

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: P174906

Luminaire Tested: **LDA4A09927D010TE LAR35FL 4LA1 30° Tilt**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P174906
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: LDA4A09927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 707.3 lumens
Efficiency: N/A
Efficacy: 51.1 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

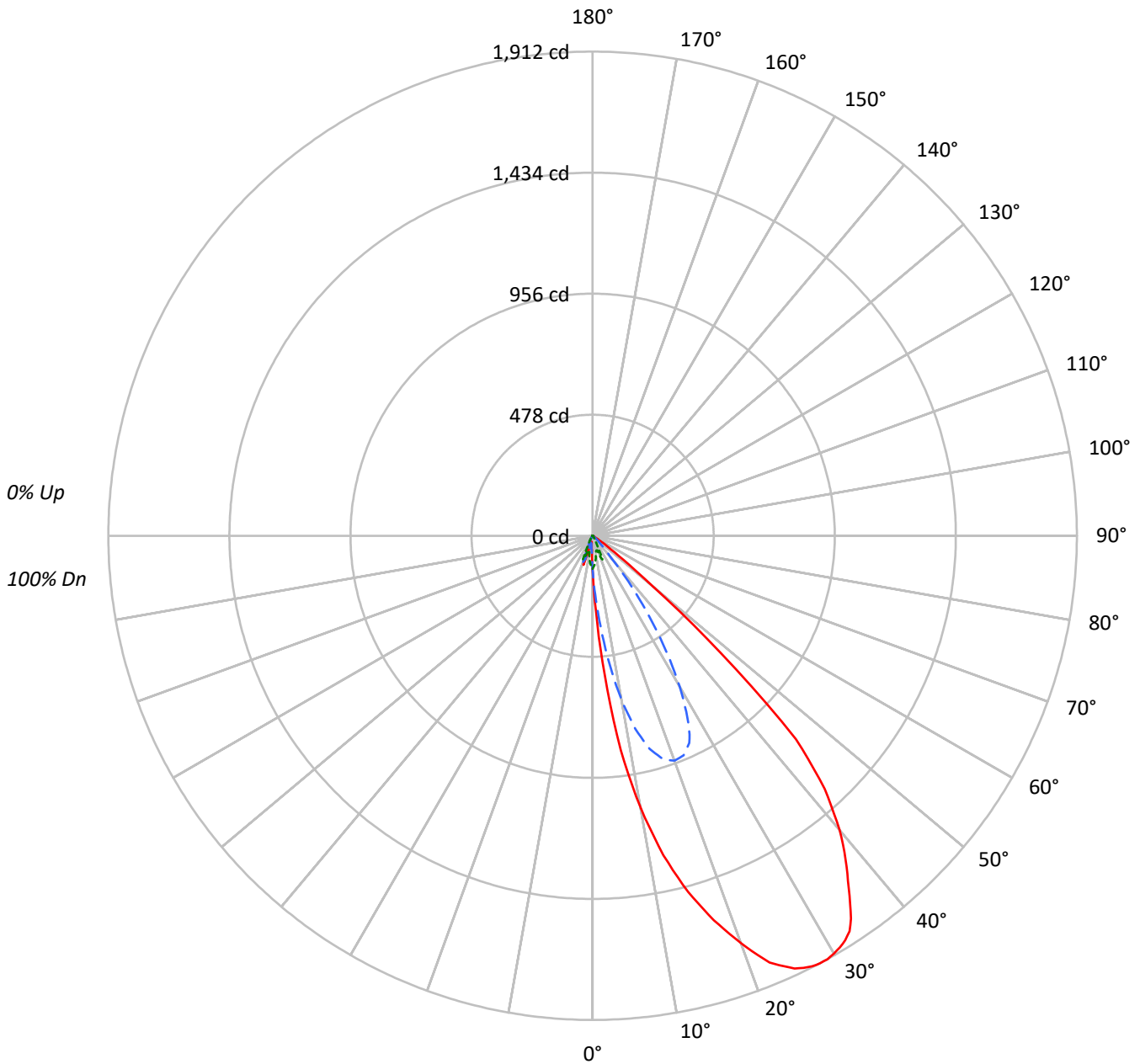
Input Watts (W): 13.84
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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									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	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									100																			
1	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92									92																			
2	106	101	96	92	104	99	95	91	96	92	89	92	90	87	90	87	85	84									84																			
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76									76																			
4	93	85	78	74	92	84	78	73	81	76	72	79	75	71	77	74	70	69									69																			
5	88	78	71	66	86	77	71	66	75	70	65	73	68	65	72	67	64	62									62																			
6	82	72	65	60	81	71	64	60	69	64	59	68	63	59	66	62	58	57									57																			
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52									52																			
8	72	61	54	50	71	61	54	49	59	54	49	58	53	49	57	52	49	47									47																			
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	43									43																			
10	64	53	46	42	63	52	46	42	51	46	41	51	45	41	50	45	41	40									40																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	16195	16195	16195
5°	68050	13546	5002
10°	136696	9318	3031
15°	185939	7572	6832
20°	224720	11499	12680
25°	256638	6832	3525
30°	271367	3219	1624
35°	266913	1415	602
40°	244262	708	161
45°	198126	349	0
50°	58738	192	0
55°	10645	215	0
60°	1998	247	0
65°	496	292	0
70°	108	361	0
75°	0	477	0
80°	0	923	0
85°	0	1840	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.9	3.4
10°-20°	123.5	17.5
20°-30°	216.4	30.6
30°-40°	217.3	30.7
40°-50°	114.5	16.2
50°-60°	9.5	1.3
60°-70°	1.0	0.1
70°-80°	0.7	0.1
80°-90°	0.6	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°	363.8	51.4
0°-40°	581.0	82.1
0°-60°	705.0	99.7
0°-90°	707.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	707.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	131	131	131	131	131	
5°	550	359	109	50	40	70
15°	1456	872	59	40	54	416
25°	1886	902	50	29	26	863
35°	1773	392	9	5	4	1096
45°	1136	40	2	1	0	778
55°	50	4	1	0	0	74
65°	2	1	1	1	0	2
75°	0	1	1	1	0	0
85°	0	1	1	1	0	0
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°	22.5°	45°	67.5°
0°	131.3	131.3	131.3	131.3	131.3	131.3	131.3	131.3	131.3	131.3	131.3
2.5°	298.0	298.4	298.7	301.0	295.7	294.3	292.0	288.6	277.5	231.7	174.8
5°	549.6	553.6	552.6	549.2	540.8	536.1	529.0	521.6	491.3	359.3	216.9
7.5°	854.0	861.7	860.0	855.0	840.8	834.4	816.6	806.8	761.0	510.2	248.2
10°	1091.4	1111.9	1112.3	1107.5	1086.3	1077.2	1058.7	1041.2	983.3	658.0	262.7
12.5°	1292.1	1292.4	1308.2	1304.5	1280.0	1275.9	1260.4	1234.2	1173.2	781.2	262.7
15°	1456.1	1478.3	1474.6	1470.5	1444.6	1439.2	1424.4	1400.2	1329.1	871.5	249.9
17.5°	1591.4	1611.3	1605.6	1601.2	1575.3	1563.5	1547.3	1518.4	1440.2	925.0	223.3
20°	1712.0	1730.8	1719.4	1711.7	1677.0	1662.5	1638.9	1605.6	1516.3	944.9	192.3
22.5°	1824.5	1844.3	1829.9	1819.1	1774.3	1746.3	1713.0	1670.9	1565.8	938.5	175.8
25°	1885.7	1911.7	1897.9	1889.5	1846.7	1814.0	1769.9	1715.7	1594.1	902.5	132.3
26°	1899.2	1926.5	1913.4	1906.0	1862.5	1827.8	1780.7	1723.8	1596.5	872.8	102.0
27°	1908.6	1939.0	1923.8	1914.4	1869.6	1832.5	1783.4	1724.1	1592.8	832.8	81.2
28°	1912.4	1945.7	1927.2	1915.7	1869.2	1828.8	1776.6	1716.7	1583.0	786.6	69.0
29°	1912.0	1948.4	1926.8	1914.4	1864.9	1820.1	1766.5	1706.3	1569.5	738.5	62.3
30°	1905.3	1945.0	1923.5	1907.6	1854.4	1806.3	1752.1	1691.8	1554.4	685.9	55.6
31°	1896.2	1936.9	1914.4	1894.8	1837.3	1785.1	1731.9	1672.3	1534.2	629.7	50.8
32°	1883.1	1923.8	1898.9	1873.3	1813.0	1758.5	1707.3	1649.4	1509.6	570.4	45.1
33°	1862.2	1898.2	1869.2	1839.6	1779.3	1728.2	1679.7	1622.8	1481.7	508.8	39.1
34°	1824.1	1855.8	1825.8	1795.8	1742.0	1694.5	1648.0	1591.4	1449.0	451.9	33.7
35°	1772.6	1799.5	1772.6	1747.3	1699.9	1655.8	1611.3	1556.1	1409.6	392.0	29.0
36°	1720.1	1743.6	1718.7	1698.9	1653.4	1614.0	1572.6	1515.3	1365.1	335.1	25.6
37°	1670.9	1692.1	1669.2	1649.4	1610.3	1570.2	1529.1	1470.5	1316.0	280.5	21.2
38°	1622.1	1640.9	1621.4	1599.2	1563.2	1522.4	1481.0	1421.0	1261.1	229.0	18.2
39°	1571.2	1586.7	1567.9	1545.3	1508.6	1468.2	1425.8	1363.8	1198.1	175.4	15.8
40°	1517.0	1531.5	1508.3	1488.1	1451.4	1409.9	1366.5	1302.2	1129.8	117.5	13.5
42.5°	1356.7	1365.5	1346.0	1318.0	1281.3	1235.8	1183.3	1111.2	911.2	62.0	9.4
45°	1135.8	1137.5	1122.4	1071.5	1022.3	952.0	873.5	765.4	529.7	40.4	6.1
47.5°	685.6	681.6	657.7	614.2	568.4	494.0	420.6	346.2	205.7	23.6	4.0
50°	306.1	301.4	289.6	267.0	240.4	212.8	180.2	152.5	100.0	12.8	2.7
51°	221.9	217.9	209.1	191.9	172.4	152.9	130.3	111.5	74.8	10.4	2.4
52°	155.9	153.6	147.5	135.4	124.6	109.4	94.0	82.2	56.2	8.4	1.7
53°	108.8	107.1	103.4	95.3	88.9	77.8	68.0	58.6	40.7	6.7	1.7
54°	73.7	72.7	70.4	65.0	59.6	53.5	46.5	41.1	28.6	5.4	1.3
55°	49.5	48.8	46.8	44.1	41.1	37.4	32.7	28.6	20.2	4.4	1.0
57.5°	18.2	18.2	17.5	16.5	15.5	14.5	13.1	11.8	9.4	2.7	1.0
60°	8.1	7.7	7.7	7.4	7.1	6.7	6.4	5.7	4.7	1.7	1.0
61°	6.1	6.1	5.7	5.4	5.4	5.1	4.7	4.4	3.7	1.3	1.0
62°	4.4	4.4	4.4	4.0	4.0	3.7	3.7	3.4	2.7	1.0	1.0
63°	3.4	3.4	3.4	3.0	3.0	3.0	2.7	2.7	2.0	1.0	1.0
64°	2.4	2.4	2.4	2.4	2.4	2.4	2.0	2.0	1.7	0.7	1.0
65°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.3	0.7	1.0
66°	1.3	1.3	1.3	1.3	1.3	1.3	1.0	1.0	1.0	0.7	1.0



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CANDELA DISTRIBUTION (continued):

	0°	2.5°	5°	7.5°	10°	12.5°	15°	17.5°	22.5°	45°	67.5°
72.5°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.7	1.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.7	1.0
80°	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.7	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.7	1.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.7	1.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.7	1.0
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):

	90°	112.5°	135°	157.5°	180°
0°	131.3	131.3	131.3	131.3	131.3
2.5°	120.9	84.5	67.3	61.0	58.9
5°	109.4	63.3	50.2	43.1	40.4
7.5°	91.9	52.2	37.7	31.3	29.3
10°	74.4	43.1	30.6	25.6	24.2
12.5°	63.6	37.4	28.6	26.6	26.6
15°	59.3	39.4	39.7	47.8	53.5
17.5°	61.0	61.6	96.3	117.2	120.9
20°	87.6	110.8	109.8	99.7	96.6
22.5°	101.4	73.1	55.2	45.5	43.8
25°	50.2	33.3	28.6	26.3	25.9
26°	38.1	27.9	24.9	23.6	22.9
27°	31.7	24.6	22.2	20.5	19.9
28°	28.3	21.9	19.2	17.5	16.8
29°	25.6	18.9	16.2	14.5	14.1
30°	22.6	15.8	13.5	11.8	11.4
31°	19.2	13.1	10.8	9.8	9.1
32°	16.2	10.8	8.8	7.7	7.1
33°	13.5	8.8	7.4	6.4	5.7
34°	11.4	7.4	6.1	5.1	4.7
35°	9.4	6.1	5.1	4.4	4.0
36°	8.1	5.4	4.0	3.4	3.0
37°	7.1	4.4	3.4	2.7	2.7
38°	6.1	3.7	3.0	2.0	2.0
39°	5.1	3.0	2.4	1.7	1.7
40°	4.4	2.7	2.0	1.3	1.0
42.5°	3.0	1.7	1.3	0.7	0.3
45°	2.0	1.3	0.7	0.3	0.0
47.5°	1.3	1.0	0.7	0.3	0.0
50°	1.0	1.0	0.7	0.0	0.0
51°	1.0	0.7	0.7	0.0	0.0
52°	1.0	0.7	0.3	0.0	0.0
53°	1.0	0.7	0.3	0.0	0.0
54°	1.0	0.7	0.3	0.0	0.0
55°	1.0	0.7	0.3	0.0	0.0
57.5°	1.0	0.7	0.3	0.0	0.0
60°	1.0	0.7	0.7	0.0	0.0
61°	1.0	1.0	0.7	0.0	0.0
62°	1.0	1.0	0.7	0.0	0.0
63°	1.0	1.0	0.7	0.0	0.0
64°	1.0	1.0	0.7	0.3	0.0
65°	1.0	1.0	0.7	0.3	0.0
66°	1.0	1.0	0.7	0.3	0.0



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CANDELA DISTRIBUTION (continued):

	90°	112.5°	135°	157.5°	180°
72.5°	1.0	1.0	0.7	0.3	0.0
75°	1.0	1.0	0.7	0.3	0.0
77.5°	1.3	1.0	0.7	0.3	0.0
80°	1.3	1.0	0.7	0.3	0.0
82.5°	1.3	1.0	0.7	0.3	0.0
85°	1.3	1.0	0.7	0.3	0.0
87.5°	1.3	1.0	0.7	0.3	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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.0
70°	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.0





67.5°	1.0	1.0	0.7	0.3	0.0
70°	1.0	1.0	0.7	0.3	0.0



(END OF REPORT)