

IES Report

BoxRail® | 107 | 85° Asymmetric | 90 CRI | SO

107-BX-XX-4-48-XX-XX-XX-XX-X-X-Z-SO-359-A1-X-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	51	53	54	55
Total Lumens, 4' rail length (1219mm)	1216	1254	1280	1293
Lumens per foot (305mm)	304	314	320	323
Input Power (W), 4' rail length (1219mm)	23.9	23.9	23.9	23.9
Watts per foot (305mm)	6.0	6.0	6.0	6.0
CRI	94	94	94	94

Due to the large number of options in Vode's product offering, most Vode IES reports are factored reports prepared from source reports. Source reports are the IES test reports prepared for Vode by an NVLAP accredited photometric test laboratory. Factored reports are based on data from the Vode source reports.

If the data above is in black, it is directly from a Vode source report. If it is in grey, it is factored from Vode source reports. Reference details on Vode source reports can be found on the [IES File Finder](#) page on [vode.com](#).



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

Report No: L121911514



Report No: L121911514

Issue Date: 12/23/2019

Report Prepared For: Vode Lighting
 21684 8th Street East, Suite 700, Sonoma, CA 95476

Model Number: 107-BX-48-Z-SO-359-A1-BL

Test: Photometric/Colorimetric/Electrical Test

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. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 12/16/19

Date of Tests: 12/17/19 - 12/23/19

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-S4	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
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

General Information

Manufacturer:	Vode Lighting
Model Number:	107-BX-48-Z-SO-359-A1-BL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	1280.46
Efficacy:	53.55
Color Redering Index:	94.0
Correlated Color Temperature:	3411
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.2007
Input Power (W):	23.91
Input Power Factor:	0.9933
Current ATHD (%):	8.7%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:20

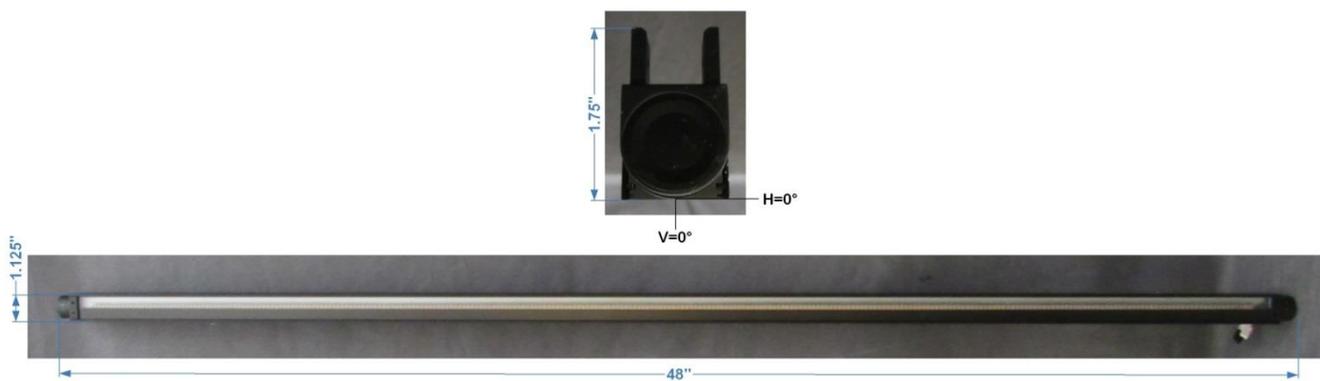
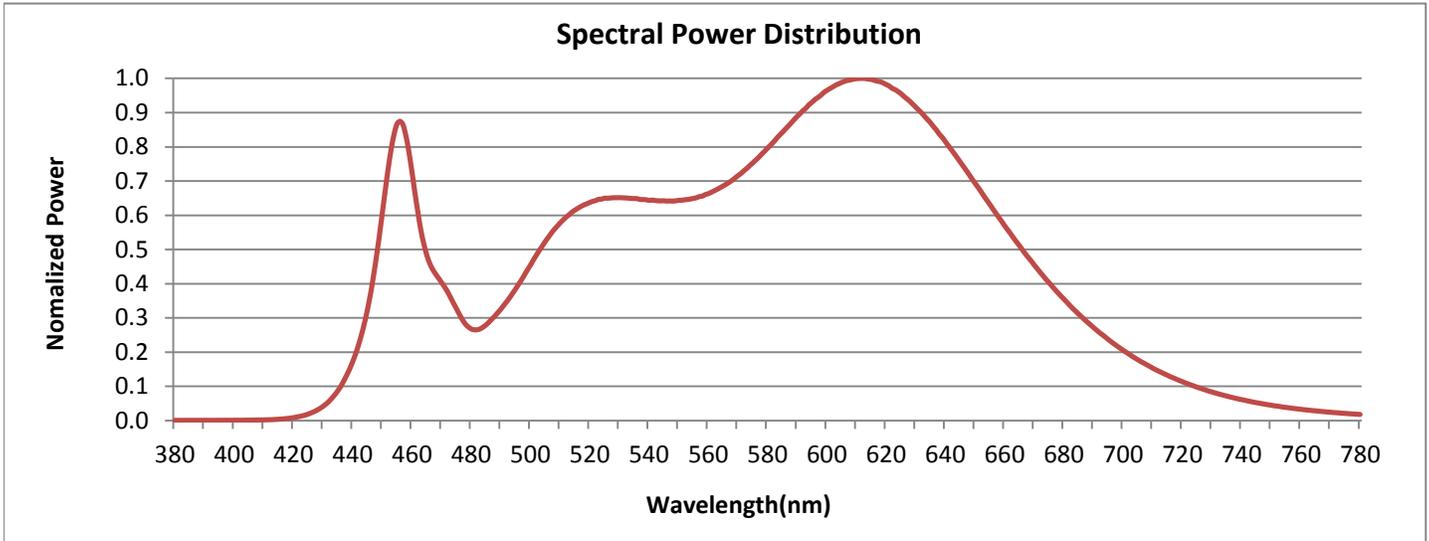


FIG. 1 LUMINAIRE

Colorimetry Test Results

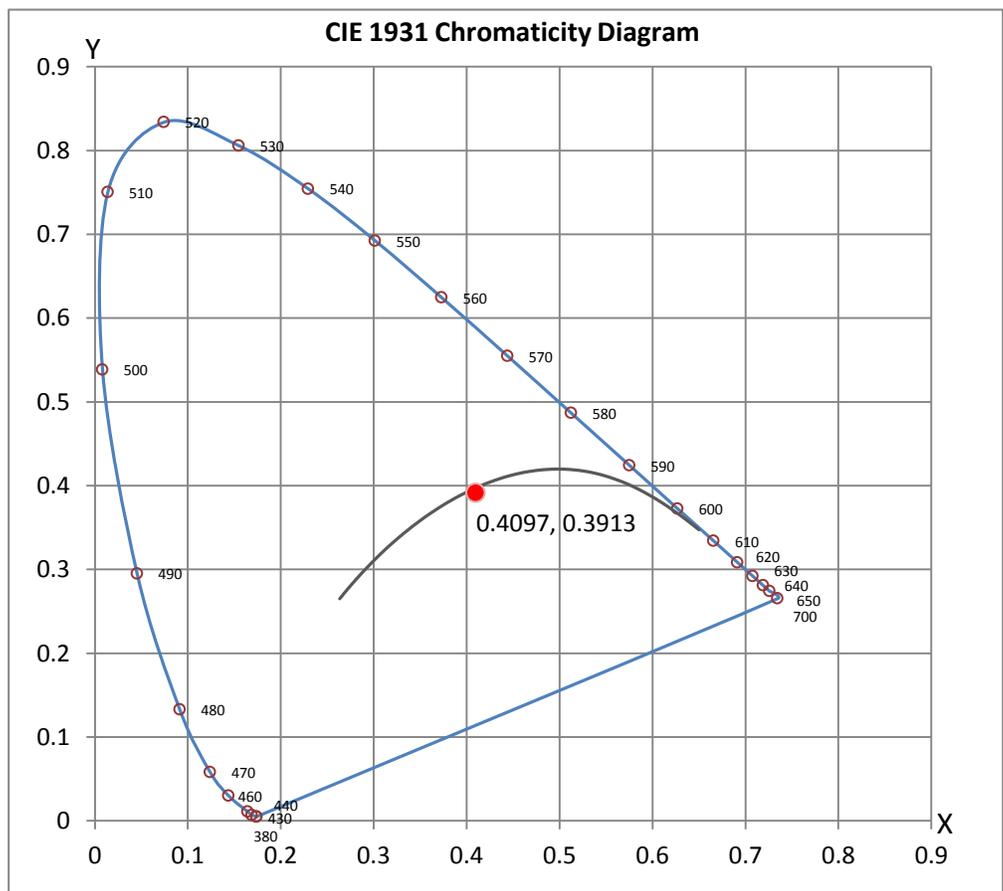


CRI & CCT

x	0.4097
y	0.3913
u'	0.2383
v'	0.5122
CRI	94.00
CCT	3411
Duv	-0.00069

R Values

R1	96.03
R2	98.99
R3	97.94
R4	96.19
R5	96.06
R6	95.78
R7	90.38
R8	80.83
R9	57.04
R10	97.32
R11	98.13
R12	77.12
R13	97.73
R14	99.63
R15	90.23



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 Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 10*



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www.lightlaboratory.com

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911514.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911514
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 12/23/2019
[MANUFAC] Vode Lighting
[LUMCAT] 107-BX-48-Z-SO-359-A1-BL
[LUMINAIRE] BoxRail LED, 48", 3500K, 90 CRI, zipper board, 85° black asymmetric lens,
[MORE] standard output, black anodized finish
[BALLASTCAT] MEAN WELL HLG-40H-36A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120.0VAC, 23.91W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1280
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	54
Total Luminaire Watts	23.91
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.52
Spacing Criterion (90-270)	1.06
Spacing Criterion (Diagonal)	1.08
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.04 ft
Luminous Width (90-270)	3.84 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	62363	48751	24716
55	49624	35280	15143
65	33300	23663	9845
75	12289	14037	6803
85	0	137	4041

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911514.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	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12
5	857.02	857.69	857.69	855.76	851.99	848.55	843.77	839.08	833.97	828.01
10	932.46	932.54	932.54	928.35	923.24	917.37	910.58	902.70	893.40	883.51
15	963.98	963.31	962.47	958.03	952.83	946.29	937.99	928.85	917.29	904.80
20	960.46	959.95	958.53	954.51	948.72	941.60	932.88	922.32	909.83	895.49
25	932.96	931.79	929.36	925.33	918.88	910.58	901.28	889.04	874.37	858.02
30	881.16	880.49	877.81	872.78	865.15	855.84	843.61	828.85	811.33	792.31
35	814.27	813.26	809.57	803.45	794.49	782.58	768.08	749.89	728.77	706.13
40	728.43	727.09	722.82	716.03	705.38	690.96	673.44	652.57	629.10	603.37
45	629.85	628.43	623.82	616.53	605.46	589.70	569.50	546.28	520.97	492.38
50	519.21	517.95	514.26	507.47	496.57	480.98	461.62	437.98	411.41	384.50
55	406.55	405.71	402.44	397.08	387.52	373.86	356.59	336.72	313.00	289.03
60	299.76	299.17	297.16	293.30	286.68	276.20	262.79	246.11	227.25	208.30
65	201.01	200.76	200.00	198.41	194.89	188.69	180.14	168.91	156.00	142.84
70	115.85	116.01	116.52	117.19	116.94	115.26	111.74	106.29	99.33	91.79
75	45.43	45.77	47.19	49.46	52.06	54.23	55.66	55.74	54.32	51.89
80	3.69	3.77	4.19	5.03	6.37	8.38	11.07	14.42	17.60	19.95
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
90	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	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12
5	822.15	814.85	807.31	801.95	791.97	781.74	772.86	807.73	798.01	788.37
10	872.02	859.11	845.11	831.79	814.02	795.57	776.71	799.18	779.15	757.77
15	889.96	873.11	854.25	834.64	811.67	785.26	759.03	770.34	742.18	712.09
20	878.73	859.53	838.16	815.52	787.70	757.10	724.91	725.41	690.21	650.31
25	839.08	817.29	793.14	768.08	738.41	703.20	666.99	658.10	617.87	575.12
30	771.10	746.96	720.13	691.72	660.70	625.50	588.19	572.77	529.68	486.52
35	681.66	654.41	625.66	595.15	563.97	529.27	491.46	472.43	432.62	391.21
40	574.78	545.36	515.69	485.68	455.50	423.56	390.03	371.17	337.06	300.26
45	462.88	434.29	405.29	377.04	348.62	323.73	295.48	277.46	249.63	219.03
50	356.50	331.27	305.12	280.64	258.09	236.38	214.34	198.75	177.62	155.24
55	264.80	242.59	220.88	201.93	183.83	167.31	154.40	139.57	124.06	107.80
60	189.44	171.76	156.08	142.00	129.26	117.10	105.79	97.40	86.59	75.53
65	130.10	117.35	106.54	96.90	87.93	79.72	73.60	66.56	59.43	52.22
70	84.16	76.36	69.57	63.46	57.92	52.89	49.12	44.59	39.98	35.29
75	48.62	45.01	41.66	38.39	35.37	32.52	30.51	27.91	25.15	22.38
80	21.04	20.96	20.20	19.28	18.02	16.85	16.09	15.01	13.66	12.24
85	0.59	1.68	3.44	5.03	5.53	5.62	5.53	5.37	5.03	4.69
90	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>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	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12	786.12
5	779.31	770.09	761.37	752.49	744.36	737.07	729.44	723.07	716.61	709.99
10	737.90	717.70	697.25	677.80	657.94	639.91	623.15	606.64	591.63	577.55
15	682.50	651.73	620.97	591.88	561.96	534.88	509.23	484.67	463.04	442.93
20	612.75	573.36	534.04	497.16	459.19	426.33	395.57	366.81	341.84	319.45
25	532.37	487.61	443.01	402.36	360.86	325.49	293.89	264.80	240.49	218.36
30	441.50	398.00	353.57	312.66	273.43	240.16	211.15	185.34	163.88	145.85
35	350.97	307.72	267.06	230.77	196.23	168.24	144.51	123.81	107.71	94.72

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CANDELA TABULATION - (Cont.)

40	264.63	227.25	194.39	164.80	137.47	115.93	98.16	83.32	71.33	62.70
45	190.62	162.28	137.22	115.01	94.89	79.13	67.90	56.58	48.79	42.58
50	134.37	113.92	95.81	79.55	68.23	55.74	47.11	40.07	34.87	30.76
55	92.96	79.13	69.24	55.49	46.69	39.48	33.70	29.09	25.73	23.05
60	65.22	55.91	47.28	40.15	33.87	29.17	25.32	22.30	20.03	18.27
65	45.52	39.23	33.61	28.92	24.81	21.71	19.28	17.27	15.76	14.50
70	31.10	27.08	23.56	20.54	18.11	16.09	14.42	13.16	12.07	11.23
75	20.03	17.69	15.59	13.92	12.41	11.23	10.23	9.47	8.80	8.22
80	11.07	9.98	8.97	8.22	7.46	6.96	6.37	5.95	5.62	5.37
85	4.36	4.02	3.77	3.60	3.35	3.19	3.02	2.60	2.43	2.18
90	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	786.12	786.12	786.12	786.12	786.12	786.12	786.12
5	704.63	698.93	695.32	693.90	691.88	768.42	769.67
10	565.06	553.74	544.52	539.24	535.13	608.48	609.57
15	425.41	409.98	397.58	390.37	383.75	445.02	445.94
20	299.84	283.41	270.33	261.87	255.08	299.84	300.26
25	201.26	186.68	175.19	167.73	162.03	190.28	190.62
30	131.94	120.46	111.40	105.70	101.26	118.44	118.36
35	84.41	75.86	69.57	66.05	62.95	72.84	72.93
40	55.49	50.21	45.94	43.42	41.58	47.36	47.44
45	37.89	34.45	31.77	30.09	29.00	32.44	32.36
50	27.75	25.48	23.64	22.55	21.79	23.89	23.81
55	21.04	19.53	18.36	17.60	17.10	18.44	18.44
60	16.85	15.76	15.01	14.42	14.00	14.84	14.92
65	13.58	12.74	12.15	11.74	11.40	11.99	11.90
70	10.56	9.98	9.56	9.22	8.97	9.39	9.39
75	7.80	7.38	7.13	6.87	6.71	6.96	6.87
80	5.11	4.86	4.61	4.61	4.44	4.53	4.53
85	1.93	1.84	1.76	1.68	1.59	1.68	1.68
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	269.80	N.A.	21.10
0-30	531.78	N.A.	41.50
0-40	796.75	N.A.	62.20
0-60	1162.55	N.A.	90.80
0-80	1276.34	N.A.	99.70
0-90	1280.46	N.A.	100.00
10-90	1206.99	N.A.	94.30
20-40	526.95	N.A.	41.20
20-50	744.56	N.A.	58.10
40-70	448.39	N.A.	35.00
60-80	113.79	N.A.	8.90
70-80	31.21	N.A.	2.40
80-90	4.12	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	1280.46	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	73.47
10-20	196.33
20-30	261.98
30-40	264.97
40-50	217.62
50-60	148.19
60-70	82.58
70-80	31.21
80-90	4.12
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

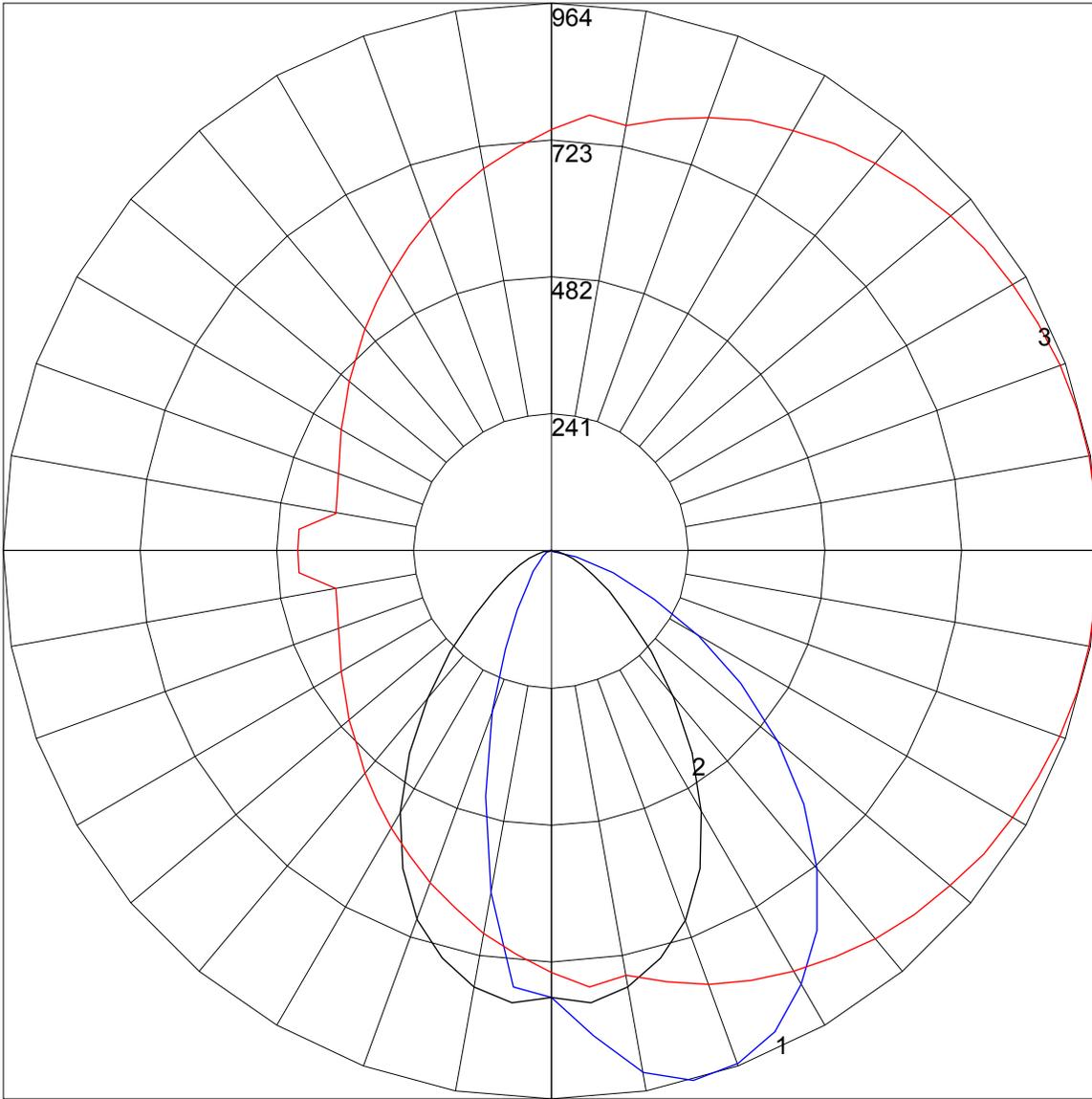
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PHOTOMETRIC FILENAME : L121911514.IES

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	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89
2	103	96	91	86	101	95	90	85	91	87	83	88	85	81	85	82	80	78
3	96	87	80	75	93	85	79	74	82	77	73	80	75	71	77	74	70	68
4	89	79	71	65	87	77	70	65	75	69	64	73	68	63	71	66	63	61
5	82	71	64	58	81	70	63	58	68	62	57	67	61	57	65	60	56	54
6	77	65	57	52	75	64	57	52	63	56	51	61	55	51	60	54	50	49
7	72	60	52	47	70	59	52	47	58	51	46	56	50	46	55	50	46	44
8	67	55	48	43	66	55	47	42	53	47	42	52	46	42	51	46	42	40
9	63	51	44	39	62	51	44	39	50	43	39	49	43	39	48	42	38	37
10	60	48	41	36	59	47	40	36	46	40	36	45	40	36	45	39	35	34

POLAR GRAPH



Maximum Candela = 963.98 Located At Horizontal Angle = 0, Vertical Angle = 15
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Vertical Plane Through Horizontal Angles (90 - 270)
3 - Horizontal Cone Through Vertical Angle (15) (Through Max. Cd.)