TEST REPORT

Applicant:	MERCHSOURCE, LLC
Address:	7755 Irvine Center Drive, Suite 100, Irvine, CA US
Equipment Type:	Alarm Clock with wirless Charging
Model Name:	1018255 (refer to section 2.3)
Brand Name:	Sharper Image
FCC ID:	2AEVM1018255
Test Standard:	47 CFR Part 1 (refer to section 3.1)
Sample Arrival Date:	Jul. 04, 2024
Test Date:	Jul. 23, 2024
Date of Issue:	Aug. 16, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Xiong Lining **Checked by:** Xu Rui **Approved by:** Tolan Tu

(Testing Director)

Revision History

Version	Issue Date	Revisions Content
Rev. 01	Jul. 31, 2024	Initial Issue
Rev. 02	Aug. 16, 2024	Added 47 CFR Part 2.1091 and KDB 447498 D04 v01 standard and related content

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1 GENERAL INFORMATION

1.1 Test Laboratory

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

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☐ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☑ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	MERCHSOURCE, LLC
Address	7755 Irvine Center Drive, Suite 100, Irvine, CA US

2.2 Manufacturer Information

Manufacturer	Ningbo Winpex Imp. & Exp. Co. Ltd
Address	No.239, Wanshan Rd, Jiangbei District, Ningbo, China

2.3 General Description for Equipment under Test (EUT)

EUT Name	Alarm Clock with wirless Charging
Model Name Under Test	1018255
Series Model Name	101**** (where **** can be digits 0000-9999 which represent different customers)
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the applicant)
Hardware Version	W0269-CHRG-A1
Software Version	IP6806_AA_UE6JL__V3.12_W0258
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Note: Not applicable.

2.5 Technical Information

Network and Wireless connectivity	Qi

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

Operating Frequency	FSK	
Antenna Type	110.1 ~ 205 kHz	
About Product	Coil Antenna	
Exposure Category	Mobile Device	
EUT Type	☒ Production unit	☐ Identical prototype

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 1	Practice and Procedure
2	KDB 680106 D01 v04	EQUIPMENT AUTHORIZATION OF WIRELESS POWER TRANSFER DEVICES
3	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices
4	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01

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

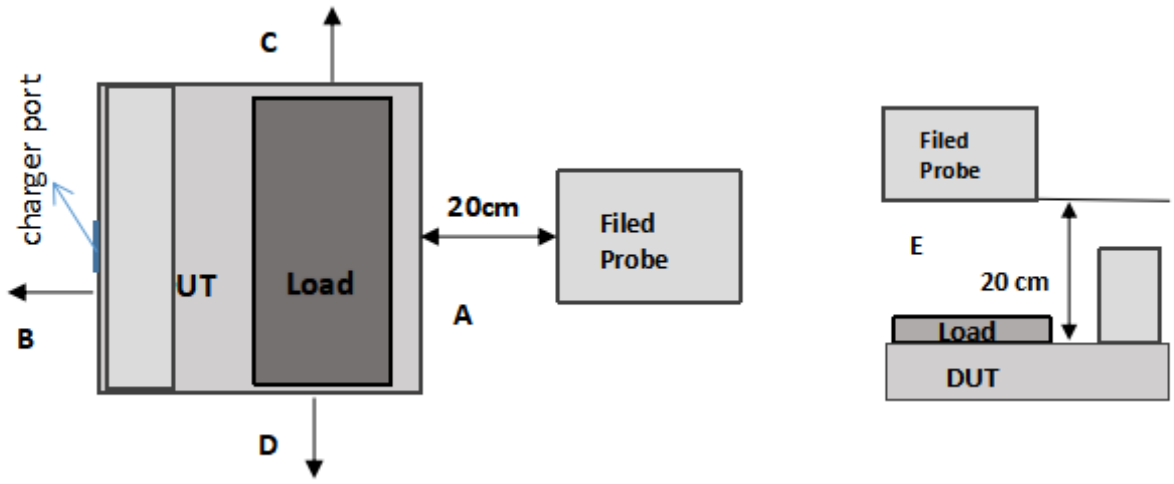
Measurement uncertainly evaluation for electric filed strength and magnetic filed strength test
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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

4 DEVICE CATEGORY AND LEVELS LIMITS

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: A, B, C, D, 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 20 cm for A, B, C, D and E which is between the edge of the charger and the geometric edge of probe.
3. The highest emission level was recorded and compared with limit as soon as measurement of each points were completed.
4. The EUT was measured according the dictates of KDB 680106 D01v04.

4.3 Mobile Condition

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

4.4 Equipment Approval Considerations item 5.2 of KDB 680106 D01 v04.

1. Power transfer frequency is less than 1 MHz.
   - The device operates at a frequency 110 kHz ~ 205 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 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.
   - 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).
   - According safety guide, on the wireless power sharing function this this DUT should be operate with a minimum distance of 20cm between the DUT and human body, so this EUT only support mobile exposure condition.

6. 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.
   - Refer to following test results.
   The EUT E-Field Strength levels at 20 cm< 50 % of the MPE E-Field Strength limit
   2.722 V/m (Max. at 20 cm) < 307 V/m
   The EUT H-Field Strength levels at 20 cm< 50 % of the MPE H-Field Strength limit
   0.319 A/m (Max. at 20 cm) < 0.815 A/m

4.5 Test Equipment

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
PC	Lonovo	E4-ARR	MP1K4PCW	N/A	N/A
Test Software	Narda	WinEP600	N/A	N/A	N/A
E-Field Probe	Narda	EP 602	611WX80276	2023/09/12	2024/09/12
E&H-field Probe	Wavecontrol	WP400	22WP100980	2023/08/25	2024/08/25
Anechoic Chamber	YiHeng	9m*6m*6m	1900/5/21	2021/08/19	2024/08/19
Mobile phone	iphone	iphone 13 pro	RX56NGXV90	N/A	N/A

4.6 Test Configuration

To check all kinds of possible modes, the EUT was support reverse charging function, so the EUT was evaluated in reverse charge mode with appropriate client and under each charging condition as the below table:

Test Mode No.	Description
1	EUT(reverse charging mode) + Mobile Phone which has Less than 10 % of battery
2	EUT(reverse charging mode) + Mobile Phone which has Less than 50 % of battery
3	EUT(reverse charging mode) + Mobile Phone which has 90 % of battery

5 TEST RESULT

5.1 E-field

Distance (cm)	Test Mode	EUT Edges					Limit (V/m)
		A (V/m)	B (V/m)	C (V/m)	D (V/m)	E (V/m)	
20	1	2.689	2.571	1.896	2.350	2.471	614
20	2	2.541	2.526	1.927	2.382	2.466	614
20	3	2.722	2.589	1.902	2.346	2.433	614

5.2 H-field

Distance (cm)	Test Mode	EUT Edges					Limit (A/m)
		A (A/m)	B (A/m)	C (A/m)	D (A/m)	E (A/m)	
20	1	0.296	0.216	0.234	0.245	0.265	1.63
20	2	0.313	0.234	0.254	0.242	0.261	1.63
20	3	0.319	0.253	0.246	0.251	0.278	1.63

6 Test Conclusion

6.1 E-field

Distance (cm)	Worst-case Test Mode	EUT Edge (V/m)	Limit (V/m)	50% Limit (V/m)	Verdict
20	1	2.689	614.00	307	Pass
20	2	2.541	614.00	307	Pass
20	3	2.722	614.00	307	Pass

According KDB 680106 D01v04, the EUT is compliant with the 50% of the MPE limits, And this confirmed that the device comply with FCC KDB 447498 D04.

6.2 H-field

Distance (cm)	Worst-case Test Mode	EUT Edge (A/m)	Limit (A/m)	50% Limit (A/m)	Verdict
20	1	0.296	1.63	0.815	Pass
20	2	0.313	1.63	0.815	Pass
20	3	0.319	1.63	0.815	Pass

According KDB 680106 D01v04, the EUT is compliant with the 50% of the MPE limits, And this confirmed that the device comply with FCC KDB 447498 D04.

Note: Test setup photos please refer the document “BL-SZ2470307-AS.pdf”.

Statement

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