



NVLAP LAB CODE 500080-0

Ref. No.: LCSP16010376

Version: 1.0

Date of Issue: Apr. 26, 2016

Total pages: 8



**Test report of
IES LM-79-08**

**Approved Method: Electrical and Photometric Measurements of
Solid-State Lighting Products**

Rendered to:
P.Q.L., Inc.
2285 Ward Avenue / Simi Valley, CA 93065

For products:
Superior Life® Retrofit Cans

Models No.:
90925

Test Date: Apr. 6, 2016
Test Lab.: LCTECH (Zhongshan) Testing Service Co.,Ltd
2/F., Technology and Enterprise Development Center, Guangyuan Road, Xiaolan,
Zhongshan, Guangdong, China

Test Note:

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Table of Contents

1. General	3
1.1 Product Information.....	3
1.2 Standards or methods.....	4
1.3 Equipment list.....	4
2. Test conducted and method	5
2.1 Ambient Condition.....	5
2.2 Power Supply Characteristics.....	5
2.3 Seasoning and Stabilization.....	5
2.4 Electrical Instrumentation.....	5
2.5 Color Measurement Method.....	5
2.6 Total Luminous Flux Measurement Method.....	5
2.7 Luminous Intensity Distribution Measurement Method.....	5
2.8 Spatial Non-uniformity of Chromaticity.....	5
3. Test Result Summary	6
3.1 Electrical data.....	6
3.2 Photometric data.....	6
3.3 Color Rendering Details.....	6
4. Test Data	7
4.1 Spectral Distribution.....	7
4.2 ANSI Chromaticity Quadrangles Diagram.....	7
Appendix 1 Product Photo	8

1. General

1.1 Product Information

Brand Name	SUPERIOR LIFE®
Trade Mark	-
Category Type	LED Retrofit Cans
Model Number	90925
Rated Inputs	120VAC, 60Hz
Rated Power	10.5 W
Rated Light output	770 lm
Declared CCT	3000 K
Power Supply	LED driver, not provided
LED Package, Array or Module	HL-AT-2835FW-S1-08-PCT-HR3
Receipt Samples	1 unit
Date of Receipt Samples	Apr. 5, 2016
Note	All the tests are tested in a Can. Auxiliary test can mode: HALO® H7ICAT

1.2 Standards or methods

The following standards are partly or totally used or referenced for test:

No.	Name
ANSI/NEMA/ ANSLG C78.377-2015	Specifications for the Chromaticity of Solid State Lighting Products
ANSI C82.77-2002	Harmonic Emission Limits—Related Power Quality Requirements for Lighting Equipment
CIE Pub. No. 13.3-1995	Method of Measuring and Specifying Color Rendering of Light Sources
CIE Pub. No. 15:2004	Colorimetry
IES LM-79-08	Electrical and Photometric Measurements of Solid-State Lighting Products

1.3 Equipment list

Instrument	ID	Model name	Cal. date	Next cal. Date
AC Power supply	LC-I-923	CHP-500	2016-02-04	2017-02-03
AC power supply	LC-I-987	APW-120N	2016-02-04	2017-02-03
AC power supply	LC-I-988	APW-120N	2016-02-04	2017-02-03
AC power supply	LC-I-989	APW-120N	2016-02-04	2017-02-03
Power analyzer	LC-I-928	WT210	2016-02-04	2017-02-03
Power analyzer	LC-I-954	WT210	2016-02-04	2017-02-03
Power analyzer	LC-I-977	WT210	2016-02-04	2017-02-03
Multimeter	LC-I-972	Fluke 17B	2015-08-17	2016-08-16
Photometric colorimetric electric system (2 meter sphere)	LC-I-900	SPR3000	Before use	Before use
Standard lamp	LC-I-917	24V100W	2015-10-09	2016-10-08
Luminous Flux Standard Lamp	LC-I-946	110V/200W	2015-10-17	2016-10-16
Goniophotometer(with mirror)	LC-I-902	GMS2000	2015-05-07	2016-05-07
Wireless temperature transmitter	LC-I-978	DWRF-B	2016-02-03	2017-02-02
Wireless temperature transmitter	LC-I-979	DWRF-B	2016-02-03	2017-02-02
Wireless temperature transmitter	LC-I-980	DWRF-B	2016-02-03	2017-02-02

2. Test conducted and method

All the tests are tested in a Can which model HALO® H7ICAT

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$; the air flow around the sample(s) being tested did not affect the performance.

2.2 Power Supply Characteristics

The AC power supply had a sinusoidal voltage wave shape at the prescribed frequency (60 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

The voltage of AC power supply (RMS voltage) applied to the device under test was regulated to within ± 0.2 percent under load.

2.3 Seasoning and Stabilization

No seasoning was performed in accordance with IESNA LM-79-08. And before the measurement, the sample was stabilized until the light output and power variations were less than 0.5% in 30 minutes intervals (3 readings, 15 minutes apart).

2.4 Electrical Instrumentation

The calibration uncertainties of the instruments for AC voltage and current were less than 0.2 percent, and the calibration uncertainty of the AC power meter was less than 0.5 percent (95 % confidence interval, $k=2$).

2.5 Color Measurement Method

Spectral radiant flux was measured by a sphere (2 meter)-spectroradiometer system, and the color characteristics (Color rendering index, correlated color temperature, chromaticity coordinate) were calculated from these by software automatically.

2.6 Total Luminous Flux Measurement Method

Total luminous flux was measured by both sphere-spectroradiometer system.

Spectral radiant flux was measured by a sphere (2 meter)-spectroradiometer system, and the total luminous flux was calculated from these by software automatically.

2.7 Luminous Intensity Distribution Measurement Method

The customer did not require this measurement.

2.8 Spatial Non-uniformity of Chromaticity

The customer did not require this measurement.

3. Test Result Summary

3.1 Electrical data

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Input Voltage & Frequency	120.00 V~60Hz	-
Input Current(A)	0.088	-
Total Power(W)	10.50	-
Power Factor	0.991	-
Off-state Power(W)	-	-

3.2 Photometric data

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Total Lumens(lm)	779.69	-
Luminaire Efficacy(lm/W)	74.26	-
Correlated Color Temperature (CCT)(K)	2911	-
Color Rendering Index (CRI)	92.7	-
R9	62	-
Chromaticity Coordinate (x,y)	x = 0.4392 y = 0.3979	-
Chromaticity Coordinate (u,v)	u = 0.2547 v = 0.3462	-
Chromaticity Coordinate (u',v')	u' = 0.2547 v' = 0.5193	-
Duv	-0.0028	-
Spacing Criteria(0-180°)	-	-
Spacing Criteria(90-270°)	-	-
Zone Lumens between 0-60 °	-	-

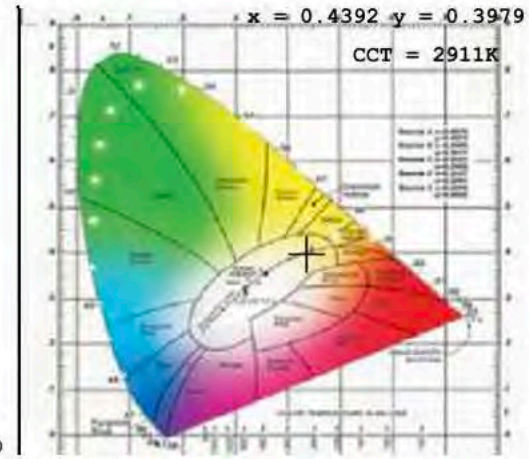
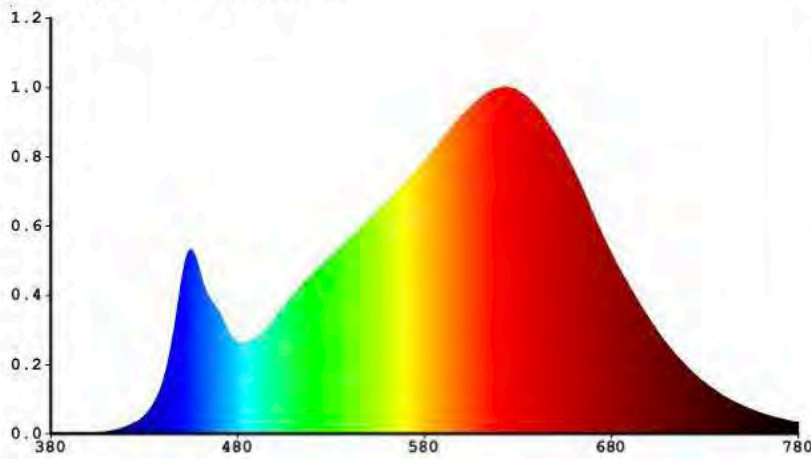
3.3 Color Rendering Details

R1	R2	R3	R4	R5	R6	R7	R8
94	98	98	91	93	96	91	82
R9	R10	R11	R12	R13	R14	R15	-
62	94	91	82	95	99	90	-

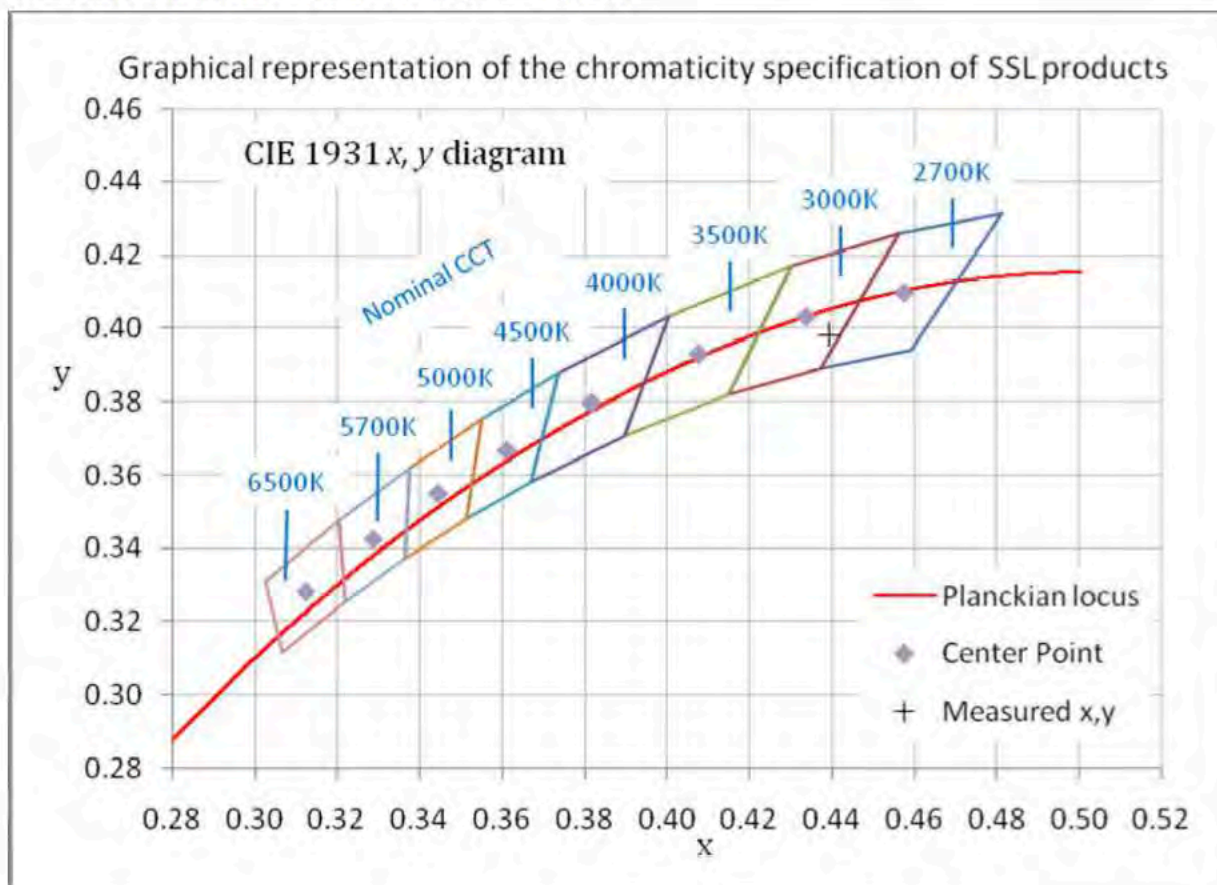
Note: N.A.

4. Test Data

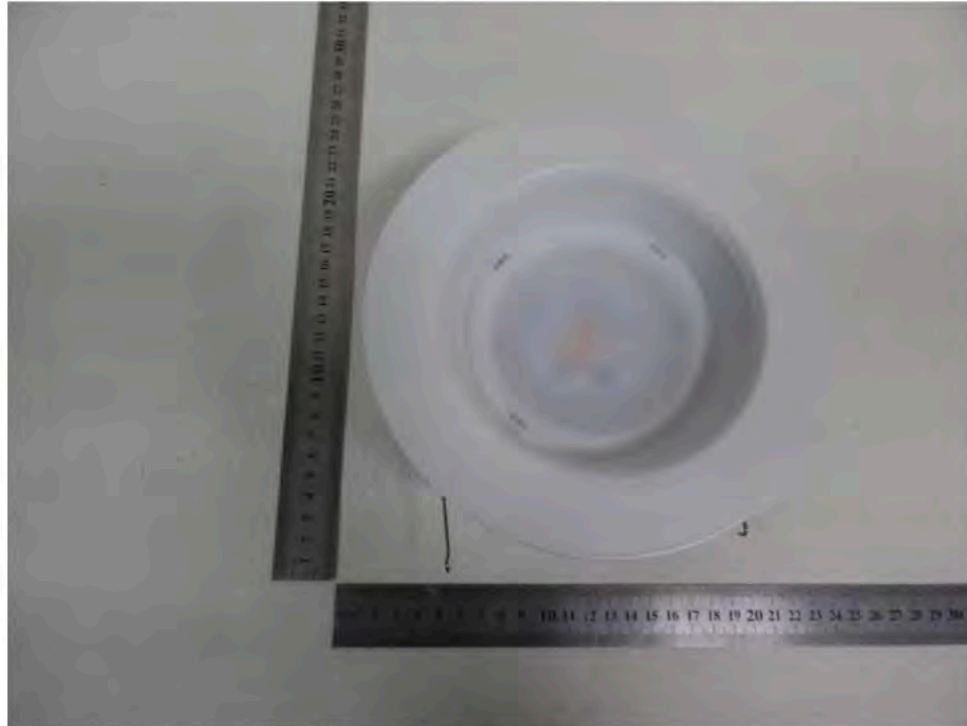
4.1 Spectral Distribution



4.2 ANSI Chromaticity Quadrangles Diagram



Appendix 1 Product Photo



Picture 1



Picture 2

****End of test report****