

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: P170746

Luminaire Tested: **LDA4A18930D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170746
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: LDA4A18930D010TE 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 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1482.9 lumens
Efficiency: N/A
Efficacy: 50.9 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

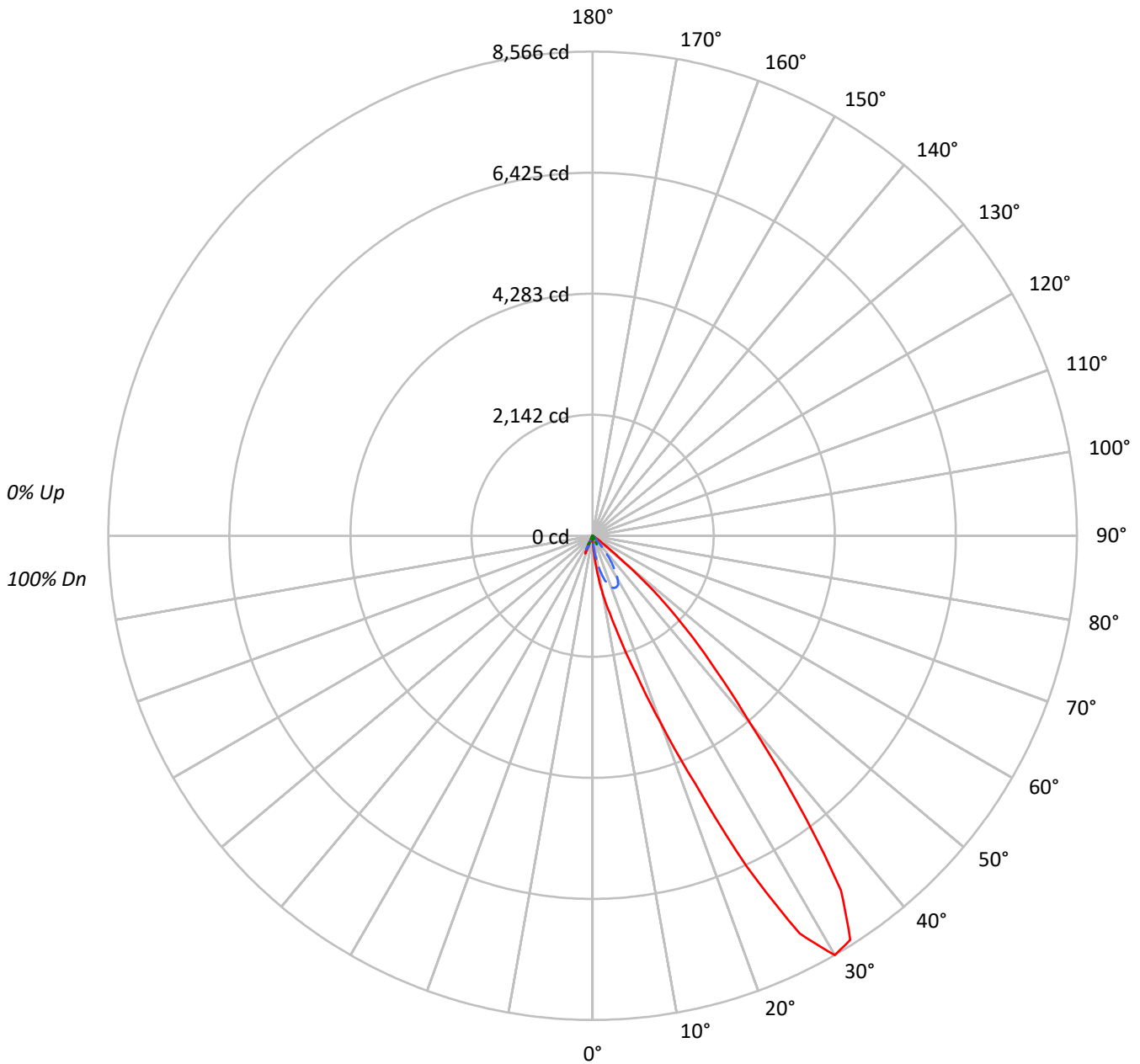
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P170746

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LAL1 30° Tilt

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°	8622	8622	8622
5°	45515	8160	4334
10°	133127	6926	2856
15°	242164	5810	3218
20°	461989	6616	15686
25°	877988	23014	34637
30°	1220089	7762	6723
35°	1153000	3554	2575
40°	698827	1578	918
45°	409543	855	279
50°	135917	633	0
55°	25892	516	0
60°	5822	395	0
65°	1664	700	0
70°	577	866	0
75°	0	1144	0
80°	0	1705	0
85°	0	3397	1132



TEST NUMBER: P170746

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	16.7	1.1
10°-20°	136.4	9.2
20°-30°	483.8	32.6
30°-40°	573.6	38.7
40°-50°	244.0	16.5
50°-60°	22.1	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°	637.0	43.0
0°-40°	1210.6	81.6
0°-60°	1476.7	99.6
0°-90°	1482.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1482.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	70	70	70	70	70	
5°	368	181	66	42	35	57
15°	1896	799	46	25	25	612
25°	6451	1001	169	266	254	2989
35°	7657	591	24	18	17	4423
45°	2348	65	5	3	2	1840
55°	120	10	2	2	0	168
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	



TEST NUMBER: P170746

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9
2.5°	128.5	121.2	126.0	124.4	125.2	127.7	125.2	125.2	124.4	121.2	121.2
5°	367.6	345.6	356.2	350.5	353.7	357.8	352.1	350.5	348.1	340.7	339.1
7.5°	684.7	672.5	685.5	675.8	684.7	686.4	678.2	676.6	672.5	662.0	657.9
10°	1062.9	1042.5	1054.7	1044.2	1058.0	1057.2	1044.2	1045.8	1040.9	1027.1	1020.6
12.5°	1397.9	1381.7	1393.8	1363.8	1397.9	1376.0	1378.4	1381.7	1375.1	1357.3	1349.1
15°	1896.4	1851.7	1872.8	1820.8	1872.8	1865.5	1837.1	1835.4	1818.3	1788.3	1770.4
17.5°	2558.4	2570.6	2555.1	2524.2	2593.3	2574.6	2534.0	2525.8	2493.3	2411.2	2409.6
20°	3519.6	3503.3	3529.4	3431.8	3520.4	3434.2	3422.8	3400.1	3344.8	3230.1	3212.2
22.5°	4750.0	4758.9	4712.6	4645.1	4754.1	4620.7	4580.0	4525.5	4424.7	4248.2	4192.9
25°	6451.2	6439.8	6379.7	6267.4	6383.7	6168.2	6066.6	5954.4	5766.5	5491.6	5359.1
27.5°	7933.7	7980.1	7940.2	7826.4	7903.6	7691.4	7457.2	7385.6	7131.1	6784.7	6545.6
30°	8566.4	8588.4	8571.3	8484.3	8511.9	8337.1	8105.3	8020.7	7759.7	7432.0	7122.1
32.5°	8479.4	8490.0	8493.2	8376.9	8381.8	8216.7	7974.4	7849.1	7564.5	7249.0	6879.0
35°	7657.2	7701.1	7729.6	7620.6	7512.5	7348.2	7073.3	6879.0	6579.7	6291.8	5913.7
37.5°	5930.0	5985.3	6029.2	5936.5	5885.2	5686.8	5458.3	5307.9	5101.3	4932.1	4663.8
40°	4340.1	4350.7	4377.5	4329.6	4249.9	4197.0	4066.1	3980.7	3855.5	3764.4	3586.3
42.5°	3226.0	3220.3	3239.0	3212.2	3209.8	3130.1	3047.1	2996.7	2953.6	2857.6	2732.4
45°	2347.8	2349.4	2367.3	2350.2	2304.7	2287.6	2233.1	2187.5	2130.6	2100.5	2001.3
47.5°	1596.3	1601.2	1613.4	1603.7	1562.2	1555.7	1520.7	1475.2	1474.4	1428.0	1341.0
50°	708.3	709.9	724.6	721.3	671.7	678.2	655.5	614.0	625.4	597.7	531.0
52.5°	235.0	235.8	238.3	236.6	228.5	228.5	222.8	222.0	215.5	209.0	194.4
55°	120.4	120.4	122.0	121.2	117.1	117.1	110.6	114.7	111.4	109.0	100.0
57.5°	51.2	51.2	52.0	52.0	49.6	52.0	49.6	49.6	48.0	47.2	43.9
60°	23.6	23.6	23.6	23.6	22.8	24.4	22.8	22.8	22.8	22.0	20.3
62.5°	12.2	12.2	12.2	12.2	12.2	12.2	12.2	11.4	11.4	11.4	10.6
65°	5.7	5.7	5.7	5.7	5.7	6.5	5.7	5.7	5.7	5.7	5.7
67.5°	2.4	2.4	2.4	3.3	3.3	3.3	3.3	3.3	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



TEST NUMBER: P170746

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9
2.5°	122.0	117.9	123.6	118.7	122.0	118.7	114.7	116.3	93.5	78.1	69.1
5°	339.9	327.7	338.3	327.7	328.5	322.8	307.4	305.8	181.3	88.6	65.9
7.5°	640.0	638.4	651.4	637.6	635.9	622.1	593.6	582.3	328.5	104.1	61.0
10°	1016.5	992.9	1004.3	989.7	984.8	959.6	918.9	897.0	488.7	119.5	55.3
12.5°	1326.4	1317.4	1325.5	1311.7	1306.8	1272.7	1224.7	1195.4	653.0	128.5	49.6
15°	1731.3	1713.4	1719.1	1690.7	1676.0	1611.0	1528.8	1475.2	798.6	127.7	45.5
17.5°	2349.4	2314.4	2311.2	2262.4	2226.6	2108.7	1961.5	1850.9	905.1	117.9	43.9
20°	3123.6	3060.1	3039.0	2961.7	2901.5	2706.4	2479.5	2299.8	971.8	104.9	50.4
22.5°	4051.4	3940.0	3877.4	3753.8	3650.5	3337.4	3004.8	2735.7	1001.1	100.8	72.4
25°	5133.0	4941.9	4809.4	4615.0	4441.0	3960.4	3493.6	3116.2	1001.1	130.9	169.1
27.5°	6230.0	5928.3	5684.4	5400.6	5136.3	4454.8	3853.0	3361.8	976.7	163.5	154.5
30°	6785.5	6414.6	6082.8	5751.1	5419.3	4600.4	3933.5	3391.9	884.8	96.0	54.5
32.5°	6549.6	6158.5	5791.7	5470.5	5142.8	4343.4	3715.6	3192.7	743.3	56.1	35.0
35°	5645.3	5306.2	4987.4	4747.5	4492.2	3861.1	3299.2	2843.8	591.2	43.9	23.6
37.5°	4506.0	4275.1	4048.2	3894.5	3711.5	3237.4	2784.4	2411.2	422.9	31.7	14.6
40°	3495.2	3337.4	3178.9	3081.3	2952.0	2606.4	2253.4	1956.6	249.7	22.0	9.8
42.5°	2677.1	2568.1	2450.2	2382.7	2290.0	2032.2	1756.5	1546.7	115.5	15.5	7.3
45°	1968.0	1887.5	1797.2	1754.1	1689.0	1519.1	1336.1	1188.1	65.1	11.4	4.9
47.5°	1324.7	1253.2	1169.4	1142.6	1079.9	931.1	744.1	598.5	43.1	8.1	4.1
50°	527.0	479.8	451.3	413.9	377.3	316.3	236.6	188.7	26.0	6.5	3.3
52.5°	193.5	183.0	178.1	168.3	160.2	143.1	121.2	104.9	15.5	4.9	2.4
55°	100.8	94.3	91.1	87.8	82.9	73.2	61.0	52.0	9.8	3.3	2.4
57.5°	43.9	41.5	42.3	39.0	36.6	33.3	29.3	25.2	6.5	3.3	2.4
60°	21.1	19.5	20.3	18.7	17.9	17.1	15.5	13.0	4.1	2.4	1.6
62.5°	10.6	10.6	10.6	9.8	9.8	8.9	8.1	7.3	3.3	2.4	2.4
65°	5.7	4.9	5.7	4.9	4.9	4.9	4.1	4.1	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



TEST NUMBER: P170746

CATALOG NUMBER: LDA4A18930D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	69.9	69.9	69.9	69.9
2.5°	58.6	52.0	47.2	46.4
5°	49.6	41.5	35.8	35.0
7.5°	42.3	33.3	28.5	27.6
10°	37.4	28.5	23.6	22.8
12.5°	33.3	25.2	22.0	21.1
15°	30.9	25.2	24.4	25.2
17.5°	33.3	34.2	37.4	41.5
20°	55.3	78.9	102.5	119.5
22.5°	124.4	230.1	305.0	340.7
25°	235.0	265.9	266.7	254.5
27.5°	127.7	101.7	91.1	86.2
30°	50.4	48.0	48.0	47.2
32.5°	33.3	30.9	30.1	29.3
35°	20.3	17.9	17.1	17.1
37.5°	13.0	11.4	10.6	9.8
40°	8.9	7.3	6.5	5.7
42.5°	6.5	4.9	3.3	3.3
45°	4.9	3.3	1.6	1.6
47.5°	4.1	2.4	0.8	0.8
50°	3.3	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°	3.3	1.6	0.8	0.0
70°	3.3	1.6	0.8	0.0
72.5°	3.3	1.6	0.8	0.0
75°	3.3	2.4	0.8	0.0
77.5°	3.3	2.4	0.8	0.0
80°	3.3	2.4	0.8	0.0
82.5°	3.3	2.4	0.8	0.0
85°	3.3	2.4	0.8	0.8
87.5°	3.3	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)