



Technical Report No.: 68.140.19.0624.01

Date: 2019-11-07

Client: Name: TRIECO (HUIZHOU) CO., LTD
Address: 4F, Building 3, Xinghua Industry Park, #38 Shihua Road, Dayawan,
516083 Huizhou, PEOPLE'S REPUBLIC OF CHINA
Contact person: Liang Xianhua

Manufacturing place: Manufacturer's name: same as client
Address: same as client

Factory's name: same as client
Address: same as client

Test subject: Product: LED LINEAR LIGHT
Type: T06-15A0T-201, T06-15AFT-201

Trade mark: --

Test specification: Products apply for In-Situ Temperature Measurement Test (ISTMT) and Long term lumen maintenance projection according to client's requirement and below tests specification:

- In-Situ Temperature Measurement Test (ISTMT);
- ANSI/UL 1598:2008 or IEC 60598-1:2014;
- IES TM-21-11;
- According to the client's requirement, the test ambient temperature was corrected to 25°C.

Purpose of examination:

- ☐ inspection according to specified requirements to realize the conformity with the Produktsicherheitsgesetz –ProdSG, version Nov 08, 2011
- ☐ inspection according to specified requirements to realize the observance of the protection aims of the following EC directives:
 - ☐ LVD directive 2014/35/EU
 - ☐ MD directive 2006/42/EC
 - ☐ Toys directive 2009/48/EC
 - ☐ General product safety directive 2001/95/EC
 - ☐ EMC directive 2014/30/EU
 - ☐ RED directive 2014/53/EU
 - ☐ ErP directive 2009/125/EC
 - ☐ RoHS directive 2011/65/EU
- Test according to the test specification requested by client.

Test result: Based on the test result, the projecting long term lumen maintenance of above models are more than 80% at 50000 hours through the method of IES TM-21-11. (See section 4 for details.)

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production. For further details please see testing and certification regulation, chapter A-3.4.

1 Description of the test subject

1.1 Function

Manufacturer's specification for intended use:
LED LINEAR LIGHT for general illumination use.

Manufacturer's specification for foreseeable use:
No restrictions provided

1.2 Consideration of the foreseeable use

- ☐ Not applicable
- ☒ Covered through the applied standard
- ☐ Covered by the following comment
- ☐ Covered by attached risk analysis

1.3 Technical Data

Fixed general purpose luminaires (LED LINEAR LIGHT)

Model	:	T06-15A0T-201, T06-15AFT-201
Rated Voltage	:	220-240VAC
Rated Frequency	:	50/60Hz
Rated Power	:	Input power can be adjusted, details see below: 75W(65W,55W,45W,40W,35W,30W,25W)

2 Order

2.1 Date of Purchase Order, Customer's Reference

2019-09-26

2.2 Receipt of Test Sample, Condition, Location

2pcs of production samples were received on 2019-09-26;
TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park, Nantou Checkpoint Road 2, Nanshan District 518052 Shenzhen, CHINA

2.3 Date of Testing

2019-09-26 to 2019-11-07

2.4 Location of Testing

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park, Nantou Checkpoint Road 2, Nanshan District 518052 Shenzhen, CHINA

2.5 Points of Non-compliance or Exceptions of the Test Procedure

None

3 Test Results

☒ Decision rule according to IEC Guide 115:2007, clause 4.4.3, 4.5.1 (accuracy method) was applied.

☐ Decision rule according to customer's requirements was applied. It was: ().

☐ Decision rule for an upper specification limit (A lower limit or specification with an upper and a lower limit is treated similarly.):

- Compliance with the requirement: If a specification limit is not breached by a measurement result plus the expanded uncertainty with a 95% coverage probability, then compliance with the specification will be stated (e.g. Pass).
- Non-compliance with the requirement: If a specification limit is exceeded by the measurement result minus the expanded uncertainty with a 95% coverage probability, then non-compliance with the specification will be stated (e.g. Fail).
- Inconclusive result: If a measurement result plus/minus the expanded uncertainty with a 95 % coverage probability overlaps the limit it will be stated that it is not possible to state compliance or non-compliance.

4 Positive Test Results

4.1 Test instruments and conditions

Test instruments

Equipment	Model	Brand/Manufacturer	Calibration due date
Digital Power Meter	WT210	YOKOGAWA	2020-08-25
Temperature data logger	34970A	AGILENT	2020-04-24
Digital Multimeter	34401A	AGILENT	2020-07-11
Digital Temperature and Humidity data logger	HR641B	MiEO	2020-02-22
Infrared camera Fluke	Ti200	Fluke	2020-07-15

General conditions for measurement

Ambient temperature(°C):	25±1°C
Maximum relative humidity:	50%
Maximum air speed(m/s):	0.1
Test voltage tolerance:	±0.2%
Test voltage and frequency	230VAC, 50Hz.

4.2 Test data from submitted LM-80 report

Description of LED Light Source Tested (manufacturer, model, catalog number)
Model: SMD2835 Current: DC 150mA Manufacturer: Guangdong Elite Optoelectronic Technology Co., Ltd LM80 Report Issued by Bay Area Compliance Laboratories Corp. (Dongguan). Date: 2016-09-28

LM-80 Testing Details*	
Total number of units tested per case temperature:	25
Number of failures:	0
Number of units measured:	25
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 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	101.15%	1000	101.04%	1000	101.17%
2000	100.92%	2000	100.49%	2000	100.57%
3000	100.00%	3000	99.56%	3000	99.19%
4000	99.15%	4000	98.83%	4000	98.28%
5000	98.80%	5000	98.48%	5000	97.95%
6000	97.77%	6000	97.70%	6000	97.12%
7000	97.47%	7000	97.26%	7000	96.59%
8000	97.21%	8000	96.84%	8000	96.04%
9000	97.01%	9000	96.73%	9000	95.55%

* Remark: Test data extract from LM-80 test Report which generated for Guangdong Elite Optoelectronic Technology Co., Ltd. (Report No.: R2DG160510060-10)

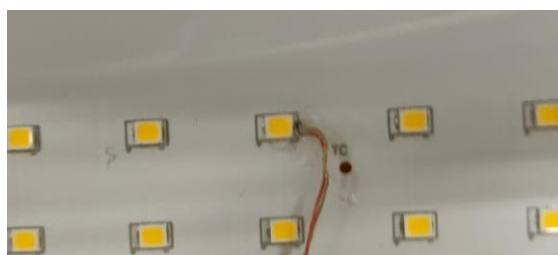
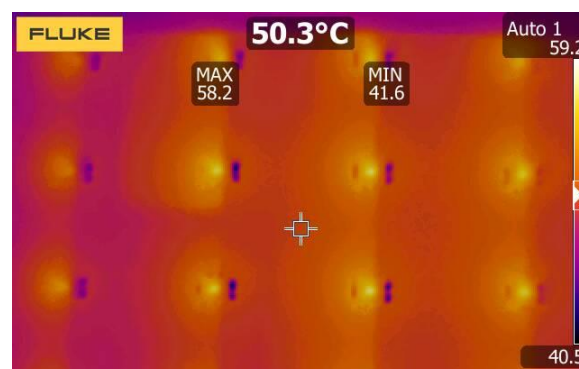
4.3 Measurement Current/Voltage and Temperature

In-Situ Inputs

Measured Drive current for each LED package/array/module (mA):	70.2
<i>In-situ</i> case temperature (T_c , °C):	64.8
Percentage of initial lumens to project to (e.g. for L70, enter 70):	80

Measured the DC forward current for a LED is 70.2mA.

Thermocouple Location on the product:



Input voltage: (V)	230	Input current: (A)	0.345	Input power: (W)	77.42
No.	Test part	Temperature corrected at 25.0°C			
101	LED	64.1			
102	LED	64.8			
103	LED	63.6			
104	Tc of LED driver	70.9			
105	Ambient	25.0			
The highest in-situ measured temperature of LED is 64.8°C.					
Remark: The temperature measurement point measured according to the LM-80 test and details information of LM-80 report refer to “Annex 3: Cover page of LM-80 report“.					

4.4 Results

In-Situ Inputs

Time (t) at which to estimate lumen maintenance (hours):	36000	50000
Lumen maintenance at time (t) (%):	85.34%	80.01%
Reported L80 (hours):	50000	50000

Conclusion

Based on the test result, the projecting long term lumen maintenance of above models are more than 80% at 50000 hours through the method of IES TM-21-11.

5. Remark

5.1 Product information:

T06-15A0T-201 and T06-15AFT-201 are same except model name is different.
The products rating power can be adjusted to 75W;65W;55W;45W;40W;35W;30W;25W and the model T06-15AFT-201 with 75W(the max. power) was selected as representative model to perform all tests.

5.2 LED specification:

Model:	Manufactory	Vf (V)	If (mA)	Viewing angle (°)	CCT(K)	Ra
JL-2W2835SSD 469-5K	GUANG DONG ELITE PHOTOELECTRIC TECHNOLOGY CO., LTD	2.7-2.8	120	120	3800-4200	≥80

5.3 The Manufacturer declared that, the LED chip tested in the LM-80 report is identical to that supplied with the luminaires.

5.4 The ISTMT Measurement method follows IES LM-84-14 Annex A.



6. Documentation

Annex 1: NVLAP Certificate of Accreditation;
Annex 2: Photo of Ts Point in the LM-80 report and product;
Annex 3: Cover page of LM-80 report;
Annex 4: Tables of TM-21 Report.
Annex 5: Photo documentation

7. Summary

See section 4 for details

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
TÜV SÜD Group

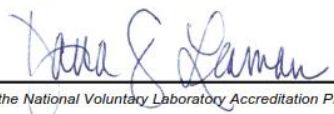
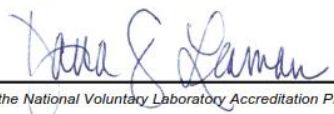
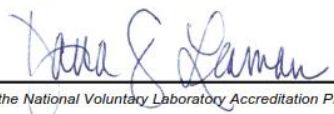
Tested by:


Sky Feng, Project Handler

Approved by:

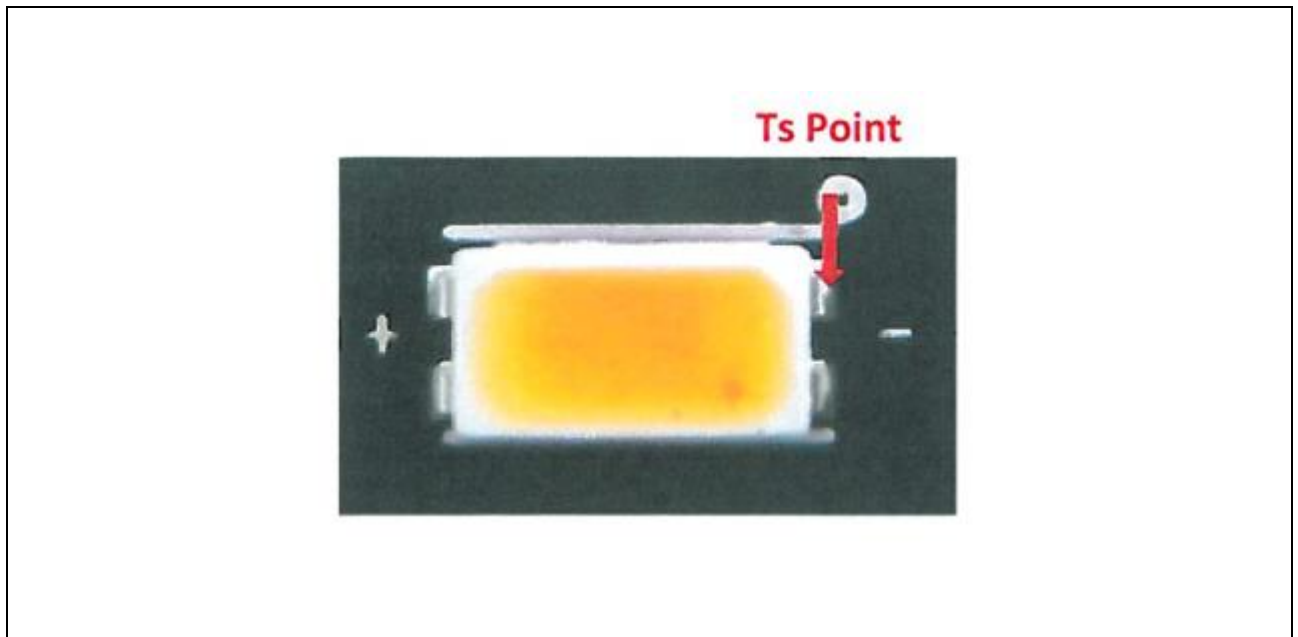

Jake Xu, Designated Reviewer

Annex 1: NVLAP Certificate of Accreditation.

United States Department of Commerce National Institute of Standards and Technology NVLAP[®] Certificate of Accreditation to ISO/IEC 17025:2005 NVLAP LAB CODE: 500067-0 TUV SUD Cert & Testing (China) Co., Ltd. Shenzhen Branch Shenzhen China <i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i> Energy Efficient Lighting Products <i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).</i> <table><tr><td> 2019-03-04 through 2020-03-31 <i>Effective Dates</i> </td><td></td><td>  <i>Dana S. Laman</i> <i>For the National Voluntary Laboratory Accreditation Program</i> </td></tr></table>		2019-03-04 through 2020-03-31 <i>Effective Dates</i>		 <i>Dana S. Laman</i> <i>For the National Voluntary Laboratory Accreditation Program</i>
2019-03-04 through 2020-03-31 <i>Effective Dates</i>		 <i>Dana S. Laman</i> <i>For the National Voluntary Laboratory Accreditation Program</i>		

Annex 2: Photo of Ts Point in the LM-80 report and product

Details of: Ts point in the LM-80 report



Details of: Ts point in the product



Annex 3: Cover page of LM-80 report

		
IESNA LM-80-2008 MEASURING LUMEN MAINTENANCE OF LED LIGHT SOURCES MEASUREMENT AND TEST REPORT For Guangdong Elite Optoelectronic Technology Co.,Ltd Hu An Wei Village, Gaobu Town, Dongguan City, Guangdong Province, China		
Model: SMD2835		
Report Type: 9000 Hours Test Report		Product Type: LED Package
Reviewed By:	Daniel Duan <i>Daniel Duan</i>	
Report Number:	R2DG160510060-10	
Test Date:	2014-08-02 to 2016-09-21	
Report Date:	2016-09-28	
Approved By:	Jeanne Han /EE Manager <i>Jeanne . Han</i>	
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). Pu Long Cun 69, Puxinghu Industrial Area, Tangxia Town, Dongguan, Guangdong, P.R.China. Tel: +86-0769-86858888 Fax: +86-0769-86858588	



Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).
 This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

Annex 4: Tables of TM-21 Report.



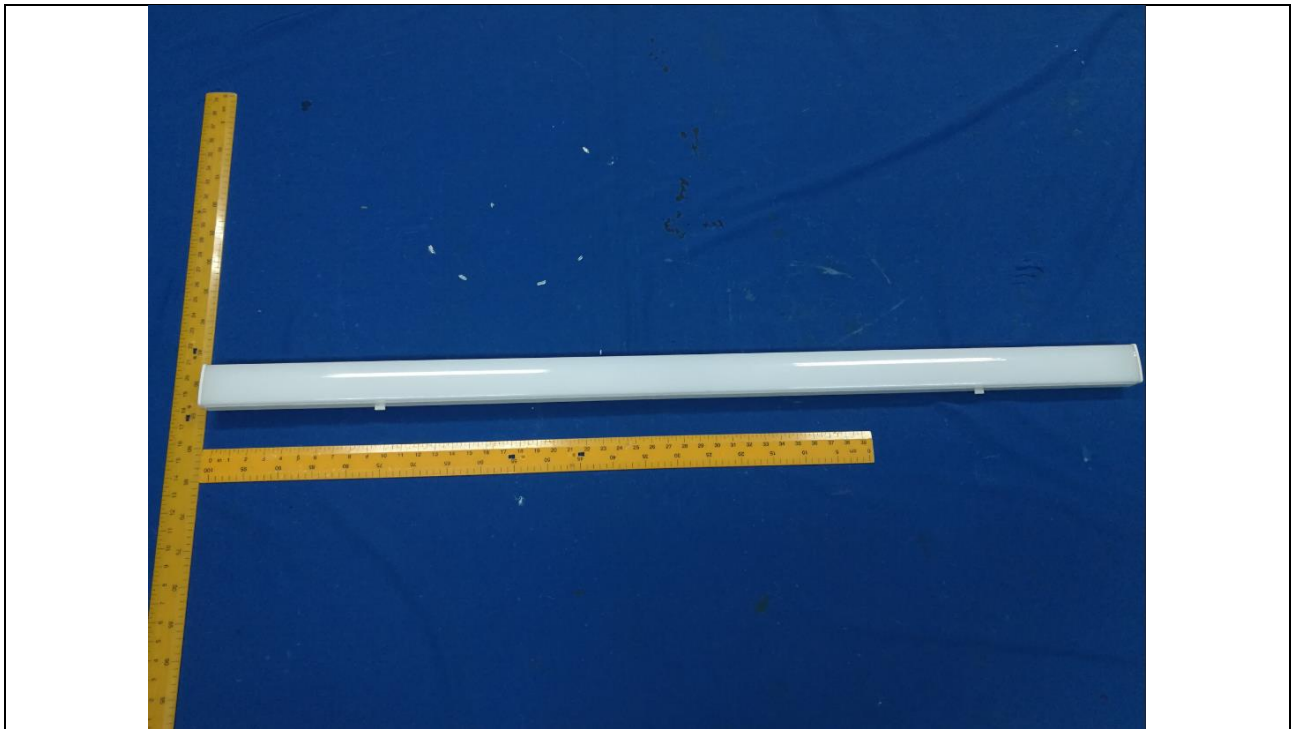
TM-21 Report

Table 1: Report at each LM-80 Test Condition					
Description of LED Light Source Tested (manufacturer, model, catalog number)		Model: SMD2835 Current: DC 150mA Manufacturer: Guangdong Elite Optoelectronic Technology Co., Ltd LM80 Report Issued by Bay Area Compliance Laboratories Corp. (Dongguan).			
		Test Condition 1 - 55°C Case Temp		Test Condition 2 - 85°C Case Temp	
Sample size	25	Sample size	25	Sample size	25
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
α	4.596E-06	α	4.637E-06	α	5.869E-06
B	1.009	B	1.006	B	1.007
Reported L80(9k) (hours)	50,000	Reported L80(9k) (hours)	49,000	Reported L80(9k) (hours)	39,000

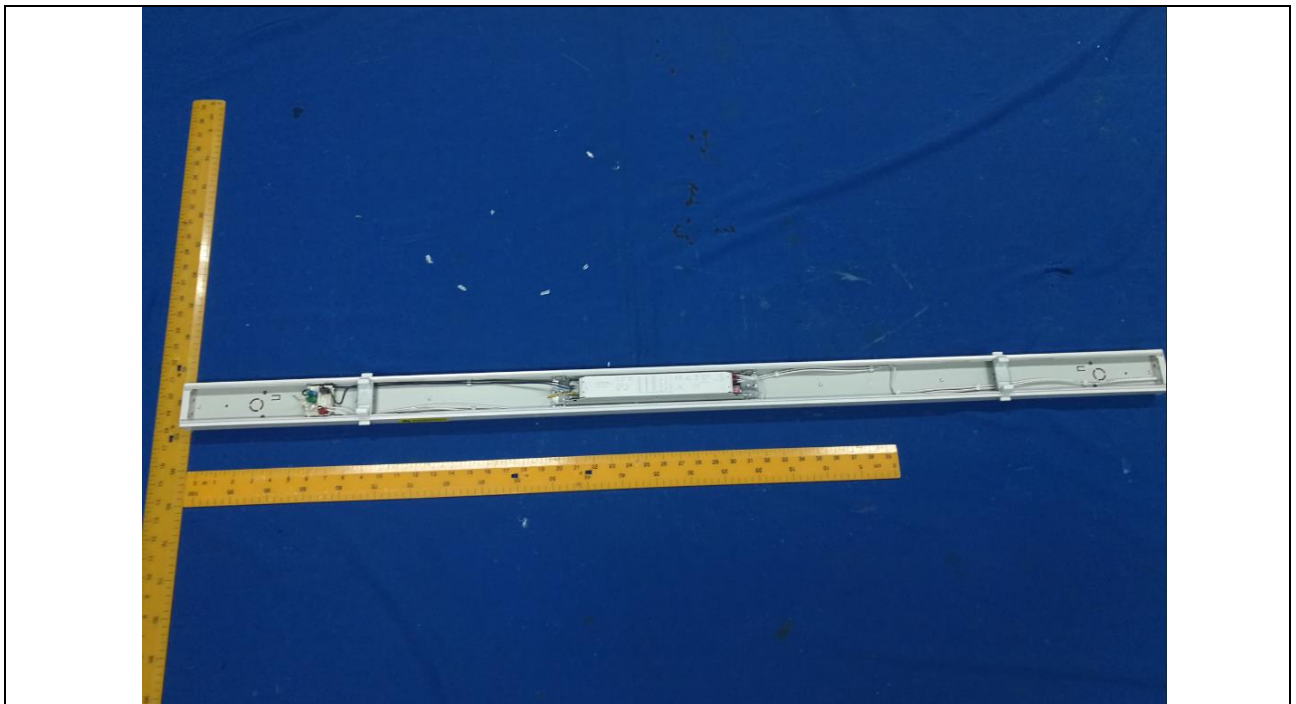
Table 2: Interpolation Report (projection based on <i>in-situ</i> temperature entered)	
$T_{s,1}$ (°C)	55.00
$T_{s,1}$ (K)	328.15
α_1	4.596E-06
B_1	1.009
$T_{s,2}$ (°C)	85.00
$T_{s,2}$ (K)	358.15
α_2	4.637E-06
B_2	1.006
E_p/k_b	3.49E+01
A	5.111E-06
B_0	1.007
$T_{s,i}$ (°C)	64.80
$T_{s,i}$ (K)	337.95
α_i	4.610E-06
Reported L80(9k) at 64.8°C (hours)	50,000

Annex 5: Photo document

Details of: Overview of test sample



Details of: Overview of test sample



Annex 5: Photo document

Details of: LED view



Details of: LED driver view



End of Report