

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: P170754

Luminaire Tested: **LDA4A09930D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170754
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: LDA4A09930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 806.5 lumens
Efficiency: N/A
Efficacy: 58.3 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

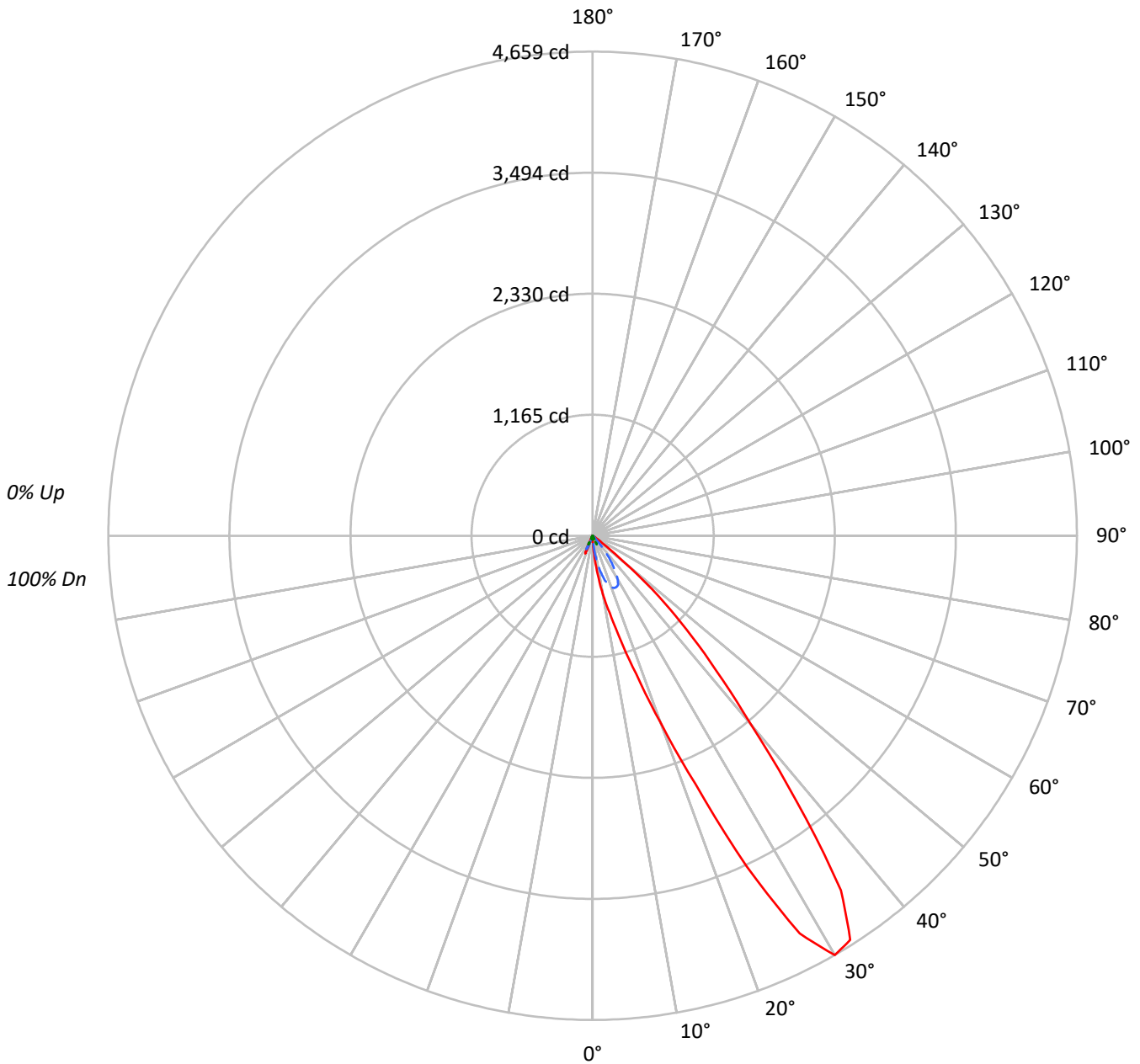
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	37	35								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4687	4687	4687
5°	24751	4433	2353
10°	72406	3770	1553
15°	131706	3167	1749
20°	251261	3597	8532
25°	477523	12521	18836
30°	663583	4216	3660
35°	627094	1927	1400
40°	380079	853	499
45°	222739	471	157
50°	73917	345	0
55°	14086	280	0
60°	3158	222	0
65°	905	379	0
70°	325	469	0
75°	0	620	0
80°	0	923	0
85°	0	1840	566



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.1	1.1
10°-20°	74.2	9.2
20°-30°	263.1	32.6
30°-40°	312.0	38.7
40°-50°	132.7	16.5
50°-60°	12.0	1.5
60°-70°	1.5	0.2
70°-80°	1.0	0.1
80°-90°	0.9	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°	346.4	43.0
0°-40°	658.4	81.6
0°-60°	803.2	99.6
0°-90°	806.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	806.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	38	38	38	38	38	
5°	200	99	36	23	19	31
15°	1031	434	25	14	14	333
25°	3509	544	92	145	138	1626
35°	4165	322	13	10	9	2406
45°	1277	35	3	2	1	1001
55°	66	5	1	1	0	92
65°	3	1	1	1	0	4
75°	0	1	1	1	0	0
85°	0	1	1	1	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°	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
2.5°	69.9	65.9	68.6	67.7	68.1	69.4	68.1	68.1	67.7	65.9	65.9
5°	199.9	188.0	193.7	190.6	192.4	194.6	191.5	190.6	189.3	185.3	184.4
7.5°	372.4	365.8	372.9	367.5	372.4	373.3	368.9	368.0	365.8	360.0	357.8
10°	578.1	567.0	573.7	567.9	575.4	575.0	567.9	568.8	566.1	558.6	555.1
12.5°	760.3	751.5	758.1	741.7	760.3	748.4	749.7	751.5	747.9	738.2	733.8
15°	1031.4	1007.1	1018.6	990.3	1018.6	1014.6	999.1	998.3	989.0	972.6	962.9
17.5°	1391.4	1398.1	1389.7	1372.9	1410.5	1400.3	1378.2	1373.8	1356.1	1311.4	1310.5
20°	1914.2	1905.4	1919.5	1866.5	1914.7	1867.8	1861.6	1849.2	1819.1	1756.8	1747.0
22.5°	2583.4	2588.3	2563.1	2526.4	2585.6	2513.1	2491.0	2461.4	2406.5	2310.5	2280.5
25°	3508.7	3502.5	3469.8	3408.7	3472.0	3354.8	3299.5	3238.5	3136.3	2986.8	2914.7
27.5°	4315.0	4340.2	4318.5	4256.6	4298.6	4183.2	4055.8	4016.9	3878.5	3690.0	3560.0
30°	4659.1	4671.0	4661.7	4614.4	4629.5	4534.4	4408.3	4362.3	4220.3	4042.1	3873.6
32.5°	4611.8	4617.5	4619.3	4556.0	4558.7	4468.9	4337.1	4269.0	4114.2	3942.6	3741.3
35°	4164.6	4188.5	4204.0	4144.7	4085.9	3996.5	3847.0	3741.3	3578.6	3422.0	3216.3
37.5°	3225.2	3255.3	3279.1	3228.7	3200.9	3092.9	2968.7	2886.8	2774.5	2682.5	2536.5
40°	2360.5	2366.3	2380.9	2354.8	2311.4	2282.7	2211.5	2165.0	2096.9	2047.4	1950.5
42.5°	1754.6	1751.5	1761.6	1747.0	1745.7	1702.4	1657.3	1629.8	1606.4	1554.2	1486.1
45°	1276.9	1277.8	1287.5	1278.2	1253.5	1244.2	1214.5	1189.8	1158.8	1142.4	1088.5
47.5°	868.2	870.9	877.5	872.2	849.6	846.1	827.1	802.3	801.9	776.7	729.3
50°	385.2	386.1	394.1	392.3	365.3	368.9	356.5	333.9	340.1	325.1	288.8
52.5°	127.8	128.3	129.6	128.7	124.3	124.3	121.2	120.7	117.2	113.7	105.7
55°	65.5	65.5	66.3	65.9	63.7	63.7	60.2	62.4	60.6	59.3	54.4
57.5°	27.9	27.9	28.3	28.3	27.0	28.3	27.0	27.0	26.1	25.7	23.9
60°	12.8	12.8	12.8	12.8	12.4	13.3	12.4	12.4	12.4	11.9	11.1
62.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.2	6.2	6.2	5.7
65°	3.1	3.1	3.1	3.1	3.1	3.5	3.1	3.1	3.1	3.1	3.1
67.5°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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°	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
2.5°	66.3	64.1	67.2	64.6	66.3	64.6	62.4	63.2	50.9	42.5	37.6
5°	184.9	178.2	184.0	178.2	178.7	175.6	167.2	166.3	98.6	48.2	35.8
7.5°	348.1	347.2	354.3	346.8	345.9	338.4	322.9	316.7	178.7	56.6	33.2
10°	552.9	540.0	546.2	538.3	535.6	521.9	499.8	487.8	265.8	65.0	30.1
12.5°	721.4	716.5	720.9	713.4	710.8	692.2	666.1	650.2	355.2	69.9	27.0
15°	941.6	931.9	935.0	919.5	911.6	876.2	831.5	802.3	434.3	69.4	24.8
17.5°	1277.8	1258.8	1257.0	1230.5	1211.0	1146.9	1066.8	1006.7	492.3	64.1	23.9
20°	1698.8	1664.3	1652.8	1610.8	1578.1	1471.9	1348.5	1250.8	528.5	57.1	27.4
22.5°	2203.5	2142.9	2108.8	2041.6	1985.4	1815.2	1634.3	1487.9	544.5	54.8	39.4
25°	2791.7	2687.8	2615.7	2510.0	2415.4	2154.0	1900.1	1694.9	544.5	71.2	92.0
27.5°	3388.4	3224.3	3091.6	2937.3	2793.5	2422.9	2095.6	1828.4	531.2	88.9	84.0
30°	3690.5	3488.8	3308.3	3127.9	2947.4	2502.0	2139.4	1844.8	481.2	52.2	29.6
32.5°	3562.2	3349.5	3150.0	2975.3	2797.0	2362.3	2020.8	1736.4	404.3	30.5	19.0
35°	3070.4	2885.9	2712.6	2582.1	2443.2	2100.0	1794.4	1546.7	321.5	23.9	12.8
37.5°	2450.7	2325.1	2201.7	2118.1	2018.6	1760.8	1514.4	1311.4	230.0	17.2	8.0
40°	1901.0	1815.2	1728.9	1675.8	1605.5	1417.5	1225.6	1064.2	135.8	11.9	5.3
42.5°	1456.0	1396.8	1332.6	1295.9	1245.5	1105.3	955.3	841.2	62.8	8.4	4.0
45°	1070.3	1026.6	977.5	954.0	918.6	826.2	726.7	646.2	35.4	6.2	2.7
47.5°	720.5	681.6	636.0	621.4	587.4	506.4	404.7	325.5	23.4	4.4	2.2
50°	286.6	261.0	245.5	225.1	205.2	172.1	128.7	102.6	14.2	3.5	1.8
52.5°	105.3	99.5	96.9	91.6	87.1	77.8	65.9	57.1	8.4	2.7	1.3
55°	54.8	51.3	49.5	47.8	45.1	39.8	33.2	28.3	5.3	1.8	1.3
57.5°	23.9	22.6	23.0	21.2	19.9	18.1	15.9	13.7	3.5	1.8	1.3
60°	11.5	10.6	11.1	10.2	9.7	9.3	8.4	7.1	2.2	1.3	0.9
62.5°	5.7	5.7	5.7	5.3	5.3	4.9	4.4	4.0	1.8	1.3	1.3
65°	3.1	2.7	3.1	2.7	2.7	2.7	2.2	2.2	1.3	1.3	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.9	1.3	1.3
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.9	0.9	1.3	1.3
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
75°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.9	1.3	1.3
77.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	1.3	1.3
80°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.9	1.3	1.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.9	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	1.3	1.3
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	1.3	1.3
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°	38.0	38.0	38.0	38.0
2.5°	31.8	28.3	25.7	25.2
5°	27.0	22.6	19.5	19.0
7.5°	23.0	18.1	15.5	15.0
10°	20.3	15.5	12.8	12.4
12.5°	18.1	13.7	11.9	11.5
15°	16.8	13.7	13.3	13.7
17.5°	18.1	18.6	20.3	22.6
20°	30.1	42.9	55.7	65.0
22.5°	67.7	125.2	165.9	185.3
25°	127.8	144.6	145.1	138.4
27.5°	69.4	55.3	49.5	46.9
30°	27.4	26.1	26.1	25.7
32.5°	18.1	16.8	16.4	15.9
35°	11.1	9.7	9.3	9.3
37.5°	7.1	6.2	5.7	5.3
40°	4.9	4.0	3.5	3.1
42.5°	3.5	2.7	1.8	1.8
45°	2.7	1.8	0.9	0.9
47.5°	2.2	1.3	0.4	0.4
50°	1.8	0.9	0.4	0.0
52.5°	1.3	0.9	0.0	0.0
55°	1.3	0.9	0.0	0.0
57.5°	1.3	0.9	0.0	0.0
60°	1.3	0.9	0.0	0.0
62.5°	1.3	0.9	0.0	0.0
65°	1.3	0.9	0.4	0.0
67.5°	1.8	0.9	0.4	0.0
70°	1.8	0.9	0.4	0.0
72.5°	1.8	0.9	0.4	0.0
75°	1.8	1.3	0.4	0.0
77.5°	1.8	1.3	0.4	0.0
80°	1.8	1.3	0.4	0.0
82.5°	1.8	1.3	0.4	0.0
85°	1.8	1.3	0.4	0.4
87.5°	1.8	1.3	0.4	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)