

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: P170800

Luminaire Tested: **LDA4A28840D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170800
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26105)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A28840D010TE LAR25NF 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 25° Narrow Flood
Optic, at 30° tilt. --- 27.9W
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3192.5 lumens
Efficiency: N/A
Efficacy: 71.8 lumens/watt
Spacing Criteria (0/90/45): 2.53 / 1.09 / 1.29
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

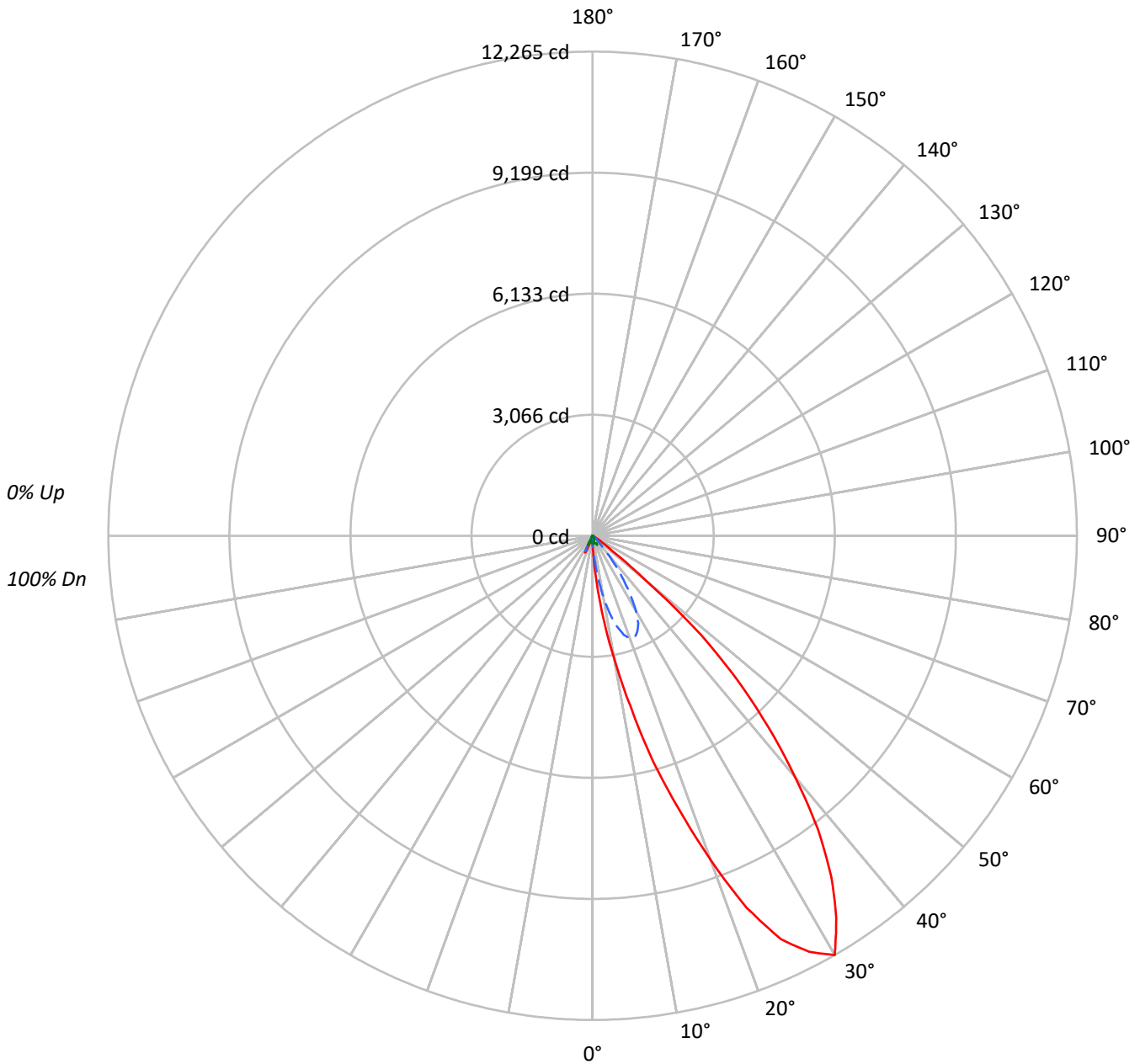
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	83																			
3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74																			
4	92	83	77	72	90	82	76	71	80	74	70	78	73	69	76	72	69	67																			
5	86	76	69	64	84	75	69	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	63	57	79	69	62	57	67	61	57	66	60	56	64	60	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	61	55	51	59	54	51	49																			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29307	29307	29307
5°	150685	27240	12728
10°	397163	22720	6638
15°	755939	17839	5121
20°	1148172	14754	13704
25°	1534192	35181	63367
30°	1746870	13260	12804
35°	1586692	7499	5797
40°	1285119	3365	2335
45°	909393	1954	558
50°	331819	1228	0
55°	69051	1032	0
60°	16627	1184	0
65°	5166	1401	0
70°	1731	1731	0
75°	763	2288	0
80°	0	3410	0
85°	0	6793	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.8	1.7
10°-20°	401.6	12.6
20°-30°	1018.4	31.9
30°-40°	1089.9	34.1
40°-50°	557.1	17.5
50°-60°	58.2	1.8
60°-70°	6.7	0.2
70°-80°	3.6	0.1
80°-90°	3.2	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°	1473.8	46.2
0°-40°	2563.7	80.3
0°-60°	3179.0	99.6
0°-90°	3192.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3192.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	238	238	238	238	238	
5°	1217	662	220	127	103	178
15°	5920	2380	140	50	40	1749
25°	11273	2680	258	434	466	5122
35°	10537	1358	50	38	38	6469
45°	5213	181	11	6	3	3891
55°	321	29	5	3	0	435
65°	18	6	5	3	0	23
75°	2	3	5	5	0	1
85°	0	3	5	5	0	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6
2.5°	480.1	484.9	449.6	460.8	468.8	452.8	449.6	449.6	467.2	457.6	473.6
5°	1217.0	1212.2	1151.2	1168.9	1181.7	1151.2	1165.7	1143.2	1170.5	1152.8	1170.5
7.5°	2125.8	2182.0	2104.9	2122.6	2133.8	2101.7	2109.7	2077.6	2108.1	2087.3	2101.7
10°	3171.0	3228.8	3138.9	3153.4	3161.4	3130.9	3132.5	3090.7	3118.0	3095.6	3105.2
12.5°	4420.2	4442.6	4399.3	4410.5	4415.3	4375.2	4299.7	4307.8	4335.1	4296.5	4306.2
15°	5919.8	5903.7	5852.3	5889.3	5852.3	5833.1	5719.1	5712.6	5728.7	5685.4	5616.3
17.5°	7241.2	7363.2	7305.4	7326.3	7281.3	7281.3	7135.2	7111.1	7112.7	6997.1	6984.3
20°	8747.2	8902.9	8761.6	8768.1	8708.7	8707.1	8528.8	8479.1	8458.2	8326.5	8289.6
22.5°	10198.6	10243.6	10242.0	10214.7	10075.0	10155.3	9932.1	9853.4	9789.2	9639.9	9566.0
25°	11272.8	11414.1	11317.7	11248.7	11126.7	11227.8	10977.3	10874.6	10778.3	10653.0	10556.7
27.5°	11879.7	12011.3	11988.9	11886.1	11760.9	11858.8	11584.3	11451.0	11314.5	11223.0	11102.6
30°	12265.0	12465.7	12399.9	12176.7	11993.7	12025.8	11717.5	11539.3	11388.4	11293.6	11141.1
32.5°	11483.1	11690.2	11671.0	11508.8	11414.1	11492.7	11224.6	11048.0	10903.5	10828.0	10657.8
35°	10537.4	10779.9	10726.9	10592.0	10523.0	10614.5	10352.8	10205.1	10059.0	9993.1	9806.9
37.5°	9379.8	9607.8	9554.8	9426.4	9358.9	9426.4	9175.9	9039.4	8901.3	8832.3	8705.4
40°	7981.3	8182.0	8125.8	8007.0	7950.8	7999.0	7782.2	7663.4	7546.2	7494.8	7326.3
42.5°	6615.0	6775.5	6724.2	6621.4	6578.1	6610.2	6431.9	6326.0	6223.2	6179.9	6080.3
45°	5213.3	5372.3	5322.5	5234.2	5194.0	5211.7	5062.4	4967.7	4879.4	4839.2	4749.3
47.5°	3741.0	3919.2	3858.2	3782.7	3741.0	3733.0	3601.3	3516.2	3524.2	3387.8	3304.3
50°	1729.2	1880.1	1819.1	1779.0	1738.8	1716.4	1669.8	1573.5	1600.8	1477.1	1429.0
52.5°	627.8	664.7	650.3	637.4	624.6	619.8	603.7	579.6	582.8	552.3	537.9
55°	321.1	338.8	334.0	325.9	325.9	321.1	313.1	303.5	297.0	292.2	287.4
57.5°	147.7	157.3	154.1	150.9	150.9	147.7	144.5	139.7	142.9	134.9	133.3
60°	67.4	72.3	70.6	69.0	69.0	69.0	67.4	65.8	65.8	64.2	62.6
62.5°	32.1	35.3	33.7	33.7	33.7	33.7	32.1	32.1	32.1	32.1	30.5
65°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	16.1	17.7	16.1	16.1
67.5°	9.6	9.6	9.6	9.6	8.0	9.6	9.6	8.0	8.0	8.0	8.0
70°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	0.0	1.6	1.6	1.6	0.0	1.6	1.6	1.6	1.6	1.6	1.6
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	1.6	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6	237.6
2.5°	436.7	448.0	459.2	456.0	439.9	438.3	431.9	435.1	338.8	274.6	229.6
5°	1107.8	1122.3	1136.7	1128.7	1088.6	1078.9	1046.8	1040.4	661.5	324.3	220.0
7.5°	2024.6	2032.7	2043.9	2034.3	1974.9	1947.6	1880.1	1814.3	1112.7	391.8	203.9
10°	3018.5	3015.3	3020.1	3007.2	2933.4	2880.4	2776.0	2729.5	1576.7	449.6	181.4
12.5°	4177.7	4164.9	4094.2	4127.9	4023.6	3916.0	3744.2	3599.7	2015.0	481.7	160.6
15°	5531.2	5492.7	5467.0	5428.5	5300.0	5126.6	4864.9	4704.3	2379.5	478.5	139.7
17.5°	6876.7	6814.1	6701.7	6716.1	6566.8	6324.4	5979.2	5704.6	2631.5	438.3	123.6
20°	8149.9	8056.8	7915.5	7904.3	7724.4	7404.9	6969.8	6629.4	2769.6	372.5	112.4
22.5°	9376.6	9232.1	9042.6	8983.2	8752.0	8299.2	7730.9	7316.6	2782.5	311.5	134.9
25°	10343.1	10161.7	9951.4	9848.6	9593.3	9015.3	8307.3	7798.3	2679.7	308.3	258.5
27.5°	10882.6	10677.1	10466.8	10327.1	10068.6	9413.5	8612.3	8024.7	2503.1	330.7	245.7
30°	10911.5	10680.3	10462.0	10285.3	10028.4	9328.4	8477.5	7865.7	2185.2	208.7	93.1
32.5°	10431.4	10184.2	9965.8	9766.7	9513.1	8808.2	7973.3	7388.9	1777.4	146.1	65.8
35°	9591.7	9336.4	9127.7	8917.4	8679.8	8016.7	7250.8	6706.5	1358.3	115.6	49.8
37.5°	8448.6	8212.5	8027.9	7885.0	7628.1	7099.9	6399.8	5823.4	960.1	81.9	30.5
40°	7168.9	6969.8	6818.9	6695.3	6457.6	5988.8	5282.4	4795.9	582.8	57.8	20.9
42.5°	5881.2	5695.0	5561.7	5444.5	5224.6	4810.3	4229.1	3741.0	279.4	40.1	14.5
45°	4574.3	4407.3	4294.9	4189.0	3991.5	3583.7	3122.9	2769.6	181.4	28.9	11.2
47.5°	3124.5	3037.8	2853.1	2737.5	2535.2	2223.7	1791.8	1403.3	120.4	20.9	8.0
50°	1298.9	1254.0	1131.9	1053.3	937.7	778.7	565.2	473.6	73.9	14.5	6.4
52.5°	504.2	492.9	462.4	444.7	415.8	374.1	311.5	277.8	45.0	11.2	6.4
55°	271.3	268.1	252.1	242.4	226.4	205.5	168.6	147.7	28.9	8.0	4.8
57.5°	125.2	123.6	115.6	115.6	104.4	96.3	80.3	72.3	17.7	6.4	4.8
60°	59.4	59.4	56.2	56.2	51.4	48.2	40.1	36.9	11.2	4.8	4.8
62.5°	28.9	28.9	28.9	28.9	27.3	25.7	22.5	20.9	8.0	4.8	4.8
65°	16.1	16.1	16.1	16.1	14.5	14.5	12.8	11.2	6.4	4.8	4.8
67.5°	8.0	8.0	8.0	8.0	8.0	8.0	6.4	6.4	4.8	4.8	4.8
70°	4.8	4.8	4.8	4.8	4.8	3.2	3.2	3.2	3.2	4.8	4.8
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.2	4.8	4.8
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.2	4.8	4.8
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.2	4.8	4.8
80°	0.0	0.0	1.6	1.6	1.6	1.6	1.6	1.6	3.2	4.8	4.8
82.5°	0.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.2	4.8	4.8
85°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.2	4.8	4.8
87.5°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.2	4.8	4.8
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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CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	237.6	237.6	237.6	237.6
2.5°	197.5	171.8	159.0	155.7
5°	162.2	126.8	109.2	102.8
7.5°	131.7	91.5	77.1	70.6
10°	104.4	72.3	57.8	53.0
12.5°	86.7	57.8	46.6	43.4
15°	73.9	49.8	41.7	40.1
17.5°	67.4	53.0	49.8	51.4
20°	81.9	86.7	101.2	104.4
22.5°	173.4	300.2	407.8	431.9
25°	361.3	433.5	449.6	465.6
27.5°	200.7	155.7	152.5	159.0
30°	81.9	83.5	86.7	89.9
32.5°	61.0	61.0	59.4	61.0
35°	41.7	38.5	36.9	38.5
37.5°	25.7	24.1	22.5	22.5
40°	17.7	16.1	14.5	14.5
42.5°	12.8	9.6	8.0	8.0
45°	9.6	6.4	4.8	3.2
47.5°	8.0	4.8	1.6	1.6
50°	6.4	3.2	1.6	0.0
52.5°	4.8	3.2	1.6	0.0
55°	4.8	3.2	0.0	0.0
57.5°	4.8	3.2	0.0	0.0
60°	4.8	3.2	1.6	0.0
62.5°	4.8	3.2	1.6	1.6
65°	4.8	3.2	1.6	0.0
67.5°	4.8	3.2	1.6	0.0
70°	4.8	3.2	1.6	0.0
72.5°	6.4	3.2	1.6	0.0
75°	6.4	4.8	1.6	0.0
77.5°	6.4	4.8	1.6	0.0
80°	6.4	4.8	1.6	0.0
82.5°	6.4	4.8	1.6	0.0
85°	6.4	4.8	1.6	0.0
87.5°	6.4	4.8	1.6	0.0
90°	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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











(END OF REPORT)