



8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L111605701

Date: 12/5/2016



NVLAP LAB CODE 200927-0

Report No: L111605701

Report Prepared For: Hunter Industries
1775 La Costa Meadows Dr. San Marcos, CA 92708

Model Number: LOLED20WFLLSBS

Test: Electrical and Photometric tests

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is LOLED20WFLLSBS. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 11/29/16

Date of Tests: 11/30/16 - 12/5/16

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-GB	2/10/17
Xitron Power Analyzer	2802	MT-EL02-2	12/22/16
BK PRECISION	1747	PS-DC04	12/8/16
Fluke Digital Thermometer	52k/J	MT-TP02-GB	12/8/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	Hunter Industries
Model Number:	LOLED20WFLLSBS
Driver Model Number:	N/A
Total Lumens:	206.51
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.37
Input Power (W):	4.20
Input Power Factor:	0.93
Current ATHD @ 12V(%):	36%
Current ATHD @ 277V(%):	N/A
Efficacy:	49
Color Rendering Index (CRI):	82
Correlated Color Temperature (K):	2659
Chromaticity Coordinate x:	0.4648
Chromaticity Coordinate y:	0.4141
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:55
Off State Power(W):	0.00

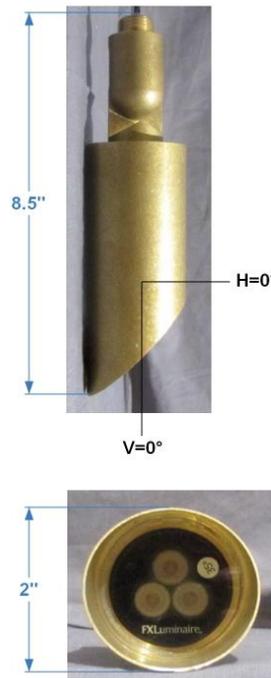
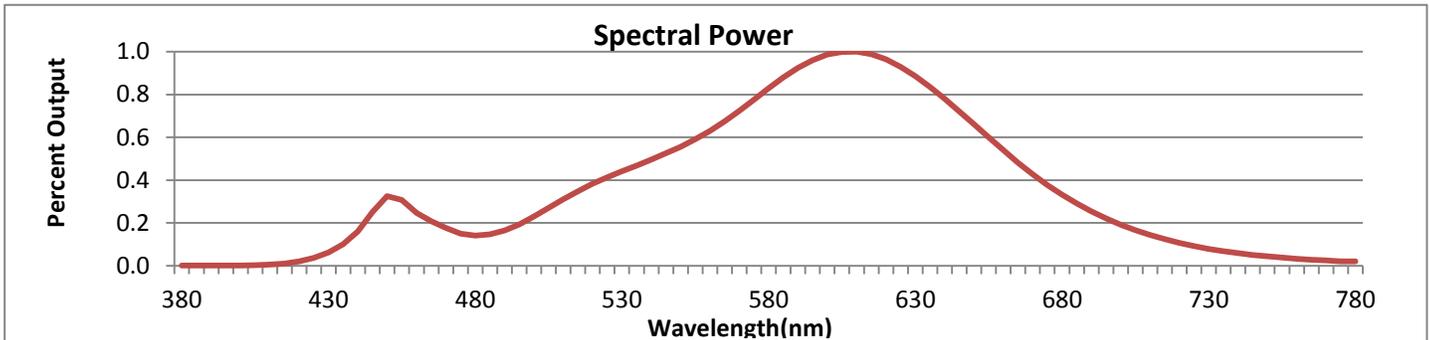


FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



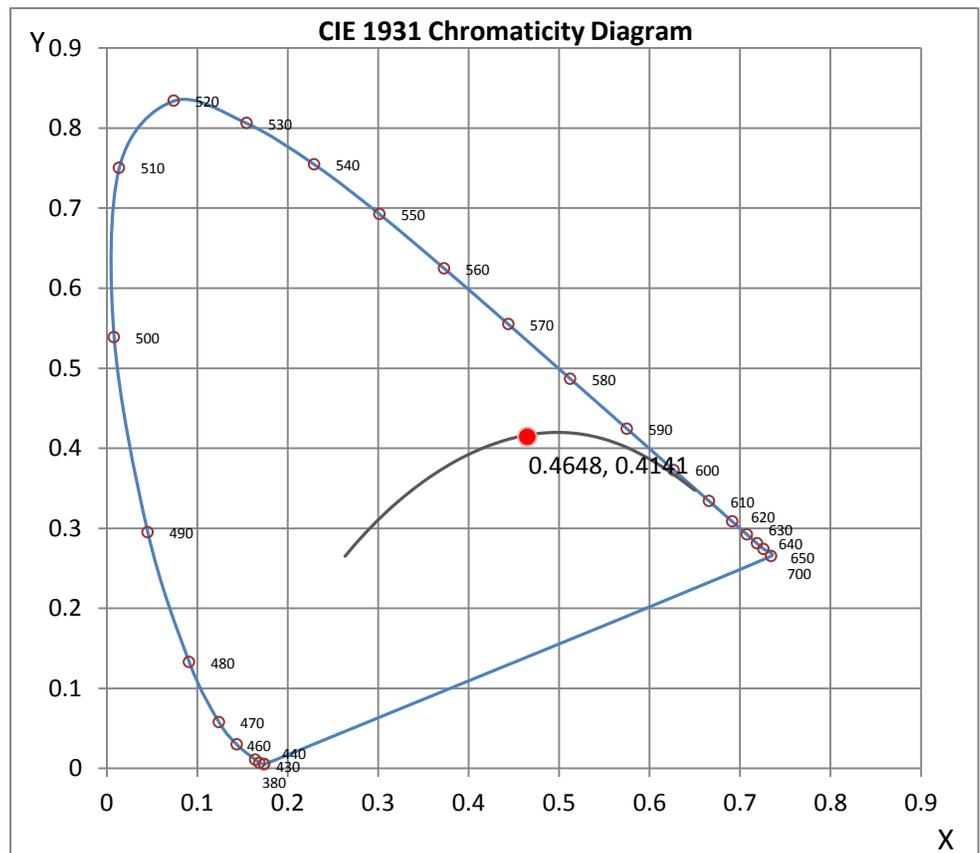
Wavelength	W/m ² nm	440	0.1598	510	0.3110	580	0.8296	650	0.6607	720	0.1063
380	0.0007	450	0.3258	520	0.3825	590	0.9252	660	0.5408	730	0.0787
390	0.0006	460	0.2471	530	0.4415	600	0.9862	670	0.4275	740	0.0585
400	0.0016	470	0.1769	540	0.4962	610	1.0000	680	0.3325	750	0.0436
410	0.0055	480	0.1407	550	0.5562	620	0.9651	690	0.2538	760	0.0327
420	0.0209	490	0.1641	560	0.6305	630	0.8857	700	0.1921	770	0.0243
430	0.0620	500	0.2300	570	0.7242	640	0.7804	710	0.1439	780	0.0211

CRI & CCT

x	0.4648
y	0.4141
u'	0.2641
v'	0.5294
CRI	81.80
CCT	2659
Duv	0.00090

R Values

R1	79.92
R2	89.99
R3	97.27
R4	79.21
R5	79.21
R6	87.65
R7	82.82
R8	58.38
R9	9.19
R10	76.86
R11	77.52
R12	69.99
R13	82.04
R14	98.79



*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Released by:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 8*



8165 E. Kaiser Blvd. Anaheim, CA 92808
 p. 714.282.2270
 f. 714.676.5558

Photometric Test Report

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L111605701.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L111605701
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 12/5/2016
 [MANUFAC] HUNTER INDUSTRIES
 [LUMCAT] LOLED20WFLLSBS
 [LUMINAIRE] 20 WARM FLOOD LONG SHROUD UPLIGHT
 [BALLASTCAT] N/A
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 12VAC, 4.20W
 [TEST PROCEDURE] IESNA:LM-79-08

Note: Candela values converted from Type-C to Type-B

CHARACTERISTICS

NEMA Type	4 H x 4 V
Maximum Candela	569.24
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	31.8
Vertical Beam Angle (50%)	31.8
Horizontal Field Angle (10%)	54.2
Vertical Field Angle (10%)	54.2
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	103
Beam Efficiency	N.A.
Field Lumens	163
Field Efficiency	N.A.
Spill Lumens	42
Luminaire Lumens	207
Total Efficiency	N.A.
Total Luminaire Watts	4.2
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L111605701.IES

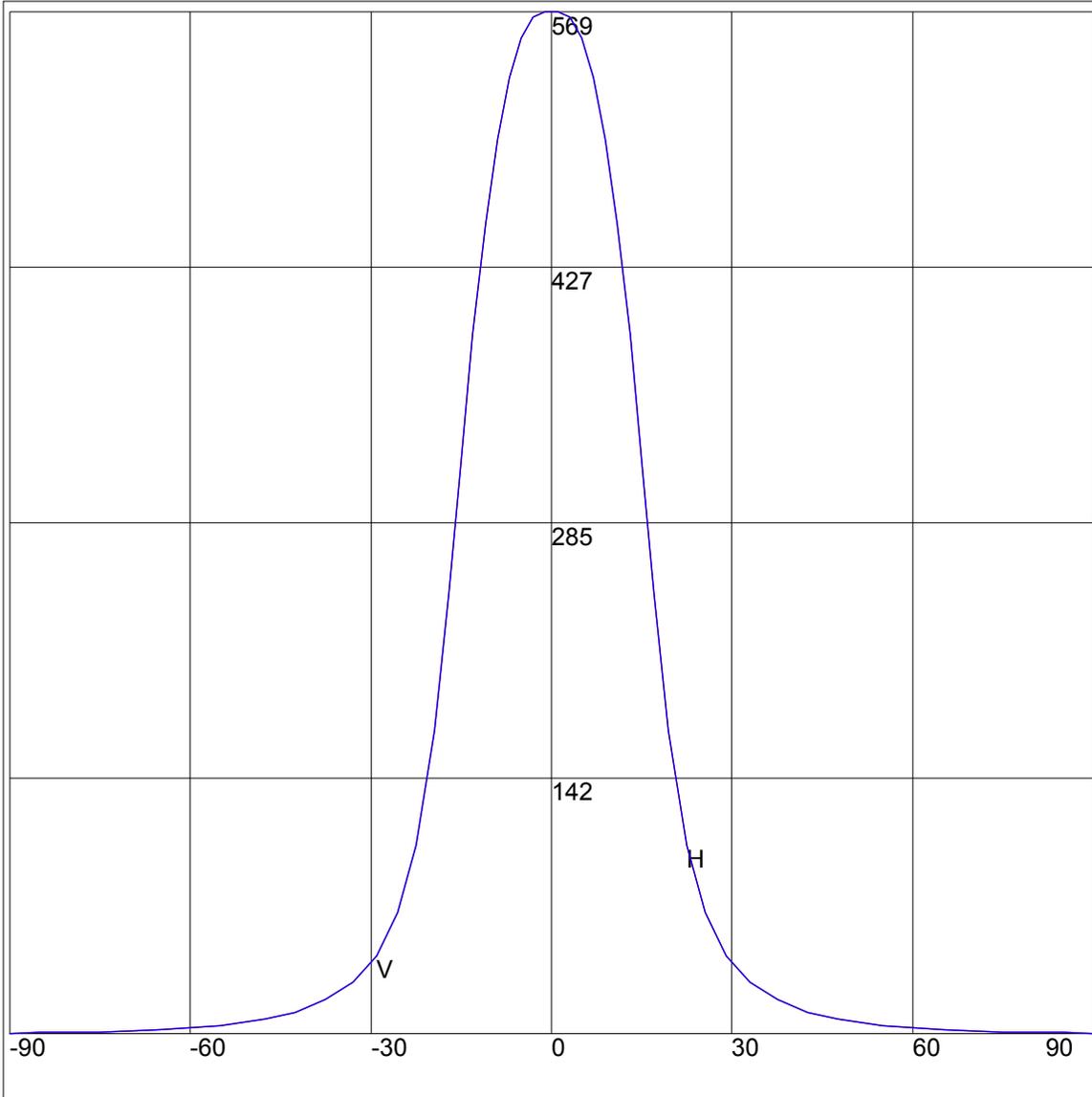
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	.55	90	.55
85	.77	85	.77
75	1.37	75	1.37
65	2.4	65	2.4
55	4.8	55	4.8
47.5	8.51	47.5	8.51
42.5	12.31	42.5	12.31
37.5	19.16	37.5	19.16
33	28.87	33	28.87
29	43.54	29	43.54
25.5	67.96	25.5	67.96
22.5	105.52	22.5	105.52
19.5	169.1	19.5	169.1
17	245.67	17	245.67
15	316.67	15	316.67
13	389.39	13	389.39
11	450.89	11	450.89
9	498.24	9	498.24
7	532.54	7	532.54
5	554.88	5	554.88
3	566.67	3	566.67
1	568.88	1	568.88
0	569.24	0	569.24
-1	568.88	-1	568.88
-3	566.67	-3	566.67
-5	554.88	-5	554.88
-7	532.54	-7	532.54
-9	498.24	-9	498.24
-11	450.89	-11	450.89
-13	389.39	-13	389.39
-15	316.67	-15	316.67
-17	245.67	-17	245.67
-19.5	169.1	-19.5	169.1
-22.5	105.52	-22.5	105.52
-25.5	67.96	-25.5	67.96
-29	43.54	-29	43.54
-33	28.87	-33	28.87
-37.5	19.16	-37.5	19.16
-42.5	12.31	-42.5	12.31
-47.5	8.51	-47.5	8.51
-55	4.8	-55	4.8
-65	2.4	-65	2.4
-75	1.37	-75	1.37
-85	.77	-85	.77
-90	.55	-90	.55

ZONAL LUMEN SUMMARY

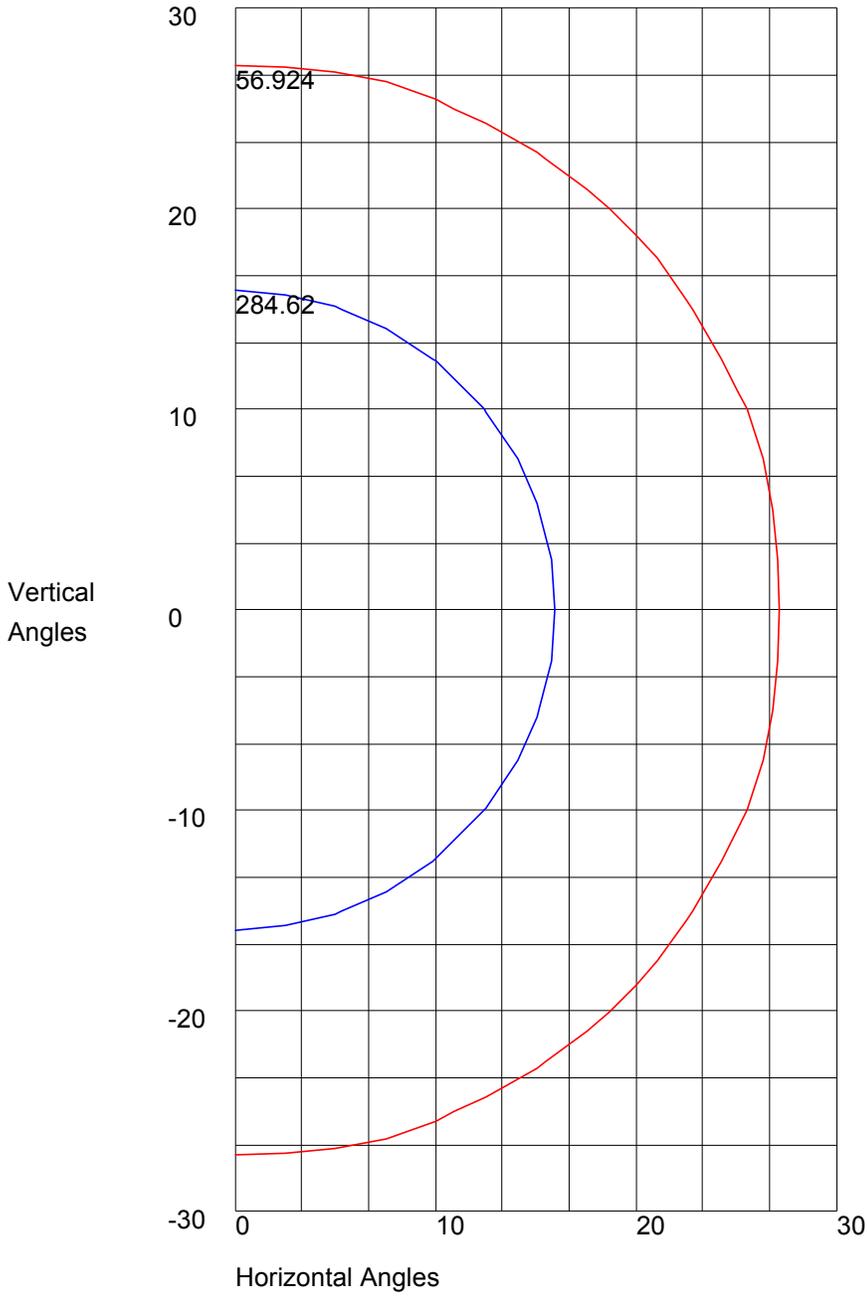
Zone	%
0-20	64.1
0-30	82.3
0-40	89.6
0-60	96.3
0-80	98.9
0-90	99.6
10-90	79.5
20-40	25.5
20-50	30.1
40-70	8.4
60-80	2.6
70-80	0.9
80-90	0.7
90-110	0.3
90-120	0.4
90-130	0.4
90-150	0.4
90-180	0.4
110-180	0.1
0-180	100

AXIAL CANDELA DISPLAY



Maximum Candela = 569.24 Located At Horizontal Angle = 0, Vertical Angle = 0
H - Horizontal Axial Candela
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 569.24 Located At Horizontal Angle = 0, Vertical Angle = 0
50% Maximum Candela = 284.62
10% Maximum Candela = 56.924