

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: P219506

Luminaire Tested: **LDSQ4B20D010 EU4B10208040 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219506
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 EU4B10208040 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1636.9 lumens
Efficiency: N/A
Efficacy: 78.7 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

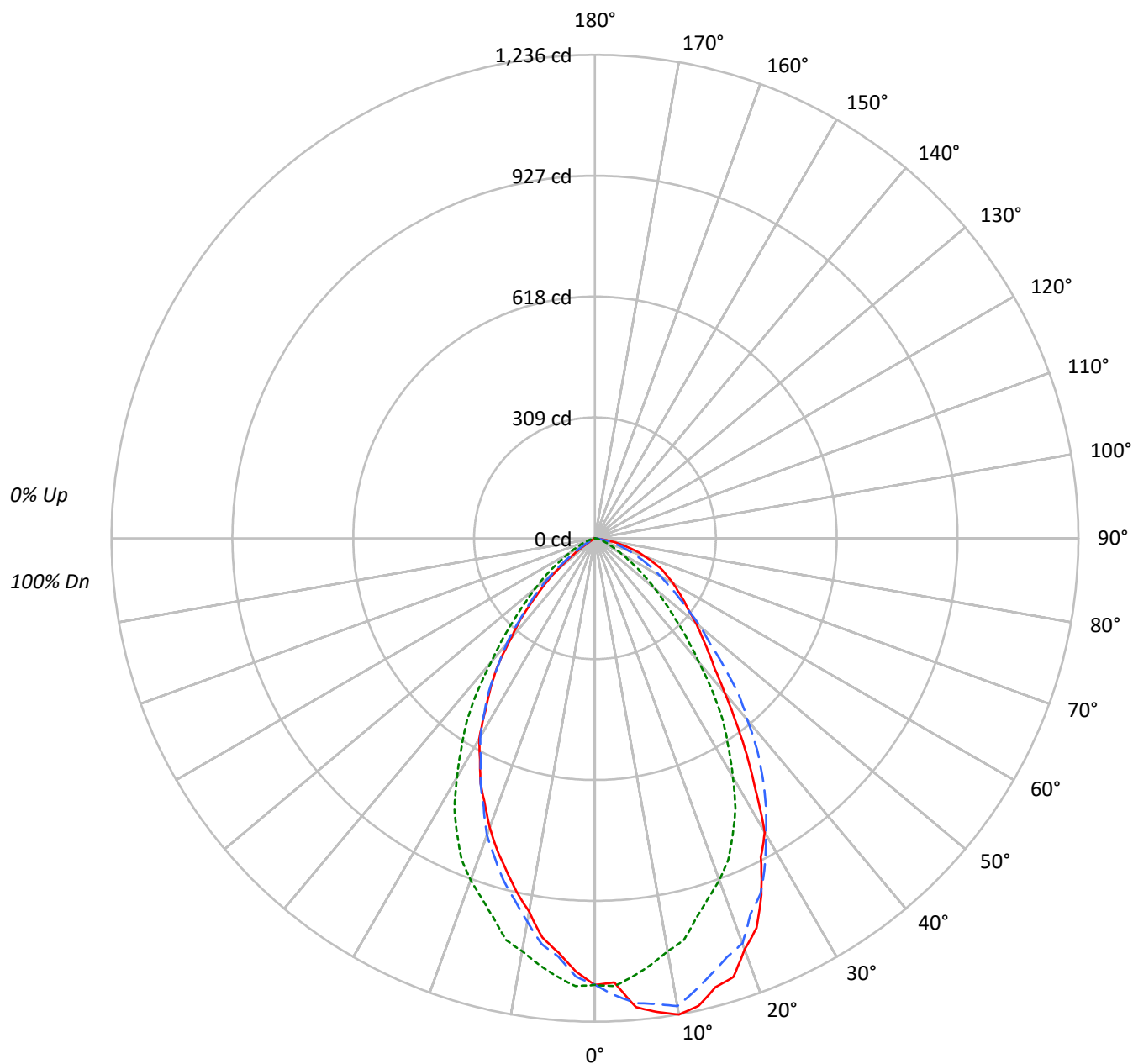
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	110632	110632	110632
5°	117045	109323	103459
10°	121634	105472	95370
15°	119208	100664	88027
20°	115330	95856	81031
25°	107574	89136	73915
30°	97107	78885	66166
35°	79993	67528	54898
40°	65280	52128	42251
45°	56089	39580	30387
50°	50760	30127	19186
55°	46717	21737	6942
60°	44834	14861	1066
65°	43324	10040	321
70°	38776	6968	397
75°	31778	3593	0
80°	19861	1506	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	107.0	6.5
10°-20°	288.3	17.6
20°-30°	384.9	23.5
30°-40°	365.4	22.3
40°-50°	252.6	15.4
50°-60°	139.6	8.5
60°-70°	69.3	4.2
70°-80°	27.3	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°	780.2	47.7
0°-40°	1145.6	70.0
0°-60°	1537.7	93.9
0°-90°	1636.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1636.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1142	1142	1142	1142	1142	
5°	1204	1193	1124	1074	1064	115
15°	1189	1153	1004	905	878	336
25°	1006	1002	834	692	692	459
35°	676	748	571	470	464	424
45°	409	470	289	237	222	319
55°	277	260	129	66	41	249
65°	189	137	44	1	1	183
75°	85	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°	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0
2.5°	1136.5	1168.0	1170.8	1168.0	1172.1	1170.8	1177.6	1170.8	1179.0	1166.6	1169.4
5°	1203.6	1191.3	1217.3	1203.6	1203.6	1202.2	1198.1	1196.8	1202.2	1184.4	1192.7
7.5°	1221.4	1239.2	1262.5	1233.7	1235.1	1235.1	1226.9	1224.2	1224.2	1191.3	1200.9
10°	1236.5	1225.5	1237.8	1226.9	1236.5	1235.1	1240.6	1222.8	1235.1	1215.9	1214.6
12.5°	1224.2	1220.0	1236.5	1218.7	1213.2	1214.6	1207.7	1203.6	1207.7	1185.8	1184.4
15°	1188.6	1192.7	1217.3	1198.1	1195.4	1192.7	1184.4	1170.8	1181.7	1151.6	1152.9
17.5°	1176.2	1169.4	1173.5	1157.1	1161.2	1158.4	1157.1	1144.7	1142.0	1122.8	1122.8
20°	1118.7	1133.8	1133.8	1122.8	1122.8	1121.5	1103.7	1114.6	1102.3	1096.8	1102.3
22.5°	1079.0	1080.4	1080.4	1070.8	1072.2	1066.7	1057.1	1050.3	1057.1	1050.3	1039.3
25°	1006.4	1009.2	1025.6	1007.8	1005.1	1010.5	1002.3	998.2	996.8	980.4	1002.3
27.5°	918.8	946.2	944.8	938.0	946.2	935.2	931.1	932.5	936.6	935.2	940.7
30°	868.1	872.2	876.4	870.9	872.2	868.1	868.1	869.5	880.5	876.4	875.0
32.5°	765.4	779.1	790.1	790.1	791.5	795.6	794.2	822.9	829.8	816.1	813.4
35°	676.4	686.0	695.6	697.0	714.8	716.1	717.5	725.7	744.9	749.0	747.6
37.5°	591.5	601.1	603.9	616.2	625.8	635.4	646.3	657.3	673.7	687.4	680.5
40°	516.2	520.3	527.2	532.7	551.8	551.8	557.3	579.2	597.0	608.0	606.6
42.5°	453.2	454.6	460.1	469.7	487.5	483.4	487.5	502.5	528.5	529.9	545.0
45°	409.4	408.1	412.2	413.5	424.5	430.0	432.7	443.7	465.6	468.3	469.7
47.5°	369.7	368.3	375.2	377.9	382.0	387.5	387.5	388.9	397.1	403.9	398.5
50°	336.8	336.8	336.8	339.6	346.4	345.1	346.4	351.9	356.0	353.3	351.9
52.5°	301.2	306.7	310.8	312.2	313.6	313.6	314.9	312.2	310.8	306.7	298.5
55°	276.6	282.1	282.1	282.1	282.1	287.6	280.7	282.1	282.1	271.1	260.2
57.5°	252.0	257.4	261.5	256.1	261.5	256.1	253.3	252.0	249.2	238.3	221.8
60°	231.4	234.2	232.8	231.4	234.2	230.0	227.3	221.8	219.1	204.0	193.1
62.5°	208.1	209.5	210.9	208.1	205.4	204.0	198.5	190.3	184.9	172.5	162.9
65°	189.0	184.9	183.5	182.1	179.4	175.3	171.2	161.6	157.5	146.5	136.9
67.5°	160.2	158.8	161.6	157.5	150.6	150.6	146.5	138.3	128.7	121.9	112.3
70°	136.9	135.6	132.8	128.7	127.3	121.9	121.9	112.3	109.5	97.2	89.0
72.5°	112.3	112.3	108.2	104.1	100.0	97.2	95.9	89.0	84.9	78.1	71.2
75°	84.9	84.9	83.5	79.4	76.7	73.9	72.6	67.1	63.0	56.1	52.0
77.5°	60.2	60.2	54.8	52.0	53.4	50.7	47.9	46.6	45.2	41.1	35.6
80°	35.6	34.2	30.1	31.5	30.1	30.1	28.8	27.4	24.6	21.9	19.2
82.5°	9.6	11.0	11.0	11.0	12.3	9.6	9.6	9.6	11.0	11.0	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	5.5	5.5	5.5	5.5	5.5	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°	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0
2.5°	1155.7	1154.3	1155.7	1146.1	1168.0	1151.6	1148.8	1146.1	1155.7	1146.1	1132.4
5°	1180.3	1166.6	1162.5	1158.4	1170.8	1151.6	1147.5	1148.8	1142.0	1124.2	1125.6
7.5°	1188.6	1176.2	1163.9	1137.9	1148.8	1144.7	1133.8	1125.6	1114.6	1099.5	1096.8
10°	1191.3	1177.6	1159.8	1151.6	1135.1	1129.7	1125.6	1111.9	1098.2	1072.2	1065.3
12.5°	1183.1	1166.6	1144.7	1137.9	1125.6	1107.8	1098.2	1084.5	1072.2	1051.6	1036.6
15°	1147.5	1133.8	1126.9	1103.7	1098.2	1087.2	1068.1	1048.9	1031.1	1003.7	995.5
17.5°	1106.4	1100.9	1094.1	1076.3	1074.9	1063.9	1046.1	1029.7	1006.4	964.0	950.3
20°	1063.9	1063.9	1042.0	1035.2	1048.9	1027.0	1013.3	998.2	950.3	929.8	905.1
22.5°	1032.5	1017.4	1005.1	994.1	995.5	981.8	962.6	932.5	914.7	890.0	861.3
25°	970.8	976.3	948.9	944.8	948.9	917.4	907.8	883.2	857.2	833.9	812.0
27.5°	932.5	917.4	899.6	884.6	884.6	872.2	844.9	839.4	799.7	777.8	750.4
30°	875.0	864.0	849.0	827.1	824.3	814.7	792.8	779.1	738.1	705.2	690.1
32.5°	802.4	798.3	786.0	761.3	753.1	742.2	714.8	691.5	672.3	635.4	617.6
35°	750.4	735.3	709.3	688.8	681.9	662.7	640.8	624.4	603.9	571.0	547.7
37.5°	672.3	657.3	632.6	608.0	608.0	588.8	558.7	542.2	513.5	494.3	475.1
40°	603.9	584.7	560.0	531.3	527.2	499.8	487.5	460.1	442.3	412.2	409.4
42.5°	527.2	509.4	487.5	465.6	449.1	435.4	403.9	383.4	364.2	349.2	345.1
45°	457.3	434.1	414.9	387.5	371.1	354.6	334.1	320.4	305.4	288.9	279.3
47.5°	397.1	377.9	350.5	325.9	309.5	301.2	278.0	262.9	250.6	239.6	232.8
50°	335.5	312.2	297.1	269.8	267.0	247.8	228.7	216.3	209.5	199.9	190.3
52.5°	288.9	267.0	246.5	225.9	215.0	208.1	190.3	178.0	168.4	161.6	156.1
55°	243.7	224.6	208.1	187.6	180.7	171.2	150.6	147.9	138.3	128.7	121.9
57.5°	209.5	191.7	172.5	158.8	146.5	139.7	123.2	112.3	106.8	98.6	91.7
60°	178.0	158.8	143.8	127.3	121.9	112.3	100.0	90.4	83.5	76.7	69.8
62.5°	149.3	132.8	116.4	102.7	94.5	89.0	79.4	71.2	64.4	58.9	53.4
65°	123.2	108.2	94.5	80.8	76.7	69.8	63.0	56.1	50.7	43.8	38.3
67.5°	101.3	87.6	73.9	64.4	60.2	57.5	49.3	42.4	38.3	34.2	28.8
70°	79.4	69.8	58.9	50.7	46.6	42.4	37.0	32.9	27.4	24.6	20.5
72.5°	61.6	53.4	43.8	37.0	34.2	31.5	26.0	21.9	19.2	16.4	13.7
75°	43.8	37.0	31.5	24.6	23.3	21.9	17.8	15.1	12.3	9.6	8.2
77.5°	30.1	24.6	19.2	16.4	15.1	12.3	11.0	8.2	6.8	5.5	4.1
80°	16.4	12.3	9.6	8.2	6.8	5.5	5.5	4.1	2.7	2.7	1.4
82.5°	5.5	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°	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0
2.5°	1140.6	1125.6	1129.7	1129.7	1126.9	1126.9	1124.2	1120.1	1121.5	1113.2	1095.4
5°	1128.3	1109.1	1106.4	1109.1	1098.2	1095.4	1090.0	1098.2	1073.5	1083.1	1072.2
7.5°	1092.7	1074.9	1070.8	1080.4	1066.7	1058.5	1057.1	1068.1	1046.1	1035.2	1022.9
10°	1053.0	1046.1	1033.8	1027.0	1022.9	1024.2	1013.3	999.6	995.5	992.7	981.8
12.5°	1017.4	1002.3	991.4	983.2	980.4	980.4	962.6	959.9	947.6	944.8	928.4
15°	974.9	957.1	950.3	939.3	929.8	935.2	914.7	909.2	905.1	887.3	890.0
17.5°	938.0	918.8	902.4	895.5	887.3	879.1	859.9	864.0	854.4	854.4	829.8
20°	890.0	869.5	857.2	843.5	843.5	832.5	818.8	820.2	807.9	795.6	773.7
22.5°	839.4	817.5	802.4	796.9	783.2	780.5	764.1	760.0	743.5	744.9	725.7
25°	786.0	764.1	743.5	744.9	732.6	727.1	717.5	698.3	691.5	683.3	677.8
27.5°	723.0	707.9	690.1	688.8	665.5	666.8	654.5	649.0	632.6	636.7	624.4
30°	665.5	643.6	627.1	623.0	613.4	610.7	591.5	583.3	586.1	575.1	568.3
32.5°	606.6	573.7	566.9	558.7	553.2	546.4	532.7	538.1	525.8	528.5	517.6
35°	528.5	514.9	497.1	497.1	491.6	486.1	476.5	482.0	469.7	464.2	453.2
37.5°	462.8	450.5	432.7	438.2	428.6	420.4	412.2	413.5	402.6	401.2	390.3
40°	391.6	384.8	372.4	372.4	365.6	365.6	361.5	357.4	350.5	342.3	330.0
42.5°	324.5	319.0	313.6	314.9	305.4	313.6	302.6	309.5	287.6	286.2	278.0
45°	275.2	262.9	264.3	258.8	253.3	256.1	246.5	249.2	236.9	234.2	225.9
47.5°	223.2	219.1	210.9	208.1	208.1	204.0	199.9	198.5	193.1	186.2	175.3
50°	183.5	168.4	165.7	161.6	158.8	158.8	153.4	145.1	146.5	139.7	128.7
52.5°	143.8	131.5	126.0	124.6	119.1	116.4	109.5	104.1	100.0	97.2	90.4
55°	110.9	100.0	93.1	93.1	84.9	84.9	75.3	71.2	65.7	60.2	56.1
57.5°	83.5	78.1	71.2	65.7	63.0	56.1	50.7	43.8	39.7	31.5	26.0
60°	63.0	57.5	50.7	46.6	43.8	37.0	30.1	24.6	15.1	12.3	11.0
62.5°	46.6	41.1	34.2	31.5	28.8	23.3	16.4	8.2	4.1	4.1	4.1
65°	34.2	27.4	21.9	19.2	16.4	12.3	5.5	2.7	1.4	1.4	1.4
67.5°	23.3	17.8	12.3	11.0	8.2	4.1	1.4	1.4	1.4	1.4	1.4
70°	15.1	11.0	5.5	4.1	2.7	1.4	1.4	1.4	1.4	1.4	1.4
72.5°	9.6	5.5	2.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	5.5	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



TEST NUMBER: P219506

CATALOG NUMBER: LDSQ4B20D010 EU4B10208040 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0	1142.0
2.5°	1114.6	1105.0	1110.5	1098.2	1103.7	1113.2	1106.4	1109.1
5°	1076.3	1070.8	1063.9	1046.1	1059.8	1070.8	1065.3	1063.9
7.5°	1035.2	1016.0	1025.6	1020.1	1017.4	1028.3	1016.0	1029.7
10°	992.7	979.0	977.7	968.1	968.1	976.3	977.7	969.5
12.5°	929.8	922.9	922.9	921.5	920.2	928.4	929.8	925.6
15°	884.6	881.8	875.0	873.6	865.4	877.7	879.1	877.7
17.5°	829.8	831.2	824.3	824.3	829.8	833.9	822.9	833.9
20°	792.8	786.0	783.2	770.9	777.8	784.6	784.6	786.0
22.5°	739.4	728.5	732.6	725.7	721.6	731.2	731.2	735.3
25°	679.2	679.2	681.9	677.8	680.5	686.0	681.9	691.5
27.5°	621.7	627.1	627.1	621.7	624.4	640.8	647.7	636.7
30°	568.3	569.6	573.7	571.0	579.2	584.7	583.3	591.5
32.5°	508.0	514.9	517.6	513.5	516.2	528.5	521.7	520.3
35°	461.5	449.1	447.8	449.1	454.6	457.3	454.6	464.2
37.5°	394.4	390.3	384.8	386.1	390.3	395.7	398.5	405.3
40°	330.0	324.5	324.5	323.2	319.0	334.1	334.1	334.1
42.5°	273.9	272.5	265.6	265.6	271.1	275.2	272.5	282.1
45°	224.6	219.1	215.0	215.0	219.1	219.1	223.2	221.8
47.5°	176.6	171.2	172.5	168.4	172.5	178.0	171.2	172.5
50°	132.8	132.8	130.1	132.8	131.5	132.8	130.1	127.3
52.5°	90.4	102.7	104.1	98.6	86.3	75.3	68.5	73.9
55°	52.0	46.6	46.6	45.2	42.4	41.1	37.0	41.1
57.5°	26.0	23.3	23.3	23.3	21.9	20.5	17.8	17.8
60°	11.0	9.6	9.6	8.2	6.8	5.5	4.1	5.5
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



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— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)