

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: P170888

Luminaire Tested: **LDA4A13840D010TE LAR35FL 4LLWW1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170888
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26103)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A13840D010TE LAR35FL 4LLWW1
Description: PORTFOLIO 4" Lensed Wall Wash, Self-flanged, 35° Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1324.6 lumens
Efficiency: N/A
Efficacy: 59.5 lumens/watt
Spacing Criteria (0/90/45): 2.19 / 1.11 / 1.55
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

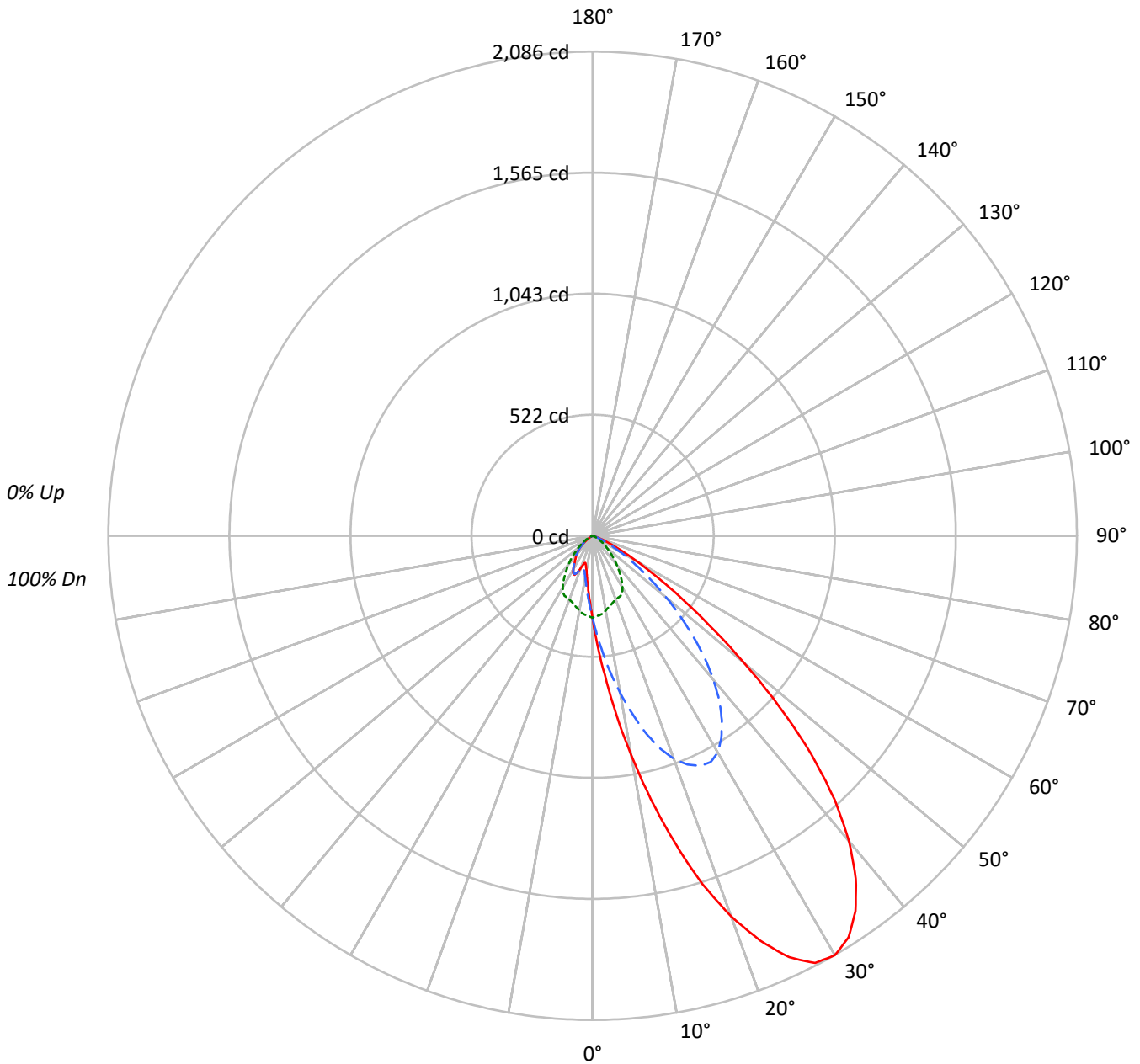
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90																			
2	104	98	92	88	102	96	91	87	93	89	85	89	86	83	87	84	81	80																			
3	97	88	82	76	94	87	81	76	84	79	74	81	77	73	79	75	72	70																			
4	90	80	72	67	87	78	72	66	76	70	66	74	69	65	72	67	64	62																			
5	83	72	64	59	81	71	64	59	69	63	58	67	62	57	65	61	57	55																			
6	77	65	58	52	75	65	57	52	63	56	52	61	56	51	60	55	51	49																			
7	72	60	52	46	70	59	52	46	57	51	46	56	50	46	55	50	45	44																			
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	50	45	41	39																			
9	62	50	43	38	61	50	42	37	49	42	37	47	41	37	47	41	37	35																			
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	43627	43627	43627
5°	74451	42556	27797
10°	120339	40881	18988
15°	174842	39241	15439
20°	228973	38381	19243
25°	272697	38896	25368
30°	297174	36689	23600
35°	297209	31305	19951
40°	276610	25875	17341
45°	232333	20235	14879
50°	163070	15102	10976
55°	98147	10860	6064
60°	54149	6957	2245
65°	26122	3386	233
70°	10459	1190	289
75°	3145	810	0
80°	1208	1208	0
85°	3538	2406	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.0	2.9
10°-20°	150.3	11.4
20°-30°	304.9	23.0
30°-40°	370.5	28.0
40°-50°	292.3	22.1
50°-60°	132.4	10.0
60°-70°	31.3	2.4
70°-80°	3.4	0.3
80°-90°	1.5	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°	493.2	37.2
0°-40°	863.7	65.2
0°-60°	1288.4	97.3
0°-90°	1324.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1324.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	354	354	354	354	354	
5°	601	506	344	252	224	69
15°	1369	877	307	146	121	398
25°	2004	1094	286	182	186	917
35°	1974	970	208	135	132	1219
45°	1332	612	116	84	85	1008
55°	456	250	50	34	28	431
65°	90	53	12	2	1	101
75°	7	3	2	1	0	10
85°	2	2	2	1	0	2
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7
2.5°	469.6	458.1	458.1	449.8	456.4	443.1	445.6	444.8	453.1	450.6	443.1
5°	601.3	591.4	590.6	579.8	588.1	570.7	571.5	569.0	578.2	569.0	558.3
7.5°	771.2	753.8	752.9	740.5	748.8	726.4	725.6	720.6	728.9	711.5	695.8
10°	960.8	936.0	934.3	919.4	928.5	899.5	897.1	888.8	894.6	867.2	844.9
12.5°	1163.8	1136.4	1133.1	1117.4	1125.7	1090.9	1084.3	1073.5	1076.0	1036.2	1006.4
15°	1369.2	1346.0	1342.7	1326.1	1334.4	1291.3	1280.6	1267.3	1264.8	1211.8	1173.7
17.5°	1573.8	1526.6	1541.5	1524.9	1532.4	1481.8	1467.8	1451.2	1442.1	1376.6	1328.6
20°	1744.4	1703.8	1714.6	1699.7	1706.3	1648.3	1630.9	1610.2	1594.5	1515.8	1460.3
22.5°	1888.5	1846.3	1840.5	1840.5	1844.6	1781.7	1758.5	1735.3	1712.9	1619.3	1563.0
25°	2003.7	1957.3	1950.7	1949.0	1949.8	1883.6	1856.2	1830.6	1801.6	1698.9	1637.6
27.5°	2074.9	2026.0	2018.6	2017.7	2013.6	1945.7	1915.0	1886.9	1852.1	1746.9	1678.1
30°	2086.5	2041.8	2033.5	2033.5	2022.7	1956.5	1922.5	1892.7	1853.7	1747.7	1674.0
32.5°	2051.7	2006.2	1997.0	1997.9	1980.5	1918.4	1881.9	1851.3	1810.7	1706.3	1630.1
35°	1973.8	1929.9	1921.7	1922.5	1901.0	1843.0	1804.9	1775.1	1732.0	1632.6	1554.7
37.5°	1862.0	1820.6	1812.3	1814.0	1787.5	1735.3	1696.4	1668.2	1624.3	1532.4	1456.2
40°	1717.9	1678.1	1670.7	1671.5	1642.5	1597.0	1558.9	1532.4	1488.5	1406.5	1333.6
42.5°	1543.1	1505.0	1499.2	1498.4	1470.2	1428.8	1391.6	1369.2	1324.5	1259.0	1189.4
45°	1331.9	1299.6	1273.9	1291.3	1262.3	1229.2	1194.4	1176.2	1133.9	1087.6	1025.4
47.5°	1094.2	1066.0	1040.4	1056.9	1030.4	1005.6	974.9	963.3	925.2	901.2	849.0
50°	849.8	825.8	802.6	816.7	796.0	779.4	755.4	749.6	718.1	714.8	674.2
52.5°	631.2	613.8	595.6	606.3	590.6	579.8	561.6	559.9	535.9	544.2	516.0
55°	456.4	444.0	429.9	438.2	426.6	420.0	406.7	407.5	389.3	401.7	381.8
57.5°	323.0	313.1	303.2	308.1	300.7	295.7	286.6	288.2	284.1	288.2	274.2
60°	219.5	213.7	206.2	210.4	203.8	201.3	195.5	196.3	186.4	199.6	189.7
62.5°	144.1	140.0	140.0	137.5	132.5	130.9	127.6	127.6	121.8	131.7	125.1
65°	89.5	87.8	87.0	85.3	82.0	81.2	78.7	78.7	74.5	82.0	77.0
67.5°	53.0	52.2	51.4	50.5	48.0	47.2	46.4	45.6	43.1	48.0	44.7
70°	29.0	29.0	28.2	27.3	25.7	25.7	24.8	24.8	23.2	25.7	23.2
72.5°	14.1	14.1	13.3	13.3	12.4	12.4	11.6	11.6	10.8	12.4	10.8
75°	6.6	6.6	5.8	5.8	5.8	5.8	5.0	5.0	5.0	5.8	5.0
77.5°	3.3	3.3	3.3	3.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
80°	1.7	1.7	1.7	1.7	1.7	0.8	0.8	0.8	0.8	1.7	1.7
82.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
85°	2.5	2.5	2.5	2.5	3.3	2.5	3.3	3.3	3.3	3.3	3.3
87.5°	3.3	3.3	3.3	3.3	3.3	4.1	4.1	4.1	3.3	4.1	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):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7	353.7
2.5°	445.6	439.0	441.5	434.0	428.2	425.7	425.7	424.9	386.0	347.1	319.7
5°	557.4	545.0	546.7	533.4	527.6	519.3	516.9	506.1	421.6	343.7	290.7
7.5°	690.0	671.8	661.0	648.6	641.1	626.2	618.7	597.2	454.7	337.1	262.6
10°	832.4	806.8	789.4	769.5	762.0	738.8	724.8	688.3	483.7	326.4	236.1
12.5°	986.5	951.7	920.2	898.7	889.6	844.9	835.8	783.6	510.2	316.4	214.5
15°	1144.7	1100.8	1061.1	1030.4	1018.8	974.9	946.8	877.2	533.4	307.3	198.0
17.5°	1285.5	1238.3	1190.3	1150.5	1133.9	1071.8	1045.3	959.2	550.8	298.2	188.9
20°	1410.6	1353.4	1302.9	1248.3	1229.2	1158.8	1115.7	1023.0	560.8	292.4	189.7
22.5°	1505.9	1440.4	1382.4	1321.1	1297.1	1220.1	1171.2	1066.9	564.1	288.2	195.5
25°	1575.4	1502.5	1437.9	1370.8	1342.7	1260.7	1206.8	1094.2	563.2	285.8	198.0
27.5°	1611.1	1533.2	1463.6	1391.6	1360.9	1276.4	1218.4	1100.0	551.7	275.8	198.0
30°	1606.1	1524.1	1451.2	1376.6	1343.5	1259.9	1200.2	1077.6	526.8	257.6	183.9
32.5°	1562.2	1478.5	1404.0	1329.4	1296.3	1214.3	1154.7	1032.1	491.2	233.6	164.8
35°	1489.3	1406.5	1332.7	1259.9	1226.7	1147.2	1089.2	969.9	450.6	207.9	147.4
37.5°	1394.0	1313.7	1242.5	1176.2	1138.1	1063.5	1007.2	896.2	405.9	184.7	132.5
40°	1275.6	1199.4	1132.3	1071.0	1030.4	961.7	910.3	809.3	358.7	160.7	118.4
42.5°	1138.9	1067.7	1013.0	951.7	906.2	845.7	801.0	713.2	310.6	139.2	103.5
45°	984.0	921.1	873.9	820.0	772.8	721.5	683.4	612.1	261.7	116.0	89.5
47.5°	817.5	765.4	728.9	684.2	637.8	596.4	566.6	509.4	215.4	96.9	76.2
50°	653.5	612.1	585.6	551.7	509.4	477.9	454.7	416.6	170.6	78.7	63.8
52.5°	502.8	473.0	454.7	429.9	392.6	371.1	354.5	328.0	130.0	63.8	51.4
55°	375.2	353.7	342.1	324.7	292.4	277.5	266.7	250.1	96.9	50.5	39.8
57.5°	270.9	256.8	249.3	237.7	211.2	202.1	194.7	184.7	70.4	38.9	29.0
60°	188.9	178.9	174.8	167.3	145.8	140.0	130.0	130.0	49.7	28.2	19.9
62.5°	125.1	118.4	116.8	111.0	94.4	91.1	88.6	87.0	34.0	19.1	11.6
65°	77.9	72.9	72.1	68.7	57.2	55.5	53.0	53.0	21.5	11.6	5.8
67.5°	44.7	42.2	41.4	39.8	31.5	30.6	29.0	30.6	12.4	5.8	2.5
70°	24.0	21.5	21.5	20.7	15.7	14.9	14.1	14.9	6.6	3.3	1.7
72.5°	11.6	9.9	9.9	9.1	6.6	6.6	5.8	7.5	3.3	1.7	1.7
75°	5.0	5.0	4.1	4.1	2.5	2.5	2.5	3.3	1.7	1.7	1.7
77.5°	2.5	2.5	2.5	2.5	0.8	0.8	0.8	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	0.0	0.0	0.0	1.7	1.7	1.7	1.7
82.5°	1.7	0.8	0.8	0.8	0.0	0.0	0.0	0.8	1.7	1.7	1.7
85°	2.5	2.5	2.5	2.5	1.7	1.7	1.7	2.5	1.7	1.7	1.7
87.5°	3.3	3.3	3.3	3.3	2.5	2.5	2.5	4.1	2.5	1.7	1.7
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):

	135°	157.5°	180°
0°	353.7	353.7	353.7
2.5°	296.5	279.1	280.8
5°	251.8	227.0	224.5
7.5°	212.9	186.4	183.1
10°	182.2	155.7	151.6
12.5°	159.9	135.8	131.7
15°	145.8	124.2	120.9
17.5°	143.3	126.7	125.1
20°	153.2	145.0	146.6
22.5°	170.6	168.1	172.3
25°	182.2	181.4	186.4
27.5°	179.7	178.1	181.4
30°	166.5	164.0	165.7
32.5°	150.8	146.6	148.3
35°	135.0	131.7	132.5
37.5°	121.8	119.3	119.3
40°	110.2	107.7	107.7
42.5°	97.7	96.1	96.9
45°	84.5	83.7	85.3
47.5°	71.2	70.4	72.1
50°	58.8	57.2	57.2
52.5°	46.4	43.9	42.2
55°	34.0	29.8	28.2
57.5°	23.2	19.1	17.4
60°	13.3	10.8	9.1
62.5°	6.6	4.1	3.3
65°	2.5	1.7	0.8
67.5°	1.7	0.8	0.8
70°	1.7	0.8	0.8
72.5°	0.8	0.8	0.8
75°	0.8	0.8	0.0
77.5°	0.8	0.8	0.8
80°	0.8	0.8	0.0
82.5°	0.8	0.8	0.0
85°	0.8	0.8	0.0
87.5°	0.8	0.8	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°











(END OF REPORT)