



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, Standard Output

WingRail LED, 48", 3500K, Button board with 36° medium optic, standard output  
107-WG-01-4-48-X-X-X-X-X-X-B-SO-35-36-X-X-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	64	67	70	73
Total Lumens, 4' rail length (1219mm)	1905	1984	2067	2150
Lumens per foot (305mm)	476	496	516	537
Input Power (W), 4' rail length (1219mm)	29.3	29.3	29.3	29.3
Watts per foot (305mm)	7.3	7.3	7.3	7.3
Center Beam Candela	-	-	4862 @ 0°	-
CRI (>80min., 85 avg.)	-	-	82	-



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

Report No: L031509508

Date: 4/1/2015



NVLAP LAB CODE 200927-0

**Report No:** L031509508

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

**Model Number:** 107-WG-48-B-SO-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-SO-36-AL . Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Driver was set to 1066mA.

**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**

<b>Manufacturer:</b>	Vode Lighting
<b>Model Number:</b>	107-WG-48-B-SO-36-AL
<b>Driver Model Number:</b>	OSRAM OPTOTRONIC OT48W/PRG2000C/UNV/DIM-1/L
<b>Total Lumens:</b>	2067.63
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.25
<b>Input Power (W):</b>	29.34
<b>Input Power Factor:</b>	0.99
<b>Current ATHD @ 120V(%):</b>	8%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	70
<b>Color Rendering Index (CRI):</b>	82
<b>Correlated Color Temperature (K):</b>	3473
<b>Chromaticity Coordinate x:</b>	0.4073
<b>Chromaticity Coordinate y:</b>	0.3927
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:50
<b>Total Operating Time (Hours):</b>	1:35
<b>Off State Power(W):</b>	0.00

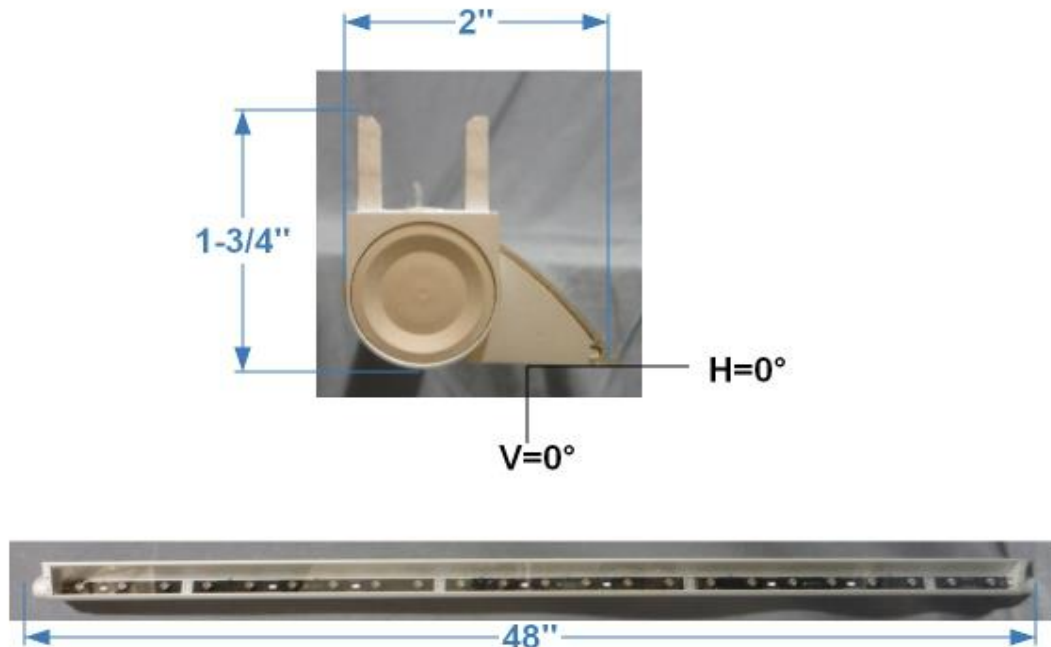
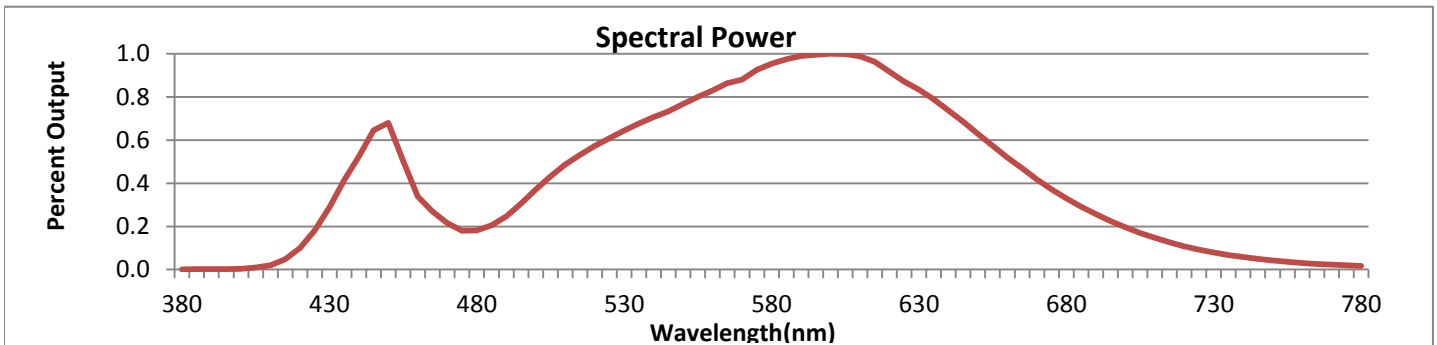


FIG. 1 LUMINAIRE

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



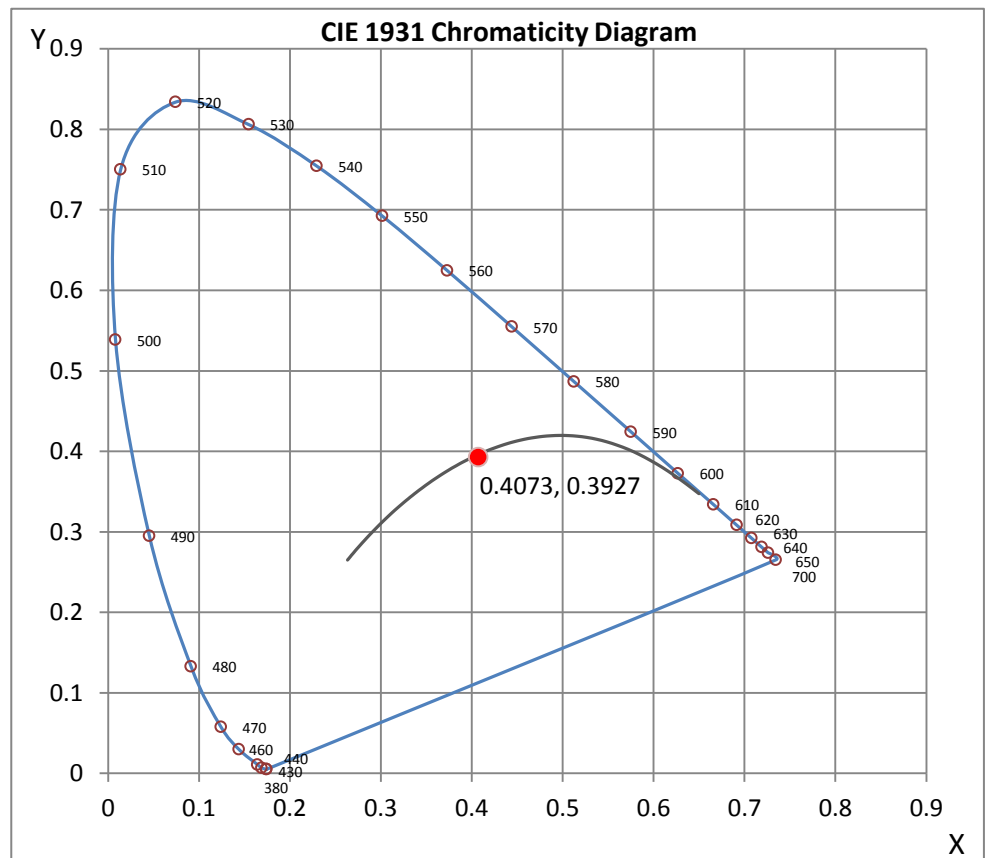
Wavelength	W/m <sup>2</sup> nm	440	0.5237	510	0.4870	580	0.9546	650	0.6303	720	0.1073
380	0.0012	450	0.6799	520	0.5726	590	0.9902	660	0.5197	730	0.0793
390	0.0015	460	0.3384	530	0.6439	600	1.0000	670	0.4172	740	0.0578
400	0.0040	470	0.2152	540	0.7069	610	0.9894	680	0.3306	750	0.0421
410	0.0203	480	0.1813	550	0.7670	620	0.9178	690	0.2567	760	0.0302
420	0.1003	490	0.2475	560	0.8294	630	0.8349	700	0.1962	770	0.0224
430	0.2879	500	0.3716	570	0.8807	640	0.7383	710	0.1481	780	0.0163

**CRI & CCT**

x	0.4073
y	0.3927
u'	0.2362
v'	0.5124
CRI	82.40
CCT	3473
Duv	0.00043

**R Values**

R1	81.11
R2	86.89
R3	91.69
R4	82.72
R5	80.56
R6	82.07
R7	86.68
R8	67.26
R9	17.65
R10	69.09
R11	81.45
R12	65.36
R13	81.90
R14	94.86



\*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: 12*



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

# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L0315109508.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L031509508  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 4/1/2015  
 [MANUFAC] VODE LIGHTING  
 [LUMCAT] 107-WG-48-B-SO-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 1066mA.  
 [INPUT] 120VAC, 29.34W  
 [TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2068
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	70
Total Luminaire Watts	29.34
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	3.90
Spacing Criterion (90-270)	0.94
Spacing Criterion (Diagonal)	1.68
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 : L0315109508.IES**

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	134741	13631	2494
55	100079	8041	2065
65	37198	4896	1445
75	12857	4355	901
85	2166	2505	362

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L0315109508.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>
<b>0.0</b>	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39
<b>5.0</b>	310.02	309.34	307.11	303.68	298.88	292.97	286.20	278.49	270.18	261.78
<b>15.0</b>	1199.31	1184.57	1142.58	1074.54	988.25	892.63	793.31	692.88	599.48	518.25
<b>25.0</b>	3317.03	3272.22	3136.91	2926.63	2636.40	2290.22	1891.42	1501.88	1155.95	879.86
<b>35.0</b>	4745.47	4653.78	4385.58	4004.26	3530.14	2976.84	2378.65	1745.06	1199.22	816.02
<b>37.5</b>	4862.01	4752.33	4450.70	4035.11	3525.17	2953.45	2313.78	1671.03	1117.56	765.38
<b>40.0</b>	4836.30	4728.33	4421.57	3993.98	3468.27	2849.34	2181.56	1509.67	981.83	714.91
<b>42.5</b>	4673.49	4567.24	4262.18	3792.61	3295.18	2669.22	1981.91	1346.35	857.75	558.09
<b>45.0</b>	4411.28	4317.02	4033.39	3584.55	3074.36	2414.21	1734.35	1129.21	744.55	446.27
<b>47.5</b>	4065.10	3975.12	3611.12	3296.38	2743.26	2101.10	1461.52	946.52	596.48	380.29
<b>50.0</b>	3660.65	3572.39	3323.80	2926.37	2379.85	1751.23	1189.20	778.14	479.77	317.22
<b>52.5</b>	3197.24	3111.89	2867.85	2463.74	1942.49	1404.70	946.18	606.34	385.60	259.21
<b>55.0</b>	2657.74	2575.91	2332.63	1969.57	1533.92	1093.31	734.44	484.74	319.19	213.54
<b>57.5</b>	2062.20	1993.56	1790.56	1498.96	1159.63	839.58	584.06	382.77	253.64	171.72
<b>60.0</b>	1494.76	1441.81	1299.14	1090.74	862.12	647.21	444.38	308.22	203.00	140.02
<b>62.5</b>	1046.95	1013.70	920.73	795.45	653.90	501.54	359.47	244.99	165.12	116.37
<b>65.0</b>	727.85	709.85	656.64	582.17	490.66	380.80	284.49	193.66	131.70	95.80
<b>67.5</b>	508.31	497.26	466.84	420.56	359.30	295.20	220.22	152.78	106.94	80.72
<b>70.0</b>	353.90	345.59	329.56	302.40	267.18	220.56	167.01	120.91	88.60	69.84
<b>72.5</b>	244.56	240.87	229.65	212.85	191.26	162.04	128.28	95.54	73.09	60.24
<b>75.0</b>	154.07	152.78	148.93	142.84	132.82	116.54	96.23	75.58	60.93	52.19
<b>77.5</b>	87.92	87.75	87.49	86.63	83.98	78.23	69.49	58.87	50.30	44.39
<b>80.0</b>	36.85	36.85	37.19	38.13	40.45	43.19	43.53	40.62	37.53	34.88
<b>85.0</b>	8.74	8.91	9.51	10.37	11.14	11.40	11.40	11.14	10.80	10.11
<b>90.0</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Vert. 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>
<b>0.0</b>	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39
<b>5.0</b>	252.87	244.21	235.30	226.56	218.34	210.62	203.00	196.06	189.55	183.46
<b>15.0</b>	447.04	383.80	331.28	285.95	249.78	219.02	195.20	176.35	161.27	150.04
<b>25.0</b>	666.32	510.62	395.37	309.34	246.53	198.89	165.64	143.87	129.48	120.22
<b>35.0</b>	560.15	390.32	293.91	219.71	170.52	140.10	120.57	109.25	102.57	98.97
<b>37.5</b>	500.77	349.78	251.24	187.75	148.84	123.82	109.68	101.63	96.74	94.09
<b>40.0</b>	407.88	299.23	216.11	162.30	129.65	111.14	100.60	95.03	91.60	88.86
<b>42.5</b>	369.41	253.98	182.09	138.99	114.14	99.91	92.80	89.12	86.38	83.46
<b>45.0</b>	306.94	213.97	156.64	121.42	101.29	91.17	86.29	83.72	81.66	77.63
<b>47.5</b>	259.81	180.89	133.42	106.00	90.92	83.38	80.55	78.41	75.41	71.21
<b>50.0</b>	213.54	152.96	116.37	93.74	82.35	76.78	74.55	72.49	69.07	64.27
<b>52.5</b>	179.18	130.16	101.03	83.89	74.38	69.92	68.12	66.07	62.13	57.33
<b>55.0</b>	148.16	110.80	88.77	75.15	67.27	63.24	61.10	58.78	54.84	50.30
<b>57.5</b>	121.94	94.60	80.72	67.61	60.58	56.38	53.98	51.41	47.56	43.36
<b>60.0</b>	103.17	81.92	68.55	59.90	53.90	49.70	46.79	44.04	40.62	37.02
<b>62.5</b>	87.57	70.78	60.07	52.87	47.64	43.44	40.02	37.10	34.19	31.19
<b>65.0</b>	78.92	62.13	53.04	46.44	41.47	37.36	33.85	31.02	28.28	25.79
<b>67.5</b>	65.47	55.10	46.87	40.19	35.56	31.53	28.19	25.45	23.05	21.08
<b>70.0</b>	58.01	49.10	41.30	34.70	29.65	25.96	22.71	20.39	18.42	16.97
<b>72.5</b>	51.67	43.96	35.99	29.48	24.25	20.65	17.91	15.85	14.31	13.28
<b>75.0</b>	45.50	38.39	30.93	24.34	19.37	15.68	13.20	11.65	10.80	10.03
<b>77.5</b>	38.82	32.22	25.36	19.19	14.74	11.40	9.25	8.06	7.63	7.03
<b>80.0</b>	30.93	25.36	19.37	14.22	10.54	7.88	6.00	5.23	4.88	4.71
<b>85.0</b>	8.91	7.37	6.08	5.23	4.11	2.91	2.06	1.46	1.46	1.29
<b>90.0</b>	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 : L0315109508.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	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39	195.39
5.0	178.15	173.35	168.98	165.12	161.70	158.87	156.30	153.98	152.10	150.47
15.0	141.47	134.70	129.65	126.05	123.22	121.25	119.79	118.59	117.65	116.97
25.0	114.82	111.65	110.11	109.25	108.57	108.05	107.11	105.91	104.71	103.68
35.0	96.83	94.69	92.63	90.32	88.17	86.20	84.92	83.63	82.60	82.09
37.5	91.77	89.20	86.46	84.06	81.41	79.35	77.81	76.61	75.84	75.49
40.0	86.12	83.29	79.95	76.95	74.38	72.41	70.95	69.92	69.24	68.89
42.5	80.38	76.61	73.01	70.01	67.44	65.64	64.27	63.50	62.90	62.55
45.0	73.61	69.58	66.07	63.07	60.84	59.21	58.01	57.41	56.90	56.21
47.5	66.84	62.73	59.30	56.73	54.58	53.13	52.27	51.59	50.90	50.04
50.0	59.73	55.78	52.87	50.56	48.76	47.56	46.79	45.93	44.99	43.62
52.5	53.04	49.53	46.87	44.90	43.27	42.42	41.47	40.36	38.82	37.19
55.0	46.36	43.36	41.13	39.50	38.30	37.45	36.25	34.70	32.91	31.11
57.5	40.10	37.79	35.90	34.53	33.68	32.56	31.02	29.05	27.16	25.19
60.0	34.36	32.56	30.93	29.91	28.96	27.59	25.79	23.57	21.77	20.14
62.5	29.05	27.68	26.39	25.62	24.42	22.79	20.65	18.85	17.14	15.77
65.0	24.08	23.14	22.28	21.42	19.97	17.91	16.20	14.40	13.11	12.17
67.5	19.79	19.02	18.42	17.31	15.51	13.80	12.08	10.80	9.94	9.34
70.0	15.85	15.25	14.74	13.37	11.57	9.94	8.83	8.14	7.54	7.20
72.5	12.34	11.65	10.97	9.51	8.06	7.11	6.43	6.00	5.74	5.57
75.0	9.17	8.40	7.54	6.34	5.48	4.97	4.63	4.37	4.37	4.20
77.5	6.51	5.66	4.71	4.11	3.60	3.34	3.34	3.17	3.17	3.09
80.0	4.28	3.51	2.83	2.49	2.31	2.31	2.23	2.23	2.23	2.23
85.0	0.94	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	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	195.39	195.39	195.39	195.39	195.39	195.39	195.39
5.0	149.19	148.07	147.13	146.44	146.10	145.76	145.67
15.0	116.71	116.45	116.45	116.45	116.54	116.54	116.54
25.0	103.17	103.43	104.28	105.66	107.03	108.14	108.65
35.0	82.35	83.55	85.60	88.09	90.40	92.37	93.23
37.5	75.66	76.52	78.23	80.21	82.01	83.80	84.32
40.0	68.98	69.32	70.18	71.38	72.49	73.69	74.21
42.5	62.21	61.95	61.95	62.21	62.64	63.50	63.58
45.0	55.44	54.50	53.73	53.21	52.96	53.30	53.30
47.5	48.67	47.22	45.93	44.90	44.30	44.30	44.22
50.0	41.90	40.27	38.65	37.45	36.59	36.42	36.33
52.5	35.48	33.68	32.05	30.76	29.91	29.65	29.65
55.0	29.13	27.51	26.22	25.19	24.34	23.99	23.99
57.5	23.65	22.37	21.08	20.14	19.54	19.28	19.19
60.0	18.77	17.57	16.80	16.11	15.68	15.42	15.42
62.5	14.65	13.88	13.28	12.85	12.51	12.25	12.17
65.0	11.40	10.88	10.45	10.11	10.03	9.85	9.77
67.5	8.91	8.57	8.31	8.14	8.14	8.06	8.06
70.0	6.94	6.77	6.68	6.60	6.51	6.51	6.51
72.5	5.40	5.40	5.23	5.23	5.14	5.14	5.14
75.0	4.11	4.11	4.03	4.03	4.03	3.94	3.94
77.5	3.09	3.09	3.09	3.09	3.09	3.09	3.09
80.0	2.23	2.23	2.23	2.23	2.23	2.23	2.23
85.0	0.69	0.69	0.69	0.60	0.60	0.51	0.51

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L0315109508.IES**

**CANDELA TABULATION - (Cont.)**

<b>90.0</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-------------	------	------	------	------	------	------	------

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L0315109508.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	59.22	N.A.	2.90
0-30	262.63	N.A.	12.70
0-40	990.17	N.A.	47.90
0-60	1885.99	N.A.	91.20
0-80	2061.23	N.A.	99.70
0-90	2067.63	N.A.	100.00
10-90	2062.8	N.A.	99.80
20-40	930.95	N.A.	45.00
20-50	1480.09	N.A.	71.60
40-70	1029.11	N.A.	49.80
60-80	175.24	N.A.	8.50
70-80	41.95	N.A.	2.00
80-90	6.40	N.A.	0.30
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	2067.63	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	4.83
10-20	54.39
20-30	203.42
30-40	727.53
40-50	549.14
50-60	346.68
60-70	133.29
70-80	41.95
80-90	6.40
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

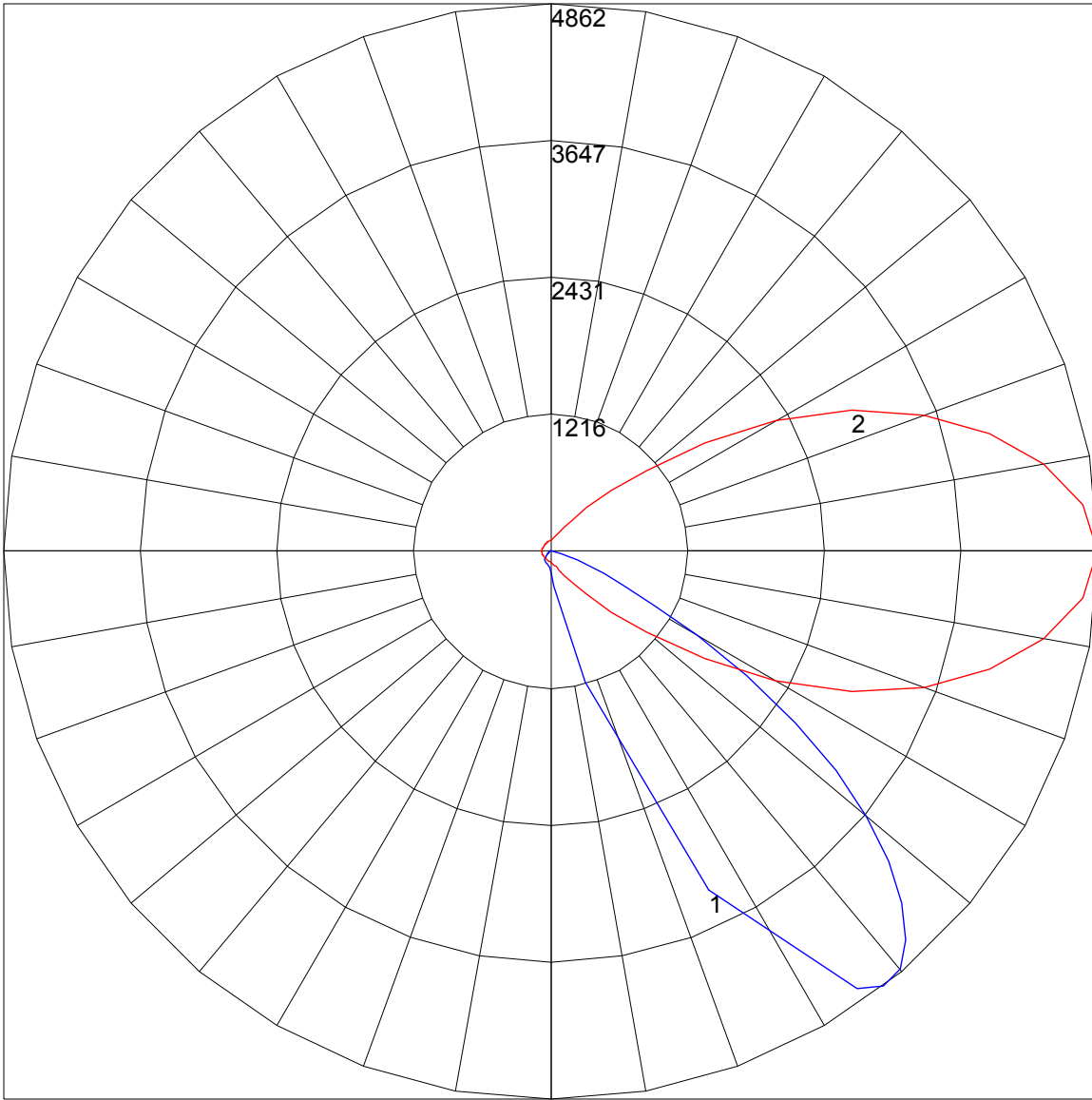
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L0315109508.IES**

**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	99	107	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	72	63	57	81	71	63	56	68	61	56	66	60	55	64	58	54	52
5	76	63	55	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	70	56	47	41	68	55	47	41	53	46	40	52	45	40	50	44	39	37
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	39	34	32
8	59	45	36	30	57	44	36	30	43	35	30	41	34	29	40	34	29	27
9	54	40	32	26	53	40	31	26	38	31	26	37	30	25	36	30	25	23
10	50	36	28	22	49	36	28	22	35	27	22	34	27	22	33	27	22	20

POLAR GRAPH



Maximum Candela = 4862.01 Located At Horizontal Angle = 0, Vertical Angle = 37.5  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (37.5) (Through Max. Cd.)