

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: P219505

Luminaire Tested: **LDSQ4B20D010 EU4B10208035 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219505
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35471)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQ4B20D010 EU4B10208035 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1619.6 lumens
Efficiency: N/A
Efficacy: 77.9 lumens/watt
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

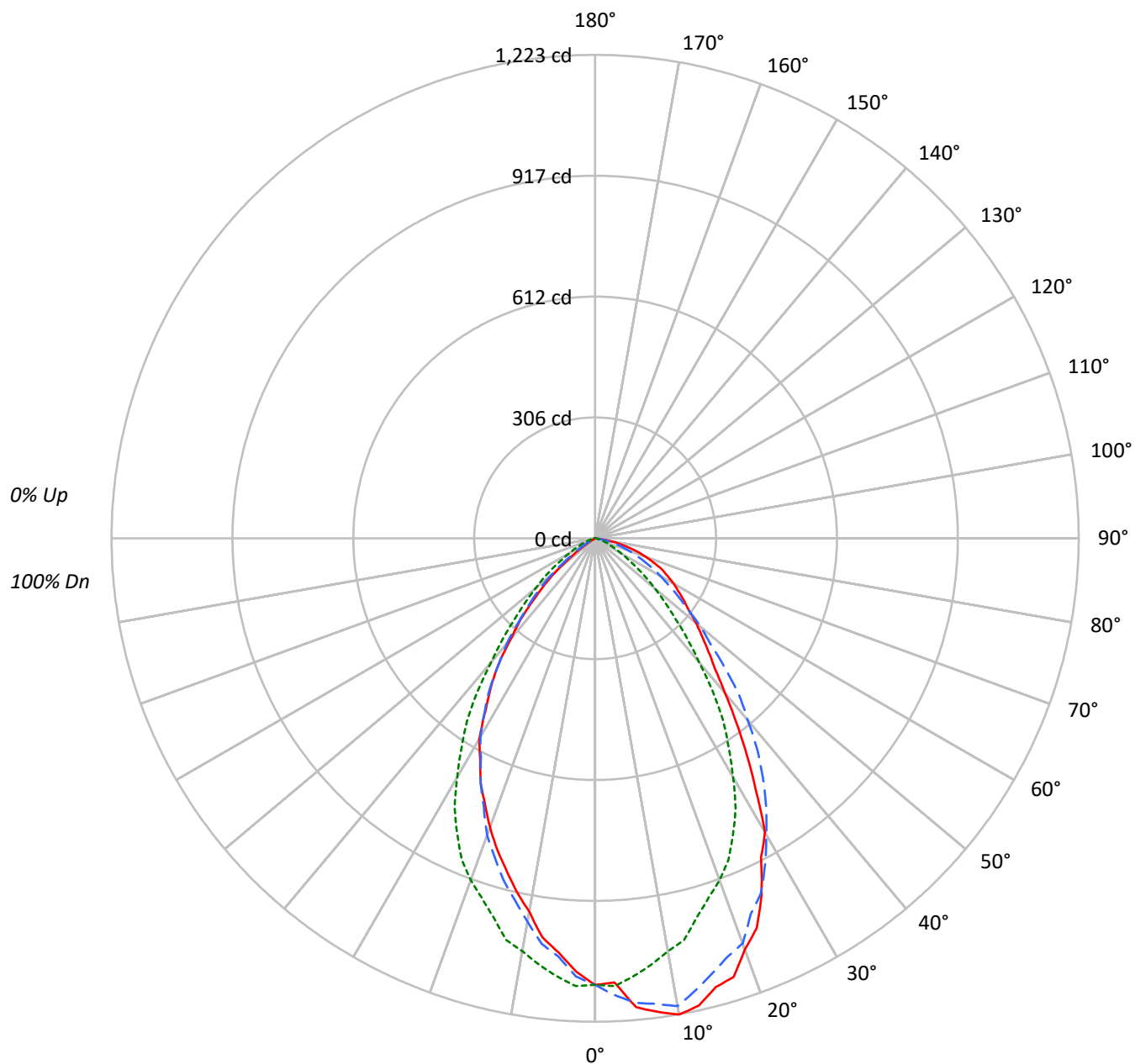
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	84	82	80			
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72			
4	91	81	74	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	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48			
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41			
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	109460	109460	109460
5°	115800	108156	102361
10°	120336	104351	94356
15°	117934	99591	87094
20°	114103	94835	80165
25°	106431	88184	73124
30°	96078	78046	65473
35°	79142	66807	54318
40°	64584	51571	41808
45°	55500	39169	30072
50°	50232	29811	18990
55°	46227	21501	6857
60°	44369	14706	1046
65°	42865	9948	321
70°	38380	6911	397
75°	31441	3556	0
80°	19637	1506	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.9	6.5
10°-20°	285.2	17.6
20°-30°	380.8	23.5
30°-40°	361.5	22.3
40°-50°	249.9	15.4
50°-60°	138.1	8.5
60°-70°	68.6	4.2
70°-80°	27.0	1.7
80°-90°	2.6	0.2
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°	771.9	47.7
0°-40°	1133.4	70.0
0°-60°	1521.4	93.9
0°-90°	1619.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1619.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1130	1130	1130	1130	1130	
5°	1191	1180	1112	1062	1053	114
15°	1176	1141	993	896	868	333
25°	996	992	825	684	684	454
35°	669	740	565	465	459	419
45°	405	465	286	234	220	316
55°	274	257	127	65	41	246
65°	187	136	43	1	1	181
75°	84	52	10	0	0	90
85°	0	1	0	0	0	8
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°	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9
2.5°	1124.4	1155.6	1158.3	1155.6	1159.7	1158.3	1165.1	1158.3	1166.4	1154.2	1157.0
5°	1190.8	1178.6	1204.4	1190.8	1190.8	1189.5	1185.4	1184.1	1189.5	1171.9	1180.0
7.5°	1208.4	1226.0	1249.1	1220.6	1222.0	1222.0	1213.9	1211.1	1211.1	1178.6	1188.1
10°	1223.3	1212.5	1224.7	1213.9	1223.3	1222.0	1227.4	1209.8	1222.0	1203.0	1201.7
12.5°	1211.1	1207.1	1223.3	1205.7	1200.3	1201.7	1194.9	1190.8	1194.9	1173.2	1171.9
15°	1175.9	1180.0	1204.4	1185.4	1182.7	1180.0	1171.9	1158.3	1169.1	1139.3	1140.7
17.5°	1163.7	1157.0	1161.0	1144.8	1148.8	1146.1	1144.8	1132.6	1129.9	1110.9	1110.9
20°	1106.8	1121.7	1121.7	1110.9	1110.9	1109.5	1091.9	1102.8	1090.6	1085.2	1090.6
22.5°	1067.5	1068.9	1068.9	1059.4	1060.8	1055.3	1045.9	1039.1	1045.9	1039.1	1028.3
25°	995.7	998.4	1014.7	997.1	994.4	999.8	991.7	987.6	986.3	970.0	991.7
27.5°	909.0	936.1	934.8	928.0	936.1	925.3	921.2	922.6	926.6	925.3	930.7
30°	858.9	863.0	867.0	861.6	863.0	858.9	858.9	860.3	871.1	867.0	865.7
32.5°	757.3	770.9	781.7	781.7	783.0	787.1	785.8	814.2	821.0	807.4	804.7
35°	669.2	678.7	688.2	689.6	707.2	708.5	709.9	718.0	737.0	741.0	739.7
37.5°	585.3	594.7	597.4	609.6	619.1	628.6	639.4	650.3	666.5	680.1	673.3
40°	510.7	514.8	521.6	527.0	546.0	546.0	551.4	573.1	590.7	601.5	600.2
42.5°	448.4	449.8	455.2	464.7	482.3	478.2	482.3	497.2	522.9	524.3	539.2
45°	405.1	403.7	407.8	409.1	420.0	425.4	428.1	438.9	460.6	463.3	464.7
47.5°	365.8	364.4	371.2	373.9	378.0	383.4	383.4	384.7	392.9	399.7	394.2
50°	333.3	333.3	333.3	336.0	342.8	341.4	342.8	348.2	352.2	349.5	348.2
52.5°	298.0	303.5	307.5	308.9	310.2	310.2	311.6	308.9	307.5	303.5	295.3
55°	273.7	279.1	279.1	279.1	279.1	284.5	277.7	279.1	279.1	268.2	257.4
57.5°	249.3	254.7	258.8	253.3	258.8	253.3	250.6	249.3	246.6	235.7	219.5
60°	229.0	231.7	230.3	229.0	231.7	227.6	224.9	219.5	216.8	201.9	191.0
62.5°	205.9	207.3	208.6	205.9	203.2	201.9	196.4	188.3	182.9	170.7	161.2
65°	187.0	182.9	181.5	180.2	177.5	173.4	169.3	159.9	155.8	145.0	135.5
67.5°	158.5	157.2	159.9	155.8	149.0	149.0	145.0	136.8	127.3	120.6	111.1
70°	135.5	134.1	131.4	127.3	126.0	120.6	120.6	111.1	108.4	96.2	88.1
72.5°	111.1	111.1	107.0	103.0	98.9	96.2	94.8	88.1	84.0	77.2	70.4
75°	84.0	84.0	82.6	78.6	75.9	73.2	71.8	66.4	62.3	55.5	51.5
77.5°	59.6	59.6	54.2	51.5	52.8	50.1	47.4	46.1	44.7	40.6	35.2
80°	35.2	33.9	29.8	31.2	29.8	29.8	28.4	27.1	24.4	21.7	19.0
82.5°	9.5	10.8	10.8	10.8	12.2	9.5	9.5	9.5	10.8	10.8	6.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4
87.5°	1.4	2.7	5.4	5.4	5.4	5.4	5.4	4.1	4.1	4.1	2.7
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°	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9
2.5°	1143.4	1142.1	1143.4	1133.9	1155.6	1139.3	1136.6	1133.9	1143.4	1133.9	1120.4
5°	1167.8	1154.2	1150.2	1146.1	1158.3	1139.3	1135.3	1136.6	1129.9	1112.2	1113.6
7.5°	1175.9	1163.7	1151.5	1125.8	1136.6	1132.6	1121.7	1113.6	1102.8	1087.9	1085.2
10°	1178.6	1165.1	1147.5	1139.3	1123.1	1117.7	1113.6	1100.1	1086.5	1060.8	1054.0
12.5°	1170.5	1154.2	1132.6	1125.8	1113.6	1096.0	1086.5	1073.0	1060.8	1040.4	1025.5
15°	1135.3	1121.7	1115.0	1091.9	1086.5	1075.7	1056.7	1037.7	1020.1	993.0	984.9
17.5°	1094.6	1089.2	1082.4	1064.8	1063.5	1052.6	1035.0	1018.8	995.7	953.7	940.2
20°	1052.6	1052.6	1031.0	1024.2	1037.7	1016.1	1002.5	987.6	940.2	919.9	895.5
22.5°	1021.5	1006.6	994.4	983.5	984.9	971.4	952.4	922.6	905.0	880.6	852.1
25°	960.5	965.9	938.8	934.8	938.8	907.7	898.2	873.8	848.1	825.0	803.4
27.5°	922.6	907.7	890.1	875.2	875.2	863.0	835.9	830.5	791.2	769.5	742.4
30°	865.7	854.8	839.9	818.3	815.6	806.1	784.4	770.9	730.2	697.7	682.8
32.5°	793.9	789.8	777.6	753.2	745.1	734.3	707.2	684.1	665.2	628.6	611.0
35°	742.4	727.5	701.8	681.4	674.7	655.7	634.0	617.8	597.4	564.9	541.9
37.5°	665.2	650.3	625.9	601.5	601.5	582.5	552.7	536.5	508.0	489.1	470.1
40°	597.4	578.5	554.1	525.6	521.6	494.5	482.3	455.2	437.6	407.8	405.1
42.5°	521.6	504.0	482.3	460.6	444.4	430.8	399.7	379.3	360.4	345.5	341.4
45°	452.5	429.5	410.5	383.4	367.1	350.9	330.6	317.0	302.1	285.9	276.4
47.5°	392.9	373.9	346.8	322.4	306.2	298.0	275.0	260.1	247.9	237.1	230.3
50°	331.9	308.9	294.0	266.9	264.2	245.2	226.2	214.1	207.3	197.8	188.3
52.5°	285.9	264.2	243.9	223.5	212.7	205.9	188.3	176.1	166.6	159.9	154.4
55°	241.1	222.2	205.9	185.6	178.8	169.3	149.0	146.3	136.8	127.3	120.6
57.5°	207.3	189.7	170.7	157.2	145.0	138.2	121.9	111.1	105.7	97.5	90.8
60°	176.1	157.2	142.2	126.0	120.6	111.1	98.9	89.4	82.6	75.9	69.1
62.5°	147.7	131.4	115.2	101.6	93.5	88.1	78.6	70.4	63.7	58.3	52.8
65°	121.9	107.0	93.5	79.9	75.9	69.1	62.3	55.5	50.1	43.4	37.9
67.5°	100.3	86.7	73.2	63.7	59.6	56.9	48.8	42.0	37.9	33.9	28.4
70°	78.6	69.1	58.3	50.1	46.1	42.0	36.6	32.5	27.1	24.4	20.3
72.5°	61.0	52.8	43.4	36.6	33.9	31.2	25.7	21.7	19.0	16.3	13.5
75°	43.4	36.6	31.2	24.4	23.0	21.7	17.6	14.9	12.2	9.5	8.1
77.5°	29.8	24.4	19.0	16.3	14.9	12.2	10.8	8.1	6.8	5.4	4.1
80°	16.3	12.2	9.5	8.1	6.8	5.4	5.4	4.1	2.7	2.7	1.4
82.5°	5.4	4.1	2.7	1.4	1.4	1.4	1.4	1.4	1.4	0.0	1.4
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°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	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°	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9
2.5°	1128.5	1113.6	1117.7	1117.7	1115.0	1115.0	1112.2	1108.2	1109.5	1101.4	1083.8
5°	1116.3	1097.3	1094.6	1097.3	1086.5	1083.8	1078.4	1086.5	1062.1	1071.6	1060.8
7.5°	1081.1	1063.5	1059.4	1068.9	1055.3	1047.2	1045.9	1056.7	1035.0	1024.2	1012.0
10°	1041.8	1035.0	1022.8	1016.1	1012.0	1013.4	1002.5	989.0	984.9	982.2	971.4
12.5°	1006.6	991.7	980.8	972.7	970.0	970.0	952.4	949.7	937.5	934.8	918.5
15°	964.6	947.0	940.2	929.4	919.9	925.3	905.0	899.6	895.5	877.9	880.6
17.5°	928.0	909.0	892.8	886.0	877.9	869.7	850.8	854.8	845.4	845.4	821.0
20°	880.6	860.3	848.1	834.5	834.5	823.7	810.1	811.5	799.3	787.1	765.4
22.5°	830.5	808.8	793.9	788.5	774.9	772.2	755.9	751.9	735.6	737.0	718.0
25°	777.6	755.9	735.6	737.0	724.8	719.4	709.9	690.9	684.1	676.0	670.6
27.5°	715.3	700.4	682.8	681.4	658.4	659.8	647.6	642.2	625.9	630.0	617.8
30°	658.4	636.7	620.5	616.4	606.9	604.2	585.3	577.1	579.8	569.0	562.2
32.5°	600.2	567.6	560.9	552.7	547.3	540.5	527.0	532.4	520.2	522.9	512.1
35°	522.9	509.4	491.8	491.8	486.4	480.9	471.5	476.9	464.7	459.3	448.4
37.5°	457.9	445.7	428.1	433.5	424.0	415.9	407.8	409.1	398.3	396.9	386.1
40°	387.5	380.7	368.5	368.5	361.7	361.7	357.7	353.6	346.8	338.7	326.5
42.5°	321.1	315.7	310.2	311.6	302.1	310.2	299.4	306.2	284.5	283.1	275.0
45°	272.3	260.1	261.5	256.0	250.6	253.3	243.9	246.6	234.4	231.7	223.5
47.5°	220.8	216.8	208.6	205.9	205.9	201.9	197.8	196.4	191.0	184.2	173.4
50°	181.5	166.6	163.9	159.9	157.2	157.2	151.7	143.6	145.0	138.2	127.3
52.5°	142.2	130.1	124.6	123.3	117.9	115.2	108.4	103.0	98.9	96.2	89.4
55°	109.7	98.9	92.1	92.1	84.0	84.0	74.5	70.4	65.0	59.6	55.5
57.5°	82.6	77.2	70.4	65.0	62.3	55.5	50.1	43.4	39.3	31.2	25.7
60°	62.3	56.9	50.1	46.1	43.4	36.6	29.8	24.4	14.9	12.2	10.8
62.5°	46.1	40.6	33.9	31.2	28.4	23.0	16.3	8.1	4.1	4.1	4.1
65°	33.9	27.1	21.7	19.0	16.3	12.2	5.4	2.7	1.4	1.4	1.4
67.5°	23.0	17.6	12.2	10.8	8.1	4.1	1.4	1.4	1.4	1.4	1.4
70°	14.9	10.8	5.4	4.1	2.7	1.4	1.4	1.4	1.4	1.4	1.4
72.5°	9.5	5.4	2.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	5.4	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	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	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4
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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CATALOG NUMBER: LDSQ4B20D010 EU4B10208035 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9	1129.9
2.5°	1102.8	1093.3	1098.7	1086.5	1091.9	1101.4	1094.6	1097.3
5°	1064.8	1059.4	1052.6	1035.0	1048.6	1059.4	1054.0	1052.6
7.5°	1024.2	1005.2	1014.7	1009.3	1006.6	1017.4	1005.2	1018.8
10°	982.2	968.6	967.3	957.8	957.8	965.9	967.3	959.2
12.5°	919.9	913.1	913.1	911.7	910.4	918.5	919.9	915.8
15°	875.2	872.5	865.7	864.3	856.2	868.4	869.7	868.4
17.5°	821.0	822.3	815.6	815.6	821.0	825.0	814.2	825.0
20°	784.4	777.6	774.9	762.7	769.5	776.3	776.3	777.6
22.5°	731.6	720.7	724.8	718.0	714.0	723.4	723.4	727.5
25°	672.0	672.0	674.7	670.6	673.3	678.7	674.7	684.1
27.5°	615.1	620.5	620.5	615.1	617.8	634.0	640.8	630.0
30°	562.2	563.6	567.6	564.9	573.1	578.5	577.1	585.3
32.5°	502.6	509.4	512.1	508.0	510.7	522.9	516.2	514.8
35°	456.6	444.4	443.0	444.4	449.8	452.5	449.8	459.3
37.5°	390.2	386.1	380.7	382.0	386.1	391.5	394.2	401.0
40°	326.5	321.1	321.1	319.7	315.7	330.6	330.6	330.6
42.5°	270.9	269.6	262.8	262.8	268.2	272.3	269.6	279.1
45°	222.2	216.8	212.7	212.7	216.8	216.8	220.8	219.5
47.5°	174.8	169.3	170.7	166.6	170.7	176.1	169.3	170.7
50°	131.4	131.4	128.7	131.4	130.1	131.4	128.7	126.0
52.5°	89.4	101.6	103.0	97.5	85.3	74.5	67.7	73.2
55°	51.5	46.1	46.1	44.7	42.0	40.6	36.6	40.6
57.5°	25.7	23.0	23.0	23.0	21.7	20.3	17.6	17.6
60°	10.8	9.5	9.5	8.1	6.8	5.4	4.1	5.4
62.5°	4.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7
65°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)