



TEST REPORT

Application No.: SHEM2002001147LM
Applicant: Cixi Leonlux Technology Co., Ltd
Address of Applicant: BeiSanHuan West Road, Zonghan Street, 315301, Cixi, Ningbo, Zhejiang, People's Republic of China
Manufacturer: Cixi Leonlux Technology Co., Ltd
Address of Manufacturer: BeiSanHuan West Road, Zonghan Street, 315301, Cixi, Ningbo, Zhejiang, People's Republic of China
Factory: Cixi Leonlux Technology Co., Ltd
Address of Factory: BeiSanHuan West Road, Zonghan Street, 315301, Cixi, Ningbo, Zhejiang, People's Republic of China

Equipment Under Test (EUT):

EUT Name: LED luminaire

Model No.: 30A02A,30A01A,30R01D,30R01D1,30R02D,30R02D1,31C02,31R02,31R02-1,31C03,31R03,31R03-1,31C04,32A20,32R20,32A20A,32R20A,33A02,33A03,33A04,92A03,92R20,92A08,92A08A,93A06,93A10,98A02,98A03,98A05,98C02,98C03,98C05,98C03-2,98C05-2,98C02-2,90B03-S
Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Standard(s) : EN IEC 55015:2019, EN 61000-3-2:2014
EN 61000-3-3:2013+A1:2019, EN 61547:2009

Date of Receipt: 2020-04-24

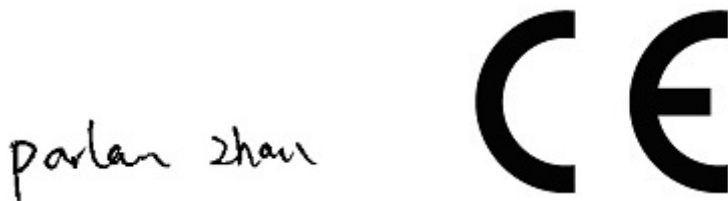
Date of Test: 2020-04-21

Date of Issue: 2020-04-28

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.



Parlan Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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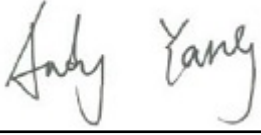
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
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Revision Record			
Version	Description	Date	Remark
00	Original	2020-04-28	/

Authorized for issue by:				
				
		Andy Yang /Project Engineer		
				
		Bruce Tang /Reviewer		

2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (9kHz-30MHz)	EN IEC 55015:2019	EN IEC 55015:2019	N/A	Pass
Radiated Emissions (30MHz-1000MHz)	EN IEC 55015:2019	CISPR 32:2015	N/A	Pass
Radiated Emissions (Magnetic field Induced Current) (9kHz-30MHz)	EN IEC 55015:2019	EN IEC 55015:2019	N/A	Pass
Harmonic Current Emission	EN 61000-3-2:2014	EN 61000-3-2:2014	Class C	Pass
Voltage Fluctuations and Flicker	EN 61000-3-3:2013+A1:2019	EN 61000-3-3:2013+A1:2019	Clause 5 of EN 61000-3-3	Pass

N/A: Not applicable

Immunity Part				
Item	Standard	Method	Requirement	Result
Electrostatic Discharge	EN 61547:2009	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Radiated Immunity (80MHz-1GHz)	EN 61547:2009	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass
Electrical Fast Transients/Burst at Power Port	EN 61547:2009	EN 61000-4-4:2012	1kV 5/50ns Tr/Td 5kHz Repetition Frequency	Pass
Surge at Power Port	EN 61547:2009	EN 61000-4-5:2014 +A1:2017	1.2/50µs Tr/Td 0.5kV Line to Line 1kV Line to Ground	Pass
Conducted Immunity at Power Port (150kHz-80MHz)	EN 61547:2009	EN 61000-4-6:2014	3Vrms (emf), 80%, 1kHz Amp. Mod.	Pass
Voltage Dips and Interruptions	EN 61547:2009	EN 61000-4-11:2004 +A1:2017	0 % UT for 0.5per 70 % UT for 10per UT is Supply Voltage	Pass

N/A: Not applicable

Note: Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model 30A02A was tested since their differences are appearance and model number.



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4 General Information

4.1 Details of E.U.T.

Power supply: AC 220-240V 50Hz 10W
Test voltage: AC 230V 50Hz
Cable: AC cable 1.9m

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	±2.6dB (9kHz to 150kHz)
		±2.3dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	±1.9 dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	±4.1 dB (150kHz to 30MHz)
4	Radiated Power	±3.0dB
5	Radiated emission	±4.4dB (30MHz-1GHz)
		±4.8dB (1GHz-6GHz)
		±5.2dB (6GHz-18GHz)

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

4.4 Test Location

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

All tests were sub-contracted.

Ningbo Joysun Product Testing Service Co., Ltd.

No. 66, Qingyi Road, Hi-Tech Distric, Ningbo, Zhejiang, China

4.5 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (LAB CODE: 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

- **FCC (Designation Number: CN5033)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: Monitor the lamp lighting.

5 Equipment List

CE

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
EMI receiver	ESCI	100708	R&S	2021/2/23
Artificial mains network	ENV216	101022	R&S	2021/2/23
Artificial mains network	ESH2-Z5	100198	R&S	2021/2/23
Pulse Limiter	ESH3-Z2	100847	R&S	2021/2/23
Control Room2	(11.2*5.2*3.3)	N/A	Albatross	2021/3/2

RE

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
EMI receiver	ESU26	100224	R&S	2021/2/23
Combined antenna	VULB 9163	9163-563	SCHWARZBECK	2021/2/23
Horn antenna	HF907	100147	R&S	2021/2/23
Preamplifier	SCU18	10042	R&S	2021/2/23
Semi -Anechoic Chamber	3M (9.1*5.8*5.7)	N/A	Albatross	2020/10/8
EMI receiver	ESR 7	101203	R&S	2021/2/23
Combined antenna	VULB 9163	9163-560	SCHWARZBECK	2021/2/23
Semi -Anechoic Chamber	5M (12.1*7.3*6)	N/A	Albatross	2021/3/2

RE Loop

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
EMI receiver	ESCI	101213	R&S	2021/2/23
Three ring antenna	SWB-HXYZ9170	175	SCHWARZBECK	2021/2/23
Shielding Room1	(10*6.1*3.3)	N/A	Albatross	2021/3/2

Harmonic & Voltage Fluctuations and Flicker

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
Harmonic and flicker test system	DPA500	V0746103124	EM TEST	2021/2/23
AC Power Source	500lix-400-413	58311	CI	2021/2/23
Shielding Room1	(10*6.1*3.3)	N/A	Albatross	2021/3/2
Harmonic and flicker test system(3phase)	DPA503	V0828104013	EM TEST	2021/2/23
AC Power Source	61705	617050000124	Chroma	2021/2/23
Shielding Room2	(10*4.9*3.0)	N/A	Albatross	2021/3/2

ESD

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
ESD gun	dito	DITO B07040	EM TEST	2021/2/23

EFT

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
Surge, Burst and Dip test system	UCS500-M6B	V0746103125	EM TEST	2021/2/23
booster	MV2616	V0746103126	EM TEST	2021/2/23
Coupling clamp	HFK	0108-27	EM TEST	2021/2/23
Shielding Room2	(10*4.9*3.0)	N/A	Albatross	2021/3/2



Surge

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
Surge, Burst and Dip test system	UCS500-M6B	V0746103125	EM TEST	2021/2/23
booster	MV2616	V0746103126	EM TEST	2021/2/23
Shielding Room2	(10*4.9*3.0)	N/A	Albatross	2021/3/2

CI

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
Attenuator	75-A-FFN-06	141733	BIRD	2021/2/23
CDN for Two/There Supply Main Line	FCC-801-M2/M3-16A	7079	FISCHER	2021/2/23
CDN for Two/There Supply Main Line	CDN-M2+3	A2210412/2016	Frankonia	2021/2/23
Coupling/Decoupling Network	DC2600M2	327429	AR	2021/2/23
Decoupling network	F-203I-23MM-DCN	8225	FISCHER	2021/2/23
EM injection clamp	F-203I-23MM	8562	FISCHER	2021/2/23
POWER AMPLIFIER	75A250A	327549	AR	2021/2/23
Integrated measurement system	IMS	100012	R&S	2021/2/23
Smart sensor technology	NRP-Z91	100520	R&S	2021/2/23
Control Room1	(11.2*5.2*3.3)	N/A	Albatross	2021/3/2
Conduct Immunity Test System	CIT-10-75	126B1413/2016	Frankonia	2021/2/23
Shielding Room2	(10*4.9*3.0)	N/A	Albatross	2021/3/2

Dips

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
Surge, Burst and Dip test system	UCS500-M6B	V0746103125	EM TEST	2021/2/23
booster	MV2616	V0746103126	EM TEST	2021/2/23
Shielding Room2	(10*4.9*3.0)	N/A	Albatross	2021/3/2

RI

Equipment	Model No	Inventory No	Manufacturer	Cal Due Date
Semi -Anechoic Chamber	3M (9.1*5.8*5.7)	N/A	Albatross	2020/10/8
LOGPERIODIC ANTENNA	AT1080	325189	AR	2021/2/23
Horn antenna	AT4002A	328236	AR	2021/2/23
Coupling/Decoupling Network	DC6180M1	328058	AR	2021/2/23
Coupling/Decoupling Network	DC7144M1	327100	AR	2021/2/23
POWER AMPLIFIER	250W1000A	327579	AR	2021/2/23
POWER AMPLIFIER	80S1G3	327495	AR	2021/2/23
Integrated measurement system	IMS	100012	R&S	2021/2/23
Smart sensor technology	NRP-Z91	100520	R&S	2021/2/23

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (9kHz-30MHz)

Test Requirement:	EN IEC 55015:2019
Test Method:	EN IEC 55015:2019
Frequency Range:	9kHz to 30MHz
Limit:	
0.009MHz – 0.05MHz	110dB(μV) quasi-peak
0.05MHz – 0.15MHz	90dB(μV)-80dB(μV) quasi-peak
0.15MHz – 0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5MHz – 5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5MHz – 30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz
	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

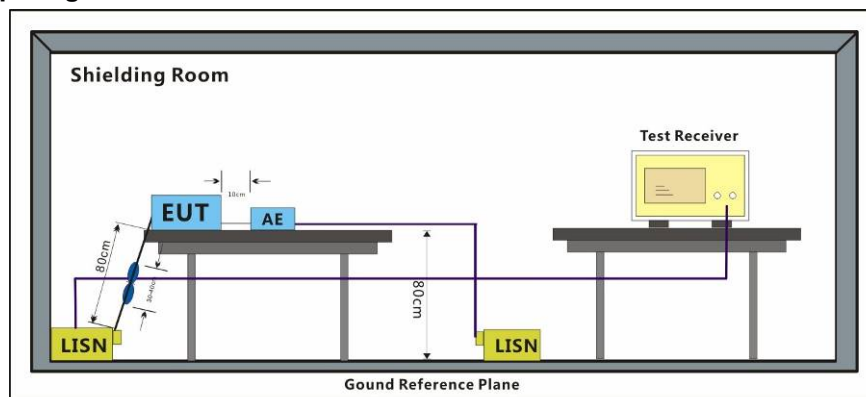
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode a: Lighting mode: Keep EUT lighting continuously.

6.1.2 Test Setup Diagram

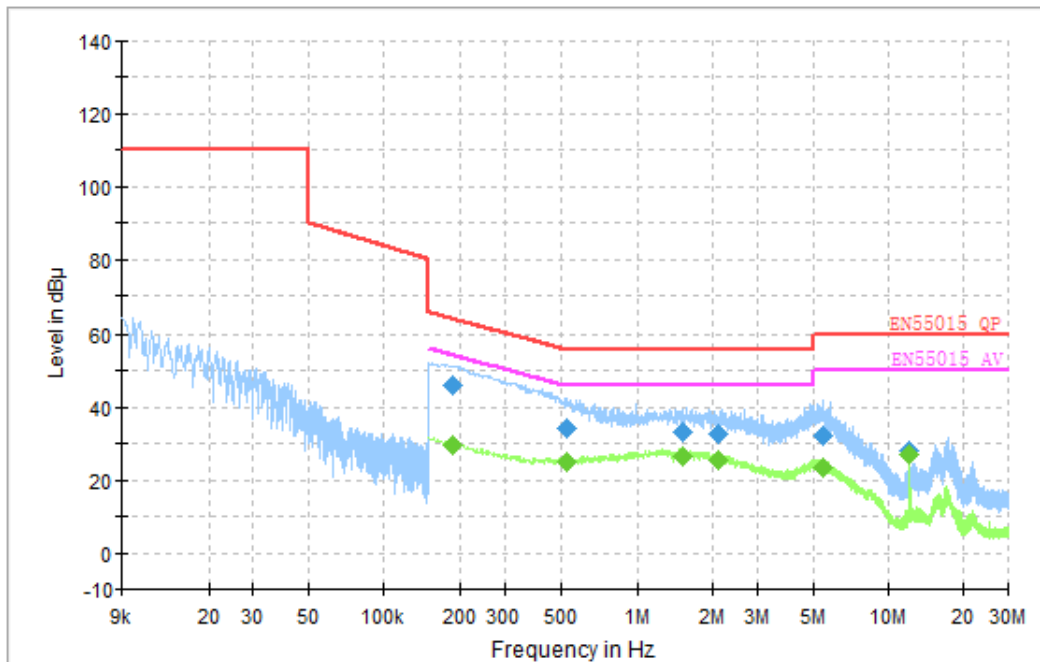


6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Notes: Emission Level=Read Level + LISN Factor + Cable Loss

Mode:a; Line:Live Line



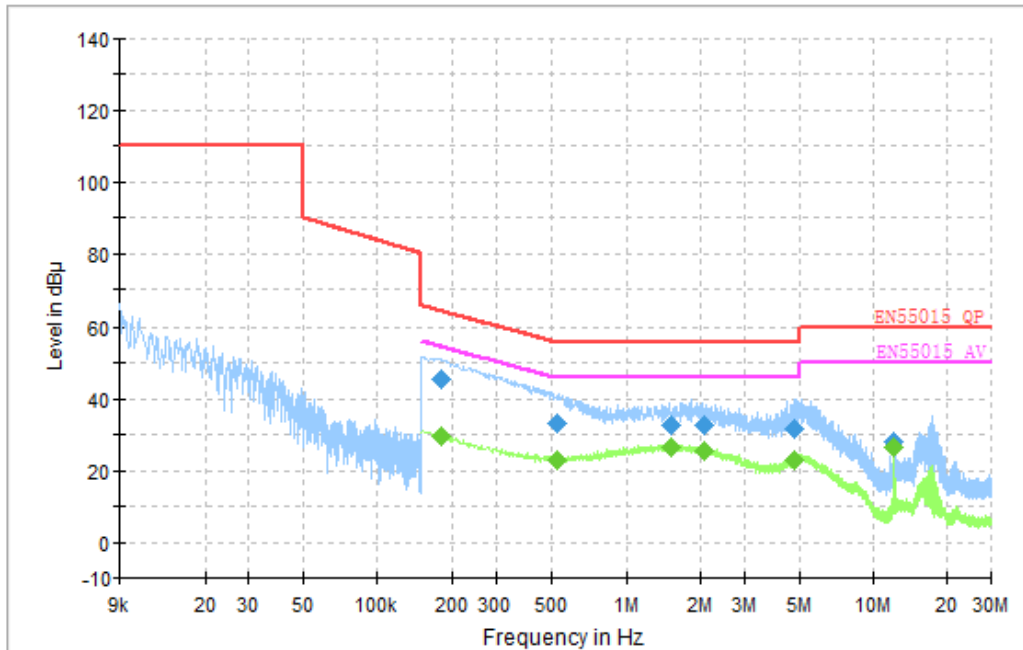
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.188000	45.9	1000.0	9.000	Off	L1	10.8	18.2	64.1	
0.520000	34.2	1000.0	9.000	Off	L1	10.8	21.8	56.0	
1.505000	33.2	1000.0	9.000	Off	L1	10.7	22.8	56.0	
2.114000	32.4	1000.0	9.000	Off	L1	10.8	23.6	56.0	
5.510000	32.1	1000.0	9.000	Off	L1	10.8	27.9	60.0	
12.000000	28.2	1000.0	9.000	Off	L1	10.9	31.8	60.0	

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.188000	29.7	1000.0	9.000	Off	L1	10.8	24.4	54.1	
0.520000	25.1	1000.0	9.000	Off	L1	10.8	20.9	46.0	
1.505000	26.7	1000.0	9.000	Off	L1	10.7	19.3	46.0	
2.114000	25.6	1000.0	9.000	Off	L1	10.8	20.4	46.0	
5.510000	23.2	1000.0	9.000	Off	L1	10.8	26.8	50.0	
12.000000	26.9	1000.0	9.000	Off	L1	10.9	23.1	50.0	

Mode:a; Line:Neutral Line



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.180000	45.6	1000.0	9.000	Off	N	10.8	18.9	64.5	
0.521000	33.0	1000.0	9.000	Off	N	10.8	23.0	56.0	
1.517000	32.9	1000.0	9.000	Off	N	10.7	23.1	56.0	
2.065000	32.4	1000.0	9.000	Off	N	10.8	23.6	56.0	
4.802000	31.8	1000.0	9.000	Off	N	10.8	24.2	56.0	
12.000000	28.0	1000.0	9.000	Off	N	11.0	32.0	60.0	

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.180000	29.7	1000.0	9.000	Off	N	10.8	24.8	54.5	
0.521000	22.8	1000.0	9.000	Off	N	10.8	23.2	46.0	
1.517000	26.3	1000.0	9.000	Off	N	10.7	19.7	46.0	
2.065000	25.4	1000.0	9.000	Off	N	10.8	20.6	46.0	
4.802000	23.0	1000.0	9.000	Off	N	10.8	23.0	46.0	
12.000000	26.7	1000.0	9.000	Off	N	11.0	23.3	50.0	

6.2 Radiated Emissions (30MHz-1000MHz)

Test Requirement: EN IEC 55015:2019

Test Method: CISPR 32:2015

Frequency Range: 30MHz to 1000MHz

Measurement Distance: 3m

Limit:

30MHz-230MHz 40dB(μV/m) quasi-peak

230MHz-1000MHz 47dB(μV/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

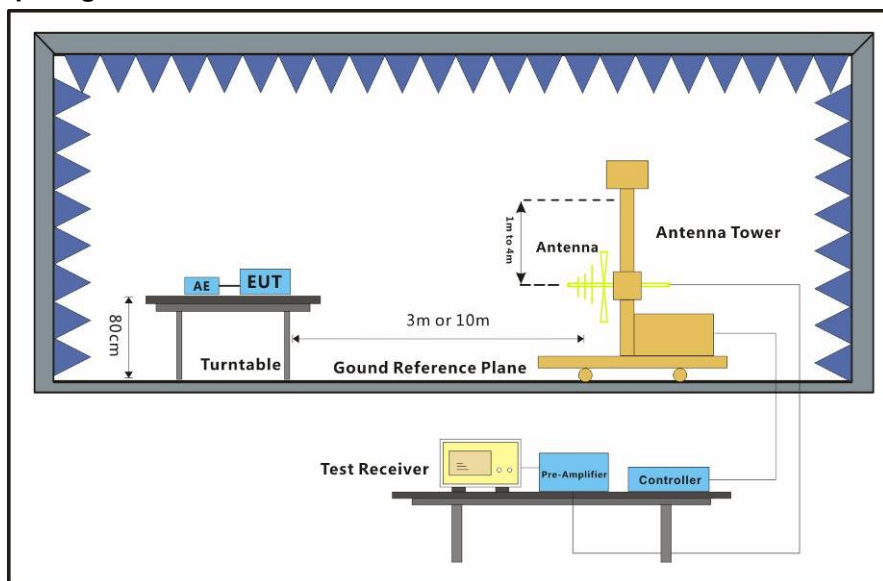
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode a: Lighting mode: Keep EUT lighting continuously.

6.2.2 Test Setup Diagram

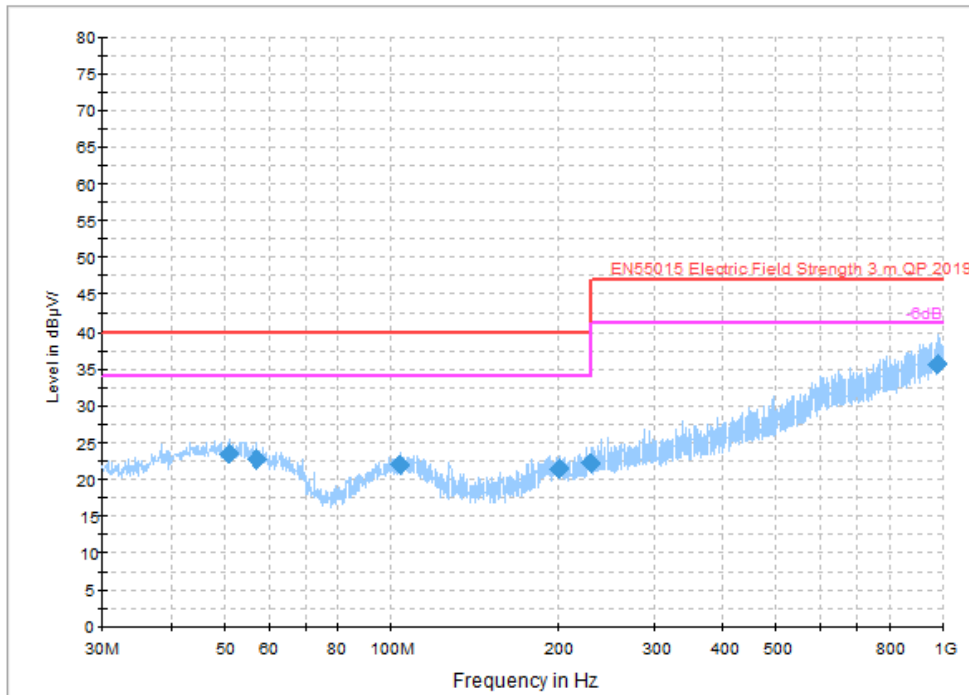


6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Notes: Emission Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

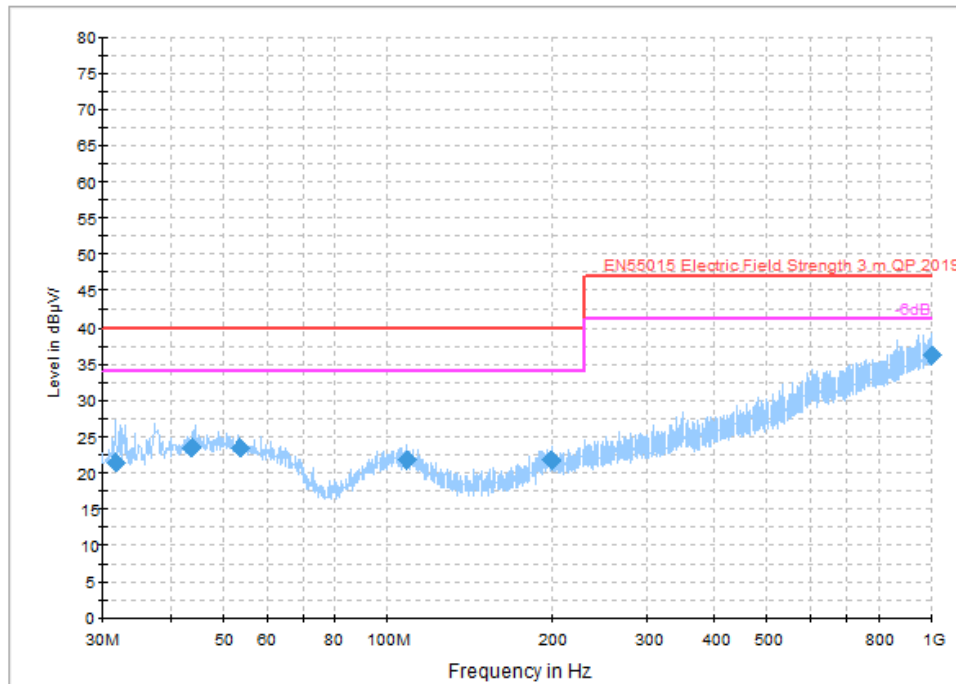
Mode:a; Polarization:Horizontal



Final Result 1

Frequency (MHz)	QuasiPeak (dB μV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μV/m)
50.835000	23.4	1000.0	120.000	186.1	H	159.0	15.4	16.6	40.0
56.903000	22.6	1000.0	120.000	118.0	H	46.0	14.5	17.4	40.0
103.329000	21.8	1000.0	120.000	109.1	H	-10.0	13.7	18.2	40.0
201.499000	21.5	1000.0	120.000	250.0	H	50.0	13.2	18.5	40.0
229.920000	22.1	1000.0	120.000	186.1	H	205.0	13.8	17.9	40.0
974.549000	35.6	1000.0	120.000	150.0	H	10.0	25.7	11.4	47.0

Mode:a; Polarization:Vertical



Final Result 1

Frequency (MHz)	QuasiPeak (dB µV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB µV/m)
31.709000	21.5	1000.0	120.000	100.0	V	339.0	12.1	18.5	40.0
43.797000	23.4	1000.0	120.000	118.0	V	341.0	15.3	16.6	40.0
53.497000	23.5	1000.0	120.000	159.0	V	86.0	15.3	16.5	40.0
108.664000	21.7	1000.0	120.000	100.0	V	217.0	13.6	18.3	40.0
200.466000	21.6	1000.0	120.000	150.0	V	227.0	13.2	18.4	40.0
998.659000	36.1	1000.0	120.000	150.0	V	312.0	26.0	10.9	47.0

6.3 Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz)

Test Requirement:	EN IEC 55015:2019
Test Method:	EN IEC 55015:2019
Frequency Range:	9kHz to 30MHz
Limit:	
0.009MHz-0.07MHz	88dB(μA) quasi-peak
0.07MHz-0.15MHz	88dB(μA)-58dB(μA) quasi-peak
0.15MHz-3MHz	58dB(μA)-22dB(μA) quasi-peak
3MHz-30MHz	22dB(μA) quasi-peak
Detector:	Peak for pre-scan (200Hz resolution bandwidth) 0.009M to 0.15MHz
	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

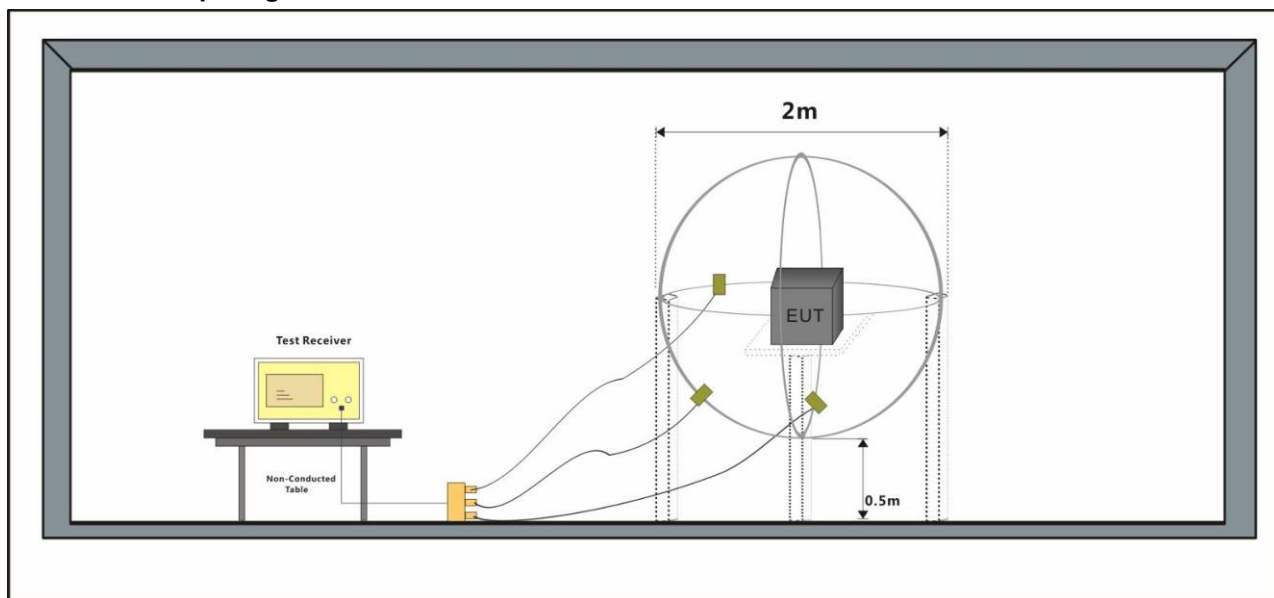
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode a: Lighting mode: Keep EUT lighting continuously.

6.3.2 Test Setup Diagram

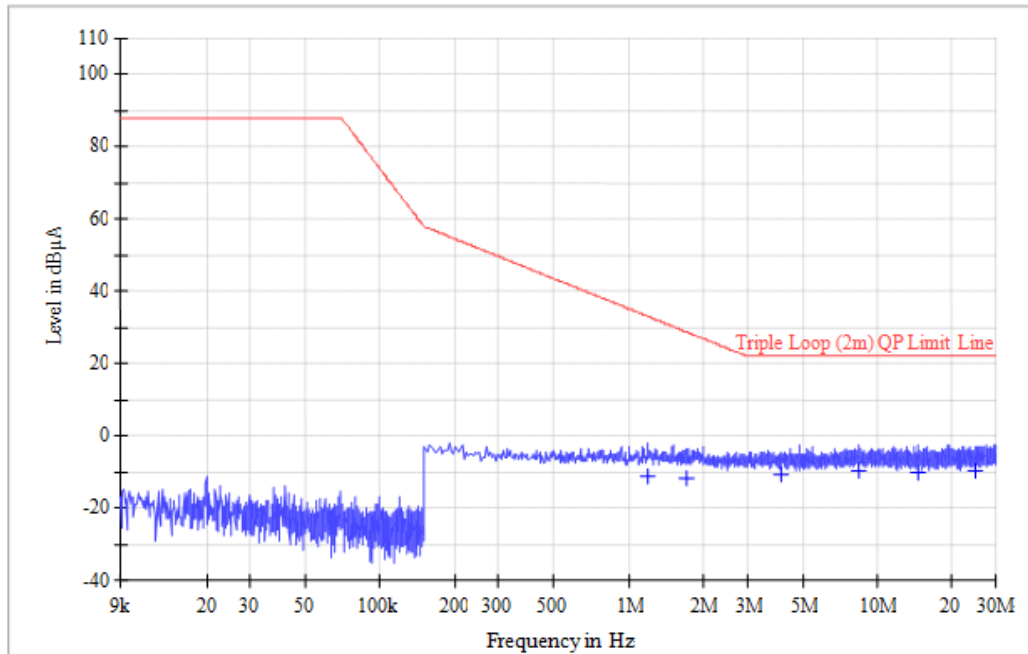


6.3.3 Measurement Data

An initial pre-scan was performed in the 2m loop antenna using the spectrum analyser in peak detection mode. The EUT was measured for X(A), Y(B), Z(C) polarities.

Notes: Emission Level=Read Level + Cable Loss

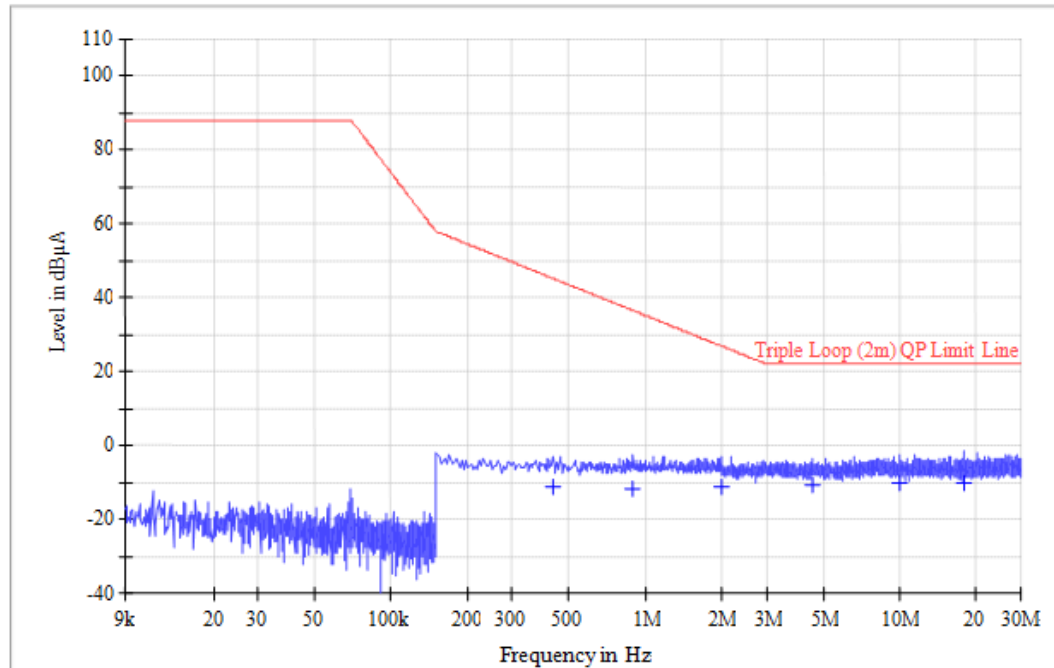
Mode:a; Axial:X



Limit and Margin-QP

Frequency (MHz)	QuasiPeak (dBμA)	Meas. Time (ms)	Bandwidth (kHz)	Triple Loop frame	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμA)	Comment
1.190000	-11.4	1000.0	9.000	X	0.1	44.5	33.1	
1.714000	-11.7	1000.0	9.000	X	0.1	40.4	28.7	
4.118000	-10.6	1000.0	9.000	X	0.1	32.6	22.0	
8.450000	-9.7	1000.0	9.000	X	0.2	31.7	22.0	
14.482000	-10.4	1000.0	9.000	X	0.3	32.4	22.0	
24.730000	-9.8	1000.0	9.000	X	0.3	31.8	22.0	

Mode:a; Axial:Y



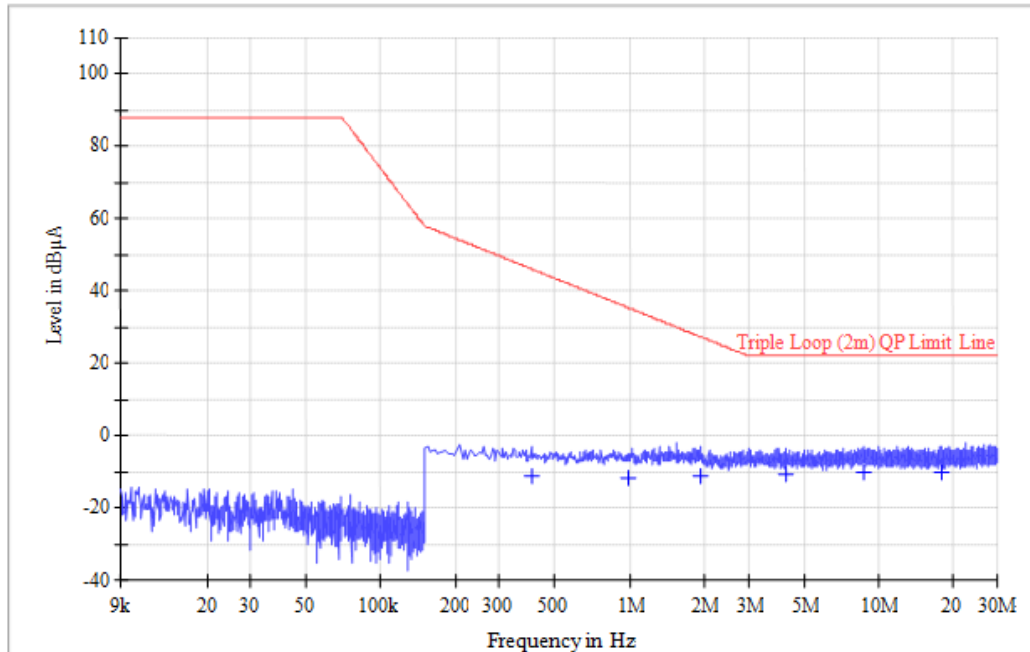
↙

Limit and Margin-QP

Frequency (MHz)	QuasiPeak (dBμA)	Meas. Time (ms)	Bandwidth (kHz)	Triple Loop frame	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμA)	Comment
0.434000	-11.5	1000.0	9.000	Y	0.0	56.7	45.2	
0.898000	-11.5	1000.0	9.000	Y	0.1	48.0	36.5	
1.986000	-11.4	1000.0	9.000	Y	0.1	38.4	27.0	
4.570000	-10.7	1000.0	9.000	Y	0.2	32.7	22.0	
10.050000	-10.2	1000.0	9.000	Y	0.2	32.2	22.0	
17.902000	-10.4	1000.0	9.000	Y	0.3	32.4	22.0	

↙

Mode:a; Axial:Z



Limit and Margin-QP

Frequency (MHz)	QuasiPeak (dBμA)	Meas. Time (ms)	Bandwidth (kHz)	Triple Loop frame	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμA)	Comment
0.402000	-11.2	1000.0	9.000	Z	0.0	57.4	46.2	
0.982000	-11.5	1000.0	9.000	Z	0.1	46.9	35.4	
1.922000	-11.4	1000.0	9.000	Z	0.1	38.8	27.4	
4.270000	-10.7	1000.0	9.000	Z	0.1	32.7	22.0	
8.662000	-10.1	1000.0	9.000	Z	0.2	32.1	22.0	
17.990000	-10.4	1000.0	9.000	Z	0.3	32.4	22.0	

6.4 Harmonic Current Emission

Test Requirement: EN 61000-3-2:2014

Test Method: EN 61000-3-2:2014

Frequency Range: 100Hz to 2kHz

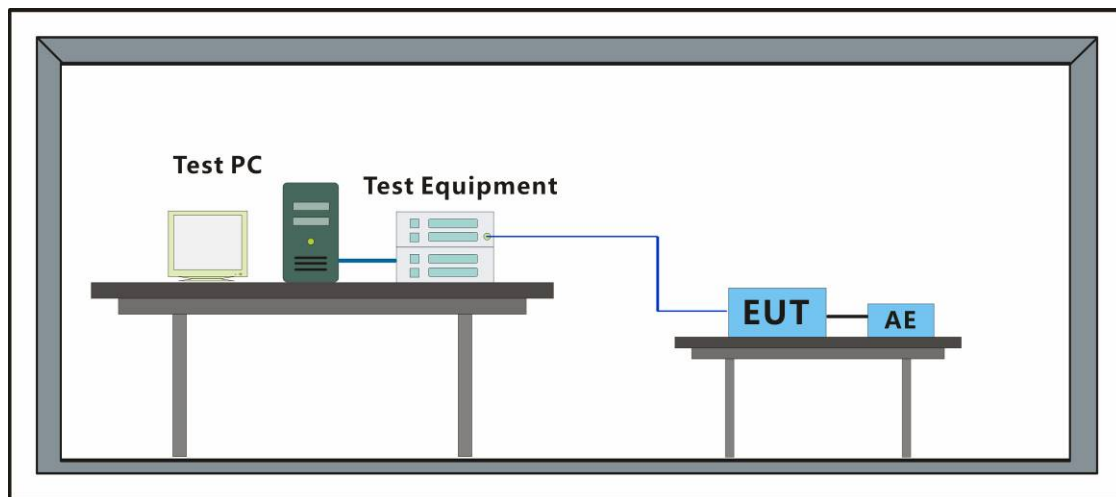
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: a: Lighting mode: Keep EUT lighting continuously.

6.4.2 Test Setup



6.4.3 Measurement Data



Mode a

Average harmonic current results

Hn	I _{eff} [A]	I _{eff} [%]	Limit [%]	Result
1	323.345E-3	98.746		
2	851.119E-6	0.260	2.00	PASS
3	21.533E-3	6.576	29.86	PASS
4	1.968E-3	0.601		PASS
5	19.042E-3	5.815	10.00	PASS
6	965.490E-6	0.295		PASS
7	6.254E-3	1.910	7.00	PASS
8	889.329E-6	0.272		PASS
9	4.663E-3	1.424	5.00	PASS
10	927.918E-6	0.283		PASS
11	5.995E-3	1.831	3.00	PASS
12	894.206E-6	0.273		PASS
13	4.158E-3	1.270	3.00	PASS
14	1.481E-3	0.452		PASS
15	4.418E-3	1.349	3.00	PASS
16	858.460E-6	0.262		PASS
17	6.089E-3	1.860	3.00	PASS
18	1.472E-3	0.449		PASS
19	3.242E-3	0.990	3.00	PASS
20	720.497E-6	0.220		PASS
21	773.344E-6	0.236	4.50	PASS
22	800.941E-6	0.245		PASS
23	1.932E-3	0.590	4.50	PASS
24	735.470E-6	0.225		PASS
25	3.138E-3	0.958	4.50	PASS
26	725.475E-6	0.222		PASS
27	1.281E-3	0.391	4.50	PASS
28	810.962E-6	0.248		PASS
29	2.993E-3	0.914	4.50	PASS
30	708.571E-6	0.216		PASS
31	2.582E-3	0.789	4.50	PASS
32	1.261E-3	0.385		PASS
33	1.995E-3	0.609	4.50	PASS
34	709.778E-6	0.217		PASS
35	2.457E-3	0.750	4.50	PASS
36	912.959E-6	0.279		PASS
37	1.785E-3	0.545	4.50	PASS
38	698.870E-6	0.213		PASS
39	732.489E-6	0.224	4.50	PASS
40	778.617E-6	0.238		PASS

**Maximum harmonic current results**

Hn	I _{eff} [A]	I _{eff} [%]	Limit [%]	Result
1	327.451E-3	100.000		
2	1.025E-3	0.313	3.00	PASS
3	22.326E-3	6.818	44.79	PASS
4	2.379E-3	0.727		PASS
5	19.700E-3	6.016	15.00	PASS
6	1.211E-3	0.370		PASS
7	6.596E-3	2.014	10.50	PASS
8	1.159E-3	0.354		PASS
9	4.934E-3	1.507	7.50	PASS
10	1.194E-3	0.365		PASS
11	6.106E-3	1.865	4.50	PASS
12	1.151E-3	0.351		PASS
13	4.288E-3	1.310	4.50	PASS
14	1.686E-3	0.515		PASS
15	4.579E-3	1.398	4.50	PASS
16	1.167E-3	0.356		PASS
17	6.229E-3	1.902	4.50	PASS
18	1.603E-3	0.490		PASS
19	3.420E-3	1.045	4.50	PASS
20	854.499E-6	0.261		PASS
21	874.740E-6	0.267	4.50	PASS
22	914.851E-6	0.279		PASS
23	2.082E-3	0.636	4.50	PASS
24	824.127E-6	0.252		PASS
25	3.315E-3	1.012	4.50	PASS
26	829.807E-6	0.253		PASS
27	1.442E-3	0.440	4.50	PASS
28	969.690E-6	0.296		PASS
29	3.094E-3	0.945	4.50	PASS
30	805.651E-6	0.246		PASS
31	2.693E-3	0.823	4.50	PASS
32	1.380E-3	0.421		PASS
33	2.155E-3	0.658	4.50	PASS
34	839.982E-6	0.257		PASS
35	2.581E-3	0.788	4.50	PASS
36	1.240E-3	0.379		PASS
37	1.947E-3	0.594	4.50	PASS
38	873.662E-6	0.267		PASS
39	826.136E-6	0.252	4.50	PASS
40	931.048E-6	0.284		PASS

Maximum harmonic voltage results

Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.57	100.249		
2	84.26E-3	0.037	0.2	PASS
3	474.10E-3	0.206	0.9	PASS
4	49.80E-3	0.022	0.2	PASS
5	51.73E-3	0.022	0.4	PASS
6	43.24E-3	0.019	0.2	PASS
7	24.02E-3	0.010	0.3	PASS
8	15.82E-3	0.007	0.2	PASS
9	35.20E-3	0.015	0.2	PASS
10	10.46E-3	0.005	0.2	PASS
11	9.30E-3	0.004	0.1	PASS
12	12.36E-3	0.005	0.1	PASS
13	9.62E-3	0.004	0.1	PASS
14	7.17E-3	0.003	0.1	PASS
15	11.80E-3	0.005	0.1	PASS
16	11.18E-3	0.005	0.1	PASS
17	9.42E-3	0.004	0.1	PASS
18	13.06E-3	0.006	0.1	PASS
19	9.77E-3	0.004	0.1	PASS
20	11.04E-3	0.005	0.1	PASS
21	10.92E-3	0.005	0.1	PASS
22	6.81E-3	0.003	0.1	PASS
23	7.16E-3	0.003	0.1	PASS
24	6.43E-3	0.003	0.1	PASS
25	7.72E-3	0.003	0.1	PASS
26	7.97E-3	0.003	0.1	PASS
27	8.60E-3	0.004	0.1	PASS
28	8.09E-3	0.004	0.1	PASS
29	9.67E-3	0.004	0.1	PASS
30	5.80E-3	0.003	0.1	PASS
31	8.66E-3	0.004	0.1	PASS
32	9.48E-3	0.004	0.1	PASS
33	7.72E-3	0.003	0.1	PASS
34	7.29E-3	0.003	0.1	PASS
35	7.91E-3	0.003	0.1	PASS
36	8.20E-3	0.004	0.1	PASS
37	9.17E-3	0.004	0.1	PASS
38	9.55E-3	0.004	0.1	PASS
39	8.52E-3	0.004	0.1	PASS
40	9.05E-3	0.004	0.1	PASS

6.5 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3:2013+A1:2019

Test Method: EN 61000-3-3:2013+A1:2019

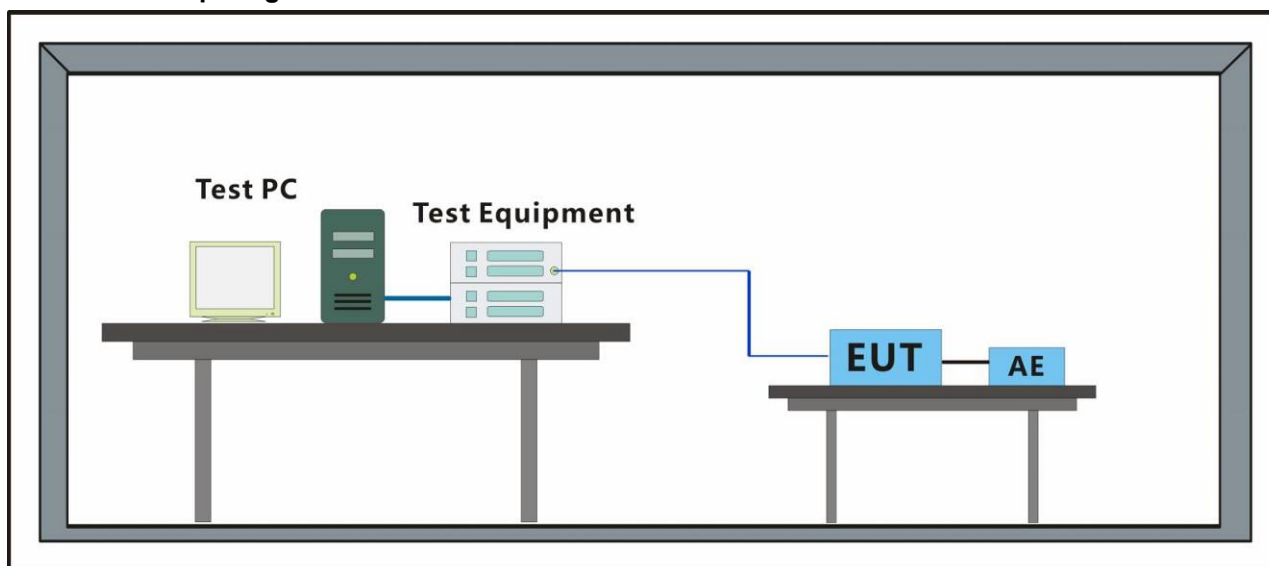
6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode a: Lighting mode: Keep EUT lighting continuously.

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

Mode:a

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.033	1.00	PASS
dc [%]	0.071	3.30	PASS
dmax [%]	0.322	6.00	PASS
Tmax [s]	0.000	0.50	PASS

7 Immunity Test Results

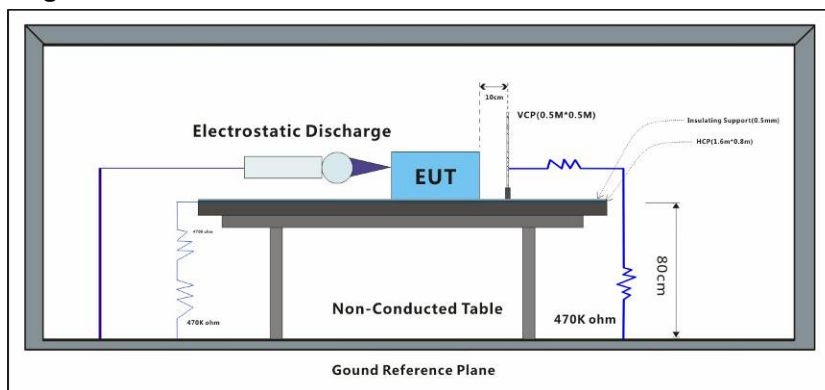
7.1 Performance Criteria Description in EN 61547:2009

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.
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.
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.

7.2 Electrostatic Discharge

Test Requirement: EN 61547:2009
 Test Method: EN 61000-4-2:2009
 Performance Criterion: B
 Discharge Impedance: 330Ω/150pF
 Number of Discharge: Minimum 10 times at each test point
 Discharge Mode: Single Discharge
 Discharge Period: 1 second minimum

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: Lighting mode: Keep EUT lighting continuously.

7.2.3 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

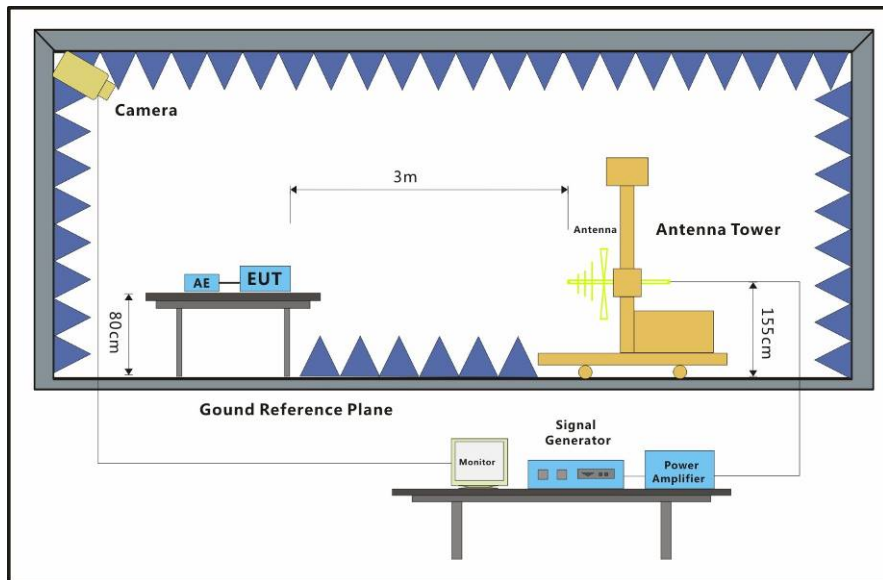
Results:

A: No degradation in the performance of the EUT was observed.

7.3 Radiated Immunity (80MHz-1GHz)

Test Requirement: EN 61547:2009
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010
 Performance Criterion: A
 Frequency Range: 80MHz to 1GHz
 Antenna Polarisation: Vertical and Horizontal
 Modulation: 1kHz, 80% Amp. Mod, 1% increment

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: Lighting mode: Keep EUT lighting continuously.

7.3.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	3s	A
80MHz-1GHz	3	Back	3s	A
80MHz-1GHz	3	Left	3s	A
80MHz-1GHz	3	Right	3s	A
80MHz-1GHz	3	Top	3s	A
80MHz-1GHz	3	Underside	3s	A

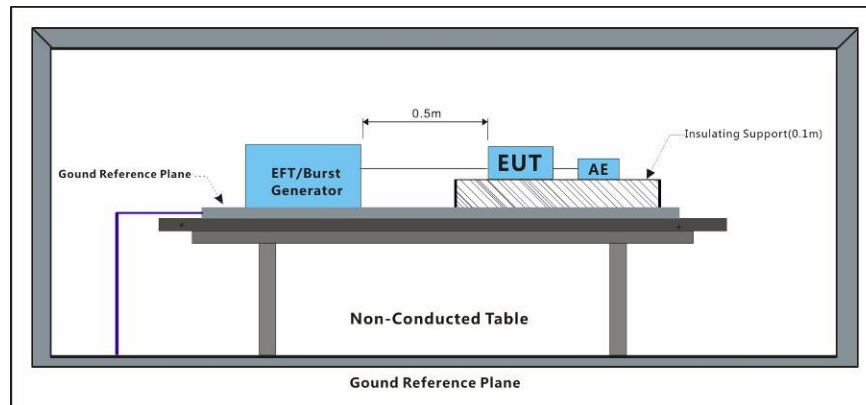
Results:

A: No degradation in the performance of the EUT was observed.

7.4 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 61547:2009
 Test Method: EN 61000-4-4:2012
 Performance Criterion: B
 Repetition Frequency: 5kHz
 Burst Period: 300ms
 Test Duration: 2 minute per level & polarity

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: Lighting mode: Keep EUT lighting continuously.

7.4.3 Test Results:

Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	1	+	CDN	A
AC power port	1	-	CDN	A

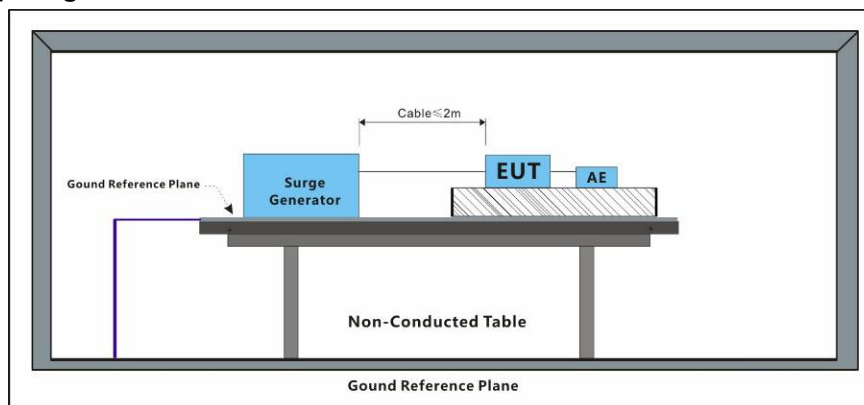
Results:

A: No degradation in the performance of the EUT was observed.

7.5 Surge at Power Port

Test Requirement: EN 61547:2009
 Test Method: EN 61000-4-5:2014 +A1:2017
 Performance Criterion: C
 No. of surges: 5 positive at 90°, 5 negative at 270°.

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
 Test mode: a: Lighting mode: Keep EUT lighting continuously.

7.5.3 Test Results:

Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	0.5	+	90°	A
L-N	0.5	-	270°	A
L-PE	1	+	90°	A
L-PE	1	-	270°	A
N-PE	1	+	90°	A
N-PE	1	-	270°	A

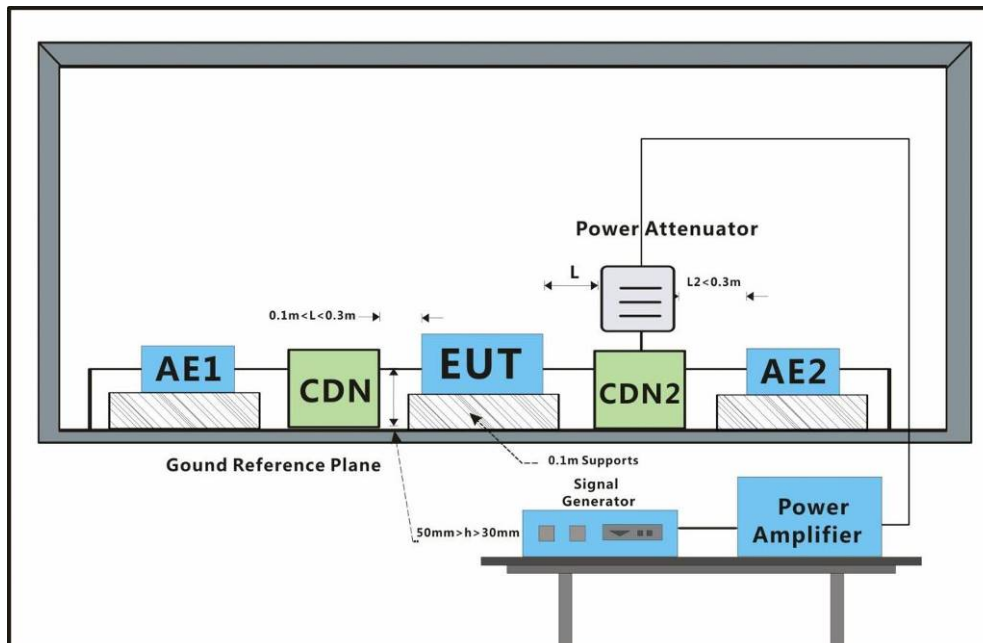
Results:

A: No degradation in the performance of the EUT was observed.

7.6 Conducted Immunity at Power Port (150kHz-80MHz)

Test Requirement: EN 61547:2009
 Test Method: EN 61000-4-6:2014
 Performance Criterion: A
 Frequency Range: 0.15MHz to 80MHz
 Modulation: 80%, 1kHz Amplitude Modulation
 Step Size: 1%

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: Lighting mode: Keep EUT lighting continuously.

7.6.3 Test Results:

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3	CDN	3s	A

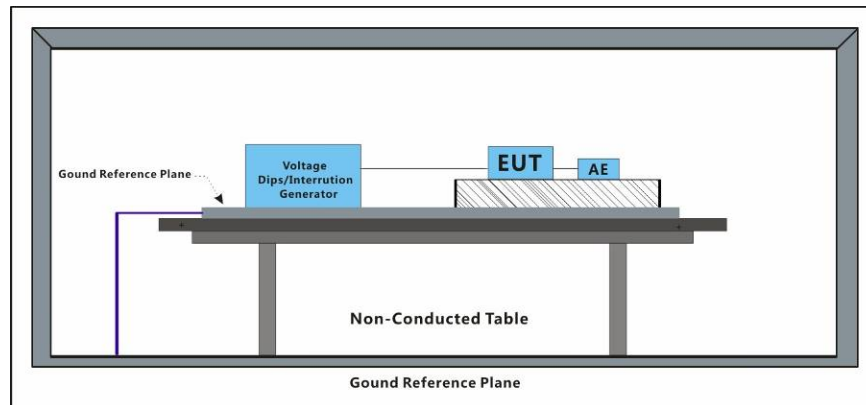
Results:

A: No degradation in the performance of the EUT was observed.

7.7 Voltage Dips and Interruptions

Test Requirement: EN 61547:2009
 Test Method: EN 61000-4-11:2004 +A1:2017
 Performance Criterion: 0% of UT (Supply Voltage) for 0.5 Periods:B;
 70 % of UT for 10 Periods:C
 No. of Dips / Interruptions: 3 per Level
 Time between dropout 10s

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar
 Test mode: a: Lighting mode: Keep EUT lighting continuously.

7.7.3 Test Results:

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Cycles	3	A
0	180°	0.5 Cycles	3	A
70	0°	10 Cycles	3	A
70	180°	10 Cycles	3	A

Results:

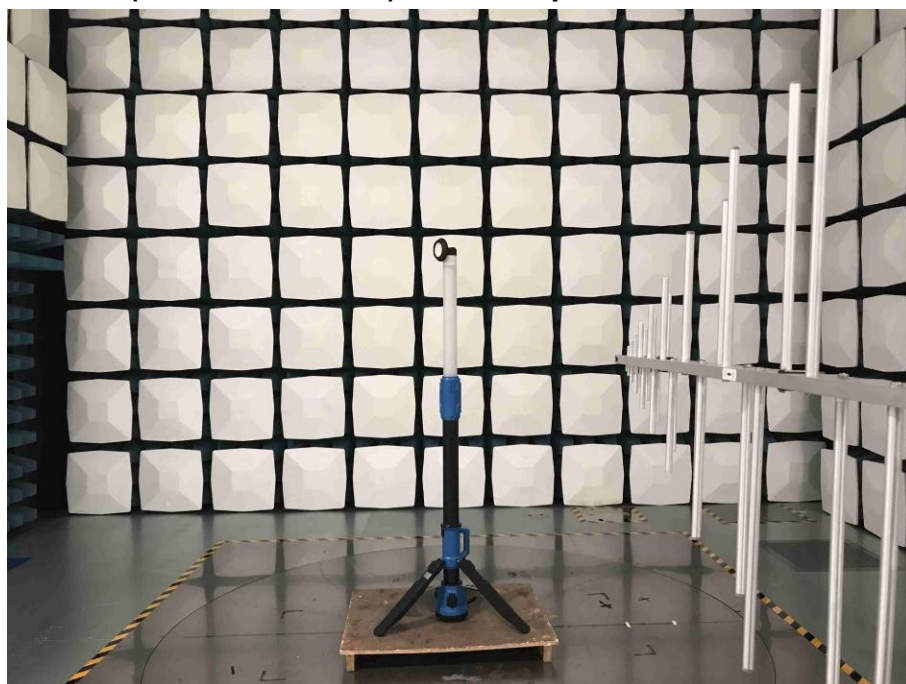
A: No degradation in the performance of the EUT was observed.

8 Photographs

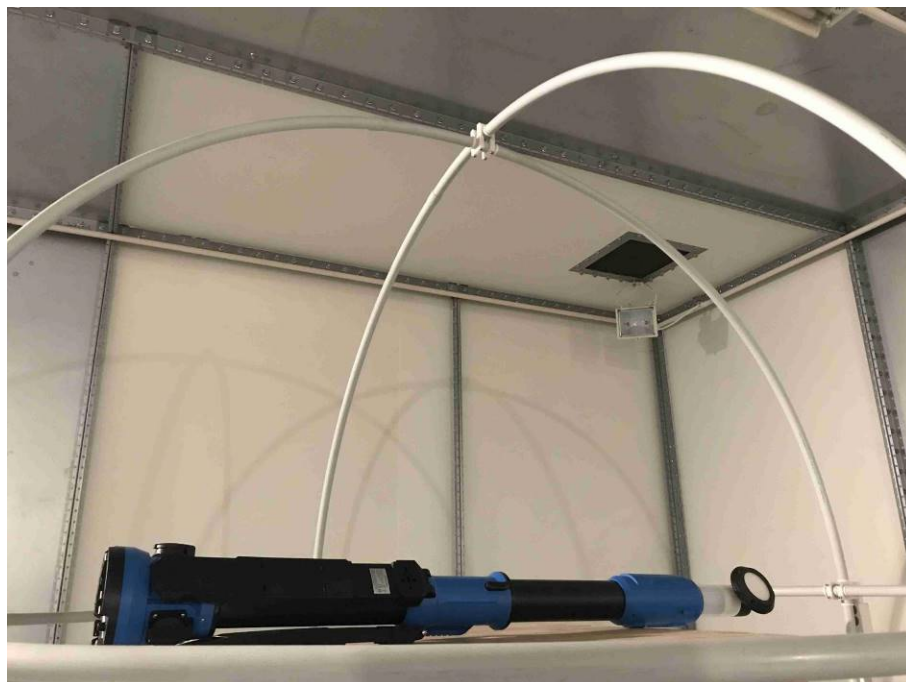
8.1 Conducted Emissions at Mains Terminals (9kHz-30MHz) Test Setup



8.2 Radiated Emissions (30MHz-1000MHz) Test Setup



8.3 Radiated Emissions (Magnetic field Induced Current)(9kHz-30MHz) Test Setup



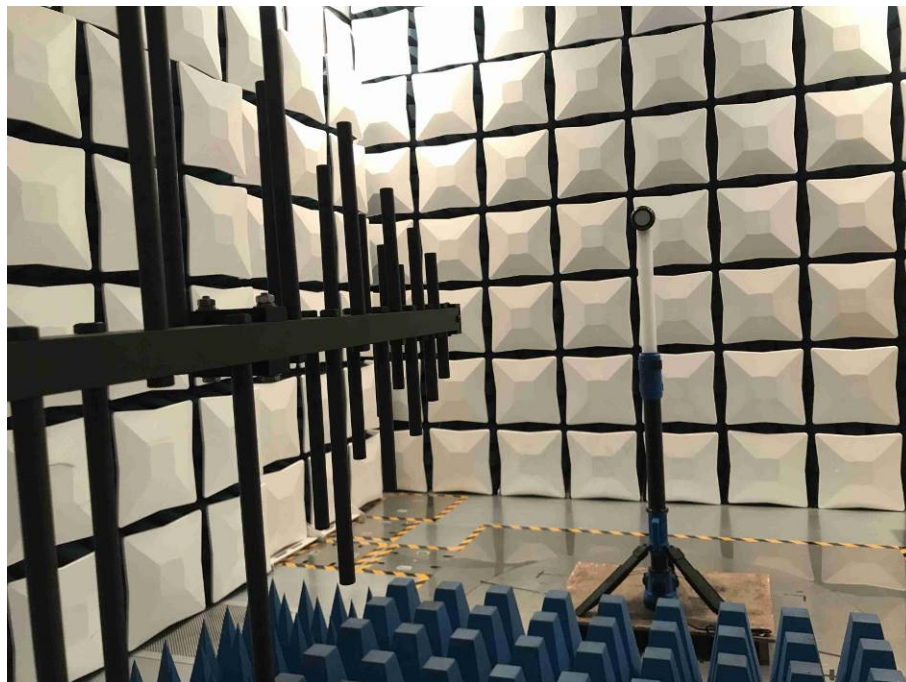
8.4 Harmonic & Voltage Fluctuations and Flicker Test Setup



8.5 Electrostatic Discharge Test Setup



8.6 Radiated Immunity (80MHz-1GHz) Test Setup



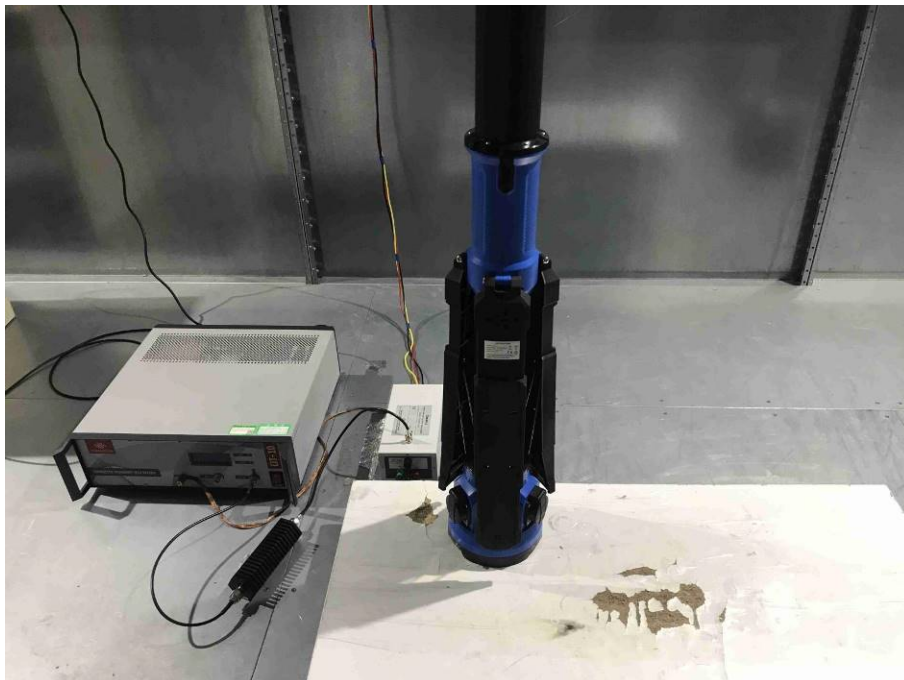
8.7 Electrical Fast Transients/Burst at Power Port Test Setup



8.8 Surge at Power Port Test Setup



8.9 Conducted Immunity at Power Port (150kHz-80MHz) Test Setup



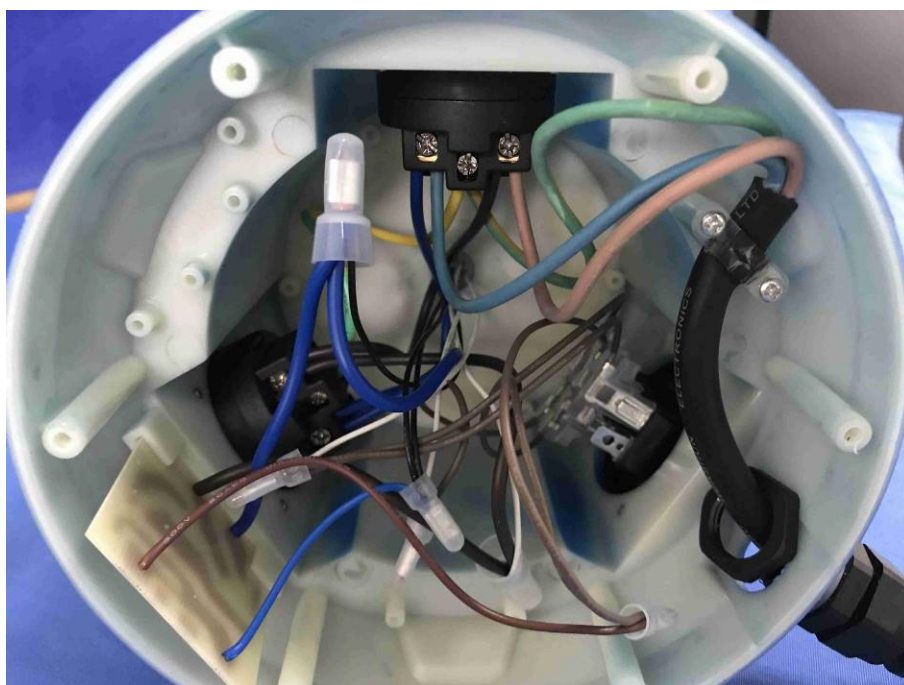
8.10 Voltage Dips and Interruptions Test Setup



8.11 EUT Constructional Details (EUT Photos)

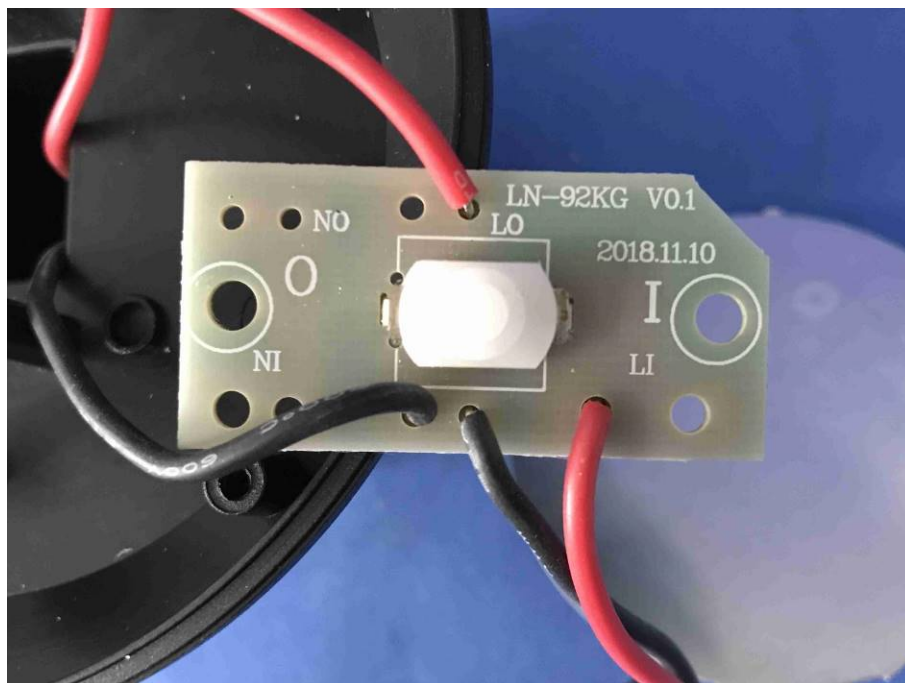












- End of the Report -