

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: P174909

Luminaire Tested: **LDA4A09940D010TE LAR35FL 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P174909
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26217)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt
Description: PORTFOLIO 4" Adjustable Reflector, Self-flanged Trim Ring, 35° Flood Optic, at 30° tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 882.2 lumens
Efficiency: N/A
Efficacy: 63.7 lumens/watt
Spacing Criteria (0/90/45): 2.3 / 0.86 / 1.17
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

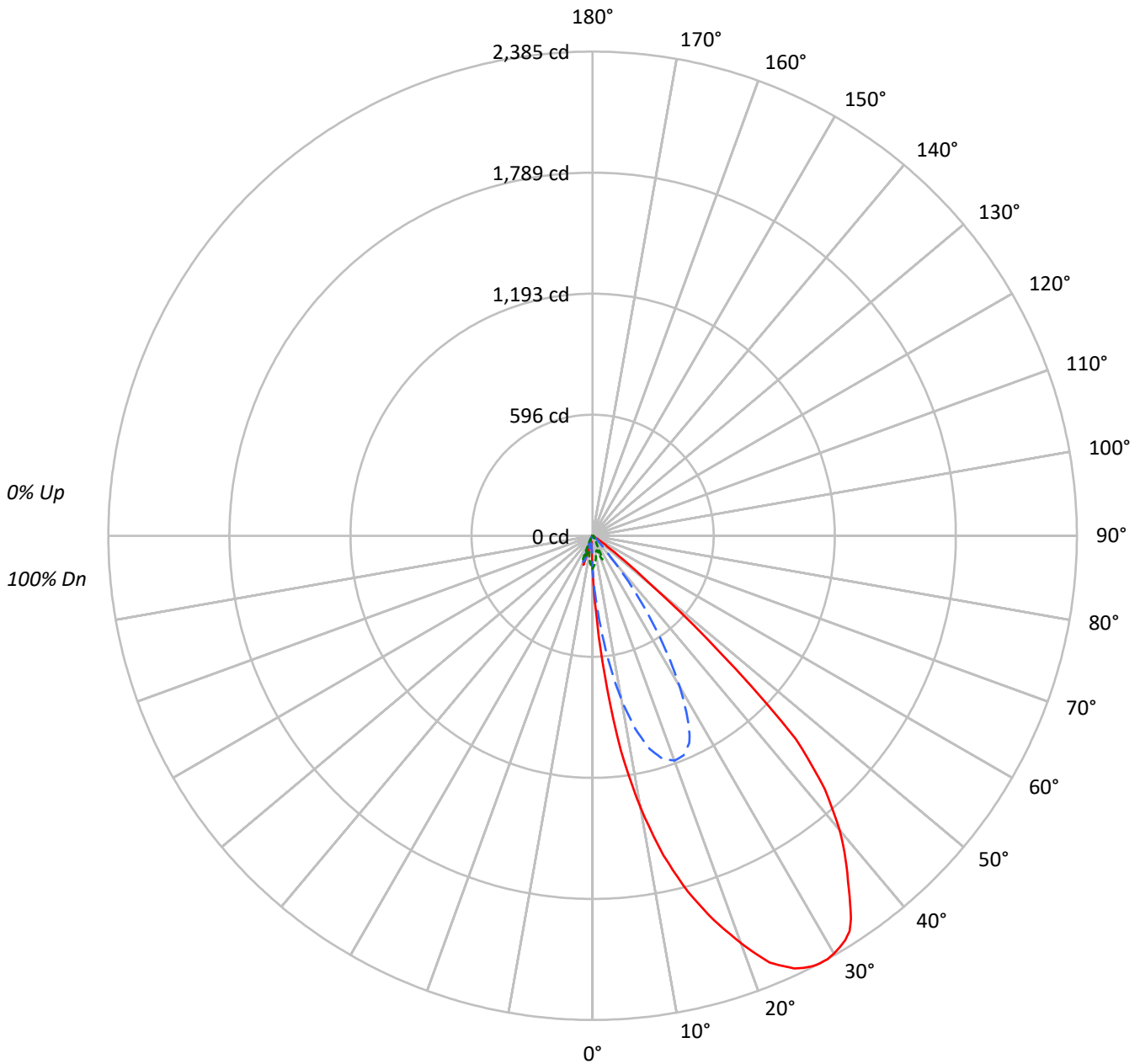
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P174909

CATALOG NUMBER: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt

Luminous Intensity Polar Plot





TEST NUMBER: P174909

CATALOG NUMBER: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt

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	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92																			
2	106	101	96	92	104	99	95	91	96	92	89	92	90	87	90	87	85	84																			
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76																			
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69																			
5	88	78	71	66	86	77	71	66	75	70	65	73	68	65	72	67	64	62																			
6	82	72	65	60	81	71	64	60	69	64	59	68	63	59	66	62	58	57																			
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52																			
8	72	61	54	50	71	61	54	49	59	54	49	58	53	49	57	52	49	47																			
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43																			
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	20204	20204	20204
5°	84864	16901	6240
10°	170488	11623	3783
15°	231910	9437	8530
20°	280283	14334	15817
25°	320100	8520	4396
30°	338464	4002	2037
35°	332911	1777	753
40°	304659	886	209
45°	247125	436	0
50°	73264	249	0
55°	13268	280	0
60°	2492	321	0
65°	613	379	0
70°	144	469	0
75°	0	620	0
80°	0	1208	0
85°	0	2406	0



TEST NUMBER: P174909

CATALOG NUMBER: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.8	3.4
10°-20°	154.1	17.5
20°-30°	269.8	30.6
30°-40°	271.0	30.7
40°-50°	142.8	16.2
50°-60°	11.9	1.3
60°-70°	1.2	0.1
70°-80°	0.9	0.1
80°-90°	0.8	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°	453.7	51.4
0°-40°	724.7	82.1
0°-60°	879.4	99.7
0°-90°	882.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	882.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	164	164	164	164	164	
5°	685	448	136	63	50	88
15°	1816	1087	74	50	67	518
25°	2352	1126	63	36	32	1076
35°	2211	489	12	6	5	1367
45°	1417	50	2	1	0	971
55°	62	6	1	0	0	93
65°	2	1	1	1	0	3
75°	0	1	1	1	0	0
85°	0	1	2	1	0	0
90°	0	0	0	0	0	



TEST NUMBER: P174909

CATALOG NUMBER: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt

CANDELA DISTRIBUTION (FULL):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
0°	163.8	163.8	163.8	163.8	163.8	163.8	163.8	163.8	163.8	163.8	163.8
2.5°	371.7	372.1	372.5	375.5	368.8	367.1	364.1	359.9	346.1	289.0	218.0
5°	685.4	690.5	689.2	685.0	674.5	668.6	659.8	650.6	612.8	448.1	270.5
7.5°	1065.1	1074.8	1072.7	1066.4	1048.7	1040.8	1018.5	1006.3	949.2	636.3	309.5
10°	1361.2	1386.9	1387.3	1381.4	1354.9	1343.6	1320.5	1298.7	1226.4	820.7	327.6
12.5°	1611.6	1612.0	1631.7	1627.1	1596.4	1591.4	1572.1	1539.3	1463.3	974.4	327.6
15°	1816.1	1843.8	1839.2	1834.2	1801.8	1795.1	1776.6	1746.4	1657.8	1087.0	311.6
17.5°	1984.9	2009.7	2002.6	1997.1	1964.8	1950.1	1929.9	1893.8	1796.4	1153.7	278.5
20°	2135.3	2158.8	2144.5	2134.9	2091.6	2073.6	2044.2	2002.6	1891.3	1178.5	239.8
22.5°	2275.6	2300.4	2282.3	2268.9	2213.0	2178.1	2136.6	2084.1	1953.0	1170.5	219.2
25°	2352.0	2384.4	2367.1	2356.6	2303.3	2262.6	2207.5	2139.9	1988.3	1125.6	165.1
26°	2368.8	2402.8	2386.5	2377.2	2323.0	2279.8	2221.0	2150.0	1991.2	1088.6	127.3
27°	2380.6	2418.4	2399.5	2387.7	2331.9	2285.7	2224.3	2150.4	1986.6	1038.7	101.2
28°	2385.2	2426.8	2403.7	2389.4	2331.4	2281.0	2215.9	2141.2	1974.4	981.1	86.1
29°	2384.8	2430.1	2403.3	2387.7	2326.0	2270.1	2203.3	2128.2	1957.6	921.1	77.7
30°	2376.4	2425.9	2399.1	2379.3	2313.0	2252.9	2185.3	2110.1	1938.7	855.5	69.3
31°	2365.0	2415.9	2387.7	2363.4	2291.5	2226.4	2160.1	2085.7	1913.5	785.4	63.4
32°	2348.7	2399.5	2368.4	2336.5	2261.3	2193.3	2129.4	2057.2	1882.9	711.5	56.3
33°	2322.6	2367.6	2331.4	2294.5	2219.3	2155.5	2095.0	2024.0	1848.0	634.6	48.7
34°	2275.2	2314.6	2277.3	2239.9	2172.7	2113.5	2055.5	1984.9	1807.3	563.6	42.0
35°	2210.9	2244.5	2210.9	2179.4	2120.2	2065.2	2009.7	1940.8	1758.1	488.9	36.1
36°	2145.4	2174.8	2143.7	2118.9	2062.2	2013.1	1961.4	1890.0	1702.7	417.9	31.9
37°	2084.1	2110.5	2082.0	2057.2	2008.5	1958.5	1907.2	1834.2	1641.4	349.9	26.5
38°	2023.2	2046.7	2022.3	1994.6	1949.7	1898.8	1847.2	1772.4	1572.9	285.6	22.7
39°	1959.7	1979.1	1955.5	1927.4	1881.6	1831.2	1778.3	1701.0	1494.4	218.8	19.7
40°	1892.1	1910.2	1881.2	1856.0	1810.2	1758.6	1704.4	1624.2	1409.1	146.6	16.8
42.5°	1692.2	1703.1	1678.8	1643.9	1598.1	1541.4	1475.9	1386.0	1136.5	77.3	11.8
45°	1416.7	1418.8	1399.9	1336.5	1275.1	1187.4	1089.5	954.7	660.7	50.4	7.6
47.5°	855.1	850.1	820.3	766.1	709.0	616.1	524.6	431.8	256.6	29.4	5.0
50°	381.8	375.9	361.2	333.1	299.9	265.4	224.7	190.3	124.7	16.0	3.4
51°	276.8	271.7	260.8	239.4	215.0	190.7	162.5	139.0	93.2	13.0	2.9
52°	194.5	191.5	184.0	168.8	155.4	136.5	117.2	102.5	70.1	10.5	2.1
53°	135.7	133.6	128.9	118.9	110.9	97.0	84.8	73.1	50.8	8.4	2.1
54°	92.0	90.7	87.8	81.1	74.3	66.8	58.0	51.2	35.7	6.7	1.7
55°	61.7	60.9	58.4	55.0	51.2	46.6	40.7	35.7	25.2	5.5	1.3
57.5°	22.7	22.7	21.8	20.6	19.3	18.1	16.4	14.7	11.8	3.4	1.3
60°	10.1	9.7	9.7	9.2	8.8	8.4	8.0	7.1	5.9	2.1	1.3
61°	7.6	7.6	7.1	6.7	6.7	6.3	5.9	5.5	4.6	1.7	1.3
62°	5.5	5.5	5.5	5.0	5.0	4.6	4.6	4.2	3.4	1.3	1.3
63°	4.2	4.2	4.2	3.8	3.8	3.8	3.4	3.4	2.5	1.3	1.3
64°	2.9	2.9	2.9	2.9	2.9	2.9	2.5	2.5	2.1	0.8	1.3
65°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.7	0.8	1.3
66°	1.7	1.7	1.7	1.7	1.7	1.7	1.3	1.3	1.3	0.8	1.3



TEST NUMBER: P174909

CATALOG NUMBER: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
72.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.3
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	1.3
77.5°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	1.3
80°	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.8	1.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	1.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	1.3
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.8	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: P174909

CATALOG NUMBER: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	90°	112.5°	135°	157.5°	180°
0°	163.8	163.8	163.8	163.8	163.8
2.5°	150.8	105.4	84.0	76.0	73.5
5°	136.5	79.0	62.6	53.8	50.4
7.5°	114.7	65.1	47.0	39.1	36.5
10°	92.8	53.8	38.2	31.9	30.2
12.5°	79.4	46.6	35.7	33.2	33.2
15°	73.9	49.1	49.6	59.6	66.8
17.5°	76.0	76.9	120.1	146.2	150.8
20°	109.2	138.2	136.9	124.3	120.5
22.5°	126.4	91.1	68.9	56.7	54.6
25°	62.6	41.6	35.7	32.8	32.3
26°	47.5	34.9	31.1	29.4	28.6
27°	39.5	30.7	27.7	25.6	24.8
28°	35.3	27.3	23.9	21.8	21.0
29°	31.9	23.5	20.2	18.1	17.6
30°	28.1	19.7	16.8	14.7	14.3
31°	23.9	16.4	13.4	12.2	11.3
32°	20.2	13.4	10.9	9.7	8.8
33°	16.8	10.9	9.2	8.0	7.1
34°	14.3	9.2	7.6	6.3	5.9
35°	11.8	7.6	6.3	5.5	5.0
36°	10.1	6.7	5.0	4.2	3.8
37°	8.8	5.5	4.2	3.4	3.4
38°	7.6	4.6	3.8	2.5	2.5
39°	6.3	3.8	2.9	2.1	2.1
40°	5.5	3.4	2.5	1.7	1.3
42.5°	3.8	2.1	1.7	0.8	0.4
45°	2.5	1.7	0.8	0.4	0.0
47.5°	1.7	1.3	0.8	0.4	0.0
50°	1.3	1.3	0.8	0.0	0.0
51°	1.3	0.8	0.8	0.0	0.0
52°	1.3	0.8	0.4	0.0	0.0
53°	1.3	0.8	0.4	0.0	0.0
54°	1.3	0.8	0.4	0.0	0.0
55°	1.3	0.8	0.4	0.0	0.0
57.5°	1.3	0.8	0.4	0.0	0.0
60°	1.3	0.8	0.8	0.0	0.0
61°	1.3	1.3	0.8	0.0	0.0
62°	1.3	1.3	0.8	0.0	0.0
63°	1.3	1.3	0.8	0.0	0.0
64°	1.3	1.3	0.8	0.4	0.0
65°	1.3	1.3	0.8	0.4	0.0
66°	1.3	1.3	0.8	0.4	0.0



TEST NUMBER: P174909

CATALOG NUMBER: LDA4A09940D010TE LAR35FL 4LA1 30° Tilt

CANDELA DISTRIBUTION (continued):

	90°	112.5°	135°	157.5°	180°
72.5°	1.3	1.3	0.8	0.4	0.0
75°	1.3	1.3	0.8	0.4	0.0
77.5°	1.7	1.3	0.8	0.4	0.0
80°	1.7	1.3	0.8	0.4	0.0
82.5°	1.7	1.3	0.8	0.4	0.0
85°	1.7	1.3	0.8	0.4	0.0
87.5°	1.7	1.3	0.8	0.4	0.0
90°	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





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







67.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.3
70°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	1.3





67.5°	1.3	1.3	0.8	0.4	0.0
70°	1.3	1.3	0.8	0.4	0.0



(END OF REPORT)