

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: P170744

Luminaire Tested: **LDA4A18840D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170744
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: LDA4A18840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1869.8 lumens
Efficiency: N/A
Efficacy: 64.2 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

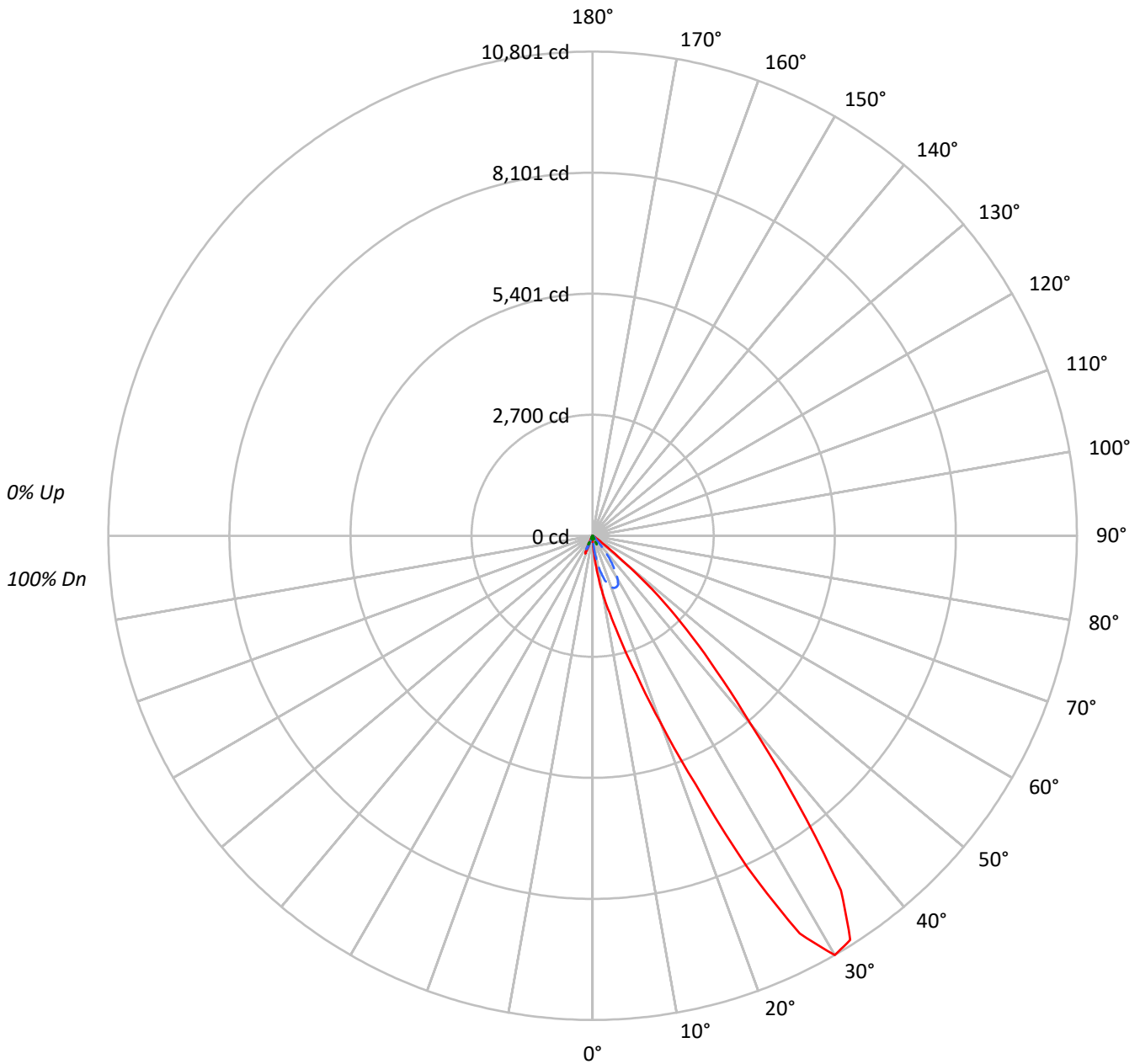
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	10879	10879	10879
5°	57389	10289	5460
10°	167845	8730	3595
15°	305336	7330	4061
20°	582500	8348	19781
25°	1107012	29029	43673
30°	1538343	9785	8474
35°	1453763	4472	3237
40°	881113	1981	1159
45°	516351	1082	366
50°	171379	787	0
55°	32623	667	0
60°	7327	518	0
65°	2101	905	0
70°	757	1118	0
75°	0	1477	0
80°	0	2202	0
85°	0	4387	1415



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	21.0	1.1
10°-20°	172.0	9.2
20°-30°	610.0	32.6
30°-40°	723.3	38.7
40°-50°	307.7	16.5
50°-60°	27.8	1.5
60°-70°	3.4	0.2
70°-80°	2.3	0.1
80°-90°	2.1	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°	803.1	43.0
0°-40°	1526.4	81.6
0°-60°	1861.9	99.6
0°-90°	1869.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1869.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	88	88	88	88	88	
5°	464	229	83	52	44	72
15°	2391	1007	57	32	32	771
25°	8134	1262	213	335	321	3769
35°	9655	745	30	23	22	5577
45°	2960	82	6	4	2	2320
55°	152	12	3	2	0	212
65°	7	3	3	2	0	10
75°	0	2	3	3	0	1
85°	0	2	3	3	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°	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2
2.5°	162.0	152.8	158.9	156.9	157.9	161.0	157.9	157.9	156.9	152.8	152.8
5°	463.5	435.8	449.1	441.9	446.0	451.1	444.0	441.9	438.8	429.6	427.6
7.5°	863.3	848.0	864.4	852.1	863.3	865.4	855.1	853.1	848.0	834.6	829.5
10°	1340.1	1314.5	1329.9	1316.5	1334.0	1332.9	1316.5	1318.6	1312.4	1295.0	1286.8
12.5°	1762.6	1742.0	1757.4	1719.5	1762.6	1734.9	1737.9	1742.0	1733.8	1711.3	1701.0
15°	2391.1	2334.7	2361.4	2295.7	2361.4	2352.1	2316.2	2314.2	2292.7	2254.7	2232.2
17.5°	3225.7	3241.1	3221.6	3182.6	3269.8	3246.2	3194.9	3184.7	3143.7	3040.1	3038.1
20°	4437.7	4417.2	4450.0	4326.9	4438.7	4330.0	4315.6	4286.9	4217.2	4072.6	4050.1
22.5°	5989.0	6000.3	5941.8	5856.7	5994.1	5826.0	5774.7	5706.0	5578.9	5356.4	5286.6
25°	8134.0	8119.6	8043.8	7902.3	8048.9	7777.2	7649.0	7507.5	7270.7	6924.1	6757.0
27.5°	10003.2	10061.6	10011.4	9867.8	9965.2	9697.6	9402.3	9312.1	8991.2	8554.4	8252.9
30°	10800.9	10828.6	10807.0	10697.3	10732.2	10511.8	10219.5	10112.9	9783.8	9370.6	8979.9
32.5°	10691.2	10704.5	10708.6	10562.0	10568.1	10360.0	10054.5	9896.5	9537.7	9139.9	8673.3
35°	9654.6	9709.9	9745.8	9608.4	9472.1	9264.9	8918.4	8673.3	8296.0	7933.0	7456.2
37.5°	7476.8	7546.5	7601.8	7485.0	7420.4	7170.2	6882.1	6692.4	6431.9	6218.7	5880.3
40°	5472.2	5485.6	5519.4	5458.9	5358.4	5291.8	5126.7	5019.0	4861.1	4746.3	4521.7
42.5°	4067.5	4060.3	4083.9	4050.1	4047.0	3946.5	3841.9	3778.4	3724.0	3603.0	3445.1
45°	2960.1	2962.2	2984.8	2963.2	2905.8	2884.3	2815.6	2758.2	2686.4	2648.4	2523.4
47.5°	2012.7	2018.9	2034.3	2022.0	1969.7	1961.5	1917.4	1860.0	1858.9	1800.5	1690.8
50°	893.1	895.1	913.6	909.5	846.9	855.1	826.4	774.1	788.5	753.6	669.5
52.5°	296.3	297.3	300.4	298.4	288.1	288.1	280.9	279.9	271.7	263.5	245.1
55°	151.7	151.7	153.8	152.8	147.6	147.6	139.4	144.6	140.5	137.4	126.1
57.5°	64.6	64.6	65.6	65.6	62.5	65.6	62.5	62.5	60.5	59.5	55.4
60°	29.7	29.7	29.7	29.7	28.7	30.8	28.7	28.7	28.7	27.7	25.6
62.5°	15.4	15.4	15.4	15.4	15.4	15.4	15.4	14.4	14.4	14.4	13.3
65°	7.2	7.2	7.2	7.2	7.2	8.2	7.2	7.2	7.2	7.2	7.2
67.5°	3.1	3.1	3.1	4.1	4.1	4.1	4.1	4.1	3.1	3.1	3.1
70°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.0
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2	88.2
2.5°	153.8	148.7	155.9	149.7	153.8	149.7	144.6	146.6	117.9	98.4	87.2
5°	428.6	413.2	426.5	413.2	414.2	407.1	387.6	385.5	228.7	111.8	83.1
7.5°	806.9	804.9	821.3	803.9	801.8	784.4	748.5	734.1	414.2	131.2	76.9
10°	1281.7	1251.9	1266.3	1247.8	1241.7	1209.9	1158.6	1130.9	616.2	150.7	69.7
12.5°	1672.3	1661.0	1671.3	1653.9	1647.7	1604.7	1544.2	1507.2	823.3	162.0	62.5
15°	2182.9	2160.4	2167.6	2131.7	2113.2	2031.2	1927.6	1860.0	1006.9	161.0	57.4
17.5°	2962.2	2918.1	2914.0	2852.5	2807.4	2658.7	2473.1	2333.7	1141.2	148.7	55.4
20°	3938.3	3858.3	3831.7	3734.3	3658.4	3412.3	3126.3	2899.7	1225.3	132.3	63.6
22.5°	5108.2	4967.8	4888.8	4733.0	4602.7	4208.0	3788.6	3449.2	1262.2	127.1	91.3
25°	6471.9	6231.0	6063.8	5818.8	5599.4	4993.4	4404.8	3929.1	1262.2	165.1	213.3
27.5°	7855.1	7474.7	7167.1	6809.3	6476.0	5616.8	4858.0	4238.7	1231.4	206.1	194.8
30°	8555.4	8087.9	7669.5	7251.2	6832.8	5800.3	4959.6	4276.7	1115.6	121.0	68.7
32.5°	8258.1	7764.9	7302.4	6897.4	6484.2	5476.3	4684.8	4025.5	937.2	70.7	44.1
35°	7117.9	6690.3	6288.4	5985.9	5664.0	4868.3	4159.8	3585.6	745.4	55.4	29.7
37.5°	5681.4	5390.2	5104.1	4910.3	4679.6	4081.9	3510.8	3040.1	533.2	40.0	18.5
40°	4406.9	4208.0	4008.0	3885.0	3722.0	3286.2	2841.2	2467.0	314.8	27.7	12.3
42.5°	3375.4	3238.0	3089.3	3004.2	2887.3	2562.3	2214.7	1950.2	145.6	19.5	9.2
45°	2481.3	2379.8	2266.0	2211.7	2129.6	1915.3	1684.6	1498.0	82.0	14.4	6.2
47.5°	1670.3	1580.0	1474.4	1440.6	1361.6	1174.0	938.2	754.6	54.3	10.3	5.1
50°	664.4	604.9	569.1	521.9	475.8	398.9	298.4	237.9	32.8	8.2	4.1
52.5°	244.0	230.7	224.5	212.2	202.0	180.5	152.8	132.3	19.5	6.2	3.1
55°	127.1	118.9	114.8	110.7	104.6	92.3	76.9	65.6	12.3	4.1	3.1
57.5°	55.4	52.3	53.3	49.2	46.1	42.0	36.9	31.8	8.2	4.1	3.1
60°	26.7	24.6	25.6	23.6	22.6	21.5	19.5	16.4	5.1	3.1	2.1
62.5°	13.3	13.3	13.3	12.3	12.3	11.3	10.3	9.2	4.1	3.1	3.1
65°	7.2	6.2	7.2	6.2	6.2	6.2	5.1	5.1	3.1	3.1	3.1
67.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.1	3.1	3.1
70°	2.1	2.1	2.1	2.1	2.1	2.1	1.0	2.1	2.1	3.1	3.1
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
75°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.1	3.1	3.1
77.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
80°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.1	3.1	3.1
82.5°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.1	3.1	3.1
85°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
87.5°	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	3.1	3.1
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°	88.2	88.2	88.2	88.2
2.5°	73.8	65.6	59.5	58.4
5°	62.5	52.3	45.1	44.1
7.5°	53.3	42.0	35.9	34.9
10°	47.2	35.9	29.7	28.7
12.5°	42.0	31.8	27.7	26.7
15°	39.0	31.8	30.8	31.8
17.5°	42.0	43.1	47.2	52.3
20°	69.7	99.5	129.2	150.7
22.5°	156.9	290.2	384.5	429.6
25°	296.3	335.3	336.3	320.9
27.5°	161.0	128.2	114.8	108.7
30°	63.6	60.5	60.5	59.5
32.5°	42.0	39.0	37.9	36.9
35°	25.6	22.6	21.5	21.5
37.5°	16.4	14.4	13.3	12.3
40°	11.3	9.2	8.2	7.2
42.5°	8.2	6.2	4.1	4.1
45°	6.2	4.1	2.1	2.1
47.5°	5.1	3.1	1.0	1.0
50°	4.1	2.1	1.0	0.0
52.5°	3.1	2.1	0.0	0.0
55°	3.1	2.1	0.0	0.0
57.5°	3.1	2.1	0.0	0.0
60°	3.1	2.1	0.0	0.0
62.5°	3.1	2.1	0.0	0.0
65°	3.1	2.1	1.0	0.0
67.5°	4.1	2.1	1.0	0.0
70°	4.1	2.1	1.0	0.0
72.5°	4.1	2.1	1.0	0.0
75°	4.1	3.1	1.0	0.0
77.5°	4.1	3.1	1.0	0.0
80°	4.1	3.1	1.0	0.0
82.5°	4.1	3.1	1.0	0.0
85°	4.1	3.1	1.0	1.0
87.5°	4.1	3.1	1.0	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)