

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P251534

Luminaire Tested: **LD4B20D010 EU4B10208050 4LBSW1LI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P251534
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-10)
Test Lab: INNOVATION CENTER(G1)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LD4B20D010 EU4B10208050 4LBSW1LI
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1935.0 lumens
Efficiency: N/A
Efficacy: 93.0 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.3 / 1.19
Luminous Opening: Circular (Dia: 0.38' x H: 0')
CIE Type: Direct

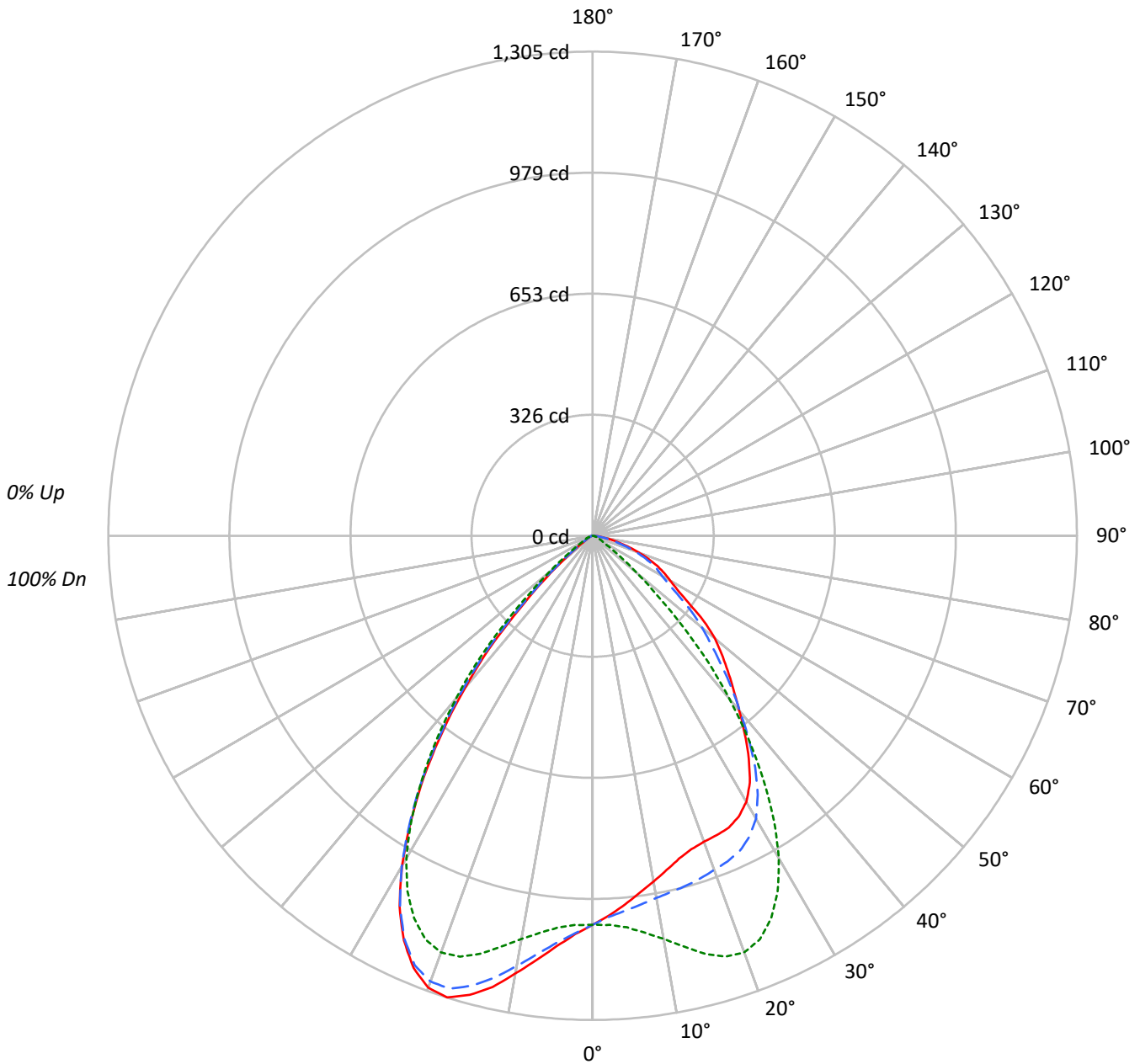
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90				90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	85	82	80				80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72				72
4	91	81	75	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64				64
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58				58
6	79	69	61	56	78	68	61	56	66	60	55	64	59	55	63	58	54	53				53
7	75	63	56	51	73	62	55	51	61	55	50	60	54	50	58	53	50	48				48
8	70	58	51	46	69	58	51	46	57	50	46	55	50	46	54	49	45	44				44
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	46	42	40				40
10	62	51	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37				37

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	102195	102195	102195
5°	97625	103651	108611
10°	93608	109184	118536
15°	90877	117675	129278
20°	91008	123937	134443
25°	93328	122330	129395
30°	93201	112918	115540
35°	87291	95441	94133
40°	78191	72797	67924
45°	70939	46227	37916
50°	65165	23455	16193
55°	53489	10467	5352
60°	46955	5867	2943
65°	44184	4428	2214
70°	37841	3505	1938
75°	28881	2561	1544
80°	20766	1515	786
85°	15319	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	101.9	5.3
10°-20°	317.4	16.4
20°-30°	491.1	25.4
30°-40°	483.9	25.0
40°-50°	297.1	15.4
50°-60°	132.1	6.8
60°-70°	73.8	3.8
70°-80°	31.9	1.7
80°-90°	5.7	0.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	910.4	47.0
0°-40°	1394.3	72.1
0°-60°	1823.6	94.2
0°-90°	1935.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1935.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1049	1049	1049	1049	1049	
5°	998	1014	1060	1101	1110	94
15°	901	976	1166	1255	1281	256
25°	868	938	1138	1199	1203	398
35°	734	764	802	799	791	455
45°	515	489	335	293	275	399
55°	315	285	62	36	32	289
65°	192	172	19	11	10	188
75°	77	66	7	4	4	84
85°	14	11	0	0	0	17
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6
2.5°	1023.9	1023.9	1023.9	1023.9	1026.7	1022.6	1026.7	1026.7	1030.8	1032.1	1028.0
5°	997.9	996.6	997.9	997.9	1000.7	999.3	1003.4	1006.1	1011.6	1014.3	1014.3
7.5°	970.5	970.5	970.5	973.3	977.4	976.0	980.1	984.2	992.4	997.9	1002.0
10°	945.9	944.5	948.6	950.0	954.1	954.1	961.0	965.1	974.7	985.6	991.1
12.5°	922.6	921.3	924.0	928.1	935.0	935.0	940.4	947.3	961.0	973.3	982.9
15°	900.7	902.1	906.2	908.9	917.2	917.2	924.0	932.2	947.3	962.3	976.0
17.5°	885.7	887.0	889.8	893.9	902.1	902.1	908.9	918.5	935.0	951.4	967.8
20°	877.5	878.8	881.6	885.7	892.5	893.9	899.4	910.3	925.4	943.2	958.2
22.5°	873.4	876.1	878.8	881.6	888.4	888.4	895.3	903.5	918.5	936.3	950.0
25°	867.9	870.6	872.0	876.1	881.6	881.6	885.7	895.3	908.9	924.0	937.7
27.5°	852.8	855.6	856.9	861.0	866.5	865.1	870.6	877.5	889.8	903.5	914.4
30°	828.2	829.5	832.3	833.7	837.8	837.8	841.9	848.7	856.9	869.2	880.2
32.5°	788.5	791.2	792.6	794.0	798.1	796.7	798.1	802.2	810.4	821.3	828.2
35°	733.7	739.2	739.2	741.9	743.3	741.9	741.9	747.4	751.5	759.7	763.8
37.5°	673.5	677.6	676.2	679.0	680.3	676.2	679.0	680.3	685.8	689.9	691.3
40°	614.6	616.0	616.0	616.0	616.0	614.6	616.0	617.4	621.5	621.5	617.4
42.5°	561.2	562.6	562.6	559.9	562.6	561.2	561.2	561.2	561.2	555.8	551.7
45°	514.7	516.1	516.1	514.7	514.7	512.0	510.6	509.2	505.1	498.3	488.7
47.5°	470.9	473.6	475.0	472.3	470.9	468.2	468.2	459.9	454.5	446.3	432.6
50°	429.8	432.6	432.6	429.8	429.8	425.7	421.6	418.9	410.7	401.1	384.7
52.5°	377.8	381.9	381.9	380.6	380.6	375.1	373.7	368.2	361.4	350.4	336.7
55°	314.8	320.3	319.0	317.6	314.8	314.8	314.8	310.7	306.6	298.4	284.7
57.5°	269.7	271.0	271.0	269.7	269.7	266.9	266.9	262.8	261.5	253.2	242.3
60°	240.9	240.9	242.3	240.9	239.6	238.2	236.8	234.1	230.0	224.5	216.3
62.5°	217.7	219.0	219.0	217.7	216.3	214.9	213.5	210.8	208.1	204.0	195.8
65°	191.6	194.4	193.0	191.6	190.3	188.9	188.9	186.2	183.4	180.7	172.5
67.5°	162.9	164.3	165.6	162.9	162.9	161.5	161.5	158.8	157.4	151.9	146.5
70°	132.8	134.2	134.2	132.8	132.8	131.4	131.4	130.0	128.7	124.6	119.1
72.5°	104.0	105.4	104.0	102.7	102.7	102.7	101.3	99.9	98.6	95.8	91.7
75°	76.7	76.7	78.0	76.7	75.3	75.3	73.9	73.9	71.2	69.8	65.7
77.5°	54.8	56.1	54.8	54.8	53.4	52.0	52.0	50.6	50.6	49.3	46.5
80°	37.0	37.0	38.3	37.0	35.6	37.0	35.6	34.2	34.2	32.9	30.1
82.5°	23.3	24.6	23.3	23.3	23.3	23.3	23.3	21.9	21.9	20.5	19.2
85°	13.7	13.7	13.7	13.7	13.7	13.7	13.7	12.3	12.3	12.3	11.0
87.5°	6.8	6.8	5.5	5.5	6.8	6.8	6.8	5.5	5.5	5.5	5.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6
2.5°	1033.5	1034.9	1037.6	1041.7	1041.7	1039.0	1045.8	1045.8	1048.6	1049.9	1055.4
5°	1022.6	1025.3	1030.8	1037.6	1039.0	1037.6	1047.2	1051.3	1055.4	1059.5	1067.7
7.5°	1013.0	1018.5	1028.0	1037.6	1041.7	1041.7	1056.8	1062.3	1070.5	1078.7	1088.3
10°	1007.5	1015.7	1029.4	1044.5	1048.6	1052.7	1070.5	1081.4	1092.4	1103.3	1117.0
12.5°	1000.7	1015.7	1033.5	1052.7	1060.9	1066.4	1091.0	1104.7	1119.8	1133.4	1151.2
15°	999.3	1017.1	1040.4	1065.0	1075.9	1084.2	1111.5	1130.7	1148.5	1166.3	1184.1
17.5°	993.8	1015.7	1044.5	1071.8	1085.5	1096.5	1128.0	1151.2	1171.8	1189.6	1210.1
20°	987.0	1011.6	1043.1	1073.2	1088.3	1099.2	1133.4	1155.3	1178.6	1195.0	1214.2
22.5°	977.4	1002.0	1033.5	1063.6	1077.3	1086.9	1121.1	1140.3	1160.8	1177.2	1195.0
25°	961.0	984.2	1011.6	1036.3	1049.9	1058.2	1088.3	1106.1	1121.1	1137.6	1154.0
27.5°	937.7	955.5	978.8	996.6	1004.8	1013.0	1037.6	1052.7	1066.4	1080.1	1091.0
30°	896.6	910.3	926.7	941.8	950.0	951.4	974.7	982.9	993.8	1003.4	1011.6
32.5°	841.9	852.8	862.4	870.6	876.1	877.5	895.3	898.0	908.9	908.9	921.3
35°	772.1	777.5	784.4	784.4	788.5	784.4	796.7	799.4	800.8	802.2	811.8
37.5°	692.7	695.4	699.5	691.3	691.3	687.2	691.3	694.0	688.6	688.6	695.4
40°	617.4	611.9	606.4	598.2	594.1	585.9	585.9	579.0	574.9	572.2	573.6
42.5°	544.8	532.5	520.2	502.4	494.2	486.0	477.7	468.2	465.4	458.6	454.5
45°	475.0	457.2	440.8	412.0	395.6	387.4	369.6	350.4	338.1	335.4	324.4
47.5°	416.1	390.1	362.8	328.5	312.1	297.0	271.0	254.6	238.2	230.0	223.1
50°	364.1	340.9	305.3	268.3	247.8	232.7	204.0	184.8	167.0	154.7	146.5
52.5°	319.0	292.9	260.1	217.7	197.1	180.7	149.2	127.3	112.2	99.9	90.3
55°	268.3	247.8	214.9	175.2	154.7	135.5	108.1	84.9	69.8	61.6	54.8
57.5°	231.3	213.5	182.1	143.7	124.6	106.8	79.4	60.2	47.9	39.7	35.6
60°	206.7	190.3	162.9	125.9	108.1	91.7	65.7	47.9	37.0	30.1	27.4
62.5°	186.2	169.7	145.1	110.9	95.8	79.4	56.1	39.7	30.1	24.6	20.5
65°	162.9	147.8	125.9	95.8	82.1	68.4	47.9	32.9	24.6	19.2	16.4
67.5°	138.3	124.6	105.4	79.4	68.4	57.5	38.3	27.4	20.5	16.4	13.7
70°	112.2	101.3	83.5	64.3	54.8	45.2	31.5	21.9	15.1	12.3	11.0
72.5°	86.2	76.7	64.3	49.3	41.1	34.2	23.3	16.4	12.3	9.6	8.2
75°	61.6	54.8	45.2	35.6	30.1	24.6	17.8	12.3	8.2	6.8	5.5
77.5°	42.4	38.3	31.5	24.6	20.5	17.8	12.3	8.2	6.8	5.5	4.1
80°	27.4	24.6	20.5	15.1	12.3	11.0	6.8	5.5	4.1	2.7	2.7
82.5°	16.4	15.1	12.3	8.2	6.8	5.5	4.1	2.7	2.7	1.4	1.4
85°	9.6	8.2	5.5	4.1	4.1	2.7	2.7	1.4	1.4	0.0	0.0
87.5°	4.1	2.7	2.7	1.4	1.4	1.4	1.4	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6
2.5°	1052.7	1059.5	1058.2	1062.3	1060.9	1060.9	1067.7	1065.0	1071.8	1071.8	1073.2
5°	1067.7	1077.3	1077.3	1084.2	1082.8	1085.5	1092.4	1092.4	1100.6	1103.3	1103.3
7.5°	1089.6	1102.0	1104.7	1111.5	1112.9	1118.4	1123.9	1125.2	1136.2	1138.9	1140.3
10°	1119.8	1134.8	1138.9	1145.8	1148.5	1154.0	1160.8	1163.6	1177.2	1178.6	1184.1
12.5°	1156.7	1173.1	1177.2	1185.5	1186.8	1193.7	1203.3	1206.0	1219.7	1223.8	1227.9
15°	1192.3	1207.4	1214.2	1222.4	1223.8	1232.0	1240.2	1243.0	1255.3	1260.8	1264.9
17.5°	1216.9	1234.7	1238.8	1249.8	1249.8	1256.6	1264.9	1267.6	1279.9	1284.0	1286.8
20°	1222.4	1238.8	1244.3	1252.5	1253.9	1258.0	1264.9	1267.6	1278.5	1279.9	1284.0
22.5°	1201.9	1218.3	1221.1	1229.3	1230.6	1234.7	1240.2	1238.8	1252.5	1251.2	1252.5
25°	1158.1	1173.1	1173.1	1182.7	1181.4	1185.5	1188.2	1186.8	1199.2	1199.2	1199.2
27.5°	1095.1	1108.8	1110.2	1117.0	1112.9	1114.3	1117.0	1115.6	1123.9	1123.9	1123.9
30°	1017.1	1028.0	1023.9	1029.4	1026.7	1029.4	1026.7	1025.3	1028.0	1030.8	1029.4
32.5°	919.9	928.1	928.1	929.5	929.5	921.3	918.5	918.5	917.2	915.8	915.8
35°	807.6	814.5	811.8	811.8	810.4	802.2	798.1	795.3	799.4	791.2	796.7
37.5°	692.7	694.0	689.9	688.6	681.7	681.7	674.9	669.4	672.1	670.8	665.3
40°	566.7	572.2	564.0	561.2	565.4	559.9	553.0	546.2	551.7	544.8	547.6
42.5°	443.5	442.2	439.4	439.4	439.4	431.2	429.8	428.5	429.8	424.4	420.3
45°	320.3	316.2	312.1	312.1	306.6	303.9	303.9	299.8	292.9	292.9	284.7
47.5°	216.3	206.7	204.0	202.6	199.9	199.9	197.1	194.4	193.0	186.2	186.2
50°	141.0	131.4	128.7	127.3	128.7	125.9	123.2	120.5	117.7	116.4	113.6
52.5°	84.9	80.8	78.0	76.7	73.9	72.6	71.2	68.4	67.1	67.1	65.7
55°	50.6	46.5	41.1	41.1	41.1	39.7	38.3	37.0	35.6	35.6	34.2
57.5°	31.5	28.7	26.0	24.6	24.6	24.6	23.3	23.3	23.3	23.3	21.9
60°	23.3	20.5	19.2	19.2	19.2	17.8	17.8	17.8	17.8	16.4	16.4
62.5°	17.8	16.4	15.1	15.1	13.7	13.7	13.7	13.7	13.7	13.7	12.3
65°	15.1	12.3	12.3	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
67.5°	11.0	9.6	9.6	9.6	9.6	8.2	8.2	8.2	8.2	8.2	8.2
70°	8.2	8.2	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
72.5°	6.8	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
75°	5.5	5.5	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
77.5°	4.1	4.1	4.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P251534

CATALOG NUMBER: LD4B20D010 EU4B10208050 4LBSW1LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6	1048.6
2.5°	1073.2	1080.1	1073.2	1073.2	1077.3	1075.9	1078.7	1074.6
5°	1104.7	1114.3	1107.4	1106.1	1112.9	1111.5	1112.9	1110.2
7.5°	1143.0	1152.6	1145.8	1145.8	1152.6	1151.2	1155.3	1152.6
10°	1186.8	1197.8	1188.2	1189.6	1199.2	1197.8	1197.8	1197.8
12.5°	1232.0	1243.0	1237.5	1237.5	1244.3	1245.7	1247.1	1245.7
15°	1269.0	1279.9	1273.1	1273.1	1282.7	1281.3	1282.7	1281.3
17.5°	1290.9	1301.8	1293.6	1293.6	1301.8	1301.8	1303.2	1304.6
20°	1285.4	1297.7	1290.9	1288.1	1297.7	1297.7	1296.3	1296.3
22.5°	1253.9	1264.9	1259.4	1256.6	1263.5	1260.8	1259.4	1260.8
25°	1199.2	1210.1	1199.2	1199.2	1204.6	1203.3	1204.6	1203.3
27.5°	1125.2	1133.4	1122.5	1121.1	1126.6	1123.9	1122.5	1126.6
30°	1026.7	1034.9	1029.4	1025.3	1032.1	1028.0	1025.3	1026.7
32.5°	914.4	919.9	917.2	910.3	914.4	911.7	910.3	911.7
35°	791.2	798.1	787.1	785.7	792.6	787.1	784.4	791.2
37.5°	663.9	672.1	662.5	663.9	659.8	661.2	658.4	662.5
40°	543.5	542.1	539.3	538.0	539.3	535.2	538.0	533.9
42.5°	413.4	416.1	414.8	413.4	414.8	409.3	406.6	412.0
45°	287.5	286.1	283.4	280.6	280.6	279.3	279.3	275.1
47.5°	184.8	183.4	178.0	179.3	182.1	179.3	175.2	180.7
50°	112.2	110.9	110.9	109.5	112.2	109.5	106.8	106.8
52.5°	63.0	63.0	61.6	61.6	61.6	61.6	60.2	58.9
55°	34.2	32.9	32.9	32.9	31.5	31.5	31.5	31.5
57.5°	21.9	21.9	21.9	21.9	21.9	21.9	20.5	20.5
60°	16.4	16.4	16.4	16.4	15.1	16.4	15.1	15.1
62.5°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
65°	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
67.5°	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
70°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
72.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
75°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
77.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)