

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: P170745

Luminaire Tested: **LDA4A18927D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170745
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: LDA4A18927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1286.4 lumens
Efficiency: N/A
Efficacy: 44.2 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

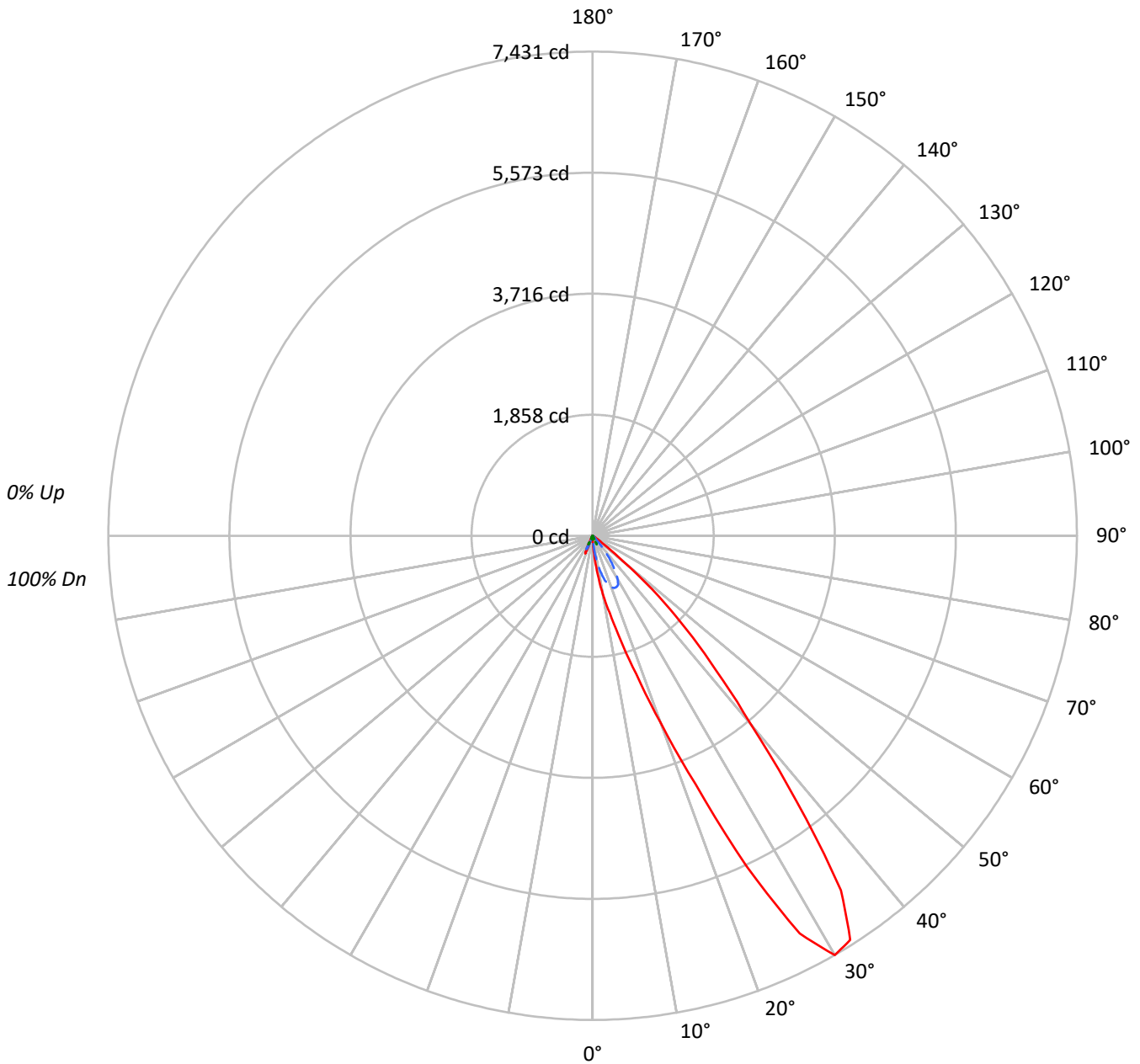
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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°	7487	7487	7487
5°	39485	7070	3752
10°	115479	6012	2480
15°	210074	5044	2797
20°	400768	5736	13612
25°	761652	19965	30050
30°	1058420	6737	5825
35°	1000224	3087	2229
40°	606242	1369	789
45°	355276	733	244
50°	117917	537	0
55°	22451	452	0
60°	5057	345	0
65°	1430	613	0
70°	505	757	0
75°	0	1001	0
80°	0	1492	0
85°	0	2972	991



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.5	1.1
10°-20°	118.4	9.2
20°-30°	419.7	32.6
30°-40°	497.6	38.7
40°-50°	211.7	16.5
50°-60°	19.1	1.5
60°-70°	2.3	0.2
70°-80°	1.6	0.1
80°-90°	1.4	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°	552.6	43.0
0°-40°	1050.2	81.6
0°-60°	1281.0	99.6
0°-90°	1286.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1286.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	61	61	61	61	61	
5°	319	157	57	36	30	50
15°	1645	693	40	22	22	531
25°	5596	868	147	231	221	2593
35°	6643	513	20	16	15	3837
45°	2037	56	4	3	1	1596
55°	104	8	2	1	0	146
65°	5	2	2	1	0	7
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°	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7
2.5°	111.5	105.1	109.3	107.9	108.6	110.8	108.6	108.6	107.9	105.1	105.1
5°	318.9	299.8	309.0	304.1	306.9	310.4	305.5	304.1	301.9	295.6	294.2
7.5°	594.0	583.4	594.7	586.2	594.0	595.4	588.4	586.9	583.4	574.2	570.7
10°	922.0	904.4	915.0	905.8	917.8	917.1	905.8	907.2	903.0	891.0	885.4
12.5°	1212.7	1198.6	1209.2	1183.1	1212.7	1193.6	1195.8	1198.6	1192.9	1177.4	1170.4
15°	1645.1	1606.3	1624.7	1579.5	1624.7	1618.3	1593.6	1592.2	1577.4	1551.3	1535.8
17.5°	2219.4	2230.0	2216.6	2189.8	2249.7	2233.5	2198.2	2191.2	2162.9	2091.7	2090.3
20°	3053.2	3039.1	3061.7	2977.1	3053.9	2979.2	2969.3	2949.5	2901.6	2802.1	2786.6
22.5°	4120.6	4128.4	4088.2	4029.6	4124.1	4008.4	3973.2	3925.9	3838.4	3685.3	3637.4
25°	5596.4	5586.6	5534.4	5437.0	5537.9	5350.9	5262.8	5165.4	5002.4	4764.0	4649.0
27.5°	6882.5	6922.7	6888.1	6789.4	6856.4	6672.3	6469.1	6407.0	6186.2	5885.7	5678.3
30°	7431.3	7450.4	7435.6	7360.1	7384.1	7232.4	7031.3	6958.0	6731.5	6447.2	6178.4
32.5°	7355.9	7365.0	7367.9	7267.0	7271.2	7128.0	6917.8	6809.1	6562.2	6288.5	5967.5
35°	6642.6	6680.7	6705.4	6610.9	6517.1	6374.6	6136.1	5967.5	5707.9	5458.2	5130.1
37.5°	5144.2	5192.2	5230.3	5149.9	5105.4	4933.3	4735.1	4604.6	4425.4	4278.6	4045.8
40°	3765.1	3774.2	3797.5	3755.9	3686.7	3640.9	3527.3	3453.2	3344.6	3265.6	3111.1
42.5°	2798.6	2793.6	2809.9	2786.6	2784.5	2715.3	2643.4	2599.6	2562.2	2479.0	2370.4
45°	2036.7	2038.1	2053.6	2038.8	1999.3	1984.5	1937.2	1897.7	1848.3	1822.2	1736.1
47.5°	1384.8	1389.1	1399.6	1391.2	1355.2	1349.5	1319.2	1279.7	1279.0	1238.8	1163.3
50°	614.5	615.9	628.6	625.7	582.7	588.4	568.6	532.6	542.5	518.5	460.7
52.5°	203.9	204.6	206.7	205.3	198.2	198.2	193.3	192.6	186.9	181.3	168.6
55°	104.4	104.4	105.8	105.1	101.6	101.6	95.9	99.5	96.6	94.5	86.8
57.5°	44.4	44.4	45.1	45.1	43.0	45.1	43.0	43.0	41.6	40.9	38.1
60°	20.5	20.5	20.5	20.5	19.8	21.2	19.8	19.8	19.8	19.0	17.6
62.5°	10.6	10.6	10.6	10.6	10.6	10.6	10.6	9.9	9.9	9.9	9.2
65°	4.9	4.9	4.9	4.9	4.9	5.6	4.9	4.9	4.9	4.9	4.9
67.5°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.7
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7	60.7
2.5°	105.8	102.3	107.2	103.0	105.8	103.0	99.5	100.9	81.1	67.7	60.0
5°	294.9	284.3	293.5	284.3	285.0	280.1	266.7	265.3	157.3	76.9	57.1
7.5°	555.2	553.8	565.1	553.1	551.7	539.7	515.0	505.1	285.0	90.3	52.9
10°	881.8	861.4	871.2	858.5	854.3	832.4	797.2	778.1	424.0	103.7	48.0
12.5°	1150.6	1142.8	1149.9	1137.9	1133.7	1104.0	1062.4	1037.0	566.5	111.5	43.0
15°	1501.9	1486.4	1491.3	1466.7	1454.0	1397.5	1326.3	1279.7	692.8	110.8	39.5
17.5°	2038.1	2007.7	2004.9	1962.6	1931.6	1829.3	1701.6	1605.6	785.2	102.3	38.1
20°	2709.7	2654.7	2636.3	2569.3	2517.1	2347.8	2151.0	1995.0	843.0	91.0	43.7
22.5°	3514.6	3418.0	3363.6	3256.4	3166.8	2895.2	2606.7	2373.2	868.4	87.5	62.8
25°	4452.9	4287.1	4172.1	4003.5	3852.5	3435.6	3030.7	2703.3	868.4	113.6	146.7
27.5°	5404.5	5142.8	4931.2	4685.0	4455.7	3864.5	3342.5	2916.4	847.3	141.8	134.0
30°	5886.4	5564.7	5276.9	4989.0	4701.2	3990.8	3412.3	2942.5	767.5	83.2	47.3
32.5°	5681.8	5342.5	5024.3	4745.6	4461.3	3767.9	3223.3	2769.6	644.8	48.7	30.3
35°	4897.3	4603.1	4326.6	4118.5	3897.0	3349.5	2862.1	2467.0	512.9	38.1	20.5
37.5°	3909.0	3708.6	3511.8	3378.5	3219.7	2808.4	2415.5	2091.7	366.8	27.5	12.7
40°	3032.1	2895.2	2757.7	2673.0	2560.8	2261.0	1954.8	1697.3	216.6	19.0	8.5
42.5°	2322.4	2227.9	2125.6	2067.0	1986.6	1763.0	1523.8	1341.8	100.2	13.4	6.3
45°	1707.2	1637.4	1559.1	1521.7	1465.2	1317.8	1159.1	1030.7	56.4	9.9	4.2
47.5°	1149.2	1087.1	1014.5	991.2	936.9	807.8	645.5	519.2	37.4	7.1	3.5
50°	457.1	416.2	391.5	359.1	327.3	274.4	205.3	163.7	22.6	5.6	2.8
52.5°	167.9	158.7	154.5	146.0	139.0	124.2	105.1	91.0	13.4	4.2	2.1
55°	87.5	81.8	79.0	76.2	72.0	63.5	52.9	45.1	8.5	2.8	2.1
57.5°	38.1	36.0	36.7	33.9	31.7	28.9	25.4	21.9	5.6	2.8	2.1
60°	18.3	16.9	17.6	16.2	15.5	14.8	13.4	11.3	3.5	2.1	1.4
62.5°	9.2	9.2	9.2	8.5	8.5	7.8	7.1	6.3	2.8	2.1	2.1
65°	4.9	4.2	4.9	4.2	4.2	4.2	3.5	3.5	2.1	2.1	2.1
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.4	2.1	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	0.7	1.4	1.4	2.1	2.1
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
75°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.4	2.1	2.1
77.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.1
80°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.4	2.1	2.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.4	2.1	2.1
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.1
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°	60.7	60.7	60.7	60.7
2.5°	50.8	45.1	40.9	40.2
5°	43.0	36.0	31.0	30.3
7.5°	36.7	28.9	24.7	24.0
10°	32.5	24.7	20.5	19.8
12.5°	28.9	21.9	19.0	18.3
15°	26.8	21.9	21.2	21.9
17.5°	28.9	29.6	32.5	36.0
20°	48.0	68.4	88.9	103.7
22.5°	107.9	199.6	264.5	295.6
25°	203.9	230.7	231.4	220.8
27.5°	110.8	88.2	79.0	74.8
30°	43.7	41.6	41.6	40.9
32.5°	28.9	26.8	26.1	25.4
35°	17.6	15.5	14.8	14.8
37.5°	11.3	9.9	9.2	8.5
40°	7.8	6.3	5.6	4.9
42.5°	5.6	4.2	2.8	2.8
45°	4.2	2.8	1.4	1.4
47.5°	3.5	2.1	0.7	0.7
50°	2.8	1.4	0.7	0.0
52.5°	2.1	1.4	0.0	0.0
55°	2.1	1.4	0.0	0.0
57.5°	2.1	1.4	0.0	0.0
60°	2.1	1.4	0.0	0.0
62.5°	2.1	1.4	0.0	0.0
65°	2.1	1.4	0.7	0.0
67.5°	2.8	1.4	0.7	0.0
70°	2.8	1.4	0.7	0.0
72.5°	2.8	1.4	0.7	0.0
75°	2.8	2.1	0.7	0.0
77.5°	2.8	2.1	0.7	0.0
80°	2.8	2.1	0.7	0.0
82.5°	2.8	2.1	0.7	0.0
85°	2.8	2.1	0.7	0.7
87.5°	2.8	2.1	0.7	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)