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# LIGHTSTEC CO., LIMITED

# IC TEST REPORT

in.	LIGHTSTEC CO.,LIMITED
Prepared For:	5F-6F, No.41 WANLE EAST ROAD, SHENGFENG, XIAOLAN TOWN, ZHONGSHAN, CHINA
Product Name:	Led strip light
Trade Mark:	LIGHTSTEC
Model:	LT-3528W60R-W12, LT-3528W120R-W12, LT-3528W240R-W12, LT-3528W60R-W24, LT-3528W120R-W24, LT-3528W240R-W24, LT-5050W30R-W12, LT-5050W60R-W12, LT-5050W120R-W12, LT-5050W30R-W24, LT-5050W60R-W24, LT-5050W120R-W24, LT-2835W60R-W12, LT-2835W120R-W12, LT-2835W192R-W12, LT-2835W60R-W24, LT-2835W120R-W24, LT-2835W192R-W24, LT-3014W60R-W12, LT-3014W120R-W12, LT-3014W60R-W24, LT-3014W120R-W24, LT-3014W238R-W24, LT-3014W240R-W24, LT-335W60R-W12, LT-335W120R-W12, LT-335W60R-W24, LT-335W120R-W24, LT-2216W300R-W24, LT-2835W240R-W24, "W" is the led color red/yellow/blue/green/white/nature white/warm white/RGB/RGBW
Prepared By:	Shenzhen United Testing Technology Co., Ltd. 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China
Receipt Date	Apr., 28, 2018
Test Date:	Apr., 28, 2018 – May., 08, 2018
Date of Report:	May., 08, 2018
Report No.:	UNIA2018050830FR-01

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### **TEST REPORT DECLARATION**

Applicant	:	LIGHTSTEC CO.,LIMITED
Address	:	5F-6F, No.41 WANLE EAST ROAD, SHENGFENG, XIAOLAN TOWN, ZHONGSHAN, CHINA
EUT Description	:	Led strip light
Model Number	:	LT-3528W60R-W12, LT-3528W120R-W12, LT-3528W240R-W12, LT-3528W60R-W24, LT-3528W120R-W24, LT-3528W240R-W24, LT-5050W30R-W12, LT-5050W60R-W12, LT-5050W120R-W12, LT-5050W30R-W24, LT-5050W60R-W24, LT-5050W120R-W24, LT-2835W60R-W12, LT-2835W120R-W12, LT-2835W192R-W12, LT-2835W60R-W24, LT-2835W120R-W24, LT-2835W192R-W24, LT-3014W60R-W12, LT-3014W120R-W12, LT-3014W60R-W24, LT-3014W120R-W24, LT-3014W238R-W24, LT-3014W240R-W24, LT-335W60R-W12, LT-335W120R-W12, LT-335W60R-W24, LT-335W120R-W24, LT-2216W300R-W24, LT-2835W240R-W24, "W" is the led color red/yellow/blue/green/white/nature white/warm white/RGB/RGBW

Test Standards:

#### ICES-005:2015 ANSI C63.4:2014

The EUT described above is tested by UNI to determine the maximum emission levels emanating from the EUT, the maximum emission levels are compared to the ICES-005 limits. The measurement results are contained in this test report, and United Testing Technology (Hong Kong) Limited is assumed of full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is to be technically compliant with the IC requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of United Testing Technology (Hong Kong) Limited.

Prepared by:

Reviewer:

Approved & Authorized Signer:

Kahn vang/Ed Sharwin Qian/Supervisor

Liuze/Manager

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#### 1. GENERAL INFORMATION

1.1.Report information

- 1.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that UNI approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that UNI in any way guarantees the later performance of the product/equipment.
- 1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, UNI therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 1.1.3.Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through UNI, unless the applicant has authorized UNI in writing to do so.

1.2. Measurement Uncertainty

Available upon request.

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#### 1.3.Test Facility

Site Description

EMC Lab.	:	
Name of Firm	:	Shenzhen United Testing Technology Co., Ltd.
Site Location	:	2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19. The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC. Our test facility is recognized, certified, or accredited by the following organizations:

#### **CNAS-LAB Code: L6494**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

#### **Designation Number: CN1227**

#### **Test Firm Registration Number: 674885**

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files.

#### 1.4.Test Uncertainty

Conducted Emission Uncertainty	=	±2.66dB
Radiated Emission Uncertainty	=	±4.26dB



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# 2. PRODUCT DESCRIPTION

# 2.1.EUT Description

Description	:	Led strip light
Applicant		LIGHTSTEC CO.,LIMITED
i. i	:	5F-6F, No.41 WANLE EAST ROAD, SHENGFENG, XIAOLAN TOWN, ZHONGSHAN, CHINA
Manufacturer		LIGHTSTEC CO.,LIMITED
in.	:	5F-6F, No.41 WANLE EAST ROAD, SHENGFENG, XIAOLAN TOWN, ZHONGSHAN, CHINA
Model Number	:	LT-3528W60R-W12

## 2.2.Test Conditions

Temperature: 23∼25℃

Relative Humidity: 55~63 %

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# 3. TEST RESULTS SUMMARY

Table 1 Test Results Summary					
Test Items	Test Results				
Conducted disturbance	N/A				
Radiated disturbance	Pass				

Remark: "N/A" means "Not applicable."

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# 4. TEST EQUIPMENT USED

#### 4.1. Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	AMN	SCHWARZBECK	NNLK8121	8121370	2018.9.9
2	AMN	ETS	3810/2	00020199	2018.9.9
3	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	101210	2018.9.9
4	AAN	TESEQ	T8-Cat6	38888	2018.9.9

#### 4.2. Radiated Emission Measurement

	Item Equipment		Manufacturer	Model No.	Serial No.	Calibrated until
	1 Broadband Hybrid Antenna		Sunol	JB1 Antenna	A090215	2018.9.29
2Amplifier3EMI TEST RECEIVER		Amplifier	HP	8447D	2944A07999	2018.9.9
		EMI TEST RECEIVER	ROHDE&SCHWARZ	ESR3	101891	2018.9.9
	4Biconical antenna5Biconical antenna		Schwarzbeck	VHA 9103	91032360	2018.9.8
			Schwarzbeck	VHA 9103	91032361	2018.9.8
6 Loop Antenna		Loop Antenna	Beijing daze Technology	ZN30401	13015	2018.9.9

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## 5. CONDUCTED EMISSION TEST

#### 5.1.Block Diagram of Test Setup



5.2. Test Standard

FCC Part15B:2017 ANSI C63.4:2014

#### 5.3.Conducted Emission Limit

Frequency	Limits dB(µV)			
MHz	Quasi-peak Level	Average Level		
$0.15 \sim 0.50$	66 ~ 56*	$56 \sim 46*$		
$0.50 \sim 5.00$	56	46		
5.00 ~ 30.00	60	50		

Notes: 1. \*Decreasing linearly with logarithm of frequency.

#### 5.4.EUT Configuration on Test

The following equipments are installed on conducted emission test to meet ICES-005:2015 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

#### 5.5.Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

- 5.5.2. Turn on the power of all equipments.
- 5.5.3.Let the EUT work in test modes (EUT Working) and test it.

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#### 5.6.Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCI) is used to test the emissions from both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 9KHz.

- 5.7. Test Result
  - N/A

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#### 6.1.Block Diagram of EUT Configuration

6.1.1. Block Diagram of connection between the EUT and the simulators



6.1.2.Block diagram of test setup (in semi-Anechoic Chamber)



6.2.Test Standard

#### FCC Part15B:2017 ANSI C63.4:2014

#### 6.3.Radiated Emission Limit (Class B)

	FREQUENCY	DISTANCE	FIELD STRENGTHS LIMITS
	(MHz)	(Meters)	(dBmV/m)
30~88		3	40.0
	88~216	3	43.5
	216~1000	3	46.0

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

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

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#### 6.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

#### 6.5. Operating Condition of EUT

6.5.1.Setup the EUT as shown on Section 6.1.26.5.2.Turn on the power of all equipments.6.5.3.Let the EUT work in test mode(EUT working) and measure it.

#### 6.6.Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

The bandwidth setting on the test receiver (R&S TEST RECEIVER ESR) is 120 KHz. The EUT is tested in Anechoic Chamber. The frequency range from 30MHz to 1000 MHz is checked. All the test results are listed in Section 6.7. and all the scanning waveform are attached within Appendix I.

6.7.Test Result

PASS

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# APPENDIX I

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No.	(MHz)	(dBuV)	Correction factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(deg.)	(cm)	Remark
1*	44 1202	51.02	17.96	34.07	40.00	5.02	(ucg.)	(cill)	neak
1	44.1202	51.55	-17.00	54.01	40.00	-5.55			peak
2	57.5939	53.93	-21.00	32.93	40.00	-7.07			peak
3	78.6888	53.20	-20.66	32.54	40.00	-7.46		÷	peak
4	204.9551	<mark>43.28</mark>	-15.01	28.27	<mark>43.50</mark>	-15.23		¢	peak
5	360.4477	37.60	-11.61	25.99	46.00	-20.01	8	¢	peak
6	965.5421	30.44	-2.08	28.36	54.00	-25.64			peak

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Note: Result=Reading+Factor Over Limit=Result-Limit

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# APPENDIX II

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\*\*\*End of Report\*\*\*

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