

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: P170751

Luminaire Tested: **LDA4A09835D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170751
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: LDA4A09835D010TE 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: 991.4 lumens
Efficiency: N/A
Efficacy: 71.6 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

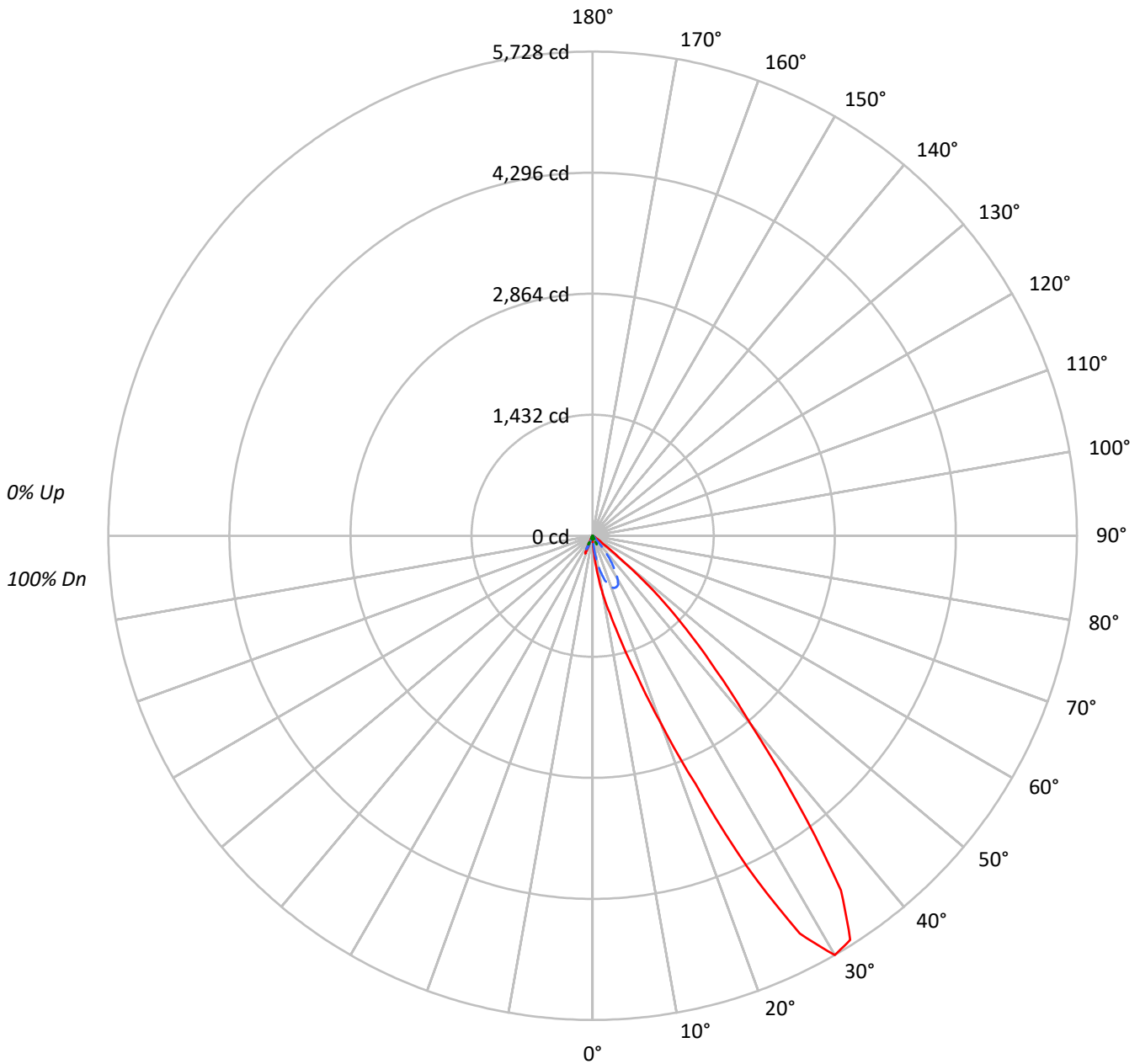
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	5773	5773	5773
5°	30434	5448	2897
10°	89014	4634	1904
15°	161920	3882	2158
20°	308898	4424	10488
25°	587040	15393	23164
30°	815781	5184	4486
35°	770925	2379	1717
40°	467253	1047	612
45°	273831	576	192
50°	90880	422	0
55°	17311	344	0
60°	3898	271	0
65°	1109	467	0
70°	397	577	0
75°	0	763	0
80°	0	1137	0
85°	0	2264	708



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	11.2	1.1
10°-20°	91.2	9.2
20°-30°	323.5	32.6
30°-40°	383.6	38.7
40°-50°	163.2	16.5
50°-60°	14.7	1.5
60°-70°	1.8	0.2
70°-80°	1.2	0.1
80°-90°	1.1	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°	425.9	43.0
0°-40°	809.4	81.6
0°-60°	987.4	99.6
0°-90°	991.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	991.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	47	47	47	47	47	
5°	246	121	44	28	23	38
15°	1268	534	30	17	17	409
25°	4313	669	113	178	170	1999
35°	5120	395	16	12	11	2957
45°	1570	44	3	2	1	1230
55°	80	6	2	1	0	113
65°	4	2	2	1	0	5
75°	0	1	2	2	0	0
85°	0	1	2	2	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°	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8
2.5°	85.9	81.0	84.3	83.2	83.7	85.4	83.7	83.7	83.2	81.0	81.0
5°	245.8	231.1	238.2	234.3	236.5	239.2	235.4	234.3	232.7	227.8	226.7
7.5°	457.8	449.7	458.4	451.8	457.8	458.9	453.5	452.4	449.7	442.6	439.9
10°	710.7	697.1	705.2	698.2	707.4	706.9	698.2	699.2	696.0	686.7	682.4
12.5°	934.7	923.8	932.0	911.8	934.7	920.0	921.6	923.8	919.5	907.5	902.1
15°	1268.0	1238.1	1252.2	1217.4	1252.2	1247.3	1228.3	1227.2	1215.8	1195.7	1183.7
17.5°	1710.6	1718.7	1708.4	1687.7	1734.0	1721.5	1694.3	1688.8	1667.1	1612.2	1611.1
20°	2353.3	2342.4	2359.8	2294.5	2353.8	2296.2	2288.6	2273.3	2236.4	2159.7	2147.7
22.5°	3175.9	3181.9	3150.9	3105.8	3178.7	3089.5	3062.3	3025.9	2958.4	2840.5	2803.5
25°	4313.4	4305.8	4265.6	4190.5	4268.3	4124.2	4056.2	3981.2	3855.6	3671.8	3583.2
27.5°	5304.6	5335.6	5309.0	5232.9	5284.5	5142.6	4986.0	4938.2	4768.0	4536.4	4376.5
30°	5727.7	5742.3	5730.9	5672.8	5691.2	5574.3	5419.4	5362.8	5188.3	4969.2	4762.0
32.5°	5669.5	5676.6	5678.7	5601.0	5604.2	5493.9	5331.8	5248.1	5057.8	4846.8	4599.4
35°	5119.8	5149.1	5168.2	5095.3	5023.0	4913.2	4729.4	4599.4	4399.3	4206.9	3954.0
37.5°	3964.9	4001.9	4031.2	3969.2	3935.0	3802.3	3649.5	3548.9	3410.8	3297.7	3118.3
40°	2901.9	2909.0	2926.9	2894.8	2841.5	2806.2	2718.7	2661.6	2577.8	2516.9	2397.9
42.5°	2157.0	2153.2	2165.7	2147.7	2146.1	2092.8	2037.4	2003.7	1974.8	1910.7	1826.9
45°	1569.8	1570.8	1582.8	1571.4	1540.9	1529.5	1493.1	1462.6	1424.6	1404.5	1338.1
47.5°	1067.3	1070.6	1078.8	1072.2	1044.5	1040.2	1016.8	986.3	985.8	954.8	896.6
50°	473.6	474.7	484.5	482.3	449.1	453.5	438.2	410.5	418.1	399.6	355.1
52.5°	157.1	157.7	159.3	158.2	152.8	152.8	149.0	148.4	144.1	139.7	130.0
55°	80.5	80.5	81.6	81.0	78.3	78.3	73.9	76.7	74.5	72.9	66.9
57.5°	34.3	34.3	34.8	34.8	33.2	34.8	33.2	33.2	32.1	31.5	29.4
60°	15.8	15.8	15.8	15.8	15.2	16.3	15.2	15.2	15.2	14.7	13.6
62.5°	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.6	7.6	7.6	7.1
65°	3.8	3.8	3.8	3.8	3.8	4.3	3.8	3.8	3.8	3.8	3.8
67.5°	1.6	1.6	1.6	2.2	2.2	2.2	2.2	2.2	1.6	1.6	1.6
70°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.5
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°	0.0	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°	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8	46.8
2.5°	81.6	78.8	82.6	79.4	81.6	79.4	76.7	77.8	62.5	52.2	46.2
5°	227.3	219.1	226.2	219.1	219.7	215.9	205.5	204.4	121.3	59.3	44.0
7.5°	427.9	426.8	435.5	426.3	425.2	416.0	396.9	389.3	219.7	69.6	40.8
10°	679.7	663.9	671.5	661.7	658.5	641.6	614.4	599.7	326.8	79.9	37.0
12.5°	886.8	880.8	886.3	877.0	873.8	850.9	818.9	799.3	436.6	85.9	33.2
15°	1157.6	1145.6	1149.4	1130.4	1120.6	1077.1	1022.2	986.3	533.9	85.4	30.4
17.5°	1570.8	1547.5	1545.3	1512.7	1488.7	1409.9	1311.5	1237.5	605.2	78.8	29.4
20°	2088.5	2046.1	2031.9	1980.3	1940.0	1809.5	1657.8	1537.7	649.8	70.1	33.7
22.5°	2708.9	2634.4	2592.5	2509.9	2440.8	2231.5	2009.1	1829.1	669.3	67.4	48.4
25°	3432.0	3304.3	3215.6	3085.7	2969.3	2648.0	2335.9	2083.6	669.3	87.5	113.1
27.5°	4165.5	3963.8	3800.7	3610.9	3434.2	2978.6	2576.2	2247.8	653.0	109.3	103.3
30°	4536.9	4289.0	4067.1	3845.3	3623.4	3075.9	2630.0	2267.9	591.6	64.2	36.4
32.5°	4379.2	4117.7	3872.5	3657.7	3438.6	2904.1	2484.3	2134.7	497.0	37.5	23.4
35°	3774.6	3547.8	3334.7	3174.3	3003.6	2581.6	2205.9	1901.4	395.3	29.4	15.8
37.5°	3012.8	2858.4	2706.7	2603.9	2481.6	2164.6	1861.7	1612.2	282.7	21.2	9.8
40°	2337.0	2231.5	2125.4	2060.2	1973.7	1742.7	1506.7	1308.2	166.9	14.7	6.5
42.5°	1790.0	1717.1	1638.3	1593.1	1531.1	1358.8	1174.5	1034.2	77.2	10.3	4.9
45°	1315.8	1262.0	1201.6	1172.8	1129.3	1015.7	893.4	794.4	43.5	7.6	3.3
47.5°	885.7	837.9	781.9	763.9	722.1	622.6	497.5	400.2	28.8	5.4	2.7
50°	352.3	320.8	301.8	276.8	252.3	211.5	158.2	126.1	17.4	4.3	2.2
52.5°	129.4	122.3	119.1	112.6	107.1	95.7	81.0	70.1	10.3	3.3	1.6
55°	67.4	63.1	60.9	58.7	55.5	48.9	40.8	34.8	6.5	2.2	1.6
57.5°	29.4	27.7	28.3	26.1	24.5	22.3	19.6	16.9	4.3	2.2	1.6
60°	14.1	13.0	13.6	12.5	12.0	11.4	10.3	8.7	2.7	1.6	1.1
62.5°	7.1	7.1	7.1	6.5	6.5	6.0	5.4	4.9	2.2	1.6	1.6
65°	3.8	3.3	3.8	3.3	3.3	3.3	2.7	2.7	1.6	1.6	1.6
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.6	1.6
70°	1.1	1.1	1.1	1.1	1.1	1.1	0.5	1.1	1.1	1.6	1.6
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.6	1.6
75°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.1	1.6	1.6
77.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.6	1.6
80°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.1	1.6	1.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.1	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.1	1.6	1.6
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°	46.8	46.8	46.8	46.8
2.5°	39.1	34.8	31.5	31.0
5°	33.2	27.7	23.9	23.4
7.5°	28.3	22.3	19.0	18.5
10°	25.0	19.0	15.8	15.2
12.5°	22.3	16.9	14.7	14.1
15°	20.7	16.9	16.3	16.9
17.5°	22.3	22.8	25.0	27.7
20°	37.0	52.7	68.5	79.9
22.5°	83.2	153.9	203.9	227.8
25°	157.1	177.8	178.3	170.2
27.5°	85.4	68.0	60.9	57.6
30°	33.7	32.1	32.1	31.5
32.5°	22.3	20.7	20.1	19.6
35°	13.6	12.0	11.4	11.4
37.5°	8.7	7.6	7.1	6.5
40°	6.0	4.9	4.3	3.8
42.5°	4.3	3.3	2.2	2.2
45°	3.3	2.2	1.1	1.1
47.5°	2.7	1.6	0.5	0.5
50°	2.2	1.1	0.5	0.0
52.5°	1.6	1.1	0.0	0.0
55°	1.6	1.1	0.0	0.0
57.5°	1.6	1.1	0.0	0.0
60°	1.6	1.1	0.0	0.0
62.5°	1.6	1.1	0.0	0.0
65°	1.6	1.1	0.5	0.0
67.5°	2.2	1.1	0.5	0.0
70°	2.2	1.1	0.5	0.0
72.5°	2.2	1.1	0.5	0.0
75°	2.2	1.6	0.5	0.0
77.5°	2.2	1.6	0.5	0.0
80°	2.2	1.6	0.5	0.0
82.5°	2.2	1.6	0.5	0.0
85°	2.2	1.6	0.5	0.5
87.5°	2.2	1.6	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)