

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: P281778

Luminaire Tested: **LDA2B209030D010 EU2B20SP159030 2LBAPINSQ1MMS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P281778
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1808-908-5)
Test Lab: INNOVATION CENTER(G2)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA2B209030D010 EU2B20SP159030 2LBAPINSQ1MMS
Description: PORTFOLIO 2IN ADJ 2000 LUMEN LED LUMINAIRE WITH SPOT OPTIC AND 2in Adj SQ PinHole, MMS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1615.4 lumens
Efficiency: N/A
Efficacy: 78.4 lumens/watt
Spacing Criteria (0/90/45): 0.33 / 0.31 / 0.32
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

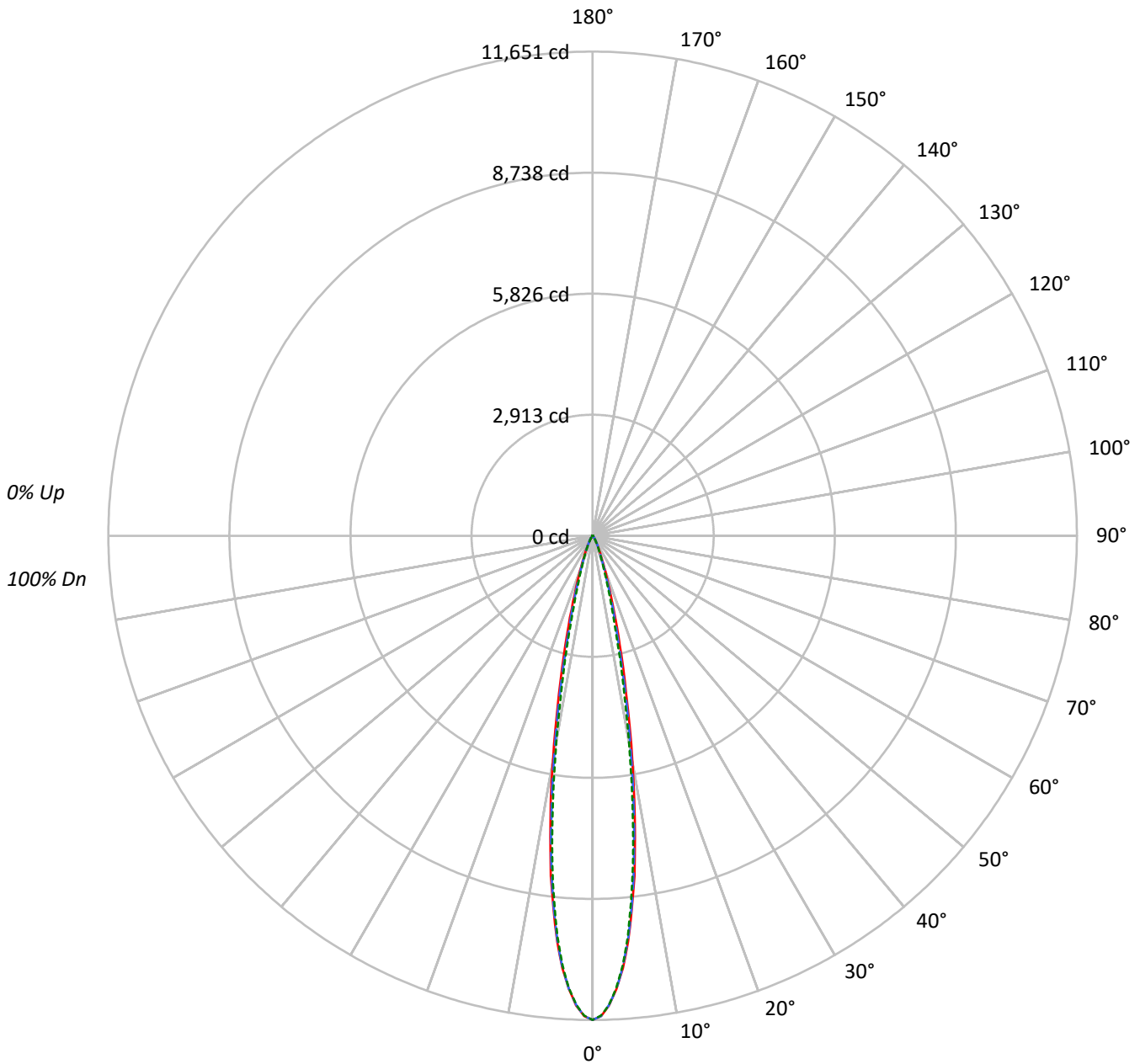
Input Watts (W): 20.6
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | | | | 100 | | | | | | | | | | | | | | | |
| 1 | 115 | 113 | 111 | 110 | 113 | 111 | 110 | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 100 | 99 | 99 | 97 | | | | 97 | | | | | | | | | | | | | | | |
| 2 | 112 | 108 | 106 | 103 | 110 | 107 | 104 | 102 | 104 | 102 | 100 | 101 | 99 | 98 | 98 | 97 | 96 | 95 | | | | 95 | | | | | | | | | | | | | | | |
| 3 | 109 | 104 | 101 | 98 | 107 | 103 | 100 | 98 | 101 | 98 | 96 | 98 | 96 | 95 | 96 | 95 | 93 | 92 | | | | 92 | | | | | | | | | | | | | | | |
| 4 | 106 | 101 | 97 | 95 | 104 | 100 | 97 | 94 | 98 | 95 | 93 | 96 | 94 | 92 | 94 | 93 | 91 | 90 | | | | 90 | | | | | | | | | | | | | | | |
| 5 | 103 | 98 | 94 | 91 | 102 | 97 | 93 | 91 | 95 | 92 | 90 | 94 | 91 | 89 | 93 | 90 | 89 | 88 | | | | 88 | | | | | | | | | | | | | | | |
| 6 | 101 | 95 | 91 | 88 | 99 | 94 | 91 | 88 | 93 | 90 | 88 | 92 | 89 | 87 | 91 | 88 | 87 | 86 | | | | 86 | | | | | | | | | | | | | | | |
| 7 | 98 | 92 | 89 | 86 | 97 | 92 | 88 | 86 | 91 | 88 | 85 | 90 | 87 | 85 | 89 | 87 | 85 | 84 | | | | 84 | | | | | | | | | | | | | | | |
| 8 | 96 | 90 | 86 | 84 | 95 | 90 | 86 | 84 | 89 | 86 | 83 | 88 | 85 | 83 | 87 | 85 | 83 | 82 | | | | 82 | | | | | | | | | | | | | | | |
| 9 | 94 | 88 | 84 | 82 | 93 | 88 | 84 | 82 | 87 | 84 | 82 | 86 | 83 | 81 | 86 | 83 | 81 | 80 | | | | 80 | | | | | | | | | | | | | | | |
| 10 | 92 | 86 | 83 | 80 | 91 | 86 | 82 | 80 | 85 | 82 | 80 | 85 | 82 | 80 | 84 | 81 | 80 | 79 | | | | 79 | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|---------|---------|---------|
| 0° | 5748060 | 5748060 | 5748060 |
| 5° | 4856534 | 4830583 | 4794975 |
| 10° | 2764267 | 2642581 | 2508170 |
| 15° | 1144728 | 1013921 | 893227 |
| 20° | 435455 | 381325 | 349141 |
| 25° | 192378 | 184757 | 164289 |
| 30° | 88985 | 98328 | 78275 |
| 35° | 46797 | 55169 | 43846 |
| 40° | 20545 | 23701 | 13718 |
| 45° | 8024 | 6279 | 9140 |
| 50° | 3761 | 4375 | 6294 |
| 55° | 0 | 2838 | 0 |
| 60° | 0 | 0 | 1579 |
| 65° | 0 | 0 | 0 |
| 70° | 0 | 1154 | 0 |
| 75° | 0 | 0 | 0 |
| 80° | 4546 | 0 | 0 |
| 85° | 46418 | 41889 | 18680 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 779.0 | 48.2 |
| 10°-20° | 595.5 | 36.9 |
| 20°-30° | 165.6 | 10.3 |
| 30°-40° | 53.8 | 3.3 |
| 40°-50° | 11.9 | 0.7 |
| 50°-60° | 3.6 | 0.2 |
| 60°-70° | 2.1 | 0.1 |
| 70°-80° | 1.3 | 0.1 |
| 80°-90° | 2.6 | 0.2 |
| 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° | 1540.1 | 95.3 |
| 0°-40° | 1594.0 | 98.7 |
| 0°-60° | 1609.5 | 99.6 |
| 0°-90° | 1615.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1615.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-------|-------|-------|-------|-------|------|
| 0° | 11651 | 11651 | 11651 | 11651 | 11651 | |
| 5° | 9806 | 9734 | 9754 | 9681 | 9682 | 793 |
| 15° | 2241 | 2164 | 1985 | 1832 | 1749 | 654 |
| 25° | 353 | 357 | 339 | 320 | 302 | 177 |
| 35° | 78 | 84 | 92 | 70 | 73 | 51 |
| 45° | 12 | 16 | 9 | 9 | 13 | 12 |
| 55° | 0 | 5 | 3 | 2 | 0 | 3 |
| 65° | 0 | 3 | 0 | 0 | 0 | 2 |
| 75° | 0 | 0 | 0 | 2 | 0 | 1 |
| 85° | 8 | 4 | 7 | 4 | 3 | 2 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|---------|---------|---------|---------|---------|
| 0° | 11650.8 | 11650.8 | 11650.8 | 11650.8 | 11650.8 |
| 1° | 11561.6 | 11518.2 | 11560.0 | 11535.4 | 11549.3 |
| 2° | 11310.5 | 11256.5 | 11299.9 | 11265.5 | 11294.1 |
| 3° | 10919.5 | 10877.8 | 10916.2 | 10872.9 | 10895.8 |
| 4° | 10429.6 | 10369.0 | 10407.5 | 10349.4 | 10363.3 |
| 5° | 9806.3 | 9734.3 | 9753.9 | 9681.2 | 9682.0 |
| 6° | 9021.1 | 8971.2 | 8982.6 | 8868.9 | 8860.8 |
| 7° | 8253.0 | 8135.2 | 8123.0 | 7992.9 | 7967.6 |
| 8° | 7320.6 | 7213.4 | 7178.3 | 7025.3 | 6971.3 |
| 9° | 6426.6 | 6293.2 | 6221.3 | 6043.8 | 5980.8 |
| 10° | 5517.8 | 5382.9 | 5274.9 | 5074.5 | 5006.6 |
| 11° | 4677.0 | 4555.1 | 4421.0 | 4206.7 | 4140.4 |
| 12° | 3896.7 | 3801.0 | 3653.7 | 3446.8 | 3377.3 |
| 13° | 3259.5 | 3149.1 | 2991.2 | 2799.0 | 2739.3 |
| 14° | 2707.4 | 2588.8 | 2430.9 | 2266.5 | 2150.4 |
| 15° | 2241.2 | 2163.5 | 1985.1 | 1832.2 | 1748.8 |
| 16° | 1831.4 | 1765.1 | 1611.3 | 1478.8 | 1419.9 |
| 17° | 1501.7 | 1448.6 | 1317.7 | 1213.8 | 1164.7 |
| 18° | 1239.2 | 1172.9 | 1069.9 | 1002.0 | 963.5 |
| 19° | 1005.2 | 953.7 | 878.5 | 826.1 | 787.7 |
| 20° | 829.4 | 786.9 | 726.3 | 679.7 | 665.0 |
| 22.5° | 535.8 | 528.4 | 489.1 | 463.8 | 451.5 |
| 25° | 353.4 | 357.4 | 339.4 | 319.8 | 301.8 |
| 26° | 301.8 | 304.3 | 287.9 | 276.5 | 253.6 |
| 27° | 258.5 | 259.3 | 259.3 | 238.0 | 215.9 |
| 28° | 211.0 | 220.0 | 211.8 | 202.0 | 180.8 |
| 29° | 180.8 | 192.2 | 188.1 | 178.3 | 157.9 |
| 30° | 156.2 | 164.4 | 172.6 | 157.0 | 137.4 |
| 32.5° | 109.6 | 117.0 | 126.0 | 117.8 | 101.4 |
| 35° | 77.7 | 84.2 | 91.6 | 69.5 | 72.8 |
| 37.5° | 53.2 | 64.6 | 62.2 | 56.4 | 48.3 |
| 40° | 31.9 | 33.5 | 36.8 | 39.3 | 21.3 |
| 42.5° | 22.9 | 27.0 | 24.5 | 27.8 | 9.8 |
| 45° | 11.5 | 16.4 | 9.0 | 9.0 | 13.1 |
| 47.5° | 8.2 | 13.9 | 4.9 | 4.9 | 1.6 |
| 50° | 4.9 | 10.6 | 5.7 | 2.5 | 8.2 |
| 52.5° | 8.2 | 9.8 | 6.5 | 7.4 | 1.6 |
| 55° | 0.0 | 4.9 | 3.3 | 1.6 | 0.0 |
| 57.5° | 3.3 | 5.7 | 3.3 | 1.6 | 3.3 |
| 60° | 0.0 | 0.0 | 0.0 | 0.8 | 1.6 |
| 62.5° | 0.0 | 1.6 | 0.0 | 2.5 | 3.3 |
| 65° | 0.0 | 3.3 | 0.0 | 0.0 | 0.0 |
| 67.5° | 4.9 | 5.7 | 3.3 | 6.5 | 9.8 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-----|-------|-----|-------|-----|
| 75° | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 |
| 77.5° | 0.0 | 8.2 | 2.5 | 2.5 | 3.3 |
| 80° | 1.6 | 0.0 | 0.0 | 0.8 | 0.0 |
| 82.5° | 0.0 | 6.5 | 0.8 | 3.3 | 4.9 |
| 85° | 8.2 | 4.1 | 7.4 | 4.1 | 3.3 |
| 87.5° | 0.0 | 0.8 | 1.6 | 0.8 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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







| | | | | | |
|-------|-----|-----|-----|-----|-----|
| 70° | 0.0 | 0.0 | 0.8 | 0.8 | 0.0 |
| 72.5° | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 |



(END OF REPORT)