

FCC VERIFICATION TEST REPORT

Applicant Changzhou Positive Energy Electrical
Equipment Co., Ltd.

Product Class 2 Power Units

Model ZNL-UXXXXYYY
Additional information on page 5

Report No. EFTA26030160-IE-01-E1

Issue Date April 24, 2026

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC Code CFR47 Part15B (2025)/ ANSI C63.4-2014**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of measurement results

Number	Test Case	Clause in FCC Rules	Conclusion
1	Radiated Emission	FCC Part15.109, ANSI C63.4-2014	PASS
2	Conducted Emission	FCC Part15.107, ANSI C63.4-2014	PASS
Date of Testing: March 17, 2026 ~ April 15, 2026			
Date of Sample Received: March 13, 2026			
Note:			
1. The conformity assessment in this report is based on a direct comparison of the test results with the limits by Eurofins TA Technology (Shanghai) Co., Ltd., without considering measurement uncertainty.			

1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2 Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City: Shanghai
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E-mail: Kain.Xu@cpt.eurofinscn.com

2 General Description of Equipment Under Test

2.1 Applicant and Manufacturer Information

Applicant	Changzhou Positive Energy Electrical Equipment Co., Ltd.
Applicant address	No.12-2 Meihua Road, Zhonglou District, Changzhou, Jiangsu, China
Manufacturer	Changzhou Positive Energy Electrical Equipment Co., Ltd.
Manufacturer address	No.12-2 Meihua Road, Zhonglou District, Changzhou, Jiangsu, China

2.2 General Information

EUT Description	
Model	ZNL-UXXXXYY where "XXX" is 3 digits from 120 to 360 which represents the rated output voltage after divided by 10. (e.g.:150=15.0Vdc, 300=30.0Vdc), "YYY" is 3 digits from 010 to 246 which represents the rated output current after divided by 100. (e.g.:030=0.3A,100=1.0A). Max output power is 59W
Test Model	ZNL-U360160; ZNL-U120200
Lab internal SN	260313-07-001; 260313-07-002
HW Version	/
SW Version	/
Clock Frequency	< 108MHz
Power Rating	ZNL-U360160 INPUT: 100-240V~50-60Hz 2.5A OUTPUT: 36.0V $\overline{\text{---}}$ 1.6A ZNL-U120200 INPUT: 100-240V~50-60Hz 2.5A OUTPUT: 12.0V $\overline{\text{---}}$ 2.0A
Connecting I/O Port(s)	Please refer to the User's Manual.
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.	

2.3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards

FCC Code CFR47 Part15B (2025)

ANSI C63.4-2014

2.4 Test Mode

Test Mode	
Mode 1	EUT + resistance + WORKING

Test Type	Test Mode	Worst Mode
Radiated Emission	Mode 1	Mode 1
Conducted Emission	Mode 1	Mode 1
After technical evaluation or/and preliminary test, the test data of the worst-case condition was recorded in this report.		

3 Test Case Results

3.1 Radiated Emission

Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	30% ~ 60%

Methods of Measurement

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier. During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated signal level.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. During the test, the EUT is worked at maximum output power.

Set the spectrum analyzer in the following:

Below 1GHz:

RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

Above 1GHz:

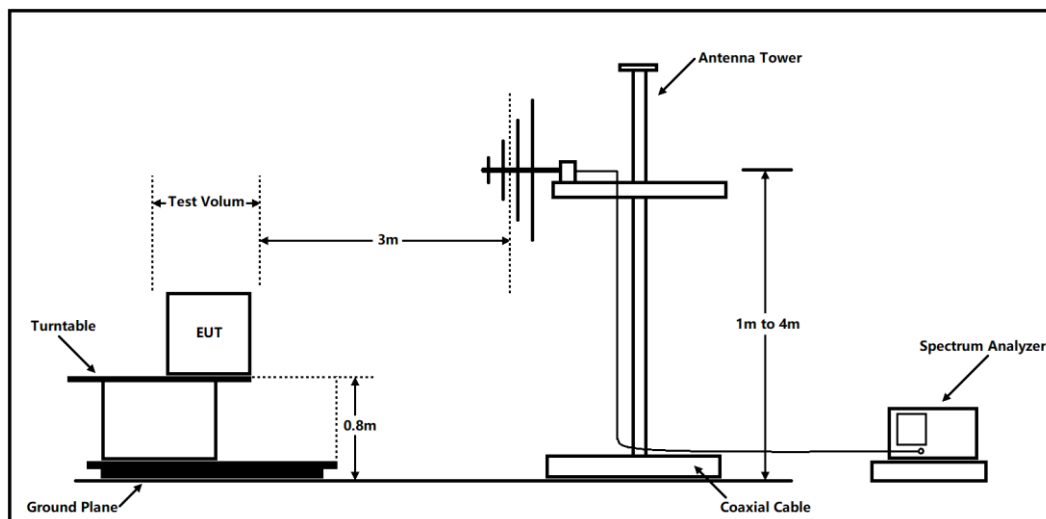
(a) PEAK Detector: RBW=1MHz / VBW=3MHz/ Sweep=AUTO

(b) AVERAGE Detector: RBW=1MHz / VBW=3MHz / Sweep=AUTO

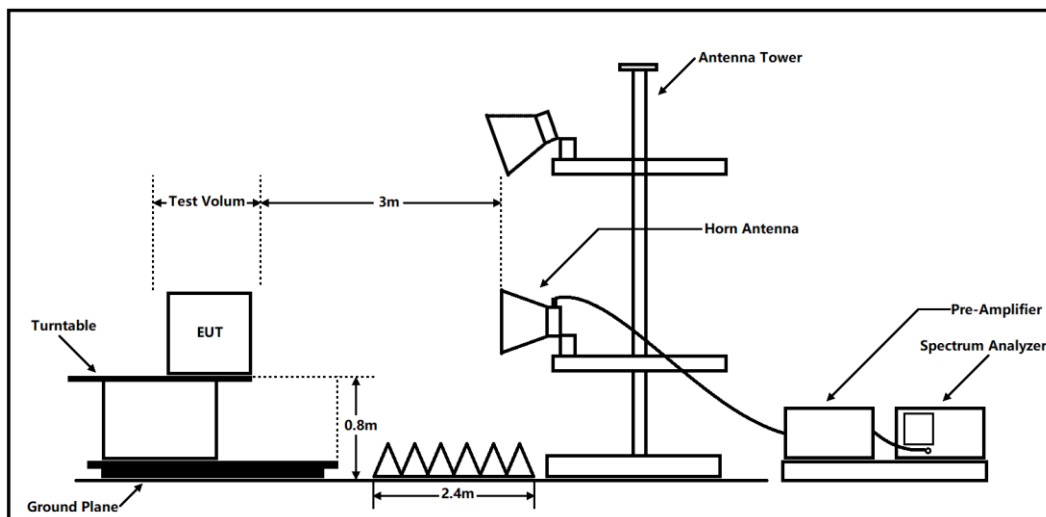
The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

Test Setup

Below 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Antenna Tower meets ANSI C63.4 requirements for measurements above 1 GHz by keeping the antenna aimed at the EUT during the antenna's ascent/ descent along the antenna mast.

Limits

Frequency range of radiated measurements

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

For FCC Code CFR47 Part15B

Class B

Frequency (MHz)	Field Strength (dB μ V/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5 th harmonic of the highest frequency or 40GHz, which is lower	54 74	Average Peak

Class A

Frequency (MHz)	Field Strength (dB μ V/m)	Detector
30 -88	49.08	Quasi-peak
88-216	53.52	Quasi-peak
216 – 960	56.40	Quasi-peak
960-1000	59.50	Quasi-peak
1000-5 th harmonic of the highest frequency or 40GHz, which is lower	59.50 79.50	Average Peak

Note: The EUT should meet CLASS B limit.

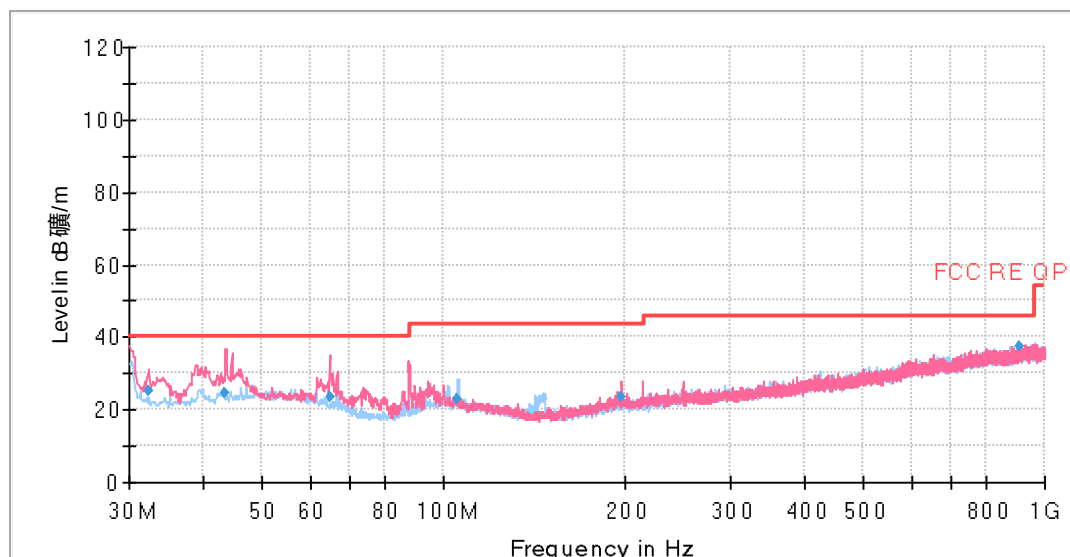
Test Results

Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier.

The following graphs display the maximum values of horizontal and vertical by software.

A symbol (dB μ V/m) in the test plot below means (dB μ V/m)

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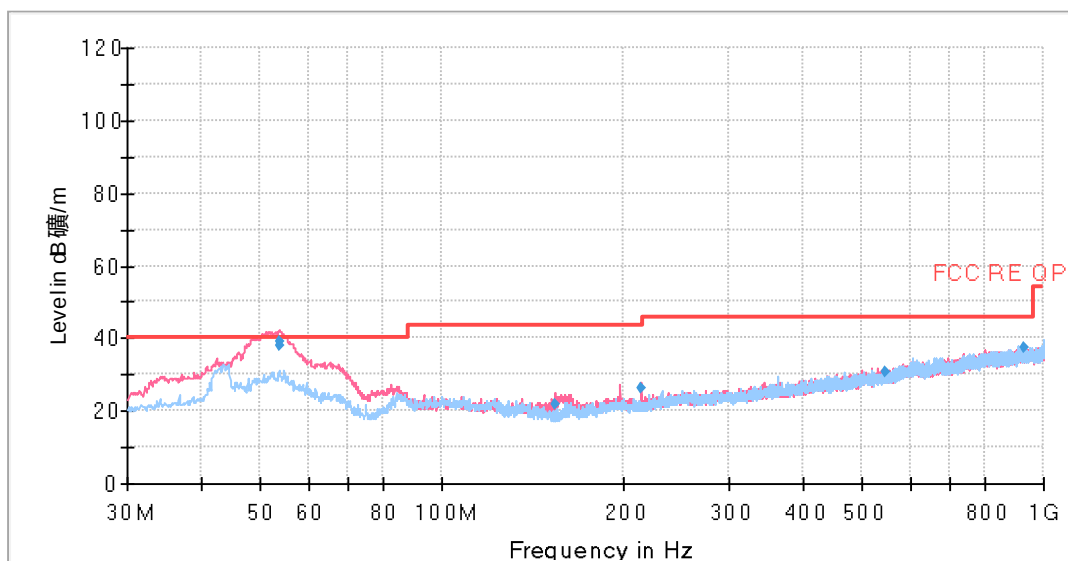
~ QP Level @Spectrum Overview H
 ~ QP Level @Spectrum Overview V
 ◆ QP Level @Final Results
 — QP Limit

Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
32.43	25.10	40.00	14.90	1000.00	120.000	100.0	V	335.00
43.34	24.77	40.00	15.23	1000.00	120.000	100.0	V	148.00
64.68	23.44	40.00	16.56	1000.00	120.000	100.0	V	359.00
105.66	22.78	43.50	20.72	1000.00	120.000	200.0	H	28.00
197.93	23.51	43.50	19.99	1000.00	120.000	200.0	V	107.00
906.76	37.13	46.00	8.87	1000.00	120.000	100.0	H	204.00

Remark: 1. Correction Factor = Antenna factor + Insertion loss(cable loss+amplifier gain)

2. Margin = Limit – Quasi-Peak



QP Level @Spectrum Overview H
 QP Level @Spectrum Overview V
 QP Level @Final Results
 QP Limit

Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)
53.64	39.25	40.00	0.75	1000.00	120.000	100.0	V	0.00	20
53.89	38.13	40.00	1.87	1000.00	120.000	100.0	V	359.00	20
154.16	22.01	43.50	21.49	1000.00	120.000	100.0	V	82.00	15
214.54	26.46	43.50	17.04	1000.00	120.000	200.0	V	288.00	18
546.40	30.88	46.00	15.12	1000.00	120.000	100.0	H	20.00	26
926.64	37.50	46.00	8.50	1000.00	120.000	200.0	H	11.00	32

Remark: 1. Correction Factor = Antenna factor + Insertion loss(cable loss+amplifier gain)

2. Margin = Limit – Quasi-Peak

3.2 Conducted Emission

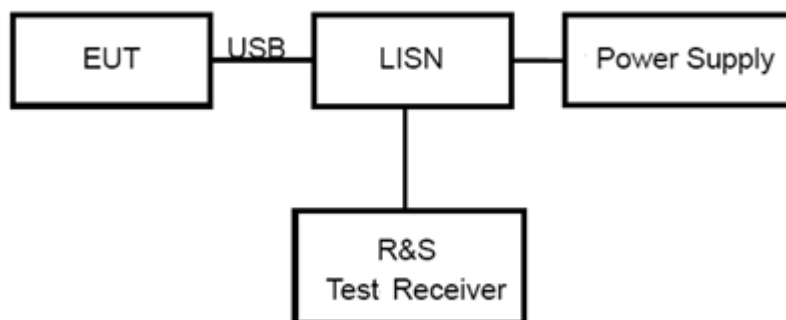
Ambient Condition

Temperature	Relative humidity
15°C ~ 35°C	30% ~ 60%

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

Test Setup



Note: Power Supply is AC Power source and it is used to change the voltage 120V/60Hz.

Limits

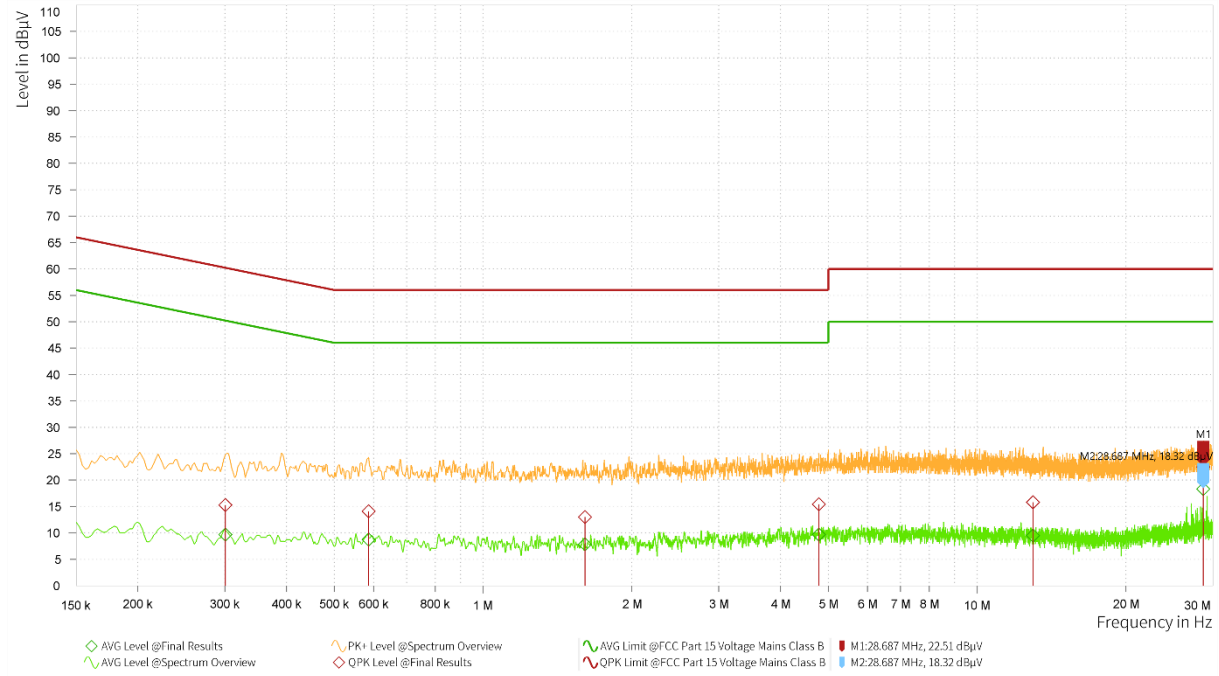
Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 to 56 *	56 to 46*
0.5 - 5	73	60	56	46
5 - 30	73	60	60	50

*: Decreases with the logarithm of the frequency.

Note: The EUT should meet CLASS B limit.

Test Results

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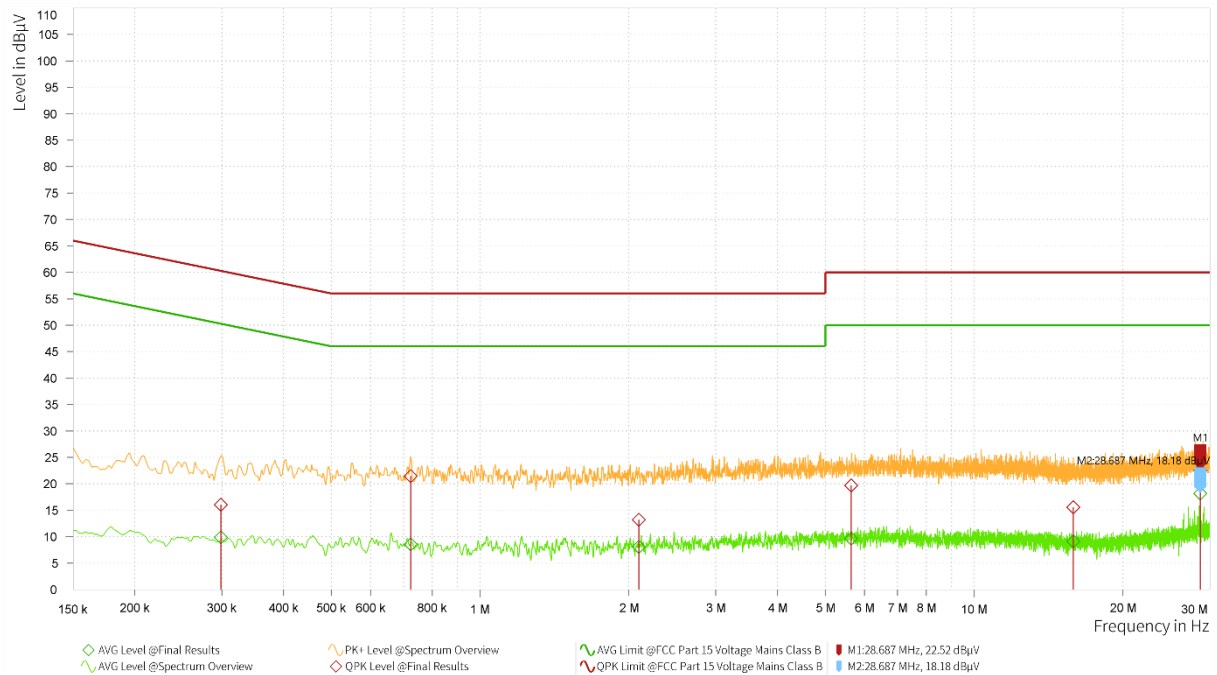


Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.301	15.29	60.22	44.93	9.68	50.22	40.54	20.94	L1	9.000	1.000
0.587	14.10	56.00	41.90	8.71	46.00	37.29	20.69	L1	9.000	1.000
1.608	13.01	56.00	42.99	7.82	46.00	38.18	19.79	L1	9.000	1.000
4.785	15.41	56.00	40.59	9.70	46.00	36.30	19.41	L1	9.000	1.000
12.971	15.81	60.00	44.19	9.47	50.00	40.53	19.45	L1	9.000	1.000
28.687	22.51	60.00	37.49	18.32	50.00	31.68	19.81	L1	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

L line

Conducted Emission from 150 kHz to 30 MHz

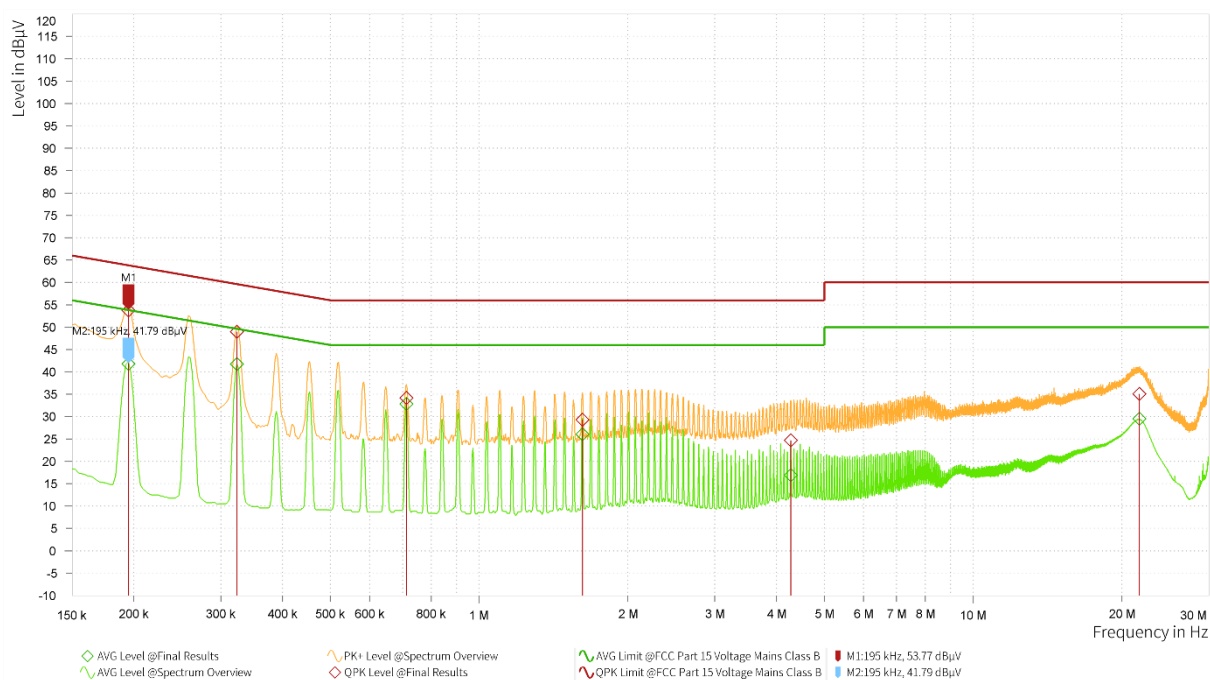


Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.299	16.01	60.28	44.27	9.85	50.28	40.44	20.95	N	9.000	1.000
0.724	21.43	56.00	34.57	8.52	46.00	37.48	20.55	N	9.000	1.000
2.096	13.20	56.00	42.80	8.05	46.00	37.95	19.63	N	9.000	1.000
5.638	19.69	60.00	40.31	9.64	50.00	40.36	19.41	N	9.000	1.000
15.880	15.55	60.00	44.45	9.13	50.00	40.87	19.56	N	9.000	1.000
28.687	22.52	60.00	37.48	18.18	50.00	31.82	19.88	N	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

N line

Conducted Emission from 150 kHz to 30 MHz

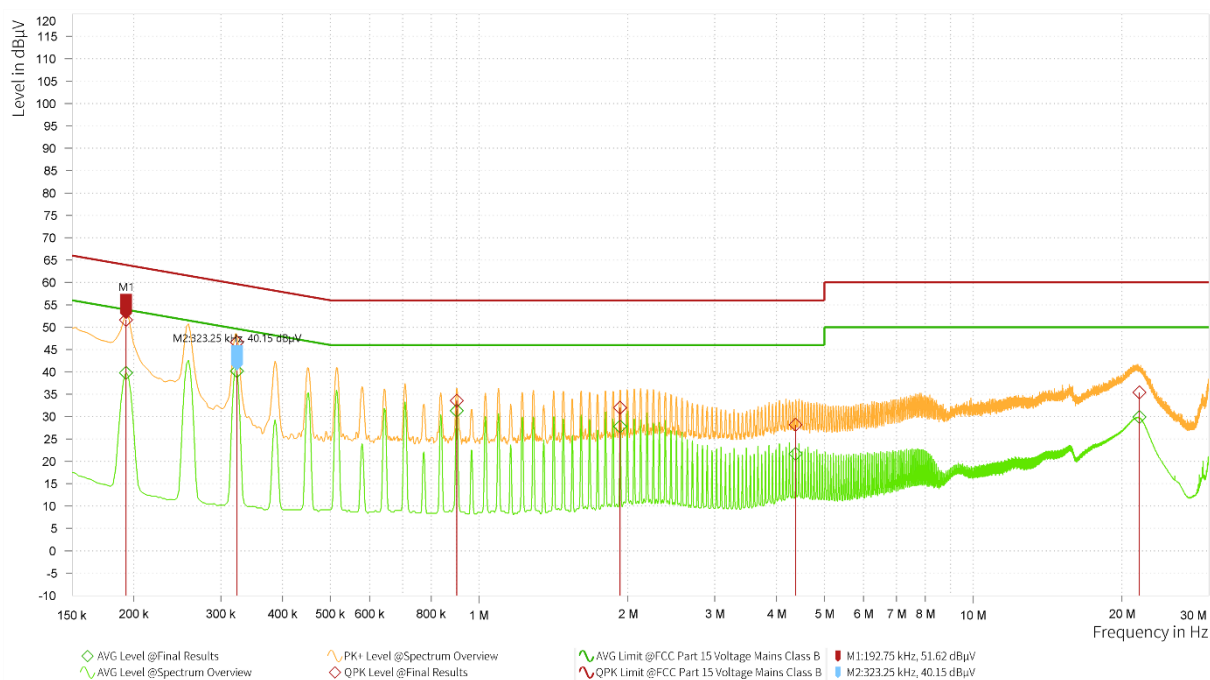


Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.195	53.77	63.82	10.06	41.79	53.82	12.03	21.02	L1	9.000	1.000
0.323	48.95	59.62	10.67	41.76	49.62	7.87	20.92	L1	9.000	1.000
0.713	34.17	56.00	21.83	32.84	46.00	13.16	20.55	L1	9.000	1.000
1.619	29.28	56.00	26.72	26.04	46.00	19.96	19.78	L1	9.000	1.000
4.274	24.72	56.00	31.28	16.89	46.00	29.11	19.42	L1	9.000	1.000
21.707	35.05	60.00	24.95	29.51	50.00	20.49	19.69	L1	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

L line

Conducted Emission from 150 kHz to 30 MHz



Frequency [MHz]	QPK Level [dBμV]	QPK Limit [dBμV]	QPK Margin [dB]	AVG Level [dBμV]	AVG Limit [dBμV]	AVG Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]	Meas. Time [s]
0.193	51.62	63.92	12.30	39.79	53.92	14.13	21.03	N	9.000	1.000
0.323	46.59	59.62	13.03	40.15	49.62	9.47	20.93	N	9.000	1.000
0.902	33.54	56.00	22.46	31.30	46.00	14.70	20.25	N	9.000	1.000
1.930	31.99	56.00	24.01	27.81	46.00	18.19	19.68	N	9.000	1.000
4.373	28.16	56.00	27.84	21.65	46.00	24.35	19.42	N	9.000	1.000
21.707	35.43	60.00	24.57	29.90	50.00	20.10	19.74	N	9.000	1.000

Remark: Correct factor=cable loss + LISN factor

N line

Conducted Emission from 150 kHz to 30 MHz

4 Uncertainty Measurement

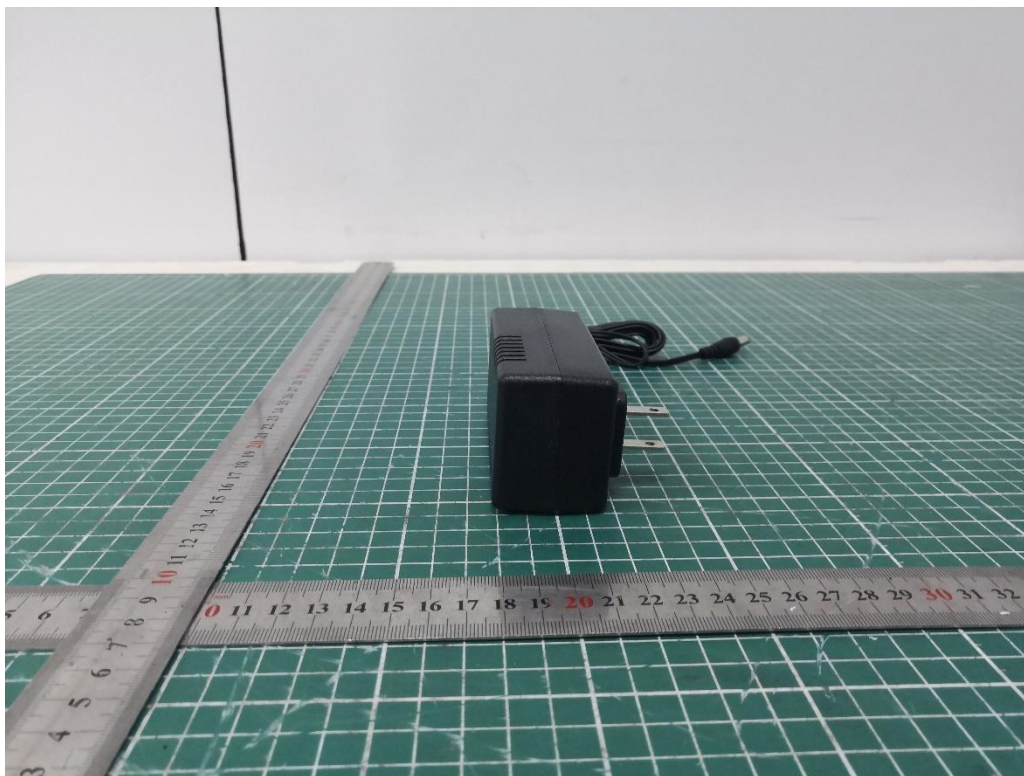
Case	Uncertainty	Factor k
Radiated Emission 30MHz – 200MHz	4.17 dB	1.96
Radiated Emission 200MHz – 1GHz	4.84 dB	1.96
Conducted Emission	2.57 dB	2

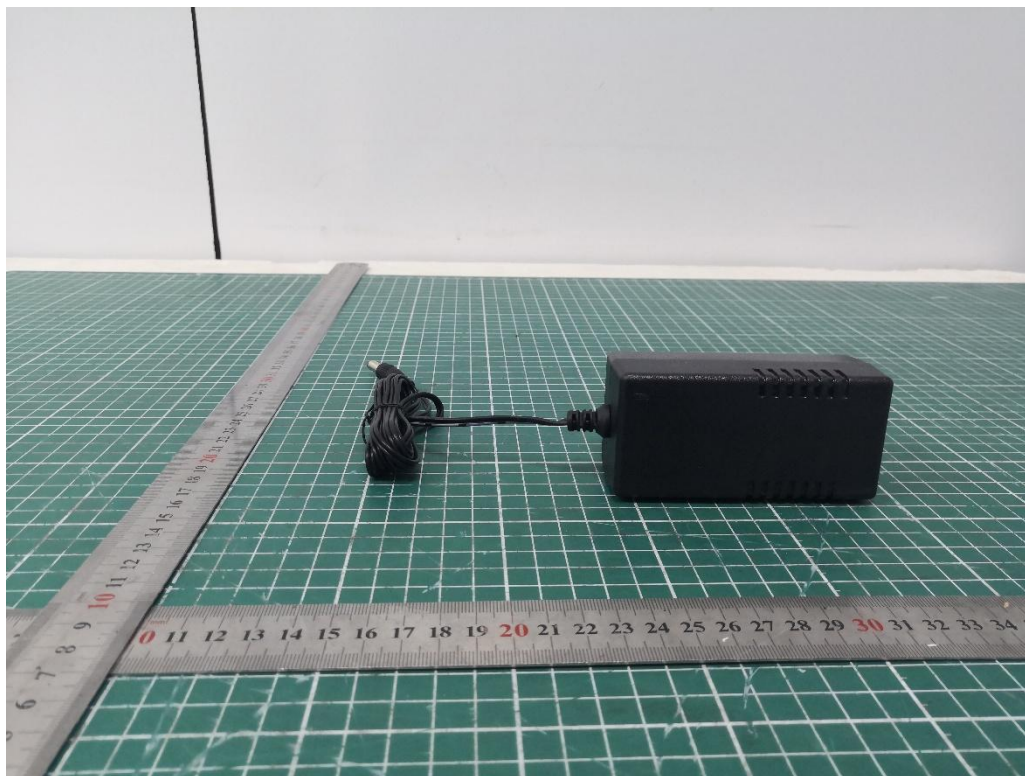
5 Main Test Instruments

Name of Equipment	Manufacturer	Type/Model	Serial Number/Version	Calibration Date	Expiration Time
Radiated Emission					
EMI Test Receiver	R&S	ESCI3	100948	2025-05-07	2026-05-06
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	1023	2023-07-14	2026-07-13
Software	R&S	EMC32	9.26.01	/	/
Conducted Emission					
Artificial main network	R&S	ENV216	102191	2025-11-24	2026-11-23
EMI Test Receiver	R&S	ESR	101667	2025-05-06	2026-05-05
Software	R&S	ELEKTRA	5.02.1	/	/

ANNEX A: The EUT Appearance







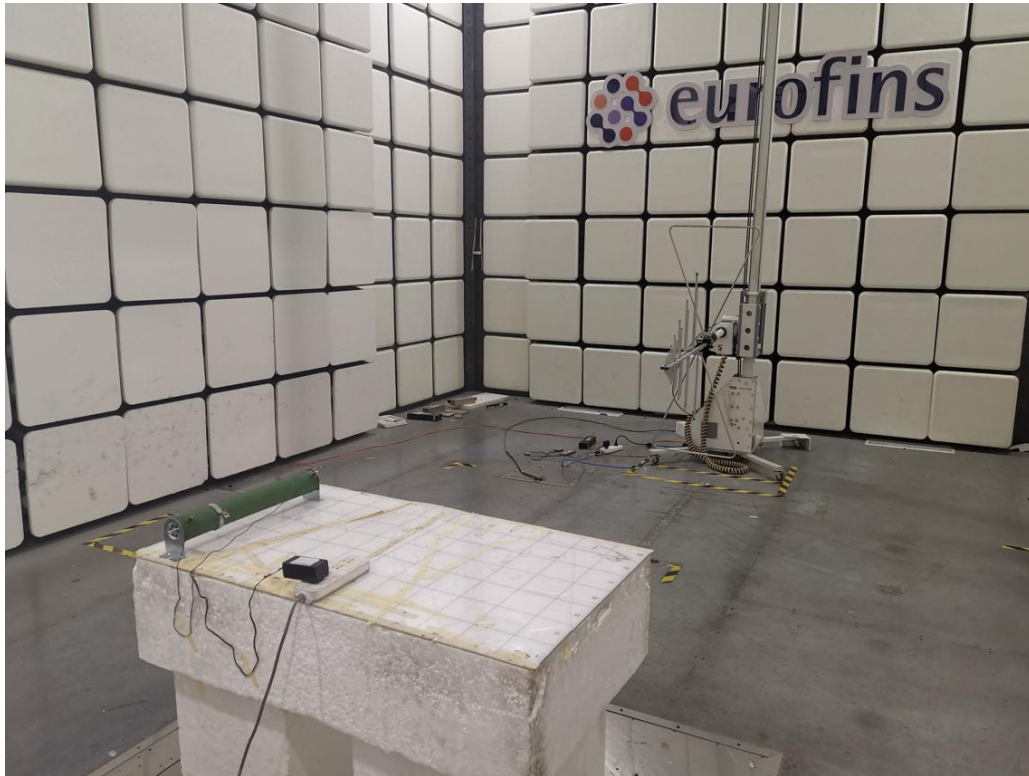
Picture 1: Constituents of EUT

ANNEX B: Test Setup Photos

ZNL-U360160

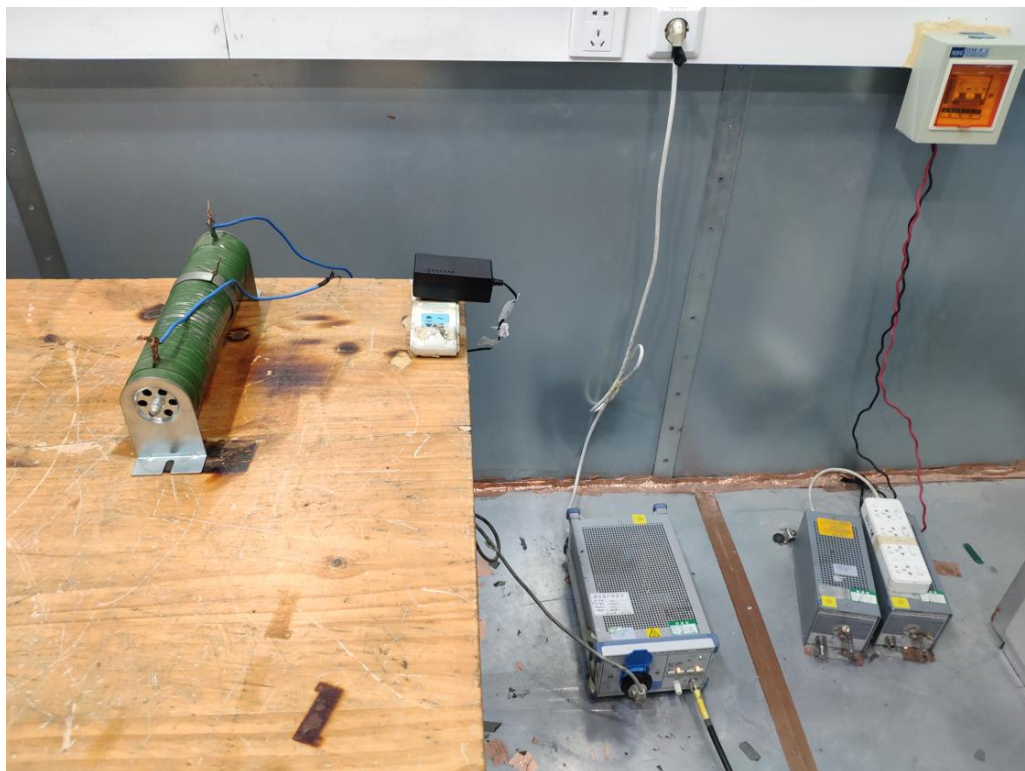


ZNL-U120200

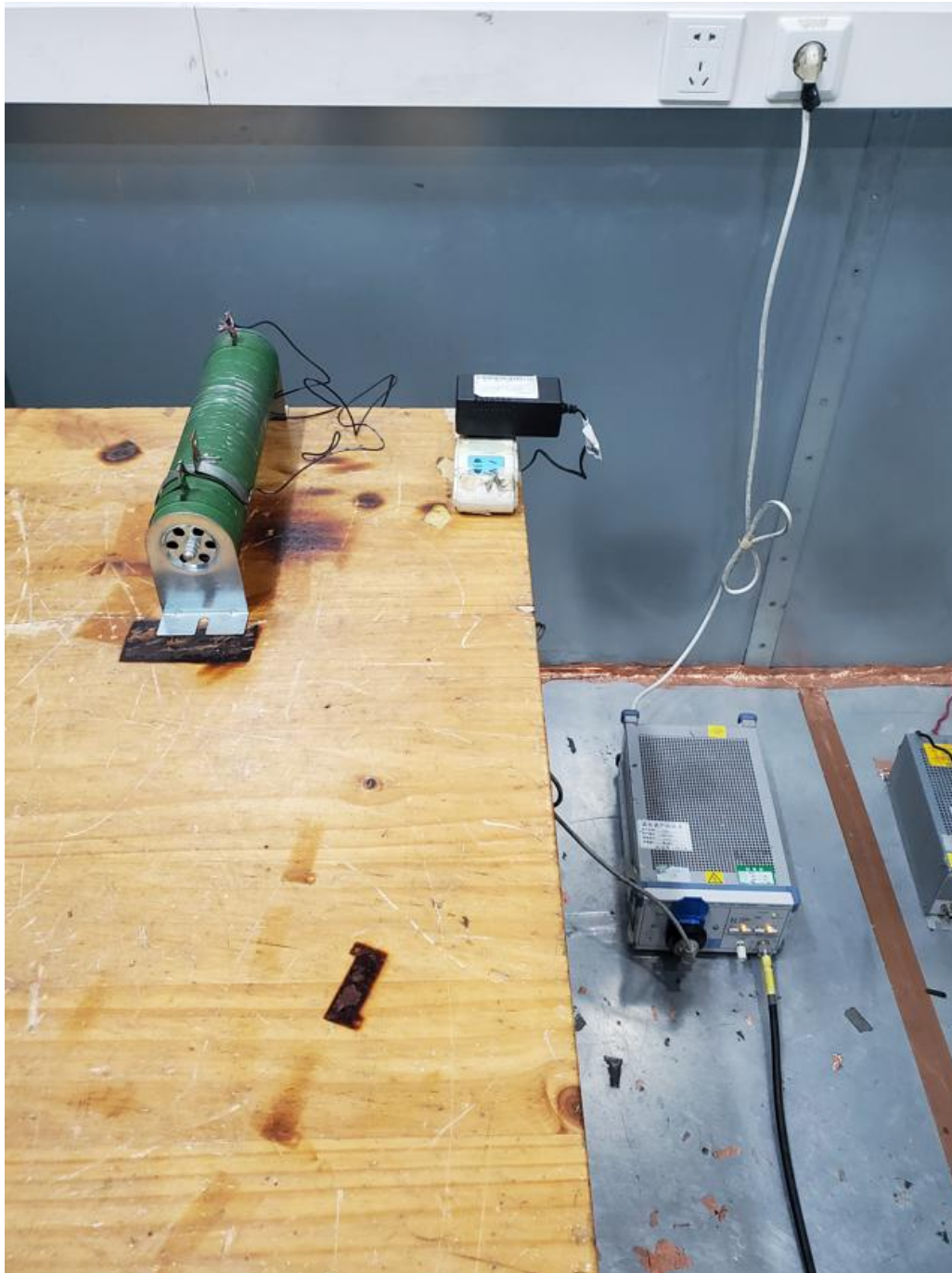


Picture 2 Radiated Emission Test Setup

ZNL-U360160



ZNL-U120200



Picture 3 Conducted Emission Test Setup

******* END OF REPORT *******