

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: P170760

Luminaire Tested: **LDA4A13840D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170760
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: LDA4A13840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1509.2 lumens
Efficiency: N/A
Efficacy: 67.8 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

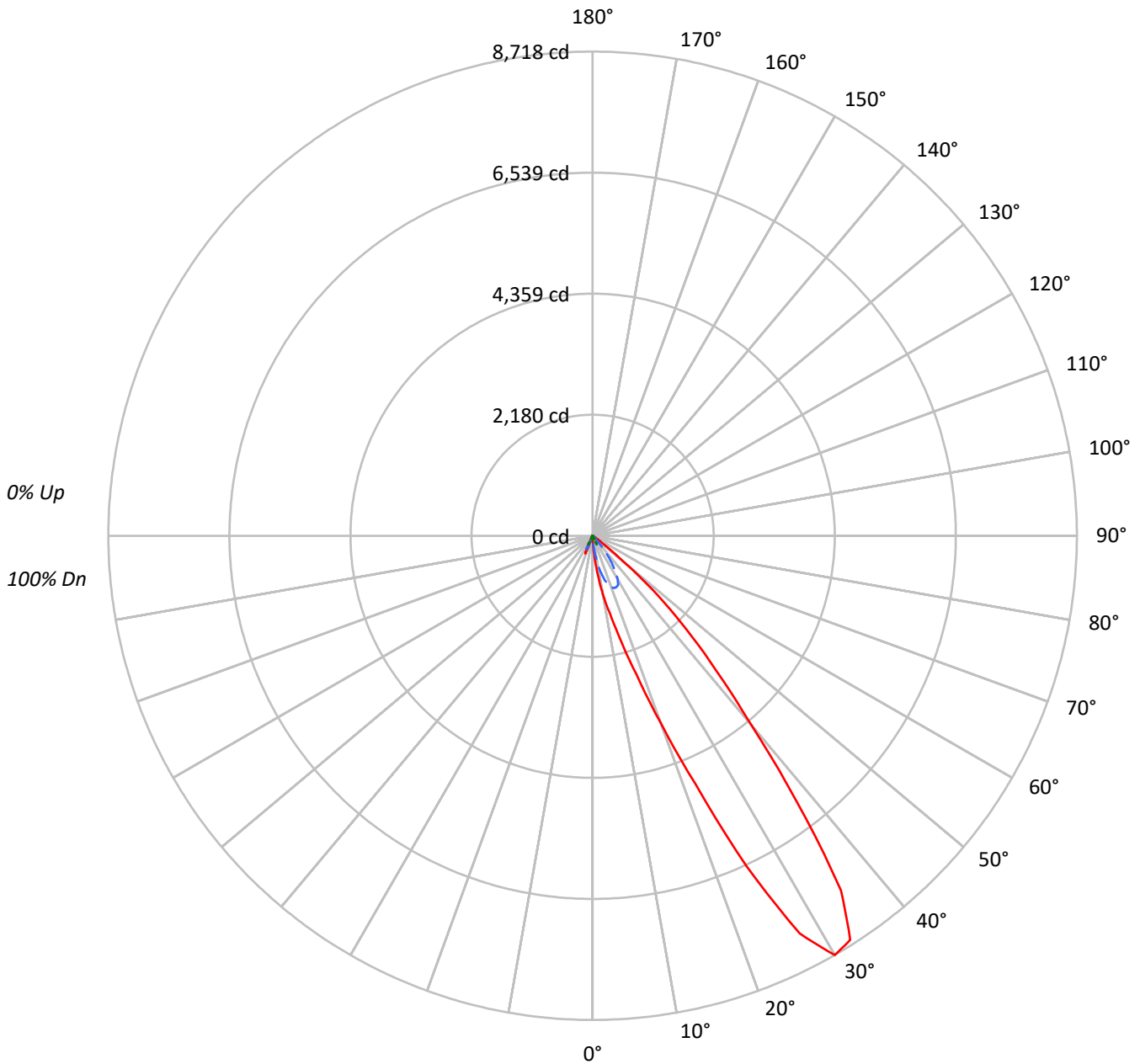
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	8782	8782	8782
5°	46320	8296	4408
10°	135481	7051	2906
15°	246455	5912	3282
20°	470166	6734	15975
25°	893530	23422	35249
30°	1241681	7890	6837
35°	1173418	3614	2620
40°	711209	1594	934
45°	416782	872	297
50°	138316	633	0
55°	26343	538	0
60°	5921	419	0
65°	1693	730	0
70°	613	902	0
75°	0	1191	0
80°	0	1776	0
85°	0	3538	1132



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.0	1.1
10°-20°	138.9	9.2
20°-30°	492.4	32.6
30°-40°	583.8	38.7
40°-50°	248.4	16.5
50°-60°	22.5	1.5
60°-70°	2.8	0.2
70°-80°	1.9	0.1
80°-90°	1.7	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°	648.2	43.0
0°-40°	1232.0	81.6
0°-60°	1502.9	99.6
0°-90°	1509.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1509.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	71	71	71	71	71	
5°	374	185	67	42	36	58
15°	1930	813	46	26	26	623
25°	6565	1019	172	271	259	3042
35°	7793	602	24	18	17	4502
45°	2389	66	5	3	2	1873
55°	122	10	2	2	0	171
65°	6	2	2	2	0	8
75°	0	2	2	2	0	0
85°	0	2	2	2	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°	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2
2.5°	130.8	123.3	128.3	126.6	127.5	129.9	127.5	127.5	126.6	123.3	123.3
5°	374.1	351.7	362.5	356.7	360.0	364.1	358.4	356.7	354.2	346.8	345.1
7.5°	696.8	684.4	697.7	687.7	696.8	698.5	690.2	688.6	684.4	673.7	669.5
10°	1081.7	1061.0	1073.4	1062.7	1076.7	1075.9	1062.7	1064.3	1059.3	1045.3	1038.7
12.5°	1422.7	1406.1	1418.5	1387.9	1422.7	1400.3	1402.8	1406.1	1399.5	1381.3	1373.0
15°	1930.0	1884.5	1906.0	1853.0	1906.0	1898.5	1869.6	1867.9	1850.5	1819.9	1801.7
17.5°	2603.7	2616.1	2600.4	2568.9	2639.2	2620.2	2578.8	2570.6	2537.5	2453.9	2452.2
20°	3581.9	3565.3	3591.8	3492.5	3582.7	3495.0	3483.4	3460.2	3404.0	3287.3	3269.1
22.5°	4834.1	4843.2	4796.0	4727.3	4838.2	4702.5	4661.1	4605.6	4503.0	4323.4	4267.2
25°	6565.4	6553.8	6492.6	6378.4	6496.7	6277.4	6174.0	6059.8	5868.6	5588.9	5454.0
27.5°	8074.2	8121.3	8080.8	7964.9	8043.5	7827.5	7589.2	7516.4	7257.3	6904.8	6661.4
30°	8718.0	8740.4	8723.0	8634.5	8662.6	8484.7	8248.8	8162.7	7897.1	7563.5	7248.2
32.5°	8629.5	8640.2	8643.6	8525.2	8530.2	8362.2	8115.5	7988.1	7698.4	7377.3	7000.8
35°	7792.8	7837.5	7866.4	7755.5	7645.5	7478.3	7198.6	7000.8	6696.2	6403.2	6018.4
37.5°	6034.9	6091.2	6135.9	6041.6	5989.4	5787.5	5554.9	5401.8	5191.6	5019.5	4746.3
40°	4417.0	4427.7	4455.0	4406.2	4325.1	4271.3	4138.1	4051.2	3923.7	3831.0	3649.8
42.5°	3283.1	3277.3	3296.4	3269.1	3266.6	3185.5	3101.1	3049.7	3005.9	2908.2	2780.8
45°	2389.3	2391.0	2409.2	2391.8	2345.4	2328.1	2272.6	2226.3	2168.3	2137.7	2036.7
47.5°	1624.6	1629.6	1642.0	1632.0	1589.8	1583.2	1547.6	1501.3	1500.5	1453.3	1364.7
50°	720.8	722.5	737.4	734.1	683.6	690.2	667.1	624.8	636.4	608.3	540.4
52.5°	239.2	240.0	242.5	240.8	232.6	232.6	226.8	225.9	219.3	212.7	197.8
55°	122.5	122.5	124.1	123.3	119.2	119.2	112.6	116.7	113.4	110.9	101.8
57.5°	52.1	52.1	53.0	53.0	50.5	53.0	50.5	50.5	48.8	48.0	44.7
60°	24.0	24.0	24.0	24.0	23.2	24.8	23.2	23.2	23.2	22.3	20.7
62.5°	12.4	12.4	12.4	12.4	12.4	12.4	12.4	11.6	11.6	11.6	10.8
65°	5.8	5.8	5.8	5.8	5.8	6.6	5.8	5.8	5.8	5.8	5.8
67.5°	2.5	2.5	2.5	3.3	3.3	3.3	3.3	3.3	2.5	2.5	2.5
70°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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°	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2	71.2
2.5°	124.1	120.0	125.8	120.8	124.1	120.8	116.7	118.3	95.2	79.5	70.3
5°	345.9	333.5	344.3	333.5	334.4	328.6	312.8	311.2	184.6	90.2	67.0
7.5°	651.3	649.7	662.9	648.8	647.2	633.1	604.2	592.6	334.4	105.9	62.1
10°	1034.5	1010.5	1022.1	1007.2	1002.2	976.6	935.2	912.9	497.4	121.7	56.3
12.5°	1349.8	1340.7	1349.0	1334.9	1330.0	1295.2	1246.4	1216.6	664.6	130.8	50.5
15°	1762.0	1743.8	1749.6	1720.6	1705.7	1639.5	1555.9	1501.3	812.7	129.9	46.3
17.5°	2391.0	2355.4	2352.1	2302.4	2266.0	2146.0	1996.2	1883.6	921.1	120.0	44.7
20°	3178.9	3114.3	3092.8	3014.2	2952.9	2754.3	2523.4	2340.5	989.0	106.8	51.3
22.5°	4123.2	4009.8	3946.0	3820.2	3715.1	3396.5	3058.0	2784.1	1018.8	102.6	73.7
25°	5223.9	5029.4	4894.5	4696.7	4519.6	4030.5	3555.4	3171.4	1018.8	133.2	172.1
27.5°	6340.3	6033.3	5785.0	5496.2	5227.2	4533.6	3921.2	3421.3	994.0	166.3	157.2
30°	6905.6	6528.2	6190.5	5852.9	5515.2	4681.8	4003.1	3452.0	900.4	97.7	55.4
32.5°	6665.6	6267.5	5894.2	5567.3	5233.8	4420.3	3781.4	3249.2	756.4	57.1	35.6
35°	5745.3	5400.2	5075.7	4831.6	4571.7	3929.5	3357.6	2894.2	601.7	44.7	24.0
37.5°	4585.8	4350.7	4119.8	3963.4	3777.2	3294.7	2833.7	2453.9	430.4	32.3	14.9
40°	3557.1	3396.5	3235.1	3135.8	3004.2	2652.5	2293.3	1991.2	254.1	22.3	9.9
42.5°	2724.5	2613.6	2493.6	2424.9	2330.5	2068.2	1787.6	1574.1	117.5	15.7	7.4
45°	2002.8	1920.9	1829.0	1785.2	1718.9	1546.0	1359.8	1209.1	66.2	11.6	5.0
47.5°	1348.2	1275.3	1190.1	1162.8	1099.1	947.6	757.3	609.1	43.9	8.3	4.1
50°	536.3	488.3	459.3	421.3	384.0	321.9	240.8	192.0	26.5	6.6	3.3
52.5°	197.0	186.2	181.2	171.3	163.0	145.7	123.3	106.8	15.7	5.0	2.5
55°	102.6	96.0	92.7	89.4	84.4	74.5	62.1	53.0	9.9	3.3	2.5
57.5°	44.7	42.2	43.0	39.7	37.2	33.9	29.8	25.7	6.6	3.3	2.5
60°	21.5	19.9	20.7	19.0	18.2	17.4	15.7	13.2	4.1	2.5	1.7
62.5°	10.8	10.8	10.8	9.9	9.9	9.1	8.3	7.4	3.3	2.5	2.5
65°	5.8	5.0	5.8	5.0	5.0	5.0	4.1	4.1	2.5	2.5	2.5
67.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.7	2.5	2.5
70°	1.7	1.7	1.7	1.7	1.7	1.7	0.8	1.7	1.7	2.5	2.5
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5	2.5
75°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	2.5	2.5
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5	2.5
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	2.5	2.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	2.5	2.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5	2.5
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5	2.5
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°	71.2	71.2	71.2	71.2
2.5°	59.6	53.0	48.0	47.2
5°	50.5	42.2	36.4	35.6
7.5°	43.0	33.9	29.0	28.1
10°	38.1	29.0	24.0	23.2
12.5°	33.9	25.7	22.3	21.5
15°	31.4	25.7	24.8	25.7
17.5°	33.9	34.8	38.1	42.2
20°	56.3	80.3	104.3	121.7
22.5°	126.6	234.2	310.4	346.8
25°	239.2	270.6	271.5	259.0
27.5°	129.9	103.5	92.7	87.7
30°	51.3	48.8	48.8	48.0
32.5°	33.9	31.4	30.6	29.8
35°	20.7	18.2	17.4	17.4
37.5°	13.2	11.6	10.8	9.9
40°	9.1	7.4	6.6	5.8
42.5°	6.6	5.0	3.3	3.3
45°	5.0	3.3	1.7	1.7
47.5°	4.1	2.5	0.8	0.8
50°	3.3	1.7	0.8	0.0
52.5°	2.5	1.7	0.0	0.0
55°	2.5	1.7	0.0	0.0
57.5°	2.5	1.7	0.0	0.0
60°	2.5	1.7	0.0	0.0
62.5°	2.5	1.7	0.0	0.0
65°	2.5	1.7	0.8	0.0
67.5°	3.3	1.7	0.8	0.0
70°	3.3	1.7	0.8	0.0
72.5°	3.3	1.7	0.8	0.0
75°	3.3	2.5	0.8	0.0
77.5°	3.3	2.5	0.8	0.0
80°	3.3	2.5	0.8	0.0
82.5°	3.3	2.5	0.8	0.0
85°	3.3	2.5	0.8	0.8
87.5°	3.3	2.5	0.8	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)