

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: P170802

Luminaire Tested: **LDA4A28930D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170802
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: LDA4A28930D010TE 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: 2532.1 lumens
Efficiency: N/A
Efficacy: 56.9 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

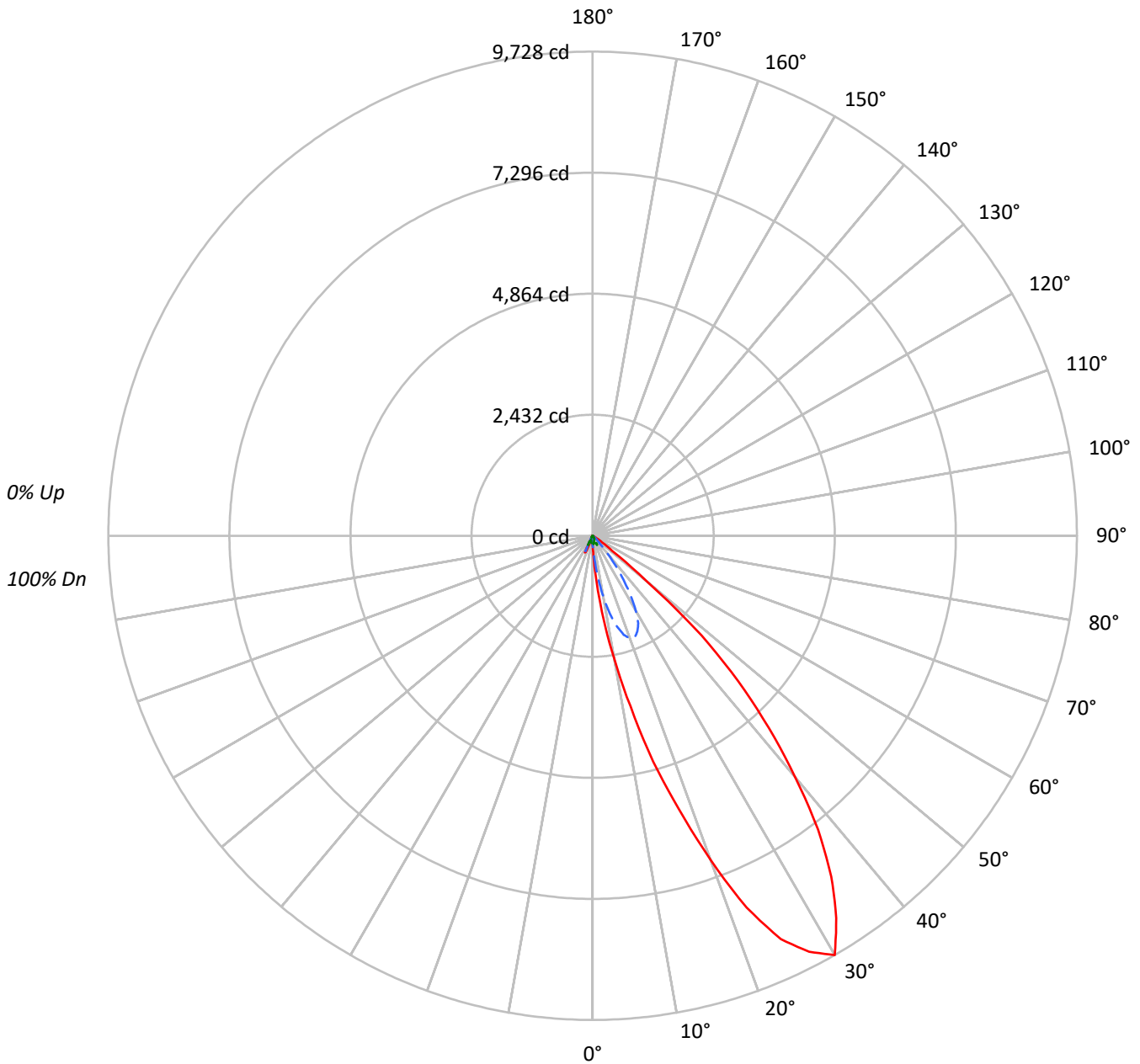
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					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°	23251	23251	23251
5°	119508	21606	10091
10°	315000	18023	5260
15°	599549	14149	4061
20°	910641	11695	10868
25°	1216801	27900	50261
30°	1385475	10525	10155
35°	1258434	5948	4608
40°	1019265	2673	1852
45°	721262	1552	436
50°	263180	979	0
55°	54772	817	0
60°	13198	937	0
65°	4086	1109	0
70°	1370	1370	0
75°	620	1811	0
80°	0	2699	0
85°	0	5378	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.7	1.7
10°-20°	318.5	12.6
20°-30°	807.7	31.9
30°-40°	864.5	34.1
40°-50°	441.9	17.5
50°-60°	46.1	1.8
60°-70°	5.3	0.2
70°-80°	2.9	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°	1168.9	46.2
0°-40°	2033.3	80.3
0°-60°	2521.3	99.6
0°-90°	2532.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2532.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	188	188	188	188	188	
5°	965	525	174	101	82	141
15°	4695	1887	111	40	32	1387
25°	8941	2125	205	344	369	4062
35°	8357	1077	40	31	31	5131
45°	4135	144	9	5	2	3086
55°	255	23	4	2	0	345
65°	14	5	4	2	0	19
75°	1	2	4	4	0	1
85°	0	2	4	4	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°	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5
2.5°	380.8	384.6	356.6	365.5	371.8	359.1	356.6	356.6	370.6	362.9	375.7
5°	965.2	961.4	913.0	927.0	937.2	913.0	924.5	906.7	928.3	914.3	928.3
7.5°	1686.0	1730.6	1669.4	1683.5	1692.4	1666.9	1673.3	1647.8	1672.0	1655.4	1666.9
10°	2515.0	2560.8	2489.5	2501.0	2507.4	2483.2	2484.4	2451.3	2473.0	2455.1	2462.8
12.5°	3505.7	3523.5	3489.2	3498.1	3501.9	3470.1	3410.2	3416.6	3438.2	3407.7	3415.3
15°	4695.1	4682.4	4641.6	4670.9	4641.6	4626.3	4535.9	4530.8	4543.5	4509.2	4454.4
17.5°	5743.1	5839.9	5794.0	5810.6	5774.9	5774.9	5659.1	5640.0	5641.2	5549.5	5539.4
20°	6937.6	7061.1	6949.0	6954.1	6907.0	6905.7	6764.4	6724.9	6708.4	6603.9	6574.6
22.5°	8088.7	8124.4	8123.1	8101.5	7990.7	8054.4	7877.4	7815.0	7764.0	7645.6	7587.0
25°	8940.7	9052.7	8976.3	8921.6	8824.8	8905.0	8706.3	8624.8	8548.4	8449.1	8372.7
27.5°	9422.0	9526.4	9508.6	9427.1	9327.8	9405.5	9187.7	9082.0	8973.8	8901.2	8805.7
30°	9727.6	9886.8	9834.6	9657.6	9512.4	9537.9	9293.4	9152.0	9032.3	8957.2	8836.2
32.5°	9107.5	9271.7	9256.5	9127.8	9052.7	9115.1	8902.5	8762.4	8647.8	8587.9	8452.9
35°	8357.4	8549.7	8507.7	8400.7	8346.0	8418.6	8211.0	8093.8	7978.0	7925.7	7778.0
37.5°	7439.3	7620.1	7578.1	7476.2	7422.7	7476.2	7277.6	7169.3	7059.8	7005.1	6904.5
40°	6330.2	6489.3	6444.8	6350.5	6306.0	6344.2	6172.2	6078.0	5985.1	5944.3	5810.6
42.5°	5246.5	5373.8	5333.1	5251.6	5217.2	5242.7	5101.3	5017.3	4935.8	4901.4	4822.4
45°	4134.8	4260.9	4221.4	4151.3	4119.5	4133.5	4015.1	3940.0	3869.9	3838.1	3766.8
47.5°	2967.1	3108.4	3060.0	3000.2	2967.1	2960.7	2856.3	2788.8	2795.1	2686.9	2620.7
50°	1371.5	1491.2	1442.8	1410.9	1379.1	1361.3	1324.4	1247.9	1269.6	1171.5	1133.3
52.5°	497.9	527.2	515.7	505.5	495.4	491.5	478.8	459.7	462.3	438.1	426.6
55°	254.7	268.7	264.9	258.5	258.5	254.7	248.3	240.7	235.6	231.8	227.9
57.5°	117.2	124.8	122.2	119.7	119.7	117.2	114.6	110.8	113.3	107.0	105.7
60°	53.5	57.3	56.0	54.8	54.8	54.8	53.5	52.2	52.2	50.9	49.7
62.5°	25.5	28.0	26.7	26.7	26.7	26.7	25.5	25.5	25.5	25.5	24.2
65°	14.0	14.0	14.0	14.0	14.0	14.0	14.0	12.7	14.0	12.7	12.7
67.5°	7.6	7.6	7.6	7.6	6.4	7.6	7.6	6.4	6.4	6.4	6.4
70°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	0.0	1.3	1.3	1.3	0.0	1.3	1.3	1.3	1.3	1.3	1.3
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	1.3	0.0	1.3	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°	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5	188.5
2.5°	346.4	355.3	364.2	361.7	348.9	347.6	342.5	345.1	268.7	217.8	182.1
5°	878.7	890.1	901.6	895.2	863.4	855.7	830.3	825.2	524.6	257.2	174.5
7.5°	1605.8	1612.1	1621.1	1613.4	1566.3	1544.7	1491.2	1439.0	882.5	310.7	161.7
10°	2394.0	2391.5	2395.3	2385.1	2326.5	2284.5	2201.7	2164.8	1250.5	356.6	143.9
12.5°	3313.4	3303.2	3247.2	3274.0	3191.2	3105.9	2969.6	2855.0	1598.1	382.0	127.3
15°	4386.9	4356.4	4336.0	4305.4	4203.5	4066.0	3858.5	3731.1	1887.2	379.5	110.8
17.5°	5454.0	5404.4	5315.2	5326.7	5208.3	5016.0	4742.2	4524.4	2087.1	347.6	98.1
20°	6463.9	6390.0	6277.9	6269.0	6126.4	5873.0	5527.9	5257.9	2196.6	295.4	89.1
22.5°	7436.8	7322.1	7171.9	7124.8	6941.4	6582.3	6131.5	5803.0	2206.8	247.0	107.0
25°	8203.3	8059.5	7892.6	7811.1	7608.7	7150.2	6588.7	6185.0	2125.3	244.5	205.0
27.5°	8631.2	8468.2	8301.4	8190.6	7985.6	7466.0	6830.6	6364.5	1985.3	262.3	194.8
30°	8654.1	8470.8	8297.6	8157.5	7953.8	7398.5	6723.6	6238.5	1733.1	165.5	73.9
32.5°	8273.4	8077.3	7904.1	7746.2	7545.0	6986.0	6323.8	5860.3	1409.7	115.9	52.2
35°	7607.4	7404.9	7239.4	7072.6	6884.1	6358.2	5750.7	5319.1	1077.3	91.7	39.5
37.5°	6700.7	6513.5	6367.1	6253.7	6050.0	5631.0	5075.8	4618.7	761.5	64.9	24.2
40°	5685.8	5527.9	5408.2	5310.1	5121.7	4749.8	4189.5	3803.7	462.3	45.8	16.6
42.5°	4664.5	4516.8	4411.1	4318.2	4143.7	3815.2	3354.2	2967.1	221.6	31.8	11.5
45°	3628.0	3495.5	3406.4	3322.3	3165.7	2842.3	2476.8	2196.6	143.9	22.9	8.9
47.5°	2478.1	2409.3	2262.9	2171.2	2010.7	1763.7	1421.1	1113.0	95.5	16.6	6.4
50°	1030.2	994.5	897.8	835.4	743.7	617.6	448.2	375.7	58.6	11.5	5.1
52.5°	399.9	390.9	366.7	352.7	329.8	296.7	247.0	220.3	35.7	8.9	5.1
55°	215.2	212.7	199.9	192.3	179.6	163.0	133.7	117.2	22.9	6.4	3.8
57.5°	99.3	98.1	91.7	91.7	82.8	76.4	63.7	57.3	14.0	5.1	3.8
60°	47.1	47.1	44.6	44.6	40.7	38.2	31.8	29.3	8.9	3.8	3.8
62.5°	22.9	22.9	22.9	22.9	21.6	20.4	17.8	16.6	6.4	3.8	3.8
65°	12.7	12.7	12.7	12.7	11.5	11.5	10.2	8.9	5.1	3.8	3.8
67.5°	6.4	6.4	6.4	6.4	6.4	6.4	5.1	5.1	3.8	3.8	3.8
70°	3.8	3.8	3.8	3.8	3.8	2.5	2.5	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°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	3.8	3.8
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	3.8	3.8
80°	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3	2.5	3.8	3.8
82.5°	0.0	1.3	1.3	1.3	1.3	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	1.3	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°	188.5	188.5	188.5	188.5
2.5°	156.6	136.3	126.1	123.5
5°	128.6	100.6	86.6	81.5
7.5°	104.4	72.6	61.1	56.0
10°	82.8	57.3	45.8	42.0
12.5°	68.8	45.8	36.9	34.4
15°	58.6	39.5	33.1	31.8
17.5°	53.5	42.0	39.5	40.7
20°	64.9	68.8	80.2	82.8
22.5°	137.5	238.1	323.4	342.5
25°	286.5	343.8	356.6	369.3
27.5°	159.2	123.5	121.0	126.1
30°	64.9	66.2	68.8	71.3
32.5°	48.4	48.4	47.1	48.4
35°	33.1	30.6	29.3	30.6
37.5°	20.4	19.1	17.8	17.8
40°	14.0	12.7	11.5	11.5
42.5°	10.2	7.6	6.4	6.4
45°	7.6	5.1	3.8	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	1.3	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	1.3	0.0
62.5°	3.8	2.5	1.3	1.3
65°	3.8	2.5	1.3	0.0
67.5°	3.8	2.5	1.3	0.0
70°	3.8	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	0.0
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)