

TEST REPORT

Applicant:	ARTIKA FOR LIVING INC.
Address of Applicant:	1756 50th Avenue Lachine, Quebec H8T 2V5 Canada
Manufacturer:	GUANGDONG CHENGCEE LIGHTING CO., LTD
Address of Manufacturer:	No.8 East Shengfeng Xiangsheng Road, Xiaolan, Zhongshan, Guangdong, China
Product name:	ECHO Flushmount
Model:	FM-EC-XXXXXX "XXXXXX" can be 0 to 9 and/or A to z and/or blank (commercial code)
Rating(s):	AC 120V, 60Hz, 20W
Trademark:	ARTIKA
Standards:	FCC Part15 subpart B: 2020
FCC ID:	2AUHG-FM-EC
Date of Receipt:	2020-12-14
Date of Test:	2020-12-14~2020-12-29
Date of Issue:	2020-12-30
Test Result	Pass*

* In the configuration tested, the test item complied with the standards specified above.

Authorized for issue by:

Test by:

Dec.30, 2020 Eleven Liang

Project Engineer

Date

Name/Position

Signature

Reviewed by:

Dec.30, 2020

Pauler Li

Project Manager

Date

Name/Position

Signature

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Testing Laboratory information:

Testing Laboratory Name : ITL Co., LTD
Address : No.8, Jinqianling Street 5, Huangjiang, Dongguan, Guangdong, China.
Testing location : Same as above
Tel..... : 0086-769-39001678
Fax : 0086-20-62824387
E-mail : itl@i-testlab.com

Possible test case verdicts:

- test case does not apply to the test object.. : N/A
- test object does meet the requirement..... : P (Pass)
- test object does not meet the requirement . : F (Fail)

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report would be invalid test report without all the signatures of testing technician and approver.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

FM-EC-XXXXXX

“XXXXXX” can be 0 to 9 and/or A to z and/or blank (commercial code)

All models are identical with each other except for model designation.

All tests were performed on the model FM-EC as representative.

Test Summary:

The following standards have been applied to ensure the product conforms with the protection requirements of the council directive FCC part 15B

Electromagnetic Emissions				
Test Item	Test Standard	Test Method	Class/Severity	Result
Conducted Emission(0.15-30MHz)	FCC part 15.107	ANSI C63.4: 2014	Class B	PASS
Radiated Emission(30-1000MHz)	FCC part 15.109	ANSI C63.4: 2014	Class B	PASS

Test Location

All the tests were performed in ITL Co., LTD. Where is located at at No.8, Jinqianling Street 5, Huangjiang, Dongguan, Guangdong, China.

Tel: 0086-769-39001678, Fax: 0086-20-62824387

No test is subcontracted

Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS Lab code:L9342**
- **FCC Designation No.:CN5035**
- **IC Registration NO.: 12593A**
- **NVLAP LAB CODE: 600199-0**

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Section 1 General Information and Equipment Used

1.1 Client Information

Applicant: ARTIKA FOR LIVING INC.
Address of Applicant: 1756 50th Avenue Lachine, Quebec H8T 2V5 Canada

1.2 EUT General and Technical Descriptions

EUT Name: ECHO Flushmount
EUT Model: FM-EC
EUT Trademark: ARTIKA
Input Voltage: AC 120V
Frequency: 60Hz
Input Power/Current: 20W
Output rated: /
Power Cable Description: /
Other Cables Description: /
I/O Ports: /
Function(s) Description: /
Accessories information: /

1.3 Support Equipment(s) and Test Configuration

1.3.1 Details of Support Equipment(s)

Description	Manufacturer	Model No.	Connection	Working state
/	/	/	/	/

1.3.2 Working State of EUT

Power Supply of EUT: AC 120V, 60Hz
EUT Status: LED Lighting

1.3.3 Block Diagram of Test Configuration

/

1.4 Equipment Used during Test

Conducted Emission						
No.	Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
DGITL-303a	EMI Test receiver	R&S	ESCI	100910	2020.05.22	2021.05.22
DGITL-304	L.I.S.N.#1	R&S	ESH3-Z5	100272	2020.05.22	2021.05.22
DGITL-302	Shielded Room	ETS•Lindgren	8*4*3	CT09010	2020.08.03	2022.08.03
DGITL-316	Pulse Limiter	R&S	ESH3-Z2	100327	2020.05.22	2021.05.22

Radiated Emission						
No.	Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
DGITL- 301	Semi-Anechoic chamber	ETS•Lindgren	9*6*6	CT000874-1181	2020.08.03	2022.08.03
DGITL- 307	EMI test receiver	R&S	ESVS10	833616/003	2020.05.22	2021.05.22
DGITL- 306	Spectrum Analyzer	Agilent Technologies	N9010A	MY54200334	2020.05.22	2021.05.22
DGITL- 308	Bilog Antenna	ETS•Lindgren	3142E	156975	2020.06.20	2022.06.20
DGITL- 352	Pre Amplifier	MInI-CIrcuits	ZFC-1000 HX	SN292801110	2020.05.22	2021.05.22

Section 2 Emission Test Results

2.1 Conducted Emission at Mains Terminals, 150 kHz to 30MHz

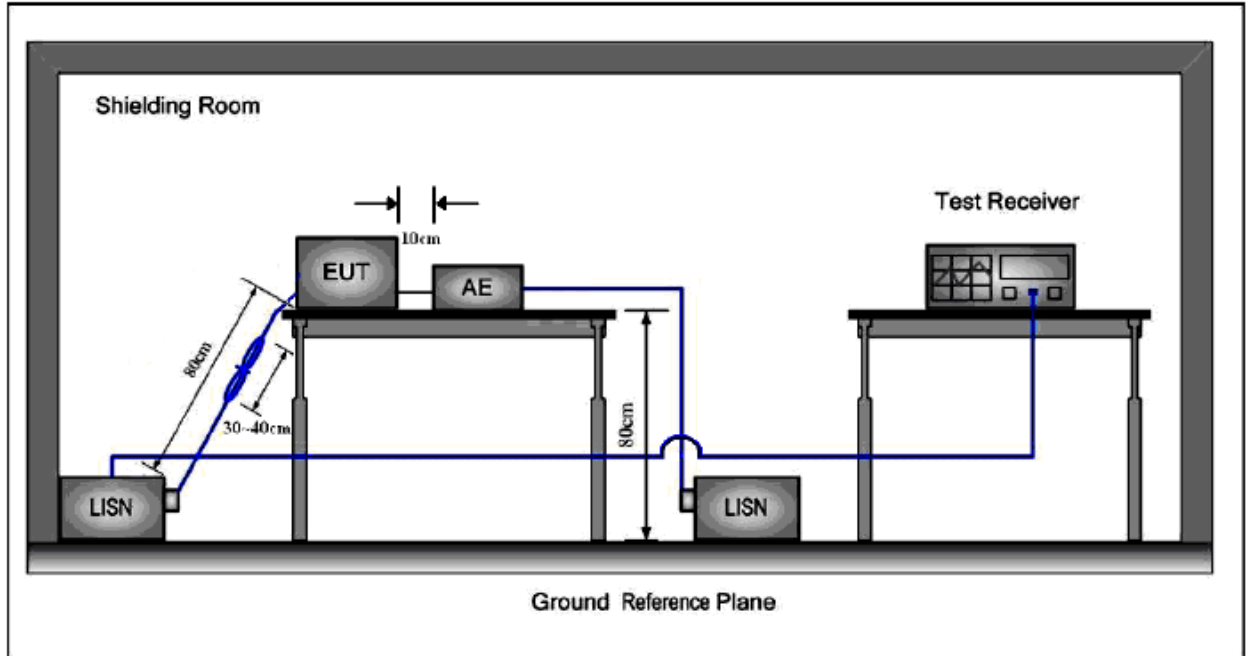
Test Requirement:	FCC part 15.107
Test Method:	ANSI C63.4: 2014
Test Voltage:	120V AC, 60Hz
Test Date:	2020-12-29
Frequency Range:	150 kHz to 30MHz
Detector:	Peak for pre-scan Quasi-Peak and Average at frequency with maximum peak (9 kHz resolution bandwidth)
Uncertainty:	2Uc (V) = 2.3dB
Class / Limit:	Class B

Frequency range MHz	Class B Limits dB (μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 :The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		
NOTE 2: The lower limit is applicable at the transition frequency.		

2.1.1 E.U.T. Operation

Operating Environment:			
Temperature: 22 °C	Humidity: 48 % RH	Atmospheric Pressure: 101 kPa	
EUT Operation: LED Lighting			

2.1.2 Test Setup and Procedure



1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to nominal power supply through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H}+5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

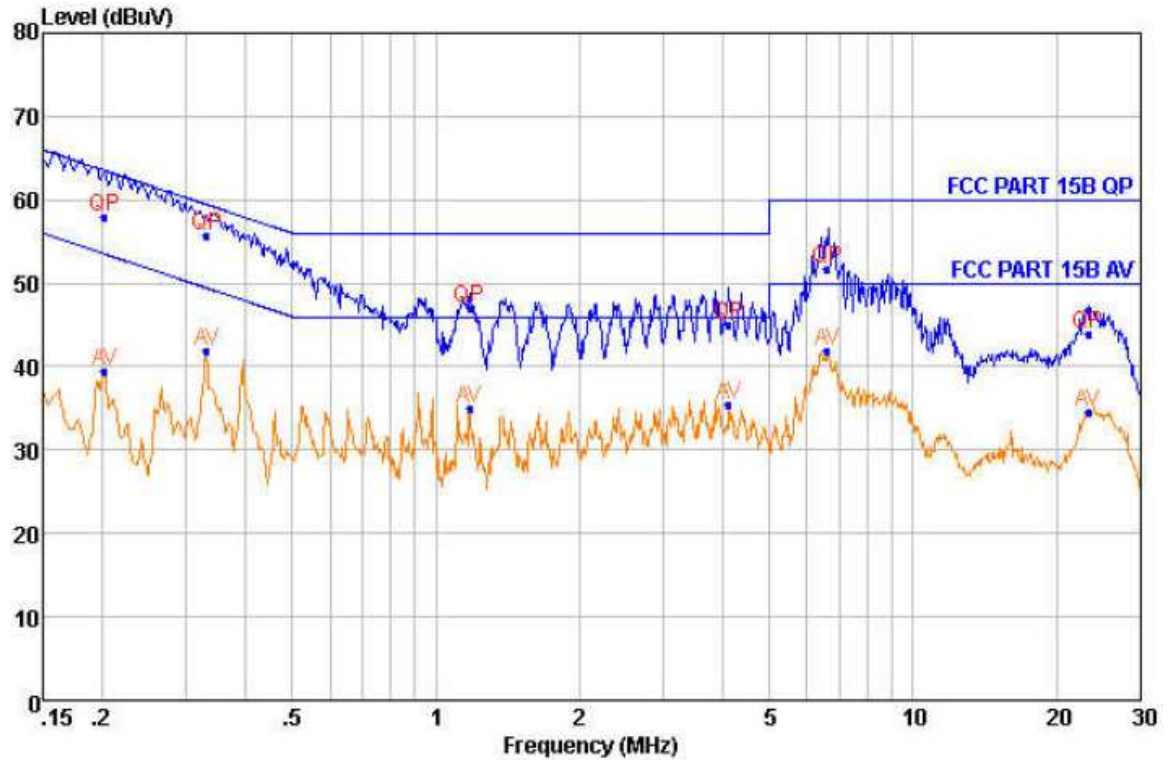
2.1.3 Measurement Data

Pre-scan was performed with peak detected on both live and neutral cable. Quasi-peak & average measurements were performed at the frequencies which maximum peak emission level was detected. Please see the attached Quasi-peak and Average test results.

Live Line:

Peak Scan:

Level (dBμV)



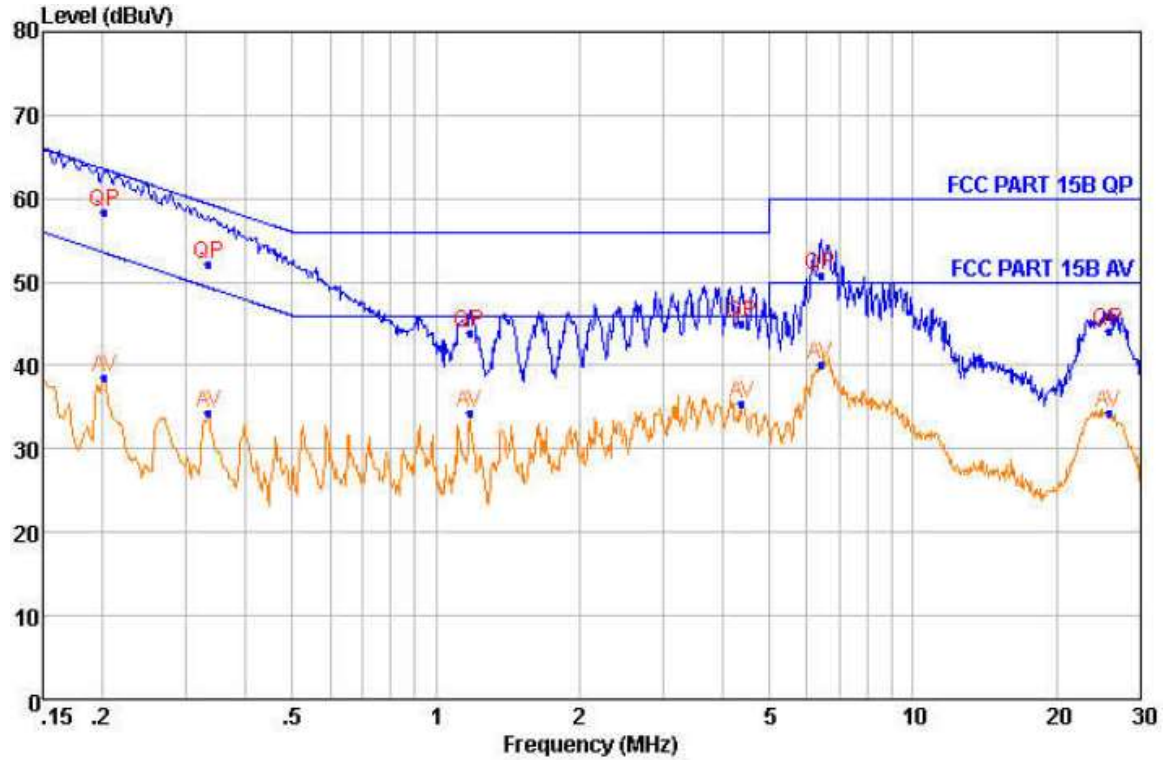
Quasi-peak and Average measurement

NO.	Freq MHz	Level dBμV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBμV	Over Limit dB
1	0.202	58.00	QP	9.68	0.22	63.54	-5.54
2	0.202	39.52	Average	9.68	0.22	53.54	-14.02
3	0.330	55.69	QP	9.66	0.24	59.44	-3.75
4	0.330	41.85	Average	9.66	0.24	49.44	-7.59
5	1.176	47.12	QP	9.67	0.32	56.00	-8.88
6	1.176	34.98	Average	9.67	0.32	46.00	-11.02
7	4.106	44.97	QP	9.61	0.39	56.00	-11.03
8	4.106	35.42	Average	9.61	0.39	46.00	-10.58
9	6.617	51.60	QP	9.68	0.41	60.00	-8.40
10	6.617	41.95	Average	9.68	0.41	50.00	-8.05
11	23.326	44.00	QP	9.67	0.49	60.00	-16.00
12	23.326	34.55	Average	9.67	0.49	50.00	-15.45

Neutral Line:

Peak Scan:

Level (dB μ V)



Quasi-peak and Average measurement

NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Over Limit dB
1	0.202	58.36	QP	9.63	0.22	63.54	-5.18
2	0.202	38.56	Average	9.63	0.22	53.54	-14.98
3	0.334	52.12	QP	9.65	0.25	59.35	-7.23
4	0.334	34.41	Average	9.65	0.25	49.35	-14.94
5	1.176	43.96	QP	9.63	0.32	56.00	-12.04
6	1.176	34.38	Average	9.63	0.32	46.00	-11.62
7	4.374	44.97	QP	9.62	0.39	56.00	-11.03
8	4.374	35.45	Average	9.62	0.39	46.00	-10.55
9	6.409	50.91	QP	9.62	0.41	60.00	-9.09
10	6.409	40.20	Average	9.62	0.41	50.00	-9.80
11	25.668	44.10	QP	9.63	0.49	60.00	-15.90
12	25.668	34.30	Average	9.63	0.49	50.00	-15.70

2.2 Radiated Emissions, 30MHz to 1GHz

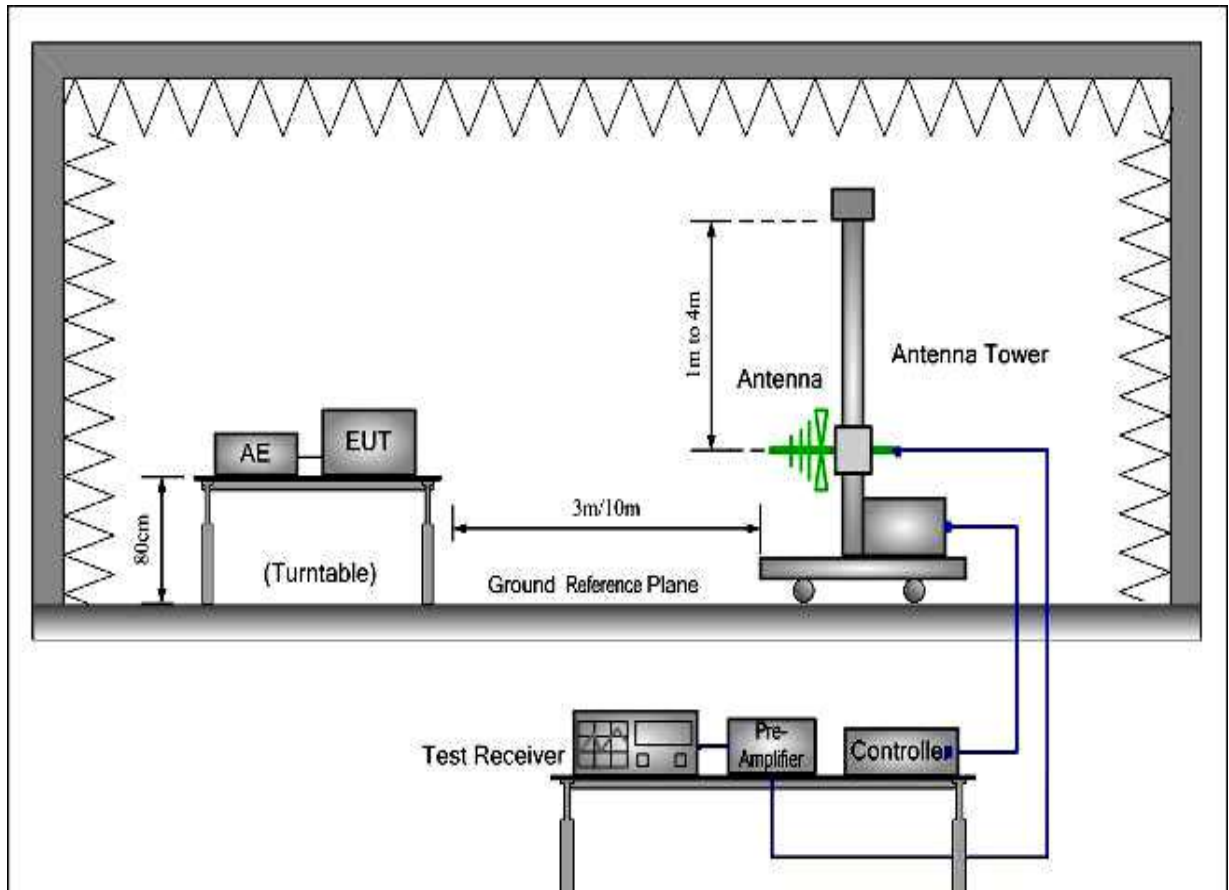
Test Requirement:	FCC part 15.109
Test Method:	ANSI C63.4: 2014
Test Voltage:	AC 120V, 60Hz
Test Date:	2020-12-29
Frequency Range:	30MHz to 1GHz
Measurement Distance	3m
Detector:	Peak for pre-scan Quasi-Peak if maximised peak within 6dB of limit (120 kHz resolution bandwidth)
Uncertainty:	$2U_c (V) = 3.35\text{dB}$
Class / Limit:	Class B

Frequency range MHz	Quasi-peak limits dB ($\mu\text{V/m}$)
30 to 88	40
88 to 216	43.5
216 to 960	46
960 to 1000	54
At transitional frequencies the lower limit applies	

2.2.1 E.U.T. Operation

Operating Environment:			
Temperature: 22.0 °C	Humidity: 48 % RH	Atmospheric Pressure: 101 kPa	
EUT Operation: LED Lighting			

2.2.2 Test Setup and Procedure



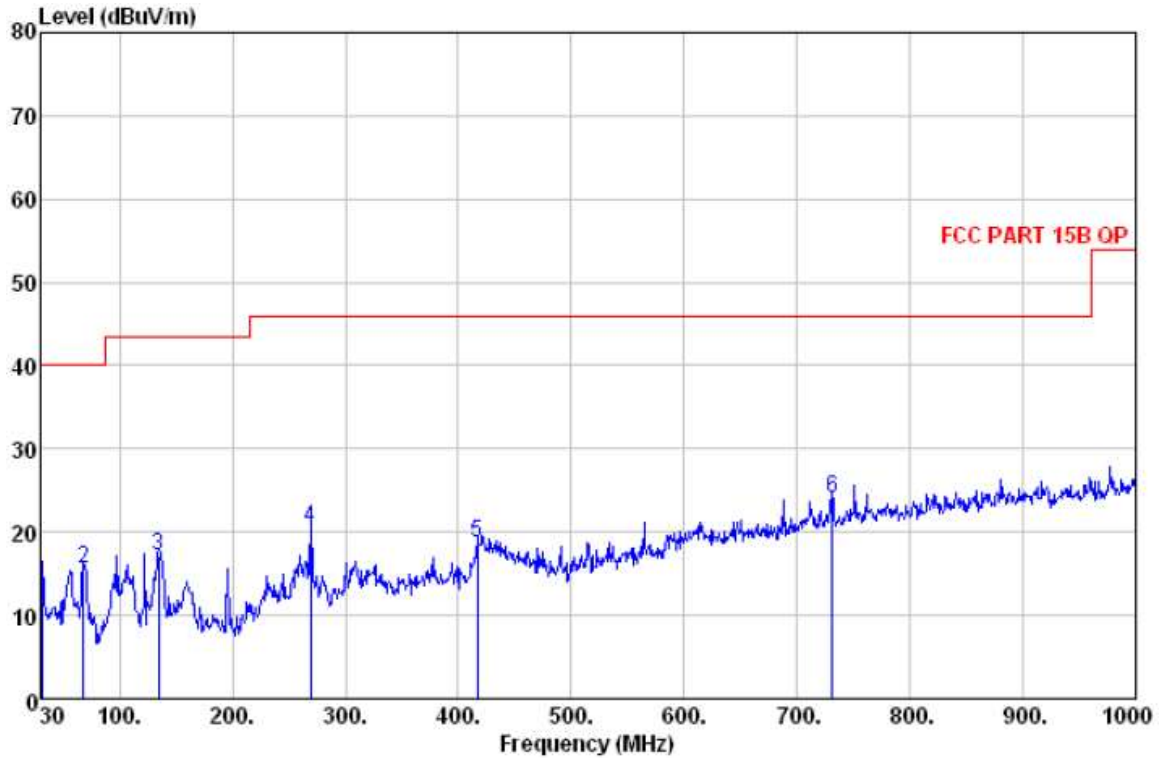
1. The radiated emissions test was conducted in a semi-anechoic chamber.
2. Biconical and log periodic antenna was used for the frequency range from 30MHz to 1GHz
3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
5. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360° , and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

2.2.3 Measurement Data

Horizontal:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

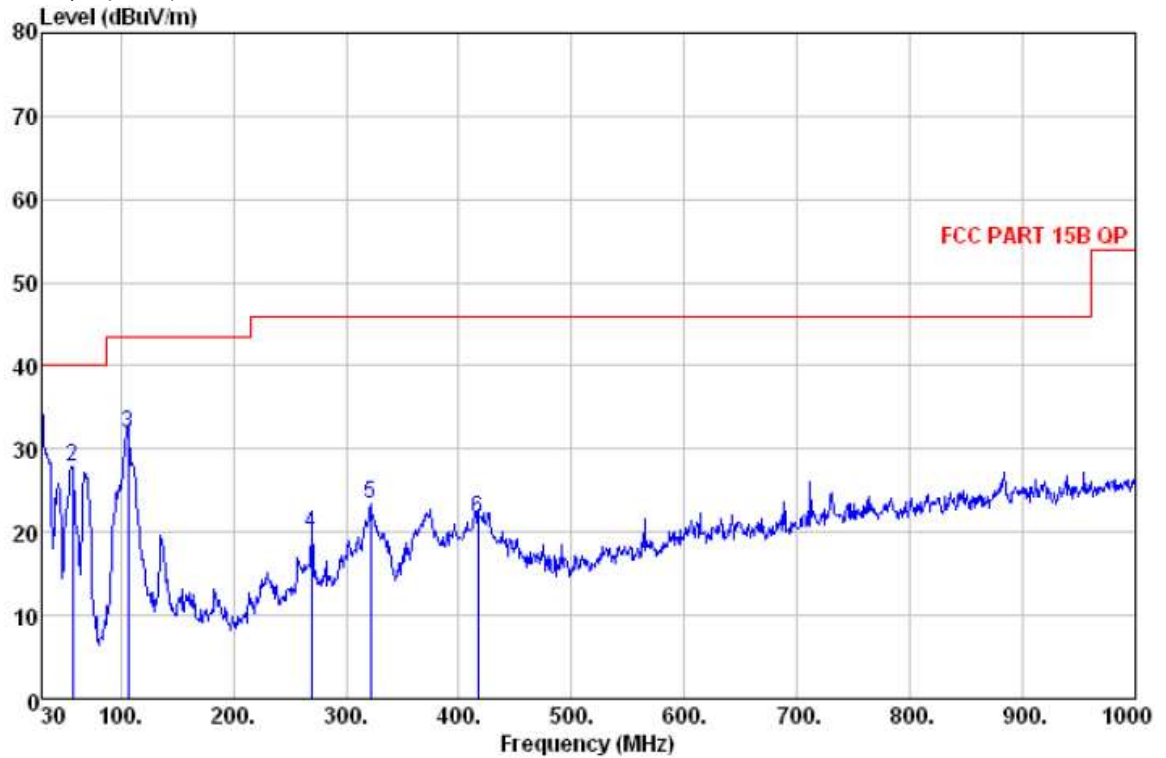
No.	Freq MHz	Read Level dBμV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBμV/m	Limit Line dBμV/m	Over Limit dB	Pol/ Phase	Remark
1	30.970	31.10	12.16	0.64	28.52	15.38	40.00	-24.62	HORIZONTAL	QP
2	67.830	31.82	11.04	0.96	28.28	15.54	40.00	-24.46	HORIZONTAL	QP
3	134.760	32.11	11.96	1.38	28.30	17.15	43.50	-26.35	HORIZONTAL	QP
4	269.590	33.64	12.13	2.01	27.22	20.56	46.00	-25.44	HORIZONTAL	QP
5	417.030	28.69	15.64	2.51	28.13	18.71	46.00	-27.29	HORIZONTAL	QP
6	731.310	26.93	21.24	3.40	27.57	24.00	46.00	-22.00	HORIZONTAL	QP

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Vertical:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

No.	Freq MHz	Read Level dBμV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBμV/m	Limit Line dBμV/m	Over Limit dB	Pol/ Phase	Remark
1	30.000	49.84	12.00	0.63	28.50	33.97	40.00	-6.03	VERTICAL	QP
2	57.160	43.15	12.21	0.87	28.31	27.92	40.00	-12.08	VERTICAL	QP
3	106.630	49.67	9.73	1.21	28.67	31.94	43.50	-11.56	VERTICAL	QP
4	269.590	32.94	12.13	2.01	27.22	19.86	46.00	-26.14	VERTICAL	QP
5	321.970	35.24	13.43	2.20	27.51	23.36	46.00	-22.64	VERTICAL	QP
6	417.030	31.69	15.64	2.51	28.13	21.71	46.00	-24.29	VERTICAL	QP

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Section 3 Photographs

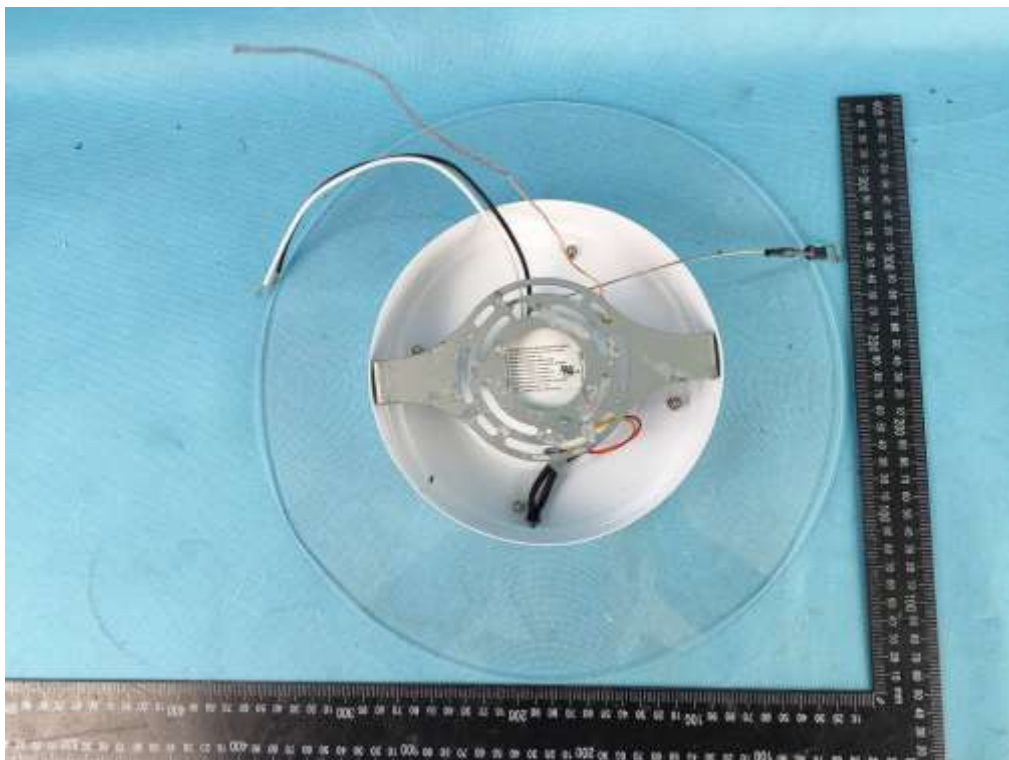
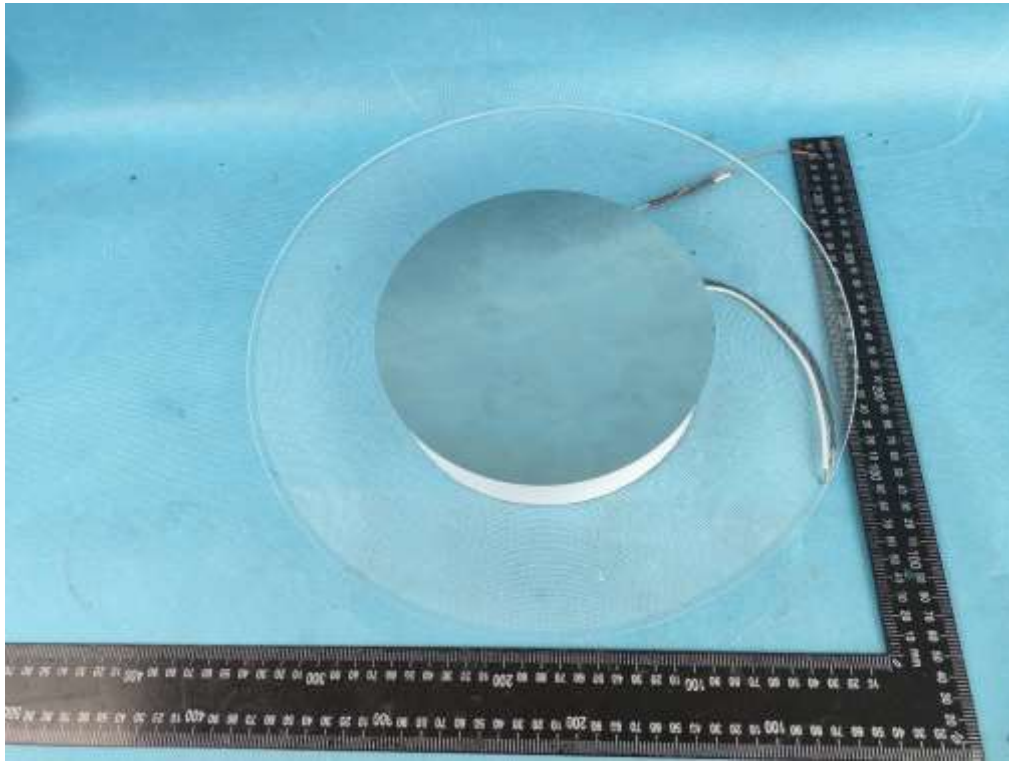
3.1 Radiated Emissions, 30MHz to 1GHz Test Setup



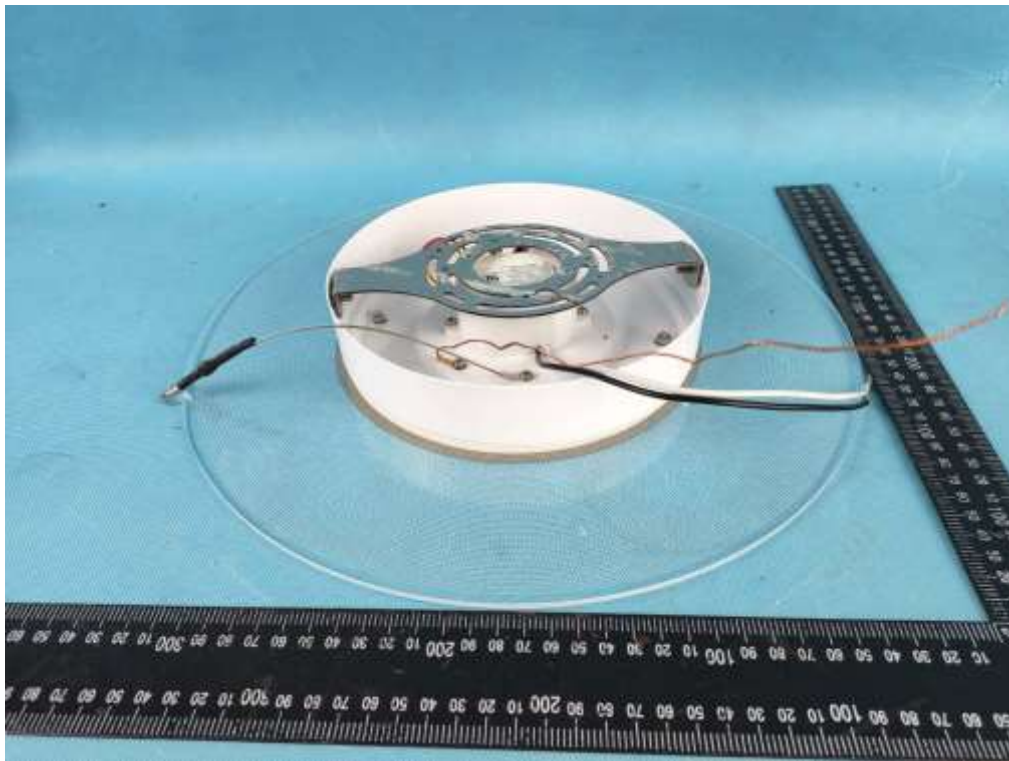
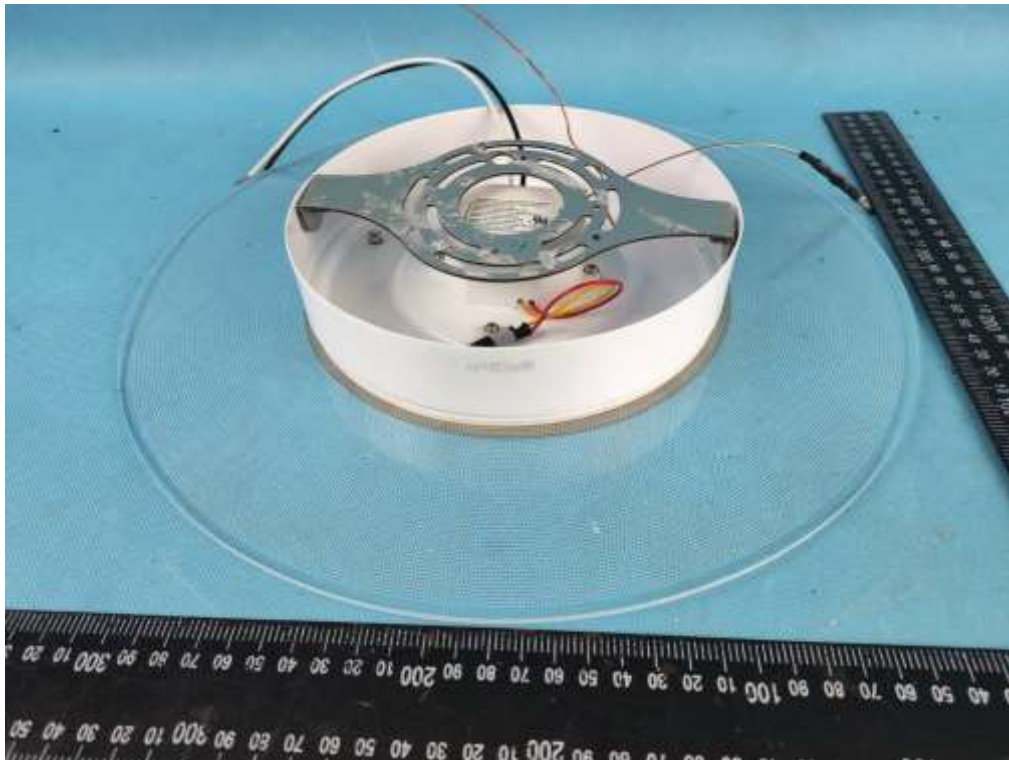
3.2 Conducted Emission Test Setup



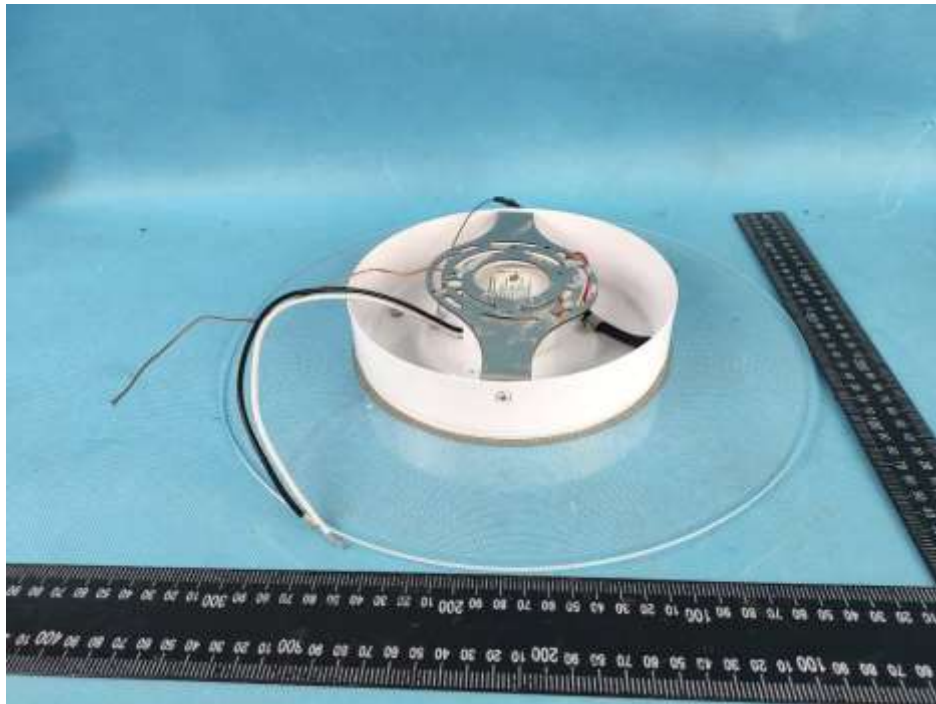
3.3 EUT Constructional Details

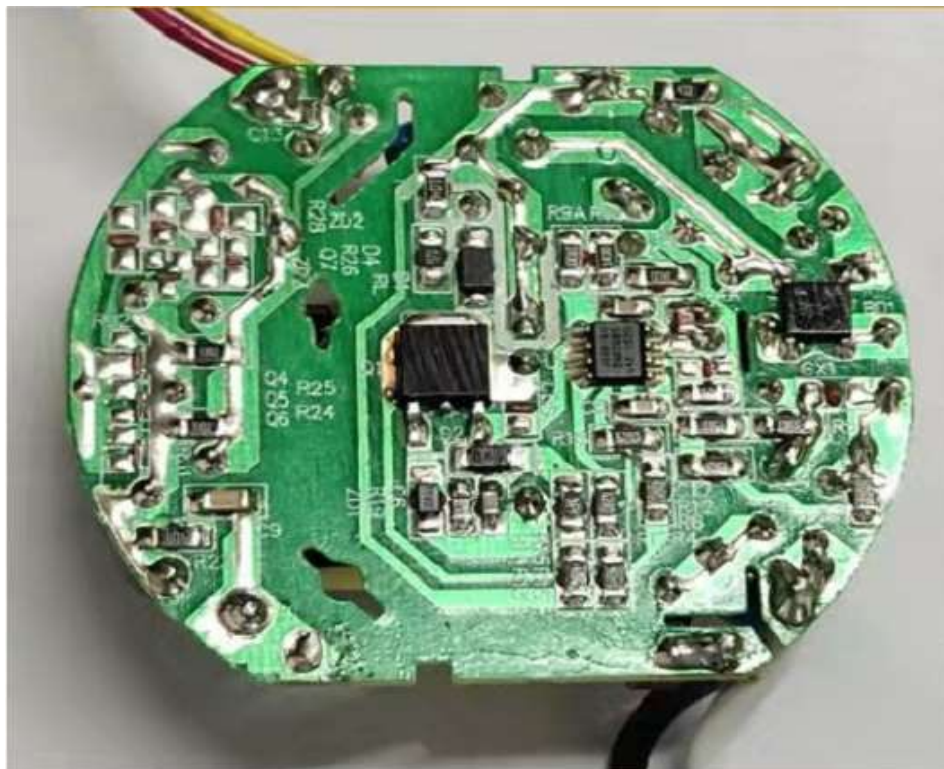
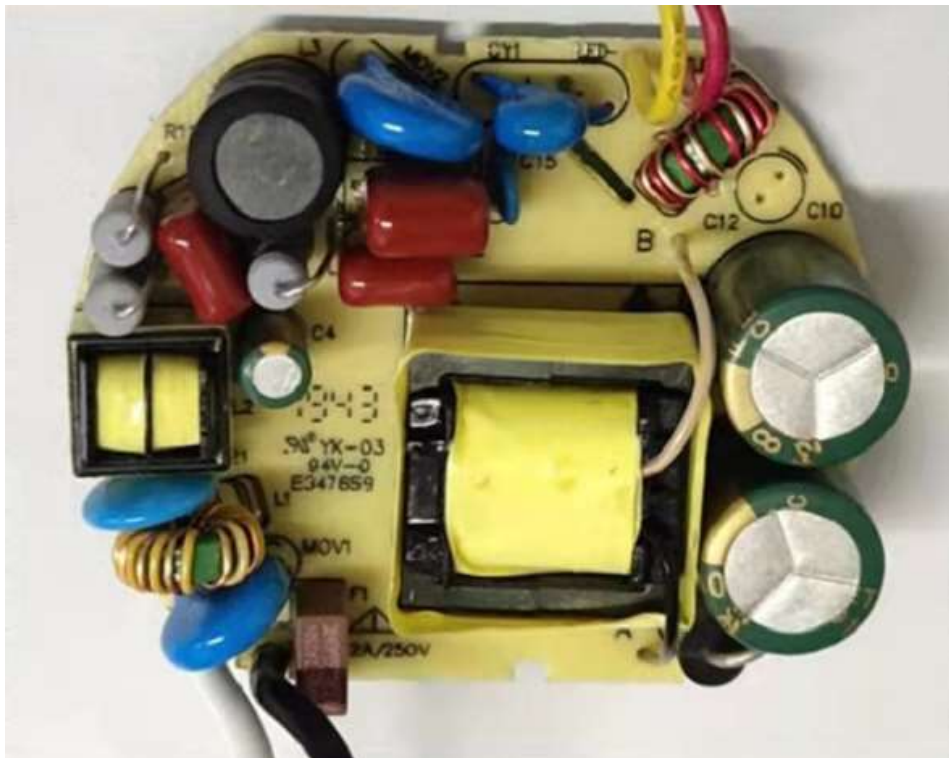


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END OF THE TEST REPORT

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