

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: P170801

Luminaire Tested: **LDA4A28927D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170801
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26105)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A28927D010TE LAR25NF 4LAL1 30° Tilt
Description: PORTFOLIO 4" Lensed Adjustable, Self-flanged, 25° Narrow Flood
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: 2196.6 lumens
Efficiency: N/A
Efficacy: 49.4 lumens/watt
Spacing Criteria (0/90/45): 2.53 / 1.09 / 1.29
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

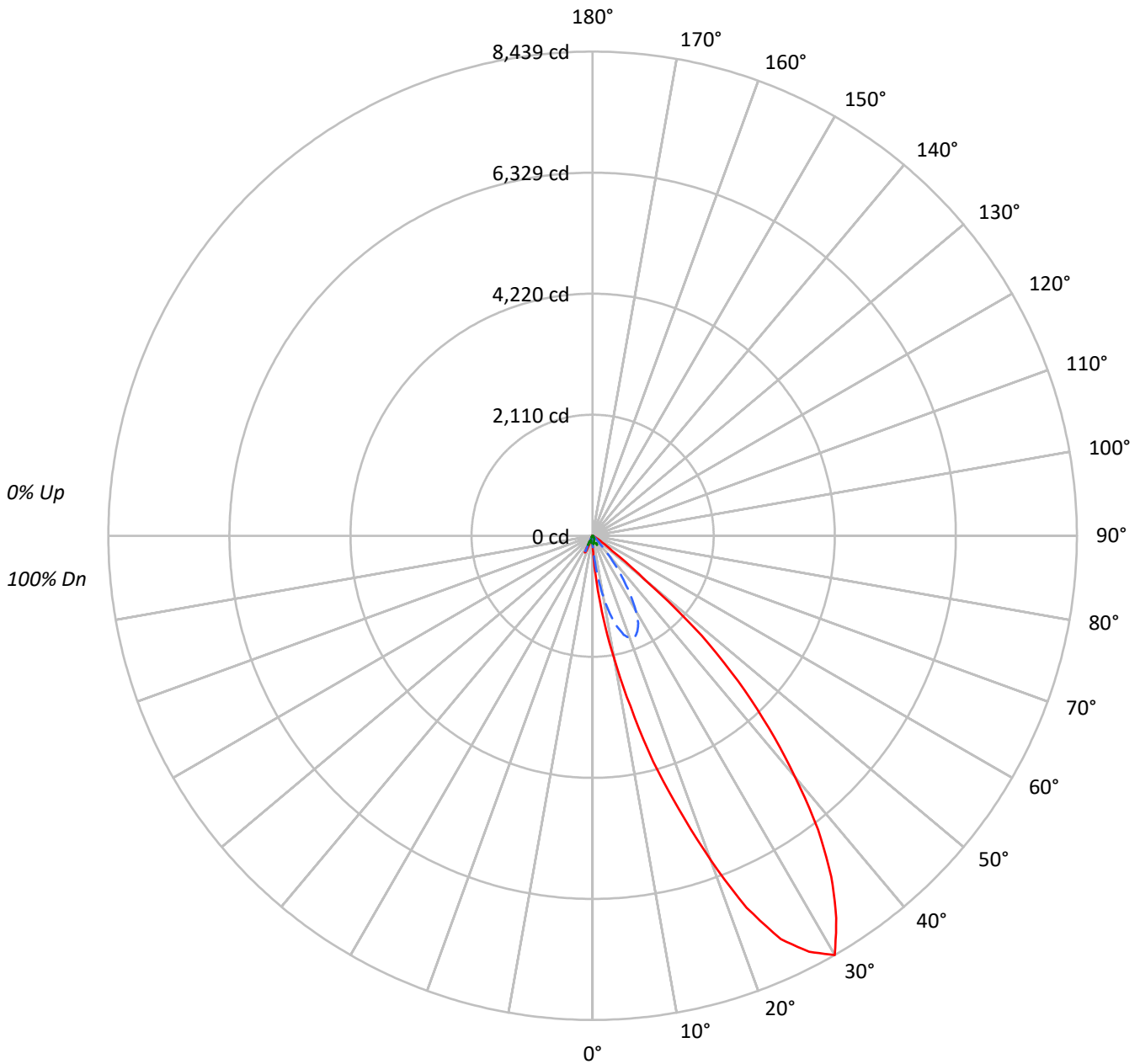
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	98	96	96	94	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	83																			
3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74																			
4	92	83	77	72	90	82	76	71	80	74	70	78	73	69	76	72	69	67																			
5	86	76	69	64	84	75	69	64	73	67	63	71	66	62	70	65	62	60																			
6	80	70	63	57	79	69	62	57	67	61	57	66	60	56	64	60	56	54																			
7	75	64	57	52	74	63	56	51	62	56	51	61	55	51	59	54	51	49																			
8	70	59	52	47	69	58	51	47	57	51	46	56	50	46	55	50	46	44																			
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	40																			
10	62	50	43	38	60	50	43	38	49	42	38	48	42	38	47	42	38	36																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	20167	20167	20167
5°	103684	18733	8754
10°	273267	15631	4572
15°	520109	12272	3524
20°	789972	10147	9425
25°	1055567	24212	43605
30°	1201901	9130	8816
35°	1091700	5150	3990
40°	884205	2319	1594
45°	625688	1343	384
50°	228294	844	0
55°	47504	710	0
60°	11446	814	0
65°	3561	963	0
70°	1190	1190	0
75°	524	1573	0
80°	0	2344	0
85°	0	4670	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	37.0	1.7
10°-20°	276.3	12.6
20°-30°	700.7	31.9
30°-40°	749.9	34.1
40°-50°	383.3	17.5
50°-60°	40.0	1.8
60°-70°	4.6	0.2
70°-80°	2.5	0.1
80°-90°	2.2	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°	1014.0	46.2
0°-40°	1763.9	80.3
0°-60°	2187.2	99.6
0°-90°	2196.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2196.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	164	164	164	164	164	
5°	837	455	151	87	71	122
15°	4073	1637	96	34	28	1203
25°	7756	1844	178	298	320	3524
35°	7250	935	34	26	26	4451
45°	3587	125	8	4	2	2677
55°	221	20	3	2	0	300
65°	12	4	3	2	0	16
75°	1	2	3	3	0	1
85°	0	2	3	3	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°	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5
2.5°	330.3	333.6	309.3	317.0	322.6	311.5	309.3	309.3	321.5	314.8	325.9
5°	837.4	834.0	792.1	804.2	813.0	792.1	802.0	786.5	805.3	793.2	805.3
7.5°	1462.6	1501.3	1448.2	1460.4	1468.1	1446.0	1451.6	1429.5	1450.5	1436.1	1446.0
10°	2181.8	2221.5	2159.7	2169.6	2175.1	2154.1	2155.2	2126.5	2145.3	2129.8	2136.5
12.5°	3041.2	3056.7	3026.8	3034.6	3037.9	3010.3	2958.4	2963.9	2982.7	2956.1	2962.8
15°	4073.0	4061.9	4026.6	4052.0	4026.6	4013.3	3934.9	3930.5	3941.5	3911.7	3864.2
17.5°	4982.1	5066.1	5026.3	5040.7	5009.8	5009.8	4909.2	4892.7	4893.8	4814.2	4805.4
20°	6018.3	6125.5	6028.3	6032.7	5991.8	5990.7	5868.1	5833.9	5819.5	5728.9	5703.5
22.5°	7017.0	7047.9	7046.8	7028.0	6931.9	6987.1	6833.6	6779.5	6735.3	6632.5	6581.7
25°	7756.0	7853.2	7786.9	7739.4	7655.5	7725.1	7552.7	7482.0	7415.8	7329.6	7263.3
27.5°	8173.6	8264.2	8248.7	8178.0	8091.8	8159.2	7970.3	7878.6	7784.7	7721.8	7638.9
30°	8438.7	8576.8	8531.5	8377.9	8252.0	8274.1	8062.0	7939.4	7835.5	7770.4	7665.4
32.5°	7900.7	8043.2	8030.0	7918.4	7853.2	7907.3	7722.9	7601.3	7501.9	7450.0	7332.9
35°	7250.1	7416.9	7380.4	7287.6	7240.1	7303.1	7123.0	7021.4	6920.9	6875.6	6747.4
37.5°	6453.6	6610.4	6574.0	6485.6	6439.2	6485.6	6313.3	6219.4	6124.4	6076.9	5989.6
40°	5491.4	5629.5	5590.8	5509.1	5470.4	5503.5	5354.4	5272.7	5192.0	5156.7	5040.7
42.5°	4551.3	4661.8	4626.4	4555.7	4525.9	4548.0	4425.4	4352.5	4281.8	4251.9	4183.4
45°	3586.9	3696.3	3662.0	3601.3	3573.7	3585.8	3483.1	3417.9	3357.1	3329.5	3267.7
47.5°	2573.9	2696.5	2654.6	2602.6	2573.9	2568.4	2477.8	2419.3	2424.8	2330.9	2273.4
50°	1189.7	1293.6	1251.6	1224.0	1196.4	1180.9	1148.9	1082.6	1101.4	1016.3	983.2
52.5°	431.9	457.3	447.4	438.6	429.7	426.4	415.4	398.8	401.0	380.0	370.1
55°	220.9	233.1	229.8	224.3	224.3	220.9	215.4	208.8	204.4	201.1	197.7
57.5°	101.6	108.3	106.0	103.8	103.8	101.6	99.4	96.1	98.3	92.8	91.7
60°	46.4	49.7	48.6	47.5	47.5	47.5	46.4	45.3	45.3	44.2	43.1
62.5°	22.1	24.3	23.2	23.2	23.2	23.2	22.1	22.1	22.1	22.1	21.0
65°	12.2	12.2	12.2	12.2	12.2	12.2	12.2	11.0	12.2	11.0	11.0
67.5°	6.6	6.6	6.6	6.6	5.5	6.6	6.6	5.5	5.5	5.5	5.5
70°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	1.1	1.1	1.1	0.0	1.1	1.1	1.1	1.1	1.1	1.1
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	1.1	0.0	1.1	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°	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5	163.5
2.5°	300.5	308.2	315.9	313.7	302.7	301.6	297.2	299.4	233.1	188.9	158.0
5°	762.2	772.2	782.1	776.6	749.0	742.3	720.3	715.8	455.1	223.1	151.3
7.5°	1393.0	1398.5	1406.3	1399.6	1358.8	1340.0	1293.6	1248.3	765.5	269.5	140.3
10°	2076.8	2074.6	2077.9	2069.1	2018.3	1981.8	1910.0	1878.0	1084.8	309.3	124.8
12.5°	2874.4	2865.6	2817.0	2840.1	2768.3	2694.3	2576.1	2476.7	1386.4	331.4	110.5
15°	3805.6	3779.1	3761.5	3734.9	3646.6	3527.3	3347.2	3236.7	1637.1	329.2	96.1
17.5°	4731.4	4688.3	4611.0	4620.9	4518.2	4351.4	4113.9	3925.0	1810.6	301.6	85.1
20°	5607.4	5543.3	5446.1	5438.4	5314.6	5094.8	4795.4	4561.3	1905.6	256.3	77.3
22.5°	6451.4	6351.9	6221.6	6180.7	6021.6	5710.1	5319.1	5034.1	1914.4	214.3	92.8
25°	7116.4	6991.6	6846.8	6776.1	6600.5	6202.8	5715.6	5365.5	1843.7	212.1	177.9
27.5°	7487.6	7346.2	7201.5	7105.3	6927.5	6476.8	5925.5	5521.2	1722.2	227.6	169.0
30°	7507.5	7348.4	7198.1	7076.6	6899.9	6418.2	5832.7	5411.9	1503.5	143.6	64.1
32.5°	7177.1	7007.0	6856.8	6719.8	6545.3	6060.3	5485.9	5083.8	1222.9	100.5	45.3
35°	6599.4	6423.8	6280.1	6135.4	5971.9	5515.7	4988.8	4614.3	934.6	79.5	34.2
37.5°	5812.9	5650.5	5523.4	5425.1	5248.4	4884.9	4403.3	4006.7	660.6	56.3	21.0
40°	4932.4	4795.4	4691.6	4606.5	4443.1	4120.5	3634.4	3299.7	401.0	39.8	14.4
42.5°	4046.5	3918.3	3826.6	3746.0	3594.7	3309.6	2909.7	2573.9	192.2	27.6	9.9
45°	3147.3	3032.4	2955.0	2882.1	2746.3	2465.7	2148.6	1905.6	124.8	19.9	7.7
47.5°	2149.7	2090.1	1963.0	1883.5	1744.3	1530.0	1232.8	965.5	82.9	14.4	5.5
50°	893.7	862.8	778.8	724.7	645.1	535.8	388.8	325.9	50.8	9.9	4.4
52.5°	346.9	339.1	318.1	306.0	286.1	257.4	214.3	191.1	30.9	7.7	4.4
55°	186.7	184.5	173.4	166.8	155.8	141.4	116.0	101.6	19.9	5.5	3.3
57.5°	86.2	85.1	79.5	79.5	71.8	66.3	55.2	49.7	12.2	4.4	3.3
60°	40.9	40.9	38.7	38.7	35.3	33.1	27.6	25.4	7.7	3.3	3.3
62.5°	19.9	19.9	19.9	19.9	18.8	17.7	15.5	14.4	5.5	3.3	3.3
65°	11.0	11.0	11.0	11.0	9.9	9.9	8.8	7.7	4.4	3.3	3.3
67.5°	5.5	5.5	5.5	5.5	5.5	5.5	4.4	4.4	3.3	3.3	3.3
70°	3.3	3.3	3.3	3.3	3.3	2.2	2.2	2.2	2.2	3.3	3.3
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	3.3	3.3
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	3.3	3.3
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	3.3	3.3
80°	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	2.2	3.3	3.3
82.5°	0.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	3.3	3.3
85°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	3.3	3.3
87.5°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	2.2	3.3	3.3
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°	163.5	163.5	163.5	163.5
2.5°	135.9	118.2	109.4	107.2
5°	111.6	87.3	75.1	70.7
7.5°	90.6	63.0	53.0	48.6
10°	71.8	49.7	39.8	36.5
12.5°	59.7	39.8	32.0	29.8
15°	50.8	34.2	28.7	27.6
17.5°	46.4	36.5	34.2	35.3
20°	56.3	59.7	69.6	71.8
22.5°	119.3	206.6	280.6	297.2
25°	248.6	298.3	309.3	320.4
27.5°	138.1	107.2	104.9	109.4
30°	56.3	57.4	59.7	61.9
32.5°	42.0	42.0	40.9	42.0
35°	28.7	26.5	25.4	26.5
37.5°	17.7	16.6	15.5	15.5
40°	12.2	11.0	9.9	9.9
42.5°	8.8	6.6	5.5	5.5
45°	6.6	4.4	3.3	2.2
47.5°	5.5	3.3	1.1	1.1
50°	4.4	2.2	1.1	0.0
52.5°	3.3	2.2	1.1	0.0
55°	3.3	2.2	0.0	0.0
57.5°	3.3	2.2	0.0	0.0
60°	3.3	2.2	1.1	0.0
62.5°	3.3	2.2	1.1	1.1
65°	3.3	2.2	1.1	0.0
67.5°	3.3	2.2	1.1	0.0
70°	3.3	2.2	1.1	0.0
72.5°	4.4	2.2	1.1	0.0
75°	4.4	3.3	1.1	0.0
77.5°	4.4	3.3	1.1	0.0
80°	4.4	3.3	1.1	0.0
82.5°	4.4	3.3	1.1	0.0
85°	4.4	3.3	1.1	0.0
87.5°	4.4	3.3	1.1	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)