

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: P170795

Luminaire Tested: **LDA4A13935D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170795  
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: LDA4A13935D010TE 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: 1315.4 lumens  
Efficiency: N/A  
Efficacy: 59.1 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

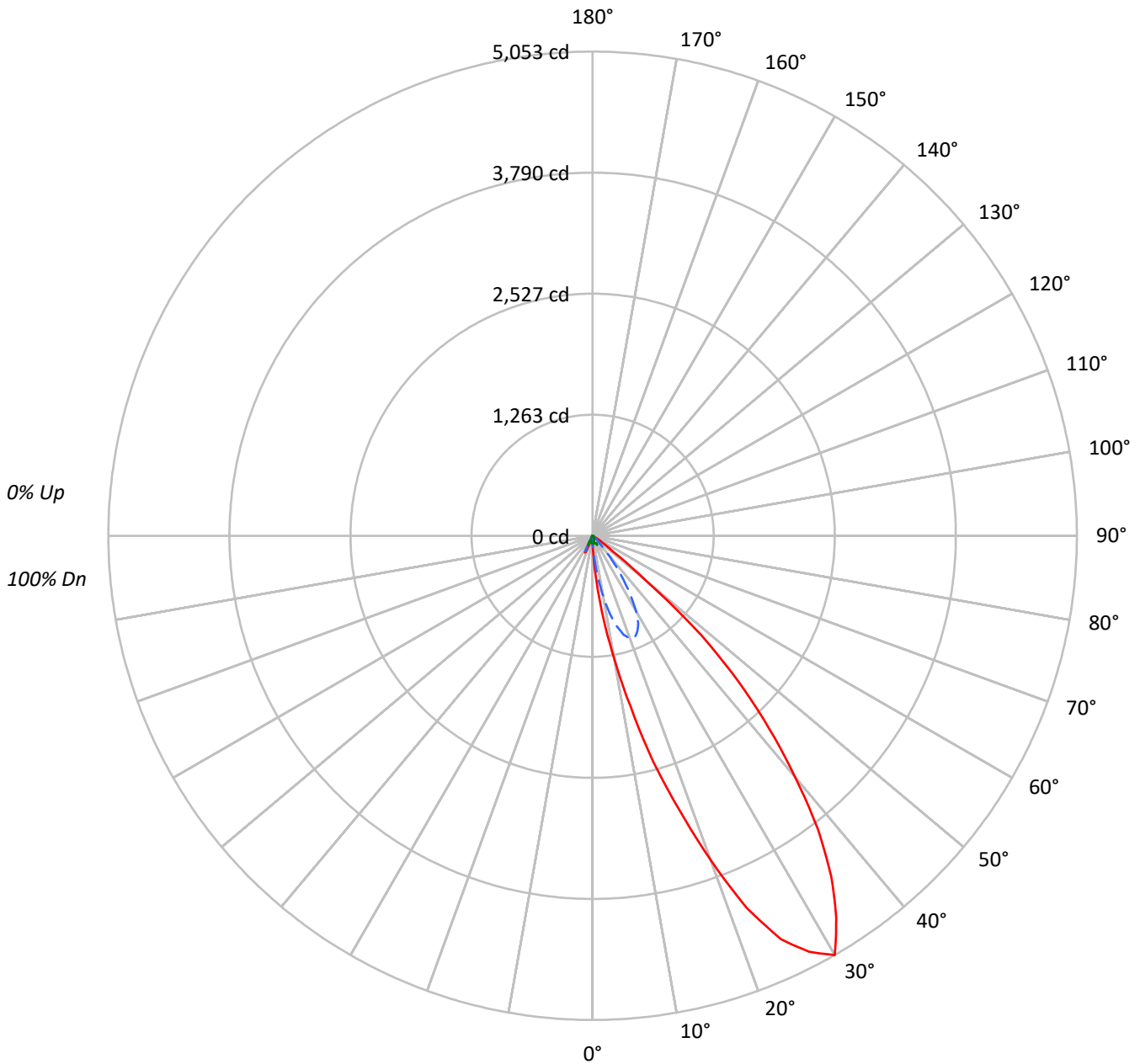
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	12076	12076	12076
5°	62082	11218	5237
10°	163637	9356	2730
15°	311440	7355	2107
20°	473054	6077	5644
25°	632088	14494	26103
30°	719713	5469	5270
35°	653716	3087	2394
40°	529470	1385	966
45°	374673	802	227
50°	136704	499	0
55°	28451	430	0
60°	6858	493	0
65°	2131	584	0
70°	721	721	0
75°	334	953	0
80°	0	1421	0
85°	0	2830	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	22.2	1.7
10°-20°	165.4	12.6
20°-30°	419.6	31.9
30°-40°	449.1	34.1
40°-50°	229.5	17.5
50°-60°	24.0	1.8
60°-70°	2.8	0.2
70°-80°	1.5	0.1
80°-90°	1.3	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°	607.2	46.2
0°-40°	1056.2	80.3
0°-60°	1309.7	99.6
0°-90°	1315.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1315.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	98	98	98	98	98	
5°	501	272	91	52	42	73
15°	2439	980	58	20	16	721
25°	4644	1104	106	179	192	2110
35°	4341	560	20	16	16	2665
45°	2148	75	5	3	1	1603
55°	132	12	2	1	0	179
65°	7	3	2	1	0	10
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°	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9
2.5°	197.8	199.8	185.2	189.9	193.2	186.5	185.2	185.2	192.5	188.5	195.1
5°	501.4	499.4	474.3	481.6	486.9	474.3	480.2	471.0	482.2	475.0	482.2
7.5°	875.8	899.0	867.2	874.5	879.1	865.9	869.2	856.0	868.5	859.9	865.9
10°	1306.5	1330.3	1293.2	1299.2	1302.5	1289.9	1290.6	1273.4	1284.6	1275.4	1279.3
12.5°	1821.1	1830.4	1812.5	1817.1	1819.1	1802.6	1771.5	1774.8	1786.0	1770.2	1774.1
15°	2438.9	2432.3	2411.2	2426.4	2411.2	2403.2	2356.3	2353.6	2360.2	2342.4	2313.9
17.5°	2983.4	3033.6	3009.8	3018.4	2999.9	2999.9	2939.7	2929.8	2930.4	2882.8	2877.5
20°	3603.9	3668.0	3609.8	3612.4	3588.0	3587.3	3513.9	3493.4	3484.8	3430.5	3415.3
22.5°	4201.8	4220.4	4219.7	4208.5	4150.9	4184.0	4092.0	4059.6	4033.2	3971.6	3941.2
25°	4644.4	4702.6	4662.9	4634.5	4584.2	4625.9	4522.7	4480.3	4440.6	4389.1	4349.4
27.5°	4894.4	4948.7	4939.4	4897.1	4845.5	4885.8	4772.7	4717.8	4661.6	4623.9	4574.3
30°	5053.2	5135.9	5108.8	5016.8	4941.4	4954.6	4827.6	4754.2	4692.0	4653.0	4590.1
32.5°	4731.0	4816.4	4808.4	4741.6	4702.6	4735.0	4624.5	4551.8	4492.2	4461.2	4391.0
35°	4341.4	4441.3	4419.5	4363.9	4335.5	4373.2	4265.3	4204.5	4144.3	4117.2	4040.4
37.5°	3864.5	3958.4	3936.6	3883.7	3855.9	3883.7	3780.5	3724.2	3667.4	3638.9	3586.7
40°	3288.3	3371.0	3347.8	3298.9	3275.7	3295.6	3206.3	3157.3	3109.0	3087.9	3018.4
42.5°	2725.4	2791.5	2770.4	2728.0	2710.2	2723.4	2650.0	2606.3	2564.0	2546.1	2505.1
45°	2147.9	2213.4	2192.9	2156.5	2140.0	2147.2	2085.7	2046.7	2010.3	1993.8	1956.7
47.5°	1541.3	1614.7	1589.6	1558.5	1541.3	1538.0	1483.7	1448.7	1452.0	1395.8	1361.4
50°	712.4	774.6	749.5	732.9	716.4	707.1	688.0	648.3	659.5	608.6	588.7
52.5°	258.6	273.9	267.9	262.6	257.3	255.3	248.7	238.8	240.1	227.6	221.6
55°	132.3	139.6	137.6	134.3	134.3	132.3	129.0	125.0	122.4	120.4	118.4
57.5°	60.9	64.8	63.5	62.2	62.2	60.9	59.5	57.6	58.9	55.6	54.9
60°	27.8	29.8	29.1	28.4	28.4	28.4	27.8	27.1	27.1	26.5	25.8
62.5°	13.2	14.6	13.9	13.9	13.9	13.9	13.2	13.2	13.2	13.2	12.6
65°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	6.6	7.3	6.6	6.6
67.5°	4.0	4.0	4.0	4.0	3.3	4.0	4.0	3.3	3.3	3.3	3.3
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.0	0.7	0.7	0.7	0.0	0.7	0.7	0.7	0.7	0.7	0.7
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	0.7	0.0	0.7	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°	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9
2.5°	179.9	184.6	189.2	187.9	181.3	180.6	177.9	179.3	139.6	113.1	94.6
5°	456.4	462.4	468.3	465.0	448.5	444.5	431.3	428.7	272.5	133.6	90.6
7.5°	834.2	837.5	842.1	838.1	813.6	802.4	774.6	747.5	458.4	161.4	84.0
10°	1243.6	1242.3	1244.3	1239.0	1208.6	1186.7	1143.7	1124.5	649.6	185.2	74.7
12.5°	1721.2	1715.9	1686.8	1700.7	1657.7	1613.4	1542.6	1483.1	830.2	198.4	66.1
15°	2278.9	2263.0	2252.4	2236.5	2183.6	2112.2	2004.3	1938.2	980.3	197.1	57.6
17.5°	2833.2	2807.4	2761.1	2767.1	2705.5	2605.6	2463.4	2350.3	1084.2	180.6	50.9
20°	3357.8	3319.4	3261.2	3256.6	3182.5	3050.8	2871.6	2731.3	1141.1	153.5	46.3
22.5°	3863.2	3803.6	3725.6	3701.1	3605.8	3419.3	3185.1	3014.5	1146.4	128.3	55.6
25°	4261.4	4186.6	4100.0	4057.6	3952.5	3714.3	3422.6	3212.9	1104.0	127.0	106.5
27.5°	4483.6	4399.0	4312.3	4254.8	4148.3	3878.4	3548.3	3306.2	1031.3	136.3	101.2
30°	4495.6	4400.3	4310.3	4237.6	4131.7	3843.3	3492.7	3240.7	900.3	86.0	38.4
32.5°	4297.8	4195.9	4105.9	4023.9	3919.4	3629.0	3285.0	3044.2	732.3	60.2	27.1
35°	3951.8	3846.6	3760.6	3674.0	3576.1	3302.9	2987.3	2763.1	559.6	47.6	20.5
37.5°	3480.8	3383.6	3307.5	3248.6	3142.8	2925.2	2636.7	2399.3	395.6	33.7	12.6
40°	2953.6	2871.6	2809.4	2758.5	2660.6	2467.4	2176.3	1975.9	240.1	23.8	8.6
42.5°	2423.1	2346.3	2291.4	2243.1	2152.5	1981.9	1742.4	1541.3	115.1	16.5	6.0
45°	1884.6	1815.8	1769.5	1725.9	1644.5	1476.5	1286.6	1141.1	74.7	11.9	4.6
47.5°	1287.3	1251.6	1175.5	1127.9	1044.5	916.2	738.2	578.2	49.6	8.6	3.3
50°	535.2	516.6	466.4	433.9	386.3	320.8	232.8	195.1	30.4	6.0	2.6
52.5°	207.7	203.1	190.5	183.2	171.3	154.1	128.3	114.4	18.5	4.6	2.6
55°	111.8	110.5	103.9	99.9	93.3	84.7	69.5	60.9	11.9	3.3	2.0
57.5°	51.6	50.9	47.6	47.6	43.0	39.7	33.1	29.8	7.3	2.6	2.0
60°	24.5	24.5	23.2	23.2	21.2	19.8	16.5	15.2	4.6	2.0	2.0
62.5°	11.9	11.9	11.9	11.9	11.2	10.6	9.3	8.6	3.3	2.0	2.0
65°	6.6	6.6	6.6	6.6	6.0	6.0	5.3	4.6	2.6	2.0	2.0
67.5°	3.3	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.0	2.0	2.0
70°	2.0	2.0	2.0	2.0	2.0	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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
80°	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
82.5°	0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
87.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
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):**

	112.5°	135°	157.5°	180°
0°	97.9	97.9	97.9	97.9
2.5°	81.4	70.8	65.5	64.2
5°	66.8	52.3	45.0	42.3
7.5°	54.2	37.7	31.8	29.1
10°	43.0	29.8	23.8	21.8
12.5°	35.7	23.8	19.2	17.9
15°	30.4	20.5	17.2	16.5
17.5°	27.8	21.8	20.5	21.2
20°	33.7	35.7	41.7	43.0
22.5°	71.4	123.7	168.0	177.9
25°	148.8	178.6	185.2	191.8
27.5°	82.7	64.2	62.8	65.5
30°	33.7	34.4	35.7	37.0
32.5°	25.1	25.1	24.5	25.1
35°	17.2	15.9	15.2	15.9
37.5°	10.6	9.9	9.3	9.3
40°	7.3	6.6	6.0	6.0
42.5°	5.3	4.0	3.3	3.3
45°	4.0	2.6	2.0	1.3
47.5°	3.3	2.0	0.7	0.7
50°	2.6	1.3	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	0.7	0.0
62.5°	2.0	1.3	0.7	0.7
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°	2.6	1.3	0.7	0.0
75°	2.6	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	0.0
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)