

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: P170779

Luminaire Tested: **LDA4A18935D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170779
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: LDA4A18935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1629.6 lumens
Efficiency: N/A
Efficacy: 56.0 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

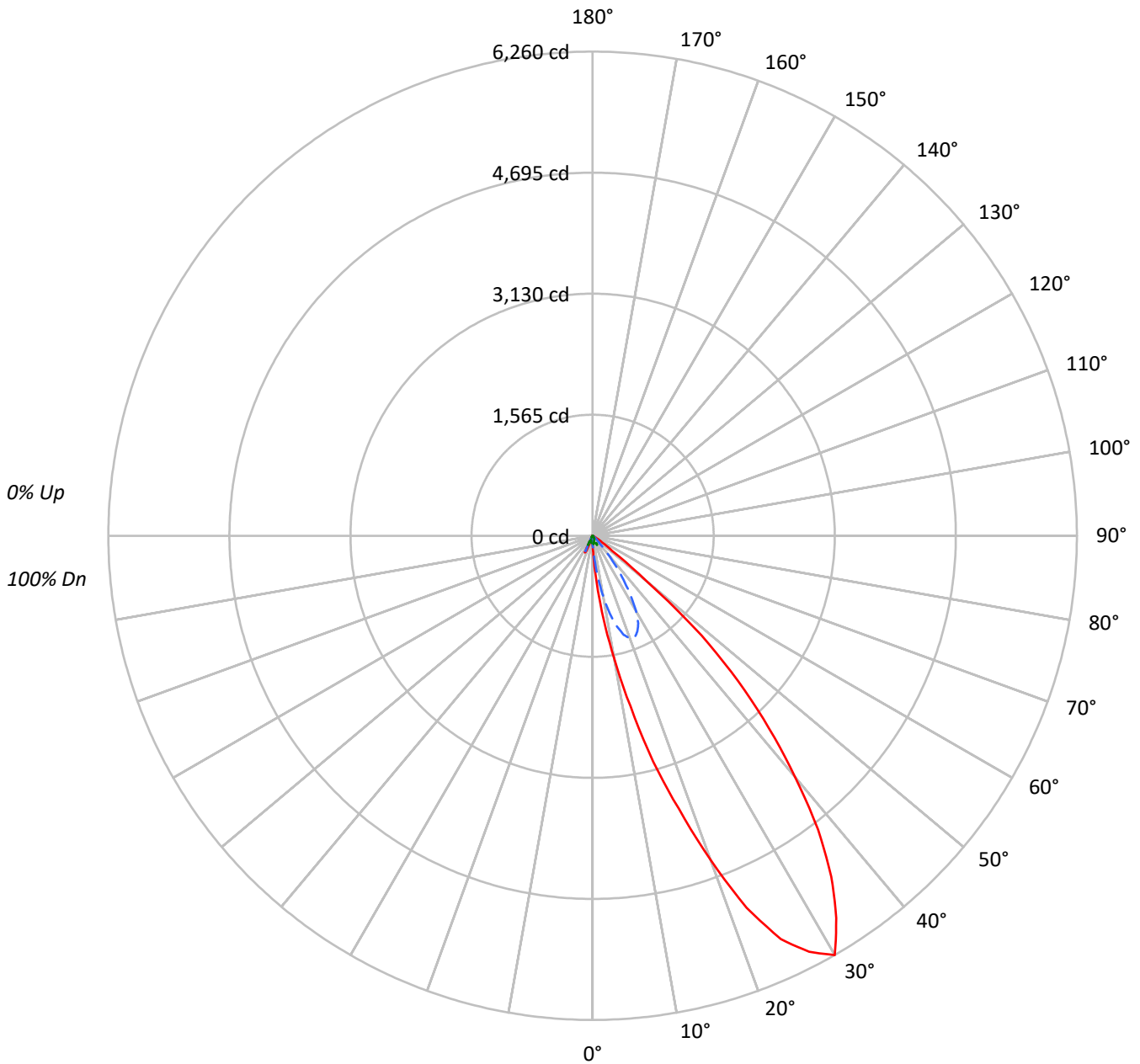
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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								
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°	14962	14962	14962
5°	76915	13905	6500
10°	202727	11598	3382
15°	385849	9105	2618
20°	586070	7534	6996
25°	783101	17951	32350
30°	891666	6765	6537
35°	809895	3825	2966
40°	655964	1723	1192
45°	464177	994	279
50°	169364	633	0
55°	35246	538	0
60°	8486	617	0
65°	2627	730	0
70°	902	902	0
75°	381	1191	0
80°	0	1776	0
85°	0	3538	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.5	1.7
10°-20°	205.0	12.6
20°-30°	519.8	31.9
30°-40°	556.3	34.1
40°-50°	284.4	17.5
50°-60°	29.7	1.8
60°-70°	3.4	0.2
70°-80°	1.9	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°	752.3	46.2
0°-40°	1308.6	80.3
0°-60°	1622.7	99.6
0°-90°	1629.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1629.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	121	121	121	121	121	
5°	621	338	112	65	52	91
15°	3022	1215	71	25	20	893
25°	5754	1368	132	221	238	2614
35°	5379	693	25	20	20	3302
45°	2661	93	6	3	2	1986
55°	164	15	2	2	0	222
65°	9	3	2	2	0	12
75°	1	2	2	2	0	1
85°	0	2	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°	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3
2.5°	245.0	247.5	229.5	235.2	239.3	231.1	229.5	229.5	238.5	233.6	241.8
5°	621.2	618.8	587.6	596.6	603.2	587.6	595.0	583.5	597.4	588.4	597.4
7.5°	1085.1	1113.8	1074.4	1083.4	1089.2	1072.8	1076.9	1060.5	1076.1	1065.4	1072.8
10°	1618.6	1648.1	1602.2	1609.6	1613.7	1598.1	1598.9	1577.6	1591.5	1580.1	1585.0
12.5°	2256.2	2267.7	2245.5	2251.3	2253.7	2233.2	2194.7	2198.8	2212.8	2193.1	2198.0
15°	3021.6	3013.4	2987.2	3006.1	2987.2	2977.4	2919.2	2915.9	2924.1	2902.0	2866.8
17.5°	3696.1	3758.4	3728.9	3739.6	3716.6	3716.6	3642.0	3629.7	3630.6	3571.6	3565.0
20°	4464.9	4544.4	4472.2	4475.5	4445.2	4444.4	4353.4	4328.0	4317.3	4250.1	4231.3
22.5°	5205.7	5228.7	5227.8	5213.9	5142.6	5183.6	5069.7	5029.5	4996.7	4920.5	4882.8
25°	5754.0	5826.1	5776.9	5741.7	5679.4	5731.0	5603.2	5550.7	5501.6	5437.7	5388.5
27.5°	6063.8	6131.0	6119.5	6067.1	6003.1	6053.1	5913.0	5845.0	5775.3	5728.6	5667.1
30°	6260.5	6362.9	6329.3	6215.4	6122.0	6138.4	5981.0	5890.0	5813.0	5764.6	5686.8
32.5°	5861.4	5967.1	5957.2	5874.5	5826.1	5866.3	5729.4	5639.3	5565.5	5527.0	5440.1
35°	5378.6	5502.4	5475.3	5406.5	5371.3	5418.0	5284.4	5209.0	5134.4	5100.8	5005.8
37.5°	4787.8	4904.1	4877.1	4811.5	4777.1	4811.5	4683.7	4614.0	4543.5	4508.3	4443.5
40°	4073.9	4176.4	4147.7	4087.0	4058.4	4083.0	3972.3	3911.7	3851.8	3825.6	3739.6
42.5°	3376.5	3458.5	3432.2	3379.8	3357.7	3374.0	3283.1	3229.0	3176.5	3154.4	3103.6
45°	2661.0	2742.2	2716.8	2671.7	2651.2	2660.2	2584.0	2535.7	2490.6	2470.1	2424.2
47.5°	1909.5	2000.5	1969.4	1930.8	1909.5	1905.4	1838.2	1794.8	1798.9	1729.2	1686.6
50°	882.6	959.7	928.5	908.1	887.6	876.1	852.3	803.1	817.1	754.0	729.4
52.5°	320.4	339.3	331.9	325.4	318.8	316.3	308.1	295.9	297.5	281.9	274.5
55°	163.9	172.9	170.5	166.4	166.4	163.9	159.8	154.9	151.6	149.2	146.7
57.5°	75.4	80.3	78.7	77.0	77.0	75.4	73.8	71.3	72.9	68.8	68.0
60°	34.4	36.9	36.1	35.2	35.2	35.2	34.4	33.6	33.6	32.8	32.0
62.5°	16.4	18.0	17.2	17.2	17.2	17.2	16.4	16.4	16.4	16.4	15.6
65°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.2	9.0	8.2	8.2
67.5°	4.9	4.9	4.9	4.9	4.1	4.9	4.9	4.1	4.1	4.1	4.1
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°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.8	0.8	0.8	0.0	0.8	0.8	0.8	0.8	0.8	0.8
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	0.8	0.0	0.8	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°	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3	121.3
2.5°	222.9	228.7	234.4	232.7	224.6	223.7	220.5	222.1	172.9	140.1	117.2
5°	565.5	572.9	580.2	576.1	555.6	550.7	534.3	531.1	337.7	165.5	112.3
7.5°	1033.4	1037.5	1043.3	1038.4	1008.0	994.1	959.7	926.1	567.9	200.0	104.1
10°	1540.7	1539.1	1541.6	1535.0	1497.3	1470.3	1417.0	1393.2	804.8	229.5	92.6
12.5°	2132.4	2125.9	2089.8	2107.0	2053.8	1998.9	1911.2	1837.4	1028.5	245.9	82.0
15°	2823.3	2803.6	2790.5	2770.9	2705.3	2616.8	2483.2	2401.3	1214.6	244.2	71.3
17.5°	3510.1	3478.1	3420.8	3428.1	3351.9	3228.2	3052.0	2911.8	1343.2	223.7	63.1
20°	4160.0	4112.5	4040.3	4034.6	3942.8	3779.7	3557.6	3383.9	1413.7	190.1	57.4
22.5°	4786.1	4712.4	4615.7	4585.3	4467.3	4236.2	3946.1	3734.6	1420.3	159.0	68.8
25°	5279.5	5186.9	5079.5	5027.1	4896.8	4601.7	4240.3	3980.5	1367.8	157.4	131.9
27.5°	5554.8	5449.9	5342.6	5271.3	5139.3	4805.0	4396.0	4096.1	1277.7	168.8	125.4
30°	5569.6	5451.6	5340.1	5250.0	5118.8	4761.5	4327.2	4014.9	1115.4	106.5	47.5
32.5°	5324.6	5198.3	5086.9	4985.3	4855.8	4496.0	4069.8	3771.5	907.2	74.6	33.6
35°	4895.9	4765.6	4659.1	4551.7	4430.4	4092.0	3701.0	3423.2	693.3	59.0	25.4
37.5°	4312.4	4191.9	4097.7	4024.8	3893.6	3624.0	3266.7	2972.5	490.1	41.8	15.6
40°	3659.2	3557.6	3480.6	3417.5	3296.2	3056.9	2696.3	2448.0	297.5	29.5	10.7
42.5°	3002.0	2906.9	2838.9	2779.1	2666.8	2455.3	2158.7	1909.5	142.6	20.5	7.4
45°	2334.9	2249.6	2192.3	2138.2	2037.4	1829.2	1594.0	1413.7	92.6	14.8	5.7
47.5°	1594.8	1550.6	1456.3	1397.3	1294.1	1135.1	914.6	716.3	61.5	10.7	4.1
50°	663.0	640.1	577.8	537.6	478.6	397.5	288.5	241.8	37.7	7.4	3.3
52.5°	257.3	251.6	236.0	227.0	212.3	191.0	159.0	141.8	22.9	5.7	3.3
55°	138.5	136.9	128.7	123.8	115.6	104.9	86.1	75.4	14.8	4.1	2.5
57.5°	63.9	63.1	59.0	59.0	53.3	49.2	41.0	36.9	9.0	3.3	2.5
60°	30.3	30.3	28.7	28.7	26.2	24.6	20.5	18.8	5.7	2.5	2.5
62.5°	14.8	14.8	14.8	14.8	13.9	13.1	11.5	10.7	4.1	2.5	2.5
65°	8.2	8.2	8.2	8.2	7.4	7.4	6.6	5.7	3.3	2.5	2.5
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	3.3	3.3	2.5	2.5	2.5
70°	2.5	2.5	2.5	2.5	2.5	1.6	1.6	1.6	1.6	2.5	2.5
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.5	2.5
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.5	2.5
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.5	2.5
80°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.5	2.5
82.5°	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.5	2.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.5	2.5
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	2.5	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



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CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	121.3	121.3	121.3	121.3
2.5°	100.8	87.7	81.1	79.5
5°	82.8	64.7	55.7	52.5
7.5°	67.2	46.7	39.3	36.1
10°	53.3	36.9	29.5	27.0
12.5°	44.3	29.5	23.8	22.1
15°	37.7	25.4	21.3	20.5
17.5°	34.4	27.0	25.4	26.2
20°	41.8	44.3	51.6	53.3
22.5°	88.5	153.3	208.2	220.5
25°	184.4	221.3	229.5	237.7
27.5°	102.4	79.5	77.9	81.1
30°	41.8	42.6	44.3	45.9
32.5°	31.1	31.1	30.3	31.1
35°	21.3	19.7	18.8	19.7
37.5°	13.1	12.3	11.5	11.5
40°	9.0	8.2	7.4	7.4
42.5°	6.6	4.9	4.1	4.1
45°	4.9	3.3	2.5	1.6
47.5°	4.1	2.5	0.8	0.8
50°	3.3	1.6	0.8	0.0
52.5°	2.5	1.6	0.8	0.0
55°	2.5	1.6	0.0	0.0
57.5°	2.5	1.6	0.0	0.0
60°	2.5	1.6	0.8	0.0
62.5°	2.5	1.6	0.8	0.8
65°	2.5	1.6	0.8	0.0
67.5°	2.5	1.6	0.8	0.0
70°	2.5	1.6	0.8	0.0
72.5°	3.3	1.6	0.8	0.0
75°	3.3	2.5	0.8	0.0
77.5°	3.3	2.5	0.8	0.0
80°	3.3	2.5	0.8	0.0
82.5°	3.3	2.5	0.8	0.0
85°	3.3	2.5	0.8	0.0
87.5°	3.3	2.5	0.8	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)