

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: P170788

Luminaire Tested: **LDA4A09940D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170788
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: LDA4A09940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 951.6 lumens
Efficiency: N/A
Efficacy: 68.8 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

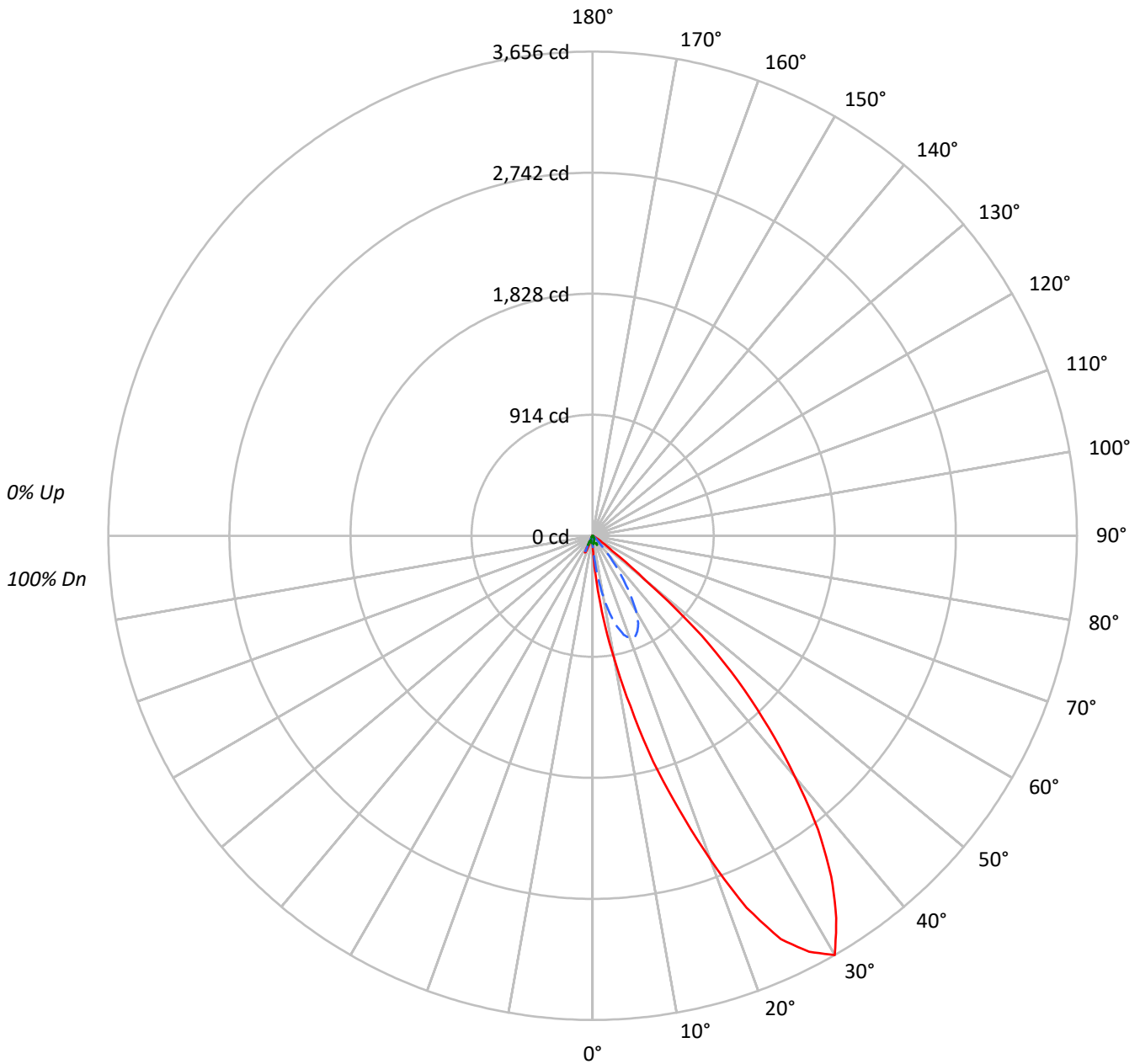
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	8733	8733	8733
5°	44921	8122	3789
10°	118385	6776	1979
15°	225321	5312	1532
20°	342239	4397	4082
25°	457299	10493	18890
30°	520700	3959	3817
35°	472948	2229	1732
40°	383058	998	692
45°	271075	593	174
50°	98901	365	0
55°	20580	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°	119.7	12.6
20°-30°	303.6	31.9
30°-40°	324.9	34.1
40°-50°	166.1	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°	439.3	46.2
0°-40°	764.2	80.3
0°-60°	947.6	99.6
0°-90°	951.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	951.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	71	71	71	71	71	
5°	363	197	66	38	31	53
15°	1764	709	42	15	12	521
25°	3360	799	77	129	139	1527
35°	3141	405	15	12	12	1928
45°	1554	54	3	2	1	1160
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°	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8
2.5°	143.1	144.5	134.0	137.4	139.7	135.0	134.0	134.0	139.3	136.4	141.2
5°	362.8	361.3	343.1	348.4	352.2	343.1	347.5	340.8	348.9	343.6	348.9
7.5°	633.6	650.4	627.4	632.7	636.0	626.5	628.9	619.3	628.4	622.2	626.5
10°	945.2	962.4	935.6	939.9	942.3	933.2	933.7	921.3	929.4	922.7	925.6
12.5°	1317.5	1324.2	1311.3	1314.7	1316.1	1304.1	1281.6	1284.0	1292.2	1280.7	1283.6
15°	1764.5	1759.8	1744.4	1755.4	1744.4	1738.7	1704.7	1702.8	1707.6	1694.7	1674.1
17.5°	2158.4	2194.8	2177.6	2183.8	2170.4	2170.4	2126.8	2119.6	2120.1	2085.7	2081.8
20°	2607.3	2653.7	2611.6	2613.5	2595.8	2595.4	2542.2	2527.4	2521.2	2481.9	2470.9
22.5°	3040.0	3053.4	3052.9	3044.7	3003.1	3027.0	2960.5	2937.1	2917.9	2873.4	2851.4
25°	3360.1	3402.2	3373.5	3353.0	3316.6	3346.7	3272.1	3241.4	3212.7	3175.4	3146.7
27.5°	3541.0	3580.3	3573.6	3543.0	3505.6	3534.8	3453.0	3413.3	3372.6	3345.3	3309.4
30°	3655.9	3715.7	3696.1	3629.6	3575.0	3584.6	3492.7	3439.6	3394.6	3366.4	3320.9
32.5°	3422.8	3484.6	3478.8	3430.5	3402.2	3425.7	3345.8	3293.1	3250.1	3227.6	3176.8
35°	3140.9	3213.2	3197.4	3157.2	3136.6	3163.9	3085.9	3041.9	2998.3	2978.7	2923.2
37.5°	2795.9	2863.8	2848.0	2809.8	2789.7	2809.8	2735.1	2694.4	2653.3	2632.7	2594.9
40°	2379.0	2438.9	2422.1	2386.7	2369.9	2384.3	2319.7	2284.3	2249.3	2234.0	2183.8
42.5°	1971.8	2019.6	2004.3	1973.7	1960.8	1970.3	1917.2	1885.6	1855.0	1842.1	1812.4
45°	1554.0	1601.3	1586.5	1560.2	1548.2	1553.5	1509.0	1480.7	1454.4	1442.4	1415.6
47.5°	1115.1	1168.2	1150.0	1127.5	1115.1	1112.7	1073.5	1048.1	1050.5	1009.8	984.9
50°	515.4	560.4	542.2	530.3	518.3	511.6	497.7	469.0	477.1	440.3	425.9
52.5°	187.1	198.1	193.8	190.0	186.2	184.7	179.9	172.8	173.7	164.6	160.3
55°	95.7	101.0	99.5	97.2	97.2	95.7	93.3	90.5	88.5	87.1	85.7
57.5°	44.0	46.9	45.9	45.0	45.0	44.0	43.1	41.6	42.6	40.2	39.7
60°	20.1	21.5	21.1	20.6	20.6	20.6	20.1	19.6	19.6	19.1	18.7
62.5°	9.6	10.5	10.1	10.1	10.1	10.1	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°	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8
2.5°	130.2	133.5	136.9	135.9	131.1	130.7	128.7	129.7	101.0	81.8	68.4
5°	330.2	334.5	338.8	336.4	324.5	321.6	312.0	310.1	197.2	96.7	65.6
7.5°	603.5	605.9	609.2	606.4	588.7	580.5	560.4	540.8	331.7	116.8	60.8
10°	899.7	898.8	900.2	896.4	874.4	858.6	827.5	813.6	470.0	134.0	54.1
12.5°	1245.3	1241.4	1220.4	1230.4	1199.3	1167.3	1116.1	1073.0	600.6	143.6	47.9
15°	1648.7	1637.2	1629.6	1618.1	1579.8	1528.1	1450.1	1402.2	709.3	142.6	41.6
17.5°	2049.8	2031.1	1997.6	2001.9	1957.4	1885.1	1782.2	1700.4	784.4	130.7	36.9
20°	2429.3	2401.5	2359.4	2356.1	2302.5	2207.2	2077.5	1976.1	825.6	111.0	33.5
22.5°	2794.9	2751.9	2695.4	2677.7	2608.8	2473.8	2304.4	2180.9	829.4	92.8	40.2
25°	3083.0	3029.0	2966.3	2935.6	2859.5	2687.2	2476.2	2324.5	798.8	91.9	77.1
27.5°	3243.8	3182.6	3119.9	3078.2	3001.2	2805.9	2567.1	2392.0	746.1	98.6	73.2
30°	3252.5	3183.5	3118.4	3065.8	2989.2	2780.6	2526.9	2344.6	651.4	62.2	27.8
32.5°	3109.4	3035.7	2970.6	2911.2	2835.6	2625.5	2376.6	2202.4	529.8	43.6	19.6
35°	2859.1	2783.0	2720.7	2658.1	2587.2	2389.6	2161.3	1999.0	404.9	34.5	14.8
37.5°	2518.3	2448.0	2392.9	2350.3	2273.7	2116.3	1907.6	1735.8	286.2	24.4	9.1
40°	2136.9	2077.5	2032.5	1995.7	1924.9	1785.1	1574.5	1429.5	173.7	17.2	6.2
42.5°	1753.1	1697.5	1657.8	1622.9	1557.3	1433.8	1260.6	1115.1	83.3	12.0	4.3
45°	1363.5	1313.7	1280.2	1248.6	1189.8	1068.2	930.8	825.6	54.1	8.6	3.4
47.5°	931.3	905.5	850.4	816.0	755.7	662.8	534.1	418.3	35.9	6.2	2.4
50°	387.2	373.8	337.4	314.0	279.5	232.1	168.5	141.2	22.0	4.3	1.9
52.5°	150.3	146.9	137.8	132.6	124.0	111.5	92.8	82.8	13.4	3.4	1.9
55°	80.9	79.9	75.1	72.3	67.5	61.3	50.3	44.0	8.6	2.4	1.4
57.5°	37.3	36.9	34.5	34.5	31.1	28.7	23.9	21.5	5.3	1.9	1.4
60°	17.7	17.7	16.8	16.8	15.3	14.4	12.0	11.0	3.4	1.4	1.4
62.5°	8.6	8.6	8.6	8.6	8.1	7.7	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	3.4	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°	70.8	70.8	70.8	70.8
2.5°	58.9	51.2	47.4	46.4
5°	48.3	37.8	32.5	30.6
7.5°	39.2	27.3	23.0	21.1
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	12.0
17.5°	20.1	15.8	14.8	15.3
20°	24.4	25.8	30.2	31.1
22.5°	51.7	89.5	121.6	128.7
25°	107.7	129.2	134.0	138.8
27.5°	59.8	46.4	45.5	47.4
30°	24.4	24.9	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°	7.7	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)