

Test Report Number:	LCZE19040026				
Applicant Name:	Energy Recovery Products(Zhu hai) Co.,Ltd				
Applicant Address:	No.8,Pingdong Road 2,Nanping Science Park, Zhuhai, Guangdong, China				
Test item:	LED Driver				
Model / Type Reference:	See section 4.2 ratings and system details				
Date of Issue:	2019-04-15				
Testing Laboratory:	LCTECH (Zhongshan) Testing Service Co.,Ltd 2/F.,Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China				
Test Specification:	FCC PART 15 Subpart B:2017				
Test Result:	Passed				
Compiled by:			Reviewed by:		
2019-04-15	Alan		2019-04-15	Shona Chen	
<i>Date</i>	<i>Name</i>	<i>Signature</i>	<i>Date</i>	<i>Name</i>	<i>Signature</i>
Remark:					
N/A					
<p>The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory. This report contains the result of the examination of the product sample submitted by the applicant. A general statement concerning the quality of the products from the series manufacture cannot be derived therefore.</p>					



TEST SUMMARY

- 5.1 MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE
RESULT: Pass
- 5.2 RADIATED EMISSION
RESULT: Pass

Contents

1	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
2	MEASUREMENT UNCERTAINTY	4
3	TEST SITES	4
3.1	TEST FACILITIES	4
3.2	TESTING	4
3.3	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	5
4	GENERAL PRODUCT INFORMATION	6
4.1	PRODUCT DESCRIPTION AND INTENDED USE	6
4.2	RATINGS AND SYSTEM DETAILS	6
4.3	INDEPENDENT OPERATION MODES	6
4.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	6
4.5	SUBMITTED DOCUMENTS.....	7
4.6	PRINCIPLE OF CONFIGURATION SELECTION	7
4.7	PHYSICAL CONFIGURATION FOR TESTING	7
4.8	TEST OPERATION AND TEST SOFTWARE	7
4.9	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	7
4.10	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	7
5	TEST RESULTS EMISSION	8
5.1	CONDUCTED EMISSION.....	8
5.2	RADIATED EMISSION.....	13
6	THE PHOTOS OF TEST SETTING.....	18
7	THE PHOTOS OF EUT	19

1 General Remarks

When applying the basic standards in this test report, please refer to the applied generic or product family standards for edition information:
For dated basic standards, only the edition cited applies. For undated basic standards, the latest edition (including any amendments) applies.

1.1 Complementary Materials

Constructional Data form

2 Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	3.26dB
Uncertainty for Radiation Emission test	3.14 dB (Polarize: V)
	3.16 dB (Polarize: H)

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

3 Test Sites

3.1 Test Facilities

A. LCTECH (Zhongshan) Testing Service Co.,Ltd

Add: 2/F., Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China

FCC Registration Number: 899311

Industry Canada site registration number: 12114A-1

3.2 Testing

Date of receipt of test item : 2019-04-12

Date (s) of performance of tests : 2018-04-12

LCTECH (Zhongshan) Testing Service Co.,Ltd
Add: 2/F., Technology and Enterprise Development Center,
Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China

Tel: +86-760-22833366

Fax: +86-760-22833399

E-mail: Service@lccert.com

<http://www.lccert.com>

3.3 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
Radiated Emission						<input checked="" type="checkbox"/>
1	EMI Test Receiver	R&S	ESCI 7	100965	2018-08-27	2019-08-27
2	Log-periodic Dipole Antenna	Schwarzbeck	VULB 9162	058	2019-01-10	2020-01-10
3	Pre-Amplifier	SCHWARZBECK	BBV9743	9743-143	2019-01-10	2020-01-10
4	3m Semi-anechoic	Zhongshuo Electronics	9mx6mx6m	N/A	2019-01-10	2020-01-10
Disturbance Voltage						<input checked="" type="checkbox"/>
5	EMI Test Receiver	Rohde&Schwarz	ESCI	100939	2019-01-10	2020-01-10
6	Artificial Mains Network	Rohde&Schwarz	ENV216	3560655012	2018-08-27	2019-08-27
7	Shield Room	ZhongYu Eletron	8X5X3.5	N/A	2018-08-27	2019-08-27
8	Conducted Emission Software	FALA	EZ-EMC	N/A	N/A	N/A

☐ : Not Used

☒ : Used

4 General Product Information

According to the declaration from the applicant, this report covers the model as below: See section 4.2 ratings and system details. These models have the same internal configuration and PCB layout, the difference of these models was power, Therefore only one model CNB50W-1200-42-DCL was fully test in the report.

For model series CNBPPA-XXXX -VV-YYYYY-ZZZZZ

1. "A" represents the input voltage, should be "W", representing input voltage 120 or 277 Vac;
2. "XXXX" represents output current, for example 1200 means 1200mA;
3. "VV" represents the output voltage, while "YYYYY" and "ZZZZZ" can be any alpha-numeric character or blank and are for marketing purpose only;
4. PP" represents output power, can be "10" to "50", in increments of 1 from 10W to 50 W;
5. For any specific models, the maximum output current rating= output power/output voltage.

4.1 Product Description and Intended Use

Refer to Constructional Data Form and user manual.

4.2 Ratings and System Details

No.	Model No.	Input Voltage (Vac)	Max Output Power	Max output current(m A)	Output Voltage Range (Vdc)
1	CNBPPA-XXXX -VV-YYYYY- ZZZZZ	120/277	50.4	1200	42

4.3 Independent Operation Modes

The basic operation modes are:

- A. Test in lighting mode

4.4 Noise Generating and Noise Suppressing Parts

Refer to the Constructional Data Form

4.5 Submitted Documents

Difference declaration
Rating Label
Circuit diagram
User manual
PCB layout

4.6 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 instructions for use.

4.7 Physical Configuration for Testing

Refer to the related chapter in this test report.

4.8 Test Operation and Test Software

Refer to test set up in chapter 5.
All testing were performed according to the procedures in ANSI C63.10: 2013.

4.9 Special Accessories and Auxiliary Equipment

None

4.10 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

5 Test Results EMISSION

5.1 Conducted Emission

Results:

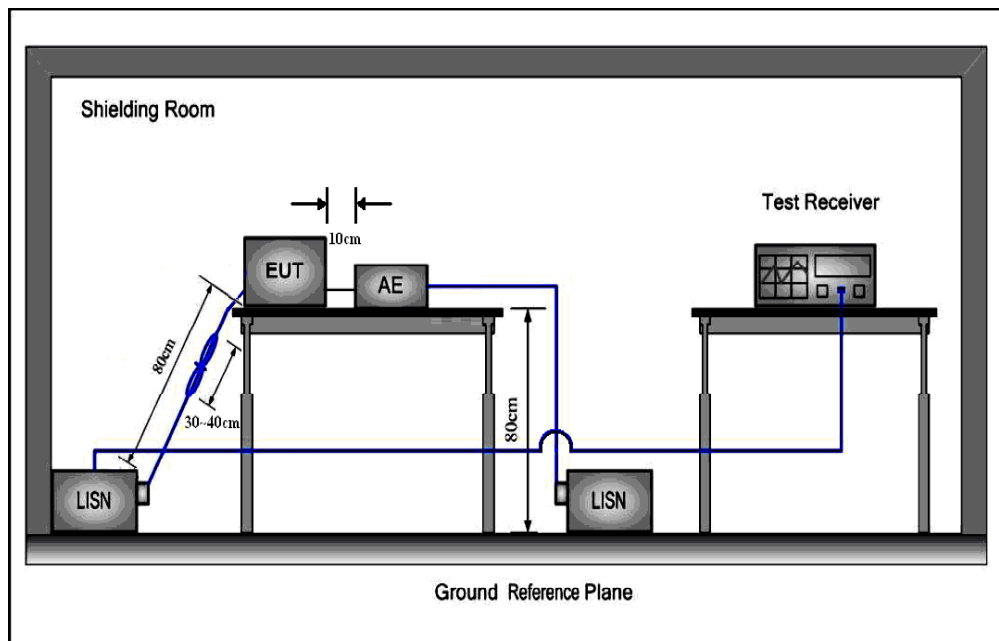
Pass

Date of testing : 12 April 2019
 Test procedure : ANSI C63.4:2014
 Frequency range : 0.15- 30MHz
 Kind of test site : shielded room
 Limits : FCC PART 15 Subpart B: 2017

Test setup

Input Voltage : 120&277Vac, 60Hz
 Operation Mode : Test in lighting mode
 Artificial Hand : Not applied
 Earthing : Applied
 Temperature : 24°C
 Humidity : 60%
 Air pressure : 101KPA

Test Connection Diagram

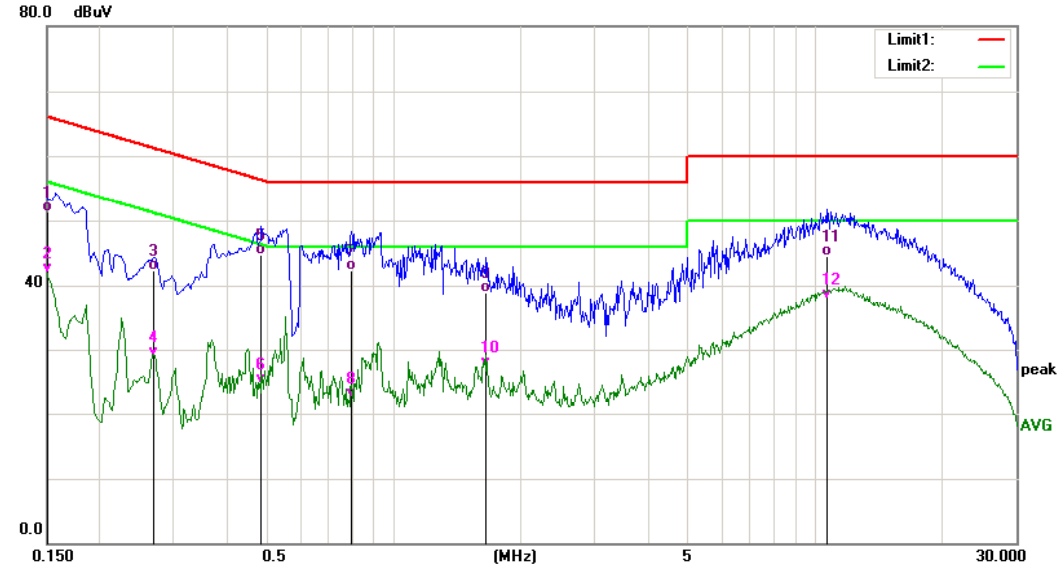


Test data

Test voltage: 120Vac, 60Hz

Peak and Average Scan:

Live:

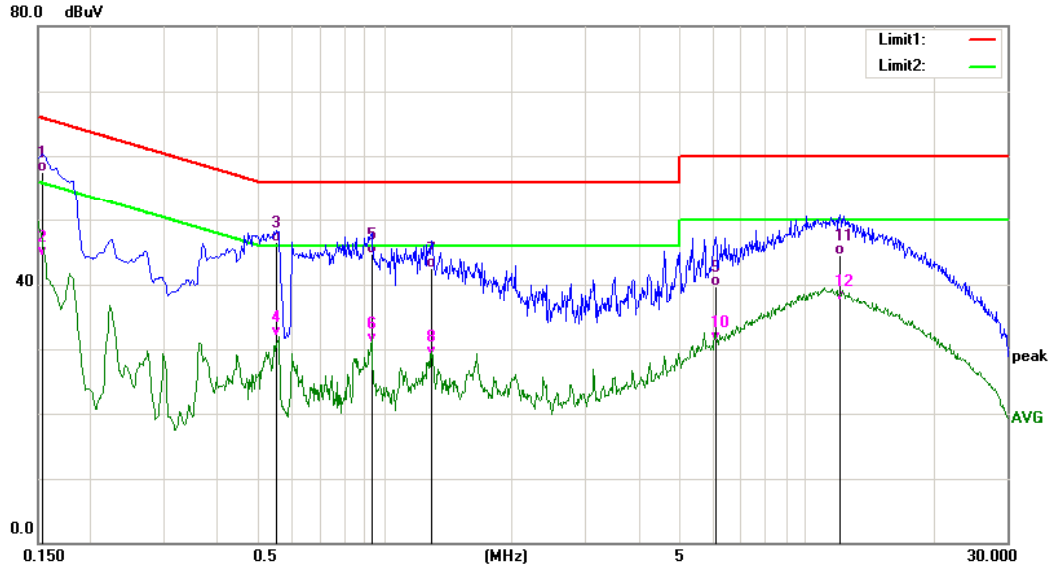


Quasi-peak and Average measurement:

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	41.66	9.66	51.32	66.00	-14.68	QP
2	0.1500	32.16	9.66	41.82	56.00	-14.18	AVG
3	0.2700	32.53	9.68	42.21	61.12	-18.91	QP
4	0.2700	19.26	9.68	28.94	51.12	-22.18	AVG
5	0.4860	35.01	9.70	44.71	56.24	-11.53	QP
6	0.4860	15.07	9.70	24.77	46.24	-21.47	AVG
7	0.7940	32.48	9.75	42.23	56.00	-13.77	QP
8	0.7940	12.82	9.75	22.57	46.00	-23.43	AVG
9	1.6540	29.12	9.84	38.96	56.00	-17.04	QP
10	1.6540	17.51	9.84	27.35	46.00	-18.65	AVG
11	10.6220	34.09	10.32	44.41	60.00	-15.59	QP
12	10.6220	27.53	10.32	37.85	50.00	-12.15	AVG

Peak and Average Scan:

Neutral:



Quasi-peak and Average measurement:

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1540	47.76	9.66	57.42	65.78	-8.36	QP
2	0.1540	34.58	9.66	44.24	55.78	-11.54	AVG
3	0.5540	36.85	9.71	46.56	56.00	-9.44	QP
4	0.5540	22.15	9.71	31.86	46.00	-14.14	AVG
5	0.9300	34.84	9.77	44.61	56.00	-11.39	QP
6	0.9300	21.23	9.77	31.00	46.00	-15.00	AVG
7	1.2940	32.65	9.81	42.46	56.00	-13.54	QP
8	1.2940	19.00	9.81	28.81	46.00	-17.19	AVG
9	6.0980	29.53	10.17	39.70	60.00	-20.30	QP
10	6.0980	20.88	10.17	31.05	50.00	-18.95	AVG
11	12.0380	34.13	10.33	44.46	60.00	-15.54	QP
12	12.0380	27.14	10.33	37.47	50.00	-12.53	AVG

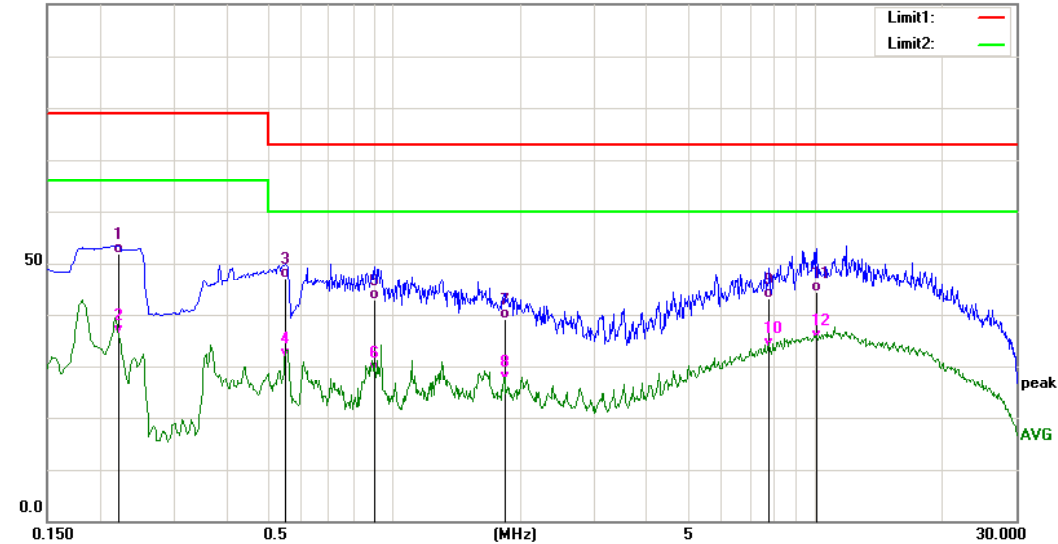
Test data

Test voltage: 277Vac, 60Hz

Peak and Average Scan:

Live:

100.0 dBuV



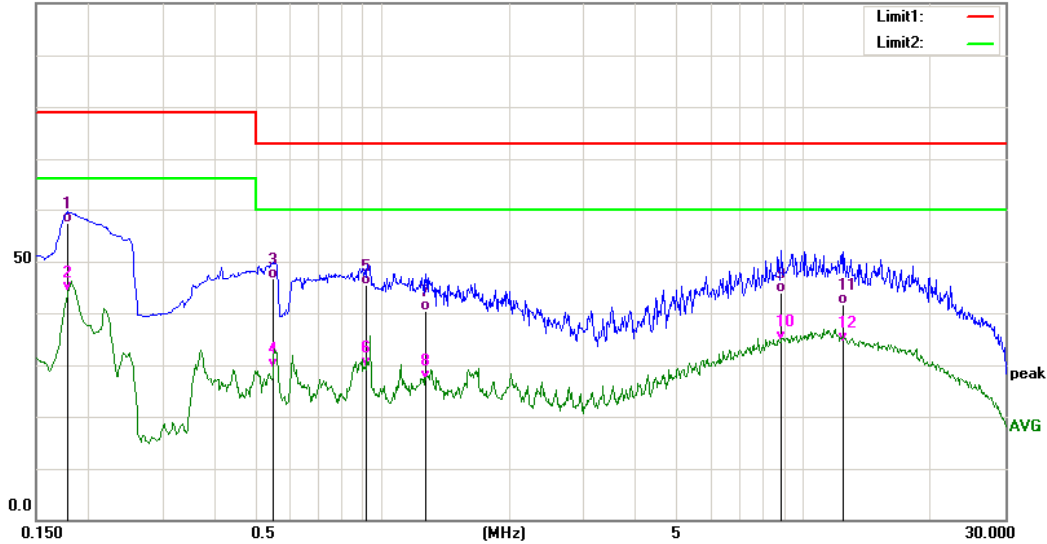
Quasi-peak and Average measurement:

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2220	42.21	9.69	51.90	79.00	-27.10	QP
2	0.2220	26.34	9.69	36.03	66.00	-29.97	AVG
3	0.5540	37.44	9.71	47.15	73.00	-25.85	QP
4	0.5540	22.03	9.71	31.74	60.00	-28.26	AVG
5	0.9020	33.15	9.76	42.91	73.00	-30.09	QP
6	0.9020	19.23	9.76	28.99	60.00	-31.01	AVG
7	1.8340	29.30	9.86	39.16	73.00	-33.84	QP
8	1.8340	17.16	9.86	27.02	60.00	-32.98	AVG
9	7.7860	32.79	10.24	43.03	73.00	-29.97	QP
10	7.7860	23.42	10.24	33.66	60.00	-26.34	AVG
11	10.0820	34.17	10.32	44.49	73.00	-28.51	QP
12	10.0820	24.89	10.32	35.21	60.00	-24.79	AVG

Peak and Average Scan:

Neutral:

100.0 dBuV



Quasi-peak and Average measurement:

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1806	47.79	9.68	57.47	79.00	-21.53	QP
2	0.1806	34.44	9.68	44.12	66.00	-21.88	AVG
3	0.5500	36.84	9.71	46.55	73.00	-26.45	QP
4	0.5500	19.71	9.71	29.42	60.00	-30.58	AVG
5	0.9220	35.51	9.76	45.27	73.00	-27.73	QP
6	0.9220	19.84	9.76	29.60	60.00	-30.40	AVG
7	1.2660	30.69	9.81	40.50	73.00	-32.50	QP
8	1.2660	17.30	9.81	27.11	60.00	-32.89	AVG
9	8.8580	33.65	10.28	43.93	73.00	-29.07	QP
10	8.8580	24.40	10.28	34.68	60.00	-25.32	AVG
11	12.4420	31.35	10.33	41.68	73.00	-31.32	QP
12	12.4420	24.07	10.33	34.40	60.00	-25.60	AVG

5.2 Radiated Emission

Results:

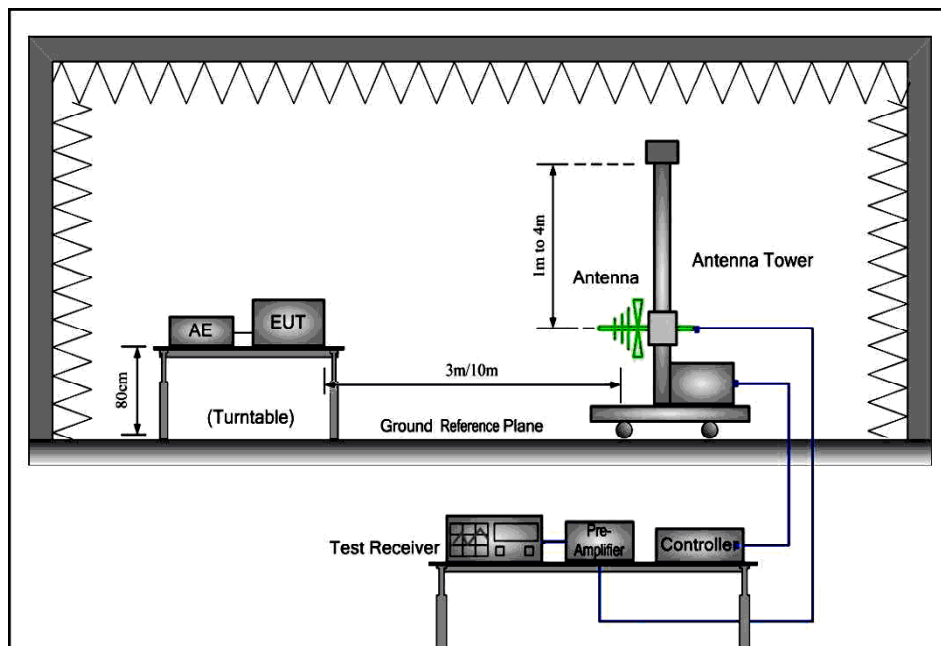
Pass

Date of testing : 12 April 2019
 Test procedure : ANSI C63.4:2014
 Frequency range : 30- 1000MHz
 Kind of test site : Semi-Anechoic chamber
 Limits : FCC PART 15 Subpart B: 2017

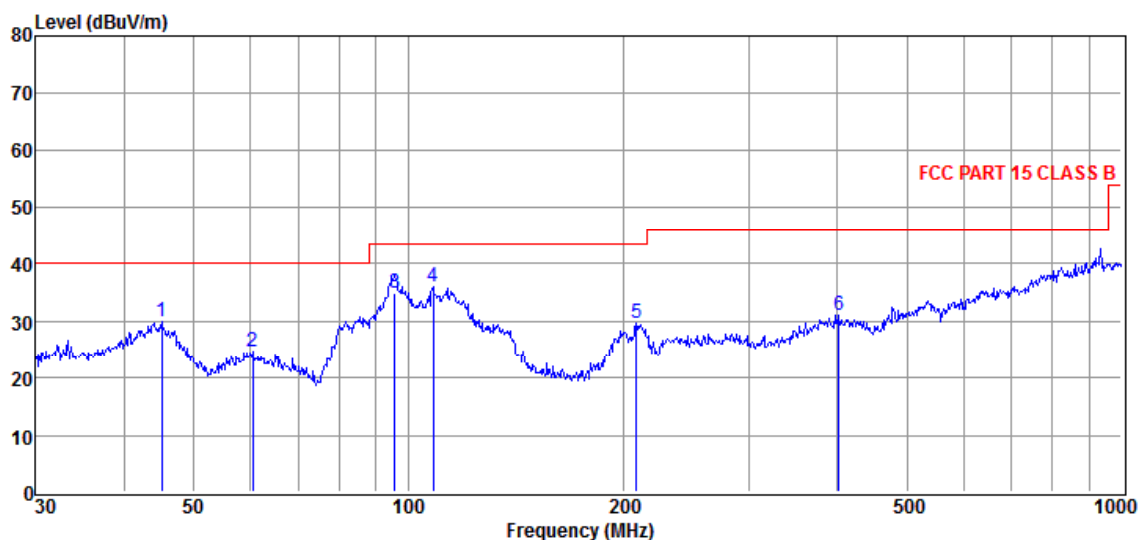
Test setup:

Input Voltage : 120&277Vac, 60Hz
 Operation Mode : Test in lighting mode
 Artificial Hand : Not applied
 Earthing : Applied
 Temperature : 25°C
 Humidity : 59%
 Air pressure : 101KPA

Test Connection Diagram



Test Data:
Test voltage: 120Vac, 60Hz
Peak Scan:
Horizontal



Quasi-peak measurement:

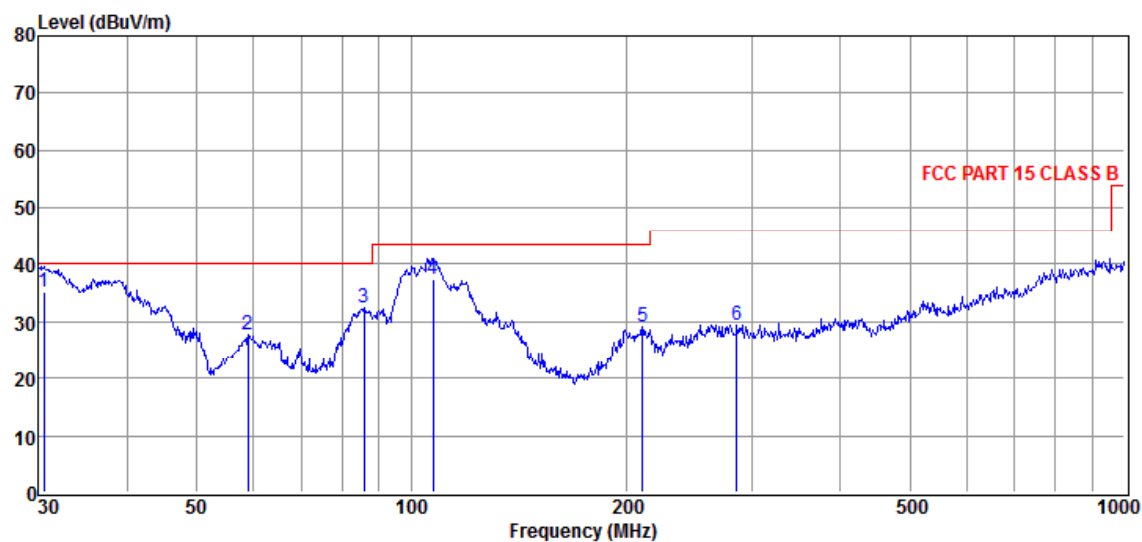
Item (Mark)	Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	45.06	13.02	16.27	0.00	0.56	29.85	40.00	-10.15	Peak	HORIZONTAL
2	60.49	13.14	11.03	0.00	0.65	24.82	40.00	-15.18	Peak	HORIZONTAL
3	95.76	23.40	10.74	0.00	0.83	34.97	43.50	-8.53	QP	HORIZONTAL
4	108.27	23.12	11.87	0.00	0.89	35.88	43.50	-7.62	Peak	HORIZONTAL
5	208.58	18.56	9.66	0.00	1.34	29.56	43.50	-13.94	Peak	HORIZONTAL
6	401.84	13.25	15.76	0.00	2.15	31.16	46.00	-14.84	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss

2. If Peak Result comply with QP limit, QP Result is deemed to comply with QP limit

3. Test setup: RBW: 120kHz, VBW: 300kHz, Sweep time: auto

Peak Scan:
Vertical:



Quasi-peak measurement:

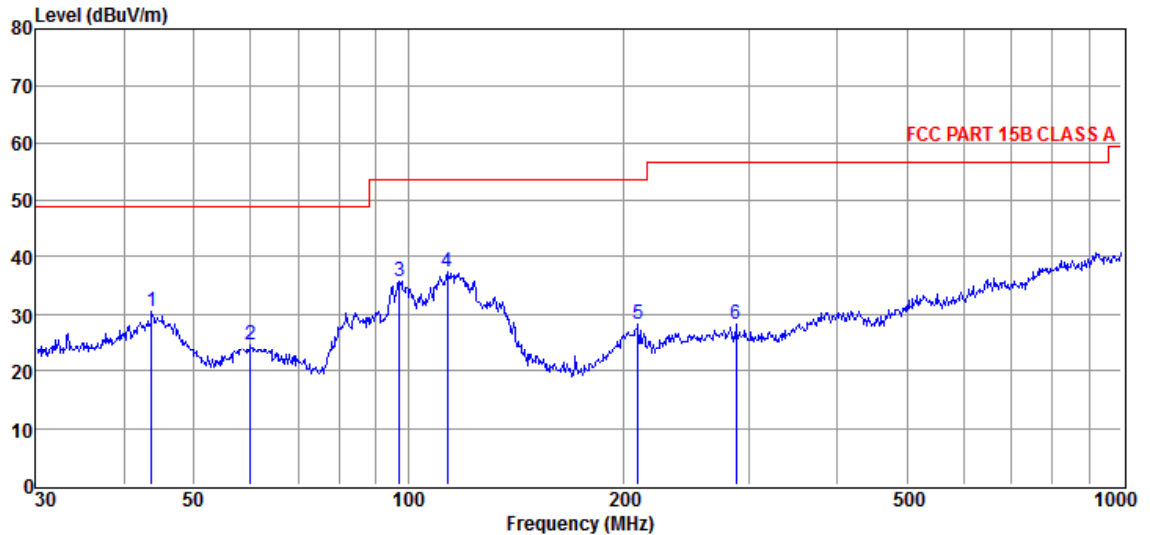
Item (Mark)	Freq (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	30.53	24.51	10.35	0.00	0.45	35.31	40.00	-4.69	QP	VERTICAL
2	59.03	16.14	10.86	0.00	0.64	27.64	40.00	-12.36	Peak	VERTICAL
3	85.90	23.33	8.21	0.00	0.78	32.32	40.00	-7.68	Peak	VERTICAL
4	107.13	24.40	11.98	0.00	0.89	37.27	43.50	-6.23	QP	VERTICAL
5	210.79	18.19	9.62	0.00	1.35	29.16	43.50	-14.34	Peak	VERTICAL
6	285.98	15.32	12.54	0.00	1.66	29.52	46.00	-16.48	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss

2. If Peak Result comply with QP limit, QP Result is deemed to comply with QP limit

3. Test setup: RBW: 120kHz, VBW: 300kHz, Sweep time: auto

Test Data:
Test voltage: 277Vac, 60Hz
Peak Scan:
Horizontal

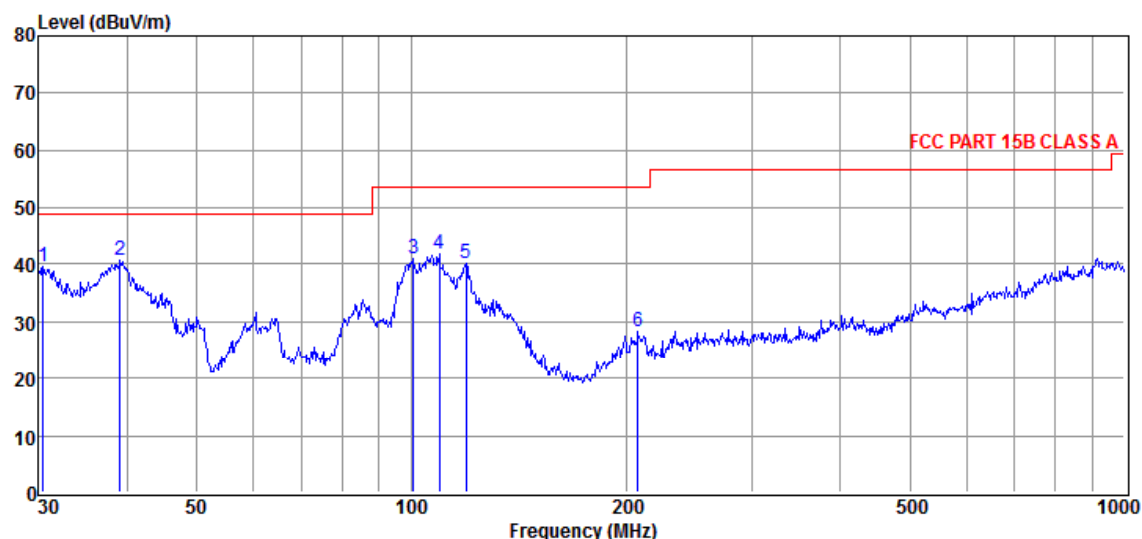


Quasi-peak measurement:

Item (Mark)	Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	43.66	13.32	16.55	0.00	0.55	30.42	49.00	-18.58	Peak	HORIZONTAL
2	60.07	12.84	11.18	0.00	0.65	24.67	49.00	-24.33	Peak	HORIZONTAL
3	97.12	23.88	10.99	0.00	0.84	35.71	53.50	-17.79	Peak	HORIZONTAL
4	113.32	25.40	10.96	0.00	0.92	37.28	53.50	-16.22	Peak	HORIZONTAL
5	210.05	17.44	9.60	0.00	1.35	28.39	53.50	-25.11	Peak	HORIZONTAL
6	287.99	14.10	12.62	0.00	1.67	28.39	56.50	-28.11	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss
2. If Peak Result comply with QP limit, QP Result is deemed to comply with QP limit
3. Test setup: RBW: 120kHz, VBW: 300kHz, Sweep time: auto

Peak Scan:
Vertical:



Quasi-peak measurement:

Item (Mark)	Freq (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Detector	Polarization
1	30.42	28.81	10.34	0.00	0.45	39.60	49.00	-9.40	Peak	VERTICAL
2	39.02	27.07	12.98	0.00	0.51	40.56	49.00	-8.44	Peak	VERTICAL
3	100.58	28.66	11.58	0.00	0.85	41.09	53.50	-12.41	Peak	VERTICAL
4	109.41	29.19	11.76	0.00	0.90	41.85	53.50	-11.65	Peak	VERTICAL
5	119.44	29.60	9.62	0.00	0.95	40.17	53.50	-13.33	Peak	VERTICAL
6	207.85	17.16	9.69	0.00	1.34	28.19	53.50	-25.31	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss

2. If Peak Result comply with QP limit, QP Result is deemed to comply with QP limit

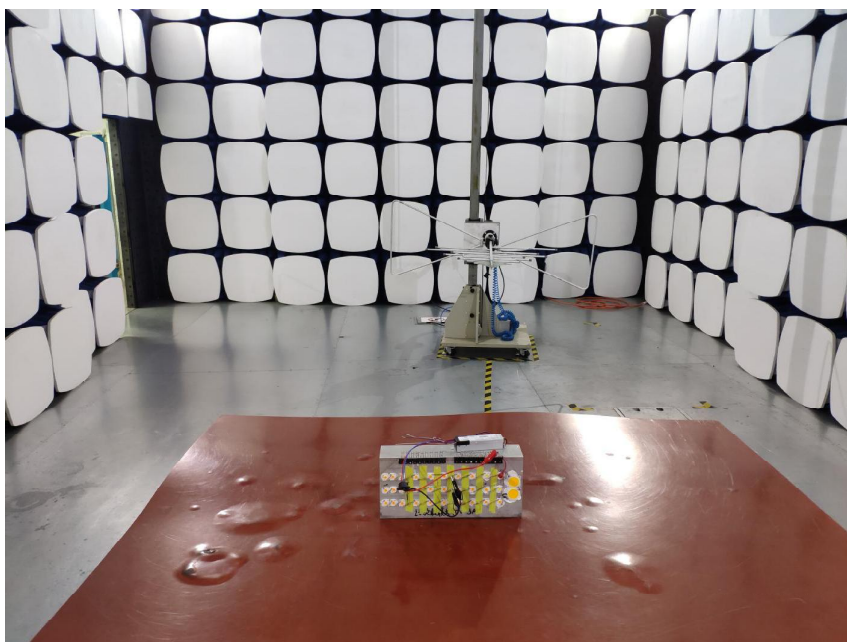
3. Test setup: RBW: 120kHz, VBW: 300kHz, Sweep time: auto

6 The photos of test setting

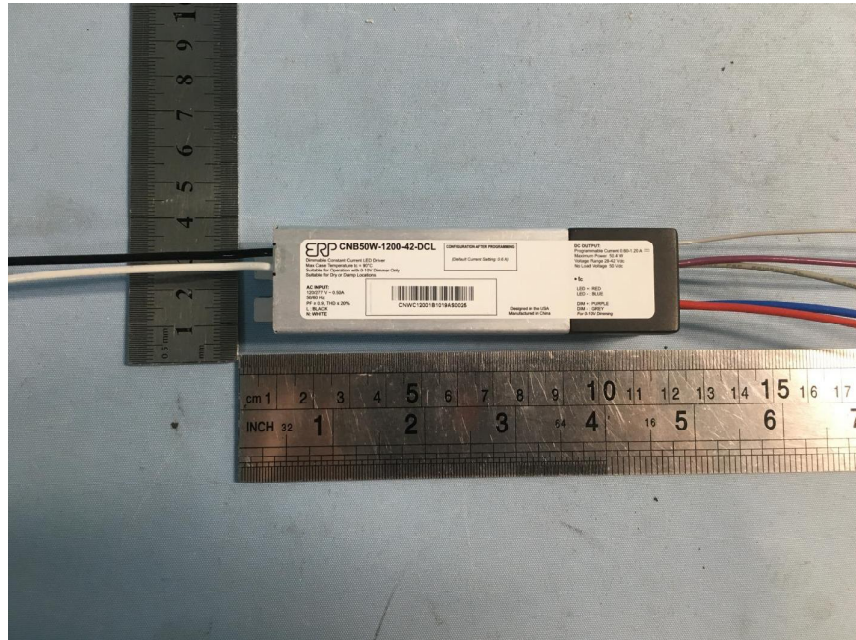
Terminal Continuous Disturbance Voltage:



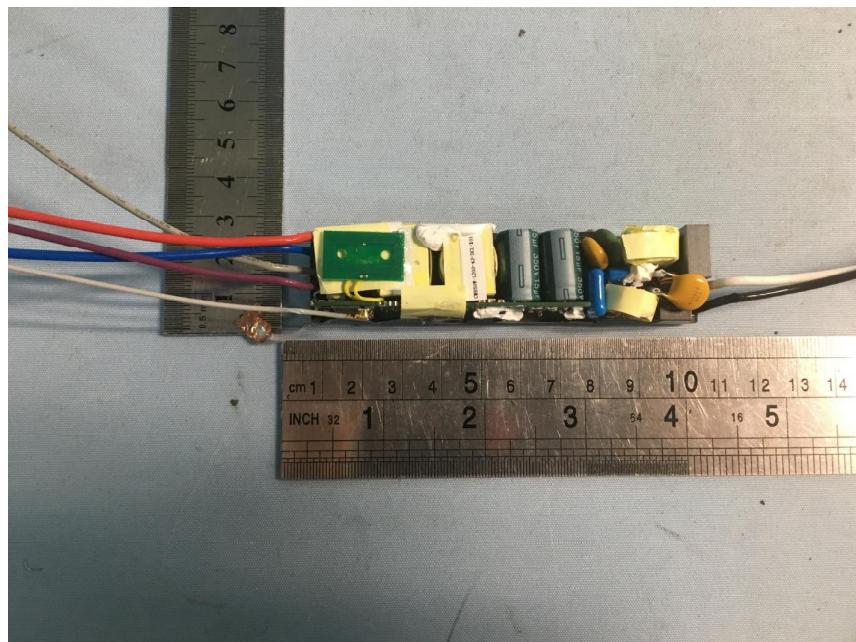
Radiated Emission:



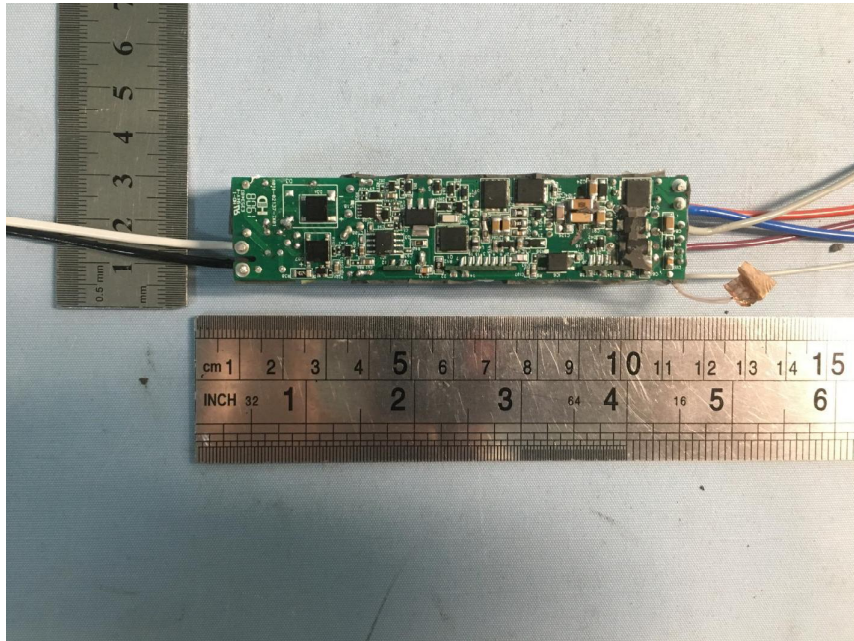
7 The photos of EUT



Picture 1



Picture 2



Picture 3

-----End of test report-----