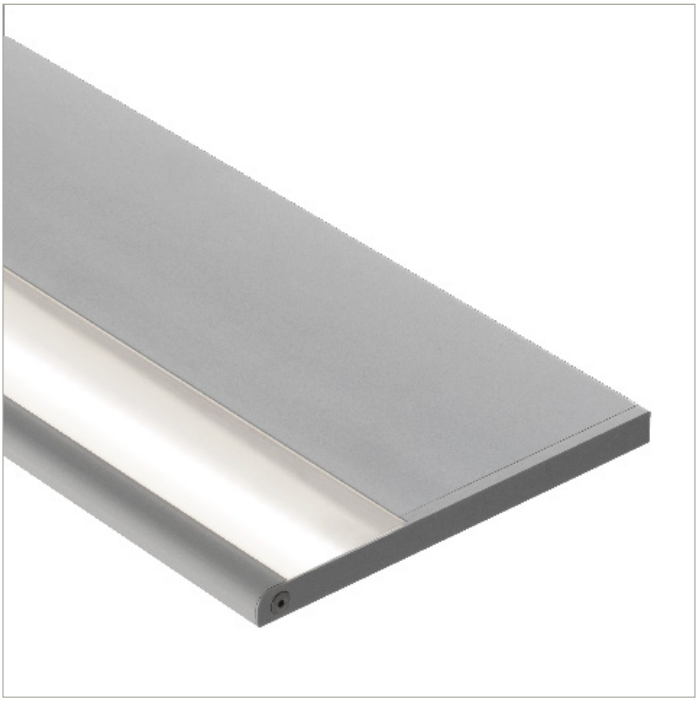
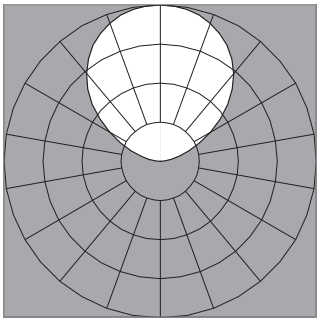
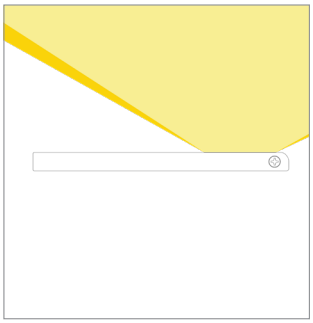






IES Report

ZipThree® | 707 | Symmetric, uplight only | 90 CRI | SO

707-Z3-4-48-XX-XX-X-0-Z-SO-359-U1-X-XX-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	118	122	124	127
Total Lumens, 4’ rail length (1219mm)	3089	3187	3252	3317
Lumens per foot (305mm)	772	797	813	829
Input Power (W), 4’ rail length (1219mm)	26.3	26.3	26.3	26.3
Watts per foot (305mm)	6.6	6.6	6.6	6.6
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.

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: **L091700108** **Issue Date: 9/21/2017**

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

Model Number: **707-Z3-48-Z-SO-359-U1**

Test: Electrical and Photometric tests

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: 9/15/17

Date of Tests: 9/18/17 - 9/20/17

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-S1	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
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.

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Test Summary	
Manufacturer:	Vode Lighting
Model Number:	707-Z3-48-Z-SO-359-U1
Driver Model Number:	MEAN WELL HLG-40H-36A
Total Lumens:	3252.08
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.22
Input Power (W):	26.29
Input Power Factor:	0.99
Current ATHD @ 120V(%):	9%
Current ATHD @ 277V(%):	N/A
Efficacy:	124
Color Rendering Index (CRI):	96
Correlated Color Temperature (K):	3389
Chromaticity Coordinate x:	0.4106
Chromaticity Coordinate y:	0.3911
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:45

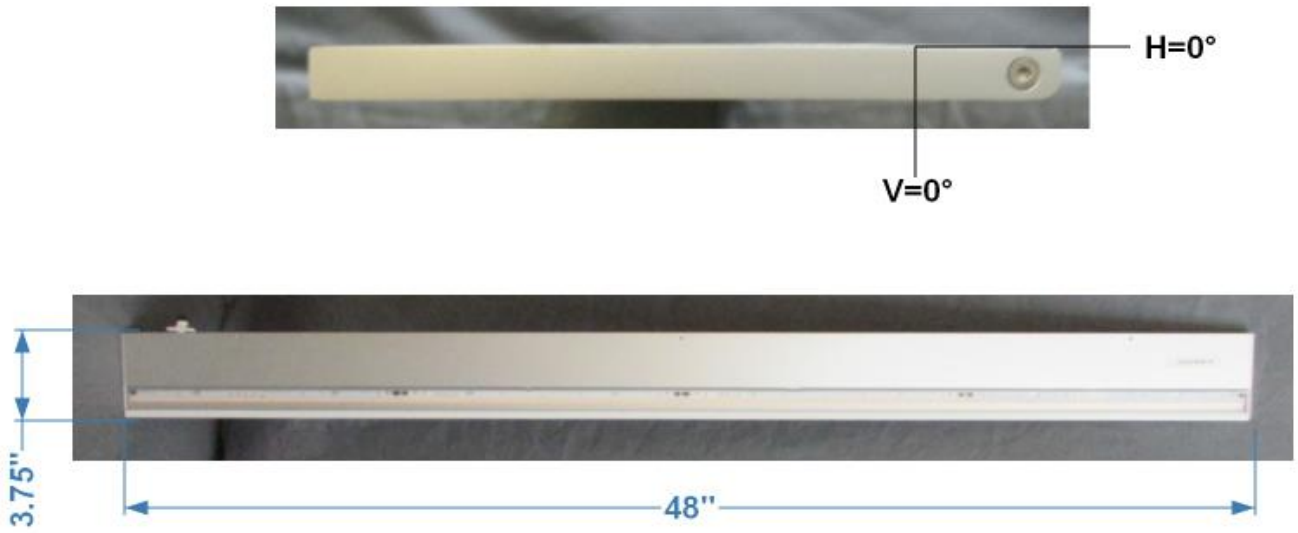


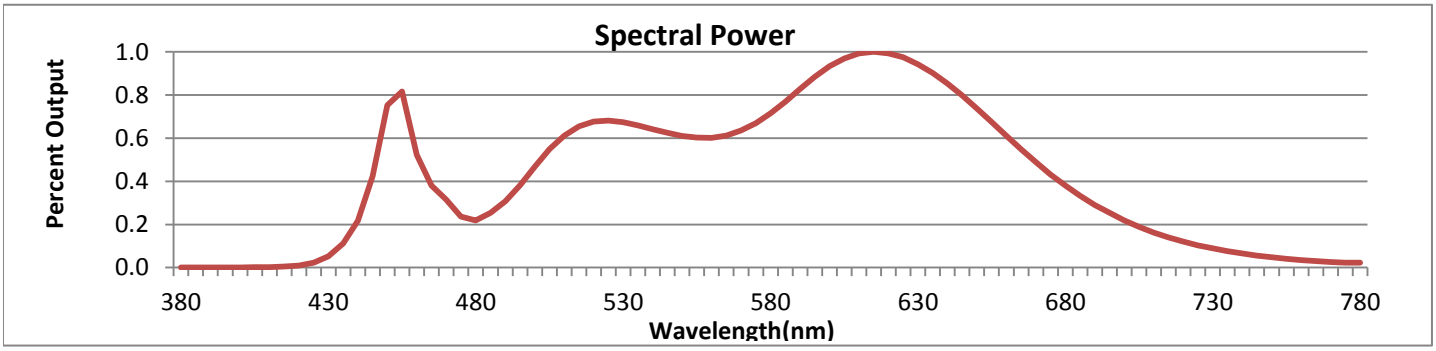
FIG. 1 LUMINAIRE

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

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

Report No: L091700108

NVLAP TESTING
NVLAP LAB CODE 200927-0



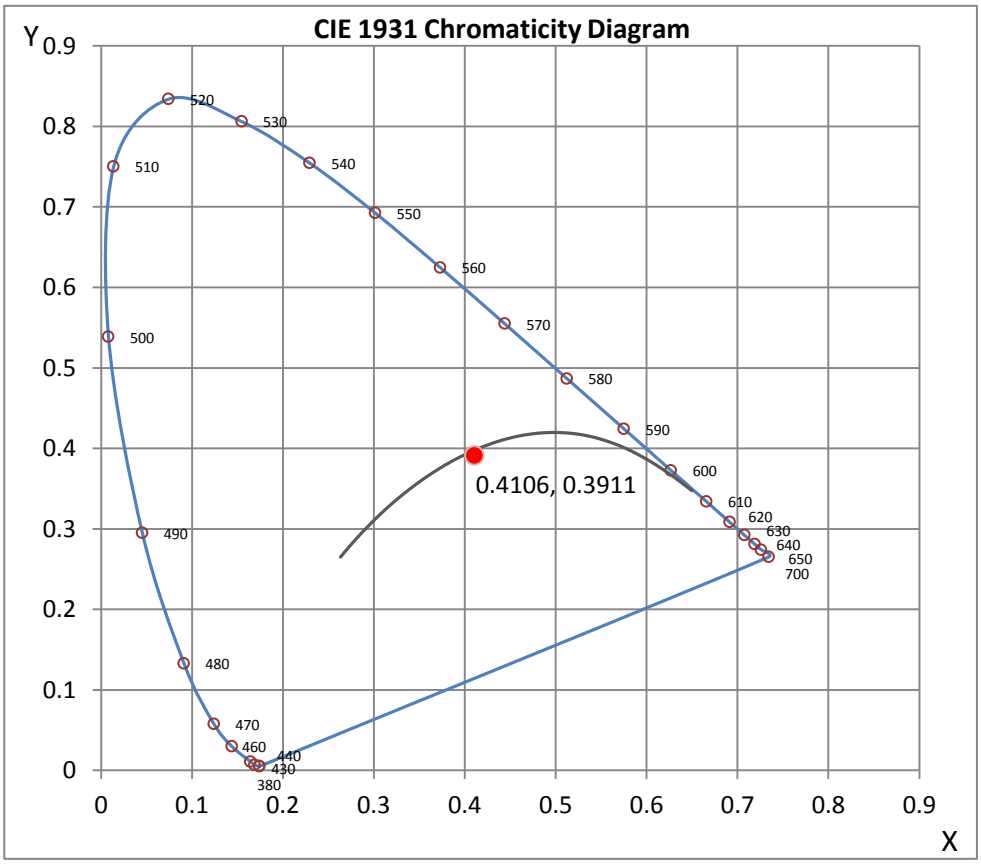
Wavelength	W/m²nm	440	0.2177	510	0.6125	580	0.7158	650	0.7381	720	0.1205
380	0.0008	450	0.7530	520	0.6767	590	0.8288	660	0.6121	730	0.0888
390	0.0008	460	0.5223	530	0.6738	600	0.9344	670	0.4880	740	0.0651
400	0.0011	470	0.3151	540	0.6417	610	0.9926	680	0.3797	750	0.0478
410	0.0024	480	0.2189	550	0.6109	620	0.9929	690	0.2903	760	0.0353
420	0.0101	490	0.3073	560	0.6013	630	0.9425	700	0.2186	770	0.0261
430	0.0526	500	0.4679	570	0.6352	640	0.8532	710	0.1629	780	0.0222

CRI & CCT

x	0.4106
y	0.3911
u'	0.2390
v'	0.5122
CRI	95.70
CCT	3389
Duv	-0.00096

R Values

R1	97.08
R2	98.80
R3	98.70
R4	94.82
R5	97.24
R6	94.37
R7	94.90
R8	89.82
R9	75.30
R10	98.16
R11	87.68
R12	82.68
R13	96.77
R14	98.22



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

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

NVLAP TESTING
NVLAP LAB CODE 200927-0

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*

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

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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700108.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L091700108
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 9/21/2017
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z3-48-Z-SO-359-U1
[LUMINAIRE] ZipThree LED, 48", 3500K, 90 CRI, zipper board,
[MORE] symmetric up, standard output
[BALLASTCAT] MEAN WELL HLG-40H-36A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 26.29W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3252
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	124
Total Luminaire Watts	26.29
Ballast Factor	1.00
CIE Type	Indirect
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.08 ft
Luminous Width (90-270)	3.96 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	0	0	0
55	0	0	0
65	0	0	0
75	0	0	0
85	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700108.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
95	32	32	33	33	32	33	32	32	32	32
100	86	86	87	87	87	87	87	88	88	88
105	156	156	156	157	157	158	159	159	160	161
110	241	241	241	242	243	244	245	246	247	248
115	340	340	340	341	342	343	344	345	347	348
120	450	450	451	451	453	454	455	456	458	459
125	567	567	567	568	569	570	572	573	574	575
130	683	683	683	684	685	686	687	688	689	691
135	792	792	792	792	793	793	795	796	797	798
140	888	888	889	889	889	889	890	891	892	893
145	972	972	972	972	972	973	973	973	974	974
150	1042	1042	1042	1042	1042	1042	1042	1042	1042	1043
155	1100	1100	1100	1100	1099	1099	1099	1099	1099	1099
160	1145	1145	1145	1145	1145	1145	1145	1145	1145	1145
165	1180	1180	1180	1180	1180	1180	1180	1180	1180	1180
170	1204	1204	1204	1204	1205	1204	1204	1204	1205	1204
175	1219	1219	1219	1219	1219	1219	1219	1219	1219	1219
180	1223	1223	1223	1223	1223	1223	1223	1223	1223	1223

Vert. Angles **Horizontal Angles**

	50	55	60	65	70	75	80	85	90
0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700108.IES

CANDELA TABULATION - (Cont.)

65	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0
95	32	32	32	31	31	31	31	31	30
100	88	89	89	89	89	89	88	88	88
105	161	162	162	162	162	162	162	162	162
110	249	249	250	250	251	251	251	251	252
115	349	350	351	352	352	353	354	354	354
120	460	462	463	464	465	466	467	467	468
125	577	578	579	581	582	583	584	584	585
130	692	693	694	695	696	696	697	698	698
135	799	799	800	801	801	802	803	803	803
140	893	894	894	895	895	896	896	896	896
145	975	975	975	976	976	977	977	977	977
150	1043	1043	1043	1044	1044	1044	1044	1045	1045
155	1099	1099	1099	1100	1100	1100	1100	1100	1100
160	1145	1145	1145	1145	1145	1145	1145	1145	1145
165	1180	1180	1180	1180	1180	1180	1180	1180	1180
170	1204	1204	1204	1204	1204	1204	1204	1204	1205
175	1219	1219	1219	1219	1219	1219	1219	1219	1219
180	1223	1223	1223	1223	1223	1223	1223	1223	1223

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700108.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	0.00	N.A.	0.00
0-30	0.00	N.A.	0.00
0-40	0.00	N.A.	0.00
0-60	0.00	N.A.	0.00
0-80	0.00	N.A.	0.00
0-90	0.00	N.A.	0.00
10-90	0.00	N.A.	0.00
20-40	0.00	N.A.	0.00
20-50	0.00	N.A.	0.00
40-70	0.00	N.A.	0.00
60-80	0.00	N.A.	0.00
70-80	0.00	N.A.	0.00
80-90	0.00	N.A.	0.00
90-110	213.83	N.A.	6.60
90-120	560.31	N.A.	17.20
90-130	1074.66	N.A.	33.00
90-150	2296.63	N.A.	70.60
90-180	3252.08	N.A.	100.00
110-180	3038.25	N.A.	93.40
0-180	3252.08	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	0.00
10-20	0.00
20-30	0.00
30-40	0.00
40-50	0.00
50-60	0.00
60-70	0.00
70-80	0.00
80-90	0.00
90-100	41.23
100-110	172.60
110-120	346.48
120-130	514.35
130-140	613.50
140-150	608.48
150-160	506.53
160-170	333.04
170-180	115.88

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700108.IES

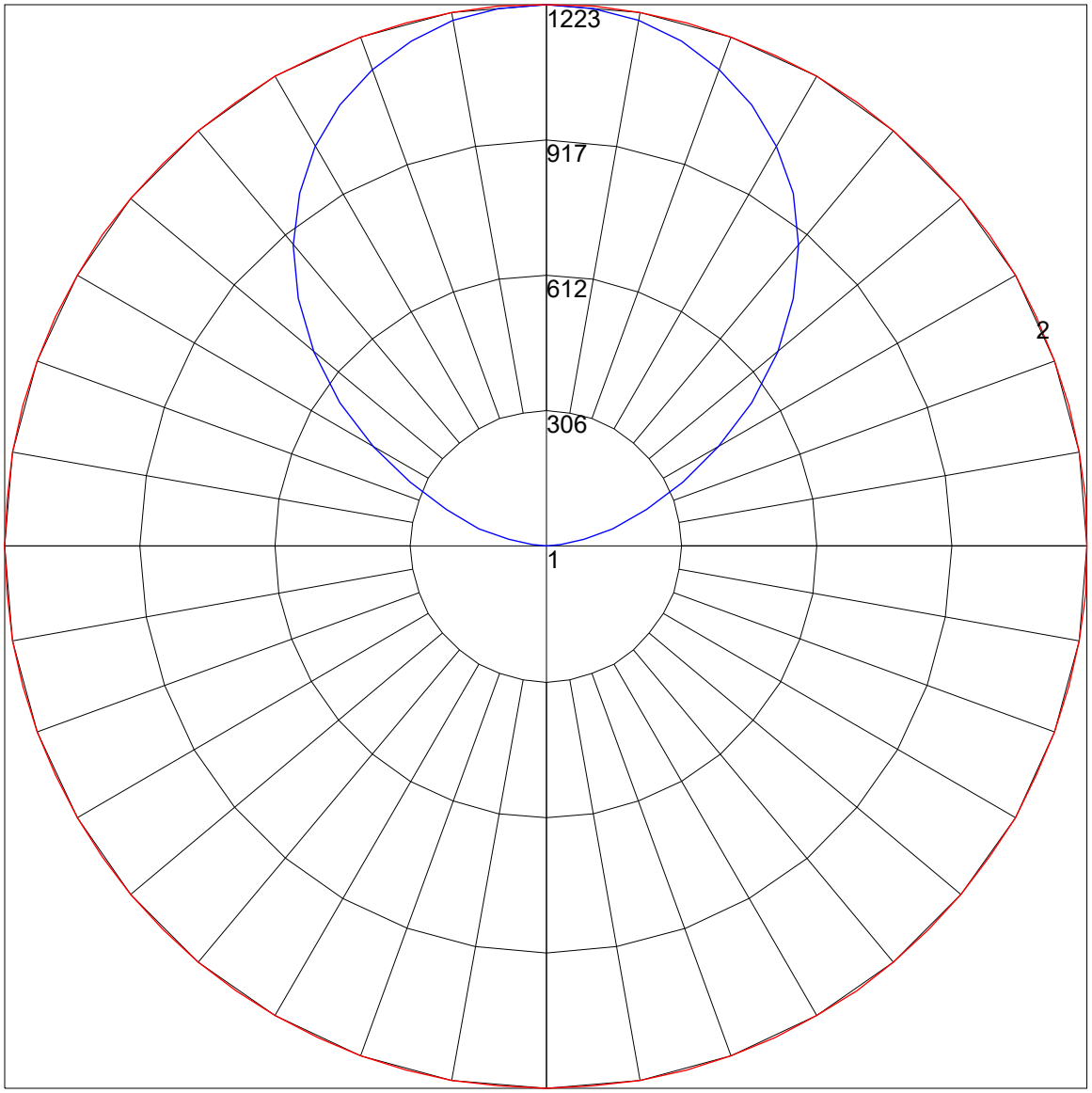
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	95	95	95	95	81	81	81	81	56	56	56	32	32	32	10	10	10	0
1	87	83	79	76	74	71	68	65	48	47	45	28	27	26	9	9	8	0
2	79	72	66	62	67	62	57	53	42	40	37	24	23	22	8	7	7	0
3	72	63	56	51	61	54	49	44	37	34	31	21	20	18	7	6	6	0
4	65	56	48	43	56	48	42	37	33	29	26	19	17	16	6	6	5	0
5	60	49	42	36	51	42	36	32	29	25	22	17	15	13	5	5	4	0
6	55	44	36	31	47	38	32	27	26	22	19	15	13	11	5	4	4	0
7	50	39	32	27	43	34	28	23	23	19	17	14	11	10	4	4	3	0
8	47	35	28	23	40	30	24	20	21	17	14	12	10	9	4	3	3	0
9	43	32	25	20	37	28	22	18	19	15	13	11	9	8	4	3	3	0
10	40	29	22	18	34	25	19	16	17	14	11	10	8	7	3	3	2	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700108.IES

POLAR GRAPH



Maximum Candela = 1223 Located At Horizontal Angle = 0, Vertical Angle = 180
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (180) (Through Max. Cd.)