

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: P170813

Luminaire Tested: **LDA4A09827D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170813  
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: LDA4A09827D010TE 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 / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 976.3 lumens  
Efficiency: N/A  
Efficacy: 70.5 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

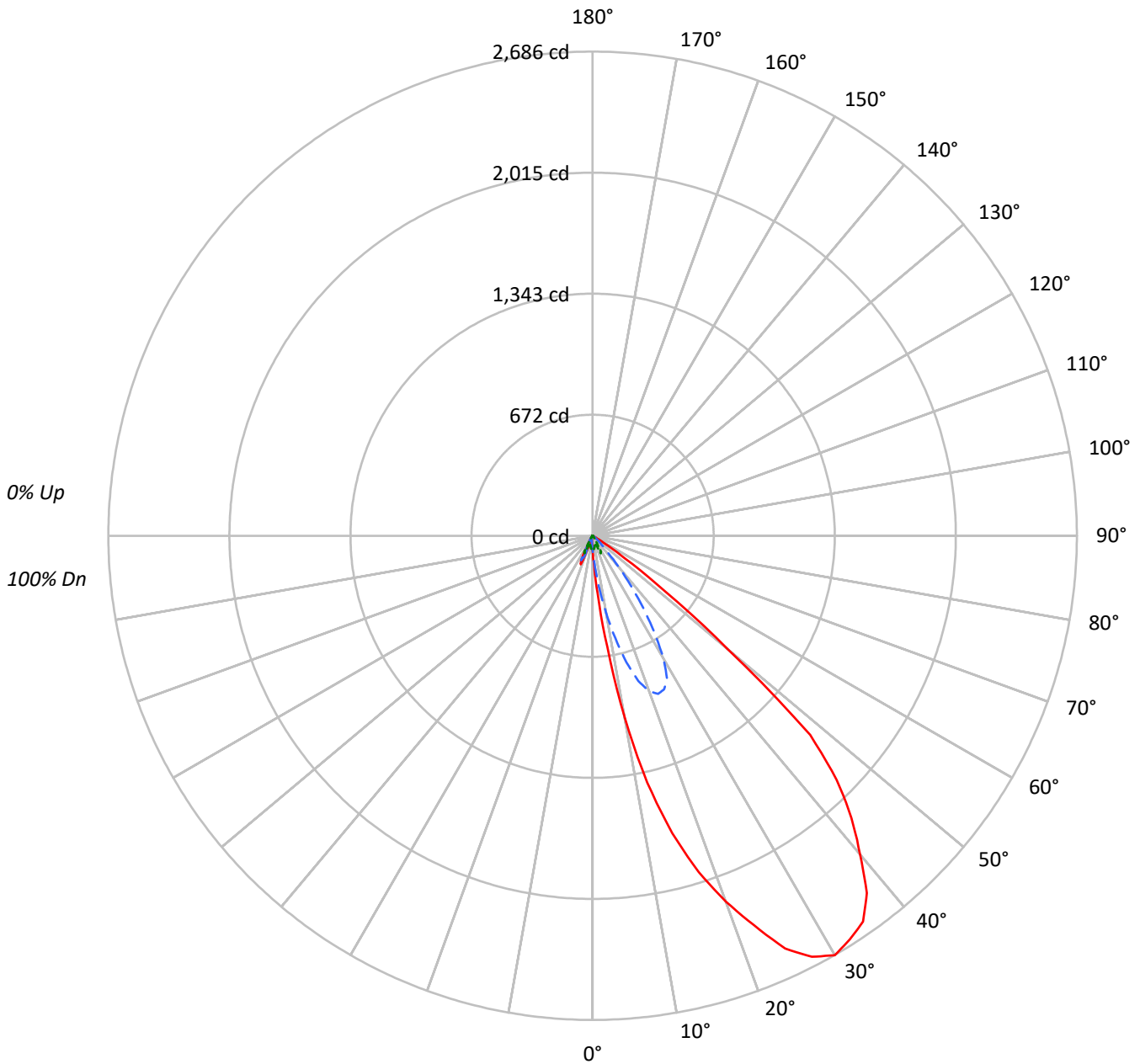
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	9905	9905	9905
5°	39869	9348	4383
10°	128555	7841	2517
15°	218068	6219	1954
20°	283433	5579	5894
25°	343944	14698	20877
30°	382602	5170	5512
35°	393564	3087	2590
40°	371609	1304	918
45°	333977	750	244
50°	187958	461	0
55°	46644	301	0
60°	7179	345	0
65°	1664	409	0
70°	361	505	0
75°	0	667	0
80°	0	1350	0
85°	0	2689	708



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	16.1	1.7
10°-20°	119.8	12.3
20°-30°	276.8	28.3
30°-40°	310.5	31.8
40°-50°	216.6	22.2
50°-60°	32.3	3.3
60°-70°	2.1	0.2
70°-80°	1.1	0.1
80°-90°	1.0	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°	412.7	42.3
0°-40°	723.2	74.1
0°-60°	972.1	99.6
0°-90°	976.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	976.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	80	80	80	80	80	
5°	322	188	76	44	35	53
15°	1708	727	49	19	15	488
25°	2527	939	108	150	153	1155
35°	2614	488	20	17	17	1608
45°	1915	74	4	2	1	1405
55°	217	10	1	1	0	285
65°	6	1	1	1	0	9
75°	0	1	1	1	0	0
85°	0	1	2	1	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°	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3
2.5°	146.2	144.8	141.0	140.0	143.3	140.5	141.9	144.8	141.9	138.6	141.9
5°	322.0	330.2	322.0	320.6	326.3	321.1	323.5	328.7	321.6	314.9	319.7
7.5°	621.6	626.9	604.0	612.1	610.2	611.6	613.0	613.0	608.7	596.8	603.5
10°	1026.4	1030.2	999.6	1010.1	996.2	1010.1	1007.7	997.2	999.6	983.3	991.9
12.5°	1401.9	1414.3	1383.8	1393.8	1377.1	1392.8	1386.6	1383.8	1359.4	1359.4	1368.5
15°	1707.7	1735.9	1708.2	1718.7	1699.6	1721.6	1704.4	1712.0	1690.0	1662.8	1686.7
17.5°	1955.2	1982.9	1957.1	1970.0	1952.4	1969.6	1949.5	1965.7	1937.5	1918.0	1934.2
20°	2159.3	2179.8	2149.2	2167.4	2146.4	2163.6	2141.6	2163.1	2130.1	2115.8	2125.3
22.5°	2337.0	2345.1	2329.4	2359.9	2318.8	2337.0	2310.7	2332.7	2293.5	2275.4	2277.8
25°	2527.2	2545.3	2515.2	2526.7	2498.0	2510.5	2480.8	2501.4	2452.6	2426.8	2421.6
27.5°	2632.8	2658.6	2631.8	2644.7	2615.6	2626.1	2596.5	2626.1	2576.4	2551.1	2545.3
30°	2686.3	2698.7	2681.5	2690.1	2657.1	2662.4	2631.8	2663.8	2614.1	2591.7	2588.8
32.5°	2655.2	2680.1	2657.6	2668.6	2638.0	2643.3	2613.7	2648.1	2598.4	2577.8	2567.8
35°	2613.7	2639.0	2618.0	2629.4	2601.2	2605.1	2573.5	2603.6	2546.3	2521.0	2499.5
37.5°	2498.5	2522.4	2504.7	2508.5	2481.3	2478.4	2444.5	2469.8	2413.9	2392.4	2378.1
40°	2307.9	2329.4	2315.0	2323.1	2295.9	2289.7	2266.8	2290.2	2246.7	2230.9	2210.9
42.5°	2125.3	2143.0	2129.6	2142.5	2112.0	2103.8	2083.3	2112.9	2063.7	2050.8	2036.5
45°	1914.6	1925.6	1915.1	1926.1	1896.9	1884.0	1865.4	1890.7	1842.5	1830.5	1799.5
47.5°	1636.0	1624.1	1622.2	1632.7	1596.4	1569.6	1552.4	1584.9	1515.2	1491.7	1455.9
50°	979.5	999.6	1008.2	1001.0	976.2	939.4	911.7	951.3	914.1	856.7	799.4
52.5°	504.6	482.1	486.9	489.3	459.7	448.7	439.6	448.7	419.5	404.7	368.4
55°	216.9	206.4	210.2	211.7	205.9	192.6	187.8	193.5	180.1	174.4	159.6
57.5°	80.3	80.3	77.9	78.8	76.9	72.2	71.2	73.6	69.3	67.9	62.1
60°	29.1	29.1	29.1	29.1	26.8	26.3	26.3	27.2	25.8	25.3	23.4
62.5°	12.4	12.9	11.9	12.4	11.9	11.5	11.9	11.5	11.5	11.0	11.0
65°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.3	5.3
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.4	2.4	2.4
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°	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3	80.3
2.5°	137.6	137.1	139.0	137.1	133.8	131.9	134.3	129.5	110.9	92.2	78.4
5°	311.1	308.7	305.3	306.3	298.2	291.5	291.5	278.6	188.3	107.0	75.5
7.5°	589.6	583.9	559.5	577.2	560.0	546.6	537.5	511.3	304.4	122.8	69.8
10°	973.8	963.8	946.6	949.9	921.7	899.3	872.0	828.1	437.7	136.7	62.6
12.5°	1352.7	1342.7	1296.8	1323.1	1285.3	1263.3	1217.5	1165.9	581.5	143.3	55.9
15°	1674.3	1665.7	1615.5	1640.3	1594.0	1573.5	1514.2	1456.9	726.8	141.0	48.7
17.5°	1924.2	1922.7	1864.9	1889.8	1838.6	1821.9	1752.6	1696.3	844.3	130.4	44.0
20°	2116.7	2113.4	2055.1	2079.9	2024.0	2007.8	1919.9	1860.6	918.8	116.1	42.5
22.5°	2268.7	2262.0	2199.4	2220.9	2158.3	2137.3	2040.3	1978.6	949.4	107.0	52.6
25°	2405.3	2393.4	2322.2	2338.9	2270.1	2274.4	2128.7	2060.8	939.4	120.4	108.0
27.5°	2525.7	2504.2	2432.6	2437.3	2356.6	2314.5	2189.4	2114.3	893.5	134.3	100.3
30°	2570.7	2549.6	2473.7	2476.5	2392.4	2333.2	2199.4	2115.8	783.6	84.1	36.3
32.5°	2545.8	2522.9	2443.6	2444.5	2358.0	2297.8	2164.5	2072.3	637.4	55.4	27.7
35°	2473.7	2449.8	2370.9	2374.8	2291.1	2231.4	2101.0	2002.5	488.3	44.0	20.5
37.5°	2351.8	2335.1	2260.1	2266.8	2195.6	2132.0	1999.7	1893.1	344.5	31.5	12.9
40°	2195.1	2182.2	2109.6	2120.1	2042.7	1983.9	1842.0	1726.4	214.5	21.5	8.1
42.5°	2011.6	1997.8	1926.1	1934.2	1868.3	1784.2	1639.4	1508.5	112.3	15.3	5.7
45°	1782.7	1766.5	1693.9	1698.2	1620.3	1521.8	1371.8	1256.2	73.6	10.5	4.3
47.5°	1422.9	1393.8	1299.2	1295.4	1231.8	1070.8	857.7	694.3	48.7	7.2	2.9
50°	782.2	752.1	668.9	659.9	589.1	483.6	357.4	278.1	28.2	4.8	2.4
52.5°	356.0	340.2	301.5	295.3	265.2	219.8	169.1	139.0	16.2	3.3	1.9
55°	154.3	148.6	132.4	131.4	117.5	101.8	81.2	68.8	9.6	2.4	1.4
57.5°	60.7	58.8	55.4	53.0	47.8	42.5	35.4	29.6	6.2	1.9	1.4
60°	22.9	22.5	20.5	21.0	19.1	18.2	15.8	13.4	3.8	1.4	1.4
62.5°	10.5	10.5	10.0	10.0	9.6	8.6	7.6	7.2	2.4	1.4	1.4
65°	5.3	5.3	4.8	4.8	4.8	4.3	3.8	3.8	1.4	1.4	1.4
67.5°	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.9	1.0	1.4	1.4
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.4
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
75°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
77.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.9
80°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.9
82.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.9
85°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.9
87.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.9
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°	80.3	80.3	80.3	80.3
2.5°	67.4	59.7	53.0	51.6
5°	55.4	44.0	36.8	35.4
7.5°	44.9	32.0	26.8	25.8
10°	36.8	25.8	21.0	20.1
12.5°	30.6	21.0	16.7	15.8
15°	26.3	18.6	15.3	15.3
17.5°	25.3	20.5	19.6	20.1
20°	33.0	37.3	44.4	44.9
22.5°	76.5	124.2	164.4	172.0
25°	137.6	150.5	146.7	153.4
27.5°	72.6	56.9	57.8	59.2
30°	31.5	34.9	36.8	38.7
32.5°	26.3	27.2	27.7	29.1
35°	17.2	17.2	16.7	17.2
37.5°	10.5	10.0	9.6	9.6
40°	6.7	6.2	5.7	5.7
42.5°	4.8	3.8	3.3	3.3
45°	3.3	2.4	1.9	1.4
47.5°	2.4	1.4	1.0	0.5
50°	1.9	1.4	0.5	0.0
52.5°	1.4	1.0	0.5	0.0
55°	1.4	1.0	0.0	0.0
57.5°	1.4	1.0	0.0	0.0
60°	1.4	1.0	0.0	0.0
62.5°	1.4	1.0	0.0	0.0
65°	1.4	1.0	0.5	0.0
67.5°	1.4	1.0	0.5	0.0
70°	1.4	1.0	0.5	0.0
72.5°	1.4	1.0	0.5	0.0
75°	1.4	1.4	0.5	0.0
77.5°	1.9	1.4	0.5	0.0
80°	1.9	1.4	0.5	0.0
82.5°	1.9	1.4	0.5	0.0
85°	1.9	1.4	0.5	0.5
87.5°	1.9	1.4	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)