

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: P170750

Luminaire Tested: **LDA4A09830D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170750
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: LDA4A09830D010TE 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: 943.1 lumens
Efficiency: N/A
Efficacy: 68.1 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

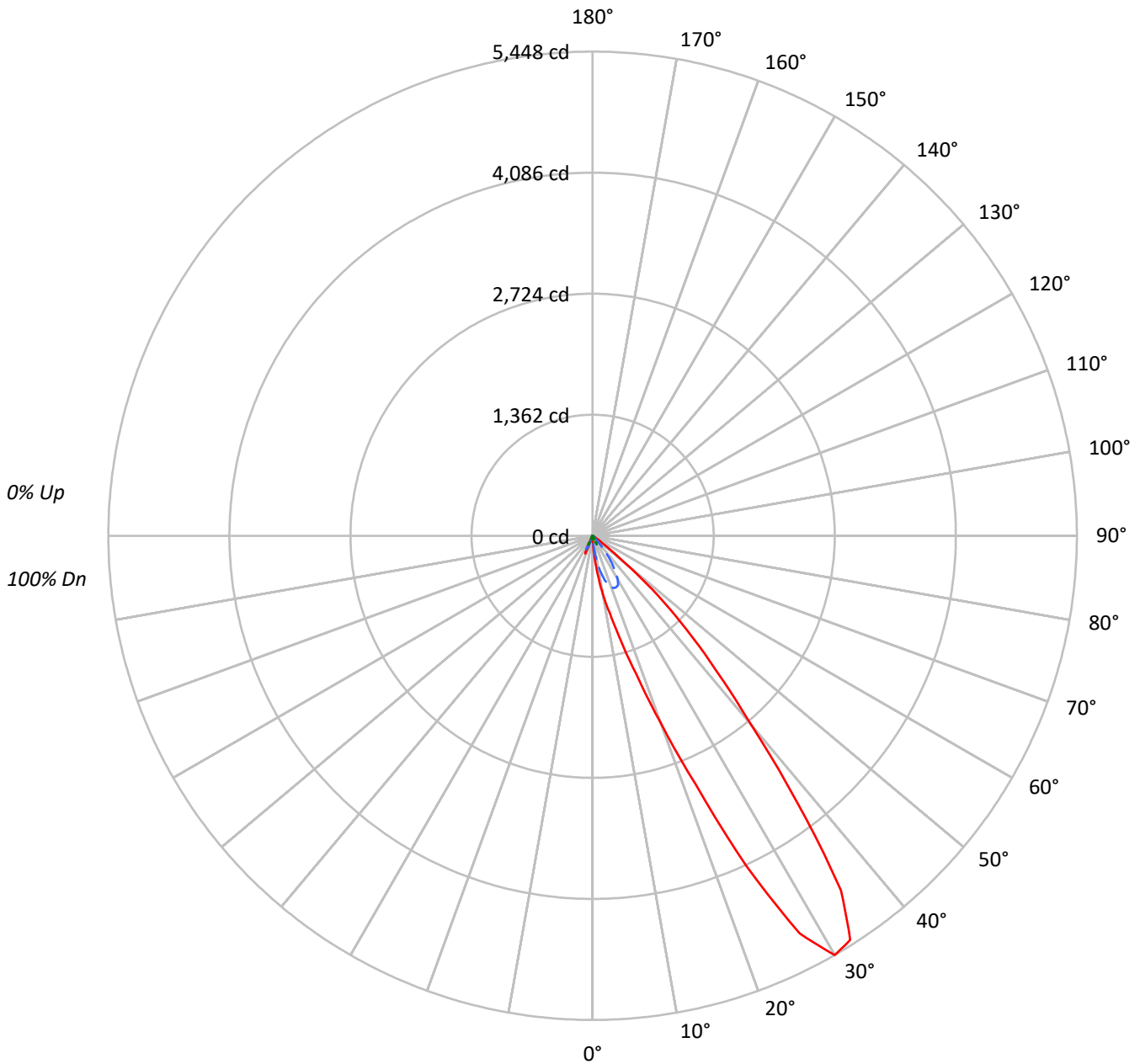
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	5489	5489	5489
5°	28948	5188	2749
10°	84668	4409	1816
15°	154015	3703	2043
20°	293816	4213	9976
25°	558392	14644	22034
30°	775958	4942	4273
35°	733296	2259	1641
40°	444437	998	580
45°	260452	541	174
50°	86447	403	0
55°	16451	344	0
60°	3700	247	0
65°	1051	467	0
70°	361	577	0
75°	0	763	0
80°	0	1137	0
85°	0	2264	708



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	10.6	1.1
10°-20°	86.8	9.2
20°-30°	307.7	32.6
30°-40°	364.8	38.7
40°-50°	155.2	16.5
50°-60°	14.0	1.5
60°-70°	1.7	0.2
70°-80°	1.2	0.1
80°-90°	1.1	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°	405.1	43.0
0°-40°	769.9	81.6
0°-60°	939.2	99.6
0°-90°	943.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	943.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	44	44	44	44	44	
5°	234	115	42	26	22	36
15°	1206	508	29	16	16	389
25°	4103	637	108	169	162	1901
35°	4870	376	15	11	11	2813
45°	1493	41	3	2	1	1170
55°	76	6	2	1	0	107
65°	4	2	2	1	0	5
75°	0	1	2	2	0	0
85°	0	1	2	2	0	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°	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5
2.5°	81.7	77.1	80.2	79.1	79.6	81.2	79.6	79.6	79.1	77.1	77.1
5°	233.8	219.8	226.5	222.9	225.0	227.6	223.9	222.9	221.4	216.7	215.7
7.5°	435.5	427.7	436.0	429.8	435.5	436.5	431.3	430.3	427.7	421.0	418.4
10°	676.0	663.0	670.8	664.1	672.9	672.3	664.1	665.1	662.0	653.2	649.1
12.5°	889.0	878.7	886.5	867.3	889.0	875.1	876.6	878.7	874.6	863.2	858.0
15°	1206.1	1177.6	1191.1	1158.0	1191.1	1186.4	1168.3	1167.3	1156.4	1137.3	1125.9
17.5°	1627.1	1634.8	1625.0	1605.4	1649.3	1637.4	1611.6	1606.4	1585.7	1533.5	1532.4
20°	2238.4	2228.0	2244.6	2182.5	2238.9	2184.1	2176.8	2162.4	2127.2	2054.3	2042.9
22.5°	3020.9	3026.6	2997.1	2954.2	3023.5	2938.7	2912.8	2878.2	2814.0	2701.8	2666.6
25°	4102.9	4095.6	4057.3	3986.0	4059.9	3922.9	3858.2	3786.9	3667.4	3492.6	3408.3
27.5°	5045.7	5075.2	5049.8	4977.4	5026.6	4891.6	4742.6	4697.1	4535.2	4314.9	4162.9
30°	5448.1	5462.0	5451.2	5395.8	5413.4	5302.2	5154.8	5101.0	4935.0	4726.6	4529.5
32.5°	5392.7	5399.5	5401.5	5327.6	5330.7	5225.7	5071.6	4991.9	4810.9	4610.2	4374.9
35°	4869.9	4897.8	4915.9	4846.6	4777.8	4673.3	4498.5	4374.9	4184.6	4001.5	3761.0
37.5°	3771.3	3806.5	3834.4	3775.5	3742.9	3616.7	3471.4	3375.7	3244.3	3136.8	2966.1
40°	2760.2	2767.0	2784.0	2753.5	2702.8	2669.2	2585.9	2531.6	2452.0	2394.1	2280.8
42.5°	2051.7	2048.1	2060.0	2042.9	2041.3	1990.7	1937.9	1905.8	1878.4	1817.4	1737.8
45°	1493.1	1494.2	1505.5	1494.7	1465.7	1454.9	1420.2	1391.2	1355.0	1335.9	1272.8
47.5°	1015.2	1018.3	1026.1	1019.9	993.5	989.4	967.1	938.2	937.7	908.2	852.8
50°	450.5	451.5	460.8	458.7	427.2	431.3	416.9	390.5	397.7	380.1	337.7
52.5°	149.5	150.0	151.5	150.5	145.3	145.3	141.7	141.2	137.1	132.9	123.6
55°	76.5	76.5	77.6	77.1	74.5	74.5	70.3	72.9	70.9	69.3	63.6
57.5°	32.6	32.6	33.1	33.1	31.5	33.1	31.5	31.5	30.5	30.0	27.9
60°	15.0	15.0	15.0	15.0	14.5	15.5	14.5	14.5	14.5	14.0	12.9
62.5°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.2	7.2	7.2	6.7
65°	3.6	3.6	3.6	3.6	3.6	4.1	3.6	3.6	3.6	3.6	3.6
67.5°	1.6	1.6	1.6	2.1	2.1	2.1	2.1	2.1	1.6	1.6	1.6
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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°	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5	44.5
2.5°	77.6	75.0	78.6	75.5	77.6	75.5	72.9	74.0	59.5	49.7	44.0
5°	216.2	208.4	215.2	208.4	208.9	205.3	195.5	194.5	115.3	56.4	41.9
7.5°	407.0	406.0	414.3	405.5	404.4	395.6	377.5	370.3	208.9	66.2	38.8
10°	646.5	631.5	638.7	629.4	626.3	610.3	584.4	570.5	310.8	76.0	35.2
12.5°	843.5	837.8	843.0	834.2	831.1	809.4	778.9	760.3	415.3	81.7	31.5
15°	1101.1	1089.7	1093.3	1075.2	1065.9	1024.6	972.3	938.2	507.9	81.2	29.0
17.5°	1494.2	1471.9	1469.9	1438.8	1416.1	1341.1	1247.5	1177.1	575.6	75.0	27.9
20°	1986.5	1946.2	1932.7	1883.6	1845.3	1721.2	1576.9	1462.6	618.0	66.7	32.1
22.5°	2576.6	2505.8	2466.0	2387.3	2321.7	2122.5	1911.0	1739.8	636.7	64.1	46.0
25°	3264.5	3143.0	3058.7	2935.0	2824.4	2518.7	2221.8	1981.9	636.7	83.3	107.6
27.5°	3962.2	3770.3	3615.2	3434.7	3266.6	2833.2	2450.4	2138.1	621.1	104.0	98.3
30°	4315.4	4079.6	3868.6	3657.6	3446.5	2925.7	2501.6	2157.2	562.7	61.0	34.7
32.5°	4165.4	3916.7	3683.4	3479.1	3270.7	2762.3	2363.0	2030.5	472.7	35.7	22.2
35°	3590.3	3374.7	3171.9	3019.3	2857.0	2455.6	2098.2	1808.6	376.0	27.9	15.0
37.5°	2865.7	2718.9	2574.6	2476.8	2360.5	2058.9	1770.9	1533.5	268.9	20.2	9.3
40°	2222.9	2122.5	2021.7	1959.6	1877.4	1657.6	1433.1	1244.4	158.8	14.0	6.2
42.5°	1702.6	1633.3	1558.3	1515.4	1456.4	1292.5	1117.1	983.7	73.4	9.8	4.7
45°	1251.6	1200.4	1143.0	1115.6	1074.2	966.1	849.7	755.6	41.4	7.2	3.1
47.5°	842.5	797.0	743.7	726.7	686.8	592.2	473.2	380.7	27.4	5.2	2.6
50°	335.1	305.1	287.0	263.2	240.0	201.2	150.5	120.0	16.6	4.1	2.1
52.5°	123.1	116.4	113.3	107.1	101.9	91.0	77.1	66.7	9.8	3.1	1.6
55°	64.1	60.0	57.9	55.9	52.8	46.5	38.8	33.1	6.2	2.1	1.6
57.5°	27.9	26.4	26.9	24.8	23.3	21.2	18.6	16.0	4.1	2.1	1.6
60°	13.4	12.4	12.9	11.9	11.4	10.9	9.8	8.3	2.6	1.6	1.0
62.5°	6.7	6.7	6.7	6.2	6.2	5.7	5.2	4.7	2.1	1.6	1.6
65°	3.6	3.1	3.6	3.1	3.1	3.1	2.6	2.6	1.6	1.6	1.6
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.0	1.6	1.6
70°	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0	1.6	1.6
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.6	1.6
75°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.6	1.6
77.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.6	1.6
80°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.6	1.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.6	1.6
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°	44.5	44.5	44.5	44.5
2.5°	37.2	33.1	30.0	29.5
5°	31.5	26.4	22.8	22.2
7.5°	26.9	21.2	18.1	17.6
10°	23.8	18.1	15.0	14.5
12.5°	21.2	16.0	14.0	13.4
15°	19.7	16.0	15.5	16.0
17.5°	21.2	21.7	23.8	26.4
20°	35.2	50.2	65.2	76.0
22.5°	79.1	146.4	193.9	216.7
25°	149.5	169.1	169.6	161.9
27.5°	81.2	64.6	57.9	54.8
30°	32.1	30.5	30.5	30.0
32.5°	21.2	19.7	19.1	18.6
35°	12.9	11.4	10.9	10.9
37.5°	8.3	7.2	6.7	6.2
40°	5.7	4.7	4.1	3.6
42.5°	4.1	3.1	2.1	2.1
45°	3.1	2.1	1.0	1.0
47.5°	2.6	1.6	0.5	0.5
50°	2.1	1.0	0.5	0.0
52.5°	1.6	1.0	0.0	0.0
55°	1.6	1.0	0.0	0.0
57.5°	1.6	1.0	0.0	0.0
60°	1.6	1.0	0.0	0.0
62.5°	1.6	1.0	0.0	0.0
65°	1.6	1.0	0.5	0.0
67.5°	2.1	1.0	0.5	0.0
70°	2.1	1.0	0.5	0.0
72.5°	2.1	1.0	0.5	0.0
75°	2.1	1.6	0.5	0.0
77.5°	2.1	1.6	0.5	0.0
80°	2.1	1.6	0.5	0.0
82.5°	2.1	1.6	0.5	0.0
85°	2.1	1.6	0.5	0.5
87.5°	2.1	1.6	0.5	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)