

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: P170774

Luminaire Tested: **LDA4A18830D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170774  
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: LDA4A18830D010TE 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 / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1891.1 lumens  
Efficiency: N/A  
Efficacy: 64.9 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

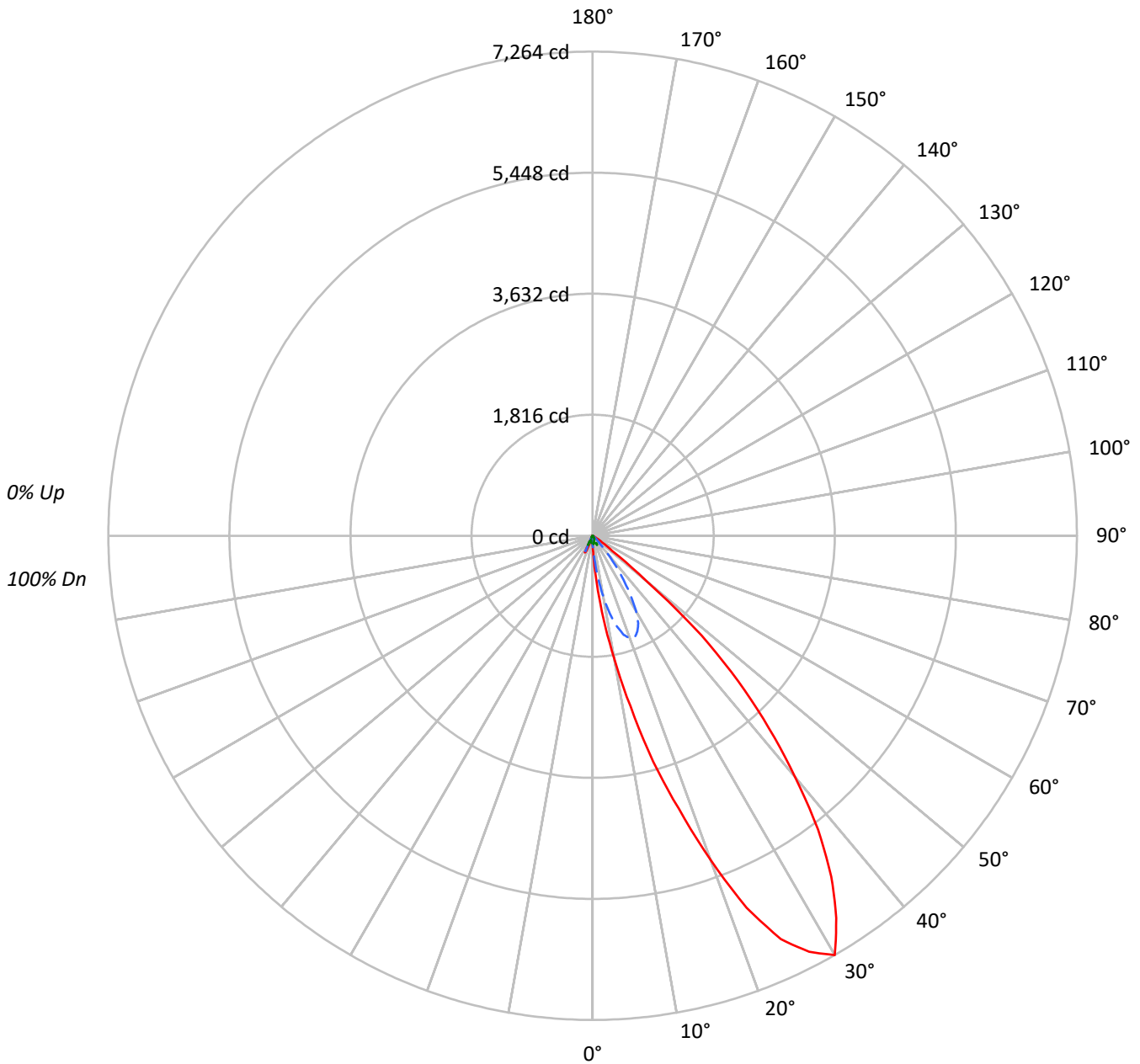
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170774

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LAL1 30° Tilt

### Luminous Intensity Polar Plot





TEST NUMBER: P170774

CATALOG NUMBER: LDA4A18830D010TE 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°	17355	17355	17355
5°	89247	16133	7540
10°	235242	13464	3933
15°	447730	10561	3039
20°	680054	8742	8112
25°	908691	20836	37536
30°	1034663	7862	7591
35°	939798	4442	3433
40°	761172	1997	1385
45°	538627	1169	331
50°	196536	729	0
55°	40902	624	0
60°	9843	715	0
65°	3065	846	0
70°	1046	1046	0
75°	477	1382	0
80°	0	2060	0
85°	0	4104	0



TEST NUMBER: P170774

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LAL1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	31.9	1.7
10°-20°	237.8	12.6
20°-30°	603.2	31.9
30°-40°	645.6	34.1
40°-50°	330.0	17.4
50°-60°	34.5	1.8
60°-70°	4.0	0.2
70°-80°	2.2	0.1
80°-90°	1.9	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°	872.9	46.2
0°-40°	1518.5	80.3
0°-60°	1882.9	99.6
0°-90°	1891.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1891.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	141	141	141	141	141	
5°	721	392	130	75	61	105
15°	3506	1409	83	30	24	1036
25°	6677	1587	153	257	276	3034
35°	6241	804	30	23	23	3832
45°	3088	108	7	4	2	2304
55°	190	17	3	2	0	258
65°	10	4	3	2	0	14
75°	1	2	3	3	0	1
85°	0	2	3	3	0	0
90°	0	0	0	0	0	



TEST NUMBER: P170774

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7
2.5°	284.3	287.2	266.3	272.9	277.7	268.2	266.3	266.3	276.7	271.0	280.5
5°	720.8	718.0	681.8	692.3	699.9	681.8	690.4	677.1	693.3	682.8	693.3
7.5°	1259.1	1292.4	1246.7	1257.2	1263.8	1244.8	1249.6	1230.6	1248.6	1236.3	1244.8
10°	1878.2	1912.4	1859.2	1867.7	1872.5	1854.4	1855.4	1830.6	1846.8	1833.5	1839.2
12.5°	2618.0	2631.4	2605.7	2612.3	2615.2	2591.4	2546.7	2551.5	2567.6	2544.8	2550.5
15°	3506.2	3496.7	3466.3	3488.2	3466.3	3454.9	3387.4	3383.6	3393.1	3367.4	3326.5
17.5°	4288.9	4361.2	4326.9	4339.3	4312.7	4312.7	4226.1	4211.9	4212.8	4144.4	4136.7
20°	5180.9	5273.2	5189.5	5193.3	5158.1	5157.1	5051.6	5022.1	5009.7	4931.8	4909.9
22.5°	6040.6	6067.2	6066.3	6050.1	5967.4	6014.9	5882.7	5836.1	5798.1	5709.7	5665.9
25°	6676.8	6760.5	6703.4	6662.5	6590.3	6650.2	6501.8	6441.0	6383.9	6309.7	6252.7
27.5°	7036.3	7114.3	7100.9	7040.1	6965.9	7023.9	6861.3	6782.4	6701.5	6647.3	6576.0
30°	7264.5	7383.4	7344.4	7212.2	7103.8	7122.8	6940.2	6834.7	6745.3	6689.2	6598.8
32.5°	6801.4	6924.1	6912.6	6816.6	6760.5	6807.1	6648.3	6543.7	6458.1	6413.4	6312.6
35°	6241.3	6384.9	6353.5	6273.6	6232.7	6286.9	6131.9	6044.4	5957.9	5918.9	5808.6
37.5°	5555.6	5690.6	5659.3	5583.2	5543.2	5583.2	5434.8	5354.0	5272.2	5231.3	5156.2
40°	4727.3	4846.2	4812.9	4742.5	4709.2	4737.8	4609.4	4539.0	4469.6	4439.2	4339.3
42.5°	3918.0	4013.1	3982.7	3921.8	3896.1	3915.2	3809.6	3746.8	3686.0	3660.3	3601.3
45°	3087.8	3182.0	3152.5	3100.2	3076.4	3086.9	2998.4	2942.3	2890.0	2866.2	2813.0
47.5°	2215.8	2321.3	2285.2	2240.5	2215.8	2211.0	2133.0	2082.6	2087.4	2006.6	1957.1
50°	1024.2	1113.6	1077.5	1053.7	1029.9	1016.6	989.0	932.0	948.1	874.9	846.4
52.5°	371.8	393.7	385.1	377.5	369.9	367.1	357.6	343.3	345.2	327.1	318.6
55°	190.2	200.7	197.8	193.0	193.0	190.2	185.4	179.7	175.9	173.1	170.2
57.5°	87.5	93.2	91.3	89.4	89.4	87.5	85.6	82.7	84.6	79.9	78.9
60°	39.9	42.8	41.8	40.9	40.9	40.9	39.9	39.0	39.0	38.0	37.1
62.5°	19.0	20.9	20.0	20.0	20.0	20.0	19.0	19.0	19.0	19.0	18.1
65°	10.5	10.5	10.5	10.5	10.5	10.5	10.5	9.5	10.5	9.5	9.5
67.5°	5.7	5.7	5.7	5.7	4.8	5.7	5.7	4.8	4.8	4.8	4.8
70°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
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: P170774

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7	140.7
2.5°	258.7	265.3	272.0	270.1	260.6	259.6	255.8	257.7	200.7	162.6	136.0
5°	656.2	664.7	673.3	668.5	644.8	639.1	620.0	616.2	391.8	192.1	130.3
7.5°	1199.2	1203.9	1210.6	1204.9	1169.7	1153.5	1113.6	1074.6	659.0	232.0	120.8
10°	1787.8	1785.9	1788.8	1781.2	1737.4	1706.1	1644.2	1616.7	933.9	266.3	107.5
12.5°	2474.4	2466.8	2425.0	2445.0	2383.1	2319.4	2217.7	2132.1	1193.5	285.3	95.1
15°	3276.1	3253.3	3238.1	3215.3	3139.2	3036.5	2881.5	2786.4	1409.3	283.4	82.7
17.5°	4073.0	4035.9	3969.4	3977.9	3889.5	3745.9	3541.4	3378.8	1558.6	259.6	73.2
20°	4827.2	4772.0	4688.3	4681.7	4575.1	4385.9	4128.2	3926.6	1640.4	220.6	66.6
22.5°	5553.7	5468.1	5355.9	5320.7	5183.8	4915.6	4578.9	4333.6	1648.0	184.5	79.9
25°	6126.2	6018.7	5894.1	5833.3	5682.1	5339.7	4920.4	4618.9	1587.2	182.6	153.1
27.5°	6445.7	6324.0	6199.4	6116.7	5963.6	5575.6	5101.0	4753.0	1482.6	195.9	145.5
30°	6462.8	6325.9	6196.6	6092.0	5939.8	5525.2	5021.2	4658.8	1294.3	123.6	55.2
32.5°	6178.5	6032.0	5902.7	5784.8	5634.5	5217.1	4722.5	4376.4	1052.7	86.5	39.0
35°	5681.1	5529.9	5406.3	5281.7	5141.0	4748.2	4294.6	3972.2	804.5	68.5	29.5
37.5°	5004.0	4864.2	4754.9	4670.2	4518.1	4205.2	3790.6	3449.2	568.7	48.5	18.1
40°	4246.1	4128.2	4038.8	3965.6	3824.8	3547.1	3128.7	2840.6	345.2	34.2	12.4
42.5°	3483.4	3373.1	3294.2	3224.8	3094.5	2849.1	2504.9	2215.8	165.5	23.8	8.6
45°	2709.3	2610.4	2543.9	2481.1	2364.1	2122.6	1849.6	1640.4	107.5	17.1	6.7
47.5°	1850.6	1799.2	1689.9	1621.4	1501.6	1317.1	1061.3	831.2	71.3	12.4	4.8
50°	769.3	742.7	670.4	623.8	555.4	461.2	334.7	280.5	43.7	8.6	3.8
52.5°	298.6	291.9	273.9	263.4	246.3	221.6	184.5	164.5	26.6	6.7	3.8
55°	160.7	158.8	149.3	143.6	134.1	121.7	99.9	87.5	17.1	4.8	2.9
57.5°	74.2	73.2	68.5	68.5	61.8	57.1	47.5	42.8	10.5	3.8	2.9
60°	35.2	35.2	33.3	33.3	30.4	28.5	23.8	21.9	6.7	2.9	2.9
62.5°	17.1	17.1	17.1	17.1	16.2	15.2	13.3	12.4	4.8	2.9	2.9
65°	9.5	9.5	9.5	9.5	8.6	8.6	7.6	6.7	3.8	2.9	2.9
67.5°	4.8	4.8	4.8	4.8	4.8	4.8	3.8	3.8	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.9	2.9	1.9	1.9	1.9	1.9	2.9	2.9
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9	2.9
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9	2.9
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9	2.9
80°	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9	2.9
82.5°	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9	2.9
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	2.9	2.9
87.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9	2.9
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: P170774

CATALOG NUMBER: LDA4A18830D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	140.7	140.7	140.7	140.7
2.5°	117.0	101.8	94.1	92.2
5°	96.0	75.1	64.7	60.9
7.5°	78.0	54.2	45.6	41.8
10°	61.8	42.8	34.2	31.4
12.5°	51.4	34.2	27.6	25.7
15°	43.7	29.5	24.7	23.8
17.5°	39.9	31.4	29.5	30.4
20°	48.5	51.4	59.9	61.8
22.5°	102.7	177.8	241.5	255.8
25°	214.0	256.8	266.3	275.8
27.5°	118.9	92.2	90.3	94.1
30°	48.5	49.5	51.4	53.3
32.5°	36.1	36.1	35.2	36.1
35°	24.7	22.8	21.9	22.8
37.5°	15.2	14.3	13.3	13.3
40°	10.5	9.5	8.6	8.6
42.5°	7.6	5.7	4.8	4.8
45°	5.7	3.8	2.9	1.9
47.5°	4.8	2.9	1.0	1.0
50°	3.8	1.9	1.0	0.0
52.5°	2.9	1.9	1.0	0.0
55°	2.9	1.9	0.0	0.0
57.5°	2.9	1.9	0.0	0.0
60°	2.9	1.9	1.0	0.0
62.5°	2.9	1.9	1.0	1.0
65°	2.9	1.9	1.0	0.0
67.5°	2.9	1.9	1.0	0.0
70°	2.9	1.9	1.0	0.0
72.5°	3.8	1.9	1.0	0.0
75°	3.8	2.9	1.0	0.0
77.5°	3.8	2.9	1.0	0.0
80°	3.8	2.9	1.0	0.0
82.5°	3.8	2.9	1.0	0.0
85°	3.8	2.9	1.0	0.0
87.5°	3.8	2.9	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)