

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: P170820

Luminaire Tested: **LDA4A09940D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170820  
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: LDA4A09940D010TE 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 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 977.9 lumens  
Efficiency: N/A  
Efficacy: 70.7 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

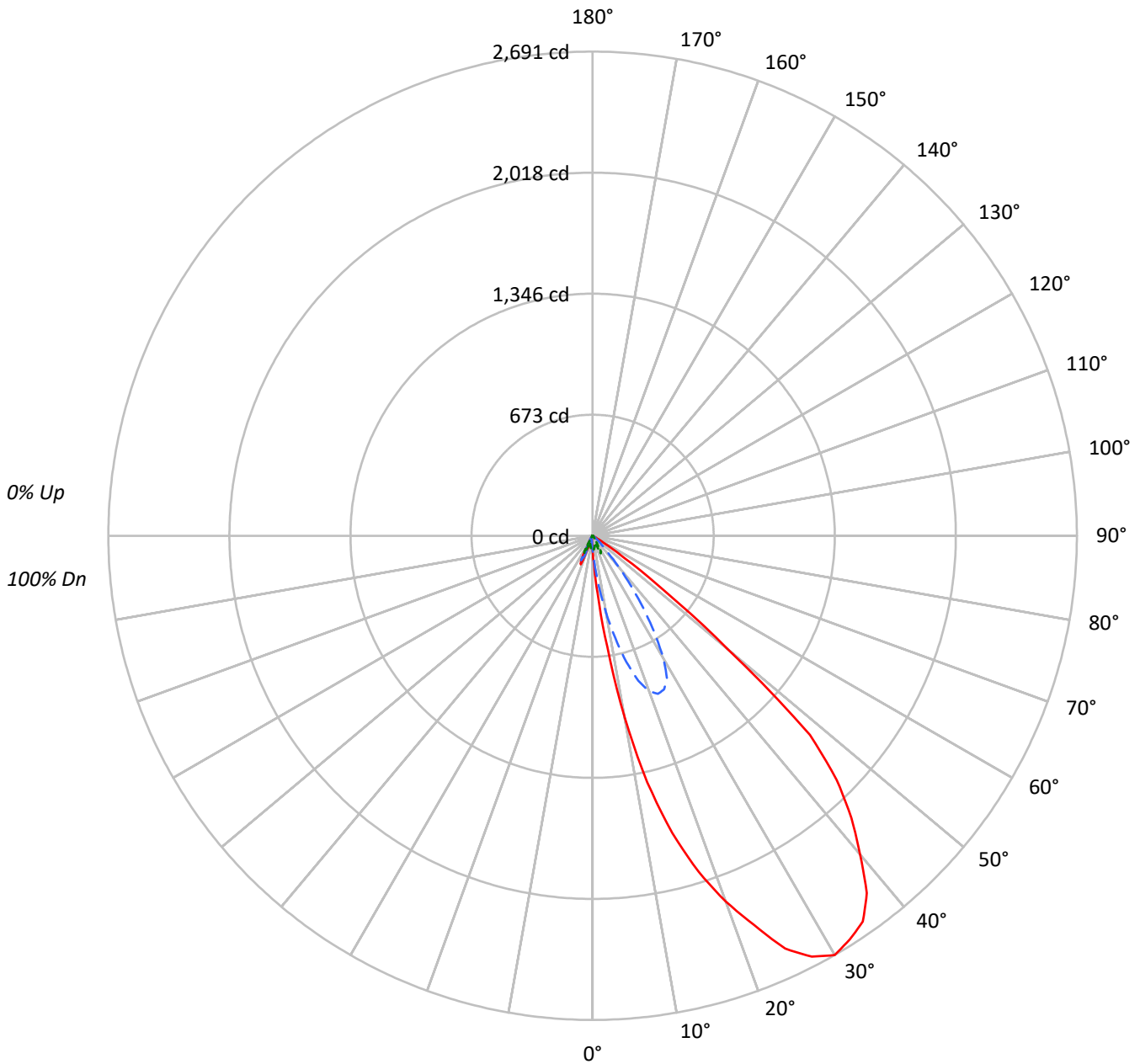
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	9917	9917	9917
5°	39943	9361	4383
10°	128755	7853	2517
15°	218425	6232	1954
20°	283893	5592	5907
25°	344502	14726	20904
30°	383229	5184	5526
35°	394211	3102	2590
40°	372221	1304	918
45°	334535	750	244
50°	188265	461	0
55°	46730	301	0
60°	7203	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°	16.2	1.7
10°-20°	120.0	12.3
20°-30°	277.2	28.3
30°-40°	311.0	31.8
40°-50°	217.0	22.2
50°-60°	32.4	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°	413.4	42.3
0°-40°	724.4	74.1
0°-60°	973.8	99.6
0°-90°	977.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	977.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	80	80	80	80	80	
5°	323	189	76	44	35	53
15°	1710	728	49	19	15	489
25°	2531	941	108	151	154	1157
35°	2618	489	21	17	17	1610
45°	1918	74	4	2	1	1407
55°	217	10	1	1	0	286
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°	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4
2.5°	146.5	145.0	141.2	140.2	143.6	140.7	142.1	145.0	142.1	138.8	142.1
5°	322.6	330.7	322.6	321.1	326.9	321.6	324.0	329.3	322.1	315.4	320.2
7.5°	622.7	627.9	605.0	613.1	611.2	612.6	614.1	614.1	609.7	597.8	604.5
10°	1028.0	1031.9	1001.2	1011.8	997.9	1011.8	1009.4	998.8	1001.2	985.0	993.6
12.5°	1404.2	1416.7	1386.0	1396.1	1379.3	1395.1	1388.9	1386.0	1361.6	1361.6	1370.7
15°	1710.5	1738.8	1711.0	1721.5	1702.4	1724.4	1707.2	1714.8	1692.8	1665.5	1689.5
17.5°	1958.5	1986.2	1960.4	1973.3	1955.6	1972.8	1952.7	1969.0	1940.7	1921.1	1937.4
20°	2162.8	2183.4	2152.8	2171.0	2149.9	2167.1	2145.1	2166.6	2133.6	2119.3	2128.8
22.5°	2340.9	2349.0	2333.2	2363.8	2322.7	2340.9	2314.5	2336.6	2297.3	2279.1	2281.5
25°	2531.3	2549.5	2519.4	2530.9	2502.1	2514.6	2484.9	2505.5	2456.7	2430.8	2425.6
27.5°	2637.1	2663.0	2636.2	2649.1	2619.9	2630.4	2600.7	2630.4	2580.6	2555.3	2549.5
30°	2690.7	2703.2	2685.9	2694.5	2661.5	2666.8	2636.2	2668.2	2618.5	2596.0	2593.1
32.5°	2659.6	2684.5	2662.0	2673.0	2642.4	2647.6	2618.0	2652.4	2602.7	2582.1	2572.0
35°	2618.0	2643.3	2622.3	2633.8	2605.5	2609.4	2577.8	2607.9	2550.5	2525.1	2503.6
37.5°	2502.6	2526.6	2508.8	2512.7	2485.4	2482.5	2448.5	2473.9	2417.9	2396.4	2382.0
40°	2311.7	2333.2	2318.8	2327.0	2299.7	2293.5	2270.5	2294.0	2250.4	2234.6	2214.5
42.5°	2128.8	2146.5	2133.1	2146.1	2115.4	2107.3	2086.7	2116.4	2067.1	2054.2	2039.8
45°	1917.8	1928.8	1918.3	1929.3	1900.1	1887.1	1868.5	1893.8	1845.5	1833.5	1802.4
47.5°	1638.7	1626.8	1624.9	1635.4	1599.0	1572.2	1555.0	1587.5	1517.7	1494.2	1458.3
50°	981.1	1001.2	1009.9	1002.7	977.8	940.9	913.2	952.9	915.6	858.1	800.7
52.5°	505.4	482.9	487.7	490.1	460.4	449.4	440.3	449.4	420.2	405.4	369.0
55°	217.3	206.8	210.6	212.0	206.3	192.9	188.1	193.8	180.4	174.7	159.9
57.5°	80.4	80.4	78.0	79.0	77.1	72.3	71.3	73.7	69.4	68.0	62.2
60°	29.2	29.2	29.2	29.2	26.8	26.3	26.3	27.3	25.8	25.4	23.5
62.5°	12.4	12.9	12.0	12.4	12.0	11.5	12.0	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°	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4	80.4
2.5°	137.8	137.4	139.3	137.4	134.0	132.1	134.5	129.7	111.0	92.4	78.5
5°	311.6	309.2	305.8	306.8	298.6	291.9	291.9	279.0	188.6	107.2	75.6
7.5°	590.6	584.9	560.4	578.2	560.9	547.5	538.4	512.1	304.9	123.0	69.9
10°	975.4	965.3	948.1	951.5	923.2	900.7	873.5	829.4	438.4	136.9	62.7
12.5°	1354.9	1344.9	1298.9	1325.3	1287.4	1265.4	1219.5	1167.8	582.5	143.6	56.0
15°	1677.0	1668.4	1618.2	1643.1	1596.6	1576.0	1516.7	1459.3	728.0	141.2	48.8
17.5°	1927.3	1925.9	1868.0	1892.9	1841.7	1824.9	1755.5	1699.0	845.7	130.7	44.0
20°	2120.2	2116.9	2058.5	2083.4	2027.4	2011.1	1923.0	1863.7	920.4	116.3	42.6
22.5°	2272.4	2265.7	2203.0	2224.6	2161.9	2140.8	2043.6	1981.9	951.0	107.2	52.6
25°	2409.3	2397.3	2326.0	2342.8	2273.9	2278.2	2132.2	2064.2	940.9	120.6	108.2
27.5°	2529.9	2508.4	2436.6	2441.4	2360.5	2318.4	2193.0	2117.8	895.0	134.5	100.5
30°	2574.9	2553.8	2477.7	2480.6	2396.4	2337.0	2203.0	2119.3	784.9	84.2	36.4
32.5°	2550.0	2527.0	2447.6	2448.5	2361.9	2301.6	2168.1	2075.7	638.5	55.5	27.8
35°	2477.7	2453.8	2374.8	2378.7	2294.9	2235.1	2104.4	2005.8	489.1	44.0	20.6
37.5°	2355.7	2338.9	2263.8	2270.5	2199.2	2135.5	2003.0	1896.2	345.1	31.6	12.9
40°	2198.7	2185.8	2113.0	2123.6	2046.0	1987.2	1845.0	1729.2	214.9	21.5	8.1
42.5°	2014.9	2001.0	1929.3	1937.4	1871.3	1787.1	1642.1	1511.0	112.5	15.3	5.7
45°	1785.7	1769.4	1696.7	1701.0	1623.0	1524.4	1374.1	1258.3	73.7	10.5	4.3
47.5°	1425.3	1396.1	1301.3	1297.5	1233.8	1072.6	859.1	695.4	48.8	7.2	2.9
50°	783.5	753.3	670.0	661.0	590.1	484.3	358.0	278.5	28.2	4.8	2.4
52.5°	356.6	340.8	302.0	295.8	265.6	220.2	169.4	139.3	16.3	3.4	1.9
55°	154.6	148.8	132.6	131.6	117.7	101.9	81.4	68.9	9.6	2.4	1.4
57.5°	60.8	58.9	55.5	53.1	47.9	42.6	35.4	29.7	6.2	1.9	1.4
60°	23.0	22.5	20.6	21.1	19.1	18.2	15.8	13.4	3.8	1.4	1.4
62.5°	10.5	10.5	10.1	10.1	9.6	8.6	7.7	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°	80.4	80.4	80.4	80.4
2.5°	67.5	59.8	53.1	51.7
5°	55.5	44.0	36.9	35.4
7.5°	45.0	32.1	26.8	25.8
10°	36.9	25.8	21.1	20.1
12.5°	30.6	21.1	16.8	15.8
15°	26.3	18.7	15.3	15.3
17.5°	25.4	20.6	19.6	20.1
20°	33.0	37.3	44.5	45.0
22.5°	76.6	124.4	164.6	172.3
25°	137.8	150.8	146.9	153.6
27.5°	72.7	57.0	57.9	59.3
30°	31.6	34.9	36.9	38.8
32.5°	26.3	27.3	27.8	29.2
35°	17.2	17.2	16.8	17.2
37.5°	10.5	10.1	9.6	9.6
40°	6.7	6.2	5.7	5.7
42.5°	4.8	3.8	3.4	3.4
45°	3.4	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)