

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: P251652

Luminaire Tested: **LD4B50D010TE EU4B30509024 4LBSW1H**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P251652
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 EU4B30509024 4LBSW1H
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 2400K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3334.0 lumens
Efficiency: N/A
Efficacy: 56.7 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

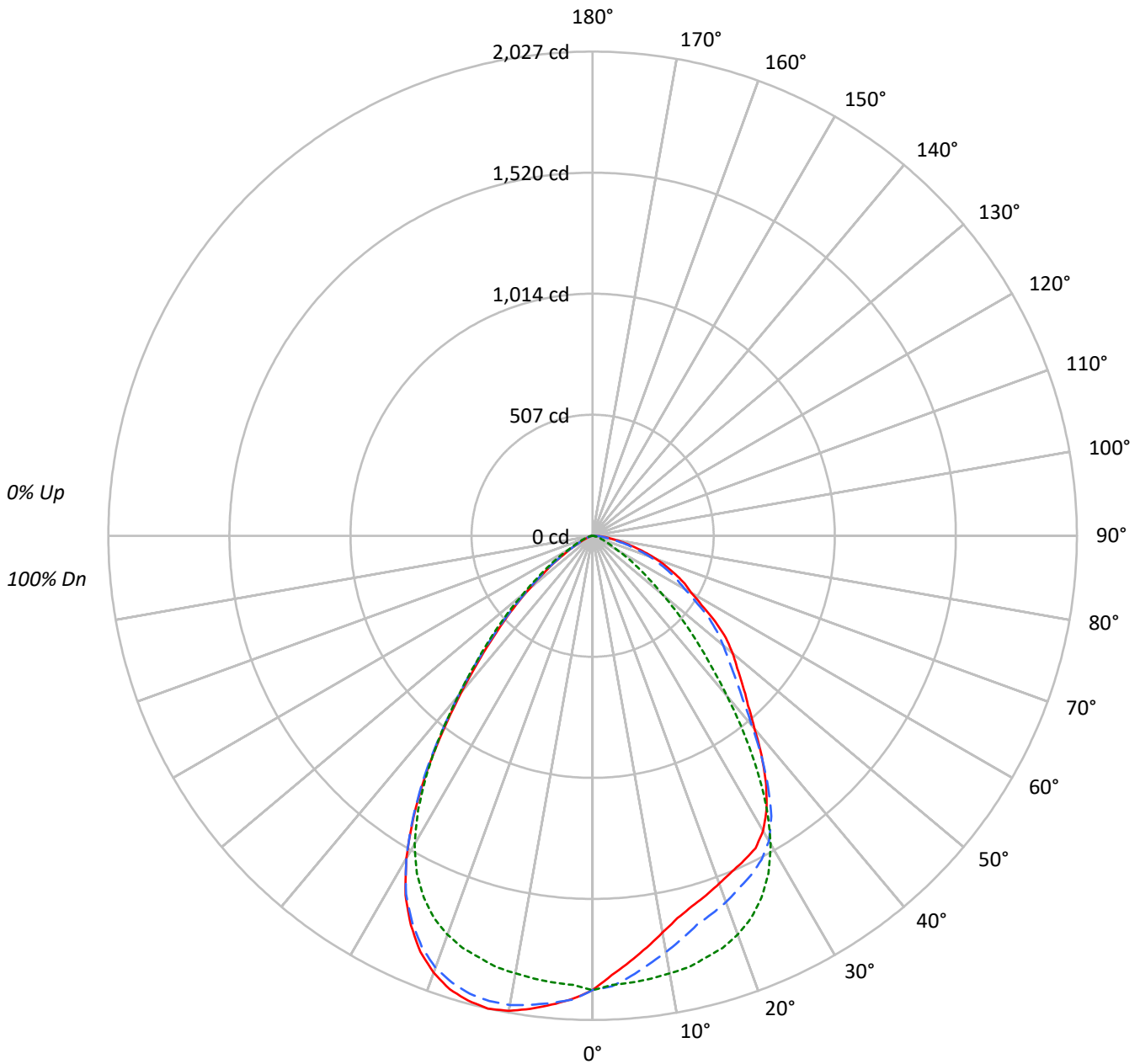
Input Watts (W): 58.77
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	185365	185365	185365
5°	175048	183676	192784
10°	166879	184098	199873
15°	161978	184488	203285
20°	160661	184298	201835
25°	161300	179752	193463
30°	160531	167700	175431
35°	150467	143186	144637
40°	134080	111014	108521
45°	122624	82765	77693
50°	115942	57979	52399
55°	106620	39148	32895
60°	93170	22922	18147
65°	88184	14690	10170
70°	80327	10486	6297
75°	66461	7380	4632
80°	52251	4153	2750
85°	46629	2796	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.7	5.4
10°-20°	515.6	15.5
20°-30°	764.3	22.9
30°-40°	765.3	23.0
40°-50°	534.9	16.0
50°-60°	318.3	9.5
60°-70°	166.1	5.0
70°-80°	73.9	2.2
80°-90°	16.1	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°	1459.5	43.8
0°-40°	2224.8	66.7
0°-60°	3077.9	92.3
0°-90°	3334.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3334.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1902	1902	1902	1902	1902	
5°	1789	1850	1878	1963	1971	168
15°	1605	1686	1828	1985	2015	455
25°	1500	1569	1672	1787	1799	691
35°	1265	1279	1204	1226	1216	784
45°	890	846	600	581	564	691
55°	628	588	230	201	194	557
65°	382	350	64	47	44	378
75°	176	154	20	12	12	191
85°	42	32	2	2	0	47
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°	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0
2.5°	1840.7	1862.8	1840.7	1848.1	1877.5	1850.5	1865.2	1865.2	1857.9	1875.0	1887.3
5°	1789.3	1811.3	1789.3	1799.1	1830.9	1804.0	1821.1	1816.2	1818.7	1833.4	1850.5
7.5°	1737.8	1754.9	1735.3	1747.6	1777.0	1754.9	1769.6	1769.6	1772.1	1794.2	1808.9
10°	1686.3	1701.0	1686.3	1696.1	1728.0	1708.4	1718.2	1720.6	1728.0	1747.6	1769.6
12.5°	1639.7	1652.0	1637.3	1652.0	1679.0	1659.4	1671.6	1674.1	1681.4	1703.5	1728.0
15°	1605.4	1617.7	1603.0	1615.2	1639.7	1625.0	1634.8	1639.7	1644.6	1664.3	1686.3
17.5°	1578.5	1588.3	1576.0	1590.7	1610.3	1593.2	1607.9	1607.9	1615.2	1634.8	1659.4
20°	1549.1	1558.9	1549.1	1561.3	1583.4	1568.7	1580.9	1580.9	1588.3	1610.3	1632.4
22.5°	1522.1	1527.0	1522.1	1531.9	1554.0	1541.7	1549.1	1551.5	1558.9	1578.5	1598.1
25°	1500.0	1509.8	1504.9	1514.7	1529.4	1517.2	1524.5	1527.0	1534.3	1551.5	1568.7
27.5°	1475.5	1480.4	1475.5	1487.8	1500.0	1490.2	1497.6	1495.1	1500.0	1514.7	1529.4
30°	1426.5	1431.4	1431.4	1438.8	1448.6	1443.7	1451.0	1443.7	1448.6	1460.8	1475.5
32.5°	1355.4	1357.9	1360.3	1367.7	1375.0	1367.7	1372.6	1372.6	1372.6	1382.4	1392.2
35°	1264.7	1269.6	1267.2	1272.1	1279.4	1277.0	1277.0	1274.5	1269.6	1274.5	1279.4
37.5°	1161.8	1154.4	1154.4	1161.8	1166.7	1156.9	1161.8	1156.9	1156.9	1159.3	1159.3
40°	1053.9	1046.6	1053.9	1056.4	1058.8	1053.9	1051.5	1046.6	1039.2	1041.7	1036.8
42.5°	963.3	958.4	960.8	960.8	963.3	958.4	960.8	951.0	943.6	938.7	931.4
45°	889.7	882.4	889.7	884.8	884.8	882.4	879.9	875.0	865.2	857.9	845.6
47.5°	821.1	821.1	823.5	823.5	823.5	818.6	818.6	808.8	799.0	789.2	772.1
50°	764.7	759.8	769.6	769.6	762.3	759.8	762.3	750.0	742.7	730.4	713.3
52.5°	703.4	703.4	705.9	705.9	703.4	698.5	701.0	691.2	683.8	671.6	654.4
55°	627.5	622.6	629.9	629.9	627.5	625.0	627.5	620.1	612.8	603.0	588.2
57.5°	541.7	539.2	544.1	546.6	541.7	541.7	544.1	536.8	534.3	524.5	509.8
60°	478.0	475.5	480.4	482.9	478.0	478.0	478.0	468.1	463.2	453.4	443.6
62.5°	433.8	431.4	436.3	433.8	431.4	428.9	431.4	421.6	416.7	406.9	397.1
65°	382.4	384.8	387.3	387.3	384.8	382.4	382.4	377.5	372.6	362.8	350.5
67.5°	333.3	333.3	335.8	338.2	335.8	335.8	335.8	328.4	323.5	316.2	301.5
70°	281.9	279.4	286.8	286.8	281.9	284.3	281.9	279.4	274.5	264.7	252.5
72.5°	227.9	227.9	230.4	230.4	227.9	227.9	227.9	225.5	218.1	213.2	201.0
75°	176.5	176.5	178.9	181.4	176.5	176.5	178.9	174.0	169.1	161.8	154.4
77.5°	132.4	129.9	132.4	132.4	129.9	129.9	129.9	127.5	125.0	117.6	110.3
80°	93.1	90.7	93.1	93.1	93.1	90.7	90.7	88.2	88.2	83.3	76.0
82.5°	63.7	61.3	63.7	63.7	63.7	61.3	61.3	61.3	58.8	56.4	51.5
85°	41.7	39.2	39.2	41.7	39.2	39.2	39.2	39.2	36.8	34.3	31.9
87.5°	19.6	19.6	19.6	19.6	19.6	19.6	19.6	17.2	17.2	17.2	14.7
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°	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0
2.5°	1877.5	1872.6	1887.3	1882.4	1884.8	1872.6	1892.2	1882.4	1894.7	1882.4	1906.9
5°	1845.6	1840.7	1862.8	1860.3	1862.8	1853.0	1875.0	1872.6	1887.3	1877.5	1904.5
7.5°	1811.3	1806.4	1830.9	1833.4	1838.3	1828.5	1857.9	1857.9	1872.6	1870.1	1899.6
10°	1772.1	1774.6	1799.1	1804.0	1813.8	1808.9	1835.8	1843.2	1862.8	1860.3	1897.1
12.5°	1735.3	1735.3	1767.2	1777.0	1784.4	1781.9	1813.8	1823.6	1845.6	1850.5	1884.8
15°	1698.6	1701.0	1730.4	1745.1	1754.9	1752.5	1786.8	1799.1	1826.0	1828.5	1870.1
17.5°	1669.2	1666.7	1698.6	1710.8	1725.5	1723.1	1759.8	1774.6	1801.5	1808.9	1848.1
20°	1644.6	1642.2	1671.6	1686.3	1696.1	1693.7	1730.4	1747.6	1772.1	1777.0	1816.2
22.5°	1615.2	1610.3	1639.7	1652.0	1661.8	1659.4	1691.2	1703.5	1728.0	1732.9	1769.6
25°	1580.9	1576.0	1603.0	1610.3	1617.7	1612.8	1639.7	1647.1	1666.7	1671.6	1708.4
27.5°	1541.7	1529.4	1551.5	1551.5	1556.4	1549.1	1568.7	1576.0	1593.2	1593.2	1627.5
30°	1480.4	1463.3	1475.5	1473.1	1475.5	1465.7	1478.0	1480.4	1492.7	1490.2	1514.7
32.5°	1394.6	1370.1	1377.5	1370.1	1362.8	1348.1	1362.8	1357.9	1367.7	1357.9	1379.9
35°	1277.0	1252.5	1250.0	1240.2	1232.9	1220.6	1220.6	1208.4	1210.8	1203.5	1218.2
37.5°	1149.5	1117.7	1112.8	1093.2	1080.9	1066.2	1066.2	1056.4	1044.1	1039.2	1051.5
40°	1024.5	990.2	978.0	946.1	933.8	919.1	909.3	897.1	892.2	872.6	882.4
42.5°	916.7	879.9	853.0	818.6	806.4	784.3	769.6	754.9	747.6	725.5	735.3
45°	826.0	781.9	752.5	708.3	691.2	666.7	644.6	627.5	610.3	600.5	595.6
47.5°	750.0	703.4	664.2	615.2	588.2	566.2	536.8	519.6	497.6	485.3	478.0
50°	686.3	634.8	590.7	534.3	507.4	482.9	448.5	421.6	402.0	382.4	377.5
52.5°	629.9	576.0	527.0	463.2	431.4	402.0	365.2	335.8	318.6	296.6	294.1
55°	563.7	517.2	463.2	397.1	365.2	335.8	296.6	267.2	245.1	230.4	225.5
57.5°	492.7	448.5	397.1	330.9	299.0	267.2	230.4	203.4	183.8	171.6	169.1
60°	426.5	384.8	335.8	269.6	237.8	210.8	171.6	144.6	127.5	117.6	112.7
62.5°	377.5	338.2	291.7	230.4	201.0	174.0	137.3	112.7	98.0	88.2	83.3
65°	330.9	291.7	250.0	193.6	169.1	144.6	110.3	88.2	73.5	63.7	58.8
67.5°	281.9	247.6	208.3	161.8	137.3	117.6	88.2	68.6	56.4	49.0	44.1
70°	232.8	201.0	169.1	129.9	112.7	93.1	68.6	53.9	41.7	36.8	31.9
72.5°	183.8	159.3	132.4	100.5	85.8	73.5	53.9	39.2	31.9	27.0	22.1
75°	137.3	120.1	98.0	76.0	63.7	53.9	39.2	29.4	24.5	19.6	17.2
77.5°	98.0	83.3	68.6	51.5	46.6	39.2	27.0	22.1	17.2	12.3	9.8
80°	66.2	58.8	46.6	36.8	29.4	27.0	19.6	14.7	9.8	7.4	7.4
82.5°	44.1	36.8	29.4	22.1	19.6	17.2	12.3	9.8	7.4	4.9	4.9
85°	27.0	22.1	17.2	12.3	12.3	9.8	7.4	4.9	2.5	2.5	2.5
87.5°	12.3	9.8	7.4	4.9	4.9	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°	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0
2.5°	1926.5	1911.8	1902.0	1914.3	1919.2	1911.8	1919.2	1931.4	1943.7	1946.1	1911.8
5°	1929.0	1914.3	1909.4	1924.1	1926.5	1924.1	1931.4	1948.6	1963.3	1968.2	1933.9
7.5°	1929.0	1919.2	1916.7	1933.9	1936.3	1933.9	1946.1	1965.7	1980.4	1990.2	1955.9
10°	1924.1	1919.2	1921.6	1936.3	1941.2	1941.2	1958.4	1980.4	1995.1	2004.9	1970.6
12.5°	1916.7	1916.7	1916.7	1933.9	1938.8	1941.2	1955.9	1985.3	1995.1	2009.8	1975.5
15°	1904.5	1904.5	1904.5	1921.6	1929.0	1929.0	1946.1	1973.1	1985.3	2000.0	1965.7
17.5°	1882.4	1882.4	1884.8	1899.6	1906.9	1906.9	1924.1	1953.5	1960.8	1978.0	1943.7
20°	1850.5	1850.5	1853.0	1867.7	1875.0	1870.1	1892.2	1916.7	1924.1	1938.8	1904.5
22.5°	1804.0	1804.0	1804.0	1818.7	1823.6	1821.1	1843.2	1865.2	1865.2	1884.8	1848.1
25°	1735.3	1740.2	1735.3	1750.0	1754.9	1752.5	1772.1	1791.7	1786.8	1808.9	1772.1
27.5°	1652.0	1649.5	1649.5	1661.8	1661.8	1659.4	1674.1	1696.1	1691.2	1705.9	1671.6
30°	1536.8	1544.2	1531.9	1549.1	1541.7	1536.8	1546.6	1566.2	1558.9	1571.1	1544.2
32.5°	1404.4	1394.6	1394.6	1394.6	1399.5	1387.3	1397.1	1406.9	1399.5	1411.8	1382.4
35°	1230.4	1232.9	1225.5	1228.0	1230.4	1215.7	1225.5	1235.3	1225.5	1232.9	1205.9
37.5°	1056.4	1058.8	1041.7	1051.5	1041.7	1036.8	1046.6	1051.5	1041.7	1049.0	1019.6
40°	882.4	877.5	875.0	875.0	877.5	865.2	872.6	879.9	872.6	877.5	850.5
42.5°	730.4	728.0	723.1	725.5	718.2	715.7	718.2	725.5	718.2	723.1	703.4
45°	598.1	593.2	585.8	588.2	588.2	576.0	583.3	588.2	580.9	583.3	566.2
47.5°	475.5	468.1	468.1	465.7	465.7	460.8	468.1	465.7	458.3	463.2	446.1
50°	370.1	365.2	365.2	365.2	365.2	357.9	360.3	365.2	357.9	357.9	348.0
52.5°	289.2	281.9	277.0	277.0	277.0	274.5	274.5	277.0	269.6	269.6	267.2
55°	218.1	215.7	208.3	208.3	208.3	201.0	203.4	203.4	201.0	201.0	193.6
57.5°	161.8	154.4	149.5	149.5	144.6	144.6	142.2	144.6	139.7	139.7	134.8
60°	107.8	102.9	100.5	98.0	98.0	95.6	98.0	95.6	95.6	93.1	90.7
62.5°	78.4	73.5	68.6	68.6	68.6	66.2	66.2	66.2	66.2	66.2	63.7
65°	56.4	51.5	51.5	49.0	49.0	46.6	46.6	46.6	46.6	46.6	44.1
67.5°	39.2	36.8	34.3	34.3	34.3	34.3	34.3	34.3	31.9	31.9	31.9
70°	29.4	27.0	24.5	24.5	24.5	24.5	24.5	22.1	24.5	24.5	22.1
72.5°	19.6	19.6	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
75°	14.7	14.7	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
77.5°	9.8	9.8	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
80°	7.4	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
82.5°	4.9	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: P251652

CATALOG NUMBER: LD4B50D010TE EU4B30509024 4LBSW1H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0	1902.0
2.5°	1948.6	1946.1	1941.2	1948.6	1929.0	1921.6	1919.2	1941.2
5°	1975.5	1970.6	1970.6	1978.0	1955.9	1951.0	1946.1	1970.6
7.5°	2000.0	1995.1	1995.1	2002.5	1982.9	1978.0	1973.1	1997.6
10°	2014.8	2014.8	2014.8	2019.7	2002.5	1997.6	1995.1	2019.7
12.5°	2022.1	2022.1	2019.7	2029.5	2007.4	2007.4	2002.5	2027.0
15°	2012.3	2012.3	2012.3	2019.7	2000.0	1995.1	1995.1	2014.8
17.5°	1987.8	1987.8	1985.3	1992.7	1970.6	1970.6	1968.2	1990.2
20°	1951.0	1951.0	1946.1	1955.9	1933.9	1926.5	1924.1	1946.1
22.5°	1892.2	1889.7	1887.3	1892.2	1872.6	1867.7	1865.2	1884.8
25°	1816.2	1813.8	1808.9	1813.8	1791.7	1784.4	1784.4	1799.1
27.5°	1708.4	1708.4	1701.0	1708.4	1683.9	1681.4	1679.0	1696.1
30°	1576.0	1566.2	1561.3	1571.1	1546.6	1546.6	1541.7	1558.9
32.5°	1411.8	1402.0	1399.5	1404.4	1382.4	1375.0	1384.8	1394.6
35°	1223.1	1225.5	1215.7	1215.7	1196.1	1198.6	1201.0	1215.7
37.5°	1041.7	1036.8	1034.3	1036.8	1022.1	1017.2	1012.3	1027.0
40°	872.6	860.3	857.9	857.9	845.6	843.2	845.6	853.0
42.5°	713.3	710.8	701.0	705.9	693.6	698.5	696.1	696.1
45°	576.0	578.4	568.6	576.0	566.2	558.8	558.8	563.7
47.5°	455.9	455.9	453.4	453.4	446.1	448.5	443.6	451.0
50°	352.9	352.9	348.0	350.5	345.6	345.6	343.1	345.6
52.5°	269.6	267.2	267.2	264.7	259.8	262.3	264.7	259.8
55°	196.1	198.5	193.6	196.1	191.2	193.6	191.2	193.6
57.5°	134.8	137.3	132.4	137.3	132.4	134.8	132.4	132.4
60°	93.1	93.1	90.7	93.1	90.7	90.7	88.2	93.1
62.5°	63.7	63.7	63.7	63.7	63.7	61.3	63.7	63.7
65°	46.6	44.1	44.1	44.1	44.1	44.1	44.1	44.1
67.5°	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9
70°	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1
72.5°	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
75°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
77.5°	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
80°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
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)