

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: P1217060

Luminaire Tested: 14-ID2-60-CFD2-L835-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1217060  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2508-507-16)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 14-ID2-60-CFD2-L835-U  
Description: 1X4 IN DEPTH TROFFER WITH 2INCH CUBE DROP LENS  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

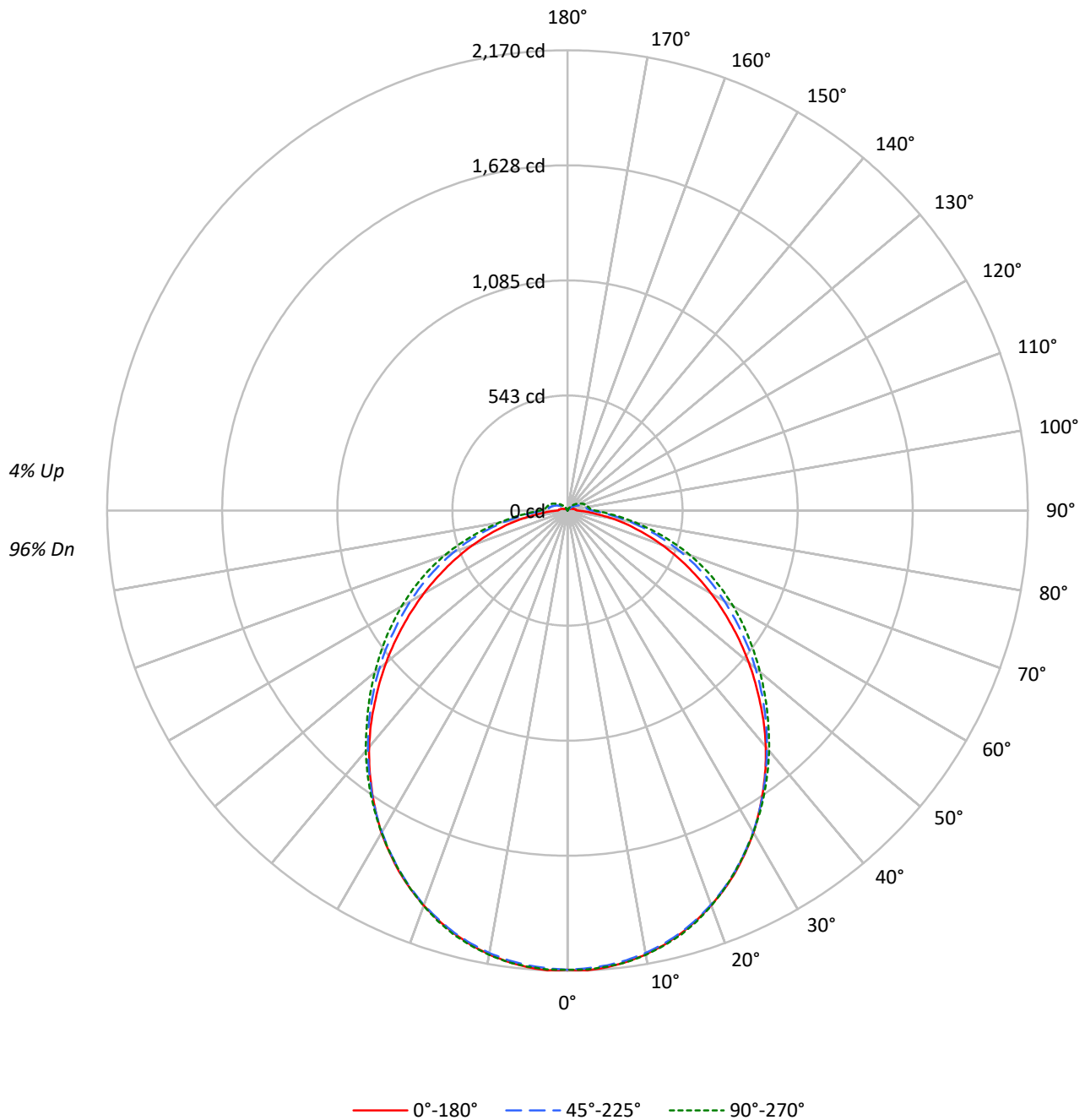
Lumens per Lamp: N/A  
Luminaire Lumens: 6187.0 lumens  
Efficiency: N/A  
Efficacy: 115.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.16')  
CIE Type: Direct

Input Watts (W): 53.5  
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: P1217060  
CATALOG NUMBER: 14-ID2-60-CFD2-L835-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1217060

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20 |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |    |
| 0   | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 109 | 109 | 109 |  | 103 | 103 | 103 |  | 98 |
| 1   | 107 | 102 | 98  | 94  | 104 | 100 | 95  | 92  | 94  | 91  | 88  |  | 90  | 87  | 85  |  | 85 |
| 2   | 97  | 89  | 82  | 76  | 94  | 87  | 80  | 75  | 82  | 77  | 72  |  | 78  | 74  | 70  |  | 75 |
| 3   | 89  | 78  | 70  | 63  | 86  | 76  | 69  | 62  | 73  | 66  | 61  |  | 69  | 64  | 59  |  | 66 |
| 4   | 81  | 69  | 60  | 54  | 79  | 68  | 59  | 53  | 65  | 57  | 52  |  | 62  | 56  | 51  |  | 59 |
| 5   | 75  | 62  | 53  | 46  | 72  | 61  | 52  | 46  | 58  | 51  | 45  |  | 56  | 49  | 44  |  | 53 |
| 6   | 69  | 56  | 47  | 40  | 67  | 55  | 46  | 40  | 52  | 45  | 39  |  | 50  | 44  | 39  |  | 48 |
| 7   | 64  | 51  | 42  | 36  | 62  | 50  | 41  | 35  | 48  | 40  | 35  |  | 46  | 39  | 34  |  | 44 |
| 8   | 60  | 46  | 38  | 32  | 58  | 45  | 37  | 32  | 44  | 36  | 31  |  | 42  | 36  | 31  |  | 41 |
| 9   | 56  | 42  | 34  | 29  | 54  | 42  | 34  | 29  | 40  | 33  | 28  |  | 39  | 32  | 28  |  | 38 |
| 10  | 52  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 37  | 30  | 26  |  | 36  | 30  | 25  |  | 35 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5826 | 5826 | 5826 |
| 5°  | 5817 | 5742 | 5749 |
| 10° | 5766 | 5647 | 5653 |
| 15° | 5689 | 5532 | 5530 |
| 20° | 5592 | 5387 | 5366 |
| 25° | 5474 | 5217 | 5178 |
| 30° | 5327 | 5028 | 4987 |
| 35° | 5139 | 4816 | 4786 |
| 40° | 4942 | 4594 | 4581 |
| 45° | 4703 | 4371 | 4364 |
| 50° | 4459 | 4145 | 4166 |
| 55° | 4198 | 3911 | 3983 |
| 60° | 3936 | 3692 | 3801 |
| 65° | 3653 | 3464 | 3608 |
| 70° | 3360 | 3213 | 3361 |
| 75° | 3031 | 2913 | 3027 |
| 80° | 2653 | 2537 | 2632 |
| 85° | 2288 | 2171 | 2259 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4703 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 204.7  | 3.3       |
| 10°-20°   | 581.7  | 9.4       |
| 20°-30°   | 863.6  | 14.0      |
| 30°-40°   | 1010.8 | 16.3      |
| 40°-50°   | 1015.2 | 16.4      |
| 50°-60°   | 899.1  | 14.5      |
| 60°-70°   | 699.3  | 11.3      |
| 70°-80°   | 444.1  | 7.2       |
| 80°-90°   | 198.5  | 3.2       |
| 90°-100°  | 94.8   | 1.5       |
| 100°-110° | 72.4   | 1.2       |
| 110°-120° | 51.0   | 0.8       |
| 120°-130° | 30.5   | 0.5       |
| 130°-140° | 14.9   | 0.2       |
| 140°-150° | 5.4    | 0.1       |
| 150°-160° | 0.9    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1650.0 | 26.7      |
| 0°-40°    | 2660.7 | 43.0      |
| 0°-60°    | 4575.1 | 73.9      |
| 0°-90°    | 5917.0 | 95.6      |
| 90°-120°  | 218.2  | 3.5       |
| 90°-150°  | 269.0  | 4.3       |
| 90°-180°  | 270.0  | 4.4       |
| 0°-180°   | 6187.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2165 | 2165  | 2165 | 2165  | 2165 |      |
| 5°   | 2161 | 2159  | 2152 | 2153  | 2158 | 205  |
| 15°  | 2064 | 2065  | 2061 | 2064  | 2070 | 582  |
| 25°  | 1878 | 1880  | 1873 | 1872  | 1874 | 864  |
| 35°  | 1608 | 1621  | 1611 | 1619  | 1620 | 1006 |
| 45°  | 1285 | 1311  | 1311 | 1331  | 1330 | 992  |
| 55°  | 946  | 984   | 1002 | 1037  | 1043 | 847  |
| 65°  | 623  | 668   | 709  | 756   | 761  | 618  |
| 75°  | 335  | 382   | 428  | 467   | 465  | 357  |
| 85°  | 108  | 146   | 184  | 210   | 207  | 110  |
| 90°  | 47   | 81    | 115  | 132   | 130  | 28   |
| 95°  | 40   | 65    | 95   | 107   | 106  | 32   |
| 105° | 29   | 47    | 76   | 90    | 93   | 31   |
| 115° | 19   | 29    | 56   | 72    | 77   | 19   |
| 125° | 12   | 15    | 36   | 50    | 55   | 11   |
| 135° | 7    | 6     | 19   | 30    | 35   | 5    |
| 145° | 4    | 3     | 6    | 14    | 18   | 2    |
| 155° | 2    | 1     | 1    | 2     | 3    | 1    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    | 0    |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2165.1 | 2165.1 | 2165.1 | 2165.1 | 2165.1 |
| 2.5°   | 2170.1 | 2168.1 | 2160.1 | 2161.1 | 2165.1 |
| 5°     | 2161.1 | 2159.1 | 2152.1 | 2153.1 | 2158.1 |
| 7.5°   | 2146.1 | 2145.1 | 2138.1 | 2140.1 | 2147.1 |
| 10°    | 2125.1 | 2124.1 | 2118.1 | 2121.1 | 2127.1 |
| 12.5°  | 2098.1 | 2097.1 | 2092.1 | 2095.1 | 2101.1 |
| 15°    | 2064.1 | 2065.1 | 2061.1 | 2064.1 | 2070.1 |
| 17.5°  | 2025.1 | 2027.1 | 2021.1 | 2025.1 | 2030.1 |
| 20°    | 1981.1 | 1983.1 | 1978.1 | 1978.1 | 1983.1 |
| 22.5°  | 1932.1 | 1934.1 | 1928.1 | 1928.1 | 1932.1 |
| 25°    | 1878.1 | 1880.1 | 1873.1 | 1872.1 | 1874.1 |
| 27.5°  | 1817.1 | 1822.1 | 1813.1 | 1814.1 | 1815.1 |
| 30°    | 1754.1 | 1759.1 | 1750.1 | 1752.1 | 1753.1 |
| 32.5°  | 1682.1 | 1692.1 | 1682.1 | 1686.1 | 1688.1 |
| 35°    | 1608.1 | 1621.1 | 1611.1 | 1619.1 | 1620.1 |
| 37.5°  | 1533.1 | 1547.1 | 1538.1 | 1549.1 | 1550.1 |
| 40°    | 1454.1 | 1470.1 | 1463.1 | 1477.1 | 1479.1 |
| 42.5°  | 1372.1 | 1392.1 | 1388.1 | 1405.1 | 1403.1 |
| 45°    | 1285.1 | 1311.1 | 1311.1 | 1331.1 | 1330.1 |
| 47.5°  | 1201.0 | 1230.1 | 1234.1 | 1257.1 | 1257.1 |
| 50°    | 1116.0 | 1148.0 | 1157.0 | 1184.0 | 1185.0 |
| 52.5°  | 1031.0 | 1066.0 | 1081.0 | 1109.0 | 1113.0 |
| 55°    | 946.0  | 984.0  | 1002.0 | 1037.0 | 1043.0 |
| 57.5°  | 863.0  | 901.0  | 928.0  | 964.0  | 972.0  |
| 60°    | 782.0  | 822.0  | 854.0  | 895.0  | 902.0  |
| 62.5°  | 701.0  | 744.0  | 783.0  | 823.0  | 831.0  |
| 65°    | 623.0  | 668.0  | 709.0  | 756.0  | 761.0  |
| 67.5°  | 548.0  | 593.0  | 638.0  | 682.0  | 689.0  |
| 70°    | 474.0  | 521.0  | 567.0  | 613.0  | 615.0  |
| 72.5°  | 403.0  | 450.0  | 497.0  | 540.0  | 540.0  |
| 75°    | 335.0  | 382.0  | 428.0  | 467.0  | 465.0  |
| 77.5°  | 274.0  | 316.0  | 360.0  | 395.0  | 392.0  |
| 80°    | 210.0  | 253.0  | 295.0  | 327.0  | 324.0  |
| 82.5°  | 155.0  | 194.0  | 236.0  | 266.0  | 263.0  |
| 85°    | 108.0  | 146.0  | 184.0  | 210.0  | 207.0  |
| 87.5°  | 71.0   | 108.0  | 143.0  | 165.0  | 162.0  |
| 90°    | 47.0   | 81.0   | 115.0  | 132.0  | 130.0  |
| 92.5°  | 42.0   | 71.0   | 102.0  | 116.0  | 114.0  |
| 95°    | 40.0   | 65.0   | 95.0   | 107.0  | 106.0  |
| 97.5°  | 38.0   | 60.0   | 89.0   | 102.0  | 102.0  |
| 100°   | 35.0   | 56.0   | 85.0   | 98.0   | 99.0   |
| 102.5° | 32.0   | 51.0   | 80.0   | 94.0   | 96.0   |
| 105°   | 29.0   | 47.0   | 76.0   | 90.0   | 93.0   |
| 107.5° | 27.0   | 42.0   | 71.0   | 86.0   | 90.0   |
| 110°   | 24.0   | 38.0   | 66.0   | 82.0   | 86.0   |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 112.5° | 21.0 | 33.0  | 61.0 | 77.0  | 82.0 |
| 115°   | 19.0 | 29.0  | 56.0 | 72.0  | 77.0 |
| 117.5° | 17.0 | 25.0  | 51.0 | 67.0  | 71.0 |
| 120°   | 15.0 | 22.0  | 46.0 | 62.0  | 66.0 |
| 122.5° | 13.0 | 18.0  | 41.0 | 56.0  | 61.0 |
| 125°   | 12.0 | 15.0  | 36.0 | 50.0  | 55.0 |
| 127.5° | 10.0 | 12.0  | 31.0 | 45.0  | 50.0 |
| 130°   | 9.0  | 9.0   | 26.0 | 40.0  | 45.0 |
| 132.5° | 8.0  | 7.0   | 22.0 | 35.0  | 39.0 |
| 135°   | 7.0  | 6.0   | 19.0 | 30.0  | 35.0 |
| 137.5° | 6.0  | 5.0   | 15.0 | 26.0  | 30.0 |
| 140°   | 5.0  | 4.0   | 12.0 | 22.0  | 25.0 |
| 142.5° | 4.0  | 3.0   | 9.0  | 18.0  | 21.0 |
| 145°   | 4.0  | 3.0   | 6.0  | 14.0  | 18.0 |
| 147.5° | 3.0  | 2.0   | 3.0  | 11.0  | 14.0 |
| 150°   | 2.0  | 2.0   | 1.0  | 8.0   | 10.0 |
| 152.5° | 2.0  | 1.0   | 1.0  | 5.0   | 7.0  |
| 155°   | 2.0  | 1.0   | 1.0  | 2.0   | 3.0  |
| 157.5° | 1.0  | 1.0   | 1.0  | 0.0   | 0.0  |
| 160°   | 1.0  | 1.0   | 1.0  | 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  |

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**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 | 15.95            | 17.49 | 16.39 | 17.90 | 18.32 | 16.84          | 18.38 | 17.28 | 18.79 | 19.21 |
|                 | 3H   | 17.51            | 18.90 | 17.95 | 19.32 | 19.79 | 18.87          | 20.26 | 19.31 | 20.68 | 21.15 |
|                 | 4H   | 18.06            | 19.37 | 18.52 | 19.81 | 20.29 | 19.69          | 21.01 | 20.16 | 21.44 | 21.92 |
|                 | 6H   | 18.44            | 19.66 | 18.92 | 20.11 | 20.61 | 20.38          | 21.60 | 20.86 | 22.05 | 22.55 |
|                 | 8H   | 18.55            | 19.72 | 19.04 | 20.19 | 20.70 | 20.66          | 21.83 | 21.15 | 22.30 | 22.80 |
|                 | 12H  | 18.62            | 19.74 | 19.12 | 20.21 | 20.74 | 20.92          | 22.04 | 21.41 | 22.50 | 23.04 |
| 4H              | 2H   | 16.65            | 17.96 | 17.11 | 18.40 | 18.88 | 17.35          | 18.67 | 17.82 | 19.11 | 19.59 |
|                 | 3H   | 18.44            | 19.55 | 18.92 | 20.04 | 20.54 | 19.60          | 20.71 | 20.08 | 21.19 | 21.70 |
|                 | 4H   | 19.13            | 20.14 | 19.62 | 20.63 | 21.17 | 20.58          | 21.59 | 21.08 | 22.08 | 22.62 |
|                 | 6H   | 19.63            | 20.52 | 20.15 | 21.04 | 21.59 | 21.42          | 22.31 | 21.94 | 22.83 | 23.38 |
|                 | 8H   | 19.79            | 20.62 | 20.31 | 21.14 | 21.70 | 21.77          | 22.60 | 22.30 | 23.12 | 23.69 |
|                 | 12H  | 19.90            | 20.65 | 20.44 | 21.20 | 21.77 | 22.11          | 22.86 | 22.65 | 23.41 | 23.98 |
| 8H              | 4H   | 19.55            | 20.38 | 20.07 | 20.90 | 21.46 | 20.82          | 21.65 | 21.35 | 22.17 | 22.74 |
|                 | 6H   | 20.19            | 20.89 | 20.75 | 21.45 | 22.03 | 21.81          | 22.50 | 22.37 | 23.07 | 23.64 |
|                 | 8H   | 20.42            | 21.05 | 21.00 | 21.63 | 22.21 | 22.26          | 22.89 | 22.84 | 23.47 | 24.05 |
|                 | 12H  | 20.61            | 21.17 | 21.18 | 21.73 | 22.39 | 22.72          | 23.28 | 23.30 | 23.85 | 24.50 |
| 12H             | 4H   | 19.62            | 20.37 | 20.17 | 20.92 | 21.49 | 20.84          | 21.59 | 21.38 | 22.14 | 22.71 |
|                 | 6H   | 20.31            | 20.94 | 20.88 | 21.52 | 22.10 | 21.85          | 22.47 | 22.42 | 23.05 | 23.64 |
|                 | 8H   | 20.61            | 21.17 | 21.18 | 21.73 | 22.39 | 22.37          | 22.92 | 22.94 | 23.49 | 24.14 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-1

Test Date: 07/23/2025

Luminaire Tested: 22ID2-55-CFR1-L835-U

Data in this report applies to families of products including 22ID2-55-CFR1-L835-U

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-1  
 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-L835-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3500K 80CRI

### Spectral Parameters

CCT (K): 3440  
 CIE  $u'$ : 0.2370  
 CIE  $v'$ : 0.5132  
 Duv: 0.0005  
 CIE x: 0.4093  
 CIE y: 0.3940  
 CIE z: 0.1967  
 Peak Wavelength (nm): 599  
 Dominant Wavelength (nm): 580  
 Purity: 41.09375  
 R<sub>f</sub>: 84.9  
 R<sub>g</sub>: 94.6

CRI (Ra): 84.2  
 R1: 82.8  
 R2: 91.7  
 R3: 96.7  
 R4: 81.9  
 R5: 82.6  
 R6: 88.8  
 R7: 85.0  
 R8: 63.7  
 R9: 13.6  
 R10: 80.1  
 R11: 81.1  
 R12: 65.8  
 R13: 85.2  
 R14: 98.7  
 R15: 76.2



### Test Conditions

Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 24.0

REPORT NUMBER: SP1-2506-458-1

| 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           |

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3500K 4-step quadrangle

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### 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               | 295                                    | NR                             | 620               | 910                                    | NR                             | 750               | 30                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 335                                    | NR                             | 625               | 862                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 390                                    | NR                             | 630               | 809                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 445                                    | NR                             | 635               | 752                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 490                                    | NR                             | 640               | 694                                    | NR                             | 770               | 16                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 532                                    | NR                             | 645               | 630                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 563                                    | NR                             | 650               | 571                                    | NR                             | 780               | 12                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 588                                    | NR                             | 655               | 512                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 609                                    | NR                             | 660               | 453                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 5                                      | NR                             | 535               | 631                                    | NR                             | 665               | 401                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 8                                      | NR                             | 540               | 654                                    | NR                             | 670               | 351                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 13                                     | NR                             | 545               | 677                                    | NR                             | 675               | 306                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 23                                     | NR                             | 550               | 702                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 734                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 767                                    | NR                             | 690               | 199                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 126                                    | NR                             | 565               | 802                                    | NR                             | 695               | 171                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 221                                    | NR                             | 570               | 838                                    | NR                             | 700               | 146                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 418                                    | NR                             | 575               | 875                                    | NR                             | 705               | 125                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 729                                    | NR                             | 580               | 913                                    | NR                             | 710               | 107                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 816                                    | NR                             | 585               | 946                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 578                                    | NR                             | 590               | 976                                    | NR                             | 720               | 77                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 458                                    | NR                             | 595               | 992                                    | NR                             | 725               | 66                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 390                                    | NR                             | 600               | 999                                    | NR                             | 730               | 56                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 299                                    | NR                             | 605               | 995                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 260                                    | NR                             | 610               | 975                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 271                                    | NR                             | 615               | 948                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

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### Scotopic Flux vs. Wavelength



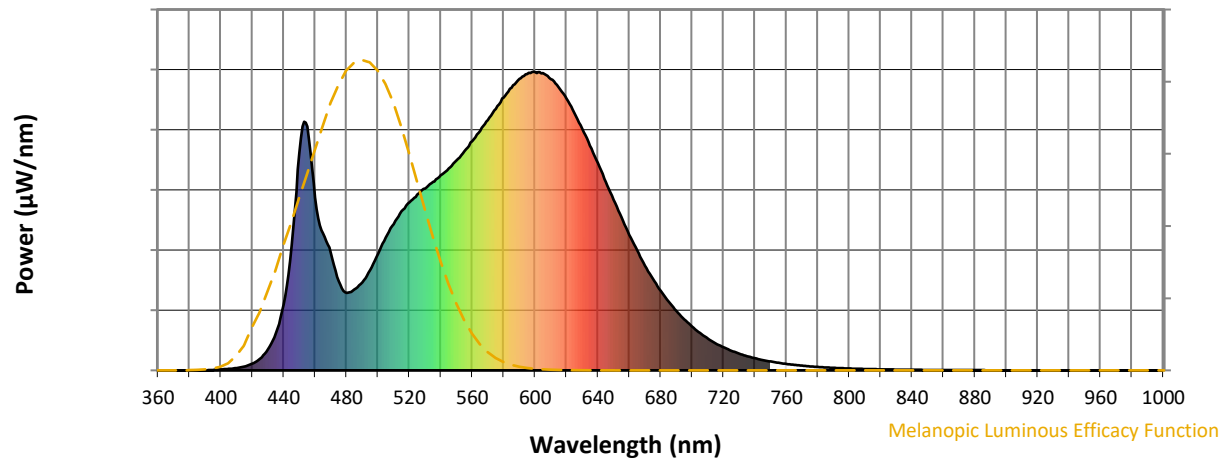
Scotopic Lumens: NR

S/P: 1.53

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 295                         | NR               | 620       | 910                         | NR               | 750       | 30                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 335                         | NR               | 625       | 862                         | NR               | 755       | 25                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 390                         | NR               | 630       | 809                         | NR               | 760       | 21                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 445                         | NR               | 635       | 752                         | NR               | 765       | 18                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 490                         | NR               | 640       | 694                         | NR               | 770       | 16                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 532                         | NR               | 645       | 630                         | NR               | 775       | 13                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 563                         | NR               | 650       | 571                         | NR               | 780       | 12                          | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 588                         | NR               | 655       | 512                         | NR               | 785       | 10                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 609                         | NR               | 660       | 453                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 5                           | NR               | 535       | 631                         | NR               | 665       | 401                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 8                           | NR               | 540       | 654                         | NR               | 670       | 351                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 13                          | NR               | 545       | 677                         | NR               | 675       | 306                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 702                         | NR               | 680       | 267                         | NR               | 810       | 5                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 734                         | NR               | 685       | 230                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 70                          | NR               | 560       | 767                         | NR               | 690       | 199                         | NR               | 820       | 4                           | NR               | 950       | 0                           | NR               |
| 435       | 126                         | NR               | 565       | 802                         | NR               | 695       | 171                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 221                         | NR               | 570       | 838                         | NR               | 700       | 146                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 418                         | NR               | 575       | 875                         | NR               | 705       | 125                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 729                         | NR               | 580       | 913                         | NR               | 710       | 107                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 816                         | NR               | 585       | 946                         | NR               | 715       | 90                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 578                         | NR               | 590       | 976                         | NR               | 720       | 77                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 458                         | NR               | 595       | 992                         | NR               | 725       | 66                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 390                         | NR               | 600       | 999                         | NR               | 730       | 56                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 299                         | NR               | 605       | 995                         | NR               | 735       | 47                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 260                         | NR               | 610       | 975                         | NR               | 740       | 40                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 271                         | NR               | 615       | 948                         | NR               | 745       | 34                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.07

| $\lambda$<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               | 295                                    | NR                             | 620               | 910                                    | NR                             | 750               | 30                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 335                                    | NR                             | 625               | 862                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 390                                    | NR                             | 630               | 809                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 445                                    | NR                             | 635               | 752                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 490                                    | NR                             | 640               | 694                                    | NR                             | 770               | 16                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 532                                    | NR                             | 645               | 630                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 563                                    | NR                             | 650               | 571                                    | NR                             | 780               | 12                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 2                                      | NR                             | 525               | 588                                    | NR                             | 655               | 512                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 609                                    | NR                             | 660               | 453                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 5                                      | NR                             | 535               | 631                                    | NR                             | 665               | 401                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 8                                      | NR                             | 540               | 654                                    | NR                             | 670               | 351                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 13                                     | NR                             | 545               | 677                                    | NR                             | 675               | 306                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 23                                     | NR                             | 550               | 702                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 734                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 70                                     | NR                             | 560               | 767                                    | NR                             | 690               | 199                                    | NR                             | 820               | 4                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 126                                    | NR                             | 565               | 802                                    | NR                             | 695               | 171                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 221                                    | NR                             | 570               | 838                                    | NR                             | 700               | 146                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 418                                    | NR                             | 575               | 875                                    | NR                             | 705               | 125                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 729                                    | NR                             | 580               | 913                                    | NR                             | 710               | 107                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 816                                    | NR                             | 585               | 946                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 578                                    | NR                             | 590               | 976                                    | NR                             | 720               | 77                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 458                                    | NR                             | 595               | 992                                    | NR                             | 725               | 66                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 390                                    | NR                             | 600               | 999                                    | NR                             | 730               | 56                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 299                                    | NR                             | 605               | 995                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 260                                    | NR                             | 610               | 975                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 271                                    | NR                             | 615               | 948                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2506-458-1

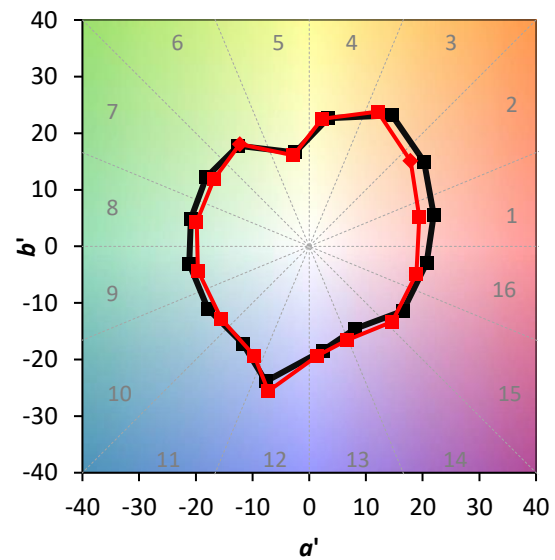
TM-30-18

### Summary

$R_f = 84.9$   
 $R_g = 94.6$   
 $\text{CIE } R_a = 84.2$   
 $R_9 = 13.6$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 87 | CES51 = 92 | CES76 = 81 |
| CES02 = 62 | CES27 = 91 | CES52 = 93 | CES77 = 85 |
| CES03 = 31 | CES28 = 94 | CES53 = 90 | CES78 = 80 |
| CES04 = 70 | CES29 = 92 | CES54 = 89 | CES79 = 92 |
| CES05 = 49 | CES30 = 89 | CES55 = 86 | CES80 = 90 |
| CES06 = 51 | CES31 = 94 | CES56 = 85 | CES81 = 77 |
| CES07 = 41 | CES32 = 86 | CES57 = 83 | CES82 = 96 |
| CES08 = 40 | CES33 = 97 | CES58 = 84 | CES83 = 96 |
| CES09 = 29 | CES34 = 91 | CES59 = 91 | CES84 = 91 |
| CES10 = 75 | CES35 = 95 | CES60 = 89 | CES85 = 76 |
| CES11 = 58 | CES36 = 79 | CES61 = 87 | CES86 = 73 |
| CES12 = 64 | CES37 = 95 | CES62 = 81 | CES87 = 85 |
| CES13 = 43 | CES38 = 84 | CES63 = 85 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 78 | CES89 = 78 |
| CES15 = 71 | CES40 = 97 | CES65 = 78 | CES90 = 90 |
| CES16 = 47 | CES41 = 95 | CES66 = 75 | CES91 = 71 |
| CES17 = 50 | CES42 = 96 | CES67 = 74 | CES92 = 65 |
| CES18 = 56 | CES43 = 92 | CES68 = 79 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 83 | CES94 = 64 |
| CES20 = 66 | CES45 = 95 | CES70 = 77 | CES95 = 74 |
| CES21 = 86 | CES46 = 91 | CES71 = 71 | CES96 = 85 |
| CES22 = 78 | CES47 = 94 | CES72 = 90 | CES97 = 90 |
| CES23 = 92 | CES48 = 83 | CES73 = 72 | CES98 = 86 |
| CES24 = 90 | CES49 = 92 | CES74 = 90 | CES99 = 79 |
| CES25 = 72 | CES50 = 93 | CES75 = 75 |            |



### Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)