MPE TEST REPORT

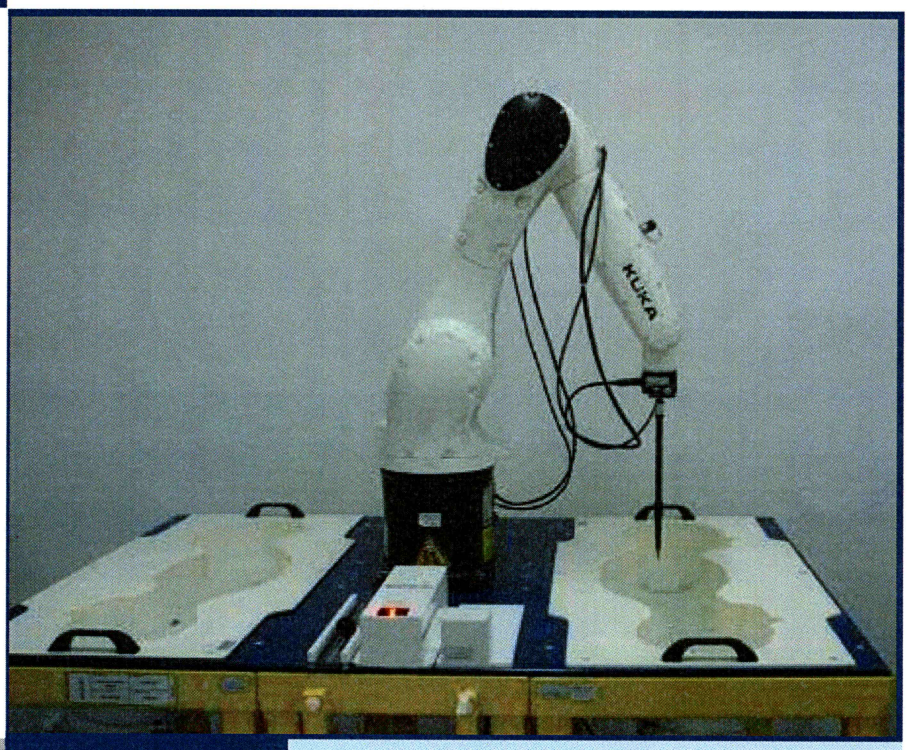
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

Purewave Hydro

ISSUED TO
PADO, Inc

28381 Constellation Rd Valencia, CA 91355 USA



Report No.:	BL-SZ2140724-701
EUT Name:	Purewave Hydro
Model Name:	PW-H20 (refer section 2.4)
Brand Name:	PADO, Purewave
Test Standard:	47 CFR Part 1.1307 47 CFR Part 1.1310
FCC ID:	2AZMD-PWH2O
Test Conclusion:	Pass
Test Date:	Nov. 26, 2021
Date of Issue:	Nov. 29, 2021

Tested by: Miao Yan
Miao Yan
Date Nov. 29, 2021

Approved by: Wei Yanquan
(Chief Engineer)
Date Nov. 29, 2021

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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Oct. 21, 2021	Initial Issue
Rev. 02	Nov. 08, 2021	Added antenna gain and type in page 6. Revised the H-filed probe name in page 10. Added Test device information in page 10. Update test data and photos.
Rev. 03	Nov. 29, 2021	Added designation number in page 4. Revised the operation frequency to 110.5~142kHz.

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China.
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055
CAB Identifier of Test Lab	CN1196

1.3 Test Environment Condition

Ambient Temperature	21 to 23 ℃
Ambient Relative Humidity	40 to 50%
Ambient Pressure	100 to 102 KPa

1.4 Announce

(1) The test report reference to the report template version v1.2.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	PADO, Inc
Address	28381 Constellation Rd Valencia, CA 91355 USA

2.2 Manufacturer Information

Manufacturer	Ablelink Electronics Limited
Address	Room F1, 11/F., Yeung Yiu Chung Industrial Building, 20 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong

2.3 Factory Information

Factory	Ablelink Electronics Limited
Address	Room 101, No 6 Dongyu 2nd Street, Qingxi Town, Dongguan, Guangdong, China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Purewave Hydro
Model Name Under Test	PW-H20
Series Model Name	PW-H2O, PW-WM-H20, PW-WM-H2O, PW-WM-01, PW-WPM, PW-WPM-01, PW-WPM-H20, PW-WPM-H2O, PADO-H20, PADO-H2O, PADO-WM-H20, PADO-WM-H2O, PADO-WM-01, PADO-WPM, PADO-WPM-01, PADO-WPM-H20, PADO-WPM-H2O
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name.
Hardware Version	V1
Software Version	V1
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment	Battery	
	Brand Name	Cham
	Model No.	18650-2S
	Serial No.	N/A
	Capacity	3200mAh
	Rated Voltage	7.2 V
	Limit Charge Voltage	N/A

2.6 Technical Information

Network and Wireless connectivity	Qi

The requirement for the following technical information of the EUT was tested in this report:

Operating Frequency	110.5 ~ 142 kHz	
Antenna Type	Coil Antenna	
Antenna Gain	0 dBi	
Modulation	FSK	
About Product	Only Qi was tested in this report.	
Exposure Category	General Population/Uncontrolled exposure	
EUT Stage	Mobile Device	
Product	Type	
	☒ Production unit	☐ Identical prototype

3 STANDARD INFORMATION

3.1 Test Standard

No.	Identity	Document Title
1	47 CFR Part 1	Practice and Procedure
2	KDB 680106 D01 v03r01	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications

3.2 Radiofrequency Radiation Exposure 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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30
*f = frequency in MHz * = Plane-wave equivalent power density*				

NOTE:

Limits: According KDB 680106 D01, 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.

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure. In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Measurement Uncertainly

Measurement uncertainly evaluation for electric filed strength and magnetic filed strength test

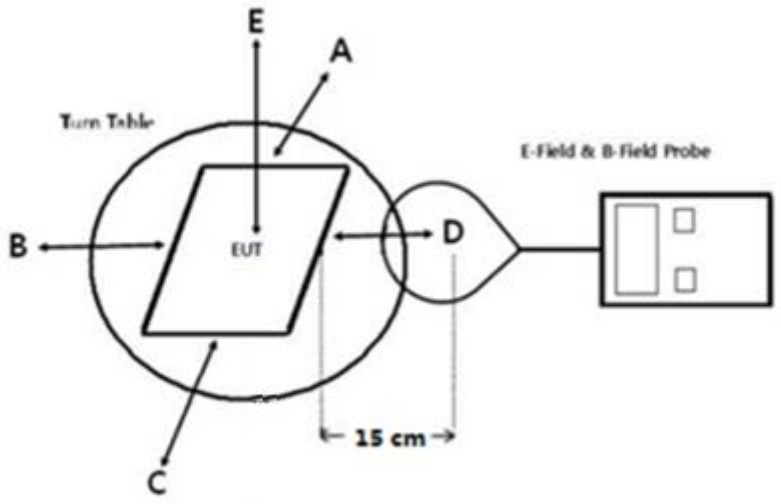
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Electric Filed Strength	1.13 dB
Magnetic Filed Strength	1.18 dB

4 TEST SETUP

4.1 Test Setup Photo

Maximum H-field and E-filed measurements were made on each of five sides of the EUT that could come in contact with a user. The five sides are defined as follows: Top (A), Left (B), Bottom (C), Right (D) and Front (E). Refer to the test position diagram below.



4.2 Measurement procedure

1. The RF exposure test was performed in anechoic chamber.
2. The measurement probe was placed at test distance (15 cm) which is between the edge of the charger and the geometric center of probe.
3. The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
4. The EUT was measured according the dictates of KDB 680106 D01v03r01.

4.3 Mobile Condition

Probe	Condition	Test Distance (cm) A/B/C/D	Test Distance (cm) E
H-field	Mobile	15	20
E-field	Mobile	15	20

4.4 Equipment Approval Considerations item 5.2 of KDB 680106 D01 v03r01.

1. Power transfer frequency is less than 1 MHz.
   - The device operates at a frequency 110.5 kHz ~ 142 kHz

2. Output power from each primary coil is less than or equal to 15 watts.
   - Output power from primary coil 10 watts.

3. The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
   - The transfer system including a charging system with one coils that is able to detect receiver device.

4. Client device is placed directly in contact with the transmitter.
   - Client device is placed directly in contact with the transmitter.

5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
   - On the normal use this EUT only support mobile exposure condition.

6. 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.
   - Refer to following test results.
   The EUT E-Field Strength levels at 15 cm < 50 % of the MPE E-Field Strength limit 307.0 V/m
   7.748 V/m (Max. at 15 cm) < 307 V/m
   The EUT H-Field Strength levels at 15 cm< 50 % of the MPE H-Field Strength limit
   0.016 A/m (Max. at 15 cm) < 0.815 A/m

4.5 Test Equipment

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
H-field Probe	Narda	ELT-400	O-0362	2021.08.27	2022.08.26
E-field Probe	Narda	EP-602	611WX80276	2021.09.17	2022.09.16
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2022.02.20

4.6 Test Configuration

This product is massager, the EUT was evaluated withmassager charging base and under charging condition as the below table:

Test Mode NO.	Description	
1	Charging Mode	AC/DC Adapter + EUT(massager charging base)

5 TEST RESULT

5.1 H-field

Distance (cm)	Test Mode	EUT Edges				Limit (A/m)
		A (A/m)	B (A/m)	C (A/m)	D (A/m)	
15	1	0.011	0.016	0.015	0.013	1.63
Note: The H-filed value of edge E is equal or less than environment electromagnetic noise, so the edge H-Filed value doesn't shown in this report.						

5.2 E-field

Distance (cm)	Test Mode	EUT Edges				Limit (V/m)
		A (V/m)	B (V/m)	C (V/m)	D (V/m)	
15	1	7.135	7.015	**7.586**	6.847	614
Note: The E-filed value of edge E is equal or less than environment electromagnetic noise, so the edge E-filed value doesn't shown in this report.						

6 Test Conclusion

6.1 H-field

Distance (cm)	Worst-case Test Mode	Maximum Value (V/m)	Limit (A/m)	50% Limit (A/m)	Verdict
15	1	0.016	1.63	0.815	Pass

6.2 E-field

Distance (cm)	Worst-case Test Mode	Maximum Value (V/m)	Limit (V/m)	50% Limit (V/m)	Verdict
15	1	7.586	614	307	Pass

According KDB 680106 D01v03r01, the EUT is compliant with the 50% of the MPE limits.

--END OF REPORT--