

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: P170771

Luminaire Tested: **LDA4A28935D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170771
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: LDA4A28935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2339.8 lumens
Efficiency: N/A
Efficacy: 52.6 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

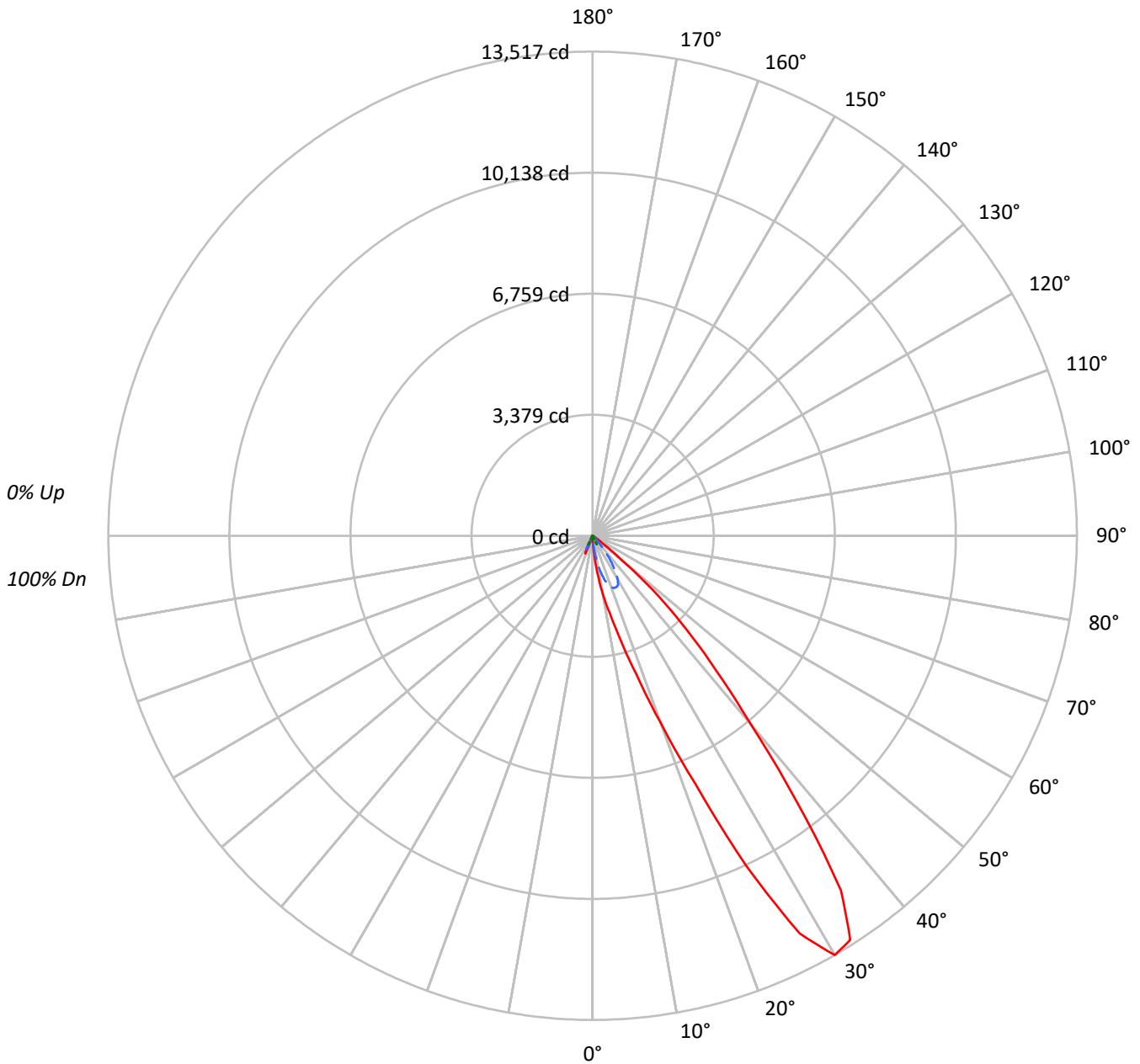
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					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°	13617	13617	13617
5°	71814	12865	6835
10°	210054	10934	4496
15°	382120	9181	5082
20°	728975	10448	24756
25°	1385398	36324	54656
30°	1925204	12249	10597
35°	1819349	5601	4051
40°	1102688	2480	1449
45°	646220	1343	454
50°	214477	979	0
55°	40837	817	0
60°	9177	641	0
65°	2627	1109	0
70°	938	1370	0
75°	0	1811	0
80°	0	2699	0
85°	0	5378	1840



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.3	1.1
10°-20°	215.3	9.2
20°-30°	763.4	32.6
30°-40°	905.2	38.7
40°-50°	385.1	16.5
50°-60°	34.8	1.5
60°-70°	4.3	0.2
70°-80°	2.9	0.1
80°-90°	2.6	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°	1005.1	43.0
0°-40°	1910.2	81.6
0°-60°	2330.1	99.6
0°-90°	2339.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2339.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	110	110	110	110	110	
5°	580	286	104	65	55	90
15°	2992	1260	72	40	40	965
25°	10180	1580	267	420	402	4716
35°	12082	933	37	28	27	6979
45°	3705	103	8	5	3	2904
55°	190	15	4	3	0	266
65°	9	4	4	3	0	13
75°	0	3	4	4	0	1
85°	0	3	4	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°	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4
2.5°	202.7	191.2	198.9	196.3	197.6	201.5	197.6	197.6	196.3	191.2	191.2
5°	580.0	545.4	562.0	553.1	558.2	564.6	555.6	553.1	549.2	537.7	535.1
7.5°	1080.4	1061.2	1081.7	1066.3	1080.4	1083.0	1070.2	1067.6	1061.2	1044.5	1038.1
10°	1677.1	1645.0	1664.3	1647.6	1669.4	1668.1	1647.6	1650.2	1642.5	1620.7	1610.4
12.5°	2205.8	2180.1	2199.4	2151.9	2205.8	2171.1	2175.0	2180.1	2169.9	2141.6	2128.8
15°	2992.4	2921.8	2955.2	2873.0	2955.2	2943.6	2898.7	2896.1	2869.2	2821.7	2793.5
17.5°	4036.9	4056.1	4031.8	3983.0	4092.1	4062.6	3998.4	3985.6	3934.2	3804.6	3802.1
20°	5553.6	5528.0	5569.0	5415.0	5554.9	5418.9	5400.9	5365.0	5277.7	5096.8	5068.6
22.5°	7495.1	7509.2	7436.0	7329.5	7501.5	7291.0	7226.9	7140.9	6981.8	6703.4	6616.1
25°	10179.5	10161.5	10066.6	9889.5	10073.0	9732.9	9572.5	9395.5	9099.1	8665.3	8456.2
27.5°	12518.7	12591.9	12529.0	12349.4	12471.3	12136.3	11766.8	11653.9	11252.2	10705.6	10328.3
30°	13517.1	13551.7	13524.8	13387.5	13431.1	13155.2	12789.5	12656.0	12244.1	11727.0	11238.1
32.5°	13379.8	13396.4	13401.6	13218.1	13225.8	12965.3	12582.9	12385.3	11936.2	11438.3	10854.4
35°	12082.5	12151.7	12196.7	12024.7	11854.0	11594.8	11161.1	10854.4	10382.2	9928.0	9331.3
37.5°	9357.0	9444.2	9513.5	9367.2	9286.4	8973.3	8612.7	8375.3	8049.4	7782.5	7359.1
40°	6848.3	6865.0	6907.4	6831.7	6705.9	6622.5	6415.9	6281.2	6083.6	5939.9	5658.8
42.5°	5090.4	5081.4	5110.9	5068.6	5064.7	4939.0	4808.1	4728.5	4660.5	4509.1	4311.5
45°	3704.6	3707.1	3735.3	3708.4	3636.5	3609.6	3523.6	3451.8	3361.9	3314.5	3157.9
47.5°	2518.9	2526.6	2545.8	2530.4	2465.0	2454.7	2399.6	2327.7	2326.4	2253.3	2116.0
50°	1117.7	1120.2	1143.3	1138.2	1059.9	1070.2	1034.2	968.8	986.8	943.1	837.9
52.5°	370.8	372.1	376.0	373.4	360.6	360.6	351.6	350.3	340.0	329.8	306.7
55°	189.9	189.9	192.5	191.2	184.8	184.8	174.5	180.9	175.8	171.9	157.8
57.5°	80.8	80.8	82.1	82.1	78.3	82.1	78.3	78.3	75.7	74.4	69.3
60°	37.2	37.2	37.2	37.2	35.9	38.5	35.9	35.9	35.9	34.6	32.1
62.5°	19.2	19.2	19.2	19.2	19.2	19.2	19.2	18.0	18.0	18.0	16.7
65°	9.0	9.0	9.0	9.0	9.0	10.3	9.0	9.0	9.0	9.0	9.0
67.5°	3.8	3.8	3.8	5.1	5.1	5.1	5.1	5.1	3.8	3.8	3.8
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.3
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°	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4	110.4
2.5°	192.5	186.1	195.0	187.3	192.5	187.3	180.9	183.5	147.6	123.2	109.1
5°	536.4	517.1	533.8	517.1	518.4	509.4	485.0	482.5	286.1	139.9	103.9
7.5°	1009.9	1007.3	1027.8	1006.0	1003.4	981.6	936.7	918.8	518.4	164.2	96.2
10°	1604.0	1566.8	1584.7	1561.6	1553.9	1514.2	1450.0	1415.4	771.2	188.6	87.3
12.5°	2092.9	2078.8	2091.6	2069.8	2062.1	2008.2	1932.5	1886.3	1030.4	202.7	78.3
15°	2731.9	2703.7	2712.6	2667.7	2644.6	2542.0	2412.4	2327.7	1260.1	201.5	71.9
17.5°	3707.1	3651.9	3646.8	3569.8	3513.4	3327.3	3095.0	2920.5	1428.2	186.1	69.3
20°	4928.7	4828.6	4795.3	4673.4	4578.4	4270.4	3912.4	3628.8	1533.4	165.5	79.6
22.5°	6392.8	6217.0	6118.2	5923.2	5760.2	5266.2	4741.4	4316.6	1579.6	159.1	114.2
25°	8099.5	7797.9	7588.7	7282.1	7007.5	6249.1	5512.6	4917.2	1579.6	206.6	266.9
27.5°	9830.5	9354.4	8969.5	8521.6	8104.6	7029.3	6079.7	5304.7	1541.1	257.9	243.8
30°	10706.9	10121.8	9598.2	9074.7	8551.1	7259.0	6206.8	5352.2	1396.1	151.4	86.0
32.5°	10334.8	9717.5	9138.8	8632.0	8114.9	6853.5	5862.9	5037.8	1172.8	88.5	55.2
35°	8907.9	8372.8	7869.8	7491.2	7088.3	6092.6	5205.9	4487.3	932.9	69.3	37.2
37.5°	7110.1	6745.7	6387.7	6145.2	5856.4	5108.4	4393.6	3804.6	667.3	50.0	23.1
40°	5515.1	5266.2	5016.0	4862.0	4658.0	4112.6	3555.7	3087.3	393.9	34.6	15.4
42.5°	4224.2	4052.3	3866.2	3759.7	3613.4	3206.7	2771.7	2440.6	182.2	24.4	11.5
45°	3105.3	2978.3	2835.8	2767.8	2665.2	2397.0	2108.3	1874.7	102.7	18.0	7.7
47.5°	2090.3	1977.4	1845.2	1802.9	1704.1	1469.2	1174.1	944.4	68.0	12.8	6.4
50°	831.5	757.1	712.2	653.1	595.4	499.2	373.4	297.7	41.1	10.3	5.1
52.5°	305.4	288.7	281.0	265.6	252.8	225.8	191.2	165.5	24.4	7.7	3.8
55°	159.1	148.8	143.7	138.6	130.9	115.5	96.2	82.1	15.4	5.1	3.8
57.5°	69.3	65.4	66.7	61.6	57.7	52.6	46.2	39.8	10.3	5.1	3.8
60°	33.4	30.8	32.1	29.5	28.2	26.9	24.4	20.5	6.4	3.8	2.6
62.5°	16.7	16.7	16.7	15.4	15.4	14.1	12.8	11.5	5.1	3.8	3.8
65°	9.0	7.7	9.0	7.7	7.7	7.7	6.4	6.4	3.8	3.8	3.8
67.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	2.6	3.8	3.8
70°	2.6	2.6	2.6	2.6	2.6	2.6	1.3	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	0.0	0.0	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	3.8
80°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	2.6	3.8	3.8
82.5°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	2.6	3.8	3.8
85°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	3.8	3.8
87.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.6	3.8	3.8
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°	110.4	110.4	110.4	110.4
2.5°	92.4	82.1	74.4	73.1
5°	78.3	65.4	56.5	55.2
7.5°	66.7	52.6	44.9	43.6
10°	59.0	44.9	37.2	35.9
12.5°	52.6	39.8	34.6	33.4
15°	48.8	39.8	38.5	39.8
17.5°	52.6	53.9	59.0	65.4
20°	87.3	124.5	161.7	188.6
22.5°	196.3	363.1	481.2	537.7
25°	370.8	419.6	420.9	401.6
27.5°	201.5	160.4	143.7	136.0
30°	79.6	75.7	75.7	74.4
32.5°	52.6	48.8	47.5	46.2
35°	32.1	28.2	26.9	26.9
37.5°	20.5	18.0	16.7	15.4
40°	14.1	11.5	10.3	9.0
42.5°	10.3	7.7	5.1	5.1
45°	7.7	5.1	2.6	2.6
47.5°	6.4	3.8	1.3	1.3
50°	5.1	2.6	1.3	0.0
52.5°	3.8	2.6	0.0	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°	5.1	2.6	1.3	0.0
70°	5.1	2.6	1.3	0.0
72.5°	5.1	2.6	1.3	0.0
75°	5.1	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)