



中国认可
国际互认
检测
TESTING
CNAS L11210



TEST REPORT

Reference No...... : WTN23N07163320N
Applicant..... : Shada BV
Address..... : Molenmakershoek 28 NL-7328 JK Apeldoorn
Manufacturer..... : Shada BV
Address..... : Molenmakershoek 28 NL-7328 JK Apeldoorn
Product Name..... : LED Luminaire with Strip
Model No...... : 2410299
Test specification..... : In situ temperature measurement test (ISTMT) and ANSI/IES TM-21-19
Date of Receipt sample : 2023-07-26
Date of Test..... : 2023-07-27 to 2023-07-28
Date of Issue..... : 2023-08-03
Test Report Form No...... : WPL-TM21-03B
Test Result..... : See the attached sheets

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

Prepared By:

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Tested by:

Younger Huang / Project Engineer

Approved by:

Jianzhong Mao / Manager

**Trade Mark:**

N/A

General remarks:

"(See Attachment #)" refers to additional information appended to the report.

"(See remark #)" refers to a remark appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

Remark:

1. Measurement was conducted at voltage 230VAC 50Hz and at a stable ambient temperature $25^{\circ}\text{C}\pm 1^{\circ}\text{C}$.
2. The model 2410299 is White-Tunable product and has two mode CCTs, and the lowest and highest CCTs have the same drive current that is the highest current. Unless otherwise specified, all tests at lowest CCT 3000K cover other mode CCTs.
3. Detail information for models covered in this report as below:

Item	Model	Ratings	CCT(K)	LED Type	Driver
1	2410299	220-240V~, 50/60Hz, 40W	4000/6500	2835	---

LED specification:

Model / Series	Manufacturer	V_F (V)	I_F (mA)	CCT (K)
67-22ST/KK8C- HXXXX30Z15/2T(CY)	EVERLIGHT ELECTRONICS CO., LTD	2,8-3,0	150	2700-6500

Possible test case verdicts:

- test case does not apply to the test object : N (Not applicable)
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement : F (Fail)

**1 - GENERAL INFORMATION****1.1 Product Description for Equipment under Test (EUT)****General Description:**

Product Type	LED Luminaire with Strip
Manufacturer	Shada BV
Product Model No.	2410299
Product Brand Name	---
Rated Voltage/Frequency	220-240V~, 50/60Hz
Rated Power	40W
Nominal CCT	4000K/6500K

1.2 Information of LED Light Source(tested in IES LM-80 Test Report)

Model No.	67-22ST Series
LED Type	2835
Manufacturer	EVERLIGHT ELECTRONICS CO., LTD
Nominal CCT	2700K
Total Number of Test Units	66pcs (22 pcs for each temperature)
Total Test Duration	15000 hours
Tested Driver Current	180mA
First Case Temperature	55
Second Case Temperature	85

1.3 Reference Standard

IEC 60598-1:2020 Luminaires - Part 1: General requirements and tests

IES LM-84-14 Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and Luminaires---Annex A: measurement of in-situ conditions LED case temperature

ANSI/IES TM-21-19 TECHNICAL MEMORANDUM: PROJECTING LONG-TERM LUMEN, PHOTON, AND RADIANT FLUX MAINTENANCE OF LED LIGHT SOURCES

IES LM-80-15 Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules

1.4 Test Facility

The test facility used by Waltek Testing Group (Ningbo) Co., Ltd. is located at Address: Zone 3, 1/F., No.6, Building 011; Zone 1, 5/F., No.1, Building 007, No.1177, Lingyun Road, Ningbo Hi-Tech Zone, Yinzhou District, Ningbo, Zhejiang, China.

1.5 Test Summary

In-situ temperature measurement test (ISTMT) for one sample using IEC 60598-1, including sections 12.4.1.

Statement confirming the measurement method follows IES LM-84-14 Annex A.

**1.6 Test Equipment**

Device	Manufacture	Model No	Calibration due date
Digital power meter	QINGZHI	8775A	2023-11-04
Digital Multimeter	Fluke	15B	2023-11-04
Thermohygrometer	Testo	608-H1	2024-07-03
Temperature Recorder	Agilent	34970A	2023-11-04

2 - Temperature Measurement Data

The samples were operated until constant temperatures were obtained. A temperature was considered constant if the sample was operating for at least three hours and upon three successive readings - taken at 15 minute intervals - were within one degree and were not rising.

Thermocouples were attached at locations described in the results by means of a cement made of water glass and Fuller's earth, solder, or epoxy.

3 - Life Measurement Data

Test Method:

Lumen maintenance life of LED light source and LED lamp or luminaire (if any) is the elapsed operating time over which an LED light source maintains a given percentage of its initial light output. L70 in this report is the time (in hours) when the light output from the LED has dropped to 70% of its initial output. A lumen maintenance test report of LED light sources was provided by client to calculate the lumen maintenance life according to ANSI/IES TM-21-19. The calculator was developed by Light Naturally, version date 2021-10-26, Temperature data interpolation.

The LED light source is LED package, array, or module which is tested in IES LM-80 test report. Final product means LED lamp or luminaire which the LED light source will be included. Ts is the temperature of the thermocouple attachment point on the LED light source package as defined by the manufacturer of the LED light source. The in situ temperature of LED light source used in final product was used to calculate the lumen maintenance life of final product, if any.

Reported L70: For a sample size of 20 units or more, luminous flux values must not be projected beyond 6 times the total test duration (in hours) of measured data. For a sample size of 10 units to 19 units, luminous flux values must not be projected beyond 5.5 times the total test duration of measured data.

All test data used in this report is from report No.: T-20-08-VLP-2723-TP which is issued by Reliability Lab, Everlight Electronics, issue date: 2022-10-11.

**4 - Appended-Test Data Sheet****4.1 ISTMT Test Result of Product**

Ambient Temperature, °C :	25±1°C	Relative Humidity, % :	85,4%
Supply voltage:	230,0	Type of thermocouples:	J
Test Product Model.	2410299		
Test LED Model.	67-22ST/KK8C-HXXXX30Z15/2T(CY)		
Test LED Driver Model.	---		
Number of Driver / Product	One Lamp with a supply		
Test Duration	≥3,5Hours		
Sample number	Test Location	Location Description	Test Result at 25°C (°C)
#1	101	Temperature for LED #1	47,2
	102	Temperature for LED #2	55,5
	103	Temperature for LED #3	50,5
	104 (Tc)	Temperature for LED Driver	61,2
LED drive current (Forward current of LEDs)*		43,75	
*Note: Test instructions for Forward current of LEDs as below: There is one LED array connected in parallel within the product. Within each LED array, there are 8 strings connected in parallel. Within each strings, there are 39 LED chips connected in series. In total there are 312 LED chips used in the product. The average output current of driver measured by a multimeter is 350mA. There is one LED array in parallel, and each LED array has 8 strings connected in parallel. Therefore, the current of each string is calculated to be 43,75mA (350/8), which is the average forward current of LEDs. The current is the result of indirect test and calculation.			



4.2 Test Data of LM-80 Test

LM-80 Test Data: Sample Set 1	
Test product identifier	67-22ST Series
Input power (W)	--
Test case temperature (°C)	55
Test drive current (mA)	180
Sample Size	22
Test duration (hours)	15000
Time (hours)	Avg. Luminous Flux (%)
0	100,00%
1000	101,78%
2000	101,46%
3000	101,45%
4000	101,33%
5000	101,16%
6000	101,04%
7000	100,88%
8000	100,76%
9000	100,62%
10000	100,47%
11000	100,38%
12000	100,17%
13000	100,02%
14000	99,93%
15000	99,84%

LM-80 Test Data: Sample Set 2	
Test product identifier	67-22ST Series
Input power (W)	--
Test case temperature (°C)	85
Test drive current (mA)	180
Sample Size	22
Test duration (hours)	15000
Time (hours)	Avg. Luminous Flux (%)
0	100,00%
1000	101,38%
2000	101,19%
3000	101,08%
4000	100,95%
5000	100,74%
6000	100,57%
7000	100,23%
8000	100,19%
9000	100,01%
10000	99,70%
11000	99,64%
12000	99,44%
13000	99,33%
14000	99,04%
15000	98,94%

4.3 Calculate Result of LM-80 Test

LM-80 Test Set	LM-80 Test 1	LM-80 Test 2
Description of LED Light source tested	67-22ST Series	67-22ST Series
Sample Size	22	22
DUT drive current used in the test (mA)	180	180
Test duration (hours)	15000	15000
Test duration used for projection (hours)	7500 to 15000	7500 to 15000
Tested case temperature (°C)	55	85
Flux maintenance	---	
α	2,000E-06	2,000E-06
B	1,0184	1,0147
Reported L(70) (15k)	>90000	>90000

**4.4 Calculate Result of Product**

Model: 2410299	
In-Situ Inputs	
Input Power for LED package/array/module (W):	---
Drive current for each LED package/array/module (mA):	43,75
In-situ case temperature (Tc, °C):	55,5
Percentage of initial lumens to project to (%):	70
Temperature only Interpolation	
Ts,2 (K)	358,15
α_2	2,0000E-06
B2	1,0147
A	2,0000E-06
mB	-1,2515E-04
bB	1,0595
Ts,i (°C)	55,5
Ts,i (K)	328,65
α_i	2,0000E-06
B0	1,0184
Reported L(70) (15k)	>90000
Additional Results (Note: B value means the failure data at the L data.)	
Reported L80 (hours):	>90000
Reported L90 (hours):	61800
Reported L70B50 (hours):	>90000
Reported L80B50 (hours):	>90000
Reported L90B50 (hours):	62500
Reported L70B10 (hours):	>90000
Reported L80B10 (hours):	>90000
Reported L90B10 (hours):	58000



Attachment 1: Photo document

Model: 2410299



Photo 1

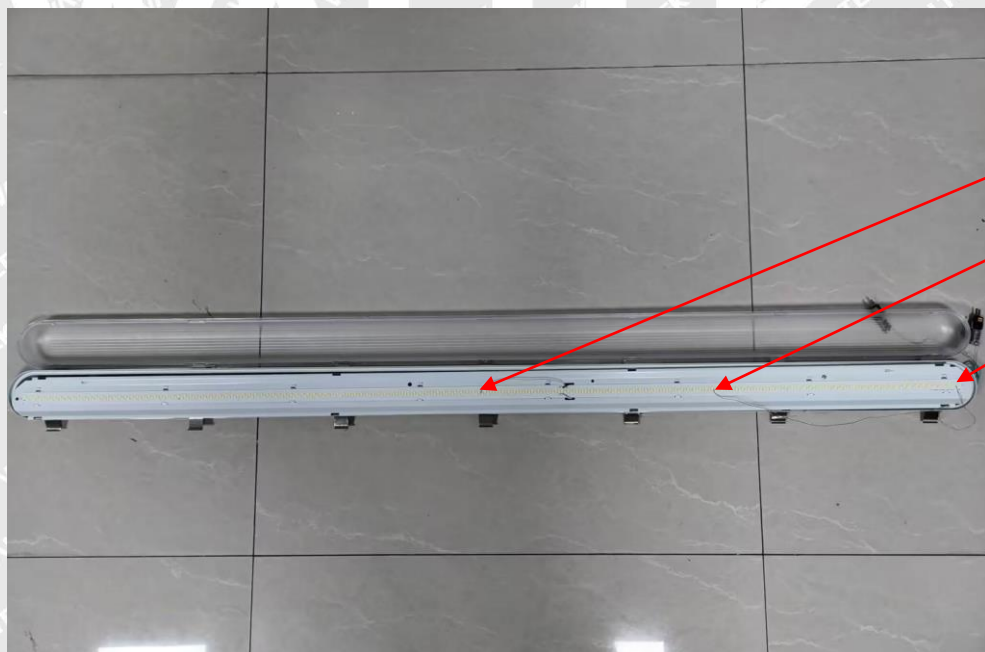


Photo 2

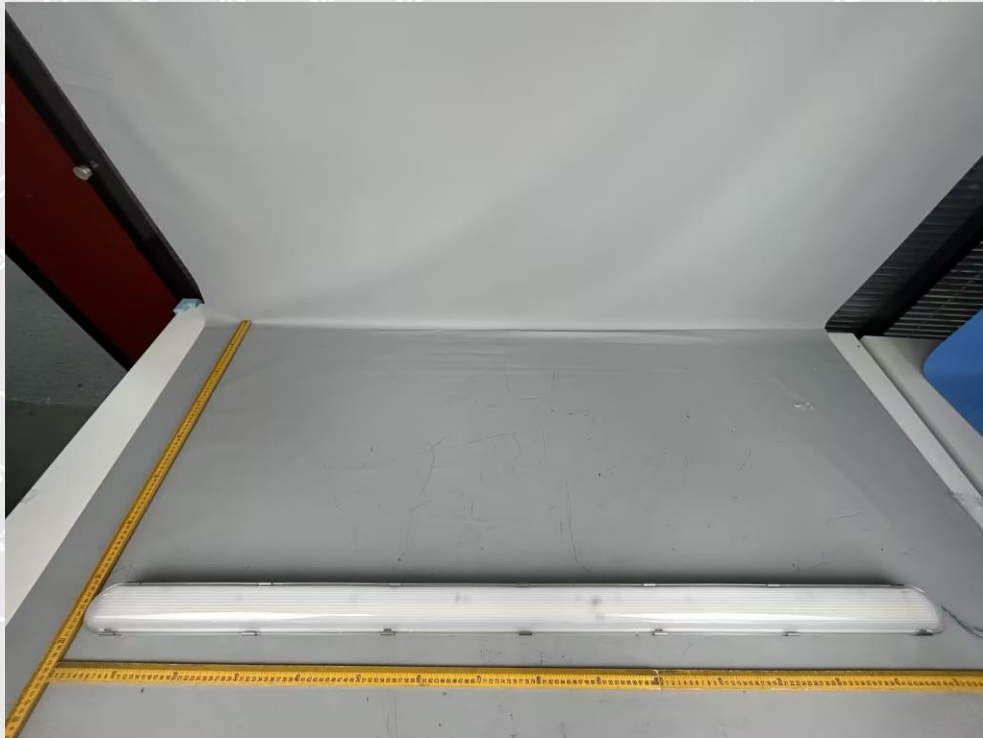


Photo 3

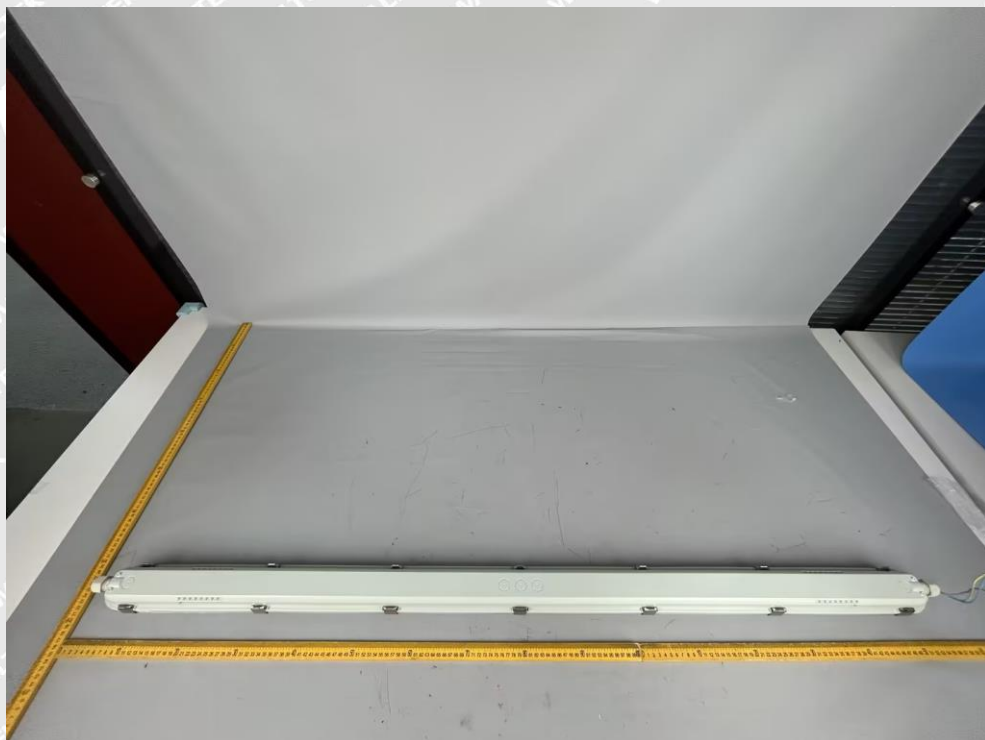


Photo 4



Photo 5

----- End of Report -----

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