

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: P170814

Luminaire Tested: **LDA4A09830D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170814  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26106)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A09830D010TE LAR35FL 4LAL1 30° Tilt  
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 35° 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: 1056.9 lumens  
Efficiency: N/A  
Efficacy: 76.4 lumens/watt  
Spacing Criteria (0/90/45): 2.71 / 1.11 / 1.33  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

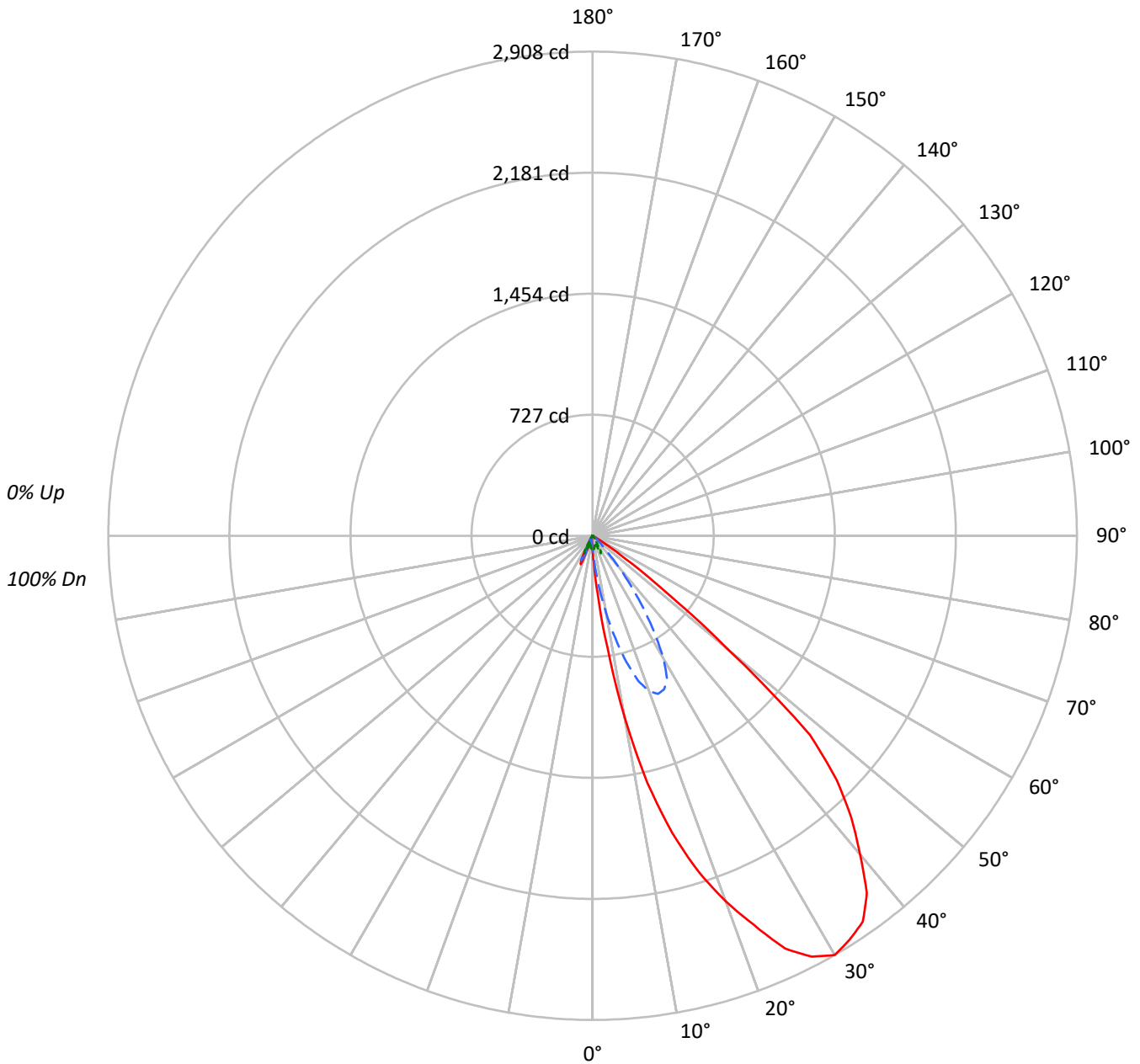
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91																			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	83	82																			
3	98	90	84	79	96	89	83	79	86	81	77	84	79	76	81	78	75	73																			
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	70	67	65																			
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58																			
6	79	68	61	56	78	67	60	55	66	60	55	64	59	55	63	58	54	52																			
7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47																			
8	69	57	50	45	68	57	50	45	55	49	44	54	48	44	53	48	44	42																			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38																			
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	10719	10719	10719
5°	43163	10116	4742
10°	139151	8492	2718
15°	236060	6742	2120
20°	306811	6038	6379
25°	372320	15910	22592
30°	414164	5597	5968
35°	426028	3343	2801
40°	402267	1417	998
45°	361538	820	279
50°	203463	499	0
55°	50493	344	0
60°	7795	395	0
65°	1810	467	0
70°	361	577	0
75°	0	763	0
80°	0	1492	0
85°	0	2972	708



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	17.5	1.7
10°-20°	129.7	12.3
20°-30°	299.6	28.3
30°-40°	336.1	31.8
40°-50°	234.5	22.2
50°-60°	35.0	3.3
60°-70°	2.3	0.2
70°-80°	1.2	0.1
80°-90°	1.1	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°	446.8	42.3
0°-40°	782.9	74.1
0°-60°	1052.4	99.6
0°-90°	1056.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1056.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	87	87	87	87	87	
5°	349	204	82	48	38	58
15°	1849	787	53	20	17	528
25°	2736	1017	117	163	166	1251
35°	2829	529	22	19	19	1740
45°	2073	80	5	3	2	1521
55°	235	10	2	1	0	309
65°	6	2	2	1	0	10
75°	0	1	2	2	0	0
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°	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9
2.5°	158.3	156.7	152.6	151.6	155.2	152.1	153.6	156.7	153.6	150.0	153.6
5°	348.6	357.4	348.6	347.1	353.3	347.6	350.2	355.9	348.1	340.9	346.0
7.5°	672.9	678.6	653.8	662.6	660.5	662.1	663.6	663.6	659.0	646.0	653.3
10°	1111.0	1115.2	1082.1	1093.4	1078.4	1093.4	1090.9	1079.5	1082.1	1064.5	1073.8
12.5°	1517.6	1531.0	1497.9	1508.8	1490.7	1507.8	1501.0	1497.9	1471.5	1471.5	1481.4
15°	1848.6	1879.1	1849.1	1860.5	1839.8	1863.6	1845.0	1853.3	1829.5	1800.0	1825.9
17.5°	2116.5	2146.5	2118.6	2132.6	2113.4	2132.1	2110.3	2127.9	2097.4	2076.2	2093.8
20°	2337.4	2359.7	2326.5	2346.2	2323.4	2342.1	2318.3	2341.5	2305.9	2290.3	2300.7
22.5°	2529.8	2538.6	2521.5	2554.7	2510.2	2529.8	2501.4	2525.2	2482.8	2463.1	2465.7
25°	2735.7	2755.3	2722.8	2735.2	2704.1	2717.6	2685.5	2707.8	2655.0	2627.1	2621.4
27.5°	2850.0	2877.9	2849.0	2862.9	2831.4	2842.8	2810.7	2842.8	2789.0	2761.5	2755.3
30°	2907.9	2921.4	2902.8	2912.1	2876.4	2882.1	2849.0	2883.6	2829.8	2805.5	2802.4
32.5°	2874.3	2901.2	2876.9	2888.8	2855.7	2861.4	2829.3	2866.5	2812.8	2790.5	2779.7
35°	2829.3	2856.7	2834.0	2846.4	2815.9	2820.0	2785.9	2818.4	2756.4	2729.0	2705.7
37.5°	2704.7	2730.5	2711.4	2715.5	2686.0	2682.9	2646.2	2673.6	2613.1	2589.8	2574.3
40°	2498.3	2521.5	2506.0	2514.8	2485.3	2478.6	2453.8	2479.1	2432.1	2415.0	2393.3
42.5°	2300.7	2319.8	2305.3	2319.3	2286.2	2277.4	2255.2	2287.2	2234.0	2220.0	2204.5
45°	2072.6	2084.5	2073.1	2085.0	2053.4	2039.5	2019.3	2046.7	1994.5	1981.5	1947.9
47.5°	1771.0	1758.1	1756.0	1767.4	1728.1	1699.1	1680.5	1715.7	1640.2	1614.8	1576.0
50°	1060.3	1082.1	1091.4	1083.6	1056.7	1016.9	986.9	1029.8	989.5	927.4	865.3
52.5°	546.2	521.9	527.1	529.7	497.6	485.7	475.9	485.7	454.1	438.1	398.8
55°	234.8	223.4	227.6	229.1	222.9	208.4	203.3	209.5	195.0	188.8	172.8
57.5°	86.9	86.9	84.3	85.3	83.3	78.1	77.1	79.7	75.0	73.4	67.2
60°	31.6	31.6	31.6	31.6	29.0	28.4	28.4	29.5	27.9	27.4	25.3
62.5°	13.4	14.0	12.9	13.4	12.9	12.4	12.9	12.4	12.4	11.9	11.9
65°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	5.7	5.7
67.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.6	2.6	2.6
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	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



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**CANDELA DISTRIBUTION (continued):**

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9	86.9
2.5°	149.0	148.4	150.5	148.4	144.8	142.8	145.3	140.2	120.0	99.8	84.8
5°	336.7	334.1	330.5	331.6	322.8	315.5	315.5	301.6	203.8	115.9	81.7
7.5°	638.3	632.1	605.7	624.8	606.2	591.7	581.9	553.4	329.5	132.9	75.5
10°	1054.1	1043.3	1024.7	1028.3	997.8	973.4	944.0	896.4	473.8	147.9	67.8
12.5°	1464.3	1453.4	1403.8	1432.2	1391.4	1367.6	1317.9	1262.1	629.5	155.2	60.5
15°	1812.4	1803.1	1748.8	1775.7	1725.5	1703.3	1639.1	1577.1	786.7	152.6	52.8
17.5°	2082.9	2081.4	2018.8	2045.7	1990.3	1972.2	1897.2	1836.2	914.0	141.2	47.6
20°	2291.4	2287.8	2224.7	2251.5	2191.0	2173.4	2078.3	2014.1	994.7	125.7	46.0
22.5°	2455.9	2448.6	2380.9	2404.1	2336.4	2313.6	2208.6	2141.9	1027.8	115.9	56.9
25°	2603.8	2590.9	2513.8	2531.9	2457.4	2462.1	2304.3	2230.9	1016.9	130.3	116.9
27.5°	2734.1	2710.9	2633.3	2638.4	2551.0	2505.5	2370.0	2288.8	967.2	145.3	108.6
30°	2782.8	2760.0	2677.8	2680.9	2589.8	2525.7	2380.9	2290.3	848.3	91.0	39.3
32.5°	2755.9	2731.0	2645.2	2646.2	2552.6	2487.4	2343.1	2243.3	690.0	60.0	30.0
35°	2677.8	2651.9	2566.5	2570.7	2480.2	2415.5	2274.3	2167.8	528.6	47.6	22.2
37.5°	2545.9	2527.8	2446.5	2453.8	2376.7	2307.9	2164.7	2049.3	372.9	34.1	14.0
40°	2376.2	2362.2	2283.6	2295.0	2211.2	2147.6	1994.0	1868.8	232.2	23.3	8.8
42.5°	2177.6	2162.6	2085.0	2093.8	2022.4	1931.4	1774.7	1632.9	121.6	16.6	6.2
45°	1929.8	1912.2	1833.6	1838.3	1754.0	1647.4	1485.0	1359.8	79.7	11.4	4.7
47.5°	1540.3	1508.8	1406.4	1402.2	1333.4	1159.1	928.4	751.6	52.8	7.8	3.1
50°	846.7	814.1	724.1	714.3	637.8	523.4	386.9	301.0	30.5	5.2	2.6
52.5°	385.3	368.3	326.4	319.7	287.1	237.9	183.1	150.5	17.6	3.6	2.1
55°	167.1	160.9	143.3	142.2	127.2	110.2	87.9	74.5	10.3	2.6	1.6
57.5°	65.7	63.6	60.0	57.4	51.7	46.0	38.3	32.1	6.7	2.1	1.6
60°	24.8	24.3	22.2	22.8	20.7	19.7	17.1	14.5	4.1	1.6	1.6
62.5°	11.4	11.4	10.9	10.9	10.3	9.3	8.3	7.8	2.6	1.6	1.6
65°	5.7	5.7	5.2	5.2	5.2	4.7	4.1	4.1	1.6	1.6	1.6
67.5°	2.6	2.6	2.6	2.6	2.6	2.1	2.1	2.1	1.0	1.6	1.6
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6	1.6
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
75°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
77.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.6	2.1
80°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.6	2.1
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.6	2.1
85°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.6	2.1
87.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.6	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°	86.9	86.9	86.9	86.9
2.5°	72.9	64.7	57.4	55.9
5°	60.0	47.6	39.8	38.3
7.5°	48.6	34.7	29.0	27.9
10°	39.8	27.9	22.8	21.7
12.5°	33.1	22.8	18.1	17.1
15°	28.4	20.2	16.6	16.6
17.5°	27.4	22.2	21.2	21.7
20°	35.7	40.3	48.1	48.6
22.5°	82.8	134.5	177.9	186.2
25°	149.0	162.9	158.8	166.0
27.5°	78.6	61.6	62.6	64.1
30°	34.1	37.8	39.8	41.9
32.5°	28.4	29.5	30.0	31.6
35°	18.6	18.6	18.1	18.6
37.5°	11.4	10.9	10.3	10.3
40°	7.2	6.7	6.2	6.2
42.5°	5.2	4.1	3.6	3.6
45°	3.6	2.6	2.1	1.6
47.5°	2.6	1.6	1.0	0.5
50°	2.1	1.6	0.5	0.0
52.5°	1.6	1.0	0.5	0.0
55°	1.6	1.0	0.0	0.0
57.5°	1.6	1.0	0.0	0.0
60°	1.6	1.0	0.0	0.0
62.5°	1.6	1.0	0.0	0.0
65°	1.6	1.0	0.5	0.0
67.5°	1.6	1.0	0.5	0.0
70°	1.6	1.0	0.5	0.0
72.5°	1.6	1.0	0.5	0.0
75°	1.6	1.6	0.5	0.0
77.5°	2.1	1.6	0.5	0.0
80°	2.1	1.6	0.5	0.0
82.5°	2.1	1.6	0.5	0.0
85°	2.1	1.6	0.5	0.5
87.5°	2.1	1.6	0.5	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)