

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: P174895

Luminaire Tested: **LDA4A18830D010TE LAR35FL 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P174895  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26217)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt  
Description: PORTFOLIO 4" Adjustable Reflector, Self-flanged Trim Ring, 35° Flood Optic, at 30° tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1753.0 lumens  
Efficiency: N/A  
Efficacy: 60.2 lumens/watt  
Spacing Criteria (0/90/45): 2.3 / 0.86 / 1.17  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

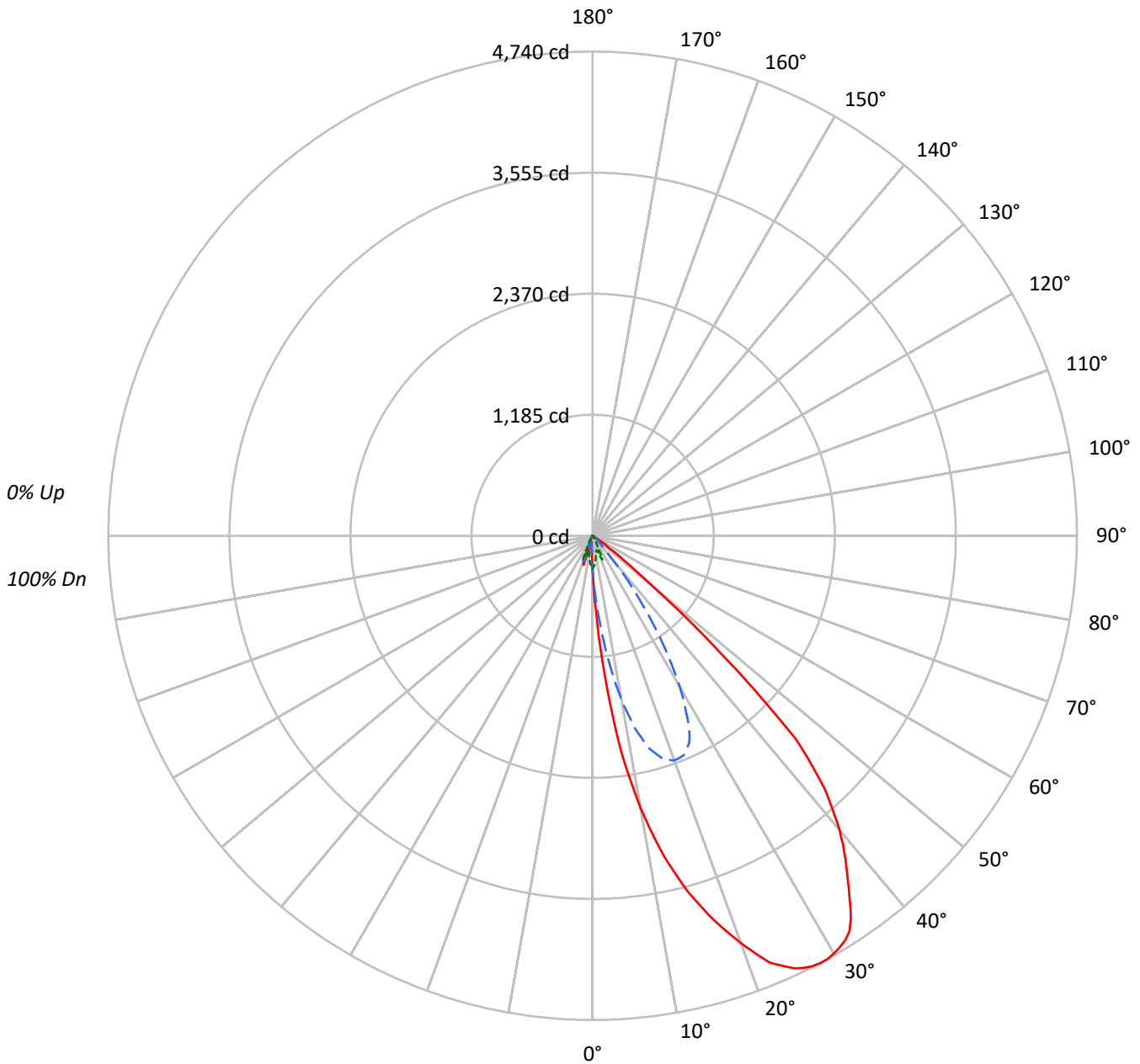
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P174895

CATALOG NUMBER: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt

### Luminous Intensity Polar Plot





TEST NUMBER: P174895

CATALOG NUMBER: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt

**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	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92																			
2	106	101	96	92	104	99	95	91	96	92	89	92	90	87	90	87	85	84																			
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76																			
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69																			
5	88	78	71	66	86	77	71	66	75	70	65	73	68	65	72	67	64	62																			
6	82	72	65	60	81	71	64	60	69	64	59	68	63	59	66	62	58	57																			
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52																			
8	72	61	54	50	71	61	54	49	59	54	49	58	53	49	57	52	49	47																			
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43																			
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40																			

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

	0°	90°	180°
0°	40149	40149	40149
5°	168638	33579	12394
10°	338784	23096	7527
15°	460819	18759	16945
20°	556943	28484	31437
25°	636062	16930	8751
30°	672542	7962	4045
35°	661516	3524	1506
40°	605389	1739	403
45°	491040	872	0
50°	145569	480	0
55°	26386	538	0
60°	4934	617	0
65°	1226	730	0
70°	289	902	0
75°	0	1191	0
80°	0	2344	0
85°	0	4670	0



TEST NUMBER: P174895

CATALOG NUMBER: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	59.2	3.4
10°-20°	306.2	17.5
20°-30°	536.2	30.6
30°-40°	538.5	30.7
40°-50°	283.7	16.2
50°-60°	23.6	1.3
60°-70°	2.4	0.1
70°-80°	1.7	0.1
80°-90°	1.6	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°	901.5	51.4
0°-40°	1440.0	82.1
0°-60°	1747.3	99.7
0°-90°	1753.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1753.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	326	326	326	326	326	
5°	1362	890	271	124	100	174
15°	3609	2160	147	98	133	1030
25°	4674	2237	124	71	64	2139
35°	4393	971	23	12	10	2717
45°	2815	100	5	2	0	1929
55°	123	11	2	1	0	184
65°	4	2	2	2	0	6
75°	0	2	2	2	0	0
85°	0	2	3	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P174895

CATALOG NUMBER: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
0°	325.5	325.5	325.5	325.5	325.5	325.5	325.5	325.5	325.5	325.5	325.5
2.5°	738.6	739.4	740.3	746.1	732.8	729.4	723.6	715.2	687.7	574.2	433.1
5°	1362.0	1372.0	1369.5	1361.2	1340.3	1328.6	1311.1	1292.8	1217.6	890.5	537.5
7.5°	2116.5	2135.7	2131.5	2119.0	2083.9	2068.1	2023.8	1999.6	1886.1	1264.4	615.1
10°	2704.9	2755.8	2756.6	2744.9	2692.3	2669.8	2623.9	2580.5	2437.0	1630.8	651.0
12.5°	3202.3	3203.1	3242.3	3233.1	3172.2	3162.2	3123.8	3058.7	2907.7	1936.2	651.0
15°	3608.7	3663.8	3654.6	3644.6	3580.3	3567.0	3530.3	3470.2	3294.1	2159.9	619.3
17.5°	3944.2	3993.4	3979.3	3968.4	3904.1	3874.9	3834.9	3763.1	3569.5	2292.6	553.3
20°	4243.0	4289.7	4261.3	4242.1	4156.2	4120.3	4061.9	3979.3	3758.1	2341.8	476.5
22.5°	4521.7	4571.0	4535.1	4508.4	4397.4	4328.1	4245.5	4141.2	3880.8	2326.0	435.6
25°	4673.6	4737.9	4703.7	4682.8	4576.8	4495.9	4386.5	4252.2	3950.9	2236.7	328.0
26°	4707.0	4774.6	4742.1	4723.7	4616.0	4530.1	4413.2	4272.2	3956.7	2163.2	252.9
27°	4730.4	4805.5	4767.9	4744.6	4633.6	4541.8	4419.9	4273.0	3947.5	2063.9	201.1
28°	4739.5	4822.2	4776.3	4747.9	4632.7	4532.6	4403.2	4254.7	3923.3	1949.6	171.1
29°	4738.7	4828.8	4775.4	4744.6	4621.9	4510.9	4378.2	4228.8	3890.0	1830.2	154.4
30°	4722.0	4820.5	4767.1	4727.9	4596.0	4476.7	4342.3	4192.9	3852.4	1700.0	137.7
31°	4699.5	4800.5	4744.6	4696.2	4553.4	4424.1	4292.2	4144.5	3802.3	1560.7	126.0
32°	4666.9	4767.9	4706.2	4642.7	4493.3	4358.1	4231.3	4087.7	3741.4	1413.8	111.8
33°	4615.2	4704.5	4632.7	4559.3	4409.9	4283.0	4162.9	4021.8	3672.1	1261.0	96.8
34°	4520.9	4599.3	4525.1	4450.8	4317.3	4199.6	4084.4	3944.2	3591.2	1120.0	83.5
35°	4393.2	4460.0	4393.2	4330.6	4212.9	4103.6	3993.4	3856.6	3493.5	971.4	71.8
36°	4263.0	4321.4	4259.7	4210.4	4097.8	4000.1	3897.5	3755.6	3383.4	830.4	63.4
37°	4141.2	4193.7	4137.0	4087.7	3990.9	3891.6	3789.8	3644.6	3261.5	695.2	52.6
38°	4020.1	4066.9	4018.5	3963.4	3874.1	3773.1	3670.5	3521.9	3125.5	567.5	45.1
39°	3894.1	3932.5	3885.8	3829.9	3738.9	3638.7	3533.6	3380.0	2969.4	434.8	39.2
40°	3759.8	3795.6	3738.1	3688.0	3597.0	3494.4	3386.7	3227.3	2800.0	291.3	33.4
42.5°	3362.5	3384.2	3335.8	3266.5	3175.6	3062.9	2932.7	2754.1	2258.4	153.6	23.4
45°	2815.0	2819.2	2781.6	2655.6	2533.8	2359.3	2164.9	1897.0	1312.8	100.1	15.0
47.5°	1699.2	1689.2	1629.9	1522.3	1408.8	1224.3	1042.4	857.9	509.9	58.4	10.0
50°	758.6	746.9	717.7	661.8	595.9	527.5	446.5	378.1	247.9	31.7	6.7
51°	550.0	540.0	518.3	475.7	427.3	378.9	323.0	276.2	185.3	25.9	5.8
52°	386.4	380.6	365.5	335.5	308.8	271.2	232.8	203.6	139.4	20.9	4.2
53°	269.6	265.4	256.2	236.2	220.3	192.8	168.6	145.2	101.0	16.7	4.2
54°	182.8	180.3	174.4	161.1	147.7	132.7	115.2	101.8	70.9	13.4	3.3
55°	122.7	121.0	116.0	109.3	101.8	92.6	81.0	70.9	50.1	10.8	2.5
57.5°	45.1	45.1	43.4	40.9	38.4	35.9	32.5	29.2	23.4	6.7	2.5
60°	20.0	19.2	19.2	18.4	17.5	16.7	15.9	14.2	11.7	4.2	2.5
61°	15.0	15.0	14.2	13.4	13.4	12.5	11.7	10.8	9.2	3.3	2.5
62°	10.8	10.8	10.8	10.0	10.0	9.2	9.2	8.3	6.7	2.5	2.5
63°	8.3	8.3	8.3	7.5	7.5	7.5	6.7	6.7	5.0	2.5	2.5
64°	5.8	5.8	5.8	5.8	5.8	5.8	5.0	5.0	4.2	1.7	2.5
65°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	3.3	1.7	2.5
66°	3.3	3.3	3.3	3.3	3.3	3.3	2.5	2.5	2.5	1.7	2.5



TEST NUMBER: P174895

CATALOG NUMBER: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	2.5
77.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	2.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	2.5
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	2.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	2.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P174895

CATALOG NUMBER: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	90°	112.5°	135°	157.5°	180°
0°	325.5	325.5	325.5	325.5	325.5
2.5°	299.6	209.5	166.9	151.1	146.1
5°	271.2	156.9	124.4	106.8	100.1
7.5°	227.8	129.4	93.5	77.6	72.6
10°	184.4	106.8	75.9	63.4	60.1
12.5°	157.7	92.6	70.9	65.9	65.9
15°	146.9	97.6	98.5	118.5	132.7
17.5°	151.1	152.7	238.7	290.4	299.6
20°	217.0	274.6	272.1	247.0	239.5
22.5°	251.2	181.1	136.9	112.7	108.5
25°	124.4	82.6	70.9	65.1	64.3
26°	94.3	69.3	61.8	58.4	56.8
27°	78.5	60.9	55.1	50.9	49.2
28°	70.1	54.2	47.6	43.4	41.7
29°	63.4	46.7	40.1	35.9	35.1
30°	55.9	39.2	33.4	29.2	28.4
31°	47.6	32.5	26.7	24.2	22.5
32°	40.1	26.7	21.7	19.2	17.5
33°	33.4	21.7	18.4	15.9	14.2
34°	28.4	18.4	15.0	12.5	11.7
35°	23.4	15.0	12.5	10.8	10.0
36°	20.0	13.4	10.0	8.3	7.5
37°	17.5	10.8	8.3	6.7	6.7
38°	15.0	9.2	7.5	5.0	5.0
39°	12.5	7.5	5.8	4.2	4.2
40°	10.8	6.7	5.0	3.3	2.5
42.5°	7.5	4.2	3.3	1.7	0.8
45°	5.0	3.3	1.7	0.8	0.0
47.5°	3.3	2.5	1.7	0.8	0.0
50°	2.5	2.5	1.7	0.0	0.0
51°	2.5	1.7	1.7	0.0	0.0
52°	2.5	1.7	0.8	0.0	0.0
53°	2.5	1.7	0.8	0.0	0.0
54°	2.5	1.7	0.8	0.0	0.0
55°	2.5	1.7	0.8	0.0	0.0
57.5°	2.5	1.7	0.8	0.0	0.0
60°	2.5	1.7	1.7	0.0	0.0
61°	2.5	2.5	1.7	0.0	0.0
62°	2.5	2.5	1.7	0.0	0.0
63°	2.5	2.5	1.7	0.0	0.0
64°	2.5	2.5	1.7	0.8	0.0
65°	2.5	2.5	1.7	0.8	0.0
66°	2.5	2.5	1.7	0.8	0.0





TEST NUMBER: P174895

CATALOG NUMBER: LDA4A18830D010TE LAR35FL 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	90°	112.5°	135°	157.5°	180°
72.5°	2.5	2.5	1.7	0.8	0.0
75°	2.5	2.5	1.7	0.8	0.0
77.5°	3.3	2.5	1.7	0.8	0.0
80°	3.3	2.5	1.7	0.8	0.0
82.5°	3.3	2.5	1.7	0.8	0.0
85°	3.3	2.5	1.7	0.8	0.0
87.5°	3.3	2.5	1.7	0.8	0.0
90°	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180°    - - 45°-225°    - - - - 90°-270°







67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.5
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7	2.5







67.5°	2.5	2.5	1.7	0.8	0.0
70°	2.5	2.5	1.7	0.8	0.0



(END OF REPORT)