

IES File

Performance Summary

The performance data in black text is confirmed through third party testing (see the following Light Laboratory report for details). The performance data in grey text is calculated by Vode. For reference only.



ZipWave™ LED - Zipper board™, Wall Cove, Standard Output

ZipWave LED, 48", 3500K, Zipper board with diffuse lens, wall cove, standard output
707-Z9-4-48-AW-X-X-Z-SO-35-1-X-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	103	108	112	116
Total Lumens, 4' rail length (1219mm)	2894	3020	3145	3271
Lumens per foot (305mm)	723	755	786	818
Input Power (W), 4' rail length (1219mm)	28.2	28.2	28.2	28.2
Watts per foot (305mm)	7.1	7.1	7.1	7.1
CRI (>80min., 85 avg.)	-	-	84	-



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Report No: L031700426R01



Report No: L031700426R01

Issue Date: 3/31/2017

Report Prepared For: Vode Lighting
1206 E MacArthur Suite 3 Sonoma, CA 95476

Model Number: 707-Z9-48-AW-Z-SO-35-1-AL

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: 3/15/17

Date of Tests: 3/20/17 - 3/21/17

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.

Test Summary

Manufacturer:	Vode Lighting
Model Number:	707-Z9-48-AW-Z-SO-35-1-AL
Driver Model Number:	eldoLED ECOdrive 566/L(700mA)
Total Lumens:	3145.47
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.24
Input Power (W):	28.22
Input Power Factor:	0.99
Current ATHD @ 120V(%):	10%
Current ATHD @ 277V(%):	N/A
Efficacy:	111
Color Rendering Index (CRI):	84
Correlated Color Temperature (K):	3467
Chromaticity Coordinate x:	0.4085
Chromaticity Coordinate y:	0.3951
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:55
Total Operating Time (Hours):	1:40

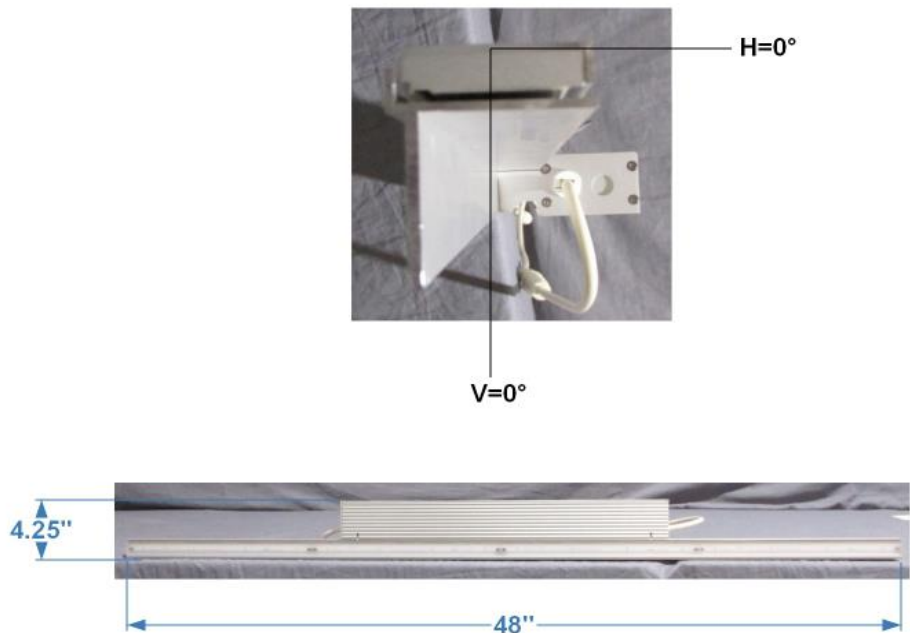
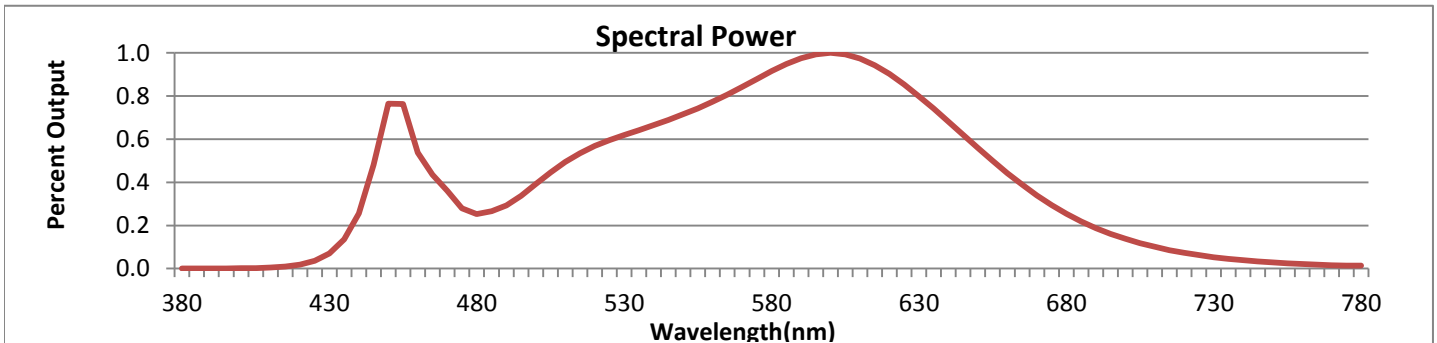


FIG. 1 LUMINAIRE

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



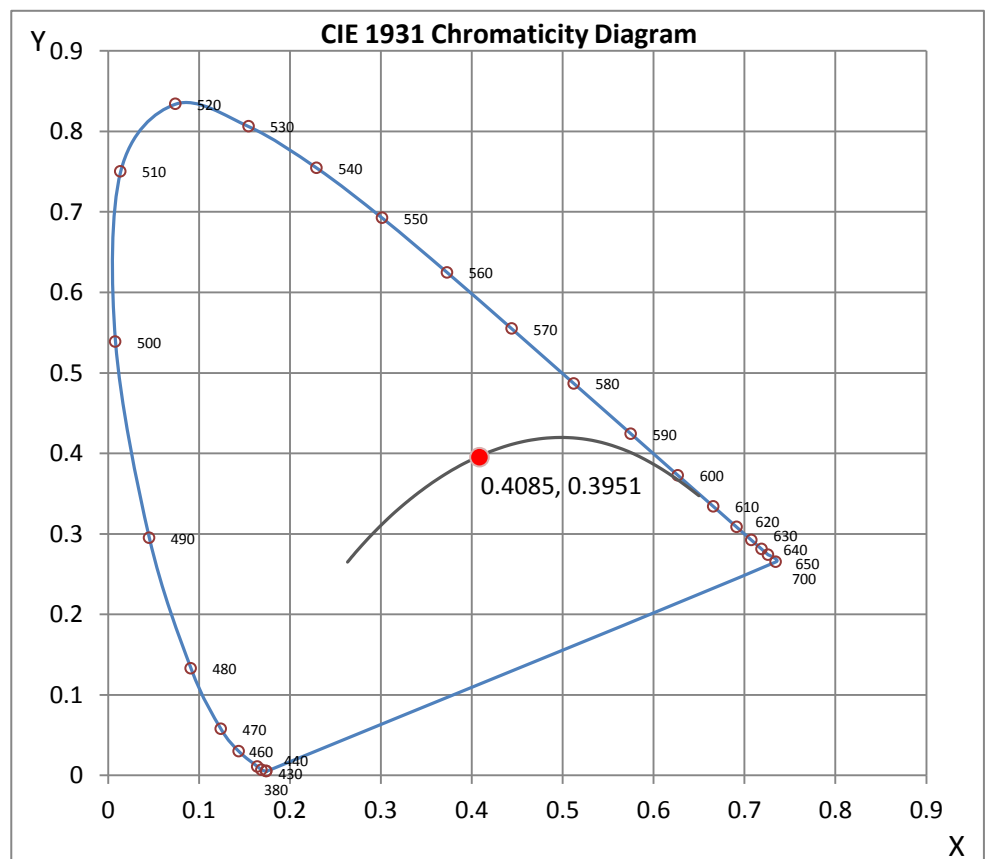
Wavelength	W/m ² nm	440	0.2560	510	0.4941	580	0.9160	650	0.5598	720	0.0730
380	0.0009	450	0.7649	520	0.5685	590	0.9760	660	0.4434	730	0.0532
390	0.0009	460	0.5373	530	0.6190	600	1.0000	670	0.3391	740	0.0386
400	0.0016	470	0.3617	540	0.6650	610	0.9737	680	0.2546	750	0.0284
410	0.0044	480	0.2529	550	0.7157	620	0.9021	690	0.1881	760	0.0209
420	0.0188	490	0.2930	560	0.7737	630	0.7992	700	0.1379	770	0.0155
430	0.0702	500	0.3918	570	0.8425	640	0.6817	710	0.1008	780	0.0134

CRI & CCT

x	0.4085
y	0.3951
u'	0.2360
v'	0.5135
CRI	83.60
CCT	3467
Duv	0.00121

R Values

R1	82.05
R2	90.73
R3	96.65
R4	81.75
R5	81.66
R6	87.43
R7	85.21
R8	63.07
R9	11.03
R10	77.85
R11	80.76
R12	64.21
R13	84.25
R14	98.29



*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*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031700426R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L031700426R01
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 3/31/2017
[MANUFAC] VODE LIGHTING
[LUMCAT] 707-Z9-48-AW-Z-SO-35-1-AL
[LUMINAIRE] ZIPWAVE LED, 48", ARMSTRONG WALL COVE, 3500K,
[MORE] ZIPPER BOARD, DIFFUSE LENS, STANDARD OUTPUT (700MA)
[BALLASTCAT] eldoLED ECOdrive 566/L(700mA)
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 28.22W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3145
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	111
Total Luminaire Watts	28.22
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)	0.10 ft
Luminous Width (90-270)	4.00 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

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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	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	4	4	4	5	5	5	5	6	6	7
95	24	25	25	26	27	28	30	31	33	36
100	48	48	49	50	52	55	58	62	66	70
105	76	76	77	80	83	87	92	98	104	111
110	109	109	112	115	119	126	133	141	150	161
115	151	152	155	159	165	173	183	194	207	221
120	204	205	209	215	223	233	245	260	275	291
125	273	274	279	286	295	307	322	338	355	373
130	359	360	365	373	384	397	412	430	447	466
135	463	464	469	477	487	500	515	531	548	565
140	577	578	583	590	599	610	624	637	652	668
145	693	693	697	702	710	719	730	742	754	769
150	800	801	804	808	815	823	832	842	853	867
155	903	904	906	909	915	921	929	938	949	961
160	997	998	1000	1003	1008	1014	1021	1028	1038	1047
165	1086	1086	1088	1090	1094	1098	1104	1110	1117	1124
170	1165	1165	1166	1168	1169	1172	1176	1180	1184	1189
175	1229	1228	1229	1229	1230	1231	1232	1234	1236	1237
180	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260

Vert. 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>	<u>95</u>
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

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CANDELA TABULATION - (Cont.)

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	8	8	9	10	10	11	11	12	13	14
95	38	40	43	45	47	49	52	54	56	59
100	75	79	84	89	93	97	101	106	110	116
105	119	127	134	142	148	154	161	167	175	183
110	172	182	192	202	211	220	229	238	248	259
115	235	248	261	273	284	295	307	319	331	344
120	308	323	338	352	366	379	393	408	423	439
125	391	408	424	441	456	471	488	505	523	540
130	484	501	518	536	552	570	589	608	628	647
135	583	600	617	636	654	672	693	714	734	755
140	684	701	718	737	756	776	798	819	839	859
145	784	800	817	835	855	875	896	916	936	956
150	881	896	912	931	949	968	987	1006	1024	1043
155	974	987	1002	1018	1035	1051	1068	1085	1101	1117
160	1058	1069	1082	1095	1108	1123	1136	1149	1164	1176
165	1133	1141	1150	1160	1170	1180	1189	1200	1210	1220
170	1194	1199	1205	1211	1217	1223	1229	1235	1242	1249
175	1239	1240	1244	1246	1248	1251	1254	1256	1259	1261
180	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260

Vert. Angles **Horizontal Angles**

	<u>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
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	15	16	17	19	20	22	24	26	28	30
95	63	66	70	73	77	81	85	88	92	95
100	121	127	133	139	145	151	156	162	167	172
105	191	199	208	216	224	232	240	247	254	260
110	269	280	291	302	312	322	332	340	349	356
115	358	372	385	397	410	423	433	444	453	462
120	455	471	487	501	515	529	541	553	563	573
125	559	576	593	609	625	639	653	665	677	686
130	667	685	704	720	737	752	766	779	790	800
135	775	794	812	829	845	860	874	887	898	907

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CANDELA TABULATION - (Cont.)

140	879	897	916	932	947	962	976	987	998	1007
145	975	992	1009	1024	1039	1052	1064	1076	1085	1094
150	1059	1075	1090	1103	1117	1129	1141	1150	1159	1166
155	1131	1145	1158	1171	1182	1192	1202	1210	1218	1224
160	1187	1199	1210	1220	1229	1238	1246	1253	1260	1265
165	1229	1239	1246	1254	1261	1269	1274	1279	1285	1289
170	1254	1262	1267	1272	1276	1281	1285	1289	1293	1295
175	1264	1267	1269	1271	1274	1276	1278	1279	1281	1283
180	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260

Vert. Horizontal Angles
Angles

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0
90	32	34	35	36	37	38	38
95	98	101	104	106	107	108	109
100	177	181	184	187	189	190	191
105	266	271	276	279	282	283	284
110	364	369	374	379	382	384	385
115	470	477	483	487	491	493	494
120	581	589	595	600	604	606	607
125	695	703	710	714	718	721	722
130	809	817	823	828	831	833	834
135	917	923	930	934	938	940	941
140	1016	1023	1028	1033	1036	1038	1039
145	1101	1108	1113	1117	1120	1123	1122
150	1173	1179	1184	1188	1190	1192	1192
155	1231	1236	1240	1243	1246	1247	1248
160	1271	1275	1279	1281	1283	1285	1285
165	1294	1297	1299	1301	1302	1303	1304
170	1298	1301	1303	1304	1304	1305	1306
175	1283	1285	1287	1287	1286	1287	1287
180	1260	1260	1260	1260	1260	1260	1260

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031700426R01.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	4.59	N.A.	0.10
10-90	4.59	N.A.	0.10
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	4.59	N.A.	0.10
90-110	260.18	N.A.	8.30
90-120	588.52	N.A.	18.70
90-130	1050.01	N.A.	33.40
90-150	2182.75	N.A.	69.40
90-180	3140.88	N.A.	99.90
110-180	2880.71	N.A.	91.60
0-180	3145.47	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	4.59
90-100	69.70
100-110	190.48
110-120	328.35
120-130	461.49
130-140	556.88
140-150	575.86
150-160	499.95
160-170	338.75
170-180	119.44

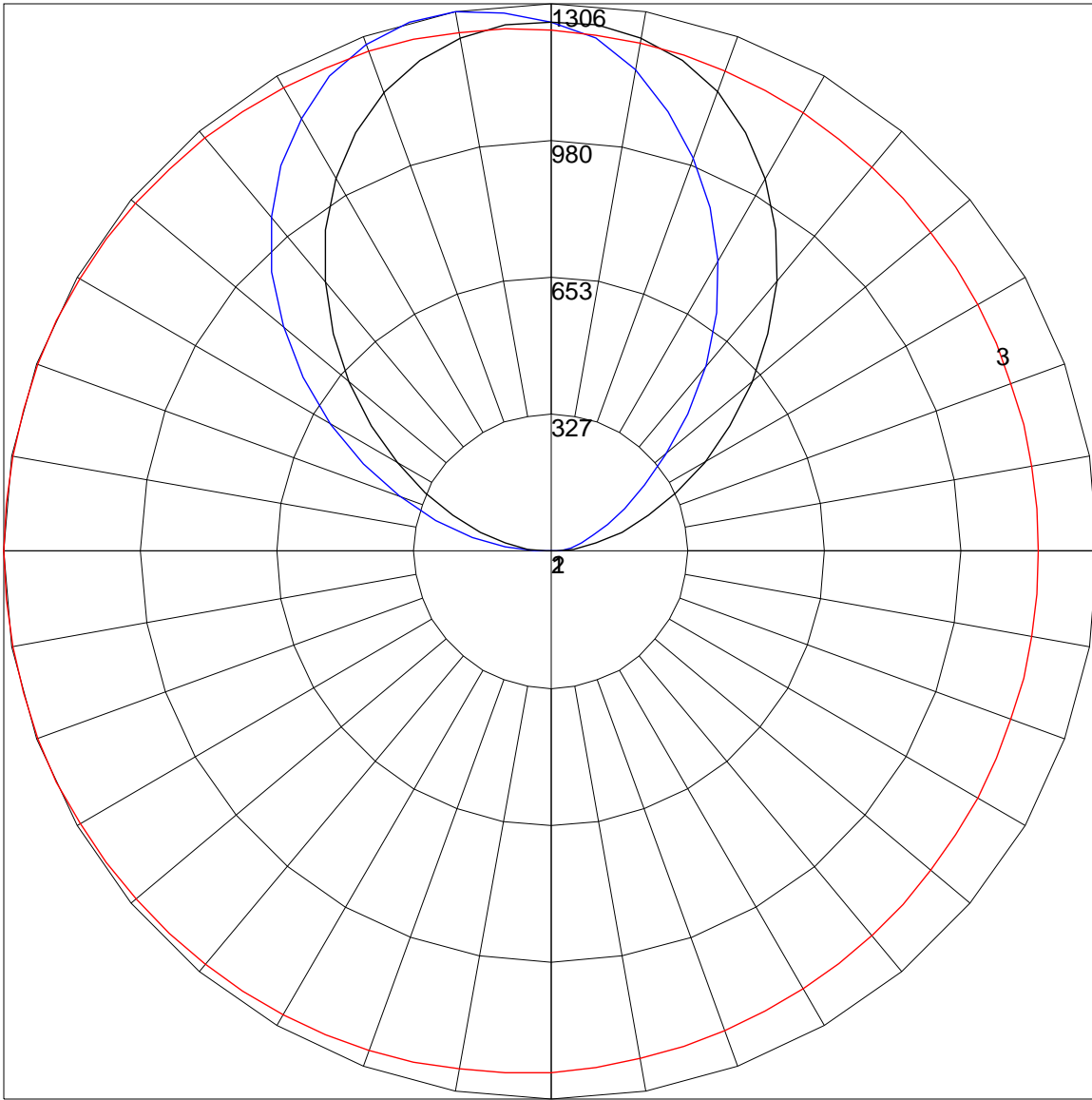
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031700426R01.IES

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	
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	27	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

POLAR GRAPH



Maximum Candela = 1306 Located At Horizontal Angle = 180, Vertical Angle = 170

1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)

2 - Vertical Plane Through Horizontal Angles (90 - 270)

3 - Horizontal Cone Through Vertical Angle (170) (Through Max. Cd.)