

IES Report

ZipThree® | Ceiling Cable | 707 | Symmetric, up | 60° Symmetric, down | 90 CRI | SO

707-Z3-XX-4-48-CC-XX-XX-XX-X-0-Z-SO-359-U1S2-0-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	89	92	94	95
Total Lumens, 4' rail length (1219mm)	4590	4735	4831	4879
Lumens per foot (305mm)	1147	1184	1208	1220
Lumens per foot UP (305mm)	757	781	797	805
Lumens per foot DOWN (305mm)	390	403	411	415
Input Power (W), 4' rail length (1219mm)	51.8	51.8	51.8	51.8
Watts per foot (305mm)	13	13	13	13
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: L121911549



Report No: L121911549

Issue Date: 1/20/2020

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

Model Number: 707-Z3-48-Z-CC-SO-359-U1S2-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: 1/8/20 - 1/20/20

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:	707-Z3-48-Z-CC-SO-359-U1S2-BL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)

Test Summary

Total Lumens:	4831.17
Efficacy:	93.35
Color Redering Index:	94.0
Correlated Color Temperature:	3430
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.4340
Input Power (W):	51.75
Input Power Factor:	0.9936
Current ATHD (%):	8.0%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	2:30

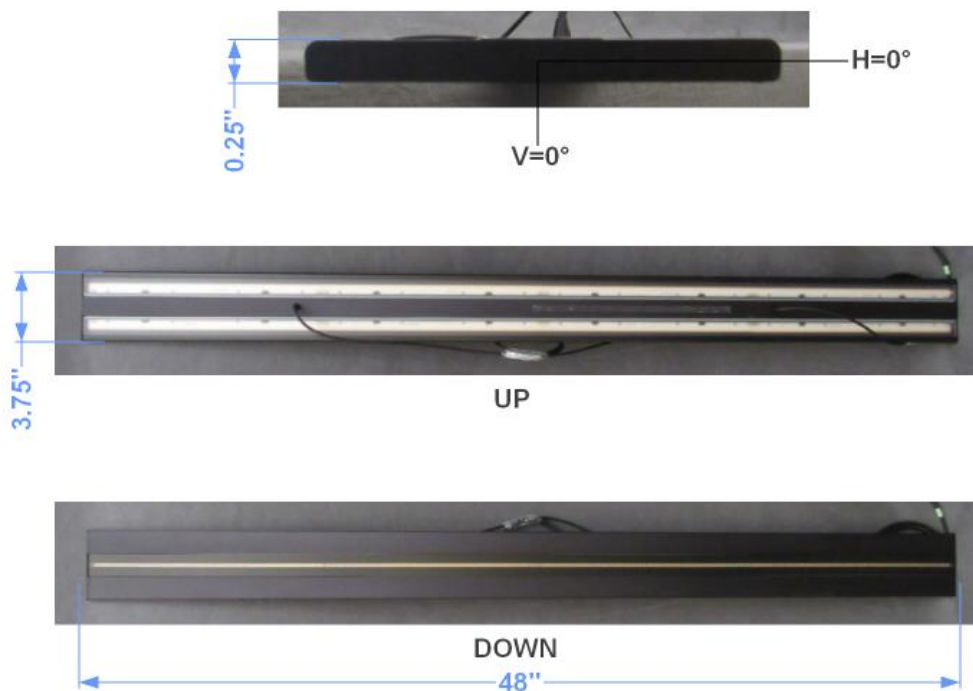
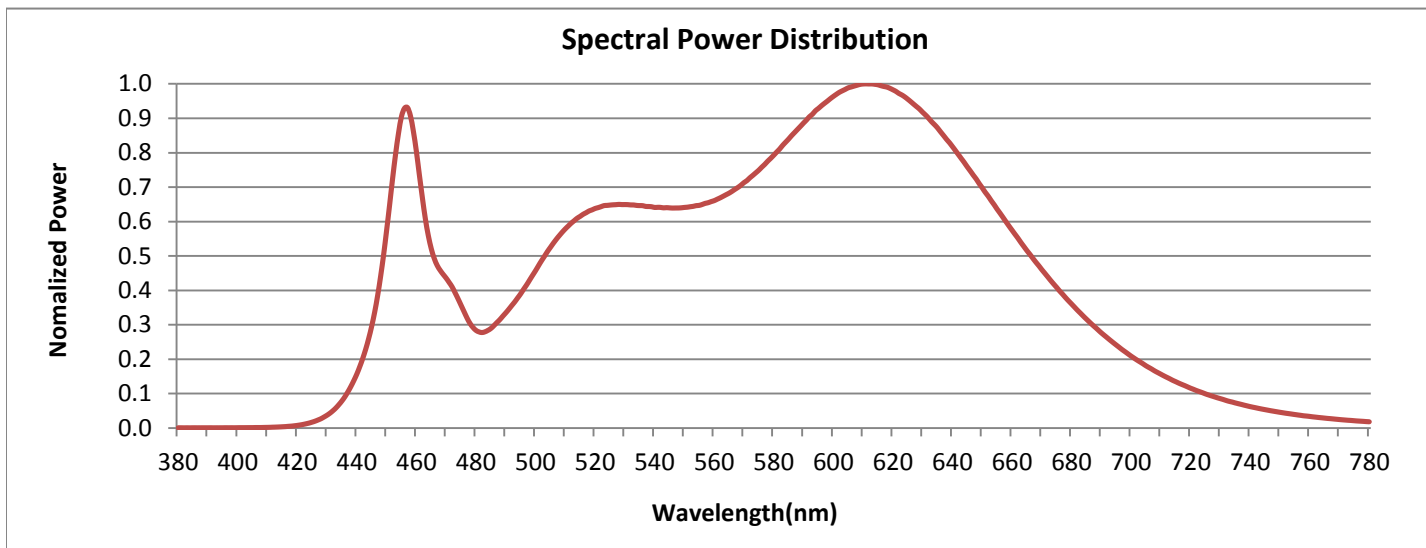


FIG. 1 LUMINAIRE

Colorimetry Test Results

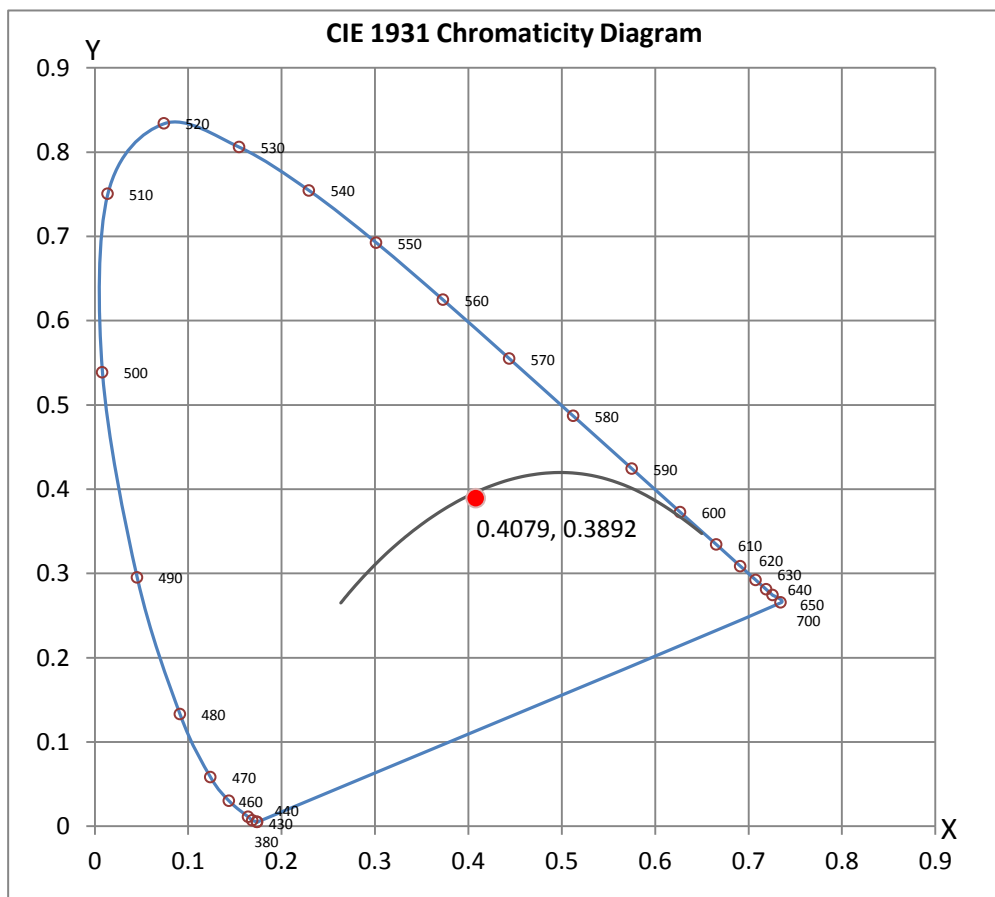


CRI & CCT

x	0.4079
y	0.3892
u'	0.2380
v'	0.5110
CRI	94.00
CCT	3430
Duv	-0.00123

R Values

R1	96.66
R2	99.40
R3	97.19
R4	96.18
R5	96.44
R6	94.99
R7	90.00
R8	81.41
R9	59.40
R10	99.21
R11	98.37
R12	76.77
R13	98.60
R14	99.36
R15	91.14





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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 : L121911549.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911549
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/20/2020
[MANUFAC] VODE LIGHTING
[LUMCAT] 707-Z3-48-Z-CC-SO-359-U1S2-BL
[LUMINAIRE] ZipThree LED Suspended, 48", 3500K, 90 CRI, zipper board, symmetric lens up/60° symmetric lens down,
[MORE] standard output, black anodized finish
[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] 120.0VAC, 51.75W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4831
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	93
Total Luminaire Watts	51.75
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)	0.26 ft
Luminous Width (90-270)	3.98 ft
Luminous Height	0.02 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2668	4348	5593
55	1175	2075	3076
65	591	1028	1703
75	343	561	1025
85	190	287	564

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911549.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>
0.0	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211
1.0	1211	1211	1211	1211	1211	1211	1211	1211	1211	1211
3.0	1209	1208	1208	1208	1208	1209	1209	1209	1209	1209
5.0	1201	1201	1201	1201	1201	1202	1202	1202	1203	1203
7.0	1189	1189	1190	1190	1190	1191	1192	1192	1193	1194
9.0	1172	1173	1173	1174	1174	1175	1177	1178	1179	1181
11.0	1151	1151	1151	1152	1154	1155	1157	1159	1162	1164
13.0	1123	1124	1124	1126	1128	1130	1133	1136	1139	1142
15.0	1090	1091	1092	1094	1097	1100	1104	1108	1112	1116
17.0	1051	1051	1053	1056	1060	1065	1070	1076	1082	1086
19.5	992	993	995	1000	1006	1012	1020	1028	1035	1043
22.5	908	909	913	919	927	937	948	959	970	980
25.5	810	812	817	825	836	849	863	878	892	906
29.0	684	686	692	703	716	733	751	770	789	806
33.0	534	536	544	556	572	592	613	637	660	681
37.5	379	381	388	400	416	436	459	484	509	532
42.5	242	244	250	259	273	290	309	331	355	377
47.5	149	150	154	161	171	183	197	213	231	249
55.0	72	72	74	78	83	89	96	105	114	124
65.0	28	28	29	30	32	34	37	40	44	47
75.0	11	11	11	11	12	13	14	15	16	17
85.0	3	3	3	3	3	3	3	3	3	4
90.0	2	2	2	2	2	2	2	2	2	2
95.0	31	32	32	32	32	32	33	33	33	33
100.0	69	69	69	70	71	72	73	75	77	79
105.0	121	121	122	124	125	128	131	134	137	141
110.0	190	191	192	194	197	200	204	208	213	217
115.0	276	276	278	280	283	287	291	297	303	310
120.0	374	375	377	380	384	389	396	403	411	418
125.0	491	492	494	497	502	507	513	520	526	533
130.0	615	615	617	620	624	628	634	640	646	653
135.0	736	737	738	741	744	749	753	759	765	771
140.0	852	853	854	856	859	863	867	872	877	883
145.0	958	958	959	961	964	967	970	975	979	984
150.0	1050	1051	1052	1053	1055	1057	1060	1063	1067	1070
155.0	1129	1128	1129	1130	1131	1133	1135	1138	1140	1143
160.0	1191	1191	1192	1193	1194	1195	1196	1197	1199	1200
165.0	1239	1239	1239	1240	1240	1241	1241	1242	1243	1244
170.0	1272	1272	1272	1272	1272	1272	1273	1273	1273	1274
175.0	1290	1290	1290	1290	1290	1290	1290	1290	1290	1290
180.0	1295	1295	1295	1295	1295	1295	1295	1295	1295	1295

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>
0.0	1211	1211	1211	1211	1211	1211	1211	1211	1211
1.0	1211	1211	1211	1211	1211	1212	1211	1211	1212
3.0	1209	1209	1209	1209	1210	1209	1209	1210	1209
5.0	1204	1204	1204	1204	1205	1205	1205	1205	1206
7.0	1195	1195	1196	1197	1197	1197	1198	1198	1198
9.0	1182	1183	1184	1185	1186	1187	1187	1188	1188
11.0	1166	1167	1169	1171	1172	1173	1174	1174	1174
13.0	1145	1148	1150	1152	1154	1155	1156	1157	1157
15.0	1120	1124	1127	1130	1132	1134	1135	1136	1136

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PHOTOMETRIC FILENAME : L121911549.IES

CANDELA TABULATION - (Cont.)

17.0	1092	1096	1100	1104	1106	1108	1110	1111	1111
19.5	1049	1055	1060	1065	1068	1070	1072	1073	1073
22.5	989	997	1003	1009	1013	1016	1017	1018	1019
25.5	918	928	936	942	947	950	952	954	954
29.0	822	835	845	852	857	860	862	863	863
33.0	700	715	727	735	741	744	746	746	747
37.5	554	571	584	594	599	602	604	605	605
42.5	397	415	428	438	444	447	449	450	450
47.5	266	281	292	301	307	311	314	315	315
55.0	134	143	151	157	162	166	169	170	171
65.0	51	55	58	61	64	67	68	69	70
75.0	19	20	21	23	24	25	26	26	26
85.0	4	4	4	5	5	5	5	5	5
90.0	2	2	2	2	2	2	2	2	2
95.0	33	33	33	34	34	34	34	35	35
100.0	80	82	84	85	86	88	89	89	89
105.0	144	147	149	153	156	157	158	158	158
110.0	222	227	233	237	239	241	241	242	242
115.0	318	324	329	333	335	338	339	340	340
120.0	425	431	436	441	445	448	450	451	451
125.0	540	546	553	558	563	567	570	571	572
130.0	660	666	673	679	684	689	692	694	694
135.0	778	784	791	797	802	807	810	812	812
140.0	889	895	901	906	911	914	917	919	919
145.0	989	994	998	1003	1006	1009	1011	1013	1013
150.0	1074	1078	1081	1085	1087	1089	1091	1092	1092
155.0	1145	1148	1150	1152	1154	1155	1156	1157	1157
160.0	1202	1204	1205	1206	1207	1208	1208	1209	1209
165.0	1244	1245	1246	1246	1247	1247	1247	1248	1248
170.0	1274	1274	1274	1275	1275	1275	1275	1275	1275
175.0	1290	1291	1290	1290	1290	1290	1291	1291	1291
180.0	1295	1295	1295	1295	1295	1295	1295	1295	1295

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911549.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	407.07	N.A.	8.40
0-30	798.18	N.A.	16.50
0-40	1128.8	N.A.	23.40
0-60	1515.55	N.A.	31.40
0-80	1630.37	N.A.	33.70
0-90	1643.7	N.A.	34.00
10-90	1551.12	N.A.	32.10
20-40	721.72	N.A.	14.90
20-50	992.10	N.A.	20.50
40-70	467.68	N.A.	9.70
60-80	114.82	N.A.	2.40
70-80	33.89	N.A.	0.70
80-90	13.33	N.A.	0.30
90-110	192.06	N.A.	4.00
90-120	501.59	N.A.	10.40
90-130	978.54	N.A.	20.30
90-150	2188.29	N.A.	45.30
90-180	3187.47	N.A.	66.00
110-180	2995.41	N.A.	62.00
0-180	4831.17	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	92.57
10-20	314.50
20-30	391.11
30-40	330.62
40-50	270.38
50-60	116.38
60-70	80.93
70-80	33.89
80-90	13.33
90-100	39.97
100-110	152.09
110-120	309.53
120-130	476.95
130-140	595.17
140-150	614.58
150-160	525.85
160-170	350.71
170-180	122.62

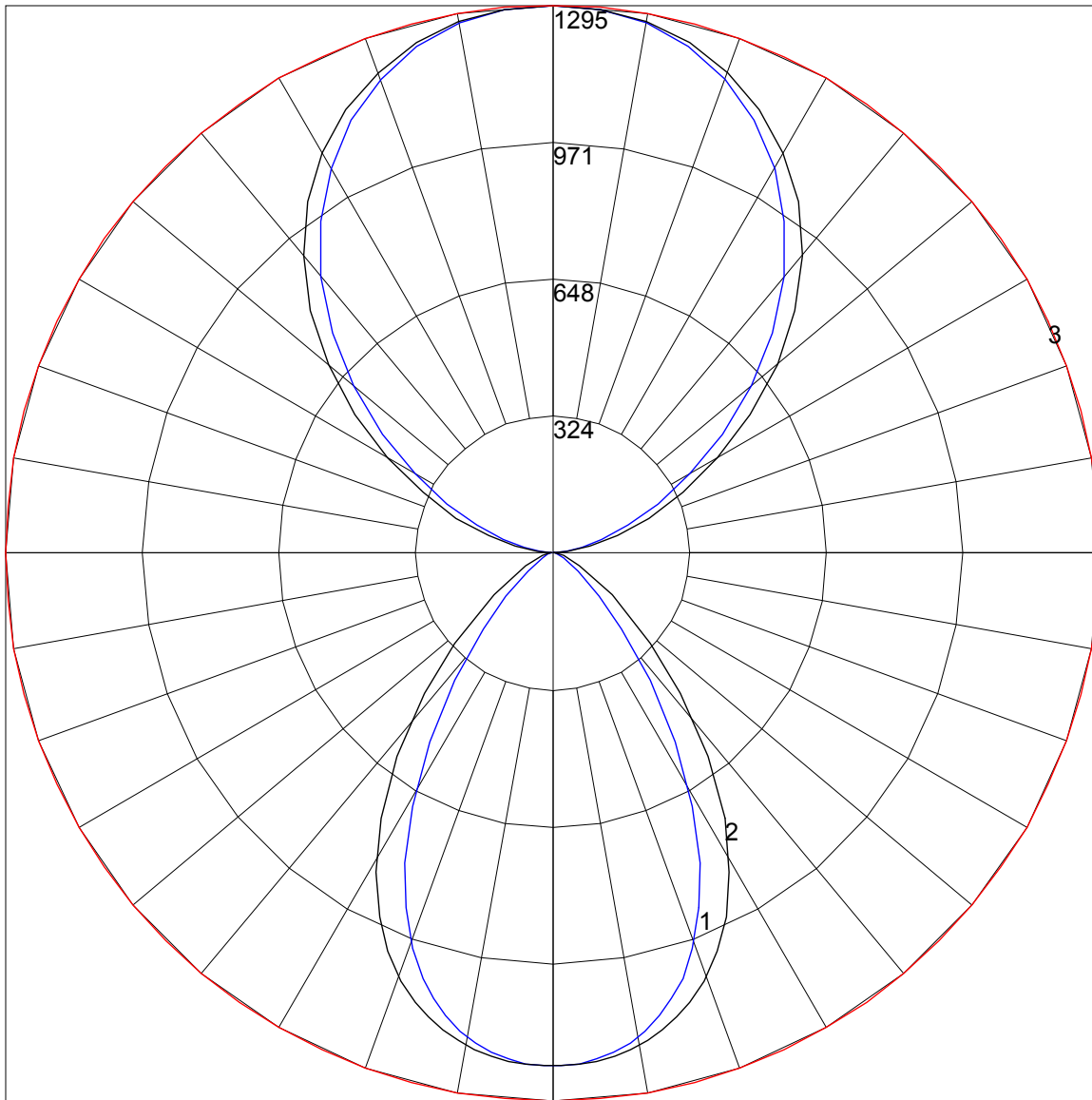
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	34
1	95	91	88	85	86	83	80	77	66	65	63	52	50	49	38	37	37	30
2	87	81	75	71	79	73	69	65	59	56	54	46	44	43	35	33	32	27
3	80	72	65	60	72	65	60	55	53	49	46	42	39	37	32	30	29	24
4	74	64	57	52	67	59	52	48	48	44	40	38	35	33	29	27	26	22
5	68	58	50	45	62	53	46	42	43	39	35	35	32	29	27	25	23	20
6	63	52	45	39	57	48	41	37	40	35	31	32	29	26	25	22	21	18
7	59	47	40	35	53	43	37	33	36	31	28	29	26	23	23	21	19	16
8	55	43	36	31	49	40	33	29	33	28	25	27	24	21	21	19	17	15
9	51	40	33	28	46	36	30	26	31	26	23	25	22	19	20	18	16	14
10	48	36	30	25	43	34	28	24	28	24	21	23	20	18	18	16	15	13

POLAR GRAPH



Maximum Candela = 1295 Located At Horizontal Angle = 0, Vertical Angle = 180
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 (180) (Through Max. Cd.)