

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: P170762

Luminaire Tested: **LDA4A13930D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P170762  
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: LDA4A13930D010TE 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 / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1197.0 lumens  
Efficiency: N/A  
Efficacy: 53.7 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

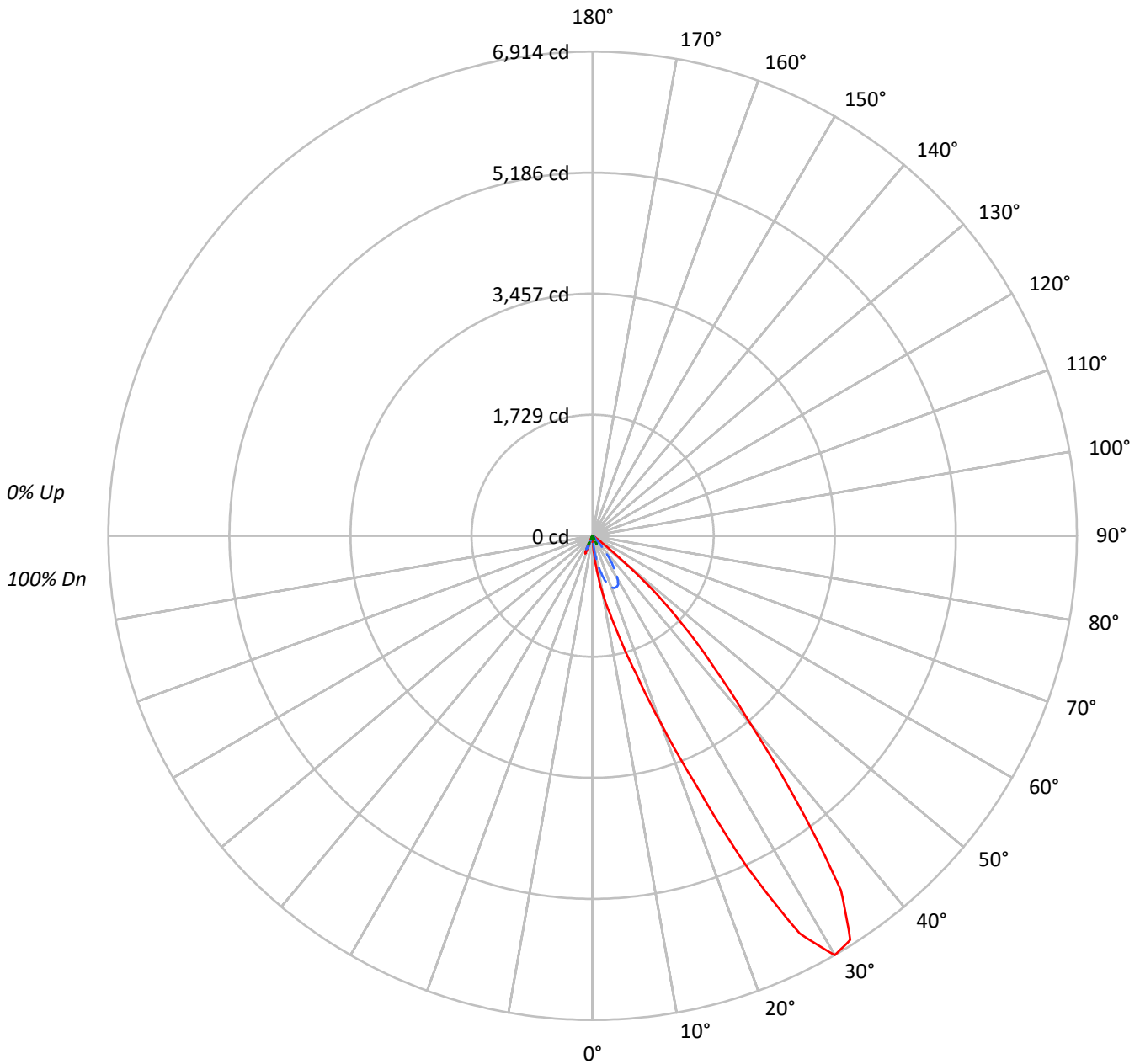
Input Watts (W): 22.27  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°	6957	6957	6957
5°	36736	6587	3492
10°	107451	5586	2305
15°	195465	4699	2592
20°	372901	5342	12667
25°	708683	18577	27968
30°	984813	6267	5426
35°	930657	2861	2078
40°	564072	1272	741
45°	330558	680	227
50°	109705	499	0
55°	20881	430	0
60°	4687	321	0
65°	1343	584	0
70°	469	721	0
75°	0	953	0
80°	0	1421	0
85°	0	2830	991



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	13.5	1.1
10°-20°	110.1	9.2
20°-30°	390.5	32.6
30°-40°	463.0	38.7
40°-50°	197.0	16.5
50°-60°	17.8	1.5
60°-70°	2.2	0.2
70°-80°	1.5	0.1
80°-90°	1.3	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°	514.1	43.0
0°-40°	977.1	81.6
0°-60°	1191.9	99.6
0°-90°	1197.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1197.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	56	56	56	56	56	
5°	297	146	53	34	28	46
15°	1531	645	37	20	20	494
25°	5207	808	136	215	206	2413
35°	6181	477	19	14	14	3570
45°	1895	52	4	3	1	1485
55°	97	8	2	1	0	136
65°	5	2	2	1	0	6
75°	0	1	2	2	0	0
85°	0	1	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°	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4
2.5°	103.7	97.8	101.7	100.4	101.1	103.1	101.1	101.1	100.4	97.8	97.8
5°	296.7	279.0	287.5	282.9	285.5	288.8	284.2	282.9	280.9	275.0	273.7
7.5°	552.7	542.8	553.3	545.5	552.7	554.0	547.4	546.1	542.8	534.3	531.0
10°	857.9	841.5	851.3	842.8	854.0	853.3	842.8	844.1	840.2	829.0	823.8
12.5°	1128.3	1115.2	1125.1	1100.8	1128.3	1110.6	1112.6	1115.2	1110.0	1095.5	1089.0
15°	1530.7	1494.6	1511.7	1469.7	1511.7	1505.8	1482.8	1481.5	1467.7	1443.4	1429.0
17.5°	2065.0	2074.9	2062.4	2037.4	2093.2	2078.1	2045.3	2038.8	2012.5	1946.2	1944.9
20°	2840.9	2827.7	2848.7	2770.0	2841.5	2772.0	2762.8	2744.4	2699.7	2607.2	2592.8
22.5°	3834.0	3841.2	3803.8	3749.3	3837.3	3729.6	3696.8	3652.8	3571.4	3429.0	3384.4
25°	5207.2	5198.0	5149.4	5058.8	5152.7	4978.7	4896.7	4806.1	4654.5	4432.6	4325.6
27.5°	6403.8	6441.2	6409.0	6317.1	6379.5	6208.2	6019.1	5961.4	5755.9	5476.3	5283.3
30°	6914.5	6932.2	6918.4	6848.2	6870.5	6729.3	6542.3	6474.0	6263.3	5998.8	5748.7
32.5°	6844.2	6852.8	6855.4	6761.5	6765.5	6632.2	6436.6	6335.5	6105.8	5851.1	5552.4
35°	6180.6	6216.0	6239.0	6151.1	6063.8	5931.2	5709.3	5552.4	5310.9	5078.5	4773.3
37.5°	4786.4	4831.1	4866.5	4791.7	4750.3	4590.2	4405.7	4284.3	4117.6	3981.0	3764.4
40°	3503.2	3511.7	3533.4	3494.6	3430.3	3387.6	3282.0	3213.0	3112.0	3038.4	2894.7
42.5°	2603.9	2599.3	2614.4	2592.8	2590.8	2526.5	2459.5	2418.8	2384.0	2306.6	2205.5
45°	1895.0	1896.3	1910.8	1897.0	1860.2	1846.4	1802.5	1765.7	1719.8	1695.5	1615.4
47.5°	1288.5	1292.4	1302.3	1294.4	1260.9	1255.7	1227.5	1190.7	1190.0	1152.6	1082.4
50°	571.7	573.0	584.8	582.2	542.2	547.4	529.1	495.6	504.8	482.4	428.6
52.5°	189.7	190.4	192.3	191.0	184.4	184.4	179.9	179.2	173.9	168.7	156.9
55°	97.1	97.1	98.5	97.8	94.5	94.5	89.3	92.6	89.9	88.0	80.7
57.5°	41.4	41.4	42.0	42.0	40.0	42.0	40.0	40.0	38.7	38.1	35.4
60°	19.0	19.0	19.0	19.0	18.4	19.7	18.4	18.4	18.4	17.7	16.4
62.5°	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.2	9.2	9.2	8.5
65°	4.6	4.6	4.6	4.6	4.6	5.3	4.6	4.6	4.6	4.6	4.6
67.5°	2.0	2.0	2.0	2.6	2.6	2.6	2.6	2.6	2.0	2.0	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.7
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4
2.5°	98.5	95.2	99.8	95.8	98.5	95.8	92.6	93.9	75.5	63.0	55.8
5°	274.4	264.5	273.1	264.5	265.2	260.6	248.1	246.8	146.4	71.5	53.2
7.5°	516.6	515.3	525.8	514.6	513.3	502.1	479.2	470.0	265.2	84.0	49.2
10°	820.5	801.5	810.6	798.8	794.9	774.5	741.7	724.0	394.5	96.5	44.6
12.5°	1070.6	1063.4	1069.9	1058.8	1054.8	1027.3	988.5	964.9	527.1	103.7	40.0
15°	1397.5	1383.0	1387.6	1364.6	1352.8	1300.3	1234.0	1190.7	644.6	103.1	36.8
17.5°	1896.3	1868.1	1865.5	1826.1	1797.2	1702.0	1583.2	1494.0	730.6	95.2	35.4
20°	2521.2	2470.0	2452.9	2390.6	2342.0	2184.5	2001.3	1856.3	784.4	84.7	40.7
22.5°	3270.2	3180.2	3129.7	3029.9	2946.6	2693.8	2425.4	2208.1	808.0	81.4	58.4
25°	4143.2	3988.9	3881.9	3725.0	3584.6	3196.6	2819.9	2515.3	808.0	105.7	136.5
27.5°	5028.6	4785.1	4588.2	4359.1	4145.8	3595.7	3110.0	2713.5	788.3	131.9	124.7
30°	5477.0	5177.6	4909.8	4642.0	4374.2	3713.2	3175.0	2737.8	714.2	77.5	44.0
32.5°	5286.6	4970.9	4674.8	4415.6	4151.0	3505.8	2999.1	2577.0	599.9	45.3	28.2
35°	4556.7	4283.0	4025.7	3832.0	3625.9	3116.6	2663.0	2295.4	477.2	35.4	19.0
37.5°	3637.1	3450.7	3267.5	3143.5	2995.8	2613.1	2247.5	1946.2	341.3	25.6	11.8
40°	2821.2	2693.8	2565.8	2487.1	2382.7	2103.7	1818.9	1579.3	201.5	17.7	7.9
42.5°	2160.8	2072.9	1977.7	1923.2	1848.4	1640.3	1417.8	1248.5	93.2	12.5	5.9
45°	1588.5	1523.5	1450.6	1415.8	1363.3	1226.1	1078.5	959.0	52.5	9.2	3.9
47.5°	1069.3	1011.5	943.9	922.2	871.7	751.6	600.6	483.1	34.8	6.6	3.3
50°	425.3	387.3	364.3	334.1	304.6	255.3	191.0	152.3	21.0	5.3	2.6
52.5°	156.2	147.7	143.8	135.9	129.3	115.5	97.8	84.7	12.5	3.9	2.0
55°	81.4	76.1	73.5	70.9	67.0	59.1	49.2	42.0	7.9	2.6	2.0
57.5°	35.4	33.5	34.1	31.5	29.5	26.9	23.6	20.3	5.3	2.6	2.0
60°	17.1	15.8	16.4	15.1	14.4	13.8	12.5	10.5	3.3	2.0	1.3
62.5°	8.5	8.5	8.5	7.9	7.9	7.2	6.6	5.9	2.6	2.0	2.0
65°	4.6	3.9	4.6	3.9	3.9	3.9	3.3	3.3	2.0	2.0	2.0
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3	2.0	2.0
70°	1.3	1.3	1.3	1.3	1.3	1.3	0.7	1.3	1.3	2.0	2.0
72.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	2.0	2.0
75°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	2.0	2.0
77.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
80°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	2.0	2.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	2.0	2.0
85°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
87.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	1.3	2.0	2.0
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):**

	112.5°	135°	157.5°	180°
0°	56.4	56.4	56.4	56.4
2.5°	47.3	42.0	38.1	37.4
5°	40.0	33.5	28.9	28.2
7.5°	34.1	26.9	23.0	22.3
10°	30.2	23.0	19.0	18.4
12.5°	26.9	20.3	17.7	17.1
15°	24.9	20.3	19.7	20.3
17.5°	26.9	27.6	30.2	33.5
20°	44.6	63.7	82.7	96.5
22.5°	100.4	185.8	246.1	275.0
25°	189.7	214.6	215.3	205.5
27.5°	103.1	82.0	73.5	69.6
30°	40.7	38.7	38.7	38.1
32.5°	26.9	24.9	24.3	23.6
35°	16.4	14.4	13.8	13.8
37.5°	10.5	9.2	8.5	7.9
40°	7.2	5.9	5.3	4.6
42.5°	5.3	3.9	2.6	2.6
45°	3.9	2.6	1.3	1.3
47.5°	3.3	2.0	0.7	0.7
50°	2.6	1.3	0.7	0.0
52.5°	2.0	1.3	0.0	0.0
55°	2.0	1.3	0.0	0.0
57.5°	2.0	1.3	0.0	0.0
60°	2.0	1.3	0.0	0.0
62.5°	2.0	1.3	0.0	0.0
65°	2.0	1.3	0.7	0.0
67.5°	2.6	1.3	0.7	0.0
70°	2.6	1.3	0.7	0.0
72.5°	2.6	1.3	0.7	0.0
75°	2.6	2.0	0.7	0.0
77.5°	2.6	2.0	0.7	0.0
80°	2.6	2.0	0.7	0.0
82.5°	2.6	2.0	0.7	0.0
85°	2.6	2.0	0.7	0.7
87.5°	2.6	2.0	0.7	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)