

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: P170834

Luminaire Tested: **LDA4A28930D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170834  
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: LDA4A28930D010TE 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 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2602.1 lumens  
Efficiency: N/A  
Efficacy: 58.5 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

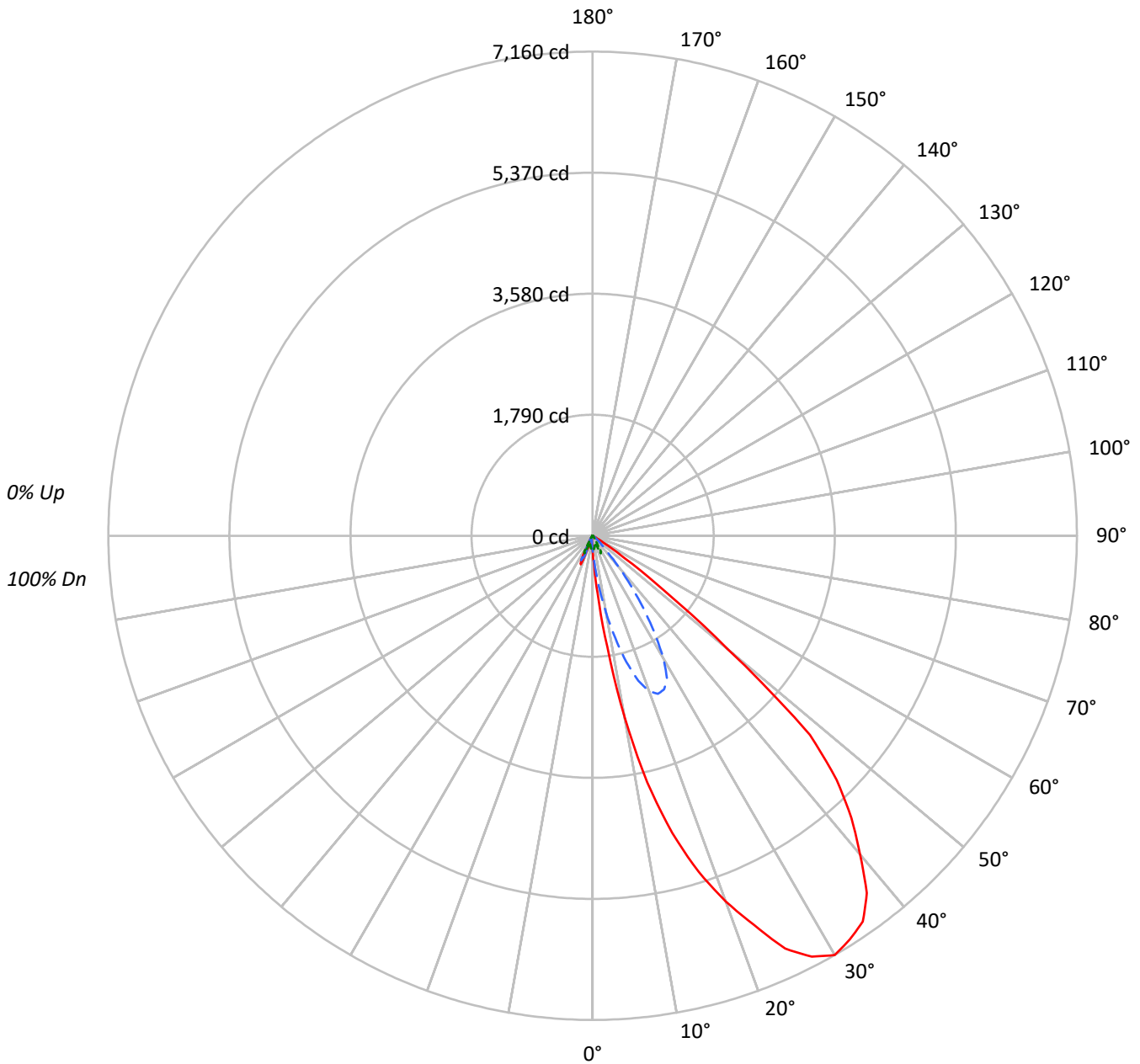
Input Watts (W): 44.49  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	26384	26384	26384
5°	106272	24912	11664
10°	342605	20891	6701
15°	581199	16588	5210
20°	755385	14872	15712
25°	916667	39169	55636
30°	1019708	13787	14698
35°	1048906	8252	6896
40°	990395	3478	2464
45°	890117	2006	663
50°	500953	1228	0
55°	124340	817	0
60°	19168	937	0
65°	4465	1109	0
70°	902	1370	0
75°	0	1811	0
80°	0	3623	0
85°	0	7218	1840



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	43.0	1.7
10°-20°	319.4	12.3
20°-30°	737.7	28.3
30°-40°	827.4	31.8
40°-50°	577.4	22.2
50°-60°	86.2	3.3
60°-70°	5.6	0.2
70°-80°	2.8	0.1
80°-90°	2.7	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°	1100.0	42.3
0°-40°	1927.4	74.1
0°-60°	2591.0	99.6
0°-90°	2602.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2602.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	214	214	214	214	214	
5°	858	502	201	117	94	142
15°	4551	1937	130	50	41	1301
25°	6735	2504	288	401	409	3079
35°	6966	1302	55	46	46	4285
45°	5103	196	12	6	4	3744
55°	578	26	4	2	0	760
65°	15	4	4	2	0	23
75°	0	2	4	4	0	1
85°	0	2	5	4	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°	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9
2.5°	389.7	385.9	375.7	373.1	382.0	374.4	378.2	385.9	378.2	369.3	378.2
5°	858.3	880.0	858.3	854.5	869.8	855.8	862.1	876.2	857.0	839.2	852.0
7.5°	1656.8	1670.8	1609.7	1631.3	1626.2	1630.0	1633.9	1633.9	1622.4	1590.6	1608.4
10°	2735.4	2745.6	2664.1	2692.1	2655.2	2692.1	2685.8	2657.7	2664.1	2620.8	2643.7
12.5°	3736.4	3769.5	3688.0	3714.7	3670.2	3712.2	3695.6	3688.0	3623.0	3623.0	3647.2
15°	4551.4	4626.5	4552.7	4580.7	4529.8	4588.3	4542.5	4562.9	4504.3	4431.7	4495.4
17.5°	5211.1	5284.9	5216.2	5250.5	5203.4	5249.3	5195.8	5239.1	5163.9	5111.7	5155.0
20°	5754.8	5809.6	5728.1	5776.5	5720.5	5766.3	5707.7	5765.0	5677.2	5638.9	5664.4
22.5°	6228.6	6250.2	6208.2	6289.7	6180.2	6228.6	6158.5	6217.1	6112.7	6064.3	6070.7
25°	6735.4	6783.8	6703.6	6734.1	6657.7	6690.8	6611.9	6666.6	6536.7	6468.0	6454.0
27.5°	7016.8	7085.6	7014.3	7048.7	6971.0	6999.0	6920.1	6999.0	6866.6	6799.1	6783.8
30°	7159.5	7192.6	7146.7	7169.7	7081.8	7095.8	7014.3	7099.6	6967.2	6907.3	6899.7
32.5°	7076.7	7142.9	7083.1	7112.4	7030.9	7044.9	6965.9	7057.6	6925.2	6870.4	6843.7
35°	6965.9	7033.4	6977.4	7007.9	6932.8	6943.0	6858.9	6939.2	6786.4	6718.9	6661.5
37.5°	6659.0	6722.7	6675.6	6685.7	6613.2	6605.5	6515.1	6582.6	6433.6	6376.3	6338.1
40°	6150.9	6208.2	6170.0	6191.6	6119.0	6102.5	6041.4	6103.8	5987.9	5945.9	5892.4
42.5°	5664.4	5711.5	5675.9	5710.3	5628.8	5607.1	5552.4	5631.3	5500.1	5465.8	5427.6
45°	5102.8	5132.1	5104.1	5133.4	5055.7	5021.3	4971.6	5039.1	4910.5	4878.7	4795.9
47.5°	4360.4	4328.5	4323.4	4351.5	4254.7	4183.4	4137.5	4224.1	4038.2	3975.8	3880.3
50°	2610.6	2664.1	2687.0	2667.9	2601.7	2503.7	2429.8	2535.5	2436.2	2283.3	2130.5
52.5°	1344.8	1284.9	1297.7	1304.0	1225.1	1195.8	1171.6	1195.8	1118.1	1078.6	981.8
55°	578.2	550.1	560.3	564.1	548.9	513.2	500.5	515.8	480.1	464.8	425.3
57.5°	213.9	213.9	207.6	210.1	205.0	192.3	189.7	196.1	184.7	180.8	165.6
60°	77.7	77.7	77.7	77.7	71.3	70.0	70.0	72.6	68.8	67.5	62.4
62.5°	33.1	34.4	31.8	33.1	31.8	30.6	31.8	30.6	30.6	29.3	29.3
65°	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	14.0	14.0
67.5°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	6.4	6.4	6.4
70°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9	213.9
2.5°	366.8	365.5	370.6	365.5	356.6	351.5	357.8	345.1	295.4	245.8	208.8
5°	829.0	822.7	813.8	816.3	794.6	776.8	776.8	742.4	501.7	285.3	201.2
7.5°	1571.5	1556.2	1491.2	1538.4	1492.5	1456.9	1432.7	1362.6	811.2	327.3	185.9
10°	2595.3	2568.6	2522.8	2531.7	2456.5	2396.7	2324.1	2206.9	1166.5	364.2	166.8
12.5°	3605.2	3578.5	3456.2	3526.3	3425.6	3367.1	3244.8	3107.3	1549.8	382.0	149.0
15°	4462.3	4439.3	4305.6	4371.8	4248.3	4193.6	4035.6	3882.8	1937.0	375.7	129.9
17.5°	5128.3	5124.5	4970.4	5036.6	4900.3	4855.8	4671.1	4520.8	2250.2	347.7	117.2
20°	5641.5	5632.6	5477.2	5543.4	5394.4	5351.1	5116.8	4958.9	2448.9	309.5	113.3
22.5°	6046.5	6028.6	5861.8	5919.1	5752.3	5696.3	5437.7	5273.5	2530.4	285.3	140.1
25°	6410.7	6378.8	6189.1	6233.7	6050.3	6061.7	5673.3	5492.5	2503.7	320.9	287.8
27.5°	6731.6	6674.3	6483.3	6496.0	6280.8	6168.7	5835.1	5635.1	2381.4	357.8	267.4
30°	6851.3	6795.3	6592.8	6600.4	6376.3	6218.4	5861.8	5638.9	2088.5	224.1	96.8
32.5°	6785.1	6724.0	6512.6	6515.1	6284.6	6124.1	5768.8	5523.1	1698.8	147.7	73.9
35°	6592.8	6529.1	6319.0	6329.2	6106.3	5947.1	5599.5	5337.1	1301.5	117.2	54.8
37.5°	6268.0	6223.5	6023.5	6041.4	5851.6	5682.2	5329.5	5045.5	918.2	84.0	34.4
40°	5850.3	5816.0	5622.4	5650.4	5444.1	5287.5	4909.2	4601.1	571.8	57.3	21.6
42.5°	5361.3	5324.4	5133.4	5155.0	4979.3	4755.2	4369.3	4020.4	299.3	40.8	15.3
45°	4751.3	4708.0	4514.5	4525.9	4318.4	4056.0	3656.1	3348.0	196.1	28.0	11.5
47.5°	3792.4	3714.7	3462.6	3452.4	3283.0	2853.9	2285.9	1850.4	129.9	19.1	7.6
50°	2084.7	2004.5	1782.9	1758.7	1570.2	1288.8	952.6	741.2	75.1	12.7	6.4
52.5°	948.7	906.7	803.6	787.0	706.8	585.8	450.8	370.6	43.3	8.9	5.1
55°	411.3	396.1	352.8	350.2	313.3	271.3	216.5	183.4	25.5	6.4	3.8
57.5°	161.7	156.6	147.7	141.4	127.3	113.3	94.2	79.0	16.6	5.1	3.8
60°	61.1	59.9	54.8	56.0	50.9	48.4	42.0	35.7	10.2	3.8	3.8
62.5°	28.0	28.0	26.7	26.7	25.5	22.9	20.4	19.1	6.4	3.8	3.8
65°	14.0	14.0	12.7	12.7	12.7	11.5	10.2	10.2	3.8	3.8	3.8
67.5°	6.4	6.4	6.4	6.4	6.4	5.1	5.1	5.1	2.5	3.8	3.8
70°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.8	3.8
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	3.8	3.8
75°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.5	3.8	3.8
77.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.5	3.8	5.1
80°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.5	3.8	5.1
82.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.5	3.8	5.1
85°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.5	3.8	5.1
87.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.5	3.8	5.1
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°	213.9	213.9	213.9	213.9
2.5°	179.6	159.2	141.4	137.5
5°	147.7	117.2	98.1	94.2
7.5°	119.7	85.3	71.3	68.8
10°	98.1	68.8	56.0	53.5
12.5°	81.5	56.0	44.6	42.0
15°	70.0	49.7	40.8	40.8
17.5°	67.5	54.8	52.2	53.5
20°	87.9	99.3	118.4	119.7
22.5°	203.8	331.1	438.1	458.5
25°	366.8	401.1	391.0	408.8
27.5°	193.6	151.5	154.1	157.9
30°	84.0	93.0	98.1	103.2
32.5°	70.0	72.6	73.9	77.7
35°	45.8	45.8	44.6	45.8
37.5°	28.0	26.7	25.5	25.5
40°	17.8	16.6	15.3	15.3
42.5°	12.7	10.2	8.9	8.9
45°	8.9	6.4	5.1	3.8
47.5°	6.4	3.8	2.5	1.3
50°	5.1	3.8	1.3	0.0
52.5°	3.8	2.5	1.3	0.0
55°	3.8	2.5	0.0	0.0
57.5°	3.8	2.5	0.0	0.0
60°	3.8	2.5	0.0	0.0
62.5°	3.8	2.5	0.0	0.0
65°	3.8	2.5	1.3	0.0
67.5°	3.8	2.5	1.3	0.0
70°	3.8	2.5	1.3	0.0
72.5°	3.8	2.5	1.3	0.0
75°	3.8	3.8	1.3	0.0
77.5°	5.1	3.8	1.3	0.0
80°	5.1	3.8	1.3	0.0
82.5°	5.1	3.8	1.3	0.0
85°	5.1	3.8	1.3	1.3
87.5°	5.1	3.8	1.3	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)