

IES Report

DoubleBox™ | 107 | 120° Batwing, up | 40° Symmetric, down | 90 CRI | SO

107-DB-XX-4-48-XX-XX-XX-XX-X-X-Z-SO-359-G1S1-X-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	76	78	80	82
Total Lumens, 4' rail length (1219mm)	3642	3757	3834	3911
Lumens per foot (305mm)	911	939	958	978
Lumens per foot UP (305mm)	636	656	669	682
Lumens per foot DOWN (305mm)	275	284	290	295
Input Power (W), 4' rail length (1219mm)	48.19	48.19	48.19	48.19
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: L011800103 **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-G1S1

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: 1/11/18 - 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-G1S1
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)
Total Lumens:	3833.97
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.4
Input Power (W):	48.19
Input Power Factor:	0.99
Current ATHD @ 120V(%):	10%
Current ATHD @ 277V(%):	N/A
Efficacy:	80
Color Rendering Index (CRI):	96
Correlated Color Temperature (K):	3313
Chromaticity Coordinate x:	0.4151
Chromaticity Coordinate y:	0.3931
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:05
Total Operating Time (Hours):	2:40

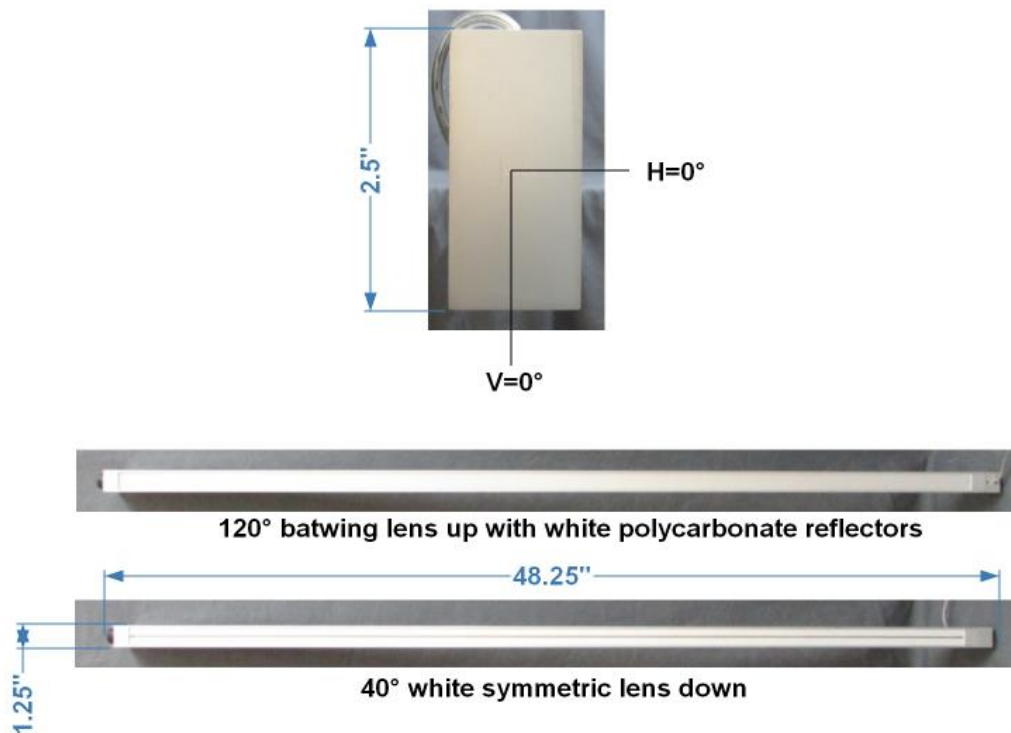
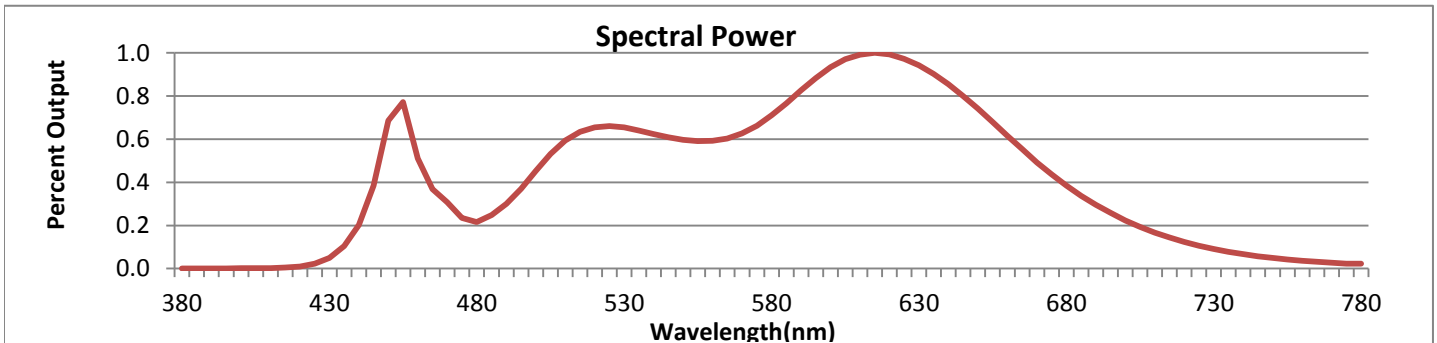


FIG. 1 LUMINAIRE

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



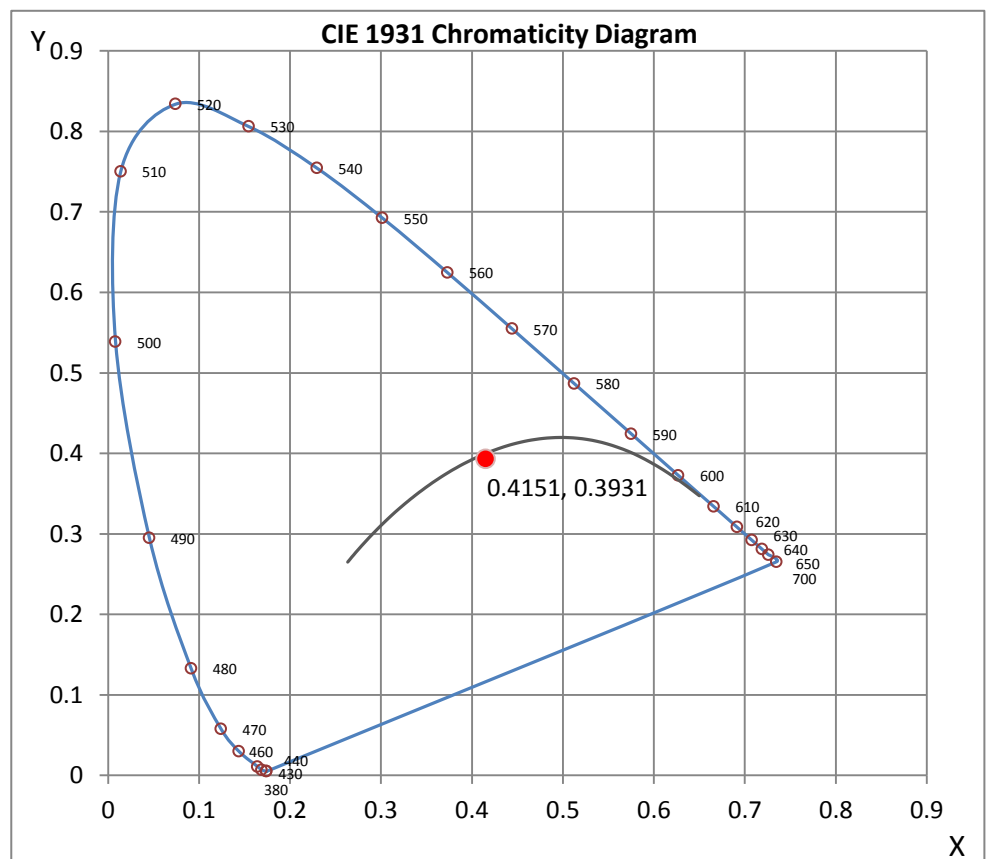
Wavelength	W/m ² nm	440	0.2019	510	0.5939	580	0.7112	650	0.7422	720	0.1232
380	0.0008	450	0.6862	520	0.6553	590	0.8266	660	0.6171	730	0.0908
390	0.0009	460	0.5107	530	0.6543	600	0.9340	670	0.4920	740	0.0669
400	0.0013	470	0.3078	540	0.6243	610	0.9920	680	0.3848	750	0.0495
410	0.0022	480	0.2153	550	0.5974	620	0.9928	690	0.2951	760	0.0365
420	0.0097	490	0.3004	560	0.5924	630	0.9431	700	0.2233	770	0.0269
430	0.0499	500	0.4534	570	0.6272	640	0.8548	710	0.1670	780	0.0232

CRI & CCT

x	0.4151
y	0.3931
u'	0.2411
v'	0.5137
CRI	95.60
CCT	3313
Duv	-0.00098

R Values

R1	97.25
R2	98.64
R3	98.99
R4	95.22
R5	97.25
R6	93.99
R7	94.38
R8	89.00
R9	73.93
R10	97.68
R11	88.03
R12	83.35
R13	96.83
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 : L011800103.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L011800103
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/12/2018
[MANUFAC] Vode Lighting
[LUMCAT] 107-DB-48-Z-SO-359-G1S1
[LUMINAIRE] DoubleBox LED, 48", 3500K, 90 CRI, zipper board),
[MORE] 120° batwing lens up with white polycarbonate reflectors/40° white 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, 48.19W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3834
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	80
Total Luminaire Watts	48.19
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	1127	2334	21351
55	707	1274	13244
65	458	733	8064
75	242	375	5018
85	13	54	1750

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	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100
5	1047	1047	1047	1047	1048	1050	1051	1053	1056	1059
10	898	898	900	905	912	921	932	944	958	973
15	691	691	698	709	724	741	763	788	818	849
20	479	481	492	507	525	549	578	612	649	691
25	314	316	325	338	356	380	410	443	485	534
30	202	203	210	222	237	256	277	308	347	387
35	139	140	144	151	161	173	188	213	238	272
40	102	103	105	110	117	123	135	149	165	192
45	81	82	83	86	90	93	101	108	121	134
50	66	66	67	69	72	75	78	84	90	101
55	54	55	56	57	58	60	62	66	70	76
60	45	45	45	46	46	47	49	51	54	58
65	36	36	36	36	36	37	38	39	41	44
70	27	27	27	27	28	28	29	29	30	32
75	19	19	19	20	20	20	20	20	21	22
80	9	8	10	10	10	10	11	11	12	12
85	1	2	2	2	2	2	2	2	3	3
90	1	1	1	1	1	1	1	1	1	1
95	42	42	41	41	42	42	44	45	47	47
100	143	129	132	132	132	131	130	129	126	124
105	247	229	232	233	232	232	230	226	222	213
110	364	356	339	337	340	341	337	332	318	307
115	481	480	466	455	451	449	446	439	428	409
120	596	594	592	583	573	565	558	549	531	505
125	704	702	700	697	691	679	671	649	626	593
130	798	796	792	786	780	769	753	730	699	657
135	871	869	865	857	847	835	813	790	751	710
140	923	920	914	905	893	878	853	822	786	739
145	950	946	939	929	913	894	872	835	798	754
150	946	943	936	922	905	884	859	827	791	752
155	909	905	899	886	870	850	826	801	769	737
160	845	843	837	828	814	798	780	758	735	713
165	767	766	762	756	749	738	727	714	700	684
170	697	696	694	692	689	685	681	675	668	662
175	652	652	651	651	650	649	648	647	646	645
180	637	637	637	637	637	637	637	637	637	637

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>
0	1100	1100	1100	1100	1100	1100	1100	1100	1100
5	1062	1065	1069	1073	1077	1081	1085	1090	1095
10	991	1010	1030	1037	1044	1052	1060	1069	1078
15	879	905	934	965	1000	1011	1023	1036	1050
20	735	781	829	867	909	954	968	984	1002
25	587	640	695	754	804	854	892	909	930
30	438	497	556	620	686	740	796	814	837
35	316	365	424	484	550	611	667	695	717
40	220	262	307	358	417	479	530	562	581
45	157	183	219	261	307	354	398	431	447
50	113	131	156	186	220	256	289	314	325
55	85	96	111	131	155	180	203	221	230
60	64	71	81	94	109	125	141	153	159

**IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

65	48	52	59	67	77	88	97	104	107
70	34	37	41	46	52	58	65	76	76
75	23	25	27	30	33	37	39	42	44
80	13	14	15	16	18	19	21	22	23
85	4	4	5	5	7	7	7	7	7
90	1	1	1	1	1	1	1	1	1
95	44	40	36	32	28	27	25	25	26
100	117	106	95	87	81	78	77	76	76
105	199	181	163	146	135	131	127	125	127
110	288	264	237	214	199	190	185	182	182
115	377	340	310	281	261	248	241	238	237
120	470	426	381	344	318	303	295	291	291
125	546	495	444	400	370	351	340	335	334
130	610	554	501	455	421	401	388	381	379
135	655	601	547	502	467	444	430	423	420
140	689	635	585	540	508	483	469	460	456
145	705	658	613	573	542	519	504	496	492
150	711	670	631	599	570	552	535	530	526
155	704	672	642	614	595	578	566	560	556
160	690	666	643	628	613	598	593	588	584
165	669	658	646	634	623	618	614	610	607
170	655	647	640	637	634	631	628	626	623
175	644	643	642	641	639	638	637	636	634
180	637	637	637	637	637	637	637	637	637

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	337.12	N.A.	8.80
0-30	602.04	N.A.	15.70
0-40	820.29	N.A.	21.40
0-60	1067.49	N.A.	27.80
0-80	1151.86	N.A.	30.00
0-90	1157.99	N.A.	30.20
10-90	1059.09	N.A.	27.60
20-40	483.17	N.A.	12.60
20-50	634.73	N.A.	16.60
40-70	303.69	N.A.	7.90
60-80	84.37	N.A.	2.20
70-80	27.87	N.A.	0.70
80-90	6.14	N.A.	0.20
90-110	254.96	N.A.	6.70
90-120	622.36	N.A.	16.20
90-130	1107.27	N.A.	28.90
90-150	2080.17	N.A.	54.30
90-180	2675.98	N.A.	69.80
110-180	2421.01	N.A.	63.10
0-180	3833.97	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	98.90
10-20	238.22
20-30	264.92
30-40	218.25
40-50	151.55
50-60	95.64
60-70	56.50
70-80	27.87
80-90	6.14
90-100	51.01
100-110	203.95
110-120	367.40
120-130	484.91
130-140	514.77
140-150	458.12
150-160	338.49
160-170	195.29
170-180	62.03

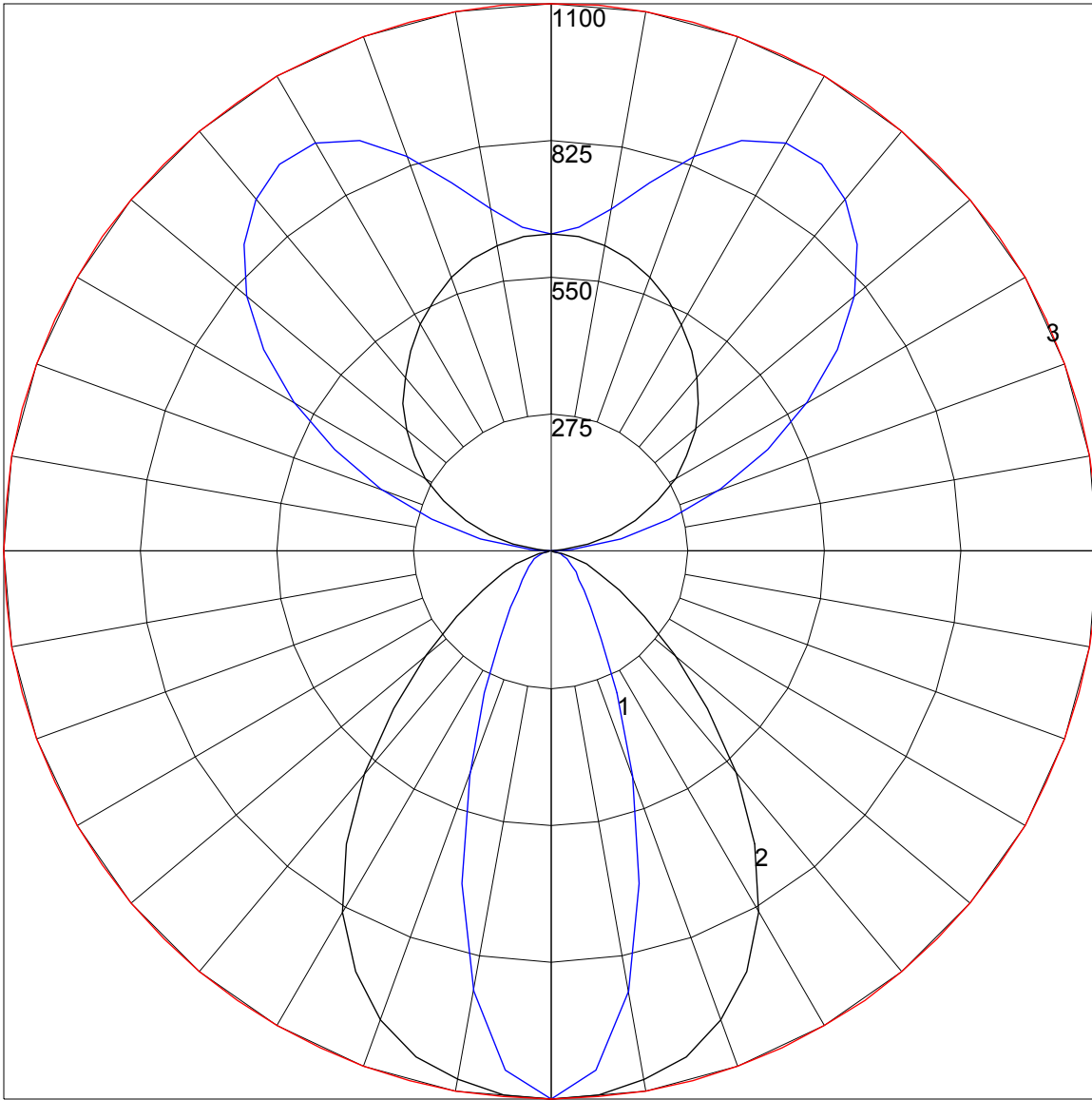
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	92	92	92	92	72	72	72	54	54	54	38	38	38	30
1	94	90	87	84	85	81	78	76	65	63	61	49	48	47	35	34	34	27
2	87	80	74	70	78	72	68	64	58	55	52	44	42	41	32	31	30	24
3	80	71	65	59	71	64	59	54	52	48	45	40	38	35	29	28	27	22
4	73	64	56	51	66	58	52	47	47	42	39	36	34	31	27	25	24	20
5	68	57	50	44	61	52	46	41	42	38	34	33	30	28	25	23	21	18
6	63	52	44	39	56	47	41	36	38	34	31	30	27	25	23	21	20	16
7	58	47	40	35	52	43	37	32	35	31	27	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	39	33	28	46	36	30	26	30	25	22	24	21	19	19	17	15	13
10	47	36	30	25	43	33	28	24	28	23	20	22	19	17	17	15	14	12

POLAR GRAPH



Maximum Candela = 1100 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.)