

# TEST REPORT

**Application No.:** SHEM2105004843LM  
**Applicant:** Cixi Challux International Trading Co. Ltd  
**Address of Applicant:** East Zone, Guanhaiwei Town Industrial Park, Cixi City, Ningbo, China  
**Manufacturer:** Ningbo Alite Lighting Co. LTD  
**Address of Manufacturer:** Liutang Village, Chongshou Town, Cixi City, Zhejiang, China  
**Factory:** Ningbo Alite Lighting Co. LTD  
**Address of Factory:** Liutang Village, Chongshou Town, Cixi City, Zhejiang, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Emergency LED Light  
**Model No.:** CH-400-2  
**Standard(s) :** EN IEC 55015:2019+A11:2020  
 EN 61547:2009  
**Date of Receipt:** 2021-05-21  
**Date of Test:** 2021-05-24 to 2021-05-27  
**Date of Issue:** 2021-05-28

<b>Test Result:</b>	<b>Pass*</b>
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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

Parlan Zhan  
Laboratory Manager



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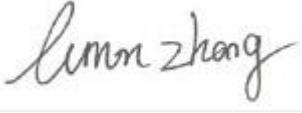

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Revision Record			
Version	Description	Date	Remark
00	Original	2021-05-28	/

Authorized for issue by:			
			
		Lemon Zhang / Project Engineer	
			
		Bruce Tang / Reviewer	

## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions (30MHz-1GHz)	EN IEC 55015:2019+A11:2020	CISPR 32:2015	N/A	Pass
Radiated Emissions (Magnetic field Induced Current) (9kHz-30MHz)	EN IEC 55015:2019+A11:2020	EN IEC 55015:2019+A11:2020	N/A	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

N/A: Not applicable



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### 3 Contents

	Page
<b>1 COVER PAGE.....</b>	<b>1</b>
<b>2 TEST SUMMARY .....</b>	<b>3</b>
<b>3 CONTENTS.....</b>	<b>4</b>
<b>4 GENERAL INFORMATION.....</b>	<b>5</b>
4.1 DETAILS OF E.U.T. ....	5
4.2 DESCRIPTION OF SUPPORT UNITS .....	5
4.3 MEASUREMENT UNCERTAINTY.....	5
4.4 TEST LOCATION .....	6
4.5 TEST FACILITY .....	6
4.6 DEVIATION FROM STANDARDS .....	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS.....	6
4.8 MONITORING OF EUT FOR ALL IMMUNITY TEST .....	6
<b>5 EQUIPMENT LIST.....</b>	<b>7</b>
<b>6 EMISSION TEST RESULTS .....</b>	<b>9</b>
6.1 RADIATED EMISSIONS (30MHZ-1GHZ) .....	9
6.2 RADIATED EMISSIONS (MAGNETIC FIELD INDUCED CURRENT) (9KHZ-30MHZ) .....	12
<b>7 IMMUNITY TEST RESULTS.....</b>	<b>16</b>
7.1 PERFORMANCE CRITERIA DESCRIPTION IN EN 61547:2009 .....	16
7.2 ELECTROSTATIC DISCHARGE .....	17
7.3 RADIATED IMMUNITY (80MHZ-1GHZ) .....	18
<b>8 PHOTOGRAPHS.....</b>	<b>19</b>
8.1 RADIATED EMISSIONS (30MHZ-1GHZ) TEST SETUP.....	19
8.2 RADIATED EMISSIONS (MAGNETIC FIELD INDUCED CURRENT) (9KHZ-30MHZ) TEST SETUP .....	19
8.3 ELECTROSTATIC DISCHARGE TEST SETUP.....	20
8.4 RADIATED IMMUNITY (80MHZ-1GHZ) TEST SETUP.....	20
8.5 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS).....	21



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply: DC 4.5V (3\*1.5V "AAA" Battery Size)  
Test voltage: DC 4.5V

### 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)
		2.4dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	1.8 dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	4.2 dB (150kHz to 30MHz)
4	Radiated Power	3.2dB
5	Radiated Emission	4.5dB (30MHz-1GHz)
		5.1dB (1GHz-6GHz)
		5.4dB (6GHz-18GHz)
6	Radiated Disturbance (disturbance current in a LLAS)	2.4dB (9kHz to 30MHz)

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



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#### 4.4 Test Location

All tests were performed at:

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

No tests were sub-contracted.

#### 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.

- **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- **FCC (Designation Number: CN1301)**

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. Company Number: 8617A

- **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.



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## 5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2020-12-20	2021-12-19
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2019-10-14	2021-10-13
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2020-05-25	2023-05-24
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2020-08-13	2021-08-12

Radiated Emissions (Magnetic field Induced Current) (9kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2020-12-20	2021-12-19
3-dimensional large loop antenna,diam.2m.acc	Rohde & Schwarz	HXYZ9170	SHEM017-1	2020-12-20	2021-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2020-12-20	2021-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2020-12-20	2023-12-19
CE test Cable	/	/	CE01	2020-12-20	2021-12-19

Electrostatic Discharge					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-2	2020-08-13	2021-08-12

Radiated Immunity (80MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2020-08-13	2021-08-12
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2021-04-15	2022-04-14
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2021-04-15	2022-04-14
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A
Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	2020-12-20	2021-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2021-04-15	2022-04-14
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6105	SHEM134-1	2020-08-13	2021-08-12
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2020-05-25	2023-05-24



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General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2021-01-22	2024-01-21
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2020-09-11	2021-09-10
Digital Multimeter	FLUKE	17B	SHEM043-3	2020-09-09	2021-09-08
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2020-12-20	2021-12-19



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## 6 Emission Test Results

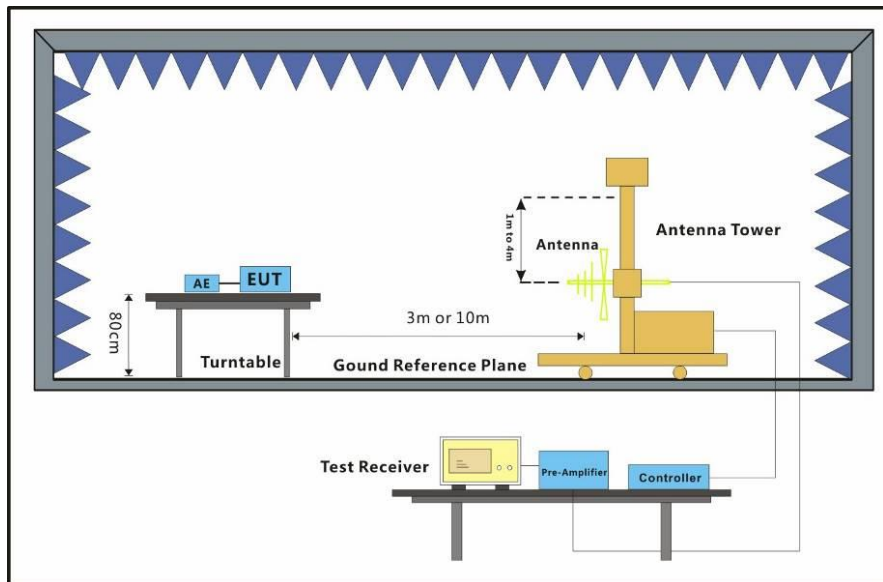
### 6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 55015:2019+A11:2020  
 Test Method: CISPR 32:2015  
 Frequency Range: 30MHz to 1GHz  
 Measurement Distance: 3m  
 Limit:  
 30MHz-230MHz 40 dB( $\mu$ V/m) quasi-peak  
 230MHz-1GHz 47 dB( $\mu$ V/m) quasi-peak  
 Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

#### 6.1.1 E.U.T. Operation

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

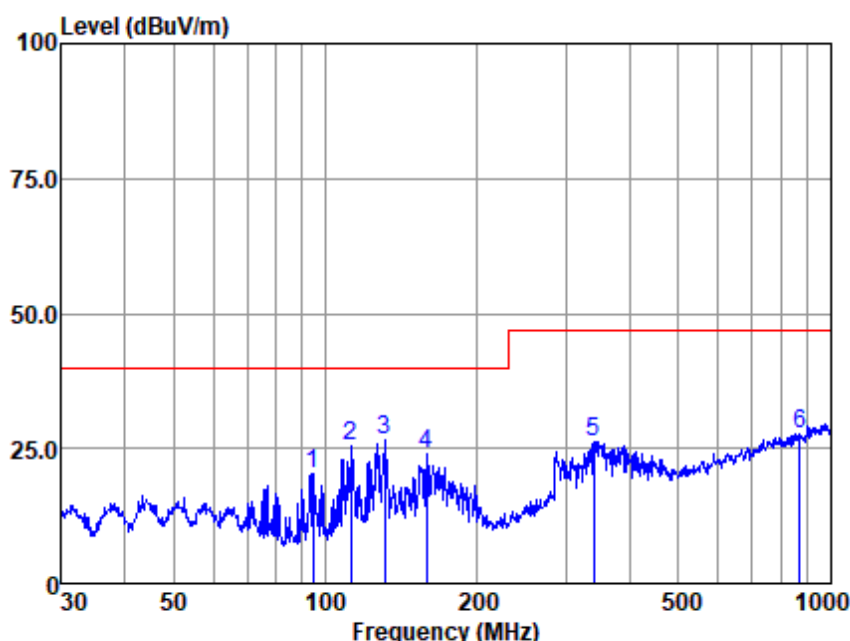
#### 6.1.2 Test Setup Diagram



#### 6.1.3 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.

Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL  
EUT/Project :4843LM  
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	94.428	53.14	8.17	1.44	42.30	20.45	40.00	-19.55	QP
2	112.131	55.98	10.29	1.59	42.27	25.59	40.00	-14.41	QP
3	131.297	55.03	11.90	1.73	42.23	26.43	40.00	-13.57	QP
4	158.668	51.01	13.17	1.92	42.20	23.90	40.00	-16.10	QP
5	339.589	51.15	14.18	2.95	41.94	26.34	47.00	-20.66	QP
6	869.130	42.01	22.90	4.70	41.76	27.85	47.00	-19.15	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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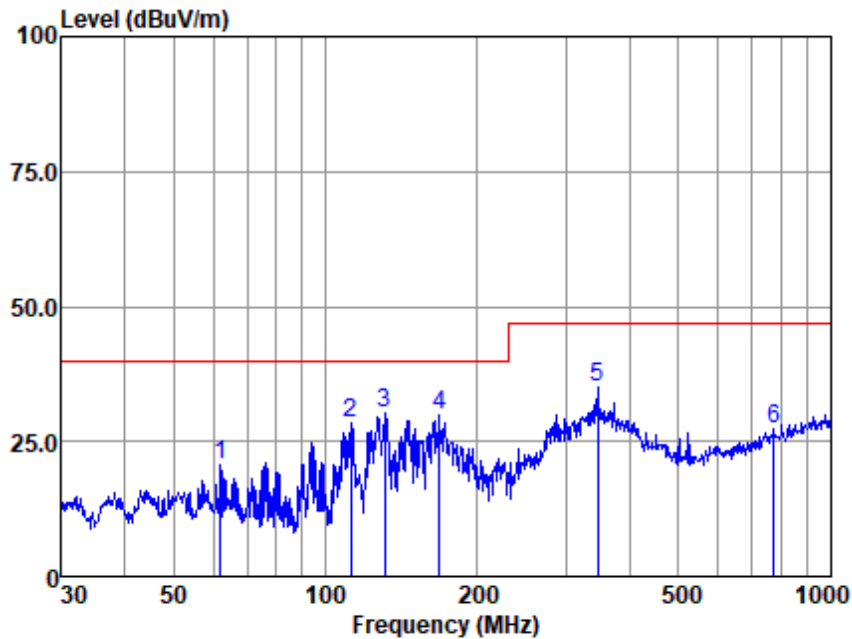
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Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL

EUT/Project :4843LM

Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	61.995	48.85	12.81	1.14	42.30	20.50	40.00	-19.50	QP
2	112.131	58.81	10.29	1.59	42.27	28.42	40.00	-11.58	QP
3	131.297	58.73	11.90	1.73	42.23	30.13	40.00	-9.87	QP
4	168.414	57.37	12.87	1.97	42.20	30.01	40.00	-9.99	QP
5	345.595	59.63	14.25	2.98	41.91	34.95	47.00	-12.05	QP
6	771.449	42.74	22.19	4.43	42.00	27.36	47.00	-19.64	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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

Test Requirement:	EN IEC 55015:2019+A11:2020
Test Method:	EN IEC 55015:2019+A11:2020
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

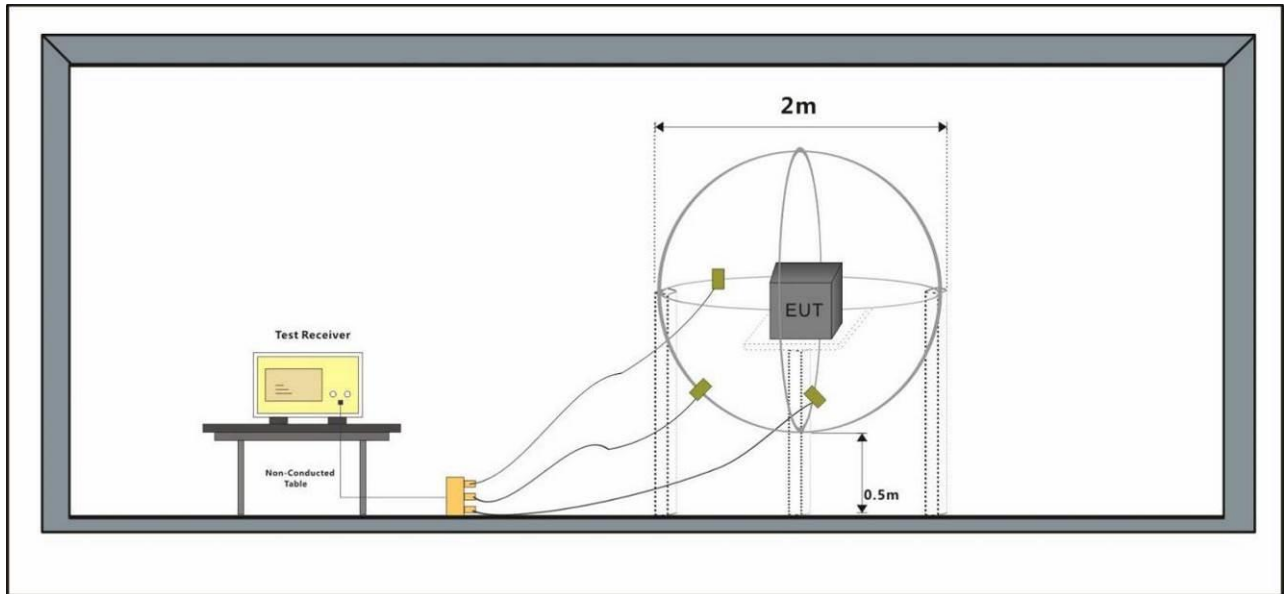
### 6.2.1 E.U.T. Operation

Operating Environment:

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

Test mode a: Lighting Mode: Keep the lamp lighting continuously.

### 6.2.2 Test Setup Diagram



### 6.2.3 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.



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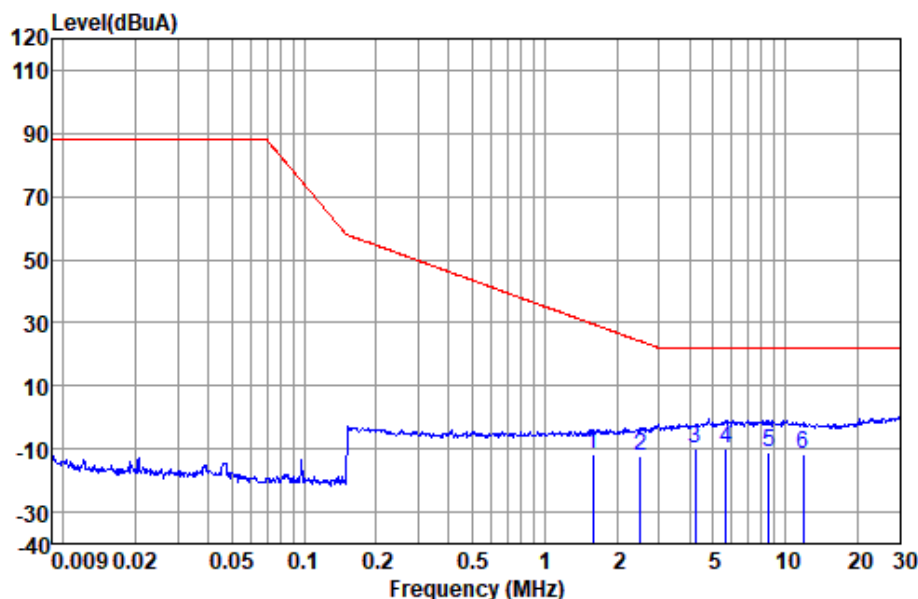
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Mode:a; Axial:X



EUT/Project No : 4843LM

Test Mode : a

: X

	Freq (MHz)	Read level (dBuA)	Cable Loss (dB)	Emission Level (dBuA)	Limit (dBuA)	Over Limit (dB)	Remark
1	1.59	-11.78	0.02	-11.76	29.62	-41.38	QP
2	2.51	-12.25	0.10	-12.15	24.16	-36.31	QP
3	4.25	-10.22	0.27	-9.95	22.00	-31.95	QP
4	5.69	-10.34	0.32	-10.02	22.00	-32.02	QP
5	8.53	-11.08	0.30	-10.78	22.00	-32.78	QP
6	11.90	-12.19	0.36	-11.83	22.00	-33.83	QP

Notes: Emission Level = Read Level + Cable loss



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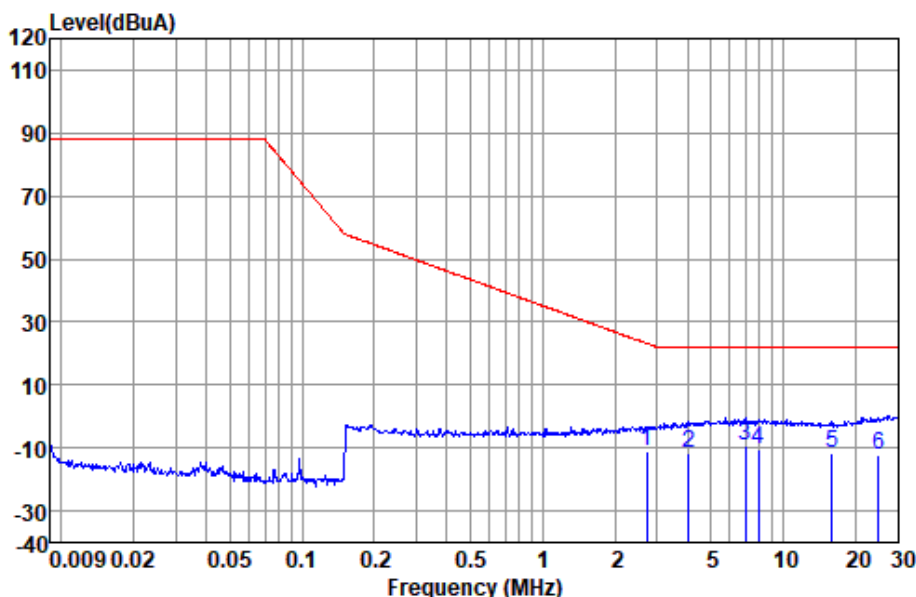
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Mode:a; Axial:Y



EUT/Project No : 4843LM

Test Mode : a

: Y

	Freq (MHz)	Read level (dBuA)	Cable Loss (dB)	Emission Level (dBuA)	Limit (dBuA)	Over Limit (dB)	Remark
1	2.72	-11.32	0.12	-11.20	23.18	-34.38	QP
2	4.05	-11.96	0.25	-11.71	22.00	-33.71	QP
3	6.97	-9.57	0.31	-9.26	22.00	-31.26	QP
4	7.93	-11.07	0.31	-10.76	22.00	-32.76	QP
5	15.93	-12.22	0.46	-11.76	22.00	-33.76	QP
6	24.89	-13.04	0.53	-12.51	22.00	-34.51	QP

Notes: Emission Level = Read Level + Cable loss



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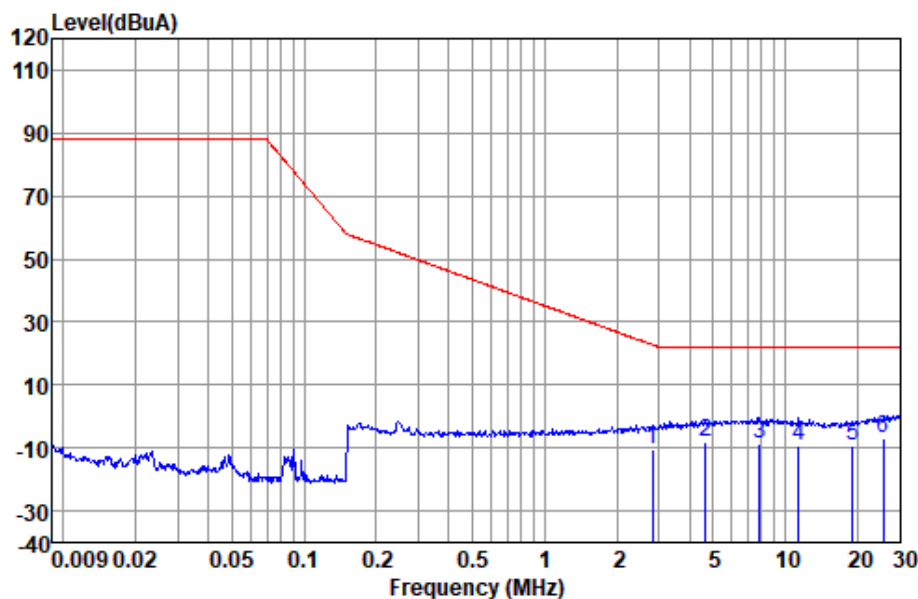
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Mode:a; Axial:Z



EUT/Project No : 4843LM

Test Mode : a

: Z

	Freq (MHz)	Read level (dBuA)	Cable Loss (dB)	Emission Level (dBuA)	Limit (dBuA)	Over Limit (dB)	Remark
1	2.81	-10.87	0.13	-10.74	22.79	-33.53	QP
2	4.68	-8.53	0.30	-8.23	22.00	-30.23	QP
3	7.87	-8.97	0.31	-8.66	22.00	-30.66	QP
4	11.43	-9.57	0.35	-9.22	22.00	-31.22	QP
5	19.05	-9.90	0.52	-9.38	22.00	-31.38	QP
6	25.72	-7.75	0.53	-7.22	22.00	-29.22	QP

Notes: Emission Level = Read Level + Cable loss



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## 7 Immunity Test Results

### 7.1 Performance Criteria Description in EN 61547:2009

<b>Criterion A</b>	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.
<b>Criterion B</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.
<b>Criterion C</b>	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.



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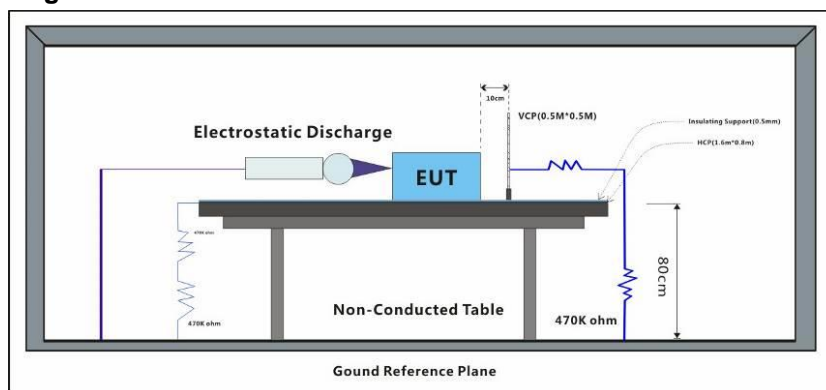
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## 7.2 Electrostatic Discharge

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 the lamp 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
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.



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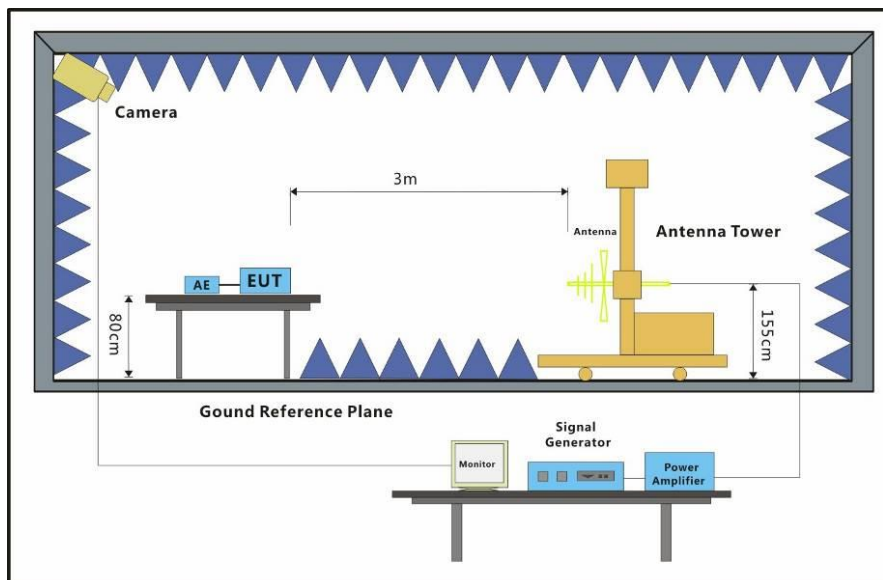
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### 7.3 Radiated Immunity (80MHz-1GHz)

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 the lamp 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.

## 8 Photographs

### 8.1 Radiated Emissions (30MHz-1GHz) Test Setup



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

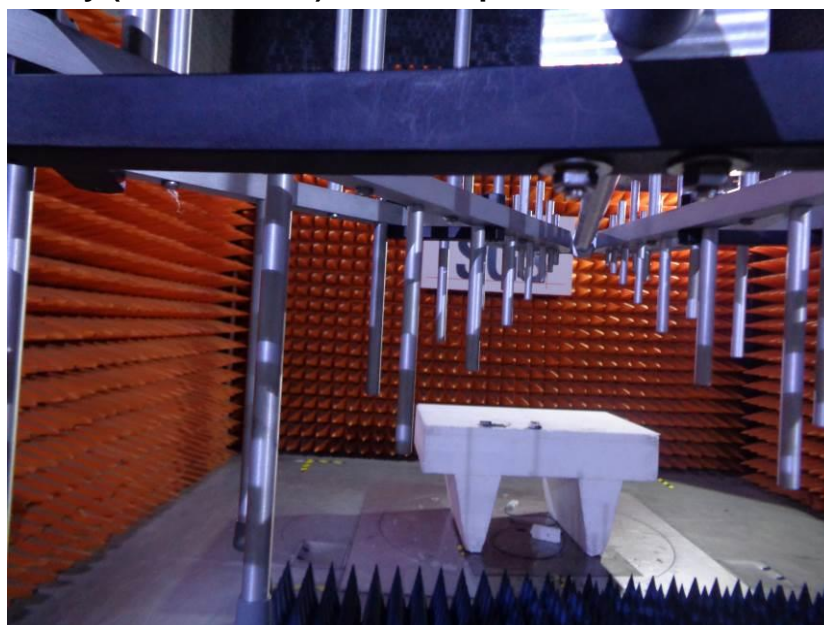




### 8.3 Electrostatic Discharge Test Setup



## 8.4 Radiated Immunity (80MHz-1GHz) Test Setup



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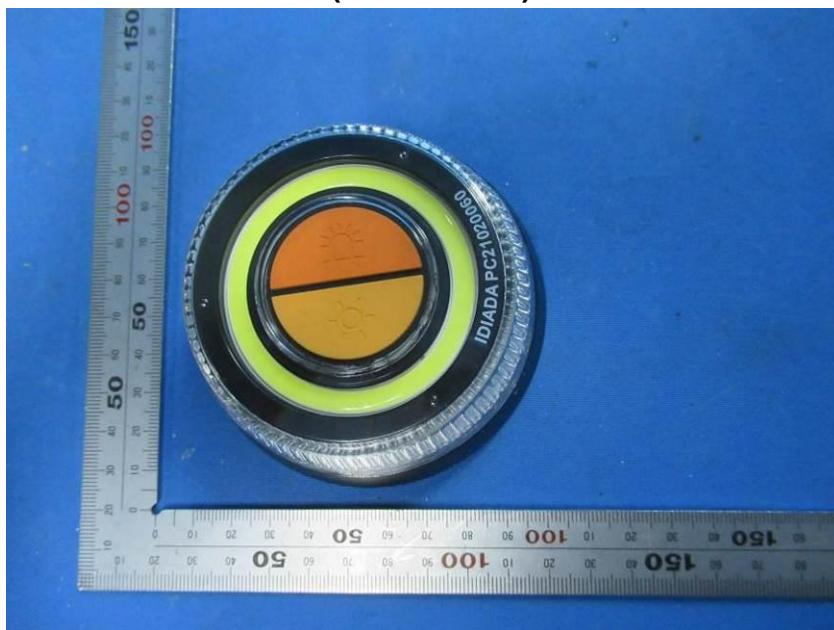
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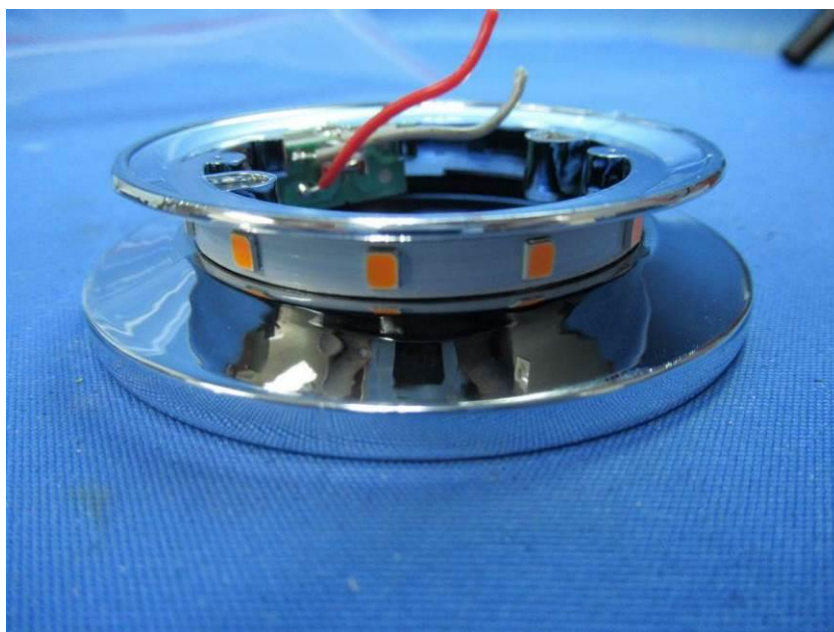
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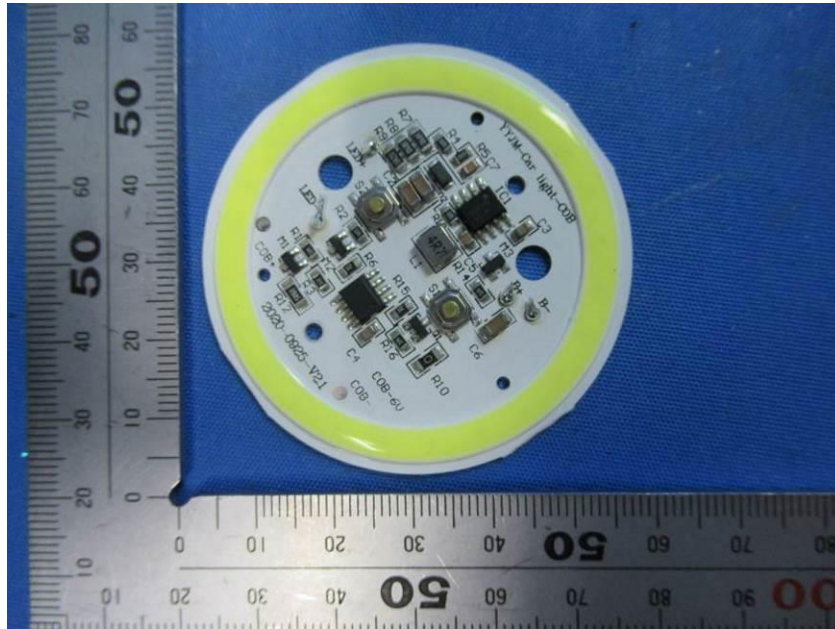


## 8.5 EUT Constructional Details (EUT Photos)









- End of the Report -