



FCC TEST REPORT

Client Information:

Applicant: ALLPOWERS Industrial International Limited
Applicant add.: Floor 1-4, Building No.2, No.182 Kaiyuan Avenue, Huangpu District, Guangzhou, China
Manufacturer: ALLPOWERS Industrial International Limited
Manufacturer add.: Floor 1-4, Building No.2, No.182 Kaiyuan Avenue, Huangpu District, Guangzhou, China

Product Information:

Product Name: Portable Power Station
Model No.: Please refer to page 4 for detail
Brand Name: ALLPOWERS
FCC ID: 2A4PQ-R600

Applicable standards: FCC Rules and Regulations part 2.1091
KDB680106 D01v03

Prepared By:

Dongguan Yaxu (AiT) Technology Limited

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Date of Receipt: Jan. 09, 2023

Date of Test: Jan. 09~ Feb. 12, 2023

Date of Issue: Feb. 13, 2023

Test Result: Pass

This device described above has been tested by Dongguan Yaxu (AiT) Technology Limited and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Reviewed by: Simba Huang
Simba Huang

Approved by:

Seal-Chen
Seal.chen



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1 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

.CNAS- Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2017 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on April 18, 2022

FCC-Registration No.: 703111 Designation Number: CN1313

Dongguan Yaxu (AiT) technology Limited has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC —Registration No.: 6819A CAB identifier: CN0122

The 3m Semi-anechoic chamber of Dongguan Yaxu (AiT) technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6819A

A2LA-Lab Cert. No.: 6317.01

Dongguan Yaxu (AiT) technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

1.1 Deviation from standard

None

1.2 Abnormalities from standard conditions

None

1.3 Test Location

Dongguan Yaxu (AiT) Technology Limited

Address: No.22, Jinqianling 3rd Street, Jitigang, Huangjiang, Dongguan, Guangdong, China

Tel.: +86-769-8202 0499

Fax.: +86-769-8202 0495

1.4 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2 General Information

2.1 Product Description

EUT Name:	Portable Power Station
Model No:	R600
Serial Model:	AP-SS-005PRO,R600-JP,AP-SS-005PRO-JP,R600-US,R600-CA,AP-SS-005PRO-US,AP-SS-005PRO-CA,AP-SS-005PRO-US-1,R600-UK,R600-EU,AP-SS-005PRO-UK,AP-SS-005PRO-EU,AP-SS-005PRO-UK-1,AP-SS-005PRO-EU-1
Test sample(s) ID:	23010910
Sample(s) Status:	Engineer sample
Serial No.:	N/A
Operation frequency:	112 kHz-205kHz
Modulation Technology:	ASK
Antenna Type:	loop coil Antenna
Antenna gain:	0dBi
Hardware version.:	N/A
Software version.:	N/A
Power supply:	<p>Input Ports</p> <p>AC Input Voltage: (100~120)V~4A, (220~240)V~2A 400W(Max.) 50Hz/60Hz</p> <p>Solar Charge: MPPT(12~60)V=12A, 300W(Max.)</p> <p>Car Charger: Support 12V/24V</p> <p>Output Ports</p> <p>AC Output*2: 100-120V/220-240V 600W Max (Surged 1200W)</p> <p>USB-A Output *2: 5V=3A, 9V=2A, 12V =1.5A, 36W Max(QC3.0)</p> <p>USB-C Output *2: 5/9/15V=3A, 20V= 5A, 200W Max(PD)</p> <p>Car port/ DC5525*2: 12V=10A, 120W Max</p> <p>Wireless charger: 15W Max(QI)</p>
Battery:	DC 25.6V
Note:	For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2 Description of the test mode

Equipment under test was operated during the measurement under the following conditions:

Charging and communication mode

Test Mode	Description	
Mode 1	AC Adapter : Wireless charging (15W) +Mobile phone	Record
Mode 2	AC Adapter : Wireless charging (10W) +Mobile phone	Pre-tested
Mode 3	AC Adapter : Wireless charging (7.5W) +Mobile phone	Pre-tested
Mode 4	AC Adapter : Wireless charging (5W) +Mobile phone	Pre-tested
Mode 5	Battery : Wireless charging(15W) +Mobile phone	Pre-tested
Mode 6	Battery : Wireless charging(10W) +Mobile phone	Pre-tested
Mode 7	Battery : Wireless charging(7.5W) +Mobile phone	Pre-tested
Mode 8	Battery : Wireless charging(5W) +Mobile phone	Pre-tested
Mode 9	Test the EUT in idle mode.	Pre-tested
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

2.3 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Technical Parameters	Certificate	Provided by
Mobile phone	Apple	Iphone 11	/	FCC	laboratory

2.4 Summary of measurement results

Test Item	Result
Magnetic Field Strength (H) (A/m)	Compliant

2.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Global Test Service Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	0.009MHz-30MHz	3.10dB	(1)
Radiated Emission	30MHz-1GHz	3.75dB	(1)
Radiated Emission	1GHz-18GHz	3.88dB	(1)
Radiated Emission	18GHz-40GHz	3.88dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	1.20dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

2.6 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Electric and Magnetic Field Analyzer	Narda	EHP-200A	180ZX10505	2022.06.21	2024.06.20

3 TEST CONDITIONS AND RESULTS

3.1 Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission’s guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

According KDB 680106 D01 RF Exposure Wireless Charging App v03

3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

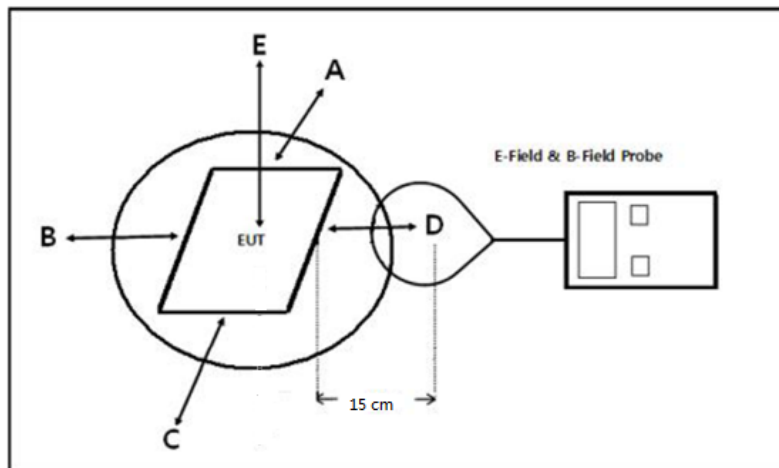
F=frequency in MHz

*=Plane-wave equivalent power density

3.3 Test Setup

1. Block diagram of EUT configuration

For devices designed for typical desktop applications, such as wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.



Note: Position A: Front of EUT; Position B: Left of EUT; Position C: back of EUT; Position D: Right of EUT; Position E: Top of EUT(20 cm measure distance);

3.4 Measurement Procedure

For mobile RF exposure

- The RF exposure test was performed on 360 degree turn table in anechoic chamber.
- The measurement probe was placed at test distance which is between the edge of the charger and the geometric center of probe.
- The turn table was rotated 360 degree to search of highest strength.
- The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
- The EUT were measured according to the dictates of KDB 680106D01v03.

For portable RF exposure

The EUT was placed on a non-conductive table top and the ancillary equipment (e.g. mobile phone) was placed on the EUT for charging. Maximum E-field and H-field measurements were tested 15cm from each side of the EUT. For top side the measure distance is 20cm. Along the side of the EUT to center of E-field probe and H-field probe were positioned at the location to search maximum field strength.

3.5 Test Result of E and H field Strength

Temperature:	24.5°C	Humidity:	58%
Test Engineer:	Simba Huang	Test site:	Anechoic chamber

3.5.1 For portable exposure

E-Field Strength at 15 cm from the edges surrounding the EUT

Test Conditions	Unit	Measured Distance (cm)	Measured E-Field Strength Values (V/m)					FCC E-Field Strength (V/m)	
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Limits	50% Limits
			TM1	V/m	15	2.415	2.835		

H-Field Strength at 15 cm from the edges surrounding the EUT

Test Conditions	Unit	Measured Distance (cm)	Measured H-Field Strength Values (A/m)					FCC H-Field Strength (A/m)	
			Test Position A	Test Position B	Test Position C	Test Position D	Test Position E	Limits	50% Limits
			TM1	A/m	15	0.233	0.228		

H-Filed Strength at 20 cm from the top of the EUT (A/m)

Test Conditions	Unit	Frequency (MHz)	Test Position E	50% Limits (A/m)	Limits (A/m)
TM1	A/m	0.1275	0.210	0.823	1.63

Equipment Approval Considerations

The EUT does comply with KDB 680106 D01 as follow table.

Requirements of KDB 680106 D01	Yes / No	Description
Power transfer frequency is less than 1 MHz	Yes	The device operate in the frequency range 112kHz~205kHz
Output power from each primary coil is less than 15 watts	Yes	The maximum output power for each primary coil is 15W.
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.	Yes	The transfer system includes two primary coils.
Client device is placed directly in contact with the transmitter.	Yes	Client device is placed directly in contact with the transmitter.
Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes	mobile exposure conditions
The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes	The EUT H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

3.6 Conclusion

A minimum safety distance of 0 cm to the antenna is required when the device is charging a smart phone for portable exposure and 20 cm to the antenna for mobile exposure. The detected emissions are below the limitations according FCC KDB 680106.

4 Test Setup Photos of the EUT



Test Position A-15cm from the edge of EUT to the geometric center of the probe



Test Position B-15cm from the edge of EUT to the geometric center of the probe



Test Position C-15cm from the edge of EUT to the geometric center of the probe



Test Position D-15cm from the edge of EUT to the geometric center of the probe



Test Position E-15cm from the edge of EUT to the geometric center of the probe



Test Position E-20cm from the edge of EUT to the geometric center of the probe

**** End of report ****