

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P821160

Luminaire Tested: **TT-D5-830-24VDC-RW-PM-HSS**

Issue Date: 12/2/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P821160  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-5)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/2/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: TT-D5-830-24VDC-RW-PM-HSS  
Description: TOPTIER LED SITE LUMINAIRE  
3000K, 80 CRI LEDS AND RECTANGULAR DISTRIBUTION WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5352.9 lumens  
Efficiency: N/A  
Efficacy: 73.3 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B2 - U2 - G3

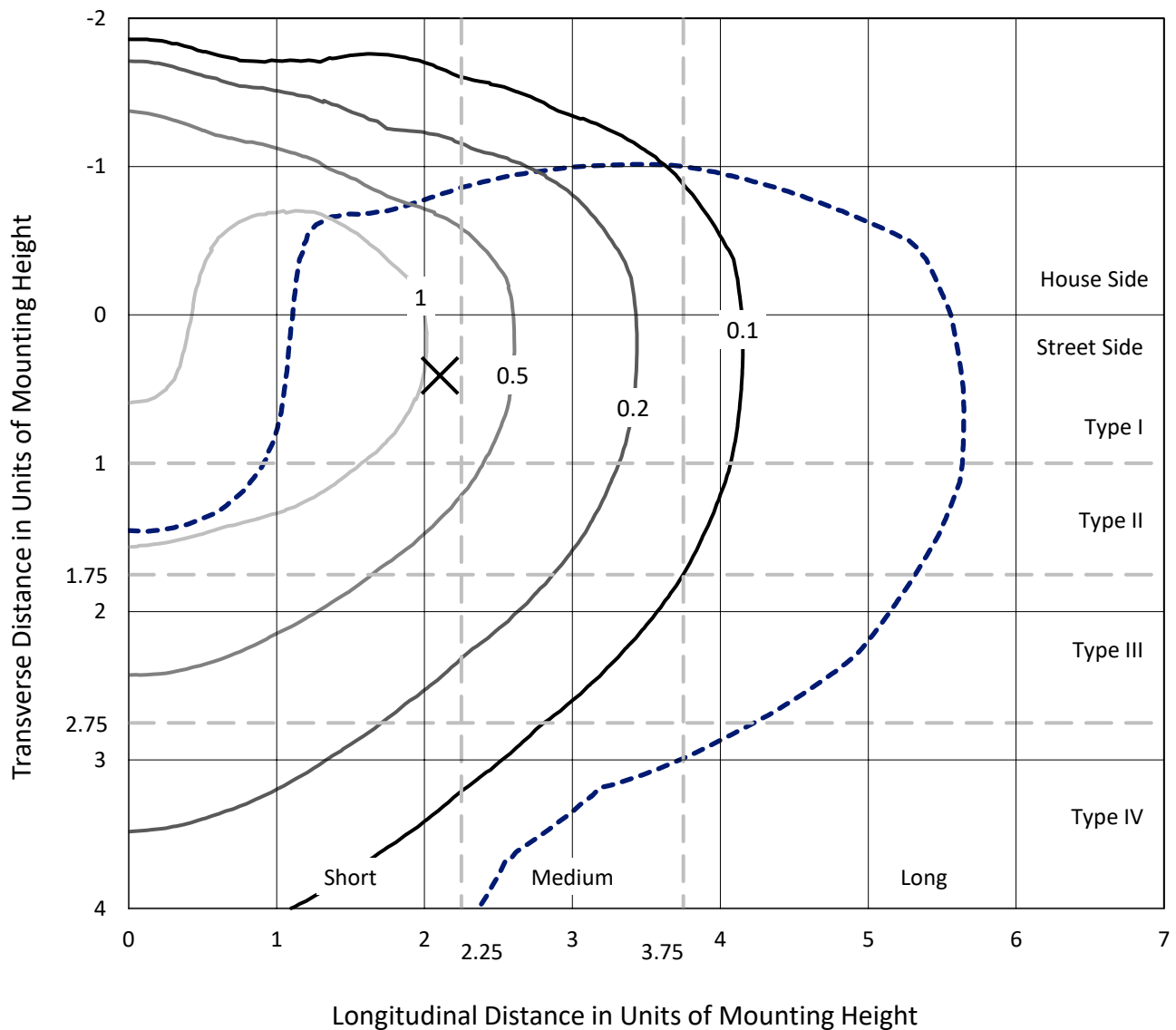
Input Watts (W): 73  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT

REPORT NUMBER: P821160

CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

## Iso-Footcandle Lines of Horizontal Illumination

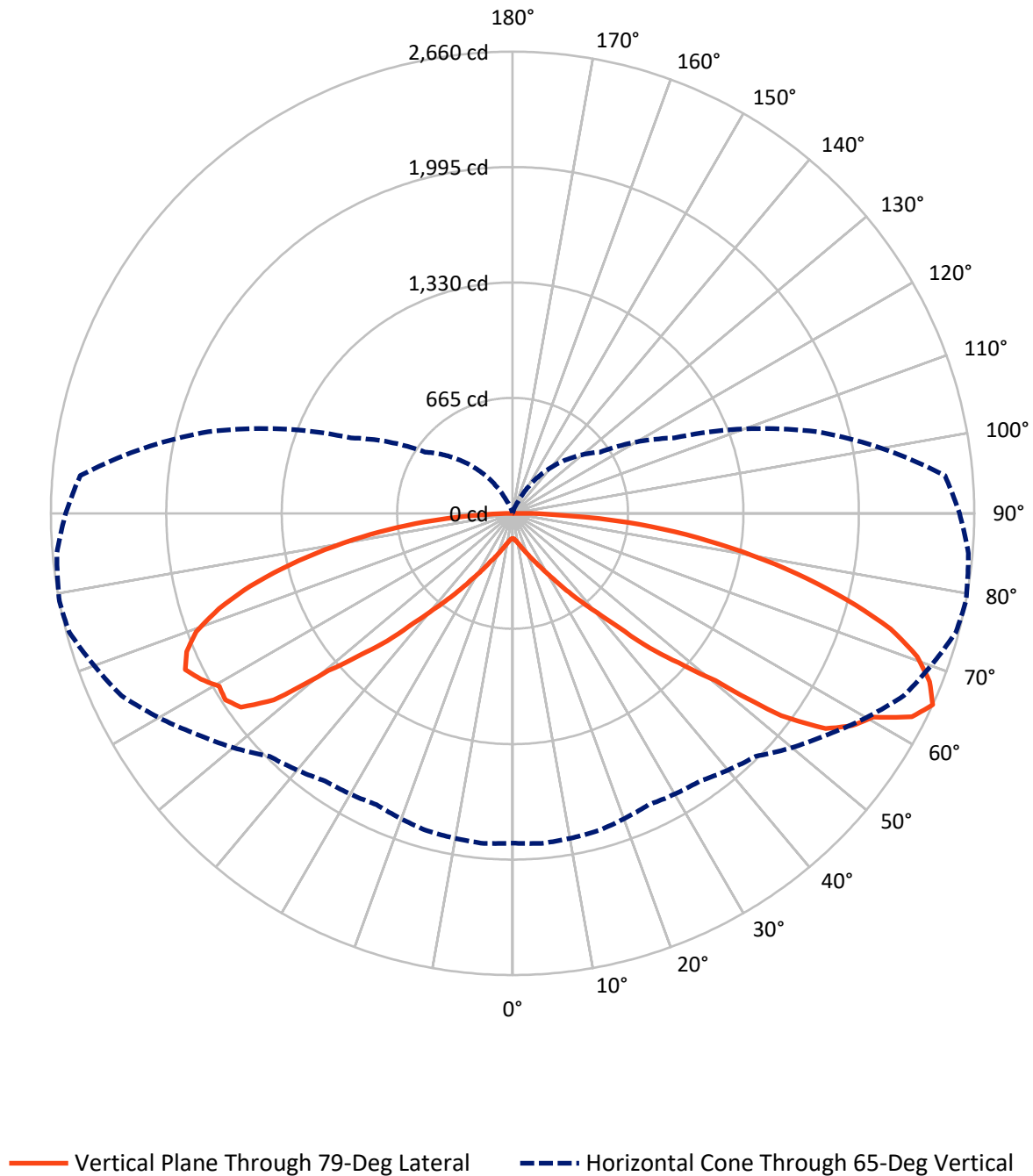
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.9 fc  
 Type IV - Short - N/A

REPORT NUMBER: P821160  
CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

## Luminous Intensity Polar Plot



REPORT NUMBER: P821160

CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

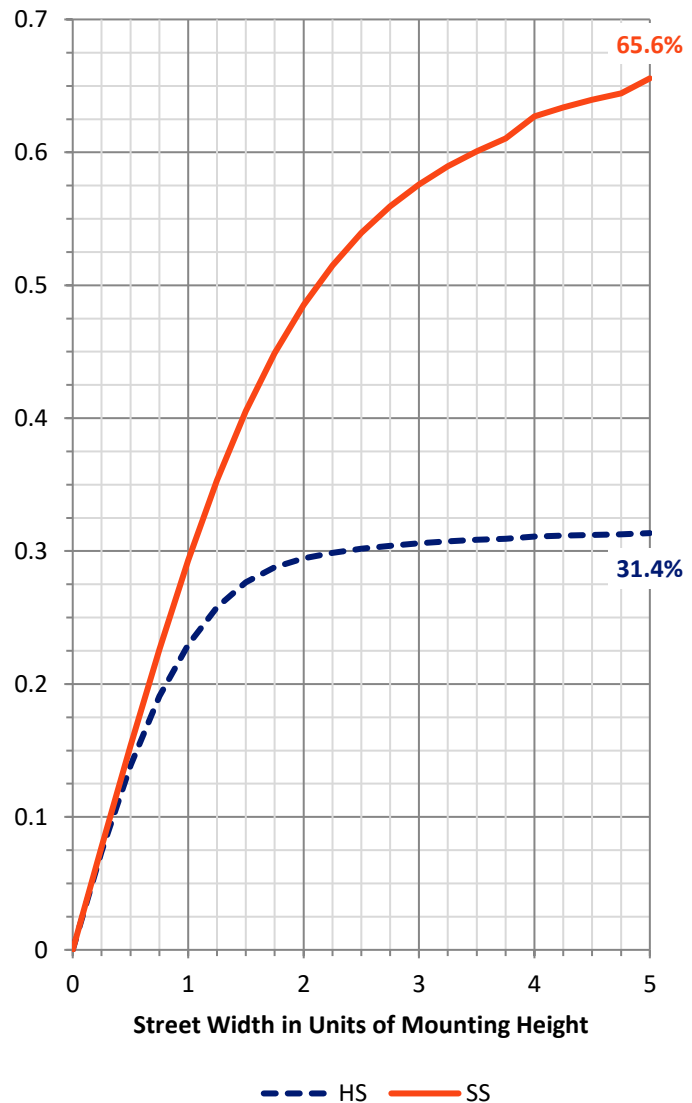
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1690.4   | 2.1    | 1692.5 |
|                    | % Fixture | 31.6     | 0.0    | 31.6   |
| <b>Street Side</b> | Lumens    | 3636.9   | 23.6   | 3660.4 |
|                    | % Fixture | 67.9     | 0.4    | 68.4   |
| <b>Total</b>       | Lumens    | 5327.3   | 25.7   | 5352.9 |
|                    | % Fixture | 99.5     | 0.5    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 15.3   | 0.3       |
| 10°-20°   | 57.7   | 1.1       |
| 20°-30°   | 133.0  | 2.5       |
| 30°-40°   | 284.9  | 5.3       |
| 40°-50°   | 610.3  | 11.4      |
| 50°-60°   | 1152.6 | 21.5      |
| 60°-70°   | 1432.4 | 26.8      |
| 70°-80°   | 1226.3 | 22.9      |
| 80°-90°   | 414.8  | 7.7       |
| 90°-100°  | 17.9   | 0.3       |
| 100°-110° | 5.2    | 0.1       |
| 110°-120° | 1.1    | 0.0       |
| 120°-130° | 0.6    | 0.0       |
| 130°-140° | 0.4    | 0.0       |
| 140°-150° | 0.3    | 0.0       |
| 150°-160° | 0.1    | 0.0       |
| 160°-170° | 0.1    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 5327.3 | 99.5      |
| 0°-180°   | 5352.9 | 100.0     |



REPORT NUMBER: P821160

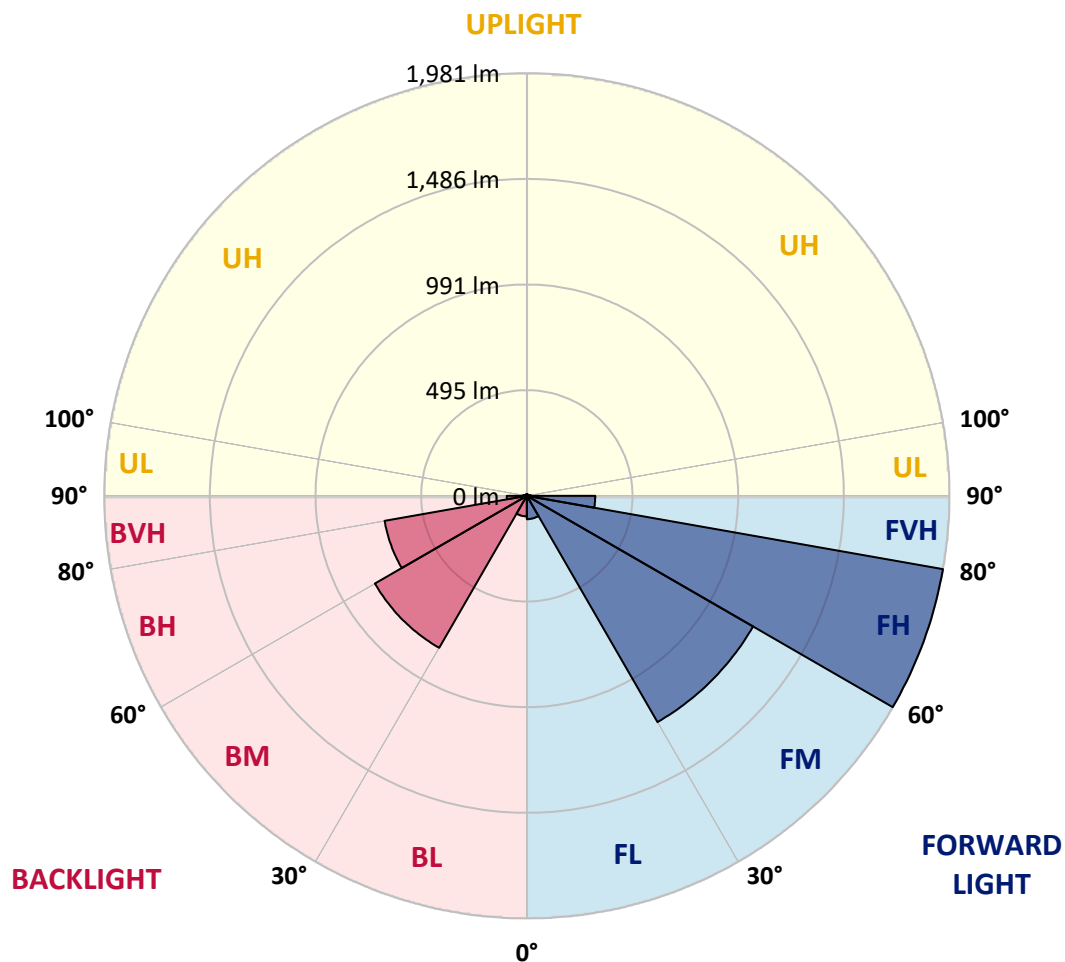
CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |       |         |
|------|-------------|--------|-----------|-------------------------|-------|---------|
|      |             |        |           | B                       | U     | G       |
| FL   | (0°-30°)    | 109.5  | 2.0       |                         |       |         |
| FM   | (30°-60°)   | 1225.0 | 22.9      |                         |       |         |
| FH   | (60°-80°)   | 1981.5 | 37.0      |                         |       | G2/5000 |
| FVH  | (80°-90°)   | 320.9  | 6.0       |                         |       | G3/500  |
| BL   | (0°-30°)    | 96.4   | 1.8       | B0/110                  |       |         |
| BM   | (30°-60°)   | 822.8  | 15.4      | B1/1000                 |       |         |
| BH   | (60°-80°)   | 677.2  | 12.7      | B2/1000                 |       | G2/1000 |
| BVH  | (80°-90°)   | 93.9   | 1.8       |                         |       | G1/100  |
| UL   | (90°-100°)  | 17.9   | 0.3       |                         | U2/50 |         |
| UH   | (100°-180°) | 7.8    | 0.1       |                         | U1/10 |         |

**BUG Rating: B2-U2-G3**

Type IV Short



REPORT NUMBER: P821160

CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 79°    | 85°    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°     | 145.4  | 145.4  | 145.4  | 145.4  | 145.4  | 145.4  | 145.4  | 145.4  | 145.4  | 145.4  | 145.4  |
| 2.5°   | 153.4  | 153.4  | 153.4  | 152.1  | 152.1  | 152.1  | 150.7  | 149.4  | 148.1  | 148.1  | 148.1  |
| 5°     | 161.4  | 161.4  | 161.4  | 161.4  | 160.1  | 158.7  | 157.4  | 156.1  | 154.7  | 154.7  | 153.4  |
| 7.5°   | 172.1  | 170.7  | 172.1  | 170.7  | 170.7  | 169.4  | 168.1  | 166.7  | 164.1  | 164.1  | 162.7  |
| 10°    | 182.7  | 182.7  | 182.7  | 182.7  | 182.7  | 181.4  | 180.1  | 178.7  | 177.4  | 176.1  | 174.7  |
| 12.5°  | 196.1  | 196.1  | 196.1  | 194.7  | 196.1  | 194.7  | 193.4  | 193.4  | 192.1  | 189.4  | 189.4  |
| 15°    | 209.4  | 209.4  | 209.4  | 209.4  | 210.8  | 210.8  | 210.8  | 209.4  | 209.4  | 208.1  | 206.7  |
| 17.5°  | 225.4  | 224.1  | 225.4  | 225.4  | 226.8  | 228.1  | 229.4  | 230.8  | 230.8  | 229.4  | 229.4  |
| 20°    | 242.8  | 241.4  | 242.8  | 242.8  | 245.4  | 248.1  | 252.1  | 254.8  | 256.1  | 253.4  | 253.4  |
| 22.5°  | 261.4  | 260.1  | 262.8  | 262.8  | 266.8  | 270.8  | 277.4  | 280.1  | 284.1  | 282.8  | 282.8  |
| 25°    | 284.1  | 282.8  | 284.1  | 285.4  | 290.8  | 297.5  | 305.5  | 312.1  | 316.1  | 316.1  | 317.5  |
| 27.5°  | 309.5  | 309.5  | 310.8  | 312.1  | 317.5  | 328.1  | 340.1  | 352.1  | 361.5  | 360.1  | 361.5  |
| 30°    | 344.1  | 344.1  | 346.8  | 348.1  | 354.8  | 366.8  | 382.8  | 398.8  | 412.2  | 412.2  | 414.8  |
| 32.5°  | 382.8  | 381.5  | 385.5  | 386.8  | 393.5  | 409.5  | 432.2  | 457.5  | 474.9  | 474.9  | 477.5  |
| 35°    | 429.5  | 428.2  | 432.2  | 432.2  | 440.2  | 462.9  | 492.2  | 526.9  | 556.2  | 557.6  | 561.6  |
| 37.5°  | 488.2  | 485.5  | 485.5  | 489.5  | 498.9  | 528.2  | 568.2  | 616.2  | 646.9  | 649.6  | 656.3  |
| 40°    | 557.6  | 556.2  | 558.9  | 557.6  | 569.6  | 605.6  | 656.3  | 712.3  | 748.3  | 755.0  | 763.0  |
| 42.5°  | 642.9  | 645.6  | 641.6  | 641.6  | 656.3  | 697.6  | 757.6  | 823.0  | 888.4  | 896.4  | 900.4  |
| 45°    | 747.0  | 752.3  | 747.0  | 745.6  | 759.0  | 807.0  | 889.7  | 1004.4 | 1080.4 | 1107.1 | 1115.1 |
| 47.5°  | 872.3  | 875.0  | 868.3  | 865.7  | 880.4  | 941.7  | 1048.4 | 1176.5 | 1265.8 | 1285.8 | 1307.2 |
| 50°    | 1012.4 | 1008.4 | 1003.1 | 999.1  | 1027.1 | 1103.1 | 1227.2 | 1359.2 | 1512.6 | 1515.3 | 1523.3 |
| 52.5°  | 1156.5 | 1144.5 | 1145.8 | 1144.5 | 1183.1 | 1265.8 | 1431.2 | 1655.3 | 1888.8 | 1936.8 | 1942.1 |
| 55°    | 1300.5 | 1285.8 | 1284.5 | 1297.9 | 1352.5 | 1471.3 | 1679.3 | 1970.1 | 2159.5 | 2188.9 | 2184.9 |
| 57.5°  | 1444.6 | 1437.9 | 1435.2 | 1447.2 | 1527.3 | 1668.7 | 1903.4 | 2148.9 | 2310.3 | 2307.6 | 2279.6 |
| 60°    | 1594.0 | 1599.3 | 1590.0 | 1612.6 | 1695.3 | 1836.7 | 2007.5 | 2246.2 | 2395.6 | 2383.6 | 2355.6 |
| 62.5°  | 1747.4 | 1760.7 | 1751.4 | 1754.0 | 1807.4 | 1911.4 | 2079.5 | 2356.9 | 2563.7 | 2581.0 | 2549.0 |
| 65°    | 1899.4 | 1908.8 | 1894.1 | 1852.7 | 1882.1 | 1979.5 | 2219.6 | 2486.3 | 2643.7 | 2659.7 | 2635.7 |
| 67.5°  | 2027.5 | 2036.8 | 1986.1 | 1920.8 | 1924.8 | 1995.5 | 2206.2 | 2461.0 | 2601.0 | 2590.4 | 2551.7 |
| 70°    | 2136.9 | 2119.5 | 2036.8 | 1924.8 | 1878.1 | 1911.4 | 2110.2 | 2335.6 | 2478.3 | 2473.0 | 2427.6 |
| 72.5°  | 2172.9 | 2150.2 | 2010.1 | 1836.7 | 1744.7 | 1756.7 | 1950.1 | 2151.5 | 2267.6 | 2276.9 | 2222.2 |
| 75°    | 2115.5 | 2076.8 | 1884.8 | 1667.3 | 1548.6 | 1556.6 | 1722.0 | 1907.4 | 2000.8 | 1990.1 | 1947.4 |
| 77.5°  | 1908.8 | 1870.1 | 1662.0 | 1429.9 | 1313.9 | 1325.9 | 1456.6 | 1602.0 | 1679.3 | 1675.3 | 1646.0 |
| 80°    | 1584.6 | 1550.0 | 1367.2 | 1151.1 | 1045.8 | 1052.4 | 1152.5 | 1267.2 | 1327.2 | 1340.5 | 1324.5 |
| 82.5°  | 1171.1 | 1147.1 | 1017.7 | 843.0  | 757.6  | 756.3  | 832.3  | 920.4  | 979.1  | 1007.1 | 996.4  |
| 85°    | 724.3  | 712.3  | 640.3  | 526.9  | 466.9  | 465.5  | 510.9  | 576.2  | 629.6  | 666.9  | 642.9  |
| 87.5°  | 288.1  | 284.1  | 262.8  | 212.1  | 185.4  | 176.1  | 165.4  | 206.7  | 210.8  | 249.4  | 248.1  |
| 90°    | 70.7   | 69.4   | 68.0   | 64.0   | 57.4   | 49.4   | 40.0   | 29.3   | 18.7   | 14.7   | 8.0    |
| 92.5°  | 62.7   | 62.7   | 61.4   | 57.4   | 52.0   | 44.0   | 36.0   | 26.7   | 17.3   | 13.3   | 6.7    |
| 95°    | 50.7   | 50.7   | 49.4   | 46.7   | 41.3   | 36.0   | 28.0   | 21.3   | 13.3   | 10.7   | 5.3    |
| 97.5°  | 38.7   | 37.3   | 37.3   | 34.7   | 32.0   | 26.7   | 21.3   | 16.0   | 10.7   | 8.0    | 4.0    |
| 100°   | 28.0   | 28.0   | 26.7   | 25.3   | 22.7   | 20.0   | 16.0   | 12.0   | 6.7    | 5.3    | 2.7    |
| 102.5° | 20.0   | 18.7   | 18.7   | 18.7   | 16.0   | 13.3   | 10.7   | 8.0    | 5.3    | 4.0    | 1.3    |
| 105°   | 13.3   | 12.0   | 12.0   | 12.0   | 10.7   | 9.3    | 6.7    | 5.3    | 2.7    | 2.7    | 1.3    |
| 107.5° | 8.0    | 8.0    | 8.0    | 8.0    | 6.7    | 5.3    | 4.0    | 2.7    | 1.3    | 1.3    | 1.3    |
| 110°   | 4.0    | 4.0    | 4.0    | 5.3    | 4.0    | 4.0    | 2.7    | 1.3    | 1.3    | 1.3    | 1.3    |



REPORT NUMBER: P821160

CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 5°  | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 112.5° | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 115°   | 1.3 | 1.3 | 1.3 | 2.7 | 2.7 | 1.3 | 1.3 | 0.0 | 0.0 | 1.3 | 1.3 |
| 117.5° | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| 120°   | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| 122.5° | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| 125°   | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| 127.5° | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| 130°   | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| 132.5° | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| 135°   | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 137.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 140°   | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 142.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 145°   | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| 147.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 150°   | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160°   | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 177.5° | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

REPORT NUMBER: P821160

CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

**CANDELA DISTRIBUTION (continued):**

|        | 90°    | 95°    | 105°   | 115°   | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| 0°     | 145.4  | 145.4  | 145.4  | 145.4  | 145.4 | 145.4 | 145.4 | 145.4 | 145.4 | 145.4 | 145.4 |
| 2.5°   | 146.7  | 146.7  | 146.7  | 145.4  | 145.4 | 145.4 | 144.1 | 144.1 | 142.7 | 142.7 | 142.7 |
| 5°     | 152.1  | 152.1  | 150.7  | 150.7  | 149.4 | 148.1 | 148.1 | 146.7 | 146.7 | 145.4 | 145.4 |
| 7.5°   | 161.4  | 161.4  | 160.1  | 158.7  | 156.1 | 154.7 | 153.4 | 152.1 | 152.1 | 150.7 | 150.7 |
| 10°    | 173.4  | 173.4  | 170.7  | 168.1  | 165.4 | 162.7 | 161.4 | 158.7 | 157.4 | 157.4 | 157.4 |
| 12.5°  | 188.1  | 186.7  | 184.1  | 180.1  | 177.4 | 173.4 | 170.7 | 168.1 | 165.4 | 165.4 | 165.4 |
| 15°    | 205.4  | 205.4  | 200.1  | 196.1  | 190.7 | 185.4 | 181.4 | 177.4 | 174.7 | 173.4 | 173.4 |
| 17.5°  | 226.8  | 226.8  | 220.1  | 213.4  | 206.7 | 200.1 | 194.7 | 189.4 | 186.7 | 185.4 | 185.4 |
| 20°    | 250.8  | 250.8  | 244.1  | 236.1  | 226.8 | 217.4 | 209.4 | 202.7 | 198.7 | 197.4 | 197.4 |
| 22.5°  | 280.1  | 280.1  | 270.8  | 260.1  | 248.1 | 234.8 | 224.1 | 216.1 | 212.1 | 209.4 | 209.4 |
| 25°    | 313.5  | 310.8  | 301.5  | 288.1  | 270.8 | 254.8 | 240.1 | 232.1 | 226.8 | 222.8 | 224.1 |
| 27.5°  | 358.8  | 354.8  | 342.8  | 320.1  | 298.8 | 277.4 | 260.1 | 249.4 | 242.8 | 240.1 | 241.4 |
| 30°    | 410.8  | 406.8  | 389.5  | 364.1  | 332.1 | 304.1 | 282.8 | 270.8 | 264.1 | 260.1 | 261.4 |
| 32.5°  | 473.5  | 468.2  | 446.8  | 412.2  | 374.8 | 334.8 | 308.1 | 293.5 | 286.8 | 282.8 | 281.4 |
| 35°    | 556.2  | 549.6  | 522.9  | 474.9  | 422.8 | 374.8 | 337.5 | 318.8 | 312.1 | 308.1 | 309.5 |
| 37.5°  | 649.6  | 640.3  | 604.2  | 545.6  | 480.2 | 418.8 | 376.2 | 352.1 | 344.1 | 337.5 | 337.5 |
| 40°    | 756.3  | 745.6  | 698.9  | 621.6  | 542.9 | 466.9 | 412.2 | 385.5 | 376.2 | 376.2 | 376.2 |
| 42.5°  | 889.7  | 879.0  | 825.7  | 712.3  | 608.2 | 518.9 | 453.5 | 422.8 | 413.5 | 416.2 | 416.2 |
| 45°    | 1096.4 | 1081.8 | 996.4  | 847.0  | 693.6 | 572.2 | 496.2 | 461.5 | 454.8 | 461.5 | 461.5 |
| 47.5°  | 1285.8 | 1267.2 | 1141.8 | 972.4  | 777.6 | 625.6 | 538.9 | 498.9 | 496.2 | 510.9 | 510.9 |
| 50°    | 1497.9 | 1473.9 | 1341.9 | 1073.8 | 845.7 | 684.3 | 577.6 | 529.5 | 530.9 | 552.2 | 558.9 |
| 52.5°  | 1908.8 | 1883.4 | 1655.3 | 1257.8 | 919.0 | 705.6 | 593.6 | 536.2 | 536.2 | 560.2 | 569.6 |
| 55°    | 2152.9 | 2100.8 | 1803.4 | 1377.9 | 949.7 | 731.0 | 586.9 | 509.5 | 506.9 | 533.5 | 541.6 |
| 57.5°  | 2232.9 | 2179.5 | 1834.1 | 1343.2 | 929.7 | 698.9 | 548.2 | 437.5 | 432.2 | 466.9 | 464.2 |
| 60°    | 2298.3 | 2227.6 | 1784.7 | 1227.2 | 816.3 | 630.9 | 473.5 | 325.5 | 302.8 | 333.5 | 332.1 |
| 62.5°  | 2482.3 | 2406.3 | 1787.4 | 1091.1 | 682.9 | 526.9 | 356.1 | 182.7 | 136.1 | 160.1 | 149.4 |
| 65°    | 2574.4 | 2499.7 | 1815.4 | 1027.1 | 614.9 | 436.2 | 254.8 | 74.7  | 5.3   | 5.3   | 2.7   |
| 67.5°  | 2495.7 | 2429.0 | 1779.4 | 1011.1 | 605.6 | 433.5 | 258.8 | 73.4  | 0.0   | 0.0   | 0.0   |
| 70°    | 2381.0 | 2316.9 | 1696.7 | 955.0  | 574.9 | 417.5 | 253.4 | 73.4  | 0.0   | 0.0   | 0.0   |
| 72.5°  | 2179.5 | 2114.2 | 1554.0 | 875.0  | 528.2 | 382.8 | 234.8 | 69.4  | 0.0   | 0.0   | 0.0   |
| 75°    | 1914.1 | 1864.7 | 1372.6 | 771.0  | 465.5 | 337.5 | 208.1 | 61.4  | 0.0   | 0.0   | 0.0   |
| 77.5°  | 1620.6 | 1562.0 | 1151.1 | 641.6  | 389.5 | 280.1 | 176.1 | 50.7  | 0.0   | 0.0   | 0.0   |
| 80°    | 1300.5 | 1257.8 | 907.0  | 502.9  | 301.5 | 218.8 | 137.4 | 38.7  | 0.0   | 0.0   | 0.0   |
| 82.5°  | 967.1  | 931.0  | 670.9  | 360.1  | 214.8 | 152.1 | 94.7  | 25.3  | 0.0   | 0.0   | 0.0   |
| 85°    | 634.9  | 625.6  | 430.8  | 218.8  | 128.1 | 84.0  | 50.7  | 12.0  | 0.0   | 0.0   | 0.0   |
| 87.5°  | 229.4  | 237.4  | 157.4  | 62.7   | 34.7  | 14.7  | 6.7   | 1.3   | 0.0   | 0.0   | 0.0   |
| 90°    | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 92.5°  | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 95°    | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 97.5°  | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 100°   | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 102.5° | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 105°   | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 107.5° | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 110°   | 1.3    | 1.3    | 1.3    | 1.3    | 1.3   | 1.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



REPORT NUMBER: P821160

CATALOG NUMBER: TT-D5-830-24VDC-RW-PM-HSS

**CANDELA DISTRIBUTION (continued):**

|        | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|--------|-----|-----|------|------|------|------|------|------|------|------|------|
| 112.5° | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 115°   | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 117.5° | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 120°   | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 122.5° | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 125°   | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 127.5° | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 130°   | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 132.5° | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 135°   | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 137.5° | 0.0 | 1.3 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 140°   | 0.0 | 1.3 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 142.5° | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 145°   | 1.3 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 147.5° | 0.0 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 150°   | 0.0 | 1.3 | 1.3  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 152.5° | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 155°   | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 157.5° | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 160°   | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 162.5° | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 165°   | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 167.5° | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 170°   | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 172.5° | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 175°   | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 177.5° | 0.0 | 0.0 | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 180°   | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-7

Test Date: 09/27/2024

Luminaire Tested: MEM2-HTN-VA-30-830-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-830-U-WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 09/27/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Streetworks  
 Catalog Number: **MEM2-HTN-VA-30-830-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

### Spectral Parameters

CCT (K): 2984  
 CIE  $u'$ : 0.2500  
 CIE  $v'$ : 0.5264  
 Duv: 0.0033  
 CIE x: 0.4431  
 CIE y: 0.4147  
 CIE z: 0.1422  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 581  
 Purity: 57.4798  
 R<sub>f</sub>: 85.8  
 R<sub>g</sub>: 94.1

CRI (Ra): 81.8  
 R1: 79.4  
 R2: 89.9  
 R3: 96.6  
 R4: 80.6  
 R5: 80.1  
 R6: 88.9  
 R7: 82.6  
 R8: 56.0  
 R9: -1.1  
 R10: 78.4  
 R11: 80.8  
 R12: 72.8  
 R13: 81.7  
 R14: 98.5  
 R15: 70.2



### Test Conditions

Stabilization Time: 29M  
 Operation Time: 1H 29M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-7

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

REPORT NUMBER: SP1-2407-176-7

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 260                                  | NR                             | 620               | 905                                  | NR                             | 750               | 22                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 312                                  | NR                             | 625               | 856                                  | NR                             | 755               | 19                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 362                                  | NR                             | 630               | 801                                  | NR                             | 760               | 17                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 399                                  | NR                             | 635               | 742                                  | NR                             | 765               | 14                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 425                                  | NR                             | 640               | 677                                  | NR                             | 770               | 12                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 446                                  | NR                             | 645               | 613                                  | NR                             | 775               | 10                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 459                                  | NR                             | 650               | 549                                  | NR                             | 780               | 9                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 473                                  | NR                             | 655               | 485                                  | NR                             | 785               | 7                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 490                                  | NR                             | 660               | 425                                  | NR                             | 790               | 6                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 2                                    | NR                             | 535               | 511                                  | NR                             | 665               | 371                                  | NR                             | 795               | 5                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 5                                    | NR                             | 540               | 535                                  | NR                             | 670               | 321                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 11                                   | NR                             | 545               | 565                                  | NR                             | 675               | 276                                  | NR                             | 805               | 4                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 24                                   | NR                             | 550               | 595                                  | NR                             | 680               | 238                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 47                                   | NR                             | 555               | 631                                  | NR                             | 685               | 203                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 86                                   | NR                             | 560               | 672                                  | NR                             | 690               | 174                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 144                                  | NR                             | 565               | 715                                  | NR                             | 695               | 148                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 224                                  | NR                             | 570               | 763                                  | NR                             | 700               | 124                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 342                                  | NR                             | 575               | 814                                  | NR                             | 705               | 105                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 446                                  | NR                             | 580               | 866                                  | NR                             | 710               | 88                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 357                                  | NR                             | 585               | 912                                  | NR                             | 715               | 73                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 237                                  | NR                             | 590               | 954                                  | NR                             | 720               | 59                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 202                                  | NR                             | 595               | 981                                  | NR                             | 725               | 48                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 172                                  | NR                             | 600               | 996                                  | NR                             | 730               | 40                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 152                                  | NR                             | 605               | 996                                  | NR                             | 735               | 34                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 171                                  | NR                             | 610               | 980                                  | NR                             | 740               | 29                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 210                                  | NR                             | 615               | 947                                  | NR                             | 745               | 25                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-176-7

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.32

| $\lambda$<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               | 260                                  | NR                             | 620               | 905                                  | NR                             | 750               | 22                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 312                                  | NR                             | 625               | 856                                  | NR                             | 755               | 19                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 362                                  | NR                             | 630               | 801                                  | NR                             | 760               | 17                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 399                                  | NR                             | 635               | 742                                  | NR                             | 765               | 14                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 425                                  | NR                             | 640               | 677                                  | NR                             | 770               | 12                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 446                                  | NR                             | 645               | 613                                  | NR                             | 775               | 10                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 459                                  | NR                             | 650               | 549                                  | NR                             | 780               | 9                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 473                                  | NR                             | 655               | 485                                  | NR                             | 785               | 7                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 490                                  | NR                             | 660               | 425                                  | NR                             | 790               | 6                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 2                                    | NR                             | 535               | 511                                  | NR                             | 665               | 371                                  | NR                             | 795               | 5                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 5                                    | NR                             | 540               | 535                                  | NR                             | 670               | 321                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 11                                   | NR                             | 545               | 565                                  | NR                             | 675               | 276                                  | NR                             | 805               | 4                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 24                                   | NR                             | 550               | 595                                  | NR                             | 680               | 238                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 47                                   | NR                             | 555               | 631                                  | NR                             | 685               | 203                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 86                                   | NR                             | 560               | 672                                  | NR                             | 690               | 174                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 144                                  | NR                             | 565               | 715                                  | NR                             | 695               | 148                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 224                                  | NR                             | 570               | 763                                  | NR                             | 700               | 124                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 342                                  | NR                             | 575               | 814                                  | NR                             | 705               | 105                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 446                                  | NR                             | 580               | 866                                  | NR                             | 710               | 88                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 357                                  | NR                             | 585               | 912                                  | NR                             | 715               | 73                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 237                                  | NR                             | 590               | 954                                  | NR                             | 720               | 59                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 202                                  | NR                             | 595               | 981                                  | NR                             | 725               | 48                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 172                                  | NR                             | 600               | 996                                  | NR                             | 730               | 40                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 152                                  | NR                             | 605               | 996                                  | NR                             | 735               | 34                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 171                                  | NR                             | 610               | 980                                  | NR                             | 740               | 29                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 210                                  | NR                             | 615               | 947                                  | NR                             | 745               | 25                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-176-7

### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.51**

| $\lambda$<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               | 260                                  | NR                             | 620               | 905                                  | NR                             | 750               | 22                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 312                                  | NR                             | 625               | 856                                  | NR                             | 755               | 19                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 362                                  | NR                             | 630               | 801                                  | NR                             | 760               | 17                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 399                                  | NR                             | 635               | 742                                  | NR                             | 765               | 14                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 425                                  | NR                             | 640               | 677                                  | NR                             | 770               | 12                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 446                                  | NR                             | 645               | 613                                  | NR                             | 775               | 10                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 459                                  | NR                             | 650               | 549                                  | NR                             | 780               | 9                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 473                                  | NR                             | 655               | 485                                  | NR                             | 785               | 7                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 490                                  | NR                             | 660               | 425                                  | NR                             | 790               | 6                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 2                                    | NR                             | 535               | 511                                  | NR                             | 665               | 371                                  | NR                             | 795               | 5                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 5                                    | NR                             | 540               | 535                                  | NR                             | 670               | 321                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 11                                   | NR                             | 545               | 565                                  | NR                             | 675               | 276                                  | NR                             | 805               | 4                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 24                                   | NR                             | 550               | 595                                  | NR                             | 680               | 238                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 47                                   | NR                             | 555               | 631                                  | NR                             | 685               | 203                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 86                                   | NR                             | 560               | 672                                  | NR                             | 690               | 174                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 144                                  | NR                             | 565               | 715                                  | NR                             | 695               | 148                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 224                                  | NR                             | 570               | 763                                  | NR                             | 700               | 124                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 342                                  | NR                             | 575               | 814                                  | NR                             | 705               | 105                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 446                                  | NR                             | 580               | 866                                  | NR                             | 710               | 88                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 357                                  | NR                             | 585               | 912                                  | NR                             | 715               | 73                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 237                                  | NR                             | 590               | 954                                  | NR                             | 720               | 59                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 202                                  | NR                             | 595               | 981                                  | NR                             | 725               | 48                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 172                                  | NR                             | 600               | 996                                  | NR                             | 730               | 40                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 152                                  | NR                             | 605               | 996                                  | NR                             | 735               | 34                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 171                                  | NR                             | 610               | 980                                  | NR                             | 740               | 29                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 210                                  | NR                             | 615               | 947                                  | NR                             | 745               | 25                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-176-7

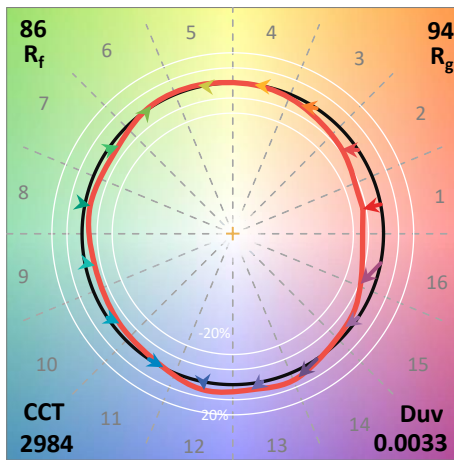
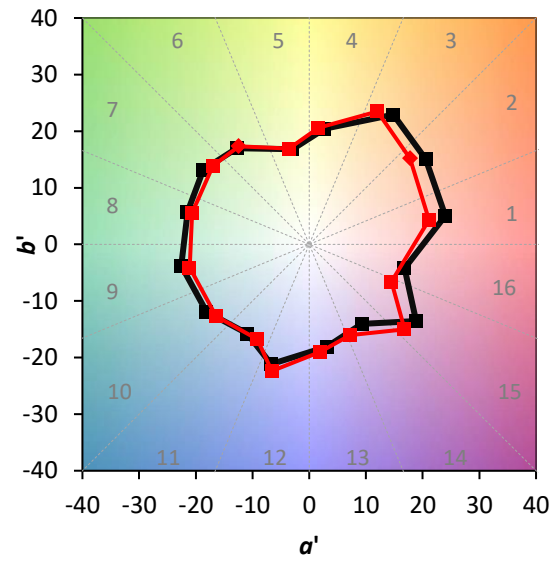
TM-30-18

### Summary

$R_f = 85.8$   
 $R_g = 94.1$   
 $CIE R_a = 81.8$   
 $R_g = -1.1$

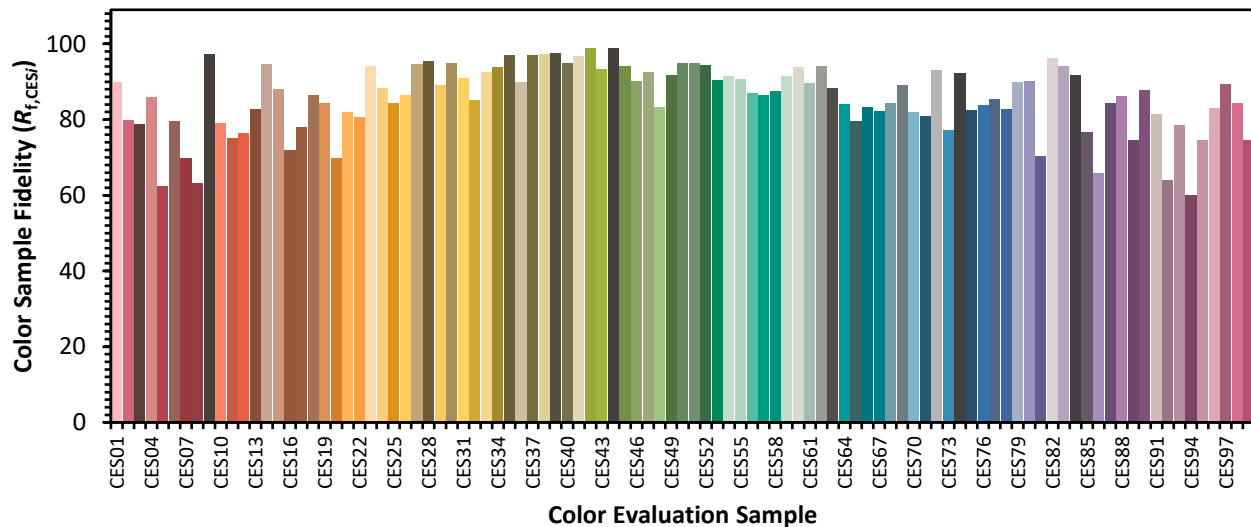


### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 86 | CES51 = 95 | CES76 = 84 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 86 |
| CES03 = 31 | CES28 = 95 | CES53 = 90 | CES78 = 83 |
| CES04 = 70 | CES29 = 89 | CES54 = 91 | CES79 = 90 |
| CES05 = 50 | CES30 = 95 | CES55 = 91 | CES80 = 90 |
| CES06 = 51 | CES31 = 91 | CES56 = 87 | CES81 = 70 |
| CES07 = 42 | CES32 = 85 | CES57 = 86 | CES82 = 96 |
| CES08 = 41 | CES33 = 93 | CES58 = 87 | CES83 = 94 |
| CES09 = 29 | CES34 = 94 | CES59 = 92 | CES84 = 92 |
| CES10 = 76 | CES35 = 97 | CES60 = 94 | CES85 = 77 |
| CES11 = 59 | CES36 = 90 | CES61 = 90 | CES86 = 66 |
| CES12 = 65 | CES37 = 97 | CES62 = 94 | CES87 = 84 |
| CES13 = 43 | CES38 = 97 | CES63 = 88 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 84 | CES89 = 75 |
| CES15 = 72 | CES40 = 95 | CES65 = 80 | CES90 = 88 |
| CES16 = 47 | CES41 = 97 | CES66 = 83 | CES91 = 81 |
| CES17 = 50 | CES42 = 99 | CES67 = 82 | CES92 = 64 |
| CES18 = 56 | CES43 = 93 | CES68 = 84 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 89 | CES94 = 60 |
| CES20 = 67 | CES45 = 94 | CES70 = 82 | CES95 = 74 |
| CES21 = 87 | CES46 = 90 | CES71 = 81 | CES96 = 83 |
| CES22 = 79 | CES47 = 93 | CES72 = 93 | CES97 = 89 |
| CES23 = 92 | CES48 = 83 | CES73 = 77 | CES98 = 84 |
| CES24 = 91 | CES49 = 92 | CES74 = 92 | CES99 = 75 |
| CES25 = 72 | CES50 = 95 | CES75 = 83 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)