

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: P251659

Luminaire Tested: **LD4B50D010TE EU4B30509730 4LBSW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251659  
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: LD4B50D010TE EU4B30509730 4LBSW1H  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 97CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3444.0 lumens  
Efficiency: N/A  
Efficacy: 58.6 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

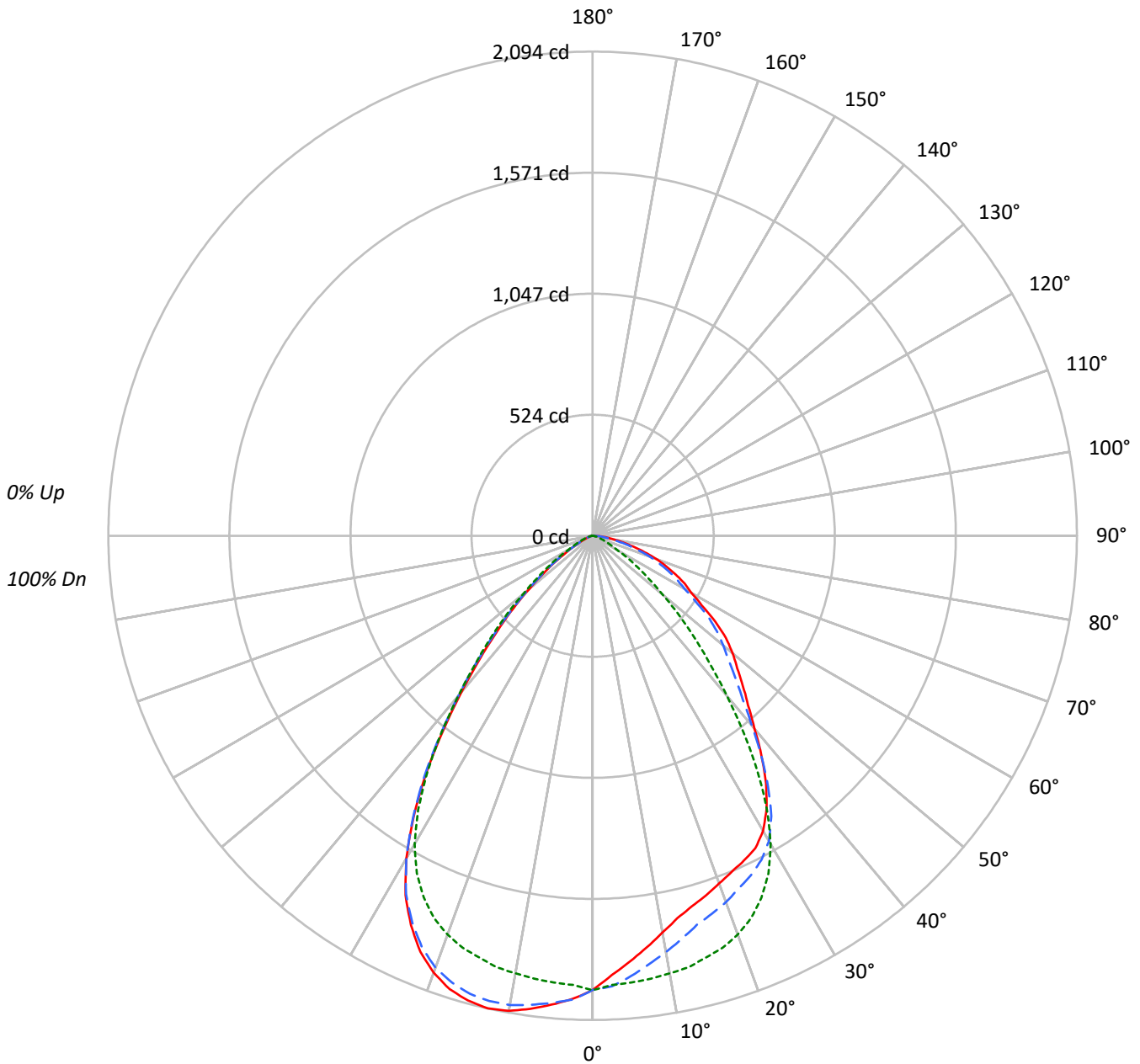
Input Watts (W): 58.77  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	191486	191486	191486
5°	180820	189732	199153
10°	172391	190174	206463
15°	167326	190572	209985
20°	165961	190375	208494
25°	166623	185688	199839
30°	165831	173236	181215
35°	155440	147909	149408
40°	138507	114678	112096
45°	126676	85494	80256
50°	119778	59889	54128
55°	110138	40439	33983
60°	96230	23682	18751
65°	91089	15174	10516
70°	82977	10828	6497
75°	68645	7644	4782
80°	53991	4265	2862
85°	48083	2796	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	185.6	5.4
10°-20°	532.6	15.5
20°-30°	789.5	22.9
30°-40°	790.6	23.0
40°-50°	552.5	16.0
50°-60°	328.8	9.5
60°-70°	171.6	5.0
70°-80°	76.3	2.2
80°-90°	16.6	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°	1507.7	43.8
0°-40°	2298.2	66.7
0°-60°	3179.5	92.3
0°-90°	3444.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3444.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1965	1965	1965	1965	1965	
5°	1848	1912	1939	2028	2036	173
15°	1658	1742	1889	2051	2081	470
25°	1550	1620	1727	1846	1858	714
35°	1306	1322	1243	1266	1256	810
45°	919	874	620	600	582	714
55°	648	608	238	208	200	575
65°	395	362	66	48	46	391
75°	182	160	20	13	13	197
85°	43	33	2	2	0	48
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°	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8
2.5°	1901.5	1924.2	1901.5	1909.1	1939.4	1911.6	1926.8	1926.8	1919.2	1936.9	1949.6
5°	1848.3	1871.1	1848.3	1858.4	1891.3	1863.5	1881.2	1876.1	1878.7	1893.9	1911.6
7.5°	1795.1	1812.8	1792.6	1805.2	1835.6	1812.8	1828.0	1828.0	1830.6	1853.4	1868.5
10°	1742.0	1757.1	1742.0	1752.1	1785.0	1764.7	1774.9	1777.4	1785.0	1805.2	1828.0
12.5°	1693.8	1706.5	1691.3	1706.5	1734.4	1714.1	1726.8	1729.3	1736.9	1759.7	1785.0
15°	1658.4	1671.1	1655.9	1668.5	1693.8	1678.7	1688.8	1693.8	1698.9	1719.2	1742.0
17.5°	1630.5	1640.7	1628.0	1643.2	1663.5	1645.7	1660.9	1660.9	1668.5	1688.8	1714.1
20°	1600.2	1610.3	1600.2	1612.8	1635.6	1620.4	1633.1	1633.1	1640.7	1663.5	1686.2
22.5°	1572.3	1577.4	1572.3	1582.4	1605.2	1592.6	1600.2	1602.7	1610.3	1630.5	1650.8
25°	1549.5	1559.7	1554.6	1564.7	1579.9	1567.2	1574.8	1577.4	1585.0	1602.7	1620.4
27.5°	1524.2	1529.3	1524.2	1536.9	1549.5	1539.4	1547.0	1544.5	1549.5	1564.7	1579.9
30°	1473.6	1478.6	1478.6	1486.2	1496.4	1491.3	1498.9	1491.3	1496.4	1509.0	1524.2
32.5°	1400.1	1402.7	1405.2	1412.8	1420.4	1412.8	1417.9	1417.9	1417.9	1428.0	1438.1
35°	1306.5	1311.5	1309.0	1314.1	1321.7	1319.1	1319.1	1316.6	1311.5	1316.6	1321.7
37.5°	1200.1	1192.5	1192.5	1200.1	1205.2	1195.1	1200.1	1195.1	1195.1	1197.6	1197.6
40°	1088.7	1081.1	1088.7	1091.3	1093.8	1088.7	1086.2	1081.1	1073.5	1076.1	1071.0
42.5°	995.0	990.0	992.5	992.5	995.0	990.0	992.5	982.4	974.8	969.7	962.1
45°	919.1	911.5	919.1	914.0	914.0	911.5	909.0	903.9	893.8	886.2	873.5
47.5°	848.2	848.2	850.7	850.7	850.7	845.7	845.7	835.5	825.4	815.3	797.5
50°	790.0	784.9	795.0	795.0	787.4	784.9	787.4	774.8	767.2	754.5	736.8
52.5°	726.7	726.7	729.2	729.2	726.7	721.6	724.1	714.0	706.4	693.7	676.0
55°	648.2	643.1	650.7	650.7	648.2	645.6	648.2	640.6	633.0	622.8	607.7
57.5°	559.6	557.0	562.1	564.6	559.6	559.6	562.1	554.5	552.0	541.8	526.6
60°	493.7	491.2	496.3	498.8	493.7	493.7	493.7	483.6	478.5	468.4	458.3
62.5°	448.1	445.6	450.7	448.1	445.6	443.1	445.6	435.5	430.4	420.3	410.2
65°	395.0	397.5	400.0	400.0	397.5	395.0	395.0	389.9	384.8	374.7	362.1
67.5°	344.3	344.3	346.9	349.4	346.9	346.9	346.9	339.3	334.2	326.6	311.4
70°	291.2	288.6	296.2	296.2	291.2	293.7	291.2	288.6	283.6	273.4	260.8
72.5°	235.5	235.5	238.0	238.0	235.5	235.5	235.5	232.9	225.3	220.3	207.6
75°	182.3	182.3	184.8	187.4	182.3	182.3	184.8	179.8	174.7	167.1	159.5
77.5°	136.7	134.2	136.7	136.7	134.2	134.2	134.2	131.7	129.1	121.5	113.9
80°	96.2	93.7	96.2	96.2	96.2	93.7	93.7	91.1	91.1	86.1	78.5
82.5°	65.8	63.3	65.8	65.8	65.8	63.3	63.3	63.3	60.8	58.2	53.2
85°	43.0	40.5	40.5	43.0	40.5	40.5	40.5	40.5	38.0	35.4	32.9
87.5°	20.3	20.3	20.3	20.3	20.3	20.3	20.3	17.7	17.7	17.7	15.2
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°	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8
2.5°	1939.4	1934.4	1949.6	1944.5	1947.0	1934.4	1954.6	1944.5	1957.2	1944.5	1969.8
5°	1906.5	1901.5	1924.2	1921.7	1924.2	1914.1	1936.9	1934.4	1949.6	1939.4	1967.3
7.5°	1871.1	1866.0	1891.3	1893.9	1898.9	1888.8	1919.2	1919.2	1934.4	1931.8	1962.2
10°	1830.6	1833.1	1858.4	1863.5	1873.6	1868.5	1896.4	1904.0	1924.2	1921.7	1959.7
12.5°	1792.6	1792.6	1825.5	1835.6	1843.2	1840.7	1873.6	1883.7	1906.5	1911.6	1947.0
15°	1754.6	1757.1	1787.5	1802.7	1812.8	1810.3	1845.8	1858.4	1886.3	1888.8	1931.8
17.5°	1724.2	1721.7	1754.6	1767.3	1782.5	1779.9	1817.9	1833.1	1860.9	1868.5	1909.1
20°	1698.9	1696.4	1726.8	1742.0	1752.1	1749.5	1787.5	1805.2	1830.6	1835.6	1876.1
22.5°	1668.5	1663.5	1693.8	1706.5	1716.6	1714.1	1747.0	1759.7	1785.0	1790.1	1828.0
25°	1633.1	1628.0	1655.9	1663.5	1671.1	1666.0	1693.8	1701.4	1721.7	1726.8	1764.7
27.5°	1592.6	1579.9	1602.7	1602.7	1607.8	1600.2	1620.4	1628.0	1645.7	1645.7	1681.2
30°	1529.3	1511.5	1524.2	1521.7	1524.2	1514.1	1526.7	1529.3	1541.9	1539.4	1564.7
32.5°	1440.7	1415.3	1422.9	1415.3	1407.7	1392.5	1407.7	1402.7	1412.8	1402.7	1425.5
35°	1319.1	1293.8	1291.3	1281.1	1273.5	1260.9	1260.9	1248.2	1250.8	1243.2	1258.4
37.5°	1187.5	1154.5	1149.5	1129.2	1116.6	1101.4	1101.4	1091.3	1078.6	1073.5	1086.2
40°	1058.3	1022.9	1010.2	977.3	964.7	949.5	939.3	926.7	921.6	901.4	911.5
42.5°	946.9	909.0	881.1	845.7	833.0	810.2	795.0	779.8	772.2	749.4	759.6
45°	853.3	807.7	777.3	731.7	714.0	688.7	665.9	648.2	630.4	620.3	615.3
47.5°	774.8	726.7	686.1	635.5	607.7	584.9	554.5	536.8	514.0	501.3	493.7
50°	708.9	655.8	610.2	552.0	524.1	498.8	463.3	435.5	415.2	395.0	389.9
52.5°	650.7	595.0	544.4	478.5	445.6	415.2	377.3	346.9	329.1	306.4	303.8
55°	582.3	534.2	478.5	410.2	377.3	346.9	306.4	276.0	253.2	238.0	232.9
57.5°	508.9	463.3	410.2	341.8	308.9	276.0	238.0	210.1	189.9	177.2	174.7
60°	440.6	397.5	346.9	278.5	245.6	217.7	177.2	149.4	131.7	121.5	116.5
62.5°	389.9	349.4	301.3	238.0	207.6	179.8	141.8	116.5	101.3	91.1	86.1
65°	341.8	301.3	258.3	200.0	174.7	149.4	113.9	91.1	76.0	65.8	60.8
67.5°	291.2	255.7	215.2	167.1	141.8	121.5	91.1	70.9	58.2	50.6	45.6
70°	240.5	207.6	174.7	134.2	116.5	96.2	70.9	55.7	43.0	38.0	32.9
72.5°	189.9	164.6	136.7	103.8	88.6	76.0	55.7	40.5	32.9	27.9	22.8
75°	141.8	124.1	101.3	78.5	65.8	55.7	40.5	30.4	25.3	20.3	17.7
77.5°	101.3	86.1	70.9	53.2	48.1	40.5	27.9	22.8	17.7	12.7	10.1
80°	68.4	60.8	48.1	38.0	30.4	27.9	20.3	15.2	10.1	7.6	7.6
82.5°	45.6	38.0	30.4	22.8	20.3	17.7	12.7	10.1	7.6	5.1	5.1
85°	27.9	22.8	17.7	12.7	12.7	10.1	7.6	5.1	2.5	2.5	2.5
87.5°	12.7	10.1	7.6	5.1	5.1	2.5	2.5	2.5	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°	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8
2.5°	1990.1	1974.9	1964.8	1977.4	1982.5	1974.9	1982.5	1995.1	2007.8	2010.3	1974.9
5°	1992.6	1977.4	1972.4	1987.5	1990.1	1987.5	1995.1	2012.9	2028.1	2033.1	1997.7
7.5°	1992.6	1982.5	1979.9	1997.7	2000.2	1997.7	2010.3	2030.6	2045.8	2055.9	2020.5
10°	1987.5	1982.5	1985.0	2000.2	2005.3	2005.3	2023.0	2045.8	2061.0	2071.1	2035.7
12.5°	1979.9	1979.9	1979.9	1997.7	2002.7	2005.3	2020.5	2050.8	2061.0	2076.2	2040.7
15°	1967.3	1967.3	1967.3	1985.0	1992.6	1992.6	2010.3	2038.2	2050.8	2066.0	2030.6
17.5°	1944.5	1944.5	1947.0	1962.2	1969.8	1969.8	1987.5	2017.9	2025.5	2043.2	2007.8
20°	1911.6	1911.6	1914.1	1929.3	1936.9	1931.8	1954.6	1979.9	1987.5	2002.7	1967.3
22.5°	1863.5	1863.5	1863.5	1878.7	1883.7	1881.2	1904.0	1926.8	1926.8	1947.0	1909.1
25°	1792.6	1797.7	1792.6	1807.8	1812.8	1810.3	1830.6	1850.8	1845.8	1868.5	1830.6
27.5°	1706.5	1704.0	1704.0	1716.6	1716.6	1714.1	1729.3	1752.1	1747.0	1762.2	1726.8
30°	1587.5	1595.1	1582.4	1600.2	1592.6	1587.5	1597.6	1617.9	1610.3	1623.0	1595.1
32.5°	1450.8	1440.7	1440.7	1440.7	1445.7	1433.1	1443.2	1453.3	1445.7	1458.4	1428.0
35°	1271.0	1273.5	1266.0	1268.5	1271.0	1255.8	1266.0	1276.1	1266.0	1273.5	1245.7
37.5°	1091.3	1093.8	1076.1	1086.2	1076.1	1071.0	1081.1	1086.2	1076.1	1083.7	1053.3
40°	911.5	906.4	903.9	903.9	906.4	893.8	901.4	909.0	901.4	906.4	878.6
42.5°	754.5	752.0	746.9	749.4	741.8	739.3	741.8	749.4	741.8	746.9	726.7
45°	617.8	612.7	605.1	607.7	607.7	595.0	602.6	607.7	600.1	602.6	584.9
47.5°	491.2	483.6	483.6	481.1	481.1	476.0	483.6	481.1	473.5	478.5	460.8
50°	382.3	377.3	377.3	377.3	377.3	369.7	372.2	377.3	369.7	369.7	359.5
52.5°	298.8	291.2	286.1	286.1	286.1	283.6	283.6	286.1	278.5	278.5	276.0
55°	225.3	222.8	215.2	215.2	215.2	207.6	210.1	210.1	207.6	207.6	200.0
57.5°	167.1	159.5	154.4	154.4	149.4	149.4	146.9	149.4	144.3	144.3	139.3
60°	111.4	106.3	103.8	101.3	101.3	98.7	101.3	98.7	98.7	96.2	93.7
62.5°	81.0	76.0	70.9	70.9	70.9	68.4	68.4	68.4	68.4	68.4	65.8
65°	58.2	53.2	53.2	50.6	50.6	48.1	48.1	48.1	48.1	48.1	45.6
67.5°	40.5	38.0	35.4	35.4	35.4	35.4	35.4	35.4	32.9	32.9	32.9
70°	30.4	27.9	25.3	25.3	25.3	25.3	25.3	22.8	25.3	25.3	22.8
72.5°	20.3	20.3	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
75°	15.2	15.2	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
77.5°	10.1	10.1	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
80°	7.6	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
82.5°	5.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
85°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	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: P251659

CATALOG NUMBER: LD4B50D010TE EU4B30509730 4LBSW1H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8	1964.8
2.5°	2012.9	2010.3	2005.3	2012.9	1992.6	1985.0	1982.5	2005.3
5°	2040.7	2035.7	2035.7	2043.2	2020.5	2015.4	2010.3	2035.7
7.5°	2066.0	2061.0	2061.0	2068.6	2048.3	2043.2	2038.2	2063.5
10°	2081.2	2081.2	2081.2	2086.3	2068.6	2063.5	2061.0	2086.3
12.5°	2088.8	2088.8	2086.3	2096.4	2073.6	2073.6	2068.6	2093.9
15°	2078.7	2078.7	2078.7	2086.3	2066.0	2061.0	2061.0	2081.2
17.5°	2053.4	2053.4	2050.8	2058.4	2035.7	2035.7	2033.1	2055.9
20°	2015.4	2015.4	2010.3	2020.5	1997.7	1990.1	1987.5	2010.3
22.5°	1954.6	1952.1	1949.6	1954.6	1934.4	1929.3	1926.8	1947.0
25°	1876.1	1873.6	1868.5	1873.6	1850.8	1843.2	1843.2	1858.4
27.5°	1764.7	1764.7	1757.1	1764.7	1739.4	1736.9	1734.4	1752.1
30°	1628.0	1617.9	1612.8	1623.0	1597.6	1597.6	1592.6	1610.3
32.5°	1458.4	1448.2	1445.7	1450.8	1428.0	1420.4	1430.5	1440.7
35°	1263.4	1266.0	1255.8	1255.8	1235.6	1238.1	1240.6	1255.8
37.5°	1076.1	1071.0	1068.5	1071.0	1055.8	1050.7	1045.7	1060.9
40°	901.4	888.7	886.2	886.2	873.5	871.0	873.5	881.1
42.5°	736.8	734.3	724.1	729.2	716.5	721.6	719.1	719.1
45°	595.0	597.5	587.4	595.0	584.9	577.3	577.3	582.3
47.5°	470.9	470.9	468.4	468.4	460.8	463.3	458.3	465.9
50°	364.6	364.6	359.5	362.1	357.0	357.0	354.5	357.0
52.5°	278.5	276.0	276.0	273.4	268.4	270.9	273.4	268.4
55°	202.6	205.1	200.0	202.6	197.5	200.0	197.5	200.0
57.5°	139.3	141.8	136.7	141.8	136.7	139.3	136.7	136.7
60°	96.2	96.2	93.7	96.2	93.7	93.7	91.1	96.2
62.5°	65.8	65.8	65.8	65.8	65.8	63.3	65.8	65.8
65°	48.1	45.6	45.6	45.6	45.6	45.6	45.6	45.6
67.5°	32.9	32.9	32.9	32.9	32.9	32.9	32.9	32.9
70°	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
72.5°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
75°	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
77.5°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
80°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
82.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
85°	2.5	2.5	2.5	0.0	2.5	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)