

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: CORELITE

Report Number: P1216273

Luminaire Tested: 24-ID2-40-DBD-L830-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1216273  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-11)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-40-DBD-L830-U  
Description: 2X4 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL DROP  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

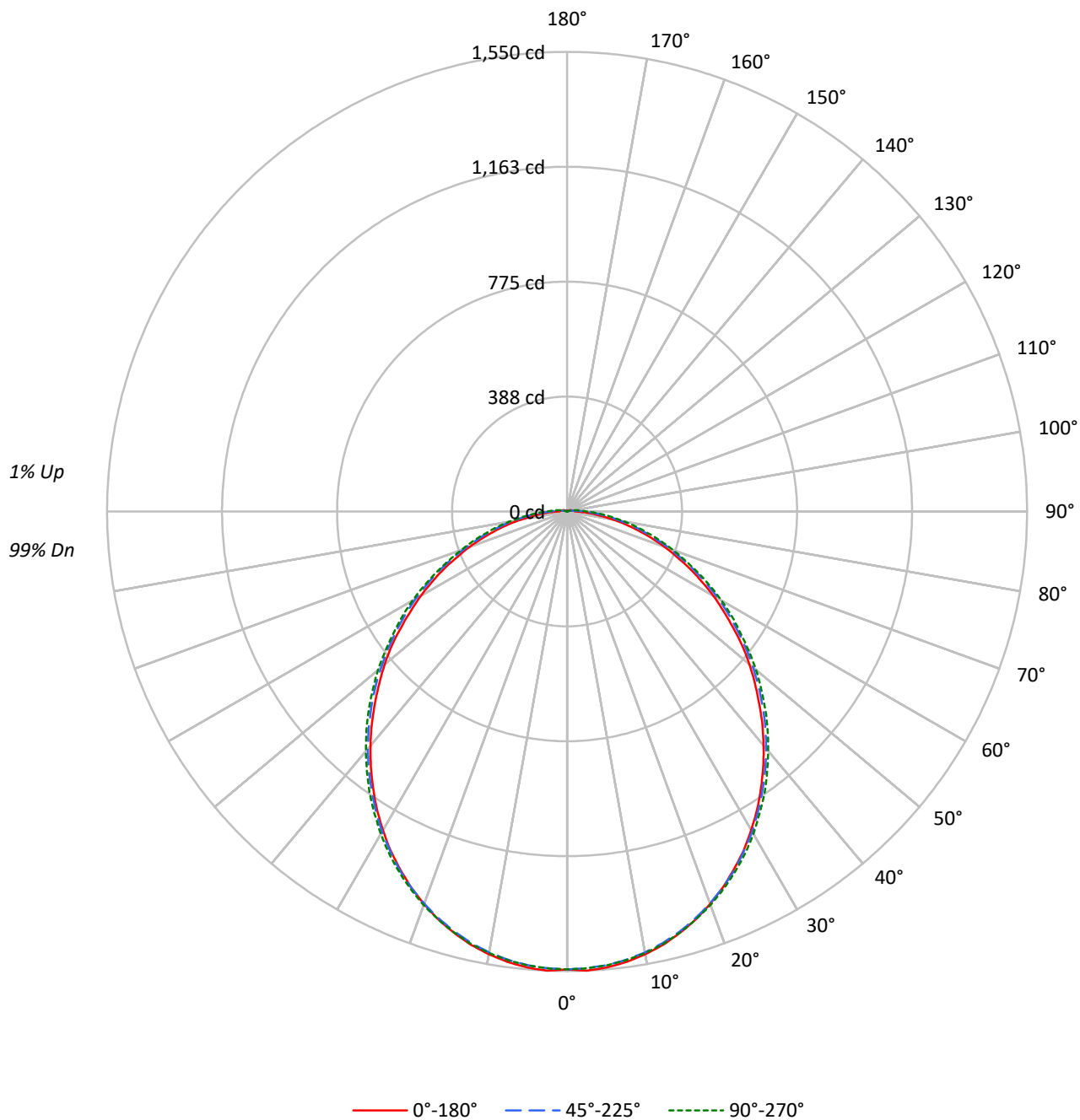
Lumens per Lamp: N/A  
Luminaire Lumens: 4167.9 lumens  
Efficiency: N/A  
Efficacy: 120.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.21 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 4' x H: 0.15')  
CIE Type: Direct

Input Watts (W): 34.7  
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



TEST NUMBER: P1216273  
CATALOG NUMBER: 24-ID2-40-DBD-L830-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1216273

CATALOG NUMBER: 24-ID2-40-DBD-L830-U

**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 |  | 110 | 110 | 110 |  | 105 | 105 | 105 |  | 101 | 101 | 101 |
| 1   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  |  | 96  | 93  | 90  |  | 92  | 90  | 87  |  | 88  | 86  | 84  |
| 2   | 98  | 90  | 83  | 77  | 96  | 88  | 82  | 76  |  | 84  | 79  | 74  |  | 81  | 76  | 73  |  | 78  | 74  | 71  |
| 3   | 90  | 79  | 71  | 65  | 87  | 78  | 70  | 64  |  | 74  | 68  | 63  |  | 71  | 66  | 61  |  | 69  | 64  | 60  |
| 4   | 82  | 70  | 62  | 55  | 80  | 69  | 61  | 54  |  | 66  | 59  | 54  |  | 64  | 58  | 53  |  | 61  | 56  | 52  |
| 5   | 76  | 63  | 54  | 47  | 74  | 62  | 53  | 47  |  | 60  | 52  | 46  |  | 57  | 51  | 46  |  | 55  | 50  | 45  |
| 6   | 70  | 57  | 48  | 41  | 68  | 56  | 47  | 41  |  | 54  | 46  | 41  |  | 52  | 45  | 40  |  | 50  | 44  | 40  |
| 7   | 65  | 52  | 43  | 37  | 63  | 51  | 42  | 37  |  | 49  | 42  | 36  |  | 47  | 41  | 36  |  | 46  | 40  | 35  |
| 8   | 61  | 47  | 39  | 33  | 59  | 46  | 38  | 33  |  | 45  | 38  | 32  |  | 44  | 37  | 32  |  | 42  | 36  | 32  |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 29  |  | 41  | 34  | 29  |  | 40  | 34  | 29  |  | 39  | 33  | 29  |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  |  | 38  | 31  | 27  |  | 37  | 31  | 26  |  | 36  | 30  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2078 | 2078 | 2078 |
| 5°  | 2078 | 2060 | 2062 |
| 10° | 2058 | 2035 | 2039 |
| 15° | 2029 | 2000 | 2007 |
| 20° | 1990 | 1958 | 1969 |
| 25° | 1942 | 1910 | 1922 |
| 30° | 1887 | 1852 | 1870 |
| 35° | 1824 | 1786 | 1810 |
| 40° | 1754 | 1718 | 1742 |
| 45° | 1679 | 1643 | 1673 |
| 50° | 1607 | 1563 | 1598 |
| 55° | 1521 | 1477 | 1509 |
| 60° | 1438 | 1392 | 1433 |
| 65° | 1345 | 1296 | 1330 |
| 70° | 1250 | 1191 | 1233 |
| 75° | 1132 | 1087 | 1148 |
| 80° | 1009 | 984  | 1067 |
| 85° | 902  | 893  | 1017 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1679 cd/sqm

TEST NUMBER: P1216273  
 CATALOG NUMBER: 24-ID2-40-DBD-L830-U

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 145.9  | 3.5       |
| 10°-20°   | 413.8  | 9.9       |
| 20°-30°   | 614.2  | 14.7      |
| 30°-40°   | 718.2  | 17.2      |
| 40°-50°   | 718.5  | 17.2      |
| 50°-60°   | 626.9  | 15.0      |
| 60°-70°   | 469.4  | 11.3      |
| 70°-80°   | 286.0  | 6.9       |
| 80°-90°   | 120.6  | 2.9       |
| 90°-100°  | 35.6   | 0.9       |
| 100°-110° | 11.0   | 0.3       |
| 110°-120° | 4.2    | 0.1       |
| 120°-130° | 2.1    | 0.1       |
| 130°-140° | 1.0    | 0.0       |
| 140°-150° | 0.5    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1173.9 | 28.2      |
| 0°-40°    | 1892.1 | 45.4      |
| 0°-60°    | 3237.5 | 77.7      |
| 0°-90°    | 4113.5 | 98.7      |
| 90°-120°  | 50.8   | 1.2       |
| 90°-150°  | 54.4   | 1.3       |
| 90°-180°  | 54.0   | 1.3       |
| 0°-180°   | 4167.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1544 | 1544  | 1544 | 1544  | 1544 |      |
| 5°   | 1544 | 1539  | 1536 | 1534  | 1536 | 146  |
| 15°  | 1471 | 1468  | 1467 | 1467  | 1470 | 415  |
| 25°  | 1331 | 1330  | 1334 | 1337  | 1340 | 613  |
| 35°  | 1139 | 1141  | 1148 | 1156  | 1160 | 712  |
| 45°  | 915  | 920   | 932  | 942   | 945  | 707  |
| 55°  | 683  | 688   | 701  | 711   | 712  | 612  |
| 65°  | 456  | 462   | 476  | 483   | 485  | 452  |
| 75°  | 248  | 257   | 271  | 281   | 283  | 264  |
| 85°  | 84   | 95    | 110  | 121   | 122  | 83   |
| 90°  | 28   | 42    | 54   | 64    | 66   | 18   |
| 95°  | 23   | 22    | 32   | 40    | 42   | 18   |
| 105° | 15   | 12    | 7    | 7     | 9    | 16   |
| 115° | 9    | 7     | 4    | 1     | 0    | 9    |
| 125° | 5    | 5     | 2    | 0     | 0    | 5    |
| 135° | 3    | 2     | 1    | 1     | 0    | 2    |
| 145° | 1    | 1     | 1    | 1     | 1    | 1    |
| 155° | 0    | 0     | 0    | 0     | 0    | 0    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    | 0    |

TEST NUMBER: P1216273

CATALOG NUMBER: 24-ID2-40-DBD-L830-U

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1544.4 | 1544.4 | 1544.4 | 1544.4 | 1544.4 |
| 2.5°   | 1550.1 | 1545.0 | 1541.5 | 1539.8 | 1542.1 |
| 5°     | 1543.8 | 1538.7 | 1535.8 | 1533.5 | 1536.4 |
| 7.5°   | 1532.4 | 1527.2 | 1524.9 | 1523.8 | 1526.1 |
| 10°    | 1516.4 | 1511.2 | 1510.1 | 1508.3 | 1512.3 |
| 12.5°  | 1496.9 | 1491.8 | 1490.6 | 1490.0 | 1494.0 |
| 15°    | 1471.2 | 1467.7 | 1466.6 | 1467.2 | 1470.0 |
| 17.5°  | 1443.1 | 1439.1 | 1438.6 | 1439.7 | 1443.1 |
| 20°    | 1408.8 | 1406.5 | 1407.1 | 1410.0 | 1412.8 |
| 22.5°  | 1372.2 | 1369.9 | 1372.2 | 1373.4 | 1377.9 |
| 25°    | 1331.0 | 1330.5 | 1334.5 | 1336.7 | 1340.2 |
| 27.5°  | 1288.7 | 1288.7 | 1291.0 | 1295.0 | 1300.1 |
| 30°    | 1240.7 | 1241.2 | 1246.9 | 1250.4 | 1255.5 |
| 32.5°  | 1192.0 | 1193.2 | 1198.3 | 1204.0 | 1207.5 |
| 35°    | 1139.4 | 1140.6 | 1148.0 | 1156.0 | 1160.0 |
| 37.5°  | 1085.6 | 1088.5 | 1097.1 | 1104.5 | 1107.4 |
| 40°    | 1030.2 | 1033.6 | 1043.3 | 1052.5 | 1054.2 |
| 42.5°  | 974.1  | 977.5  | 989.0  | 998.7  | 1000.4 |
| 45°    | 915.2  | 920.3  | 932.3  | 942.1  | 944.9  |
| 47.5°  | 858.6  | 863.7  | 875.7  | 886.0  | 887.2  |
| 50°    | 801.9  | 805.4  | 817.4  | 827.1  | 831.7  |
| 52.5°  | 745.3  | 748.7  | 760.2  | 772.2  | 771.6  |
| 55°    | 683.0  | 687.5  | 701.3  | 711.0  | 712.1  |
| 57.5°  | 624.6  | 630.9  | 645.2  | 654.9  | 658.4  |
| 60°    | 569.1  | 574.3  | 588.6  | 596.6  | 601.7  |
| 62.5°  | 511.4  | 517.7  | 531.4  | 540.5  | 542.8  |
| 65°    | 456.4  | 462.2  | 476.5  | 483.3  | 485.0  |
| 67.5°  | 399.8  | 407.8  | 421.0  | 429.6  | 430.7  |
| 70°    | 350.6  | 356.4  | 368.9  | 377.5  | 378.1  |
| 72.5°  | 297.4  | 305.4  | 318.0  | 328.3  | 331.2  |
| 75°    | 248.2  | 257.4  | 271.1  | 281.4  | 282.6  |
| 77.5°  | 201.3  | 211.1  | 228.2  | 238.5  | 239.1  |
| 80°    | 157.9  | 168.7  | 184.2  | 196.2  | 196.2  |
| 82.5°  | 117.3  | 129.8  | 147.6  | 158.4  | 157.9  |
| 85°    | 83.5   | 95.0   | 110.4  | 121.3  | 122.4  |
| 87.5°  | 52.1   | 64.1   | 78.9   | 88.1   | 90.4   |
| 90°    | 27.5   | 41.8   | 54.3   | 63.5   | 65.8   |
| 92.5°  | 25.2   | 30.3   | 42.3   | 50.9   | 52.6   |
| 95°    | 22.9   | 22.3   | 31.5   | 39.5   | 41.8   |
| 97.5°  | 20.6   | 17.2   | 22.3   | 29.2   | 31.5   |
| 100°   | 18.3   | 15.4   | 16.0   | 20.6   | 22.3   |
| 102.5° | 16.6   | 13.7   | 9.7    | 13.2   | 14.9   |
| 105°   | 14.9   | 12.0   | 6.9    | 6.9    | 8.6    |
| 107.5° | 13.2   | 10.9   | 6.3    | 2.9    | 4.0    |
| 110°   | 11.4   | 9.7    | 5.1    | 1.1    | 0.6    |

TEST NUMBER: P1216273

CATALOG NUMBER: 24-ID2-40-DBD-L830-U

**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|-----|-------|-----|
| 112.5° | 10.3 | 8.6   | 4.6 | 0.6   | 0.0 |
| 115°   | 9.2  | 7.4   | 4.0 | 0.6   | 0.0 |
| 117.5° | 8.0  | 6.9   | 3.4 | 0.0   | 0.0 |
| 120°   | 6.9  | 5.7   | 2.9 | 0.0   | 0.0 |
| 122.5° | 6.3  | 5.1   | 2.3 | 0.0   | 0.0 |
| 125°   | 5.1  | 4.6   | 2.3 | 0.0   | 0.0 |
| 127.5° | 4.6  | 4.0   | 1.7 | 0.0   | 0.0 |
| 130°   | 4.0  | 3.4   | 1.1 | 0.0   | 0.0 |
| 132.5° | 3.4  | 2.9   | 1.1 | 0.0   | 0.0 |
| 135°   | 2.9  | 2.3   | 0.6 | 0.6   | 0.0 |
| 137.5° | 2.3  | 1.7   | 0.6 | 0.6   | 0.0 |
| 140°   | 1.7  | 1.7   | 0.6 | 0.6   | 0.0 |
| 142.5° | 1.7  | 1.1   | 0.6 | 0.6   | 0.0 |
| 145°   | 1.1  | 1.1   | 0.6 | 0.6   | 0.6 |
| 147.5° | 1.1  | 0.6   | 0.6 | 0.6   | 0.6 |
| 150°   | 0.6  | 0.6   | 0.6 | 0.6   | 0.6 |
| 152.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 155°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 157.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 160°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 162.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 165°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 167.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 170°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 172.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 175°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 177.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 180°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |

TEST NUMBER: P1216273

CATALOG NUMBER: 24-ID2-40-DBD-L830-U

**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 12.98            | 14.57 | 13.36 | 14.92 | 15.26 | 13.37          | 14.97 | 13.76 | 15.31 | 15.66 |
|                 | 3H   | 14.63            | 16.08 | 15.03 | 16.43 | 16.82 | 15.14          | 16.59 | 15.54 | 16.94 | 17.33 |
|                 | 4H   | 15.24            | 16.61 | 15.66 | 16.98 | 17.39 | 15.86          | 17.22 | 16.28 | 17.60 | 18.01 |
|                 | 6H   | 15.70            | 16.96 | 16.13 | 17.36 | 17.78 | 16.48          | 17.74 | 16.91 | 18.13 | 18.56 |
|                 | 8H   | 15.85            | 17.06 | 16.29 | 17.47 | 17.90 | 16.73          | 17.94 | 17.17 | 18.35 | 18.78 |
|                 | 12H  | 15.96            | 17.12 | 16.41 | 17.53 | 17.99 | 16.95          | 18.11 | 17.40 | 18.52 | 18.98 |
| 4H              | 2H   | 13.61            | 14.97 | 14.03 | 15.35 | 15.75 | 13.92          | 15.29 | 14.34 | 15.66 | 16.07 |
|                 | 3H   | 15.48            | 16.63 | 15.91 | 17.05 | 17.48 | 15.92          | 17.06 | 16.35 | 17.49 | 17.92 |
|                 | 4H   | 16.22            | 17.26 | 16.67 | 17.70 | 18.17 | 16.78          | 17.82 | 17.23 | 18.26 | 18.72 |
|                 | 6H   | 16.81            | 17.72 | 17.28 | 18.18 | 18.67 | 17.54          | 18.46 | 18.02 | 18.92 | 19.41 |
|                 | 8H   | 17.01            | 17.86 | 17.49 | 18.33 | 18.82 | 17.87          | 18.72 | 18.35 | 19.19 | 19.68 |
|                 | 12H  | 17.17            | 17.94 | 17.67 | 18.44 | 18.94 | 18.17          | 18.94 | 18.67 | 19.44 | 19.94 |
| 8H              | 4H   | 16.57            | 17.42 | 17.05 | 17.89 | 18.39 | 17.06          | 17.91 | 17.54 | 18.38 | 18.88 |
|                 | 6H   | 17.29            | 18.00 | 17.80 | 18.51 | 19.02 | 17.97          | 18.69 | 18.49 | 19.20 | 19.70 |
|                 | 8H   | 17.57            | 18.21 | 18.10 | 18.74 | 19.26 | 18.39          | 19.04 | 18.92 | 19.57 | 20.08 |
|                 | 12H  | 17.81            | 18.39 | 18.34 | 18.90 | 19.49 | 18.82          | 19.39 | 19.34 | 19.90 | 20.49 |
| 12H             | 4H   | 16.62            | 17.39 | 17.12 | 17.89 | 18.39 | 17.09          | 17.86 | 17.59 | 18.36 | 18.86 |
|                 | 6H   | 17.38            | 18.02 | 17.91 | 18.55 | 19.07 | 18.03          | 18.67 | 18.56 | 19.20 | 19.72 |
|                 | 8H   | 17.73            | 18.30 | 18.26 | 18.81 | 19.40 | 18.52          | 19.09 | 19.05 | 19.61 | 20.19 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-3

Test Date: 07/24/2025

Luminaire Tested: 22ID2-55-CFR1-L830-U

Data in this report applies to families of products including 22ID2-55-CFR1-L830-U

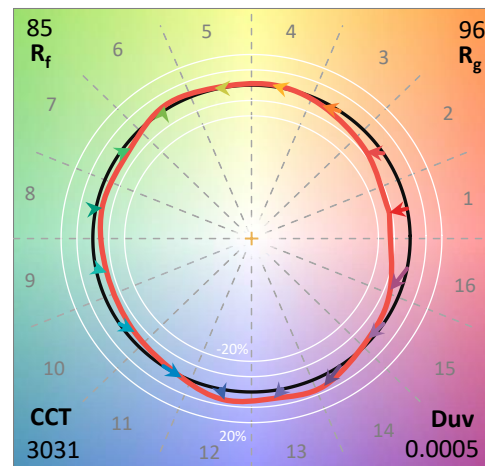
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 08/27/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Corelite  
 Catalog Number: **22ID2-55-CFR1-L830-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3000K 80CRI

### Spectral Parameters

CCT (K): 3031  
 CIE  $u'$ : 0.2493  
 CIE  $v'$ : 0.5215  
 Duv: 0.0005  
 CIE x: 0.4355  
 CIE y: 0.4049  
 CIE z: 0.1596  
 Peak Wavelength (nm): 603  
 Dominant Wavelength (nm): 582  
 Purity: 52.24762  
 R<sub>f</sub>: 84.8  
 R<sub>g</sub>: 95.8

CRI (Ra): 82.5  
 R1: 80.7  
 R2: 90.5  
 R3: 96.7  
 R4: 80.7  
 R5: 80.9  
 R6: 88.5  
 R7: 83.0  
 R8: 58.8  
 R9: 5.8  
 R10: 78.6  
 R11: 80.2  
 R12: 69.8  
 R13: 83.0  
 R14: 98.8  
 R15: 73.0



### Test Conditions

Stabilization Time: 38M  
 Operation Time: 1H 38M  
 Sphere Temperature (°C): 24.0

REPORT NUMBER: SP1-2506-458-3

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 6/16/2025        | 12/16/2025           |
| Power Meter                    | XITRON INXT2011004    | 1/21/2025        | 1/21/2026            |
| AC Power Source                | CHROMA 61603 IN0063   | 10/22/2024       | 10/22/2025           |
| DC Power Source                | AGILENT E3634A IN0208 | 10/22/2024       | 10/22/2025           |
| Sphere Thermometer             | ONSET IN0085          | 10/22/2024       | 10/22/2025           |
| Room Thermometer               | ONSET IN0046          | 10/22/2024       | 10/22/2025           |

REPORT NUMBER: SP1-2506-458-3

**CIE 1931 Chromaticity Diagram**



**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-3

### Photopic Flux vs. Wavelength

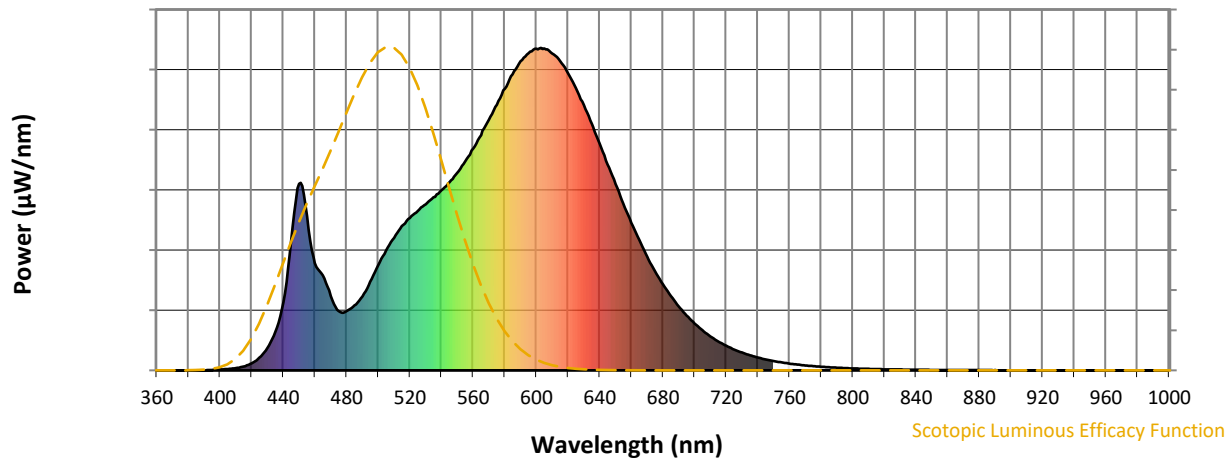


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 229                                  | NR                             | 620               | 922                                  | NR                             | 750               | 29                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 275                                  | NR                             | 625               | 875                                  | NR                             | 755               | 25                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 326                                  | NR                             | 630               | 822                                  | NR                             | 760               | 21                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 372                                  | NR                             | 635               | 764                                  | NR                             | 765               | 18                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 411                                  | NR                             | 640               | 704                                  | NR                             | 770               | 15                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 447                                  | NR                             | 645               | 638                                  | NR                             | 775               | 13                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 473                                  | NR                             | 650               | 577                                  | NR                             | 780               | 11                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 495                                  | NR                             | 655               | 517                                  | NR                             | 785               | 10                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 515                                  | NR                             | 660               | 457                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 4                                    | NR                             | 535               | 537                                  | NR                             | 665               | 404                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 7                                    | NR                             | 540               | 559                                  | NR                             | 670               | 353                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 12                                   | NR                             | 545               | 584                                  | NR                             | 675               | 307                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 22                                   | NR                             | 550               | 612                                  | NR                             | 680               | 267                                  | NR                             | 810               | 5                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 40                                   | NR                             | 555               | 648                                  | NR                             | 685               | 230                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 69                                   | NR                             | 560               | 688                                  | NR                             | 690               | 199                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 120                                  | NR                             | 565               | 730                                  | NR                             | 695               | 170                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 212                                  | NR                             | 570               | 777                                  | NR                             | 700               | 145                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 400                                  | NR                             | 575               | 824                                  | NR                             | 705               | 124                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 578                                  | NR                             | 580               | 873                                  | NR                             | 710               | 106                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 478                                  | NR                             | 585               | 918                                  | NR                             | 715               | 90                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 332                                  | NR                             | 590               | 958                                  | NR                             | 720               | 76                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 295                                  | NR                             | 595               | 983                                  | NR                             | 725               | 65                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 231                                  | NR                             | 600               | 997                                  | NR                             | 730               | 55                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 183                                  | NR                             | 605               | 998                                  | NR                             | 735               | 47                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 184                                  | NR                             | 610               | 982                                  | NR                             | 740               | 40                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 201                                  | NR                             | 615               | 958                                  | NR                             | 745               | 34                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2506-458-3

### Scotopic Flux vs. Wavelength



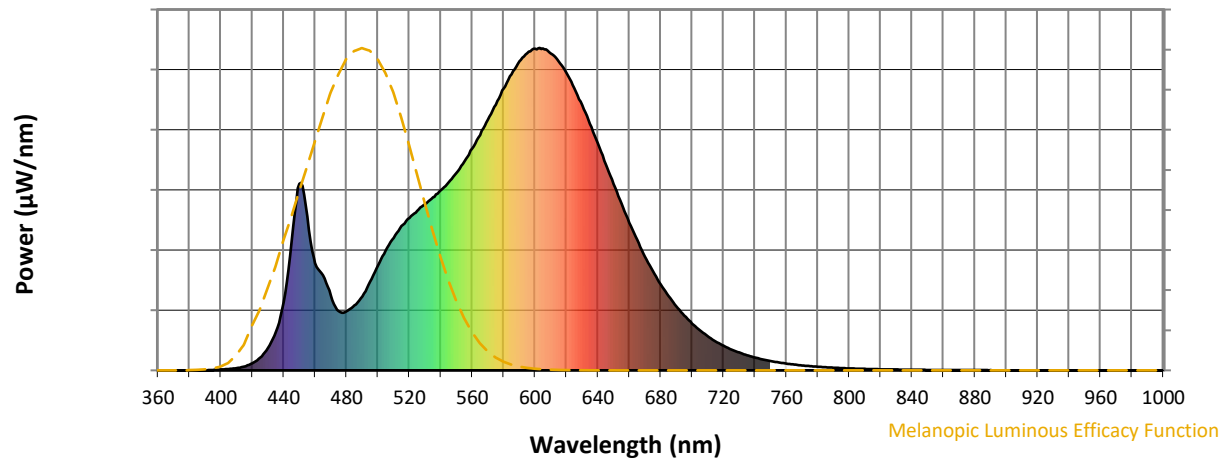
Scotopic Lumens: NR

S/P: 1.35

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 229                         | NR               | 620       | 922                         | NR               | 750       | 29                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 275                         | NR               | 625       | 875                         | NR               | 755       | 25                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 326                         | NR               | 630       | 822                         | NR               | 760       | 21                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 372                         | NR               | 635       | 764                         | NR               | 765       | 18                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 411                         | NR               | 640       | 704                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 447                         | NR               | 645       | 638                         | NR               | 775       | 13                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 473                         | NR               | 650       | 577                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 495                         | NR               | 655       | 517                         | NR               | 785       | 10                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 515                         | NR               | 660       | 457                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 4                           | NR               | 535       | 537                         | NR               | 665       | 404                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 7                           | NR               | 540       | 559                         | NR               | 670       | 353                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 12                          | NR               | 545       | 584                         | NR               | 675       | 307                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 22                          | NR               | 550       | 612                         | NR               | 680       | 267                         | NR               | 810       | 5                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 648                         | NR               | 685       | 230                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 69                          | NR               | 560       | 688                         | NR               | 690       | 199                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 120                         | NR               | 565       | 730                         | NR               | 695       | 170                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 212                         | NR               | 570       | 777                         | NR               | 700       | 145                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 400                         | NR               | 575       | 824                         | NR               | 705       | 124                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 578                         | NR               | 580       | 873                         | NR               | 710       | 106                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 478                         | NR               | 585       | 918                         | NR               | 715       | 90                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 332                         | NR               | 590       | 958                         | NR               | 720       | 76                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 295                         | NR               | 595       | 983                         | NR               | 725       | 65                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 231                         | NR               | 600       | 997                         | NR               | 730       | 55                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 183                         | NR               | 605       | 998                         | NR               | 735       | 47                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 184                         | NR               | 610       | 982                         | NR               | 740       | 40                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 201                         | NR               | 615       | 958                         | NR               | 745       | 34                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2506-458-3

### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.59**

| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 229                                    | NR                             | 620               | 922                                    | NR                             | 750               | 29                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 275                                    | NR                             | 625               | 875                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 326                                    | NR                             | 630               | 822                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 372                                    | NR                             | 635               | 764                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 411                                    | NR                             | 640               | 704                                    | NR                             | 770               | 15                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 447                                    | NR                             | 645               | 638                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 473                                    | NR                             | 650               | 577                                    | NR                             | 780               | 11                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 495                                    | NR                             | 655               | 517                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 515                                    | NR                             | 660               | 457                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 4                                      | NR                             | 535               | 537                                    | NR                             | 665               | 404                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 7                                      | NR                             | 540               | 559                                    | NR                             | 670               | 353                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 12                                     | NR                             | 545               | 584                                    | NR                             | 675               | 307                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 22                                     | NR                             | 550               | 612                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 648                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 69                                     | NR                             | 560               | 688                                    | NR                             | 690               | 199                                    | NR                             | 820               | 3                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 120                                    | NR                             | 565               | 730                                    | NR                             | 695               | 170                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 212                                    | NR                             | 570               | 777                                    | NR                             | 700               | 145                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 400                                    | NR                             | 575               | 824                                    | NR                             | 705               | 124                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 578                                    | NR                             | 580               | 873                                    | NR                             | 710               | 106                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 478                                    | NR                             | 585               | 918                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 332                                    | NR                             | 590               | 958                                    | NR                             | 720               | 76                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 295                                    | NR                             | 595               | 983                                    | NR                             | 725               | 65                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 231                                    | NR                             | 600               | 997                                    | NR                             | 730               | 55                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 183                                    | NR                             | 605               | 998                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 184                                    | NR                             | 610               | 982                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 201                                    | NR                             | 615               | 958                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2506-458-3

TM-30-18

### Summary

$R_f = 84.8$   
 $R_g = 95.8$   
 $CIE\ R_a = 82.5$   
 $R_9 = 5.8$



### Color Vector Graphics



**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 84 | CES51 = 94 | CES76 = 80 |
| CES02 = 63 | CES27 = 94 | CES52 = 94 | CES77 = 85 |
| CES03 = 31 | CES28 = 93 | CES53 = 89 | CES78 = 79 |
| CES04 = 70 | CES29 = 87 | CES54 = 91 | CES79 = 91 |
| CES05 = 50 | CES30 = 96 | CES55 = 90 | CES80 = 90 |
| CES06 = 51 | CES31 = 89 | CES56 = 87 | CES81 = 74 |
| CES07 = 42 | CES32 = 82 | CES57 = 86 | CES82 = 95 |
| CES08 = 41 | CES33 = 92 | CES58 = 87 | CES83 = 94 |
| CES09 = 29 | CES34 = 90 | CES59 = 91 | CES84 = 92 |
| CES10 = 76 | CES35 = 94 | CES60 = 92 | CES85 = 77 |
| CES11 = 59 | CES36 = 86 | CES61 = 88 | CES86 = 69 |
| CES12 = 65 | CES37 = 94 | CES62 = 90 | CES87 = 84 |
| CES13 = 43 | CES38 = 95 | CES63 = 87 | CES88 = 88 |
| CES14 = 74 | CES39 = 98 | CES64 = 81 | CES89 = 75 |
| CES15 = 72 | CES40 = 95 | CES65 = 79 | CES90 = 89 |
| CES16 = 47 | CES41 = 97 | CES66 = 79 | CES91 = 77 |
| CES17 = 50 | CES42 = 95 | CES67 = 78 | CES92 = 65 |
| CES18 = 56 | CES43 = 90 | CES68 = 81 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 86 | CES94 = 62 |
| CES20 = 67 | CES45 = 93 | CES70 = 78 | CES95 = 74 |
| CES21 = 87 | CES46 = 90 | CES71 = 75 | CES96 = 84 |
| CES22 = 79 | CES47 = 94 | CES72 = 91 | CES97 = 89 |
| CES23 = 92 | CES48 = 85 | CES73 = 73 | CES98 = 85 |
| CES24 = 91 | CES49 = 90 | CES74 = 92 | CES99 = 77 |
| CES25 = 72 | CES50 = 94 | CES75 = 78 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)