

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: P251563

Luminaire Tested: **LD4B40D010 EU4B30509030 4LBSW1LI**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251563  
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 EU4B30509030 4LBSW1LI  
Description: PORTFOLIO 4 INCH 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: 3221.0 lumens  
Efficiency: N/A  
Efficacy: 74.9 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

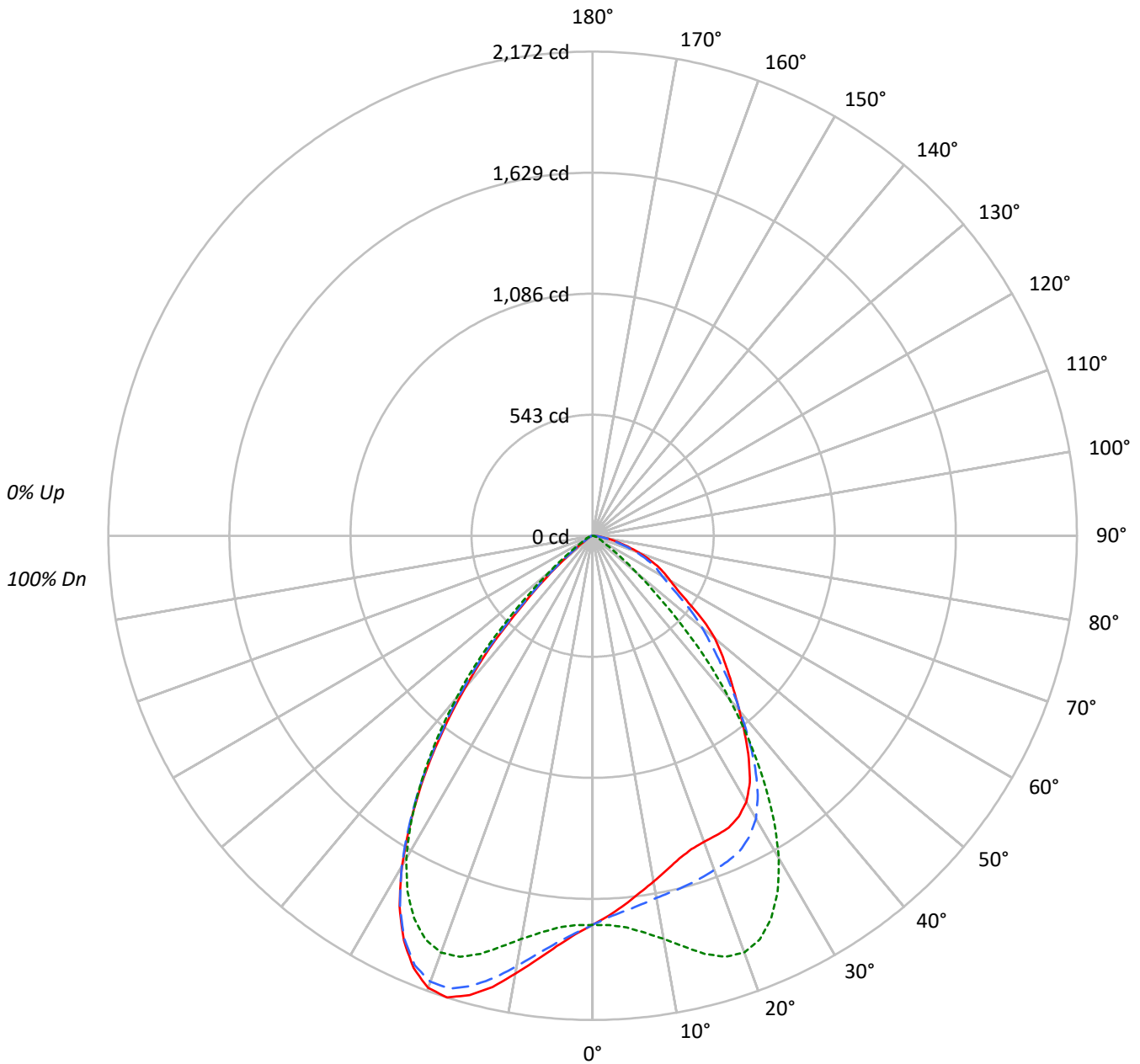
Input Watts (W): 43.02  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	170113	170113	170113
5°	162506	172543	180790
10°	155825	181753	197309
15°	151284	195880	215191
20°	151483	206316	223802
25°	155353	203625	215378
30°	155141	187967	192322
35°	145315	158866	156701
40°	130161	121179	113063
45°	118090	76949	63125
50°	108483	39042	26942
55°	89051	17416	8903
60°	78161	9765	4892
65°	73563	7356	3690
70°	62974	5841	3248
75°	48048	4293	2561
80°	34516	2582	1291
85°	25495	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	169.5	5.3
10°-20°	528.4	16.4
20°-30°	817.5	25.4
30°-40°	805.5	25.0
40°-50°	494.6	15.4
50°-60°	219.9	6.8
60°-70°	122.8	3.8
70°-80°	53.2	1.7
80°-90°	9.5	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°	1515.5	47.0
0°-40°	2321.0	72.1
0°-60°	3035.5	94.2
0°-90°	3221.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3221.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1746	1746	1746	1746	1746	
5°	1661	1688	1764	1832	1848	156
15°	1499	1625	1941	2090	2133	425
25°	1445	1561	1894	1996	2003	663
35°	1221	1272	1335	1331	1317	758
45°	857	814	558	488	458	664
55°	524	474	102	59	52	482
65°	319	287	32	18	16	312
75°	128	109	11	7	7	140
85°	23	18	0	0	0	28
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°	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5
2.5°	1704.4	1704.4	1704.4	1704.4	1709.0	1702.2	1709.0	1709.0	1715.8	1718.1	1711.3
5°	1661.1	1658.9	1661.1	1661.1	1665.7	1663.4	1670.3	1674.8	1683.9	1688.5	1688.5
7.5°	1615.6	1615.6	1615.6	1620.1	1627.0	1624.7	1631.5	1638.4	1652.0	1661.1	1668.0
10°	1574.6	1572.3	1579.1	1581.4	1588.2	1588.2	1599.6	1606.5	1622.4	1640.6	1649.7
12.5°	1535.8	1533.5	1538.1	1544.9	1556.3	1556.3	1565.4	1576.8	1599.6	1620.1	1636.1
15°	1499.4	1501.6	1508.5	1513.0	1526.7	1526.7	1538.1	1551.8	1576.8	1601.9	1624.7
17.5°	1474.3	1476.6	1481.1	1488.0	1501.6	1501.6	1513.0	1529.0	1556.3	1583.7	1611.0
20°	1460.6	1462.9	1467.5	1474.3	1485.7	1488.0	1497.1	1515.3	1540.4	1570.0	1595.1
22.5°	1453.8	1458.3	1462.9	1467.5	1478.8	1478.8	1490.2	1503.9	1529.0	1558.6	1581.4
25°	1444.7	1449.2	1451.5	1458.3	1467.5	1467.5	1474.3	1490.2	1513.0	1538.1	1560.9
27.5°	1419.6	1424.2	1426.4	1433.3	1442.4	1440.1	1449.2	1460.6	1481.1	1503.9	1522.1
30°	1378.6	1380.9	1385.4	1387.7	1394.5	1394.5	1401.4	1412.8	1426.4	1446.9	1465.2
32.5°	1312.5	1317.1	1319.3	1321.6	1328.5	1326.2	1328.5	1335.3	1349.0	1367.2	1378.6
35°	1221.4	1230.5	1230.5	1235.0	1237.3	1235.0	1235.0	1244.1	1251.0	1264.7	1271.5
37.5°	1121.1	1127.9	1125.7	1130.2	1132.5	1125.7	1130.2	1132.5	1141.6	1148.4	1150.7
40°	1023.1	1025.4	1025.4	1025.4	1025.4	1023.1	1025.4	1027.7	1034.5	1034.5	1027.7
42.5°	934.2	936.5	936.5	932.0	936.5	934.2	934.2	934.2	934.2	925.1	918.3
45°	856.8	859.1	859.1	856.8	856.8	852.2	849.9	847.7	840.8	829.4	813.5
47.5°	783.9	788.4	790.7	786.1	783.9	779.3	779.3	765.6	756.5	742.8	720.1
50°	715.5	720.1	720.1	715.5	715.5	708.7	701.8	697.3	683.6	667.6	640.3
52.5°	628.9	635.7	635.7	633.5	633.5	624.4	622.1	613.0	601.6	583.3	560.5
55°	524.1	533.2	530.9	528.6	524.1	524.1	524.1	517.3	510.4	496.7	474.0
57.5°	448.9	451.2	451.2	448.9	448.9	444.3	444.3	437.5	435.2	421.6	403.3
60°	401.0	401.0	403.3	401.0	398.8	396.5	394.2	389.7	382.8	373.7	360.0
62.5°	362.3	364.6	364.6	362.3	360.0	357.7	355.5	350.9	346.4	339.5	325.8
65°	319.0	323.6	321.3	319.0	316.7	314.5	314.5	309.9	305.3	300.8	287.1
67.5°	271.2	273.4	275.7	271.2	271.2	268.9	268.9	264.3	262.0	252.9	243.8
70°	221.0	223.3	223.3	221.0	221.0	218.8	218.8	216.5	214.2	207.4	198.2
72.5°	173.2	175.5	173.2	170.9	170.9	170.9	168.6	166.3	164.1	159.5	152.7
75°	127.6	127.6	129.9	127.6	125.3	125.3	123.0	123.0	118.5	116.2	109.4
77.5°	91.1	93.4	91.1	91.1	88.9	86.6	86.6	84.3	84.3	82.0	77.5
80°	61.5	61.5	63.8	61.5	59.2	61.5	59.2	57.0	57.0	54.7	50.1
82.5°	38.7	41.0	38.7	38.7	38.7	38.7	38.7	36.5	36.5	34.2	31.9
85°	22.8	22.8	22.8	22.8	22.8	22.8	22.8	20.5	20.5	20.5	18.2
87.5°	11.4	11.4	9.1	9.1	11.4	11.4	11.4	9.1	9.1	9.1	9.1
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°	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5
2.5°	1720.4	1722.7	1727.2	1734.1	1734.1	1729.5	1740.9	1740.9	1745.5	1747.7	1756.8
5°	1702.2	1706.7	1715.8	1727.2	1729.5	1727.2	1743.2	1750.0	1756.8	1763.7	1777.4
7.5°	1686.2	1695.3	1711.3	1727.2	1734.1	1734.1	1759.1	1768.2	1781.9	1795.6	1811.5
10°	1677.1	1690.8	1713.6	1738.6	1745.5	1752.3	1781.9	1800.1	1818.4	1836.6	1859.4
12.5°	1665.7	1690.8	1720.4	1752.3	1766.0	1775.1	1816.1	1838.9	1863.9	1886.7	1916.4
15°	1663.4	1693.0	1731.8	1772.8	1791.0	1804.7	1850.3	1882.2	1911.8	1941.4	1971.0
17.5°	1654.3	1690.8	1738.6	1784.2	1807.0	1825.2	1877.6	1916.4	1950.5	1980.2	2014.3
20°	1642.9	1683.9	1736.3	1786.5	1811.5	1829.8	1886.7	1923.2	1961.9	1989.3	2021.2
22.5°	1627.0	1668.0	1720.4	1770.5	1793.3	1809.3	1866.2	1898.1	1932.3	1959.6	1989.3
25°	1599.6	1638.4	1683.9	1724.9	1747.7	1761.4	1811.5	1841.2	1866.2	1893.6	1920.9
27.5°	1560.9	1590.5	1629.2	1658.9	1672.5	1686.2	1727.2	1752.3	1775.1	1797.9	1816.1
30°	1492.5	1515.3	1542.7	1567.7	1581.4	1583.7	1622.4	1636.1	1654.3	1670.3	1683.9
32.5°	1401.4	1419.6	1435.6	1449.2	1458.3	1460.6	1490.2	1494.8	1513.0	1513.0	1533.5
35°	1285.2	1294.3	1305.7	1305.7	1312.5	1305.7	1326.2	1330.7	1333.0	1335.3	1351.2
37.5°	1153.0	1157.6	1164.4	1150.7	1150.7	1143.9	1150.7	1155.3	1146.2	1146.2	1157.6
40°	1027.7	1018.6	1009.4	995.8	988.9	975.3	975.3	963.9	957.0	952.5	954.8
42.5°	906.9	886.4	865.9	836.3	822.6	808.9	795.3	779.3	774.7	763.4	756.5
45°	790.7	761.1	733.7	685.9	658.5	644.9	615.2	583.3	562.8	558.3	540.0
47.5°	692.7	649.4	603.8	546.9	519.5	494.5	451.2	423.8	396.5	382.8	371.4
50°	606.1	567.4	508.1	446.6	412.4	387.4	339.5	307.6	278.0	257.5	243.8
52.5°	530.9	487.6	432.9	362.3	328.1	300.8	248.4	211.9	186.8	166.3	150.4
55°	446.6	412.4	357.7	291.7	257.5	225.6	180.0	141.3	116.2	102.5	91.1
57.5°	385.1	355.5	303.1	239.3	207.4	177.7	132.2	100.3	79.8	66.1	59.2
60°	344.1	316.7	271.2	209.6	180.0	152.7	109.4	79.8	61.5	50.1	45.6
62.5°	309.9	282.6	241.5	184.6	159.5	132.2	93.4	66.1	50.1	41.0	34.2
65°	271.2	246.1	209.6	159.5	136.7	113.9	79.8	54.7	41.0	31.9	27.3
67.5°	230.1	207.4	175.5	132.2	113.9	95.7	63.8	45.6	34.2	27.3	22.8
70°	186.8	168.6	139.0	107.1	91.1	75.2	52.4	36.5	25.1	20.5	18.2
72.5°	143.6	127.6	107.1	82.0	68.4	57.0	38.7	27.3	20.5	16.0	13.7
75°	102.5	91.1	75.2	59.2	50.1	41.0	29.6	20.5	13.7	11.4	9.1
77.5°	70.6	63.8	52.4	41.0	34.2	29.6	20.5	13.7	11.4	9.1	6.8
80°	45.6	41.0	34.2	25.1	20.5	18.2	11.4	9.1	6.8	4.6	4.6
82.5°	27.3	25.1	20.5	13.7	11.4	9.1	6.8	4.6	4.6	2.3	2.3
85°	16.0	13.7	9.1	6.8	6.8	4.6	4.6	2.3	2.3	0.0	0.0
87.5°	6.8	4.6	4.6	2.3	2.3	2.3	2.3	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°	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5
2.5°	1752.3	1763.7	1761.4	1768.2	1766.0	1766.0	1777.4	1772.8	1784.2	1784.2	1786.5
5°	1777.4	1793.3	1793.3	1804.7	1802.4	1807.0	1818.4	1818.4	1832.0	1836.6	1836.6
7.5°	1813.8	1834.3	1838.9	1850.3	1852.5	1861.7	1870.8	1873.1	1891.3	1895.8	1898.1
10°	1863.9	1889.0	1895.8	1907.2	1911.8	1920.9	1932.3	1936.9	1959.6	1961.9	1971.0
12.5°	1925.5	1952.8	1959.6	1973.3	1975.6	1987.0	2002.9	2007.5	2030.3	2037.1	2044.0
15°	1984.7	2009.8	2021.2	2034.8	2037.1	2050.8	2064.5	2069.0	2089.5	2098.6	2105.5
17.5°	2025.7	2055.3	2062.2	2080.4	2080.4	2091.8	2105.5	2110.0	2130.5	2137.4	2141.9
20°	2034.8	2062.2	2071.3	2085.0	2087.3	2094.1	2105.5	2110.0	2128.3	2130.5	2137.4
22.5°	2000.7	2028.0	2032.6	2046.2	2048.5	2055.3	2064.5	2062.2	2085.0	2082.7	2085.0
25°	1927.7	1952.8	1952.8	1968.8	1966.5	1973.3	1977.9	1975.6	1996.1	1996.1	1996.1
27.5°	1822.9	1845.7	1848.0	1859.4	1852.5	1854.8	1859.4	1857.1	1870.8	1870.8	1870.8
30°	1693.0	1711.3	1704.4	1713.6	1709.0	1713.6	1709.0	1706.7	1711.3	1715.8	1713.6
32.5°	1531.3	1544.9	1544.9	1547.2	1547.2	1533.5	1529.0	1529.0	1526.7	1524.4	1524.4
35°	1344.4	1355.8	1351.2	1351.2	1349.0	1335.3	1328.5	1323.9	1330.7	1317.1	1326.2
37.5°	1153.0	1155.3	1148.4	1146.2	1134.8	1134.8	1123.4	1114.3	1118.8	1116.5	1107.4
40°	943.4	952.5	938.8	934.2	941.1	932.0	920.6	909.2	918.3	906.9	911.5
42.5°	738.3	736.0	731.4	731.4	731.4	717.8	715.5	713.2	715.5	706.4	699.5
45°	533.2	526.4	519.5	519.5	510.4	505.9	505.9	499.0	487.6	487.6	474.0
47.5°	360.0	344.1	339.5	337.2	332.7	332.7	328.1	323.6	321.3	309.9	309.9
50°	234.7	218.8	214.2	211.9	214.2	209.6	205.1	200.5	196.0	193.7	189.1
52.5°	141.3	134.4	129.9	127.6	123.0	120.8	118.5	113.9	111.7	111.7	109.4
55°	84.3	77.5	68.4	68.4	68.4	66.1	63.8	61.5	59.2	59.2	57.0
57.5°	52.4	47.9	43.3	41.0	41.0	41.0	38.7	38.7	38.7	38.7	36.5
60°	38.7	34.2	31.9	31.9	31.9	29.6	29.6	29.6	29.6	27.3	27.3
62.5°	29.6	27.3	25.1	25.1	22.8	22.8	22.8	22.8	22.8	22.8	20.5
65°	25.1	20.5	20.5	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
67.5°	18.2	16.0	16.0	16.0	16.0	13.7	13.7	13.7	13.7	13.7	13.7
70°	13.7	13.7	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
72.5°	11.4	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
75°	9.1	9.1	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	6.8	6.8	6.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
80°	4.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	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: P251563

CATALOG NUMBER: LD4B40D010 EU4B30509030 4LBSW1LI

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5	1745.5
2.5°	1786.5	1797.9	1786.5	1786.5	1793.3	1791.0	1795.6	1788.7
5°	1838.9	1854.8	1843.4	1841.2	1852.5	1850.3	1852.5	1848.0
7.5°	1902.7	1918.6	1907.2	1907.2	1918.6	1916.4	1923.2	1918.6
10°	1975.6	1993.8	1977.9	1980.2	1996.1	1993.8	1993.8	1993.8
12.5°	2050.8	2069.0	2059.9	2059.9	2071.3	2073.6	2075.9	2073.6
15°	2112.3	2130.5	2119.2	2119.2	2135.1	2132.8	2135.1	2132.8
17.5°	2148.8	2167.0	2153.3	2153.3	2167.0	2167.0	2169.3	2171.6
20°	2139.7	2160.2	2148.8	2144.2	2160.2	2160.2	2157.9	2157.9
22.5°	2087.3	2105.5	2096.4	2091.8	2103.2	2098.6	2096.4	2098.6
25°	1996.1	2014.3	1996.1	1996.1	2005.2	2002.9	2005.2	2002.9
27.5°	1873.1	1886.7	1868.5	1866.2	1875.3	1870.8	1868.5	1875.3
30°	1709.0	1722.7	1713.6	1706.7	1718.1	1711.3	1706.7	1709.0
32.5°	1522.1	1531.3	1526.7	1515.3	1522.1	1517.6	1515.3	1517.6
35°	1317.1	1328.5	1310.2	1307.9	1319.3	1310.2	1305.7	1317.1
37.5°	1105.1	1118.8	1102.9	1105.1	1098.3	1100.6	1096.0	1102.9
40°	904.6	902.3	897.8	895.5	897.8	891.0	895.5	888.7
42.5°	688.2	692.7	690.4	688.2	690.4	681.3	676.8	685.9
45°	478.5	476.2	471.7	467.1	467.1	464.8	464.8	458.0
47.5°	307.6	305.3	296.2	298.5	303.1	298.5	291.7	300.8
50°	186.8	184.6	184.6	182.3	186.8	182.3	177.7	177.7
52.5°	104.8	104.8	102.5	102.5	102.5	102.5	100.3	98.0
55°	57.0	54.7	54.7	54.7	52.4	52.4	52.4	52.4
57.5°	36.5	36.5	36.5	36.5	36.5	36.5	34.2	34.2
60°	27.3	27.3	27.3	27.3	25.1	27.3	25.1	25.1
62.5°	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
65°	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
67.5°	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
70°	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
72.5°	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
75°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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)