

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: P1216283

Luminaire Tested: 24-ID2-45-DBD-L840-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1216283  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-11)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-45-DBD-L840-U  
Description: 2X4 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL DROP  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

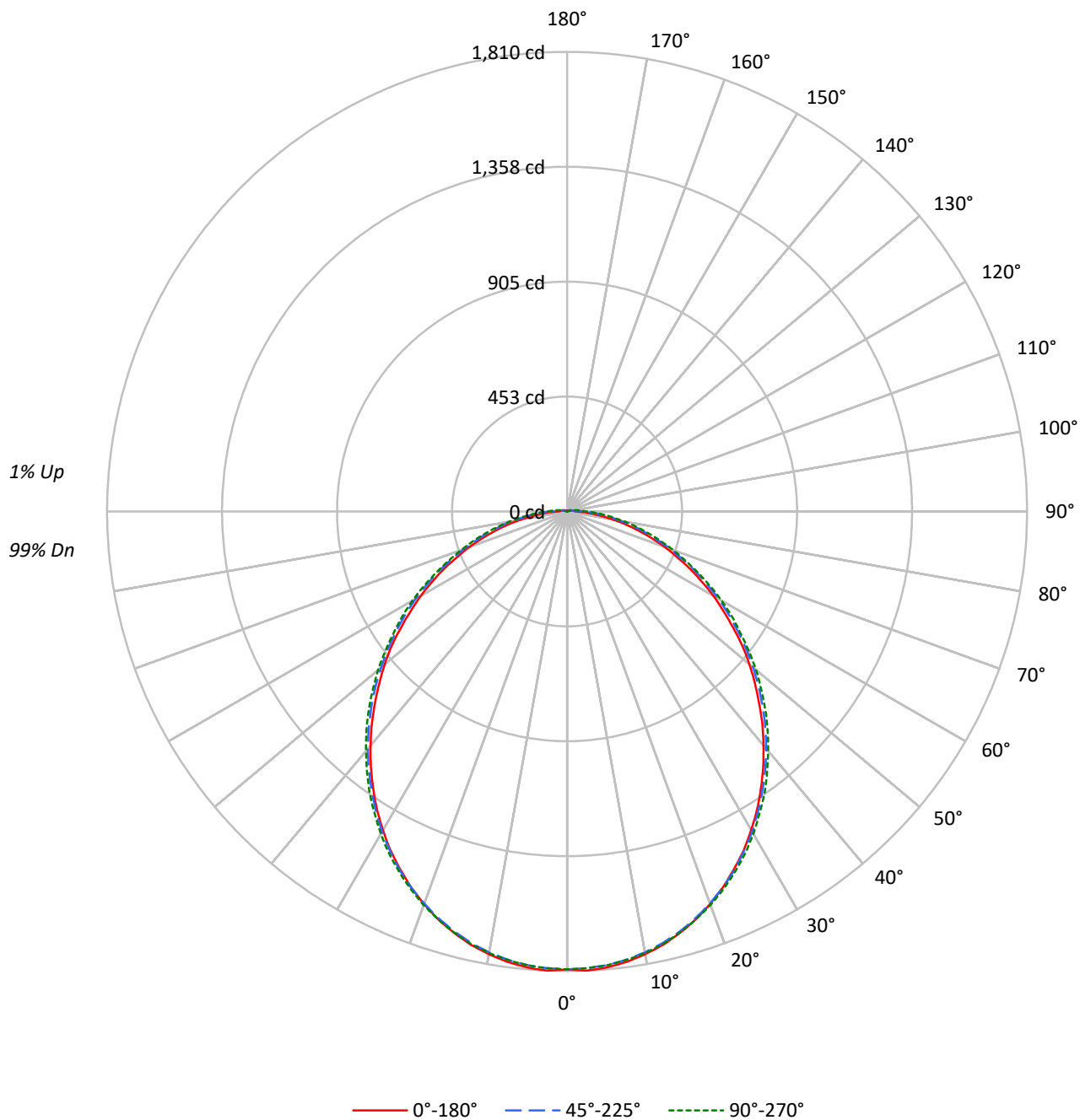
Lumens per Lamp: N/A  
Luminaire Lumens: 4866.8 lumens  
Efficiency: N/A  
Efficacy: 124.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.21 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 4' x H: 0.15')  
CIE Type: Direct

Input Watts (W): 39  
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: P1216283  
CATALOG NUMBER: 24-ID2-45-DBD-L840-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1216283

CATALOG NUMBER: 24-ID2-45-DBD-L840-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  | 50 | 30 | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 | 105 | 105 | 105 | 101 | 101 | 101 | 99 |    | 99 |
| 1   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  | 96  | 93  | 90  | 92  | 90  | 87  | 88  | 86  | 84  | 82 |    | 82 |
| 2   | 98  | 90  | 83  | 77  | 96  | 88  | 82  | 76  | 84  | 79  | 74  | 81  | 76  | 73  | 78  | 74  | 71  | 68 |    | 68 |
| 3   | 90  | 79  | 71  | 65  | 87  | 78  | 70  | 64  | 74  | 68  | 63  | 71  | 66  | 61  | 69  | 64  | 60  | 58 |    | 58 |
| 4   | 82  | 70  | 62  | 55  | 80  | 69  | 61  | 54  | 66  | 59  | 54  | 64  | 58  | 53  | 61  | 56  | 52  | 50 |    | 50 |
| 5   | 76  | 63  | 54  | 47  | 74  | 62  | 53  | 47  | 60  | 52  | 46  | 57  | 51  | 46  | 55  | 50  | 45  | 43 |    | 43 |
| 6   | 70  | 57  | 48  | 41  | 68  | 56  | 47  | 41  | 54  | 46  | 41  | 52  | 45  | 40  | 50  | 44  | 40  | 38 |    | 38 |
| 7   | 65  | 52  | 43  | 37  | 63  | 51  | 42  | 37  | 49  | 42  | 36  | 47  | 41  | 36  | 46  | 40  | 35  | 33 |    | 33 |
| 8   | 61  | 47  | 39  | 33  | 59  | 46  | 38  | 33  | 45  | 38  | 32  | 44  | 37  | 32  | 42  | 36  | 32  | 30 |    | 30 |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 29  | 41  | 34  | 29  | 40  | 34  | 29  | 39  | 33  | 29  | 27 |    | 27 |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  | 38  | 31  | 27  | 37  | 31  | 26  | 36  | 30  | 26  | 25 |    | 25 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2426 | 2426 | 2426 |
| 5°  | 2427 | 2405 | 2407 |
| 10° | 2403 | 2376 | 2381 |
| 15° | 2369 | 2336 | 2344 |
| 20° | 2324 | 2286 | 2299 |
| 25° | 2268 | 2231 | 2245 |
| 30° | 2203 | 2163 | 2183 |
| 35° | 2129 | 2086 | 2114 |
| 40° | 2048 | 2006 | 2034 |
| 45° | 1960 | 1919 | 1953 |
| 50° | 1876 | 1825 | 1866 |
| 55° | 1776 | 1725 | 1762 |
| 60° | 1679 | 1626 | 1673 |
| 65° | 1571 | 1513 | 1553 |
| 70° | 1460 | 1391 | 1440 |
| 75° | 1322 | 1269 | 1340 |
| 80° | 1178 | 1149 | 1245 |
| 85° | 1054 | 1042 | 1188 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1960 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 170.3  | 3.5       |
| 10°-20°   | 483.2  | 9.9       |
| 20°-30°   | 717.2  | 14.7      |
| 30°-40°   | 838.6  | 17.2      |
| 40°-50°   | 839.0  | 17.2      |
| 50°-60°   | 732.0  | 15.0      |
| 60°-70°   | 548.1  | 11.3      |
| 70°-80°   | 334.0  | 6.9       |
| 80°-90°   | 140.9  | 2.9       |
| 90°-100°  | 41.6   | 0.9       |
| 100°-110° | 12.8   | 0.3       |
| 110°-120° | 4.9    | 0.1       |
| 120°-130° | 2.5    | 0.1       |
| 130°-140° | 1.1    | 0.0       |
| 140°-150° | 0.6    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1370.7 | 28.2      |
| 0°-40°    | 2209.3 | 45.4      |
| 0°-60°    | 3780.3 | 77.7      |
| 0°-90°    | 4803.3 | 98.7      |
| 90°-120°  | 59.3   | 1.2       |
| 90°-150°  | 63.4   | 1.3       |
| 90°-180°  | 63.0   | 1.3       |
| 0°-180°   | 4866.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1803 | 1803  | 1803 | 1803  | 1803 |      |
| 5°   | 1803 | 1797  | 1793 | 1791  | 1794 | 171  |
| 15°  | 1718 | 1714  | 1712 | 1713  | 1716 | 484  |
| 25°  | 1554 | 1554  | 1558 | 1561  | 1565 | 716  |
| 35°  | 1330 | 1332  | 1340 | 1350  | 1354 | 832  |
| 45°  | 1069 | 1075  | 1089 | 1100  | 1103 | 825  |
| 55°  | 798  | 803   | 819  | 830   | 832  | 715  |
| 65°  | 533  | 540   | 556  | 564   | 566  | 528  |
| 75°  | 290  | 301   | 317  | 329   | 330  | 308  |
| 85°  | 98   | 111   | 129  | 142   | 143  | 97   |
| 90°  | 32   | 49    | 64   | 74    | 77   | 21   |
| 95°  | 27   | 26    | 37   | 46    | 49   | 21   |
| 105° | 17   | 14    | 8    | 8     | 10   | 18   |
| 115° | 11   | 9     | 5    | 1     | 0    | 11   |
| 125° | 6    | 5     | 3    | 0     | 0    | 6    |
| 135° | 3    | 3     | 1    | 1     | 0    | 3    |
| 145° | 1    | 1     | 1    | 1     | 1    | 1    |
| 155° | 0    | 0     | 0    | 0     | 0    | 0    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    | 0    |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1803.3 | 1803.3 | 1803.3 | 1803.3 | 1803.3 |
| 2.5°   | 1810.0 | 1804.0 | 1800.0 | 1798.0 | 1800.7 |
| 5°     | 1802.7 | 1796.7 | 1793.3 | 1790.6 | 1794.0 |
| 7.5°   | 1789.3 | 1783.3 | 1780.6 | 1779.3 | 1782.0 |
| 10°    | 1770.6 | 1764.6 | 1763.3 | 1761.3 | 1765.9 |
| 12.5°  | 1747.9 | 1741.9 | 1740.6 | 1739.9 | 1744.6 |
| 15°    | 1717.8 | 1713.8 | 1712.5 | 1713.2 | 1716.5 |
| 17.5°  | 1685.1 | 1680.4 | 1679.8 | 1681.1 | 1685.1 |
| 20°    | 1645.0 | 1642.4 | 1643.0 | 1646.4 | 1649.7 |
| 22.5°  | 1602.3 | 1599.6 | 1602.3 | 1603.6 | 1609.0 |
| 25°    | 1554.2 | 1553.5 | 1558.2 | 1560.9 | 1564.9 |
| 27.5°  | 1504.8 | 1504.8 | 1507.5 | 1512.1 | 1518.1 |
| 30°    | 1448.7 | 1449.3 | 1456.0 | 1460.0 | 1466.0 |
| 32.5°  | 1391.9 | 1393.2 | 1399.3 | 1405.9 | 1409.9 |
| 35°    | 1330.5 | 1331.8 | 1340.5 | 1349.8 | 1354.5 |
| 37.5°  | 1267.7 | 1271.0 | 1281.0 | 1289.7 | 1293.1 |
| 40°    | 1202.9 | 1206.9 | 1218.3 | 1228.9 | 1230.9 |
| 42.5°  | 1137.4 | 1141.4 | 1154.8 | 1166.2 | 1168.2 |
| 45°    | 1068.6 | 1074.7 | 1088.7 | 1100.0 | 1103.4 |
| 47.5°  | 1002.5 | 1008.5 | 1022.6 | 1034.6 | 1035.9 |
| 50°    | 936.4  | 940.4  | 954.4  | 965.8  | 971.1  |
| 52.5°  | 870.3  | 874.3  | 887.6  | 901.7  | 901.0  |
| 55°    | 797.5  | 802.8  | 818.8  | 830.2  | 831.5  |
| 57.5°  | 729.3  | 736.7  | 753.4  | 764.7  | 768.8  |
| 60°    | 664.6  | 670.6  | 687.3  | 696.6  | 702.6  |
| 62.5°  | 597.1  | 604.5  | 620.5  | 631.2  | 633.8  |
| 65°    | 533.0  | 539.7  | 556.4  | 564.4  | 566.4  |
| 67.5°  | 466.9  | 476.2  | 491.6  | 501.6  | 502.9  |
| 70°    | 409.4  | 416.1  | 430.8  | 440.8  | 441.5  |
| 72.5°  | 347.3  | 356.7  | 371.4  | 383.4  | 386.7  |
| 75°    | 289.9  | 300.6  | 316.6  | 328.6  | 329.9  |
| 77.5°  | 235.1  | 246.5  | 266.5  | 278.5  | 279.2  |
| 80°    | 184.3  | 197.0  | 215.1  | 229.1  | 229.1  |
| 82.5°  | 136.9  | 151.6  | 172.3  | 185.0  | 184.3  |
| 85°    | 97.5   | 110.9  | 128.9  | 141.6  | 142.9  |
| 87.5°  | 60.8   | 74.8   | 92.2   | 102.9  | 105.5  |
| 90°    | 32.1   | 48.8   | 63.5   | 74.1   | 76.8   |
| 92.5°  | 29.4   | 35.4   | 49.4   | 59.4   | 61.4   |
| 95°    | 26.7   | 26.0   | 36.7   | 46.1   | 48.8   |
| 97.5°  | 24.0   | 20.0   | 26.0   | 34.1   | 36.7   |
| 100°   | 21.4   | 18.0   | 18.7   | 24.0   | 26.0   |
| 102.5° | 19.4   | 16.0   | 11.4   | 15.4   | 17.4   |
| 105°   | 17.4   | 14.0   | 8.0    | 8.0    | 10.0   |
| 107.5° | 15.4   | 12.7   | 7.3    | 3.3    | 4.7    |
| 110°   | 13.4   | 11.4   | 6.0    | 1.3    | 0.7    |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|-----|-------|-----|
| 112.5° | 12.0 | 10.0  | 5.3 | 0.7   | 0.0 |
| 115°   | 10.7 | 8.7   | 4.7 | 0.7   | 0.0 |
| 117.5° | 9.4  | 8.0   | 4.0 | 0.0   | 0.0 |
| 120°   | 8.0  | 6.7   | 3.3 | 0.0   | 0.0 |
| 122.5° | 7.3  | 6.0   | 2.7 | 0.0   | 0.0 |
| 125°   | 6.0  | 5.3   | 2.7 | 0.0   | 0.0 |
| 127.5° | 5.3  | 4.7   | 2.0 | 0.0   | 0.0 |
| 130°   | 4.7  | 4.0   | 1.3 | 0.0   | 0.0 |
| 132.5° | 4.0  | 3.3   | 1.3 | 0.0   | 0.0 |
| 135°   | 3.3  | 2.7   | 0.7 | 0.7   | 0.0 |
| 137.5° | 2.7  | 2.0   | 0.7 | 0.7   | 0.0 |
| 140°   | 2.0  | 2.0   | 0.7 | 0.7   | 0.0 |
| 142.5° | 2.0  | 1.3   | 0.7 | 0.7   | 0.0 |
| 145°   | 1.3  | 1.3   | 0.7 | 0.7   | 0.7 |
| 147.5° | 1.3  | 0.7   | 0.7 | 0.7   | 0.7 |
| 150°   | 0.7  | 0.7   | 0.7 | 0.7   | 0.7 |
| 152.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 155°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 157.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 160°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 162.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 165°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 167.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 170°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 172.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 175°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 177.5° | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |
| 180°   | 0.0  | 0.0   | 0.0 | 0.0   | 0.0 |

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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 | 13.52            | 15.11 | 13.90 | 15.46 | 15.80 | 13.91          | 15.51 | 14.30 | 15.85 | 16.20 |
|                 | 3H   | 15.17            | 16.62 | 15.57 | 16.97 | 17.36 | 15.68          | 17.12 | 16.08 | 17.48 | 17.87 |
|                 | 4H   | 15.78            | 17.15 | 16.20 | 17.52 | 17.93 | 16.40          | 17.76 | 16.82 | 18.14 | 18.55 |
|                 | 6H   | 16.24            | 17.50 | 16.67 | 17.89 | 18.32 | 17.01          | 18.28 | 17.45 | 18.67 | 19.09 |
|                 | 8H   | 16.39            | 17.60 | 16.83 | 18.01 | 18.44 | 17.27          | 18.48 | 17.71 | 18.89 | 19.32 |
|                 | 12H  | 16.50            | 17.66 | 16.95 | 18.06 | 18.53 | 17.49          | 18.65 | 17.94 | 19.06 | 19.52 |
| 4H              | 2H   | 14.15            | 15.51 | 14.57 | 15.89 | 16.29 | 14.46          | 15.83 | 14.88 | 16.20 | 16.61 |
|                 | 3H   | 16.02            | 17.17 | 16.45 | 17.59 | 18.02 | 16.45          | 17.60 | 16.89 | 18.03 | 18.46 |
|                 | 4H   | 16.76            | 17.80 | 17.21 | 18.24 | 18.71 | 17.31          | 18.36 | 17.77 | 18.79 | 19.26 |
|                 | 6H   | 17.34            | 18.26 | 17.82 | 18.72 | 19.21 | 18.08          | 19.00 | 18.56 | 19.46 | 19.95 |
|                 | 8H   | 17.55            | 18.40 | 18.03 | 18.87 | 19.36 | 18.40          | 19.26 | 18.88 | 19.73 | 20.22 |
|                 | 12H  | 17.70            | 18.48 | 18.21 | 18.97 | 19.47 | 18.70          | 19.48 | 19.21 | 19.97 | 20.47 |
| 8H              | 4H   | 17.11            | 17.96 | 17.59 | 18.43 | 18.92 | 17.60          | 18.45 | 18.08 | 18.92 | 19.42 |
|                 | 6H   | 17.83            | 18.54 | 18.34 | 19.05 | 19.56 | 18.51          | 19.23 | 19.02 | 19.74 | 20.24 |
|                 | 8H   | 18.11            | 18.75 | 18.64 | 19.28 | 19.80 | 18.93          | 19.58 | 19.46 | 20.11 | 20.62 |
|                 | 12H  | 18.35            | 18.93 | 18.88 | 19.44 | 20.03 | 19.35          | 19.93 | 19.88 | 20.44 | 21.03 |
| 12H             | 4H   | 17.16            | 17.93 | 17.66 | 18.43 | 18.93 | 17.63          | 18.40 | 18.13 | 18.90 | 19.40 |
|                 | 6H   | 17.92            | 18.56 | 18.44 | 19.09 | 19.61 | 18.57          | 19.21 | 19.10 | 19.74 | 20.26 |
|                 | 8H   | 18.27            | 18.84 | 18.79 | 19.35 | 19.94 | 19.06          | 19.63 | 19.59 | 20.14 | 20.73 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-5

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L840-U

Data in this report applies to families of products including 22ID2-55-CFR1-L840-U

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-5  
 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-L840-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 4000K 80CRI

### Spectral Parameters

CCT (K): 3915  
 CIE  $u'$ : 0.2259  
 CIE  $v'$ : 0.5051  
 Duv: 0.0015  
 CIE x: 0.3854  
 CIE y: 0.3830  
 CIE z: 0.2316  
 Peak Wavelength (nm): 453  
 Dominant Wavelength (nm): 578  
 Purity: 30.6207  
 R<sub>f</sub>: 83.2  
 R<sub>g</sub>: 94.6

CRI (Ra): 82.3  
 R1: 80.6  
 R2: 88.9  
 R3: 94.6  
 R4: 80.5  
 R5: 80.0  
 R6: 84.0  
 R7: 86.1  
 R8: 64.0  
 R9: 7.6  
 R10: 72.9  
 R11: 78.7  
 R12: 57.3  
 R13: 82.7  
 R14: 97.1  
 R15: 74.3



### Test Conditions

Stabilization Time: 34M  
 Operation Time: 1H 34M  
 Sphere Temperature (°C): 25.2

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| 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 4000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| 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       | 266                         | NR               | 620       | 755                         | NR               | 750       | 24                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 307                         | NR               | 625       | 710                         | NR               | 755       | 21                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 366                         | NR               | 630       | 663                         | NR               | 760       | 18                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 430                         | NR               | 635       | 612                         | NR               | 765       | 15                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 486                         | NR               | 640       | 561                         | NR               | 770       | 13                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 536                         | NR               | 645       | 509                         | NR               | 775       | 11                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 571                         | NR               | 650       | 458                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 600                         | NR               | 655       | 410                         | NR               | 785       | 8                           | NR               | 915       | 0                           | NR               |
| 400       | 5                           | NR               | 530       | 624                         | NR               | 660       | 363                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 645                         | NR               | 665       | 321                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 10                          | NR               | 540       | 661                         | NR               | 670       | 280                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 16                          | NR               | 545       | 681                         | NR               | 675       | 244                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 30                          | NR               | 550       | 701                         | NR               | 680       | 213                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 53                          | NR               | 555       | 724                         | NR               | 685       | 183                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 95                          | NR               | 560       | 747                         | NR               | 690       | 159                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 170                         | NR               | 565       | 772                         | NR               | 695       | 136                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 289                         | NR               | 570       | 795                         | NR               | 700       | 117                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 522                         | NR               | 575       | 817                         | NR               | 705       | 100                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 895                         | NR               | 580       | 841                         | NR               | 710       | 85                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 957                         | NR               | 585       | 857                         | NR               | 715       | 72                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 642                         | NR               | 590       | 871                         | NR               | 720       | 62                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 487                         | NR               | 595       | 875                         | NR               | 725       | 53                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 397                         | NR               | 600       | 866                         | NR               | 730       | 45                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 289                         | NR               | 605       | 852                         | NR               | 735       | 39                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 241                         | NR               | 610       | 827                         | NR               | 740       | 33                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 245                         | NR               | 615       | 796                         | NR               | 745       | 28                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2506-458-5

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.65

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 266                      | NR            | 620    | 755                      | NR            | 750    | 24                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 307                      | NR            | 625    | 710                      | NR            | 755    | 21                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 366                      | NR            | 630    | 663                      | NR            | 760    | 18                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 430                      | NR            | 635    | 612                      | NR            | 765    | 15                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 486                      | NR            | 640    | 561                      | NR            | 770    | 13                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 536                      | NR            | 645    | 509                      | NR            | 775    | 11                       | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 571                      | NR            | 650    | 458                      | NR            | 780    | 10                       | NR            | 910    | 0                        | NR            |
| 395    | 3                        | NR            | 525    | 600                      | NR            | 655    | 410                      | NR            | 785    | 8                        | NR            | 915    | 0                        | NR            |
| 400    | 5                        | NR            | 530    | 624                      | NR            | 660    | 363                      | NR            | 790    | 7                        | NR            | 920    | 0                        | NR            |
| 405    | 7                        | NR            | 535    | 645                      | NR            | 665    | 321                      | NR            | 795    | 6                        | NR            | 925    | 0                        | NR            |
| 410    | 10                       | NR            | 540    | 661                      | NR            | 670    | 280                      | NR            | 800    | 5                        | NR            | 930    | 0                        | NR            |
| 415    | 16                       | NR            | 545    | 681                      | NR            | 675    | 244                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 30                       | NR            | 550    | 701                      | NR            | 680    | 213                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 53                       | NR            | 555    | 724                      | NR            | 685    | 183                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 95                       | NR            | 560    | 747                      | NR            | 690    | 159                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 170                      | NR            | 565    | 772                      | NR            | 695    | 136                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 289                      | NR            | 570    | 795                      | NR            | 700    | 117                      | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 522                      | NR            | 575    | 817                      | NR            | 705    | 100                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 895                      | NR            | 580    | 841                      | NR            | 710    | 85                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 957                      | NR            | 585    | 857                      | NR            | 715    | 72                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 642                      | NR            | 590    | 871                      | NR            | 720    | 62                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 487                      | NR            | 595    | 875                      | NR            | 725    | 53                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 397                      | NR            | 600    | 866                      | NR            | 730    | 45                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 289                      | NR            | 605    | 852                      | NR            | 735    | 39                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 241                      | NR            | 610    | 827                      | NR            | 740    | 33                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 245                      | NR            | 615    | 796                      | NR            | 745    | 28                       | NR            | 875    | 1                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2506-458-5

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.36

| 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       | 266                         | NR               | 620       | 755                         | NR               | 750       | 24                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 307                         | NR               | 625       | 710                         | NR               | 755       | 21                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 366                         | NR               | 630       | 663                         | NR               | 760       | 18                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 430                         | NR               | 635       | 612                         | NR               | 765       | 15                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 486                         | NR               | 640       | 561                         | NR               | 770       | 13                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 536                         | NR               | 645       | 509                         | NR               | 775       | 11                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 571                         | NR               | 650       | 458                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 600                         | NR               | 655       | 410                         | NR               | 785       | 8                           | NR               | 915       | 0                           | NR               |
| 400       | 5                           | NR               | 530       | 624                         | NR               | 660       | 363                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 645                         | NR               | 665       | 321                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 10                          | NR               | 540       | 661                         | NR               | 670       | 280                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 16                          | NR               | 545       | 681                         | NR               | 675       | 244                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 30                          | NR               | 550       | 701                         | NR               | 680       | 213                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 53                          | NR               | 555       | 724                         | NR               | 685       | 183                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 95                          | NR               | 560       | 747                         | NR               | 690       | 159                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 170                         | NR               | 565       | 772                         | NR               | 695       | 136                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 289                         | NR               | 570       | 795                         | NR               | 700       | 117                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 522                         | NR               | 575       | 817                         | NR               | 705       | 100                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 895                         | NR               | 580       | 841                         | NR               | 710       | 85                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 957                         | NR               | 585       | 857                         | NR               | 715       | 72                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 642                         | NR               | 590       | 871                         | NR               | 720       | 62                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 487                         | NR               | 595       | 875                         | NR               | 725       | 53                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 397                         | NR               | 600       | 866                         | NR               | 730       | 45                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 289                         | NR               | 605       | 852                         | NR               | 735       | 39                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 241                         | NR               | 610       | 827                         | NR               | 740       | 33                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 245                         | NR               | 615       | 796                         | NR               | 745       | 28                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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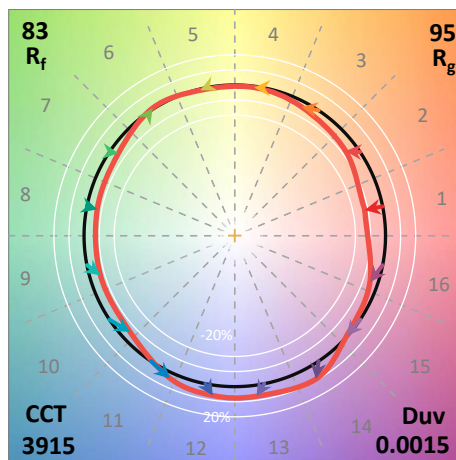
TM-30-18

### Summary

$R_f = 83.2$   
 $R_g = 94.6$   
 $CIE R_a = 82.3$   
 $R_9 = 7.6$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 83 | CES51 = 92 | CES76 = 75 |
| CES02 = 61 | CES27 = 91 | CES52 = 93 | CES77 = 82 |
| CES03 = 31 | CES28 = 91 | CES53 = 88 | CES78 = 74 |
| CES04 = 70 | CES29 = 90 | CES54 = 88 | CES79 = 92 |
| CES05 = 48 | CES30 = 90 | CES55 = 85 | CES80 = 89 |
| CES06 = 50 | CES31 = 91 | CES56 = 83 | CES81 = 81 |
| CES07 = 41 | CES32 = 83 | CES57 = 82 | CES82 = 95 |
| CES08 = 40 | CES33 = 97 | CES58 = 82 | CES83 = 96 |
| CES09 = 29 | CES34 = 87 | CES59 = 90 | CES84 = 90 |
| CES10 = 74 | CES35 = 92 | CES60 = 88 | CES85 = 77 |
| CES11 = 57 | CES36 = 78 | CES61 = 85 | CES86 = 75 |
| CES12 = 63 | CES37 = 91 | CES62 = 79 | CES87 = 84 |
| CES13 = 42 | CES38 = 84 | CES63 = 82 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 75 | CES89 = 77 |
| CES15 = 71 | CES40 = 96 | CES65 = 74 | CES90 = 90 |
| CES16 = 47 | CES41 = 95 | CES66 = 70 | CES91 = 67 |
| CES17 = 49 | CES42 = 93 | CES67 = 69 | CES92 = 64 |
| CES18 = 56 | CES43 = 91 | CES68 = 76 | CES93 = 78 |
| CES19 = 71 | CES44 = 99 | CES69 = 80 | CES94 = 63 |
| CES20 = 65 | CES45 = 94 | CES70 = 72 | CES95 = 72 |
| CES21 = 86 | CES46 = 91 | CES71 = 64 | CES96 = 84 |
| CES22 = 78 | CES47 = 95 | CES72 = 88 | CES97 = 91 |
| CES23 = 91 | CES48 = 83 | CES73 = 66 | CES98 = 86 |
| CES24 = 90 | CES49 = 90 | CES74 = 90 | CES99 = 77 |
| CES25 = 71 | CES50 = 93 | CES75 = 68 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)