

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: P1215124

Luminaire Tested: 22-ID2-50-DBD-L850-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215124  
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-L850-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL DROP  
Light Source: 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

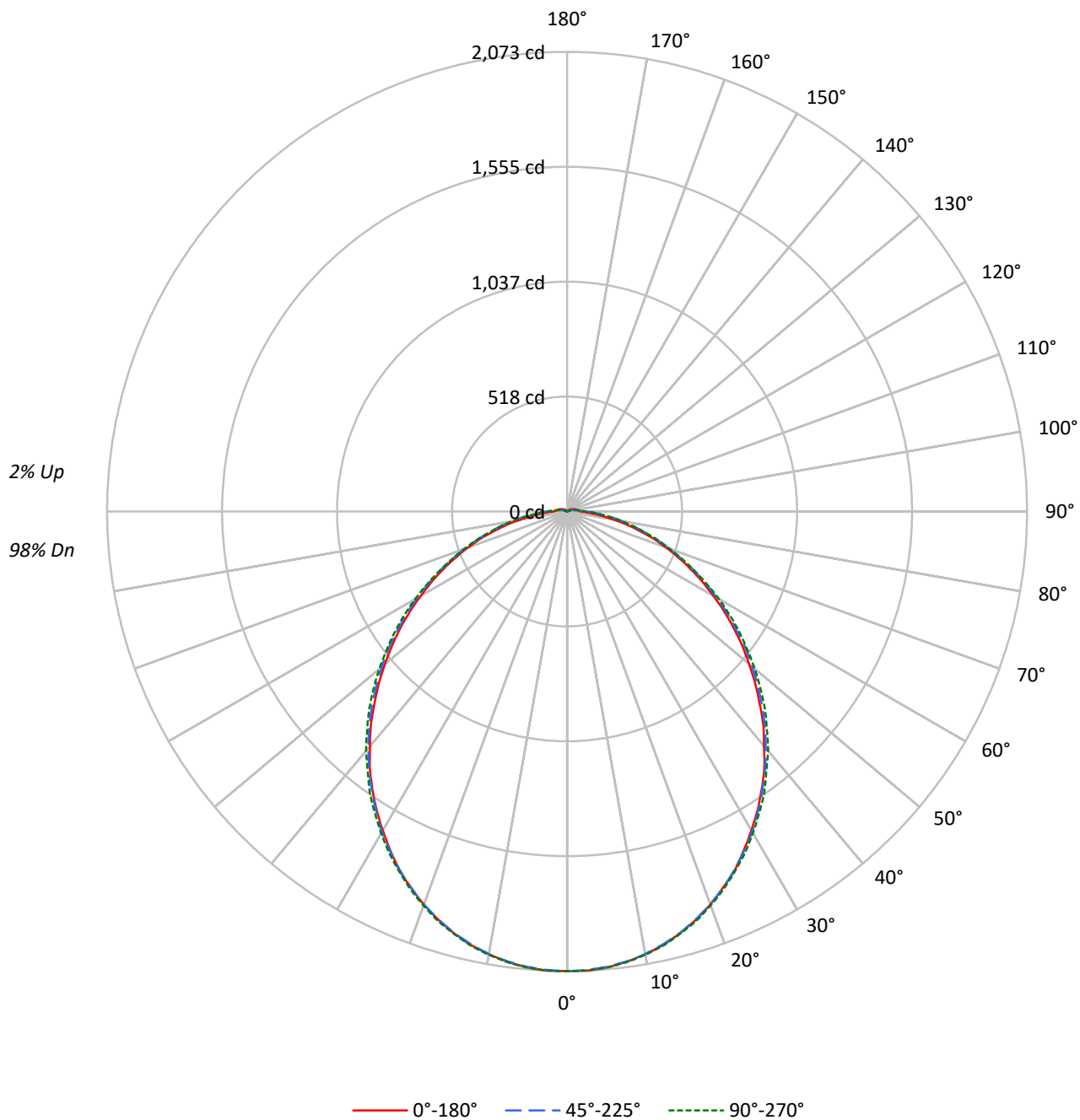
Lumens per Lamp: N/A  
Luminaire Lumens: 5608.0 lumens  
Efficiency: N/A  
Efficacy: 125.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.2 / 1.31  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 2' x H: 0.15')  
CIE Type: Direct

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-L850-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1215124

CATALOG NUMBER: 22-ID2-50-DBD-L850-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°  | 5579 | 5579 | 5579 |
| 5°  | 5540 | 5517 | 5542 |
| 10° | 5470 | 5437 | 5478 |
| 15° | 5379 | 5330 | 5386 |
| 20° | 5259 | 5200 | 5274 |
| 25° | 5127 | 5048 | 5138 |
| 30° | 4947 | 4886 | 4991 |
| 35° | 4772 | 4693 | 4837 |
| 40° | 4564 | 4493 | 4658 |
| 45° | 4345 | 4278 | 4465 |
| 50° | 4117 | 4046 | 4247 |
| 55° | 3886 | 3795 | 4015 |
| 60° | 3627 | 3537 | 3768 |
| 65° | 3372 | 3272 | 3483 |
| 70° | 3086 | 2979 | 3208 |
| 75° | 2736 | 2699 | 2933 |
| 80° | 2323 | 2429 | 2721 |
| 85° | 1920 | 2181 | 2575 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4465 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 195.8  | 3.5       |
| 10°-20°   | 555.0  | 9.9       |
| 20°-30°   | 822.2  | 14.7      |
| 30°-40°   | 960.7  | 17.1      |
| 40°-50°   | 959.6  | 17.1      |
| 50°-60°   | 834.7  | 14.9      |
| 60°-70°   | 623.0  | 11.1      |
| 70°-80°   | 380.2  | 6.8       |
| 80°-90°   | 167.6  | 3.0       |
| 90°-100°  | 61.4   | 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°    | 1573.0 | 28.0      |
| 0°-40°    | 2533.7 | 45.2      |
| 0°-60°    | 4327.9 | 77.2      |
| 0°-90°    | 5498.8 | 98.1      |
| 90°-120°  | 99.0   | 1.8       |
| 90°-150°  | 108.9  | 1.9       |
| 90°-180°  | 109.0  | 1.9       |
| 0°-180°   | 5608.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 2073 | 2073  | 2073 | 2073  | 2073 |      |
| 5°   | 2064 | 2062  | 2062 | 2063  | 2065 | 196  |
| 15°  | 1970 | 1968  | 1968 | 1970  | 1972 | 555  |
| 25°  | 1787 | 1784  | 1784 | 1788  | 1791 | 821  |
| 35°  | 1529 | 1530  | 1535 | 1544  | 1550 | 956  |
| 45°  | 1228 | 1234  | 1243 | 1252  | 1261 | 948  |
| 55°  | 917  | 922   | 932  | 944   | 947  | 820  |
| 65°  | 615  | 621   | 631  | 637   | 635  | 609  |
| 75°  | 337  | 349   | 362  | 366   | 361  | 360  |
| 85°  | 116  | 141   | 156  | 160   | 155  | 115  |
| 90°  | 60   | 80    | 90   | 91    | 84   | 35   |
| 95°  | 50   | 51    | 57   | 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°     | 2073.3 | 2073.3 | 2073.3 | 2073.3 | 2073.3 |
| 2.5°   | 2073.3 | 2071.2 | 2069.8 | 2071.2 | 2072.6 |
| 5°     | 2064.3 | 2062.2 | 2061.5 | 2062.9 | 2065.0 |
| 7.5°   | 2049.8 | 2048.4 | 2047.0 | 2049.1 | 2050.5 |
| 10°    | 2028.3 | 2026.3 | 2027.0 | 2029.0 | 2031.1 |
| 12.5°  | 2002.8 | 2000.7 | 1999.3 | 2001.4 | 2005.5 |
| 15°    | 1969.6 | 1967.5 | 1967.5 | 1969.6 | 1972.3 |
| 17.5°  | 1930.8 | 1930.8 | 1928.8 | 1932.9 | 1936.4 |
| 20°    | 1886.6 | 1885.9 | 1885.9 | 1888.7 | 1892.1 |
| 22.5°  | 1836.8 | 1836.8 | 1837.5 | 1841.6 | 1844.4 |
| 25°    | 1787.0 | 1783.5 | 1784.2 | 1787.7 | 1791.1 |
| 27.5°  | 1724.1 | 1724.8 | 1727.5 | 1731.0 | 1736.5 |
| 30°    | 1661.1 | 1663.2 | 1668.7 | 1671.5 | 1675.7 |
| 32.5°  | 1597.5 | 1598.9 | 1601.7 | 1609.3 | 1612.0 |
| 35°    | 1529.0 | 1530.4 | 1534.6 | 1543.6 | 1549.8 |
| 37.5°  | 1460.6 | 1459.2 | 1465.4 | 1474.4 | 1475.1 |
| 40°    | 1381.0 | 1386.6 | 1392.8 | 1401.1 | 1409.4 |
| 42.5°  | 1309.8 | 1312.6 | 1320.2 | 1327.8 | 1333.3 |
| 45°    | 1227.5 | 1234.4 | 1243.4 | 1252.4 | 1261.4 |
| 47.5°  | 1150.8 | 1159.1 | 1166.0 | 1177.0 | 1181.9 |
| 50°    | 1071.2 | 1080.2 | 1088.5 | 1099.6 | 1105.1 |
| 52.5°  | 994.5  | 1000.7 | 1014.5 | 1022.8 | 1024.2 |
| 55°    | 917.0  | 921.9  | 931.5  | 944.0  | 947.4  |
| 57.5°  | 839.6  | 845.8  | 856.2  | 867.2  | 868.6  |
| 60°    | 761.4  | 769.0  | 778.0  | 787.0  | 791.1  |
| 62.5°  | 687.4  | 694.3  | 703.3  | 710.9  | 710.2  |
| 65°    | 614.8  | 621.0  | 630.7  | 636.9  | 634.9  |
| 67.5°  | 542.9  | 549.8  | 558.8  | 563.6  | 562.2  |
| 70°    | 473.0  | 478.6  | 488.9  | 493.8  | 491.7  |
| 72.5°  | 408.0  | 415.6  | 423.9  | 429.5  | 426.7  |
| 75°    | 336.8  | 349.2  | 362.4  | 365.8  | 361.0  |
| 77.5°  | 275.2  | 289.1  | 305.0  | 309.1  | 304.3  |
| 80°    | 213.7  | 235.1  | 251.0  | 255.9  | 250.3  |
| 82.5°  | 161.1  | 184.6  | 202.6  | 206.8  | 199.9  |
| 85°    | 115.5  | 141.1  | 156.3  | 159.8  | 154.9  |
| 87.5°  | 81.6   | 105.1  | 118.3  | 120.3  | 113.4  |
| 90°    | 59.5   | 79.5   | 89.9   | 91.3   | 84.4   |
| 92.5°  | 54.6   | 62.9   | 71.2   | 73.3   | 69.2   |
| 95°    | 50.5   | 51.2   | 56.7   | 57.4   | 53.9   |
| 97.5°  | 47.0   | 43.6   | 44.3   | 43.6   | 40.8   |
| 100°   | 43.6   | 39.4   | 33.9   | 31.8   | 29.7   |
| 102.5° | 40.8   | 36.0   | 26.3   | 22.1   | 20.1   |
| 105°   | 37.3   | 32.5   | 20.7   | 13.8   | 12.4   |
| 107.5° | 33.9   | 29.7   | 18.0   | 8.3    | 6.2    |
| 110°   | 30.4   | 26.3   | 15.9   | 4.1    | 2.1    |

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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90° |
|--------|------|-------|------|-------|-----|
| 112.5° | 27.7 | 23.5  | 14.5 | 3.5   | 0.0 |
| 115°   | 24.2 | 21.4  | 12.4 | 2.1   | 0.0 |
| 117.5° | 21.4 | 18.7  | 11.1 | 1.4   | 0.0 |
| 120°   | 19.4 | 16.6  | 9.7  | 0.7   | 0.0 |
| 122.5° | 17.3 | 14.5  | 8.3  | 0.7   | 0.0 |
| 125°   | 14.5 | 12.4  | 6.9  | 0.7   | 0.0 |
| 127.5° | 13.1 | 11.1  | 5.5  | 0.0   | 0.0 |
| 130°   | 11.1 | 9.0   | 4.8  | 0.0   | 0.0 |
| 132.5° | 9.7  | 7.6   | 3.5  | 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  | 3.5   | 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 | 16.32            | 17.90 | 16.71 | 18.25 | 18.62 | 16.50          | 18.08 | 16.90 | 18.44 | 18.80 |
|                 | 3H   | 17.99            | 19.42 | 18.40 | 19.79 | 20.20 | 18.19          | 19.62 | 18.60 | 19.99 | 20.40 |
|                 | 4H   | 18.62            | 19.97 | 19.05 | 20.35 | 20.78 | 18.85          | 20.20 | 19.28 | 20.59 | 21.01 |
|                 | 6H   | 19.08            | 20.34 | 19.53 | 20.74 | 21.18 | 19.40          | 20.65 | 19.84 | 21.05 | 21.49 |
|                 | 8H   | 19.24            | 20.44 | 19.70 | 20.87 | 21.31 | 19.61          | 20.81 | 20.06 | 21.23 | 21.68 |
|                 | 12H  | 19.36            | 20.51 | 19.82 | 20.93 | 21.40 | 19.79          | 20.94 | 20.25 | 21.36 | 21.84 |
| 4H              | 2H   | 16.90            | 18.25 | 17.33 | 18.64 | 19.06 | 17.05          | 18.40 | 17.48 | 18.79 | 19.21 |
|                 | 3H   | 18.80            | 19.93 | 19.24 | 20.37 | 20.81 | 18.96          | 20.10 | 19.41 | 20.54 | 20.98 |
|                 | 4H   | 19.55            | 20.58 | 20.02 | 21.03 | 21.52 | 19.76          | 20.79 | 20.23 | 21.24 | 21.73 |
|                 | 6H   | 20.16            | 21.06 | 20.64 | 21.54 | 22.04 | 20.46          | 21.36 | 20.94 | 21.84 | 22.34 |
|                 | 8H   | 20.37            | 21.22 | 20.86 | 21.70 | 22.21 | 20.73          | 21.58 | 21.23 | 22.06 | 22.57 |
|                 | 12H  | 20.54            | 21.31 | 21.05 | 21.82 | 22.33 | 20.98          | 21.75 | 21.50 | 22.26 | 22.77 |
| 8H              | 4H   | 19.87            | 20.72 | 20.36 | 21.20 | 21.71 | 20.06          | 20.90 | 20.55 | 21.38 | 21.89 |
|                 | 6H   | 20.61            | 21.32 | 21.14 | 21.84 | 22.36 | 20.89          | 21.60 | 21.42 | 22.12 | 22.64 |
|                 | 8H   | 20.91            | 21.55 | 21.45 | 22.09 | 22.62 | 21.27          | 21.91 | 21.81 | 22.45 | 22.98 |
|                 | 12H  | 21.18            | 21.75 | 21.72 | 22.27 | 22.88 | 21.63          | 22.20 | 22.17 | 22.72 | 23.32 |
| 12H             | 4H   | 19.91            | 20.68 | 20.42 | 21.19 | 21.70 | 20.09          | 20.85 | 20.60 | 21.36 | 21.88 |
|                 | 6H   | 20.69            | 21.33 | 21.23 | 21.87 | 22.40 | 20.96          | 21.60 | 21.50 | 22.14 | 22.67 |
|                 | 8H   | 21.06            | 21.63 | 21.60 | 22.15 | 22.76 | 21.40          | 21.97 | 21.94 | 22.49 | 23.10 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-7

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L850-U

Data in this report applies to families of products including 22ID2-55-CFR1-L850-U

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-7  
 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-L850-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 5000K 80CRI

### Spectral Parameters

CCT (K): 4966  
 CIE  $u'$ : 0.2093  
 CIE  $v'$ : 0.4890  
 Duv: 0.0036  
 CIE x: 0.3468  
 CIE y: 0.3601  
 CIE z: 0.2931  
 Peak Wavelength (nm): 450  
 Dominant Wavelength (nm): 570  
 Purity: 12.1135  
 R<sub>f</sub>: 84  
 R<sub>g</sub>: 96.2

CRI (Ra): 83.1  
 R1: 81.0  
 R2: 87.8  
 R3: 92.7  
 R4: 82.4  
 R5: 81.0  
 R6: 82.6  
 R7: 88.5  
 R8: 68.6  
 R9: 10.3  
 R10: 70.9  
 R11: 81.3  
 R12: 55.9  
 R13: 82.8  
 R14: 96.1  
 R15: 75.1



### Test Conditions

Stabilization Time: 37M  
 Operation Time: 1H 37M  
 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 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| 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    | 262                      | NR            | 620    | 472                      | NR            | 750    | 15                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 307                      | NR            | 625    | 443                      | NR            | 755    | 13                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 358                      | NR            | 630    | 412                      | NR            | 760    | 11                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 403                      | NR            | 635    | 379                      | NR            | 765    | 9                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 440                      | NR            | 640    | 346                      | NR            | 770    | 8                        | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 471                      | NR            | 645    | 313                      | NR            | 775    | 7                        | NR            | 905    | 0                        | NR            |
| 390    | 3                        | NR            | 520    | 490                      | NR            | 650    | 282                      | NR            | 780    | 6                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 504                      | NR            | 655    | 252                      | NR            | 785    | 5                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 515                      | NR            | 660    | 223                      | NR            | 790    | 4                        | NR            | 920    | 0                        | NR            |
| 405    | 9                        | NR            | 535    | 524                      | NR            | 665    | 197                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 530                      | NR            | 670    | 171                      | NR            | 800    | 3                        | NR            | 930    | 0                        | NR            |
| 415    | 20                       | NR            | 545    | 539                      | NR            | 675    | 149                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 36                       | NR            | 550    | 545                      | NR            | 680    | 130                      | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 64                       | NR            | 555    | 554                      | NR            | 685    | 112                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 117                      | NR            | 560    | 562                      | NR            | 690    | 97                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 212                      | NR            | 565    | 567                      | NR            | 695    | 83                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 378                      | NR            | 570    | 571                      | NR            | 700    | 71                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 709                      | NR            | 575    | 574                      | NR            | 705    | 61                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 1000                     | NR            | 580    | 579                      | NR            | 710    | 52                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 789                      | NR            | 585    | 578                      | NR            | 715    | 44                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 519                      | NR            | 590    | 578                      | NR            | 720    | 38                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 429                      | NR            | 595    | 571                      | NR            | 725    | 32                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 316                      | NR            | 600    | 560                      | NR            | 730    | 28                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 236                      | NR            | 605    | 545                      | NR            | 735    | 24                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 224                      | NR            | 610    | 524                      | NR            | 740    | 20                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 235                      | NR            | 615    | 501                      | NR            | 745    | 17                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.94

| 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       | 262                         | NR               | 620       | 472                         | NR               | 750       | 15                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 307                         | NR               | 625       | 443                         | NR               | 755       | 13                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 358                         | NR               | 630       | 412                         | NR               | 760       | 11                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 403                         | NR               | 635       | 379                         | NR               | 765       | 9                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 440                         | NR               | 640       | 346                         | NR               | 770       | 8                           | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 471                         | NR               | 645       | 313                         | NR               | 775       | 7                           | NR               | 905       | 0                           | NR               |
| 390       | 3                           | NR               | 520       | 490                         | NR               | 650       | 282                         | NR               | 780       | 6                           | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 504                         | NR               | 655       | 252                         | NR               | 785       | 5                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 515                         | NR               | 660       | 223                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 9                           | NR               | 535       | 524                         | NR               | 665       | 197                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 530                         | NR               | 670       | 171                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 20                          | NR               | 545       | 539                         | NR               | 675       | 149                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 36                          | NR               | 550       | 545                         | NR               | 680       | 130                         | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 64                          | NR               | 555       | 554                         | NR               | 685       | 112                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 117                         | NR               | 560       | 562                         | NR               | 690       | 97                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 212                         | NR               | 565       | 567                         | NR               | 695       | 83                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 378                         | NR               | 570       | 571                         | NR               | 700       | 71                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 709                         | NR               | 575       | 574                         | NR               | 705       | 61                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 1000                        | NR               | 580       | 579                         | NR               | 710       | 52                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 789                         | NR               | 585       | 578                         | NR               | 715       | 44                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 519                         | NR               | 590       | 578                         | NR               | 720       | 38                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 429                         | NR               | 595       | 571                         | NR               | 725       | 32                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 316                         | NR               | 600       | 560                         | NR               | 730       | 28                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 236                         | NR               | 605       | 545                         | NR               | 735       | 24                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 224                         | NR               | 610       | 524                         | NR               | 740       | 20                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 235                         | NR               | 615       | 501                         | NR               | 745       | 17                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.11

| $\lambda$<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               | 262                                    | NR                             | 620               | 472                                    | NR                             | 750               | 15                                     | NR                             | 880               | 0                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 307                                    | NR                             | 625               | 443                                    | NR                             | 755               | 13                                     | NR                             | 885               | 0                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 358                                    | NR                             | 630               | 412                                    | NR                             | 760               | 11                                     | NR                             | 890               | 0                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 403                                    | NR                             | 635               | 379                                    | NR                             | 765               | 9                                      | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 440                                    | NR                             | 640               | 346                                    | NR                             | 770               | 8                                      | NR                             | 900               | 0                                      | NR                             |
| 385               | 1                                      | NR                             | 515               | 471                                    | NR                             | 645               | 313                                    | NR                             | 775               | 7                                      | NR                             | 905               | 0                                      | NR                             |
| 390               | 3                                      | NR                             | 520               | 490                                    | NR                             | 650               | 282                                    | NR                             | 780               | 6                                      | NR                             | 910               | 0                                      | NR                             |
| 395               | 4                                      | NR                             | 525               | 504                                    | NR                             | 655               | 252                                    | NR                             | 785               | 5                                      | NR                             | 915               | 0                                      | NR                             |
| 400               | 6                                      | NR                             | 530               | 515                                    | NR                             | 660               | 223                                    | NR                             | 790               | 4                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 9                                      | NR                             | 535               | 524                                    | NR                             | 665               | 197                                    | NR                             | 795               | 4                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 12                                     | NR                             | 540               | 530                                    | NR                             | 670               | 171                                    | NR                             | 800               | 3                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 20                                     | NR                             | 545               | 539                                    | NR                             | 675               | 149                                    | NR                             | 805               | 3                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 36                                     | NR                             | 550               | 545                                    | NR                             | 680               | 130                                    | NR                             | 810               | 2                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 64                                     | NR                             | 555               | 554                                    | NR                             | 685               | 112                                    | NR                             | 815               | 2                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 117                                    | NR                             | 560               | 562                                    | NR                             | 690               | 97                                     | NR                             | 820               | 2                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 212                                    | NR                             | 565               | 567                                    | NR                             | 695               | 83                                     | NR                             | 825               | 2                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 378                                    | NR                             | 570               | 571                                    | NR                             | 700               | 71                                     | NR                             | 830               | 1                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 709                                    | NR                             | 575               | 574                                    | NR                             | 705               | 61                                     | NR                             | 835               | 1                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 1000                                   | NR                             | 580               | 579                                    | NR                             | 710               | 52                                     | NR                             | 840               | 1                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 789                                    | NR                             | 585               | 578                                    | NR                             | 715               | 44                                     | NR                             | 845               | 1                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 519                                    | NR                             | 590               | 578                                    | NR                             | 720               | 38                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 429                                    | NR                             | 595               | 571                                    | NR                             | 725               | 32                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 316                                    | NR                             | 600               | 560                                    | NR                             | 730               | 28                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 236                                    | NR                             | 605               | 545                                    | NR                             | 735               | 24                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 224                                    | NR                             | 610               | 524                                    | NR                             | 740               | 20                                     | NR                             | 870               | 0                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 235                                    | NR                             | 615               | 501                                    | NR                             | 745               | 17                                     | NR                             | 875               | 0                                      | NR                             |                   |                                        |                                |

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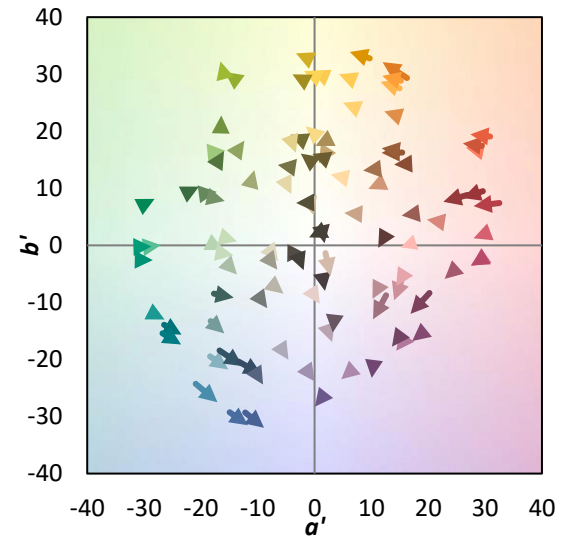
TM-30-18

### Summary

$R_f = 84$   
 $R_g = 96.2$   
 $\text{CIE } R_a = 83.1$   
 $R_9 = 10.3$



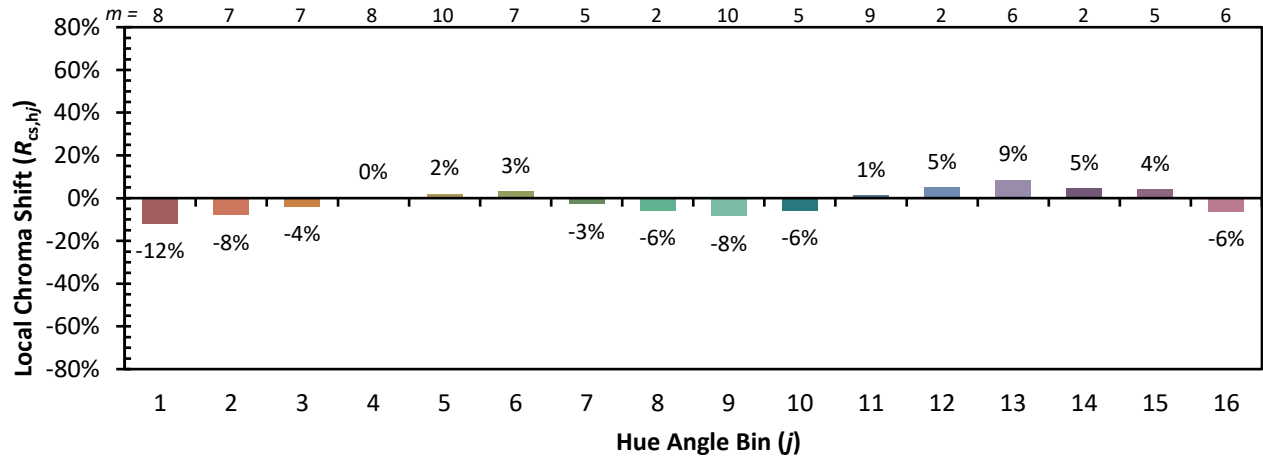
### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 80 | CES51 = 95 | CES76 = 72 |
| CES02 = 60 | CES27 = 93 | CES52 = 95 | CES77 = 81 |
| CES03 = 30 | CES28 = 90 | CES53 = 89 | CES78 = 71 |
| CES04 = 69 | CES29 = 85 | CES54 = 90 | CES79 = 91 |
| CES05 = 47 | CES30 = 97 | CES55 = 89 | CES80 = 87 |
| CES06 = 50 | CES31 = 87 | CES56 = 86 | CES81 = 84 |
| CES07 = 40 | CES32 = 79 | CES57 = 85 | CES82 = 95 |
| CES08 = 39 | CES33 = 92 | CES58 = 85 | CES83 = 95 |
| CES09 = 29 | CES34 = 84 | CES59 = 92 | CES84 = 90 |
| CES10 = 73 | CES35 = 91 | CES60 = 91 | CES85 = 81 |
| CES11 = 56 | CES36 = 83 | CES61 = 88 | CES86 = 79 |
| CES12 = 62 | CES37 = 90 | CES62 = 85 | CES87 = 84 |
| CES13 = 42 | CES38 = 93 | CES63 = 85 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 79 | CES89 = 79 |
| CES15 = 71 | CES40 = 94 | CES65 = 76 | CES90 = 89 |
| CES16 = 46 | CES41 = 99 | CES66 = 75 | CES91 = 72 |
| CES17 = 48 | CES42 = 89 | CES67 = 73 | CES92 = 67 |
| CES18 = 55 | CES43 = 88 | CES68 = 78 | CES93 = 80 |
| CES19 = 70 | CES44 = 99 | CES69 = 82 | CES94 = 65 |
| CES20 = 64 | CES45 = 93 | CES70 = 73 | CES95 = 73 |
| CES21 = 85 | CES46 = 91 | CES71 = 67 | CES96 = 84 |
| CES22 = 77 | CES47 = 96 | CES72 = 89 | CES97 = 92 |
| CES23 = 91 | CES48 = 87 | CES73 = 66 | CES98 = 86 |
| CES24 = 90 | CES49 = 90 | CES74 = 92 | CES99 = 77 |
| CES25 = 71 | CES50 = 95 | CES75 = 68 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)