

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: PORTFOLIO

Report Number: P879441

Luminaire Tested: **LD4C50D010 EU4509030 4LBLDWWLI**

Issue Date: 10/1/2024

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



**Test Information**

Test Method: LM-79-08  
Report Number: P879441  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2107-320-5)  
Test Lab: INNOVATION CENTER  
Issue Date: 10/1/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: PORTFOLIO  
Catalog Number: LD4C50D010 EU4509030 4LBLDWWLI  
Description: 4 INCH 5000 LUMEN PORTFOLIO LED DOWNLIGHT WITH, 3000K, 90CRI LEDS  
AND 4LBLDWW TRIM WITH LI FINISH  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

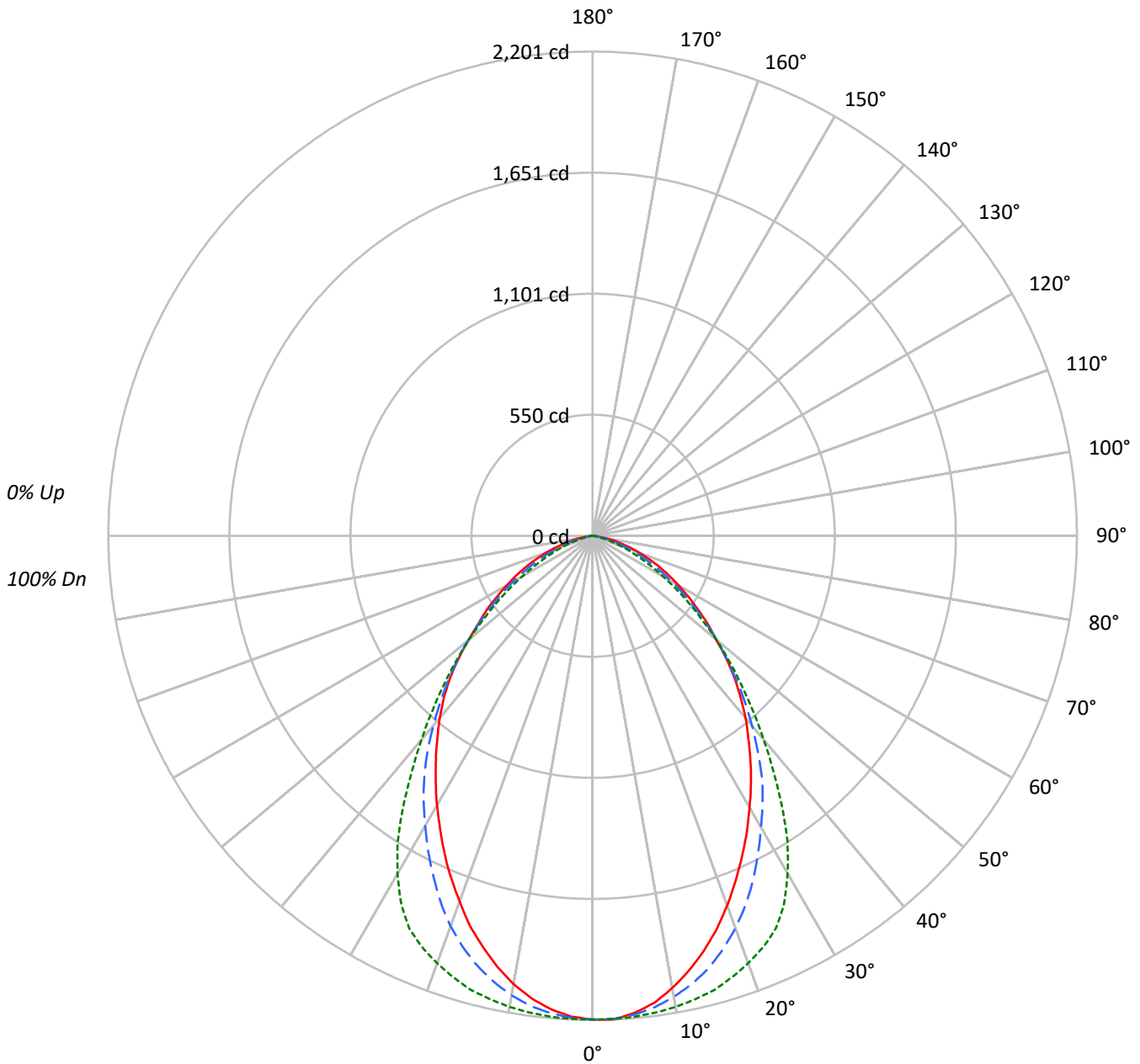
Lumens per Lamp: N/A  
Luminaire Lumens: 4039.0 lumens  
Efficiency: N/A  
Efficacy: 69.2 lumens/watt  
Spacing Criteria (0/90/45): 1 / 1.19 / 1.15  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

Input Watts (W): 58.4  
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: P879441

CATALOG NUMBER: LD4C50D010 EU4509030 4LBLDWWLI

### Luminous Intensity Polar Plot





TEST NUMBER: P879441

CATALOG NUMBER: LD4C50D010 EU4509030 4LBLDWWLI

**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			
1	111	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88			
2	103	96	90	85	100	94	89	84	91	86	83	87	84	81	85	82	79	77			
3	95	86	79	74	93	84	78	73	82	76	72	79	74	70	77	73	69	67			
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59			
5	82	70	62	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53			
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49	47			
7	71	59	51	45	69	58	50	45	56	50	45	55	49	45	54	48	44	42			
8	66	54	46	41	65	53	46	41	52	45	41	51	45	40	50	44	40	38			
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35			
10	59	46	39	34	57	46	39	34	45	39	34	44	38	34	43	38	34	32			

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

	0°	90°	180°
0°	270179	270179	270179
5°	268572	270607	266550
10°	260400	271266	258142
15°	248435	271863	245713
20°	233759	270314	231184
25°	217727	267122	215951
30°	202305	251544	200674
35°	187605	224980	186256
40°	173444	194020	173316
45°	158035	165610	159321
50°	139579	140057	140363
55°	125065	114505	125600
60°	110544	90936	110740
65°	97296	69331	96337
70°	80640	49641	80640
75°	62846	28480	60520
80°	40751	7004	38982
85°	15083	2255	11559



TEST NUMBER: P879441

CATALOG NUMBER: LD4C50D010 EU4509030 4LBLDWWLI

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	206.4	5.1
10°-20°	571.2	14.1
20°-30°	798.4	19.8
30°-40°	842.2	20.9
40°-50°	716.5	17.7
50°-60°	505.6	12.5
60°-70°	286.6	7.1
70°-80°	102.2	2.5
80°-90°	9.8	0.2
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°	1576.0	39.0
0°-40°	2418.3	59.9
0°-60°	3640.4	90.1
0°-90°	4039.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4039.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2199	2199	2199	2199	2199	
5°	2178	2185	2194	2179	2161	205
15°	1953	2036	2138	2024	1932	548
25°	1606	1726	1971	1711	1593	739
35°	1251	1341	1500	1334	1242	782
45°	910	923	953	927	917	699
55°	584	564	535	566	586	524
65°	335	287	238	288	331	331
75°	132	90	60	89	128	143
85°	11	4	2	4	8	19
90°	0	0	0	0	0	



TEST NUMBER: P879441

CATALOG NUMBER: LD4C50D010 EU4509030 4LBDWWLI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2
2.5°	2200.9	2196.7	2196.7	2196.7	2196.7	2196.7	2196.7	2196.7	2196.7	2197.6	2197.6
5°	2177.8	2176.2	2175.4	2175.4	2175.4	2175.4	2176.2	2179.5	2181.1	2183.6	2185.2
7.5°	2141.6	2138.4	2140.0	2140.0	2141.6	2143.3	2145.8	2149.0	2154.0	2157.3	2161.4
10°	2087.4	2084.1	2088.2	2089.8	2094.8	2097.2	2101.3	2106.3	2116.1	2121.1	2127.7
12.5°	2024.0	2022.4	2024.0	2030.6	2035.5	2038.8	2043.8	2054.5	2064.3	2075.0	2086.5
15°	1953.3	1949.2	1951.7	1959.9	1968.1	1973.9	1978.0	1992.0	2005.1	2021.6	2035.5
17.5°	1874.3	1868.6	1875.2	1881.7	1892.4	1897.4	1903.1	1918.8	1936.9	1954.9	1970.6
20°	1788.0	1786.3	1790.5	1799.5	1810.2	1816.8	1821.7	1839.0	1854.6	1879.3	1897.4
22.5°	1698.3	1700.0	1703.3	1713.1	1720.5	1729.6	1737.0	1752.6	1770.7	1793.7	1816.8
25°	1606.2	1608.7	1614.5	1621.0	1633.4	1638.3	1647.4	1663.8	1679.4	1700.8	1726.3
27.5°	1517.4	1518.2	1524.8	1528.1	1539.6	1550.3	1554.4	1571.7	1589.8	1606.2	1628.4
30°	1426.1	1428.6	1432.7	1441.7	1453.3	1457.4	1462.3	1477.9	1491.9	1512.5	1529.7
32.5°	1338.9	1337.3	1342.2	1347.2	1360.3	1367.7	1370.2	1388.3	1400.6	1421.2	1437.6
35°	1250.9	1246.8	1254.2	1259.2	1270.7	1277.3	1280.5	1294.5	1306.0	1323.3	1341.4
37.5°	1162.9	1166.2	1169.5	1173.6	1179.4	1181.0	1190.9	1194.2	1209.0	1222.1	1232.0
40°	1081.5	1079.9	1078.2	1082.3	1089.7	1093.0	1093.8	1102.9	1106.2	1119.3	1126.7
42.5°	994.3	995.2	994.3	995.2	999.3	999.3	1001.7	1007.5	1010.0	1014.1	1023.1
45°	909.6	909.6	907.2	908.0	908.8	908.0	908.8	911.3	916.2	916.2	922.8
47.5°	821.6	820.0	823.3	820.8	819.2	818.3	820.8	818.3	823.3	823.3	824.9
50°	730.3	730.3	734.4	733.6	735.3	732.0	732.8	732.8	733.6	732.8	736.1
52.5°	659.6	658.0	656.3	652.2	653.8	650.6	650.6	651.4	648.9	648.1	644.0
55°	583.9	585.6	583.1	581.5	581.5	578.2	577.4	572.4	569.1	566.7	564.2
57.5°	515.7	517.3	516.5	512.4	507.4	508.3	506.6	501.7	494.3	489.4	485.2
60°	449.9	451.5	449.9	445.8	444.1	440.8	440.0	433.4	427.7	421.1	416.2
62.5°	390.7	390.7	389.8	384.1	380.0	380.8	376.7	371.7	364.3	355.3	347.9
65°	334.7	333.9	329.8	327.3	324.0	319.9	317.5	310.1	304.3	296.9	287.0
67.5°	278.8	276.3	274.7	272.2	264.8	264.0	260.7	254.1	245.9	240.2	231.9
70°	224.5	223.7	220.4	220.4	214.7	212.2	207.3	201.5	194.1	185.9	179.3
72.5°	177.6	176.0	172.7	169.4	164.5	162.8	158.7	153.0	146.4	138.2	129.9
75°	132.4	130.8	129.9	125.8	121.7	117.6	116.0	110.2	103.6	97.9	90.5
77.5°	92.9	91.3	88.8	86.4	83.9	81.4	79.0	74.0	68.3	63.3	56.7
80°	57.6	55.9	54.3	53.5	51.0	50.2	46.9	44.4	39.5	36.2	32.1
82.5°	29.6	29.6	28.0	27.1	25.5	24.7	23.9	21.4	18.9	16.4	14.0
85°	10.7	10.7	9.9	9.0	9.0	8.2	8.2	7.4	5.8	5.8	4.1
87.5°	0.8	0.8	1.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	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: P879441

CATALOG NUMBER: LD4C50D010 EU4509030 4LBLDWWLI

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2
2.5°	2198.4	2197.6	2198.4	2198.4	2199.2	2199.2	2199.2	2198.4	2199.2	2198.4	2198.4
5°	2185.2	2187.7	2189.3	2191.0	2191.8	2192.6	2192.6	2193.5	2194.3	2194.3	2193.5
7.5°	2164.7	2169.6	2174.5	2177.8	2179.5	2181.1	2183.6	2185.2	2186.9	2186.1	2185.2
10°	2137.5	2145.8	2152.3	2158.9	2162.2	2164.7	2168.8	2172.1	2173.7	2174.5	2172.1
12.5°	2098.9	2110.4	2121.1	2131.8	2136.7	2140.0	2148.2	2154.0	2157.3	2157.3	2154.8
15°	2050.3	2066.8	2082.4	2096.4	2104.6	2109.6	2121.9	2130.1	2135.1	2137.5	2133.4
17.5°	1992.0	2010.9	2029.8	2047.9	2056.1	2063.5	2080.8	2092.3	2103.0	2104.6	2099.7
20°	1917.1	1941.0	1962.3	1984.6	1993.6	2005.1	2024.9	2043.8	2060.2	2067.6	2053.6
22.5°	1833.2	1859.5	1879.3	1906.4	1918.8	1931.1	1956.6	1980.4	2009.2	2024.9	2000.2
25°	1746.0	1768.3	1792.1	1818.4	1835.7	1848.9	1878.5	1908.9	1947.5	1970.6	1936.0
27.5°	1652.3	1672.0	1700.8	1729.6	1742.8	1759.2	1794.6	1827.5	1864.5	1885.0	1859.5
30°	1555.2	1579.9	1607.1	1633.4	1652.3	1667.9	1696.7	1724.7	1755.9	1773.2	1754.3
32.5°	1459.0	1482.9	1505.9	1534.7	1545.4	1559.4	1584.8	1608.7	1632.5	1648.2	1626.0
35°	1357.9	1379.2	1400.6	1420.4	1425.3	1441.7	1462.3	1476.3	1487.8	1500.1	1485.3
37.5°	1247.6	1264.1	1274.8	1296.2	1304.4	1306.9	1323.3	1333.2	1345.5	1348.0	1347.2
40°	1135.8	1150.6	1159.6	1172.8	1179.4	1179.4	1190.9	1199.9	1209.0	1209.8	1209.0
42.5°	1031.3	1038.7	1046.1	1054.4	1052.7	1062.6	1067.5	1071.6	1078.2	1078.2	1079.9
45°	926.1	931.8	938.4	940.1	946.6	946.6	950.7	952.4	955.7	953.2	949.9
47.5°	828.2	830.7	831.5	838.9	840.5	834.8	839.7	840.5	839.7	839.7	838.1
50°	735.3	736.9	736.1	733.6	734.4	736.9	734.4	731.2	732.8	732.8	734.4
52.5°	644.8	641.5	639.9	639.9	636.6	636.6	632.5	630.8	630.0	626.7	630.8
55°	561.7	556.8	549.4	547.7	545.3	544.5	539.5	535.4	533.8	534.6	533.8
57.5°	482.0	474.5	469.6	468.0	465.5	460.6	454.8	450.7	449.9	448.2	448.2
60°	409.6	401.4	393.9	386.5	387.4	384.1	378.3	375.9	373.4	370.1	372.6
62.5°	343.8	334.7	326.5	319.1	314.2	311.7	307.6	303.5	301.0	298.5	301.8
65°	278.8	271.4	262.4	255.0	252.5	250.0	245.9	239.3	238.5	238.5	240.2
67.5°	220.4	212.2	204.0	199.0	195.7	192.5	190.8	187.5	185.0	183.4	184.2
70°	169.4	161.2	154.6	149.7	147.2	146.4	140.6	139.8	139.0	138.2	137.3
72.5°	123.4	116.8	111.0	107.7	104.5	102.0	100.3	97.9	97.0	97.0	97.0
75°	84.7	79.8	73.2	69.1	67.4	65.0	62.5	60.9	59.2	60.0	60.0
77.5°	51.0	46.1	41.9	38.7	37.8	35.4	32.9	31.3	28.8	28.8	29.6
80°	28.0	23.9	20.6	18.1	16.4	15.6	13.2	12.3	10.7	9.9	9.9
82.5°	12.3	9.9	8.2	7.4	6.6	5.8	4.9	4.1	4.1	3.3	4.1
85°	4.1	3.3	2.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
87.5°	0.8	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: P879441

CATALOG NUMBER: LD4C50D010 EU4509030 4LBDWWLI

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2
2.5°	2197.6	2197.6	2196.7	2196.7	2196.7	2195.1	2195.1	2194.3	2193.5	2192.6	2191.0
5°	2191.8	2191.0	2189.3	2188.5	2187.7	2185.2	2182.8	2181.1	2178.7	2175.4	2173.7
7.5°	2183.6	2181.1	2177.8	2176.2	2173.7	2168.0	2163.8	2159.7	2155.6	2149.9	2143.3
10°	2169.6	2164.7	2159.7	2156.4	2152.3	2144.9	2136.7	2130.1	2121.1	2112.9	2103.8
12.5°	2149.9	2144.1	2134.2	2129.3	2124.4	2113.7	2103.0	2089.0	2076.7	2065.2	2054.5
15°	2125.2	2114.5	2103.0	2096.4	2089.0	2071.7	2055.3	2040.5	2024.0	2010.0	1992.8
17.5°	2089.0	2073.4	2056.9	2049.5	2039.7	2019.9	2000.2	1979.6	1960.7	1943.4	1922.0
20°	2034.7	2017.5	1996.1	1984.6	1976.3	1950.0	1931.1	1908.1	1888.3	1866.9	1843.1
22.5°	1971.4	1947.5	1923.7	1907.2	1898.2	1871.9	1846.4	1825.8	1804.4	1779.8	1762.5
25°	1899.8	1870.2	1841.4	1825.0	1811.0	1783.1	1758.4	1737.0	1710.7	1689.3	1672.0
27.5°	1819.2	1785.5	1751.8	1735.4	1722.2	1691.8	1665.4	1643.2	1617.7	1598.8	1580.7
30°	1723.0	1692.6	1660.5	1647.4	1631.7	1600.5	1570.0	1550.3	1522.3	1502.6	1482.9
32.5°	1602.9	1583.2	1557.7	1539.6	1531.4	1502.6	1477.1	1453.3	1429.4	1413.8	1394.0
35°	1471.3	1454.1	1432.7	1422.8	1412.1	1394.0	1373.5	1352.9	1334.0	1319.2	1301.1
37.5°	1338.1	1320.8	1307.7	1297.0	1290.4	1274.0	1261.6	1246.0	1232.8	1218.9	1209.0
40°	1199.9	1195.0	1181.0	1176.1	1174.4	1156.4	1145.7	1133.3	1125.1	1116.9	1111.1
42.5°	1077.4	1069.2	1058.5	1059.3	1054.4	1044.5	1037.1	1028.9	1023.1	1019.0	1013.2
45°	956.5	949.9	945.0	949.1	940.9	937.6	931.8	931.0	926.9	919.5	917.0
47.5°	841.4	840.5	841.4	838.9	837.2	835.6	836.4	832.3	828.2	825.7	822.4
50°	736.1	736.9	738.6	741.0	735.3	737.7	736.9	736.1	736.1	733.6	735.3
52.5°	634.1	634.9	636.6	639.0	639.9	639.9	642.3	644.0	647.3	651.4	651.4
55°	537.9	543.6	546.9	551.0	548.6	553.5	556.0	563.4	565.8	565.8	569.1
57.5°	452.3	458.1	460.6	465.5	467.1	471.3	477.8	482.0	487.7	492.6	497.6
60°	374.2	376.7	383.3	390.7	389.0	398.9	403.8	410.4	417.8	421.1	427.7
62.5°	304.3	307.6	312.5	315.0	320.8	325.7	337.2	343.8	350.4	358.6	365.2
65°	241.8	245.1	250.0	255.0	257.4	264.8	270.6	282.1	287.9	296.9	304.3
67.5°	185.0	190.0	194.1	197.4	199.0	206.4	215.5	220.4	231.1	240.2	245.9
70°	138.2	142.3	147.2	146.4	149.7	155.4	162.0	169.4	177.6	185.9	192.5
72.5°	96.2	100.3	103.6	104.5	107.7	111.9	116.8	122.5	129.1	137.3	146.4
75°	60.9	61.7	65.0	66.6	68.3	73.2	77.3	83.1	88.8	95.4	101.2
77.5°	30.4	32.9	34.5	36.2	37.0	41.1	45.2	50.2	55.1	61.7	67.4
80°	11.5	12.3	14.8	15.6	17.3	19.7	23.0	25.5	29.6	34.5	37.8
82.5°	4.1	4.9	5.8	5.8	6.6	8.2	9.0	11.5	14.0	15.6	17.3
85°	1.6	1.6	1.6	1.6	1.6	2.5	2.5	3.3	4.1	4.9	4.9
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: P879441

CATALOG NUMBER: LD4C50D010 EU4509030 4LBDWWLI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2	2199.2
2.5°	2190.2	2190.2	2189.3	2188.5	2188.5	2188.5	2187.7	2187.7
5°	2170.4	2168.0	2167.1	2165.5	2164.7	2163.8	2161.4	2161.4
7.5°	2138.4	2135.1	2132.6	2130.1	2126.8	2124.4	2124.4	2121.1
10°	2095.6	2089.0	2085.7	2082.4	2078.3	2073.4	2071.7	2069.3
12.5°	2043.8	2030.6	2027.3	2021.6	2015.0	2011.7	2005.9	2005.9
15°	1979.6	1965.6	1958.2	1954.9	1946.7	1941.0	1938.5	1931.9
17.5°	1904.8	1894.1	1882.6	1877.6	1868.6	1861.2	1857.9	1857.1
20°	1829.1	1811.8	1804.4	1797.0	1786.3	1779.8	1774.8	1768.3
22.5°	1741.9	1726.3	1715.6	1710.7	1701.6	1690.1	1681.9	1681.9
25°	1649.8	1635.8	1630.1	1619.4	1608.7	1604.6	1594.7	1593.1
27.5°	1561.8	1547.8	1536.3	1530.6	1518.2	1512.5	1504.2	1501.0
30°	1470.5	1454.1	1445.9	1445.0	1430.2	1424.5	1417.9	1414.6
32.5°	1379.2	1365.3	1357.0	1352.1	1345.5	1335.6	1329.9	1326.6
35°	1288.8	1279.7	1272.3	1266.6	1255.9	1250.9	1246.0	1241.9
37.5°	1194.2	1186.0	1182.7	1177.7	1172.8	1163.8	1162.1	1158.8
40°	1102.9	1092.2	1092.2	1088.9	1084.0	1083.2	1080.7	1080.7
42.5°	1007.5	1002.6	1001.7	1002.6	999.3	997.6	995.2	1000.9
45°	912.9	915.4	911.3	912.1	910.4	913.7	913.7	917.0
47.5°	825.7	822.4	824.1	825.7	828.2	828.2	827.4	826.6
50°	732.8	736.1	739.4	735.3	736.9	737.7	733.6	734.4
52.5°	653.0	653.8	656.3	653.8	656.3	655.5	657.1	653.8
55°	575.7	575.7	579.0	579.8	580.6	583.1	583.9	586.4
57.5°	500.9	505.0	509.1	508.3	511.6	514.8	512.4	514.8
60°	435.9	439.2	443.3	444.9	447.4	449.1	449.1	450.7
62.5°	370.1	376.7	380.0	383.3	383.3	386.5	389.8	390.7
65°	310.9	318.3	320.8	323.2	324.9	328.2	332.3	331.4
67.5°	255.0	259.9	263.2	264.8	269.8	271.4	274.7	278.0
70°	199.9	206.4	208.9	212.2	216.3	219.6	222.9	224.5
72.5°	153.0	157.9	159.6	162.8	167.0	170.2	171.9	174.4
75°	106.9	115.1	116.0	118.4	121.7	125.8	128.3	127.5
77.5°	70.7	76.5	77.3	80.6	83.9	87.2	88.0	88.8
80°	41.9	45.2	46.1	47.7	50.2	51.8	53.5	55.1
82.5°	19.7	21.4	23.0	23.0	24.7	26.3	26.3	27.1
85°	6.6	6.6	7.4	7.4	8.2	8.2	9.0	8.2
87.5°	0.8	0.8	0.0	0.8	0.8	0.8	0.8	0.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By 670246072 / DESKTOP-50001EG





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















(END OF REPORT)