

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: P219523

Luminaire Tested: **LDSQ4B30D010 EU4B30509030 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219523
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: LDSQ4B30D010 EU4B30509030 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1944.9 lumens
Efficiency: N/A
Efficacy: 69.5 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

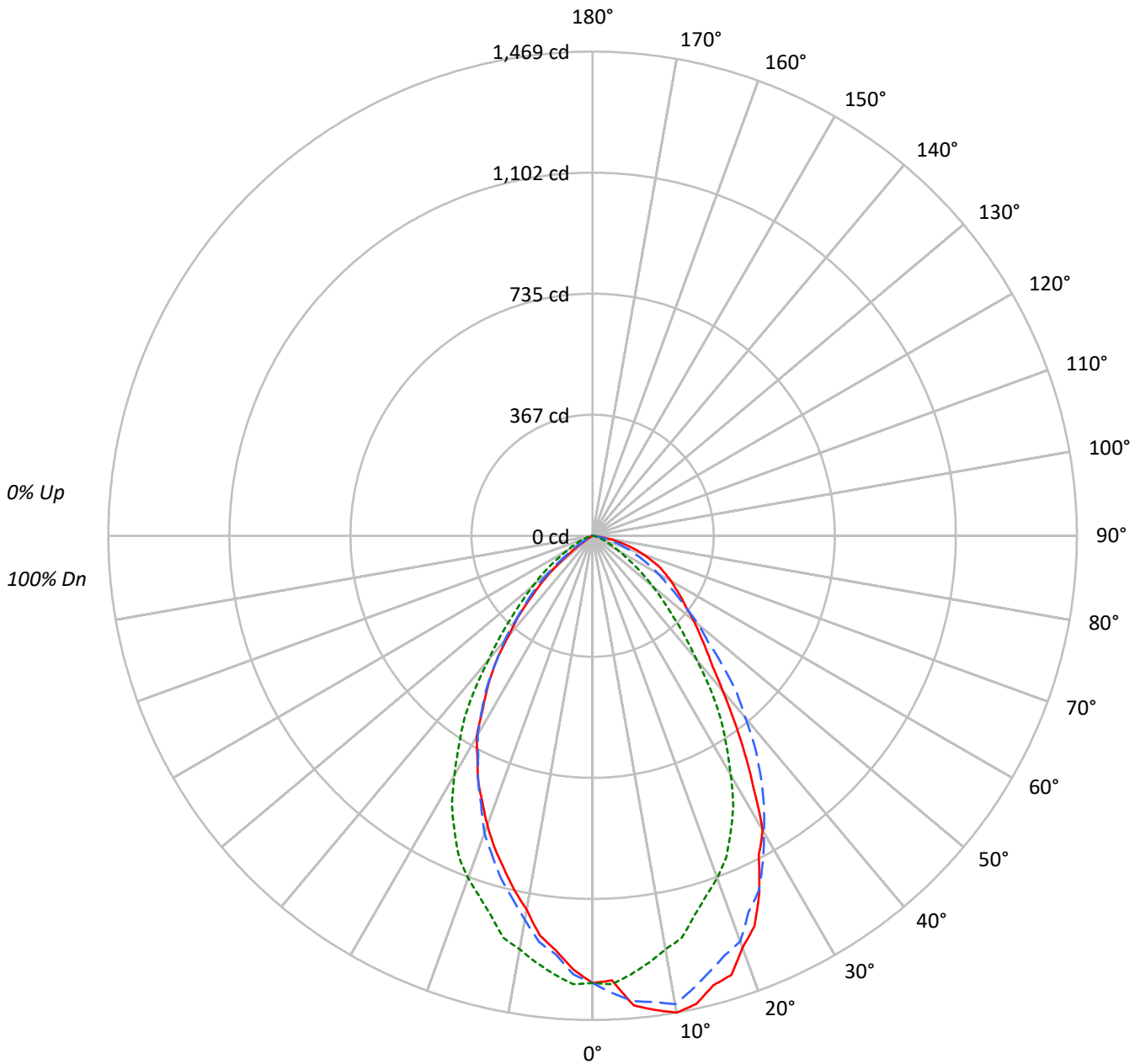
Input Watts (W): 28
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	131441	131441	131441
5°	139061	129891	122928
10°	144515	125313	113302
15°	141623	119599	104585
20°	137031	113886	96268
25°	127819	105907	87821
30°	115386	93729	78617
35°	95048	80230	65222
40°	77559	61928	50205
45°	66638	47033	36114
50°	60315	35794	22803
55°	55500	25824	8242
60°	53262	17651	1259
65°	51461	11943	367
70°	46084	8299	453
75°	37767	4267	0
80°	23598	1841	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	127.1	6.5
10°-20°	342.5	17.6
20°-30°	457.3	23.5
30°-40°	434.2	22.3
40°-50°	300.1	15.4
50°-60°	165.8	8.5
60°-70°	82.3	4.2
70°-80°	32.4	1.7
80°-90°	3.1	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°	927.0	47.7
0°-40°	1361.1	70.0
0°-60°	1827.0	93.9
0°-90°	1944.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1944.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1357	1357	1357	1357	1357	
5°	1430	1417	1336	1276	1264	137
15°	1412	1370	1192	1075	1043	399
25°	1196	1191	991	822	822	545
35°	804	888	678	558	552	503
45°	486	558	343	282	264	379
55°	329	309	153	78	49	296
65°	224	163	52	2	2	218
75°	101	62	11	0	0	108
85°	0	2	0	0	0	9
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°	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8
2.5°	1350.3	1387.7	1391.0	1387.7	1392.6	1391.0	1399.1	1391.0	1400.8	1386.1	1389.4
5°	1430.0	1415.4	1446.3	1430.0	1430.0	1428.4	1423.5	1421.9	1428.4	1407.3	1417.0
7.5°	1451.2	1472.3	1500.0	1465.8	1467.5	1467.5	1457.7	1454.4	1454.4	1415.4	1426.8
10°	1469.1	1456.1	1470.7	1457.7	1469.1	1467.5	1474.0	1452.8	1467.5	1444.7	1443.1
12.5°	1454.4	1449.6	1469.1	1447.9	1441.4	1443.1	1434.9	1430.0	1434.9	1408.9	1407.3
15°	1412.1	1417.0	1446.3	1423.5	1420.3	1417.0	1407.3	1391.0	1404.0	1368.2	1369.8
17.5°	1397.5	1389.4	1394.3	1374.7	1379.6	1376.4	1374.7	1360.1	1356.8	1334.1	1334.1
20°	1329.2	1347.1	1347.1	1334.1	1334.1	1332.4	1311.3	1324.3	1309.7	1303.1	1309.7
22.5°	1282.0	1283.6	1283.6	1272.2	1273.9	1267.4	1256.0	1247.8	1256.0	1247.8	1234.8
25°	1195.8	1199.0	1218.5	1197.4	1194.1	1200.7	1190.9	1186.0	1184.4	1164.9	1190.9
27.5°	1091.6	1124.2	1122.6	1114.4	1124.2	1111.2	1106.3	1107.9	1112.8	1111.2	1117.7
30°	1031.5	1036.3	1041.2	1034.7	1036.3	1031.5	1031.5	1033.1	1046.1	1041.2	1039.6
32.5°	909.4	925.7	938.7	938.7	940.3	945.2	943.6	977.8	985.9	969.6	966.4
35°	803.7	815.1	826.5	828.1	849.2	850.9	852.5	862.3	885.0	889.9	888.3
37.5°	702.8	714.2	717.5	732.1	743.5	754.9	767.9	780.9	800.4	816.7	808.6
40°	613.3	618.2	626.4	632.9	655.6	655.6	662.1	688.2	709.3	722.3	720.7
42.5°	538.5	540.1	546.6	558.0	579.2	574.3	579.2	597.1	628.0	629.6	647.5
45°	486.4	484.8	489.7	491.3	504.3	510.8	514.1	527.1	553.1	556.4	558.0
47.5°	439.3	437.6	445.8	449.0	453.9	460.4	460.4	462.0	471.8	479.9	473.4
50°	400.2	400.2	400.2	403.5	411.6	410.0	411.6	418.1	423.0	419.7	418.1
52.5°	357.9	364.4	369.3	370.9	372.6	372.6	374.2	370.9	369.3	364.4	354.7
55°	328.6	335.1	335.1	335.1	335.1	341.6	333.5	335.1	335.1	322.1	309.1
57.5°	299.3	305.9	310.7	304.2	310.7	304.2	301.0	299.3	296.1	283.1	263.6
60°	274.9	278.2	276.6	274.9	278.2	273.3	270.1	263.6	260.3	242.4	229.4
62.5°	247.3	248.9	250.5	247.3	244.0	242.4	235.9	226.1	219.6	205.0	193.6
65°	224.5	219.6	218.0	216.4	213.1	208.2	203.4	192.0	187.1	174.1	162.7
67.5°	190.3	188.7	192.0	187.1	179.0	179.0	174.1	164.3	152.9	144.8	133.4
70°	162.7	161.1	157.8	152.9	151.3	144.8	144.8	133.4	130.2	115.5	105.7
72.5°	133.4	133.4	128.5	123.6	118.8	115.5	113.9	105.7	100.9	92.7	84.6
75°	100.9	100.9	99.2	94.4	91.1	87.9	86.2	79.7	74.8	66.7	61.8
77.5°	71.6	71.6	65.1	61.8	63.4	60.2	56.9	55.3	53.7	48.8	42.3
80°	42.3	40.7	35.8	37.4	35.8	35.8	34.2	32.5	29.3	26.0	22.8
82.5°	11.4	13.0	13.0	13.0	14.6	11.4	11.4	11.4	13.0	13.0	8.1
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6
87.5°	1.6	3.3	6.5	6.5	6.5	6.5	6.5	4.9	4.9	4.9	3.3
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°	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8
2.5°	1373.1	1371.5	1373.1	1361.7	1387.7	1368.2	1365.0	1361.7	1373.1	1361.7	1345.4
5°	1402.4	1386.1	1381.2	1376.4	1391.0	1368.2	1363.3	1365.0	1356.8	1335.7	1337.3
7.5°	1412.1	1397.5	1382.9	1352.0	1365.0	1360.1	1347.1	1337.3	1324.3	1306.4	1303.1
10°	1415.4	1399.1	1378.0	1368.2	1348.7	1342.2	1337.3	1321.0	1304.8	1273.9	1265.7
12.5°	1405.6	1386.1	1360.1	1352.0	1337.3	1316.2	1304.8	1288.5	1273.9	1249.5	1231.6
15°	1363.3	1347.1	1338.9	1311.3	1304.8	1291.8	1269.0	1246.2	1225.1	1192.5	1182.8
17.5°	1314.5	1308.0	1299.9	1278.7	1277.1	1264.1	1243.0	1223.4	1195.8	1145.3	1129.1
20°	1264.1	1264.1	1238.1	1229.9	1246.2	1220.2	1203.9	1186.0	1129.1	1104.7	1075.4
22.5°	1226.7	1208.8	1194.1	1181.1	1182.8	1166.5	1143.7	1107.9	1086.8	1057.5	1023.3
25°	1153.5	1160.0	1127.4	1122.6	1127.4	1090.0	1078.6	1049.3	1018.4	990.8	964.8
27.5°	1107.9	1090.0	1068.9	1051.0	1051.0	1036.3	1003.8	997.3	950.1	924.1	891.5
30°	1039.6	1026.6	1008.7	982.6	979.4	968.0	942.0	925.7	876.9	837.9	820.0
32.5°	953.4	948.5	933.8	904.6	894.8	881.8	849.2	821.6	798.8	754.9	733.7
35°	891.5	873.6	842.7	818.3	810.2	787.4	761.4	741.9	717.5	678.4	650.8
37.5°	798.8	780.9	751.6	722.3	722.3	699.6	663.8	644.3	610.1	587.3	564.5
40°	717.5	694.7	665.4	631.2	626.4	593.8	579.2	546.6	525.5	489.7	486.4
42.5°	626.4	605.2	579.2	553.1	533.6	517.4	479.9	455.5	432.8	414.9	410.0
45°	543.4	515.7	493.0	460.4	440.9	421.4	397.0	380.7	362.8	343.3	331.9
47.5°	471.8	449.0	416.5	387.2	367.7	357.9	330.3	312.4	297.7	284.7	276.6
50°	398.6	370.9	353.0	320.5	317.2	294.5	271.7	257.0	248.9	237.5	226.1
52.5°	343.3	317.2	292.8	268.4	255.4	247.3	226.1	211.5	200.1	192.0	185.5
55°	289.6	266.8	247.3	222.9	214.8	203.4	179.0	175.7	164.3	152.9	144.8
57.5°	248.9	227.8	205.0	188.7	174.1	165.9	146.4	133.4	126.9	117.1	109.0
60°	211.5	188.7	170.8	151.3	144.8	133.4	118.8	107.4	99.2	91.1	83.0
62.5°	177.3	157.8	138.3	122.0	112.3	105.7	94.4	84.6	76.5	70.0	63.4
65°	146.4	128.5	112.3	96.0	91.1	83.0	74.8	66.7	60.2	52.1	45.6
67.5°	120.4	104.1	87.9	76.5	71.6	68.3	58.6	50.4	45.6	40.7	34.2
70°	94.4	83.0	70.0	60.2	55.3	50.4	43.9	39.0	32.5	29.3	24.4
72.5°	73.2	63.4	52.1	43.9	40.7	37.4	30.9	26.0	22.8	19.5	16.3
75°	52.1	43.9	37.4	29.3	27.7	26.0	21.1	17.9	14.6	11.4	9.8
77.5°	35.8	29.3	22.8	19.5	17.9	14.6	13.0	9.8	8.1	6.5	4.9
80°	19.5	14.6	11.4	9.8	8.1	6.5	6.5	4.9	3.3	3.3	1.6
82.5°	6.5	4.9	3.3	1.6	1.6	1.6	1.6	1.6	1.6	0.0	1.6
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°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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°	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8
2.5°	1355.2	1337.3	1342.2	1342.2	1338.9	1338.9	1335.7	1330.8	1332.4	1322.7	1301.5
5°	1340.6	1317.8	1314.5	1317.8	1304.8	1301.5	1295.0	1304.8	1275.5	1286.9	1273.9
7.5°	1298.3	1277.1	1272.2	1283.6	1267.4	1257.6	1256.0	1269.0	1243.0	1229.9	1215.3
10°	1251.1	1243.0	1228.3	1220.2	1215.3	1216.9	1203.9	1187.6	1182.8	1179.5	1166.5
12.5°	1208.8	1190.9	1177.9	1168.1	1164.9	1164.9	1143.7	1140.5	1125.8	1122.6	1103.0
15°	1158.4	1137.2	1129.1	1116.1	1104.7	1111.2	1086.8	1080.3	1075.4	1054.2	1057.5
17.5°	1114.4	1091.6	1072.1	1064.0	1054.2	1044.5	1021.7	1026.6	1015.2	1015.2	985.9
20°	1057.5	1033.1	1018.4	1002.2	1002.2	989.2	972.9	974.5	959.9	945.2	919.2
22.5°	997.3	971.3	953.4	946.9	930.6	927.3	907.8	902.9	883.4	885.0	862.3
25°	933.8	907.8	883.4	885.0	870.4	863.9	852.5	829.7	821.6	811.8	805.3
27.5°	859.0	841.1	820.0	818.3	790.7	792.3	777.7	771.1	751.6	756.5	741.9
30°	790.7	764.6	745.1	740.2	728.9	725.6	702.8	693.1	696.3	683.3	675.2
32.5°	720.7	681.7	673.5	663.8	657.3	649.1	632.9	639.4	624.7	628.0	615.0
35°	628.0	611.7	590.6	590.6	584.1	577.5	566.2	572.7	558.0	551.5	538.5
37.5°	549.9	535.2	514.1	520.6	509.2	499.5	489.7	491.3	478.3	476.7	463.7
40°	465.3	457.2	442.5	442.5	434.4	434.4	429.5	424.6	416.5	406.7	392.1
42.5°	385.6	379.1	372.6	374.2	362.8	372.6	359.5	367.7	341.6	340.0	330.3
45°	327.0	312.4	314.0	307.5	301.0	304.2	292.8	296.1	281.5	278.2	268.4
47.5°	265.2	260.3	250.5	247.3	247.3	242.4	237.5	235.9	229.4	221.3	208.2
50°	218.0	200.1	196.9	192.0	188.7	188.7	182.2	172.5	174.1	165.9	152.9
52.5°	170.8	156.2	149.7	148.0	141.5	138.3	130.2	123.6	118.8	115.5	107.4
55°	131.8	118.8	110.6	110.6	100.9	100.9	89.5	84.6	78.1	71.6	66.7
57.5°	99.2	92.7	84.6	78.1	74.8	66.7	60.2	52.1	47.2	37.4	30.9
60°	74.8	68.3	60.2	55.3	52.1	43.9	35.8	29.3	17.9	14.6	13.0
62.5°	55.3	48.8	40.7	37.4	34.2	27.7	19.5	9.8	4.9	4.9	4.9
65°	40.7	32.5	26.0	22.8	19.5	14.6	6.5	3.3	1.6	1.6	1.6
67.5°	27.7	21.1	14.6	13.0	9.8	4.9	1.6	1.6	1.6	1.6	1.6
70°	17.9	13.0	6.5	4.9	3.3	1.6	1.6	1.6	1.6	1.6	1.6
72.5°	11.4	6.5	3.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	6.5	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	3.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	1.6	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	1.6	1.6	1.6
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: P219523

CATALOG NUMBER: LDSQ4B30D010 EU4B30509030 4LBSQLWWLI

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8	1356.8
2.5°	1324.3	1312.9	1319.4	1304.8	1311.3	1322.7	1314.5	1317.8
5°	1278.7	1272.2	1264.1	1243.0	1259.2	1272.2	1265.7	1264.1
7.5°	1229.9	1207.2	1218.5	1212.0	1208.8	1221.8	1207.2	1223.4
10°	1179.5	1163.2	1161.6	1150.2	1150.2	1160.0	1161.6	1151.8
12.5°	1104.7	1096.5	1096.5	1094.9	1093.3	1103.0	1104.7	1099.8
15°	1051.0	1047.7	1039.6	1038.0	1028.2	1042.8	1044.5	1042.8
17.5°	985.9	987.5	979.4	979.4	985.9	990.8	977.8	990.8
20°	942.0	933.8	930.6	915.9	924.1	932.2	932.2	933.8
22.5°	878.5	865.5	870.4	862.3	857.4	868.8	868.8	873.6
25°	806.9	806.9	810.2	805.3	808.6	815.1	810.2	821.6
27.5°	738.6	745.1	745.1	738.6	741.9	761.4	769.5	756.5
30°	675.2	676.8	681.7	678.4	688.2	694.7	693.1	702.8
32.5°	603.6	611.7	615.0	610.1	613.3	628.0	619.8	618.2
35°	548.3	533.6	532.0	533.6	540.1	543.4	540.1	551.5
37.5°	468.5	463.7	457.2	458.8	463.7	470.2	473.4	481.6
40°	392.1	385.6	385.6	383.9	379.1	397.0	397.0	397.0
42.5°	325.4	323.8	315.6	315.6	322.1	327.0	323.8	335.1
45°	266.8	260.3	255.4	255.4	260.3	260.3	265.2	263.6
47.5°	209.9	203.4	205.0	200.1	205.0	211.5	203.4	205.0
50°	157.8	157.8	154.6	157.8	156.2	157.8	154.6	151.3
52.5°	107.4	122.0	123.6	117.1	102.5	89.5	81.3	87.9
55°	61.8	55.3	55.3	53.7	50.4	48.8	43.9	48.8
57.5°	30.9	27.7	27.7	27.7	26.0	24.4	21.1	21.1
60°	13.0	11.4	11.4	9.8	8.1	6.5	4.9	6.5
62.5°	4.9	3.3	3.3	3.3	3.3	3.3	3.3	3.3
65°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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)