

Wuhu jiahong New Material co.,Ltd

EMC TEST REPORT

Report Type:

FCC Part 15B EMC report

Model:

ET-31W, ET-32W

REPORT NUMBER:

2509B2232SHA-001

ISSUE DATE:

June 23, 2026

DOCUMENT CONTROL NUMBER:

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TEST REPORT

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Report no.: 2509B2232SHA-001

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FCC ID: 2A7S7202607

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 15 (2024): Radio Frequency Devices (Subpart B)

ANSI C63.4 (2014+A1:2017): American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

PREPARED BY:

REVIEWED BY:



Project Engineer
Damon Ding

Reviewer
Eric Li

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TEST REPORT

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Revision History

Report No.	Version	Description	Issued Date
2509B2232SHA-001	Rev. 01	Initial issue of report	June 23, 2026

Measurement result summary

TEST ITEM	FCC REFERENCE	RESULT
Power line conducted emission	15.107	Pass
Radiated emission	15.109	Pass

Notes: 1: NA =Not Applicable

2: Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

3: Additions, Deviations and Exclusions from Standards: None.

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Temperature controller
Type/Model:	ET-31W, ET-32W
Description of EUT:	The EUT is a Temperature controller with WiFi function. The WiFi module has been approved with FCC ID: 2ANDL-WBR2. ET-31W has one 5-15R receptacle, ET-32W has two 5-15R receptacles. All functions were tested. The worst data is listed in the report.
Rating:	ET31W: 120V~ 60Hz Max. 10A, 1200W resistive, 480W inductive ET32W: 120V~ 60Hz Max. 15A, 1800W resistive, 720W inductive
Category of EUT:	Class B
EUT type:	☒ Table top ☐ Floor standing
Highest operating frequency	<2483.5MHz
Software Version:	/
Hardware Version:	/
Sample received date:	February 25, 2026
Date of test:	February 25, 2026~ March 17, 2026

1.2 Description of Test Facility

Name:	Intertek Testing Services (Shanghai FTZ) Co., Ltd.
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L21189
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2024)
ANSI C63.4 (2014+A1:2017)

2.2 Mode of operation during the test

Within this test report, EUT was tested under all available operation modes and tested under its rating voltage and frequency. Other voltage and frequency is specified if used.

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No.	Name	Band and Model	Description
1	Mobile telephone	Iphone 15	/
2	Router	R7800	/

2.5 Test environment condition:

Test items	Temperature	Humidity
Power line conducted emission	22°C	55% RH
Radiated Emissions	22°C	55% RH

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2.6 Instrument list

Conducted Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESR7	EC 6194	2027-02-27
☒	A.M.N.	R&S	ESH2-Z5	EC 3119	2026-07-22
☒	Shielded room	Zhongyu	-	EC 2838	2027-01-11
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESIB 26	EC 3045	2026-08-18
☒	TRILOG broadband Antenna	Schwarzbeck	VULB9168	EC 6402	2026-03-19
☒	Pre-amplifier	Tonscend	tap01018050	EC 6432-1	2026-12-07
☒	Horn antenna	Tonscend	bha9120d	EC 6432-2	2026-03-20
☒	Horn antenna	ETS	3116c	EC 5955	2026-08-14
☒	Semi-anechoic chamber	Albatross	-	EC 3048	2026-07-11
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Therom-Hygrograph	Testo	175h1	EC 6640	2026-08-29
☒	Therom-Hygrograph	Testo	175h1	EC 6641	2026-08-29

2.7 Measurement uncertainty

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

Test item	Measurement uncertainty
Radiated Emissions in restricted frequency bands below 1GHz	$\pm 4.90\text{dB}$
Radiated Emissions in restricted frequency bands above 1GHz	$\pm 5.02\text{dB}$
Power line conducted emission	$\pm 3.19\text{dB}$

3 Radiated Emissions

Test result: Pass

3.1 Limit

3.1.1 Limits for radiated disturbance of class A device

FCC

Frequency (MHz)	Permitted limit in dB μ V/m (Quasi-peak) of Measurement Distance 10m
30 – 88	39
88 – 216	43.5
216 – 960	46.4
Above 960	49.5
Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.	

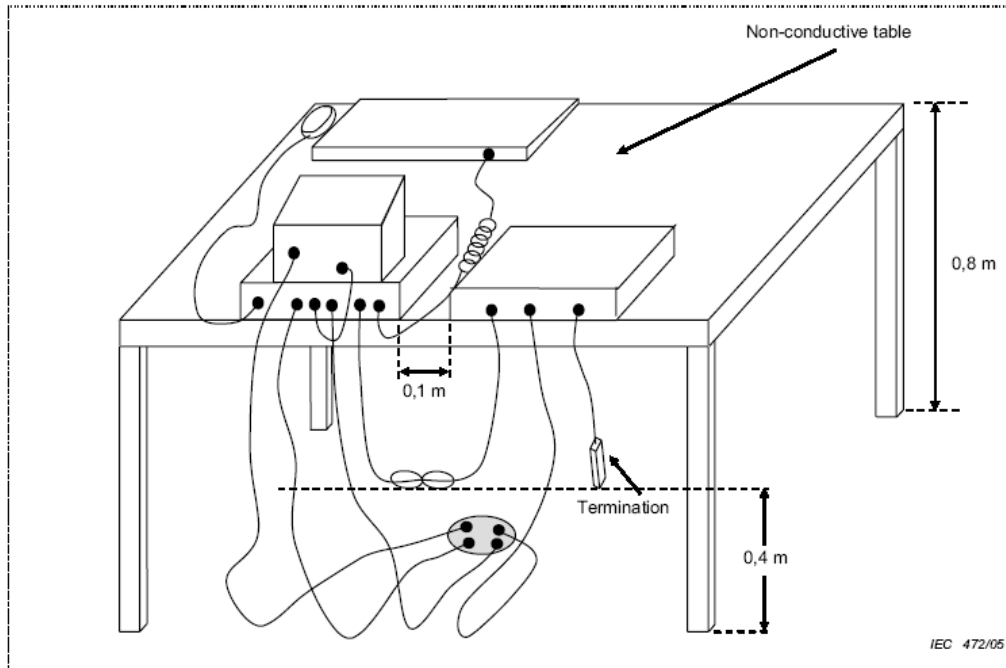
3.1.2 Limits for radiated disturbance of class B device

FCC

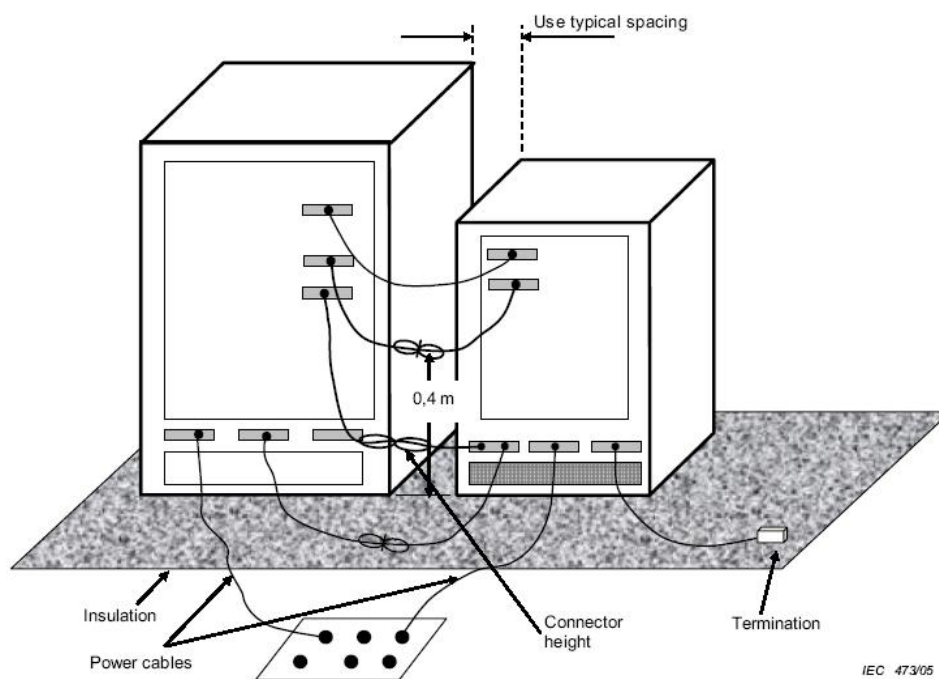
Frequency (MHz)	Permitted limit in dB μ V/m (Quasi-peak) of Measurement Distance 3m
30 – 88	40.0
88 – 216	43.5
216 – 960	46.0
Above 960	54.0
Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.	

3.2 Block diagram and test set up

For table top equipment



For floor standing equipment



3.3 Measurement Procedure

The measurement was performed in a semi-anechoic chamber. While testing for spurious emission higher than 1GHz, the pre-amplifier (and high pass filter if necessary) is equipped just at the output terminal of the antenna.

The distance from EUT to receiving antenna is 3 meters.

Measurement was performed according to clause 4 and clause 5 of ANSI 63.4.

Test procedure was according to clause 8.3 of ANSI 63.4.

EUT arrangement and operate condition were according to clause 6 and clause 8 of ANSI 63.4.

The radiated emission was measured using the test receiver with the resolutions bandwidth set as:

RBW = 100kHz, VBW = 300kHz (30MHz~1GHz)

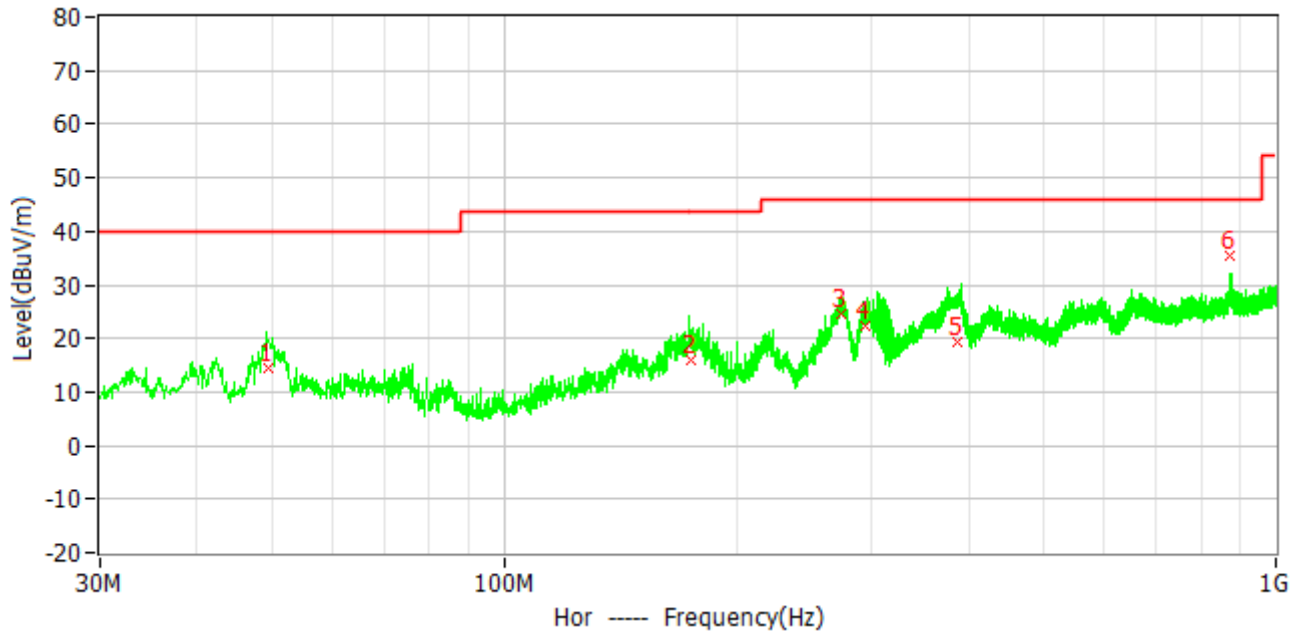
RBW = 1MHz, VBW = 3MHz (>1GHz for PK)

Highest internal frequency (F _x)	Highest measured frequency F _M for radiated measurement	Measured Bandwidth
F _x ≤ 108 MHz	1 GHz	120kHz
108 MHz < F _x ≤ 500 MHz	2 GHz	1MHz
500 MHz < F _x ≤ 1 GHz	5 GHz	1MHz
F _x > 1 GHz	5 × F _x up to a maximum of 40 GHz	1MHz
Note: 1. F _x is the highest fundamental frequency generated and/or used in the ITE or digital apparatus under test.		

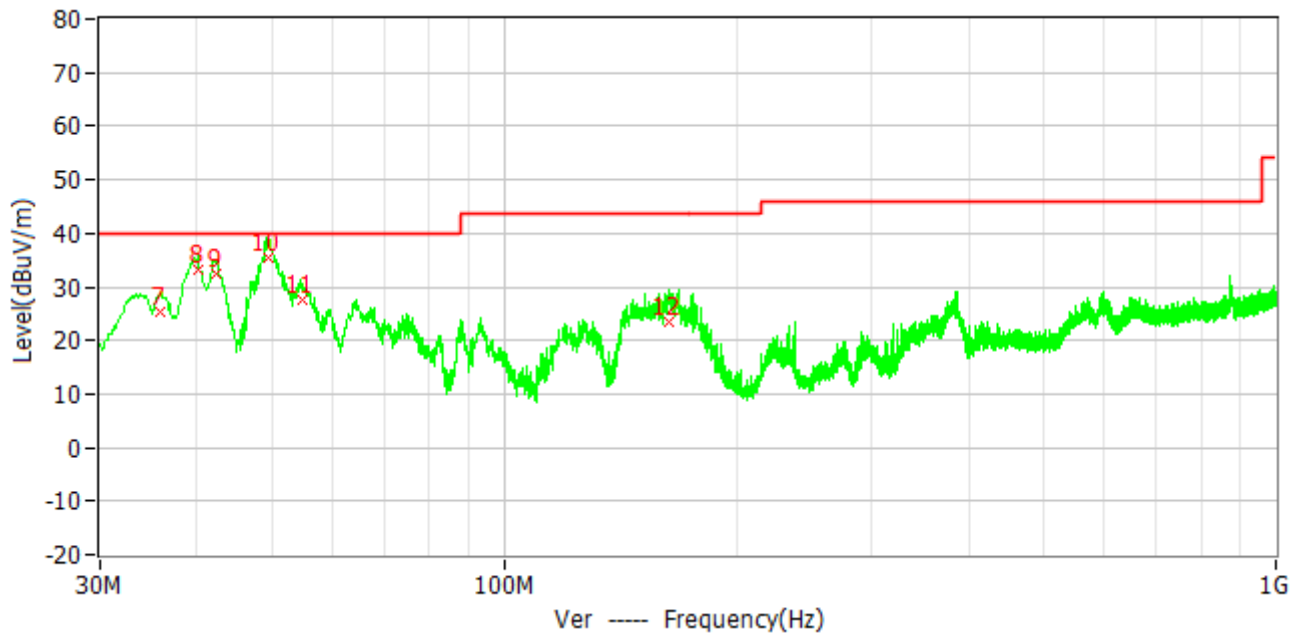
3.4 Test Results of Radiated Emissions

The worst mode is ET-32W

Horizontal



Vertical

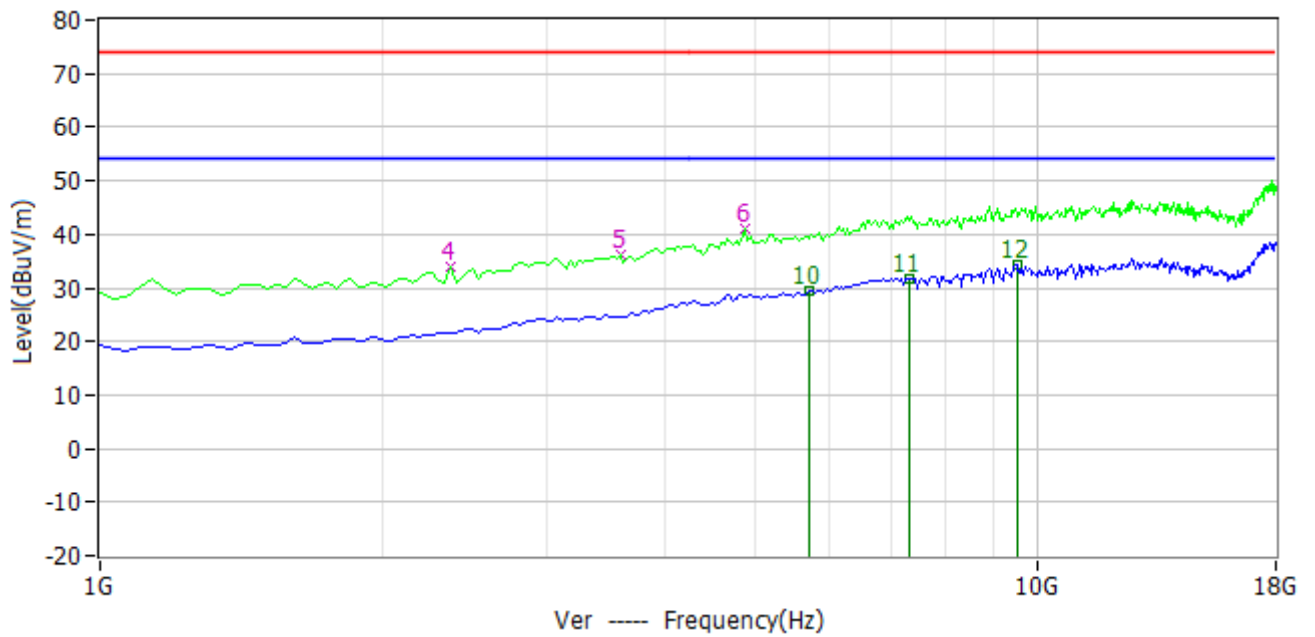
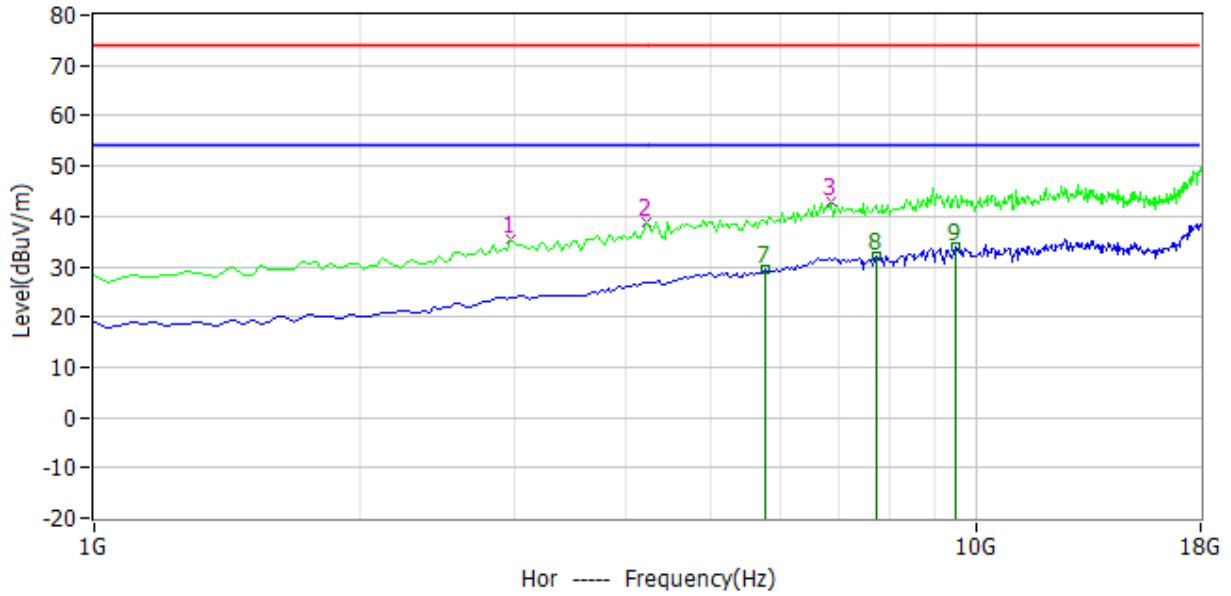


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Test data :

Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar
49.527MHz	40.0	14.3	-25.7	0.5	13.8	QP	Hor
175.081MHz	43.5	15.9	-27.6	2.3	13.6	QP	Hor
272.847MHz	46.0	24.4	-21.6	9.5	14.9	QP	Hor
294.239MHz	46.0	22.2	-23.8	6.5	15.7	QP	Hor
387.282MHz	46.0	19.5	-26.5	1.5	18.0	QP	Hor
872.315MHz	46.0	35.5	-10.5	8.0	27.5	QP	Hor
35.972MHz	40.0	25.4	-14.6	12.7	12.7	QP	Ver
40.157MHz	40.0	33.0	-7.0	19.7	13.3	QP	Ver
42.483MHz	40.0	32.4	-7.6	19.0	13.4	QP	Ver
49.695MHz	40.0	35.4	-4.6	21.6	13.8	QP	Ver
54.688MHz	40.0	27.4	-12.6	13.7	13.7	QP	Ver
163.218MHz	43.5	23.6	-19.9	9.0	14.6	QP	Ver

Above 1GHz



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Test data

Frequency	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar
2.976GHz	74.00	35.38	-38.62	52.70	-17.32	PK	Hor
4.236GHz	74.00	38.78	-35.22	52.83	-14.05	PK	Hor
6.860GHz	74.00	42.78	-31.22	50.95	-8.17	PK	Hor
2.363GHz	74.00	33.97	-40.03	54.60	-20.63	PK	Ver
3.589GHz	74.00	36.22	-37.78	52.71	-16.49	PK	Ver
4.884GHz	74.00	40.94	-33.06	52.72	-11.78	PK	Ver
5.770GHz	54.00	29.32	-24.68	40.51	-11.19	AV	Hor
7.711GHz	54.00	32.24	-21.76	39.46	-7.22	AV	Hor
9.483GHz	54.00	33.79	-20.21	36.85	-3.06	AV	Hor
5.701GHz	54.00	29.40	-24.60	40.90	-11.50	AV	Ver
7.303GHz	54.00	31.67	-22.33	39.42	-7.75	AV	Ver
9.517GHz	54.00	34.35	-19.65	37.35	-3.00	AV	Ver

- Remark: 1. Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.
2. Level = Original Receiver Reading + Factor
3. Delta = Level – Limit
4. If the PK Level is lower than AV limit, the AV test can be elided.

4 Power line conducted emission

Test result: Pass

4.1 Limit

4.1.1 Limits for conducted disturbance voltage at the mains ports of class A device

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	79	66
0.5 ~ 30	73	60
Note: If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.		

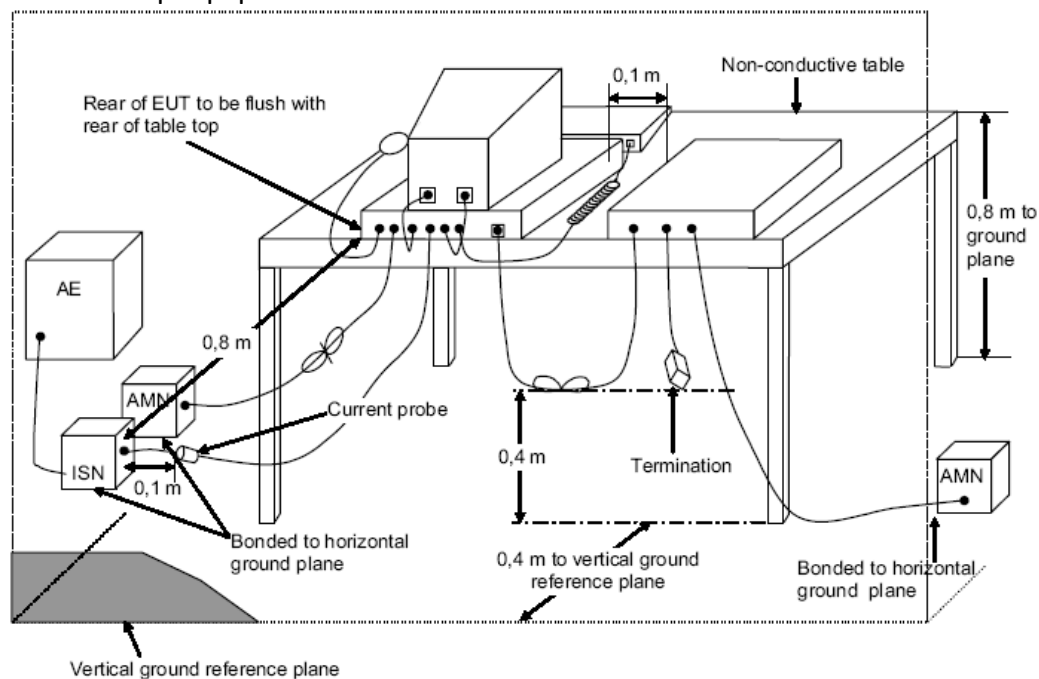
4.1.2 Limits for conducted disturbance voltage at the mains ports of class B device

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 ~ 56 *	56 ~ 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50
Note: 1. * Means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz 2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.		

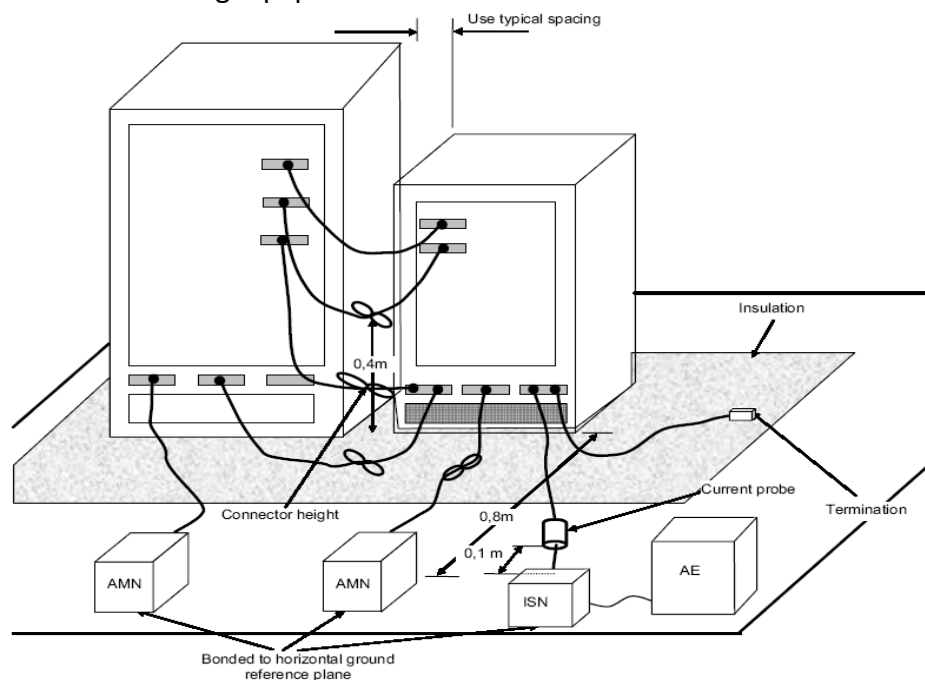
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4.2 Block diagram and test set up

For table top equipment



For floor standing equipment



4.3 Measurement Procedure

Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50 Ω measuring port is terminated by a measuring instrument having 50 Ω input impedance. All other ports are terminated in 50 Ω loads.

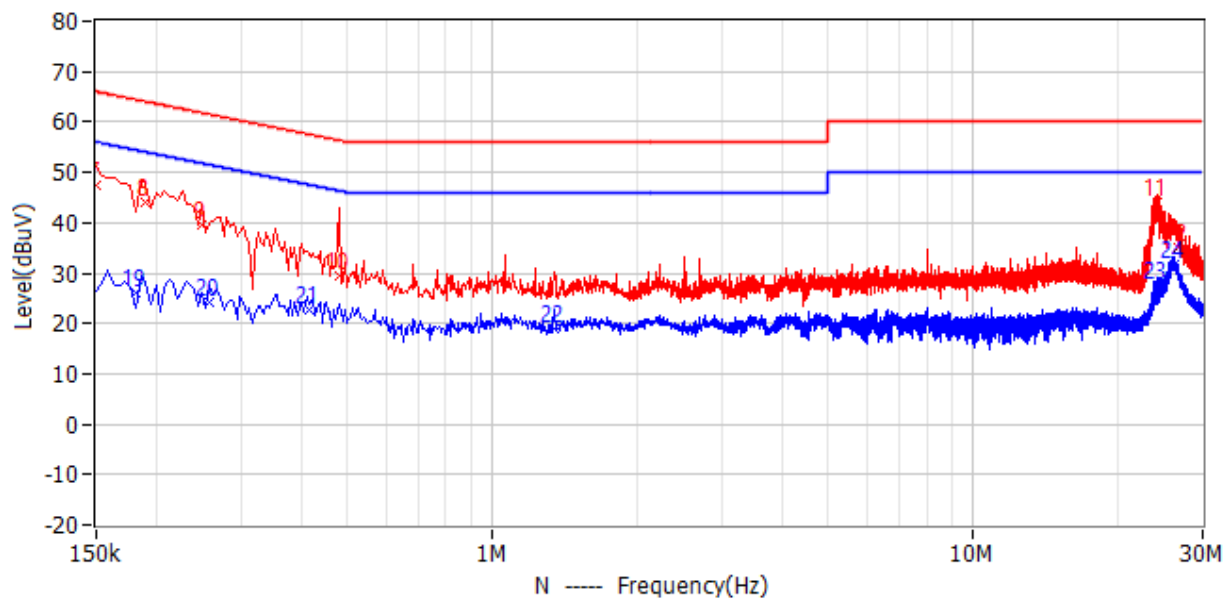
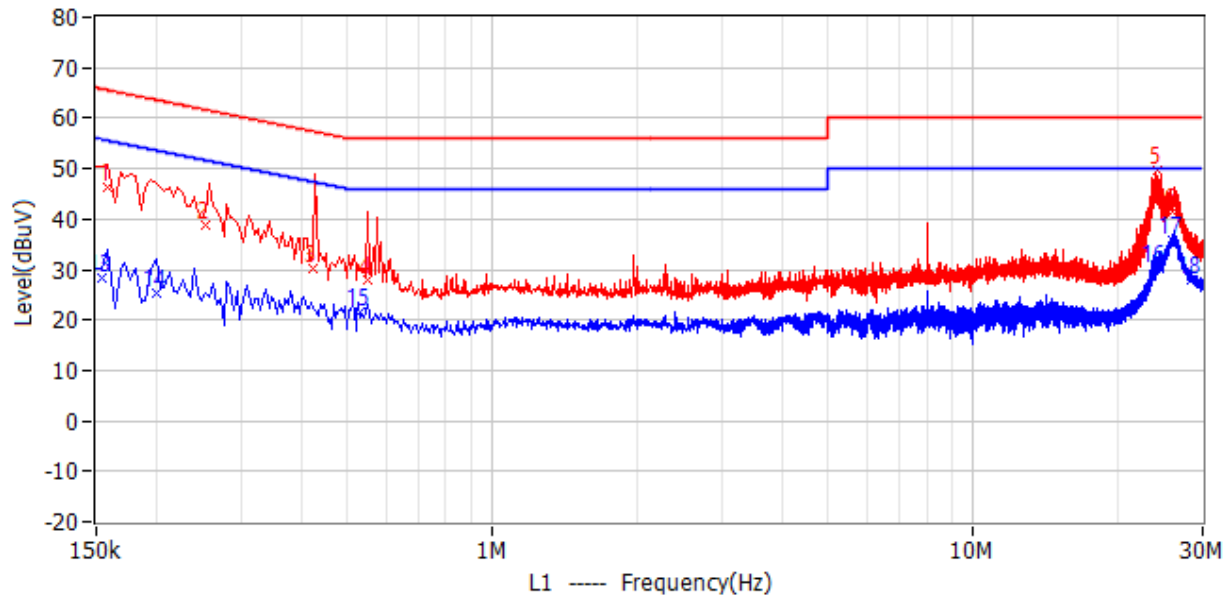
Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

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4.4 Test Results of Power line conducted emission

The worst mode is ET-32W



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No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
1	154.500kHz	65.75	52.92	-12.83	42.72	10.20	QP	L1
2	172.500kHz	64.84	50.97	-13.87	40.77	10.20	QP	L1
3	312.000kHz	59.92	42.83	-17.09	32.63	10.20	QP	L1
4	406.500kHz	57.72	40.37	-17.35	30.17	10.20	QP	L1
5	487.500kHz	56.21	39.92	-16.29	29.72	10.20	QP	L1
6	582.000kHz	56.00	39.40	-16.60	29.20	10.20	QP	L1
7	163.500kHz	65.28	53.33	-11.95	43.23	10.10	QP	N
8	190.500kHz	64.01	49.57	-14.44	39.47	10.10	QP	N
9	240.000kHz	62.10	45.11	-16.99	35.01	10.10	QP	N
10	312.000kHz	59.92	42.30	-17.62	32.20	10.10	QP	N
11	514.500kHz	56.00	38.77	-17.23	28.57	10.20	QP	N
12	573.000kHz	56.00	38.21	-17.79	28.01	10.20	QP	N
13	154.500kHz	55.75	34.90	-20.85	24.70	10.20	CAV	L1
14	195.000kHz	53.82	30.59	-23.23	20.39	10.20	CAV	L1
15	253.500kHz	51.64	25.32	-26.32	15.12	10.20	CAV	L1
16	312.000kHz	49.92	22.34	-27.58	12.14	10.20	CAV	L1
17	1.316MHz	46.00	15.29	-30.71	4.99	10.30	CAV	L1
18	1.820MHz	46.00	18.64	-27.36	8.24	10.40	CAV	L1
19	154.500kHz	55.75	33.53	-22.22	23.43	10.10	CAV	N
20	469.500kHz	46.52	16.43	-30.09	6.23	10.20	CAV	N
21	559.500kHz	46.00	14.54	-31.46	4.34	10.20	CAV	N
22	1.622MHz	46.00	16.91	-29.09	6.51	10.40	CAV	N
23	1.950MHz	46.00	16.78	-29.22	6.28	10.50	CAV	N
24	2.247MHz	46.00	14.08	-31.92	3.58	10.50	CAV	N

Remark: 1. Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.

2. Level = Original Receiver Reading + Correct Factor

3. Delta = Level - Limit

4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming LISN Factor = 10.00dB, Cable Loss = 2.00dB,

Original Receiver Reading = 10.00dBuV, Limit = 66.00dBuV.

Then Factor = 10.00 + 2.00 = 12.00dB;

Level = 10dBuV + 12.00dB = 22.00dBuV;

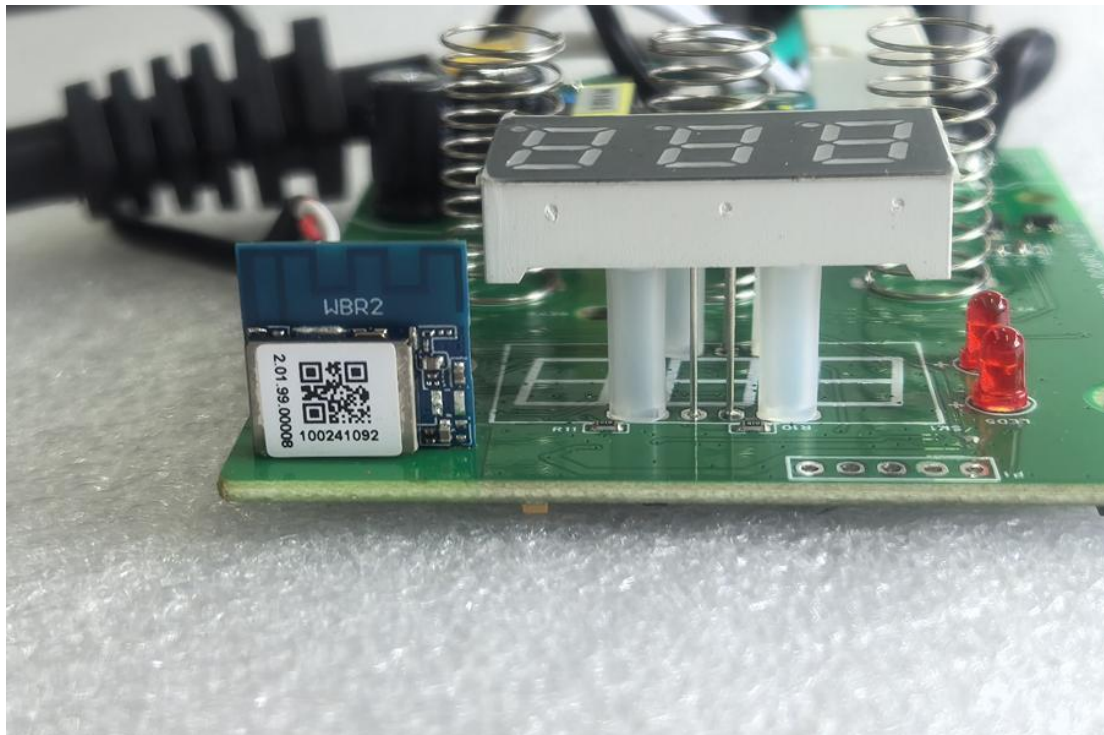
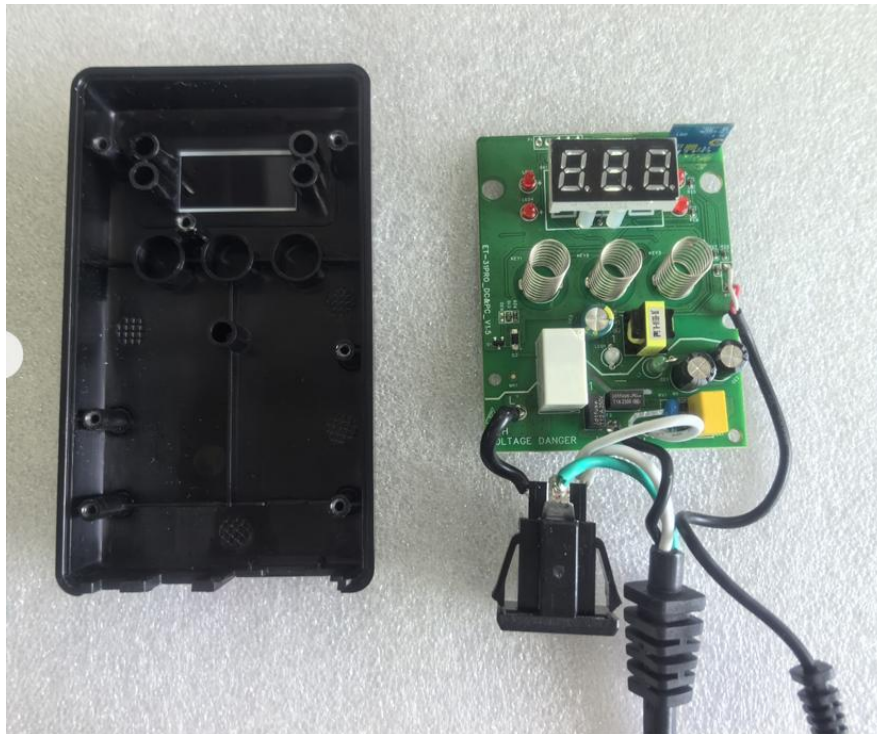
Delta = 22.00dBuV – 66.00dBuV = -44.00dB.

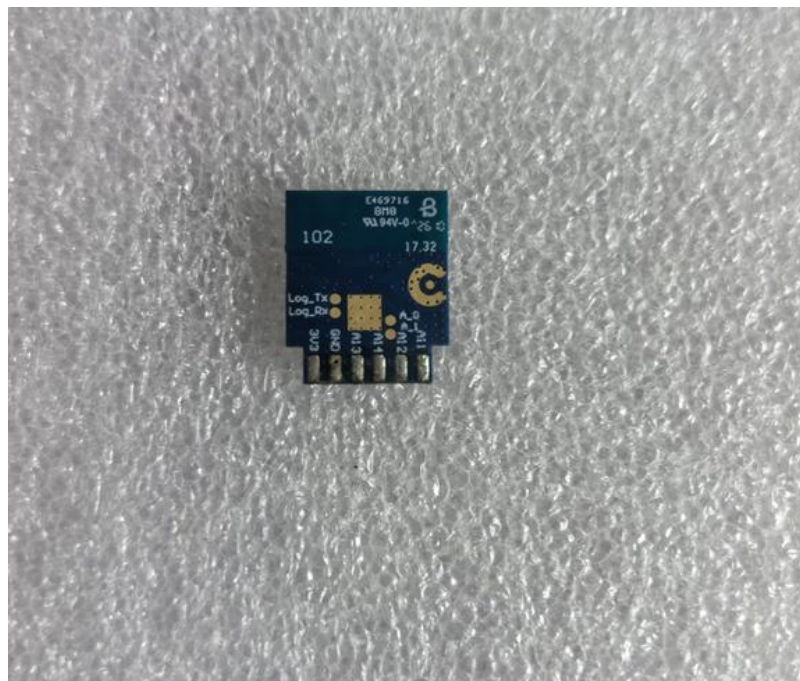
Appendix I: Photograph of equipment under test

ET-31W





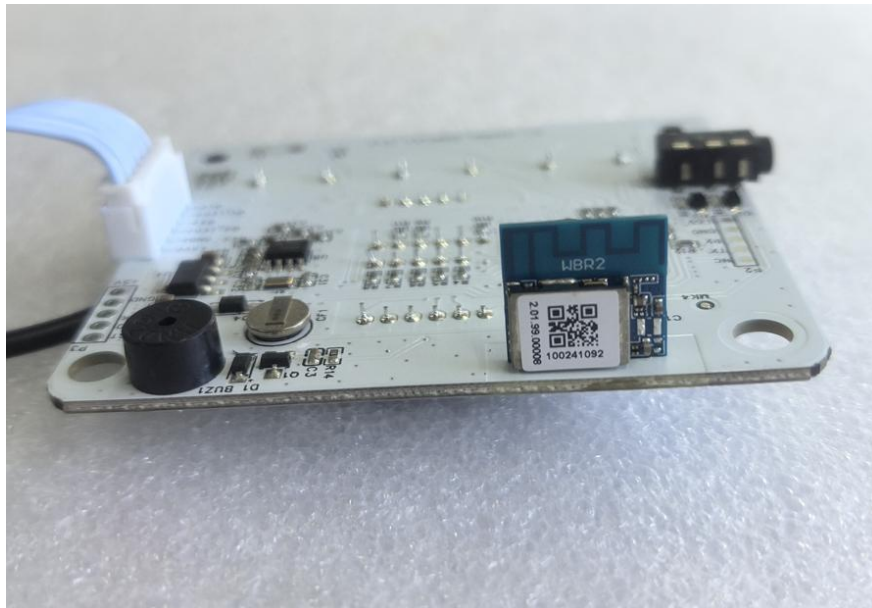
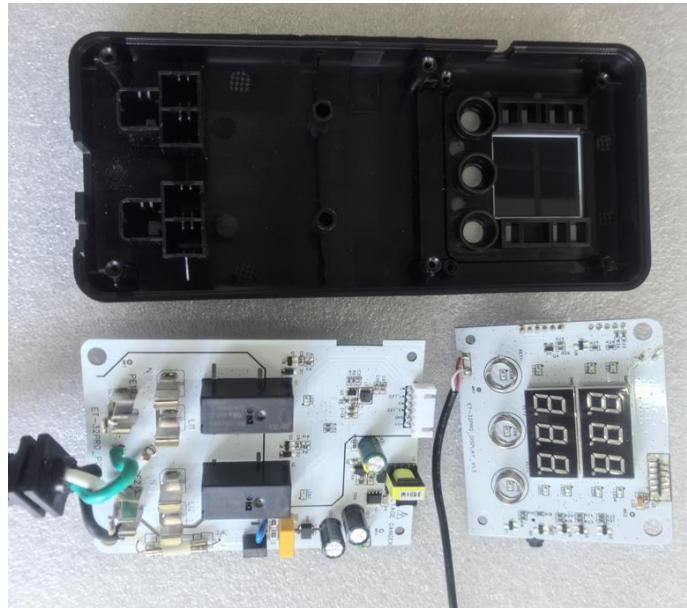


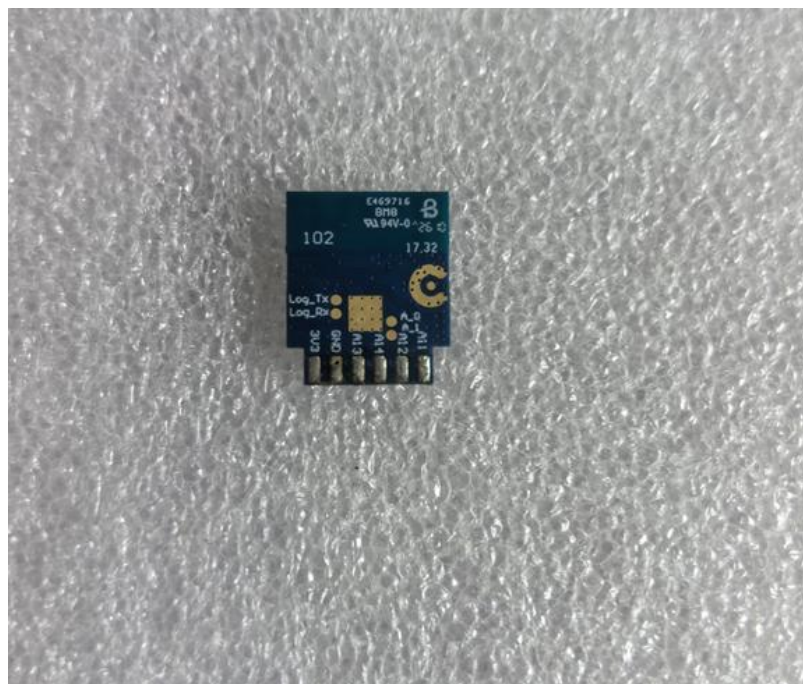


ET-32W









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