



IESNA LM79-2008 Test Report

TÜV SÜD America

Photometric Testing and Evaluation in Accordance with LM79-2008

Report Prepared for:

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Sample Tested:	12P30LNDLED41NF
Sample Description:	12W LED PAR30LN 4100K NARROW FLOOD
Manufacturer:	Maxlite, Inc.
Technical Report Number:	Ji1406392-33-LM79
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Report# Ji1406392-33-LM79

July 02, 2014

Summary of Key Test Results

Model# **12P30LNDLED41NF**

Manufacturer **Maxlite, Inc.**

TÜV Sample# 1387-33

Date of Test June 27th 2014



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

12W LED PAR30LN 4100K NARROW FLOOD

Parameter	Measured Result
Luminous Flux	969.7 Lumens
Input Power	11.83 Watts
Efficacy	81.96 Lumens/Watt
C.C.T.	4135 K
C.R.I. (R _a)	82.6
Beam Spread	20.5°
Stabilization Time	45 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- 12P30LNDLED41NF	
	Integrating Sphere	
Total Luminous Flux (Lumens)	969.7	
Luminous Efficacy (Lumens/Watt)	81.96	
Total Radiant Flux (Watts)	3.0	
Correlated Color Temperature (CCT)	4135	
Color Rendering Index (CRI – R _a)	82.6	
R ₉ Value	9.3	
Chromaticity (Chroma x / Chroma y)	0.3752 / 0.3756	
Chromaticity (Chroma u / Chroma v)	0.2221 / 0.3335	
Chromaticity (Chroma u' / Chroma v')	0.2221 / 0.5003	
D _{uv} Value	0.00105	

Electrical Results 120V AC Input	Maxlite- 12P30LNDLED41NF	
	Integrating Sphere	
Input Power (Watts)	11.83	
Input Voltage (Volts AC)	120.01	
Input Current (Amps AC)	0.104	
Power Factor	0.944	
Input Frequency (Hertz)	60	
A-THD (Current %)	22.60	

Additional Parameters	Maxlite- 12P30LNDLED41NF	
	Integrating Sphere	Goniophotometer
Stabilization Time (Light and Power)	45 minutes	46 minutes
Test Geometry Configuration	4π	Type C
Ambient Temperature	24.1°C	24.9°C
Spacing Criteria	N/A	



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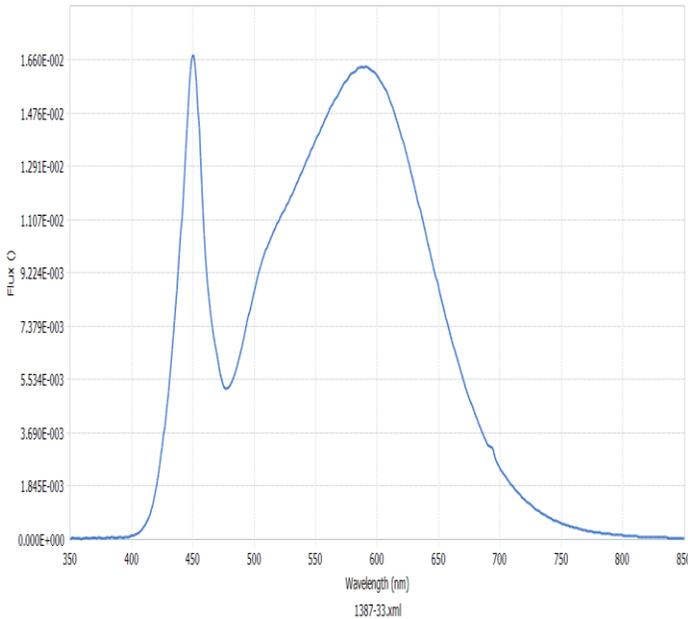
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Spectral Flux and Chromaticity Diagram

Spectral Flux

▼ SPECTRAL FLUX GRAPH:

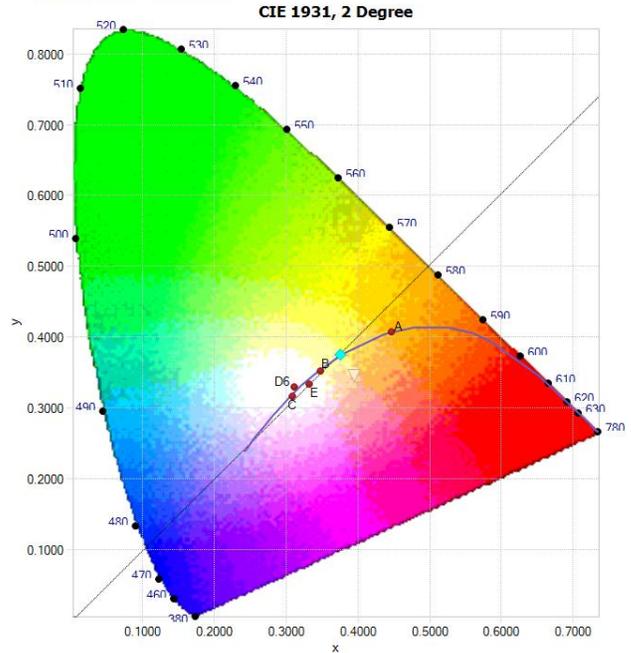


Spectral response of the Radiant Flux

(350nm to 850nm)

Chromaticity Diagram

▼ CHROMATICITY DIAGRAM:



Tristimulus values (from page 4):

$$x / y = 0.3752 / 0.3756$$

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

Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0 - 60	952.7	98.0 %
60 - 90	19.0	2.0 %
0 - 90	971.7	100 %
90 - 180	0.0	0.0 %
0 - 180	971.7	100 %

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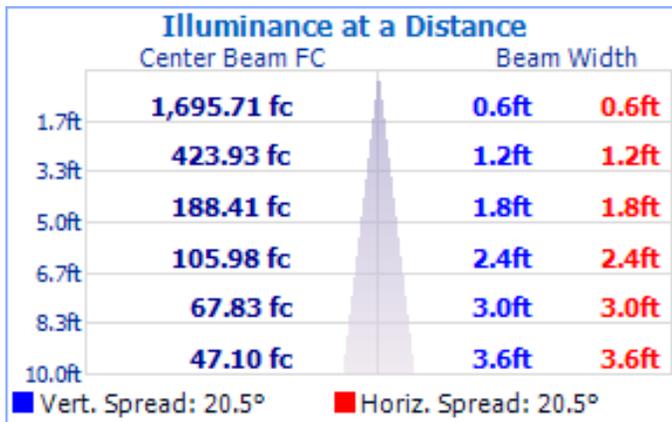


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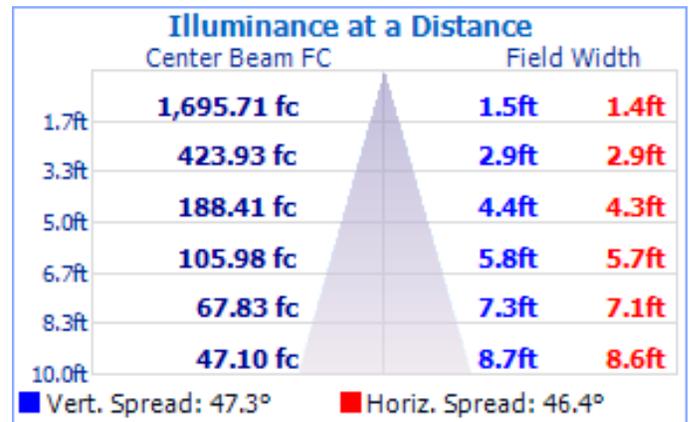
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Test Results – Illuminance Plots

The following images depict the illuminance characteristics of the luminaire.



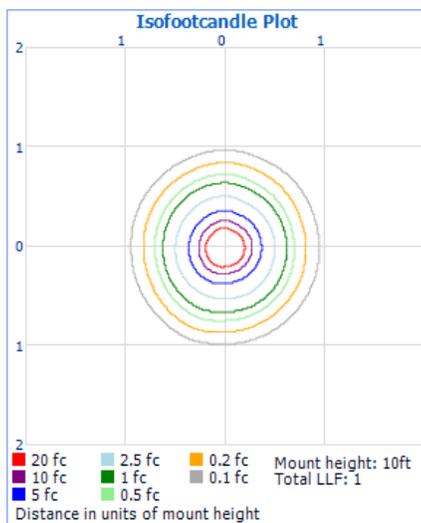
Beam Angle = 20.5° (V) / 20.5° (H)



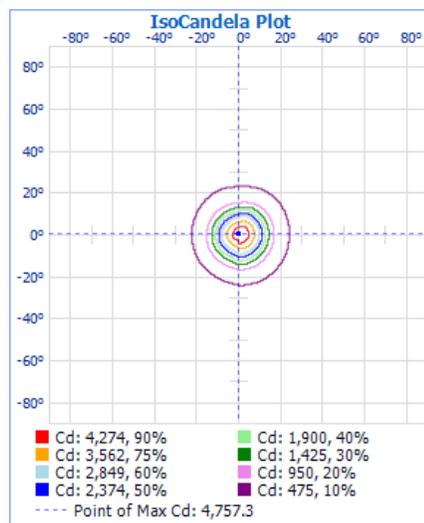
Field Angle = 47.3° (V) / 46.4° (H)

Test Results – Candela Plots

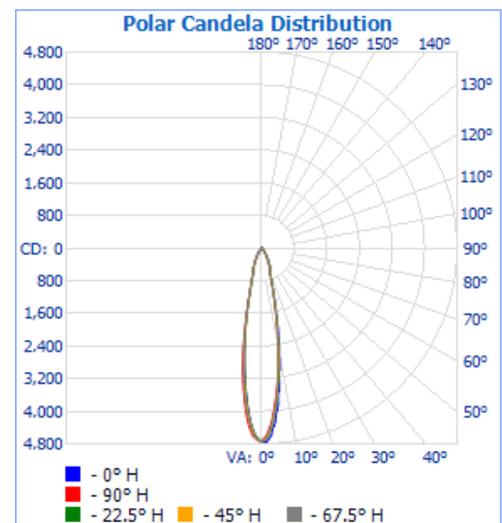
The following images depict the luminous intensity distribution characteristics of the luminaire:



Isofootcandle Plot



Isocandela Plot



Polar Candela

Maximum Candela = **4,757.3** at Horizontal: 0.0°, Vertical: 0.5°



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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	SPH003	weekly
Spectroradiometer	Labsphere CDS1100	ATLE0048	9/7/2014
Power Analyzer	Yokogawa WT210	ATLE0032	11/21/2014
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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