

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: P170786

Luminaire Tested: **LDA4A09930D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170786
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: LDA4A09930D010TE 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: 879.5 lumens
Efficiency: N/A
Efficacy: 63.5 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

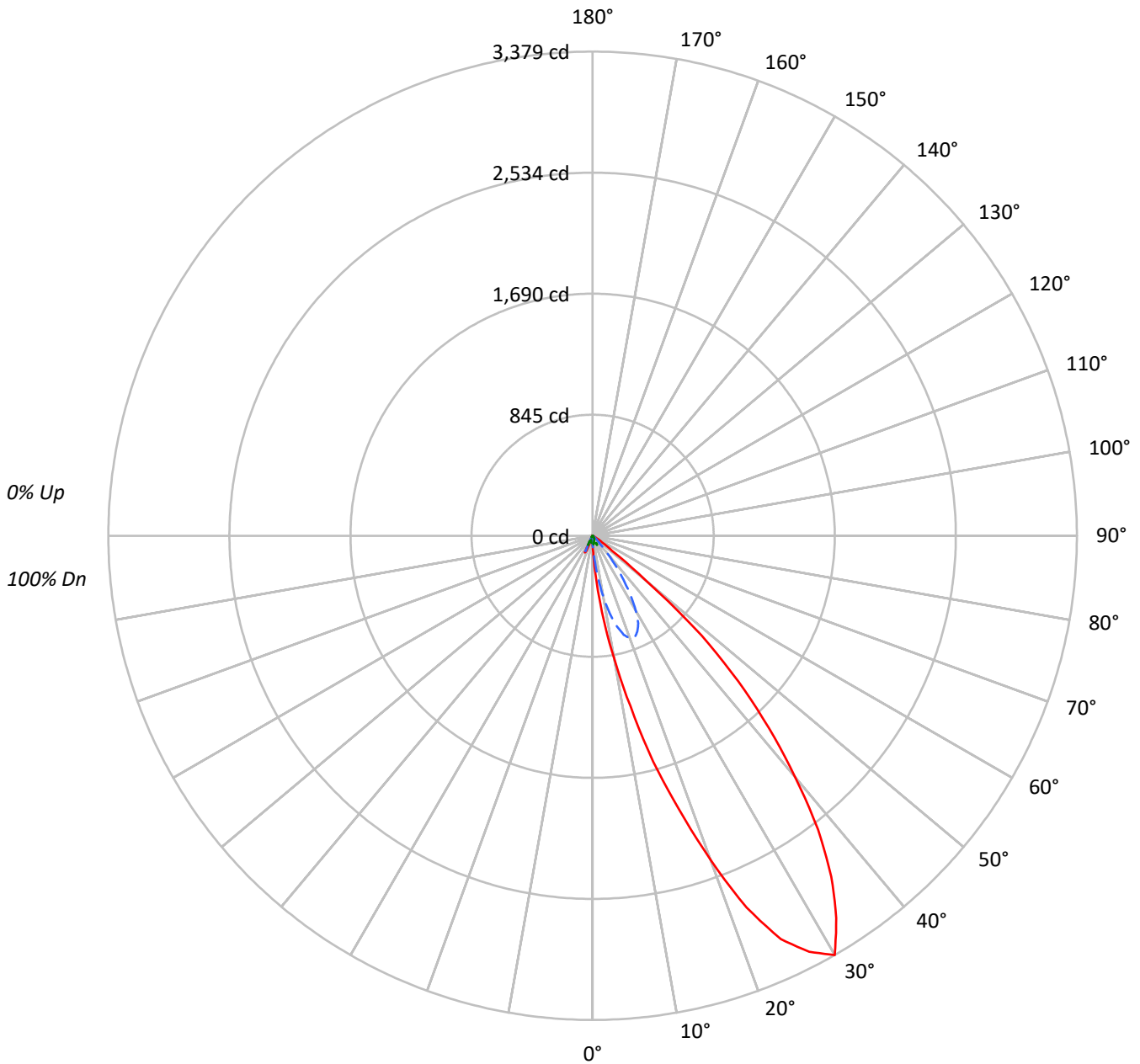
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	8079	8079	8079
5°	41516	7503	3504
10°	109417	6262	1829
15°	208248	4916	1417
20°	316301	4069	3780
25°	422649	9690	17461
30°	481233	3660	3532
35°	437111	2063	1596
40°	354026	934	644
45°	250527	541	157
50°	91417	345	0
55°	19032	280	0
60°	4588	321	0
65°	1430	379	0
70°	469	469	0
75°	191	620	0
80°	0	923	0
85°	0	1840	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.8	1.7
10°-20°	110.6	12.6
20°-30°	280.6	31.9
30°-40°	300.3	34.1
40°-50°	153.5	17.5
50°-60°	16.0	1.8
60°-70°	1.8	0.2
70°-80°	1.0	0.1
80°-90°	0.9	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°	406.0	46.2
0°-40°	706.3	80.3
0°-60°	875.8	99.6
0°-90°	879.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	879.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	66	66	66	66	66	
5°	335	182	61	35	28	49
15°	1631	656	38	14	11	482
25°	3106	738	71	119	128	1411
35°	2903	374	14	11	11	1782
45°	1436	50	3	2	1	1072
55°	88	8	1	1	0	120
65°	5	2	1	1	0	6
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°	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5
2.5°	132.3	133.6	123.8	126.9	129.2	124.7	123.8	123.8	128.7	126.1	130.5
5°	335.3	333.9	317.1	322.0	325.5	317.1	321.1	314.9	322.4	317.6	322.4
7.5°	585.6	601.1	579.9	584.7	587.8	579.0	581.2	572.4	580.8	575.0	579.0
10°	873.6	889.5	864.7	868.7	870.9	862.5	863.0	851.5	859.0	852.8	855.4
12.5°	1217.7	1223.9	1211.9	1215.0	1216.4	1205.3	1184.5	1186.7	1194.3	1183.6	1186.3
15°	1630.8	1626.4	1612.2	1622.4	1612.2	1606.9	1575.5	1573.8	1578.2	1566.2	1547.2
17.5°	1994.8	2028.5	2012.5	2018.3	2005.9	2005.9	1965.6	1959.0	1959.5	1927.6	1924.1
20°	2409.7	2452.6	2413.7	2415.5	2399.1	2398.7	2349.6	2335.9	2330.1	2293.8	2283.7
22.5°	2809.6	2822.0	2821.5	2814.0	2775.5	2797.6	2736.2	2714.5	2696.8	2655.7	2635.3
25°	3105.5	3144.4	3117.9	3098.9	3065.2	3093.1	3024.1	2995.8	2969.3	2934.8	2908.2
27.5°	3272.7	3309.0	3302.8	3274.5	3240.0	3266.9	3191.3	3154.6	3117.0	3091.8	3058.6
30°	3378.8	3434.1	3416.0	3354.5	3304.1	3312.9	3228.0	3178.9	3137.3	3111.2	3069.2
32.5°	3163.4	3220.5	3215.2	3170.5	3144.4	3166.1	3092.2	3043.6	3003.8	2983.0	2936.1
35°	2902.9	2969.7	2955.1	2918.0	2898.9	2924.1	2852.0	2811.4	2771.1	2753.0	2701.7
37.5°	2584.0	2646.8	2632.2	2596.8	2578.3	2596.8	2527.8	2490.2	2452.2	2433.2	2398.2
40°	2198.7	2254.0	2238.6	2205.8	2190.3	2203.6	2143.9	2111.2	2078.9	2064.7	2018.3
42.5°	1822.3	1866.6	1852.4	1824.1	1812.2	1821.0	1771.9	1742.7	1714.4	1702.5	1675.0
45°	1436.2	1480.0	1466.3	1441.9	1430.9	1435.8	1394.6	1368.5	1344.2	1333.1	1308.4
47.5°	1030.6	1079.7	1062.9	1042.1	1030.6	1028.4	992.1	968.7	970.9	933.3	910.3
50°	476.4	518.0	501.1	490.1	479.0	472.8	460.0	433.5	441.0	406.9	393.7
52.5°	172.9	183.1	179.1	175.6	172.1	170.7	166.3	159.7	160.6	152.2	148.2
55°	88.5	93.3	92.0	89.8	89.8	88.5	86.3	83.6	81.8	80.5	79.2
57.5°	40.7	43.3	42.5	41.6	41.6	40.7	39.8	38.5	39.4	37.2	36.7
60°	18.6	19.9	19.5	19.0	19.0	19.0	18.6	18.1	18.1	17.7	17.3
62.5°	8.8	9.7	9.3	9.3	9.3	9.3	8.8	8.8	8.8	8.8	8.4
65°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.4	4.9	4.4	4.4
67.5°	2.7	2.7	2.7	2.7	2.2	2.7	2.7	2.2	2.2	2.2	2.2
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.0	0.4	0.4	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4
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	0.4	0.0	0.4	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°	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5	65.5
2.5°	120.3	123.4	126.5	125.6	121.2	120.8	119.0	119.9	93.3	75.6	63.3
5°	305.2	309.2	313.2	310.9	299.9	297.2	288.4	286.6	182.2	89.3	60.6
7.5°	557.8	560.0	563.1	560.4	544.0	536.5	518.0	499.8	306.5	107.9	56.2
10°	831.6	830.7	832.0	828.5	808.1	793.5	764.8	751.9	434.4	123.8	50.0
12.5°	1150.9	1147.4	1127.9	1137.2	1108.4	1078.8	1031.5	991.7	555.1	132.7	44.2
15°	1523.8	1513.2	1506.1	1495.5	1460.1	1412.3	1340.2	1296.0	655.5	131.8	38.5
17.5°	1894.4	1877.2	1846.2	1850.2	1809.1	1742.3	1647.2	1571.5	725.0	120.8	34.1
20°	2245.2	2219.5	2180.6	2177.5	2128.0	2040.0	1920.1	1826.3	763.0	102.6	31.0
22.5°	2583.1	2543.3	2491.1	2474.8	2411.1	2286.3	2129.7	2015.6	766.5	85.8	37.2
25°	2849.4	2799.4	2741.5	2713.2	2642.8	2483.6	2288.5	2148.3	738.2	84.9	71.2
27.5°	2998.0	2941.4	2883.5	2845.0	2773.8	2593.3	2372.6	2210.7	689.6	91.1	67.7
30°	3006.0	2942.3	2882.1	2833.5	2762.7	2569.8	2335.4	2166.9	602.0	57.5	25.7
32.5°	2873.7	2805.6	2745.4	2690.6	2620.7	2426.5	2196.5	2035.5	489.6	40.3	18.1
35°	2642.4	2572.1	2514.6	2456.6	2391.2	2208.5	1997.5	1847.5	374.2	31.8	13.7
37.5°	2327.5	2262.4	2211.6	2172.2	2101.4	1955.9	1763.1	1604.3	264.5	22.6	8.4
40°	1974.9	1920.1	1878.5	1844.5	1779.0	1649.8	1455.2	1321.2	160.6	15.9	5.8
42.5°	1620.2	1568.9	1532.2	1499.9	1439.3	1325.2	1165.1	1030.6	77.0	11.1	4.0
45°	1260.2	1214.2	1183.2	1154.0	1099.6	987.2	860.3	763.0	50.0	8.0	3.1
47.5°	860.7	836.9	786.0	754.1	698.4	612.6	493.6	386.6	33.2	5.8	2.2
50°	357.8	345.4	311.8	290.2	258.3	214.5	155.7	130.5	20.3	4.0	1.8
52.5°	138.9	135.8	127.4	122.5	114.6	103.1	85.8	76.5	12.4	3.1	1.8
55°	74.8	73.9	69.4	66.8	62.4	56.6	46.4	40.7	8.0	2.2	1.3
57.5°	34.5	34.1	31.8	31.8	28.8	26.5	22.1	19.9	4.9	1.8	1.3
60°	16.4	16.4	15.5	15.5	14.2	13.3	11.1	10.2	3.1	1.3	1.3
62.5°	8.0	8.0	8.0	8.0	7.5	7.1	6.2	5.8	2.2	1.3	1.3
65°	4.4	4.4	4.4	4.4	4.0	4.0	3.5	3.1	1.8	1.3	1.3
67.5°	2.2	2.2	2.2	2.2	2.2	2.2	1.8	1.8	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9	0.9	1.3	1.3
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
80°	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
82.5°	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	1.3	1.3
87.5°	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.9	1.3	1.3
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°	65.5	65.5	65.5	65.5
2.5°	54.4	47.3	43.8	42.9
5°	44.7	34.9	30.1	28.3
7.5°	36.3	25.2	21.2	19.5
10°	28.8	19.9	15.9	14.6
12.5°	23.9	15.9	12.8	11.9
15°	20.3	13.7	11.5	11.1
17.5°	18.6	14.6	13.7	14.2
20°	22.6	23.9	27.9	28.8
22.5°	47.8	82.7	112.3	119.0
25°	99.5	119.4	123.8	128.3
27.5°	55.3	42.9	42.0	43.8
30°	22.6	23.0	23.9	24.8
32.5°	16.8	16.8	16.4	16.8
35°	11.5	10.6	10.2	10.6
37.5°	7.1	6.6	6.2	6.2
40°	4.9	4.4	4.0	4.0
42.5°	3.5	2.7	2.2	2.2
45°	2.7	1.8	1.3	0.9
47.5°	2.2	1.3	0.4	0.4
50°	1.8	0.9	0.4	0.0
52.5°	1.3	0.9	0.4	0.0
55°	1.3	0.9	0.0	0.0
57.5°	1.3	0.9	0.0	0.0
60°	1.3	0.9	0.4	0.0
62.5°	1.3	0.9	0.4	0.4
65°	1.3	0.9	0.4	0.0
67.5°	1.3	0.9	0.4	0.0
70°	1.3	0.9	0.4	0.0
72.5°	1.8	0.9	0.4	0.0
75°	1.8	1.3	0.4	0.0
77.5°	1.8	1.3	0.4	0.0
80°	1.8	1.3	0.4	0.0
82.5°	1.8	1.3	0.4	0.0
85°	1.8	1.3	0.4	0.0
87.5°	1.8	1.3	0.4	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)