

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: P170753

Luminaire Tested: **LDA4A09927D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170753
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: LDA4A09927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 699.7 lumens
Efficiency: N/A
Efficacy: 50.6 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

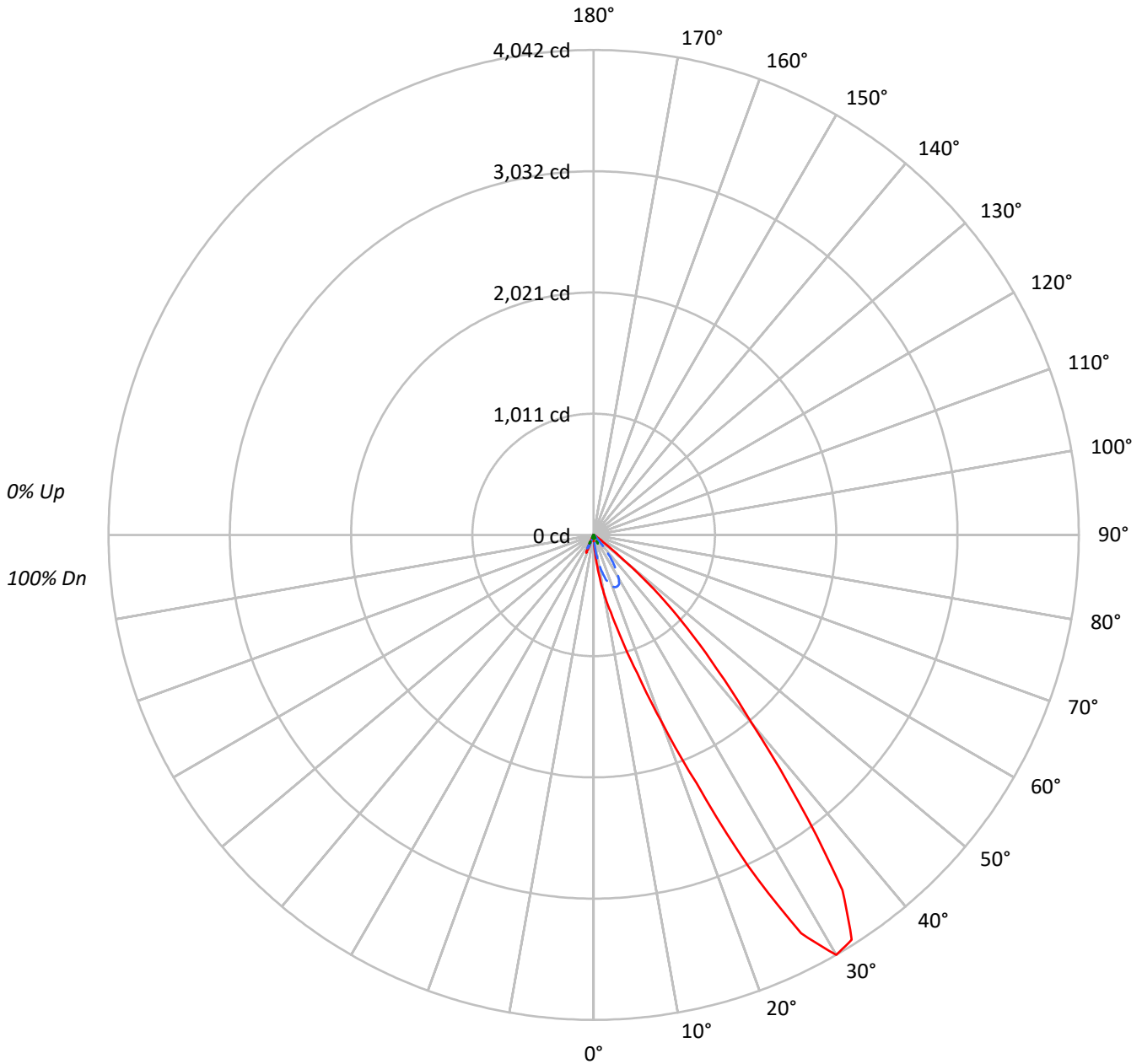
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	36	35																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4070	4070	4070
5°	21470	3851	2043
10°	62812	3269	1340
15°	114263	2745	1520
20°	217973	3124	7403
25°	414252	10861	16345
30°	575663	3660	3176
35°	544005	1671	1220
40°	329713	741	435
45°	193224	401	140
50°	64130	288	0
55°	12215	258	0
60°	2738	197	0
65°	788	350	0
70°	289	433	0
75°	0	572	0
80°	0	852	0
85°	0	1698	566



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	7.9	1.1
10°-20°	64.4	9.2
20°-30°	228.3	32.6
30°-40°	270.7	38.7
40°-50°	115.1	16.5
50°-60°	10.4	1.5
60°-70°	1.3	0.2
70°-80°	0.9	0.1
80°-90°	0.8	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°	300.5	42.9
0°-40°	571.2	81.6
0°-60°	696.8	99.6
0°-90°	699.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	699.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	33	33	33	33	33	
5°	173	86	31	20	16	27
15°	895	377	22	12	12	289
25°	3044	472	80	126	120	1410
35°	3613	279	11	8	8	2087
45°	1108	31	2	2	1	868
55°	57	5	1	1	0	79
65°	3	1	1	1	0	4
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°	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
2.5°	60.6	57.2	59.5	58.7	59.1	60.2	59.1	59.1	58.7	57.2	57.2
5°	173.4	163.1	168.1	165.4	166.9	168.8	166.1	165.4	164.2	160.8	160.0
7.5°	323.1	317.3	323.4	318.8	323.1	323.8	320.0	319.2	317.3	312.3	310.4
10°	501.5	491.9	497.6	492.7	499.2	498.8	492.7	493.4	491.1	484.6	481.5
12.5°	659.6	651.9	657.6	643.4	659.6	649.2	650.3	651.9	648.8	640.4	636.5
15°	894.8	873.7	883.6	859.1	883.6	880.2	866.7	866.0	857.9	843.7	835.3
17.5°	1207.1	1212.8	1205.5	1191.0	1223.6	1214.8	1195.6	1191.7	1176.4	1137.6	1136.9
20°	1660.6	1652.9	1665.2	1619.2	1661.0	1620.3	1614.9	1604.2	1578.1	1524.0	1515.6
22.5°	2241.1	2245.3	2223.5	2191.6	2243.0	2180.1	2160.9	2135.2	2087.6	2004.4	1978.3
25°	3043.8	3038.4	3010.0	2957.1	3011.9	2910.3	2862.3	2809.4	2720.7	2591.0	2528.5
27.5°	3743.2	3765.1	3746.3	3692.6	3729.1	3628.9	3518.4	3484.6	3364.6	3201.1	3088.3
30°	4041.8	4052.1	4044.1	4003.0	4016.1	3933.6	3824.2	3784.3	3661.1	3506.5	3360.3
32.5°	4000.7	4005.7	4007.2	3952.4	3954.7	3876.8	3762.4	3703.3	3569.1	3420.2	3245.6
35°	3612.8	3633.5	3646.9	3595.5	3544.5	3467.0	3337.3	3245.6	3104.4	2968.6	2790.2
37.5°	2797.8	2823.9	2844.7	2800.9	2776.7	2683.1	2575.3	2504.3	2406.9	2327.1	2200.4
40°	2047.7	2052.7	2065.4	2042.7	2005.1	1980.2	1918.4	1878.1	1819.1	1776.1	1692.1
42.5°	1522.1	1519.4	1528.2	1515.6	1514.4	1476.8	1437.7	1413.9	1393.6	1348.3	1289.2
45°	1107.7	1108.5	1116.9	1108.9	1087.4	1079.3	1053.6	1032.1	1005.3	991.1	944.3
47.5°	753.2	755.5	761.2	756.6	737.1	734.0	717.5	696.0	695.6	673.8	632.7
50°	334.2	335.0	341.9	340.3	316.9	320.0	309.3	289.7	295.1	282.0	250.5
52.5°	110.9	111.3	112.4	111.7	107.8	107.8	105.1	104.7	101.7	98.6	91.7
55°	56.8	56.8	57.6	57.2	55.3	55.3	52.2	54.1	52.6	51.4	47.2
57.5°	24.2	24.2	24.6	24.6	23.4	24.6	23.4	23.4	22.6	22.3	20.7
60°	11.1	11.1	11.1	11.1	10.7	11.5	10.7	10.7	10.7	10.4	9.6
62.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.4	5.4	5.4	5.0
65°	2.7	2.7	2.7	2.7	2.7	3.1	2.7	2.7	2.7	2.7	2.7
67.5°	1.2	1.2	1.2	1.5	1.5	1.5	1.5	1.5	1.2	1.2	1.2
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.4
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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°	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
2.5°	57.6	55.6	58.3	56.0	57.6	56.0	54.1	54.9	44.1	36.8	32.6
5°	160.4	154.6	159.6	154.6	155.0	152.3	145.0	144.3	85.6	41.8	31.1
7.5°	302.0	301.2	307.3	300.8	300.0	293.5	280.1	274.7	155.0	49.1	28.8
10°	479.6	468.5	473.9	466.9	464.6	452.8	433.6	423.2	230.6	56.4	26.1
12.5°	625.8	621.6	625.4	618.9	616.6	600.5	577.8	564.0	308.1	60.6	23.4
15°	816.9	808.4	811.1	797.7	790.8	760.1	721.3	696.0	376.8	60.2	21.5
17.5°	1108.5	1092.0	1090.4	1067.4	1050.5	994.9	925.5	873.3	427.0	55.6	20.7
20°	1473.7	1443.8	1433.8	1397.4	1369.0	1276.9	1169.9	1085.1	458.5	49.5	23.8
22.5°	1911.5	1859.0	1829.4	1771.1	1722.4	1574.7	1417.7	1290.7	472.3	47.6	34.1
25°	2421.8	2331.7	2269.1	2177.4	2095.3	1868.6	1648.3	1470.3	472.3	61.8	79.8
27.5°	2939.4	2797.1	2682.0	2548.1	2423.4	2101.8	1817.9	1586.2	460.8	77.1	72.9
30°	3201.5	3026.5	2870.0	2713.4	2556.9	2170.5	1855.9	1600.4	417.5	45.3	25.7
32.5°	3090.2	2905.7	2732.6	2581.1	2426.4	2049.3	1753.1	1506.4	350.7	26.5	16.5
35°	2663.6	2503.6	2353.2	2240.0	2119.5	1821.7	1556.6	1341.8	278.9	20.7	11.1
37.5°	2126.0	2017.0	1910.0	1837.5	1751.1	1527.5	1313.7	1137.6	199.5	15.0	6.9
40°	1649.1	1574.7	1499.8	1453.8	1392.8	1229.7	1063.2	923.2	117.8	10.4	4.6
42.5°	1263.1	1211.7	1156.0	1124.2	1080.5	958.8	828.8	729.8	54.5	7.3	3.5
45°	928.5	890.5	847.9	827.6	796.9	716.7	630.4	560.6	30.7	5.4	2.3
47.5°	625.0	591.3	551.7	539.1	509.5	439.3	351.1	282.4	20.3	3.8	1.9
50°	248.6	226.4	212.9	195.3	178.0	149.3	111.7	89.0	12.3	3.1	1.5
52.5°	91.3	86.3	84.0	79.4	75.6	67.5	57.2	49.5	7.3	2.3	1.2
55°	47.6	44.5	43.0	41.4	39.1	34.5	28.8	24.6	4.6	1.5	1.2
57.5°	20.7	19.6	20.0	18.4	17.3	15.7	13.8	11.9	3.1	1.5	1.2
60°	10.0	9.2	9.6	8.8	8.4	8.1	7.3	6.1	1.9	1.2	0.8
62.5°	5.0	5.0	5.0	4.6	4.6	4.2	3.8	3.5	1.5	1.2	1.2
65°	2.7	2.3	2.7	2.3	2.3	2.3	1.9	1.9	1.2	1.2	1.2
67.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.8	1.2	1.2
70°	0.8	0.8	0.8	0.8	0.8	0.8	0.4	0.8	0.8	1.2	1.2
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.2	1.2
75°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	1.2	1.2
77.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	1.2	1.2
80°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	1.2	1.2
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°	33.0	33.0	33.0	33.0
2.5°	27.6	24.6	22.3	21.9
5°	23.4	19.6	16.9	16.5
7.5°	20.0	15.7	13.4	13.0
10°	17.6	13.4	11.1	10.7
12.5°	15.7	11.9	10.4	10.0
15°	14.6	11.9	11.5	11.9
17.5°	15.7	16.1	17.6	19.6
20°	26.1	37.2	48.3	56.4
22.5°	58.7	108.6	143.9	160.8
25°	110.9	125.5	125.8	120.1
27.5°	60.2	48.0	43.0	40.7
30°	23.8	22.6	22.6	22.3
32.5°	15.7	14.6	14.2	13.8
35°	9.6	8.4	8.1	8.1
37.5°	6.1	5.4	5.0	4.6
40°	4.2	3.5	3.1	2.7
42.5°	3.1	2.3	1.5	1.5
45°	2.3	1.5	0.8	0.8
47.5°	1.9	1.2	0.4	0.4
50°	1.5	0.8	0.4	0.0
52.5°	1.2	0.8	0.0	0.0
55°	1.2	0.8	0.0	0.0
57.5°	1.2	0.8	0.0	0.0
60°	1.2	0.8	0.0	0.0
62.5°	1.2	0.8	0.0	0.0
65°	1.2	0.8	0.4	0.0
67.5°	1.5	0.8	0.4	0.0
70°	1.5	0.8	0.4	0.0
72.5°	1.5	0.8	0.4	0.0
75°	1.5	1.2	0.4	0.0
77.5°	1.5	1.2	0.4	0.0
80°	1.5	1.2	0.4	0.0
82.5°	1.5	1.2	0.4	0.0
85°	1.5	1.2	0.4	0.4
87.5°	1.5	1.2	0.4	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)