



IESNA LM79-2008 Test Report

TÜV SÜD America

Photometric Testing and Evaluation in Accordance with LM79-2008

Report Prepared for:

David Delgado
Applications Engineer

Maxlite Inc.
12 York Ave.
West Caldwell, NJ 07006
United States

Telephone: (800) 555-5629

Sample Tested:	5B11DLED27
Sample Description:	5W B11 2700K LED Integral Lamp
Manufacturer:	Maxlite, Inc.

Technical Report Number:	J11405265-07-LM79
Report Issue Date:	May 29th, 2014
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Report Prepared by:

Byrd Evans
TÜV SÜD Project Handler

Report Reviewed by:

Bryan Cubitt
TÜV SÜD Program Manager

TÜV SÜD America, Inc.

5945 Cabot Parkway, Suite 100,
Alpharetta GA 30005

Telephone: 678-341-5900 www.tuvamerica.com

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Lab Code: 500065-0

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Summary of Key Test Results

Model# **5B11DLED27**
Manufacturer **Maxlite, Inc.**
TÜV Sample# **1346-1**
Date of Test **May 21st 2014**

Notes: Tested in intended orientation
(LBU – Lamp Base Up)



Parameter	Measured Result
Luminous Flux	383.4 Lumens
Input Power	5.32 Watts
Efficacy	72.07 Lumens/Watt
C.C.T.	2787 K
C.R.I. (R _a)	82.8
Beam Spread	70.9°
Stabilization Time	60 minutes

The above results are recorded / derived from measurements in accordance with LM79-08.



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Test Results –

The following results were obtained after stabilization of the sample in accordance with the requirements set forth in section 5.0 of IES LM79-2008. Stability is achieved when the variation of 3 readings of light output and electrical power over a period of 30 minutes, taken 15 minutes apart, is less than 0.5%.

Photometric Results	Maxlite- 5B11DLED27
	Integrating Sphere
Total Luminous Flux (Lumens)	383.4
Luminous Efficacy (Lumens/Watt)	72.07
Total Radiant Flux (Watts)	1.3
Correlated Color Temperature (CCT)	2787
Color Rendering Index (CRI – R _a)	82.8
R ₉ Value	20.5
Chromaticity (Chroma x / Chroma y)	0.4449 / 0.3942
Chromaticity (Chroma u / Chroma v)	0.2601 / 0.3457
Chromaticity (Chroma u' / Chroma v')	0.2601 / 0.5186
D _{uv} Value	-0.00489

Electrical Results (120V unless stated otherwise)	Maxlite- 5B11DLED27
	Integrating Sphere
Input Power (Watts)	5.32
Input Voltage (Volts AC)	120.01
Input Current (Amps)	0.048
Power Factor @120VAC	0.922
Input Frequency (Hertz)	60.0
A-THD @120VAC (Current %)	35.41%

Additional Parameters	Maxlite- 5B11DLED27	
	Integrating Sphere	Goniophotometer
Stabilization Time (Light and Power)	60 minutes	66 minutes
Test Geometry Configuration	4 π	Type C
Ambient Temperature	25.3°C	24.8°C
Spacing Criteria	N/A	

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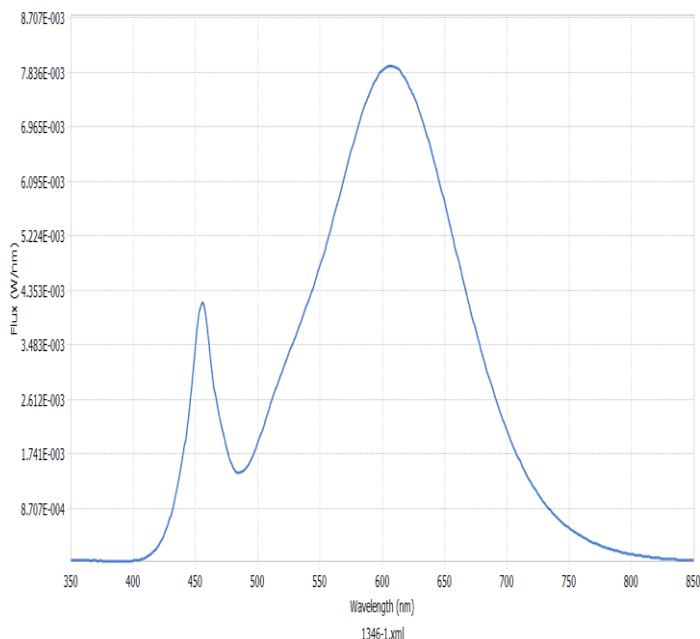
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Spectral Flux and Chromaticity Diagram

Spectral Flux

▼ SPECTRAL FLUX GRAPH:

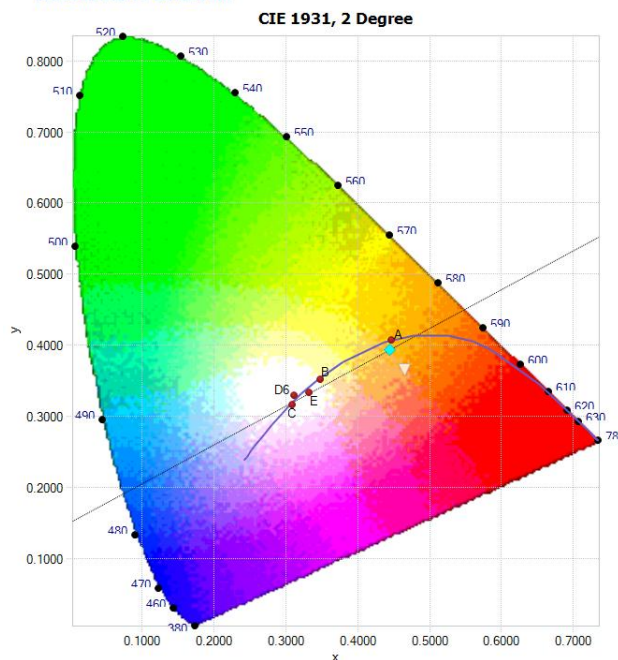


Spectral response of the Radiant Flux

(350nm to 850nm)

Chromaticity Diagram

▼ CHROMATICITY DIAGRAM:



Tristimulus values (from page 4):

$x / y = 0.4449 / 0.3942$

The locations on the diagram of the tristimulus coordinates are indicated by the blue diamond.

Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0 - 60	227.5	57.5 %
60 - 90	94.8	24.0 %
0 - 90	322.3	81.5 %
90 - 180	73.0	18.5 %
0 - 180	395.3	100.0 %

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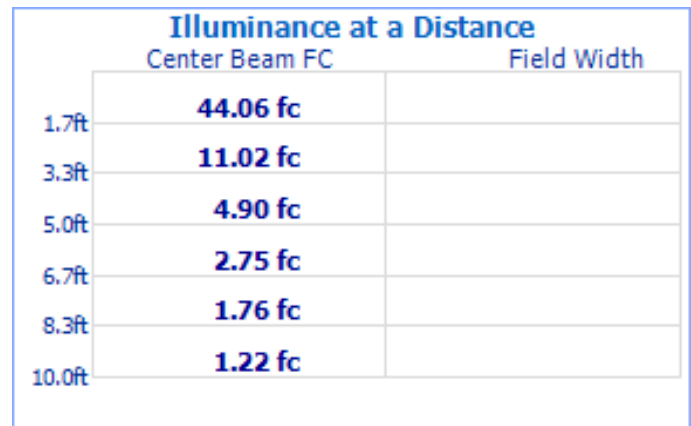
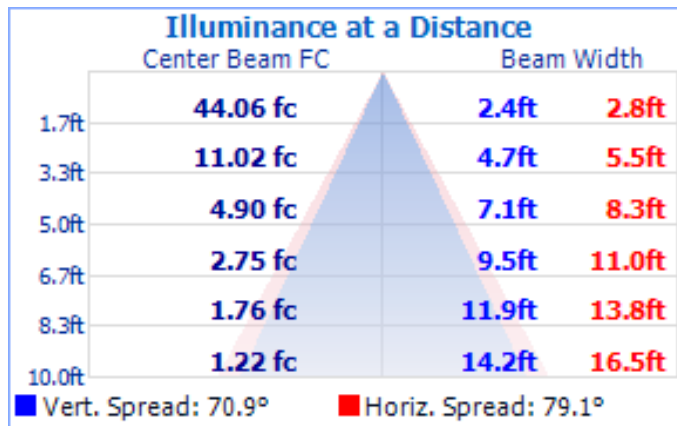


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Test Results – Illuminance Plots

The following images depict the illuminance characteristics of the luminaire.

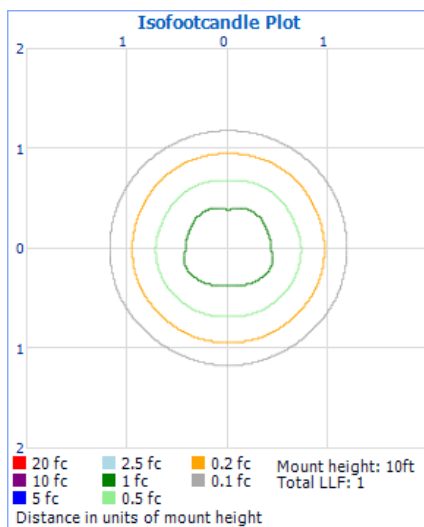


Beam Angle = 70.9°

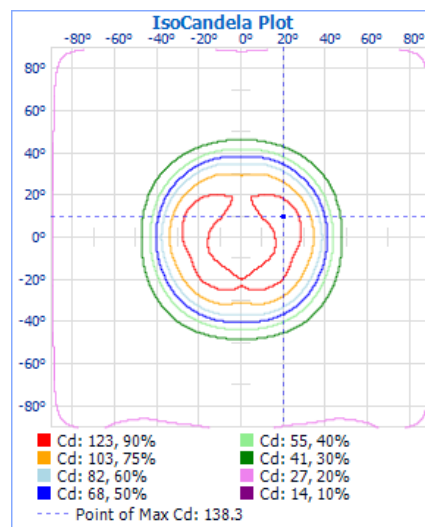
Field Angle = N/A

Test Results – Candela Plots

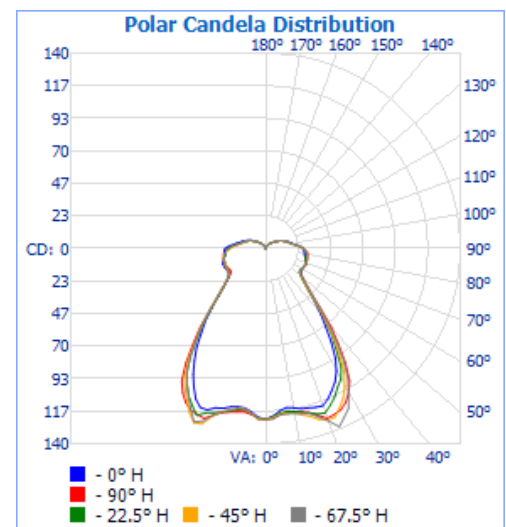
The following images depict the luminous intensity distribution characteristics of the luminaire:



Isofootcandle Plot



Isocandela Plot



Polar Candela

Maximum Candela = **148.6** at Horizontal: 67.5°, Vertical: 70.0°

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TÜV SÜD Photometric Testing Information

Testing is performed in accordance with the procedures outlined in IESNA LM79-2008. The sample is evaluated for photometric and electrical characteristics using an integrating sphere and a goniophotometer, located in an accredited, temperature and humidity-controlled, draft free photometric laboratory.

Sphere Geometry

The integrating spheres used for measurement utilize a “ 4π geometry” configuration in accordance with section 9 of IES LM-79-2008 and is applicable for all types of SSL products (directional and non-directional light projections). The spectroradiometer is an array-type detector manufactured and calibrated by Labsphere (Model# CDS1100).

Self-Absorption Correction

The integrating sphere uses self-absorption correction to eliminate errors due to mismatches between the standard reference lamp and the test samples being measured. This auxiliary correction lamp is a halogen type lamp powered by a calibrated Lamp Power Supply manufactured and calibrated by Labsphere (model LPS150). Ambient temperature is measured using a thermocouple located inside the integrating sphere at the same height as the sample under test (UUT) and not more than 1 meter in horizontal distance away from the sample (section 2.2 of LM79-2008). The thermocouple is located behind a baffle in order to eliminate any direct optical radiation from the sample under test.

Sample Stabilization

The sample (UUT) is placed inside the integrating sphere and powered by a regulated and conditioned alternating or direct current supply. The stabilization times shown on the results pages of this report denote the time of the 3rd measurement (of the 3 consecutive readings) since this is the minimum time that the sample is assumed to have taken to reach stabilization in accordance with section 5.0 of LM79-2008.

Sphere Calibration

The integrating sphere is calibrated using a quartzline halogen lamp with the following specifications:

Manufacturer: EYE Lighting International

Model# J94/JD28V75W

Voltage = 28.0 Volts DC

Wattage = 75.0 Watts

Calibration Current = 2.679 Amperes

Luminous Flux = 1685 Lumens

Calibration Date = 2-17-2011 (calibrated by Labsphere – NIST traceable).

Continued.....

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TÜV SÜD Photometric Testing Information (continued)

Goniophotometer

The Goniophotometer is a Mirror based Type C optical measurement system in accordance with section 9.3.1 of IESNA LM79-2008.

Goniophotometer Calibration

The Goniophotometer is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

Manufacturer: General Electric

Part Number: CSB-110

Lamp Number: 112-A

Voltage: 16.52 Volts DC

Wattage: 150.0 Watts

Calibration Current: 4.816 Amperes

Luminous Intensity: 151.5 Candelas

Calibration Date: 02-13-2011 (NIST traceable)

TÜV SÜD Test Equipment List:

TÜV SÜD Sphere System – contains the following:			
Description	Manufacturer / Model#	TÜV SÜD Ref#	Calibration Due Date
Integrating Sphere	Labsphere LM760	SPH002	weekly
Spectroradiometer	Labsphere CDS1100	ATLE0046	9/7/2014
Power Analyzer	Yokogawa WT210	ATLE0076	6/5/2014
Power Source	Chroma 61602	AC003	N/A
Thermometer	Fluke 52-II	ATLE0118	1/16/2015
TÜV SÜD Mirror Goniophotometer System – contains the following:			
Goniophotometer	M.E. GONC02	GON002	Weekly
Spectroradiometer	Gigahertz Optik P9801	GIG002	Weekly
Power Analyzer	Yokogawa WT210	ATLE0031	11/21/2014
Power Source	Chroma 61603	AC007	N/A

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