

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: P170836

Luminaire Tested: **LDA4A28940D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170836
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26106)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A28940D010TE LAR35FL 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 35° Flood 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: 2815.5 lumens
Efficiency: N/A
Efficacy: 63.3 lumens/watt
Spacing Criteria (0/90/45): 2.71 / 1.11 / 1.33
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

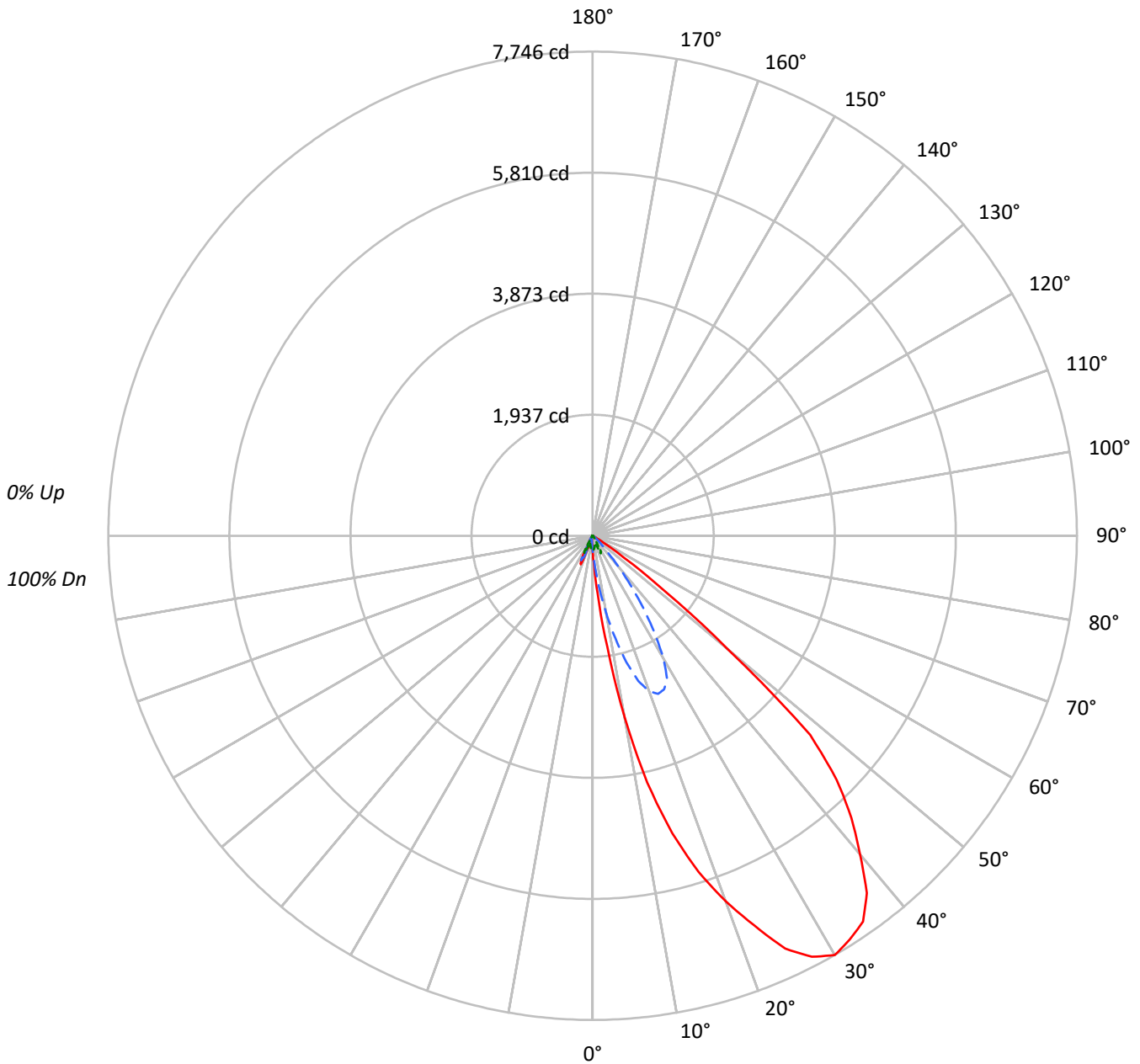
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91																			
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	86	83	82																			
3	98	90	84	79	96	89	83	79	86	81	77	84	79	76	81	78	75	73																			
4	91	82	75	70	89	81	75	70	79	73	69	77	72	68	75	70	67	65																			
5	85	75	68	62	83	74	67	62	72	66	61	70	65	61	68	64	60	58																			
6	79	68	61	56	78	67	60	55	66	60	55	64	59	55	63	58	54	52																			
7	74	62	55	50	72	62	55	50	60	54	49	59	53	49	58	53	49	47																			
8	69	57	50	45	68	57	50	45	55	49	44	54	48	44	53	48	44	42																			
9	64	53	45	40	63	52	45	40	51	45	40	50	44	40	49	44	40	38																			
10	60	48	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	28555	28555	28555
5°	114989	26955	12629
10°	370698	22607	7252
15°	628856	17941	5631
20°	817327	16093	16998
25°	991833	42381	60196
30°	1103313	14912	15895
35°	1134915	8914	7469
40°	1071596	3768	2657
45°	963102	2163	715
50°	542037	1324	0
55°	134533	882	0
60°	20747	1011	0
65°	4816	1197	0
70°	1010	1479	0
75°	0	1954	0
80°	0	3907	0
85°	0	7784	1981



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.5	1.7
10°-20°	345.6	12.3
20°-30°	798.1	28.3
30°-40°	895.3	31.8
40°-50°	624.7	22.2
50°-60°	93.2	3.3
60°-70°	6.1	0.2
70°-80°	3.0	0.1
80°-90°	3.0	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°	1190.2	42.3
0°-40°	2085.5	74.1
0°-60°	2803.4	99.6
0°-90°	2815.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2815.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	232	232	232	232	232	
5°	929	543	218	127	102	154
15°	4925	2096	140	54	44	1407
25°	7288	2709	311	434	442	3332
35°	7537	1408	59	50	50	4636
45°	5521	212	12	7	4	4051
55°	626	28	4	3	0	822
65°	16	4	4	3	0	25
75°	0	3	4	4	0	1
85°	0	3	6	4	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°	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5
2.5°	421.6	417.5	406.5	403.7	413.4	405.1	409.2	417.5	409.2	399.6	409.2
5°	928.7	952.1	928.7	924.6	941.1	925.9	932.8	948.0	927.3	908.0	921.8
7.5°	1792.6	1807.8	1741.7	1765.1	1759.6	1763.7	1767.8	1767.8	1755.4	1721.0	1740.3
10°	2959.7	2970.7	2882.6	2912.9	2872.9	2912.9	2906.0	2875.7	2882.6	2835.7	2860.5
12.5°	4042.7	4078.6	3990.4	4019.3	3971.1	4016.6	3998.7	3990.4	3920.1	3920.1	3946.3
15°	4924.6	5005.9	4926.0	4956.3	4901.2	4964.6	4915.0	4937.0	4873.6	4795.1	4864.0
17.5°	5638.3	5718.3	5643.9	5681.1	5630.1	5679.7	5621.8	5668.7	5587.4	5530.9	5577.7
20°	6226.7	6286.0	6197.8	6250.1	6189.5	6239.1	6175.7	6237.7	6142.7	6101.3	6128.9
22.5°	6739.3	6762.7	6717.2	6805.4	6686.9	6739.3	6663.5	6726.9	6613.9	6561.5	6568.4
25°	7287.7	7340.1	7253.2	7286.3	7203.6	7239.5	7154.0	7213.3	7072.7	6998.3	6983.2
27.5°	7592.2	7666.6	7589.5	7626.7	7542.6	7572.9	7487.5	7572.9	7429.6	7356.6	7340.1
30°	7746.5	7782.4	7732.8	7757.6	7662.5	7677.6	7589.5	7681.8	7538.5	7473.7	7465.4
32.5°	7657.0	7728.6	7663.9	7695.5	7607.4	7622.5	7537.1	7636.3	7493.0	7433.7	7404.8
35°	7537.1	7610.1	7549.5	7582.6	7501.3	7512.3	7421.3	7508.2	7342.8	7269.8	7207.8
37.5°	7205.0	7273.9	7222.9	7234.0	7155.4	7147.1	7049.3	7122.3	6961.1	6899.1	6857.8
40°	6655.2	6717.2	6675.9	6699.3	6620.8	6602.9	6536.7	6604.3	6478.9	6433.4	6375.5
42.5°	6128.9	6179.9	6141.3	6178.5	6090.3	6066.9	6007.6	6093.1	5951.1	5913.9	5872.6
45°	5521.2	5552.9	5522.6	5554.3	5470.2	5433.0	5379.3	5452.3	5313.2	5278.7	5189.2
47.5°	4717.9	4683.5	4678.0	4708.3	4603.5	4526.4	4476.8	4570.5	4369.3	4301.8	4198.4
50°	2824.7	2882.6	2907.4	2886.7	2815.0	2708.9	2629.0	2743.4	2635.9	2470.6	2305.2
52.5°	1455.1	1390.3	1404.1	1411.0	1325.5	1293.8	1267.7	1293.8	1209.8	1167.1	1062.4
55°	625.6	595.3	606.3	610.4	593.9	555.3	541.5	558.0	519.5	502.9	460.2
57.5°	231.5	231.5	224.6	227.4	221.8	208.1	205.3	212.2	199.8	195.7	179.1
60°	84.1	84.1	84.1	84.1	77.2	75.8	75.8	78.5	74.4	73.0	67.5
62.5°	35.8	37.2	34.4	35.8	34.4	33.1	34.4	33.1	33.1	31.7	31.7
65°	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	15.2	15.2
67.5°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.9	6.9	6.9
70°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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



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CANDELA DISTRIBUTION (continued):

	11°	12°	13°	14°	15°	17.5°	20°	22.5°	45°	67.5°	90°
0°	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5	231.5
2.5°	396.8	395.5	401.0	395.5	385.8	380.3	387.2	373.4	319.7	265.9	226.0
5°	897.0	890.1	880.5	883.2	859.8	840.5	840.5	803.3	542.9	308.6	217.7
7.5°	1700.3	1683.8	1613.5	1664.5	1614.9	1576.3	1550.1	1474.3	877.7	354.1	201.2
10°	2808.2	2779.2	2729.6	2739.3	2658.0	2593.2	2514.7	2387.9	1262.2	394.1	180.5
12.5°	3900.8	3871.9	3739.6	3815.4	3706.5	3643.2	3510.9	3362.1	1676.9	413.4	161.2
15°	4828.1	4803.3	4658.7	4730.3	4596.7	4537.4	4366.6	4201.2	2095.8	406.5	140.5
17.5°	5548.8	5544.7	5377.9	5449.6	5302.1	5253.9	5054.1	4891.5	2434.7	376.2	126.8
20°	6104.1	6094.4	5926.3	5998.0	5836.8	5789.9	5536.4	5365.5	2649.7	334.8	122.6
22.5°	6542.2	6523.0	6342.5	6404.5	6224.0	6163.3	5883.6	5705.9	2737.9	308.6	151.6
25°	6936.3	6901.9	6696.6	6744.8	6546.4	6558.8	6138.5	5942.9	2708.9	347.2	311.4
27.5°	7283.6	7221.6	7014.9	7028.6	6795.8	6674.5	6313.5	6097.2	2576.7	387.2	289.4
30°	7413.1	7352.5	7133.4	7141.6	6899.1	6728.3	6342.5	6101.3	2259.7	242.5	104.7
32.5°	7341.4	7275.3	7046.6	7049.3	6799.9	6626.3	6241.9	5975.9	1838.1	159.8	79.9
35°	7133.4	7064.5	6837.1	6848.1	6607.0	6434.8	6058.6	5774.8	1408.2	126.8	59.2
37.5°	6782.0	6733.8	6517.4	6536.7	6331.4	6148.2	5766.5	5459.2	993.5	90.9	37.2
40°	6330.1	6292.9	6083.4	6113.7	5890.5	5721.0	5311.8	4978.3	618.7	62.0	23.4
42.5°	5800.9	5761.0	5554.3	5577.7	5387.6	5145.1	4727.6	4350.0	323.8	44.1	16.5
45°	5140.9	5094.1	4884.6	4897.0	4672.4	4388.6	3955.9	3622.5	212.2	30.3	12.4
47.5°	4103.4	4019.3	3746.5	3735.5	3552.2	3087.9	2473.3	2002.1	140.5	20.7	8.3
50°	2255.6	2168.8	1929.1	1902.9	1698.9	1394.4	1030.7	801.9	81.3	13.8	6.9
52.5°	1026.5	981.1	869.5	851.5	764.7	633.8	487.8	401.0	46.8	9.6	5.5
55°	445.1	428.5	381.7	378.9	339.0	293.5	234.2	198.4	27.6	6.9	4.1
57.5°	175.0	169.5	159.8	152.9	137.8	122.6	102.0	85.4	17.9	5.5	4.1
60°	66.1	64.8	59.2	60.6	55.1	52.4	45.5	38.6	11.0	4.1	4.1
62.5°	30.3	30.3	28.9	28.9	27.6	24.8	22.0	20.7	6.9	4.1	4.1
65°	15.2	15.2	13.8	13.8	13.8	12.4	11.0	11.0	4.1	4.1	4.1
67.5°	6.9	6.9	6.9	6.9	6.9	5.5	5.5	5.5	2.8	4.1	4.1
70°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	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	1.4	1.4	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	5.5
80°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.8	4.1	5.5
82.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.8	4.1	5.5
85°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.8	4.1	5.5
87.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.8	4.1	5.5
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°	231.5	231.5	231.5	231.5
2.5°	194.3	172.2	152.9	148.8
5°	159.8	126.8	106.1	102.0
7.5°	129.5	92.3	77.2	74.4
10°	106.1	74.4	60.6	57.9
12.5°	88.2	60.6	48.2	45.5
15°	75.8	53.7	44.1	44.1
17.5°	73.0	59.2	56.5	57.9
20°	95.1	107.5	128.1	129.5
22.5°	220.5	358.3	474.0	496.0
25°	396.8	434.0	423.0	442.3
27.5°	209.4	164.0	166.7	170.9
30°	90.9	100.6	106.1	111.6
32.5°	75.8	78.5	79.9	84.1
35°	49.6	49.6	48.2	49.6
37.5°	30.3	28.9	27.6	27.6
40°	19.3	17.9	16.5	16.5
42.5°	13.8	11.0	9.6	9.6
45°	9.6	6.9	5.5	4.1
47.5°	6.9	4.1	2.8	1.4
50°	5.5	4.1	1.4	0.0
52.5°	4.1	2.8	1.4	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°	4.1	2.8	1.4	0.0
70°	4.1	2.8	1.4	0.0
72.5°	4.1	2.8	1.4	0.0
75°	4.1	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)