

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: P170743

Luminaire Tested: **LDA4A18835D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170743
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26104)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A18835D010TE LAR15SP 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 15° Spot 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: 1823.0 lumens
Efficiency: N/A
Efficacy: 62.6 lumens/watt
Spacing Criteria (0/90/45): 2.57 / 1.16 / 1.36
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

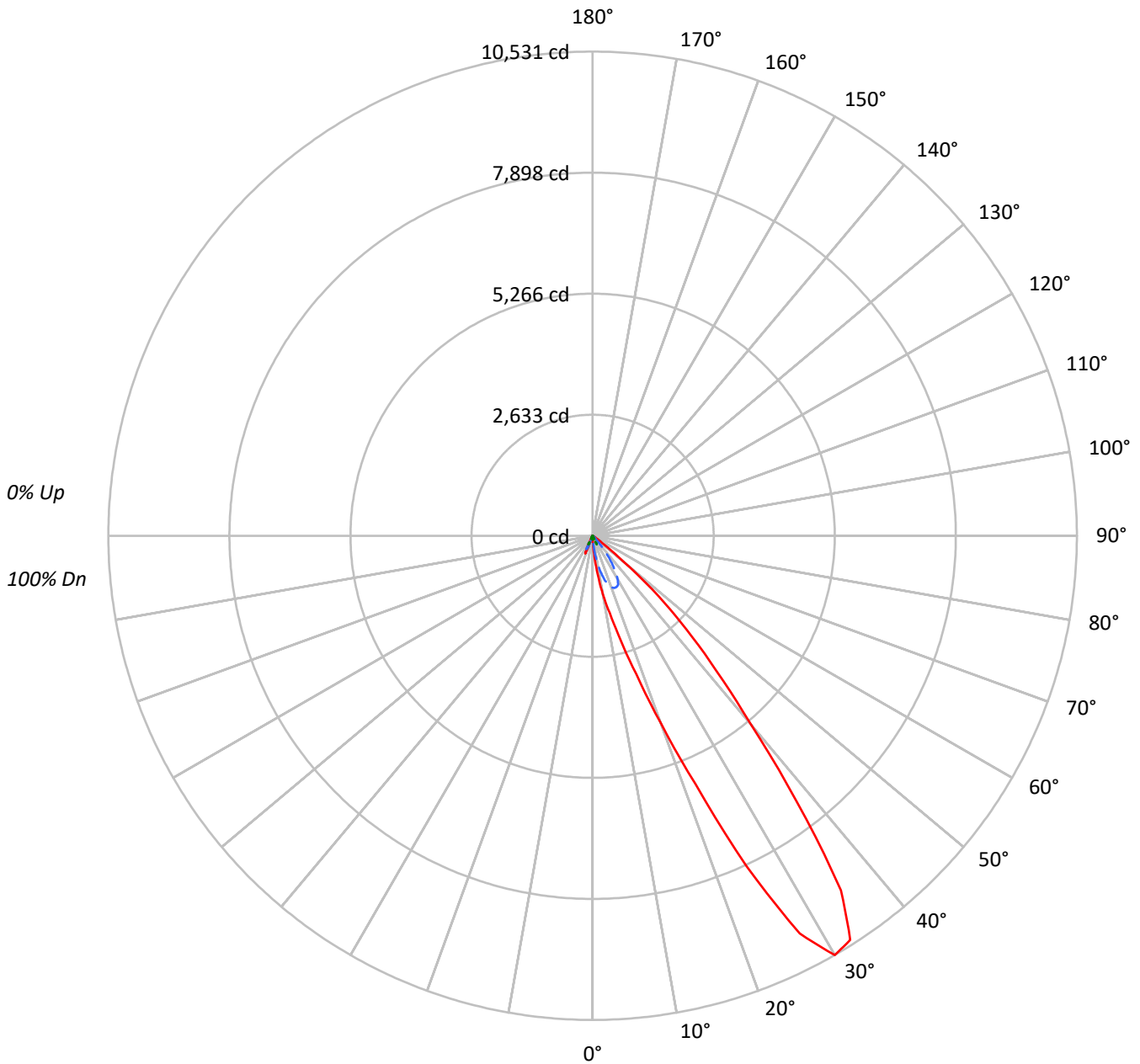
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P170743

CATALOG NUMBER: LDA4A18835D010TE LAR15SP 4LAL1 30° Tilt

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	97	96	96	94	93	91																			
2	105	100	95	91	103	98	93	90	94	91	88	91	88	86	89	86	84	82																			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74																			
4	92	83	76	71	90	82	75	70	79	74	70	77	72	69	75	71	68	66																			
5	86	75	68	63	84	74	68	63	73	67	62	71	66	62	69	65	61	59																			
6	80	69	62	56	78	68	61	56	66	60	56	65	59	55	63	59	55	53																			
7	74	63	56	51	73	62	55	50	61	55	50	60	54	50	58	53	49	48																			
8	69	58	50	45	68	57	50	45	56	50	45	55	49	45	54	48	45	43																			
9	65	53	46	41	64	52	46	41	51	45	41	50	45	40	49	44	40	39																			
10	61	49	42	37	59	48	41	37	47	41	37	46	41	37	46	40	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	10608	10608	10608
5°	55953	10029	5324
10°	163650	8517	3507
15°	297712	7151	3959
20°	567943	8138	19295
25°	1079357	28295	42585
30°	1499916	9543	8261
35°	1417443	4367	3162
40°	859102	1932	1127
45°	503460	1047	349
50°	167099	768	0
55°	31827	645	0
60°	7154	493	0
65°	2043	876	0
70°	721	1082	0
75°	0	1430	0
80°	0	2131	0
85°	0	4246	1415



TEST NUMBER: P170743

CATALOG NUMBER: LDA4A18835D010TE LAR15SP 4LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.5	1.1
10°-20°	167.7	9.2
20°-30°	594.8	32.6
30°-40°	705.2	38.7
40°-50°	300.0	16.5
50°-60°	27.1	1.5
60°-70°	3.3	0.2
70°-80°	2.2	0.1
80°-90°	2.0	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°	783.1	43.0
0°-40°	1488.3	81.6
0°-60°	1815.4	99.6
0°-90°	1823.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1823.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	86	86	86	86	86	
5°	452	223	81	51	43	70
15°	2331	982	56	31	31	752
25°	7931	1231	208	327	313	3675
35°	9413	727	29	22	21	5438
45°	2886	80	6	4	2	2262
55°	148	12	3	2	0	207
65°	7	3	3	2	0	10
75°	0	2	3	3	0	1
85°	0	2	3	3	1	0
90°	0	0	0	0	0	



TEST NUMBER: P170743

CATALOG NUMBER: LDA4A18835D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0
2.5°	158.0	149.0	155.0	153.0	154.0	157.0	154.0	154.0	153.0	149.0	149.0
5°	451.9	424.9	437.9	430.9	434.9	439.9	432.9	430.9	427.9	418.9	416.9
7.5°	841.8	826.8	842.8	830.8	841.8	843.8	833.8	831.8	826.8	813.8	808.8
10°	1306.6	1281.7	1296.6	1283.6	1300.6	1299.6	1283.6	1285.6	1279.7	1262.7	1254.7
12.5°	1718.5	1698.5	1713.5	1676.5	1718.5	1691.5	1694.5	1698.5	1690.5	1668.5	1658.5
15°	2331.4	2276.4	2302.4	2238.4	2302.4	2293.4	2258.4	2256.4	2235.4	2198.4	2176.4
17.5°	3145.1	3160.1	3141.1	3103.2	3188.1	3165.1	3115.2	3105.2	3065.2	2964.2	2962.2
20°	4326.8	4306.8	4338.8	4218.8	4327.8	4221.8	4207.9	4179.9	4111.9	3970.9	3948.9
22.5°	5839.4	5850.4	5793.4	5710.4	5844.4	5680.5	5630.5	5563.5	5439.5	5222.6	5154.6
25°	7930.8	7916.8	7842.9	7704.9	7847.9	7582.9	7458.0	7320.0	7089.1	6751.2	6588.2
27.5°	9753.3	9810.3	9761.3	9621.4	9716.4	9455.4	9167.5	9079.5	8766.6	8340.7	8046.8
30°	10531.1	10558.1	10537.1	10430.2	10464.1	10249.2	9964.3	9860.3	9539.4	9136.5	8755.6
32.5°	10424.2	10437.2	10441.2	10298.2	10304.2	10101.2	9803.3	9649.4	9299.5	8911.6	8456.7
35°	9413.4	9467.4	9502.4	9368.4	9235.5	9033.5	8695.6	8456.7	8088.8	7734.9	7270.0
37.5°	7290.0	7358.0	7412.0	7298.0	7235.0	6991.1	6710.2	6525.2	6271.3	6063.3	5733.4
40°	5335.5	5348.5	5381.5	5322.5	5224.6	5159.6	4998.6	4893.7	4739.7	4627.7	4408.8
42.5°	3965.9	3958.9	3981.9	3948.9	3945.9	3848.0	3746.0	3684.0	3631.0	3513.0	3359.1
45°	2886.2	2888.2	2910.2	2889.2	2833.2	2812.2	2745.3	2689.3	2619.3	2582.3	2460.3
47.5°	1962.5	1968.5	1983.5	1971.5	1920.5	1912.5	1869.5	1813.5	1812.5	1755.5	1648.6
50°	870.8	872.8	890.8	886.8	825.8	833.8	805.8	754.8	768.8	734.8	652.8
52.5°	288.9	289.9	292.9	290.9	280.9	280.9	273.9	272.9	264.9	256.9	238.9
55°	148.0	148.0	150.0	149.0	144.0	144.0	136.0	141.0	137.0	134.0	123.0
57.5°	63.0	63.0	64.0	64.0	61.0	64.0	61.0	61.0	59.0	58.0	54.0
60°	29.0	29.0	29.0	29.0	28.0	30.0	28.0	28.0	28.0	27.0	25.0
62.5°	15.0	15.0	15.0	15.0	15.0	15.0	15.0	14.0	14.0	14.0	13.0
65°	7.0	7.0	7.0	7.0	7.0	8.0	7.0	7.0	7.0	7.0	7.0
67.5°	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0
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



TEST NUMBER: P170743

CATALOG NUMBER: LDA4A18835D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0
2.5°	150.0	145.0	152.0	146.0	150.0	146.0	141.0	143.0	115.0	96.0	85.0
5°	417.9	402.9	415.9	402.9	403.9	396.9	377.9	375.9	222.9	109.0	81.0
7.5°	786.8	784.8	800.8	783.8	781.8	764.8	729.8	715.8	403.9	128.0	75.0
10°	1249.7	1220.7	1234.7	1216.7	1210.7	1179.7	1129.7	1102.7	600.8	147.0	68.0
12.5°	1630.6	1619.6	1629.6	1612.6	1606.6	1564.6	1505.6	1469.6	802.8	158.0	61.0
15°	2128.4	2106.4	2113.4	2078.4	2060.4	1980.5	1879.5	1813.5	981.7	157.0	56.0
17.5°	2888.2	2845.2	2841.2	2781.2	2737.3	2592.3	2411.3	2275.4	1112.7	145.0	54.0
20°	3840.0	3762.0	3736.0	3641.0	3567.0	3327.1	3048.2	2827.2	1194.7	129.0	62.0
22.5°	4980.6	4843.7	4766.7	4614.7	4487.8	4102.9	3694.0	3363.1	1230.7	124.0	89.0
25°	6310.3	6075.3	5912.4	5673.5	5459.5	4868.7	4294.8	3831.0	1230.7	161.0	207.9
27.5°	7658.9	7288.0	6988.1	6639.2	6314.3	5476.5	4736.7	4132.9	1200.7	200.9	189.9
30°	8341.7	7885.8	7478.0	7070.1	6662.2	5655.5	4835.7	4169.9	1087.7	118.0	67.0
32.5°	8051.8	7570.9	7120.1	6725.2	6322.3	5339.5	4567.8	3924.9	913.8	69.0	43.0
35°	6940.1	6523.2	6131.3	5836.4	5522.5	4746.7	4055.9	3496.0	726.8	54.0	29.0
37.5°	5539.5	5255.6	4976.6	4787.7	4562.8	3979.9	3423.1	2964.2	519.9	39.0	18.0
40°	4296.8	4102.9	3907.9	3788.0	3629.0	3204.1	2770.2	2405.3	306.9	27.0	12.0
42.5°	3291.1	3157.1	3012.2	2929.2	2815.2	2498.3	2159.4	1901.5	142.0	19.0	9.0
45°	2419.3	2320.4	2209.4	2156.4	2076.4	1867.5	1642.6	1460.6	80.0	14.0	6.0
47.5°	1628.6	1540.6	1437.6	1404.6	1327.6	1144.7	914.8	735.8	53.0	10.0	5.0
50°	647.8	589.8	554.8	508.9	463.9	388.9	290.9	231.9	32.0	8.0	4.0
52.5°	237.9	224.9	218.9	206.9	196.9	176.0	149.0	129.0	19.0	6.0	3.0
55°	124.0	116.0	112.0	108.0	102.0	90.0	75.0	64.0	12.0	4.0	3.0
57.5°	54.0	51.0	52.0	48.0	45.0	41.0	36.0	31.0	8.0	4.0	3.0
60°	26.0	24.0	25.0	23.0	22.0	21.0	19.0	16.0	5.0	3.0	2.0
62.5°	13.0	13.0	13.0	12.0	12.0	11.0	10.0	9.0	4.0	3.0	3.0
65°	7.0	6.0	7.0	6.0	6.0	6.0	5.0	5.0	3.0	3.0	3.0
67.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0
70°	2.0	2.0	2.0	2.0	2.0	2.0	1.0	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	0.0	0.0	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	3.0
80°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.0	3.0	3.0
82.5°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.0	3.0	3.0
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
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: P170743

CATALOG NUMBER: LDA4A18835D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	86.0	86.0	86.0	86.0
2.5°	72.0	64.0	58.0	57.0
5°	61.0	51.0	44.0	43.0
7.5°	52.0	41.0	35.0	34.0
10°	46.0	35.0	29.0	28.0
12.5°	41.0	31.0	27.0	26.0
15°	38.0	31.0	30.0	31.0
17.5°	41.0	42.0	46.0	51.0
20°	68.0	97.0	126.0	147.0
22.5°	153.0	282.9	374.9	418.9
25°	288.9	326.9	327.9	312.9
27.5°	157.0	125.0	112.0	106.0
30°	62.0	59.0	59.0	58.0
32.5°	41.0	38.0	37.0	36.0
35°	25.0	22.0	21.0	21.0
37.5°	16.0	14.0	13.0	12.0
40°	11.0	9.0	8.0	7.0
42.5°	8.0	6.0	4.0	4.0
45°	6.0	4.0	2.0	2.0
47.5°	5.0	3.0	1.0	1.0
50°	4.0	2.0	1.0	0.0
52.5°	3.0	2.0	0.0	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°	4.0	2.0	1.0	0.0
70°	4.0	2.0	1.0	0.0
72.5°	4.0	2.0	1.0	0.0
75°	4.0	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)