

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: P170782

Luminaire Tested: **LDA4A09830D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170782
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: LDA4A09830D010TE 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 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1028.5 lumens
Efficiency: N/A
Efficacy: 74.3 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

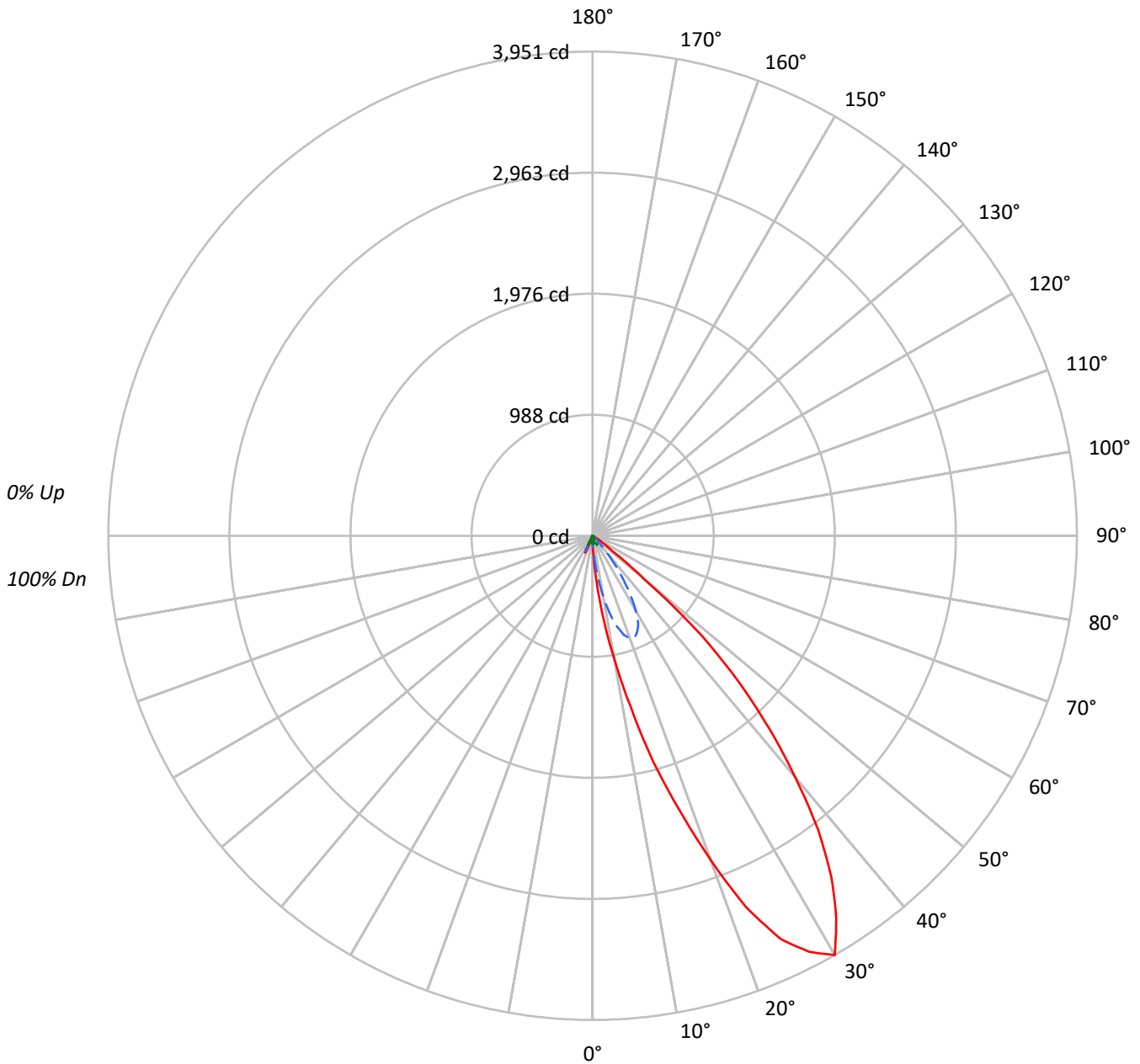
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	9436	9436	9436
5°	48549	8779	4098
10°	127941	7315	2142
15°	243518	5746	1647
20°	369869	4752	4410
25°	494222	11337	20415
30°	562730	4273	4130
35°	511134	2409	1867
40°	413989	1079	757
45°	292950	628	174
50°	106884	403	0
55°	22236	344	0
60°	5353	395	0
65°	1664	467	0
70°	577	577	0
75°	238	763	0
80°	0	1137	0
85°	0	2264	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.3	1.7
10°-20°	129.4	12.6
20°-30°	328.1	31.9
30°-40°	351.1	34.1
40°-50°	179.5	17.4
50°-60°	18.7	1.8
60°-70°	2.2	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°	474.8	46.2
0°-40°	825.9	80.3
0°-60°	1024.1	99.6
0°-90°	1028.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1028.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	76	76	76	76	76	
5°	392	213	71	41	33	57
15°	1907	766	45	16	13	563
25°	3631	863	83	140	150	1650
35°	3394	438	16	12	12	2084
45°	1679	58	4	2	1	1253
55°	103	9	2	1	0	140
65°	6	2	2	1	0	8
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°	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5
2.5°	154.6	156.2	144.8	148.4	151.0	145.9	144.8	144.8	150.5	147.4	152.6
5°	392.1	390.5	370.8	376.5	380.7	370.8	375.5	368.3	377.1	371.4	377.1
7.5°	684.8	702.9	678.1	683.8	687.4	677.0	679.6	669.3	679.1	672.4	677.0
10°	1021.5	1040.1	1011.2	1015.8	1018.4	1008.6	1009.1	995.6	1004.4	997.2	1000.3
12.5°	1423.9	1431.1	1417.2	1420.8	1422.3	1409.4	1385.1	1387.7	1396.5	1384.1	1387.2
15°	1907.0	1901.8	1885.3	1897.2	1885.3	1879.0	1842.3	1840.3	1845.4	1831.5	1809.2
17.5°	2332.6	2372.0	2353.3	2360.1	2345.6	2345.6	2298.5	2290.8	2291.3	2254.0	2249.9
20°	2817.8	2868.0	2822.5	2824.5	2805.4	2804.9	2747.5	2731.4	2724.7	2682.3	2670.4
22.5°	3285.4	3299.8	3299.3	3290.5	3245.5	3271.4	3199.5	3174.2	3153.5	3105.4	3081.6
25°	3631.4	3676.9	3645.9	3623.6	3584.3	3616.9	3536.2	3503.1	3472.1	3431.7	3400.7
27.5°	3826.9	3869.3	3862.1	3829.0	3788.6	3820.2	3731.7	3688.8	3644.8	3615.3	3576.6
30°	3951.0	4015.7	3994.5	3922.6	3863.6	3874.0	3774.6	3717.2	3668.6	3638.1	3589.0
32.5°	3699.1	3765.9	3759.6	3707.4	3676.9	3702.2	3615.9	3559.0	3512.4	3488.1	3433.3
35°	3394.5	3472.6	3455.5	3412.1	3389.8	3419.3	3335.0	3287.4	3240.4	3219.2	3159.2
37.5°	3021.6	3095.0	3078.0	3036.6	3014.9	3036.6	2955.9	2911.9	2867.4	2845.2	2804.3
40°	2571.1	2635.7	2617.6	2579.4	2561.3	2576.8	2506.9	2468.7	2430.9	2414.4	2360.1
42.5°	2130.9	2182.7	2166.1	2133.0	2119.0	2129.4	2072.0	2037.8	2004.7	1990.8	1958.7
45°	1679.4	1730.6	1714.6	1686.1	1673.2	1678.9	1630.8	1600.3	1571.8	1558.9	1529.9
47.5°	1205.1	1262.5	1242.9	1218.6	1205.1	1202.5	1160.1	1132.7	1135.3	1091.3	1064.4
50°	557.0	605.7	586.0	573.1	560.1	552.9	537.9	506.9	515.7	475.8	460.3
52.5°	202.2	214.1	209.5	205.3	201.2	199.6	194.5	186.7	187.7	177.9	173.3
55°	103.4	109.1	107.6	105.0	105.0	103.4	100.9	97.8	95.7	94.1	92.6
57.5°	47.6	50.7	49.7	48.6	48.6	47.6	46.5	45.0	46.0	43.4	42.9
60°	21.7	23.3	22.8	22.2	22.2	22.2	21.7	21.2	21.2	20.7	20.2
62.5°	10.3	11.4	10.9	10.9	10.9	10.9	10.3	10.3	10.3	10.3	9.8
65°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.2	5.7	5.2	5.2
67.5°	3.1	3.1	3.1	3.1	2.6	3.1	3.1	2.6	2.6	2.6	2.6
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5
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	0.5	0.0	0.5	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°	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5
2.5°	140.7	144.3	147.9	146.9	141.7	141.2	139.1	140.2	109.1	88.4	74.0
5°	356.9	361.5	366.2	363.6	350.7	347.6	337.2	335.2	213.1	104.5	70.9
7.5°	652.2	654.8	658.4	655.3	636.2	627.4	605.7	584.5	358.4	126.2	65.7
10°	972.4	971.3	972.9	968.7	945.0	927.9	894.3	879.3	507.9	144.8	58.4
12.5°	1345.8	1341.7	1318.9	1329.8	1296.1	1261.5	1206.1	1159.6	649.1	155.2	51.7
15°	1781.8	1769.4	1761.1	1748.7	1707.3	1651.5	1567.2	1515.4	766.5	154.1	45.0
17.5°	2215.2	2195.1	2158.9	2163.5	2115.4	2037.3	1926.1	1837.7	847.7	141.2	39.8
20°	2625.4	2595.4	2549.9	2546.3	2488.3	2385.4	2245.2	2135.6	892.2	120.0	36.2
22.5°	3020.5	2974.0	2913.0	2893.8	2819.3	2673.5	2490.4	2357.0	896.3	100.3	43.4
25°	3331.9	3273.5	3205.7	3172.6	3090.4	2904.2	2676.1	2512.1	863.2	99.3	83.3
27.5°	3505.7	3439.5	3371.7	3326.7	3243.5	3032.4	2774.4	2585.0	806.3	106.5	79.1
30°	3515.0	3440.5	3370.2	3313.3	3230.5	3005.0	2730.9	2533.8	703.9	67.2	30.0
32.5°	3360.4	3280.7	3210.4	3146.2	3064.5	2837.5	2568.5	2380.2	572.6	47.1	21.2
35°	3089.9	3007.6	2940.4	2872.6	2796.1	2582.5	2335.8	2160.4	437.6	37.2	16.0
37.5°	2721.6	2645.6	2586.1	2540.1	2457.3	2287.1	2061.6	1875.9	309.3	26.4	9.8
40°	2309.4	2245.2	2196.6	2156.8	2080.2	1929.2	1701.6	1544.9	187.7	18.6	6.7
42.5°	1894.6	1834.6	1791.6	1753.9	1683.0	1549.6	1362.3	1205.1	90.0	12.9	4.7
45°	1473.6	1419.8	1383.6	1349.4	1285.8	1154.4	1006.0	892.2	58.4	9.3	3.6
47.5°	1006.5	978.6	919.1	881.9	816.7	716.3	577.2	452.0	38.8	6.7	2.6
50°	418.4	403.9	364.6	339.3	302.1	250.9	182.1	152.6	23.8	4.7	2.1
52.5°	162.4	158.8	149.0	143.3	134.0	120.5	100.3	89.5	14.5	3.6	2.1
55°	87.4	86.4	81.2	78.1	72.9	66.2	54.3	47.6	9.3	2.6	1.6
57.5°	40.3	39.8	37.2	37.2	33.6	31.0	25.9	23.3	5.7	2.1	1.6
60°	19.1	19.1	18.1	18.1	16.6	15.5	12.9	11.9	3.6	1.6	1.6
62.5°	9.3	9.3	9.3	9.3	8.8	8.3	7.2	6.7	2.6	1.6	1.6
65°	5.2	5.2	5.2	5.2	4.7	4.7	4.1	3.6	2.1	1.6	1.6
67.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.1	2.1	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.6	1.6	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°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
80°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
82.5°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.6	1.6
87.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
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°	76.5	76.5	76.5	76.5
2.5°	63.6	55.3	51.2	50.2
5°	52.2	40.9	35.2	33.1
7.5°	42.4	29.5	24.8	22.8
10°	33.6	23.3	18.6	17.1
12.5°	27.9	18.6	15.0	14.0
15°	23.8	16.0	13.4	12.9
17.5°	21.7	17.1	16.0	16.6
20°	26.4	27.9	32.6	33.6
22.5°	55.9	96.7	131.4	139.1
25°	116.4	139.6	144.8	150.0
27.5°	64.7	50.2	49.1	51.2
30°	26.4	26.9	27.9	29.0
32.5°	19.7	19.7	19.1	19.7
35°	13.4	12.4	11.9	12.4
37.5°	8.3	7.8	7.2	7.2
40°	5.7	5.2	4.7	4.7
42.5°	4.1	3.1	2.6	2.6
45°	3.1	2.1	1.6	1.0
47.5°	2.6	1.6	0.5	0.5
50°	2.1	1.0	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	0.5	0.0
62.5°	1.6	1.0	0.5	0.5
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°	2.1	1.0	0.5	0.0
75°	2.1	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	0.0
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)