

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: P170692

Luminaire Tested: **LDA4A09940D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170692  
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: LDA4A09940D010TE 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 / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 837.7 lumens  
Efficiency: N/A  
Efficacy: 60.5 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

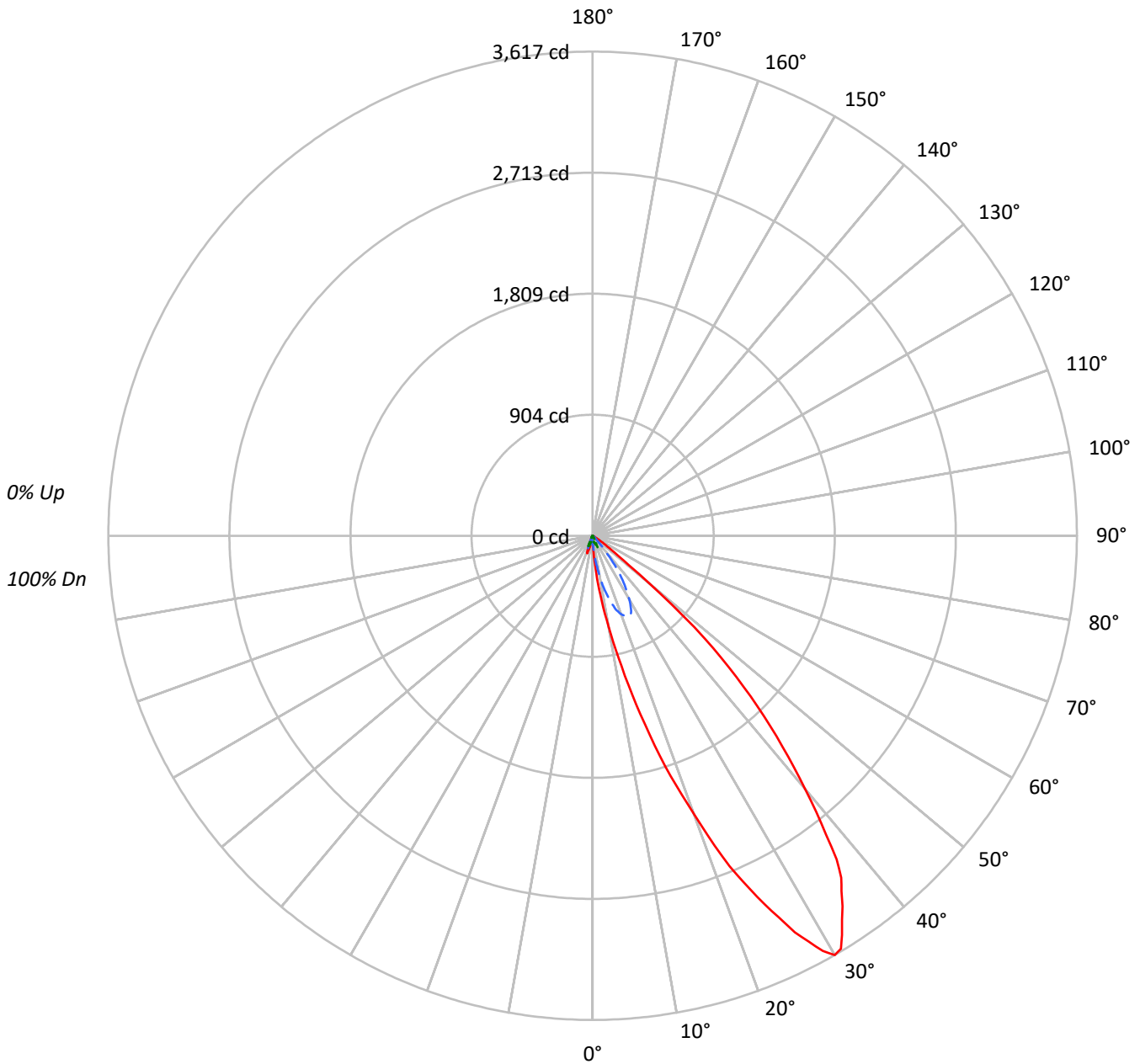
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82					82			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74					74			
4	92	83	76	71	90	82	75	71	79	74	70	77	73	69	75	71	68	66					66			
5	86	76	69	63	84	75	68	63	73	67	62	71	66	62	69	65	61	60					60			
6	80	69	62	57	78	68	61	56	67	61	56	65	60	56	64	59	55	53					53			
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48					48			
8	70	58	51	46	68	58	51	46	56	50	46	55	49	45	54	49	45	43					43			
9	65	53	46	41	64	53	46	41	52	46	41	51	45	41	50	45	41	39					39			
10	61	49	42	38	60	49	42	38	48	42	37	47	41	37	46	41	37	36					36			

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

	0°	90°	180°
0°	6846	6846	6846
5°	29753	6463	3913
10°	85795	5812	4258
15°	175800	6423	12284
20°	290023	11932	12444
25°	413149	7621	4165
30°	515131	3347	1638
35°	488111	1521	723
40°	397549	773	225
45°	278471	419	0
50°	104351	269	0
55°	22236	301	0
60°	4243	247	0
65°	1255	409	0
70°	361	505	0
75°	0	667	0
80°	0	994	0
85°	0	1981	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	11.6	1.4
10°-20°	100.3	12.0
20°-30°	256.3	30.6
30°-40°	296.8	35.4
40°-50°	153.1	18.3
50°-60°	15.8	1.9
60°-70°	1.7	0.2
70°-80°	1.1	0.1
80°-90°	1.0	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°	368.2	44.0
0°-40°	665.0	79.4
0°-60°	833.9	99.6
0°-90°	837.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	837.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	56	56	56	56	56	
5°	240	125	52	34	32	37
15°	1377	504	50	67	96	421
25°	3036	658	56	35	31	1410
35°	3242	360	10	6	5	1985
45°	1596	42	2	1	0	1195
55°	103	6	1	1	0	129
65°	4	1	1	1	0	6
75°	0	1	1	1	0	0
85°	0	1	1	1	0	0
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°	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5
2.5°	95.7	92.4	90.0	90.9	96.2	90.5	90.9	89.0	88.1	87.1	84.7
5°	240.3	230.7	224.5	225.0	211.1	221.6	220.7	212.5	207.3	197.2	191.5
7.5°	450.9	430.3	423.1	420.8	422.2	412.1	407.8	397.3	383.4	365.2	354.7
10°	685.0	672.5	668.2	660.6	660.1	642.4	631.8	618.4	590.7	565.3	546.6
12.5°	998.0	959.7	953.0	938.7	934.8	904.7	882.7	863.0	816.6	783.1	753.4
15°	1376.7	1345.5	1352.7	1308.7	1296.7	1247.4	1206.2	1164.1	1089.0	1037.8	985.1
17.5°	1806.5	1766.8	1771.6	1716.5	1617.4	1626.5	1566.7	1508.8	1403.0	1334.5	1253.2
20°	2209.5	2181.3	2183.2	2110.0	2076.5	1985.5	1905.6	1836.7	1695.9	1608.8	1501.1
22.5°	2673.4	2600.1	2586.3	2486.7	2427.8	2305.8	2194.2	2102.8	1932.4	1834.3	1702.2
25°	3035.7	2985.5	2947.2	2829.4	2747.6	2588.6	2459.4	2323.9	2119.1	2010.4	1853.4
26°	3171.7	3124.3	3075.0	2948.1	2856.2	2688.2	2547.5	2402.0	2182.7	2066.4	1895.5
27°	3325.3	3247.8	3188.4	3046.3	2946.7	2770.1	2603.0	2465.6	2231.1	2102.3	1922.3
28°	3434.0	3356.4	3277.9	3123.3	3015.6	2830.9	2657.1	2507.3	2259.3	2119.6	1933.3
29°	3545.5	3463.2	3348.8	3180.3	3063.0	2868.7	2688.2	2527.9	2267.5	2118.6	1927.6
30°	3616.8	3534.0	3386.1	3212.4	3088.4	2884.0	2696.8	2524.0	2254.5	2099.4	1906.5
31°	3600.1	3524.0	3377.0	3215.7	3086.0	2874.9	2681.0	2496.7	2222.0	2065.5	1868.2
32°	3516.3	3451.7	3340.2	3193.2	3059.7	2843.8	2644.2	2453.7	2175.1	2025.7	1821.8
33°	3419.1	3365.5	3288.5	3147.7	3013.7	2796.9	2593.4	2400.5	2121.0	1971.6	1765.8
34°	3337.8	3289.4	3218.1	3086.5	2951.0	2734.2	2529.3	2333.5	2059.2	1908.0	1699.8
35°	3241.6	3197.5	3131.5	3003.7	2863.9	2649.9	2448.9	2256.0	1986.5	1832.3	1623.2
36°	3157.8	3088.4	3021.4	2896.9	2757.6	2548.0	2354.1	2165.0	1904.1	1745.7	1537.0
37°	3028.1	2958.7	2886.9	2769.1	2631.7	2431.2	2248.8	2067.9	1810.3	1680.6	1445.1
38°	2834.2	2802.1	2730.3	2618.3	2490.5	2302.4	2133.4	1957.3	1704.5	1554.7	1347.5
39°	2653.3	2626.9	2557.1	2454.6	2336.4	2164.1	2005.6	1832.8	1585.4	1443.7	1244.5
40°	2469.0	2442.7	2377.1	2284.7	2178.4	2020.0	1869.7	1700.2	1460.4	1329.3	1141.1
42.5°	2032.4	2005.1	1991.3	1897.0	1784.5	1648.5	1509.2	1356.1	1152.2	1044.5	897.0
45°	1596.4	1571.5	1519.3	1480.5	1380.0	1267.0	1153.6	1028.7	878.4	772.1	634.2
47.5°	1141.1	1129.2	1131.1	1059.3	963.6	874.5	780.7	667.7	534.7	401.1	294.4
50°	543.8	547.1	560.5	510.3	438.5	386.3	330.8	259.4	189.6	148.9	115.4
51°	352.3	356.1	367.6	331.7	279.5	244.1	208.7	168.5	134.5	114.4	91.4
52°	238.4	238.4	240.8	219.7	193.9	173.8	153.2	129.7	104.8	90.0	72.3
53°	179.0	178.5	179.5	165.6	147.9	133.1	118.7	101.5	82.8	70.4	56.0
54°	136.9	136.4	137.4	126.8	114.4	103.4	92.4	79.5	64.1	52.7	42.1
55°	103.4	103.4	104.8	96.7	87.1	78.5	70.4	59.4	47.4	38.3	30.6
57.5°	41.6	41.6	43.1	40.2	35.9	32.5	29.7	25.4	21.1	17.7	14.4
60°	17.2	17.7	18.2	16.8	15.8	14.8	13.9	12.4	11.0	9.1	7.7
61°	12.9	12.9	13.4	12.4	12.0	11.0	10.5	9.6	8.6	7.2	6.2
62°	9.6	9.6	10.1	9.6	9.1	8.6	8.1	7.7	6.7	5.7	4.8
63°	7.2	7.2	7.7	7.2	7.2	6.7	6.2	5.7	5.3	4.3	3.8
64°	5.7	5.7	5.7	5.3	5.3	5.3	4.8	4.8	3.8	3.4	2.9
65°	4.3	4.3	4.3	4.3	3.8	3.8	3.8	3.4	3.4	2.4	2.4
66°	3.4	3.4	3.4	2.9	2.9	2.9	2.9	2.9	2.4	1.9	1.4



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**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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
85°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5
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°	67.5°	90°	112.5°
0°	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5	55.5
2.5°	85.7	85.2	80.4	80.4	82.3	79.5	78.0	74.7	64.1	54.6	46.0
5°	189.6	184.3	168.0	163.2	162.7	149.3	141.7	124.9	73.2	52.2	39.7
7.5°	349.9	334.1	306.3	291.5	273.3	262.8	244.1	215.4	83.3	48.8	35.9
10°	517.4	499.7	458.6	432.2	418.4	384.4	353.3	314.0	93.3	46.4	35.4
12.5°	709.4	669.7	630.4	583.5	541.9	511.7	460.0	414.0	100.0	46.0	38.8
15°	917.1	867.3	800.3	737.2	678.3	635.2	565.8	504.0	102.4	50.3	50.7
17.5°	1149.8	1056.4	959.7	873.6	792.7	734.8	648.6	575.8	101.0	61.7	80.9
20°	1367.6	1243.6	1112.4	992.8	878.4	803.2	703.6	624.7	101.5	90.9	109.1
22.5°	1540.4	1389.6	1229.7	1083.7	938.7	848.7	740.0	650.5	113.9	97.2	74.2
25°	1667.7	1490.1	1306.8	1138.8	986.1	885.1	765.9	658.2	106.3	56.0	42.1
26°	1701.7	1514.5	1321.1	1146.9	991.8	885.1	762.0	650.0	91.9	44.5	34.9
27°	1720.8	1525.5	1323.5	1143.1	984.6	875.0	748.2	633.8	75.2	37.3	29.7
28°	1723.2	1520.7	1311.6	1127.3	964.5	853.5	723.3	608.9	62.2	31.6	24.4
29°	1710.3	1503.0	1288.6	1100.9	933.9	821.9	689.3	578.2	53.1	27.3	20.6
30°	1683.0	1471.9	1253.6	1065.5	894.2	783.6	649.6	544.2	46.4	23.5	17.2
31°	1643.8	1429.3	1215.8	1023.4	852.5	745.3	612.2	509.8	41.2	19.6	14.4
32°	1593.0	1379.0	1167.0	977.9	815.2	708.9	576.3	474.8	36.9	16.8	12.0
33°	1536.5	1322.1	1113.9	930.5	779.3	671.6	538.5	438.0	33.0	13.9	10.1
34°	1471.4	1259.4	1057.4	883.1	741.0	630.4	497.8	400.2	28.7	11.5	8.6
35°	1397.2	1189.5	996.6	840.1	698.4	585.9	455.2	360.0	25.4	10.1	7.2
36°	1316.8	1116.7	935.3	790.8	652.4	539.5	410.2	319.3	22.0	8.6	6.2
37°	1232.6	1041.1	874.1	734.8	601.7	490.2	363.8	275.2	19.1	7.2	5.3
38°	1143.5	965.0	814.7	681.6	548.1	437.0	316.4	226.9	16.8	6.2	4.8
39°	1052.6	889.8	755.8	623.2	493.0	384.9	270.9	176.2	14.8	5.3	4.3
40°	963.6	819.0	693.6	559.6	438.0	333.6	226.9	129.7	12.9	4.8	3.4
42.5°	763.0	629.0	497.8	373.4	305.4	211.6	125.9	68.0	9.1	3.4	2.4
45°	499.3	371.9	268.5	181.9	158.0	89.5	58.4	42.1	6.7	2.4	1.9
47.5°	206.8	150.8	104.8	75.6	61.3	47.9	37.3	27.3	4.8	1.9	1.9
50°	90.9	71.8	57.0	44.5	38.8	31.1	23.9	16.8	2.9	1.4	1.4
51°	72.8	57.9	44.5	35.4	31.6	25.4	19.6	13.4	2.9	1.4	1.4
52°	57.4	45.0	34.9	27.3	25.4	20.6	16.3	11.0	2.4	1.4	1.4
53°	44.0	34.0	26.3	21.5	20.1	16.8	13.4	9.1	1.9	1.4	1.4
54°	32.5	25.8	20.6	16.8	16.3	13.4	11.0	7.7	1.9	1.4	1.4
55°	23.9	20.1	15.8	13.4	12.9	11.0	9.1	6.2	1.9	1.4	1.4
57.5°	12.4	10.5	8.6	7.7	7.7	7.2	6.2	3.8	1.4	1.0	1.4
60°	6.7	5.7	4.8	4.3	5.3	4.8	4.3	2.4	1.4	1.0	1.4
61°	5.3	4.8	3.8	3.4	4.3	3.8	3.8	1.9	1.4	1.4	1.4
62°	4.3	3.8	3.4	2.9	3.8	3.4	3.4	1.9	1.4	1.4	1.4
63°	3.4	2.9	2.4	2.4	3.4	3.4	2.9	1.4	1.4	1.4	1.4
64°	2.4	2.4	1.9	1.9	2.9	2.9	2.4	1.4	1.4	1.4	1.4
65°	1.9	1.9	1.4	1.4	2.4	2.4	2.4	1.4	1.4	1.4	1.4
66°	1.4	1.4	1.4	1.0	1.9	2.4	2.4	1.0	1.4	1.4	1.4





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CATALOG NUMBER: LDA4A09940D010TE 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°	0.5	0.5	0.5	0.5	1.4	1.9	1.9	1.0	1.4	1.4	1.4
75°	0.5	0.5	0.5	0.5	1.4	1.9	1.9	1.0	1.4	1.4	1.4
77.5°	0.5	0.5	0.5	0.5	1.4	1.9	1.9	1.0	1.4	1.4	1.9
80°	0.5	0.5	0.5	0.5	1.4	1.9	1.9	1.0	1.4	1.4	1.9
82.5°	0.5	0.5	0.5	0.5	1.4	1.9	1.9	1.0	1.4	1.4	1.9
85°	0.5	0.5	0.5	0.5	1.4	1.9	1.9	1.0	1.4	1.4	1.9
87.5°	0.5	0.5	0.5	0.5	1.4	1.9	1.9	1.0	1.4	1.4	1.9
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):**

	135°	157.5°	180°
0°	55.5	55.5	55.5
2.5°	41.6	39.3	38.8
5°	34.5	32.1	31.6
7.5°	31.6	29.7	29.2
10°	32.5	33.0	34.0
12.5°	41.6	46.0	49.8
15°	67.0	84.2	96.2
17.5°	116.8	129.2	137.4
20°	102.4	94.3	94.8
22.5°	57.4	51.7	51.2
25°	34.9	31.6	30.6
26°	29.2	26.3	25.4
27°	23.9	21.5	20.6
28°	19.6	17.7	17.2
29°	16.8	14.4	13.9
30°	13.9	12.0	11.5
31°	11.5	10.1	9.6
32°	10.1	8.6	7.7
33°	8.1	7.2	6.7
34°	7.2	5.7	5.3
35°	5.7	4.8	4.8
36°	5.3	4.3	3.8
37°	4.3	3.4	3.4
38°	3.8	2.9	2.4
39°	3.4	2.4	1.9
40°	2.9	1.9	1.4
42.5°	1.9	1.0	0.5
45°	1.4	0.5	0.0
47.5°	1.0	0.5	0.0
50°	1.0	0.0	0.0
51°	1.0	0.0	0.0
52°	1.0	0.0	0.0
53°	1.0	0.0	0.0
54°	1.0	0.0	0.0
55°	1.0	0.0	0.0
57.5°	1.0	0.0	0.0
60°	1.0	0.0	0.0
61°	1.0	0.0	0.0
62°	1.0	0.0	0.0
63°	1.0	0.5	0.0
64°	1.0	0.5	0.0
65°	1.0	0.5	0.0
66°	1.0	0.5	0.0



TEST NUMBER: P170692

CATALOG NUMBER: LDA4A09940D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	1.4	0.5	0.0
75°	1.4	0.5	0.0
77.5°	1.4	0.5	0.0
80°	1.4	0.5	0.0
82.5°	1.4	0.5	0.0
85°	1.4	0.5	0.0
87.5°	1.0	0.5	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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









67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.0
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5





67.5°	1.0	1.0	1.0	1.0	1.9	1.9	1.9	1.0	1.4	1.4	1.4
70°	0.5	0.5	0.5	1.0	1.4	1.9	1.9	1.0	1.4	1.4	1.4





67.5°	1.0	0.5	0.0
70°	1.0	0.5	0.0



(END OF REPORT)