Quality Assured

NVLAP LAB CODE 200960-0

LM-79-08 Test Report

For

Maxlite Inc.

12 York Ave West Caldwell NJ 07006

LED Outdoor Fixture

Model: ML4LS12SRLBZ827

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

No.1805, DongLiu road, BinJiang District, Hangzhou, China

Tel: +86-571-56680806

www.ledtestlab.com

Report No.: HZ15100025c

The laboratory that conducted the testing detailed in this report has been accredited for SSL by NVLAP.

Reviewed by:

Engineer: April Zou

Oct. 22, 2015

Approved by:

LEADING TESTING LABORATORIES

Manager: Jim Zhang

Oct. 22, 2015

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Test Summary

Sample Tested: **ML4LS12SRLBZ827**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
62.1	751.5	12.10	0.9797

CCT (K)	CRI	Stabilization Time (Light & Power)
2767	80.9	70

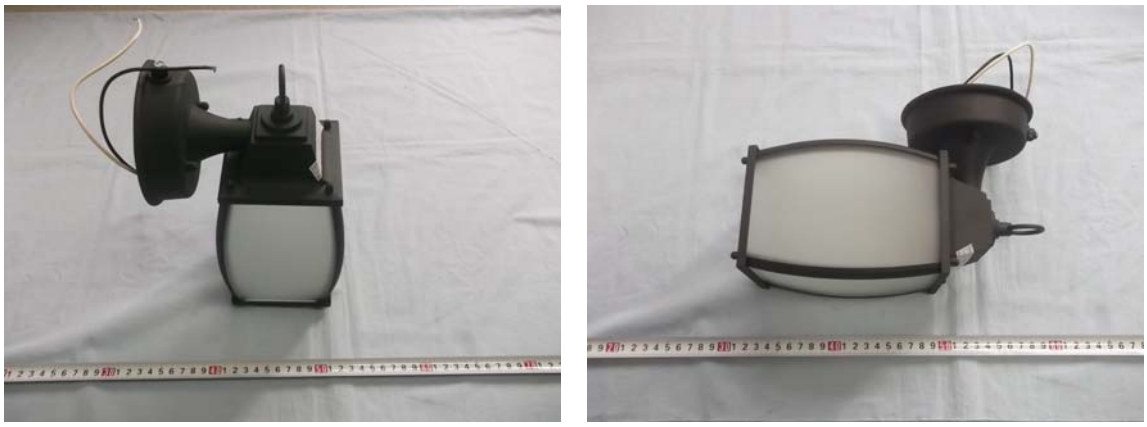
Table 1: Executive Data Summary

Note: The above results are recorded/ derived from measurements made using an Integrating Sphere.

Test specifications:	
Date of Receipt	: Oct. 19, 2015
Date of Test	: Oct. 21, 2015
Test item	:Total Luminous Flux, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	:IESNA LM-79-2008 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

TABLE OF CONTENT

Sample Photos



Sample view

Equipment Under Test (EUT)	
Name	: LED Outdoor Fixture
Model	: ML4LS12SRLBZ827
Electrical Ratings	: 120Vac, 60Hz, 12W
Product Description	: LED Luminaire, 2700K, Non Dimmable, No Off-State Power Manufacturer of the LED light source: Lumileds Model of the LED light source: Lexeon 3030-2D Quantity of the LED light source: 10PCS Model of the External Driver: LED-D12-35-0350-P
Manufacturer	: Maxlite Inc.
Address	: 12 York Ave West Caldwell NJ07006

TEST RESULTS

Test ambient temperature was 24.5℃.

Test orientation was Light down. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 70 minutes, and the total operating time including stabilization was 75 minutes.

Sphere-Spectroradiometer Method

Parameter	Result
Test Voltage (V)	120.0
Voltage frequency (Hz)	60
Test Current (A)	0.103
Power Factor	0.9797
Test Power (W)	12.10
THD A%	8.19
Luminous Efficacy (lm/W)	62.1
Total Luminous Flux (lm)	751.5
Color Rendering Index (CRI)	80.9
R9	8.6
Correlated Color Temperature (CCT)(K)	2767
Chromaticity Chroma x	0.4555
Chromaticity Chroma y	0.4114
Chromaticity Chroma u	0.2593
Chromaticity Chroma v	0.3513
Duv	0.0005
Chromaticity Chroma u ’	0.2593
Chromaticity Chroma v’	0.5270

Special Color Rendering Indices	
R1	78.4
R2	88.7
R3	96.8
R4	77.8
R5	77.9
R6	85.2
R7	83.3
R8	58.9
R9	8.6
R10	74
R11	75.1
R12	69
R13	80.3
R14	98.3

Table 2: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u’,v’) diagram, u’ = u = 4x/(-2x+12y+3), v’ = 3v/2 = 9y/(-2x+12y+3).

Spectral Power Distribution - Sphere Spectroradiometer Method

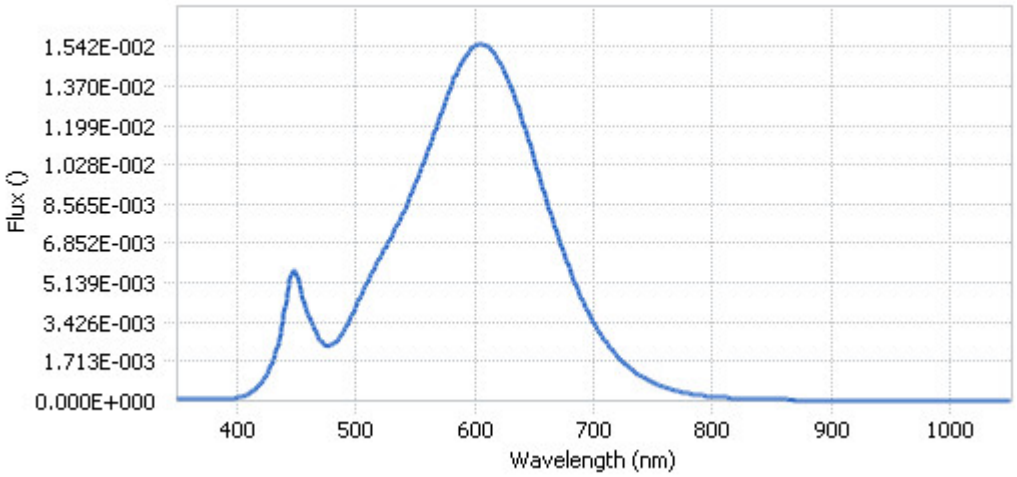
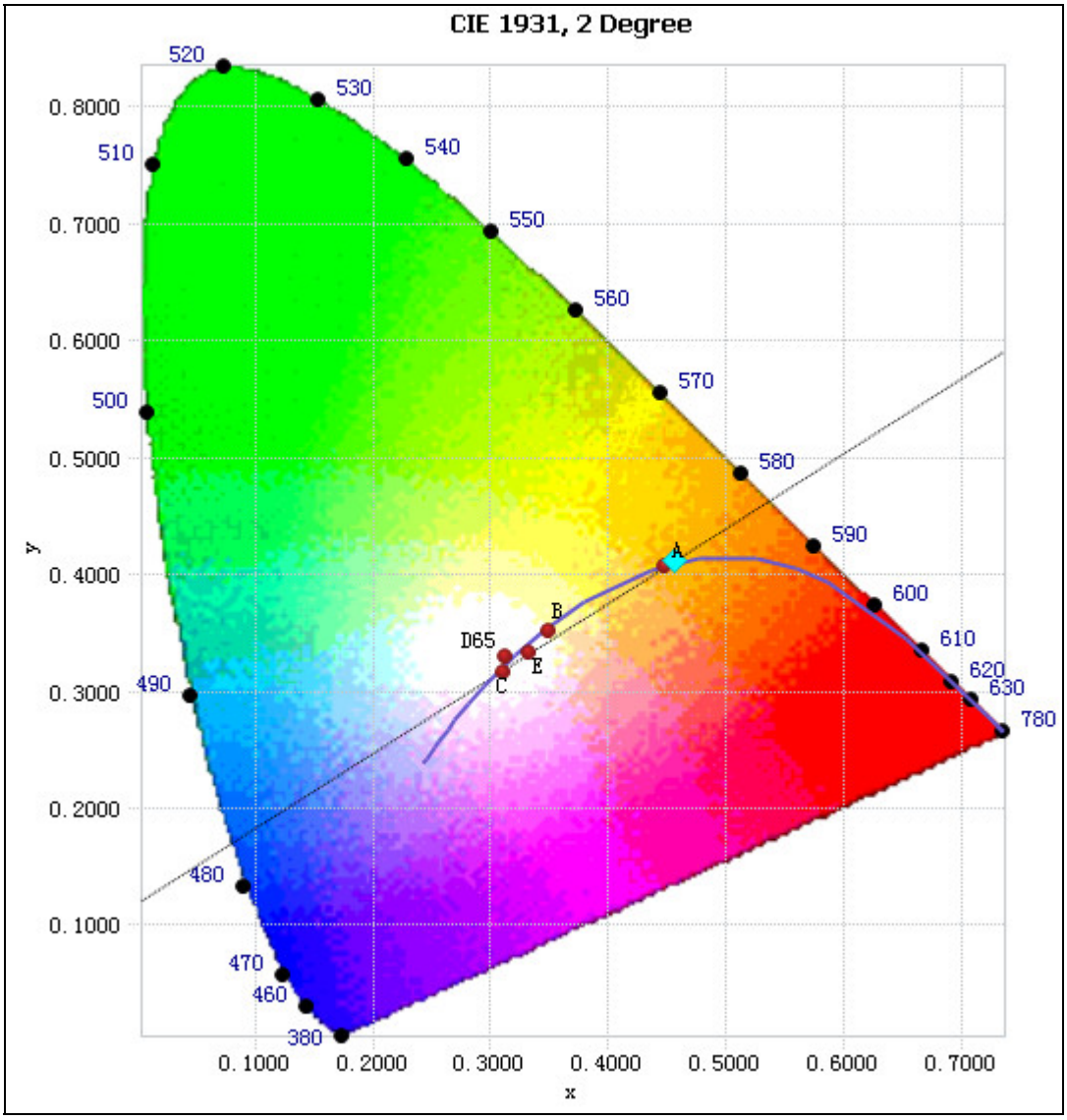


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	6.21E-05	485	2.64E-03	590	1.48E-02	695	3.90E-03
385	6.92E-05	490	3.03E-03	595	1.52E-02	700	3.42E-03
390	8.20E-05	495	3.57E-03	600	1.55E-02	705	2.96E-03
395	9.70E-05	500	4.09E-03	605	1.56E-02	710	2.57E-03
400	1.22E-04	505	4.63E-03	610	1.55E-02	715	2.24E-03
405	1.73E-04	510	5.17E-03	615	1.53E-02	720	1.94E-03
410	2.78E-04	515	5.71E-03	620	1.49E-02	725	1.66E-03
415	4.51E-04	520	6.20E-03	625	1.44E-02	730	1.44E-03
420	7.30E-04	525	6.67E-03	630	1.38E-02	735	1.23E-03
425	1.14E-03	530	7.18E-03	635	1.30E-02	740	1.06E-03
430	1.72E-03	535	7.70E-03	640	1.23E-02	745	9.03E-04
435	2.52E-03	540	8.22E-03	645	1.14E-02	750	7.77E-04
440	3.81E-03	545	8.80E-03	650	1.05E-02	755	6.69E-04
445	5.30E-03	550	9.41E-03	655	9.69E-03	760	5.73E-04
450	5.61E-03	555	1.01E-02	660	8.84E-03	765	4.93E-04
455	4.59E-03	560	1.08E-02	665	7.99E-03	770	4.19E-04
460	3.78E-03	565	1.15E-02	670	7.17E-03	775	3.60E-04
465	3.18E-03	570	1.22E-02	675	6.42E-03	780	3.10E-04
470	2.62E-03	575	1.30E-02	680	5.72E-03		
475	2.38E-03	580	1.37E-02	685	5.06E-03		
480	2.42E-03	585	1.43E-02	690	4.44E-03		

Table 3: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y) : (0.4555, 0.4114)

Chart 2: Chromaticity Diagram per Sphere - Spectroradiometer Method

Note: The location on the diagram of the tristimulus coordinates are indicated by the blue diamond.

Nominal CCT Quadrangles – Sphere Spectroradiometer Method

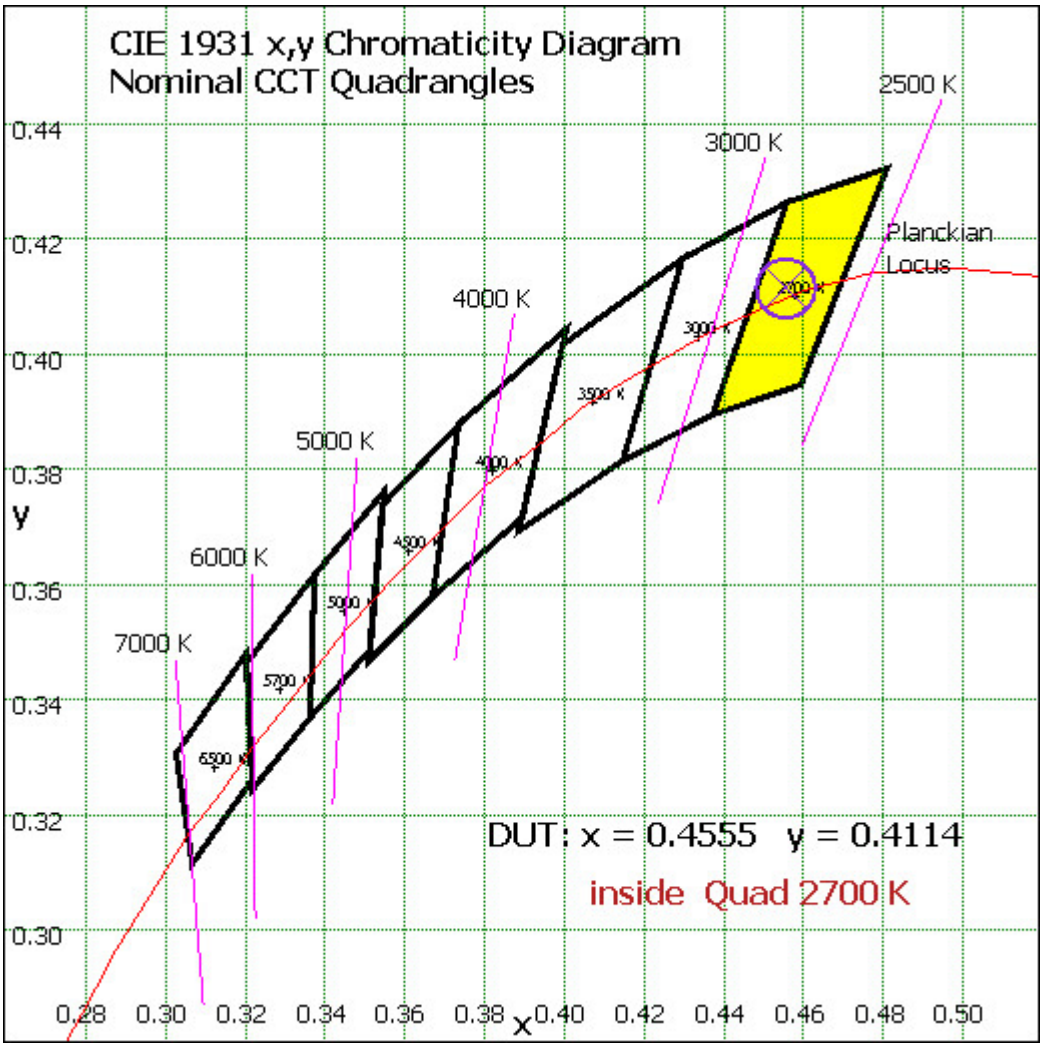


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Integrate Sphere system	2M	HZTE015-01	Jul. 16, 2015	Jul. 15, 2016
Digital Power Meter	WT210	HZTE008-01	Jul. 17, 2015	Jul. 16, 2016
AC Power Supply	PCR 500L	HZTE001-07	Jul. 17, 2015	Jul. 16, 2016
DC Power Supply	6154	HZTE004-04	Jul. 17, 2015	Jul. 16, 2016
Temperature and humidity recorder	JR900	HZTE018-01	Jul. 21, 2015	Jul. 20, 2016
Standard source	SCL-1400	HZTE012-02	Oct. 20, 2015	Oct. 20, 2016

Table 4: Test Equipment List

TEST METHODS

Seasoning of SSL Product

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning.
Therefore, no seasoning was performed.

Sphere-Spectroradiometer Method- Photometric and Electrical Measurements

A Labsphere Model CDS 2100 Spectroradiometer and Two Meter Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit. The coating reflectance of each sphere is 98%. The measure geometry is 4π. Self-absorption correction is conducted in testing. Bandwidth of spectroradiometer is 350nm-1050nm.
Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation.
The stabilization time typically ranges from 30 min (small integrated LED lamps) to 2 or more hours for large SSL luminaires). It can be judged that stability is reached when the variation (maximum – minimum) of at least 3 readings of the light output and electrical power over a period of 30 min, taken 15 minutes apart, is less than 0.5 %.
Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.
The standard reference of the integrated sphere system is halogen incandescent lamp, the intensity distribution type is omni-directional, and is traceable to the National Institute of Standards and Technology.
The uncertainty of integrating sphere system reported in this document is expended uncertainty is 1.06% with a coverage factor k=2.

*** End of Report ***