

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: P170769

Luminaire Tested: **LDA4A28927D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170769
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: LDA4A28927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2014.2 lumens
Efficiency: N/A
Efficacy: 45.3 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

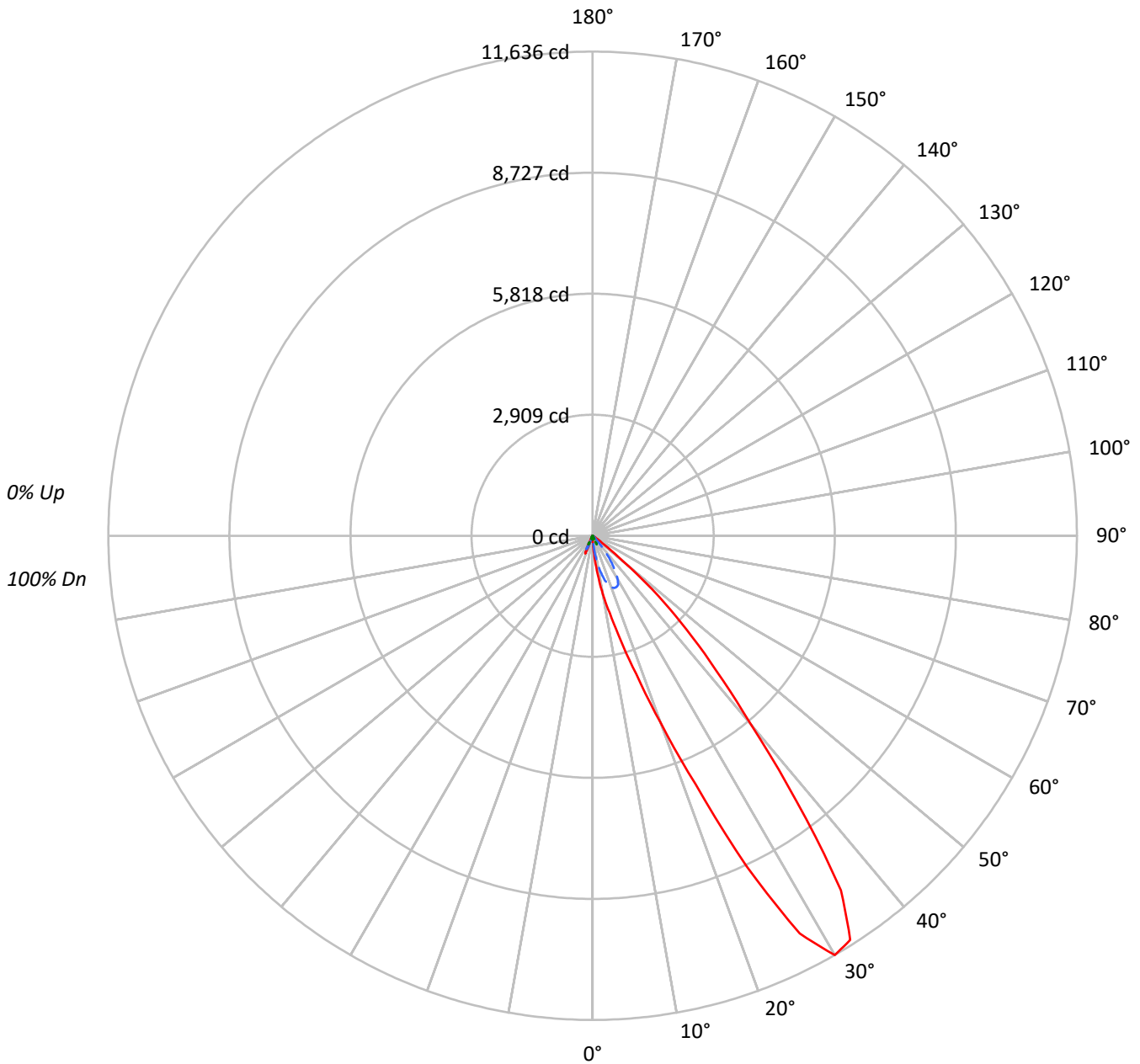
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P170769

CATALOG NUMBER: LDA4A28927D010TE LAR15SP 4LAL1 30° Tilt

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°	11718	11718	11718
5°	61822	11082	5881
10°	180821	9406	3870
15°	328947	7904	4367
20°	627536	8991	21317
25°	1192617	31275	47049
30°	1657298	10540	9130
35°	1566184	4818	3493
40°	949255	2142	1240
45°	556297	1151	384
50°	184619	844	0
55°	35160	710	0
60°	7894	543	0
65°	2247	963	0
70°	793	1190	0
75°	0	1573	0
80°	0	2344	0
85°	0	4670	1557



TEST NUMBER: P170769

CATALOG NUMBER: LDA4A28927D010TE LAR15SP 4LAL1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	22.7	1.1
10°-20°	185.3	9.2
20°-30°	657.2	32.6
30°-40°	779.2	38.7
40°-50°	331.5	16.5
50°-60°	30.0	1.5
60°-70°	3.7	0.2
70°-80°	2.5	0.1
80°-90°	2.2	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°	865.2	43.0
0°-40°	1644.4	81.6
0°-60°	2005.9	99.6
0°-90°	2014.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2014.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	95	95	95	95	95	
5°	499	246	90	56	48	78
15°	2576	1085	62	34	34	831
25°	8763	1360	230	361	346	4060
35°	10401	803	32	24	23	6008
45°	3189	88	7	4	2	2500
55°	164	13	3	2	0	229
65°	8	3	3	2	0	11
75°	0	2	3	3	0	1
85°	0	2	3	3	1	0
90°	0	0	0	0	0	



TEST NUMBER: P170769

CATALOG NUMBER: LDA4A28927D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
0°	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
2.5°	174.5	164.6	171.2	169.0	170.1	173.4	170.1	170.1	169.0	164.6	164.6
5°	499.3	469.5	483.8	476.1	480.5	486.0	478.3	476.1	472.8	462.8	460.6
7.5°	930.1	913.5	931.2	917.9	930.1	932.3	921.3	919.0	913.5	899.2	893.6
10°	1443.7	1416.1	1432.7	1418.3	1437.1	1436.0	1418.3	1420.6	1413.9	1395.1	1386.3
12.5°	1898.9	1876.8	1893.3	1852.5	1898.9	1869.0	1872.3	1876.8	1867.9	1843.6	1832.6
15°	2576.0	2515.2	2544.0	2473.3	2544.0	2534.0	2495.4	2493.1	2469.9	2429.1	2404.8
17.5°	3475.2	3491.7	3470.7	3428.8	3522.7	3497.2	3442.0	3431.0	3386.8	3275.2	3273.0
20°	4780.8	4758.7	4794.1	4661.5	4781.9	4664.8	4649.4	4618.4	4543.3	4387.6	4363.3
22.5°	6452.1	6464.3	6401.3	6309.6	6457.7	6276.5	6221.3	6147.3	6010.3	5770.6	5695.5
25°	8763.0	8747.5	8665.8	8513.4	8671.3	8378.6	8240.5	8088.1	7832.9	7459.5	7279.5
27.5°	10776.7	10839.7	10785.6	10630.9	10735.9	10447.6	10129.4	10032.2	9686.5	9215.9	8891.1
30°	11636.1	11666.0	11642.8	11524.6	11562.1	11324.6	11009.8	10894.9	10540.4	10095.2	9674.3
32.5°	11517.9	11532.3	11536.7	11378.8	11385.4	11161.2	10832.0	10661.9	10275.2	9846.6	9344.0
35°	10401.2	10460.8	10499.5	10351.5	10204.5	9981.4	9608.0	9344.0	8937.5	8546.5	8032.8
37.5°	8054.9	8130.1	8189.7	8063.8	7994.2	7724.7	7414.3	7209.9	6929.3	6699.6	6335.0
40°	5895.4	5909.8	5946.2	5881.0	5772.8	5701.0	5523.1	5407.2	5237.0	5113.3	4871.4
42.5°	4382.1	4374.3	4399.7	4363.3	4360.0	4251.7	4139.0	4070.6	4012.0	3881.7	3711.5
45°	3189.1	3191.3	3215.6	3192.4	3130.5	3107.3	3033.3	2971.4	2894.1	2853.3	2718.5
47.5°	2168.4	2175.0	2191.6	2178.3	2122.0	2113.2	2065.7	2003.8	2002.7	1939.7	1821.5
50°	962.1	964.3	984.2	979.8	912.4	921.3	890.3	834.0	849.5	811.9	721.3
52.5°	319.2	320.3	323.7	321.4	310.4	310.4	302.7	301.6	292.7	283.9	264.0
55°	163.5	163.5	165.7	164.6	159.1	159.1	150.2	155.8	151.3	148.0	135.9
57.5°	69.6	69.6	70.7	70.7	67.4	70.7	67.4	67.4	65.2	64.1	59.6
60°	32.0	32.0	32.0	32.0	30.9	33.1	30.9	30.9	30.9	29.8	27.6
62.5°	16.6	16.6	16.6	16.6	16.6	16.6	16.6	15.5	15.5	15.5	14.4
65°	7.7	7.7	7.7	7.7	7.7	8.8	7.7	7.7	7.7	7.7	7.7
67.5°	3.3	3.3	3.3	4.4	4.4	4.4	4.4	4.4	3.3	3.3	3.3
70°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.1
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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: P170769

CATALOG NUMBER: LDA4A28927D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
2.5°	165.7	160.2	167.9	161.3	165.7	161.3	155.8	158.0	127.0	106.0	93.9
5°	461.7	445.2	459.5	445.2	446.3	438.5	417.5	415.3	246.3	120.4	89.5
7.5°	869.3	867.1	884.8	866.0	863.8	845.0	806.4	790.9	446.3	141.4	82.8
10°	1380.8	1348.7	1364.2	1344.3	1337.7	1303.5	1248.2	1218.4	663.9	162.4	75.1
12.5°	1801.6	1789.5	1800.5	1781.8	1775.1	1728.7	1663.6	1623.8	887.0	174.5	67.4
15°	2351.8	2327.4	2335.2	2296.5	2276.6	2188.3	2076.7	2003.8	1084.7	173.4	61.9
17.5°	3191.3	3143.8	3139.4	3073.1	3024.5	2864.3	2664.4	2514.1	1229.5	160.2	59.6
20°	4242.9	4156.7	4128.0	4023.1	3941.3	3676.2	3368.0	3123.9	1320.0	142.5	68.5
22.5°	5503.3	5351.9	5266.9	5099.0	4958.7	4533.4	4081.6	3716.0	1359.8	137.0	98.3
25°	6972.4	6712.8	6532.8	6268.8	6032.4	5379.5	4745.5	4232.9	1359.8	177.8	229.8
27.5°	8462.5	8052.7	7721.3	7335.8	6976.8	6051.1	5233.7	4566.5	1326.7	222.0	209.9
30°	9217.0	8713.3	8262.6	7811.9	7361.2	6248.9	5343.1	4607.4	1201.8	130.3	74.0
32.5°	8896.7	8365.3	7867.2	7430.8	6985.7	5899.8	5047.0	4336.8	1009.6	76.2	47.5
35°	7668.3	7207.7	6774.7	6448.8	6102.0	5244.8	4481.5	3862.9	803.1	59.6	32.0
37.5°	6120.7	5807.0	5498.8	5290.1	5041.5	4397.5	3782.2	3275.2	574.4	43.1	19.9
40°	4747.7	4533.4	4318.0	4185.4	4009.8	3540.3	3060.9	2657.7	339.1	29.8	13.3
42.5°	3636.4	3488.4	3328.2	3236.6	3110.6	2760.5	2386.0	2101.0	156.9	21.0	9.9
45°	2673.2	2563.8	2441.2	2382.7	2294.3	2063.4	1814.9	1613.9	88.4	15.5	6.6
47.5°	1799.4	1702.2	1588.5	1552.0	1466.9	1264.8	1010.7	813.0	58.5	11.0	5.5
50°	715.8	651.7	613.1	562.3	512.5	429.7	321.4	256.3	35.3	8.8	4.4
52.5°	262.9	248.5	241.9	228.7	217.6	194.4	164.6	142.5	21.0	6.6	3.3
55°	137.0	128.1	123.7	119.3	112.7	99.4	82.8	70.7	13.3	4.4	3.3
57.5°	59.6	56.3	57.4	53.0	49.7	45.3	39.8	34.2	8.8	4.4	3.3
60°	28.7	26.5	27.6	25.4	24.3	23.2	21.0	17.7	5.5	3.3	2.2
62.5°	14.4	14.4	14.4	13.3	13.3	12.2	11.0	9.9	4.4	3.3	3.3
65°	7.7	6.6	7.7	6.6	6.6	6.6	5.5	5.5	3.3	3.3	3.3
67.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.2	3.3	3.3
70°	2.2	2.2	2.2	2.2	2.2	2.2	1.1	2.2	2.2	3.3	3.3
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	3.3	3.3
75°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	2.2	3.3	3.3
77.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	3.3	3.3
80°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	2.2	3.3	3.3
82.5°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	2.2	3.3	3.3
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	3.3	3.3
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	3.3	3.3
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: P170769

CATALOG NUMBER: LDA4A28927D010TE LAR15SP 4LAL1 30° Tilt

CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	95.0	95.0	95.0	95.0
2.5°	79.5	70.7	64.1	63.0
5°	67.4	56.3	48.6	47.5
7.5°	57.4	45.3	38.7	37.6
10°	50.8	38.7	32.0	30.9
12.5°	45.3	34.2	29.8	28.7
15°	42.0	34.2	33.1	34.2
17.5°	45.3	46.4	50.8	56.3
20°	75.1	107.1	139.2	162.4
22.5°	169.0	312.6	414.2	462.8
25°	319.2	361.2	362.3	345.7
27.5°	173.4	138.1	123.7	117.1
30°	68.5	65.2	65.2	64.1
32.5°	45.3	42.0	40.9	39.8
35°	27.6	24.3	23.2	23.2
37.5°	17.7	15.5	14.4	13.3
40°	12.2	9.9	8.8	7.7
42.5°	8.8	6.6	4.4	4.4
45°	6.6	4.4	2.2	2.2
47.5°	5.5	3.3	1.1	1.1
50°	4.4	2.2	1.1	0.0
52.5°	3.3	2.2	0.0	0.0
55°	3.3	2.2	0.0	0.0
57.5°	3.3	2.2	0.0	0.0
60°	3.3	2.2	0.0	0.0
62.5°	3.3	2.2	0.0	0.0
65°	3.3	2.2	1.1	0.0
67.5°	4.4	2.2	1.1	0.0
70°	4.4	2.2	1.1	0.0
72.5°	4.4	2.2	1.1	0.0
75°	4.4	3.3	1.1	0.0
77.5°	4.4	3.3	1.1	0.0
80°	4.4	3.3	1.1	0.0
82.5°	4.4	3.3	1.1	0.0
85°	4.4	3.3	1.1	1.1
87.5°	4.4	3.3	1.1	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)