

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: P170752

Luminaire Tested: **LDA4A09840D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170752
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: LDA4A09840D010TE 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: 1016.9 lumens
Efficiency: N/A
Efficacy: 73.5 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

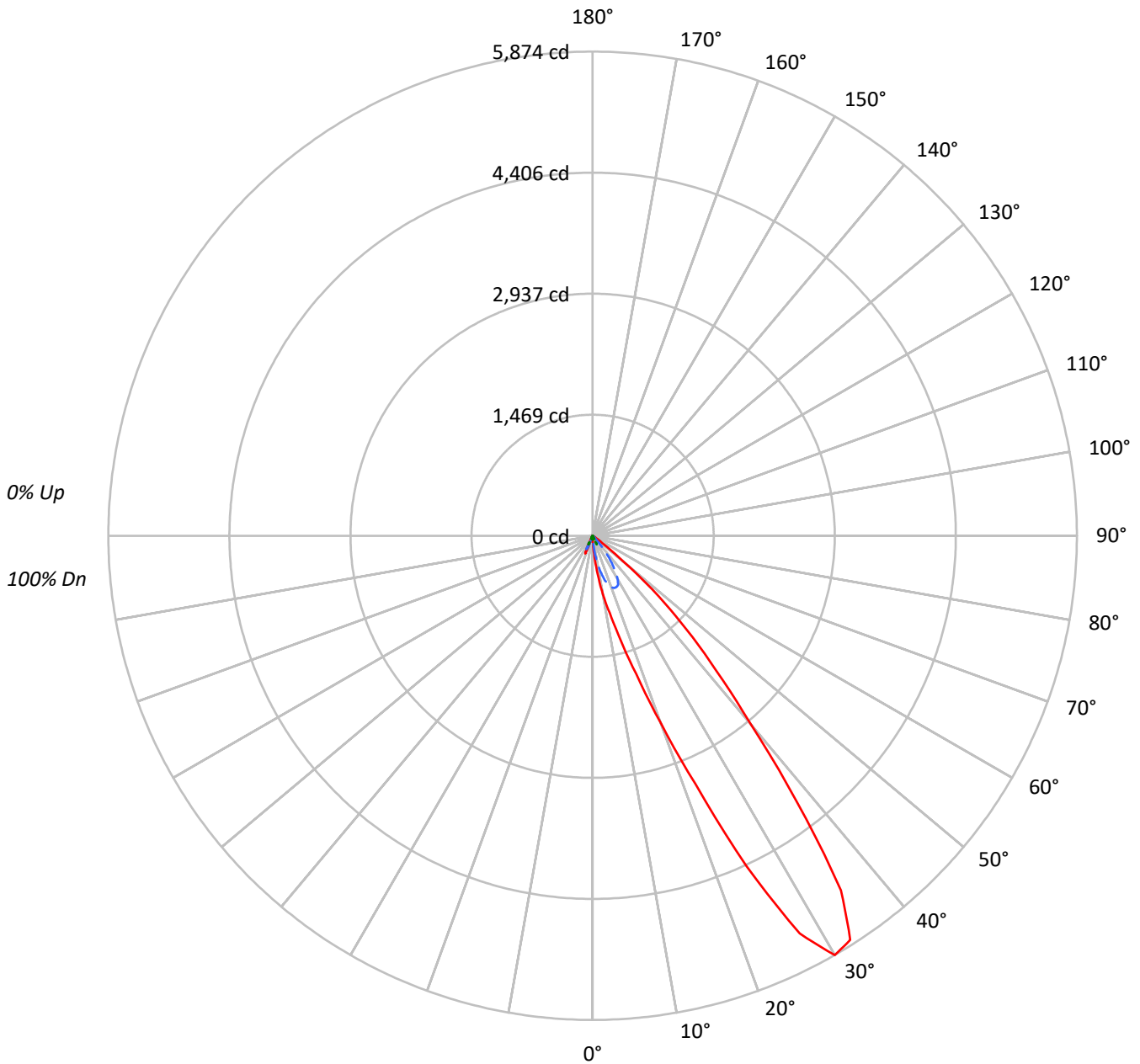
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	5921	5921	5921
5°	31214	5597	2972
10°	91294	4747	1954
15°	166070	3984	2209
20°	316813	4542	10763
25°	602079	15787	23749
30°	836675	5327	4600
35°	790666	2439	1762
40°	479217	1079	628
45°	280844	576	192
50°	93202	422	0
55°	17741	366	0
60°	3996	271	0
65°	1138	496	0
70°	397	613	0
75°	0	810	0
80°	0	1208	0
85°	0	2406	849



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	11.4	1.1
10°-20°	93.6	9.2
20°-30°	331.8	32.6
30°-40°	393.4	38.7
40°-50°	167.4	16.5
50°-60°	15.1	1.5
60°-70°	1.9	0.2
70°-80°	1.3	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°	436.8	43.0
0°-40°	830.2	81.6
0°-60°	1012.7	99.6
0°-90°	1016.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1016.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	48	48	48	48	48	
5°	252	124	45	28	24	39
15°	1300	548	31	17	17	420
25°	4424	686	116	182	174	2050
35°	5251	405	16	12	12	3033
45°	1610	45	3	2	1	1262
55°	82	7	2	1	0	116
65°	4	2	2	1	0	6
75°	0	1	2	2	0	0
85°	0	1	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°	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
2.5°	88.1	83.1	86.4	85.3	85.9	87.6	85.9	85.9	85.3	83.1	83.1
5°	252.1	237.0	244.3	240.4	242.6	245.4	241.5	240.4	238.7	233.7	232.5
7.5°	469.5	461.2	470.1	463.4	469.5	470.7	465.1	464.0	461.2	453.9	451.1
10°	728.9	714.9	723.3	716.0	725.5	725.0	716.0	717.2	713.8	704.3	699.9
12.5°	958.6	947.5	955.8	935.2	958.6	943.6	945.2	947.5	943.0	930.7	925.2
15°	1300.5	1269.8	1284.3	1248.6	1284.3	1279.3	1259.8	1258.6	1246.9	1226.3	1214.0
17.5°	1754.4	1762.8	1752.2	1731.0	1778.4	1765.6	1737.7	1732.1	1709.8	1653.5	1652.3
20°	2413.6	2402.4	2420.2	2353.3	2414.1	2355.0	2347.2	2331.6	2293.7	2215.0	2202.8
22.5°	3257.3	3263.4	3231.6	3185.4	3260.1	3168.6	3140.7	3103.4	3034.2	2913.2	2875.3
25°	4423.9	4416.1	4374.8	4297.9	4377.6	4229.9	4160.1	4083.2	3954.4	3765.9	3675.0
27.5°	5440.5	5472.3	5445.0	5366.9	5419.9	5274.3	5113.7	5064.7	4890.1	4652.6	4488.6
30°	5874.4	5889.4	5877.7	5818.1	5837.0	5717.1	5558.2	5500.2	5321.2	5096.5	4884.0
32.5°	5814.7	5822.0	5824.2	5744.5	5747.8	5634.6	5468.4	5382.5	5187.4	4971.0	4717.2
35°	5250.9	5281.0	5300.6	5225.8	5151.7	5039.0	4850.5	4717.2	4512.0	4314.6	4055.3
37.5°	4066.5	4104.4	4134.5	4070.9	4035.8	3899.7	3743.0	3639.8	3498.2	3382.2	3198.2
40°	2976.2	2983.5	3001.9	2969.0	2914.3	2878.1	2788.3	2729.7	2643.9	2581.4	2459.3
42.5°	2212.2	2208.3	2221.2	2202.8	2201.1	2146.4	2089.6	2055.0	2025.4	1959.6	1873.7
45°	1610.0	1611.1	1623.3	1611.6	1580.4	1568.7	1531.3	1500.1	1461.1	1440.4	1372.4
47.5°	1094.7	1098.0	1106.4	1099.7	1071.3	1066.8	1042.8	1011.6	1011.0	979.3	919.6
50°	485.7	486.8	496.9	494.6	460.6	465.1	449.5	421.0	428.8	409.9	364.2
52.5°	161.2	161.7	163.4	162.3	156.7	156.7	152.8	152.2	147.8	143.3	133.3
55°	82.5	82.5	83.6	83.1	80.3	80.3	75.8	78.6	76.4	74.7	68.6
57.5°	35.1	35.1	35.7	35.7	34.0	35.7	34.0	34.0	32.9	32.3	30.1
60°	16.2	16.2	16.2	16.2	15.6	16.7	15.6	15.6	15.6	15.1	13.9
62.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	7.8	7.8	7.8	7.2
65°	3.9	3.9	3.9	3.9	3.9	4.5	3.9	3.9	3.9	3.9	3.9
67.5°	1.7	1.7	1.7	2.2	2.2	2.2	2.2	2.2	1.7	1.7	1.7
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.6
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
2.5°	83.6	80.9	84.8	81.4	83.6	81.4	78.6	79.7	64.1	53.5	47.4
5°	233.1	224.7	232.0	224.7	225.3	221.4	210.8	209.7	124.4	60.8	45.2
7.5°	438.9	437.8	446.7	437.2	436.1	426.6	407.1	399.3	225.3	71.4	41.8
10°	697.1	680.9	688.7	678.7	675.3	658.0	630.2	615.1	335.2	82.0	37.9
12.5°	909.5	903.4	909.0	899.5	896.2	872.7	839.8	819.8	447.8	88.1	34.0
15°	1187.3	1175.0	1178.9	1159.4	1149.3	1104.7	1048.4	1011.6	547.6	87.6	31.2
17.5°	1611.1	1587.1	1584.9	1551.4	1526.9	1446.0	1345.1	1269.2	620.7	80.9	30.1
20°	2142.0	2098.5	2084.0	2031.0	1989.7	1855.9	1700.3	1577.1	666.4	71.9	34.6
22.5°	2778.3	2701.9	2658.9	2574.2	2503.3	2288.6	2060.6	1876.0	686.5	69.1	49.6
25°	3519.9	3388.9	3298.0	3164.7	3045.4	2715.8	2395.7	2137.0	686.5	89.8	116.0
27.5°	4272.2	4065.3	3898.0	3703.4	3522.2	3054.9	2642.2	2305.4	669.7	112.1	106.0
30°	4653.1	4398.8	4171.3	3943.8	3716.2	3154.7	2697.4	2326.0	606.7	65.8	37.4
32.5°	4491.4	4223.2	3971.7	3751.4	3526.6	2978.5	2547.9	2189.4	509.7	38.5	24.0
35°	3871.3	3638.7	3420.1	3255.6	3080.5	2647.8	2262.4	1950.1	405.4	30.1	16.2
37.5°	3090.0	2931.6	2776.0	2670.6	2545.2	2220.0	1909.4	1653.5	290.0	21.7	10.0
40°	2396.8	2288.6	2179.9	2113.0	2024.3	1787.3	1545.3	1341.7	171.2	15.1	6.7
42.5°	1835.8	1761.1	1680.2	1633.9	1570.4	1393.6	1204.5	1060.7	79.2	10.6	5.0
45°	1349.5	1294.3	1232.4	1202.9	1158.3	1041.7	916.2	814.7	44.6	7.8	3.3
47.5°	908.4	859.4	801.9	783.5	740.6	638.5	510.3	410.4	29.6	5.6	2.8
50°	361.4	329.0	309.5	283.8	258.8	216.9	162.3	129.4	17.8	4.5	2.2
52.5°	132.7	125.5	122.1	115.4	109.9	98.1	83.1	71.9	10.6	3.3	1.7
55°	69.1	64.7	62.5	60.2	56.9	50.2	41.8	35.7	6.7	2.2	1.7
57.5°	30.1	28.4	29.0	26.8	25.1	22.9	20.1	17.3	4.5	2.2	1.7
60°	14.5	13.4	13.9	12.8	12.3	11.7	10.6	8.9	2.8	1.7	1.1
62.5°	7.2	7.2	7.2	6.7	6.7	6.1	5.6	5.0	2.2	1.7	1.7
65°	3.9	3.3	3.9	3.3	3.3	3.3	2.8	2.8	1.7	1.7	1.7
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.1	1.7	1.7
70°	1.1	1.1	1.1	1.1	1.1	1.1	0.6	1.1	1.1	1.7	1.7
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.7	1.7
75°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.1	1.7	1.7
77.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	1.7
80°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.1	1.7	1.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	1.1	1.7	1.7
85°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	1.7
87.5°	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	1.1	1.7	1.7
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°	48.0	48.0	48.0	48.0
2.5°	40.2	35.7	32.3	31.8
5°	34.0	28.4	24.5	24.0
7.5°	29.0	22.9	19.5	19.0
10°	25.7	19.5	16.2	15.6
12.5°	22.9	17.3	15.1	14.5
15°	21.2	17.3	16.7	17.3
17.5°	22.9	23.4	25.7	28.4
20°	37.9	54.1	70.3	82.0
22.5°	85.3	157.8	209.1	233.7
25°	161.2	182.4	182.9	174.5
27.5°	87.6	69.7	62.5	59.1
30°	34.6	32.9	32.9	32.3
32.5°	22.9	21.2	20.6	20.1
35°	13.9	12.3	11.7	11.7
37.5°	8.9	7.8	7.2	6.7
40°	6.1	5.0	4.5	3.9
42.5°	4.5	3.3	2.2	2.2
45°	3.3	2.2	1.1	1.1
47.5°	2.8	1.7	0.6	0.6
50°	2.2	1.1	0.6	0.0
52.5°	1.7	1.1	0.0	0.0
55°	1.7	1.1	0.0	0.0
57.5°	1.7	1.1	0.0	0.0
60°	1.7	1.1	0.0	0.0
62.5°	1.7	1.1	0.0	0.0
65°	1.7	1.1	0.6	0.0
67.5°	2.2	1.1	0.6	0.0
70°	2.2	1.1	0.6	0.0
72.5°	2.2	1.1	0.6	0.0
75°	2.2	1.7	0.6	0.0
77.5°	2.2	1.7	0.6	0.0
80°	2.2	1.7	0.6	0.0
82.5°	2.2	1.7	0.6	0.0
85°	2.2	1.7	0.6	0.6
87.5°	2.2	1.7	0.6	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)