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Report Template Version: V05
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RF Exposure Evaluation Report

Report No.:	CQASZ20240100116E-02
Applicant:	FuelBox Inc. DBA The Empower Project
Address of Applicant:	1311 Anacapa St Santa Barbara California 93101 United States
Equipment Under Test (EUT):	
Product:	Empower Pack
Model No.:	EPS100123, EPC100123
Test Model No.:	EPS100123
Brand Name:	The Empower Project
FCC ID:	2BEWO-EPS100123
Standards:	47 CFR Part 1.1307
	47 CFR Part 1.1310
	KDB 680106 D01 RF Exposure Wireless Charging Base App v04r01
Date of Receipt:	2024-1-10
Date of Test:	2024-1-10 to 2024-1-22
Date of Issue:	2024-2-1
Test Result :	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: _____
(Joe Wang)

Reviewed By: _____
(Timo Lei)

Approved By: _____
(Alex Wang)

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240100116E-02	Rev.01	Initial report	2024-2-1

2 Contents

Page

1 VERSION 2
2 CONTENTS 3
..... 3
3 GENERAL INFORMATION 4
3.1 CLIENT INFORMATION 4
3.2 GENERAL DESCRIPTION OF EUT 4
3.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD 4
3.4 TEST ENVIRONMENT 5
3.5 DESCRIPTION OF SUPPORT UNITS 5
3.6 TEST LOCATION 6
3.7 TEST FACILITY 6
3.8 EQUIPMENT LIST 6
3.9 TEST SOFTWARE 7
3.10 8
4 RF EXPOSURE EVALUATION 8
4.1 RF EXPOSURE COMPLIANCE REQUIREMENT 8
4.1.1 Limits *8*
4.1.2 Test Procedure *8*
4.1.3 Test Setup *10*
4.1.4 Test Results *11*
APPENDIX A: PHOTOGRAPHS OF TEST SETUP 13

3 General Information

3.1 Client Information

Applicant:	FuelBox Inc. DBA The Empower Project
Address of Applicant:	1311 Anacapa St Santa Barbara California 93101 United States
Manufacturer:	Shenzhen Wayto Technology Co., Ltd
Address of Manufacturer:	3rd Floor, Building B, Jinkaijin Industrial Zone, Shilongzai, Shiyan, Bao'an, Shenzhen, GD, CN (518108)
Factory:	Shenzhen Wayto Technology Co., Ltd
Address of Factory:	3rd Floor, Building B, Jinkaijin Industrial Zone, Shilongzai, Shiyan, Bao'an, Shenzhen, GD, CN (518108)

3.2 General Description of EUT

Product Name:	Empower Pack
Model No.:	EPS100123, EPC100123
Test Model No.:	EPS100123
Brand Name:	The Empower Project
Software Version:	V1.0
Hardware Version:	V1.0
EUT Power Supply:	DC 4.5V⎓ 5A/DC 5V ⎓ 4.5A/5V⎓ 3A, DC 9V⎓ 2A, 12V ⎓ 1.5A Battery: 5000mAh(19.25Wh/3.85V)

3.3 Product Specification subjective to this standard

Equipment Category:	Non-ISM frequency
Operation Frequency range:	115kHz-205kHz
Modulation Type:	ASK
Antenna Type:	Induction coil
Antenna Gain:	0dBi

Note:

1. In section 15.31(m), regards to the operating frequency range less 1 MHz.

3.4 Test Environment

Operating Environment:	
Temperature:	25.5 °C
Humidity:	53 % RH
Atmospheric Pressure:	1009 mbar
Test Mode:	
Mode a:	Keep the EUT Wireless Out Put 5W
Mode b:	Keep the EUT Wireless Out Put 7.5W
Mode c:	Keep the EUT Wireless Out Put 10W
Mode d:	Keep the EUT Wireless Out Put 15W (Max)
Note: The above test modes all include full load,empty load,and half load, The worst-case state reflected in this report is the fully loaded state	

3.5 Description of Support Units

The EUT has been tested with associated equipment below.

1）Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	/	LPL-C010050200Z	/	CQA
Wireless charge load	/	/	/	CQA

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

3.6 Test Location

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

3.7 Test Facility

- **A2LA (Certificate No. 4742.01)**
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.
- **FCC Registration No.: 522263**
Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory 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. Registration No.:522263

3.8 Equipment List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
Magnetic Amplitude and Gradient Probe System	Schmid & Partner Engineering AG	MAGPy-8H3D+E3D	3096	2024/3/12	2025/3/12
Magnetic Amplitude and Gradient Probe System	Schmid & Partner Engineering AG	MAGPy-DAS	3093	2024/3/12	2025/3/12

3.9 Test Software

Software name	Manufacturer	Model	Version
MAGPy V2.0	Schmid & Partner Engineering AG	MAGPy V2.0	V2.0

3.10

4 RF Exposure Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

Frequency range(MHz)	Electric field strength(V/m)	Magnetic field strength(A/m)	Power density(mW/cm2)	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				

4.1.2 Test Procedure

a. The RF exposure test was performed in anechoic chamber.

b. Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm.

c. The highest emission level was recorded and compared with limit.

d.The EUT was measured according to the dictates of TCB Workshop "41-Part-18-&-Wireless-Power-Transfer - April 27,2022"

4.1.3 Equipment Approval Considerations item 5 b) of KDB 680106 D01 WirelessPower Transfer v04

Requirement	Device
1.Power transfer frequency is less than 1 MHz	Yes. The operating frequencies are.Operating Frequency: 115 kHz - 205 kHz
2. Output power from each primary coil is less than or equal to 15 watts.	Yes. The maximum output power is:Wireless Output: 15W(Max)
3. The system may consist of more than one	Yes. EUT has a source primary coil

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 sametime.	
4. Client device is placed directly in contact with the transmitter.	Yes. The client device is placed directly in contact with the transmitter.
5.Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion)	No, This EUT is mounted under a desk/table and the user's legs may be in direct contact with the device for long periods of time, so this device was evaluated as a portable WPT
6. The aggregate H-field strengths anywhere at or beyond 20 cm surrounding the device, and 20cm 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.	Yes, The H-field measurements for each edge/top surface of the host/client pair at every 2cm, starting from as close as possible out to 20cm were also evaluated for portable usecondition.

4.1.4 Test Result

For portable exposure condition:

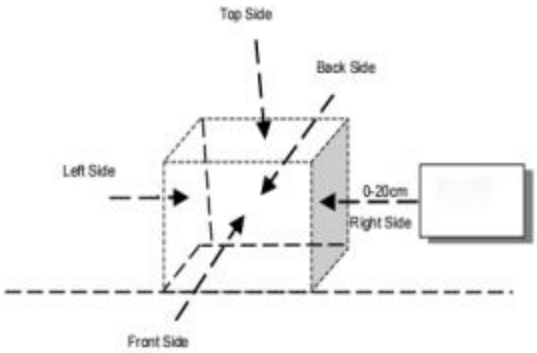
Operating modes with client device (1 %, 50%, 99% battery status of client device) have been test, only show the data of worst case of 1% battery status of client device.

H-field measurements taken every 2 cm (starting as close to 20 cm as possible) on each edge/top surface of the host/client pair were also evaluated for portable use conditions. The report reflects data for the worst 0 cm test distance mode only.

Test condition 1: Mode 3 operating mode with client device (1 % battery status of client device)

-test distance: 0cm

4.1.5 Test Setup



Note: Perform H-field measurements for each edge/top surface of the host/client pair at every 2 cm, starting from as close as possible out to 20 cm

4.1.6 Test Results

For portable exposure condition:
Operating modes with client device (1 %, 50%, 99% battery status of client device) have been test, only show the data of worst case of 1% battery status of client device.
H-field measurements taken every 2 cm (starting as close to 20 cm as possible) on each edge/top surface of the host/client pair were also evaluated for portable use conditions. The report reflects data for the worst 0 cm test distance mode only.
Test condition 1: Mode 3 operating mode with client device (1 % battery status of client device) -test distance: 0cm

Test Mode: Mode d

Magnetic Field Emissions							
Test Distance(cm)	Top	Left	Right	Rear	Front	Bottom	Limit(A/m)
	Measure Value (A/m)						
0(estimated)	0.6863	0.1043	0.0921	0.0121	0.0135	1.3827	1.63
2(estimated)	0.1627	0.0374	0.0321	0.0066	0.0073	0.4272	1.63
4(estimated)	0.0523	0.0165	0.0178	0.0041	0.0051	0.1106	1.63
6	0.0216	0.0092	0.0089	0.0023	0.0034	0.0372	1.63
8	0.0115	0.0048	0.0053	0.0033	0.0024	0.0163	1.63
10	0.0056	0.0033	0.0034	0.0014	0.0018	0.0073	1.63
12	0.0043	0.0022	0.0025	0.0013	0.0022	0.0053	1.63
14	0.0026	0.0017	0.0013	0.0008	0.0013	0.0033	1.63
16	0.0023	0.0011	0.0012	0.0006	0.0006	0.0022	1.63
18	0.0017	0.0007	0.0019	0.0005	0.0005	0.0019	1.63
20	0.0012	0.0003	0.0007	0.0004	0.0004	0.0006	1.63

H-field strength test result:

test distance: 0cm

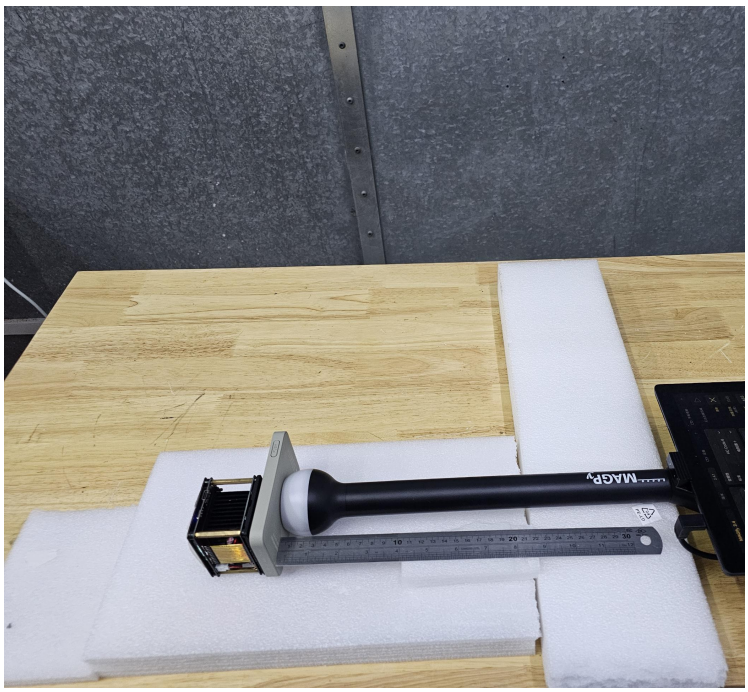
Measurement results directly tested using MAGPy.

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	0	24.6	0.14
<1%	Left	0	17.3	0.10
<1%	Right	0	14.2	0.14
<1%	Front	0	45.3	0.29
<1%	Back	0	46.4	0.11
<1%	Bottom	0	62.7	0.32
Limit			307	0.815
test result			PASS	PASS

When setting MAGPy to select compliance location as probe tip, the measured value is extrapolated to 0mm as the result.

Maximum permissible Exposure				
Battery levels	Test sides	Test distance(cm)	E -field(V/m)	H-field(A/m)
<1%	Top	0	26.8	0.20
<1%	Left	0	16.7	0.12
<1%	Right	0	17.4	0.14
<1%	Front	0	51.4	0.30
<1%	Back	0	50.2	0.20
<1%	Bottom	0	66.1	0.41
Limit			307	0.815
test result			PASS	PASS

APPENDIX A: PHOTOGRAPHS OF TEST SETUP



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