

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: P170755

Luminaire Tested: **LDA4A09935D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170755
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: LDA4A09935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 812.7 lumens
Efficiency: N/A
Efficacy: 58.7 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

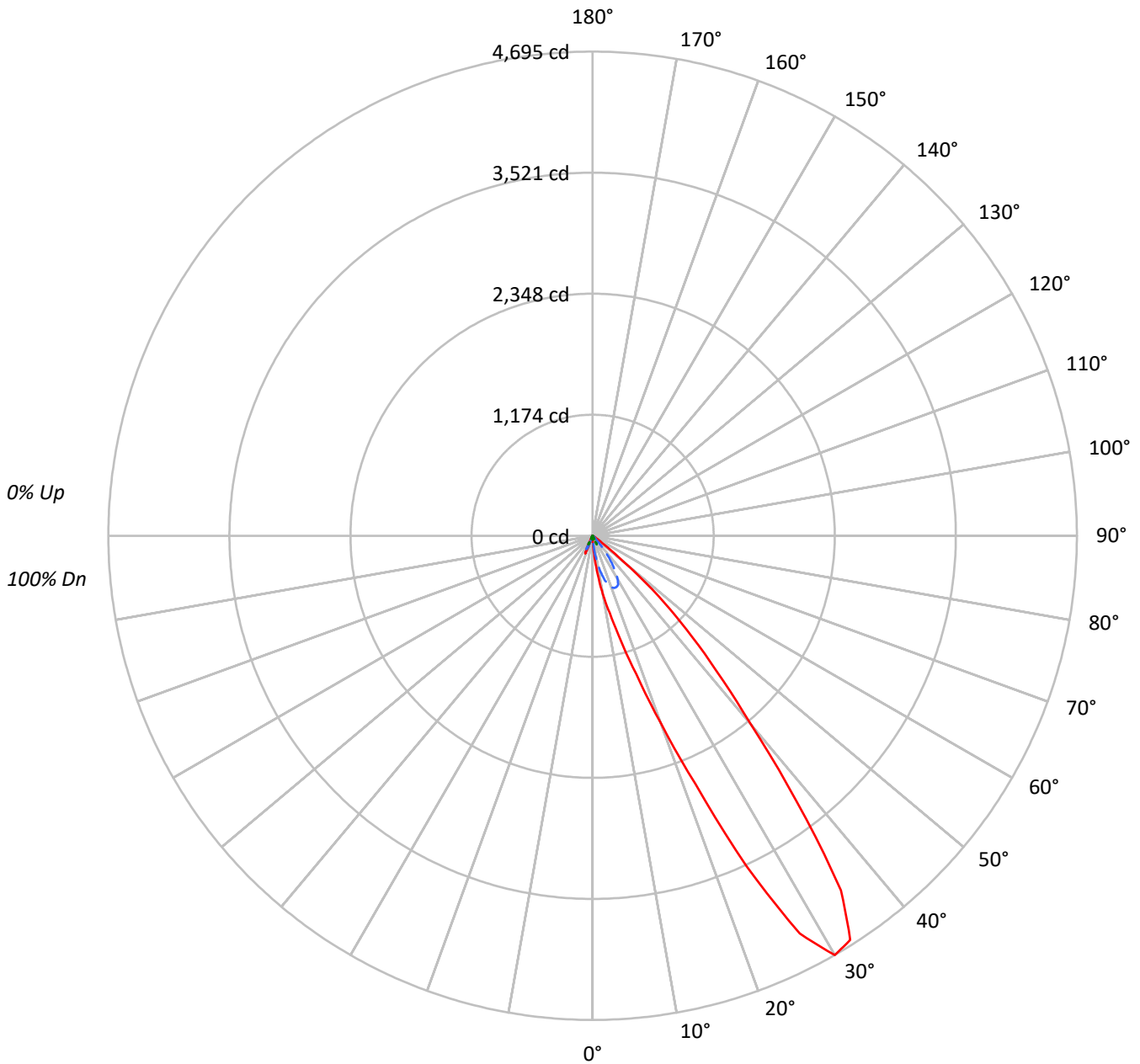
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	4724	4724	4724
5°	24949	4470	2377
10°	72957	3795	1566
15°	132728	3192	1762
20°	253204	3623	8598
25°	481211	12616	18986
30°	668710	4259	3689
35°	631942	1942	1415
40°	383009	853	499
45°	224466	471	157
50°	74492	345	0
55°	14193	280	0
60°	3182	222	0
65°	905	379	0
70°	325	469	0
75°	0	620	0
80°	0	923	0
85°	0	1840	566



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.2	1.1
10°-20°	74.8	9.2
20°-30°	265.2	32.6
30°-40°	314.4	38.7
40°-50°	133.8	16.5
50°-60°	12.1	1.5
60°-70°	1.5	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°	349.1	43.0
0°-40°	663.5	81.6
0°-60°	809.4	99.6
0°-90°	812.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	812.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	38	38	38	38	38	
5°	202	99	36	23	19	31
15°	1039	438	25	14	14	335
25°	3536	549	93	146	140	1638
35°	4197	324	13	10	9	2424
45°	1287	36	3	2	1	1009
55°	66	5	1	1	0	92
65°	3	1	1	1	0	4
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°	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
2.5°	70.4	66.4	69.1	68.2	68.6	70.0	68.6	68.6	68.2	66.4	66.4
5°	201.5	189.4	195.2	192.1	193.9	196.1	193.0	192.1	190.8	186.8	185.9
7.5°	375.3	368.6	375.7	370.4	375.3	376.2	371.7	370.8	368.6	362.8	360.6
10°	582.5	571.4	578.1	572.3	579.9	579.4	572.3	573.2	570.5	562.9	559.4
12.5°	766.2	757.3	763.9	747.5	766.2	754.1	755.5	757.3	753.7	743.9	739.4
15°	1039.4	1014.9	1026.5	997.9	1026.5	1022.5	1006.9	1006.0	996.6	980.1	970.3
17.5°	1402.2	1408.9	1400.4	1383.5	1421.4	1411.1	1388.8	1384.4	1366.5	1321.5	1320.6
20°	1929.0	1920.1	1934.4	1880.9	1929.5	1882.2	1876.0	1863.5	1833.2	1770.4	1760.5
22.5°	2603.4	2608.3	2582.9	2545.9	2605.6	2532.5	2510.2	2480.4	2425.1	2328.4	2298.1
25°	3535.8	3529.6	3496.6	3435.1	3498.8	3380.7	3325.0	3263.5	3160.5	3009.9	2937.2
27.5°	4348.3	4373.7	4351.9	4289.5	4331.8	4215.5	4087.1	4047.9	3908.4	3718.5	3587.5
30°	4695.1	4707.1	4697.8	4650.1	4665.2	4569.4	4442.4	4396.0	4252.9	4073.3	3903.5
32.5°	4647.4	4653.2	4655.0	4591.2	4593.9	4503.4	4370.6	4302.0	4146.0	3973.0	3770.2
35°	4196.8	4220.9	4236.4	4176.7	4117.4	4027.4	3876.8	3770.2	3606.2	3448.4	3241.2
37.5°	3250.1	3280.4	3304.5	3253.7	3225.6	3116.8	2991.6	2909.1	2795.9	2703.2	2556.1
40°	2378.7	2384.5	2399.2	2372.9	2329.3	2300.3	2228.5	2181.7	2113.1	2063.2	1965.6
42.5°	1768.1	1765.0	1775.3	1760.5	1759.2	1715.5	1670.1	1642.4	1618.8	1566.2	1497.6
45°	1286.8	1287.6	1297.5	1288.1	1263.1	1253.8	1223.9	1199.0	1167.8	1151.3	1096.9
47.5°	874.9	877.6	884.3	878.9	856.2	852.6	833.5	808.5	808.1	782.7	735.0
50°	388.2	389.1	397.1	395.3	368.2	371.7	359.2	336.5	342.7	327.6	291.0
52.5°	128.8	129.3	130.6	129.7	125.2	125.2	122.1	121.7	118.1	114.5	106.5
55°	66.0	66.0	66.9	66.4	64.2	64.2	60.6	62.8	61.1	59.7	54.8
57.5°	28.1	28.1	28.5	28.5	27.2	28.5	27.2	27.2	26.3	25.9	24.1
60°	12.9	12.9	12.9	12.9	12.5	13.4	12.5	12.5	12.5	12.0	11.1
62.5°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.2	6.2	6.2	5.8
65°	3.1	3.1	3.1	3.1	3.1	3.6	3.1	3.1	3.1	3.1	3.1
67.5°	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.8	1.3	1.3	1.3
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4
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°	0.0	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°	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3	38.3
2.5°	66.9	64.6	67.7	65.1	66.9	65.1	62.8	63.7	51.3	42.8	37.9
5°	186.3	179.6	185.4	179.6	180.1	176.9	168.5	167.6	99.4	48.6	36.1
7.5°	350.8	349.9	357.0	349.4	348.5	341.0	325.4	319.1	180.1	57.1	33.4
10°	557.1	544.2	550.4	542.4	539.8	525.9	503.6	491.6	267.9	65.5	30.3
12.5°	726.9	722.0	726.5	718.9	716.3	697.5	671.2	655.2	357.9	70.4	27.2
15°	948.9	939.1	942.2	926.6	918.6	882.9	837.9	808.5	437.7	70.0	25.0
17.5°	1287.6	1268.5	1266.7	1240.0	1220.3	1155.7	1075.0	1014.4	496.1	64.6	24.1
20°	1712.0	1677.2	1665.6	1623.3	1590.3	1483.3	1359.0	1260.5	532.6	57.5	27.6
22.5°	2220.5	2159.5	2125.1	2057.4	2000.8	1829.2	1646.9	1499.4	548.7	55.3	39.7
25°	2813.3	2708.6	2635.9	2529.4	2434.0	2170.6	1914.8	1708.0	548.7	71.8	92.7
27.5°	3414.6	3249.2	3115.5	2959.9	2815.1	2441.6	2111.8	1842.6	535.3	89.6	84.7
30°	3719.0	3515.7	3333.9	3152.0	2970.2	2521.4	2155.9	1859.0	484.9	52.6	29.9
32.5°	3589.7	3375.3	3174.3	2998.3	2818.7	2380.5	2036.4	1749.8	407.4	30.8	19.2
35°	3094.1	2908.2	2733.5	2602.0	2462.1	2116.2	1808.2	1558.6	324.0	24.1	12.9
37.5°	2469.7	2343.1	2218.7	2134.5	2034.2	1774.4	1526.1	1321.5	231.8	17.4	8.0
40°	1915.7	1829.2	1742.3	1688.8	1617.9	1428.5	1235.1	1072.4	136.8	12.0	5.3
42.5°	1467.3	1407.5	1342.9	1305.9	1255.1	1113.8	962.7	847.7	63.3	8.5	4.0
45°	1078.6	1034.5	985.0	961.4	925.7	832.6	732.3	651.2	35.7	6.2	2.7
47.5°	726.1	686.8	640.9	626.2	591.9	510.3	407.8	328.0	23.6	4.5	2.2
50°	288.8	263.0	247.4	226.9	206.8	173.4	129.7	103.4	14.3	3.6	1.8
52.5°	106.1	100.3	97.6	92.3	87.8	78.4	66.4	57.5	8.5	2.7	1.3
55°	55.3	51.7	49.9	48.1	45.5	40.1	33.4	28.5	5.3	1.8	1.3
57.5°	24.1	22.7	23.2	21.4	20.1	18.3	16.0	13.8	3.6	1.8	1.3
60°	11.6	10.7	11.1	10.3	9.8	9.4	8.5	7.1	2.2	1.3	0.9
62.5°	5.8	5.8	5.8	5.3	5.3	4.9	4.5	4.0	1.8	1.3	1.3
65°	3.1	2.7	3.1	2.7	2.7	2.7	2.2	2.2	1.3	1.3	1.3
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.9	1.3	1.3
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.4	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°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.9	1.3	1.3
77.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.9	1.3	1.3
80°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.9	1.3	1.3
82.5°	0.0	0.0	0.0	0.0	0.0	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	0.0	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°	38.3	38.3	38.3	38.3
2.5°	32.1	28.5	25.9	25.4
5°	27.2	22.7	19.6	19.2
7.5°	23.2	18.3	15.6	15.2
10°	20.5	15.6	12.9	12.5
12.5°	18.3	13.8	12.0	11.6
15°	16.9	13.8	13.4	13.8
17.5°	18.3	18.7	20.5	22.7
20°	30.3	43.2	56.2	65.5
22.5°	68.2	126.1	167.1	186.8
25°	128.8	145.7	146.2	139.5
27.5°	70.0	55.7	49.9	47.2
30°	27.6	26.3	26.3	25.9
32.5°	18.3	16.9	16.5	16.0
35°	11.1	9.8	9.4	9.4
37.5°	7.1	6.2	5.8	5.3
40°	4.9	4.0	3.6	3.1
42.5°	3.6	2.7	1.8	1.8
45°	2.7	1.8	0.9	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	0.0	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	0.0	0.0
62.5°	1.3	0.9	0.0	0.0
65°	1.3	0.9	0.4	0.0
67.5°	1.8	0.9	0.4	0.0
70°	1.8	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	0.4
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)