

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: P170824

Luminaire Tested: **LDA4A13840D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170824  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26106)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A13840D010TE LAR35FL 4LAL1 30° Tilt  
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 35° Flood Optic, at 30° tilt. --- 27.9W  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1691.3 lumens  
Efficiency: N/A  
Efficacy: 75.9 lumens/watt  
Spacing Criteria (0/90/45): 2.71 / 1.11 / 1.33  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

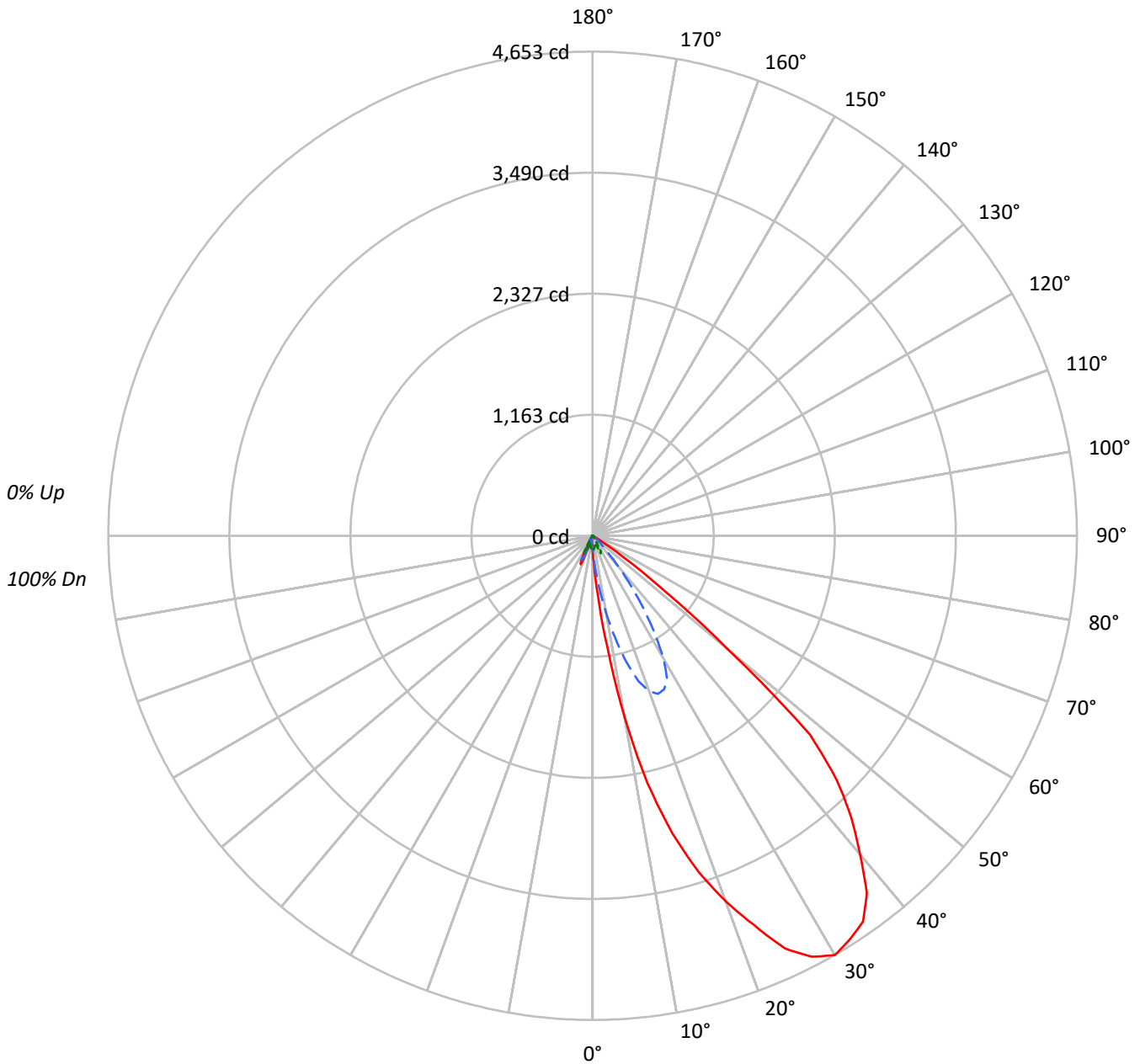
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	109	106	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91																			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	83	82																			
3	98	90	84	79	96	89	83	79	86	81	77	84	79	76	81	78	75	73																			
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	70	67	65																			
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58																			
6	79	68	61	56	78	67	60	55	66	60	55	64	59	55	63	58	54	52																			
7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47																			
8	69	57	50	45	68	57	50	45	55	49	44	54	48	44	53	48	44	42																			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38																			
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	17157	17157	17157
5°	69077	16195	7578
10°	222679	13577	4359
15°	377753	10778	3384
20°	490958	9674	10212
25°	595791	25464	36161
30°	662757	8959	9543
35°	681738	5361	4487
40°	643711	2270	1594
45°	578538	1291	436
50°	325602	787	0
55°	80814	538	0
60°	12458	617	0
65°	2889	730	0
70°	613	902	0
75°	0	1191	0
80°	0	2344	0
85°	0	4670	1132



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	27.9	1.7
10°-20°	207.6	12.3
20°-30°	479.4	28.3
30°-40°	537.8	31.8
40°-50°	375.2	22.2
50°-60°	56.0	3.3
60°-70°	3.7	0.2
70°-80°	1.8	0.1
80°-90°	1.8	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°	714.9	42.3
0°-40°	1252.7	74.1
0°-60°	1684.0	99.6
0°-90°	1691.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1691.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	139	139	139	139	139	
5°	558	326	131	76	61	92
15°	2958	1259	84	32	26	845
25°	4378	1627	187	261	266	2001
35°	4528	846	36	30	30	2785
45°	3317	128	7	4	2	2433
55°	376	17	2	2	0	494
65°	10	2	2	2	0	15
75°	0	2	2	2	0	0
85°	0	2	3	2	1	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°	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1
2.5°	253.3	250.8	244.2	242.5	248.3	243.3	245.8	250.8	245.8	240.0	245.8
5°	557.9	571.9	557.9	555.4	565.3	556.2	560.3	569.5	557.0	545.4	553.7
7.5°	1076.8	1085.9	1046.2	1060.3	1057.0	1059.4	1061.9	1061.9	1054.5	1033.8	1045.4
10°	1777.9	1784.5	1731.5	1749.7	1725.7	1749.7	1745.6	1727.4	1731.5	1703.4	1718.3
12.5°	2428.5	2450.0	2397.0	2414.4	2385.4	2412.7	2402.0	2397.0	2354.8	2354.8	2370.5
15°	2958.2	3007.0	2959.0	2977.2	2944.1	2982.2	2952.4	2965.6	2927.6	2880.4	2921.8
17.5°	3386.9	3434.9	3390.2	3412.6	3382.0	3411.8	3377.0	3405.1	3356.3	3322.4	3350.5
20°	3740.3	3775.9	3723.0	3754.4	3718.0	3747.8	3709.7	3747.0	3689.9	3665.0	3681.6
22.5°	4048.2	4062.3	4035.0	4088.0	4016.8	4048.2	4002.7	4040.8	3972.9	3941.5	3945.6
25°	4377.7	4409.1	4357.0	4376.8	4327.2	4348.7	4297.4	4333.0	4248.5	4203.9	4194.7
27.5°	4560.6	4605.3	4558.9	4581.3	4530.8	4549.0	4497.7	4549.0	4462.9	4419.1	4409.1
30°	4653.3	4674.8	4645.0	4659.9	4602.8	4611.9	4558.9	4614.4	4528.3	4489.4	4484.4
32.5°	4599.5	4642.5	4603.6	4622.7	4569.7	4578.8	4527.5	4587.1	4501.0	4465.4	4448.0
35°	4527.5	4571.3	4534.9	4554.8	4506.0	4512.6	4458.0	4510.1	4410.8	4366.9	4329.7
37.5°	4328.0	4369.4	4338.8	4345.4	4298.2	4293.2	4234.5	4278.3	4181.5	4144.3	4119.4
40°	3997.8	4035.0	4010.2	4024.2	3977.1	3966.3	3926.6	3967.1	3891.8	3864.5	3829.7
42.5°	3681.6	3712.2	3689.0	3711.4	3658.4	3644.3	3608.7	3660.1	3574.8	3552.5	3527.6
45°	3316.6	3335.6	3317.4	3336.4	3285.9	3263.6	3231.3	3275.2	3191.6	3170.9	3117.1
47.5°	2834.0	2813.3	2810.0	2828.2	2765.3	2719.0	2689.2	2745.5	2624.6	2584.1	2522.0
50°	1696.8	1731.5	1746.4	1734.0	1691.0	1627.2	1579.2	1647.9	1583.4	1484.1	1384.7
52.5°	874.0	835.1	843.4	847.6	796.2	777.2	761.5	777.2	726.7	701.1	638.2
55°	375.8	357.6	364.2	366.7	356.7	333.6	325.3	335.2	312.0	302.1	276.4
57.5°	139.1	139.1	134.9	136.6	133.3	125.0	123.3	127.5	120.0	117.5	107.6
60°	50.5	50.5	50.5	50.5	46.4	45.5	45.5	47.2	44.7	43.9	40.6
62.5°	21.5	22.3	20.7	21.5	20.7	19.9	20.7	19.9	19.9	19.0	19.0
65°	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.1	9.1
67.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.1	4.1	4.1
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	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°	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1	139.1
2.5°	238.4	237.5	240.9	237.5	231.8	228.4	232.6	224.3	192.0	159.7	135.7
5°	538.8	534.7	528.9	530.6	516.5	504.9	504.9	482.5	326.1	185.4	130.8
7.5°	1021.4	1011.4	969.2	999.9	970.1	946.9	931.2	885.6	527.2	212.7	120.8
10°	1686.8	1669.5	1639.7	1645.5	1596.6	1557.7	1510.5	1434.4	758.2	236.7	108.4
12.5°	2343.2	2325.8	2246.4	2291.9	2226.5	2188.4	2109.0	2019.6	1007.3	248.3	96.8
15°	2900.2	2885.3	2798.4	2841.5	2761.2	2725.6	2623.0	2523.6	1258.9	244.2	84.4
17.5°	3333.1	3330.6	3230.5	3273.5	3185.0	3156.0	3036.0	2938.3	1462.5	226.0	76.1
20°	3666.7	3660.9	3559.9	3602.9	3506.1	3478.0	3325.7	3223.0	1591.7	201.1	73.7
22.5°	3929.9	3918.3	3809.9	3847.1	3738.7	3702.3	3534.2	3427.5	1644.6	185.4	91.0
25°	4166.6	4145.9	4022.6	4051.6	3932.4	3939.8	3687.4	3569.8	1627.2	208.6	187.1
27.5°	4375.2	4337.9	4213.8	4222.1	4082.2	4009.3	3792.5	3662.5	1547.8	232.6	173.8
30°	4453.0	4416.6	4285.0	4289.9	4144.3	4041.6	3809.9	3665.0	1357.4	145.7	62.9
32.5°	4409.9	4370.2	4232.8	4234.5	4084.7	3980.4	3749.4	3589.7	1104.1	96.0	48.0
35°	4285.0	4243.6	4107.0	4113.6	3968.8	3865.3	3639.4	3468.9	845.9	76.1	35.6
37.5°	4073.9	4044.9	3915.0	3926.6	3803.2	3693.2	3463.9	3279.3	596.8	54.6	22.3
40°	3802.4	3780.1	3654.3	3672.5	3538.4	3436.6	3190.8	2990.5	371.6	37.2	14.1
42.5°	3484.6	3460.6	3336.4	3350.5	3236.3	3090.6	2839.8	2613.0	194.5	26.5	9.9
45°	3088.1	3060.0	2934.2	2941.6	2806.7	2636.2	2376.3	2176.0	127.5	18.2	7.4
47.5°	2464.9	2414.4	2250.5	2243.9	2133.8	1854.9	1485.7	1202.6	84.4	12.4	5.0
50°	1354.9	1302.8	1158.8	1143.0	1020.5	837.6	619.1	481.7	48.8	8.3	4.1
52.5°	616.6	589.3	522.3	511.5	459.4	380.7	293.0	240.9	28.1	5.8	3.3
55°	267.3	257.4	229.3	227.6	203.6	176.3	140.7	119.2	16.6	4.1	2.5
57.5°	105.1	101.8	96.0	91.9	82.8	73.7	61.2	51.3	10.8	3.3	2.5
60°	39.7	38.9	35.6	36.4	33.1	31.5	27.3	23.2	6.6	2.5	2.5
62.5°	18.2	18.2	17.4	17.4	16.6	14.9	13.2	12.4	4.1	2.5	2.5
65°	9.1	9.1	8.3	8.3	8.3	7.4	6.6	6.6	2.5	2.5	2.5
67.5°	4.1	4.1	4.1	4.1	4.1	3.3	3.3	3.3	1.7	2.5	2.5
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5	2.5
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
75°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5	3.3
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5	3.3
82.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	2.5	3.3
85°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	2.5	3.3
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	2.5	3.3
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):**

	112.5°	135°	157.5°	180°
0°	139.1	139.1	139.1	139.1
2.5°	116.7	103.5	91.9	89.4
5°	96.0	76.1	63.7	61.2
7.5°	77.8	55.5	46.4	44.7
10°	63.7	44.7	36.4	34.8
12.5°	53.0	36.4	29.0	27.3
15°	45.5	32.3	26.5	26.5
17.5°	43.9	35.6	33.9	34.8
20°	57.1	64.6	77.0	77.8
22.5°	132.4	215.2	284.7	298.0
25°	238.4	260.7	254.1	265.7
27.5°	125.8	98.5	100.2	102.6
30°	54.6	60.4	63.7	67.0
32.5°	45.5	47.2	48.0	50.5
35°	29.8	29.8	29.0	29.8
37.5°	18.2	17.4	16.6	16.6
40°	11.6	10.8	9.9	9.9
42.5°	8.3	6.6	5.8	5.8
45°	5.8	4.1	3.3	2.5
47.5°	4.1	2.5	1.7	0.8
50°	3.3	2.5	0.8	0.0
52.5°	2.5	1.7	0.8	0.0
55°	2.5	1.7	0.0	0.0
57.5°	2.5	1.7	0.0	0.0
60°	2.5	1.7	0.0	0.0
62.5°	2.5	1.7	0.0	0.0
65°	2.5	1.7	0.8	0.0
67.5°	2.5	1.7	0.8	0.0
70°	2.5	1.7	0.8	0.0
72.5°	2.5	1.7	0.8	0.0
75°	2.5	2.5	0.8	0.0
77.5°	3.3	2.5	0.8	0.0
80°	3.3	2.5	0.8	0.0
82.5°	3.3	2.5	0.8	0.0
85°	3.3	2.5	0.8	0.8
87.5°	3.3	2.5	0.8	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)