

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: P170706

Luminaire Tested: **LDA4A28930D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170706  
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: LDA4A28930D010TE 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 / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2228.9 lumens  
Efficiency: N/A  
Efficacy: 50.1 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

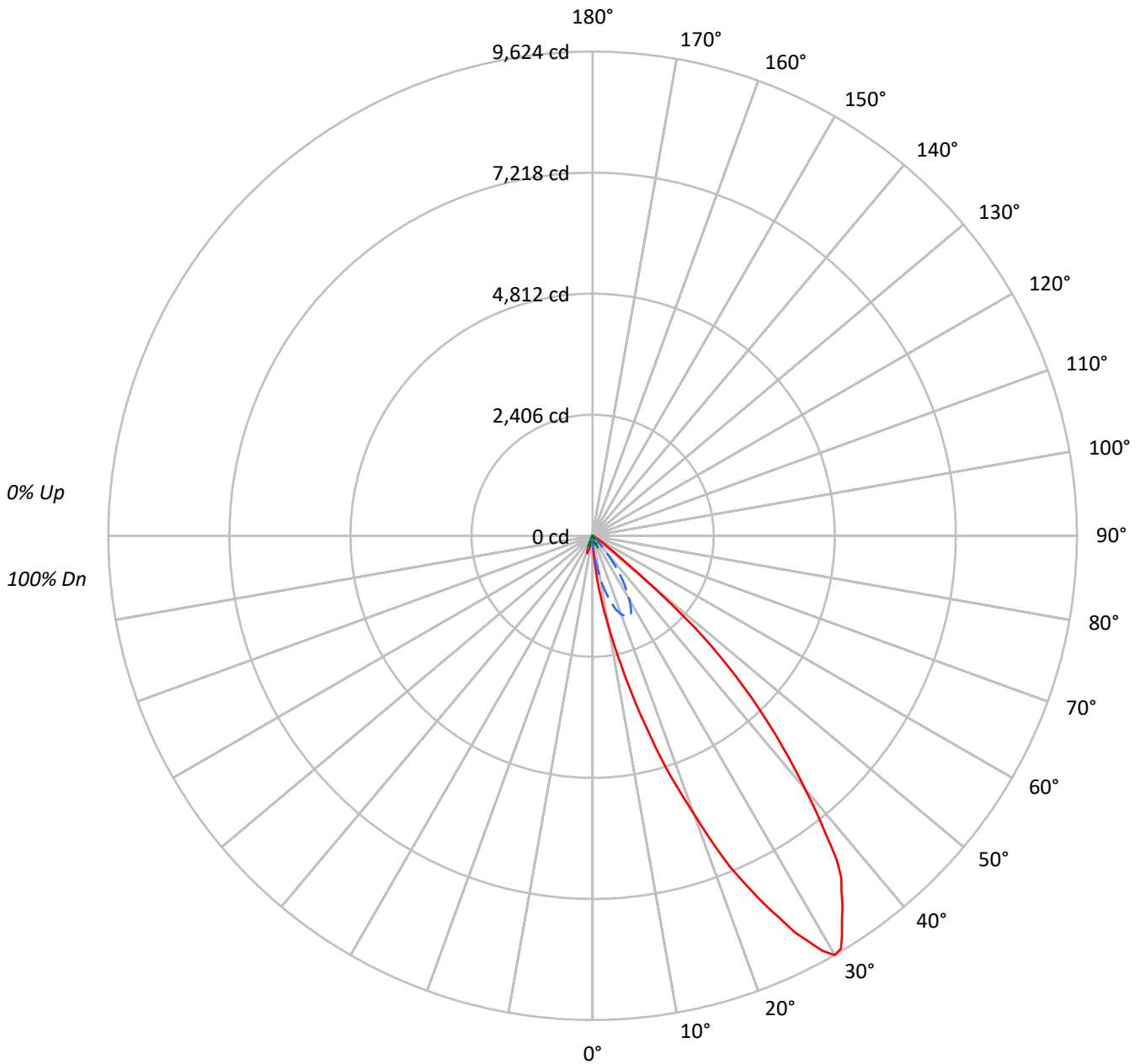
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	18218	18218	18218
5°	79168	17186	10413
10°	228278	15468	11322
15°	467753	17073	32690
20°	771714	31765	33104
25°	1099322	20278	11092
30°	1370677	8887	4358
35°	1298743	4020	1912
40°	1057796	2045	612
45°	740939	1116	0
50°	277648	729	0
55°	59159	817	0
60°	11323	617	0
65°	3356	1109	0
70°	902	1370	0
75°	0	1811	0
80°	0	2699	0
85°	0	5378	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	31.0	1.4
10°-20°	266.9	12.0
20°-30°	681.9	30.6
30°-40°	789.7	35.4
40°-50°	407.4	18.3
50°-60°	42.1	1.9
60°-70°	4.5	0.2
70°-80°	2.9	0.1
80°-90°	2.6	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°	979.8	44.0
0°-40°	1769.5	79.4
0°-60°	2219.0	99.6
0°-90°	2228.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2228.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	148	148	148	148	148	
5°	639	332	139	92	84	100
15°	3663	1341	134	178	256	1121
25°	8078	1751	149	93	82	3753
35°	8625	958	27	15	13	5282
45°	4248	112	6	4	0	3181
55°	275	17	4	2	0	345
65°	12	4	4	2	0	15
75°	0	2	4	4	0	0
85°	0	2	4	4	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°	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7
2.5°	254.7	245.8	239.4	242.0	256.0	240.7	242.0	236.9	234.4	231.8	225.4
5°	639.4	613.9	597.3	598.6	561.7	589.7	587.2	565.5	551.5	524.7	509.5
7.5°	1199.8	1145.0	1125.9	1119.5	1123.4	1096.6	1085.1	1057.1	1020.2	971.8	943.8
10°	1822.6	1789.5	1778.0	1757.6	1756.4	1709.2	1681.2	1645.6	1571.7	1504.2	1454.5
12.5°	2655.6	2553.7	2535.8	2497.6	2487.4	2407.2	2348.6	2296.4	2172.8	2083.7	2004.7
15°	3663.0	3580.2	3599.3	3482.2	3450.3	3319.1	3209.6	3097.5	2897.5	2761.3	2621.2
17.5°	4806.7	4701.0	4713.8	4567.3	4303.7	4327.9	4168.6	4014.5	3733.1	3550.9	3334.4
20°	5879.2	5804.0	5809.1	5614.2	5525.1	5283.1	5070.4	4887.0	4512.5	4280.7	3994.2
22.5°	7113.3	6918.5	6881.5	6616.6	6459.9	6135.2	5838.4	5595.1	5141.7	4880.6	4529.1
25°	8077.5	7943.7	7841.8	7528.5	7310.7	6887.9	6544.0	6183.6	5638.4	5349.3	4931.6
26°	8439.2	8313.1	8181.9	7844.4	7599.9	7152.8	6778.4	6391.2	5807.8	5498.3	5043.6
27°	8848.0	8641.7	8483.8	8105.5	7840.6	7370.6	6926.1	6560.6	5936.5	5593.9	5115.0
28°	9137.1	8930.8	8721.9	8310.5	8024.0	7532.3	7070.0	6671.4	6011.6	5639.7	5144.3
29°	9433.9	9214.8	8910.4	8462.1	8150.1	7633.0	7152.8	6726.1	6033.3	5637.2	5129.0
30°	9623.7	9403.3	9009.8	8547.4	8217.6	7673.7	7175.7	6715.9	5998.9	5586.2	5072.9
31°	9579.1	9376.6	8985.6	8556.4	8211.2	7649.5	7133.7	6643.3	5912.3	5495.8	4971.0
32°	9356.2	9184.3	8887.5	8496.5	8141.2	7566.7	7035.6	6528.7	5787.5	5390.1	4847.5
33°	9097.7	8955.0	8750.0	8375.5	8018.9	7441.9	6900.6	6387.3	5643.5	5246.2	4698.5
34°	8881.1	8752.5	8562.7	8212.5	7852.0	7275.1	6730.0	6209.0	5479.2	5076.8	4522.7
35°	8625.1	8508.0	8332.2	7992.1	7620.2	7050.9	6516.0	6002.7	5285.6	4875.5	4318.9
36°	8402.3	8217.6	8039.3	7708.1	7337.5	6779.6	6263.8	5760.7	5066.6	4645.0	4089.7
37°	8057.1	7872.4	7681.4	7368.0	7002.5	6468.9	5983.6	5502.2	4816.9	4471.8	3845.1
38°	7541.3	7455.9	7264.9	6966.8	6626.8	6126.2	5676.6	5207.9	4535.5	4136.8	3585.3
39°	7059.8	6989.8	6803.8	6531.3	6216.7	5758.2	5336.6	4876.8	4218.3	3841.3	3311.5
40°	6569.5	6499.4	6324.9	6079.1	5796.4	5374.8	4974.9	4524.0	3885.9	3536.9	3036.4
42.5°	5407.9	5335.3	5298.4	5047.5	4748.2	4386.4	4015.8	3608.2	3065.7	2779.1	2386.8
45°	4247.6	4181.4	4042.6	3939.4	3671.9	3371.3	3069.5	2737.1	2337.1	2054.4	1687.6
47.5°	3036.4	3004.5	3009.6	2818.6	2563.9	2327.0	2077.3	1776.7	1422.7	1067.3	783.3
50°	1446.9	1455.8	1491.4	1357.7	1166.7	1027.8	880.1	690.3	504.4	396.1	306.9
51°	937.4	947.6	978.2	882.6	743.8	649.6	555.3	448.3	357.9	304.4	243.3
52°	634.3	634.3	640.6	584.6	515.8	462.3	407.6	345.2	278.9	239.4	192.3
53°	476.3	475.1	477.6	440.7	393.6	354.1	315.9	270.0	220.3	187.2	149.0
54°	364.3	363.0	365.5	337.5	304.4	275.1	245.8	211.4	170.7	140.1	112.1
55°	275.1	275.1	278.9	257.3	231.8	208.9	187.2	157.9	126.1	101.9	81.5
57.5°	110.8	110.8	114.6	107.0	95.5	86.6	79.0	67.5	56.0	47.1	38.2
60°	45.9	47.1	48.4	44.6	42.0	39.5	36.9	33.1	29.3	24.2	20.4
61°	34.4	34.4	35.7	33.1	31.8	29.3	28.0	25.5	22.9	19.1	16.6
62°	25.5	25.5	26.7	25.5	24.2	22.9	21.7	20.4	17.8	15.3	12.7
63°	19.1	19.1	20.4	19.1	19.1	17.8	16.6	15.3	14.0	11.5	10.2
64°	15.3	15.3	15.3	14.0	14.0	14.0	12.7	12.7	10.2	8.9	7.6
65°	11.5	11.5	11.5	11.5	10.2	10.2	10.2	8.9	8.9	6.4	6.4
66°	8.9	8.9	8.9	7.6	7.6	7.6	7.6	7.6	6.4	5.1	3.8



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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	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
75°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3
80°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3
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°	67.5°	90°	112.5°
0°	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7	147.7
2.5°	228.0	226.7	214.0	214.0	219.1	211.4	207.6	198.7	170.7	145.2	122.3
5°	504.4	490.4	447.1	434.3	433.0	397.4	377.0	332.4	194.9	138.8	105.7
7.5°	931.0	889.0	815.1	775.7	727.3	699.2	649.6	573.1	221.6	129.9	95.5
10°	1376.8	1329.7	1220.2	1150.1	1113.2	1022.7	940.0	835.5	248.4	123.5	94.2
12.5°	1887.5	1781.8	1677.4	1552.6	1441.8	1361.5	1224.0	1101.7	266.2	122.3	103.2
15°	2440.3	2307.8	2129.5	1961.4	1804.8	1690.1	1505.5	1341.2	272.6	133.7	135.0
17.5°	3059.3	2810.9	2553.7	2324.4	2109.2	1955.0	1725.8	1532.2	268.7	164.3	215.2
20°	3638.8	3308.9	2960.0	2641.5	2337.1	2137.2	1872.3	1662.1	270.0	242.0	290.4
22.5°	4098.6	3697.4	3272.0	2883.5	2497.6	2258.2	1969.1	1730.9	303.1	258.6	197.4
25°	4437.4	3964.9	3477.1	3030.0	2623.7	2355.0	2037.8	1751.3	282.7	149.0	112.1
26°	4527.8	4029.8	3515.3	3051.7	2639.0	2355.0	2027.6	1729.6	244.5	118.4	93.0
27°	4578.8	4059.1	3521.6	3041.5	2619.9	2328.2	1990.7	1686.3	200.0	99.3	79.0
28°	4585.1	4046.4	3489.8	2999.4	2566.4	2270.9	1924.5	1620.1	165.6	84.1	65.0
29°	4550.7	3999.3	3428.7	2929.4	2484.9	2186.9	1834.1	1538.6	141.4	72.6	54.8
30°	4478.1	3916.5	3335.7	2835.1	2379.2	2085.0	1728.3	1448.1	123.5	62.4	45.9
31°	4373.7	3803.1	3235.1	2723.1	2268.4	1983.1	1629.0	1356.4	109.5	52.2	38.2
32°	4238.7	3669.4	3105.2	2602.1	2169.0	1886.3	1533.5	1263.5	98.1	44.6	31.8
33°	4088.4	3517.8	2963.8	2476.0	2073.5	1786.9	1432.9	1165.4	87.9	36.9	26.7
34°	3915.2	3351.0	2813.5	2349.9	1971.6	1677.4	1324.6	1064.8	76.4	30.6	22.9
35°	3717.8	3165.0	2651.7	2235.3	1858.3	1558.9	1211.2	957.8	67.5	26.7	19.1
36°	3503.8	2971.4	2488.7	2104.1	1736.0	1435.4	1091.5	849.5	58.6	22.9	16.6
37°	3279.6	2770.2	2325.7	1955.0	1601.0	1304.2	968.0	732.3	50.9	19.1	14.0
38°	3042.7	2567.7	2167.7	1813.7	1458.3	1162.8	841.9	603.7	44.6	16.6	12.7
39°	2800.8	2367.7	2011.1	1658.3	1311.9	1024.0	720.9	468.7	39.5	14.0	11.5
40°	2563.9	2179.2	1845.5	1488.9	1165.4	887.7	603.7	345.2	34.4	12.7	8.9
42.5°	2030.2	1673.6	1324.6	993.4	812.6	563.0	335.0	180.9	24.2	8.9	6.4
45°	1328.4	989.6	714.5	484.0	420.3	238.2	155.4	112.1	17.8	6.4	5.1
47.5°	550.2	401.2	278.9	201.2	163.0	127.4	99.3	72.6	12.7	5.1	5.1
50°	242.0	191.0	151.6	118.4	103.2	82.8	63.7	44.6	7.6	3.8	3.8
51°	193.6	154.1	118.4	94.2	84.1	67.5	52.2	35.7	7.6	3.8	3.8
52°	152.8	119.7	93.0	72.6	67.5	54.8	43.3	29.3	6.4	3.8	3.8
53°	117.2	90.4	70.1	57.3	53.5	44.6	35.7	24.2	5.1	3.8	3.8
54°	86.6	68.8	54.8	44.6	43.3	35.7	29.3	20.4	5.1	3.8	3.8
55°	63.7	53.5	42.0	35.7	34.4	29.3	24.2	16.6	5.1	3.8	3.8
57.5°	33.1	28.0	22.9	20.4	20.4	19.1	16.6	10.2	3.8	2.5	3.8
60°	17.8	15.3	12.7	11.5	14.0	12.7	11.5	6.4	3.8	2.5	3.8
61°	14.0	12.7	10.2	8.9	11.5	10.2	10.2	5.1	3.8	3.8	3.8
62°	11.5	10.2	8.9	7.6	10.2	8.9	8.9	5.1	3.8	3.8	3.8
63°	8.9	7.6	6.4	6.4	8.9	8.9	7.6	3.8	3.8	3.8	3.8
64°	6.4	6.4	5.1	5.1	7.6	7.6	6.4	3.8	3.8	3.8	3.8
65°	5.1	5.1	3.8	3.8	6.4	6.4	6.4	3.8	3.8	3.8	3.8
66°	3.8	3.8	3.8	2.5	5.1	6.4	6.4	2.5	3.8	3.8	3.8





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CATALOG NUMBER: LDA4A28930D010TE 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°	1.3	1.3	1.3	1.3	3.8	5.1	5.1	2.5	3.8	3.8	3.8
75°	1.3	1.3	1.3	1.3	3.8	5.1	5.1	2.5	3.8	3.8	3.8
77.5°	1.3	1.3	1.3	1.3	3.8	5.1	5.1	2.5	3.8	3.8	5.1
80°	1.3	1.3	1.3	1.3	3.8	5.1	5.1	2.5	3.8	3.8	5.1
82.5°	1.3	1.3	1.3	1.3	3.8	5.1	5.1	2.5	3.8	3.8	5.1
85°	1.3	1.3	1.3	1.3	3.8	5.1	5.1	2.5	3.8	3.8	5.1
87.5°	1.3	1.3	1.3	1.3	3.8	5.1	5.1	2.5	3.8	3.8	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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CATALOG NUMBER: LDA4A28930D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	147.7	147.7	147.7
2.5°	110.8	104.4	103.2
5°	91.7	85.3	84.1
7.5°	84.1	79.0	77.7
10°	86.6	87.9	90.4
12.5°	110.8	122.3	132.5
15°	178.3	224.2	256.0
17.5°	310.8	343.9	365.5
20°	272.6	250.9	252.2
22.5°	152.8	137.6	136.3
25°	93.0	84.1	81.5
26°	77.7	70.1	67.5
27°	63.7	57.3	54.8
28°	52.2	47.1	45.9
29°	44.6	38.2	36.9
30°	36.9	31.8	30.6
31°	30.6	26.7	25.5
32°	26.7	22.9	20.4
33°	21.7	19.1	17.8
34°	19.1	15.3	14.0
35°	15.3	12.7	12.7
36°	14.0	11.5	10.2
37°	11.5	8.9	8.9
38°	10.2	7.6	6.4
39°	8.9	6.4	5.1
40°	7.6	5.1	3.8
42.5°	5.1	2.5	1.3
45°	3.8	1.3	0.0
47.5°	2.5	1.3	0.0
50°	2.5	0.0	0.0
51°	2.5	0.0	0.0
52°	2.5	0.0	0.0
53°	2.5	0.0	0.0
54°	2.5	0.0	0.0
55°	2.5	0.0	0.0
57.5°	2.5	0.0	0.0
60°	2.5	0.0	0.0
61°	2.5	0.0	0.0
62°	2.5	0.0	0.0
63°	2.5	1.3	0.0
64°	2.5	1.3	0.0
65°	2.5	1.3	0.0
66°	2.5	1.3	0.0



TEST NUMBER: P170706

CATALOG NUMBER: LDA4A28930D010TE LAR25NF 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
72.5°	3.8	1.3	0.0
75°	3.8	1.3	0.0
77.5°	3.8	1.3	0.0
80°	3.8	1.3	0.0
82.5°	3.8	1.3	0.0
85°	3.8	1.3	0.0
87.5°	2.5	1.3	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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









67.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	3.8	2.5
70°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.3	1.3





67.5°	2.5	2.5	2.5	2.5	5.1	5.1	5.1	2.5	3.8	3.8	3.8
70°	1.3	1.3	1.3	2.5	3.8	5.1	5.1	2.5	3.8	3.8	3.8





67.5°	2.5	1.3	0.0
70°	2.5	1.3	0.0



(END OF REPORT)