

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: P170895

Luminaire Tested: **LDA4A28835D010TE LAR35FL 4LLWW1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170895
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26103)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A28835D010TE LAR35FL 4LLWW1
Description: PORTFOLIO 4" Lensed Wall Wash, Self-flanged, 35° Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2505.3 lumens
Efficiency: N/A
Efficacy: 56.3 lumens/watt
Spacing Criteria (0/90/45): 2.19 / 1.11 / 1.55
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

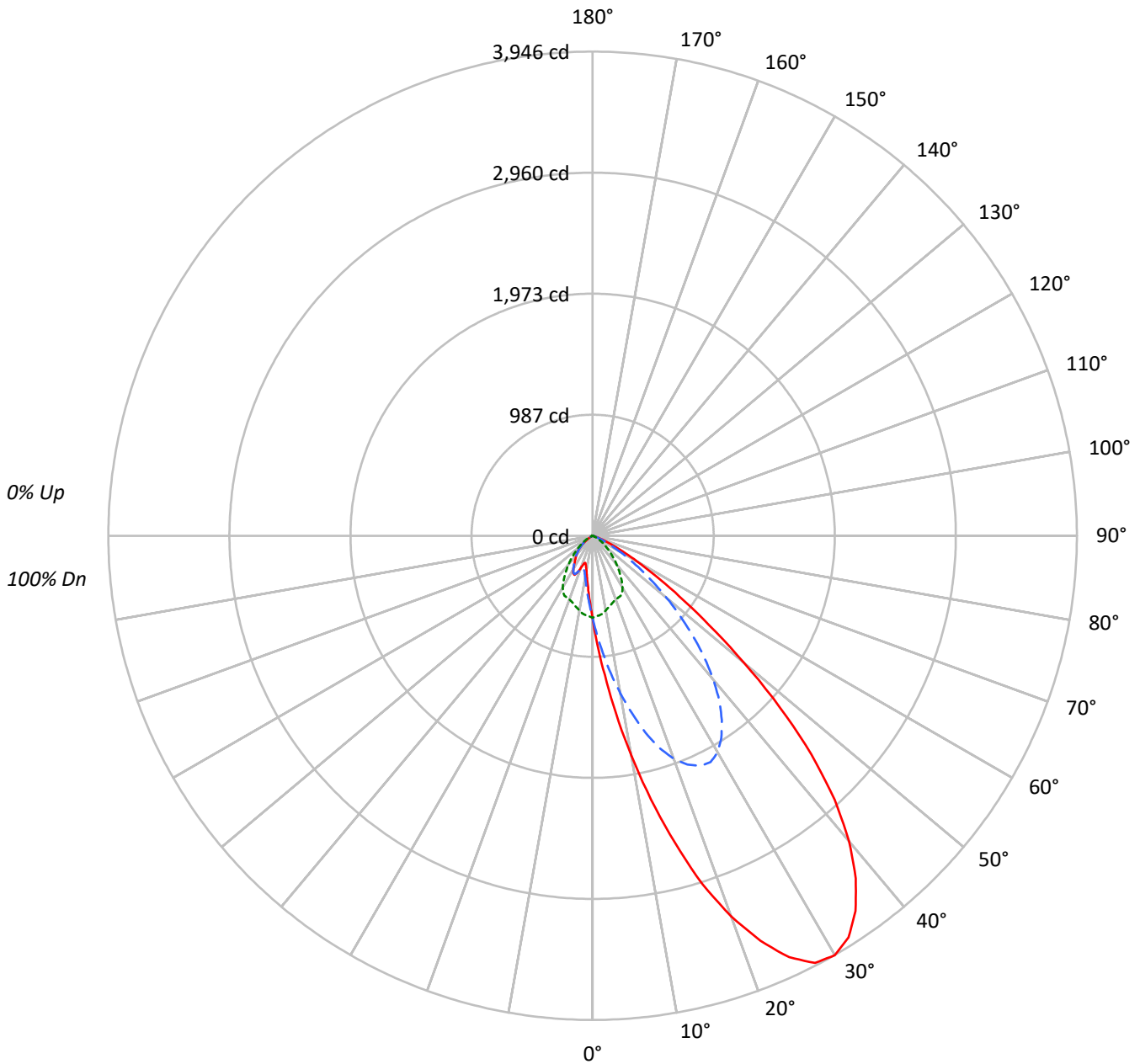
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90																			
2	104	98	92	88	102	96	91	87	93	89	85	89	86	83	87	84	81	80																			
3	97	88	82	76	94	87	81	76	84	79	75	81	77	73	79	75	72	70																			
4	90	80	72	67	87	78	72	66	76	70	66	74	69	65	72	67	64	62																			
5	83	72	64	59	81	71	64	59	69	63	58	67	62	57	65	61	57	55																			
6	77	66	58	52	75	65	57	52	63	56	52	61	56	51	60	55	51	49																			
7	72	60	52	46	70	59	52	46	57	51	46	56	50	46	55	50	45	44																			
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	50	45	41	39																			
9	62	50	43	38	61	50	42	37	49	42	37	47	41	37	47	41	37	35																			
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	82518	82518	82518
5°	140829	80506	52573
10°	227627	77316	35909
15°	330709	74217	29204
20°	433098	72588	36399
25°	515793	73560	47974
30°	562089	69391	44622
35°	562180	59207	37750
40°	523190	48933	32799
45°	439459	38254	28154
50°	308447	28553	20743
55°	185650	20558	11462
60°	102426	13149	4243
65°	49383	6392	467
70°	19763	2272	577
75°	5957	1477	0
80°	2202	2202	0
85°	6652	4387	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	71.8	2.9
10°-20°	284.4	11.4
20°-30°	576.7	23.0
30°-40°	700.7	28.0
40°-50°	552.9	22.1
50°-60°	250.5	10.0
60°-70°	59.1	2.4
70°-80°	6.4	0.3
80°-90°	2.8	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°	932.8	37.2
0°-40°	1633.6	65.2
0°-60°	2437.0	97.3
0°-90°	2505.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2505.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	669	669	669	669	669	
5°	1137	957	650	476	425	130
15°	2590	1659	581	276	229	754
25°	3790	2070	540	345	352	1734
35°	3734	1835	393	255	251	2305
45°	2519	1158	219	160	161	1906
55°	863	473	96	64	53	815
65°	169	100	22	5	2	191
75°	12	6	3	2	0	19
85°	5	5	3	2	0	4
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0
2.5°	888.3	866.4	866.4	850.7	863.3	838.2	842.9	841.3	857.0	852.3	838.2
5°	1137.4	1118.6	1117.1	1096.7	1112.4	1079.5	1081.0	1076.3	1093.6	1076.3	1056.0
7.5°	1458.6	1425.7	1424.1	1400.6	1416.3	1374.0	1372.4	1363.0	1378.7	1345.8	1316.0
10°	1817.4	1770.4	1767.2	1739.0	1756.3	1701.4	1696.7	1681.1	1692.0	1640.3	1598.0
12.5°	2201.2	2149.5	2143.3	2113.5	2129.2	2063.4	2050.8	2030.5	2035.2	1959.9	1903.5
15°	2589.8	2545.9	2539.6	2508.3	2524.0	2442.5	2422.1	2397.1	2392.4	2292.1	2220.0
17.5°	2976.7	2887.4	2915.6	2884.3	2898.4	2802.8	2776.2	2744.9	2727.6	2603.9	2513.0
20°	3299.5	3222.7	3243.1	3214.9	3227.4	3117.7	3084.8	3045.7	3015.9	2867.1	2762.1
22.5°	3572.1	3492.2	3481.2	3481.2	3489.1	3370.0	3326.1	3282.2	3239.9	3062.9	2956.4
25°	3789.9	3702.1	3689.6	3686.5	3688.0	3562.7	3511.0	3462.4	3407.6	3213.3	3097.4
27.5°	3924.6	3832.2	3818.1	3816.5	3808.7	3680.2	3622.2	3569.0	3503.2	3304.2	3174.1
30°	3946.5	3861.9	3846.3	3846.3	3825.9	3700.6	3636.3	3579.9	3506.3	3305.7	3166.3
32.5°	3880.7	3794.6	3777.3	3778.9	3746.0	3628.5	3559.6	3501.6	3424.8	3227.4	3083.3
35°	3733.5	3650.4	3634.8	3636.3	3595.6	3485.9	3413.9	3357.5	3276.0	3088.0	2940.7
37.5°	3522.0	3443.6	3428.0	3431.1	3381.0	3282.2	3208.6	3155.3	3072.3	2898.4	2754.3
40°	3249.3	3174.1	3160.0	3161.6	3106.8	3020.6	2948.5	2898.4	2815.4	2660.3	2522.4
42.5°	2918.8	2846.7	2835.7	2834.2	2780.9	2702.6	2632.1	2589.8	2505.2	2381.4	2249.8
45°	2519.3	2458.2	2409.6	2442.5	2387.7	2325.0	2259.2	2224.7	2144.8	2057.1	1939.6
47.5°	2069.6	2016.4	1967.8	1999.1	1949.0	1902.0	1844.0	1822.1	1750.0	1704.6	1605.9
50°	1607.4	1562.0	1518.1	1544.8	1505.6	1474.3	1428.8	1417.9	1358.3	1352.1	1275.3
52.5°	1193.8	1160.9	1126.5	1146.8	1117.1	1096.7	1062.2	1059.1	1013.7	1029.3	976.1
55°	863.3	839.8	813.1	828.8	806.9	794.3	769.3	770.8	736.4	759.9	722.3
57.5°	611.0	592.2	573.4	582.8	568.7	559.3	542.1	545.2	537.4	545.2	518.6
60°	415.2	404.2	390.1	397.9	385.4	380.7	369.7	371.3	352.5	377.6	358.8
62.5°	272.6	264.8	264.8	260.1	250.7	247.5	241.3	241.3	230.3	249.1	236.6
65°	169.2	166.1	164.5	161.4	155.1	153.5	148.8	148.8	141.0	155.1	145.7
67.5°	100.3	98.7	97.1	95.6	90.9	89.3	87.7	86.2	81.5	90.9	84.6
70°	54.8	54.8	53.3	51.7	48.6	48.6	47.0	47.0	43.9	48.6	43.9
72.5°	26.6	26.6	25.1	25.1	23.5	23.5	21.9	21.9	20.4	23.5	20.4
75°	12.5	12.5	11.0	11.0	11.0	11.0	9.4	9.4	9.4	11.0	9.4
77.5°	6.3	6.3	6.3	6.3	4.7	4.7	4.7	4.7	4.7	4.7	4.7
80°	3.1	3.1	3.1	3.1	3.1	1.6	1.6	1.6	1.6	3.1	3.1
82.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
85°	4.7	4.7	4.7	4.7	6.3	4.7	6.3	6.3	6.3	6.3	6.3
87.5°	6.3	6.3	6.3	6.3	6.3	7.8	7.8	7.8	6.3	7.8	6.3
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):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0	669.0
2.5°	842.9	830.4	835.1	821.0	810.0	805.3	805.3	803.7	730.1	656.4	604.7
5°	1054.4	1030.9	1034.0	1009.0	998.0	982.3	977.6	957.3	797.5	650.2	549.9
7.5°	1305.1	1270.6	1250.2	1226.7	1212.6	1184.4	1170.3	1129.6	860.1	637.6	496.6
10°	1574.5	1526.0	1493.1	1455.5	1441.4	1397.5	1370.9	1301.9	915.0	617.3	446.5
12.5°	1865.9	1800.1	1740.6	1699.9	1682.6	1598.0	1580.8	1482.1	965.1	598.5	405.8
15°	2165.2	2082.2	2007.0	1949.0	1927.0	1844.0	1790.7	1659.1	1009.0	581.2	374.4
17.5°	2431.5	2342.2	2251.4	2176.2	2144.8	2027.3	1977.2	1814.2	1041.9	564.0	357.2
20°	2668.1	2560.0	2464.4	2361.0	2325.0	2191.8	2110.4	1934.9	1060.7	553.0	358.8
22.5°	2848.3	2724.5	2614.8	2498.9	2453.5	2307.8	2215.3	2017.9	1066.9	545.2	369.7
25°	2979.9	2842.0	2719.8	2592.9	2539.6	2384.5	2282.7	2069.6	1065.4	540.5	374.4
27.5°	3047.2	2900.0	2768.4	2632.1	2574.1	2414.3	2304.6	2080.6	1043.4	521.7	374.4
30°	3037.8	2882.7	2744.9	2603.9	2541.2	2383.0	2270.2	2038.3	996.4	487.2	347.8
32.5°	2954.8	2796.6	2655.6	2514.6	2451.9	2296.8	2184.0	1952.1	929.1	441.8	311.8
35°	2816.9	2660.3	2520.8	2383.0	2320.3	2169.9	2060.2	1834.6	852.3	393.2	278.9
37.5°	2636.8	2484.8	2350.1	2224.7	2152.7	2011.7	1905.1	1695.2	767.7	349.4	250.7
40°	2412.7	2268.6	2141.7	2025.8	1949.0	1818.9	1721.8	1530.7	678.4	303.9	224.0
42.5°	2154.2	2019.5	1916.1	1800.1	1714.0	1599.6	1515.0	1348.9	587.5	263.2	195.8
45°	1861.2	1742.2	1652.9	1551.0	1461.7	1364.6	1292.5	1157.8	495.1	219.3	169.2
47.5°	1546.3	1447.6	1378.7	1294.1	1206.4	1128.0	1071.6	963.5	407.3	183.3	144.1
50°	1236.1	1157.8	1107.7	1043.4	963.5	904.0	860.1	788.1	322.7	148.8	120.6
52.5°	951.0	894.6	860.1	813.1	742.6	701.9	670.6	620.4	246.0	120.6	97.1
55°	709.7	669.0	647.0	614.1	553.0	524.8	504.5	473.1	183.3	95.6	75.2
57.5°	512.3	485.7	471.6	449.6	399.5	382.3	368.2	349.4	133.2	73.6	54.8
60°	357.2	338.4	330.6	316.5	275.7	264.8	246.0	246.0	94.0	53.3	37.6
62.5°	236.6	224.0	220.9	209.9	178.6	172.3	167.6	164.5	64.2	36.0	21.9
65°	147.3	137.9	136.3	130.0	108.1	105.0	100.3	100.3	40.7	21.9	11.0
67.5°	84.6	79.9	78.3	75.2	59.5	58.0	54.8	58.0	23.5	11.0	4.7
70°	45.4	40.7	40.7	39.2	29.8	28.2	26.6	28.2	12.5	6.3	3.1
72.5°	21.9	18.8	18.8	17.2	12.5	12.5	11.0	14.1	6.3	3.1	3.1
75°	9.4	9.4	7.8	7.8	4.7	4.7	4.7	6.3	3.1	3.1	3.1
77.5°	4.7	4.7	4.7	4.7	1.6	1.6	1.6	3.1	3.1	3.1	3.1
80°	3.1	3.1	3.1	3.1	0.0	0.0	0.0	3.1	3.1	3.1	3.1
82.5°	3.1	1.6	1.6	1.6	0.0	0.0	0.0	1.6	3.1	3.1	3.1
85°	4.7	4.7	4.7	4.7	3.1	3.1	3.1	4.7	3.1	3.1	3.1
87.5°	6.3	6.3	6.3	6.3	4.7	4.7	4.7	7.8	4.7	3.1	3.1
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):

	135°	157.5°	180°
0°	669.0	669.0	669.0
2.5°	560.9	528.0	531.1
5°	476.3	429.3	424.6
7.5°	402.6	352.5	346.2
10°	344.7	294.5	286.7
12.5°	302.4	256.9	249.1
15°	275.7	235.0	228.7
17.5°	271.0	239.7	236.6
20°	289.8	274.2	277.3
22.5°	322.7	318.0	325.9
25°	344.7	343.1	352.5
27.5°	340.0	336.8	343.1
30°	314.9	310.2	313.3
32.5°	285.1	277.3	280.4
35°	255.4	249.1	250.7
37.5°	230.3	225.6	225.6
40°	208.4	203.7	203.7
42.5°	184.9	181.7	183.3
45°	159.8	158.2	161.4
47.5°	134.7	133.2	136.3
50°	111.2	108.1	108.1
52.5°	87.7	83.0	79.9
55°	64.2	56.4	53.3
57.5°	43.9	36.0	32.9
60°	25.1	20.4	17.2
62.5°	12.5	7.8	6.3
65°	4.7	3.1	1.6
67.5°	3.1	1.6	1.6
70°	3.1	1.6	1.6
72.5°	1.6	1.6	1.6
75°	1.6	1.6	0.0
77.5°	1.6	1.6	1.6
80°	1.6	1.6	0.0
82.5°	1.6	1.6	0.0
85°	1.6	1.6	0.0
87.5°	1.6	1.6	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°











(END OF REPORT)