

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: P170777

Luminaire Tested: **LDA4A18927D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170777
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: LDA4A18927D010TE 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 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1402.8 lumens
Efficiency: N/A
Efficacy: 48.2 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

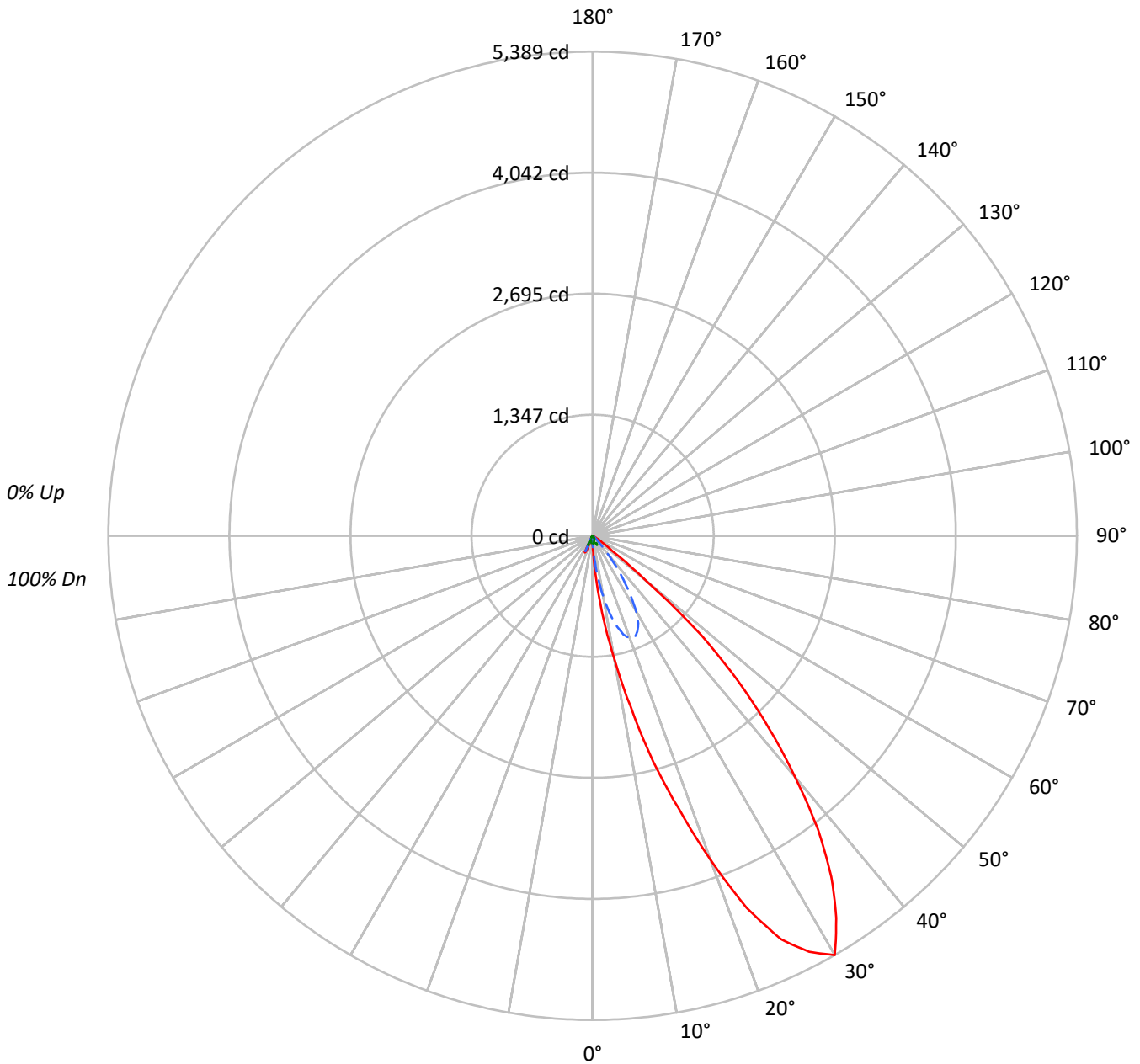
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	12877	12877	12877
5°	66217	11973	5597
10°	174521	9982	2918
15°	332165	7841	2247
20°	504517	6484	6025
25°	674128	15461	27845
30°	767583	5825	5626
35°	697203	3298	2545
40°	564684	1481	1014
45°	399600	855	244
50°	145799	537	0
55°	30343	452	0
60°	7302	518	0
65°	2277	613	0
70°	757	757	0
75°	334	1001	0
80°	0	1492	0
85°	0	2972	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.6	1.7
10°-20°	176.4	12.6
20°-30°	447.5	31.9
30°-40°	478.9	34.1
40°-50°	244.8	17.5
50°-60°	25.6	1.8
60°-70°	2.9	0.2
70°-80°	1.6	0.1
80°-90°	1.4	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°	647.6	46.2
0°-40°	1126.5	80.3
0°-60°	1396.9	99.6
0°-90°	1402.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1402.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	104	104	104	104	104	
5°	535	291	97	56	45	78
15°	2601	1046	61	22	18	769
25°	4953	1178	114	190	205	2251
35°	4630	597	22	17	17	2843
45°	2291	80	5	3	1	1710
55°	141	13	2	1	0	191
65°	8	3	2	1	0	10
75°	1	1	2	2	0	1
85°	0	1	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°	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4
2.5°	210.9	213.1	197.5	202.5	206.0	199.0	197.5	197.5	205.3	201.1	208.1
5°	534.8	532.7	505.8	513.6	519.2	505.8	512.2	502.3	514.3	506.5	514.3
7.5°	934.1	958.8	924.9	932.7	937.6	923.5	927.0	912.9	926.3	917.2	923.5
10°	1393.4	1418.8	1379.3	1385.6	1389.1	1375.7	1376.4	1358.1	1370.1	1360.2	1364.4
12.5°	1942.2	1952.1	1933.1	1938.0	1940.1	1922.5	1889.3	1892.9	1904.9	1887.9	1892.2
15°	2601.2	2594.1	2571.5	2587.8	2571.5	2563.1	2513.0	2510.2	2517.2	2498.2	2467.8
17.5°	3181.8	3235.4	3210.0	3219.2	3199.4	3199.4	3135.2	3124.7	3125.4	3074.6	3068.9
20°	3843.6	3912.0	3849.9	3852.7	3826.6	3825.9	3747.6	3725.7	3716.6	3658.7	3642.5
22.5°	4481.3	4501.1	4500.4	4488.4	4427.0	4462.3	4364.2	4329.7	4301.4	4235.8	4203.4
25°	4953.3	5015.4	4973.1	4942.7	4889.1	4933.6	4823.5	4778.4	4736.0	4681.0	4638.7
27.5°	5220.0	5277.8	5268.0	5222.8	5167.8	5210.8	5090.2	5031.6	4971.7	4931.4	4878.5
30°	5389.3	5477.5	5448.6	5350.5	5270.1	5284.2	5148.7	5070.4	5004.1	4962.5	4895.5
32.5°	5045.7	5136.7	5128.3	5057.0	5015.4	5050.0	4932.2	4854.5	4791.1	4757.9	4683.1
35°	4630.2	4736.7	4713.4	4654.2	4623.9	4664.1	4549.1	4484.2	4420.0	4391.0	4309.2
37.5°	4121.5	4221.7	4198.4	4142.0	4112.4	4142.0	4031.9	3972.0	3911.3	3881.0	3825.2
40°	3507.0	3595.2	3570.5	3518.3	3493.6	3514.8	3419.6	3367.4	3315.9	3293.3	3219.2
42.5°	2906.7	2977.2	2954.6	2909.5	2890.4	2904.5	2826.2	2779.7	2734.5	2715.5	2671.7
45°	2290.8	2360.6	2338.7	2299.9	2282.3	2290.1	2224.4	2182.8	2144.0	2126.4	2086.9
47.5°	1643.8	1722.1	1695.3	1662.2	1643.8	1640.3	1582.4	1545.0	1548.6	1488.6	1451.9
50°	759.8	826.1	799.3	781.7	764.1	754.2	733.7	691.4	703.4	649.1	627.9
52.5°	275.9	292.1	285.7	280.1	274.4	272.3	265.3	254.7	256.1	242.7	236.3
55°	141.1	148.9	146.7	143.2	143.2	141.1	137.6	133.3	130.5	128.4	126.3
57.5°	64.9	69.1	67.7	66.3	66.3	64.9	63.5	61.4	62.8	59.3	58.6
60°	29.6	31.7	31.0	30.3	30.3	30.3	29.6	28.9	28.9	28.2	27.5
62.5°	14.1	15.5	14.8	14.8	14.8	14.8	14.1	14.1	14.1	14.1	13.4
65°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.1	7.8	7.1	7.1
67.5°	4.2	4.2	4.2	4.2	3.5	4.2	4.2	3.5	3.5	3.5	3.5
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
75°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.0	0.7	0.7	0.7	0.0	0.7	0.7	0.7	0.7	0.7	0.7
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	0.7	0.0	0.7	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°	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4	104.4
2.5°	191.9	196.8	201.8	200.4	193.3	192.6	189.8	191.2	148.9	120.6	100.9
5°	486.8	493.1	499.5	496.0	478.3	474.1	460.0	457.2	290.7	142.5	96.7
7.5°	889.6	893.2	898.1	893.9	867.8	855.8	826.1	797.2	488.9	172.1	89.6
10°	1326.3	1324.9	1327.0	1321.4	1288.9	1265.7	1219.8	1199.4	692.8	197.5	79.7
12.5°	1835.7	1830.1	1799.0	1813.8	1768.0	1720.7	1645.2	1581.7	885.4	211.7	70.6
15°	2430.4	2413.5	2402.2	2385.3	2328.9	2252.7	2137.7	2067.1	1045.6	210.2	61.4
17.5°	3021.7	2994.1	2944.8	2951.1	2885.5	2779.0	2627.3	2506.6	1156.3	192.6	54.3
20°	3581.1	3540.2	3478.1	3473.2	3394.2	3253.8	3062.6	2913.0	1217.0	163.7	49.4
22.5°	4120.1	4056.6	3973.4	3947.3	3845.7	3646.7	3397.0	3215.0	1222.6	136.9	59.3
25°	4544.8	4465.1	4372.7	4327.5	4215.4	3961.4	3650.3	3426.6	1177.5	135.5	113.6
27.5°	4781.9	4691.6	4599.2	4537.8	4424.2	4136.3	3784.3	3526.1	1099.9	145.3	107.9
30°	4794.6	4693.0	4597.0	4519.4	4406.6	4099.0	3725.0	3456.2	960.2	91.7	40.9
32.5°	4583.6	4475.0	4379.0	4291.6	4180.1	3870.4	3503.5	3246.7	781.0	64.2	28.9
35°	4214.7	4102.5	4010.8	3918.4	3813.9	3522.6	3186.0	2946.9	596.9	50.8	21.9
37.5°	3712.3	3608.6	3527.5	3464.7	3351.8	3119.7	2812.1	2558.9	421.9	36.0	13.4
40°	3150.1	3062.6	2996.3	2941.9	2837.5	2631.5	2321.1	2107.3	256.1	25.4	9.2
42.5°	2584.2	2502.4	2443.9	2392.4	2295.7	2113.7	1858.3	1643.8	122.8	17.6	6.3
45°	2010.0	1936.6	1887.2	1840.7	1753.9	1574.7	1372.2	1217.0	79.7	12.7	4.9
47.5°	1372.9	1334.8	1253.7	1202.9	1114.0	977.1	787.3	616.6	52.9	9.2	3.5
50°	570.7	551.0	497.4	462.8	412.0	342.2	248.3	208.1	32.5	6.3	2.8
52.5°	221.5	216.6	203.2	195.4	182.7	164.4	136.9	122.1	19.8	4.9	2.8
55°	119.2	117.8	110.8	106.5	99.5	90.3	74.1	64.9	12.7	3.5	2.1
57.5°	55.0	54.3	50.8	50.8	45.9	42.3	35.3	31.7	7.8	2.8	2.1
60°	26.1	26.1	24.7	24.7	22.6	21.2	17.6	16.2	4.9	2.1	2.1
62.5°	12.7	12.7	12.7	12.7	12.0	11.3	9.9	9.2	3.5	2.1	2.1
65°	7.1	7.1	7.1	7.1	6.3	6.3	5.6	4.9	2.8	2.1	2.1
67.5°	3.5	3.5	3.5	3.5	3.5	3.5	2.8	2.8	2.1	2.1	2.1
70°	2.1	2.1	2.1	2.1	2.1	1.4	1.4	1.4	1.4	2.1	2.1
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
75°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
80°	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
82.5°	0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.1
87.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
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°	104.4	104.4	104.4	104.4
2.5°	86.8	75.5	69.8	68.4
5°	71.3	55.7	48.0	45.2
7.5°	57.9	40.2	33.9	31.0
10°	45.9	31.7	25.4	23.3
12.5°	38.1	25.4	20.5	19.0
15°	32.5	21.9	18.3	17.6
17.5°	29.6	23.3	21.9	22.6
20°	36.0	38.1	44.4	45.9
22.5°	76.2	131.9	179.2	189.8
25°	158.7	190.5	197.5	204.6
27.5°	88.2	68.4	67.0	69.8
30°	36.0	36.7	38.1	39.5
32.5°	26.8	26.8	26.1	26.8
35°	18.3	16.9	16.2	16.9
37.5°	11.3	10.6	9.9	9.9
40°	7.8	7.1	6.3	6.3
42.5°	5.6	4.2	3.5	3.5
45°	4.2	2.8	2.1	1.4
47.5°	3.5	2.1	0.7	0.7
50°	2.8	1.4	0.7	0.0
52.5°	2.1	1.4	0.7	0.0
55°	2.1	1.4	0.0	0.0
57.5°	2.1	1.4	0.0	0.0
60°	2.1	1.4	0.7	0.0
62.5°	2.1	1.4	0.7	0.7
65°	2.1	1.4	0.7	0.0
67.5°	2.1	1.4	0.7	0.0
70°	2.1	1.4	0.7	0.0
72.5°	2.8	1.4	0.7	0.0
75°	2.8	2.1	0.7	0.0
77.5°	2.8	2.1	0.7	0.0
80°	2.8	2.1	0.7	0.0
82.5°	2.8	2.1	0.7	0.0
85°	2.8	2.1	0.7	0.0
87.5°	2.8	2.1	0.7	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)