

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: P170787

Luminaire Tested: **LDA4A09935D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170787  
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: LDA4A09935D010TE 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 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 886.2 lumens  
Efficiency: N/A  
Efficacy: 64.0 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

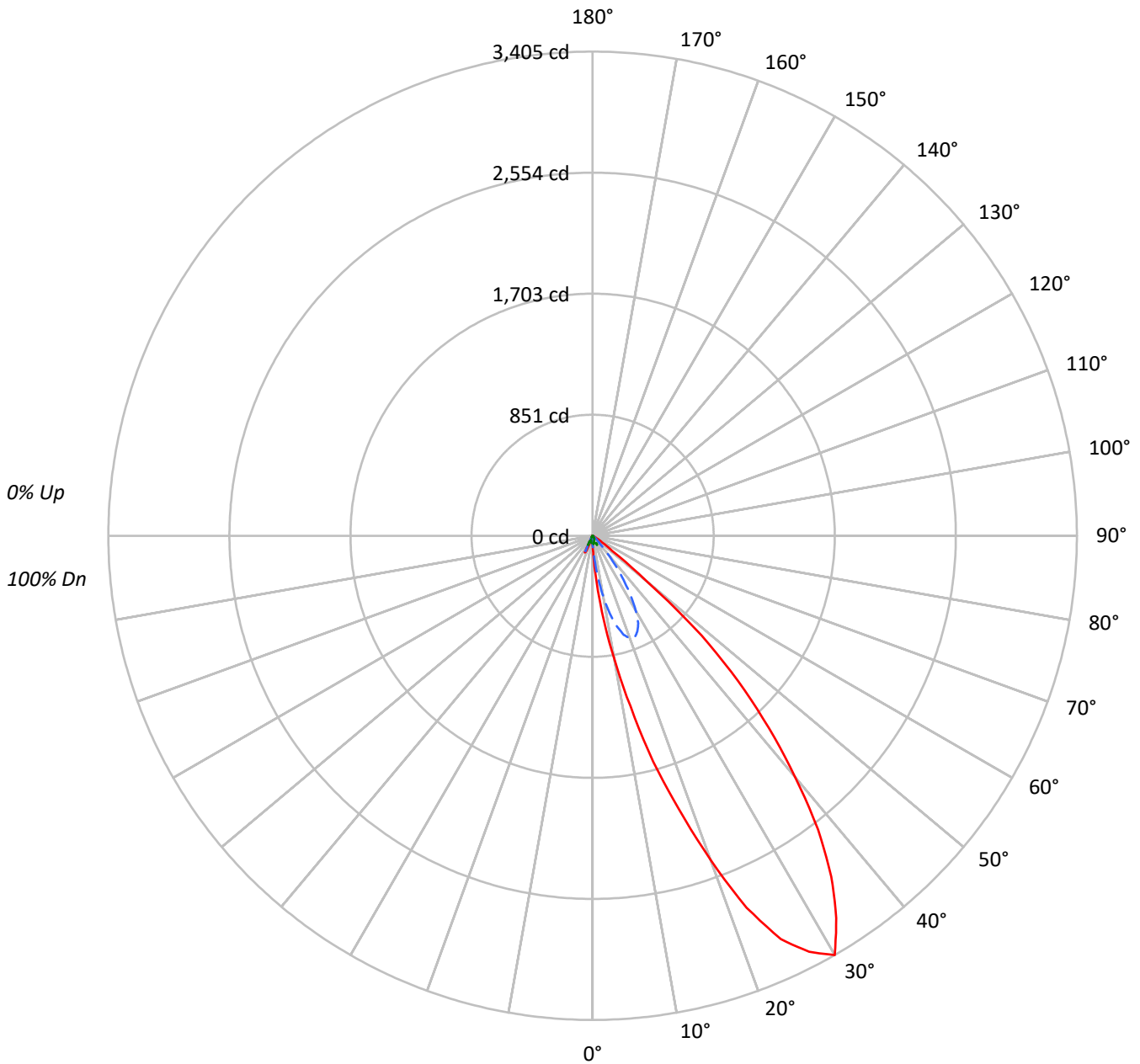
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	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°	8141	8141	8141
5°	41838	7565	3529
10°	110256	6313	1841
15°	209857	4955	1417
20°	318743	4095	3807
25°	425915	9772	17597
30°	484951	3689	3561
35°	440484	2078	1611
40°	356764	934	644
45°	252463	541	157
50°	92127	345	0
55°	19161	280	0
60°	4613	321	0
65°	1430	379	0
70°	469	469	0
75°	191	620	0
80°	0	923	0
85°	0	1840	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	14.9	1.7
10°-20°	111.5	12.6
20°-30°	282.7	31.9
30°-40°	302.6	34.1
40°-50°	154.7	17.5
50°-60°	16.1	1.8
60°-70°	1.8	0.2
70°-80°	1.0	0.1
80°-90°	0.9	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°	409.1	46.2
0°-40°	711.7	80.3
0°-60°	882.5	99.6
0°-90°	886.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	886.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	66	66	66	66	66	
5°	338	184	61	35	28	49
15°	1643	661	39	14	11	486
25°	3130	744	72	120	129	1422
35°	2925	377	14	11	11	1796
45°	1447	50	3	2	1	1080
55°	89	8	1	1	0	121
65°	5	2	1	1	0	6
75°	0	1	1	1	0	0
85°	0	1	1	1	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°	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
2.5°	133.3	134.6	124.8	127.9	130.2	125.7	124.8	124.8	129.7	127.0	131.5
5°	337.9	336.5	319.6	324.5	328.1	319.6	323.6	317.4	324.9	320.0	324.9
7.5°	590.1	605.7	584.4	589.3	592.4	583.5	585.7	576.8	585.2	579.5	583.5
10°	880.3	896.4	871.4	875.4	877.6	869.2	869.6	858.0	865.6	859.4	862.0
12.5°	1227.1	1233.3	1221.3	1224.4	1225.8	1214.6	1193.7	1195.9	1203.5	1192.8	1195.5
15°	1643.4	1639.0	1624.7	1634.9	1624.7	1619.3	1587.7	1585.9	1590.4	1578.3	1559.2
17.5°	2010.2	2044.1	2028.1	2033.9	2021.4	2021.4	1980.8	1974.1	1974.6	1942.5	1938.9
20°	2428.3	2471.6	2432.4	2434.1	2417.6	2417.2	2367.7	2353.9	2348.1	2311.6	2301.3
22.5°	2831.3	2843.8	2843.3	2835.7	2797.0	2819.3	2757.3	2735.5	2717.6	2676.2	2655.7
25°	3129.5	3168.7	3142.0	3122.8	3088.9	3117.0	3047.5	3018.9	2992.2	2957.4	2930.7
27.5°	3298.0	3334.5	3328.3	3299.8	3265.0	3292.2	3216.0	3179.0	3141.1	3115.7	3082.2
30°	3404.9	3460.7	3442.4	3380.4	3329.6	3338.5	3252.9	3203.5	3161.6	3135.3	3092.9
32.5°	3187.9	3245.4	3240.0	3195.0	3168.7	3190.5	3116.1	3067.1	3027.0	3006.0	2958.8
35°	2925.3	2992.6	2977.9	2940.5	2921.3	2946.7	2874.1	2833.1	2792.5	2774.2	2722.5
37.5°	2604.0	2667.3	2652.5	2616.9	2598.2	2616.9	2547.4	2509.5	2471.1	2452.0	2416.8
40°	2215.7	2271.4	2255.8	2222.9	2207.3	2220.6	2160.5	2127.5	2094.9	2080.7	2033.9
42.5°	1836.4	1881.0	1866.7	1838.2	1826.2	1835.1	1785.6	1756.2	1727.7	1715.6	1688.0
45°	1447.3	1491.4	1477.6	1453.1	1441.9	1446.8	1405.4	1379.1	1354.6	1343.4	1318.5
47.5°	1038.6	1088.0	1071.1	1050.1	1038.6	1036.3	999.8	976.2	978.4	940.5	917.3
50°	480.1	522.0	505.0	493.9	482.7	476.5	463.6	436.8	444.4	410.1	396.7
52.5°	174.3	184.5	180.5	177.0	173.4	172.1	167.6	160.9	161.8	153.3	149.3
55°	89.1	94.0	92.7	90.5	90.5	89.1	86.9	84.2	82.5	81.1	79.8
57.5°	41.0	43.7	42.8	41.9	41.9	41.0	40.1	38.8	39.7	37.4	37.0
60°	18.7	20.1	19.6	19.2	19.2	19.2	18.7	18.3	18.3	17.8	17.4
62.5°	8.9	9.8	9.4	9.4	9.4	9.4	8.9	8.9	8.9	8.9	8.5
65°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.5	4.9	4.5	4.5
67.5°	2.7	2.7	2.7	2.7	2.2	2.7	2.7	2.2	2.2	2.2	2.2
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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.0	0.4	0.4	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4
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	0.4	0.0	0.4	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°	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
2.5°	121.2	124.4	127.5	126.6	122.1	121.7	119.9	120.8	94.0	76.2	63.7
5°	307.6	311.6	315.6	313.3	302.2	299.5	290.6	288.8	183.6	90.0	61.1
7.5°	562.1	564.3	567.4	564.7	548.2	540.7	522.0	503.7	308.9	108.8	56.6
10°	838.0	837.1	838.4	834.9	814.4	799.6	770.7	757.7	437.7	124.8	50.4
12.5°	1159.8	1156.2	1136.6	1146.0	1117.0	1087.1	1039.4	999.3	559.4	133.7	44.6
15°	1535.5	1524.8	1517.7	1507.0	1471.4	1423.2	1350.6	1306.0	660.6	132.8	38.8
17.5°	1909.1	1891.7	1860.5	1864.5	1823.0	1755.7	1659.9	1583.7	730.6	121.7	34.3
20°	2262.5	2236.7	2197.5	2194.3	2144.4	2055.7	1934.9	1840.4	768.9	103.4	31.2
22.5°	2603.1	2563.0	2510.4	2493.9	2429.7	2304.0	2146.2	2031.2	772.5	86.5	37.4
25°	2871.4	2821.0	2762.6	2734.1	2663.2	2502.8	2306.2	2164.9	743.9	85.6	71.8
27.5°	3021.2	2964.1	2905.7	2866.9	2795.2	2613.3	2390.9	2227.8	694.9	91.8	68.2
30°	3029.2	2965.0	2904.4	2855.4	2784.0	2589.7	2353.5	2183.6	606.6	57.9	25.9
32.5°	2895.9	2827.3	2766.7	2711.4	2641.0	2445.3	2213.5	2051.3	493.4	40.6	18.3
35°	2662.8	2591.9	2534.0	2475.6	2409.6	2225.5	2012.9	1861.8	377.1	32.1	13.8
37.5°	2345.4	2279.9	2228.7	2189.0	2117.7	1971.0	1776.7	1616.7	266.5	22.7	8.5
40°	1990.2	1934.9	1893.0	1858.7	1792.7	1662.6	1466.5	1331.4	161.8	16.0	5.8
42.5°	1632.7	1581.0	1544.0	1511.5	1450.4	1335.4	1174.1	1038.6	77.6	11.1	4.0
45°	1269.9	1223.5	1192.3	1162.9	1108.1	994.9	866.9	768.9	50.4	8.0	3.1
47.5°	867.4	843.3	792.1	760.0	703.8	617.3	497.4	389.6	33.4	5.8	2.2
50°	360.6	348.1	314.2	292.4	260.3	216.2	156.9	131.5	20.5	4.0	1.8
52.5°	140.0	136.8	128.4	123.5	115.4	103.9	86.5	77.1	12.5	3.1	1.8
55°	75.3	74.4	70.0	67.3	62.8	57.1	46.8	41.0	8.0	2.2	1.3
57.5°	34.8	34.3	32.1	32.1	29.0	26.7	22.3	20.1	4.9	1.8	1.3
60°	16.5	16.5	15.6	15.6	14.3	13.4	11.1	10.3	3.1	1.3	1.3
62.5°	8.0	8.0	8.0	8.0	7.6	7.1	6.2	5.8	2.2	1.3	1.3
65°	4.5	4.5	4.5	4.5	4.0	4.0	3.6	3.1	1.8	1.3	1.3
67.5°	2.2	2.2	2.2	2.2	2.2	2.2	1.8	1.8	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	1.3	1.3
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
80°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
82.5°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	1.3	1.3
87.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
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°	66.0	66.0	66.0	66.0
2.5°	54.8	47.7	44.1	43.2
5°	45.0	35.2	30.3	28.5
7.5°	36.5	25.4	21.4	19.6
10°	29.0	20.1	16.0	14.7
12.5°	24.1	16.0	12.9	12.0
15°	20.5	13.8	11.6	11.1
17.5°	18.7	14.7	13.8	14.3
20°	22.7	24.1	28.1	29.0
22.5°	48.1	83.4	113.2	119.9
25°	100.3	120.3	124.8	129.3
27.5°	55.7	43.2	42.3	44.1
30°	22.7	23.2	24.1	25.0
32.5°	16.9	16.9	16.5	16.9
35°	11.6	10.7	10.3	10.7
37.5°	7.1	6.7	6.2	6.2
40°	4.9	4.5	4.0	4.0
42.5°	3.6	2.7	2.2	2.2
45°	2.7	1.8	1.3	0.9
47.5°	2.2	1.3	0.4	0.4
50°	1.8	0.9	0.4	0.0
52.5°	1.3	0.9	0.4	0.0
55°	1.3	0.9	0.0	0.0
57.5°	1.3	0.9	0.0	0.0
60°	1.3	0.9	0.4	0.0
62.5°	1.3	0.9	0.4	0.4
65°	1.3	0.9	0.4	0.0
67.5°	1.3	0.9	0.4	0.0
70°	1.3	0.9	0.4	0.0
72.5°	1.8	0.9	0.4	0.0
75°	1.8	1.3	0.4	0.0
77.5°	1.8	1.3	0.4	0.0
80°	1.8	1.3	0.4	0.0
82.5°	1.8	1.3	0.4	0.0
85°	1.8	1.3	0.4	0.0
87.5°	1.8	1.3	0.4	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)