

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: P251656

Luminaire Tested: **LD4B50D010TE EU4B30509040 4LBSW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251656  
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 EU4B30509040 4LBSW1H  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4003.0 lumens  
Efficiency: N/A  
Efficacy: 68.1 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

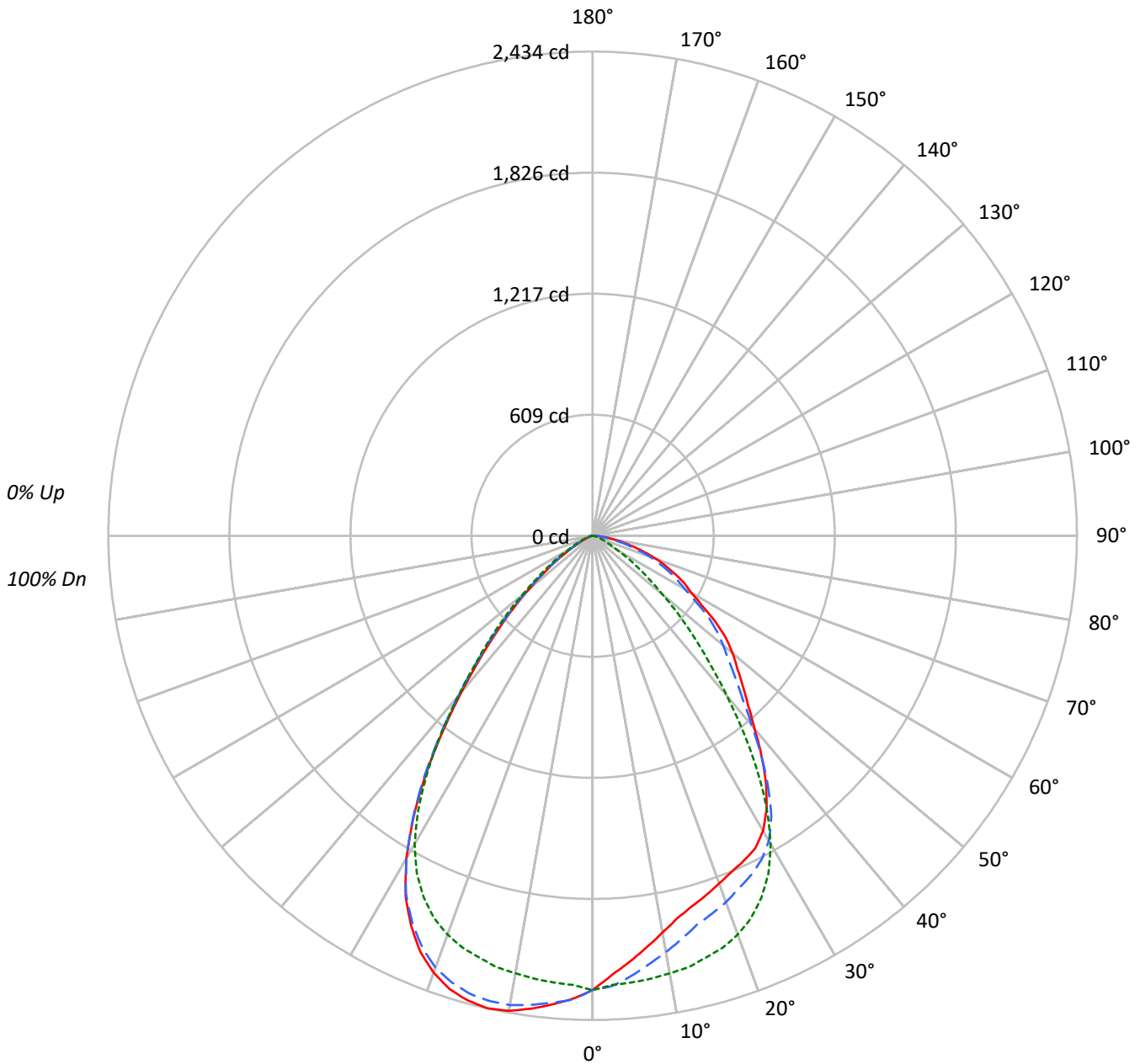
Input Watts (W): 58.77  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	222565	222565	222565
5°	210169	220529	231476
10°	200367	221040	239972
15°	194487	221507	244067
20°	192895	221281	242335
25°	193667	215819	232282
30°	192739	201359	210632
35°	180663	171906	173667
40°	160987	133291	130289
45°	147240	99373	93295
50°	139216	69608	62906
55°	128012	46998	39505
60°	111862	27542	21792
65°	105871	17641	12222
70°	96427	12566	7551
75°	79791	8849	5535
80°	62746	4939	3311
85°	55910	3243	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	215.8	5.4
10°-20°	619.0	15.5
20°-30°	917.6	22.9
30°-40°	918.9	23.0
40°-50°	642.2	16.0
50°-60°	382.1	9.5
60°-70°	199.4	5.0
70°-80°	88.7	2.2
80°-90°	19.3	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°	1752.4	43.8
0°-40°	2671.2	66.7
0°-60°	3695.6	92.3
0°-90°	4003.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4003.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2284	2284	2284	2284	2284	
5°	2148	2222	2254	2357	2366	201
15°	1928	2025	2195	2384	2419	546
25°	1801	1883	2007	2145	2160	830
35°	1518	1536	1445	1471	1460	941
45°	1068	1015	721	698	677	829
55°	753	706	277	241	232	669
65°	459	421	76	56	53	454
75°	212	185	24	15	15	229
85°	50	38	3	3	0	56
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°	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7
2.5°	2210.1	2236.6	2210.1	2218.9	2254.2	2221.9	2239.5	2239.5	2230.7	2251.3	2266.0
5°	2148.3	2174.8	2148.3	2160.1	2198.3	2165.9	2186.5	2180.7	2183.6	2201.3	2221.9
7.5°	2086.5	2107.1	2083.5	2098.3	2133.6	2107.1	2124.7	2124.7	2127.7	2154.2	2171.8
10°	2024.7	2042.3	2024.7	2036.5	2074.7	2051.2	2062.9	2065.9	2074.7	2098.3	2124.7
12.5°	1968.8	1983.5	1965.8	1983.5	2015.9	1992.3	2007.0	2010.0	2018.8	2045.3	2074.7
15°	1927.6	1942.3	1924.6	1939.3	1968.8	1951.1	1962.9	1968.8	1974.7	1998.2	2024.7
17.5°	1895.2	1907.0	1892.3	1909.9	1933.5	1912.9	1930.5	1930.5	1939.3	1962.9	1992.3
20°	1859.9	1871.7	1859.9	1874.6	1901.1	1883.4	1898.1	1898.1	1907.0	1933.5	1959.9
22.5°	1827.5	1833.4	1827.5	1839.3	1865.8	1851.1	1859.9	1862.8	1871.7	1895.2	1918.7
25°	1801.0	1812.8	1806.9	1818.7	1836.3	1821.6	1830.5	1833.4	1842.2	1862.8	1883.4
27.5°	1771.6	1777.5	1771.6	1786.3	1801.0	1789.3	1798.1	1795.1	1801.0	1818.7	1836.3
30°	1712.7	1718.6	1718.6	1727.5	1739.2	1733.3	1742.2	1733.3	1739.2	1753.9	1771.6
32.5°	1627.4	1630.3	1633.3	1642.1	1650.9	1642.1	1648.0	1648.0	1648.0	1659.8	1671.5
35°	1518.5	1524.4	1521.5	1527.3	1536.2	1533.2	1533.2	1530.3	1524.4	1530.3	1536.2
37.5°	1394.9	1386.1	1386.1	1394.9	1400.8	1389.0	1394.9	1389.0	1389.0	1392.0	1392.0
40°	1265.4	1256.6	1265.4	1268.4	1271.3	1265.4	1262.5	1256.6	1247.8	1250.7	1244.8
42.5°	1156.5	1150.7	1153.6	1153.6	1156.5	1150.7	1153.6	1141.8	1133.0	1127.1	1118.3
45°	1068.3	1059.4	1068.3	1062.4	1062.4	1059.4	1056.5	1050.6	1038.8	1030.0	1015.3
47.5°	985.9	985.9	988.8	988.8	988.8	982.9	982.9	971.1	959.4	947.6	927.0
50°	918.2	912.3	924.1	924.1	915.2	912.3	915.2	900.5	891.7	877.0	856.4
52.5°	844.6	844.6	847.5	847.5	844.6	838.7	841.7	829.9	821.1	806.3	785.7
55°	753.4	747.5	756.3	756.3	753.4	750.4	753.4	744.5	735.7	723.9	706.3
57.5°	650.4	647.4	653.3	656.3	650.4	650.4	653.3	644.5	641.5	629.8	612.1
60°	573.9	570.9	576.8	579.7	573.9	573.9	573.9	562.1	556.2	544.4	532.7
62.5°	520.9	517.9	523.8	520.9	517.9	515.0	517.9	506.2	500.3	488.5	476.7
65°	459.1	462.0	465.0	465.0	462.0	459.1	459.1	453.2	447.3	435.5	420.8
67.5°	400.2	400.2	403.2	406.1	403.2	403.2	403.2	394.3	388.5	379.6	362.0
70°	338.4	335.5	344.3	344.3	338.4	341.4	338.4	335.5	329.6	317.8	303.1
72.5°	273.7	273.7	276.6	276.6	273.7	273.7	273.7	270.7	261.9	256.0	241.3
75°	211.9	211.9	214.8	217.8	211.9	211.9	214.8	208.9	203.1	194.2	185.4
77.5°	158.9	156.0	158.9	158.9	156.0	156.0	156.0	153.0	150.1	141.3	132.4
80°	111.8	108.9	111.8	111.8	111.8	108.9	108.9	105.9	105.9	100.1	91.2
82.5°	76.5	73.6	76.5	76.5	76.5	73.6	73.6	73.6	70.6	67.7	61.8
85°	50.0	47.1	47.1	50.0	47.1	47.1	47.1	47.1	44.1	41.2	38.3
87.5°	23.5	23.5	23.5	23.5	23.5	23.5	23.5	20.6	20.6	20.6	17.7
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°	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7
2.5°	2254.2	2248.3	2266.0	2260.1	2263.1	2248.3	2271.9	2260.1	2274.8	2260.1	2289.5
5°	2216.0	2210.1	2236.6	2233.6	2236.6	2224.8	2251.3	2248.3	2266.0	2254.2	2286.6
7.5°	2174.8	2168.9	2198.3	2201.3	2207.1	2195.4	2230.7	2230.7	2248.3	2245.4	2280.7
10°	2127.7	2130.6	2160.1	2165.9	2177.7	2171.8	2204.2	2213.0	2236.6	2233.6	2277.8
12.5°	2083.5	2083.5	2121.8	2133.6	2142.4	2139.5	2177.7	2189.5	2216.0	2221.9	2263.1
15°	2039.4	2042.3	2077.7	2095.3	2107.1	2104.1	2145.3	2160.1	2192.4	2195.4	2245.4
17.5°	2004.1	2001.1	2039.4	2054.1	2071.8	2068.8	2113.0	2130.6	2163.0	2171.8	2218.9
20°	1974.7	1971.7	2007.0	2024.7	2036.5	2033.5	2077.7	2098.3	2127.7	2133.6	2180.7
22.5°	1939.3	1933.5	1968.8	1983.5	1995.3	1992.3	2030.6	2045.3	2074.7	2080.6	2124.7
25°	1898.1	1892.3	1924.6	1933.5	1942.3	1936.4	1968.8	1977.6	2001.1	2007.0	2051.2
27.5°	1851.1	1836.3	1862.8	1862.8	1868.7	1859.9	1883.4	1892.3	1912.9	1912.9	1954.1
30°	1777.5	1756.9	1771.6	1768.7	1771.6	1759.8	1774.5	1777.5	1792.2	1789.3	1818.7
32.5°	1674.5	1645.1	1653.9	1645.1	1636.2	1618.6	1636.2	1630.3	1642.1	1630.3	1656.8
35°	1533.2	1503.8	1500.9	1489.1	1480.3	1465.5	1465.5	1450.8	1453.8	1444.9	1462.6
37.5°	1380.2	1341.9	1336.1	1312.5	1297.8	1280.1	1280.1	1268.4	1253.7	1247.8	1262.5
40°	1230.1	1188.9	1174.2	1135.9	1121.2	1103.6	1091.8	1077.1	1071.2	1047.7	1059.4
42.5°	1100.6	1056.5	1024.1	982.9	968.2	941.7	924.1	906.4	897.6	871.1	882.9
45°	991.7	938.8	903.5	850.5	829.9	800.5	774.0	753.4	732.8	721.0	715.1
47.5°	900.5	844.6	797.5	738.7	706.3	679.8	644.5	623.9	597.4	582.7	573.9
50°	824.0	762.2	709.2	641.5	609.2	579.7	538.5	506.2	482.6	459.1	453.2
52.5°	756.3	691.6	632.7	556.2	517.9	482.6	438.5	403.2	382.6	356.1	353.1
55°	676.9	620.9	556.2	476.7	438.5	403.2	356.1	320.8	294.3	276.6	270.7
57.5°	591.5	538.5	476.7	397.3	359.0	320.8	276.6	244.3	220.7	206.0	203.1
60°	512.1	462.0	403.2	323.7	285.5	253.1	206.0	173.6	153.0	141.3	135.4
62.5°	453.2	406.1	350.2	276.6	241.3	208.9	164.8	135.4	117.7	105.9	100.1
65°	397.3	350.2	300.2	232.5	203.1	173.6	132.4	105.9	88.3	76.5	70.6
67.5°	338.4	297.2	250.1	194.2	164.8	141.3	105.9	82.4	67.7	58.9	53.0
70°	279.6	241.3	203.1	156.0	135.4	111.8	82.4	64.7	50.0	44.1	38.3
72.5°	220.7	191.3	158.9	120.7	103.0	88.3	64.7	47.1	38.3	32.4	26.5
75°	164.8	144.2	117.7	91.2	76.5	64.7	47.1	35.3	29.4	23.5	20.6
77.5°	117.7	100.1	82.4	61.8	55.9	47.1	32.4	26.5	20.6	14.7	11.8
80°	79.5	70.6	55.9	44.1	35.3	32.4	23.5	17.7	11.8	8.8	8.8
82.5°	53.0	44.1	35.3	26.5	23.5	20.6	14.7	11.8	8.8	5.9	5.9
85°	32.4	26.5	20.6	14.7	14.7	11.8	8.8	5.9	2.9	2.9	2.9
87.5°	14.7	11.8	8.8	5.9	5.9	2.9	2.9	2.9	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°	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7
2.5°	2313.1	2295.4	2283.7	2298.4	2304.3	2295.4	2304.3	2319.0	2333.7	2336.6	2295.4
5°	2316.0	2298.4	2292.5	2310.1	2313.1	2310.1	2319.0	2339.6	2357.2	2363.1	2321.9
7.5°	2316.0	2304.3	2301.3	2321.9	2324.9	2321.9	2336.6	2360.2	2377.8	2389.6	2348.4
10°	2310.1	2304.3	2307.2	2324.9	2330.7	2330.7	2351.3	2377.8	2395.5	2407.3	2366.1
12.5°	2301.3	2301.3	2301.3	2321.9	2327.8	2330.7	2348.4	2383.7	2395.5	2413.1	2371.9
15°	2286.6	2286.6	2286.6	2307.2	2316.0	2316.0	2336.6	2369.0	2383.7	2401.4	2360.2
17.5°	2260.1	2260.1	2263.1	2280.7	2289.5	2289.5	2310.1	2345.5	2354.3	2374.9	2333.7
20°	2221.9	2221.9	2224.8	2242.5	2251.3	2245.4	2271.9	2301.3	2310.1	2327.8	2286.6
22.5°	2165.9	2165.9	2165.9	2183.6	2189.5	2186.5	2213.0	2239.5	2239.5	2263.1	2218.9
25°	2083.5	2089.4	2083.5	2101.2	2107.1	2104.1	2127.7	2151.2	2145.3	2171.8	2127.7
27.5°	1983.5	1980.5	1980.5	1995.3	1995.3	1992.3	2010.0	2036.5	2030.6	2048.2	2007.0
30°	1845.2	1854.0	1839.3	1859.9	1851.1	1845.2	1856.9	1880.5	1871.7	1886.4	1854.0
32.5°	1686.3	1674.5	1674.5	1674.5	1680.4	1665.7	1677.4	1689.2	1680.4	1695.1	1659.8
35°	1477.3	1480.3	1471.4	1474.4	1477.3	1459.7	1471.4	1483.2	1471.4	1480.3	1447.9
37.5°	1268.4	1271.3	1250.7	1262.5	1250.7	1244.8	1256.6	1262.5	1250.7	1259.5	1224.2
40°	1059.4	1053.5	1050.6	1050.6	1053.5	1038.8	1047.7	1056.5	1047.7	1053.5	1021.2
42.5°	877.0	874.0	868.1	871.1	862.3	859.3	862.3	871.1	862.3	868.1	844.6
45°	718.1	712.2	703.3	706.3	706.3	691.6	700.4	706.3	697.5	700.4	679.8
47.5°	570.9	562.1	562.1	559.1	559.1	553.3	562.1	559.1	550.3	556.2	535.6
50°	444.4	438.5	438.5	438.5	438.5	429.7	432.6	438.5	429.7	429.7	417.9
52.5°	347.3	338.4	332.5	332.5	332.5	329.6	329.6	332.5	323.7	323.7	320.8
55°	261.9	259.0	250.1	250.1	250.1	241.3	244.3	244.3	241.3	241.3	232.5
57.5°	194.2	185.4	179.5	179.5	173.6	173.6	170.7	173.6	167.7	167.7	161.9
60°	129.5	123.6	120.7	117.7	117.7	114.8	117.7	114.8	114.8	111.8	108.9
62.5°	94.2	88.3	82.4	82.4	82.4	79.5	79.5	79.5	79.5	79.5	76.5
65°	67.7	61.8	61.8	58.9	58.9	55.9	55.9	55.9	55.9	55.9	53.0
67.5°	47.1	44.1	41.2	41.2	41.2	41.2	41.2	41.2	38.3	38.3	38.3
70°	35.3	32.4	29.4	29.4	29.4	29.4	29.4	26.5	29.4	29.4	26.5
72.5°	23.5	23.5	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6
75°	17.7	17.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
77.5°	11.8	11.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
80°	8.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
82.5°	5.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
85°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	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: P251656

CATALOG NUMBER: LD4B50D010TE EU4B30509040 4LBSW1H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7	2283.7
2.5°	2339.6	2336.6	2330.7	2339.6	2316.0	2307.2	2304.3	2330.7
5°	2371.9	2366.1	2366.1	2374.9	2348.4	2342.5	2336.6	2366.1
7.5°	2401.4	2395.5	2395.5	2404.3	2380.8	2374.9	2369.0	2398.4
10°	2419.0	2419.0	2419.0	2424.9	2404.3	2398.4	2395.5	2424.9
12.5°	2427.9	2427.9	2424.9	2436.7	2410.2	2410.2	2404.3	2433.7
15°	2416.1	2416.1	2416.1	2424.9	2401.4	2395.5	2395.5	2419.0
17.5°	2386.7	2386.7	2383.7	2392.5	2366.1	2366.1	2363.1	2389.6
20°	2342.5	2342.5	2336.6	2348.4	2321.9	2313.1	2310.1	2336.6
22.5°	2271.9	2268.9	2266.0	2271.9	2248.3	2242.5	2239.5	2263.1
25°	2180.7	2177.7	2171.8	2177.7	2151.2	2142.4	2142.4	2160.1
27.5°	2051.2	2051.2	2042.3	2051.2	2021.7	2018.8	2015.9	2036.5
30°	1892.3	1880.5	1874.6	1886.4	1856.9	1856.9	1851.1	1871.7
32.5°	1695.1	1683.3	1680.4	1686.3	1659.8	1650.9	1662.7	1674.5
35°	1468.5	1471.4	1459.7	1459.7	1436.1	1439.1	1442.0	1459.7
37.5°	1250.7	1244.8	1241.9	1244.8	1227.2	1221.3	1215.4	1233.1
40°	1047.7	1032.9	1030.0	1030.0	1015.3	1012.3	1015.3	1024.1
42.5°	856.4	853.4	841.7	847.5	832.8	838.7	835.8	835.8
45°	691.6	694.5	682.7	691.6	679.8	671.0	671.0	676.9
47.5°	547.4	547.4	544.4	544.4	535.6	538.5	532.7	541.5
50°	423.8	423.8	417.9	420.8	414.9	414.9	412.0	414.9
52.5°	323.7	320.8	320.8	317.8	311.9	314.9	317.8	311.9
55°	235.4	238.4	232.5	235.4	229.5	232.5	229.5	232.5
57.5°	161.9	164.8	158.9	164.8	158.9	161.9	158.9	158.9
60°	111.8	111.8	108.9	111.8	108.9	108.9	105.9	111.8
62.5°	76.5	76.5	76.5	76.5	76.5	73.6	76.5	76.5
65°	55.9	53.0	53.0	53.0	53.0	53.0	53.0	53.0
67.5°	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
70°	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
72.5°	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6
75°	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
77.5°	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
80°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
82.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
85°	2.9	2.9	2.9	0.0	2.9	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)