

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: P170794

Luminaire Tested: **LDA4A13930D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170794
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26105)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A13930D010TE LAR25NF 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 25° Narrow 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: 1305.3 lumens
Efficiency: N/A
Efficacy: 58.6 lumens/watt
Spacing Criteria (0/90/45): 2.53 / 1.09 / 1.29
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

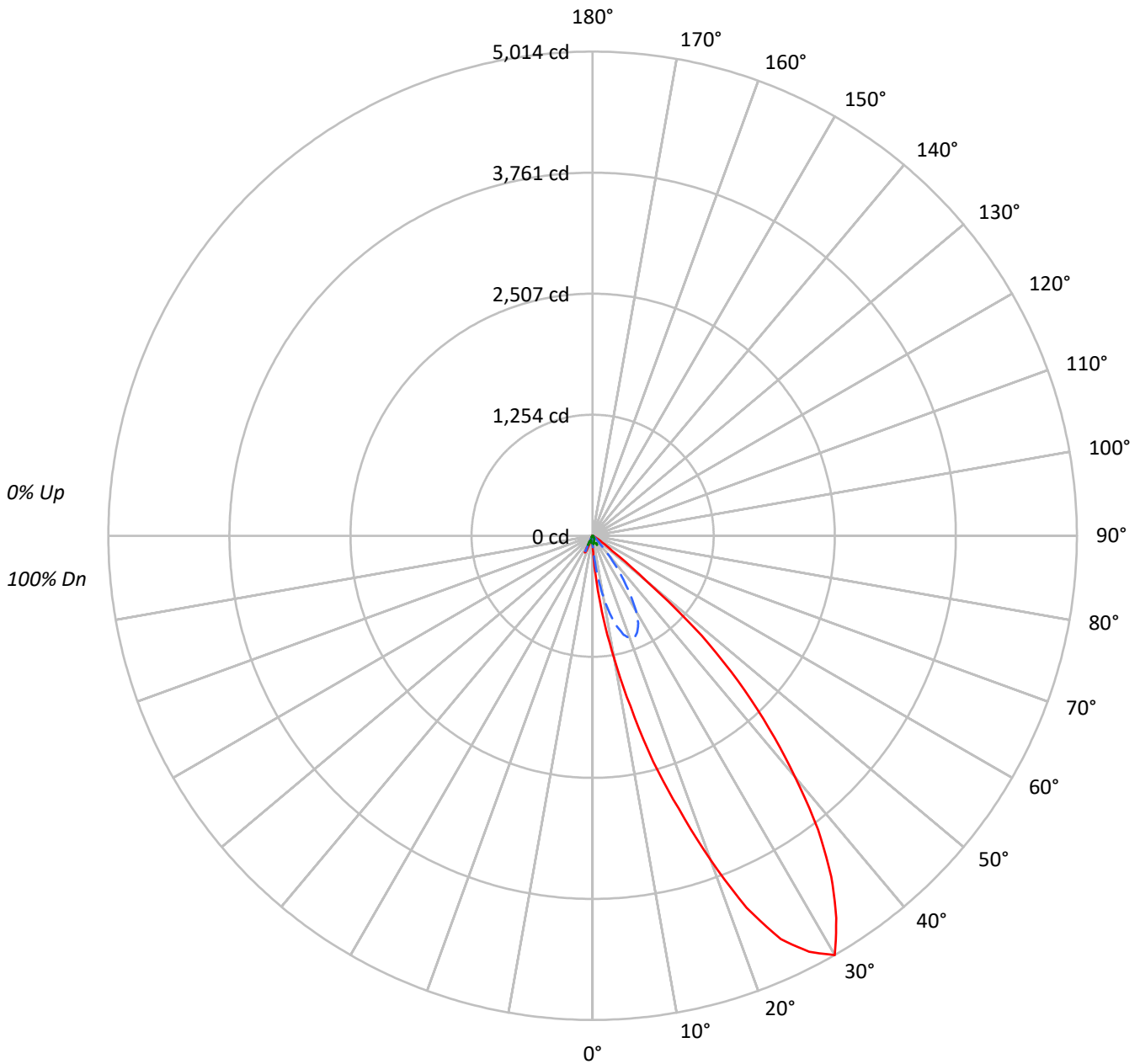
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	104	110	107	104	102	103	101	99	99	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	83																			
3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74																			
4	92	83	77	72	90	82	76	71	80	74	70	78	73	69	76	72	69	67																			
5	86	76	69	64	84	75	69	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	63	57	79	69	62	57	67	61	57	66	60	56	64	60	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	61	55	51	59	54	51	49																			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11989	11989	11989
5°	61611	11131	5200
10°	162372	9293	2718
15°	309065	7291	2094
20°	469418	6038	5605
25°	627243	14385	25913
30°	714202	5426	5241
35°	648702	3057	2379
40°	525412	1369	950
45°	371795	802	227
50°	135667	499	0
55°	28236	430	0
60°	6809	493	0
65°	2101	584	0
70°	721	721	0
75°	334	953	0
80°	0	1421	0
85°	0	2830	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	22.0	1.7
10°-20°	164.2	12.6
20°-30°	416.4	31.9
30°-40°	445.6	34.1
40°-50°	227.8	17.4
50°-60°	23.8	1.8
60°-70°	2.8	0.2
70°-80°	1.5	0.1
80°-90°	1.3	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°	602.5	46.2
0°-40°	1048.2	80.3
0°-60°	1299.7	99.6
0°-90°	1305.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1305.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	97	97	97	97	97	
5°	498	270	90	52	42	73
15°	2420	973	57	20	16	715
25°	4609	1096	106	177	190	2094
35°	4308	555	20	16	16	2645
45°	2131	74	5	3	1	1591
55°	131	12	2	1	0	178
65°	7	3	2	1	0	10
75°	1	1	2	2	0	1
85°	0	1	2	2	0	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°	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2
2.5°	196.3	198.2	183.8	188.4	191.7	185.1	183.8	183.8	191.0	187.1	193.6
5°	497.6	495.6	470.7	477.9	483.1	470.7	476.6	467.4	478.5	471.3	478.5
7.5°	869.1	892.1	860.6	867.8	872.4	859.3	862.5	849.4	861.9	853.4	859.3
10°	1296.4	1320.1	1283.3	1289.2	1292.5	1280.0	1280.7	1263.6	1274.8	1265.6	1269.5
12.5°	1807.1	1816.3	1798.6	1803.2	1805.2	1788.8	1757.9	1761.2	1772.4	1756.6	1760.5
15°	2420.3	2413.7	2392.7	2407.8	2392.7	2384.8	2338.2	2335.6	2342.1	2324.4	2296.2
17.5°	2960.5	3010.4	2986.8	2995.3	2976.9	2976.9	2917.2	2907.3	2908.0	2860.7	2855.5
20°	3576.2	3639.9	3582.1	3584.8	3560.5	3559.8	3487.0	3466.6	3458.1	3404.2	3389.1
22.5°	4169.6	4188.0	4187.4	4176.2	4119.1	4151.9	4060.7	4028.5	4002.2	3941.2	3911.0
25°	4608.8	4666.6	4627.2	4598.9	4549.1	4590.4	4488.0	4446.0	4406.6	4355.4	4316.0
27.5°	4856.9	4910.7	4901.6	4859.5	4808.3	4848.4	4736.1	4681.7	4625.9	4588.4	4539.2
30°	5014.5	5096.5	5069.6	4978.4	4903.5	4916.7	4790.6	4717.8	4656.1	4617.3	4555.0
32.5°	4694.8	4779.5	4771.6	4705.3	4666.6	4698.7	4589.1	4516.9	4457.8	4427.0	4357.4
35°	4308.1	4407.3	4385.6	4330.5	4302.2	4339.7	4232.7	4172.3	4112.5	4085.6	4009.5
37.5°	3834.9	3928.1	3906.4	3853.9	3826.3	3853.9	3751.5	3695.7	3639.2	3611.0	3559.2
40°	3263.1	3345.2	3322.2	3273.6	3250.6	3270.3	3181.7	3133.1	3085.2	3064.2	2995.3
42.5°	2704.5	2770.1	2749.1	2707.1	2689.4	2702.5	2629.7	2586.3	2544.3	2526.6	2485.9
45°	2131.4	2196.4	2176.1	2140.0	2123.5	2130.8	2069.7	2031.0	1994.9	1978.5	1941.7
47.5°	1529.5	1602.3	1577.4	1546.5	1529.5	1526.2	1472.4	1437.6	1440.9	1385.1	1350.9
50°	707.0	768.7	743.7	727.3	710.9	701.7	682.7	643.3	654.5	603.9	584.2
52.5°	256.7	271.8	265.9	260.6	255.4	253.4	246.8	237.0	238.3	225.8	219.9
55°	131.3	138.5	136.5	133.3	133.3	131.3	128.0	124.1	121.4	119.5	117.5
57.5°	60.4	64.3	63.0	61.7	61.7	60.4	59.1	57.1	58.4	55.1	54.5
60°	27.6	29.5	28.9	28.2	28.2	28.2	27.6	26.9	26.9	26.3	25.6
62.5°	13.1	14.4	13.8	13.8	13.8	13.8	13.1	13.1	13.1	13.1	12.5
65°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.6	7.2	6.6	6.6
67.5°	3.9	3.9	3.9	3.9	3.3	3.9	3.9	3.3	3.3	3.3	3.3
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.0	0.7	0.7	0.7	0.0	0.7	0.7	0.7	0.7	0.7	0.7
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	0.7	0.0	0.7	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°	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2
2.5°	178.5	183.1	187.7	186.4	179.9	179.2	176.6	177.9	138.5	112.2	93.9
5°	452.9	458.8	464.8	461.5	445.1	441.1	428.0	425.4	270.4	132.6	89.9
7.5°	827.8	831.0	835.6	831.7	807.4	796.2	768.7	741.8	454.9	160.2	83.4
10°	1234.1	1232.8	1234.7	1229.5	1199.3	1177.6	1135.0	1115.9	644.6	183.8	74.2
12.5°	1708.0	1702.8	1673.9	1687.7	1645.0	1601.0	1530.8	1471.7	823.8	196.9	65.6
15°	2261.4	2245.6	2235.1	2219.4	2166.9	2096.0	1989.0	1923.3	972.8	195.6	57.1
17.5°	2811.5	2785.9	2739.9	2745.8	2684.8	2585.7	2444.5	2332.3	1075.9	179.2	50.5
20°	3332.0	3294.0	3236.2	3231.6	3158.1	3027.5	2849.6	2710.4	1132.3	152.3	46.0
22.5°	3833.5	3774.5	3697.0	3672.7	3578.2	3393.1	3160.7	2991.3	1137.6	127.3	55.1
25°	4228.7	4154.5	4068.5	4026.5	3922.2	3685.8	3396.4	3188.3	1095.6	126.0	105.7
27.5°	4449.3	4365.3	4279.3	4222.2	4116.5	3848.6	3521.1	3280.8	1023.4	135.2	100.4
30°	4461.1	4366.6	4277.3	4205.1	4100.1	3813.9	3465.9	3215.8	893.4	85.3	38.1
32.5°	4264.8	4163.7	4074.5	3993.1	3889.3	3601.2	3259.8	3020.9	726.7	59.7	26.9
35°	3921.5	3817.1	3731.8	3645.8	3548.7	3277.6	2964.4	2741.9	555.3	47.3	20.3
37.5°	3454.1	3357.6	3282.1	3223.7	3118.7	2902.7	2616.5	2380.9	392.5	33.5	12.5
40°	2931.0	2849.6	2787.9	2737.3	2640.2	2448.5	2159.7	1960.8	238.3	23.6	8.5
42.5°	2404.5	2328.4	2273.9	2226.0	2136.0	1966.7	1729.0	1529.5	114.2	16.4	5.9
45°	1870.2	1801.9	1755.9	1712.6	1631.9	1465.1	1276.8	1132.3	74.2	11.8	4.6
47.5°	1277.4	1242.0	1166.5	1119.2	1036.5	909.2	732.6	573.7	49.2	8.5	3.3
50°	531.1	512.7	462.8	430.6	383.4	318.4	231.1	193.6	30.2	5.9	2.6
52.5°	206.1	201.5	189.1	181.8	170.0	152.9	127.3	113.6	18.4	4.6	2.6
55°	110.9	109.6	103.1	99.1	92.6	84.0	68.9	60.4	11.8	3.3	2.0
57.5°	51.2	50.5	47.3	47.3	42.7	39.4	32.8	29.5	7.2	2.6	2.0
60°	24.3	24.3	23.0	23.0	21.0	19.7	16.4	15.1	4.6	2.0	2.0
62.5°	11.8	11.8	11.8	11.8	11.2	10.5	9.2	8.5	3.3	2.0	2.0
65°	6.6	6.6	6.6	6.6	5.9	5.9	5.3	4.6	2.6	2.0	2.0
67.5°	3.3	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.0	2.0	2.0
70°	2.0	2.0	2.0	2.0	2.0	1.3	1.3	1.3	1.3	2.0	2.0
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
75°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
80°	0.0	0.0	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
82.5°	0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
87.5°	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
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):

	112.5°	135°	157.5°	180°
0°	97.2	97.2	97.2	97.2
2.5°	80.7	70.2	65.0	63.7
5°	66.3	51.9	44.6	42.0
7.5°	53.8	37.4	31.5	28.9
10°	42.7	29.5	23.6	21.7
12.5°	35.4	23.6	19.0	17.7
15°	30.2	20.3	17.1	16.4
17.5°	27.6	21.7	20.3	21.0
20°	33.5	35.4	41.4	42.7
22.5°	70.9	122.8	166.7	176.6
25°	147.7	177.2	183.8	190.4
27.5°	82.1	63.7	62.4	65.0
30°	33.5	34.1	35.4	36.8
32.5°	24.9	24.9	24.3	24.9
35°	17.1	15.8	15.1	15.8
37.5°	10.5	9.8	9.2	9.2
40°	7.2	6.6	5.9	5.9
42.5°	5.3	3.9	3.3	3.3
45°	3.9	2.6	2.0	1.3
47.5°	3.3	2.0	0.7	0.7
50°	2.6	1.3	0.7	0.0
52.5°	2.0	1.3	0.7	0.0
55°	2.0	1.3	0.0	0.0
57.5°	2.0	1.3	0.0	0.0
60°	2.0	1.3	0.7	0.0
62.5°	2.0	1.3	0.7	0.7
65°	2.0	1.3	0.7	0.0
67.5°	2.0	1.3	0.7	0.0
70°	2.0	1.3	0.7	0.0
72.5°	2.6	1.3	0.7	0.0
75°	2.6	2.0	0.7	0.0
77.5°	2.6	2.0	0.7	0.0
80°	2.6	2.0	0.7	0.0
82.5°	2.6	2.0	0.7	0.0
85°	2.6	2.0	0.7	0.0
87.5°	2.6	2.0	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)