

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: P170759

Luminaire Tested: **LDA4A13835D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170759
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26104)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A13835D010TE LAR15SP 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 15° Spot 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: 1471.4 lumens
Efficiency: N/A
Efficacy: 66.1 lumens/watt
Spacing Criteria (0/90/45): 2.57 / 1.16 / 1.36
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

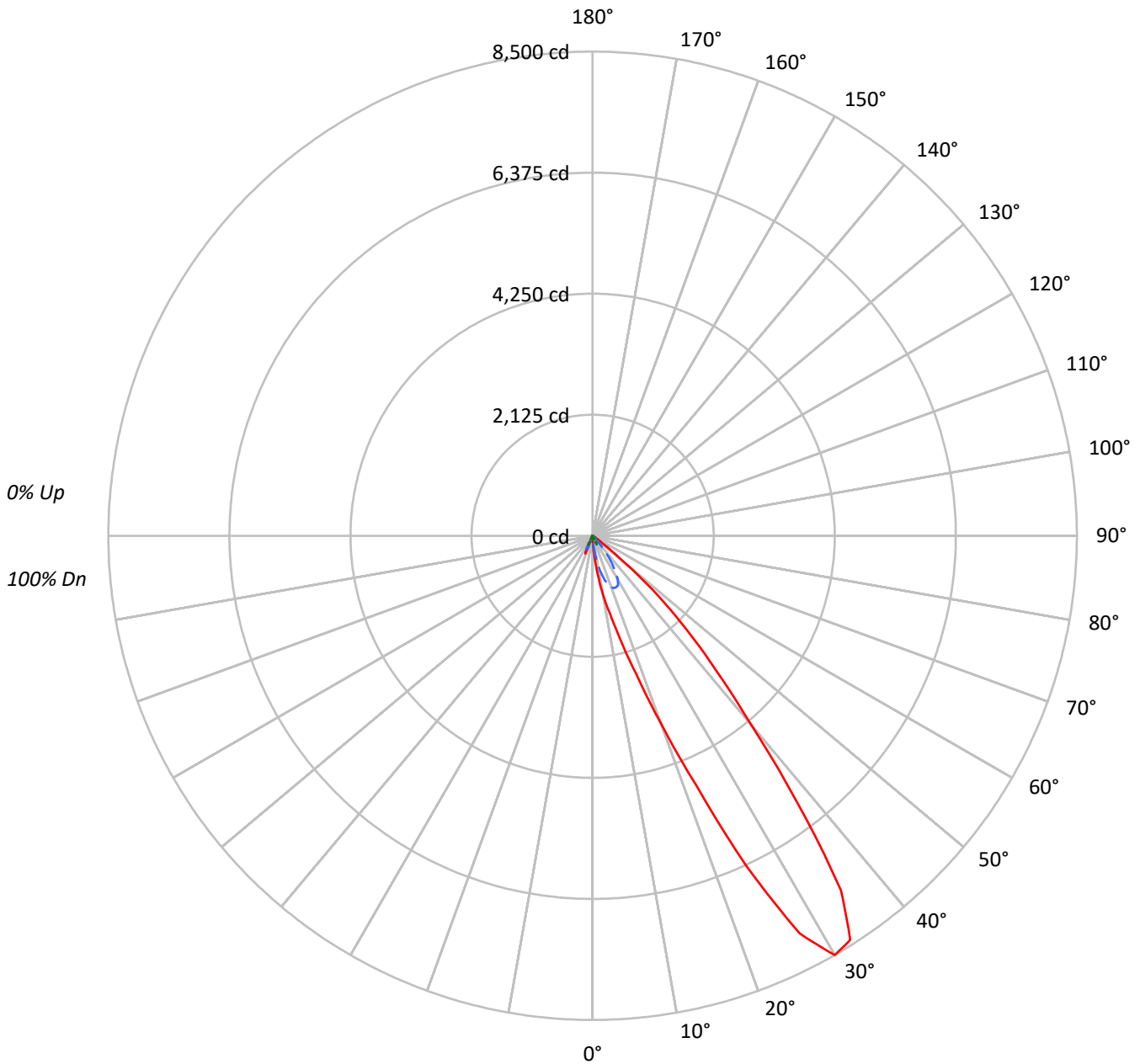
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	97	96	96	94	93	91																			
2	105	100	95	91	103	98	93	90	94	91	88	91	88	86	89	86	84	82																			
3	99	91	85	80	96	89	84	79	87	82	78	84	80	77	82	78	76	74																			
4	92	83	76	71	90	82	75	70	79	74	70	77	72	69	75	71	68	66																			
5	86	75	68	63	84	74	68	63	73	67	62	71	66	62	69	65	61	59																			
6	80	69	62	56	78	68	61	56	66	60	56	65	59	55	63	59	55	53																			
7	74	63	56	51	73	62	55	50	61	55	50	60	54	50	58	53	49	48																			
8	69	58	50	45	68	57	50	45	56	50	45	55	49	45	54	48	45	43																			
9	65	53	46	41	64	52	46	41	51	45	41	50	45	40	49	44	40	39																			
10	61	49	42	37	59	48	41	37	47	41	37	46	41	37	46	40	37	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8560	8560	8560
5°	45156	8098	4296
10°	132100	6876	2831
15°	240300	5772	3192
20°	458418	6563	15568
25°	871210	22837	34378
30°	1210674	7705	6666
35°	1144101	3524	2545
40°	693433	1562	902
45°	406369	837	279
50°	134862	614	0
55°	25677	516	0
60°	5773	395	0
65°	1634	700	0
70°	577	866	0
75°	0	1144	0
80°	0	1705	0
85°	0	3397	1132



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.6	1.1
10°-20°	135.4	9.2
20°-30°	480.1	32.6
30°-40°	569.2	38.7
40°-50°	242.2	16.5
50°-60°	21.9	1.5
60°-70°	2.7	0.2
70°-80°	1.8	0.1
80°-90°	1.6	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°	632.0	43.0
0°-40°	1201.3	81.6
0°-60°	1465.3	99.6
0°-90°	1471.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1471.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	69	69	69	69	69	
5°	365	180	65	41	35	57
15°	1882	792	45	25	25	607
25°	6401	993	168	264	253	2966
35°	7598	587	23	18	17	4389
45°	2330	65	5	3	2	1826
55°	119	10	2	2	0	167
65°	6	2	2	2	0	8
75°	0	2	2	2	0	0
85°	0	2	2	2	1	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°	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4
2.5°	127.5	120.2	125.1	123.5	124.3	126.7	124.3	124.3	123.5	120.2	120.2
5°	364.7	342.9	353.4	347.8	351.0	355.1	349.4	347.8	345.4	338.1	336.5
7.5°	679.4	667.3	680.2	670.6	679.4	681.1	673.0	671.4	667.3	656.8	652.8
10°	1054.7	1034.5	1046.6	1036.1	1049.8	1049.0	1036.1	1037.7	1032.9	1019.2	1012.7
12.5°	1387.1	1371.0	1383.1	1353.2	1387.1	1365.3	1367.8	1371.0	1364.5	1346.8	1338.7
15°	1881.8	1837.4	1858.4	1806.7	1858.4	1851.1	1822.9	1821.3	1804.3	1774.5	1756.7
17.5°	2538.6	2550.7	2535.4	2504.7	2573.3	2554.8	2514.4	2506.4	2474.1	2392.6	2391.0
20°	3492.4	3476.3	3502.1	3405.3	3493.2	3407.7	3396.4	3373.8	3318.9	3205.2	3187.4
22.5°	4713.3	4722.2	4676.2	4609.2	4717.4	4585.0	4544.7	4490.6	4390.6	4215.5	4160.6
25°	6401.4	6390.2	6330.4	6219.1	6334.5	6120.6	6019.8	5908.4	5722.0	5449.3	5317.7
27.5°	7872.5	7918.5	7879.0	7766.0	7842.6	7632.0	7399.6	7328.6	7076.1	6732.3	6495.1
30°	8500.3	8522.1	8505.1	8418.8	8446.2	8272.7	8042.8	7958.8	7699.8	7374.6	7067.2
32.5°	8414.0	8424.4	8427.7	8312.3	8317.1	8153.3	7912.8	7788.6	7506.1	7193.1	6825.9
35°	7598.1	7641.7	7670.0	7561.8	7454.5	7291.5	7018.8	6825.9	6528.9	6243.3	5868.1
37.5°	5884.2	5939.1	5982.6	5890.7	5839.8	5642.9	5416.2	5266.9	5061.9	4894.1	4627.8
40°	4306.6	4317.1	4343.8	4296.1	4217.1	4164.6	4034.7	3950.0	3825.7	3735.3	3558.6
42.5°	3201.1	3195.5	3214.0	3187.4	3185.0	3105.9	3023.6	2973.6	2930.8	2835.6	2711.3
45°	2329.6	2331.2	2349.0	2332.1	2286.9	2269.9	2215.9	2170.7	2114.2	2084.3	1985.9
47.5°	1584.0	1588.9	1601.0	1591.3	1550.1	1543.7	1509.0	1463.8	1463.0	1417.0	1330.6
50°	702.8	704.5	719.0	715.8	666.5	673.0	650.4	609.2	620.5	593.1	526.9
52.5°	233.2	234.0	236.4	234.8	226.7	226.7	221.1	220.3	213.8	207.4	192.9
55°	119.4	119.4	121.0	120.2	116.2	116.2	109.7	113.8	110.6	108.1	99.3
57.5°	50.8	50.8	51.6	51.6	49.2	51.6	49.2	49.2	47.6	46.8	43.6
60°	23.4	23.4	23.4	23.4	22.6	24.2	22.6	22.6	22.6	21.8	20.2
62.5°	12.1	12.1	12.1	12.1	12.1	12.1	12.1	11.3	11.3	11.3	10.5
65°	5.6	5.6	5.6	5.6	5.6	6.5	5.6	5.6	5.6	5.6	5.6
67.5°	2.4	2.4	2.4	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.8
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°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	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°	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4
2.5°	121.0	117.0	122.7	117.8	121.0	117.8	113.8	115.4	92.8	77.5	68.6
5°	337.3	325.2	335.7	325.2	326.0	320.4	305.0	303.4	179.9	88.0	65.4
7.5°	635.1	633.4	646.4	632.6	631.0	617.3	589.1	577.8	326.0	103.3	60.5
10°	1008.7	985.3	996.6	982.0	977.2	952.2	911.8	890.1	485.0	118.6	54.9
12.5°	1316.1	1307.2	1315.3	1301.6	1296.8	1262.9	1215.3	1186.2	648.0	127.5	49.2
15°	1718.0	1700.2	1705.9	1677.6	1663.1	1598.5	1517.0	1463.8	792.4	126.7	45.2
17.5°	2331.2	2296.5	2293.3	2244.9	2209.4	2092.4	1946.3	1836.6	898.1	117.0	43.6
20°	3099.5	3036.5	3015.5	2938.9	2879.2	2685.5	2460.4	2282.0	964.3	104.1	50.0
22.5°	4020.2	3909.6	3847.5	3724.8	3622.4	3311.7	2981.6	2714.5	993.3	100.1	71.8
25°	5093.4	4903.8	4772.2	4579.4	4406.7	3929.8	3466.6	3092.2	993.3	129.9	167.8
27.5°	6182.0	5882.6	5640.5	5358.9	5096.6	4420.4	3823.3	3335.9	969.1	162.2	153.3
30°	6733.1	6365.1	6035.9	5706.7	5377.4	4564.9	3903.2	3365.7	877.9	95.2	54.1
32.5°	6499.1	6111.0	5747.0	5428.3	5103.1	4309.9	3686.9	3168.0	737.5	55.7	34.7
35°	5601.8	5265.3	4949.0	4710.9	4457.5	3831.3	3273.8	2821.9	586.6	43.6	23.4
37.5°	4471.3	4242.1	4016.9	3864.4	3682.9	3212.4	2763.0	2392.6	419.6	31.5	14.5
40°	3468.2	3311.7	3154.3	3057.5	2929.2	2586.2	2236.0	1941.5	247.7	21.8	9.7
42.5°	2656.4	2548.3	2431.3	2364.3	2272.3	2016.5	1743.0	1534.8	114.6	15.3	7.3
45°	1952.8	1872.9	1783.3	1740.6	1676.0	1507.4	1325.8	1178.9	64.6	11.3	4.8
47.5°	1314.5	1243.5	1160.4	1133.7	1071.6	923.9	738.3	593.9	42.8	8.1	4.0
50°	522.9	476.1	447.9	410.7	374.4	313.9	234.8	187.2	25.8	6.5	3.2
52.5°	192.1	181.6	176.7	167.0	159.0	142.0	120.2	104.1	15.3	4.8	2.4
55°	100.1	93.6	90.4	87.1	82.3	72.6	60.5	51.6	9.7	3.2	2.4
57.5°	43.6	41.2	42.0	38.7	36.3	33.1	29.0	25.0	6.5	3.2	2.4
60°	21.0	19.4	20.2	18.6	17.8	16.9	15.3	12.9	4.0	2.4	1.6
62.5°	10.5	10.5	10.5	9.7	9.7	8.9	8.1	7.3	3.2	2.4	2.4
65°	5.6	4.8	5.6	4.8	4.8	4.8	4.0	4.0	2.4	2.4	2.4
67.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.6	2.4	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	0.8	1.6	1.6	2.4	2.4
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
75°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.6	2.4	2.4
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.4	2.4
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.6	2.4	2.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.6	2.4	2.4
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.4	2.4
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.4	2.4
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°	69.4	69.4	69.4	69.4
2.5°	58.1	51.6	46.8	46.0
5°	49.2	41.2	35.5	34.7
7.5°	42.0	33.1	28.2	27.4
10°	37.1	28.2	23.4	22.6
12.5°	33.1	25.0	21.8	21.0
15°	30.7	25.0	24.2	25.0
17.5°	33.1	33.9	37.1	41.2
20°	54.9	78.3	101.7	118.6
22.5°	123.5	228.4	302.6	338.1
25°	233.2	263.9	264.7	252.6
27.5°	126.7	100.9	90.4	85.5
30°	50.0	47.6	47.6	46.8
32.5°	33.1	30.7	29.9	29.0
35°	20.2	17.8	16.9	16.9
37.5°	12.9	11.3	10.5	9.7
40°	8.9	7.3	6.5	5.6
42.5°	6.5	4.8	3.2	3.2
45°	4.8	3.2	1.6	1.6
47.5°	4.0	2.4	0.8	0.8
50°	3.2	1.6	0.8	0.0
52.5°	2.4	1.6	0.0	0.0
55°	2.4	1.6	0.0	0.0
57.5°	2.4	1.6	0.0	0.0
60°	2.4	1.6	0.0	0.0
62.5°	2.4	1.6	0.0	0.0
65°	2.4	1.6	0.8	0.0
67.5°	3.2	1.6	0.8	0.0
70°	3.2	1.6	0.8	0.0
72.5°	3.2	1.6	0.8	0.0
75°	3.2	2.4	0.8	0.0
77.5°	3.2	2.4	0.8	0.0
80°	3.2	2.4	0.8	0.0
82.5°	3.2	2.4	0.8	0.0
85°	3.2	2.4	0.8	0.8
87.5°	3.2	2.4	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)