

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: P174922

Luminaire Tested: **LDA4A28927D010TE LAR35FL 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P174922
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26217)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A28927D010TE LAR35FL 4LA1 30° Tilt
Description: PORTFOLIO 4" Adjustable Reflector, Self-flanged Trim Ring, 35° Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2036.4 lumens
Efficiency: N/A
Efficacy: 45.8 lumens/watt
Spacing Criteria (0/90/45): 2.3 / 0.86 / 1.17
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

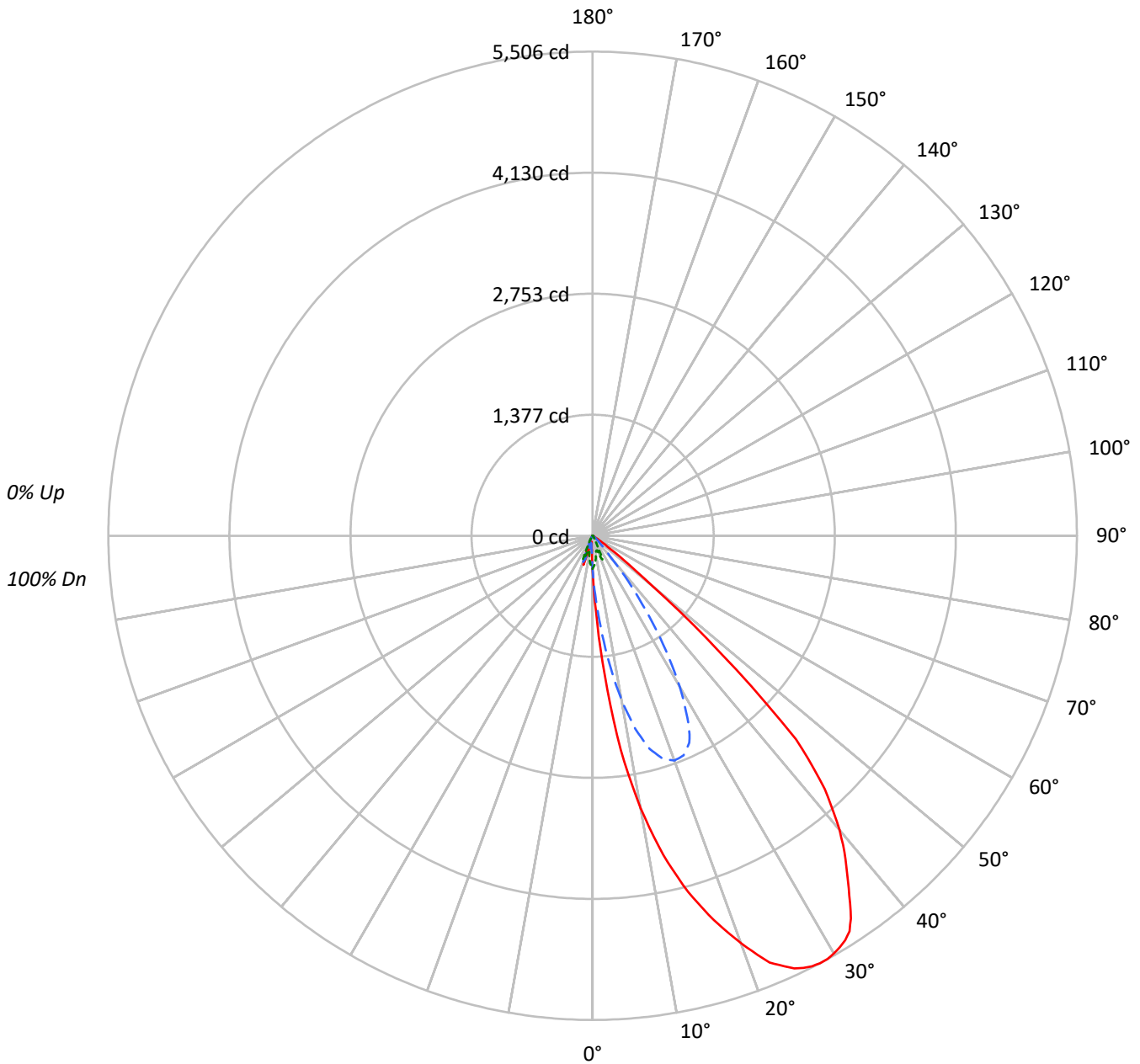
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92																			
2	106	101	96	92	104	99	95	91	96	92	89	92	90	87	90	87	85	84																			
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76																			
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69																			
5	88	78	71	66	86	77	71	66	75	70	65	73	68	65	72	67	64	62																			
6	82	72	65	60	81	71	64	60	69	64	59	68	63	59	66	62	58	57																			
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52																			
8	72	61	54	50	71	61	54	49	59	54	49	58	53	49	57	52	49	47																			
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43																			
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	46637	46637	46637
5°	195903	39015	14400
10°	393543	26841	8742
15°	535305	21785	19678
20°	646963	33091	36517
25°	738870	19666	10153
30°	781256	9258	4700
35°	768441	4081	1747
40°	703239	2029	467
45°	570409	1012	0
50°	169095	556	0
55°	30644	624	0
60°	5748	715	0
65°	1401	846	0
70°	361	1046	0
75°	0	1382	0
80°	0	2770	0
85°	0	5519	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.7	3.4
10°-20°	355.7	17.5
20°-30°	622.9	30.6
30°-40°	625.5	30.7
40°-50°	329.5	16.2
50°-60°	27.5	1.3
60°-70°	2.8	0.1
70°-80°	2.0	0.1
80°-90°	1.8	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°	1047.3	51.4
0°-40°	1672.8	82.1
0°-60°	2029.8	99.7
0°-90°	2036.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2036.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	378	378	378	378	378	
5°	1582	1034	315	144	116	203
15°	4192	2509	171	114	154	1197
25°	5429	2598	144	82	75	2484
35°	5103	1128	27	14	12	3156
45°	3270	116	6	2	0	2241
55°	142	13	3	1	0	214
65°	5	2	3	2	0	7
75°	0	2	3	2	0	0
85°	0	2	4	2	0	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
0°	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1	378.1
2.5°	858.0	859.0	859.9	866.7	851.2	847.3	840.5	830.8	798.8	667.0	503.2
5°	1582.2	1593.8	1590.9	1581.2	1557.0	1543.4	1523.0	1501.7	1414.5	1034.4	624.3
7.5°	2458.6	2480.9	2476.0	2461.5	2420.8	2402.3	2351.0	2322.9	2191.0	1468.7	714.5
10°	3142.1	3201.2	3202.2	3188.6	3127.5	3101.3	3048.0	2997.6	2830.9	1894.3	756.2
12.5°	3719.9	3720.8	3766.4	3755.7	3685.0	3673.3	3628.7	3553.1	3377.6	2249.2	756.2
15°	4192.0	4256.0	4245.3	4233.7	4159.0	4143.5	4100.9	4031.1	3826.5	2509.0	719.3
17.5°	4581.7	4638.9	4622.4	4609.8	4535.2	4501.3	4454.7	4371.3	4146.4	2663.1	642.8
20°	4928.8	4983.1	4950.1	4927.8	4828.0	4786.3	4718.4	4622.4	4365.5	2720.3	553.6
22.5°	5252.6	5309.8	5268.1	5237.1	5108.1	5027.7	4931.7	4810.5	4508.0	2701.9	506.1
25°	5429.0	5503.7	5463.9	5439.7	5316.6	5222.5	5095.5	4939.5	4589.5	2598.2	381.0
26°	5467.8	5546.3	5508.5	5487.2	5362.1	5262.3	5126.6	4962.7	4596.3	2512.9	293.7
27°	5495.0	5582.2	5538.6	5511.4	5382.5	5275.9	5134.3	4963.7	4585.6	2397.5	233.6
28°	5505.6	5601.6	5548.3	5515.3	5381.5	5265.2	5114.9	4942.4	4557.5	2264.7	198.7
29°	5504.7	5609.4	5547.3	5511.4	5368.9	5240.0	5085.8	4912.3	4518.7	2126.0	179.4
30°	5485.3	5599.7	5537.6	5492.1	5338.9	5200.2	5044.2	4870.6	4475.1	1974.8	160.0
31°	5459.1	5576.4	5511.4	5455.2	5289.4	5139.2	4986.0	4814.4	4416.9	1812.9	146.4
32°	5421.3	5538.6	5466.8	5393.2	5219.6	5062.6	4915.2	4748.5	4346.1	1642.3	129.9
33°	5361.2	5464.9	5381.5	5296.2	5122.7	4975.3	4835.7	4671.9	4265.7	1464.9	112.5
34°	5251.6	5342.8	5256.5	5170.2	5015.1	4878.4	4744.6	4581.7	4171.6	1301.0	96.9
35°	5103.3	5180.9	5103.3	5030.6	4893.9	4766.9	4638.9	4479.9	4058.2	1128.5	83.4
36°	4952.1	5019.9	4948.2	4891.0	4760.1	4646.7	4527.4	4362.6	3930.2	964.6	73.7
37°	4810.5	4871.6	4805.7	4748.5	4636.0	4520.6	4402.4	4233.7	3788.7	807.6	61.1
38°	4669.9	4724.2	4668.0	4604.0	4500.3	4383.0	4263.7	4091.2	3630.7	659.2	52.4
39°	4523.6	4568.1	4513.9	4448.9	4343.2	4226.9	4104.7	3926.4	3449.4	505.1	45.6
40°	4367.5	4409.2	4342.3	4284.1	4178.4	4059.2	3934.1	3748.9	3252.6	338.3	38.8
42.5°	3906.0	3931.2	3875.0	3794.5	3688.8	3558.0	3406.7	3199.3	2623.4	178.4	27.1
45°	3270.0	3274.9	3231.2	3084.9	2943.3	2740.7	2514.8	2203.6	1525.0	116.3	17.5
47.5°	1973.8	1962.2	1893.4	1768.3	1636.5	1422.2	1210.9	996.6	592.3	67.9	11.6
50°	881.2	867.7	833.7	768.8	692.2	612.7	518.7	439.2	287.9	36.8	7.8
51°	638.9	627.2	602.0	552.6	496.4	440.1	375.2	320.9	215.2	30.1	6.8
52°	448.9	442.1	424.6	389.7	358.7	315.1	270.5	236.6	161.9	24.2	4.8
53°	313.1	308.3	297.6	274.4	255.9	223.9	195.8	168.7	117.3	19.4	4.8
54°	212.3	209.4	202.6	187.1	171.6	154.1	133.8	118.3	82.4	15.5	3.9
55°	142.5	140.6	134.8	127.0	118.3	107.6	94.0	82.4	58.2	12.6	2.9
57.5°	52.4	52.4	50.4	47.5	44.6	41.7	37.8	33.9	27.1	7.8	2.9
60°	23.3	22.3	22.3	21.3	20.4	19.4	18.4	16.5	13.6	4.8	2.9
61°	17.5	17.5	16.5	15.5	15.5	14.5	13.6	12.6	10.7	3.9	2.9
62°	12.6	12.6	12.6	11.6	11.6	10.7	10.7	9.7	7.8	2.9	2.9
63°	9.7	9.7	9.7	8.7	8.7	8.7	7.8	7.8	5.8	2.9	2.9
64°	6.8	6.8	6.8	6.8	6.8	6.8	5.8	5.8	4.8	1.9	2.9
65°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	3.9	1.9	2.9
66°	3.9	3.9	3.9	3.9	3.9	3.9	2.9	2.9	2.9	1.9	2.9



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CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9
75°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.9	2.9
77.5°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	2.9
80°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.9	2.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.9	2.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.9	2.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.9	2.9
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):

	90°	112.5°	135°	157.5°	180°
0°	378.1	378.1	378.1	378.1	378.1
2.5°	348.0	243.3	193.9	175.5	169.7
5°	315.1	182.3	144.5	124.1	116.3
7.5°	264.7	150.3	108.6	90.2	84.3
10°	214.3	124.1	88.2	73.7	69.8
12.5°	183.2	107.6	82.4	76.6	76.6
15°	170.6	113.4	114.4	137.7	154.1
17.5°	175.5	177.4	277.3	337.4	348.0
20°	252.1	319.0	316.0	287.0	278.2
22.5°	291.8	210.4	159.0	130.9	126.0
25°	144.5	96.0	82.4	75.6	74.6
26°	109.6	80.5	71.7	67.9	65.9
27°	91.1	70.8	64.0	59.1	57.2
28°	81.4	63.0	55.3	50.4	48.5
29°	73.7	54.3	46.5	41.7	40.7
30°	65.0	45.6	38.8	33.9	33.0
31°	55.3	37.8	31.0	28.1	26.2
32°	46.5	31.0	25.2	22.3	20.4
33°	38.8	25.2	21.3	18.4	16.5
34°	33.0	21.3	17.5	14.5	13.6
35°	27.1	17.5	14.5	12.6	11.6
36°	23.3	15.5	11.6	9.7	8.7
37°	20.4	12.6	9.7	7.8	7.8
38°	17.5	10.7	8.7	5.8	5.8
39°	14.5	8.7	6.8	4.8	4.8
40°	12.6	7.8	5.8	3.9	2.9
42.5°	8.7	4.8	3.9	1.9	1.0
45°	5.8	3.9	1.9	1.0	0.0
47.5°	3.9	2.9	1.9	1.0	0.0
50°	2.9	2.9	1.9	0.0	0.0
51°	2.9	1.9	1.9	0.0	0.0
52°	2.9	1.9	1.0	0.0	0.0
53°	2.9	1.9	1.0	0.0	0.0
54°	2.9	1.9	1.0	0.0	0.0
55°	2.9	1.9	1.0	0.0	0.0
57.5°	2.9	1.9	1.0	0.0	0.0
60°	2.9	1.9	1.9	0.0	0.0
61°	2.9	2.9	1.9	0.0	0.0
62°	2.9	2.9	1.9	0.0	0.0
63°	2.9	2.9	1.9	0.0	0.0
64°	2.9	2.9	1.9	1.0	0.0
65°	2.9	2.9	1.9	1.0	0.0
66°	2.9	2.9	1.9	1.0	0.0



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CANDELA DISTRIBUTION (continued):

	90°	112.5°	135°	157.5°	180°
72.5°	2.9	2.9	1.9	1.0	0.0
75°	2.9	2.9	1.9	1.0	0.0
77.5°	3.9	2.9	1.9	1.0	0.0
80°	3.9	2.9	1.9	1.0	0.0
82.5°	3.9	2.9	1.9	1.0	0.0
85°	3.9	2.9	1.9	1.0	0.0
87.5°	3.9	2.9	1.9	1.0	0.0
90°	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°







67.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.9	2.9





67.5°	2.9	2.9	1.9	1.0	0.0
70°	2.9	2.9	1.9	1.0	0.0



(END OF REPORT)