

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: P170778

Luminaire Tested: **LDA4A18930D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170778
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: LDA4A18930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1617.1 lumens
Efficiency: N/A
Efficacy: 55.5 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

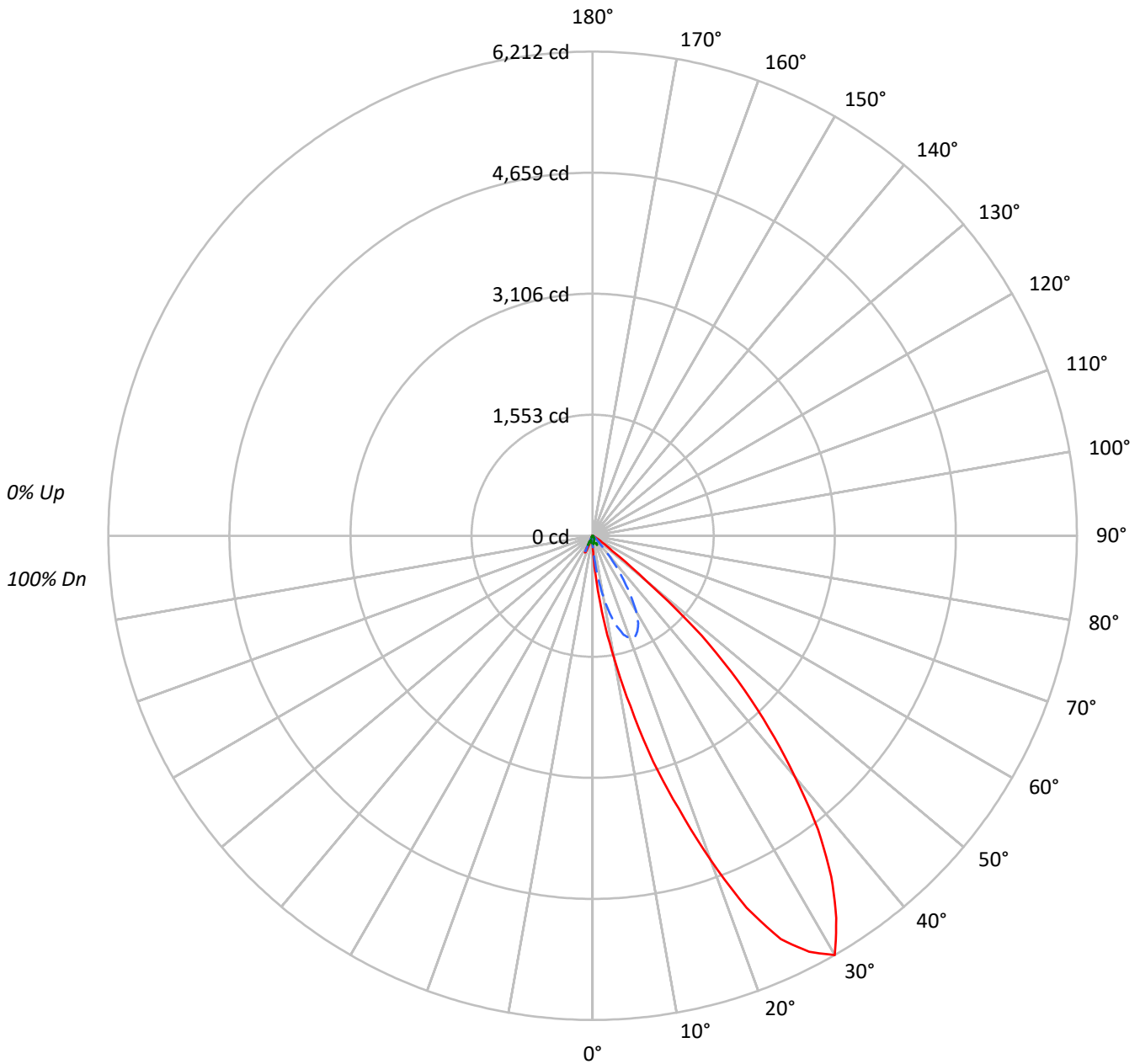
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	14851	14851	14851
5°	76321	13793	6438
10°	201174	11510	3357
15°	382899	9041	2592
20°	581568	7469	6944
25°	777099	17815	32092
30°	884829	6723	6480
35°	803691	3795	2936
40°	650941	1707	1175
45°	460636	994	279
50°	168078	633	0
55°	34988	516	0
60°	8437	592	0
65°	2598	700	0
70°	866	866	0
75°	381	1144	0
80°	0	1705	0
85°	0	3397	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.3	1.7
10°-20°	203.4	12.6
20°-30°	515.8	31.9
30°-40°	552.1	34.1
40°-50°	282.2	17.5
50°-60°	29.5	1.8
60°-70°	3.4	0.2
70°-80°	1.8	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°	746.5	46.2
0°-40°	1298.6	80.3
0°-60°	1610.2	99.6
0°-90°	1617.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1617.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	120	120	120	120	120	
5°	616	335	111	64	52	90
15°	2998	1205	71	25	20	886
25°	5710	1357	131	220	236	2594
35°	5337	688	25	20	20	3277
45°	2641	92	6	3	2	1971
55°	163	15	2	2	0	221
65°	9	3	2	2	0	12
75°	1	2	2	2	0	1
85°	0	2	2	2	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°	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4
2.5°	243.2	245.6	227.7	233.4	237.5	229.3	227.7	227.7	236.7	231.8	239.9
5°	616.4	614.0	583.1	592.1	598.6	583.1	590.4	579.0	592.9	583.9	592.9
7.5°	1076.8	1105.2	1066.2	1075.1	1080.8	1064.6	1068.6	1052.4	1067.8	1057.2	1064.6
10°	1606.2	1635.5	1589.9	1597.2	1601.3	1585.9	1586.7	1565.5	1579.3	1568.0	1572.8
12.5°	2238.9	2250.3	2228.3	2234.0	2236.5	2216.1	2177.9	2182.0	2195.8	2176.3	2181.2
15°	2998.5	2990.4	2964.3	2983.0	2964.3	2954.6	2896.8	2893.6	2901.7	2879.7	2844.8
17.5°	3667.8	3729.6	3700.3	3710.9	3688.1	3688.1	3614.1	3601.9	3602.7	3544.2	3537.7
20°	4430.6	4509.5	4438.0	4441.2	4411.1	4410.3	4320.0	4294.8	4284.2	4217.6	4198.9
22.5°	5165.8	5188.6	5187.8	5174.0	5103.2	5143.9	5030.8	4991.0	4958.4	4882.8	4845.4
25°	5709.9	5781.5	5732.7	5697.7	5635.9	5687.1	5560.2	5508.2	5459.4	5396.0	5347.2
27.5°	6017.3	6084.0	6072.6	6020.6	5957.1	6006.7	5867.7	5800.2	5731.0	5684.7	5623.7
30°	6212.5	6314.1	6280.8	6167.8	6075.0	6091.3	5935.2	5844.9	5768.4	5720.5	5643.2
32.5°	5816.4	5921.3	5911.6	5829.4	5781.5	5821.3	5685.5	5596.0	5522.8	5484.6	5398.4
35°	5337.4	5460.2	5433.4	5365.1	5330.1	5376.5	5243.9	5169.1	5095.1	5061.7	4967.4
37.5°	4751.1	4866.5	4839.7	4774.6	4740.5	4774.6	4647.8	4578.6	4508.7	4473.7	4409.5
40°	4042.7	4144.4	4115.9	4055.7	4027.3	4051.7	3941.9	3881.7	3822.3	3796.3	3710.9
42.5°	3350.6	3432.0	3405.9	3353.9	3331.9	3348.2	3257.9	3204.2	3152.2	3130.2	3079.8
45°	2640.7	2721.2	2696.0	2651.2	2630.9	2639.8	2564.2	2516.2	2471.5	2451.2	2405.6
47.5°	1894.9	1985.2	1954.3	1916.0	1894.9	1890.8	1824.1	1781.0	1785.1	1716.0	1673.7
50°	875.9	952.3	921.4	901.1	880.8	869.4	845.8	797.0	810.8	748.2	723.8
52.5°	318.0	336.7	329.4	322.9	316.4	313.9	305.8	293.6	295.2	279.8	272.4
55°	162.7	171.6	169.2	165.1	165.1	162.7	158.6	153.7	150.5	148.0	145.6
57.5°	74.8	79.7	78.1	76.4	76.4	74.8	73.2	70.8	72.4	68.3	67.5
60°	34.2	36.6	35.8	35.0	35.0	35.0	34.2	33.3	33.3	32.5	31.7
62.5°	16.3	17.9	17.1	17.1	17.1	17.1	16.3	16.3	16.3	16.3	15.5
65°	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.1	8.9	8.1	8.1
67.5°	4.9	4.9	4.9	4.9	4.1	4.9	4.9	4.1	4.1	4.1	4.1
70°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
77.5°	0.0	0.8	0.8	0.8	0.0	0.8	0.8	0.8	0.8	0.8	0.8
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	0.8	0.0	0.8	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°	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.4
2.5°	221.2	226.9	232.6	231.0	222.8	222.0	218.8	220.4	171.6	139.1	116.3
5°	561.1	568.5	575.8	571.7	551.4	546.5	530.2	527.0	335.1	164.3	111.4
7.5°	1025.5	1029.6	1035.3	1030.4	1000.3	986.5	952.3	919.0	563.6	198.4	103.3
10°	1528.9	1527.3	1529.7	1523.2	1485.8	1459.0	1406.1	1382.5	798.6	227.7	91.9
12.5°	2116.1	2109.6	2073.8	2090.9	2038.0	1983.5	1896.5	1823.3	1020.6	244.0	81.3
15°	2801.7	2782.2	2769.1	2749.6	2684.6	2596.7	2464.2	2382.8	1205.2	242.4	70.8
17.5°	3483.2	3451.5	3394.5	3401.9	3326.2	3203.4	3028.6	2889.5	1332.9	222.0	62.6
20°	4128.1	4080.9	4009.4	4003.7	3912.6	3750.7	3530.4	3357.9	1402.9	188.7	56.9
22.5°	4749.4	4676.2	4580.3	4550.2	4433.1	4203.7	3915.8	3706.0	1409.4	157.8	68.3
25°	5239.0	5147.1	5040.6	4988.5	4859.2	4566.4	4207.8	3950.0	1357.3	156.1	130.9
27.5°	5512.3	5408.2	5301.6	5230.9	5099.9	4768.1	4362.3	4064.7	1267.9	167.5	124.4
30°	5526.9	5409.8	5299.2	5209.7	5079.6	4725.0	4294.0	3984.2	1106.8	105.7	47.2
32.5°	5283.7	5158.5	5047.9	4947.1	4818.6	4461.5	4038.6	3742.6	900.3	74.0	33.3
35°	4858.4	4729.1	4623.4	4516.8	4396.5	4060.6	3672.7	3397.0	688.0	58.6	25.2
37.5°	4279.4	4159.8	4066.3	3993.9	3863.8	3596.2	3241.6	2949.7	486.3	41.5	15.5
40°	3631.2	3530.4	3453.9	3391.3	3270.9	3033.5	2675.6	2429.2	295.2	29.3	10.6
42.5°	2979.0	2884.6	2817.1	2757.8	2646.3	2436.5	2142.1	1894.9	141.5	20.3	7.3
45°	2317.0	2232.4	2175.5	2121.8	2021.8	1815.2	1581.8	1402.9	91.9	14.6	5.7
47.5°	1582.6	1538.7	1445.2	1386.6	1284.1	1126.4	907.6	710.8	61.0	10.6	4.1
50°	657.9	635.2	573.3	533.5	474.9	394.4	286.3	239.9	37.4	7.3	3.3
52.5°	255.4	249.7	234.2	225.3	210.6	189.5	157.8	140.7	22.8	5.7	3.3
55°	137.4	135.8	127.7	122.8	114.7	104.1	85.4	74.8	14.6	4.1	2.4
57.5°	63.4	62.6	58.6	58.6	52.9	48.8	40.7	36.6	8.9	3.3	2.4
60°	30.1	30.1	28.5	28.5	26.0	24.4	20.3	18.7	5.7	2.4	2.4
62.5°	14.6	14.6	14.6	14.6	13.8	13.0	11.4	10.6	4.1	2.4	2.4
65°	8.1	8.1	8.1	8.1	7.3	7.3	6.5	5.7	3.3	2.4	2.4
67.5°	4.1	4.1	4.1	4.1	4.1	4.1	3.3	3.3	2.4	2.4	2.4
70°	2.4	2.4	2.4	2.4	2.4	1.6	1.6	1.6	1.6	2.4	2.4
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
80°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
82.5°	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	2.4	2.4
87.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	2.4	2.4
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°	120.4	120.4	120.4	120.4
2.5°	100.0	87.0	80.5	78.9
5°	82.1	64.2	55.3	52.0
7.5°	66.7	46.4	39.0	35.8
10°	52.9	36.6	29.3	26.8
12.5°	43.9	29.3	23.6	22.0
15°	37.4	25.2	21.1	20.3
17.5°	34.2	26.8	25.2	26.0
20°	41.5	43.9	51.2	52.9
22.5°	87.8	152.1	206.6	218.8
25°	183.0	219.6	227.7	235.8
27.5°	101.7	78.9	77.3	80.5
30°	41.5	42.3	43.9	45.5
32.5°	30.9	30.9	30.1	30.9
35°	21.1	19.5	18.7	19.5
37.5°	13.0	12.2	11.4	11.4
40°	8.9	8.1	7.3	7.3
42.5°	6.5	4.9	4.1	4.1
45°	4.9	3.3	2.4	1.6
47.5°	4.1	2.4	0.8	0.8
50°	3.3	1.6	0.8	0.0
52.5°	2.4	1.6	0.8	0.0
55°	2.4	1.6	0.0	0.0
57.5°	2.4	1.6	0.0	0.0
60°	2.4	1.6	0.8	0.0
62.5°	2.4	1.6	0.8	0.8
65°	2.4	1.6	0.8	0.0
67.5°	2.4	1.6	0.8	0.0
70°	2.4	1.6	0.8	0.0
72.5°	3.3	1.6	0.8	0.0
75°	3.3	2.4	0.8	0.0
77.5°	3.3	2.4	0.8	0.0
80°	3.3	2.4	0.8	0.0
82.5°	3.3	2.4	0.8	0.0
85°	3.3	2.4	0.8	0.0
87.5°	3.3	2.4	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)