

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: P251954

Luminaire Tested: **LD4B40D010 EU4B30509035 4LBDW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251954  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-15)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LD4B40D010 EU4B30509035 4LBDW1H  
Description: PORTFOLIO 4 INCH DOUBLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3057.0 lumens  
Efficiency: N/A  
Efficacy: 71.1 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.18 / 1.19  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

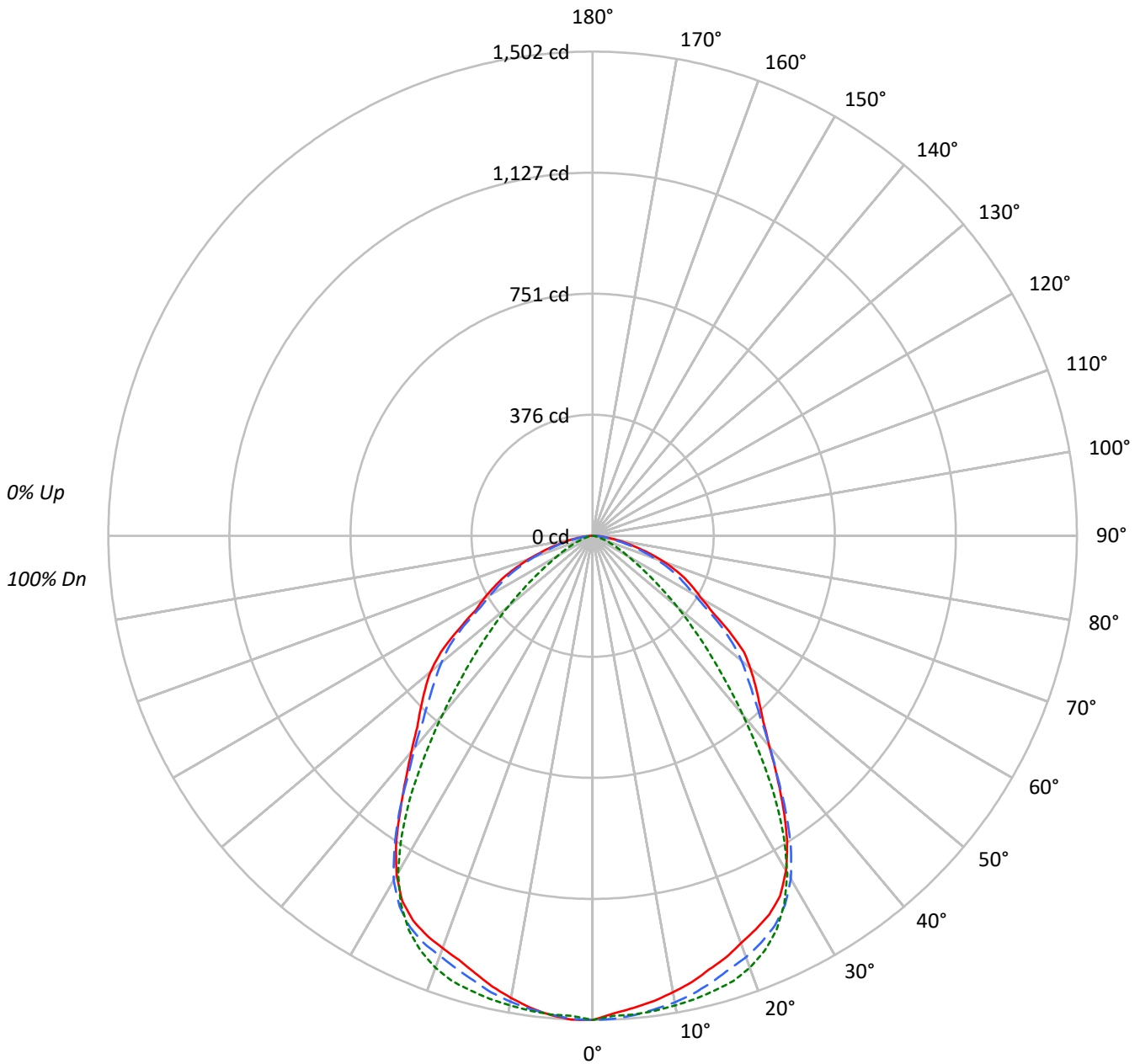
Input Watts (W): 43.02  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
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	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	89	88																			
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76																			
3	94	85	78	72	92	84	77	72	81	75	70	78	73	69	76	72	68	66																			
4	87	77	69	63	85	75	68	62	73	67	62	71	65	61	69	64	60	58																			
5	81	69	61	55	79	68	61	55	66	60	54	64	58	54	63	57	53	51																			
6	75	63	55	49	73	62	55	49	60	54	49	59	53	48	57	52	48	46																			
7	70	58	50	44	68	57	49	44	56	49	44	54	48	43	53	47	43	41																			
8	66	53	45	40	64	52	45	40	51	44	40	50	44	39	49	43	39	37																			
9	62	49	41	36	60	49	41	36	47	41	36	46	40	36	45	40	36	34																			
10	58	46	38	33	57	45	38	33	44	38	33	43	37	33	42	37	33	31																			

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

	0°	90°	180°
0°	146392	146392	146392
5°	143781	145816	146041
10°	142247	146364	144078
15°	140599	147359	141759
20°	139483	147874	141163
25°	139406	145127	141643
30°	134974	135751	136786
35°	122627	116845	123721
40°	108483	92020	111129
45°	100641	70071	103839
50°	96702	51853	99507
55°	87556	35733	86384
60°	76115	24326	75666
65°	73540	17595	69804
70°	66507	11854	59269
75°	54826	7832	46993
80°	44113	5163	35021
85°	36230	2572	23259



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	141.8	4.6
10°-20°	405.4	13.3
20°-30°	612.5	20.0
30°-40°	641.0	21.0
40°-50°	519.2	17.0
50°-60°	377.6	12.4
60°-70°	232.9	7.6
70°-80°	105.2	3.4
80°-90°	21.4	0.7
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°	1159.7	37.9
0°-40°	1800.7	58.9
0°-60°	2697.5	88.2
0°-90°	3057.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3057.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1502	1502	1502	1502	1502	
5°	1470	1493	1490	1490	1493	139
15°	1394	1433	1460	1428	1405	394
25°	1296	1336	1350	1340	1317	594
35°	1031	1044	982	1044	1040	642
45°	730	707	508	716	753	568
55°	515	483	210	488	508	460
65°	319	287	76	282	303	312
75°	146	125	21	109	125	158
85°	32	25	2	18	21	37
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°	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1
2.5°	1483.6	1483.6	1497.5	1513.6	1499.8	1485.9	1495.2	1490.5	1506.7	1506.7	1499.8
5°	1469.7	1474.4	1485.9	1499.8	1488.2	1474.4	1485.9	1481.3	1497.5	1497.5	1492.8
7.5°	1455.9	1458.2	1472.0	1488.2	1476.7	1462.8	1472.0	1469.7	1483.6	1485.9	1481.3
10°	1437.4	1439.7	1453.6	1469.7	1458.2	1446.6	1455.9	1453.6	1472.0	1472.0	1469.7
12.5°	1418.9	1421.2	1435.1	1448.9	1437.4	1425.8	1435.1	1435.1	1453.6	1455.9	1453.6
15°	1393.5	1398.1	1409.7	1423.5	1416.6	1402.7	1412.0	1412.0	1428.1	1432.8	1432.8
17.5°	1372.7	1375.0	1386.5	1400.4	1391.2	1379.6	1388.9	1388.9	1405.0	1409.7	1409.7
20°	1344.9	1349.6	1361.1	1375.0	1368.1	1358.8	1365.7	1365.7	1384.2	1388.9	1391.2
22.5°	1321.8	1326.5	1335.7	1354.2	1342.6	1335.7	1344.9	1342.6	1363.4	1365.7	1365.7
25°	1296.4	1301.0	1312.6	1324.2	1317.2	1310.3	1317.2	1317.2	1333.4	1335.7	1335.7
27.5°	1259.4	1261.8	1273.3	1284.9	1277.9	1268.7	1277.9	1275.6	1291.8	1294.1	1291.8
30°	1199.4	1204.0	1208.6	1224.8	1217.8	1210.9	1220.2	1215.5	1231.7	1231.7	1229.4
32.5°	1123.1	1123.1	1132.3	1143.9	1134.7	1130.0	1137.0	1139.3	1150.8	1150.8	1143.9
35°	1030.7	1035.3	1042.2	1049.2	1042.2	1037.6	1044.5	1042.2	1056.1	1051.5	1044.5
37.5°	938.2	940.5	947.5	956.7	947.5	940.5	942.9	940.5	952.1	952.1	940.5
40°	852.7	857.3	862.0	871.2	862.0	857.3	859.7	852.7	866.6	862.0	855.0
42.5°	783.4	785.7	792.6	797.3	788.0	785.7	788.0	783.4	790.3	785.7	771.8
45°	730.2	730.2	732.6	739.5	730.2	727.9	727.9	723.3	730.2	721.0	707.1
47.5°	684.0	686.3	688.7	693.3	686.3	679.4	681.7	672.5	677.1	670.2	651.7
50°	637.8	642.4	644.7	649.4	642.4	637.8	640.1	630.9	630.9	619.3	603.1
52.5°	591.6	593.9	591.6	596.2	591.6	584.7	587.0	577.7	577.7	563.9	547.7
55°	515.3	517.6	520.0	524.6	520.0	513.0	517.6	510.7	510.7	501.5	483.0
57.5°	439.1	441.4	443.7	446.0	446.0	441.4	443.7	439.1	436.8	429.8	416.0
60°	390.5	390.5	390.5	392.9	390.5	388.2	388.2	383.6	383.6	374.4	360.5
62.5°	353.6	355.9	355.9	358.2	355.9	353.6	351.3	346.6	344.3	335.1	323.5
65°	318.9	318.9	316.6	321.2	318.9	316.6	316.6	312.0	307.4	298.1	286.6
67.5°	277.3	279.6	277.3	279.6	279.6	277.3	275.0	270.4	268.1	261.1	247.3
70°	233.4	233.4	233.4	235.7	233.4	233.4	235.7	228.8	226.5	217.2	205.7
72.5°	189.5	191.8	191.8	189.5	191.8	187.2	187.2	187.2	184.9	175.6	164.1
75°	145.6	147.9	147.9	150.2	147.9	145.6	145.6	143.3	141.0	134.0	124.8
77.5°	108.6	108.6	110.9	110.9	110.9	108.6	108.6	104.0	104.0	99.4	90.1
80°	78.6	78.6	76.3	78.6	78.6	76.3	76.3	73.9	73.9	69.3	62.4
82.5°	50.8	53.2	53.2	53.2	53.2	50.8	50.8	50.8	48.5	46.2	41.6
85°	32.4	32.4	32.4	32.4	34.7	32.4	34.7	32.4	32.4	27.7	25.4
87.5°	13.9	13.9	13.9	16.2	16.2	13.9	13.9	13.9	13.9	13.9	11.6
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°	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1
2.5°	1499.8	1502.1	1495.2	1504.4	1497.5	1499.8	1502.1	1499.8	1490.5	1490.5	1516.0
5°	1490.5	1495.2	1488.2	1499.8	1495.2	1495.2	1499.8	1497.5	1488.2	1490.5	1513.6
7.5°	1481.3	1488.2	1483.6	1495.2	1488.2	1488.2	1492.8	1492.8	1483.6	1485.9	1506.7
10°	1467.4	1476.7	1474.4	1485.9	1479.0	1479.0	1485.9	1485.9	1476.7	1479.0	1499.8
12.5°	1455.9	1465.1	1462.8	1474.4	1469.7	1472.0	1474.4	1479.0	1467.4	1472.0	1490.5
15°	1437.4	1446.6	1446.6	1458.2	1453.6	1458.2	1462.8	1469.7	1460.5	1460.5	1479.0
17.5°	1416.6	1428.1	1428.1	1437.4	1437.4	1439.7	1448.9	1455.9	1446.6	1448.9	1465.1
20°	1393.5	1407.3	1407.3	1418.9	1416.6	1421.2	1428.1	1435.1	1425.8	1425.8	1444.3
22.5°	1370.4	1381.9	1384.2	1391.2	1391.2	1393.5	1400.4	1405.0	1393.5	1393.5	1412.0
25°	1338.0	1349.6	1351.9	1356.5	1351.9	1351.9	1356.5	1361.1	1349.6	1349.6	1365.7
27.5°	1294.1	1305.7	1305.7	1303.4	1298.7	1301.0	1298.7	1301.0	1289.5	1287.2	1303.4
30°	1229.4	1236.3	1236.3	1234.0	1227.1	1227.1	1220.2	1222.5	1206.3	1206.3	1220.2
32.5°	1141.6	1148.5	1143.9	1139.3	1130.0	1125.4	1120.8	1118.5	1102.3	1102.3	1118.5
35°	1037.6	1042.2	1035.3	1026.0	1014.5	1007.6	1000.6	991.4	979.8	982.1	991.4
37.5°	931.3	931.3	922.1	903.6	894.3	882.8	871.2	871.2	852.7	850.4	857.3
40°	841.2	831.9	815.8	790.3	774.2	762.6	746.4	737.2	723.3	723.3	734.9
42.5°	760.3	741.8	721.0	686.3	670.2	656.3	635.5	626.3	610.1	607.8	614.7
45°	688.7	670.2	640.1	603.1	582.3	566.2	536.1	524.6	510.7	508.4	513.0
47.5°	630.9	610.1	573.1	524.6	503.8	483.0	452.9	436.8	425.2	418.3	425.2
50°	580.0	552.3	513.0	462.2	434.5	416.0	379.0	362.8	346.6	342.0	344.3
52.5°	524.6	496.8	455.2	402.1	376.7	348.9	314.3	291.2	277.3	270.4	277.3
55°	464.5	436.8	395.2	342.0	314.3	288.9	251.9	233.4	217.2	210.3	217.2
57.5°	399.8	374.4	337.4	284.2	258.8	235.7	201.0	182.6	166.4	161.8	166.4
60°	344.3	323.5	286.6	235.7	214.9	189.5	159.5	141.0	127.1	124.8	127.1
62.5°	307.4	284.2	249.6	201.0	180.3	159.5	131.7	113.2	101.7	99.4	101.7
65°	270.4	245.0	212.6	171.0	150.2	134.0	106.3	90.1	78.6	76.3	78.6
67.5°	228.8	205.7	177.9	141.0	124.8	108.6	85.5	69.3	60.1	57.8	60.1
70°	189.5	168.7	141.0	113.2	97.1	85.5	64.7	53.2	43.9	41.6	43.9
72.5°	150.2	131.7	108.6	85.5	76.3	64.7	50.8	39.3	32.4	30.0	32.4
75°	115.5	101.7	83.2	62.4	55.5	48.5	34.7	27.7	23.1	20.8	23.1
77.5°	80.9	71.6	57.8	46.2	39.3	34.7	25.4	18.5	16.2	13.9	16.2
80°	55.5	48.5	39.3	30.0	25.4	20.8	16.2	11.6	9.2	9.2	9.2
82.5°	37.0	30.0	23.1	18.5	16.2	13.9	9.2	6.9	6.9	4.6	4.6
85°	20.8	18.5	13.9	11.6	9.2	6.9	4.6	4.6	2.3	2.3	2.3
87.5°	9.2	6.9	4.6	4.6	2.3	2.3	2.3	2.3	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°	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1
2.5°	1509.0	1502.1	1511.3	1502.1	1497.5	1502.1	1497.5	1511.3	1499.8	1490.5	1499.8
5°	1506.7	1497.5	1506.7	1499.8	1492.8	1495.2	1490.5	1504.4	1490.5	1483.6	1488.2
7.5°	1502.1	1495.2	1499.8	1492.8	1485.9	1488.2	1483.6	1495.2	1481.3	1474.4	1479.0
10°	1495.2	1488.2	1490.5	1485.9	1479.0	1479.0	1474.4	1483.6	1467.4	1458.2	1462.8
12.5°	1485.9	1476.7	1481.3	1474.4	1465.1	1465.1	1460.5	1467.4	1451.3	1442.0	1444.3
15°	1474.4	1465.1	1465.1	1458.2	1448.9	1448.9	1439.7	1446.6	1428.1	1418.9	1418.9
17.5°	1460.5	1448.9	1448.9	1442.0	1430.5	1428.1	1421.2	1428.1	1407.3	1398.1	1398.1
20°	1439.7	1430.5	1428.1	1423.5	1412.0	1409.7	1400.4	1402.7	1386.5	1379.6	1377.3
22.5°	1412.0	1402.7	1405.0	1398.1	1388.9	1386.5	1377.3	1384.2	1368.1	1361.1	1363.4
25°	1363.4	1358.8	1363.4	1361.1	1354.2	1354.2	1349.6	1354.2	1340.3	1335.7	1338.0
27.5°	1308.0	1305.7	1308.0	1308.0	1303.4	1303.4	1303.4	1310.3	1296.4	1294.1	1294.1
30°	1227.1	1227.1	1229.4	1231.7	1231.7	1236.3	1234.0	1243.3	1234.0	1229.4	1234.0
32.5°	1120.8	1130.0	1137.0	1137.0	1137.0	1141.6	1146.2	1153.1	1143.9	1146.2	1146.2
35°	1000.6	1007.6	1012.2	1023.7	1016.8	1033.0	1037.6	1046.8	1044.5	1049.2	1046.8
37.5°	866.6	875.8	885.1	901.3	898.9	917.4	926.7	945.2	940.5	949.8	954.4
40°	741.8	755.7	769.5	781.1	790.3	808.8	827.3	850.4	857.3	864.3	866.6
42.5°	621.6	635.5	658.6	674.8	688.7	718.7	744.1	771.8	778.8	792.6	797.3
45°	524.6	536.1	563.9	584.7	596.2	640.1	670.2	704.8	716.4	732.6	739.5
47.5°	434.5	455.2	483.0	508.4	524.6	570.8	610.1	647.1	663.2	681.7	691.0
50°	355.9	379.0	416.0	439.1	462.2	513.0	556.9	596.2	612.4	633.2	642.4
52.5°	291.2	316.6	351.3	376.7	402.1	455.2	501.5	538.4	559.2	573.1	587.0
55°	228.8	256.5	291.2	318.9	339.7	397.5	436.8	473.7	487.6	499.2	506.1
57.5°	177.9	198.7	233.4	256.5	281.9	332.8	372.1	399.8	411.3	425.2	429.8
60°	138.7	159.5	191.8	214.9	238.0	286.6	325.8	353.6	365.1	376.7	383.6
62.5°	110.9	131.7	161.8	182.6	203.4	247.3	281.9	309.7	323.5	335.1	342.0
65°	87.8	106.3	131.7	152.5	168.7	208.0	242.6	268.1	281.9	293.5	300.4
67.5°	69.3	85.5	108.6	122.5	138.7	171.0	201.0	224.2	235.7	249.6	256.5
70°	53.2	64.7	85.5	97.1	108.6	136.3	159.5	182.6	194.1	203.4	208.0
72.5°	39.3	48.5	64.7	73.9	80.9	104.0	122.5	138.7	147.9	157.1	161.8
75°	27.7	34.7	46.2	53.2	57.8	73.9	90.1	101.7	108.6	115.5	122.5
77.5°	18.5	23.1	30.0	34.7	39.3	50.8	60.1	69.3	76.3	83.2	85.5
80°	11.6	16.2	20.8	23.1	25.4	32.4	41.6	46.2	50.8	55.5	57.8
82.5°	6.9	9.2	11.6	13.9	16.2	20.8	25.4	30.0	32.4	37.0	39.3
85°	2.3	4.6	4.6	6.9	6.9	11.6	13.9	16.2	18.5	20.8	23.1
87.5°	0.0	0.0	2.3	2.3	2.3	2.3	4.6	4.6	4.6	4.6	4.6
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: P251954

CATALOG NUMBER: LD4B40D010 EU4B30509035 4LBDW1H

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1	1502.1
2.5°	1509.0	1502.1	1497.5	1495.2	1511.3	1490.5	1499.8	1502.1
5°	1499.8	1492.8	1488.2	1485.9	1499.8	1481.3	1488.2	1492.8
7.5°	1485.9	1481.3	1474.4	1472.0	1485.9	1465.1	1474.4	1476.7
10°	1469.7	1462.8	1458.2	1455.9	1467.4	1446.6	1455.9	1455.9
12.5°	1448.9	1444.3	1435.1	1435.1	1444.3	1425.8	1432.8	1432.8
15°	1421.2	1416.6	1407.3	1407.3	1416.6	1398.1	1405.0	1405.0
17.5°	1398.1	1393.5	1386.5	1384.2	1393.5	1375.0	1381.9	1379.6
20°	1379.6	1375.0	1365.7	1365.7	1372.7	1354.2	1361.1	1361.1
22.5°	1363.4	1361.1	1351.9	1351.9	1361.1	1342.6	1347.3	1342.6
25°	1338.0	1335.7	1326.5	1328.8	1333.4	1314.9	1321.8	1317.2
27.5°	1296.4	1296.4	1287.2	1284.9	1291.8	1275.6	1280.2	1277.9
30°	1231.7	1234.0	1222.5	1222.5	1224.8	1210.9	1217.8	1215.5
32.5°	1143.9	1146.2	1137.0	1134.7	1141.6	1130.0	1134.7	1134.7
35°	1046.8	1049.2	1042.2	1042.2	1049.2	1042.2	1042.2	1039.9
37.5°	949.8	954.4	949.8	952.1	956.7	949.8	954.4	952.1
40°	871.2	875.8	868.9	873.5	878.1	871.2	878.1	873.5
42.5°	799.6	806.5	801.9	806.5	811.1	806.5	811.1	804.2
45°	746.4	751.0	748.7	751.0	755.7	753.4	755.7	753.4
47.5°	695.6	704.8	700.2	704.8	711.8	707.1	711.8	704.8
50°	649.4	656.3	654.0	658.6	660.9	658.6	663.2	656.3
52.5°	589.3	596.2	593.9	593.9	598.5	593.9	598.5	593.9
55°	510.7	513.0	513.0	515.3	513.0	510.7	513.0	508.4
57.5°	434.5	439.1	432.1	439.1	436.8	434.5	434.5	429.8
60°	385.9	392.9	388.2	392.9	390.5	390.5	390.5	388.2
62.5°	346.6	351.3	346.6	348.9	348.9	348.9	346.6	344.3
65°	302.7	309.7	305.0	307.4	305.0	302.7	305.0	302.7
67.5°	258.8	261.1	261.1	258.8	258.8	258.8	258.8	254.2
70°	210.3	212.6	210.3	214.9	212.6	210.3	212.6	208.0
72.5°	164.1	166.4	164.1	166.4	164.1	164.1	164.1	164.1
75°	122.5	124.8	124.8	124.8	124.8	124.8	120.2	124.8
77.5°	87.8	87.8	87.8	90.1	87.8	87.8	87.8	87.8
80°	60.1	60.1	60.1	62.4	60.1	62.4	60.1	62.4
82.5°	39.3	39.3	39.3	39.3	39.3	39.3	39.3	39.3
85°	20.8	23.1	23.1	20.8	20.8	20.8	20.8	20.8
87.5°	4.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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)