

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: P219531

Luminaire Tested: **LDSQ4B40D010 EU4B30508035 4LBSQLWWLI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P219531  
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 EU4B30508035 4LBSQLWWLI  
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3268.8 lumens  
Efficiency: N/A  
Efficacy: 76.0 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

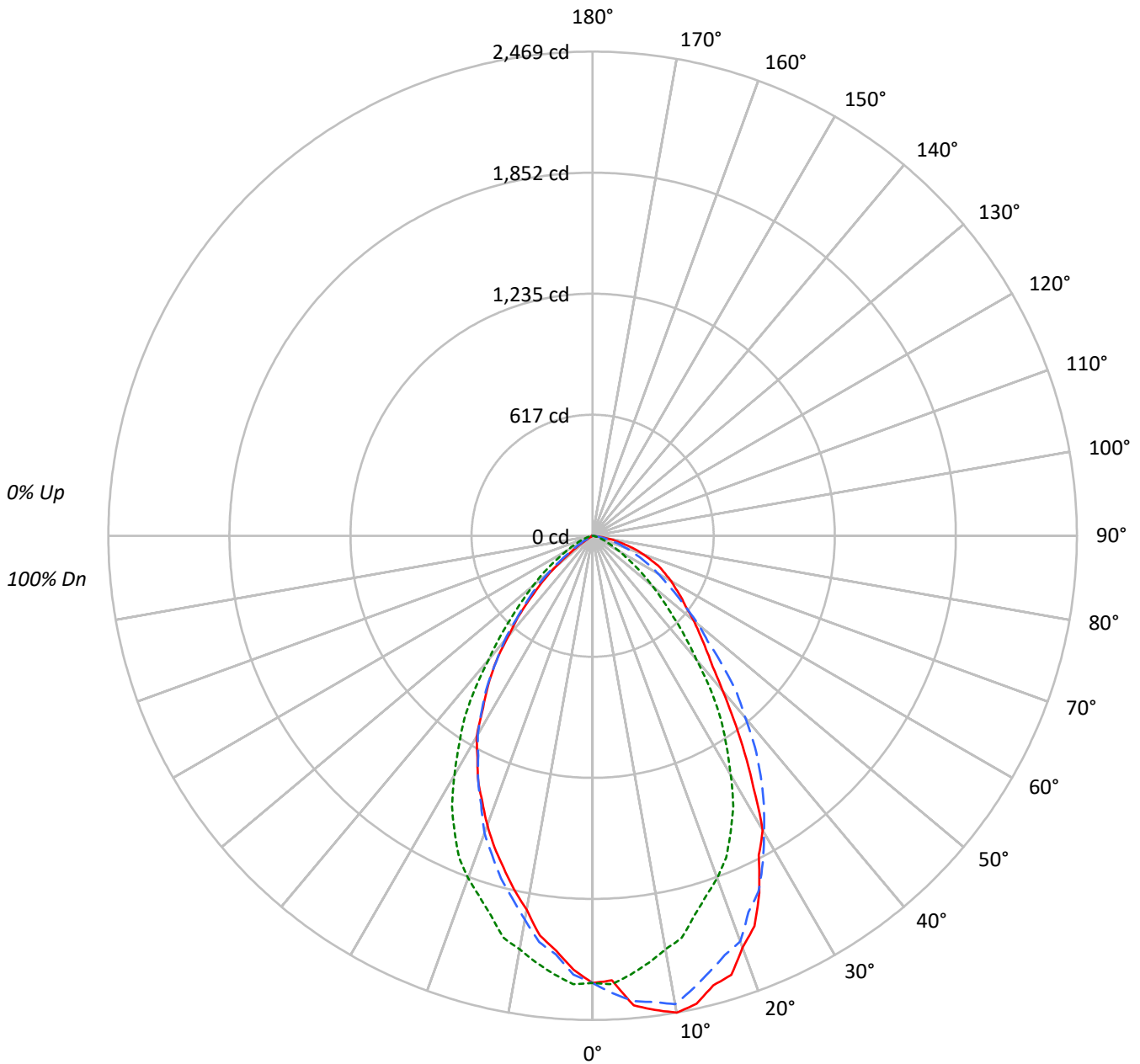
Input Watts (W): 43.02  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	220924	220924	220924
5°	233730	218306	206608
10°	242885	210610	190434
15°	238035	201017	175783
20°	230309	191402	161804
25°	214828	177994	147605
30°	193924	157524	132143
35°	159750	134844	109630
40°	130370	104078	84375
45°	112013	79050	60692
50°	101384	60164	38326
55°	93282	43407	13850
60°	89532	29663	2112
65°	86487	20057	619
70°	77439	13936	765
75°	63443	7149	0
80°	39666	3068	0
85°	0	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	213.7	6.5
10°-20°	575.6	17.6
20°-30°	768.7	23.5
30°-40°	729.7	22.3
40°-50°	504.4	15.4
50°-60°	278.7	8.5
60°-70°	138.4	4.2
70°-80°	54.5	1.7
80°-90°	5.2	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°	1558.0	47.7
0°-40°	2287.7	70.0
0°-60°	3070.7	93.9
0°-90°	3268.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3268.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2280	2280	2280	2280	2280	
5°	2404	2382	2245	2144	2125	230
15°	2373	2302	2004	1807	1753	671
25°	2010	2002	1665	1381	1381	916
35°	1351	1493	1140	938	927	846
45°	818	938	577	473	443	638
55°	552	520	257	131	82	497
65°	377	273	88	3	3	366
75°	170	104	19	0	0	181
85°	0	3	0	0	0	16
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°	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5
2.5°	2269.5	2332.4	2337.9	2332.4	2340.6	2337.9	2351.6	2337.9	2354.3	2329.7	2335.2
5°	2403.5	2378.9	2430.9	2403.5	2403.5	2400.8	2392.6	2389.9	2400.8	2365.2	2381.6
7.5°	2439.1	2474.6	2521.1	2463.7	2466.4	2466.4	2450.0	2444.5	2444.5	2378.9	2398.1
10°	2469.1	2447.3	2471.9	2450.0	2469.1	2466.4	2477.4	2441.8	2466.4	2428.1	2425.4
12.5°	2444.5	2436.3	2469.1	2433.6	2422.7	2425.4	2411.7	2403.5	2411.7	2368.0	2365.2
15°	2373.4	2381.6	2430.9	2392.6	2387.1	2381.6	2365.2	2337.9	2359.8	2299.6	2302.4
17.5°	2348.8	2335.2	2343.4	2310.6	2318.8	2313.3	2310.6	2285.9	2280.5	2242.2	2242.2
20°	2234.0	2264.1	2264.1	2242.2	2242.2	2239.5	2203.9	2225.8	2201.2	2190.2	2201.2
22.5°	2154.7	2157.4	2157.4	2138.3	2141.0	2130.1	2110.9	2097.3	2110.9	2097.3	2075.4
25°	2009.8	2015.2	2048.1	2012.5	2007.0	2018.0	2001.6	1993.4	1990.6	1957.8	2001.6
27.5°	1834.8	1889.5	1886.7	1873.1	1889.5	1867.6	1859.4	1862.1	1870.3	1867.6	1878.5
30°	1733.6	1741.8	1750.0	1739.1	1741.8	1733.6	1733.6	1736.3	1758.2	1750.0	1747.3
32.5°	1528.5	1555.9	1577.7	1577.7	1580.5	1588.7	1585.9	1643.4	1657.0	1629.7	1624.2
35°	1350.8	1369.9	1389.1	1391.8	1427.3	1430.1	1432.8	1449.2	1487.5	1495.7	1493.0
37.5°	1181.3	1200.4	1205.9	1230.5	1249.6	1268.8	1290.6	1312.5	1345.3	1372.7	1359.0
40°	1030.9	1039.1	1052.7	1063.7	1102.0	1102.0	1112.9	1156.6	1192.2	1214.1	1211.3
42.5°	905.1	907.8	918.8	937.9	973.4	965.2	973.4	1003.5	1055.5	1058.2	1088.3
45°	817.6	814.8	823.0	825.8	847.7	858.6	864.1	885.9	929.7	935.2	937.9
47.5°	738.3	735.5	749.2	754.7	762.9	773.8	773.8	776.6	793.0	806.6	795.7
50°	672.7	672.7	672.7	678.1	691.8	689.1	691.8	702.7	710.9	705.5	702.7
52.5°	601.6	612.5	620.7	623.4	626.2	626.2	628.9	623.4	620.7	612.5	596.1
55°	552.3	563.3	563.3	563.3	563.3	574.2	560.5	563.3	563.3	541.4	519.5
57.5°	503.1	514.1	522.3	511.3	522.3	511.3	505.9	503.1	497.7	475.8	443.0
60°	462.1	467.6	464.8	462.1	467.6	459.4	453.9	443.0	437.5	407.4	385.5
62.5°	415.6	418.4	421.1	415.6	410.2	407.4	396.5	380.1	369.1	344.5	325.4
65°	377.3	369.1	366.4	363.7	358.2	350.0	341.8	322.7	314.5	292.6	273.4
67.5°	319.9	317.2	322.7	314.5	300.8	300.8	292.6	276.2	257.0	243.4	224.2
70°	273.4	270.7	265.2	257.0	254.3	243.4	243.4	224.2	218.8	194.1	177.7
72.5°	224.2	224.2	216.0	207.8	199.6	194.1	191.4	177.7	169.5	155.9	142.2
75°	169.5	169.5	166.8	158.6	153.1	147.7	144.9	134.0	125.8	112.1	103.9
77.5°	120.3	120.3	109.4	103.9	106.6	101.2	95.7	93.0	90.2	82.0	71.1
80°	71.1	68.4	60.2	62.9	60.2	60.2	57.4	54.7	49.2	43.8	38.3
82.5°	19.1	21.9	21.9	21.9	24.6	19.1	19.1	19.1	21.9	21.9	13.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	2.7
87.5°	2.7	5.5	10.9	10.9	10.9	10.9	10.9	8.2	8.2	8.2	5.5
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°	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5
2.5°	2307.8	2305.1	2307.8	2288.7	2332.4	2299.6	2294.1	2288.7	2307.8	2288.7	2261.3
5°	2357.0	2329.7	2321.5	2313.3	2337.9	2299.6	2291.4	2294.1	2280.5	2244.9	2247.7
7.5°	2373.4	2348.8	2324.2	2272.3	2294.1	2285.9	2264.1	2247.7	2225.8	2195.7	2190.2
10°	2378.9	2351.6	2316.0	2299.6	2266.8	2255.9	2247.7	2220.3	2193.0	2141.0	2127.4
12.5°	2362.5	2329.7	2285.9	2272.3	2247.7	2212.1	2193.0	2165.6	2141.0	2100.0	2069.9
15°	2291.4	2264.1	2250.4	2203.9	2193.0	2171.1	2132.8	2094.5	2059.0	2004.3	1987.9
17.5°	2209.4	2198.4	2184.8	2149.2	2146.5	2124.6	2089.1	2056.3	2009.8	1925.0	1897.7
20°	2124.6	2124.6	2080.9	2067.2	2094.5	2050.8	2023.4	1993.4	1897.7	1856.6	1807.4
22.5°	2061.7	2031.6	2007.0	1985.2	1987.9	1960.6	1922.3	1862.1	1826.6	1777.3	1719.9
25°	1938.7	1949.6	1894.9	1886.7	1894.9	1832.0	1812.9	1763.7	1711.7	1665.2	1621.5
27.5°	1862.1	1832.0	1796.5	1766.4	1766.4	1741.8	1687.1	1676.2	1596.9	1553.1	1498.4
30°	1747.3	1725.4	1695.3	1651.6	1646.1	1627.0	1583.2	1555.9	1473.8	1408.2	1378.1
32.5°	1602.3	1594.1	1569.5	1520.3	1503.9	1482.0	1427.3	1380.9	1342.6	1268.8	1233.2
35°	1498.4	1468.4	1416.4	1375.4	1361.7	1323.4	1279.7	1246.9	1205.9	1140.2	1093.8
37.5°	1342.6	1312.5	1263.3	1214.1	1214.1	1175.8	1115.6	1082.8	1025.4	987.1	948.8
40°	1205.9	1167.6	1118.4	1060.9	1052.7	998.1	973.4	918.8	883.2	823.0	817.6
42.5°	1052.7	1017.2	973.4	929.7	896.9	869.5	806.6	765.6	727.3	697.3	689.1
45°	913.3	866.8	828.5	773.8	741.0	708.2	667.2	639.8	609.8	577.0	557.8
47.5°	793.0	754.7	700.0	650.8	618.0	601.6	555.1	525.0	500.4	478.5	464.8
50°	669.9	623.4	593.4	538.7	533.2	494.9	456.6	432.0	418.4	399.2	380.1
52.5°	577.0	533.2	492.2	451.2	429.3	415.6	380.1	355.5	336.3	322.7	311.7
55°	486.7	448.4	415.6	374.6	360.9	341.8	300.8	295.3	276.2	257.0	243.4
57.5°	418.4	382.8	344.5	317.2	292.6	278.9	246.1	224.2	213.3	196.9	183.2
60°	355.5	317.2	287.1	254.3	243.4	224.2	199.6	180.5	166.8	153.1	139.5
62.5°	298.0	265.2	232.4	205.1	188.7	177.7	158.6	142.2	128.5	117.6	106.6
65°	246.1	216.0	188.7	161.3	153.1	139.5	125.8	112.1	101.2	87.5	76.6
67.5°	202.3	175.0	147.7	128.5	120.3	114.8	98.4	84.8	76.6	68.4	57.4
70°	158.6	139.5	117.6	101.2	93.0	84.8	73.8	65.6	54.7	49.2	41.0
72.5°	123.0	106.6	87.5	73.8	68.4	62.9	52.0	43.8	38.3	32.8	27.3
75°	87.5	73.8	62.9	49.2	46.5	43.8	35.5	30.1	24.6	19.1	16.4
77.5°	60.2	49.2	38.3	32.8	30.1	24.6	21.9	16.4	13.7	10.9	8.2
80°	32.8	24.6	19.1	16.4	13.7	10.9	10.9	8.2	5.5	5.5	2.7
82.5°	10.9	8.2	5.5	2.7	2.7	2.7	2.7	2.7	2.7	0.0	2.7
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°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	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°	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5
2.5°	2277.7	2247.7	2255.9	2255.9	2250.4	2250.4	2244.9	2236.7	2239.5	2223.1	2187.5
5°	2253.1	2214.9	2209.4	2214.9	2193.0	2187.5	2176.6	2193.0	2143.8	2162.9	2141.0
7.5°	2182.0	2146.5	2138.3	2157.4	2130.1	2113.7	2110.9	2132.8	2089.1	2067.2	2042.6
10°	2102.7	2089.1	2064.5	2050.8	2042.6	2045.3	2023.4	1996.1	1987.9	1982.4	1960.6
12.5°	2031.6	2001.6	1979.7	1963.3	1957.8	1957.8	1922.3	1916.8	1892.2	1886.7	1853.9
15°	1946.9	1911.3	1897.7	1875.8	1856.6	1867.6	1826.6	1815.6	1807.4	1771.9	1777.3
17.5°	1873.1	1834.8	1802.0	1788.3	1771.9	1755.5	1717.2	1725.4	1706.3	1706.3	1657.0
20°	1777.3	1736.3	1711.7	1684.4	1684.4	1662.5	1635.2	1637.9	1613.3	1588.7	1544.9
22.5°	1676.2	1632.4	1602.3	1591.4	1564.1	1558.6	1525.8	1517.6	1484.8	1487.5	1449.2
25°	1569.5	1525.8	1484.8	1487.5	1462.9	1452.0	1432.8	1394.5	1380.9	1364.5	1353.5
27.5°	1443.8	1413.7	1378.1	1375.4	1328.9	1331.6	1307.0	1296.1	1263.3	1271.5	1246.9
30°	1328.9	1285.2	1252.3	1244.1	1225.0	1219.5	1181.3	1164.8	1170.3	1148.4	1134.8
32.5°	1211.3	1145.7	1132.0	1115.6	1104.7	1091.0	1063.7	1074.6	1050.0	1055.5	1033.6
35°	1055.5	1028.1	992.6	992.6	981.6	970.7	951.6	962.5	937.9	927.0	905.1
37.5°	924.2	899.6	864.1	875.0	855.9	839.5	823.0	825.8	803.9	801.2	779.3
40°	782.0	768.4	743.8	743.8	730.1	730.1	721.9	713.7	700.0	683.6	659.0
42.5°	648.0	637.1	626.2	628.9	609.8	626.2	604.3	618.0	574.2	571.5	555.1
45°	549.6	525.0	527.7	516.8	505.9	511.3	492.2	497.7	473.0	467.6	451.2
47.5°	445.7	437.5	421.1	415.6	415.6	407.4	399.2	396.5	385.5	371.9	350.0
50°	366.4	336.3	330.9	322.7	317.2	317.2	306.3	289.8	292.6	278.9	257.0
52.5°	287.1	262.5	251.6	248.8	237.9	232.4	218.8	207.8	199.6	194.1	180.5
55°	221.5	199.6	185.9	185.9	169.5	169.5	150.4	142.2	131.3	120.3	112.1
57.5°	166.8	155.9	142.2	131.3	125.8	112.1	101.2	87.5	79.3	62.9	52.0
60°	125.8	114.8	101.2	93.0	87.5	73.8	60.2	49.2	30.1	24.6	21.9
62.5°	93.0	82.0	68.4	62.9	57.4	46.5	32.8	16.4	8.2	8.2	8.2
65°	68.4	54.7	43.8	38.3	32.8	24.6	10.9	5.5	2.7	2.7	2.7
67.5°	46.5	35.5	24.6	21.9	16.4	8.2	2.7	2.7	2.7	2.7	2.7
70°	30.1	21.9	10.9	8.2	5.5	2.7	2.7	2.7	2.7	2.7	2.7
72.5°	19.1	10.9	5.5	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	10.9	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	5.5	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	2.7	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	2.7	2.7	2.7
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: P219531

CATALOG NUMBER: LDSQ4B40D010 EU4B30508035 4LBSQLWWLI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5	2280.5
2.5°	2225.8	2206.6	2217.6	2193.0	2203.9	2223.1	2209.4	2214.9
5°	2149.2	2138.3	2124.6	2089.1	2116.4	2138.3	2127.4	2124.6
7.5°	2067.2	2028.9	2048.1	2037.1	2031.6	2053.5	2028.9	2056.3
10°	1982.4	1955.1	1952.4	1933.2	1933.2	1949.6	1952.4	1935.9
12.5°	1856.6	1843.0	1843.0	1840.2	1837.5	1853.9	1856.6	1848.4
15°	1766.4	1760.9	1747.3	1744.5	1728.1	1752.7	1755.5	1752.7
17.5°	1657.0	1659.8	1646.1	1646.1	1657.0	1665.2	1643.4	1665.2
20°	1583.2	1569.5	1564.1	1539.5	1553.1	1566.8	1566.8	1569.5
22.5°	1476.6	1454.7	1462.9	1449.2	1441.0	1460.2	1460.2	1468.4
25°	1356.3	1356.3	1361.7	1353.5	1359.0	1369.9	1361.7	1380.9
27.5°	1241.4	1252.3	1252.3	1241.4	1246.9	1279.7	1293.4	1271.5
30°	1134.8	1137.5	1145.7	1140.2	1156.6	1167.6	1164.8	1181.3
32.5°	1014.5	1028.1	1033.6	1025.4	1030.9	1055.5	1041.8	1039.1
35°	921.5	896.9	894.1	896.9	907.8	913.3	907.8	927.0
37.5°	787.5	779.3	768.4	771.1	779.3	790.2	795.7	809.4
40°	659.0	648.0	648.0	645.3	637.1	667.2	667.2	667.2
42.5°	546.9	544.1	530.5	530.5	541.4	549.6	544.1	563.3
45°	448.4	437.5	429.3	429.3	437.5	437.5	445.7	443.0
47.5°	352.7	341.8	344.5	336.3	344.5	355.5	341.8	344.5
50°	265.2	265.2	259.8	265.2	262.5	265.2	259.8	254.3
52.5°	180.5	205.1	207.8	196.9	172.3	150.4	136.7	147.7
55°	103.9	93.0	93.0	90.2	84.8	82.0	73.8	82.0
57.5°	52.0	46.5	46.5	46.5	43.8	41.0	35.5	35.5
60°	21.9	19.1	19.1	16.4	13.7	10.9	8.2	10.9
62.5°	8.2	5.5	5.5	5.5	5.5	5.5	5.5	5.5
65°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
67.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
70°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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)