

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: P170821

Luminaire Tested: **LDA4A13827D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170821  
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: LDA4A13827D010TE 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 / 2700K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1448.9 lumens  
Efficiency: N/A  
Efficacy: 65.1 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

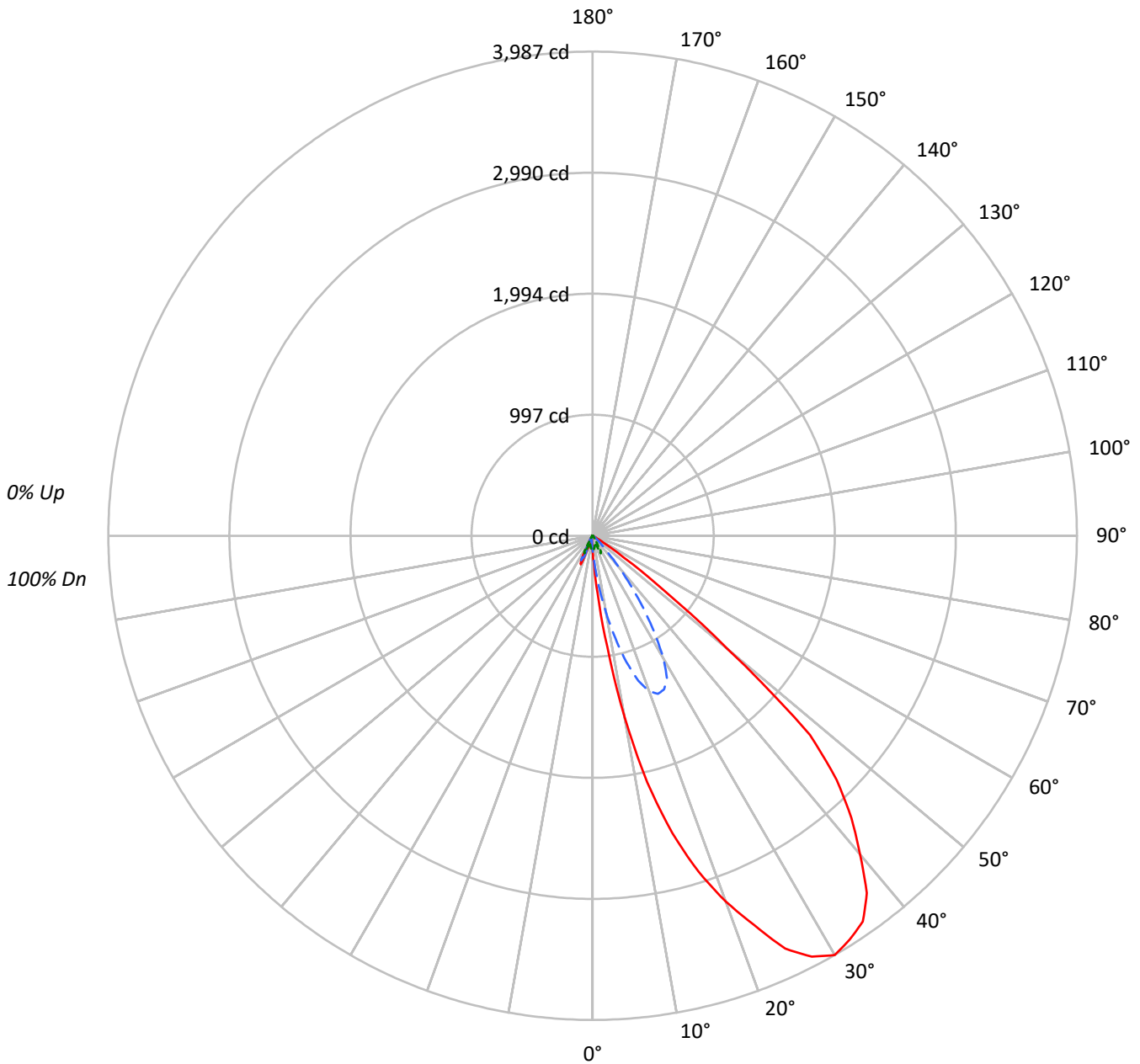
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P170821

CATALOG NUMBER: LDA4A13827D010TE LAR35FL 4LAL1 30° Tilt

### Luminous Intensity Polar Plot





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CATALOG NUMBER: LDA4A13827D010TE LAR35FL 4LAL1 30° Tilt

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

RF	20				20				20				20				20				20	
RC	80				70				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	112	109	106	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91				91
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	84	82				82
3	98	90	84	79	96	89	83	79	86	81	77	84	79	76	81	78	75	73				73
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	70	67	65				65
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58				58
6	79	68	61	56	78	67	60	55	66	60	55	64	59	55	63	58	54	52				52
7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47				47
8	69	57	50	45	68	57	50	45	55	49	44	54	48	44	53	48	44	42				42
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38				38
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35				35

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

	0°	90°	180°
0°	14690	14690	14690
5°	59172	13867	6500
10°	190778	11636	3732
15°	323635	9232	2899
20°	420628	8283	8755
25°	510431	21816	30976
30°	567815	7677	8175
35°	584074	4593	3840
40°	551481	1948	1369
45°	495645	1116	366
50°	278953	672	0
55°	69223	452	0
60°	10682	518	0
65°	2481	613	0
70°	505	757	0
75°	0	1001	0
80°	0	1989	0
85°	0	3963	991



TEST NUMBER: P170821

CATALOG NUMBER: LDA4A13827D010TE LAR35FL 4LAL1 30° Tilt

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	23.9	1.7
10°-20°	177.8	12.3
20°-30°	410.8	28.3
30°-40°	460.7	31.8
40°-50°	321.5	22.2
50°-60°	48.0	3.3
60°-70°	3.1	0.2
70°-80°	1.5	0.1
80°-90°	1.5	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°	612.5	42.3
0°-40°	1073.3	74.1
0°-60°	1442.7	99.6
0°-90°	1448.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1448.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	119	119	119	119	119	
5°	478	279	112	65	52	79
15°	2534	1079	72	28	23	724
25°	3750	1394	160	223	228	1715
35°	3879	725	30	26	26	2386
45°	2841	109	6	4	2	2085
55°	322	14	2	1	0	423
65°	8	2	2	1	0	13
75°	0	1	2	2	0	0
85°	0	1	3	2	1	0
90°	0	0	0	0	0	



TEST NUMBER: P170821

CATALOG NUMBER: LDA4A13827D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (FULL):**

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1
2.5°	217.0	214.9	209.2	207.8	212.7	208.5	210.6	214.9	210.6	205.6	210.6
5°	477.9	490.0	477.9	475.8	484.3	476.5	480.1	487.9	477.2	467.3	474.4
7.5°	922.6	930.4	896.3	908.4	905.5	907.7	909.8	909.8	903.4	885.7	895.6
10°	1523.2	1528.9	1483.5	1499.1	1478.5	1499.1	1495.5	1479.9	1483.5	1459.4	1472.1
12.5°	2080.5	2099.0	2053.6	2068.5	2043.7	2067.1	2057.9	2053.6	2017.4	2017.4	2030.9
15°	2534.4	2576.2	2535.1	2550.7	2522.3	2554.9	2529.4	2540.8	2508.1	2467.7	2503.2
17.5°	2901.7	2942.8	2904.5	2923.7	2897.5	2923.0	2893.2	2917.3	2875.5	2846.4	2870.5
20°	3204.5	3235.0	3189.6	3216.6	3185.4	3210.9	3178.3	3210.2	3161.2	3140.0	3154.2
22.5°	3468.3	3480.3	3456.9	3502.3	3441.3	3468.3	3429.3	3461.9	3403.8	3376.8	3380.4
25°	3750.5	3777.5	3732.8	3749.8	3707.3	3725.7	3681.7	3712.2	3639.9	3601.6	3593.8
27.5°	3907.2	3945.5	3905.8	3925.0	3881.7	3897.3	3853.3	3897.3	3823.6	3786.0	3777.5
30°	3986.7	4005.1	3979.6	3992.3	3943.4	3951.2	3905.8	3953.3	3879.6	3846.2	3842.0
32.5°	3940.6	3977.4	3944.1	3960.4	3915.0	3922.8	3878.9	3929.9	3856.2	3825.7	3810.8
35°	3878.9	3916.5	3885.3	3902.3	3860.4	3866.1	3819.3	3864.0	3778.9	3741.3	3709.4
37.5°	3708.0	3743.4	3717.2	3722.9	3682.4	3678.2	3627.8	3665.4	3582.5	3550.5	3529.3
40°	3425.0	3456.9	3435.7	3447.7	3407.3	3398.1	3364.1	3398.8	3334.3	3310.9	3281.1
42.5°	3154.2	3180.4	3160.5	3179.7	3134.3	3122.2	3091.7	3135.7	3062.7	3043.5	3022.3
45°	2841.4	2857.7	2842.1	2858.5	2815.2	2796.0	2768.4	2806.0	2734.4	2716.6	2670.5
47.5°	2428.0	2410.3	2407.5	2423.1	2369.2	2329.4	2303.9	2352.1	2248.6	2213.9	2160.7
50°	1453.7	1483.5	1496.2	1485.6	1448.7	1394.1	1353.0	1411.9	1356.5	1271.4	1186.4
52.5°	748.8	715.5	722.6	726.1	682.2	665.9	652.4	665.9	622.6	600.6	546.7
55°	321.9	306.3	312.0	314.1	305.6	285.8	278.7	287.2	267.3	258.8	236.8
57.5°	119.1	119.1	115.6	117.0	114.2	107.1	105.7	109.2	102.8	100.7	92.2
60°	43.3	43.3	43.3	43.3	39.7	39.0	39.0	40.4	38.3	37.6	34.7
62.5°	18.4	19.1	17.7	18.4	17.7	17.0	17.7	17.0	17.0	16.3	16.3
65°	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.8	7.8
67.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	3.5	3.5	3.5
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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



TEST NUMBER: P170821

CATALOG NUMBER: LDA4A13827D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1	119.1
2.5°	204.2	203.5	206.4	203.5	198.6	195.7	199.3	192.2	164.5	136.9	116.3
5°	461.6	458.1	453.1	454.5	442.5	432.6	432.6	413.4	279.4	158.8	112.0
7.5°	875.1	866.5	830.4	856.6	831.1	811.2	797.8	758.8	451.7	182.2	103.5
10°	1445.2	1430.3	1404.8	1409.7	1367.9	1334.6	1294.1	1228.9	649.6	202.8	92.9
12.5°	2007.5	1992.6	1924.5	1963.5	1907.5	1874.9	1806.8	1730.2	863.0	212.7	83.0
15°	2484.7	2472.0	2397.5	2434.4	2365.6	2335.1	2247.2	2162.1	1078.6	209.2	72.3
17.5°	2855.6	2853.5	2767.7	2804.6	2728.7	2703.9	2601.0	2517.4	1253.0	193.6	65.2
20°	3141.4	3136.4	3049.9	3086.8	3003.8	2979.7	2849.2	2761.3	1363.6	172.3	63.1
22.5°	3366.9	3357.0	3264.1	3296.0	3203.1	3171.9	3027.9	2936.5	1409.0	158.8	78.0
25°	3569.7	3552.0	3446.3	3471.1	3369.0	3375.4	3159.1	3058.4	1394.1	178.7	160.3
27.5°	3748.4	3716.5	3610.1	3617.2	3497.4	3435.0	3249.2	3137.8	1326.0	199.3	148.9
30°	3815.0	3783.8	3671.1	3675.4	3550.5	3462.6	3264.1	3140.0	1163.0	124.8	53.9
32.5°	3778.2	3744.1	3626.4	3627.8	3499.5	3410.1	3212.3	3075.4	946.0	82.3	41.1
35°	3671.1	3635.6	3518.6	3524.3	3400.2	3311.6	3118.0	2971.9	724.7	65.2	30.5
37.5°	3490.3	3465.5	3354.1	3364.1	3258.4	3164.1	2967.7	2809.5	511.3	46.8	19.1
40°	3257.7	3238.5	3130.8	3146.4	3031.5	2944.3	2733.6	2562.0	318.4	31.9	12.1
42.5°	2985.4	2964.8	2858.5	2870.5	2772.6	2647.8	2433.0	2238.7	166.6	22.7	8.5
45°	2645.7	2621.6	2513.8	2520.2	2404.6	2258.5	2035.9	1864.3	109.2	15.6	6.4
47.5°	2111.7	2068.5	1928.1	1922.4	1828.1	1589.1	1272.9	1030.3	72.3	10.6	4.3
50°	1160.8	1116.1	992.8	979.3	874.3	717.6	530.4	412.7	41.8	7.1	3.5
52.5°	528.3	504.9	447.5	438.2	393.6	326.2	251.0	206.4	24.1	5.0	2.8
55°	229.0	220.5	196.4	195.0	174.4	151.0	120.5	102.1	14.2	3.5	2.1
57.5°	90.1	87.2	82.3	78.7	70.9	63.1	52.5	44.0	9.2	2.8	2.1
60°	34.0	33.3	30.5	31.2	28.4	26.9	23.4	19.9	5.7	2.1	2.1
62.5°	15.6	15.6	14.9	14.9	14.2	12.8	11.3	10.6	3.5	2.1	2.1
65°	7.8	7.8	7.1	7.1	7.1	6.4	5.7	5.7	2.1	2.1	2.1
67.5°	3.5	3.5	3.5	3.5	3.5	2.8	2.8	2.8	1.4	2.1	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1	2.1
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
75°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
77.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.8
80°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.8
82.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.8
85°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.8
87.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.8
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: P170821

CATALOG NUMBER: LDA4A13827D010TE LAR35FL 4LAL1 30° Tilt

**CANDELA DISTRIBUTION (continued):**

	112.5°	135°	157.5°	180°
0°	119.1	119.1	119.1	119.1
2.5°	100.0	88.6	78.7	76.6
5°	82.3	65.2	54.6	52.5
7.5°	66.7	47.5	39.7	38.3
10°	54.6	38.3	31.2	29.8
12.5°	45.4	31.2	24.8	23.4
15°	39.0	27.7	22.7	22.7
17.5°	37.6	30.5	29.1	29.8
20°	48.9	55.3	65.9	66.7
22.5°	113.5	184.4	243.9	255.3
25°	204.2	223.4	217.7	227.6
27.5°	107.8	84.4	85.8	87.9
30°	46.8	51.8	54.6	57.4
32.5°	39.0	40.4	41.1	43.3
35°	25.5	25.5	24.8	25.5
37.5°	15.6	14.9	14.2	14.2
40°	9.9	9.2	8.5	8.5
42.5°	7.1	5.7	5.0	5.0
45°	5.0	3.5	2.8	2.1
47.5°	3.5	2.1	1.4	0.7
50°	2.8	2.1	0.7	0.0
52.5°	2.1	1.4	0.7	0.0
55°	2.1	1.4	0.0	0.0
57.5°	2.1	1.4	0.0	0.0
60°	2.1	1.4	0.0	0.0
62.5°	2.1	1.4	0.0	0.0
65°	2.1	1.4	0.7	0.0
67.5°	2.1	1.4	0.7	0.0
70°	2.1	1.4	0.7	0.0
72.5°	2.1	1.4	0.7	0.0
75°	2.1	2.1	0.7	0.0
77.5°	2.8	2.1	0.7	0.0
80°	2.8	2.1	0.7	0.0
82.5°	2.8	2.1	0.7	0.0
85°	2.8	2.1	0.7	0.7
87.5°	2.8	2.1	0.7	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)