

EMC TEST REPORT

For

Linhai Qixiang Lighting Co., Ltd

LED Lighting chain

Test Model: QX-BO-3-F-200-IP44

Additional Models: Please Refer To Page 8

Prepared for : Linhai Qixiang Lighting Co., Ltd
Address : Dongcheng Pacific Lights City, Linhai, Zhejiang, China

Prepared by : Ningbo LCS Standard Technology Service Co., Ltd.
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Date of receipt of test sample : Jan. 18, 2021
Number of tested samples : 1
Serial number : Prototype
Date of Test : Jan. 18, 2021~ Jan. 22, 2021
Date of Report : Jan. 22, 2021



**EMC TEST REPORT
EN IEC 55015:2019**

Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

EN 61547: 2009

Equipment for general lighting purposes - EMC immunity requirements

Report Reference No. : LCS210115001EE

Date Of Issue..... : Jan. 22, 2021

Testing Laboratory Name.... : Ningbo LCS Standard Technology Service Co., Ltd.

Address..... : 1-2 Floor, Mingsheng Inspection Park, 166 Jinghua Road, Ningbo High-tech Zone, Zhejiang Province

Testing Location/ Procedure.. : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □

Applicant's Name..... : Linhai Qixiang Lighting Co., Ltd

Address..... : Dongcheng Pacific Lights City, Linhai, Zhejiang, China

Test Specification:

Standard..... : EN IEC 55015:2019
EN 61547: 2009

Test Report Form No..... : LCSEMC-1.0

TRF Originator..... : Ningbo LCS Standard Technology Service Co., Ltd.

Master TRF..... : Dated 2019-03

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Test Item Description..... : LED Lighting chain

Trade Mark..... : N/A

Test Model..... : QX-BO-3-F-200-IP44

Ratings..... : DC 4.5V

Result : PASS

Compiled by:

Feng liang

Feng liang/File administrators

Supervised by:

Joker Wang

Joker Wang/Technique principal



Lh Li/ Manager

EMC -- TEST REPORT

Test Report No. : LCS210115001EEJan. 22, 2021

Date of issue

Test Model..... : QX-BO-3-F-200-IP44

EUT..... : LED Lighting chain

Applicant..... : Linhai Qixiang Lighting Co., LtdAddress..... : Dongcheng Pacific Lights City, Linhai, Zhejiang,
China

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Manufacturer..... : Linhai Qixiang Lighting Co., LtdAddress..... : Dongcheng Pacific Lights City, Linhai, Zhejiang,
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Telephone..... : /

Fax..... : /

Factory..... : Linhai Qixiang Lighting Co., LtdAddress..... : Dongcheng Pacific Lights City, Linhai, Zhejiang,
China

Telephone..... : /

Fax..... : /

Test Result: PASS

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	Jan. 22, 2021	Initial Issue	Lh Li

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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 (EN IEC 55015:2019)			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	EN IEC 55015:2019	-----	N/A
Magnetic field emission	EN IEC 55015:2019	-----	PASS
Radiated disturbance	EN IEC 55015:2019	-----	PASS
Harmonic current emissions	EN IEC 61000-3-2:2019	Class C	N/A
Voltage fluctuations & flicker	EN 61000-3-3: 2013+A1:2019	-----	N/A
IMMUNITY (EN 61547: 2009)			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)	EN 61000-4-2: 2009	B	PASS
Radio-frequency, Continuous radiated disturbance	EN 61000-4-3: 2006+A2: 2010	A	PASS
Electrical fast transient (EFT)	EN 61000-4-4: 2012	B	N/A
Surge (Input a.c. power ports)	EN 61000-4-5: 2014+A1: 2017	B	N/A
Radio-frequency, Continuous conducted disturbance	EN 61000-4-6: 2014	A	N/A
Power frequency magnetic field	EN 61000-4-8: 2010	A	N/A
Voltage dips, 30% reduction	EN 61000-4-11: 2004+A1: 2017	C	N/A
Voltage interruptions		B	N/A
N/A is an abbreviation for Not Applicable.			

Test mode:

Mode 1	Lighting	Record
--------	----------	--------

1.2. Description of Performance Criteria

General Performance Criteria

Examples of functions defined by the manufacturer to be evaluated during testing include, but are not limited to, the following:

- essential operational modes and states;
- tests of all peripheral access (hard disks, floppy disks, printers, keyboard, mouse, etc.);
- quality of software execution;
- quality of data display and transmission;
- quality of speech transmission.

1.2.1. Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacture when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.2. Performance criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacture, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operation state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be deliver from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

1.2.3. Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacture's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be loss.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : LED Lighting chain

Trade Mark : N/A

Test Model(s) : QX-BO-3-F-200-IP44

Additional Model(s) : QX-BO-A-B-C-D

"A" Stand for the type of battery box, which could be "1", "2", "3"

"1" means the battery box with 1pc battery,

"2" means the battery box with 2pcs batteries,

"3" means the battery box with 3pcs batteries,

The type of battery can be LR44, CR2032, CR2450, AAA, AA, C, D etc.

"B" stand for the functions of battery light, which could be "S" "F" "T"

"S" means the battery light is steady,

"F" means the battery light with functions,

"T" means the battery light with timer.

"C" stand for the number of LED bulbs, from 1 to 200.

"D" stand for the classifications of IP for battery light, which could be IP20 or IP44.

The battery light can be lighting chain, icicle light, net light and curtain light, also can be with decoration or with motif frame.

Power Supply : DC 4.5V

2.2. Support equipment List

Name	manufacturers	M/N	S/N	Certificate
-	-	-	-	-

2.3. Description of Test Facility

Site Description

EMC Lab. :

Test Facilities : Ningbo LCS Standard Technology Service Co., Ltd.
101-106, 202-206, Building 037, No. 166, Jinghua Road, Meixu Street, Ningbo High-tech Zone, Yinzhou District, Ningbo City, Zhejiang Province, China

RF Field Strength Susceptibility : Shenzhen LCS Compliance Testing Laboratory Ltd.
101, 201 Building A and 301 Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, Guangdong, China

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.

2.5.Measurement Uncertainty

Test Item	Frequency Range	Expanded uncertainty (U _{lab})	Expanded uncertainty (U _{cispr})
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)	± 2.90 dB	± 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	$\pm 0.510\%$	N/A
Voltage Fluctuations & Flicker	Voltage	$\pm 0.510\%$	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%.

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1. Radiated Electromagnetic Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Large Loop Antenna	DAZE	ZN304401	17029	2020-06-01
2	EMI Test Receiver	R&S	ESR 3	102519	2020-06-01
3	EMI Test Software	EZ	EZ EMC	/	N/A

3.2. Radiated Disturbance (Electric Field)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Software	EZ	EZ EMC	/	N/A
2	3m Semi Anechoic Chamber	MAORUI	9m*6m*6	160218849	2020-06-01
3	By-log Antenna	SCHWARZBECK	VULB9168	9168-988	2020-06-01
4	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-2049	2020-06-01
5	EMI Test Receiver	R&S	ESRP	101372	2020-06-01
6	AMPLIFIER	SCHWARZBECK	BBV9745	136	2020-06-01
7	RF Cable	Hubber Suhner	CBL-RE	/	2020-06-01
8	AMPLIFIER	SCHWARZBECK	BBV9718C	21	2020-06-01

3.3. Electrostatic Discharge

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	SCHLODER	SESD216	102318	2020-05-28

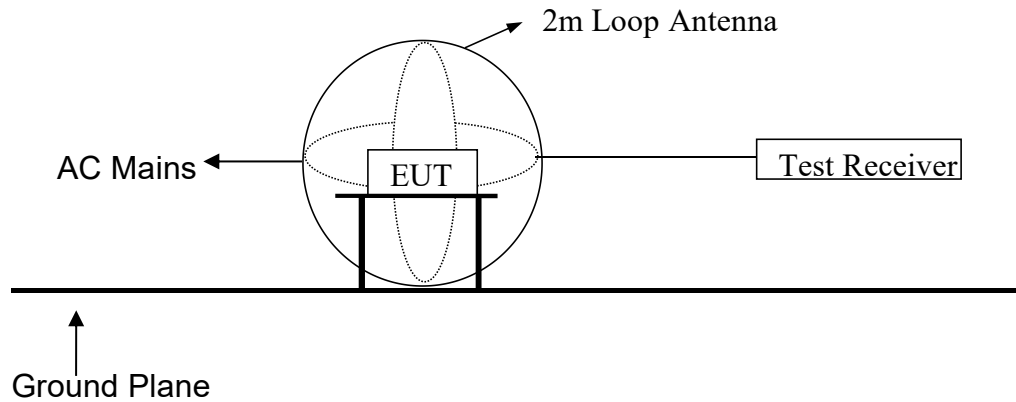
3.4. RF Field Strength Susceptibility

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	RS Test Software	Tonscend	/	/	2020-06-10
2	ESG Vector Signal Generator	Agilent	E4438C	MY42081396	2019-11-15
3	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2020-06-10
4	RF POWER AMPLIFIER	OPHIR	5225R	1052	NCR
5	RF POWER AMPLIFIER	OPHIR	5273F	1019	NCR
6	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	NCR
7	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-484	NCR
8	Electric field probe	Narda S.TS./PMM	EP601	611WX80208	2020-03-24

Note: NCR means no calibration requirement

4. MAGNETIC FIELD EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



4.2. Magnetic Field Emission Measurement Standard and Limits

4.2.1. Test Standard

EN IEC 55015:2019

4.2.2. Test Limits

Frequency	Limits for loop diameter (dB μ A)
	2m
9kHz ~ 70kHz	88
70kHz ~ 150kHz	88 ~ 58*
150kHz ~ 3.0MHz	58 ~ 22*
3.0MHz ~ 30MHz	22

1. At the transition frequency the lower limit applies.
2. * decreasing linearly with logarithm of the frequency.

4.3. EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT as shown in Section 4.1.
- 4.4.2. Turn on the power of all equipments.
- 4.4.3. Let the EUT work in test mode (Working) and measure it.

4.5. Test Procedure

The EUT is placed on a wood table in the center of a loop antenna. The induced current in the loop antenna is measured by means of a current probe and the test receiver.

Three field components are checked by means of a coaxial switch.

The frequency range from 9kHz to 30MHz is investigated. The receiver is measured with the quasi-peak detector. For frequency band 9kHz to 150kHz, the bandwidth of the field strength meter is set at 200Hz. For frequency band 150kHz to 30MHz, the bandwidth is set at 9kHz.

All the test results are listed in Section 4.6.

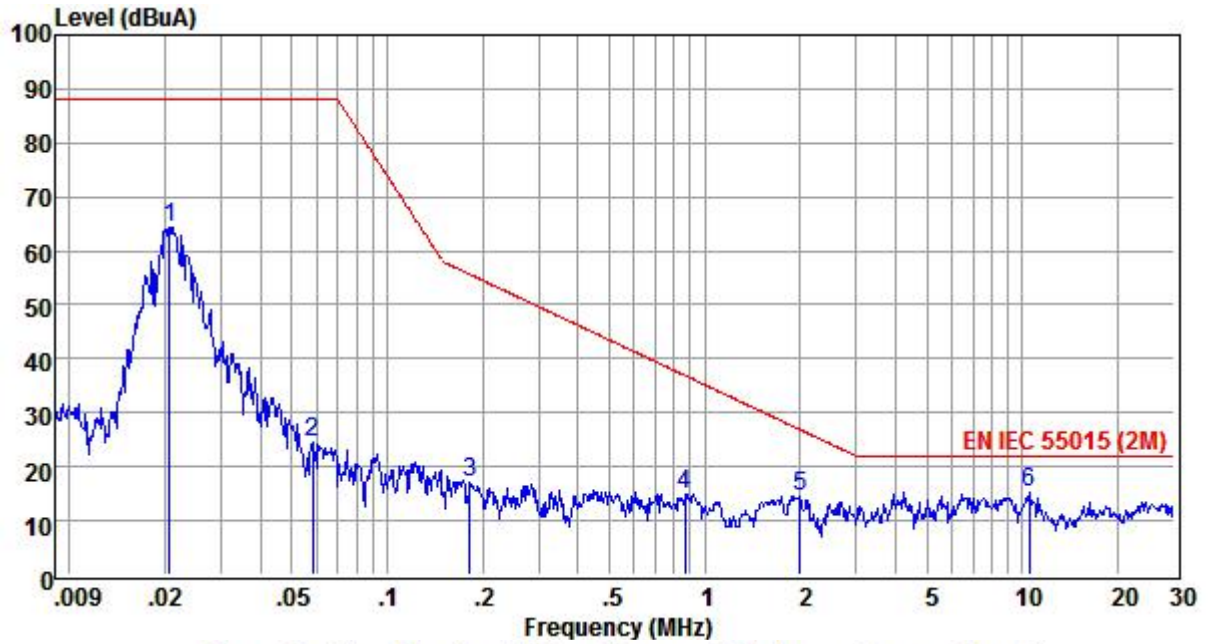
4.6. Test Results

PASS.

The frequency range from 9kHz to 30MHz is investigated.

Environmental Conditions:	21.3°C, 55% RH
Test Voltage:	DC 4.5V
Test Model:	QX-BO-3-F-200-IP44
Test Mode:	Mode 1
Test Engineer:	Feng liang
Pol:	X

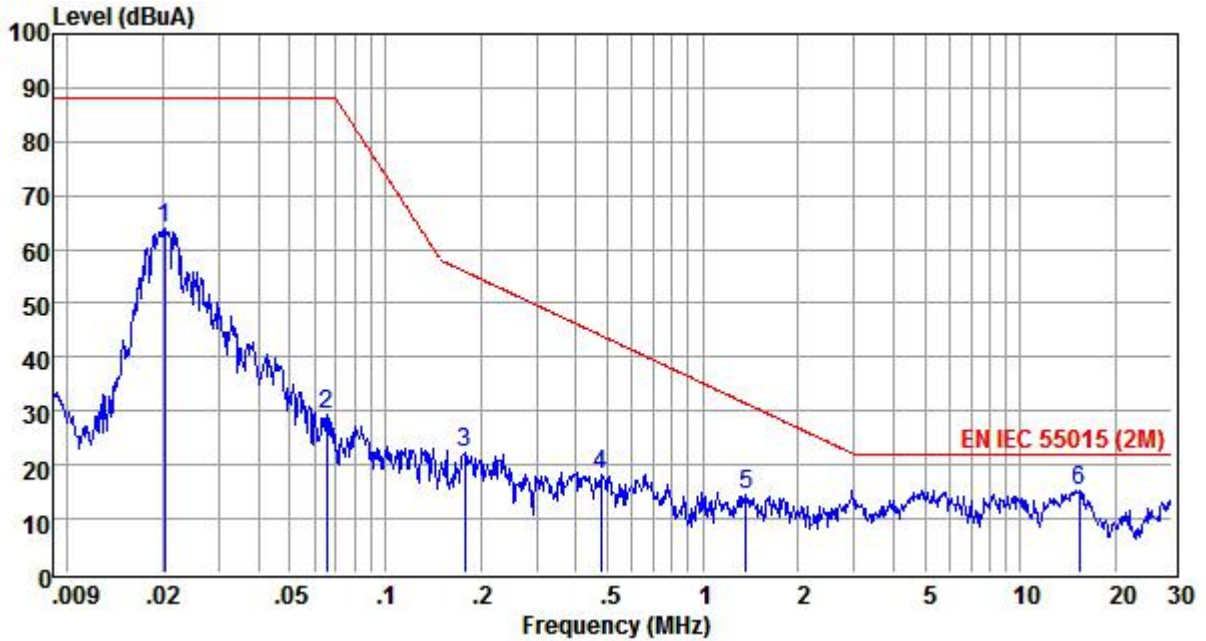
Detailed results are shown below



	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.02	64.39	0.00	0.00	64.39	88.00	-23.61	QP
2	0.06	24.60	0.00	0.00	24.60	88.00	-63.40	QP
3	0.18	17.13	0.00	0.00	17.13	55.64	-38.51	QP
4	0.87	14.98	0.00	0.00	14.98	36.93	-21.95	QP
5	2.00	14.64	0.00	0.00	14.64	26.89	-12.25	QP
6	10.54	15.07	0.00	0.00	15.07	22.00	-6.93	QP

Environmental Conditions:	21.3°C, 55% RH
Test Voltage:	DC 4.5V
Test Model:	QX-BO-3-F-200-IP44
Test Mode:	Mode 1
Test Engineer:	Feng liang
Pol:	Y

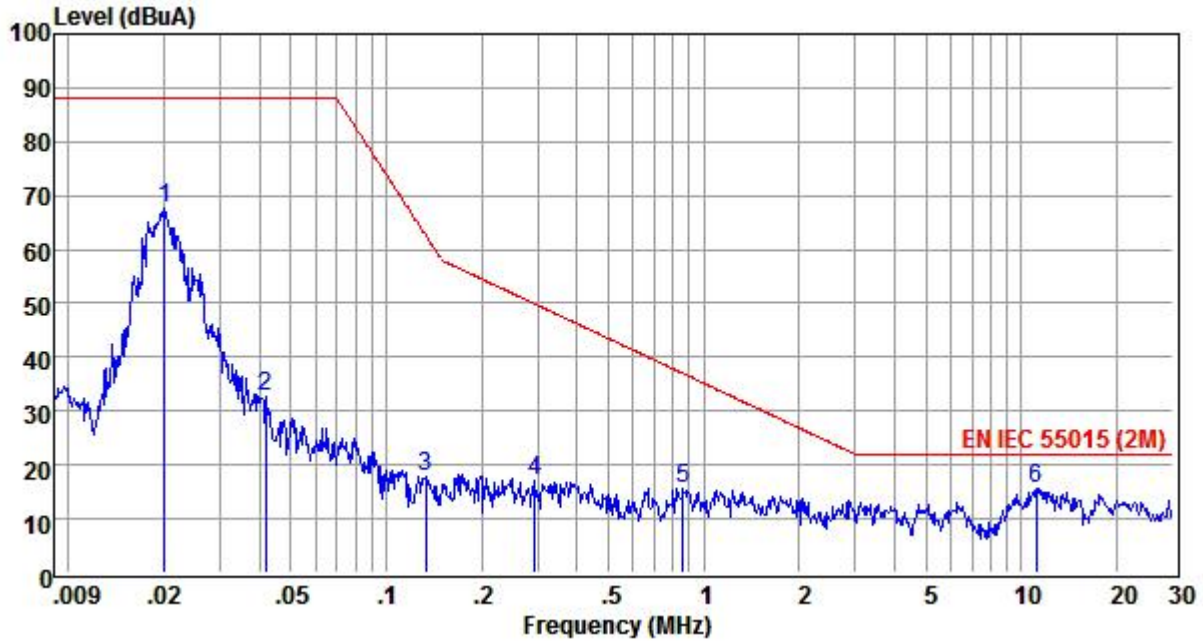
Detailed results are shown below



	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.02	64.05	0.00	0.00	64.05	88.00	-23.95	QP
2	0.07	29.31	0.00	0.00	29.31	88.00	-58.69	QP
3	0.18	22.25	0.00	0.00	22.25	55.94	-33.69	QP
4	0.48	18.14	0.00	0.00	18.14	44.04	-25.90	QP
5	1.36	14.36	0.00	0.00	14.36	31.47	-17.11	QP
6	15.30	15.22	0.00	0.00	15.22	22.00	-6.78	QP

Environmental Conditions:	21.3°C, 55% RH
Test Voltage:	DC 4.5V
Test Model:	QX-BO-3-F-200-IP44
Test Mode:	Mode 1
Test Engineer:	Feng liang
Pol:	Z

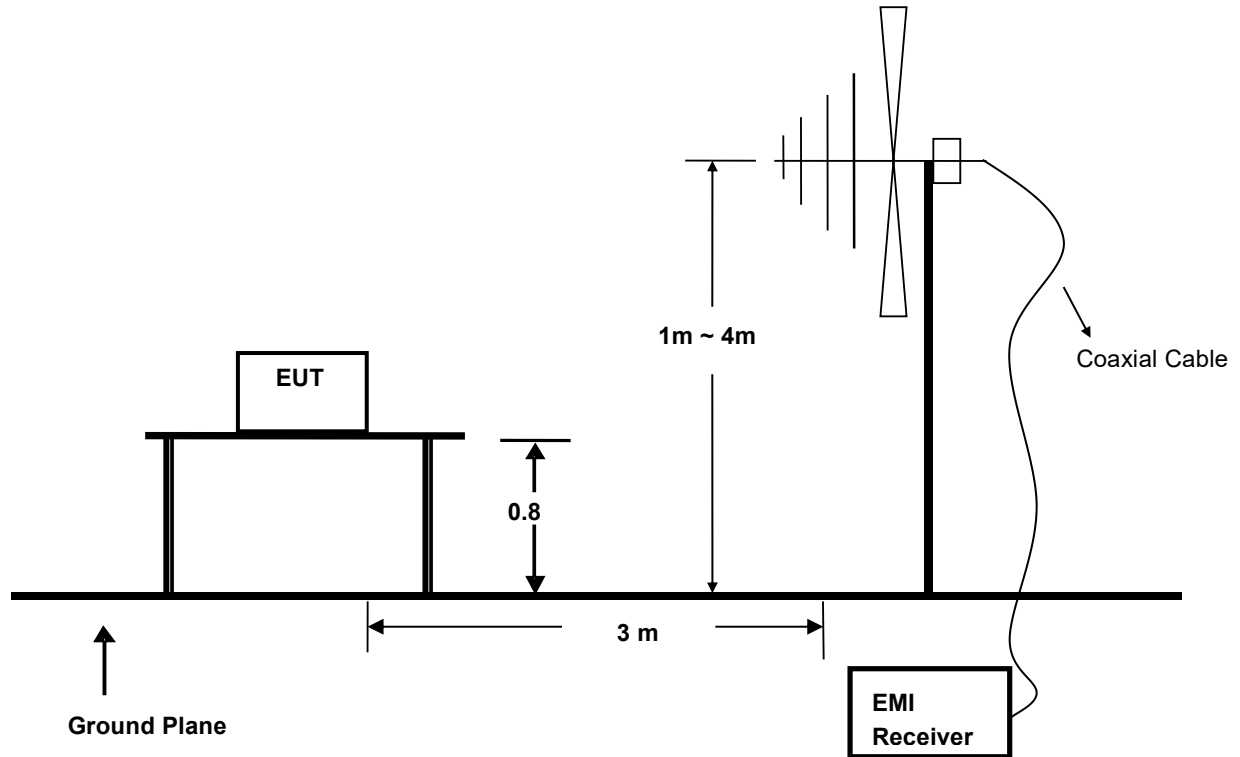
Detailed results are shown below



	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBpW	dB	dB	dBpW	dBpW	dB	
1	0.02	67.56	0.00	0.00	67.56	88.00	-20.44	QP
2	0.04	32.73	0.00	0.00	32.73	88.00	-55.27	QP
3	0.13	17.76	0.00	0.00	17.76	62.74	-44.98	QP
4	0.29	17.04	0.00	0.00	17.04	49.89	-32.85	QP
5	0.86	15.71	0.00	0.00	15.71	37.03	-21.32	QP
6	11.15	15.59	0.00	0.00	15.59	22.00	-6.41	QP

5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup



5.2. Test Standard

EN IEC 55015:2019

5.3. Radiated Emission Limits

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

5.4.EUT Configuration on Test

The EN 55015 regulations test method must be used to find the maximum emission during radiated emission measurement.

5.5.Operating Condition of EUT

5.5.1 Turn on the power.

5.5.2 After that, let the EUT work in test mode (Lighting) and measure it.

5.6.Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

The bandwidth of the Receiver is set at 120kHz/300kHz.

The frequency range from 30MHz to 300MHz is investigated.

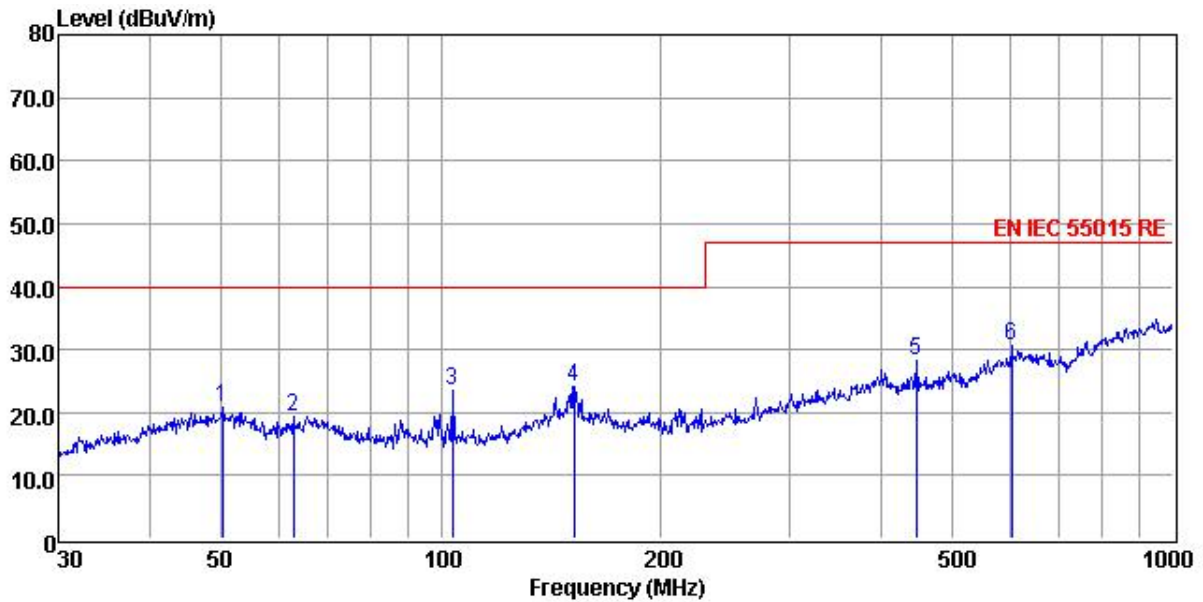
5.7.Test Results

PASS.

The test result please refer to the next page.

Environmental Conditions:	21.3°C, 56% RH
Test Voltage:	DC 4.5V
Test Model:	QX-BO-3-F-200-IP44
Test Mode:	Mode 1
Test Engineer:	Feng liang
Pol:	Horizontal

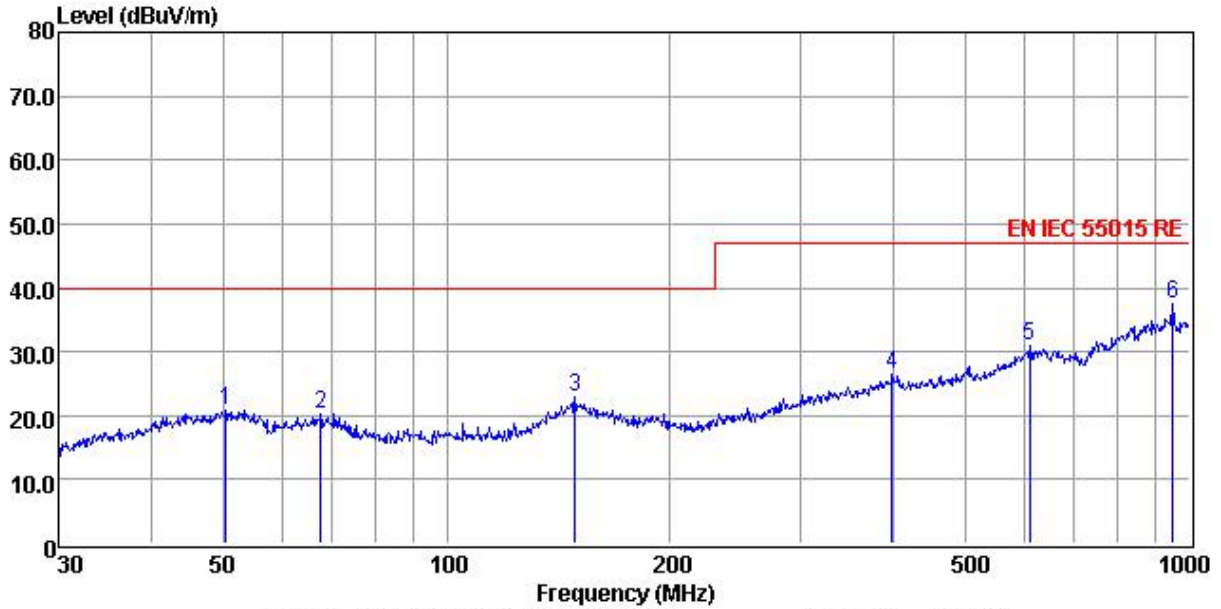
Detailed results are shown below



	Read Freq	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Limit Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	50.23	35.11	2.41	13.49	30.32	20.69	40.00	-19.31	QP
2	62.87	35.22	2.61	11.83	30.37	19.29	40.00	-20.71	QP
3	103.81	41.07	3.11	9.95	30.52	23.61	40.00	-16.39	QP
4	152.13	37.15	3.56	13.94	30.60	24.05	40.00	-15.95	QP
5	446.41	38.57	5.41	15.73	31.32	28.39	47.00	-18.61	QP
6	601.43	36.37	5.87	19.94	31.64	30.54	47.00	-16.46	QP

Environmental Conditions:	21.3°C, 56% RH
Test Voltage:	DC 4.5V
Test Model:	QX-BO-3-F-200-IP44
Test Mode:	Mode 1
Test Engineer:	Feng liang
Pol:	Vertical

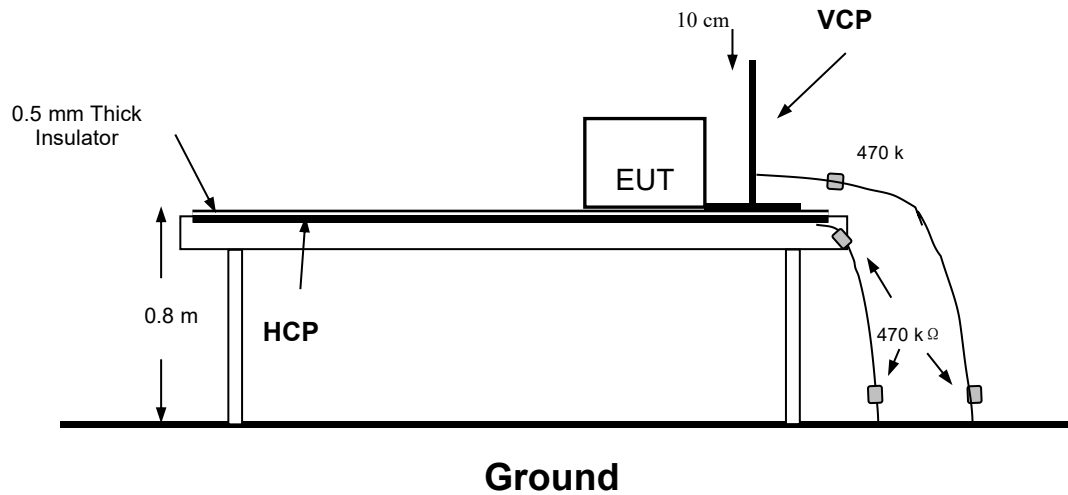
Detailed results are shown below



	Read Freq	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Limit Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	50.41	35.30	2.42	13.48	30.32	20.88	40.00	-19.12	QP
2	67.68	35.84	2.68	12.05	30.39	20.18	40.00	-19.82	QP
3	148.96	35.73	3.53	14.15	30.60	22.81	40.00	-17.19	QP
4	397.63	36.11	5.31	16.17	31.17	26.42	47.00	-20.58	QP
5	609.92	36.42	5.90	20.15	31.65	30.82	47.00	-16.18	QP
6	948.76	39.48	7.02	22.65	31.67	37.48	47.00	-9.52	QP

6. ELECTROSTATIC DISCHARGE TEST

6.1. Block Diagram of Test Setup



6.2. Test Standard

EN 61547: 2009 (EN 61000-4-2: 2009, Severity Level: Air Discharge: Level 3, ±8KV
Contact Discharge: Level 2, ±4KV)

6.3. Severity Levels and Performance Criterion

6.3.1. Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

6.3.2. Performance criterion: **B**

6.4. EUT Configuration on Test

The configuration of EUT is listed in Section 3

6.5. Operating Condition of EUT

- 6.5.1. Setup the EUT as shown in Section 6.1.
- 6.5.2. Turn on the power of all equipments.
- 6.5.3. Let the EUT work in test mode (Lighting) and measure it.

6.6. Test Procedure

6.6.1. Air Discharge

This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Because the case of the EUT is metal surface, so it does not need to be tested.

6.6.2. Contact Discharge

All the procedure shall be same as Section 6.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

6.6.3. Indirect Discharge For Horizontal Coupling Plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

6.6.4. Indirect Discharge For Vertical Coupling Plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

6.7. Test Results

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	Linhai Qixiang Lighting Co., Ltd		
EUT	LED Lighting chain	Temperature	21.3°C
M/N	QX-BO-3-F-200-IP44	Humidity	55.1%
Criterion	B	Pressure	1021mbar
Test Mode	Lighting	Test Engineer	Feng liang

Air Discharge						
Test Points	Test Levels			Results		
	± 2KV	± 4KV	± 8KV	Pass	Fail	Performance Criterion
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B

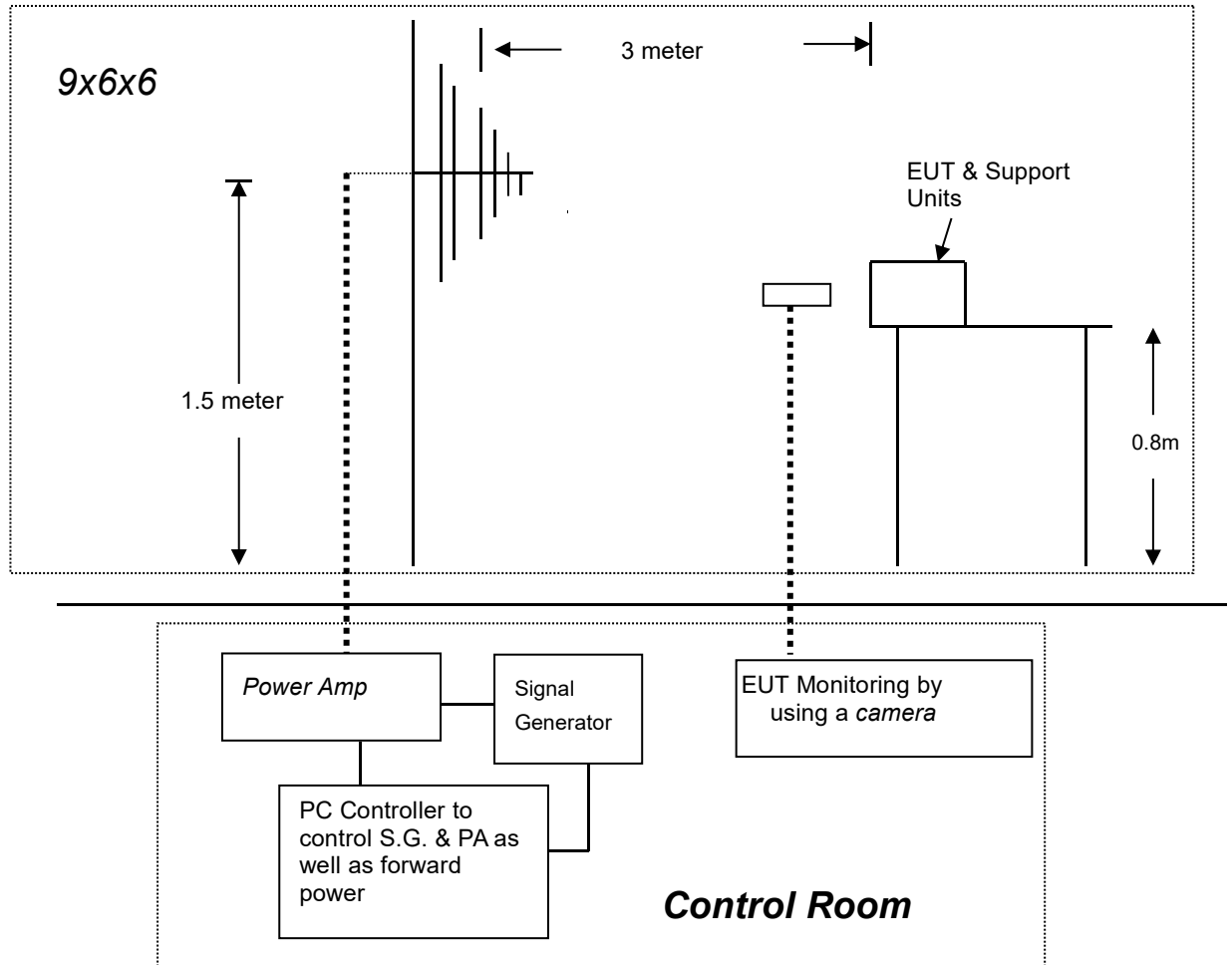
Contact Discharge						
Test Points	Test Levels		Results			
	± 2 KV	±4 KV	Pass	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Top	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Bottom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	

Discharge To Horizontal Coupling Plane						
Side of EUT	Test Levels		Results			
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	

Discharge To Vertical Coupling Plane						
Side of EUT	Test Levels		Results			
	± 2 KV	± 4 KV	Pass	Fail	Performance Criterion	
Front	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Back	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Left	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	
Right	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B	

7. RF FIELD STRENGTH SUSCEPTIBILITY TEST

7.1. Block Diagram of Test Setup



7.2. Test Standard

EN 61547: 2009 (EN 61000-4-3: 2006+A2: 2010, Severity Level: 2, 3V / m)

7.3. Severity Levels and Performance Criterion

7.3.1. Severity level

Level	Field Strength (V/m)
1	1
2	3
3	10
X	Special

7.3.2. Performance criterion: **A**

7.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3

7.5.Operating Condition of EUT

7.5.1.Setup the EUT as shown in Section 7.1.

7.5.2.Turn on the power of all equipments.

7.5.3.Let the EUT work in test mode (Working) and measure it.

7.6.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remarks
-----	-----
3. Fielded Strength	3 V/m (Severity Level 2)
4. Radiated Signal	Unmodulated
5. Scanning Frequency	80 - 1000 MHz
6. Dwell time of radiated	0.0015 decade/s
7. Waiting Time	3 Sec.

7.7.Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-3 <input checked="" type="checkbox"/> EN 61000-4-3		
Applicant	Linhai Qixiang Lighting Co., Ltd		
EUT	LED Lighting chain	Temperature	21.3°C
M/N	QX-BO-3-F-200-IP44	Humidity	55.3%
Field Strength	3 V/m	Criterion	A
Test Mode	Lighting	Test Engineer	Jason Deng
Frequency Range	80 MHz to 1000 MHz		
Modulation	<input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1KHz 80%		
Steps	1%		

	Horizontal	Vertical
Front	PASS	PASS
Right	PASS	PASS
Rear	PASS	PASS
Left	PASS	PASS

Note:

8. PHOTOGRAPH

8.1. Photo of Radiated Electromagnetic Disturbance Measurement



8.2. Photo of Radiated Measurement



8.3. Photo of Electrostatic Discharge Test



9. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

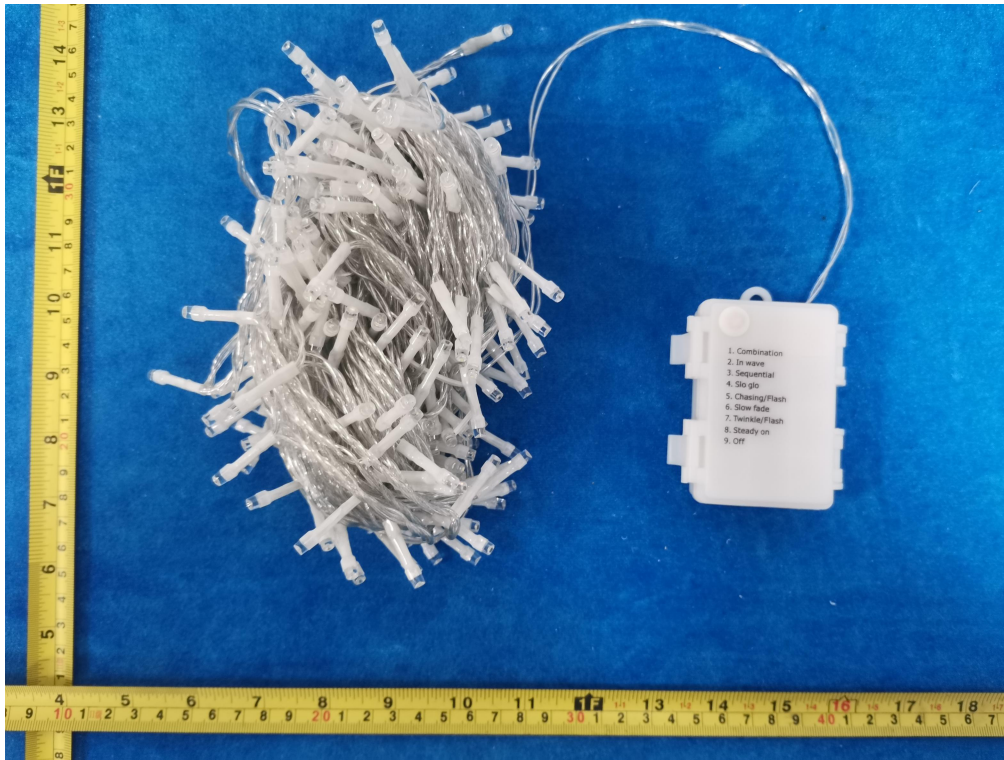


Fig. 1

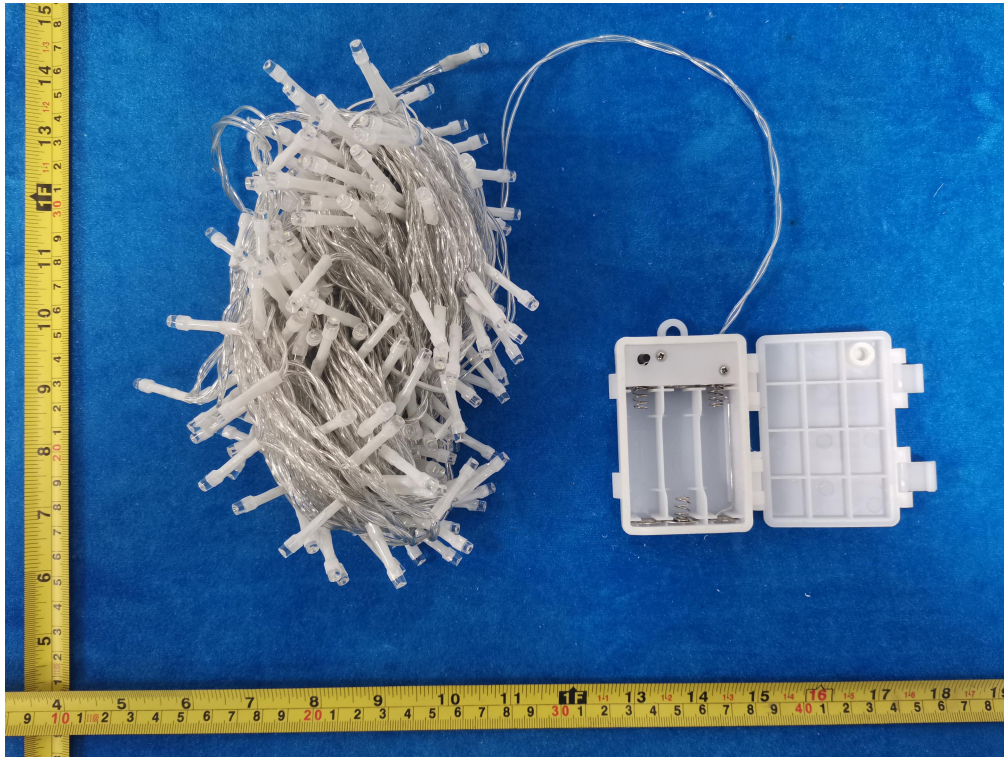


Fig. 2



Fig. 3



Fig. 4

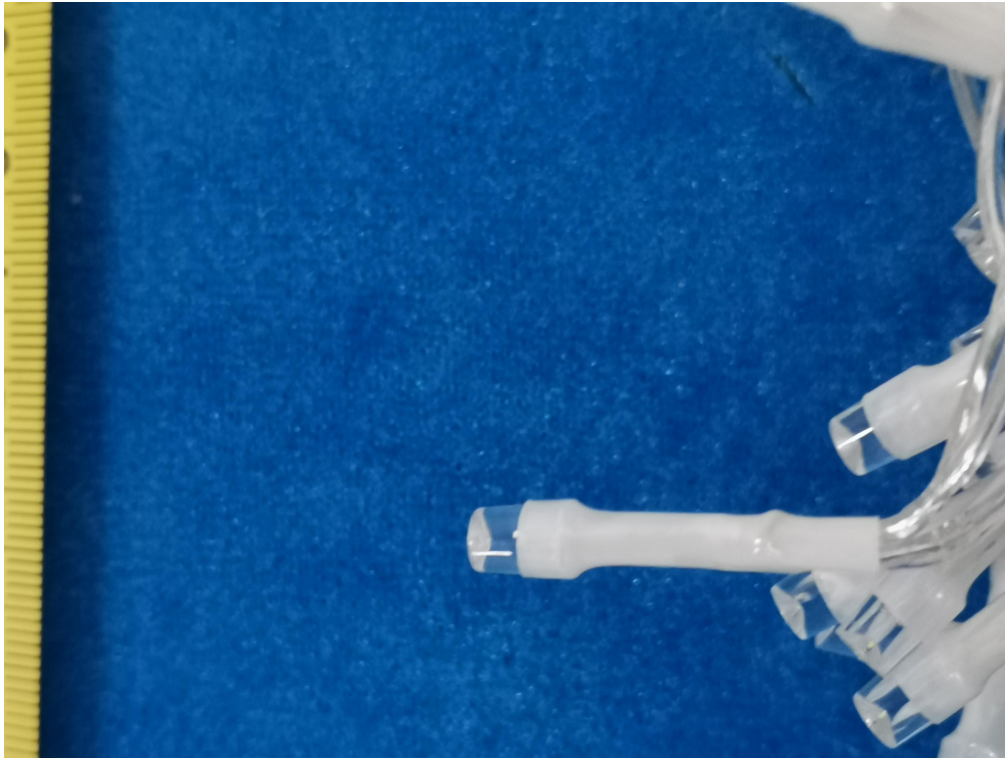


Fig. 5

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