

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: P170784

Luminaire Tested: **LDA4A09840D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170784  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26105)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A09840D010TE LAR25NF 4LAL1 30° Tilt  
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 25° Narrow 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: 1109.0 lumens  
Efficiency: N/A  
Efficacy: 80.1 lumens/watt  
Spacing Criteria (0/90/45): 2.53 / 1.09 / 1.29  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

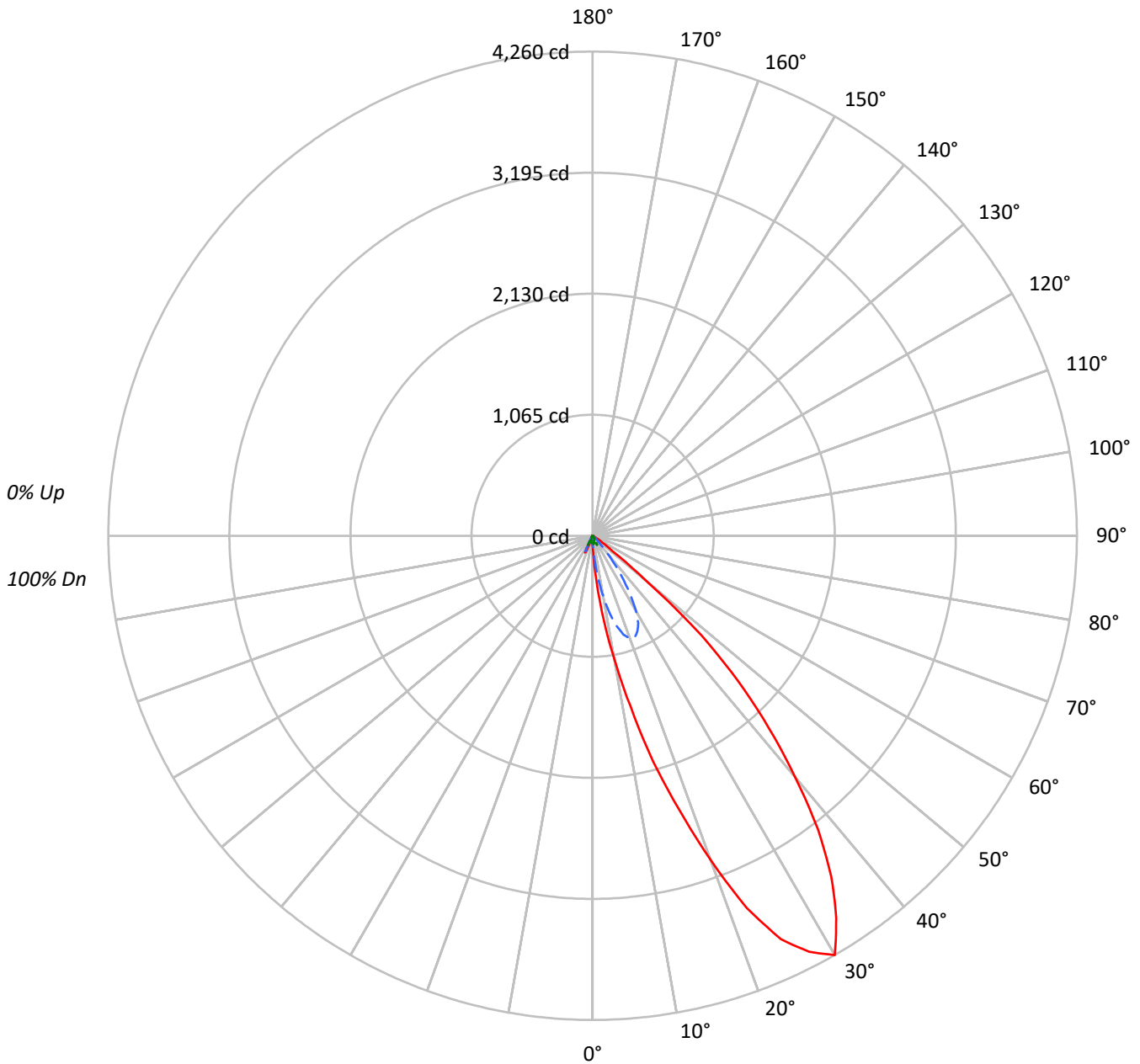
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	104	110	107	104	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	83																			
3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74																			
4	92	83	77	72	90	82	76	71	80	74	70	78	73	69	76	72	69	67																			
5	86	76	69	64	84	75	69	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	63	57	79	69	62	57	67	61	57	66	60	56	64	60	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	61	55	51	59	54	51	49																			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

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

	0°	90°	180°
0°	10176	10176	10176
5°	52337	9460	4420
10°	137949	7891	2305
15°	262570	6193	1775
20°	398812	5119	4752
25°	532887	12221	22007
30°	606769	4600	4444
35°	551128	2605	2018
40°	446385	1159	805
45°	315871	680	192
50°	115250	422	0
55°	23978	366	0
60°	5773	419	0
65°	1780	496	0
70°	613	613	0
75°	286	810	0
80°	0	1208	0
85°	0	2406	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	18.7	1.7
10°-20°	139.5	12.6
20°-30°	353.7	31.9
30°-40°	378.6	34.1
40°-50°	193.5	17.4
50°-60°	20.2	1.8
60°-70°	2.3	0.2
70°-80°	1.3	0.1
80°-90°	1.1	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°	511.9	46.2
0°-40°	890.5	80.3
0°-60°	1104.2	99.6
0°-90°	1109.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1109.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	82	82	82	82	82	
5°	423	230	76	44	36	62
15°	2056	826	48	17	14	608
25°	3916	931	90	151	162	1779
35°	3660	472	17	13	13	2247
45°	1811	63	4	2	1	1351
55°	112	10	2	1	0	151
65°	6	2	2	1	0	8
75°	1	1	2	2	0	1
85°	0	1	2	2	0	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°	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
2.5°	166.7	168.4	156.2	160.1	162.8	157.3	156.2	156.2	162.3	158.9	164.5
5°	422.7	421.1	399.9	406.0	410.5	399.9	404.9	397.1	406.6	400.4	406.6
7.5°	738.4	757.9	731.1	737.3	741.2	730.0	732.8	721.7	732.2	725.0	730.0
10°	1101.4	1121.5	1090.3	1095.3	1098.1	1087.5	1088.1	1073.6	1083.0	1075.2	1078.6
12.5°	1535.3	1543.1	1528.1	1532.0	1533.6	1519.7	1493.5	1496.3	1505.8	1492.4	1495.7
15°	2056.2	2050.6	2032.8	2045.6	2032.8	2026.1	1986.5	1984.3	1989.8	1974.8	1950.8
17.5°	2515.2	2557.6	2537.5	2544.7	2529.1	2529.1	2478.4	2470.0	2470.6	2430.4	2426.0
20°	3038.3	3092.4	3043.3	3045.5	3024.9	3024.4	2962.4	2945.2	2937.9	2892.2	2879.4
22.5°	3542.4	3558.1	3557.5	3548.0	3499.5	3527.4	3449.9	3422.5	3400.2	3348.4	3322.7
25°	3915.5	3964.6	3931.2	3907.2	3864.8	3899.9	3812.9	3777.2	3743.8	3700.3	3666.8
27.5°	4126.3	4172.1	4164.3	4128.6	4085.1	4119.1	4023.7	3977.4	3930.0	3898.3	3856.4
30°	4260.2	4329.9	4307.0	4229.5	4165.9	4177.1	4070.0	4008.1	3955.7	3922.8	3869.8
32.5°	3988.6	4060.5	4053.8	3997.5	3964.6	3991.9	3898.8	3837.5	3787.3	3761.1	3701.9
35°	3660.1	3744.3	3725.9	3679.1	3655.1	3686.9	3596.0	3544.7	3493.9	3471.1	3406.4
37.5°	3258.0	3337.2	3318.8	3274.2	3250.8	3274.2	3187.2	3139.8	3091.8	3067.9	3023.8
40°	2772.3	2842.0	2822.5	2781.2	2761.7	2778.4	2703.1	2661.9	2621.1	2603.3	2544.7
42.5°	2297.7	2353.5	2335.6	2299.9	2284.9	2296.0	2234.1	2197.3	2161.6	2146.5	2112.0
45°	1810.8	1866.0	1848.7	1818.1	1804.1	1810.3	1758.4	1725.5	1694.8	1680.9	1649.6
47.5°	1299.4	1361.3	1340.1	1313.9	1299.4	1296.6	1250.9	1221.3	1224.1	1176.7	1147.7
50°	600.6	653.1	631.9	617.9	604.0	596.2	580.0	546.5	556.0	513.1	496.3
52.5°	218.1	230.9	225.9	221.4	216.9	215.3	209.7	201.3	202.4	191.8	186.8
55°	111.5	117.7	116.0	113.2	113.2	111.5	108.7	105.4	103.2	101.5	99.8
57.5°	51.3	54.7	53.5	52.4	52.4	51.3	50.2	48.5	49.6	46.8	46.3
60°	23.4	25.1	24.5	24.0	24.0	24.0	23.4	22.9	22.9	22.3	21.7
62.5°	11.2	12.3	11.7	11.7	11.7	11.7	11.2	11.2	11.2	11.2	10.6
65°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	5.6	6.1	5.6	5.6
67.5°	3.3	3.3	3.3	3.3	2.8	3.3	3.3	2.8	2.8	2.8	2.8
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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	0.0	0.6	0.6	0.6	0.0	0.6	0.6	0.6	0.6	0.6	0.6
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	0.6	0.0	0.6	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°	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
2.5°	151.7	155.6	159.5	158.4	152.8	152.2	150.0	151.1	117.7	95.4	79.7
5°	384.8	389.8	394.8	392.1	378.1	374.8	363.6	361.4	229.8	112.7	76.4
7.5°	703.2	706.0	709.9	706.6	686.0	676.5	653.1	630.2	386.5	136.1	70.8
10°	1048.5	1047.3	1049.0	1044.6	1018.9	1000.5	964.2	948.1	547.7	156.2	63.0
12.5°	1451.1	1446.6	1422.1	1433.8	1397.6	1360.2	1300.5	1250.3	699.9	167.3	55.8
15°	1921.2	1907.9	1898.9	1885.6	1840.9	1780.7	1689.8	1634.0	826.5	166.2	48.5
17.5°	2388.6	2366.8	2327.8	2332.8	2281.0	2196.7	2076.8	1981.5	914.1	152.2	42.9
20°	2830.8	2798.5	2749.4	2745.5	2683.0	2572.1	2420.9	2302.7	962.0	129.4	39.0
22.5°	3256.9	3206.7	3140.9	3120.3	3040.0	2882.7	2685.3	2541.4	966.5	108.2	46.8
25°	3592.6	3529.6	3456.6	3420.9	3332.2	3131.4	2885.5	2708.7	930.8	107.1	89.8
27.5°	3780.0	3708.6	3635.6	3587.1	3497.3	3269.7	2991.4	2787.3	869.4	114.9	85.3
30°	3790.1	3709.8	3633.9	3572.6	3483.3	3240.2	2944.6	2732.1	759.0	72.5	32.3
32.5°	3623.3	3537.4	3461.6	3392.4	3304.3	3059.5	2769.5	2566.5	617.4	50.7	22.9
35°	3331.6	3243.0	3170.5	3097.4	3014.9	2784.5	2518.5	2329.5	471.8	40.2	17.3
37.5°	2934.6	2852.6	2788.5	2738.8	2649.6	2466.1	2223.0	2022.7	333.5	28.4	10.6
40°	2490.1	2420.9	2368.5	2325.6	2243.0	2080.2	1834.8	1665.8	202.4	20.1	7.2
42.5°	2042.8	1978.1	1931.8	1891.1	1814.7	1670.8	1469.0	1299.4	97.0	13.9	5.0
45°	1588.9	1530.9	1491.8	1455.0	1386.4	1244.8	1084.7	962.0	63.0	10.0	3.9
47.5°	1085.3	1055.1	991.0	950.9	880.6	772.4	622.4	487.4	41.8	7.2	2.8
50°	451.2	435.6	393.2	365.8	325.7	270.5	196.3	164.5	25.7	5.0	2.2
52.5°	175.1	171.2	160.6	154.5	144.4	129.9	108.2	96.5	15.6	3.9	2.2
55°	94.2	93.1	87.6	84.2	78.6	71.4	58.6	51.3	10.0	2.8	1.7
57.5°	43.5	42.9	40.2	40.2	36.2	33.5	27.9	25.1	6.1	2.2	1.7
60°	20.6	20.6	19.5	19.5	17.8	16.7	13.9	12.8	3.9	1.7	1.7
62.5°	10.0	10.0	10.0	10.0	9.5	8.9	7.8	7.2	2.8	1.7	1.7
65°	5.6	5.6	5.6	5.6	5.0	5.0	4.5	3.9	2.2	1.7	1.7
67.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.2	2.2	1.7	1.7	1.7
70°	1.7	1.7	1.7	1.7	1.7	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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
80°	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
82.5°	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	1.7
87.5°	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
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°	82.5	82.5	82.5	82.5
2.5°	68.6	59.7	55.2	54.1
5°	56.3	44.1	37.9	35.7
7.5°	45.7	31.8	26.8	24.5
10°	36.2	25.1	20.1	18.4
12.5°	30.1	20.1	16.2	15.1
15°	25.7	17.3	14.5	13.9
17.5°	23.4	18.4	17.3	17.8
20°	28.4	30.1	35.1	36.2
22.5°	60.2	104.3	141.7	150.0
25°	125.5	150.6	156.2	161.7
27.5°	69.7	54.1	53.0	55.2
30°	28.4	29.0	30.1	31.2
32.5°	21.2	21.2	20.6	21.2
35°	14.5	13.4	12.8	13.4
37.5°	8.9	8.4	7.8	7.8
40°	6.1	5.6	5.0	5.0
42.5°	4.5	3.3	2.8	2.8
45°	3.3	2.2	1.7	1.1
47.5°	2.8	1.7	0.6	0.6
50°	2.2	1.1	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	0.6	0.0
62.5°	1.7	1.1	0.6	0.6
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°	2.2	1.1	0.6	0.0
75°	2.2	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	0.0
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)