

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: P251562

Luminaire Tested: **LD4B40D010 EU4B30509027 4LBSW1LI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251562  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-10)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LD4B40D010 EU4B30509027 4LBSW1LI  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3098.0 lumens  
Efficiency: N/A  
Efficacy: 72.0 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.3 / 1.19  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

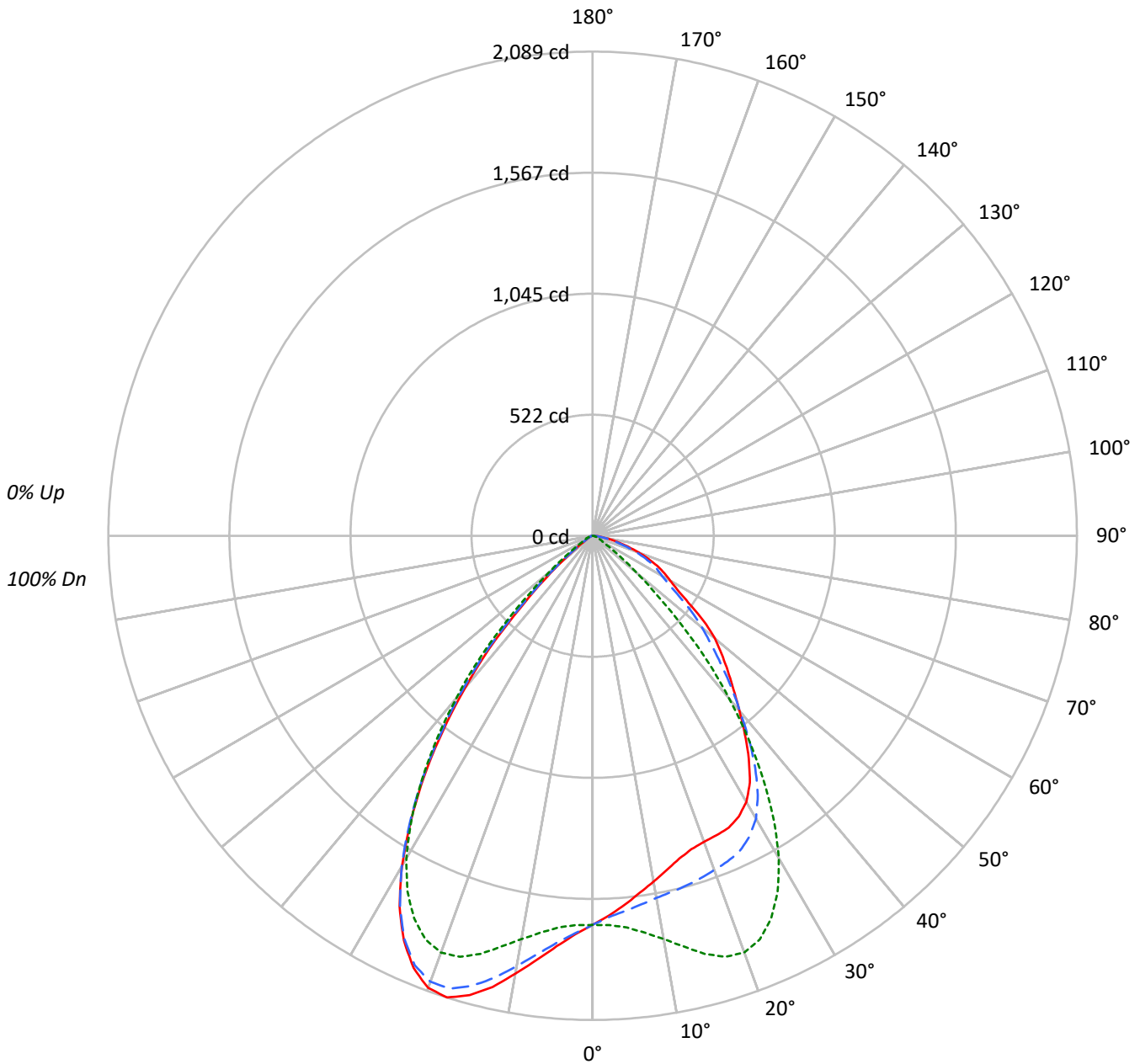
Input Watts (W): 43.02  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				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	85	82	80			
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72			
4	91	81	75	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	79	69	61	56	78	68	61	56	66	60	55	64	59	55	63	58	54	53			
7	75	63	56	51	73	62	55	51	61	55	50	60	54	50	58	53	50	48			
8	70	58	51	46	69	58	51	46	57	50	46	55	50	46	54	49	45	44			
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	46	42	40			
10	62	51	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37			

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

	0°	90°	180°
0°	163613	163613	163613
5°	156304	165950	173884
10°	149867	174816	189779
15°	145502	188403	206978
20°	145696	198434	215256
25°	149417	195850	207163
30°	149210	180787	184974
35°	139759	152799	150717
40°	125187	116549	108737
45°	113583	74013	60713
50°	104343	37556	25911
55°	85653	16753	8564
60°	75179	9395	4697
65°	70750	7080	3528
70°	60580	5613	3134
75°	46203	4142	2485
80°	33225	2469	1235
85°	24489	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	163.1	5.3
10°-20°	508.2	16.4
20°-30°	786.3	25.4
30°-40°	774.7	25.0
40°-50°	475.7	15.4
50°-60°	211.5	6.8
60°-70°	118.1	3.8
70°-80°	51.1	1.7
80°-90°	9.1	0.3
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°	1457.6	47.0
0°-40°	2232.3	72.1
0°-60°	2919.6	94.2
0°-90°	3098.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3098.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1679	1679	1679	1679	1679	
5°	1598	1624	1696	1762	1777	150
15°	1442	1563	1867	2010	2051	409
25°	1390	1501	1821	1920	1926	638
35°	1175	1223	1284	1280	1267	729
45°	824	782	537	469	440	638
55°	504	456	99	57	50	463
65°	307	276	31	18	15	300
75°	123	105	11	7	7	135
85°	22	18	0	0	0	27
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°	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8
2.5°	1639.3	1639.3	1639.3	1639.3	1643.7	1637.2	1643.7	1643.7	1650.3	1652.5	1645.9
5°	1597.7	1595.5	1597.7	1597.7	1602.1	1599.9	1606.5	1610.9	1619.6	1624.0	1624.0
7.5°	1553.9	1553.9	1553.9	1558.3	1564.8	1562.6	1569.2	1575.8	1588.9	1597.7	1604.3
10°	1514.4	1512.2	1518.8	1521.0	1527.6	1527.6	1538.5	1545.1	1560.5	1578.0	1586.7
12.5°	1477.2	1475.0	1479.4	1485.9	1496.9	1496.9	1505.7	1516.6	1538.5	1558.3	1573.6
15°	1442.1	1444.3	1450.9	1455.3	1468.4	1468.4	1479.4	1492.5	1516.6	1540.7	1562.6
17.5°	1418.0	1420.2	1424.6	1431.1	1444.3	1444.3	1455.3	1470.6	1496.9	1523.2	1549.5
20°	1404.8	1407.0	1411.4	1418.0	1429.0	1431.1	1439.9	1457.4	1481.6	1510.0	1534.2
22.5°	1398.3	1402.7	1407.0	1411.4	1422.4	1422.4	1433.3	1446.5	1470.6	1499.1	1521.0
25°	1389.5	1393.9	1396.1	1402.7	1411.4	1411.4	1418.0	1433.3	1455.3	1479.4	1501.3
27.5°	1365.4	1369.8	1372.0	1378.5	1387.3	1385.1	1393.9	1404.8	1424.6	1446.5	1464.0
30°	1325.9	1328.1	1332.5	1334.7	1341.3	1341.3	1347.9	1358.8	1372.0	1391.7	1409.2
32.5°	1262.4	1266.8	1269.0	1271.2	1277.7	1275.5	1277.7	1284.3	1297.5	1315.0	1325.9
35°	1174.7	1183.5	1183.5	1187.9	1190.1	1187.9	1187.9	1196.6	1203.2	1216.4	1222.9
37.5°	1078.3	1084.9	1082.7	1087.1	1089.2	1082.7	1087.1	1089.2	1098.0	1104.6	1106.8
40°	984.0	986.2	986.2	986.2	986.2	984.0	986.2	988.4	995.0	995.0	988.4
42.5°	898.6	900.8	900.8	896.4	900.8	898.6	898.6	898.6	898.6	889.8	883.2
45°	824.1	826.2	826.2	824.1	824.1	819.7	817.5	815.3	808.7	797.8	782.4
47.5°	753.9	758.3	760.5	756.1	753.9	749.5	749.5	736.4	727.6	714.5	692.6
50°	688.2	692.6	692.6	688.2	688.2	681.6	675.0	670.6	657.5	642.2	615.9
52.5°	604.9	611.5	611.5	609.3	609.3	600.5	598.3	589.6	578.6	561.1	539.1
55°	504.1	512.8	510.7	508.5	504.1	504.1	504.1	497.5	490.9	477.8	455.9
57.5°	431.8	433.9	433.9	431.8	431.8	427.4	427.4	420.8	418.6	405.5	387.9
60°	385.7	385.7	387.9	385.7	383.5	381.3	379.2	374.8	368.2	359.4	346.3
62.5°	348.5	350.7	350.7	348.5	346.3	344.1	341.9	337.5	333.1	326.6	313.4
65°	306.8	311.2	309.0	306.8	304.6	302.4	302.4	298.1	293.7	289.3	276.1
67.5°	260.8	263.0	265.2	260.8	260.8	258.6	258.6	254.2	252.0	243.3	234.5
70°	212.6	214.8	214.8	212.6	212.6	210.4	210.4	208.2	206.0	199.4	190.7
72.5°	166.6	168.8	166.6	164.4	164.4	164.4	162.2	160.0	157.8	153.4	146.8
75°	122.7	122.7	124.9	122.7	120.5	120.5	118.3	118.3	114.0	111.8	105.2
77.5°	87.7	89.9	87.7	87.7	85.5	83.3	83.3	81.1	81.1	78.9	74.5
80°	59.2	59.2	61.4	59.2	57.0	59.2	57.0	54.8	54.8	52.6	48.2
82.5°	37.3	39.4	37.3	37.3	37.3	37.3	37.3	35.1	35.1	32.9	30.7
85°	21.9	21.9	21.9	21.9	21.9	21.9	21.9	19.7	19.7	19.7	17.5
87.5°	11.0	11.0	8.8	8.8	11.0	11.0	11.0	8.8	8.8	8.8	8.8
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°	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8
2.5°	1654.7	1656.9	1661.3	1667.8	1667.8	1663.5	1674.4	1674.4	1678.8	1681.0	1689.8
5°	1637.2	1641.5	1650.3	1661.3	1663.5	1661.3	1676.6	1683.2	1689.8	1696.3	1709.5
7.5°	1621.8	1630.6	1645.9	1661.3	1667.8	1667.8	1691.9	1700.7	1713.9	1727.0	1742.4
10°	1613.0	1626.2	1648.1	1672.2	1678.8	1685.4	1713.9	1731.4	1748.9	1766.5	1788.4
12.5°	1602.1	1626.2	1654.7	1685.4	1698.5	1707.3	1746.7	1768.7	1792.8	1814.7	1843.2
15°	1599.9	1628.4	1665.6	1705.1	1722.6	1735.8	1779.6	1810.3	1838.8	1867.3	1895.8
17.5°	1591.1	1626.2	1672.2	1716.1	1738.0	1755.5	1805.9	1843.2	1876.0	1904.5	1937.4
20°	1580.2	1619.6	1670.0	1718.2	1742.4	1759.9	1814.7	1849.7	1887.0	1913.3	1944.0
22.5°	1564.8	1604.3	1654.7	1702.9	1724.8	1740.2	1795.0	1825.6	1858.5	1884.8	1913.3
25°	1538.5	1575.8	1619.6	1659.1	1681.0	1694.1	1742.4	1770.8	1795.0	1821.3	1847.6
27.5°	1501.3	1529.8	1567.0	1595.5	1608.7	1621.8	1661.3	1685.4	1707.3	1729.2	1746.7
30°	1435.5	1457.4	1483.7	1507.9	1521.0	1523.2	1560.5	1573.6	1591.1	1606.5	1619.6
32.5°	1347.9	1365.4	1380.7	1393.9	1402.7	1404.8	1433.3	1437.7	1455.3	1455.3	1475.0
35°	1236.1	1244.9	1255.8	1255.8	1262.4	1255.8	1275.5	1279.9	1282.1	1284.3	1299.6
37.5°	1109.0	1113.4	1119.9	1106.8	1106.8	1100.2	1106.8	1111.2	1102.4	1102.4	1113.4
40°	988.4	979.7	970.9	957.7	951.2	938.0	938.0	927.1	920.5	916.1	918.3
42.5°	872.3	852.5	832.8	804.3	791.2	778.0	764.9	749.5	745.2	734.2	727.6
45°	760.5	732.0	705.7	659.7	633.4	620.2	591.7	561.1	541.3	537.0	519.4
47.5°	666.3	624.6	580.8	526.0	499.7	475.6	433.9	407.6	381.3	368.2	357.2
50°	583.0	545.7	488.7	429.6	396.7	372.6	326.6	295.9	267.4	247.7	234.5
52.5°	510.7	469.0	416.4	348.5	315.6	289.3	238.9	203.8	179.7	160.0	144.6
55°	429.6	396.7	344.1	280.5	247.7	217.0	173.1	135.9	111.8	98.6	87.7
57.5°	370.4	341.9	291.5	230.1	199.4	170.9	127.1	96.4	76.7	63.6	57.0
60°	330.9	304.6	260.8	201.6	173.1	146.8	105.2	76.7	59.2	48.2	43.8
62.5°	298.1	271.8	232.3	177.5	153.4	127.1	89.9	63.6	48.2	39.4	32.9
65°	260.8	236.7	201.6	153.4	131.5	109.6	76.7	52.6	39.4	30.7	26.3
67.5°	221.4	199.4	168.8	127.1	109.6	92.0	61.4	43.8	32.9	26.3	21.9
70°	179.7	162.2	133.7	103.0	87.7	72.3	50.4	35.1	24.1	19.7	17.5
72.5°	138.1	122.7	103.0	78.9	65.7	54.8	37.3	26.3	19.7	15.3	13.1
75°	98.6	87.7	72.3	57.0	48.2	39.4	28.5	19.7	13.1	11.0	8.8
77.5°	67.9	61.4	50.4	39.4	32.9	28.5	19.7	13.1	11.0	8.8	6.6
80°	43.8	39.4	32.9	24.1	19.7	17.5	11.0	8.8	6.6	4.4	4.4
82.5°	26.3	24.1	19.7	13.1	11.0	8.8	6.6	4.4	4.4	2.2	2.2
85°	15.3	13.1	8.8	6.6	6.6	4.4	4.4	2.2	2.2	0.0	0.0
87.5°	6.6	4.4	4.4	2.2	2.2	2.2	2.2	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



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**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8
2.5°	1685.4	1696.3	1694.1	1700.7	1698.5	1698.5	1709.5	1705.1	1716.1	1716.1	1718.2
5°	1709.5	1724.8	1724.8	1735.8	1733.6	1738.0	1748.9	1748.9	1762.1	1766.5	1766.5
7.5°	1744.5	1764.3	1768.7	1779.6	1781.8	1790.6	1799.3	1801.5	1819.1	1823.4	1825.6
10°	1792.8	1816.9	1823.4	1834.4	1838.8	1847.6	1858.5	1862.9	1884.8	1887.0	1895.8
12.5°	1851.9	1878.2	1884.8	1898.0	1900.2	1911.1	1926.5	1930.8	1952.8	1959.3	1965.9
15°	1908.9	1933.0	1944.0	1957.1	1959.3	1972.5	1985.6	1990.0	2009.7	2018.5	2025.1
17.5°	1948.4	1976.9	1983.4	2001.0	2001.0	2011.9	2025.1	2029.5	2049.2	2055.8	2060.1
20°	1957.1	1983.4	1992.2	2005.4	2007.5	2014.1	2025.1	2029.5	2047.0	2049.2	2055.8
22.5°	1924.3	1950.6	1954.9	1968.1	1970.3	1976.9	1985.6	1983.4	2005.4	2003.2	2005.4
25°	1854.1	1878.2	1878.2	1893.6	1891.4	1898.0	1902.3	1900.2	1919.9	1919.9	1919.9
27.5°	1753.3	1775.2	1777.4	1788.4	1781.8	1784.0	1788.4	1786.2	1799.3	1799.3	1799.3
30°	1628.4	1645.9	1639.3	1648.1	1643.7	1648.1	1643.7	1641.5	1645.9	1650.3	1648.1
32.5°	1472.8	1485.9	1485.9	1488.1	1488.1	1475.0	1470.6	1470.6	1468.4	1466.2	1466.2
35°	1293.1	1304.0	1299.6	1299.6	1297.5	1284.3	1277.7	1273.3	1279.9	1266.8	1275.5
37.5°	1109.0	1111.2	1104.6	1102.4	1091.4	1091.4	1080.5	1071.7	1076.1	1073.9	1065.1
40°	907.3	916.1	903.0	898.6	905.1	896.4	885.4	874.5	883.2	872.3	876.7
42.5°	710.1	707.9	703.5	703.5	703.5	690.4	688.2	686.0	688.2	679.4	672.8
45°	512.8	506.3	499.7	499.7	490.9	486.5	486.5	480.0	469.0	469.0	455.9
47.5°	346.3	330.9	326.6	324.4	320.0	320.0	315.6	311.2	309.0	298.1	298.1
50°	225.7	210.4	206.0	203.8	206.0	201.6	197.2	192.9	188.5	186.3	181.9
52.5°	135.9	129.3	124.9	122.7	118.3	116.2	114.0	109.6	107.4	107.4	105.2
55°	81.1	74.5	65.7	65.7	65.7	63.6	61.4	59.2	57.0	57.0	54.8
57.5°	50.4	46.0	41.6	39.4	39.4	39.4	37.3	37.3	37.3	37.3	35.1
60°	37.3	32.9	30.7	30.7	30.7	28.5	28.5	28.5	28.5	26.3	26.3
62.5°	28.5	26.3	24.1	24.1	21.9	21.9	21.9	21.9	21.9	21.9	19.7
65°	24.1	19.7	19.7	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
67.5°	17.5	15.3	15.3	15.3	15.3	13.1	13.1	13.1	13.1	13.1	13.1
70°	13.1	13.1	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
72.5°	11.0	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
75°	8.8	8.8	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
77.5°	6.6	6.6	6.6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	4.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
82.5°	2.2	2.2	2.2	2.2	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	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: P251562

CATALOG NUMBER: LD4B40D010 EU4B30509027 4LBSW1LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8	1678.8
2.5°	1718.2	1729.2	1718.2	1718.2	1724.8	1722.6	1727.0	1720.4
5°	1768.7	1784.0	1773.0	1770.8	1781.8	1779.6	1781.8	1777.4
7.5°	1830.0	1845.4	1834.4	1834.4	1845.4	1843.2	1849.7	1845.4
10°	1900.2	1917.7	1902.3	1904.5	1919.9	1917.7	1917.7	1917.7
12.5°	1972.5	1990.0	1981.2	1981.2	1992.2	1994.4	1996.6	1994.4
15°	2031.7	2049.2	2038.2	2038.2	2053.6	2051.4	2053.6	2051.4
17.5°	2066.7	2084.3	2071.1	2071.1	2084.3	2084.3	2086.4	2088.6
20°	2058.0	2077.7	2066.7	2062.3	2077.7	2077.7	2075.5	2075.5
22.5°	2007.5	2025.1	2016.3	2011.9	2022.9	2018.5	2016.3	2018.5
25°	1919.9	1937.4	1919.9	1919.9	1928.6	1926.5	1928.6	1926.5
27.5°	1801.5	1814.7	1797.1	1795.0	1803.7	1799.3	1797.1	1803.7
30°	1643.7	1656.9	1648.1	1641.5	1652.5	1645.9	1641.5	1643.7
32.5°	1464.0	1472.8	1468.4	1457.4	1464.0	1459.6	1457.4	1459.6
35°	1266.8	1277.7	1260.2	1258.0	1269.0	1260.2	1255.8	1266.8
37.5°	1062.9	1076.1	1060.8	1062.9	1056.4	1058.6	1054.2	1060.8
40°	870.1	867.9	863.5	861.3	863.5	856.9	861.3	854.7
42.5°	661.9	666.3	664.1	661.9	664.1	655.3	650.9	659.7
45°	460.2	458.1	453.7	449.3	449.3	447.1	447.1	440.5
47.5°	295.9	293.7	284.9	287.1	291.5	287.1	280.5	289.3
50°	179.7	177.5	177.5	175.3	179.7	175.3	170.9	170.9
52.5°	100.8	100.8	98.6	98.6	98.6	98.6	96.4	94.2
55°	54.8	52.6	52.6	52.6	50.4	50.4	50.4	50.4
57.5°	35.1	35.1	35.1	35.1	35.1	35.1	32.9	32.9
60°	26.3	26.3	26.3	26.3	24.1	26.3	24.1	24.1
62.5°	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7
65°	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3
67.5°	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
70°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
72.5°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
75°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
77.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
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



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















(END OF REPORT)