

IES Report

ZipWave® | 707 | Clear with EdgeSoft™ | 90 CRI | SO

707-Z9-4-48-AC / EL-XX-X-0-Z-SO-359-C1-0-AL-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	97	101	103	105
Total Lumens, 4' rail length (1219mm)	2563	2644	2698	2752
Lumens per foot (305mm)	641	661	675	688
Input Power (W), 4' rail length (1219mm)	26.4	26.4	26.4	26.4
Watts per foot (305mm)	6.7	6.7	6.7	6.7
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](#).



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

Report No: L101707601



Report No: L101707601

Issue Date: 11/1/2017

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

Model Number: 707-Z9-48-AC-Z-SO-359-C1

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: 10/26/17

Date of Tests: 10/27/17 - 11/1/17

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-AC-Z-SO-359-C1
Driver Model Number:	eldoLED SOLOdrive 561/M
Total Lumens:	2698.00
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.22
Input Power (W):	26.43
Input Power Factor:	0.98
Current ATHD @ 120V(%):	8%
Current ATHD @ 277V(%):	N/A
Efficacy:	102
Color Rendering Index (CRI):	96
Correlated Color Temperature (K):	3351
Chromaticity Coordinate x:	0.4128
Chromaticity Coordinate y:	0.3920
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	2:00

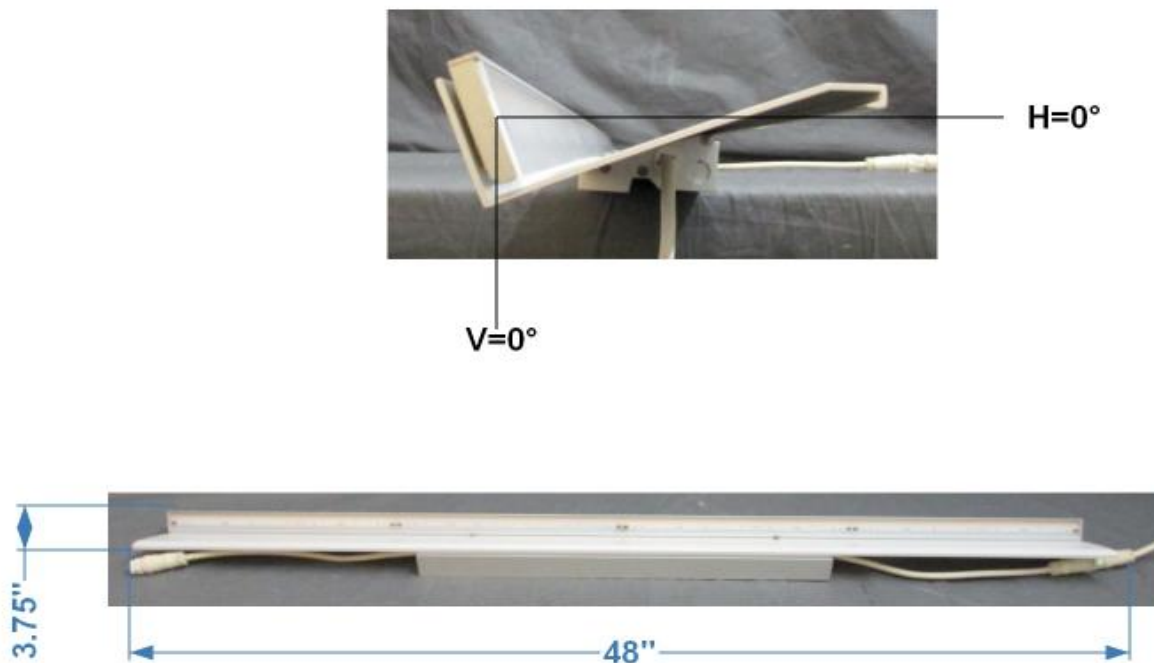
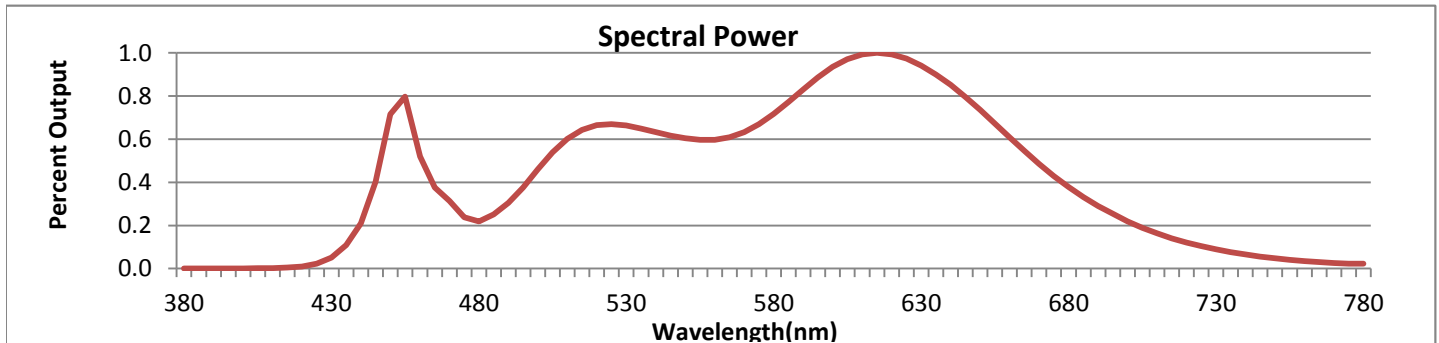


FIG. 1 LUMINAIRE



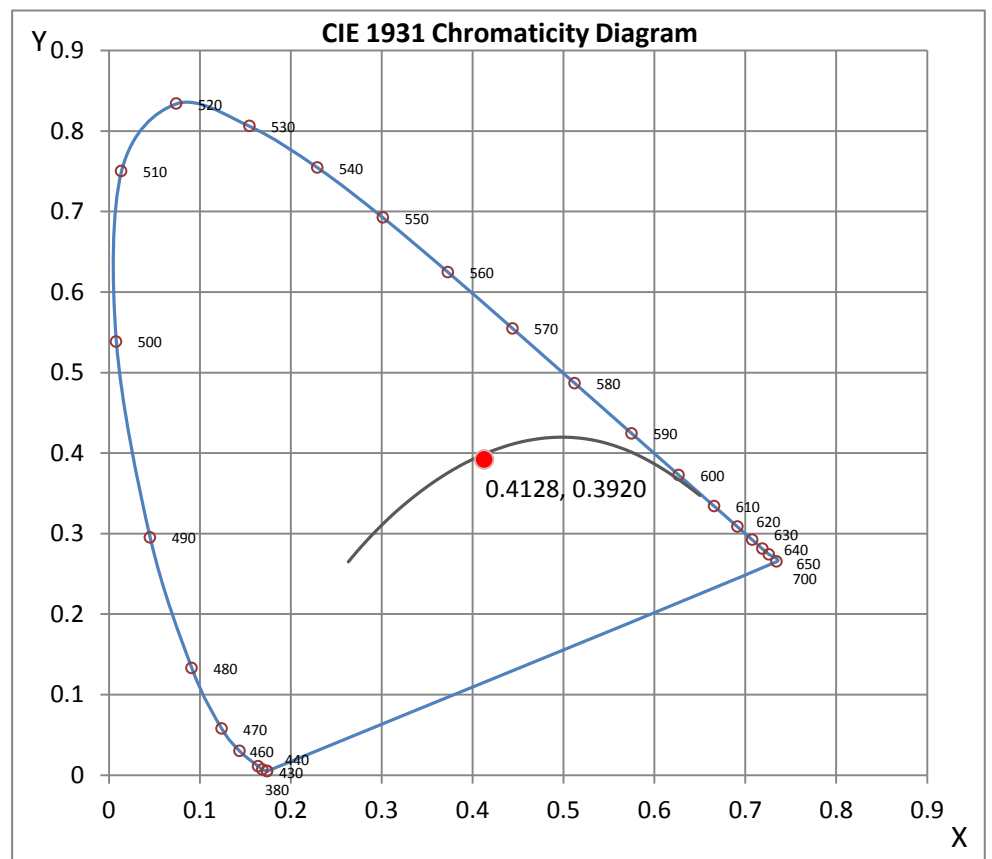
Wavelength	W/m ² nm	440	0.2104	510	0.6012	580	0.7170	650	0.7360	720	0.1208
380	0.0008	450	0.7162	520	0.6650	590	0.8306	660	0.6094	730	0.0892
390	0.0009	460	0.5206	530	0.6632	600	0.9352	670	0.4852	740	0.0653
400	0.0011	470	0.3141	540	0.6333	610	0.9931	680	0.3788	750	0.0480
410	0.0023	480	0.2183	550	0.6040	620	0.9931	690	0.2899	760	0.0353
420	0.0099	490	0.3047	560	0.5973	630	0.9412	700	0.2185	770	0.0262
430	0.0517	500	0.4608	570	0.6331	640	0.8520	710	0.1633	780	0.0226

CRI & CCT

x	0.4128
y	0.3920
u'	0.2401
v'	0.5129
CRI	95.70
CCT	3351
Duv	-0.00101

R Values

R1	97.36
R2	98.75
R3	98.94
R4	95.32
R5	97.45
R6	94.20
R7	94.41
R8	88.96
R9	73.70
R10	98.01
R11	88.20
R12	82.94
R13	96.98
R14	98.45



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: 11*



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L101707601.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L101707601
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 11/1/2017
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z9-48-AC-Z-SO-359-C1
[LUMINAIRE] ZipWave LED, 48", ceiling cove, 3500K, 90 CRI, zipper board,
[MORE] clear lens w/edge softening, standard output
[BALLASTCAT] eldoLED SOLOdrive 561/M
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 26.43W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2698
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	102
Total Luminaire Watts	26.43
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)	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

IES INDOOR REPORT
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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	0	0	0	0	0	0	0	0	0	0
95	7	7	12	17	22	28	34	40	48	61
100	628	651	713	794	866	904	895	855	797	724
105	1145	1141	1128	1108	1080	1041	995	939	873	799
110	1184	1180	1167	1148	1121	1085	1041	985	917	841
115	1210	1205	1195	1174	1145	1109	1066	1013	952	885
120	1223	1218	1209	1190	1164	1132	1092	1048	1001	964
125	1238	1234	1226	1211	1190	1169	1149	1134	1108	1049
130	1295	1294	1291	1287	1277	1257	1222	1170	1102	1027
135	1325	1321	1309	1290	1261	1225	1179	1125	1061	993
140	1257	1253	1242	1224	1196	1163	1122	1072	1015	954
145	1180	1176	1166	1149	1125	1095	1058	1014	963	907
150	1093	1090	1081	1065	1043	1017	984	945	899	851
155	992	989	981	967	948	925	897	863	825	785
160	875	872	866	855	840	821	799	773	743	713
165	751	749	745	737	726	713	698	680	661	640
170	634	633	631	626	620	613	605	595	583	572
175	536	536	535	533	531	528	525	521	517	512
180	462	462	462	462	462	462	462	462	462	462

Vert. Horizontal Angles
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

IES INDOOR REPORT
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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	0	0	0	0	0	0	0	0	0	0
95	84	156	250	271	212	151	94	63	25	18
100	640	550	453	352	274	208	174	113	71	41
105	712	614	513	420	355	312	230	161	109	78
110	759	669	585	536	463	352	278	207	153	116
115	817	760	715	612	502	400	318	251	195	156
120	937	861	750	635	530	434	356	291	236	196
125	963	861	755	650	553	464	390	328	274	235
130	943	850	755	659	571	488	419	360	309	270
135	918	835	748	662	582	507	443	388	339	303
140	886	812	735	659	587	520	462	412	367	332
145	847	782	714	648	586	527	476	431	390	358
150	799	743	686	630	578	528	485	446	410	382
155	742	697	651	606	565	525	489	456	427	402
160	681	647	613	579	548	517	490	464	440	420
165	618	596	573	550	528	507	487	468	451	435
170	560	547	534	520	507	494	481	469	458	447
175	507	502	496	491	485	479	473	468	462	456
180	462	462	462	462	462	462	462	462	462	462

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	0	0	0	0	0	0	0	0	0	0
95	18	18	18	18	18	18	18	18	18	18
100	44	43	41	40	38	37	37	36	36	35
105	71	72	71	68	65	63	61	60	58	57
110	97	100	100	98	95	92	89	86	84	83
115	131	125	128	127	125	122	119	115	113	110
120	168	151	152	153	153	151	148	145	142	140
125	204	183	173	175	177	177	175	173	170	168
130	239	216	200	195	197	198	199	198	196	195
135	272	248	231	219	215	217	218	219	218	218

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CANDELA TABULATION - (Cont.)

140	303	279	261	247	237	233	234	235	236	236
145	332	309	290	276	264	256	251	249	250	251
150	357	336	318	304	291	282	275	269	265	263
155	380	361	344	331	319	309	301	294	289	285
160	401	385	370	357	346	337	329	322	316	311
165	420	407	394	384	374	366	358	352	346	341
170	437	427	418	410	402	396	390	385	380	376
175	451	446	441	437	432	428	425	422	419	416
180	462	462	462	462	462	462	462	462	462	462

Vert. Angles	Horizontal 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	0	0	0	0	0	0	0
95	18	18	18	18	17	17	17
100	35	34	34	34	33	33	33
105	56	55	55	54	54	53	53
110	81	80	79	78	77	77	77
115	108	107	105	104	103	103	102
120	137	135	134	132	131	131	131
125	166	164	162	161	160	159	159
130	193	191	190	189	188	187	187
135	217	216	215	214	213	213	213
140	236	236	236	235	235	235	235
145	252	252	252	252	252	252	252
150	262	263	264	264	264	264	265
155	282	279	278	277	276	275	275
160	307	304	302	300	299	298	298
165	338	334	331	329	328	327	327
170	372	369	367	365	364	363	362
175	414	412	410	409	408	408	408
180	462	462	462	462	462	462	462

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707601.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	515.20	N.A.	19.10
90-120	982.17	N.A.	36.40
90-130	1464.36	N.A.	54.30
90-150	2264.35	N.A.	83.90
90-180	2698.00	N.A.	100.00
110-180	2182.8	N.A.	80.90
0-180	2698.00	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	111.65
100-110	403.56
110-120	466.96
120-130	482.20
130-140	445.14
140-150	354.85
150-160	247.71
160-170	141.03
170-180	44.91

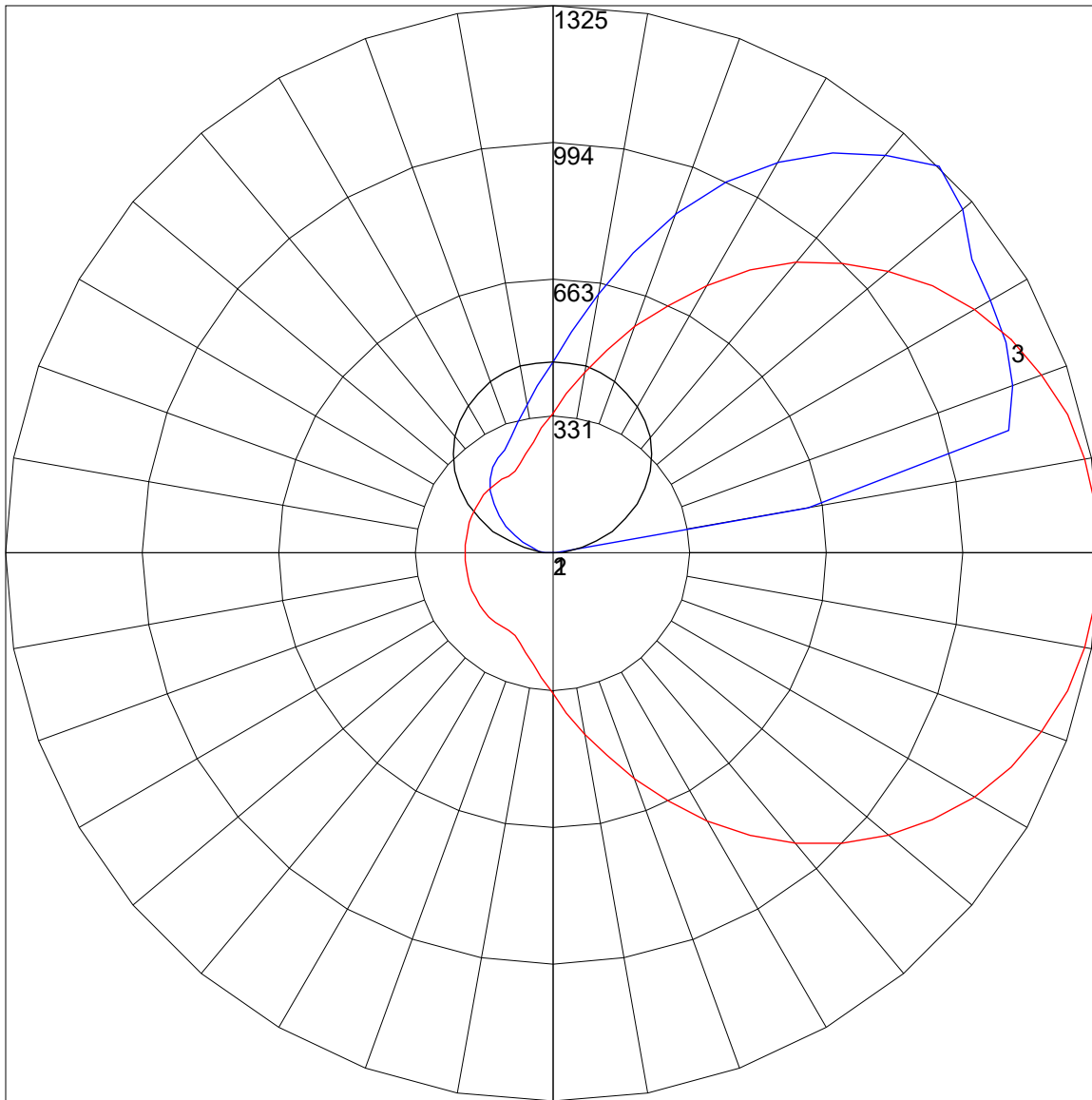
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L101707601.IES

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

POLAR GRAPH



Maximum Candela = 1325 Located At Horizontal Angle = 0, Vertical Angle = 135
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 (135) (Through Max. Cd.)