

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: P170785

Luminaire Tested: **LDA4A09927D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170785
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: LDA4A09927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 763.1 lumens
Efficiency: N/A
Efficacy: 55.1 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

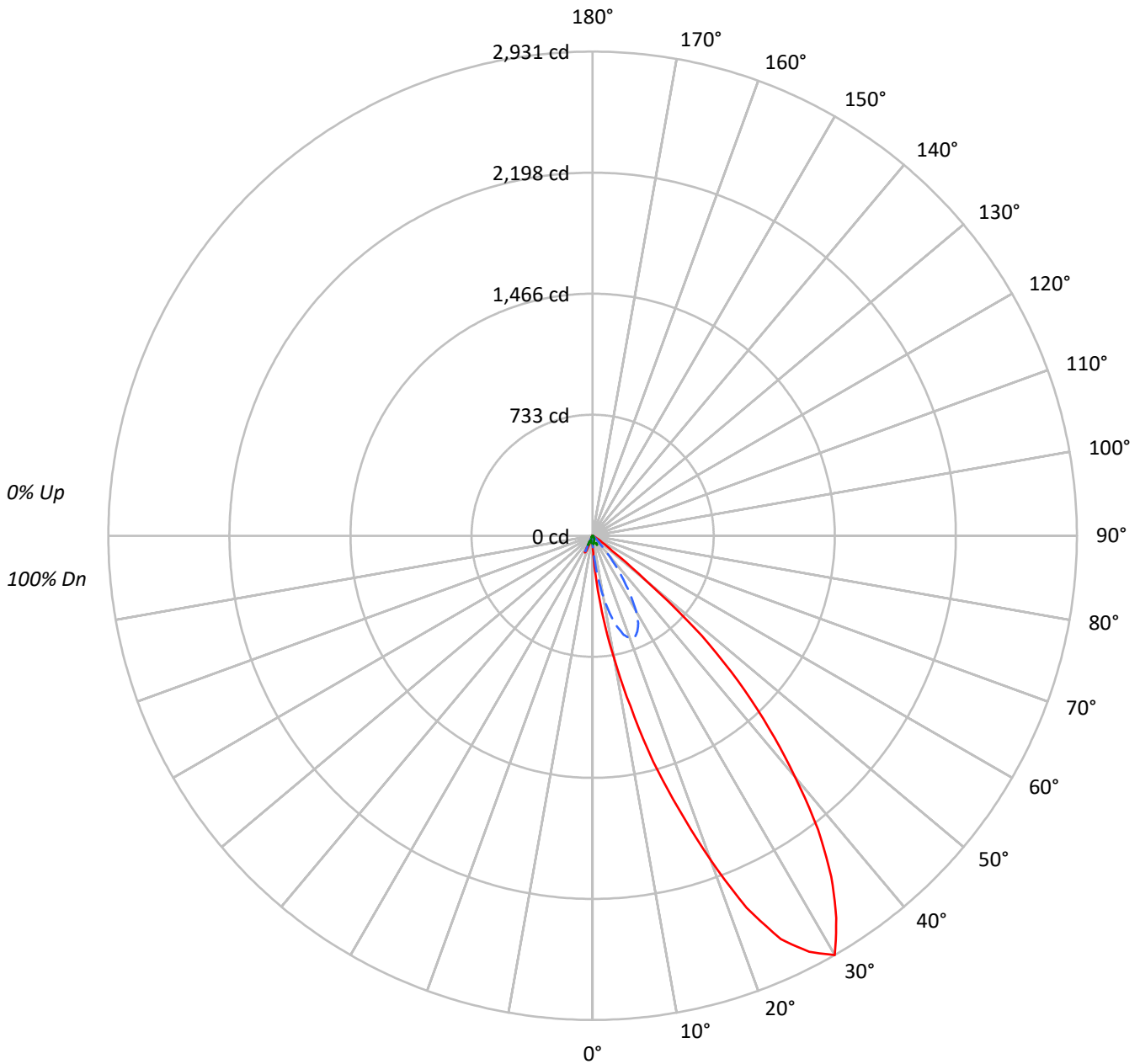
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	7006	7006	7006
5°	36018	6513	3046
10°	94913	5436	1591
15°	180653	4265	1226
20°	274389	3531	3268
25°	366645	8411	15148
30°	417469	3176	3062
35°	379199	1792	1385
40°	307122	805	564
45°	217331	471	140
50°	79309	288	0
55°	16494	258	0
60°	3972	296	0
65°	1226	350	0
70°	433	433	0
75°	191	572	0
80°	0	852	0
85°	0	1698	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	12.9	1.7
10°-20°	96.0	12.6
20°-30°	243.4	31.9
30°-40°	260.5	34.1
40°-50°	133.1	17.4
50°-60°	13.9	1.8
60°-70°	1.6	0.2
70°-80°	0.9	0.1
80°-90°	0.8	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°	352.2	46.2
0°-40°	612.7	80.3
0°-60°	759.8	99.6
0°-90°	763.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	763.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	57	57	57	57	57	
5°	291	158	53	30	25	42
15°	1415	569	33	12	10	418
25°	2694	640	62	104	111	1224
35°	2518	325	12	9	9	1546
45°	1246	43	3	2	1	930
55°	77	7	1	1	0	104
65°	4	2	1	1	0	6
75°	0	1	1	1	0	0
85°	0	1	1	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°	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8
2.5°	114.7	115.9	107.4	110.1	112.0	108.2	107.4	107.4	111.7	109.4	113.2
5°	290.9	289.7	275.1	279.3	282.4	275.1	278.6	273.2	279.7	275.5	279.7
7.5°	508.0	521.5	503.0	507.3	509.9	502.3	504.2	496.5	503.8	498.8	502.3
10°	757.8	771.6	750.1	753.6	755.5	748.2	748.6	738.6	745.2	739.8	742.1
12.5°	1056.3	1061.7	1051.4	1054.0	1055.2	1045.6	1027.6	1029.5	1036.0	1026.8	1029.1
15°	1414.7	1410.9	1398.6	1407.4	1398.6	1394.0	1366.8	1365.2	1369.1	1358.7	1342.2
17.5°	1730.5	1759.7	1745.9	1750.9	1740.1	1740.1	1705.2	1699.4	1699.8	1672.2	1669.1
20°	2090.4	2127.7	2093.9	2095.4	2081.2	2080.8	2038.3	2026.4	2021.4	1989.9	1981.1
22.5°	2437.3	2448.1	2447.7	2441.1	2407.8	2427.0	2373.6	2354.8	2339.5	2303.8	2286.1
25°	2694.0	2727.8	2704.8	2688.3	2659.1	2683.3	2623.4	2598.9	2575.8	2545.9	2522.9
27.5°	2839.1	2870.5	2865.1	2840.6	2810.7	2834.1	2768.5	2736.6	2704.0	2682.1	2653.3
30°	2931.1	2979.1	2963.4	2910.0	2866.3	2874.0	2800.3	2757.7	2721.6	2699.0	2662.5
32.5°	2744.3	2793.8	2789.2	2750.4	2727.8	2746.6	2682.5	2640.3	2605.8	2587.7	2547.1
35°	2518.3	2576.2	2563.6	2531.3	2514.8	2536.7	2474.1	2438.8	2403.9	2388.2	2343.7
37.5°	2241.6	2296.1	2283.4	2252.7	2236.6	2252.7	2192.9	2160.3	2127.3	2110.8	2080.5
40°	1907.4	1955.4	1941.9	1913.5	1900.1	1911.6	1859.8	1831.4	1803.4	1791.1	1750.9
42.5°	1580.9	1619.2	1607.0	1582.4	1572.0	1579.7	1537.1	1511.8	1487.3	1476.9	1453.1
45°	1245.9	1283.9	1272.0	1250.9	1241.3	1245.5	1209.8	1187.2	1166.1	1156.5	1135.0
47.5°	894.0	936.6	922.0	904.0	894.0	892.1	860.7	840.3	842.2	809.6	789.7
50°	413.3	449.3	434.7	425.1	415.6	410.2	399.1	376.0	382.6	353.0	341.5
52.5°	150.0	158.9	155.4	152.3	149.3	148.1	144.3	138.5	139.3	132.0	128.5
55°	76.7	81.0	79.8	77.9	77.9	76.7	74.8	72.5	71.0	69.8	68.7
57.5°	35.3	37.6	36.8	36.1	36.1	35.3	34.5	33.4	34.1	32.2	31.8
60°	16.1	17.3	16.9	16.5	16.5	16.5	16.1	15.7	15.7	15.3	15.0
62.5°	7.7	8.4	8.1	8.1	8.1	8.1	7.7	7.7	7.7	7.7	7.3
65°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.8	4.2	3.8	3.8
67.5°	2.3	2.3	2.3	2.3	1.9	2.3	2.3	1.9	1.9	1.9	1.9
70°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.0	0.4	0.4	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4
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	0.4	0.0	0.4	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°	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8
2.5°	104.4	107.1	109.7	109.0	105.1	104.8	103.2	104.0	81.0	65.6	54.9
5°	264.8	268.2	271.7	269.7	260.2	257.9	250.2	248.6	158.1	77.5	52.6
7.5°	483.9	485.8	488.5	486.2	472.0	465.4	449.3	433.6	265.9	93.6	48.7
10°	721.4	720.6	721.8	718.7	701.0	688.4	663.4	652.3	376.8	107.4	43.4
12.5°	998.4	995.3	978.5	986.5	961.6	935.9	894.8	860.3	481.6	115.1	38.4
15°	1321.9	1312.7	1306.5	1297.3	1266.6	1225.2	1162.6	1124.3	568.7	114.3	33.4
17.5°	1643.4	1628.5	1601.6	1605.0	1569.4	1511.4	1428.9	1363.3	628.9	104.8	29.5
20°	1947.7	1925.4	1891.7	1889.0	1846.0	1769.7	1665.7	1584.3	661.9	89.0	26.9
22.5°	2240.9	2206.3	2161.0	2146.8	2091.6	1983.4	1847.6	1748.6	665.0	74.4	32.2
25°	2471.8	2428.5	2378.2	2353.7	2292.7	2154.5	1985.3	1863.7	640.4	73.7	61.8
27.5°	2600.8	2551.7	2501.4	2468.0	2406.2	2249.7	2058.2	1917.8	598.2	79.0	58.7
30°	2607.7	2552.4	2500.2	2458.0	2396.6	2229.3	2026.0	1879.8	522.2	49.9	22.3
32.5°	2492.9	2433.9	2381.7	2334.1	2273.5	2105.0	1905.5	1765.8	424.8	34.9	15.7
35°	2292.3	2231.3	2181.4	2131.1	2074.3	1915.9	1732.8	1602.7	324.6	27.6	11.9
37.5°	2019.1	1962.7	1918.5	1884.4	1823.0	1696.8	1529.5	1391.7	229.5	19.6	7.3
40°	1713.3	1665.7	1629.6	1600.1	1543.3	1431.2	1262.4	1146.1	139.3	13.8	5.0
42.5°	1405.5	1361.0	1329.2	1301.2	1248.6	1149.6	1010.7	894.0	66.8	9.6	3.5
45°	1093.2	1053.3	1026.4	1001.1	953.9	856.4	746.3	661.9	43.4	6.9	2.7
47.5°	746.7	726.0	681.8	654.2	605.9	531.4	428.2	335.4	28.8	5.0	1.9
50°	310.4	299.7	270.5	251.7	224.1	186.1	135.1	113.2	17.7	3.5	1.5
52.5°	120.5	117.8	110.5	106.3	99.4	89.4	74.4	66.4	10.7	2.7	1.5
55°	64.8	64.1	60.2	57.9	54.1	49.1	40.3	35.3	6.9	1.9	1.2
57.5°	29.9	29.5	27.6	27.6	24.9	23.0	19.2	17.3	4.2	1.5	1.2
60°	14.2	14.2	13.4	13.4	12.3	11.5	9.6	8.8	2.7	1.2	1.2
62.5°	6.9	6.9	6.9	6.9	6.5	6.1	5.4	5.0	1.9	1.2	1.2
65°	3.8	3.8	3.8	3.8	3.5	3.5	3.1	2.7	1.5	1.2	1.2
67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.5	1.5	1.2	1.2	1.2
70°	1.2	1.2	1.2	1.2	1.2	0.8	0.8	0.8	0.8	1.2	1.2
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.2	1.2
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.2	1.2
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.2	1.2
80°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.2	1.2
82.5°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	1.2	1.2
87.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.8	1.2	1.2
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°	56.8	56.8	56.8	56.8
2.5°	47.2	41.1	38.0	37.2
5°	38.8	30.3	26.1	24.6
7.5°	31.5	21.9	18.4	16.9
10°	24.9	17.3	13.8	12.7
12.5°	20.7	13.8	11.1	10.4
15°	17.7	11.9	10.0	9.6
17.5°	16.1	12.7	11.9	12.3
20°	19.6	20.7	24.2	24.9
22.5°	41.4	71.8	97.5	103.2
25°	86.3	103.6	107.4	111.3
27.5°	48.0	37.2	36.5	38.0
30°	19.6	20.0	20.7	21.5
32.5°	14.6	14.6	14.2	14.6
35°	10.0	9.2	8.8	9.2
37.5°	6.1	5.8	5.4	5.4
40°	4.2	3.8	3.5	3.5
42.5°	3.1	2.3	1.9	1.9
45°	2.3	1.5	1.2	0.8
47.5°	1.9	1.2	0.4	0.4
50°	1.5	0.8	0.4	0.0
52.5°	1.2	0.8	0.4	0.0
55°	1.2	0.8	0.0	0.0
57.5°	1.2	0.8	0.0	0.0
60°	1.2	0.8	0.4	0.0
62.5°	1.2	0.8	0.4	0.4
65°	1.2	0.8	0.4	0.0
67.5°	1.2	0.8	0.4	0.0
70°	1.2	0.8	0.4	0.0
72.5°	1.5	0.8	0.4	0.0
75°	1.5	1.2	0.4	0.0
77.5°	1.5	1.2	0.4	0.0
80°	1.5	1.2	0.4	0.0
82.5°	1.5	1.2	0.4	0.0
85°	1.5	1.2	0.4	0.0
87.5°	1.5	1.2	0.4	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)