EMC TEST REPORT

For

MIC Optoelectronic Co., Ltd

LED Flood Light

Test Model: MFL-G1440

Additional Models : Please Refer To Page 9 Model List

Prepared for	:	MIC Optoelectronic Co., Ltd
Address	:	3rd floor, D building, 12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Prepared by	:	Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
Address	:	101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China
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Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	October 08, 2019
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	October 08, 2019 ~ November 21, 2019
Date of Report	:	November 21, 2019

CE

EMC TEST REPORT
EN 55015: 2013+A1: 2015
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 ..... :	**LCS191008004BE**
Date Of Issue ..... :	November 21, 2019
Testing Laboratory Name..... :	**Shenzhen Southern LCS Compliance Testing Laboratory Ltd.**
Address ..... :	101-201, No.39 Building,Xialang Industrial Zone, Heshuikou Community, Matian Street,Guangming District, Shenzhen, China
Testing Location/ Procedure ... :	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name ..... :	**MIC Optoelectronic Co., Ltd**
Address ..... :	3rd floor, D building, 12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Test Specification:	
Standard ..... :	EN 55015: 2013+A1: 2015 EN 61000-3-2: 2014 EN 61000-3-3: 2013 EN 61547: 2009
Test Report Form No..... :	SLCSEMC-2.1
TRF Originator ..... :	Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
Master TRF ..... :	Dated 2016-08

Test Item Description..... :	**LED Flood Light**
Trade Mark ..... :	MIC
Test Model..... :	MFL-G1440
Power Supply..... :	100-240Vac, 50/60Hz, 1440W
Results ..... :	**PASS**

Compiled by:	**Supervised by:**	**Approved by:**
Aimee Yang	Dm Gu	Cherry Chen
Aimee Yang/ File administrators	Dm Gu/ Technique principal	Cherry Chen/ Manager

EMC - TEST REPORT

Test Report No. : LCS191008004BE	November 21, 2019 Date of issue

EUT.....:	LED Flood Light
Test Model.....:	MFL-G1440
Applicant .....:	**MIC Optoelectronic Co., Ltd**
Address .....:	3rd floor, D building, 12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Telephone .....:	/
Fax .....:	/
Manufacturer.....:	**MIC Optoelectronic Co., Ltd**
Address .....:	3rd floor, D building, 12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Telephone	/
Fax .....:	/
Factory.....:	**MIC Optoelectronic Co., Ltd**
Address .....:	3rd floor, D building, 12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Telephone .....:	/
Fax .....:	/

Test Result according to the standards on page 6: **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
00	November 21, 2019	Initial Issue	Cherry Chen

TABLE OF CONTENTS

1. REPORT INFORMATION DESCRIPTION

1.1 Summary of Standards and Results

1.1.1 Description of Standards and Results

EMISSION (EN 55015: 2013+A1: 2015)			
Description of Test Item	Test Standard	Limits	Results
Conducted Disturbance at Mains Terminals	EN 55015: 2013+A1: 2015	--------	PASS
Conducted Disturbance at Load Terminals	EN 55015: 2013+A1: 2015	--------	N/A
Conducted Disturbance at Control Terminals	EN 55015: 2013+A1: 2015	--------	N/A
Radiated Disturbance (9kHz to 30MHz)	EN 55015: 2013+A1: 2015	--------	PASS
Radiated Disturbance (30MHz to 300MHz)	EN 55015: 2013+A1: 2015	--------	PASS
Harmonic Current Emissions*	EN 61000-3-2: 2014	Class C	PASS
Voltage Fluctuations & Flicker**	EN 61000-3-3: 2013	--------	PASS
IMMUNITY (EN 61547: 2009)			
Description of Test Item	Test Standard	Basic Standard	Results
Electrostatic Discharge Immunity Test (ESD)	EN 61547: 2009	EN 61000-4-2	PASS
Radiated, Radio-Frequency, Electromagnetic Field Immunity Test (RS)	EN 61547: 2009	EN 61000-4-3	PASS
Power Frequency Magnetic Field Immunity Test	EN 61547: 2009	EN 61000-4-8	N/A
Electrical Fast Transient/Burst Immunity Test (EFT)	EN 61547: 2009	EN 61000-4-4	PASS
Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields (CS)	EN 61547: 2009	EN 61000-4-6	PASS
Surge Immunity Test (a.c. Power Ports)	EN 61547: 2009	EN 61000-4-5	PASS
Voltage Dips,Short Interruptions and Voltage Variations Immunity Test	EN 61547: 2009	EN 61000-4-11	PASS

Note：“*” According to EN 61000-3-2:2014, for LED products ≤ 25 watts, no limits are defined for the harmonics test, the EUT is deemed to comply with the standard without test.

Note：N/A is an abbreviation for Not Applicable.

Note：“**” Limits are not specified when LED luminaires with rating less than or equal to 200W(EN 61000-3-3:2013Annex A(A2))

1.1.2 Performance Criteria

The performance of lighting equipment shall be assessed by monitoring:

– the luminous intensity of the luminaire or of the lamp(s).

– the functioning of the control in the case of equipment which includes a regulating control or concerns the regulating control itself.

– the functioning of the starting device, if any.

Performance criterion A: During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

Performance criterion B: During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.

Performance criterion C: During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control.

Additional requirement for lighting equipment incorporating a starting device: After the test, the lighting equipment is switched off. After half an hour, it is switched on again. The lighting equipment shall start and operate as intended.

1.2 Product Information

1.2.1 Electrical parameter description

EUT : LED Flood Light

Trade Mark : MIC

Test Model : MFL-G1440

Additional Models : See page 9 model list

Power Supply : See page 9 model list

1.2.2 Test Modes

Lighting : EUT was test with power on, to get the status 'Lighting'

1.2.3 Test Auxiliary Equipment

Configuration	Model	Rating	Manufacturer

1.2.4 General Product Information

The EUTs are general luminaires for illumination purpose. detailed differences shown in below.

Model list:

Model	Rating	LED Driver	Dimension (LxWxH)/ Weight
MFL-G120	100-240Vac, 50/60Hz, 120W	ELG-150-48A	W310xL116xH132mm/2.8kg
MFL-G240	100-240Vac, 50/60Hz, 240W	ELG-240-48A	W362xL343xL132mm/5.6kg
MFL-G360	100-240Vac, 50/60Hz, 360W	ELG-200-48A x 2pcs	W362xL475xL132mmm/7.25kg
MFL-G480	100-240Vac, 50/60Hz, 480W	ELG-240-48A x 2pcs	W362xL597xH132mm/11kg
MFL-G720	100-240Vac, 50/60Hz, 720W	ELG-240-48A x 3pcs	W649xL475xH132mm/16.8kg
MFL-G960	100-240Vac, 50/60Hz, 960W	ELG-240-48A x 4pcs	W649xL597xH132mm/18kg
MFL-G1200	100-240Vac, 50/60Hz, 1200W	ELG-240-48A x 5pcs	W649xL729xH132mm/27.2kg
MFL-G1440	100-240Vac, 50/60Hz, 1440W	ELG-240-48A x 6pcs	W649xL861xH132mm/33.6kg

1.3 Description of Test Facility

EMC Lab.	:	TUV RH Registration Number. is UA 50418075 0001. UL Registration Number. is 100571-492. NVLAP Registration Code is 600112-0.
Test Facilities	:	Shenzhen Southern LCS Compliance Testing Laboratory Ltd. 101-201, No.39 Building,Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, 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. 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.

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cispr})
Conducted Disturbance	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 1.40 dB ± 2.80 dB	± 4.0 dB ± 3.6 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.46 dB	N/A
Radiated Disturbance	Level accuracy (9kHz to 30MHz)	± 3.12 dB	N/A
Radiated Disturbance	Level accuracy (30MHz to 200MHz)	± 4.66 dB	± 5.2 dB
Radiated Disturbance	Level accuracy (200MHz to 1000MHz)	± 4.64 dB	± 5.0 dB
Harmonic Current	Voltage	± 0.640%	N/A
Voltage Fluctuations & Flicker	Voltage	± 0.530%	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

Conducted Disturbance

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	EMI Test Receiver	R&S	ESCI	101142	2020-06-20
2	10dB Attenuator	SCHWARZBECK	VTSD9561-F	9561-F159	2020-06-20
3	Artificial Mains	SCHWARZBECK	NSLK8127	8127716	2020-06-20
4	EMI Test Software	EZ	EZ_EMC	N/A	2020-06-20
5	ISN CAT6	SCHWARZBECK	NTFM 8158	NTFM 8158#120	2020-06-20
6	Voltage Probe	SCHWARZBECK	KT 9420	9420401	2020-06-20

Radiated Disturbance(9kHz to 30MHz)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	EMI Test Receiver	R&S	ESPI	101142	2020-06-20
2	Triple-loop Antenna	EVERFINE	LLA-2	9161	2020-06-20
3	EMI Test Software	EZ	EZ_EMC	N/A	2020-06-20

Radiated Disturbance(30MHz to 300MHz)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2021-08-05
2	EMI Test Receiver	R&S	ESCI	101010	2020-06-20
3	Log per Antenna	SCHWARZBECK	VULB9163	5094	2020-06-23
4	EMI Test Software	AUDIX	E3	N/A	2020-06-20
5	Positioning Controller	MF	BK8807-4A-2T	2016-0808-008	2020-06-20

Harmonic Current&Voltage Fluctuation and Flicker

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	Power Analyzer Test System	Laplace	AC2000A	/	2020-06-20

Electrostatic Discharge Immunity Test (ESD)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	ESD Simulator	KIKUSUI	KES4021	KC001311	2020-06-24

Electrical Fast Transient/Burst Immunity Test (EFT)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	Electrical fast transient(EFT)generator	HTEC	HEFT51	162201	2020-06-20
2	Coupling Clamp	HTEC	H3C	163701	2020-06-20

Surge Immunity Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	Surge test system	3CTEST	SG5006G	EC5581070	2020-06-20
2	Coupling/decoupling network	3CTEST	SGN-5010G	EC5591033	2020-06-20

Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields (CS)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	Conducted Susceptibility Generator	HTEC	CDG6000	126A140012016	2020-06-20
2	CDN	HTEC	CDN-M2+M3	A22/0382/2016	2020-06-25
3	Attenuator	HTEC	ATT6	HA1601	2020-06-20
4	Electromagnetic Injection Clamp	LUTHI	EM101	35535	2020-06-20

Power Frequency Magnetic Field Immunity Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	Power frequency mag-field generator System	HTEC	HPFMF100	100-2400	2020-06-20

Voltage Dips,Short Interruptions and Voltage Variations Immunity Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	Voltage dips and up generator	HTEC	HPFS161P	162202	2020-06-20

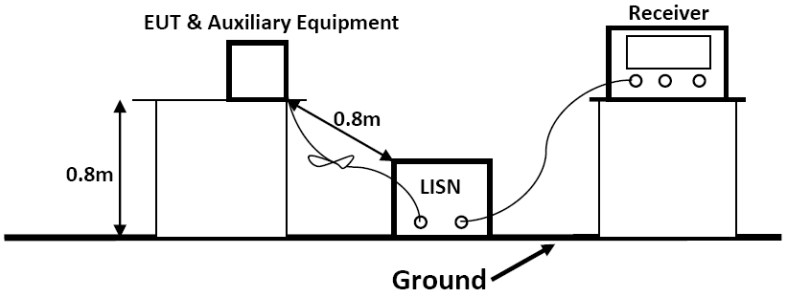
Radiated, Radio-Frequency, Electromagnetic Field Immunity Test (RS)

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Due Date.
1	RS Test Software	Tonscend	/	/	N/A
2	ESG Vector Signal Generator	Agilent	E4438C	MY42081396	2020-11-14
3	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2020-06-11
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	RS Test Software	Tonscend	/	/	2020-03-24

4. TEST DETAILS

4.1 Conducted Disturbance at Mains Terminals

4.1.1 Block Diagram of Test Setup



4.1.2 Test Standard

EN 55015: 2013+A1: 2015

4.1.3 Limits

Disturbance voltage limits at the Mains Terminals		
Frequency range	Limits (dBμV)	
	Quasi-peak	Average
9kHz to 50kHz	110	--
50kHz to 150kHz	90 ~ 80*	--
150kHz to 0.5MHz	66 ~ 56*	56 ~ 46*
0.5MHz to 5.0MHz	56	46
5.0MHz to 30MHz	60	50

1. At the transition frequency the lower limit applies.
2. * The limit decreases linearly with the logarithm of the frequency in the ranges 50 kHz to 150 kHz and 150 kHz to 0,5 MHz.

4.1.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.1.5 Test Procedure Description

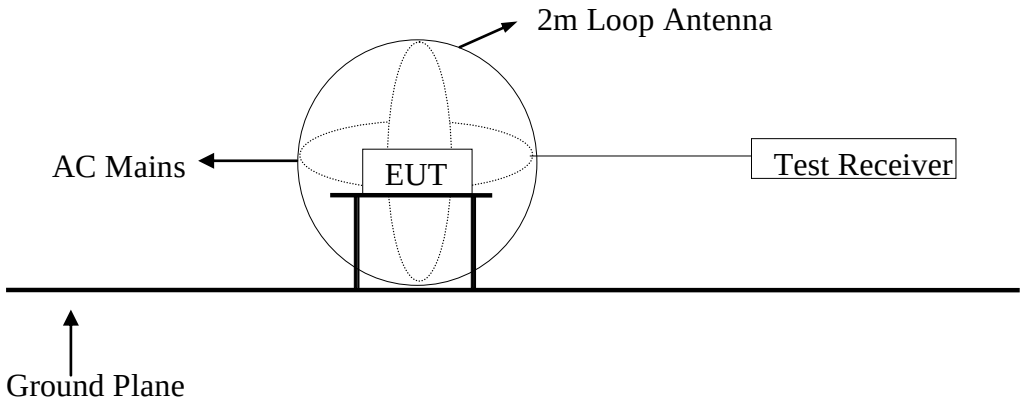
The EUT is put on the table which is 0.8 meter high above the ground and connected to the AC mains through a Line Impedance Stabilization Network (L.I.S.N.). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission according to the EN 55015 regulations during conducted emission measurement. And the voltage probe had been used for the load terminals measurement according to the EN 55015 standard.
The bandwidth of the test receiver is set at 200Hz in 9k~150kHz range and 9kHz in 150k~30MHz range.

4.1.6 Test Results:

Refer to attached Annexe C.1

4.2 Radiated Disturbance（9kHz to 30MHz）

4.2.1 Block Diagram of Test Setup



4.2.2 Test Standard

EN 55015: 2013+A1: 2015

4.2.3 Limits

Radiated Disturbance limits (9KHz-30MHz)	
Frequency range	Limits for loop diameter (dBμA)
	2m
9kHz to 70kHz	88
70kHz to 150kHz	88 to 58*
150kHz to 3.0MHz	58 to 22*
3.0MHz to 30MHz	22

1. At the transition frequency the lower limit applies.

2.* Decreasing linearly with logarithm of the frequency.

4.2.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.2.5 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.

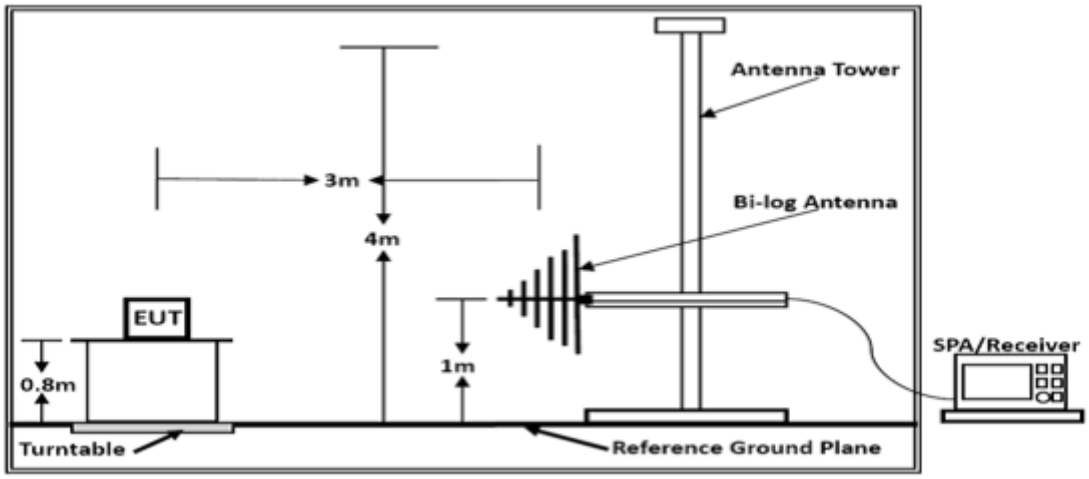
The frequency range from 9kHz to 30MHz is investigated. The receiver is measured with the quasi-peak detector. For frequency band 9kHz to 150kHz, the bandwidth of the field strength meter is set at 200Hz. For frequency band 150kHz to 30MHz, the bandwidth is set at 9kHz.

4.2.6 Test Results

Refer to attached Annexe C.2

4.3 Radiated Disturbance（30MHz to 300MHz）

4.3.1 Block Diagram of Test Setup



4.3.2 Test Standard

EN 55015: 2013+A1: 2015

4.3.3 Limits

Radiated Disturbance Limits at a measuring distance of 3m (30MHz-300MHz)	
Frequency range（MHz）	Quasi-Peak Limits(dBμV/m)
30 ~ 230	40
230 ~ 300	47

1, At the transition frequency, the lower limit applies.
2, Distance refers to the distance in meters between the measuring instrument antenna geometric center and the closed point of any part of the EUT.

4.3.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.
The EN 55015 regulations test method must be used to find the maximum emission during radiated emission measurement.

4.3.5 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.

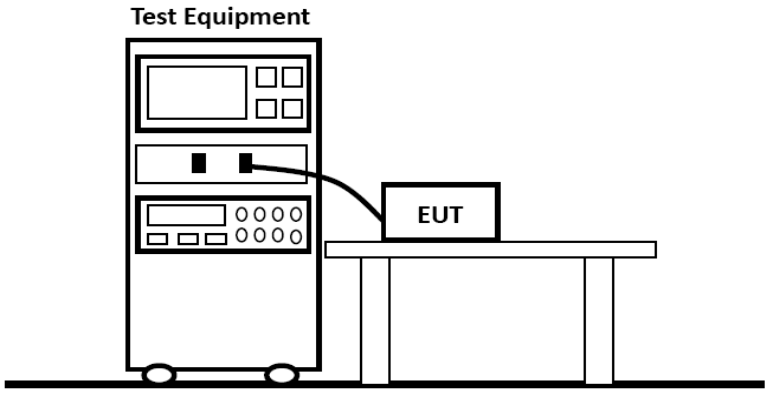
The bandwidth of the Receiver is set at 120kHz; The frequency range from 30MHz to 300MHz is investigated.

4.3.6 Test Results

Refer to attached Annexe C.3

4.4 Harmonic Current Emissions

4.4.1 Block Diagram of Test Setup



4.4.2 Test Standard

EN 61000-3-2: 2014

4.4.3 Limits

Limits for Class C Equipment	
Harmonic order n	Maximum permissible harmonic currrent expressed as a percentage of the input current at the fundamental frequency %
2	2
3	30·λ*
5	10
7	7
$11 \leq n \leq 39$	5
(odd harmonics only)	
* λ is the circuit power factor	

4.4.4 EUT Configuration on Test

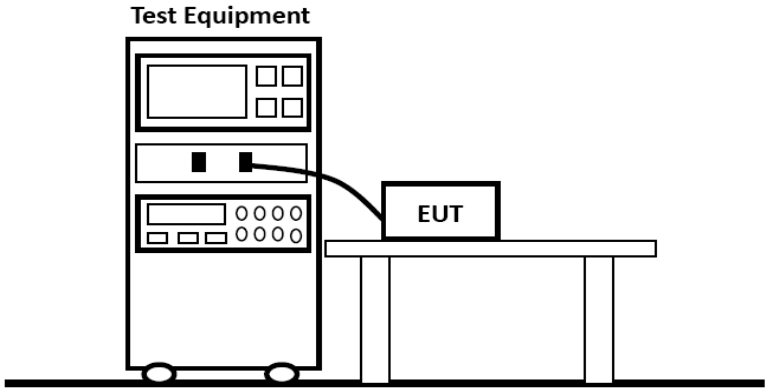
The configuration of the EUT is same as Section 3

4.4.5 Test Results

Refer to attached Annexe C.4

4.5 Voltage Fluctuations & Flicker

4.5.1 Block Diagram of Test Setup



4.5.2 Test Standard

EN 61000-3-3: 2013

4.5.3 Operating Condition of EUT

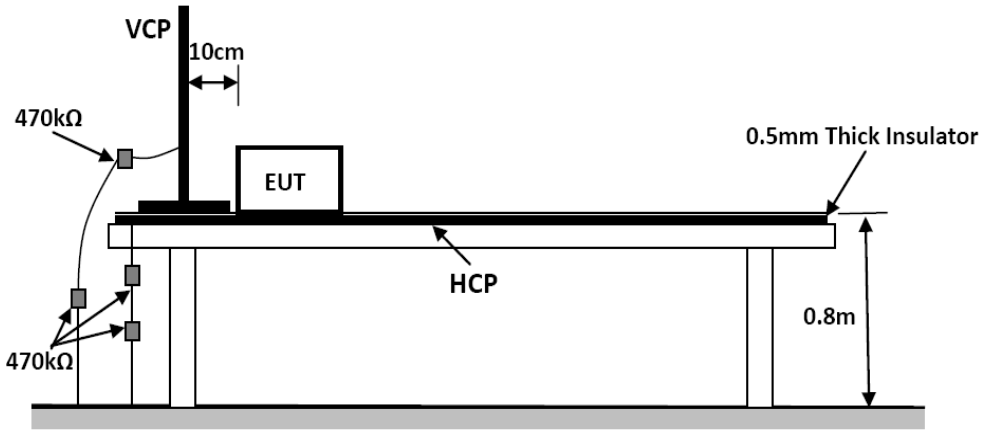
The configuration of the EUT is same as Section 3

4.5.4 Test Results

Refer to attached Annexe C.5

4.6 Electrostatic Discharge Immunity Test

4.6.1 Block Diagram of Test Setup



4.6.2 Test Standard

EN 61547:2009

4.6.3 Limits

Electrostatic discharges — Test levels				
Discharge Type	Discharge Level（KV）		Number of discharges（Each point）	Performance Criteria
	+	-		
Air Discharge-Direct	2, 4, 8	2, 4, 8	20	B
Contact Discharge-Direct	2, 4	2, 4	20	B
Contact Discharge Indirect	2, 4	2, 4	20	B

4.6.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.6.5 Test Procedure

a) 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.

b) Contact Discharge
All the procedure shall be same as Section a. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

c) 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.

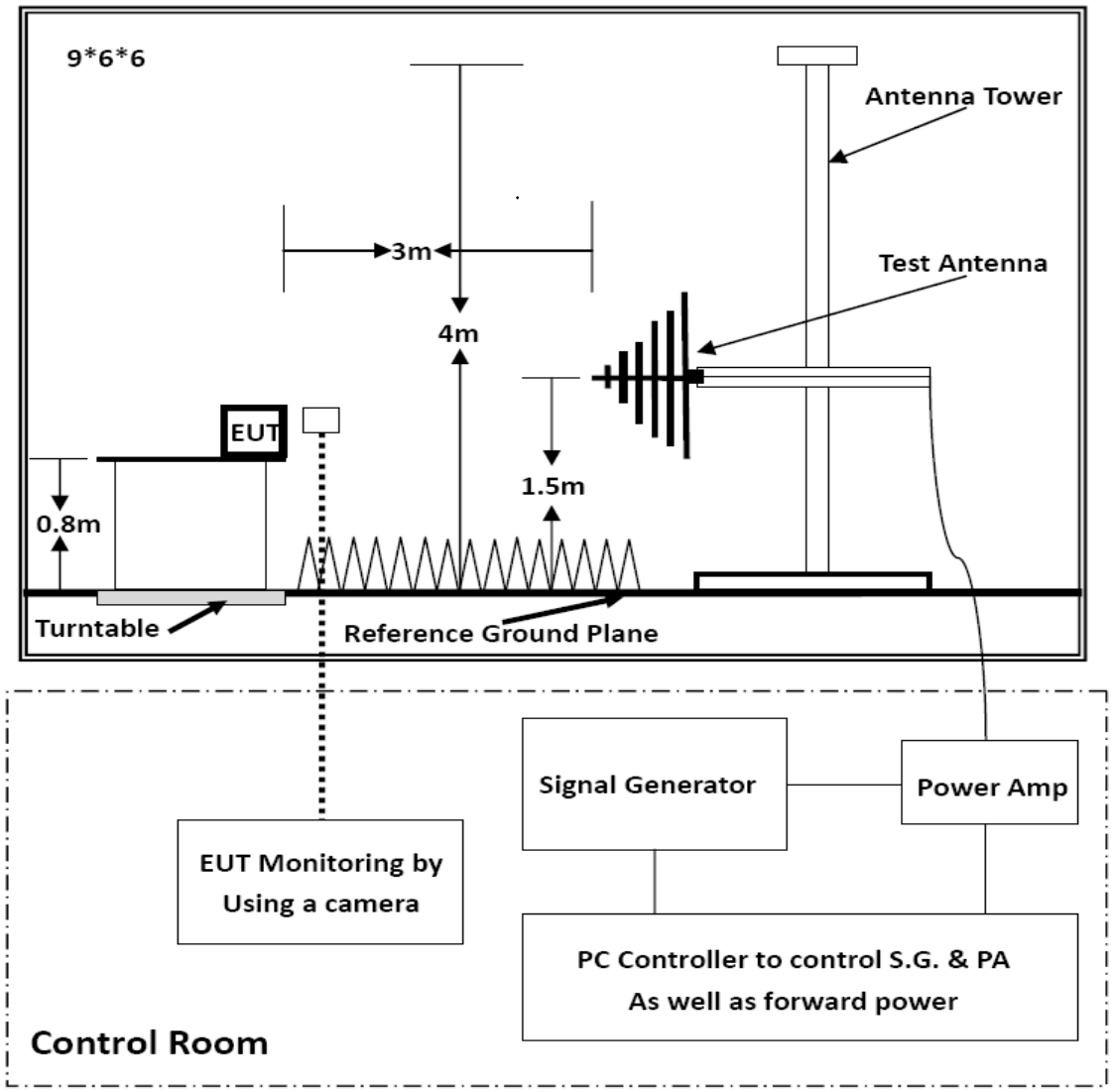
d) Indirect Discharge For Vertical Coupling Plane
At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m * 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied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

4.6.6 Test Results

Refer to attached Annexe C.6

4.7 Radiated, Radio-Frequency, Electromagnetic Field Immunity Test

4.7.1 Block Diagram of Test Setup



4.7.2 Test Standard

EN 61547:2009

4.7.3 Limits

Radio-frequency electromagnetic fields – Test levels		
Characteristics	Test levels	Performance Criteria
Frequency range	80 MHz to 1 000 MHz	A
Test level	3 V/m (unmodulated)	A
Modulation	1 kHz, 80 % AM, sine wave	A

4.7.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3.

4.7.5 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:

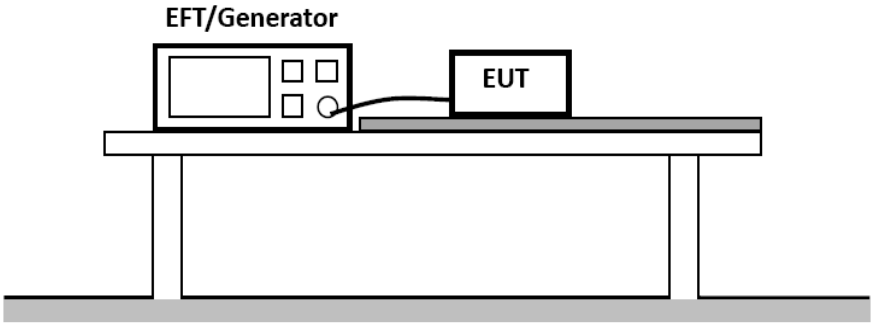
Condition of Test	Remarks
Fielded Strength	3 V/m
Radiated Signal	Unmodulated
Scanning Frequency	80 - 1000 MHz
Dwell time of radiated	0.0015 decade/s
Waiting Time	3 Sec.

4.7.6 Test Results

Refer to attached Annexe C.6

4.8 Electrical Fast Transient/Burst Immunity Test

4.8.1 Block Diagram of Test Setup



4.8.2 Test Standard

EN 61547:2009

4.8.3 Limits

Fast transients - Test levels at input and output a.c. power ports						
Test Levels	Repetition Frequency	Burst Duration	Burst Period	Test Duration	Coupling Method	Performance Criteria
±1 kV	5 kHz	15ms	300ms	2 min per polarity	Direct	B

Fast transients - Test levels at input and output d.c. power ports						
Test Levels	Repetition Frequency	Burst Duration	Burst Period	Test Duration	Coupling Method	Performance Criteria
±0.5kV	5 kHz	15ms	300ms	2 min per polarity	Direct	B
Note: Not applicable to equipment not connected to the mains while in use.						

Fast transients - Test levels at ports for signal and control lines						
Test Levels	Repetition Frequency	Burst Duration	Burst Period	Test Duration	Coupling Method	Performance Criteria
±0.5kV	5 kHz	15ms	300ms	2 min per polarity	Direct	B
Note 1: Only applicable to ports interfacing with cables whose total length, according to the manufacturer's specification, may exceed 3 m.						
Note 2: Change of state commands are not applied during the test.						

4.8.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.8.5 Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

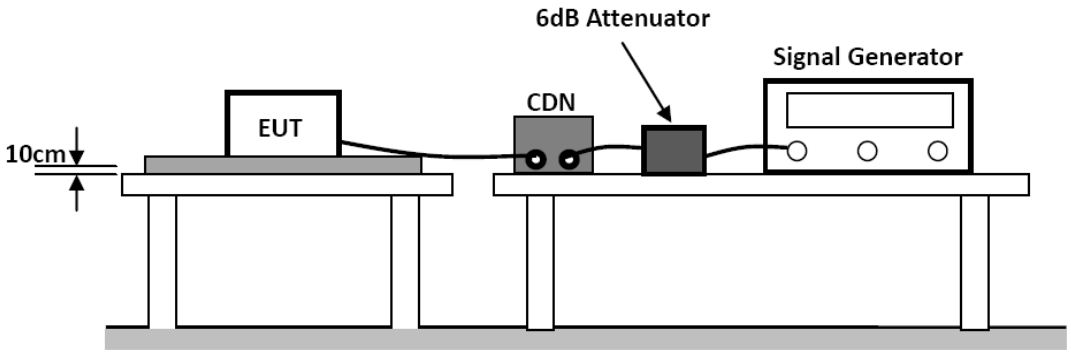
The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test, Fast transients are carried out with a minimum duration of 2 min with a positive polarity and a minimum of 2 min with a negative polarity

4.8.6 Test Results

Refer to attached Annexe C.6

4.9 Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields

4.9.1 Block Diagram of Test Setup



4.9.2 Test Standard

EN 61547:2009

4.9.3 Limits

Radio-frequency common mode – Test levels at input and output a.c. power ports					
Frequency range（MHz）	Test Level（V/m）	Modulation Signal	Coupling Method	Steps	Performance Criteria
0.15 to 80	3	1kHz, 80%, AM, Sine wave	CND	1%	A
Note: Only applicable to ports interfacing with cables whose total length, according to the manufacturer's specification, may exceed 3 m.					

Radio-frequency common mode – Test levels at input and output d.c. power ports					
Frequency range（MHz）	Test Level（V/m）	Modulation Signal	Coupling Method	Steps	Performance Criteria
0.15 to 80	3	1kHz, 80%, AM, Sine wave	CND	1%	A
Note: Only applicable to equipment that is connected to the mains while in use.					

Radio-frequency common mode – Test levels at ports for signal and control lines					
Frequency range（MHz）	Test Level（V/m）	Modulation Signal	Coupling Method	Steps	Performance Criteria
0.15 to 80	3	1kHz, 80%, AM, Sine wave	CND	1%	A
Note: Only applicable to ports interfacing with cables whose total length, according to the manufacturer's specification, may exceed 3 m.					
Note 2: Change of state commands are not applied during the test.					

4.9.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.9.5 Test Procedure

a) Set up the EUT, CDN and test generators as shown on Section 4.8.1

b) Let the EUT work in test mode and measure it.

c) The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

d) The disturbance signal described below is injected to EUT through CDN.

e)The EUT operates within its operational mode(s) under intended climatic conditions after power on.
f)The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

g)The rate of sweep shall not exceed 1.5*10-3decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

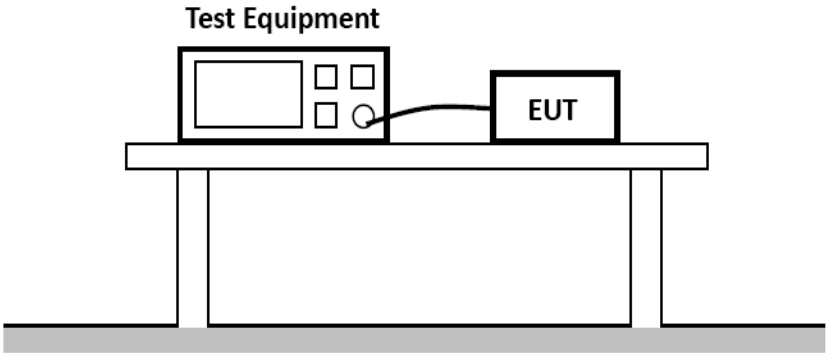
h)Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

4.9.6 Test Results

Refer to attached Annexe C.6

4.10 Surge Immunity Test

4.10.1 Block Diagram of Test Setup



4.10.2 Test Standard

EN 61547:2009

4.10.3 Limits

Surges – Test levels at input a.c. power ports					
Characteristics		Device			Performance Criteria
		Self-ballasted lamps and semi-luminaires	Luminaires and independent auxiliaries		
			Input power		
			≤25	>25 W	
Wave-shape data		1.2/50 μs	1.2/50 μs	1.2/50 μs	C
Test Levels	line to line	±0.5 kV	±0.5 kV	±1.0 kV	
	line to ground	±1.0 kV	±1.0 kV	±2.0 kV	
Note: In addition to the specified test level, all lower test levels as detailed in IEC 61000-4-5 should also be satisfied.					

4.10.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.10.5 Test Procedure

a) Set up the EUT and test generator as shown on Section 4.9.1

b) For line to line coupling mode, provide a 1.0KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.

c) For line to earth coupling mode, provide a 2.0KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.

d) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.

e) Different phase angles are done individually.

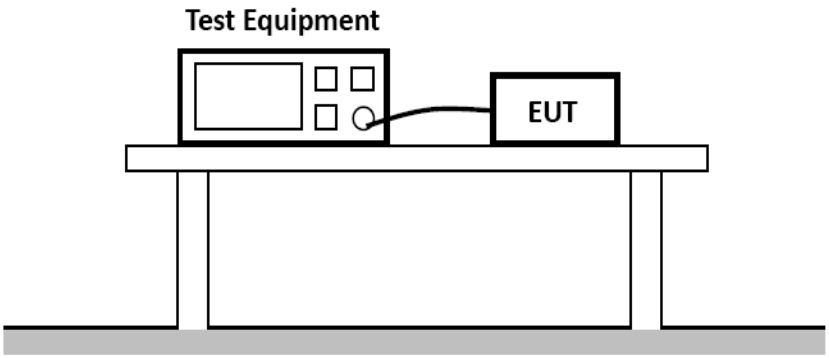
f) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

4.10.6 Test Results

Refer to attached Annexe C.6

4.11 Voltage Dips,Short Interruptions and Voltage Variations Immunity Test

4.11.1 Block Diagram of Test Setup



4.11.2 Test Standard

EN 61547:2009

4.11.3 Limits

Voltage dips and short interruptions-Test levels at input a.c. power ports			
	Test Level	Duration	Performance criterion
Voltage dips	70% of Vnom	10 cycle(50Hz)	C
Short Interruptions	0% of Vnom	0.5 cycle(50Hz)	B

4.11.4 EUT Configuration on Test

The configuration of the EUT is same as Section 3

4.11.5 Test Procedure

a)Set up the EUT and test generator as shown on Section 4.10.1

b) The interruptions is introduced at selected phase angles with specified duration.

c) Record any degradation of performance.

4.11.6 Test Results

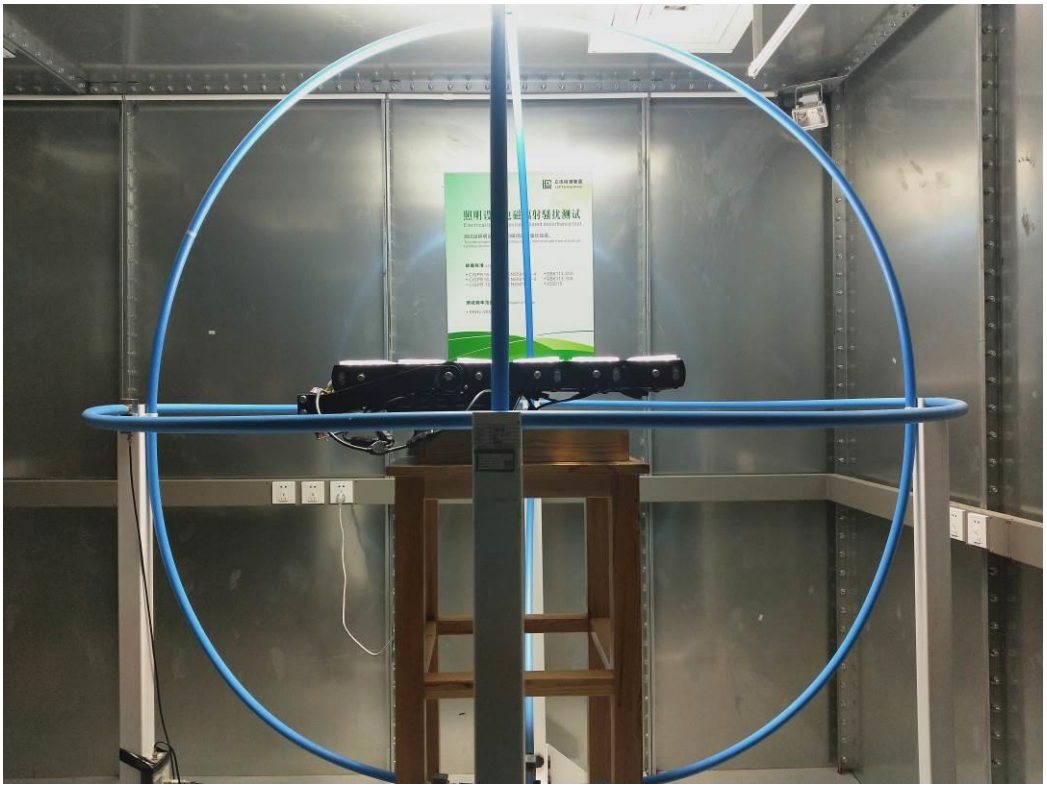
Refer to attached Annexe C.6

ANNEXE A

（Test photograph）

A.1 Photo of Conducted Disturbance at Mains Terminals

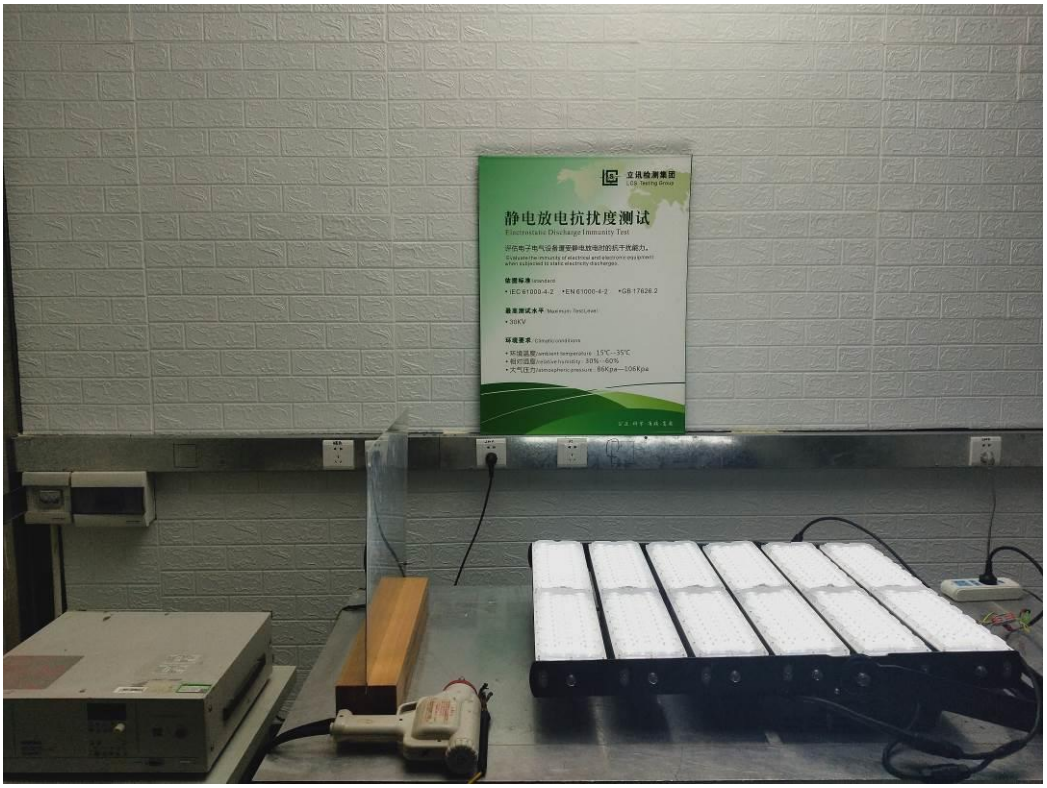
A.2 Photo of Radiated Disturbance(9kHz to 30MHz)



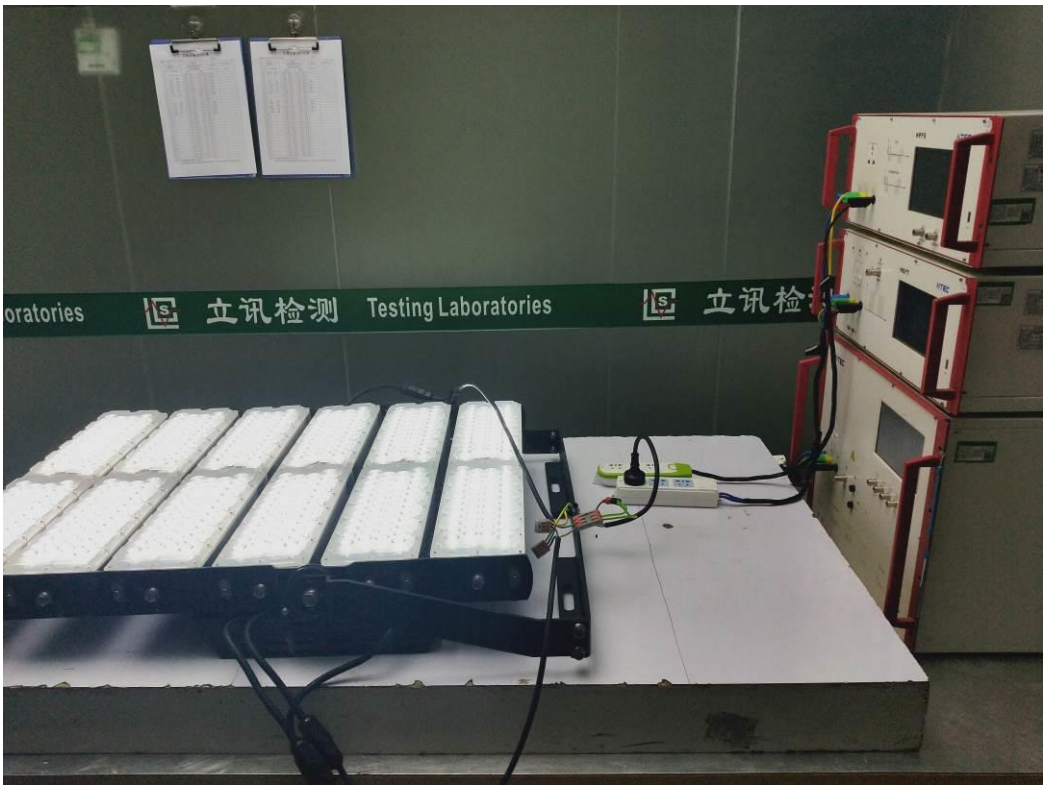
A.3 Photo of Radiated Disturbance(30MHz to 300MHz)

A.4 Photo of Harmonic Current Emissions&Voltage Fluctuations & Flicker

A.5 Photo of Electrostatic Discharge Immunity Test

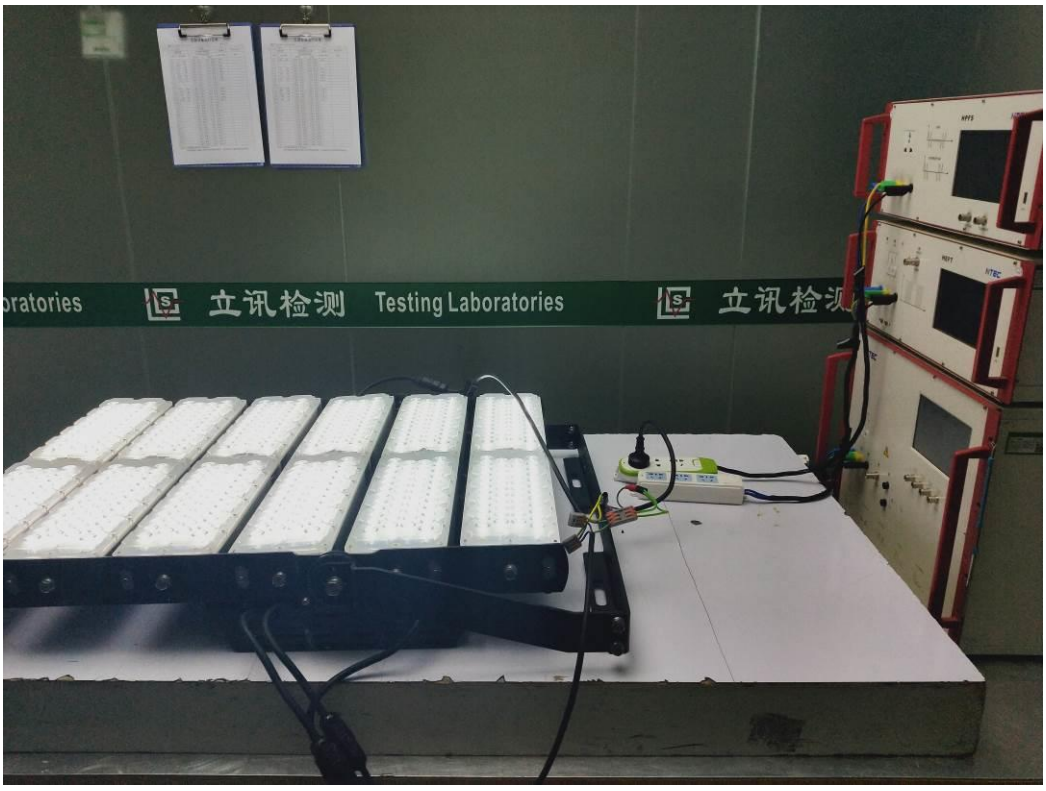


A.6 Photo of Electrical Fast Transient/Burst Immunity Test



A.7 Photo of Surge Immunity Test

A.8 Photo of Voltage Dips,Short Interruptions and Voltage Variations Immunity Test



ANNEXE B

（External and internal photos of the EUT）

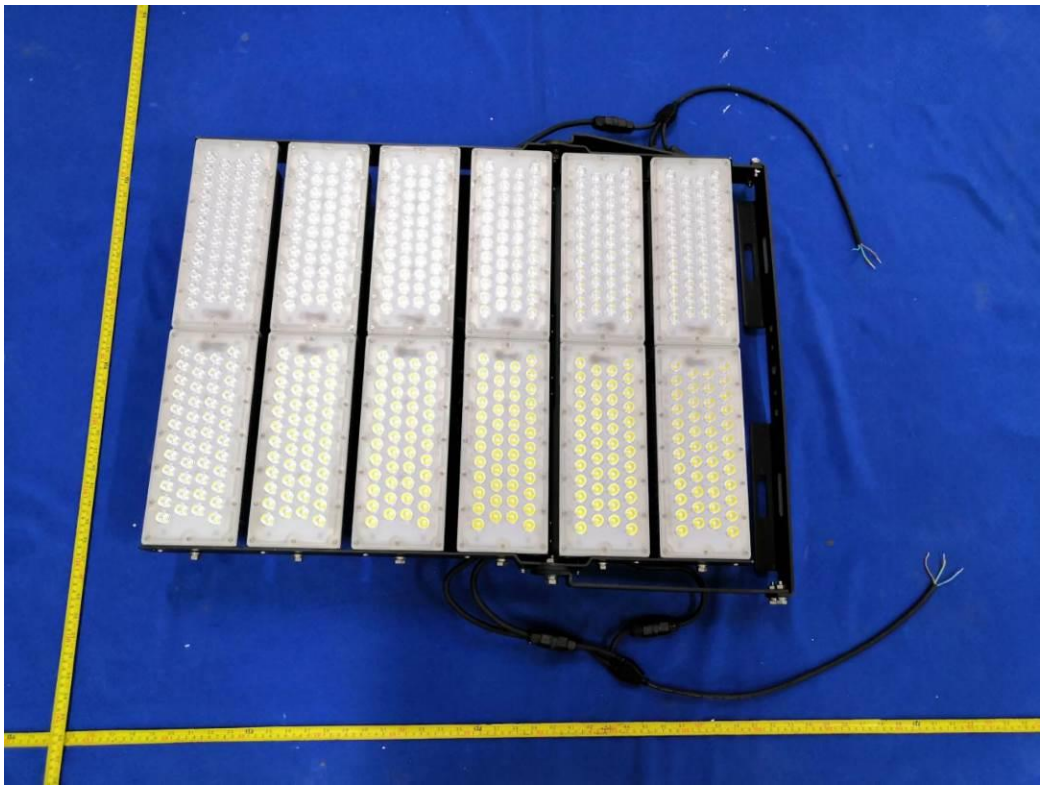


Figure. 1

Figure. 2

Figure. 3

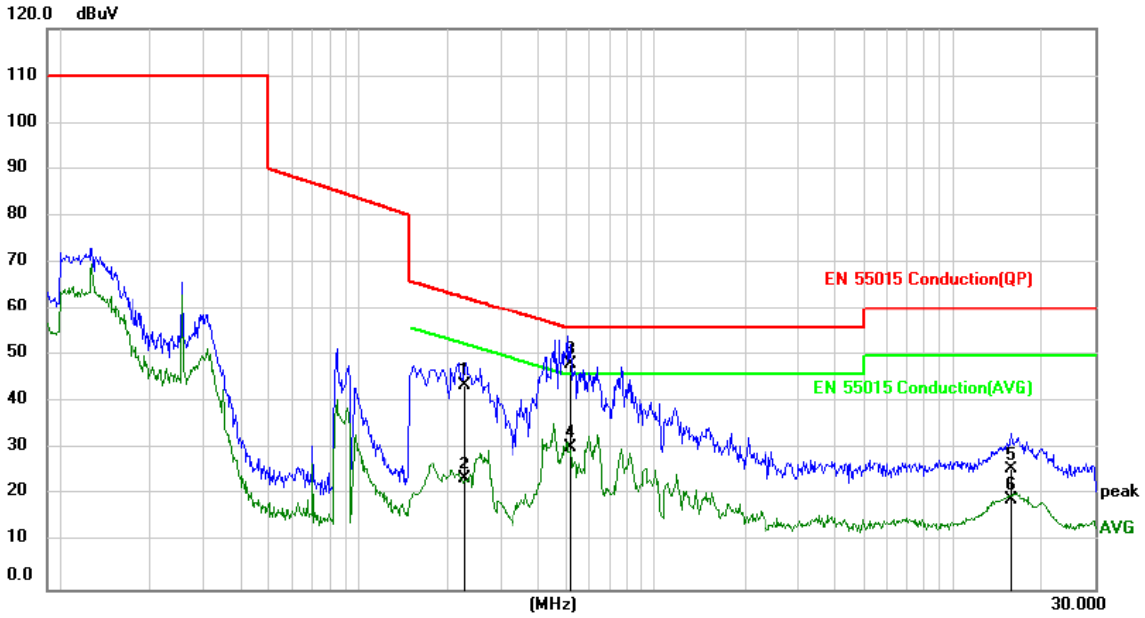
Figure. 4

ANNEXE C

（Emission and Immunity test results）

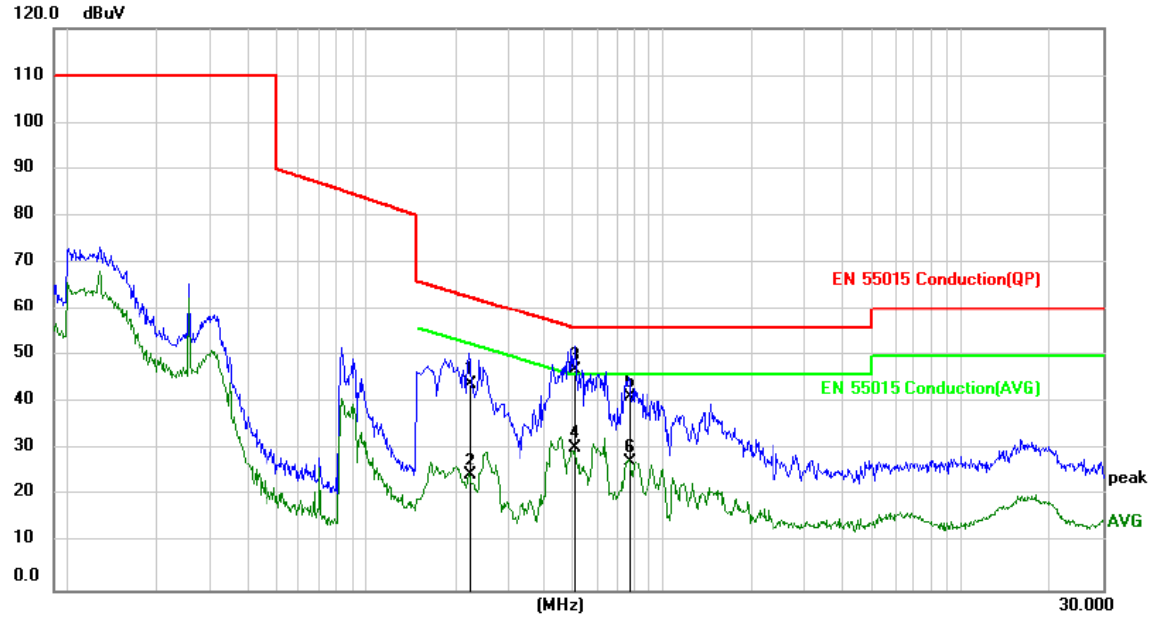
C.1 Conducted Disturbance at Mains Terminals Test Results

Environmental Conditions:	23.9℃, 53% RH
Test Voltage:	AC 230V,50Hz
Test Model:	MFL-G1440
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Pol:	Line
Detailed results are shown below	



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2262	33.51	10.22	43.73	62.59	-18.86	QP	
2		0.2262	13.28	10.22	23.50	52.59	-29.09	AVG	
3	*	0.5143	38.08	10.20	48.28	56.00	-7.72	QP	
4		0.5143	20.11	10.20	30.31	46.00	-15.69	AVG	
5		15.5366	15.36	10.20	25.56	60.00	-34.44	QP	
6		15.5366	8.98	10.20	19.18	50.00	-30.82	AVG	

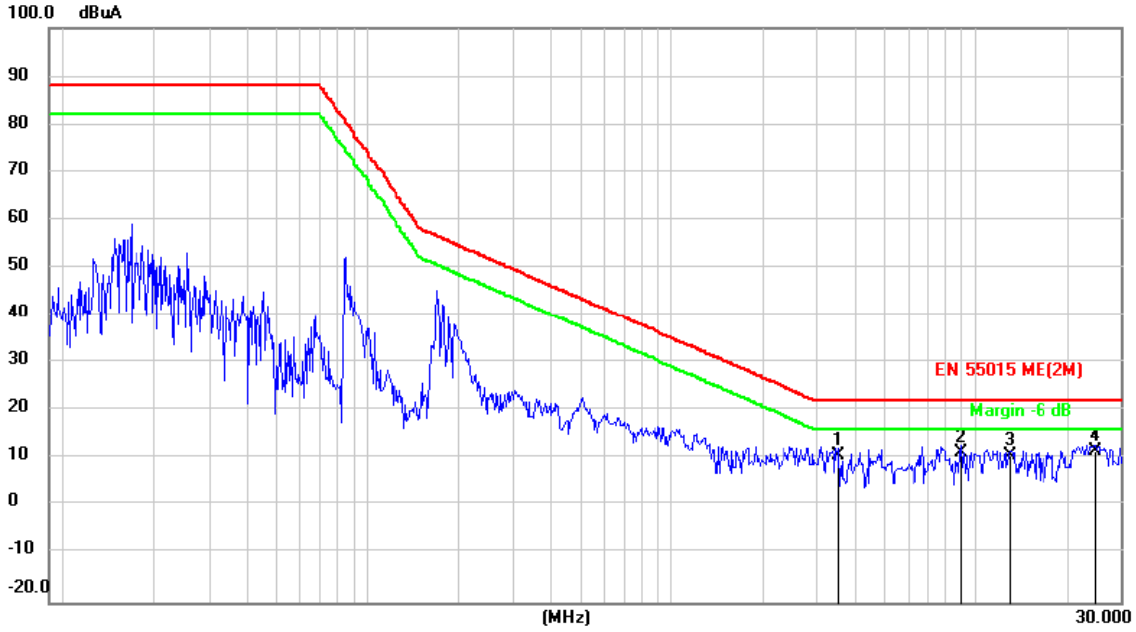
Environmental Conditions:	23.9℃, 53% RH
Test Voltage:	AC 230V,50Hz
Test Model:	MFL-G1440
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Pol:	Neutral
Detailed results are shown below	



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2246	33.75	10.22	43.97	62.65	-18.68	QP	
2		0.2246	14.24	10.22	24.46	52.65	-28.19	AVG	
3	*	0.5093	36.87	10.20	47.07	56.00	-8.93	QP	
4		0.5093	20.18	10.20	30.38	46.00	-15.62	AVG	
5		0.7706	31.05	10.20	41.25	56.00	-14.75	QP	
6		0.7706	17.19	10.20	27.39	46.00	-18.61	AVG	

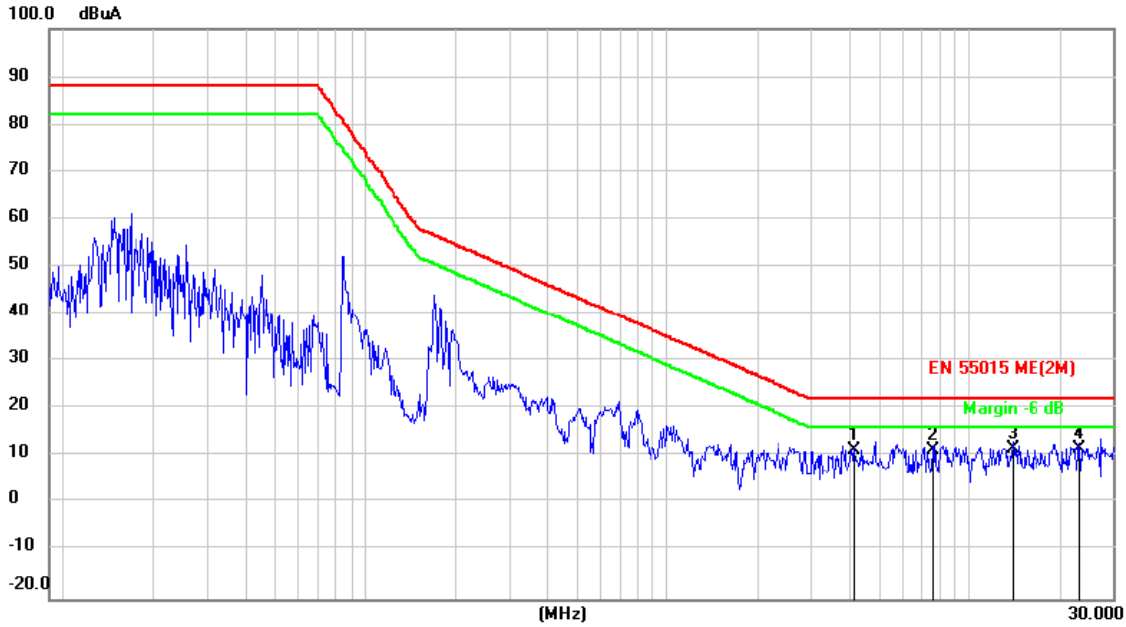
C.2 Radiated Disturbance Test Results（9kHz to 30MHz）

Environmental Conditions:	23.9℃, 53% RH
Test Voltage:	AC 230V,50Hz
Test Model:	MFL-G1440
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Pol:	X
Detailed results are shown below	



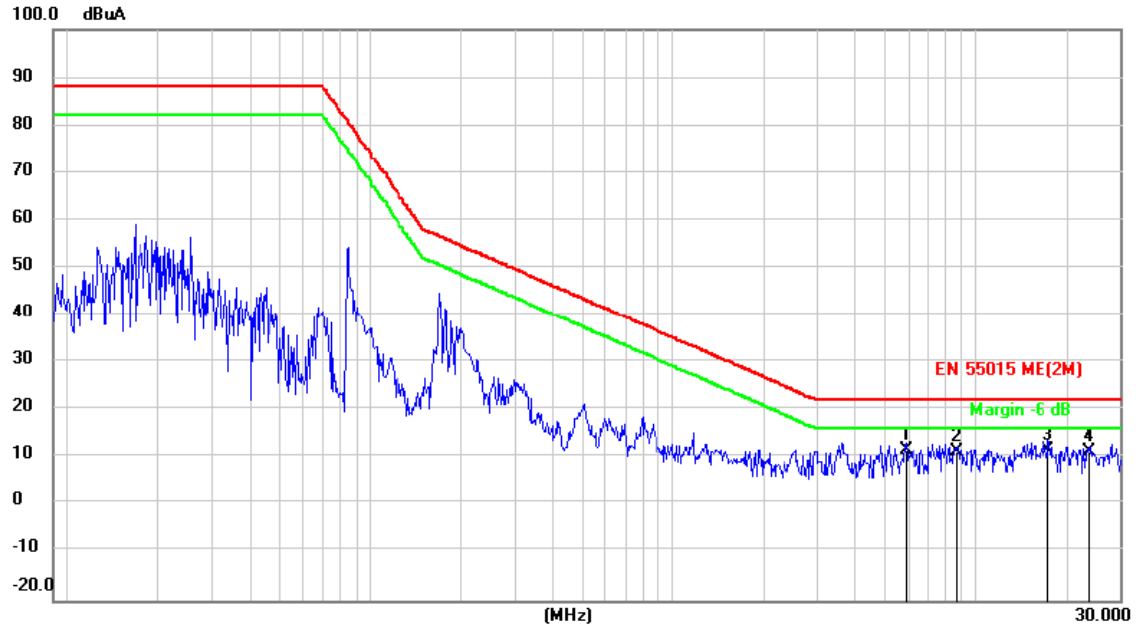
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector	Comment
1		3.5531	10.90	0.00	10.90	22.00	-11.10	QP	
2		8.9580	14.94	-3.44	11.50	22.00	-10.50	QP	
3		13.0096	18.72	-8.02	10.70	22.00	-11.30	QP	
4	*	24.8931	31.80	-20.00	11.80	22.00	-10.20	QP	

Environmental Conditions:	23.9℃, 53% RH
Test Voltage:	AC 230V,50Hz
Test Model:	MFL-G1440
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Pol:	Y
Detailed results are shown below	



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector	Comment
1		4.1450	11.25	0.25	11.50	22.00	-10.50	QP	
2		7.6165	12.99	-1.69	11.30	22.00	-10.70	QP	
3	*	13.9946	21.98	-10.18	11.80	22.00	-10.20	QP	
4		23.1414	31.64	-20.04	11.60	22.00	-10.40	QP	

Environmental Conditions:	23.9℃, 53% RH
Test Voltage:	AC 230V,50Hz
Test Model:	MFL-G1440
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Pol:	Z
Detailed results are shown below	



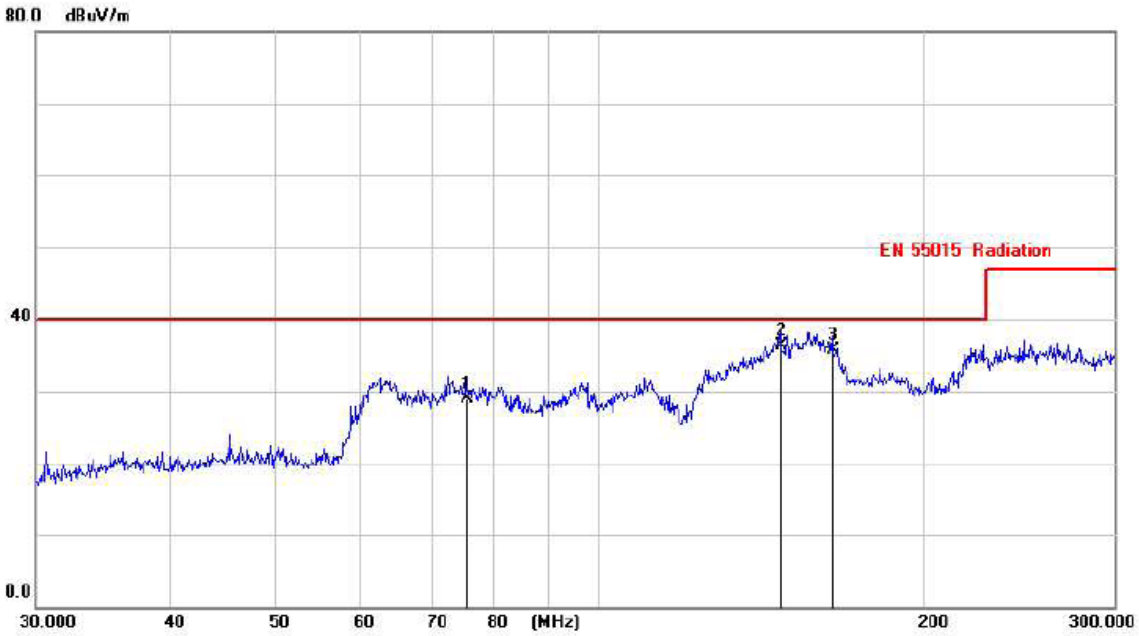
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuA	dB	dBuA	dBuA	dB	Detector	Comment
1		5.8752	12.18	-0.48	11.70	22.00	-10.30	QP	
2		8.6720	14.41	-3.01	11.40	22.00	-10.60	QP	
3	*	17.4216	26.09	-14.29	11.80	22.00	-10.20	QP	
4		23.7114	31.80	-20.30	11.50	22.00	-10.50	QP	

C.3 Radiated Disturbance Test Results（30MHz to 300MHz）

Environmental Conditions:	23.8℃, 53% RH
Test Voltage:	AC 230V,50Hz
Test Model:	MFL-G1440
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Pol:	Vertical
Detailed results are shown below	

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1	*	61.7300	19.75	12.68	32.43	40.00	-7.57	QP			
2		108.4542	15.92	11.62	27.54	40.00	-12.46	QP			
3		136.5357	18.04	13.32	31.36	40.00	-8.64	QP			

Environmental Conditions:	23.8℃, 53% RH
Test Voltage:	AC 230V,50Hz
Test Model:	MFL-G1440
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Pol:	Horizontal
Detailed results are shown below	



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	cm	degree	Comment
1		75.6609	19.03	9.90	28.93	40.00	-11.07	QP			
2	*	147.7394	26.93	9.39	36.32	40.00	-3.68	QP			
3		165.0522	25.64	10.16	35.80	40.00	-4.20	QP			

C.4 Harmonic Current Emissions Test Results

Environmental Conditions:	23.9℃, 53% RH
Test Model:	MFL-G1440
Test Voltage:	AC 230V,50Hz
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Detailed results are shown below	

Nominal Supply Voltage : 220
Nominal Supply Frequency : 50
Nominal Crest Phase : 90.0
Nominal Crest Factor : 1.414

	Measured Low	Measured High	Deviation	Allowed Deviation	Result
Supply Voltage	: 219.10	219.43	-0.89	4.40	PASS
Supply Frequency	: 49.99	50.00	-0.01	0.25	PASS
Crest Phase	: 89.4	90.2	-0.6	3.0	PASS
Crest Factor	: 1.413	1.415	0.001	-0.014/+0.006	PASS
Fundamental Voltage	: 219.34	-	-	-	-

Harmonic	Harmonic Voltage	Harmonic Ratio	Limit	Result
2	0.04	0.067	0.20	PASS
3	0.19	0.182	0.90	PASS
4	0.09	0.047	0.20	PASS
5	0.19	0.091	0.40	PASS
6	0.03	0.022	0.20	PASS
7	0.07	0.050	0.30	PASS
8	0.00	0.011	0.20	PASS
9	0.02	0.021	0.20	PASS
10	0.02	0.014	0.10	PASS
11	0.02	0.025	0.10	PASS
12	0.00	0.005	0.10	PASS
13	0.02	0.022	0.10	PASS
14	0.00	0.005	0.10	PASS
15	0.03	0.022	0.10	PASS
16	0.01	0.008	0.10	PASS
17	0.03	0.019	0.10	PASS
18	0.00	0.003	0.10	PASS
19	0.03	0.019	0.10	PASS
20	0.00	0.003	0.10	PASS
21	0.02	0.016	0.10	PASS
22	0.00	0.003	0.10	PASS
23	0.02	0.014	0.10	PASS
24	0.00	0.003	0.10	PASS
25	0.02	0.011	0.10	PASS
26	0.00	0.003	0.10	PASS
27	0.02	0.014	0.10	PASS
28	0.00	0.003	0.10	PASS
29	0.03	0.020	0.10	PASS
30	0.00	0.003	0.10	PASS
31	0.04	0.022	0.10	PASS
32	0.00	0.003	0.10	PASS
33	0.04	0.019	0.10	PASS
34	0.00	0.003	0.10	PASS
35	0.03	0.021	0.10	PASS
36	0.00	0.003	0.10	PASS
37	0.03	0.019	0.10	PASS
38	0.00	0.003	0.10	PASS
39	0.02	0.014	0.10	PASS
40	0.00	0.003	0.10	PASS

Environmental Conditions:	23.9℃, 53% RH
Test Model:	MFL-G1440
Test Voltage:	AC 230V,50Hz
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Detailed results are shown below	

Supply Voltage : 218.9 to 219.3 Vrms 310.1 Vpk Frequency : 50.00 Hz
Supply Meets EN Requirements

Load Power : 1466.40 to 1467.80 W 1483.0 VA Power Factor 0.989
Load Current : 6.8 Arms 10.0 Apk Crest Factor 1.473

Measurement Standard : EN61000-4-7:2002+A1:2009
Limits Applied : EN61000-3-2:2014 Class C Limits >25W for 6.769A at 0.989 PF.

Harmonic Number	Limit Current mA	Average (filtered) mA	% Limit	max. Value (Filtered) mA	% Limit	Assessment
19 :	203.1	37.1	18.3	37.4	18.4	Pass
Fundamental :		6717.5				
2 :	135.4	2.9	2.1	4.6	3.4	Pass
3 :	2008.8	532.2	26.5	539.4	26.9	Pass
4 :	-	2.1	-	3.5	-	-
5 :	676.9	325.4	48.1	330.1	48.8	Pass
6 :	-	1.0	-	1.4	-	-
7 :	473.8	184.2	38.9	186.3	39.3	Pass
8 :	-	0.7	-	1.4	-	-
9 :	338.5	82.7	24.4	84.1	24.8	Pass
10 :	-	1.1	-	1.7	-	-
11 :	203.1	53.9	26.5	54.6	26.9	Pass
12 :	-	0.5	-	1.0	-	-
13 :	203.1	49.1	24.2	49.6	24.4	Pass
14 :	-	0.6	-	1.0	-	-
15 :	203.1	48.5	23.9	49.2	24.2	Pass
16 :	-	1.1	-	1.7	-	-
17 :	203.1	45.0	22.2	45.6	22.5	Pass
18 :	-	0.7	-	1.4	-	-
19 :	203.1	36.6	18.0	37.4	18.4	Pass
20 :	-	0.5	-	1.0	-	-
21 :	203.1	27.0	13.3	27.6	13.6	Pass
22 :	-	0.6	-	1.0	-	-
23 :	203.1	20.0	9.8	20.8	10.2	Pass
24 :	-	0.6	-	1.0	-	-
25 :	203.1	19.6	9.7	20.1	9.9	Pass
26 :	-	0.5	-	1.0	-	-
27 :	203.1	23.6	11.6	24.0	11.8	Pass
28 :	-	0.6	-	1.4	-	-
29 :	203.1	27.4	13.5	28.0	13.8	Pass
30 :	-	0.7	-	1.4	-	-
31 :	203.1	28.9	14.2	29.1	14.3	Pass
32 :	-	0.8	-	1.4	-	-
33 :	203.1	27.8	13.7	28.0	13.8	Pass
34 :	-	0.8	-	1.4	-	-
35 :	203.1	25.0	12.3	25.5	12.6	Pass
36 :	-	0.8	-	1.4	-	-
37 :	203.1	21.3	10.5	21.5	10.6	Pass
38 :	-	0.8	-	1.0	-	-
39 :	203.1	17.3	8.5	17.6	8.7	Pass
40 :	-	0.7	-	1.0	-	-
21 - 39 :	642.2	76.1	11.8	76.9	12.0	-

C.5 Voltage Fluctuations & Flicker Test Results

Environmental Conditions:	23.9℃, 53% RH
Test Model:	MFL-G1440
Test Voltage:	AC 230V,50Hz
Test Mode:	Lighting
Test Engineer:	Zed Zhang
Detailed results are shown below	

```
Load Power           : 1.459 kW   1.476 kVA Power Factor  0.988
Load Current         : 6.8 Arms  10.0 Apk Crest Factor  1.477

EN 61000-3-3:2013 - Voltage reduction is positive

Voltage Variations
           Nominal Voltage: 220 Vrms
  Highest Half-cycle level:  -0.32%
   Lowest Half-cycle level:  +1.12%

                   d(max):  -0.79%          Limit: 4%     PASS
                   t(max):   0.00seconds    Limit: 500ms  PASS

   Steady State definition: >1000ms within +/- 0.2%
  Largest d(c) change down:  +0.02%
    Largest d(c) change up:  +0.00%
       Largest d(c) change:  +0.02%          Limit: 3.3%   PASS

Flicker
```

Pst Classifier		Plt Calculation	
Duration	Flicker	Interval	Pst
0.1%	0.01		
0.7%	0.01		
1.0%	0.01		
1.5%	0.01		
2.2%	0.01		
3%	0.01		
4%	0.00		
6%	0.00		
8%	0.00		
10%	0.00		
13%	0.00		
17%	0.00		
30%	0.00		
50%	0.00		
80%	0.00		

C.6 Immunity Test Results

Electrostatic Discharge Immunity Test Results			
Standard	☑ EN 61547: 2009 ☑ EN 61000-4-2 : 2006		
Applicant	MIC Optoelectronic Co., Ltd		
EUT	LED Flood Light	Temperature	23.9℃
M/N	MFL-G1440	Humidity	51％
Test Mode	Lighting	Pressure	1008mbar
Input Voltage	AC 230V,50Hz	Test Results	Pass
Test Engineer	Zed Zhang		

Discharge mode	Test points	Results						Performance Criteria
		2kv		4kv		8kv		
		+	-	+	-	+	-	
Direct-Contact Discharge	Front	P	P	P	P	/	/	B
	Back	P	P	P	P	/	/	B
	Left	P	P	P	P	/	/	B
	Right	P	P	P	P	/	/	B
	Top	P	P	P	P	/	/	B
	Bottom	P	P	P	P	/	/	B
Direct-Air Discharge	Front	P	P	P	P	P	P	B
	Back	P	P	P	P	P	P	B
	Left	P	P	P	P	P	P	B
	Right	P	P	P	P	P	P	B
	Top	P	P	P	P	P	P	B
	Bottom	P	P	P	P	P	P	B
Indirect-Contact Discharge (VCP)	Front	P	P	P	P	/	/	B
	Back	P	P	P	P	/	/	B
	Left	P	P	P	P	/	/	B
	Right	P	P	P	P	/	/	B
Indirect-Contact Discharge (HCP)	Front	P	P	P	P	/	/	B
	Back	P	P	P	P	/	/	B
	Left	P	P	P	P	/	/	B
	Right	P	P	P	P	/	/	B

Note: “P” = Pass.

Radiated, Radio-Frequency, Electromagnetic Field Immunity Test Results

Standard	☑ EN 61547: 2009 ☑ EN 61000-4-3: 2006+A2: 2010		
Applicant	MIC Optoelectronic Co., Ltd		
EUT	LED Flood Light	Temperature	23.5℃
M/N	MFL-G1440	Humidity	53％
Test Mode	Lighting	Pressure	1008mbar
Input Voltage	AC 230V,50Hz	Test Engineer	Davey Xu
Modulation	80% AM 1KHz	Test Results	Pass
Steps	1%		

Side of EUT	Antenna polarization	Frequency Range（MHz）	Test Level（V/m）	Performance Criteria
Front	Vertical, Horizontal	80 to 1000	3	A
Right	Vertical, Horizontal	80 to 1000	3	A
Rear	Vertical, Horizontal	80 to 1000	3	A
Left	Vertical, Horizontal	80 to 1000	3	A

Note:

Electrical Fast Transient/Burst Immunity Test Results

Standard	☑ EN 61547: 2009 ☑ EN 61000-4-4: 2012		
Applicant	MIC Optoelectronic Co., Ltd		
EUT	LED Flood Light	Temperature	24.1℃
M/N	MFL-G1440	Humidity	54%
Test Mode	Lighting	Pressure	1008mbar
Input Voltage	AC 230V,50Hz	Test Results	Pass
Test Engineer	Zed Zhang		

Test Port Type	Test Level	Repetition Frequency	Test Duration		Performance Criteria
			+	-	
AC Power ports	±1.0kV	5kHz	2min	2min	B
Signal/Control lines					
DC Input /Output Power ports					

Note:

Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields Test Results

Standard	☑ EN 61547: 2009 ☑ EN 61000-4-6: 2014+A1:2015		
Applicant	MIC Optoelectronic Co., Ltd		
EUT	LED Flood Light	Temperature	24.1℃
M/N	MFL-G1440	Humidity	54％
Test Mode	Lighting	Pressure	1008mbar
Input Voltage	AC 230V,50Hz	Test Results	Pass
Test Engineer	Zed Zhang		

Test Port Type	Frequency range（MHz）	Test Level（V/m）	Coupling method	Performance Criteria
AC Power ports	0.15 to 80	3	CDN	A
Signal/Control lines				
DC Input /Output Power ports				

Remark:
1.Modulation Signal:1kHz, 80%, AM, Sine wave.
2.Measurement Equipment:
Simulator : CIT-10 (FRANKONIA)
CDN : ☐CDN-M2 (FRANKONIA)
☑CDN-M3 (FRANKONIA)

Surge Immunity Test Results

Standard	☑ EN 61547: 2009 ☑ EN 61000-4-5: 2014+A1:2017		
Applicant	MIC Optoelectronic Co., Ltd		
EUT	LED Flood Light	Temperature	24.1℃
M/N	MFL-G1440	Humidity	54%
Test Mode	Lighting	Pressure	1008mbar
Input Voltage	AC 230V,50Hz	Test Results	Pass
Test Engineer	Zed Zhang		

Test Port Type	Inject Line	Tset Level（kV）	Phase Angle	Number of surges	Repetition rate	Performance criteria
AC Mains Input	L-N	+ 1.0	90°	5	60s	C
		- 1.0	270°	5	60s	C
AC Mains Input	L-PE	+ 2.0	90°	5	60s	C
		- 2.0	270°	5	60s	C
AC Mains Input	N-PE	+ 2.0	90°	5	60s	C
		- 2.0	270°	5	60s	C
AC Mains Input	L&N-PE	+ 2.0	90°	5	60s	C
		- 2.0	270°	5	60s	C

Note:

Voltage Dips,Short Interruptions and Voltage Variations Immunity Test Results			
Standard	☑ EN 61547: 2009 ☑ EN 61000-4-11: 2004+A1:2017		
Applicant	MIC Optoelectronic Co., Ltd		
EUT	LED Flood Light	Temperature	24.1℃
M/N	MFL-G1440	Humidity	54%
Test Mode	Lighting	Pressure	1008mbar
Input Voltage	AC 230V,50Hz	Test Results	Pass
Test Engineer	Zed Zhang		

Vnom	Frequency	Test Level	Duration	Performance criteria
AC 230v	50Hz	70% of Vnom	10 cycle(50Hz)	C
AC 230v	50Hz	0% of Vnom	0.5 cycle(50Hz)	B

Note:

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