

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: P170678

Luminaire Tested: **LDA4A18830D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170678
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: LDA4A18830D010TE 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 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1664.7 lumens
Efficiency: N/A
Efficacy: 57.2 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

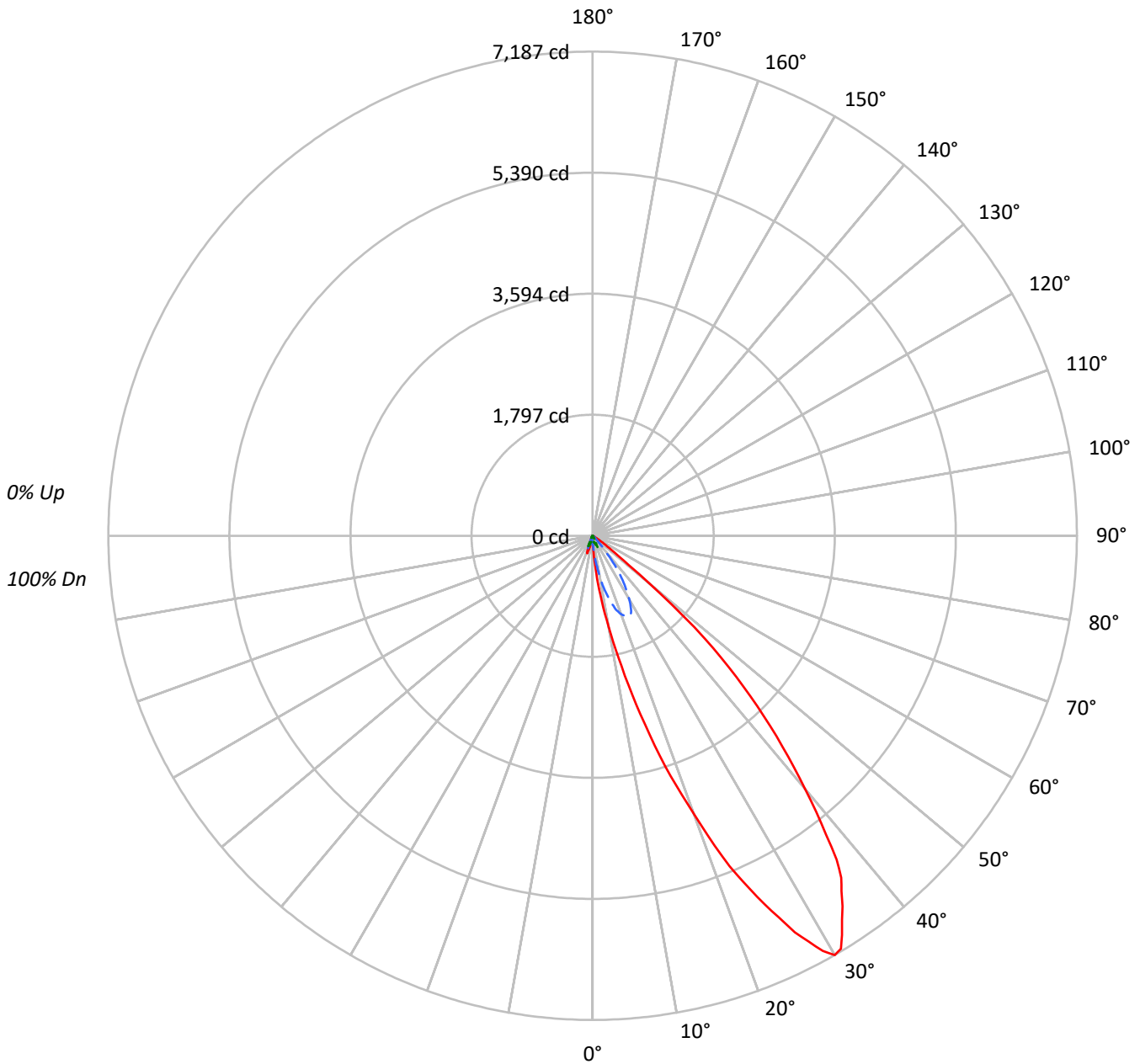
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	13605	13605	13605
5°	59123	12840	7776
10°	170476	11560	8454
15°	349315	12757	24416
20°	576304	23719	24717
25°	820963	15148	8288
30°	1023610	6637	3247
35°	969898	3012	1430
40°	789946	1530	467
45°	553332	837	0
50°	207339	556	0
55°	44171	624	0
60°	8437	469	0
65°	2510	846	0
70°	685	1046	0
75°	0	1382	0
80°	0	2060	0
85°	0	4104	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.1	1.4
10°-20°	199.3	12.0
20°-30°	509.2	30.6
30°-40°	589.7	35.4
40°-50°	304.3	18.3
50°-60°	31.4	1.9
60°-70°	3.4	0.2
70°-80°	2.2	0.1
80°-90°	2.0	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°	731.7	44.0
0°-40°	1321.4	79.4
0°-60°	1657.1	99.5
0°-90°	1664.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1664.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	110	110	110	110	110	
5°	478	248	104	68	63	74
15°	2736	1002	100	133	191	837
25°	6032	1308	111	69	61	2802
35°	6441	715	20	11	10	3944
45°	3172	84	5	3	0	2375
55°	205	12	3	2	0	257
65°	9	3	3	2	0	11
75°	0	2	3	3	0	0
85°	0	2	3	3	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°	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3
2.5°	190.2	183.6	178.8	180.7	191.2	179.8	180.7	176.9	175.0	173.1	168.4
5°	477.5	458.5	446.1	447.0	419.5	440.4	438.5	422.3	411.8	391.9	380.5
7.5°	896.0	855.1	840.8	836.1	838.9	818.9	810.4	789.5	761.9	725.7	704.8
10°	1361.1	1336.4	1327.8	1312.6	1311.6	1276.4	1255.5	1228.9	1173.7	1123.3	1086.2
12.5°	1983.1	1907.1	1893.7	1865.2	1857.6	1797.7	1753.9	1714.9	1622.7	1556.1	1497.1
15°	2735.5	2673.7	2687.9	2600.4	2576.7	2478.7	2396.9	2313.2	2163.9	2062.1	1957.5
17.5°	3589.6	3510.7	3520.2	3410.8	3213.9	3232.0	3113.1	2998.0	2787.8	2651.8	2490.1
20°	4390.5	4334.4	4338.2	4192.7	4126.1	3945.4	3786.5	3649.6	3369.9	3196.8	2982.8
22.5°	5312.2	5166.6	5139.1	4941.2	4824.2	4581.7	4360.1	4178.4	3839.8	3644.8	3382.3
25°	6032.2	5932.3	5856.2	5622.2	5459.6	5143.8	4887.0	4617.8	4210.7	3994.8	3682.8
26°	6302.3	6208.1	6110.2	5858.1	5675.5	5341.6	5062.0	4772.9	4337.2	4106.1	3766.5
27°	6607.6	6453.5	6335.6	6053.1	5855.3	5504.3	5172.3	4899.4	4433.3	4177.4	3819.8
28°	6823.5	6669.5	6513.5	6206.2	5992.2	5625.1	5279.8	4982.1	4489.4	4211.7	3841.7
29°	7045.2	6881.6	6654.2	6319.4	6086.4	5700.2	5341.6	5023.0	4505.6	4209.8	3830.3
30°	7186.9	7022.3	6728.4	6383.2	6136.8	5730.7	5358.8	5015.4	4479.9	4171.7	3788.4
31°	7153.6	7002.4	6710.4	6389.8	6132.1	5712.6	5327.4	4961.2	4415.2	4104.2	3712.3
32°	6987.1	6858.7	6637.1	6345.1	6079.7	5650.8	5254.1	4875.6	4322.0	4025.3	3620.1
33°	6794.1	6687.5	6534.4	6254.8	5988.4	5557.6	5153.3	4770.0	4214.5	3917.8	3508.8
34°	6632.4	6536.3	6394.6	6133.0	5863.8	5433.0	5025.9	4636.8	4091.8	3791.3	3377.5
35°	6441.2	6353.7	6222.4	5968.5	5690.7	5265.6	4866.1	4482.8	3947.3	3641.0	3225.3
36°	6274.7	6136.8	6003.6	5756.4	5479.6	5063.0	4677.7	4302.0	3783.7	3468.8	3054.1
37°	6017.0	5879.0	5736.4	5502.4	5229.4	4830.9	4468.5	4109.0	3597.2	3339.5	2871.5
38°	5631.7	5568.0	5425.4	5202.8	4948.8	4575.0	4239.3	3889.2	3387.0	3089.3	2677.5
39°	5272.2	5219.9	5081.0	4877.5	4642.6	4300.1	3985.3	3641.9	3150.2	2868.7	2473.0
40°	4906.0	4853.7	4723.4	4539.8	4328.7	4013.8	3715.2	3378.5	2902.0	2641.3	2267.5
42.5°	4038.6	3984.4	3956.8	3769.4	3545.9	3275.8	2999.0	2694.6	2289.4	2075.4	1782.5
45°	3172.1	3122.6	3018.9	2941.9	2742.2	2517.7	2292.3	2044.0	1745.4	1534.2	1260.3
47.5°	2267.5	2243.8	2247.6	2104.9	1914.7	1737.7	1551.3	1326.9	1062.4	797.1	585.0
50°	1080.5	1087.2	1113.8	1013.9	871.3	767.6	657.2	515.5	376.7	295.8	229.2
51°	700.0	707.7	730.5	659.1	555.5	485.1	414.7	334.8	267.3	227.3	181.7
52°	473.7	473.7	478.4	436.6	385.2	345.3	304.4	257.8	208.3	178.8	143.6
53°	355.7	354.8	356.7	329.1	293.9	264.4	235.9	201.6	164.5	139.8	111.3
54°	272.0	271.1	273.0	252.1	227.3	205.4	183.6	157.9	127.5	104.6	83.7
55°	205.4	205.4	208.3	192.1	173.1	156.0	139.8	117.9	94.2	76.1	60.9
57.5°	82.7	82.7	85.6	79.9	71.3	64.7	59.0	50.4	41.9	35.2	28.5
60°	34.2	35.2	36.1	33.3	31.4	29.5	27.6	24.7	21.9	18.1	15.2
61°	25.7	25.7	26.6	24.7	23.8	21.9	20.9	19.0	17.1	14.3	12.4
62°	19.0	19.0	20.0	19.0	18.1	17.1	16.2	15.2	13.3	11.4	9.5
63°	14.3	14.3	15.2	14.3	14.3	13.3	12.4	11.4	10.5	8.6	7.6
64°	11.4	11.4	11.4	10.5	10.5	10.5	9.5	9.5	7.6	6.7	5.7
65°	8.6	8.6	8.6	8.6	7.6	7.6	7.6	6.7	6.7	4.8	4.8
66°	6.7	6.7	6.7	5.7	5.7	5.7	5.7	5.7	4.8	3.8	2.9



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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	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
75°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0
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°	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3	110.3
2.5°	170.3	169.3	159.8	159.8	163.6	157.9	155.0	148.4	127.5	108.4	91.3
5°	376.7	366.2	333.9	324.3	323.4	296.8	281.5	248.2	145.5	103.7	78.9
7.5°	695.3	663.9	608.7	579.2	543.1	522.2	485.1	428.0	165.5	97.0	71.3
10°	1028.2	993.0	911.2	858.9	831.3	763.8	701.9	624.0	185.5	92.3	70.4
12.5°	1409.6	1330.7	1252.7	1159.4	1076.7	1016.8	914.1	822.7	198.8	91.3	77.0
15°	1822.4	1723.5	1590.3	1464.8	1347.8	1262.2	1124.3	1001.6	203.5	99.9	100.8
17.5°	2284.7	2099.2	1907.1	1735.8	1575.1	1460.0	1288.8	1144.2	200.7	122.7	160.7
20°	2717.4	2471.1	2210.5	1972.7	1745.4	1596.0	1398.2	1241.2	201.6	180.7	216.9
22.5°	3060.8	2761.2	2443.5	2153.4	1865.2	1686.4	1470.5	1292.6	226.4	193.1	147.4
25°	3313.8	2960.9	2596.6	2262.8	1959.4	1758.7	1521.8	1307.8	211.2	111.3	83.7
26°	3381.3	3009.4	2625.2	2279.0	1970.8	1758.7	1514.2	1291.7	182.6	88.5	69.4
27°	3419.4	3031.3	2629.9	2271.3	1956.5	1738.7	1486.6	1259.3	149.3	74.2	59.0
28°	3424.1	3021.8	2606.1	2240.0	1916.6	1695.9	1437.2	1209.9	123.6	62.8	48.5
29°	3398.5	2986.6	2560.5	2187.6	1855.7	1633.1	1369.7	1149.0	105.6	54.2	40.9
30°	3344.2	2924.8	2491.1	2117.3	1776.7	1557.0	1290.7	1081.5	92.3	46.6	34.2
31°	3266.2	2840.1	2415.9	2033.6	1694.0	1480.9	1216.5	1013.0	81.8	39.0	28.5
32°	3165.4	2740.3	2318.9	1943.2	1619.8	1408.7	1145.2	943.5	73.2	33.3	23.8
33°	3053.2	2627.1	2213.3	1849.0	1548.5	1334.5	1070.0	870.3	65.6	27.6	20.0
34°	2923.8	2502.5	2101.1	1754.9	1472.4	1252.7	989.2	795.2	57.1	22.8	17.1
35°	2776.4	2363.6	1980.3	1669.3	1387.7	1164.2	904.5	715.3	50.4	20.0	14.3
36°	2616.6	2219.0	1858.5	1571.3	1296.4	1071.9	815.1	634.4	43.8	17.1	12.4
37°	2449.2	2068.7	1736.8	1460.0	1195.6	974.0	722.9	546.9	38.0	14.3	10.5
38°	2272.3	1917.5	1618.9	1354.4	1089.1	868.4	628.7	450.8	33.3	12.4	9.5
39°	2091.6	1768.2	1501.9	1238.4	979.7	764.7	538.4	350.0	29.5	10.5	8.6
40°	1914.7	1627.4	1378.2	1111.9	870.3	663.0	450.8	257.8	25.7	9.5	6.7
42.5°	1516.1	1249.8	989.2	741.9	606.8	420.4	250.2	135.1	18.1	6.7	4.8
45°	992.0	739.0	533.6	361.4	313.9	177.9	116.0	83.7	13.3	4.8	3.8
47.5°	410.9	299.6	208.3	150.3	121.7	95.1	74.2	54.2	9.5	3.8	3.8
50°	180.7	142.7	113.2	88.5	77.0	61.8	47.6	33.3	5.7	2.9	2.9
51°	144.6	115.1	88.5	70.4	62.8	50.4	39.0	26.6	5.7	2.9	2.9
52°	114.1	89.4	69.4	54.2	50.4	40.9	32.3	21.9	4.8	2.9	2.9
53°	87.5	67.5	52.3	42.8	39.9	33.3	26.6	18.1	3.8	2.9	2.9
54°	64.7	51.4	40.9	33.3	32.3	26.6	21.9	15.2	3.8	2.9	2.9
55°	47.6	39.9	31.4	26.6	25.7	21.9	18.1	12.4	3.8	2.9	2.9
57.5°	24.7	20.9	17.1	15.2	15.2	14.3	12.4	7.6	2.9	1.9	2.9
60°	13.3	11.4	9.5	8.6	10.5	9.5	8.6	4.8	2.9	1.9	2.9
61°	10.5	9.5	7.6	6.7	8.6	7.6	7.6	3.8	2.9	2.9	2.9
62°	8.6	7.6	6.7	5.7	7.6	6.7	6.7	3.8	2.9	2.9	2.9
63°	6.7	5.7	4.8	4.8	6.7	6.7	5.7	2.9	2.9	2.9	2.9
64°	4.8	4.8	3.8	3.8	5.7	5.7	4.8	2.9	2.9	2.9	2.9
65°	3.8	3.8	2.9	2.9	4.8	4.8	4.8	2.9	2.9	2.9	2.9
66°	2.9	2.9	2.9	1.9	3.8	4.8	4.8	1.9	2.9	2.9	2.9



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CATALOG NUMBER: LDA4A18830D010TE 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°	1.0	1.0	1.0	1.0	2.9	3.8	3.8	1.9	2.9	2.9	2.9
75°	1.0	1.0	1.0	1.0	2.9	3.8	3.8	1.9	2.9	2.9	2.9
77.5°	1.0	1.0	1.0	1.0	2.9	3.8	3.8	1.9	2.9	2.9	3.8
80°	1.0	1.0	1.0	1.0	2.9	3.8	3.8	1.9	2.9	2.9	3.8
82.5°	1.0	1.0	1.0	1.0	2.9	3.8	3.8	1.9	2.9	2.9	3.8
85°	1.0	1.0	1.0	1.0	2.9	3.8	3.8	1.9	2.9	2.9	3.8
87.5°	1.0	1.0	1.0	1.0	2.9	3.8	3.8	1.9	2.9	2.9	3.8
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: LDA4A18830D010TE LAR25NF 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	110.3	110.3	110.3
2.5°	82.7	78.0	77.0
5°	68.5	63.7	62.8
7.5°	62.8	59.0	58.0
10°	64.7	65.6	67.5
12.5°	82.7	91.3	98.9
15°	133.2	167.4	191.2
17.5°	232.1	256.8	273.0
20°	203.5	187.4	188.3
22.5°	114.1	102.7	101.8
25°	69.4	62.8	60.9
26°	58.0	52.3	50.4
27°	47.6	42.8	40.9
28°	39.0	35.2	34.2
29°	33.3	28.5	27.6
30°	27.6	23.8	22.8
31°	22.8	20.0	19.0
32°	20.0	17.1	15.2
33°	16.2	14.3	13.3
34°	14.3	11.4	10.5
35°	11.4	9.5	9.5
36°	10.5	8.6	7.6
37°	8.6	6.7	6.7
38°	7.6	5.7	4.8
39°	6.7	4.8	3.8
40°	5.7	3.8	2.9
42.5°	3.8	1.9	1.0
45°	2.9	1.0	0.0
47.5°	1.9	1.0	0.0
50°	1.9	0.0	0.0
51°	1.9	0.0	0.0
52°	1.9	0.0	0.0
53°	1.9	0.0	0.0
54°	1.9	0.0	0.0
55°	1.9	0.0	0.0
57.5°	1.9	0.0	0.0
60°	1.9	0.0	0.0
61°	1.9	0.0	0.0
62°	1.9	0.0	0.0
63°	1.9	1.0	0.0
64°	1.9	1.0	0.0
65°	1.9	1.0	0.0
66°	1.9	1.0	0.0



TEST NUMBER: P170678

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	2.9	1.0	0.0
75°	2.9	1.0	0.0
77.5°	2.9	1.0	0.0
80°	2.9	1.0	0.0
82.5°	2.9	1.0	0.0
85°	2.9	1.0	0.0
87.5°	1.9	1.0	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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







67.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	2.9	1.9
70°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.0	1.0





67.5°	1.9	1.9	1.9	1.9	3.8	3.8	3.8	1.9	2.9	2.9	2.9
70°	1.0	1.0	1.0	1.9	2.9	3.8	3.8	1.9	2.9	2.9	2.9





67.5°	1.9	1.0	0.0
70°	1.9	1.0	0.0



(END OF REPORT)