

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: P170835

Luminaire Tested: **LDA4A28935D010TE LAR35FL 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170835
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: LDA4A28935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2622.2 lumens
Efficiency: N/A
Efficacy: 58.9 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

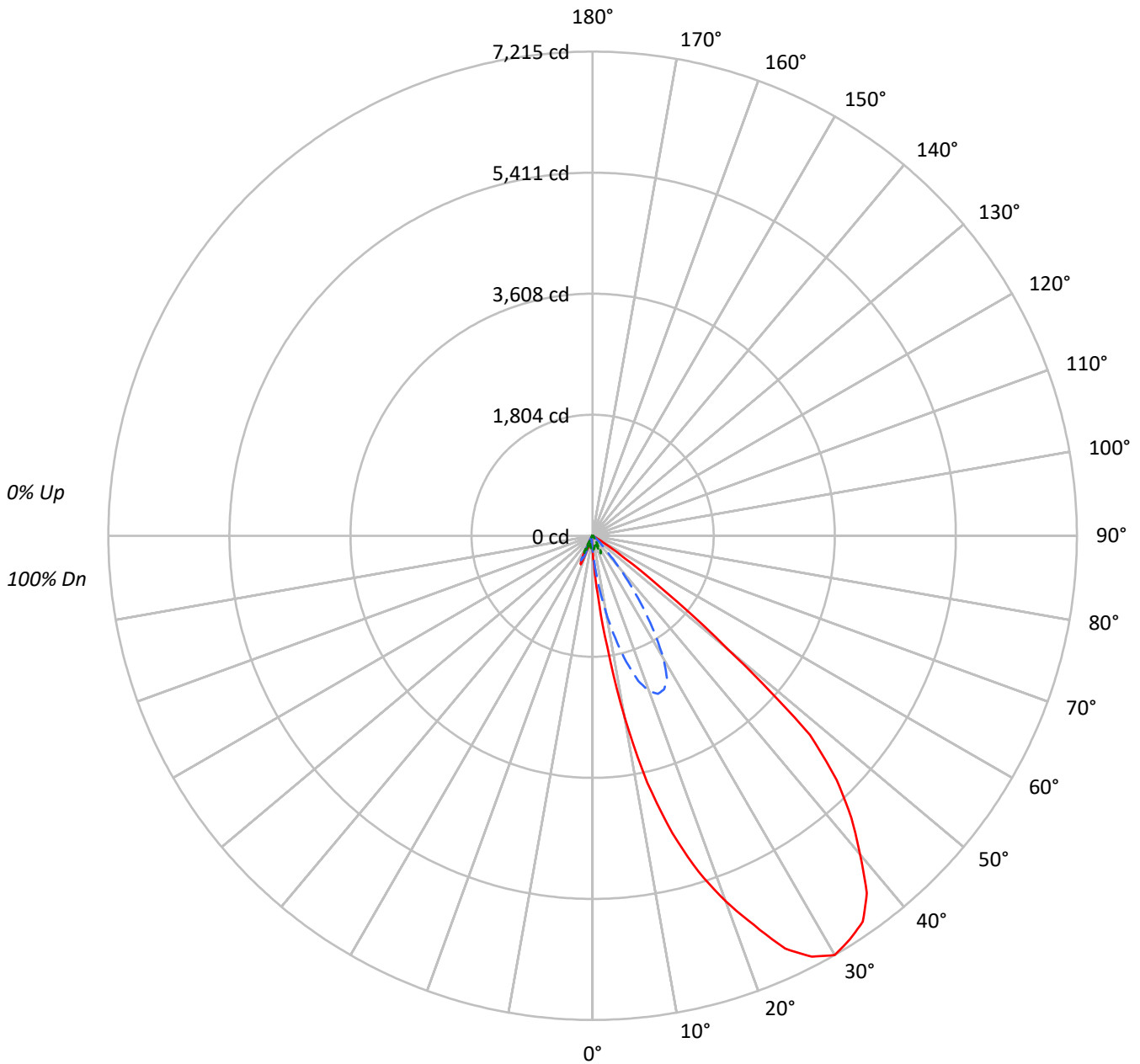
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	26593	26593	26593
5°	107102	25110	11763
10°	345260	21054	6751
15°	585694	16716	5248
20°	761226	14990	15830
25°	923744	39468	56058
30°	1027584	13887	14798
35°	1057007	8312	6957
40°	998043	3510	2480
45°	896990	2006	663
50°	504829	1228	0
55°	125286	817	0
60°	19316	937	0
65°	4495	1109	0
70°	938	1370	0
75°	0	1811	0
80°	0	3623	0
85°	0	7218	1840



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.3	1.7
10°-20°	321.8	12.3
20°-30°	743.4	28.3
30°-40°	833.8	31.8
40°-50°	581.8	22.2
50°-60°	86.8	3.3
60°-70°	5.7	0.2
70°-80°	2.8	0.1
80°-90°	2.7	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°	1108.5	42.3
0°-40°	1942.3	74.1
0°-60°	2611.0	99.6
0°-90°	2622.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2622.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	216	216	216	216	216	
5°	865	506	203	118	95	143
15°	4587	1952	131	50	41	1311
25°	6787	2523	290	404	412	3103
35°	7020	1312	55	46	46	4318
45°	5142	198	12	6	4	3773
55°	583	26	4	3	0	766
65°	15	4	4	3	0	24
75°	0	3	4	4	0	1
85°	0	3	5	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°	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
2.5°	392.7	388.8	378.6	376.0	385.0	377.3	381.1	388.8	381.1	372.2	381.1
5°	865.0	886.8	865.0	861.1	876.5	862.4	868.8	882.9	863.7	845.7	858.5
7.5°	1669.6	1683.7	1622.1	1643.9	1638.8	1642.6	1646.5	1646.5	1634.9	1602.9	1620.8
10°	2756.6	2766.8	2684.7	2712.9	2675.7	2712.9	2706.5	2678.3	2684.7	2641.1	2664.2
12.5°	3765.2	3798.6	3716.5	3743.4	3698.5	3740.9	3724.2	3716.5	3651.0	3651.0	3675.4
15°	4586.6	4662.3	4587.8	4616.1	4564.7	4623.8	4577.6	4598.1	4539.1	4465.9	4530.1
17.5°	5251.3	5325.7	5256.4	5291.1	5243.6	5289.8	5235.9	5279.5	5203.8	5151.2	5194.8
20°	5799.3	5854.5	5772.3	5821.1	5764.6	5810.8	5751.8	5809.6	5721.0	5682.5	5708.2
22.5°	6276.7	6298.5	6256.1	6338.3	6227.9	6276.7	6206.1	6265.1	6159.9	6111.1	6117.5
25°	6787.4	6836.2	6755.4	6786.2	6709.2	6742.5	6663.0	6718.1	6587.2	6517.9	6503.8
27.5°	7071.0	7140.3	7068.5	7103.1	7024.9	7053.1	6973.5	7053.1	6919.6	6851.6	6836.2
30°	7214.8	7248.1	7201.9	7225.0	7136.5	7150.6	7068.5	7154.5	7021.0	6960.7	6953.0
32.5°	7131.4	7198.1	7137.8	7167.3	7085.2	7099.3	7019.7	7112.1	6978.7	6923.5	6896.5
35°	7019.7	7087.7	7031.3	7062.1	6986.4	6996.6	6911.9	6992.8	6838.8	6770.8	6713.0
37.5°	6710.4	6774.6	6727.1	6737.4	6664.2	6656.5	6565.4	6633.4	6483.3	6425.5	6387.0
40°	6198.4	6256.1	6217.6	6239.5	6166.3	6149.6	6088.0	6150.9	6034.1	5991.8	5937.9
42.5°	5708.2	5755.7	5719.7	5754.4	5672.2	5650.4	5595.2	5674.8	5542.6	5508.0	5469.5
45°	5142.2	5171.7	5143.5	5173.0	5094.7	5060.1	5010.1	5078.1	4948.5	4916.4	4833.0
47.5°	4394.1	4362.0	4356.8	4385.1	4287.5	4215.7	4169.5	4256.7	4069.4	4006.5	3910.3
50°	2630.8	2684.7	2707.8	2688.5	2621.8	2523.0	2448.6	2555.1	2455.0	2301.0	2147.0
52.5°	1355.2	1294.9	1307.7	1314.1	1234.5	1205.0	1180.6	1205.0	1126.7	1087.0	989.4
55°	582.6	554.4	564.7	568.5	553.1	517.2	504.3	519.7	483.8	468.4	428.6
57.5°	215.6	215.6	209.2	211.7	206.6	193.8	191.2	197.6	186.1	182.2	166.8
60°	78.3	78.3	78.3	78.3	71.9	70.6	70.6	73.1	69.3	68.0	62.9
62.5°	33.4	34.6	32.1	33.4	32.1	30.8	32.1	30.8	30.8	29.5	29.5
65°	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	14.1	14.1
67.5°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.4	6.4	6.4
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
2.5°	369.6	368.3	373.4	368.3	359.3	354.2	360.6	347.8	297.7	247.7	210.5
5°	835.4	829.0	820.0	822.6	800.8	782.8	782.8	748.2	505.6	287.5	202.8
7.5°	1583.6	1568.2	1502.8	1550.2	1504.0	1468.1	1443.7	1373.1	817.5	329.8	187.4
10°	2615.4	2588.4	2542.2	2551.2	2475.5	2415.2	2342.0	2224.0	1175.5	367.0	168.1
12.5°	3633.1	3606.1	3482.9	3553.5	3452.1	3393.1	3269.9	3131.3	1561.8	385.0	150.1
15°	4496.7	4473.6	4338.9	4405.6	4281.1	4225.9	4066.8	3912.8	1951.9	378.6	130.9
17.5°	5167.9	5164.0	5008.8	5075.5	4938.2	4893.3	4707.2	4555.8	2267.6	350.3	118.1
20°	5685.1	5676.1	5519.5	5586.3	5436.1	5392.5	5156.3	4997.2	2467.8	311.8	114.2
22.5°	6093.2	6075.2	5907.1	5964.8	5796.7	5740.3	5479.7	5314.2	2549.9	287.5	141.2
25°	6460.2	6428.1	6236.9	6281.8	6097.0	6108.6	5717.2	5534.9	2523.0	323.4	290.0
27.5°	6783.6	6725.8	6533.3	6546.2	6329.3	6216.4	5880.1	5678.7	2399.8	360.6	269.5
30°	6904.2	6847.8	6643.7	6651.4	6425.5	6266.4	5907.1	5682.5	2104.6	225.9	97.5
32.5°	6837.5	6775.9	6562.9	6565.4	6333.1	6171.4	5813.4	5565.7	1711.9	148.9	74.4
35°	6643.7	6579.5	6367.8	6378.1	6153.5	5993.1	5642.7	5378.4	1311.5	118.1	55.2
37.5°	6316.5	6271.5	6070.1	6088.0	5896.8	5726.1	5370.7	5084.5	925.3	84.7	34.6
40°	5895.5	5860.9	5665.8	5694.1	5486.2	5328.3	4947.2	4636.6	576.2	57.7	21.8
42.5°	5402.7	5365.5	5173.0	5194.8	5017.8	4791.9	4403.0	4051.4	301.6	41.1	15.4
45°	4788.0	4744.4	4549.3	4560.9	4351.7	4087.3	3684.4	3373.8	197.6	28.2	11.5
47.5°	3821.7	3743.4	3489.3	3479.1	3308.4	2875.9	2303.5	1864.7	130.9	19.2	7.7
50°	2100.8	2019.9	1796.6	1772.3	1582.3	1298.7	959.9	746.9	75.7	12.8	6.4
52.5°	956.1	913.7	809.8	793.1	712.2	590.3	454.3	373.4	43.6	9.0	5.1
55°	414.5	399.1	355.5	352.9	315.7	273.3	218.2	184.8	25.7	6.4	3.8
57.5°	163.0	157.8	148.9	142.4	128.3	114.2	95.0	79.6	16.7	5.1	3.8
60°	61.6	60.3	55.2	56.5	51.3	48.8	42.3	35.9	10.3	3.8	3.8
62.5°	28.2	28.2	26.9	26.9	25.7	23.1	20.5	19.2	6.4	3.8	3.8
65°	14.1	14.1	12.8	12.8	12.8	11.5	10.3	10.3	3.8	3.8	3.8
67.5°	6.4	6.4	6.4	6.4	6.4	5.1	5.1	5.1	2.6	3.8	3.8
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.8	3.8
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.6	3.8	3.8
75°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	3.8	3.8
77.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	3.8	5.1
80°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	3.8	5.1
82.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	3.8	5.1
85°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	3.8	5.1
87.5°	0.0	0.0	0.0	1.3	1.3	1.3	1.3	1.3	2.6	3.8	5.1
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°	215.6	215.6	215.6	215.6
2.5°	180.9	160.4	142.4	138.6
5°	148.9	118.1	98.8	95.0
7.5°	120.6	86.0	71.9	69.3
10°	98.8	69.3	56.5	53.9
12.5°	82.1	56.5	44.9	42.3
15°	70.6	50.0	41.1	41.1
17.5°	68.0	55.2	52.6	53.9
20°	88.5	100.1	119.3	120.6
22.5°	205.3	333.7	441.5	462.0
25°	369.6	404.2	394.0	411.9
27.5°	195.1	152.7	155.3	159.1
30°	84.7	93.7	98.8	103.9
32.5°	70.6	73.1	74.4	78.3
35°	46.2	46.2	44.9	46.2
37.5°	28.2	26.9	25.7	25.7
40°	18.0	16.7	15.4	15.4
42.5°	12.8	10.3	9.0	9.0
45°	9.0	6.4	5.1	3.8
47.5°	6.4	3.8	2.6	1.3
50°	5.1	3.8	1.3	0.0
52.5°	3.8	2.6	1.3	0.0
55°	3.8	2.6	0.0	0.0
57.5°	3.8	2.6	0.0	0.0
60°	3.8	2.6	0.0	0.0
62.5°	3.8	2.6	0.0	0.0
65°	3.8	2.6	1.3	0.0
67.5°	3.8	2.6	1.3	0.0
70°	3.8	2.6	1.3	0.0
72.5°	3.8	2.6	1.3	0.0
75°	3.8	3.8	1.3	0.0
77.5°	5.1	3.8	1.3	0.0
80°	5.1	3.8	1.3	0.0
82.5°	5.1	3.8	1.3	0.0
85°	5.1	3.8	1.3	1.3
87.5°	5.1	3.8	1.3	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)