact with the transmitter.
- (5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
- (6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those

coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

Note: The device is in compliance with KDB 680106 D01 RF Exposure Wireless Charging App v03r01 6 conditions.

4.4.3 Test Setup





4.4.4 Test Result

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	20	0.42	0.0116
<1%	Bottom	15	0.41	0.0113
<1%	Left	15	0.42	0.0111
<1%	Right	15	0.42	0.0108
<1%	Front	15	0.41	0.0105
<1%	Back	15	0.41	0.0112
Limit			614	1.63
Margin Limit (%)			0.069%	7.12%

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<50%	Top	20	0.41	0.0119
<50%	Bottom	15	0.40	0.0114
<50%	Left	15	0.41	0.0113
<50%	Right	15	0.42	0.0108
<50%	Front	15	0.41	0.0111
<50%	Back	15	0.42	0.0112
Limit			614	1.63
Margin Limit (%)			0.069%	7.30%

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<99%	Top	20	0.43	0.0120
<99%	Bottom	15	0.42	0.0109
<99%	Left	15	0.40	0.0107
<99%	Right	15	0.41	0.0105
<99%	Front	15	0.42	0.0111
<99%	Back	15	0.41	0.0106
Limit			614	1.63
Margin Limit (%)			0.070%	7.36%



4.4.5 MPE Setup photo



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