

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: P219539

Luminaire Tested: **LDSQ4B40D010 EU4B30509050 4LBSQLWWLI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P219539  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35471)  
Test Lab: INNOVATION CENTER-P3  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDSQ4B40D010 EU4B30509050 4LBSQLWWLI  
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2779.9 lumens  
Efficiency: N/A  
Efficacy: 64.6 lumens/watt  
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')

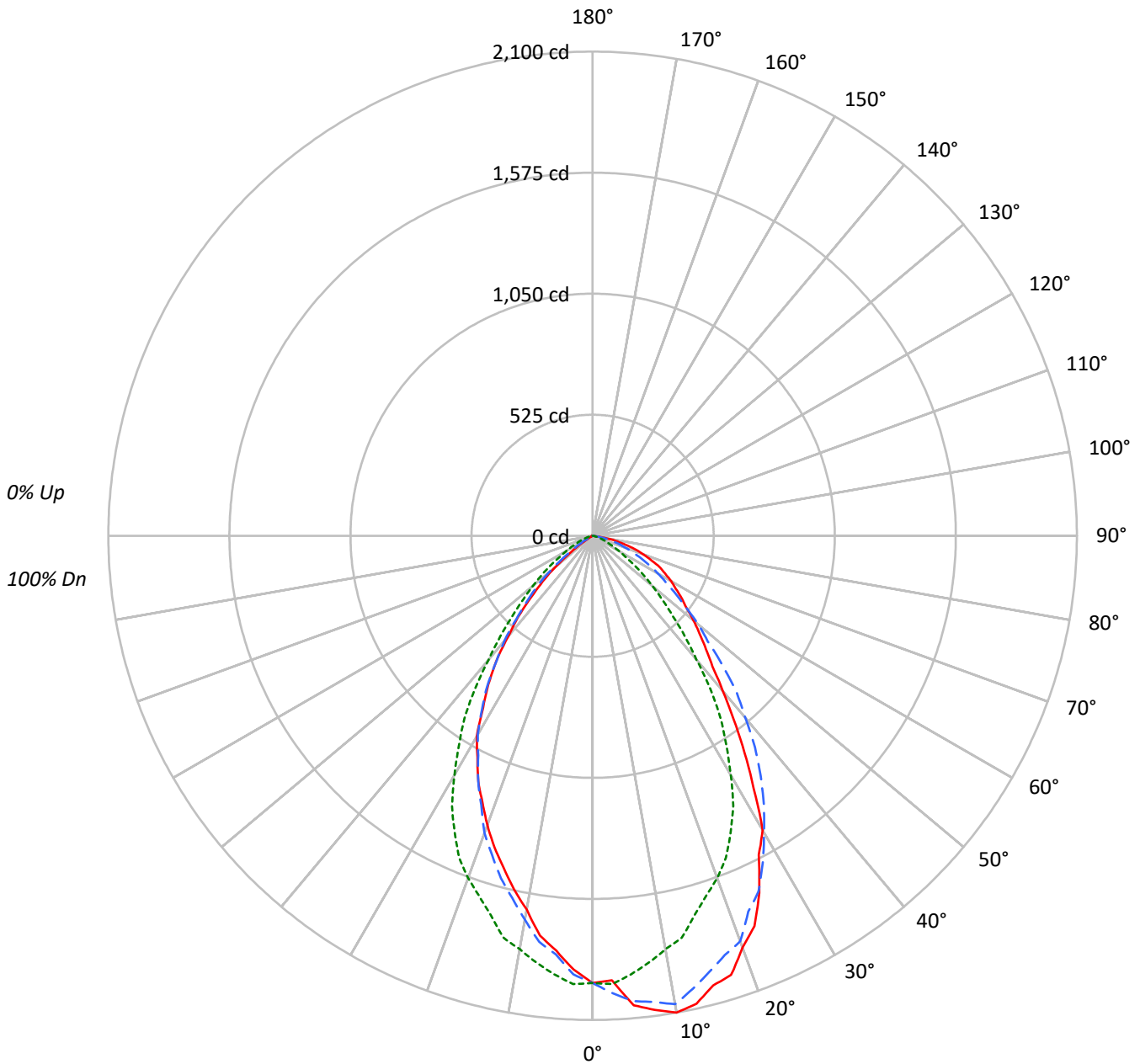
CIE Type: Direct  
Input Watts (W): 43.02  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	84	82	80																			
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72																			
4	91	81	74	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	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53																			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48																			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38																			

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

	0°	90°	180°
0°	187880	187880	187880
5°	198779	185661	175713
10°	206567	179112	161956
15°	202441	170949	149496
20°	195866	162783	137608
25°	182697	151378	125521
30°	164918	133966	112377
35°	135861	114680	93227
40°	110869	88523	71754
45°	95258	67227	51609
50°	86222	51167	32599
55°	79331	36921	11789
60°	76144	25226	1802
65°	73559	17054	527
70°	65854	11868	651
75°	53974	6101	0
80°	33752	2622	0
85°	0	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	181.7	6.5
10°-20°	489.5	17.6
20°-30°	653.7	23.5
30°-40°	620.6	22.3
40°-50°	429.0	15.4
50°-60°	237.0	8.5
60°-70°	117.7	4.2
70°-80°	46.4	1.7
80°-90°	4.4	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°	1325.0	47.7
0°-40°	1945.5	70.0
0°-60°	2611.5	93.9
0°-90°	2779.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2779.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1939	1939	1939	1939	1939	
5°	2044	2026	1909	1823	1807	196
15°	2018	1958	1704	1537	1491	571
25°	1709	1702	1416	1174	1174	779
35°	1149	1270	970	798	788	720
45°	695	798	491	402	377	542
55°	470	442	219	112	70	423
65°	321	232	74	2	2	311
75°	144	88	16	0	0	154
85°	0	2	0	0	0	13
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°	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4
2.5°	1930.1	1983.6	1988.2	1983.6	1990.6	1988.2	1999.9	1988.2	2002.2	1981.3	1985.9
5°	2044.1	2023.1	2067.3	2044.1	2044.1	2041.7	2034.8	2032.4	2041.7	2011.5	2025.5
7.5°	2074.3	2104.5	2144.0	2095.2	2097.5	2097.5	2083.6	2078.9	2078.9	2023.1	2039.4
10°	2099.9	2081.3	2102.2	2083.6	2099.9	2097.5	2106.8	2076.6	2097.5	2065.0	2062.7
12.5°	2078.9	2072.0	2099.9	2069.6	2060.3	2062.7	2051.0	2044.1	2051.0	2013.8	2011.5
15°	2018.5	2025.5	2067.3	2034.8	2030.1	2025.5	2011.5	1988.2	2006.8	1955.7	1958.0
17.5°	1997.5	1985.9	1992.9	1965.0	1972.0	1967.3	1965.0	1944.1	1939.4	1906.9	1906.9
20°	1899.9	1925.5	1925.5	1906.9	1906.9	1904.5	1874.3	1892.9	1872.0	1862.7	1872.0
22.5°	1832.4	1834.8	1834.8	1818.5	1820.8	1811.5	1795.2	1783.6	1795.2	1783.6	1765.0
25°	1709.2	1713.8	1741.7	1711.5	1706.9	1716.2	1702.2	1695.2	1692.9	1665.0	1702.2
27.5°	1560.4	1606.9	1604.5	1592.9	1606.9	1588.3	1581.3	1583.6	1590.6	1588.3	1597.6
30°	1474.3	1481.3	1488.3	1479.0	1481.3	1474.3	1474.3	1476.6	1495.3	1488.3	1486.0
32.5°	1299.9	1323.2	1341.8	1341.8	1344.1	1351.1	1348.8	1397.6	1409.2	1386.0	1381.3
35°	1148.8	1165.0	1181.3	1183.6	1213.9	1216.2	1218.5	1232.5	1265.0	1272.0	1269.7
37.5°	1004.6	1020.9	1025.5	1046.4	1062.7	1079.0	1097.6	1116.2	1144.1	1167.4	1155.7
40°	876.7	883.7	895.3	904.6	937.1	937.1	946.5	983.7	1013.9	1032.5	1030.2
42.5°	769.7	772.0	781.3	797.6	827.9	820.9	827.9	853.4	897.6	899.9	925.5
45°	695.3	693.0	700.0	702.3	720.9	730.2	734.8	753.4	790.6	795.3	797.6
47.5°	627.9	625.5	637.2	641.8	648.8	658.1	658.1	660.4	674.4	686.0	676.7
50°	572.1	572.1	572.1	576.7	588.3	586.0	588.3	597.6	604.6	600.0	597.6
52.5°	511.6	520.9	527.9	530.2	532.5	532.5	534.8	530.2	527.9	520.9	506.9
55°	469.7	479.0	479.0	479.0	479.0	488.3	476.7	479.0	479.0	460.4	441.8
57.5°	427.9	437.2	444.2	434.9	444.2	434.9	430.2	427.9	423.2	404.6	376.7
60°	393.0	397.6	395.3	393.0	397.6	390.7	386.0	376.7	372.1	346.5	327.9
62.5°	353.5	355.8	358.1	353.5	348.8	346.5	337.2	323.2	313.9	293.0	276.7
65°	320.9	313.9	311.6	309.3	304.6	297.7	290.7	274.4	267.4	248.8	232.5
67.5°	272.1	269.8	274.4	267.4	255.8	255.8	248.8	234.9	218.6	207.0	190.7
70°	232.5	230.2	225.6	218.6	216.3	207.0	207.0	190.7	186.0	165.1	151.2
72.5°	190.7	190.7	183.7	176.7	169.8	165.1	162.8	151.2	144.2	132.5	120.9
75°	144.2	144.2	141.9	134.9	130.2	125.6	123.2	113.9	107.0	95.3	88.4
77.5°	102.3	102.3	93.0	88.4	90.7	86.0	81.4	79.1	76.7	69.8	60.5
80°	60.5	58.1	51.2	53.5	51.2	51.2	48.8	46.5	41.9	37.2	32.6
82.5°	16.3	18.6	18.6	18.6	20.9	16.3	16.3	16.3	18.6	18.6	11.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	2.3
87.5°	2.3	4.7	9.3	9.3	9.3	9.3	9.3	7.0	7.0	7.0	4.7
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°	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4
2.5°	1962.7	1960.3	1962.7	1946.4	1983.6	1955.7	1951.0	1946.4	1962.7	1946.4	1923.1
5°	2004.5	1981.3	1974.3	1967.3	1988.2	1955.7	1948.7	1951.0	1939.4	1909.2	1911.5
7.5°	2018.5	1997.5	1976.6	1932.4	1951.0	1944.1	1925.5	1911.5	1892.9	1867.3	1862.7
10°	2023.1	1999.9	1969.6	1955.7	1927.8	1918.5	1911.5	1888.3	1865.0	1820.8	1809.2
12.5°	2009.2	1981.3	1944.1	1932.4	1911.5	1881.3	1865.0	1841.7	1820.8	1785.9	1760.4
15°	1948.7	1925.5	1913.8	1874.3	1865.0	1846.4	1813.8	1781.3	1751.1	1704.5	1690.6
17.5°	1878.9	1869.6	1858.0	1827.8	1825.5	1806.9	1776.6	1748.7	1709.2	1637.1	1613.8
20°	1806.9	1806.9	1769.7	1758.0	1781.3	1744.1	1720.8	1695.2	1613.8	1579.0	1537.1
22.5°	1753.4	1727.8	1706.9	1688.3	1690.6	1667.3	1634.8	1583.6	1553.4	1511.5	1462.7
25°	1648.7	1658.0	1611.5	1604.5	1611.5	1558.0	1541.8	1499.9	1455.7	1416.2	1379.0
27.5°	1583.6	1558.0	1527.8	1502.2	1502.2	1481.3	1434.8	1425.5	1358.1	1320.8	1274.3
30°	1486.0	1467.3	1441.8	1404.6	1399.9	1383.6	1346.4	1323.2	1253.4	1197.6	1172.0
32.5°	1362.7	1355.7	1334.8	1292.9	1279.0	1260.4	1213.9	1174.3	1141.8	1079.0	1048.8
35°	1274.3	1248.8	1204.6	1169.7	1158.1	1125.5	1088.3	1060.4	1025.5	969.7	930.2
37.5°	1141.8	1116.2	1074.3	1032.5	1032.5	999.9	948.8	920.9	872.0	839.5	806.9
40°	1025.5	993.0	951.1	902.3	895.3	848.8	827.9	781.3	751.1	700.0	695.3
42.5°	895.3	865.1	827.9	790.6	762.7	739.5	686.0	651.1	618.6	593.0	586.0
45°	776.7	737.2	704.6	658.1	630.2	602.3	567.4	544.2	518.6	490.7	474.4
47.5°	674.4	641.8	595.3	553.5	525.5	511.6	472.1	446.5	425.6	407.0	395.3
50°	569.7	530.2	504.6	458.1	453.5	420.9	388.3	367.4	355.8	339.5	323.2
52.5°	490.7	453.5	418.6	383.7	365.1	353.5	323.2	302.3	286.0	274.4	265.1
55°	413.9	381.4	353.5	318.6	307.0	290.7	255.8	251.1	234.9	218.6	207.0
57.5°	355.8	325.6	293.0	269.8	248.8	237.2	209.3	190.7	181.4	167.4	155.8
60°	302.3	269.8	244.2	216.3	207.0	190.7	169.8	153.5	141.9	130.2	118.6
62.5°	253.5	225.6	197.7	174.4	160.5	151.2	134.9	120.9	109.3	100.0	90.7
65°	209.3	183.7	160.5	137.2	130.2	118.6	107.0	95.3	86.0	74.4	65.1
67.5°	172.1	148.8	125.6	109.3	102.3	97.7	83.7	72.1	65.1	58.1	48.8
70°	134.9	118.6	100.0	86.0	79.1	72.1	62.8	55.8	46.5	41.9	34.9
72.5°	104.6	90.7	74.4	62.8	58.1	53.5	44.2	37.2	32.6	27.9	23.3
75°	74.4	62.8	53.5	41.9	39.5	37.2	30.2	25.6	20.9	16.3	14.0
77.5°	51.2	41.9	32.6	27.9	25.6	20.9	18.6	14.0	11.6	9.3	7.0
80°	27.9	20.9	16.3	14.0	11.6	9.3	9.3	7.0	4.7	4.7	2.3
82.5°	9.3	7.0	4.7	2.3	2.3	2.3	2.3	2.3	2.3	0.0	2.3
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°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	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°	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4
2.5°	1937.1	1911.5	1918.5	1918.5	1913.8	1913.8	1909.2	1902.2	1904.5	1890.6	1860.3
5°	1916.2	1883.6	1878.9	1883.6	1865.0	1860.3	1851.0	1865.0	1823.1	1839.4	1820.8
7.5°	1855.7	1825.5	1818.5	1834.8	1811.5	1797.6	1795.2	1813.8	1776.6	1758.0	1737.1
10°	1788.3	1776.6	1755.7	1744.1	1737.1	1739.4	1720.8	1697.6	1690.6	1685.9	1667.3
12.5°	1727.8	1702.2	1683.6	1669.7	1665.0	1665.0	1634.8	1630.1	1609.2	1604.5	1576.6
15°	1655.7	1625.5	1613.8	1595.2	1579.0	1588.3	1553.4	1544.1	1537.1	1506.9	1511.5
17.5°	1592.9	1560.4	1532.5	1520.8	1506.9	1492.9	1460.4	1467.3	1451.1	1451.1	1409.2
20°	1511.5	1476.6	1455.7	1432.5	1432.5	1413.9	1390.6	1392.9	1372.0	1351.1	1313.9
22.5°	1425.5	1388.3	1362.7	1353.4	1330.1	1325.5	1297.6	1290.6	1262.7	1265.0	1232.5
25°	1334.8	1297.6	1262.7	1265.0	1244.1	1234.8	1218.5	1186.0	1174.3	1160.4	1151.1
27.5°	1227.8	1202.2	1172.0	1169.7	1130.2	1132.5	1111.6	1102.3	1074.3	1081.3	1060.4
30°	1130.2	1093.0	1065.0	1058.1	1041.8	1037.1	1004.6	990.6	995.3	976.7	965.1
32.5°	1030.2	974.4	962.7	948.8	939.5	927.8	904.6	913.9	893.0	897.6	879.0
35°	897.6	874.4	844.1	844.1	834.8	825.5	809.3	818.6	797.6	788.3	769.7
37.5°	786.0	765.1	734.8	744.1	727.9	713.9	700.0	702.3	683.7	681.4	662.7
40°	665.1	653.4	632.5	632.5	620.9	620.9	613.9	606.9	595.3	581.4	560.4
42.5°	551.1	541.8	532.5	534.8	518.6	532.5	513.9	525.5	488.3	486.0	472.1
45°	467.4	446.5	448.8	439.5	430.2	434.9	418.6	423.2	402.3	397.6	383.7
47.5°	379.0	372.1	358.1	353.5	353.5	346.5	339.5	337.2	327.9	316.3	297.7
50°	311.6	286.0	281.4	274.4	269.8	269.8	260.4	246.5	248.8	237.2	218.6
52.5°	244.2	223.2	213.9	211.6	202.3	197.7	186.0	176.7	169.8	165.1	153.5
55°	188.4	169.8	158.1	158.1	144.2	144.2	127.9	120.9	111.6	102.3	95.3
57.5°	141.9	132.5	120.9	111.6	107.0	95.3	86.0	74.4	67.4	53.5	44.2
60°	107.0	97.7	86.0	79.1	74.4	62.8	51.2	41.9	25.6	20.9	18.6
62.5°	79.1	69.8	58.1	53.5	48.8	39.5	27.9	14.0	7.0	7.0	7.0
65°	58.1	46.5	37.2	32.6	27.9	20.9	9.3	4.7	2.3	2.3	2.3
67.5°	39.5	30.2	20.9	18.6	14.0	7.0	2.3	2.3	2.3	2.3	2.3
70°	25.6	18.6	9.3	7.0	4.7	2.3	2.3	2.3	2.3	2.3	2.3
72.5°	16.3	9.3	4.7	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	9.3	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	4.7	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	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	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.3	2.3
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: P219539

CATALOG NUMBER: LDSQ4B40D010 EU4B30509050 4LBSQLWWLI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4	1939.4
2.5°	1892.9	1876.6	1885.9	1865.0	1874.3	1890.6	1878.9	1883.6
5°	1827.8	1818.5	1806.9	1776.6	1799.9	1818.5	1809.2	1806.9
7.5°	1758.0	1725.5	1741.7	1732.4	1727.8	1746.4	1725.5	1748.7
10°	1685.9	1662.7	1660.4	1644.1	1644.1	1658.0	1660.4	1646.4
12.5°	1579.0	1567.3	1567.3	1565.0	1562.7	1576.6	1579.0	1572.0
15°	1502.2	1497.6	1486.0	1483.6	1469.7	1490.6	1492.9	1490.6
17.5°	1409.2	1411.5	1399.9	1399.9	1409.2	1416.2	1397.6	1416.2
20°	1346.4	1334.8	1330.1	1309.2	1320.8	1332.5	1332.5	1334.8
22.5°	1255.7	1237.1	1244.1	1232.5	1225.5	1241.8	1241.8	1248.8
25°	1153.4	1153.4	1158.1	1151.1	1155.7	1165.0	1158.1	1174.3
27.5°	1055.7	1065.0	1065.0	1055.7	1060.4	1088.3	1099.9	1081.3
30°	965.1	967.4	974.4	969.7	983.7	993.0	990.6	1004.6
32.5°	862.7	874.4	879.0	872.0	876.7	897.6	886.0	883.7
35°	783.7	762.7	760.4	762.7	772.0	776.7	772.0	788.3
37.5°	669.7	662.7	653.4	655.8	662.7	672.0	676.7	688.3
40°	560.4	551.1	551.1	548.8	541.8	567.4	567.4	567.4
42.5°	465.1	462.8	451.1	451.1	460.4	467.4	462.8	479.0
45°	381.4	372.1	365.1	365.1	372.1	372.1	379.0	376.7
47.5°	300.0	290.7	293.0	286.0	293.0	302.3	290.7	293.0
50°	225.6	225.6	220.9	225.6	223.2	225.6	220.9	216.3
52.5°	153.5	174.4	176.7	167.4	146.5	127.9	116.3	125.6
55°	88.4	79.1	79.1	76.7	72.1	69.8	62.8	69.8
57.5°	44.2	39.5	39.5	39.5	37.2	34.9	30.2	30.2
60°	18.6	16.3	16.3	14.0	11.6	9.3	7.0	9.3
62.5°	7.0	4.7	4.7	4.7	4.7	4.7	4.7	4.7
65°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
70°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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)