

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: P170789

Luminaire Tested: **LDA4A13827D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170789  
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: LDA4A13827D010TE 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: 1409.9 lumens  
Efficiency: N/A  
Efficacy: 63.3 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

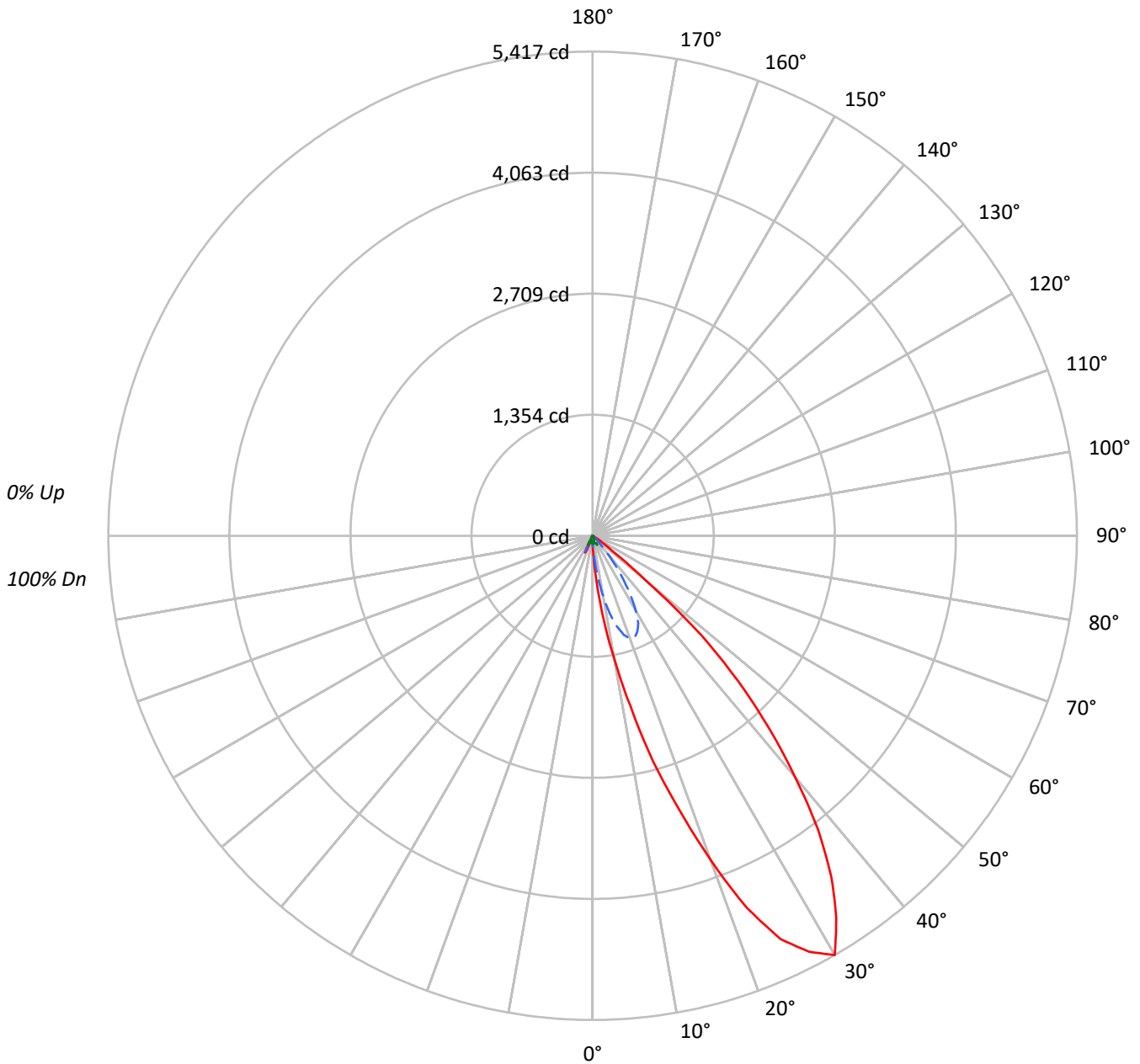
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	12939	12939	12939
5°	66552	12023	5621
10°	175398	10032	2931
15°	333850	7879	2260
20°	507077	6511	6051
25°	677558	15542	27982
30°	771486	5854	5654
35°	700741	3313	2560
40°	567566	1481	1031
45°	401624	872	244
50°	146548	537	0
55°	30494	452	0
60°	7351	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°	23.8	1.7
10°-20°	177.3	12.6
20°-30°	449.8	31.9
30°-40°	481.4	34.1
40°-50°	246.0	17.5
50°-60°	25.7	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°	650.9	46.2
0°-40°	1132.2	80.3
0°-60°	1404.0	99.6
0°-90°	1409.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1409.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	105	105	105	105	105	
5°	538	292	97	56	45	78
15°	2614	1051	62	22	18	772
25°	4978	1184	114	192	206	2262
35°	4654	600	22	17	17	2857
45°	2302	80	5	3	1	1718
55°	142	13	2	1	0	192
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°	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9
2.5°	212.0	214.1	198.5	203.5	207.1	200.0	198.5	198.5	206.3	202.1	209.2
5°	537.5	535.4	508.4	516.2	521.9	508.4	514.8	504.9	516.9	509.1	516.9
7.5°	938.8	963.6	929.6	937.4	942.4	928.2	931.7	917.6	931.0	921.8	928.2
10°	1400.4	1426.0	1386.3	1392.6	1396.2	1382.7	1383.4	1365.0	1377.0	1367.1	1371.4
12.5°	1952.1	1962.0	1942.9	1947.9	1950.0	1932.3	1898.9	1902.5	1914.5	1897.5	1901.8
15°	2614.4	2607.3	2584.6	2600.9	2584.6	2576.1	2525.8	2522.9	2530.0	2510.9	2480.4
17.5°	3198.0	3251.9	3226.3	3235.6	3215.7	3215.7	3151.2	3140.5	3141.2	3090.2	3084.5
20°	3863.1	3931.9	3869.5	3872.3	3846.1	3845.4	3766.7	3744.7	3735.5	3677.3	3661.0
22.5°	4504.1	4524.0	4523.2	4511.2	4449.5	4485.0	4386.4	4351.6	4323.3	4257.3	4224.7
25°	4978.5	5040.9	4998.3	4967.8	4914.0	4958.6	4848.0	4802.6	4760.1	4704.8	4662.2
27.5°	5246.5	5304.7	5294.7	5249.3	5194.0	5237.3	5116.0	5057.2	4996.9	4956.5	4903.3
30°	5416.7	5505.3	5476.3	5377.7	5296.9	5311.0	5174.9	5096.2	5029.5	4987.7	4920.3
32.5°	5071.4	5162.8	5154.3	5082.7	5040.9	5075.6	4957.2	4879.2	4815.4	4782.1	4706.9
35°	4653.7	4760.8	4737.4	4677.8	4647.3	4687.8	4572.2	4506.9	4442.4	4413.3	4331.1
37.5°	4142.5	4243.2	4219.8	4163.0	4133.3	4163.0	4052.4	3992.1	3931.2	3900.7	3844.7
40°	3524.9	3613.5	3588.7	3536.2	3511.4	3532.7	3436.9	3384.5	3332.7	3310.0	3235.6
42.5°	2921.4	2992.3	2969.6	2924.3	2905.1	2919.3	2840.6	2793.8	2748.4	2729.3	2685.3
45°	2302.4	2372.6	2350.6	2311.6	2293.9	2301.7	2235.7	2193.9	2154.9	2137.2	2097.5
47.5°	1652.2	1730.9	1703.9	1670.6	1652.2	1648.6	1590.5	1552.9	1556.4	1496.2	1459.3
50°	763.7	830.3	803.4	785.7	767.9	758.0	737.4	694.9	707.0	652.4	631.1
52.5°	277.3	293.6	287.2	281.5	275.8	273.7	266.6	256.0	257.4	243.9	237.5
55°	141.8	149.6	147.5	143.9	143.9	141.8	138.3	134.0	131.2	129.1	126.9
57.5°	65.2	69.5	68.1	66.7	66.7	65.2	63.8	61.7	63.1	59.6	58.9
60°	29.8	31.9	31.2	30.5	30.5	30.5	29.8	29.1	29.1	28.4	27.7
62.5°	14.2	15.6	14.9	14.9	14.9	14.9	14.2	14.2	14.2	14.2	13.5
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°	4.3	4.3	4.3	4.3	3.5	4.3	4.3	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°	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9	104.9
2.5°	192.9	197.8	202.8	201.4	194.3	193.6	190.7	192.2	149.6	121.3	101.4
5°	489.3	495.6	502.0	498.5	480.8	476.5	462.3	459.5	292.1	143.2	97.1
7.5°	894.2	897.7	902.7	898.4	872.2	860.1	830.3	801.3	491.4	173.0	90.1
10°	1333.1	1331.7	1333.8	1328.1	1295.5	1272.1	1226.0	1205.4	696.3	198.5	80.1
12.5°	1845.0	1839.4	1808.2	1823.1	1777.0	1729.5	1653.6	1589.8	889.9	212.7	70.9
15°	2442.8	2425.8	2414.4	2397.4	2340.7	2264.1	2148.5	2077.6	1050.9	211.3	61.7
17.5°	3037.0	3009.4	2959.7	2966.1	2900.2	2793.1	2640.6	2519.4	1162.2	193.6	54.6
20°	3599.3	3558.2	3495.8	3490.8	3411.4	3270.3	3078.1	2927.8	1223.2	164.5	49.6
22.5°	4141.1	4077.2	3993.6	3967.3	3865.2	3665.3	3414.2	3231.3	1228.8	137.6	59.6
25°	4567.9	4487.8	4394.9	4349.5	4236.8	3981.5	3668.8	3444.0	1183.5	136.1	114.2
27.5°	4806.2	4715.4	4622.5	4560.8	4446.7	4157.4	3803.5	3544.0	1105.5	146.1	108.5
30°	4818.9	4716.8	4620.4	4542.4	4428.9	4119.8	3744.0	3473.8	965.1	92.2	41.1
32.5°	4606.9	4497.7	4401.3	4313.4	4201.3	3890.0	3521.3	3263.2	785.0	64.5	29.1
35°	4236.1	4123.3	4031.1	3938.3	3833.3	3540.5	3202.2	2961.8	599.9	51.1	22.0
37.5°	3731.2	3627.0	3545.4	3482.3	3368.9	3135.6	2826.4	2571.8	424.0	36.2	13.5
40°	3166.1	3078.1	3011.5	2956.9	2851.9	2644.9	2332.9	2118.0	257.4	25.5	9.2
42.5°	2597.4	2515.1	2456.3	2404.5	2307.4	2124.4	1867.7	1652.2	123.4	17.7	6.4
45°	2020.2	1946.4	1896.8	1850.0	1762.8	1582.7	1379.2	1223.2	80.1	12.8	5.0
47.5°	1379.9	1341.6	1260.0	1209.0	1119.6	982.1	791.3	619.7	53.2	9.2	3.5
50°	573.6	553.8	499.9	465.2	414.1	343.9	249.6	209.2	32.6	6.4	2.8
52.5°	222.7	217.7	204.2	196.4	183.7	165.2	137.6	122.7	19.9	5.0	2.8
55°	119.8	118.4	111.3	107.1	100.0	90.8	74.5	65.2	12.8	3.5	2.1
57.5°	55.3	54.6	51.1	51.1	46.1	42.5	35.5	31.9	7.8	2.8	2.1
60°	26.2	26.2	24.8	24.8	22.7	21.3	17.7	16.3	5.0	2.1	2.1
62.5°	12.8	12.8	12.8	12.8	12.1	11.3	9.9	9.2	3.5	2.1	2.1
65°	7.1	7.1	7.1	7.1	6.4	6.4	5.7	5.0	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°	104.9	104.9	104.9	104.9
2.5°	87.2	75.9	70.2	68.8
5°	71.6	56.0	48.2	45.4
7.5°	58.1	40.4	34.0	31.2
10°	46.1	31.9	25.5	23.4
12.5°	38.3	25.5	20.6	19.1
15°	32.6	22.0	18.4	17.7
17.5°	29.8	23.4	22.0	22.7
20°	36.2	38.3	44.7	46.1
22.5°	76.6	132.6	180.1	190.7
25°	159.5	191.5	198.5	205.6
27.5°	88.6	68.8	67.4	70.2
30°	36.2	36.9	38.3	39.7
32.5°	26.9	26.9	26.2	26.9
35°	18.4	17.0	16.3	17.0
37.5°	11.3	10.6	9.9	9.9
40°	7.8	7.1	6.4	6.4
42.5°	5.7	4.3	3.5	3.5
45°	4.3	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)