



IES File

Performance Summary

The performance data in black text is confirmed through third party testing (see the following Light Laboratories report for details). The performance data in grey text is calculated by Vode. For reference only.



WingRail LED - Button board™ with 36° Medium Optic, High Output

WingRail LED, 48", 3500K, Button board with 36° medium optic, high output

107-WG-01-4-48-X-X-X-X-X-X-B-HO-35-36-X-X-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	57	60	63	65
Total Lumens, 4' rail length (1219mm)	2898	3019	3145	3271
Lumens per foot (305mm)	724	754	786	817
Input Power (W), 4' rail length (1219mm)	50.3	50.3	50.3	50.3
Watts per foot (305mm)	12.6	12.6	12.6	12.6
Center Beam Candela	-	-	7412 @ 0°	-
CRI (>80min., 85 avg.)	-	-	82	-



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Report No: L031509509

Date: 4/1/2015



NVLAP LAB CODE 200927-0

Report No: L031509509

Report Prepared For: Vode Lighting
 1206 E MacArthur Street Suit 3, Sonoma, CA 95476

Model Number: 107-WG-48-B-HO-36-AL

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 107-WG-48-B-HO-36-AL . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Driver was set to 1756mA.

Sample Arrival Date: 3/23/15

Date of Tests: 3/30/15 - 4/1/15

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-S1	11/10/15
Xitron Power Analysis System	2503AH	MT-EL01	10/20/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/05/16
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:	Vode Lighting
Model Number:	107-WG-48-B-HO-36-AL
Driver Model Number:	OSRAM OPTOTRONIC OT48W/PRG2000C/UNV/DIM-1/L
Total Lumens:	3145.44
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.42
Input Power (W):	50.29
Input Power Factor:	1.00
Current ATHD @ 120V(%):	8%
Current ATHD @ 277V(%):	N/A
Efficacy:	63
Color Rendering Index (CRI):	82
Correlated Color Temperature (K):	3502
Chromaticity Coordinate x:	0.4054
Chromaticity Coordinate y:	0.3912
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:50
Off State Power(W):	0.00

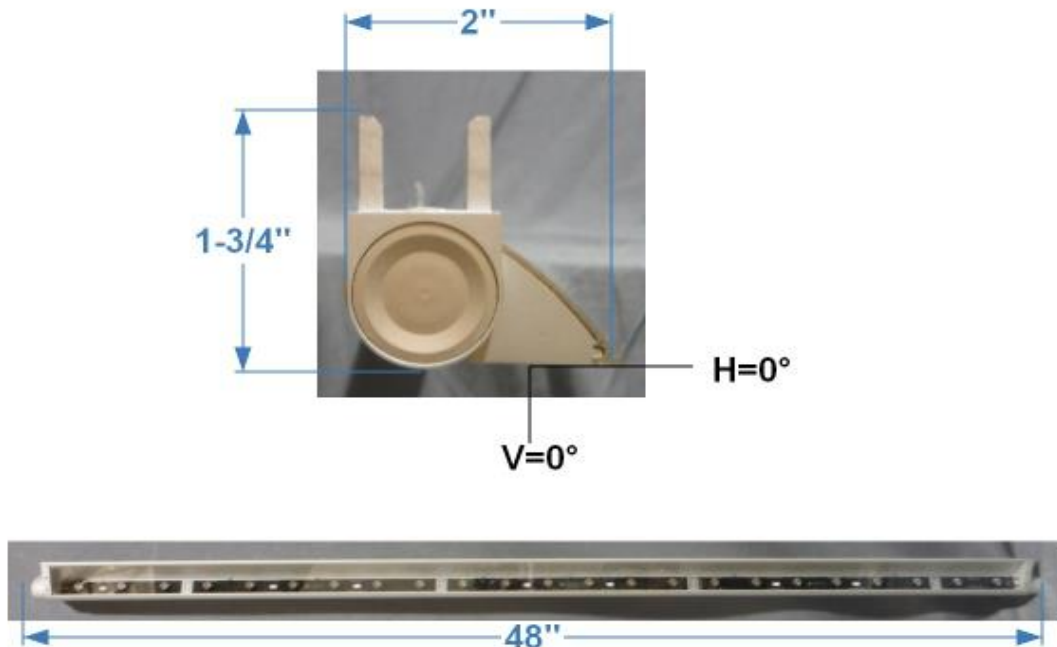
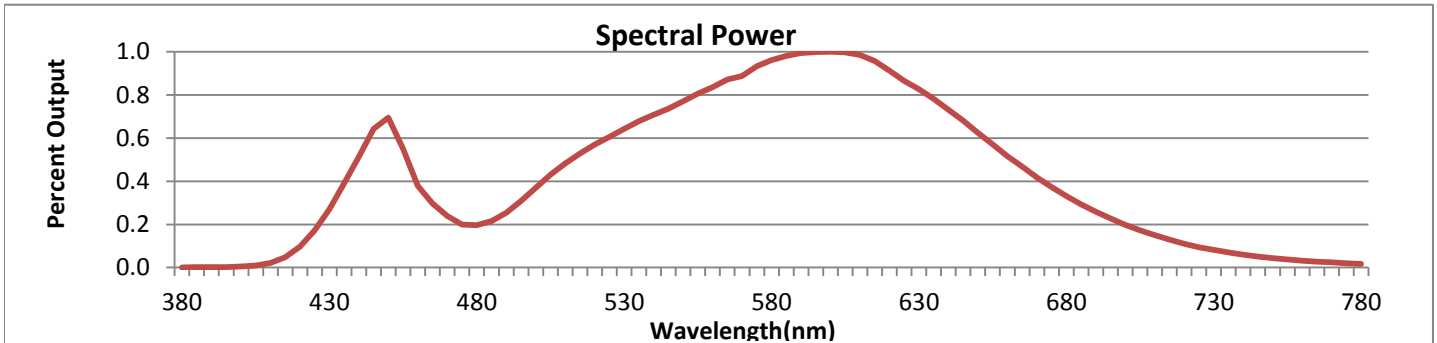


FIG. 1 LUMINAIRE

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



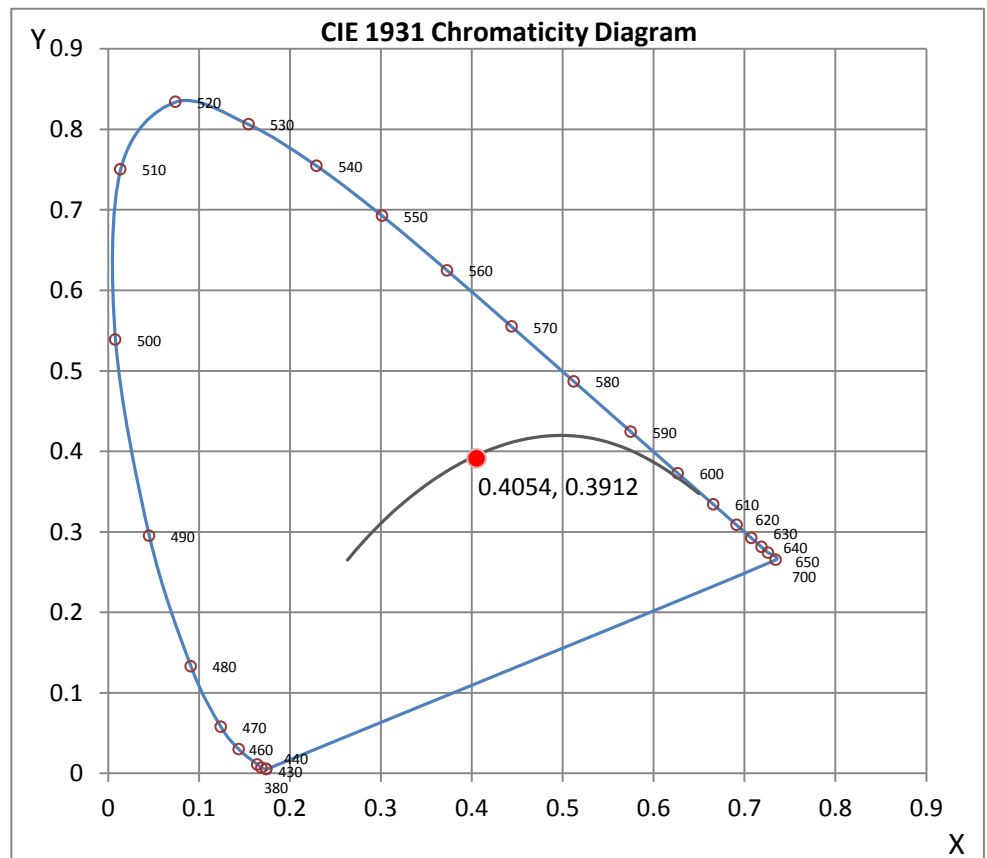
Wavelength	W/m ² nm	440	0.5140	510	0.4834	580	0.9614	650	0.6258	720	0.1097
380	0.0012	450	0.6954	520	0.5700	590	0.9950	660	0.5176	730	0.0815
390	0.0016	460	0.3786	530	0.6431	600	1.0000	670	0.4168	740	0.0597
400	0.0043	470	0.2400	540	0.7087	610	0.9864	680	0.3313	750	0.0437
410	0.0210	480	0.1956	550	0.7709	620	0.9127	690	0.2584	760	0.0318
420	0.0975	490	0.2540	560	0.8362	630	0.8276	700	0.1985	770	0.0235
430	0.2701	500	0.3706	570	0.8879	640	0.7324	710	0.1503	780	0.0173

CRI & CCT

x	0.4054
y	0.3912
u'	0.2356
v'	0.5115
CRI	82.30
CCT	3502
Duv	0.00019

R Values

R1	80.90
R2	87.12
R3	92.08
R4	82.26
R5	80.35
R6	82.18
R7	86.65
R8	66.92
R9	16.95
R10	69.44
R11	80.59
R12	64.99
R13	81.85
R14	95.10



*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: 11*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L0315109509.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L031509509
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 4/1/2015
[MANUFAC] VODE LIGHTING
[LUMCAT] 107-WG-48-B-HO-36-AL
[LUMINAIRE] 2"L. X 48"W. X 1-3/4"H. LED LUMINAIRE
[MORE] CLEAR LENS
[BALLASTCAT] OSRAM OPTOTRONIC OT48W/PRG2000C/UNV/DIM-1/L
[BALLAST] INPUT: 120-277VAC, 0.52-0.23A, 50/60HZ OUTPUT: 48W, 10-55VDC, 700-2000mA
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[TEST CONDITION] DRIVER WAS SET TO 1756mA.
[INPUT] 120VAC, 50.29W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3145
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	63
Total Luminaire Watts	50.29
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	4.04
Spacing Criterion (90-270)	0.96
Spacing Criterion (Diagonal)	1.72
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.13 ft
Luminous Width (90-270)	3.83 ft
Luminous Height	0.00 ft

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L0315109509.IES

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	210540	23017	3751
55	164496	12345	3107
65	64637	7607	2177
75	23226	6836	1344
85	4332	4671	553

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L0315109509.IES

CANDELA TABULATION

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
0.0	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91
5.0	422.45	421.42	418.42	413.97	407.62	400.17	391.26	381.57	371.12	359.90
15.0	1575.14	1555.17	1497.51	1411.22	1302.65	1176.00	1044.64	920.05	804.11	696.23
25.0	4769.46	4705.20	4502.97	4185.92	3711.20	3209.66	2637.52	2063.05	1571.03	1200.51
35.0	7107.07	6963.97	6570.65	5971.68	5243.33	4421.57	3502.81	2541.97	1729.90	1178.31
37.5	7367.56	7200.47	6737.75	6097.65	5335.01	4399.29	3411.46	2432.80	1630.58	1084.23
40.0	7412.12	7240.74	6760.02	6089.94	5273.32	4317.02	3277.61	2246.60	1450.81	946.44
42.5	7237.31	7060.79	6593.79	5920.27	5053.95	3850.28	3015.58	1999.99	1264.52	815.59
45.0	6892.84	6736.03	6260.46	5593.79	4766.89	3700.40	2668.71	1719.01	1086.37	753.55
47.5	6406.13	6256.17	5837.15	5194.48	4305.89	3288.15	2272.74	1435.72	891.17	578.49
50.0	5820.01	5688.05	5264.75	4632.36	3699.55	2782.59	1871.11	1172.49	778.74	480.55
52.5	5144.78	5011.11	4621.22	4002.55	3162.79	2252.34	1496.99	943.52	598.71	383.46
55.0	4368.44	4234.76	3840.59	3244.62	2513.52	1765.80	1183.80	781.14	492.37	327.85
57.5	3480.70	3358.68	3019.00	2511.81	1919.01	1363.92	931.27	607.88	385.60	264.52
60.0	2582.33	2486.53	2215.67	1846.00	1446.44	1057.23	729.56	486.80	321.76	219.28
62.5	1821.93	1762.11	1589.19	1355.69	1090.14	821.50	584.14	384.66	256.04	178.75
65.0	1264.77	1228.01	1129.13	989.11	815.85	636.93	444.04	308.82	206.51	148.84
67.5	882.77	862.12	801.88	717.73	614.99	485.00	355.87	245.16	170.27	126.82
70.0	615.42	603.85	568.98	518.76	452.87	366.32	277.29	194.09	138.82	108.05
72.5	425.88	418.42	397.60	364.18	327.68	273.69	212.00	154.33	115.51	94.00
75.0	278.32	275.49	267.01	252.44	229.99	198.97	160.33	122.79	97.43	81.92
77.5	166.75	165.98	163.50	158.87	151.50	138.13	118.08	96.92	81.23	70.69
80.0	80.03	80.38	81.92	84.75	87.23	85.78	79.09	70.52	63.41	57.33
85.0	17.48	17.57	18.42	19.71	20.74	21.17	21.08	20.91	20.22	18.85
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. Angles **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>	<u>95</u>
0.0	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91
5.0	349.10	338.39	326.82	315.59	304.88	294.51	284.75	276.01	267.52	260.84
15.0	601.28	521.59	451.50	392.37	345.16	305.48	273.78	249.61	230.85	215.68
25.0	914.65	711.22	553.12	436.76	346.87	283.97	238.73	209.51	190.32	178.49
35.0	818.16	581.23	422.11	316.71	249.36	204.71	178.66	163.32	154.41	149.61
37.5	767.01	509.51	366.49	274.72	218.68	183.63	163.50	152.61	146.36	142.16
40.0	628.96	438.64	317.31	239.16	191.86	165.81	151.33	143.62	138.56	134.10
42.5	545.84	374.72	268.81	206.85	170.18	150.21	140.36	135.05	130.76	125.79
45.0	456.21	318.42	230.68	179.95	152.44	138.30	131.45	127.25	122.79	116.79
47.5	381.66	270.61	199.40	159.90	137.96	126.91	122.54	119.11	113.71	106.60
50.0	322.71	229.99	173.61	141.56	124.68	116.97	113.62	109.94	103.94	96.14
52.5	272.24	196.49	152.70	127.42	113.28	106.68	103.86	100.00	93.40	85.43
55.0	226.22	168.64	134.79	114.14	102.40	96.49	93.32	88.95	82.52	75.32
57.5	188.77	145.07	119.02	103.00	92.46	86.20	82.52	78.06	71.55	65.12
60.0	158.87	125.02	105.06	91.52	83.03	76.26	71.29	66.67	61.10	55.44
62.5	134.10	108.74	92.29	83.03	72.92	66.58	61.27	56.47	51.50	46.53
65.0	116.11	95.54	82.95	71.21	63.75	57.16	51.59	46.96	42.59	38.65
67.5	101.20	84.58	72.07	61.70	54.76	48.33	42.67	38.47	34.70	31.53
70.0	89.20	75.66	63.84	53.38	45.84	39.93	34.79	31.02	27.76	25.28
72.5	81.23	67.95	55.61	45.76	37.45	31.71	27.34	24.16	21.51	19.97
75.0	71.55	60.07	47.90	37.36	29.99	24.08	20.22	17.65	16.11	15.00
77.5	61.27	51.07	39.67	29.73	22.97	17.57	14.14	12.25	11.40	10.54
80.0	49.79	40.70	30.59	22.45	16.62	12.43	9.17	8.06	7.37	6.94
85.0	16.20	13.63	11.74	8.91	6.68	4.71	3.09	2.31	2.23	1.89
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L0315109509.IES

CANDELA TABULATION - (Cont.)

Vert. Angles	Horizontal Angles									
	<u>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
0.0	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91	275.91
5.0	254.07	247.90	242.33	237.53	233.08	229.48	226.31	223.39	221.08	219.11
15.0	204.97	196.74	190.74	186.20	182.95	180.29	178.41	176.78	175.58	174.89
25.0	172.24	168.72	166.75	165.64	164.61	163.41	161.52	159.30	157.33	155.70
35.0	146.19	142.50	138.82	134.96	131.11	127.93	125.45	123.31	121.76	121.08
37.5	138.13	133.76	129.13	124.68	120.48	117.14	114.74	113.02	111.74	110.97
40.0	129.48	124.42	118.94	113.88	109.85	106.77	104.63	102.91	101.71	101.11
42.5	120.22	114.05	108.31	103.51	99.57	96.66	94.52	93.32	92.37	91.52
45.0	110.20	103.60	98.03	93.66	89.97	87.32	85.52	84.66	83.72	82.43
47.5	99.57	93.32	88.00	84.06	80.89	78.66	77.12	76.09	74.72	72.75
50.0	89.03	83.12	78.58	75.06	72.24	70.35	68.98	67.44	65.55	63.15
52.5	79.01	73.69	69.58	66.50	64.10	62.55	61.01	58.87	56.38	53.47
55.0	69.24	64.52	61.10	58.61	56.64	55.10	53.04	50.30	47.39	44.22
57.5	59.90	56.13	53.30	51.16	49.61	47.64	45.07	41.90	38.47	35.82
60.0	51.24	48.24	45.93	44.22	42.59	40.10	37.10	33.68	31.02	28.45
62.5	43.19	41.13	39.16	37.70	35.73	32.91	29.48	26.65	24.08	22.02
65.0	35.99	34.45	32.99	31.45	28.79	25.62	22.97	20.22	18.34	16.97
67.5	29.39	28.28	27.16	25.28	22.11	19.45	16.97	15.25	13.97	13.11
70.0	23.65	22.54	21.51	19.02	16.45	14.05	12.43	11.31	10.71	10.20
72.5	18.42	17.22	15.94	13.80	11.31	9.94	9.00	8.48	8.14	7.88
75.0	13.63	12.34	10.71	9.00	7.63	6.94	6.51	6.26	6.08	5.91
77.5	9.51	8.23	6.77	5.74	5.14	4.80	4.54	4.46	4.37	4.28
80.0	6.26	5.06	3.94	3.51	3.34	3.17	3.09	3.00	2.91	2.91
85.0	1.37	1.20	1.20	1.20	1.11	1.11	1.11	1.03	0.94	0.77
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. Angles	Horizontal Angles						
	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	275.91	275.91	275.91	275.91	275.91	275.91	275.91
5.0	217.48	216.11	214.99	214.22	213.62	213.02	213.02
15.0	174.29	174.12	174.12	174.29	174.38	174.21	174.29
25.0	155.18	155.70	157.41	159.81	162.04	163.67	164.35
35.0	121.25	122.96	125.71	129.13	132.30	134.79	136.08
37.5	111.14	112.25	114.14	116.54	118.85	120.65	121.51
40.0	100.86	101.03	101.80	102.91	104.03	105.14	105.91
42.5	90.57	89.72	89.12	89.03	89.12	89.55	89.97
45.0	80.72	78.92	77.29	76.18	75.41	75.24	75.58
47.5	70.44	67.95	65.81	63.92	62.81	62.21	62.38
50.0	60.24	57.58	55.10	53.13	51.76	51.07	51.07
52.5	50.56	47.73	45.33	43.53	42.33	41.56	41.47
55.0	41.30	39.16	37.10	35.39	34.28	33.51	33.42
57.5	33.42	31.36	29.73	28.45	27.51	26.91	26.91
60.0	26.31	24.85	23.57	22.71	21.94	21.51	21.42
62.5	20.57	19.45	18.51	17.91	17.48	17.14	17.14
65.0	16.02	15.25	14.74	14.40	14.05	13.88	13.88
67.5	12.60	12.17	11.83	11.57	11.40	11.31	11.31
70.0	9.85	9.60	9.34	9.34	9.17	9.08	9.08
72.5	7.63	7.46	7.37	7.28	7.20	7.20	7.20
75.0	5.74	5.74	5.66	5.57	5.57	5.48	5.48
77.5	4.20	4.20	4.11	4.11	4.11	4.11	4.11
80.0	2.91	2.91	2.91	2.91	2.91	2.91	2.91
85.0	0.69	0.51	0.51	0.51	0.51	0.51	0.51

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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IES INDOOR REPORT
PHOTOMETRIC FILENAME : L0315109509.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	81.51	N.A.	2.60
0-30	365.94	N.A.	11.60
0-40	1436.71	N.A.	45.70
0-60	2842.29	N.A.	90.40
0-80	3133.82	N.A.	99.60
0-90	3145.44	N.A.	100.00
10-90	3138.65	N.A.	99.80
20-40	1355.19	N.A.	43.10
20-50	2201.93	N.A.	70.00
40-70	1626.65	N.A.	51.70
60-80	291.53	N.A.	9.30
70-80	70.47	N.A.	2.20
80-90	11.62	N.A.	0.40
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	3145.44	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

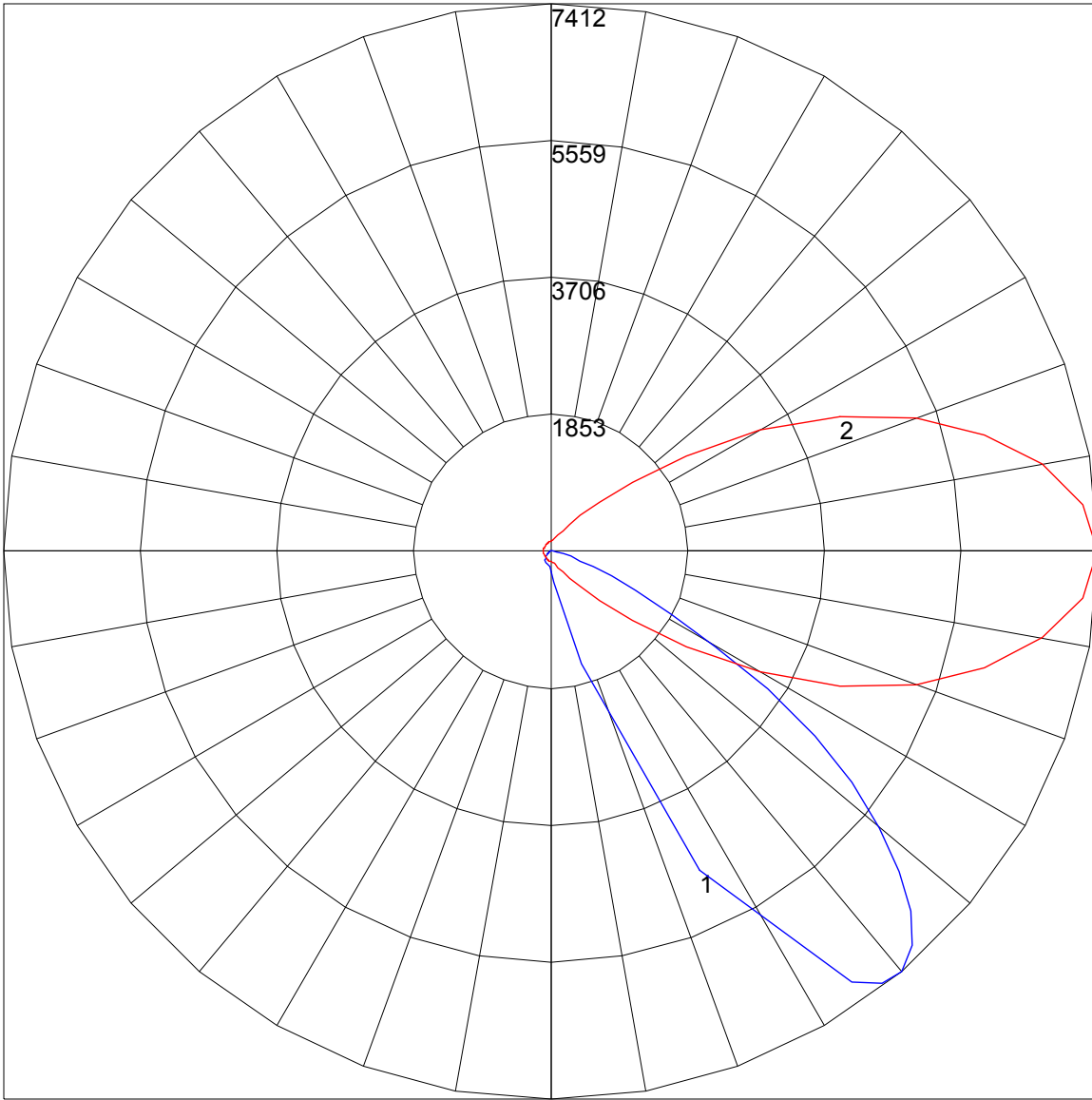
Zone	Lumens
0-10	6.79
10-20	74.72
20-30	284.42
30-40	1070.77
40-50	846.74
50-60	558.85
60-70	221.06
70-80	70.47
80-90	11.62
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	75	73
3	91	81	73	67	89	80	72	66	77	70	65	74	69	64	71	67	63	61
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	63	58	53	51
5	76	63	54	47	74	62	53	47	59	52	46	57	51	46	56	50	45	43
6	69	55	46	40	67	55	46	40	53	45	39	51	44	39	49	43	39	36
7	63	49	40	34	61	48	40	34	47	39	34	45	38	33	44	38	33	31
8	58	44	35	29	56	43	35	29	42	34	29	41	34	29	39	33	28	26
9	54	39	31	25	52	39	31	25	38	30	25	37	30	25	36	29	25	23
10	49	36	27	22	48	35	27	22	34	27	22	33	26	21	32	26	21	19

POLAR GRAPH



Maximum Candela = 7412.12 Located At Horizontal Angle = 0, Vertical Angle = 40
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (40) (Through Max. Cd.)