

IES Report

ZipThree® | Ceiling Cable | 707 | Symmetric with EdgeGlow, up | 40° Symmetric, down | 90 CRI | SO

707-Z3-XX-4-48-CC-XX-XX-XX-X-0-Z-SO-359-U2S1-0-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	93	96	98	102
Total Lumens, 4' rail length (1219mm)	4780	4931	5032	5082
Lumens per foot (305mm)	1195	1233	1258	1271
Lumens per foot UP (305mm)	817	843	860	869
Lumens per foot DOWN (305mm)	378	390	398	402
Input Power (W), 4' rail length (1219mm)	51.7	51.7	51.7	51.7
Watts per foot (305mm)	13.1	13.1	13.1	13.1
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: L121911552



Report No: L121911552

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-U2S1-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: 1/10/20 - 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-U2S1-AL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)

Test Summary

Total Lumens:	5031.96
Efficacy:	97.41
Color Redering Index:	94.3
Correlated Color Temperature:	3398
Input Voltage (VAC/60Hz):	120.01
Input Current (Amp):	0.4332
Input Power (W):	51.66
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

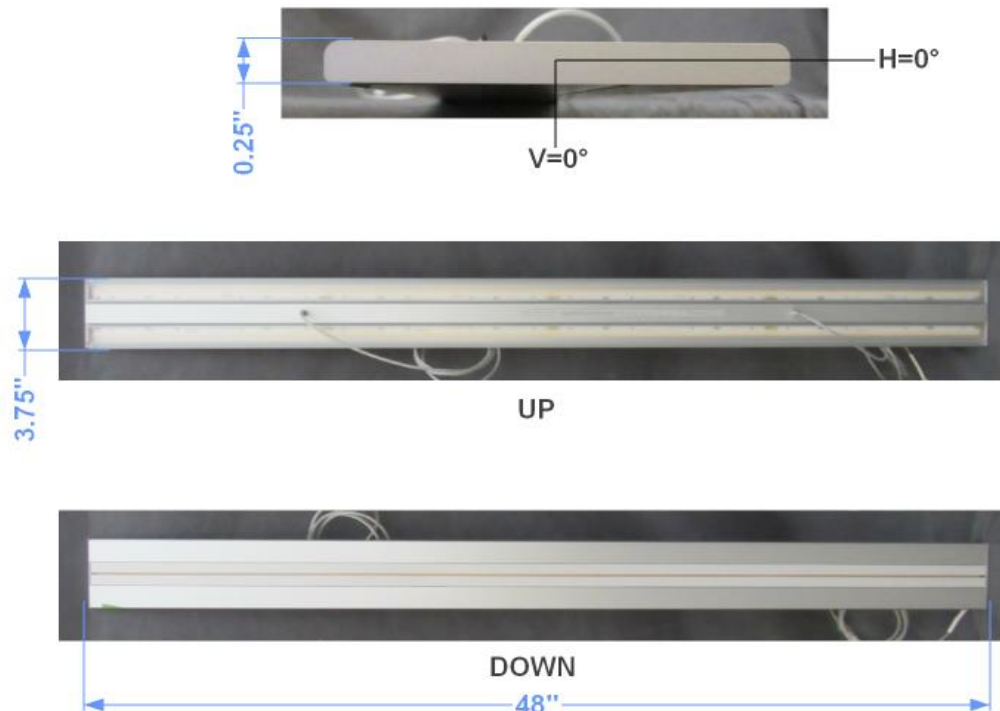
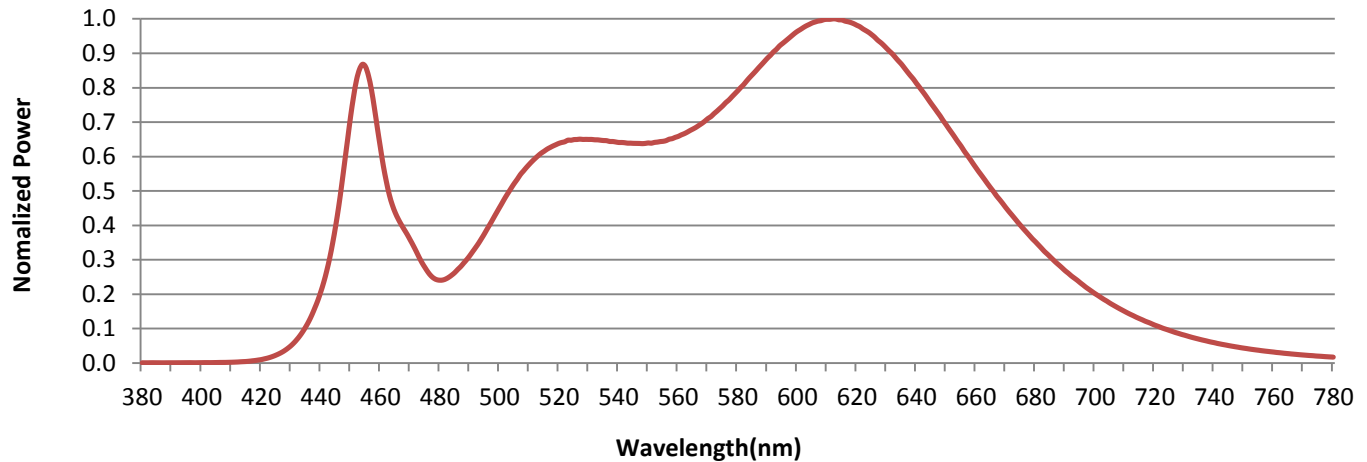


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



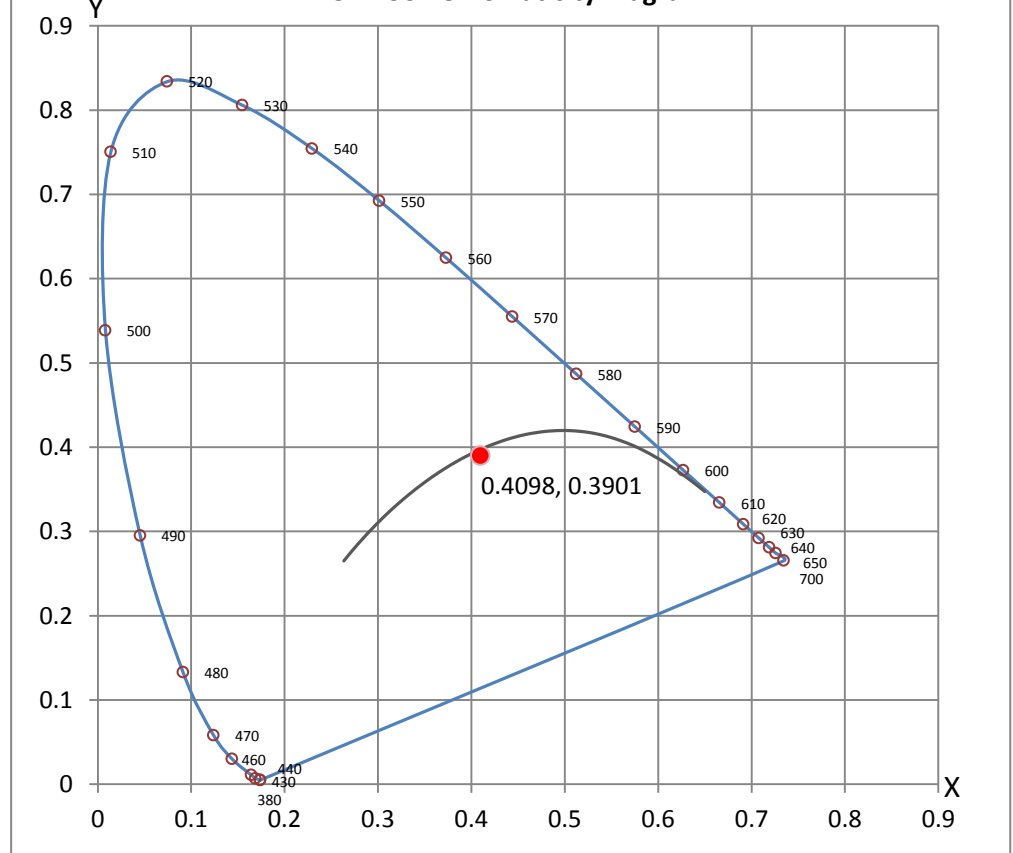
CRI & CCT

x	0.4098
y	0.3901
u'	0.2389
v'	0.5117
CRI	94.30
CCT	3398
Duv	-0.00123

R Values

R1	95.99
R2	98.35
R3	98.48
R4	96.86
R5	96.42
R6	95.96
R7	90.93
R8	81.03
R9	56.59
R10	96.01
R11	96.65
R12	78.34
R13	97.41
R14	99.31
R15	90.25

CIE 1931 Chromaticity Diagram





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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 : L121911552.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911552
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/21/2020
[MANUFAC] VODE LIGHTING
[LUMCAT] 707-Z3-48-Z-CC-SO-359-U2S1-AL
[LUMINAIRE] ZipThree LED Suspended, 48", 3500K, 90 CRI, zipper board, symmetric lens with edgeglow up/40°
[MORE] symmetric lens down, 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] 120.01VAC, 51.66W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5032
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	97
Total Luminaire Watts	51.66
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	2204	3667	6339
55	1551	2410	4317
65	1266	1794	3187
75	998	1321	2325
85	571	717	1353

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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	1201	1201	1201	1201	1201	1201	1201	1201	1201	1201
1.0	1201	1201	1201	1201	1201	1201	1201	1201	1201	1201
3.0	1196	1196	1196	1196	1196	1197	1197	1197	1198	1198
5.0	1179	1179	1180	1180	1181	1182	1184	1185	1186	1188
7.0	1154	1154	1155	1156	1158	1160	1163	1165	1168	1171
9.0	1119	1119	1120	1123	1126	1130	1134	1139	1144	1149
11.0	1075	1076	1078	1081	1086	1092	1098	1106	1113	1121
13.0	1023	1024	1027	1032	1038	1046	1055	1066	1077	1088
15.0	963	964	968	974	983	993	1005	1019	1033	1048
17.0	897	898	903	911	921	935	950	966	984	1002
19.5	808	810	816	825	838	855	873	894	917	940
22.5	696	698	705	717	732	752	775	800	828	856
25.5	585	588	596	608	625	647	672	702	733	766
29.0	467	470	478	490	508	530	556	586	621	657
33.0	354	356	363	375	391	412	437	466	500	535
37.5	258	260	266	275	288	305	326	352	381	414
42.5	185	187	191	198	207	220	236	255	279	305
47.5	138	139	142	147	154	163	174	188	204	223
55.0	95	96	97	100	104	109	115	123	133	144
65.0	60	60	61	62	64	66	69	73	77	82
75.0	32	33	33	33	34	35	36	37	39	40
85.0	9	9	9	9	9	9	9	9	10	10
90.0	20	20	20	19	18	17	16	15	13	12
95.0	45	45	45	44	44	43	42	41	41	40
100.0	85	86	86	86	87	88	89	90	91	93
105.0	148	148	149	150	152	154	156	158	161	163
110.0	228	229	230	231	233	236	239	243	246	250
115.0	327	327	328	331	333	337	341	346	351	357
120.0	445	445	447	449	453	458	463	468	474	480
125.0	578	578	580	582	586	590	594	599	604	608
130.0	712	712	714	715	718	721	724	727	730	734
135.0	836	836	836	838	839	841	843	845	847	850
140.0	943	943	944	944	945	946	948	949	950	951
145.0	1034	1034	1034	1035	1035	1036	1036	1037	1038	1038
150.0	1109	1109	1109	1109	1109	1110	1110	1111	1111	1111
155.0	1170	1170	1170	1170	1170	1170	1170	1170	1170	1171
160.0	1217	1217	1217	1217	1217	1217	1218	1218	1218	1218
165.0	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254
170.0	1279	1279	1279	1279	1280	1279	1280	1280	1280	1280
175.0	1294	1294	1294	1295	1294	1294	1294	1294	1295	1295
180.0	1298	1298	1298	1298	1298	1298	1298	1298	1298	1298

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	1201	1201	1201	1201	1201	1201	1201	1201	1201
1.0	1201	1201	1201	1201	1201	1201	1201	1201	1201
3.0	1199	1199	1199	1199	1200	1200	1200	1201	1200
5.0	1189	1190	1192	1193	1194	1195	1195	1196	1196
7.0	1175	1178	1181	1183	1185	1187	1188	1189	1189
9.0	1155	1160	1165	1169	1173	1176	1178	1179	1180
11.0	1130	1137	1145	1151	1157	1162	1165	1167	1168
13.0	1099	1110	1120	1130	1137	1144	1148	1151	1152
15.0	1062	1077	1090	1102	1112	1121	1127	1131	1132

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CANDELA TABULATION - (Cont.)

17.0	1021	1039	1056	1071	1084	1095	1102	1107	1108
19.5	963	986	1007	1026	1043	1056	1066	1071	1073
22.5	885	913	939	964	984	1000	1012	1020	1022
25.5	800	832	863	892	916	935	949	958	960
29.0	694	731	765	798	825	848	863	873	876
33.0	574	612	649	684	713	737	754	764	767
37.5	449	485	521	554	582	606	623	633	636
42.5	333	363	393	422	446	467	482	491	494
47.5	245	267	290	313	333	350	362	370	373
55.0	156	170	184	198	211	223	232	238	240
65.0	88	94	101	108	115	121	126	129	131
75.0	43	45	48	50	53	55	57	59	59
85.0	10	10	11	11	12	12	12	12	12
90.0	10	9	8	7	6	5	4	3	3
95.0	39	39	39	39	38	38	38	38	38
100.0	94	95	95	96	97	98	99	99	98
105.0	165	167	169	172	175	176	176	176	176
110.0	254	259	263	267	269	270	271	271	271
115.0	363	368	372	375	378	379	380	381	381
120.0	485	489	493	496	499	500	502	502	503
125.0	612	616	619	622	624	625	627	627	628
130.0	736	739	742	744	745	747	748	748	748
135.0	851	853	855	856	857	858	859	859	860
140.0	952	953	954	955	956	957	957	958	958
145.0	1039	1039	1040	1040	1041	1042	1042	1042	1042
150.0	1111	1112	1112	1113	1113	1113	1114	1114	1113
155.0	1171	1171	1172	1172	1172	1173	1173	1173	1173
160.0	1218	1219	1219	1219	1219	1219	1220	1220	1220
165.0	1255	1255	1255	1255	1255	1255	1255	1255	1255
170.0	1280	1280	1280	1280	1280	1280	1280	1280	1280
175.0	1294	1294	1294	1295	1294	1294	1294	1294	1294
180.0	1298	1298	1298	1298	1298	1298	1298	1298	1298

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	386.67	N.A.	7.70
0-30	727.54	N.A.	14.50
0-40	1004.21	N.A.	20.00
0-60	1373.01	N.A.	27.30
0-80	1556.4	N.A.	30.90
0-90	1591.17	N.A.	31.60
10-90	1500.13	N.A.	29.80
20-40	617.55	N.A.	12.30
20-50	859.58	N.A.	17.10
40-70	484.52	N.A.	9.60
60-80	183.39	N.A.	3.60
70-80	67.67	N.A.	1.30
80-90	34.77	N.A.	0.70
90-110	226.83	N.A.	4.50
90-120	582.61	N.A.	11.60
90-130	1123.43	N.A.	22.30
90-150	2424.18	N.A.	48.20
90-180	3440.79	N.A.	68.40
110-180	3213.96	N.A.	63.90
0-180	5031.96	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	91.04
10-20	295.63
20-30	340.87
30-40	276.67
40-50	242.03
50-60	126.77
60-70	115.72
70-80	67.67
80-90	34.77
90-100	50.57
100-110	176.25
110-120	355.78
120-130	540.82
130-140	652.43
140-150	648.32
150-160	539.42
160-170	354.12
170-180	123.07

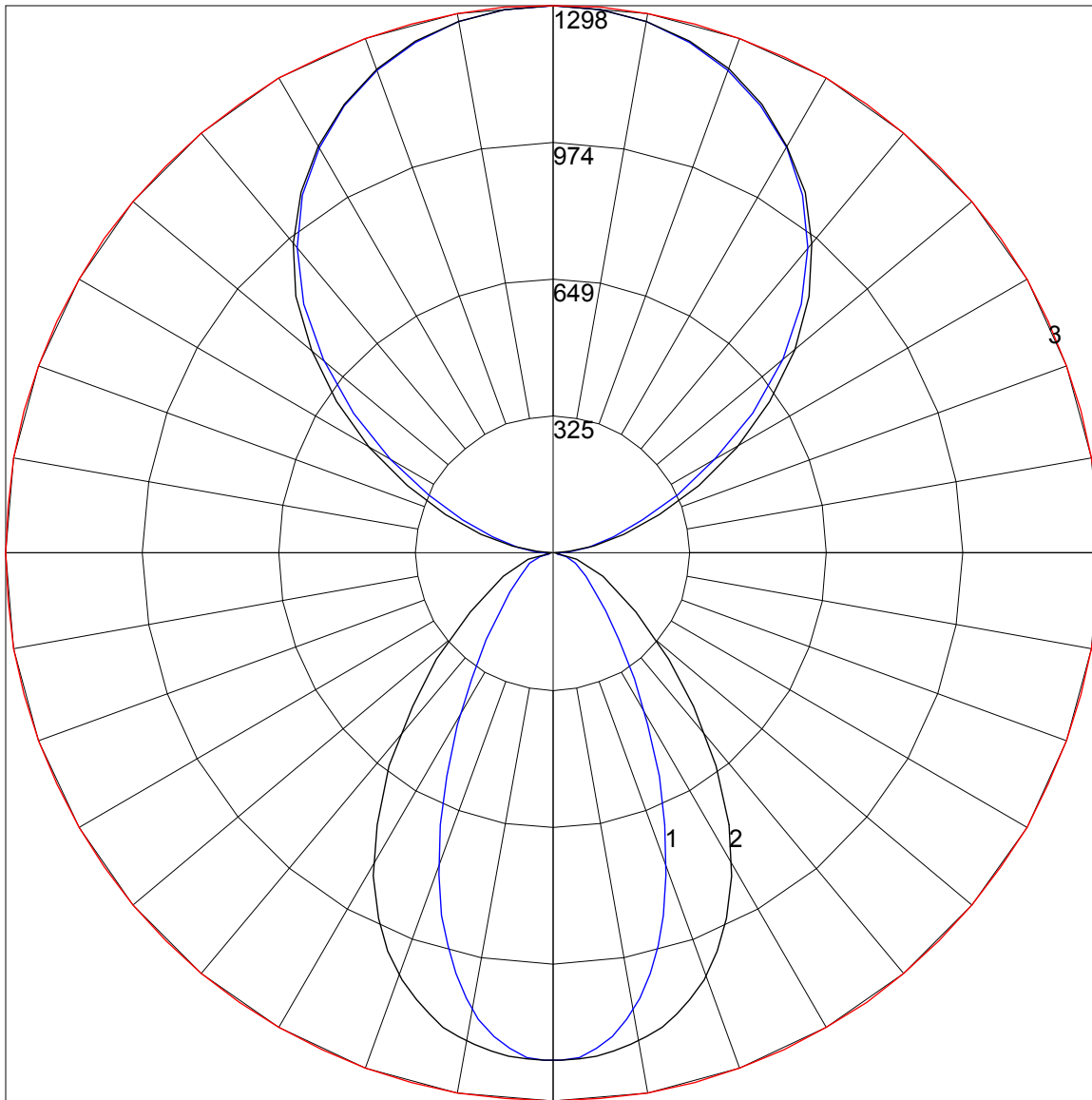
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	92	92	92	92	73	73	73	55	55	55	39	39	39	32
1	94	90	86	83	85	81	78	75	65	63	61	49	48	47	35	35	34	27
2	86	79	74	69	77	72	67	63	57	54	51	44	42	40	32	31	30	24
3	79	70	64	58	71	64	58	53	51	47	44	40	37	35	29	27	26	21
4	73	63	55	50	65	57	51	46	46	42	38	36	33	30	26	25	23	19
5	67	56	49	43	60	51	45	40	42	37	33	33	29	27	24	22	21	17
6	62	51	43	38	56	46	40	35	38	33	29	30	26	24	22	20	19	16
7	57	46	39	33	52	42	36	31	34	30	26	27	24	22	21	19	17	14
8	53	42	35	30	48	38	32	28	32	27	24	25	22	19	19	17	15	13
9	50	38	31	27	45	35	29	25	29	24	21	23	20	18	18	16	14	12
10	47	35	29	24	42	32	26	22	27	22	19	22	18	16	17	15	13	11

POLAR GRAPH



Maximum Candela = 1298 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.)