

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: P170748

Luminaire Tested: **LDA4A18940D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170748
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: LDA4A18940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1604.5 lumens
Efficiency: N/A
Efficacy: 55.1 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

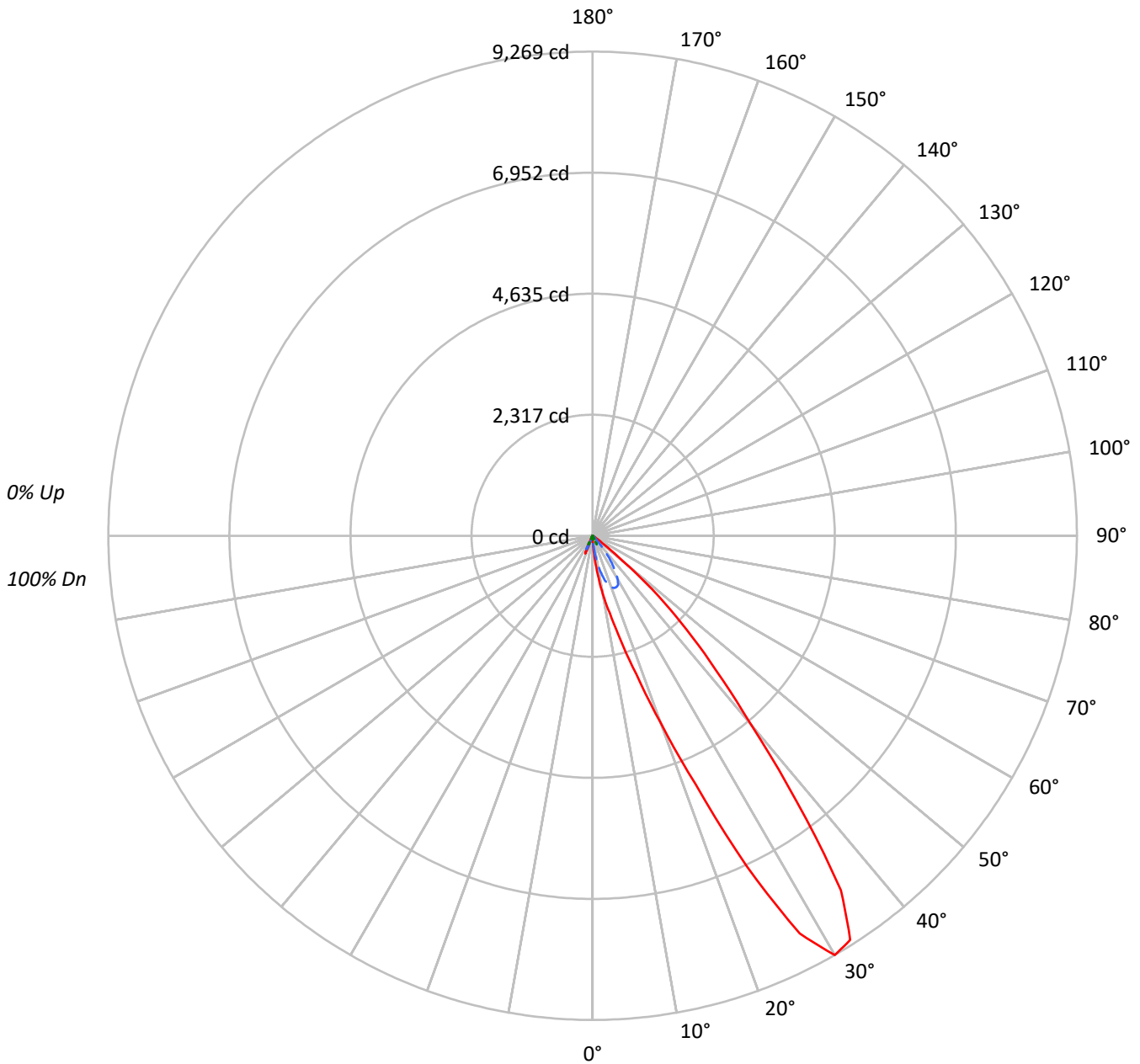
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	9337	9337	9337
5°	49242	8828	4680
10°	144036	7490	3081
15°	262021	6295	3486
20°	499871	7167	16972
25°	949983	24906	37481
30°	1320130	8403	7264
35°	1247547	3840	2786
40°	756132	1707	998
45°	443122	925	314
50°	147066	672	0
55°	27999	559	0
60°	6291	444	0
65°	1810	759	0
70°	649	938	0
75°	0	1239	0
80°	0	1847	0
85°	0	3680	1274



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	18.1	1.1
10°-20°	147.6	9.2
20°-30°	523.5	32.6
30°-40°	620.7	38.7
40°-50°	264.1	16.5
50°-60°	23.9	1.5
60°-70°	2.9	0.2
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°	689.2	43.0
0°-40°	1309.9	81.6
0°-60°	1597.8	99.6
0°-90°	1604.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1604.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	76	76	76	76	76	
5°	398	196	71	45	38	62
15°	2052	864	49	27	27	662
25°	6980	1083	183	288	275	3234
35°	8285	640	26	19	18	4786
45°	2540	70	5	4	2	1991
55°	130	11	3	2	0	182
65°	6	3	3	2	0	9
75°	0	2	3	3	0	0
85°	0	2	3	3	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°	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
2.5°	139.0	131.1	136.4	134.6	135.5	138.1	135.5	135.5	134.6	131.1	131.1
5°	397.7	374.0	385.4	379.2	382.8	387.2	381.0	379.2	376.6	368.7	366.9
7.5°	740.9	727.7	741.8	731.2	740.9	742.6	733.8	732.1	727.7	716.2	711.8
10°	1150.0	1128.0	1141.2	1129.8	1144.7	1143.9	1129.8	1131.5	1126.3	1111.3	1104.3
12.5°	1512.5	1494.9	1508.1	1475.6	1512.5	1488.8	1491.4	1494.9	1487.9	1468.5	1459.7
15°	2051.9	2003.5	2026.4	1970.1	2026.4	2018.5	1987.7	1985.9	1967.4	1934.9	1915.5
17.5°	2768.2	2781.3	2764.6	2731.2	2806.0	2785.7	2741.8	2733.0	2697.8	2608.9	2607.1
20°	3808.2	3790.6	3818.7	3713.2	3809.1	3715.8	3703.5	3678.8	3619.0	3494.9	3475.6
22.5°	5139.5	5149.1	5099.0	5026.0	5143.9	4999.6	4955.6	4896.6	4787.5	4596.6	4536.7
25°	6980.2	6967.9	6902.8	6781.4	6907.2	6674.0	6564.0	6442.6	6239.3	5941.9	5798.5
27.5°	8584.3	8634.4	8591.3	8468.1	8551.7	8322.1	8068.6	7991.2	7715.8	7341.0	7082.3
30°	9268.8	9292.6	9274.1	9179.9	9209.9	9020.7	8769.9	8678.4	8396.0	8041.4	7706.1
32.5°	9174.7	9186.1	9189.6	9063.8	9069.1	8890.5	8628.3	8492.8	8184.8	7843.4	7443.0
35°	8285.1	8332.6	8363.4	8245.5	8128.5	7950.7	7653.3	7443.0	7119.2	6807.8	6398.6
37.5°	6416.2	6476.0	6523.5	6423.2	6367.8	6153.1	5905.9	5743.1	5519.6	5336.6	5046.2
40°	4696.0	4707.4	4736.5	4684.6	4598.3	4541.1	4399.5	4307.1	4171.6	4073.0	3880.3
42.5°	3490.5	3484.4	3504.6	3475.6	3472.9	3386.7	3297.0	3242.4	3195.8	3092.0	2956.4
45°	2540.3	2542.0	2561.4	2542.9	2493.6	2475.1	2416.2	2366.9	2305.3	2272.8	2165.4
47.5°	1727.2	1732.5	1745.7	1735.2	1690.3	1683.2	1645.4	1596.1	1595.3	1545.1	1450.9
50°	766.4	768.1	784.0	780.5	726.8	733.8	709.2	664.3	676.6	646.7	574.6
52.5°	254.3	255.2	257.8	256.0	247.3	247.3	241.1	240.2	233.2	226.1	210.3
55°	130.2	130.2	132.0	131.1	126.7	126.7	119.7	124.1	120.5	117.9	108.2
57.5°	55.4	55.4	56.3	56.3	53.7	56.3	53.7	53.7	51.9	51.0	47.5
60°	25.5	25.5	25.5	25.5	24.6	26.4	24.6	24.6	24.6	23.8	22.0
62.5°	13.2	13.2	13.2	13.2	13.2	13.2	13.2	12.3	12.3	12.3	11.4
65°	6.2	6.2	6.2	6.2	6.2	7.0	6.2	6.2	6.2	6.2	6.2
67.5°	2.6	2.6	2.6	3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6
70°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
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°	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
2.5°	132.0	127.6	133.7	128.5	132.0	128.5	124.1	125.8	101.2	84.5	74.8
5°	367.8	354.6	366.0	354.6	355.5	349.3	332.6	330.8	196.2	95.9	71.3
7.5°	692.5	690.7	704.8	689.8	688.1	673.1	642.3	630.0	355.5	112.6	66.0
10°	1099.9	1074.4	1086.7	1070.8	1065.6	1038.3	994.3	970.5	528.8	129.3	59.8
12.5°	1435.1	1425.4	1434.2	1419.3	1414.0	1377.0	1325.1	1293.4	706.6	139.0	53.7
15°	1873.3	1853.9	1860.1	1829.3	1813.5	1743.1	1654.2	1596.1	864.1	138.1	49.3
17.5°	2542.0	2504.2	2500.7	2447.9	2409.2	2281.6	2122.3	2002.6	979.3	127.6	47.5
20°	3379.7	3311.0	3288.2	3204.6	3139.5	2928.3	2682.8	2488.3	1051.5	113.5	54.6
22.5°	4383.6	4263.1	4195.3	4061.6	3949.9	3611.1	3251.2	2960.0	1083.2	109.1	78.3
25°	5553.9	5347.1	5203.7	4993.4	4805.1	4285.1	3780.0	3371.8	1083.2	141.7	183.0
27.5°	6740.9	6414.4	6150.5	5843.4	5557.4	4820.1	4168.9	3637.5	1056.8	176.9	167.2
30°	7341.8	6940.6	6581.6	6222.6	5863.6	4977.6	4256.1	3670.0	957.3	103.8	59.0
32.5°	7086.7	6663.4	6266.6	5919.1	5564.5	4699.5	4020.2	3454.5	804.2	60.7	37.8
35°	6108.2	5741.3	5396.4	5136.8	4860.5	4177.7	3569.7	3077.0	639.7	47.5	25.5
37.5°	4875.5	4625.6	4380.1	4213.8	4015.8	3502.9	3012.8	2608.9	457.5	34.3	15.8
40°	3781.8	3611.1	3439.5	3333.9	3194.0	2820.1	2438.2	2117.0	270.1	23.8	10.6
42.5°	2896.6	2778.7	2651.1	2578.1	2477.8	2198.9	1900.6	1673.6	124.9	16.7	7.9
45°	2129.3	2042.2	1944.6	1897.9	1827.5	1643.6	1445.7	1285.5	70.4	12.3	5.3
47.5°	1433.3	1355.9	1265.3	1236.3	1168.5	1007.5	805.1	647.6	46.6	8.8	4.4
50°	570.2	519.1	488.3	447.9	408.3	342.3	256.0	204.1	28.2	7.0	3.5
52.5°	209.4	198.0	192.7	182.1	173.3	154.9	131.1	113.5	16.7	5.3	2.6
55°	109.1	102.1	98.5	95.0	89.7	79.2	66.0	56.3	10.6	3.5	2.6
57.5°	47.5	44.9	45.8	42.2	39.6	36.1	31.7	27.3	7.0	3.5	2.6
60°	22.9	21.1	22.0	20.2	19.4	18.5	16.7	14.1	4.4	2.6	1.8
62.5°	11.4	11.4	11.4	10.6	10.6	9.7	8.8	7.9	3.5	2.6	2.6
65°	6.2	5.3	6.2	5.3	5.3	5.3	4.4	4.4	2.6	2.6	2.6
67.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	1.8	2.6	2.6
70°	1.8	1.8	1.8	1.8	1.8	1.8	0.9	1.8	1.8	2.6	2.6
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8	2.6	2.6
75°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.6	2.6
77.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.6	2.6
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.6	2.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	1.8	2.6	2.6
85°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.6	2.6
87.5°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	2.6	2.6
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°	75.7	75.7	75.7	75.7
2.5°	63.4	56.3	51.0	50.2
5°	53.7	44.9	38.7	37.8
7.5°	45.8	36.1	30.8	29.9
10°	40.5	30.8	25.5	24.6
12.5°	36.1	27.3	23.8	22.9
15°	33.4	27.3	26.4	27.3
17.5°	36.1	37.0	40.5	44.9
20°	59.8	85.3	110.9	129.3
22.5°	134.6	249.0	330.0	368.7
25°	254.3	287.7	288.6	275.4
27.5°	138.1	110.0	98.5	93.3
30°	54.6	51.9	51.9	51.0
32.5°	36.1	33.4	32.6	31.7
35°	22.0	19.4	18.5	18.5
37.5°	14.1	12.3	11.4	10.6
40°	9.7	7.9	7.0	6.2
42.5°	7.0	5.3	3.5	3.5
45°	5.3	3.5	1.8	1.8
47.5°	4.4	2.6	0.9	0.9
50°	3.5	1.8	0.9	0.0
52.5°	2.6	1.8	0.0	0.0
55°	2.6	1.8	0.0	0.0
57.5°	2.6	1.8	0.0	0.0
60°	2.6	1.8	0.0	0.0
62.5°	2.6	1.8	0.0	0.0
65°	2.6	1.8	0.9	0.0
67.5°	3.5	1.8	0.9	0.0
70°	3.5	1.8	0.9	0.0
72.5°	3.5	1.8	0.9	0.0
75°	3.5	2.6	0.9	0.0
77.5°	3.5	2.6	0.9	0.0
80°	3.5	2.6	0.9	0.0
82.5°	3.5	2.6	0.9	0.0
85°	3.5	2.6	0.9	0.9
87.5°	3.5	2.6	0.9	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)