

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: P170689

Luminaire Tested: **LDA4A09927D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170689  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P25649)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt  
Description: PORTFOLIO 4" Adjustable Reflector, Self-flanged Trim Ring, 25°  
Narrow Flood Optic, at 30° tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 671.7 lumens  
Efficiency: N/A  
Efficacy: 48.5 lumens/watt  
Spacing Criteria (0/90/45): 2.56 / 1.01 / 1.3  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

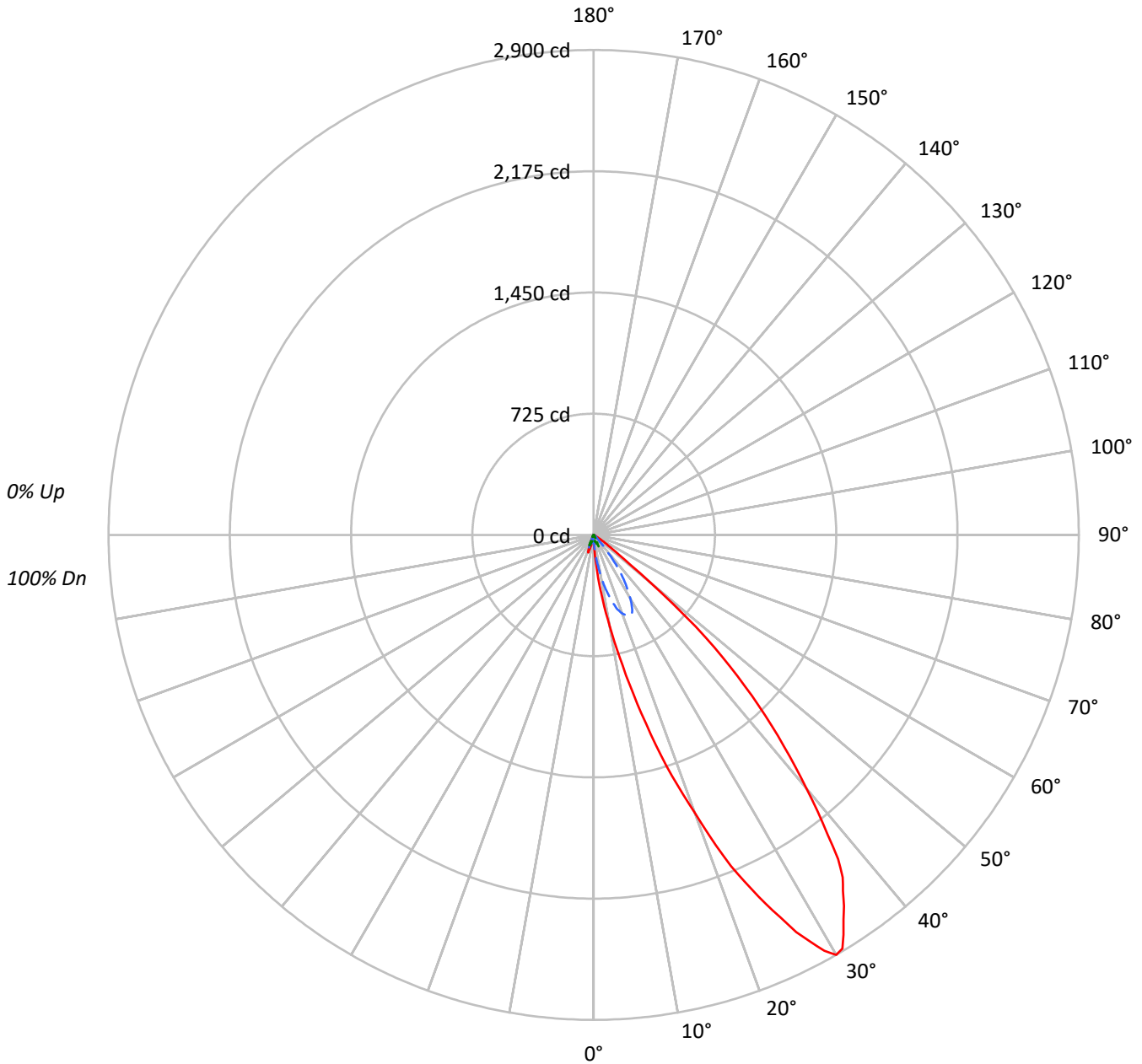
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

### Luminous Intensity Polar Plot





TEST NUMBER: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**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	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91			
2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74			
4	92	83	76	71	90	82	75	71	79	74	70	77	73	69	75	71	68	66			
5	86	76	69	63	84	75	68	63	73	67	62	71	66	62	69	65	61	60			
6	80	69	62	57	78	68	61	56	67	61	56	65	60	56	64	59	55	53			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48			
8	70	58	51	46	68	57	51	46	56	50	46	55	49	45	54	49	45	43			
9	65	53	46	41	64	53	46	41	52	46	41	51	45	41	50	45	41	39			
10	61	49	42	38	60	49	42	37	48	42	37	47	41	37	46	41	37	36			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	5489	5489	5489
5°	23859	5176	3133
10°	68786	4659	3407
15°	140939	5146	9845
20°	232530	9569	9976
25°	331246	6111	3348
30°	413011	2678	1310
35°	391335	1220	572
40°	318732	612	193
45°	223262	331	0
50°	83665	230	0
55°	17827	258	0
60°	3404	197	0
65°	1022	350	0
70°	289	433	0
75°	0	572	0
80°	0	852	0
85°	0	1698	0



TEST NUMBER: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	9.3	1.4
10°-20°	80.4	12.0
20°-30°	205.5	30.6
30°-40°	238.0	35.4
40°-50°	122.8	18.3
50°-60°	12.7	1.9
60°-70°	1.4	0.2
70°-80°	0.9	0.1
80°-90°	0.8	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°	295.2	44.0
0°-40°	533.2	79.4
0°-60°	668.6	99.5
0°-90°	671.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	671.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	44	44	44	44	44	
5°	193	100	42	28	25	30
15°	1104	404	40	54	77	338
25°	2434	528	45	28	25	1131
35°	2599	289	8	5	4	1591
45°	1280	34	2	1	0	958
55°	83	5	1	1	0	104
65°	4	1	1	1	0	5
75°	0	1	1	1	0	0
85°	0	1	1	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5
2.5°	76.8	74.1	72.2	72.9	77.1	72.5	72.9	71.4	70.6	69.8	67.9
5°	192.7	185.0	180.0	180.4	169.2	177.7	176.9	170.4	166.2	158.1	153.5
7.5°	361.5	345.0	339.3	337.3	338.5	330.4	327.0	318.5	307.4	292.8	284.4
10°	549.2	539.2	535.8	529.6	529.2	515.0	506.6	495.8	473.6	453.2	438.3
12.5°	800.2	769.5	764.1	752.6	749.5	725.3	707.7	692.0	654.7	627.9	604.1
15°	1103.7	1078.8	1084.6	1049.2	1039.7	1000.1	967.1	933.3	873.1	832.0	789.8
17.5°	1448.4	1416.5	1420.4	1376.2	1296.8	1304.1	1256.1	1209.7	1124.9	1070.0	1004.7
20°	1771.5	1748.9	1750.4	1691.7	1664.8	1591.9	1527.8	1472.6	1359.7	1289.9	1203.5
22.5°	2143.4	2084.7	2073.5	1993.7	1946.5	1848.7	1759.2	1685.9	1549.3	1470.6	1364.7
25°	2433.9	2393.6	2362.9	2268.5	2202.9	2075.5	1971.8	1863.2	1699.0	1611.9	1486.0
26°	2542.9	2504.9	2465.4	2363.7	2290.0	2155.3	2042.5	1925.8	1750.0	1656.8	1519.8
27°	2666.1	2603.9	2556.3	2442.4	2362.5	2220.9	2087.0	1976.8	1788.8	1685.5	1541.2
28°	2753.2	2691.0	2628.1	2504.1	2417.8	2269.7	2130.3	2010.2	1811.4	1699.4	1550.1
29°	2842.6	2776.6	2684.9	2549.8	2455.8	2300.0	2155.3	2026.7	1818.0	1698.6	1545.5
30°	2899.8	2833.4	2714.8	2575.5	2476.1	2312.3	2162.2	2023.7	1807.6	1683.2	1528.6
31°	2886.4	2825.4	2707.5	2578.2	2474.2	2305.0	2149.5	2001.8	1781.5	1656.0	1497.9
32°	2819.2	2767.4	2678.0	2560.2	2453.1	2280.0	2120.0	1967.2	1743.9	1624.1	1460.7
33°	2741.3	2698.3	2636.5	2523.7	2416.3	2242.4	2079.3	1924.6	1700.5	1580.8	1415.8
34°	2676.1	2637.3	2580.1	2474.6	2366.0	2192.1	2027.9	1870.9	1651.0	1529.7	1362.8
35°	2598.9	2563.6	2510.7	2408.2	2296.1	2124.6	1963.4	1808.7	1592.7	1469.1	1301.4
36°	2531.8	2476.1	2422.4	2322.6	2210.9	2042.8	1887.4	1735.8	1526.7	1399.6	1232.3
37°	2427.8	2372.1	2314.6	2220.2	2110.0	1949.2	1803.0	1657.9	1451.4	1347.4	1158.6
38°	2272.3	2246.6	2189.1	2099.3	1996.8	1846.0	1710.5	1569.3	1366.6	1246.5	1080.3
39°	2127.3	2106.2	2050.1	1968.0	1873.2	1735.1	1608.0	1469.5	1271.1	1157.5	997.8
40°	1979.5	1958.4	1905.8	1831.8	1746.6	1619.5	1499.0	1363.2	1170.9	1065.7	914.9
42.5°	1629.5	1607.6	1596.5	1520.9	1430.7	1321.7	1210.0	1087.2	923.8	837.4	719.2
45°	1279.9	1259.9	1218.1	1187.0	1106.4	1015.9	924.9	824.7	704.2	619.0	508.5
47.5°	914.9	905.3	906.9	849.3	772.5	701.2	625.9	535.4	428.7	321.6	236.0
50°	436.0	438.7	449.4	409.1	351.5	309.7	265.2	208.0	152.0	119.4	92.5
51°	282.5	285.5	294.7	266.0	224.1	195.7	167.3	135.1	107.8	91.7	73.3
52°	191.1	191.1	193.0	176.2	155.4	139.3	122.8	104.0	84.0	72.2	58.0
53°	143.5	143.1	143.9	132.8	118.6	106.7	95.2	81.4	66.4	56.4	44.9
54°	109.8	109.4	110.1	101.7	91.7	82.9	74.1	63.7	51.4	42.2	33.8
55°	82.9	82.9	84.0	77.5	69.8	62.9	56.4	47.6	38.0	30.7	24.6
57.5°	33.4	33.4	34.5	32.2	28.8	26.1	23.8	20.3	16.9	14.2	11.5
60°	13.8	14.2	14.6	13.4	12.7	11.9	11.1	10.0	8.8	7.3	6.1
61°	10.4	10.4	10.7	10.0	9.6	8.8	8.4	7.7	6.9	5.8	5.0
62°	7.7	7.7	8.1	7.7	7.3	6.9	6.5	6.1	5.4	4.6	3.8
63°	5.8	5.8	6.1	5.8	5.8	5.4	5.0	4.6	4.2	3.5	3.1
64°	4.6	4.6	4.6	4.2	4.2	4.2	3.8	3.8	3.1	2.7	2.3
65°	3.5	3.5	3.5	3.5	3.1	3.1	3.1	2.7	2.7	1.9	1.9
66°	2.7	2.7	2.7	2.3	2.3	2.3	2.3	2.3	1.9	1.5	1.2



TEST NUMBER: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
72.5°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4
85°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4
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: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5
2.5°	68.7	68.3	64.5	64.5	66.0	63.7	62.6	59.9	51.4	43.8	36.8
5°	152.0	147.8	134.7	130.9	130.5	119.7	113.6	100.2	58.7	41.8	31.9
7.5°	280.5	267.9	245.6	233.7	219.1	210.7	195.7	172.7	66.8	39.1	28.8
10°	414.9	400.7	367.7	346.6	335.4	308.2	283.2	251.8	74.8	37.2	28.4
12.5°	568.8	536.9	505.4	467.8	434.4	410.3	368.8	332.0	80.2	36.8	31.1
15°	735.3	695.4	641.7	591.0	543.8	509.3	453.6	404.1	82.1	40.3	40.7
17.5°	921.8	847.0	769.5	700.4	635.5	589.1	520.0	461.7	81.0	49.5	64.9
20°	1096.5	997.1	891.9	796.0	704.2	644.0	564.2	500.8	81.4	72.9	87.5
22.5°	1235.0	1114.1	985.9	868.9	752.6	680.4	593.3	521.6	91.3	77.9	59.5
25°	1337.1	1194.7	1047.7	913.0	790.6	709.6	614.0	527.7	85.2	44.9	33.8
26°	1364.3	1214.3	1059.2	919.5	795.2	709.6	611.0	521.2	73.7	35.7	28.0
27°	1379.7	1223.1	1061.1	916.5	789.4	701.5	599.8	508.1	60.3	29.9	23.8
28°	1381.6	1219.3	1051.5	903.8	773.3	684.3	579.9	488.2	49.9	25.3	19.6
29°	1371.2	1205.1	1033.1	882.7	748.7	658.9	552.6	463.6	42.6	21.9	16.5
30°	1349.4	1180.1	1005.1	854.3	716.9	628.2	520.8	436.4	37.2	18.8	13.8
31°	1317.9	1146.0	974.8	820.5	683.5	597.5	490.9	408.7	33.0	15.7	11.5
32°	1277.2	1105.7	935.6	784.1	653.6	568.4	462.1	380.7	29.6	13.4	9.6
33°	1231.9	1060.0	893.0	746.1	624.8	538.4	431.7	351.2	26.5	11.1	8.1
34°	1179.7	1009.7	847.8	708.1	594.1	505.4	399.1	320.8	23.0	9.2	6.9
35°	1120.2	953.7	799.0	673.5	559.9	469.7	365.0	288.6	20.3	8.1	5.8
36°	1055.8	895.4	749.9	634.0	523.1	432.5	328.9	256.0	17.7	6.9	5.0
37°	988.2	834.7	700.8	589.1	482.4	393.0	291.7	220.7	15.4	5.8	4.2
38°	916.8	773.7	653.2	546.5	439.4	350.4	253.7	181.9	13.4	5.0	3.8
39°	843.9	713.4	606.0	499.7	395.3	308.6	217.2	141.2	11.9	4.2	3.5
40°	772.5	656.6	556.1	448.6	351.2	267.5	181.9	104.0	10.4	3.8	2.7
42.5°	611.7	504.3	399.1	299.3	244.8	169.6	100.9	54.5	7.3	2.7	1.9
45°	400.3	298.2	215.3	145.8	126.6	71.8	46.8	33.8	5.4	1.9	1.5
47.5°	165.8	120.9	84.0	60.6	49.1	38.4	29.9	21.9	3.8	1.5	1.5
50°	72.9	57.6	45.7	35.7	31.1	24.9	19.2	13.4	2.3	1.2	1.2
51°	58.3	46.4	35.7	28.4	25.3	20.3	15.7	10.7	2.3	1.2	1.2
52°	46.1	36.1	28.0	21.9	20.3	16.5	13.0	8.8	1.9	1.2	1.2
53°	35.3	27.2	21.1	17.3	16.1	13.4	10.7	7.3	1.5	1.2	1.2
54°	26.1	20.7	16.5	13.4	13.0	10.7	8.8	6.1	1.5	1.2	1.2
55°	19.2	16.1	12.7	10.7	10.4	8.8	7.3	5.0	1.5	1.2	1.2
57.5°	10.0	8.4	6.9	6.1	6.1	5.8	5.0	3.1	1.2	0.8	1.2
60°	5.4	4.6	3.8	3.5	4.2	3.8	3.5	1.9	1.2	0.8	1.2
61°	4.2	3.8	3.1	2.7	3.5	3.1	3.1	1.5	1.2	1.2	1.2
62°	3.5	3.1	2.7	2.3	3.1	2.7	2.7	1.5	1.2	1.2	1.2
63°	2.7	2.3	1.9	1.9	2.7	2.7	2.3	1.2	1.2	1.2	1.2
64°	1.9	1.9	1.5	1.5	2.3	2.3	1.9	1.2	1.2	1.2	1.2
65°	1.5	1.5	1.2	1.2	1.9	1.9	1.9	1.2	1.2	1.2	1.2
66°	1.2	1.2	1.2	0.8	1.5	1.9	1.9	0.8	1.2	1.2	1.2





TEST NUMBER: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	0.4	0.4	0.4	0.4	1.2	1.5	1.5	0.8	1.2	1.2	1.2
75°	0.4	0.4	0.4	0.4	1.2	1.5	1.5	0.8	1.2	1.2	1.2
77.5°	0.4	0.4	0.4	0.4	1.2	1.5	1.5	0.8	1.2	1.2	1.5
80°	0.4	0.4	0.4	0.4	1.2	1.5	1.5	0.8	1.2	1.2	1.5
82.5°	0.4	0.4	0.4	0.4	1.2	1.5	1.5	0.8	1.2	1.2	1.5
85°	0.4	0.4	0.4	0.4	1.2	1.5	1.5	0.8	1.2	1.2	1.5
87.5°	0.4	0.4	0.4	0.4	1.2	1.5	1.5	0.8	1.2	1.2	1.5
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: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	44.5	44.5	44.5
2.5°	33.4	31.5	31.1
5°	27.6	25.7	25.3
7.5°	25.3	23.8	23.4
10°	26.1	26.5	27.2
12.5°	33.4	36.8	39.9
15°	53.7	67.5	77.1
17.5°	93.6	103.6	110.1
20°	82.1	75.6	76.0
22.5°	46.1	41.4	41.1
25°	28.0	25.3	24.6
26°	23.4	21.1	20.3
27°	19.2	17.3	16.5
28°	15.7	14.2	13.8
29°	13.4	11.5	11.1
30°	11.1	9.6	9.2
31°	9.2	8.1	7.7
32°	8.1	6.9	6.1
33°	6.5	5.8	5.4
34°	5.8	4.6	4.2
35°	4.6	3.8	3.8
36°	4.2	3.5	3.1
37°	3.5	2.7	2.7
38°	3.1	2.3	1.9
39°	2.7	1.9	1.5
40°	2.3	1.5	1.2
42.5°	1.5	0.8	0.4
45°	1.2	0.4	0.0
47.5°	0.8	0.4	0.0
50°	0.8	0.0	0.0
51°	0.8	0.0	0.0
52°	0.8	0.0	0.0
53°	0.8	0.0	0.0
54°	0.8	0.0	0.0
55°	0.8	0.0	0.0
57.5°	0.8	0.0	0.0
60°	0.8	0.0	0.0
61°	0.8	0.0	0.0
62°	0.8	0.0	0.0
63°	0.8	0.4	0.0
64°	0.8	0.4	0.0
65°	0.8	0.4	0.0
66°	0.8	0.4	0.0



TEST NUMBER: P170689

CATALOG NUMBER: LDA4A09927D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	1.2	0.4	0.0
75°	1.2	0.4	0.0
77.5°	1.2	0.4	0.0
80°	1.2	0.4	0.0
82.5°	1.2	0.4	0.0
85°	1.2	0.4	0.0
87.5°	0.8	0.4	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180°    - - 45°-225°    - - - - 90°-270°









67.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.2	0.8
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.4





67.5°	0.8	0.8	0.8	0.8	1.5	1.5	1.5	0.8	1.2	1.2	1.2
70°	0.4	0.4	0.4	0.8	1.2	1.5	1.5	0.8	1.2	1.2	1.2





67.5°	0.8	0.4	0.0
70°	0.8	0.4	0.0



(END OF REPORT)