
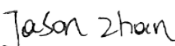


## IES TM-21 Lumen Maintenance Result Report

<b>Report Number.....:</b>	KEYS240828013002LD-01
<b>Date of issue.....:</b>	September 3, 2024
<b>Total number of pages.....:</b>	9 pages
<b>Tested by (name + signature).....:</b>	Sunny Li 
<b>Approved by (name + signature)....:</b>	Jason Zhan 
<b>Testing Laboratory Name.....:</b>	Guangdong KEYS Testing Technology Co., Ltd.
<b>Address.....:</b>	Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
<b>Applicant's name.....:</b>	ZHONGSHAN Y-CHEN LIGHTING TECHNOLOGY CO.LTD
<b>Address.....:</b>	6F,01B,No.28, Kanglong N0.3Rd, Xinmao Industrial, Henglan Town, Zhongshan City
<b>Manufacturer's name.....:</b>	ZHONGSHAN Y-CHEN LIGHTING TECHNOLOGY CO.LTD
<b>Address.....:</b>	6F,01B,No.28, Kanglong N0.3Rd, Xinmao Industrial, Henglan Town, Zhongshan City
<b>Test specification:</b>	
<b>Standard.....:</b>	IES TM-21
<b>Non-standard test method.....:</b>	N/A
The duplication of this report or parts of it and its use for advertising purposes is only allowed in the permission of the testing laboratory. This report is not applicable for lawsuit, refers only to the units submitted for test. A general statement concerning the quality of the products from the series manufacture cannot be derived therefore.	
<b>Test item description.....:</b>	LED STREET LIGHT
<b>Trade Mark.....:</b>	N/A
<b>Model/type reference .....</b>	YC-S005-50W
<b>Manufacturer of LED driver.....</b>	TMX-50W 80-450V
<b>LED driver surge protection.....</b>	8KV
<b>Model Number of LED chip.....</b>	LM3030WW-6V-1W
<b>Manufacturer.....</b>	SHENZHEN LVMING PHOTOELECTRIC CO., LTD



. :  
**Rating** ..... : AC85-375V, 50/60Hz,50W

**Summary of testing:****Tests performed (name of test and test clause):**

Test performed at 230Vac, 50Hz according to client requirement.

**Testing location:**

**Guangdong KEYS Testing Technology Co., Ltd.**

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

**Copy of marking plate:**

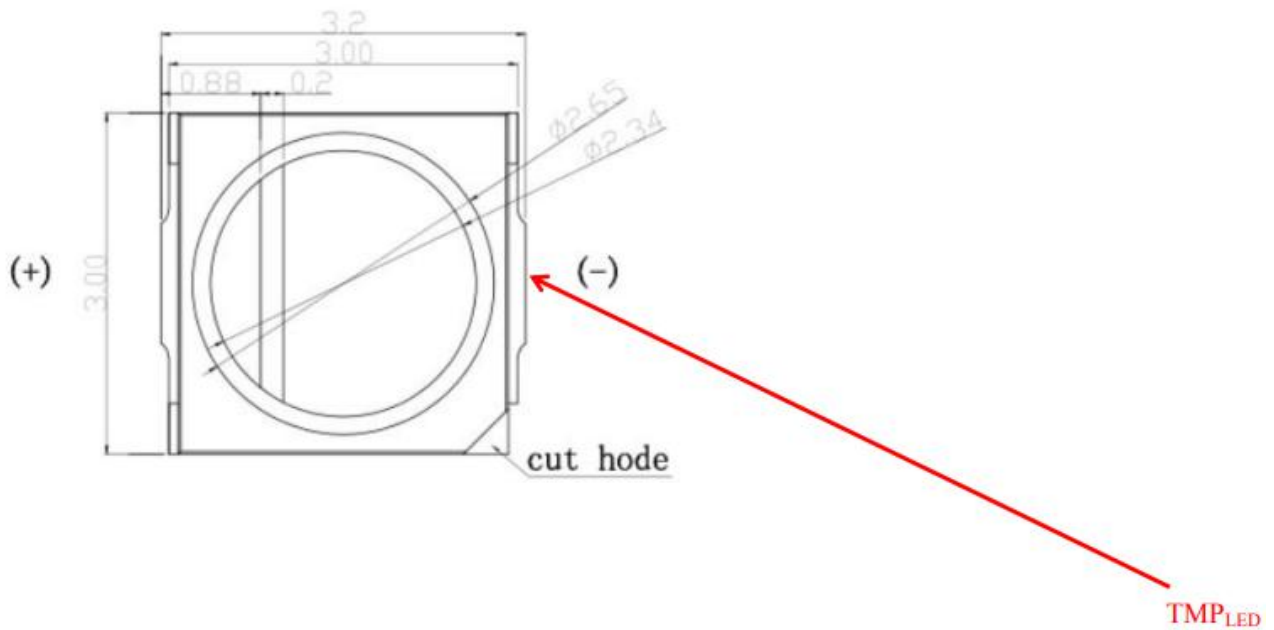
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

<b>Test item particulars</b> .....:	LED STREET LIGHT										
<b>Classification of installation and use</b> .....:	Class I										
<b>Supply Connection</b> .....:	Power supply cord										
<b>Possible test case verdicts:</b>											
- test case does not apply to the test object.....:	N/A										
- test object does meet the requirement.....:	P (Pass)										
- test object does not meet the requirement.....:	F (Fail)										
<b>Testing</b> .....											
Date of receipt of test item.....:	August 30, 2024										
Date (s) of performance of tests.....:	August 30, 2024 to September 3, 2024										
<b>General product information:</b>											
<b>LED Module Information:</b>											
<table border="1"> <thead> <tr> <th>Model</th> <th>Rated voltage</th> <th>Rated Power</th> <th>LED chip quantity(Pcs)</th> <th>CRI (Ra)</th> </tr> </thead> <tbody> <tr> <td>YC-S005 50W</td> <td>AC85-375V, 50/60Hz</td> <td>50W</td> <td>50</td> <td>75-80</td> </tr> </tbody> </table>	Model	Rated voltage	Rated Power	LED chip quantity(Pcs)	CRI (Ra)	YC-S005 50W	AC85-375V, 50/60Hz	50W	50	75-80	
Model	Rated voltage	Rated Power	LED chip quantity(Pcs)	CRI (Ra)							
YC-S005 50W	AC85-375V, 50/60Hz	50W	50	75-80							
<b>LED specification:</b>											
<table border="1"> <thead> <tr> <th>Model</th> <th>Manufacturer</th> <th>If(mA)</th> <th>Viewing angle</th> </tr> </thead> <tbody> <tr> <td>LM3030WW-6V-1W</td> <td>SHENZHEN LVMING PHOTOELECTRIC CO., LTD</td> <td>150</td> <td>120°</td> </tr> </tbody> </table>	Model	Manufacturer	If(mA)	Viewing angle	LM3030WW-6V-1W	SHENZHEN LVMING PHOTOELECTRIC CO., LTD	150	120°			
Model	Manufacturer	If(mA)	Viewing angle								
LM3030WW-6V-1W	SHENZHEN LVMING PHOTOELECTRIC CO., LTD	150	120°								
<b>1.1 Description of LED Light Sources</b>											
<b>Sample Size:</b>											
60Pcs samples were received on 2020-01-03 ,The samples were numbered from S1 to S20, S21 to S40 and S41 to S60.											
Manufacture: SHENZHEN LVMING PHOTOELECTRIC CO., LTD Part Number: LM3030WW-6V-1W Part Type: LED Package Drive Level: DC 150mA Nominal CCT: 2700K Power: 1W CRI: 75-80											

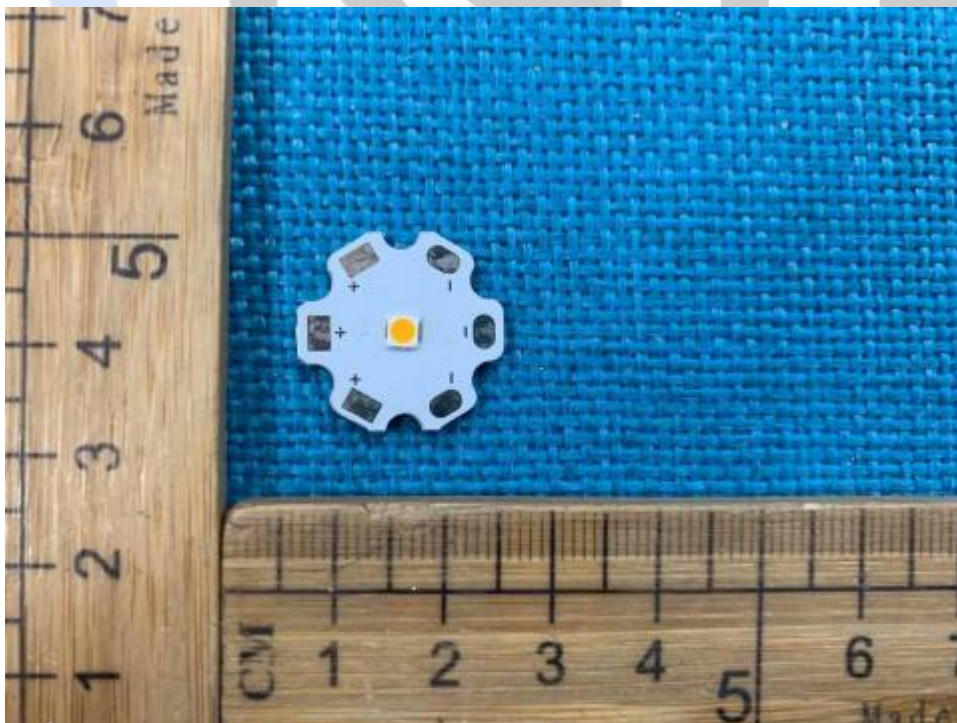
## 1. Test result:

### In-situ case temperature measurements test location

The location of the Ts measurement point is shown below (According to LM-80 test report for Guangdong Meide Testing Technology Co., Ltd.).



The recommended Ts point is located in the bottom of PCT3030



**Ts measurement**

Tc measurement in LED Modules (downward)	
Model No.	Test voltage
YC-S005 30W	AC230V
Tc measured in luminaire with relevant LED module	Temperature
1# to 3#	55°C, 85°C, 105°C
The highest in-situ temperature	105°C

**Input current of LED measurement**

If of LED, measurement in LED Modules	
Model No.	Test voltage
LM3030WW-6V-1W	/
IF measured in luminaire with relevant LED	DC150mA

## 2. Lumen maintenance projection according to TM-21

### LM-80 testing details

LM-80 Testing Details	
Total number of units tested per case temperature:	20
Number of failures:	0
Number of units measured:	20
Test duration (hours):	9000
Tested drive current (mA):	150
Tested case temperature 1 ( $T_c$ , °C):	55
Tested case temperature 2 ( $T_c$ , °C):	85
Tested case temperature 3 ( $T_c$ , °C):	105

Test data for 55°C; 85°C; 105°C case temperature

### LM-80 Test Inputs

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 (%)
1000	100.18%	1000	100.60%	1000	99.89%
2000	99.97%	2000	99.89%	2000	99.64%
3000	99.74%	3000	99.69%	3000	99.50%
4000	99.52%	4000	99.47%	4000	99.37%
5000	99.32%	5000	99.19%	5000	99.09%
6000	99.08%	6000	98.97%	6000	98.86%
7000	98.88%	7000	98.75%	7000	98.59%
8000	98.66%	8000	98.55%	8000	98.34%
9000	98.49%	9000	98.28%	9000	98.11%

### In-situ inputs

### *In-Situ* Inputs

Drive current for each LED package/array/module (mA):	150
<i>In-situ</i> case temperature ( $T_c$ , °C):	105
Percentage of initial lumens to project to (e.g. for $L_{70}$ , enter 70):	90



Calculated of L70

## Results

Time (t) at which to estimate lumen maintenance (hours):	9,000
Lumen maintenance at time (t) (%):	98.10%
Reported L90 (hours):	45,000

### 3. Conclusion

According to the method of IES TM-21-11, the rated lumen maintenance of product may 98.10% at 9000 hours.

### 4. “ TM - 21 Calculator” - Table 1: Report From at LM - 80 Test Condition

Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		ZHONGSHAN Y-CHEN LIGHTING TECHNOLOGY CO.LTD Model:YC-S005 30W			
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)	9,000	Test duration (hours)	9,000	Test duration (hours)	9,000
Test duration used for projection (hour to hour)	4,000 - 9,000	Test duration used for projection (hour to hour)	4,000 - 9,000	Test duration used for projection (hour to hour)	4,000 - 9,000
Tested case temperature (°C)	55	Tested case temperature (°C)	85	Tested case temperature (°C)	105
$\alpha$	2.115E-06	$\alpha$	2.338E-06	$\alpha$	2.552E-06
B	1.004	B	1.004	B	1.004
Reported L90(9k) (hours)	52,000	Reported L90(9k) (hours)	47,000	Reported L90(9k) (hours)	45,000

5. “ TM - 21 Calculator” - Table 2: Interpolation Report (projection based on in-situ temperature entered .

Table 2: Interpolation Report (projection based on <i>in-situ</i> temperature entered)	
$T_{s,1}$ ( $^{\circ}\text{C}$ )	105.00
$T_{s,1}$ (K)	378.15
$\alpha_1$	2.552E-06
$B_1$	1.004
$T_{s,2}$ ( $^{\circ}\text{C}$ )	-
$T_{s,2}$ (K)	-
$\alpha_2$	-
$B_2$	-
$E_a/k_b$	-
A	-
$B_0$	1.004
$T_{s,i}$ ( $^{\circ}\text{C}$ )	105.00
$T_{s,i}$ (K)	378.15
$\alpha_i$	2.552E-06
Reported L90(9k) at 105 $^{\circ}\text{C}$ (hours)	45,000



Product photo



--End of Report--