

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-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	76	79	80	83
Total Lumens, 4' rail length (1219mm)	3882	4005	4087	4168
Lumens per foot (305mm)	971	1001	1022	1042
Lumens per foot UP (305mm)	718	741	756	771
Lumens per foot DOWN (305mm)	252	260	265	271
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.

* R9: ~74 @ 3500K



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

Report No: L031805808R01



Report No: L031805808R01

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-U2S1-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.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 3/29/18

Date of Tests: 4/4/18 - 4/9/18

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-U2S1-BL
Driver Model Number:	MEAN WELL HLG-40H-36A(2 DRIVERS)
Total Lumens:	4086.51
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.43
Input Power (W):	51.30
Input Power Factor:	0.99
Current ATHD @ 120V(%):	9%
Current ATHD @ 277V(%):	N/A
Efficacy:	80
Color Rendering Index (CRI):	95
Correlated Color Temperature (K):	3391
Chromaticity Coordinate x:	0.4111
Chromaticity Coordinate y:	0.3926
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:35

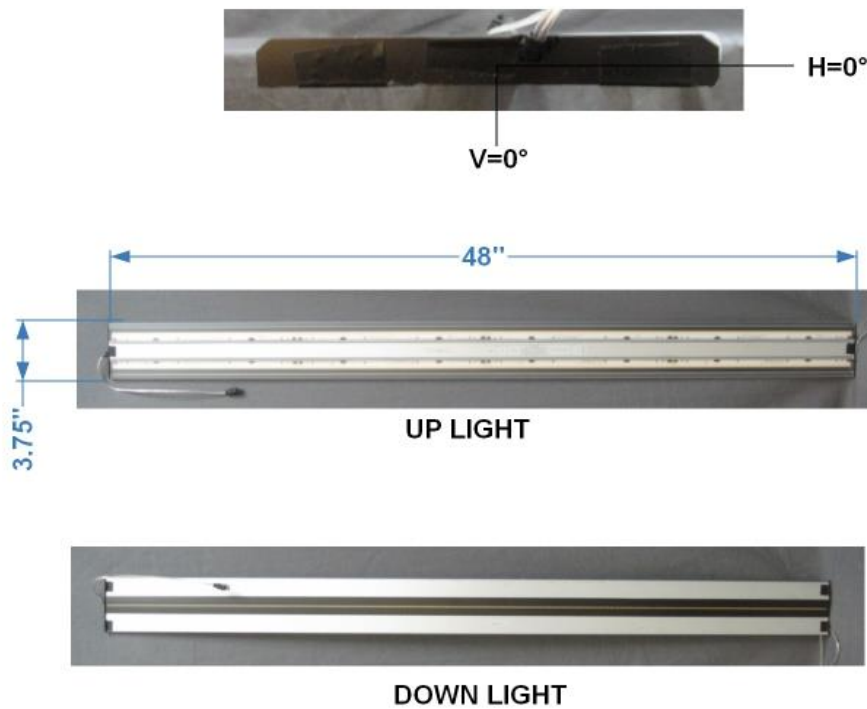
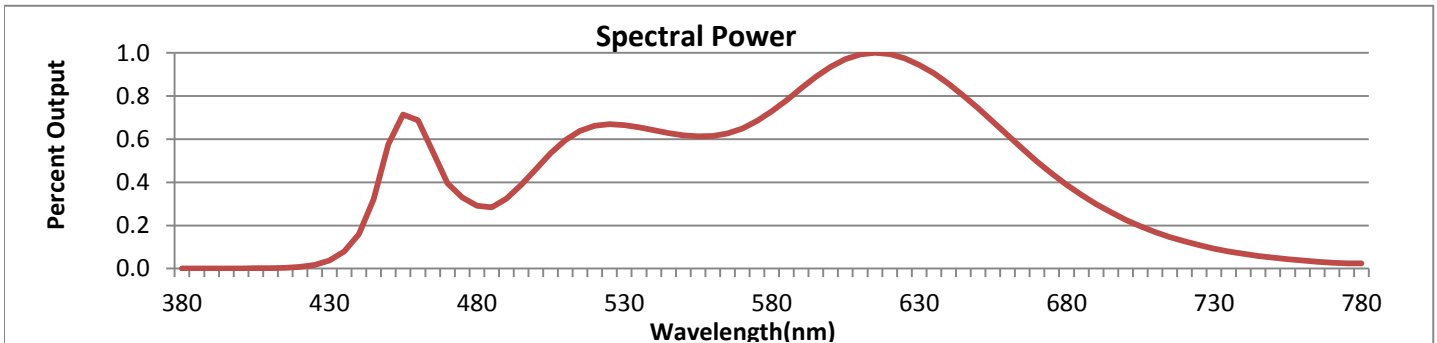


FIG. 1 LUMINAIRE

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



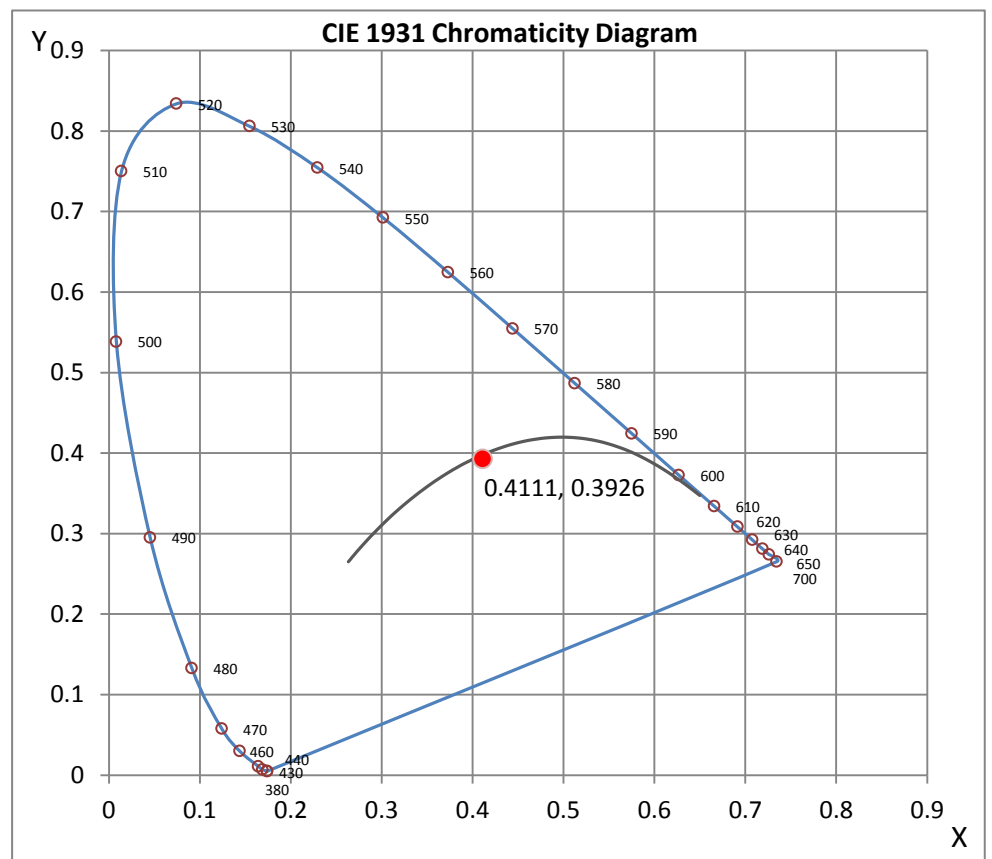
Wavelength	W/m ² nm	440	0.1592	510	0.5959	580	0.7292	650	0.7437	720	0.1260
380	0.0007	450	0.5768	520	0.6625	590	0.8354	660	0.6192	730	0.0931
390	0.0008	460	0.6872	530	0.6651	600	0.9358	670	0.4966	740	0.0685
400	0.0011	470	0.3959	540	0.6411	610	0.9931	680	0.3898	750	0.0504
410	0.0019	480	0.2920	550	0.6180	620	0.9948	690	0.2990	760	0.0373
420	0.0072	490	0.3234	560	0.6153	630	0.9448	700	0.2265	770	0.0276
430	0.0370	500	0.4610	570	0.6495	640	0.8574	710	0.1697	780	0.0235

CRI & CCT

x	0.4111
y	0.3926
u'	0.2387
v'	0.5129
CRI	95.40
CCT	3391
Duv	-0.00041

R Values

R1	97.21
R2	97.87
R3	98.41
R4	97.37
R5	96.99
R6	93.35
R7	93.15
R8	88.58
R9	74.94
R10	96.24
R11	91.59
R12	79.98
R13	96.66
R14	98.99



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

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 Released by:



Jeff Ahn
Engineering Manager

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 : L031805808R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L031805808R01
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 4/12/2018
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z3-CC-Z-SO-359-U2S1-BL
[LUMINAIRE] ZipThree Suspended, 48", 3500K, 90 CRI, zipper board,
[MORE] symmetric lens with edgeglow up/40° symmetric lens down, 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] 120VAC, 51.30W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4087
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	80
Total Luminaire Watts	51.3
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	870	2163	4988
55	338	850	2451
65	175	408	1164
75	129	239	656
85	65	147	352

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PHOTOMETRIC FILENAME : L031805808R01.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	954	954	954	954	954	954	954	954	954	954
1.0	952	952	952	952	952	952	952	952	952	952
3.0	941	942	942	942	942	943	944	945	945	946
5.0	921	921	922	923	924	926	928	930	932	934
7.0	893	893	894	896	898	901	905	908	912	916
9.0	857	857	859	862	865	870	875	881	887	894
11.0	817	817	819	823	828	834	840	849	858	867
13.0	772	773	776	781	786	794	803	812	823	835
15.0	726	727	731	736	743	752	762	774	787	801
17.0	678	679	683	689	697	707	719	733	748	765
19.5	615	617	621	628	637	649	663	679	697	716
22.5	534	536	541	550	561	576	592	611	632	654
25.5	448	450	456	466	480	497	516	538	563	587
29.0	345	347	354	365	380	400	422	449	477	506
33.0	238	240	247	257	272	292	315	343	373	406
37.5	144	146	151	160	172	188	208	233	263	296
42.5	79	80	83	88	96	107	121	140	162	188
47.5	44	44	46	49	53	60	68	80	94	112
55.0	20	20	21	22	24	27	30	35	41	49
65.0	8	9	9	9	10	11	12	13	15	18
75.0	4	4	4	4	4	4	5	5	6	7
85.0	1	1	1	1	1	1	1	1	1	2
90.0	13	13	13	12	12	11	10	9	8	7
95.0	38	38	38	37	37	36	36	35	35	34
100.0	78	78	78	78	78	79	79	79	79	80
105.0	130	130	130	131	132	133	134	136	137	139
110.0	196	196	197	198	200	202	204	207	210	212
115.0	277	278	279	280	283	285	289	293	297	301
120.0	373	374	375	377	380	383	387	392	397	402
125.0	482	482	484	486	489	493	497	503	508	514
130.0	598	598	599	602	605	609	614	619	624	629
135.0	714	714	716	718	721	724	728	732	737	741
140.0	824	824	825	826	828	831	834	837	839	842
145.0	918	918	919	920	921	923	924	926	928	929
150.0	996	996	997	997	998	999	999	1000	1001	1002
155.0	1058	1058	1058	1058	1058	1059	1059	1060	1061	1062
160.0	1106	1107	1107	1107	1107	1108	1108	1109	1109	1109
165.0	1144	1144	1144	1145	1145	1145	1145	1145	1145	1145
170.0	1170	1170	1170	1170	1170	1170	1170	1170	1170	1170
175.0	1185	1185	1185	1185	1185	1185	1185	1186	1186	1186
180.0	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190

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	954	954	954	954	954	954	954	954	954
1.0	952	953	953	953	953	953	953	953	953
3.0	947	948	949	950	950	950	951	951	951
5.0	936	939	941	943	944	946	947	947	947
7.0	921	925	929	933	936	939	941	942	942
9.0	900	907	914	920	925	929	932	934	935
11.0	876	886	895	903	911	917	921	924	926
13.0	847	860	873	884	894	903	910	913	914
15.0	816	831	848	862	874	884	893	899	900

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CANDELA TABULATION - (Cont.)

17.0	782	801	818	835	851	865	875	881	883
19.5	736	757	779	800	819	835	848	856	860
22.5	677	701	726	751	773	794	810	819	824
25.5	614	641	668	696	721	745	764	775	778
29.0	536	566	596	624	652	677	699	713	717
33.0	440	474	506	537	565	591	612	627	635
37.5	330	365	399	431	458	484	498	518	523
42.5	219	252	282	312	337	358	376	388	390
47.5	133	158	182	205	225	242	255	263	266
55.0	59	70	83	96	108	117	125	129	131
65.0	21	25	29	33	37	41	44	46	46
75.0	8	9	10	12	13	14	15	16	16
85.0	2	2	2	2	2	2	2	3	3
90.0	6	5	5	4	3	2	2	1	1
95.0	33	32	32	31	30	29	29	28	28
100.0	80	80	80	80	80	80	80	80	79
105.0	140	142	143	144	145	146	146	146	146
110.0	216	218	221	223	225	226	227	227	227
115.0	305	309	313	316	319	320	322	322	322
120.0	407	412	417	421	424	426	428	428	429
125.0	519	525	529	533	536	539	540	542	542
130.0	635	639	643	647	650	652	654	655	655
135.0	745	748	751	754	757	759	760	761	761
140.0	845	847	849	852	853	854	855	856	857
145.0	931	932	934	936	937	937	938	939	939
150.0	1003	1005	1006	1007	1007	1008	1008	1009	1009
155.0	1063	1063	1064	1064	1064	1065	1065	1065	1066
160.0	1110	1110	1110	1110	1110	1111	1111	1111	1111
165.0	1145	1145	1145	1146	1146	1146	1146	1146	1146
170.0	1170	1170	1171	1171	1171	1171	1171	1171	1171
175.0	1186	1186	1186	1186	1186	1186	1186	1186	1186
180.0	1190	1190	1190	1190	1190	1190	1190	1190	1190

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031805808R01.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	299.76	N.A.	7.30
0-30	564.48	N.A.	13.80
0-40	774.20	N.A.	18.90
0-60	997.32	N.A.	24.40
0-80	1053.89	N.A.	25.80
0-90	1061.67	N.A.	26.00
10-90	990.24	N.A.	24.20
20-40	474.44	N.A.	11.60
20-50	634.26	N.A.	15.50
40-70	263.71	N.A.	6.50
60-80	56.57	N.A.	1.40
70-80	15.98	N.A.	0.40
80-90	7.78	N.A.	0.20
90-110	191.70	N.A.	4.70
90-120	492.29	N.A.	12.00
90-130	951.70	N.A.	23.30
90-150	2100.16	N.A.	51.40
90-180	3024.83	N.A.	74.00
110-180	2833.13	N.A.	69.30
0-180	4086.51	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	71.43
10-20	228.32
20-30	264.72
30-40	209.72
40-50	159.82
50-60	63.30
60-70	40.59
70-80	15.98
80-90	7.78
90-100	41.79
100-110	149.91
110-120	300.58
120-130	459.41
130-140	568.76
140-150	579.70
150-160	488.86
160-170	323.13
170-180	112.68

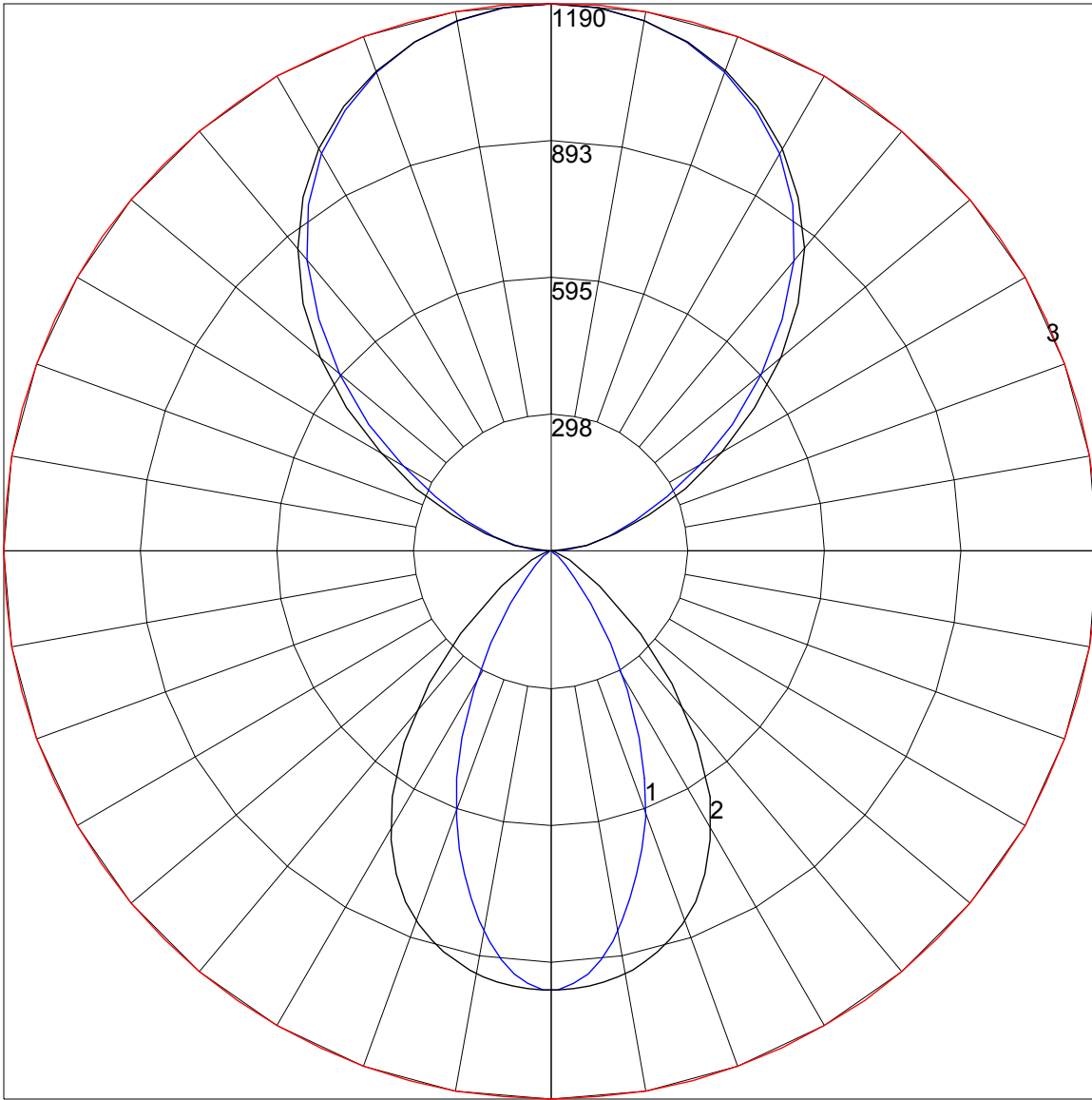
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	70	70	70	51	51	51	34	34	34	26
1	93	89	86	83	83	80	77	75	62	60	59	46	45	44	31	31	30	23
2	86	79	74	69	76	71	66	63	56	53	50	42	40	38	29	28	27	21
3	79	70	64	58	70	63	58	53	50	46	43	38	35	33	26	25	24	19
4	72	63	56	50	65	57	51	46	45	41	38	34	31	29	24	23	21	17
5	67	56	49	44	60	51	45	40	41	36	33	31	28	26	22	21	19	16
6	62	51	43	38	55	46	40	35	37	32	29	28	26	23	21	19	18	14
7	57	46	39	34	51	42	36	31	34	29	26	26	23	21	19	17	16	13
8	53	42	35	30	48	38	32	28	31	27	23	24	21	19	18	16	15	12
9	50	38	32	27	44	35	29	25	28	24	21	22	19	17	17	15	13	11
10	46	35	29	24	42	32	26	23	26	22	19	21	18	16	15	14	12	10

POLAR GRAPH



Maximum Candela = 1190 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.)