

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: P170772

Luminaire Tested: **LDA4A28940D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170772
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: LDA4A28940D010TE 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: 2512.3 lumens
Efficiency: N/A
Efficacy: 56.5 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

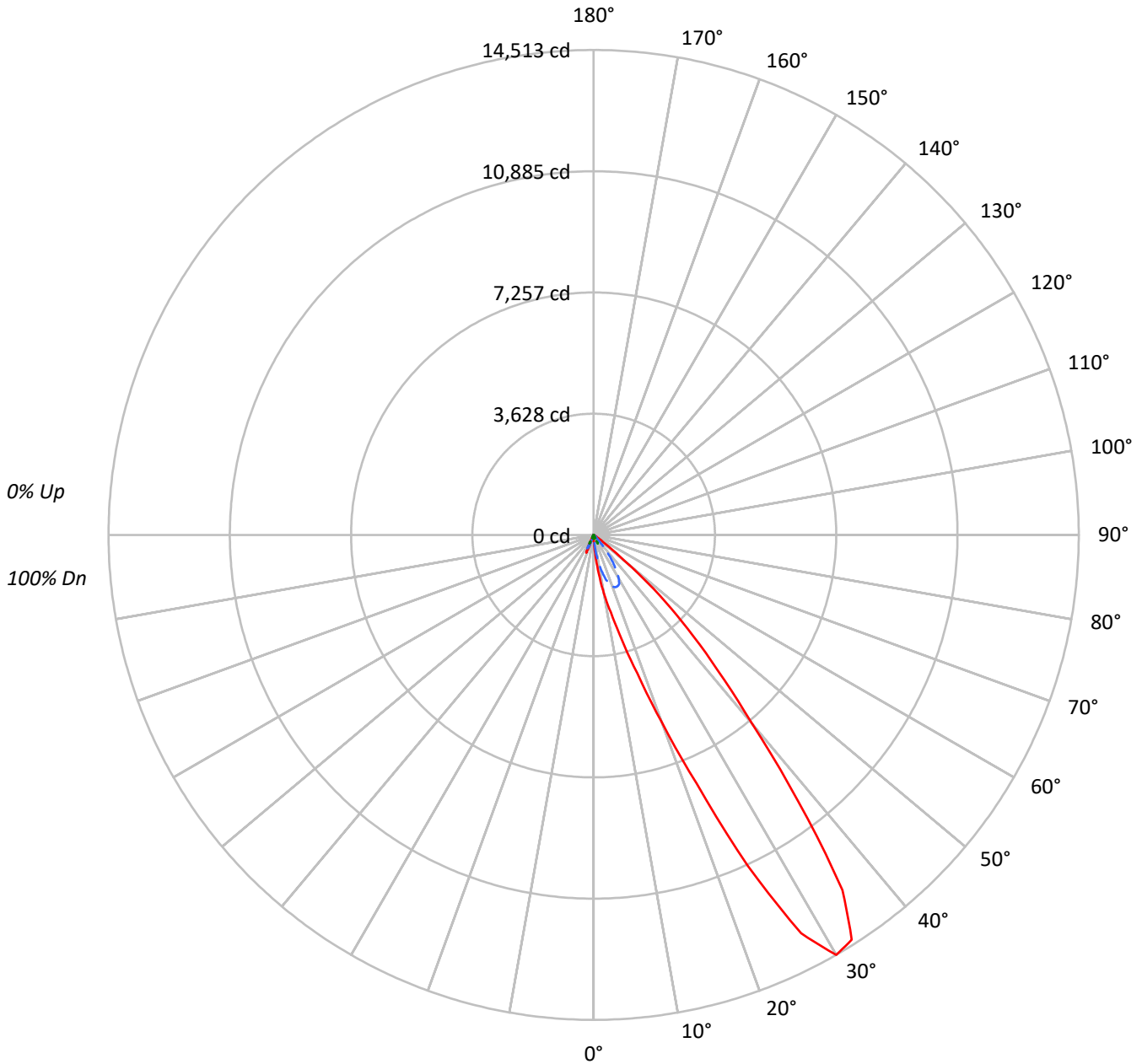
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P170772

CATALOG NUMBER: LDA4A28940D010TE LAR15SP 4LAL1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P170772

CATALOG NUMBER: LDA4A28940D010TE 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°	14616	14616	14616
5°	77101	13818	7330
10°	225535	11736	4835
15°	410277	9858	5453
20°	782700	11210	26580
25°	1487511	39005	58685
30°	2067090	13146	11380
35°	1953438	6023	4352
40°	1183969	2657	1546
45°	693841	1448	488
50°	230270	1055	0
55°	43848	882	0
60°	9868	691	0
65°	2802	1197	0
70°	1010	1479	0
75°	0	1954	0
80°	0	2912	0
85°	0	5802	1981



TEST NUMBER: P170772

CATALOG NUMBER: LDA4A28940D010TE LAR15SP 4LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.3	1.1
10°-20°	231.2	9.2
20°-30°	819.7	32.6
30°-40°	971.9	38.7
40°-50°	413.5	16.5
50°-60°	37.4	1.5
60°-70°	4.6	0.2
70°-80°	3.1	0.1
80°-90°	2.8	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°	1079.2	43.0
0°-40°	2051.0	81.6
0°-60°	2501.9	99.6
0°-90°	2512.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2512.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	118	118	118	118	118	
5°	623	307	112	70	59	97
15°	3213	1353	77	43	43	1036
25°	10930	1696	287	450	431	5064
35°	12973	1002	40	30	29	7494
45°	3978	110	8	6	3	3118
55°	204	16	4	3	0	285
65°	10	4	4	3	0	14
75°	0	3	4	4	0	1
85°	0	3	4	4	1	0
90°	0	0	0	0	0	



TEST NUMBER: P170772

CATALOG NUMBER: LDA4A28940D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5
2.5°	217.7	205.3	213.6	210.8	212.2	216.3	212.2	212.2	210.8	205.3	205.3
5°	622.7	585.5	603.5	593.8	599.3	606.2	596.6	593.8	589.7	577.3	574.5
7.5°	1160.1	1139.4	1161.4	1144.9	1160.1	1162.8	1149.0	1146.3	1139.4	1121.5	1114.6
10°	1800.7	1766.3	1787.0	1769.0	1792.5	1791.1	1769.0	1771.8	1763.5	1740.1	1729.1
12.5°	2368.4	2340.8	2361.5	2310.5	2368.4	2331.2	2335.3	2340.8	2329.8	2299.5	2285.7
15°	3212.9	3137.2	3173.0	3084.8	3173.0	3160.6	3112.4	3109.6	3080.7	3029.7	2999.4
17.5°	4334.4	4355.1	4328.9	4276.6	4393.7	4362.0	4293.1	4279.3	4224.2	4085.1	4082.3
20°	5962.9	5935.4	5979.5	5814.1	5964.3	5818.3	5799.0	5760.4	5666.7	5472.5	5442.1
22.5°	8047.5	8062.6	7984.1	7869.8	8054.4	7828.4	7759.5	7667.2	7496.4	7197.4	7103.7
25°	10929.8	10910.5	10808.5	10618.4	10815.4	10450.3	10278.1	10087.9	9769.7	9304.0	9079.4
27.5°	13441.4	13519.9	13452.4	13259.5	13390.4	13030.8	12634.0	12512.8	12081.6	11494.6	11089.6
30°	14513.3	14550.5	14521.6	14374.1	14421.0	14124.8	13732.1	13588.8	13146.6	12591.3	12066.4
32.5°	14365.9	14383.8	14389.3	14192.3	14200.5	13920.9	13510.3	13298.1	12815.9	12281.3	11654.5
35°	12973.0	13047.4	13095.6	12911.0	12727.7	12449.4	11983.7	11654.5	11147.4	10659.7	10019.1
37.5°	10046.6	10140.3	10214.7	10057.6	9970.8	9634.7	9247.5	8992.6	8642.7	8356.1	7901.4
40°	7353.1	7371.0	7416.5	7335.2	7200.2	7110.6	6888.8	6744.1	6531.9	6377.6	6075.9
42.5°	5465.6	5455.9	5487.6	5442.1	5438.0	5303.0	5162.5	5077.0	5004.0	4841.4	4629.3
45°	3977.6	3980.3	4010.7	3981.7	3904.6	3875.6	3783.3	3706.2	3609.7	3558.7	3390.7
47.5°	2704.5	2712.8	2733.5	2716.9	2646.7	2635.7	2576.4	2499.3	2497.9	2419.3	2271.9
50°	1200.0	1202.8	1227.6	1222.1	1138.0	1149.0	1110.5	1040.2	1059.5	1012.7	899.7
52.5°	398.2	399.5	403.7	400.9	387.1	387.1	377.5	376.1	365.1	354.1	329.3
55°	203.9	203.9	206.7	205.3	198.4	198.4	187.4	194.3	188.8	184.6	169.5
57.5°	86.8	86.8	88.2	88.2	84.0	88.2	84.0	84.0	81.3	79.9	74.4
60°	40.0	40.0	40.0	40.0	38.6	41.3	38.6	38.6	38.6	37.2	34.4
62.5°	20.7	20.7	20.7	20.7	20.7	20.7	20.7	19.3	19.3	19.3	17.9
65°	9.6	9.6	9.6	9.6	9.6	11.0	9.6	9.6	9.6	9.6	9.6
67.5°	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1
70°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	1.4
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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



TEST NUMBER: P170772

CATALOG NUMBER: LDA4A28940D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5	118.5
2.5°	206.7	199.8	209.4	201.2	206.7	201.2	194.3	197.0	158.4	132.3	117.1
5°	575.9	555.2	573.1	555.2	556.6	547.0	520.8	518.0	307.2	150.2	111.6
7.5°	1084.3	1081.5	1103.6	1080.2	1077.4	1054.0	1005.8	986.5	556.6	176.4	103.3
10°	1722.2	1682.2	1701.5	1676.7	1668.5	1625.8	1556.9	1519.7	828.0	202.5	93.7
12.5°	2247.1	2232.0	2245.7	2222.3	2214.1	2156.2	2074.9	2025.3	1106.3	217.7	84.0
15°	2933.2	2902.9	2912.6	2864.4	2839.6	2729.3	2590.2	2499.3	1353.0	216.3	77.2
17.5°	3980.3	3921.1	3915.6	3832.9	3772.3	3572.5	3323.2	3135.8	1533.4	199.8	74.4
20°	5292.0	5184.5	5148.7	5017.8	4915.8	4585.2	4200.8	3896.3	1646.4	177.7	85.4
22.5°	6864.0	6675.2	6569.1	6359.7	6184.8	5654.3	5090.8	4634.8	1696.0	170.8	122.6
25°	8696.4	8372.6	8148.1	7818.8	7523.9	6709.7	5918.8	5279.6	1696.0	221.8	286.6
27.5°	10555.0	10043.9	9630.5	9149.7	8701.9	7547.4	6527.8	5695.7	1654.7	276.9	261.8
30°	11496.0	10867.8	10305.6	9743.5	9181.4	7794.0	6664.2	5746.6	1499.0	162.6	92.3
32.5°	11096.5	10433.8	9812.4	9268.2	8712.9	7358.6	6295.0	5409.1	1259.3	95.1	59.2
35°	9564.4	8989.9	8449.8	8043.3	7610.7	6541.6	5589.6	4818.0	1001.6	74.4	40.0
37.5°	7634.2	7242.9	6858.5	6598.1	6288.1	5484.9	4717.4	4085.1	716.4	53.7	24.8
40°	5921.6	5654.3	5385.7	5220.3	5001.3	4415.7	3817.8	3314.9	423.0	37.2	16.5
42.5°	4535.6	4351.0	4151.2	4036.8	3879.8	3443.0	2976.0	2620.5	195.6	26.2	12.4
45°	3334.2	3197.8	3044.8	2971.8	2861.6	2573.7	2263.7	2012.9	110.2	19.3	8.3
47.5°	2244.4	2123.1	1981.2	1935.7	1829.7	1577.5	1260.6	1014.0	73.0	13.8	6.9
50°	892.8	812.9	764.7	701.3	639.3	535.9	400.9	319.6	44.1	11.0	5.5
52.5°	327.9	310.0	301.7	285.2	271.4	242.5	205.3	177.7	26.2	8.3	4.1
55°	170.8	159.8	154.3	148.8	140.5	124.0	103.3	88.2	16.5	5.5	4.1
57.5°	74.4	70.3	71.6	66.1	62.0	56.5	49.6	42.7	11.0	5.5	4.1
60°	35.8	33.1	34.4	31.7	30.3	28.9	26.2	22.0	6.9	4.1	2.8
62.5°	17.9	17.9	17.9	16.5	16.5	15.2	13.8	12.4	5.5	4.1	4.1
65°	9.6	8.3	9.6	8.3	8.3	8.3	6.9	6.9	4.1	4.1	4.1
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	2.8	4.1	4.1
70°	2.8	2.8	2.8	2.8	2.8	2.8	1.4	2.8	2.8	4.1	4.1
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.8	4.1	4.1
75°	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	2.8	4.1	4.1
77.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.8	4.1	4.1
80°	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	2.8	4.1	4.1
82.5°	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	2.8	4.1	4.1
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.8	4.1	4.1
87.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.8	4.1	4.1
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: P170772

CATALOG NUMBER: LDA4A28940D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	118.5	118.5	118.5	118.5
2.5°	99.2	88.2	79.9	78.5
5°	84.0	70.3	60.6	59.2
7.5°	71.6	56.5	48.2	46.8
10°	63.4	48.2	40.0	38.6
12.5°	56.5	42.7	37.2	35.8
15°	52.4	42.7	41.3	42.7
17.5°	56.5	57.9	63.4	70.3
20°	93.7	133.6	173.6	202.5
22.5°	210.8	389.9	516.7	577.3
25°	398.2	450.5	451.9	431.2
27.5°	216.3	172.2	154.3	146.0
30°	85.4	81.3	81.3	79.9
32.5°	56.5	52.4	51.0	49.6
35°	34.4	30.3	28.9	28.9
37.5°	22.0	19.3	17.9	16.5
40°	15.2	12.4	11.0	9.6
42.5°	11.0	8.3	5.5	5.5
45°	8.3	5.5	2.8	2.8
47.5°	6.9	4.1	1.4	1.4
50°	5.5	2.8	1.4	0.0
52.5°	4.1	2.8	0.0	0.0
55°	4.1	2.8	0.0	0.0
57.5°	4.1	2.8	0.0	0.0
60°	4.1	2.8	0.0	0.0
62.5°	4.1	2.8	0.0	0.0
65°	4.1	2.8	1.4	0.0
67.5°	5.5	2.8	1.4	0.0
70°	5.5	2.8	1.4	0.0
72.5°	5.5	2.8	1.4	0.0
75°	5.5	4.1	1.4	0.0
77.5°	5.5	4.1	1.4	0.0
80°	5.5	4.1	1.4	0.0
82.5°	5.5	4.1	1.4	0.0
85°	5.5	4.1	1.4	1.4
87.5°	5.5	4.1	1.4	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)