

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: P251580

Luminaire Tested: **LD4B50D010TE EU4B30509727 4LBSW1LI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251580  
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 EU4B30509727 4LBSW1LI  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 97CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3426.0 lumens  
Efficiency: N/A  
Efficacy: 58.3 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

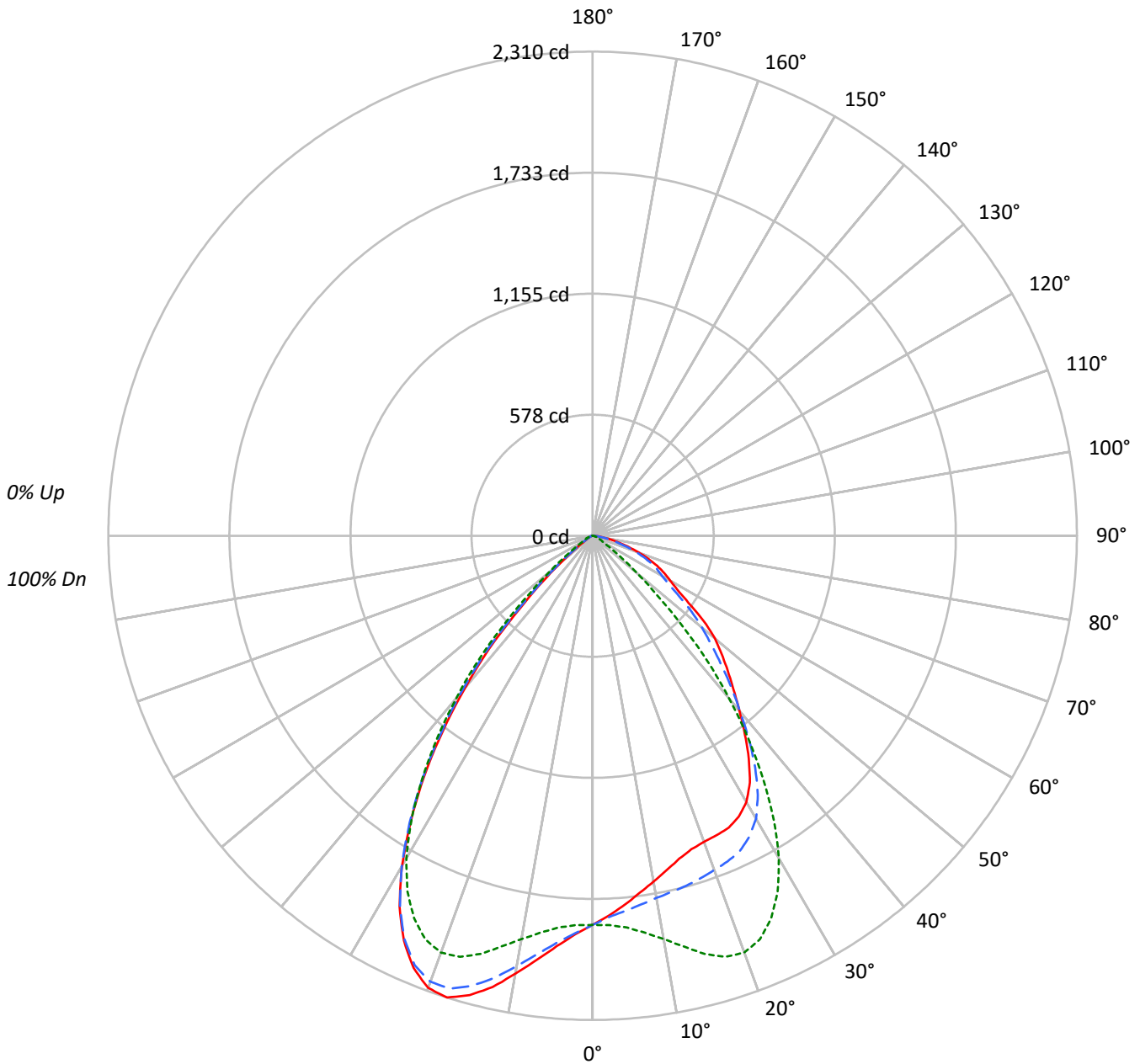
Input Watts (W): 58.77  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

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

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

	0°	90°	180°
0°	180931	180931	180931
5°	172856	183520	192295
10°	165741	193321	209868
15°	160909	208350	228893
20°	161128	219446	238041
25°	165235	216582	229088
30°	165010	199929	204566
35°	154560	168979	166671
40°	138444	128889	120251
45°	125601	81841	67149
50°	115381	41528	28656
55°	94709	18538	9464
60°	83151	10389	5204
65°	78244	7818	3920
70°	66991	6212	3448
75°	51098	4556	2749
80°	36705	2694	1347
85°	27061	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	180.3	5.3
10°-20°	562.0	16.4
20°-30°	869.6	25.4
30°-40°	856.8	25.0
40°-50°	526.1	15.4
50°-60°	233.9	6.8
60°-70°	130.7	3.8
70°-80°	56.5	1.7
80°-90°	10.1	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°	1611.9	47.1
0°-40°	2468.7	72.1
0°-60°	3228.7	94.2
0°-90°	3426.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3426.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1856	1856	1856	1856	1856	
5°	1767	1796	1876	1949	1966	166
15°	1595	1728	2065	2222	2269	452
25°	1537	1660	2014	2123	2130	705
35°	1299	1352	1420	1415	1401	806
45°	911	865	594	519	487	706
55°	557	504	109	63	56	512
65°	339	305	34	19	17	332
75°	136	116	12	7	7	149
85°	24	19	0	0	0	30
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°	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5
2.5°	1812.9	1812.9	1812.9	1812.9	1817.8	1810.5	1817.8	1817.8	1825.0	1827.5	1820.2
5°	1766.9	1764.4	1766.9	1766.9	1771.7	1769.3	1776.6	1781.4	1791.1	1795.9	1795.9
7.5°	1718.4	1718.4	1718.4	1723.2	1730.5	1728.1	1735.4	1742.6	1757.2	1766.9	1774.1
10°	1674.8	1672.3	1679.6	1682.0	1689.3	1689.3	1701.4	1708.7	1725.7	1745.1	1754.7
12.5°	1633.6	1631.1	1636.0	1643.3	1655.4	1655.4	1665.1	1677.2	1701.4	1723.2	1740.2
15°	1594.8	1597.2	1604.5	1609.3	1623.9	1623.9	1636.0	1650.5	1677.2	1703.8	1728.1
17.5°	1568.1	1570.5	1575.4	1582.7	1597.2	1597.2	1609.3	1626.3	1655.4	1684.5	1713.5
20°	1553.6	1556.0	1560.9	1568.1	1580.2	1582.7	1592.4	1611.7	1638.4	1669.9	1696.6
22.5°	1546.3	1551.2	1556.0	1560.9	1573.0	1573.0	1585.1	1599.6	1626.3	1657.8	1682.0
25°	1536.6	1541.5	1543.9	1551.2	1560.9	1560.9	1568.1	1585.1	1609.3	1636.0	1660.2
27.5°	1510.0	1514.8	1517.2	1524.5	1534.2	1531.8	1541.5	1553.6	1575.4	1599.6	1619.0
30°	1466.3	1468.8	1473.6	1476.0	1483.3	1483.3	1490.6	1502.7	1517.2	1539.0	1558.4
32.5°	1396.0	1400.9	1403.3	1405.7	1413.0	1410.6	1413.0	1420.3	1434.8	1454.2	1466.3
35°	1299.1	1308.8	1308.8	1313.6	1316.1	1313.6	1313.6	1323.3	1330.6	1345.1	1352.4
37.5°	1192.5	1199.7	1197.3	1202.1	1204.6	1197.3	1202.1	1204.6	1214.3	1221.5	1224.0
40°	1088.2	1090.7	1090.7	1090.7	1090.7	1088.2	1090.7	1093.1	1100.4	1100.4	1093.1
42.5°	993.7	996.1	996.1	991.3	996.1	993.7	993.7	993.7	993.7	984.0	976.7
45°	911.3	913.7	913.7	911.3	911.3	906.5	904.0	901.6	894.3	882.2	865.3
47.5°	833.7	838.6	841.0	836.2	833.7	828.9	828.9	814.4	804.7	790.1	765.9
50°	761.0	765.9	765.9	761.0	761.0	753.8	746.5	741.6	727.1	710.1	681.1
52.5°	668.9	676.2	676.2	673.8	673.8	664.1	661.7	652.0	639.9	620.5	596.2
55°	557.4	567.1	564.7	562.3	557.4	557.4	557.4	550.2	542.9	528.4	504.1
57.5°	477.5	479.9	479.9	477.5	477.5	472.6	472.6	465.3	462.9	448.4	429.0
60°	426.6	426.6	429.0	426.6	424.1	421.7	419.3	414.4	407.2	397.5	382.9
62.5°	385.4	387.8	387.8	385.4	382.9	380.5	378.1	373.2	368.4	361.1	346.6
65°	339.3	344.2	341.7	339.3	336.9	334.5	334.5	329.6	324.8	319.9	305.4
67.5°	288.4	290.8	293.3	288.4	288.4	286.0	286.0	281.1	278.7	269.0	259.3
70°	235.1	237.5	237.5	235.1	235.1	232.7	232.7	230.2	227.8	220.6	210.9
72.5°	184.2	186.6	184.2	181.8	181.8	181.8	179.4	176.9	174.5	169.7	162.4
75°	135.7	135.7	138.1	135.7	133.3	133.3	130.9	130.9	126.0	123.6	116.3
77.5°	96.9	99.4	96.9	96.9	94.5	92.1	92.1	89.7	89.7	87.3	82.4
80°	65.4	65.4	67.9	65.4	63.0	65.4	63.0	60.6	60.6	58.2	53.3
82.5°	41.2	43.6	41.2	41.2	41.2	41.2	41.2	38.8	38.8	36.4	33.9
85°	24.2	24.2	24.2	24.2	24.2	24.2	24.2	21.8	21.8	21.8	19.4
87.5°	12.1	12.1	9.7	9.7	12.1	12.1	12.1	9.7	9.7	9.7	9.7
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°	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5
2.5°	1829.9	1832.3	1837.2	1844.4	1844.4	1839.6	1851.7	1851.7	1856.5	1859.0	1868.7
5°	1810.5	1815.3	1825.0	1837.2	1839.6	1837.2	1854.1	1861.4	1868.7	1875.9	1890.5
7.5°	1793.5	1803.2	1820.2	1837.2	1844.4	1844.4	1871.1	1880.8	1895.3	1909.9	1926.8
10°	1783.8	1798.4	1822.6	1849.3	1856.5	1863.8	1895.3	1914.7	1934.1	1953.5	1977.7
12.5°	1771.7	1798.4	1829.9	1863.8	1878.4	1888.0	1931.7	1955.9	1982.6	2006.8	2038.3
15°	1769.3	1800.8	1842.0	1885.6	1905.0	1919.6	1968.0	2002.0	2033.5	2065.0	2096.5
17.5°	1759.6	1798.4	1849.3	1897.7	1922.0	1941.4	1997.1	2038.3	2074.7	2106.2	2142.5
20°	1747.5	1791.1	1846.8	1900.2	1926.8	1946.2	2006.8	2045.6	2086.8	2115.9	2149.8
22.5°	1730.5	1774.1	1829.9	1883.2	1907.4	1924.4	1985.0	2018.9	2055.3	2084.4	2115.9
25°	1701.4	1742.6	1791.1	1834.7	1859.0	1873.5	1926.8	1958.3	1985.0	2014.1	2043.2
27.5°	1660.2	1691.7	1732.9	1764.4	1779.0	1793.5	1837.2	1863.8	1888.0	1912.3	1931.7
30°	1587.5	1611.7	1640.8	1667.5	1682.0	1684.5	1725.7	1740.2	1759.6	1776.6	1791.1
32.5°	1490.6	1510.0	1526.9	1541.5	1551.2	1553.6	1585.1	1589.9	1609.3	1609.3	1631.1
35°	1367.0	1376.7	1388.8	1388.8	1396.0	1388.8	1410.6	1415.4	1417.9	1420.3	1437.2
37.5°	1226.4	1231.2	1238.5	1224.0	1224.0	1216.7	1224.0	1228.8	1219.1	1219.1	1231.2
40°	1093.1	1083.4	1073.7	1059.1	1051.9	1037.3	1037.3	1025.2	1017.9	1013.1	1015.5
42.5°	964.6	942.8	921.0	889.5	874.9	860.4	845.9	828.9	824.1	811.9	804.7
45°	841.0	809.5	780.4	729.5	700.4	685.9	654.4	620.5	598.6	593.8	574.4
47.5°	736.8	690.7	642.3	581.7	552.6	525.9	479.9	450.8	421.7	407.2	395.1
50°	644.7	603.5	540.5	475.0	438.7	412.0	361.1	327.2	295.7	273.9	259.3
52.5°	564.7	518.7	460.5	385.4	349.0	319.9	264.2	225.4	198.7	176.9	160.0
55°	475.0	438.7	380.5	310.2	273.9	239.9	191.5	150.3	123.6	109.1	96.9
57.5°	409.6	378.1	322.3	254.5	220.6	189.0	140.6	106.6	84.8	70.3	63.0
60°	366.0	336.9	288.4	223.0	191.5	162.4	116.3	84.8	65.4	53.3	48.5
62.5°	329.6	300.5	256.9	196.3	169.7	140.6	99.4	70.3	53.3	43.6	36.4
65°	288.4	261.8	223.0	169.7	145.4	121.2	84.8	58.2	43.6	33.9	29.1
67.5°	244.8	220.6	186.6	140.6	121.2	101.8	67.9	48.5	36.4	29.1	24.2
70°	198.7	179.4	147.8	113.9	96.9	80.0	55.7	38.8	26.7	21.8	19.4
72.5°	152.7	135.7	113.9	87.3	72.7	60.6	41.2	29.1	21.8	17.0	14.5
75°	109.1	96.9	80.0	63.0	53.3	43.6	31.5	21.8	14.5	12.1	9.7
77.5°	75.1	67.9	55.7	43.6	36.4	31.5	21.8	14.5	12.1	9.7	7.3
80°	48.5	43.6	36.4	26.7	21.8	19.4	12.1	9.7	7.3	4.8	4.8
82.5°	29.1	26.7	21.8	14.5	12.1	9.7	7.3	4.8	4.8	2.4	2.4
85°	17.0	14.5	9.7	7.3	7.3	4.8	4.8	2.4	2.4	0.0	0.0
87.5°	7.3	4.8	4.8	2.4	2.4	2.4	2.4	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°	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5
2.5°	1863.8	1875.9	1873.5	1880.8	1878.4	1878.4	1890.5	1885.6	1897.7	1897.7	1900.2
5°	1890.5	1907.4	1907.4	1919.6	1917.1	1922.0	1934.1	1934.1	1948.6	1953.5	1953.5
7.5°	1929.3	1951.1	1955.9	1968.0	1970.5	1980.1	1989.8	1992.3	2011.7	2016.5	2018.9
10°	1982.6	2009.2	2016.5	2028.6	2033.5	2043.2	2055.3	2060.1	2084.4	2086.8	2096.5
12.5°	2048.0	2077.1	2084.4	2098.9	2101.3	2113.5	2130.4	2135.3	2159.5	2166.8	2174.0
15°	2111.0	2137.7	2149.8	2164.3	2166.8	2181.3	2195.9	2200.7	2222.5	2232.2	2239.5
17.5°	2154.7	2186.2	2193.4	2212.8	2212.8	2224.9	2239.5	2244.3	2266.1	2273.4	2278.3
20°	2164.3	2193.4	2203.1	2217.7	2220.1	2227.4	2239.5	2244.3	2263.7	2266.1	2273.4
22.5°	2128.0	2157.1	2161.9	2176.5	2178.9	2186.2	2195.9	2193.4	2217.7	2215.2	2217.7
25°	2050.4	2077.1	2077.1	2094.1	2091.6	2098.9	2103.8	2101.3	2123.1	2123.1	2123.1
27.5°	1938.9	1963.2	1965.6	1977.7	1970.5	1972.9	1977.7	1975.3	1989.8	1989.8	1989.8
30°	1800.8	1820.2	1812.9	1822.6	1817.8	1822.6	1817.8	1815.3	1820.2	1825.0	1822.6
32.5°	1628.7	1643.3	1643.3	1645.7	1645.7	1631.1	1626.3	1626.3	1623.9	1621.4	1621.4
35°	1430.0	1442.1	1437.2	1437.2	1434.8	1420.3	1413.0	1408.2	1415.4	1400.9	1410.6
37.5°	1226.4	1228.8	1221.5	1219.1	1207.0	1207.0	1194.9	1185.2	1190.0	1187.6	1177.9
40°	1003.4	1013.1	998.6	993.7	1001.0	991.3	979.2	967.0	976.7	964.6	969.5
42.5°	785.3	782.8	778.0	778.0	778.0	763.5	761.0	758.6	761.0	751.3	744.1
45°	567.1	559.9	552.6	552.6	542.9	538.1	538.1	530.8	518.7	518.7	504.1
47.5°	382.9	366.0	361.1	358.7	353.9	353.9	349.0	344.2	341.7	329.6	329.6
50°	249.6	232.7	227.8	225.4	227.8	223.0	218.1	213.3	208.4	206.0	201.2
52.5°	150.3	143.0	138.1	135.7	130.9	128.5	126.0	121.2	118.8	118.8	116.3
55°	89.7	82.4	72.7	72.7	72.7	70.3	67.9	65.4	63.0	63.0	60.6
57.5°	55.7	50.9	46.0	43.6	43.6	43.6	41.2	41.2	41.2	41.2	38.8
60°	41.2	36.4	33.9	33.9	33.9	31.5	31.5	31.5	31.5	29.1	29.1
62.5°	31.5	29.1	26.7	26.7	24.2	24.2	24.2	24.2	24.2	24.2	21.8
65°	26.7	21.8	21.8	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4
67.5°	19.4	17.0	17.0	17.0	17.0	14.5	14.5	14.5	14.5	14.5	14.5
70°	14.5	14.5	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
72.5°	12.1	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
75°	9.7	9.7	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
77.5°	7.3	7.3	7.3	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	4.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	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: P251580

CATALOG NUMBER: LD4B50D010TE EU4B30509727 4LBSW1LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5	1856.5
2.5°	1900.2	1912.3	1900.2	1900.2	1907.4	1905.0	1909.9	1902.6
5°	1955.9	1972.9	1960.8	1958.3	1970.5	1968.0	1970.5	1965.6
7.5°	2023.8	2040.7	2028.6	2028.6	2040.7	2038.3	2045.6	2040.7
10°	2101.3	2120.7	2103.8	2106.2	2123.1	2120.7	2120.7	2120.7
12.5°	2181.3	2200.7	2191.0	2191.0	2203.1	2205.6	2208.0	2205.6
15°	2246.8	2266.1	2254.0	2254.0	2271.0	2268.6	2271.0	2268.6
17.5°	2285.5	2304.9	2290.4	2290.4	2304.9	2304.9	2307.3	2309.8
20°	2275.8	2297.7	2285.5	2280.7	2297.7	2297.7	2295.2	2295.2
22.5°	2220.1	2239.5	2229.8	2224.9	2237.1	2232.2	2229.8	2232.2
25°	2123.1	2142.5	2123.1	2123.1	2132.8	2130.4	2132.8	2130.4
27.5°	1992.3	2006.8	1987.4	1985.0	1994.7	1989.8	1987.4	1994.7
30°	1817.8	1832.3	1822.6	1815.3	1827.5	1820.2	1815.3	1817.8
32.5°	1619.0	1628.7	1623.9	1611.7	1619.0	1614.2	1611.7	1614.2
35°	1400.9	1413.0	1393.6	1391.2	1403.3	1393.6	1388.8	1400.9
37.5°	1175.5	1190.0	1173.1	1175.5	1168.2	1170.6	1165.8	1173.1
40°	962.2	959.8	954.9	952.5	954.9	947.7	952.5	945.2
42.5°	732.0	736.8	734.4	732.0	734.4	724.7	719.8	729.5
45°	509.0	506.5	501.7	496.9	496.9	494.4	494.4	487.2
47.5°	327.2	324.8	315.1	317.5	322.3	317.5	310.2	319.9
50°	198.7	196.3	196.3	193.9	198.7	193.9	189.0	189.0
52.5°	111.5	111.5	109.1	109.1	109.1	109.1	106.6	104.2
55°	60.6	58.2	58.2	58.2	55.7	55.7	55.7	55.7
57.5°	38.8	38.8	38.8	38.8	38.8	38.8	36.4	36.4
60°	29.1	29.1	29.1	29.1	26.7	29.1	26.7	26.7
62.5°	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8
65°	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
67.5°	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
70°	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
72.5°	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
75°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
77.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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)