CERTIFICATE OF CONFORMITY

Certificate No.: KEYS24032653002EM-02

Applicant	:	**Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd**
Address	:	**No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province**
Manufacturer	:	**Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd**
Address	:	**No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province**
Trade mark	:	**N/A**
Product	:	**EDC multifunctional lighting**
Model No.	:	**XZT-01**

The submitted sample of the above equipment has been tested and found to comply with the following European Directive:

EMC Directive - 2014/30/EU

The standard(s) used for showing compliance with the essential requirements:

Applicable Standard(s) **EN IEC 55015:2019+A11:2020**
EN IEC 61547:2023
EN IEC 61000-3-2:2019+A1:2021
EN 61000-3-3:2013+A1:2019+A2:2021

This certificate is part of the full test report(s) and should be read in conjunction with the test report: KEYS24032653002EM-02.
This certificate is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Guangdong KEYS Testing Technology Co., Ltd., this certificate is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo. The CE marking may only be used if all the relevant and effective European Directives are applicable.

CE

Guangdong KEYS Testing Technology Co., Ltd.
KEYS

Jason Zhan
Manager
Date: April 01, 2024

Guangdong KEYS Testing Technology Co., Ltd.
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Tel:+ 86-0769-89798319 http://www.keys-lab.com E-mail: info@keys-lab.com

CERTIFICATE OF CONFORMITY

Certificate No.: KEYS24032653002RH-03

Applicant	:	**Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd**
Address	:	**No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province**
Manufacturer	:	**Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd**
Address	:	**No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province**
Product	:	**EDC multifunctional lighting**
Model No.	:	**XZT-01**

RoHS 2.0 Directive (EU) 2015/863 and (EU)2017/2102 amending Annex II to Directive 2011/65/EU.

The standard(s) used for showing compliance with the essential requirements:

Applicable Standard(s)	**IEC 62321-3-1: 2013**
	IEC 62321-4:2013 +AMD1:2017
	IEC 62321-5:2013
	IEC 62321-6:2015
	IEC 62321-7-1:2015
	IEC 62321-7-2:2017
	IEC 62321-8:2017

The EUT described above has been consolidated by us and found in compliance with the council RoHS 2.0 Directive (EU) 2015/863 and (EU)2017/2102 amending Annex II to Directive 2011/65/EU. The certificate applies to the tested sample above mentioned only and shall not imply an assessment of the whole production. It is only valid in connection with the test report number. KEYS24032653002RH-03

RoHS

Guangdong KEYS Testing Technology Co., Ltd.

Tony Qian/Approved Signatory

Date: Apr. 2, 2024

Guangdong KEYS Testing Technology Co., Ltd.
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Tel:+ 86-0769-89798319 http://www.keys-lab.com E-mail: info@keys-lab.com

Test Report

Applicant : Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd

Address : No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province

The following sample(s) was /were submitted and identified on behalf of the clients as：

Sample Name : EDC multifunctional lighting

Sample Model : XZT-01

Sample Received Date : Mar. 27, 2024

Testing Period : Mar. 27, 2024 To Apr. 2, 2024

Test Requested : Selected test (s) in the selected parts as requested by client with the RoHS 2 Directive 2011/65/EU Annex II (EU) 2015/863 as last amended by Directive (EU) 2017/2102.

Test Method : 1. As specified by client, to screen Lead(Pb), Cadmium(Cd), Mercury(Hg), Chromium(Cr) and Bromine(Br) in the submitted sample(s) by XRF.
2. As specified by client, when screening results exceed the XRF screening limit in IEC 62321-3-1: 2013, further use of wet chemical methods are required to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Bis(2-ethylhexyl) phthalate (DEHP) ,Butyl benzyl phthalate (BBP), Dibutylphthalate (DBP) ,and Diisobutyl phthalate (DIBP)in the submitted sample(s).

Test Result : Please refer to next page(s).

Conclusion : **PASS** (Based on test results)

Signed for and on behalf of

Guangdong KEYS Testing Technology Co., Ltd.

Tony Qian/Approved Signatory

Guangdong KEYS Testing Technology Co., Ltd.
Address: Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
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Summary of Test Results:

TEST REQUEST	CONCLUSION
RoHS Directive 2011/65/EU and its subsequent amendments Directive (EU) 2015/863	--
(1)To determine Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)),Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)content by screening test and chemical test	**PASS**
(2) To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test	**PASS**

Sample Description:

No.	Name
1	Clear Brown Plastic Case
2	Black Ink
3	Metal Material
4	Battery
5	Red Leather
6	Blue Leather
7	Wire Core
8	Transparent Plastic
9	Black Plastic
10	Transparent Plastic
11	Black Plastic
12	Screw
13	PCB
14	Nixie Tube
15	USB-C Silver Metal Port
16	Switch
17	Resistance
18	Capacitance
19	IC

No.	Name
20	Triode
21	PCB
22	Yellow LED
23	White LED
24	Black Ink
25	Metal Material
26	Black Plastic
27	White Plastic
28	Goldfinger
29	USB-C Silver Metal Plug
30	USB-A Silver Metal Plug
31	Black Outer Leather
32	White Leather
33	Pink Leather
34	Wire Core
35	Soldering Tin

1. XRF Test Result:

No.	XRF Result(mg/kg)					Chemical Test (mg/kg)	Conclusion
	Pb	Cd	Hg	Cr	Br		
1	BL	BL	BL	BL	BL	--	Pass
2	BL	BL	BL	BL	BL	--	Pass
3	BL	BL	BL	BL	--	--	Pass
4	BL	BL	BL	BL	--	--	Pass
5	BL	BL	BL	BL	BL	--	Pass
6	BL	BL	BL	BL	BL	--	Pass
7	BL	BL	BL	BL	--	--	Pass
8	BL	BL	BL	BL	BL	--	Pass
9	BL	BL	BL	BL	BL	--	Pass
10	BL	BL	BL	BL	BL	--	Pass
11	BL	BL	BL	BL	BL	--	Pass
12	BL	BL	BL	BL	--	--	Pass
13	BL	BL	BL	BL	BL	--	Pass
14	BL	BL	BL	BL	BL	--	Pass
15	BL	BL	BL	BL	--	--	Pass
16	BL	BL	BL	BL	--	--	Pass
17	BL	BL	BL	BL	--	--	Pass
18	BL	BL	BL	BL	--	--	Pass

No.	XRF Result(mg/kg)					Chemical Test (mg/kg)	Conclusion
	Pb	Cd	Hg	Cr	Br		
19	BL	BL	BL	BL	--	--	Pass
20	BL	BL	BL	BL	--	--	Pass
21	BL	BL	BL	BL	BL	--	Pass
22	BL	BL	BL	BL	BL	--	Pass
23	BL	BL	BL	BL	BL	--	Pass
24	BL	BL	BL	BL	BL	--	Pass
25	BL	BL	BL	BL	--	--	Pass
26	BL	BL	BL	BL	BL	--	Pass
27	BL	BL	BL	BL	BL	--	Pass
28	BL	BL	BL	BL	--	--	Pass
29	BL	BL	BL	BL	--	--	Pass
30	BL	BL	BL	BL	--	--	Pass
31	BL	BL	BL	BL	BL	--	Pass
32	BL	BL	BL	BL	BL	--	Pass
33	BL	BL	BL	BL	BL	--	Pass
34	BL	BL	BL	BL	--	--	Pass
35	BL	BL	BL	BL	--	--	Pass

Remark:

1. It is the result on total Br while test item on restricted substances in PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).

2. Screening test by XRF spectroscopy

XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1: 2013Annex A.

Element	Polymer Material	Metallic Material	Composite Material
Pb	BL≤700-3σ≤X＜1300+3σ≤OL	BL≤700-3σ≤X＜1300+3σ≤OL	BL≤500-3σ≤X＜1500+3σ≤OL
Cd	BL≤70-3σ≤X＜130+3σ≤OL	BL≤70-3σ≤X＜130+3σ≤OL	LOD＜X＜150+3σ≤OL
Hg	BL≤700-3σ≤X＜1300+3σ≤OL	BL≤700-3σ≤X＜1300+3σ≤OL	BL≤500-3σ≤X＜1500+3σ≤OL
Cr	BL≤700-3σ＜X	BL≤700-3σ＜X	BL≤500-3σ＜X
Br	BL≤300-3σ＜X	--	BL≤250-3σ＜X

XRF detection limits in mg/kg for regulated elements in various material

Element	Polymer Material	Metallic Material	Composite Material
Pb	10	50	50
Cd	10	50	50
Hg	10	50	50
Cr	10	50	50
Br	10	50	50

Note: -BL = Under the XRF screening limit

-OL = Future chemical test will be conducted while result is above the screening limit

-X =The symbol“X”marks the region where further investigation in necessary

-3σ=The reproducibility of analytical instruments

-LOD=Detection limit

2. Wet Chemical Test

Test Item(s)	Test Method/ Test Equipment	Unit	Limit	MDL
Cadmium(Cd)	IEC 62321-5:2013, ICP-OES	mg/kg	100	2
Lead(Pb)	IEC 62321-5:2013, ICP-OES	mg/kg	1000	2
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017, ICP-OES	mg/kg	1000	2
Hexavalent Chromium(CrVI) (Metal)	IEC 62321-7-1:2015, UV-Vis	$\mu g/cm^2$	0.13	0.1
Hexavalent Chromium(CrVI) (Nonmetal)	IEC 62321-7-2:2017, UV-Vis	mg/kg	1000	8
PBBs (Next form)	IEC 62321-6:2015, GC-MS	mg/kg	1000	5
PBDEs (Next form)	IEC 62321-6:2015, GC-MS	mg/kg	1000	5
Dibutyl Phthalate(DBP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30
Butyl benzyl phthalate (BBP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30
Di-(2-ethylhexyl) Phthalate(DEHP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30
Diisobutyl phthalate (DIBP)	IEC 62321-8:2017, GC-MS	mg/kg	1000	30

PBBs		PBDEs	
Monobromobiphenyl	Hexabromobiphenyl	Monobromodiphenyl ether	Hexabromodiphenyl ether
Dibromobiphenyl	Heptabromobiphenyl	Dibromodiphenyl ether	Heptabromodiphenyl ether
Tribromobiphenyl	Octabromobiphenyl	Tribromodiphenyl ether	Octabromodiphenyl ether
Tetrabromobiphenyl	Nonabromobiphenyl	Tetrabromodiphenyl ether	Nonabromodiphenyl ether
Pentabromobiphenyl	Decabromobiphenyl	Pentabromodiphenyl ether	Decabromodiphenyl ether

Note:

1. mg/kg= ppm=0.0001%
2. N.D.= Not Detected(<MDL)
3. MDL = Method Detection Limit
4. -- = No Testing
5. When Cr (VI) in a sample is detected below the 0.10 μg/cm^2 LOQ (limit of quantification), the sample is considered to be negative for Cr (VI). Since Cr (VI) may not be uniformly distributed in the coating even within the same sample batch, a "grey zone" between 0.10 μg/cm^2 and 0.13 μg/cm^2 has been established as "inconclusive" to reduce inconsistent results due to unavoidable coating variations. In this case, additional testing may be necessary to confirm the presence of Cr (VI). When Cr (VI) is detected above 0.13 μg/cm^2, the sample is considered to be positive for the presence of Cr (VI) in the coating layer. Unavoidable coating variations may influence the determination Information on storage conditions and production date of the tested sample is unavailable and thus Cr (VI) results represent status of the sample at the time of testing.

3. Phthalate Test Result:

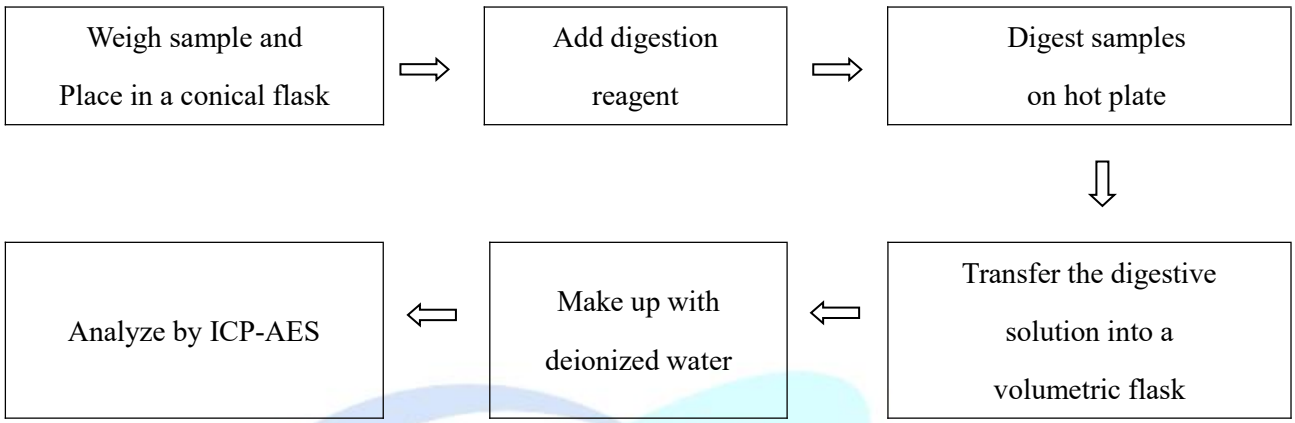
Test Item(s)	**No.1**	**No.2**	**No.5**	**No.6**	**No.8**
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Butyl benzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Di-(2-ethylhexyl) Phthalate(DEHP)	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Test Item(s)	**No.9**	**No.10**	**No.11**	**No.13**	**No.14**
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Butyl benzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Di-(2-ethylhexyl) Phthalate(DEHP)	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Test Item(s)	**No.21**	**No.22**	**No.23**	**No.24**	**No.26**
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Butyl benzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Di-(2-ethylhexyl) Phthalate(DEHP)	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.
Test Item(s)	**No.27**	**No.31**	**No.32**	**No.33**	**--**
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	--
Butyl benzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	--
Di-(2-ethylhexyl) Phthalate(DEHP)	N.D.	N.D.	N.D.	N.D.	--
Diisobutyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	--

Note: 1. mg/kg= ppm=0.0001%

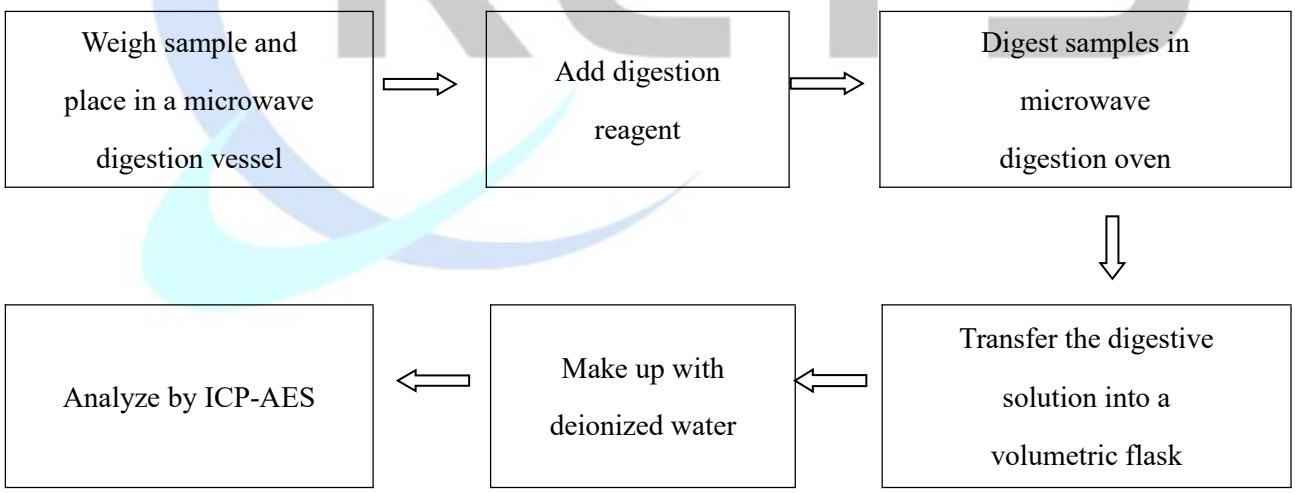
2. N.D.= Not Detected(<MDL)

Test Process:

1. Test for Cd/Pb Content

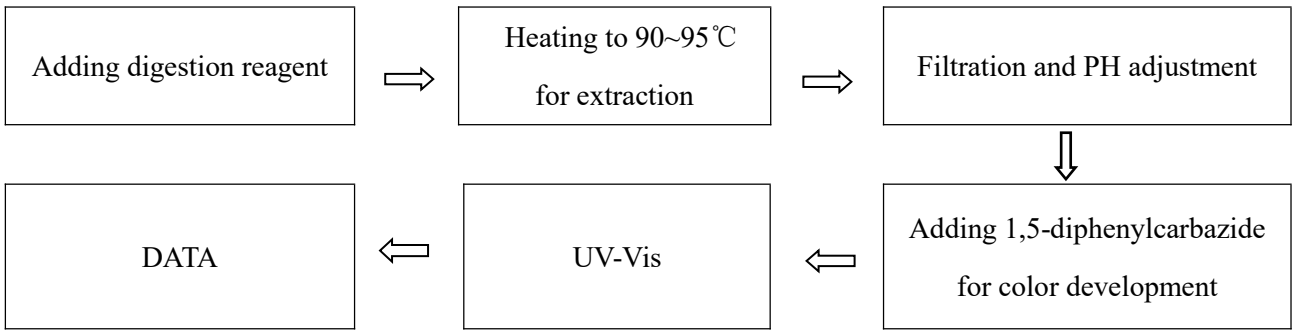


2. Test for Hg Content

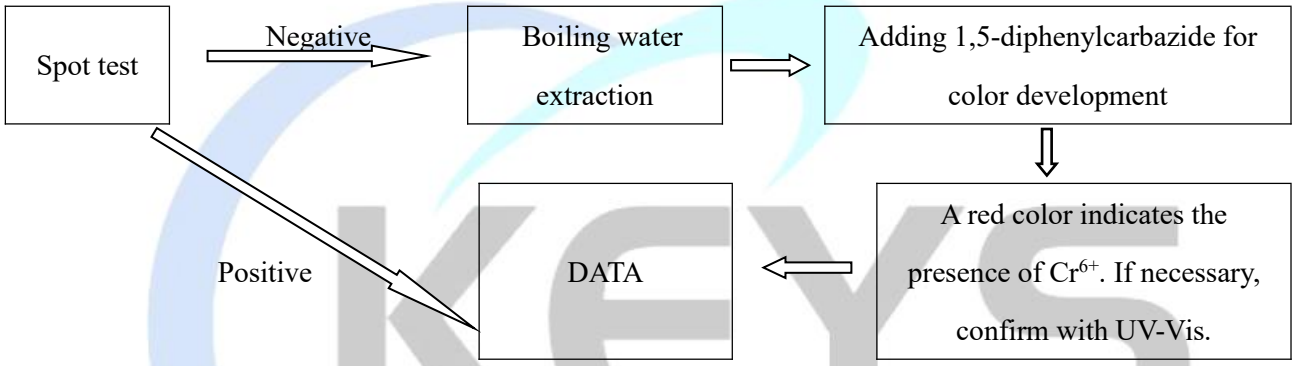


3. Test for Chromium (VI) Content

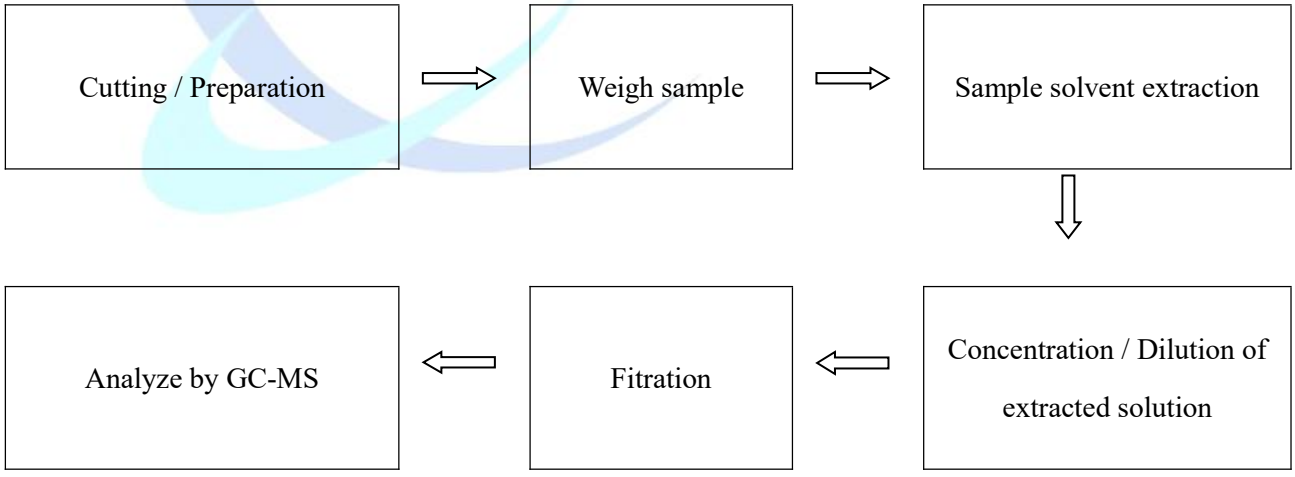
Nonmetal material



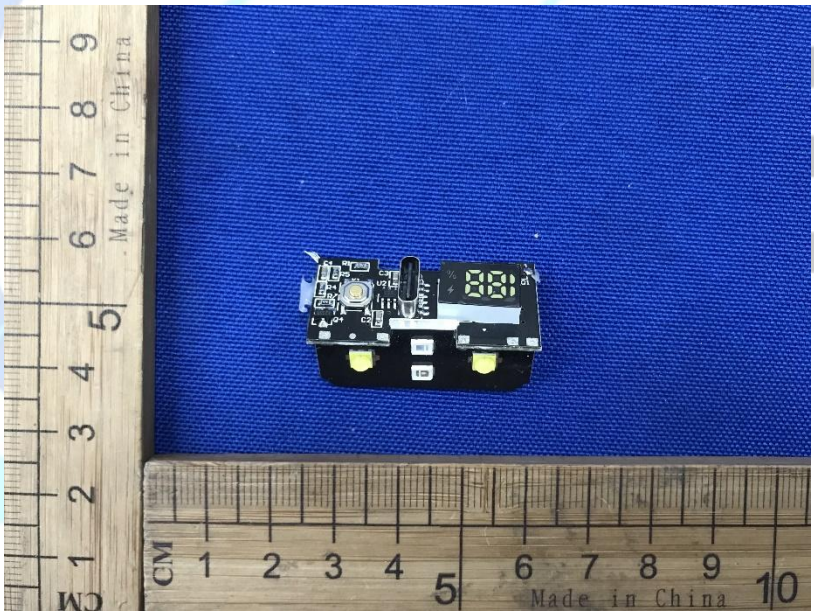
Metal material

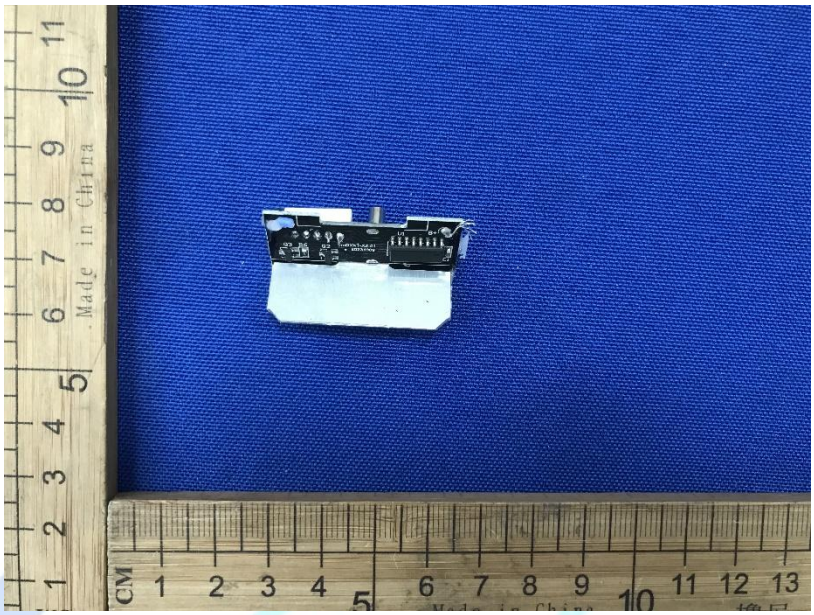


4. Test for DBP, BBP, DEHP, DIBP, PBB, PBDE Content



Sample Photo:





*** End of Report ***

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Tel:+86-0769-89798319 http://www.keys-lab.com E-mail: info@keys-lab.com

FCC TEST REPORT

for

Product: EDC multifunctional lighting
Model: XZT-01
Report No.: KEYS24032653002FC-02

Issued for

Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd

No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province

Issued by

Guangdong KEYS Testing Technology Co., Ltd.
Address: Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
104, No.4, Fumin Street, Shilong, Dongguan, Guangdong, China

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1. TEST CERTIFICATION

Product:	EDC multifunctional lighting
Trade marks:	N/A
Model:	XZT-01
Applicant :	Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd
Address:	No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province
Manufacturer:	Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd
Address:	No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province
Test Date:	March 29, 2024 to April 01, 2024
Issued Date:	April 01, 2024
Test Voltage:	DC3.7V, 0.5A, 10W
Applicable Standards:	FCC Part 15, Subpart B Class B ANSI C63.4:2014

The above equipment has been tested by Guangdong KEYS Testing Technology Co., Ltd. and found compliance with the requirements in the technical standards mentioned above. The test results presented in this report only relate to the product/system tested. The Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Test Engineer:	Sunny Li / Engineer
Technical Manager:	Jason Zhan /Manager

2. TEST SUMMARY

EMISSION			
Standard	**Item**	**Result**	**Remarks**
FCC 47 CFR Part 15 Class B	Conducted Emission (Main Port)	N/A	Complied with limit
	Radiated Emission	PASS	Complied with limit

Note: 1) The test result verdict is decided by the limit of test standard.

2) The information of measurement uncertainty is available upon the customer's request.

3. TEST SITE

3.1. TEST FACILITY

Guangdong KEYS Testing Technology Co., Ltd.

Address: Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China

104, No.4, Fumin Street, Shilong, Dongguan, Guangdong, China

3.2. MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Temperature	±1°C
Humidity	±5%
DC and Low Frequency Voltages	±3%
Conducted Emission(150KHz-30MHz)	±3.60dB
Radiated Emission(30MHz-1GHz)	±4.76dB
Radiated Emission (1GHz-18GHz)	±4.44dB

Note 1: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.3. LIST OF TEST AND MEASUREMENT INSTRUMENTS

3.3.1. For conducted emission at the mains terminals test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI7	KEYS-E-005	July 2, 2024
Pulse limiter	Rohde&Schwarz	ESH3-Z2	KEYS-E-003	July 2, 2024
LISN impedance network TWO-LINE V-WORK	Rohde&Schwarz	ENV216	KEYS-E-004	July 2, 2024
Screened room	AUDIX	6*3*3	KEYS-E-001	July 23, 2024

3.3.2. For radiated emission test (30MHz-1GHz)

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI7	KEYS-E-005	July 2, 2024
Composite antenna	Schwarzbeck	VULB9168	KEYS-E-013	July 9,2024
Preamplifier	AUDIX	EM330	KEYS-E-014	July 2, 2024
3m standard semi-anechoic chamber	AUDIX	9*6*6	KEYS-E-002	July 23, 2024

3.3.3. For radiated emission test (1GHz above)

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI7	KEYS-E-005	July 2, 2024
Multiple aerial	Schwarzbeck	9120D	KEYS-E-012	July 9,2024
Preamplifier	AUDIX	EM01G18G	KEYS-E-015	July 2, 2024
3m standard semi-anechoic chamber	AUDIX	9*6*6	KEYS-E-002	July 23, 2024

4. EUT DESCRIPTION

Product	EDC multifunctional lighting
Model	XZT-01
Supplied Voltage	DC3.7V, 0.5A
Power	10W

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
AC Port	1	☐
DC Port	1	☒

Models Difference

N/A

5. TEST METHODOLOGY

5.1. TEST MODE

The EUT was tested together with the thereinafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed.

Test Items		Test Mode
Emission	Conducted Emission	N/A
	Radiated Emission	Working

5.2. EUT SYSTEM OPERATION

1. Set up EUT with the support equipment.
2. Make sure the EUT work normally during the test.

6. SETUP OF EQUIPMENT UNDER TEST

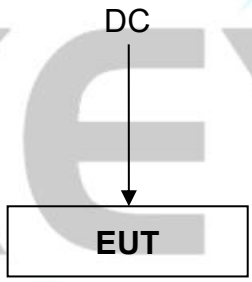
6.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model	Serial No.	Trade Name
1.	N/A	N/A	N/A	N/A

Note: 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

6.2. BLOCK DIAGRAM OF EUT CONFIGURATION



(EUT: EDC multifunctional lighting)

7. CONDUCTED EMISSION MEASUREMENT

7.1. LIMITS

FREQUENCY (MHz)	Class A		Class B	
	Quasi-peak dB(μV)	Average dB(μV)	Quasi-peak dB(μV)	Average dB(μV)
0.15 - 0.5	79	66	66-56*	56-46
0.5 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note: 1) *Decreasing linearly with logarithm of frequency.

2) The lower limit shall apply at the transition frequencies.

3) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

7.2. TEST PROCEDURES

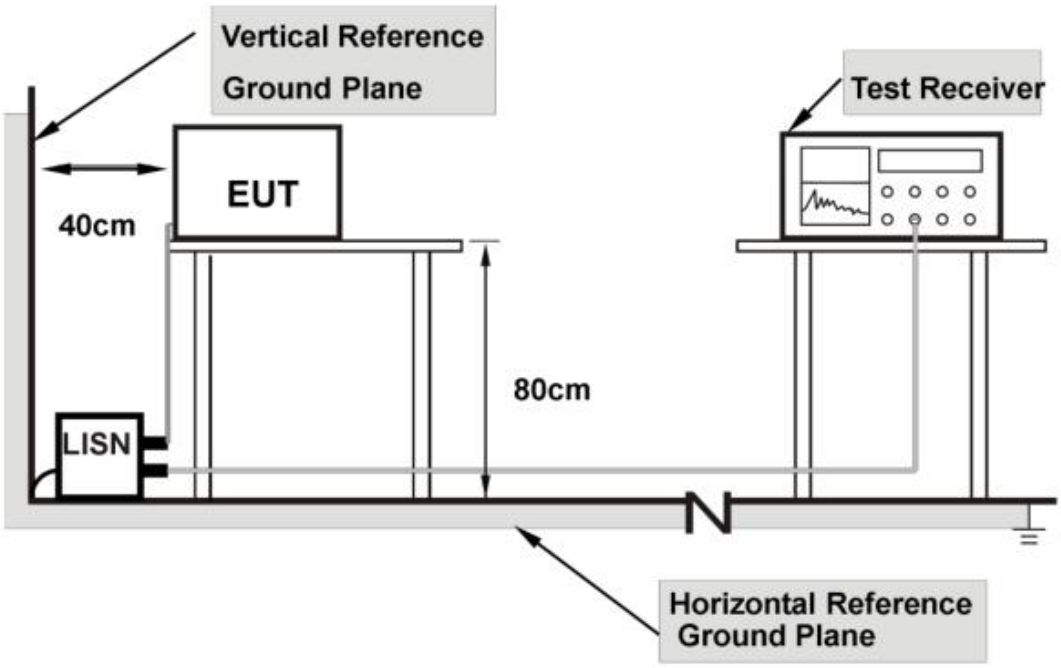
The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane, which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane. The EUT should be 0.8 m apart from the AMN, where the mains cable supplied by the manufacturer is longer than 1 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, Details please refer to test setup photography.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.
During the above scans, the emissions were maximized by cable manipulation.

A scan was taken on both of the power lines, Line and neutral, recording the highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

Note: Test Software Name: e3, Software Version: 1.0.0.0.

7.3. TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs(AMN) are 80 cm from EUT and at least 80 from other units and other metal planes.

7.4. TEST RESULT

N/A

8. RADIATED EMISSION MEASUREMENT

8.1. LIMITS

Maximum permissible level of Radiated Emission measured at 3 meter distance.

FREQUENCY (MHz)	dBμV/m (At 3m)	
	Class A digital device	Class B digital device
30~88	49.00	40.00
88~216	53.50	43.50
216~960	56.40	46.00
960~1000	59.50	54.00

Note: 1) The lower limit shall apply at the transition frequencies.
2) Emission level (dBμV/m) = 20 log Emission level (μV/m).

8.2. TEST PROCEDURE

The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane which has a 0.1 m non-conductive covering to insulate the EUT from the ground plane.

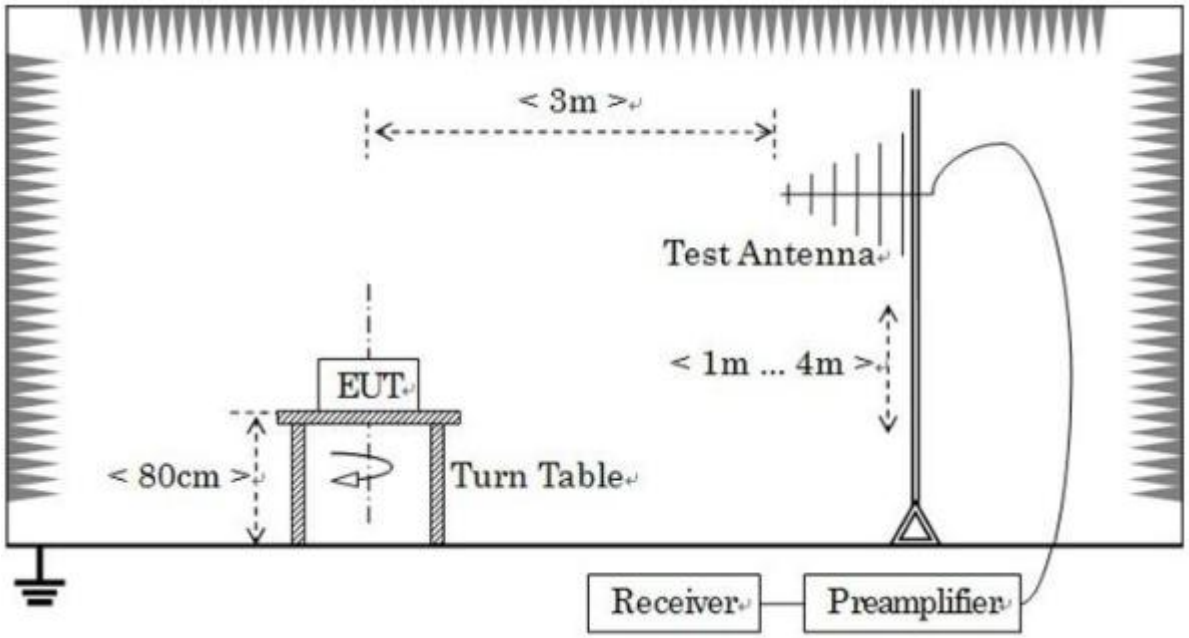
The antenna was placed at 3 meter away from the EUT. The antenna connected to the spectrum analyzer via a cable and at times a pre-amplifier would be used.

The analyzer / receiver quickly scanned from 30 MHz to 1000 MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

During the above scans, the emissions were maximized by cable manipulation. Each modes is measured, recorded the highest emissions. The emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
The test data of the worst-case condition(s) was recorded.

Note: Test Software Name: e3, Software Version: 8.2.1.0.

8.3. TEST SETUP



Note: For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

8.4. TEST RESULT

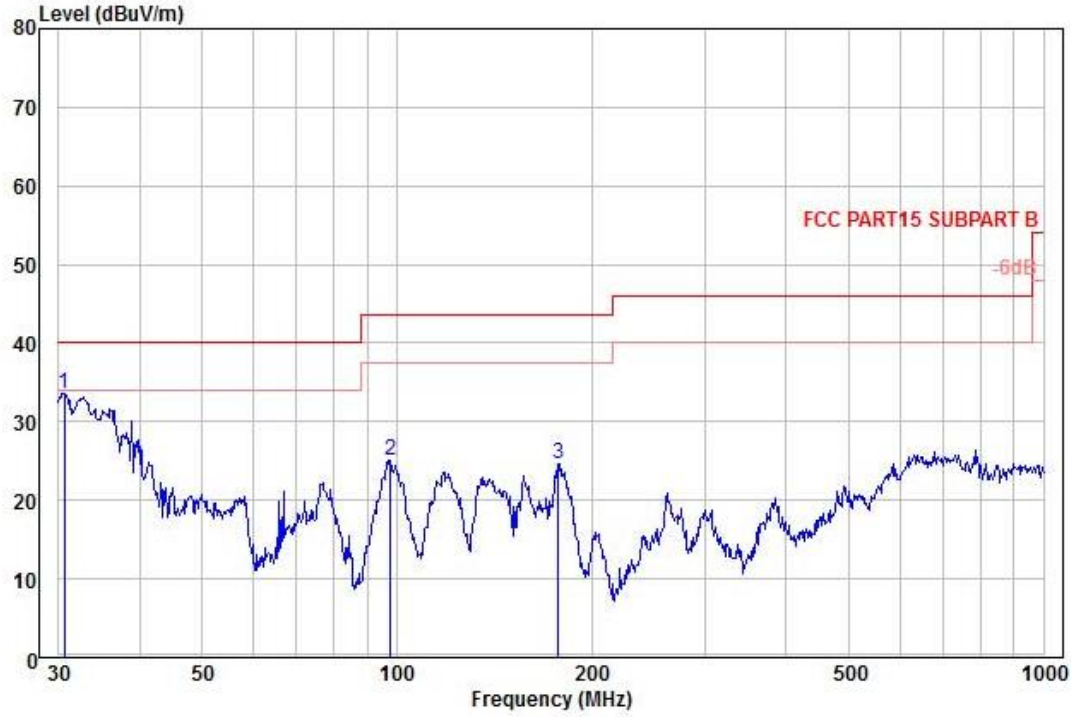
Product name	EDC multifunctional lighting	Antenna Distance	3 m
Model	XZT-01	Antenna Pole	Vertical / Horizontal
Test Mode	Working	Detector Function	Peak / Quasi-peak
Environmental Conditions	24.0℃, 55.1 % RH, 101.2 kPa	6 dB Bandwidth	120 kHz
Tested by	Brian	Test Result	Pass

Note:
Freq. = Emission frequency in MHz
Reading level (dBμV) = Receiver reading(dBμV)
Corr.Factor (dB/m)=Antenna factor(dB/m)+Cable loss(dB)-Preamp Factor(dB)
Measurement (dBμV/m)=Reading level(dBμV)+ Corr. Factor (dB/m)
Limit (dBμV/m) = Limit stated in standard
Over Limit (dB) = Measurement (dBμV/m) – Limit (dBμV/m)
QP = Quasi-Peak

The highest frequency of the internal sources of the EUT was less than 108 MHz, so the measurement was only made up to 1 GHz.

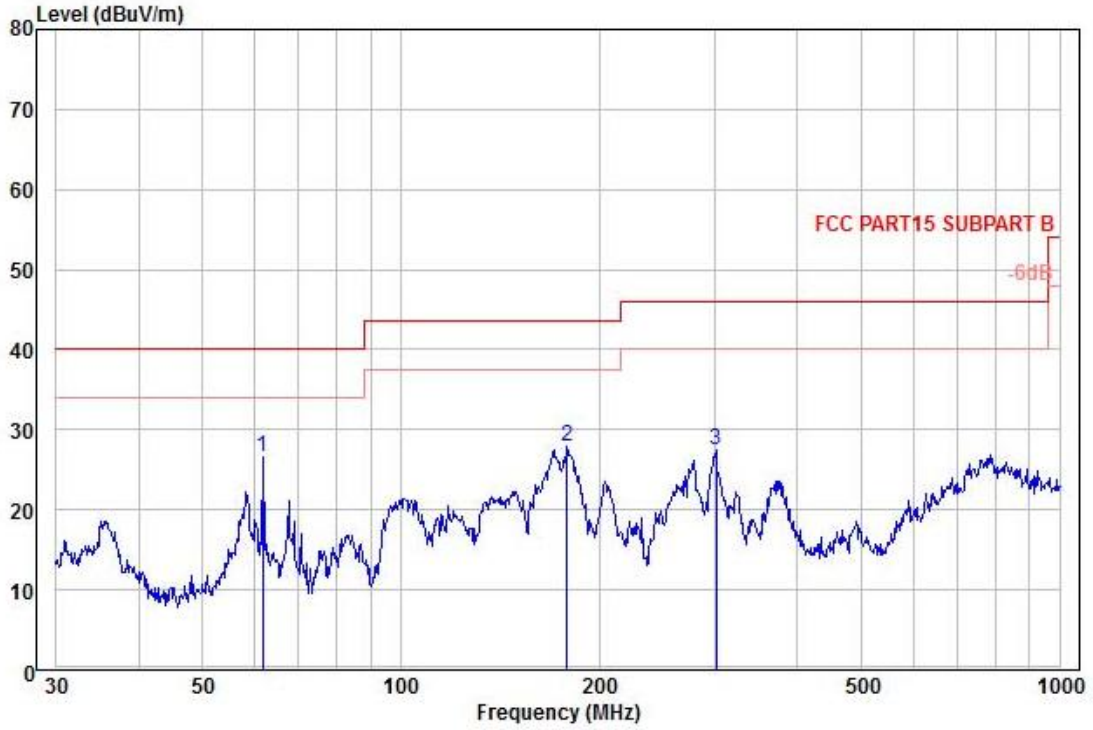
Please refer to the following diagram:

Vertical:



	Freq	Level	Pol/Phase	Read Level	Factor	Limit Line	Over Limit	Ant Factor	Cable Loss	Remark
	MHz	dBuV/m		dBuV	dB/m	dBuV/m	dB	dB/m	dB	
1	30.64	33.62	Vertical	50.89	-17.27	40.00	-6.38	12.63	0.43	Peak
2	97.80	25.12	Vertical	44.99	-19.87	43.50	-18.38	9.82	0.73	Peak
3	177.51	24.72	Vertical	42.63	-17.91	43.50	-18.78	11.44	0.98	Peak

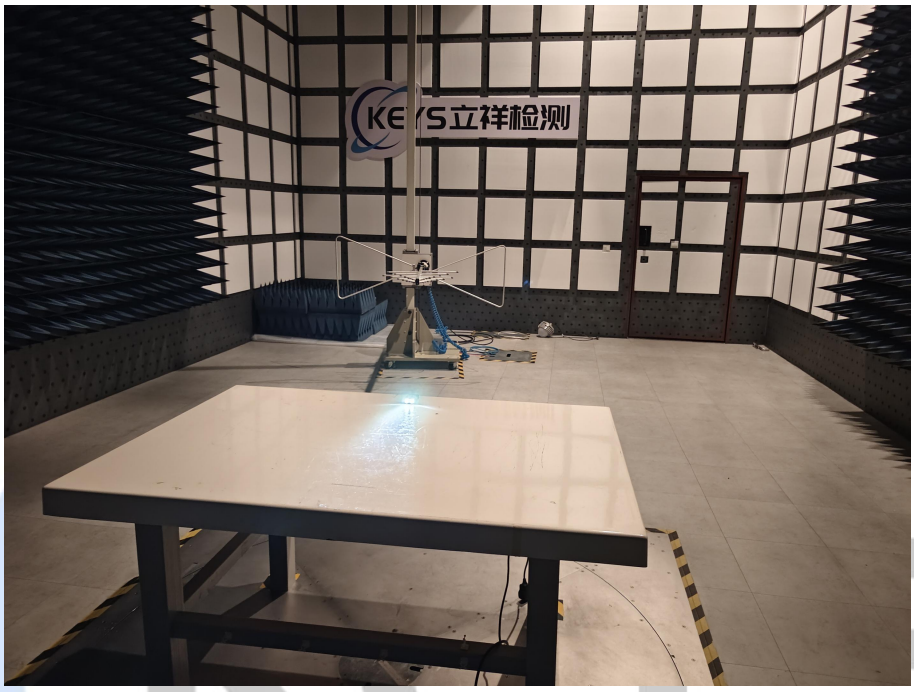
Horizontal:



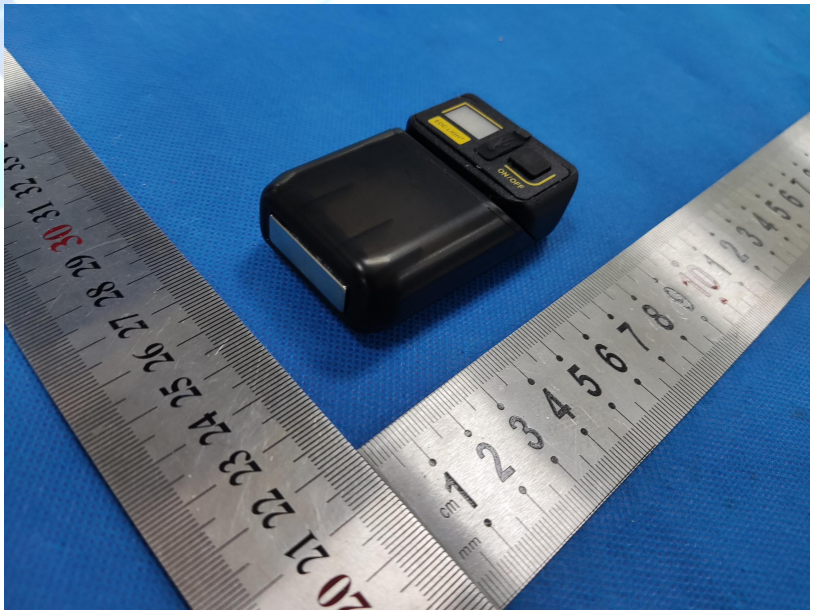
	Freq	Level	Pol/Phase	Read Level	Factor	Limit Line	Over Limit	Ant Factor	Cable Loss	Remark
	MHz	dBuV/m		dBuV	dB/m	dBuV/m	dB	dB/m	dB	
1	61.78	26.68	Horizontal	43.90	-17.22	40.00	-13.32	12.54	0.61	Peak
2	178.76	27.90	Horizontal	45.62	-17.72	43.50	-15.60	11.63	0.98	Peak
3	301.42	27.40	Horizontal	43.29	-15.89	46.00	-18.60	13.03	1.27	Peak

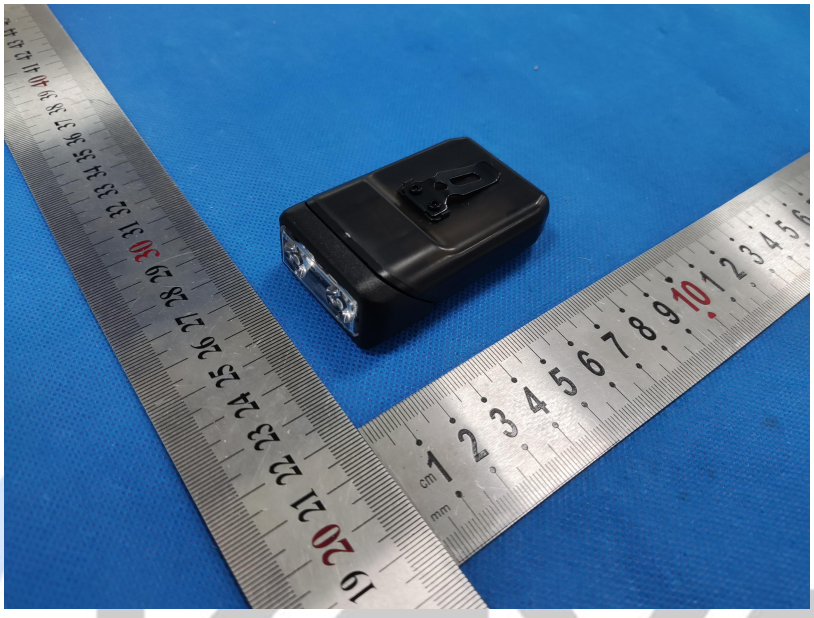
9. PHOTOGRAPHS OF THE TEST CONFIGURATION

RADIATEDEMISSIONTEST



10. PHOTOGRAPHS OF EUT





11. SUPPLEMENTARY INFORMATION FOR THE USER MANUAL, LABELING REQUIREMENTS

1. Devices subject to FCC part 15 Subpart B must be labelled with the following statement. The label can be affixed at any space external to the product except the battery door or detachable parts.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2)this device must accept any Interference received, including interference that may cause undesired operation.

2. In addition, for a Class B digital device or peripheral, the instructions furnished the user shall include the following statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with The instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: -- Reorient or relocate the receiving antenna. -- Increase the separation between the equipment and receiver. -- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. -- Consult the dealer or an experienced radio/TV technician for help.
Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the use's authority to operate the equipment

Note: If shielded cables or other specialized accessories are necessary for the unit to achieve compliance, a statement similar to the following should be added:

Shielded cables must be used with this unit to ensure compliance with the Class B FCC limits.

— End of report —

SUPPLIER'S DECLARATION OF CONFORMITY

Certificate No.: KEYS24032653002FC-02

Applicant	:	**Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd**
Address	:	**No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province**
Manufacturer	:	**Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd**
Address	:	**No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province**
Trade mark	:	**N/A**
Product	:	**EDC multifunctional lighting**
Model No.	:	**XZT-01**

The submitted sample of the above equipment has been tested and found to comply with the following requirement of 47 CFR of PART 15, Subpart B, Class B(SDoC)

Applicable Standard(s) FCC Part 15, Subpart B, Class B(SDoC)
ANSI C63.4:2014

Responsibilities and obligations
Strictly follow the FCC rules of 2.906,2.908,2.909.

This verification is part of the full test report(s) and should be read in conjunction with the test report: KEYS24032653002FC-02.
This verification is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Guangdong KEYS Testing Technology Co.,Ltd.,this verification is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo.

Jason Zhan
Manager
Date: April 01, 2024

Responsible party in US.
Company:
Address: Email: Tel:
Contact person (print name): Signature: Date:

Guangdong KEYS Testing Technology Co., Ltd.
Address: Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
104, No.4, Fumin Street, Shilong, Dongguan, Guangdong, China
Tel:+ 86-0769-89798319 http://www.keys-lab.com E-mail: info@keys-lab.com

CE EMC
TEST REPORT

for

Product: EDC multifunctional lighting
Model: XZT-01
Report No: KEYS24032653002EM-02

Issued for

Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd
No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province

Issued by

Guangdong KEYS Testing Technology Co., Ltd.
Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
104, No.4, Fumin Street, Shilong, Dongguan, Guangdong, China

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1. TEST CERTIFICATION

Product:	EDC multifunctional lighting
Trade marks:	N/A
Model:	XZT-01
Applicant :	Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd
Address:	No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province
Manufacturer:	Ningbo Daxiang Xiaotao Electrical Appliance Co., Ltd
Address:	No. 8 Xiangyuan Road, Phase II, Binhai Industrial Zone, Xidian Town, Ninghai County, Ningbo City, Zhejiang Province
Test Date:	March 29, 2024 to April 01, 2024
Issued Date:	April 01, 2024
Test Voltage:	DC3.7V, 0.5A, 10W
Applicable Standards:	EMC Directive 2014/30/EU EN IEC 55015:2019+A11:2020 EN IEC 61547:2023 EN IEC 61000-3-2:2019AMD.1:2021 EN 61000-3-3:2013+A1:2019+A2:2021

The above equipment has been tested by Guangdong KEYS Testing Technology Co., Ltd. and found compliance with the requirements in the technical standards mentioned above. The test results presented in this report only relate to the product/system tested. The Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Test Engineer: Sunny Li / Engineer

Technical Manager: Jason zhan / Manager

2. TEST SUMMARY

EMISSION			
Standard	**Item**	**Result**	**Remarks**
EN IEC 55015:2019+A11:2020	Conducted (Main Port)	N/A	Not applicable
	Radiated Electromagnetic Disturbance	PASS	Complied with limit
	Radiated Emission	PASS	Complied with limit
EN IEC 61000-3-2:2019AMD.1:2021	Harmonic current emissions	N/A	Not applicable
EN 61000-3-3:2013+A1:2019+A2:2021	Voltage fluctuations & flicker	N/A	Not applicable

IMMUNITY			
Standard	**Item**	**Result**	**Remarks**
EN 61000-4-2:2009	ESD	PASS	Complied with the requirements
EN IEC 61000-4-3:2020	RS	PASS	Complied with the requirements
EN 61000-4-4:2012	EFT	N/A	Not applicable
EN 61000-4-5:2014 +A1:2017	Surge	N/A	Not applicable
EN 61000-4-6:2014	CS	N/A	Not applicable
EN 61000-4-8:2010	PFMF	N/A	Not applicable
EN IEC 61000-4-11:2020	Voltage dips & voltage variations	N/A	Not applicable

Note: 1) The test result verdict is decided by the limit of test standard

2) The information of measurement uncertainty is available upon the customer's request.

3. TEST SITE

3.1. TEST FACILITY

Guangdong KEYS Testing Technology Co., Ltd.
Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
104, No.4, Fumin Street, Shilong, Dongguan, Guangdong, China

3.2. MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Temperature	±1° C
Humidity	±5%
DC and Low Frequency Voltages	±3%
Conducted Emission(150KHz-30MHz)	±3.60dB
Radiated Emission(30MHz-1GHz)	±4.76dB
Radiated Emission (1GHz-18GHz)	±4.44dB

Note 1: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.3. LIST OF TEST AND MEASUREMENT INSTRUMENTS

3.3.1. For conducted emission at the mains terminals test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI7	KEYS-E-005	July 2, 2024
Pulse limiter	Rohde&Schwarz	ESH3-Z2	KEYS-E-003	July 2, 2024
LISN impedance network TWO-LINE V-WORK	Rohde&Schwarz	ENV216	KEYS-E-004	July 2, 2024
Screened room	AUDIX	6*3*3	KEYS-E-001	July 23, 2024

3.3.2. For radiated electromagnetic emission test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI7	KEYS-E-005	July 2, 2024
Triple-Loop Antenna	PATCH PANEL	RF300	KEYS-EE-033	Sep. 17, 2024

3.3.3. For radiated emission test (30MHz-1GHz)

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI7	KEYS-E-005	July 2, 2024
Composite antenna	Schwarzbeck	VULB9168	KEYS-E-013	July 9,2024
Preamplifier	AUDIX	EM330	KEYS-E-014	July 2,2024
3m standard semi-anechoic chamber	AUDIX	9*6*6	KEYS-E-002	July 23, 2024

3.3.4. For harmonic current emissions and voltage fluctuations/flicker test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Harmonics / Flicker Test System	DCUU INSTRUMENT CO., LTD.	KDF-11005G	KEYS-E-017	July 2,2024
AC Power Source	DCUU INSTRUMENT CO., LTD.	BADT002-11	KEYS-E-025	July 2,2024

3.3.5. For electrostatic discharge immunity test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
ESD Generator	Shanghai Lingshi Electronics Co., LTD	ESD-203A	KEYS-E-023	July 3, 2024

3.3.6. For radio frequency electromagnetic field immunity (R/S) test (DQT)

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Signal Generator	Agilent	N517113-50B	KEYS-EE-038	Sep. 17, 2024
Amplifier	A&R	150W1000M3	KEYS-EE-039	Sep. 17, 2024
Amplifier	A&R	50SIG6M2	KEYS-EE-040	Sep. 17, 2024
Antenna	SCHWARZBECK	STLP9149	KEYS-EE-046	Sep. 17, 2024
Isotropic Field Probe	A&R	FL7006	KEYS-EE-049	Sep. 17, 2024
Log-periodic Antenna	SCHWARZBECK	STLP 9128E	KEYS-EE-042	Sep. 17, 2024

3.3.7. For electrical fast transient/burst immunity test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EFT Tester	HTEC	HEFT 51	KEYS-EE-051	Sep. 17, 2024
EFT Coupling Clamp	HTEC	HEFT 51-C	KEYS-EE-053	Sep. 17, 2024

3.3.8. For surge immunity test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Lightning surge generator	Shanghai Prima Electronics Co., LTD	SUG61005TB-2216	KEYS-E-030	July 2, 2024

3.3.9. For injected currents susceptibility test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
C/S Test System	SCHLODER	CDG-6000-25	KEYS-EE-056	Sep. 17, 2024
Coupling Decoupling Network	SCHLODER	CDN-M2+3	KEYS-EE-059	Sep. 17, 2024
Electromagnetic Injection Clamp	Luthi	EM101	KEYS-EE-066	Sep. 17, 2024

3.3.10. For power frequency magnetic field immunity test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Magnetic Field Tester	HTEC	HPFMF	KEYS-EE-068	Sep. 17, 2024

3.3.11. For voltage dips and short interruptions immunity test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
Dips Tester	HTEC	HPFS	KEYS-EE-067	Sep. 17, 2024

4. EUT DESCRIPTION

Product	EDC multifunctional lighting
Model	XZT-01
Supplied Voltage	DC3.7V, 0.5A
Power	10W

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
AC Port	1	☐
DC Port	1	☒

Models Difference

N/A

5. TEST METHODOLOGY

5.1. TEST MODE

The EUT was tested together with the thereinafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed.

Test Items		Test Mode
Emission	Conducted Emission	N/A
	Radiated Electromagnetic Disturbance	Lighting
	Radiated Emission	Lighting
	Harmonic current emissions	N/A
	Voltage fluctuations & flicker	N/A
Immunity	ESD	Lighting
	RS	Lighting
	EFT	N/A
	Surge	N/A
	C/S	N/A
	M/S	N/A
	Dips	N/A

5.2. EUT SYSTEM OPERATION

1. Set up EUT with the support equipment.
2. Make sure the EUT work normally during the test.

6. SETUP OF EQUIPMENT UNDER TEST

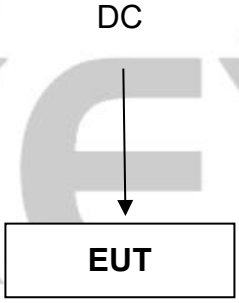
6.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1.	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

6.2. CONFIGURATION OF SYSTEM UNDER TEST



(EUT: EDC multifunctional lighting)

7. EMISSION TEST

7.1. CONDUCTED EMISSION MEASUREMENT

7.1.1. LIMITS

FREQUENCY (MHz)	LIMITS(dBμV)	
	Quasi-peak	Average
0.009-0.05	110	N/A
0.05-0.15	90 – 80	N/A
0.15 - 0.5	66 – 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1) The lower limit shall apply at the transition frequencies.

2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 MHz to 0.5 MHz

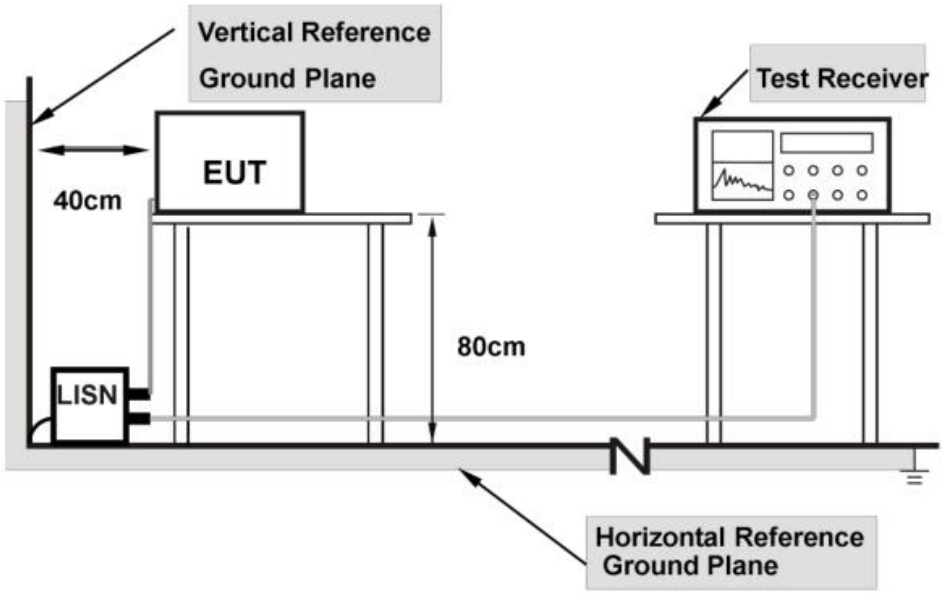
7.1.2. TEST PROCEDURES

The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane, which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane. The EUT should be 0.8 m apart from the AMN, where the mains cable supplied by the manufacturer is longer than 0.8 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, Details please refer to test setup photography.

The Receiver scanned from 9 kHz to 30 MHz for emissions in each of the test modes.
During the above scans, the emissions were maximized by cable manipulation.

A scanning was taken on the power lines, Line and neutral, recording at least six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.
Note: Test Software Name: e3, Software Version: 1.0.0.0.

7.1.3. TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs(AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

7.1.4. TEST RESULT

N/A

7.2. RADIATED ELECTROMAGNETIC DISTURBANCE

7.2.1. LIMITS

Frequency	Limits for loop diameter dB(μA)*		
	2 m	3 m	4 m
9 kHz-70 kHz	88	81	75
70 kHz-150 kHz	88-58**	81-51**	75-45**
150 kHz-3.0 MHz	58-22**	51-22**	45-16**
3.0 MHz-30 MHz	22	15-16***	9-12***

* At the transition frequency, the lower limit applies.
** Decreasing linearly with the logarithm of the frequency.
*** Increasing linearly with the logarithm of the frequency.

7.2.2. TEST PROCEDURE

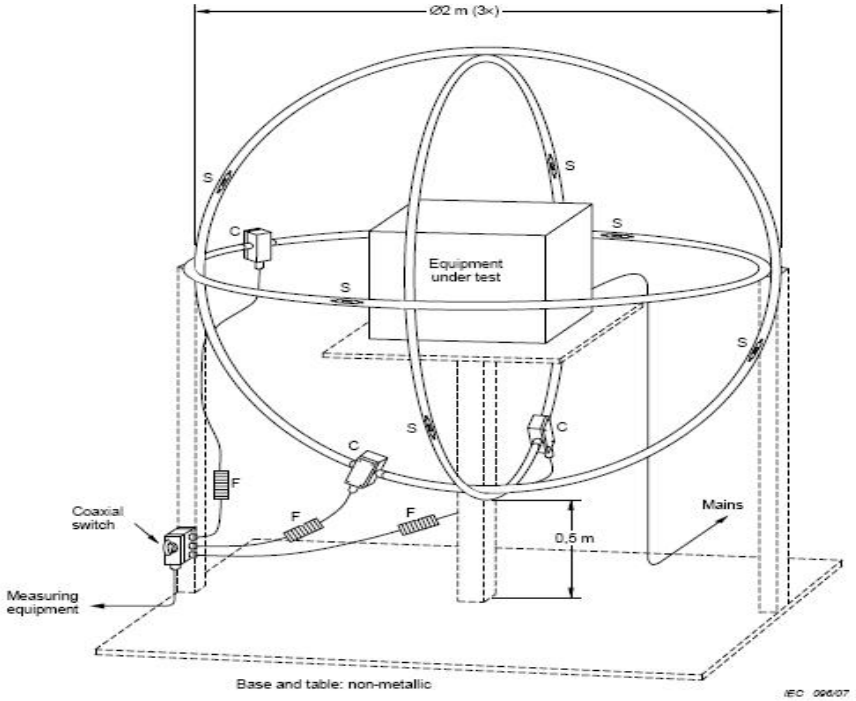
The EUT and support equipment are positioned in the centre of loop antenna system (LAS). The LAS consists of three circular, mutually perpendicular large-loop antennas (LLAs), having a diameter of 2 m, supported by a non-metallic base. A 50 Ω coaxial cable between the current probe of an LLA and the coaxial switch, and between this switch and the measuring equipment, shall have surface transfer impedance smaller than 10 mΩ/m at 100 kHz and 1 mΩ/m at 10 MHz. The distance between the outer diameter of the loop antenna system and nearby objects, such as floor and walls, shall be at least 0.5 m as per CISPR 15/ EN 55015.

The induced current in the loop antenna is measured by means of a current probe (1 V/A) and the CISPR measuring receiver. By means of a coaxial switch, the three field directions (X, Y, Z) can be measured in sequence.

The receiver scanned from 9 kHz to 30 MHz for emissions in each of the test modes, and recorded at least the six highest emissions. Each value shall comply with the requirement given.

The test data of the worst-case condition(s) was recorded.
Note: Test Software Name: e3, Software Version: 1.0.0.0.

7.2.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

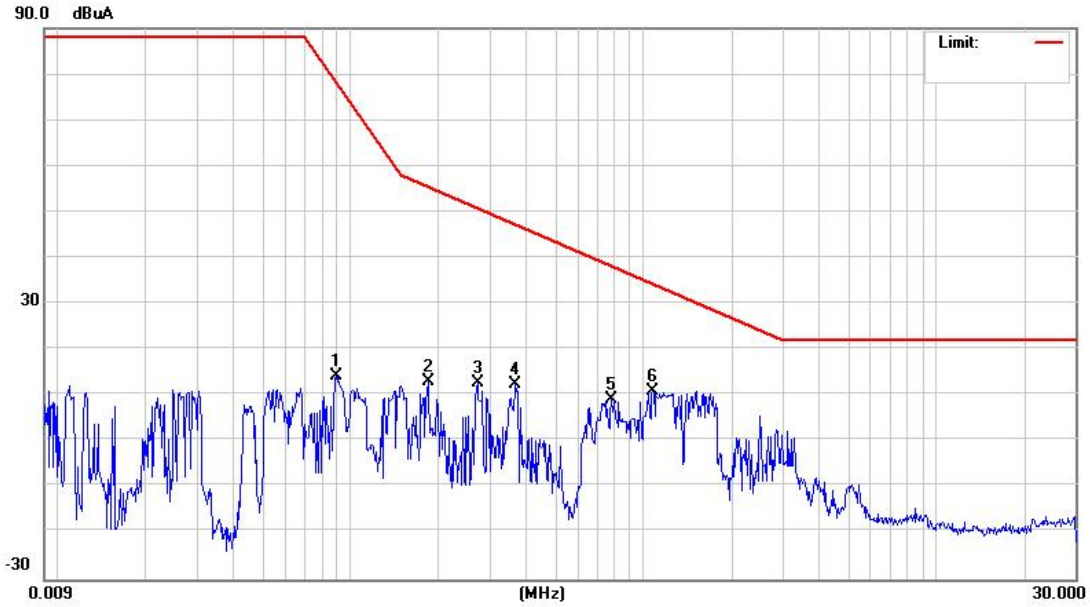
7.2.4. TEST RESULT

Product name	EDC multifunctional lighting	Antenna Pole	X, Y, Z
Model	XZT-01	Antenna Diameter	2 m
Test Mode	Lighting	Detector Function	Peak
Environmental Conditions	24.1℃, 54.3 % RH, 101.2 kPa	6 dB Bandwidth	200 Hz/9 kHz
Tested By	Brian	Test Result	Pass

Note:
Freq. = Emission frequency in MHz
Reading level (dBμA) = Receiver reading
Corr. Factor (dB) = Antenna factor + Cable loss
Measurement (dBμA) = Reading level (dBμA) + Corr. Factor (dB)
Limit (dBμA) = Limit stated in standard
Over Limit (dB) = Measurement (dBμA) – Limit (dBμA) QP = Quasi-Peak

Please refer to the following diagram:

X:



No.	Frequency (MHz)	Reading Level(dBuA)	Factor (dB)	Measure-ment(dBuA)	Limit (dBuA)	Over (dB)	Detector	Comment
1	0.0892	3.69	10.50	14.19	78.45	-64.26	peak	
2	0.1839	2.56	10.48	13.04	55.54	-42.50	peak	
3	0.2714	2.36	10.45	12.81	50.87	-38.06	peak	
4	0.3665	2.10	10.43	12.53	47.26	-34.73	peak	
5	0.7820	-1.29	10.44	9.15	38.15	-29.00	peak	
6 *	1.0859	0.37	10.47	10.84	34.21	-23.37	peak	

Y:

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.0250	1.19	10.50	11.69	88.00	-76.31	peak	
2	0.0892	-2.31	10.50	8.19	78.45	-70.26	peak	
3	0.1488	1.74	10.49	12.23	58.29	-46.06	peak	
4	0.1839	4.56	10.48	15.04	55.54	-40.50	peak	
5	0.4676	1.28	10.40	11.68	44.33	-32.65	peak	
6 *	1.3204	-2.61	10.44	7.83	31.86	-24.03	peak	

Z:

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure-ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.0522	1.51	10.50	12.01	88.00	-75.99	peak	
2	0.1008	0.56	10.50	11.06	73.63	-62.57	peak	
3	0.1915	4.22	10.47	14.69	55.06	-40.37	peak	
4	0.3664	3.80	10.43	14.23	47.26	-33.03	peak	
5	0.5819	0.39	10.40	10.79	41.70	-30.91	peak	
6 *	1.0268	-5.11	10.48	5.37	34.88	-29.51	peak	

7.3. RADIATED EMISSION MEASUREMENT

7.3.1. LIMITS

FREQUENCY (MHz)	Limit (dBμV/m) (At 3 m)
30 ~ 230	40
230 ~ 300	47

Note: 1) The lower limit shall apply at the transition frequencies.

2) Emission level (dBμV/m) = 20 log Emission level (μV/m).

7.3.2. TEST PROCEDURE

The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

The antenna was placed at 3 meter away from the EUT. The antenna connected to the spectrum analyzer via a cable and at times a pre-amplifier would be used.

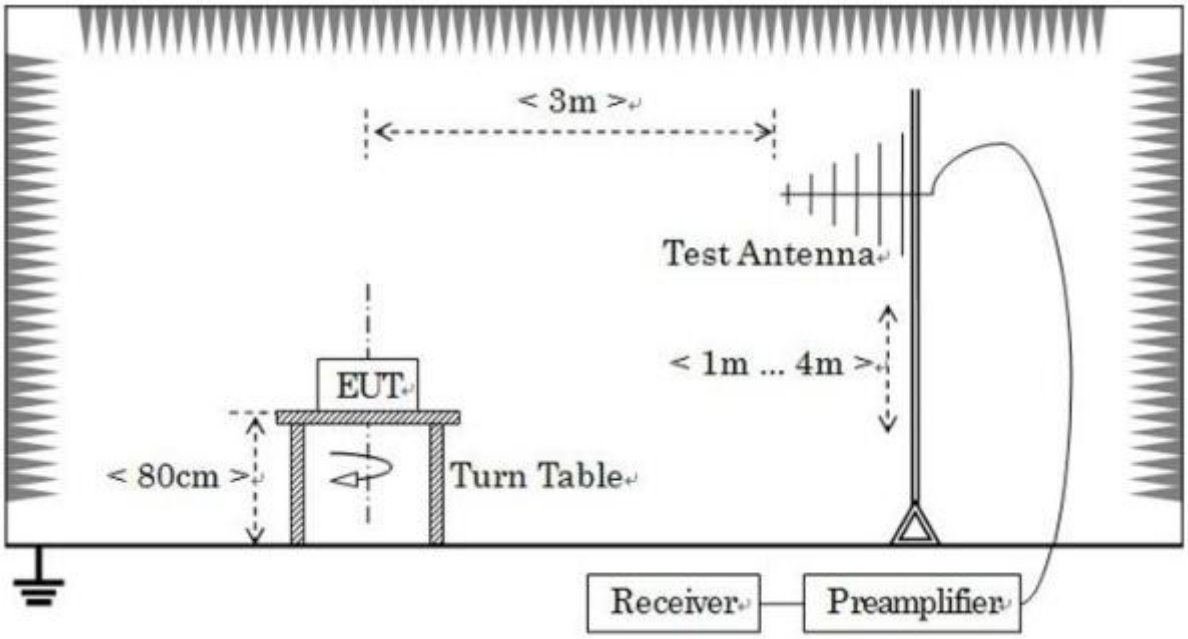
The analyzer / receiver quickly scanned from 30 MHz to 300 MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

During the above scans, the emissions were maximized by cable manipulation. Each modes is measured, recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

The test data of the worst-case condition(s) was recorded.

Note: Test Software Name: e3, Software Version: 8.2.1.0.

7.3.3. TEST SETUP



Note: For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

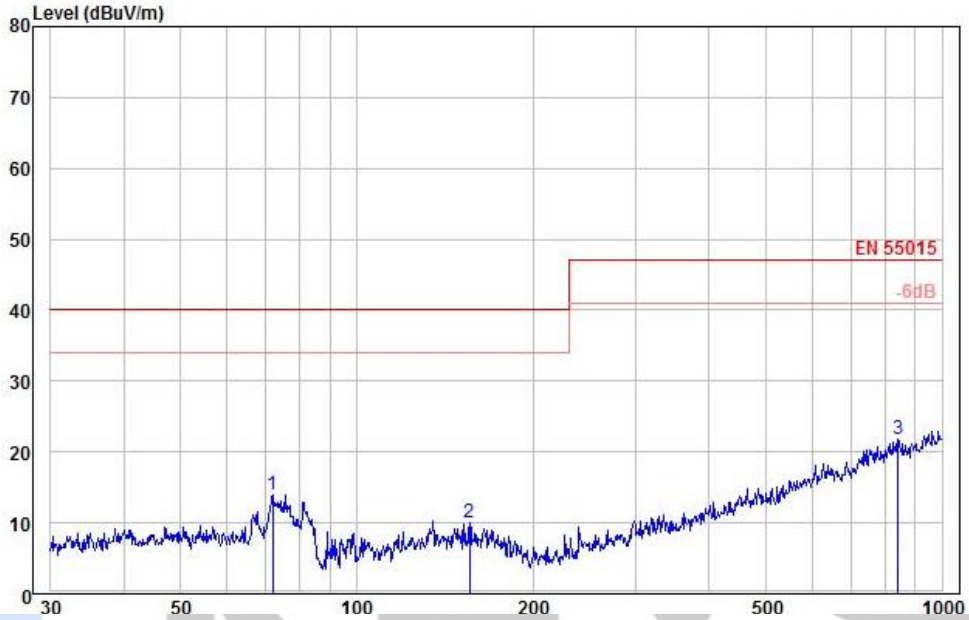
7.3.4. TEST RESULT

Product name	EDC multifunctional lighting	Antenna Distance	3 m
Model	XZT-01	Antenna Pole	Vertical / Horizontal
Test Mode	Lighting	Detector Function	Quasi-peak
Environmental Conditions	24.1℃, 54.3 % RH, 101.2 kPa	6 dB Bandwidth	120 kHz
Tested by	Brian	Test Result	Pass

Note:
Freq. = Emission frequency in MHz
Reading level (dBμV) = Receiver reading(dBμV)
Corr.Factor (dB/m)=Antenna factor(dB/m)+Cable loss(dB)-Preamp Factor(dB)
Measurement (dBμV/m)=Reading level(dBμV)+ Corr. Factor (dB/m)
Limit (dBμV/m) = Limit stated in standard
Over Limit (dB) = Measurement (dBμV/m) – Limit (dBμV/m)
QP = Quasi-Peak

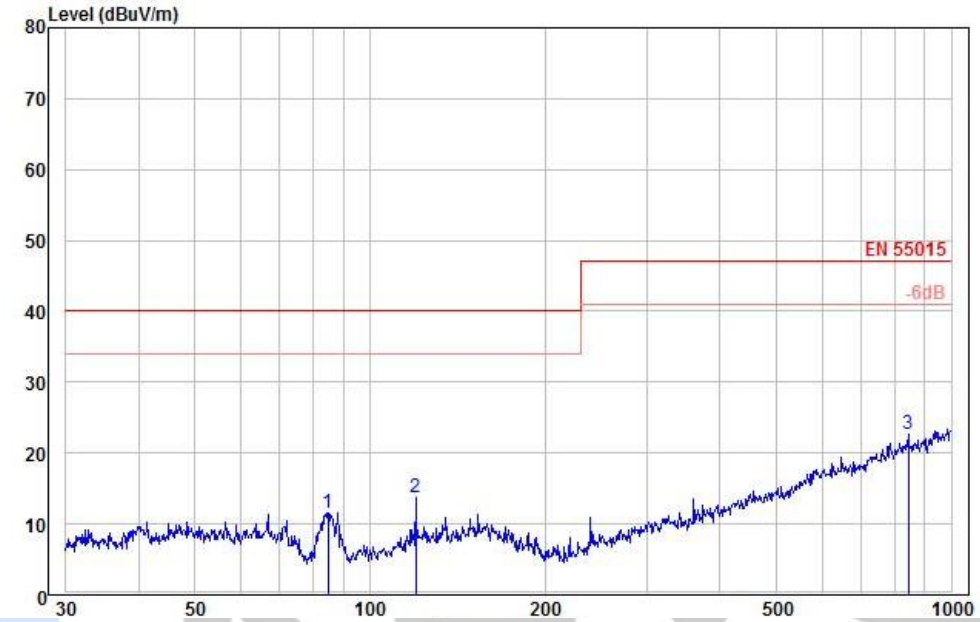
Please refer to the following diagram:

Vertical:



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Factor	Cable Loss	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB/m	dB	
1	71.83	13.93	32.85	-18.92	40.00	-26.07	10.92	0.64	Peak
2	155.91	10.09	26.70	-16.61	40.00	-29.91	13.06	0.91	Peak
3	842.13	21.81	25.87	-4.06	47.00	-25.19	23.14	2.22	Peak

Horizontal:



	Freq	Level	Read Level	Factor	Limit Line	Over Limit	Ant Factor	Cable Loss	Remark
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB/m	dB	
1	84.70	11.63	32.41	-20.78	40.00	-28.37	9.03	0.69	Peak
2	119.86	13.80	32.30	-18.50	40.00	-26.20	11.24	0.80	Peak
3	845.09	22.71	26.30	-3.59	47.00	-24.29	23.59	2.23	Peak

7.4. HARMONICS CURRENT MEASUREMENT

7.4.1. LIMITS OF HARMONICS CURRENT MEASUREMENT

Limit for Class A equipment	
Harmonics Order N	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15≦n≦39	0.15x(15/n)
Even harmonics	
2	1.08
4	0.43
6	0.30
8≦n≦40	0.23x8/n

Limit for Class D equipment		
Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd Harmonics only		
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15≦n≦39 (odd harmonics only)	3.85/n	0.15x(15/n)

Limit for Class C equipment	
Harmonics Order n	Max. permissible harmonics current expressed as a percentage of the input current at the fundamental frequency A
2	2
3	30xF
5	10
7	7
9	5
11≦n<≦39 (odd harmonics only)	3
F is the circuit power factor	

Note: Class A, B, C and D are classified according to item 7.4.2.of this report

7.4.2. TEST PROCEDURES

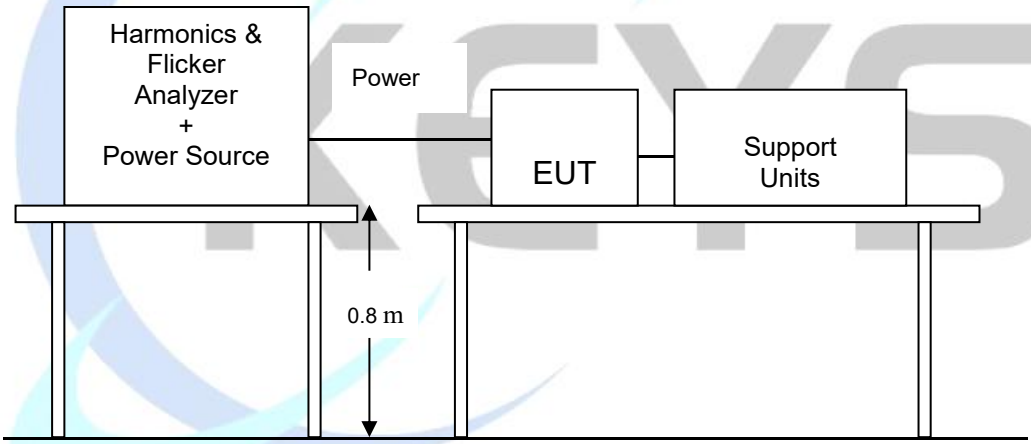
The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic. The classification of EUT is according to section 5 of EN 61000-3-2.

The EUT is classified as follows:
Class A:
Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

Class B:
Portable tools; Arc welding equipment which is not professional equipment.
Class C:
Lighting equipment
Class D:
Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

7.4.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.4.4. TEST RESULT

N/A

7.5. VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

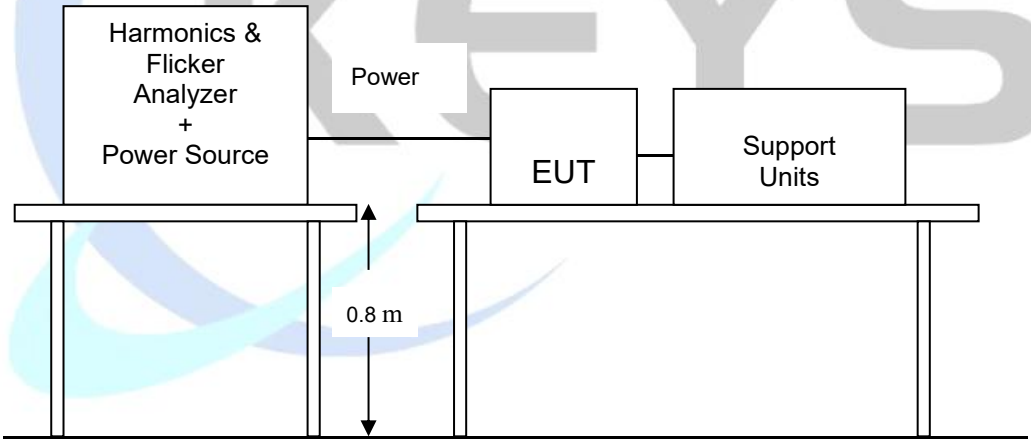
7.5.1. LIMITS OF VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

TEST ITEM	LIMIT	REMARK
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3 %.
d_{max} (%)	4/6/7 %	d_{max} means maximum relative voltage change.
dc (%)	3.3 %	dc means relative steady-state voltage change

7.5.2. TEST PROCEDURE

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under lighting operating conditions.
During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

7.5.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.5.4. TEST RESULT

N/A

8. IMMUNITY TEST

8.1. GENERAL DESCRIPTION

Product Standard	EN 61547	
	Test Type	Minimum Requirement
Basic Standard, Specification, and Performance Criterion required	EN 61000-4-2	Electrostatic Discharge – ESD: ±8 kV air discharge, ±4 kV Contact discharge, Performance Criterion B
	EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80 ~1000 MHz, 3 V/m, 80 % AM(1 kHz), Performance Criterion A
	EN 61000-4-4	Electrical Fast Transient/Burst - EFT, Power line: ±1 kV, Signal line: ±0.5 kV, Performance Criterion B
	EN 61000-4-5	Surge Immunity Test: 1.2/50 μs Open Circuit Voltage, 8 /20 μs Short Circuit Current, Power Port ~ Line to line: ±0.5 kV, Line to ground: ±1 kV (to self-ballasted lamps and semi-luminaries; luminaires and independent auxiliaries which are less than or equal to 25 W) Power Port ~ Line to line: ±1 kV, Line to ground: ±2 kV (to luminaires and independent auxiliaries which are more than 25 W) Signal Port : ±0.5 kV Performance Criterion B
	EN 61000-4-6	Conducted Radio Frequency Disturbances Test –CS: 0.15 ~ 80 MHz, 3 Vrms, 80 % AM, 1 kHz, Performance Criterion A
	EN 61000-4-8	Power frequency magnetic field immunity test 50 Hz, 3 A/m Performance Criterion A
	EN 61000-4-11	Voltage Dips and Interruptions: i) 30 % reduction for 10 period, Performance Criterion C ii) 100 % reduction for 0.5 period Performance Criterion B

8.2. GENERAL PERFORMANCE CRITERIA DESCRIPTION

Criteria 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.
Criteria 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.
Criteria 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.

8.3. ELECTROSTATIC DISCHARGE (ESD)

8.3.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-2
Discharge Impedance:	330 Ω
Charging Capacity:	150 pF
Discharge Voltage:	Air Discharge: ±8 kV (Direct) Contact Discharge: ±4 kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	10 times at each test point
Discharge Mode:	1 time/s
Performance Criterion:	B

8.3.2. TEST PROCEDURE

The discharges shall be applied in two ways:

a) Contact discharges to the conductive surfaces and coupling planes:
Twenty dischargers (10 with positive and 10 with negative polarity) shall be applied on each accessible metallic part of the enclosure, terminals are excluded. In case of a non-conductive enclosure, dischargers shall be applied on the horizontal or vertical coupling planes. Test shall be performed at a maximum repetition rate of one discharge per second.

b) Air discharges at slots and apertures and insulating surfaces:
On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. Such points are tested using the air discharge method. This investigation should be restricted to those area normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The basic test procedure was in accordance with IEC 61000-4-2:

a) The EUT was located 0.1 m minimum from all side of the HCP (dimensions 1.6 m x 0.8 m).
b) The support units were located another table 30 cm away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10cm with EUT.

c) The time interval between two successive single discharges was at least 1 second.

d) Contact discharges were applied to the non-insulating coating, with the pointed tip of

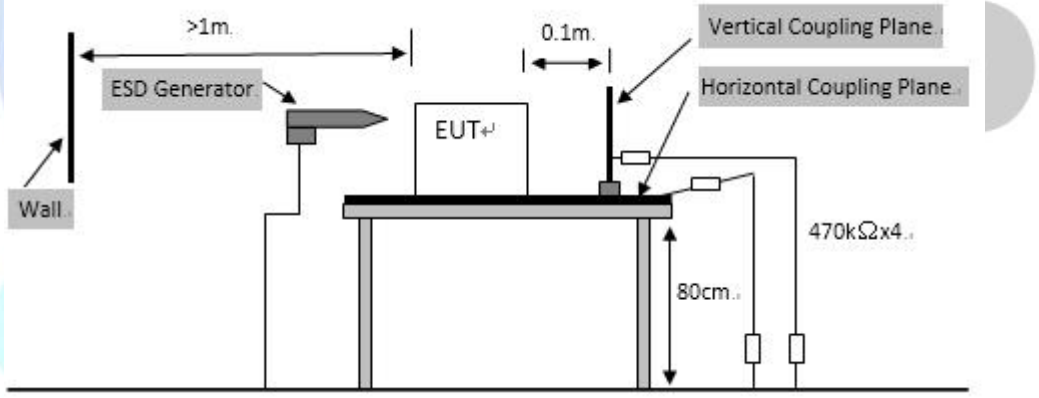
the generator penetrating the coating and contacting the conducting substrate.

e) Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

f) At least ten single discharges (in the most sensitive polarity) were applied at the front edge of each HCP opposite the center point of each unit of the EUT and 0.1 meters from the front of the EUT. The long axis of the discharge electrode was in the plane of the HCP and perpendicular to its front edge during the discharge.

g) At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane (VCP) in sufficiently different positions that the four faces of the EUT were completely illuminated. The VCP (dimensions 0.5 m x 0.5 m) was placed vertically to and 0.1 meters from the EUT.

8.3.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Note:

1) TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the ground reference plane (GRP) . The GRP consisted of a sheet of aluminum at least 0.25 mm thick, and 2.5 meters square connected to the protective grounding system. A horizontal coupling plane (HCP) (1.6 m x 0.8 m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5 mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

2) FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the ground reference plane by an insulating support of 0.1 meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25 mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

8.3.4. TEST RESULT

Product	EDC multifunctional lighting	Environmental Conditions	24.1℃, 54.3 % RH, 101.2 kPa
Model	XZT-01	Tested By	Brian
Test mode	Lighting	Test Result	Pass

Air Discharge					
Test Points	Test Levels	Results			
	± 8 kV	Pass	Fail	Observation	Performance Criterion
-	☒	☒	☐	Note ☐1☒2☐3	N/A
-	☒	☒	☐	Note ☐1☒2☐3	N/A

Contact Discharge					
Test Points	Test Levels	Results			
	± 4 kV	Pass	Fail	Observation	Performance Criterion
HCP 4 Points	☒	☒	☐	Note ☐1☒2☐3	B
VCP 4 Points	☒	☒	☐	Note ☐1☒2☐3	B

Note: 1) There was no change compared with initial operation during the test.
2) During the test the luminous intensity change, and after the test the luminous intensity can be restored to its initial value within 1 min.
3) During the test, the luminous intensity change and after the test the luminous intensity can return to normal within 30 min.

8.4. RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD (RS)

8.4.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-3
Frequency Range:	80 MHz ~ 1000 MHz
Field Strength:	3 V/m
Modulation:	1 kHz Sine Wave, 80 %, AM Modulation
Frequency Step:	1 % of preceding frequency value
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Performance Criterion:	A

8.4.2. TEST PROCEDURE

The test procedure was in accordance with EN 61000-4-3

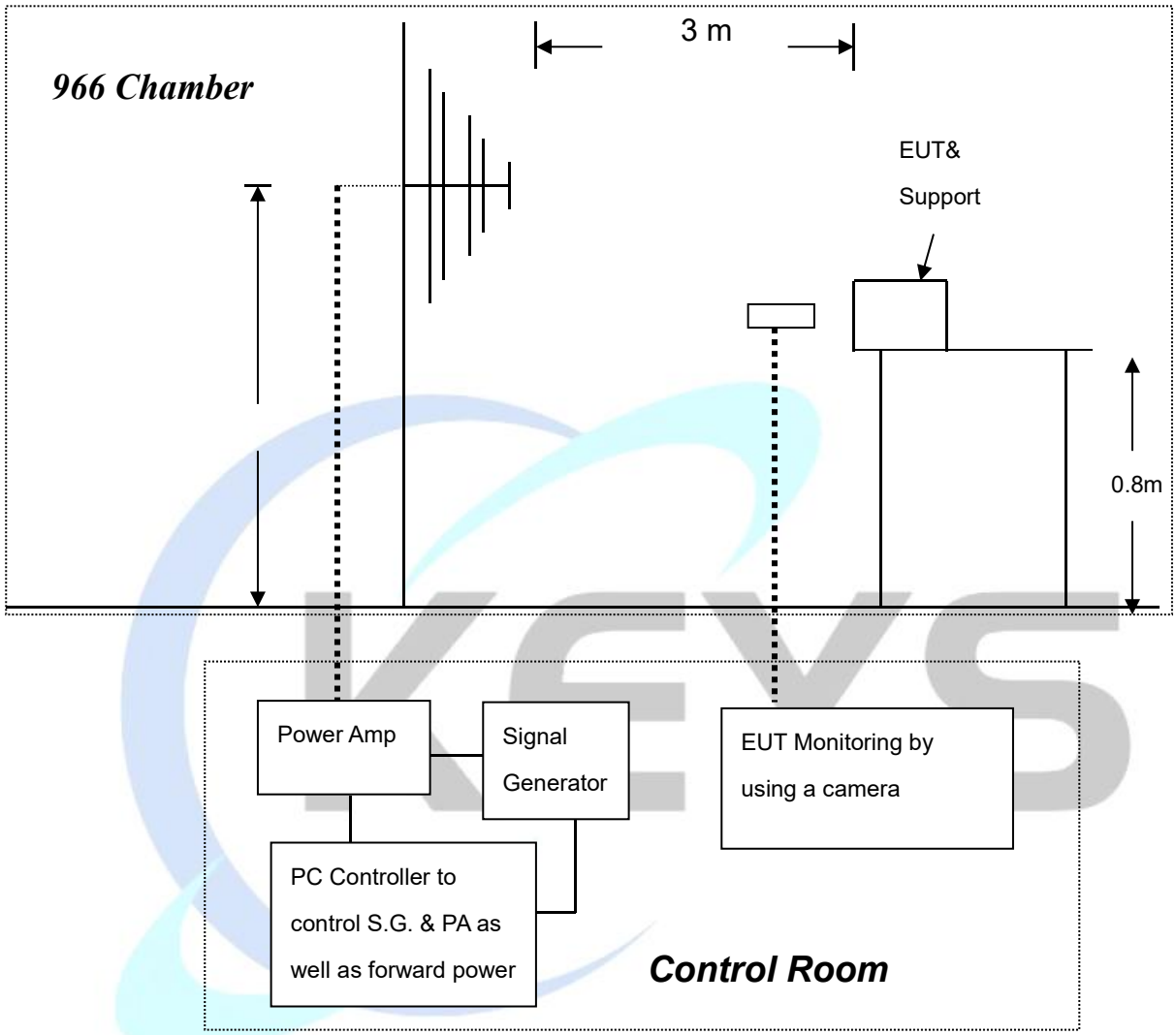
a) The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.

b) The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1 kHz sine-wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s, where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value.

c) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

d) The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

8.4.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

Note:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

8.4.4. TEST RESULT

Product	EDC multifunctional lighting	Environmental Conditions	24.1℃, 54.3 % RH, 101.2 kPa
Model	XZT-01	Tested By	Brian
Test mode	Lighting	Test Result	Pass

Frequency (MHz)	Polarity	Position	Field Strength (V/m)	Observation	Performance Criterion
80 ~ 1000	V&H	Front	3	Note ☒1 ☐2 ☐3	A
80 ~ 1000	V&H	Rear	3	Note ☒1 ☐2 ☐3	A
80 ~ 1000	V&H	Left	3	Note ☒1 ☐2 ☐3	A
80 ~ 1000	V&H	Right	3	Note ☒1 ☐2 ☐3	A

Note: 1) There was no change compared with initial operation during the test.
2) During the test the luminous intensity change ,and after the test the luminous intensity can be restored to its initial value within 1 min.
3) During the test, the luminous intensity change and after the test the luminous intensity can return to normal within 30 min.

8.5. ELECTRICAL FAST TRANSIENT (EFT)

8.5.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-4
Test Voltage:	Power Line: ±1 kV Signal/Control Line: ±0.5 kV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave-shape:	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	2 mins
Performance Criterion:	B

8.5.2. TEST PROCEDURE

EUT is placed on a 0.1 m tall wooden table.

EUT operate at normal mode, the transient/burst was 5/50 ns in accordance with EN 61000-4-4, both positive and negative polarity burst waveform were applied.

The duration time of each test line was 2 minutes.

8.5.3. TEST SETUP

The EUT installed in a representative system as described in section 7 of EN 61000-4-4.

For the actual test configuration, please refer to the related item – photographs of the test configuration.

8.5.4. TEST RESULT

N/A

8.6. SURGE IMMUNITY TEST

8.6.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-5
Wave-Shape:	Combination Wave 1.2/50 μs Open Circuit Voltage 8/20 μs Short Circuit Current
Test Voltage:	Power Port ~ Line to line: ±0.5 kV, Line to ground: ±1 kV (to self-ballasted lamps and semi-luminaries; luminaires and independent auxiliaries which are less than 25 W) Power Port ~ Line to line: ±1 kV, Line to ground: ±2 kV (to luminaires and independent auxiliaries which are more than 25 W)
Surge Input/Output:	Power Line: L-N / L-PE / N-PE
Generator Source Impedance:	2 Ω between networks 12 Ω between network and ground
Polarity:	Positive/Negative
Phase Angle:	90°(positive polarity pulses) / 270°(negative polarity pulses)
Pulse Repetition Rate:	1 time / min.
Number of Tests:	5 positive polarity pulses at the 90° phase angle, and 5 negative polarity pulses at 270° phase angle
Performance Criterion:	B

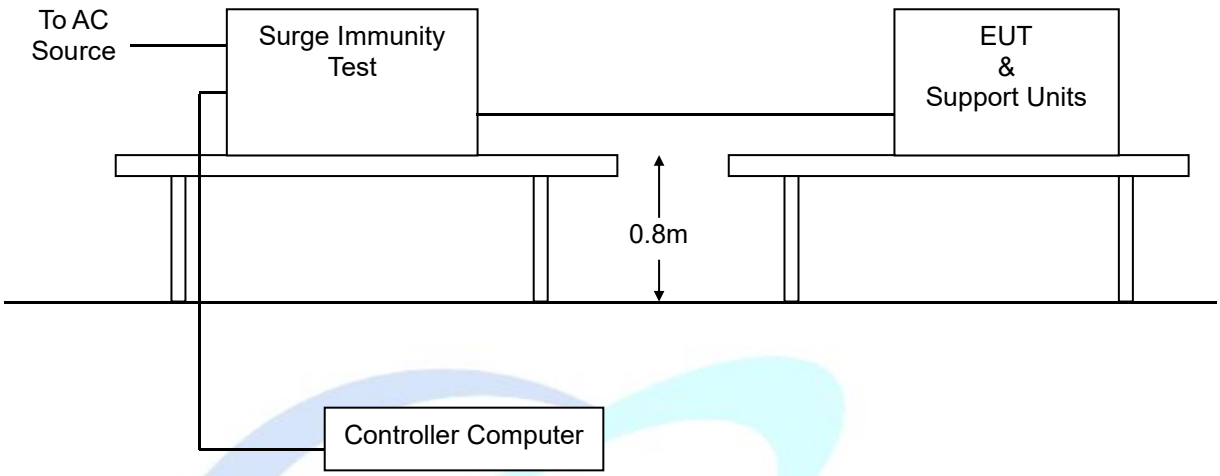
8.6.2. TEST PROCEDURE

EUT is placed on a 0.1 m (table type equipment) / 0.8 m (floor type equipment) tall wooden table.

EUT operate at normal mode, two types of combination wave generator (1.2/50 us open-circuit voltage and 8/20 us short-circuit current) are applied to the EUT power supply terminals via the capacitive coupling network.

The power cord between the EUT and the coupling/decoupling network shall not exceed 2 m in length.

8.6.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

8.6.4. TEST RESULT

N/A

8.7. CONDUCTED RADIO FREQUENCY DISTURBANCES (CS)

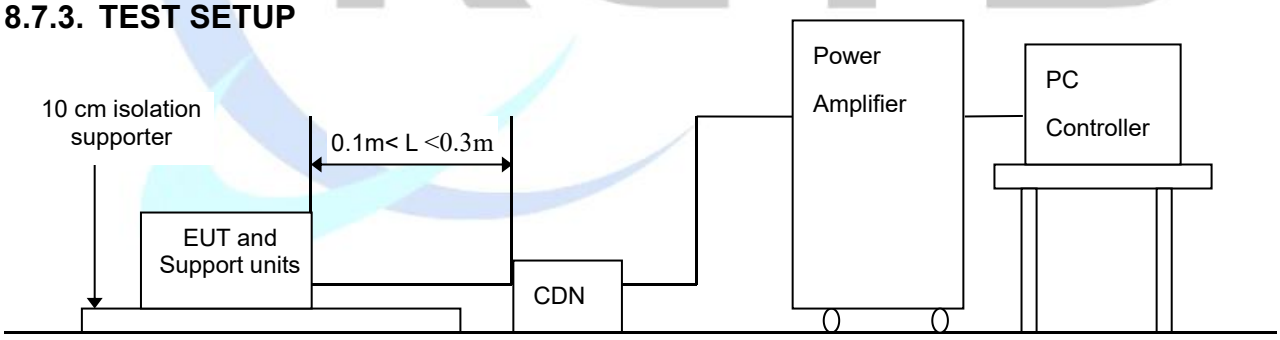
8.7.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-6
Frequency Range:	0.15 MHz ~80 MHz
Field Strength:	3 V
Modulation:	1 kHz Sine Wave, 80 %, AM Modulation
Frequency Step:	1 % of preceding frequency value
Coupled cable:	Power Mains, Shielded
Coupling device:	CDN-M3/2 (3 wires/2 wires)
Performance Criterion:	A

8.7.2. TEST PROCEDURE

The EUT shall be tested within its intended operating and climatic conditions.
The test shall performed with the test generator connected to each of the coupling and decoupling devices in turn, while the other non-excited RF input ports of the coupling devices are terminated by a 50 Ω load resistor. The frequency range was swept from 150 kHz to 80 MHz, using the signal level established during the setting process and with a disturbance signal of 80 % amplitude. The signal was modulated with a 1 kHz sine wave, pausing to adjust the RF signal level or the switch coupling devices as necessary. The sweep rate was 1.5 x 10^{-3} decades/s. Where the frequency range is swept incrementally, the step size was 1 % of preceding frequency value the dwell time of the amplitude modulated carrier at each frequency was 0.5 s.

8.7.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

Note: 1) The EUT is setup 0.1 m above Ground Reference Plane

2) All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

8.7.4. TEST RESULT

N/A

8.8. POWER FREQUENCY MAGNETIC FIELD

8.8.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-8
Frequency Range:	50 Hz
Field Strength:	1A/m
Observation Time:	5 minutes
Inductance Coil:	Rectangular type, 1 m x 1 m
Performance Criterion:	A

8.8.2. TEST PROCEDURE

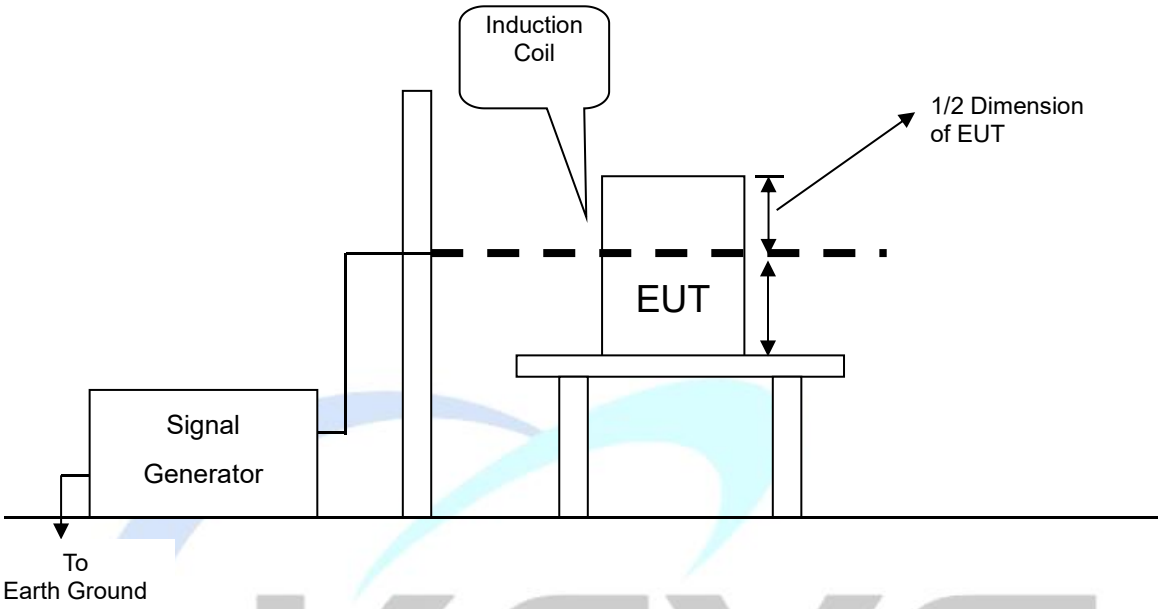
The equipment is configured and connected to satisfy its functional requirements. It shall be placed on the GRP with the interposition of a 0.1 m-thick insulating support.

The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.

The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.

The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

8.8.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration
Note:

TABLETOP EQUIPMENT
The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT
The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

8.8.4. TEST RESULT

N/A

8.9. VOLTAGE DIP & VOLTAGE INTERRUPTIONS

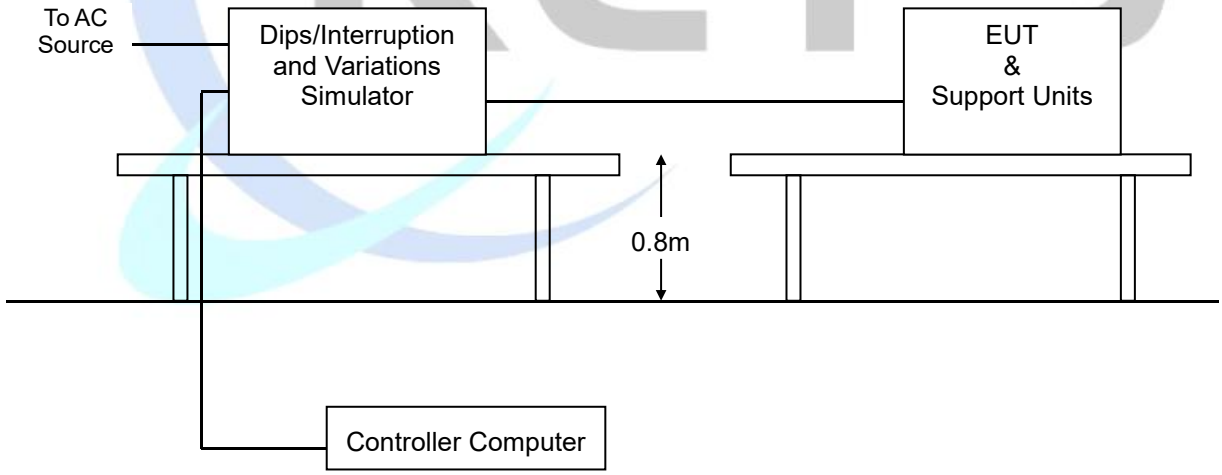
8.9.1. TEST SPECIFICATION

Basic Standard:	EN 61000-4-11
Test Duration Time:	3 test events in sequence
Interval Between Event:	10 seconds
Phase Angle:	0°
Test Cycle:	3 times
Performance Criterion:	0% U_T / 0.5 P, Criterion: B
	70% U_T / 10 P, Criterion: C

8.9.2. TEST PROCEDURE

The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
Setting the parameter of tests and then perform the test software of test simulator.
Changes to the voltage level shall occur at 0 degree crossing point in the a.c. voltage waveform.
Record the test result in test record form.

8.9.3. TEST SETUP



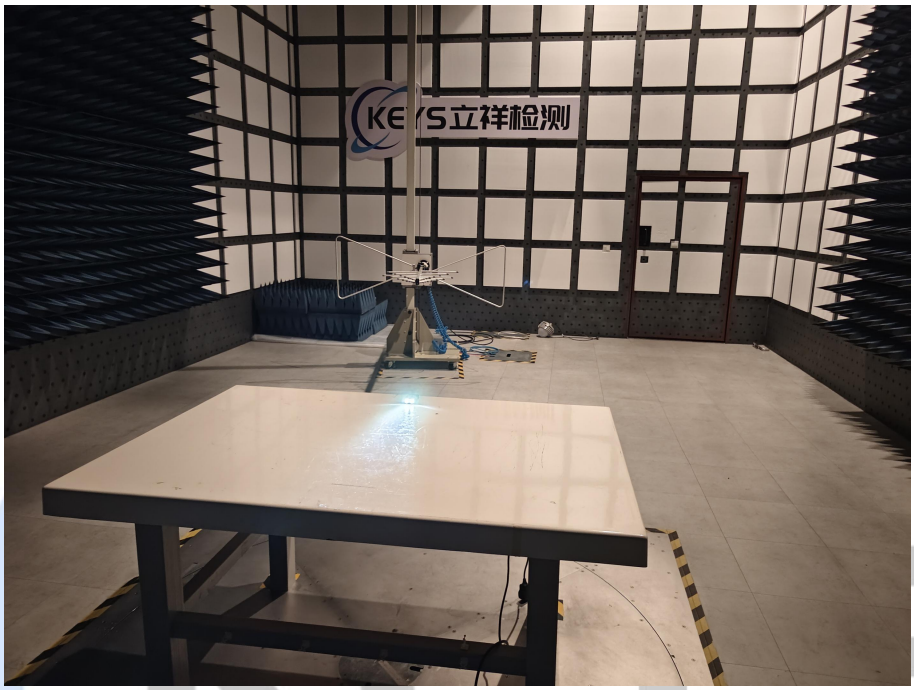
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

8.9.4. TEST RESULT

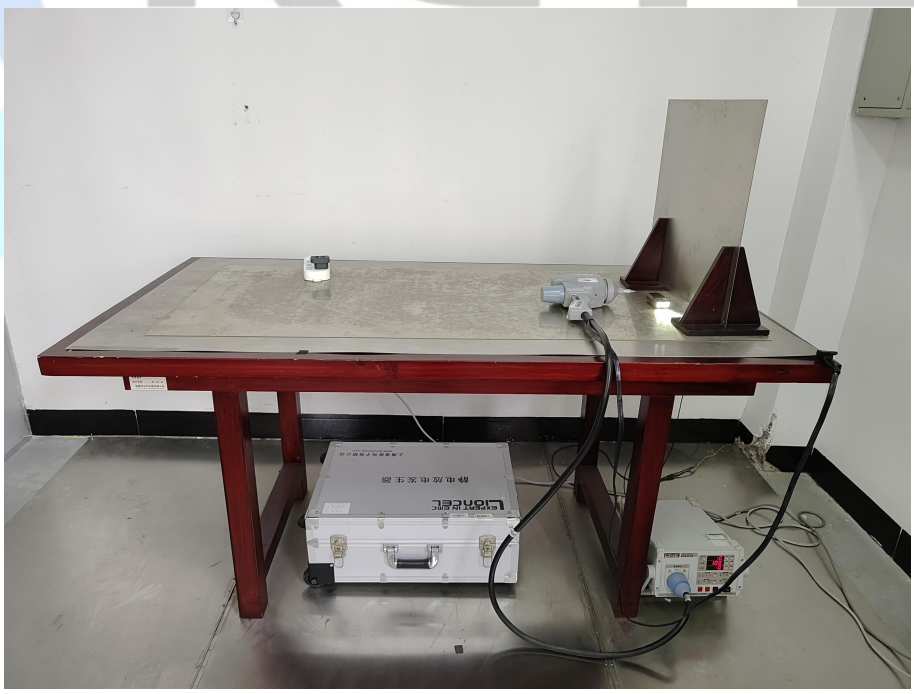
N/A

9. PHOTOGRAPHS OF THE TEST CONFIGURATION

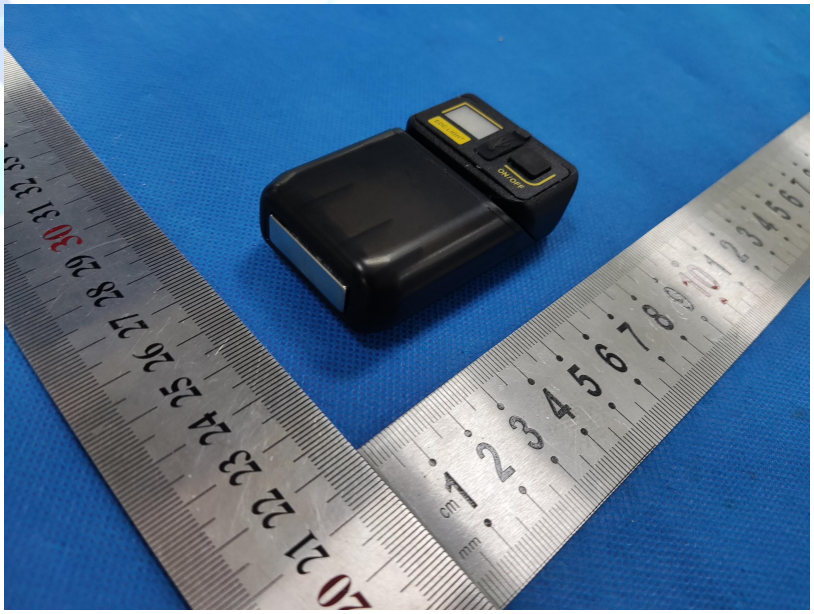
RADIATED EMISSION TEST

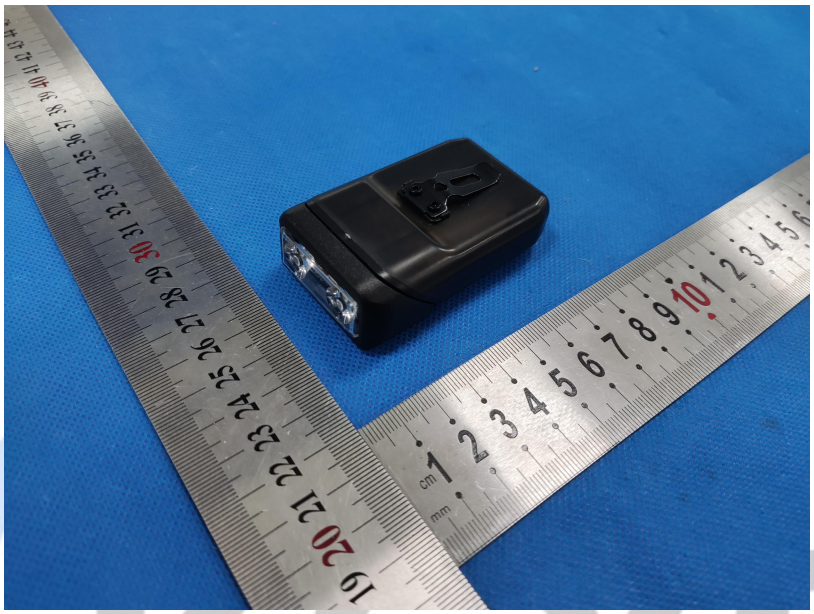


ESD TEST



10. PHOTOGRAPHS OF EUT





— End of report —