

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: P170767

Luminaire Tested: **LDA4A28835D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170767
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: LDA4A28835D010TE 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: 2854.5 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

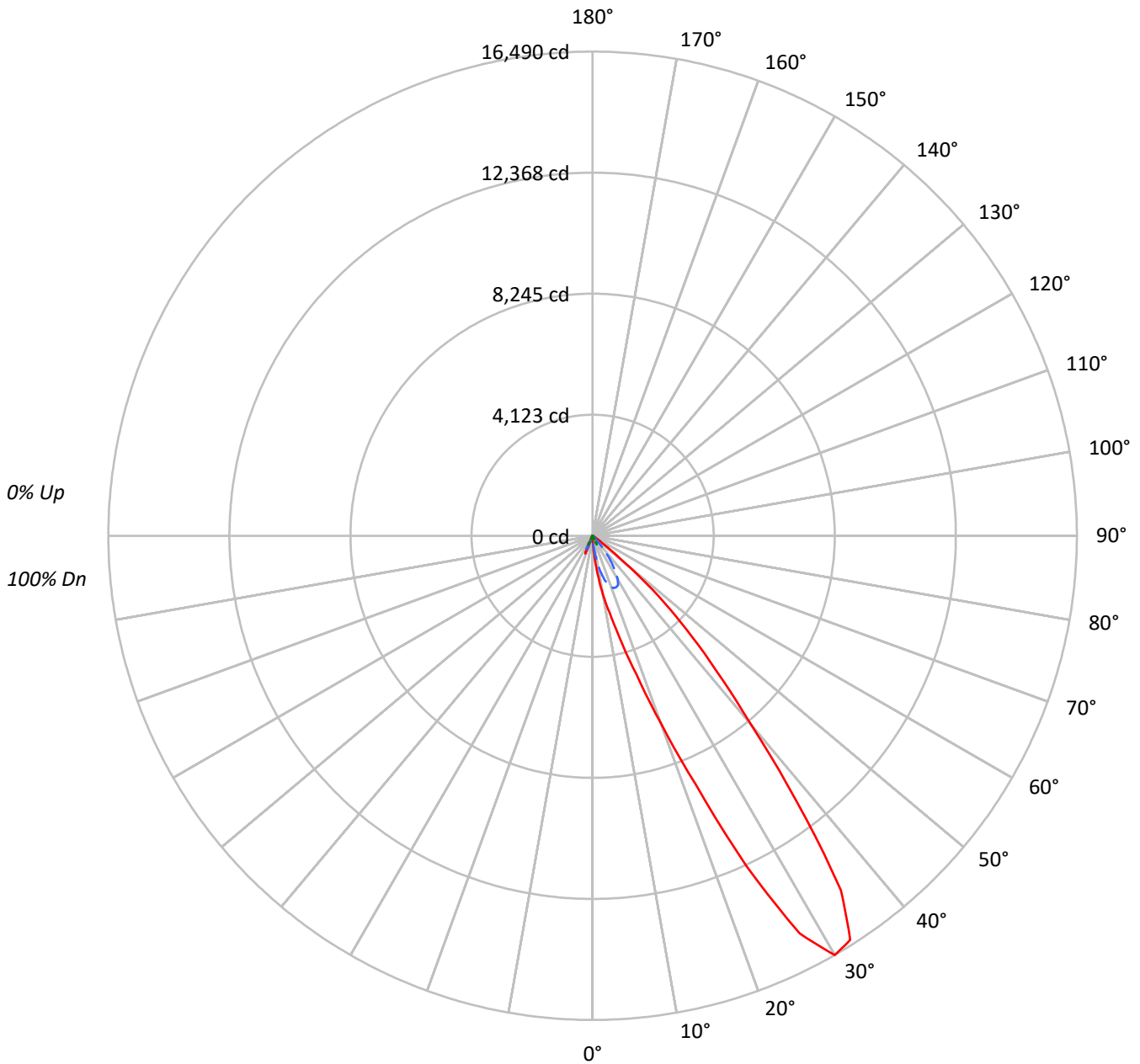
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P170767

CATALOG NUMBER: LDA4A28835D010TE LAR15SP 4LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P170767

CATALOG NUMBER: LDA4A28835D010TE LAR15SP 4LAL1 30° Tilt

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°	16602	16602	16602
5°	87613	15700	8333
10°	256258	13326	5486
15°	466157	11199	6193
20°	889298	12746	30203
25°	1690091	44313	66687
30°	2348597	14941	12932
35°	2219463	6836	4954
40°	1345211	3027	1771
45°	788333	1640	541
50°	261644	1209	0
55°	49826	1011	0
60°	11200	765	0
65°	3210	1372	0
70°	1118	1695	0
75°	0	2240	0
80°	0	3339	0
85°	0	6652	2264



TEST NUMBER: P170767

CATALOG NUMBER: LDA4A28835D010TE LAR15SP 4LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.1	1.1
10°-20°	262.6	9.2
20°-30°	931.3	32.6
30°-40°	1104.2	38.7
40°-50°	469.8	16.5
50°-60°	42.5	1.5
60°-70°	5.2	0.2
70°-80°	3.5	0.1
80°-90°	3.2	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°	1226.1	43.0
0°-40°	2330.3	81.6
0°-60°	2842.6	99.6
0°-90°	2854.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2854.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	135	135	135	135	135	
5°	708	349	127	80	67	110
15°	3650	1537	88	48	48	1178
25°	12418	1927	326	512	490	5754
35°	14740	1138	45	34	33	8514
45°	4519	125	9	6	3	3542
55°	232	19	5	3	0	324
65°	11	5	5	3	0	15
75°	0	3	5	5	0	1
85°	0	3	5	5	2	0
90°	0	0	0	0	0	



TEST NUMBER: P170767

CATALOG NUMBER: LDA4A28835D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6
2.5°	247.3	233.2	242.6	239.5	241.1	245.8	241.1	241.1	239.5	233.2	233.2
5°	707.6	665.3	685.6	674.7	680.9	688.8	677.8	674.7	670.0	655.9	652.8
7.5°	1318.1	1294.6	1319.6	1300.8	1318.1	1321.2	1305.5	1302.4	1294.6	1274.2	1266.4
10°	2046.0	2006.8	2030.3	2010.0	2036.6	2035.0	2010.0	2013.1	2003.7	1977.1	1964.6
12.5°	2690.9	2659.6	2683.1	2625.2	2690.9	2648.6	2653.3	2659.6	2647.1	2612.6	2597.0
15°	3650.5	3564.4	3605.1	3504.9	3605.1	3591.0	3536.2	3533.1	3500.2	3442.3	3407.9
17.5°	4924.7	4948.2	4918.5	4859.0	4992.0	4956.0	4877.8	4862.1	4799.5	4641.4	4638.3
20°	6775.0	6743.7	6793.8	6606.0	6776.6	6610.7	6588.7	6544.9	6438.5	6217.7	6183.3
22.5°	9143.5	9160.7	9071.5	8941.5	9151.3	8894.6	8816.3	8711.4	8517.3	8177.6	8071.2
25°	12418.3	12396.3	12280.5	12064.5	12288.3	11873.5	11677.8	11461.8	11100.2	10571.1	10315.9
27.5°	15272.0	15361.2	15284.5	15065.3	15214.1	14805.5	14354.7	14216.9	13726.9	13060.1	12599.8
30°	16489.8	16532.1	16499.2	16331.7	16385.0	16048.4	15602.3	15439.5	14937.0	14306.1	13709.7
32.5°	16322.4	16342.7	16349.0	16125.1	16134.5	15816.7	15350.2	15109.2	14561.3	13953.9	13241.7
35°	14739.7	14824.3	14879.1	14669.3	14461.1	14144.9	13615.8	13241.7	12665.6	12111.4	11383.5
37.5°	11414.8	11521.3	11605.8	11427.4	11328.7	10946.8	10506.9	10217.3	9819.7	9494.1	8977.5
40°	8354.5	8374.9	8426.5	8334.2	8180.7	8079.0	7827.0	7662.6	7421.5	7246.2	6903.4
42.5°	6209.9	6199.0	6235.0	6183.3	6178.6	6025.2	5865.5	5768.5	5685.5	5500.8	5259.7
45°	4519.3	4522.4	4556.9	4524.0	4436.3	4403.5	4298.6	4210.9	4101.3	4043.4	3852.4
47.5°	3072.9	3082.3	3105.7	3087.0	3007.1	2994.6	2927.3	2839.6	2838.1	2748.8	2581.3
50°	1363.5	1366.6	1394.8	1388.5	1293.0	1305.5	1261.7	1181.9	1203.8	1150.6	1022.2
52.5°	452.4	454.0	458.7	455.5	439.9	439.9	428.9	427.4	414.8	402.3	374.1
55°	231.7	231.7	234.8	233.2	225.4	225.4	212.9	220.7	214.5	209.8	192.5
57.5°	98.6	98.6	100.2	100.2	95.5	100.2	95.5	95.5	92.4	90.8	84.5
60°	45.4	45.4	45.4	45.4	43.8	47.0	43.8	43.8	43.8	42.3	39.1
62.5°	23.5	23.5	23.5	23.5	23.5	23.5	23.5	21.9	21.9	21.9	20.4
65°	11.0	11.0	11.0	11.0	11.0	12.5	11.0	11.0	11.0	11.0	11.0
67.5°	4.7	4.7	4.7	6.3	6.3	6.3	6.3	6.3	4.7	4.7	4.7
70°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	1.6
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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: P170767

CATALOG NUMBER: LDA4A28835D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6	134.6
2.5°	234.8	227.0	237.9	228.5	234.8	228.5	220.7	223.9	180.0	150.3	133.1
5°	654.3	630.9	651.2	630.9	632.4	621.5	591.7	588.6	349.1	170.6	126.8
7.5°	1232.0	1228.8	1253.9	1227.3	1224.1	1197.5	1142.7	1120.8	632.4	200.4	117.4
10°	1956.7	1911.3	1933.3	1905.1	1895.7	1847.2	1768.9	1726.6	940.8	230.1	106.4
12.5°	2553.2	2535.9	2551.6	2525.0	2515.6	2449.8	2357.5	2301.1	1257.0	247.3	95.5
15°	3332.7	3298.3	3309.2	3254.5	3226.3	3101.0	2942.9	2839.6	1537.2	245.8	87.7
17.5°	4522.4	4455.1	4448.8	4354.9	4286.0	4059.1	3775.7	3562.8	1742.3	227.0	84.5
20°	6012.7	5890.6	5849.9	5701.2	5585.3	5209.6	4772.9	4426.9	1870.6	201.9	97.1
22.5°	7798.8	7584.3	7463.8	7225.9	7027.0	6424.4	5784.1	5266.0	1927.0	194.1	139.3
25°	9880.8	9512.9	9257.7	8883.6	8548.6	7623.5	6724.9	5998.6	1927.0	252.0	325.6
27.5°	11992.5	11411.7	10942.1	10395.8	9887.0	8575.2	7416.8	6471.3	1880.0	314.6	297.4
30°	13061.6	12347.8	11709.1	11070.5	10431.8	8855.4	7571.8	6529.3	1703.1	184.7	104.9
32.5°	12607.7	11854.7	11148.7	10530.4	9899.5	8360.8	7152.3	6145.7	1430.8	108.0	67.3
35°	10867.0	10214.2	9600.6	9138.8	8647.2	7432.5	6350.8	5474.2	1138.0	84.5	45.4
37.5°	8673.8	8229.3	7792.5	7496.7	7144.5	6231.8	5359.9	4641.4	814.0	61.1	28.2
40°	6728.1	6424.4	6119.1	5931.3	5682.4	5017.1	4337.7	3766.3	480.6	42.3	18.8
42.5°	5153.3	4943.5	4716.5	4586.6	4408.1	3911.9	3381.2	2977.4	222.3	29.7	14.1
45°	3788.3	3633.3	3459.5	3376.6	3251.3	2924.2	2571.9	2287.0	125.2	21.9	9.4
47.5°	2550.0	2412.3	2251.0	2199.4	2078.8	1792.4	1432.3	1152.1	83.0	15.7	7.8
50°	1014.4	923.6	868.8	796.8	726.3	608.9	455.5	363.2	50.1	12.5	6.3
52.5°	372.6	352.2	342.8	324.0	308.4	275.5	233.2	201.9	29.7	9.4	4.7
55°	194.1	181.6	175.3	169.1	159.7	140.9	117.4	100.2	18.8	6.3	4.7
57.5°	84.5	79.8	81.4	75.1	70.4	64.2	56.4	48.5	12.5	6.3	4.7
60°	40.7	37.6	39.1	36.0	34.4	32.9	29.7	25.0	7.8	4.7	3.1
62.5°	20.4	20.4	20.4	18.8	18.8	17.2	15.7	14.1	6.3	4.7	4.7
65°	11.0	9.4	11.0	9.4	9.4	9.4	7.8	7.8	4.7	4.7	4.7
67.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	3.1	4.7	4.7
70°	3.1	3.1	3.1	3.1	3.1	3.1	1.6	3.1	3.1	4.7	4.7
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.1	4.7	4.7
75°	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6	3.1	4.7	4.7
77.5°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.1	4.7	4.7
80°	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6	3.1	4.7	4.7
82.5°	0.0	0.0	0.0	0.0	0.0	1.6	1.6	1.6	3.1	4.7	4.7
85°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.1	4.7	4.7
87.5°	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	3.1	4.7	4.7
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: P170767

CATALOG NUMBER: LDA4A28835D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	134.6	134.6	134.6	134.6
2.5°	112.7	100.2	90.8	89.2
5°	95.5	79.8	68.9	67.3
7.5°	81.4	64.2	54.8	53.2
10°	72.0	54.8	45.4	43.8
12.5°	64.2	48.5	42.3	40.7
15°	59.5	48.5	47.0	48.5
17.5°	64.2	65.7	72.0	79.8
20°	106.4	151.8	197.2	230.1
22.5°	239.5	443.0	587.0	655.9
25°	452.4	511.9	513.4	490.0
27.5°	245.8	195.7	175.3	165.9
30°	97.1	92.4	92.4	90.8
32.5°	64.2	59.5	57.9	56.4
35°	39.1	34.4	32.9	32.9
37.5°	25.0	21.9	20.4	18.8
40°	17.2	14.1	12.5	11.0
42.5°	12.5	9.4	6.3	6.3
45°	9.4	6.3	3.1	3.1
47.5°	7.8	4.7	1.6	1.6
50°	6.3	3.1	1.6	0.0
52.5°	4.7	3.1	0.0	0.0
55°	4.7	3.1	0.0	0.0
57.5°	4.7	3.1	0.0	0.0
60°	4.7	3.1	0.0	0.0
62.5°	4.7	3.1	0.0	0.0
65°	4.7	3.1	1.6	0.0
67.5°	6.3	3.1	1.6	0.0
70°	6.3	3.1	1.6	0.0
72.5°	6.3	3.1	1.6	0.0
75°	6.3	4.7	1.6	0.0
77.5°	6.3	4.7	1.6	0.0
80°	6.3	4.7	1.6	0.0
82.5°	6.3	4.7	1.6	0.0
85°	6.3	4.7	1.6	1.6
87.5°	6.3	4.7	1.6	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)