

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: P170797

Luminaire Tested: **LDA4A28827D010TE LAR25NF 4LAL1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170797
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: LDA4A28827D010TE 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 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2735.2 lumens
Efficiency: N/A
Efficacy: 61.5 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

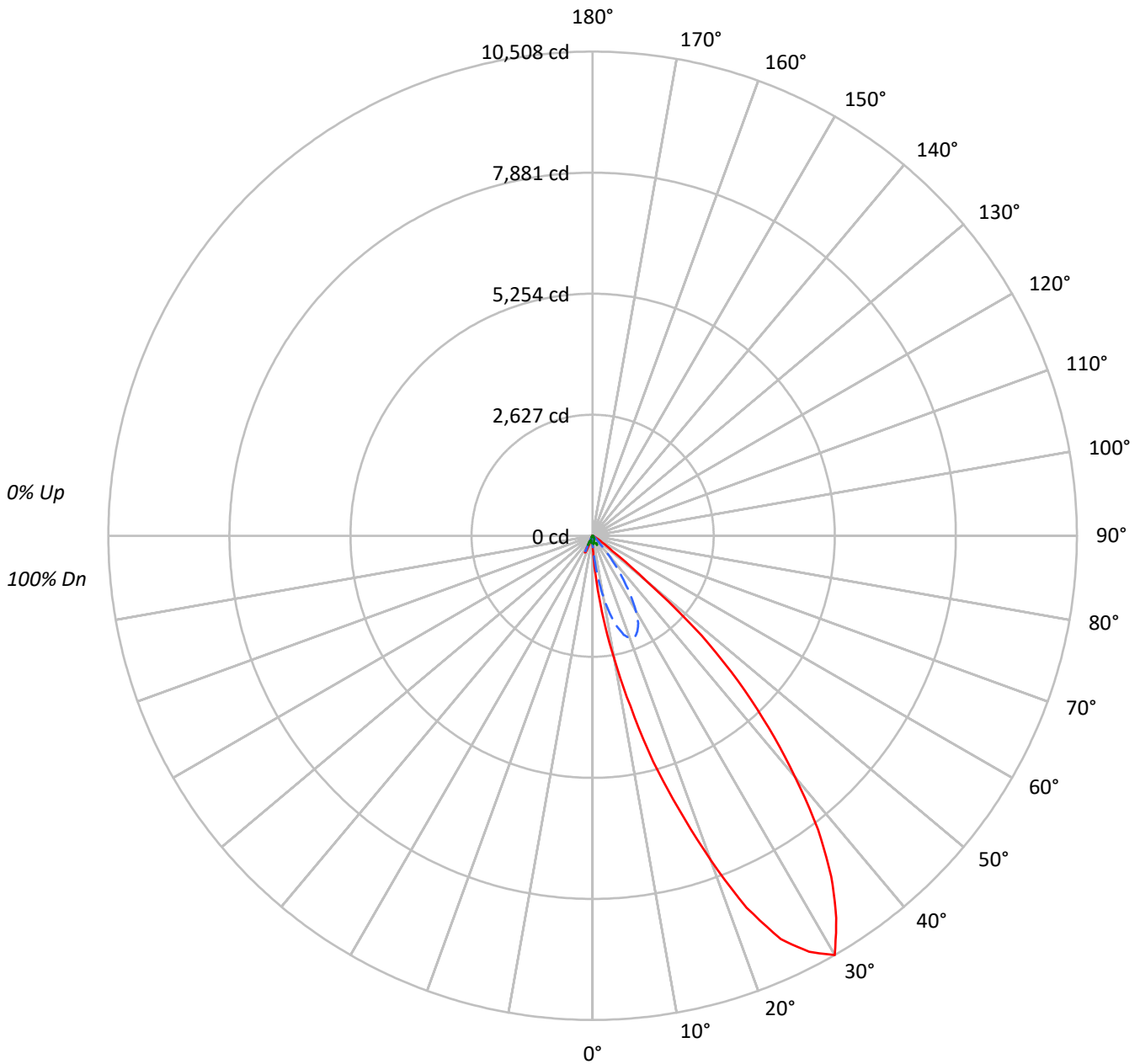
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	25113	25113	25113
5°	129104	23339	10896
10°	340262	19464	5686
15°	647640	15285	4393
20°	983688	12640	11735
25°	1314396	30145	54289
30°	1496611	11366	10967
35°	1359381	6415	4969
40°	1101013	2882	1997
45°	779106	1675	488
50°	284288	1055	0
55°	59159	882	0
60°	14259	1011	0
65°	4407	1197	0
70°	1479	1479	0
75°	667	1954	0
80°	0	2912	0
85°	0	5802	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.1	1.7
10°-20°	344.0	12.6
20°-30°	872.5	31.9
30°-40°	933.8	34.1
40°-50°	477.3	17.5
50°-60°	49.8	1.8
60°-70°	5.7	0.2
70°-80°	3.1	0.1
80°-90°	2.8	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°	1262.6	46.2
0°-40°	2196.4	80.3
0°-60°	2723.6	99.6
0°-90°	2735.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2735.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	204	204	204	204	204	
5°	1043	567	188	109	88	152
15°	5072	2039	120	43	34	1498
25°	9658	2296	222	371	399	4388
35°	9028	1164	43	33	33	5542
45°	4466	155	10	6	3	3333
55°	275	25	4	3	0	373
65°	15	6	4	3	0	20
75°	1	3	4	4	0	1
85°	0	3	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°	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6
2.5°	411.3	415.4	385.2	394.8	401.7	387.9	385.2	385.2	400.3	392.0	405.8
5°	1042.7	1038.5	986.3	1001.4	1012.4	986.3	998.7	979.4	1002.8	987.7	1002.8
7.5°	1821.2	1869.4	1803.4	1818.5	1828.1	1800.6	1807.5	1780.0	1806.1	1788.2	1800.6
10°	2716.7	2766.3	2689.2	2701.6	2708.5	2682.3	2683.7	2648.0	2671.3	2652.1	2660.3
12.5°	3786.9	3806.2	3769.0	3778.7	3782.8	3748.4	3683.8	3690.6	3714.0	3681.0	3689.3
15°	5071.7	5057.9	5013.9	5045.6	5013.9	4997.4	4899.8	4894.2	4908.0	4870.9	4811.7
17.5°	6203.8	6308.3	6258.8	6276.7	6238.2	6238.2	6113.0	6092.4	6093.7	5994.7	5983.7
20°	7494.1	7627.5	7506.4	7511.9	7461.0	7459.7	7307.0	7264.3	7246.5	7133.7	7102.0
22.5°	8737.6	8776.1	8774.7	8751.3	8631.7	8700.4	8509.2	8441.8	8386.8	8258.9	8195.6
25°	9657.8	9778.9	9696.3	9637.2	9532.6	9619.3	9404.7	9316.7	9234.1	9126.9	9044.3
27.5°	10177.8	10290.6	10271.3	10183.3	10076.0	10159.9	9924.7	9810.5	9693.6	9615.2	9512.0
30°	10507.9	10679.9	10623.5	10432.3	10275.4	10303.0	10038.9	9886.2	9756.9	9675.7	9545.0
32.5°	9838.0	10015.5	9999.0	9860.0	9778.9	9846.3	9616.6	9465.2	9341.4	9276.8	9131.0
35°	9027.8	9235.5	9190.1	9074.6	9015.4	9093.8	8869.6	8743.1	8617.9	8561.5	8401.9
37.5°	8036.0	8231.4	8186.0	8075.9	8018.2	8075.9	7861.3	7744.4	7626.1	7567.0	7458.3
40°	6837.9	7009.9	6961.7	6859.9	6811.8	6853.0	6667.3	6565.6	6465.1	6421.1	6276.7
42.5°	5667.3	5804.9	5760.9	5672.8	5635.7	5663.2	5510.5	5419.7	5331.7	5294.5	5209.3
45°	4466.4	4602.6	4560.0	4484.3	4449.9	4465.1	4337.1	4256.0	4180.3	4145.9	4068.9
47.5°	3205.1	3357.7	3305.5	3240.8	3205.1	3198.2	3085.4	3012.5	3019.4	2902.4	2830.9
50°	1481.5	1610.8	1558.5	1524.1	1489.7	1470.5	1430.6	1348.1	1371.4	1265.5	1224.3
52.5°	537.8	569.5	557.1	546.1	535.1	531.0	517.2	496.6	499.3	473.2	460.8
55°	275.1	290.2	286.1	279.2	279.2	275.1	268.2	260.0	254.5	250.4	246.2
57.5°	126.6	134.8	132.1	129.3	129.3	126.6	123.8	119.7	122.4	115.5	114.2
60°	57.8	61.9	60.5	59.1	59.1	59.1	57.8	56.4	56.4	55.0	53.6
62.5°	27.5	30.3	28.9	28.9	28.9	28.9	27.5	27.5	27.5	27.5	26.1
65°	15.1	15.1	15.1	15.1	15.1	15.1	15.1	13.8	15.1	13.8	13.8
67.5°	8.3	8.3	8.3	8.3	6.9	8.3	8.3	6.9	6.9	6.9	6.9
70°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
75°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
77.5°	0.0	1.4	1.4	1.4	0.0	1.4	1.4	1.4	1.4	1.4	1.4
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	1.4	0.0	1.4	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°	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6	203.6
2.5°	374.2	383.8	393.4	390.7	376.9	375.5	370.0	372.8	290.2	235.2	196.7
5°	949.1	961.5	973.9	967.0	932.6	924.4	896.9	891.4	566.7	277.9	188.5
7.5°	1734.6	1741.5	1751.1	1742.8	1691.9	1668.6	1610.8	1554.4	953.3	335.6	174.7
10°	2586.1	2583.3	2587.4	2576.4	2513.2	2467.8	2378.3	2338.5	1350.8	385.2	155.4
12.5°	3579.2	3568.2	3507.7	3536.6	3447.2	3355.0	3207.8	3084.0	1726.3	412.7	137.6
15°	4738.8	4705.8	4683.8	4650.8	4540.7	4392.2	4168.0	4030.4	2038.6	409.9	119.7
17.5°	5891.5	5837.9	5741.6	5754.0	5626.0	5418.3	5122.6	4887.4	2254.5	375.5	105.9
20°	6982.4	6902.6	6781.5	6771.9	6617.8	6344.1	5971.3	5679.7	2372.8	319.1	96.3
22.5°	8033.3	7909.5	7747.2	7696.3	7498.2	7110.3	6623.3	6268.4	2383.8	266.9	115.5
25°	8861.4	8705.9	8525.7	8437.7	8219.0	7723.8	7117.2	6681.1	2295.8	264.1	221.5
27.5°	9323.6	9147.5	8967.3	8847.6	8626.1	8064.9	7378.5	6875.1	2144.5	283.4	210.5
30°	9348.3	9150.2	8963.2	8811.9	8591.8	7992.0	7263.0	6738.9	1872.1	178.8	79.8
32.5°	8937.0	8725.2	8538.1	8367.5	8150.2	7546.3	6831.0	6330.3	1522.7	125.2	56.4
35°	8217.6	7998.9	7820.1	7639.9	7436.3	6868.2	6212.0	5745.7	1163.7	99.0	42.6
37.5°	7238.2	7036.0	6877.8	6755.4	6535.3	6082.7	5483.0	4989.2	822.6	70.2	26.1
40°	6141.9	5971.3	5842.0	5736.1	5532.5	5130.8	4525.6	4108.8	499.3	49.5	17.9
42.5°	5038.7	4879.1	4764.9	4664.5	4476.1	4121.2	3623.2	3205.1	239.3	34.4	12.4
45°	3919.0	3775.9	3679.6	3588.8	3419.6	3070.3	2675.5	2372.8	155.4	24.8	9.6
47.5°	2676.8	2602.6	2444.4	2345.3	2172.0	1905.2	1535.1	1202.2	103.2	17.9	6.9
50°	1112.8	1074.3	969.8	902.4	803.3	667.1	484.2	405.8	63.3	12.4	5.5
52.5°	431.9	422.3	396.2	381.0	356.3	320.5	266.9	238.0	38.5	9.6	5.5
55°	232.5	229.7	216.0	207.7	194.0	176.1	144.4	126.6	24.8	6.9	4.1
57.5°	107.3	105.9	99.0	99.0	89.4	82.5	68.8	61.9	15.1	5.5	4.1
60°	50.9	50.9	48.1	48.1	44.0	41.3	34.4	31.6	9.6	4.1	4.1
62.5°	24.8	24.8	24.8	24.8	23.4	22.0	19.3	17.9	6.9	4.1	4.1
65°	13.8	13.8	13.8	13.8	12.4	12.4	11.0	9.6	5.5	4.1	4.1
67.5°	6.9	6.9	6.9	6.9	6.9	6.9	5.5	5.5	4.1	4.1	4.1
70°	4.1	4.1	4.1	4.1	4.1	2.8	2.8	2.8	2.8	4.1	4.1
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.8	4.1	4.1
75°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.8	4.1	4.1
77.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.8	4.1	4.1
80°	0.0	0.0	1.4	1.4	1.4	1.4	1.4	1.4	2.8	4.1	4.1
82.5°	0.0	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.8	4.1	4.1
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.8	4.1	4.1
87.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	2.8	4.1	4.1
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°	203.6	203.6	203.6	203.6
2.5°	169.2	147.2	136.2	133.4
5°	138.9	108.7	93.5	88.0
7.5°	112.8	78.4	66.0	60.5
10°	89.4	61.9	49.5	45.4
12.5°	74.3	49.5	39.9	37.1
15°	63.3	42.6	35.8	34.4
17.5°	57.8	45.4	42.6	44.0
20°	70.2	74.3	86.7	89.4
22.5°	148.6	257.2	349.4	370.0
25°	309.5	371.4	385.2	398.9
27.5°	171.9	133.4	130.7	136.2
30°	70.2	71.5	74.3	77.0
32.5°	52.3	52.3	50.9	52.3
35°	35.8	33.0	31.6	33.0
37.5°	22.0	20.6	19.3	19.3
40°	15.1	13.8	12.4	12.4
42.5°	11.0	8.3	6.9	6.9
45°	8.3	5.5	4.1	2.8
47.5°	6.9	4.1	1.4	1.4
50°	5.5	2.8	1.4	0.0
52.5°	4.1	2.8	1.4	0.0
55°	4.1	2.8	0.0	0.0
57.5°	4.1	2.8	0.0	0.0
60°	4.1	2.8	1.4	0.0
62.5°	4.1	2.8	1.4	1.4
65°	4.1	2.8	1.4	0.0
67.5°	4.1	2.8	1.4	0.0
70°	4.1	2.8	1.4	0.0
72.5°	5.5	2.8	1.4	0.0
75°	5.5	4.1	1.4	0.0
77.5°	5.5	4.1	1.4	0.0
80°	5.5	4.1	1.4	0.0
82.5°	5.5	4.1	1.4	0.0
85°	5.5	4.1	1.4	0.0
87.5°	5.5	4.1	1.4	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)