

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: P170867

Luminaire Tested: **LDA4A28935D010TE LAR25NF 4LLWW1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170867
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: LDA4A28935D010TE LAR25NF 4LLWW1
Description: PORTFOLIO 4" Lensed Wall Wash, Self-flanged, 25° Narrow Flood Optic,
at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

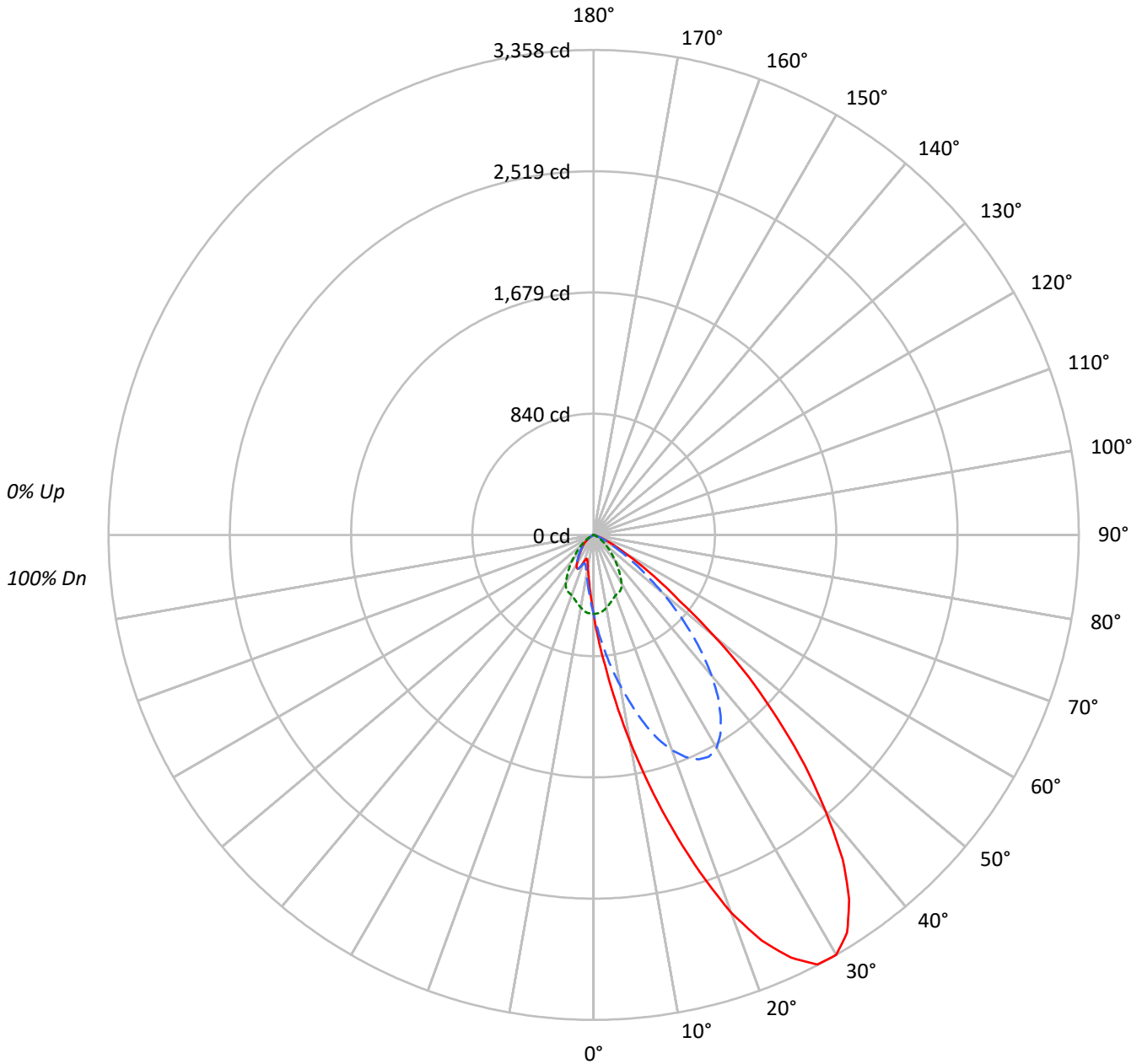
Lumens per Lamp: N/A
Luminaire Lumens: 1972.8 lumens
Efficiency: N/A
Efficacy: 44.3 lumens/watt
Spacing Criteria (0/90/45): 2.11 / 1.09 / 1.54
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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					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	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°	67458	67458	67458
5°	112228	66923	42122
10°	181710	64002	28469
15°	268712	60669	22130
20°	365039	58306	26121
25°	439470	58535	35467
30°	478200	54863	33100
35°	464184	46212	26487
40°	402090	37211	21705
45°	313551	28660	18595
50°	207934	21434	14296
55°	115953	15741	8559
60°	61130	10460	3478
65°	32980	5253	379
70°	15760	1839	469
75°	5528	1239	620
80°	1847	1847	0
85°	5519	3680	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.3	3.0
10°-20°	230.3	11.7
20°-30°	473.6	24.0
30°-40°	565.7	28.7
40°-50°	417.7	21.2
50°-60°	175.8	8.9
60°-70°	43.2	2.2
70°-80°	5.9	0.3
80°-90°	2.4	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°	762.2	38.6
0°-40°	1327.8	67.3
0°-60°	1921.3	97.4
0°-90°	1972.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1972.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	547	547	547	547	547	
5°	906	781	540	388	340	104
15°	2104	1351	475	216	173	617
25°	3229	1715	430	259	261	1477
35°	3083	1533	307	184	176	1891
45°	1798	945	164	108	107	1380
55°	539	350	73	46	40	514
65°	113	77	18	4	1	123
75°	12	6	3	1	1	16
85°	4	4	3	1	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°	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9
2.5°	711.3	702.3	702.3	704.9	712.6	706.2	701.0	695.9	701.0	689.5	693.3
5°	906.4	905.2	905.2	894.9	903.9	905.2	894.9	885.9	888.5	871.8	871.8
7.5°	1163.2	1155.5	1153.0	1138.8	1149.1	1147.8	1131.1	1115.7	1115.7	1088.8	1082.3
10°	1450.8	1440.6	1435.4	1417.4	1426.4	1421.3	1396.9	1373.8	1367.4	1328.9	1314.7
12.5°	1768.0	1761.5	1753.8	1730.7	1738.4	1728.2	1693.5	1660.1	1646.0	1594.6	1570.2
15°	2104.3	2114.6	2101.8	2074.8	2080.0	2062.0	2017.0	1970.8	1949.0	1879.7	1843.7
17.5°	2451.0	2463.8	2449.7	2418.9	2417.6	2393.2	2331.6	2275.1	2243.0	2154.4	2106.9
20°	2781.0	2784.8	2766.8	2733.5	2725.8	2692.4	2617.9	2538.3	2507.5	2398.4	2338.0
22.5°	3040.3	3054.4	3032.6	3008.2	2983.8	2941.5	2854.2	2766.8	2723.2	2598.7	2525.5
25°	3229.1	3261.2	3235.5	3207.2	3180.3	3130.2	3032.6	2938.9	2885.0	2746.3	2662.9
27.5°	3353.6	3384.4	3356.2	3324.1	3295.8	3238.0	3131.5	3041.6	2976.1	2824.6	2734.7
30°	3357.5	3394.7	3365.2	3330.5	3303.5	3245.7	3136.6	3044.2	2971.0	2819.5	2725.8
32.5°	3265.0	3294.5	3265.0	3235.5	3204.7	3149.5	3040.3	2951.7	2874.7	2729.6	2635.9
35°	3082.7	3108.4	3078.8	3044.2	3022.3	2973.6	2869.6	2784.8	2707.8	2574.3	2492.1
37.5°	2831.0	2854.2	2827.2	2807.9	2775.8	2732.2	2637.2	2561.4	2488.2	2367.5	2294.4
40°	2497.2	2546.0	2520.3	2507.5	2478.0	2440.7	2357.3	2290.5	2223.7	2118.5	2058.1
42.5°	2163.4	2209.6	2186.5	2177.5	2151.9	2119.8	2050.4	1993.9	1932.3	1845.0	1793.6
45°	1797.5	1846.3	1824.5	1820.6	1798.8	1774.4	1699.9	1670.4	1616.5	1534.3	1509.9
47.5°	1453.4	1462.4	1441.8	1443.1	1427.7	1411.0	1350.7	1332.7	1305.7	1242.8	1214.6
50°	1083.6	1090.0	1073.4	1078.5	1068.2	1058.0	1016.9	1007.9	991.2	948.8	932.1
52.5°	746.0	775.5	763.9	769.1	763.9	760.1	743.4	728.0	720.3	693.3	685.6
55°	539.2	541.8	532.8	538.0	534.1	532.8	522.6	513.6	509.7	493.0	490.5
57.5°	373.6	376.2	376.2	373.6	372.3	369.8	363.3	358.2	355.6	351.8	344.1
60°	247.8	258.1	254.2	256.8	255.5	255.5	250.4	246.5	245.2	237.5	237.5
62.5°	169.5	175.9	173.3	174.6	173.3	173.3	169.5	166.9	166.9	165.6	161.8
65°	113.0	116.8	114.3	115.6	115.6	115.6	113.0	110.4	110.4	109.1	106.6
67.5°	71.9	74.5	73.2	74.5	73.2	74.5	71.9	70.6	69.3	69.3	68.0
70°	43.7	44.9	43.7	44.9	43.7	43.7	42.4	42.4	41.1	39.8	39.8
72.5°	23.1	24.4	24.4	24.4	24.4	24.4	23.1	21.8	21.8	21.8	20.5
75°	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	10.3	10.3	10.3
77.5°	5.1	5.1	5.1	5.1	6.4	5.1	5.1	5.1	5.1	5.1	5.1
80°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
85°	3.9	3.9	3.9	3.9	3.9	3.9	5.1	5.1	5.1	5.1	3.9
87.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	6.4	6.4	5.1	5.1
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°	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9
2.5°	683.0	676.6	674.1	668.9	662.5	658.7	654.8	656.1	647.1	640.7	631.7
5°	855.1	841.0	833.3	821.7	807.6	796.0	785.8	780.6	763.9	752.4	728.0
7.5°	1058.0	1033.6	1018.1	997.6	973.2	952.7	932.1	918.0	892.3	870.5	833.3
10°	1280.1	1242.8	1215.9	1185.1	1147.8	1114.4	1083.6	1058.0	1019.4	986.1	937.3
12.5°	1522.7	1470.1	1431.6	1386.6	1334.0	1287.8	1232.6	1203.0	1150.4	1104.2	1041.3
15°	1780.8	1711.5	1657.5	1595.9	1526.6	1465.0	1394.3	1350.7	1281.4	1222.3	1144.0
17.5°	2028.6	1941.3	1870.7	1792.4	1706.3	1626.7	1543.3	1481.6	1396.9	1323.7	1230.0
20°	2244.3	2140.3	2054.3	1959.3	1857.8	1760.3	1669.1	1586.9	1488.1	1402.0	1295.5
22.5°	2420.2	2299.5	2200.6	2090.2	1973.4	1863.0	1759.0	1665.2	1552.3	1457.2	1340.4
25°	2547.3	2415.1	2304.6	2182.7	2054.3	1928.4	1818.0	1715.3	1592.1	1490.6	1366.1
27.5°	2614.1	2474.1	2357.3	2226.3	2090.2	1959.3	1839.9	1730.7	1601.0	1494.5	1366.1
30°	2602.5	2460.0	2339.3	2204.5	2067.1	1936.2	1811.6	1702.5	1569.0	1461.1	1332.7
32.5°	2513.9	2374.0	2255.8	2124.9	1990.1	1863.0	1738.4	1633.1	1499.6	1394.3	1269.8
35°	2367.5	2235.3	2123.6	1999.1	1872.0	1752.6	1639.6	1533.0	1404.6	1304.5	1187.6
37.5°	2177.5	2056.8	1955.4	1839.9	1723.0	1615.2	1503.5	1412.3	1298.0	1204.3	1090.0
40°	1950.3	1843.7	1753.8	1651.1	1545.8	1452.1	1358.4	1269.8	1158.1	1074.6	977.1
42.5°	1699.9	1608.8	1531.7	1441.8	1350.7	1271.1	1190.2	1113.2	1020.7	945.0	853.8
45°	1430.3	1353.3	1290.3	1218.4	1142.7	1068.2	1009.2	945.0	858.9	802.5	725.4
47.5°	1151.7	1092.6	1045.1	989.9	929.6	883.3	826.8	775.5	712.6	659.9	597.0
50°	887.2	846.1	812.7	774.2	730.6	688.2	654.8	615.0	567.5	525.1	475.1
52.5°	656.1	629.1	608.6	582.9	553.4	531.5	500.7	471.2	435.2	403.2	364.6
55°	469.9	454.5	441.7	426.3	405.7	386.5	371.1	350.5	324.8	300.4	272.2
57.5°	337.7	321.0	319.7	303.0	295.3	281.2	267.1	251.6	233.7	217.0	196.4
60°	233.7	222.1	217.0	210.6	201.6	192.6	186.2	175.9	163.1	151.5	136.1
62.5°	157.9	150.2	147.7	145.1	137.4	133.5	125.8	119.4	110.4	101.4	91.2
65°	104.0	98.9	96.3	92.4	88.6	86.0	82.2	77.0	69.3	64.2	57.8
67.5°	65.5	61.6	59.1	57.8	53.9	52.6	48.8	46.2	41.1	38.5	34.7
70°	37.2	35.9	33.4	33.4	30.8	28.2	27.0	24.4	23.1	20.5	19.3
72.5°	19.3	19.3	18.0	16.7	15.4	15.4	14.1	12.8	11.6	10.3	10.3
75°	9.0	9.0	9.0	7.7	7.7	7.7	6.4	6.4	6.4	5.1	5.1
77.5°	5.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	2.6	2.6
80°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
82.5°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	3.9	2.6	2.6	2.6	2.6	3.9	3.9	3.9	3.9	3.9	3.9
87.5°	3.9	3.9	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
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°	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9
2.5°	625.3	622.7	616.3	615.0	600.9	598.3	590.6	579.0	570.1	567.5	570.1
5°	719.0	707.4	688.2	684.3	661.2	653.5	636.8	618.8	603.4	594.5	590.6
7.5°	815.3	796.0	767.8	753.7	720.3	703.6	679.2	653.5	629.1	612.4	602.2
10°	907.7	876.9	825.6	814.0	772.9	746.0	712.6	677.9	647.1	624.0	607.3
12.5°	995.0	957.8	905.2	873.1	819.1	784.5	742.1	699.7	661.2	630.4	607.3
15°	1084.9	1036.1	970.6	925.7	864.1	817.9	766.5	717.7	672.8	634.3	606.0
17.5°	1159.4	1099.0	1022.0	968.1	896.2	841.0	781.9	725.4	676.6	633.0	600.9
20°	1214.6	1144.0	1056.7	993.8	914.2	852.5	788.3	726.7	672.8	625.3	590.6
22.5°	1251.8	1170.9	1075.9	1006.6	923.1	856.4	787.0	722.8	667.6	618.8	581.6
25°	1269.8	1182.5	1083.6	1009.2	921.9	852.5	780.6	715.1	658.7	608.6	572.6
27.5°	1267.2	1174.8	1073.4	995.0	906.4	834.5	761.4	695.9	640.7	590.6	553.4
30°	1230.0	1138.8	1036.1	956.5	869.2	797.3	724.1	659.9	606.0	554.7	520.0
32.5°	1172.2	1078.5	978.3	889.8	815.3	744.7	675.3	609.9	558.5	508.4	475.1
35°	1093.9	1004.0	907.7	832.0	751.1	683.0	616.3	554.7	505.9	457.1	426.3
37.5°	1002.7	916.7	828.1	749.8	679.2	616.3	553.4	498.2	449.4	405.7	376.2
40°	897.5	817.9	737.0	670.2	600.9	543.1	485.3	431.4	391.6	351.8	326.1
42.5°	783.2	712.6	639.4	581.6	518.7	467.3	412.1	373.6	335.1	299.2	278.6
45°	663.8	602.2	540.5	487.9	436.5	391.6	344.1	308.1	278.6	249.1	231.1
47.5°	545.7	493.0	443.0	400.6	355.6	318.4	285.0	252.9	224.7	200.3	186.2
50°	426.3	391.6	351.8	317.1	281.2	250.4	219.6	196.4	174.6	156.6	147.7
52.5°	332.5	300.4	268.3	240.1	214.4	188.7	168.2	148.9	133.5	122.0	115.6
55°	247.8	222.1	197.7	175.9	155.4	138.7	124.5	113.0	102.7	93.7	91.2
57.5°	177.2	157.9	141.2	124.5	111.7	101.4	92.4	84.7	78.3	71.9	70.6
60°	123.3	109.1	98.9	88.6	80.9	73.2	68.0	62.9	57.8	53.9	52.6
62.5°	82.2	74.5	66.8	61.6	57.8	51.4	48.8	44.9	42.4	38.5	37.2
65°	52.6	47.5	43.7	39.8	37.2	34.7	32.1	29.5	27.0	24.4	24.4
67.5°	32.1	28.2	27.0	24.4	21.8	20.5	19.3	16.7	15.4	15.4	14.1
70°	18.0	15.4	14.1	12.8	11.6	11.6	10.3	9.0	9.0	7.7	7.7
72.5°	9.0	9.0	7.7	7.7	6.4	6.4	5.1	5.1	5.1	3.9	3.9
75°	5.1	5.1	3.9	3.9	3.9	3.9	3.9	3.9	2.6	2.6	2.6
77.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
85°	3.9	3.9	3.9	3.9	2.6	2.6	2.6	2.6	2.6	2.6	2.6
87.5°	3.9	3.9	3.9	3.9	3.9	2.6	2.6	2.6	2.6	2.6	2.6
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: P170867

CATALOG NUMBER: LDA4A28935D010TE LAR25NF 4LLWW1

CANDELA DISTRIBUTION (continued):

	82.5°	85°	87.5°	90°	112.5°	135°	157.5°	180°
0°	546.9	546.9	546.9	546.9	546.9	546.9	546.9	546.9
2.5°	559.8	546.9	544.4	544.4	490.5	458.4	434.0	427.5
5°	572.6	554.7	545.7	540.5	444.2	387.7	350.5	340.2
7.5°	579.0	553.4	539.2	527.7	399.3	326.1	286.3	274.8
10°	576.5	545.7	526.4	511.0	358.2	278.6	237.5	227.3
12.5°	571.3	536.7	512.3	493.0	323.5	241.4	204.1	193.9
15°	566.2	526.4	498.2	475.1	295.3	215.7	182.3	173.3
17.5°	555.9	514.9	482.8	458.4	277.3	205.4	177.2	172.0
20°	544.4	502.0	468.6	444.2	272.2	215.7	199.0	199.0
22.5°	536.7	493.0	460.9	436.5	281.2	240.1	233.7	237.5
25°	526.4	485.3	453.2	430.1	290.2	259.4	255.5	260.6
27.5°	509.7	468.6	437.8	414.7	285.0	256.8	252.9	255.5
30°	476.3	436.5	409.6	385.2	264.5	237.5	231.1	232.4
32.5°	434.0	395.4	369.8	346.7	235.0	209.3	202.9	202.9
35°	387.7	351.8	327.4	306.9	206.7	183.6	177.2	175.9
37.5°	341.5	308.1	287.6	268.3	181.0	160.5	154.1	152.8
40°	295.3	265.8	246.5	231.1	159.2	142.5	136.1	134.8
42.5°	251.6	226.0	209.3	196.4	138.7	125.8	120.7	119.4
45°	208.0	187.5	174.6	164.3	120.7	107.8	106.6	106.6
47.5°	168.2	151.5	142.5	136.1	102.7	92.4	91.2	92.4
50°	134.8	123.3	116.8	111.7	87.3	78.3	74.5	74.5
52.5°	106.6	98.9	95.0	91.2	71.9	62.9	57.8	56.5
55°	84.7	78.3	75.8	73.2	56.5	46.2	41.1	39.8
57.5°	66.8	61.6	59.1	56.5	42.4	32.1	27.0	25.7
60°	50.1	46.2	43.7	42.4	29.5	19.3	15.4	14.1
62.5°	35.9	33.4	30.8	29.5	18.0	10.3	6.4	5.1
65°	21.8	21.8	19.3	18.0	9.0	3.9	2.6	1.3
67.5°	12.8	11.6	10.3	10.3	3.9	2.6	1.3	1.3
70°	6.4	6.4	5.1	5.1	2.6	1.3	1.3	1.3
72.5°	3.9	3.9	3.9	2.6	2.6	1.3	1.3	1.3
75°	2.6	2.6	2.6	2.6	2.6	1.3	1.3	1.3
77.5°	2.6	2.6	2.6	2.6	2.6	1.3	1.3	0.0
80°	2.6	2.6	2.6	2.6	2.6	1.3	1.3	0.0
82.5°	2.6	2.6	2.6	2.6	2.6	1.3	1.3	1.3
85°	2.6	2.6	2.6	2.6	2.6	1.3	1.3	0.0
87.5°	2.6	2.6	2.6	2.6	2.6	1.3	1.3	1.3
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)