

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: P170831

Luminaire Tested: **LDA4A28835D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170831  
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: LDA4A28835D010TE 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 / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3199.0 lumens  
Efficiency: N/A  
Efficacy: 71.9 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

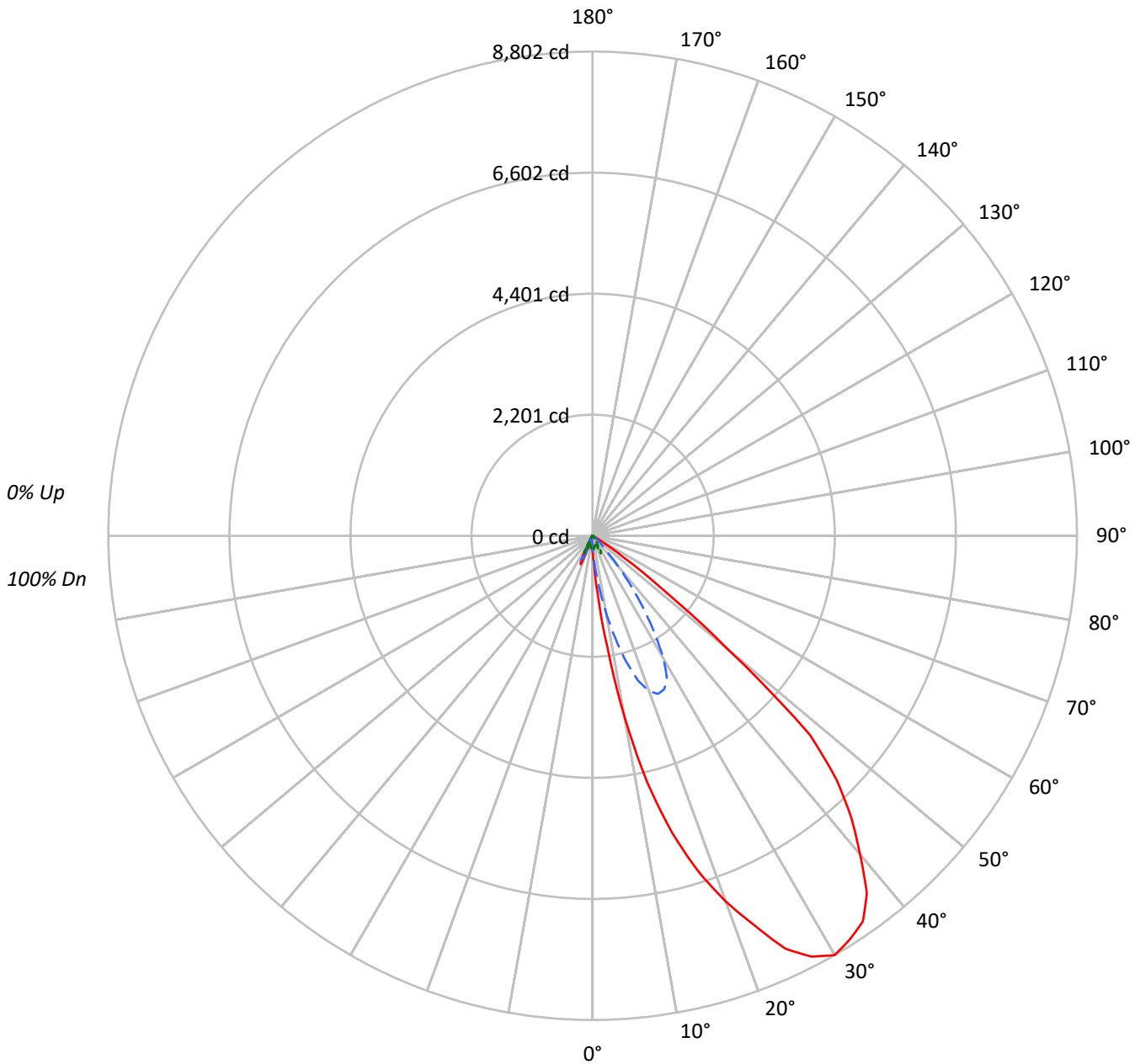
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	32440	32440	32440
5°	130651	30632	14350
10°	421185	25688	8241
15°	714502	20393	6398
20°	928637	18285	19322
25°	1126909	48151	68389
30°	1253574	16949	18060
35°	1289483	10134	8493
40°	1217541	4283	3027
45°	1094279	2460	820
50°	615857	1497	0
55°	152855	1011	0
60°	23559	1159	0
65°	5487	1372	0
70°	1118	1695	0
75°	0	2240	0
80°	0	4475	0
85°	0	8916	2264



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	52.8	1.7
10°-20°	392.6	12.3
20°-30°	906.8	28.3
30°-40°	1017.2	31.8
40°-50°	709.8	22.2
50°-60°	105.9	3.3
60°-70°	6.9	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°	1352.3	42.3
0°-40°	2369.5	74.1
0°-60°	3185.2	99.6
0°-90°	3199.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3199.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	263	263	263	263	263	
5°	1055	617	247	144	116	175
15°	5595	2381	160	61	50	1599
25°	8280	3078	354	493	502	3786
35°	8564	1600	67	56	56	5268
45°	6273	241	14	8	5	4602
55°	711	31	5	3	0	934
65°	19	5	5	3	0	29
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°	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
2.5°	479.1	474.4	461.8	458.7	469.7	460.3	465.0	474.4	465.0	454.0	465.0
5°	1055.2	1081.8	1055.2	1050.5	1069.3	1052.0	1059.9	1077.1	1053.6	1031.7	1047.4
7.5°	2036.8	2054.0	1978.9	2005.5	1999.2	2003.9	2008.6	2008.6	1994.5	1955.4	1977.3
10°	3362.8	3375.3	3275.1	3309.6	3264.2	3309.6	3301.7	3267.3	3275.1	3221.9	3250.1
12.5°	4593.3	4634.0	4533.8	4566.7	4511.9	4563.6	4543.2	4533.8	4454.0	4454.0	4483.7
15°	5595.3	5687.6	5596.8	5631.3	5568.7	5640.7	5584.3	5609.4	5537.4	5448.1	5526.4
17.5°	6406.2	6497.0	6412.5	6454.8	6396.8	6453.2	6387.4	6440.7	6348.3	6284.1	6337.3
20°	7074.7	7142.0	7041.8	7101.3	7032.5	7088.8	7016.8	7087.2	6979.2	6932.3	6963.6
22.5°	7657.1	7683.7	7632.1	7732.3	7597.6	7657.1	7571.0	7643.0	7514.6	7455.1	7463.0
25°	8280.2	8339.7	8241.1	8278.6	8184.7	8225.4	8128.3	8195.7	8036.0	7951.4	7934.2
27.5°	8626.2	8710.7	8623.0	8665.3	8569.8	8604.3	8507.2	8604.3	8441.4	8358.5	8339.7
30°	8801.5	8842.2	8785.9	8814.0	8706.0	8723.2	8623.0	8727.9	8565.1	8491.5	8482.1
32.5°	8699.8	8781.2	8707.6	8743.6	8643.4	8660.6	8563.6	8676.3	8513.5	8446.1	8413.3
35°	8563.6	8646.5	8577.6	8615.2	8522.9	8535.4	8432.1	8530.7	8342.8	8259.8	8189.4
37.5°	8186.3	8264.5	8206.6	8219.1	8129.9	8120.5	8009.4	8092.3	7909.2	7838.7	7791.7
40°	7561.6	7632.1	7585.1	7611.7	7522.5	7502.1	7427.0	7503.7	7361.2	7309.6	7243.8
42.5°	6963.6	7021.5	6977.7	7019.9	6919.7	6893.1	6825.8	6922.9	6761.6	6719.3	6672.4
45°	6273.2	6309.2	6274.7	6310.7	6215.2	6173.0	6111.9	6194.9	6036.8	5997.6	5895.9
47.5°	5360.4	5321.3	5315.0	5349.5	5230.5	5142.8	5086.5	5192.9	4964.4	4887.6	4770.2
50°	3209.4	3275.1	3303.3	3279.8	3198.4	3077.9	2987.1	3117.0	2994.9	2807.0	2619.2
52.5°	1653.2	1579.6	1595.3	1603.1	1506.1	1470.1	1440.3	1470.1	1374.6	1326.0	1207.0
55°	710.8	676.3	688.8	693.5	674.8	630.9	615.3	634.0	590.2	571.4	522.9
57.5°	263.0	263.0	255.2	258.3	252.1	236.4	233.3	241.1	227.0	222.3	203.5
60°	95.5	95.5	95.5	95.5	87.7	86.1	86.1	89.2	84.5	83.0	76.7
62.5°	40.7	42.3	39.1	40.7	39.1	37.6	39.1	37.6	37.6	36.0	36.0
65°	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	17.2	17.2
67.5°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	7.8	7.8	7.8
70°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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°	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
2.5°	450.9	449.3	455.6	449.3	438.4	432.1	439.9	424.3	363.2	302.2	256.8
5°	1019.2	1011.3	1000.4	1003.5	976.9	955.0	955.0	912.7	616.8	350.7	247.4
7.5°	1931.9	1913.1	1833.3	1891.2	1834.8	1791.0	1761.2	1675.1	997.3	402.3	228.6
10°	3190.6	3157.7	3101.4	3112.3	3019.9	2946.4	2857.1	2713.1	1434.0	447.7	205.1
12.5°	4432.1	4399.2	4248.9	4335.0	4211.3	4139.3	3989.0	3819.9	1905.3	469.7	183.2
15°	5485.7	5457.5	5293.1	5374.5	5222.7	5155.4	4961.2	4773.4	2381.2	461.8	159.7
17.5°	6304.5	6299.8	6110.3	6191.8	6024.2	5969.4	5742.4	5557.7	2766.3	427.4	144.0
20°	6935.4	6924.4	6733.4	6814.8	6631.7	6578.4	6290.4	6096.3	3010.6	380.4	139.3
22.5°	7433.2	7411.3	7206.2	7276.7	7071.6	7002.7	6684.9	6482.9	3110.7	350.7	172.2
25°	7881.0	7841.8	7608.6	7663.4	7437.9	7452.0	6974.5	6752.2	3077.9	394.5	353.8
27.5°	8275.5	8205.0	7970.2	7985.9	7721.3	7583.5	7173.3	6927.6	2927.6	439.9	328.8
30°	8422.7	8353.8	8104.9	8114.2	7838.7	7644.6	7206.2	6932.3	2567.5	275.5	119.0
32.5°	8341.3	8266.1	8006.2	8009.4	7726.0	7528.7	7091.9	6789.8	2088.4	181.6	90.8
35°	8104.9	8026.6	7768.3	7780.8	7506.8	7311.1	6883.7	6561.2	1600.0	144.0	67.3
37.5°	7705.6	7650.8	7405.1	7427.0	7193.7	6985.5	6551.8	6202.7	1128.8	103.3	42.3
40°	7192.1	7149.9	6911.9	6946.3	6692.7	6500.2	6035.2	5656.3	702.9	70.4	26.6
42.5°	6591.0	6545.6	6310.7	6337.3	6121.3	5845.8	5371.4	4942.4	367.9	50.1	18.8
45°	5841.1	5787.8	5549.9	5564.0	5308.8	4986.3	4494.7	4115.8	241.1	34.4	14.1
47.5°	4662.2	4566.7	4256.7	4244.2	4036.0	3508.4	2810.2	2274.7	159.7	23.5	9.4
50°	2562.8	2464.2	2191.8	2162.0	1930.3	1584.3	1171.0	911.2	92.4	15.7	7.8
52.5°	1166.3	1114.7	987.9	967.5	868.9	720.2	554.2	455.6	53.2	11.0	6.3
55°	505.7	486.9	433.7	430.5	385.1	333.5	266.1	225.4	31.3	7.8	4.7
57.5°	198.8	192.6	181.6	173.8	156.6	139.3	115.9	97.1	20.4	6.3	4.7
60°	75.1	73.6	67.3	68.9	62.6	59.5	51.7	43.8	12.5	4.7	4.7
62.5°	34.4	34.4	32.9	32.9	31.3	28.2	25.0	23.5	7.8	4.7	4.7
65°	17.2	17.2	15.7	15.7	15.7	14.1	12.5	12.5	4.7	4.7	4.7
67.5°	7.8	7.8	7.8	7.8	7.8	6.3	6.3	6.3	3.1	4.7	4.7
70°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.7	4.7
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.1	4.7	4.7
75°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.1	4.7	4.7
77.5°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.1	4.7	6.3
80°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.1	4.7	6.3
82.5°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.1	4.7	6.3
85°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.1	4.7	6.3
87.5°	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.6	3.1	4.7	6.3
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: LDA4A28835D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	263.0	263.0	263.0	263.0
2.5°	220.7	195.7	173.8	169.1
5°	181.6	144.0	120.5	115.9
7.5°	147.2	104.9	87.7	84.5
10°	120.5	84.5	68.9	65.8
12.5°	100.2	68.9	54.8	51.7
15°	86.1	61.1	50.1	50.1
17.5°	83.0	67.3	64.2	65.8
20°	108.0	122.1	145.6	147.2
22.5°	250.5	407.0	538.5	563.6
25°	450.9	493.1	480.6	502.5
27.5°	238.0	186.3	189.4	194.1
30°	103.3	114.3	120.5	126.8
32.5°	86.1	89.2	90.8	95.5
35°	56.4	56.4	54.8	56.4
37.5°	34.4	32.9	31.3	31.3
40°	21.9	20.4	18.8	18.8
42.5°	15.7	12.5	11.0	11.0
45°	11.0	7.8	6.3	4.7
47.5°	7.8	4.7	3.1	1.6
50°	6.3	4.7	1.6	0.0
52.5°	4.7	3.1	1.6	0.0
55°	4.7	3.1	0.0	0.0
57.5°	4.7	3.1	0.0	0.0
60°	4.7	3.1	0.0	0.0
62.5°	4.7	3.1	0.0	0.0
65°	4.7	3.1	1.6	0.0
67.5°	4.7	3.1	1.6	0.0
70°	4.7	3.1	1.6	0.0
72.5°	4.7	3.1	1.6	0.0
75°	4.7	4.7	1.6	0.0
77.5°	6.3	4.7	1.6	0.0
80°	6.3	4.7	1.6	0.0
82.5°	6.3	4.7	1.6	0.0
85°	6.3	4.7	1.6	1.6
87.5°	6.3	4.7	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)