

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: P170890

Luminaire Tested: **LDA4A13930D010TE LAR35FL 4LLWW1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P170890
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: LDA4A13930D010TE LAR35FL 4LLWW1
Description: PORTFOLIO 4" Lensed Wall Wash, Self-flanged, 35° Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1050.5 lumens
Efficiency: N/A
Efficacy: 47.2 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

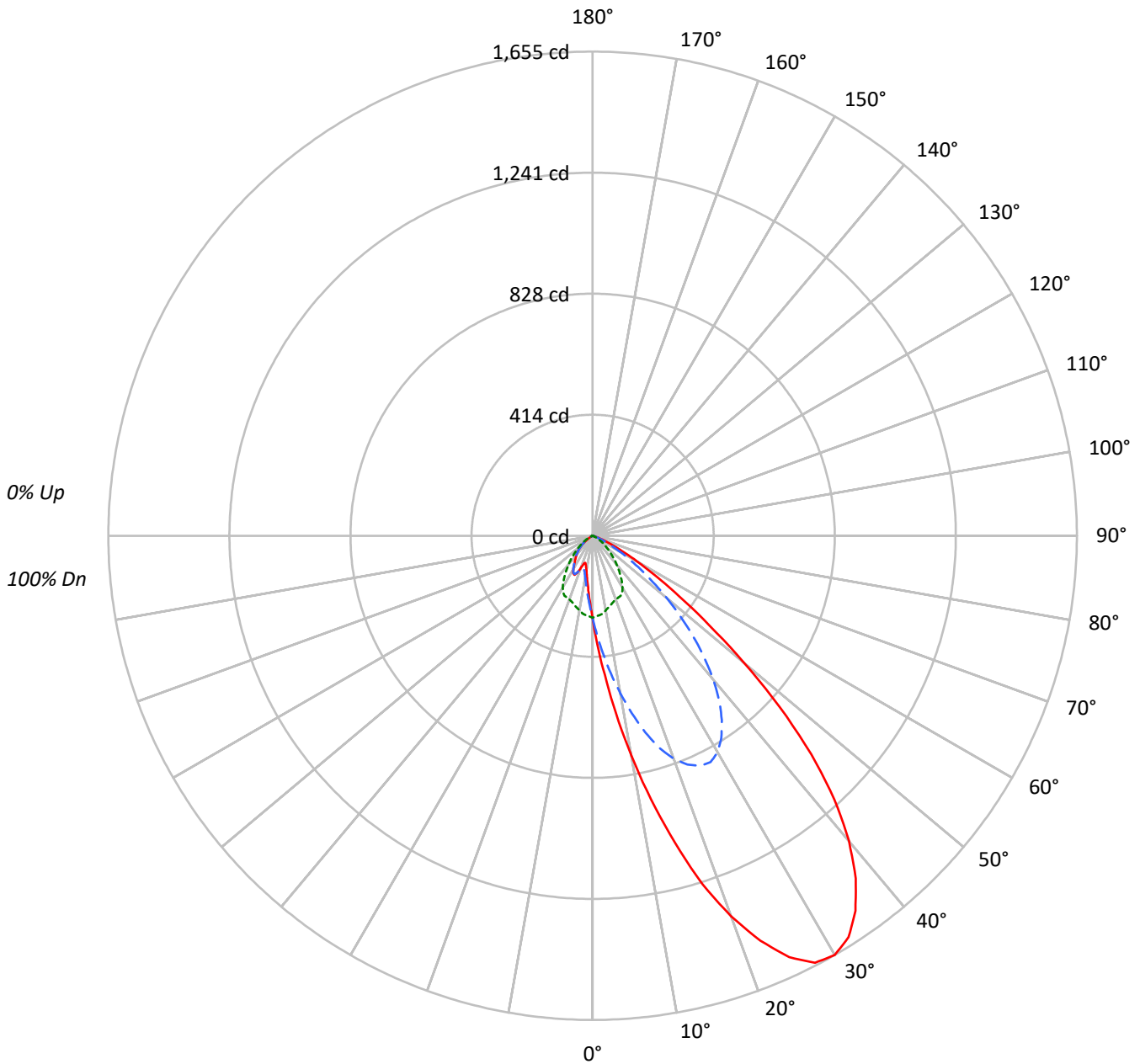
Input Watts (W): 22.27
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P170890

CATALOG NUMBER: LDA4A13930D010TE LAR35FL 4LLWW1

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°	34598	34598	34598
5°	59048	33752	22039
10°	95452	32414	15055
15°	138666	31120	12246
20°	181601	30440	15266
25°	216271	30840	20115
30°	235689	29098	18715
35°	235729	24830	15826
40°	219385	20513	13751
45°	184275	16048	11809
50°	129335	11974	8693
55°	77847	8623	4796
60°	42949	5501	1776
65°	20693	2685	204
70°	8295	938	252
75°	2526	620	0
80°	923	923	0
85°	2830	1840	0



TEST NUMBER: P170890

CATALOG NUMBER: LDA4A13930D010TE LAR35FL 4LLWW1

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.1	2.9
10°-20°	119.2	11.4
20°-30°	241.8	23.0
30°-40°	293.8	28.0
40°-50°	231.8	22.1
50°-60°	105.0	10.0
60°-70°	24.8	2.4
70°-80°	2.7	0.3
80°-90°	1.2	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°	391.2	37.2
0°-40°	685.0	65.2
0°-60°	1021.9	97.3
0°-90°	1050.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1050.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	280	280	280	280	280	
5°	477	401	273	200	178	54
15°	1086	696	244	116	96	316
25°	1589	868	227	144	148	727
35°	1566	769	165	107	105	967
45°	1056	486	92	67	68	799
55°	362	198	40	27	22	342
65°	71	42	9	2	1	80
75°	5	3	1	1	0	8
85°	2	2	1	1	0	2
90°	0	0	0	0	0	



TEST NUMBER: P170890

CATALOG NUMBER: LDA4A13930D010TE LAR35FL 4LLWW1

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
0°	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5
2.5°	372.5	363.3	363.3	356.7	362.0	351.5	353.4	352.8	359.3	357.4	351.5
5°	476.9	469.1	468.4	459.9	466.4	452.6	453.3	451.3	458.5	451.3	442.8
7.5°	611.6	597.8	597.2	587.3	593.9	576.1	575.5	571.5	578.1	564.3	551.8
10°	762.1	742.3	741.0	729.2	736.4	713.4	711.5	704.9	709.5	687.8	670.1
12.5°	923.0	901.3	898.7	886.2	892.8	865.2	859.9	851.4	853.4	821.8	798.2
15°	1085.9	1067.5	1064.9	1051.8	1058.3	1024.2	1015.6	1005.1	1003.2	961.1	930.9
17.5°	1248.2	1210.7	1222.6	1209.4	1215.3	1175.3	1164.1	1151.0	1143.7	1091.8	1053.7
20°	1383.5	1351.3	1359.9	1348.0	1353.3	1307.3	1293.5	1277.1	1264.6	1202.2	1158.2
22.5°	1497.8	1464.3	1459.7	1459.7	1463.0	1413.1	1394.7	1376.3	1358.6	1284.3	1239.7
25°	1589.1	1552.4	1547.1	1545.8	1546.4	1493.9	1472.2	1451.8	1428.9	1347.4	1298.8
27.5°	1645.6	1606.9	1601.0	1600.3	1597.0	1543.2	1518.9	1496.5	1468.9	1385.5	1331.0
30°	1654.8	1619.4	1612.8	1612.8	1604.3	1551.7	1524.8	1501.1	1470.2	1386.2	1327.7
32.5°	1627.3	1591.1	1583.9	1584.5	1570.8	1521.5	1492.6	1468.3	1436.1	1353.3	1292.9
35°	1565.5	1530.7	1524.1	1524.8	1507.7	1461.7	1431.5	1407.8	1373.7	1294.8	1233.1
37.5°	1476.8	1444.0	1437.4	1438.7	1417.7	1376.3	1345.4	1323.1	1288.3	1215.3	1154.9
40°	1362.5	1331.0	1325.1	1325.7	1302.7	1266.6	1236.4	1215.3	1180.5	1115.5	1057.7
42.5°	1223.9	1193.7	1189.1	1188.4	1166.1	1133.2	1103.7	1085.9	1050.5	998.6	943.4
45°	1056.4	1030.7	1010.4	1024.2	1001.2	974.9	947.3	932.9	899.4	862.6	813.3
47.5°	867.8	845.5	825.1	838.3	817.2	797.5	773.2	764.0	733.8	714.8	673.4
50°	674.0	655.0	636.6	647.7	631.3	618.2	599.1	594.5	569.6	566.9	534.8
52.5°	500.6	486.8	472.3	480.9	468.4	459.9	445.4	444.1	425.0	431.6	409.3
55°	362.0	352.1	341.0	347.5	338.3	333.1	322.6	323.2	308.8	318.6	302.9
57.5°	256.2	248.3	240.4	244.4	238.5	234.5	227.3	228.6	225.3	228.6	217.4
60°	174.1	169.5	163.6	166.9	161.6	159.6	155.0	155.7	147.8	158.3	150.4
62.5°	114.3	111.0	111.0	109.1	105.1	103.8	101.2	101.2	96.6	104.5	99.2
65°	70.9	69.6	69.0	67.7	65.0	64.4	62.4	62.4	59.1	65.0	61.1
67.5°	42.0	41.4	40.7	40.1	38.1	37.4	36.8	36.1	34.2	38.1	35.5
70°	23.0	23.0	22.3	21.7	20.4	20.4	19.7	19.7	18.4	20.4	18.4
72.5°	11.2	11.2	10.5	10.5	9.9	9.9	9.2	9.2	8.5	9.9	8.5
75°	5.3	5.3	4.6	4.6	4.6	4.6	3.9	3.9	3.9	4.6	3.9
77.5°	2.6	2.6	2.6	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80°	1.3	1.3	1.3	1.3	1.3	0.7	0.7	0.7	0.7	1.3	1.3
82.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
85°	2.0	2.0	2.0	2.0	2.6	2.0	2.6	2.6	2.6	2.6	2.6
87.5°	2.6	2.6	2.6	2.6	2.6	3.3	3.3	3.3	2.6	3.3	2.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P170890

CATALOG NUMBER: LDA4A13930D010TE LAR35FL 4LLWW1

CANDELA DISTRIBUTION (continued):

	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	67.5°	90°	112.5°
0°	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5	280.5
2.5°	353.4	348.2	350.2	344.2	339.6	337.7	337.7	337.0	306.1	275.3	253.6
5°	442.1	432.3	433.6	423.1	418.5	411.9	409.9	401.4	334.4	272.6	230.6
7.5°	547.2	532.8	524.2	514.4	508.5	496.6	490.7	473.7	360.7	267.4	208.3
10°	660.2	639.9	626.1	610.3	604.4	586.0	574.8	545.9	383.7	258.8	187.2
12.5°	782.4	754.8	729.9	712.8	705.6	670.1	662.9	621.5	404.7	251.0	170.1
15°	907.9	873.1	841.5	817.2	808.0	773.2	750.9	695.7	423.1	243.7	157.0
17.5°	1019.6	982.1	944.0	912.5	899.4	850.1	829.1	760.7	436.9	236.5	149.8
20°	1118.8	1073.4	1033.4	990.0	974.9	919.1	884.9	811.3	444.8	231.9	150.4
22.5°	1194.3	1142.4	1096.4	1047.8	1028.8	967.7	928.9	846.1	447.4	228.6	155.0
25°	1249.5	1191.7	1140.5	1087.2	1064.9	999.9	957.2	867.8	446.7	226.6	157.0
27.5°	1277.8	1216.0	1160.8	1103.7	1079.4	1012.4	966.4	872.4	437.5	218.8	157.0
30°	1273.8	1208.8	1151.0	1091.8	1065.6	999.2	951.9	854.7	417.8	204.3	145.8
32.5°	1239.0	1172.6	1113.5	1054.4	1028.1	963.1	915.8	818.6	389.6	185.3	130.7
35°	1181.2	1115.5	1057.0	999.2	972.9	909.9	863.9	769.3	357.4	164.9	116.9
37.5°	1105.6	1041.9	985.4	932.9	902.6	843.5	798.8	710.8	321.9	146.5	105.1
40°	1011.7	951.3	898.0	849.4	817.2	762.7	722.0	641.8	284.5	127.4	93.9
42.5°	903.3	846.8	803.4	754.8	718.7	670.7	635.3	565.6	246.4	110.4	82.1
45°	780.4	730.5	693.1	650.4	612.9	572.2	542.0	485.5	207.6	92.0	70.9
47.5°	648.4	607.0	578.1	542.6	505.8	473.0	449.3	404.0	170.8	76.9	60.4
50°	518.3	485.5	464.5	437.5	404.0	379.1	360.7	330.4	135.3	62.4	50.6
52.5°	398.8	375.1	360.7	341.0	311.4	294.3	281.2	260.1	103.1	50.6	40.7
55°	297.6	280.5	271.3	257.5	231.9	220.1	211.5	198.4	76.9	40.1	31.5
57.5°	214.8	203.7	197.7	188.5	167.5	160.3	154.4	146.5	55.8	30.9	23.0
60°	149.8	141.9	138.6	132.7	115.6	111.0	103.1	103.1	39.4	22.3	15.8
62.5°	99.2	93.9	92.6	88.0	74.9	72.3	70.3	69.0	26.9	15.1	9.2
65°	61.8	57.8	57.2	54.5	45.3	44.0	42.0	42.0	17.1	9.2	4.6
67.5°	35.5	33.5	32.8	31.5	25.0	24.3	23.0	24.3	9.9	4.6	2.0
70°	19.1	17.1	17.1	16.4	12.5	11.8	11.2	11.8	5.3	2.6	1.3
72.5°	9.2	7.9	7.9	7.2	5.3	5.3	4.6	5.9	2.6	1.3	1.3
75°	3.9	3.9	3.3	3.3	2.0	2.0	2.0	2.6	1.3	1.3	1.3
77.5°	2.0	2.0	2.0	2.0	0.7	0.7	0.7	1.3	1.3	1.3	1.3
80°	1.3	1.3	1.3	1.3	0.0	0.0	0.0	1.3	1.3	1.3	1.3
82.5°	1.3	0.7	0.7	0.7	0.0	0.0	0.0	0.7	1.3	1.3	1.3
85°	2.0	2.0	2.0	2.0	1.3	1.3	1.3	2.0	1.3	1.3	1.3
87.5°	2.6	2.6	2.6	2.6	2.0	2.0	2.0	3.3	2.0	1.3	1.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P170890

CATALOG NUMBER: LDA4A13930D010TE LAR35FL 4LLWW1

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	280.5	280.5	280.5
2.5°	235.2	221.4	222.7
5°	199.7	180.0	178.0
7.5°	168.8	147.8	145.2
10°	144.5	123.5	120.2
12.5°	126.8	107.7	104.5
15°	115.6	98.5	95.9
17.5°	113.7	100.5	99.2
20°	121.5	115.0	116.3
22.5°	135.3	133.4	136.6
25°	144.5	143.9	147.8
27.5°	142.6	141.2	143.9
30°	132.0	130.1	131.4
32.5°	119.6	116.3	117.6
35°	107.1	104.5	105.1
37.5°	96.6	94.6	94.6
40°	87.4	85.4	85.4
42.5°	77.5	76.2	76.9
45°	67.0	66.4	67.7
47.5°	56.5	55.8	57.2
50°	46.6	45.3	45.3
52.5°	36.8	34.8	33.5
55°	26.9	23.6	22.3
57.5°	18.4	15.1	13.8
60°	10.5	8.5	7.2
62.5°	5.3	3.3	2.6
65°	2.0	1.3	0.7
67.5°	1.3	0.7	0.7
70°	1.3	0.7	0.7
72.5°	0.7	0.7	0.7
75°	0.7	0.7	0.0
77.5°	0.7	0.7	0.7
80°	0.7	0.7	0.0
82.5°	0.7	0.7	0.0
85°	0.7	0.7	0.0
87.5°	0.7	0.7	0.0
90°	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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











(END OF REPORT)