TEST REPORT

Applicant: **Address:**	**Dongguan Rainbow Tech Electronic & Plastic Products Co., Ltd.** **No.22 Fuxing Road, Xiagang, Chang'an Town, Dongguan, Guangdong, China**	
Manufacturer: **Address:**	**Dongguan Rainbow Tech Electronic & Plastic Products Co., Ltd.** **No.22 Fuxing Road, Xiagang, Chang'an Town, Dongguan, Guangdong, China**	
Factory1: **Address1:**	**Dongguan Rainbow Tech Electronic & Plastic Products Co., Ltd.** **No.22 Fuxing Road, Xiagang, Chang'an Town, Dongguan, Guangdong, China**	
E.U.T.:	**Wireless charger**	
Model Number:	**ZH114、ZH130、ZH138、ZH118-A、ZH118-B**	
Trade mark:	**--**	
Date of Receipt:	**Dec. 26, 2023**	**Date of Test: Dec. 26, 2023 - Jan. 6, 2024**
Test Specification:	**47 CFR FCC Part 15, Subpart B, Class B**	
Test Result:	**The equipment under test was found to be compliance with the requirements of the standards applied.**	

Prepared by:

Jerry Hu

Jerry Hu/ Engineer

Approved & Authorized Signer:

Frank Shen/ Manager

Issue Date：January 18, 2024

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Revision History of This Test Report		
Report Number	Description	Issued Date
LP23100240C01-02		2024-1-18

1. GENERAL PRODUCT INFORMATION

1.1. PRODUCT FUNCTION

Refer to Technical Construction Form and User Manual.

1.2. DIFFERENCE BETWEEN MODEL NUMBERS

Model list: **ZH114、ZH130、ZH138、ZH118-A、ZH118-B**

Differences:
1, All the models have the same circuit diagram and PCB layout, except for model name, appearance and colour.
2, The models ZH114, ZH130, ZH138, and ZH118-A have the same appearance, but differ from the ZH118-B, as detailed in the EUT photo

Notes:According to the above information, full tests were performed on model:
ZH118-A

1.3. TEST DESCRIPTION OF DEVICE (EUT)

Test Model	:	ZH118-A
Test Sample No.	:	LP23100240C01-S001
Rated Input	:	DC 9V
Rated Output	:	Watch wireless output : 2W Phone wireless output : 10W/7.5W/5W Earphone wireless output : 3W
DC Line	:	Unshielded, Detachable, shorter than 3m
Protection class	:	Class III

ADAPTER

Rated Input	:	AC 100-240~ 50/60Hz, 0.5 MAX
Rated Output	:	DC 9V2A, 18W
DC Line	:	Unshielded, Detachable, shorter than 3m
Protection class	:	Class II
Manufacturer	:	Dongguan Gaona Electronics CO., LTD.

1.4. INDEPENDENT OPERATION MODES

Test Voltage: 1	AC100- 240V, 50/60Hz for ADAPTER , DC 9V for EUT
Test Mode: A	Phone Wireless Output: 10W + Earphone Wireless Output: 3W + Watch Wireless Output: 2W
Test Mode: B	Phone Wireless Output: 10W + Earphone Wireless Output: 3W
Test Mode: C	Phone Wireless Output: 10W + Watch Wireless Output: 2W
Test Mode: D	Earphone Wireless Output: 3W + Watch Wireless Output: 2W

Remark: The test data of the worst case condition(s) was reported on the following page.

2. TEST STANDARDS AND SITES

2.1. DESCRIPTION OF STANDARDS AND RESULTS

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Standard	**Test Type**	**Result**	**Remarks**
47 CFR FCC Part 15, Subpart B, Class B	Mains Terminal Disturbance Voltage Test	PASS	Meets the requirements.
	Radiated Emission Test	PASS	Meets the requirements.

2.2. LIST OF TEST AND MEASUREMENT INSTRUMENTS

For conducted emission at the mains terminals test(Shielded Room 2)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESCS30	1002.4500	Feb. 15, 2023	1 Year	LEP-E004	☑
Artificial Mains Network	Rohde & Schwarz	ENV216	100873	Feb. 15, 2023	1 Year	LEP-E001	☑
Artificial Mains Network	Schwarzbeck	NSLK 8128	NSLK 8128-249	Feb. 15, 2023	1 Year	LEP-E047	☐
Pulse Limiter	Schwarzbeck	VYSD9561-F-N	00612	Feb. 15, 2023	1 Year	LEP-E047	☐
ISN	Schwarzbeck	ISN-CAT6	NTFM81580	Feb. 15, 2023	1 Year	LEP-E048	☐
RF Switching Unit	CD	RSU-M2	8830008	Feb. 15, 2023	1 Year	LEP-E045	☑
Shielded Room 2	MR	MR-L01	LEP-E050	Nov. 17, 2022	3 Year	LEP-E050	☑
Test software	EZ-EMC	Fala	EMC-CON 3A1.1+	N/A	N/A	N/A	☑
For conducted emission at the mains terminals test(Shielded Room 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESHS30	8290501003	Feb. 15, 2023	1 Year	LEP-E002	☑
Artificial Mains Network	Baluelec	LSN016	BL041122050121	Nov. 15, 2023	1 Year	LEP-E067	☑
Shielded Room 1	MR	MR-L05	LEP-E053	Nov. 17, 2022	3 Year	LEP-E053	☑
Test software	EZ-EMC	Fala	LEPONT-03A2	N/A	N/A	N/A	☑
For radiated(30M-1G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESR 3	101849	Feb. 15, 2023	1 Year	LEP-E006	☑
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	743	Nov. 20, 2022	3 Year	LEP-E005	☑
Signal Amplifier	HP	8447D	1726A01222	Feb. 15, 2023	1 Year	LEP-E007	☑
6dB Attenuator	RswTech	5W 6dB	LEP-E084	Feb. 15, 2023	1 Year	LEP-E084	☑
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	☑
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	☑
For radiated(1-18G) emission test(966 Chamber 1)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
Spectrum analyzer	Rohde & Schwarz	FSV40	101412	Feb. 15, 2023	1 Year	LEP-E076	☐
Spectrum analyzer	Agilent	N9020A	MY49100060	Feb. 15, 2023	1 Year	LEP-E020	☐
Horn antenna	Schwarzbeck	BBHA 9120D	01875	Nov. 20, 2022	3 Year	LEP-E024	☐
Preamplifier	Schwarzbeck	BBN 9718B	00010	Mar. 07, 2020	1 Year	LEP-E025	☐
966 Chamber 1	MR	MR-L02	LEP-E051	Nov. 17, 2022	3 Year	LEP-E051	☐
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	☐
For radiated(30M-1G) emission test(966 Chamber 2)							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Lab No.	Remark
EMI Test Receiver	Rohde & Schwarz	ESPI 3	101059	Feb. 15, 2023	1 Year	LEP-E054	☐
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	743	Nov. 20, 2022	3 Year	LEP-E049	☐
966 Chamber 2	MR	MR-L06	LEP-E052	Nov. 17, 2022	3 Year	LEP-E052	☐
Test software	EZ-EMC	Fala	EMEC-3A1	N/A	N/A	N/A	☐

2.3. MEASUREMENT UNCERTAINTY

Parameter		UNCERTAINTY
Conducted Emission	Level accuracy (150kHz to 30MHz)	± 2.54 dB
Radiated Emission	Level accuracy (30MHz to 1000MHz, V)	± 4.14 dB
	(30MHz to 1000MHz, H)	± 4.25 dB
Radiated Emission	Level accuracy (above 1000MHz, Horizontal)	± 3.92 dB
	(above 1000MHz, Vertical)	± 3.96 dB

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

As U_{lab} in all applicable tests listed above are less than U_{cispr} according to CISPR 16-4-2:2003,

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

2.4. TEST FACILITY

EMC Lab.	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 The Certificate Registration Number is L10100. The Laboratory has been assessed and proved to be in compliance with A2LA The Certificate Registration Number is 6901.01 FCC Designation No.: CN1351 Test Firm Registration No.: 397428 ISED CAB identifier: CN0151 Test Firm Registration No.: 20133
Test Location (Others)	:	Dongguan Lepont Testing Service Co., Ltd.
Address	:	Room 102, Building 11, No.7, Houjie Science And Technology Avenue, Houjie, Dongguan, Guangdong, China

3. TEST SET-UP AND OPERATION MODES

3.1. PRINCIPLE OF CONFIGURATION SELECTION

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.
Immunity: The equipment under test (EUT) was configured to the representative operating mode and conditions.

3.2. BLOCK DIAGRAM OF TEST SET-UP

System Diagram of Connections Between EUT and Simulators
See test photo for details.

3.3. SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT

None.

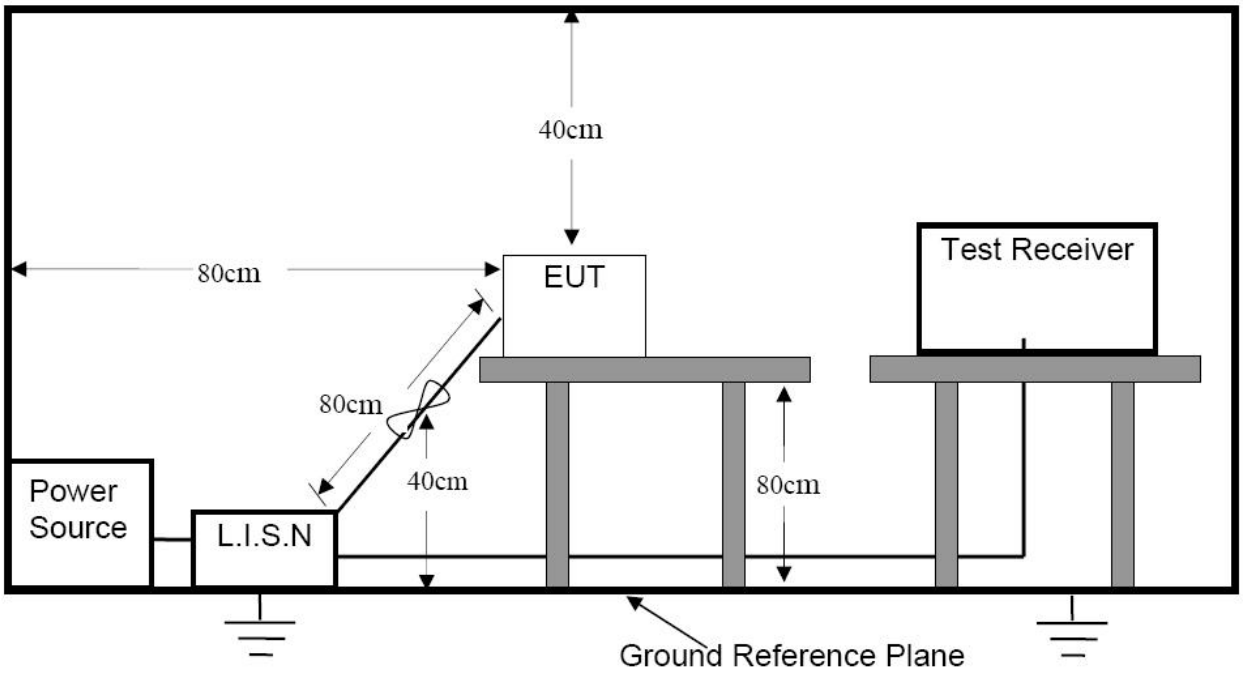
3.4. COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE

Add a magnetic loop(V18010) to the charging DC line to meet EMI standard requirements

4. EMISSION TEST RESULTS

4.1. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

4.1.1. Block Diagram of Test Setup



4.1.2. Limit

Limits for conducted disturbance at the mains ports of class B.

Frequency range	Limits (dB(uV))	
(MHz)	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

4.1.3. Test Procedure

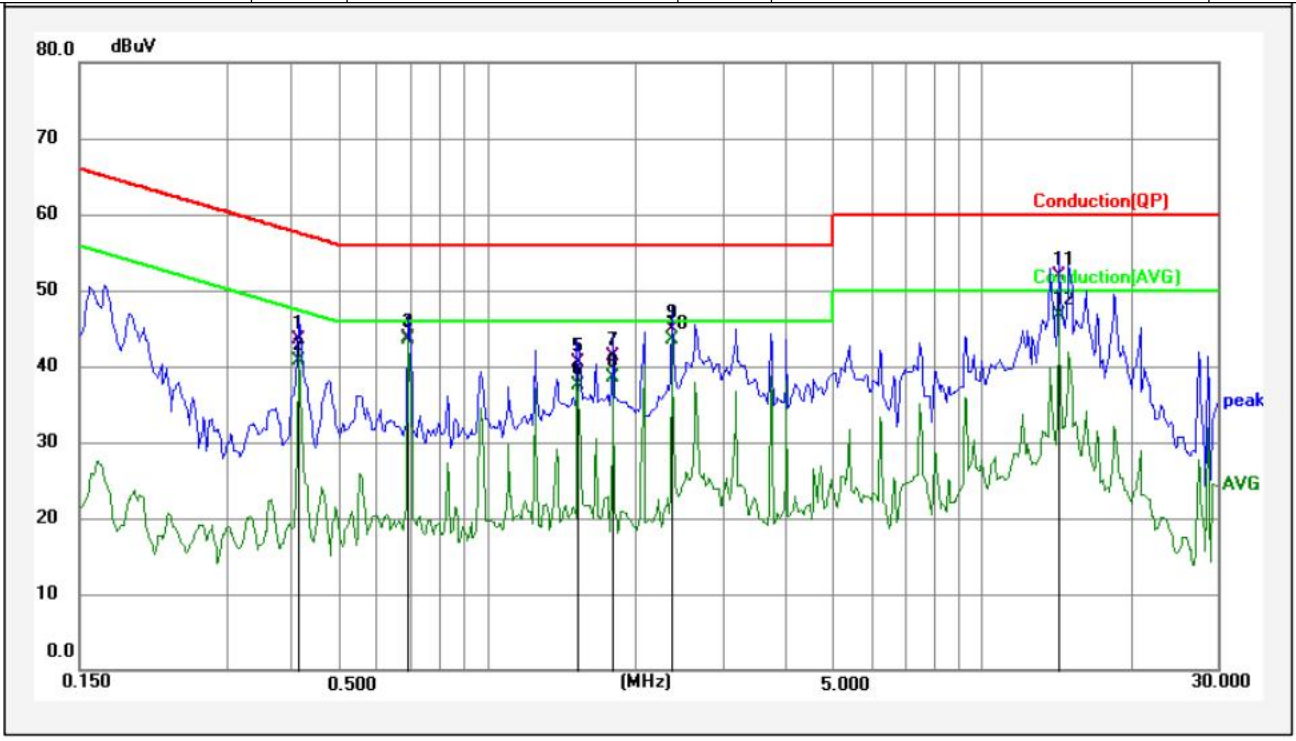
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The test results of conducted emissions at mains ports are recorded of six worst margins for quasi-peak(mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.
Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.1.4. Test Results

PASS.

Please refer to the following pages of the worst case:

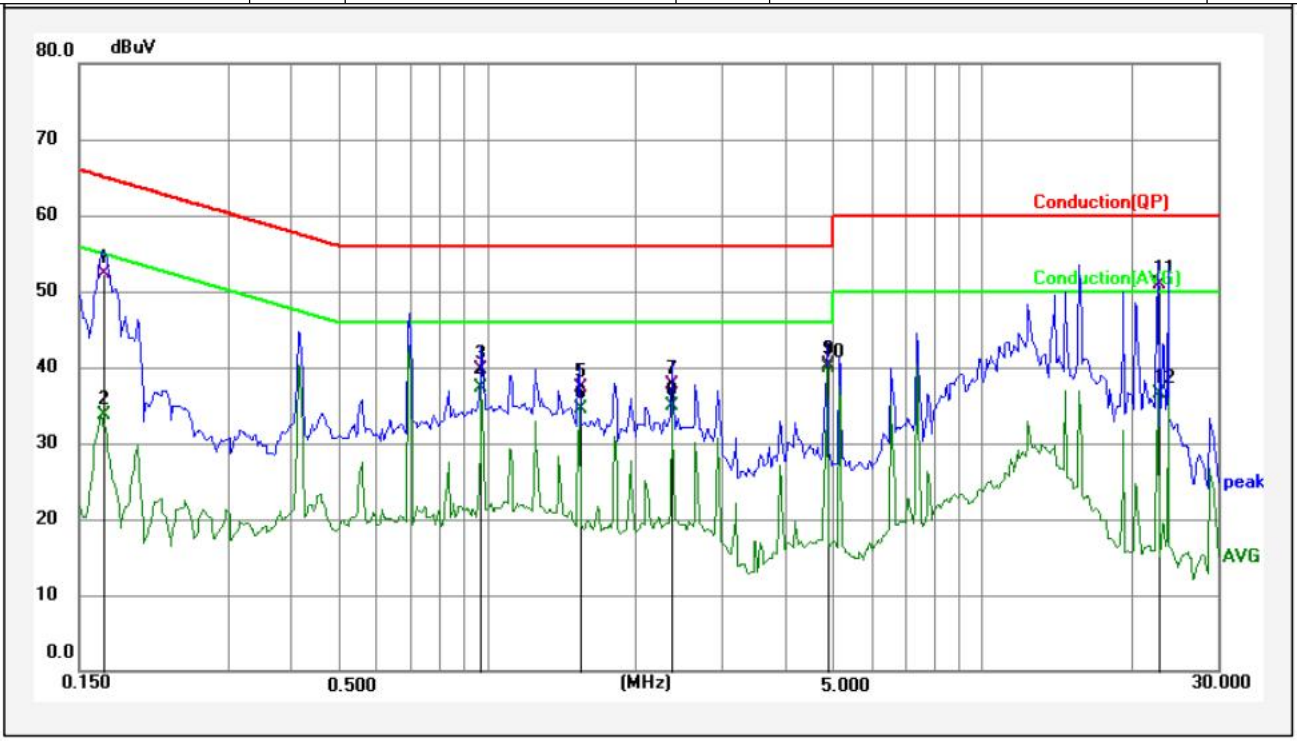
M/N	:	ZH118-A				
Test Mode	:	A				
Test Phase	:	Power Line; Live				
Test Voltage	:	AC 120V/60Hz				
Temperature (°C):	22.9	Relative Humidity (%):	57	Atmospheric Pressure(kPa) :		101.3



No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	MK.	Remark
1	0.4159	10.84	32.76	43.60	57.53	-13.93	QP		
2	0.4159	10.84	29.77	40.61	47.53	-6.92	AVG		
3	0.6926	11.04	32.76	43.80	56.00	-12.20	QP		
4	0.6926	11.04	32.45	43.49	46.00	-2.51	AVG		
5	1.5243	11.22	29.38	40.60	56.00	-15.40	QP		
6	1.5243	11.22	26.32	37.54	46.00	-8.46	AVG		
7	1.8020	11.24	30.06	41.30	56.00	-14.70	QP		
8	1.8020	11.24	27.30	38.54	46.00	-7.46	AVG		
9	2.3628	11.26	33.64	44.90	56.00	-11.10	QP		
10	2.3628	11.26	32.34	43.60	46.00	-2.40	AVG	*	
11	14.3016	11.51	40.49	52.00	60.00	-8.00	QP		
12	14.3016	11.51	35.21	46.72	50.00	-3.28	AVG		

Note: Level=Reading+Factor.
Margin=Level-Limit.

M/N	:	ZH118-A				
Test Mode	:	A				
Test Phase	:	Power Line; Neutral				
Test Voltage	:	AC 120V/60Hz				
Temperature (°C):	22.9	Relative Humidity (%):	57	Atmospheric Pressure(kPa) :		101.3

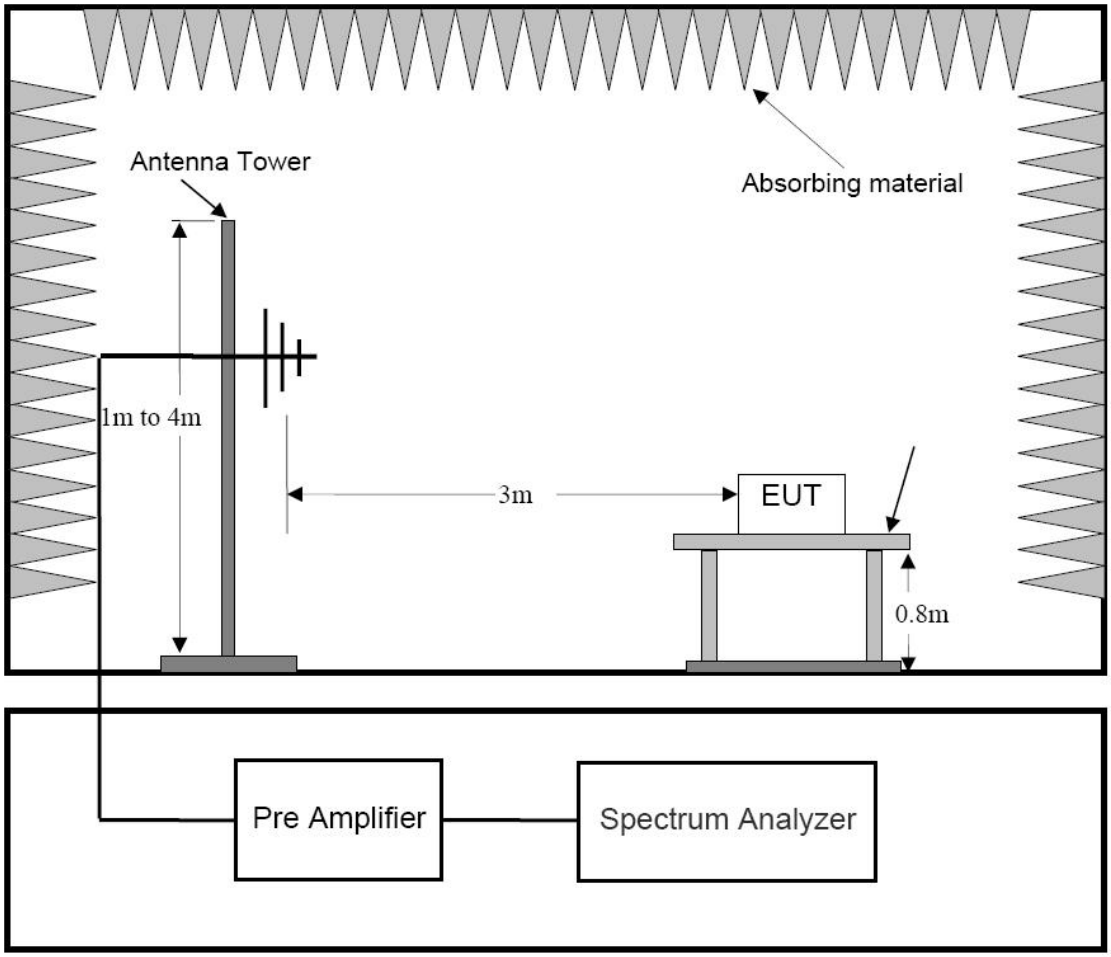


No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	MK.	Remark
1	0.1677	10.84	41.46	52.30	65.07	-12.77	QP		
2	0.1677	10.84	22.91	33.75	55.07	-21.32	AVG		
3	0.9757	10.99	28.81	39.80	56.00	-16.20	QP		
4	0.9757	10.99	26.32	37.31	46.00	-8.69	AVG		
5	1.5365	11.00	26.40	37.40	56.00	-18.60	QP		
6	1.5365	11.00	23.60	34.60	46.00	-11.40	AVG		
7	2.3628	11.00	26.80	37.80	56.00	-18.20	QP		
8	2.3628	11.00	23.90	34.90	46.00	-11.10	AVG		
9	4.8777	11.15	29.25	40.40	56.00	-15.60	QP		
10	4.8777	11.15	28.84	39.99	46.00	-6.01	AVG	*	
11	22.7037	11.46	39.54	51.00	60.00	-9.00	QP		
12	22.7037	11.46	25.03	36.49	50.00	-13.51	AVG		

Note: Level=Reading+Factor.
Margin=Level-Limit.

4.2. RADIATED EMISSION TEST

4.2.1. Block Diagram of Test Setup



4.2.2. Limit

Limits for radiated disturbance of class B at a measuring distance of 3m

Frequency range MHz	Distance Meters	Field Strengths Limit	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark：(1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.2.3. Test Procedure

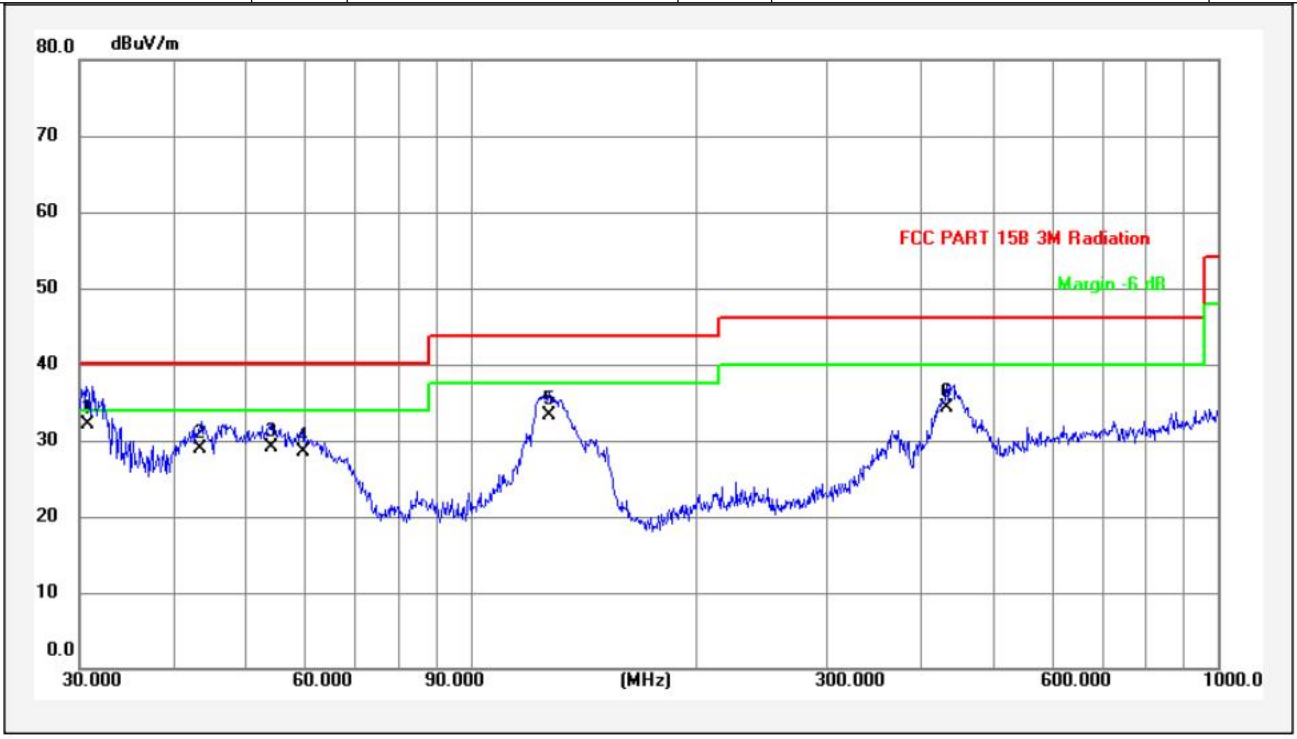
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

4.2.4. Test Results

PASS.

Please refer to the following pages of the worst case:

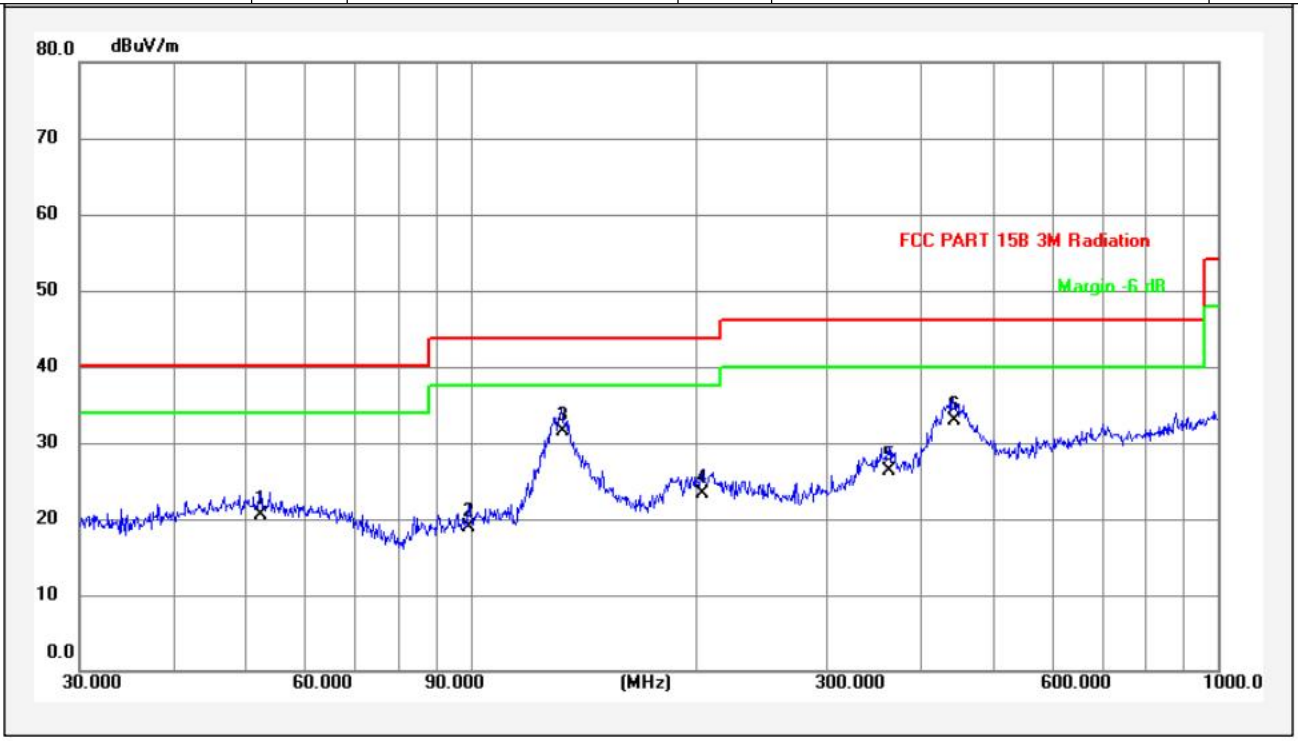
M/N	:	ZH118-A			
Test Mode	:	A			
Test Phase	:	Vertical			
Test Voltage	:	AC 120V/60Hz			
Temperature (°C):	24.0	Relative Humidity (%):	53	Atmospheric Pressure(kPa) :	101.4



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	30.6379	10.06	22.14	32.20	40.00	-7.80	QP	*	
2	43.5057	12.38	16.44	28.82	40.00	-11.18	QP		
3	54.0710	11.98	17.22	29.20	40.00	-10.80	QP		
4	59.6493	11.42	16.99	28.41	40.00	-11.59	QP		
5	127.2176	8.07	25.25	33.32	43.50	-10.18	QP		
6	434.0650	15.36	18.95	34.31	46.00	-11.69	QP		

Note: Level=Reading+Factor.
Margin=Level-Limit.

M/N	:	ZH118-A				
Test Mode	:	A				
Test Phase	:	Horizontal				
Test Voltage	:	AC 120V/60Hz				
Temperature (°C):	24.0	Relative Humidity (%):	53	Atmospheric Pressure(kPa) :		101.4

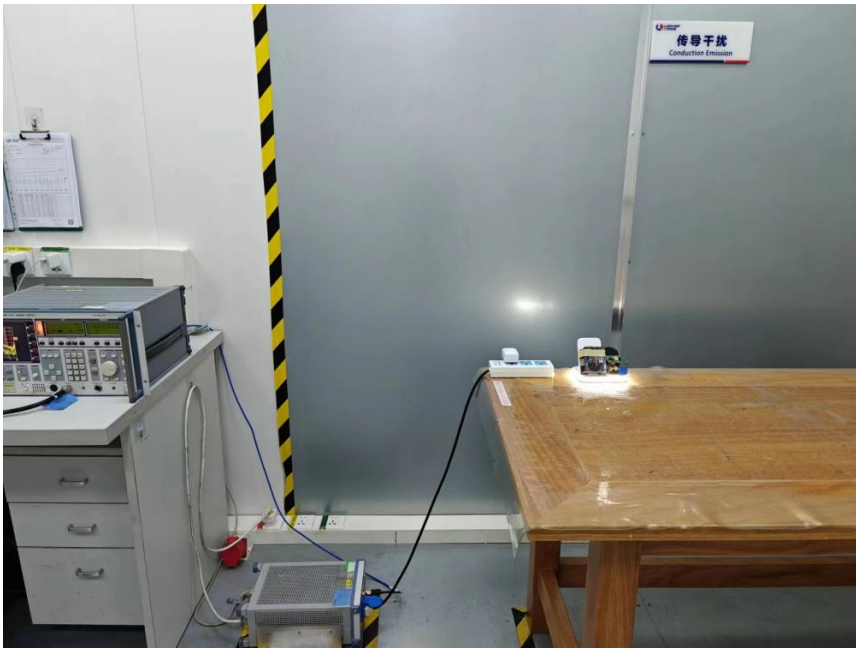


No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	MK.	Remark
1	52.3912	12.16	8.39	20.55	40.00	-19.45	QP		
2	99.5281	10.51	8.34	18.85	43.50	-24.65	QP		
3	132.2206	7.40	24.18	31.58	43.50	-11.92	QP	*	
4	204.2377	10.83	12.39	23.22	43.50	-20.28	QP		
5	362.9844	14.58	11.75	26.33	46.00	-19.67	QP		
6	441.7426	15.51	17.33	32.84	46.00	-13.16	QP		

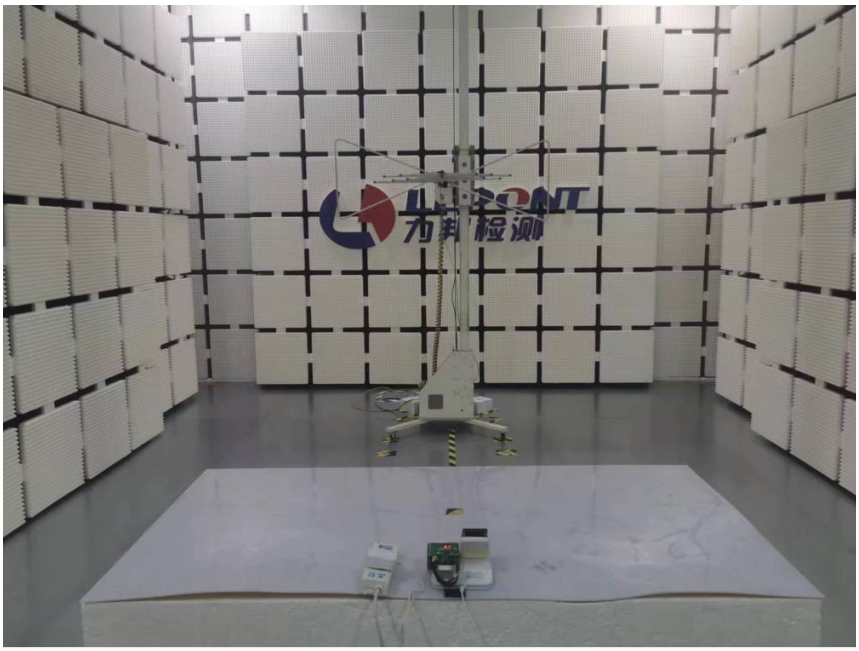
Note: Level=Reading+Factor.
Margin=Level-Limit.

5. TEST PHOTOGRAPHS

Conducted Emission at The Mains Terminals Test



Radiated Emission Test



6. PHOTOGRAPHS OF THE EUT

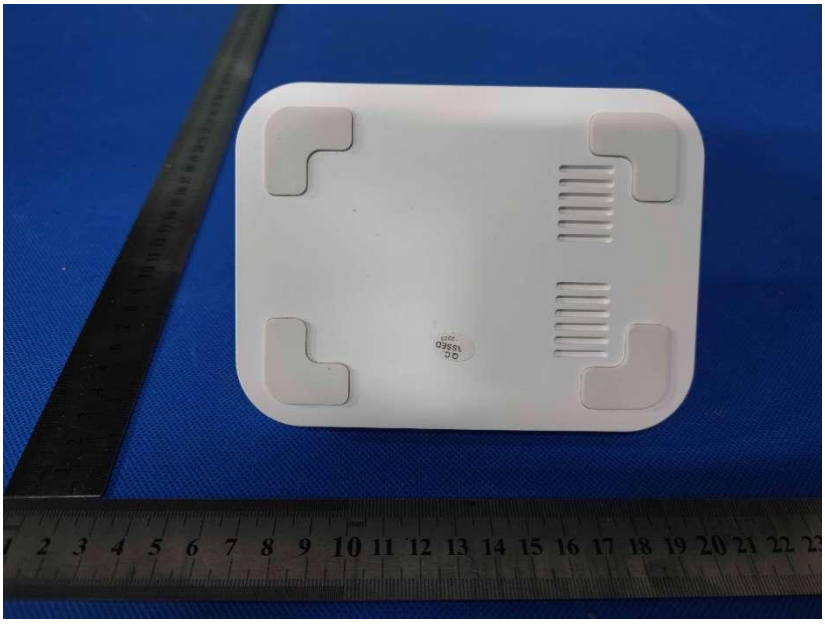
ZH118-A

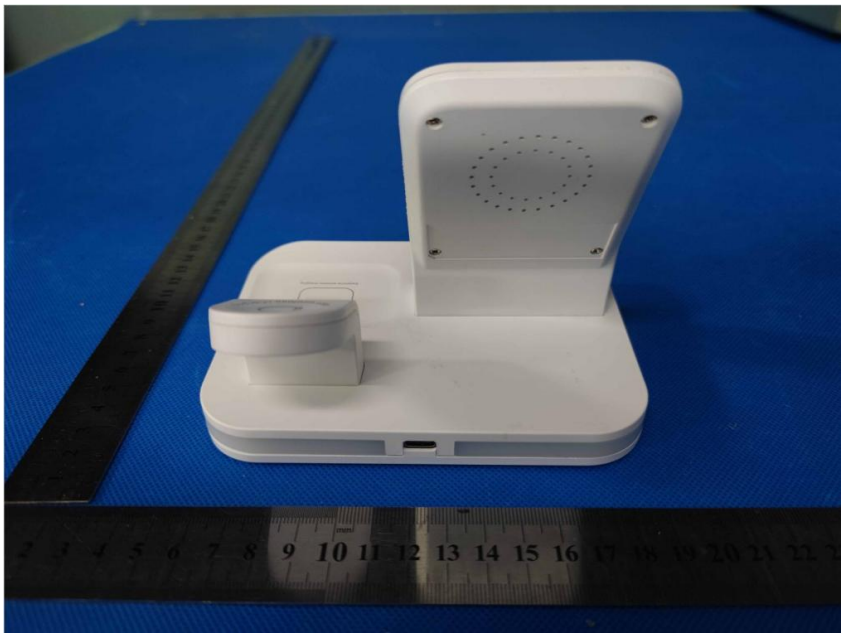
ZH118-A

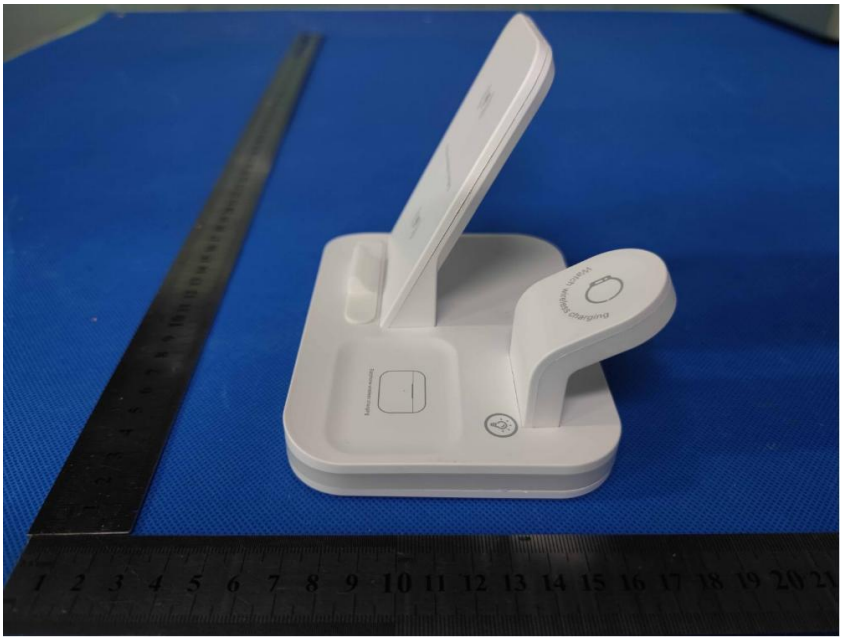
ZH118-B

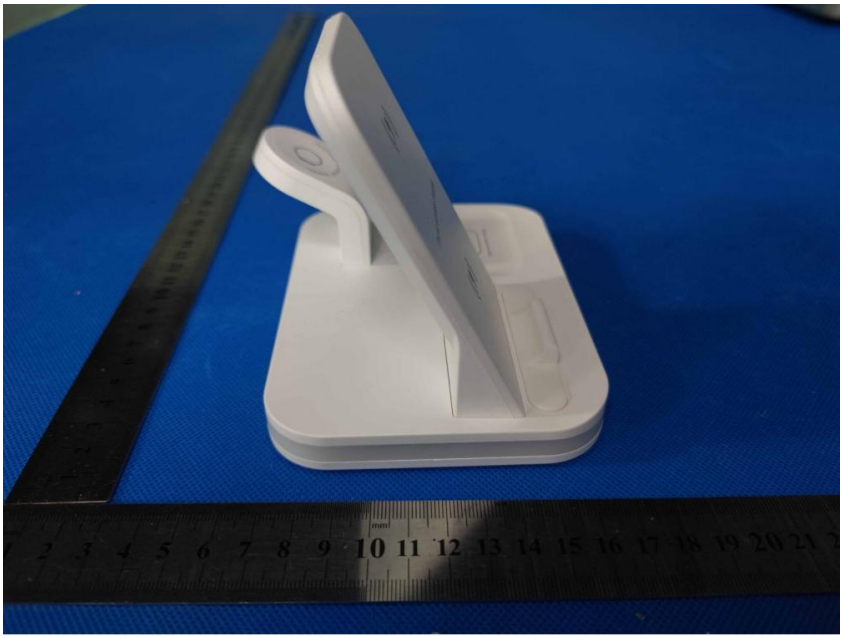
ZH118-B

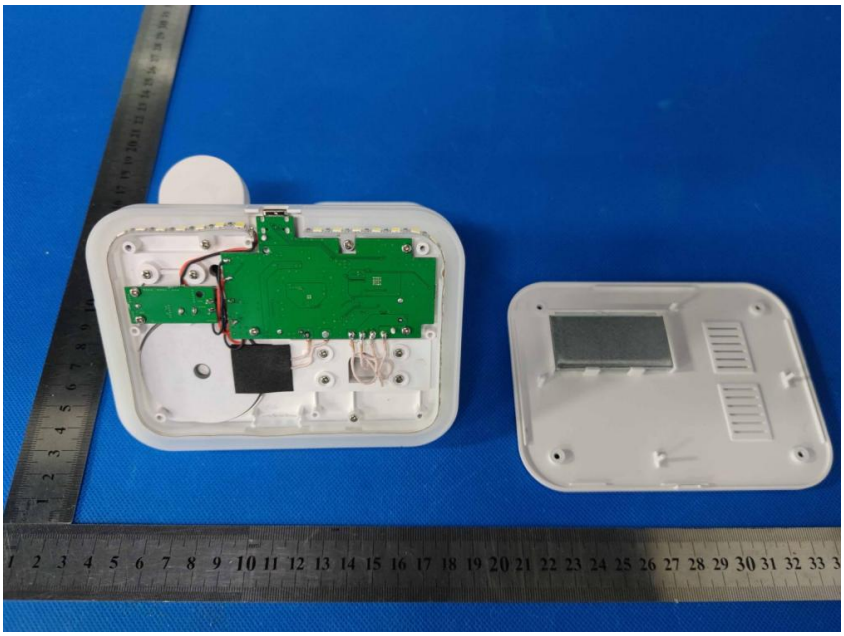
ZH118-A

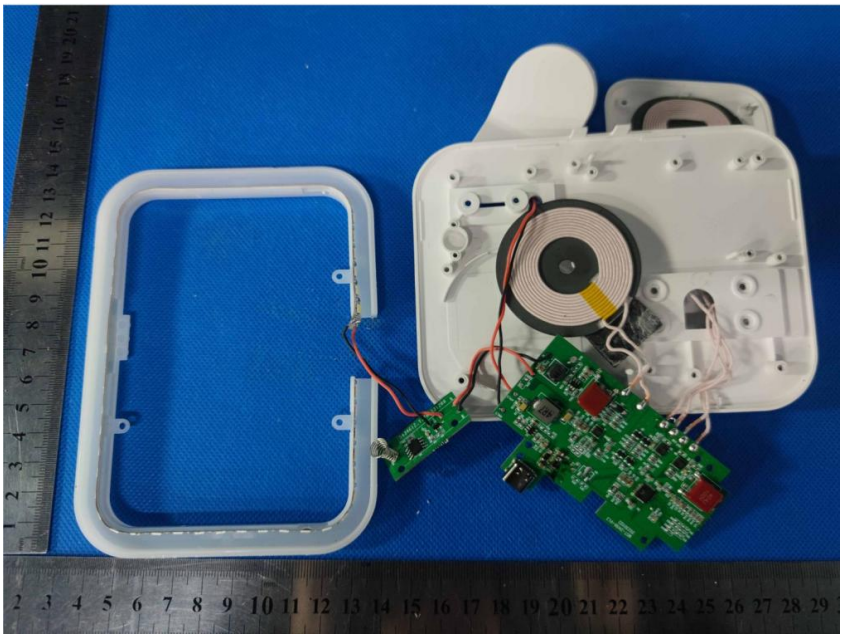


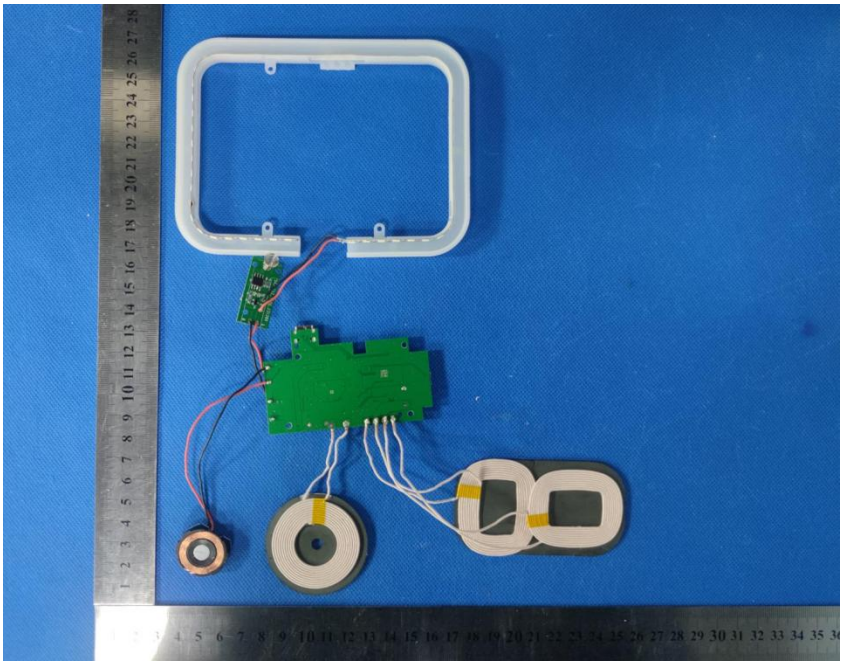


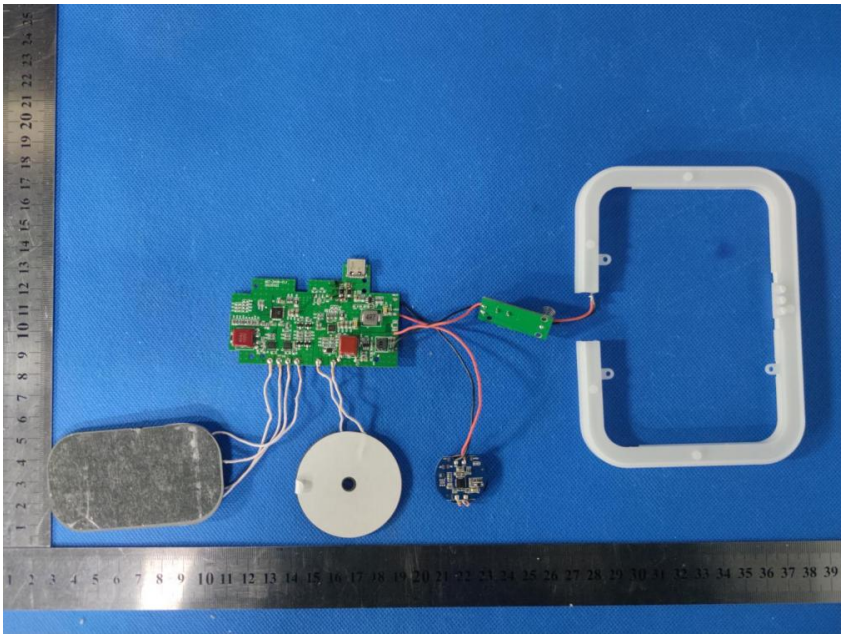


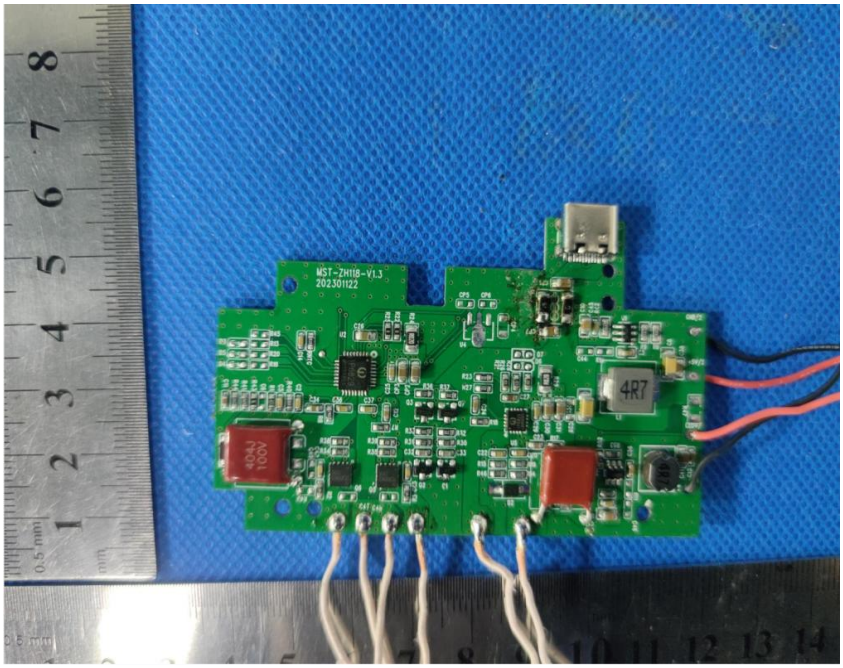


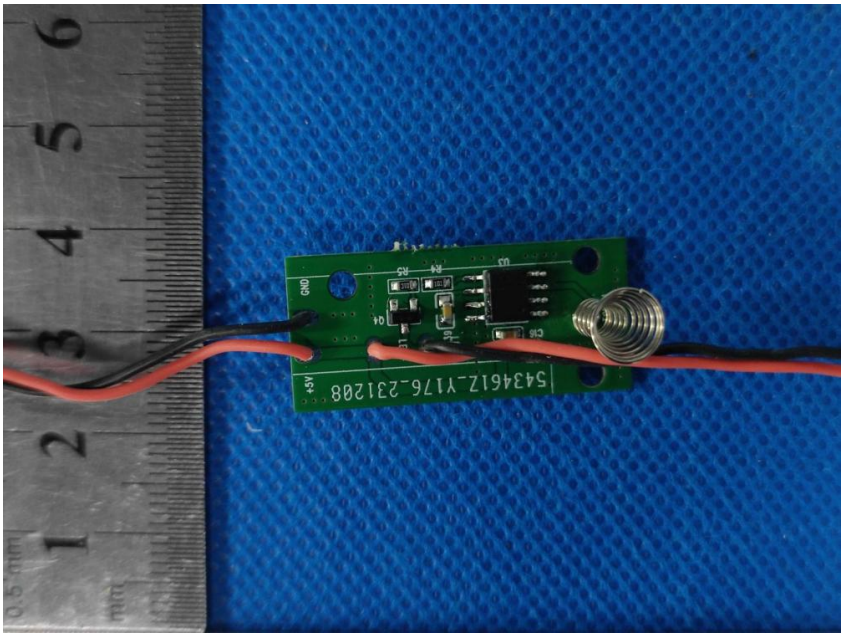









MST-ZH116-V1.3
202301122
4R7


GND
+5V
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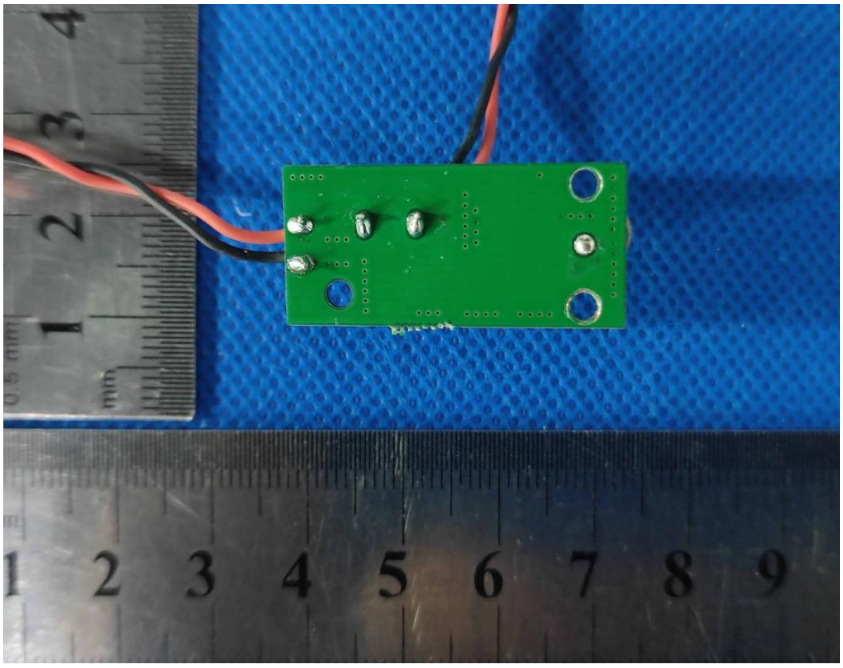

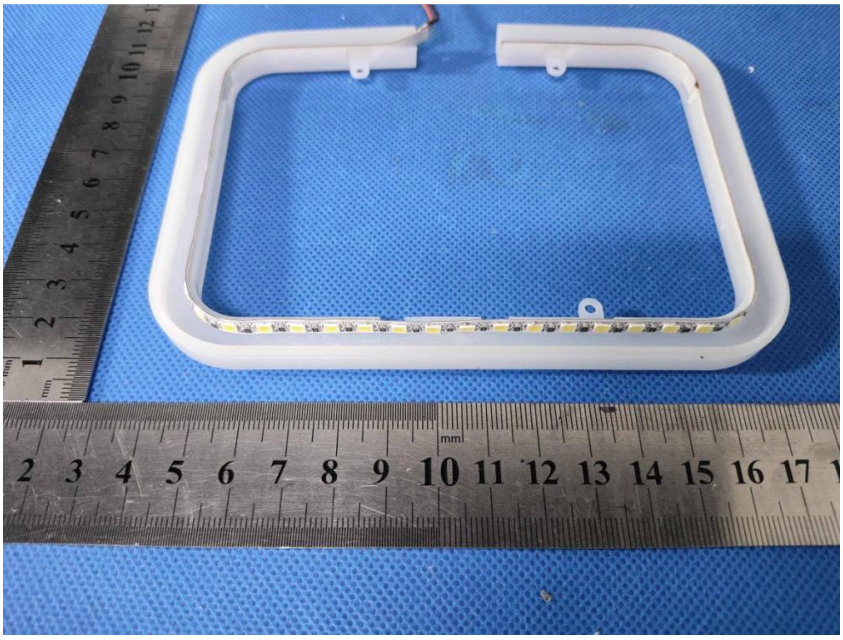

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Statement

1. The calibration and measurement of test equipments used in our laboratory are traceable to National primary standard of measurement and BIPM.
2. The report is invalid without the special test seal of the company.
3. The test report is invalid without the signature of main tester,examiner and approver.
4. The report is invalid if altered and added or deleted.
5. The test results in this report only apply to the tested samples.
6. This test report shall not be reproduced except in full, without the written approval of our laboratory.
7. "☆" project is not within the authorized scope of CNAS of our company"， According to CNAS-R01 section 5.3.4; 5.3.5 Subcontract to a laboratory approved by the project.
8. Any objections must be raised to Dongguan Lepont Testing Service Co., Ltd. within 15days since the date when report is received.

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