

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: P170781

Luminaire Tested: **LDA4A09827D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170781
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: LDA4A09827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 950.1 lumens
Efficiency: N/A
Efficacy: 68.6 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

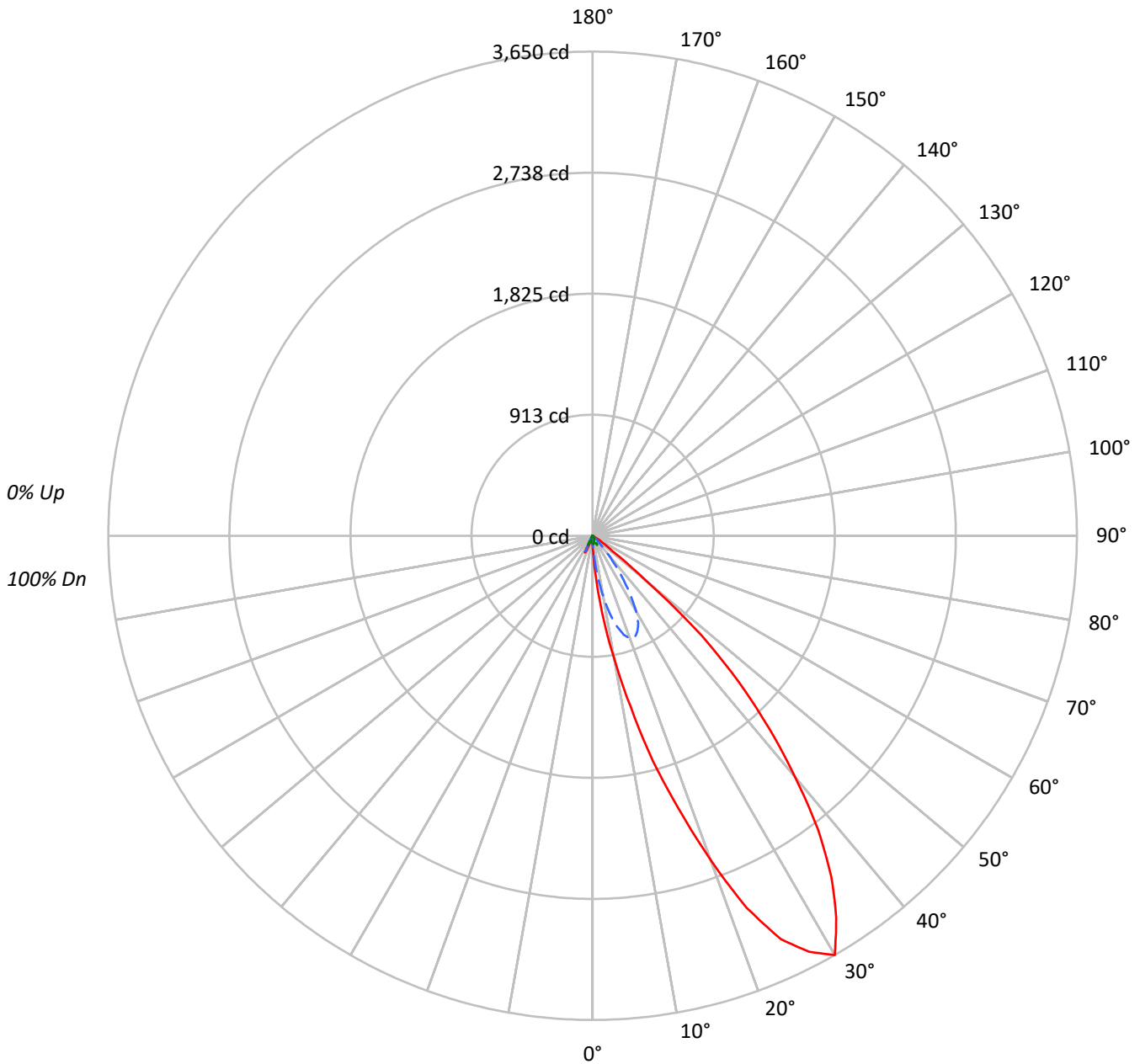
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	8721	8721	8721
5°	44846	8110	3789
10°	118184	6763	1979
15°	224951	5312	1520
20°	341674	4384	4082
25°	456550	10466	18863
30°	519845	3945	3817
35°	472180	2229	1732
40°	382430	998	692
45°	270622	576	174
50°	98747	365	0
55°	20558	301	0
60°	4958	345	0
65°	1547	409	0
70°	505	505	0
75°	238	667	0
80°	0	994	0
85°	0	1981	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.0	1.7
10°-20°	119.5	12.6
20°-30°	303.1	31.9
30°-40°	324.4	34.1
40°-50°	165.8	17.5
50°-60°	17.3	1.8
60°-70°	2.0	0.2
70°-80°	1.1	0.1
80°-90°	1.0	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°	438.6	46.2
0°-40°	762.9	80.3
0°-60°	946.0	99.6
0°-90°	950.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	950.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	71	71	71	71	71	
5°	362	197	66	38	31	53
15°	1762	708	42	15	12	520
25°	3355	797	77	129	139	1524
35°	3136	404	15	12	12	1925
45°	1551	54	3	2	1	1158
55°	96	9	1	1	0	130
65°	5	2	1	1	0	7
75°	0	1	1	1	0	0
85°	0	1	1	1	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°	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7
2.5°	142.9	144.3	133.8	137.1	139.5	134.7	133.8	133.8	139.0	136.2	140.9
5°	362.2	360.7	342.6	347.8	351.7	342.6	346.9	340.2	348.3	343.1	348.3
7.5°	632.6	649.3	626.4	631.6	635.0	625.4	627.8	618.3	627.3	621.1	625.4
10°	943.6	960.8	934.1	938.4	940.8	931.7	932.2	919.8	927.9	921.2	924.1
12.5°	1315.4	1322.1	1309.2	1312.5	1313.9	1302.0	1279.5	1281.9	1290.0	1278.6	1281.4
15°	1761.6	1756.9	1741.6	1752.6	1741.6	1735.8	1701.9	1700.0	1704.8	1691.9	1671.3
17.5°	2154.9	2191.2	2174.0	2180.2	2166.8	2166.8	2123.3	2116.2	2116.6	2082.2	2078.4
20°	2603.0	2649.4	2607.3	2609.2	2591.6	2591.1	2538.0	2523.2	2517.0	2477.8	2466.9
22.5°	3035.0	3048.3	3047.9	3039.7	2998.2	3022.1	2955.6	2932.2	2913.1	2868.7	2846.7
25°	3354.6	3396.6	3368.0	3347.4	3311.1	3341.2	3266.7	3236.1	3207.4	3170.2	3141.5
27.5°	3535.2	3574.4	3567.7	3537.1	3499.8	3529.0	3447.3	3407.6	3367.0	3339.8	3304.0
30°	3649.9	3709.6	3690.0	3623.6	3569.1	3578.7	3486.9	3433.9	3389.0	3360.8	3315.4
32.5°	3417.2	3478.8	3473.1	3424.8	3396.6	3420.1	3340.3	3287.7	3244.7	3222.2	3171.6
35°	3135.8	3207.9	3192.1	3152.0	3131.5	3158.7	3080.8	3036.9	2993.4	2973.8	2918.4
37.5°	2791.3	2859.1	2843.4	2805.1	2785.1	2805.1	2730.6	2690.0	2648.9	2628.3	2590.6
40°	2375.1	2434.8	2418.1	2382.8	2366.0	2380.4	2315.9	2280.5	2245.6	2230.3	2180.2
42.5°	1968.5	2016.3	2001.0	1970.4	1957.5	1967.1	1914.0	1882.5	1851.9	1839.0	1809.4
45°	1551.4	1598.7	1583.9	1557.6	1545.7	1550.9	1506.5	1478.3	1452.0	1440.1	1413.3
47.5°	1113.3	1166.3	1148.1	1125.7	1113.3	1110.9	1071.7	1046.4	1048.8	1008.1	983.3
50°	514.6	559.5	541.3	529.4	517.5	510.8	496.9	468.2	476.4	439.6	425.2
52.5°	186.8	197.8	193.5	189.7	185.9	184.4	179.7	172.5	173.4	164.4	160.1
55°	95.6	100.8	99.4	97.0	97.0	95.6	93.2	90.3	88.4	87.0	85.5
57.5°	44.0	46.8	45.9	44.9	44.9	44.0	43.0	41.6	42.5	40.1	39.7
60°	20.1	21.5	21.0	20.5	20.5	20.5	20.1	19.6	19.6	19.1	18.6
62.5°	9.6	10.5	10.0	10.0	10.0	10.0	9.6	9.6	9.6	9.6	9.1
65°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.8	5.3	4.8	4.8
67.5°	2.9	2.9	2.9	2.9	2.4	2.9	2.9	2.4	2.4	2.4	2.4
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°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
75°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
77.5°	0.0	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5
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	0.5	0.0	0.5	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°	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7
2.5°	130.0	133.3	136.6	135.7	130.9	130.4	128.5	129.5	100.8	81.7	68.3
5°	329.7	334.0	338.3	335.9	323.9	321.1	311.5	309.6	196.9	96.5	65.5
7.5°	602.5	604.9	608.2	605.4	587.7	579.6	559.5	539.9	331.1	116.6	60.7
10°	898.3	897.3	898.7	894.9	872.9	857.2	826.1	812.3	469.2	133.8	54.0
12.5°	1243.2	1239.4	1218.4	1228.4	1197.4	1165.3	1114.2	1071.2	599.6	143.3	47.8
15°	1646.0	1634.5	1626.9	1615.4	1577.2	1525.6	1447.7	1399.9	708.1	142.4	41.6
17.5°	2046.4	2027.8	1994.3	1998.6	1954.2	1882.0	1779.3	1697.6	783.1	130.4	36.8
20°	2425.3	2397.6	2355.5	2352.2	2298.7	2203.6	2074.1	1972.8	824.2	110.8	33.4
22.5°	2790.3	2747.3	2690.9	2673.3	2604.5	2469.7	2300.6	2177.3	828.0	92.7	40.1
25°	3078.0	3024.0	2961.4	2930.8	2854.8	2682.8	2472.1	2320.6	797.4	91.7	76.9
27.5°	3238.5	3177.3	3114.7	3073.2	2996.3	2801.3	2562.9	2388.0	744.9	98.4	73.1
30°	3247.1	3178.3	3113.3	3060.8	2984.3	2776.0	2522.8	2340.7	650.3	62.1	27.7
32.5°	3104.2	3030.7	2965.7	2906.4	2830.9	2621.2	2372.7	2198.8	528.9	43.5	19.6
35°	2854.3	2778.4	2716.3	2653.7	2583.0	2385.6	2157.7	1995.7	404.2	34.4	14.8
37.5°	2514.2	2443.9	2389.0	2346.5	2270.0	2112.8	1904.5	1733.0	285.7	24.4	9.1
40°	2133.4	2074.1	2029.2	1992.4	1921.7	1782.2	1571.9	1427.2	173.4	17.2	6.2
42.5°	1750.2	1694.7	1655.1	1620.2	1554.7	1431.5	1258.5	1113.3	83.1	11.9	4.3
45°	1361.2	1311.5	1278.1	1246.6	1187.8	1066.4	929.3	824.2	54.0	8.6	3.3
47.5°	929.8	904.0	849.0	814.6	754.4	661.7	533.2	417.6	35.8	6.2	2.4
50°	386.5	373.2	336.8	313.4	279.0	231.7	168.2	140.9	22.0	4.3	1.9
52.5°	150.0	146.7	137.6	132.3	123.7	111.3	92.7	82.7	13.4	3.3	1.9
55°	80.7	79.8	75.0	72.1	67.4	61.2	50.2	44.0	8.6	2.4	1.4
57.5°	37.3	36.8	34.4	34.4	31.1	28.7	23.9	21.5	5.3	1.9	1.4
60°	17.7	17.7	16.7	16.7	15.3	14.3	11.9	11.0	3.3	1.4	1.4
62.5°	8.6	8.6	8.6	8.6	8.1	7.6	6.7	6.2	2.4	1.4	1.4
65°	4.8	4.8	4.8	4.8	4.3	4.3	3.8	3.3	1.9	1.4	1.4
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	1.9	1.9	1.4	1.4	1.4
70°	1.4	1.4	1.4	1.4	1.4	1.0	1.0	1.0	1.0	1.4	1.4
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
75°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
80°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
82.5°	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.4
87.5°	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
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°	70.7	70.7	70.7	70.7
2.5°	58.8	51.1	47.3	46.3
5°	48.3	37.7	32.5	30.6
7.5°	39.2	27.2	22.9	21.0
10°	31.1	21.5	17.2	15.8
12.5°	25.8	17.2	13.9	12.9
15°	22.0	14.8	12.4	11.9
17.5°	20.1	15.8	14.8	15.3
20°	24.4	25.8	30.1	31.1
22.5°	51.6	89.3	121.4	128.5
25°	107.5	129.0	133.8	138.6
27.5°	59.7	46.3	45.4	47.3
30°	24.4	24.8	25.8	26.8
32.5°	18.2	18.2	17.7	18.2
35°	12.4	11.5	11.0	11.5
37.5°	7.6	7.2	6.7	6.7
40°	5.3	4.8	4.3	4.3
42.5°	3.8	2.9	2.4	2.4
45°	2.9	1.9	1.4	1.0
47.5°	2.4	1.4	0.5	0.5
50°	1.9	1.0	0.5	0.0
52.5°	1.4	1.0	0.5	0.0
55°	1.4	1.0	0.0	0.0
57.5°	1.4	1.0	0.0	0.0
60°	1.4	1.0	0.5	0.0
62.5°	1.4	1.0	0.5	0.5
65°	1.4	1.0	0.5	0.0
67.5°	1.4	1.0	0.5	0.0
70°	1.4	1.0	0.5	0.0
72.5°	1.9	1.0	0.5	0.0
75°	1.9	1.4	0.5	0.0
77.5°	1.9	1.4	0.5	0.0
80°	1.9	1.4	0.5	0.0
82.5°	1.9	1.4	0.5	0.0
85°	1.9	1.4	0.5	0.0
87.5°	1.9	1.4	0.5	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)