

IES Report

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

707-Z3-4-48-XX-XX-X-0-Z-SO-359-U2A1-X-BL-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	109	113	114	119
Total Lumens, 4' rail length (1219mm)	5678	5857	5976	6036
Lumens per foot (305mm)	1419	1464	1494	1509
Lumens per foot UP (305mm)	836	863	880	889
Lumens per foot DOWN (305mm)	583	601	614	620
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: L022010918



Report No: L022010918

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-U2A1-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-U2A1-BL
Driver Model Number:	MEAN WELL HLG-40H-36A (2 DRIVERS)

Test Summary

Total Lumens:	5976.41
Efficacy:	113.45
Color Redering Index:	94.8
Correlated Color Temperature:	3425
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

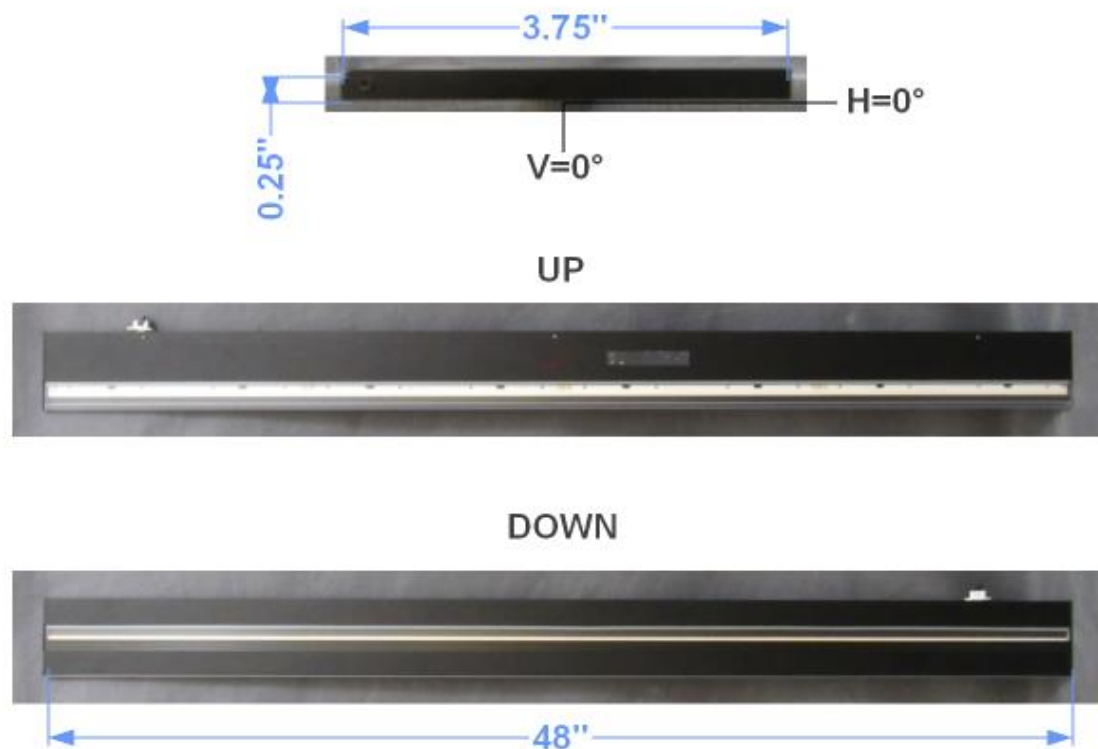
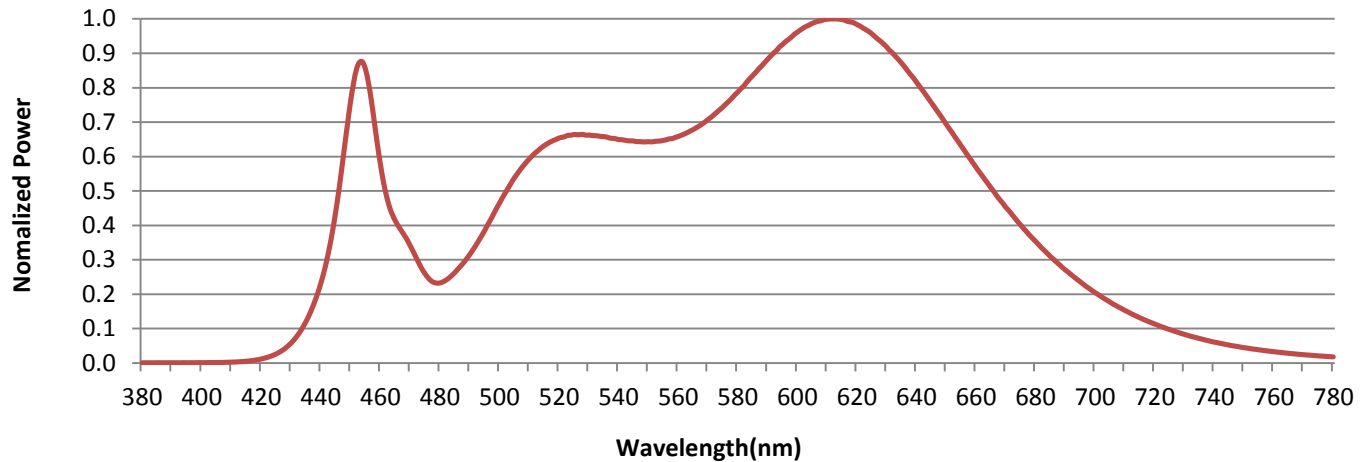


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



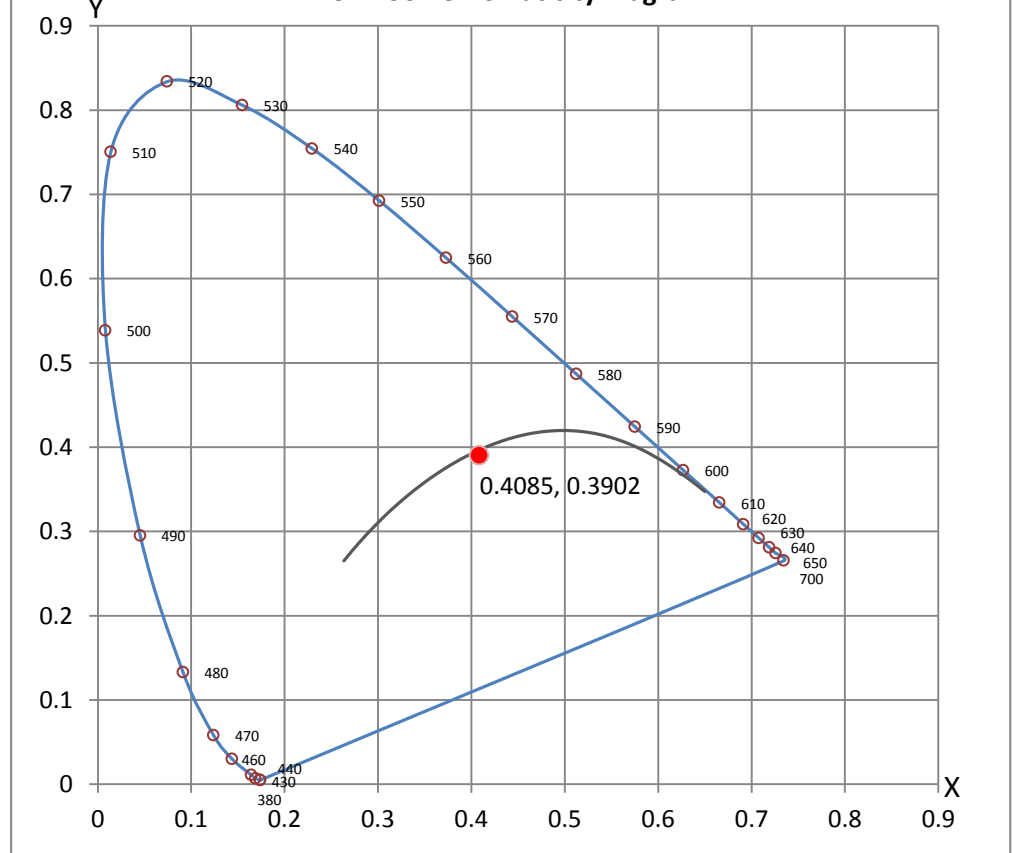
CRI & CCT

x	0.4085
y	0.3902
u'	0.2380
v'	0.5115
CRI	94.80
CCT	3425
Duv	-0.00092

R Values

R1	96.47
R2	98.20
R3	98.74
R4	97.55
R5	96.99
R6	96.21
R7	91.72
R8	82.12
R9	58.28
R10	95.75
R11	95.55
R12	79.15
R13	97.68
R14	98.98
R15	90.71

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 : L022010918.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L022010918
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 2/28/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z3-48-Z-SO-359-U2A1-BL
[LUMINAIRE] ZipThree LED, 48", 3500K, 90 CRI, zipper board, symmetric lens with edgeglow
[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	5976
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	113
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	16632	17271	16394
55	13807	14695	14279
65	10511	11289	11274
75	7212	7840	8077
85	3189	3571	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	1160	1160	1160	1160	1160	1160	1160	1160	1160	1160
5	1196	1196	1196	1195	1194	1193	1192	1190	1189	1186
10	1214	1214	1214	1213	1211	1210	1208	1205	1203	1199
15	1209	1209	1208	1208	1207	1205	1203	1201	1198	1193
20	1187	1186	1186	1185	1184	1183	1181	1179	1176	1173
25	1149	1149	1149	1148	1147	1146	1144	1142	1139	1136
30	1095	1096	1095	1095	1094	1093	1091	1089	1087	1084
35	1025	1025	1025	1025	1025	1024	1024	1023	1021	1018
40	935	935	935	936	937	937	938	937	937	936
45	827	827	828	828	830	831	833	834	835	835
50	706	706	707	708	710	711	714	716	718	720
55	582	582	583	584	585	587	589	591	593	596
60	461	461	462	463	464	465	467	468	470	472
65	350	350	351	351	352	353	354	355	355	356
70	253	253	254	254	254	255	255	255	256	257
75	169	169	169	169	169	169	169	169	169	169
80	98	98	98	98	98	98	98	98	97	97
85	41	41	41	40	40	40	40	40	39	39
90	32	32	31	30	29	27	25	23	21	19
95	75	75	75	74	73	71	69	67	65	63
100	134	134	134	133	132	131	130	128	126	124
105	209	209	208	208	207	207	206	205	203	202
110	298	298	298	298	298	298	297	296	295	294
115	402	402	402	402	402	402	402	401	401	400
120	517	517	517	517	517	517	517	517	517	517
125	638	638	638	639	639	639	639	639	639	640
130	758	759	759	759	759	759	760	760	760	761
135	872	872	872	873	873	873	874	874	874	875
140	975	975	975	975	975	975	976	976	976	977
145	1064	1063	1064	1064	1064	1064	1064	1064	1064	1064
150	1138	1138	1138	1138	1138	1138	1138	1139	1138	1138
155	1199	1199	1199	1199	1199	1199	1199	1198	1198	1198
160	1246	1246	1246	1246	1246	1246	1246	1245	1245	1244
165	1281	1281	1281	1281	1281	1281	1280	1280	1280	1279
170	1304	1304	1304	1304	1304	1304	1303	1303	1303	1303
175	1315	1315	1315	1315	1315	1315	1315	1315	1315	1315
180	1316	1316	1316	1316	1316	1316	1316	1316	1316	1316

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	1160	1160	1160	1160	1160	1160	1160	1160	1160	1160
5	1184	1181	1179	1175	1172	1169	1165	1161	1158	1154
10	1195	1192	1187	1181	1175	1168	1160	1153	1144	1135
15	1189	1184	1178	1171	1163	1154	1143	1132	1119	1103
20	1168	1163	1157	1149	1140	1129	1116	1101	1084	1063
25	1132	1127	1122	1113	1103	1092	1077	1059	1037	1012
30	1081	1076	1070	1063	1054	1040	1025	1005	979	948
35	1015	1012	1006	1000	991	977	961	939	910	874
40	934	931	927	920	912	900	883	860	828	789
45	835	834	831	826	819	807	791	767	733	691
50	721	721	719	716	710	700	684	662	629	586
55	597	599	598	596	592	583	569	549	519	476
60	473	474	474	473	469	463	451	433	407	370

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CANDELA TABULATION - (Cont.)

65	357	357	356	355	352	347	337	325	303	273
70	256	255	254	252	249	245	238	227	211	189
75	168	168	166	164	161	158	152	145	134	121
80	96	95	94	92	90	87	84	79	73	65
85	39	39	38	37	36	34	32	30	27	24
90	17	15	12	10	8	6	5	3	2	2
95	60	57	54	52	49	46	44	42	40	39
100	122	119	117	114	111	109	106	104	101	100
105	200	198	196	194	191	189	186	184	182	179
110	293	292	290	288	286	284	282	279	277	274
115	399	398	397	396	394	393	390	388	386	382
120	516	516	515	515	513	512	510	508	505	502
125	640	640	639	639	638	637	635	633	631	627
130	761	761	761	761	760	759	758	756	753	750
135	875	875	875	875	874	873	872	870	867	865
140	977	977	977	976	976	975	973	971	969	967
145	1065	1065	1064	1063	1062	1061	1060	1058	1056	1054
150	1138	1138	1137	1136	1135	1134	1133	1131	1130	1128
155	1198	1197	1196	1195	1194	1193	1192	1191	1190	1188
160	1244	1244	1243	1242	1242	1240	1240	1238	1237	1236
165	1279	1278	1278	1277	1276	1276	1275	1274	1274	1273
170	1302	1302	1302	1301	1301	1300	1300	1300	1299	1298
175	1314	1314	1314	1314	1314	1313	1313	1313	1313	1313
180	1316	1316	1316	1316	1316	1316	1316	1316	1316	1316

Vert. Angles **Horizontal Angles**

	100	105	110	115	120	125	130	135	140	145
0	1160	1160	1160	1160	1160	1160	1160	1160	1160	1160
5	1149	1145	1141	1137	1132	1128	1124	1121	1117	1114
10	1125	1115	1104	1094	1083	1072	1062	1051	1042	1033
15	1088	1071	1053	1034	1015	995	976	957	939	922
20	1041	1016	990	962	932	902	872	842	814	787
25	983	950	913	875	834	792	750	710	674	639
30	912	871	825	775	721	671	621	573	530	492
35	831	781	725	667	604	546	491	441	398	360
40	741	683	619	555	488	428	374	325	286	254
45	639	578	511	445	379	323	275	232	200	173
50	534	470	406	336	286	237	197	163	137	117
55	426	368	312	258	208	169	138	112	93	79
60	328	278	231	187	149	119	95	77	64	53
65	239	200	163	131	104	85	66	53	44	37
70	164	138	112	89	70	56	44	36	30	25
75	104	87	70	56	44	35	28	23	19	16
80	56	47	38	30	24	19	16	13	11	9
85	20	17	14	11	9	7	6	5	4	4
90	2	2	2	2	2	2	3	3	4	4
95	38	37	37	37	37	37	37	37	37	38
100	99	97	96	95	94	93	92	92	91	91
105	178	175	174	171	169	167	166	164	162	161
110	272	269	266	263	260	257	253	251	248	245
115	379	376	372	368	364	360	356	352	348	345
120	499	495	490	486	481	476	471	466	461	457
125	624	620	615	610	604	599	593	588	583	578
130	747	743	738	733	728	723	717	712	707	702
135	861	858	854	850	845	840	835	831	826	821

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CANDELA TABULATION - (Cont.)

140	964	961	958	954	950	946	942	938	934	931
145	1052	1050	1047	1044	1041	1038	1035	1032	1029	1026
150	1126	1124	1122	1120	1118	1116	1113	1111	1109	1107
155	1187	1185	1184	1182	1181	1179	1177	1176	1174	1173
160	1235	1234	1233	1232	1231	1230	1228	1227	1226	1225
165	1272	1271	1270	1269	1268	1268	1267	1266	1266	1265
170	1298	1297	1297	1296	1296	1295	1295	1294	1294	1294
175	1313	1312	1312	1312	1312	1311	1311	1311	1311	1311
180	1316	1316	1316	1316	1316	1316	1316	1316	1316	1316

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	1160	1160	1160	1160	1160	1160	1160
5	1112	1109	1107	1105	1104	1103	1103
10	1025	1018	1011	1007	1003	1001	1000
15	906	892	881	872	865	860	859
20	763	743	725	711	701	695	693
25	608	583	562	544	532	525	523
30	459	431	410	393	381	373	371
35	329	304	285	269	259	252	250
40	227	207	190	178	170	165	163
45	153	137	124	115	109	106	104
50	102	90	81	75	71	68	67
55	67	59	53	49	46	45	44
60	46	40	36	33	32	30	30
65	31	28	25	23	22	21	21
70	21	19	17	16	15	15	14
75	14	12	11	11	10	10	10
80	8	7	7	6	6	6	6
85	3	3	3	3	3	3	3
90	4	5	5	5	6	6	6
95	38	38	38	38	38	38	39
100	90	90	89	89	89	89	89
105	159	158	157	156	156	156	155
110	243	241	240	238	237	237	237
115	342	339	337	335	334	333	333
120	453	450	447	445	443	442	441
125	574	570	567	564	562	561	561
130	697	694	690	688	686	685	684
135	818	814	811	808	807	806	805
140	927	924	922	920	918	917	917
145	1023	1022	1020	1018	1017	1016	1016
150	1105	1103	1101	1100	1099	1099	1099
155	1171	1170	1169	1168	1168	1167	1167
160	1224	1224	1223	1222	1222	1221	1221
165	1265	1264	1264	1264	1263	1263	1262
170	1293	1293	1293	1293	1292	1292	1292
175	1311	1310	1310	1310	1310	1310	1310
180	1316	1316	1316	1316	1316	1316	1316

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L022010918.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	411.62	N.A.	6.90
0-30	839.39	N.A.	14.00
0-40	1309.77	N.A.	21.90
0-60	2089.74	N.A.	35.00
0-80	2423.3	N.A.	40.50
0-90	2454.68	N.A.	41.10
10-90	2345.5	N.A.	39.20
20-40	898.15	N.A.	15.00
20-50	1335.02	N.A.	22.30
40-70	1002.5	N.A.	16.80
60-80	333.55	N.A.	5.60
70-80	111.03	N.A.	1.90
80-90	31.39	N.A.	0.50
90-110	255.35	N.A.	4.30
90-120	630.61	N.A.	10.60
90-130	1180.14	N.A.	19.70
90-150	2491.12	N.A.	41.70
90-180	3521.72	N.A.	58.90
110-180	3266.37	N.A.	54.70
0-180	5976.41	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

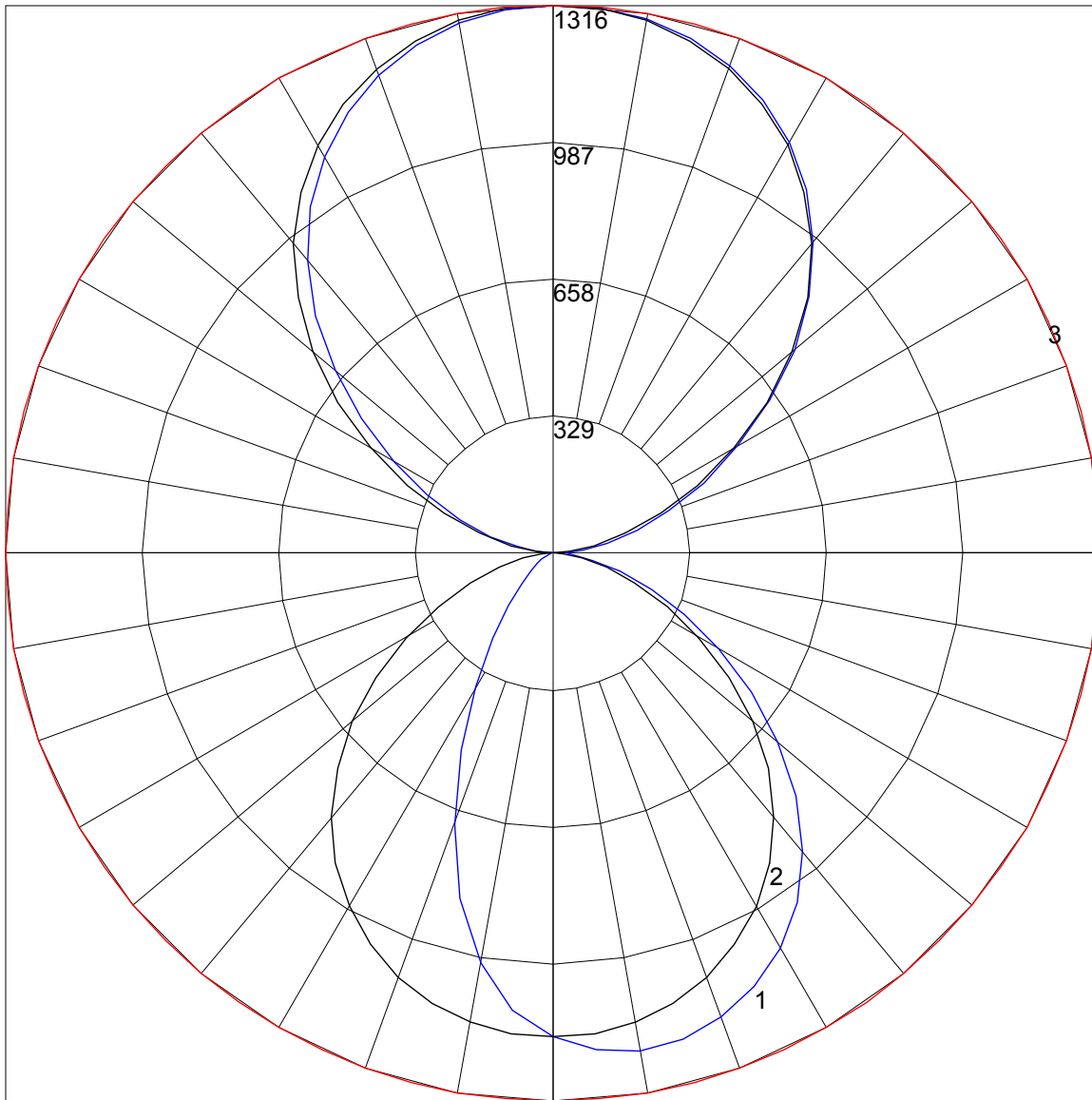
Zone	Lumens
0-10	109.19
10-20	302.43
20-30	427.77
30-40	470.39
40-50	436.86
50-60	343.11
60-70	222.53
70-80	111.03
80-90	31.39
90-100	59.00
100-110	196.36
110-120	375.25
120-130	549.54
130-140	656.45
140-150	654.53
150-160	546.49
160-170	359.27
170-180	124.84

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

POLAR GRAPH



Maximum Candela = 1316 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.)