

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: P170768

Luminaire Tested: **LDA4A28840D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170768  
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: LDA4A28840D010TE 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: 2927.6 lumens  
Efficiency: N/A  
Efficacy: 65.8 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

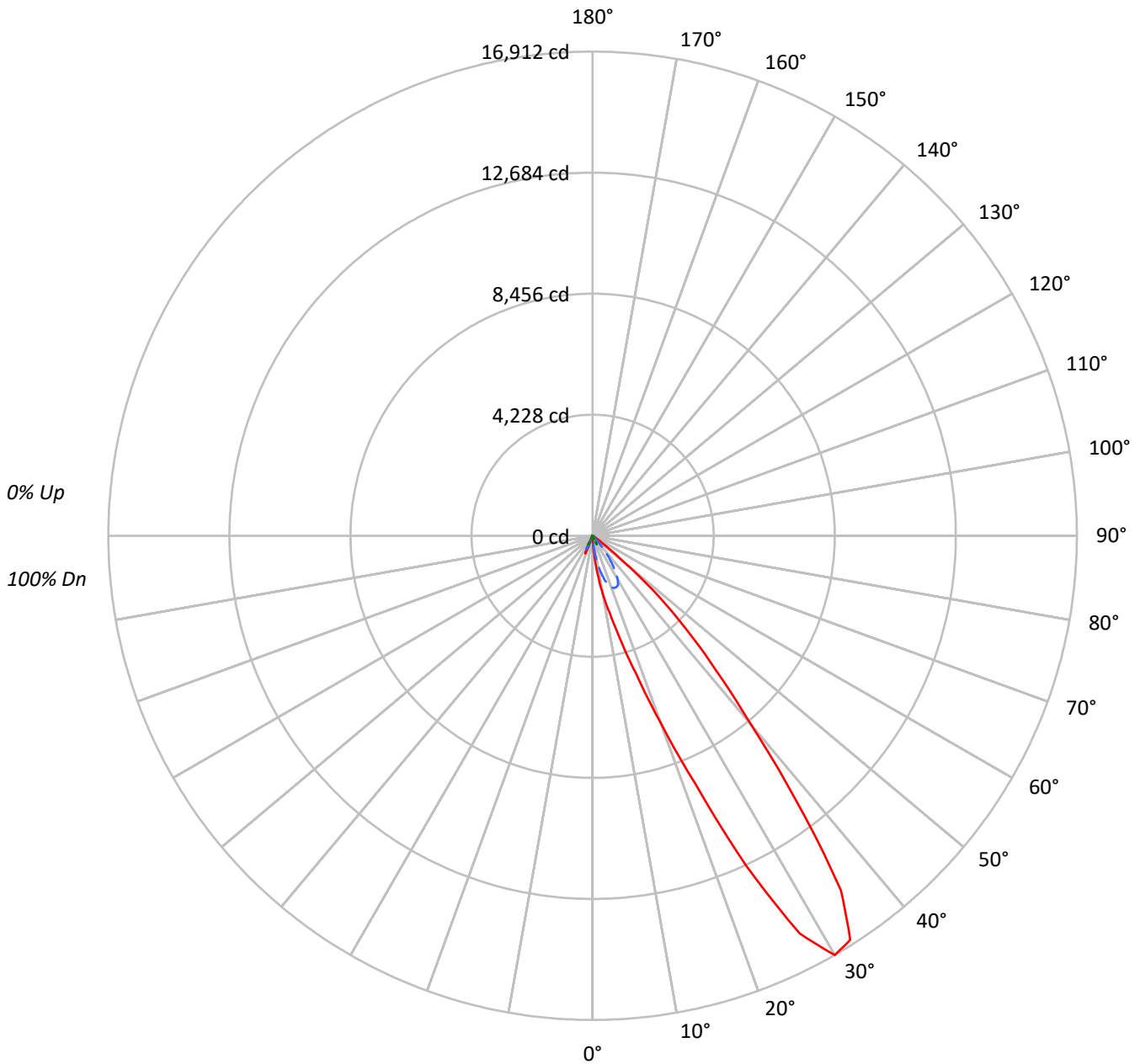
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	37	35					35			

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

	0°	90°	180°
0°	17034	17034	17034
5°	89854	16096	8543
10°	262821	13677	5636
15°	478097	11480	6359
20°	912085	13061	30978
25°	1733384	45443	68389
30°	2408773	15325	13260
35°	2276321	7017	5074
40°	1379668	3108	1803
45°	808533	1675	558
50°	268341	1228	0
55°	51095	1032	0
60°	11496	789	0
65°	3269	1401	0
70°	1154	1731	0
75°	0	2288	0
80°	0	3410	0
85°	0	6793	2264



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	33.0	1.1
10°-20°	269.4	9.2
20°-30°	955.2	32.6
30°-40°	1132.5	38.7
40°-50°	481.8	16.5
50°-60°	43.5	1.5
60°-70°	5.4	0.2
70°-80°	3.6	0.1
80°-90°	3.2	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°	1257.5	43.0
0°-40°	2390.0	81.6
0°-60°	2915.4	99.6
0°-90°	2927.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2927.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	138	138	138	138	138	
5°	726	358	130	82	69	113
15°	3744	1577	90	50	50	1208
25°	12736	1976	334	525	502	5901
35°	15117	1167	47	35	34	8733
45°	4635	128	10	6	3	3633
55°	238	19	5	3	0	333
65°	11	5	5	3	0	16
75°	0	3	5	5	0	1
85°	0	3	5	5	2	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°	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1
2.5°	253.7	239.2	248.9	245.6	247.2	252.1	247.2	247.2	245.6	239.2	239.2
5°	725.7	682.3	703.2	692.0	698.4	706.4	695.2	692.0	687.2	672.7	669.5
7.5°	1351.8	1327.7	1353.4	1334.2	1351.8	1355.0	1339.0	1335.8	1327.7	1306.9	1298.8
10°	2098.4	2058.2	2082.3	2061.5	2088.7	2087.1	2061.5	2064.7	2055.0	2027.7	2014.9
12.5°	2759.8	2727.7	2751.8	2692.4	2759.8	2716.5	2721.3	2727.7	2714.9	2679.6	2663.5
15°	3744.0	3655.7	3697.4	3594.7	3697.4	3683.0	3626.8	3623.6	3589.9	3530.5	3495.2
17.5°	5050.9	5075.0	5044.5	4983.4	5119.9	5083.0	5002.7	4986.7	4922.4	4760.3	4757.1
20°	6948.6	6916.5	6967.8	6775.2	6950.2	6780.0	6757.5	6712.6	6603.4	6377.0	6341.7
22.5°	9377.7	9395.3	9303.8	9170.6	9385.7	9122.4	9042.1	8934.6	8735.5	8387.1	8277.9
25°	12736.4	12713.9	12595.1	12373.5	12603.1	12177.7	11977.0	11755.4	11384.5	10841.9	10580.2
27.5°	15663.2	15754.7	15676.0	15451.3	15603.8	15184.7	14722.4	14581.1	14078.6	13394.6	12922.6
30°	16912.3	16955.6	16921.9	16750.1	16804.7	16459.5	16001.9	15835.0	15319.6	14672.6	14060.9
32.5°	16740.5	16761.3	16767.8	16538.2	16547.8	16221.9	15743.5	15496.2	14934.3	14311.4	13580.9
35°	15117.3	15204.0	15260.2	15045.1	14831.5	14507.2	13964.6	13580.9	12990.0	12421.7	11675.1
37.5°	11707.3	11816.4	11903.1	11720.1	11618.9	11227.2	10776.1	10479.0	10071.3	9737.3	9207.5
40°	8568.5	8589.4	8642.4	8547.6	8390.3	8285.9	8027.5	7858.9	7611.6	7431.8	7080.2
42.5°	6369.0	6357.8	6394.7	6341.7	6336.9	6179.5	6015.8	5916.2	5831.1	5641.7	5394.5
45°	4635.1	4638.3	4673.6	4639.9	4550.0	4516.3	4408.7	4318.8	4206.4	4147.0	3951.1
47.5°	3151.6	3161.2	3185.3	3166.0	3084.2	3071.3	3002.3	2912.4	2910.8	2819.2	2647.5
50°	1398.4	1401.6	1430.5	1424.1	1326.1	1339.0	1294.0	1212.1	1234.6	1180.0	1048.4
52.5°	464.0	465.6	470.4	467.2	451.1	451.1	439.9	438.3	425.5	412.6	383.7
55°	237.6	237.6	240.8	239.2	231.2	231.2	218.3	226.4	220.0	215.1	197.5
57.5°	101.1	101.1	102.8	102.8	97.9	102.8	97.9	97.9	94.7	93.1	86.7
60°	46.6	46.6	46.6	46.6	45.0	48.2	45.0	45.0	45.0	43.3	40.1
62.5°	24.1	24.1	24.1	24.1	24.1	24.1	24.1	22.5	22.5	22.5	20.9
65°	11.2	11.2	11.2	11.2	11.2	12.8	11.2	11.2	11.2	11.2	11.2
67.5°	4.8	4.8	4.8	6.4	6.4	6.4	6.4	6.4	4.8	4.8	4.8
70°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	1.6
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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°	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1	138.1
2.5°	240.8	232.8	244.0	234.4	240.8	234.4	226.4	229.6	184.6	154.1	136.5
5°	671.1	647.0	667.9	647.0	648.6	637.4	606.9	603.7	358.0	175.0	130.0
7.5°	1263.5	1260.3	1286.0	1258.7	1255.5	1228.2	1172.0	1149.5	648.6	205.5	120.4
10°	2006.9	1960.3	1982.8	1953.9	1944.3	1894.5	1814.2	1770.9	964.9	236.0	109.2
12.5°	2618.6	2600.9	2617.0	2589.7	2580.0	2512.6	2417.9	2360.1	1289.2	253.7	97.9
15°	3418.1	3382.8	3394.0	3337.8	3308.9	3180.5	3018.3	2912.4	1576.6	252.1	89.9
17.5°	4638.3	4569.2	4562.8	4466.5	4395.8	4163.0	3872.4	3654.1	1786.9	232.8	86.7
20°	6166.7	6041.5	5999.7	5847.2	5728.4	5343.1	4895.1	4540.3	1918.6	207.1	99.5
22.5°	7998.6	7778.6	7655.0	7411.0	7207.1	6588.9	5932.3	5400.9	1976.4	199.1	142.9
25°	10133.9	9756.6	9494.9	9111.2	8767.6	7818.7	6897.2	6152.2	1976.4	258.5	333.9
27.5°	12299.7	11704.0	11222.4	10662.1	10140.3	8794.9	7606.8	6637.1	1928.2	322.7	305.0
30°	13396.2	12664.1	12009.1	11354.0	10699.0	9082.3	7765.8	6696.5	1746.8	189.4	107.6
32.5°	12930.6	12158.4	11434.3	10800.1	10153.1	8574.9	7335.5	6303.2	1467.4	110.8	69.0
35°	11145.3	10475.8	9846.5	9372.9	8868.7	7622.9	6513.5	5614.4	1167.2	86.7	46.6
37.5°	8896.0	8440.1	7992.1	7688.7	7327.5	6391.5	5497.2	4760.3	834.9	62.6	28.9
40°	6900.4	6588.9	6275.9	6083.2	5827.9	5145.6	4448.8	3862.8	492.9	43.3	19.3
42.5°	5285.3	5070.1	4837.3	4704.1	4521.1	4012.1	3467.9	3053.6	228.0	30.5	14.4
45°	3885.3	3726.3	3548.1	3463.0	3334.6	2999.1	2637.8	2345.6	128.4	22.5	9.6
47.5°	2615.3	2474.1	2308.7	2255.7	2132.1	1838.3	1469.0	1181.6	85.1	16.1	8.0
50°	1040.4	947.2	891.0	817.2	744.9	624.5	467.2	372.5	51.4	12.8	6.4
52.5°	382.1	361.2	351.6	332.3	316.3	282.6	239.2	207.1	30.5	9.6	4.8
55°	199.1	186.2	179.8	173.4	163.8	144.5	120.4	102.8	19.3	6.4	4.8
57.5°	86.7	81.9	83.5	77.1	72.2	65.8	57.8	49.8	12.8	6.4	4.8
60°	41.7	38.5	40.1	36.9	35.3	33.7	30.5	25.7	8.0	4.8	3.2
62.5°	20.9	20.9	20.9	19.3	19.3	17.7	16.1	14.4	6.4	4.8	4.8
65°	11.2	9.6	11.2	9.6	9.6	9.6	8.0	8.0	4.8	4.8	4.8
67.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.2	4.8	4.8
70°	3.2	3.2	3.2	3.2	3.2	3.2	1.6	3.2	3.2	4.8	4.8
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.2	4.8	4.8
75°	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6	3.2	4.8	4.8
77.5°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.2	4.8	4.8
80°	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6	3.2	4.8	4.8
82.5°	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6	3.2	4.8	4.8
85°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.2	4.8	4.8
87.5°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.2	4.8	4.8
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°	138.1	138.1	138.1	138.1
2.5°	115.6	102.8	93.1	91.5
5°	97.9	81.9	70.6	69.0
7.5°	83.5	65.8	56.2	54.6
10°	73.9	56.2	46.6	45.0
12.5°	65.8	49.8	43.3	41.7
15°	61.0	49.8	48.2	49.8
17.5°	65.8	67.4	73.9	81.9
20°	109.2	155.7	202.3	236.0
22.5°	245.6	454.4	602.1	672.7
25°	464.0	525.0	526.6	502.5
27.5°	252.1	200.7	179.8	170.2
30°	99.5	94.7	94.7	93.1
32.5°	65.8	61.0	59.4	57.8
35°	40.1	35.3	33.7	33.7
37.5°	25.7	22.5	20.9	19.3
40°	17.7	14.4	12.8	11.2
42.5°	12.8	9.6	6.4	6.4
45°	9.6	6.4	3.2	3.2
47.5°	8.0	4.8	1.6	1.6
50°	6.4	3.2	1.6	0.0
52.5°	4.8	3.2	0.0	0.0
55°	4.8	3.2	0.0	0.0
57.5°	4.8	3.2	0.0	0.0
60°	4.8	3.2	0.0	0.0
62.5°	4.8	3.2	0.0	0.0
65°	4.8	3.2	1.6	0.0
67.5°	6.4	3.2	1.6	0.0
70°	6.4	3.2	1.6	0.0
72.5°	6.4	3.2	1.6	0.0
75°	6.4	4.8	1.6	0.0
77.5°	6.4	4.8	1.6	0.0
80°	6.4	4.8	1.6	0.0
82.5°	6.4	4.8	1.6	0.0
85°	6.4	4.8	1.6	1.6
87.5°	6.4	4.8	1.6	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)