

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: P170783

Luminaire Tested: **LDA4A09835D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170783
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: LDA4A09835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1081.2 lumens
Efficiency: N/A
Efficacy: 78.1 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

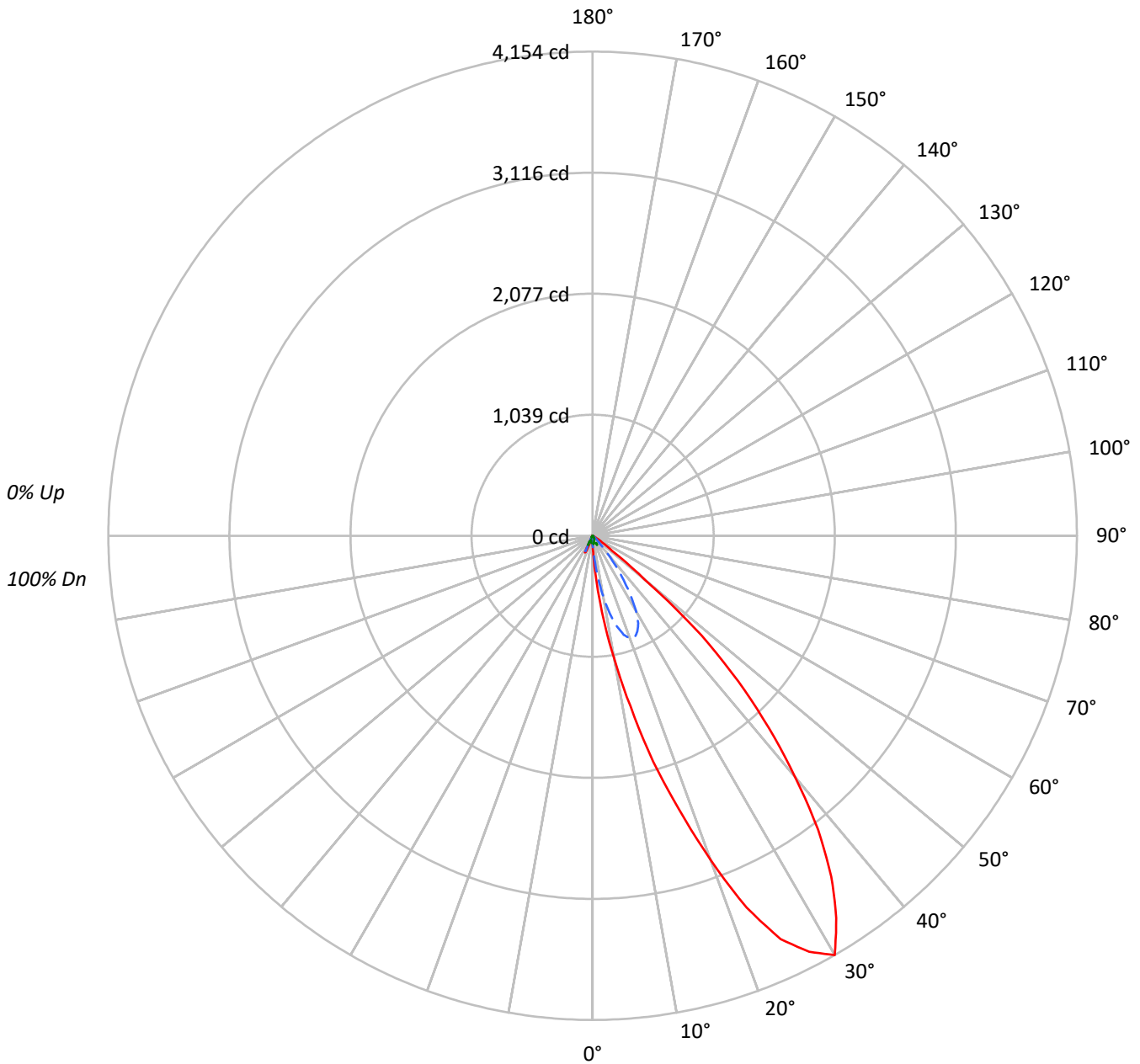
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	9929	9929	9929
5°	51037	9224	4309
10°	134504	7690	2242
15°	256007	6040	1737
20°	388850	5001	4634
25°	519577	11908	21462
30°	591614	4486	4344
35°	537365	2545	1973
40°	435227	1143	789
45°	307986	663	192
50°	112372	422	0
55°	23397	344	0
60°	5625	395	0
65°	1751	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°	18.2	1.7
10°-20°	136.0	12.6
20°-30°	344.9	31.9
30°-40°	369.1	34.1
40°-50°	188.7	17.5
50°-60°	19.7	1.8
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°	499.1	46.2
0°-40°	868.3	80.3
0°-60°	1076.6	99.6
0°-90°	1081.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1081.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	80	80	80	80	80	
5°	412	224	74	43	35	60
15°	2005	806	47	17	14	592
25°	3818	908	88	147	158	1735
35°	3569	460	17	13	13	2191
45°	1766	61	4	2	1	1318
55°	109	10	2	1	0	147
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°	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5
2.5°	162.6	164.2	152.3	156.1	158.8	153.3	152.3	152.3	158.2	155.0	160.4
5°	412.2	410.5	389.9	395.9	400.2	389.9	394.8	387.2	396.4	390.4	396.4
7.5°	719.9	739.0	712.9	718.9	722.7	711.8	714.5	703.6	714.0	706.9	711.8
10°	1073.9	1093.5	1063.1	1067.9	1070.7	1060.3	1060.9	1046.7	1056.0	1048.4	1051.6
12.5°	1497.0	1504.6	1489.9	1493.7	1495.3	1481.7	1456.2	1458.9	1468.2	1455.1	1458.4
15°	2004.8	1999.4	1982.0	1994.5	1982.0	1975.5	1936.9	1934.7	1940.1	1925.5	1902.1
17.5°	2452.4	2493.7	2474.1	2481.2	2466.0	2466.0	2416.5	2408.3	2408.9	2369.7	2365.4
20°	2962.4	3015.2	2967.3	2969.5	2949.4	2948.8	2888.5	2871.6	2864.5	2819.9	2807.4
22.5°	3454.0	3469.2	3468.7	3459.4	3412.1	3439.3	3363.7	3337.1	3315.3	3264.7	3239.7
25°	3817.7	3865.6	3833.0	3809.6	3768.3	3802.5	3717.7	3682.9	3650.3	3607.9	3575.2
27.5°	4023.3	4067.9	4060.3	4025.5	3983.0	4016.2	3923.2	3878.1	3831.9	3800.9	3760.1
30°	4153.8	4221.8	4199.5	4123.9	4061.9	4072.8	3968.4	3908.0	3856.9	3824.8	3773.2
32.5°	3889.0	3959.1	3952.6	3897.7	3865.6	3892.2	3801.4	3741.6	3692.7	3667.1	3609.5
35°	3568.7	3650.8	3632.9	3587.2	3563.8	3594.8	3506.2	3456.1	3406.7	3384.4	3321.3
37.5°	3176.7	3253.9	3235.9	3192.4	3169.6	3192.4	3107.6	3061.4	3014.6	2991.2	2948.3
40°	2703.0	2771.0	2752.0	2711.7	2692.7	2709.0	2635.6	2595.4	2555.7	2538.3	2481.2
42.5°	2240.3	2294.7	2277.3	2242.5	2227.8	2238.7	2178.3	2142.4	2107.6	2092.9	2059.2
45°	1765.6	1819.4	1802.6	1772.7	1759.1	1765.0	1714.5	1682.4	1652.5	1638.9	1608.4
47.5°	1267.0	1327.3	1306.7	1281.1	1267.0	1264.2	1219.7	1190.8	1193.6	1147.3	1119.1
50°	585.6	636.7	616.1	602.5	588.9	581.3	565.5	532.9	542.1	500.3	483.9
52.5°	212.6	225.1	220.2	215.9	211.5	209.9	204.5	196.3	197.4	187.1	182.2
55°	108.8	114.7	113.1	110.4	110.4	108.8	106.0	102.8	100.6	99.0	97.3
57.5°	50.0	53.3	52.2	51.1	51.1	50.0	48.9	47.3	48.4	45.7	45.1
60°	22.8	24.5	23.9	23.4	23.4	23.4	22.8	22.3	22.3	21.8	21.2
62.5°	10.9	12.0	11.4	11.4	11.4	11.4	10.9	10.9	10.9	10.9	10.3
65°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.4	6.0	5.4	5.4
67.5°	3.3	3.3	3.3	3.3	2.7	3.3	3.3	2.7	2.7	2.7	2.7
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°	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5	80.5
2.5°	147.9	151.7	155.5	154.4	149.0	148.4	146.3	147.4	114.7	93.0	77.8
5°	375.2	380.1	385.0	382.3	368.7	365.4	354.5	352.4	224.0	109.8	74.5
7.5°	685.7	688.4	692.2	688.9	668.8	659.6	636.7	614.4	376.8	132.7	69.1
10°	1022.3	1021.2	1022.8	1018.5	993.5	975.5	940.2	924.4	534.0	152.3	61.4
12.5°	1414.9	1410.5	1386.6	1398.0	1362.7	1326.2	1268.1	1219.1	682.4	163.1	54.4
15°	1873.3	1860.2	1851.5	1838.5	1795.0	1736.2	1647.6	1593.2	805.9	162.0	47.3
17.5°	2328.9	2307.7	2269.7	2274.6	2224.0	2141.9	2025.0	1932.0	891.2	148.4	41.9
20°	2760.1	2728.6	2680.7	2676.9	2616.0	2507.8	2360.5	2245.2	938.0	126.2	38.1
22.5°	3175.6	3126.6	3062.5	3042.3	2964.0	2810.7	2618.2	2477.9	942.3	105.5	45.7
25°	3502.9	3441.5	3370.2	3335.4	3249.0	3053.2	2813.4	2641.0	907.5	104.4	87.5
27.5°	3685.6	3616.0	3544.8	3497.5	3409.9	3188.1	2916.7	2717.7	847.7	112.0	83.2
30°	3695.4	3617.1	3543.1	3483.3	3396.3	3159.3	2871.1	2663.9	740.1	70.7	31.5
32.5°	3532.8	3449.1	3375.1	3307.7	3221.8	2983.1	2700.3	2502.4	601.9	49.5	22.3
35°	3248.4	3162.0	3091.3	3020.0	2939.6	2715.0	2455.6	2271.3	460.0	39.2	16.9
37.5°	2861.3	2781.3	2718.8	2670.4	2583.4	2404.5	2167.4	1972.2	325.2	27.7	10.3
40°	2427.9	2360.5	2309.4	2267.5	2187.0	2028.2	1789.0	1624.2	197.4	19.6	7.1
42.5°	1991.8	1928.7	1883.6	1843.9	1769.4	1629.1	1432.3	1267.0	94.6	13.6	4.9
45°	1549.2	1492.6	1454.6	1418.7	1351.8	1213.7	1057.6	938.0	61.4	9.8	3.8
47.5°	1058.2	1028.8	966.3	927.1	858.6	753.1	606.8	475.2	40.8	7.1	2.7
50°	439.9	424.7	383.4	356.7	317.6	263.7	191.4	160.4	25.0	4.9	2.2
52.5°	170.7	166.9	156.6	150.6	140.8	126.7	105.5	94.1	15.2	3.8	2.2
55°	91.9	90.8	85.4	82.1	76.7	69.6	57.1	50.0	9.8	2.7	1.6
57.5°	42.4	41.9	39.2	39.2	35.3	32.6	27.2	24.5	6.0	2.2	1.6
60°	20.1	20.1	19.0	19.0	17.4	16.3	13.6	12.5	3.8	1.6	1.6
62.5°	9.8	9.8	9.8	9.8	9.2	8.7	7.6	7.1	2.7	1.6	1.6
65°	5.4	5.4	5.4	5.4	4.9	4.9	4.4	3.8	2.2	1.6	1.6
67.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.2	2.2	1.6	1.6	1.6
70°	1.6	1.6	1.6	1.6	1.6	1.1	1.1	1.1	1.1	1.6	1.6
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.6	1.6
75°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.6	1.6
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.6	1.6
80°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.6	1.6
82.5°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.6	1.6
87.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.1	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°	80.5	80.5	80.5	80.5
2.5°	66.9	58.2	53.8	52.7
5°	54.9	43.0	37.0	34.8
7.5°	44.6	31.0	26.1	23.9
10°	35.3	24.5	19.6	17.9
12.5°	29.4	19.6	15.8	14.7
15°	25.0	16.9	14.1	13.6
17.5°	22.8	17.9	16.9	17.4
20°	27.7	29.4	34.3	35.3
22.5°	58.7	101.7	138.1	146.3
25°	122.3	146.8	152.3	157.7
27.5°	68.0	52.7	51.7	53.8
30°	27.7	28.3	29.4	30.5
32.5°	20.7	20.7	20.1	20.7
35°	14.1	13.1	12.5	13.1
37.5°	8.7	8.2	7.6	7.6
40°	6.0	5.4	4.9	4.9
42.5°	4.4	3.3	2.7	2.7
45°	3.3	2.2	1.6	1.1
47.5°	2.7	1.6	0.5	0.5
50°	2.2	1.1	0.5	0.0
52.5°	1.6	1.1	0.5	0.0
55°	1.6	1.1	0.0	0.0
57.5°	1.6	1.1	0.0	0.0
60°	1.6	1.1	0.5	0.0
62.5°	1.6	1.1	0.5	0.5
65°	1.6	1.1	0.5	0.0
67.5°	1.6	1.1	0.5	0.0
70°	1.6	1.1	0.5	0.0
72.5°	2.2	1.1	0.5	0.0
75°	2.2	1.6	0.5	0.0
77.5°	2.2	1.6	0.5	0.0
80°	2.2	1.6	0.5	0.0
82.5°	2.2	1.6	0.5	0.0
85°	2.2	1.6	0.5	0.0
87.5°	2.2	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)