RF Exposure Evaluation Report

Report No.:	JYTSZ-R12-2400113
Applicant:	FuelBox INC DBA The Empower Project
Address of Applicant:	1311 Anacapa St, Santa Barbara, CA 93101, USA

Equipment Under Test (EUT)

Product Name:	Empower Dock
Model No.:	EDC100123, EDS100123
Trade mark:	The Empowerr Project
FCC ID:	2BEWO-EDC100123
Applicable standards:	FCC CFR Title 47 Part 2 (§2.1091)
Date of sample receipt:	16 Jan., 2024
Date of Test:	17 Jan., to 01 Feb., 2024
Date of report issue:	01 Feb., 2024
Test Result:	PASS

Project by:	***Project Engineer***	***Date:***	*01 Feb., 2024*
Reviewed by:	***Senior Engineer***	***Date:***	*01 Feb., 2024*
Approved by:	***Manager***	***Date:***	*01 Feb., 2024*

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

1 Version

Version No.	Date	Description
00	*01 Feb., 2024*	*Original*

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3 General Information

3.1 Client Information

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

3.2 General Description of E.U.T.

Product Name:	Empower Dock
Model No.:	EDC100123, EDS100123
Operation Frequency:	110 kHz - 205 kHz
Modulation technology:	ASK
Antenna Type:	Coil Antenna
Power supply (Wireless Charger):	Input: 5V, 3A / 9V, 2.22A / 12V, 1.67A Wireless Output: 5W, 7.5W, 10W, 15W
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

3.3 Operating Modes

Operating mode	Detail description
Full mode	Keep the EUT in Full mode

Remark:

1. Pre-scan input: 5V, 3A / 9V, 2.22A / 12V, 1.67A, output: 5W, 7.5W, 10W, 15W of the Power supply, found input: 12V, 1.67A and output: 15W was worse case mode. So the report only reflects the worse mode.

2. No load, mid load , full load mode all have been tested , only worse case full load mode is reported.

3.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
Skytek	Wireless charging match load	N/A	N/A	N/A

3.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Magentic(Mode A) fieid measurements (3kHz ~ 300KHz)	7.8% (k=2)
Magentic(Mode B) fieid measurements (30kHz ~ 30MHz)	3.5% (k=2)
Electric fieid measurements (3kHz ~ 30MHz)	7.8% (k=2)

3.6 Additions to, deviations, or exclusions from the method

No

3.7 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

3.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://jyt.lets.com

3.9 Test Instruments list

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
Electric and Magnetic field Probe - Analyzer	narda Safety Test Solutions S.r.l.	EHP-200AC	180ZX10203	02-22-2023	02-23-2024
EHP200-TS Software	narda Safety Test Solutions S.r.l.	EHP200-TS	Version: Rel 1.94	N.C.R	N.C.R

4 Technical Requirements Specification

4.1 Limits

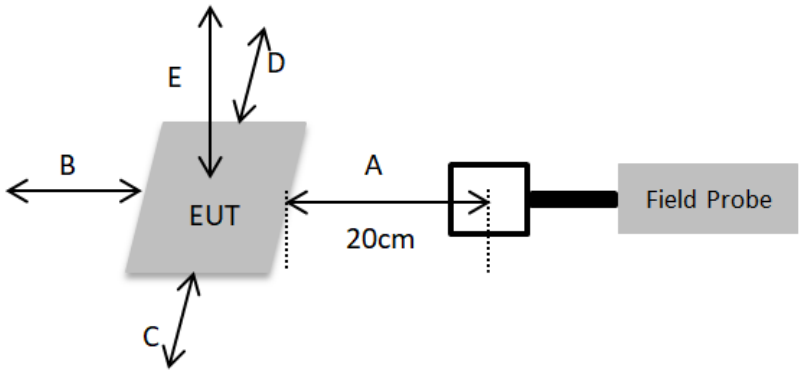
Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

According to KDB680106 D01 Wireless Power Transfer v04, for § 2.1091-Mobile devices, the MPE limits between 100 kHz to 300 kHz are to be considered the same as those at 300 kHz in Table 1 of § 1.1310, that is, 614 V/m and 1.63 A/m, for the electric field and magnetic field, respectively. For § 2.1093-Portable devices below 4 MHz and down to 100 kHz, the MPE limits in § 1.1310 (with the 300 kHz limit applicable all the way down to 100 kHz) can be used for the purpose of equipment authorization in lieu of SAR evaluations.

Limits For General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW /cm$_2$)	Averaging Time (minutes)
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	-	-	1.0	30

4.2 Test Setup Block



Remrak:

1. The EHP 200AC probe antenna diameter is 8.8cm.
2. A is Front side, B is Back side, C is Left side, D is Right side, E is Top side.
3. The test distance of A, B, C, D and E side is 20cm.

4.3 Test Procedure

KDB 680106 D01 Section 5.2:

(1) The power transfer frequency is below 1 MHz.
-- Yes, the device operate in the frequency 117 kHz - 137 kHz.

(2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.
-- Yes, the maximum output power of the primary coil is 15W.

(3) A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact).
--Yes, the client device providing the maximum permitted load is placed in physical contact with the transmitter.

(4) Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).
-- Yes, the EUT is a mobile device.

(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. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a 1/d (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.).
-- Yes, the EUT field strength levels are less than 50% of the MPE limit.

(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, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.
--Yes, the EUT only has one coil and operating at maximum power during test.

1. Installing the probe and turn on the EHP 200AC power switch, in the testing software, select the magnetic field test mode and the A/m unit, select the peak detection mode, select the Max-Hold display.
2. Check the background noise.
3. Make DUT work at maximum transmit power.
4. During the measurement, the probe centre of the EHP 200AC is kept in 20cm distance from each test surface of the wireless charging base, and recorded the measured values of the A, B, C, D and E side are separately.
5. In the testing software, Select the electric field test mode and the V/m unit, select the peak detection mode, select the Max-Hold display.
6. Repeat step 2 to 4 and then get the strength of the electric field.
7. Desktop device should be installed on the edge.(table : 0.8 m (H) high table structure of nonmetallic materials).

4.4 Result

Empty load, half load and full load have been tested, the full load mode is the worst, and only the worst test data is reflected in the report.

118.3KHz:

a) Magnetic Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (A/m)	50 % of Limit (A/m)	Limit (A/m)
A	20	0.1105	0.815	1.63
B	20	0.0584	0.815	1.63
C	20	0.1302	0.815	1.63
D	20	0.0729	0.815	1.63
E	20	0.2703	0.815	1.63

b) Electric Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (V/m)	50 % of Limit (V/m)	Limit (V/m)
A	20	0.4823	307.00	614
B	20	0.3567	307.00	614
C	20	0.5891	307.00	614
D	20	0.6826	307.00	614
E	20	0.8715	307.00	614

135.3KHz:

c) Magnetic Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (A/m)	50 % of Limit (A/m)	Limit (A/m)
A	20	0.1209	0.815	1.63
B	20	0.0602	0.815	1.63
C	20	0.1596	0.815	1.63
D	20	0.0721	0.815	1.63
E	20	0.2995	0.815	1.63

d) Electric Field Strength Measurement

Measured Side	Distance (cm)	Measured Value (V/m)	50 % of Limit (V/m)	Limit (V/m)
A	20	0.5137	307.00	614
B	20	0.3604	307.00	614
C	20	0.6197	307.00	614
D	20	0.5027	307.00	614
E	20	0.9854	307.00	614

4.5 Conclusion

The Measured Value of Magnetic Field and Electric Field are separately Less than their Limit, so the SAR test is exclusion and satisfies RF exposure evaluation.

------End of report------