

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: P170816

Luminaire Tested: **LDA4A09840D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170816  
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: LDA4A09840D010TE 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: 1139.7 lumens  
Efficiency: N/A  
Efficacy: 82.3 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

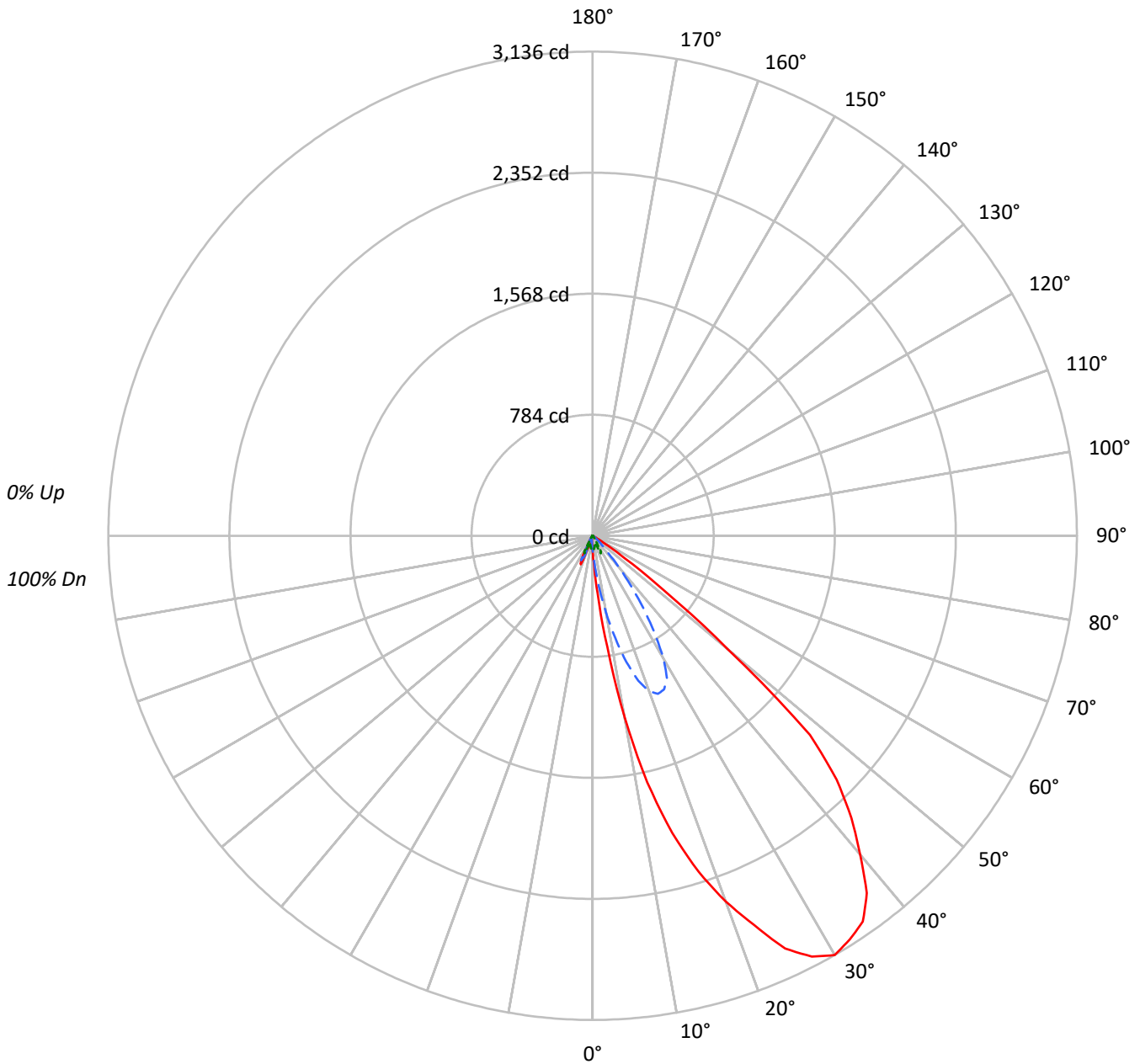
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170816

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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°	11557	11557	11557
5°	46543	10908	5114
10°	150048	9156	2931
15°	254538	7266	2273
20°	330819	6511	6878
25°	401458	17148	24361
30°	446581	6039	6438
35°	459366	3614	3027
40°	433746	1530	1079
45°	389832	872	297
50°	219390	537	0
55°	54450	366	0
60°	8388	419	0
65°	1955	496	0
70°	397	613	0
75°	0	810	0
80°	0	1563	0
85°	0	3114	849



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CATALOG NUMBER: LDA4A09840D010TE LAR35FL 4LAL1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	18.8	1.7
10°-20°	139.9	12.3
20°-30°	323.1	28.3
30°-40°	362.4	31.8
40°-50°	252.9	22.2
50°-60°	37.7	3.3
60°-70°	2.5	0.2
70°-80°	1.2	0.1
80°-90°	1.2	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°	481.7	42.3
0°-40°	844.1	74.1
0°-60°	1134.7	99.6
0°-90°	1139.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1139.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	94	94	94	94	94	
5°	376	220	88	51	41	62
15°	1993	848	57	22	18	570
25°	2950	1096	126	176	179	1349
35°	3051	570	24	20	20	1877
45°	2235	86	5	3	2	1640
55°	253	11	2	1	0	333
65°	7	2	2	1	0	10
75°	0	1	2	2	0	0
85°	0	1	2	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P170816

CATALOG NUMBER: LDA4A09840D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7
2.5°	170.7	169.0	164.5	163.4	167.3	164.0	165.6	169.0	165.6	161.7	165.6
5°	375.9	385.4	375.9	374.2	380.9	374.8	377.6	383.7	375.3	367.5	373.1
7.5°	725.6	731.7	705.0	714.4	712.2	713.9	715.5	715.5	710.5	696.6	704.4
10°	1198.0	1202.4	1166.7	1179.0	1162.8	1179.0	1176.2	1164.0	1166.7	1147.8	1157.8
12.5°	1636.3	1650.8	1615.1	1626.9	1607.3	1625.7	1618.5	1615.1	1586.7	1586.7	1597.3
15°	1993.3	2026.2	1993.8	2006.1	1983.8	2009.5	1989.4	1998.3	1972.6	1940.9	1968.7
17.5°	2282.2	2314.5	2284.4	2299.5	2278.8	2298.9	2275.5	2294.4	2261.5	2238.7	2257.6
20°	2520.3	2544.3	2508.6	2529.8	2505.3	2525.3	2499.7	2524.8	2486.3	2469.6	2480.7
22.5°	2727.8	2737.3	2718.9	2754.6	2706.6	2727.8	2697.1	2722.8	2677.0	2655.8	2658.6
25°	2949.8	2971.0	2935.8	2949.2	2915.7	2930.2	2895.7	2919.6	2862.8	2832.6	2826.5
27.5°	3073.0	3103.1	3071.9	3087.0	3052.9	3065.2	3030.6	3065.2	3007.2	2977.6	2971.0
30°	3135.5	3150.0	3129.9	3139.9	3101.5	3107.6	3071.9	3109.3	3051.3	3025.1	3021.7
32.5°	3099.2	3128.2	3102.0	3114.8	3079.1	3085.3	3050.7	3090.9	3032.9	3008.9	2997.2
35°	3050.7	3080.3	3055.7	3069.1	3036.2	3040.7	3003.9	3039.0	2972.1	2942.5	2917.4
37.5°	2916.3	2944.2	2923.5	2928.0	2896.2	2892.9	2853.3	2882.8	2817.6	2792.5	2775.8
40°	2693.8	2718.9	2702.1	2711.6	2679.8	2672.6	2645.8	2673.1	2622.4	2604.0	2580.6
42.5°	2480.7	2501.4	2485.7	2500.8	2465.1	2455.6	2431.6	2466.2	2408.8	2393.7	2377.0
45°	2234.8	2247.6	2235.3	2248.2	2214.1	2199.1	2177.3	2206.9	2150.6	2136.6	2100.4
47.5°	1909.6	1895.7	1893.4	1905.7	1863.3	1832.1	1812.0	1849.9	1768.5	1741.2	1699.4
50°	1143.3	1166.7	1176.8	1168.4	1139.4	1096.5	1064.1	1110.4	1066.9	1000.0	933.1
52.5°	588.9	562.7	568.3	571.1	536.5	523.7	513.1	523.7	489.7	472.4	430.0
55°	253.2	240.9	245.4	247.1	240.4	224.8	219.2	225.9	210.3	203.6	186.3
57.5°	93.7	93.7	90.9	92.0	89.8	84.2	83.1	85.9	80.9	79.2	72.5
60°	34.0	34.0	34.0	34.0	31.2	30.7	30.7	31.8	30.1	29.6	27.3
62.5°	14.5	15.1	13.9	14.5	13.9	13.4	13.9	13.4	13.4	12.8	12.8
65°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.1	6.1
67.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.8	2.8	2.8
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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



TEST NUMBER: P170816

CATALOG NUMBER: LDA4A09840D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7
2.5°	160.6	160.1	162.3	160.1	156.2	153.9	156.7	151.1	129.4	107.6	91.5
5°	363.1	360.3	356.4	357.5	348.0	340.2	340.2	325.1	219.7	124.9	88.1
7.5°	688.2	681.5	653.1	673.7	653.6	638.0	627.4	596.8	355.3	143.3	81.4
10°	1136.6	1124.9	1104.8	1108.7	1075.8	1049.6	1017.8	966.5	510.9	159.5	73.1
12.5°	1578.9	1567.2	1513.6	1544.3	1500.3	1474.6	1421.1	1360.8	678.7	167.3	65.3
15°	1954.2	1944.2	1885.6	1914.6	1860.5	1836.6	1767.4	1700.5	848.3	164.5	56.9
17.5°	2245.9	2244.2	2176.8	2205.8	2146.1	2126.6	2045.7	1979.9	985.5	152.3	51.3
20°	2470.7	2466.8	2398.7	2427.7	2362.5	2343.5	2240.9	2171.7	1072.5	135.5	49.6
22.5°	2648.0	2640.2	2567.2	2592.3	2519.2	2494.7	2381.4	2309.5	1108.2	124.9	61.3
25°	2807.5	2793.6	2710.5	2730.0	2649.7	2654.7	2484.6	2405.4	1096.5	140.5	126.0
27.5°	2948.1	2923.0	2839.3	2844.9	2750.7	2701.6	2555.5	2467.9	1042.9	156.7	117.1
30°	3000.5	2976.0	2887.3	2890.6	2792.5	2723.3	2567.2	2469.6	914.7	98.2	42.4
32.5°	2971.5	2944.7	2852.2	2853.3	2752.3	2682.1	2526.5	2418.8	744.0	64.7	32.3
35°	2887.3	2859.4	2767.4	2771.8	2674.2	2604.5	2452.3	2337.4	570.0	51.3	24.0
37.5°	2745.1	2725.6	2638.0	2645.8	2562.7	2488.5	2334.0	2209.7	402.1	36.8	15.1
40°	2562.1	2547.1	2462.3	2474.6	2384.2	2315.6	2150.0	2015.0	250.4	25.1	9.5
42.5°	2348.0	2331.8	2248.2	2257.6	2180.7	2082.5	1913.5	1760.7	131.1	17.8	6.7
45°	2080.8	2061.9	1977.1	1982.1	1891.2	1776.3	1601.2	1466.2	85.9	12.3	5.0
47.5°	1660.9	1626.9	1516.4	1512.0	1437.8	1249.8	1001.1	810.4	56.9	8.4	3.3
50°	913.0	877.8	780.8	770.2	687.7	564.4	417.2	324.6	32.9	5.6	2.8
52.5°	415.5	397.1	351.9	344.7	309.5	256.5	197.4	162.3	19.0	3.9	2.2
55°	180.1	173.4	154.5	153.4	137.2	118.8	94.8	80.3	11.2	2.8	1.7
57.5°	70.8	68.6	64.7	61.9	55.8	49.6	41.3	34.6	7.3	2.2	1.7
60°	26.8	26.2	24.0	24.5	22.3	21.2	18.4	15.6	4.5	1.7	1.7
62.5°	12.3	12.3	11.7	11.7	11.2	10.0	8.9	8.4	2.8	1.7	1.7
65°	6.1	6.1	5.6	5.6	5.6	5.0	4.5	4.5	1.7	1.7	1.7
67.5°	2.8	2.8	2.8	2.8	2.8	2.2	2.2	2.2	1.1	1.7	1.7
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.7	1.7
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
75°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
77.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	2.2
80°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	2.2
82.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.7	2.2
85°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.7	2.2
87.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.7	2.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P170816

CATALOG NUMBER: LDA4A09840D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	93.7	93.7	93.7	93.7
2.5°	78.6	69.7	61.9	60.2
5°	64.7	51.3	42.9	41.3
7.5°	52.4	37.4	31.2	30.1
10°	42.9	30.1	24.5	23.4
12.5°	35.7	24.5	19.5	18.4
15°	30.7	21.8	17.8	17.8
17.5°	29.6	24.0	22.9	23.4
20°	38.5	43.5	51.9	52.4
22.5°	89.2	145.0	191.9	200.8
25°	160.6	175.7	171.2	179.0
27.5°	84.8	66.4	67.5	69.2
30°	36.8	40.7	42.9	45.2
32.5°	30.7	31.8	32.3	34.0
35°	20.1	20.1	19.5	20.1
37.5°	12.3	11.7	11.2	11.2
40°	7.8	7.3	6.7	6.7
42.5°	5.6	4.5	3.9	3.9
45°	3.9	2.8	2.2	1.7
47.5°	2.8	1.7	1.1	0.6
50°	2.2	1.7	0.6	0.0
52.5°	1.7	1.1	0.6	0.0
55°	1.7	1.1	0.0	0.0
57.5°	1.7	1.1	0.0	0.0
60°	1.7	1.1	0.0	0.0
62.5°	1.7	1.1	0.0	0.0
65°	1.7	1.1	0.6	0.0
67.5°	1.7	1.1	0.6	0.0
70°	1.7	1.1	0.6	0.0
72.5°	1.7	1.1	0.6	0.0
75°	1.7	1.7	0.6	0.0
77.5°	2.2	1.7	0.6	0.0
80°	2.2	1.7	0.6	0.0
82.5°	2.2	1.7	0.6	0.0
85°	2.2	1.7	0.6	0.6
87.5°	2.2	1.7	0.6	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)