

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: P219536

Luminaire Tested: **LDSQ4B40D010 EU4B30509030 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219536
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 EU4B30509030 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2724.2 lumens
Efficiency: N/A
Efficacy: 63.3 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

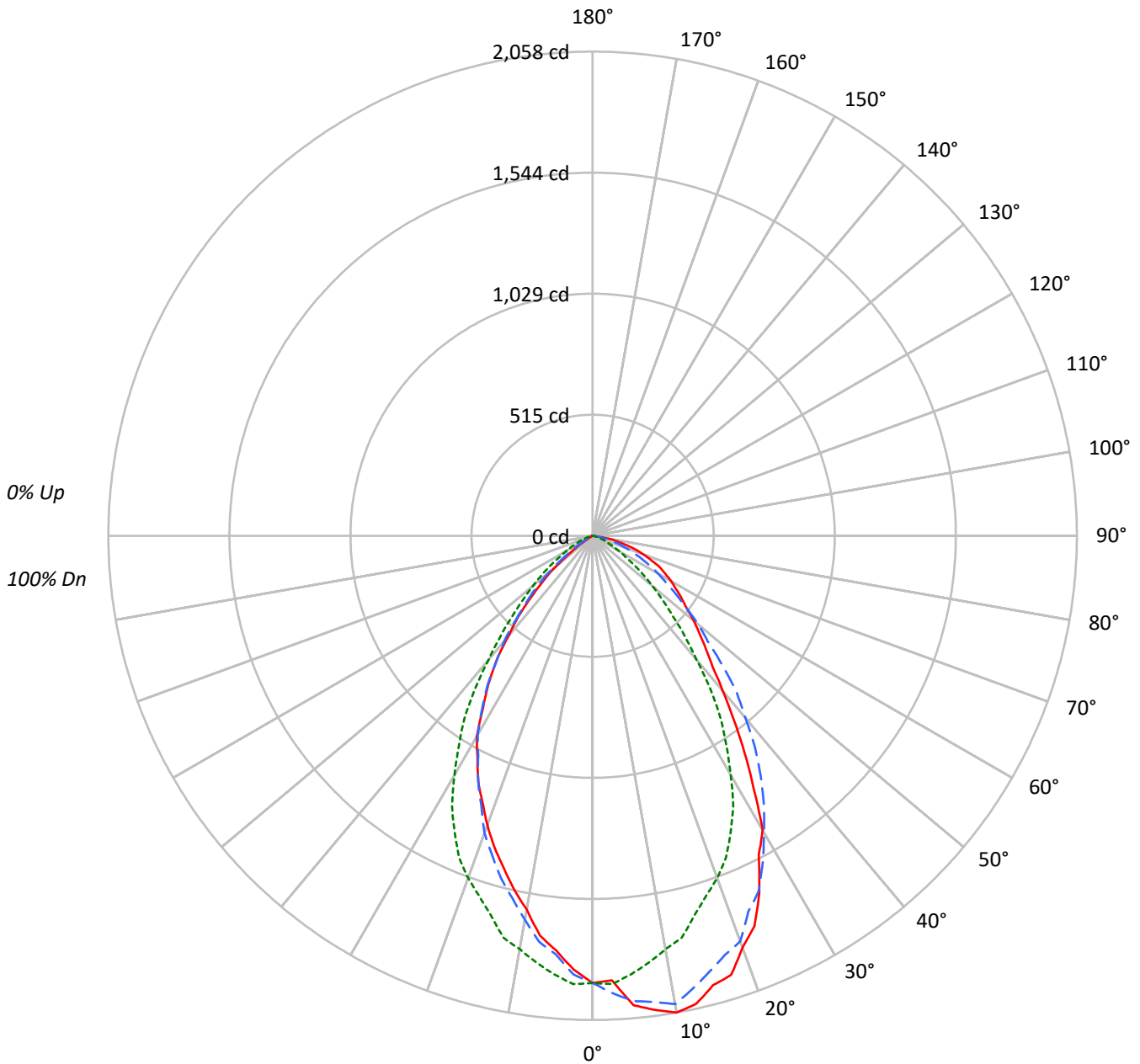
Input Watts (W): 43.02
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				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	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°	184112	184112	184112
5°	194792	181937	172183
10°	202416	175521	158710
15°	198379	167519	146498
20°	191938	159515	134845
25°	179030	148342	123009
30°	161607	131281	110117
35°	133129	112385	91358
40°	108643	86740	70313
45°	93354	65871	50581
50°	84489	50142	31936
55°	77743	36178	11553
60°	74613	24723	1763
65°	72092	16711	527
70°	64551	11613	651
75°	52888	5989	0
80°	33027	2566	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	178.1	6.5
10°-20°	479.7	17.6
20°-30°	640.6	23.5
30°-40°	608.1	22.3
40°-50°	420.3	15.4
50°-60°	232.3	8.5
60°-70°	115.3	4.2
70°-80°	45.4	1.7
80°-90°	4.3	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°	1298.4	47.7
0°-40°	1906.5	70.0
0°-60°	2559.1	93.9
0°-90°	2724.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2724.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1900	1900	1900	1900	1900	
5°	2003	1985	1871	1787	1771	192
15°	1978	1919	1670	1506	1461	560
25°	1675	1668	1388	1151	1151	764
35°	1126	1244	950	782	772	705
45°	681	782	481	394	369	531
55°	460	433	214	109	68	414
65°	314	228	73	2	2	305
75°	141	87	16	0	0	151
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°	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5
2.5°	1891.4	1943.8	1948.4	1943.8	1950.6	1948.4	1959.8	1948.4	1962.0	1941.5	1946.1
5°	2003.1	1982.5	2025.8	2003.1	2003.1	2000.8	1993.9	1991.7	2000.8	1971.1	1984.8
7.5°	2032.7	2062.3	2101.0	2053.2	2055.5	2055.5	2041.8	2037.2	2037.2	1982.5	1998.5
10°	2057.7	2039.5	2060.0	2041.8	2057.7	2055.5	2064.6	2035.0	2055.5	2023.6	2021.3
12.5°	2037.2	2030.4	2057.7	2028.1	2019.0	2021.3	2009.9	2003.1	2009.9	1973.4	1971.1
15°	1978.0	1984.8	2025.8	1993.9	1989.4	1984.8	1971.1	1948.4	1966.6	1916.5	1918.7
17.5°	1957.5	1946.1	1952.9	1925.6	1932.4	1927.9	1925.6	1905.1	1900.5	1868.6	1868.6
20°	1861.8	1886.8	1886.8	1868.6	1868.6	1866.3	1836.7	1854.9	1834.4	1825.3	1834.4
22.5°	1795.7	1798.0	1798.0	1782.0	1784.3	1775.2	1759.2	1747.8	1759.2	1747.8	1729.6
25°	1674.9	1679.5	1706.8	1677.2	1672.6	1681.7	1668.1	1661.2	1659.0	1631.6	1668.1
27.5°	1529.1	1574.6	1572.4	1561.0	1574.6	1556.4	1549.6	1551.9	1558.7	1556.4	1565.5
30°	1444.7	1451.6	1458.4	1449.3	1451.6	1444.7	1444.7	1447.0	1465.3	1458.4	1456.1
32.5°	1273.8	1296.6	1314.9	1314.9	1317.1	1324.0	1321.7	1369.5	1380.9	1358.2	1353.6
35°	1125.7	1141.7	1157.6	1159.9	1189.5	1191.8	1194.1	1207.8	1239.7	1246.5	1244.2
37.5°	984.4	1000.4	1004.9	1025.5	1041.4	1057.4	1075.6	1093.8	1121.2	1143.9	1132.6
40°	859.1	865.9	877.3	886.4	918.3	918.3	927.5	963.9	993.5	1011.8	1009.5
42.5°	754.3	756.6	765.7	781.6	811.2	804.4	811.2	836.3	879.6	881.9	907.0
45°	681.4	679.1	685.9	688.2	706.4	715.5	720.1	738.3	774.8	779.3	781.6
47.5°	615.3	613.0	624.4	628.9	635.8	644.9	644.9	647.2	660.8	672.2	663.1
50°	560.6	560.6	560.6	565.1	576.5	574.3	576.5	585.6	592.5	587.9	585.6
52.5°	501.3	510.4	517.3	519.6	521.8	521.8	524.1	519.6	517.3	510.4	496.8
55°	460.3	469.4	469.4	469.4	469.4	478.5	467.2	469.4	469.4	451.2	433.0
57.5°	419.3	428.4	435.2	426.1	435.2	426.1	421.6	419.3	414.7	396.5	369.2
60°	385.1	389.7	387.4	385.1	389.7	382.8	378.3	369.2	364.6	339.5	321.3
62.5°	346.4	348.7	350.9	346.4	341.8	339.5	330.4	316.8	307.6	287.1	271.2
65°	314.5	307.6	305.4	303.1	298.5	291.7	284.8	268.9	262.1	243.8	227.9
67.5°	266.6	264.3	268.9	262.1	250.7	250.7	243.8	230.2	214.2	202.8	186.9
70°	227.9	225.6	221.0	214.2	211.9	202.8	202.8	186.9	182.3	161.8	148.1
72.5°	186.9	186.9	180.0	173.2	166.4	161.8	159.5	148.1	141.3	129.9	118.5
75°	141.3	141.3	139.0	132.2	127.6	123.1	120.8	111.7	104.8	93.4	86.6
77.5°	100.3	100.3	91.2	86.6	88.9	84.3	79.8	77.5	75.2	68.4	59.2
80°	59.2	57.0	50.1	52.4	50.1	50.1	47.9	45.6	41.0	36.5	31.9
82.5°	16.0	18.2	18.2	18.2	20.5	16.0	16.0	16.0	18.2	18.2	11.4
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	4.6	9.1	9.1	9.1	9.1	9.1	6.8	6.8	6.8	4.6
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°	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5
2.5°	1923.3	1921.0	1923.3	1907.3	1943.8	1916.5	1911.9	1907.3	1923.3	1907.3	1884.6
5°	1964.3	1941.5	1934.7	1927.9	1948.4	1916.5	1909.6	1911.9	1900.5	1870.9	1873.2
7.5°	1978.0	1957.5	1937.0	1893.7	1911.9	1905.1	1886.8	1873.2	1854.9	1829.9	1825.3
10°	1982.5	1959.8	1930.1	1916.5	1889.1	1880.0	1873.2	1850.4	1827.6	1784.3	1772.9
12.5°	1968.9	1941.5	1905.1	1893.7	1873.2	1843.5	1827.6	1804.8	1784.3	1750.1	1725.0
15°	1909.6	1886.8	1875.4	1836.7	1827.6	1809.4	1777.5	1745.5	1715.9	1670.3	1656.7
17.5°	1841.3	1832.1	1820.7	1791.1	1788.8	1770.6	1741.0	1713.6	1674.9	1604.3	1581.5
20°	1770.6	1770.6	1734.2	1722.8	1745.5	1709.1	1686.3	1661.2	1581.5	1547.3	1506.3
22.5°	1718.2	1693.1	1672.6	1654.4	1656.7	1633.9	1602.0	1551.9	1522.2	1481.2	1433.4
25°	1615.7	1624.8	1579.2	1572.4	1579.2	1526.8	1510.8	1469.8	1426.5	1387.8	1351.3
27.5°	1551.9	1526.8	1497.2	1472.1	1472.1	1451.6	1406.0	1396.9	1330.8	1294.3	1248.8
30°	1456.1	1437.9	1412.8	1376.4	1371.8	1355.9	1319.4	1296.6	1228.3	1173.6	1148.5
32.5°	1335.4	1328.5	1308.0	1267.0	1253.3	1235.1	1189.5	1150.8	1118.9	1057.4	1027.7
35°	1248.8	1223.7	1180.4	1146.2	1134.8	1102.9	1066.5	1039.1	1004.9	950.3	911.5
37.5°	1118.9	1093.8	1052.8	1011.8	1011.8	979.9	929.7	902.4	854.5	822.6	790.7
40°	1004.9	973.0	932.0	884.2	877.3	831.8	811.2	765.7	736.0	685.9	681.4
42.5°	877.3	847.7	811.2	774.8	747.4	724.7	672.2	638.1	606.2	581.1	574.3
45°	761.1	722.4	690.5	644.9	617.6	590.2	556.0	533.2	508.2	480.8	464.9
47.5°	660.8	628.9	583.4	542.4	515.0	501.3	462.6	437.5	417.0	398.8	387.4
50°	558.3	519.6	494.5	448.9	444.4	412.5	380.6	360.0	348.7	332.7	316.8
52.5°	480.8	444.4	410.2	376.0	357.8	346.4	316.8	296.2	280.3	268.9	259.8
55°	405.6	373.7	346.4	312.2	300.8	284.8	250.7	246.1	230.2	214.2	202.8
57.5°	348.7	319.0	287.1	264.3	243.8	232.4	205.1	186.9	177.7	164.1	152.7
60°	296.2	264.3	239.3	211.9	202.8	186.9	166.4	150.4	139.0	127.6	116.2
62.5°	248.4	221.0	193.7	170.9	157.2	148.1	132.2	118.5	107.1	98.0	88.9
65°	205.1	180.0	157.2	134.4	127.6	116.2	104.8	93.4	84.3	72.9	63.8
67.5°	168.6	145.8	123.1	107.1	100.3	95.7	82.0	70.6	63.8	57.0	47.9
70°	132.2	116.2	98.0	84.3	77.5	70.6	61.5	54.7	45.6	41.0	34.2
72.5°	102.5	88.9	72.9	61.5	57.0	52.4	43.3	36.5	31.9	27.3	22.8
75°	72.9	61.5	52.4	41.0	38.7	36.5	29.6	25.1	20.5	16.0	13.7
77.5°	50.1	41.0	31.9	27.3	25.1	20.5	18.2	13.7	11.4	9.1	6.8
80°	27.3	20.5	16.0	13.7	11.4	9.1	9.1	6.8	4.6	4.6	2.3
82.5°	9.1	6.8	4.6	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°	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5
2.5°	1898.2	1873.2	1880.0	1880.0	1875.4	1875.4	1870.9	1864.0	1866.3	1852.7	1823.0
5°	1877.7	1845.8	1841.3	1845.8	1827.6	1823.0	1813.9	1827.6	1786.6	1802.5	1784.3
7.5°	1818.5	1788.8	1782.0	1798.0	1775.2	1761.5	1759.2	1777.5	1741.0	1722.8	1702.3
10°	1752.4	1741.0	1720.5	1709.1	1702.3	1704.5	1686.3	1663.5	1656.7	1652.1	1633.9
12.5°	1693.1	1668.1	1649.8	1636.2	1631.6	1631.6	1602.0	1597.4	1576.9	1572.4	1545.0
15°	1622.5	1592.9	1581.5	1563.2	1547.3	1556.4	1522.2	1513.1	1506.3	1476.7	1481.2
17.5°	1561.0	1529.1	1501.7	1490.3	1476.7	1463.0	1431.1	1437.9	1422.0	1422.0	1380.9
20°	1481.2	1447.0	1426.5	1403.7	1403.7	1385.5	1362.7	1365.0	1344.5	1324.0	1287.5
22.5°	1396.9	1360.4	1335.4	1326.3	1303.5	1298.9	1271.6	1264.7	1237.4	1239.7	1207.8
25°	1308.0	1271.6	1237.4	1239.7	1219.1	1210.0	1194.1	1162.2	1150.8	1137.1	1128.0
27.5°	1203.2	1178.1	1148.5	1146.2	1107.5	1109.8	1089.3	1080.1	1052.8	1059.6	1039.1
30°	1107.5	1071.0	1043.7	1036.8	1020.9	1016.3	984.4	970.8	975.3	957.1	945.7
32.5°	1009.5	954.8	943.4	929.7	920.6	909.2	886.4	895.6	875.1	879.6	861.4
35°	879.6	856.8	827.2	827.2	818.1	809.0	793.0	802.1	781.6	772.5	754.3
37.5°	770.2	749.7	720.1	729.2	713.3	699.6	685.9	688.2	670.0	667.7	649.5
40°	651.7	640.3	619.8	619.8	608.4	608.4	601.6	594.8	583.4	569.7	549.2
42.5°	540.1	531.0	521.8	524.1	508.2	521.8	503.6	515.0	478.5	476.3	462.6
45°	458.0	437.5	439.8	430.7	421.6	426.1	410.2	414.7	394.2	389.7	376.0
47.5°	371.4	364.6	350.9	346.4	346.4	339.5	332.7	330.4	321.3	309.9	291.7
50°	305.4	280.3	275.7	268.9	264.3	264.3	255.2	241.6	243.8	232.4	214.2
52.5°	239.3	218.8	209.6	207.4	198.3	193.7	182.3	173.2	166.4	161.8	150.4
55°	184.6	166.4	155.0	155.0	141.3	141.3	125.3	118.5	109.4	100.3	93.4
57.5°	139.0	129.9	118.5	109.4	104.8	93.4	84.3	72.9	66.1	52.4	43.3
60°	104.8	95.7	84.3	77.5	72.9	61.5	50.1	41.0	25.1	20.5	18.2
62.5°	77.5	68.4	57.0	52.4	47.9	38.7	27.3	13.7	6.8	6.8	6.8
65°	57.0	45.6	36.5	31.9	27.3	20.5	9.1	4.6	2.3	2.3	2.3
67.5°	38.7	29.6	20.5	18.2	13.7	6.8	2.3	2.3	2.3	2.3	2.3
70°	25.1	18.2	9.1	6.8	4.6	2.3	2.3	2.3	2.3	2.3	2.3
72.5°	16.0	9.1	4.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	9.1	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	4.6	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: P219536

CATALOG NUMBER: LDSQ4B40D010 EU4B30509030 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5	1900.5
2.5°	1854.9	1839.0	1848.1	1827.6	1836.7	1852.7	1841.3	1845.8
5°	1791.1	1782.0	1770.6	1741.0	1763.8	1782.0	1772.9	1770.6
7.5°	1722.8	1690.9	1706.8	1697.7	1693.1	1711.4	1690.9	1713.6
10°	1652.1	1629.3	1627.1	1611.1	1611.1	1624.8	1627.1	1613.4
12.5°	1547.3	1535.9	1535.9	1533.6	1531.3	1545.0	1547.3	1540.5
15°	1472.1	1467.5	1456.1	1453.9	1440.2	1460.7	1463.0	1460.7
17.5°	1380.9	1383.2	1371.8	1371.8	1380.9	1387.8	1369.5	1387.8
20°	1319.4	1308.0	1303.5	1283.0	1294.3	1305.7	1305.7	1308.0
22.5°	1230.5	1212.3	1219.1	1207.8	1200.9	1216.9	1216.9	1223.7
25°	1130.3	1130.3	1134.8	1128.0	1132.6	1141.7	1134.8	1150.8
27.5°	1034.6	1043.7	1043.7	1034.6	1039.1	1066.5	1077.9	1059.6
30°	945.7	948.0	954.8	950.3	963.9	973.0	970.8	984.4
32.5°	845.4	856.8	861.4	854.5	859.1	879.6	868.2	865.9
35°	767.9	747.4	745.2	747.4	756.6	761.1	756.6	772.5
37.5°	656.3	649.5	640.3	642.6	649.5	658.6	663.1	674.5
40°	549.2	540.1	540.1	537.8	531.0	556.0	556.0	556.0
42.5°	455.8	453.5	442.1	442.1	451.2	458.0	453.5	469.4
45°	373.7	364.6	357.8	357.8	364.6	364.6	371.4	369.2
47.5°	294.0	284.8	287.1	280.3	287.1	296.2	284.8	287.1
50°	221.0	221.0	216.5	221.0	218.8	221.0	216.5	211.9
52.5°	150.4	170.9	173.2	164.1	143.6	125.3	113.9	123.1
55°	86.6	77.5	77.5	75.2	70.6	68.4	61.5	68.4
57.5°	43.3	38.7	38.7	38.7	36.5	34.2	29.6	29.6
60°	18.2	16.0	16.0	13.7	11.4	9.1	6.8	9.1
62.5°	6.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6
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)