

IES Report

ZipThree® | 707 | Symmetric, up | 85° Asymmetric , down | 90 CRI | SO

707-Z3-4-48-XX-XX-X-0-Z-SO-359-U1A1-X-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	110	114	116	121
Total Lumens, 4' rail length (1219mm)	5799	5982	6104	6165
Lumens per foot (305mm)	1450	1496	1526	1541
Lumens per foot UP (305mm)	860	887	905	914
Lumens per foot DOWN (305mm)	590	609	621	627
Input Power (W), 4' rail length (1219mm)	52.8	52.8	53.8	52.8
Watts per foot (305mm)	13.2	13.2	13.2	13.2
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: L121911545



Report No: L121911545

Issue Date: 1/20/2020

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

Model Number: 707-Z3-48-Z-SO-359-U1A1-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: 1/8/20 - 1/20/20

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

Manufacturer:	Vode Lighting
Model Number:	707-Z3-48-Z-SO-359-U1A1-AL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)

Test Summary

Total Lumens:	6104.24
Efficacy:	115.60
Color Redering Index:	94.0
Correlated Color Temperature:	3388
Input Voltage (VAC/60Hz):	120.05
Input Current (Amp):	0.4426
Input Power (W):	52.80
Input Power Factor:	0.9938
Current ATHD (%):	7.7%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	2:30

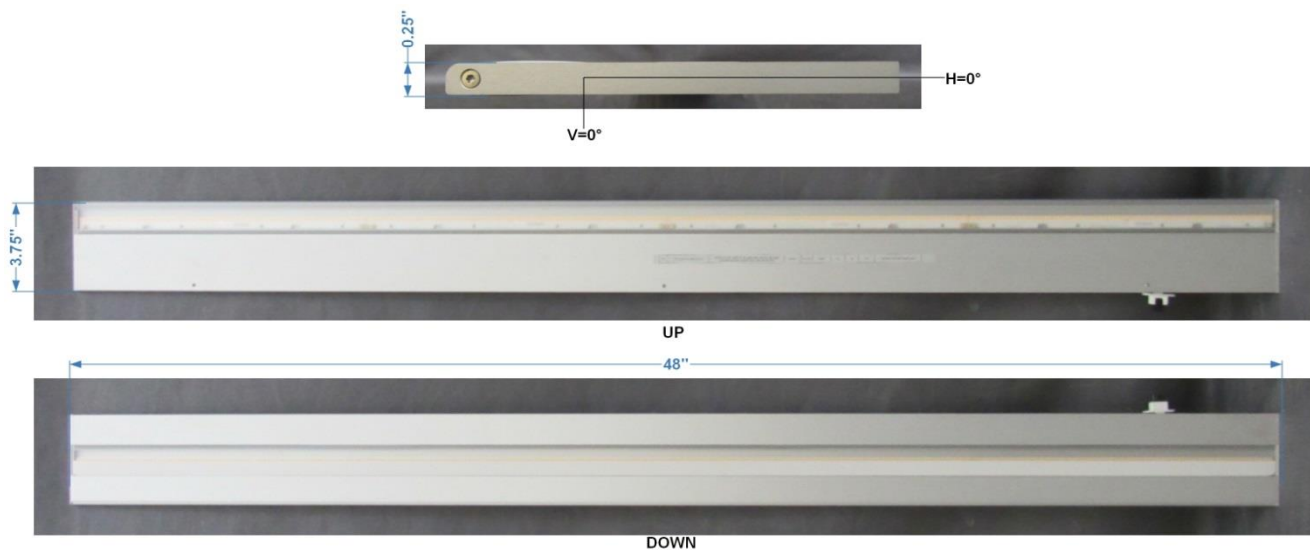
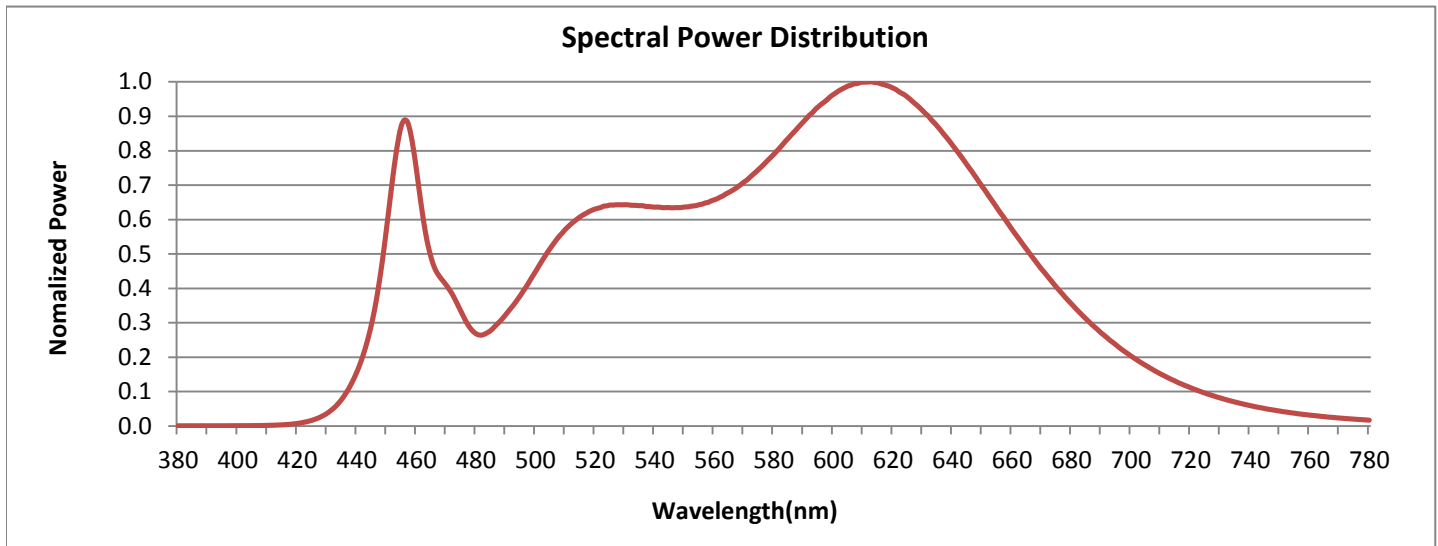


FIG. 1 LUMINAIRE

Colorimetry Test Results

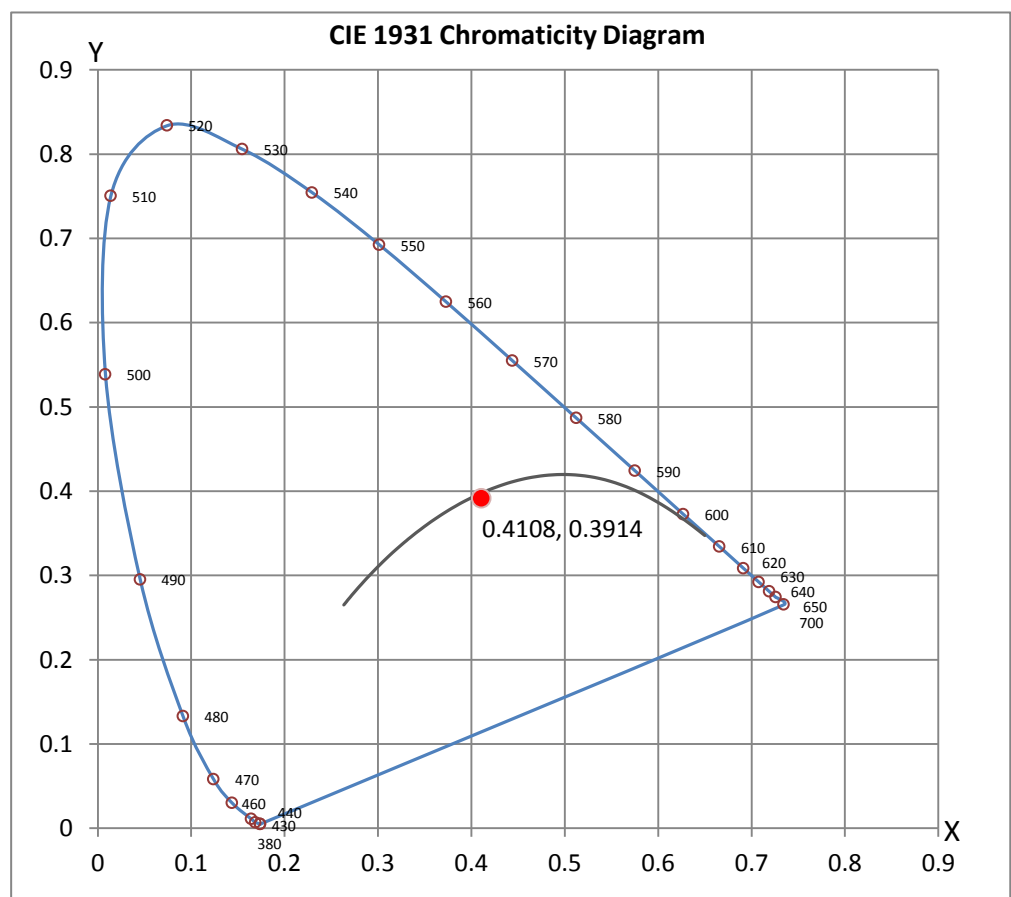


CRI & CCT

x	0.4108
y	0.3914
u'	0.2390
v'	0.5124
CRI	94.00
CCT	3388
Duv	-0.00087

R Values

R1	96.28
R2	99.28
R3	97.57
R4	96.19
R5	96.25
R6	95.43
R7	90.10
R8	80.82
R9	57.58
R10	98.17
R11	98.25
R12	77.10
R13	98.08
R14	99.52
R15	90.48





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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*



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911545.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911545
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/20/2020
[MANUFAC] VODE LIGHTING
[LUMCAT] 707-Z3-48-Z-SO-359-U1A1-AL
[LUMINAIRE] ZipThree LED, 48", 3500K, 90 CRI, zipper board, symmetric lens up/85° asymmetric lens down,
[MORE] standard output, clear 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] 120.05VAC, 52.80W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	6104
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	116
Total Luminaire Watts	52.8
Ballast Factor	1.00
CIE Type	General Diffuse
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)	0.17 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	19850	19773	15208
55	17200	17481	13289
65	13514	13952	10753
75	9388	9835	7957
85	4200	4487	4656

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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	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083
5	1173	1173	1172	1170	1168	1165	1162	1158	1153	1148
10	1244	1243	1242	1239	1236	1230	1225	1218	1209	1201
15	1282	1281	1279	1276	1272	1266	1259	1251	1241	1229
20	1290	1289	1288	1285	1281	1274	1267	1258	1248	1236
25	1273	1273	1271	1268	1264	1258	1252	1243	1232	1220
30	1236	1235	1234	1231	1227	1221	1215	1206	1196	1185
35	1176	1176	1174	1172	1168	1163	1157	1150	1140	1129
40	1093	1092	1092	1090	1087	1083	1078	1071	1063	1053
45	987	987	986	985	983	979	976	971	964	956
50	862	862	861	861	859	857	854	851	846	839
55	725	725	725	724	723	722	720	717	713	709
60	585	585	585	584	583	583	581	579	576	572
65	450	450	450	450	449	448	447	446	443	440
70	329	329	329	329	328	328	327	325	323	321
75	220	220	220	220	219	219	218	216	215	212
80	127	127	127	127	127	126	125	124	123	121
85	54	54	54	54	53	52	52	51	50	49
90	20	20	19	19	18	17	16	14	13	12
95	60	60	60	59	58	57	56	55	53	52
100	117	117	117	116	116	115	115	114	113	112
105	190	190	190	190	190	190	190	189	189	189
110	278	278	279	279	279	279	280	280	281	281
115	380	381	381	381	382	383	384	385	386	387
120	495	495	496	496	497	498	500	501	503	505
125	618	618	618	619	620	622	623	625	628	630
130	742	742	743	744	745	746	748	750	753	755
135	861	862	862	863	865	866	868	870	872	875
140	972	972	972	973	974	976	977	979	981	983
145	1068	1068	1068	1069	1070	1071	1072	1074	1075	1076
150	1150	1150	1150	1150	1151	1152	1153	1154	1155	1156
155	1217	1217	1217	1217	1218	1218	1219	1219	1220	1220
160	1270	1270	1270	1270	1271	1271	1271	1271	1272	1272
165	1310	1310	1310	1310	1310	1310	1310	1311	1311	1311
170	1337	1337	1338	1337	1337	1337	1337	1338	1338	1338
175	1353	1353	1353	1353	1353	1353	1353	1353	1353	1353
180	1357	1357	1357	1357	1357	1357	1357	1357	1357	1357

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>
0	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083
5	1142	1136	1129	1122	1114	1106	1098	1089	1080	1070
10	1190	1179	1166	1152	1137	1121	1104	1086	1066	1045
15	1216	1201	1184	1166	1145	1123	1098	1072	1042	1011
20	1220	1204	1185	1164	1139	1112	1080	1046	1008	967
25	1205	1188	1168	1145	1117	1085	1050	1010	964	913
30	1171	1153	1133	1109	1080	1046	1007	963	909	850
35	1116	1099	1079	1055	1027	992	951	902	844	778
40	1040	1024	1007	984	956	921	879	829	767	697
45	945	931	914	893	867	833	792	742	680	608
50	830	819	804	784	761	730	690	643	582	515
55	701	692	680	663	643	615	580	536	483	421
60	567	559	549	536	518	495	465	428	382	329

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CANDELA TABULATION - (Cont.)

65	435	429	421	410	396	378	354	325	289	246
70	317	312	306	297	286	272	254	232	205	174
75	209	206	201	195	187	178	165	150	132	113
80	119	116	113	109	104	99	91	83	73	62
85	47	46	44	42	40	37	35	31	27	23
90	10	9	7	6	5	4	3	3	2	3
95	50	48	47	45	44	43	42	41	40	41
100	111	109	108	107	106	105	105	104	103	104
105	189	188	188	187	187	186	186	186	185	186
110	281	282	282	283	283	283	283	283	283	283
115	388	389	390	391	392	393	394	394	394	394
120	506	508	510	512	514	515	516	516	516	516
125	632	634	637	639	641	642	643	644	644	644
130	758	760	763	765	767	768	769	770	770	770
135	877	879	881	883	885	886	887	888	888	888
140	985	987	988	990	991	992	993	994	994	994
145	1078	1079	1081	1081	1083	1083	1084	1084	1085	1084
150	1157	1158	1158	1159	1160	1160	1160	1161	1161	1161
155	1221	1221	1222	1222	1223	1223	1223	1223	1223	1223
160	1273	1273	1273	1273	1273	1273	1274	1274	1274	1274
165	1311	1311	1311	1311	1312	1312	1312	1312	1312	1312
170	1338	1338	1338	1338	1338	1338	1338	1338	1338	1338
175	1353	1353	1353	1353	1353	1353	1354	1353	1353	1353
180	1357	1357	1357	1357	1357	1357	1357	1357	1357	1357

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	1083	1083	1083	1083	1083	1083	1083	1083	1083	1083
5	1061	1052	1042	1033	1025	1016	1008	1000	993	986
10	1025	1004	982	961	940	920	901	881	864	848
15	979	946	911	876	843	810	779	748	721	696
20	922	877	830	783	735	691	650	611	578	547
25	859	801	741	684	624	573	526	483	447	416
30	787	718	649	583	518	463	415	373	338	309
35	707	631	555	485	419	366	321	283	252	229
40	621	541	463	395	332	284	245	213	188	170
45	532	452	377	314	259	218	186	161	143	129
50	442	368	302	247	201	168	143	124	111	101
55	343	290	235	190	154	129	110	96	87	81
60	275	223	179	145	117	98	85	76	69	64
65	205	165	132	107	89	75	65	58	53	50
70	145	118	94	79	64	55	48	43	40	37
75	94	78	63	52	43	37	33	30	27	25
80	52	43	35	29	25	22	19	17	16	15
85	20	17	14	12	10	9	8	8	7	7
90	3	4	5	6	7	9	10	12	13	14
95	42	43	44	45	47	48	50	52	53	55
100	105	105	106	107	108	109	111	112	113	114
105	186	186	187	187	188	188	189	189	189	189
110	283	283	283	283	282	282	281	281	281	280
115	394	393	392	391	390	389	388	387	386	385
120	516	515	514	512	510	508	506	505	503	501
125	643	642	641	639	637	634	632	630	628	625
130	769	768	767	765	763	760	758	755	753	750
135	887	886	885	883	881	879	877	875	872	870

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CANDELA TABULATION - (Cont.)

140	993	992	991	990	988	987	985	983	981	979
145	1084	1083	1083	1081	1081	1079	1078	1076	1075	1074
150	1160	1160	1160	1159	1158	1158	1157	1156	1155	1154
155	1223	1223	1223	1222	1222	1221	1221	1220	1220	1219
160	1274	1273	1273	1273	1273	1273	1273	1272	1272	1271
165	1312	1312	1312	1311	1311	1311	1311	1311	1311	1311
170	1338	1338	1338	1338	1338	1338	1338	1338	1338	1338
175	1354	1353	1353	1353	1353	1353	1353	1353	1353	1353
180	1357	1357	1357	1357	1357	1357	1357	1357	1357	1357

**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	1083	1083	1083	1083	1083	1083	1083
5	980	976	971	968	966	964	964
10	834	822	812	804	799	795	794
15	675	656	641	629	621	616	614
20	521	500	482	469	459	453	452
25	389	368	352	339	330	325	323
30	286	268	254	243	236	232	230
35	210	195	184	176	170	167	166
40	155	145	137	131	128	125	125
45	119	112	106	102	100	98	98
50	94	89	85	83	82	81	80
55	76	72	70	68	67	66	66
60	60	58	56	55	54	53	53
65	47	45	44	43	42	42	42
70	35	34	33	32	32	31	31
75	24	23	22	22	22	21	21
80	14	14	13	13	13	13	13
85	6	6	6	6	6	6	6
90	16	17	18	19	19	20	20
95	56	57	58	59	60	60	60
100	115	115	116	116	117	117	117
105	190	190	190	190	190	190	190
110	280	279	279	279	279	278	278
115	384	383	382	381	381	381	380
120	500	498	497	496	496	495	495
125	623	622	620	619	618	618	618
130	748	746	745	744	743	742	742
135	868	866	865	863	862	862	861
140	977	976	974	973	972	972	972
145	1072	1071	1070	1069	1068	1068	1068
150	1153	1152	1151	1150	1150	1150	1150
155	1219	1218	1218	1217	1217	1217	1217
160	1271	1271	1271	1270	1270	1270	1270
165	1310	1310	1310	1310	1310	1310	1310
170	1337	1337	1337	1337	1338	1337	1337
175	1353	1353	1353	1353	1353	1353	1353
180	1357	1357	1357	1357	1357	1357	1357

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	380.60	N.A.	6.20
0-30	779.90	N.A.	12.80
0-40	1236.82	N.A.	20.30
0-60	2058.67	N.A.	33.70
0-80	2446.53	N.A.	40.10
0-90	2484.12	N.A.	40.70
10-90	2382.65	N.A.	39.00
20-40	856.22	N.A.	14.00
20-50	1304.61	N.A.	21.40
40-70	1077.27	N.A.	17.60
60-80	387.87	N.A.	6.40
70-80	132.44	N.A.	2.20
80-90	37.59	N.A.	0.60
90-110	264.03	N.A.	4.30
90-120	650.10	N.A.	10.60
90-130	1213.94	N.A.	19.90
90-150	2559.46	N.A.	41.90
90-180	3620.12	N.A.	59.30
110-180	3356.09	N.A.	55.00
0-180	6104.24	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	101.47
10-20	279.13
20-30	399.29
30-40	456.93
40-50	448.39
50-60	373.45
60-70	255.43
70-80	132.44
80-90	37.59
90-100	61.21
100-110	202.82
110-120	386.07
120-130	563.84
130-140	673.34
140-150	672.18
150-160	562.03
160-170	369.98
170-180	128.65

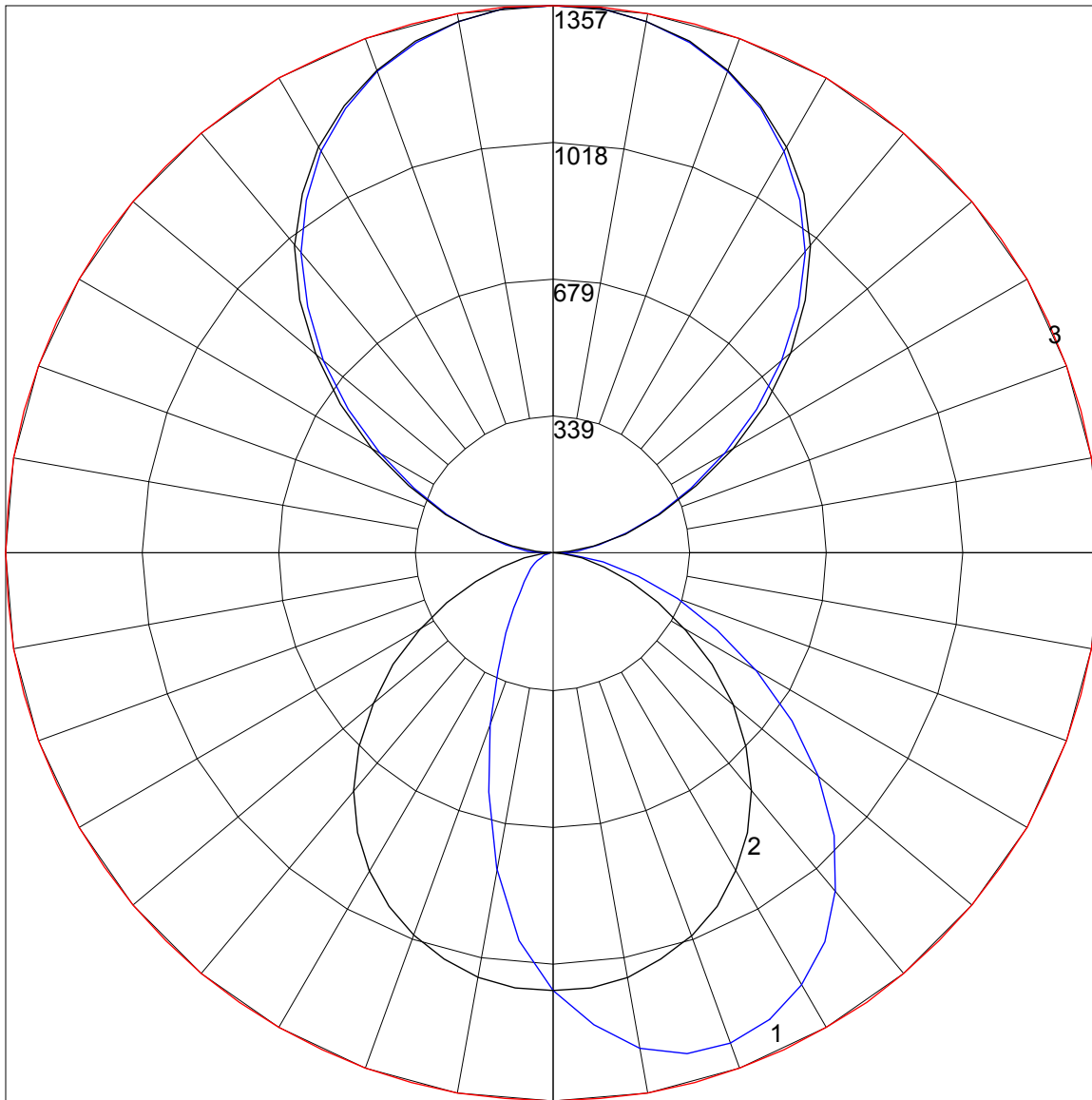
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121911545.IES

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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41
1	96	92	88	85	87	84	81	78	69	67	65	55	54	52	42	41	41	35
2	87	80	74	69	79	73	68	64	60	57	54	49	46	44	37	36	34	29
3	80	71	64	58	73	65	59	54	53	49	45	43	40	37	33	31	29	25
4	73	63	55	49	66	57	51	46	48	43	39	38	35	32	30	28	26	22
5	67	56	48	42	61	51	44	39	43	37	33	35	31	28	27	24	22	19
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	25	22	20	17
7	57	45	37	32	52	42	35	30	35	30	26	28	25	22	22	20	18	15
8	53	41	33	28	48	38	31	26	32	27	23	26	22	19	21	18	16	13
9	49	37	30	25	45	35	28	24	29	24	20	24	20	17	19	16	14	12
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	18	15	13	11

POLAR GRAPH



Maximum Candela = 1357 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.)