

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: P170766

Luminaire Tested: **LDA4A28830D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170766
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: LDA4A28830D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2715.2 lumens
Efficiency: N/A
Efficacy: 61.0 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

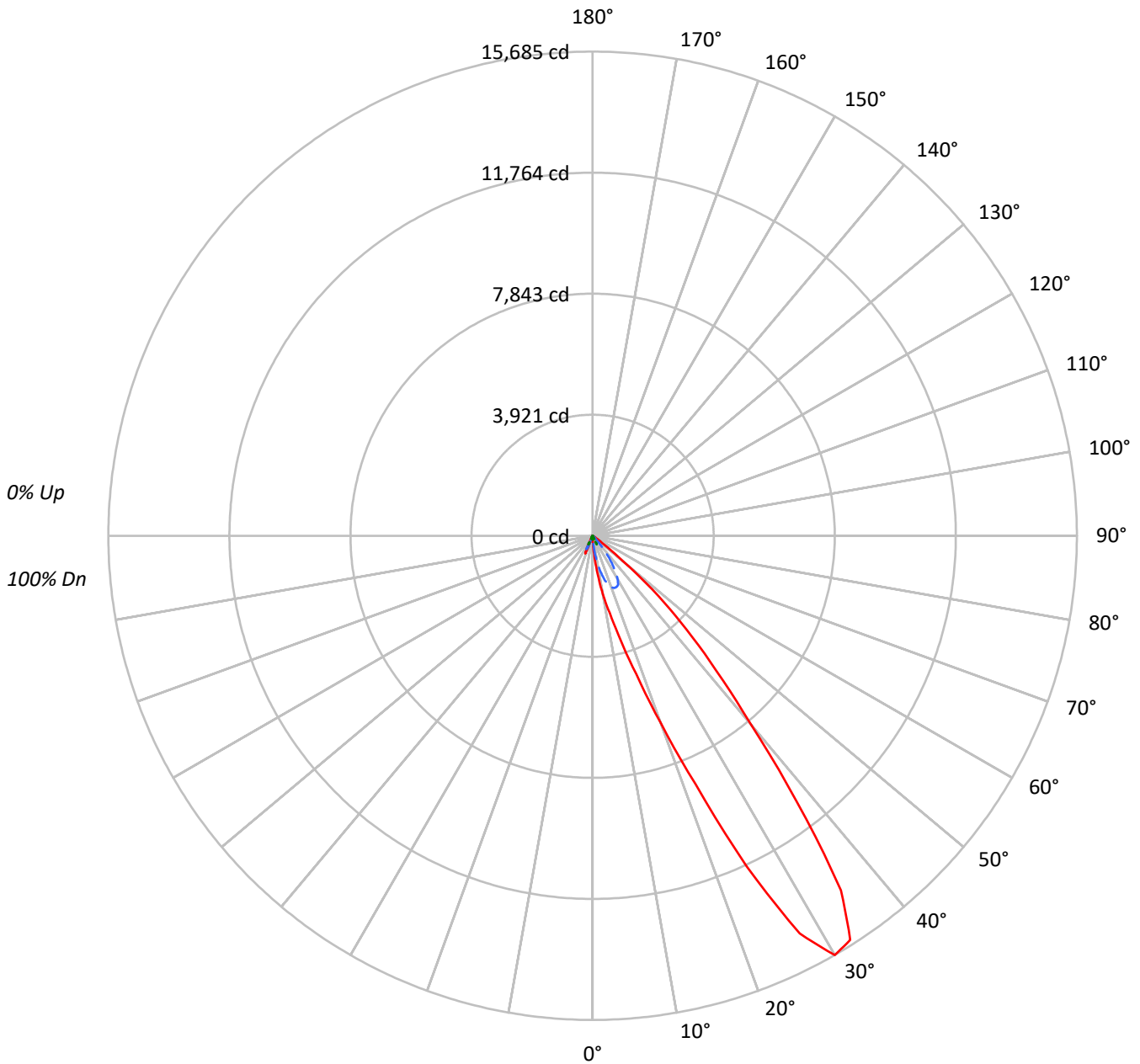
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	15801	15801	15801
5°	83329	14932	7924
10°	243746	12688	5223
15°	443402	10650	5900
20°	845890	12115	28733
25°	1607590	42149	63421
30°	2233957	14214	12306
35°	2111123	6505	4713
40°	1279548	2882	1675
45°	749853	1552	523
50°	248864	1151	0
55°	47396	968	0
60°	10657	740	0
65°	3035	1313	0
70°	1082	1623	0
75°	0	2145	0
80°	0	3196	0
85°	0	6369	2123



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.6	1.1
10°-20°	249.8	9.2
20°-30°	885.9	32.6
30°-40°	1050.3	38.7
40°-50°	446.8	16.5
50°-60°	40.4	1.5
60°-70°	5.0	0.2
70°-80°	3.3	0.1
80°-90°	3.0	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°	1166.3	43.0
0°-40°	2216.6	81.6
0°-60°	2703.8	99.6
0°-90°	2715.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2715.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	128	128	128	128	128	
5°	673	332	121	76	64	105
15°	3472	1462	83	46	46	1120
25°	11812	1833	310	487	466	5473
35°	14020	1082	43	33	31	8099
45°	4299	119	9	6	3	3369
55°	220	18	4	3	0	308
65°	10	4	4	3	0	15
75°	0	3	4	4	0	1
85°	0	3	4	4	2	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°	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1
2.5°	235.3	221.9	230.8	227.8	229.3	233.8	229.3	229.3	227.8	221.9	221.9
5°	673.0	632.8	652.2	641.7	647.7	655.1	644.7	641.7	637.3	623.9	620.9
7.5°	1253.7	1231.4	1255.2	1237.3	1253.7	1256.7	1241.8	1238.8	1231.4	1212.0	1204.6
10°	1946.1	1908.9	1931.2	1911.8	1937.2	1935.7	1911.8	1914.8	1905.9	1880.6	1868.7
12.5°	2559.6	2529.8	2552.1	2497.0	2559.6	2519.3	2523.8	2529.8	2517.9	2485.1	2470.2
15°	3472.3	3390.4	3429.1	3333.8	3429.1	3415.7	3363.6	3360.6	3329.4	3274.3	3241.5
17.5°	4684.3	4706.7	4678.4	4621.8	4748.3	4714.1	4639.7	4624.8	4565.2	4414.8	4411.8
20°	6444.3	6414.5	6462.2	6283.5	6445.8	6287.9	6267.1	6225.4	6124.2	5914.2	5881.5
22.5°	8697.1	8713.5	8628.6	8505.0	8704.6	8460.4	8385.9	8286.2	8101.5	7778.4	7677.2
25°	11812.1	11791.2	11681.0	11475.5	11688.5	11293.9	11107.8	10902.3	10558.3	10055.1	9812.4
27.5°	14526.5	14611.3	14538.4	14329.9	14471.4	14082.7	13653.9	13522.9	13056.8	12422.5	11984.8
30°	15684.9	15725.1	15693.8	15534.5	15585.1	15265.0	14840.6	14685.8	14207.8	13607.8	13040.5
32.5°	15525.6	15544.9	15550.9	15338.0	15346.9	15044.6	14600.9	14371.6	13850.5	13272.7	12595.3
35°	14020.2	14100.6	14152.7	13953.2	13755.2	13454.4	12951.1	12595.3	12047.3	11520.2	10827.8
37.5°	10857.6	10958.9	11039.3	10869.5	10775.7	10412.4	9994.0	9718.6	9340.4	9030.6	8539.3
40°	7946.7	7966.0	8015.2	7927.3	7781.4	7684.6	7444.9	7288.5	7059.2	6892.5	6566.4
42.5°	5906.8	5896.3	5930.6	5881.5	5877.0	5731.1	5579.2	5486.9	5408.0	5232.3	5003.0
45°	4298.7	4301.7	4334.4	4303.1	4219.8	4188.5	4088.7	4005.3	3901.1	3846.0	3664.4
47.5°	2922.9	2931.8	2954.1	2936.3	2860.3	2848.4	2784.4	2701.0	2699.5	2614.6	2455.3
50°	1296.9	1299.9	1326.7	1320.7	1229.9	1241.8	1200.1	1124.2	1145.0	1094.4	972.3
52.5°	430.3	431.8	436.3	433.3	418.4	418.4	408.0	406.5	394.6	382.7	355.9
55°	220.4	220.4	223.3	221.9	214.4	214.4	202.5	209.9	204.0	199.5	183.1
57.5°	93.8	93.8	95.3	95.3	90.8	95.3	90.8	90.8	87.8	86.4	80.4
60°	43.2	43.2	43.2	43.2	41.7	44.7	41.7	41.7	41.7	40.2	37.2
62.5°	22.3	22.3	22.3	22.3	22.3	22.3	22.3	20.8	20.8	20.8	19.4
65°	10.4	10.4	10.4	10.4	10.4	11.9	10.4	10.4	10.4	10.4	10.4
67.5°	4.5	4.5	4.5	6.0	6.0	6.0	6.0	6.0	4.5	4.5	4.5
70°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.5
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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°	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1	128.1
2.5°	223.3	215.9	226.3	217.4	223.3	217.4	209.9	212.9	171.2	142.9	126.6
5°	622.4	600.1	619.4	600.1	601.5	591.1	562.8	559.9	332.0	162.3	120.6
7.5°	1171.8	1168.8	1192.7	1167.4	1164.4	1139.1	1087.0	1066.1	601.5	190.6	111.7
10°	1861.2	1818.0	1838.9	1812.1	1803.2	1757.0	1682.5	1642.3	894.9	218.9	101.3
12.5°	2428.5	2412.1	2427.0	2401.7	2392.8	2330.2	2242.4	2188.8	1195.6	235.3	90.8
15°	3170.0	3137.3	3147.7	3095.6	3068.8	2949.7	2799.3	2701.0	1462.2	233.8	83.4
17.5°	4301.7	4237.6	4231.7	4142.3	4076.8	3860.9	3591.4	3388.9	1657.2	215.9	80.4
20°	5719.2	5603.0	5564.3	5422.9	5312.7	4955.3	4539.9	4210.8	1779.3	192.1	92.3
22.5°	7418.1	7214.1	7099.4	6873.1	6684.0	6110.8	5501.8	5008.9	1832.9	184.6	132.5
25°	9398.4	9048.5	8805.8	8449.9	8131.3	7251.3	6396.6	5705.8	1832.9	239.7	309.7
27.5°	11407.1	10854.6	10407.9	9888.3	9404.4	8156.6	7054.8	6155.4	1788.3	299.3	282.9
30°	12424.0	11745.1	11137.5	10530.0	9922.5	8423.1	7202.2	6210.5	1620.0	175.7	99.8
32.5°	11992.2	11276.0	10604.5	10016.3	9416.3	7952.6	6803.1	5845.7	1360.9	102.7	64.0
35°	10336.5	9715.6	9131.9	8692.6	8225.1	7069.7	6040.8	5207.0	1082.5	80.4	43.2
37.5°	8250.4	7827.6	7412.1	7130.7	6795.7	5927.6	5098.3	4414.8	774.3	58.1	26.8
40°	6399.6	6110.8	5820.4	5641.7	5405.0	4772.2	4126.0	3582.5	457.1	40.2	17.9
42.5°	4901.7	4702.2	4486.3	4362.7	4193.0	3721.0	3216.2	2832.0	211.4	28.3	13.4
45°	3603.3	3455.9	3290.6	3211.7	3092.6	2781.4	2446.4	2175.4	119.1	20.8	8.9
47.5°	2425.5	2294.5	2141.1	2092.0	1977.4	1704.9	1362.4	1095.9	78.9	14.9	7.4
50°	964.9	878.5	826.4	757.9	690.9	579.2	433.3	345.4	47.6	11.9	6.0
52.5°	354.4	335.0	326.1	308.2	293.3	262.1	221.9	192.1	28.3	8.9	4.5
55°	184.6	172.7	166.8	160.8	151.9	134.0	111.7	95.3	17.9	6.0	4.5
57.5°	80.4	75.9	77.4	71.5	67.0	61.0	53.6	46.2	11.9	6.0	4.5
60°	38.7	35.7	37.2	34.2	32.8	31.3	28.3	23.8	7.4	4.5	3.0
62.5°	19.4	19.4	19.4	17.9	17.9	16.4	14.9	13.4	6.0	4.5	4.5
65°	10.4	8.9	10.4	8.9	8.9	8.9	7.4	7.4	4.5	4.5	4.5
67.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.0	4.5	4.5
70°	3.0	3.0	3.0	3.0	3.0	3.0	1.5	3.0	3.0	4.5	4.5
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3.0	4.5	4.5
75°	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	3.0	4.5	4.5
77.5°	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	3.0	4.5	4.5
80°	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	3.0	4.5	4.5
82.5°	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	3.0	4.5	4.5
85°	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	3.0	4.5	4.5
87.5°	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5	3.0	4.5	4.5
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°	128.1	128.1	128.1	128.1
2.5°	107.2	95.3	86.4	84.9
5°	90.8	75.9	65.5	64.0
7.5°	77.4	61.0	52.1	50.6
10°	68.5	52.1	43.2	41.7
12.5°	61.0	46.2	40.2	38.7
15°	56.6	46.2	44.7	46.2
17.5°	61.0	62.5	68.5	75.9
20°	101.3	144.4	187.6	218.9
22.5°	227.8	421.4	558.4	623.9
25°	430.3	486.9	488.4	466.0
27.5°	233.8	186.1	166.8	157.8
30°	92.3	87.8	87.8	86.4
32.5°	61.0	56.6	55.1	53.6
35°	37.2	32.8	31.3	31.3
37.5°	23.8	20.8	19.4	17.9
40°	16.4	13.4	11.9	10.4
42.5°	11.9	8.9	6.0	6.0
45°	8.9	6.0	3.0	3.0
47.5°	7.4	4.5	1.5	1.5
50°	6.0	3.0	1.5	0.0
52.5°	4.5	3.0	0.0	0.0
55°	4.5	3.0	0.0	0.0
57.5°	4.5	3.0	0.0	0.0
60°	4.5	3.0	0.0	0.0
62.5°	4.5	3.0	0.0	0.0
65°	4.5	3.0	1.5	0.0
67.5°	6.0	3.0	1.5	0.0
70°	6.0	3.0	1.5	0.0
72.5°	6.0	3.0	1.5	0.0
75°	6.0	4.5	1.5	0.0
77.5°	6.0	4.5	1.5	0.0
80°	6.0	4.5	1.5	0.0
82.5°	6.0	4.5	1.5	0.0
85°	6.0	4.5	1.5	1.5
87.5°	6.0	4.5	1.5	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)