

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: P282610

Luminaire Tested: **LDA2B209050D010 EU2B20SP159050 2LBALPINSQ1MMS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P282610
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1808-908-7)
Test Lab: INNOVATION CENTER(G2)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDA2B209050D010 EU2B20SP159050 2LBALPINSQ1MMS
Description: PORTFOLIO 2IN ADJ 2000 LUMEN LED LUMINAIRE WITH SPOT OPTIC AND 2in Adj SQ Pinhole w-lens, MMS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1759.6 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 0.32 / 0.3 / 0.32
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

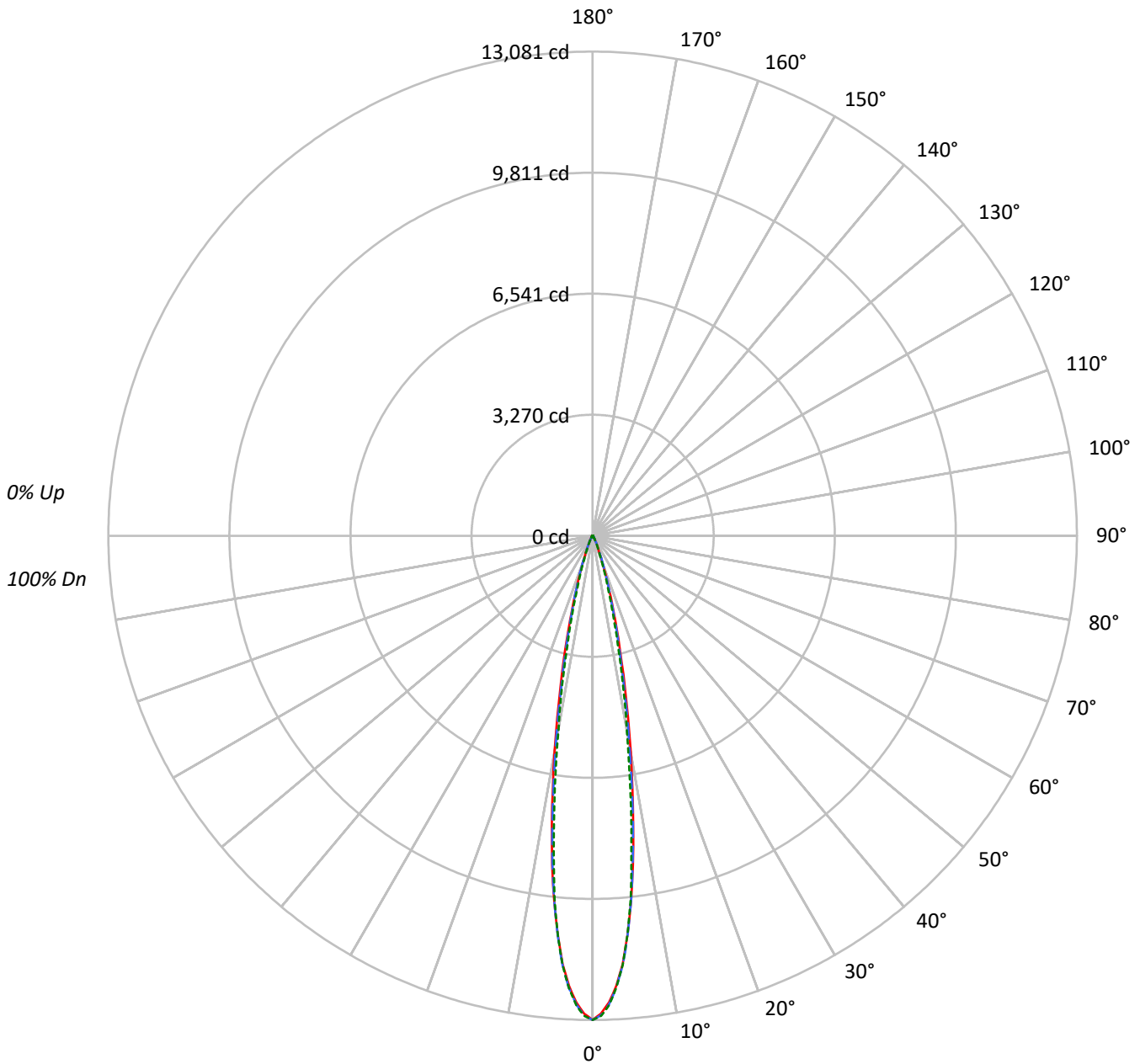
Input Watts (W): 20.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|
| RF | 20 | | | | | | | | | 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 | 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 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | | | | | | | | | | | | | | |
| | 1 | 115 | 113 | 111 | 109 | 113 | 111 | 109 | 107 | 107 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | | | | | | | | | | | | | | | |
| | 2 | 111 | 108 | 105 | 102 | 109 | 106 | 103 | 101 | 103 | 101 | 99 | 100 | 98 | 97 | 98 | 96 | 95 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | | | | | | | | | | | | | | | |
| | 3 | 108 | 104 | 100 | 97 | 106 | 102 | 99 | 97 | 100 | 97 | 95 | 98 | 95 | 94 | 96 | 94 | 92 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | 91 | | | | | | | | | | | | | | | |
| | 4 | 105 | 100 | 96 | 93 | 104 | 99 | 96 | 93 | 97 | 94 | 92 | 95 | 93 | 91 | 94 | 92 | 90 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | | | | | | | | | | | | | | | |
| | 5 | 102 | 97 | 93 | 90 | 101 | 96 | 93 | 90 | 95 | 91 | 89 | 93 | 90 | 88 | 92 | 89 | 88 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | | | | | | | | | | | | | | | |
| | 6 | 100 | 94 | 90 | 88 | 99 | 94 | 90 | 87 | 92 | 89 | 87 | 91 | 88 | 86 | 90 | 88 | 86 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | | | | | | | | | | | | | | | |
| | 7 | 98 | 92 | 88 | 85 | 97 | 91 | 88 | 85 | 90 | 87 | 85 | 89 | 86 | 84 | 88 | 86 | 84 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | | | | | | | | | | | | | | | |
| | 8 | 96 | 90 | 86 | 83 | 95 | 89 | 86 | 83 | 88 | 85 | 83 | 87 | 85 | 82 | 87 | 84 | 82 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | 81 | | | | | | | | | | | | | | | |
| | 9 | 94 | 88 | 84 | 81 | 93 | 87 | 84 | 81 | 86 | 83 | 81 | 86 | 83 | 81 | 85 | 82 | 81 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | | | | | | | | | | | | | | | |
| | 10 | 92 | 86 | 82 | 80 | 91 | 85 | 82 | 80 | 85 | 82 | 79 | 84 | 81 | 79 | 84 | 81 | 79 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|---------|---------|---------|
| 0° | 6453666 | 6453666 | 6453666 |
| 5° | 5353960 | 5371343 | 5350988 |
| 10° | 2963253 | 2856196 | 2660666 |
| 15° | 1199533 | 1147282 | 1018671 |
| 20° | 401906 | 426110 | 344994 |
| 25° | 152912 | 153456 | 145291 |
| 30° | 68590 | 67451 | 65172 |
| 35° | 33246 | 29632 | 23549 |
| 40° | 21962 | 27758 | 19386 |
| 45° | 5582 | 9070 | 8373 |
| 50° | 1535 | 2303 | 3070 |
| 55° | 13848 | 12042 | 19009 |
| 60° | 19833 | 15886 | 25753 |
| 65° | 9339 | 24632 | 23465 |
| 70° | 8655 | 7212 | 8655 |
| 75° | 3812 | 9531 | 26687 |
| 80° | 45743 | 62790 | 57107 |
| 85° | 0 | 28303 | 33964 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 856.7 | 48.7 |
| 10°-20° | 649.0 | 36.9 |
| 20°-30° | 147.5 | 8.4 |
| 30°-40° | 43.6 | 2.5 |
| 40°-50° | 14.5 | 0.8 |
| 50°-60° | 12.8 | 0.7 |
| 60°-70° | 15.4 | 0.9 |
| 70°-80° | 9.8 | 0.6 |
| 80°-90° | 10.3 | 0.6 |
| 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° | 1653.2 | 94.0 |
| 0°-40° | 1696.8 | 96.4 |
| 0°-60° | 1724.1 | 98.0 |
| 0°-90° | 1759.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1759.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-------|-------|-------|-------|-------|------|
| 0° | 13081 | 13081 | 13081 | 13081 | 13081 | |
| 5° | 10811 | 10896 | 10846 | 10704 | 10805 | 867 |
| 15° | 2348 | 2381 | 2246 | 2036 | 1994 | 682 |
| 25° | 281 | 302 | 282 | 279 | 267 | 147 |
| 35° | 55 | 61 | 49 | 57 | 39 | 43 |
| 45° | 8 | 23 | 13 | 23 | 12 | 12 |
| 55° | 16 | 23 | 14 | 21 | 22 | 7 |
| 65° | 8 | 17 | 21 | 20 | 20 | 8 |
| 75° | 2 | 7 | 5 | 9 | 14 | 5 |
| 85° | 0 | 0 | 5 | 5 | 6 | 6 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|---------|---------|---------|---------|---------|
| 0° | 13081.0 | 13081.0 | 13081.0 | 13081.0 | 13081.0 |
| 1° | 12912.4 | 12964.6 | 12959.6 | 12938.5 | 12975.6 |
| 2° | 12615.5 | 12678.7 | 12672.7 | 12626.5 | 12692.7 |
| 3° | 12180.1 | 12236.3 | 12227.2 | 12161.0 | 12233.3 |
| 4° | 11598.2 | 11662.4 | 11637.4 | 11538.0 | 11630.3 |
| 5° | 10810.7 | 10896.0 | 10845.8 | 10704.4 | 10804.7 |
| 6° | 9937.9 | 10010.1 | 9930.9 | 9743.3 | 9841.6 |
| 7° | 8960.8 | 9005.9 | 8901.6 | 8660.8 | 8594.6 |
| 8° | 7894.3 | 7953.5 | 7808.1 | 7527.2 | 7454.9 |
| 9° | 6875.1 | 6895.1 | 6718.6 | 6419.6 | 6328.3 |
| 10° | 5915.0 | 5899.9 | 5701.3 | 5398.3 | 5311.0 |
| 11° | 5005.1 | 4985.0 | 4775.3 | 4495.4 | 4523.5 |
| 12° | 4177.4 | 4216.5 | 3972.8 | 3718.9 | 3724.0 |
| 13° | 3497.2 | 3501.2 | 3291.6 | 3049.8 | 3035.7 |
| 14° | 2863.2 | 2900.3 | 2720.7 | 2504.0 | 2463.9 |
| 15° | 2348.5 | 2380.6 | 2246.2 | 2035.5 | 1994.4 |
| 16° | 1880.0 | 1920.2 | 1823.9 | 1633.2 | 1579.1 |
| 17° | 1513.9 | 1565.0 | 1501.8 | 1342.3 | 1280.1 |
| 18° | 1210.9 | 1250.0 | 1235.0 | 1070.4 | 1019.3 |
| 19° | 956.1 | 1010.2 | 1014.3 | 876.8 | 815.6 |
| 20° | 765.5 | 814.6 | 811.6 | 705.3 | 657.1 |
| 22.5° | 439.4 | 465.5 | 466.5 | 416.3 | 388.2 |
| 25° | 280.9 | 302.0 | 281.9 | 278.9 | 266.9 |
| 26° | 243.8 | 260.8 | 238.8 | 238.8 | 227.7 |
| 27° | 197.6 | 212.7 | 191.6 | 200.6 | 185.6 |
| 28° | 166.5 | 182.6 | 164.5 | 162.5 | 160.5 |
| 29° | 138.4 | 153.5 | 130.4 | 140.5 | 134.4 |
| 30° | 120.4 | 131.4 | 118.4 | 133.4 | 114.4 |
| 32.5° | 93.3 | 102.3 | 79.3 | 100.3 | 75.2 |
| 35° | 55.2 | 61.2 | 49.2 | 57.2 | 39.1 |
| 37.5° | 57.2 | 59.2 | 53.2 | 59.2 | 55.2 |
| 40° | 34.1 | 35.1 | 43.1 | 43.1 | 30.1 |
| 42.5° | 32.1 | 31.1 | 19.1 | 30.1 | 24.1 |
| 45° | 8.0 | 23.1 | 13.0 | 23.1 | 12.0 |
| 47.5° | 6.0 | 8.0 | 8.0 | 16.1 | 16.1 |
| 50° | 2.0 | 8.0 | 3.0 | 6.0 | 4.0 |
| 52.5° | 0.0 | 19.1 | 4.0 | 14.0 | 12.0 |
| 55° | 16.1 | 23.1 | 14.0 | 21.1 | 22.1 |
| 57.5° | 2.0 | 16.1 | 8.0 | 17.1 | 12.0 |
| 60° | 20.1 | 27.1 | 16.1 | 29.1 | 26.1 |
| 62.5° | 2.0 | 18.1 | 21.1 | 16.1 | 14.0 |
| 65° | 8.0 | 17.1 | 21.1 | 20.1 | 20.1 |
| 67.5° | 10.0 | 17.1 | 13.0 | 13.0 | 18.1 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|------|-------|------|-------|------|
| 75° | 2.0 | 7.0 | 5.0 | 9.0 | 14.0 |
| 77.5° | 2.0 | 8.0 | 7.0 | 16.1 | 12.0 |
| 80° | 16.1 | 18.1 | 22.1 | 29.1 | 20.1 |
| 82.5° | 14.0 | 14.0 | 22.1 | 16.1 | 12.0 |
| 85° | 0.0 | 0.0 | 5.0 | 5.0 | 6.0 |
| 87.5° | 0.0 | 4.0 | 10.0 | 8.0 | 14.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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







| | | | | | |
|-------|-----|-----|-----|-----|------|
| 70° | 6.0 | 2.0 | 5.0 | 5.0 | 6.0 |
| 72.5° | 2.0 | 9.0 | 8.0 | 5.0 | 10.0 |



(END OF REPORT)