

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: METALUX

Report Number: P843309

Luminaire Tested: 24CGSB-40-L840

Issue Date: 5/31/2024

Tested By:

Approved By:



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Test Information

Test Method: LM-79-2019
 Report Number: P843309
 Test Lab: INNOVATION CENTER
 Issue Date: 5/31/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: METALUX
 Catalog Number: 24CGSB-40-L840
 Description: 2x4 CGSB AT 4000LM 4000K 80CRI
 Light Source: -
 Ballast/Driver: -

Summary

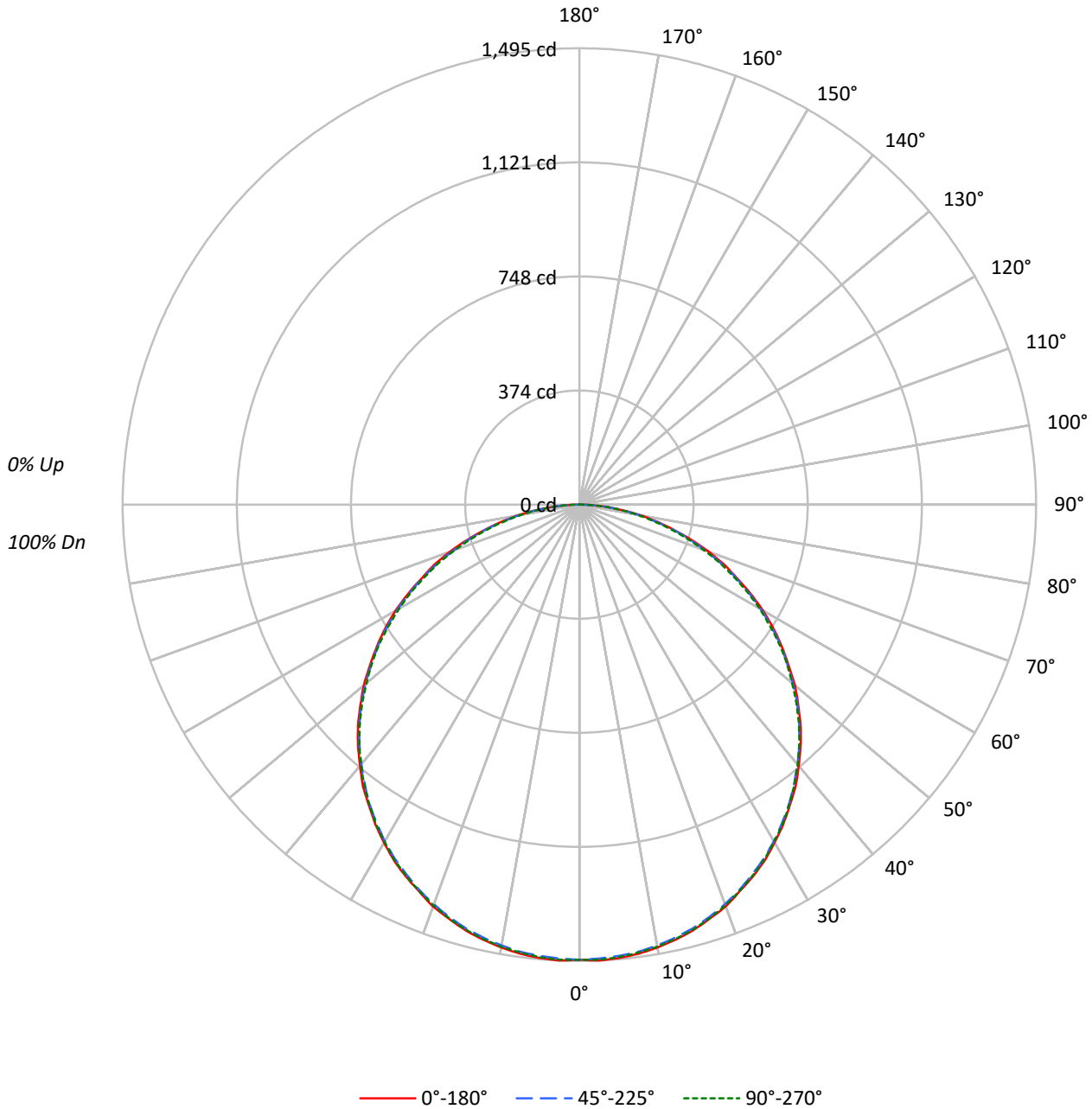
Lumens per Lamp: N/A
 Luminaire Lumens: 4411.2 lumens
 Efficiency: N/A
 Efficacy: 137.4 lumens/watt
 Spacing Criteria (0/90/45): 1.27 / 1.27 / 1.39
 Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
 CIE Type: Direct

Input Watts (W): 32.1
 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

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | P3 | 10/30/2015 | 4/30/2016 |
| Power Meter | IN0214 | 1/12/2016 | 1/12/2017 |
| AC Power Source | IN0062 | 1/12/2016 | 1/12/2017 |
| DC Power Supply | -- | -- | -- |
| Room Thermometer | IN0145 | 1/13/2016 | 1/13/2017 |

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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 | |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 108 | 103 | 99 | 95 | 106 | 101 | 97 | 93 | 97 | 94 | 90 | 93 | 90 | 88 | 89 | 87 | 85 | 83 |
| 2 | 98 | 90 | 83 | 77 | 96 | 88 | 81 | 76 | 84 | 79 | 74 | 81 | 76 | 72 | 78 | 74 | 71 | 69 |
| 3 | 89 | 79 | 70 | 64 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | 71 | 66 | 61 | 69 | 64 | 60 | 58 |
| 4 | 82 | 70 | 61 | 54 | 79 | 68 | 60 | 53 | 66 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 51 | 49 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 59 | 51 | 45 | 57 | 50 | 45 | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 47 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 40 | 51 | 44 | 39 | 50 | 44 | 39 | 37 |
| 7 | 64 | 51 | 42 | 35 | 62 | 50 | 41 | 35 | 48 | 41 | 35 | 47 | 40 | 35 | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 37 | 32 | 58 | 45 | 37 | 31 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 38 | 31 | 26 | 37 | 30 | 25 | 36 | 30 | 25 | 36 | 30 | 25 | 23 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2006 | 2006 | 2006 |
| 5° | 2014 | 2005 | 2010 |
| 10° | 2013 | 2004 | 2009 |
| 15° | 2011 | 2001 | 2007 |
| 20° | 2006 | 1995 | 2001 |
| 25° | 1996 | 1985 | 1992 |
| 30° | 1987 | 1979 | 1981 |
| 35° | 1974 | 1967 | 1969 |
| 40° | 1962 | 1950 | 1953 |
| 45° | 1950 | 1937 | 1934 |
| 50° | 1929 | 1912 | 1903 |
| 55° | 1897 | 1887 | 1878 |
| 60° | 1869 | 1847 | 1832 |
| 65° | 1809 | 1796 | 1770 |
| 70° | 1770 | 1721 | 1695 |
| 75° | 1674 | 1653 | 1597 |
| 80° | 1601 | 1548 | 1485 |
| 85° | 1426 | 1406 | 1301 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1950 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 141.3 | 3.2 |
| 10°-20° | 405.9 | 9.2 |
| 20°-30° | 617.7 | 14.0 |
| 30°-40° | 749.8 | 17.0 |
| 40°-50° | 785.3 | 17.8 |
| 50°-60° | 717.5 | 16.3 |
| 60°-70° | 557.6 | 12.6 |
| 70°-80° | 334.4 | 7.6 |
| 80°-90° | 101.7 | 2.3 |
| 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° | 1165.0 | 26.4 |
| 0°-40° | 1914.7 | 43.4 |
| 0°-60° | 3417.5 | 77.5 |
| 0°-90° | 4411.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4411.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1491 | 1491 | 1491 | 1491 | 1491 | |
| 5° | 1491 | 1487 | 1484 | 1484 | 1488 | 142 |
| 15° | 1443 | 1438 | 1437 | 1437 | 1441 | 407 |
| 25° | 1344 | 1339 | 1337 | 1339 | 1342 | 620 |
| 35° | 1202 | 1199 | 1197 | 1197 | 1199 | 753 |
| 45° | 1025 | 1019 | 1018 | 1017 | 1017 | 789 |
| 55° | 809 | 806 | 805 | 798 | 800 | 723 |
| 65° | 568 | 567 | 564 | 557 | 556 | 566 |
| 75° | 322 | 321 | 318 | 313 | 307 | 343 |
| 85° | 92 | 91 | 91 | 88 | 84 | 104 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1491.0 | 1491.0 | 1491.0 | 1491.0 | 1491.0 |
| 2.5° | 1495.0 | 1489.6 | 1488.2 | 1488.2 | 1492.3 |
| 5° | 1491.0 | 1486.9 | 1484.2 | 1484.2 | 1488.2 |
| 7.5° | 1484.2 | 1478.7 | 1477.4 | 1477.4 | 1480.1 |
| 10° | 1473.3 | 1469.2 | 1466.5 | 1466.5 | 1470.6 |
| 12.5° | 1459.7 | 1454.3 | 1452.9 | 1454.3 | 1457.0 |
| 15° | 1443.4 | 1438.0 | 1436.6 | 1436.6 | 1440.7 |
| 17.5° | 1421.6 | 1417.6 | 1416.2 | 1416.2 | 1420.3 |
| 20° | 1401.3 | 1394.5 | 1393.1 | 1394.5 | 1397.2 |
| 22.5° | 1371.4 | 1368.6 | 1367.3 | 1368.6 | 1370.0 |
| 25° | 1344.2 | 1338.7 | 1337.4 | 1338.7 | 1341.5 |
| 27.5° | 1314.3 | 1308.8 | 1307.5 | 1307.5 | 1311.6 |
| 30° | 1278.9 | 1274.9 | 1273.5 | 1273.5 | 1274.9 |
| 32.5° | 1242.2 | 1239.5 | 1235.4 | 1236.8 | 1239.5 |
| 35° | 1201.5 | 1198.7 | 1197.4 | 1197.4 | 1198.7 |
| 37.5° | 1163.4 | 1158.0 | 1153.9 | 1153.9 | 1156.6 |
| 40° | 1117.2 | 1114.5 | 1110.4 | 1111.8 | 1111.8 |
| 42.5° | 1072.4 | 1068.3 | 1065.6 | 1064.2 | 1065.6 |
| 45° | 1024.8 | 1019.3 | 1018.0 | 1016.6 | 1016.6 |
| 47.5° | 971.8 | 971.8 | 967.7 | 965.0 | 963.6 |
| 50° | 921.5 | 916.1 | 913.3 | 909.3 | 909.3 |
| 52.5° | 863.0 | 861.7 | 857.6 | 856.2 | 856.2 |
| 55° | 808.7 | 806.0 | 804.6 | 797.8 | 800.5 |
| 57.5° | 753.0 | 747.5 | 746.2 | 742.1 | 739.4 |
| 60° | 694.5 | 691.8 | 686.4 | 680.9 | 680.9 |
| 62.5° | 632.0 | 630.6 | 625.2 | 621.1 | 619.8 |
| 65° | 568.1 | 566.8 | 564.0 | 557.2 | 555.9 |
| 67.5° | 513.7 | 508.3 | 501.5 | 496.1 | 496.1 |
| 70° | 449.9 | 443.1 | 437.6 | 432.2 | 430.8 |
| 72.5° | 384.6 | 380.6 | 377.8 | 372.4 | 368.3 |
| 75° | 322.1 | 320.8 | 318.0 | 312.6 | 307.2 |
| 77.5° | 263.7 | 262.3 | 255.5 | 251.4 | 247.4 |
| 80° | 206.6 | 201.2 | 199.8 | 194.4 | 191.6 |
| 82.5° | 145.4 | 148.1 | 141.3 | 140.0 | 138.6 |
| 85° | 92.4 | 91.1 | 91.1 | 88.3 | 84.3 |
| 87.5° | 40.8 | 42.1 | 42.1 | 42.1 | 42.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)