

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-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	104	107	109	113
Total Lumens, 4' rail length (1219mm)	5360	5530	5643	5699
Lumens per foot (305mm)	1340	1382	1411	1425
Lumens per foot UP (305mm)	839	865	883	892
Lumens per foot DOWN (305mm)	502	517	528	533
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: L121911547



Report No: L121911547

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

Test Summary

Total Lumens:	5642.56
Efficacy:	108.98
Color Redering Index:	94.1
Correlated Color Temperature:	3410
Input Voltage (VAC/60Hz):	120.05
Input Current (Amp):	0.4343
Input Power (W):	51.78
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

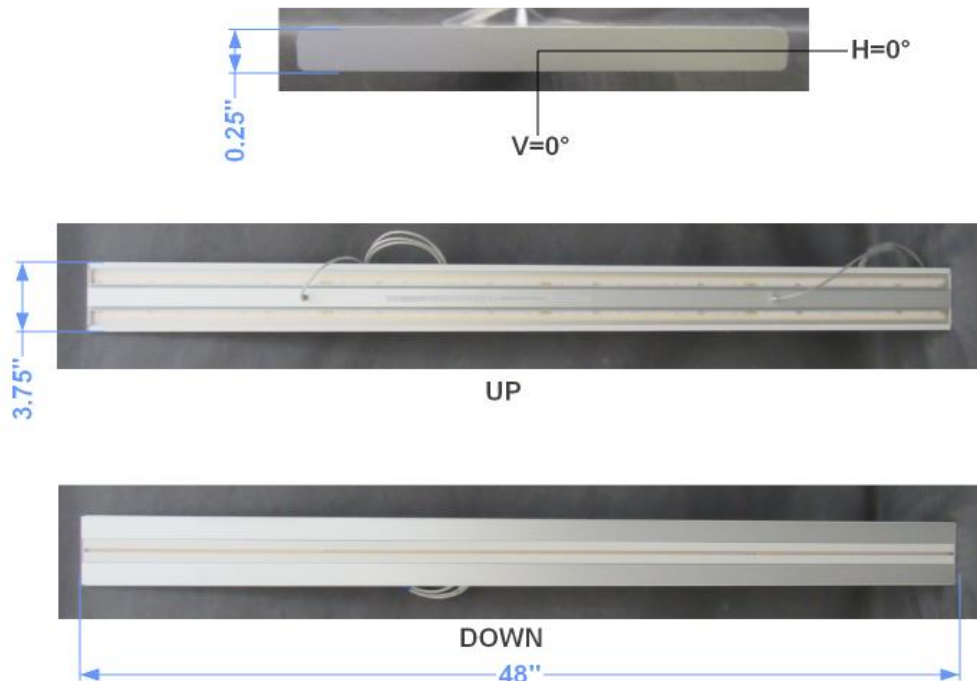
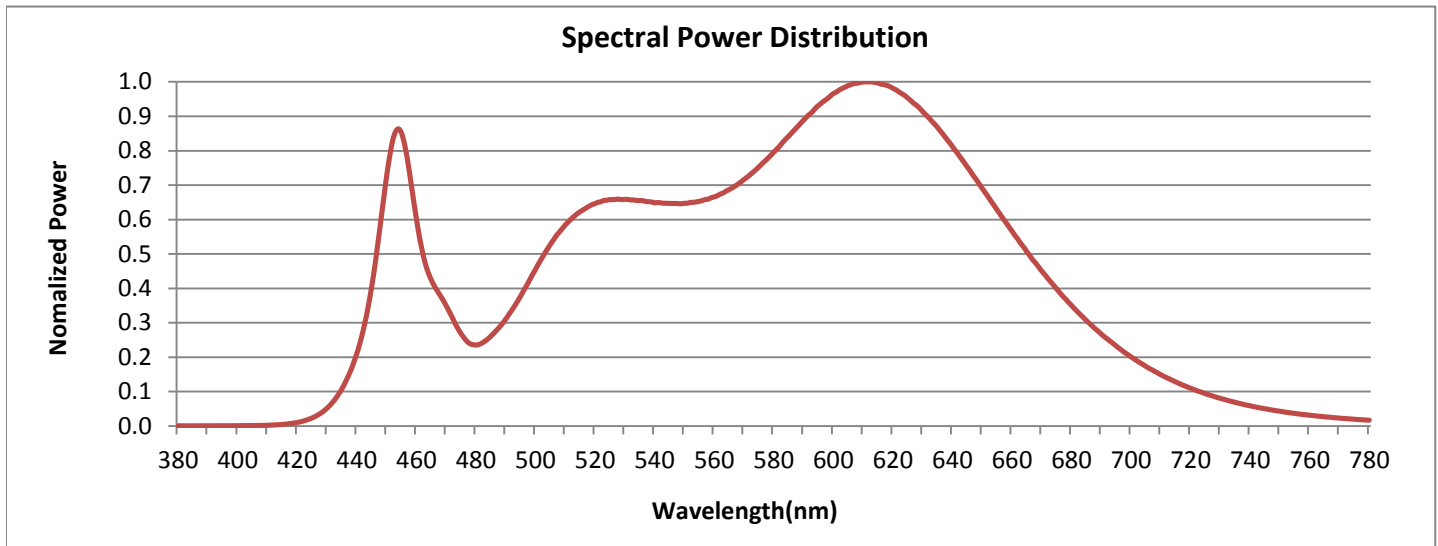


FIG. 1 LUMINAIRE

Colorimetry Test Results

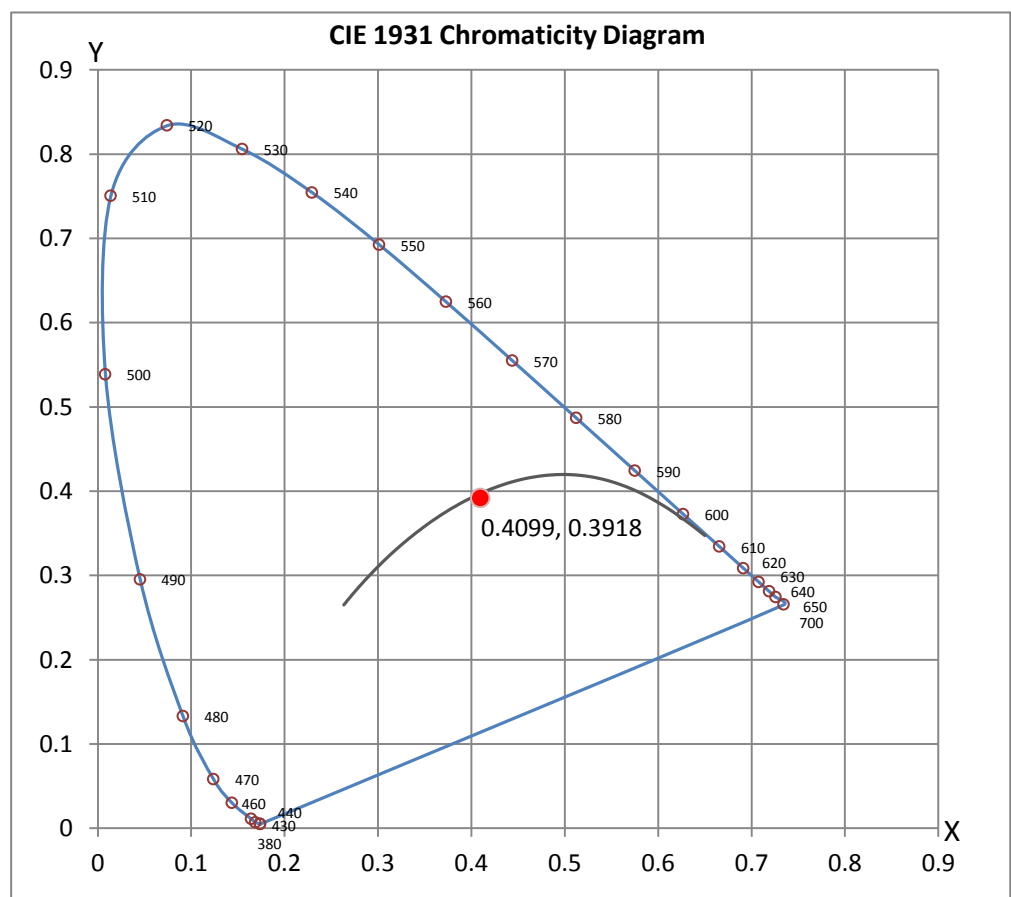


CRI & CCT

x	0.4099
y	0.3918
u'	0.2383
v'	0.5124
CRI	94.10
CCT	3410
Duv	-0.00051

R Values

R1	95.56
R2	97.84
R3	98.73
R4	96.67
R5	95.91
R6	96.28
R7	91.23
R8	80.83
R9	55.40
R10	94.76
R11	96.75
R12	77.74
R13	96.85
R14	99.10
R15	89.66





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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 : L121911547.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911547
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/20/2020
[MANUFAC] VODE LIGHTING
[LUMCAT] 707-Z3-48-Z-CC-SO-359-U1S2-AL
[LUMINAIRE] ZipThree LED Suspended, 48", 3500K, 90 CRI, zipper board, symmetric lens up/60° symmetric lens down,
[MORE] standard output, clear 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, 51.78W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5643
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	109
Total Luminaire Watts	51.78
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	3924	5953	7524
55	2302	3598	5217
65	1646	2428	3892
75	1248	1717	2877
85	698	861	1691

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911547.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	1322	1322	1322	1322	1322	1322	1322	1322	1322	1322
1.0	1322	1322	1321	1321	1322	1322	1322	1322	1322	1322
3.0	1318	1318	1319	1319	1319	1319	1319	1319	1319	1319
5.0	1311	1311	1312	1312	1312	1312	1313	1313	1313	1314
7.0	1300	1300	1300	1301	1301	1302	1303	1304	1305	1306
9.0	1283	1283	1285	1285	1286	1287	1289	1291	1292	1294
11.0	1261	1262	1263	1264	1265	1268	1270	1273	1276	1278
13.0	1234	1235	1236	1238	1240	1244	1247	1251	1254	1258
15.0	1201	1202	1204	1207	1211	1215	1219	1224	1230	1235
17.0	1163	1163	1166	1169	1174	1180	1186	1193	1200	1207
19.5	1104	1106	1109	1114	1121	1129	1138	1148	1157	1166
22.5	1021	1023	1027	1034	1044	1055	1067	1080	1092	1105
25.5	925	927	933	942	955	969	985	1001	1018	1033
29.0	799	802	809	821	836	855	875	896	917	935
33.0	648	650	659	673	692	714	738	763	788	810
37.5	486	489	498	512	531	554	580	607	634	659
42.5	340	342	350	362	378	399	422	447	473	497
47.5	235	237	243	252	265	280	298	318	339	360
55.0	141	142	145	151	158	167	177	189	202	215
65.0	78	79	80	82	86	89	94	99	105	111
75.0	40	40	41	41	43	44	46	48	50	52
85.0	11	11	11	11	11	11	11	12	12	12
90.0	3	3	3	3	3	3	3	3	3	3
95.0	28	28	28	28	29	29	29	30	30	31
100.0	76	76	77	78	80	82	84	87	89	92
105.0	149	150	151	152	155	157	160	163	166	169
110.0	237	237	238	240	243	246	249	253	256	260
115.0	339	339	341	343	346	349	353	357	361	366
120.0	456	456	458	460	463	466	471	477	483	489
125.0	585	585	587	590	594	598	603	608	614	618
130.0	721	722	723	725	728	731	735	738	742	745
135.0	849	850	850	852	854	856	858	861	863	865
140.0	963	963	964	965	966	967	969	970	972	974
145.0	1060	1061	1061	1062	1062	1063	1065	1066	1067	1069
150.0	1143	1143	1143	1144	1144	1145	1146	1147	1148	1149
155.0	1211	1211	1211	1212	1212	1213	1213	1214	1215	1216
160.0	1266	1265	1266	1266	1266	1266	1267	1267	1268	1268
165.0	1306	1306	1306	1307	1307	1307	1307	1307	1307	1307
170.0	1334	1334	1334	1334	1334	1334	1334	1334	1334	1334
175.0	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
180.0	1354	1354	1354	1354	1354	1354	1354	1354	1354	1354

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	1322	1322	1322	1322	1322	1322	1322	1322	1322
1.0	1322	1321	1322	1321	1322	1321	1322	1321	1321
3.0	1320	1319	1320	1320	1320	1320	1320	1320	1320
5.0	1314	1315	1315	1316	1316	1316	1317	1317	1317
7.0	1307	1308	1308	1309	1310	1311	1311	1311	1311
9.0	1296	1297	1299	1300	1301	1302	1303	1303	1303
11.0	1281	1283	1286	1287	1289	1290	1291	1291	1291
13.0	1262	1265	1268	1271	1273	1275	1276	1277	1277
15.0	1240	1244	1248	1252	1255	1257	1258	1259	1259

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911547.IES

CANDELA TABULATION - (Cont.)

17.0	1213	1219	1223	1228	1232	1234	1236	1237	1237
19.5	1174	1181	1187	1193	1197	1200	1202	1203	1204
22.5	1116	1126	1134	1139	1144	1148	1150	1152	1153
25.5	1047	1059	1068	1076	1082	1086	1088	1090	1091
29.0	953	968	979	988	995	999	1002	1003	1003
33.0	831	848	861	872	879	883	885	887	888
37.5	683	701	716	727	734	739	742	743	744
42.5	521	539	554	566	573	579	582	584	584
47.5	380	396	411	422	431	437	442	444	445
55.0	229	241	252	263	272	279	285	288	290
65.0	118	125	131	138	145	151	155	158	160
75.0	55	57	60	63	66	69	71	72	73
85.0	13	13	14	14	15	15	15	15	15
90.0	2	2	2	2	2	2	2	2	2
95.0	32	33	35	36	37	37	38	39	39
100.0	94	96	97	98	99	102	103	103	104
105.0	171	174	176	179	182	184	185	186	186
110.0	263	267	272	276	279	281	282	283	283
115.0	372	378	382	386	388	390	392	393	393
120.0	495	499	503	506	509	511	513	514	515
125.0	622	626	629	632	634	637	639	640	641
130.0	748	751	754	757	760	762	763	764	765
135.0	868	870	873	875	877	879	881	881	882
140.0	976	978	980	982	984	985	986	986	986
145.0	1070	1072	1074	1075	1076	1077	1077	1078	1078
150.0	1151	1152	1153	1154	1154	1155	1155	1156	1156
155.0	1216	1217	1218	1218	1218	1219	1219	1219	1219
160.0	1269	1269	1269	1269	1269	1270	1270	1270	1270
165.0	1308	1308	1308	1308	1308	1308	1308	1308	1308
170.0	1335	1334	1334	1334	1335	1334	1335	1335	1335
175.0	1350	1350	1350	1350	1350	1350	1350	1350	1350
180.0	1354	1354	1354	1354	1354	1354	1354	1354	1354

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911547.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	449.07	N.A.	8.00
0-30	893.94	N.A.	15.80
0-40	1289.77	N.A.	22.90
0-60	1828.12	N.A.	32.40
0-80	2071.4	N.A.	36.70
0-90	2111.63	N.A.	37.40
10-90	2010.42	N.A.	35.60
20-40	840.70	N.A.	14.90
20-50	1198.05	N.A.	21.20
40-70	694.73	N.A.	12.30
60-80	243.28	N.A.	4.30
70-80	86.89	N.A.	1.50
80-90	40.23	N.A.	0.70
90-110	224.09	N.A.	4.00
90-120	590.32	N.A.	10.50
90-130	1140.4	N.A.	20.20
90-150	2473.95	N.A.	43.80
90-180	3530.93	N.A.	62.60
110-180	3306.84	N.A.	58.60
0-180	5642.56	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	101.21
10-20	347.86
20-30	444.87
30-40	395.83
40-50	357.35
50-60	180.99
60-70	156.38
70-80	86.89
80-90	40.23
90-100	42.91
100-110	181.19
110-120	366.23
120-130	550.08
130-140	665.90
140-150	667.65
150-160	559.70
160-170	368.93
170-180	128.35

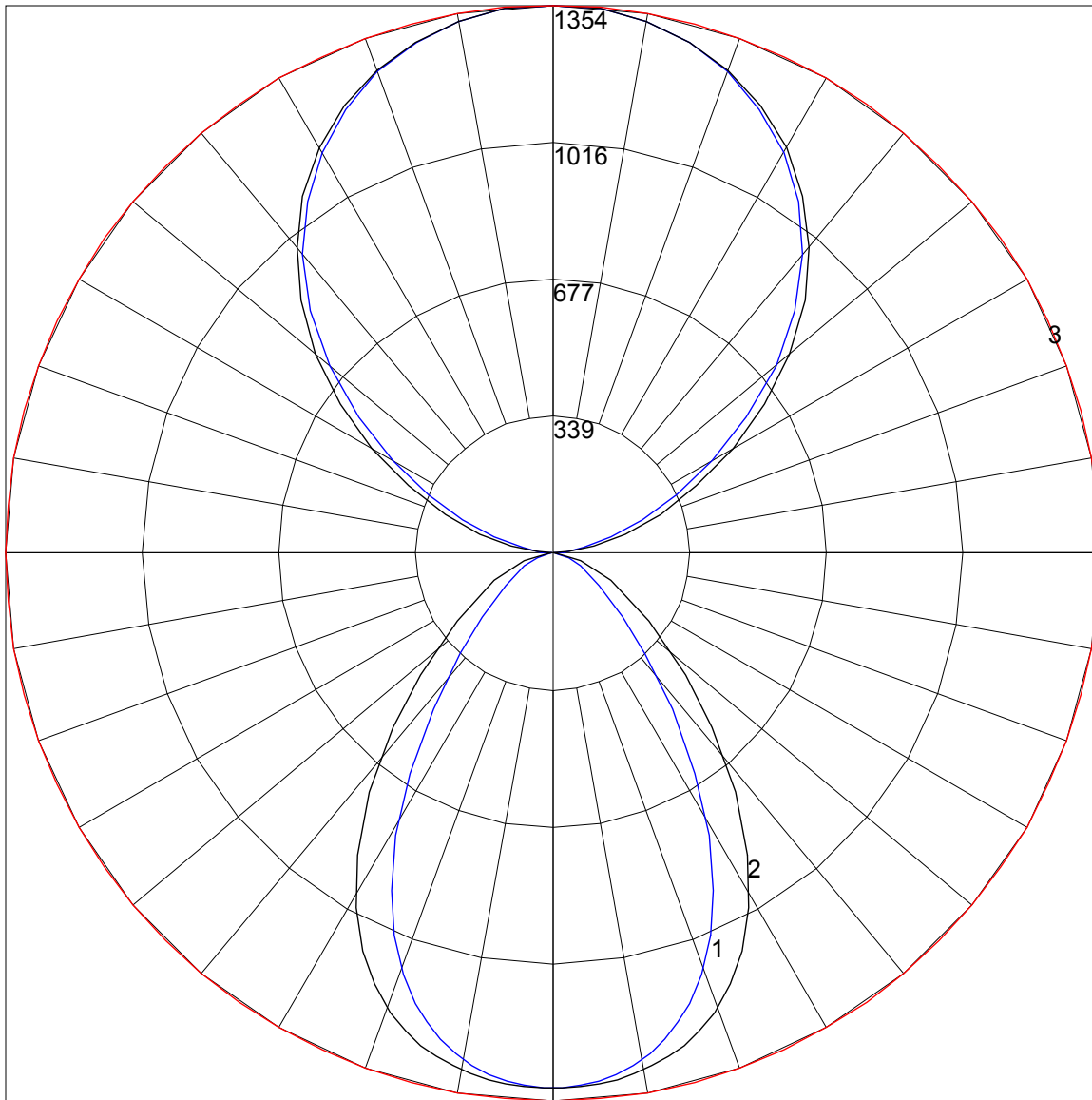
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	104	104	104	94	94	94	94	76	76	76	60	60	60	45	45	45	37
1	95	91	88	85	86	83	80	77	68	65	64	53	52	51	40	39	39	33
2	87	81	75	70	79	73	69	65	60	57	54	48	45	43	36	35	34	28
3	80	71	65	59	73	65	59	55	54	49	46	43	40	38	33	31	29	25
4	74	64	56	51	67	58	52	47	48	43	40	39	35	33	30	28	26	22
5	68	57	50	44	62	52	46	41	43	39	35	35	32	29	27	25	23	20
6	63	52	44	39	57	47	41	36	39	34	31	32	28	26	25	23	21	18
7	58	47	39	34	53	43	36	32	36	31	27	29	26	23	23	21	19	16
8	54	43	35	30	49	39	33	28	33	28	25	27	23	21	21	19	17	15
9	51	39	32	27	46	36	30	25	30	26	22	25	21	19	20	17	16	13
10	47	36	29	24	43	33	27	23	28	23	20	23	20	17	19	16	14	12

POLAR GRAPH



Maximum Candela = 1354 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.)