

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: P251941

Luminaire Tested: **LD4B30D010 EU4B30509035 4LBDW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251941  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-15)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LD4B30D010 EU4B30509035 4LBDW1H  
Description: PORTFOLIO 4 INCH DOUBLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2182.0 lumens  
Efficiency: N/A  
Efficacy: 77.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.18 / 1.19  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

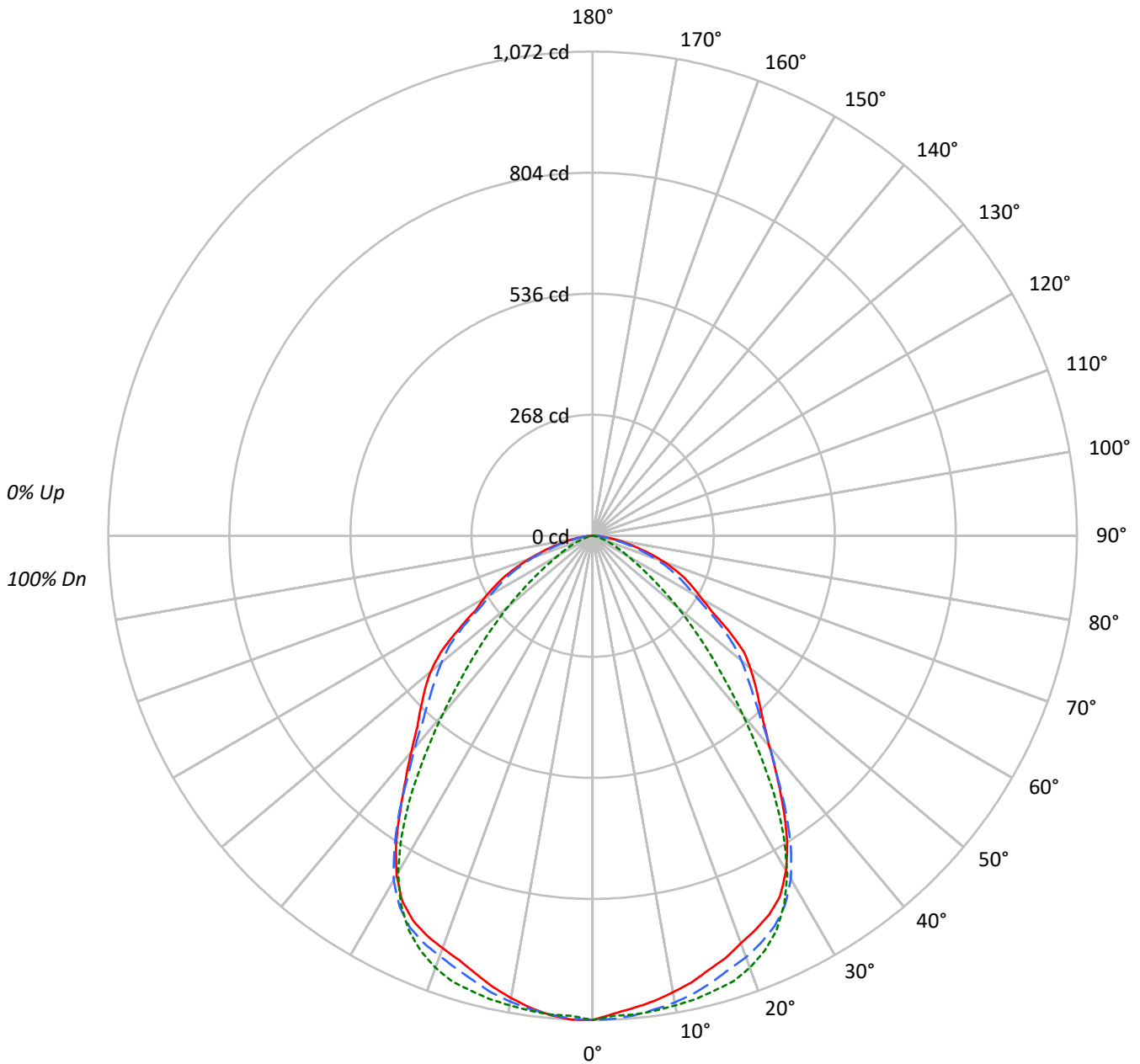
Input Watts (W): 28  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P251941

CATALOG NUMBER: LD4B30D010 EU4B30509035 4LBDW1H

### Luminous Intensity Polar Plot





TEST NUMBER: P251941

CATALOG NUMBER: LD4B30D010 EU4B30509035 4LBDW1H

**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	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	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	89	88				88				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76				76				
3	94	85	78	72	92	84	77	72	81	75	70	78	73	69	76	72	68	66				66				
4	87	77	69	63	85	75	68	62	73	67	62	71	65	61	69	64	60	58				58				
5	81	69	61	55	79	68	61	55	66	60	54	64	58	54	63	57	53	51				51				
6	75	63	55	49	73	62	55	49	60	54	49	59	53	48	57	52	48	46				46				
7	70	58	50	44	68	57	49	44	56	49	44	54	48	43	53	47	43	41				41				
8	66	53	45	40	64	52	45	40	51	44	40	50	44	39	49	43	39	37				37				
9	62	49	41	36	60	49	41	36	47	41	36	46	40	36	45	40	36	34				34				
10	58	46	38	33	57	45	38	33	44	38	33	43	37	33	42	37	33	31				31				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	104485	104485	104485
5°	102634	104082	104248
10°	101535	104474	102841
15°	100351	105184	101189
20°	99564	105548	100757
25°	99500	103587	101103
30°	96341	96893	97635
35°	87529	83401	88315
40°	77440	65685	79323
45°	71835	50017	74109
50°	69032	37010	71018
55°	62494	25504	61661
60°	54343	17367	54011
65°	52486	12545	49834
70°	47472	8463	42315
75°	39123	5573	33551
80°	31485	3704	24975
85°	25831	1789	16549



TEST NUMBER: P251941

CATALOG NUMBER: LD4B30D010 EU4B30509035 4LBDW1H

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	101.2	4.6
10°-20°	289.4	13.3
20°-30°	437.2	20.0
30°-40°	457.5	21.0
40°-50°	370.6	17.0
50°-60°	269.5	12.4
60°-70°	166.2	7.6
70°-80°	75.1	3.4
80°-90°	15.2	0.7
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°	827.8	37.9
0°-40°	1285.3	58.9
0°-60°	1925.4	88.2
0°-90°	2182.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2182.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1072	1072	1072	1072	1072	
5°	1049	1066	1064	1064	1066	99
15°	995	1023	1042	1019	1003	281
25°	925	953	963	957	940	424
35°	736	746	701	746	742	459
45°	521	505	363	511	538	405
55°	368	345	150	348	363	328
65°	228	204	54	201	216	223
75°	104	89	15	78	89	113
85°	23	18	2	13	15	26
90°	0	0	0	0	0	



TEST NUMBER: P251941

CATALOG NUMBER: LD4B30D010 EU4B30509035 4LBDW1H

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1
2.5°	1059.0	1059.0	1068.9	1080.4	1070.5	1060.6	1067.2	1063.9	1075.4	1075.4	1070.5
5°	1049.1	1052.4	1060.6	1070.5	1062.3	1052.4	1060.6	1057.3	1068.9	1068.9	1065.6
7.5°	1039.2	1040.8	1050.7	1062.3	1054.0	1044.1	1050.7	1049.1	1059.0	1060.6	1057.3
10°	1026.0	1027.6	1037.5	1049.1	1040.8	1032.6	1039.2	1037.5	1050.7	1050.7	1049.1
12.5°	1012.8	1014.4	1024.3	1034.2	1026.0	1017.7	1024.3	1024.3	1037.5	1039.2	1037.5
15°	994.6	997.9	1006.2	1016.1	1011.1	1001.2	1007.8	1007.8	1019.4	1022.7	1022.7
17.5°	979.8	981.4	989.7	999.6	993.0	984.7	991.3	991.3	1002.9	1006.2	1006.2
20°	960.0	963.3	971.5	981.4	976.5	969.9	974.8	974.8	988.0	991.3	993.0
22.5°	943.5	946.8	953.4	966.6	958.3	953.4	960.0	958.3	973.2	974.8	974.8
25°	925.3	928.6	936.9	945.1	940.2	935.2	940.2	940.2	951.7	953.4	953.4
27.5°	899.0	900.6	908.9	917.1	912.2	905.6	912.2	910.5	922.0	923.7	922.0
30°	856.1	859.4	862.7	874.2	869.3	864.3	870.9	867.6	879.2	879.2	877.5
32.5°	801.6	801.6	808.2	816.5	809.9	806.6	811.5	813.2	821.4	821.4	816.5
35°	735.7	739.0	743.9	748.9	743.9	740.6	745.6	743.9	753.8	750.5	745.6
37.5°	669.7	671.3	676.3	682.9	676.3	671.3	673.0	671.3	679.6	679.6	671.3
40°	608.7	611.9	615.2	621.8	615.2	611.9	613.6	608.7	618.5	615.2	610.3
42.5°	559.2	560.8	565.8	569.1	562.5	560.8	562.5	559.2	564.1	560.8	550.9
45°	521.2	521.2	522.9	527.8	521.2	519.6	519.6	516.3	521.2	514.6	504.7
47.5°	488.2	489.9	491.5	494.8	489.9	484.9	486.6	480.0	483.3	478.3	465.1
50°	455.3	458.6	460.2	463.5	458.6	455.3	456.9	450.3	450.3	442.1	430.5
52.5°	422.3	423.9	422.3	425.6	422.3	417.3	419.0	412.4	412.4	402.5	390.9
55°	367.8	369.5	371.1	374.4	371.1	366.2	369.5	364.5	364.5	357.9	344.7
57.5°	313.4	315.0	316.7	318.3	318.3	315.0	316.7	313.4	311.7	306.8	296.9
60°	278.8	278.8	278.8	280.4	278.8	277.1	277.1	273.8	273.8	267.2	257.3
62.5°	252.4	254.0	254.0	255.7	254.0	252.4	250.7	247.4	245.8	239.2	230.9
65°	227.6	227.6	226.0	229.3	227.6	226.0	226.0	222.7	219.4	212.8	204.5
67.5°	197.9	199.6	197.9	199.6	199.6	197.9	196.3	193.0	191.3	186.4	176.5
70°	166.6	166.6	166.6	168.2	166.6	166.6	168.2	163.3	161.6	155.0	146.8
72.5°	135.3	136.9	136.9	135.3	136.9	133.6	133.6	133.6	132.0	125.4	117.1
75°	103.9	105.6	105.6	107.2	105.6	103.9	103.9	102.3	100.6	95.7	89.1
77.5°	77.5	77.5	79.2	79.2	79.2	77.5	77.5	74.2	74.2	70.9	64.3
80°	56.1	56.1	54.4	56.1	56.1	54.4	54.4	52.8	52.8	49.5	44.5
82.5°	36.3	37.9	37.9	37.9	37.9	36.3	36.3	36.3	34.6	33.0	29.7
85°	23.1	23.1	23.1	23.1	24.7	23.1	24.7	23.1	23.1	19.8	18.1
87.5°	9.9	9.9	9.9	11.5	11.5	9.9	9.9	9.9	9.9	9.9	8.2
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: P251941

CATALOG NUMBER: LD4B30D010 EU4B30509035 4LBDW1H

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1
2.5°	1070.5	1072.1	1067.2	1073.8	1068.9	1070.5	1072.1	1070.5	1063.9	1063.9	1082.0
5°	1063.9	1067.2	1062.3	1070.5	1067.2	1067.2	1070.5	1068.9	1062.3	1063.9	1080.4
7.5°	1057.3	1062.3	1059.0	1067.2	1062.3	1062.3	1065.6	1065.6	1059.0	1060.6	1075.4
10°	1047.4	1054.0	1052.4	1060.6	1055.7	1055.7	1060.6	1060.6	1054.0	1055.7	1070.5
12.5°	1039.2	1045.8	1044.1	1052.4	1049.1	1050.7	1052.4	1055.7	1047.4	1050.7	1063.9
15°	1026.0	1032.6	1032.6	1040.8	1037.5	1040.8	1044.1	1049.1	1042.5	1042.5	1055.7
17.5°	1011.1	1019.4	1019.4	1026.0	1026.0	1027.6	1034.2	1039.2	1032.6	1034.2	1045.8
20°	994.6	1004.5	1004.5	1012.8	1011.1	1014.4	1019.4	1024.3	1017.7	1017.7	1030.9
22.5°	978.1	986.4	988.0	993.0	993.0	994.6	999.6	1002.9	994.6	994.6	1007.8
25°	955.0	963.3	964.9	968.2	964.9	964.9	968.2	971.5	963.3	963.3	974.8
27.5°	923.7	931.9	931.9	930.3	927.0	928.6	927.0	928.6	920.4	918.7	930.3
30°	877.5	882.5	882.5	880.8	875.9	875.9	870.9	872.6	861.0	861.0	870.9
32.5°	814.8	819.8	816.5	813.2	806.6	803.3	800.0	798.3	786.8	786.8	798.3
35°	740.6	743.9	739.0	732.4	724.1	719.2	714.2	707.6	699.4	701.0	707.6
37.5°	664.7	664.7	658.1	644.9	638.3	630.1	621.8	621.8	608.7	607.0	611.9
40°	600.4	593.8	582.3	564.1	552.6	544.3	532.8	526.2	516.3	516.3	524.5
42.5°	542.7	529.5	514.6	489.9	478.3	468.4	453.6	447.0	435.5	433.8	438.8
45°	491.5	478.3	456.9	430.5	415.7	404.1	382.7	374.4	364.5	362.9	366.2
47.5°	450.3	435.5	409.1	374.4	359.6	344.7	323.3	311.7	303.5	298.6	303.5
50°	414.0	394.2	366.2	329.9	310.1	296.9	270.5	259.0	247.4	244.1	245.8
52.5°	374.4	354.6	324.9	287.0	268.9	249.1	224.3	207.8	197.9	193.0	197.9
55°	331.5	311.7	282.1	244.1	224.3	206.2	179.8	166.6	155.0	150.1	155.0
57.5°	285.4	267.2	240.8	202.9	184.7	168.2	143.5	130.3	118.8	115.5	118.8
60°	245.8	230.9	204.5	168.2	153.4	135.3	113.8	100.6	90.7	89.1	90.7
62.5°	219.4	202.9	178.1	143.5	128.7	113.8	94.0	80.8	72.6	70.9	72.6
65°	193.0	174.8	151.8	122.1	107.2	95.7	75.9	64.3	56.1	54.4	56.1
67.5°	163.3	146.8	127.0	100.6	89.1	77.5	61.0	49.5	42.9	41.2	42.9
70°	135.3	120.4	100.6	80.8	69.3	61.0	46.2	37.9	31.3	29.7	31.3
72.5°	107.2	94.0	77.5	61.0	54.4	46.2	36.3	28.0	23.1	21.4	23.1
75°	82.5	72.6	59.4	44.5	39.6	34.6	24.7	19.8	16.5	14.8	16.5
77.5°	57.7	51.1	41.2	33.0	28.0	24.7	18.1	13.2	11.5	9.9	11.5
80°	39.6	34.6	28.0	21.4	18.1	14.8	11.5	8.2	6.6	6.6	6.6
82.5°	26.4	21.4	16.5	13.2	11.5	9.9	6.6	4.9	4.9	3.3	3.3
85°	14.8	13.2	9.9	8.2	6.6	4.9	3.3	3.3	1.6	1.6	1.6
87.5°	6.6	4.9	3.3	3.3	1.6	1.6	1.6	1.6	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: P251941

CATALOG NUMBER: LD4B30D010 EU4B30509035 4LBDW1H

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1
2.5°	1077.1	1072.1	1078.7	1072.1	1068.9	1072.1	1068.9	1078.7	1070.5	1063.9	1070.5
5°	1075.4	1068.9	1075.4	1070.5	1065.6	1067.2	1063.9	1073.8	1063.9	1059.0	1062.3
7.5°	1072.1	1067.2	1070.5	1065.6	1060.6	1062.3	1059.0	1067.2	1057.3	1052.4	1055.7
10°	1067.2	1062.3	1063.9	1060.6	1055.7	1055.7	1052.4	1059.0	1047.4	1040.8	1044.1
12.5°	1060.6	1054.0	1057.3	1052.4	1045.8	1045.8	1042.5	1047.4	1035.9	1029.3	1030.9
15°	1052.4	1045.8	1045.8	1040.8	1034.2	1034.2	1027.6	1032.6	1019.4	1012.8	1012.8
17.5°	1042.5	1034.2	1034.2	1029.3	1021.0	1019.4	1014.4	1019.4	1004.5	997.9	997.9
20°	1027.6	1021.0	1019.4	1016.1	1007.8	1006.2	999.6	1001.2	989.7	984.7	983.1
22.5°	1007.8	1001.2	1002.9	997.9	991.3	989.7	983.1	988.0	976.5	971.5	973.2
25°	973.2	969.9	973.2	971.5	966.6	966.6	963.3	966.6	956.7	953.4	955.0
27.5°	933.6	931.9	933.6	933.6	930.3	930.3	930.3	935.2	925.3	923.7	923.7
30°	875.9	875.9	877.5	879.2	879.2	882.5	880.8	887.4	880.8	877.5	880.8
32.5°	800.0	806.6	811.5	811.5	811.5	814.8	818.1	823.1	816.5	818.1	818.1
35°	714.2	719.2	722.5	730.7	725.8	737.3	740.6	747.2	745.6	748.9	747.2
37.5°	618.5	625.1	631.7	643.3	641.6	654.8	661.4	674.6	671.3	677.9	681.2
40°	529.5	539.4	549.3	557.5	564.1	577.3	590.5	607.0	611.9	616.9	618.5
42.5°	443.7	453.6	470.1	481.6	491.5	513.0	531.1	550.9	555.9	565.8	569.1
45°	374.4	382.7	402.5	417.3	425.6	456.9	478.3	503.1	511.3	522.9	527.8
47.5°	310.1	324.9	344.7	362.9	374.4	407.4	435.5	461.8	473.4	486.6	493.2
50°	254.0	270.5	296.9	313.4	329.9	366.2	397.5	425.6	437.1	452.0	458.6
52.5°	207.8	226.0	250.7	268.9	287.0	324.9	357.9	384.3	399.2	409.1	419.0
55°	163.3	183.1	207.8	227.6	242.5	283.7	311.7	338.1	348.0	356.3	361.2
57.5°	127.0	141.9	166.6	183.1	201.2	237.5	265.6	285.4	293.6	303.5	306.8
60°	99.0	113.8	136.9	153.4	169.9	204.5	232.6	252.4	260.6	268.9	273.8
62.5°	79.2	94.0	115.5	130.3	145.2	176.5	201.2	221.0	230.9	239.2	244.1
65°	62.7	75.9	94.0	108.9	120.4	148.5	173.2	191.3	201.2	209.5	214.4
67.5°	49.5	61.0	77.5	87.4	99.0	122.1	143.5	160.0	168.2	178.1	183.1
70°	37.9	46.2	61.0	69.3	77.5	97.3	113.8	130.3	138.6	145.2	148.5
72.5°	28.0	34.6	46.2	52.8	57.7	74.2	87.4	99.0	105.6	112.2	115.5
75°	19.8	24.7	33.0	37.9	41.2	52.8	64.3	72.6	77.5	82.5	87.4
77.5°	13.2	16.5	21.4	24.7	28.0	36.3	42.9	49.5	54.4	59.4	61.0
80°	8.2	11.5	14.8	16.5	18.1	23.1	29.7	33.0	36.3	39.6	41.2
82.5°	4.9	6.6	8.2	9.9	11.5	14.8	18.1	21.4	23.1	26.4	28.0
85°	1.6	3.3	3.3	4.9	4.9	8.2	9.9	11.5	13.2	14.8	16.5
87.5°	0.0	0.0	1.6	1.6	1.6	1.6	3.3	3.3	3.3	3.3	3.3
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: P251941

CATALOG NUMBER: LD4B30D010 EU4B30509035 4LBDW1H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1	1072.1
2.5°	1077.1	1072.1	1068.9	1067.2	1078.7	1063.9	1070.5	1072.1
5°	1070.5	1065.6	1062.3	1060.6	1070.5	1057.3	1062.3	1065.6
7.5°	1060.6	1057.3	1052.4	1050.7	1060.6	1045.8	1052.4	1054.0
10°	1049.1	1044.1	1040.8	1039.2	1047.4	1032.6	1039.2	1039.2
12.5°	1034.2	1030.9	1024.3	1024.3	1030.9	1017.7	1022.7	1022.7
15°	1014.4	1011.1	1004.5	1004.5	1011.1	997.9	1002.9	1002.9
17.5°	997.9	994.6	989.7	988.0	994.6	981.4	986.4	984.7
20°	984.7	981.4	974.8	974.8	979.8	966.6	971.5	971.5
22.5°	973.2	971.5	964.9	964.9	971.5	958.3	961.6	958.3
25°	955.0	953.4	946.8	948.4	951.7	938.5	943.5	940.2
27.5°	925.3	925.3	918.7	917.1	922.0	910.5	913.8	912.2
30°	879.2	880.8	872.6	872.6	874.2	864.3	869.3	867.6
32.5°	816.5	818.1	811.5	809.9	814.8	806.6	809.9	809.9
35°	747.2	748.9	743.9	743.9	748.9	743.9	743.9	742.3
37.5°	677.9	681.2	677.9	679.6	682.9	677.9	681.2	679.6
40°	621.8	625.1	620.2	623.5	626.8	621.8	626.8	623.5
42.5°	570.7	575.7	572.4	575.7	579.0	575.7	579.0	574.0
45°	532.8	536.1	534.4	536.1	539.4	537.7	539.4	537.7
47.5°	496.5	503.1	499.8	503.1	508.0	504.7	508.0	503.1
50°	463.5	468.4	466.8	470.1	471.7	470.1	473.4	468.4
52.5°	420.6	425.6	423.9	423.9	427.2	423.9	427.2	423.9
55°	364.5	366.2	366.2	367.8	366.2	364.5	366.2	362.9
57.5°	310.1	313.4	308.4	313.4	311.7	310.1	310.1	306.8
60°	275.5	280.4	277.1	280.4	278.8	278.8	278.8	277.1
62.5°	247.4	250.7	247.4	249.1	249.1	249.1	247.4	245.8
65°	216.1	221.0	217.7	219.4	217.7	216.1	217.7	216.1
67.5°	184.7	186.4	186.4	184.7	184.7	184.7	184.7	181.4
70°	150.1	151.8	150.1	153.4	151.8	150.1	151.8	148.5
72.5°	117.1	118.8	117.1	118.8	117.1	117.1	117.1	117.1
75°	87.4	89.1	89.1	89.1	89.1	89.1	85.8	89.1
77.5°	62.7	62.7	62.7	64.3	62.7	62.7	62.7	62.7
80°	42.9	42.9	42.9	44.5	42.9	44.5	42.9	44.5
82.5°	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
85°	14.8	16.5	16.5	14.8	14.8	14.8	14.8	14.8
87.5°	3.3	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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)