

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: P170883

Luminaire Tested: **LDA4A09935D010TE LAR35FL 4LLWW1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170883  
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: LDA4A09935D010TE LAR35FL 4LLWW1  
Description: PORTFOLIO 4" Lensed Wall Wash, Self-flanged, 35° Flood Optic, at 30° tilt  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 713.3 lumens  
Efficiency: N/A  
Efficacy: 51.5 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

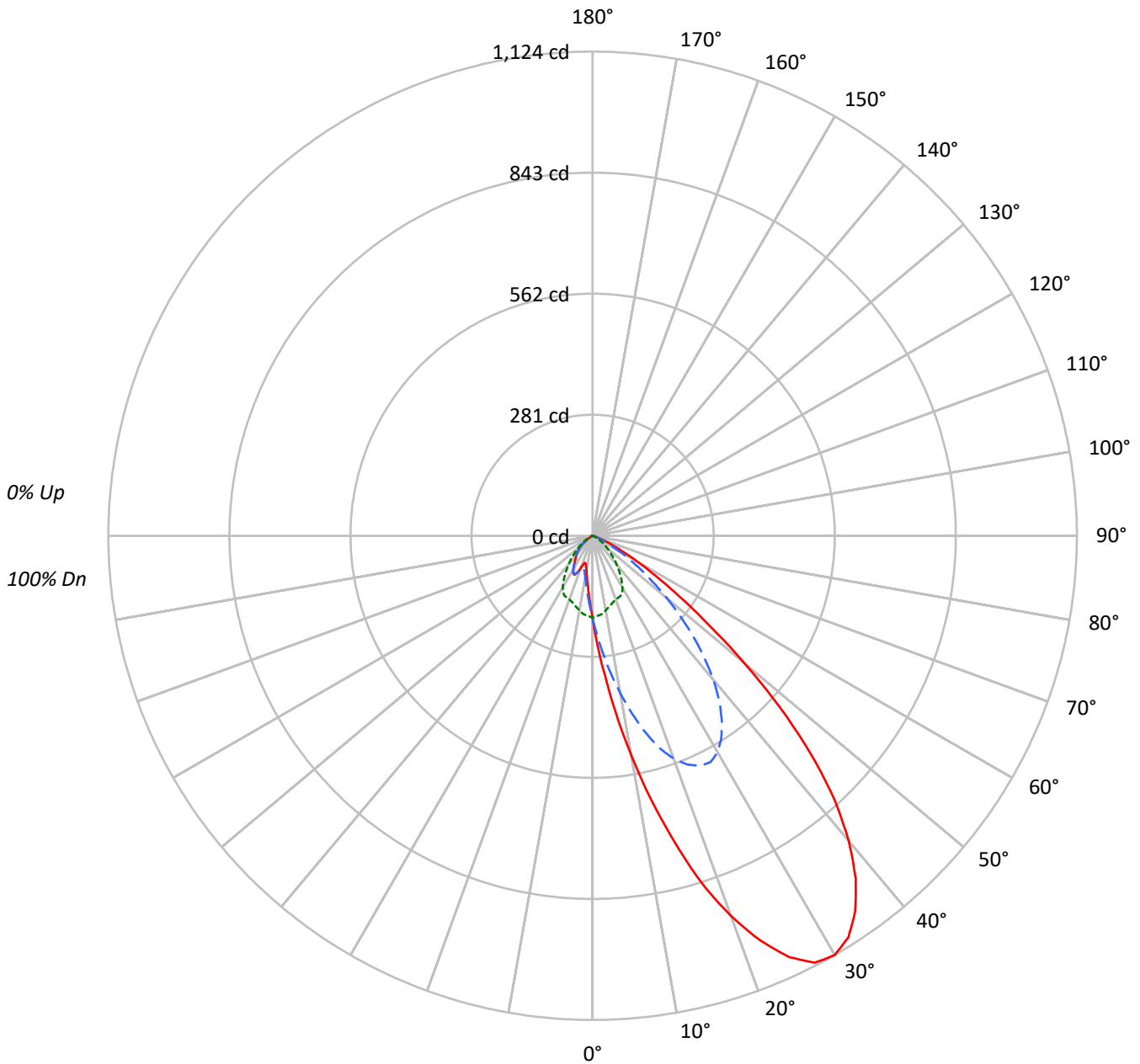
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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	66	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°	23497	23497	23497
5°	40104	22918	14969
10°	64816	22019	10220
15°	94164	21134	8313
20°	123307	20674	10370
25°	146862	20945	13664
30°	160046	19755	12705
35°	160064	16865	10751
40°	148972	13928	9339
45°	125124	10902	8007
50°	87829	8136	5910
55°	52858	5849	3269
60°	29159	3750	1209
65°	14068	1810	117
70°	5626	649	144
75°	1716	429	0
80°	639	639	0
85°	1840	1274	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	20.4	2.9
10°-20°	81.0	11.4
20°-30°	164.2	23.0
30°-40°	199.5	28.0
40°-50°	157.4	22.1
50°-60°	71.3	10.0
60°-70°	16.8	2.4
70°-80°	1.8	0.3
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°	265.6	37.2
0°-40°	465.1	65.2
0°-60°	693.9	97.3
0°-90°	713.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	713.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	190	190	190	190	190	
5°	324	273	185	136	121	37
15°	737	472	166	78	65	215
25°	1079	589	154	98	100	494
35°	1063	522	112	73	71	656
45°	717	330	62	46	46	543
55°	246	135	27	18	15	232
65°	48	28	6	1	0	54
75°	4	2	1	0	0	6
85°	1	1	1	0	0	1
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°	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5
2.5°	252.9	246.7	246.7	242.2	245.8	238.7	240.0	239.5	244.0	242.7	238.7
5°	323.9	318.5	318.1	312.3	316.7	307.4	307.8	306.5	311.4	306.5	300.7
7.5°	415.3	405.9	405.5	398.8	403.3	391.2	390.8	388.1	392.6	383.2	374.7
10°	517.5	504.1	503.2	495.2	500.1	484.4	483.1	478.6	481.8	467.0	455.0
12.5°	626.7	612.0	610.2	601.8	606.2	587.5	583.9	578.1	579.5	558.0	542.0
15°	737.4	724.9	723.1	714.2	718.6	695.4	689.6	682.5	681.2	652.6	632.1
17.5°	847.6	822.1	830.2	821.2	825.3	798.0	790.5	781.5	776.6	741.4	715.5
20°	939.4	917.6	923.4	915.4	918.9	887.7	878.3	867.2	858.7	816.3	786.4
22.5°	1017.1	994.3	991.2	991.2	993.4	959.5	947.0	934.5	922.5	872.1	841.8
25°	1079.1	1054.1	1050.5	1049.6	1050.1	1014.4	999.7	985.8	970.2	914.9	881.9
27.5°	1117.4	1091.1	1087.1	1086.7	1084.4	1047.8	1031.3	1016.2	997.4	940.8	903.8
30°	1123.7	1099.6	1095.1	1095.1	1089.3	1053.6	1035.4	1019.3	998.3	941.2	901.5
32.5°	1104.9	1080.4	1075.5	1075.9	1066.6	1033.1	1013.5	997.0	975.1	918.9	877.9
35°	1063.0	1039.4	1034.9	1035.4	1023.8	992.5	972.0	956.0	932.8	879.2	837.3
37.5°	1002.8	980.5	976.0	976.9	962.6	934.5	913.6	898.4	874.8	825.3	784.2
40°	925.2	903.8	899.7	900.2	884.6	860.0	839.5	825.3	801.6	757.4	718.2
42.5°	831.0	810.5	807.4	807.0	791.8	769.5	749.4	737.4	713.3	678.0	640.6
45°	717.3	699.9	686.1	695.4	679.8	662.0	643.2	633.4	610.7	585.7	552.2
47.5°	589.3	574.1	560.3	569.2	554.9	541.5	525.0	518.8	498.3	485.3	457.2
50°	457.7	444.7	432.3	439.8	428.7	419.8	406.8	403.7	386.8	385.0	363.1
52.5°	339.9	330.5	320.7	326.5	318.1	312.3	302.4	301.6	288.6	293.1	277.9
55°	245.8	239.1	231.5	236.0	229.7	226.2	219.0	219.5	209.7	216.3	205.6
57.5°	174.0	168.6	163.3	165.9	161.9	159.3	154.3	155.2	153.0	155.2	147.7
60°	118.2	115.1	111.1	113.3	109.7	108.4	105.3	105.7	100.4	107.5	102.2
62.5°	77.6	75.4	75.4	74.0	71.4	70.5	68.7	68.7	65.6	70.9	67.4
65°	48.2	47.3	46.8	45.9	44.2	43.7	42.4	42.4	40.1	44.2	41.5
67.5°	28.5	28.1	27.7	27.2	25.9	25.4	25.0	24.5	23.2	25.9	24.1
70°	15.6	15.6	15.2	14.7	13.8	13.8	13.4	13.4	12.5	13.8	12.5
72.5°	7.6	7.6	7.1	7.1	6.7	6.7	6.2	6.2	5.8	6.7	5.8
75°	3.6	3.6	3.1	3.1	3.1	3.1	2.7	2.7	2.7	3.1	2.7
77.5°	1.8	1.8	1.8	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3
80°	0.9	0.9	0.9	0.9	0.9	0.4	0.4	0.4	0.4	0.9	0.9
82.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
85°	1.3	1.3	1.3	1.3	1.8	1.3	1.8	1.8	1.8	1.8	1.8
87.5°	1.8	1.8	1.8	1.8	1.8	2.2	2.2	2.2	1.8	2.2	1.8
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°	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5	190.5
2.5°	240.0	236.4	237.8	233.7	230.6	229.3	229.3	228.8	207.9	186.9	172.2
5°	300.2	293.5	294.4	287.3	284.2	279.7	278.4	272.6	227.1	185.1	156.6
7.5°	371.6	361.8	356.0	349.3	345.3	337.2	333.2	321.6	244.9	181.6	141.4
10°	448.3	434.5	425.1	414.4	410.4	397.9	390.3	370.7	260.5	175.8	127.1
12.5°	531.3	512.5	495.6	484.0	479.1	455.0	450.1	422.0	274.8	170.4	115.5
15°	616.5	592.8	571.4	554.9	548.7	525.0	509.9	472.4	287.3	165.5	106.6
17.5°	692.3	666.9	641.0	619.6	610.7	577.2	563.0	516.6	296.6	160.6	101.7
20°	759.7	728.9	701.7	672.2	662.0	624.1	600.9	550.9	302.0	157.5	102.2
22.5°	811.0	775.7	744.5	711.5	698.6	657.1	630.8	574.6	303.8	155.2	105.3
25°	848.4	809.2	774.4	738.3	723.1	678.9	649.9	589.3	303.3	153.9	106.6
27.5°	867.6	825.7	788.2	749.4	732.9	687.4	656.2	592.4	297.1	148.5	106.6
30°	865.0	820.8	781.5	741.4	723.5	678.5	646.4	580.4	283.7	138.7	99.0
32.5°	841.3	796.3	756.1	716.0	698.1	654.0	621.8	555.8	264.5	125.8	88.8
35°	802.1	757.4	717.7	678.5	660.6	617.8	586.6	522.4	242.7	112.0	79.4
37.5°	750.8	707.5	669.1	633.4	612.9	572.8	542.4	482.7	218.6	99.5	71.4
40°	687.0	645.9	609.8	576.8	554.9	517.9	490.2	435.8	193.2	86.5	63.8
42.5°	613.4	575.0	545.6	512.5	488.0	455.4	431.4	384.1	167.3	74.9	55.8
45°	529.9	496.0	470.6	441.6	416.2	388.5	368.0	329.7	141.0	62.5	48.2
47.5°	440.3	412.2	392.6	368.5	343.5	321.2	305.1	274.3	116.0	52.2	41.0
50°	352.0	329.7	315.4	297.1	274.3	257.4	244.9	224.4	91.9	42.4	34.3
52.5°	270.8	254.7	244.9	231.5	211.4	199.8	190.9	176.6	70.0	34.3	27.7
55°	202.1	190.5	184.2	174.9	157.5	149.4	143.6	134.7	52.2	27.2	21.4
57.5°	145.9	138.3	134.3	128.0	113.8	108.8	104.8	99.5	37.9	21.0	15.6
60°	101.7	96.4	94.1	90.1	78.5	75.4	70.0	70.0	26.8	15.2	10.7
62.5°	67.4	63.8	62.9	59.8	50.9	49.1	47.7	46.8	18.3	10.3	6.2
65°	41.9	39.3	38.8	37.0	30.8	29.9	28.5	28.5	11.6	6.2	3.1
67.5°	24.1	22.8	22.3	21.4	17.0	16.5	15.6	16.5	6.7	3.1	1.3
70°	12.9	11.6	11.6	11.2	8.5	8.0	7.6	8.0	3.6	1.8	0.9
72.5°	6.2	5.4	5.4	4.9	3.6	3.6	3.1	4.0	1.8	0.9	0.9
75°	2.7	2.7	2.2	2.2	1.3	1.3	1.3	1.8	0.9	0.9	0.9
77.5°	1.3	1.3	1.3	1.3	0.4	0.4	0.4	0.9	0.9	0.9	0.9
80°	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.9	0.9	0.9	0.9
82.5°	0.9	0.4	0.4	0.4	0.0	0.0	0.0	0.4	0.9	0.9	0.9
85°	1.3	1.3	1.3	1.3	0.9	0.9	0.9	1.3	0.9	0.9	0.9
87.5°	1.8	1.8	1.8	1.8	1.3	1.3	1.3	2.2	1.3	0.9	0.9
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):**

	135°	157.5°	180°
0°	190.5	190.5	190.5
2.5°	159.7	150.3	151.2
5°	135.6	122.2	120.9
7.5°	114.6	100.4	98.6
10°	98.1	83.9	81.6
12.5°	86.1	73.2	70.9
15°	78.5	66.9	65.1
17.5°	77.2	68.3	67.4
20°	82.5	78.1	79.0
22.5°	91.9	90.6	92.8
25°	98.1	97.7	100.4
27.5°	96.8	95.9	97.7
30°	89.7	88.3	89.2
32.5°	81.2	79.0	79.8
35°	72.7	70.9	71.4
37.5°	65.6	64.2	64.2
40°	59.3	58.0	58.0
42.5°	52.6	51.7	52.2
45°	45.5	45.1	45.9
47.5°	38.4	37.9	38.8
50°	31.7	30.8	30.8
52.5°	25.0	23.6	22.8
55°	18.3	16.1	15.2
57.5°	12.5	10.3	9.4
60°	7.1	5.8	4.9
62.5°	3.6	2.2	1.8
65°	1.3	0.9	0.4
67.5°	0.9	0.4	0.4
70°	0.9	0.4	0.4
72.5°	0.4	0.4	0.4
75°	0.4	0.4	0.0
77.5°	0.4	0.4	0.4
80°	0.4	0.4	0.0
82.5°	0.4	0.4	0.0
85°	0.4	0.4	0.0
87.5°	0.4	0.4	0.0
90°	0.0	0.0	0.0





Report Generated By E9808895 / USPTCWHP6082093





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











(END OF REPORT)