

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: iO LED

Report Number: P958871

Luminaire Tested: MMG-08W-940-10x60-ID-X-X-4F-4-UNV-STD-X

Issue Date: 1/31/2025

Test Information

Test Method: LM-79-2019
Report Number: P958871
SCALED TEST REPORT
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/31/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: iO LED
Catalog Number: MMG-08W-940-10x60-ID-X-X-4F-4-UNV-STD-X
Description: iO LED MiniO-Graze LINEAR LIGHTING WITH 10x60 DEGREE OPTICS
8 WATTS PER FOOT
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 964.9 lumens
Efficiency: N/A
Efficacy: 33.0 lumens/watt
Spacing Criteria (0/90/45): 0.18 / 0.91 / 0.25
Luminous Opening: Rectangular w/ Sides (W: 0.07' x L: 4' x H: 0.09')
CIE Type: Direct

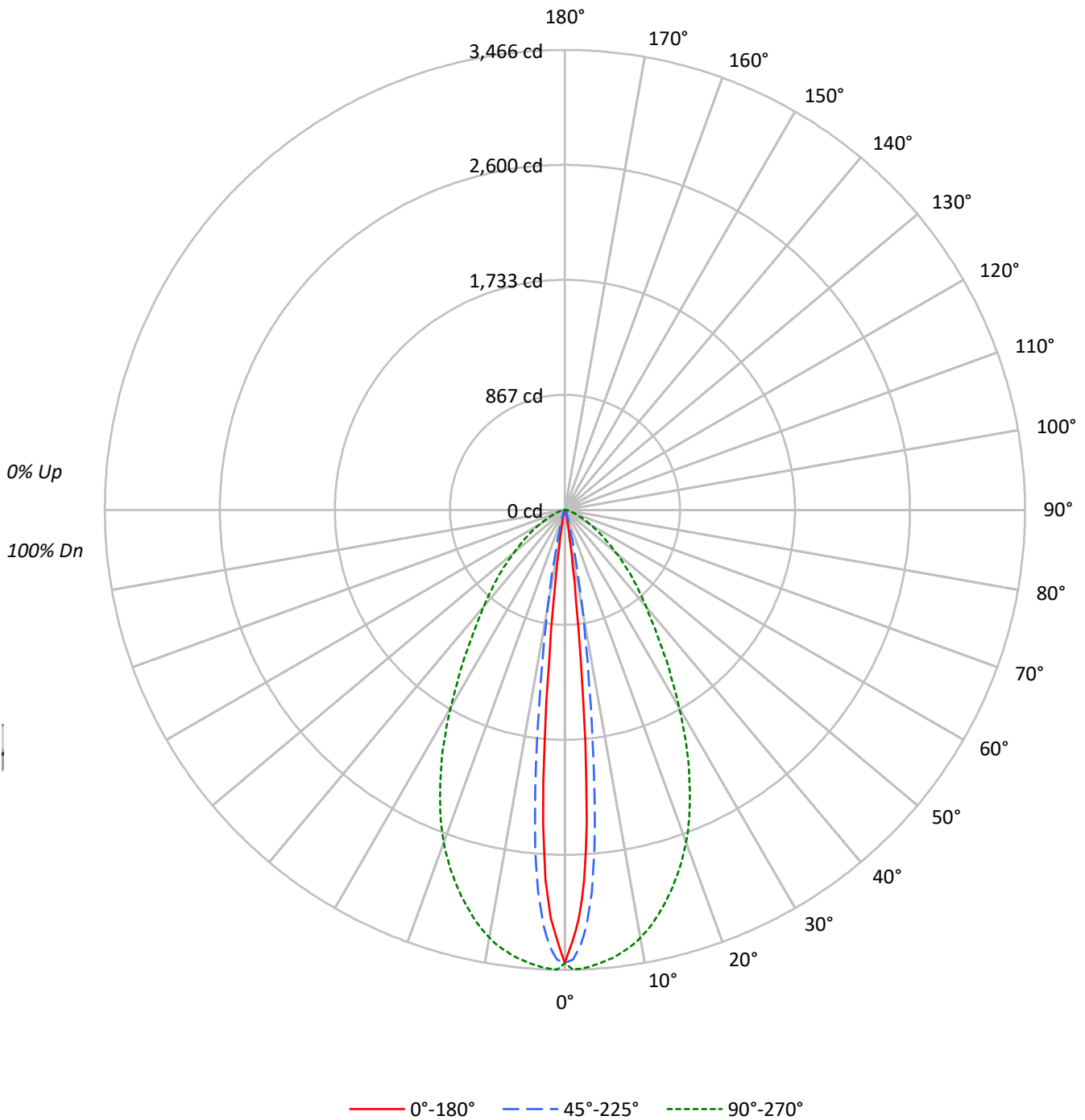
Input Watts (W): 29.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P958871

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|-----|
| RF | 20 | | | | | 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 | 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 | 93 | 104 | 99 | 95 | 92 | 96 | 93 | 90 | 93 | 90 | 88 | 90 | 88 | 86 | 84 | | | | 84 |
| 3 | 100 | 93 | 88 | 84 | 98 | 92 | 87 | 83 | 89 | 85 | 82 | 87 | 83 | 80 | 85 | 82 | 79 | 77 | | | | 77 |
| 4 | 95 | 87 | 81 | 76 | 93 | 86 | 80 | 76 | 84 | 79 | 75 | 81 | 77 | 74 | 80 | 76 | 73 | 72 | | | | 72 |
| 5 | 90 | 81 | 75 | 70 | 88 | 80 | 74 | 70 | 78 | 73 | 69 | 77 | 72 | 69 | 75 | 71 | 68 | 67 | | | | 67 |
| 6 | 86 | 76 | 70 | 65 | 84 | 75 | 70 | 65 | 74 | 69 | 65 | 73 | 68 | 64 | 71 | 67 | 64 | 62 | | | | 62 |
| 7 | 82 | 72 | 66 | 61 | 80 | 71 | 65 | 61 | 70 | 65 | 61 | 69 | 64 | 60 | 68 | 63 | 60 | 59 | | | | 59 |
| 8 | 78 | 68 | 62 | 58 | 77 | 68 | 62 | 58 | 66 | 61 | 57 | 65 | 61 | 57 | 64 | 60 | 57 | 55 | | | | 55 |
| 9 | 75 | 65 | 59 | 55 | 73 | 64 | 59 | 55 | 63 | 58 | 54 | 62 | 58 | 54 | 62 | 57 | 54 | 53 | | | | 53 |
| 10 | 72 | 62 | 56 | 52 | 71 | 61 | 56 | 52 | 61 | 55 | 52 | 60 | 55 | 52 | 59 | 55 | 52 | 50 | | | | 50 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 133369 | 133369 | 133369 |
| 5° | 69092 | 93337 | 120841 |
| 10° | 6875 | 25780 | 106620 |
| 15° | 1809 | 5070 | 91472 |
| 20° | 911 | 1755 | 76412 |
| 25° | 661 | 895 | 60596 |
| 30° | 664 | 596 | 45307 |
| 35° | 503 | 482 | 32629 |
| 40° | 431 | 441 | 23721 |
| 45° | 411 | 418 | 17493 |
| 50° | 397 | 383 | 12346 |
| 55° | 377 | 327 | 8516 |
| 60° | 362 | 264 | 5513 |
| 65° | 442 | 213 | 3388 |
| 70° | 431 | 182 | 1951 |
| 75° | 447 | 147 | 1010 |
| 80° | 502 | 126 | 477 |
| 85° | 757 | 116 | 175 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 17493 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 197.2 | 20.4 |
| 10°-20° | 220.6 | 22.9 |
| 20°-30° | 184.3 | 19.1 |
| 30°-40° | 138.0 | 14.3 |
| 40°-50° | 103.8 | 10.8 |
| 50°-60° | 69.2 | 7.2 |
| 60°-70° | 34.7 | 3.6 |
| 70°-80° | 12.7 | 1.3 |
| 80°-90° | 4.2 | 0.4 |
| 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° | 602.2 | 62.4 |
| 0°-40° | 740.2 | 76.7 |
| 0°-60° | 913.2 | 94.6 |
| 0°-90° | 964.9 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 964.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3415 | 3415 | 3415 | 3415 | 3415 | |
| 5° | 1766 | 1949 | 2566 | 3193 | 3416 | 105 |
| 15° | 45 | 56 | 155 | 1322 | 3013 | 15 |
| 25° | 16 | 17 | 29 | 434 | 2218 | 8 |
| 35° | 11 | 14 | 16 | 197 | 1278 | 7 |
| 45° | 8 | 9 | 14 | 157 | 709 | 6 |
| 55° | 6 | 6 | 11 | 116 | 346 | 5 |
| 65° | 5 | 5 | 7 | 56 | 134 | 5 |
| 75° | 3 | 3 | 4 | 18 | 38 | 3 |
| 85° | 2 | 2 | 3 | 6 | 6 | 2 |
| 90° | 2 | 2 | 2 | 2 | 2 | |



TEST NUMBER: P958871

CATALOG NUMBER: MMG-08W-940-10x60-ID-X-X-4F-4-UNV-STD-X

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-----|--------|--------|--------|--------|--------|
| 0° | 3414.8 | 3414.8 | 3414.8 | 3414.8 | 3414.8 |
| 1° | 3250.9 | 3321.1 | 3389.2 | 3440.2 | 3465.6 |
| 2° | 3074.7 | 3147.8 | 3292.9 | 3417.3 | 3458.9 |
| 3° | 2792.9 | 2889.6 | 3128.7 | 3361.9 | 3448.6 |
| 4° | 2358.0 | 2481.2 | 2889.6 | 3284.1 | 3433.1 |
| 5° | 1765.6 | 1949.4 | 2566.2 | 3193.4 | 3416.1 |
| 6° | 1130.7 | 1355.5 | 2133.7 | 3084.1 | 3397.1 |
| 7° | 689.9 | 910.1 | 1703.8 | 2944.6 | 3371.9 |
| 8° | 416.2 | 598.3 | 1306.8 | 2790.0 | 3345.0 |
| 9° | 260.5 | 374.2 | 995.0 | 2598.4 | 3313.7 |
| 10° | 174.0 | 238.2 | 752.1 | 2356.4 | 3275.3 |
| 11° | 123.1 | 167.0 | 539.9 | 2155.9 | 3231.0 |
| 12° | 92.0 | 121.0 | 397.1 | 1936.8 | 3182.6 |
| 13° | 68.9 | 89.1 | 279.6 | 1687.4 | 3129.1 |
| 14° | 55.3 | 69.3 | 198.3 | 1509.7 | 3073.2 |
| 15° | 45.0 | 55.9 | 155.3 | 1322.3 | 3012.7 |
| 16° | 37.0 | 47.1 | 120.2 | 1195.4 | 2950.9 |
| 17° | 30.7 | 39.1 | 94.1 | 1055.1 | 2884.3 |
| 18° | 26.9 | 32.6 | 77.3 | 947.7 | 2817.3 |
| 19° | 23.7 | 28.8 | 64.7 | 836.2 | 2743.8 |
| 20° | 22.1 | 25.0 | 55.9 | 755.7 | 2666.9 |
| 21° | 20.0 | 22.9 | 47.9 | 675.0 | 2586.8 |
| 22° | 18.5 | 21.0 | 42.9 | 593.7 | 2501.3 |
| 23° | 17.4 | 19.3 | 37.0 | 539.3 | 2407.0 |
| 24° | 16.4 | 18.5 | 32.4 | 481.1 | 2311.8 |
| 25° | 15.5 | 17.2 | 29.4 | 434.0 | 2217.9 |
| 26° | 14.9 | 16.4 | 27.1 | 390.8 | 2123.0 |
| 27° | 14.7 | 15.5 | 24.8 | 355.7 | 2023.6 |
| 28° | 14.7 | 15.1 | 22.9 | 323.1 | 1921.5 |
| 29° | 14.7 | 14.3 | 21.4 | 293.3 | 1821.7 |
| 30° | 14.9 | 14.3 | 20.0 | 268.9 | 1722.7 |
| 31° | 14.3 | 14.3 | 19.3 | 250.8 | 1624.4 |
| 32° | 13.9 | 14.3 | 18.3 | 233.4 | 1531.3 |
| 33° | 12.8 | 14.3 | 17.6 | 218.5 | 1446.0 |
| 34° | 11.6 | 14.3 | 17.0 | 206.7 | 1361.6 |
| 35° | 10.7 | 13.9 | 16.4 | 196.9 | 1277.6 |
| 36° | 10.1 | 13.2 | 16.0 | 188.0 | 1199.2 |
| 37° | 9.7 | 12.2 | 15.8 | 183.2 | 1131.5 |
| 38° | 9.2 | 11.3 | 15.5 | 177.3 | 1067.3 |
| 39° | 8.8 | 10.7 | 15.3 | 173.3 | 1003.6 |
| 40° | 8.6 | 10.3 | 15.1 | 169.8 | 948.6 |
| 41° | 8.4 | 9.9 | 15.1 | 166.2 | 897.3 |
| 42° | 8.2 | 9.5 | 14.7 | 163.9 | 845.8 |
| 43° | 8.0 | 9.2 | 14.7 | 161.3 | 799.6 |
| 44° | 7.8 | 9.0 | 14.7 | 159.0 | 755.7 |

TEST NUMBER: P958871

CATALOG NUMBER: MMG-08W-940-10x60-ID-X-X-4F-4-UNV-STD-X

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-----|-----|-------|------|-------|-------|
| 45° | 7.6 | 8.8 | 14.3 | 156.7 | 708.8 |
| 46° | 7.4 | 8.4 | 14.3 | 154.2 | 663.5 |
| 47° | 7.1 | 8.2 | 13.9 | 152.1 | 619.8 |
| 48° | 7.1 | 8.0 | 13.4 | 148.5 | 579.0 |
| 49° | 6.9 | 7.6 | 13.2 | 145.8 | 538.7 |
| 50° | 6.7 | 7.6 | 13.0 | 142.4 | 503.0 |
| 51° | 6.7 | 7.1 | 12.6 | 138.2 | 466.6 |
| 52° | 6.3 | 7.1 | 12.2 | 133.2 | 432.6 |
| 53° | 6.1 | 6.9 | 11.8 | 127.9 | 400.6 |
| 54° | 5.9 | 6.7 | 11.3 | 122.7 | 372.3 |
| 55° | 5.7 | 6.3 | 10.9 | 116.4 | 346.2 |
| 56° | 5.5 | 6.3 | 10.5 | 110.5 | 316.8 |
| 57° | 5.0 | 5.9 | 10.1 | 104.4 | 288.7 |
| 58° | 5.0 | 5.7 | 9.5 | 97.9 | 265.1 |
| 59° | 4.8 | 5.5 | 9.2 | 91.6 | 243.5 |
| 60° | 4.8 | 5.3 | 8.6 | 85.3 | 221.9 |
| 61° | 4.8 | 5.0 | 8.2 | 79.4 | 202.1 |
| 62° | 4.6 | 4.8 | 7.8 | 73.1 | 183.0 |
| 63° | 4.8 | 4.8 | 7.6 | 67.6 | 165.3 |
| 64° | 4.8 | 4.6 | 7.1 | 62.2 | 149.0 |
| 65° | 5.0 | 4.6 | 6.7 | 56.5 | 134.0 |
| 66° | 4.8 | 4.6 | 6.5 | 51.3 | 120.4 |
| 67° | 4.6 | 4.6 | 6.1 | 46.4 | 107.6 |
| 68° | 4.4 | 4.4 | 5.9 | 41.6 | 95.8 |
| 69° | 4.0 | 4.2 | 5.5 | 37.4 | 85.1 |
| 70° | 4.0 | 4.0 | 5.5 | 33.2 | 75.2 |
| 71° | 3.8 | 3.8 | 5.0 | 29.4 | 66.6 |
| 72° | 3.6 | 3.8 | 5.0 | 26.1 | 58.2 |
| 73° | 3.4 | 3.6 | 4.6 | 23.1 | 50.4 |
| 74° | 3.4 | 3.4 | 4.6 | 20.2 | 43.5 |
| 75° | 3.2 | 3.4 | 4.2 | 17.6 | 37.6 |
| 76° | 2.9 | 3.2 | 4.2 | 15.5 | 32.4 |
| 77° | 2.7 | 2.7 | 4.0 | 13.4 | 27.7 |
| 78° | 2.7 | 2.7 | 3.8 | 11.8 | 23.5 |
| 79° | 2.5 | 2.5 | 3.8 | 10.1 | 20.2 |
| 80° | 2.5 | 2.5 | 3.4 | 9.0 | 17.0 |
| 81° | 2.3 | 2.3 | 3.4 | 8.0 | 14.1 |
| 82° | 2.1 | 2.1 | 3.4 | 7.1 | 11.6 |
| 83° | 2.1 | 2.1 | 2.9 | 6.5 | 9.5 |
| 84° | 2.1 | 2.1 | 2.9 | 6.1 | 7.6 |
| 85° | 2.1 | 1.9 | 2.9 | 5.7 | 5.9 |
| 86° | 1.9 | 1.9 | 2.9 | 5.5 | 4.6 |
| 87° | 1.9 | 1.7 | 2.9 | 5.0 | 3.8 |
| 88° | 1.7 | 1.7 | 2.7 | 4.6 | 2.9 |
| 89° | 1.7 | 1.7 | 2.7 | 4.4 | 2.7 |



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CANDELA DISTRIBUTION (continued):

| | | | | | |
|-----|-----|-------|-----|-------|-----|
| | 0° | 22.5° | 45° | 67.5° | 90° |
| 90° | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |

(END OF REPORT)