

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: P170747

Luminaire Tested: **LDA4A18935D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170747
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: LDA4A18935D010TE 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 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1494.4 lumens
Efficiency: N/A
Efficacy: 51.3 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

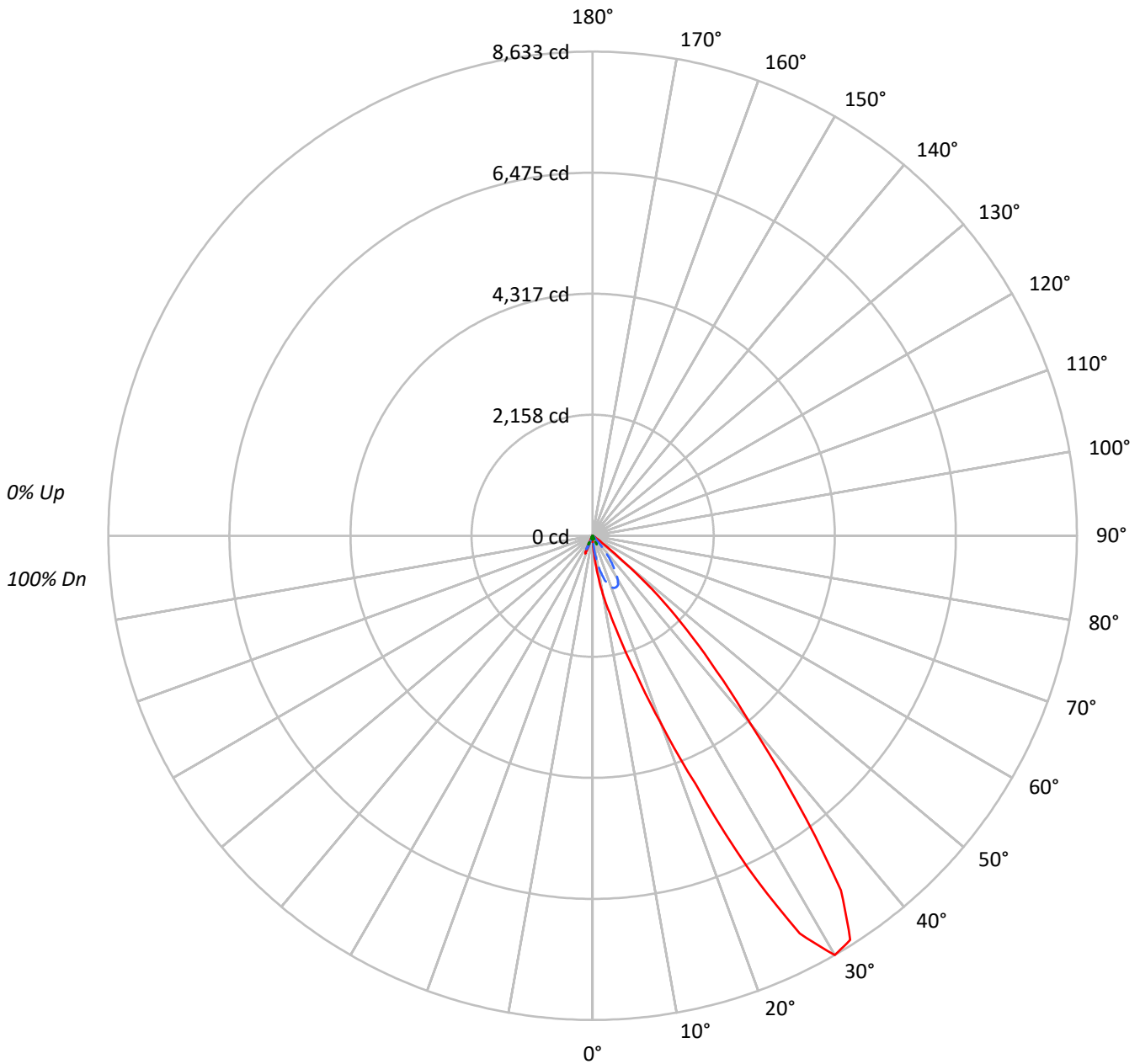
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	8696	8696	8696
5°	45862	8221	4358
10°	134154	6976	2868
15°	244041	5861	3243
20°	465559	6668	15817
25°	884779	23205	34909
30°	1229518	7819	6765
35°	1161914	3584	2590
40°	704237	1578	918
45°	412701	855	279
50°	136972	633	0
55°	26085	538	0
60°	5871	395	0
65°	1664	730	0
70°	577	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°	16.8	1.1
10°-20°	137.5	9.2
20°-30°	487.6	32.6
30°-40°	578.1	38.7
40°-50°	245.9	16.5
50°-60°	22.2	1.5
60°-70°	2.8	0.2
70°-80°	1.8	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°	641.9	43.0
0°-40°	1220.0	81.6
0°-60°	1488.1	99.6
0°-90°	1494.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1494.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	70	70	70	70	70	
5°	370	183	66	42	35	58
15°	1911	805	46	25	25	617
25°	6501	1009	170	268	256	3012
35°	7716	596	24	18	17	4457
45°	2366	66	5	3	2	1854
55°	121	10	2	2	0	170
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°	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5
2.5°	129.5	122.1	127.0	125.4	126.2	128.7	126.2	126.2	125.4	122.1	122.1
5°	370.4	348.3	358.9	353.2	356.5	360.6	354.8	353.2	350.7	343.4	341.7
7.5°	690.0	677.7	690.8	681.0	690.0	691.7	683.5	681.8	677.7	667.1	663.0
10°	1071.1	1050.6	1062.9	1052.2	1066.2	1065.3	1052.2	1053.9	1049.0	1035.0	1028.5
12.5°	1408.7	1392.3	1404.6	1374.3	1408.7	1386.6	1389.0	1392.3	1385.8	1367.7	1359.5
15°	1911.1	1866.0	1887.3	1834.9	1887.3	1879.9	1851.2	1849.6	1832.4	1802.1	1784.0
17.5°	2578.1	2590.4	2574.9	2543.7	2613.4	2594.5	2553.6	2545.4	2512.6	2429.8	2428.2
20°	3546.8	3530.4	3556.6	3458.3	3547.6	3460.7	3449.3	3426.3	3370.6	3255.0	3237.0
22.5°	4786.7	4795.7	4749.0	4681.0	4790.8	4656.4	4615.4	4560.5	4458.9	4281.0	4225.3
25°	6501.1	6489.6	6428.9	6315.9	6433.0	6215.9	6113.4	6000.4	5811.0	5534.1	5400.5
27.5°	7995.0	8041.7	8001.6	7886.8	7964.7	7750.8	7514.8	7442.7	7186.2	6837.1	6596.1
30°	8632.6	8654.7	8637.5	8549.8	8577.7	8401.5	8167.9	8082.7	7819.6	7489.4	7177.1
32.5°	8544.9	8555.5	8558.8	8441.6	8446.5	8280.2	8036.0	7909.8	7623.0	7305.0	6932.1
35°	7716.4	7760.6	7789.3	7679.5	7570.5	7405.0	7128.0	6932.1	6630.5	6340.4	5959.4
37.5°	5975.8	6031.5	6075.7	5982.3	5930.7	5730.7	5500.5	5348.9	5140.7	4970.2	4699.8
40°	4373.7	4384.3	4411.3	4363.0	4282.7	4229.4	4097.5	4011.4	3885.2	3793.4	3614.0
42.5°	3250.9	3245.2	3264.1	3237.0	3234.6	3154.2	3070.7	3019.8	2976.4	2879.7	2753.5
45°	2365.9	2367.5	2385.6	2368.3	2322.5	2305.2	2250.3	2204.4	2147.1	2116.8	2016.8
47.5°	1608.7	1613.6	1625.9	1616.0	1574.3	1567.7	1532.5	1486.6	1485.7	1439.0	1351.3
50°	713.8	715.4	730.2	726.9	676.9	683.5	660.5	618.7	630.2	602.3	535.1
52.5°	236.8	237.7	240.1	238.5	230.3	230.3	224.5	223.7	217.2	210.6	195.9
55°	121.3	121.3	122.9	122.1	118.0	118.0	111.5	115.5	112.3	109.8	100.8
57.5°	51.6	51.6	52.4	52.4	50.0	52.4	50.0	50.0	48.4	47.5	44.3
60°	23.8	23.8	23.8	23.8	22.9	24.6	22.9	22.9	22.9	22.1	20.5
62.5°	12.3	12.3	12.3	12.3	12.3	12.3	12.3	11.5	11.5	11.5	10.7
65°	5.7	5.7	5.7	5.7	5.7	6.6	5.7	5.7	5.7	5.7	5.7
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°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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°	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5
2.5°	122.9	118.8	124.6	119.6	122.9	119.6	115.5	117.2	94.2	78.7	69.7
5°	342.5	330.3	340.9	330.3	331.1	325.3	309.8	308.1	182.7	89.3	66.4
7.5°	644.9	643.3	656.4	642.5	640.8	626.9	598.2	586.8	331.1	104.9	61.5
10°	1024.4	1000.6	1012.1	997.3	992.4	967.0	926.0	903.9	492.5	120.5	55.7
12.5°	1336.6	1327.6	1335.8	1321.8	1316.9	1282.5	1234.2	1204.7	658.1	129.5	50.0
15°	1744.7	1726.7	1732.4	1703.7	1689.0	1623.4	1540.7	1486.6	804.7	128.7	45.9
17.5°	2367.5	2332.3	2329.0	2279.8	2243.8	2125.0	1976.6	1865.2	912.1	118.8	44.3
20°	3147.7	3083.8	3062.5	2984.6	2924.0	2727.3	2498.6	2317.5	979.3	105.7	50.8
22.5°	4082.7	3970.5	3907.4	3782.8	3678.7	3363.2	3028.0	2756.8	1008.8	101.6	72.9
25°	5172.7	4980.1	4846.5	4650.6	4475.3	3990.9	3520.6	3140.3	1008.8	131.9	170.5
27.5°	6278.2	5974.1	5728.3	5442.3	5175.9	4489.2	3882.8	3387.8	984.2	164.7	155.7
30°	6837.9	6464.2	6129.8	5795.5	5461.1	4635.9	3963.9	3418.1	891.6	96.7	54.9
32.5°	6600.2	6206.0	5836.5	5512.8	5182.5	4376.9	3744.3	3217.3	749.0	56.5	35.2
35°	5688.9	5347.2	5026.0	4784.2	4526.9	3891.0	3324.7	2865.8	595.8	44.3	23.8
37.5°	4540.8	4308.1	4079.5	3924.6	3740.2	3262.4	2806.0	2429.8	426.1	32.0	14.8
40°	3522.2	3363.2	3203.4	3105.1	2974.8	2626.5	2270.8	1971.7	251.6	22.1	9.8
42.5°	2697.8	2588.0	2469.1	2401.1	2307.7	2047.9	1770.1	1558.7	116.4	15.6	7.4
45°	1983.2	1902.1	1811.1	1767.7	1702.1	1530.8	1346.4	1197.3	65.6	11.5	4.9
47.5°	1335.0	1262.8	1178.4	1151.4	1088.3	938.3	749.8	603.1	43.4	8.2	4.1
50°	531.0	483.5	454.8	417.1	380.2	318.8	238.5	190.1	26.2	6.6	3.3
52.5°	195.0	184.4	179.5	169.6	161.4	144.2	122.1	105.7	15.6	4.9	2.5
55°	101.6	95.1	91.8	88.5	83.6	73.8	61.5	52.4	9.8	3.3	2.5
57.5°	44.3	41.8	42.6	39.3	36.9	33.6	29.5	25.4	6.6	3.3	2.5
60°	21.3	19.7	20.5	18.8	18.0	17.2	15.6	13.1	4.1	2.5	1.6
62.5°	10.7	10.7	10.7	9.8	9.8	9.0	8.2	7.4	3.3	2.5	2.5
65°	5.7	4.9	5.7	4.9	4.9	4.9	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	1.6	2.5	2.5
70°	1.6	1.6	1.6	1.6	1.6	1.6	0.8	1.6	1.6	2.5	2.5
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.5	2.5
75°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.6	2.5	2.5
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.5	2.5
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.6	2.5	2.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.6	2.5	2.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.5	2.5
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	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°	70.5	70.5	70.5	70.5
2.5°	59.0	52.4	47.5	46.7
5°	50.0	41.8	36.1	35.2
7.5°	42.6	33.6	28.7	27.9
10°	37.7	28.7	23.8	22.9
12.5°	33.6	25.4	22.1	21.3
15°	31.1	25.4	24.6	25.4
17.5°	33.6	34.4	37.7	41.8
20°	55.7	79.5	103.3	120.5
22.5°	125.4	231.9	307.3	343.4
25°	236.8	268.0	268.8	256.5
27.5°	128.7	102.4	91.8	86.9
30°	50.8	48.4	48.4	47.5
32.5°	33.6	31.1	30.3	29.5
35°	20.5	18.0	17.2	17.2
37.5°	13.1	11.5	10.7	9.8
40°	9.0	7.4	6.6	5.7
42.5°	6.6	4.9	3.3	3.3
45°	4.9	3.3	1.6	1.6
47.5°	4.1	2.5	0.8	0.8
50°	3.3	1.6	0.8	0.0
52.5°	2.5	1.6	0.0	0.0
55°	2.5	1.6	0.0	0.0
57.5°	2.5	1.6	0.0	0.0
60°	2.5	1.6	0.0	0.0
62.5°	2.5	1.6	0.0	0.0
65°	2.5	1.6	0.8	0.0
67.5°	3.3	1.6	0.8	0.0
70°	3.3	1.6	0.8	0.0
72.5°	3.3	1.6	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)