

## IES Report

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

707-Z3-XX-4-48-CC-XX-XX-XX-X-0-Z-SO-359-U1S1-0-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	90	92	95	95
Total Lumens, 4' rail length (1219mm)	4658	4805	4903	4952
Lumens per foot (305mm)	1165	1201	1226	1238
Lumens per foot UP (305mm)	802	828	845	853
Lumens per foot DOWN (305mm)	362	374	381	385
Input Power (W), 4' rail length (1219mm)	52.2	52.2	51.8	52.2
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](http://vode.com).



8165 E Kaiser Blvd.  
Anaheim, CA 92808  
www.lightlaboratory.com

Report No: L121911546



**Report No:** L121911546

**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-U1S1-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

<b>Manufacturer:</b>	Vode Lighting
<b>Model Number:</b>	707-Z3-48-Z-CC-SO-359-U1S1-AL
<b>Driver Model Number:</b>	MEAN WELL HLG-40H-36A (2 DRIVERS)

### Test Summary

<b>Total Lumens:</b>	4903.16
<b>Efficacy:</b>	94.58
<b>Color Redering Index:</b>	94.2
<b>Correlated Color Temperature:</b>	3397
<b>Input Voltage (VAC/60Hz):</b>	120.02
<b>Input Current (Amp):</b>	0.4347
<b>Input Power (W):</b>	51.84
<b>Input Power Factor:</b>	0.9936
<b>Current ATHD (%):</b>	7.9%

### Test Condition

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

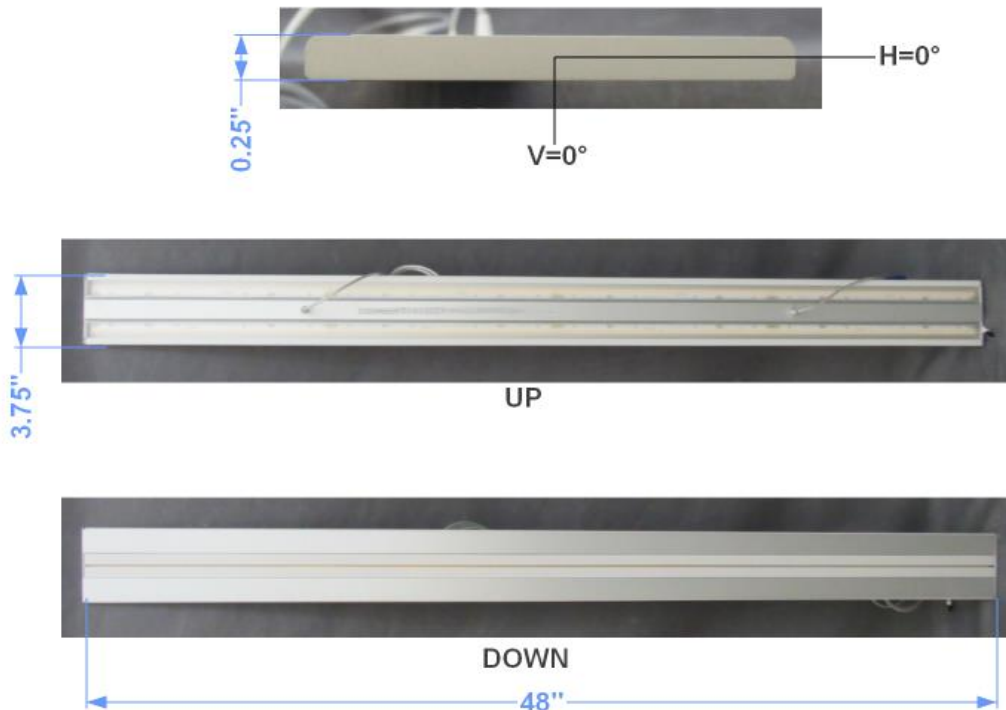
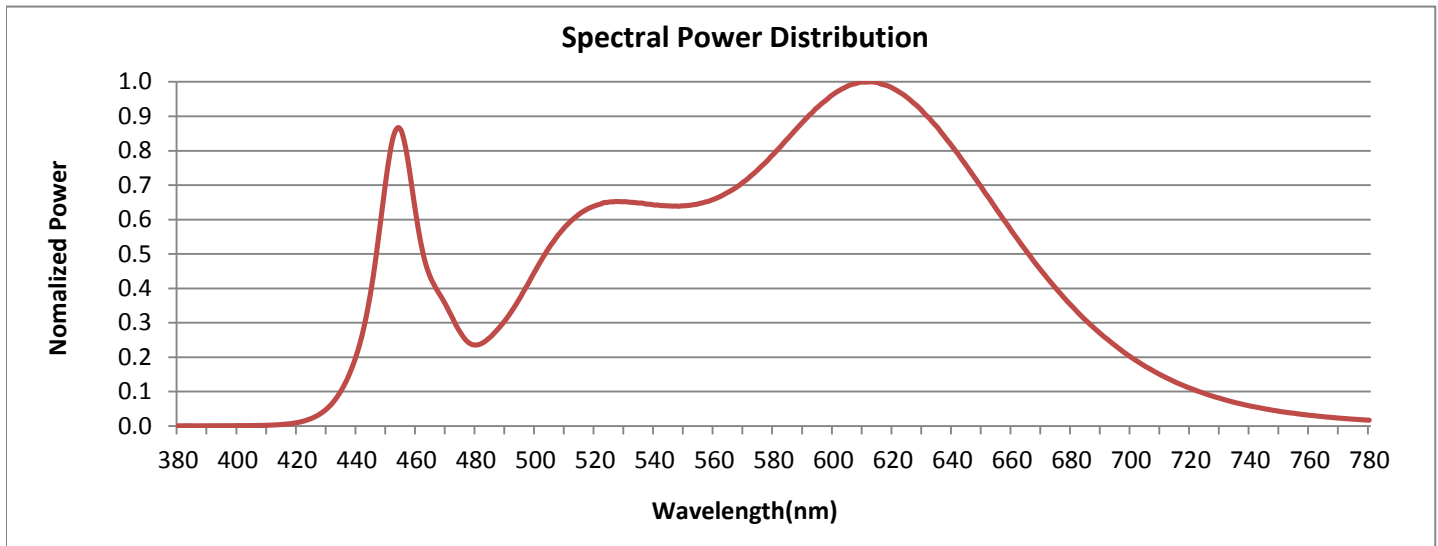


FIG. 1 LUMINAIRE

## Colorimetry Test Results

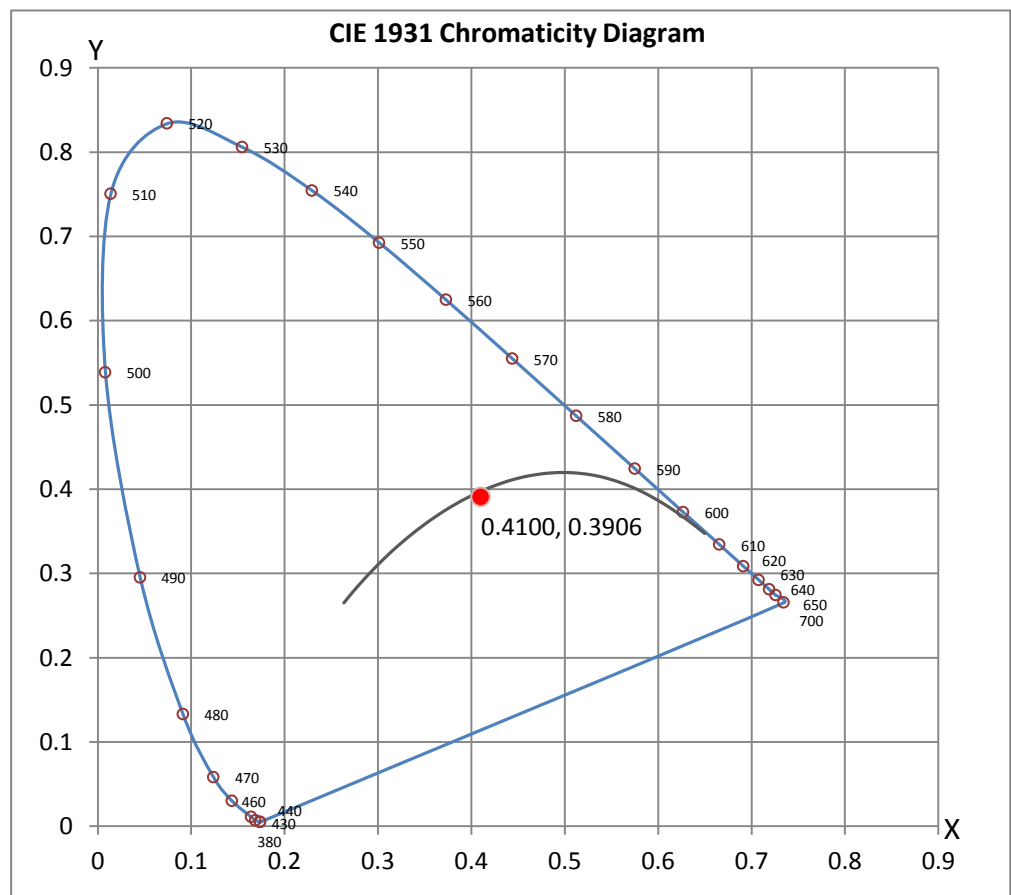


### CRI & CCT

x	0.4100
y	0.3906
u'	0.2388
v'	0.5119
CRI	94.20
CCT	3397
Duv	-0.00105

### R Values

R1	95.87
R2	98.15
R3	98.59
R4	96.85
R5	96.32
R6	96.08
R7	91.03
R8	80.93
R9	56.07
R10	95.55
R11	96.52
R12	78.28
R13	97.23
R14	99.21
R15	90.04





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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*



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## Photometric Test Report

### IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911546.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L121911546  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUEDATE] 1/20/2020  
[MANUFAC] VODE LIGHTING  
[LUMCAT] 707-Z3-48-Z-CC-SO-359-U1S1-AL  
[LUMINAIRE] ZipThree LED Suspended, 48", 3500K, 90 CRI, zipper board, symmetric lens up/40° 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] 120.02VAC, 51.84W  
[TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4903
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	95
Total Luminaire Watts	51.84
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	1972	3403	6281
55	1355	2142	4281
65	1098	1553	3017
75	905	1155	2168
85	571	717	1240

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911546.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>
<b>0.0</b>	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185
<b>1.0</b>	1185	1185	1185	1185	1185	1185	1185	1185	1185	1185
<b>3.0</b>	1179	1179	1179	1179	1179	1180	1180	1180	1181	1181
<b>5.0</b>	1163	1163	1164	1164	1165	1166	1167	1169	1170	1172
<b>7.0</b>	1137	1137	1138	1139	1141	1143	1146	1148	1151	1155
<b>9.0</b>	1102	1102	1104	1106	1109	1113	1117	1122	1127	1132
<b>11.0</b>	1058	1059	1061	1064	1069	1074	1081	1088	1096	1104
<b>13.0</b>	1005	1006	1009	1014	1021	1029	1038	1048	1058	1069
<b>15.0</b>	946	947	951	957	965	976	988	1001	1015	1030
<b>17.0</b>	879	881	886	894	904	917	932	948	966	984
<b>19.5</b>	790	792	798	807	820	837	855	876	898	921
<b>22.5</b>	678	680	687	698	714	733	756	781	808	837
<b>25.5</b>	567	570	577	589	607	628	653	682	714	746
<b>29.0</b>	448	450	458	470	488	510	537	567	601	638
<b>33.0</b>	334	337	344	355	371	391	416	446	480	516
<b>37.5</b>	239	240	246	255	268	285	306	332	362	394
<b>42.5</b>	167	168	172	179	188	201	217	236	259	285
<b>47.5</b>	122	123	125	130	136	145	156	170	186	205
<b>55.0</b>	83	83	84	87	90	95	101	108	118	128
<b>65.0</b>	52	52	53	53	55	57	59	62	66	71
<b>75.0</b>	29	29	29	30	30	31	31	32	34	35
<b>85.0</b>	9	9	9	9	9	9	9	9	9	10
<b>90.0</b>	3	3	3	3	3	3	3	3	3	3
<b>95.0</b>	31	31	31	31	31	31	31	31	31	31
<b>100.0</b>	72	72	73	74	75	76	78	80	83	85
<b>105.0</b>	136	136	137	139	141	144	147	150	153	157
<b>110.0</b>	216	217	218	220	223	226	230	234	238	242
<b>115.0</b>	312	312	314	316	319	323	327	332	338	344
<b>120.0</b>	422	422	424	427	431	435	441	448	454	460
<b>125.0</b>	548	548	550	553	557	561	566	572	577	582
<b>130.0</b>	678	679	680	682	685	688	692	697	702	706
<b>135.0</b>	803	803	804	806	808	811	815	818	822	827
<b>140.0</b>	917	917	918	919	921	924	927	930	933	937
<b>145.0</b>	1018	1018	1019	1020	1021	1023	1025	1028	1030	1032
<b>150.0</b>	1104	1104	1104	1105	1106	1107	1108	1110	1111	1112
<b>155.0</b>	1174	1174	1174	1174	1175	1175	1176	1177	1177	1178
<b>160.0</b>	1227	1227	1227	1228	1227	1228	1228	1228	1228	1228
<b>165.0</b>	1267	1267	1267	1267	1267	1267	1267	1267	1267	1267
<b>170.0</b>	1293	1294	1294	1294	1294	1293	1294	1294	1294	1294
<b>175.0</b>	1309	1309	1309	1309	1309	1309	1309	1309	1309	1309
<b>180.0</b>	1313	1313	1313	1313	1313	1313	1313	1313	1313	1313

**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>
<b>0.0</b>	1185	1185	1185	1185	1185	1185	1185	1185	1185
<b>1.0</b>	1185	1185	1185	1185	1185	1185	1185	1185	1185
<b>3.0</b>	1182	1182	1182	1183	1183	1183	1183	1184	1184
<b>5.0</b>	1173	1174	1176	1176	1178	1178	1179	1179	1180
<b>7.0</b>	1158	1161	1163	1166	1168	1170	1171	1171	1172
<b>9.0</b>	1137	1142	1147	1151	1155	1158	1160	1162	1162
<b>11.0</b>	1112	1119	1126	1133	1138	1143	1146	1148	1149
<b>13.0</b>	1080	1091	1101	1110	1118	1124	1129	1132	1133
<b>15.0</b>	1044	1058	1072	1083	1094	1102	1108	1112	1113

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911546.IES**

**CANDELA TABULATION - (Cont.)**

17.0	1003	1021	1037	1052	1065	1076	1084	1088	1090
19.5	945	967	988	1008	1024	1037	1047	1053	1055
22.5	866	894	921	945	966	982	995	1002	1005
25.5	781	814	844	873	897	917	932	941	943
29.0	675	712	747	780	808	831	848	858	861
33.0	556	594	632	666	696	722	740	751	754
37.5	431	467	504	538	568	593	611	623	627
42.5	314	345	377	407	434	457	475	486	489
47.5	227	251	275	300	322	342	357	367	370
55.0	141	156	171	187	202	216	227	234	238
65.0	76	83	90	98	105	113	119	123	124
75.0	37	39	42	45	48	50	53	54	55
85.0	10	10	10	11	11	11	11	11	11
90.0	3	3	2	2	2	2	2	2	2
95.0	32	32	33	34	35	35	36	38	38
100.0	87	90	91	93	95	97	99	99	100
105.0	160	163	166	169	172	175	176	177	177
110.0	247	252	257	261	264	267	269	269	270
115.0	351	356	360	365	368	372	374	375	375
120.0	465	471	476	480	484	487	490	491	491
125.0	587	593	598	603	607	609	611	612	612
130.0	711	716	721	725	728	731	732	733	733
135.0	831	835	839	842	844	846	847	848	848
140.0	940	943	946	948	949	950	951	951	952
145.0	1035	1036	1038	1039	1040	1040	1041	1041	1041
150.0	1114	1115	1115	1116	1116	1117	1117	1117	1118
155.0	1178	1179	1179	1179	1180	1180	1180	1180	1180
160.0	1229	1229	1229	1229	1230	1230	1230	1230	1230
165.0	1268	1268	1268	1268	1268	1268	1268	1268	1268
170.0	1294	1294	1294	1294	1294	1294	1294	1294	1294
175.0	1309	1309	1309	1309	1309	1309	1309	1309	1309
180.0	1313	1313	1313	1313	1313	1313	1313	1313	1313



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911546.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	380.24	N.A.	7.80
0-30	713.21	N.A.	14.50
0-40	980.72	N.A.	20.00
0-60	1329.49	N.A.	27.10
0-80	1495.61	N.A.	30.50
0-90	1525.03	N.A.	31.10
10-90	1435.3	N.A.	29.30
20-40	600.48	N.A.	12.20
20-50	830.82	N.A.	16.90
40-70	454.46	N.A.	9.30
60-80	166.13	N.A.	3.40
70-80	60.44	N.A.	1.20
80-90	29.42	N.A.	0.60
90-110	210.87	N.A.	4.30
90-120	554.43	N.A.	11.30
90-130	1074.67	N.A.	21.90
90-150	2354.05	N.A.	48.00
90-180	3378.13	N.A.	68.90
110-180	3167.25	N.A.	64.60
0-180	4903.16	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	89.74
10-20	290.50
20-30	332.97
30-40	267.51
40-50	230.34
50-60	118.43
60-70	105.69
70-80	60.44
80-90	29.42
90-100	41.70
100-110	169.17
110-120	343.55
120-130	520.25
130-140	635.85
140-150	643.53
150-160	541.97
160-170	357.65
170-180	124.46

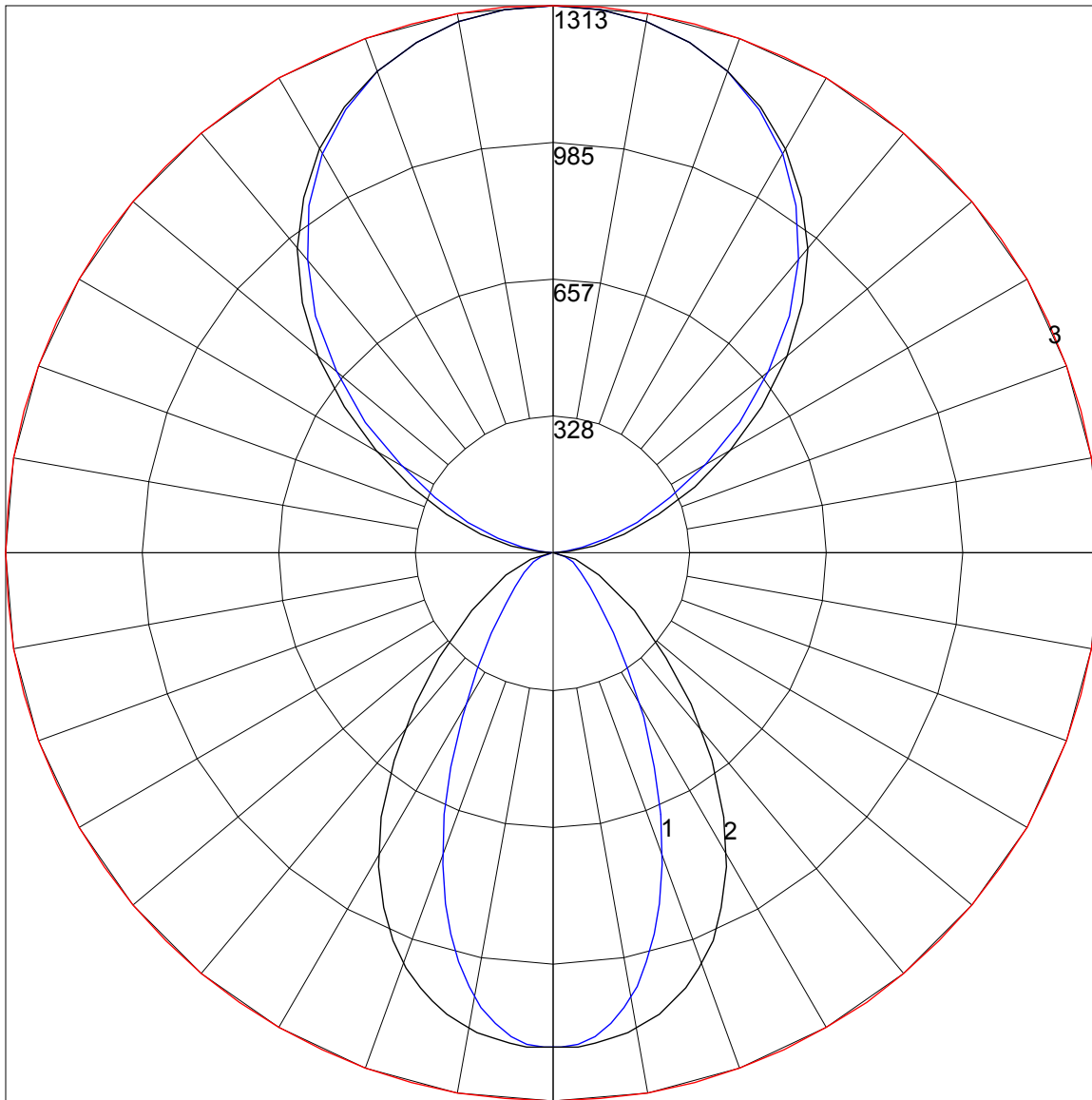
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	31
1	94	90	86	83	84	81	78	75	64	62	61	49	48	47	35	34	34	27
2	86	79	74	69	77	72	67	63	57	54	51	44	42	40	32	30	29	24
3	79	70	64	58	71	64	58	53	51	47	44	40	37	35	29	27	26	21
4	73	63	56	50	65	57	51	46	46	42	38	36	33	30	26	24	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	30	30	26	24	22	20	19	15
7	57	46	39	34	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	20	19	17	15	13
9	50	38	31	27	45	35	29	25	29	25	21	23	20	18	18	16	14	12
10	47	35	29	24	42	32	27	23	27	22	19	22	18	16	17	15	13	11

POLAR GRAPH



Maximum Candela = 1313 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.)