

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: P170776

Luminaire Tested: **LDA4A18840D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170776  
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: LDA4A18840D010TE 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: 2039.0 lumens  
Efficiency: N/A  
Efficacy: 70.0 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

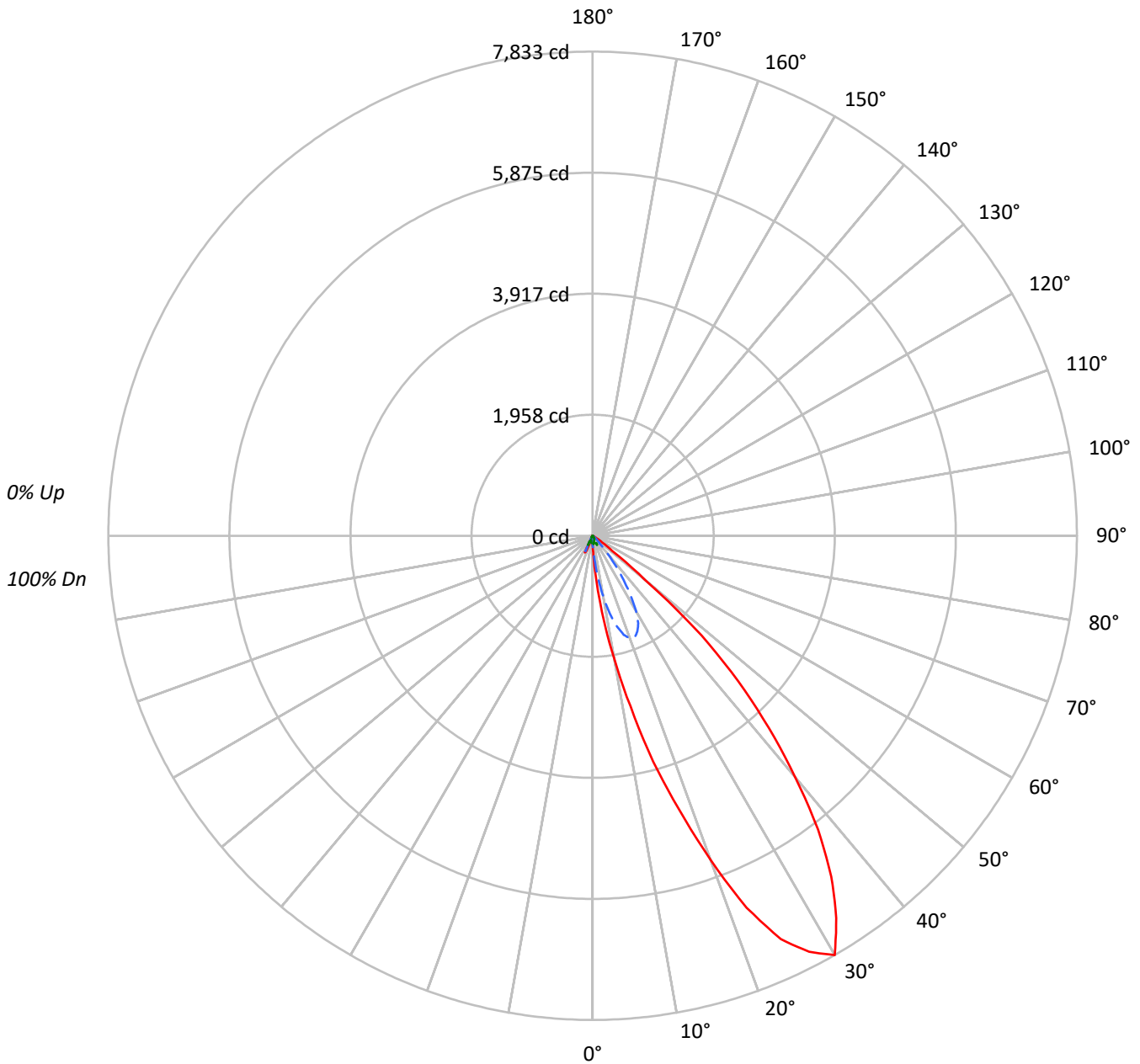
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170776

CATALOG NUMBER: LDA4A18840D010TE LAR25NF 4LAL1 30° Tilt

### Luminous Intensity Polar Plot





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CATALOG NUMBER: LDA4A18840D010TE LAR25NF 4LAL1 30° Tilt

**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°	18724	18724	18724
5°	96230	17396	8122
10°	253641	14516	4233
15°	482770	11391	3269
20°	733267	9425	8755
25°	979802	22470	40475
30°	1115633	8474	8175
35°	1013324	4788	3704
40°	820732	2142	1481
45°	580771	1256	366
50°	211906	787	0
55°	44106	667	0
60°	10632	765	0
65°	3298	905	0
70°	1118	1118	0
75°	477	1477	0
80°	0	2202	0
85°	0	4387	0



TEST NUMBER: P170776

CATALOG NUMBER: LDA4A18840D010TE LAR25NF 4LAL1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	34.4	1.7
10°-20°	256.5	12.6
20°-30°	650.4	31.9
30°-40°	696.1	34.1
40°-50°	355.8	17.4
50°-60°	37.2	1.8
60°-70°	4.3	0.2
70°-80°	2.3	0.1
80°-90°	2.1	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°	941.2	46.2
0°-40°	1637.3	80.3
0°-60°	2030.3	99.6
0°-90°	2039.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2039.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	152	152	152	152	152	
5°	777	422	140	81	66	113
15°	3781	1520	89	32	26	1117
25°	7199	1711	165	277	297	3271
35°	6730	868	32	25	25	4132
45°	3329	116	7	4	2	2485
55°	205	18	3	2	0	278
65°	11	4	3	2	0	15
75°	1	2	3	3	0	1
85°	0	2	3	3	0	0
90°	0	0	0	0	0	



TEST NUMBER: P170776

CATALOG NUMBER: LDA4A18840D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8
2.5°	306.6	309.7	287.1	294.3	299.4	289.2	287.1	287.1	298.4	292.2	302.5
5°	777.2	774.2	735.2	746.5	754.7	735.2	744.4	730.1	747.5	736.2	747.5
7.5°	1357.6	1393.5	1344.3	1355.6	1362.7	1342.2	1347.4	1326.9	1346.3	1333.0	1342.2
10°	2025.1	2062.1	2004.6	2013.9	2019.0	1999.5	2000.5	1973.9	1991.3	1977.0	1983.1
12.5°	2822.9	2837.3	2809.6	2816.8	2819.8	2794.2	2746.0	2751.1	2768.6	2743.9	2750.1
15°	3780.6	3770.4	3737.6	3761.1	3737.6	3725.2	3652.4	3648.3	3658.6	3630.9	3586.8
17.5°	4624.5	4702.4	4665.5	4678.9	4650.2	4650.2	4556.8	4541.5	4542.5	4468.7	4460.5
20°	5586.3	5685.8	5595.6	5599.7	5561.7	5560.7	5446.9	5415.1	5401.8	5317.7	5294.1
22.5°	6513.3	6542.0	6541.0	6523.5	6434.3	6485.6	6343.1	6292.8	6251.8	6156.5	6109.3
25°	7199.3	7289.5	7228.0	7183.9	7106.0	7170.6	7010.6	6945.0	6883.5	6803.5	6742.0
27.5°	7586.9	7671.0	7656.6	7591.0	7511.0	7573.5	7398.2	7313.1	7225.9	7167.5	7090.6
30°	7833.0	7961.1	7919.1	7776.6	7659.7	7680.2	7483.3	7369.5	7273.1	7212.6	7115.2
32.5°	7333.6	7465.9	7453.6	7350.0	7289.5	7339.8	7168.5	7055.7	6963.4	6915.2	6806.6
35°	6729.6	6884.5	6850.6	6764.5	6720.4	6778.9	6611.7	6517.4	6424.1	6382.0	6263.1
37.5°	5990.3	6135.9	6102.1	6020.1	5977.0	6020.1	5860.1	5773.0	5684.8	5640.7	5559.7
40°	5097.2	5225.4	5189.5	5113.6	5077.7	5108.5	4970.1	4894.2	4819.3	4786.5	4678.9
42.5°	4224.6	4327.2	4294.3	4228.7	4201.0	4221.5	4107.7	4040.0	3974.4	3946.7	3883.2
45°	3329.4	3431.0	3399.2	3342.8	3317.1	3328.4	3233.1	3172.6	3116.2	3090.5	3033.1
47.5°	2389.2	2503.0	2464.0	2415.8	2389.2	2384.0	2300.0	2245.6	2250.7	2163.6	2110.3
50°	1104.3	1200.7	1161.8	1136.1	1110.5	1096.1	1066.4	1004.9	1022.3	943.4	912.6
52.5°	400.9	424.5	415.3	407.1	398.9	395.8	385.5	370.2	372.2	352.7	343.5
55°	205.1	216.4	213.3	208.2	208.2	205.1	200.0	193.8	189.7	186.6	183.5
57.5°	94.3	100.5	98.4	96.4	96.4	94.3	92.3	89.2	91.3	86.1	85.1
60°	43.1	46.1	45.1	44.1	44.1	44.1	43.1	42.0	42.0	41.0	40.0
62.5°	20.5	22.6	21.5	21.5	21.5	21.5	20.5	20.5	20.5	20.5	19.5
65°	11.3	11.3	11.3	11.3	11.3	11.3	11.3	10.3	11.3	10.3	10.3
67.5°	6.2	6.2	6.2	6.2	5.1	6.2	6.2	5.1	5.1	5.1	5.1
70°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	0.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
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	1.0	0.0	1.0	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



TEST NUMBER: P170776

CATALOG NUMBER: LDA4A18840D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8	151.8
2.5°	278.9	286.1	293.3	291.2	281.0	279.9	275.8	277.9	216.4	175.3	146.6
5°	707.5	716.7	726.0	720.9	695.2	689.1	668.6	664.5	422.5	207.1	140.5
7.5°	1293.0	1298.1	1305.3	1299.2	1261.2	1243.8	1200.7	1158.7	710.6	250.2	130.2
10°	1927.7	1925.7	1928.8	1920.6	1873.4	1839.6	1772.9	1743.2	1006.9	287.1	115.9
12.5°	2668.1	2659.9	2614.7	2636.3	2569.6	2500.9	2391.2	2298.9	1286.9	307.6	102.5
15°	3532.5	3507.9	3491.5	3466.8	3384.8	3274.1	3106.9	3004.4	1519.6	305.6	89.2
17.5°	4391.8	4351.8	4280.0	4289.2	4193.9	4039.0	3818.6	3643.2	1680.6	279.9	79.0
20°	5204.9	5145.4	5055.2	5048.0	4933.2	4729.1	4451.2	4233.8	1768.8	237.9	71.8
22.5°	5988.3	5896.0	5775.0	5737.1	5589.4	5300.3	4937.3	4672.7	1777.0	198.9	86.1
25°	6605.6	6489.7	6355.4	6289.8	6126.7	5757.6	5305.4	4980.3	1711.4	196.9	165.1
27.5°	6950.1	6818.9	6684.5	6595.3	6430.2	6011.9	5500.2	5124.9	1598.6	211.2	156.9
30°	6968.6	6820.9	6681.5	6568.7	6404.6	5957.5	5414.1	5023.4	1395.6	133.3	59.5
32.5°	6662.0	6504.1	6364.6	6237.5	6075.4	5625.3	5092.1	4718.9	1135.1	93.3	42.0
35°	6125.7	5962.7	5829.4	5695.0	5543.3	5119.8	4630.7	4283.1	867.5	73.8	31.8
37.5°	5395.6	5244.9	5127.0	5035.7	4871.6	4534.3	4087.2	3719.1	613.2	52.3	19.5
40°	4578.4	4451.2	4354.8	4275.9	4124.1	3824.7	3373.5	3062.8	372.2	36.9	13.3
42.5°	3756.0	3637.1	3552.0	3477.1	3336.6	3072.1	2700.9	2389.2	178.4	25.6	9.2
45°	2921.3	2814.7	2742.9	2675.2	2549.1	2288.7	1994.4	1768.8	115.9	18.5	7.2
47.5°	1995.4	1940.0	1822.1	1748.3	1619.1	1420.2	1144.3	896.2	76.9	13.3	5.1
50°	829.5	800.8	722.9	672.7	598.8	497.3	360.9	302.5	47.2	9.2	4.1
52.5°	322.0	314.8	295.3	284.0	265.6	238.9	198.9	177.4	28.7	7.2	4.1
55°	173.3	171.2	161.0	154.8	144.6	131.3	107.7	94.3	18.5	5.1	3.1
57.5°	80.0	79.0	73.8	73.8	66.7	61.5	51.3	46.1	11.3	4.1	3.1
60°	37.9	37.9	35.9	35.9	32.8	30.8	25.6	23.6	7.2	3.1	3.1
62.5°	18.5	18.5	18.5	18.5	17.4	16.4	14.4	13.3	5.1	3.1	3.1
65°	10.3	10.3	10.3	10.3	9.2	9.2	8.2	7.2	4.1	3.1	3.1
67.5°	5.1	5.1	5.1	5.1	5.1	5.1	4.1	4.1	3.1	3.1	3.1
70°	3.1	3.1	3.1	3.1	3.1	2.1	2.1	2.1	2.1	3.1	3.1
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
80°	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
82.5°	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
87.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
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: P170776

CATALOG NUMBER: LDA4A18840D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	151.8	151.8	151.8	151.8
2.5°	126.1	109.7	101.5	99.5
5°	103.6	81.0	69.7	65.6
7.5°	84.1	58.4	49.2	45.1
10°	66.7	46.1	36.9	33.8
12.5°	55.4	36.9	29.7	27.7
15°	47.2	31.8	26.7	25.6
17.5°	43.1	33.8	31.8	32.8
20°	52.3	55.4	64.6	66.7
22.5°	110.7	191.7	260.4	275.8
25°	230.7	276.9	287.1	297.4
27.5°	128.2	99.5	97.4	101.5
30°	52.3	53.3	55.4	57.4
32.5°	39.0	39.0	37.9	39.0
35°	26.7	24.6	23.6	24.6
37.5°	16.4	15.4	14.4	14.4
40°	11.3	10.3	9.2	9.2
42.5°	8.2	6.2	5.1	5.1
45°	6.2	4.1	3.1	2.1
47.5°	5.1	3.1	1.0	1.0
50°	4.1	2.1	1.0	0.0
52.5°	3.1	2.1	1.0	0.0
55°	3.1	2.1	0.0	0.0
57.5°	3.1	2.1	0.0	0.0
60°	3.1	2.1	1.0	0.0
62.5°	3.1	2.1	1.0	1.0
65°	3.1	2.1	1.0	0.0
67.5°	3.1	2.1	1.0	0.0
70°	3.1	2.1	1.0	0.0
72.5°	4.1	2.1	1.0	0.0
75°	4.1	3.1	1.0	0.0
77.5°	4.1	3.1	1.0	0.0
80°	4.1	3.1	1.0	0.0
82.5°	4.1	3.1	1.0	0.0
85°	4.1	3.1	1.0	0.0
87.5°	4.1	3.1	1.0	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)