

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: P170758

Luminaire Tested: **LDA4A13830D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170758  
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: LDA4A13830D010TE 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 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1399.6 lumens  
Efficiency: N/A  
Efficacy: 62.8 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

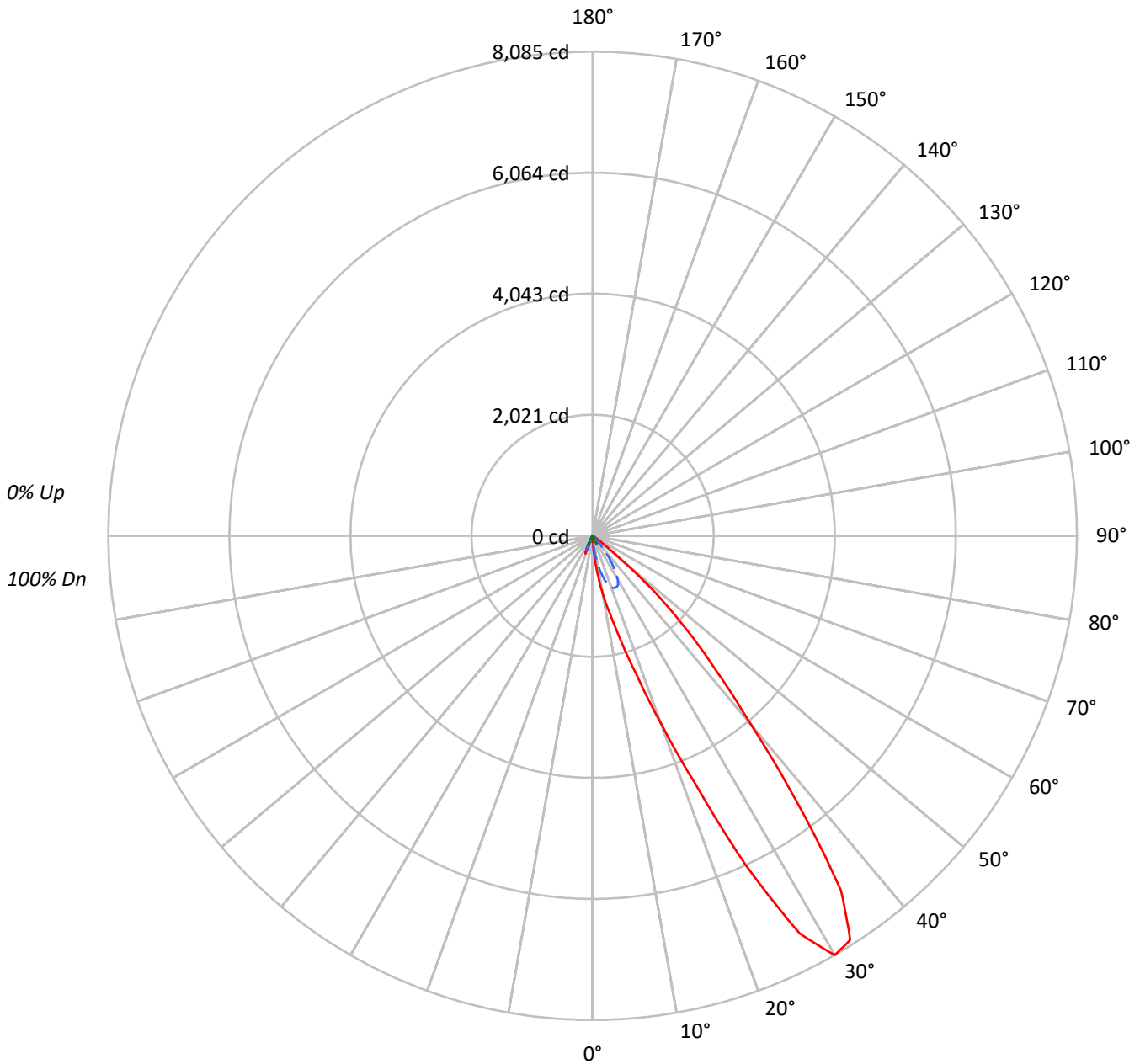
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	8141	8141	8141
5°	42952	7701	4086
10°	125649	6538	2693
15°	228564	5491	3039
20°	436038	6248	14806
25°	828694	21721	32690
30°	1151567	7321	6338
35°	1088252	3358	2424
40°	659587	1481	869
45°	386535	802	262
50°	128280	595	0
55°	24429	495	0
60°	5501	370	0
65°	1576	671	0
70°	541	829	0
75°	0	1096	0
80°	0	1634	0
85°	0	3255	1132



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	15.8	1.1
10°-20°	128.8	9.2
20°-30°	456.7	32.6
30°-40°	541.4	38.7
40°-50°	230.3	16.5
50°-60°	20.8	1.5
60°-70°	2.6	0.2
70°-80°	1.7	0.1
80°-90°	1.6	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°	601.2	43.0
0°-40°	1142.6	81.6
0°-60°	1393.8	99.6
0°-90°	1399.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1399.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	66	66	66	66	66	
5°	347	171	62	39	33	54
15°	1790	754	43	24	24	577
25°	6089	945	160	251	240	2821
35°	7227	558	22	17	16	4175
45°	2216	61	5	3	2	1737
55°	114	9	2	2	0	159
65°	5	2	2	2	0	8
75°	0	2	2	2	0	0
85°	0	2	2	2	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°	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
2.5°	121.3	114.4	119.0	117.4	118.2	120.5	118.2	118.2	117.4	114.4	114.4
5°	346.9	326.2	336.2	330.8	333.9	337.7	332.3	330.8	328.5	321.6	320.1
7.5°	646.3	634.8	647.0	637.8	646.3	647.8	640.1	638.6	634.8	624.8	620.9
10°	1003.2	984.0	995.5	985.5	998.6	997.8	985.5	987.1	982.5	969.4	963.3
12.5°	1319.4	1304.1	1315.6	1287.2	1319.4	1298.7	1301.0	1304.1	1297.9	1281.0	1273.4
15°	1789.9	1747.7	1767.7	1718.5	1767.7	1760.8	1733.9	1732.4	1716.2	1687.8	1671.0
17.5°	2414.7	2426.2	2411.6	2382.5	2447.7	2430.1	2391.7	2384.0	2353.3	2275.8	2274.2
20°	3321.9	3306.6	3331.2	3239.1	3322.7	3241.4	3230.6	3209.1	3156.9	3048.7	3031.8
22.5°	4483.2	4491.7	4447.9	4384.2	4487.1	4361.2	4322.8	4271.4	4176.2	4009.7	3957.5
25°	6089.0	6078.2	6021.4	5915.5	6025.3	5821.9	5725.9	5620.0	5442.7	5183.3	5058.1
27.5°	7488.2	7531.9	7494.3	7386.9	7459.8	7259.5	7038.4	6970.9	6730.6	6403.7	6178.0
30°	8085.3	8106.1	8090.0	8007.8	8033.9	7868.9	7650.1	7570.3	7323.9	7014.6	6722.2
32.5°	8003.2	8013.2	8016.3	7906.5	7911.1	7755.3	7526.6	7408.4	7139.7	6841.9	6492.7
35°	7227.2	7268.7	7295.5	7192.7	7090.6	6935.6	6676.1	6492.7	6210.2	5938.5	5581.6
37.5°	5597.0	5649.2	5690.6	5603.1	5554.7	5367.5	5151.8	5009.8	4814.8	4655.2	4401.9
40°	4096.4	4106.4	4131.7	4086.4	4011.2	3961.3	3837.7	3757.1	3638.9	3553.0	3384.9
42.5°	3044.9	3039.5	3057.1	3031.8	3029.5	2954.3	2876.0	2828.4	2787.7	2697.2	2579.0
45°	2215.9	2217.4	2234.3	2218.2	2175.2	2159.1	2107.7	2064.7	2011.0	1982.6	1888.9
47.5°	1506.7	1511.3	1522.8	1513.6	1474.5	1468.3	1435.3	1392.3	1391.6	1347.8	1265.7
50°	668.5	670.1	683.9	680.8	634.0	640.1	618.6	579.5	590.2	564.1	501.2
52.5°	221.8	222.6	224.9	223.4	215.7	215.7	210.3	209.5	203.4	197.3	183.4
55°	113.6	113.6	115.1	114.4	110.5	110.5	104.4	108.2	105.2	102.9	94.4
57.5°	48.4	48.4	49.1	49.1	46.8	49.1	46.8	46.8	45.3	44.5	41.4
60°	22.3	22.3	22.3	22.3	21.5	23.0	21.5	21.5	21.5	20.7	19.2
62.5°	11.5	11.5	11.5	11.5	11.5	11.5	11.5	10.7	10.7	10.7	10.0
65°	5.4	5.4	5.4	5.4	5.4	6.1	5.4	5.4	5.4	5.4	5.4
67.5°	2.3	2.3	2.3	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3
70°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.8
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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°	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
2.5°	115.1	111.3	116.7	112.1	115.1	112.1	108.2	109.8	88.3	73.7	65.2
5°	320.8	309.3	319.3	309.3	310.1	304.7	290.1	288.6	171.2	83.7	62.2
7.5°	604.1	602.5	614.8	601.8	600.2	587.2	560.3	549.6	310.1	98.2	57.6
10°	959.4	937.2	947.9	934.1	929.5	905.7	867.3	846.6	461.3	112.8	52.2
12.5°	1251.9	1243.4	1251.1	1238.1	1233.4	1201.2	1155.9	1128.3	616.3	121.3	46.8
15°	1634.1	1617.2	1622.6	1595.7	1581.9	1520.5	1443.0	1392.3	753.7	120.5	43.0
17.5°	2217.4	2184.4	2181.4	2135.3	2101.5	1990.3	1851.3	1746.9	854.3	111.3	41.4
20°	2948.2	2888.3	2868.3	2795.4	2738.6	2554.4	2340.3	2170.6	917.2	99.0	47.6
22.5°	3823.9	3718.8	3659.7	3543.0	3445.5	3150.0	2836.1	2582.0	944.9	95.2	68.3
25°	4844.8	4664.4	4539.3	4355.8	4191.6	3738.0	3297.4	2941.2	944.9	123.6	159.6
27.5°	5880.2	5595.4	5365.2	5097.3	4847.8	4204.6	3636.6	3173.0	921.8	154.3	145.8
30°	6404.4	6054.4	5741.3	5428.1	5114.9	4342.0	3712.6	3201.4	835.1	90.6	51.4
32.5°	6181.8	5812.6	5466.5	5163.3	4854.0	4099.5	3506.9	3013.4	701.5	53.0	33.0
35°	5328.3	5008.2	4707.4	4480.9	4239.9	3644.3	3113.9	2684.1	558.0	41.4	22.3
37.5°	4253.0	4035.0	3820.9	3675.8	3503.1	3055.6	2628.1	2275.8	399.1	29.9	13.8
40°	3298.9	3150.0	3000.3	2908.2	2786.2	2460.0	2126.9	1846.7	235.6	20.7	9.2
42.5°	2526.8	2423.9	2312.6	2248.9	2161.4	1918.1	1657.9	1459.9	109.0	14.6	6.9
45°	1857.5	1781.5	1696.3	1655.6	1594.2	1433.8	1261.1	1121.4	61.4	10.7	4.6
47.5°	1250.3	1182.8	1103.7	1078.4	1019.3	878.8	702.3	564.9	40.7	7.7	3.8
50°	497.4	452.9	426.0	390.7	356.1	298.6	223.4	178.1	24.6	6.1	3.1
52.5°	182.7	172.7	168.1	158.9	151.2	135.1	114.4	99.0	14.6	4.6	2.3
55°	95.2	89.0	86.0	82.9	78.3	69.1	57.6	49.1	9.2	3.1	2.3
57.5°	41.4	39.1	39.9	36.8	34.5	31.5	27.6	23.8	6.1	3.1	2.3
60°	20.0	18.4	19.2	17.7	16.9	16.1	14.6	12.3	3.8	2.3	1.5
62.5°	10.0	10.0	10.0	9.2	9.2	8.4	7.7	6.9	3.1	2.3	2.3
65°	5.4	4.6	5.4	4.6	4.6	4.6	3.8	3.8	2.3	2.3	2.3
67.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.5	2.3	2.3
70°	1.5	1.5	1.5	1.5	1.5	1.5	0.8	1.5	1.5	2.3	2.3
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.5	2.3	2.3
75°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.5	2.3	2.3
77.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	2.3	2.3
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.5	2.3	2.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.5	2.3	2.3
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	2.3	2.3
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	2.3	2.3
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°	66.0	66.0	66.0	66.0
2.5°	55.3	49.1	44.5	43.8
5°	46.8	39.1	33.8	33.0
7.5°	39.9	31.5	26.9	26.1
10°	35.3	26.9	22.3	21.5
12.5°	31.5	23.8	20.7	20.0
15°	29.2	23.8	23.0	23.8
17.5°	31.5	32.2	35.3	39.1
20°	52.2	74.5	96.7	112.8
22.5°	117.4	217.2	287.8	321.6
25°	221.8	251.0	251.8	240.2
27.5°	120.5	95.9	86.0	81.4
30°	47.6	45.3	45.3	44.5
32.5°	31.5	29.2	28.4	27.6
35°	19.2	16.9	16.1	16.1
37.5°	12.3	10.7	10.0	9.2
40°	8.4	6.9	6.1	5.4
42.5°	6.1	4.6	3.1	3.1
45°	4.6	3.1	1.5	1.5
47.5°	3.8	2.3	0.8	0.8
50°	3.1	1.5	0.8	0.0
52.5°	2.3	1.5	0.0	0.0
55°	2.3	1.5	0.0	0.0
57.5°	2.3	1.5	0.0	0.0
60°	2.3	1.5	0.0	0.0
62.5°	2.3	1.5	0.0	0.0
65°	2.3	1.5	0.8	0.0
67.5°	3.1	1.5	0.8	0.0
70°	3.1	1.5	0.8	0.0
72.5°	3.1	1.5	0.8	0.0
75°	3.1	2.3	0.8	0.0
77.5°	3.1	2.3	0.8	0.0
80°	3.1	2.3	0.8	0.0
82.5°	3.1	2.3	0.8	0.0
85°	3.1	2.3	0.8	0.8
87.5°	3.1	2.3	0.8	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)