

## IES Report

# ZipOne® | 707 | 100° Asymmetric | 90 CRI | SO

707-Z1-4-48-X-XX-X-0-Z-SO-359-A2-X-AL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	106	109	111	113
Total Lumens, 4' rail length (1219mm)	2740	2826	2884	2913
Lumens per foot (305mm)	685	707	721	728
Input Power (W), 4' rail length (1219mm)	26.0	26.0	26.0	26.0
Watts per foot (305mm)	6.5	6.5	6.6	6.5
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: L121911522



**Report No:** L121911522

**Issue Date:** 1/6/2020

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

**Model Number:** 707-Z1-48-Z-SO-359-A2-AL

**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:** 12/28/19 - 1/6/20

**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

<b>Manufacturer:</b>	Vode Lighting
<b>Model Number:</b>	707-Z1-48-Z-SO-359-A2-AL
<b>Driver Model Number:</b>	MEAN WELL HLG-40H-36A

### Test Summary

<b>Total Lumens:</b>	2884.31
<b>Efficacy:</b>	110.75
<b>Color Redering Index:</b>	93.9
<b>Correlated Color Temperature:</b>	3365
<b>Input Voltage (VAC/60Hz):</b>	120.02
<b>Input Current (Amp):</b>	0.2182
<b>Input Power (W):</b>	26.04
<b>Input Power Factor:</b>	0.9943
<b>Current ATHD (%):</b>	7.9%

### Test Condition

<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:40
<b>Total Operating Time (Hours):</b>	1:30

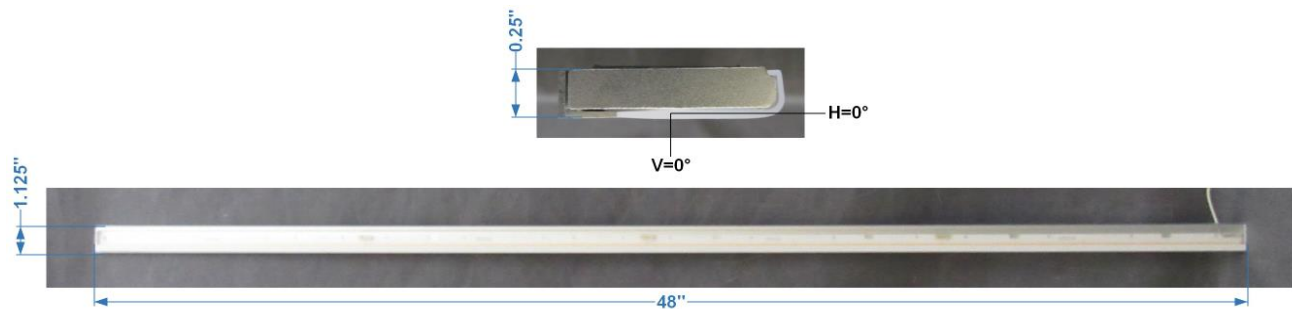
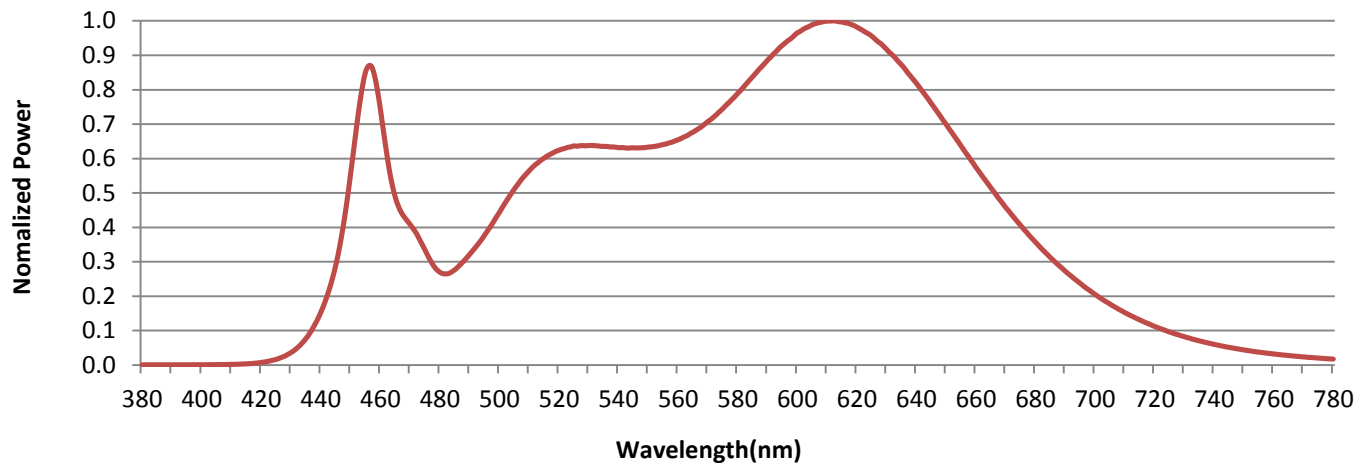


FIG. 1 LUMINAIRE

## Colorimetry Test Results

**Spectral Power Distribution**



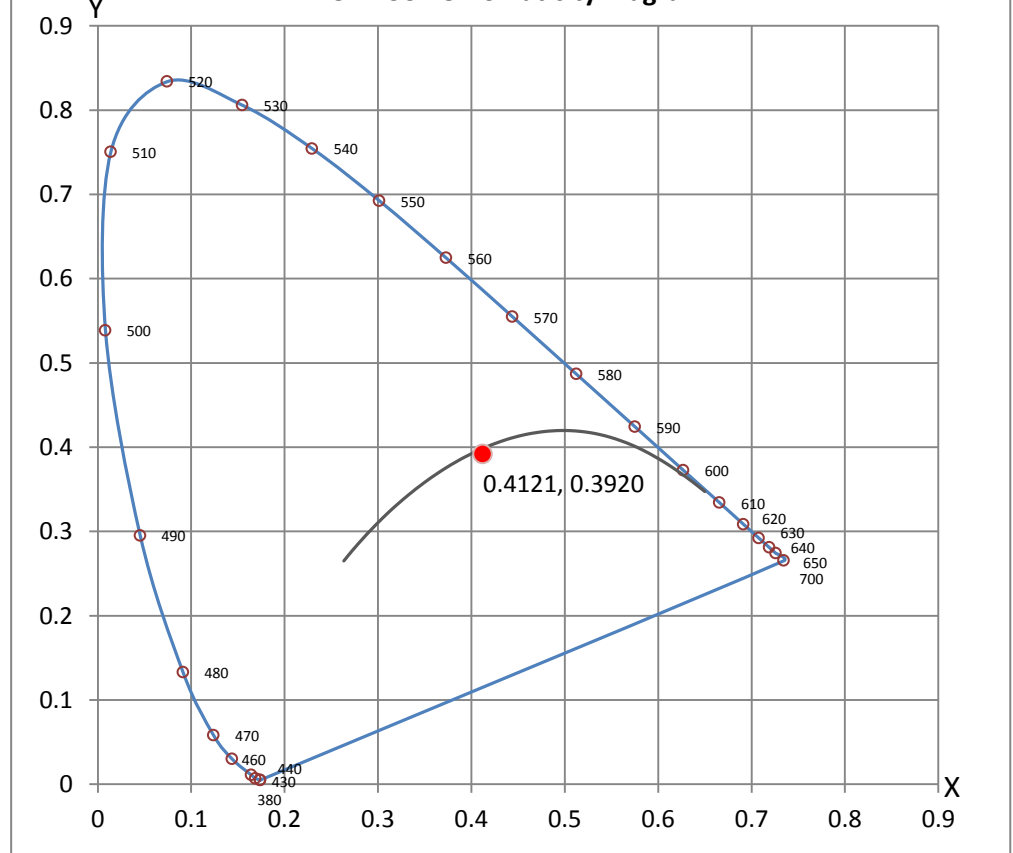
### CRI & CCT

x	0.4121
y	0.3920
u'	0.2396
v'	0.5128
CRI	93.90
CCT	3365
Duv	-0.00087

### R Values

R1	96.17
R2	99.30
R3	97.41
R4	95.98
R5	96.16
R6	95.40
R7	89.91
R8	80.53
R9	57.13
R10	98.25
R11	98.42
R12	77.28
R13	98.01
R14	99.45
R15	90.31

**CIE 1931 Chromaticity Diagram**





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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: 11*



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## Photometric Test Report

### IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911522.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L121911522  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUEDATE] 1/6/2020  
[MANUFAC] Vode Lighting  
[LUMCAT] 707-Z1-48-Z-SO-359-A2-AL  
[LUMINAIRE] ZipOne LED, 48", 3500K, 90 CRI, zipper board,  
[MORE] 100° asymmetric lens, standard output, clear anodized finish  
[BALLASTCAT] MEAN WELL HLG-40H-36A  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[INPUT] 120.02VAC, 26.04W  
[TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2884
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	111
Total Luminaire Watts	26.04
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.44
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.20
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.06 ft
Luminous Width (90-270)	3.98 ft
Luminous Height	0.00 ft

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	65342	62731	50312
55	62182	58570	43810
65	56368	52000	35803
75	49240	44020	27491
85	44436	36685	17568

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911522.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>
<b>0</b>	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
<b>5</b>	1338	1338	1336	1336	1334	1333	1331	1329	1326	1322
<b>10</b>	1368	1368	1366	1365	1364	1361	1358	1354	1350	1345
<b>15</b>	1371	1371	1370	1369	1366	1364	1360	1357	1351	1346
<b>20</b>	1353	1352	1351	1351	1348	1346	1342	1338	1333	1328
<b>25</b>	1317	1317	1316	1315	1313	1310	1307	1303	1297	1291
<b>30</b>	1267	1266	1266	1264	1262	1259	1255	1251	1245	1240
<b>35</b>	1202	1201	1200	1198	1195	1191	1187	1183	1177	1170
<b>40</b>	1121	1121	1119	1117	1113	1110	1105	1099	1092	1085
<b>45</b>	1026	1025	1023	1021	1017	1012	1006	1000	993	985
<b>50</b>	915	914	912	909	905	900	894	887	879	870
<b>55</b>	792	791	789	786	782	776	770	762	755	746
<b>60</b>	662	661	659	656	652	647	641	633	625	617
<b>65</b>	529	529	527	524	520	516	510	504	496	488
<b>70</b>	401	401	399	397	393	389	384	378	372	365
<b>75</b>	283	283	281	279	276	273	269	264	258	253
<b>80</b>	175	175	174	172	170	167	164	161	156	152
<b>85</b>	86	86	86	84	83	81	79	76	73	71
<b>90</b>	29	29	28	28	27	26	24	23	22	20
<b>95</b>	0	0	0	0	0	0	0	0	0	0
<b>100</b>	0	0	0	0	0	0	0	0	0	0
<b>105</b>	0	0	0	0	0	0	0	0	0	0
<b>110</b>	0	0	0	0	0	0	0	0	0	0
<b>115</b>	0	0	0	0	0	0	0	0	0	0
<b>120</b>	0	0	0	0	0	0	0	0	0	0
<b>125</b>	0	0	0	0	0	0	0	0	0	0
<b>130</b>	0	0	0	0	0	0	0	0	0	0
<b>135</b>	0	0	0	0	0	0	0	0	0	0
<b>140</b>	0	0	0	0	0	0	0	0	0	0
<b>145</b>	0	0	0	0	0	0	0	0	0	0
<b>150</b>	0	0	0	0	0	0	0	0	0	0
<b>155</b>	0	0	0	0	0	0	0	0	0	0
<b>160</b>	0	0	0	0	0	0	0	0	0	0
<b>165</b>	0	0	0	0	0	0	0	0	0	0
<b>170</b>	0	0	0	0	0	0	0	0	0	0
<b>175</b>	0	0	0	0	0	0	0	0	0	0
<b>180</b>	0	0	0	0	0	0	0	0	0	0

**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>	<u>95</u>
<b>0</b>	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
<b>5</b>	1319	1316	1312	1307	1302	1297	1291	1286	1280	1274
<b>10</b>	1339	1333	1326	1318	1309	1299	1287	1277	1264	1250
<b>15</b>	1339	1332	1322	1311	1300	1287	1271	1255	1236	1215
<b>20</b>	1320	1312	1302	1290	1277	1260	1241	1220	1195	1166
<b>25</b>	1284	1276	1265	1253	1238	1219	1198	1172	1141	1105
<b>30</b>	1232	1223	1213	1200	1184	1164	1140	1111	1074	1031
<b>35</b>	1163	1154	1143	1130	1114	1093	1067	1034	991	943
<b>40</b>	1077	1068	1057	1044	1028	1006	978	943	897	843
<b>45</b>	976	967	955	942	925	903	876	839	790	734
<b>50</b>	861	851	839	826	809	788	759	723	677	617
<b>55</b>	736	726	714	701	685	665	637	602	558	502
<b>60</b>	607	597	585	572	557	538	513	482	442	394

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911522.IES**

**CANDELA TABULATION - (Cont.)**

<b>65</b>	479	470	459	447	433	416	394	368	336	297
<b>70</b>	357	349	340	331	319	304	287	265	240	212
<b>75</b>	247	240	232	224	215	204	191	176	158	139
<b>80</b>	147	142	136	131	124	116	108	98	88	78
<b>85</b>	68	64	61	57	53	48	44	39	34	31
<b>90</b>	19	17	15	13	11	8	5	3	2	2
<b>95</b>	0	0	0	0	0	0	0	0	0	0
<b>100</b>	0	0	0	0	0	0	0	0	0	0
<b>105</b>	0	0	0	0	0	0	0	0	0	0
<b>110</b>	0	0	0	0	0	0	0	0	0	0
<b>115</b>	0	0	0	0	0	0	0	0	0	0
<b>120</b>	0	0	0	0	0	0	0	0	0	0
<b>125</b>	0	0	0	0	0	0	0	0	0	0
<b>130</b>	0	0	0	0	0	0	0	0	0	0
<b>135</b>	0	0	0	0	0	0	0	0	0	0
<b>140</b>	0	0	0	0	0	0	0	0	0	0
<b>145</b>	0	0	0	0	0	0	0	0	0	0
<b>150</b>	0	0	0	0	0	0	0	0	0	0
<b>155</b>	0	0	0	0	0	0	0	0	0	0
<b>160</b>	0	0	0	0	0	0	0	0	0	0
<b>165</b>	0	0	0	0	0	0	0	0	0	0
<b>170</b>	0	0	0	0	0	0	0	0	0	0
<b>175</b>	0	0	0	0	0	0	0	0	0	0
<b>180</b>	0	0	0	0	0	0	0	0	0	0

**Vert. Angles**      **Horizontal Angles**

	<b><u>100</u></b>	<b><u>105</u></b>	<b><u>110</u></b>	<b><u>115</u></b>	<b><u>120</u></b>	<b><u>125</u></b>	<b><u>130</u></b>	<b><u>135</u></b>	<b><u>140</u></b>	<b><u>145</u></b>
<b>0</b>	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
<b>5</b>	1268	1262	1256	1250	1244	1238	1233	1227	1222	1218
<b>10</b>	1237	1222	1208	1193	1178	1164	1149	1135	1122	1110
<b>15</b>	1194	1170	1145	1120	1092	1067	1042	1016	993	971
<b>20</b>	1135	1102	1066	1028	990	952	915	877	844	812
<b>25</b>	1066	1021	973	923	870	821	773	726	685	647
<b>30</b>	982	927	867	807	743	684	630	579	533	496
<b>35</b>	886	821	753	685	614	552	497	445	404	371
<b>40</b>	780	709	635	564	493	434	382	338	302	275
<b>45</b>	668	595	520	452	386	334	291	254	226	205
<b>50</b>	552	482	415	354	300	256	220	192	172	155
<b>55</b>	443	381	323	271	229	195	168	147	131	120
<b>60</b>	342	294	246	207	174	148	128	113	102	93
<b>65</b>	258	220	184	153	130	111	96	85	77	71
<b>70</b>	183	156	131	111	93	82	70	63	57	52
<b>75</b>	121	103	87	74	63	54	48	43	39	36
<b>80</b>	68	59	50	43	37	32	29	26	23	22
<b>85</b>	27	24	21	18	16	15	13	12	11	10
<b>90</b>	3	3	3	3	3	2	2	2	2	2
<b>95</b>	0	0	0	0	0	0	0	0	0	0
<b>100</b>	0	0	0	0	0	0	0	0	0	0
<b>105</b>	0	0	0	0	0	0	0	0	0	0
<b>110</b>	0	0	0	0	0	0	0	0	0	0
<b>115</b>	0	0	0	0	0	0	0	0	0	0
<b>120</b>	0	0	0	0	0	0	0	0	0	0
<b>125</b>	0	0	0	0	0	0	0	0	0	0
<b>130</b>	0	0	0	0	0	0	0	0	0	0
<b>135</b>	0	0	0	0	0	0	0	0	0	0



IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L121911522.IES

CANDELA TABULATION - (Cont.)

140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0

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	1284	1284	1284	1284	1284	1284	1284
5	1213	1210	1207	1205	1203	1202	1201
10	1099	1089	1081	1075	1070	1067	1067
15	952	935	921	909	901	896	894
20	784	760	741	725	714	707	705
25	614	588	566	548	536	529	526
30	464	437	416	400	389	383	381
35	343	321	303	290	281	276	274
40	252	235	222	212	206	202	201
45	189	176	167	160	155	153	152
50	143	135	128	123	120	118	118
55	111	105	100	96	94	93	92
60	86	82	78	76	74	73	73
65	66	63	60	58	57	56	56
70	49	46	44	43	42	41	41
75	33	32	30	29	29	28	28
80	20	19	19	18	18	17	17
85	10	9	9	9	9	8	8
90	2	2	2	2	2	2	2
95	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911522.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	453.01	N.A.	15.70
0-30	922.78	N.A.	32.00
0-40	1446.53	N.A.	50.20
0-60	2372.01	N.A.	82.20
0-80	2831.53	N.A.	98.20
0-90	2881.46	N.A.	99.90
10-90	2760.89	N.A.	95.70
20-40	993.53	N.A.	34.40
20-50	1497.65	N.A.	51.90
40-70	1222.64	N.A.	42.40
60-80	459.52	N.A.	15.90
70-80	162.35	N.A.	5.60
80-90	49.94	N.A.	1.70
90-110	2.85	N.A.	0.10
90-120	2.85	N.A.	0.10
90-130	2.85	N.A.	0.10
90-150	2.85	N.A.	0.10
90-180	2.85	N.A.	0.10
110-180	0.00	N.A.	0.00
0-180	2884.31	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	120.57
10-20	332.44
20-30	469.77
30-40	523.76
40-50	504.12
50-60	421.35
60-70	297.17
70-80	162.35
80-90	49.94
90-100	2.85
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

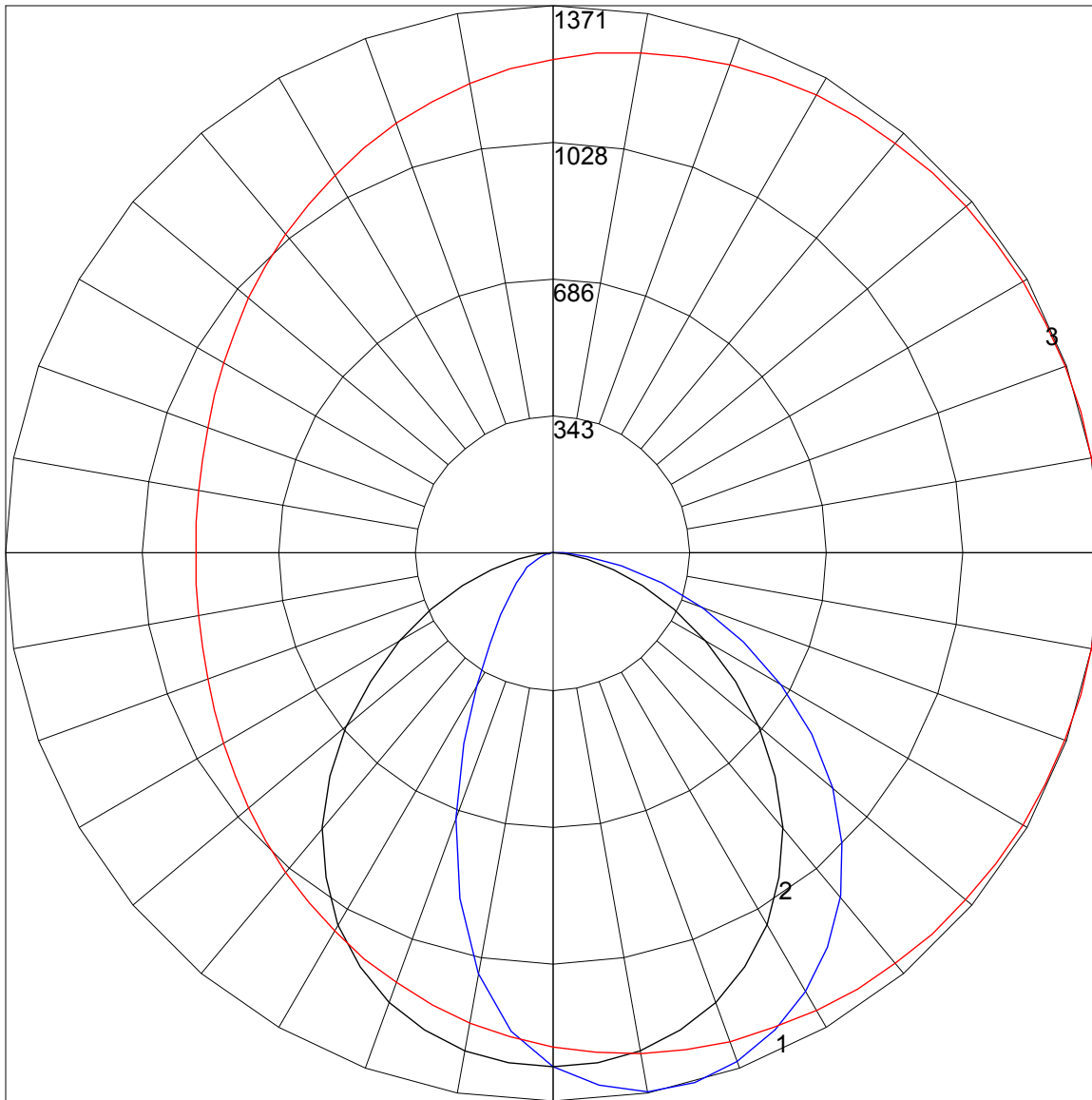
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911522.IES**

**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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	92	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	61
4	84	73	64	58	82	71	64	58	69	62	57	67	61	56	65	59	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	51	44	70	58	50	44	57	49	44	55	48	43	53	48	43	41
7	67	54	46	40	65	53	45	39	52	44	39	50	44	39	49	43	39	37
8	63	49	41	36	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	59	46	38	32	57	45	37	32	44	37	32	43	36	32	42	36	32	30
10	55	42	35	29	54	42	34	29	41	34	29	40	34	29	39	33	29	27

POLAR GRAPH



Maximum Candela = 1371 Located At Horizontal Angle = 0, Vertical Angle = 15

# 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 (15) (Through Max. Cd.)