

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: P251531

Luminaire Tested: **LD4B20D010 EU4B10208030 4LBSW1LI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P251531
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 EU4B10208030 4LBSW1LI
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1868.0 lumens
Efficiency: N/A
Efficacy: 89.8 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

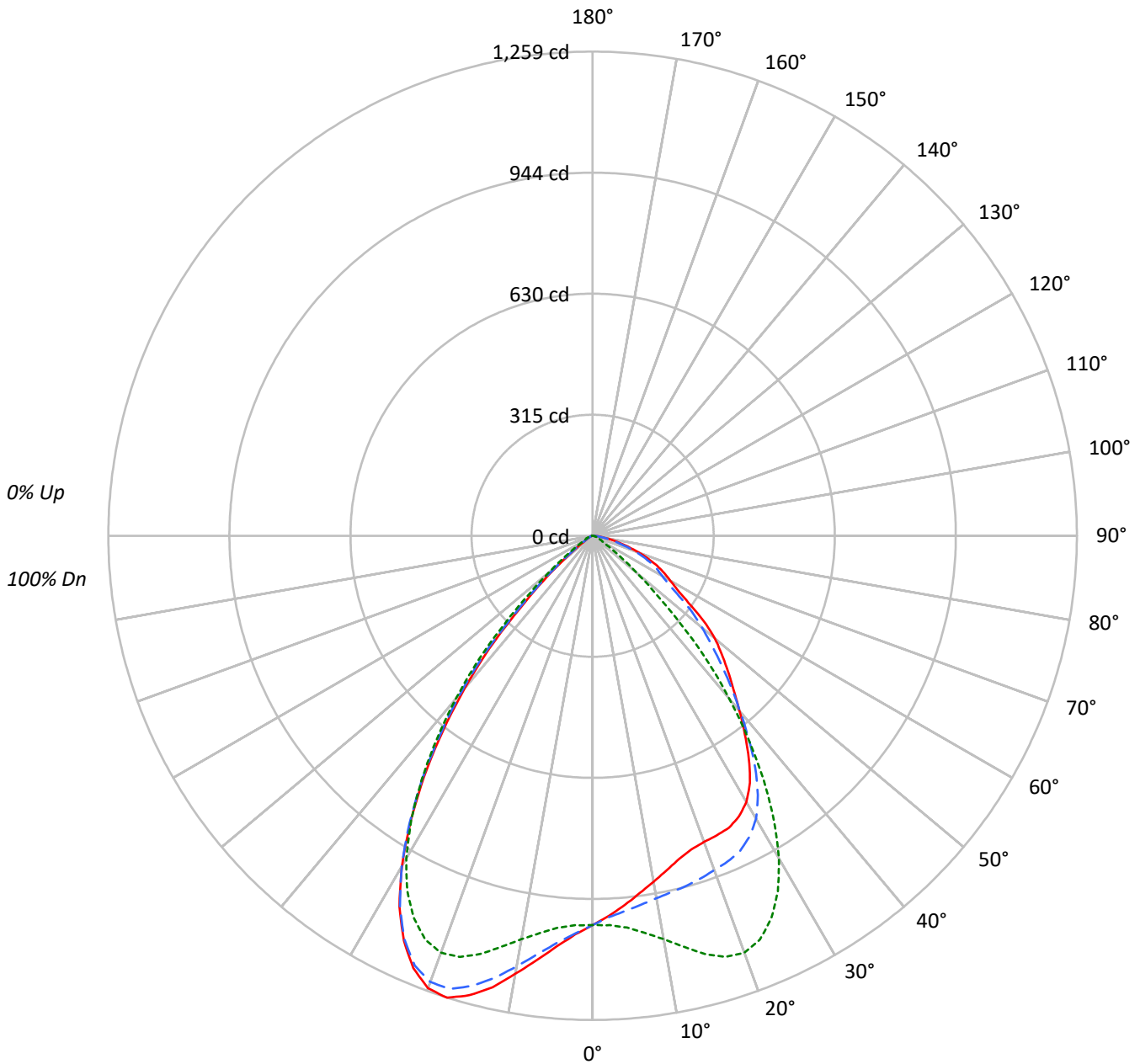
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	98657	98657	98657
5°	94250	100061	104845
10°	90372	105404	114429
15°	87729	113599	124798
20°	87855	119653	129796
25°	90091	118093	124910
30°	89972	109013	111533
35°	84270	92134	90873
40°	75494	70278	65570
45°	68486	44628	36607
50°	62906	22637	15632
55°	51637	10110	5165
60°	45337	5672	2826
65°	42662	4266	2145
70°	36530	3391	1881
75°	27865	2485	1506
80°	20036	1459	730
85°	14760	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.3	5.3
10°-20°	306.4	16.4
20°-30°	474.1	25.4
30°-40°	467.1	25.0
40°-50°	286.8	15.4
50°-60°	127.5	6.8
60°-70°	71.2	3.8
70°-80°	30.8	1.7
80°-90°	5.5	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°	878.9	47.0
0°-40°	1346.0	72.1
0°-60°	1760.4	94.2
0°-90°	1868.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1868.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1012	1012	1012	1012	1012	
5°	963	979	1023	1062	1072	90
15°	870	942	1126	1212	1237	247
25°	838	905	1098	1158	1162	384
35°	708	737	774	772	764	440
45°	497	472	324	283	266	385
55°	304	275	60	34	30	279
65°	185	166	18	11	9	181
75°	74	63	7	4	4	81
85°	13	11	0	0	0	16
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°	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3
2.5°	988.5	988.5	988.5	988.5	991.1	987.2	991.1	991.1	995.1	996.4	992.4
5°	963.4	962.0	963.4	963.4	966.0	964.7	968.7	971.3	976.6	979.2	979.2
7.5°	936.9	936.9	936.9	939.6	943.5	942.2	946.2	950.2	958.1	963.4	967.3
10°	913.2	911.8	915.8	917.1	921.1	921.1	927.7	931.7	940.9	951.5	956.8
12.5°	890.7	889.4	892.0	896.0	902.6	902.6	907.9	914.5	927.7	939.6	948.8
15°	869.5	870.9	874.8	877.5	885.4	885.4	892.0	899.9	914.5	929.0	942.2
17.5°	855.0	856.3	859.0	862.9	870.9	870.9	877.5	886.7	902.6	918.4	934.3
20°	847.1	848.4	851.0	855.0	861.6	862.9	868.2	878.8	893.3	910.5	925.0
22.5°	843.1	845.8	848.4	851.0	857.6	857.6	864.3	872.2	886.7	903.9	917.1
25°	837.8	840.5	841.8	845.8	851.0	851.0	855.0	864.3	877.5	892.0	905.2
27.5°	823.3	825.9	827.3	831.2	836.5	835.2	840.5	847.1	859.0	872.2	882.8
30°	799.5	800.8	803.5	804.8	808.8	808.8	812.7	819.3	827.3	839.1	849.7
32.5°	761.2	763.8	765.1	766.5	770.4	769.1	770.4	774.4	782.3	792.9	799.5
35°	708.3	713.6	713.6	716.3	717.6	716.3	716.3	721.5	725.5	733.4	737.4
37.5°	650.2	654.1	652.8	655.5	656.8	652.8	655.5	656.8	662.1	666.0	667.4
40°	593.4	594.7	594.7	594.7	594.7	593.4	594.7	596.0	600.0	600.0	596.0
42.5°	541.8	543.1	543.1	540.5	543.1	541.8	541.8	541.8	541.8	536.5	532.6
45°	496.9	498.2	498.2	496.9	496.9	494.2	492.9	491.6	487.6	481.0	471.8
47.5°	454.6	457.2	458.6	455.9	454.6	452.0	452.0	444.0	438.7	430.8	417.6
50°	414.9	417.6	417.6	414.9	414.9	411.0	407.0	404.4	396.4	387.2	371.3
52.5°	364.7	368.7	368.7	367.4	367.4	362.1	360.8	355.5	348.9	338.3	325.1
55°	303.9	309.2	307.9	306.6	303.9	303.9	303.9	300.0	296.0	288.1	274.9
57.5°	260.3	261.7	261.7	260.3	260.3	257.7	257.7	253.7	252.4	244.5	233.9
60°	232.6	232.6	233.9	232.6	231.3	229.9	228.6	226.0	222.0	216.7	208.8
62.5°	210.1	211.4	211.4	210.1	208.8	207.5	206.2	203.5	200.9	196.9	189.0
65°	185.0	187.7	186.3	185.0	183.7	182.4	182.4	179.7	177.1	174.4	166.5
67.5°	157.3	158.6	159.9	157.3	157.3	155.9	155.9	153.3	152.0	146.7	141.4
70°	128.2	129.5	129.5	128.2	128.2	126.9	126.9	125.5	124.2	120.3	115.0
72.5°	100.4	101.8	100.4	99.1	99.1	99.1	97.8	96.5	95.1	92.5	88.5
75°	74.0	74.0	75.3	74.0	72.7	72.7	71.4	71.4	68.7	67.4	63.4
77.5°	52.9	54.2	52.9	52.9	51.5	50.2	50.2	48.9	48.9	47.6	44.9
80°	35.7	35.7	37.0	35.7	34.4	35.7	34.4	33.0	33.0	31.7	29.1
82.5°	22.5	23.8	22.5	22.5	22.5	22.5	22.5	21.1	21.1	19.8	18.5
85°	13.2	13.2	13.2	13.2	13.2	13.2	13.2	11.9	11.9	11.9	10.6
87.5°	6.6	6.6	5.3	5.3	6.6	6.6	6.6	5.3	5.3	5.3	5.3
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°	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3
2.5°	997.7	999.0	1001.7	1005.7	1005.7	1003.0	1009.6	1009.6	1012.3	1013.6	1018.9
5°	987.2	989.8	995.1	1001.7	1003.0	1001.7	1010.9	1014.9	1018.9	1022.8	1030.8
7.5°	977.9	983.2	992.4	1001.7	1005.7	1005.7	1020.2	1025.5	1033.4	1041.3	1050.6
10°	972.6	980.5	993.8	1008.3	1012.3	1016.2	1033.4	1044.0	1054.6	1065.1	1078.3
12.5°	966.0	980.5	997.7	1016.2	1024.2	1029.4	1053.2	1066.4	1081.0	1094.2	1111.4
15°	964.7	981.9	1004.3	1028.1	1038.7	1046.6	1073.1	1091.6	1108.7	1125.9	1143.1
17.5°	959.4	980.5	1008.3	1034.7	1047.9	1058.5	1088.9	1111.4	1131.2	1148.4	1168.2
20°	952.8	976.6	1007.0	1036.1	1050.6	1061.2	1094.2	1115.3	1137.8	1153.7	1172.2
22.5°	943.5	967.3	997.7	1026.8	1040.0	1049.3	1082.3	1100.8	1120.6	1136.5	1153.7
25°	927.7	950.2	976.6	1000.4	1013.6	1021.5	1050.6	1067.8	1082.3	1098.2	1114.0
27.5°	905.2	922.4	944.9	962.0	970.0	977.9	1001.7	1016.2	1029.4	1042.7	1053.2
30°	865.6	878.8	894.7	909.2	917.1	918.4	940.9	948.8	959.4	968.7	976.6
32.5°	812.7	823.3	832.5	840.5	845.8	847.1	864.3	866.9	877.5	877.5	889.4
35°	745.3	750.6	757.2	757.2	761.2	757.2	769.1	771.8	773.1	774.4	783.6
37.5°	668.7	671.3	675.3	667.4	667.4	663.4	667.4	670.0	664.7	664.7	671.3
40°	596.0	590.7	585.4	577.5	573.5	565.6	565.6	559.0	555.0	552.4	553.7
42.5°	526.0	514.1	502.2	485.0	477.1	469.1	461.2	452.0	449.3	442.7	438.7
45°	458.6	441.4	425.5	397.8	381.9	374.0	356.8	338.3	326.4	323.8	313.2
47.5°	401.7	376.6	350.2	317.2	301.3	286.8	261.7	245.8	229.9	222.0	215.4
50°	351.5	329.1	294.7	259.0	239.2	224.7	196.9	178.4	161.2	149.3	141.4
52.5°	307.9	282.8	251.1	210.1	190.3	174.4	144.0	122.9	108.4	96.5	87.2
55°	259.0	239.2	207.5	169.2	149.3	130.8	104.4	81.9	67.4	59.5	52.9
57.5°	223.3	206.2	175.8	138.8	120.3	103.1	76.6	58.1	46.3	38.3	34.4
60°	199.5	183.7	157.3	121.6	104.4	88.5	63.4	46.3	35.7	29.1	26.4
62.5°	179.7	163.9	140.1	107.0	92.5	76.6	54.2	38.3	29.1	23.8	19.8
65°	157.3	142.7	121.6	92.5	79.3	66.1	46.3	31.7	23.8	18.5	15.9
67.5°	133.5	120.3	101.8	76.6	66.1	55.5	37.0	26.4	19.8	15.9	13.2
70°	108.4	97.8	80.6	62.1	52.9	43.6	30.4	21.1	14.5	11.9	10.6
72.5°	83.3	74.0	62.1	47.6	39.6	33.0	22.5	15.9	11.9	9.3	7.9
75°	59.5	52.9	43.6	34.4	29.1	23.8	17.2	11.9	7.9	6.6	5.3
77.5°	41.0	37.0	30.4	23.8	19.8	17.2	11.9	7.9	6.6	5.3	4.0
80°	26.4	23.8	19.8	14.5	11.9	10.6	6.6	5.3	4.0	2.6	2.6
82.5°	15.9	14.5	11.9	7.9	6.6	5.3	4.0	2.6	2.6	1.3	1.3
85°	9.3	7.9	5.3	4.0	4.0	2.6	2.6	1.3	1.3	0.0	0.0
87.5°	4.0	2.6	2.6	1.3	1.3	1.3	1.3	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°	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3
2.5°	1016.2	1022.8	1021.5	1025.5	1024.2	1024.2	1030.8	1028.1	1034.7	1034.7	1036.1
5°	1030.8	1040.0	1040.0	1046.6	1045.3	1047.9	1054.6	1054.6	1062.5	1065.1	1065.1
7.5°	1051.9	1063.8	1066.4	1073.1	1074.4	1079.7	1084.9	1086.3	1096.8	1099.5	1100.8
10°	1081.0	1095.5	1099.5	1106.1	1108.7	1114.0	1120.6	1123.3	1136.5	1137.8	1143.1
12.5°	1116.7	1132.5	1136.5	1144.4	1145.7	1152.3	1161.6	1164.2	1177.5	1181.4	1185.4
15°	1151.0	1165.6	1172.2	1180.1	1181.4	1189.3	1197.3	1199.9	1211.8	1217.1	1221.1
17.5°	1174.8	1192.0	1196.0	1206.5	1206.5	1213.1	1221.1	1223.7	1235.6	1239.6	1242.2
20°	1180.1	1196.0	1201.2	1209.2	1210.5	1214.5	1221.1	1223.7	1234.3	1235.6	1239.6
22.5°	1160.3	1176.1	1178.8	1186.7	1188.0	1192.0	1197.3	1196.0	1209.2	1207.8	1209.2
25°	1118.0	1132.5	1132.5	1141.8	1140.4	1144.4	1147.1	1145.7	1157.6	1157.6	1157.6
27.5°	1057.2	1070.4	1071.7	1078.3	1074.4	1075.7	1078.3	1077.0	1084.9	1084.9	1084.9
30°	981.9	992.4	988.5	993.8	991.1	993.8	991.1	989.8	992.4	995.1	993.8
32.5°	888.0	896.0	896.0	897.3	897.3	889.4	886.7	886.7	885.4	884.1	884.1
35°	779.7	786.3	783.6	783.6	782.3	774.4	770.4	767.8	771.8	763.8	769.1
37.5°	668.7	670.0	666.0	664.7	658.1	658.1	651.5	646.2	648.9	647.5	642.2
40°	547.1	552.4	544.5	541.8	545.8	540.5	533.9	527.3	532.6	526.0	528.6
42.5°	428.2	426.8	424.2	424.2	424.2	416.3	414.9	413.6	414.9	409.7	405.7
45°	309.2	305.3	301.3	301.3	296.0	293.4	293.4	289.4	282.8	282.8	274.9
47.5°	208.8	199.5	196.9	195.6	192.9	192.9	190.3	187.7	186.3	179.7	179.7
50°	136.1	126.9	124.2	122.9	124.2	121.6	118.9	116.3	113.6	112.3	109.7
52.5°	81.9	78.0	75.3	74.0	71.4	70.0	68.7	66.1	64.8	64.8	63.4
55°	48.9	44.9	39.6	39.6	39.6	38.3	37.0	35.7	34.4	34.4	33.0
57.5°	30.4	27.8	25.1	23.8	23.8	23.8	22.5	22.5	22.5	22.5	21.1
60°	22.5	19.8	18.5	18.5	18.5	17.2	17.2	17.2	17.2	15.9	15.9
62.5°	17.2	15.9	14.5	14.5	13.2	13.2	13.2	13.2	13.2	13.2	11.9
65°	14.5	11.9	11.9	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6
67.5°	10.6	9.3	9.3	9.3	9.3	7.9	7.9	7.9	7.9	7.9	7.9
70°	7.9	7.9	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
72.5°	6.6	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
75°	5.3	5.3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
77.5°	4.0	4.0	4.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	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: P251531

CATALOG NUMBER: LD4B20D010 EU4B10208030 4LBSW1LI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3	1012.3
2.5°	1036.1	1042.7	1036.1	1036.1	1040.0	1038.7	1041.3	1037.4
5°	1066.4	1075.7	1069.1	1067.8	1074.4	1073.1	1074.4	1071.7
7.5°	1103.4	1112.7	1106.1	1106.1	1112.7	1111.4	1115.3	1112.7
10°	1145.7	1156.3	1147.1	1148.4	1157.6	1156.3	1156.3	1156.3
12.5°	1189.3	1199.9	1194.6	1194.6	1201.2	1202.6	1203.9	1202.6
15°	1225.0	1235.6	1229.0	1229.0	1238.2	1236.9	1238.2	1236.9
17.5°	1246.2	1256.7	1248.8	1248.8	1256.7	1256.7	1258.1	1259.4
20°	1240.9	1252.8	1246.2	1243.5	1252.8	1252.8	1251.5	1251.5
22.5°	1210.5	1221.1	1215.8	1213.1	1219.7	1217.1	1215.8	1217.1
25°	1157.6	1168.2	1157.6	1157.6	1162.9	1161.6	1162.9	1161.6
27.5°	1086.3	1094.2	1083.6	1082.3	1087.6	1084.9	1083.6	1087.6
30°	991.1	999.0	993.8	989.8	996.4	992.4	989.8	991.1
32.5°	882.8	888.0	885.4	878.8	882.8	880.1	878.8	880.1
35°	763.8	770.4	759.9	758.5	765.1	759.9	757.2	763.8
37.5°	640.9	648.9	639.6	640.9	637.0	638.3	635.6	639.6
40°	524.6	523.3	520.7	519.3	520.7	516.7	519.3	515.4
42.5°	399.1	401.7	400.4	399.1	400.4	395.1	392.5	397.8
45°	277.5	276.2	273.5	270.9	270.9	269.6	269.6	265.6
47.5°	178.4	177.1	171.8	173.1	175.8	173.1	169.2	174.4
50°	108.4	107.0	107.0	105.7	108.4	105.7	103.1	103.1
52.5°	60.8	60.8	59.5	59.5	59.5	59.5	58.1	56.8
55°	33.0	31.7	31.7	31.7	30.4	30.4	30.4	30.4
57.5°	21.1	21.1	21.1	21.1	21.1	21.1	19.8	19.8
60°	15.9	15.9	15.9	15.9	14.5	15.9	14.5	14.5
62.5°	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
65°	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
67.5°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
70°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
72.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
75°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
77.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)