

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: P170780

Luminaire Tested: **LDA4A18940D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170780  
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: LDA4A18940D010TE 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 / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1749.7 lumens  
Efficiency: N/A  
Efficacy: 60.1 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

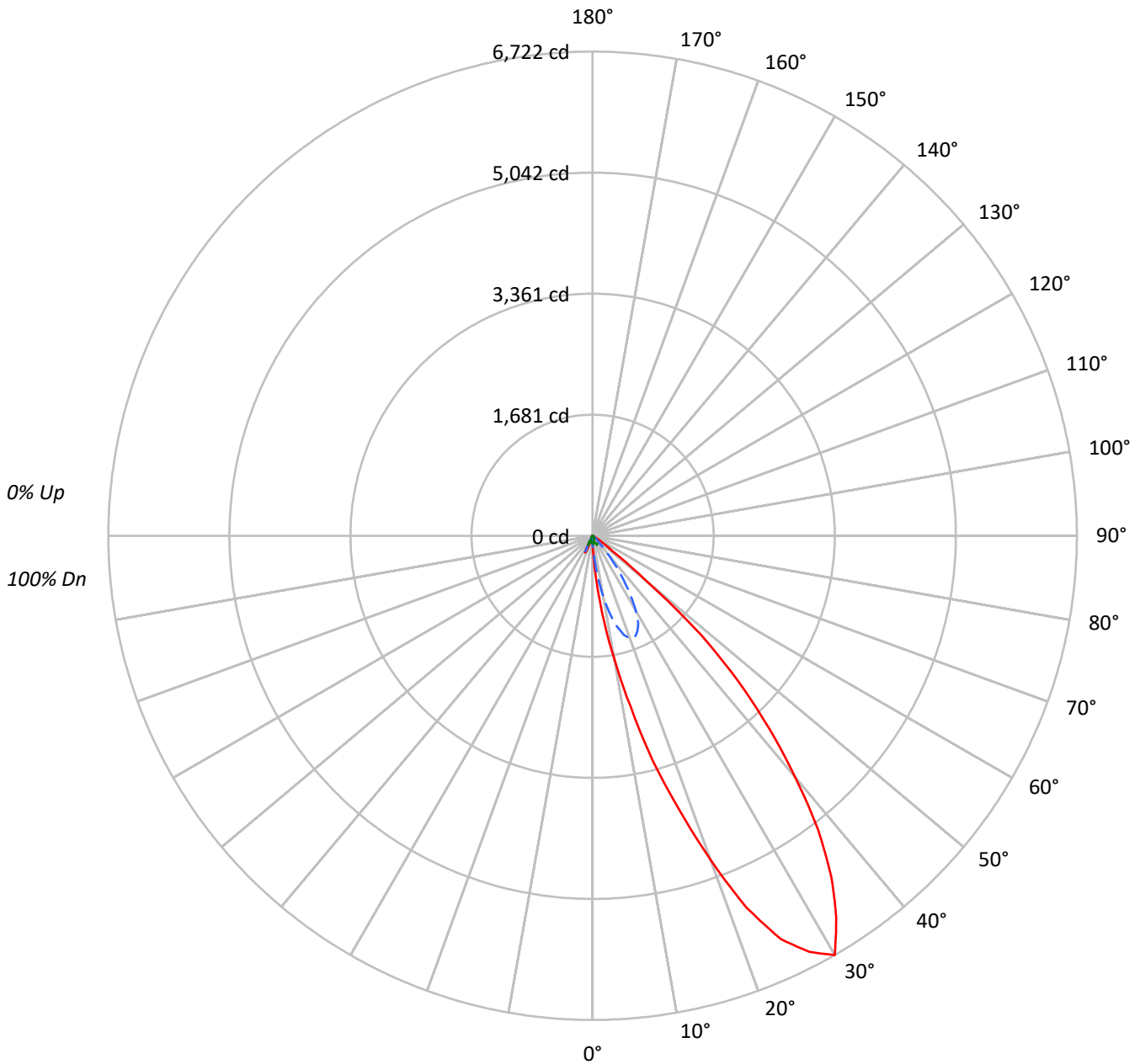
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	16060	16060	16060
5°	82586	14932	6971
10°	217669	12450	3632
15°	414287	9782	2809
20°	629255	8086	7508
25°	840820	19285	34732
30°	957382	7264	7022
35°	869598	4111	3177
40°	704317	1836	1272
45°	498402	1082	314
50°	181856	672	0
55°	37848	559	0
60°	9128	641	0
65°	2831	759	0
70°	938	938	0
75°	429	1239	0
80°	0	1847	0
85°	0	3680	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	29.5	1.7
10°-20°	220.1	12.6
20°-30°	558.1	31.9
30°-40°	597.3	34.1
40°-50°	305.3	17.5
50°-60°	31.9	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°	807.7	46.2
0°-40°	1405.1	80.3
0°-60°	1742.3	99.6
0°-90°	1749.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1749.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	130	130	130	130	130	
5°	667	362	121	70	56	97
15°	3244	1304	77	27	22	959
25°	6178	1469	142	238	255	2807
35°	5775	744	27	21	21	3546
45°	2857	99	6	4	2	2132
55°	176	16	3	2	0	239
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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2
2.5°	263.1	265.7	246.4	252.5	256.9	248.1	246.4	246.4	256.1	250.8	259.6
5°	667.0	664.4	630.9	640.6	647.6	630.9	638.8	626.5	641.5	631.8	641.5
7.5°	1165.0	1195.8	1153.6	1163.3	1169.4	1151.8	1156.2	1138.6	1155.4	1143.9	1151.8
10°	1737.9	1769.6	1720.3	1728.2	1732.6	1715.9	1716.8	1693.9	1708.8	1696.5	1701.8
12.5°	2422.5	2434.8	2411.0	2417.2	2419.8	2397.8	2356.5	2360.9	2375.8	2354.7	2360.0
15°	3244.3	3235.5	3207.4	3227.6	3207.4	3196.8	3134.4	3130.8	3139.6	3115.9	3078.0
17.5°	3968.5	4035.4	4003.7	4015.2	3990.5	3990.5	3910.5	3897.3	3898.1	3834.8	3827.8
20°	4793.9	4879.3	4801.8	4805.4	4772.8	4771.9	4674.3	4647.0	4635.5	4563.4	4543.1
22.5°	5589.4	5614.0	5613.2	5598.2	5521.6	5565.6	5443.3	5400.2	5365.0	5283.2	5242.7
25°	6178.1	6255.5	6202.7	6164.9	6098.0	6153.4	6016.2	5959.9	5907.1	5838.4	5785.6
27.5°	6510.7	6582.9	6570.5	6514.2	6445.6	6499.3	6348.8	6275.8	6201.0	6150.8	6084.8
30°	6721.9	6831.9	6795.8	6673.5	6573.2	6590.8	6421.8	6324.1	6241.4	6189.5	6105.9
32.5°	6293.4	6406.9	6396.3	6307.4	6255.5	6298.6	6151.7	6054.9	5975.7	5934.3	5841.1
35°	5775.1	5907.9	5878.9	5805.0	5767.1	5817.3	5673.9	5592.9	5512.8	5476.8	5374.7
37.5°	5140.6	5265.6	5236.5	5166.1	5129.2	5166.1	5028.9	4954.1	4878.4	4840.6	4771.0
40°	4374.2	4484.2	4453.4	4388.3	4357.5	4383.9	4265.1	4200.0	4135.7	4107.6	4015.2
42.5°	3625.4	3713.4	3685.2	3628.9	3605.1	3622.7	3525.1	3467.0	3410.7	3386.9	3332.3
45°	2857.2	2944.3	2917.0	2868.6	2846.6	2856.3	2774.5	2722.5	2674.1	2652.1	2602.9
47.5°	2050.3	2147.9	2114.5	2073.1	2050.3	2045.9	1973.7	1927.1	1931.5	1856.7	1810.9
50°	947.7	1030.4	997.0	975.0	953.0	940.7	915.1	862.3	877.3	809.5	783.1
52.5°	344.1	364.3	356.4	349.3	342.3	339.7	330.9	317.7	319.4	302.7	294.8
55°	176.0	185.7	183.0	178.6	178.6	176.0	171.6	166.3	162.8	160.1	157.5
57.5°	81.0	86.2	84.5	82.7	82.7	81.0	79.2	76.6	78.3	73.9	73.0
60°	37.0	39.6	38.7	37.8	37.8	37.8	37.0	36.1	36.1	35.2	34.3
62.5°	17.6	19.4	18.5	18.5	18.5	18.5	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



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**CANDELA DISTRIBUTION (continued):**

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2	130.2
2.5°	239.3	245.5	251.7	249.9	241.1	240.2	236.7	238.5	185.7	150.5	125.8
5°	607.2	615.1	623.0	618.6	596.6	591.3	573.7	570.2	362.5	177.7	120.6
7.5°	1109.6	1114.0	1120.2	1114.9	1082.3	1067.4	1030.4	994.3	609.8	214.7	111.8
10°	1654.3	1652.5	1655.2	1648.1	1607.7	1578.6	1521.4	1495.9	864.1	246.4	99.4
12.5°	2289.6	2282.6	2243.9	2262.3	2205.1	2146.2	2052.0	1972.8	1104.3	264.0	88.0
15°	3031.4	3010.3	2996.2	2975.1	2904.7	2809.7	2666.2	2578.2	1304.1	262.2	76.6
17.5°	3768.8	3734.5	3672.9	3680.8	3599.0	3466.1	3276.9	3126.4	1442.2	240.2	67.8
20°	4466.6	4415.6	4338.1	4332.0	4233.4	4058.3	3819.8	3633.3	1517.9	204.1	61.6
22.5°	5138.9	5059.7	4955.8	4923.3	4796.6	4548.4	4236.9	4009.9	1524.9	170.7	73.9
25°	5668.6	5569.2	5453.9	5397.6	5257.7	4940.9	4552.8	4273.9	1468.6	168.9	141.7
27.5°	5964.3	5851.6	5736.3	5659.8	5518.1	5159.1	4720.0	4398.0	1371.8	181.3	134.6
30°	5980.1	5853.4	5733.7	5636.9	5496.1	5112.5	4646.1	4310.8	1197.6	114.4	51.0
32.5°	5717.0	5581.5	5461.8	5352.7	5213.7	4827.4	4369.8	4049.5	974.1	80.1	36.1
35°	5256.8	5116.9	5002.5	4887.2	4757.0	4393.6	3973.8	3675.5	744.4	63.4	27.3
37.5°	4630.3	4500.9	4399.7	4321.4	4180.6	3891.1	3507.5	3191.6	526.2	44.9	16.7
40°	3928.9	3819.8	3737.1	3669.4	3539.1	3282.2	2895.0	2628.4	319.4	31.7	11.4
42.5°	3223.2	3121.2	3048.1	2983.9	2863.3	2636.3	2317.8	2050.3	153.1	22.0	7.9
45°	2507.0	2415.4	2353.8	2295.8	2187.5	1964.0	1711.5	1517.9	99.4	15.8	6.2
47.5°	1712.4	1664.9	1563.7	1500.3	1389.4	1218.7	982.0	769.1	66.0	11.4	4.4
50°	711.9	687.2	620.4	577.2	513.9	426.8	309.7	259.6	40.5	7.9	3.5
52.5°	276.3	270.1	253.4	243.7	227.9	205.0	170.7	152.2	24.6	6.2	3.5
55°	148.7	147.0	138.2	132.9	124.1	112.6	92.4	81.0	15.8	4.4	2.6
57.5°	68.6	67.8	63.4	63.4	57.2	52.8	44.0	39.6	9.7	3.5	2.6
60°	32.6	32.6	30.8	30.8	28.2	26.4	22.0	20.2	6.2	2.6	2.6
62.5°	15.8	15.8	15.8	15.8	15.0	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	6.2	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



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**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	130.2	130.2	130.2	130.2
2.5°	108.2	94.2	87.1	85.4
5°	88.9	69.5	59.8	56.3
7.5°	72.2	50.2	42.2	38.7
10°	57.2	39.6	31.7	29.0
12.5°	47.5	31.7	25.5	23.8
15°	40.5	27.3	22.9	22.0
17.5°	37.0	29.0	27.3	28.2
20°	44.9	47.5	55.4	57.2
22.5°	95.0	164.5	223.5	236.7
25°	198.0	237.6	246.4	255.2
27.5°	110.0	85.4	83.6	87.1
30°	44.9	45.8	47.5	49.3
32.5°	33.4	33.4	32.6	33.4
35°	22.9	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)