

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-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	77	79	81	84
Total Lumens, 4' rail length (1219mm)	3957	4082	4165	4207
Lumens per foot (305mm)	989	1021	1041	1052
Lumens per foot UP (305mm)	755	779	795	802
Lumens per foot DOWN (305mm)	234	242	247	249
Input Power (W), 4' rail length (1219mm)	51.7	51.7	51.7	51.7
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: L121911548



Report No: L121911548

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-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: 1/8/20 - 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-U1S1-BL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)

Test Summary

Total Lumens:	4165.31
Efficacy:	80.58
Color Redering Index:	94.2
Correlated Color Temperature:	3433
Input Voltage (VAC/60Hz):	120.02
Input Current (Amp):	0.4335
Input Power (W):	51.69
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

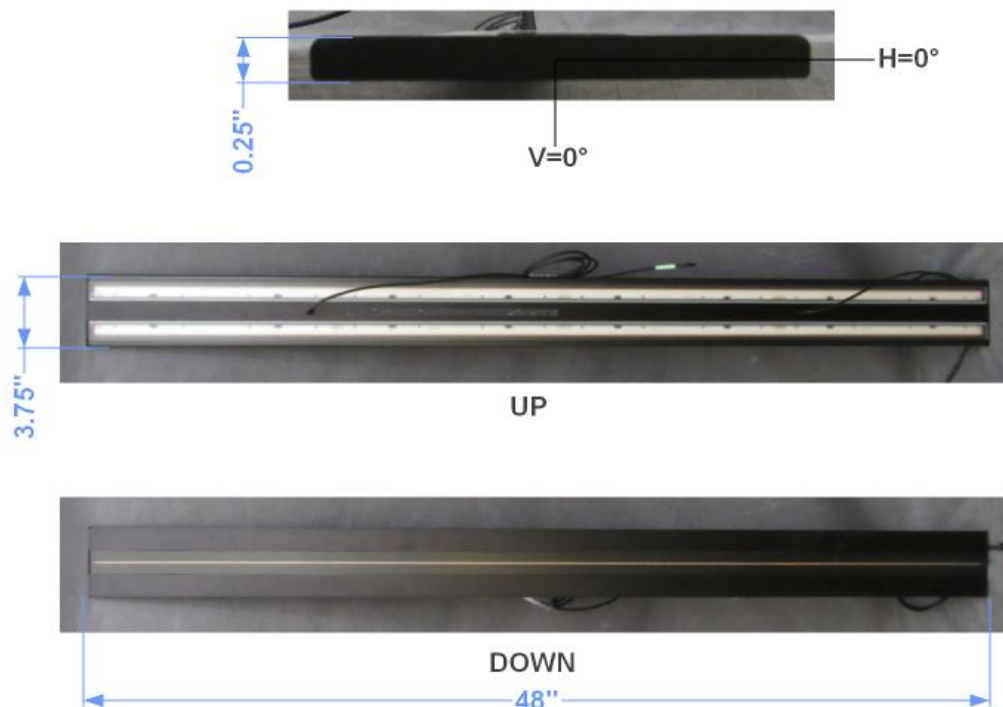
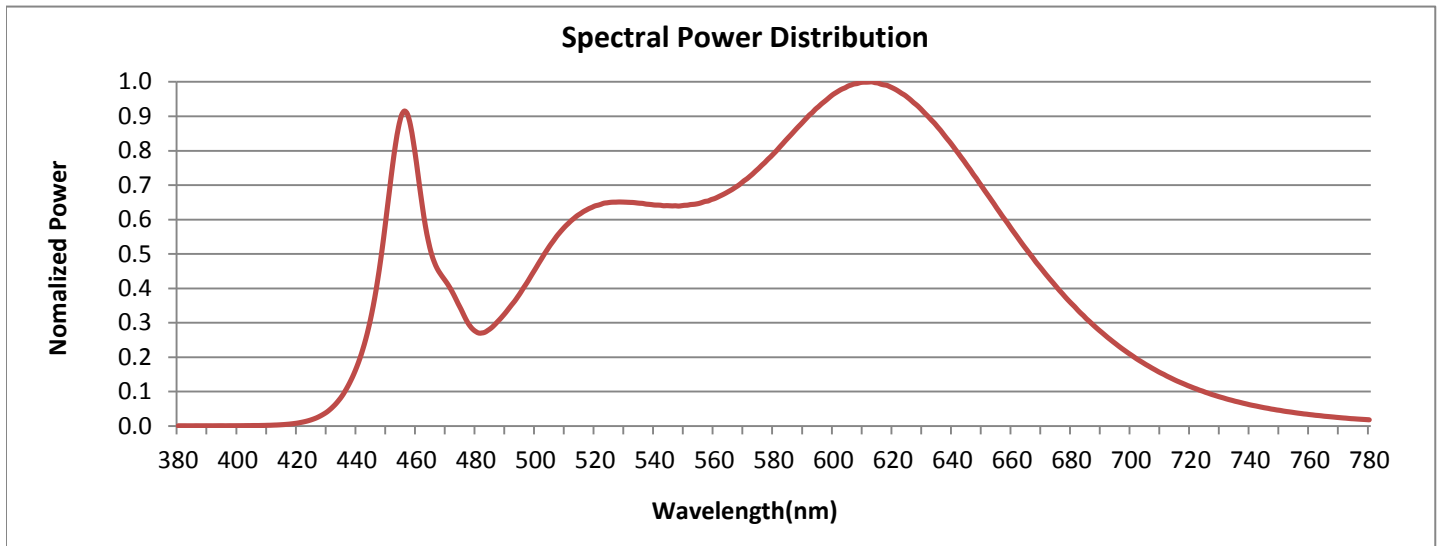


FIG. 1 LUMINAIRE

Colorimetry Test Results

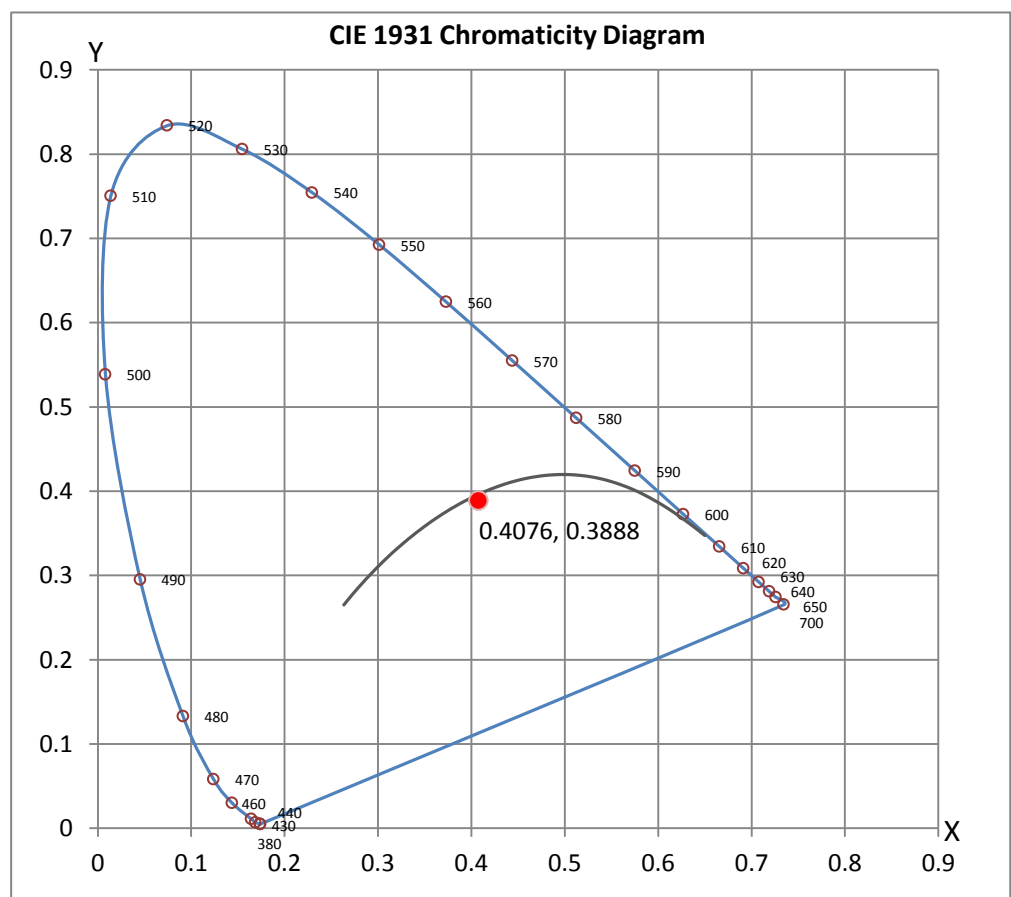


CRI & CCT

x	0.4076
y	0.3888
u'	0.2380
v'	0.5108
CRI	94.20
CCT	3433
Duv	-0.00134

R Values

R1	96.58
R2	99.29
R3	97.58
R4	96.55
R5	96.56
R6	95.22
R7	90.29
R8	81.43
R9	58.93
R10	98.52
R11	97.87
R12	77.20
R13	98.39
R14	99.52
R15	91.06





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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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www.lightlaboratory.com

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911548.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911548
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/20/2020
[MANUFAC] VODE LIGHTING
[LUMCAT] 707-Z3-48-Z-CC-SO-359-U1S1-BL
[LUMINAIRE] ZipThree LED Suspended, 48", 3500K, 90 CRI, zipper board, symmetric lens up/40° symmetric lens down,
[MORE] 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] 120.02VAC, 51.69W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4165
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	81
Total Luminaire Watts	51.69
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	921	1896	3773
55	424	870	1763
65	232	437	876
75	125	264	512
85	63	72	338

IES INDOOR REPORT
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CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0.0	954	954	954	954	954	954	954	954	954	954
1.0	954	954	954	954	954	954	954	954	954	954
3.0	948	948	948	948	948	949	949	949	950	950
5.0	932	932	933	933	934	935	936	938	939	941
7.0	905	906	906	908	910	912	914	918	921	924
9.0	871	871	872	875	878	882	886	891	897	902
11.0	829	829	831	835	839	845	852	859	867	875
13.0	778	779	782	787	793	801	810	820	831	842
15.0	723	724	728	733	742	752	763	776	790	805
17.0	663	664	669	676	685	698	711	728	745	763
19.5	583	585	590	598	610	625	641	661	682	704
22.5	487	489	495	504	518	534	554	577	602	628
25.5	395	397	403	413	427	445	467	492	519	548
29.0	299	301	307	317	331	348	370	395	423	454
33.0	210	211	217	225	237	253	273	296	323	353
37.5	137	138	142	148	158	170	186	205	228	253
42.5	84	85	87	92	98	107	118	132	149	167
47.5	51	52	54	56	61	67	74	83	93	106
55.0	26	26	27	28	30	33	37	41	46	52
65.0	11	11	11	12	13	14	15	17	18	20
75.0	4	4	4	5	5	5	6	6	7	8
85.0	1	1	1	1	1	1	1	1	1	1
90.0	1	1	1	1	1	1	1	1	1	1
95.0	30	30	30	30	31	31	31	32	32	32
100.0	68	68	68	69	70	71	73	75	77	79
105.0	122	122	123	125	127	129	132	135	138	140
110.0	192	193	194	195	198	201	204	207	210	213
115.0	274	275	276	277	280	283	286	290	296	304
120.0	367	367	369	372	376	382	388	397	407	416
125.0	485	485	488	492	497	504	511	518	526	533
130.0	614	614	616	620	623	629	634	640	646	653
135.0	737	737	739	741	745	749	754	759	765	771
140.0	852	853	854	856	859	863	867	872	877	882
145.0	957	958	959	960	963	966	969	973	978	982
150.0	1049	1049	1050	1051	1053	1056	1058	1061	1065	1068
155.0	1126	1126	1127	1128	1129	1131	1133	1135	1138	1141
160.0	1189	1189	1189	1190	1191	1192	1193	1195	1196	1198
165.0	1236	1236	1236	1237	1237	1237	1238	1239	1240	1240
170.0	1268	1268	1268	1268	1268	1268	1269	1269	1269	1270
175.0	1286	1286	1285	1286	1286	1286	1286	1286	1286	1286
180.0	1290	1290	1290	1290	1290	1290	1290	1290	1290	1290

Vert. Angles **Horizontal Angles**

	50	55	60	65	70	75	80	85	90
0.0	954	954	954	954	954	954	954	954	954
1.0	954	954	954	954	954	954	954	954	954
3.0	951	951	952	952	952	953	953	953	953
5.0	942	944	945	946	947	948	949	949	949
7.0	927	930	933	936	938	940	941	942	943
9.0	908	913	918	922	927	930	932	933	934
11.0	883	891	899	906	911	916	920	922	923
13.0	853	864	875	884	893	899	904	907	908
15.0	819	834	847	860	870	879	886	889	891

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

17.0	781	799	816	831	844	855	863	868	870
19.5	727	749	769	789	806	819	830	836	838
22.5	655	682	707	732	752	769	782	790	792
25.5	579	609	639	667	690	711	725	734	737
29.0	487	521	553	584	610	632	649	659	662
33.0	385	418	452	482	509	532	549	559	563
37.5	281	311	340	368	393	413	429	438	441
42.5	189	211	233	255	274	291	302	309	312
47.5	120	135	150	165	178	189	197	202	204
55.0	59	66	73	79	85	91	95	97	98
65.0	23	25	27	29	32	33	35	36	36
75.0	8	9	10	11	11	12	13	13	13
85.0	2	2	2	2	2	2	2	3	3
90.0	1	1	1	2	2	2	2	2	2
95.0	33	33	33	34	34	34	34	35	35
100.0	81	83	84	84	84	87	88	88	88
105.0	143	144	145	150	154	156	157	157	157
110.0	216	222	229	235	238	240	241	241	241
115.0	313	321	327	332	335	337	339	340	340
120.0	423	430	436	440	444	447	450	451	451
125.0	540	546	552	558	563	567	570	571	572
130.0	659	666	673	679	684	688	692	693	694
135.0	777	784	790	797	802	806	809	811	812
140.0	888	894	900	905	910	913	916	918	918
145.0	987	992	997	1001	1005	1008	1010	1011	1011
150.0	1072	1076	1079	1083	1085	1087	1088	1089	1089
155.0	1143	1145	1148	1150	1151	1152	1153	1154	1154
160.0	1199	1201	1202	1203	1204	1205	1205	1205	1205
165.0	1241	1242	1242	1243	1243	1244	1244	1244	1244
170.0	1270	1270	1270	1270	1271	1271	1271	1271	1271
175.0	1286	1286	1286	1286	1286	1286	1286	1286	1287
180.0	1290	1290	1290	1290	1290	1290	1290	1290	1290

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	299.29	N.A.	7.20
0-30	548.10	N.A.	13.20
0-40	734.08	N.A.	17.60
0-60	928.26	N.A.	22.30
0-80	981.15	N.A.	23.60
0-90	987.13	N.A.	23.70
10-90	915.23	N.A.	22.00
20-40	434.79	N.A.	10.40
20-50	573.12	N.A.	13.80
40-70	231.63	N.A.	5.60
60-80	52.89	N.A.	1.30
70-80	15.44	N.A.	0.40
80-90	5.98	N.A.	0.10
90-110	190.63	N.A.	4.60
90-120	497.54	N.A.	11.90
90-130	972.69	N.A.	23.40
90-150	2181.47	N.A.	52.40
90-180	3178.18	N.A.	76.30
110-180	2987.55	N.A.	71.70
0-180	4165.31	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	71.91
10-20	227.39
20-30	248.80
30-40	185.99
40-50	138.34
50-60	55.84
60-70	37.45
70-80	15.44
80-90	5.98
90-100	39.22
100-110	151.41
110-120	306.91
120-130	475.16
130-140	594.98
140-150	613.80
150-160	524.74
160-170	349.76
170-180	122.21

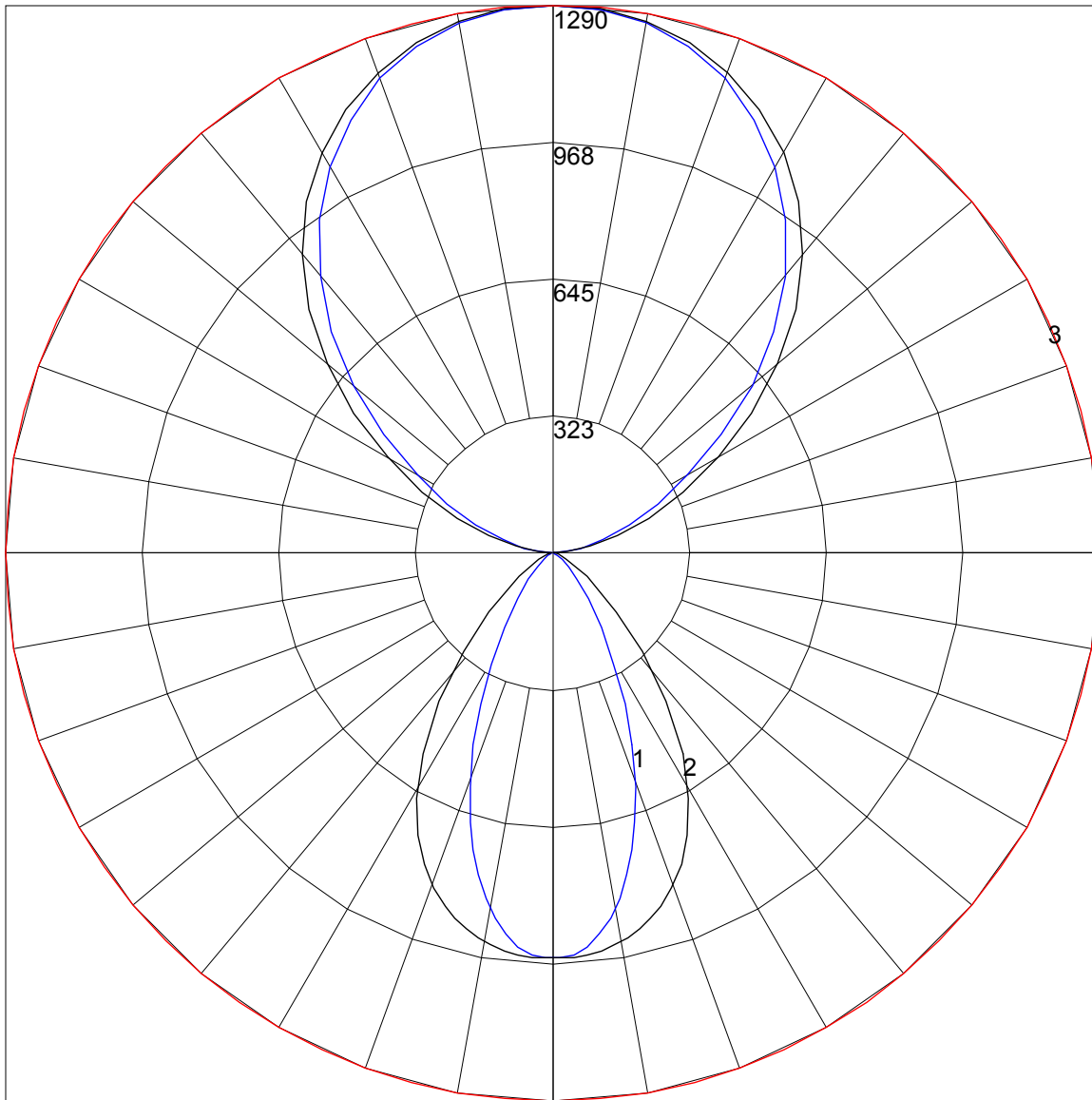
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	32	32	32	24
1	93	89	85	82	82	79	76	74	61	59	58	45	44	43	29	29	28	21
2	85	78	73	69	76	70	66	62	55	52	49	40	38	37	27	26	25	19
3	78	70	63	58	69	62	57	53	49	45	42	36	34	32	25	23	22	17
4	72	62	55	50	64	56	50	45	44	40	37	33	30	28	23	21	20	16
5	66	56	49	43	59	50	44	40	40	36	32	30	27	25	21	19	18	15
6	61	50	43	38	55	45	39	35	36	32	29	27	25	23	19	18	17	13
7	57	46	38	33	51	41	35	31	33	29	25	25	22	20	18	16	15	12
8	53	42	35	30	47	38	32	27	30	26	23	23	20	18	17	15	14	11
9	49	38	31	27	44	35	29	25	28	24	21	22	19	17	16	14	13	11
10	46	35	28	24	41	32	26	22	26	22	19	20	17	15	15	13	12	10

POLAR GRAPH



Maximum Candela = 1290 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.)