

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: P170741

Luminaire Tested: **LDA4A18827D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170741
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: LDA4A18827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1601.8 lumens
Efficiency: N/A
Efficacy: 55.0 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

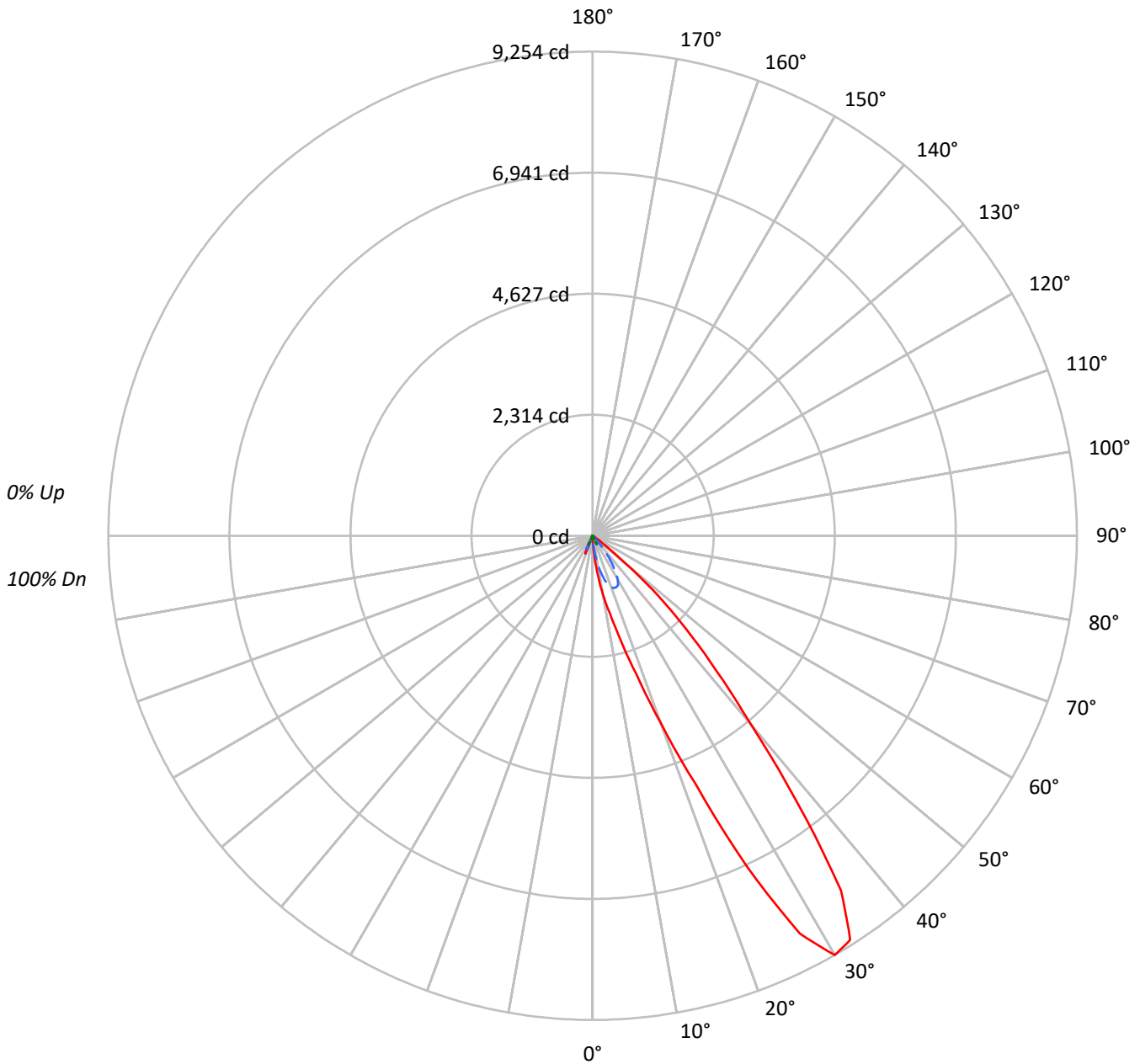
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	9313	9313	9313
5°	49168	8816	4680
10°	143798	7477	3081
15°	261587	6283	3473
20°	499044	7154	16946
25°	948418	24865	37427
30°	1317951	8389	7250
35°	1245484	3840	2771
40°	754893	1691	982
45°	442390	925	314
50°	146816	672	0
55°	27956	559	0
60°	6291	444	0
65°	1780	759	0
70°	649	938	0
75°	0	1239	0
80°	0	1847	0
85°	0	3680	1274



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	18.0	1.1
10°-20°	147.4	9.2
20°-30°	522.6	32.6
30°-40°	619.7	38.7
40°-50°	263.6	16.5
50°-60°	23.8	1.5
60°-70°	2.9	0.2
70°-80°	2.0	0.1
80°-90°	1.8	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°	688.1	43.0
0°-40°	1307.7	81.6
0°-60°	1595.2	99.6
0°-90°	1601.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1601.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	76	76	76	76	76	
5°	397	196	71	45	38	62
15°	2048	863	49	27	27	661
25°	6969	1081	183	287	275	3229
35°	8271	639	26	19	18	4778
45°	2536	70	5	4	2	1988
55°	130	10	3	2	0	182
65°	6	3	3	2	0	9
75°	0	2	3	3	0	0
85°	0	2	3	3	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°	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5
2.5°	138.8	130.9	136.2	134.4	135.3	137.9	135.3	135.3	134.4	130.9	130.9
5°	397.1	373.3	384.8	378.6	382.1	386.5	380.4	378.6	376.0	368.1	366.3
7.5°	739.7	726.5	740.5	730.0	739.7	741.4	732.6	730.9	726.5	715.1	710.7
10°	1148.1	1126.2	1139.3	1127.9	1142.9	1142.0	1127.9	1129.7	1124.4	1109.5	1102.4
12.5°	1510.0	1492.5	1505.7	1473.2	1510.0	1486.3	1489.0	1492.5	1485.5	1466.1	1457.3
15°	2048.5	2000.2	2023.1	1966.8	2023.1	2015.2	1984.4	1982.7	1964.2	1931.7	1912.4
17.5°	2763.6	2776.8	2760.1	2726.7	2801.4	2781.2	2737.2	2728.5	2693.3	2604.6	2602.8
20°	3801.9	3784.3	3812.5	3707.0	3802.8	3709.7	3697.4	3672.8	3613.0	3489.2	3469.9
22.5°	5131.0	5140.7	5090.6	5017.7	5135.4	4991.3	4947.4	4888.6	4779.6	4589.0	4529.3
25°	6968.7	6956.4	6891.4	6770.2	6895.8	6663.0	6553.2	6432.0	6229.1	5932.1	5789.0
27.5°	8570.1	8620.2	8577.1	8454.2	8537.6	8308.3	8055.3	7978.0	7703.1	7328.9	7070.6
30°	9253.5	9277.3	9258.8	9164.8	9194.7	9005.8	8755.5	8664.1	8382.1	8028.1	7693.4
32.5°	9159.6	9171.0	9174.5	9048.9	9054.1	8875.8	8614.0	8478.8	8171.3	7830.5	7430.8
35°	8271.4	8318.9	8349.6	8231.9	8115.1	7937.6	7640.7	7430.8	7107.5	6796.5	6388.1
37.5°	6405.6	6465.4	6512.8	6412.7	6357.3	6143.0	5896.1	5733.6	5510.5	5327.8	5037.9
40°	4688.3	4699.7	4728.7	4676.8	4590.8	4533.7	4392.2	4300.0	4164.7	4066.3	3873.9
42.5°	3484.8	3478.6	3498.8	3469.9	3467.2	3381.1	3291.5	3237.1	3190.5	3086.9	2951.6
45°	2536.1	2537.8	2557.2	2538.7	2489.5	2471.1	2412.2	2363.0	2301.5	2269.0	2161.9
47.5°	1724.4	1729.7	1742.8	1732.3	1687.5	1680.5	1642.7	1593.5	1592.6	1542.6	1448.6
50°	765.1	766.9	782.7	779.2	725.6	732.6	708.0	663.2	675.5	645.7	573.6
52.5°	253.9	254.7	257.4	255.6	246.8	246.8	240.7	239.8	232.8	225.8	209.9
55°	130.0	130.0	131.8	130.9	126.5	126.5	119.5	123.9	120.3	117.7	108.0
57.5°	55.3	55.3	56.2	56.2	53.6	56.2	53.6	53.6	51.8	50.9	47.4
60°	25.5	25.5	25.5	25.5	24.6	26.4	24.6	24.6	24.6	23.7	22.0
62.5°	13.2	13.2	13.2	13.2	13.2	13.2	13.2	12.3	12.3	12.3	11.4
65°	6.1	6.1	6.1	6.1	6.1	7.0	6.1	6.1	6.1	6.1	6.1
67.5°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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°	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5
2.5°	131.8	127.4	133.5	128.3	131.8	128.3	123.9	125.6	101.0	84.3	74.7
5°	367.2	354.0	365.4	354.0	354.9	348.7	332.1	330.3	195.9	95.8	71.2
7.5°	691.3	689.6	703.6	688.7	686.9	672.0	641.3	629.0	354.9	112.4	65.9
10°	1098.1	1072.6	1084.9	1069.1	1063.8	1036.6	992.6	968.9	527.9	129.1	59.7
12.5°	1432.7	1423.1	1431.9	1416.9	1411.7	1374.8	1322.9	1291.3	705.4	138.8	53.6
15°	1870.2	1850.9	1857.0	1826.3	1810.5	1740.2	1651.5	1593.5	862.6	137.9	49.2
17.5°	2537.8	2500.1	2496.5	2443.8	2405.2	2277.8	2118.8	1999.3	977.7	127.4	47.4
20°	3374.1	3305.6	3282.8	3199.3	3134.3	2923.5	2678.4	2484.2	1049.7	113.3	54.5
22.5°	4376.4	4256.1	4188.4	4054.9	3943.3	3605.1	3245.9	2955.1	1081.4	108.9	78.2
25°	5544.7	5338.3	5195.1	4985.2	4797.2	4278.0	3773.8	3366.2	1081.4	141.4	182.7
27.5°	6729.8	6403.9	6140.3	5833.8	5548.3	4812.1	4162.1	3631.5	1055.0	176.6	166.9
30°	7329.8	6929.2	6570.8	6212.4	5854.0	4969.4	4249.0	3664.0	955.7	103.7	58.9
32.5°	7075.0	6652.5	6256.3	5909.3	5555.3	4691.8	4013.6	3448.8	802.9	60.6	37.8
35°	6098.2	5731.9	5387.5	5128.4	4852.5	4170.9	3563.9	3071.9	638.6	47.4	25.5
37.5°	4867.5	4618.0	4372.9	4206.9	4009.2	3497.1	3007.8	2604.6	456.8	34.3	15.8
40°	3775.6	3605.1	3433.8	3328.4	3188.8	2815.4	2434.2	2113.5	269.7	23.7	10.5
42.5°	2891.8	2774.1	2646.8	2573.8	2473.7	2195.2	1897.4	1670.8	124.7	16.7	7.9
45°	2125.8	2038.9	1941.4	1894.8	1824.5	1640.9	1443.3	1283.4	70.3	12.3	5.3
47.5°	1431.0	1353.7	1263.2	1234.2	1166.6	1005.8	803.8	646.5	46.6	8.8	4.4
50°	569.2	518.3	487.5	447.1	407.6	341.7	255.6	203.8	28.1	7.0	3.5
52.5°	209.1	197.7	192.4	181.8	173.1	154.6	130.9	113.3	16.7	5.3	2.6
55°	108.9	101.9	98.4	94.9	89.6	79.1	65.9	56.2	10.5	3.5	2.6
57.5°	47.4	44.8	45.7	42.2	39.5	36.0	31.6	27.2	7.0	3.5	2.6
60°	22.8	21.1	22.0	20.2	19.3	18.4	16.7	14.1	4.4	2.6	1.8
62.5°	11.4	11.4	11.4	10.5	10.5	9.7	8.8	7.9	3.5	2.6	2.6
65°	6.1	5.3	6.1	5.3	5.3	5.3	4.4	4.4	2.6	2.6	2.6
67.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.8	2.6	2.6
70°	1.8	1.8	1.8	1.8	1.8	1.8	0.9	1.8	1.8	2.6	2.6
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
75°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.6	2.6
77.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.6	2.6
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.6	2.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.6	2.6
85°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.6	2.6
87.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.6	2.6
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°	75.5	75.5	75.5	75.5
2.5°	63.2	56.2	50.9	50.1
5°	53.6	44.8	38.7	37.8
7.5°	45.7	36.0	30.7	29.9
10°	40.4	30.7	25.5	24.6
12.5°	36.0	27.2	23.7	22.8
15°	33.4	27.2	26.4	27.2
17.5°	36.0	36.9	40.4	44.8
20°	59.7	85.2	110.7	129.1
22.5°	134.4	248.6	329.4	368.1
25°	253.9	287.3	288.1	275.0
27.5°	137.9	109.8	98.4	93.1
30°	54.5	51.8	51.8	50.9
32.5°	36.0	33.4	32.5	31.6
35°	22.0	19.3	18.4	18.4
37.5°	14.1	12.3	11.4	10.5
40°	9.7	7.9	7.0	6.1
42.5°	7.0	5.3	3.5	3.5
45°	5.3	3.5	1.8	1.8
47.5°	4.4	2.6	0.9	0.9
50°	3.5	1.8	0.9	0.0
52.5°	2.6	1.8	0.0	0.0
55°	2.6	1.8	0.0	0.0
57.5°	2.6	1.8	0.0	0.0
60°	2.6	1.8	0.0	0.0
62.5°	2.6	1.8	0.0	0.0
65°	2.6	1.8	0.9	0.0
67.5°	3.5	1.8	0.9	0.0
70°	3.5	1.8	0.9	0.0
72.5°	3.5	1.8	0.9	0.0
75°	3.5	2.6	0.9	0.0
77.5°	3.5	2.6	0.9	0.0
80°	3.5	2.6	0.9	0.0
82.5°	3.5	2.6	0.9	0.0
85°	3.5	2.6	0.9	0.9
87.5°	3.5	2.6	0.9	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)