

IES Report

DoubleBox™ | 107 | 120° Batwing, up | 60° Symmetric down | 90 CRI | SO

107-DB-XX-4-48-XX-XX-XX-XX-X-X-Z-SO-359-G1S2-X-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	69	72	73	74
Total Lumens, 4' rail length (1219mm)	3308	3412	3482	3552
Lumens per foot (305mm)	827	853	871	888
Lumens per foot UP (305mm)	596	615	628	640
Lumens per foot DOWN (305mm)	231	238	243	248
Input Power (W), 4' rail length (1219mm)	48.06	48.06	48.06	48.06
Watts per foot (305mm)	12.1	12.1	12.1	12.1
CRI	96	96	96	96

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](#).

Report No: L011800108 **Issue Date:** 1/12/2018

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

Model Number: 107-DB-48-Z-SO-359-G1S2-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.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 1/5/18

Date of Tests: 1/10/18 - 1/12/18

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	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
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-DB-48-Z-SO-359-G1S2-BL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)
Total Lumens:	3482.01
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.4
Input Power (W):	48.06
Input Power Factor:	0.99
Current ATHD @ 120V(%):	10%
Current ATHD @ 277V(%):	N/A
Efficacy:	72
Color Rendering Index (CRI):	96
Correlated Color Temperature (K):	3340
Chromaticity Coordinate x:	0.4134
Chromaticity Coordinate y:	0.3923
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	2:30

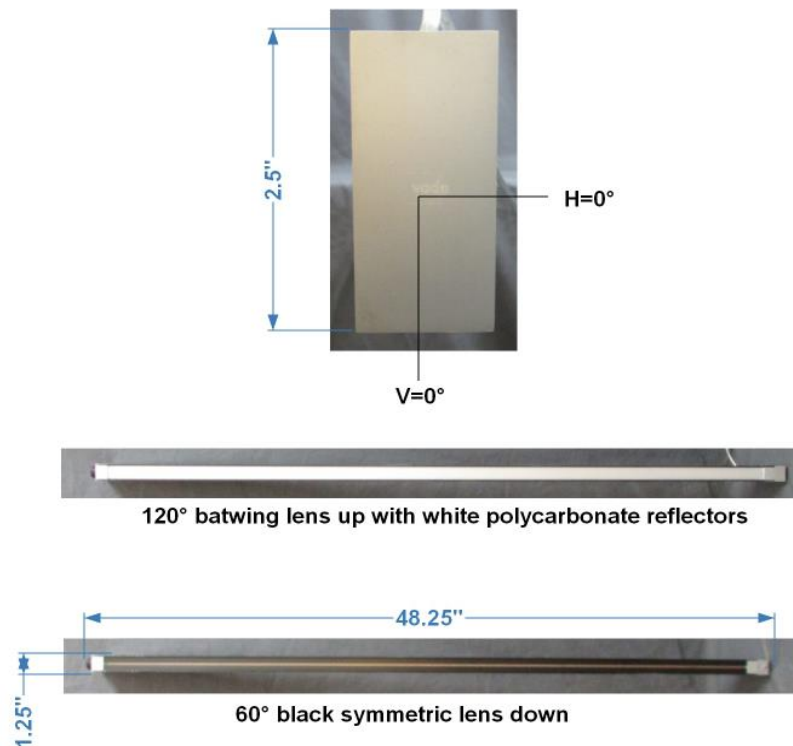
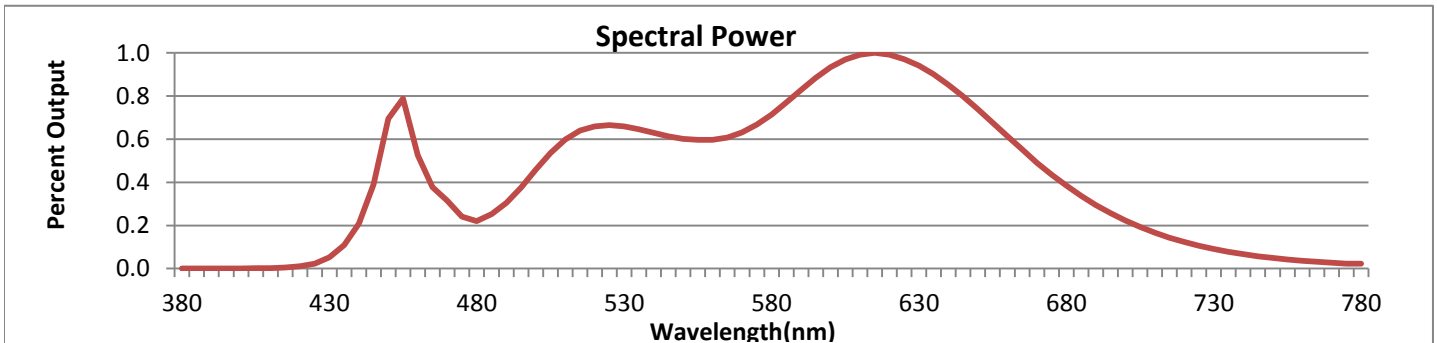


FIG. 1 LUMINAIRE

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



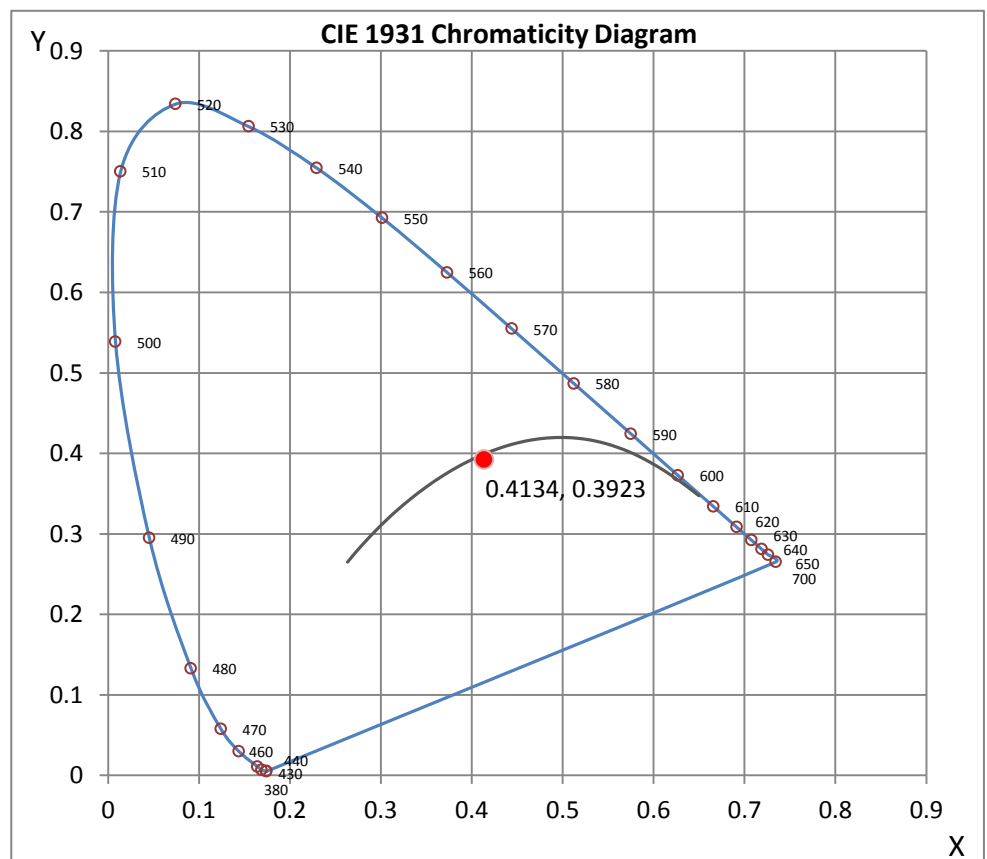
Wavelength	W/m ² nm	440	0.2075	510	0.5982	580	0.7145	650	0.7398	720	0.1232
380	0.0009	450	0.6956	520	0.6601	590	0.8280	660	0.6152	730	0.0910
390	0.0008	460	0.5256	530	0.6596	600	0.9340	670	0.4908	740	0.0672
400	0.0011	470	0.3158	540	0.6290	610	0.9919	680	0.3842	750	0.0495
410	0.0023	480	0.2203	550	0.6017	620	0.9921	690	0.2943	760	0.0366
420	0.0102	490	0.3050	560	0.5970	630	0.9416	700	0.2224	770	0.0271
430	0.0519	500	0.4588	570	0.6314	640	0.8524	710	0.1664	780	0.0233

CRI & CCT

x	0.4134
y	0.3923
u'	0.2403
v'	0.5131
CRI	95.60
CCT	3340
Duv	-0.00100

R Values

R1	97.29
R2	98.66
R3	98.99
R4	95.38
R5	97.35
R6	94.08
R7	94.40
R8	89.06
R9	74.07
R10	97.77
R11	88.29
R12	83.06
R13	96.89
R14	98.50



*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: 10*



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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L011800108.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L011800108
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/12/2018
[MANUFAC] Vode Lighting
[LUMCAT] 107-DB-48-Z-SO-359-G1S2-BL
[LUMINAIRE] DoubleBox LED, 48", 3500K, 90 CRI, zipper board,
[MORE] 120° batwing lens up with white polycarbonate reflectors/60° black symmetric lens down, standard output
[BALLASTCAT] MEAN WELL HLG-40H-36A (2 DRIVERS)
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 48.06W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3482
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	72
Total Luminaire Watts	48.06
Ballast Factor	1.00
CIE Type	Semi-Indirect
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.08 ft
Luminous Width (90-270)	3.77 ft
Luminous Height	0.21 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	844	2187	12652
55	334	862	6484
65	155	356	3461
75	73	151	1951
85	11	29	852

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CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	960.90	960.90	960.90	960.90	960.90	960.90	960.90	960.90	960.90	960.90
5	932.00	931.30	930.56	930.95	931.06	931.39	931.94	932.71	933.69	934.88
10	846.48	845.32	846.45	848.40	851.65	856.16	861.81	866.11	871.71	878.51
15	714.20	712.83	716.49	722.23	730.30	738.36	749.19	762.65	778.59	794.34
20	554.69	553.83	560.68	570.11	580.89	596.22	614.84	633.69	656.45	677.68
25	396.33	397.55	405.11	415.01	429.97	447.45	467.31	491.26	516.08	544.50
30	260.99	262.44	269.82	281.07	295.55	311.92	330.49	354.12	383.25	411.58
35	162.84	164.66	170.70	180.53	191.22	203.77	218.38	241.97	265.55	291.97
40	98.98	100.59	105.12	111.51	119.03	126.98	140.58	156.87	173.81	197.51
45	60.70	61.97	65.10	68.92	73.20	78.08	88.84	98.07	112.68	125.57
50	38.53	39.29	41.13	43.44	45.91	50.25	55.96	62.76	70.74	81.20
55	25.49	25.95	27.05	28.48	29.70	32.79	35.51	40.32	45.47	51.41
60	17.44	17.78	18.41	19.10	19.93	21.48	23.49	25.59	29.42	33.58
65	12.21	12.40	12.62	12.97	13.64	14.34	15.70	17.16	19.08	21.38
70	8.47	8.51	8.77	9.15	9.65	10.16	10.71	11.38	12.50	13.93
75	5.73	5.72	6.07	6.51	6.67	6.86	7.16	7.52	8.09	8.83
80	2.41	2.96	3.09	3.24	3.32	3.45	3.63	3.96	4.43	4.96
85	0.83	1.31	1.31	1.25	1.22	1.26	1.21	1.28	1.39	1.58
90	0.84	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
95	33.63	38.92	38.30	39.48	40.92	42.30	43.84	47.33	45.08	44.14
100	132.61	123.29	125.92	126.32	126.49	126.23	125.11	124.61	119.71	114.48
105	233.17	220.39	220.45	221.23	219.38	218.36	216.19	212.72	207.71	197.90
110	340.45	335.76	325.04	322.04	323.26	320.66	318.27	313.07	307.69	290.97
115	453.96	453.31	444.30	436.44	431.82	429.28	423.11	414.90	403.34	385.07
120	562.16	560.88	559.20	553.07	545.28	536.03	527.09	517.11	497.27	470.25
125	661.30	659.47	657.30	654.00	649.19	637.97	627.39	605.71	582.24	550.10
130	746.17	744.35	740.26	734.55	727.54	716.15	699.46	676.84	647.17	608.58
135	813.26	811.77	806.62	798.88	788.44	776.07	753.99	731.24	695.20	658.11
140	860.09	857.83	851.39	841.98	830.04	815.28	791.15	762.45	729.18	686.97
145	883.76	880.85	874.00	863.74	848.64	830.91	809.53	776.25	741.77	702.55
150	879.77	876.46	870.04	857.89	842.18	822.59	799.96	771.17	738.13	702.30
155	846.06	842.84	837.33	825.64	811.17	792.81	771.36	748.65	720.13	690.76
160	789.26	787.05	781.62	773.86	761.40	747.26	731.08	711.57	691.08	671.14
165	720.84	719.35	715.66	710.95	704.45	694.83	684.14	672.49	659.97	645.60
170	658.23	657.43	655.63	653.39	650.56	647.15	643.18	637.44	631.37	624.99
175	615.97	615.68	615.36	614.67	614.03	613.31	612.50	611.60	610.64	609.61
180	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00

Vert. Angles **Horizontal Angles**

	50	55	60	65	70	75	80	85	90
0	960.90	960.90	960.90	960.90	960.90	960.90	960.90	960.90	960.90
5	936.27	937.83	939.58	941.48	943.52	945.70	947.85	950.34	952.85
10	886.45	895.46	905.15	907.80	910.87	914.48	918.58	923.00	928.10
15	808.03	818.74	831.18	845.25	861.22	865.79	870.99	876.94	884.51
20	698.79	720.86	744.46	759.70	777.24	797.33	802.87	809.29	818.66
25	576.17	603.57	629.45	658.27	677.80	698.12	713.81	719.19	729.23
30	443.21	476.78	508.83	536.86	566.05	585.43	608.18	612.43	622.69
35	319.50	347.90	383.92	413.82	441.22	462.57	478.09	487.52	498.80
40	220.20	248.44	274.45	299.19	324.17	347.31	359.55	367.77	374.25
45	146.05	164.83	184.87	206.17	225.88	244.10	253.78	260.32	264.89
50	92.59	106.69	120.83	135.12	149.09	160.25	168.11	173.32	175.13
55	59.50	67.46	76.69	86.98	95.21	102.45	108.43	112.04	112.60
60	38.19	42.83	49.33	55.58	60.95	66.45	70.56	71.00	71.99

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CANDELA TABULATION - (Cont.)

65	24.46	27.63	31.20	34.81	38.43	41.53	43.31	44.61	45.92
70	15.66	17.78	19.96	22.00	24.14	26.09	27.18	28.11	28.98
75	9.79	11.00	12.29	13.37	14.48	15.52	16.26	16.74	17.11
80	5.39	6.17	6.79	7.23	7.82	8.18	8.50	8.75	8.89
85	1.75	1.92	2.16	2.51	3.17	3.35	3.21	3.34	3.41
90	0.91	0.91	0.87	0.83	0.87	0.83	1.00	1.00	0.83
95	41.71	37.38	33.40	30.08	26.58	24.23	23.04	22.86	23.25
100	107.27	98.18	89.88	82.19	78.11	74.55	73.07	71.40	72.57
105	184.87	170.20	154.49	139.47	128.14	121.27	118.47	116.38	115.09
110	271.09	248.28	224.15	202.40	187.36	178.16	172.15	168.99	168.40
115	358.28	326.38	294.32	266.37	246.04	232.56	224.15	219.88	220.55
120	437.52	397.40	355.99	323.63	301.11	285.86	276.20	270.14	268.46
125	506.05	461.30	416.96	377.18	351.24	333.66	322.32	316.17	314.21
130	565.42	517.07	471.10	430.63	398.88	377.77	363.34	355.51	354.98
135	608.93	561.29	514.87	474.85	442.29	419.11	404.81	396.15	392.52
140	642.55	595.06	550.83	510.99	480.23	455.70	440.81	431.84	427.56
145	659.99	618.76	577.87	541.83	512.46	490.39	474.60	466.63	462.10
150	665.96	629.69	594.87	565.14	537.72	520.15	504.29	498.39	494.23
155	661.32	632.64	605.77	579.87	561.20	544.72	532.73	527.10	522.88
160	650.19	628.53	607.78	592.79	578.30	564.09	558.31	553.11	548.87
165	632.19	621.02	609.90	598.89	587.78	583.28	579.25	575.46	572.21
170	618.34	611.48	604.61	601.62	598.76	596.00	593.36	590.81	588.48
175	608.52	607.38	606.20	604.99	603.76	602.51	601.23	600.00	598.78
180	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00	601.00

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	308.61	N.A.	8.90
0-30	561.90	N.A.	16.10
0-40	758.59	N.A.	21.80
0-60	931.27	N.A.	26.70
0-80	968.64	N.A.	27.80
0-90	971.43	N.A.	27.90
10-90	883.66	N.A.	25.40
20-40	449.98	N.A.	12.90
20-50	565.71	N.A.	16.20
40-70	198.92	N.A.	5.70
60-80	37.38	N.A.	1.10
70-80	11.14	N.A.	0.30
80-90	2.79	N.A.	0.10
90-110	240.94	N.A.	6.90
90-120	588.13	N.A.	16.90
90-130	1042.57	N.A.	29.90
90-150	1950.99	N.A.	56.00
90-180	2510.57	N.A.	72.10
110-180	2269.64	N.A.	65.20
0-180	3482.01	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	87.78
10-20	220.83
20-30	253.30
30-40	196.68
40-50	115.73
50-60	56.95
60-70	26.24
70-80	11.14
80-90	2.79
90-100	48.41
100-110	192.53
110-120	347.20
120-130	454.44
130-140	480.42
140-150	428.00
150-160	317.08
160-170	183.92
170-180	58.58

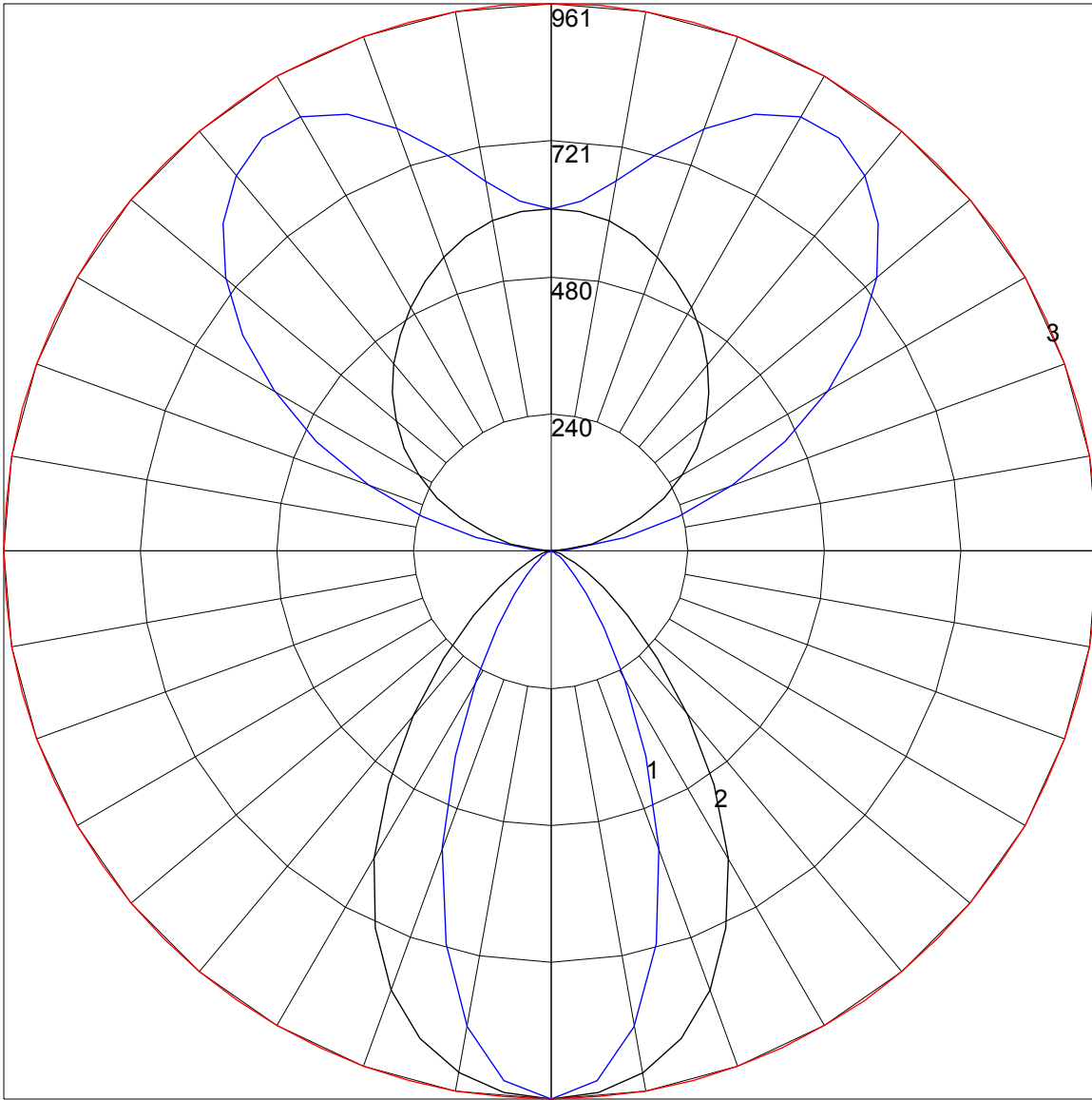
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	28
1	94	90	87	84	84	81	78	76	64	62	60	48	47	46	33	33	32	25
2	86	80	75	70	77	72	67	64	57	54	52	43	41	40	31	30	29	23
3	79	71	65	60	71	64	59	55	51	48	45	39	37	35	28	27	26	21
4	73	64	57	52	66	58	52	47	46	42	39	36	33	31	26	25	23	19
5	68	57	50	45	61	52	46	41	42	38	35	33	30	28	24	23	21	18
6	63	52	45	40	56	47	41	37	38	34	31	30	27	25	22	21	19	16
7	58	47	40	35	52	43	37	33	35	31	28	28	25	23	21	19	18	15
8	54	43	36	31	49	39	33	29	32	28	25	26	23	21	20	18	16	14
9	51	40	33	28	46	36	30	26	30	26	23	24	21	19	18	17	15	13
10	48	37	30	26	43	34	28	24	28	24	21	22	19	17	17	15	14	12

POLAR GRAPH



Maximum Candela = 960.9 Located At Horizontal Angle = 0, Vertical Angle = 0
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 (0) (Through Max. Cd.)