

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: P219540

Luminaire Tested: **LDSQ4B40D010 EU4B30509727 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219540
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 EU4B30509727 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE 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: 2278.0 lumens
Efficiency: N/A
Efficacy: 53.0 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

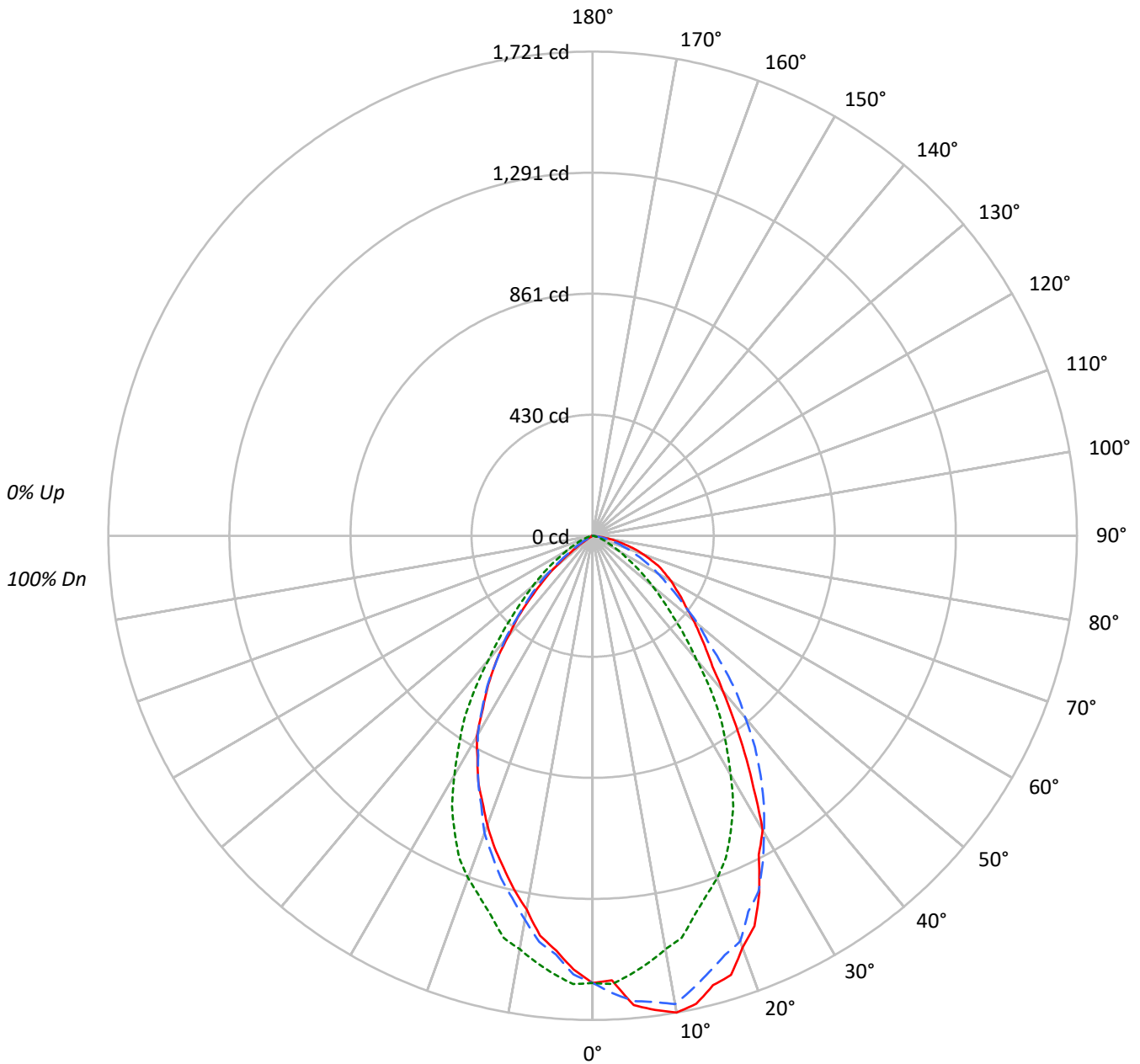
Input Watts (W): 43.02
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	153964	153964	153964
5°	162886	152141	143982
10°	169275	146778	132721
15°	165894	140089	122508
20°	160505	133392	112763
25°	149710	124046	102860
30°	135141	109781	92085
35°	111333	93972	76398
40°	90850	72539	58805
45°	78064	55089	42293
50°	70654	41928	26706
55°	65009	30249	9661
60°	62388	20673	1473
65°	60287	13983	436
70°	53986	9715	538
75°	44205	4978	0
80°	27615	2120	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	148.9	6.5
10°-20°	401.2	17.6
20°-30°	535.7	23.5
30°-40°	508.5	22.3
40°-50°	351.5	15.4
50°-60°	194.2	8.5
60°-70°	96.4	4.2
70°-80°	38.0	1.7
80°-90°	3.6	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°	1085.8	47.7
0°-40°	1594.3	70.0
0°-60°	2140.0	93.9
0°-90°	2278.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2278.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1589	1589	1589	1589	1589	
5°	1675	1660	1564	1494	1481	160
15°	1654	1604	1397	1260	1222	468
25°	1401	1395	1160	962	962	639
35°	941	1040	795	654	646	590
45°	570	654	402	330	309	444
55°	385	362	179	92	57	346
65°	263	191	61	2	2	255
75°	118	72	13	0	0	126
85°	0	2	0	0	0	11
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°	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3
2.5°	1581.6	1625.5	1629.3	1625.5	1631.2	1629.3	1638.8	1629.3	1640.7	1623.6	1627.4
5°	1675.0	1657.9	1694.1	1675.0	1675.0	1673.1	1667.4	1665.5	1673.1	1648.3	1659.8
7.5°	1699.8	1724.6	1757.0	1716.9	1718.8	1718.8	1707.4	1703.6	1703.6	1657.9	1671.2
10°	1720.8	1705.5	1722.7	1707.4	1720.8	1718.8	1726.5	1701.7	1718.8	1692.2	1690.3
12.5°	1703.6	1697.9	1720.8	1696.0	1688.4	1690.3	1680.7	1675.0	1680.7	1650.2	1648.3
15°	1654.1	1659.8	1694.1	1667.4	1663.6	1659.8	1648.3	1629.3	1644.5	1602.6	1604.5
17.5°	1636.9	1627.4	1633.1	1610.2	1615.9	1612.1	1610.2	1593.1	1589.3	1562.6	1562.6
20°	1556.9	1577.8	1577.8	1562.6	1562.6	1560.7	1535.9	1551.2	1534.0	1526.4	1534.0
22.5°	1501.6	1503.5	1503.5	1490.2	1492.1	1484.5	1471.1	1461.6	1471.1	1461.6	1446.3
25°	1400.6	1404.4	1427.3	1402.5	1398.7	1406.3	1394.9	1389.2	1387.3	1364.4	1394.9
27.5°	1278.7	1316.8	1314.9	1305.3	1316.8	1301.5	1295.8	1297.7	1303.4	1301.5	1309.1
30°	1208.1	1213.9	1219.6	1212.0	1213.9	1208.1	1208.1	1210.1	1225.3	1219.6	1217.7
32.5°	1065.2	1084.3	1099.5	1099.5	1101.4	1107.2	1105.2	1145.3	1154.8	1135.7	1131.9
35°	941.4	954.7	968.0	969.9	994.7	996.6	998.5	1010.0	1036.6	1042.4	1040.5
37.5°	823.2	836.6	840.4	857.5	870.9	884.2	899.4	914.7	937.6	956.6	947.1
40°	718.4	724.1	733.7	741.3	768.0	768.0	775.6	806.1	830.8	846.1	844.2
42.5°	630.8	632.7	640.3	653.6	678.4	672.7	678.4	699.4	735.6	737.5	758.4
45°	569.8	567.9	573.6	575.5	590.7	598.4	602.2	617.4	647.9	651.7	653.6
47.5°	514.5	512.6	522.1	525.9	531.7	539.3	539.3	541.2	552.6	562.2	554.5
50°	468.8	468.8	468.8	472.6	482.1	480.2	482.1	489.7	495.5	491.6	489.7
52.5°	419.2	426.9	432.6	434.5	436.4	436.4	438.3	434.5	432.6	426.9	415.4
55°	384.9	392.6	392.6	392.6	392.6	400.2	390.6	392.6	392.6	377.3	362.1
57.5°	350.6	358.3	364.0	356.3	364.0	356.3	352.5	350.6	346.8	331.6	308.7
60°	322.0	325.9	324.0	322.0	325.9	320.1	316.3	308.7	304.9	283.9	268.7
62.5°	289.7	291.6	293.5	289.7	285.8	283.9	276.3	264.9	257.3	240.1	226.8
65°	263.0	257.3	255.3	253.4	249.6	243.9	238.2	224.9	219.1	203.9	190.6
67.5°	223.0	221.0	224.9	219.1	209.6	209.6	203.9	192.5	179.1	169.6	156.3
70°	190.6	188.7	184.8	179.1	177.2	169.6	169.6	156.3	152.4	135.3	123.9
72.5°	156.3	156.3	150.5	144.8	139.1	135.3	133.4	123.9	118.1	108.6	99.1
75°	118.1	118.1	116.2	110.5	106.7	102.9	101.0	93.4	87.7	78.1	72.4
77.5°	83.8	83.8	76.2	72.4	74.3	70.5	66.7	64.8	62.9	57.2	49.5
80°	49.5	47.6	41.9	43.8	41.9	41.9	40.0	38.1	34.3	30.5	26.7
82.5°	13.3	15.2	15.2	15.2	17.2	13.3	13.3	13.3	15.2	15.2	9.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	1.9
87.5°	1.9	3.8	7.6	7.6	7.6	7.6	7.6	5.7	5.7	5.7	3.8
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°	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3
2.5°	1608.3	1606.4	1608.3	1595.0	1625.5	1602.6	1598.8	1595.0	1608.3	1595.0	1575.9
5°	1642.6	1623.6	1617.8	1612.1	1629.3	1602.6	1596.9	1598.8	1589.3	1564.5	1566.4
7.5°	1654.1	1636.9	1619.8	1583.5	1598.8	1593.1	1577.8	1566.4	1551.2	1530.2	1526.4
10°	1657.9	1638.8	1614.0	1602.6	1579.7	1572.1	1566.4	1547.3	1528.3	1492.1	1482.6
12.5°	1646.4	1623.6	1593.1	1583.5	1566.4	1541.6	1528.3	1509.2	1492.1	1463.5	1442.5
15°	1596.9	1577.8	1568.3	1535.9	1528.3	1513.0	1486.4	1459.7	1434.9	1396.8	1385.4
17.5°	1539.7	1532.1	1522.6	1497.8	1495.9	1480.6	1455.9	1433.0	1400.6	1341.5	1322.5
20°	1480.6	1480.6	1450.2	1440.6	1459.7	1429.2	1410.1	1389.2	1322.5	1293.9	1259.6
22.5°	1436.8	1415.9	1398.7	1383.5	1385.4	1366.3	1339.6	1297.7	1272.9	1238.6	1198.6
25°	1351.1	1358.7	1320.6	1314.9	1320.6	1276.7	1263.4	1229.1	1192.9	1160.5	1130.0
27.5°	1297.7	1276.7	1252.0	1231.0	1231.0	1213.9	1175.8	1168.1	1112.9	1082.4	1044.3
30°	1217.7	1202.4	1181.5	1151.0	1147.2	1133.8	1103.3	1084.3	1027.1	981.4	960.4
32.5°	1116.7	1111.0	1093.8	1059.5	1048.1	1032.8	994.7	962.3	935.6	884.2	859.4
35°	1044.3	1023.3	987.1	958.5	949.0	922.3	891.8	869.0	840.4	794.6	762.2
37.5°	935.6	914.7	880.4	846.1	846.1	819.4	777.5	754.6	714.6	687.9	661.2
40°	840.4	813.7	779.4	739.4	733.7	695.5	678.4	640.3	615.5	573.6	569.8
42.5°	733.7	708.9	678.4	647.9	625.0	606.0	562.2	533.6	506.9	485.9	480.2
45°	636.5	604.1	577.4	539.3	516.4	493.5	465.0	445.9	424.9	402.1	388.7
47.5°	552.6	525.9	487.8	453.5	430.7	419.2	386.8	365.9	348.7	333.5	324.0
50°	466.9	434.5	413.5	375.4	371.6	344.9	318.2	301.1	291.6	278.2	264.9
52.5°	402.1	371.6	343.0	314.4	299.2	289.7	264.9	247.7	234.4	224.9	217.2
55°	339.2	312.5	289.7	261.1	251.5	238.2	209.6	205.8	192.5	179.1	169.6
57.5°	291.6	266.8	240.1	221.0	203.9	194.4	171.5	156.3	148.6	137.2	127.7
60°	247.7	221.0	200.1	177.2	169.6	156.3	139.1	125.8	116.2	106.7	97.2
62.5°	207.7	184.8	162.0	142.9	131.5	123.9	110.5	99.1	89.6	81.9	74.3
65°	171.5	150.5	131.5	112.4	106.7	97.2	87.7	78.1	70.5	61.0	53.4
67.5°	141.0	122.0	102.9	89.6	83.8	80.0	68.6	59.1	53.4	47.6	40.0
70°	110.5	97.2	81.9	70.5	64.8	59.1	51.5	45.7	38.1	34.3	28.6
72.5°	85.8	74.3	61.0	51.5	47.6	43.8	36.2	30.5	26.7	22.9	19.1
75°	61.0	51.5	43.8	34.3	32.4	30.5	24.8	21.0	17.2	13.3	11.4
77.5°	41.9	34.3	26.7	22.9	21.0	17.2	15.2	11.4	9.5	7.6	5.7
80°	22.9	17.2	13.3	11.4	9.5	7.6	7.6	5.7	3.8	3.8	1.9
82.5°	7.6	5.7	3.8	1.9	1.9	1.9	1.9	1.9	1.9	0.0	1.9
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°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	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°	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3
2.5°	1587.4	1566.4	1572.1	1572.1	1568.3	1568.3	1564.5	1558.8	1560.7	1549.2	1524.5
5°	1570.2	1543.5	1539.7	1543.5	1528.3	1524.5	1516.9	1528.3	1494.0	1507.3	1492.1
7.5°	1520.7	1495.9	1490.2	1503.5	1484.5	1473.0	1471.1	1486.4	1455.9	1440.6	1423.5
10°	1465.4	1455.9	1438.7	1429.2	1423.5	1425.4	1410.1	1391.1	1385.4	1381.6	1366.3
12.5°	1415.9	1394.9	1379.7	1368.2	1364.4	1364.4	1339.6	1335.8	1318.7	1314.9	1292.0
15°	1356.8	1332.0	1322.5	1307.2	1293.9	1301.5	1272.9	1265.3	1259.6	1234.8	1238.6
17.5°	1305.3	1278.7	1255.8	1246.3	1234.8	1223.4	1196.7	1202.4	1189.1	1189.1	1154.8
20°	1238.6	1210.1	1192.9	1173.8	1173.8	1158.6	1139.5	1141.5	1124.3	1107.2	1076.7
22.5°	1168.1	1137.6	1116.7	1109.1	1090.0	1086.2	1063.3	1057.6	1034.7	1036.6	1010.0
25°	1093.8	1063.3	1034.7	1036.6	1019.5	1011.9	998.5	971.9	962.3	950.9	943.3
27.5°	1006.2	985.2	960.4	958.5	926.1	928.0	910.9	903.3	880.4	886.1	869.0
30°	926.1	895.6	872.8	867.0	853.7	849.9	823.2	811.8	815.6	800.3	790.8
32.5°	844.2	798.4	788.9	777.5	769.9	760.3	741.3	748.9	731.7	735.6	720.3
35°	735.6	716.5	691.7	691.7	684.1	676.5	663.1	670.8	653.6	646.0	630.8
37.5°	644.1	626.9	602.2	609.8	596.5	585.0	573.6	575.5	560.2	558.3	543.1
40°	545.0	535.5	518.3	518.3	508.8	508.8	503.1	497.4	487.8	476.4	459.2
42.5°	451.6	444.0	436.4	438.3	424.9	436.4	421.1	430.7	400.2	398.3	386.8
45°	383.0	365.9	367.8	360.2	352.5	356.3	343.0	346.8	329.7	325.9	314.4
47.5°	310.6	304.9	293.5	289.7	289.7	283.9	278.2	276.3	268.7	259.2	243.9
50°	255.3	234.4	230.6	224.9	221.0	221.0	213.4	202.0	203.9	194.4	179.1
52.5°	200.1	182.9	175.3	173.4	165.8	162.0	152.4	144.8	139.1	135.3	125.8
55°	154.4	139.1	129.6	129.6	118.1	118.1	104.8	99.1	91.5	83.8	78.1
57.5°	116.2	108.6	99.1	91.5	87.7	78.1	70.5	61.0	55.3	43.8	36.2
60°	87.7	80.0	70.5	64.8	61.0	51.5	41.9	34.3	21.0	17.2	15.2
62.5°	64.8	57.2	47.6	43.8	40.0	32.4	22.9	11.4	5.7	5.7	5.7
65°	47.6	38.1	30.5	26.7	22.9	17.2	7.6	3.8	1.9	1.9	1.9
67.5°	32.4	24.8	17.2	15.2	11.4	5.7	1.9	1.9	1.9	1.9	1.9
70°	21.0	15.2	7.6	5.7	3.8	1.9	1.9	1.9	1.9	1.9	1.9
72.5°	13.3	7.6	3.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	7.6	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	3.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.9	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	1.9	1.9	1.9
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: P219540

CATALOG NUMBER: LDSQ4B40D010 EU4B30509727 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3	1589.3
2.5°	1551.2	1537.8	1545.4	1528.3	1535.9	1549.2	1539.7	1543.5
5°	1497.8	1490.2	1480.6	1455.9	1474.9	1490.2	1482.6	1480.6
7.5°	1440.6	1414.0	1427.3	1419.7	1415.9	1431.1	1414.0	1433.0
10°	1381.6	1362.5	1360.6	1347.3	1347.3	1358.7	1360.6	1349.2
12.5°	1293.9	1284.4	1284.4	1282.5	1280.6	1292.0	1293.9	1288.2
15°	1231.0	1227.2	1217.7	1215.8	1204.3	1221.5	1223.4	1221.5
17.5°	1154.8	1156.7	1147.2	1147.2	1154.8	1160.5	1145.3	1160.5
20°	1103.3	1093.8	1090.0	1072.8	1082.4	1091.9	1091.9	1093.8
22.5°	1029.0	1013.8	1019.5	1010.0	1004.2	1017.6	1017.6	1023.3
25°	945.2	945.2	949.0	943.3	947.1	954.7	949.0	962.3
27.5°	865.1	872.8	872.8	865.1	869.0	891.8	901.3	886.1
30°	790.8	792.7	798.4	794.6	806.1	813.7	811.8	823.2
32.5°	707.0	716.5	720.3	714.6	718.4	735.6	726.0	724.1
35°	642.2	625.0	623.1	625.0	632.7	636.5	632.7	646.0
37.5°	548.8	543.1	535.5	537.4	543.1	550.7	554.5	564.1
40°	459.2	451.6	451.6	449.7	444.0	465.0	465.0	465.0
42.5°	381.1	379.2	369.7	369.7	377.3	383.0	379.2	392.6
45°	312.5	304.9	299.2	299.2	304.9	304.9	310.6	308.7
47.5°	245.8	238.2	240.1	234.4	240.1	247.7	238.2	240.1
50°	184.8	184.8	181.0	184.8	182.9	184.8	181.0	177.2
52.5°	125.8	142.9	144.8	137.2	120.1	104.8	95.3	102.9
55°	72.4	64.8	64.8	62.9	59.1	57.2	51.5	57.2
57.5°	36.2	32.4	32.4	32.4	30.5	28.6	24.8	24.8
60°	15.2	13.3	13.3	11.4	9.5	7.6	5.7	7.6
62.5°	5.7	3.8	3.8	3.8	3.8	3.8	3.8	3.8
65°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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)