

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: P1215123

Luminaire Tested: 22-ID2-50-DBD-L840-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215123  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-17)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-50-DBD-L840-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL DROP  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

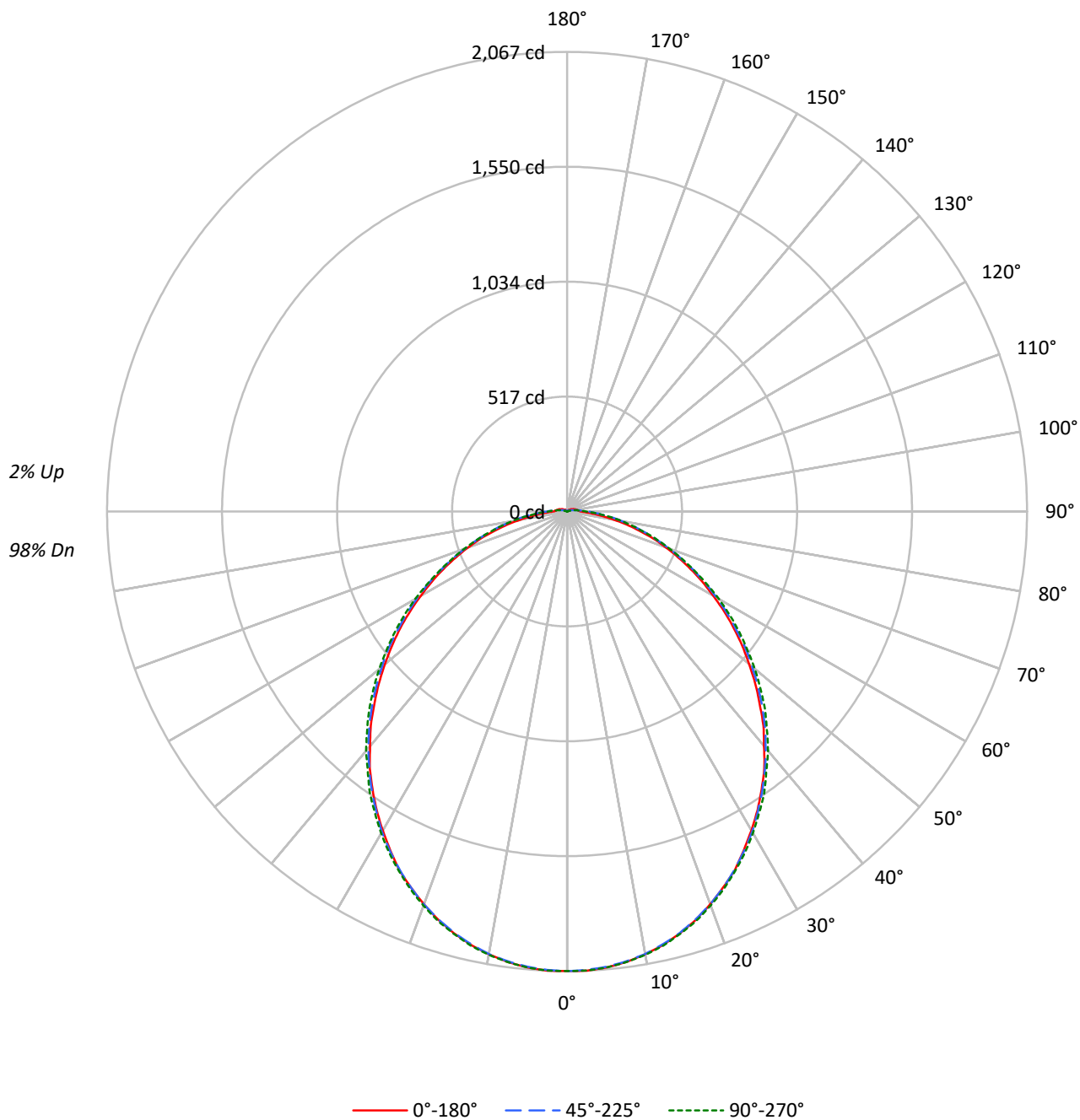
Lumens per Lamp: N/A  
Luminaire Lumens: 5590.9 lumens  
Efficiency: N/A  
Efficacy: 124.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.15')  
CIE Type: Direct

Input Watts (W): 44.8  
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



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CATALOG NUMBER: 22-ID2-50-DBD-L840-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1215123

CATALOG NUMBER: 22-ID2-50-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  |  | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |  |     |     |     |  |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 110 | 110 | 110 |  |  | 105 | 105 | 105 |  | 98 |
| 1   | 108 | 103 | 99  | 95  | 105 | 101 | 97  | 93  | 96  | 93  | 90  |  |  | 92  | 89  | 87  |  | 81 |
| 2   | 98  | 90  | 83  | 77  | 95  | 88  | 82  | 76  | 84  | 79  | 74  |  |  | 80  | 76  | 72  |  | 68 |
| 3   | 90  | 79  | 71  | 64  | 87  | 77  | 70  | 64  | 74  | 68  | 62  |  |  | 71  | 66  | 61  |  | 57 |
| 4   | 82  | 70  | 62  | 55  | 80  | 69  | 61  | 54  | 66  | 59  | 53  |  |  | 63  | 57  | 52  |  | 49 |
| 5   | 76  | 63  | 54  | 47  | 73  | 62  | 53  | 47  | 59  | 52  | 46  |  |  | 57  | 51  | 46  |  | 43 |
| 6   | 70  | 57  | 48  | 41  | 68  | 56  | 47  | 41  | 54  | 46  | 41  |  |  | 52  | 45  | 40  |  | 38 |
| 7   | 65  | 52  | 43  | 37  | 63  | 51  | 42  | 37  | 49  | 42  | 36  |  |  | 47  | 41  | 36  |  | 33 |
| 8   | 61  | 47  | 39  | 33  | 59  | 46  | 38  | 33  | 45  | 38  | 32  |  |  | 43  | 37  | 32  |  | 30 |
| 9   | 57  | 43  | 35  | 30  | 55  | 43  | 35  | 29  | 41  | 34  | 29  |  |  | 40  | 34  | 29  |  | 27 |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  | 38  | 31  | 27  |  |  | 37  | 31  | 26  |  | 24 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5562 | 5562 | 5562 |
| 5°  | 5523 | 5501 | 5525 |
| 10° | 5454 | 5420 | 5461 |
| 15° | 5362 | 5314 | 5370 |
| 20° | 5243 | 5184 | 5258 |
| 25° | 5111 | 5033 | 5123 |
| 30° | 4932 | 4871 | 4975 |
| 35° | 4758 | 4678 | 4823 |
| 40° | 4550 | 4479 | 4644 |
| 45° | 4332 | 4265 | 4452 |
| 50° | 4104 | 4033 | 4234 |
| 55° | 3874 | 3784 | 4002 |
| 60° | 3616 | 3526 | 3757 |
| 65° | 3362 | 3262 | 3472 |
| 70° | 3077 | 2969 | 3198 |
| 75° | 2728 | 2691 | 2924 |
| 80° | 2316 | 2422 | 2714 |
| 85° | 1913 | 2174 | 2567 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4452 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 195.2  | 3.5       |
| 10°-20°   | 553.3  | 9.9       |
| 20°-30°   | 819.7  | 14.7      |
| 30°-40°   | 957.7  | 17.1      |
| 40°-50°   | 956.6  | 17.1      |
| 50°-60°   | 832.1  | 14.9      |
| 60°-70°   | 621.1  | 11.1      |
| 70°-80°   | 379.0  | 6.8       |
| 80°-90°   | 167.1  | 3.0       |
| 90°-100°  | 61.2   | 1.1       |
| 100°-110° | 25.5   | 0.5       |
| 110°-120° | 12.1   | 0.2       |
| 120°-130° | 6.2    | 0.1       |
| 130°-140° | 2.7    | 0.0       |
| 140°-150° | 0.9    | 0.0       |
| 150°-160° | 0.3    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1568.2 | 28.0      |
| 0°-40°    | 2525.9 | 45.2      |
| 0°-60°    | 4314.7 | 77.2      |
| 0°-90°    | 5482.0 | 98.1      |
| 90°-120°  | 98.7   | 1.8       |
| 90°-150°  | 108.5  | 1.9       |
| 90°-180°  | 109.0  | 1.9       |
| 0°-180°   | 5590.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2067 | 2067  | 2067 | 2067  | 2067 |      |
| 5°   | 2058 | 2056  | 2055 | 2057  | 2059 | 195  |
| 15°  | 1964 | 1962  | 1962 | 1964  | 1966 | 553  |
| 25°  | 1782 | 1778  | 1779 | 1782  | 1786 | 819  |
| 35°  | 1524 | 1526  | 1530 | 1539  | 1545 | 953  |
| 45°  | 1224 | 1231  | 1240 | 1249  | 1258 | 945  |
| 55°  | 914  | 919   | 929  | 941   | 944  | 817  |
| 65°  | 613  | 619   | 629  | 635   | 633  | 607  |
| 75°  | 336  | 348   | 361  | 365   | 360  | 358  |
| 85°  | 115  | 141   | 156  | 159   | 154  | 115  |
| 90°  | 59   | 79    | 90   | 91    | 84   | 35   |
| 95°  | 50   | 51    | 56   | 57    | 54   | 40   |
| 105° | 37   | 32    | 21   | 14    | 12   | 39   |
| 115° | 24   | 21    | 12   | 2     | 0    | 24   |
| 125° | 14   | 12    | 7    | 1     | 0    | 14   |
| 135° | 8    | 6     | 2    | 1     | 0    | 6    |
| 145° | 3    | 2     | 1    | 1     | 1    | 2    |
| 155° | 1    | 1     | 1    | 1     | 1    | 0    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 2067.0 | 2067.0 | 2067.0 | 2067.0 | 2067.0 |
| 2.5°   | 2067.0 | 2064.9 | 2063.5 | 2064.9 | 2066.3 |
| 5°     | 2058.0 | 2055.9 | 2055.2 | 2056.6 | 2058.7 |
| 7.5°   | 2043.5 | 2042.1 | 2040.8 | 2042.8 | 2044.2 |
| 10°    | 2022.2 | 2020.1 | 2020.8 | 2022.8 | 2024.9 |
| 12.5°  | 1996.6 | 1994.6 | 1993.2 | 1995.3 | 1999.4 |
| 15°    | 1963.5 | 1961.5 | 1961.5 | 1963.5 | 1966.3 |
| 17.5°  | 1924.9 | 1924.9 | 1922.9 | 1927.0 | 1930.5 |
| 20°    | 1880.8 | 1880.1 | 1880.1 | 1882.9 | 1886.3 |
| 22.5°  | 1831.2 | 1831.2 | 1831.9 | 1836.0 | 1838.8 |
| 25°    | 1781.5 | 1778.1 | 1778.8 | 1782.2 | 1785.7 |
| 27.5°  | 1718.8 | 1719.5 | 1722.2 | 1725.7 | 1731.2 |
| 30°    | 1656.1 | 1658.1 | 1663.6 | 1666.4 | 1670.5 |
| 32.5°  | 1592.6 | 1594.0 | 1596.8 | 1604.3 | 1607.1 |
| 35°    | 1524.4 | 1525.7 | 1529.9 | 1538.8 | 1545.1 |
| 37.5°  | 1456.1 | 1454.7 | 1460.9 | 1469.9 | 1470.6 |
| 40°    | 1376.8 | 1382.3 | 1388.5 | 1396.8 | 1405.1 |
| 42.5°  | 1305.8 | 1308.6 | 1316.2 | 1323.7 | 1329.3 |
| 45°    | 1223.8 | 1230.7 | 1239.6 | 1248.6 | 1257.6 |
| 47.5°  | 1147.2 | 1155.5 | 1162.4 | 1173.4 | 1178.3 |
| 50°    | 1068.0 | 1076.9 | 1085.2 | 1096.2 | 1101.7 |
| 52.5°  | 991.4  | 997.6  | 1011.4 | 1019.7 | 1021.1 |
| 55°    | 914.2  | 919.0  | 928.7  | 941.1  | 944.5  |
| 57.5°  | 837.0  | 843.2  | 853.5  | 864.6  | 865.9  |
| 60°    | 759.1  | 766.7  | 775.6  | 784.6  | 788.7  |
| 62.5°  | 685.3  | 692.2  | 701.2  | 708.8  | 708.1  |
| 65°    | 612.9  | 619.1  | 628.8  | 635.0  | 632.9  |
| 67.5°  | 541.2  | 548.1  | 557.1  | 561.9  | 560.5  |
| 70°    | 471.6  | 477.1  | 487.4  | 492.3  | 490.2  |
| 72.5°  | 406.8  | 414.4  | 422.6  | 428.1  | 425.4  |
| 75°    | 335.8  | 348.2  | 361.3  | 364.7  | 359.9  |
| 77.5°  | 274.4  | 288.2  | 304.0  | 308.2  | 303.4  |
| 80°    | 213.0  | 234.4  | 250.3  | 255.1  | 249.6  |
| 82.5°  | 160.6  | 184.1  | 202.0  | 206.1  | 199.3  |
| 85°    | 115.1  | 140.6  | 155.8  | 159.3  | 154.4  |
| 87.5°  | 81.4   | 104.8  | 117.9  | 120.0  | 113.1  |
| 90°    | 59.3   | 79.3   | 89.6   | 91.0   | 84.1   |
| 92.5°  | 54.5   | 62.7   | 71.0   | 73.1   | 68.9   |
| 95°    | 50.3   | 51.0   | 56.5   | 57.2   | 53.8   |
| 97.5°  | 46.9   | 43.4   | 44.1   | 43.4   | 40.7   |
| 100°   | 43.4   | 39.3   | 33.8   | 31.7   | 29.6   |
| 102.5° | 40.7   | 35.9   | 26.2   | 22.1   | 20.0   |
| 105°   | 37.2   | 32.4   | 20.7   | 13.8   | 12.4   |
| 107.5° | 33.8   | 29.6   | 17.9   | 8.3    | 6.2    |
| 110°   | 30.3   | 26.2   | 15.9   | 4.1    | 2.1    |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90° |
|--------|------|-------|------|-------|-----|
| 112.5° | 27.6 | 23.4  | 14.5 | 3.4   | 0.0 |
| 115°   | 24.1 | 21.4  | 12.4 | 2.1   | 0.0 |
| 117.5° | 21.4 | 18.6  | 11.0 | 1.4   | 0.0 |
| 120°   | 19.3 | 16.5  | 9.7  | 0.7   | 0.0 |
| 122.5° | 17.2 | 14.5  | 8.3  | 0.7   | 0.0 |
| 125°   | 14.5 | 12.4  | 6.9  | 0.7   | 0.0 |
| 127.5° | 13.1 | 11.0  | 5.5  | 0.0   | 0.0 |
| 130°   | 11.0 | 9.0   | 4.8  | 0.0   | 0.0 |
| 132.5° | 9.7  | 7.6   | 3.4  | 0.7   | 0.0 |
| 135°   | 7.6  | 6.2   | 2.1  | 0.7   | 0.0 |
| 137.5° | 6.9  | 5.5   | 1.4  | 0.7   | 0.0 |
| 140°   | 5.5  | 4.1   | 1.4  | 0.7   | 0.0 |
| 142.5° | 4.1  | 3.4   | 0.7  | 0.7   | 0.7 |
| 145°   | 2.8  | 2.1   | 0.7  | 0.7   | 0.7 |
| 147.5° | 2.1  | 1.4   | 0.7  | 0.7   | 0.7 |
| 150°   | 1.4  | 1.4   | 0.7  | 0.7   | 0.7 |
| 152.5° | 0.7  | 0.7   | 0.7  | 0.7   | 0.7 |
| 155°   | 0.7  | 0.7   | 0.7  | 0.7   | 0.7 |
| 157.5° | 0.7  | 0.7   | 0.7  | 0.7   | 0.7 |
| 160°   | 0.7  | 0.7   | 0.7  | 0.7   | 0.7 |
| 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 | 16.30            | 17.89 | 16.70 | 18.24 | 18.61 | 16.49          | 18.07 | 16.89 | 18.43 | 18.79 |
|                 | 3H   | 17.98            | 19.41 | 18.39 | 19.78 | 20.19 | 18.18          | 19.61 | 18.59 | 19.98 | 20.39 |
|                 | 4H   | 18.61            | 19.96 | 19.04 | 20.34 | 20.77 | 18.84          | 20.19 | 19.27 | 20.58 | 21.00 |
|                 | 6H   | 19.07            | 20.33 | 19.52 | 20.73 | 21.17 | 19.38          | 20.64 | 19.83 | 21.04 | 21.48 |
|                 | 8H   | 19.23            | 20.43 | 19.69 | 20.86 | 21.30 | 19.60          | 20.80 | 20.05 | 21.22 | 21.67 |
|                 | 12H  | 19.35            | 20.50 | 19.81 | 20.92 | 21.39 | 19.78          | 20.93 | 20.24 | 21.35 | 21.83 |
| 4H              | 2H   | 16.89            | 18.24 | 17.32 | 18.63 | 19.05 | 17.04          | 18.39 | 17.47 | 18.78 | 19.20 |
|                 | 3H   | 18.78            | 19.92 | 19.23 | 20.36 | 20.80 | 18.95          | 20.09 | 19.40 | 20.53 | 20.97 |
|                 | 4H   | 19.54            | 20.57 | 20.01 | 21.02 | 21.51 | 19.75          | 20.78 | 20.21 | 21.23 | 21.72 |
|                 | 6H   | 20.15            | 21.05 | 20.63 | 21.53 | 22.03 | 20.45          | 21.35 | 20.93 | 21.83 | 22.33 |
|                 | 8H   | 20.36            | 21.21 | 20.85 | 21.69 | 22.20 | 20.72          | 21.57 | 21.22 | 22.05 | 22.56 |
|                 | 12H  | 20.53            | 21.30 | 21.04 | 21.81 | 22.32 | 20.97          | 21.74 | 21.49 | 22.25 | 22.76 |
| 8H              | 4H   | 19.86            | 20.71 | 20.35 | 21.18 | 21.70 | 20.05          | 20.89 | 20.54 | 21.37 | 21.88 |
|                 | 6H   | 20.60            | 21.31 | 21.13 | 21.83 | 22.35 | 20.88          | 21.59 | 21.41 | 22.11 | 22.63 |
|                 | 8H   | 20.90            | 21.54 | 21.44 | 22.08 | 22.61 | 21.26          | 21.90 | 21.80 | 22.44 | 22.97 |
|                 | 12H  | 21.17            | 21.74 | 21.71 | 22.26 | 22.87 | 21.62          | 22.19 | 22.15 | 22.71 | 23.31 |
| 12H             | 4H   | 19.90            | 20.67 | 20.41 | 21.18 | 21.69 | 20.08          | 20.84 | 20.59 | 21.35 | 21.87 |
|                 | 6H   | 20.68            | 21.32 | 21.22 | 21.86 | 22.39 | 20.95          | 21.59 | 21.49 | 22.13 | 22.66 |
|                 | 8H   | 21.05            | 21.62 | 21.59 | 22.14 | 22.75 | 21.39          | 21.96 | 21.93 | 22.48 | 23.09 |

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

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 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<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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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.36

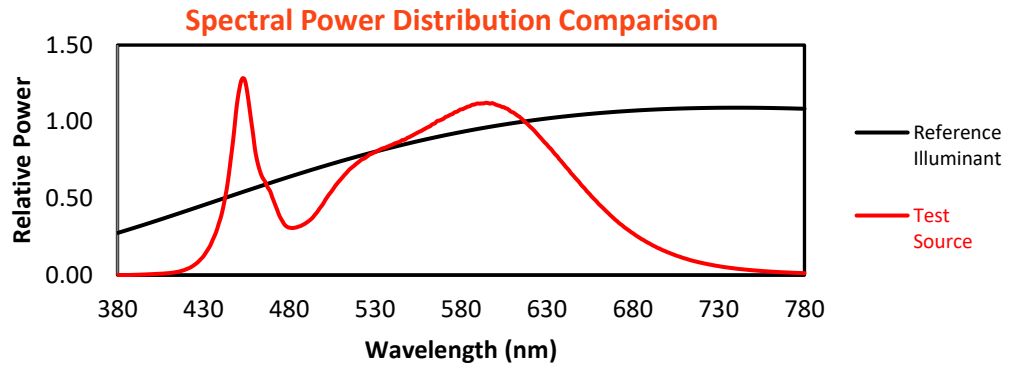
| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 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

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



### Color Vector Graphics



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

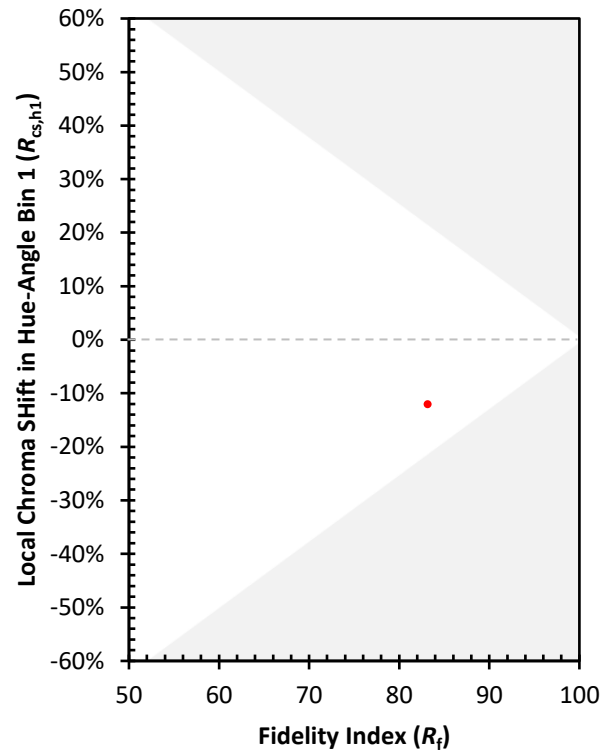
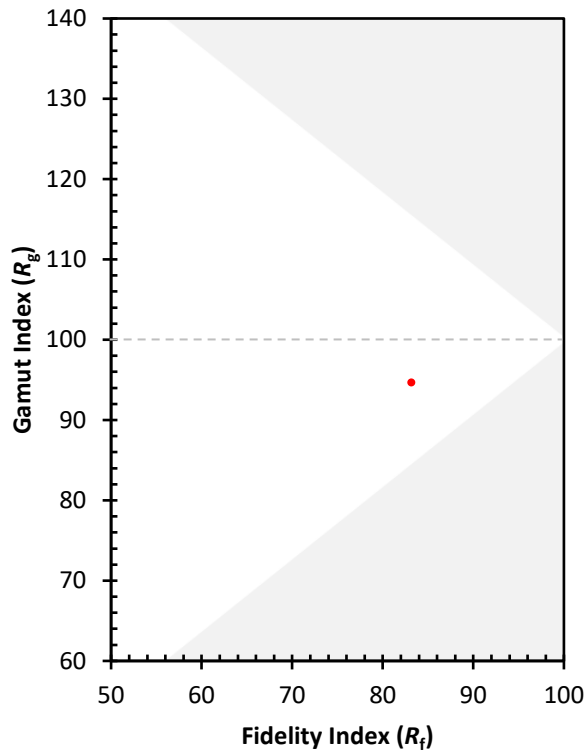
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 83 | CES51 = 92 | CES76 = 75 |
| CES02 = 61 | CES27 = 91 | CES52 = 93 | CES77 = 82 |
| CES03 = 31 | CES28 = 91 | CES53 = 88 | CES78 = 74 |
| CES04 = 70 | CES29 = 90 | CES54 = 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)