

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: P282436

Luminaire Tested: **LDA2B209727D010 EU2B20NFL259727 2LBAPINSQ1MMS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P282436  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1809-951-26)  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LDA2B209727D010 EU2B20NFL259727 2LBAPINSQ1MMS  
Description: PORTFOLIO 2IN ADJ 2000 LUMEN LED LUMINAIRE WITH NARROW FLOOD OPTIC AND 2in Adj SQ PinHole, MMS  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1264.7 lumens  
Efficiency: N/A  
Efficacy: 61.4 lumens/watt  
Spacing Criteria (0/90/45): 0.33 / 0.3 / 0.32  
Luminous Opening: Circular (Dia: 0.17' x H: 0')  
CIE Type: Direct

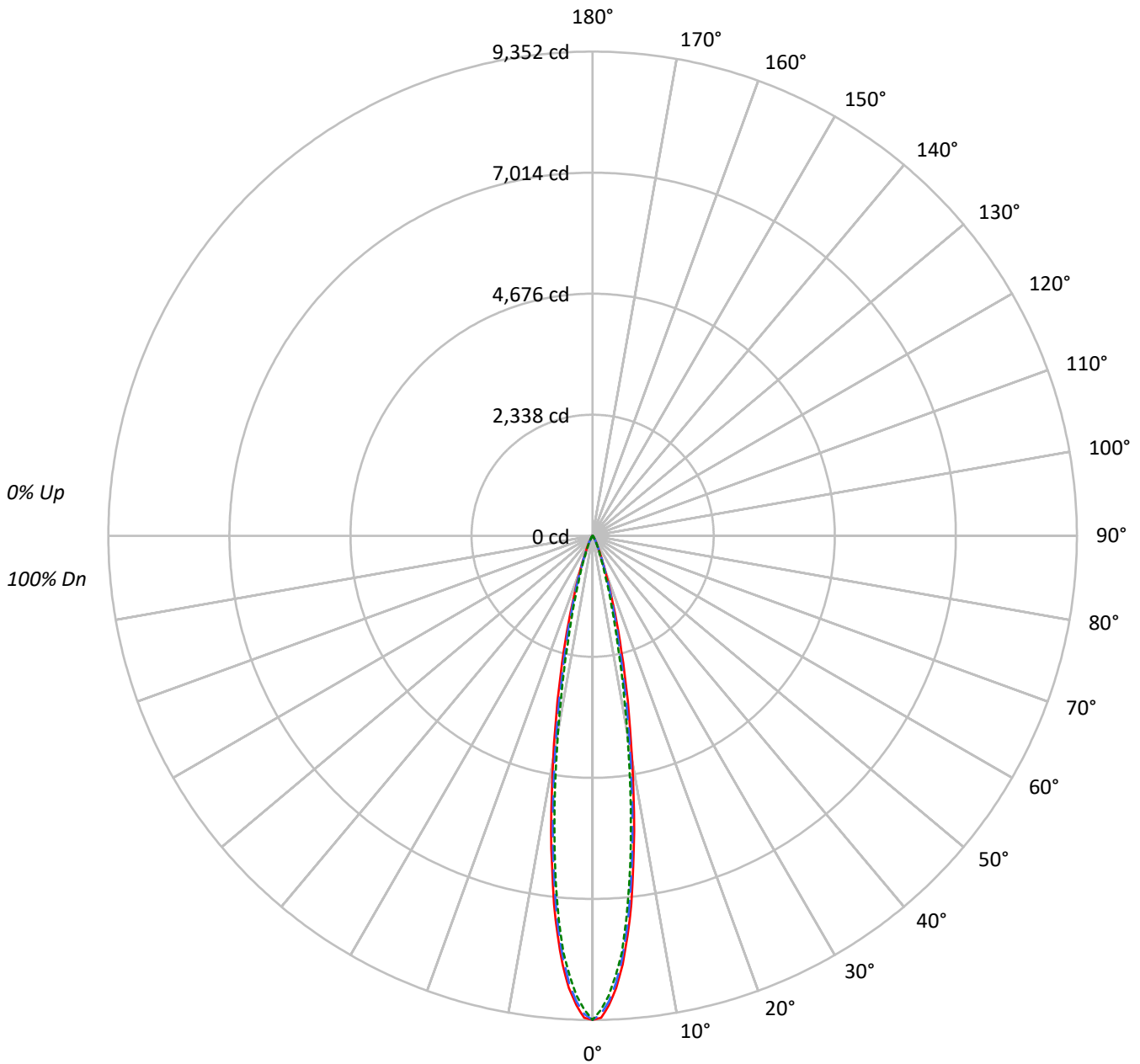
Input Watts (W): 20.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P282436

CATALOG NUMBER: LDA2B209727D010 EU2B20NFL259727 2LBAPINSQ1MMS

### Luminous Intensity Polar Plot





TEST NUMBER: P282436

CATALOG NUMBER: LDA2B209727D010 EU2B20NFL259727 2LBAPINSQ1MMS

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

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°      | 45°     | 90°     |
|-----|---------|---------|---------|
| 0°  | 4613673 | 4613673 | 4613673 |
| 5°  | 3839051 | 3768676 | 3692606 |
| 10° | 2198970 | 2063507 | 1925839 |
| 15° | 978065  | 868659  | 727943  |
| 20° | 354812  | 333601  | 264297  |
| 25° | 136254  | 127218  | 109526  |
| 30° | 58735   | 54633   | 48480   |
| 35° | 27825   | 27825   | 23007   |
| 40° | 13911   | 14426   | 11593   |
| 45° | 8024    | 7535    | 7047    |
| 50° | 5526    | 4989    | 4989    |
| 55° | 4301    | 3097    | 3699    |
| 60° | 3552    | 2171    | 2861    |
| 65° | 2568    | 1634    | 2568    |
| 70° | 2019    | 1010    | 2019    |
| 75° | 1334    | 1334    | 1334    |
| 80° | 0       | 0       | 0       |
| 85° | 0       | 0       | 0       |



TEST NUMBER: P282436

CATALOG NUMBER: LDA2B209727D010 EU2B20NFL259727 2LBAPINSQ1MMS

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 608.2  | 48.1      |
| 10°-20°   | 492.2  | 38.9      |
| 20°-30°   | 118.7  | 9.4       |
| 30°-40°   | 30.3   | 2.4       |
| 40°-50°   | 9.0    | 0.7       |
| 50°-60°   | 3.8    | 0.3       |
| 60°-70°   | 1.9    | 0.1       |
| 70°-80°   | 0.6    | 0.0       |
| 80°-90°   | 0.0    | 0.0       |
| 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°    | 1219.1 | 96.4      |
| 0°-40°    | 1249.4 | 98.8      |
| 0°-60°    | 1262.2 | 99.8      |
| 0°-90°    | 1264.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1264.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 9352 | 9352  | 9352 | 9352  | 9352 |      |
| 5°  | 7752 | 7680  | 7610 | 7543  | 7456 | 627  |
| 15° | 1915 | 1869  | 1701 | 1532  | 1425 | 546  |
| 25° | 250  | 252   | 234  | 212   | 201  | 129  |
| 35° | 46   | 47    | 46   | 42    | 38   | 32   |
| 45° | 12   | 12    | 11   | 10    | 10   | 10   |
| 55° | 5    | 4     | 4    | 4     | 4    | 4    |
| 65° | 2    | 2     | 1    | 1     | 2    | 2    |
| 75° | 1    | 1     | 1    | 1     | 1    | 1    |
| 85° | 0    | 0     | 0    | 0     | 0    | 0    |
| 90° | 0    | 0     | 0    | 0     | 0    | 0    |



TEST NUMBER: P282436

CATALOG NUMBER: LDA2B209727D010 EU2B20NFL259727 2LBAPINSQ1MMS

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 9351.5 | 9351.5 | 9351.5 | 9351.5 | 9351.5 |
| 1°    | 9309.7 | 9244.8 | 9236.8 | 9277.2 | 9158.2 |
| 2°    | 9071.7 | 9025.5 | 8998.8 | 9022.6 | 8887.7 |
| 3°    | 8744.9 | 8700.2 | 8651.9 | 8652.6 | 8501.9 |
| 4°    | 8299.9 | 8264.6 | 8183.1 | 8158.6 | 8071.3 |
| 5°    | 7751.8 | 7680.4 | 7609.7 | 7543.4 | 7456.1 |
| 6°    | 7146.0 | 7053.6 | 6952.7 | 6853.9 | 6764.4 |
| 7°    | 6433.4 | 6372.1 | 6238.7 | 6103.8 | 6028.1 |
| 8°    | 5763.4 | 5664.6 | 5508.8 | 5340.0 | 5275.8 |
| 9°    | 5042.9 | 4972.2 | 4793.3 | 4597.1 | 4532.9 |
| 10°   | 4389.4 | 4315.9 | 4119.0 | 3900.4 | 3844.2 |
| 11°   | 3776.4 | 3707.1 | 3502.3 | 3273.0 | 3213.1 |
| 12°   | 3257.8 | 3159.7 | 2924.6 | 2725.5 | 2667.1 |
| 13°   | 2741.4 | 2674.3 | 2451.5 | 2254.6 | 2141.3 |
| 14°   | 2302.2 | 2246.6 | 2044.7 | 1871.6 | 1751.9 |
| 15°   | 1914.9 | 1869.4 | 1700.7 | 1531.9 | 1425.2 |
| 16°   | 1570.8 | 1542.7 | 1409.3 | 1246.3 | 1159.0 |
| 17°   | 1274.4 | 1248.5 | 1163.3 | 1013.3 | 939.8  |
| 18°   | 1029.2 | 1025.6 | 954.9  | 825.1  | 759.5  |
| 19°   | 846.7  | 845.3  | 780.4  | 671.5  | 617.4  |
| 20°   | 675.8  | 685.2  | 635.4  | 540.2  | 503.4  |
| 21°   | 551.0  | 556.1  | 516.4  | 444.3  | 411.1  |
| 22°   | 448.6  | 452.2  | 426.2  | 367.1  | 349.1  |
| 23°   | 367.8  | 370.0  | 348.4  | 304.4  | 288.5  |
| 24°   | 302.9  | 304.4  | 284.9  | 253.9  | 240.2  |
| 25°   | 250.3  | 251.7  | 233.7  | 212.0  | 201.2  |
| 26°   | 207.7  | 209.2  | 193.3  | 178.1  | 167.3  |
| 27°   | 172.4  | 175.3  | 159.4  | 150.0  | 138.5  |
| 28°   | 147.1  | 147.9  | 133.4  | 127.7  | 116.8  |
| 29°   | 120.4  | 124.8  | 112.5  | 107.5  | 99.5   |
| 30°   | 103.1  | 105.3  | 95.9   | 92.3   | 85.1   |
| 32.5° | 68.5   | 70.0   | 65.6   | 62.7   | 57.0   |
| 35°   | 46.2   | 46.9   | 46.2   | 41.8   | 38.2   |
| 37.5° | 31.7   | 31.7   | 32.5   | 27.4   | 26.0   |
| 40°   | 21.6   | 21.6   | 22.4   | 18.8   | 18.0   |
| 42.5° | 15.9   | 15.9   | 15.1   | 13.0   | 13.0   |
| 45°   | 11.5   | 11.5   | 10.8   | 10.1   | 10.1   |
| 47.5° | 9.4    | 8.7    | 7.9    | 7.9    | 7.9    |
| 50°   | 7.2    | 7.2    | 6.5    | 5.8    | 6.5    |
| 52.5° | 5.8    | 5.8    | 5.0    | 5.0    | 5.0    |
| 55°   | 5.0    | 4.3    | 3.6    | 3.6    | 4.3    |
| 57.5° | 3.6    | 3.6    | 2.9    | 2.9    | 3.6    |
| 60°   | 3.6    | 2.9    | 2.2    | 2.9    | 2.9    |



TEST NUMBER: P282436

CATALOG NUMBER: LDA2B209727D010 EU2B20NFL259727 2LBAPINSQ1MMS

**CANDELA DISTRIBUTION (continued):**

|       | 0°  | 22.5° | 45° | 67.5° | 90° |
|-------|-----|-------|-----|-------|-----|
| 67.5° | 2.2 | 1.4   | 1.4 | 1.4   | 1.4 |
| 70°   | 1.4 | 1.4   | 0.7 | 0.7   | 1.4 |
| 72.5° | 0.7 | 0.7   | 0.7 | 0.7   | 0.7 |
| 75°   | 0.7 | 0.7   | 0.7 | 0.7   | 0.7 |
| 77.5° | 0.7 | 0.7   | 0.0 | 0.0   | 0.7 |
| 80°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 82.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 85°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 87.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 90°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |



Report Generated By E9808895 / USPTCWHP6082093







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







|       |     |     |     |     |     |
|-------|-----|-----|-----|-----|-----|
| 62.5° | 2.9 | 2.2 | 2.2 | 2.2 | 2.2 |
| 65°   | 2.2 | 2.2 | 1.4 | 1.4 | 2.2 |



(END OF REPORT)