

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: P201303

Luminaire Tested: **8LBLED-LD4-9-SYMW-UNV-L840-CD1-U**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P201303
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28136)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U
Description: 8 ft. Low Bay Linear, 9000 lm, Wht Sym lens, 4K
Light Source: (784) 4000K CCT, 80 CRI LEDS
2UT217098A8404C
Ballast/Driver: OSRAM
(OTI85W01440CC)

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9250.0 lumens
Efficiency: N/A
Efficacy: 143.4 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 2.12 / 1.93
Luminous Opening: Rectangular w/ Sides (W: 0.17' x L: 8' x H: 0.21')
CIE Type: Semi-Direct

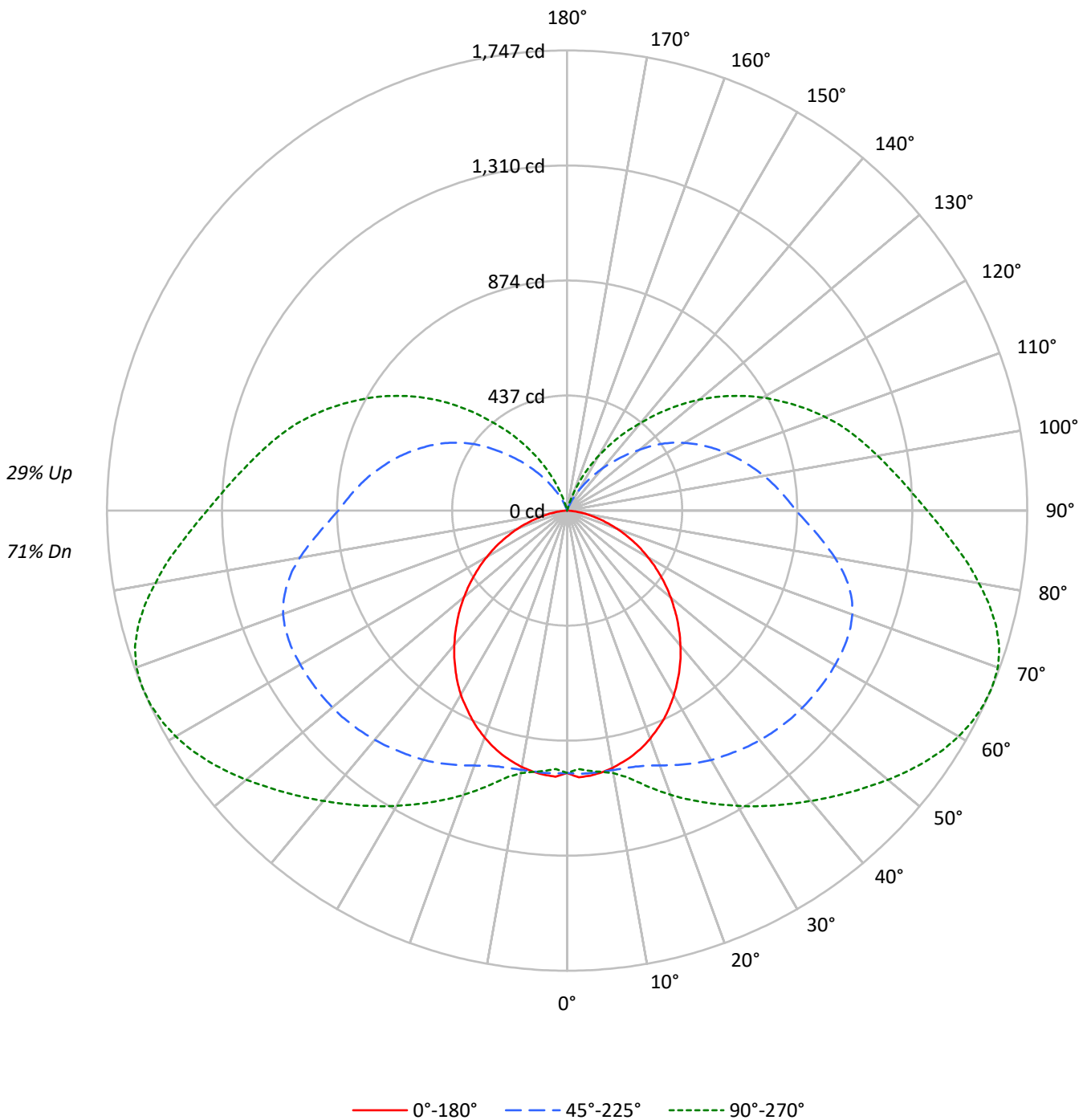
Input Watts (W): 64.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				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
RCR																		
0	112	112	112	112	106	106	106	106	95	95	95	85	85	85	75	75	75	71
1	97	90	84	79	91	85	80	75	75	71	67	66	63	60	58	55	53	49
2	86	76	67	60	81	71	64	57	63	57	51	55	50	46	48	44	40	36
3	77	65	55	48	72	61	52	45	54	47	41	47	41	36	41	36	32	28
4	70	56	46	39	65	53	44	37	47	39	33	41	35	30	35	30	26	23
5	64	50	40	32	60	47	38	31	41	34	28	36	30	25	31	26	22	19
6	59	44	34	27	55	42	33	26	37	29	24	32	26	21	28	23	19	16
7	54	40	30	24	50	37	29	23	33	26	20	29	23	18	25	20	16	14
8	50	36	27	21	47	34	25	20	30	23	18	26	20	16	23	18	14	12
9	47	33	24	18	44	31	23	17	27	21	16	24	18	14	21	16	13	10
10	43	30	22	16	41	28	21	15	25	19	14	22	17	13	20	15	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8025	8025	8025
5°	8152	7235	8125
10°	8079	6793	8051
15°	7976	6697	7941
20°	7825	6773	7783
25°	7655	6868	7596
30°	7424	7005	7401
35°	7174	7180	7142
40°	6884	7400	6858
45°	6578	7681	6541
50°	6242	8023	6211
55°	5874	8395	5840
60°	5469	8756	5432
65°	4996	9060	4951
70°	4419	9272	4366
75°	3678	9290	3536
80°	2822	9135	2620
85°	1596	8952	1418



TEST NUMBER: P201303

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	95.1	1.0
10°-20°	286.5	3.1
20°-30°	485.0	5.2
30°-40°	678.2	7.3
40°-50°	854.5	9.2
50°-60°	1003.4	10.8
60°-70°	1097.1	11.9
70°-80°	1083.9	11.7
80°-90°	952.2	10.3
90°-100°	810.6	8.8
100°-110°	676.0	7.3
110°-120°	523.6	5.7
120°-130°	364.4	3.9
130°-140°	212.7	2.3
140°-150°	97.0	1.0
150°-160°	27.7	0.3
160°-170°	2.0	0.0
170°-180°	0.0	0.0
0°-30°	866.7	9.4
0°-40°	1544.9	16.7
0°-60°	3402.7	36.8
0°-90°	6536.0	70.7
90°-120°	2010.1	21.7
90°-150°	2684.3	29.0
90°-180°	2714.0	29.3
0°-180°	9250.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	996	996	996	996	996	
5°	1010	1001	992	999	1007	96
15°	963	1006	1071	1006	959	271
25°	872	1063	1221	1063	865	401
35°	743	1117	1367	1115	739	464
45°	592	1154	1514	1152	589	457
55°	434	1171	1661	1168	431	388
65°	277	1171	1745	1166	274	274
75°	130	1107	1686	1102	125	139
85°	22	947	1476	945	20	28
90°	0	869	1367	869	0	1
95°	0	814	1277	815	0	0
105°	1	700	1122	703	0	1
115°	1	579	951	581	1	1
125°	2	443	758	443	1	1
135°	2	281	544	281	1	1
145°	2	144	337	142	2	1
155°	2	41	150	38	2	1
165°	2	4	11	0	2	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1
2.5°	1013.6	1012.7	1008.6	1001.9	999.4	997.8	996.9	994.4	993.6	995.3	1000.3
5°	1010.2	1008.6	1005.2	999.4	996.9	996.1	995.3	992.8	992.0	994.4	1001.1
7.5°	1002.8	1001.9	998.6	992.8	992.0	990.3	990.3	988.6	988.6	992.8	1000.3
10°	992.0	991.1	987.8	983.6	982.8	982.8	982.8	982.8	984.5	991.1	1000.3
12.5°	977.8	977.8	975.3	972.0	972.8	972.8	973.7	975.3	980.3	990.3	1001.9
15°	962.9	962.0	959.6	958.7	961.2	962.0	964.5	968.7	977.0	991.1	1006.1
17.5°	943.8	943.8	941.3	942.1	947.1	949.6	953.7	961.2	974.5	993.6	1015.2
20°	921.3	922.2	921.3	923.8	932.1	937.1	942.1	954.6	973.7	1000.3	1029.3
22.5°	896.4	898.1	898.1	904.7	915.5	923.0	930.5	947.9	975.3	1011.9	1046.0
25°	871.5	871.5	874.0	883.1	898.1	907.2	918.8	943.8	981.2	1024.4	1062.6
27.5°	841.6	844.1	848.2	860.7	881.5	893.9	908.0	943.8	987.8	1036.8	1079.2
30°	810.0	812.5	819.2	836.6	863.2	879.0	898.9	943.8	993.6	1046.8	1093.3
32.5°	776.8	780.9	790.1	812.5	844.9	866.5	892.3	942.9	998.6	1055.1	1104.9
35°	742.7	746.9	761.0	787.6	830.0	854.9	884.8	940.4	1001.1	1062.6	1116.6
37.5°	707.0	714.5	730.3	763.5	815.0	844.9	876.5	938.0	1003.6	1068.4	1128.2
40°	668.8	676.3	698.7	738.6	800.0	831.6	866.5	934.6	1005.2	1074.2	1138.2
42.5°	631.4	641.4	667.1	715.3	785.1	820.0	856.5	929.6	1004.4	1078.4	1146.5
45°	592.3	604.0	635.5	692.9	768.5	805.9	844.9	923.0	1002.8	1080.8	1154.0
47.5°	552.5	566.6	604.0	670.4	751.9	790.9	833.3	916.4	1000.3	1082.5	1160.6
50°	513.4	530.0	572.4	648.0	733.6	775.1	819.2	908.9	996.1	1083.3	1164.8
52.5°	474.4	492.7	542.5	625.6	714.5	758.5	805.0	899.7	991.1	1082.5	1168.9
55°	433.7	453.6	512.6	601.5	694.5	740.2	789.2	888.1	983.6	1079.2	1171.4
57.5°	394.6	417.1	484.3	578.2	673.8	721.9	774.3	875.6	975.3	1076.7	1173.9
60°	354.7	380.5	455.3	551.6	652.2	702.0	756.0	861.5	965.4	1070.9	1173.9
62.5°	315.7	344.8	427.0	527.5	630.6	682.1	737.7	845.7	954.6	1065.1	1173.9
65°	276.7	309.9	397.9	501.0	606.5	660.5	717.0	829.1	941.3	1056.8	1170.6
67.5°	238.4	276.7	368.0	473.5	581.5	637.2	695.4	810.0	926.3	1046.0	1163.9
70°	201.0	243.4	338.1	444.5	555.8	610.6	671.3	789.2	908.9	1031.8	1152.3
72.5°	163.7	211.8	306.6	415.4	528.4	584.9	646.3	765.1	887.3	1012.7	1134.0
75°	129.6	180.3	276.7	385.5	500.1	557.5	618.9	738.6	861.5	987.8	1107.4
77.5°	98.9	151.2	247.6	356.4	470.2	530.0	590.7	709.5	831.6	956.2	1072.5
80°	69.8	123.0	218.5	326.5	440.3	499.3	559.1	677.9	800.0	918.8	1032.7
82.5°	43.2	97.2	189.4	297.4	411.2	469.4	528.4	646.3	764.3	879.8	989.5
85°	22.4	73.1	162.0	270.0	383.0	440.3	498.5	613.9	727.8	839.9	947.1
87.5°	7.5	53.2	139.6	245.9	357.2	414.6	471.1	583.2	693.7	800.9	905.6
90°	0.0	39.9	123.0	226.8	335.6	391.3	447.8	555.8	663.8	769.3	869.0
92.5°	0.0	34.1	112.2	213.5	320.7	375.5	430.3	537.5	641.4	743.5	840.8
95°	0.0	27.4	103.0	200.2	304.9	358.9	412.9	517.6	619.8	719.5	814.2
97.5°	0.0	21.6	93.0	187.8	289.1	341.5	393.8	497.6	597.3	695.4	786.8
100°	0.8	16.6	82.2	172.0	272.5	324.0	374.7	476.0	573.2	667.9	758.5
102.5°	0.8	11.6	72.3	158.7	255.0	304.9	354.7	453.6	549.1	643.0	729.4
105°	0.8	8.3	62.3	144.6	238.4	286.6	335.6	432.0	525.1	615.6	700.3
107.5°	0.8	5.8	53.2	131.3	221.8	267.5	314.9	408.7	500.1	588.2	671.3
110°	0.8	4.2	44.9	117.1	203.5	249.2	294.9	385.5	474.4	559.9	641.4



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	0.8	3.3	36.6	103.8	185.3	230.1	274.2	362.2	448.6	531.7	610.6
115°	0.8	3.3	29.1	91.4	167.0	210.2	252.6	339.0	421.2	502.6	579.1
117.5°	0.8	2.5	22.4	78.9	150.4	190.2	231.0	313.2	394.6	473.5	547.5
120°	0.8	2.5	16.6	66.5	132.9	170.3	210.2	288.3	366.4	442.8	513.4
122.5°	1.7	2.5	12.5	55.7	117.1	151.2	189.4	263.4	336.5	410.4	480.2
125°	1.7	1.7	10.0	44.9	100.5	132.1	166.2	237.6	304.1	374.7	442.8
127.5°	1.7	1.7	7.5	34.1	83.9	113.0	143.7	210.2	275.0	338.1	402.9
130°	1.7	1.7	6.6	24.9	68.1	93.9	122.1	181.9	242.6	300.7	359.7
132.5°	1.7	1.7	5.0	18.3	54.0	77.3	102.2	155.4	211.0	267.5	320.7
135°	1.7	1.7	4.2	13.3	40.7	61.5	83.1	130.4	181.1	234.3	280.8
137.5°	1.7	1.7	4.2	10.0	29.9	46.5	65.6	108.8	153.7	201.0	243.4
140°	1.7	1.7	3.3	8.3	20.8	34.1	49.8	87.2	125.4	169.5	210.2
142.5°	1.7	1.7	2.5	6.6	15.0	24.1	35.7	67.3	101.4	139.6	175.3
145°	2.5	1.7	2.5	5.8	10.8	16.6	24.9	50.7	78.1	112.2	143.7
147.5°	1.7	1.7	1.7	4.2	8.3	11.6	16.6	34.9	59.0	87.2	113.8
150°	2.5	1.7	1.7	3.3	6.6	8.3	11.6	23.3	40.7	64.0	87.2
152.5°	2.5	1.7	1.7	3.3	5.0	6.6	8.3	15.0	26.6	43.2	62.3
155°	2.5	1.7	1.7	2.5	4.2	5.0	6.6	10.0	15.8	26.6	40.7
157.5°	2.5	2.5	2.5	2.5	3.3	4.2	5.0	7.5	9.1	15.0	23.3
160°	2.5	2.5	1.7	1.7	2.5	2.5	3.3	5.0	6.6	8.3	11.6
162.5°	2.5	2.5	2.5	1.7	1.7	1.7	2.5	3.3	4.2	5.8	7.5
165°	2.5	2.5	1.7	1.7	1.7	1.7	1.7	1.7	2.5	3.3	4.2
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1
2.5°	1001.9	997.8	996.1	992.8	990.3	988.6	986.1	984.5	982.8	982.0	982.0
5°	1002.8	998.6	996.9	994.4	993.6	992.0	990.3	992.0	991.1	992.0	991.1
7.5°	1003.6	1000.3	1000.3	999.4	998.6	998.6	996.9	998.6	999.4	1000.3	999.4
10°	1006.1	1005.2	1006.9	1007.7	1007.7	1007.7	1007.7	1009.4	1012.7	1012.7	1011.9
12.5°	1010.2	1012.7	1017.7	1021.9	1023.5	1023.5	1026.8	1030.2	1034.3	1035.2	1034.3
15°	1018.5	1026.0	1036.8	1046.0	1050.1	1052.6	1059.2	1065.1	1069.2	1070.9	1069.2
17.5°	1033.5	1047.6	1064.2	1077.5	1082.5	1085.8	1095.0	1100.8	1105.8	1109.9	1108.3
20°	1053.4	1072.5	1092.5	1108.3	1114.9	1119.1	1129.0	1139.8	1144.8	1148.1	1147.3
22.5°	1075.0	1097.5	1119.9	1139.0	1146.5	1151.5	1163.9	1173.9	1181.4	1185.5	1184.7
25°	1095.8	1121.6	1149.0	1169.7	1178.9	1184.7	1198.0	1209.6	1217.9	1221.2	1220.4
27.5°	1116.6	1146.5	1176.4	1200.5	1209.6	1217.1	1232.9	1245.3	1255.3	1257.8	1257.8
30°	1133.2	1168.1	1200.5	1227.9	1237.9	1247.8	1265.3	1281.9	1291.0	1294.4	1293.5
32.5°	1149.0	1188.0	1224.6	1255.3	1267.8	1277.7	1298.5	1316.8	1327.6	1330.9	1327.6
35°	1164.8	1208.0	1248.7	1281.9	1295.2	1307.7	1330.9	1351.7	1363.3	1366.6	1365.0
37.5°	1179.7	1227.9	1271.9	1308.5	1324.3	1337.6	1361.7	1386.6	1399.0	1402.4	1399.0
40°	1193.8	1246.2	1294.4	1334.2	1351.7	1367.5	1395.7	1420.6	1434.8	1438.9	1437.3
42.5°	1207.1	1264.4	1316.8	1360.8	1380.8	1397.4	1428.9	1456.4	1471.3	1476.3	1472.1
45°	1218.8	1282.7	1339.2	1386.6	1408.2	1427.3	1463.0	1492.9	1507.9	1513.7	1508.7
47.5°	1230.4	1299.3	1360.0	1412.3	1437.3	1457.2	1497.1	1528.6	1546.1	1551.1	1546.1
50°	1241.2	1316.0	1382.4	1438.9	1465.5	1487.9	1531.1	1565.2	1582.6	1590.1	1583.5
52.5°	1251.2	1331.7	1403.2	1463.8	1492.9	1517.8	1564.4	1600.9	1621.7	1626.7	1620.0
55°	1261.1	1346.7	1421.5	1487.1	1518.7	1545.3	1595.9	1634.1	1654.9	1660.7	1654.1
57.5°	1269.4	1360.0	1438.9	1509.5	1541.9	1572.7	1623.3	1663.2	1684.8	1691.5	1684.8
60°	1275.2	1370.8	1454.7	1527.8	1561.9	1593.4	1647.4	1687.3	1708.9	1715.6	1708.9
62.5°	1279.4	1379.1	1465.5	1541.9	1578.5	1610.9	1665.7	1704.8	1727.2	1733.8	1727.2
65°	1280.2	1382.4	1471.3	1551.1	1588.5	1620.9	1676.5	1715.6	1738.8	1744.6	1738.0
67.5°	1275.2	1379.1	1471.3	1552.7	1590.1	1623.3	1679.0	1718.1	1740.5	1747.1	1740.5
70°	1265.3	1369.1	1463.0	1546.1	1583.5	1616.7	1671.5	1711.4	1733.8	1740.5	1733.0
72.5°	1246.2	1351.7	1445.6	1530.3	1566.0	1598.4	1652.4	1691.5	1713.1	1720.5	1712.2
75°	1218.8	1324.3	1418.1	1499.6	1536.9	1566.9	1620.9	1659.1	1679.0	1685.7	1678.2
77.5°	1183.0	1289.4	1379.9	1460.5	1497.9	1525.3	1577.7	1615.0	1635.0	1640.8	1633.3
80°	1141.5	1247.0	1334.2	1414.0	1448.9	1474.6	1527.0	1562.7	1581.8	1587.6	1583.5
82.5°	1095.8	1198.8	1283.6	1361.7	1394.9	1420.6	1472.1	1507.0	1526.1	1534.5	1527.8
85°	1049.3	1148.1	1231.2	1306.8	1340.1	1367.5	1414.8	1449.7	1468.8	1475.5	1471.3
87.5°	1002.8	1098.3	1178.9	1252.0	1282.7	1311.0	1358.3	1393.2	1412.3	1419.0	1414.0
90°	963.7	1055.1	1132.4	1204.6	1236.2	1262.0	1307.7	1340.9	1360.0	1366.6	1362.5
92.5°	932.1	1019.4	1094.1	1160.6	1190.5	1217.9	1262.0	1294.4	1313.5	1319.3	1315.1
95°	902.2	987.0	1059.2	1124.0	1153.1	1179.7	1221.2	1252.8	1271.1	1276.9	1273.6
97.5°	874.0	955.4	1025.2	1088.3	1118.2	1142.3	1182.2	1212.1	1230.4	1235.4	1230.4
100°	842.4	924.7	992.8	1055.1	1080.8	1104.9	1144.8	1174.7	1190.5	1197.2	1193.0
102.5°	812.5	891.4	958.7	1020.2	1047.6	1071.7	1108.3	1137.3	1155.6	1159.8	1155.6
105°	781.8	858.2	923.8	984.5	1011.9	1035.2	1071.7	1100.0	1117.4	1122.4	1118.2
107.5°	750.2	824.1	889.8	947.1	973.7	995.3	1032.7	1060.1	1075.0	1084.2	1077.5
110°	716.1	789.2	852.4	908.0	933.8	954.6	991.1	1018.5	1032.7	1041.0	1035.2



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	684.6	753.5	814.2	868.2	892.3	913.0	948.8	975.3	988.6	996.9	991.1
115°	651.3	715.3	775.1	826.6	850.7	869.8	905.6	930.5	943.8	951.2	946.3
117.5°	615.6	677.9	734.4	785.1	807.5	826.6	860.7	885.6	898.1	903.9	898.9
120°	580.7	641.4	694.5	742.7	765.1	783.4	816.7	839.9	851.6	858.2	853.2
122.5°	544.2	603.1	651.3	699.5	720.3	737.7	767.6	792.6	803.4	809.2	805.9
125°	505.1	563.3	609.8	653.8	673.8	690.4	719.5	740.2	752.7	758.5	755.2
127.5°	464.4	520.1	567.4	608.1	627.2	645.5	669.6	692.9	701.2	707.8	704.5
130°	418.7	474.4	518.4	559.9	578.2	593.2	619.8	638.9	649.7	655.5	653.0
132.5°	373.9	425.4	471.9	509.3	526.7	542.5	566.6	584.9	599.8	600.7	597.3
135°	330.7	375.5	417.9	457.8	475.2	491.0	512.6	529.2	543.3	544.2	540.0
137.5°	289.1	330.7	367.2	404.6	422.9	439.5	459.4	475.2	488.5	491.0	485.2
140°	249.2	287.5	320.7	353.9	371.4	387.1	408.7	422.0	432.8	433.7	430.3
142.5°	211.0	245.9	275.0	305.7	321.5	335.6	359.7	373.0	383.0	385.5	380.5
145°	175.3	206.0	233.4	260.0	273.3	286.6	310.7	326.5	334.8	337.3	332.3
147.5°	141.2	167.0	191.1	215.2	226.8	239.3	259.2	279.1	286.6	288.3	284.1
150°	109.7	131.3	152.9	172.8	182.8	193.6	211.0	229.3	239.3	240.9	237.6
152.5°	80.6	98.9	116.3	132.9	141.2	149.5	164.5	181.9	194.4	195.2	191.9
155°	54.8	69.8	83.9	96.4	103.8	110.5	122.1	135.4	148.7	149.5	147.0
157.5°	33.2	43.2	54.8	64.8	69.8	75.6	83.9	93.9	105.5	108.0	105.5
160°	16.6	22.4	29.1	35.7	39.9	44.0	48.2	56.5	63.1	69.0	65.6
162.5°	8.3	10.0	11.6	15.0	16.6	19.1	22.4	25.8	29.1	34.9	30.7
165°	5.0	5.8	6.6	6.6	7.5	7.5	7.5	7.5	7.5	10.8	7.5
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLELD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1
2.5°	984.5	986.1	989.5	991.1	992.8	994.4	997.8	1002.8	998.6	994.4	995.3
5°	991.1	991.1	992.0	994.4	994.4	995.3	998.6	1003.6	999.4	993.6	993.6
7.5°	999.4	998.6	999.4	1000.3	999.4	999.4	1001.1	1003.6	998.6	992.0	990.3
10°	1011.1	1008.6	1007.7	1008.6	1007.7	1005.2	1006.1	1006.1	999.4	989.5	985.3
12.5°	1031.8	1027.7	1024.4	1023.5	1021.0	1016.9	1014.4	1011.1	1001.1	989.5	981.2
15°	1065.9	1059.2	1052.6	1050.1	1046.0	1036.0	1027.7	1020.2	1006.1	989.5	977.8
17.5°	1104.1	1095.8	1086.7	1083.3	1077.5	1063.4	1049.3	1035.2	1015.2	992.0	975.3
20°	1140.7	1130.7	1119.9	1114.1	1108.3	1090.8	1074.2	1055.9	1030.2	999.4	974.5
22.5°	1177.2	1165.6	1150.6	1145.6	1138.2	1118.2	1098.3	1077.5	1046.8	1010.2	976.2
25°	1212.9	1199.6	1185.5	1177.2	1168.9	1146.5	1122.4	1097.5	1062.6	1022.7	982.0
27.5°	1248.7	1233.7	1216.3	1207.1	1198.8	1173.9	1146.5	1118.2	1079.2	1034.3	989.5
30°	1283.6	1266.9	1246.2	1236.2	1226.2	1198.0	1166.4	1134.8	1092.5	1044.3	994.4
32.5°	1318.5	1300.2	1276.9	1265.3	1253.6	1221.2	1186.4	1150.6	1104.1	1053.4	998.6
35°	1352.5	1332.6	1306.8	1292.7	1280.2	1245.3	1206.3	1166.4	1114.9	1060.9	1001.1
37.5°	1387.4	1365.0	1336.7	1320.9	1306.8	1268.6	1225.4	1180.5	1126.5	1066.7	1003.6
40°	1422.3	1398.2	1366.6	1350.0	1332.6	1291.0	1244.5	1194.7	1136.5	1072.5	1004.4
42.5°	1458.0	1431.4	1396.5	1378.3	1360.0	1313.5	1262.0	1207.1	1144.8	1076.7	1003.6
45°	1493.7	1463.8	1426.5	1405.7	1385.7	1335.1	1279.4	1217.9	1152.3	1079.2	1001.9
47.5°	1529.5	1497.9	1457.2	1434.8	1410.7	1356.7	1296.0	1229.6	1158.9	1080.0	1000.3
50°	1566.0	1532.0	1487.9	1463.0	1438.1	1377.4	1312.6	1239.5	1163.1	1080.8	996.1
52.5°	1601.7	1565.2	1517.8	1491.3	1462.2	1398.2	1328.4	1249.5	1166.4	1080.0	990.3
55°	1634.1	1595.9	1546.1	1517.8	1485.4	1417.3	1342.5	1257.8	1168.1	1077.5	982.8
57.5°	1664.1	1625.0	1572.7	1541.1	1509.5	1435.6	1355.8	1266.9	1169.7	1073.4	974.5
60°	1687.3	1648.3	1593.4	1561.9	1527.8	1450.5	1366.6	1271.9	1169.7	1067.6	963.7
62.5°	1704.8	1665.7	1610.9	1577.7	1541.9	1463.0	1374.9	1276.9	1169.7	1061.7	952.9
65°	1715.6	1677.3	1620.9	1587.6	1551.1	1468.8	1379.1	1277.7	1166.4	1053.4	939.6
67.5°	1717.2	1679.0	1622.5	1590.1	1552.7	1468.8	1376.6	1273.6	1159.8	1042.6	924.7
70°	1709.7	1671.5	1615.9	1582.6	1546.1	1461.3	1367.5	1263.6	1148.1	1028.5	907.2
72.5°	1690.6	1651.6	1597.6	1563.5	1527.8	1443.9	1348.4	1245.3	1129.0	1008.6	886.4
75°	1657.4	1619.2	1566.0	1534.5	1497.9	1415.7	1319.3	1218.8	1102.4	983.6	860.7
77.5°	1613.4	1576.0	1523.7	1492.1	1458.0	1377.4	1282.7	1183.0	1070.0	952.9	830.8
80°	1561.0	1525.3	1473.8	1443.1	1409.8	1331.7	1238.7	1141.5	1030.2	916.4	797.6
82.5°	1505.4	1470.5	1420.6	1389.1	1357.5	1281.9	1193.0	1096.6	987.8	877.3	761.8
85°	1451.4	1414.0	1364.1	1335.1	1303.5	1229.6	1145.6	1050.1	944.6	837.4	726.9
87.5°	1394.9	1358.3	1309.3	1281.9	1252.0	1177.2	1097.5	1004.4	903.9	801.7	692.9
90°	1343.4	1307.7	1260.3	1232.9	1204.6	1132.4	1054.3	966.2	869.0	770.1	664.6
92.5°	1296.0	1262.8	1217.9	1191.3	1163.9	1095.0	1020.2	934.6	840.8	745.2	642.2
95°	1255.3	1222.9	1181.4	1155.6	1127.4	1061.7	988.6	904.7	815.0	721.9	621.4
97.5°	1214.6	1183.9	1143.2	1118.2	1091.6	1027.7	957.1	876.5	788.4	696.2	599.0
100°	1177.2	1147.3	1105.8	1083.3	1057.6	996.1	926.3	847.4	761.0	670.4	574.9
102.5°	1140.7	1110.8	1070.9	1048.4	1023.5	962.0	893.9	815.8	731.9	644.7	551.6
105°	1103.3	1074.2	1034.3	1011.9	987.0	927.2	860.7	785.1	702.8	618.1	527.5
107.5°	1062.6	1034.3	996.1	973.7	950.4	890.6	826.6	752.7	673.8	590.7	502.6
110°	1021.0	992.8	957.9	933.8	911.4	853.2	790.9	720.3	643.0	562.4	476.9



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	977.8	950.4	916.4	893.9	870.7	815.0	755.2	687.1	612.3	533.4	450.3
115°	933.8	906.4	872.3	849.9	829.1	775.9	717.8	653.0	580.7	504.3	423.7
117.5°	885.6	861.5	829.1	809.2	787.6	734.4	680.4	618.1	549.1	473.5	396.3
120°	840.8	817.5	785.9	764.3	745.2	694.5	643.0	582.4	514.3	443.6	368.0
122.5°	793.4	768.5	739.4	721.1	700.3	653.8	604.0	545.8	479.4	409.6	337.3
125°	743.5	720.3	692.0	674.6	655.5	611.5	564.1	505.9	442.8	375.5	305.7
127.5°	692.9	671.3	643.9	628.1	609.8	566.6	520.9	464.4	401.3	338.1	273.3
130°	641.4	619.8	594.8	578.2	560.8	520.1	475.2	419.5	359.7	300.7	241.8
132.5°	587.4	566.6	541.7	526.7	510.9	471.9	426.2	372.2	319.0	265.9	211.0
135°	531.7	512.6	490.2	476.0	460.3	420.4	377.2	328.2	280.8	231.8	181.1
137.5°	477.7	460.3	438.7	424.5	407.1	369.7	331.5	287.5	244.2	198.6	151.2
140°	424.5	408.7	388.0	372.2	357.2	322.3	287.5	247.6	208.5	167.0	124.6
142.5°	374.7	360.6	337.3	322.3	308.2	277.5	246.7	209.4	174.5	137.1	100.5
145°	325.7	313.2	287.5	274.2	262.5	235.1	204.4	173.6	142.1	109.7	78.1
147.5°	278.3	263.4	239.3	227.6	216.8	192.7	167.0	138.7	113.0	84.7	57.3
150°	232.6	214.3	193.6	183.6	174.5	153.7	131.3	108.0	85.6	61.5	39.9
152.5°	185.3	166.2	152.0	142.1	133.8	117.1	98.9	78.9	60.6	41.5	24.9
155°	137.1	123.8	110.5	105.5	98.0	83.9	69.0	53.2	38.2	24.9	14.1
157.5°	94.7	84.7	76.4	71.4	65.6	54.8	42.4	30.7	21.6	13.3	6.6
160°	57.3	50.7	44.9	40.7	36.6	29.1	20.8	14.1	9.1	4.2	2.5
162.5°	25.8	21.6	19.1	16.6	14.1	10.8	6.6	3.3	1.7	0.8	0.8
165°	5.0	3.3	2.5	1.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	996.1	996.1	996.1	996.1	996.1	996.1	996.1	996.1
2.5°	996.1	996.9	997.8	997.8	1000.3	1004.4	1010.2	1011.1
5°	993.6	994.4	994.4	995.3	997.8	1001.1	1006.1	1006.9
7.5°	989.5	989.5	989.5	989.5	991.1	994.4	998.6	999.4
10°	983.6	982.0	981.2	980.3	981.2	984.5	987.8	988.6
12.5°	977.0	972.8	971.2	970.4	970.4	971.2	974.5	974.5
15°	969.5	962.9	960.4	958.7	955.4	955.4	958.7	958.7
17.5°	962.0	952.9	947.9	944.6	939.6	938.8	940.4	938.8
20°	955.4	941.3	934.6	928.8	921.3	918.8	918.8	916.4
22.5°	948.8	929.6	920.5	912.2	900.6	896.4	893.9	892.3
25°	944.6	917.2	905.6	895.6	879.8	870.7	868.2	864.8
27.5°	943.8	907.2	891.4	879.0	857.4	846.6	839.9	835.8
30°	943.8	897.2	876.5	859.0	832.4	815.8	809.2	807.5
32.5°	942.9	889.8	864.8	842.4	808.4	786.8	776.8	774.3
35°	940.4	882.3	853.2	825.8	784.3	756.8	742.7	739.4
37.5°	937.1	873.2	842.4	810.8	759.3	726.1	708.7	703.7
40°	933.8	864.0	829.1	795.1	734.4	694.5	672.1	666.3
42.5°	928.0	854.0	817.5	780.1	711.1	663.0	637.2	628.1
45°	922.2	842.4	803.4	763.5	687.9	630.6	598.2	589.0
47.5°	914.7	830.0	789.2	745.2	666.3	599.0	562.4	550.8
50°	906.4	817.5	773.5	727.8	643.0	568.3	523.4	510.9
52.5°	897.2	803.4	757.7	709.5	619.8	539.2	486.8	471.1
55°	885.6	787.6	739.4	688.7	595.7	509.3	449.5	431.2
57.5°	873.2	771.8	721.9	669.6	571.6	481.0	412.9	392.1
60°	858.2	753.5	700.3	648.0	546.7	451.9	376.3	352.3
62.5°	842.4	735.2	681.2	625.6	521.7	423.7	340.6	313.2
65°	825.8	714.5	659.6	602.3	495.1	393.8	305.7	274.2
67.5°	805.9	692.0	635.5	577.4	467.7	363.9	271.7	235.9
70°	785.9	667.9	609.0	550.8	439.5	334.0	239.3	198.6
72.5°	761.8	642.2	582.4	523.4	410.4	304.9	207.7	161.2
75°	735.2	615.6	555.0	495.1	380.5	274.2	176.1	124.6
77.5°	707.0	586.5	526.7	466.1	352.3	245.1	147.0	93.9
80°	677.1	555.8	496.8	436.2	322.3	216.0	118.8	64.8
82.5°	643.9	525.9	466.9	406.3	294.1	187.8	93.0	39.9
85°	612.3	496.0	438.7	378.8	266.7	159.5	69.8	19.9
87.5°	581.5	468.6	412.9	353.9	243.4	137.9	50.7	5.8
90°	556.6	446.1	391.3	334.0	225.1	122.1	38.2	0.0
92.5°	536.7	428.7	374.7	319.0	211.8	111.3	32.4	0.0
95°	517.6	410.4	358.9	303.2	198.6	102.2	25.8	0.0
97.5°	496.8	393.0	341.5	287.5	185.3	92.2	20.8	0.0
100°	476.0	373.9	324.0	271.7	170.3	82.2	15.0	0.0
102.5°	453.6	353.9	304.9	254.2	157.0	71.4	10.0	0.0
105°	432.0	334.0	286.6	236.8	142.9	62.3	6.6	0.0
107.5°	408.7	314.0	267.5	220.2	128.8	52.3	4.2	0.0
110°	385.5	294.1	248.4	202.7	115.5	43.2	3.3	0.0



TEST NUMBER: P201303

CATALOG NUMBER: 8LBLED-LD4-9-SYMW-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	362.2	273.3	229.3	184.4	102.2	34.9	2.5	0.8
115°	337.3	251.7	209.4	166.2	88.9	27.4	2.5	0.8
117.5°	312.4	229.3	190.2	148.7	76.4	20.8	1.7	0.8
120°	286.6	209.4	169.5	132.1	64.8	15.0	1.7	0.8
122.5°	261.7	188.6	150.4	114.6	53.2	11.6	1.7	0.8
125°	235.9	164.5	131.3	98.9	42.4	9.1	1.7	0.8
127.5°	208.5	142.1	111.3	81.4	32.4	6.6	1.7	0.8
130°	180.3	119.6	92.2	66.5	23.3	5.0	1.7	0.8
132.5°	153.7	100.5	74.8	52.3	16.6	4.2	1.7	0.8
135°	129.6	81.4	59.0	39.0	11.6	3.3	0.8	0.8
137.5°	106.3	64.8	44.9	28.2	8.3	2.5	1.7	0.8
140°	85.6	49.0	32.4	19.9	5.8	1.7	1.7	0.8
142.5°	66.5	34.9	22.4	13.3	4.2	1.7	0.8	0.8
145°	49.0	23.3	15.0	8.3	3.3	1.7	1.7	1.7
147.5°	33.2	15.8	9.1	5.8	2.5	1.7	1.7	0.8
150°	21.6	10.0	5.8	4.2	1.7	1.7	1.7	0.8
152.5°	13.3	5.8	3.3	2.5	1.7	1.7	1.7	0.8
155°	6.6	3.3	2.5	1.7	1.7	1.7	1.7	1.7
157.5°	3.3	2.5	1.7	1.7	1.7	1.7	1.7	1.7
160°	1.7	1.7	0.8	0.8	1.7	1.7	1.7	1.7
162.5°	0.8	0.8	0.8	0.8	1.7	1.7	1.7	1.7
165°	0.0	0.8	0.8	0.8	1.7	1.7	1.7	1.7
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)