

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: P251577

Luminaire Tested: **LD4B50D010TE EU4B30509035 4LBSW1LI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251577  
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: LD4B50D010TE EU4B30509035 4LBSW1LI  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

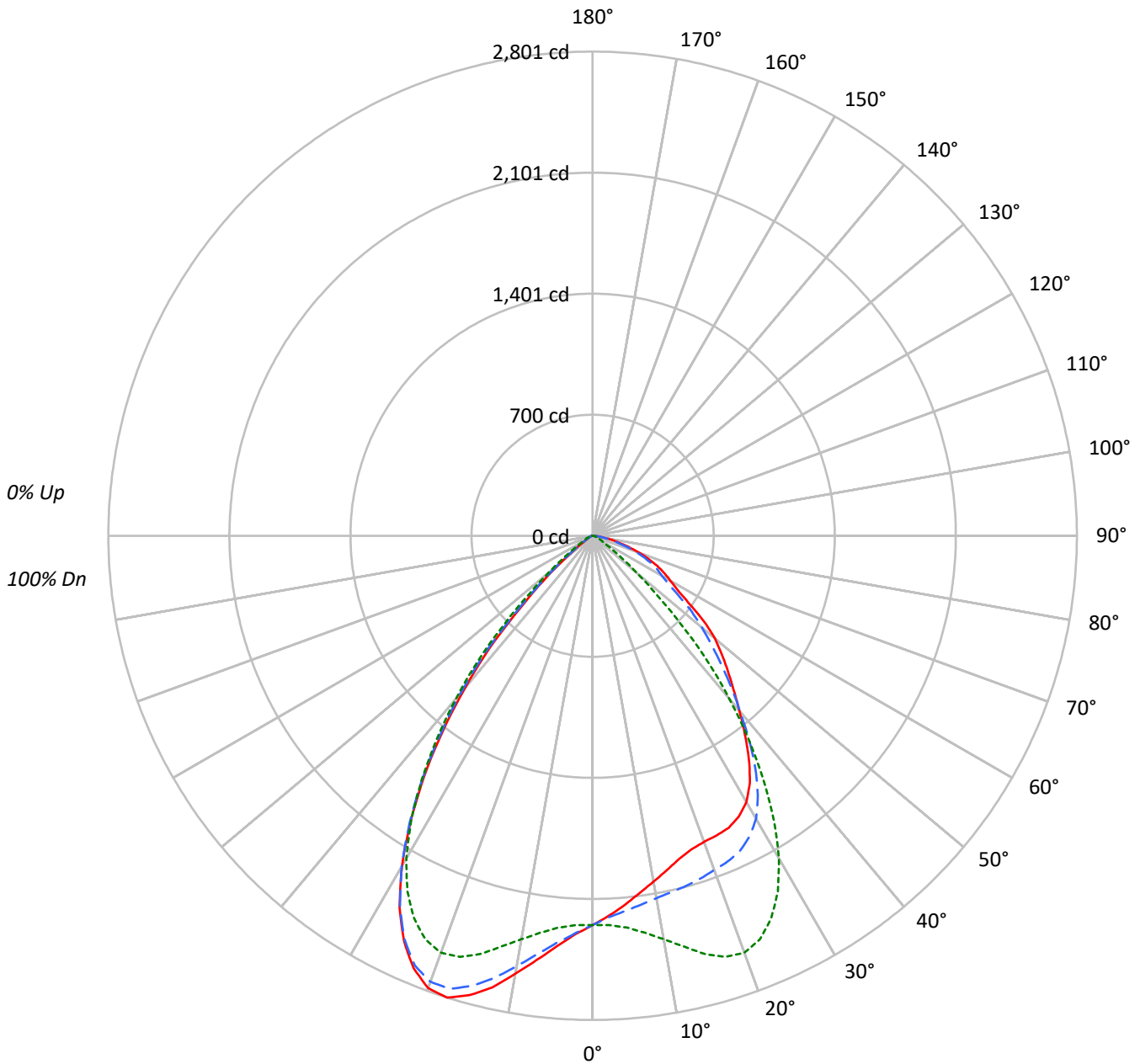
Lumens per Lamp: N/A  
Luminaire Lumens: 4155.0 lumens  
Efficiency: N/A  
Efficacy: 70.7 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.3 / 1.19  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 58.77  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage 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°	219437	219437	219437
5°	209631	222574	233218
10°	201001	234460	254529
15°	195143	252684	277595
20°	195416	266137	288695
25°	200399	262660	277833
30°	200121	242468	248094
35°	187444	204933	202137
40°	167908	156318	145848
45°	152326	99263	81428
50°	139943	50367	34766
55°	114878	22479	11486
60°	100830	12611	6296
65°	94894	9501	4750
70°	81239	7551	4189
75°	61980	5535	3314
80°	44562	3311	1628
85°	32875	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	218.7	5.3
10°-20°	681.6	16.4
20°-30°	1054.6	25.4
30°-40°	1039.1	25.0
40°-50°	638.0	15.4
50°-60°	283.7	6.8
60°-70°	158.5	3.8
70°-80°	68.6	1.7
80°-90°	12.3	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°	1954.9	47.0
0°-40°	2994.0	72.1
0°-60°	3915.7	94.2
0°-90°	4155.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4155.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2252	2252	2252	2252	2252	
5°	2143	2178	2275	2363	2384	201
15°	1934	2096	2504	2695	2751	549
25°	1864	2014	2443	2575	2584	855
35°	1576	1640	1722	1717	1699	978
45°	1105	1049	720	629	591	856
55°	676	611	132	76	68	621
65°	412	370	41	24	21	403
75°	165	141	15	9	9	181
85°	29	24	0	0	0	36
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°	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6
2.5°	2198.7	2198.7	2198.7	2198.7	2204.6	2195.7	2204.6	2204.6	2213.4	2216.3	2207.5
5°	2142.8	2139.9	2142.8	2142.8	2148.7	2145.8	2154.6	2160.5	2172.2	2178.1	2178.1
7.5°	2084.0	2084.0	2084.0	2089.9	2098.7	2095.8	2104.6	2113.4	2131.1	2142.8	2151.6
10°	2031.1	2028.2	2037.0	2039.9	2048.8	2048.8	2063.5	2072.3	2092.9	2116.4	2128.1
12.5°	1981.2	1978.2	1984.1	1992.9	2007.6	2007.6	2019.4	2034.1	2063.5	2089.9	2110.5
15°	1934.1	1937.1	1945.9	1951.8	1969.4	1969.4	1984.1	2001.7	2034.1	2066.4	2095.8
17.5°	1901.8	1904.7	1910.6	1919.4	1937.1	1937.1	1951.8	1972.3	2007.6	2042.9	2078.2
20°	1884.2	1887.1	1893.0	1901.8	1916.5	1919.4	1931.2	1954.7	1987.0	2025.3	2057.6
22.5°	1875.3	1881.2	1887.1	1893.0	1907.7	1907.7	1922.4	1940.0	1972.3	2010.6	2039.9
25°	1863.6	1869.5	1872.4	1881.2	1893.0	1893.0	1901.8	1922.4	1951.8	1984.1	2013.5
27.5°	1831.2	1837.1	1840.1	1848.9	1860.6	1857.7	1869.5	1884.2	1910.6	1940.0	1963.5
30°	1778.3	1781.3	1787.2	1790.1	1798.9	1798.9	1807.7	1822.4	1840.1	1866.5	1890.0
32.5°	1693.1	1699.0	1701.9	1704.9	1713.7	1710.7	1713.7	1722.5	1740.1	1763.6	1778.3
35°	1575.5	1587.3	1587.3	1593.2	1596.1	1593.2	1593.2	1604.9	1613.7	1631.4	1640.2
37.5°	1446.2	1455.0	1452.1	1457.9	1460.9	1452.1	1457.9	1460.9	1472.6	1481.5	1484.4
40°	1319.8	1322.7	1322.7	1322.7	1322.7	1319.8	1322.7	1325.7	1334.5	1334.5	1325.7
42.5°	1205.2	1208.1	1208.1	1202.2	1208.1	1205.2	1205.2	1205.2	1205.2	1193.4	1184.6
45°	1105.2	1108.2	1108.2	1105.2	1105.2	1099.3	1096.4	1093.5	1084.6	1069.9	1049.4
47.5°	1011.2	1017.0	1020.0	1014.1	1011.2	1005.3	1005.3	987.6	975.9	958.2	928.9
50°	923.0	928.9	928.9	923.0	923.0	914.2	905.3	899.5	881.8	861.2	826.0
52.5°	811.3	820.1	820.1	817.2	817.2	805.4	802.5	790.7	776.0	752.5	723.1
55°	676.1	687.8	684.9	681.9	676.1	676.1	676.1	667.2	658.4	640.8	611.4
57.5°	579.1	582.0	582.0	579.1	579.1	573.2	573.2	564.4	561.4	543.8	520.3
60°	517.3	517.3	520.3	517.3	514.4	511.5	508.5	502.6	493.8	482.1	464.4
62.5°	467.4	470.3	470.3	467.4	464.4	461.5	458.5	452.7	446.8	438.0	420.3
65°	411.5	417.4	414.5	411.5	408.6	405.6	405.6	399.8	393.9	388.0	370.4
67.5°	349.8	352.7	355.7	349.8	349.8	346.8	346.8	341.0	338.0	326.3	314.5
70°	285.1	288.1	288.1	285.1	285.1	282.2	282.2	279.2	276.3	267.5	255.7
72.5°	223.4	226.3	223.4	220.5	220.5	220.5	217.5	214.6	211.6	205.8	196.9
75°	164.6	164.6	167.5	164.6	161.7	161.7	158.7	158.7	152.8	149.9	141.1
77.5°	117.6	120.5	117.6	117.6	114.6	111.7	111.7	108.8	108.8	105.8	99.9
80°	79.4	79.4	82.3	79.4	76.4	79.4	76.4	73.5	73.5	70.5	64.7
82.5°	50.0	52.9	50.0	50.0	50.0	50.0	50.0	47.0	47.0	44.1	41.2
85°	29.4	29.4	29.4	29.4	29.4	29.4	29.4	26.5	26.5	26.5	23.5
87.5°	14.7	14.7	11.8	11.8	14.7	14.7	14.7	11.8	11.8	11.8	11.8
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°	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6
2.5°	2219.3	2222.2	2228.1	2236.9	2236.9	2231.0	2245.7	2245.7	2251.6	2254.5	2266.3
5°	2195.7	2201.6	2213.4	2228.1	2231.0	2228.1	2248.6	2257.5	2266.3	2275.1	2292.7
7.5°	2175.2	2186.9	2207.5	2228.1	2236.9	2236.9	2269.2	2281.0	2298.6	2316.3	2336.8
10°	2163.4	2181.0	2210.4	2242.8	2251.6	2260.4	2298.6	2322.1	2345.6	2369.2	2398.6
12.5°	2148.7	2181.0	2219.3	2260.4	2278.0	2289.8	2342.7	2372.1	2404.4	2433.8	2472.0
15°	2145.8	2184.0	2233.9	2286.9	2310.4	2328.0	2386.8	2427.9	2466.2	2504.4	2542.6
17.5°	2134.0	2181.0	2242.8	2301.6	2330.9	2354.5	2422.1	2472.0	2516.1	2554.3	2598.4
20°	2119.3	2172.2	2239.8	2304.5	2336.8	2360.3	2433.8	2480.9	2530.8	2566.1	2607.3
22.5°	2098.7	2151.6	2219.3	2283.9	2313.3	2333.9	2407.4	2448.5	2492.6	2527.9	2566.1
25°	2063.5	2113.4	2172.2	2225.1	2254.5	2272.2	2336.8	2375.0	2407.4	2442.6	2477.9
27.5°	2013.5	2051.7	2101.7	2139.9	2157.5	2175.2	2228.1	2260.4	2289.8	2319.2	2342.7
30°	1925.3	1954.7	1990.0	2022.3	2039.9	2042.9	2092.9	2110.5	2134.0	2154.6	2172.2
32.5°	1807.7	1831.2	1851.8	1869.5	1881.2	1884.2	1922.4	1928.3	1951.8	1951.8	1978.2
35°	1657.8	1669.6	1684.3	1684.3	1693.1	1684.3	1710.7	1716.6	1719.6	1722.5	1743.1
37.5°	1487.3	1493.2	1502.0	1484.4	1484.4	1475.6	1484.4	1490.3	1478.5	1478.5	1493.2
40°	1325.7	1313.9	1302.2	1284.5	1275.7	1258.1	1258.1	1243.4	1234.6	1228.7	1231.6
42.5°	1169.9	1143.4	1117.0	1078.8	1061.1	1043.5	1025.9	1005.3	999.4	984.7	975.9
45°	1020.0	981.8	946.5	884.8	849.5	831.9	793.6	752.5	726.0	720.2	696.6
47.5°	893.6	837.7	778.9	705.5	670.2	637.9	582.0	546.7	511.5	493.8	479.1
50°	781.9	731.9	655.5	576.1	532.0	499.7	438.0	396.8	358.6	332.2	314.5
52.5°	684.9	629.0	558.5	467.4	423.3	388.0	320.4	273.4	241.0	214.6	194.0
55°	576.1	532.0	461.5	376.2	332.2	291.0	232.2	182.2	149.9	132.3	117.6
57.5°	496.8	458.5	390.9	308.6	267.5	229.3	170.5	129.3	102.9	85.2	76.4
60°	443.9	408.6	349.8	270.4	232.2	196.9	141.1	102.9	79.4	64.7	58.8
62.5°	399.8	364.5	311.6	238.1	205.8	170.5	120.5	85.2	64.7	52.9	44.1
65°	349.8	317.5	270.4	205.8	176.4	147.0	102.9	70.5	52.9	41.2	35.3
67.5°	296.9	267.5	226.3	170.5	147.0	123.5	82.3	58.8	44.1	35.3	29.4
70°	241.0	217.5	179.3	138.2	117.6	97.0	67.6	47.0	32.3	26.5	23.5
72.5°	185.2	164.6	138.2	105.8	88.2	73.5	50.0	35.3	26.5	20.6	17.6
75°	132.3	117.6	97.0	76.4	64.7	52.9	38.2	26.5	17.6	14.7	11.8
77.5°	91.1	82.3	67.6	52.9	44.1	38.2	26.5	17.6	14.7	11.8	8.8
80°	58.8	52.9	44.1	32.3	26.5	23.5	14.7	11.8	8.8	5.9	5.9
82.5°	35.3	32.3	26.5	17.6	14.7	11.8	8.8	5.9	5.9	2.9	2.9
85°	20.6	17.6	11.8	8.8	8.8	5.9	5.9	2.9	2.9	0.0	0.0
87.5°	8.8	5.9	5.9	2.9	2.9	2.9	2.9	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°	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6
2.5°	2260.4	2275.1	2272.2	2281.0	2278.0	2278.0	2292.7	2286.9	2301.6	2301.6	2304.5
5°	2292.7	2313.3	2313.3	2328.0	2325.1	2330.9	2345.6	2345.6	2363.3	2369.2	2369.2
7.5°	2339.8	2366.2	2372.1	2386.8	2389.7	2401.5	2413.3	2416.2	2439.7	2445.6	2448.5
10°	2404.4	2436.8	2445.6	2460.3	2466.2	2477.9	2492.6	2498.5	2527.9	2530.8	2542.6
12.5°	2483.8	2519.1	2527.9	2545.5	2548.5	2563.2	2583.7	2589.6	2619.0	2627.8	2636.6
15°	2560.2	2592.6	2607.3	2624.9	2627.8	2645.5	2663.1	2669.0	2695.4	2707.2	2716.0
17.5°	2613.1	2651.3	2660.2	2683.7	2683.7	2698.4	2716.0	2721.9	2748.3	2757.2	2763.0
20°	2624.9	2660.2	2671.9	2689.6	2692.5	2701.3	2716.0	2721.9	2745.4	2748.3	2757.2
22.5°	2580.8	2616.1	2621.9	2639.6	2642.5	2651.3	2663.1	2660.2	2689.6	2686.6	2689.6
25°	2486.7	2519.1	2519.1	2539.6	2536.7	2545.5	2551.4	2548.5	2574.9	2574.9	2574.9
27.5°	2351.5	2380.9	2383.9	2398.6	2389.7	2392.7	2398.6	2395.6	2413.3	2413.3	2413.3
30°	2184.0	2207.5	2198.7	2210.4	2204.6	2210.4	2204.6	2201.6	2207.5	2213.4	2210.4
32.5°	1975.3	1992.9	1992.9	1995.9	1995.9	1978.2	1972.3	1972.3	1969.4	1966.5	1966.5
35°	1734.2	1748.9	1743.1	1743.1	1740.1	1722.5	1713.7	1707.8	1716.6	1699.0	1710.7
37.5°	1487.3	1490.3	1481.5	1478.5	1463.8	1463.8	1449.1	1437.4	1443.2	1440.3	1428.6
40°	1216.9	1228.7	1211.0	1205.2	1214.0	1202.2	1187.5	1172.8	1184.6	1169.9	1175.8
42.5°	952.4	949.4	943.5	943.5	943.5	925.9	923.0	920.0	923.0	911.2	902.4
45°	687.8	679.0	670.2	670.2	658.4	652.5	652.5	643.7	629.0	629.0	611.4
47.5°	464.4	443.9	438.0	435.0	429.2	429.2	423.3	417.4	414.5	399.8	399.8
50°	302.8	282.2	276.3	273.4	276.3	270.4	264.5	258.7	252.8	249.8	244.0
52.5°	182.2	173.4	167.5	164.6	158.7	155.8	152.8	147.0	144.0	144.0	141.1
55°	108.8	99.9	88.2	88.2	88.2	85.2	82.3	79.4	76.4	76.4	73.5
57.5°	67.6	61.7	55.8	52.9	52.9	52.9	50.0	50.0	50.0	50.0	47.0
60°	50.0	44.1	41.2	41.2	41.2	38.2	38.2	38.2	38.2	35.3	35.3
62.5°	38.2	35.3	32.3	32.3	29.4	29.4	29.4	29.4	29.4	29.4	26.5
65°	32.3	26.5	26.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
67.5°	23.5	20.6	20.6	20.6	20.6	17.6	17.6	17.6	17.6	17.6	17.6
70°	17.6	17.6	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
72.5°	14.7	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
75°	11.8	11.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
77.5°	8.8	8.8	8.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
80°	5.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
82.5°	2.9	2.9	2.9	2.9	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: P251577

CATALOG NUMBER: LD4B50D010TE EU4B30509035 4LBSW1LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6	2251.6
2.5°	2304.5	2319.2	2304.5	2304.5	2313.3	2310.4	2316.3	2307.4
5°	2372.1	2392.7	2378.0	2375.0	2389.7	2386.8	2389.7	2383.9
7.5°	2454.4	2475.0	2460.3	2460.3	2475.0	2472.0	2480.9	2475.0
10°	2548.5	2572.0	2551.4	2554.3	2574.9	2572.0	2572.0	2572.0
12.5°	2645.5	2669.0	2657.2	2657.2	2671.9	2674.9	2677.8	2674.9
15°	2724.8	2748.3	2733.6	2733.6	2754.2	2751.3	2754.2	2751.3
17.5°	2771.9	2795.4	2777.7	2777.7	2795.4	2795.4	2798.3	2801.3
20°	2760.1	2786.6	2771.9	2766.0	2786.6	2786.6	2783.6	2783.6
22.5°	2692.5	2716.0	2704.3	2698.4	2713.1	2707.2	2704.3	2707.2
25°	2574.9	2598.4	2574.9	2574.9	2586.7	2583.7	2586.7	2583.7
27.5°	2416.2	2433.8	2410.3	2407.4	2419.1	2413.3	2410.3	2419.1
30°	2204.6	2222.2	2210.4	2201.6	2216.3	2207.5	2201.6	2204.6
32.5°	1963.5	1975.3	1969.4	1954.7	1963.5	1957.6	1954.7	1957.6
35°	1699.0	1713.7	1690.2	1687.2	1701.9	1690.2	1684.3	1699.0
37.5°	1425.6	1443.2	1422.7	1425.6	1416.8	1419.7	1413.9	1422.7
40°	1166.9	1164.0	1158.1	1155.2	1158.1	1149.3	1155.2	1146.4
42.5°	887.7	893.6	890.6	887.7	890.6	878.9	873.0	884.8
45°	617.3	614.3	608.5	602.6	602.6	599.6	599.6	590.8
47.5°	396.8	393.9	382.1	385.1	390.9	385.1	376.2	388.0
50°	241.0	238.1	238.1	235.2	241.0	235.2	229.3	229.3
52.5°	135.2	135.2	132.3	132.3	132.3	132.3	129.3	126.4
55°	73.5	70.5	70.5	70.5	67.6	67.6	67.6	67.6
57.5°	47.0	47.0	47.0	47.0	47.0	47.0	44.1	44.1
60°	35.3	35.3	35.3	35.3	32.3	35.3	32.3	32.3
62.5°	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
65°	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6
67.5°	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
70°	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
72.5°	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8
75°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
77.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
80°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
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)