

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: P170863

Luminaire Tested: **LDA4A28835D010TE LAR25NF 4LLWW1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170863
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26102)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A28835D010TE LAR25NF 4LLWW1
Description: PORTFOLIO 4" Lensed Wall Wash, Self-flanged, 25° Narrow Flood Optic,
at 30° tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2406.7 lumens
Efficiency: N/A
Efficacy: 54.1 lumens/watt
Spacing Criteria (0/90/45): 2.11 / 1.09 / 1.54
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

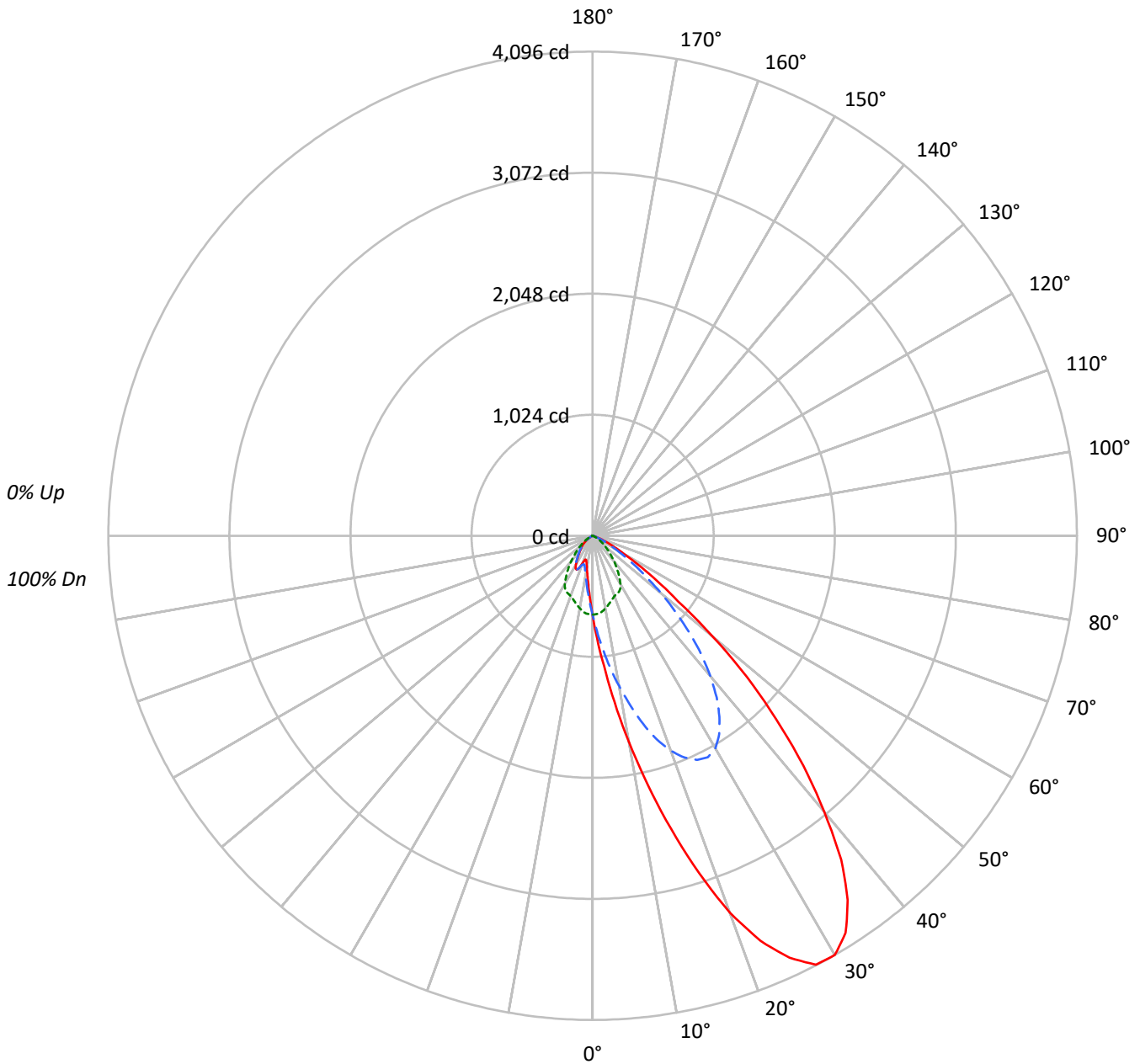
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	88	102	96	91	87	93	89	85	90	86	84	87	84	82	80																			
3	97	89	82	77	95	87	81	76	84	79	75	82	77	74	79	76	73	71																			
4	90	80	73	67	88	79	72	67	77	71	66	74	69	65	72	68	65	63																			
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56																			
6	78	66	58	53	76	65	58	53	64	57	52	62	56	52	61	55	52	50																			
7	72	60	53	47	71	60	52	47	58	52	47	57	51	47	56	50	46	45																			
8	67	55	48	43	66	55	47	42	53	47	42	52	46	42	51	46	42	40																			
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38	36																			
10	59	47	40	35	58	46	39	35	45	39	35	45	39	34	44	38	34	33																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	82296	82296	82296
5°	136917	81645	51396
10°	221677	78080	34719
15°	327823	74000	26995
20°	445318	71131	31870
25°	536113	71410	43279
30°	583368	66927	40378
35°	566276	56361	32314
40°	490520	45390	26487
45°	382506	34975	22677
50°	253681	26155	17424
55°	141458	19204	10451
60°	74575	12754	4243
65°	40218	6392	467
70°	19222	2272	577
75°	6720	1477	763
80°	2202	2202	0
85°	6652	4387	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	71.2	3.0
10°-20°	280.9	11.7
20°-30°	577.7	24.0
30°-40°	690.1	28.7
40°-50°	509.6	21.2
50°-60°	214.5	8.9
60°-70°	52.7	2.2
70°-80°	7.2	0.3
80°-90°	2.9	0.1
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°	929.8	38.6
0°-40°	1619.9	67.3
0°-60°	2343.9	97.4
0°-90°	2406.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2406.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	667	667	667	667	667	
5°	1106	952	659	473	415	126
15°	2567	1648	580	263	211	753
25°	3939	2093	525	316	318	1802
35°	3761	1870	374	224	215	2307
45°	2193	1153	200	132	130	1683
55°	658	428	89	56	49	628
65°	138	94	22	5	2	150
75°	14	8	3	2	2	20
85°	5	5	3	2	0	4
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2
2.5°	867.7	856.8	856.8	859.9	869.3	861.5	855.2	848.9	855.2	841.1	845.8
5°	1105.8	1104.2	1104.2	1091.7	1102.7	1104.2	1091.7	1080.7	1083.9	1063.5	1063.5
7.5°	1419.1	1409.7	1406.5	1389.3	1401.8	1400.3	1379.9	1361.1	1361.1	1328.2	1320.4
10°	1769.9	1757.4	1751.1	1729.2	1740.2	1733.9	1704.1	1675.9	1668.1	1621.1	1603.9
12.5°	2156.8	2149.0	2139.6	2111.4	2120.8	2108.2	2065.9	2025.2	2008.0	1945.3	1915.6
15°	2567.2	2579.7	2564.0	2531.1	2537.4	2515.5	2460.6	2404.3	2377.6	2293.1	2249.2
17.5°	2990.1	3005.7	2988.5	2950.9	2949.3	2919.6	2844.4	2775.5	2736.3	2628.2	2570.3
20°	3392.6	3397.3	3375.4	3334.6	3325.2	3284.5	3193.7	3096.6	3059.0	2925.8	2852.2
22.5°	3709.0	3726.2	3699.6	3669.8	3640.1	3588.4	3481.9	3375.4	3322.1	3170.2	3080.9
25°	3939.2	3978.4	3947.1	3912.6	3879.7	3818.6	3699.6	3585.2	3519.5	3350.3	3248.5
27.5°	4091.2	4128.7	4094.3	4055.1	4020.7	3950.2	3820.2	3710.5	3630.7	3445.8	3336.2
30°	4095.9	4141.3	4105.3	4063.0	4030.1	3959.6	3826.5	3713.7	3624.4	3439.6	3325.2
32.5°	3983.1	4019.1	3983.1	3947.1	3909.5	3842.1	3709.0	3600.9	3506.9	3329.9	3215.6
35°	3760.7	3792.0	3756.0	3713.7	3687.1	3627.5	3500.7	3397.3	3303.3	3140.4	3040.2
37.5°	3453.7	3481.9	3449.0	3425.5	3386.3	3333.1	3217.2	3124.8	3035.5	2888.2	2799.0
40°	3046.4	3106.0	3074.6	3059.0	3022.9	2977.5	2875.7	2794.3	2712.8	2584.4	2510.8
42.5°	2639.2	2695.6	2667.4	2656.4	2625.1	2585.9	2501.4	2432.5	2357.3	2250.8	2188.1
45°	2192.8	2252.3	2225.7	2221.0	2194.4	2164.6	2073.8	2037.7	1972.0	1871.7	1842.0
47.5°	1773.0	1784.0	1758.9	1760.5	1741.7	1721.4	1647.7	1625.8	1592.9	1516.2	1481.7
50°	1322.0	1329.8	1309.4	1315.7	1303.2	1290.6	1240.5	1229.5	1209.2	1157.5	1137.1
52.5°	910.0	946.0	931.9	938.2	931.9	927.2	906.9	888.1	878.7	845.8	836.4
55°	657.8	661.0	650.0	656.3	651.6	650.0	637.5	626.5	621.8	601.5	598.3
57.5°	455.8	458.9	458.9	455.8	454.2	451.1	443.3	437.0	433.9	429.2	419.8
60°	302.3	314.8	310.1	313.3	311.7	311.7	305.4	300.7	299.2	289.8	289.8
62.5°	206.8	214.6	211.4	213.0	211.4	211.4	206.8	203.6	203.6	202.1	197.4
65°	137.8	142.5	139.4	141.0	141.0	141.0	137.8	134.7	134.7	133.1	130.0
67.5°	87.7	90.8	89.3	90.8	89.3	90.8	87.7	86.1	84.6	84.6	83.0
70°	53.3	54.8	53.3	54.8	53.3	53.3	51.7	51.7	50.1	48.6	48.6
72.5°	28.2	29.8	29.8	29.8	29.8	29.8	28.2	26.6	26.6	26.6	25.1
75°	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	12.5	12.5	12.5
77.5°	6.3	6.3	6.3	6.3	7.8	6.3	6.3	6.3	6.3	6.3	6.3
80°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
85°	4.7	4.7	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3	4.7
87.5°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	7.8	7.8	6.3	6.3
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):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	47.5°	50°	52.5°
0°	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2
2.5°	833.3	825.4	822.3	816.0	808.2	803.5	798.8	800.4	789.4	781.6	770.6
5°	1043.2	1025.9	1016.5	1002.4	985.2	971.1	958.6	952.3	931.9	917.8	888.1
7.5°	1290.6	1260.9	1242.1	1217.0	1187.2	1162.2	1137.1	1119.9	1088.6	1061.9	1016.5
10°	1561.6	1516.2	1483.3	1445.7	1400.3	1359.5	1322.0	1290.6	1243.6	1202.9	1143.4
12.5°	1857.6	1793.4	1746.4	1691.6	1627.4	1571.0	1503.6	1467.6	1403.4	1347.0	1270.3
15°	2172.4	2087.9	2022.1	1946.9	1862.3	1787.1	1701.0	1647.7	1563.2	1491.1	1395.6
17.5°	2474.7	2368.2	2282.1	2186.5	2081.6	1984.5	1882.7	1807.5	1704.1	1614.8	1500.5
20°	2737.9	2611.0	2506.1	2390.2	2266.4	2147.4	2036.2	1935.9	1815.3	1710.4	1580.4
22.5°	2952.5	2805.2	2684.6	2549.9	2407.4	2272.7	2145.8	2031.5	1893.6	1777.7	1635.2
25°	3107.5	2946.2	2811.5	2662.7	2506.1	2352.6	2217.9	2092.6	1942.2	1818.5	1666.5
27.5°	3189.0	3018.2	2875.7	2715.9	2549.9	2390.2	2244.5	2111.4	1953.2	1823.2	1666.5
30°	3174.9	3001.0	2853.8	2689.3	2521.7	2362.0	2210.0	2076.9	1914.0	1782.4	1625.8
32.5°	3066.8	2896.1	2752.0	2592.2	2427.8	2272.7	2120.8	1992.3	1829.4	1701.0	1549.1
35°	2888.2	2726.9	2590.6	2438.7	2283.7	2138.0	2000.2	1870.2	1713.5	1591.4	1448.8
37.5°	2656.4	2509.2	2385.5	2244.5	2102.0	1970.4	1834.1	1722.9	1583.5	1469.2	1329.8
40°	2379.2	2249.2	2139.6	2014.3	1885.8	1771.5	1657.1	1549.1	1412.8	1311.0	1191.9
42.5°	2073.8	1962.6	1868.6	1758.9	1647.7	1550.6	1452.0	1358.0	1245.2	1152.8	1041.6
45°	1744.8	1650.9	1574.1	1486.4	1394.0	1303.2	1231.1	1152.8	1047.8	978.9	885.0
47.5°	1405.0	1332.9	1275.0	1207.6	1134.0	1077.6	1008.7	946.0	869.3	805.1	728.3
50°	1082.3	1032.2	991.5	944.5	891.2	839.5	798.8	750.3	692.3	640.6	579.5
52.5°	800.4	767.5	742.4	711.1	675.1	648.4	610.9	574.8	531.0	491.8	444.8
55°	573.3	554.5	538.8	520.0	494.9	471.5	452.7	427.6	396.3	366.5	332.1
57.5°	411.9	391.6	390.0	369.6	360.2	343.0	325.8	307.0	285.1	264.7	239.6
60°	285.1	271.0	264.7	256.9	245.9	234.9	227.1	214.6	198.9	184.8	166.0
62.5°	192.7	183.3	180.1	177.0	167.6	162.9	153.5	145.7	134.7	123.7	111.2
65°	126.9	120.6	117.5	112.8	108.1	104.9	100.2	94.0	84.6	78.3	70.5
67.5°	79.9	75.2	72.0	70.5	65.8	64.2	59.5	56.4	50.1	47.0	42.3
70°	45.4	43.9	40.7	40.7	37.6	34.5	32.9	29.8	28.2	25.1	23.5
72.5°	23.5	23.5	21.9	20.4	18.8	18.8	17.2	15.7	14.1	12.5	12.5
75°	11.0	11.0	11.0	9.4	9.4	9.4	7.8	7.8	7.8	6.3	6.3
77.5°	6.3	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	3.1	3.1
80°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
82.5°	3.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	4.7	3.1	3.1	3.1	3.1	4.7	4.7	4.7	4.7	4.7	4.7
87.5°	4.7	4.7	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
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):

	55°	57.5°	60°	62.5°	65°	67.5°	70°	72.5°	75°	77.5°	80°
0°	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2
2.5°	762.8	759.7	751.8	750.3	733.0	729.9	720.5	706.4	695.4	692.3	695.4
5°	877.1	863.0	839.5	834.8	806.6	797.2	776.9	755.0	736.2	725.2	720.5
7.5°	994.6	971.1	936.6	919.4	878.7	858.3	828.6	797.2	767.5	747.1	734.6
10°	1107.4	1069.8	1007.1	993.0	942.9	910.0	869.3	827.0	789.4	761.2	740.9
12.5°	1213.9	1168.5	1104.2	1065.1	999.3	957.0	905.3	853.6	806.6	769.0	740.9
15°	1323.5	1264.0	1184.1	1129.3	1054.1	997.7	935.1	875.6	820.7	773.7	739.3
17.5°	1414.4	1340.7	1246.8	1181.0	1093.3	1025.9	953.9	885.0	825.4	772.2	733.0
20°	1481.7	1395.6	1289.1	1212.3	1115.2	1040.0	961.7	886.5	820.7	762.8	720.5
22.5°	1527.1	1428.5	1312.6	1228.0	1126.2	1044.7	960.1	881.8	814.5	755.0	709.5
25°	1549.1	1442.6	1322.0	1231.1	1124.6	1040.0	952.3	872.4	803.5	742.4	698.6
27.5°	1545.9	1433.2	1309.4	1213.9	1105.8	1018.1	928.8	848.9	781.6	720.5	675.1
30°	1500.5	1389.3	1264.0	1166.9	1060.4	972.7	883.4	805.1	739.3	676.6	634.3
32.5°	1430.0	1315.7	1193.5	1085.4	994.6	908.4	823.9	744.0	681.3	620.3	579.5
35°	1334.5	1224.8	1107.4	1015.0	916.3	833.3	751.8	676.6	617.1	557.6	520.0
37.5°	1223.3	1118.3	1010.3	914.7	828.6	751.8	675.1	607.7	548.2	494.9	458.9
40°	1094.8	997.7	899.1	817.6	733.0	662.5	592.1	526.3	477.7	429.2	397.8
42.5°	955.4	869.3	780.0	709.5	632.8	570.1	502.8	455.8	408.8	364.9	339.9
45°	809.8	734.6	659.4	595.2	532.5	477.7	419.8	375.9	339.9	303.9	281.9
47.5°	665.7	601.5	540.4	488.7	433.9	388.4	347.7	308.6	274.1	244.3	227.1
50°	520.0	477.7	429.2	386.9	343.0	305.4	267.8	239.6	213.0	191.1	180.1
52.5°	405.7	366.5	327.4	292.9	261.6	230.2	205.2	181.7	162.9	148.8	141.0
55°	302.3	271.0	241.2	214.6	189.5	169.2	151.9	137.8	125.3	114.3	111.2
57.5°	216.1	192.7	172.3	151.9	136.3	123.7	112.8	103.4	95.5	87.7	86.1
60°	150.4	133.1	120.6	108.1	98.7	89.3	83.0	76.7	70.5	65.8	64.2
62.5°	100.2	90.8	81.4	75.2	70.5	62.7	59.5	54.8	51.7	47.0	45.4
65°	64.2	58.0	53.3	48.6	45.4	42.3	39.2	36.0	32.9	29.8	29.8
67.5°	39.2	34.5	32.9	29.8	26.6	25.1	23.5	20.4	18.8	18.8	17.2
70°	21.9	18.8	17.2	15.7	14.1	14.1	12.5	11.0	11.0	9.4	9.4
72.5°	11.0	11.0	9.4	9.4	7.8	7.8	6.3	6.3	6.3	4.7	4.7
75°	6.3	6.3	4.7	4.7	4.7	4.7	4.7	4.7	3.1	3.1	3.1
77.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
80°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
85°	4.7	4.7	4.7	4.7	3.1	3.1	3.1	3.1	3.1	3.1	3.1
87.5°	4.7	4.7	4.7	4.7	4.7	3.1	3.1	3.1	3.1	3.1	3.1
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: P170863

CATALOG NUMBER: LDA4A28835D010TE LAR25NF 4LLWW1

CANDELA DISTRIBUTION (continued):

	82.5°	85°	87.5°	90°	112.5°	135°	157.5°	180°
0°	667.2	667.2	667.2	667.2	667.2	667.2	667.2	667.2
2.5°	682.9	667.2	664.1	664.1	598.3	559.2	529.4	521.6
5°	698.6	676.6	665.7	659.4	541.9	473.0	427.6	415.1
7.5°	706.4	675.1	657.8	643.7	487.1	397.8	349.3	335.2
10°	703.3	665.7	642.2	623.4	437.0	339.9	289.8	277.2
12.5°	697.0	654.7	625.0	601.5	394.7	294.5	249.0	236.5
15°	690.7	642.2	607.7	579.5	360.2	263.1	222.4	211.4
17.5°	678.2	628.1	588.9	559.2	338.3	250.6	216.1	209.9
20°	664.1	612.4	571.7	541.9	332.1	263.1	242.8	242.8
22.5°	654.7	601.5	562.3	532.5	343.0	292.9	285.1	289.8
25°	642.2	592.1	552.9	524.7	354.0	316.4	311.7	318.0
27.5°	621.8	571.7	534.1	505.9	347.7	313.3	308.6	311.7
30°	581.1	532.5	499.6	469.9	322.7	289.8	281.9	283.5
32.5°	529.4	482.4	451.1	422.9	286.6	255.3	247.5	247.5
35°	473.0	429.2	399.4	374.3	252.2	224.0	216.1	214.6
37.5°	416.6	375.9	350.8	327.4	220.8	195.8	188.0	186.4
40°	360.2	324.2	300.7	281.9	194.2	173.9	166.0	164.5
42.5°	307.0	275.7	255.3	239.6	169.2	153.5	147.2	145.7
45°	253.7	228.7	213.0	200.5	147.2	131.6	130.0	130.0
47.5°	205.2	184.8	173.9	166.0	125.3	112.8	111.2	112.8
50°	164.5	150.4	142.5	136.3	106.5	95.5	90.8	90.8
52.5°	130.0	120.6	115.9	111.2	87.7	76.7	70.5	68.9
55°	103.4	95.5	92.4	89.3	68.9	56.4	50.1	48.6
57.5°	81.4	75.2	72.0	68.9	51.7	39.2	32.9	31.3
60°	61.1	56.4	53.3	51.7	36.0	23.5	18.8	17.2
62.5°	43.9	40.7	37.6	36.0	21.9	12.5	7.8	6.3
65°	26.6	26.6	23.5	21.9	11.0	4.7	3.1	1.6
67.5°	15.7	14.1	12.5	12.5	4.7	3.1	1.6	1.6
70°	7.8	7.8	6.3	6.3	3.1	1.6	1.6	1.6
72.5°	4.7	4.7	4.7	3.1	3.1	1.6	1.6	1.6
75°	3.1	3.1	3.1	3.1	3.1	1.6	1.6	1.6
77.5°	3.1	3.1	3.1	3.1	3.1	1.6	1.6	0.0
80°	3.1	3.1	3.1	3.1	3.1	1.6	1.6	0.0
82.5°	3.1	3.1	3.1	3.1	3.1	1.6	1.6	1.6
85°	3.1	3.1	3.1	3.1	3.1	1.6	1.6	0.0
87.5°	3.1	3.1	3.1	3.1	3.1	1.6	1.6	1.6
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)