FCC Part 15, Subpart B, Class B

TEST REPORT

ZHONGSHAN C5 LIGHTING CO. LTD

Soho 5-Light Pendant

Test Model: PDT5-SO

Additional Models No.: PDT5-SO-XXXXXX ("XXXXXX" can be A to Z and/ or 0 to 9 and/or blank (commercial code))

Prepared for	:	ZHONGSHAN C5 LIGHTING CO. LTD
Address	:	1# Henglong Road, Tongyi Industrial Area, Cao San, Guzhen, Zhongshan, Guangdong, China.

Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Shajing Street, Baoan District, Shenzhen, China
Tel	:	(+86)755-82591330
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Web	:	www.LCS-cert.com
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Date of receipt of test sample	:	November 09, 2020
Number of tested samples	:	1
Sample number		201102176A
Serial number	:	Prototype
Date of Test	:	November 09, 2020 ~ November 13, 2020
Date of Report	:	November 17, 2020

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FCC TEST REPORT
FCC Part 15, Subpart B, Class B

Report Reference No.	**: LCS201102176AE**
Date Of Issue	: November 17, 2020
Testing Laboratory Name	**: Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address	: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Shajing Street, Baoan District, Shenzhen, China
Testing Location/ Procedure...	: Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name.....	**: ZHONGSHAN C5 LIGHTING CO. LTD**
Address	: 1# Henglong Road, Tongyi Industrial Area, Cao San, Guzhen, Zhongshan, Guangdong, China.
Test Specification	
Standard.....	: FCC Part 15, Subpart B, Class B, ANSI C63.4 -2014
Test Report Form No.....	: LCSEMC-1.0
TRF Originator.....	: Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF.....	: Dated 2011-03

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Test Item Description.....	**: Soho 5-Light Pendant**
Trade Mark	: Artika
Test Model.....	: PDT5-SO
Ratings	: Input: 100-135V AC 50-60Hz
Result	**: Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Jin Wang	Linda He	Gavin Liang
Jin Wang/ Administrator	Linda He/ Technique principal	Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS201102176AE	November 17, 2020 Date of issue

Test Model	: PDT5-SO
EUT.....	: Soho 5-Light Pendant
Applicant.....	**: ZHONGSHAN C5 LIGHTING CO. LTD**
Address.....	: 1# Henglong Road, Tongyi Industrial Area, Cao San, Guzhen, Zhongshan, Guangdong, China.
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: ZHONGSHAN C5 LIGHTING CO. LTD**
Address.....	: 1# Henglong Road, Tongyi Industrial Area, Cao San, Guzhen, Zhongshan, Guangdong, China.
Telephone.....	: /
Fax.....	: /
Factory.....	**: ZHONGSHAN C5 LIGHTING CO. LTD**
Address.....	: 1# Henglong Road, Tongyi Industrial Area, Cao San, Guzhen, Zhongshan, Guangdong, China.
Telephone.....	: /
Fax.....	: /

Test Result according to the standards on page 6: **Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	November 17, 2020	Initial Issue	Gavin Liang

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TABLE OF CONTENTS

Test Report Description Page

1. SUMMARY OF STANDARDS AND RESULTS 6
1.1. Description of Standards and Results 6
2. GENERAL INFORMATION 7
2.1. Description of Device (EUT) 7
2.2. Support equipment List 8
2.3. Description of Test Facility 8
2.4. Statement of the Measurement Uncertainty 8
2.5. Measurement Uncertainty 9
3. TEST RESULTS 10
3.1. POWER LINE CONDUCTED EMISSION MEASUREMENT 10
3.2. Radiated emission Measurement 14
4. PHOTOGRAPH 18
5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT 19

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION				
Description of Test Item	Standard	**Test sample**	Limits	Results
Conducted disturbance at mains terminals	FCC Part 15, Subpart B, Class B, ANSI C63.4 -2014	201102176A	Class B	PASS
Radiated disturbance	FCC Part 15, Subpart B, Class B, ANSI C63.4 -2014	201102176A	Class B	PASS
N/A is an abbreviation for Not Applicable.				

Test mode:		
Mode 1	Normal Operation	Record
***Note: All test modes were tested, but we only recorded the worst case in this report.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: Soho 5-Light Pendant
Trade Mark	: Artika
Test Model	: PDT5-SO
Additional Models No.	: PDT5-SO-XXXXXX ("XXXXXX" can be A to Z and/ or 0 to 9 and/or blank (commercial code))
Models Declaration	: PCB board, structure and internal of these models are the same, So no additional models were tested.
Power Supply	: Input: 100-135V AC 50-60Hz
Highest internal frequency	: Fx ≤ 108 MHz

Highest internal frequency (Fx)	Highest measured frequency
Fx ≤ 108 MHz	1 GHz
108 MHz < Fx ≤ 500 MHz	2 GHz
500 MHz < Fx ≤ 1 GHz	5 GHz
Fx > 1 GHz	5 × Fx up to a maximum of 6 GHz
NOTE 1 For FM and TV broadcast receivers, Fx is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies. Where Fx is unknown, the radiated emission measurements shall be performed up to 6 GHz.	

2.2. Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
--	--	--	--	--

2.3. Description of Test Facility

Site Description

EMC Lab. : NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

2.4. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

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2.5. Measurement Uncertainty

Test	Parameters	Expanded Uncertainty (Ulab)	Expanded Uncertainty (Ucispr)
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 2.63 dB ± 2.35 dB	± 3.8 dB ± 3.4 dB
Power Disturbance	Level accuracy (30MHz to 300MHz)	± 2.90dB	± 4.5 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.60 dB	± 3.3 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.68 dB	N/A
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	± 5.3 dB
Radiated Emission	Level accuracy (above 1000MHz)	± 3.90 dB	± 5.2 dB
Mains Harmonic	Voltage	± 0.510%	N/A
Voltage Fluctuations & Flicker	Voltage	± 0.510%	N/A
EMF		± 21.59%	N/A

（1）Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

（2）The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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3. TEST RESULTS

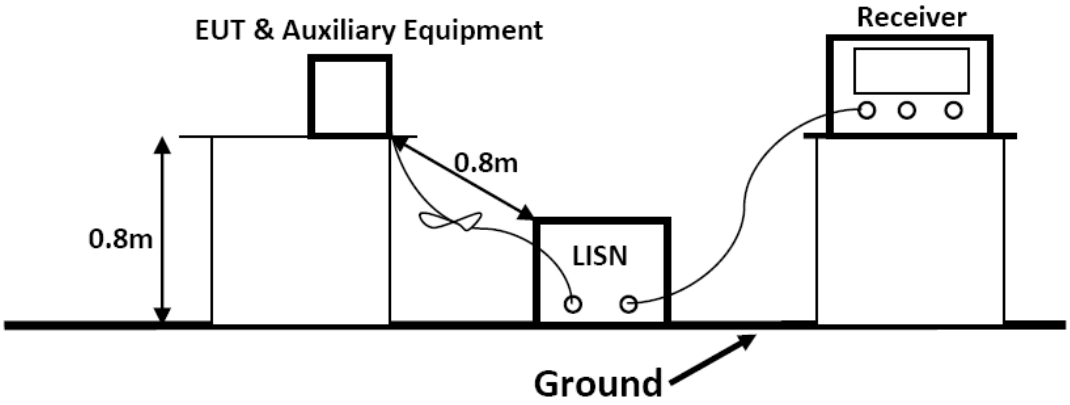
3.1. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	EZ	EZ-EMC	/	N/A	N/A
2	EMI Test Receiver	R&S	ESPI	101840	2020-06-22	2021-06-21
3	Artificial Mains	R&S	ENV216	101288	2020-06-22	2021-06-21
4	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2020-06-22	2021-06-21

3.1.2.Block Diagram of Test Setup



3.1.3.Test Standard

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)			Limit (dBμV)	
			Quasi-peak Level	Average Level
0.15	~	0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50	~	5.00	56.0	46.0
5.00	~	30.00	60.0	50.0
NOTE1-The lower limit shall apply at the transition frequencies. NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.				

3.1.4.EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.1.5.Operating Condition of EUT

3.1.5.1.Setup the EUT as shown on Section 3.1.2

3.1.5.2.Turn on the power of all equipments.

3.1.5.3.Let the EUT work in measuring Mode 1 and measure it.

3.1.6.Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2014 on Conducted Emission Measurement.

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

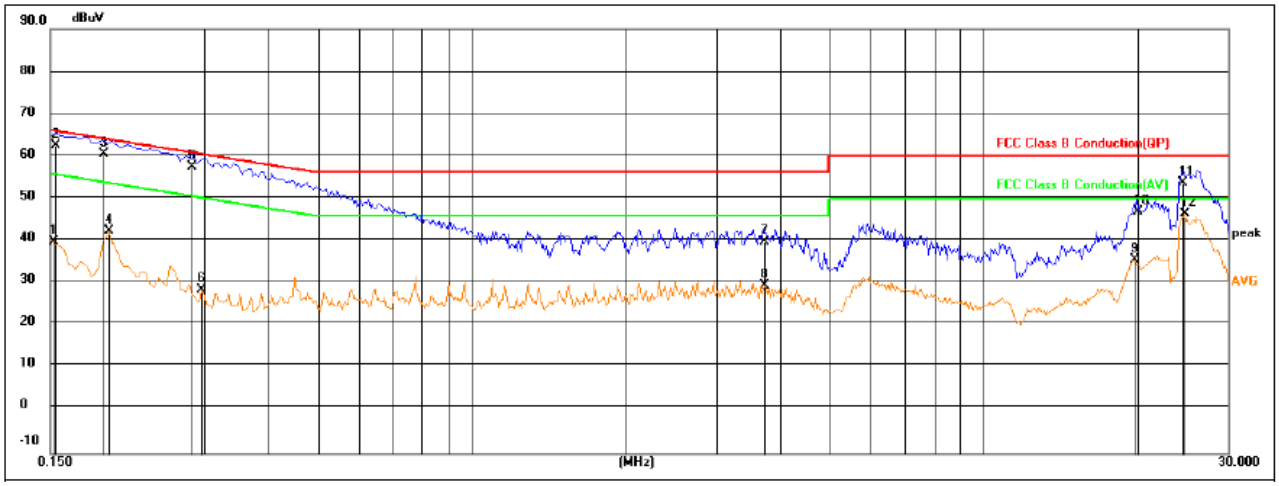
The frequency range from 150kHz to 30MHz is investigated

3.1.7.Test Results

PASS.

The test result please refer to the next page.

Test Model	PDT5-SO	Test Mode	Mode 1
Environmental Conditions	23.3℃, 53.7% RH	Test Engineer	Ben Jin
Pol	Line	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1524	20.79	19.14	39.93	55.87	-15.94	AVG
2	0.1539	43.46	19.14	62.60	65.79	-3.19	QP
3	0.1904	41.49	19.17	60.66	64.02	-3.36	QP
4	0.1945	23.23	19.17	42.40	53.84	-11.44	AVG
5	0.2847	38.30	19.26	57.56	60.68	-3.12	QP
6	0.2971	9.29	19.27	28.56	50.32	-21.76	AVG
7	3.7198	20.61	19.46	40.07	56.00	-15.93	QP
8	3.7395	10.33	19.46	29.79	46.00	-16.21	AVG
9	19.6354	15.78	20.06	35.84	50.00	-14.16	AVG
10	19.9500	27.09	20.04	47.13	60.00	-12.87	QP
11	24.5291	33.76	20.12	53.88	60.00	-6.12	QP
12	24.6594	26.42	20.12	46.54	50.00	-3.46	AVG

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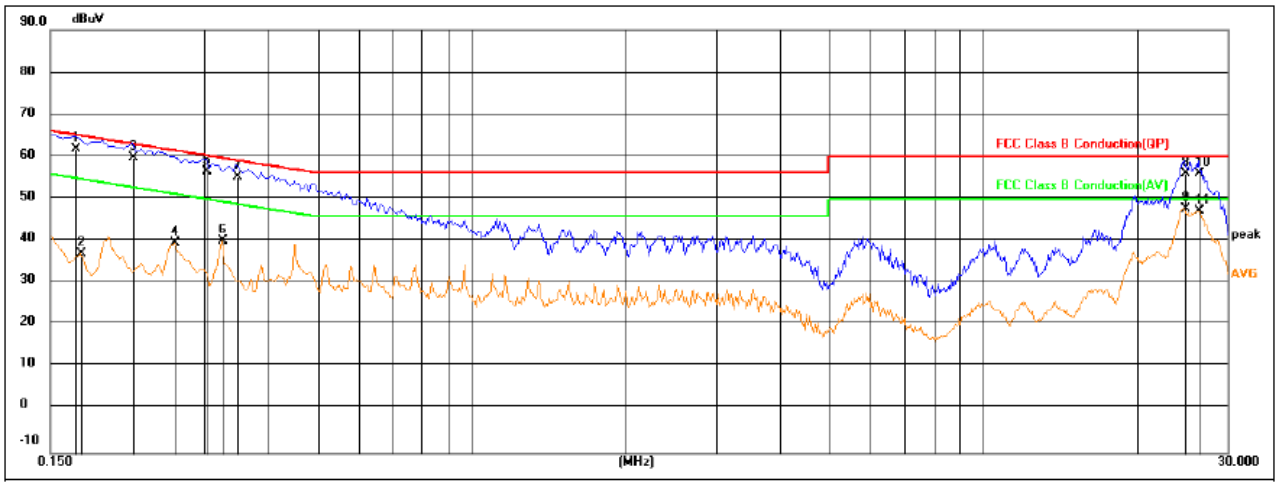
Test Model	PDT5-SO	Test Mode	Mode 1
Environmental Conditions	23.3℃, 53.7% RH	Test Engineer	Ben Jin
Pol	Neutral	Test Voltage	AC 120V/60Hz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1680	42.83	19.16	61.99	65.06	-3.07	QP
2	0.1725	18.06	19.16	37.22	54.84	-17.62	AVG
3	0.2175	40.70	19.20	59.90	62.91	-3.01	QP
4	0.2625	20.45	19.24	39.69	51.35	-11.66	AVG
5	0.3030	37.46	19.27	56.73	60.16	-3.43	QP
6	0.3255	20.91	19.29	40.20	49.57	-9.37	AVG
7	0.3480	36.13	19.31	55.44	59.01	-3.57	QP
8	24.6930	35.98	20.12	56.10	60.00	-3.90	QP
9	24.6930	27.70	20.12	47.82	50.00	-2.18	AVG
10	26.3670	35.96	20.08	56.04	60.00	-3.96	QP
11	26.3670	27.30	20.08	47.38	50.00	-2.62	AVG

Note: Pre-Scan all mode, Thus record worse case mode result in this report.
Margin=Reading level + Correct - Limit

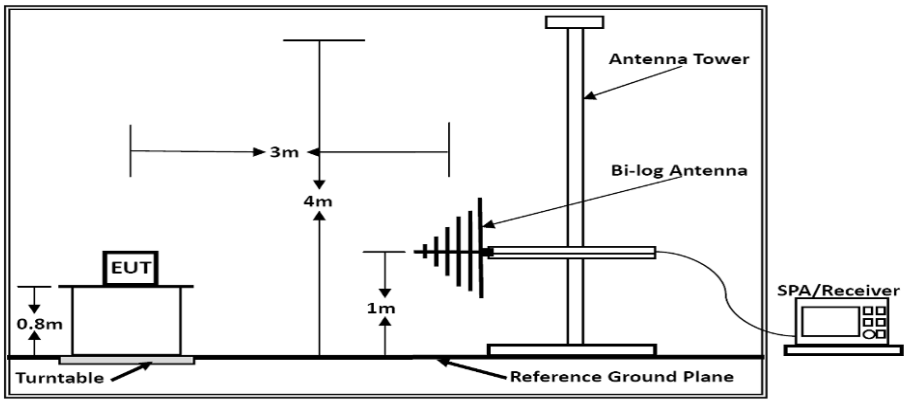
3.2. Radiated emission Measurement

3.2.1. Test Equipment

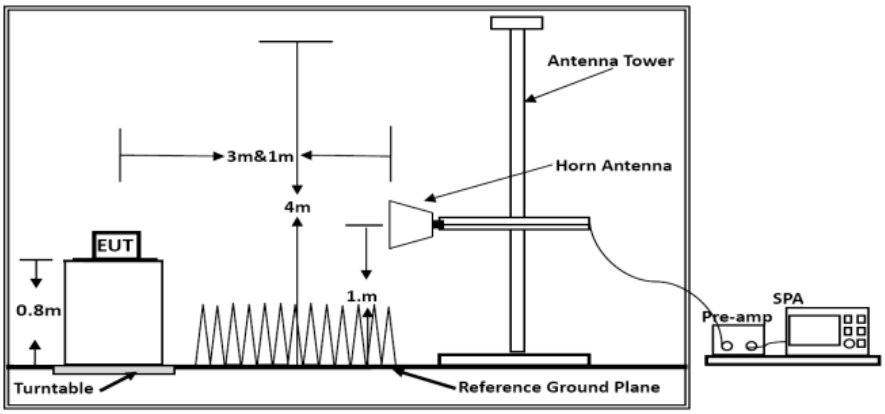
The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	EZ	EZ-EMC	/	N/A	N/A
2	3m Anechoic Chamber	MRDIANZI	FAC-3M	MR009	2020-09-26	2021-09-25
3	Positioning Controller	MF	MF7082	MF78020803	2020-06-22	2021-06-21
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26	2021-07-25
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02	2021-07-01
6	EMI Test Receiver	R&S	ESR 7	101181	2020-06-22	2021-06-21
7	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2019-11-22	2020-11-21
8	Broadband Preamplifier	/	BP-01M18G	P190501	2020-06-22	2021-06-21
9	RF Cable-R03m	Jye Bao	RG142	CB021	2020-06-22	2021-06-21
10	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2020-06-22	2021-06-21

3.2.2. Block Diagram of Test Setup



Below 1GHz



Above 1GHz

3.2.3. Radiated Emission Limit (Class B)

Limits for Radiated Disturbance Below 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46
960 ~ 1000	3	500	54

Remark: (1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

Limits for Radiated Emission Above 1GHz

Frequency (MHz)	Distance (Meters)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)
1000 ~ 3000	3	70	42~35
3000 ~ 6000	3	74	42

***Note: The lower limit applies at the transition frequency.

3.2.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.2.5. Operating Condition of EUT

3.2.5.1.Setup the EUT as shown in Section 3.2.2.
3.2.5.2.Let the EUT work in test Mode 1 and measure it.

3.2.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver is set at 120kHz, 300kHz.

The frequency range from 30MHz to 1000MHz is checked.

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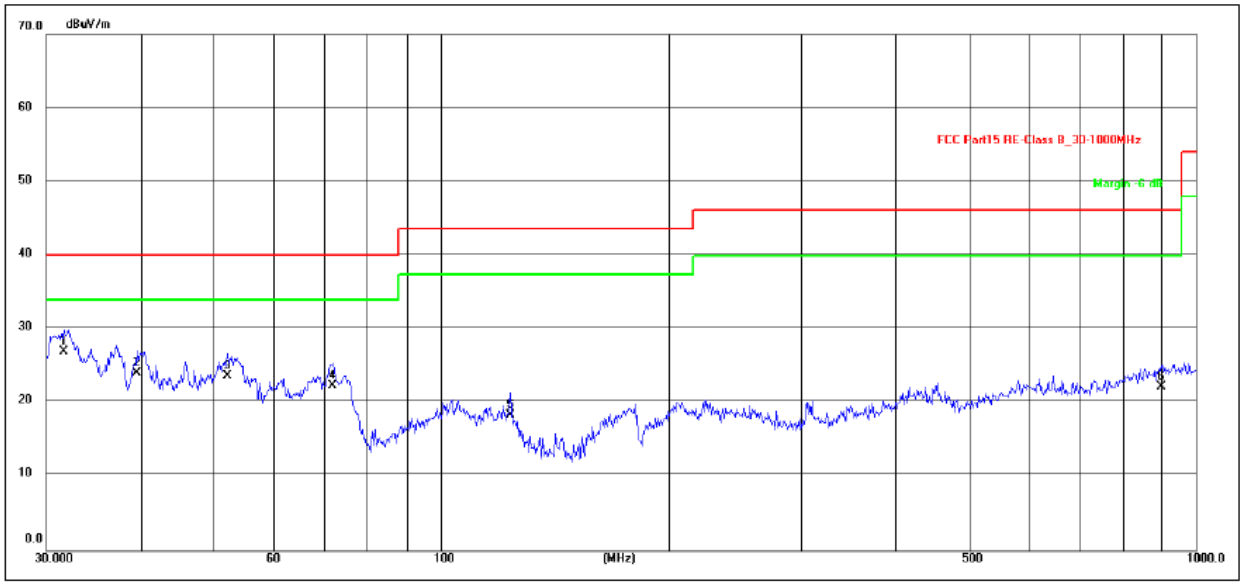
3.2.7. Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page.

Test Model	PDT5-SO	**Test Mode**	Mode 1
Environmental Conditions	24.6℃, 54.1% RH	**Detector Function**	Quasi-peak
Pol	Vertical	**Distance**	3m
Test Engineer	Ben Jin	**Test Voltage**	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	31.7312	57.29	-30.28	27.01	40.00	-12.99	QP
2	39.5757	53.23	-29.08	24.15	40.00	-15.85	QP
3	52.2078	52.19	-28.47	23.72	40.00	-16.28	QP
4	71.8320	55.44	-33.02	22.42	40.00	-17.58	QP
5	123.6984	51.28	-32.86	18.42	43.50	-25.08	QP
6	900.1474	40.98	-18.79	22.19	46.00	-23.81	QP

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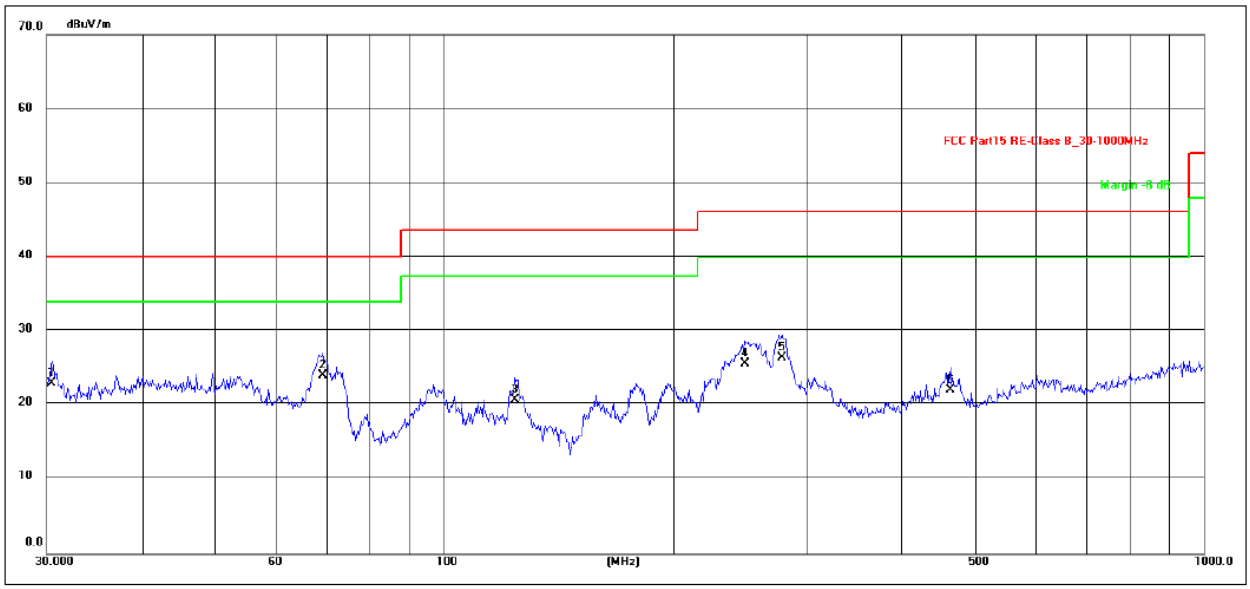
Test Model	PDT5-SO	**Test Mode**	Mode 1
Environmental Conditions	24.6℃, 54.1% RH	**Detector Function**	Quasi-peak
Pol	Horizontal	**Distance**	3m
Test Engineer	Ben Jin	**Test Voltage**	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.5306	53.41	-30.33	23.08	40.00	-16.92	QP
2 *	69.3568	56.62	-32.47	24.15	40.00	-15.85	QP
3	124.1329	53.71	-32.92	20.79	43.50	-22.71	QP
4	249.4250	54.05	-28.38	25.67	46.00	-20.33	QP
5	279.0436	54.29	-27.78	26.51	46.00	-19.49	QP
6	463.9696	46.32	-24.15	22.17	46.00	-23.83	QP

Note: Pre-Scan all mode, Thus record worse case mode result in this report.
Margin=Reading level + Factor - Limit

4. PHOTOGRAPH

Photo of Power Line Conducted Measurement

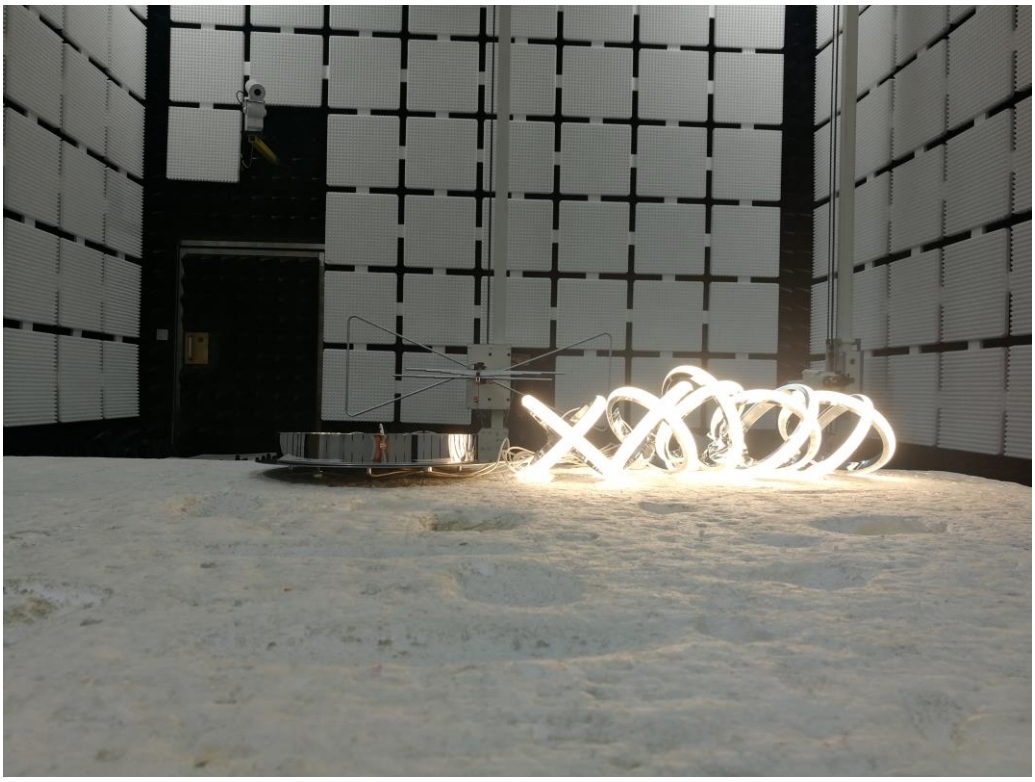


Photo of Radiated emission Measurement(Below 1GHz)

5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Fig. 1

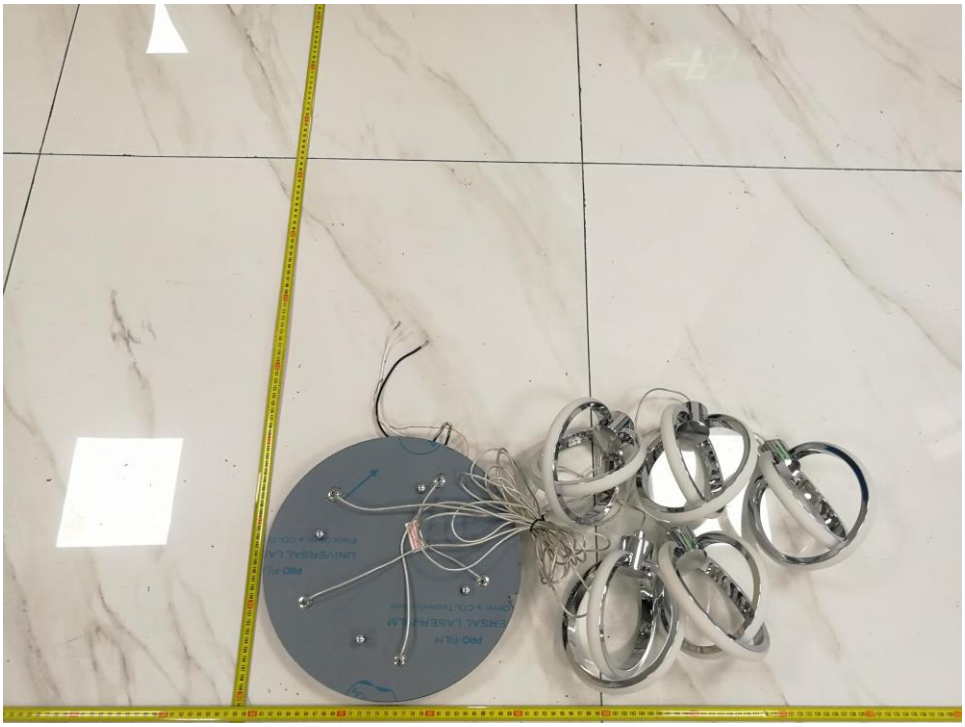


Fig. 2

Fig. 3

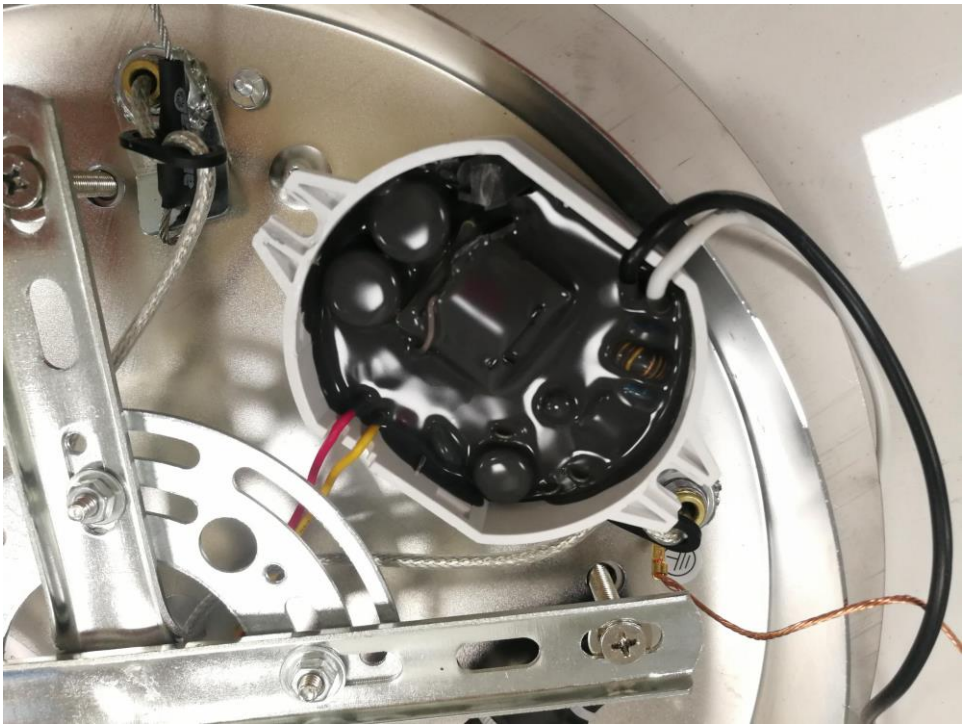


Fig. 4

----------THE END OF TEST REPORT----------