

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: P170796

Luminaire Tested: **LDA4A13940D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170796  
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: LDA4A13940D010TE 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: 1412.2 lumens  
Efficiency: N/A  
Efficacy: 63.4 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

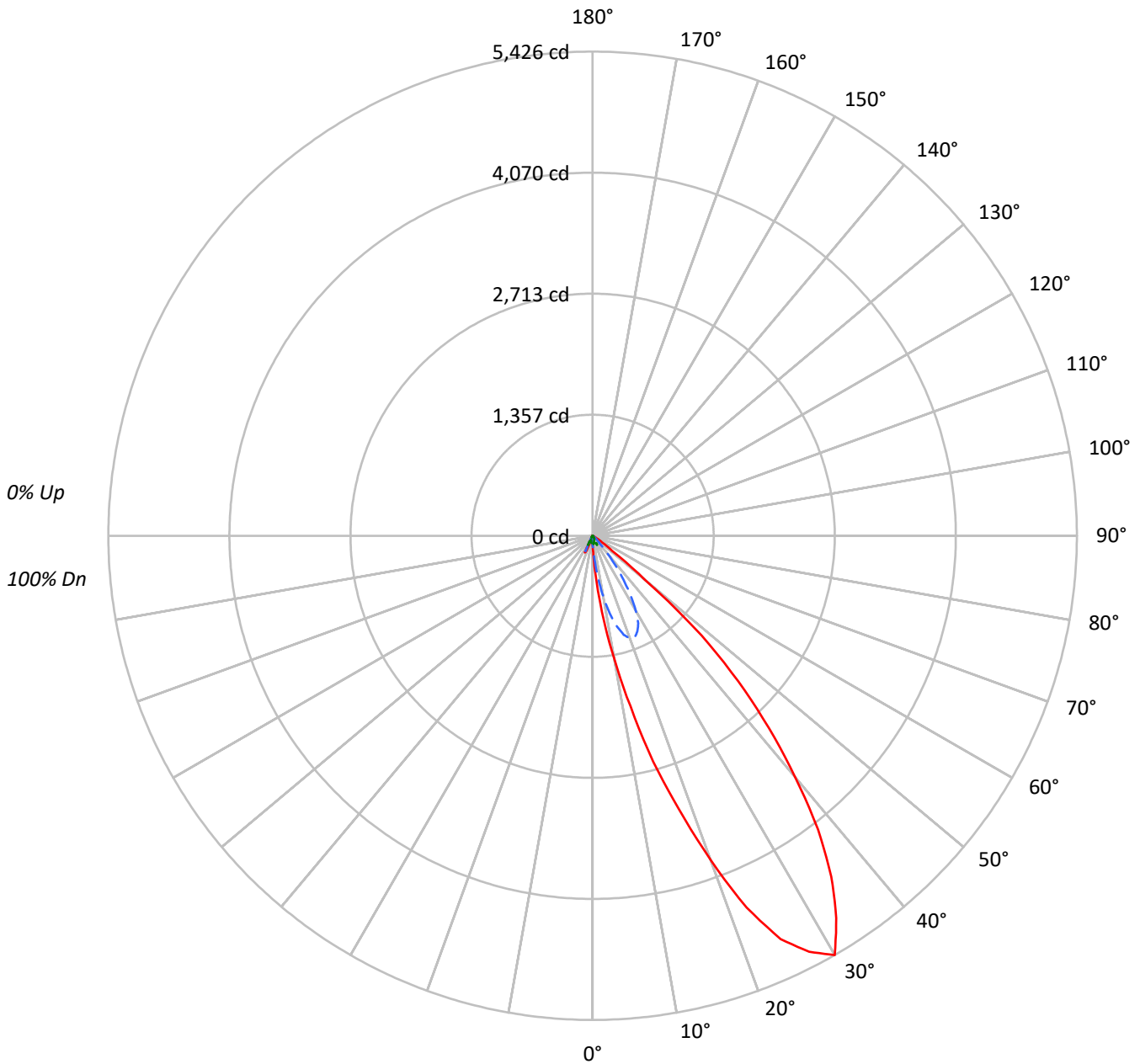
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					20					
RC	80					70					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°	12964	12964	12964
5°	66663	12047	5634
10°	175699	10057	2931
15°	334400	7892	2273
20°	507917	6524	6064
25°	678674	15569	28036
30°	772753	5868	5669
35°	701901	3313	2560
40°	568500	1481	1031
45°	402287	872	244
50°	146778	537	0
55°	30558	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°	177.6	12.6
20°-30°	450.5	31.9
30°-40°	482.1	34.1
40°-50°	246.5	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°	652.0	46.2
0°-40°	1134.1	80.3
0°-60°	1406.3	99.6
0°-90°	1412.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1412.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	105	105	105	105	105	
5°	538	293	97	56	46	79
15°	2619	1053	62	22	18	774
25°	4987	1185	114	192	206	2266
35°	4661	601	22	17	17	2862
45°	2306	80	5	3	1	1721
55°	142	13	2	1	0	193
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°	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
2.5°	212.4	214.5	198.9	203.8	207.4	200.3	198.9	198.9	206.7	202.4	209.5
5°	538.4	536.2	509.3	517.1	522.7	509.3	515.6	505.7	517.8	510.0	517.8
7.5°	940.4	965.2	931.1	939.0	943.9	929.7	933.3	919.1	932.6	923.3	929.7
10°	1402.8	1428.3	1388.5	1394.9	1398.5	1385.0	1385.7	1367.2	1379.3	1369.4	1373.6
12.5°	1955.3	1965.3	1946.1	1951.1	1953.2	1935.4	1902.1	1905.6	1917.7	1900.6	1904.9
15°	2618.7	2611.6	2588.9	2605.2	2588.9	2580.4	2529.9	2527.1	2534.2	2515.0	2484.5
17.5°	3203.2	3257.2	3231.7	3240.9	3221.0	3221.0	3156.4	3145.7	3146.4	3095.3	3089.6
20°	3869.5	3938.4	3875.9	3878.7	3852.4	3851.7	3772.9	3750.9	3741.6	3683.4	3667.0
22.5°	4511.5	4531.4	4530.7	4518.6	4456.8	4492.4	4393.6	4358.8	4330.4	4264.4	4231.7
25°	4986.7	5049.2	5006.6	4976.0	4922.1	4966.8	4856.0	4810.6	4767.9	4712.5	4669.9
27.5°	5255.2	5313.4	5303.5	5258.0	5202.6	5245.9	5124.5	5065.5	5005.2	4964.7	4911.4
30°	5425.6	5514.4	5485.3	5386.6	5305.6	5319.8	5183.4	5104.6	5037.8	4995.9	4928.5
32.5°	5079.7	5171.4	5162.8	5091.1	5049.2	5084.0	4965.4	4887.3	4823.3	4790.0	4714.7
35°	4661.4	4768.6	4745.2	4685.5	4655.0	4695.5	4579.7	4514.4	4449.7	4420.6	4338.2
37.5°	4149.3	4250.2	4226.7	4169.9	4140.1	4169.9	4059.1	3998.7	3937.6	3907.1	3851.0
40°	3530.7	3619.5	3594.6	3542.0	3517.2	3538.5	3442.6	3390.0	3338.2	3315.5	3240.9
42.5°	2926.2	2997.3	2974.5	2929.1	2909.9	2924.1	2845.3	2798.4	2752.9	2733.8	2689.7
45°	2306.2	2376.5	2354.5	2315.4	2297.7	2305.5	2239.4	2197.5	2158.5	2140.7	2100.9
47.5°	1654.9	1733.7	1706.7	1673.4	1654.9	1651.3	1593.1	1555.5	1559.0	1498.6	1461.7
50°	764.9	831.7	804.7	787.0	769.2	759.3	738.7	696.0	708.1	653.4	632.1
52.5°	277.7	294.0	287.7	282.0	276.3	274.2	267.1	256.4	257.8	244.3	237.9
55°	142.1	149.9	147.7	144.2	144.2	142.1	138.5	134.2	131.4	129.3	127.1
57.5°	65.3	69.6	68.2	66.8	66.8	65.3	63.9	61.8	63.2	59.7	59.0
60°	29.8	32.0	31.3	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	3.6	4.3	4.3	3.6	3.6	3.6	3.6
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°	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1
2.5°	193.2	198.2	203.1	201.7	194.6	193.9	191.1	192.5	149.9	121.5	101.6
5°	490.1	496.5	502.9	499.3	481.6	477.3	463.1	460.2	292.6	143.5	97.3
7.5°	895.6	899.2	904.2	899.9	873.6	861.5	831.7	802.6	492.2	173.3	90.2
10°	1335.3	1333.9	1336.0	1330.3	1297.6	1274.2	1228.0	1207.4	697.5	198.9	80.3
12.5°	1848.1	1842.4	1811.1	1826.1	1779.9	1732.3	1656.3	1592.4	891.4	213.1	71.0
15°	2446.8	2429.8	2418.4	2401.4	2344.5	2267.8	2152.1	2081.0	1052.6	211.7	61.8
17.5°	3042.0	3014.3	2964.6	2971.0	2904.9	2797.7	2645.0	2523.5	1164.1	193.9	54.7
20°	3605.2	3564.1	3501.6	3496.6	3417.0	3275.7	3083.2	2932.6	1225.2	164.8	49.7
22.5°	4147.9	4084.0	4000.2	3973.9	3871.6	3671.3	3419.9	3236.6	1230.9	137.8	59.7
25°	4575.5	4495.2	4402.2	4356.7	4243.8	3988.1	3674.9	3449.7	1185.4	136.4	114.4
27.5°	4814.1	4723.2	4630.1	4568.4	4454.0	4164.2	3809.8	3549.8	1107.3	146.3	108.7
30°	4826.9	4724.6	4628.0	4549.9	4436.2	4126.6	3750.1	3479.5	966.7	92.3	41.2
32.5°	4614.5	4505.1	4408.5	4320.5	4208.3	3896.5	3527.1	3268.6	786.3	64.6	29.1
35°	4243.1	4130.1	4037.8	3944.8	3839.6	3546.3	3207.5	2966.7	600.9	51.1	22.0
37.5°	3737.4	3632.9	3551.3	3488.1	3374.4	3140.7	2831.1	2576.1	424.7	36.2	13.5
40°	3171.3	3083.2	3016.4	2961.8	2856.6	2649.2	2336.7	2121.5	257.8	25.6	9.2
42.5°	2601.7	2519.3	2460.3	2408.5	2311.2	2127.9	1870.8	1654.9	123.6	17.8	6.4
45°	2023.5	1949.6	1899.9	1853.1	1765.7	1585.3	1381.4	1225.2	80.3	12.8	5.0
47.5°	1382.2	1343.8	1262.1	1211.0	1121.5	983.7	792.6	620.8	53.3	9.2	3.6
50°	574.6	554.7	500.7	465.9	414.8	344.5	250.0	209.5	32.7	6.4	2.8
52.5°	223.0	218.0	204.6	196.7	184.0	165.5	137.8	122.9	19.9	5.0	2.8
55°	120.0	118.6	111.5	107.2	100.1	90.9	74.6	65.3	12.8	3.6	2.1
57.5°	55.4	54.7	51.1	51.1	46.2	42.6	35.5	32.0	7.8	2.8	2.1
60°	26.3	26.3	24.9	24.9	22.7	21.3	17.8	16.3	5.0	2.1	2.1
62.5°	12.8	12.8	12.8	12.8	12.1	11.4	9.9	9.2	3.6	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°	3.6	3.6	3.6	3.6	3.6	3.6	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°	105.1	105.1	105.1	105.1
2.5°	87.4	76.0	70.3	68.9
5°	71.7	56.1	48.3	45.5
7.5°	58.2	40.5	34.1	31.3
10°	46.2	32.0	25.6	23.4
12.5°	38.4	25.6	20.6	19.2
15°	32.7	22.0	18.5	17.8
17.5°	29.8	23.4	22.0	22.7
20°	36.2	38.4	44.7	46.2
22.5°	76.7	132.8	180.4	191.1
25°	159.8	191.8	198.9	206.0
27.5°	88.8	68.9	67.5	70.3
30°	36.2	36.9	38.4	39.8
32.5°	27.0	27.0	26.3	27.0
35°	18.5	17.0	16.3	17.0
37.5°	11.4	10.7	9.9	9.9
40°	7.8	7.1	6.4	6.4
42.5°	5.7	4.3	3.6	3.6
45°	4.3	2.8	2.1	1.4
47.5°	3.6	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)