

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: P170827

Luminaire Tested: **LDA4A13935D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170827  
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: LDA4A13935D010TE 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 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1351.8 lumens  
Efficiency: N/A  
Efficacy: 60.7 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

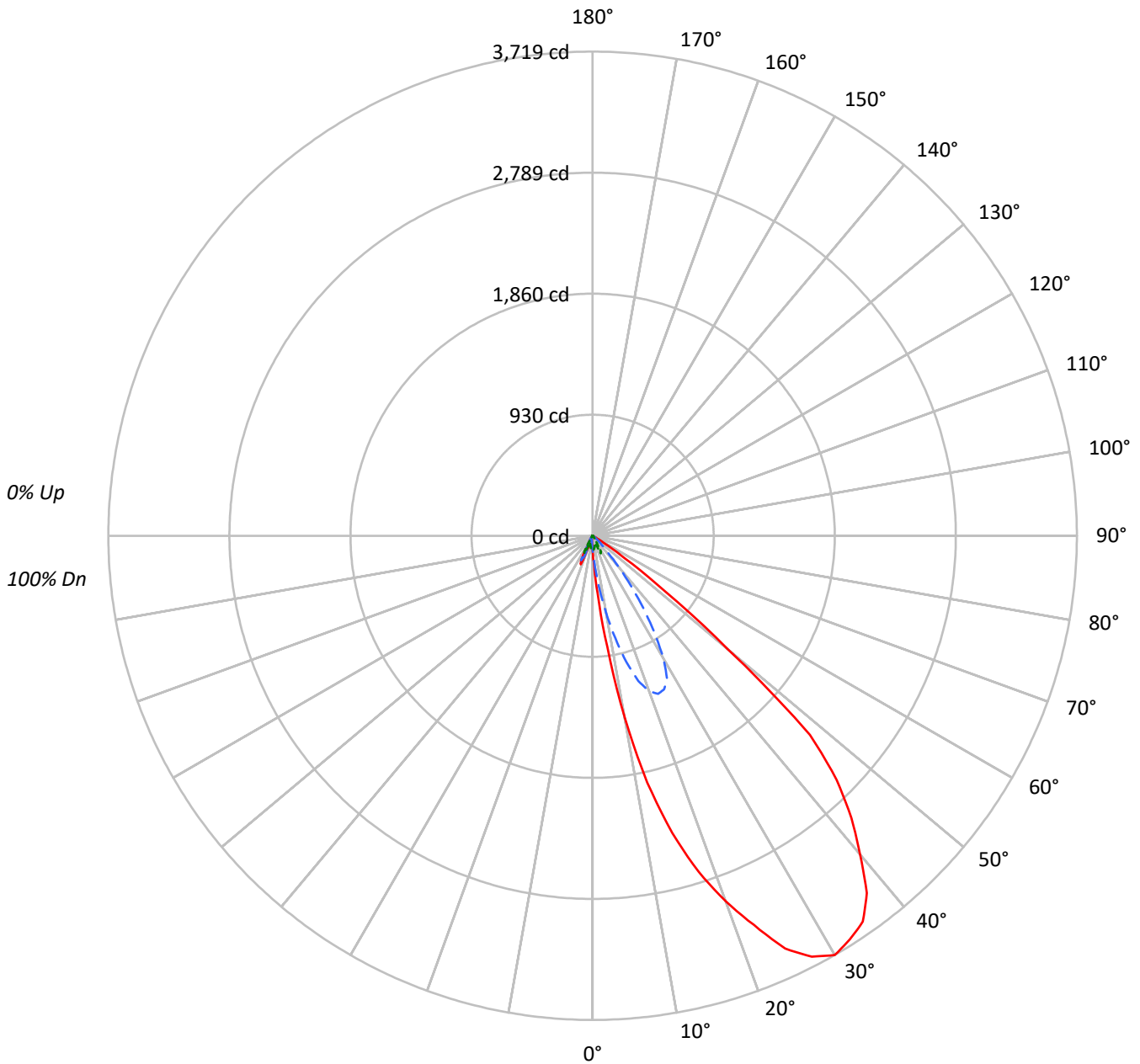
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	13704	13704	13704
5°	55210	12939	6067
10°	177978	10859	3482
15°	301914	8620	2707
20°	392407	7731	8164
25°	476176	20346	28907
30°	529701	7164	7634
35°	544879	4276	3584
40°	514479	1803	1272
45°	462398	1047	349
50°	260224	633	0
55°	64578	430	0
60°	9966	493	0
65°	2306	584	0
70°	469	721	0
75°	0	953	0
80°	0	1847	0
85°	0	3680	991



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	22.3	1.7
10°-20°	165.9	12.3
20°-30°	383.2	28.3
30°-40°	429.8	31.8
40°-50°	299.9	22.2
50°-60°	44.8	3.3
60°-70°	2.9	0.2
70°-80°	1.5	0.1
80°-90°	1.4	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°	571.4	42.3
0°-40°	1001.3	74.1
0°-60°	1345.9	99.6
0°-90°	1351.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1351.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	111	111	111	111	111	
5°	446	261	104	61	49	74
15°	2364	1006	68	26	21	676
25°	3499	1301	150	208	212	1600
35°	3619	676	28	24	24	2226
45°	2651	102	6	3	2	1945
55°	300	13	2	1	0	395
65°	8	2	2	1	0	12
75°	0	1	2	2	0	0
85°	0	1	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°	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1
2.5°	202.4	200.4	195.2	193.8	198.5	194.5	196.5	200.4	196.5	191.8	196.5
5°	445.9	457.1	445.9	443.9	451.8	444.5	447.9	455.1	445.2	435.9	442.6
7.5°	860.7	867.9	836.2	847.4	844.8	846.8	848.7	848.7	842.8	826.3	835.5
10°	1421.0	1426.3	1383.9	1398.5	1379.3	1398.5	1395.2	1380.6	1383.9	1361.4	1373.3
12.5°	1940.9	1958.1	1915.8	1929.7	1906.5	1928.4	1919.8	1915.8	1882.1	1882.1	1894.6
15°	2364.3	2403.3	2365.0	2379.5	2353.1	2383.5	2359.7	2370.3	2339.8	2302.1	2335.2
17.5°	2707.0	2745.4	2709.6	2727.5	2703.0	2726.8	2699.0	2721.5	2682.5	2655.4	2677.9
20°	2989.5	3017.9	2975.6	3000.7	2971.6	2995.4	2965.0	2994.7	2949.1	2929.3	2942.5
22.5°	3235.5	3246.8	3225.0	3267.3	3210.4	3235.5	3199.2	3229.6	3175.3	3150.2	3153.5
25°	3498.8	3524.0	3482.3	3498.2	3458.5	3475.7	3434.7	3463.1	3395.6	3359.9	3352.6
27.5°	3645.0	3680.8	3643.7	3661.6	3621.2	3635.8	3594.8	3635.8	3567.0	3531.9	3524.0
30°	3719.1	3736.3	3712.5	3724.4	3678.8	3686.0	3643.7	3688.0	3619.2	3588.1	3584.2
32.5°	3676.1	3710.5	3679.4	3694.6	3652.3	3659.6	3618.6	3666.2	3597.4	3569.0	3555.1
35°	3618.6	3653.6	3624.5	3640.4	3601.4	3606.7	3563.0	3604.7	3525.3	3490.2	3460.5
37.5°	3459.1	3492.2	3467.7	3473.0	3435.3	3431.4	3384.4	3419.5	3342.1	3312.3	3292.4
40°	3195.2	3225.0	3205.1	3216.4	3178.7	3170.1	3138.3	3170.7	3110.5	3088.7	3060.9
42.5°	2942.5	2967.0	2948.4	2966.3	2924.0	2912.7	2884.3	2925.3	2857.1	2839.3	2819.4
45°	2650.8	2666.0	2651.4	2666.6	2626.3	2608.4	2582.6	2617.7	2550.9	2534.3	2491.3
47.5°	2265.1	2248.5	2245.9	2260.4	2210.2	2173.1	2149.3	2194.3	2097.7	2065.3	2015.7
50°	1356.1	1383.9	1395.8	1385.9	1351.5	1300.6	1262.2	1317.1	1265.5	1186.1	1106.7
52.5°	698.6	667.5	674.1	677.4	636.4	621.2	608.6	621.2	580.8	560.3	510.0
55°	300.3	285.8	291.1	293.1	285.1	266.6	260.0	267.9	249.4	241.5	221.0
57.5°	111.1	111.1	107.8	109.2	106.5	99.9	98.6	101.9	95.9	93.9	86.0
60°	40.4	40.4	40.4	40.4	37.0	36.4	36.4	37.7	35.7	35.1	32.4
62.5°	17.2	17.9	16.5	17.2	16.5	15.9	16.5	15.9	15.9	15.2	15.2
65°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.3	7.3
67.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.3	3.3	3.3
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1	111.1
2.5°	190.5	189.9	192.5	189.9	185.2	182.6	185.9	179.3	153.5	127.7	108.5
5°	430.7	427.3	422.7	424.0	412.8	403.5	403.5	385.7	260.6	148.2	104.5
7.5°	816.3	808.4	774.7	799.1	775.3	756.8	744.2	707.8	421.4	170.0	96.6
10°	1348.2	1334.3	1310.5	1315.1	1276.1	1245.0	1207.3	1146.4	606.0	189.2	86.7
12.5°	1872.8	1858.9	1795.4	1831.8	1779.5	1749.1	1685.6	1614.1	805.1	198.5	77.4
15°	2318.0	2306.1	2236.6	2271.0	2206.9	2178.4	2096.4	2017.0	1006.2	195.2	67.5
17.5°	2664.0	2662.0	2582.0	2616.4	2545.6	2522.4	2426.5	2348.4	1168.9	180.6	60.9
20°	2930.6	2925.9	2845.2	2879.6	2802.2	2779.8	2658.0	2576.0	1272.1	160.8	58.9
22.5°	3140.9	3131.7	3045.0	3074.8	2988.1	2959.0	2824.7	2739.4	1314.5	148.2	72.8
25°	3330.1	3313.6	3215.0	3238.2	3142.9	3148.9	2947.1	2853.2	1300.6	166.7	149.5
27.5°	3496.8	3467.1	3367.9	3374.5	3262.7	3204.5	3031.1	2927.3	1237.1	185.9	138.9
30°	3559.0	3529.9	3424.7	3428.7	3312.3	3230.3	3045.0	2929.3	1084.9	116.4	50.3
32.5°	3524.6	3492.9	3383.1	3384.4	3264.7	3181.3	2996.7	2869.1	882.5	76.7	38.4
35°	3424.7	3391.7	3282.5	3287.8	3172.0	3089.3	2908.7	2772.5	676.1	60.9	28.4
37.5°	3256.1	3232.9	3129.0	3138.3	3039.7	2951.7	2768.5	2621.0	477.0	43.7	17.9
40°	3039.1	3021.2	2920.7	2935.2	2828.0	2746.7	2550.2	2390.1	297.0	29.8	11.2
42.5°	2785.0	2765.9	2666.6	2677.9	2586.6	2470.2	2269.7	2088.5	155.5	21.2	7.9
45°	2468.2	2445.7	2345.1	2351.1	2243.2	2107.0	1899.3	1739.2	101.9	14.6	6.0
47.5°	1970.0	1929.7	1798.7	1793.4	1705.4	1482.5	1187.4	961.2	67.5	9.9	4.0
50°	1082.9	1041.2	926.1	913.6	815.7	669.5	494.8	385.0	39.0	6.6	3.3
52.5°	492.8	471.0	417.4	408.8	367.1	304.3	234.2	192.5	22.5	4.6	2.6
55°	213.7	205.7	183.2	181.9	162.7	140.9	112.5	95.3	13.2	3.3	2.0
57.5°	84.0	81.4	76.7	73.4	66.2	58.9	49.0	41.0	8.6	2.6	2.0
60°	31.8	31.1	28.4	29.1	26.5	25.1	21.8	18.5	5.3	2.0	2.0
62.5°	14.6	14.6	13.9	13.9	13.2	11.9	10.6	9.9	3.3	2.0	2.0
65°	7.3	7.3	6.6	6.6	6.6	6.0	5.3	5.3	2.0	2.0	2.0
67.5°	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.6	1.3	2.0	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.0	2.0
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
75°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
77.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.6
80°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.6
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.6
85°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.6
87.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.6
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°	111.1	111.1	111.1	111.1
2.5°	93.3	82.7	73.4	71.4
5°	76.7	60.9	50.9	49.0
7.5°	62.2	44.3	37.0	35.7
10°	50.9	35.7	29.1	27.8
12.5°	42.3	29.1	23.2	21.8
15°	36.4	25.8	21.2	21.2
17.5°	35.1	28.4	27.1	27.8
20°	45.6	51.6	61.5	62.2
22.5°	105.8	172.0	227.6	238.2
25°	190.5	208.4	203.1	212.4
27.5°	100.6	78.7	80.0	82.0
30°	43.7	48.3	50.9	53.6
32.5°	36.4	37.7	38.4	40.4
35°	23.8	23.8	23.2	23.8
37.5°	14.6	13.9	13.2	13.2
40°	9.3	8.6	7.9	7.9
42.5°	6.6	5.3	4.6	4.6
45°	4.6	3.3	2.6	2.0
47.5°	3.3	2.0	1.3	0.7
50°	2.6	2.0	0.7	0.0
52.5°	2.0	1.3	0.7	0.0
55°	2.0	1.3	0.0	0.0
57.5°	2.0	1.3	0.0	0.0
60°	2.0	1.3	0.0	0.0
62.5°	2.0	1.3	0.0	0.0
65°	2.0	1.3	0.7	0.0
67.5°	2.0	1.3	0.7	0.0
70°	2.0	1.3	0.7	0.0
72.5°	2.0	1.3	0.7	0.0
75°	2.0	2.0	0.7	0.0
77.5°	2.6	2.0	0.7	0.0
80°	2.6	2.0	0.7	0.0
82.5°	2.6	2.0	0.7	0.0
85°	2.6	2.0	0.7	0.7
87.5°	2.6	2.0	0.7	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)