

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: P219503

Luminaire Tested: **LDSQ4B20D010 EU4B10208027 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219503
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 EU4B10208027 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1512.1 lumens
Efficiency: N/A
Efficacy: 72.7 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

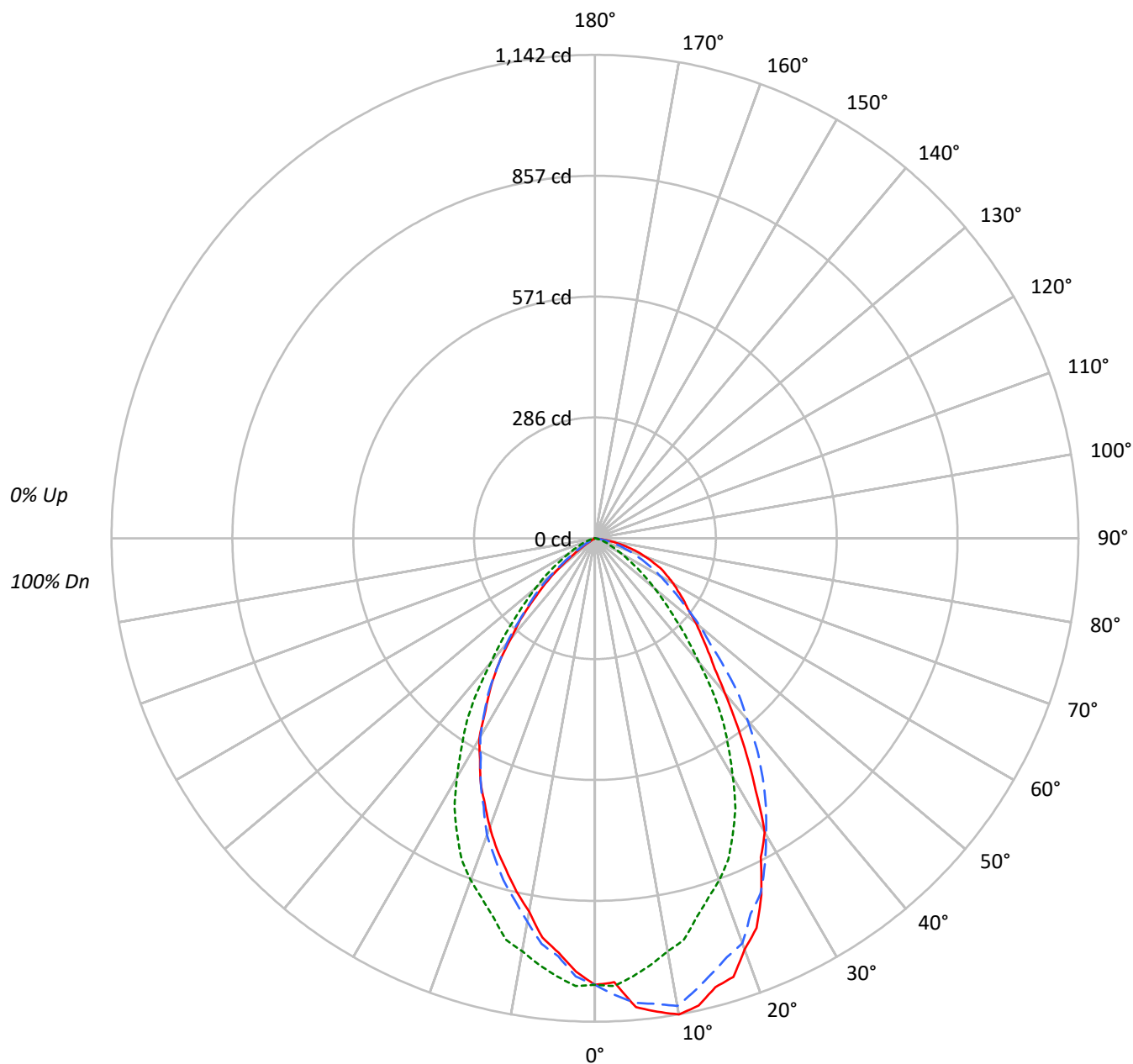
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P219503

CATALOG NUMBER: LDSQ4B20D010 EU4B10208027 4LBSQLWWLI

Luminous Intensity Polar Plot





TEST NUMBER: P219503

CATALOG NUMBER: LDSQ4B20D010 EU4B10208027 4LBSQLWWLI

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	112	108	105	102	109	106	103	101	102	100	98		98	96	95		95
2	104	98	93	89	102	96	92	88	93	89	86		90	87	84		87
3	97	89	83	78	95	88	82	77	85	80	76		82	78	75		80
4	91	81	74	69	89	80	74	69	78	72	68		76	71	67		74
5	85	75	67	62	83	74	67	62	72	66	61		70	65	60		68
6	80	69	61	56	78	68	61	56	66	60	55		65	59	55		63
7	75	63	56	51	73	63	56	51	61	55	50		60	54	50		59
8	70	59	52	47	69	58	51	46	57	51	46		56	50	46		55
9	66	55	48	43	65	54	47	43	53	47	43		52	46	42		51
10	62	51	44	40	61	51	44	40	50	44	39		49	43	39		48

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	102194	102194	102194
5°	108118	100980	95573
10°	112358	97426	88090
15°	110111	92981	81317
20°	106536	88536	74845
25°	99376	82338	68271
30°	89702	72867	61121
35°	73891	62372	50711
40°	60297	48144	39026
45°	51814	36566	28072
50°	46901	27836	17724
55°	43153	20082	6401
60°	41424	13718	988
65°	40000	9284	298
70°	35830	6458	368
75°	29345	3331	0
80°	18354	1395	0
85°	0	0	0



TEST NUMBER: P219503

CATALOG NUMBER: LDSQ4B20D010 EU4B10208027 4LBSQLWWLI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.8	6.5
10°-20°	266.3	17.6
20°-30°	355.6	23.5
30°-40°	337.5	22.3
40°-50°	233.3	15.4
50°-60°	128.9	8.5
60°-70°	64.0	4.2
70°-80°	25.2	1.7
80°-90°	2.4	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°	720.7	47.7
0°-40°	1058.2	70.0
0°-60°	1420.4	93.9
0°-90°	1512.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1512.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1055	1055	1055	1055	1055	
5°	1112	1102	1038	992	983	106
15°	1098	1065	927	836	811	311
25°	930	926	770	639	639	424
35°	625	691	527	434	429	391
45°	378	434	267	219	205	295
55°	256	240	119	61	38	230
65°	174	126	40	1	1	169
75°	78	48	9	0	0	84
85°	0	1	0	0	0	7
90°	0	0	0	0	0	



TEST NUMBER: P219503

CATALOG NUMBER: LDSQ4B20D010 EU4B10208027 4LBSQLWWLI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9
2.5°	1049.8	1078.9	1081.4	1078.9	1082.7	1081.4	1087.8	1081.4	1089.0	1077.7	1080.2
5°	1111.8	1100.4	1124.4	1111.8	1111.8	1110.5	1106.7	1105.5	1110.5	1094.1	1101.7
7.5°	1128.2	1144.7	1166.2	1139.6	1140.9	1140.9	1133.3	1130.8	1130.8	1100.4	1109.3
10°	1142.2	1132.0	1143.4	1133.3	1142.2	1140.9	1146.0	1129.5	1140.9	1123.2	1121.9
12.5°	1130.8	1127.0	1142.2	1125.7	1120.7	1121.9	1115.6	1111.8	1115.6	1095.4	1094.1
15°	1097.9	1101.7	1124.4	1106.7	1104.2	1101.7	1094.1	1081.4	1091.6	1063.7	1065.0
17.5°	1086.5	1080.2	1084.0	1068.8	1072.6	1070.1	1068.8	1057.4	1054.9	1037.2	1037.2
20°	1033.4	1047.3	1047.3	1037.2	1037.2	1035.9	1019.5	1029.6	1018.2	1013.1	1018.2
22.5°	996.7	998.0	998.0	989.1	990.4	985.3	976.5	970.1	976.5	970.1	960.0
25°	929.7	932.2	947.4	930.9	928.4	933.5	925.9	922.1	920.8	905.6	925.9
27.5°	848.7	874.0	872.7	866.4	874.0	863.9	860.1	861.4	865.2	863.9	869.0
30°	801.9	805.7	809.5	804.4	805.7	801.9	801.9	803.2	813.3	809.5	808.2
32.5°	707.0	719.7	729.8	729.8	731.1	734.9	733.6	760.2	766.5	753.8	751.3
35°	624.8	633.7	642.5	643.8	660.3	661.5	662.8	670.4	688.1	691.9	690.6
37.5°	546.4	555.3	557.8	569.2	578.0	586.9	597.0	607.1	622.3	635.0	628.6
40°	476.8	480.6	487.0	492.0	509.7	509.7	514.8	535.0	551.5	561.6	560.3
42.5°	418.7	419.9	425.0	433.8	450.3	446.5	450.3	464.2	488.2	489.5	503.4
45°	378.2	376.9	380.7	382.0	392.1	397.2	399.7	409.8	430.0	432.6	433.8
47.5°	341.5	340.2	346.6	349.1	352.9	358.0	358.0	359.2	366.8	373.1	368.1
50°	311.2	311.2	311.2	313.7	320.0	318.7	320.0	325.1	328.9	326.3	325.1
52.5°	278.3	283.3	287.1	288.4	289.7	289.7	290.9	288.4	287.1	283.3	275.7
55°	255.5	260.6	260.6	260.6	260.6	265.6	259.3	260.6	260.6	250.4	240.3
57.5°	232.7	237.8	241.6	236.5	241.6	236.5	234.0	232.7	230.2	220.1	204.9
60°	213.8	216.3	215.0	213.8	216.3	212.5	210.0	204.9	202.4	188.5	178.3
62.5°	192.3	193.5	194.8	192.3	189.7	188.5	183.4	175.8	170.8	159.4	150.5
65°	174.5	170.8	169.5	168.2	165.7	161.9	158.1	149.3	145.5	135.3	126.5
67.5°	148.0	146.7	149.3	145.5	139.1	139.1	135.3	127.7	118.9	112.6	103.7
70°	126.5	125.2	122.7	118.9	117.6	112.6	112.6	103.7	101.2	89.8	82.2
72.5°	103.7	103.7	99.9	96.1	92.3	89.8	88.5	82.2	78.4	72.1	65.8
75°	78.4	78.4	77.2	73.4	70.8	68.3	67.0	62.0	58.2	51.9	48.1
77.5°	55.7	55.7	50.6	48.1	49.3	46.8	44.3	43.0	41.7	37.9	32.9
80°	32.9	31.6	27.8	29.1	27.8	27.8	26.6	25.3	22.8	20.2	17.7
82.5°	8.9	10.1	10.1	10.1	11.4	8.9	8.9	8.9	10.1	10.1	6.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3
87.5°	1.3	2.5	5.1	5.1	5.1	5.1	5.1	3.8	3.8	3.8	2.5
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: P219503

CATALOG NUMBER: LDSQ4B20D010 EU4B10208027 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9
2.5°	1067.5	1066.3	1067.5	1058.7	1078.9	1063.7	1061.2	1058.7	1067.5	1058.7	1046.0
5°	1090.3	1077.7	1073.9	1070.1	1081.4	1063.7	1059.9	1061.2	1054.9	1038.4	1039.7
7.5°	1097.9	1086.5	1075.1	1051.1	1061.2	1057.4	1047.3	1039.7	1029.6	1015.7	1013.1
10°	1100.4	1087.8	1071.3	1063.7	1048.6	1043.5	1039.7	1027.1	1014.4	990.4	984.1
12.5°	1092.8	1077.7	1057.4	1051.1	1039.7	1023.3	1014.4	1001.8	990.4	971.4	957.5
15°	1059.9	1047.3	1041.0	1019.5	1014.4	1004.3	986.6	968.9	952.4	927.1	919.5
17.5°	1022.0	1016.9	1010.6	994.2	992.9	982.8	966.3	951.2	929.7	890.5	877.8
20°	982.8	982.8	962.5	956.2	968.9	948.6	936.0	922.1	877.8	858.8	836.1
22.5°	953.7	939.8	928.4	918.3	919.5	906.9	889.2	861.4	844.9	822.2	795.6
25°	896.8	901.8	876.5	872.7	876.5	847.4	838.6	815.8	791.8	770.3	750.1
27.5°	861.4	847.4	831.0	817.1	817.1	805.7	780.4	775.4	738.7	718.4	693.1
30°	808.2	798.1	784.2	764.0	761.4	752.6	732.3	719.7	681.8	651.4	637.5
32.5°	741.2	737.4	726.0	703.3	695.7	685.5	660.3	638.7	621.0	586.9	570.4
35°	693.1	679.2	655.2	636.2	629.9	612.2	591.9	576.8	557.8	527.4	505.9
37.5°	621.0	607.1	584.4	561.6	561.6	543.9	516.1	500.9	474.3	456.6	438.9
40°	557.8	540.1	517.3	490.8	487.0	461.7	450.3	425.0	408.5	380.7	378.2
42.5°	487.0	470.5	450.3	430.0	414.9	402.2	373.1	354.2	336.4	322.5	318.7
45°	422.5	401.0	383.2	358.0	342.8	327.6	308.6	296.0	282.1	266.9	258.0
47.5°	366.8	349.1	323.8	301.0	285.9	278.3	256.8	242.9	231.5	221.3	215.0
50°	309.9	288.4	274.5	249.2	246.6	228.9	211.2	199.8	193.5	184.7	175.8
52.5°	266.9	246.6	227.7	208.7	198.6	192.3	175.8	164.4	155.6	149.3	144.2
55°	225.1	207.4	192.3	173.3	167.0	158.1	139.1	136.6	127.7	118.9	112.6
57.5°	193.5	177.1	159.4	146.7	135.3	129.0	113.8	103.7	98.7	91.1	84.7
60°	164.4	146.7	132.8	117.6	112.6	103.7	92.3	83.5	77.2	70.8	64.5
62.5°	137.9	122.7	107.5	94.9	87.3	82.2	73.4	65.8	59.4	54.4	49.3
65°	113.8	99.9	87.3	74.6	70.8	64.5	58.2	51.9	46.8	40.5	35.4
67.5°	93.6	81.0	68.3	59.4	55.7	53.1	45.5	39.2	35.4	31.6	26.6
70°	73.4	64.5	54.4	46.8	43.0	39.2	34.2	30.4	25.3	22.8	19.0
72.5°	56.9	49.3	40.5	34.2	31.6	29.1	24.0	20.2	17.7	15.2	12.6
75°	40.5	34.2	29.1	22.8	21.5	20.2	16.4	13.9	11.4	8.9	7.6
77.5°	27.8	22.8	17.7	15.2	13.9	11.4	10.1	7.6	6.3	5.1	3.8
80°	15.2	11.4	8.9	7.6	6.3	5.1	5.1	3.8	2.5	2.5	1.3
82.5°	5.1	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3	0.0	1.3
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°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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



TEST NUMBER: P219503

CATALOG NUMBER: LDSQ4B20D010 EU4B10208027 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9
2.5°	1053.6	1039.7	1043.5	1043.5	1041.0	1041.0	1038.4	1034.6	1035.9	1028.3	1011.9
5°	1042.2	1024.5	1022.0	1024.5	1014.4	1011.9	1006.8	1014.4	991.6	1000.5	990.4
7.5°	1009.3	992.9	989.1	998.0	985.3	977.7	976.5	986.6	966.3	956.2	944.8
10°	972.7	966.3	955.0	948.6	944.8	946.1	936.0	923.3	919.5	917.0	906.9
12.5°	939.8	925.9	915.7	908.2	905.6	905.6	889.2	886.7	875.3	872.7	857.6
15°	900.6	884.1	877.8	867.7	858.8	863.9	844.9	839.9	836.1	819.6	822.2
17.5°	866.4	848.7	833.5	827.2	819.6	812.0	794.3	798.1	789.3	789.3	766.5
20°	822.2	803.2	791.8	779.1	779.1	769.0	756.4	757.6	746.3	734.9	714.6
22.5°	775.4	755.1	741.2	736.1	723.5	721.0	705.8	702.0	686.8	688.1	670.4
25°	726.0	705.8	686.8	688.1	676.7	671.6	662.8	645.1	638.7	631.2	626.1
27.5°	667.8	653.9	637.5	636.2	614.7	616.0	604.6	599.5	584.4	588.2	576.8
30°	614.7	594.5	579.3	575.5	566.7	564.1	546.4	538.8	541.4	531.2	524.9
32.5°	560.3	530.0	523.6	516.1	511.0	504.7	492.0	497.1	485.7	488.2	478.1
35°	488.2	475.6	459.1	459.1	454.1	449.0	440.2	445.2	433.8	428.8	418.7
37.5°	427.5	416.1	399.7	404.8	395.9	388.3	380.7	382.0	371.9	370.6	360.5
40°	361.7	355.4	344.0	344.0	337.7	337.7	333.9	330.1	323.8	316.2	304.8
42.5°	299.8	294.7	289.7	290.9	282.1	289.7	279.5	285.9	265.6	264.4	256.8
45°	254.2	242.9	244.1	239.1	234.0	236.5	227.7	230.2	218.8	216.3	208.7
47.5°	206.2	202.4	194.8	192.3	192.3	188.5	184.7	183.4	178.3	172.0	161.9
50°	169.5	155.6	153.0	149.3	146.7	146.7	141.7	134.1	135.3	129.0	118.9
52.5°	132.8	121.4	116.4	115.1	110.0	107.5	101.2	96.1	92.3	89.8	83.5
55°	102.5	92.3	86.0	86.0	78.4	78.4	69.6	65.8	60.7	55.7	51.9
57.5°	77.2	72.1	65.8	60.7	58.2	51.9	46.8	40.5	36.7	29.1	24.0
60°	58.2	53.1	46.8	43.0	40.5	34.2	27.8	22.8	13.9	11.4	10.1
62.5°	43.0	37.9	31.6	29.1	26.6	21.5	15.2	7.6	3.8	3.8	3.8
65°	31.6	25.3	20.2	17.7	15.2	11.4	5.1	2.5	1.3	1.3	1.3
67.5°	21.5	16.4	11.4	10.1	7.6	3.8	1.3	1.3	1.3	1.3	1.3
70°	13.9	10.1	5.1	3.8	2.5	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	8.9	5.1	2.5	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	5.1	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	2.5	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.3	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	1.3	1.3	1.3
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: P219503

CATALOG NUMBER: LDSQ4B20D010 EU4B10208027 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9	1054.9
2.5°	1029.6	1020.7	1025.8	1014.4	1019.5	1028.3	1022.0	1024.5
5°	994.2	989.1	982.8	966.3	979.0	989.1	984.1	982.8
7.5°	956.2	938.5	947.4	942.3	939.8	949.9	938.5	951.2
10°	917.0	904.4	903.1	894.2	894.2	901.8	903.1	895.5
12.5°	858.8	852.5	852.5	851.2	850.0	857.6	858.8	855.0
15°	817.1	814.6	808.2	807.0	799.4	810.8	812.0	810.8
17.5°	766.5	767.8	761.4	761.4	766.5	770.3	760.2	770.3
20°	732.3	726.0	723.5	712.1	718.4	724.8	724.8	726.0
22.5°	683.0	672.9	676.7	670.4	666.6	675.4	675.4	679.2
25°	627.4	627.4	629.9	626.1	628.6	633.7	629.9	638.7
27.5°	574.2	579.3	579.3	574.2	576.8	591.9	598.3	588.2
30°	524.9	526.2	530.0	527.4	535.0	540.1	538.8	546.4
32.5°	469.3	475.6	478.1	474.3	476.8	488.2	481.9	480.6
35°	426.3	414.9	413.6	414.9	419.9	422.5	419.9	428.8
37.5°	364.3	360.5	355.4	356.7	360.5	365.5	368.1	374.4
40°	304.8	299.8	299.8	298.5	294.7	308.6	308.6	308.6
42.5°	253.0	251.7	245.4	245.4	250.4	254.2	251.7	260.6
45°	207.4	202.4	198.6	198.6	202.4	202.4	206.2	204.9
47.5°	163.2	158.1	159.4	155.6	159.4	164.4	158.1	159.4
50°	122.7	122.7	120.2	122.7	121.4	122.7	120.2	117.6
52.5°	83.5	94.9	96.1	91.1	79.7	69.6	63.2	68.3
55°	48.1	43.0	43.0	41.7	39.2	37.9	34.2	37.9
57.5°	24.0	21.5	21.5	21.5	20.2	19.0	16.4	16.4
60°	10.1	8.9	8.9	7.6	6.3	5.1	3.8	5.1
62.5°	3.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5
65°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)