

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: P251639

Luminaire Tested: **LD4B40D010 EU4B30509024 4LBSW1H**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P251639
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: LD4B40D010 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: 2621.0 lumens
Efficiency: N/A
Efficacy: 60.9 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

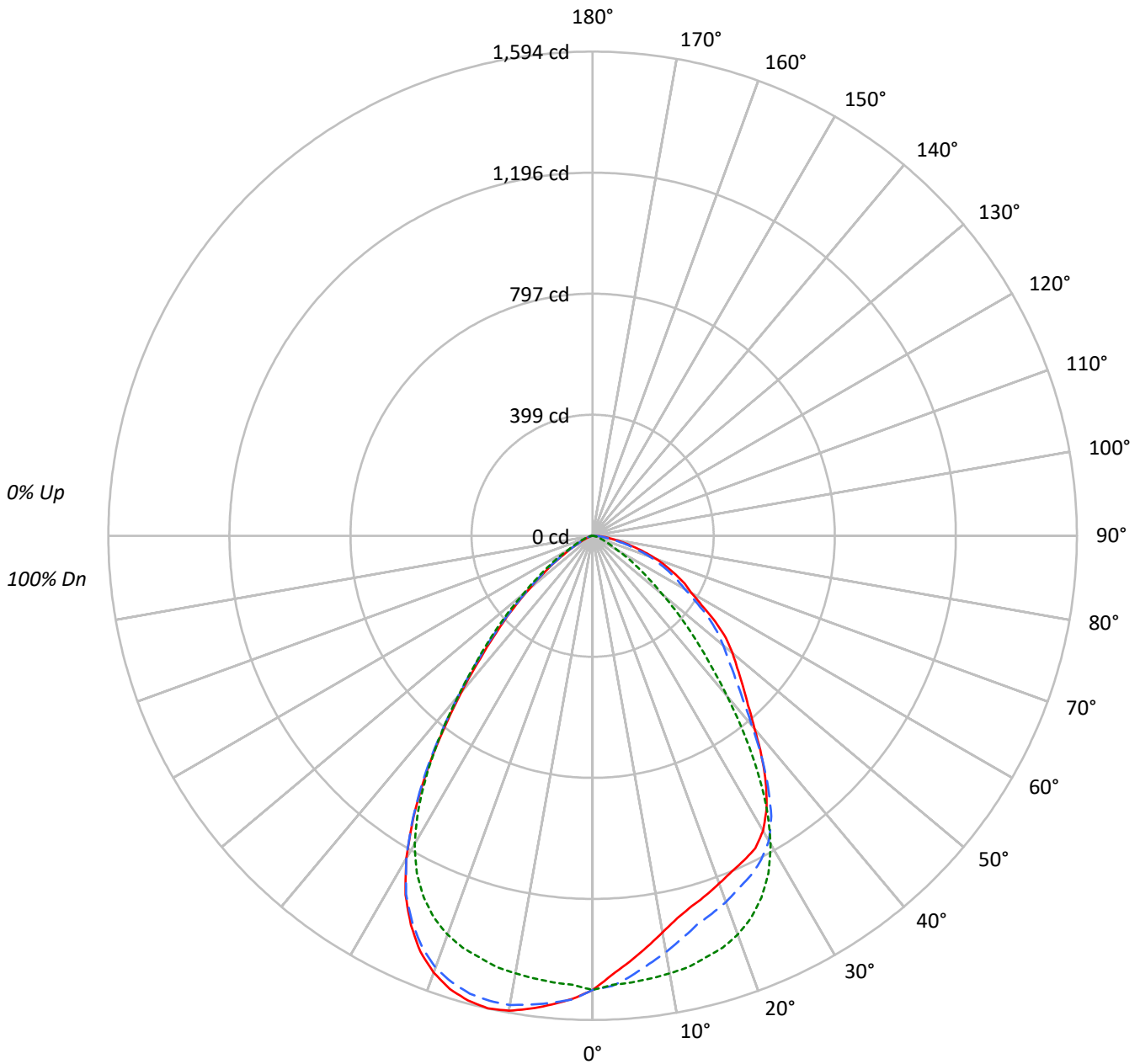
Input Watts (W): 43.02
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					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°	145719	145719	145719
5°	137608	144398	151559
10°	131193	144731	157121
15°	127341	145028	159809
20°	126301	144887	158670
25°	126803	141309	152084
30°	126197	131835	137912
35°	118296	112562	113704
40°	105417	87275	85303
45°	96410	65068	61085
50°	91153	45576	41195
55°	83818	30771	25861
60°	73230	18030	14268
65°	69320	11553	8002
70°	63145	8235	4930
75°	52227	5799	3615
80°	41083	3255	2189
85°	36677	2125	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	141.3	5.4
10°-20°	405.3	15.5
20°-30°	600.8	22.9
30°-40°	601.6	23.0
40°-50°	420.5	16.0
50°-60°	250.2	9.5
60°-70°	130.6	5.0
70°-80°	58.1	2.2
80°-90°	12.7	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°	1147.4	43.8
0°-40°	1749.0	66.7
0°-60°	2419.7	92.3
0°-90°	2621.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2621.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1495	1495	1495	1495	1495	
5°	1407	1455	1476	1543	1549	132
15°	1262	1326	1437	1561	1584	357
25°	1179	1233	1314	1405	1414	543
35°	994	1006	946	963	956	616
45°	700	665	472	457	443	543
55°	493	462	181	158	152	438
65°	301	276	50	37	35	297
75°	139	121	15	10	10	150
85°	33	25	2	2	0	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°	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2
2.5°	1447.1	1464.4	1447.1	1452.9	1476.0	1454.8	1466.3	1466.3	1460.6	1474.1	1483.7
5°	1406.6	1424.0	1406.6	1414.3	1439.4	1418.2	1431.7	1427.8	1429.7	1441.3	1454.8
7.5°	1366.1	1379.6	1364.2	1373.9	1397.0	1379.6	1391.2	1391.2	1393.1	1410.5	1422.0
10°	1325.7	1337.2	1325.7	1333.4	1358.4	1343.0	1350.7	1352.7	1358.4	1373.9	1391.2
12.5°	1289.1	1298.7	1287.1	1298.7	1319.9	1304.5	1314.1	1316.0	1321.8	1339.2	1358.4
15°	1262.1	1271.7	1260.2	1269.8	1289.1	1277.5	1285.2	1289.1	1292.9	1308.3	1325.7
17.5°	1240.9	1248.6	1239.0	1250.5	1266.0	1252.5	1264.0	1264.0	1269.8	1285.2	1304.5
20°	1217.8	1225.5	1217.8	1227.4	1244.8	1233.2	1242.8	1242.8	1248.6	1266.0	1283.3
22.5°	1196.6	1200.4	1196.6	1204.3	1221.6	1212.0	1217.8	1219.7	1225.5	1240.9	1256.3
25°	1179.2	1186.9	1183.1	1190.8	1202.4	1192.7	1198.5	1200.4	1206.2	1219.7	1233.2
27.5°	1160.0	1163.8	1160.0	1169.6	1179.2	1171.5	1177.3	1175.4	1179.2	1190.8	1202.4
30°	1121.4	1125.3	1125.3	1131.1	1138.8	1134.9	1140.7	1134.9	1138.8	1148.4	1160.0
32.5°	1065.6	1067.5	1069.4	1075.2	1081.0	1075.2	1079.0	1079.0	1079.0	1086.8	1094.5
35°	994.3	998.1	996.2	1000.0	1005.8	1003.9	1003.9	1002.0	998.1	1002.0	1005.8
37.5°	913.3	907.6	907.6	913.3	917.2	909.5	913.3	909.5	909.5	911.4	911.4
40°	828.6	822.8	828.6	830.5	832.4	828.6	826.6	822.8	817.0	818.9	815.1
42.5°	757.3	753.4	755.3	755.3	757.3	753.4	755.3	747.6	741.8	738.0	732.2
45°	699.5	693.7	699.5	695.6	695.6	693.7	691.7	687.9	680.2	674.4	664.8
47.5°	645.5	645.5	647.4	647.4	647.4	643.6	643.6	635.9	628.2	620.5	607.0
50°	601.2	597.3	605.0	605.0	599.3	597.3	599.3	589.6	583.8	574.2	560.7
52.5°	553.0	553.0	554.9	554.9	553.0	549.2	551.1	543.4	537.6	528.0	514.5
55°	493.3	489.4	495.2	495.2	493.3	491.4	493.3	487.5	481.7	474.0	462.4
57.5°	425.8	423.9	427.8	429.7	425.8	425.8	427.8	422.0	420.1	412.3	400.8
60°	375.7	373.8	377.7	379.6	375.7	375.7	375.7	368.0	364.2	356.5	348.8
62.5°	341.1	339.1	343.0	341.1	339.1	337.2	339.1	331.4	327.6	319.9	312.2
65°	300.6	302.5	304.4	304.4	302.5	300.6	300.6	296.7	292.9	285.2	275.5
67.5°	262.1	262.1	264.0	265.9	264.0	264.0	264.0	258.2	254.3	248.6	237.0
70°	221.6	219.7	225.4	225.4	221.6	223.5	221.6	219.7	215.8	208.1	198.5
72.5°	179.2	179.2	181.1	181.1	179.2	179.2	179.2	177.3	171.5	167.6	158.0
75°	138.7	138.7	140.7	142.6	138.7	138.7	140.7	136.8	133.0	127.2	121.4
77.5°	104.1	102.1	104.1	104.1	102.1	102.1	102.1	100.2	98.3	92.5	86.7
80°	73.2	71.3	73.2	73.2	73.2	71.3	71.3	69.4	69.4	65.5	59.7
82.5°	50.1	48.2	50.1	50.1	50.1	48.2	48.2	48.2	46.2	44.3	40.5
85°	32.8	30.8	30.8	32.8	30.8	30.8	30.8	30.8	28.9	27.0	25.0
87.5°	15.4	15.4	15.4	15.4	15.4	15.4	15.4	13.5	13.5	13.5	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°	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2
2.5°	1476.0	1472.1	1483.7	1479.8	1481.8	1472.1	1487.5	1479.8	1489.5	1479.8	1499.1
5°	1450.9	1447.1	1464.4	1462.5	1464.4	1456.7	1474.1	1472.1	1483.7	1476.0	1497.2
7.5°	1424.0	1420.1	1439.4	1441.3	1445.1	1437.4	1460.6	1460.6	1472.1	1470.2	1493.3
10°	1393.1	1395.1	1414.3	1418.2	1425.9	1422.0	1443.2	1449.0	1464.4	1462.5	1491.4
12.5°	1364.2	1364.2	1389.3	1397.0	1402.8	1400.8	1425.9	1433.6	1450.9	1454.8	1481.8
15°	1335.3	1337.2	1360.4	1371.9	1379.6	1377.7	1404.7	1414.3	1435.5	1437.4	1470.2
17.5°	1312.2	1310.3	1335.3	1345.0	1356.5	1354.6	1383.5	1395.1	1416.2	1422.0	1452.9
20°	1292.9	1291.0	1314.1	1325.7	1333.4	1331.5	1360.4	1373.9	1393.1	1397.0	1427.8
22.5°	1269.8	1266.0	1289.1	1298.7	1306.4	1304.5	1329.5	1339.2	1358.4	1362.3	1391.2
25°	1242.8	1239.0	1260.2	1266.0	1271.7	1267.9	1289.1	1294.9	1310.3	1314.1	1343.0
27.5°	1212.0	1202.4	1219.7	1219.7	1223.6	1217.8	1233.2	1239.0	1252.5	1252.5	1279.4
30°	1163.8	1150.3	1160.0	1158.0	1160.0	1152.3	1161.9	1163.8	1173.5	1171.5	1190.8
32.5°	1096.4	1077.1	1082.9	1077.1	1071.3	1059.8	1071.3	1067.5	1075.2	1067.5	1084.8
35°	1003.9	984.6	982.7	975.0	969.2	959.6	959.6	949.9	951.9	946.1	957.7
37.5°	903.7	878.7	874.8	859.4	849.7	838.2	838.2	830.5	820.8	817.0	826.6
40°	805.4	778.5	768.8	743.8	734.1	722.6	714.9	705.2	701.4	686.0	693.7
42.5°	720.6	691.7	670.5	643.6	633.9	616.6	605.0	593.5	587.7	570.4	578.1
45°	649.4	614.7	591.5	556.9	543.4	524.1	506.8	493.3	479.8	472.1	468.2
47.5°	589.6	553.0	522.2	483.6	462.4	445.1	422.0	408.5	391.2	381.5	375.7
50°	539.5	499.1	464.4	420.1	398.9	379.6	352.6	331.4	316.0	300.6	296.7
52.5°	495.2	452.8	414.3	364.2	339.1	316.0	287.1	264.0	250.5	233.2	231.2
55°	443.2	406.6	364.2	312.2	287.1	264.0	233.2	210.0	192.7	181.1	177.3
57.5°	387.3	352.6	312.2	260.1	235.1	210.0	181.1	159.9	144.5	134.9	133.0
60°	335.3	302.5	264.0	212.0	186.9	165.7	134.9	113.7	100.2	92.5	88.6
62.5°	296.7	265.9	229.3	181.1	158.0	136.8	107.9	88.6	77.1	69.4	65.5
65°	260.1	229.3	196.5	152.2	133.0	113.7	86.7	69.4	57.8	50.1	46.2
67.5°	221.6	194.6	163.8	127.2	107.9	92.5	69.4	54.0	44.3	38.5	34.7
70°	183.1	158.0	133.0	102.1	88.6	73.2	54.0	42.4	32.8	28.9	25.0
72.5°	144.5	125.2	104.1	79.0	67.4	57.8	42.4	30.8	25.0	21.2	17.3
75°	107.9	94.4	77.1	59.7	50.1	42.4	30.8	23.1	19.3	15.4	13.5
77.5°	77.1	65.5	54.0	40.5	36.6	30.8	21.2	17.3	13.5	9.6	7.7
80°	52.0	46.2	36.6	28.9	23.1	21.2	15.4	11.6	7.7	5.8	5.8
82.5°	34.7	28.9	23.1	17.3	15.4	13.5	9.6	7.7	5.8	3.9	3.9
85°	21.2	17.3	13.5	9.6	9.6	7.7	5.8	3.9	1.9	1.9	1.9
87.5°	9.6	7.7	5.8	3.9	3.9	1.9	1.9	1.9	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°	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2
2.5°	1514.5	1503.0	1495.2	1504.9	1508.7	1503.0	1508.7	1518.4	1528.0	1529.9	1503.0
5°	1516.4	1504.9	1501.0	1512.6	1514.5	1512.6	1518.4	1531.9	1543.4	1547.3	1520.3
7.5°	1516.4	1508.7	1506.8	1520.3	1522.2	1520.3	1529.9	1545.3	1556.9	1564.6	1537.6
10°	1512.6	1508.7	1510.7	1522.2	1526.1	1526.1	1539.6	1556.9	1568.5	1576.2	1549.2
12.5°	1506.8	1506.8	1506.8	1520.3	1524.1	1526.1	1537.6	1560.8	1568.5	1580.0	1553.1
15°	1497.2	1497.2	1497.2	1510.7	1516.4	1516.4	1529.9	1551.1	1560.8	1572.3	1545.3
17.5°	1479.8	1479.8	1481.8	1493.3	1499.1	1499.1	1512.6	1535.7	1541.5	1555.0	1528.0
20°	1454.8	1454.8	1456.7	1468.3	1474.1	1470.2	1487.5	1506.8	1512.6	1524.1	1497.2
22.5°	1418.2	1418.2	1418.2	1429.7	1433.6	1431.7	1449.0	1466.3	1466.3	1481.8	1452.9
25°	1364.2	1368.1	1364.2	1375.8	1379.6	1377.7	1393.1	1408.5	1404.7	1422.0	1393.1
27.5°	1298.7	1296.8	1296.8	1306.4	1306.4	1304.5	1316.0	1333.4	1329.5	1341.1	1314.1
30°	1208.1	1213.9	1204.3	1217.8	1212.0	1208.1	1215.9	1231.3	1225.5	1235.1	1213.9
32.5°	1104.1	1096.4	1096.4	1096.4	1100.2	1090.6	1098.3	1106.0	1100.2	1109.9	1086.8
35°	967.3	969.2	963.4	965.4	967.3	955.7	963.4	971.1	963.4	969.2	948.0
37.5°	830.5	832.4	818.9	826.6	818.9	815.1	822.8	826.6	818.9	824.7	801.6
40°	693.7	689.8	687.9	687.9	689.8	680.2	686.0	691.7	686.0	689.8	668.6
42.5°	574.2	572.3	568.4	570.4	564.6	562.6	564.6	570.4	564.6	568.4	553.0
45°	470.2	466.3	460.5	462.4	462.4	452.8	458.6	462.4	456.7	458.6	445.1
47.5°	373.8	368.0	368.0	366.1	366.1	362.3	368.0	366.1	360.3	364.2	350.7
50°	291.0	287.1	287.1	287.1	287.1	281.3	283.2	287.1	281.3	281.3	273.6
52.5°	227.4	221.6	217.7	217.7	217.7	215.8	215.8	217.7	212.0	212.0	210.0
55°	171.5	169.6	163.8	163.8	163.8	158.0	159.9	159.9	158.0	158.0	152.2
57.5°	127.2	121.4	117.5	117.5	113.7	113.7	111.8	113.7	109.8	109.8	106.0
60°	84.8	80.9	79.0	77.1	77.1	75.1	77.1	75.1	75.1	73.2	71.3
62.5°	61.7	57.8	54.0	54.0	54.0	52.0	52.0	52.0	52.0	52.0	50.1
65°	44.3	40.5	40.5	38.5	38.5	36.6	36.6	36.6	36.6	36.6	34.7
67.5°	30.8	28.9	27.0	27.0	27.0	27.0	27.0	27.0	25.0	25.0	25.0
70°	23.1	21.2	19.3	19.3	19.3	19.3	19.3	17.3	19.3	19.3	17.3
72.5°	15.4	15.4	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
75°	11.6	11.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
77.5°	7.7	7.7	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
80°	5.8	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
82.5°	3.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	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: P251639

CATALOG NUMBER: LD4B40D010 EU4B30509024 4LBSW1H

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2	1495.2
2.5°	1531.9	1529.9	1526.1	1531.9	1516.4	1510.7	1508.7	1526.1
5°	1553.1	1549.2	1549.2	1555.0	1537.6	1533.8	1529.9	1549.2
7.5°	1572.3	1568.5	1568.5	1574.2	1558.8	1555.0	1551.1	1570.4
10°	1583.9	1583.9	1583.9	1587.7	1574.2	1570.4	1568.5	1587.7
12.5°	1589.7	1589.7	1587.7	1595.4	1578.1	1578.1	1574.2	1593.5
15°	1582.0	1582.0	1582.0	1587.7	1572.3	1568.5	1568.5	1583.9
17.5°	1562.7	1562.7	1560.8	1566.5	1549.2	1549.2	1547.3	1564.6
20°	1533.8	1533.8	1529.9	1537.6	1520.3	1514.5	1512.6	1529.9
22.5°	1487.5	1485.6	1483.7	1487.5	1472.1	1468.3	1466.3	1481.8
25°	1427.8	1425.9	1422.0	1425.9	1408.5	1402.8	1402.8	1414.3
27.5°	1343.0	1343.0	1337.2	1343.0	1323.8	1321.8	1319.9	1333.4
30°	1239.0	1231.3	1227.4	1235.1	1215.9	1215.9	1212.0	1225.5
32.5°	1109.9	1102.2	1100.2	1104.1	1086.8	1081.0	1088.7	1096.4
35°	961.5	963.4	955.7	955.7	940.3	942.2	944.2	955.7
37.5°	818.9	815.1	813.1	815.1	803.5	799.6	795.8	807.4
40°	686.0	676.3	674.4	674.4	664.8	662.8	664.8	670.5
42.5°	560.7	558.8	551.1	554.9	545.3	549.2	547.2	547.2
45°	452.8	454.7	447.0	452.8	445.1	439.3	439.3	443.2
47.5°	358.4	358.4	356.5	356.5	350.7	352.6	348.8	354.5
50°	277.5	277.5	273.6	275.5	271.7	271.7	269.8	271.7
52.5°	212.0	210.0	210.0	208.1	204.2	206.2	208.1	204.2
55°	154.1	156.1	152.2	154.1	150.3	152.2	150.3	152.2
57.5°	106.0	107.9	104.1	107.9	104.1	106.0	104.1	104.1
60°	73.2	73.2	71.3	73.2	71.3	71.3	69.4	73.2
62.5°	50.1	50.1	50.1	50.1	50.1	48.2	50.1	50.1
65°	36.6	34.7	34.7	34.7	34.7	34.7	34.7	34.7
67.5°	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
70°	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
72.5°	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
75°	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
77.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
80°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
82.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
85°	1.9	1.9	1.9	0.0	1.9	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)