

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: P174897

Luminaire Tested: **LDA4A18840D010TE LAR35FL 4LA1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P174897  
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: LDA4A18840D010TE 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 / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1890.2 lumens  
Efficiency: N/A  
Efficacy: 64.9 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

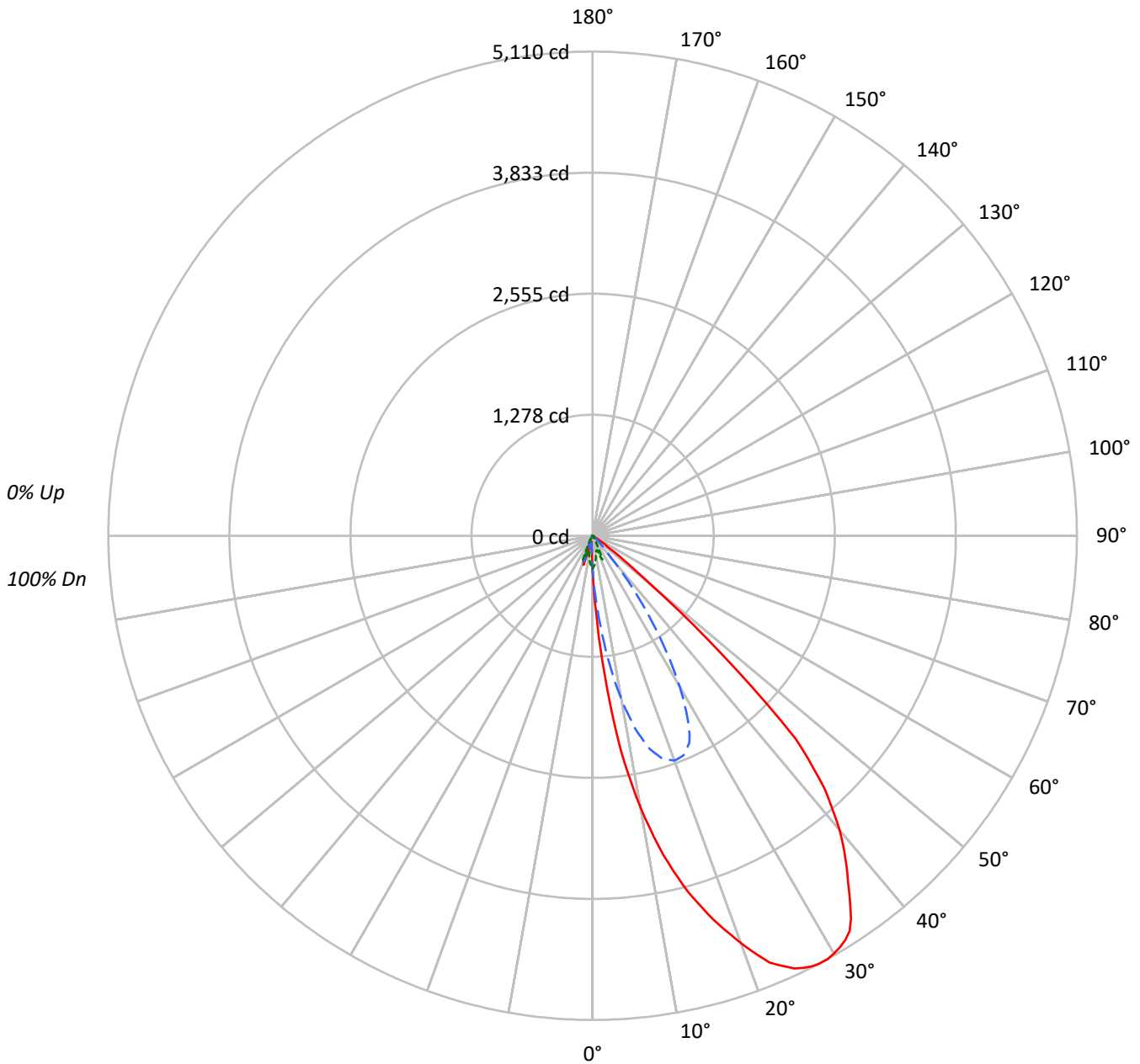
Input Watts (W): 29.12  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P174897

CATALOG NUMBER: LDA4A18840D010TE LAR35FL 4LA1 30° Tilt

### Luminous Intensity Polar Plot





TEST NUMBER: P174897

CATALOG NUMBER: LDA4A18840D010TE 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				100															
1	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92				92															
2	106	101	96	92	104	99	95	91	96	92	89	92	90	87	90	87	85	84				84															
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76				76															
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69				69															
5	88	78	71	66	86	77	71	66	75	70	65	73	68	65	72	67	64	62				62															
6	82	72	65	60	81	71	64	60	69	64	59	68	63	59	66	62	58	57				57															
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52				52															
8	72	61	54	50	71	61	54	49	59	54	49	58	53	49	57	52	49	47				47															
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43				43															
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40				40															

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

	0°	90°	180°
0°	43294	43294	43294
5°	181837	36216	13372
10°	365287	24912	8116
15°	496881	20227	18273
20°	600522	30715	33905
25°	685833	18251	9432
30°	725168	8588	4358
35°	713284	3795	1626
40°	652760	1884	435
45°	529469	942	0
50°	156967	518	0
55°	28451	581	0
60°	5329	666	0
65°	1313	788	0
70°	325	974	0
75°	0	1287	0
80°	0	2557	0
85°	0	5095	0



TEST NUMBER: P174897

CATALOG NUMBER: LDA4A18840D010TE LAR35FL 4LA1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	63.8	3.4
10°-20°	330.1	17.5
20°-30°	578.2	30.6
30°-40°	580.6	30.7
40°-50°	305.9	16.2
50°-60°	25.5	1.3
60°-70°	2.6	0.1
70°-80°	1.8	0.1
80°-90°	1.7	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°	972.1	51.4
0°-40°	1552.7	82.1
0°-60°	1884.1	99.7
0°-90°	1890.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1890.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	351	351	351	351	351	
5°	1469	960	292	134	108	188
15°	3891	2329	158	106	143	1111
25°	5039	2412	134	76	69	2306
35°	4737	1048	25	14	11	2929
45°	3035	108	5	2	0	2080
55°	132	12	3	1	0	199
65°	4	2	3	2	0	7
75°	0	2	3	2	0	0
85°	0	2	4	2	0	0
90°	0	0	0	0	0	



TEST NUMBER: P174897

CATALOG NUMBER: LDA4A18840D010TE 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°	351.0	351.0	351.0	351.0	351.0	351.0	351.0	351.0	351.0	351.0	351.0
2.5°	796.4	797.3	798.2	804.5	790.1	786.5	780.2	771.2	741.5	619.1	467.0
5°	1468.6	1479.4	1476.7	1467.7	1445.2	1432.6	1413.7	1393.9	1312.9	960.2	579.5
7.5°	2282.1	2302.8	2298.3	2284.8	2247.0	2229.9	2182.2	2156.1	2033.7	1363.3	663.2
10°	2916.5	2971.4	2972.3	2959.7	2903.0	2878.7	2829.2	2782.4	2627.7	1758.4	701.9
12.5°	3452.8	3453.7	3496.0	3486.1	3420.5	3409.7	3368.3	3298.1	3135.2	2087.7	701.9
15°	3891.1	3950.5	3940.6	3929.8	3860.5	3846.1	3806.5	3741.7	3551.8	2328.9	667.7
17.5°	4252.8	4305.9	4290.6	4278.9	4209.6	4178.2	4135.0	4057.6	3848.8	2472.0	596.6
20°	4575.0	4625.4	4594.8	4574.1	4481.4	4442.7	4379.7	4290.6	4052.2	2525.1	513.8
22.5°	4875.6	4928.7	4890.0	4861.2	4741.5	4666.8	4577.7	4465.2	4184.4	2508.0	469.7
25°	5039.3	5108.6	5071.7	5049.2	4935.0	4847.7	4729.8	4584.9	4260.0	2411.7	353.7
26°	5075.3	5148.2	5113.1	5093.3	4977.2	4884.6	4758.6	4606.5	4266.3	2332.5	272.7
27°	5100.5	5181.5	5141.0	5115.8	4996.1	4897.2	4765.8	4607.4	4256.4	2225.4	216.9
28°	5110.4	5199.5	5150.0	5119.4	4995.2	4887.3	4747.8	4587.6	4230.3	2102.1	184.5
29°	5109.5	5206.7	5149.1	5115.8	4983.5	4863.9	4720.8	4559.7	4194.3	1973.4	166.5
30°	5091.5	5197.7	5140.1	5097.8	4955.6	4827.0	4682.1	4521.0	4153.9	1833.1	148.5
31°	5067.2	5176.1	5115.8	5063.6	4909.8	4770.3	4628.1	4468.8	4099.9	1682.8	135.9
32°	5032.1	5141.0	5074.4	5006.0	4845.0	4699.2	4562.4	4407.6	4034.2	1524.4	120.6
33°	4976.3	5072.6	4995.2	4916.1	4755.0	4618.2	4488.6	4336.5	3959.5	1359.7	104.4
34°	4874.7	4959.2	4879.2	4799.1	4655.1	4528.2	4404.0	4252.8	3872.2	1207.6	90.0
35°	4737.0	4809.0	4737.0	4669.5	4542.6	4424.7	4305.9	4158.4	3766.9	1047.5	77.4
36°	4596.6	4659.6	4593.0	4539.9	4418.4	4313.1	4202.4	4049.5	3648.1	895.4	68.4
37°	4465.2	4521.9	4460.7	4407.6	4303.2	4196.1	4086.4	3929.8	3516.7	749.6	56.7
38°	4334.7	4385.1	4332.9	4273.5	4177.3	4068.4	3957.7	3797.5	3370.1	611.9	48.6
39°	4198.8	4240.2	4189.8	4129.6	4031.5	3923.5	3810.1	3644.5	3201.8	468.8	42.3
40°	4054.0	4092.7	4030.6	3976.6	3878.5	3767.8	3651.7	3479.8	3019.1	314.1	36.0
42.5°	3625.6	3649.0	3596.8	3522.1	3424.0	3302.6	3162.2	2969.6	2435.1	165.6	25.2
45°	3035.3	3039.8	2999.3	2863.4	2732.0	2544.0	2334.3	2045.4	1415.5	108.0	16.2
47.5°	1832.2	1821.4	1757.5	1641.4	1519.0	1320.1	1124.0	925.1	549.8	63.0	10.8
50°	818.0	805.4	773.9	713.6	642.5	568.7	481.4	407.6	267.3	34.2	7.2
51°	593.0	582.2	558.8	512.9	460.7	408.5	348.3	297.9	199.8	27.9	6.3
52°	416.6	410.3	394.1	361.8	333.0	292.5	251.1	219.6	150.3	22.5	4.5
53°	290.7	286.2	276.3	254.7	237.6	207.9	181.8	156.6	108.9	18.0	4.5
54°	197.1	194.4	188.1	173.7	159.3	143.1	124.2	109.8	76.5	14.4	3.6
55°	132.3	130.5	125.1	117.9	109.8	99.9	87.3	76.5	54.0	11.7	2.7
57.5°	48.6	48.6	46.8	44.1	41.4	38.7	35.1	31.5	25.2	7.2	2.7
60°	21.6	20.7	20.7	19.8	18.9	18.0	17.1	15.3	12.6	4.5	2.7
61°	16.2	16.2	15.3	14.4	14.4	13.5	12.6	11.7	9.9	3.6	2.7
62°	11.7	11.7	11.7	10.8	10.8	9.9	9.9	9.0	7.2	2.7	2.7
63°	9.0	9.0	9.0	8.1	8.1	8.1	7.2	7.2	5.4	2.7	2.7
64°	6.3	6.3	6.3	6.3	6.3	6.3	5.4	5.4	4.5	1.8	2.7
65°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.6	1.8	2.7
66°	3.6	3.6	3.6	3.6	3.6	3.6	2.7	2.7	2.7	1.8	2.7



TEST NUMBER: P174897

CATALOG NUMBER: LDA4A18840D010TE 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°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.7
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.7
77.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.7
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.7
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.7
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: P174897

CATALOG NUMBER: LDA4A18840D010TE LAR35FL 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	90°	112.5°	135°	157.5°	180°
0°	351.0	351.0	351.0	351.0	351.0
2.5°	323.1	225.9	180.0	162.9	157.5
5°	292.5	169.2	134.1	115.2	108.0
7.5°	245.7	139.5	100.8	83.7	78.3
10°	198.9	115.2	81.9	68.4	64.8
12.5°	170.1	99.9	76.5	71.1	71.1
15°	158.4	105.3	106.2	127.8	143.1
17.5°	162.9	164.7	257.4	313.2	323.1
20°	234.0	296.1	293.4	266.4	258.3
22.5°	270.9	195.3	147.6	121.5	117.0
25°	134.1	89.1	76.5	70.2	69.3
26°	101.7	74.7	66.6	63.0	61.2
27°	84.6	65.7	59.4	54.9	53.1
28°	75.6	58.5	51.3	46.8	45.0
29°	68.4	50.4	43.2	38.7	37.8
30°	60.3	42.3	36.0	31.5	30.6
31°	51.3	35.1	28.8	26.1	24.3
32°	43.2	28.8	23.4	20.7	18.9
33°	36.0	23.4	19.8	17.1	15.3
34°	30.6	19.8	16.2	13.5	12.6
35°	25.2	16.2	13.5	11.7	10.8
36°	21.6	14.4	10.8	9.0	8.1
37°	18.9	11.7	9.0	7.2	7.2
38°	16.2	9.9	8.1	5.4	5.4
39°	13.5	8.1	6.3	4.5	4.5
40°	11.7	7.2	5.4	3.6	2.7
42.5°	8.1	4.5	3.6	1.8	0.9
45°	5.4	3.6	1.8	0.9	0.0
47.5°	3.6	2.7	1.8	0.9	0.0
50°	2.7	2.7	1.8	0.0	0.0
51°	2.7	1.8	1.8	0.0	0.0
52°	2.7	1.8	0.9	0.0	0.0
53°	2.7	1.8	0.9	0.0	0.0
54°	2.7	1.8	0.9	0.0	0.0
55°	2.7	1.8	0.9	0.0	0.0
57.5°	2.7	1.8	0.9	0.0	0.0
60°	2.7	1.8	1.8	0.0	0.0
61°	2.7	2.7	1.8	0.0	0.0
62°	2.7	2.7	1.8	0.0	0.0
63°	2.7	2.7	1.8	0.0	0.0
64°	2.7	2.7	1.8	0.9	0.0
65°	2.7	2.7	1.8	0.9	0.0
66°	2.7	2.7	1.8	0.9	0.0





TEST NUMBER: P174897

CATALOG NUMBER: LDA4A18840D010TE LAR35FL 4LA1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	90°	112.5°	135°	157.5°	180°
72.5°	2.7	2.7	1.8	0.9	0.0
75°	2.7	2.7	1.8	0.9	0.0
77.5°	3.6	2.7	1.8	0.9	0.0
80°	3.6	2.7	1.8	0.9	0.0
82.5°	3.6	2.7	1.8	0.9	0.0
85°	3.6	2.7	1.8	0.9	0.0
87.5°	3.6	2.7	1.8	0.9	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°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.7
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.7







67.5°	2.7	2.7	1.8	0.9	0.0
70°	2.7	2.7	1.8	0.9	0.0



(END OF REPORT)