

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: P170679

Luminaire Tested: **LDA4A18835D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170679
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: LDA4A18835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1750.0 lumens
Efficiency: N/A
Efficacy: 60.1 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

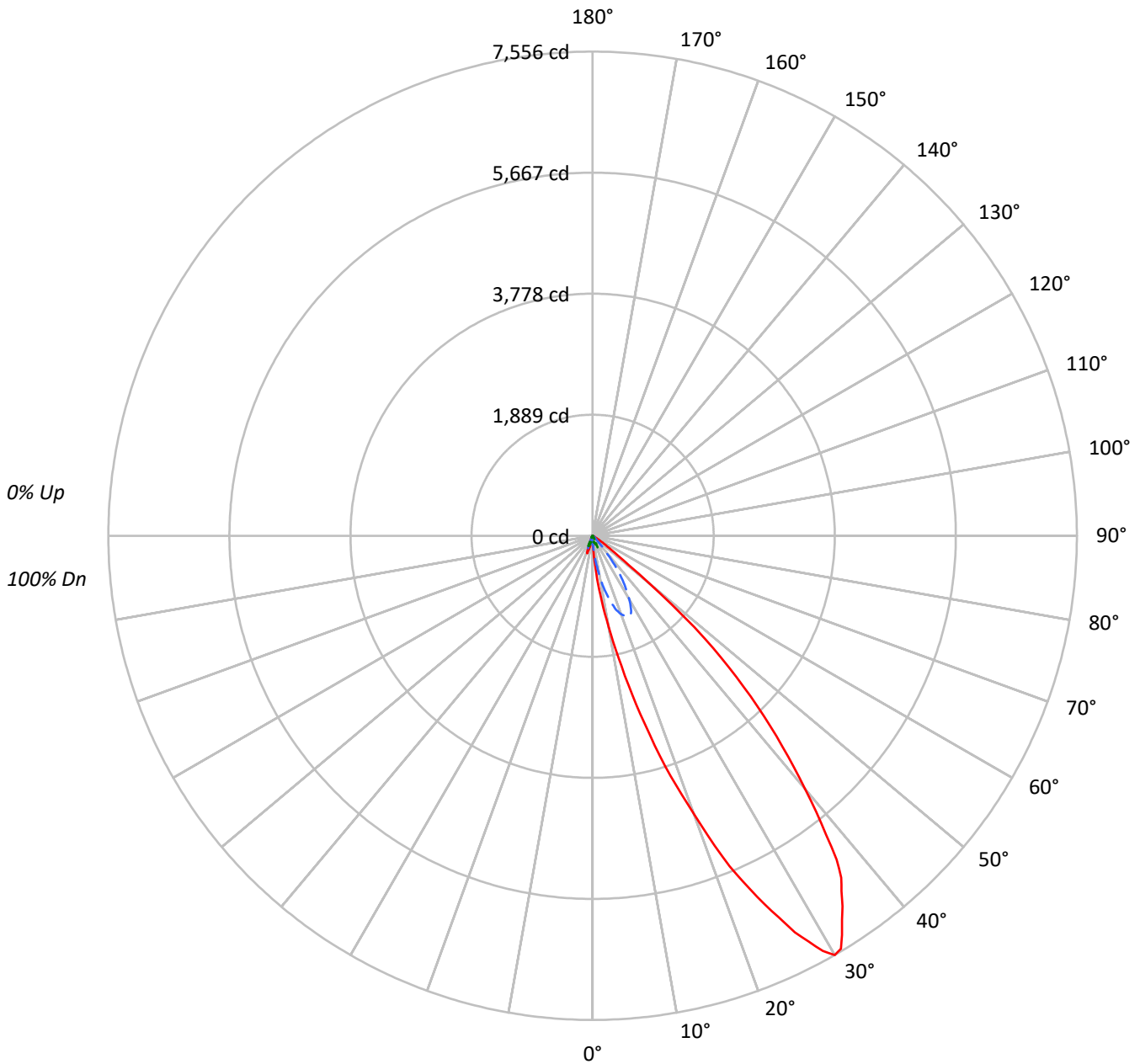
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	58	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	38	48	42	37	47	41	37	46	41	37	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	14308	14308	14308
5°	62156	13496	8172
10°	179218	12149	8893
15°	367243	13408	25667
20°	605878	24940	25990
25°	863099	15923	8710
30°	1076138	6979	3418
35°	1019664	3162	1506
40°	830490	1610	483
45°	581730	872	0
50°	217989	576	0
55°	46450	645	0
60°	8881	493	0
65°	2627	876	0
70°	721	1082	0
75°	0	1430	0
80°	0	2131	0
85°	0	4246	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.3	1.4
10°-20°	209.6	12.0
20°-30°	535.3	30.6
30°-40°	620.0	35.4
40°-50°	319.9	18.3
50°-60°	33.0	1.9
60°-70°	3.6	0.2
70°-80°	2.3	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°	769.2	44.0
0°-40°	1389.2	79.4
0°-60°	1742.2	99.6
0°-90°	1750.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1750.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	116	116	116	116	116	
5°	502	261	109	72	66	78
15°	2876	1053	105	140	201	880
25°	6342	1375	117	73	64	2946
35°	6772	752	21	12	10	4147
45°	3335	88	5	3	0	2497
55°	216	13	3	2	0	271
65°	9	3	3	2	0	12
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°	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0
2.5°	200.0	193.0	188.0	190.0	201.0	189.0	190.0	186.0	184.0	182.0	177.0
5°	502.0	482.0	469.0	470.0	441.0	463.0	461.0	444.0	433.0	412.0	400.0
7.5°	942.0	899.0	884.0	879.0	882.0	861.0	852.0	830.0	801.0	763.0	741.0
10°	1430.9	1404.9	1395.9	1379.9	1378.9	1341.9	1320.0	1292.0	1234.0	1181.0	1142.0
12.5°	2084.9	2004.9	1990.9	1960.9	1952.9	1889.9	1843.9	1802.9	1705.9	1635.9	1573.9
15°	2875.9	2810.9	2825.9	2733.9	2708.9	2605.9	2519.9	2431.9	2274.9	2167.9	2057.9
17.5°	3773.9	3690.9	3700.9	3585.9	3378.9	3397.9	3272.9	3151.9	2930.9	2787.9	2617.9
20°	4615.8	4556.8	4560.8	4407.8	4337.8	4147.8	3980.9	3836.9	3542.9	3360.9	3135.9
22.5°	5584.8	5431.8	5402.8	5194.8	5071.8	4816.8	4583.8	4392.8	4036.8	3831.9	3555.9
25°	6341.8	6236.8	6156.8	5910.8	5739.8	5407.8	5137.8	4854.8	4426.8	4199.8	3871.9
26°	6625.8	6526.8	6423.8	6158.8	5966.8	5615.8	5321.8	5017.8	4559.8	4316.8	3959.9
27°	6946.7	6784.7	6660.8	6363.8	6155.8	5786.8	5437.8	5150.8	4660.8	4391.8	4015.8
28°	7173.7	7011.7	6847.7	6524.8	6299.8	5913.8	5550.8	5237.8	4719.8	4427.8	4038.8
29°	7406.7	7234.7	6995.7	6643.8	6398.8	5992.8	5615.8	5280.8	4736.8	4425.8	4026.8
30°	7555.7	7382.7	7073.7	6710.7	6451.8	6024.8	5633.8	5272.8	4709.8	4385.8	3982.9
31°	7520.7	7361.7	7054.7	6717.7	6446.8	6005.8	5600.8	5215.8	4641.8	4314.8	3902.9
32°	7345.7	7210.7	6977.7	6670.7	6391.8	5940.8	5523.8	5125.8	4543.8	4231.8	3805.9
33°	7142.7	7030.7	6869.7	6575.8	6295.8	5842.8	5417.8	5014.8	4430.8	4118.8	3688.9
34°	6972.7	6871.7	6722.7	6447.8	6164.8	5711.8	5283.8	4874.8	4301.8	3985.9	3550.9
35°	6771.7	6679.7	6541.8	6274.8	5982.8	5535.8	5115.8	4712.8	4149.8	3827.9	3390.9
36°	6596.8	6451.8	6311.8	6051.8	5760.8	5322.8	4917.8	4522.8	3977.9	3646.9	3210.9
37°	6325.8	6180.8	6030.8	5784.8	5497.8	5078.8	4697.8	4319.8	3781.9	3510.9	3018.9
38°	5920.8	5853.8	5703.8	5469.8	5202.8	4809.8	4456.8	4088.8	3560.9	3247.9	2814.9
39°	5542.8	5487.8	5341.8	5127.8	4880.8	4520.8	4189.8	3828.9	3311.9	3015.9	2599.9
40°	5157.8	5102.8	4965.8	4772.8	4550.8	4219.8	3905.9	3551.9	3050.9	2776.9	2383.9
42.5°	4245.8	4188.8	4159.8	3962.9	3727.9	3443.9	3152.9	2832.9	2406.9	2181.9	1873.9
45°	3334.9	3282.9	3173.9	3092.9	2882.9	2646.9	2409.9	2148.9	1834.9	1612.9	1325.0
47.5°	2383.9	2358.9	2362.9	2212.9	2012.9	1826.9	1630.9	1394.9	1117.0	838.0	615.0
50°	1136.0	1143.0	1171.0	1066.0	916.0	807.0	691.0	542.0	396.0	311.0	241.0
51°	736.0	744.0	768.0	693.0	584.0	510.0	436.0	352.0	281.0	239.0	191.0
52°	498.0	498.0	503.0	459.0	405.0	363.0	320.0	271.0	219.0	188.0	151.0
53°	374.0	373.0	375.0	346.0	309.0	278.0	248.0	212.0	173.0	147.0	117.0
54°	286.0	285.0	287.0	265.0	239.0	216.0	193.0	166.0	134.0	110.0	88.0
55°	216.0	216.0	219.0	202.0	182.0	164.0	147.0	124.0	99.0	80.0	64.0
57.5°	87.0	87.0	90.0	84.0	75.0	68.0	62.0	53.0	44.0	37.0	30.0
60°	36.0	37.0	38.0	35.0	33.0	31.0	29.0	26.0	23.0	19.0	16.0
61°	27.0	27.0	28.0	26.0	25.0	23.0	22.0	20.0	18.0	15.0	13.0
62°	20.0	20.0	21.0	20.0	19.0	18.0	17.0	16.0	14.0	12.0	10.0
63°	15.0	15.0	16.0	15.0	15.0	14.0	13.0	12.0	11.0	9.0	8.0
64°	12.0	12.0	12.0	11.0	11.0	11.0	10.0	10.0	8.0	7.0	6.0
65°	9.0	9.0	9.0	9.0	8.0	8.0	8.0	7.0	7.0	5.0	5.0
66°	7.0	7.0	7.0	6.0	6.0	6.0	6.0	6.0	5.0	4.0	3.0



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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°	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0
2.5°	179.0	178.0	168.0	168.0	172.0	166.0	163.0	156.0	134.0	114.0	96.0
5°	396.0	385.0	351.0	341.0	340.0	312.0	296.0	261.0	153.0	109.0	83.0
7.5°	731.0	698.0	640.0	609.0	571.0	549.0	510.0	450.0	174.0	102.0	75.0
10°	1081.0	1044.0	958.0	903.0	874.0	803.0	738.0	656.0	195.0	97.0	74.0
12.5°	1481.9	1398.9	1317.0	1219.0	1132.0	1069.0	961.0	865.0	209.0	96.0	81.0
15°	1915.9	1811.9	1671.9	1539.9	1416.9	1327.0	1182.0	1053.0	214.0	105.0	106.0
17.5°	2401.9	2206.9	2004.9	1824.9	1655.9	1534.9	1354.9	1203.0	211.0	129.0	169.0
20°	2856.9	2597.9	2323.9	2073.9	1834.9	1677.9	1469.9	1305.0	212.0	190.0	228.0
22.5°	3217.9	2902.9	2568.9	2263.9	1960.9	1772.9	1545.9	1358.9	238.0	203.0	155.0
25°	3483.9	3112.9	2729.9	2378.9	2059.9	1848.9	1599.9	1374.9	222.0	117.0	88.0
26°	3554.9	3163.9	2759.9	2395.9	2071.9	1848.9	1591.9	1357.9	192.0	93.0	73.0
27°	3594.9	3186.9	2764.9	2387.9	2056.9	1827.9	1562.9	1324.0	157.0	78.0	62.0
28°	3599.9	3176.9	2739.9	2354.9	2014.9	1782.9	1510.9	1272.0	130.0	66.0	51.0
29°	3572.9	3139.9	2691.9	2299.9	1950.9	1716.9	1439.9	1208.0	111.0	57.0	43.0
30°	3515.9	3074.9	2618.9	2225.9	1867.9	1636.9	1356.9	1137.0	97.0	49.0	36.0
31°	3433.9	2985.9	2539.9	2137.9	1780.9	1556.9	1279.0	1065.0	86.0	41.0	30.0
32°	3327.9	2880.9	2437.9	2042.9	1702.9	1480.9	1204.0	992.0	77.0	35.0	25.0
33°	3209.9	2761.9	2326.9	1943.9	1627.9	1402.9	1125.0	915.0	69.0	29.0	21.0
34°	3073.9	2630.9	2208.9	1844.9	1547.9	1317.0	1040.0	836.0	60.0	24.0	18.0
35°	2918.9	2484.9	2081.9	1754.9	1458.9	1224.0	951.0	752.0	53.0	21.0	15.0
36°	2750.9	2332.9	1953.9	1651.9	1362.9	1127.0	857.0	667.0	46.0	18.0	13.0
37°	2574.9	2174.9	1825.9	1534.9	1257.0	1024.0	760.0	575.0	40.0	15.0	11.0
38°	2388.9	2015.9	1701.9	1423.9	1145.0	913.0	661.0	474.0	35.0	13.0	10.0
39°	2198.9	1858.9	1578.9	1302.0	1030.0	804.0	566.0	368.0	31.0	11.0	9.0
40°	2012.9	1710.9	1448.9	1169.0	915.0	697.0	474.0	271.0	27.0	10.0	7.0
42.5°	1593.9	1314.0	1040.0	780.0	638.0	442.0	263.0	142.0	19.0	7.0	5.0
45°	1043.0	777.0	561.0	380.0	330.0	187.0	122.0	88.0	14.0	5.0	4.0
47.5°	432.0	315.0	219.0	158.0	128.0	100.0	78.0	57.0	10.0	4.0	4.0
50°	190.0	150.0	119.0	93.0	81.0	65.0	50.0	35.0	6.0	3.0	3.0
51°	152.0	121.0	93.0	74.0	66.0	53.0	41.0	28.0	6.0	3.0	3.0
52°	120.0	94.0	73.0	57.0	53.0	43.0	34.0	23.0	5.0	3.0	3.0
53°	92.0	71.0	55.0	45.0	42.0	35.0	28.0	19.0	4.0	3.0	3.0
54°	68.0	54.0	43.0	35.0	34.0	28.0	23.0	16.0	4.0	3.0	3.0
55°	50.0	42.0	33.0	28.0	27.0	23.0	19.0	13.0	4.0	3.0	3.0
57.5°	26.0	22.0	18.0	16.0	16.0	15.0	13.0	8.0	3.0	2.0	3.0
60°	14.0	12.0	10.0	9.0	11.0	10.0	9.0	5.0	3.0	2.0	3.0
61°	11.0	10.0	8.0	7.0	9.0	8.0	8.0	4.0	3.0	3.0	3.0
62°	9.0	8.0	7.0	6.0	8.0	7.0	7.0	4.0	3.0	3.0	3.0
63°	7.0	6.0	5.0	5.0	7.0	7.0	6.0	3.0	3.0	3.0	3.0
64°	5.0	5.0	4.0	4.0	6.0	6.0	5.0	3.0	3.0	3.0	3.0
65°	4.0	4.0	3.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0
66°	3.0	3.0	3.0	2.0	4.0	5.0	5.0	2.0	3.0	3.0	3.0



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CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
72.5°	1.0	1.0	1.0	1.0	3.0	4.0	4.0	2.0	3.0	3.0	3.0
75°	1.0	1.0	1.0	1.0	3.0	4.0	4.0	2.0	3.0	3.0	3.0
77.5°	1.0	1.0	1.0	1.0	3.0	4.0	4.0	2.0	3.0	3.0	4.0
80°	1.0	1.0	1.0	1.0	3.0	4.0	4.0	2.0	3.0	3.0	4.0
82.5°	1.0	1.0	1.0	1.0	3.0	4.0	4.0	2.0	3.0	3.0	4.0
85°	1.0	1.0	1.0	1.0	3.0	4.0	4.0	2.0	3.0	3.0	4.0
87.5°	1.0	1.0	1.0	1.0	3.0	4.0	4.0	2.0	3.0	3.0	4.0
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):

	135°	157.5°	180°
0°	116.0	116.0	116.0
2.5°	87.0	82.0	81.0
5°	72.0	67.0	66.0
7.5°	66.0	62.0	61.0
10°	68.0	69.0	71.0
12.5°	87.0	96.0	104.0
15°	140.0	176.0	201.0
17.5°	244.0	270.0	287.0
20°	214.0	197.0	198.0
22.5°	120.0	108.0	107.0
25°	73.0	66.0	64.0
26°	61.0	55.0	53.0
27°	50.0	45.0	43.0
28°	41.0	37.0	36.0
29°	35.0	30.0	29.0
30°	29.0	25.0	24.0
31°	24.0	21.0	20.0
32°	21.0	18.0	16.0
33°	17.0	15.0	14.0
34°	15.0	12.0	11.0
35°	12.0	10.0	10.0
36°	11.0	9.0	8.0
37°	9.0	7.0	7.0
38°	8.0	6.0	5.0
39°	7.0	5.0	4.0
40°	6.0	4.0	3.0
42.5°	4.0	2.0	1.0
45°	3.0	1.0	0.0
47.5°	2.0	1.0	0.0
50°	2.0	0.0	0.0
51°	2.0	0.0	0.0
52°	2.0	0.0	0.0
53°	2.0	0.0	0.0
54°	2.0	0.0	0.0
55°	2.0	0.0	0.0
57.5°	2.0	0.0	0.0
60°	2.0	0.0	0.0
61°	2.0	0.0	0.0
62°	2.0	0.0	0.0
63°	2.0	1.0	0.0
64°	2.0	1.0	0.0
65°	2.0	1.0	0.0
66°	2.0	1.0	0.0



TEST NUMBER: P170679

CATALOG NUMBER: LDA4A18835D010TE LAR25NF 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
72.5°	3.0	1.0	0.0
75°	3.0	1.0	0.0
77.5°	3.0	1.0	0.0
80°	3.0	1.0	0.0
82.5°	3.0	1.0	0.0
85°	3.0	1.0	0.0
87.5°	2.0	1.0	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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







67.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	2.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0





67.5°	2.0	2.0	2.0	2.0	4.0	4.0	4.0	2.0	3.0	3.0	3.0
70°	1.0	1.0	1.0	2.0	3.0	4.0	4.0	2.0	3.0	3.0	3.0





67.5°	2.0	1.0	0.0
70°	2.0	1.0	0.0



(END OF REPORT)