

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-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	95	98	100	104
Total Lumens, 4' rail length (1219mm)	4837	4990	5092	5194
Lumens per foot (305mm)	1209	1248	1273	1298
Lumens per foot UP (305mm)	753	777	793	808
Lumens per foot DOWN (305mm)	456	471	480	490
Input Power (W), 4' rail length (1219mm)	51.3	51.3	51.3	51.3
Watts per foot (305mm)	12.9	12.9	12.9	12.9
CRI*	96	96	96	96

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: L031805804R01



Report No: L031805804R01

Issue Date: 4/12/2018

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

Model Number: 707-Z3-CC-Z-SO-359-U2S2-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.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 3/29/18

Date of Tests: 4/2/18 - 4/5/18

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	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
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

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	Vode Lighting
Model Number:	707-Z3-CC-Z-SO-359-U2S2-AL
Driver Model Number:	MEAN WELL HLG-40H-36A(2 DRIVERS)
Total Lumens:	5091.96
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.43
Input Power (W):	51.27
Input Power Factor:	0.99
Current ATHD @ 120V(%):	9%
Current ATHD @ 277V(%):	N/A
Efficacy:	99
Color Rendering Index (CRI):	96
Correlated Color Temperature (K):	3383
Chromaticity Coordinate x:	0.4119
Chromaticity Coordinate y:	0.3935
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:25

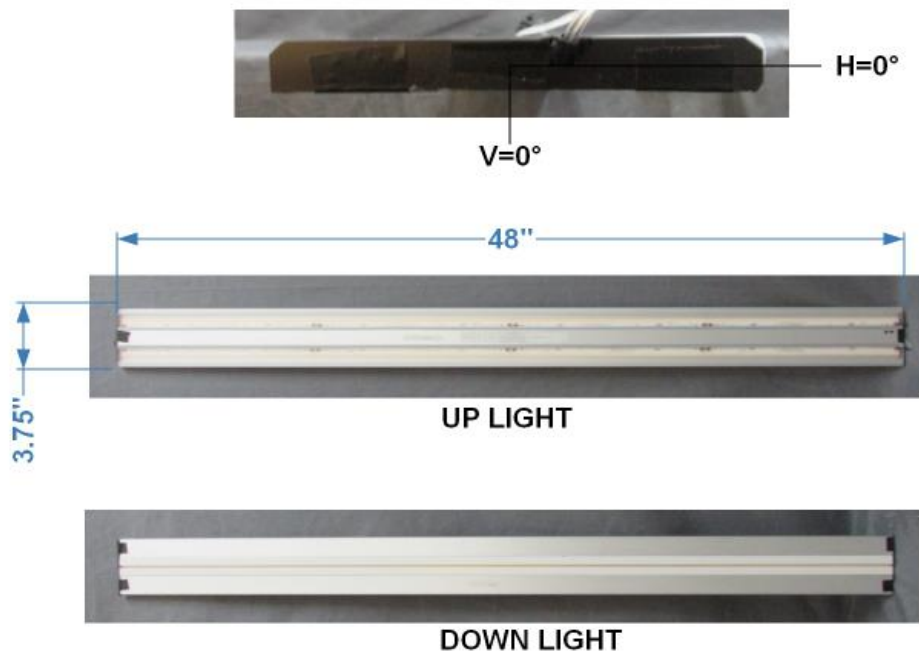
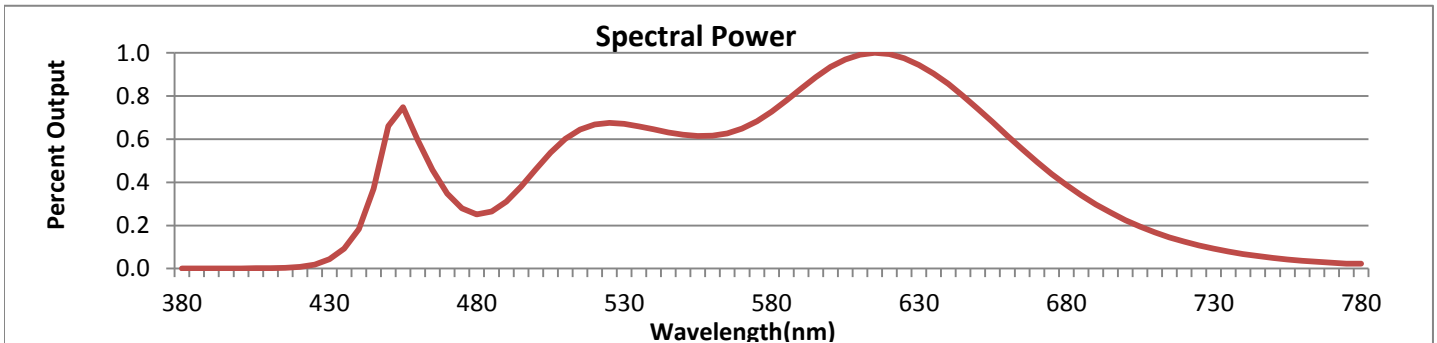


FIG. 1 LUMINAIRE



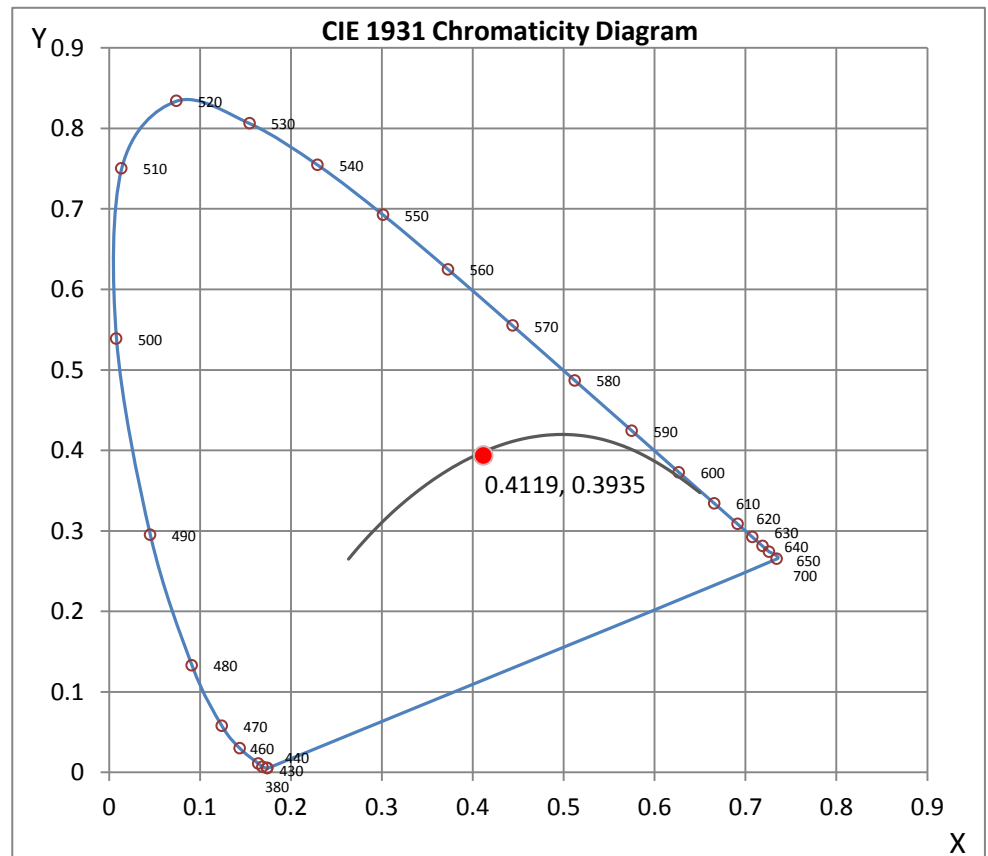
Wavelength	W/m ² nm	440	0.1835	510	0.6008	580	0.7277	650	0.7412	720	0.1249
380	0.0008	450	0.6611	520	0.6683	590	0.8345	660	0.6166	730	0.0922
390	0.0008	460	0.5963	530	0.6714	600	0.9348	670	0.4941	740	0.0677
400	0.0011	470	0.3482	540	0.6460	610	0.9921	680	0.3876	750	0.0499
410	0.0021	480	0.2519	550	0.6202	620	0.9944	690	0.2972	760	0.0367
420	0.0082	490	0.3110	560	0.6160	630	0.9444	700	0.2245	770	0.0270
430	0.0429	500	0.4599	570	0.6496	640	0.8561	710	0.1683	780	0.0233

CRI & CCT

x	0.4119
y	0.3935
u'	0.2388
v'	0.5134
CRI	96.10
CCT	3383
Duv	-0.00018

R Values

R1	97.81
R2	98.96
R3	99.20
R4	97.02
R5	97.95
R6	94.70
R7	94.23
R8	88.78
R9	73.64
R10	98.62
R11	90.59
R12	80.83
R13	97.49
R14	98.57





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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.

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Test Report Released by:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 10*

**All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.*



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Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L031805804R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L031805804R01
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 4/12/2018
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z3-CC-Z-SO-359-U2S2-AL
[LUMINAIRE] ZipThree Suspended, 48", 3500K, 90 CRI, zipper board,
[MORE] symmetric lens with edgeglow up/60° 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] 120VAC, 51.27W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5092
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	99
Total Luminaire Watts	51.27
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)	0.25 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	2703	4866	9072
55	1725	2898	6249
65	1332	1993	4276
75	1029	1398	2910
85	518	661	1407

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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	1298	1298	1298	1298	1298	1298	1298	1298	1298	1298
1.0	1297	1297	1297	1297	1297	1297	1297	1297	1297	1298
3.0	1292	1292	1292	1292	1292	1293	1293	1293	1294	1294
5.0	1280	1280	1280	1281	1281	1282	1283	1284	1285	1286
7.0	1262	1262	1263	1264	1265	1267	1268	1270	1272	1275
9.0	1237	1237	1238	1240	1242	1245	1248	1251	1255	1259
11.0	1205	1205	1207	1209	1213	1217	1222	1227	1233	1239
13.0	1164	1165	1167	1171	1176	1182	1190	1197	1205	1214
15.0	1116	1117	1120	1125	1132	1141	1151	1161	1173	1184
17.0	1059	1061	1065	1072	1081	1092	1105	1119	1134	1148
19.5	978	980	986	995	1007	1022	1039	1058	1077	1097
22.5	868	870	877	889	905	924	946	971	997	1023
25.5	749	752	760	774	793	816	843	873	906	938
29.0	609	612	622	637	657	684	715	750	788	827
33.0	463	466	475	489	511	537	569	607	649	693
37.5	329	332	339	352	371	394	423	458	499	543
42.5	224	226	232	241	255	273	295	324	358	395
47.5	158	159	163	169	178	191	206	227	251	280
55.0	102	102	104	107	112	118	127	137	151	167
65.0	61	62	62	64	65	68	71	76	81	88
75.0	32	32	32	33	33	34	35	37	39	41
85.0	8	8	8	8	8	8	9	9	9	9
90.0	15	15	15	14	14	13	12	11	10	9
95.0	40	40	40	40	39	39	38	38	37	36
100.0	82	82	83	83	83	83	83	84	84	84
105.0	138	138	139	139	140	142	143	144	146	147
110.0	210	210	211	212	214	216	219	221	224	227
115.0	299	299	300	302	304	307	310	314	318	322
120.0	404	405	406	408	410	414	417	422	426	430
125.0	521	522	523	525	528	531	535	539	543	548
130.0	643	643	644	646	648	651	655	659	663	667
135.0	760	760	761	762	765	767	770	773	776	779
140.0	867	867	868	869	870	872	874	876	877	879
145.0	959	959	959	960	961	962	963	964	965	966
150.0	1035	1035	1035	1035	1036	1036	1037	1037	1038	1039
155.0	1096	1096	1096	1096	1097	1097	1097	1098	1098	1099
160.0	1145	1145	1145	1145	1146	1146	1146	1146	1146	1147
165.0	1183	1183	1183	1183	1183	1183	1183	1183	1183	1183
170.0	1209	1209	1209	1209	1209	1209	1209	1209	1209	1209
175.0	1224	1224	1224	1224	1224	1224	1224	1224	1224	1224
180.0	1229	1229	1229	1229	1229	1229	1229	1229	1229	1229

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	1298	1298	1298	1298	1298	1298	1298	1298	1298
1.0	1298	1298	1298	1298	1298	1298	1298	1298	1298
3.0	1294	1295	1295	1295	1296	1296	1296	1296	1296
5.0	1287	1288	1289	1290	1291	1292	1292	1292	1292
7.0	1277	1279	1281	1282	1284	1285	1286	1286	1286
9.0	1262	1266	1269	1272	1274	1276	1278	1279	1279
11.0	1244	1250	1254	1259	1262	1265	1267	1269	1269
13.0	1222	1229	1236	1242	1247	1252	1255	1256	1257
15.0	1195	1205	1214	1222	1229	1235	1239	1241	1242

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CANDELA TABULATION - (Cont.)

17.0	1162	1176	1188	1199	1208	1215	1220	1223	1224
19.5	1116	1134	1150	1165	1176	1185	1192	1196	1197
22.5	1049	1073	1095	1114	1129	1141	1150	1155	1156
25.5	971	1002	1030	1054	1074	1089	1100	1106	1108
29.0	868	906	941	972	996	1016	1029	1037	1039
33.0	739	784	826	863	893	916	933	942	945
37.5	591	639	685	727	761	789	807	818	822
42.5	439	484	528	570	606	636	656	667	671
47.5	314	351	389	426	459	486	506	518	522
55.0	187	209	233	259	283	304	320	330	334
65.0	96	106	117	129	140	152	161	167	169
75.0	44	48	51	56	60	64	68	70	71
85.0	10	10	10	11	11	12	12	12	12
90.0	8	7	6	5	4	3	2	1	1
95.0	35	35	34	33	32	32	31	30	30
100.0	84	85	85	85	85	84	84	84	83
105.0	149	150	152	153	153	154	154	154	153
110.0	230	232	235	236	238	239	239	239	239
115.0	326	329	332	335	337	338	339	339	339
120.0	435	439	443	446	448	450	451	451	451
125.0	552	556	560	563	565	567	568	568	569
130.0	670	674	677	679	681	682	683	684	684
135.0	782	784	786	788	789	790	791	791	792
140.0	881	882	884	885	886	887	887	888	888
145.0	967	968	969	970	970	971	971	971	971
150.0	1039	1040	1041	1041	1041	1042	1042	1042	1042
155.0	1099	1099	1100	1100	1100	1100	1100	1101	1101
160.0	1147	1147	1147	1147	1147	1147	1147	1147	1147
165.0	1183	1183	1183	1183	1183	1184	1184	1184	1184
170.0	1209	1209	1209	1209	1209	1209	1209	1209	1209
175.0	1224	1224	1224	1224	1224	1224	1224	1224	1224
180.0	1229	1229	1229	1229	1229	1229	1229	1229	1229

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	432.12	N.A.	8.50
0-30	841.73	N.A.	16.50
0-40	1193.67	N.A.	23.40
0-60	1671.54	N.A.	32.80
0-80	1886.58	N.A.	37.10
0-90	1921.66	N.A.	37.70
10-90	1822.76	N.A.	35.80
20-40	761.55	N.A.	15.00
20-50	1077.74	N.A.	21.20
40-70	617.20	N.A.	12.10
60-80	215.04	N.A.	4.20
70-80	75.72	N.A.	1.50
80-90	35.07	N.A.	0.70
90-110	203.78	N.A.	4.00
90-120	524.45	N.A.	10.30
90-130	1013.46	N.A.	19.90
90-150	2214.19	N.A.	43.50
90-180	3170.31	N.A.	62.30
110-180	2966.53	N.A.	58.30
0-180	5091.96	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	98.90
10-20	333.22
20-30	409.62
30-40	351.94
40-50	316.19
50-60	161.69
60-70	139.32
70-80	75.72
80-90	35.07
90-100	44.66
100-110	159.11
110-120	320.68
120-130	489.01
130-140	597.95
140-150	602.78
150-160	505.87
160-170	333.89
170-180	116.36

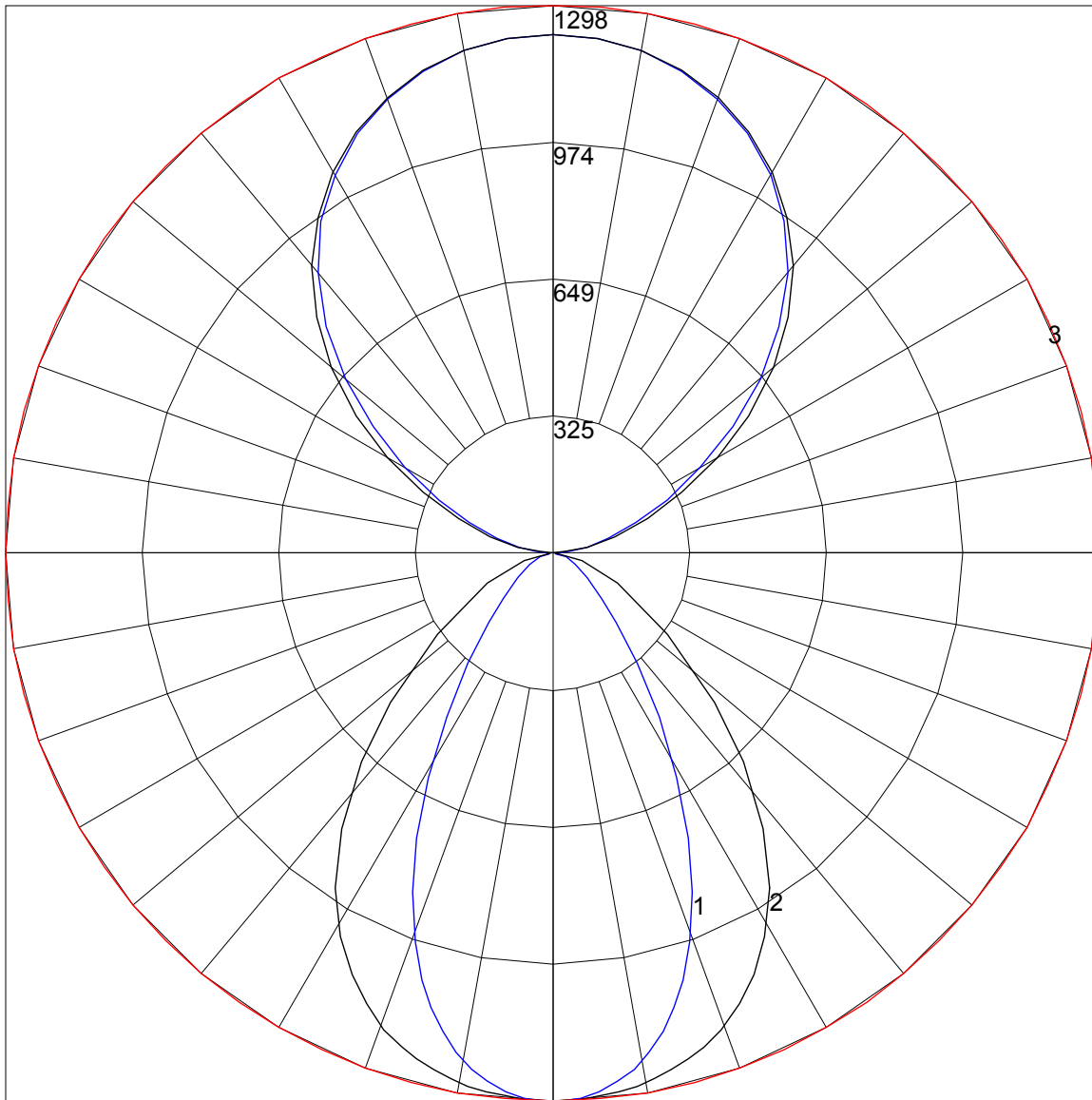
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	95	95	95	95	77	77	77	60	60	60	45	45	45	38
1	96	92	88	85	87	83	80	78	68	66	64	54	52	51	40	40	39	33
2	88	81	75	70	79	74	69	65	60	57	54	48	46	44	37	35	34	29
3	80	72	65	60	73	66	60	55	54	50	46	43	40	38	33	31	30	25
4	74	64	57	51	67	59	52	47	48	44	40	39	36	33	30	28	26	23
5	68	57	50	44	62	53	46	41	44	39	35	35	32	29	28	25	24	20
6	63	52	44	39	57	48	41	36	40	35	31	32	29	26	25	23	21	18
7	59	47	40	34	53	43	37	32	36	31	28	30	26	24	24	21	19	17
8	54	43	36	31	50	40	33	29	33	28	25	27	24	21	22	19	18	15
9	51	39	32	28	46	36	30	26	31	26	23	25	22	19	20	18	16	14
10	48	36	29	25	43	34	27	23	28	24	21	24	20	18	19	17	15	13

POLAR GRAPH



Maximum Candela = 1298 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.)