

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: P170764

Luminaire Tested: **LDA4A13940D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170764
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: LDA4A13940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1295.0 lumens
Efficiency: N/A
Efficacy: 58.2 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

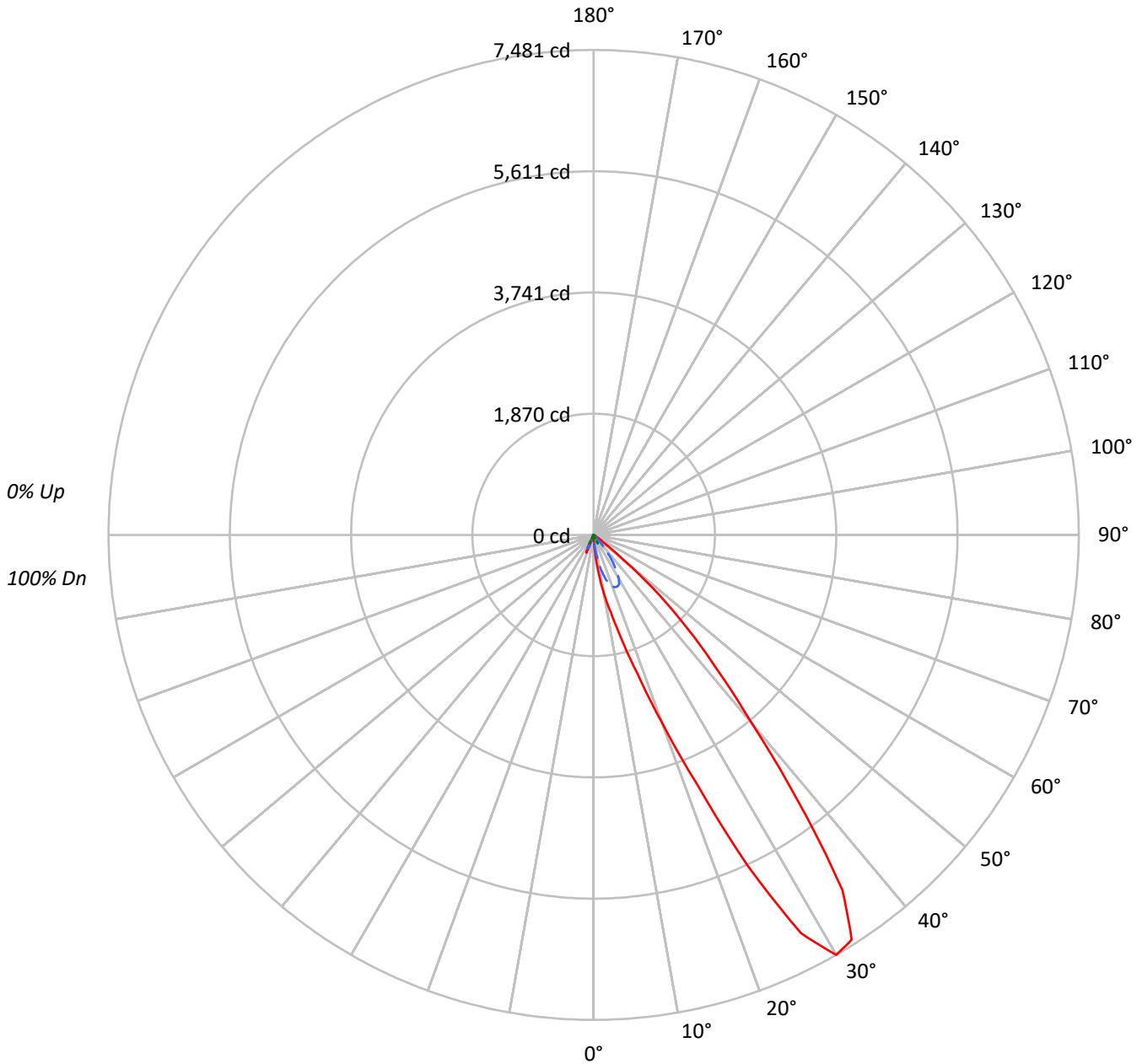
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	7536	7536	7536
5°	39745	7119	3776
10°	116268	6049	2492
15°	211491	5082	2809
20°	403472	5776	13704
25°	766783	20102	30254
30°	1065555	6780	5868
35°	1006970	3102	2244
40°	610316	1369	805
45°	357666	750	244
50°	118704	537	0
55°	22601	452	0
60°	5082	345	0
65°	1459	613	0
70°	505	757	0
75°	0	1001	0
80°	0	1492	0
85°	0	2972	991



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.6	1.1
10°-20°	119.2	9.2
20°-30°	422.6	32.6
30°-40°	501.0	38.7
40°-50°	213.1	16.5
50°-60°	19.3	1.5
60°-70°	2.4	0.2
70°-80°	1.6	0.1
80°-90°	1.4	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°	556.3	43.0
0°-40°	1057.3	81.6
0°-60°	1289.7	99.6
0°-90°	1295.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1295.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	61	61	61	61	61	
5°	321	158	58	36	30	50
15°	1656	697	40	22	22	534
25°	5634	874	148	232	222	2610
35°	6687	516	21	16	15	3863
45°	2050	57	4	3	1	1607
55°	105	8	2	1	0	147
65°	5	2	2	1	0	7
75°	0	1	2	2	0	0
85°	0	1	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°	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1
2.5°	112.2	105.8	110.1	108.7	109.4	111.5	109.4	109.4	108.7	105.8	105.8
5°	321.0	301.8	311.1	306.1	308.9	312.5	307.5	306.1	304.0	297.6	296.2
7.5°	598.0	587.3	598.7	590.2	598.0	599.4	592.3	590.9	587.3	578.1	574.6
10°	928.3	910.5	921.1	911.9	924.0	923.3	911.9	913.3	909.1	897.0	891.3
12.5°	1220.9	1206.7	1217.3	1191.0	1220.9	1201.7	1203.8	1206.7	1201.0	1185.4	1178.2
15°	1656.2	1617.2	1635.6	1590.2	1635.6	1629.2	1604.4	1603.0	1588.0	1561.8	1546.1
17.5°	2234.3	2245.0	2231.5	2204.5	2264.9	2248.5	2213.0	2205.9	2177.5	2105.8	2104.4
20°	3073.8	3059.6	3082.3	2997.1	3074.5	2999.2	2989.3	2969.4	2921.1	2821.0	2805.4
22.5°	4148.4	4156.2	4115.7	4056.8	4151.9	4035.4	3999.9	3952.4	3864.3	3710.2	3661.9
25°	5634.1	5624.2	5571.6	5473.6	5575.2	5387.0	5298.2	5200.2	5036.1	4796.1	4680.3
27.5°	6928.9	6969.3	6934.5	6835.1	6902.6	6717.2	6512.7	6450.2	6227.9	5925.3	5716.5
30°	7481.4	7500.6	7485.7	7409.7	7433.8	7281.1	7078.7	7004.9	6776.9	6490.7	6220.1
32.5°	7405.4	7414.7	7417.5	7315.9	7320.2	7176.0	6964.4	6855.0	6606.4	6330.9	6007.7
35°	6687.4	6725.7	6750.6	6655.4	6561.0	6417.5	6177.5	6007.7	5746.4	5494.9	5164.7
37.5°	5178.9	5227.2	5265.5	5184.6	5139.8	4966.5	4767.0	4635.6	4455.2	4307.5	4073.1
40°	3790.4	3799.7	3823.1	3781.2	3711.6	3665.4	3551.1	3476.5	3367.1	3287.6	3132.1
42.5°	2817.4	2812.5	2828.8	2805.4	2803.2	2733.6	2661.2	2617.1	2579.5	2495.7	2386.3
45°	2050.4	2051.8	2067.4	2052.5	2012.8	1997.8	1950.3	1910.5	1860.8	1834.5	1747.8
47.5°	1394.2	1398.4	1409.1	1400.5	1364.3	1358.6	1328.1	1288.3	1287.6	1247.1	1171.1
50°	618.6	620.0	632.8	630.0	586.6	592.3	572.4	536.2	546.2	522.0	463.8
52.5°	205.3	206.0	208.1	206.7	199.6	199.6	194.6	193.9	188.2	182.5	169.7
55°	105.1	105.1	106.5	105.8	102.3	102.3	96.6	100.1	97.3	95.2	87.4
57.5°	44.7	44.7	45.5	45.5	43.3	45.5	43.3	43.3	41.9	41.2	38.4
60°	20.6	20.6	20.6	20.6	19.9	21.3	19.9	19.9	19.9	19.2	17.8
62.5°	10.7	10.7	10.7	10.7	10.7	10.7	10.7	9.9	9.9	9.9	9.2
65°	5.0	5.0	5.0	5.0	5.0	5.7	5.0	5.0	5.0	5.0	5.0
67.5°	2.1	2.1	2.1	2.8	2.8	2.8	2.8	2.8	2.1	2.1	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.7
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1	61.1
2.5°	106.5	103.0	108.0	103.7	106.5	103.7	100.1	101.6	81.7	68.2	60.4
5°	296.9	286.2	295.4	286.2	286.9	282.0	268.5	267.0	158.4	77.4	57.5
7.5°	558.9	557.5	568.9	556.8	555.4	543.3	518.5	508.5	286.9	90.9	53.3
10°	887.8	867.2	877.1	864.3	860.1	838.1	802.5	783.4	426.8	104.4	48.3
12.5°	1158.4	1150.5	1157.7	1145.6	1141.3	1111.5	1069.6	1044.0	570.3	112.2	43.3
15°	1512.0	1496.4	1501.4	1476.5	1463.8	1406.9	1335.2	1288.3	697.4	111.5	39.8
17.5°	2051.8	2021.3	2018.4	1975.8	1944.6	1841.6	1713.0	1616.5	790.5	103.0	38.4
20°	2727.9	2672.5	2654.1	2586.6	2534.0	2363.6	2165.4	2008.5	848.7	91.6	44.0
22.5°	3538.3	3441.0	3386.3	3278.4	3188.2	2914.7	2624.2	2389.2	874.3	88.1	63.2
25°	4482.9	4316.0	4200.2	4030.5	3878.5	3458.8	3051.1	2721.5	874.3	114.3	147.7
27.5°	5441.0	5177.5	4964.4	4716.5	4485.7	3890.6	3365.0	2936.0	853.0	142.8	134.9
30°	5926.0	5602.2	5312.4	5022.6	4732.9	4017.7	3435.3	2962.3	772.7	83.8	47.6
32.5°	5720.1	5378.5	5058.2	4777.6	4491.4	3793.3	3245.0	2788.3	649.1	49.0	30.5
35°	4930.3	4634.2	4355.8	4146.2	3923.2	3372.1	2881.3	2483.6	516.3	38.4	20.6
37.5°	3935.3	3733.6	3535.5	3401.2	3241.4	2827.4	2431.8	2105.8	369.3	27.7	12.8
40°	3052.5	2914.7	2776.2	2691.0	2578.1	2276.2	1968.0	1708.8	218.0	19.2	8.5
42.5°	2338.0	2242.9	2139.9	2080.9	2000.0	1774.8	1534.1	1350.8	100.9	13.5	6.4
45°	1718.7	1648.4	1569.6	1531.9	1475.1	1326.7	1166.9	1037.6	56.8	9.9	4.3
47.5°	1156.9	1094.4	1021.3	997.9	943.2	813.2	649.8	522.7	37.6	7.1	3.6
50°	460.2	419.0	394.2	361.5	329.5	276.3	206.7	164.8	22.7	5.7	2.8
52.5°	169.0	159.8	155.5	147.0	139.9	125.0	105.8	91.6	13.5	4.3	2.1
55°	88.1	82.4	79.5	76.7	72.4	63.9	53.3	45.5	8.5	2.8	2.1
57.5°	38.4	36.2	36.9	34.1	32.0	29.1	25.6	22.0	5.7	2.8	2.1
60°	18.5	17.0	17.8	16.3	15.6	14.9	13.5	11.4	3.6	2.1	1.4
62.5°	9.2	9.2	9.2	8.5	8.5	7.8	7.1	6.4	2.8	2.1	2.1
65°	5.0	4.3	5.0	4.3	4.3	4.3	3.6	3.6	2.1	2.1	2.1
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.4	2.1	2.1
70°	1.4	1.4	1.4	1.4	1.4	1.4	0.7	1.4	1.4	2.1	2.1
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	2.1	2.1
75°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.4	2.1	2.1
77.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.1
80°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.4	2.1	2.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.4	2.1	2.1
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.4	2.1	2.1
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°	61.1	61.1	61.1	61.1
2.5°	51.1	45.5	41.2	40.5
5°	43.3	36.2	31.2	30.5
7.5°	36.9	29.1	24.9	24.1
10°	32.7	24.9	20.6	19.9
12.5°	29.1	22.0	19.2	18.5
15°	27.0	22.0	21.3	22.0
17.5°	29.1	29.8	32.7	36.2
20°	48.3	68.9	89.5	104.4
22.5°	108.7	201.0	266.3	297.6
25°	205.3	232.2	233.0	222.3
27.5°	111.5	88.8	79.5	75.3
30°	44.0	41.9	41.9	41.2
32.5°	29.1	27.0	26.3	25.6
35°	17.8	15.6	14.9	14.9
37.5°	11.4	9.9	9.2	8.5
40°	7.8	6.4	5.7	5.0
42.5°	5.7	4.3	2.8	2.8
45°	4.3	2.8	1.4	1.4
47.5°	3.6	2.1	0.7	0.7
50°	2.8	1.4	0.7	0.0
52.5°	2.1	1.4	0.0	0.0
55°	2.1	1.4	0.0	0.0
57.5°	2.1	1.4	0.0	0.0
60°	2.1	1.4	0.0	0.0
62.5°	2.1	1.4	0.0	0.0
65°	2.1	1.4	0.7	0.0
67.5°	2.8	1.4	0.7	0.0
70°	2.8	1.4	0.7	0.0
72.5°	2.8	1.4	0.7	0.0
75°	2.8	2.1	0.7	0.0
77.5°	2.8	2.1	0.7	0.0
80°	2.8	2.1	0.7	0.0
82.5°	2.8	2.1	0.7	0.0
85°	2.8	2.1	0.7	0.7
87.5°	2.8	2.1	0.7	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)