

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: P170770

Luminaire Tested: **LDA4A28930D010TE LAR15SP 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170770
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: LDA4A28930D010TE 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: 2321.9 lumens
Efficiency: N/A
Efficacy: 52.2 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

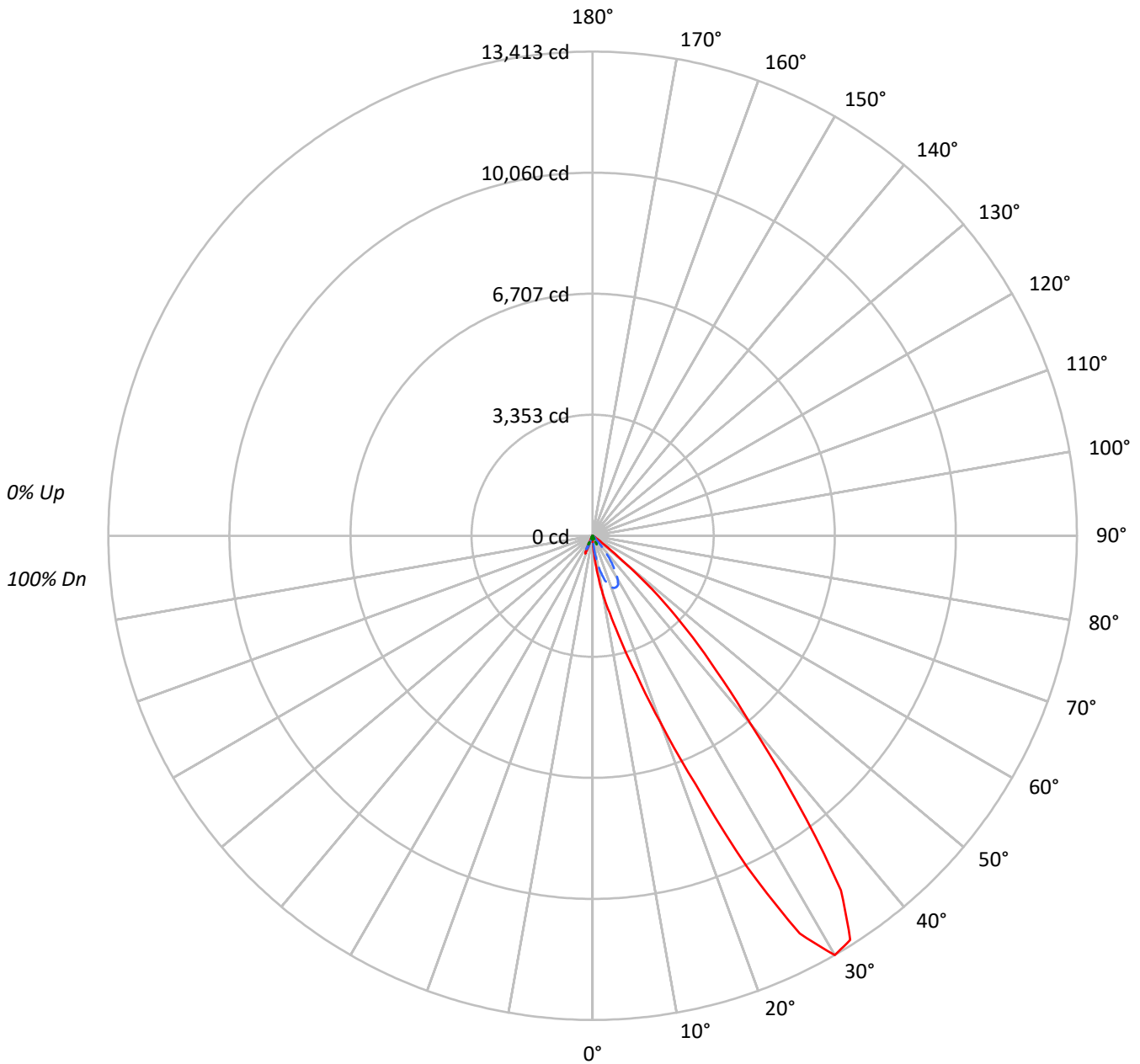
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	13506	13506	13506
5°	71269	12766	6785
10°	208451	10847	4471
15°	379183	9105	5044
20°	723383	10357	24572
25°	1374782	36052	54248
30°	1910434	12149	10525
35°	1805391	5556	4020
40°	1094251	2464	1433
45°	641266	1326	436
50°	212827	979	0
55°	40536	817	0
60°	9103	617	0
65°	2598	1109	0
70°	902	1370	0
75°	0	1811	0
80°	0	2699	0
85°	0	5378	1840



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.1	1.1
10°-20°	213.6	9.2
20°-30°	757.6	32.6
30°-40°	898.2	38.7
40°-50°	382.1	16.5
50°-60°	34.5	1.5
60°-70°	4.3	0.2
70°-80°	2.8	0.1
80°-90°	2.6	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°	997.4	43.0
0°-40°	1895.6	81.6
0°-60°	2312.3	99.6
0°-90°	2321.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2321.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	110	110	110	110	110	
5°	576	284	103	65	55	90
15°	2969	1250	71	40	40	958
25°	10102	1568	265	416	399	4680
35°	11990	926	37	28	27	6926
45°	3676	102	8	5	2	2881
55°	188	15	4	2	0	264
65°	9	4	4	2	0	13
75°	0	2	4	4	0	1
85°	0	2	4	4	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°	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5
2.5°	201.2	189.7	197.4	194.8	196.1	199.9	196.1	196.1	194.8	189.7	189.7
5°	575.6	541.2	557.7	548.8	553.9	560.3	551.4	548.8	545.0	533.5	531.0
7.5°	1072.2	1053.1	1073.4	1058.2	1072.2	1074.7	1062.0	1059.4	1053.1	1036.5	1030.1
10°	1664.3	1632.4	1651.5	1635.0	1656.6	1655.4	1635.0	1637.5	1629.9	1608.2	1598.1
12.5°	2188.9	2163.4	2182.5	2135.4	2188.9	2154.5	2158.3	2163.4	2153.2	2125.2	2112.5
15°	2969.4	2899.4	2932.5	2851.0	2932.5	2921.1	2876.5	2873.9	2847.2	2800.1	2772.1
17.5°	4006.0	4025.1	4000.9	3952.5	4060.7	4031.4	3967.8	3955.0	3904.1	3775.5	3772.9
20°	5511.0	5485.6	5526.3	5373.5	5512.3	5377.3	5359.5	5323.9	5237.3	5057.7	5029.7
22.5°	7437.6	7451.6	7379.0	7273.4	7444.0	7235.2	7171.5	7086.2	6928.3	6652.0	6565.4
25°	10101.5	10083.6	9989.4	9813.7	9995.8	9658.3	9499.2	9323.5	9029.3	8598.9	8391.4
27.5°	12422.8	12495.4	12433.0	12254.7	12375.7	12043.3	11676.6	11564.5	11166.0	10623.5	10249.2
30°	13413.4	13447.8	13421.1	13284.8	13328.1	13054.4	12691.5	12559.0	12150.3	11637.1	11152.0
32.5°	13277.2	13293.7	13298.8	13116.8	13124.4	12865.9	12486.4	12290.4	11844.7	11350.6	10771.2
35°	11989.8	12058.6	12103.2	11932.5	11763.2	11506.0	11075.6	10771.2	10302.7	9851.9	9259.8
37.5°	9285.3	9371.8	9440.6	9295.4	9215.2	8904.5	8546.7	8311.1	7987.7	7722.9	7302.6
40°	6795.9	6812.4	6854.4	6779.3	6654.5	6571.7	6366.7	6233.0	6036.9	5894.3	5615.5
42.5°	5051.4	5042.5	5071.7	5029.7	5025.9	4901.1	4771.2	4692.3	4624.8	4474.5	4278.4
45°	3676.2	3678.7	3706.7	3680.0	3608.7	3581.9	3496.6	3425.3	3336.2	3289.1	3133.7
47.5°	2499.6	2507.2	2526.3	2511.0	2446.1	2435.9	2381.2	2309.9	2308.6	2236.0	2099.8
50°	1109.1	1111.6	1134.6	1129.5	1051.8	1062.0	1026.3	961.4	979.2	935.9	831.5
52.5°	368.0	369.3	373.1	370.5	357.8	357.8	348.9	347.6	337.4	327.3	304.3
55°	188.5	188.5	191.0	189.7	183.4	183.4	173.2	179.5	174.4	170.6	156.6
57.5°	80.2	80.2	81.5	81.5	77.7	81.5	77.7	77.7	75.1	73.9	68.8
60°	36.9	36.9	36.9	36.9	35.7	38.2	35.7	35.7	35.7	34.4	31.8
62.5°	19.1	19.1	19.1	19.1	19.1	19.1	19.1	17.8	17.8	17.8	16.6
65°	8.9	8.9	8.9	8.9	8.9	10.2	8.9	8.9	8.9	8.9	8.9
67.5°	3.8	3.8	3.8	5.1	5.1	5.1	5.1	5.1	3.8	3.8	3.8
70°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.3
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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°	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5	109.5
2.5°	191.0	184.6	193.5	185.9	191.0	185.9	179.5	182.1	146.4	122.2	108.2
5°	532.3	513.2	529.7	513.2	514.4	505.5	481.3	478.8	284.0	138.8	103.1
7.5°	1002.1	999.6	1020.0	998.3	995.8	974.1	929.5	911.7	514.4	163.0	95.5
10°	1591.7	1554.8	1572.6	1549.7	1542.0	1502.6	1438.9	1404.5	765.3	187.2	86.6
12.5°	2076.8	2062.8	2075.6	2053.9	2046.3	1992.8	1917.7	1871.8	1022.5	201.2	77.7
15°	2711.0	2682.9	2691.9	2647.3	2624.4	2522.5	2393.9	2309.9	1250.4	199.9	71.3
17.5°	3678.7	3623.9	3618.9	3542.5	3486.4	3301.8	3071.3	2898.1	1417.2	184.6	68.8
20°	4890.9	4791.6	4758.5	4637.5	4543.3	4237.7	3882.4	3601.0	1521.7	164.3	78.9
22.5°	6343.8	6169.4	6071.3	5877.8	5716.1	5225.8	4705.0	4283.5	1567.5	157.9	113.3
25°	8037.4	7738.1	7530.6	7226.2	6953.8	6201.2	5470.3	4879.5	1567.5	205.0	264.9
27.5°	9755.1	9282.7	8900.7	8456.3	8042.5	6975.4	6033.1	5264.0	1529.3	255.9	241.9
30°	10624.8	10044.2	9524.6	9005.1	8485.6	7203.3	6159.2	5311.1	1385.4	150.3	85.3
32.5°	10255.5	9643.1	9068.8	8565.8	8052.7	6801.0	5817.9	4999.2	1163.8	87.9	54.8
35°	8839.6	8308.6	7809.4	7433.8	7034.0	6045.9	5166.0	4452.9	925.7	68.8	36.9
37.5°	7055.6	6694.0	6338.7	6098.1	5811.6	5069.2	4359.9	3775.5	662.1	49.7	22.9
40°	5472.8	5225.8	4977.5	4824.7	4622.3	4081.1	3528.4	3063.7	390.9	34.4	15.3
42.5°	4191.9	4021.2	3836.6	3730.9	3585.7	3182.1	2750.4	2421.9	180.8	24.2	11.5
45°	3081.5	2955.4	2814.1	2746.6	2644.7	2378.6	2092.1	1860.4	101.9	17.8	7.6
47.5°	2074.3	1962.2	1831.1	1789.1	1691.0	1458.0	1165.1	937.2	67.5	12.7	6.4
50°	825.1	751.3	706.7	648.1	590.8	495.3	370.5	295.4	40.7	10.2	5.1
52.5°	303.1	286.5	278.9	263.6	250.8	224.1	189.7	164.3	24.2	7.6	3.8
55°	157.9	147.7	142.6	137.5	129.9	114.6	95.5	81.5	15.3	5.1	3.8
57.5°	68.8	64.9	66.2	61.1	57.3	52.2	45.8	39.5	10.2	5.1	3.8
60°	33.1	30.6	31.8	29.3	28.0	26.7	24.2	20.4	6.4	3.8	2.5
62.5°	16.6	16.6	16.6	15.3	15.3	14.0	12.7	11.5	5.1	3.8	3.8
65°	8.9	7.6	8.9	7.6	7.6	7.6	6.4	6.4	3.8	3.8	3.8
67.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	2.5	3.8	3.8
70°	2.5	2.5	2.5	2.5	2.5	2.5	1.3	2.5	2.5	3.8	3.8
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	3.8	3.8
75°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	2.5	3.8	3.8
77.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.5	3.8	3.8
80°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	2.5	3.8	3.8
82.5°	0.0	0.0	0.0	0.0	0.0	1.3	1.3	1.3	2.5	3.8	3.8
85°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.5	3.8	3.8
87.5°	0.0	0.0	0.0	0.0	1.3	1.3	1.3	1.3	2.5	3.8	3.8
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°	109.5	109.5	109.5	109.5
2.5°	91.7	81.5	73.9	72.6
5°	77.7	64.9	56.0	54.8
7.5°	66.2	52.2	44.6	43.3
10°	58.6	44.6	36.9	35.7
12.5°	52.2	39.5	34.4	33.1
15°	48.4	39.5	38.2	39.5
17.5°	52.2	53.5	58.6	64.9
20°	86.6	123.5	160.4	187.2
22.5°	194.8	360.4	477.5	533.5
25°	368.0	416.4	417.7	398.6
27.5°	199.9	159.2	142.6	135.0
30°	78.9	75.1	75.1	73.9
32.5°	52.2	48.4	47.1	45.8
35°	31.8	28.0	26.7	26.7
37.5°	20.4	17.8	16.6	15.3
40°	14.0	11.5	10.2	8.9
42.5°	10.2	7.6	5.1	5.1
45°	7.6	5.1	2.5	2.5
47.5°	6.4	3.8	1.3	1.3
50°	5.1	2.5	1.3	0.0
52.5°	3.8	2.5	0.0	0.0
55°	3.8	2.5	0.0	0.0
57.5°	3.8	2.5	0.0	0.0
60°	3.8	2.5	0.0	0.0
62.5°	3.8	2.5	0.0	0.0
65°	3.8	2.5	1.3	0.0
67.5°	5.1	2.5	1.3	0.0
70°	5.1	2.5	1.3	0.0
72.5°	5.1	2.5	1.3	0.0
75°	5.1	3.8	1.3	0.0
77.5°	5.1	3.8	1.3	0.0
80°	5.1	3.8	1.3	0.0
82.5°	5.1	3.8	1.3	0.0
85°	5.1	3.8	1.3	1.3
87.5°	5.1	3.8	1.3	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)