

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-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	104	107	108	112
Total Lumens, 4' rail length (1219mm)	5392	5562	5675	5732
Lumens per foot (305mm)	1348	1390	1419	1433
Lumens per foot UP (305mm)	789	814	830	838
Lumens per foot DOWN (305mm)	559	577	589	595
Input Power (W), 4' rail length (1219mm)	52.2	52.2	52.7	52.2
Watts per foot (305mm)	13.1	13.1	13.2	13.1
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: L022010917



Report No: L022010917

Issue Date: 2/28/2020

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

Model Number: 707-Z3-48-Z-SO-359-U1A1-BL

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: 2/20/20

Date of Tests: 2/20/20 - 2/28/20

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-BL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)

Test Summary

Total Lumens:	5675.28
Efficacy:	107.73
Color Redering Index:	94.7
Correlated Color Temperature:	3420
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.4418
Input Power (W):	52.68
Input Power Factor:	0.9938
Current ATHD (%):	7.9%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	2:45

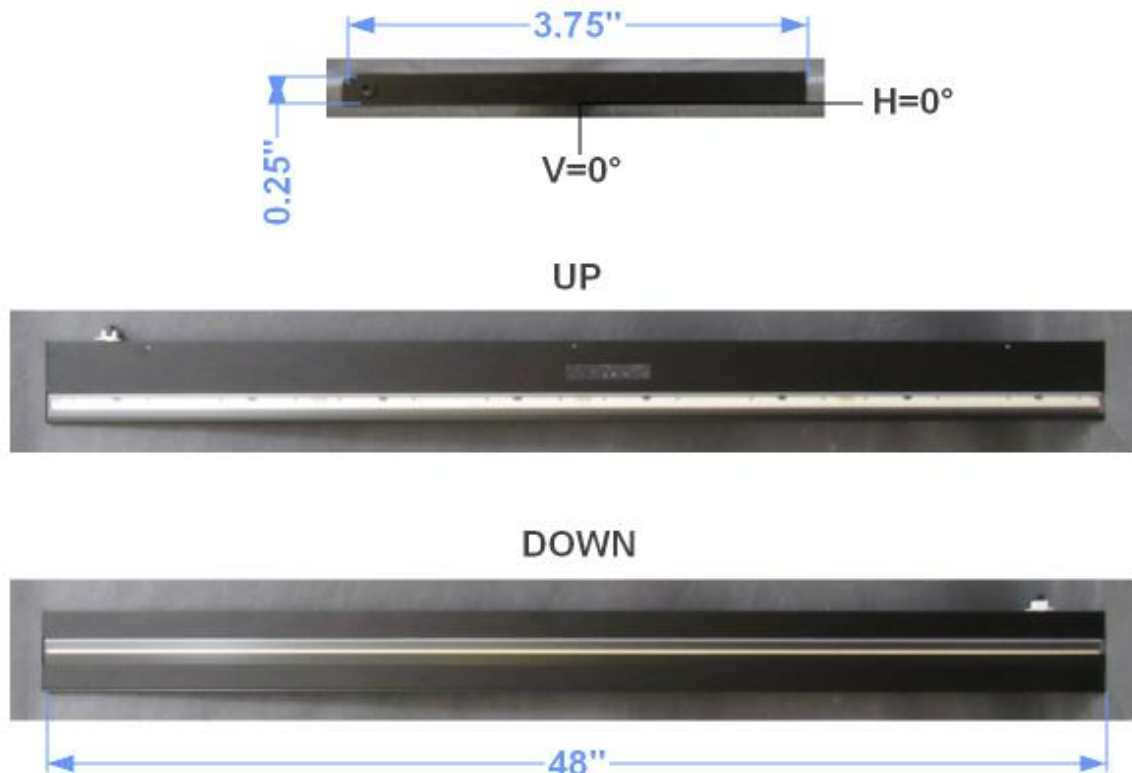
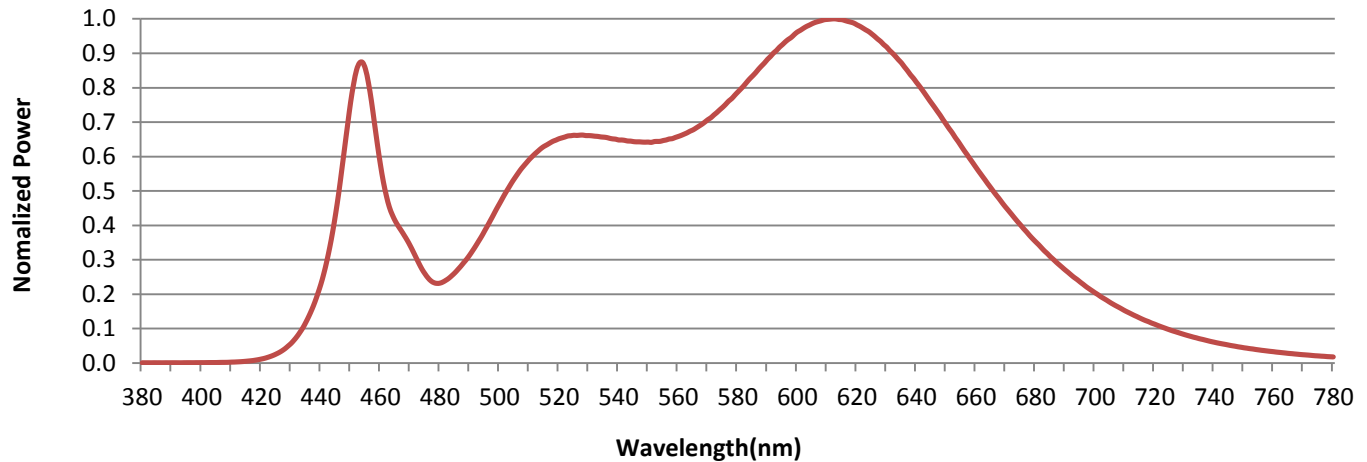


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



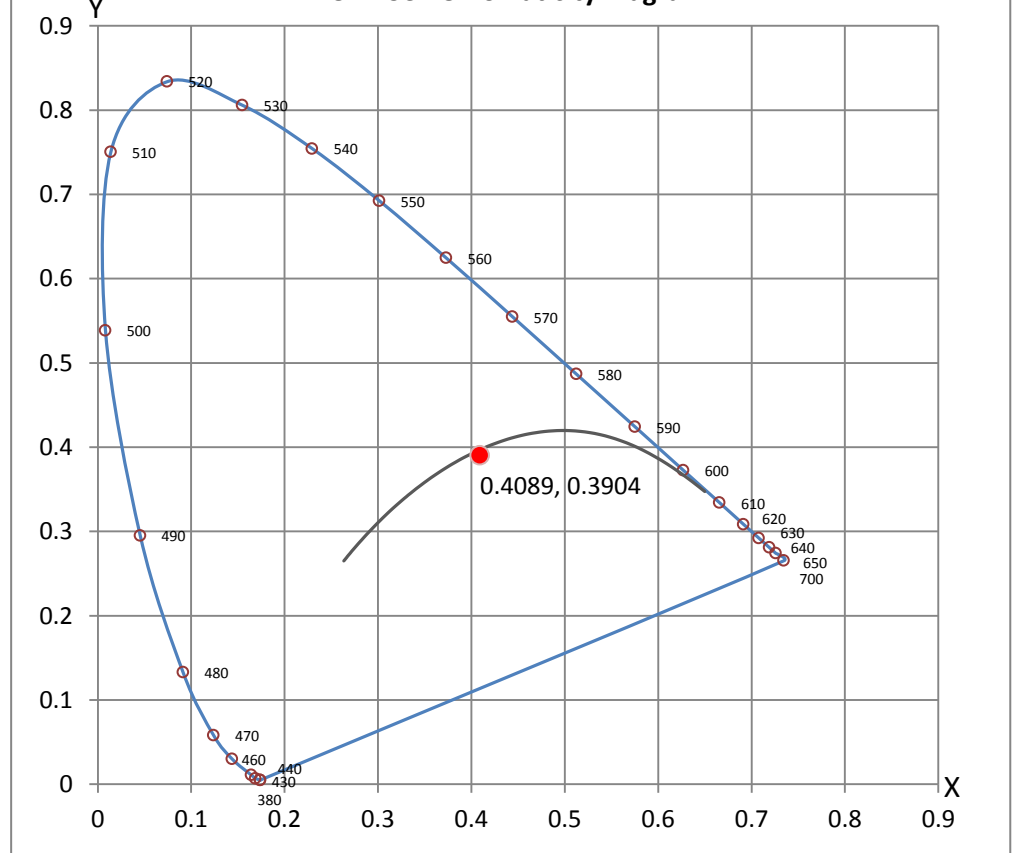
CRI & CCT

x	0.4089
y	0.3904
u'	0.2382
v'	0.5117
CRI	94.70
CCT	3420
Duv	-0.00091

R Values

R1	96.41
R2	98.18
R3	98.74
R4	97.50
R5	96.92
R6	96.22
R7	91.67
R8	82.00
R9	58.04
R10	95.69
R11	95.65
R12	79.08
R13	97.62
R14	99.00
R15	90.63

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*



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

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L022010917.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L022010917
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 2/28/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z3-48-Z-SO-359-U1A1-BL
[LUMINAIRE] ZipThree LED, 48", 3500K, 90 CRI, zipper board, symmetric lens
[MORE] up/85° asymmetric lens down, standard output, black 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] 120.0VAC, 52.68W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	5675
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	108
Total Luminaire Watts	52.68
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	16471	17064	15834
55	13594	14448	13674
65	10241	11035	10827
75	6956	7562	7776
85	3422	3663	4484

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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	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129
5	1168	1168	1167	1167	1166	1165	1163	1162	1160	1157
10	1189	1189	1189	1188	1186	1185	1182	1180	1177	1173
15	1189	1188	1188	1187	1186	1184	1181	1178	1175	1170
20	1170	1169	1169	1168	1166	1165	1162	1159	1156	1151
25	1135	1134	1134	1133	1132	1130	1128	1125	1122	1118
30	1084	1084	1084	1083	1082	1080	1078	1076	1073	1069
35	1016	1016	1016	1016	1015	1014	1013	1011	1008	1005
40	927	927	927	928	928	928	928	927	926	924
45	819	819	820	820	821	823	824	825	825	825
50	698	698	699	700	701	703	705	707	708	710
55	573	573	574	575	576	578	580	582	584	586
60	452	452	453	453	455	456	457	459	461	463
65	341	341	341	342	342	343	344	346	347	348
70	245	245	246	246	246	247	247	248	248	249
75	163	163	163	163	163	163	163	163	163	163
80	96	96	96	96	96	95	95	95	94	94
85	44	44	44	44	43	43	42	42	41	40
90	1	1	1	1	1	1	1	1	1	1
95	42	42	42	42	42	42	42	42	42	42
100	95	95	95	95	96	96	96	97	97	98
105	161	161	161	162	162	163	164	165	166	167
110	239	239	240	241	242	243	245	246	248	250
115	331	331	332	333	334	336	338	340	343	345
120	434	434	435	436	437	440	442	445	448	451
125	545	545	546	548	550	552	555	558	561	565
130	662	662	663	665	667	669	672	675	679	682
135	779	779	780	782	784	786	789	792	796	799
140	892	892	893	894	896	898	901	903	906	909
145	994	995	996	997	998	1000	1002	1004	1006	1009
150	1084	1084	1085	1086	1087	1088	1089	1091	1092	1093
155	1159	1159	1159	1160	1161	1161	1162	1163	1164	1164
160	1217	1217	1217	1217	1217	1218	1218	1218	1218	1219
165	1259	1259	1259	1259	1259	1259	1259	1259	1259	1259
170	1287	1287	1287	1287	1287	1287	1287	1287	1287	1287
175	1301	1301	1301	1301	1301	1301	1301	1301	1301	1301
180	1303	1303	1303	1303	1303	1303	1303	1303	1303	1303

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	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129
5	1155	1152	1149	1146	1142	1138	1134	1130	1126	1122
10	1169	1164	1158	1152	1146	1138	1130	1121	1112	1102
15	1165	1160	1153	1145	1136	1127	1115	1102	1088	1072
20	1146	1140	1133	1124	1114	1103	1088	1072	1053	1031
25	1113	1107	1099	1090	1079	1066	1050	1030	1008	979
30	1064	1058	1051	1042	1031	1018	1000	977	950	916
35	1001	996	989	980	969	955	936	913	881	842
40	921	916	911	903	893	879	860	835	801	756
45	823	820	816	810	801	788	769	744	708	661
50	710	709	706	702	694	683	666	642	606	558
55	587	588	587	584	578	568	553	530	497	455
60	464	465	464	462	458	450	437	418	391	343

IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

65	348	349	348	346	343	337	328	313	291	260
70	249	249	248	246	243	238	231	220	203	179
75	162	162	161	160	157	154	148	141	129	115
80	93	92	91	89	88	85	82	77	70	62
85	39	38	37	36	35	33	32	29	26	22
90	1	2	2	2	2	2	2	3	3	3
95	42	42	42	42	41	41	41	41	41	42
100	98	98	98	98	98	98	98	98	98	99
105	168	169	170	171	171	172	172	172	172	173
110	252	254	255	256	257	258	258	258	259	259
115	347	350	352	353	354	355	356	356	356	356
120	454	457	459	461	463	464	464	464	464	463
125	568	571	574	577	578	580	580	580	580	578
130	686	689	692	695	697	698	699	699	698	696
135	803	806	809	811	813	814	815	815	814	812
140	912	915	917	919	920	921	922	922	921	919
145	1011	1013	1014	1015	1016	1017	1017	1016	1016	1014
150	1095	1096	1097	1098	1098	1098	1098	1098	1096	1095
155	1164	1165	1165	1166	1166	1165	1165	1165	1164	1162
160	1219	1219	1219	1219	1219	1219	1218	1218	1217	1215
165	1259	1259	1259	1259	1259	1259	1258	1258	1257	1256
170	1287	1287	1286	1286	1286	1286	1285	1285	1284	1284
175	1301	1301	1301	1301	1301	1300	1300	1300	1300	1299
180	1303	1303	1303	1303	1303	1303	1303	1303	1303	1303

Vert. Angles	Horizontal Angles									
	100	105	110	115	120	125	130	135	140	145
0	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129
5	1117	1113	1108	1104	1099	1095	1091	1087	1083	1080
10	1092	1081	1070	1058	1046	1034	1023	1011	1001	990
15	1055	1036	1017	996	975	953	932	909	889	869
20	1008	981	950	919	886	853	819	784	753	724
25	948	912	870	827	782	736	691	645	606	569
30	877	832	778	724	667	611	557	506	463	424
35	796	741	679	613	549	488	432	380	338	302
40	704	643	573	502	435	375	322	275	238	208
45	605	540	468	397	335	280	232	194	164	140
50	502	437	368	307	247	201	164	134	111	93
55	402	337	282	228	179	143	115	91	75	63
60	307	256	208	165	128	101	83	64	52	44
65	224	184	148	117	90	71	56	45	37	31
70	154	127	100	82	62	48	38	31	25	21
75	98	81	64	51	40	31	24	20	17	14
80	52	43	34	27	22	17	14	11	10	8
85	19	16	13	10	8	7	6	5	4	3
90	4	4	5	5	5	5	6	6	6	6
95	43	44	46	47	47	48	49	49	49	49
100	101	102	103	104	104	105	105	105	104	104
105	173	174	175	175	175	174	174	173	173	172
110	259	259	259	259	258	257	255	254	253	251
115	355	354	354	353	352	350	348	346	344	342
120	462	461	459	457	455	453	451	448	446	443
125	577	575	572	569	566	563	560	557	554	552
130	694	691	688	684	680	677	673	670	667	663
135	809	806	802	798	793	789	785	781	778	774

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CANDELA TABULATION - (Cont.)

140	916	913	908	904	899	895	891	887	883	880
145	1011	1008	1004	1000	996	991	987	983	980	977
150	1092	1090	1087	1083	1079	1076	1072	1068	1065	1063
155	1161	1159	1156	1153	1150	1148	1145	1142	1139	1136
160	1214	1213	1211	1209	1207	1205	1203	1201	1199	1197
165	1255	1254	1253	1252	1250	1249	1248	1246	1245	1244
170	1283	1283	1282	1281	1281	1280	1279	1279	1278	1277
175	1299	1299	1299	1298	1298	1298	1298	1297	1297	1297
180	1303	1303	1303	1303	1303	1303	1303	1303	1303	1303

Vert. Horizontal Angles

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0	1129	1129	1129	1129	1129	1129	1129
5	1077	1074	1072	1070	1069	1068	1068
10	981	973	966	961	957	954	954
15	852	836	823	813	805	801	799
20	697	675	656	641	630	624	622
25	537	511	488	471	460	453	450
30	391	365	344	328	317	311	308
35	273	250	232	219	209	204	202
40	184	166	151	141	134	130	129
45	122	108	97	90	85	82	81
50	83	71	64	58	55	53	52
55	54	47	42	39	37	35	35
60	37	33	29	27	25	25	24
65	26	23	21	19	18	18	17
70	18	16	15	14	13	12	12
75	12	11	10	9	9	8	8
80	7	6	6	6	5	5	5
85	3	3	3	2	2	2	2
90	6	6	6	6	6	6	6
95	49	49	49	49	49	49	49
100	104	104	103	103	103	103	103
105	171	170	170	169	169	168	168
110	250	249	248	247	246	245	245
115	340	339	337	336	335	334	334
120	441	438	437	435	434	433	433
125	549	546	544	542	541	540	540
130	660	658	656	654	652	651	651
135	771	769	766	764	763	762	762
140	877	874	872	870	869	868	868
145	974	971	969	968	966	966	966
150	1059	1057	1056	1054	1053	1052	1052
155	1134	1132	1131	1129	1128	1128	1127
160	1196	1194	1193	1192	1191	1191	1190
165	1243	1242	1241	1241	1240	1240	1240
170	1277	1276	1276	1275	1275	1275	1275
175	1297	1297	1297	1296	1296	1296	1296
180	1303	1303	1303	1303	1303	1303	1303

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L022010917.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	398.39	N.A.	7.00
0-30	808.43	N.A.	14.20
0-40	1258.3	N.A.	22.20
0-60	2006.17	N.A.	35.30
0-80	2325.88	N.A.	41.00
0-90	2354.69	N.A.	41.50
10-90	2248.57	N.A.	39.60
20-40	859.91	N.A.	15.20
20-50	1278.54	N.A.	22.50
40-70	961.17	N.A.	16.90
60-80	319.71	N.A.	5.60
70-80	106.40	N.A.	1.90
80-90	28.81	N.A.	0.50
90-110	234.54	N.A.	4.10
90-120	578.58	N.A.	10.20
90-130	1081.15	N.A.	19.10
90-150	2313.06	N.A.	40.80
90-180	3320.59	N.A.	58.50
110-180	3086.05	N.A.	54.40
0-180	5675.28	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

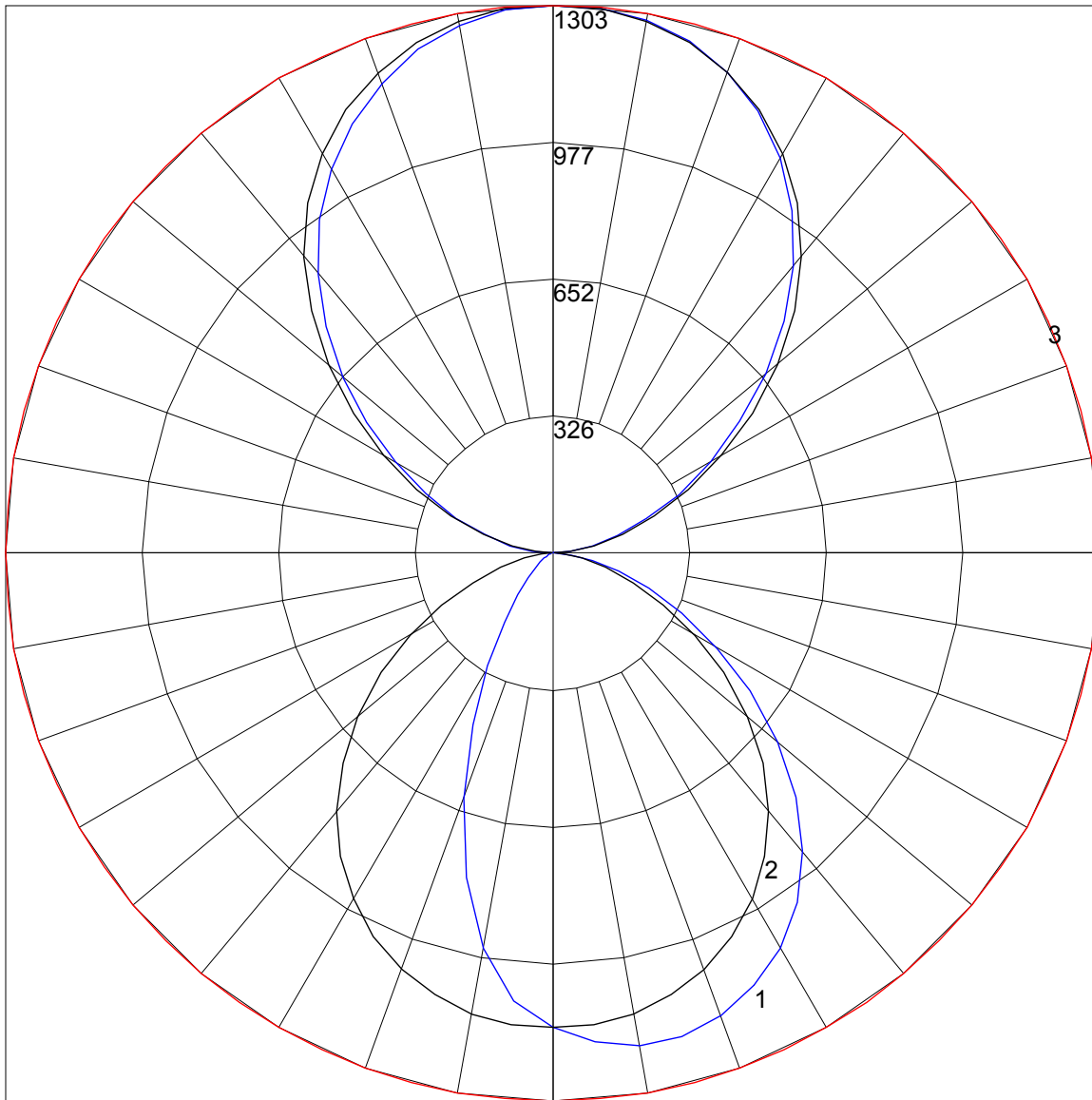
Zone	Lumens
0-10	106.11
10-20	292.28
20-30	410.04
30-40	449.87
40-50	418.63
50-60	329.23
60-70	213.31
70-80	106.40
80-90	28.81
90-100	52.42
100-110	182.12
110-120	344.04
120-130	502.57
130-140	609.51
140-150	622.39
150-160	530.67
160-170	353.40
170-180	123.47

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	79	79	79	63	63	63	48	48	48	41
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	42	36
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36	31
3	80	71	64	59	73	66	59	55	54	50	46	44	41	38	35	32	31	26
4	74	63	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27	23
5	68	57	49	43	62	52	45	40	44	38	35	36	32	29	28	26	24	20
6	63	51	43	38	57	47	40	35	39	34	30	32	28	26	26	23	21	18
7	58	46	38	33	53	43	36	31	36	31	27	29	26	23	24	21	19	16
8	54	42	34	29	49	39	32	27	33	28	24	27	23	20	22	19	17	14
9	50	38	31	26	46	35	29	25	30	25	21	25	21	18	20	17	15	13
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14	12

POLAR GRAPH



Maximum Candela = 1303 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.)