



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Reference No..... : WTF22F12255591N
 Applicant..... : Shada BV
 Address..... : Molenmakershoek 28 NL-7328 JK Apeldoorn
 Manufacturer : Shada BV
 Address..... : Molenmakershoek 28 NL-7328 JK Apeldoorn
 Product Name..... : LED Panel
 Model No..... : 801083, 801084
 Test specification..... : In situ temperature measurement test (ISTMT) and TM-21-19
 Date of Receipt sample.... : 2022-12-19
 Date of Test..... : 2022-12-19 to 2023-01-05
 Date of Issue..... : 2023-01-05
 Test Report Form No..... : WPL-ISTMT-07A
 Test Result..... : **See following pages**

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.

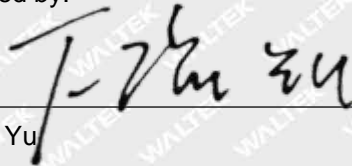
Prepared By:

Waltek Testing Group (Foshan) Co., Ltd.

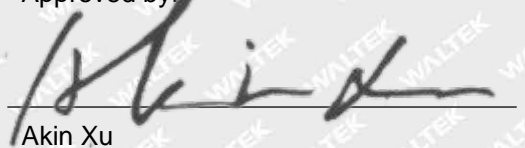
Address: No.13-19, 2/F., 2nd Building, Sunlink International Machinery City,
Chencun, Shunde District, Foshan, Guangdong, China

Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

Tested by:


Finn Yu

Approved by:


Akin Xu

**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 (point) 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 801083 is White-Tunable product and has three 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. All models are similar except to model name and enclosure shape are different. Unless otherwise specified, all tests were performed on model 801083 to represent the other similar models.
4. Detail information for models covered in this report as below:

| Item | Model | Ratings | CCT | LED Type | Driver |
|------|--------|----------------------------|-----------------------|----------|-----------------|
| 1 | 801083 | 220-240AC, 50/60Hz, 30W | 3000K/4000K /6500K | SMD 2835 | LF-GIF040YS800H |
| 2 | 801084 | 220-240AC, 50/60Hz, 30W | 3000K/4000K /6500K | SMD 2835 | LF-GIF040YS800H |

LED specification:

| Model / Series | Manufacturer | V_F (V) | I_F (mA) | CCT (K) | Viewing angle (Deg) |
|----------------|------------------------------------|-----------|------------|----------------|---------------------|
| MK7XM-FX | Shenzhen MTC Lighting Co., Ltd. | 5.7-6.6 | 150 | 2700- 6500K | 120° |

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 Panel |
| Manufacturer | Shada BV |
| Product Model No. | 801083 |
| Product Brand Name | N/A |
| Rated Voltage/Frequency | 220-240VAC, 50/60Hz |
| Rated Power | 30W |
| Nominal CCT..... | 3000K |

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

| | |
|----------------------------------|--------------------------------------|
| Model No. | MTRC-2837WB-MKC COVER:MK7XM-FX |
| LED Type | SMD 2835 |
| Manufacturer | Shenzhen MTC Lighting Co., Ltd. |
| Nominal CCT..... | 2700K |
| Total Number of Test Units | 60 pcs (20 pcs for each temperature) |
| Total Test Duration | 9000 hours |
| Tested Driver Current | 150mA |
| First Case Temperature | 55 °C |
| Second Case Temperature | 85 °C |
| Third Case Temperature | 105 °C |

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

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 (Foshan) Co., Ltd. is located at No. 13-19, 2/F, 2nd Building, Sunlink International Machinery City, Chencun Town, Shunde District, Foshan, Guangdong, 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

| Equipment | Model/Type | Cal. Due. Date |
|----------------------|-------------------|----------------|
| AC Power Source | ALL POWER APW-150 | -- |
| Power meter | YOKOGAWA WT310E | 2023-01-11 |
| Multimeter | FLUKE 15B | 2023-01-11 |
| Temperature Recorder | Agilent 34970A | 2023-01-11 |

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 IES TM-21-19. The calculator was developed by Light Naturally, version date 2021-10-26, and temperature interpolation type.

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.: RSZ160429512-10 which is issued by Bay Area Compliance Laboratories Corp. (Dongguan) (Laboratory), issue date: 2017-05-26.



4 - Appended-Test Data Sheet

4.1 ISTMT Test Result of Product

| | | | |
|---|------------------------------|----------------------------|--------------------------|
| Ambient Temperature, °C : | 25±1°C | Relative Humidity, % : | 65% |
| Supply voltage: | 230 V / 50 Hz | Type of thermocouples: | J |
| Test Product Model. | 801083 | | |
| Test LED Model. | MK7XM-FX | | |
| Test LED Driver Model. | LF-GIF040YS800H | | |
| Number of Driver / Product | One Lamp with a power supply | | |
| Test Duration | ≥3.5Hours | | |
| Sample number | Test Location | Location Description | Test Result at 25°C (°C) |
| #1 | 101 | Temperature for LED #1 | 39.5 |
| | 102 | Temperature for LED #2 | 38.6 |
| | 103 | Temperature for LED #3 | 38.2 |
| | 104 (Tc) | Temperature for LED Driver | 53.7 |
| LED drive current (Forward current of LEDs)* | | 71.6mA | |
| <p>*Note: Test instructions for Forward current of LEDs as below: There are 2 LED array(one is 3000K, the other is 6500K) connected in series within the product. Within each LED array of 3000K, there are 6 string connected in series, each string is 12 LEDs in parallel. Within each LED array of 6500K, there are 6 string connected in series, each string is 12 LEDs in parallel. In total there are 6x12x2=144pcs LED chips used in the product. For 3000K, the average output current of driver measured by a multimeter is 856mA. There is one LED array in parallel, and each LED array has 12 strings connected in parallel. Therefore, the current of each string is calculated to be 71.6mA (859/12), which is the average forward current of LEDs. The current is the result of indirect test and calculation.</p> | | | |



4.2 Test Data of LED Light Source

| Test Data for 55°C Case Temperature | | Test Data for 85°C Case Temperature | | Test Data for 105°C Case Temperature | |
|-------------------------------------|-----------------------|-------------------------------------|-----------------------|--------------------------------------|-----------------------|
| Time (hours) | Lumen Maintenance (%) | Time (hours) | Lumen Maintenance (%) | Time (hours) | Lumen Maintenance (%) |
| 0 | 100.00% | 0 | 100.00% | 0 | 100.00% |
| 1000 | 100.17% | 1000 | 100.08% | 1000 | 99.90% |
| 2000 | 99.96% | 2000 | 99.82% | 2000 | 99.61% |
| 3000 | 99.75% | 3000 | 99.58% | 3000 | 99.31% |
| 4000 | 99.56% | 4000 | 99.34% | 4000 | 99.04% |
| 5000 | 99.35% | 5000 | 99.11% | 5000 | 98.75% |
| 6000 | 99.17% | 6000 | 98.89% | 6000 | 98.47% |
| 7000 | 98.96% | 7000 | 98.65% | 7000 | 98.18% |
| 8000 | 98.76% | 8000 | 98.41% | 8000 | 97.90% |
| 9000 | 98.58% | 9000 | 98.16% | 9000 | 97.62% |

4.3 Calculate Result of LED Light Source

| Description of LED Light Source Tested (manufacturer, model, catalog number) | | Manufacturer: Shenzhen MTC Lighting Co., Ltd. Model: MTRC-2837WB-MKC Multiple Model: MK7XM-FX LM-80 Report Number: RSZ160429512-10 | | | |
|--|-------------|---|-------------|--|-------------|
| Test Condition 1 - 55°C Case Temp | | Test Condition 2 - 85°C Case Temp | | Test Condition 3 - 105°C Case Temp | |
| Sample size | 20 | Sample size | 20 | Sample size | 20 |
| Number of failures | 0 | Number of failures | 0 | Number of failures | 0 |
| DUT drive current used in the test (mA) | 150 | DUT drive current used in the test (mA) | 150 | DUT drive current used in the test (mA) | 150 |
| Test duration (hours) | 9000 | Test duration (hours) | 9000 | Test duration (hours) | 9000 |
| Test duration used for projection (hour to hour) | 4000 - 9000 | Test duration used for projection (hour to hour) | 4000 - 9000 | Test duration used for projection (hour to hour) | 4000 - 9000 |
| Tested case temperature (°C) | 55 | Tested case temperature (°C) | 85 | Tested case temperature (°C) | 105 |
| α | 2.0000E-06 | α | 2.3840E-06 | α | 2.8883E-06 |
| B | 1.0035 | B | 1.0030 | B | 1.0019 |
| Reported L70(9k) (hours) | >54000 | Reported L70(9k) (hours) | >54000 | Reported L70(9k) (hours) | >54000 |



4.4 Calculate Result of Product

| | |
|---|------------|
| Model: 801083 | |
| In-Situ Inputs | |
| Drive current for each LED package/array/module (mA): | 71.6 |
| In-situ case temperature (T_c , °C): | 39.5 |
| Percentage of initial lumens to project to (%): | 70 |
| Interpolation Temperature | |
| $T_{s,1}$ (°C) | 55.00 |
| $T_{s,1}$ (K) | 328.15 |
| α_1 | 2.0000E-06 |
| B_1 | 1.0035 |
| $T_{s,2}$ (°C) | - |
| $T_{s,2}$ (K) | - |
| α_2 | - |
| B_2 | - |
| E_a/k_B | - |
| A | - |
| m_B | - |
| b_B | - |
| $T_{s,i}$ (°C) | 39.50 |
| $T_{s,i}$ (K) | 312.65 |
| α_i | 2.0000E-06 |
| B_0 | 1.0035 |
| Reported L70(9k) (hours) | >54000 |
| Additional Results (Note: B value means the failure data at the L data.) | |
| Reported L80 (hours): | >54000 |
| Reported L90 (hours): | >54000 |
| Reported L70B50 (hours): | >54000 |
| Reported L80B50 (hours): | >54000 |
| Reported L90B50 (hours): | >54000 |
| Reported L70B20 (hours): | >54000 |
| Reported L80B20 (hours): | >54000 |
| Reported L90B20 (hours): | 48000 |
| Reported L70B10 (hours): | >54000 |
| Reported L80B10 (hours): | >54000 |
| Reported L90B10 (hours): | 46000 |
| Projected L70B50 (hours): | 180000 |
| Projected L80B50 (hours): | 113000 |



| | |
|---------------------------|--------|
| Projected L90B50 (hours): | 54000 |
| Projected L70B10 (hours): | 151000 |
| Projected L80B10 (hours): | 95000 |
| Projected L90B10 (hours): | 46000 |

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Attachment 2: Photo document

Model: 801083

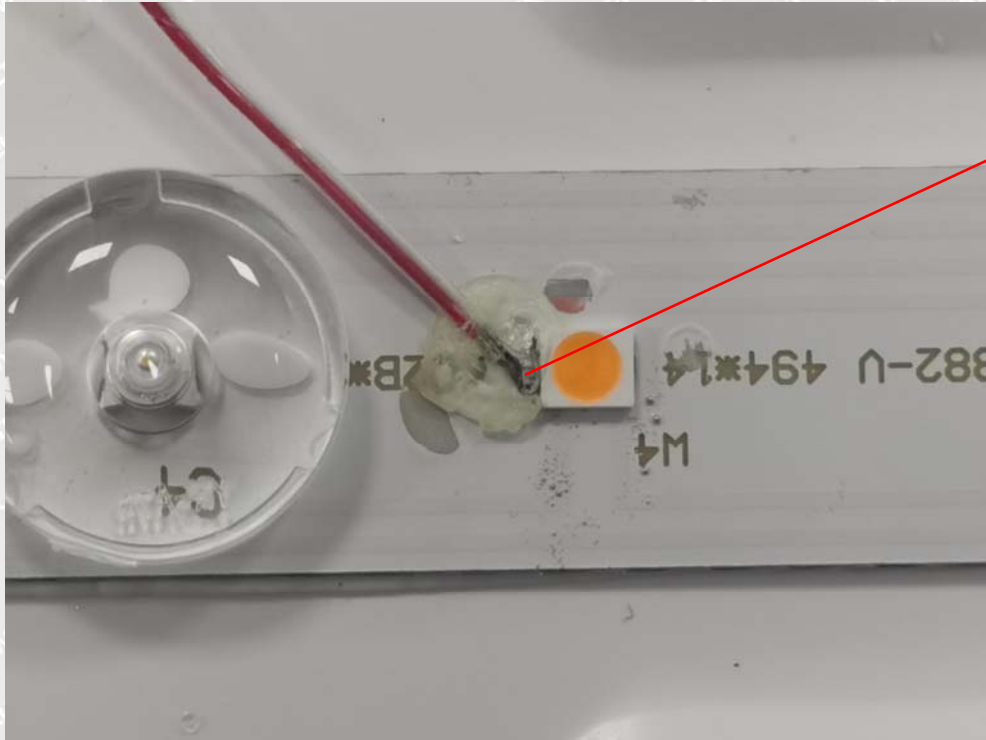


Photo 1

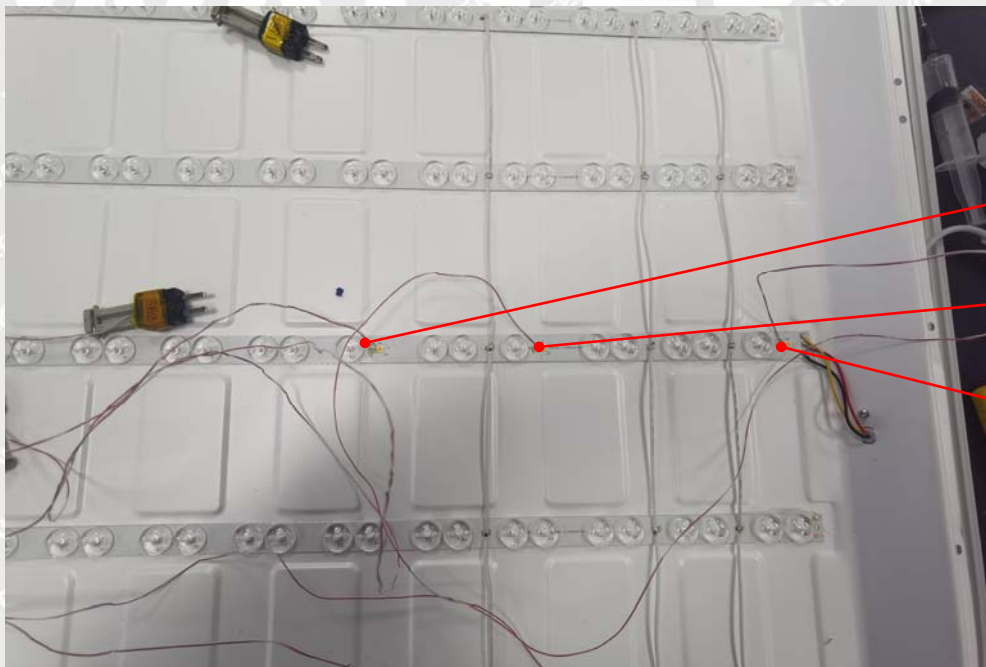
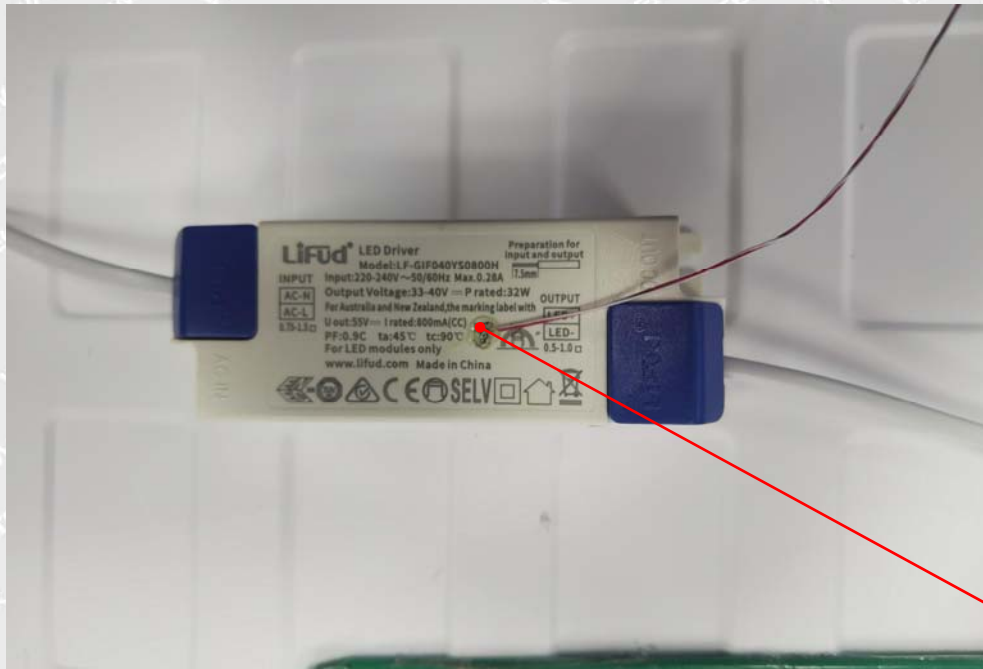


Photo 2



Tc

Photo 3



Photo 4

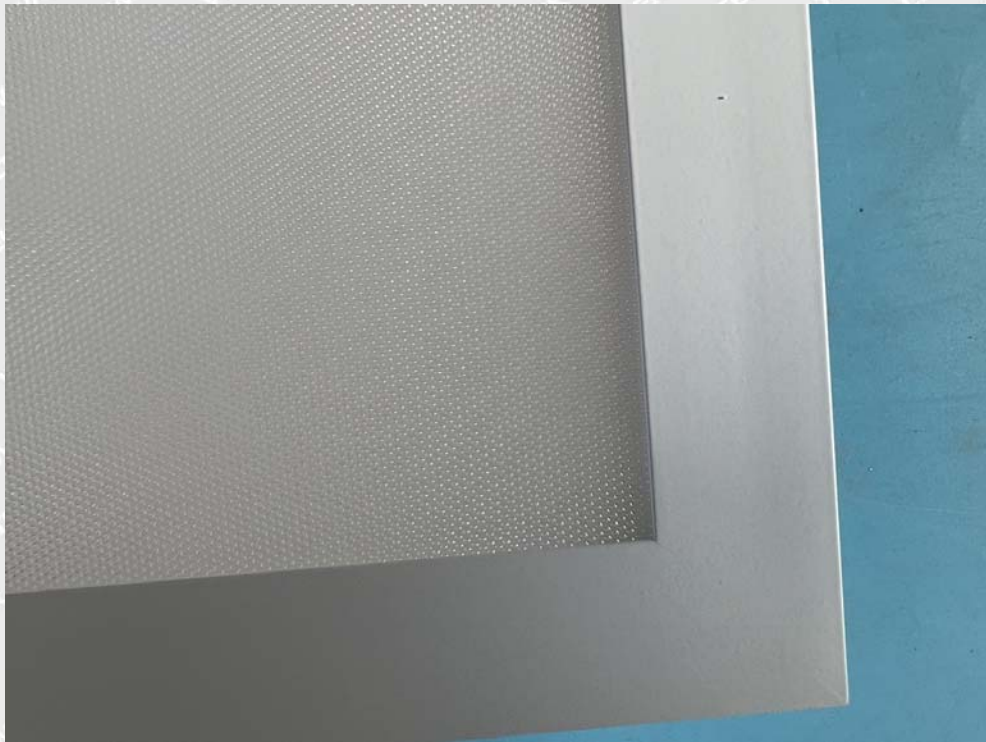


Photo 5



Photo 6

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