

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
(formerly Eaton)

Brand: iO LED

Report Number: P591975

Luminaire Tested: **GRZ-05L-935-10x60-X-UNV-STD-4F**

Issue Date: 2/2/2022

Test Information

Test Method: LM-79-2019
Report Number: P591975
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2111-457-18)
Test Lab: INNOVATION CENTER
Issue Date: 2/2/2022
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: iO LED
Catalog Number: GRZ-05L-935-10x60-X-UNV-STD-4F
Description: iO LED GRAZER WITH 10x60 OPTIC
500 LUMENS PER FOOT, 4 FOOT FIXTURE
SUMULATED RESULTS
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

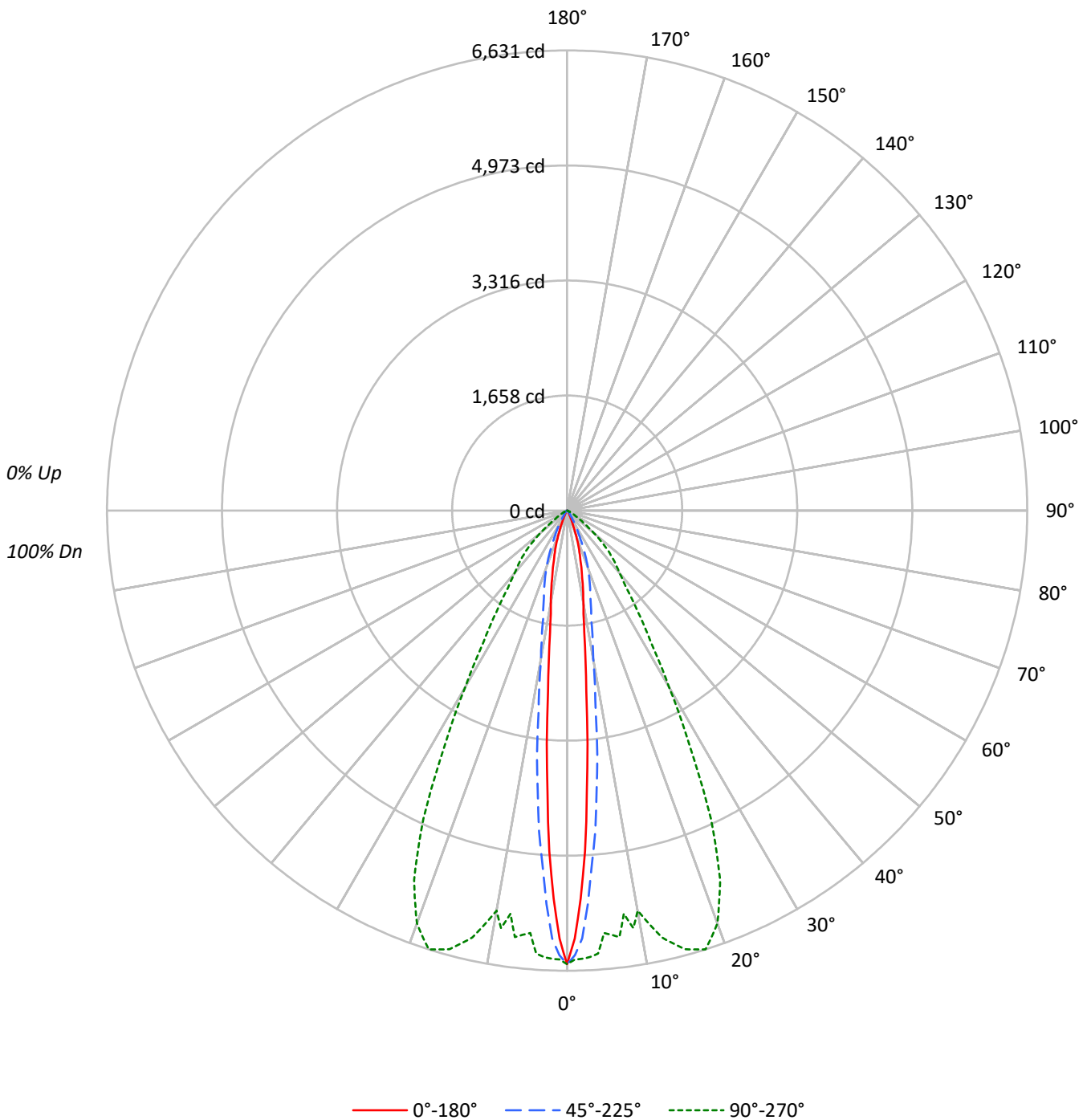
Lumens per Lamp: N/A
Luminaire Lumens: 2028.0 lumens
Efficiency: N/A
Efficacy: 105.1 lumens/watt
Spacing Criteria (0/90/45): 0.18 / 0.97 / 0.31
Luminous Opening: Rectangular (W 4' x L: 0.17' x H: 0')
CIE Type: Direct

Input Watts (W): 19.3
Input Voltage (V): 120
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: 24 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 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 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 |
| 1 | 114 | 111 | 109 | 106 | 111 | 109 | 107 | 105 | 105 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 96 | 94 |
| 2 | 108 | 104 | 100 | 97 | 106 | 102 | 98 | 95 | 99 | 96 | 93 | 96 | 93 | 91 | 93 | 91 | 89 | 88 |
| 3 | 103 | 97 | 92 | 89 | 101 | 96 | 91 | 88 | 93 | 90 | 86 | 91 | 88 | 85 | 89 | 86 | 84 | 82 |
| 4 | 98 | 91 | 86 | 82 | 97 | 90 | 85 | 82 | 88 | 84 | 81 | 86 | 83 | 80 | 84 | 81 | 79 | 77 |
| 5 | 94 | 86 | 81 | 77 | 92 | 85 | 80 | 76 | 83 | 79 | 76 | 82 | 78 | 75 | 80 | 77 | 74 | 73 |
| 6 | 90 | 82 | 76 | 72 | 88 | 81 | 75 | 72 | 79 | 75 | 71 | 78 | 74 | 71 | 77 | 73 | 70 | 69 |
| 7 | 86 | 77 | 72 | 68 | 85 | 77 | 71 | 68 | 75 | 71 | 67 | 74 | 70 | 67 | 73 | 69 | 67 | 65 |
| 8 | 82 | 74 | 68 | 64 | 81 | 73 | 68 | 64 | 72 | 67 | 64 | 71 | 67 | 64 | 70 | 66 | 63 | 62 |
| 9 | 79 | 70 | 65 | 61 | 78 | 70 | 64 | 61 | 69 | 64 | 61 | 68 | 64 | 60 | 67 | 63 | 60 | 59 |
| 10 | 76 | 67 | 62 | 58 | 75 | 67 | 61 | 58 | 66 | 61 | 58 | 65 | 61 | 58 | 64 | 60 | 58 | 56 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 105536 | 105536 | 105536 |
| 5° | 54661 | 75146 | 99017 |
| 10° | 22117 | 35488 | 95946 |
| 15° | 12373 | 21677 | 109387 |
| 20° | 6045 | 14943 | 108788 |
| 25° | 2170 | 8092 | 87283 |
| 30° | 1152 | 3747 | 54734 |
| 35° | 800 | 1752 | 34970 |
| 40° | 693 | 1060 | 24767 |
| 45° | 619 | 927 | 19772 |
| 50° | 583 | 972 | 12574 |
| 55° | 490 | 926 | 6094 |
| 60° | 501 | 688 | 3119 |
| 65° | 516 | 443 | 1551 |
| 70° | 548 | 363 | 911 |
| 75° | 480 | 362 | 605 |
| 80° | 363 | 363 | 363 |
| 85° | 352 | 352 | 0 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 391.0 | 19.3 |
| 10°-20° | 623.1 | 30.7 |
| 20°-30° | 524.4 | 25.9 |
| 30°-40° | 265.0 | 13.1 |
| 40°-50° | 134.4 | 6.6 |
| 50°-60° | 60.8 | 3.0 |
| 60°-70° | 20.2 | 1.0 |
| 70°-80° | 7.7 | 0.4 |
| 80°-90° | 1.3 | 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° | 1538.6 | 75.9 |
| 0°-40° | 1803.6 | 88.9 |
| 0°-60° | 1998.8 | 98.6 |
| 0°-90° | 2028.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2028.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 6536 | 6536 | 6536 | 6536 | 6536 | |
| 5° | 3373 | 3660 | 4636 | 5661 | 6109 | 252 |
| 15° | 740 | 875 | 1297 | 3102 | 6544 | 209 |
| 25° | 122 | 166 | 454 | 1604 | 4899 | 68 |
| 35° | 41 | 47 | 89 | 672 | 1774 | 27 |
| 45° | 27 | 30 | 41 | 209 | 866 | 21 |
| 55° | 17 | 22 | 33 | 80 | 216 | 16 |
| 65° | 14 | 12 | 12 | 23 | 41 | 13 |
| 75° | 8 | 8 | 6 | 8 | 10 | 8 |
| 85° | 2 | 2 | 2 | 0 | 0 | 2 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P591975

CATALOG NUMBER: GRZ-05L-935-10x60-X-UNV-STD-4F

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 6536.4 | 6536.4 | 6536.4 | 6536.4 | 6536.4 | 6536.4 | 6536.4 | 6536.4 | 6536.4 | 6536.4 | 6536.4 |
| 1° | 6169.2 | 6410.8 | 6580.8 | 6331.5 | 6524.8 | 6406.9 | 6488.1 | 6356.7 | 6447.5 | 6520.9 | 6468.8 |
| 2° | 5599.0 | 5906.3 | 5896.7 | 5867.7 | 5917.9 | 6167.2 | 6393.4 | 6372.1 | 6472.6 | 6430.1 | 6461.0 |
| 3° | 4914.9 | 5079.1 | 5133.3 | 5216.4 | 5432.8 | 5678.3 | 5956.6 | 6202.0 | 6451.4 | 6501.6 | 6439.8 |
| 4° | 4070.3 | 4130.2 | 4313.8 | 4337.0 | 4748.6 | 5098.5 | 5568.1 | 5846.4 | 6339.3 | 6420.4 | 6399.2 |
| 5° | 3372.6 | 3355.2 | 3529.1 | 3703.1 | 4217.2 | 4636.5 | 5212.5 | 5502.4 | 6136.3 | 6356.7 | 6109.3 |
| 6° | 2622.7 | 2763.8 | 2931.9 | 3094.3 | 3538.8 | 4068.3 | 4686.8 | 5347.8 | 6070.6 | 6267.7 | 6147.9 |
| 7° | 2182.0 | 2211.0 | 2334.7 | 2462.3 | 2943.5 | 3571.6 | 4103.1 | 4940.0 | 5732.4 | 6136.3 | 6192.4 |
| 8° | 1770.4 | 1770.4 | 1930.8 | 2046.7 | 2504.8 | 2955.1 | 3797.8 | 4559.2 | 5543.0 | 6132.5 | 5867.7 |
| 9° | 1507.5 | 1542.3 | 1617.7 | 1801.3 | 2069.9 | 2557.0 | 3281.7 | 4211.4 | 5398.0 | 6020.4 | 6089.9 |
| 10° | 1349.0 | 1395.4 | 1436.0 | 1505.6 | 1793.5 | 2164.6 | 2912.6 | 3873.1 | 5274.3 | 6026.2 | 5852.2 |
| 12.5° | 1001.1 | 1026.3 | 1074.6 | 1155.8 | 1374.2 | 1600.3 | 2191.7 | 3206.4 | 4675.2 | 6130.5 | 6298.7 |
| 15° | 740.2 | 748.0 | 815.6 | 894.8 | 1078.4 | 1296.8 | 1693.0 | 2661.3 | 4425.9 | 6314.1 | 6544.1 |
| 17.5° | 547.0 | 556.6 | 601.1 | 674.5 | 800.1 | 1076.5 | 1457.3 | 2197.5 | 4136.0 | 6300.6 | 6631.1 |
| 20° | 351.8 | 363.3 | 407.8 | 465.8 | 616.5 | 869.7 | 1225.3 | 1812.9 | 3710.8 | 5848.4 | 6331.5 |
| 22.5° | 208.7 | 220.3 | 235.8 | 291.8 | 432.9 | 651.3 | 1008.9 | 1559.7 | 2955.1 | 5245.4 | 5763.3 |
| 25° | 121.8 | 119.8 | 137.2 | 175.9 | 264.8 | 454.2 | 823.3 | 1333.6 | 2413.9 | 4524.5 | 4899.4 |
| 27.5° | 79.2 | 81.2 | 88.9 | 108.2 | 164.3 | 305.4 | 649.4 | 1146.1 | 1896.0 | 3446.0 | 3826.7 |
| 30° | 61.8 | 61.8 | 65.7 | 75.4 | 106.3 | 201.0 | 489.0 | 954.8 | 1563.6 | 2630.4 | 2935.8 |
| 32.5° | 48.3 | 50.3 | 52.2 | 58.0 | 75.4 | 131.4 | 351.8 | 763.4 | 1273.6 | 1984.9 | 2234.2 |
| 35° | 40.6 | 42.5 | 44.5 | 48.3 | 59.9 | 88.9 | 239.7 | 560.5 | 1006.9 | 1505.6 | 1774.2 |
| 37.5° | 36.7 | 36.7 | 38.7 | 40.6 | 50.3 | 63.8 | 156.5 | 382.7 | 769.2 | 1238.9 | 1397.3 |
| 40° | 32.9 | 32.9 | 34.8 | 36.7 | 44.5 | 50.3 | 96.6 | 251.3 | 599.1 | 1022.4 | 1175.1 |
| 42.5° | 29.0 | 30.9 | 32.9 | 32.9 | 38.7 | 44.5 | 67.6 | 187.5 | 487.0 | 914.2 | 1020.5 |
| 45° | 27.1 | 27.1 | 29.0 | 30.9 | 36.7 | 40.6 | 52.2 | 145.0 | 402.0 | 769.2 | 865.9 |
| 47.5° | 25.1 | 25.1 | 27.1 | 29.0 | 34.8 | 38.7 | 42.5 | 112.1 | 336.3 | 622.3 | 690.0 |
| 50° | 23.2 | 23.2 | 25.1 | 29.0 | 32.9 | 38.7 | 34.8 | 85.0 | 268.6 | 465.8 | 500.6 |
| 52.5° | 19.3 | 21.3 | 23.2 | 25.1 | 29.0 | 36.7 | 29.0 | 65.7 | 222.3 | 326.6 | 328.6 |
| 55° | 17.4 | 17.4 | 19.3 | 23.2 | 25.1 | 32.9 | 23.2 | 48.3 | 173.9 | 224.2 | 216.5 |
| 57.5° | 17.4 | 15.5 | 17.4 | 19.3 | 21.3 | 29.0 | 17.4 | 36.7 | 129.5 | 150.8 | 139.2 |
| 60° | 15.5 | 15.5 | 15.5 | 15.5 | 17.4 | 21.3 | 13.5 | 29.0 | 94.7 | 100.5 | 96.6 |
| 62.5° | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 17.4 | 11.6 | 21.3 | 63.8 | 63.8 | 59.9 |
| 65° | 13.5 | 13.5 | 11.6 | 11.6 | 11.6 | 11.6 | 9.7 | 17.4 | 40.6 | 40.6 | 40.6 |
| 67.5° | 13.5 | 11.6 | 11.6 | 9.7 | 9.7 | 9.7 | 7.7 | 13.5 | 25.1 | 29.0 | 27.1 |
| 70° | 11.6 | 11.6 | 9.7 | 9.7 | 7.7 | 7.7 | 7.7 | 11.6 | 17.4 | 19.3 | 19.3 |
| 72.5° | 9.7 | 9.7 | 9.7 | 7.7 | 7.7 | 5.8 | 5.8 | 9.7 | 13.5 | 13.5 | 13.5 |
| 75° | 7.7 | 7.7 | 7.7 | 7.7 | 5.8 | 5.8 | 3.9 | 7.7 | 7.7 | 9.7 | 9.7 |
| 77.5° | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 3.9 | 3.9 | 5.8 | 5.8 | 5.8 | 5.8 |
| 80° | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 3.9 | 1.9 | 3.9 | 3.9 | 3.9 | 3.9 |
| 82.5° | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 85° | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)