

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: P170792

Luminaire Tested: **LDA4A13840D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170792
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: LDA4A13840D010TE 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: 1645.8 lumens
Efficiency: N/A
Efficacy: 73.9 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

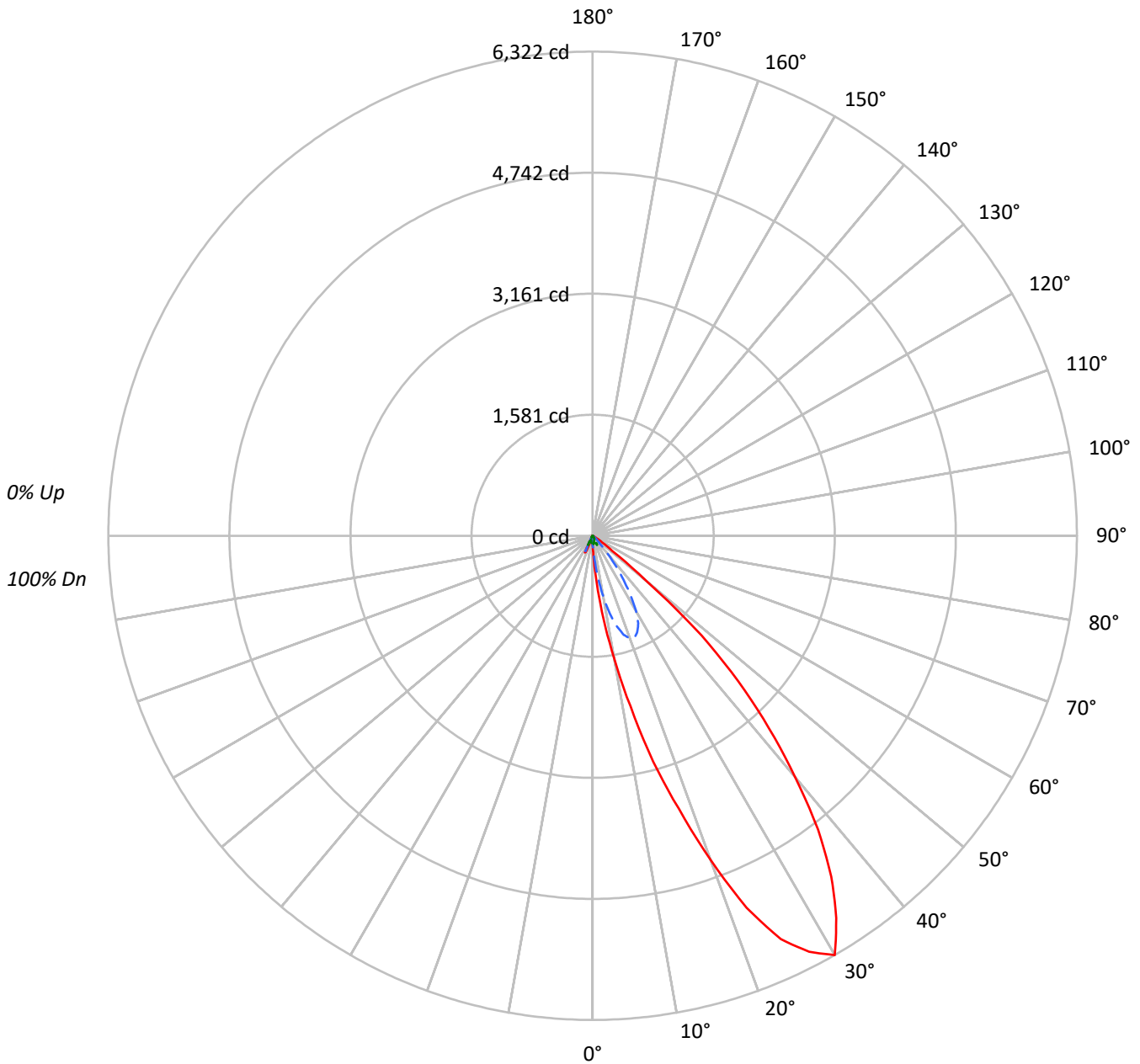
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	15110	15110	15110
5°	77683	14041	6562
10°	204731	11711	3419
15°	389680	9194	2643
20°	591872	7600	7062
25°	790859	18142	32663
30°	900496	6837	6594
35°	817920	3870	2996
40°	662469	1739	1192
45°	468782	1012	297
50°	171052	633	0
55°	35590	538	0
60°	8585	617	0
65°	2656	730	0
70°	902	902	0
75°	381	1191	0
80°	0	1776	0
85°	0	3538	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.7	1.7
10°-20°	207.0	12.6
20°-30°	525.0	31.9
30°-40°	561.8	34.1
40°-50°	287.2	17.4
50°-60°	30.0	1.8
60°-70°	3.5	0.2
70°-80°	1.9	0.1
80°-90°	1.7	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°	759.7	46.2
0°-40°	1321.6	80.3
0°-60°	1638.7	99.6
0°-90°	1645.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1645.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	122	122	122	122	122	
5°	627	341	113	65	53	92
15°	3052	1227	72	26	21	902
25°	5811	1381	133	224	240	2640
35°	5432	700	26	20	20	3335
45°	2687	94	6	3	2	2006
55°	166	15	2	2	0	224
65°	9	3	2	2	0	12
75°	1	2	2	2	0	1
85°	0	2	2	2	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°	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5
2.5°	247.5	250.0	231.7	237.5	241.7	233.4	231.7	231.7	240.8	235.9	244.2
5°	627.4	624.9	593.4	602.5	609.2	593.4	600.9	589.3	603.4	594.3	603.4
7.5°	1095.8	1124.8	1085.1	1094.2	1100.0	1083.4	1087.5	1071.0	1086.7	1076.0	1083.4
10°	1634.6	1664.4	1618.1	1625.5	1629.7	1613.9	1614.8	1593.2	1607.3	1595.7	1600.7
12.5°	2278.5	2290.1	2267.8	2273.6	2276.1	2255.4	2216.5	2220.6	2234.7	2214.8	2219.8
15°	3051.6	3043.3	3016.8	3035.8	3016.8	3006.9	2948.1	2944.8	2953.1	2930.7	2895.1
17.5°	3732.7	3795.6	3765.8	3776.6	3753.4	3753.4	3678.1	3665.7	3666.5	3606.9	3600.3
20°	4509.1	4589.3	4516.5	4519.8	4489.2	4488.4	4396.5	4370.8	4360.1	4292.2	4273.2
22.5°	5257.3	5280.4	5279.6	5265.5	5193.5	5234.9	5119.9	5079.3	5046.2	4969.2	4931.2
25°	5811.0	5883.8	5834.1	5798.5	5735.6	5787.8	5658.7	5605.7	5556.0	5491.5	5441.8
27.5°	6123.8	6191.7	6180.1	6127.1	6062.6	6113.1	5971.5	5902.8	5832.5	5785.3	5723.2
30°	6322.5	6425.9	6392.0	6276.9	6182.6	6199.1	6040.2	5948.4	5870.6	5821.7	5743.1
32.5°	5919.4	6026.2	6016.2	5932.6	5883.8	5924.4	5786.1	5695.1	5620.6	5581.7	5494.0
35°	5431.9	5556.9	5529.6	5460.0	5424.4	5471.6	5336.7	5260.6	5185.3	5151.3	5055.3
37.5°	4835.2	4952.7	4925.4	4859.2	4824.4	4859.2	4730.0	4659.7	4588.5	4552.9	4487.5
40°	4114.3	4217.7	4188.8	4127.5	4098.5	4123.4	4011.6	3950.4	3890.0	3863.5	3776.6
42.5°	3409.9	3492.7	3466.2	3413.2	3390.9	3407.5	3315.6	3261.0	3208.0	3185.6	3134.3
45°	2687.4	2769.3	2743.7	2698.2	2677.5	2686.6	2609.6	2560.8	2515.2	2494.6	2448.2
47.5°	1928.4	2020.3	1988.9	1950.0	1928.4	1924.3	1856.4	1812.6	1816.7	1746.4	1703.3
50°	891.4	969.2	937.7	917.0	896.3	884.8	860.8	811.1	825.2	761.4	736.6
52.5°	323.6	342.6	335.2	328.6	322.0	319.5	311.2	298.8	300.4	284.7	277.3
55°	165.5	174.6	172.2	168.0	168.0	165.5	161.4	156.4	153.1	150.6	148.2
57.5°	76.1	81.1	79.5	77.8	77.8	76.1	74.5	72.0	73.7	69.5	68.7
60°	34.8	37.2	36.4	35.6	35.6	35.6	34.8	33.9	33.9	33.1	32.3
62.5°	16.6	18.2	17.4	17.4	17.4	17.4	16.6	16.6	16.6	16.6	15.7
65°	9.1	9.1	9.1	9.1	9.1	9.1	9.1	8.3	9.1	8.3	8.3
67.5°	5.0	5.0	5.0	5.0	4.1	5.0	5.0	4.1	4.1	4.1	4.1
70°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.8	0.8	0.8	0.0	0.8	0.8	0.8	0.8	0.8	0.8
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	0.8	0.0	0.8	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°	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5	122.5
2.5°	225.1	230.9	236.7	235.1	226.8	225.9	222.6	224.3	174.6	141.5	118.4
5°	571.1	578.5	586.0	581.8	561.1	556.2	539.6	536.3	341.0	167.2	113.4
7.5°	1043.7	1047.8	1053.6	1048.6	1018.0	1003.9	969.2	935.2	573.6	201.9	105.1
10°	1556.0	1554.3	1556.8	1550.2	1512.1	1484.8	1431.0	1407.0	812.8	231.7	93.5
12.5°	2153.6	2146.9	2110.5	2127.9	2074.1	2018.6	1930.1	1855.6	1038.7	248.3	82.8
15°	2851.3	2831.4	2818.2	2798.3	2732.1	2642.7	2507.8	2425.0	1226.6	246.6	72.0
17.5°	3544.8	3512.6	3454.6	3462.1	3385.1	3260.1	3082.2	2940.7	1356.5	225.9	63.7
20°	4201.2	4153.2	4080.3	4074.5	3981.8	3817.1	3592.8	3417.4	1427.7	192.0	57.9
22.5°	4833.5	4759.0	4661.4	4630.7	4511.5	4278.1	3985.2	3771.6	1434.3	160.6	69.5
25°	5331.8	5238.2	5129.8	5076.8	4945.2	4647.3	4282.3	4019.9	1381.4	158.9	133.3
27.5°	5609.8	5503.9	5395.5	5323.5	5190.2	4852.5	4439.5	4136.6	1290.3	170.5	126.6
30°	5624.7	5505.6	5393.0	5302.0	5169.5	4808.7	4370.0	4054.7	1126.4	107.6	48.0
32.5°	5377.3	5249.8	5137.3	5034.6	4903.9	4540.5	4110.1	3808.9	916.2	75.3	33.9
35°	4944.4	4812.8	4705.2	4596.8	4474.3	4132.5	3737.7	3457.1	700.2	59.6	25.7
37.5°	4355.1	4233.5	4138.3	4064.6	3932.2	3659.9	3299.0	3001.9	494.9	42.2	15.7
40°	3695.5	3592.8	3515.0	3451.3	3328.8	3087.2	2723.0	2472.2	300.4	29.8	10.8
42.5°	3031.7	2935.7	2867.0	2806.6	2693.2	2479.7	2180.0	1928.4	144.0	20.7	7.4
45°	2358.0	2271.9	2214.0	2159.4	2057.5	1847.3	1609.8	1427.7	93.5	14.9	5.8
47.5°	1610.6	1565.9	1470.7	1411.2	1306.9	1146.3	923.7	723.4	62.1	10.8	4.1
50°	669.6	646.4	583.5	542.9	483.4	401.4	291.3	244.2	38.1	7.4	3.3
52.5°	259.9	254.1	238.4	229.3	214.4	192.8	160.6	143.2	23.2	5.8	3.3
55°	139.9	138.2	129.9	125.0	116.7	105.9	86.9	76.1	14.9	4.1	2.5
57.5°	64.6	63.7	59.6	59.6	53.8	49.7	41.4	37.2	9.1	3.3	2.5
60°	30.6	30.6	29.0	29.0	26.5	24.8	20.7	19.0	5.8	2.5	2.5
62.5°	14.9	14.9	14.9	14.9	14.1	13.2	11.6	10.8	4.1	2.5	2.5
65°	8.3	8.3	8.3	8.3	7.4	7.4	6.6	5.8	3.3	2.5	2.5
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	3.3	3.3	2.5	2.5	2.5
70°	2.5	2.5	2.5	2.5	2.5	1.7	1.7	1.7	1.7	2.5	2.5
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
80°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
82.5°	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5	2.5
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
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):

	112.5°	135°	157.5°	180°
0°	122.5	122.5	122.5	122.5
2.5°	101.8	88.6	81.9	80.3
5°	83.6	65.4	56.3	53.0
7.5°	67.9	47.2	39.7	36.4
10°	53.8	37.2	29.8	27.3
12.5°	44.7	29.8	24.0	22.3
15°	38.1	25.7	21.5	20.7
17.5°	34.8	27.3	25.7	26.5
20°	42.2	44.7	52.1	53.8
22.5°	89.4	154.8	210.2	222.6
25°	186.2	223.5	231.7	240.0
27.5°	103.5	80.3	78.6	81.9
30°	42.2	43.0	44.7	46.3
32.5°	31.5	31.5	30.6	31.5
35°	21.5	19.9	19.0	19.9
37.5°	13.2	12.4	11.6	11.6
40°	9.1	8.3	7.4	7.4
42.5°	6.6	5.0	4.1	4.1
45°	5.0	3.3	2.5	1.7
47.5°	4.1	2.5	0.8	0.8
50°	3.3	1.7	0.8	0.0
52.5°	2.5	1.7	0.8	0.0
55°	2.5	1.7	0.0	0.0
57.5°	2.5	1.7	0.0	0.0
60°	2.5	1.7	0.8	0.0
62.5°	2.5	1.7	0.8	0.8
65°	2.5	1.7	0.8	0.0
67.5°	2.5	1.7	0.8	0.0
70°	2.5	1.7	0.8	0.0
72.5°	3.3	1.7	0.8	0.0
75°	3.3	2.5	0.8	0.0
77.5°	3.3	2.5	0.8	0.0
80°	3.3	2.5	0.8	0.0
82.5°	3.3	2.5	0.8	0.0
85°	3.3	2.5	0.8	0.0
87.5°	3.3	2.5	0.8	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)