

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: P170749

Luminaire Tested: **LDA4A09827D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170749  
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: LDA4A09827D010TE 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: 871.2 lumens  
Efficiency: N/A  
Efficacy: 62.9 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

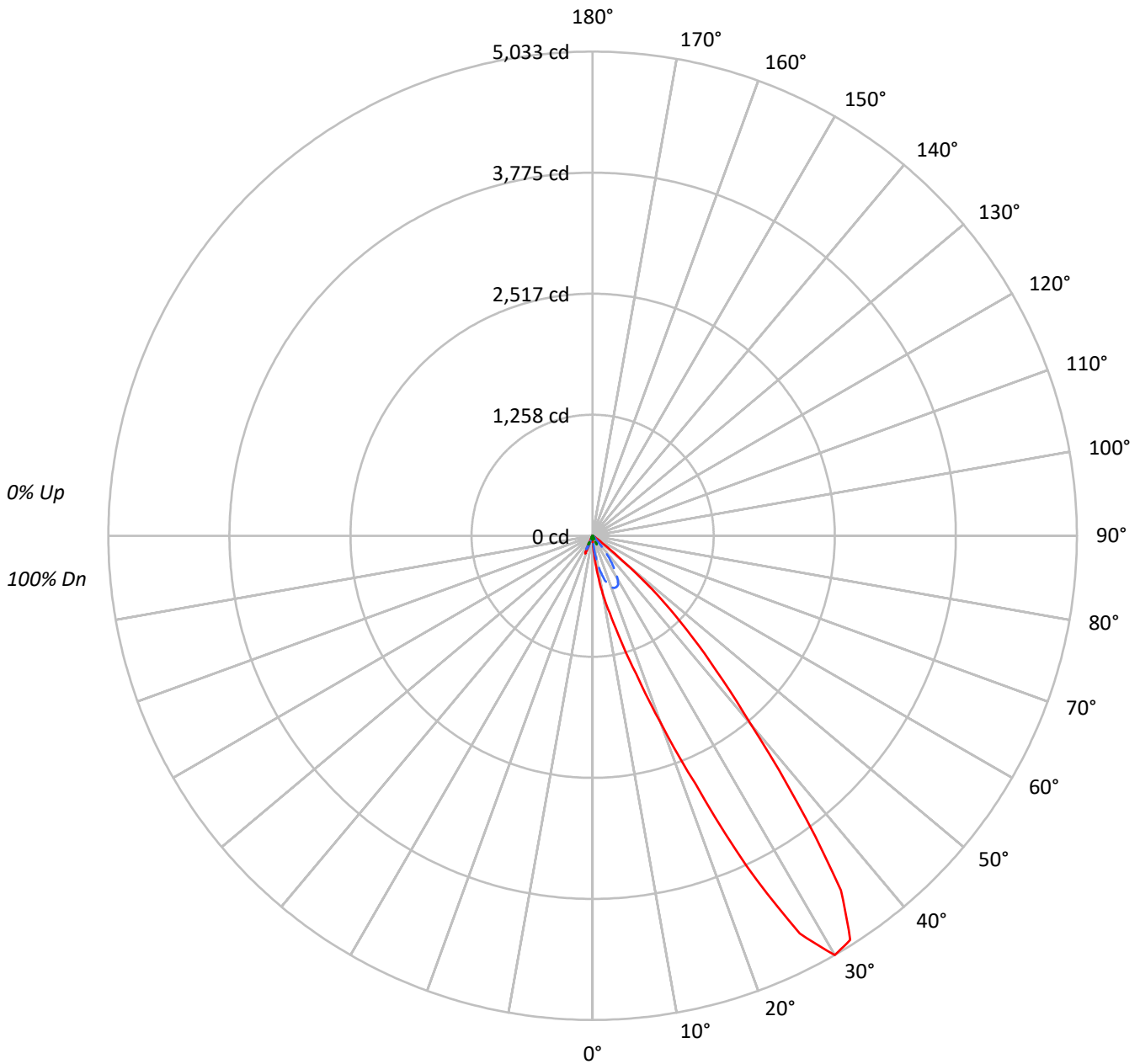
Input Watts (W): 13.84  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	93	90	94	91	88	91	88	86	89	86	84	82					82			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74					74			
4	92	83	76	71	90	82	75	70	79	74	70	77	72	69	75	71	68	66					66			
5	86	75	68	63	84	74	68	63	73	67	62	71	66	62	69	65	61	59					59			
6	80	69	62	56	78	68	61	56	66	60	56	65	59	55	63	59	55	53					53			
7	74	63	56	51	73	62	55	50	61	55	50	60	54	50	58	53	49	48					48			
8	69	58	50	45	68	57	50	45	56	50	45	55	49	45	54	48	45	43					43			
9	65	53	46	41	64	52	46	41	51	45	41	50	45	40	49	44	40	39					39			
10	61	49	42	37	59	48	41	37	47	41	37	46	41	37	46	40	36	35					35			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	5070	5070	5070
5°	26744	4792	2538
10°	78205	4071	1678
15°	142280	3422	1890
20°	271423	3885	9215
25°	515821	13528	20346
30°	716808	4558	3945
35°	677402	2093	1506
40°	410575	918	531
45°	240601	506	174
50°	79846	365	0
55°	15204	301	0
60°	3429	247	0
65°	963	409	0
70°	361	505	0
75°	0	667	0
80°	0	994	0
85°	0	1981	708



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	9.8	1.1
10°-20°	80.2	9.2
20°-30°	284.3	32.6
30°-40°	337.0	38.7
40°-50°	143.4	16.5
50°-60°	13.0	1.5
60°-70°	1.6	0.2
70°-80°	1.1	0.1
80°-90°	1.0	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°	374.2	43.0
0°-40°	711.2	81.6
0°-60°	867.6	99.6
0°-90°	871.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	871.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	41	41	41	41	41	
5°	216	106	39	24	20	34
15°	1114	469	27	15	15	359
25°	3790	588	99	156	150	1756
35°	4499	347	14	10	10	2599
45°	1379	38	3	2	1	1081
55°	71	6	1	1	0	99
65°	3	1	1	1	0	5
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°	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1
2.5°	75.5	71.2	74.1	73.1	73.6	75.0	73.6	73.6	73.1	71.2	71.2
5°	216.0	203.1	209.3	205.9	207.8	210.2	206.9	205.9	204.5	200.2	199.2
7.5°	402.3	395.1	402.8	397.0	402.3	403.2	398.5	397.5	395.1	388.9	386.5
10°	624.4	612.5	619.7	613.5	621.6	621.1	613.5	614.4	611.5	603.4	599.6
12.5°	821.3	811.7	818.9	801.2	821.3	808.4	809.8	811.7	807.9	797.4	792.6
15°	1114.2	1087.9	1100.3	1069.7	1100.3	1096.0	1079.3	1078.3	1068.3	1050.6	1040.1
17.5°	1503.1	1510.2	1501.2	1483.0	1523.6	1512.6	1488.7	1484.0	1464.8	1416.6	1415.6
20°	2067.8	2058.2	2073.5	2016.2	2068.3	2017.6	2010.9	1997.6	1965.1	1897.7	1887.2
22.5°	2790.6	2795.9	2768.7	2729.0	2793.0	2714.7	2690.8	2658.8	2599.5	2495.9	2463.4
25°	3790.1	3783.5	3748.1	3682.2	3750.5	3623.9	3564.2	3498.2	3387.9	3226.4	3148.5
27.5°	4661.1	4688.3	4664.9	4598.0	4643.4	4518.7	4381.1	4339.1	4189.6	3986.0	3845.6
30°	5032.8	5045.7	5035.7	4984.6	5000.8	4898.1	4761.9	4712.2	4558.9	4366.3	4184.3
32.5°	4981.7	4987.9	4989.8	4921.5	4924.4	4827.4	4685.0	4611.4	4444.2	4258.8	4041.4
35°	4498.7	4524.5	4541.2	4477.2	4413.6	4317.1	4155.6	4041.4	3865.6	3696.5	3474.3
37.5°	3483.9	3516.4	3542.2	3487.7	3457.6	3341.0	3206.8	3118.4	2997.0	2897.7	2740.0
40°	2549.9	2556.1	2571.8	2543.6	2496.8	2465.8	2388.8	2338.7	2265.1	2211.6	2107.0
42.5°	1895.3	1892.0	1903.0	1887.2	1885.8	1838.9	1790.2	1760.6	1735.3	1678.9	1605.3
45°	1379.3	1380.3	1390.8	1380.8	1354.0	1344.0	1312.0	1285.2	1251.8	1234.1	1175.8
47.5°	937.9	940.7	947.9	942.2	917.8	914.0	893.4	866.7	866.2	839.0	787.8
50°	416.1	417.1	425.7	423.8	394.6	398.5	385.1	360.7	367.4	351.2	312.0
52.5°	138.1	138.6	140.0	139.0	134.3	134.3	130.9	130.4	126.6	122.8	114.2
55°	70.7	70.7	71.7	71.2	68.8	68.8	65.0	67.4	65.5	64.0	58.8
57.5°	30.1	30.1	30.6	30.6	29.1	30.6	29.1	29.1	28.2	27.7	25.8
60°	13.9	13.9	13.9	13.9	13.4	14.3	13.4	13.4	13.4	12.9	11.9
62.5°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.7	6.7	6.7	6.2
65°	3.3	3.3	3.3	3.3	3.3	3.8	3.3	3.3	3.3	3.3	3.3
67.5°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4
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°	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1
2.5°	71.7	69.3	72.6	69.8	71.7	69.8	67.4	68.3	54.9	45.9	40.6
5°	199.7	192.5	198.8	192.5	193.0	189.7	180.6	179.6	106.5	52.1	38.7
7.5°	376.0	375.0	382.7	374.6	373.6	365.5	348.8	342.1	193.0	61.2	35.8
10°	597.2	583.4	590.0	581.4	578.6	563.8	539.9	527.0	287.1	70.2	32.5
12.5°	779.2	774.0	778.8	770.6	767.8	747.7	719.5	702.3	383.6	75.5	29.1
15°	1017.2	1006.7	1010.0	993.3	984.7	946.5	898.2	866.7	469.2	75.0	26.8
17.5°	1380.3	1359.7	1357.8	1329.2	1308.1	1238.9	1152.4	1087.4	531.8	69.3	25.8
20°	1835.1	1797.8	1785.4	1740.0	1704.7	1590.0	1456.7	1351.1	570.9	61.6	29.6
22.5°	2380.2	2314.8	2278.0	2205.4	2144.7	1960.8	1765.4	1607.2	588.1	59.2	42.5
25°	3015.7	2903.4	2825.5	2711.3	2609.1	2326.7	2052.5	1830.8	588.1	76.9	99.4
27.5°	3660.2	3482.9	3339.6	3172.9	3017.6	2617.2	2263.7	1975.1	573.8	96.0	90.8
30°	3986.5	3768.6	3573.7	3378.8	3183.9	2702.7	2311.0	1992.8	519.8	56.4	32.0
32.5°	3848.0	3618.1	3402.7	3214.0	3021.4	2551.8	2182.9	1875.7	436.7	33.0	20.5
35°	3316.7	3117.4	2930.2	2789.2	2639.2	2268.4	1938.3	1670.8	347.3	25.8	13.9
37.5°	2647.3	2511.6	2378.3	2288.0	2180.5	1902.0	1635.9	1416.6	248.4	18.6	8.6
40°	2053.5	1960.8	1867.6	1810.3	1734.3	1531.2	1323.9	1149.5	146.7	12.9	5.7
42.5°	1572.8	1508.8	1439.5	1399.9	1345.4	1193.9	1032.0	908.7	67.8	9.1	4.3
45°	1156.2	1108.9	1055.9	1030.5	992.3	892.5	785.0	698.0	38.2	6.7	2.9
47.5°	778.3	736.2	687.0	671.3	634.5	547.0	437.2	351.6	25.3	4.8	2.4
50°	309.6	281.9	265.2	243.2	221.7	185.9	139.0	110.8	15.3	3.8	1.9
52.5°	113.7	107.5	104.6	98.9	94.1	84.1	71.2	61.6	9.1	2.9	1.4
55°	59.2	55.4	53.5	51.6	48.7	43.0	35.8	30.6	5.7	1.9	1.4
57.5°	25.8	24.4	24.8	22.9	21.5	19.6	17.2	14.8	3.8	1.9	1.4
60°	12.4	11.5	11.9	11.0	10.5	10.0	9.1	7.6	2.4	1.4	1.0
62.5°	6.2	6.2	6.2	5.7	5.7	5.3	4.8	4.3	1.9	1.4	1.4
65°	3.3	2.9	3.3	2.9	2.9	2.9	2.4	2.4	1.4	1.4	1.4
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.4	1.4
70°	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0	1.4	1.4
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
75°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.4	1.4
77.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.4
80°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.4	1.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.4
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.4
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°	41.1	41.1	41.1	41.1
2.5°	34.4	30.6	27.7	27.2
5°	29.1	24.4	21.0	20.5
7.5°	24.8	19.6	16.7	16.2
10°	22.0	16.7	13.9	13.4
12.5°	19.6	14.8	12.9	12.4
15°	18.2	14.8	14.3	14.8
17.5°	19.6	20.1	22.0	24.4
20°	32.5	46.3	60.2	70.2
22.5°	73.1	135.2	179.2	200.2
25°	138.1	156.2	156.7	149.5
27.5°	75.0	59.7	53.5	50.6
30°	29.6	28.2	28.2	27.7
32.5°	19.6	18.2	17.7	17.2
35°	11.9	10.5	10.0	10.0
37.5°	7.6	6.7	6.2	5.7
40°	5.3	4.3	3.8	3.3
42.5°	3.8	2.9	1.9	1.9
45°	2.9	1.9	1.0	1.0
47.5°	2.4	1.4	0.5	0.5
50°	1.9	1.0	0.5	0.0
52.5°	1.4	1.0	0.0	0.0
55°	1.4	1.0	0.0	0.0
57.5°	1.4	1.0	0.0	0.0
60°	1.4	1.0	0.0	0.0
62.5°	1.4	1.0	0.0	0.0
65°	1.4	1.0	0.5	0.0
67.5°	1.9	1.0	0.5	0.0
70°	1.9	1.0	0.5	0.0
72.5°	1.9	1.0	0.5	0.0
75°	1.9	1.4	0.5	0.0
77.5°	1.9	1.4	0.5	0.0
80°	1.9	1.4	0.5	0.0
82.5°	1.9	1.4	0.5	0.0
85°	1.9	1.4	0.5	0.5
87.5°	1.9	1.4	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)