

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: P170685

Luminaire Tested: **LDA4A09827D010TE LAR25NF 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170685
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: LDA4A09827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 836.3 lumens
Efficiency: N/A
Efficacy: 60.4 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

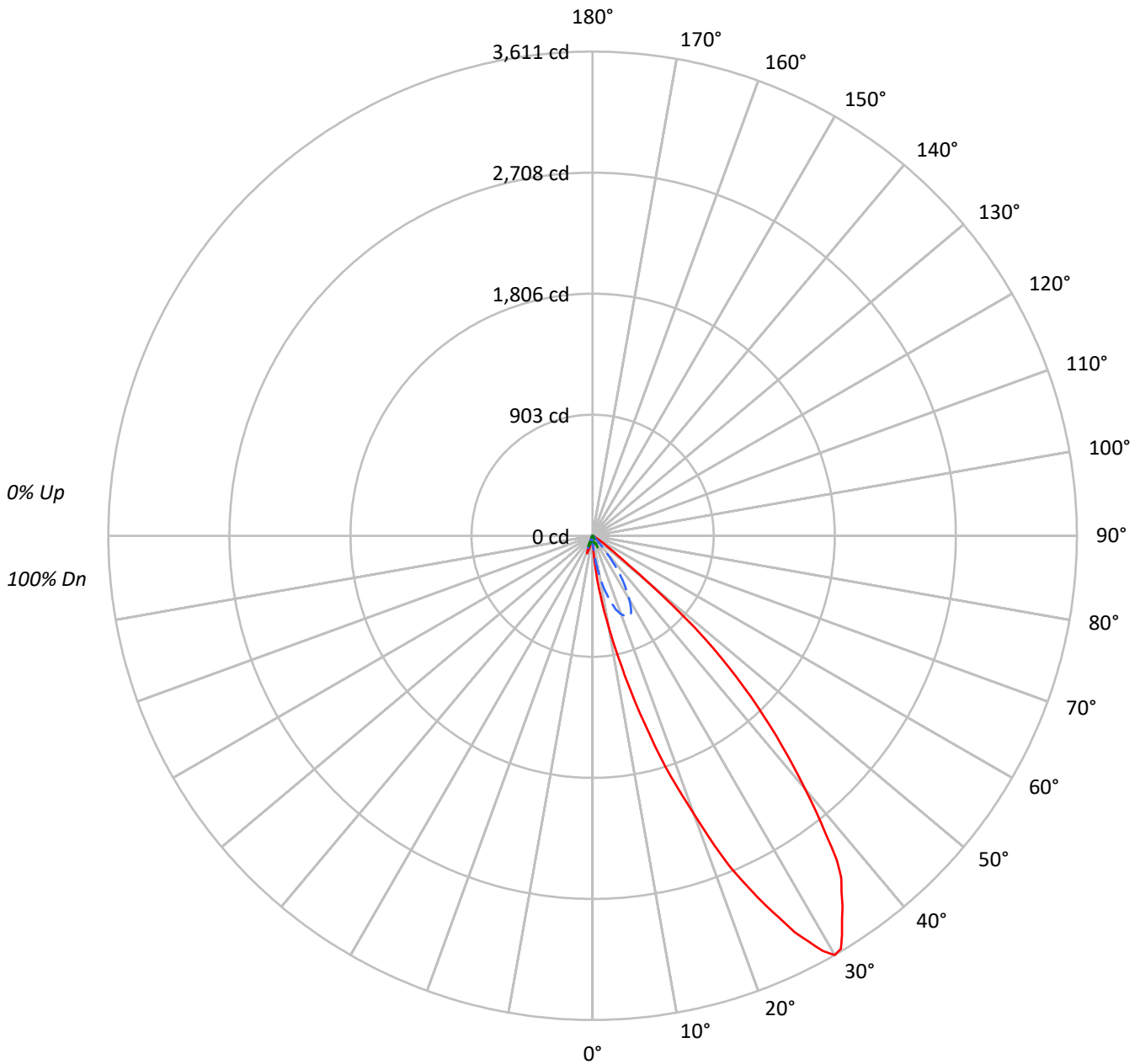
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	6833	6833	6833
5°	29704	6451	3900
10°	85645	5812	4246
15°	175506	6410	12272
20°	289550	11919	12417
25°	412469	7608	4165
30°	514291	3333	1638
35°	487298	1506	723
40°	396889	773	225
45°	278000	419	0
50°	104178	269	0
55°	22193	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°	100.2	12.0
20°-30°	255.8	30.6
30°-40°	296.3	35.4
40°-50°	152.9	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°	367.6	44.0
0°-40°	663.9	79.4
0°-60°	832.6	99.6
0°-90°	836.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	836.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	55	55	55	55	55	
5°	240	125	52	34	32	37
15°	1374	503	50	67	96	421
25°	3031	657	56	35	31	1408
35°	3236	359	10	6	5	1982
45°	1594	42	2	1	0	1193
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°	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4
2.5°	95.6	92.2	89.8	90.8	96.1	90.3	90.8	88.9	87.9	87.0	84.6
5°	239.9	230.3	224.1	224.6	210.7	221.3	220.3	212.2	206.9	196.9	191.2
7.5°	450.2	429.6	422.4	420.1	421.5	411.5	407.2	396.6	382.8	364.6	354.1
10°	683.8	671.4	667.1	659.5	659.0	641.3	630.8	617.4	589.7	564.4	545.7
12.5°	996.4	958.2	951.5	937.1	933.3	903.2	881.2	861.6	815.3	781.8	752.2
15°	1374.4	1343.3	1350.5	1306.5	1294.6	1245.4	1204.3	1162.2	1087.2	1036.0	983.5
17.5°	1803.5	1763.9	1768.6	1713.7	1614.8	1623.8	1564.1	1506.3	1400.7	1332.3	1251.1
20°	2205.9	2177.7	2179.6	2106.5	2073.0	1982.3	1902.4	1833.6	1693.1	1606.2	1498.6
22.5°	2669.0	2595.9	2582.0	2482.6	2423.8	2302.0	2190.6	2099.3	1929.2	1831.2	1699.3
25°	3030.7	2980.5	2942.3	2824.8	2743.0	2584.4	2455.4	2320.1	2115.6	2007.1	1850.4
26°	3166.4	3119.1	3069.9	2943.3	2851.5	2683.8	2543.3	2398.0	2179.1	2063.0	1892.4
27°	3319.8	3242.4	3183.2	3041.2	2941.8	2765.5	2598.7	2461.6	2227.4	2098.9	1919.2
28°	3428.3	3350.9	3272.5	3118.2	3010.7	2826.2	2652.7	2503.1	2255.6	2116.1	1930.2
29°	3539.7	3457.5	3343.3	3175.0	3058.0	2863.9	2683.8	2523.7	2263.7	2115.1	1924.4
30°	3610.9	3528.2	3380.5	3207.1	3083.3	2879.2	2692.4	2519.9	2250.8	2096.0	1903.4
31°	3594.1	3518.2	3371.5	3210.4	3080.9	2870.2	2676.6	2492.6	2218.3	2062.1	1865.2
32°	3510.5	3446.0	3334.7	3187.9	3054.6	2839.1	2639.8	2449.6	2171.5	2022.4	1818.8
33°	3413.5	3360.0	3283.0	3142.5	3008.7	2792.3	2589.2	2396.6	2117.5	1968.4	1762.9
34°	3332.3	3284.0	3212.8	3081.4	2946.1	2729.7	2525.1	2329.7	2055.8	1904.8	1697.0
35°	3236.2	3192.2	3126.3	2998.7	2859.2	2645.6	2444.8	2252.3	1983.2	1829.3	1620.5
36°	3152.6	3083.3	3016.4	2892.1	2753.1	2543.8	2350.2	2161.5	1901.0	1742.8	1534.5
37°	3023.1	2953.8	2882.1	2764.5	2627.4	2427.2	2245.1	2064.4	1807.3	1677.8	1442.7
38°	2829.5	2797.5	2725.8	2614.0	2486.4	2298.6	2129.9	1954.1	1701.7	1552.2	1345.2
39°	2648.9	2622.6	2552.8	2450.6	2332.5	2160.5	2002.3	1829.8	1582.7	1441.3	1242.5
40°	2464.9	2438.6	2373.2	2280.9	2174.8	2016.7	1866.6	1697.4	1458.0	1327.1	1139.3
42.5°	2029.1	2001.8	1988.0	1893.8	1781.5	1645.8	1506.8	1353.8	1150.3	1042.7	895.5
45°	1593.7	1568.9	1516.8	1478.1	1377.7	1265.0	1151.7	1027.0	876.9	770.8	633.2
47.5°	1139.3	1127.3	1129.2	1057.6	962.0	873.1	779.4	666.6	533.8	400.5	293.9
50°	542.9	546.2	559.6	509.4	437.7	385.7	330.2	259.0	189.2	148.6	115.2
51°	351.7	355.5	367.0	331.2	279.1	243.7	208.4	168.2	134.3	114.2	91.3
52°	238.0	238.0	240.4	219.3	193.5	173.5	152.9	129.5	104.7	89.8	72.2
53°	178.7	178.2	179.2	165.3	147.7	132.9	118.5	101.3	82.7	70.2	55.9
54°	136.7	136.2	137.2	126.6	114.2	103.2	92.2	79.3	64.0	52.6	42.1
55°	103.2	103.2	104.7	96.5	87.0	78.4	70.2	59.3	47.3	38.2	30.6
57.5°	41.6	41.6	43.0	40.1	35.8	32.5	29.6	25.3	21.0	17.7	14.3
60°	17.2	17.7	18.2	16.7	15.8	14.8	13.9	12.4	11.0	9.1	7.6
61°	12.9	12.9	13.4	12.4	11.9	11.0	10.5	9.6	8.6	7.2	6.2
62°	9.6	9.6	10.0	9.6	9.1	8.6	8.1	7.6	6.7	5.7	4.8
63°	7.2	7.2	7.6	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	3.3	2.9
65°	4.3	4.3	4.3	4.3	3.8	3.8	3.8	3.3	3.3	2.4	2.4
66°	3.3	3.3	3.3	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°	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4
2.5°	85.5	85.1	80.3	80.3	82.2	79.3	77.9	74.5	64.0	54.5	45.9
5°	189.2	184.0	167.7	163.0	162.5	149.1	141.5	124.7	73.1	52.1	39.7
7.5°	349.3	333.6	305.8	291.0	272.9	262.4	243.7	215.0	83.2	48.7	35.8
10°	516.6	498.9	457.8	431.5	417.7	383.7	352.7	313.5	93.2	46.4	35.4
12.5°	708.2	668.6	629.4	582.5	541.0	510.9	459.2	413.4	99.9	45.9	38.7
15°	915.6	865.9	799.0	735.9	677.2	634.1	564.9	503.2	102.3	50.2	50.7
17.5°	1147.9	1054.7	958.2	872.1	791.4	733.5	647.5	574.9	100.8	61.6	80.8
20°	1365.3	1241.5	1110.6	991.1	876.9	801.9	702.5	623.6	101.3	90.8	109.0
22.5°	1537.8	1387.3	1227.7	1081.9	937.1	847.3	738.8	649.4	113.7	97.0	74.1
25°	1664.9	1487.6	1304.6	1136.9	984.4	883.6	764.6	657.1	106.1	55.9	42.1
26°	1698.9	1512.0	1319.0	1145.0	990.2	883.6	760.8	649.0	91.8	44.4	34.9
27°	1718.0	1523.0	1321.3	1141.2	983.0	873.6	746.9	632.7	75.0	37.3	29.6
28°	1720.4	1518.2	1309.4	1125.4	962.9	852.1	722.1	607.9	62.1	31.5	24.4
29°	1707.5	1500.5	1286.5	1099.1	932.3	820.5	688.1	577.3	53.0	27.2	20.5
30°	1680.2	1469.5	1251.6	1063.8	892.7	782.3	648.5	543.4	46.4	23.4	17.2
31°	1641.0	1427.0	1213.8	1021.7	851.1	744.1	611.2	508.9	41.1	19.6	14.3
32°	1590.4	1376.8	1165.1	976.3	813.8	707.7	575.4	474.1	36.8	16.7	11.9
33°	1534.0	1319.9	1112.0	929.0	778.0	670.5	537.6	437.3	33.0	13.9	10.0
34°	1469.0	1257.3	1055.6	881.7	739.8	629.4	497.0	399.5	28.7	11.5	8.6
35°	1394.9	1187.5	994.9	838.7	697.2	584.9	454.5	359.4	25.3	10.0	7.2
36°	1314.7	1114.9	933.8	789.5	651.4	538.6	409.5	318.7	22.0	8.6	6.2
37°	1230.5	1039.4	872.6	733.5	600.7	489.4	363.2	274.8	19.1	7.2	5.3
38°	1141.7	963.4	813.4	680.5	547.2	436.3	315.9	226.5	16.7	6.2	4.8
39°	1050.9	888.4	754.6	622.2	492.2	384.2	270.5	175.9	14.8	5.3	4.3
40°	962.0	817.7	692.5	558.6	437.3	333.1	226.5	129.5	12.9	4.8	3.3
42.5°	761.7	627.9	497.0	372.7	304.9	211.2	125.7	67.9	9.1	3.3	2.4
45°	498.4	371.3	268.1	181.6	157.7	89.4	58.3	42.1	6.7	2.4	1.9
47.5°	206.4	150.5	104.7	75.5	61.2	47.8	37.3	27.2	4.8	1.9	1.9
50°	90.8	71.7	56.9	44.4	38.7	31.1	23.9	16.7	2.9	1.4	1.4
51°	72.6	57.8	44.4	35.4	31.5	25.3	19.6	13.4	2.9	1.4	1.4
52°	57.3	44.9	34.9	27.2	25.3	20.5	16.2	11.0	2.4	1.4	1.4
53°	44.0	33.9	26.3	21.5	20.1	16.7	13.4	9.1	1.9	1.4	1.4
54°	32.5	25.8	20.5	16.7	16.2	13.4	11.0	7.6	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	7.6	7.6	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	3.3	4.3	3.8	3.8	1.9	1.4	1.4	1.4
62°	4.3	3.8	3.3	2.9	3.8	3.3	3.3	1.9	1.4	1.4	1.4
63°	3.3	2.9	2.4	2.4	3.3	3.3	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: LDA4A09827D010TE 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



TEST NUMBER: P170685

CATALOG NUMBER: LDA4A09827D010TE LAR25NF 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	55.4	55.4	55.4
2.5°	41.6	39.2	38.7
5°	34.4	32.0	31.5
7.5°	31.5	29.6	29.2
10°	32.5	33.0	33.9
12.5°	41.6	45.9	49.7
15°	66.9	84.1	96.1
17.5°	116.6	129.0	137.2
20°	102.3	94.1	94.6
22.5°	57.3	51.6	51.1
25°	34.9	31.5	30.6
26°	29.2	26.3	25.3
27°	23.9	21.5	20.5
28°	19.6	17.7	17.2
29°	16.7	14.3	13.9
30°	13.9	11.9	11.5
31°	11.5	10.0	9.6
32°	10.0	8.6	7.6
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	3.3	3.3
38°	3.8	2.9	2.4
39°	3.3	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: P170685

CATALOG NUMBER: LDA4A09827D010TE 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



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— 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)