FCC TEST REPORT

For

Changzhou Positive Energy Electrical Equipment Co., Ltd.
Product Name: CLASS 2 POWER SUPPLY
Test Model(s).: ZNL-U288080

Report Reference No.	:	**DACE240925002RL001**
Applicant's Name	:	Changzhou Positive Energy Electrical Equipment Co., Ltd.
Address	:	NO 12-2,Meihua Road,Zhonglou District,Changzhou,Jiangsu,213000
Testing Laboratory	:	Shenzhen DACE Testing Technology Co., Ltd.
Address	:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Connunity, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**47 CFR Part 15, Subpart B**
Date of Receipt	:	September 25, 2024
Date of Test	:	September 25, 2024 to September 26, 2024
Data of Issue	:	September 26, 2024
Result	:	**Pass**

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE240925002RL001	September 26, 2024

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Compiled by:	Supervised by:	Approved by:
Amy Zhu / Test Engineer	Stone Yin / Project Engineer	Tom Chen / Manager

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15, Subpart B: Unintentional Radiators

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Conducted emissions on AC mains	47 CFR Part 15, Subpart B	ANSI C63.4-2014	15.107, Class B	Pass
Radiated emissions (Below 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4-2014	15.109, Class B	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : Changzhou Positive Energy Electrical Equipment Co., Ltd.
Address : NO 12-2,Meihua Road,Zhonglou District,Changzhou,Jiangsu,213000

Manufacturer : Changzhou Positive Energy Electrical Equipment Co., Ltd.
Address : NO 12-2,Meihua Road,Zhonglou District,Changzhou,Jiangsu,213000

2.2 Description of Device (EUT)

Product Name:	CLASS 2 POWER SUPPLY
Model/Type reference:	ZNL-U288080
Series model:	ZNL-UAAABBB,Where"AAA"is 3 digits from 030 to 360 which represents the rated output voltage after divided by 10. (e.g.: 150 =15.0 V dc, 320 =32.0 V dc),"BBB"is 3 digits from 010 to 200 which represents the rated output current after divided by 100. (e.g.: 030 =0.3 A,100 =1.0 A), Max output power is 24w.
Trade Mark:	ZNL
Power Supply:	Input: AC 110-120V,50/60Hz, 0.5A Input: DC 28.8V,0.8A
Highest Internal Frequency:	1.705-108MHz
Classification of Equipment:	Class B

2.3 Description of Test Modes

No	Title	Description
TM1	On	AC 120/60Hz

2.4 Description of Support Units

The EUT was tested as an independent device.

2.5 Equipments Used During The Test

Conducted emissions on AC mains					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
loop antenna	EVERFINE	LLA-2	80900L-C	2024-02-19	2025-02-18
Power absorbing clamp	SCHWARZ BECK	MESS-ELEKTRONIK	/	2024-03-25	2025-03-24
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	/	/
Cable	SCHWARZ BECK	/	/	2024-03-20	2025-03-19
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Attenuation	561-G071	2023-12-12	2024-12-11
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607 K03-102109-MH	2024-06-12	2025-06-11
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2024-12-11
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2024-06-14	2025-06-13
Pulse Limiter	CYBERTEK	EM5010A	/	2024-09-27	2025-09-26
EMI test software	EZ -EMC	EZ	V1.1.42	/	/

Radiated emissions (Below 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Cable(HF)2	SCHWARZ BECK	50Ω	/	2024-03-20	2025-03-19
Cable(HF)1	SCHWARZ BECK	50Ω	/	2024-03-20	2025-03-19
Cable(LF)2	SCHWARZ BECK	50Ω	/	2024-03-20	2025-03-19
Cable(LF)1	SCHWARZ BECK	50Ω	/	2024-03-20	2025-03-19
control	Positioning Controller	Model MF-7802	MF780208362	2023-12-27	2024-12-26
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607 K03-102109-MH	2024-06-12	2025-06-11
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2024-06-14	2026-06-13
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2024-06-12	2025-06-11
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2024-06-12	2025-06-11
Test Receiver	R&S	ESCI 3	1166.5950K03 -101431-Jq	2024-06-13	2025-06-12
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	±3.41dB
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3 Emission Test Results (EMI)

3.1 Conducted emissions on AC mains

Test Requirement:	15.107, Class B
Test Limit:	

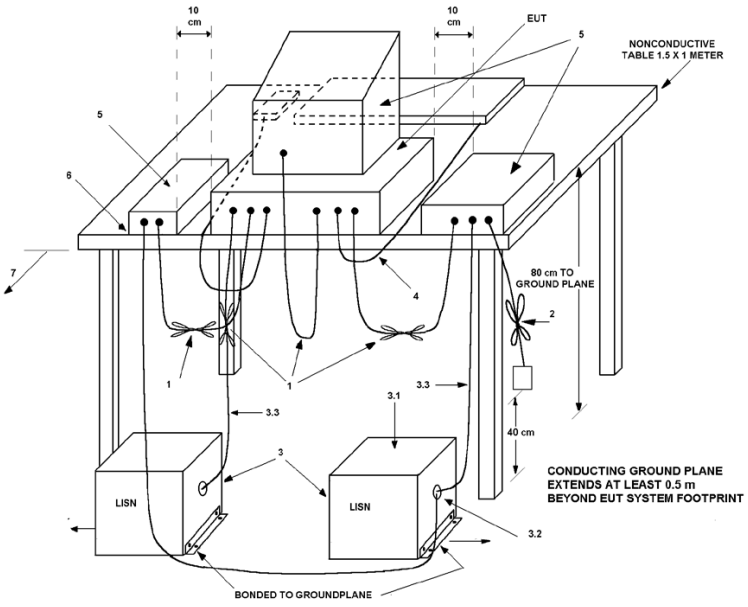
Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency.		

Test Method:	ANSI C63.4-2014
Procedure:	An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected. Remark: Level= Read Level+ Cable Loss+ LISN Factor

3.1.1 E.U.T. Operation:

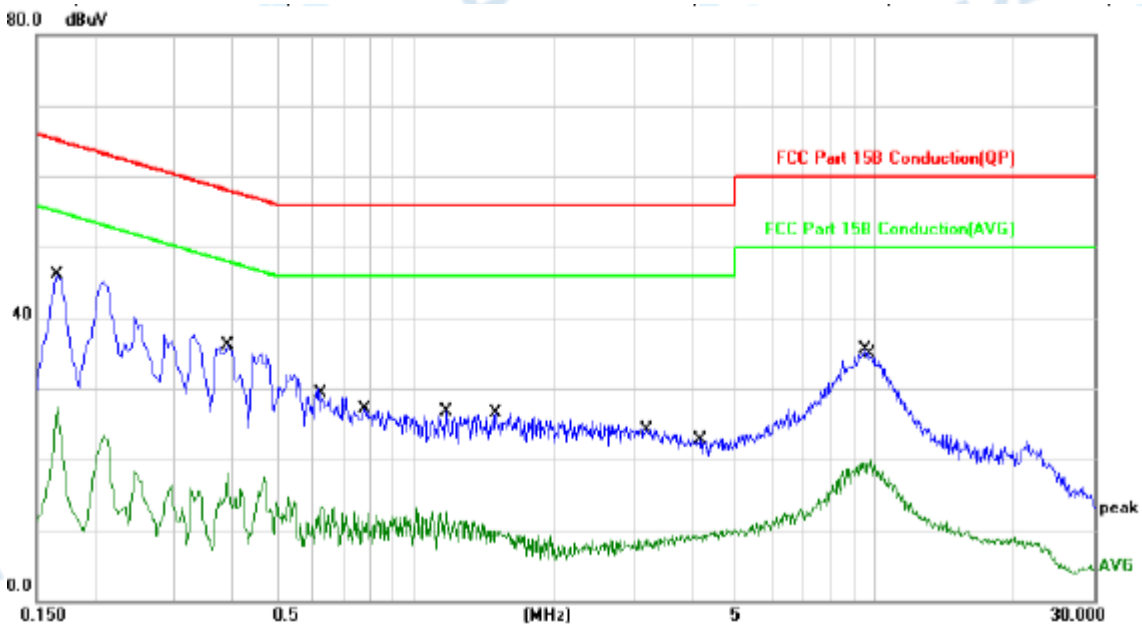
Operating Environment:					
Temperature:	22.4 °C	Humidity:	50 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1				
Final test mode:	TM1				

3.1.2 Test Setup Diagram:



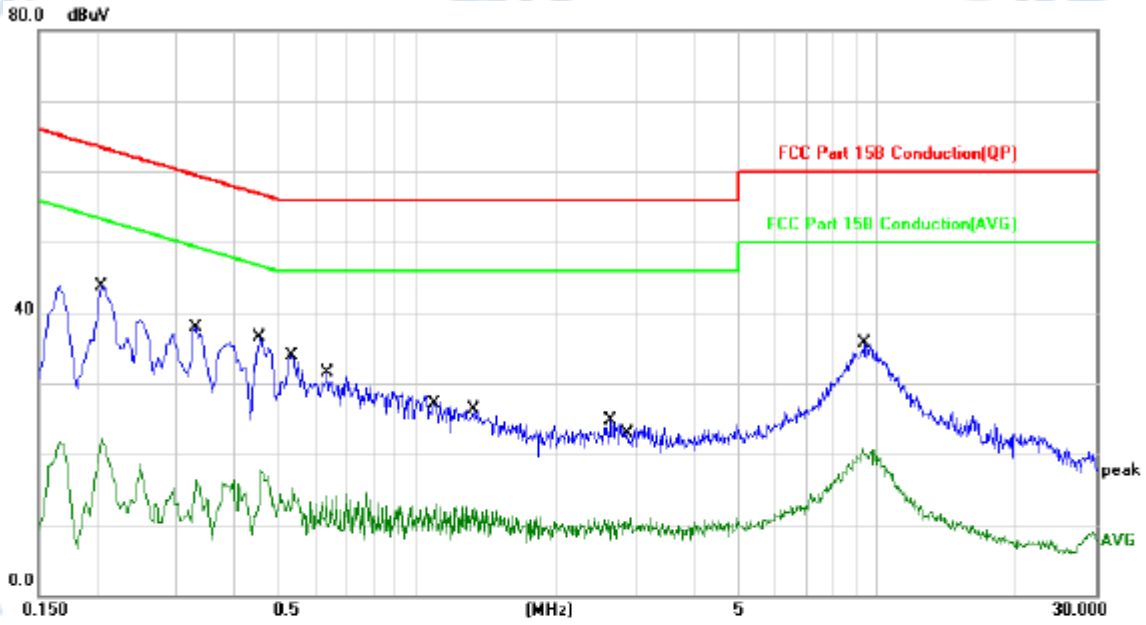
3.1.3 Test Data:

TM1 / Line: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1660	46.01	-0.01	46.00	65.15	-19.15	QP	
2		0.1660	27.37	-0.01	27.36	55.15	-27.79	AVG	
3		0.3899	36.05	0.11	36.16	58.06	-21.90	QP	
4		0.3899	18.03	0.11	18.14	48.06	-29.92	AVG	
5		0.6300	13.19	0.07	13.26	46.00	-32.74	AVG	
6		0.7780	27.04	0.05	27.09	56.00	-28.91	QP	
7		1.1700	12.59	-0.03	12.56	46.00	-33.44	AVG	
8		1.5020	26.52	-0.07	26.45	56.00	-29.55	QP	
9		3.1980	24.24	-0.06	24.18	56.00	-31.82	QP	
10		4.2139	9.46	-0.08	9.38	46.00	-36.62	AVG	
11		9.5379	35.55	-0.08	35.47	60.00	-24.53	QP	
12		9.8139	19.93	-0.08	19.85	50.00	-30.15	AVG	

TM1 / Line: Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.2060	43.68	-0.01	43.67	63.36	-19.69	QP	
2		0.2060	22.17	-0.01	22.16	53.36	-31.20	AVG	
3		0.3300	37.87	0.10	37.97	59.45	-21.48	QP	
4		0.4580	17.60	0.10	17.70	46.73	-29.03	AVG	
5		0.5380	15.04	0.09	15.13	46.00	-30.87	AVG	
6		0.6380	31.34	0.07	31.41	56.00	-24.59	QP	
7		1.0940	12.98	-0.01	12.97	46.00	-33.03	AVG	
8		1.3260	26.29	-0.05	26.24	56.00	-29.76	QP	
9		2.6380	24.69	-0.05	24.64	56.00	-31.36	QP	
10		2.9140	11.00	-0.06	10.94	46.00	-35.06	AVG	
11		9.3260	20.80	-0.08	20.72	50.00	-29.28	AVG	
12		9.4180	35.77	-0.08	35.69	60.00	-24.31	QP	

3.2 Radiated emissions (Below 1GHz)

Test Requirement:	15.109, Class B
Test Limit:	Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

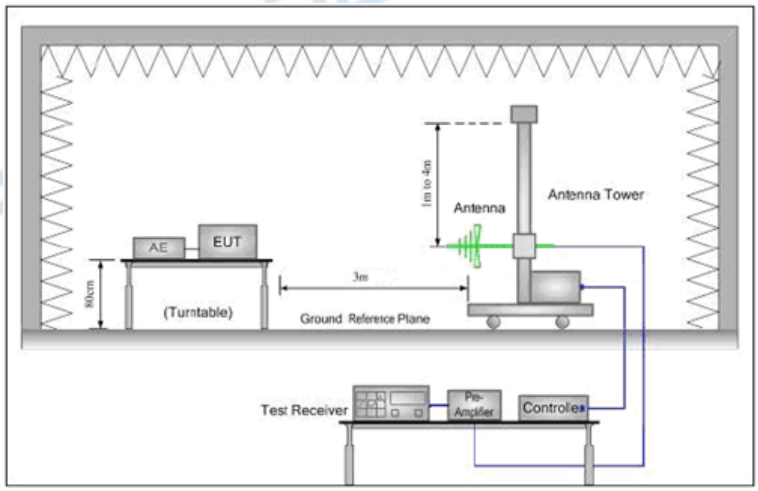
Frequency of emission (MHz)	Field strength @3m		Field strength @10m	
	(uV/m)	(dBuV/m)	(uV/m)	(dBuV/m)
30 – 88	100	40	30	29.5
88 – 216	150	43.5	45	33.1
216 – 960	200	46	60	35.6
Above 960	500	54	150	43.5

Test Method:	ANSI C63.4-2014
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

3.2.1 E.U.T. Operation:

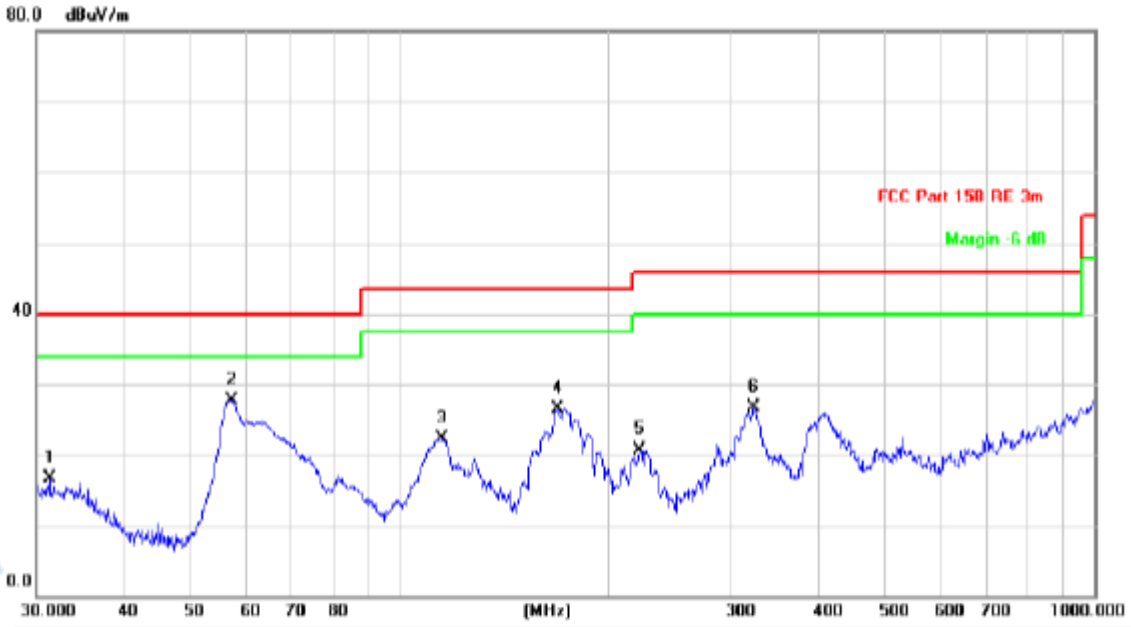
Operating Environment:					
Temperature:	22.4 °C	Humidity:	50 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1				
Final test mode:	TM1				

3.2.2 Test Setup Diagram:



3.2.3 Test Data:

TM1 / Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		31.2893	21.93	-5.31	16.62	40.00	-23.38	QP			
2	*	57.1914	43.33	-15.59	27.74	40.00	-12.26	QP			
3		114.9169	33.78	-11.45	22.33	43.50	-21.17	QP			
4		169.0054	36.91	-10.36	26.55	43.50	-16.95	QP			
5		221.3921	31.09	-10.32	20.77	46.00	-25.23	QP			
6		323.3204	34.31	-7.52	26.79	46.00	-19.21	QP			

TM1 / Polarization: Vertical

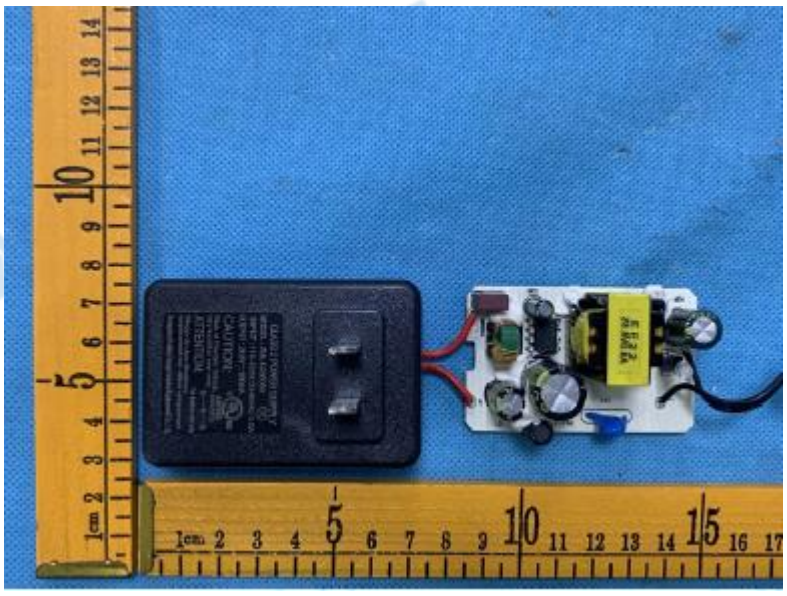
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		34.6385	34.52	-7.17	27.35	40.00	-12.65	QP			
2	!	56.7917	49.74	-15.59	34.15	40.00	-5.85	QP			
3	*	62.2128	50.85	-15.50	35.35	40.00	-4.65	QP			
4		109.4116	39.04	-12.34	26.70	43.50	-16.80	QP			
5		168.4138	40.74	-10.33	30.41	43.50	-13.09	QP			
6		322.1886	30.90	-7.55	23.35	46.00	-22.65	QP			

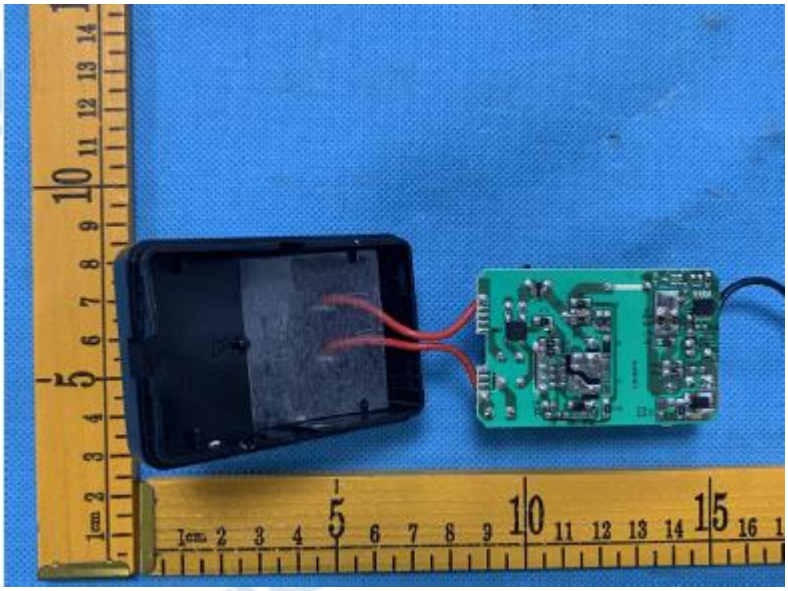
4 TEST SETUP PHOTOS

Conducted emissions on AC mains


Radiated emissions (Below 1GHz)


5 PHOTOS OF THE EUT





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