

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: P1215792

Luminaire Tested: 24-ID2-35-CFD1-L950-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215792  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-8)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-35-CFD1-L950-U  
Description: 2X4 IN DEPTH TROFFER WITH 1INCH CUBE DROP LENS  
Light Source: 5000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

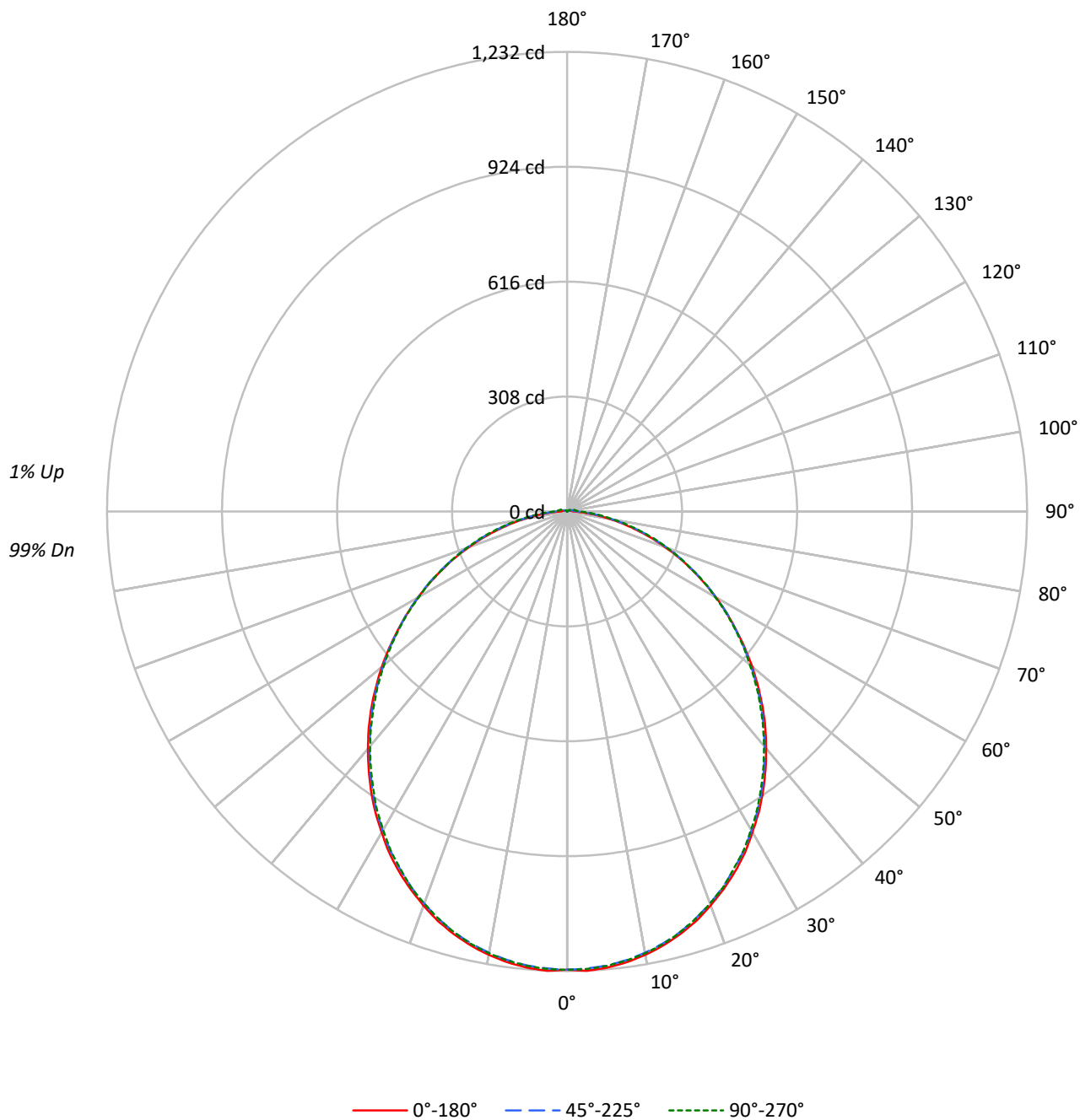
Lumens per Lamp: N/A  
Luminaire Lumens: 3265.2 lumens  
Efficiency: N/A  
Efficacy: 107.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 4' x H: 0.08')  
CIE Type: Direct

Input Watts (W): 30.4  
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: P1215792  
CATALOG NUMBER: 24-ID2-35-CFD1-L950-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1215792

CATALOG NUMBER: 24-ID2-35-CFD1-L950-U

**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  | 50  | 30  | 10  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 | 105 | 105 | 105 | 101 | 101 | 101 |
| 1   | 108 | 104 | 99  | 96  | 106 | 101 | 97  | 94  | 97  | 94  | 91  | 93  | 90  | 88  | 89  | 87  | 85  |
| 2   | 99  | 91  | 84  | 78  | 96  | 89  | 82  | 77  | 85  | 80  | 75  | 81  | 77  | 73  | 78  | 74  | 71  |
| 3   | 90  | 80  | 72  | 65  | 88  | 78  | 71  | 65  | 75  | 68  | 63  | 72  | 66  | 62  | 69  | 65  | 61  |
| 4   | 83  | 71  | 62  | 55  | 80  | 69  | 61  | 55  | 67  | 60  | 54  | 64  | 58  | 53  | 62  | 57  | 52  |
| 5   | 76  | 63  | 54  | 48  | 74  | 62  | 54  | 48  | 60  | 53  | 47  | 58  | 51  | 46  | 56  | 50  | 46  |
| 6   | 70  | 57  | 48  | 42  | 68  | 56  | 48  | 42  | 54  | 47  | 41  | 52  | 46  | 41  | 51  | 45  | 40  |
| 7   | 65  | 52  | 43  | 37  | 64  | 51  | 43  | 37  | 49  | 42  | 37  | 48  | 41  | 36  | 46  | 40  | 36  |
| 8   | 61  | 47  | 39  | 33  | 59  | 47  | 39  | 33  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 32  |
| 9   | 57  | 44  | 35  | 30  | 55  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 29  | 39  | 34  | 29  |
| 10  | 53  | 40  | 32  | 27  | 52  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 27  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1653 | 1653 | 1653 |
| 5°  | 1655 | 1644 | 1646 |
| 10° | 1643 | 1629 | 1632 |
| 15° | 1625 | 1609 | 1610 |
| 20° | 1598 | 1577 | 1579 |
| 25° | 1566 | 1541 | 1540 |
| 30° | 1525 | 1498 | 1496 |
| 35° | 1482 | 1451 | 1447 |
| 40° | 1433 | 1396 | 1395 |
| 45° | 1382 | 1341 | 1337 |
| 50° | 1324 | 1280 | 1277 |
| 55° | 1261 | 1218 | 1218 |
| 60° | 1198 | 1153 | 1152 |
| 65° | 1123 | 1084 | 1086 |
| 70° | 1040 | 1008 | 1013 |
| 75° | 937  | 901  | 922  |
| 80° | 807  | 785  | 817  |
| 85° | 658  | 675  | 748  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1382 cd/sqm

TEST NUMBER: P1215792  
 CATALOG NUMBER: 24-ID2-35-CFD1-L950-U

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 116.1  | 3.6       |
| 10°-20°   | 329.2  | 10.1      |
| 20°-30°   | 487.8  | 14.9      |
| 30°-40°   | 568.7  | 17.4      |
| 40°-50°   | 567.0  | 17.4      |
| 50°-60°   | 493.5  | 15.1      |
| 60°-70°   | 367.8  | 11.3      |
| 70°-80°   | 213.4  | 6.5       |
| 80°-90°   | 74.4   | 2.3       |
| 90°-100°  | 22.3   | 0.7       |
| 100°-110° | 13.4   | 0.4       |
| 110°-120° | 7.1    | 0.2       |
| 120°-130° | 3.0    | 0.1       |
| 130°-140° | 0.9    | 0.0       |
| 140°-150° | 0.3    | 0.0       |
| 150°-160° | 0.2    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 933.1  | 28.6      |
| 0°-40°    | 1501.8 | 46.0      |
| 0°-60°    | 2562.3 | 78.5      |
| 0°-90°    | 3218.0 | 98.6      |
| 90°-120°  | 42.8   | 1.3       |
| 90°-150°  | 47.0   | 1.4       |
| 90°-180°  | 47.0   | 1.4       |
| 0°-180°   | 3265.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1228 | 1228  | 1228 | 1228  | 1228 |      |
| 5°   | 1228 | 1224  | 1222 | 1220  | 1223 | 117  |
| 15°  | 1173 | 1169  | 1168 | 1165  | 1168 | 331  |
| 25°  | 1065 | 1062  | 1058 | 1057  | 1056 | 490  |
| 35°  | 915  | 913   | 910  | 906   | 906  | 572  |
| 45°  | 741  | 738   | 735  | 732   | 731  | 571  |
| 55°  | 553  | 554   | 551  | 551   | 549  | 495  |
| 65°  | 368  | 370   | 371  | 372   | 370  | 365  |
| 75°  | 194  | 198   | 201  | 206   | 204  | 206  |
| 85°  | 52   | 59    | 65   | 69    | 71   | 57   |
| 90°  | 18   | 23    | 29   | 33    | 34   | 11   |
| 95°  | 13   | 16    | 21   | 24    | 24   | 10   |
| 105° | 9    | 9     | 13   | 16    | 17   | 9    |
| 115° | 5    | 4     | 7    | 9     | 11   | 5    |
| 125° | 3    | 2     | 2    | 4     | 6    | 3    |
| 135° | 1    | 1     | 0    | 1     | 2    | 1    |
| 145° | 0    | 0     | 0    | 0     | 0    | 0    |
| 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: P1215792

CATALOG NUMBER: 24-ID2-35-CFD1-L950-U

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1228.5 | 1228.5 | 1228.5 | 1228.5 | 1228.5 |
| 2.5°   | 1232.5 | 1228.9 | 1226.2 | 1225.4 | 1227.6 |
| 5°     | 1227.6 | 1223.6 | 1221.8 | 1220.5 | 1222.7 |
| 7.5°   | 1219.1 | 1216.0 | 1213.4 | 1212.0 | 1214.7 |
| 10°    | 1207.1 | 1203.1 | 1201.4 | 1200.0 | 1202.7 |
| 12.5°  | 1191.6 | 1188.0 | 1186.3 | 1184.9 | 1187.6 |
| 15°    | 1172.9 | 1168.9 | 1168.0 | 1165.4 | 1168.0 |
| 17.5°  | 1150.7 | 1147.2 | 1144.5 | 1143.6 | 1144.9 |
| 20°    | 1124.1 | 1121.8 | 1118.7 | 1117.8 | 1118.7 |
| 22.5°  | 1095.6 | 1093.0 | 1090.3 | 1088.5 | 1091.2 |
| 25°    | 1065.0 | 1061.9 | 1058.3 | 1057.0 | 1056.5 |
| 27.5°  | 1031.6 | 1027.6 | 1025.0 | 1022.3 | 1024.1 |
| 30°    | 993.0  | 991.2  | 988.1  | 986.3  | 985.4  |
| 32.5°  | 955.7  | 954.3  | 950.3  | 946.8  | 947.7  |
| 35°    | 915.2  | 912.6  | 909.5  | 906.4  | 905.5  |
| 37.5°  | 873.0  | 870.4  | 866.8  | 864.1  | 863.7  |
| 40°    | 829.5  | 827.7  | 823.3  | 820.6  | 820.6  |
| 42.5°  | 786.0  | 783.7  | 778.8  | 777.5  | 776.2  |
| 45°    | 740.6  | 737.5  | 734.9  | 732.2  | 730.9  |
| 47.5°  | 693.5  | 691.8  | 688.7  | 686.9  | 686.0  |
| 50°    | 647.8  | 645.6  | 642.4  | 641.1  | 639.3  |
| 52.5°  | 599.8  | 599.8  | 597.6  | 596.2  | 594.5  |
| 55°    | 552.7  | 554.0  | 550.9  | 551.4  | 549.1  |
| 57.5°  | 506.0  | 507.4  | 507.8  | 504.7  | 504.3  |
| 60°    | 460.7  | 461.2  | 459.8  | 459.8  | 457.6  |
| 62.5°  | 414.1  | 415.4  | 417.6  | 416.3  | 415.9  |
| 65°    | 367.9  | 370.1  | 371.4  | 372.3  | 370.5  |
| 67.5°  | 324.8  | 327.0  | 329.2  | 328.3  | 327.9  |
| 70°    | 279.0  | 281.7  | 286.1  | 287.9  | 285.7  |
| 72.5°  | 236.4  | 239.9  | 242.1  | 244.8  | 245.7  |
| 75°    | 193.7  | 197.7  | 200.8  | 205.7  | 203.9  |
| 77.5°  | 153.7  | 158.6  | 162.6  | 166.6  | 166.6  |
| 80°    | 116.0  | 120.8  | 125.7  | 130.2  | 129.3  |
| 82.5°  | 81.7   | 87.5   | 92.4   | 97.3   | 98.2   |
| 85°    | 52.4   | 58.6   | 64.9   | 68.9   | 70.6   |
| 87.5°  | 31.5   | 36.4   | 43.1   | 47.5   | 49.3   |
| 90°    | 17.8   | 22.7   | 28.9   | 33.3   | 34.2   |
| 92.5°  | 14.7   | 17.8   | 23.1   | 27.1   | 27.5   |
| 95°    | 13.3   | 16.0   | 20.9   | 23.5   | 24.4   |
| 97.5°  | 12.0   | 13.8   | 18.7   | 21.8   | 22.7   |
| 100°   | 11.1   | 12.0   | 16.4   | 19.5   | 20.4   |
| 102.5° | 9.8    | 10.7   | 14.7   | 17.3   | 18.7   |
| 105°   | 8.9    | 8.9    | 12.9   | 15.6   | 16.9   |
| 107.5° | 8.0    | 7.6    | 11.1   | 13.8   | 15.1   |
| 110°   | 7.1    | 6.2    | 9.8    | 12.0   | 13.8   |

TEST NUMBER: P1215792

CATALOG NUMBER: 24-ID2-35-CFD1-L950-U

**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45° | 67.5° | 90°  |
|--------|-----|-------|-----|-------|------|
| 112.5° | 6.2 | 5.3   | 8.0 | 10.2  | 12.0 |
| 115°   | 5.3 | 4.4   | 6.7 | 8.9   | 10.7 |
| 117.5° | 4.4 | 4.0   | 5.3 | 7.6   | 9.3  |
| 120°   | 4.0 | 3.1   | 4.4 | 6.7   | 8.0  |
| 122.5° | 3.6 | 2.7   | 3.1 | 5.3   | 6.7  |
| 125°   | 3.1 | 2.2   | 2.2 | 4.4   | 5.8  |
| 127.5° | 2.2 | 1.8   | 1.3 | 3.6   | 4.4  |
| 130°   | 2.2 | 1.3   | 0.9 | 2.7   | 3.6  |
| 132.5° | 1.8 | 1.3   | 0.4 | 1.8   | 2.7  |
| 135°   | 1.3 | 0.9   | 0.4 | 1.3   | 1.8  |
| 137.5° | 0.9 | 0.9   | 0.4 | 0.9   | 1.3  |
| 140°   | 0.9 | 0.4   | 0.4 | 0.4   | 0.9  |
| 142.5° | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 145°   | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 147.5° | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 150°   | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 152.5° | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 155°   | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 157.5° | 0.4 | 0.4   | 0.4 | 0.4   | 0.4  |
| 160°   | 0.9 | 0.4   | 0.4 | 0.4   | 0.4  |
| 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: P1215792

CATALOG NUMBER: 24-ID2-35-CFD1-L950-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 | 12.52            | 14.10 | 12.91 | 14.45 | 14.80 | 12.55          | 14.14 | 12.94 | 14.48 | 14.83 |
|                 | 3H   | 14.20            | 15.63 | 14.60 | 15.99 | 16.39 | 14.31          | 15.74 | 14.71 | 16.10 | 16.50 |
|                 | 4H   | 14.81            | 16.15 | 15.23 | 16.53 | 16.94 | 14.98          | 16.33 | 15.40 | 16.71 | 17.12 |
|                 | 6H   | 15.23            | 16.48 | 15.67 | 16.87 | 17.30 | 15.50          | 16.75 | 15.93 | 17.14 | 17.57 |
|                 | 8H   | 15.36            | 16.55 | 15.81 | 16.97 | 17.40 | 15.68          | 16.88 | 16.13 | 17.30 | 17.73 |
|                 | 12H  | 15.44            | 16.58 | 15.89 | 16.99 | 17.46 | 15.84          | 16.98 | 16.29 | 17.39 | 17.86 |
| 4H              | 2H   | 13.12            | 14.47 | 13.54 | 14.84 | 15.26 | 13.14          | 14.49 | 13.57 | 14.87 | 15.28 |
|                 | 3H   | 15.02            | 16.15 | 15.45 | 16.58 | 17.01 | 15.12          | 16.25 | 15.55 | 16.68 | 17.11 |
|                 | 4H   | 15.75            | 16.77 | 16.20 | 17.21 | 17.68 | 15.92          | 16.95 | 16.38 | 17.39 | 17.86 |
|                 | 6H   | 16.29            | 17.19 | 16.77 | 17.66 | 18.15 | 16.57          | 17.47 | 17.05 | 17.94 | 18.43 |
|                 | 8H   | 16.47            | 17.30 | 16.95 | 17.77 | 18.27 | 16.81          | 17.65 | 17.29 | 18.12 | 18.62 |
|                 | 12H  | 16.59            | 17.34 | 17.09 | 17.84 | 18.35 | 17.02          | 17.77 | 17.52 | 18.28 | 18.78 |
| 8H              | 4H   | 16.05            | 16.89 | 16.53 | 17.36 | 17.86 | 16.20          | 17.04 | 16.69 | 17.51 | 18.01 |
|                 | 6H   | 16.71            | 17.41 | 17.23 | 17.93 | 18.44 | 16.98          | 17.68 | 17.49 | 18.19 | 18.70 |
|                 | 8H   | 16.95            | 17.58 | 17.49 | 18.11 | 18.63 | 17.30          | 17.93 | 17.83 | 18.46 | 18.98 |
|                 | 12H  | 17.15            | 17.70 | 17.68 | 18.22 | 18.81 | 17.60          | 18.16 | 18.13 | 18.67 | 19.27 |
| 12H             | 4H   | 16.08            | 16.84 | 16.59 | 17.34 | 17.84 | 16.23          | 16.98 | 16.73 | 17.49 | 17.99 |
|                 | 6H   | 16.77            | 17.40 | 17.30 | 17.93 | 18.45 | 17.02          | 17.65 | 17.56 | 18.19 | 18.70 |
|                 | 8H   | 17.07            | 17.63 | 17.60 | 18.15 | 18.74 | 17.40          | 17.96 | 17.93 | 18.48 | 19.07 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-13

Test Date: 08/27/2025

Luminaire Tested: 22ID2-55-CFR1-L950-U

Data in this report applies to families of products including 22ID2-55-CFR1-L950-U

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-13  
 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-L950-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 5000K 90CRI

### Spectral Parameters

CCT (K): 4919  
 CIE  $u'$ : 0.2096  
 CIE  $v'$ : 0.4901  
 Duv: 0.0038  
 CIE x: 0.3483  
 CIE y: 0.3619  
 CIE z: 0.2898  
 Peak Wavelength (nm): 453  
 Dominant Wavelength (nm): 570  
 Purity: 13.10873  
 R<sub>f</sub>: 90.8  
 R<sub>g</sub>: 97.4

CRI (Ra): 94.0  
 R1: 94.8  
 R2: 97.7  
 R3: 98.4  
 R4: 90.8  
 R5: 92.2  
 R6: 94.3  
 R7: 94.0  
 R8: 90.0  
 R9: 77.7  
 R10: 93.1  
 R11: 92.0  
 R12: 65.9  
 R13: 95.9  
 R14: 99.0  
 R15: 91.4



### Test Conditions

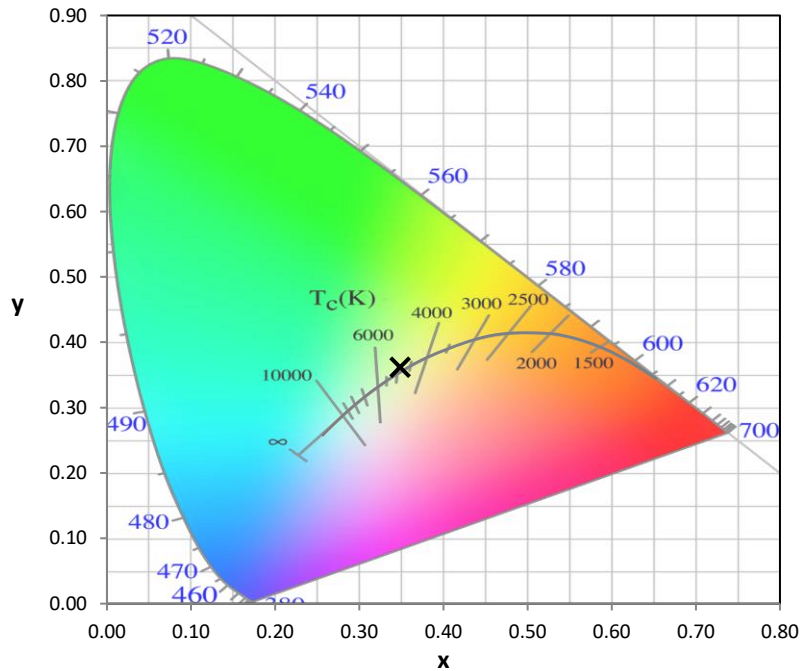
Stabilization Time: M  
 Operation Time: 1H 0M  
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-458-13

| 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: SP1-2506-458-13

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-13

### 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               | 419                                  | NR                             | 620               | 583                                  | NR                             | 750               | 44                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 441                                  | NR                             | 625               | 580                                  | NR                             | 755               | 37                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 472                                  | NR                             | 630               | 572                                  | NR                             | 760               | 32                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 501                                  | NR                             | 635               | 559                                  | NR                             | 765               | 27                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 524                                  | NR                             | 640               | 543                                  | NR                             | 770               | 23                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 545                                  | NR                             | 645               | 522                                  | NR                             | 775               | 20                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 559                                  | NR                             | 650               | 496                                  | NR                             | 780               | 17                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 3                                    | NR                             | 525               | 572                                  | NR                             | 655               | 468                                  | NR                             | 785               | 14                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 581                                  | NR                             | 660               | 435                                  | NR                             | 790               | 12                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 590                                  | NR                             | 665               | 403                                  | NR                             | 795               | 10                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 595                                  | NR                             | 670               | 368                                  | NR                             | 800               | 9                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 14                                   | NR                             | 545               | 599                                  | NR                             | 675               | 335                                  | NR                             | 805               | 8                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 23                                   | NR                             | 550               | 599                                  | NR                             | 680               | 304                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 40                                   | NR                             | 555               | 599                                  | NR                             | 685               | 271                                  | NR                             | 815               | 6                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 72                                   | NR                             | 560               | 595                                  | NR                             | 690               | 243                                  | NR                             | 820               | 5                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 132                                  | NR                             | 565               | 589                                  | NR                             | 695               | 215                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 243                                  | NR                             | 570               | 581                                  | NR                             | 700               | 189                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 488                                  | NR                             | 575               | 575                                  | NR                             | 705               | 165                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 879                                  | NR                             | 580               | 573                                  | NR                             | 710               | 144                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 974                                  | NR                             | 585               | 570                                  | NR                             | 715               | 124                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 726                                  | NR                             | 590               | 572                                  | NR                             | 720               | 108                                  | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 627                                  | NR                             | 595               | 574                                  | NR                             | 725               | 93                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 546                                  | NR                             | 600               | 576                                  | NR                             | 730               | 80                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 434                                  | NR                             | 605               | 581                                  | NR                             | 735               | 69                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 395                                  | NR                             | 610               | 582                                  | NR                             | 740               | 59                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 403                                  | NR                             | 615               | 586                                  | NR                             | 745               | 51                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2506-458-13

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 2.09

| 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       | 419                         | NR               | 620       | 583                         | NR               | 750       | 44                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 441                         | NR               | 625       | 580                         | NR               | 755       | 37                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 472                         | NR               | 630       | 572                         | NR               | 760       | 32                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 501                         | NR               | 635       | 559                         | NR               | 765       | 27                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 524                         | NR               | 640       | 543                         | NR               | 770       | 23                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 545                         | NR               | 645       | 522                         | NR               | 775       | 20                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 559                         | NR               | 650       | 496                         | NR               | 780       | 17                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 572                         | NR               | 655       | 468                         | NR               | 785       | 14                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 581                         | NR               | 660       | 435                         | NR               | 790       | 12                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 590                         | NR               | 665       | 403                         | NR               | 795       | 10                          | NR               | 925       | 0                           | NR               |
| 410       | 9                           | NR               | 540       | 595                         | NR               | 670       | 368                         | NR               | 800       | 9                           | NR               | 930       | 0                           | NR               |
| 415       | 14                          | NR               | 545       | 599                         | NR               | 675       | 335                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 599                         | NR               | 680       | 304                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 599                         | NR               | 685       | 271                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 72                          | NR               | 560       | 595                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 132                         | NR               | 565       | 589                         | NR               | 695       | 215                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 243                         | NR               | 570       | 581                         | NR               | 700       | 189                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 488                         | NR               | 575       | 575                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 879                         | NR               | 580       | 573                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 974                         | NR               | 585       | 570                         | NR               | 715       | 124                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 726                         | NR               | 590       | 572                         | NR               | 720       | 108                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 627                         | NR               | 595       | 574                         | NR               | 725       | 93                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 546                         | NR               | 600       | 576                         | NR               | 730       | 80                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 434                         | NR               | 605       | 581                         | NR               | 735       | 69                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 395                         | NR               | 610       | 582                         | NR               | 740       | 59                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 403                         | NR               | 615       | 586                         | NR               | 745       | 51                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2506-458-13

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.55

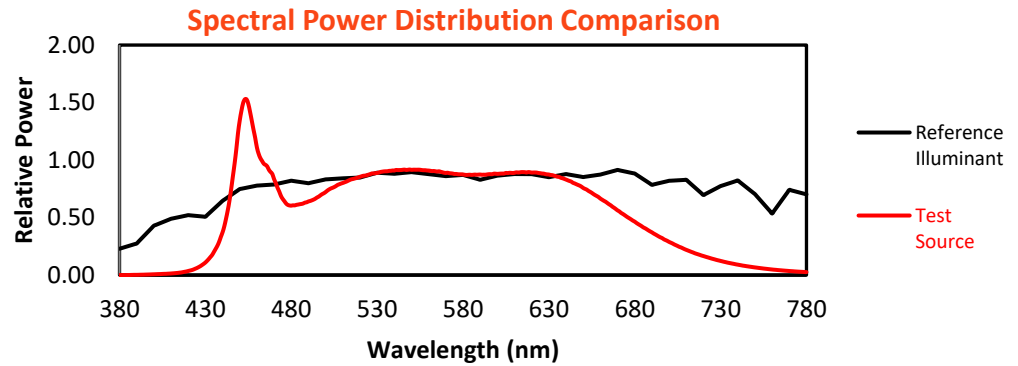
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 419                         | NR               | 620       | 583                         | NR               | 750       | 44                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 441                         | NR               | 625       | 580                         | NR               | 755       | 37                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 472                         | NR               | 630       | 572                         | NR               | 760       | 32                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 501                         | NR               | 635       | 559                         | NR               | 765       | 27                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 524                         | NR               | 640       | 543                         | NR               | 770       | 23                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 545                         | NR               | 645       | 522                         | NR               | 775       | 20                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 559                         | NR               | 650       | 496                         | NR               | 780       | 17                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 572                         | NR               | 655       | 468                         | NR               | 785       | 14                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 581                         | NR               | 660       | 435                         | NR               | 790       | 12                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 590                         | NR               | 665       | 403                         | NR               | 795       | 10                          | NR               | 925       | 0                           | NR               |
| 410       | 9                           | NR               | 540       | 595                         | NR               | 670       | 368                         | NR               | 800       | 9                           | NR               | 930       | 0                           | NR               |
| 415       | 14                          | NR               | 545       | 599                         | NR               | 675       | 335                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 599                         | NR               | 680       | 304                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 599                         | NR               | 685       | 271                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 72                          | NR               | 560       | 595                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 132                         | NR               | 565       | 589                         | NR               | 695       | 215                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 243                         | NR               | 570       | 581                         | NR               | 700       | 189                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 488                         | NR               | 575       | 575                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 879                         | NR               | 580       | 573                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 974                         | NR               | 585       | 570                         | NR               | 715       | 124                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 726                         | NR               | 590       | 572                         | NR               | 720       | 108                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 627                         | NR               | 595       | 574                         | NR               | 725       | 93                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 546                         | NR               | 600       | 576                         | NR               | 730       | 80                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 434                         | NR               | 605       | 581                         | NR               | 735       | 69                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 395                         | NR               | 610       | 582                         | NR               | 740       | 59                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 403                         | NR               | 615       | 586                         | NR               | 745       | 51                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2506-458-13

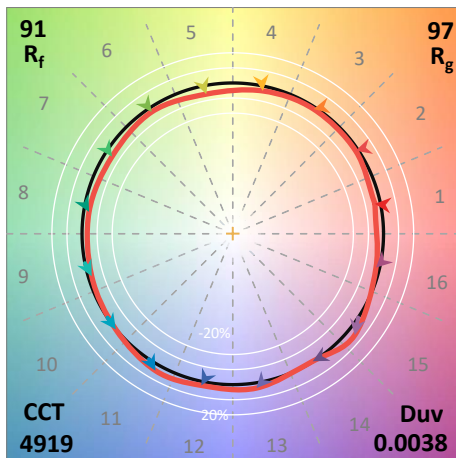
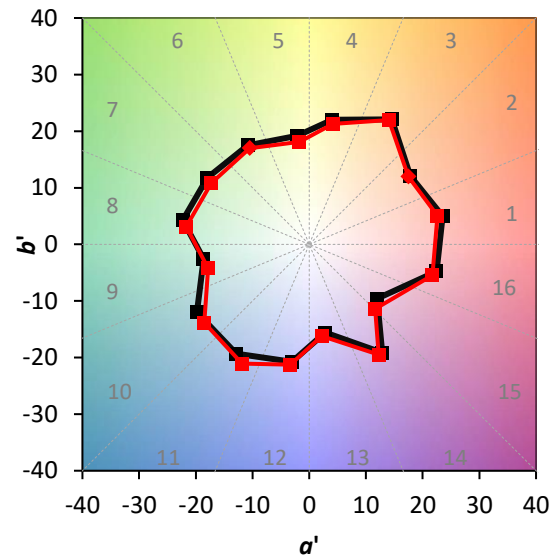
TM-30-18

### Summary

$R_f = 90.8$   
 $R_g = 97.4$   
 $CIE R_a = 94.0$   
 $R_9 = 77.7$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 98 | CES51 = 93 | CES76 = 91 |
| CES02 = 61 | CES27 = 86 | CES52 = 96 | CES77 = 89 |
| CES03 = 31 | CES28 = 98 | CES53 = 93 | CES78 = 87 |
| CES04 = 68 | CES29 = 90 | CES54 = 89 | CES79 = 97 |
| CES05 = 48 | CES30 = 80 | CES55 = 86 | CES80 = 94 |
| CES06 = 50 | CES31 = 92 | CES56 = 89 | CES81 = 89 |
| CES07 = 41 | CES32 = 97 | CES57 = 87 | CES82 = 97 |
| CES08 = 40 | CES33 = 89 | CES58 = 87 | CES83 = 96 |
| CES09 = 29 | CES34 = 98 | CES59 = 96 | CES84 = 94 |
| CES10 = 73 | CES35 = 98 | CES60 = 89 | CES85 = 84 |
| CES11 = 56 | CES36 = 74 | CES61 = 90 | CES86 = 90 |
| CES12 = 62 | CES37 = 97 | CES62 = 78 | CES87 = 92 |
| CES13 = 42 | CES38 = 75 | CES63 = 89 | CES88 = 95 |
| CES14 = 74 | CES39 = 97 | CES64 = 85 | CES89 = 90 |
| CES15 = 71 | CES40 = 97 | CES65 = 87 | CES90 = 92 |
| CES16 = 47 | CES41 = 91 | CES66 = 82 | CES91 = 69 |
| CES17 = 48 | CES42 = 99 | CES67 = 82 | CES92 = 81 |
| CES18 = 56 | CES43 = 97 | CES68 = 86 | CES93 = 88 |
| CES19 = 70 | CES44 = 99 | CES69 = 87 | CES94 = 86 |
| CES20 = 65 | CES45 = 97 | CES70 = 86 | CES95 = 83 |
| CES21 = 84 | CES46 = 94 | CES71 = 77 | CES96 = 94 |
| CES22 = 77 | CES47 = 90 | CES72 = 93 | CES97 = 97 |
| CES23 = 91 | CES48 = 83 | CES73 = 82 | CES98 = 94 |
| CES24 = 89 | CES49 = 95 | CES74 = 89 | CES99 = 92 |
| CES25 = 70 | CES50 = 94 | CES75 = 81 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)