

TEST REPORT

Report No.: BCTC2407365171-2E

Applicant: Shenzhen Macson Power Co.,Ltd.

Product Name: Lithium Jump Starter

Test Model: M161A-016

Tested Date: 2024-07-16 to 2024-07-26

Issued Date: 2024-07-26

Shenzhen BCTC Testing Co., Ltd.



FCC ID: 2BHQP-M161A-016

Product Name: Lithium Jump Starter

Trademark: N/A

Model/Type Reference: M161A-016
M161A-080, M161A-010, M161A-012, JS161A-000, JS161A-080, JS161A-100, JS161A-120

Prepared For: Shenzhen Macson Power Co.,Ltd.

Address: 201 Xiangqian Building, No.4012 Longgang Avenue, Longgang District, Shenzhen City, China

Manufacturer: Shenzhen Macson Power Co.,Ltd.

Address: 201 Xiangqian Building, No.4012 Longgang Avenue, Longgang District, Shenzhen City, China

Prepared By: Shenzhen BCTC Testing Co., Ltd.

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Sample Received Date: 2024-07-16

Sample Tested Date: 2024-07-16 to 2024-07-26

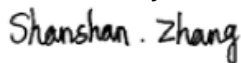
Issue Date: 2024-07-26

Report No.: BCTC2407365171-2E

Test Standards: FCC CFR 47 part1, 1.1307(b), 1.1310

Test Results: PASS

Tested by:



Shanshan. Zhang / Project Handler

Approved by:



Zero Zhou/Reviewer

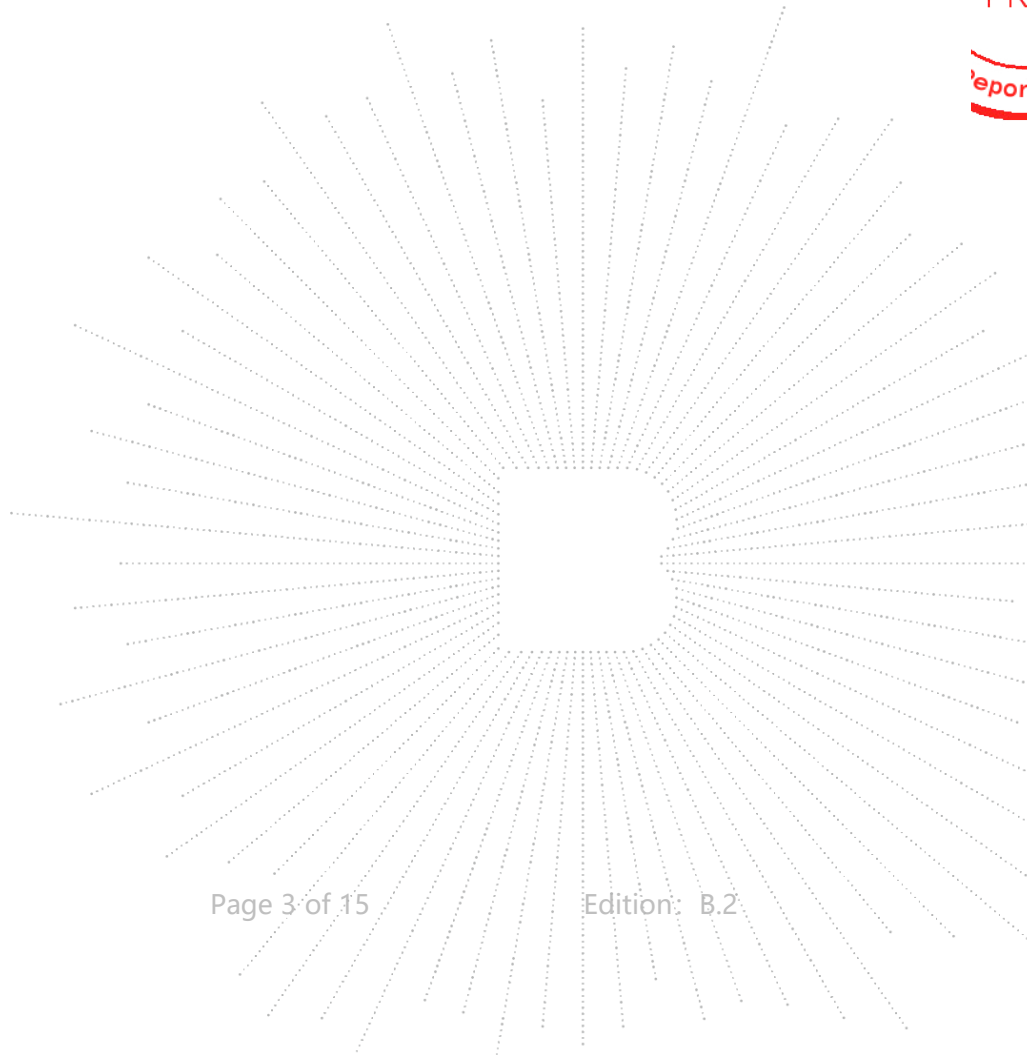
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(Note: N/A Means Not Applicable)

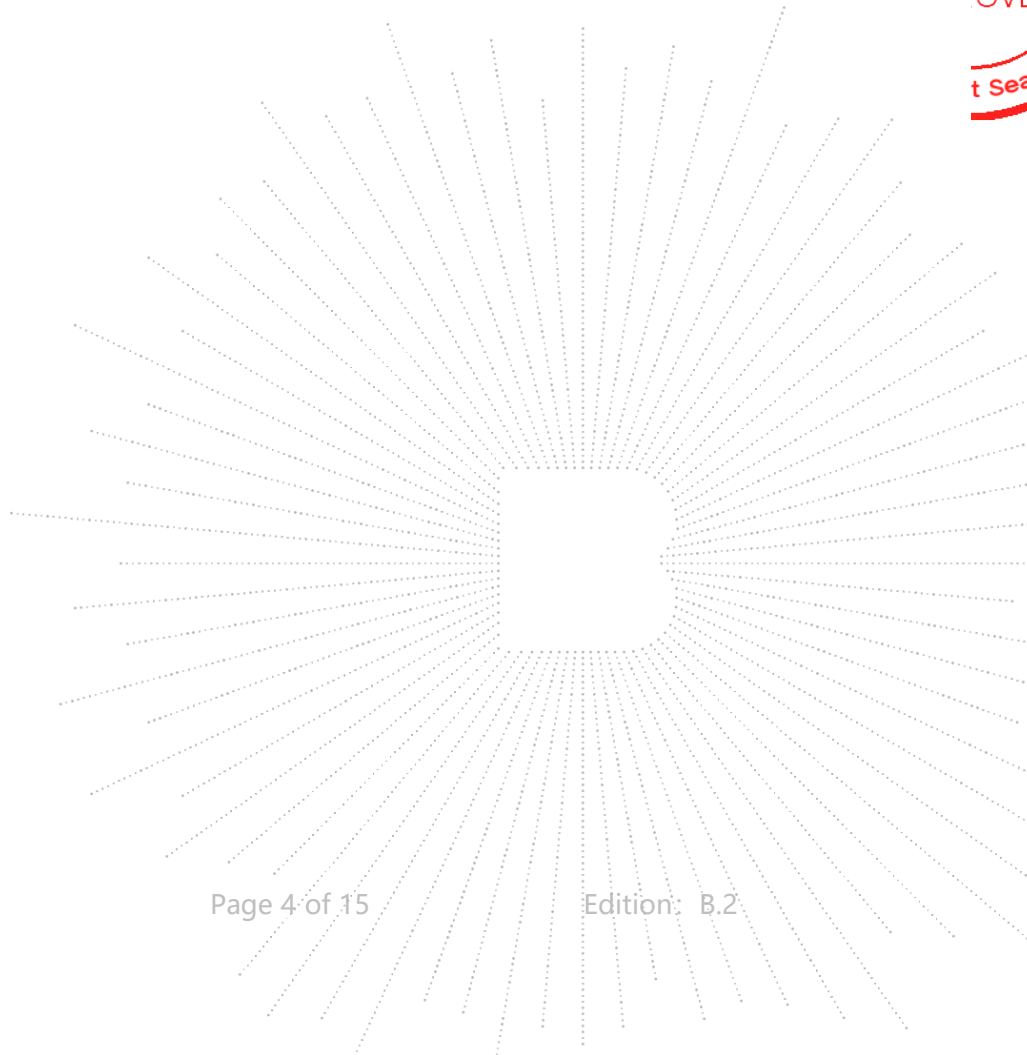
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1. Version

Report No.	Issue Date	Description	Approved
BCTC2407365171-2E	2024-07-26	Original	Valid

TEST
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2. Product Information

2.1 Product Information

Model/Type Reference:	M161A-016 M161A-080, M161A-010, M161A-012, JS161A-000, JS161A-080, JS161A-100, JS161A-120
Model Differences:	All the model are the same circuit and RF module, except model names and appearance of the color.
Hardware Version:	N/A
Software Version:	N/A
Modulation:	ASK
Operation Frequency:	115kHz-205kHz
Antenna installation:	loop coil antenna
Ratings:	Input: PD 60W Max Type-C output: DC 20V/3A Max USB-A Output #1: DC 5V/3A, DC 9V/2A, DC 12V/1.5A USB-A Output #2: DC 5V/2.4A Wireless charging: 10W Max Battery: DC 14.8V

2.2 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	Lithium Jump Starter	N/A	M161A-016	Ref. the Section 4.1	EUT
E-2	ADAPTER	Hoco.	N18	N/A	Auxiliary
E-3	Load	N/A	N/A	N/A	Auxiliary

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

2.3 Test Mode

DC Mode	Mode 1	Full Load
	Mode 2	Half Load
	Mode 3	Null Load

Note:

All test mode were tested and passed, only shows the worst case mode which were recorded in this report.

CO., LTD.

3. Test Facility And Test Instrument Used

3.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address:1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: 712850

A2LA certificate registration number is: CN1212

ISED Registered No.: 23583

ISED CAB identifier: CN0017

3.2 Test Instrument Used

EMF Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Electromagnet -ic radiation tester	Wavecontrol	SMP160	19SN0980	May 25, 2024	May 24, 2025
Electromagnet -ic field probe	Wavecontrol	WP400-3	20WP120082	May 16, 2024	May 15, 2025
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

4. Method Of Measurement

4.1 Applicable Standard

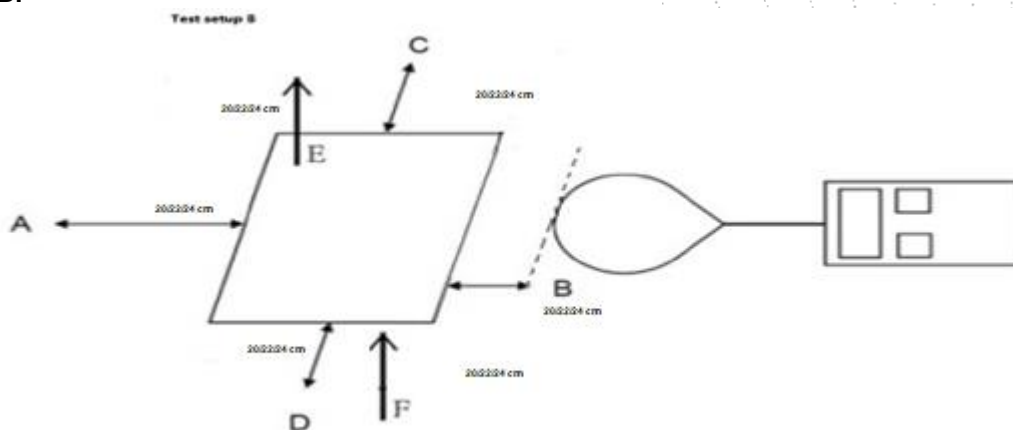
According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. According to §1.1310 and §2.1093 RF exposure is calculated. According KDB680106 D01v04: RF Exposure Wireless Charging Apps v04.

4.2 Block Diagram Of Test Setup

A:



B:



4.3 Limit

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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 General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	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	30

4.4 Test procedure

- The RF exposure test was performed in anechoic chamber.
- The measurement probe was placed at 0 cm surrounding the device for test setup A; and the measurement Probe was placed at 20/22/24 cm for the test setup B.
- The highest emission level was recorded and compared with limit as soon as measurement of each
- 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 was measured according to the dictates of KDB680106 D01v04.
- Remark: The EUT's test position A, B, C, D, E and F is valid for the E and H field measurements.

4.5 Equipment Approval Considerations

The EUT does comply with item 5(b) of KDB 680106 D01v04

1) Power transfer frequency is less than 1MHz

Yes, the device operate in the frequency range from 115-205kHz.

2) Output power from each primary coil is less than or equal to 15 watts.

Yes, the maximum output power of the primary coil is 10W.

3) A client device providing the maximum permitted load is placed in physical contact with the transmitter.

Yes, client device is placed directly in contact with the transmitter.

4) Only § 2.1091-Mobile exposure conditions apply

No, the EUT is portable condition assessment

5) The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1.

Yes, Conform to

6) For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time.

Yes, confirm.

4.6 E and H field Strength

Portable: Test Mode 1 (the worst mode)

Transmitter Battery level: 100% battery

H-Filed Strength at (distance from 2cm to 20cm at 2cm iteration) surrounding the EUT (A/m)

Test distance (cm)	Test Position A(uT)	Test Position B(uT)	Test Position C(uT)	Test Position D(uT)	Test Position E(uT)	Test Position F(uT)
2	0.1383	0.1043	0.0930	0.1161	0.0566	0.0581
4	0.0530	0.0328	0.0330	0.0378	0.0219	0.0223
6	0.0246	0.0144	0.0144	0.0200	0.0110	0.0124
8	0.0186	0.0086	0.0083	0.0150	0.0061	0.0098
10	0.0174	0.0087	0.0081	0.0151	0.0062	0.0096
12	0.0176	0.0076	0.0071	0.0138	0.0053	0.0086
14	0.0182	0.0088	0.0084	0.0139	0.0057	0.0095
16	0.0189	0.0074	0.0077	0.0151	0.0055	0.0086
18	0.0185	0.0088	0.0073	0.0150	0.0061	0.0094
20	0.0185	0.0076	0.0075	0.0142	0.0052	0.0098

Test distance (cm)	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
2	0.1106	0.0834	0.0744	0.0929	0.0453	0.0465	1.63
4	0.0424	0.0262	0.0264	0.0302	0.0175	0.0178	1.63
6	0.0197	0.0115	0.0115	0.0160	0.0088	0.0099	1.63
8	0.0149	0.0069	0.0066	0.0120	0.0049	0.0078	1.63
10	0.0139	0.0070	0.0065	0.0121	0.0050	0.0077	1.63
12	0.0141	0.0061	0.0057	0.0110	0.0042	0.0069	1.63
14	0.0146	0.0070	0.0067	0.0111	0.0046	0.0076	1.63
16	0.0151	0.0059	0.0062	0.0121	0.0044	0.0069	1.63
18	0.0148	0.0070	0.0058	0.0120	0.0049	0.0075	1.63
20	0.0148	0.0061	0.0060	0.0114	0.0042	0.0078	1.63

Note: A/m=uT/1.25

Using Biot-Savart Law, the value of 2cm can be estimated through the test results of 4cm:

Distance: 2cm

Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
0.1413	0.0875	0.0880	0.1008	0.0531	0.0541	1.63

Agreement Ratio

Distance: 2cm

Transmitter Battery level: 100% battery						
Test Position	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)
Measure Value (A/m)	0.1106	0.0834	0.0744	0.0929	0.0453	0.0465
Valuation(A/m)	0.1413	0.0875	0.0880	0.1008	0.0531	0.0541
Agreement ratio	24.37	4.75	16.75	8.18	15.90	15.15
Limit	30%	30%	30%	30%	30%	30%
Test result	Pass	Pass	Pass	Pass	Pass	Pass

Using Biot-Savart Law, the value of 4cm can be estimated through the test results of 6cm:

Distance: 4cm

Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
0.0464	0.0271	0.0271	0.0377	0.0205	0.0231	1.63

Agreement Ratio

Distance: 4cm

Transmitter Battery level: 100% battery						
Test Position	Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)
Measure Value (A/m)	0.0424	0.0262	0.0264	0.0302	0.0175	0.0178
Valuation(A/m)	0.0464	0.0271	0.0271	0.0377	0.0205	0.0231
Agreement ratio	9.01	3.22	2.62	21.96	15.68	25.70
Limit	30%	30%	30%	30%	30%	30%
Test result	Pass	Pass	Pass	Pass	Pass	Pass

As the model is sufficient, the value of 0cm can be estimated through the results of 2 cm

Using Biot-Savart Law, the value of 0cm can be estimated through the test results of 2cm:
Distance: 0cm

Test Position A(A/m)	Test Position B(A/m)	Test Position C(A/m)	Test Position D(A/m)	Test Position E(A/m)	Test Position F(A/m)	Limits (A/m)
0.8528	0.6434	0.5737	0.7162	0.1844	0.1892	1.63
Test result: Pass						

5. Photographs Of Test Set-Up

Mobile: Test Mode 1-3



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STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

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***** END *****