

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: P170775

Luminaire Tested: **LDA4A18835D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170775
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: LDA4A18835D010TE 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 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1988.0 lumens
Efficiency: N/A
Efficacy: 68.3 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

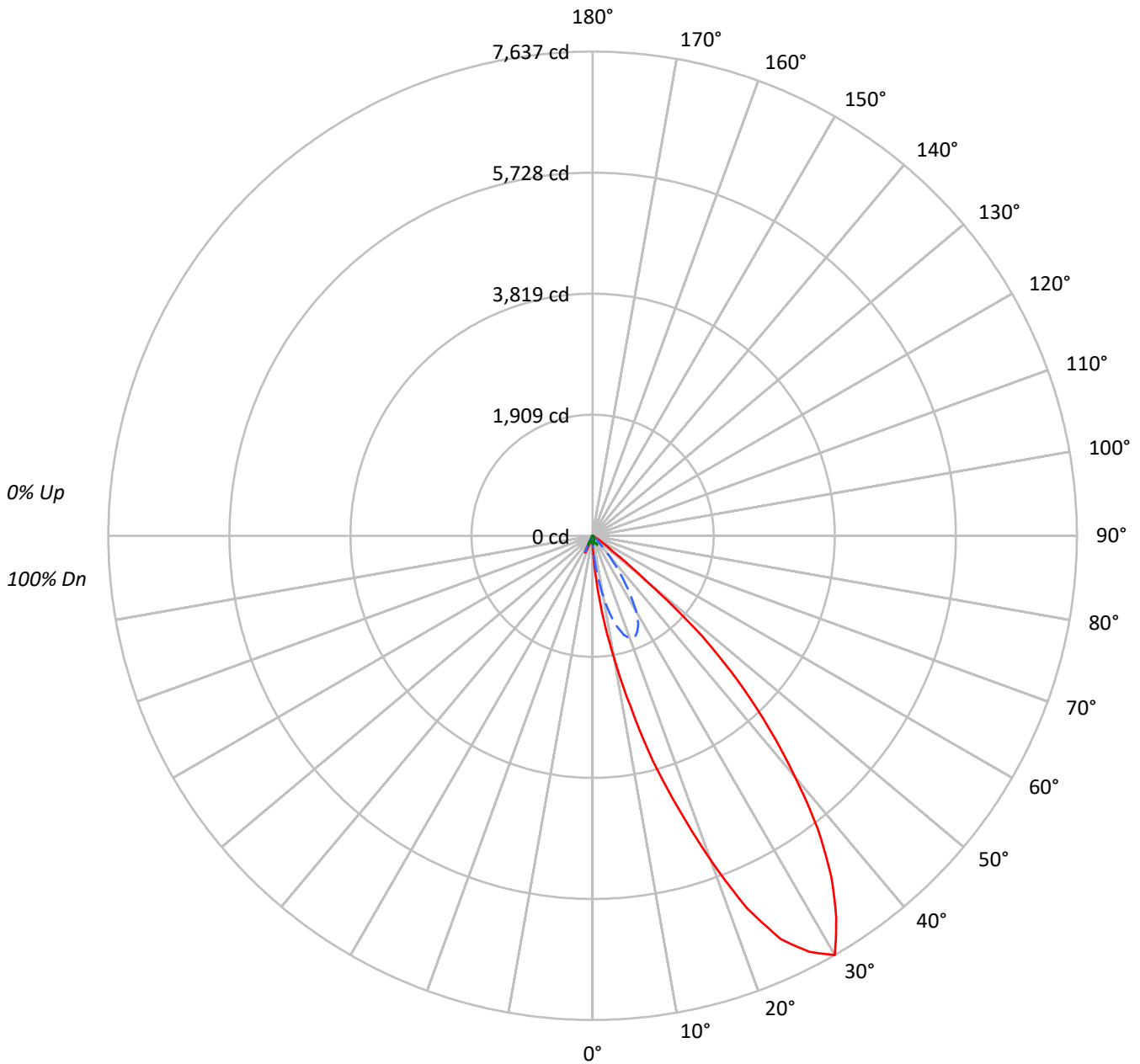
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	18255	18255	18255
5°	93828	16963	7924
10°	247316	14153	4133
15°	470716	11110	3192
20°	714956	9188	8532
25°	955332	21912	39454
30°	1087760	8261	7976
35°	988027	4668	3614
40°	800235	2093	1449
45°	566275	1221	349
50°	206629	768	0
55°	43009	645	0
60°	10361	740	0
65°	3210	876	0
70°	1082	1082	0
75°	477	1430	0
80°	0	2131	0
85°	0	4246	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.5	1.7
10°-20°	250.0	12.6
20°-30°	634.2	31.9
30°-40°	678.7	34.1
40°-50°	346.9	17.5
50°-60°	36.2	1.8
60°-70°	4.2	0.2
70°-80°	2.3	0.1
80°-90°	2.0	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°	917.7	46.2
0°-40°	1596.4	80.3
0°-60°	1979.6	99.6
0°-90°	1988.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1988.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	148	148	148	148	148	
5°	758	412	137	79	64	111
15°	3686	1482	87	31	25	1089
25°	7020	1669	161	270	290	3189
35°	6562	846	31	24	24	4028
45°	3246	113	7	4	2	2423
55°	200	18	3	2	0	271
65°	11	4	3	2	0	15
75°	1	2	3	3	0	1
85°	0	2	3	3	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°	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
2.5°	298.9	301.9	279.9	286.9	291.9	281.9	279.9	279.9	290.9	284.9	294.9
5°	757.8	754.8	716.8	727.8	735.8	716.8	725.8	711.8	728.8	717.8	728.8
7.5°	1323.7	1358.7	1310.7	1321.7	1328.7	1308.7	1313.7	1293.7	1312.7	1299.7	1308.7
10°	1974.6	2010.6	1954.6	1963.6	1968.6	1949.6	1950.6	1924.6	1941.6	1927.6	1933.6
12.5°	2752.4	2766.4	2739.4	2746.4	2749.4	2724.4	2677.4	2682.4	2699.4	2675.4	2681.4
15°	3686.2	3676.2	3644.2	3667.2	3644.2	3632.2	3561.2	3557.2	3567.2	3540.2	3497.2
17.5°	4509.0	4585.0	4549.0	4562.0	4534.0	4534.0	4443.0	4428.0	4429.0	4357.0	4349.0
20°	5446.8	5543.8	5455.8	5459.8	5422.8	5421.8	5310.8	5279.8	5266.8	5184.9	5161.9
22.5°	6350.6	6378.6	6377.6	6360.6	6273.6	6323.6	6184.6	6135.7	6095.7	6002.7	5956.7
25°	7019.5	7107.4	7047.5	7004.5	6928.5	6991.5	6835.5	6771.5	6711.5	6633.5	6573.6
27.5°	7397.4	7479.4	7465.4	7401.4	7323.4	7384.4	7213.4	7130.4	7045.5	6988.5	6913.5
30°	7637.3	7762.3	7721.3	7582.3	7468.4	7488.4	7296.4	7185.4	7091.4	7032.5	6937.5
32.5°	7150.4	7279.4	7267.4	7166.4	7107.4	7156.4	6989.5	6879.5	6789.5	6742.5	6636.5
35°	6561.6	6712.5	6679.5	6595.6	6552.6	6609.6	6446.6	6354.6	6263.6	6222.6	6106.7
37.5°	5840.7	5982.7	5949.7	5869.7	5827.7	5869.7	5713.7	5628.8	5542.8	5499.8	5420.8
40°	4969.9	5094.9	5059.9	4985.9	4950.9	4980.9	4845.9	4772.0	4699.0	4667.0	4562.0
42.5°	4119.1	4219.1	4187.1	4123.1	4096.1	4116.1	4005.1	3939.1	3875.2	3848.2	3786.2
45°	3246.3	3345.3	3314.3	3259.3	3234.3	3245.3	3152.3	3093.3	3038.3	3013.3	2957.4
47.5°	2329.5	2440.5	2402.5	2355.5	2329.5	2324.5	2242.5	2189.5	2194.5	2109.5	2057.5
50°	1076.8	1170.7	1132.8	1107.8	1082.8	1068.8	1039.8	979.8	996.8	919.8	889.8
52.5°	390.9	413.9	404.9	396.9	388.9	385.9	375.9	360.9	362.9	343.9	334.9
55°	200.0	211.0	208.0	203.0	203.0	200.0	195.0	189.0	185.0	182.0	179.0
57.5°	92.0	98.0	96.0	94.0	94.0	92.0	90.0	87.0	89.0	84.0	83.0
60°	42.0	45.0	44.0	43.0	43.0	43.0	42.0	41.0	41.0	40.0	39.0
62.5°	20.0	22.0	21.0	21.0	21.0	21.0	20.0	20.0	20.0	20.0	19.0
65°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.0	11.0	10.0	10.0
67.5°	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	5.0	5.0
70°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	0.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
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	1.0	0.0	1.0	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



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CANDELA DISTRIBUTION (continued):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0	148.0
2.5°	271.9	278.9	285.9	283.9	273.9	272.9	268.9	270.9	211.0	171.0	143.0
5°	689.8	698.8	707.8	702.8	677.9	671.9	651.9	647.9	411.9	202.0	137.0
7.5°	1260.7	1265.7	1272.7	1266.7	1229.7	1212.7	1170.7	1129.8	692.8	243.9	127.0
10°	1879.6	1877.6	1880.6	1872.6	1826.6	1793.6	1728.6	1699.6	981.8	279.9	113.0
12.5°	2601.4	2593.4	2549.4	2570.4	2505.5	2438.5	2331.5	2241.5	1254.7	299.9	100.0
15°	3444.2	3420.3	3404.3	3380.3	3300.3	3192.3	3029.3	2929.4	1481.7	297.9	87.0
17.5°	4282.1	4243.1	4173.1	4182.1	4089.1	3938.1	3723.2	3552.2	1638.6	272.9	77.0
20°	5074.9	5016.9	4928.9	4921.9	4809.9	4611.0	4340.1	4128.1	1724.6	231.9	70.0
22.5°	5838.7	5748.7	5630.8	5593.8	5449.8	5167.9	4813.9	4556.0	1732.6	194.0	84.0
25°	6440.6	6327.6	6196.6	6132.7	5973.7	5613.8	5172.9	4855.9	1668.6	192.0	161.0
27.5°	6776.5	6648.5	6517.6	6430.6	6269.6	5861.7	5362.8	4996.9	1558.7	206.0	153.0
30°	6794.5	6650.5	6514.6	6404.6	6244.6	5808.7	5278.8	4897.9	1360.7	130.0	58.0
32.5°	6495.6	6341.6	6205.6	6081.7	5923.7	5484.8	4964.9	4601.0	1106.8	91.0	41.0
35°	5972.7	5813.7	5683.8	5552.8	5404.8	4991.9	4515.0	4176.1	845.8	72.0	31.0
37.5°	5260.8	5113.9	4998.9	4909.9	4750.0	4421.0	3985.1	3626.2	597.9	51.0	19.0
40°	4464.0	4340.1	4246.1	4169.1	4021.1	3729.2	3289.3	2986.3	362.9	36.0	13.0
42.5°	3662.2	3546.2	3463.2	3390.3	3253.3	2995.3	2633.4	2329.5	174.0	25.0	9.0
45°	2848.4	2744.4	2674.4	2608.4	2485.5	2231.5	1944.6	1724.6	113.0	18.0	7.0
47.5°	1945.6	1891.6	1776.6	1704.6	1578.7	1384.7	1115.8	873.8	75.0	13.0	5.0
50°	808.8	780.8	704.8	655.9	583.9	484.9	351.9	294.9	46.0	9.0	4.0
52.5°	313.9	306.9	287.9	276.9	258.9	232.9	194.0	173.0	28.0	7.0	4.0
55°	169.0	167.0	157.0	151.0	141.0	128.0	105.0	92.0	18.0	5.0	3.0
57.5°	78.0	77.0	72.0	72.0	65.0	60.0	50.0	45.0	11.0	4.0	3.0
60°	37.0	37.0	35.0	35.0	32.0	30.0	25.0	23.0	7.0	3.0	3.0
62.5°	18.0	18.0	18.0	18.0	17.0	16.0	14.0	13.0	5.0	3.0	3.0
65°	10.0	10.0	10.0	10.0	9.0	9.0	8.0	7.0	4.0	3.0	3.0
67.5°	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	3.0	3.0	3.0
70°	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
80°	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
82.5°	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
87.5°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	2.0	3.0	3.0
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°	148.0	148.0	148.0	148.0
2.5°	123.0	107.0	99.0	97.0
5°	101.0	79.0	68.0	64.0
7.5°	82.0	57.0	48.0	44.0
10°	65.0	45.0	36.0	33.0
12.5°	54.0	36.0	29.0	27.0
15°	46.0	31.0	26.0	25.0
17.5°	42.0	33.0	31.0	32.0
20°	51.0	54.0	63.0	65.0
22.5°	108.0	187.0	253.9	268.9
25°	225.0	269.9	279.9	289.9
27.5°	125.0	97.0	95.0	99.0
30°	51.0	52.0	54.0	56.0
32.5°	38.0	38.0	37.0	38.0
35°	26.0	24.0	23.0	24.0
37.5°	16.0	15.0	14.0	14.0
40°	11.0	10.0	9.0	9.0
42.5°	8.0	6.0	5.0	5.0
45°	6.0	4.0	3.0	2.0
47.5°	5.0	3.0	1.0	1.0
50°	4.0	2.0	1.0	0.0
52.5°	3.0	2.0	1.0	0.0
55°	3.0	2.0	0.0	0.0
57.5°	3.0	2.0	0.0	0.0
60°	3.0	2.0	1.0	0.0
62.5°	3.0	2.0	1.0	1.0
65°	3.0	2.0	1.0	0.0
67.5°	3.0	2.0	1.0	0.0
70°	3.0	2.0	1.0	0.0
72.5°	4.0	2.0	1.0	0.0
75°	4.0	3.0	1.0	0.0
77.5°	4.0	3.0	1.0	0.0
80°	4.0	3.0	1.0	0.0
82.5°	4.0	3.0	1.0	0.0
85°	4.0	3.0	1.0	0.0
87.5°	4.0	3.0	1.0	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)