

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: P170756

Luminaire Tested: **LDA4A09940D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170756
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: LDA4A09940D010TE 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: 872.6 lumens
Efficiency: N/A
Efficacy: 63.1 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

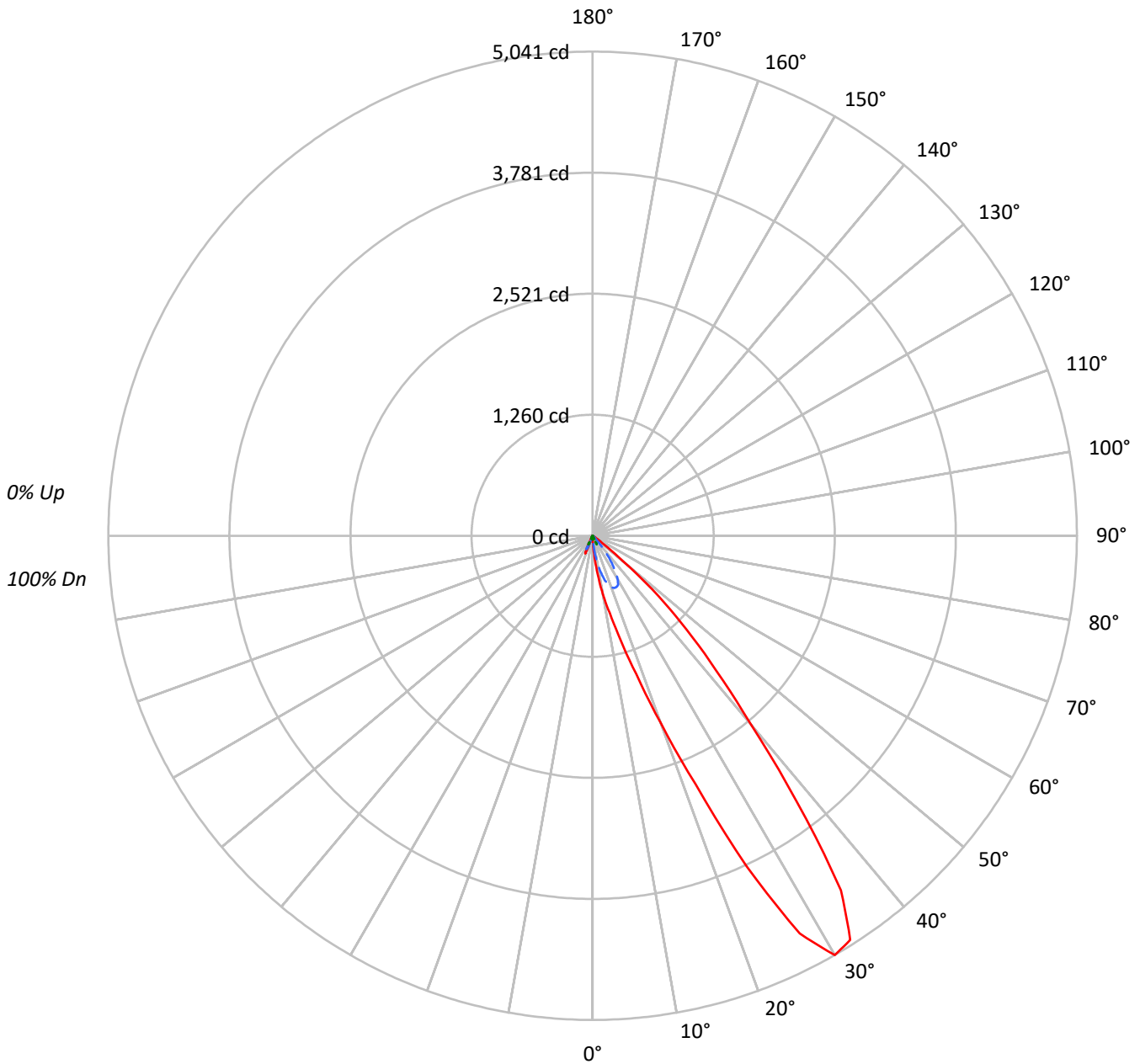
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	5082	5082	5082
5°	26782	4804	2551
10°	78343	4071	1678
15°	142510	3422	1890
20°	271869	3898	9228
25°	516678	13542	20387
30°	717990	4572	3959
35°	678516	2093	1506
40°	411252	918	531
45°	241002	506	174
50°	79980	365	0
55°	15225	301	0
60°	3429	247	0
65°	963	409	0
70°	361	505	0
75°	0	667	0
80°	0	994	0
85°	0	1981	708



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	9.8	1.1
10°-20°	80.3	9.2
20°-30°	284.7	32.6
30°-40°	337.6	38.7
40°-50°	143.6	16.5
50°-60°	13.0	1.5
60°-70°	1.6	0.2
70°-80°	1.1	0.1
80°-90°	1.0	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°	374.8	43.0
0°-40°	712.4	81.6
0°-60°	869.0	99.6
0°-90°	872.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	872.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	41	41	41	41	41	
5°	216	107	39	24	21	34
15°	1116	470	27	15	15	360
25°	3796	589	100	156	150	1759
35°	4506	348	14	10	10	2603
45°	1382	38	3	2	1	1083
55°	71	6	1	1	0	99
65°	3	1	1	1	0	5
75°	0	1	1	1	0	0
85°	0	1	1	1	0	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°	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2
2.5°	75.6	71.3	74.2	73.2	73.7	75.1	73.7	73.7	73.2	71.3	71.3
5°	216.3	203.4	209.6	206.3	208.2	210.6	207.2	206.3	204.8	200.5	199.6
7.5°	402.9	395.8	403.4	397.7	402.9	403.9	399.1	398.2	395.8	389.5	387.2
10°	625.5	613.5	620.7	614.5	622.6	622.1	614.5	615.4	612.6	604.4	600.6
12.5°	822.6	813.1	820.2	802.5	822.6	809.7	811.2	813.1	809.2	798.7	793.9
15°	1116.0	1089.7	1102.1	1071.5	1102.1	1097.8	1081.1	1080.1	1070.1	1052.3	1041.8
17.5°	1505.5	1512.7	1503.6	1485.4	1526.1	1515.1	1491.2	1486.4	1467.3	1418.9	1418.0
20°	2071.2	2061.6	2076.9	2019.5	2071.7	2020.9	2014.2	2000.8	1968.3	1900.8	1890.3
22.5°	2795.3	2800.5	2773.2	2733.5	2797.6	2719.2	2695.2	2663.2	2603.8	2500.0	2467.4
25°	3796.4	3789.7	3754.3	3688.2	3756.7	3629.9	3570.0	3504.0	3393.5	3231.7	3153.7
27.5°	4668.8	4696.1	4672.6	4605.6	4651.1	4526.2	4388.4	4346.3	4196.5	3992.6	3851.9
30°	5041.1	5054.0	5044.0	4992.8	5009.1	4906.2	4769.8	4720.0	4566.4	4373.5	4191.2
32.5°	4989.9	4996.1	4998.1	4929.6	4932.5	4835.3	4692.7	4619.0	4451.5	4265.9	4048.1
35°	4506.1	4531.9	4548.7	4484.6	4420.9	4324.2	4162.5	4048.1	3872.0	3702.6	3480.1
37.5°	3489.6	3522.2	3548.0	3493.5	3463.3	3346.6	3212.1	3123.5	3002.0	2902.5	2744.5
40°	2554.1	2560.3	2576.1	2547.8	2500.9	2469.8	2392.8	2342.5	2268.8	2215.2	2110.4
42.5°	1898.4	1895.1	1906.1	1890.3	1888.9	1842.0	1793.2	1763.5	1738.1	1681.7	1608.0
45°	1381.6	1382.6	1393.1	1383.0	1356.2	1346.2	1314.1	1287.3	1253.8	1236.1	1177.7
47.5°	939.4	942.3	949.5	943.7	919.3	915.5	894.9	868.1	867.6	840.3	789.1
50°	416.8	417.8	426.4	424.5	395.3	399.1	385.7	361.3	368.0	351.7	312.5
52.5°	138.3	138.8	140.2	139.3	134.5	134.5	131.1	130.6	126.8	123.0	114.4
55°	70.8	70.8	71.8	71.3	68.9	68.9	65.1	67.5	65.6	64.1	58.9
57.5°	30.1	30.1	30.6	30.6	29.2	30.6	29.2	29.2	28.2	27.8	25.8
60°	13.9	13.9	13.9	13.9	13.4	14.4	13.4	13.4	13.4	12.9	12.0
62.5°	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.7	6.7	6.7	6.2
65°	3.3	3.3	3.3	3.3	3.3	3.8	3.3	3.3	3.3	3.3	3.3
67.5°	1.4	1.4	1.4	1.9	1.9	1.9	1.9	1.9	1.4	1.4	1.4
70°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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°	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2	41.2
2.5°	71.8	69.4	72.7	69.9	71.8	69.9	67.5	68.4	55.0	45.9	40.7
5°	200.0	192.9	199.1	192.9	193.3	190.0	180.9	179.9	106.7	52.2	38.8
7.5°	376.6	375.7	383.3	375.2	374.2	366.1	349.3	342.6	193.3	61.3	35.9
10°	598.2	584.3	591.0	582.4	579.5	564.7	540.8	527.8	287.6	70.3	32.5
12.5°	780.5	775.3	780.0	771.9	769.0	748.9	720.7	703.5	384.3	75.6	29.2
15°	1018.8	1008.3	1011.7	994.9	986.3	948.0	899.7	868.1	469.9	75.1	26.8
17.5°	1382.6	1362.0	1360.1	1331.3	1310.3	1240.9	1154.3	1089.2	532.6	69.4	25.8
20°	1838.1	1800.8	1788.4	1742.9	1707.5	1592.6	1459.1	1353.4	571.9	61.7	29.7
22.5°	2384.2	2318.6	2281.8	2209.0	2148.2	1964.0	1768.3	1609.9	589.1	59.3	42.6
25°	3020.7	2908.2	2830.2	2715.8	2613.4	2330.6	2055.9	1833.8	589.1	77.0	99.5
27.5°	3666.2	3488.7	3345.1	3178.1	3022.6	2621.5	2267.4	1978.4	574.7	96.2	90.9
30°	3993.1	3774.9	3579.6	3384.4	3189.1	2707.2	2314.8	1996.1	520.7	56.5	32.1
32.5°	3854.3	3624.1	3408.3	3219.3	3026.4	2556.0	2186.5	1878.8	437.4	33.0	20.6
35°	3322.1	3122.6	2935.0	2793.8	2643.6	2272.2	1941.5	1673.5	347.9	25.8	13.9
37.5°	2651.7	2515.8	2382.3	2291.8	2184.1	1905.1	1638.6	1418.9	248.8	18.7	8.6
40°	2056.8	1964.0	1870.7	1813.3	1737.2	1533.8	1326.1	1151.4	146.9	12.9	5.7
42.5°	1575.4	1511.3	1441.9	1402.2	1347.6	1195.9	1033.7	910.2	68.0	9.1	4.3
45°	1158.1	1110.7	1057.6	1032.2	994.0	893.9	786.3	699.2	38.3	6.7	2.9
47.5°	779.6	737.5	688.2	672.4	635.5	547.9	437.9	352.2	25.4	4.8	2.4
50°	310.1	282.3	265.6	243.6	222.1	186.2	139.3	111.0	15.3	3.8	1.9
52.5°	113.9	107.7	104.8	99.1	94.3	84.2	71.3	61.7	9.1	2.9	1.4
55°	59.3	55.5	53.6	51.7	48.8	43.1	35.9	30.6	5.7	1.9	1.4
57.5°	25.8	24.4	24.9	23.0	21.5	19.6	17.2	14.8	3.8	1.9	1.4
60°	12.4	11.5	12.0	11.0	10.5	10.0	9.1	7.7	2.4	1.4	1.0
62.5°	6.2	6.2	6.2	5.7	5.7	5.3	4.8	4.3	1.9	1.4	1.4
65°	3.3	2.9	3.3	2.9	2.9	2.9	2.4	2.4	1.4	1.4	1.4
67.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.4	1.4
70°	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	1.0	1.4	1.4
72.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.4	1.4
75°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.4	1.4
77.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.4
80°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.4	1.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	1.4	1.4
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.4
87.5°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	1.0	1.4	1.4
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°	41.2	41.2	41.2	41.2
2.5°	34.5	30.6	27.8	27.3
5°	29.2	24.4	21.1	20.6
7.5°	24.9	19.6	16.7	16.3
10°	22.0	16.7	13.9	13.4
12.5°	19.6	14.8	12.9	12.4
15°	18.2	14.8	14.4	14.8
17.5°	19.6	20.1	22.0	24.4
20°	32.5	46.4	60.3	70.3
22.5°	73.2	135.4	179.5	200.5
25°	138.3	156.5	157.0	149.8
27.5°	75.1	59.8	53.6	50.7
30°	29.7	28.2	28.2	27.8
32.5°	19.6	18.2	17.7	17.2
35°	12.0	10.5	10.0	10.0
37.5°	7.7	6.7	6.2	5.7
40°	5.3	4.3	3.8	3.3
42.5°	3.8	2.9	1.9	1.9
45°	2.9	1.9	1.0	1.0
47.5°	2.4	1.4	0.5	0.5
50°	1.9	1.0	0.5	0.0
52.5°	1.4	1.0	0.0	0.0
55°	1.4	1.0	0.0	0.0
57.5°	1.4	1.0	0.0	0.0
60°	1.4	1.0	0.0	0.0
62.5°	1.4	1.0	0.0	0.0
65°	1.4	1.0	0.5	0.0
67.5°	1.9	1.0	0.5	0.0
70°	1.9	1.0	0.5	0.0
72.5°	1.9	1.0	0.5	0.0
75°	1.9	1.4	0.5	0.0
77.5°	1.9	1.4	0.5	0.0
80°	1.9	1.4	0.5	0.0
82.5°	1.9	1.4	0.5	0.0
85°	1.9	1.4	0.5	0.5
87.5°	1.9	1.4	0.5	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)