

IES Report

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

107-BX-XX-4-48-XX-XX-XX-X-X-Z-SO-359-A1-X-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	63	65	67	67
Total Lumens, 4' rail length (1219mm)	1499	1546	1578	1594
Lumens per foot (305mm)	375	387	395	398
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: L121911511



Report No: L121911511

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-AL

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-AL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	1578.37
Efficacy:	66.02
Color Redering Index:	93.6
Correlated Color Temperature:	3275
Input Voltage (VAC/60Hz):	120.05
Input Current (Amp):	0.2005
Input Power (W):	23.91
Input Power Factor:	0.9933
Current ATHD (%):	8.6%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:10
Total Operating Time (Hours):	2:05

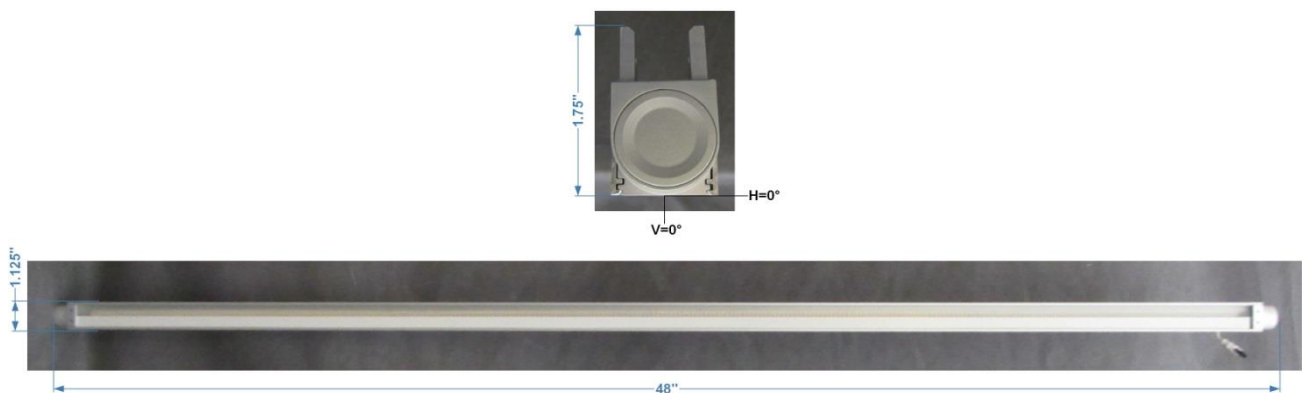
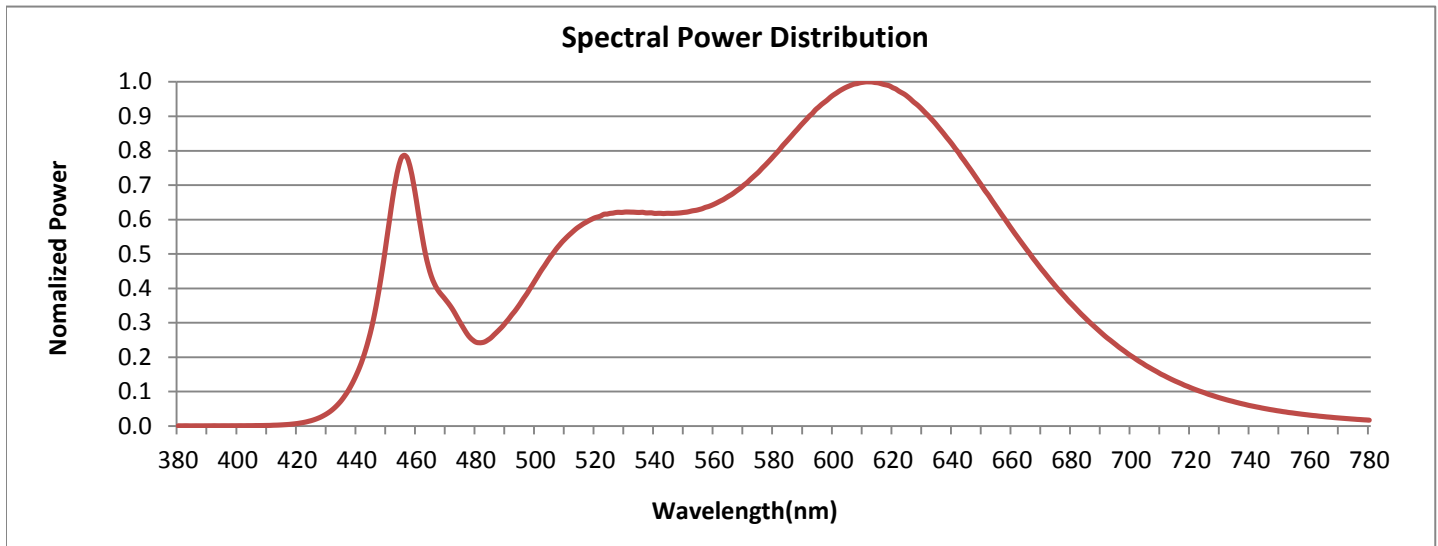


FIG. 1 LUMINAIRE

Colorimetry Test Results

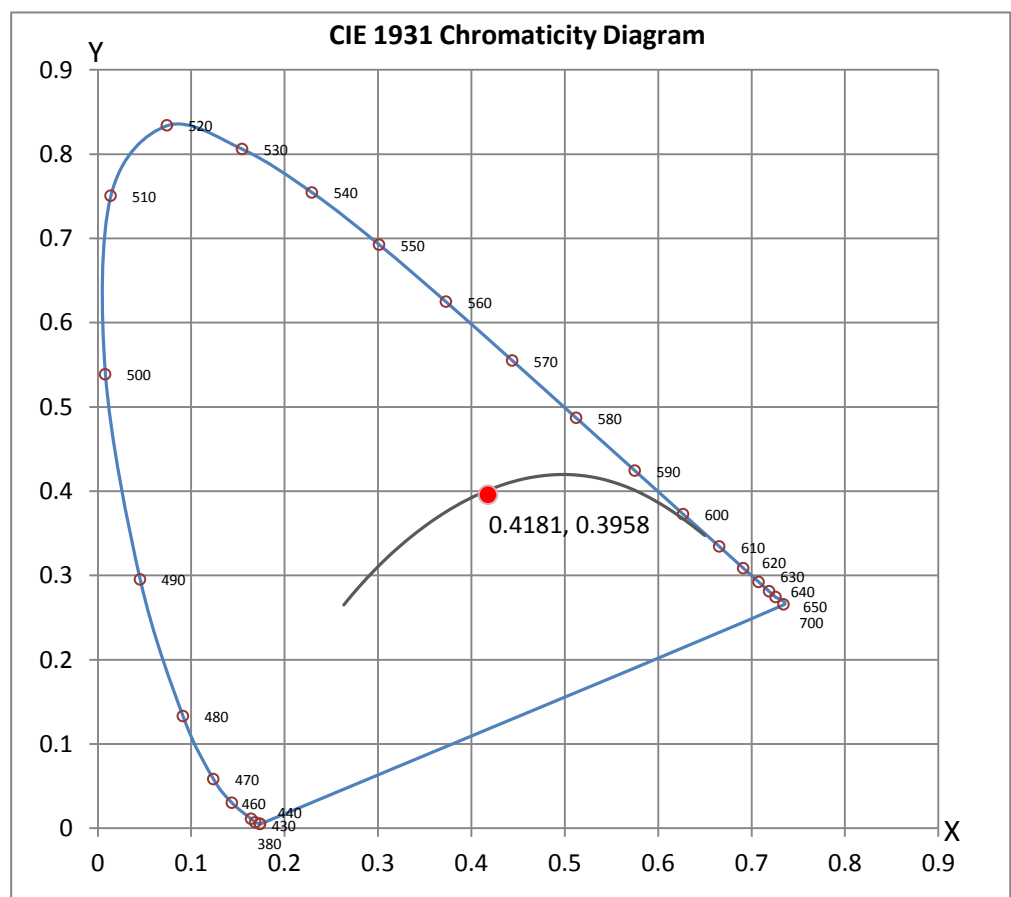


CRI & CCT

x	0.4181
y	0.3958
u'	0.2419
v'	0.5153
CRI	93.60
CCT	3275
Duv	-0.00040

R Values

R1	95.38
R2	98.65
R3	97.88
R4	95.73
R5	95.63
R6	96.01
R7	89.88
R8	79.34
R9	53.94
R10	96.56
R11	98.23
R12	77.97
R13	97.04
R14	99.63
R15	89.12





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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*



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911511.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911511
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 12/23/2019
[MANUFAC] Vode Lighting
[LUMCAT] 107-BX-48-Z-SO-359-A1-AL
[LUMINAIRE] BoxRail LED, 48", 3500K, 90 CRI, zipper board, 85° white 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] 120.05VAC, 23.91W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1578
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	66
Total Luminaire Watts	23.91
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.78
Spacing Criterion (90-270)	1.10
Spacing Criterion (Diagonal)	1.24
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	78365	64131	29788
55	64828	51394	23595
65	45410	38576	19038
75	19728	24830	14921
85	273	402	9431

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PHOTOMETRIC FILENAME : L121911511.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	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89
5	846.96	845.28	844.44	842.10	839.33	835.98	831.54	827.51	821.06	814.60
10	985.77	983.68	981.50	976.63	970.68	962.22	952.24	941.26	927.35	912.59
15	1072.61	1070.69	1068.00	1062.14	1053.84	1044.11	1031.54	1016.87	998.76	978.48
20	1106.65	1106.23	1102.62	1096.92	1088.71	1077.81	1064.82	1048.22	1028.44	1005.81
25	1096.75	1095.41	1091.98	1086.61	1078.31	1067.75	1053.84	1036.74	1015.36	991.97
30	1054.84	1053.50	1050.06	1044.20	1035.23	1023.49	1008.66	990.55	967.58	941.76
35	988.79	987.28	983.51	976.97	966.74	953.50	936.65	915.36	890.55	862.47
40	900.10	898.85	894.65	887.36	876.13	861.63	842.26	818.37	791.63	761.29
45	791.47	789.87	786.19	778.98	767.41	751.99	731.95	707.14	679.23	647.71
50	665.73	664.64	661.62	655.25	645.53	629.77	610.66	587.61	561.03	533.12
55	531.11	530.27	528.01	523.65	515.85	503.70	487.61	467.32	444.60	421.05
60	396.49	396.24	395.48	393.14	388.19	380.14	368.74	353.99	337.14	320.04
65	274.11	274.27	274.69	274.52	272.76	269.08	262.87	254.07	243.59	232.86
70	164.80	165.30	166.64	168.32	169.83	170.08	168.91	165.89	161.61	156.42
75	72.93	73.51	75.61	78.54	82.23	86.17	89.27	91.28	92.12	91.79
80	11.07	11.32	12.07	13.66	15.93	19.20	23.47	28.58	33.61	37.72
85	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.50
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	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89
5	807.98	799.68	789.12	777.97	766.66	754.67	742.09	729.02	715.52	698.84
10	896.42	876.88	855.09	831.79	807.90	782.16	755.59	727.68	699.68	672.94
15	956.10	929.36	898.93	865.99	831.45	794.23	755.42	714.52	673.69	633.04
20	979.99	949.14	913.77	874.20	832.29	785.77	736.73	685.51	634.38	582.41
25	963.73	930.62	892.31	849.14	803.04	749.97	694.99	636.90	578.89	524.40
30	912.26	877.72	838.16	793.65	745.78	691.13	633.96	573.11	512.92	456.17
35	831.28	795.66	755.84	712.17	665.23	612.17	556.59	498.25	440.33	385.59
40	728.77	693.23	654.58	613.51	570.51	522.14	472.43	421.22	367.65	319.54
45	615.94	581.66	546.87	509.65	472.27	431.02	386.76	339.15	300.85	260.86
50	502.11	473.27	443.18	412.33	381.32	347.87	313.50	278.21	243.26	209.14
55	396.57	373.27	349.63	325.41	302.52	276.96	248.37	220.71	193.30	166.14
60	303.36	286.34	268.82	251.22	233.45	214.17	193.22	172.34	150.88	130.18
65	221.55	210.06	198.83	187.26	174.77	160.86	145.77	130.43	114.92	99.42
70	150.80	144.60	138.14	131.02	122.89	113.92	104.19	93.72	83.15	73.10
75	90.70	88.69	86.09	82.82	78.63	73.51	67.90	61.61	55.16	49.21
80	40.66	42.33	42.83	42.50	41.41	39.40	36.97	34.12	30.93	28.08
85	1.59	4.19	8.22	11.23	12.74	13.16	12.99	12.49	11.74	11.23
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	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89	720.89
5	686.27	671.60	659.03	647.54	635.55	624.66	614.68	604.54	660.45	654.75
10	646.87	620.55	594.82	571.26	547.62	535.80	517.61	498.59	483.41	468.83
15	594.90	556.84	520.88	487.94	455.67	427.59	402.27	430.10	409.82	393.47
20	535.22	488.86	446.03	407.89	371.59	379.72	351.56	325.57	305.96	289.53
25	472.27	421.72	376.12	336.64	299.92	270.25	245.19	227.50	209.98	195.56
30	402.94	352.82	308.64	271.34	237.89	211.74	192.13	173.77	159.69	148.70
35	335.72	289.70	249.63	217.27	188.86	167.48	151.22	136.80	126.16	118.11

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CANDELA TABULATION - (Cont.)

40	275.45	235.46	201.68	174.86	152.14	135.12	121.88	111.91	104.28	98.41
45	223.89	190.70	163.29	141.91	123.89	111.32	101.51	93.80	88.35	84.33
50	178.55	152.48	131.60	115.01	101.68	92.12	85.17	80.72	76.78	74.02
55	142.92	122.47	106.62	94.13	84.41	78.12	73.01	69.32	66.81	65.13
60	112.58	97.24	85.17	76.53	70.08	65.22	61.78	61.61	59.85	58.68
65	86.76	76.45	67.81	61.53	56.75	53.40	51.30	49.88	48.95	48.45
70	64.55	57.17	51.55	47.44	44.43	42.42	41.16	40.32	39.90	39.65
75	44.09	39.82	36.55	34.28	32.61	31.69	31.18	30.85	30.76	30.85
80	25.82	24.06	22.72	21.88	21.46	21.21	21.29	21.38	21.71	22.05
85	11.07	11.07	11.23	11.40	11.74	12.24	12.57	12.74	12.66	12.57
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	720.89	720.89	720.89	720.89	720.89	720.89	720.89
5	651.65	650.81	652.07	655.42	657.01	654.08	727.93
10	457.18	502.53	498.42	496.66	495.32	490.79	556.09
15	379.30	369.66	362.29	357.68	354.24	349.46	399.51
20	276.62	267.65	259.52	254.07	250.38	246.02	279.97
25	183.99	175.19	189.69	184.83	181.48	178.21	199.84
30	139.82	145.52	143.17	139.48	136.80	134.62	147.87
35	111.65	117.69	113.67	111.07	109.47	107.88	116.01
40	94.13	90.95	94.89	93.21	92.29	91.37	96.57
45	82.06	84.41	82.99	82.06	81.65	81.23	84.83
50	72.17	73.60	73.35	73.01	72.84	72.68	75.11
55	64.04	65.72	65.38	65.22	65.05	64.96	66.72
60	58.01	57.67	57.59	57.50	57.50	57.42	58.84
65	48.12	49.54	49.54	49.71	49.88	49.71	50.80
70	39.65	40.91	41.07	41.24	41.41	41.41	42.42
75	31.02	32.11	32.36	32.61	32.78	32.86	33.53
80	22.38	23.30	23.64	23.89	24.23	24.39	24.98
85	12.57	12.66	13.08	13.16	13.33	13.41	13.75
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	263.98	N.A.	16.70
0-30	544.67	N.A.	34.50
0-40	855.72	N.A.	54.20
0-60	1363.07	N.A.	86.40
0-80	1566.48	N.A.	99.20
0-90	1578.37	N.A.	100.00
10-90	1509.4	N.A.	95.60
20-40	591.74	N.A.	37.50
20-50	877.82	N.A.	55.60
40-70	647.84	N.A.	41.00
60-80	203.42	N.A.	12.90
70-80	62.92	N.A.	4.00
80-90	11.89	N.A.	0.80
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	1578.37	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	68.97
10-20	195.01
20-30	280.69
30-40	311.05
40-50	286.07
50-60	221.27
60-70	140.50
70-80	62.92
80-90	11.89
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

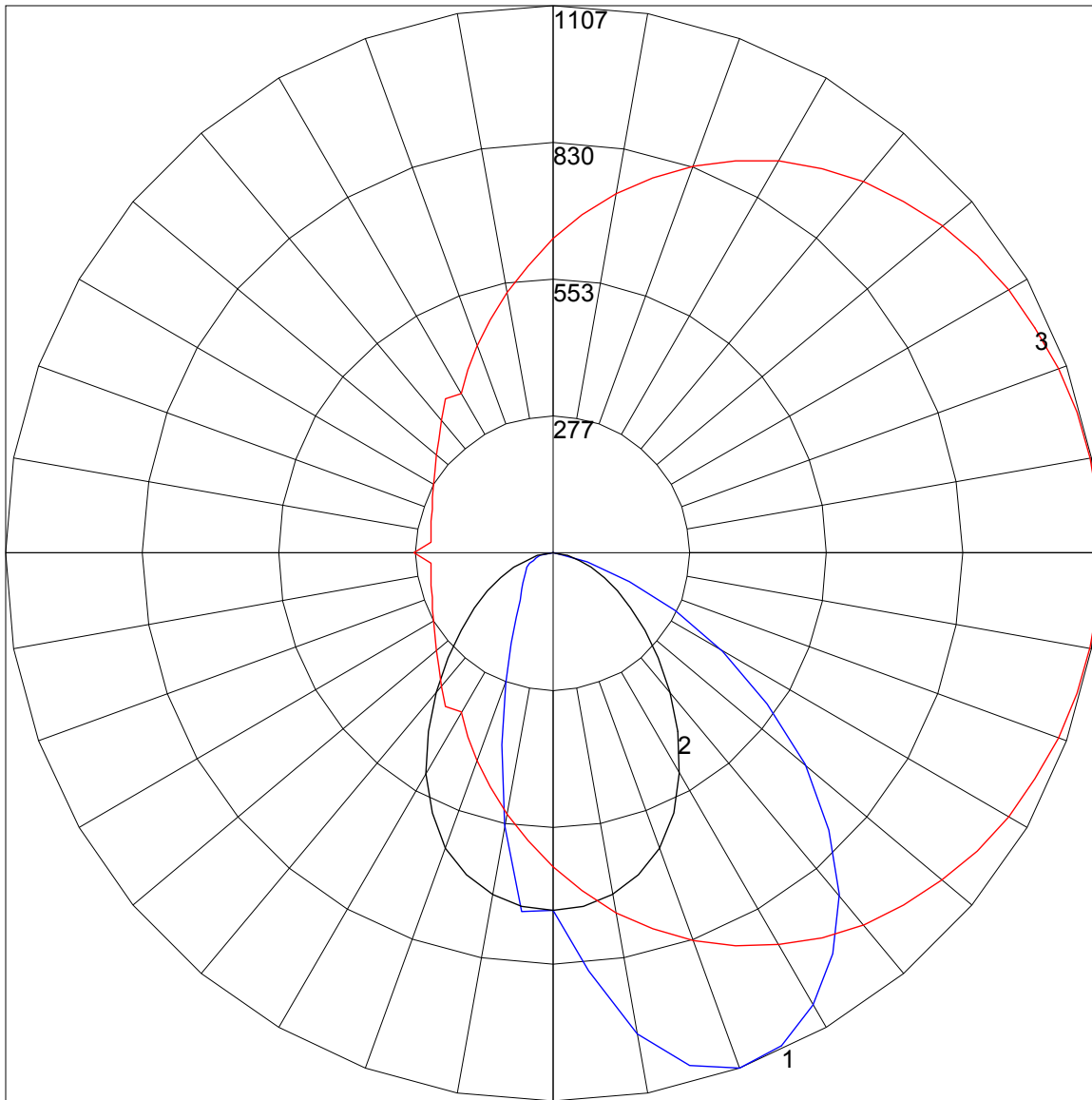
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	108	104	100	97	100	97	94	96	94	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	85	82	78	83	79	76	74
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	60	69	63	59	67	62	58	56
5	79	68	59	53	77	66	59	53	64	58	52	63	56	52	61	55	51	49
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	42	52	46	41	51	45	41	39
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35
9	60	47	40	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29

POLAR GRAPH



Maximum Candela = 1106.65 Located At Horizontal Angle = 0, Vertical Angle = 20

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 (20) (Through Max. Cd.)