

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: P170807

Luminaire Tested: **LDA4A18835D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170807  
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: LDA4A18835D010TE 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 / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2043.0 lumens  
Efficiency: N/A  
Efficacy: 70.2 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

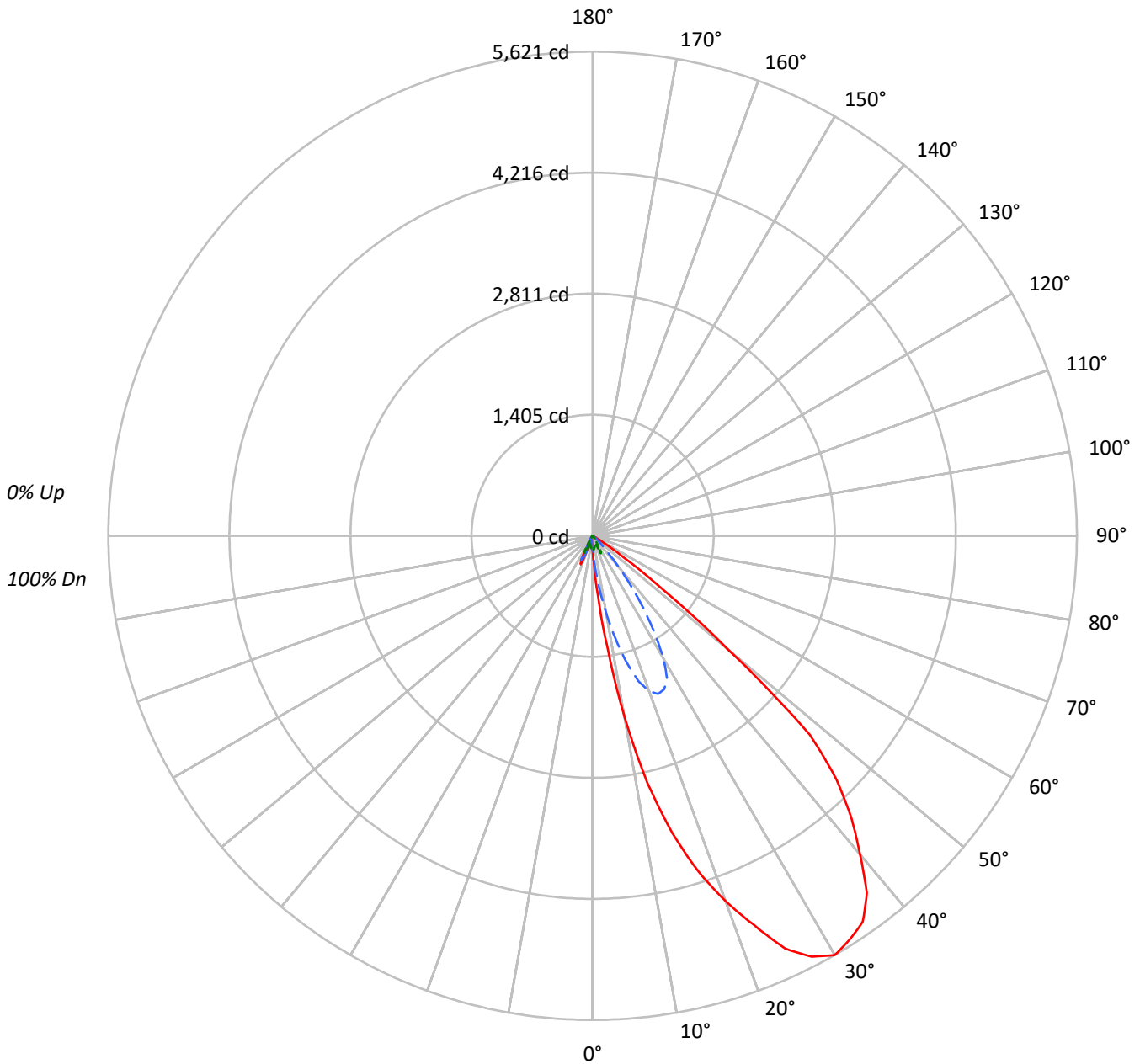
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					20					
RC	80					70					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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91					91			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	83	82					82			
3	98	90	84	79	96	89	83	79	86	81	77	84	79	76	81	78	75	73					73			
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	70	67	65					65			
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58					58			
6	79	68	61	56	78	67	60	55	66	60	55	64	59	55	63	58	54	52					52			
7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47					47			
8	69	57	50	45	68	57	50	45	55	49	44	54	48	44	53	48	44	42					42			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38					38			
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35					35			

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

	0°	90°	180°
0°	20722	20722	20722
5°	83440	19563	9162
10°	268984	16408	5260
15°	456312	13025	4086
20°	593066	11682	12339
25°	719694	30758	43673
30°	800584	10824	11537
35°	823522	6475	5421
40°	777580	2737	1932
45°	698847	1570	523
50°	393301	959	0
55°	97610	645	0
60°	15048	740	0
65°	3502	876	0
70°	721	1082	0
75°	0	1430	0
80°	0	2841	0
85°	0	5661	1415



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	33.7	1.7
10°-20°	250.7	12.3
20°-30°	579.2	28.3
30°-40°	649.6	31.8
40°-50°	453.3	22.2
50°-60°	67.7	3.3
60°-70°	4.4	0.2
70°-80°	2.2	0.1
80°-90°	2.2	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°	863.6	42.3
0°-40°	1513.3	74.1
0°-60°	2034.2	99.6
0°-90°	2043.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2043.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	168	168	168	168	168	
5°	674	394	158	92	74	112
15°	3573	1521	102	39	32	1021
25°	5288	1966	226	315	321	2418
35°	5469	1022	43	36	36	3364
45°	4006	154	9	5	3	2939
55°	454	20	3	2	0	597
65°	12	3	3	2	0	18
75°	0	2	3	3	0	1
85°	0	2	4	3	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°	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
2.5°	305.9	302.9	294.9	292.9	299.9	293.9	296.9	302.9	296.9	290.0	296.9
5°	673.9	690.9	673.9	670.9	682.9	671.9	676.9	687.9	672.9	658.9	668.9
7.5°	1300.8	1311.8	1263.8	1280.8	1276.8	1279.8	1282.8	1282.8	1273.8	1248.8	1262.8
10°	2147.6	2155.6	2091.6	2113.6	2084.6	2113.6	2108.6	2086.6	2091.6	2057.6	2075.6
12.5°	2933.5	2959.5	2895.5	2916.5	2881.5	2914.5	2901.5	2895.5	2844.5	2844.5	2863.5
15°	3573.4	3632.4	3574.4	3596.4	3556.4	3602.4	3566.4	3582.4	3536.4	3479.4	3529.4
17.5°	4091.3	4149.3	4095.3	4122.3	4085.3	4121.3	4079.3	4113.3	4054.3	4013.3	4047.3
20°	4518.2	4561.2	4497.2	4535.2	4491.2	4527.2	4481.2	4526.2	4457.2	4427.2	4447.2
22.5°	4890.2	4907.2	4874.2	4938.1	4852.2	4890.2	4835.2	4881.2	4799.2	4761.2	4766.2
25°	5288.1	5326.1	5263.1	5287.1	5227.1	5253.1	5191.1	5234.1	5132.1	5078.1	5067.1
27.5°	5509.1	5563.0	5507.1	5534.0	5473.1	5495.1	5433.1	5495.1	5391.1	5338.1	5326.1
30°	5621.0	5647.0	5611.0	5629.0	5560.0	5571.0	5507.1	5574.0	5470.1	5423.1	5417.1
32.5°	5556.0	5608.0	5561.0	5584.0	5520.0	5531.0	5469.1	5541.0	5437.1	5394.1	5373.1
35°	5469.1	5522.0	5478.1	5502.1	5443.1	5451.1	5385.1	5448.1	5328.1	5275.1	5230.1
37.5°	5228.1	5278.1	5241.1	5249.1	5192.1	5186.1	5115.1	5168.1	5051.1	5006.1	4976.1
40°	4829.2	4874.2	4844.2	4861.2	4804.2	4791.2	4743.2	4792.2	4701.2	4668.2	4626.2
42.5°	4447.2	4484.2	4456.2	4483.2	4419.2	4402.2	4359.2	4421.2	4318.3	4291.3	4261.3
45°	4006.3	4029.3	4007.3	4030.3	3969.3	3942.3	3903.3	3956.3	3855.3	3830.3	3765.4
47.5°	3423.4	3398.4	3394.4	3416.4	3340.4	3284.4	3248.4	3316.4	3170.5	3121.5	3046.5
50°	2049.6	2091.6	2109.6	2094.6	2042.6	1965.7	1907.7	1990.7	1912.7	1792.7	1672.7
52.5°	1055.8	1008.8	1018.8	1023.8	961.8	938.8	919.8	938.8	877.8	846.9	770.9
55°	453.9	431.9	439.9	442.9	430.9	402.9	392.9	404.9	376.9	364.9	333.9
57.5°	168.0	168.0	163.0	165.0	161.0	151.0	149.0	154.0	145.0	142.0	130.0
60°	61.0	61.0	61.0	61.0	56.0	55.0	55.0	57.0	54.0	53.0	49.0
62.5°	26.0	27.0	25.0	26.0	25.0	24.0	25.0	24.0	24.0	23.0	23.0
65°	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	11.0	11.0
67.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0
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°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
2.5°	288.0	287.0	290.9	287.0	280.0	276.0	281.0	271.0	232.0	193.0	164.0
5°	650.9	645.9	638.9	640.9	623.9	609.9	609.9	582.9	393.9	224.0	158.0
7.5°	1233.8	1221.8	1170.8	1207.8	1171.8	1143.8	1124.8	1069.8	636.9	257.0	146.0
10°	2037.6	2016.7	1980.7	1987.7	1928.7	1881.7	1824.7	1732.7	915.8	286.0	131.0
12.5°	2830.5	2809.5	2713.5	2768.5	2689.5	2643.5	2547.6	2439.6	1216.8	299.9	117.0
15°	3503.4	3485.4	3380.4	3432.4	3335.4	3292.4	3168.5	3048.5	1520.7	294.9	102.0
17.5°	4026.3	4023.3	3902.3	3954.3	3847.3	3812.3	3667.4	3549.4	1766.7	273.0	92.0
20°	4429.2	4422.2	4300.3	4352.2	4235.3	4201.3	4017.3	3893.3	1922.7	243.0	89.0
22.5°	4747.2	4733.2	4602.2	4647.2	4516.2	4472.2	4269.3	4140.3	1986.7	224.0	110.0
25°	5033.1	5008.1	4859.2	4894.2	4750.2	4759.2	4454.2	4312.3	1965.7	252.0	226.0
27.5°	5285.1	5240.1	5090.1	5100.1	4931.1	4843.2	4581.2	4424.2	1869.7	281.0	210.0
30°	5379.1	5335.1	5176.1	5182.1	5006.1	4882.2	4602.2	4427.2	1639.7	176.0	76.0
32.5°	5327.1	5279.1	5113.1	5115.1	4934.1	4808.2	4529.2	4336.3	1333.8	116.0	58.0
35°	5176.1	5126.1	4961.1	4969.1	4794.2	4669.2	4396.2	4190.3	1021.8	92.0	43.0
37.5°	4921.2	4886.2	4729.2	4743.2	4594.2	4461.2	4184.3	3961.3	720.9	66.0	27.0
40°	4593.2	4566.2	4414.2	4436.2	4274.3	4151.3	3854.3	3612.4	448.9	45.0	17.0
42.5°	4209.3	4180.3	4030.3	4047.3	3909.3	3733.4	3430.4	3156.5	235.0	32.0	12.0
45°	3730.4	3696.4	3544.4	3553.4	3390.4	3184.5	2870.5	2628.5	154.0	22.0	9.0
47.5°	2977.5	2916.5	2718.5	2710.5	2577.6	2240.6	1794.7	1452.7	102.0	15.0	6.0
50°	1636.7	1573.7	1399.8	1380.8	1232.8	1011.8	747.9	581.9	59.0	10.0	5.0
52.5°	744.9	711.9	630.9	617.9	554.9	459.9	353.9	290.9	34.0	7.0	4.0
55°	322.9	310.9	277.0	275.0	246.0	213.0	170.0	144.0	20.0	5.0	3.0
57.5°	127.0	123.0	116.0	111.0	100.0	89.0	74.0	62.0	13.0	4.0	3.0
60°	48.0	47.0	43.0	44.0	40.0	38.0	33.0	28.0	8.0	3.0	3.0
62.5°	22.0	22.0	21.0	21.0	20.0	18.0	16.0	15.0	5.0	3.0	3.0
65°	11.0	11.0	10.0	10.0	10.0	9.0	8.0	8.0	3.0	3.0	3.0
67.5°	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	2.0	3.0	3.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
75°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
77.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	3.0	4.0
80°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	3.0	4.0
82.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	4.0
85°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	4.0
87.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	4.0
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°	168.0	168.0	168.0	168.0
2.5°	141.0	125.0	111.0	108.0
5°	116.0	92.0	77.0	74.0
7.5°	94.0	67.0	56.0	54.0
10°	77.0	54.0	44.0	42.0
12.5°	64.0	44.0	35.0	33.0
15°	55.0	39.0	32.0	32.0
17.5°	53.0	43.0	41.0	42.0
20°	69.0	78.0	93.0	94.0
22.5°	160.0	260.0	343.9	359.9
25°	288.0	314.9	306.9	320.9
27.5°	152.0	119.0	121.0	124.0
30°	66.0	73.0	77.0	81.0
32.5°	55.0	57.0	58.0	61.0
35°	36.0	36.0	35.0	36.0
37.5°	22.0	21.0	20.0	20.0
40°	14.0	13.0	12.0	12.0
42.5°	10.0	8.0	7.0	7.0
45°	7.0	5.0	4.0	3.0
47.5°	5.0	3.0	2.0	1.0
50°	4.0	3.0	1.0	0.0
52.5°	3.0	2.0	1.0	0.0
55°	3.0	2.0	0.0	0.0
57.5°	3.0	2.0	0.0	0.0
60°	3.0	2.0	0.0	0.0
62.5°	3.0	2.0	0.0	0.0
65°	3.0	2.0	1.0	0.0
67.5°	3.0	2.0	1.0	0.0
70°	3.0	2.0	1.0	0.0
72.5°	3.0	2.0	1.0	0.0
75°	3.0	3.0	1.0	0.0
77.5°	4.0	3.0	1.0	0.0
80°	4.0	3.0	1.0	0.0
82.5°	4.0	3.0	1.0	0.0
85°	4.0	3.0	1.0	1.0
87.5°	4.0	3.0	1.0	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)