

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: P170832

Luminaire Tested: **LDA4A28840D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170832  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26106)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A28840D010TE LAR35FL 4LAL1 30° Tilt  
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 35° Flood 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: 3280.9 lumens  
Efficiency: N/A  
Efficacy: 73.7 lumens/watt  
Spacing Criteria (0/90/45): 2.71 / 1.11 / 1.33  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

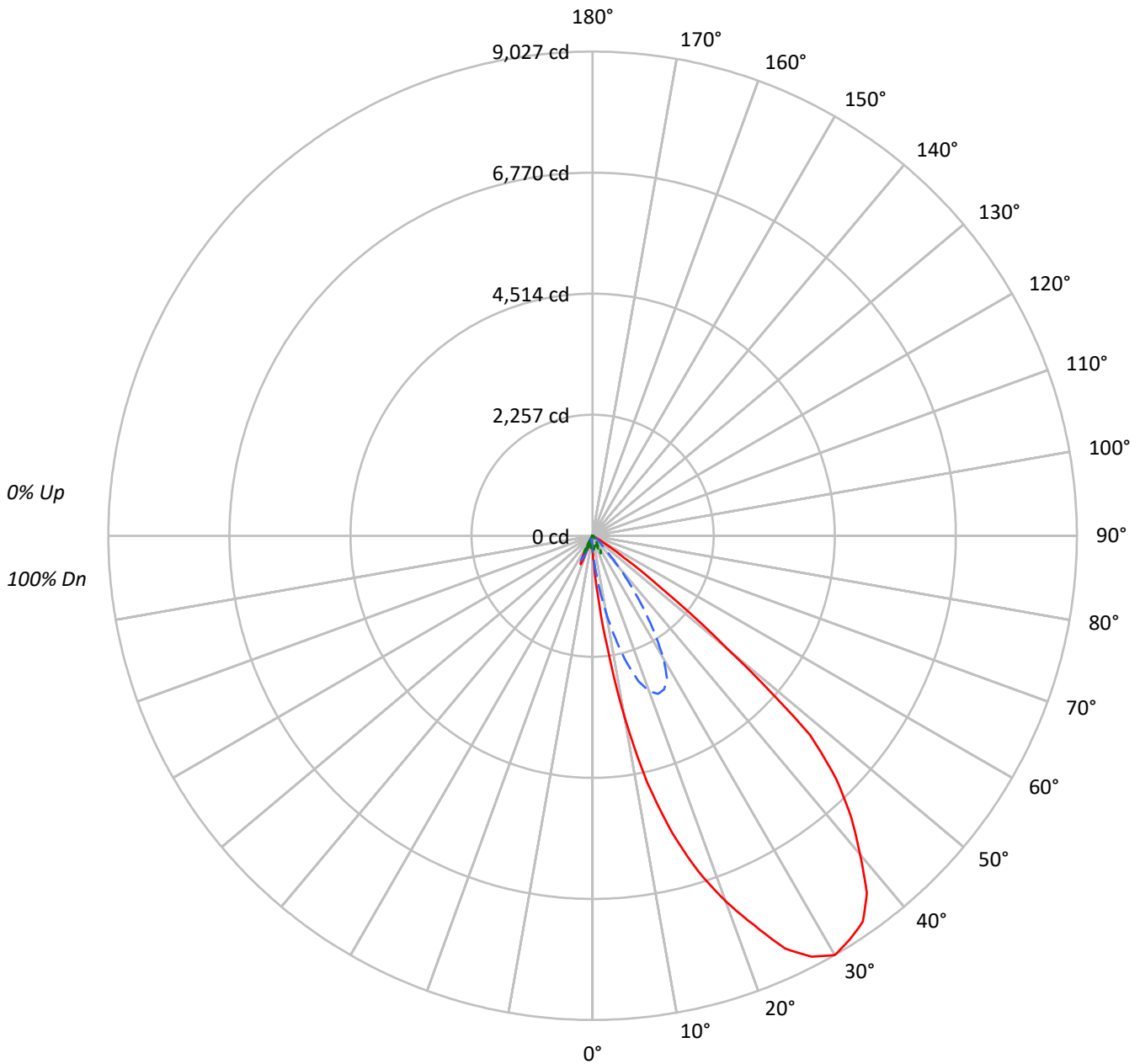
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
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	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91																			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	83	82																			
3	98	90	84	79	96	89	83	79	86	81	77	84	79	76	81	78	75	73																			
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	70	67	65																			
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58																			
6	79	68	61	56	78	67	60	55	66	60	55	64	59	55	63	58	54	52																			
7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47																			
8	69	57	50	45	68	57	50	45	55	49	44	54	48	44	53	48	44	42																			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38																			
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35																			

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

	0°	90°	180°
0°	33266	33266	33266
5°	133995	31412	14709
10°	431969	26340	8442
15°	732801	20917	6564
20°	952422	18757	19807
25°	1155775	49390	70144
30°	1285691	17376	18530
35°	1322505	10390	8703
40°	1248730	4396	3108
45°	1122311	2529	837
50°	631631	1535	0
55°	156769	1032	0
60°	24151	1184	0
65°	5633	1401	0
70°	1154	1731	0
75°	0	2288	0
80°	0	4546	0
85°	0	9057	2264



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	54.2	1.7
10°-20°	402.7	12.3
20°-30°	930.1	28.3
30°-40°	1043.3	31.8
40°-50°	728.0	22.2
50°-60°	108.6	3.3
60°-70°	7.1	0.2
70°-80°	3.5	0.1
80°-90°	3.4	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°	1386.9	42.3
0°-40°	2430.2	74.1
0°-60°	3266.8	99.6
0°-90°	3280.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3280.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	270	270	270	270	270	
5°	1082	633	254	148	119	179
15°	5739	2442	164	63	51	1640
25°	8492	3157	363	506	515	3883
35°	8783	1641	69	58	58	5403
45°	6434	247	14	8	5	4720
55°	729	32	5	3	0	958
65°	19	5	5	3	0	30
75°	0	3	5	5	0	1
85°	0	3	6	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°	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7
2.5°	491.3	486.5	473.7	470.5	481.7	472.1	476.9	486.5	476.9	465.6	476.9
5°	1082.2	1109.5	1082.2	1077.4	1096.7	1079.0	1087.0	1104.7	1080.6	1058.1	1074.2
7.5°	2089.0	2106.6	2029.5	2056.8	2050.4	2055.2	2060.1	2060.1	2045.6	2005.5	2027.9
10°	3448.9	3461.8	3359.0	3394.4	3347.8	3394.4	3386.3	3351.0	3359.0	3304.4	3333.3
12.5°	4711.0	4752.7	4650.0	4683.7	4627.5	4680.5	4659.6	4650.0	4568.1	4568.1	4598.6
15°	5738.6	5833.3	5740.2	5775.5	5711.3	5785.2	5727.4	5753.1	5679.2	5587.7	5668.0
17.5°	6570.3	6663.5	6576.8	6620.1	6560.7	6618.5	6551.1	6605.7	6510.9	6445.1	6499.7
20°	7255.9	7325.0	7222.2	7283.2	7212.6	7270.4	7196.5	7268.8	7158.0	7109.8	7141.9
22.5°	7853.3	7880.5	7827.6	7930.3	7792.2	7853.3	7764.9	7838.8	7707.1	7646.1	7654.2
25°	8492.3	8553.3	8452.2	8490.7	8394.4	8436.1	8336.6	8405.6	8241.8	8155.1	8137.5
27.5°	8847.2	8933.9	8843.9	8887.3	8789.3	8824.7	8725.1	8824.7	8657.7	8572.6	8553.3
30°	9027.0	9068.7	9010.9	9039.8	8929.0	8946.7	8843.9	8951.5	8784.5	8709.1	8699.4
32.5°	8922.6	9006.1	8930.6	8967.6	8864.8	8882.5	8782.9	8898.5	8731.5	8662.5	8628.8
35°	8782.9	8868.0	8797.4	8835.9	8741.2	8754.0	8648.0	8749.2	8556.5	8471.4	8399.2
37.5°	8396.0	8476.2	8416.8	8429.7	8338.2	8328.5	8214.5	8299.6	8111.8	8039.5	7991.3
40°	7755.3	7827.6	7779.4	7806.7	7715.2	7694.3	7617.2	7695.9	7549.8	7496.8	7429.4
42.5°	7141.9	7201.4	7156.4	7199.8	7097.0	7069.7	7000.6	7100.2	6934.8	6891.5	6843.3
45°	6433.9	6470.8	6435.5	6472.4	6374.4	6331.1	6268.5	6353.6	6191.4	6151.3	6046.9
47.5°	5497.8	5457.6	5451.2	5486.5	5364.5	5274.6	5216.8	5326.0	5091.5	5012.9	4892.4
50°	3291.6	3359.0	3387.9	3363.8	3280.4	3156.7	3063.6	3196.9	3071.6	2878.9	2686.3
52.5°	1695.6	1620.1	1636.2	1644.2	1544.6	1507.7	1477.2	1507.7	1409.8	1360.0	1238.0
55°	729.0	693.6	706.5	711.3	692.0	647.1	631.0	650.3	605.3	586.1	536.3
57.5°	269.7	269.7	261.7	264.9	258.5	242.5	239.2	247.3	232.8	228.0	208.7
60°	97.9	97.9	97.9	97.9	89.9	88.3	88.3	91.5	86.7	85.1	78.7
62.5°	41.7	43.4	40.1	41.7	40.1	38.5	40.1	38.5	38.5	36.9	36.9
65°	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	17.7	17.7
67.5°	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	8.0	8.0	8.0
70°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
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°	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7	269.7
2.5°	462.4	460.8	467.2	460.8	449.6	443.2	451.2	435.1	372.5	309.9	263.3
5°	1045.3	1037.3	1026.0	1029.2	1001.9	979.4	979.4	936.1	632.6	359.7	253.7
7.5°	1981.4	1962.1	1880.2	1939.6	1881.8	1836.9	1806.4	1718.0	1022.8	412.7	234.4
10°	3272.3	3238.6	3180.8	3192.0	3097.3	3021.8	2930.3	2782.6	1470.8	459.2	210.3
12.5°	4545.6	4511.9	4357.7	4446.1	4319.2	4245.3	4091.2	3917.8	1954.1	481.7	187.9
15°	5626.2	5597.3	5428.7	5512.2	5356.5	5287.4	5088.3	4895.6	2442.2	473.7	163.8
17.5°	6466.0	6461.1	6266.9	6350.4	6178.6	6122.4	5889.5	5700.1	2837.2	438.3	147.7
20°	7113.0	7101.8	6905.9	6989.4	6801.5	6747.0	6451.5	6252.4	3087.7	390.2	142.9
22.5°	7623.6	7601.2	7390.8	7463.1	7252.7	7182.1	6856.1	6649.0	3190.4	359.7	176.6
25°	8082.9	8042.7	7803.5	7859.7	7628.5	7642.9	7153.2	6925.2	3156.7	404.6	362.9
27.5°	8487.5	8415.2	8174.4	8190.4	7919.1	7777.8	7357.1	7105.0	3002.6	451.2	337.2
30°	8638.4	8567.8	8312.5	8322.1	8039.5	7840.4	7390.8	7109.8	2633.3	282.6	122.0
32.5°	8554.9	8477.9	8211.3	8214.5	7923.9	7721.6	7273.6	6963.7	2141.9	186.3	93.1
35°	8312.5	8232.2	7967.3	7980.1	7699.1	7498.4	7060.1	6729.3	1641.0	147.7	69.0
37.5°	7903.0	7846.8	7594.7	7617.2	7378.0	7164.4	6719.7	6361.6	1157.7	106.0	43.4
40°	7376.4	7333.0	7089.0	7124.3	6864.2	6666.7	6189.8	5801.2	720.9	72.3	27.3
42.5°	6759.8	6713.2	6472.4	6499.7	6278.1	5995.5	5509.0	5069.0	377.3	51.4	19.3
45°	5990.7	5936.1	5692.0	5706.5	5444.8	5114.0	4609.8	4221.3	247.3	35.3	14.5
47.5°	4781.6	4683.7	4365.8	4352.9	4139.4	3598.3	2882.1	2333.0	163.8	24.1	9.6
50°	2628.5	2527.3	2247.9	2217.4	1979.8	1624.9	1201.0	934.5	94.7	16.1	8.0
52.5°	1196.2	1143.2	1013.2	992.3	891.1	738.6	568.4	467.2	54.6	11.2	6.4
55°	518.6	499.4	444.8	441.6	395.0	342.0	273.0	231.2	32.1	8.0	4.8
57.5°	203.9	197.5	186.3	178.2	160.6	142.9	118.8	99.6	20.9	6.4	4.8
60°	77.1	75.5	69.0	70.6	64.2	61.0	53.0	45.0	12.8	4.8	4.8
62.5°	35.3	35.3	33.7	33.7	32.1	28.9	25.7	24.1	8.0	4.8	4.8
65°	17.7	17.7	16.1	16.1	16.1	14.5	12.8	12.8	4.8	4.8	4.8
67.5°	8.0	8.0	8.0	8.0	8.0	6.4	6.4	6.4	3.2	4.8	4.8
70°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	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	1.6	1.6	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	6.4
80°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.2	4.8	6.4
82.5°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.2	4.8	6.4
85°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.2	4.8	6.4
87.5°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.2	4.8	6.4
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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CATALOG NUMBER: LDA4A28840D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	269.7	269.7	269.7	269.7
2.5°	226.4	200.7	178.2	173.4
5°	186.3	147.7	123.6	118.8
7.5°	150.9	107.6	89.9	86.7
10°	123.6	86.7	70.6	67.4
12.5°	102.8	70.6	56.2	53.0
15°	88.3	62.6	51.4	51.4
17.5°	85.1	69.0	65.8	67.4
20°	110.8	125.2	149.3	150.9
22.5°	256.9	417.5	552.3	578.0
25°	462.4	505.8	492.9	515.4
27.5°	244.1	191.1	194.3	199.1
30°	106.0	117.2	123.6	130.1
32.5°	88.3	91.5	93.1	97.9
35°	57.8	57.8	56.2	57.8
37.5°	35.3	33.7	32.1	32.1
40°	22.5	20.9	19.3	19.3
42.5°	16.1	12.8	11.2	11.2
45°	11.2	8.0	6.4	4.8
47.5°	8.0	4.8	3.2	1.6
50°	6.4	4.8	1.6	0.0
52.5°	4.8	3.2	1.6	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°	4.8	3.2	1.6	0.0
70°	4.8	3.2	1.6	0.0
72.5°	4.8	3.2	1.6	0.0
75°	4.8	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)