

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: P170773

Luminaire Tested: **LDA4A18827D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170773  
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: LDA4A18827D010TE 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 / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1746.8 lumens  
Efficiency: N/A  
Efficacy: 60.0 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

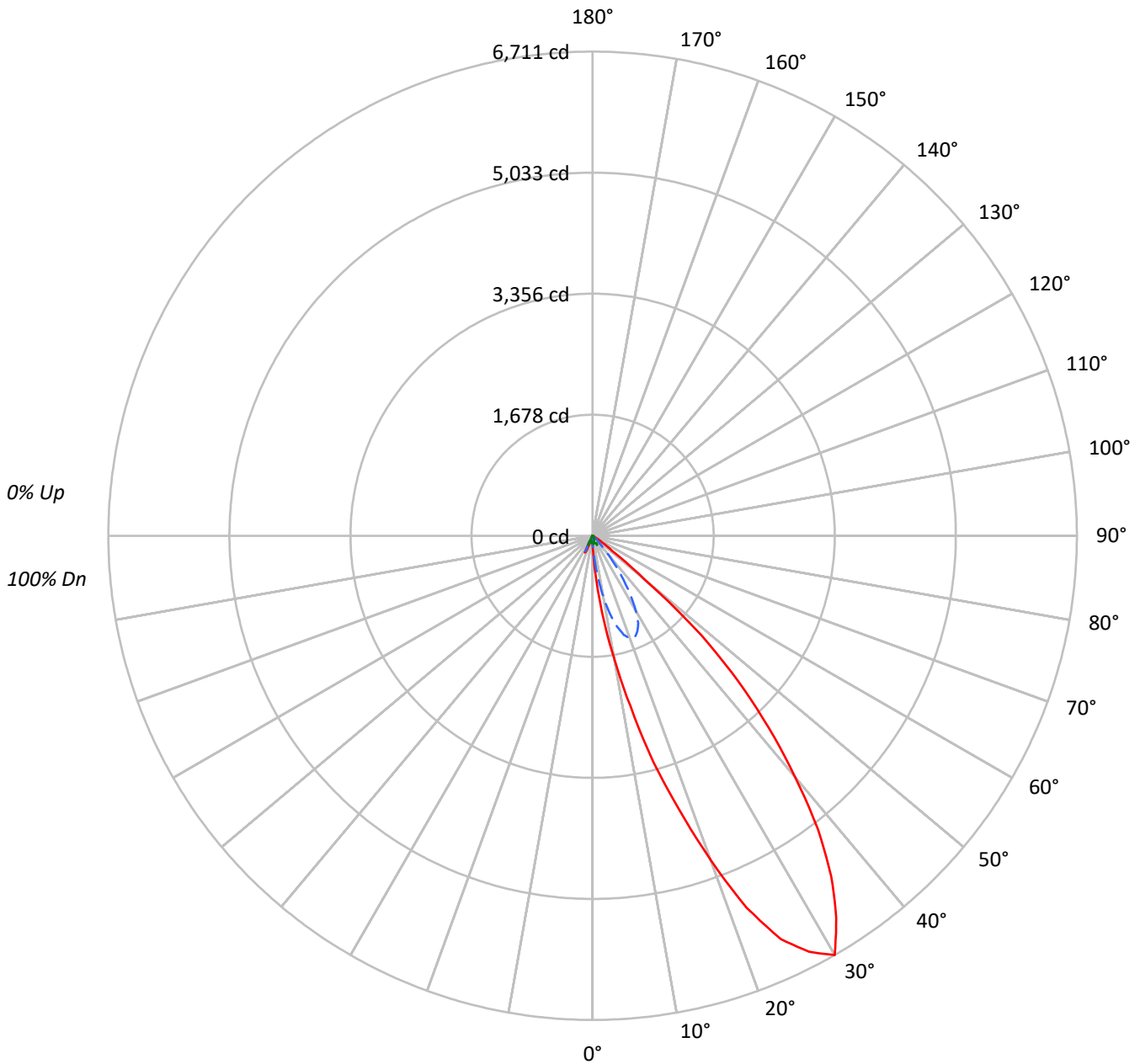
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170773

CATALOG NUMBER: LDA4A18827D010TE LAR25NF 4LAL1 30° Tilt

### Luminous Intensity Polar Plot





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CATALOG NUMBER: LDA4A18827D010TE 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°	16035	16035	16035
5°	82450	14908	6959
10°	217306	12437	3632
15°	413610	9756	2809
20°	628218	8073	7495
25°	839432	19244	34677
30°	955801	7264	7007
35°	868168	4096	3177
40°	703158	1836	1272
45°	497582	1064	314
50°	181549	672	0
55°	37784	559	0
60°	9103	641	0
65°	2831	759	0
70°	938	938	0
75°	429	1239	0
80°	0	1847	0
85°	0	3680	0



TEST NUMBER: P170773

CATALOG NUMBER: LDA4A18827D010TE LAR25NF 4LAL1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	29.4	1.7
10°-20°	219.7	12.6
20°-30°	557.2	31.9
30°-40°	596.4	34.1
40°-50°	304.8	17.5
50°-60°	31.8	1.8
60°-70°	3.7	0.2
70°-80°	2.0	0.1
80°-90°	1.8	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°	806.4	46.2
0°-40°	1402.7	80.3
0°-60°	1739.4	99.6
0°-90°	1746.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1746.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	130	130	130	130	130	
5°	666	362	120	69	56	97
15°	3239	1302	76	27	22	957
25°	6168	1466	141	237	255	2802
35°	5766	743	27	21	21	3540
45°	2852	99	6	4	2	2129
55°	176	16	3	2	0	238
65°	10	4	3	2	0	13
75°	1	2	3	3	0	1
85°	0	2	3	3	0	0
90°	0	0	0	0	0	



TEST NUMBER: P170773

CATALOG NUMBER: LDA4A18827D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
2.5°	262.7	265.3	246.0	252.1	256.5	247.7	246.0	246.0	255.6	250.4	259.2
5°	665.9	663.3	629.9	639.5	646.6	629.9	637.8	625.5	640.4	630.8	640.4
7.5°	1163.1	1193.9	1151.7	1161.4	1167.5	1149.9	1154.3	1136.8	1153.5	1142.0	1149.9
10°	1735.0	1766.6	1717.5	1725.4	1729.8	1713.1	1713.9	1691.1	1706.0	1693.7	1699.0
12.5°	2418.5	2430.8	2407.1	2413.2	2415.9	2393.9	2352.6	2357.0	2371.9	2350.8	2356.1
15°	3239.0	3230.2	3202.1	3222.3	3202.1	3191.6	3129.2	3125.7	3134.5	3110.7	3073.0
17.5°	3962.0	4028.8	3997.1	4008.6	3984.0	3984.0	3904.0	3890.8	3891.7	3828.5	3821.4
20°	4786.0	4871.2	4793.9	4797.5	4764.9	4764.1	4666.6	4639.3	4627.9	4555.9	4535.7
22.5°	5580.2	5604.8	5603.9	5589.0	5512.5	5556.5	5434.4	5391.3	5356.2	5274.5	5234.1
25°	6167.9	6245.2	6192.5	6154.7	6088.0	6143.3	6006.3	5950.0	5897.3	5828.8	5776.1
27.5°	6500.0	6572.0	6559.7	6503.5	6435.0	6488.6	6338.3	6265.4	6190.7	6140.7	6074.8
30°	6710.8	6820.6	6784.6	6662.5	6562.3	6579.9	6411.2	6313.7	6231.2	6179.3	6095.9
32.5°	6283.0	6396.3	6385.8	6297.0	6245.2	6288.3	6141.5	6044.9	5965.8	5924.6	5831.4
35°	5765.6	5898.2	5869.2	5795.4	5757.6	5807.7	5664.5	5583.7	5503.8	5467.7	5365.8
37.5°	5132.2	5256.9	5227.9	5157.6	5120.7	5157.6	5020.6	4945.9	4870.4	4832.6	4763.2
40°	4367.0	4476.8	4446.1	4381.0	4350.3	4376.7	4258.1	4193.0	4128.9	4100.8	4008.6
42.5°	3619.4	3707.2	3679.1	3622.9	3599.2	3616.8	3519.2	3461.3	3405.0	3381.3	3326.9
45°	2852.5	2939.4	2912.2	2863.9	2841.9	2851.6	2769.9	2718.1	2669.7	2647.8	2598.6
47.5°	2046.9	2144.4	2111.0	2069.7	2046.9	2042.5	1970.5	1923.9	1928.3	1853.6	1807.9
50°	946.1	1028.7	995.3	973.4	951.4	939.1	913.6	860.9	875.9	808.2	781.9
52.5°	343.5	363.7	355.8	348.8	341.7	339.1	330.3	317.1	318.9	302.2	294.3
55°	175.7	185.4	182.7	178.3	178.3	175.7	171.3	166.0	162.5	159.9	157.3
57.5°	80.8	86.1	84.3	82.6	82.6	80.8	79.1	76.4	78.2	73.8	72.9
60°	36.9	39.5	38.7	37.8	37.8	37.8	36.9	36.0	36.0	35.1	34.3
62.5°	17.6	19.3	18.4	18.4	18.4	18.4	17.6	17.6	17.6	17.6	16.7
65°	9.7	9.7	9.7	9.7	9.7	9.7	9.7	8.8	9.7	8.8	8.8
67.5°	5.3	5.3	5.3	5.3	4.4	5.3	5.3	4.4	4.4	4.4	4.4
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
77.5°	0.0	0.9	0.9	0.9	0.0	0.9	0.9	0.9	0.9	0.9	0.9
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	0.9	0.0	0.9	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: P170773

CATALOG NUMBER: LDA4A18827D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0	130.0
2.5°	239.0	245.1	251.2	249.5	240.7	239.8	236.3	238.1	185.4	150.2	125.6
5°	606.2	614.1	622.0	617.6	595.6	590.3	572.8	569.3	361.9	177.5	120.4
7.5°	1107.8	1112.2	1118.3	1113.1	1080.5	1065.6	1028.7	992.7	608.8	214.4	111.6
10°	1651.6	1649.8	1652.4	1645.4	1605.0	1576.0	1518.9	1493.4	862.7	246.0	99.3
12.5°	2285.8	2278.8	2240.2	2258.6	2201.5	2142.6	2048.6	1969.6	1102.5	263.5	87.8
15°	3026.4	3005.3	2991.3	2970.2	2899.9	2805.0	2661.8	2574.0	1301.9	261.8	76.4
17.5°	3762.6	3728.3	3666.8	3674.7	3593.0	3460.4	3271.5	3121.3	1439.9	239.8	67.6
20°	4459.2	4408.3	4331.0	4324.8	4226.4	4051.6	3813.5	3627.3	1515.4	203.8	61.5
22.5°	5130.4	5051.3	4947.7	4915.2	4788.7	4540.9	4229.9	4003.3	1522.4	170.4	73.8
25°	5659.3	5560.0	5444.9	5388.7	5249.0	4932.7	4545.3	4266.8	1466.2	168.7	141.4
27.5°	5954.4	5842.0	5726.9	5650.5	5509.0	5150.6	4712.2	4390.7	1369.6	181.0	134.4
30°	5970.2	5843.7	5724.3	5627.6	5487.1	5104.0	4638.4	4303.7	1195.6	114.2	51.0
32.5°	5707.6	5572.3	5452.8	5343.9	5205.1	4819.4	4362.6	4042.8	972.5	79.9	36.0
35°	5248.1	5108.4	4994.2	4879.2	4749.1	4386.3	3967.3	3669.5	743.2	63.3	27.2
37.5°	4622.6	4493.5	4392.5	4314.3	4173.7	3884.7	3501.7	3186.3	525.3	44.8	16.7
40°	3922.5	3813.5	3731.0	3663.3	3533.3	3276.8	2890.2	2624.1	318.9	31.6	11.4
42.5°	3217.9	3116.0	3043.1	2979.0	2858.6	2632.0	2314.0	2046.9	152.9	22.0	7.9
45°	2502.8	2411.5	2350.0	2292.0	2183.9	1960.8	1708.7	1515.4	99.3	15.8	6.1
47.5°	1709.5	1662.1	1561.1	1497.8	1387.1	1216.7	980.4	767.8	65.9	11.4	4.4
50°	710.7	686.1	619.3	576.3	513.0	426.1	309.2	259.2	40.4	7.9	3.5
52.5°	275.8	269.7	253.0	243.3	227.5	204.7	170.4	152.0	24.6	6.1	3.5
55°	148.5	146.7	137.9	132.7	123.9	112.4	92.2	80.8	15.8	4.4	2.6
57.5°	68.5	67.6	63.3	63.3	57.1	52.7	43.9	39.5	9.7	3.5	2.6
60°	32.5	32.5	30.7	30.7	28.1	26.4	22.0	20.2	6.1	2.6	2.6
62.5°	15.8	15.8	15.8	15.8	14.9	14.1	12.3	11.4	4.4	2.6	2.6
65°	8.8	8.8	8.8	8.8	7.9	7.9	7.0	6.1	3.5	2.6	2.6
67.5°	4.4	4.4	4.4	4.4	4.4	4.4	3.5	3.5	2.6	2.6	2.6
70°	2.6	2.6	2.6	2.6	2.6	1.8	1.8	1.8	1.8	2.6	2.6
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
80°	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
82.5°	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
85°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.6	2.6
87.5°	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
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: P170773

CATALOG NUMBER: LDA4A18827D010TE LAR25NF 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	130.0	130.0	130.0	130.0
2.5°	108.1	94.0	87.0	85.2
5°	88.7	69.4	59.7	56.2
7.5°	72.0	50.1	42.2	38.7
10°	57.1	39.5	31.6	29.0
12.5°	47.4	31.6	25.5	23.7
15°	40.4	27.2	22.8	22.0
17.5°	36.9	29.0	27.2	28.1
20°	44.8	47.4	55.3	57.1
22.5°	94.9	164.3	223.1	236.3
25°	197.7	237.2	246.0	254.8
27.5°	109.8	85.2	83.5	87.0
30°	44.8	45.7	47.4	49.2
32.5°	33.4	33.4	32.5	33.4
35°	22.8	21.1	20.2	21.1
37.5°	14.1	13.2	12.3	12.3
40°	9.7	8.8	7.9	7.9
42.5°	7.0	5.3	4.4	4.4
45°	5.3	3.5	2.6	1.8
47.5°	4.4	2.6	0.9	0.9
50°	3.5	1.8	0.9	0.0
52.5°	2.6	1.8	0.9	0.0
55°	2.6	1.8	0.0	0.0
57.5°	2.6	1.8	0.0	0.0
60°	2.6	1.8	0.9	0.0
62.5°	2.6	1.8	0.9	0.9
65°	2.6	1.8	0.9	0.0
67.5°	2.6	1.8	0.9	0.0
70°	2.6	1.8	0.9	0.0
72.5°	3.5	1.8	0.9	0.0
75°	3.5	2.6	0.9	0.0
77.5°	3.5	2.6	0.9	0.0
80°	3.5	2.6	0.9	0.0
82.5°	3.5	2.6	0.9	0.0
85°	3.5	2.6	0.9	0.0
87.5°	3.5	2.6	0.9	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)