

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: P251644

Luminaire Tested: **LD4B40D010 EU4B30509050 4LBSW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251644  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-13)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LD4B40D010 EU4B30509050 4LBSW1H  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3161.0 lumens  
Efficiency: N/A  
Efficacy: 73.5 lumens/watt  
Spacing Criteria (0/90/45): 1.17 / 1.17 / 1.15  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

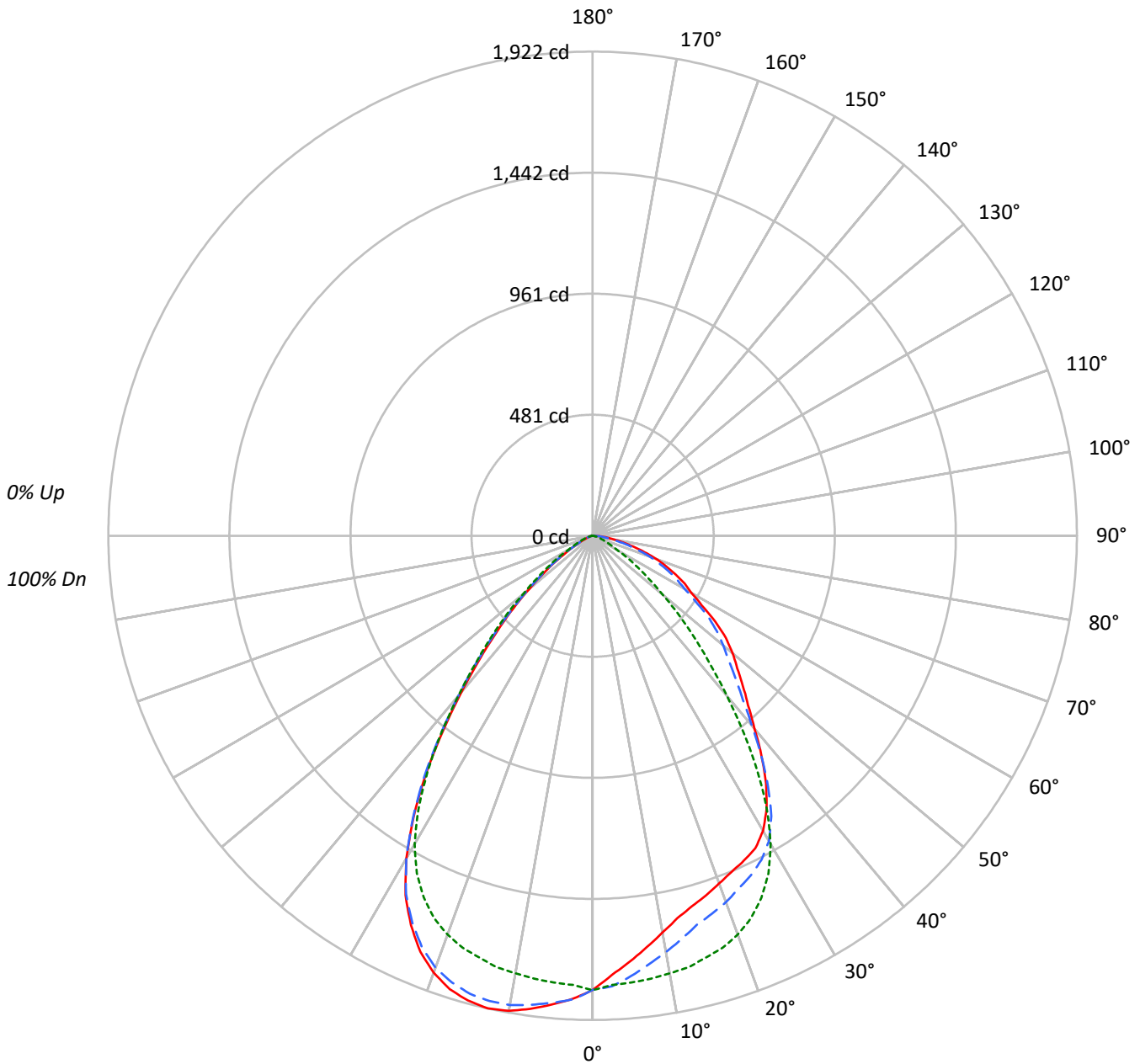
Input Watts (W): 43.02  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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					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	108	104	101	109	106	103	100	101	99	97	98	96	94	94	93	91	89								
2	104	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	81	79								
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	72	70								
4	90	80	72	67	88	78	72	66	76	70	66	74	69	65	72	68	64	62								
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56								
6	78	67	59	53	76	66	59	53	64	58	53	62	57	52	61	56	52	50								
7	73	61	54	48	71	61	53	48	59	53	48	58	52	48	56	51	47	46								
8	68	57	49	44	67	56	49	44	55	48	44	54	48	43	52	47	43	42								
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38								
10	61	49	42	37	59	48	42	37	47	41	37	47	41	37	46	40	37	35								

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

	0°	90°	180°
0°	175746	175746	175746
5°	165959	174148	182786
10°	158220	174548	189501
15°	153574	174913	192732
20°	152323	174735	191360
25°	152934	170429	183419
30°	152203	159001	166327
35°	142662	135750	137130
40°	127133	105251	102885
45°	116270	78465	73668
50°	109923	54961	49685
55°	101081	37109	31196
60°	88336	21733	17211
65°	83594	13929	9639
70°	76138	9945	5955
75°	62997	7004	4368
80°	49557	3929	2582
85°	44169	2572	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	170.4	5.4
10°-20°	488.8	15.5
20°-30°	724.6	22.9
30°-40°	725.6	23.0
40°-50°	507.1	16.0
50°-60°	301.8	9.5
60°-70°	157.5	5.0
70°-80°	70.0	2.2
80°-90°	15.3	0.5
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°	1383.8	43.8
0°-40°	2109.4	66.7
0°-60°	2918.2	92.3
0°-90°	3161.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3161.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1803	1803	1803	1803	1803	
5°	1696	1754	1780	1861	1868	159
15°	1522	1599	1734	1882	1910	431
25°	1422	1487	1585	1694	1706	655
35°	1199	1213	1141	1162	1153	743
45°	844	802	569	551	534	655
55°	595	558	218	191	184	528
65°	362	332	60	44	42	359
75°	167	146	19	12	12	181
85°	40	30	2	2	0	44
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°	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3
2.5°	1745.2	1766.1	1745.2	1752.2	1780.1	1754.5	1768.5	1768.5	1761.5	1777.7	1789.4
5°	1696.4	1717.3	1696.4	1705.7	1735.9	1710.4	1726.6	1722.0	1724.3	1738.2	1754.5
7.5°	1647.6	1663.9	1645.3	1656.9	1684.8	1663.9	1677.8	1677.8	1680.1	1701.1	1715.0
10°	1598.8	1612.8	1598.8	1608.1	1638.3	1619.7	1629.0	1631.3	1638.3	1656.9	1677.8
12.5°	1554.7	1566.3	1552.3	1566.3	1591.8	1573.2	1584.9	1587.2	1594.2	1615.1	1638.3
15°	1522.1	1533.7	1519.8	1531.4	1554.7	1540.7	1550.0	1554.7	1559.3	1577.9	1598.8
17.5°	1496.6	1505.9	1494.2	1508.2	1526.8	1510.5	1524.4	1524.4	1531.4	1550.0	1573.2
20°	1468.7	1478.0	1468.7	1480.3	1501.2	1487.3	1498.9	1498.9	1505.9	1526.8	1547.7
22.5°	1443.1	1447.8	1443.1	1452.4	1473.3	1461.7	1468.7	1471.0	1478.0	1496.6	1515.2
25°	1422.2	1431.5	1426.8	1436.1	1450.1	1438.5	1445.4	1447.8	1454.7	1471.0	1487.3
27.5°	1399.0	1403.6	1399.0	1410.6	1422.2	1412.9	1419.9	1417.6	1422.2	1436.1	1450.1
30°	1352.5	1357.1	1357.1	1364.1	1373.4	1368.7	1375.7	1368.7	1373.4	1385.0	1399.0
32.5°	1285.1	1287.4	1289.7	1296.7	1303.7	1296.7	1301.4	1301.4	1301.4	1310.7	1319.9
35°	1199.1	1203.8	1201.4	1206.1	1213.1	1210.7	1210.7	1208.4	1203.8	1208.4	1213.1
37.5°	1101.5	1094.5	1094.5	1101.5	1106.2	1096.9	1101.5	1096.9	1096.9	1099.2	1099.2
40°	999.3	992.3	999.3	1001.6	1003.9	999.3	996.9	992.3	985.3	987.6	983.0
42.5°	913.3	908.6	911.0	911.0	913.3	908.6	911.0	901.7	894.7	890.0	883.1
45°	843.6	836.6	843.6	838.9	838.9	836.6	834.3	829.6	820.3	813.3	801.7
47.5°	778.5	778.5	780.8	780.8	780.8	776.2	776.2	766.9	757.6	748.3	732.0
50°	725.0	720.4	729.7	729.7	722.7	720.4	722.7	711.1	704.1	692.5	676.2
52.5°	666.9	666.9	669.3	669.3	666.9	662.3	664.6	655.3	648.4	636.7	620.5
55°	594.9	590.3	597.2	597.2	594.9	592.6	594.9	587.9	581.0	571.7	557.7
57.5°	513.6	511.2	515.9	518.2	513.6	513.6	515.9	508.9	506.6	497.3	483.4
60°	453.2	450.8	455.5	457.8	453.2	453.2	453.2	443.9	439.2	429.9	420.6
62.5°	411.3	409.0	413.6	411.3	409.0	406.7	409.0	399.7	395.1	385.8	376.5
65°	362.5	364.8	367.2	367.2	364.8	362.5	362.5	357.9	353.2	343.9	332.3
67.5°	316.0	316.0	318.4	320.7	318.4	318.4	318.4	311.4	306.7	299.8	285.8
70°	267.2	264.9	271.9	271.9	267.2	269.6	267.2	264.9	260.3	251.0	239.4
72.5°	216.1	216.1	218.4	218.4	216.1	216.1	216.1	213.8	206.8	202.2	190.6
75°	167.3	167.3	169.6	172.0	167.3	167.3	169.6	165.0	160.3	153.4	146.4
77.5°	125.5	123.2	125.5	125.5	123.2	123.2	123.2	120.8	118.5	111.5	104.6
80°	88.3	86.0	88.3	88.3	88.3	86.0	86.0	83.7	83.7	79.0	72.0
82.5°	60.4	58.1	60.4	60.4	60.4	58.1	58.1	58.1	55.8	53.4	48.8
85°	39.5	37.2	37.2	39.5	37.2	37.2	37.2	37.2	34.9	32.5	30.2
87.5°	18.6	18.6	18.6	18.6	18.6	18.6	18.6	16.3	16.3	16.3	13.9
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°	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3
2.5°	1780.1	1775.4	1789.4	1784.7	1787.0	1775.4	1794.0	1784.7	1796.3	1784.7	1808.0
5°	1749.9	1745.2	1766.1	1763.8	1766.1	1756.8	1777.7	1775.4	1789.4	1780.1	1805.6
7.5°	1717.3	1712.7	1735.9	1738.2	1742.9	1733.6	1761.5	1761.5	1775.4	1773.1	1801.0
10°	1680.1	1682.5	1705.7	1710.4	1719.7	1715.0	1740.6	1747.5	1766.1	1763.8	1798.7
12.5°	1645.3	1645.3	1675.5	1684.8	1691.8	1689.4	1719.7	1728.9	1749.9	1754.5	1787.0
15°	1610.4	1612.8	1640.6	1654.6	1663.9	1661.6	1694.1	1705.7	1731.3	1733.6	1773.1
17.5°	1582.5	1580.2	1610.4	1622.0	1636.0	1633.7	1668.5	1682.5	1708.0	1715.0	1752.2
20°	1559.3	1557.0	1584.9	1598.8	1608.1	1605.8	1640.6	1656.9	1680.1	1684.8	1722.0
22.5°	1531.4	1526.8	1554.7	1566.3	1575.6	1573.2	1603.5	1615.1	1638.3	1643.0	1677.8
25°	1498.9	1494.2	1519.8	1526.8	1533.7	1529.1	1554.7	1561.6	1580.2	1584.9	1619.7
27.5°	1461.7	1450.1	1471.0	1471.0	1475.6	1468.7	1487.3	1494.2	1510.5	1510.5	1543.0
30°	1403.6	1387.3	1399.0	1396.6	1399.0	1389.7	1401.3	1403.6	1415.2	1412.9	1436.1
32.5°	1322.3	1299.0	1306.0	1299.0	1292.1	1278.1	1292.1	1287.4	1296.7	1287.4	1308.3
35°	1210.7	1187.5	1185.2	1175.9	1168.9	1157.3	1157.3	1145.7	1148.0	1141.0	1155.0
37.5°	1089.9	1059.7	1055.0	1036.4	1024.8	1010.9	1010.9	1001.6	990.0	985.3	996.9
40°	971.4	938.8	927.2	897.0	885.4	871.4	862.1	850.5	845.9	827.3	836.6
42.5°	869.1	834.3	808.7	776.2	764.5	743.6	729.7	715.7	708.8	687.9	697.2
45°	783.1	741.3	713.4	671.6	655.3	632.1	611.2	594.9	578.6	569.3	564.7
47.5°	711.1	666.9	629.8	583.3	557.7	536.8	508.9	492.7	471.7	460.1	453.2
50°	650.7	601.9	560.0	506.6	481.0	457.8	425.3	399.7	381.1	362.5	357.9
52.5°	597.2	546.1	499.6	439.2	409.0	381.1	346.3	318.4	302.1	281.2	278.9
55°	534.5	490.3	439.2	376.5	346.3	318.4	281.2	253.3	232.4	218.4	213.8
57.5°	467.1	425.3	376.5	313.7	283.5	253.3	218.4	192.9	174.3	162.7	160.3
60°	404.4	364.8	318.4	255.6	225.4	199.9	162.7	137.1	120.8	111.5	106.9
62.5°	357.9	320.7	276.5	218.4	190.6	165.0	130.1	106.9	93.0	83.7	79.0
65°	313.7	276.5	237.0	183.6	160.3	137.1	104.6	83.7	69.7	60.4	55.8
67.5°	267.2	234.7	197.5	153.4	130.1	111.5	83.7	65.1	53.4	46.5	41.8
70°	220.8	190.6	160.3	123.2	106.9	88.3	65.1	51.1	39.5	34.9	30.2
72.5°	174.3	151.1	125.5	95.3	81.3	69.7	51.1	37.2	30.2	25.6	20.9
75°	130.1	113.9	93.0	72.0	60.4	51.1	37.2	27.9	23.2	18.6	16.3
77.5°	93.0	79.0	65.1	48.8	44.2	37.2	25.6	20.9	16.3	11.6	9.3
80°	62.7	55.8	44.2	34.9	27.9	25.6	18.6	13.9	9.3	7.0	7.0
82.5°	41.8	34.9	27.9	20.9	18.6	16.3	11.6	9.3	7.0	4.6	4.6
85°	25.6	20.9	16.3	11.6	11.6	9.3	7.0	4.6	2.3	2.3	2.3
87.5°	11.6	9.3	7.0	4.6	4.6	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°	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3
2.5°	1826.5	1812.6	1803.3	1814.9	1819.6	1812.6	1819.6	1831.2	1842.8	1845.1	1812.6
5°	1828.9	1814.9	1810.3	1824.2	1826.5	1824.2	1831.2	1847.5	1861.4	1866.1	1833.5
7.5°	1828.9	1819.6	1817.3	1833.5	1835.8	1833.5	1845.1	1863.7	1877.7	1887.0	1854.4
10°	1824.2	1819.6	1821.9	1835.8	1840.5	1840.5	1856.8	1877.7	1891.6	1900.9	1868.4
12.5°	1817.3	1817.3	1817.3	1833.5	1838.2	1840.5	1854.4	1882.3	1891.6	1905.6	1873.0
15°	1805.6	1805.6	1805.6	1821.9	1828.9	1828.9	1845.1	1870.7	1882.3	1896.3	1863.7
17.5°	1784.7	1784.7	1787.0	1801.0	1808.0	1808.0	1824.2	1852.1	1859.1	1875.3	1842.8
20°	1754.5	1754.5	1756.8	1770.8	1777.7	1773.1	1794.0	1817.3	1824.2	1838.2	1805.6
22.5°	1710.4	1710.4	1710.4	1724.3	1728.9	1726.6	1747.5	1768.5	1768.5	1787.0	1752.2
25°	1645.3	1649.9	1645.3	1659.2	1663.9	1661.6	1680.1	1698.7	1694.1	1715.0	1680.1
27.5°	1566.3	1564.0	1564.0	1575.6	1575.6	1573.2	1587.2	1608.1	1603.5	1617.4	1584.9
30°	1457.1	1464.0	1452.4	1468.7	1461.7	1457.1	1466.4	1484.9	1478.0	1489.6	1464.0
32.5°	1331.6	1322.3	1322.3	1322.3	1326.9	1315.3	1324.6	1333.9	1326.9	1338.5	1310.7
35°	1166.6	1168.9	1161.9	1164.3	1166.6	1152.6	1161.9	1171.2	1161.9	1168.9	1143.3
37.5°	1001.6	1003.9	987.6	996.9	987.6	983.0	992.3	996.9	987.6	994.6	966.7
40°	836.6	831.9	829.6	829.6	831.9	820.3	827.3	834.3	827.3	831.9	806.4
42.5°	692.5	690.2	685.5	687.9	680.9	678.6	680.9	687.9	680.9	685.5	666.9
45°	567.0	562.4	555.4	557.7	557.7	546.1	553.1	557.7	550.8	553.1	536.8
47.5°	450.8	443.9	443.9	441.5	441.5	436.9	443.9	441.5	434.6	439.2	422.9
50°	350.9	346.3	346.3	346.3	346.3	339.3	341.6	346.3	339.3	339.3	330.0
52.5°	274.2	267.2	262.6	262.6	262.6	260.3	260.3	262.6	255.6	255.6	253.3
55°	206.8	204.5	197.5	197.5	197.5	190.6	192.9	192.9	190.6	190.6	183.6
57.5°	153.4	146.4	141.8	141.8	137.1	137.1	134.8	137.1	132.5	132.5	127.8
60°	102.2	97.6	95.3	93.0	93.0	90.6	93.0	90.6	90.6	88.3	86.0
62.5°	74.4	69.7	65.1	65.1	65.1	62.7	62.7	62.7	62.7	62.7	60.4
65°	53.4	48.8	48.8	46.5	46.5	44.2	44.2	44.2	44.2	44.2	41.8
67.5°	37.2	34.9	32.5	32.5	32.5	32.5	32.5	32.5	30.2	30.2	30.2
70°	27.9	25.6	23.2	23.2	23.2	23.2	23.2	20.9	23.2	23.2	20.9
72.5°	18.6	18.6	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
75°	13.9	13.9	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
77.5°	9.3	9.3	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
80°	7.0	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
82.5°	4.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	0.0
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: P251644

CATALOG NUMBER: LD4B40D010 EU4B30509050 4LBSW1H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3	1803.3
2.5°	1847.5	1845.1	1840.5	1847.5	1828.9	1821.9	1819.6	1840.5
5°	1873.0	1868.4	1868.4	1875.3	1854.4	1849.8	1845.1	1868.4
7.5°	1896.3	1891.6	1891.6	1898.6	1880.0	1875.3	1870.7	1893.9
10°	1910.2	1910.2	1910.2	1914.9	1898.6	1893.9	1891.6	1914.9
12.5°	1917.2	1917.2	1914.9	1924.2	1903.2	1903.2	1898.6	1921.8
15°	1907.9	1907.9	1907.9	1914.9	1896.3	1891.6	1891.6	1910.2
17.5°	1884.6	1884.6	1882.3	1889.3	1868.4	1868.4	1866.1	1887.0
20°	1849.8	1849.8	1845.1	1854.4	1833.5	1826.5	1824.2	1845.1
22.5°	1794.0	1791.7	1789.4	1794.0	1775.4	1770.8	1768.5	1787.0
25°	1722.0	1719.7	1715.0	1719.7	1698.7	1691.8	1691.8	1705.7
27.5°	1619.7	1619.7	1612.8	1619.7	1596.5	1594.2	1591.8	1608.1
30°	1494.2	1484.9	1480.3	1489.6	1466.4	1466.4	1461.7	1478.0
32.5°	1338.5	1329.2	1326.9	1331.6	1310.7	1303.7	1313.0	1322.3
35°	1159.6	1161.9	1152.6	1152.6	1134.0	1136.4	1138.7	1152.6
37.5°	987.6	983.0	980.7	983.0	969.0	964.4	959.8	973.7
40°	827.3	815.7	813.3	813.3	801.7	799.4	801.7	808.7
42.5°	676.2	673.9	664.6	669.3	657.7	662.3	660.0	660.0
45°	546.1	548.4	539.1	546.1	536.8	529.8	529.8	534.5
47.5°	432.2	432.2	429.9	429.9	422.9	425.3	420.6	427.6
50°	334.6	334.6	330.0	332.3	327.7	327.7	325.3	327.7
52.5°	255.6	253.3	253.3	251.0	246.3	248.7	251.0	246.3
55°	185.9	188.2	183.6	185.9	181.3	183.6	181.3	183.6
57.5°	127.8	130.1	125.5	130.1	125.5	127.8	125.5	125.5
60°	88.3	88.3	86.0	88.3	86.0	86.0	83.7	88.3
62.5°	60.4	60.4	60.4	60.4	60.4	58.1	60.4	60.4
65°	44.2	41.8	41.8	41.8	41.8	41.8	41.8	41.8
67.5°	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2
70°	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
72.5°	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
75°	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
77.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
80°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	2.3	2.3	2.3	0.0	2.3	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



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















(END OF REPORT)