



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

Report No: L121911510



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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-S2-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.

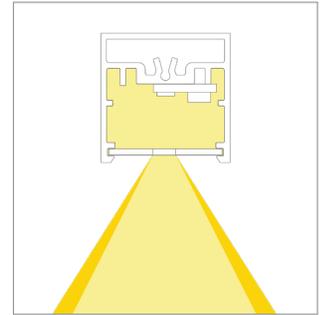
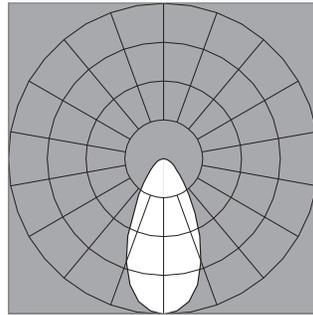
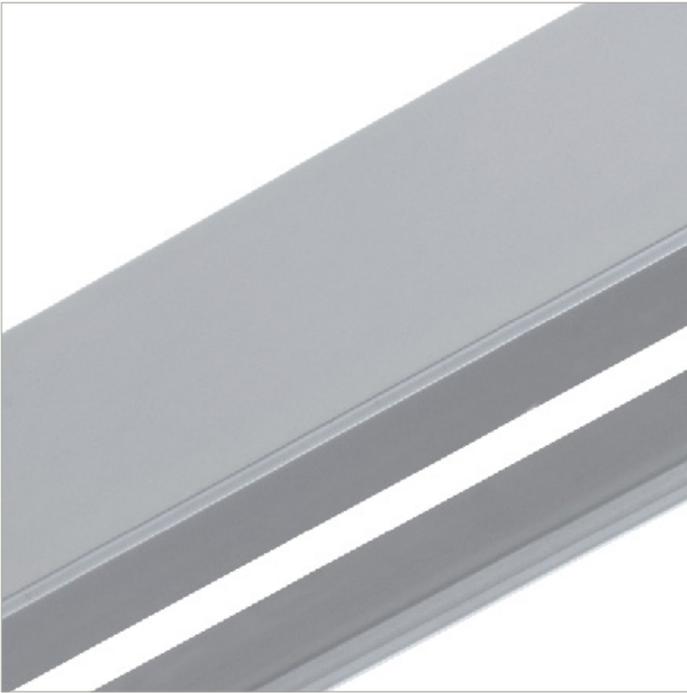
Sample Arrival Date: 12/16/19

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



IES Report

BoxRail® | 107 | 60° Symmetric | 90 CRI | SO

107-BX-XX-4-48-XX-XX-XX-XX-X-X-Z-SO-359-S2-X-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	62	64	65	66
Total Lumens, 4' rail length (1219mm)	1468	1514	1545	1560
Lumens per foot (305mm)	367	379	386	390
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](#).

General Information

Manufacturer:	Vode Lighting
Model Number:	107-BX-48-Z-SO-359-S2-AL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	1544.50
Efficacy:	64.56
Color Redering Index:	93.7
Correlated Color Temperature:	3307
Input Voltage (VAC/60Hz):	120.05
Input Current (Amp):	0.2006
Input Power (W):	23.93
Input Power Factor:	0.9933
Current ATHD (%):	8.6%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:20

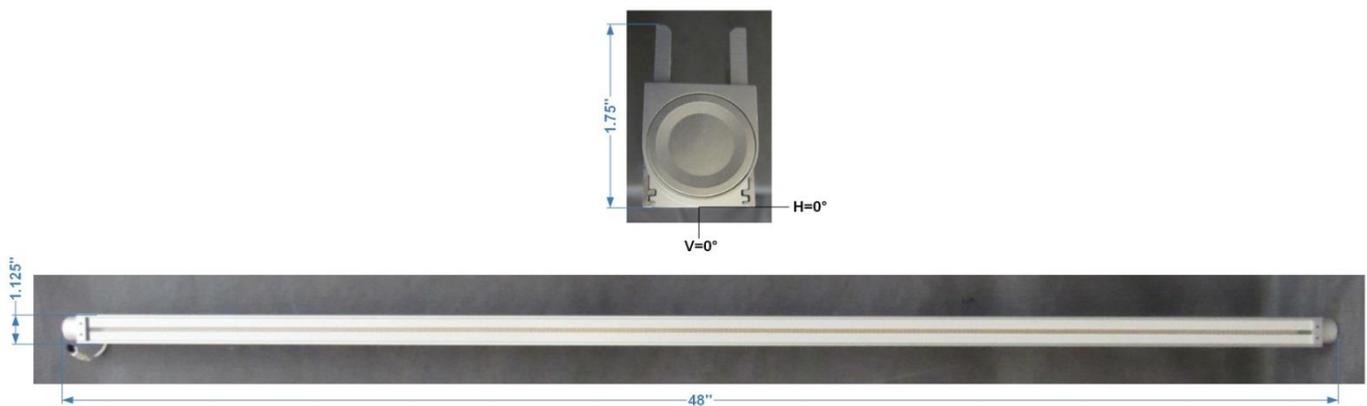
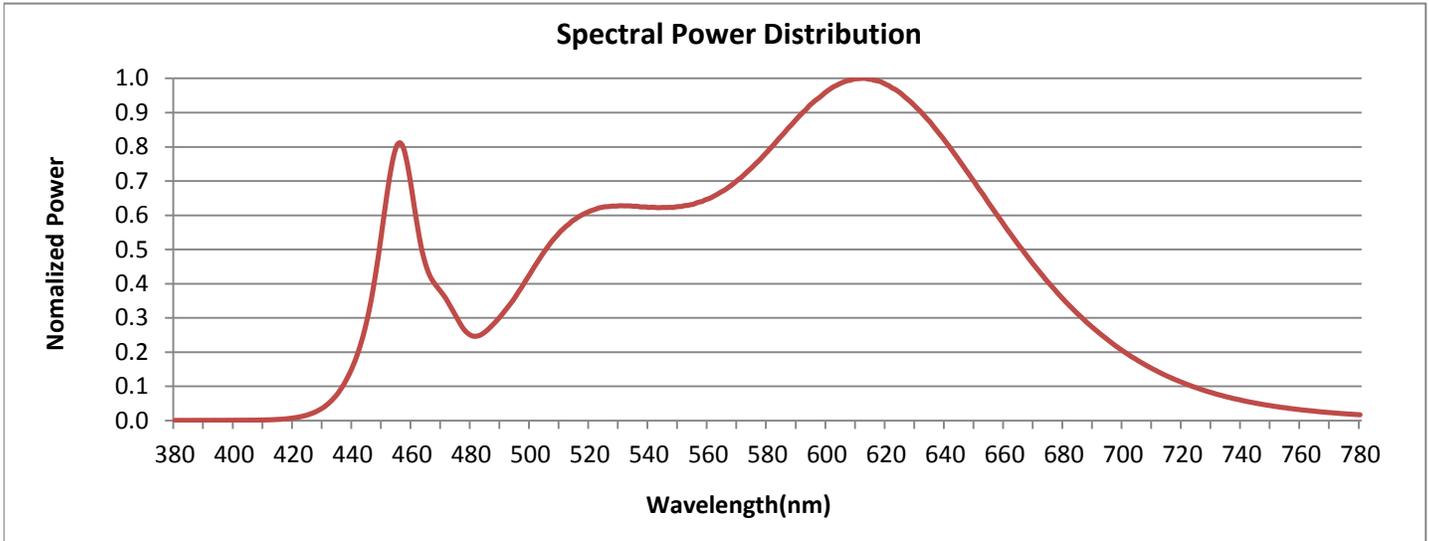


FIG. 1 LUMINAIRE

Colorimetry Test Results

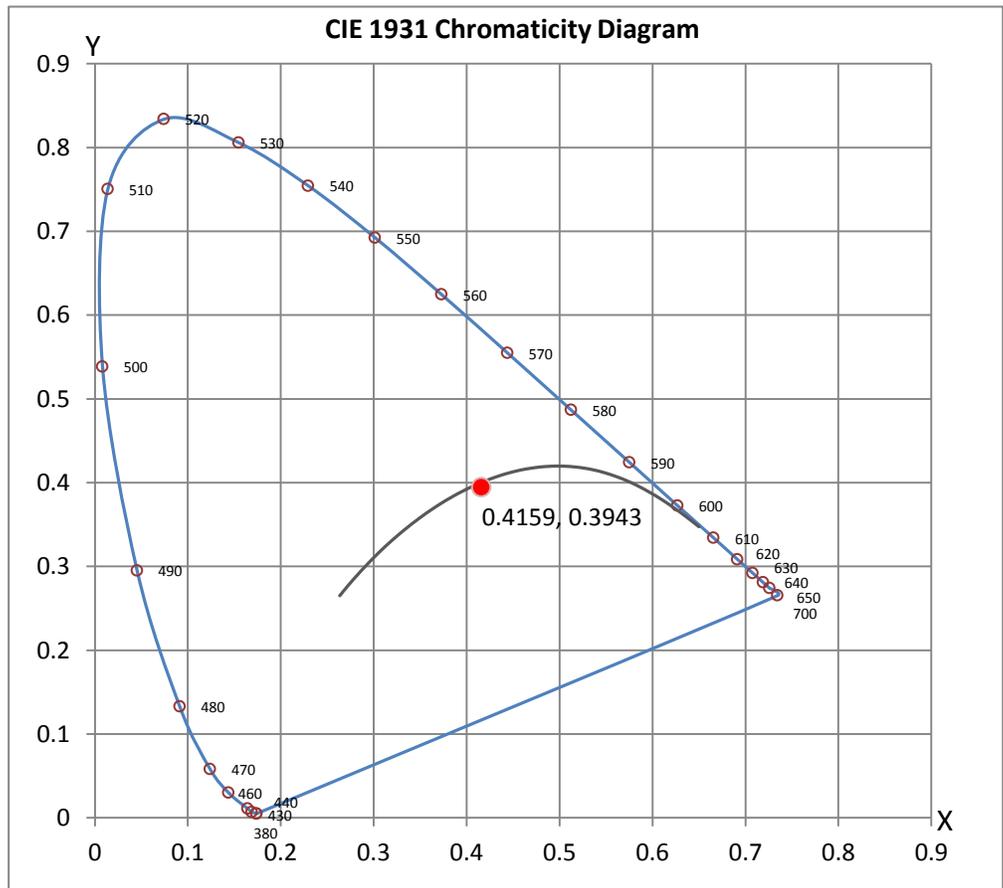


CRI & CCT

x	0.4159
y	0.3943
u'	0.2411
v'	0.5143
CRI	93.70
CCT	3307
Duv	-0.00062

R Values

R1	95.59
R2	98.76
R3	97.86
R4	95.89
R5	95.81
R6	95.88
R7	89.97
R8	79.71
R9	54.73
R10	96.81
R11	98.12
R12	77.83
R13	97.26
R14	99.62
R15	89.47



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: 9*



8165 E. Kaiser Blvd. Anaheim, CA 92808
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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911510.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911510
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 12/23/2019
[MANUFAC] Vode Lighting
[LUMCAT] 107-BX-48-Z-SO-359-S2-AL
[LUMINAIRE] BoxRail LED, 48", 3500K, 90 CRI, zipper board, 60° white symmetric lens,
[MORE] standard output, clear 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, 23.93W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1545
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	65
Total Luminaire Watts	23.93
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.84
Spacing Criterion (90-270)	1.12
Spacing Criterion (Diagonal)	0.96
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.02 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	31882	49902	91685
55	22704	33445	66158
65	18886	25181	47379
75	16771	20017	34084
85	0	9640	20886

IES INDOOR REPORT
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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	1124	1124	1124	1124	1124	1124	1124	1124	1124	1124
5	1105	1104	1104	1104	1104	1104	1103	1107	1110	1112
10	1048	1043	1044	1044	1045	1045	1047	1056	1064	1070
15	942	932	934	937	941	943	950	968	985	997
20	790	777	782	787	792	798	810	836	865	891
25	616	600	607	614	624	634	653	686	724	755
30	451	437	444	452	465	476	494	529	571	607
35	318	307	313	321	328	339	357	389	428	467
40	224	217	221	227	236	244	257	281	313	345
45	161	156	160	164	169	175	185	204	227	252
50	120	117	119	122	126	130	137	149	166	184
55	93	91	92	94	97	99	104	113	123	137
60	73	72	73	74	76	78	81	86	93	102
65	57	56	57	58	59	60	62	65	70	76
70	43	43	43	44	44	45	46	49	51	55
75	31	30	31	31	31	32	32	33	35	37
80	19	19	19	19	19	19	19	20	21	22
85	0	0	0	1	1	1	2	2	4	6
90	0	0	0	0	0	0	0	0	0	0

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>
0	1124	1124	1124	1124	1124	1124	1124	1124	1124
5	1114	1115	1116	1117	1118	1118	1119	1119	1119
10	1075	1080	1085	1089	1092	1094	1096	1097	1097
15	1008	1019	1031	1040	1047	1052	1055	1058	1058
20	913	933	952	968	979	988	994	998	999
25	786	819	847	870	889	903	912	918	920
30	647	685	723	754	780	798	810	818	820
35	508	552	591	628	657	679	694	702	705
40	382	422	462	500	531	554	570	579	582
45	282	314	350	384	412	435	451	460	463
50	206	231	260	287	311	331	346	354	357
55	152	170	190	211	231	248	260	267	271
60	113	125	140	155	169	181	191	197	199
65	83	91	101	111	121	130	137	142	143
70	59	64	71	77	84	90	95	98	99
75	39	42	46	50	54	57	60	62	63
80	23	24	26	28	30	31	33	34	34
85	8	9	10	11	11	12	12	13	13
90	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	382.09	N.A.	24.70
0-30	728.26	N.A.	47.20
0-40	1034.85	N.A.	67.00
0-60	1401.47	N.A.	90.70
0-80	1534.65	N.A.	99.40
0-90	1544.5	N.A.	100.00
10-90	1439.8	N.A.	93.20
20-40	652.76	N.A.	42.30
20-50	874.50	N.A.	56.60
40-70	454.97	N.A.	29.50
60-80	133.18	N.A.	8.60
70-80	44.83	N.A.	2.90
80-90	9.85	N.A.	0.60
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	1544.5	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	104.70
10-20	277.39
20-30	346.18
30-40	306.59
40-50	221.73
50-60	144.88
60-70	88.35
70-80	44.83
80-90	9.85
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

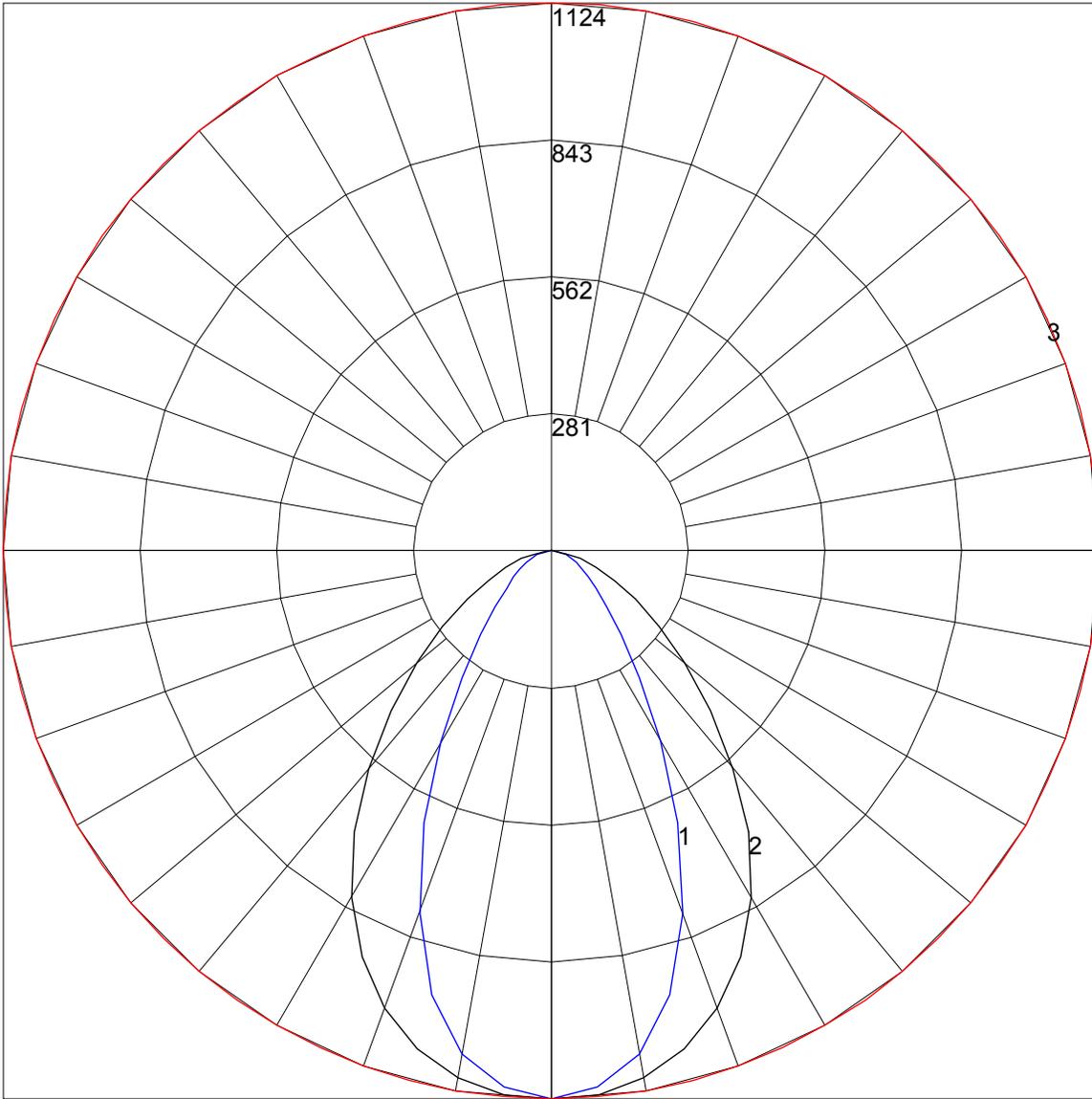
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	111	108	104	101	109	105	102	100	101	99	97	97	95	94	94	92	91	89
2	103	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	80	79
3	96	88	81	76	94	86	80	75	84	78	74	81	77	73	79	75	72	70
4	90	80	73	67	88	79	72	67	76	71	66	74	69	65	72	68	64	63
5	84	73	66	60	82	72	65	60	70	64	59	68	63	59	67	62	58	56
6	79	67	60	54	77	66	59	54	65	59	54	63	58	53	62	57	53	51
7	74	62	55	50	72	62	54	49	60	54	49	59	53	49	58	52	49	47
8	69	58	50	45	68	57	50	45	56	50	45	55	49	45	54	49	45	43
9	65	54	47	42	64	53	46	42	52	46	42	51	46	41	50	45	41	40
10	62	50	43	39	61	50	43	39	49	43	39	48	42	38	47	42	38	37

POLAR GRAPH



Maximum Candela = 1124 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.)