

IES Report

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

707-Z3-XX-4-48-CC-XX-XX-XX-X-0-Z-SO-359-U2S2-0-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	94	97	99	103
Total Lumens, 4' rail length (1219mm)	4839	4992	5094	5145
Lumens per foot (305mm)	1210	1248	1274	1286
Lumens per foot UP (305mm)	813	839	856	865
Lumens per foot DOWN (305mm)	396	409	417	421
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: L121911555



Report No: L121911555

Issue Date: 1/21/2020

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

Model Number: 707-Z3-48-Z-CC-SO-359-U2S2-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: 1/10/20 - 1/21/20

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-U2S2-BL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)

Test Summary

Total Lumens:	5094.16
Efficacy:	98.41
Color Redering Index:	94.0
Correlated Color Temperature:	3428
Input Voltage (VAC/60Hz):	120.05
Input Current (Amp):	0.4342
Input Power (W):	51.76
Input Power Factor:	0.9936
Current ATHD (%):	8.1%

Test Condition

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

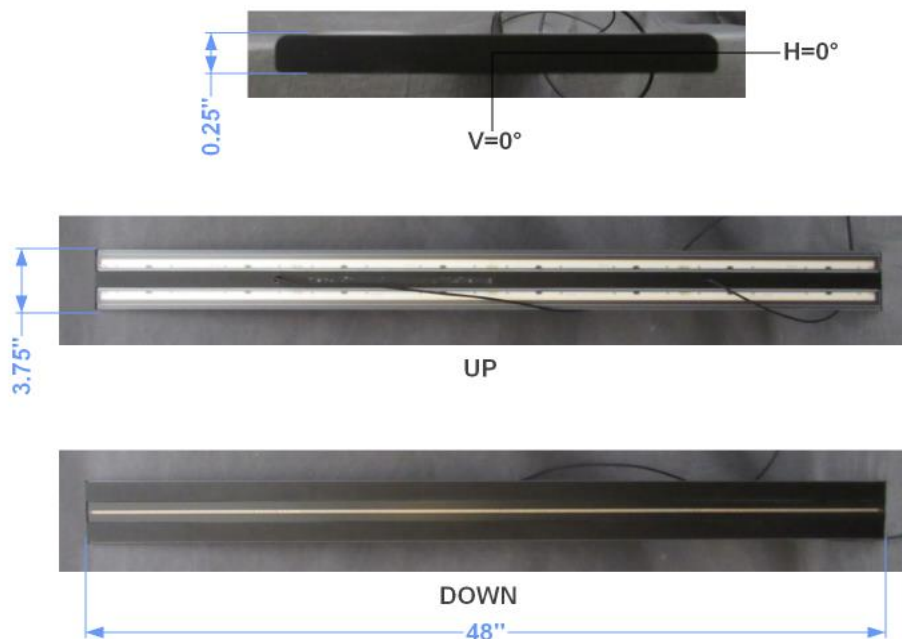
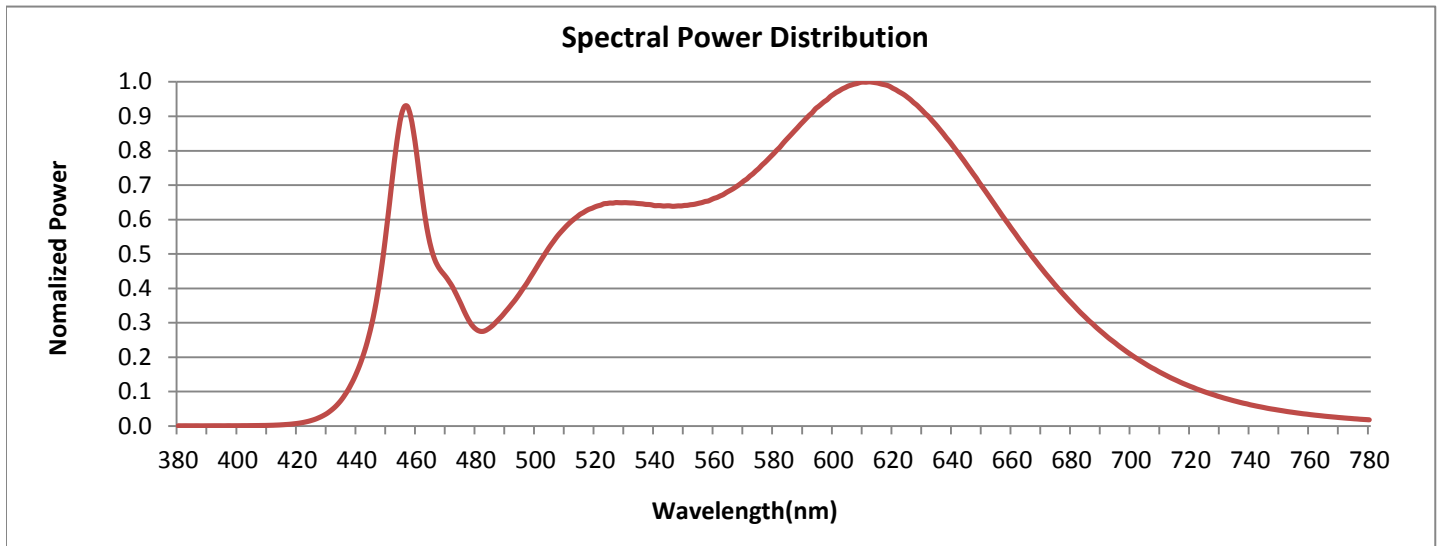


FIG. 1 LUMINAIRE

Colorimetry Test Results

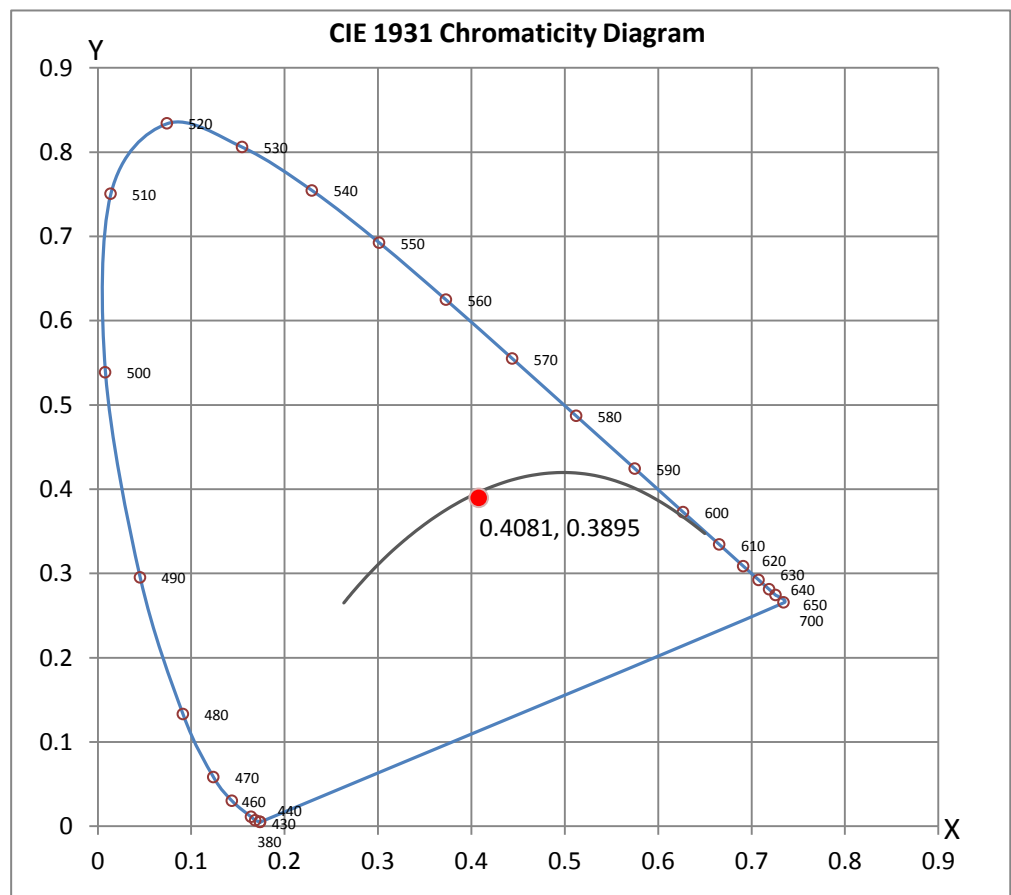


CRI & CCT

x	0.4081
y	0.3895
u'	0.2380
v'	0.5112
CRI	94.00
CCT	3428
Duv	-0.00114

R Values

R1	96.57
R2	99.41
R3	97.28
R4	96.14
R5	96.37
R6	95.09
R7	90.00
R8	81.26
R9	58.94
R10	98.97
R11	98.37
R12	76.69
R13	98.49
R14	99.40
R15	90.99





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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 : L121911555.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911555
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/21/2020
[MANUFAC] VODE LIGHTING
[LUMCAT] 707-Z3-48-Z-CC-SO-359-U2S2-BL
[LUMINAIRE] ZipThree LED Suspended, 48", 3500K, 90 CRI, zipper board, symmetric lens with edgeglow up/60°
[MORE] symmetric lens down, 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] 120.05VAC, 51.76W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5094
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	98
Total Luminaire Watts	51.76
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	2491	4348	6134
55	1061	2058	3382
65	549	1028	1825
75	312	561	1104
85	190	287	677

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>
0.0	1220	1220	1220	1220	1220	1220	1220	1220	1220	1220
1.0	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
3.0	1216	1216	1216	1217	1217	1217	1217	1217	1217	1217
5.0	1208	1208	1208	1209	1209	1209	1209	1210	1210	1211
7.0	1197	1197	1197	1197	1198	1198	1199	1200	1201	1202
9.0	1179	1179	1180	1181	1182	1183	1184	1186	1187	1188
11.0	1157	1157	1158	1159	1161	1162	1165	1167	1169	1171
13.0	1129	1129	1130	1132	1134	1137	1140	1144	1147	1150
15.0	1095	1096	1097	1099	1102	1106	1111	1115	1120	1124
17.0	1055	1055	1057	1061	1065	1070	1077	1082	1089	1095
19.5	994	995	998	1002	1009	1016	1024	1033	1042	1051
22.5	907	909	913	920	929	940	951	964	976	988
25.5	805	807	813	822	834	848	864	881	897	913
29.0	674	677	684	695	710	729	749	771	793	814
33.0	520	522	530	543	561	582	607	634	661	687
37.5	362	364	372	385	402	423	448	477	507	536
42.5	227	229	235	245	259	277	298	323	351	378
47.5	138	139	143	150	160	172	187	206	227	248
55.0	65	66	68	72	76	83	91	100	111	123
65.0	26	26	27	28	30	32	35	39	43	47
75.0	10	10	10	11	11	12	13	15	16	17
85.0	3	3	3	3	3	3	3	3	4	4
90.0	20	19	19	19	18	17	16	15	13	12
95.0	45	45	45	45	44	44	43	42	42	41
100.0	85	85	85	86	87	89	90	92	94	96
105.0	151	151	152	154	156	158	160	162	165	167
110.0	231	231	232	234	236	238	241	244	248	251
115.0	324	325	326	328	331	334	338	343	348	354
120.0	436	437	438	441	445	449	454	460	466	471
125.0	564	565	567	569	573	577	582	586	591	596
130.0	696	696	698	700	702	706	709	713	717	721
135.0	820	821	822	823	825	828	830	833	836	839
140.0	932	932	933	934	935	937	938	941	943	945
145.0	1027	1027	1028	1028	1029	1030	1032	1033	1034	1036
150.0	1107	1107	1107	1107	1108	1109	1110	1111	1112	1113
155.0	1171	1171	1172	1172	1172	1173	1173	1174	1175	1175
160.0	1222	1222	1222	1223	1223	1223	1223	1224	1225	1225
165.0	1261	1261	1261	1261	1261	1261	1262	1262	1262	1262
170.0	1287	1287	1287	1287	1287	1288	1288	1288	1288	1288
175.0	1302	1302	1302	1303	1302	1303	1302	1303	1303	1303
180.0	1306	1306	1306	1306	1306	1306	1306	1306	1306	1306

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	1220	1220	1220	1220	1220	1220	1220	1220	1220
1.0	1219	1219	1219	1219	1219	1219	1219	1219	1219
3.0	1217	1217	1217	1217	1217	1217	1217	1218	1218
5.0	1211	1211	1212	1212	1212	1212	1213	1213	1213
7.0	1202	1203	1204	1205	1205	1206	1206	1206	1207
9.0	1190	1191	1192	1193	1194	1195	1196	1196	1196
11.0	1173	1176	1178	1179	1181	1182	1183	1183	1183
13.0	1153	1156	1159	1161	1163	1165	1166	1167	1167
15.0	1129	1133	1137	1140	1143	1145	1146	1147	1148

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CANDELA TABULATION - (Cont.)

17.0	1101	1106	1111	1115	1118	1121	1123	1124	1124
19.5	1058	1066	1072	1077	1082	1085	1087	1088	1089
22.5	999	1009	1017	1024	1030	1034	1037	1039	1040
25.5	928	941	952	961	967	973	976	978	979
29.0	834	850	865	876	884	890	894	896	896
33.0	711	733	749	763	772	779	783	785	786
37.5	564	589	608	623	634	641	645	648	649
42.5	406	430	450	466	477	484	489	491	491
47.5	271	292	309	324	334	341	345	348	348
55.0	136	148	159	169	176	182	185	187	188
65.0	52	57	61	65	69	71	73	75	75
75.0	19	21	22	24	25	26	27	28	28
85.0	4	4	5	5	5	5	5	6	6
90.0	11	9	8	6	5	4	3	2	2
95.0	40	40	40	40	39	39	38	38	38
100.0	97	98	98	98	98	98	98	98	98
105.0	168	170	171	174	175	175	175	175	175
110.0	255	259	263	265	267	267	268	268	268
115.0	359	364	367	370	372	373	374	375	375
120.0	476	481	484	487	490	492	493	494	494
125.0	600	604	608	611	613	615	617	618	618
130.0	724	728	731	734	736	738	740	741	741
135.0	842	845	847	849	851	853	854	855	855
140.0	947	949	951	953	954	956	957	957	958
145.0	1038	1039	1041	1042	1043	1044	1045	1045	1045
150.0	1114	1115	1116	1117	1118	1118	1119	1119	1119
155.0	1176	1177	1177	1178	1178	1179	1179	1179	1179
160.0	1225	1226	1226	1226	1227	1227	1227	1227	1227
165.0	1262	1263	1263	1263	1263	1263	1263	1264	1264
170.0	1288	1288	1288	1288	1288	1288	1289	1289	1289
175.0	1303	1303	1303	1303	1303	1303	1303	1303	1303
180.0	1306	1306	1306	1306	1306	1306	1306	1306	1306

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	409.97	N.A.	8.00
0-30	804.98	N.A.	15.80
0-40	1140.41	N.A.	22.40
0-60	1535.79	N.A.	30.10
0-80	1652.99	N.A.	32.40
0-90	1669.18	N.A.	32.80
10-90	1576.00	N.A.	30.90
20-40	730.44	N.A.	14.30
20-50	1006.57	N.A.	19.80
40-70	478.08	N.A.	9.40
60-80	117.20	N.A.	2.30
70-80	34.49	N.A.	0.70
80-90	16.19	N.A.	0.30
90-110	228.96	N.A.	4.50
90-120	580.80	N.A.	11.40
90-130	1111.65	N.A.	21.80
90-150	2403.6	N.A.	47.20
90-180	3424.99	N.A.	67.20
110-180	3196.03	N.A.	62.70
0-180	5094.16	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	93.17
10-20	316.80
20-30	395.01
30-40	335.43
40-50	276.13
50-60	119.25
60-70	82.70
70-80	34.49
80-90	16.19
90-100	51.11
100-110	177.84
110-120	351.84
120-130	530.86
130-140	644.98
140-150	646.97
150-160	541.30
160-170	356.23
170-180	123.86

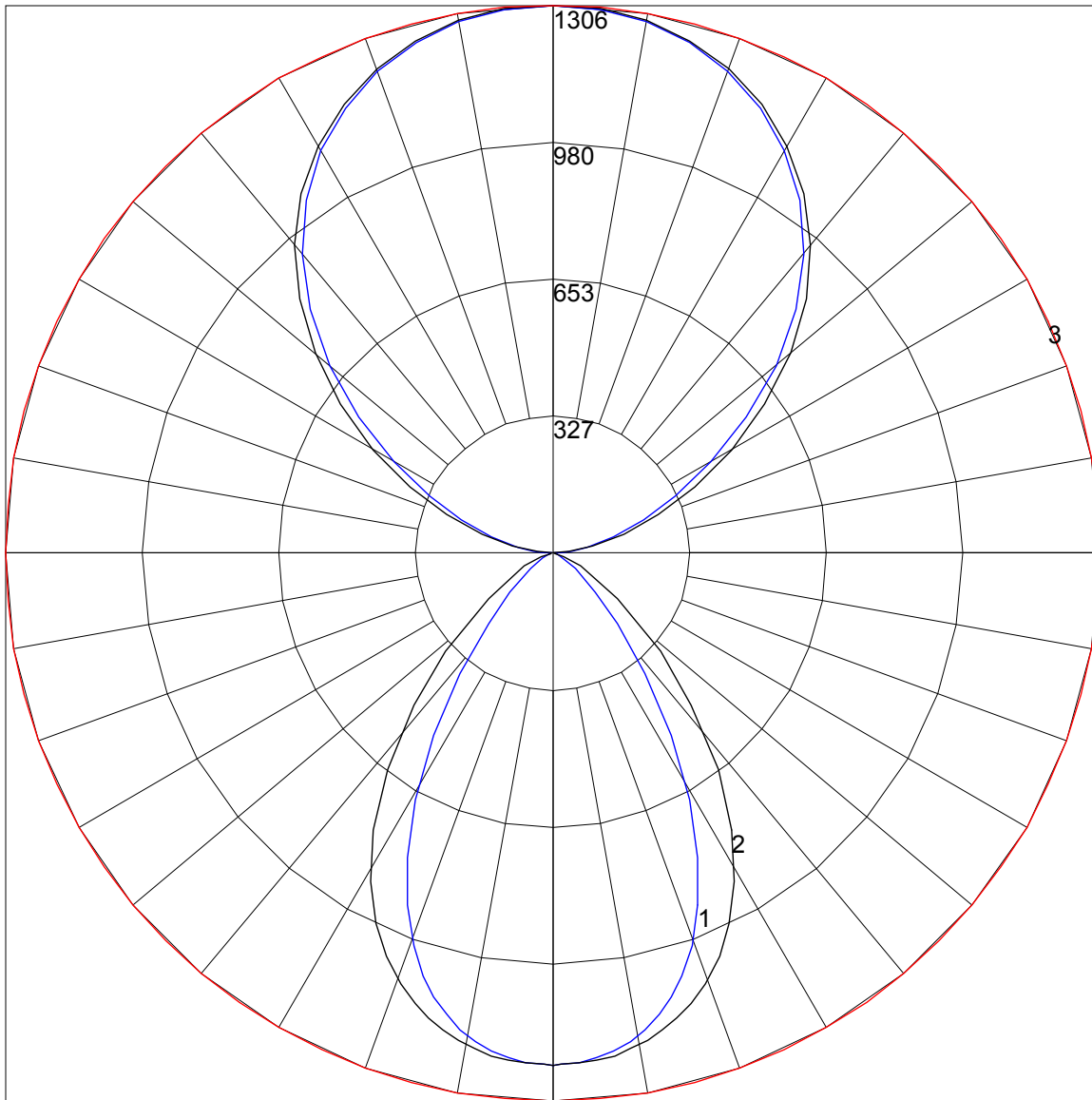
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	56	56	56	40	40	40	33
1	95	91	87	84	85	82	79	77	66	64	62	51	50	48	37	36	36	29
2	87	80	75	70	78	73	68	64	59	56	53	46	44	42	34	32	31	26
3	80	71	65	60	72	65	59	55	53	49	46	41	39	37	31	29	28	23
4	74	64	57	51	66	58	52	47	47	43	40	37	34	32	28	26	25	21
5	68	57	50	45	61	52	46	41	43	38	35	34	31	28	26	24	22	19
6	63	52	44	39	57	47	41	36	39	34	31	31	28	25	24	22	20	17
7	58	47	40	35	53	43	37	32	36	31	27	29	25	23	22	20	18	16
8	54	43	36	31	49	39	33	29	33	28	25	26	23	21	20	18	17	14
9	51	39	32	28	46	36	30	26	30	26	22	24	21	19	19	17	15	13
10	47	36	29	25	43	33	27	23	28	23	20	23	19	17	18	16	14	12

POLAR GRAPH



Maximum Candela = 1306 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.)