

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: INVUE

Report Number: P868798

Luminaire Tested: **EMM2-HSN-SA2B-722-U-T2R**

Issue Date: 08/22/2024

Test Information

Test Method: LM-79-08
Report Number: P868798
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-SA2B-722-U-T2R
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 100W 70CRI 2200K
FITXURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC
Light Source: (20) 2200K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

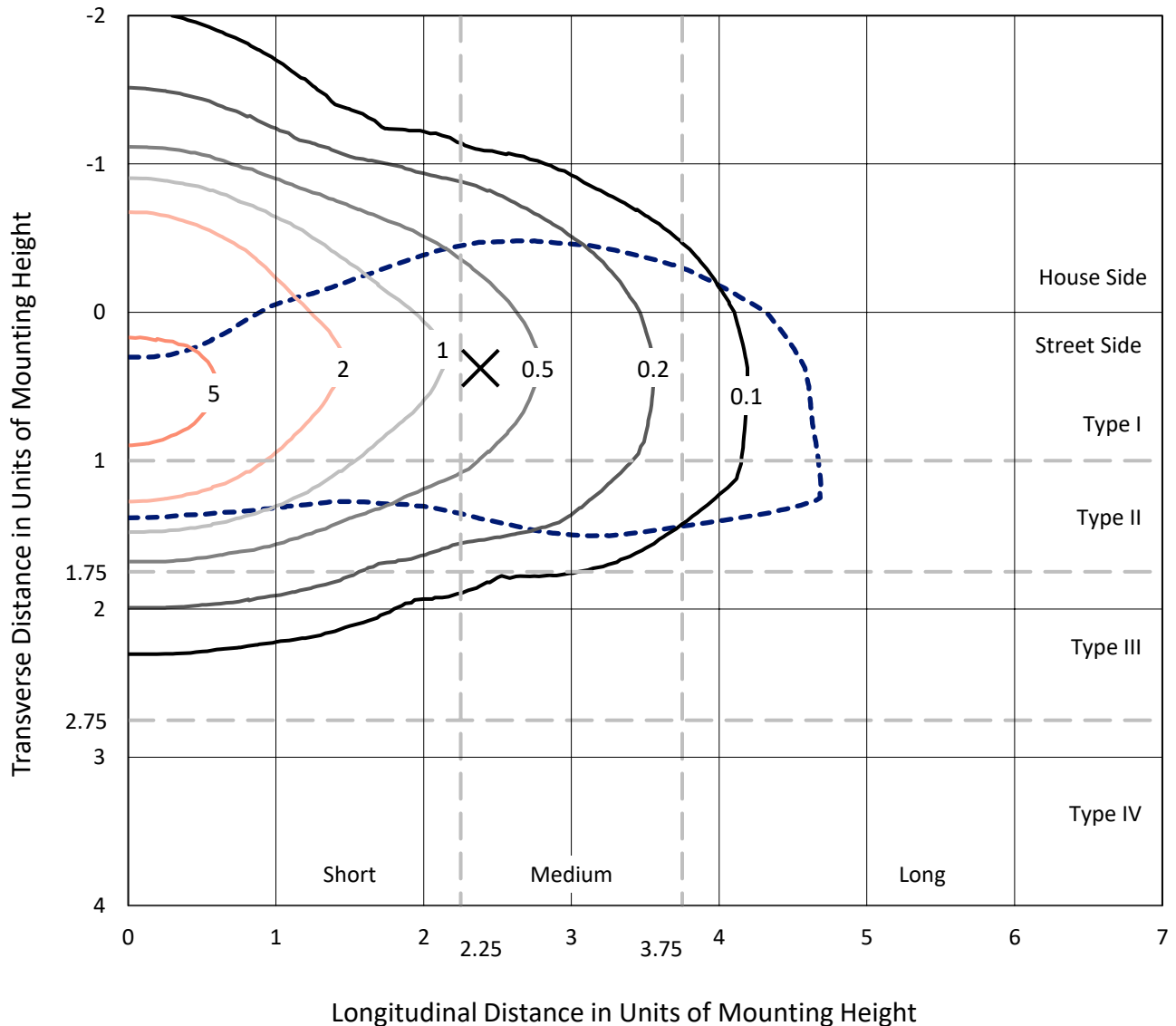
Lumens per Lamp: N/A
Luminaire Lumens: 11106.9 lumens
Efficiency: N/A
Efficacy: 123.4 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B2 - U0 - G2

Input Watts (W): 90
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.20%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868798
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Iso-Footcandle Lines of Horizontal Illumination

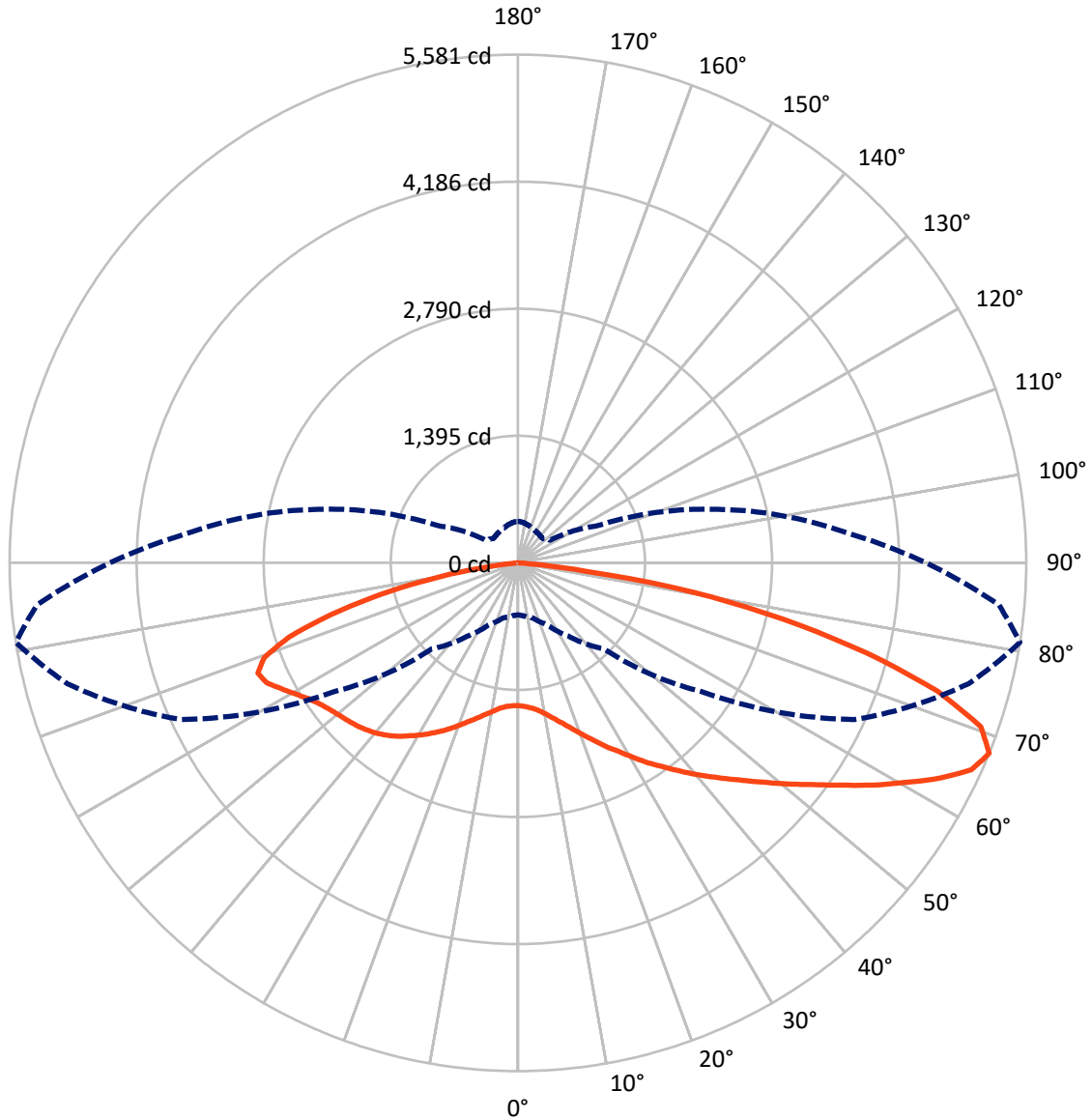
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 7.1 fc
 Type II - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 81-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3403.4 | 0.0 | 3403.4 |
| | % Fixture | 30.6 | 0.0 | 30.6 |
| Street Side | Lumens | 7703.5 | 0.0 | 7703.5 |
| | % Fixture | 69.4 | 0.0 | 69.4 |
| Total | Lumens | 11106.9 | 0.0 | 11106.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 159.9 | 1.4 |
| 10°-20° | 567.6 | 5.1 |
| 20°-30° | 1130.6 | 10.2 |
| 30°-40° | 1776.1 | 16.0 |
| 40°-50° | 2202.7 | 19.8 |
| 50°-60° | 2153.3 | 19.4 |
| 60°-70° | 1810.8 | 16.3 |
| 70°-80° | 1150.6 | 10.4 |
| 80°-90° | 155.3 | 1.4 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 11106.9 | 100.0 |
| 0°-180° | 11106.9 | 100.0 |

Coefficient of Utilization

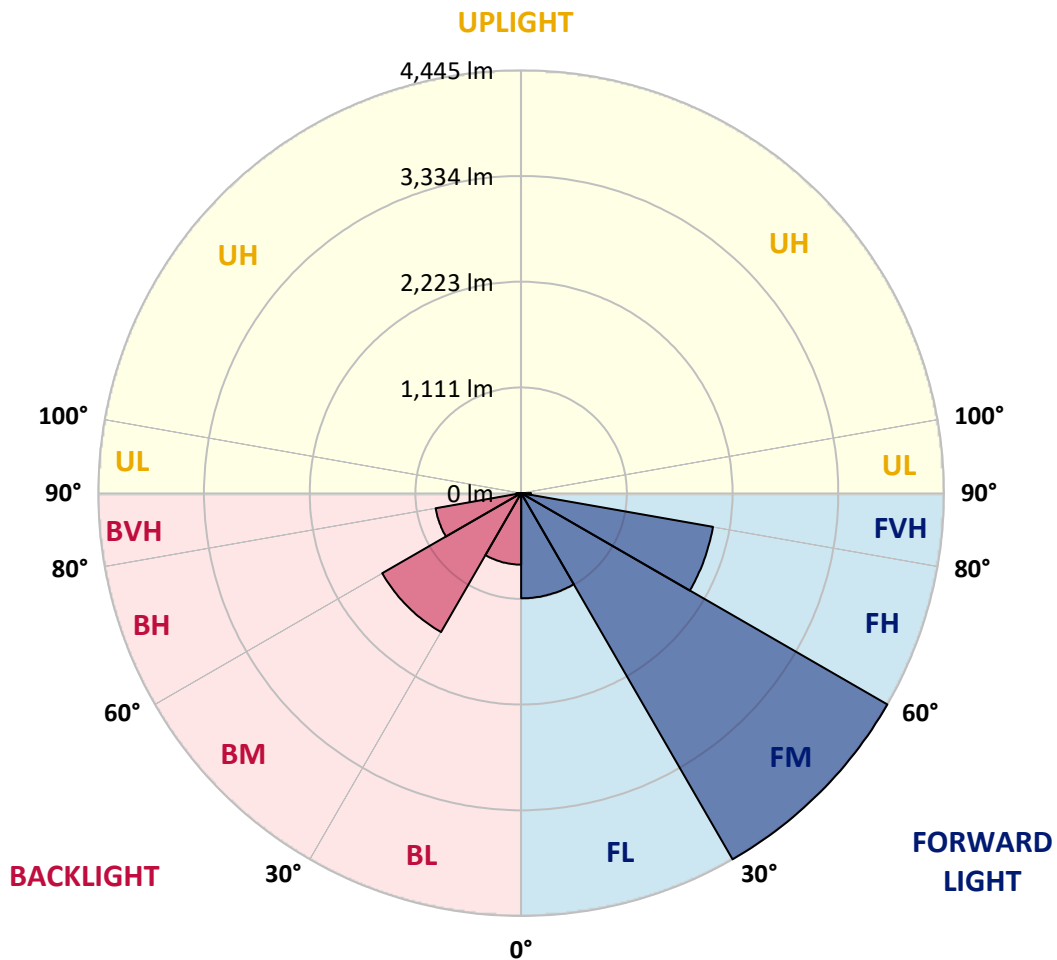


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1106.3 | 10.0 | | | |
| FM (30°-60°) | 4445.3 | 40.0 | | | |
| FH (60°-80°) | 2047.8 | 18.4 | | | G2/5000 |
| FVH (80°-90°) | 104.1 | 0.9 | | | G2/225 |
| BL (0°-30°) | 751.8 | 6.8 | B2/1000 | | |
| BM (30°-60°) | 1686.8 | 15.2 | B2/2500 | | |
| BH (60°-80°) | 913.6 | 8.2 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 51.2 | 0.5 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2
 Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 81° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 |
| 2.5° | 1623.2 | 1621.0 | 1621.0 | 1603.3 | 1603.3 | 1598.9 | 1601.1 | 1587.9 | 1581.3 | 1579.1 | 1576.9 |
| 5° | 1739.9 | 1739.9 | 1726.7 | 1715.7 | 1693.6 | 1673.8 | 1656.2 | 1629.8 | 1609.9 | 1601.1 | 1594.5 |
| 7.5° | 1916.1 | 1902.9 | 1898.5 | 1865.4 | 1819.2 | 1779.5 | 1744.3 | 1687.0 | 1649.6 | 1636.4 | 1627.6 |
| 10° | 2131.9 | 2114.3 | 2081.3 | 2043.8 | 1984.4 | 1924.9 | 1854.4 | 1777.3 | 1715.7 | 1689.2 | 1678.2 |
| 12.5° | 2354.4 | 2330.1 | 2283.9 | 2248.6 | 2171.6 | 2081.3 | 1982.2 | 1876.4 | 1790.5 | 1753.1 | 1733.3 |
| 15° | 2598.8 | 2585.6 | 2530.5 | 2460.1 | 2369.8 | 2242.0 | 2118.7 | 1988.8 | 1878.6 | 1825.8 | 1792.7 |
| 17.5° | 2863.1 | 2843.3 | 2783.8 | 2697.9 | 2570.2 | 2418.2 | 2275.1 | 2107.7 | 1979.9 | 1911.7 | 1874.2 |
| 20° | 3123.0 | 3118.6 | 3030.5 | 2949.0 | 2799.2 | 2609.8 | 2424.8 | 2248.6 | 2087.9 | 2008.6 | 1960.1 |
| 22.5° | 3413.7 | 3385.1 | 3308.0 | 3193.5 | 3015.1 | 2841.1 | 2623.0 | 2394.0 | 2204.6 | 2112.1 | 2057.0 |
| 25° | 3715.4 | 3713.2 | 3618.5 | 3477.6 | 3268.3 | 3048.1 | 2812.5 | 2559.2 | 2343.3 | 2231.0 | 2158.3 |
| 27.5° | 4089.8 | 4061.2 | 3940.1 | 3779.3 | 3537.0 | 3283.8 | 3010.7 | 2731.0 | 2475.5 | 2341.1 | 2253.0 |
| 30° | 4418.0 | 4409.2 | 4272.6 | 4092.0 | 3821.1 | 3519.4 | 3224.3 | 2924.8 | 2631.9 | 2473.3 | 2376.4 |
| 32.5° | 4684.5 | 4673.5 | 4556.7 | 4376.1 | 4085.4 | 3772.7 | 3433.5 | 3107.6 | 2788.2 | 2616.4 | 2488.7 |
| 35° | 4906.9 | 4889.3 | 4768.2 | 4587.6 | 4336.5 | 4019.4 | 3658.2 | 3299.2 | 2960.0 | 2750.8 | 2629.7 |
| 37.5° | 4995.0 | 4979.6 | 4880.5 | 4730.7 | 4499.5 | 4208.8 | 3860.8 | 3510.6 | 3131.8 | 2902.7 | 2766.2 |
| 40° | 4962.0 | 4953.2 | 4882.7 | 4779.2 | 4603.0 | 4360.7 | 4054.6 | 3730.8 | 3325.6 | 3063.5 | 2900.5 |
| 42.5° | 4805.6 | 4805.6 | 4761.6 | 4708.7 | 4620.6 | 4446.6 | 4226.4 | 3942.3 | 3512.8 | 3224.3 | 3028.3 |
| 45° | 4585.4 | 4576.6 | 4561.1 | 4541.3 | 4528.1 | 4462.0 | 4338.7 | 4125.1 | 3719.8 | 3400.5 | 3182.5 |
| 47.5° | 4292.5 | 4299.1 | 4288.1 | 4296.9 | 4351.9 | 4393.8 | 4387.2 | 4294.7 | 3931.3 | 3594.3 | 3334.4 |
| 50° | 3832.2 | 3863.0 | 3898.2 | 4001.7 | 4114.1 | 4230.8 | 4338.7 | 4415.8 | 4180.1 | 3814.5 | 3510.6 |
| 52.5° | 3261.7 | 3275.0 | 3369.7 | 3614.1 | 3854.2 | 4008.3 | 4213.2 | 4470.9 | 4400.4 | 4043.6 | 3717.6 |
| 55° | 2559.2 | 2583.4 | 2726.6 | 3072.3 | 3499.6 | 3794.7 | 4034.8 | 4446.6 | 4625.0 | 4305.7 | 3959.9 |
| 57.5° | 1834.6 | 1850.0 | 2079.1 | 2435.8 | 2993.0 | 3488.6 | 3832.2 | 4349.7 | 4805.6 | 4603.0 | 4208.8 |
| 60° | 1303.8 | 1332.4 | 1480.0 | 1828.0 | 2363.2 | 3065.7 | 3647.2 | 4208.8 | 4973.0 | 4893.7 | 4534.7 |
| 62.5° | 962.4 | 977.9 | 1081.4 | 1334.6 | 1775.1 | 2488.7 | 3407.1 | 4105.3 | 5083.1 | 5206.4 | 4860.7 |
| 65° | 724.6 | 731.2 | 801.7 | 975.7 | 1328.0 | 1834.6 | 3028.3 | 4085.4 | 5144.8 | 5472.9 | 5149.2 |
| 67.5° | 570.4 | 581.4 | 625.5 | 744.4 | 988.9 | 1334.6 | 2466.7 | 4072.2 | 5122.8 | 5580.9 | 5301.2 |
| 70° | 480.1 | 482.3 | 515.4 | 581.4 | 740.0 | 960.2 | 1843.4 | 3874.0 | 4999.4 | 5391.4 | 5160.2 |
| 72.5° | 416.3 | 416.3 | 431.7 | 484.5 | 594.6 | 726.8 | 1255.4 | 3400.5 | 4686.7 | 4816.6 | 4671.3 |
| 75° | 337.0 | 334.8 | 361.2 | 411.8 | 477.9 | 559.4 | 843.5 | 2574.6 | 4030.4 | 3964.3 | 3845.4 |
| 77.5° | 292.9 | 290.7 | 312.7 | 356.8 | 394.2 | 447.1 | 577.0 | 1671.6 | 3171.4 | 2973.2 | 2898.3 |
| 80° | 251.1 | 244.5 | 262.1 | 303.9 | 323.8 | 348.0 | 398.6 | 973.5 | 2072.4 | 1949.1 | 1858.8 |
| 82.5° | 189.4 | 174.0 | 169.6 | 204.8 | 218.0 | 202.6 | 202.6 | 341.4 | 753.2 | 759.8 | 702.6 |
| 85° | 15.4 | 17.6 | 22.0 | 26.4 | 37.4 | 41.8 | 44.0 | 72.7 | 112.3 | 107.9 | 110.1 |
| 87.5° | 2.2 | 2.2 | 2.2 | 4.4 | 4.4 | 6.6 | 6.6 | 6.6 | 8.8 | 8.8 | 8.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P868798

CATALOG NUMBER: EMM2-HSN-SA2B-722-U-T2R

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 | 1568.1 |
| 2.5° | 1574.7 | 1570.3 | 1565.9 | 1565.9 | 1565.9 | 1561.5 | 1559.3 | 1559.3 | 1557.1 | 1550.5 | 1548.3 |
| 5° | 1590.1 | 1583.5 | 1576.9 | 1576.9 | 1576.9 | 1574.7 | 1572.5 | 1574.7 | 1572.5 | 1565.9 | 1563.7 |
| 7.5° | 1621.0 | 1612.1 | 1603.3 | 1603.3 | 1607.7 | 1605.5 | 1605.5 | 1607.7 | 1605.5 | 1598.9 | 1596.7 |
| 10° | 1665.0 | 1651.8 | 1647.4 | 1647.4 | 1651.8 | 1649.6 | 1647.4 | 1647.4 | 1645.2 | 1634.2 | 1638.6 |
| 12.5° | 1713.5 | 1700.2 | 1695.8 | 1698.0 | 1695.8 | 1691.4 | 1693.6 | 1687.0 | 1684.8 | 1667.2 | 1665.0 |
| 15° | 1775.1 | 1759.7 | 1750.9 | 1753.1 | 1746.5 | 1737.7 | 1728.9 | 1724.5 | 1715.7 | 1700.2 | 1695.8 |
| 17.5° | 1845.6 | 1821.4 | 1810.4 | 1810.4 | 1797.1 | 1779.5 | 1766.3 | 1753.1 | 1739.9 | 1722.3 | 1717.9 |
| 20° | 1913.9 | 1891.9 | 1874.2 | 1869.8 | 1843.4 | 1814.8 | 1790.5 | 1768.5 | 1753.1 | 1733.3 | 1728.9 |
| 22.5° | 1999.8 | 1968.9 | 1944.7 | 1924.9 | 1885.2 | 1839.0 | 1801.6 | 1770.7 | 1748.7 | 1726.7 | 1720.1 |
| 25° | 2090.1 | 2046.0 | 2006.4 | 1968.9 | 1913.9 | 1847.8 | 1794.9 | 1750.9 | 1722.3 | 1698.0 | 1693.6 |
| 27.5° | 2180.4 | 2123.1 | 2065.8 | 2006.4 | 1922.7 | 1836.8 | 1761.9 | 1709.1 | 1671.6 | 1640.8 | 1636.4 |
| 30° | 2277.3 | 2206.8 | 2116.5 | 2030.6 | 1920.5 | 1808.2 | 1713.5 | 1638.6 | 1594.5 | 1559.3 | 1554.9 |
| 32.5° | 2376.4 | 2288.3 | 2164.9 | 2048.2 | 1909.5 | 1766.3 | 1643.0 | 1563.7 | 1508.6 | 1469.0 | 1458.0 |
| 35° | 2486.5 | 2378.6 | 2209.0 | 2054.8 | 1878.6 | 1704.6 | 1568.1 | 1469.0 | 1405.1 | 1365.5 | 1356.7 |
| 37.5° | 2598.8 | 2462.3 | 2237.6 | 2050.4 | 1834.6 | 1632.0 | 1471.2 | 1369.9 | 1295.0 | 1239.9 | 1231.1 |
| 40° | 2713.3 | 2539.4 | 2255.2 | 2028.4 | 1772.9 | 1541.7 | 1380.9 | 1257.6 | 1149.6 | 1099.0 | 1074.8 |
| 42.5° | 2819.1 | 2609.8 | 2264.1 | 1997.6 | 1704.6 | 1447.0 | 1262.0 | 1101.2 | 999.9 | 944.8 | 955.8 |
| 45° | 2929.2 | 2675.9 | 2266.3 | 1960.1 | 1614.4 | 1325.8 | 1112.2 | 962.4 | 861.1 | 819.3 | 814.9 |
| 47.5° | 3023.9 | 2731.0 | 2261.9 | 1907.3 | 1513.0 | 1187.1 | 955.8 | 812.7 | 737.8 | 698.2 | 693.8 |
| 50° | 3149.4 | 2792.6 | 2255.2 | 1845.6 | 1380.9 | 1028.5 | 810.5 | 693.8 | 625.5 | 594.6 | 592.4 |
| 52.5° | 3275.0 | 2860.9 | 2250.8 | 1759.7 | 1242.1 | 878.8 | 678.3 | 585.8 | 539.6 | 524.2 | 519.8 |
| 55° | 3440.1 | 2944.6 | 2253.0 | 1660.6 | 1083.6 | 724.6 | 574.8 | 511.0 | 486.7 | 480.1 | 480.1 |
| 57.5° | 3629.5 | 3052.5 | 2266.3 | 1550.5 | 918.4 | 599.0 | 499.9 | 471.3 | 469.1 | 473.5 | 475.7 |
| 60° | 3858.6 | 3195.7 | 2292.7 | 1436.0 | 766.4 | 506.5 | 455.9 | 453.7 | 460.3 | 475.7 | 480.1 |
| 62.5° | 4116.3 | 3352.0 | 2325.7 | 1286.2 | 621.1 | 444.9 | 431.7 | 440.5 | 449.3 | 466.9 | 469.1 |
| 65° | 4343.1 | 3528.2 | 2345.5 | 1143.0 | 519.8 | 409.6 | 416.3 | 420.7 | 442.7 | 466.9 | 466.9 |
| 67.5° | 4479.7 | 3656.0 | 2270.7 | 962.4 | 433.9 | 378.8 | 392.0 | 405.2 | 429.5 | 451.5 | 455.9 |
| 70° | 4433.4 | 3614.1 | 2015.2 | 746.6 | 367.8 | 350.2 | 365.6 | 385.4 | 409.6 | 436.1 | 449.3 |
| 72.5° | 4111.9 | 3316.8 | 1636.4 | 544.0 | 319.3 | 323.8 | 343.6 | 370.0 | 392.0 | 420.7 | 438.3 |
| 75° | 3437.9 | 2768.4 | 1180.5 | 392.0 | 279.7 | 297.3 | 328.2 | 350.2 | 365.6 | 372.2 | 374.4 |
| 77.5° | 2609.8 | 2035.0 | 803.9 | 292.9 | 242.3 | 266.5 | 299.5 | 323.8 | 328.2 | 332.6 | 337.0 |
| 80° | 1704.6 | 1295.0 | 453.7 | 204.8 | 185.0 | 218.0 | 244.5 | 270.9 | 262.1 | 275.3 | 279.7 |
| 82.5° | 720.2 | 566.0 | 207.0 | 101.3 | 85.9 | 92.5 | 99.1 | 88.1 | 81.5 | 81.5 | 70.5 |
| 85° | 94.7 | 72.7 | 30.8 | 13.2 | 11.0 | 6.6 | 6.6 | 6.6 | 4.4 | 4.4 | 4.4 |
| 87.5° | 8.8 | 8.8 | 6.6 | 6.6 | 4.4 | 4.4 | 2.2 | 4.4 | 2.2 | 2.2 | 2.2 |
| 90° | 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: SP1-2407-157-2

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-722-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-722-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-40-722-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 2253
 CIE u': 0.2868
 CIE v': 0.5332
 Duv: -0.0014
 CIE x: 0.4974
 CIE y: 0.4110
 CIE z: 0.0915
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 72.69432
 Rf: 76.9
 Rg: 92.7

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 70.6 | | |
| R1: | 68.4 | R9: | -36.0 |
| R2: | 88.7 | R10: | 78.2 |
| R3: | 85.4 | R11: | 61.0 |
| R4: | 63.5 | R12: | 74.2 |
| R5: | 69.0 | R13: | 72.8 |
| R6: | 88.9 | R14: | 92.2 |
| R7: | 68.5 | R15: | 58.0 |
| R8: | 32.0 | | |



Test Conditions

Stabilization Time: 29M
 Operation Time: 1H 29M
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2407-157-2

| 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: SP1-2407-157-2

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 2200K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-2

Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 117 | NR | 620 | 896 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 137 | NR | 625 | 838 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 160 | NR | 630 | 774 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 183 | NR | 635 | 704 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 202 | NR | 640 | 635 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 219 | NR | 645 | 565 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 235 | NR | 650 | 501 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 249 | NR | 655 | 440 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 263 | NR | 660 | 383 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 281 | NR | 665 | 332 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 1 | NR | 540 | 302 | NR | 670 | 286 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 3 | NR | 545 | 331 | NR | 675 | 245 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 6 | NR | 550 | 366 | NR | 680 | 210 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 12 | NR | 555 | 411 | NR | 685 | 178 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 21 | NR | 560 | 469 | NR | 690 | 152 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 38 | NR | 565 | 536 | NR | 695 | 129 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 66 | NR | 570 | 614 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 122 | NR | 575 | 701 | NR | 705 | 92 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 215 | NR | 580 | 785 | NR | 710 | 77 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 236 | NR | 585 | 863 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 928 | NR | 720 | 55 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 148 | NR | 595 | 971 | NR | 725 | 47 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 994 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 104 | NR | 605 | 996 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 97 | NR | 610 | 979 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 943 | NR | 745 | 24 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 0.96

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 117 | NR | 620 | 896 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 137 | NR | 625 | 838 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 160 | NR | 630 | 774 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 183 | NR | 635 | 704 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 202 | NR | 640 | 635 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 219 | NR | 645 | 565 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 235 | NR | 650 | 501 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 249 | NR | 655 | 440 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 263 | NR | 660 | 383 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 281 | NR | 665 | 332 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 1 | NR | 540 | 302 | NR | 670 | 286 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 3 | NR | 545 | 331 | NR | 675 | 245 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 6 | NR | 550 | 366 | NR | 680 | 210 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 12 | NR | 555 | 411 | NR | 685 | 178 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 21 | NR | 560 | 469 | NR | 690 | 152 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 38 | NR | 565 | 536 | NR | 695 | 129 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 66 | NR | 570 | 614 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 122 | NR | 575 | 701 | NR | 705 | 92 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 215 | NR | 580 | 785 | NR | 710 | 77 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 236 | NR | 585 | 863 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 928 | NR | 720 | 55 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 148 | NR | 595 | 971 | NR | 725 | 47 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 994 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 104 | NR | 605 | 996 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 97 | NR | 610 | 979 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 943 | NR | 745 | 24 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.71

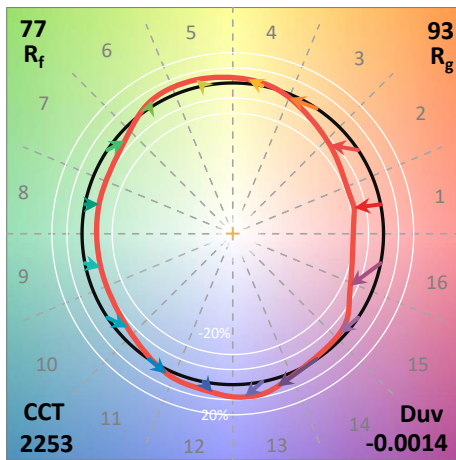
| λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 117 | NR | 620 | 896 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 137 | NR | 625 | 838 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 160 | NR | 630 | 774 | NR | 760 | 14 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 183 | NR | 635 | 704 | NR | 765 | 12 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 202 | NR | 640 | 635 | NR | 770 | 10 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 219 | NR | 645 | 565 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 235 | NR | 650 | 501 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 249 | NR | 655 | 440 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 263 | NR | 660 | 383 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 281 | NR | 665 | 332 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 1 | NR | 540 | 302 | NR | 670 | 286 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 3 | NR | 545 | 331 | NR | 675 | 245 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 6 | NR | 550 | 366 | NR | 680 | 210 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 12 | NR | 555 | 411 | NR | 685 | 178 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 21 | NR | 560 | 469 | NR | 690 | 152 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 38 | NR | 565 | 536 | NR | 695 | 129 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 66 | NR | 570 | 614 | NR | 700 | 109 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 122 | NR | 575 | 701 | NR | 705 | 92 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 215 | NR | 580 | 785 | NR | 710 | 77 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 236 | NR | 585 | 863 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 170 | NR | 590 | 928 | NR | 720 | 55 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 148 | NR | 595 | 971 | NR | 725 | 47 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 994 | NR | 730 | 40 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 104 | NR | 605 | 996 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 97 | NR | 610 | 979 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 943 | NR | 745 | 24 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 76.9$
 $R_g = 92.7$
 CIE $R_a = 70.6$
 $R_9 = -36.0$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 76 | CES51 = 88 | CES76 = 78 |
| CES02 = 65 | CES27 = 94 | CES52 = 85 | CES77 = 75 |
| CES03 = 32 | CES28 = 93 | CES53 = 80 | CES78 = 79 |
| CES04 = 72 | CES29 = 81 | CES54 = 86 | CES79 = 82 |
| CES05 = 51 | CES30 = 91 | CES55 = 83 | CES80 = 81 |
| CES06 = 52 | CES31 = 83 | CES56 = 77 | CES81 = 51 |
| CES07 = 44 | CES32 = 75 | CES57 = 75 | CES82 = 92 |
| CES08 = 42 | CES33 = 88 | CES58 = 76 | CES83 = 88 |
| CES09 = 29 | CES34 = 88 | CES59 = 84 | CES84 = 90 |
| CES10 = 79 | CES35 = 94 | CES60 = 91 | CES85 = 65 |
| CES11 = 62 | CES36 = 90 | CES61 = 82 | CES86 = 48 |
| CES12 = 68 | CES37 = 97 | CES62 = 91 | CES87 = 76 |
| CES13 = 45 | CES38 = 98 | CES63 = 86 | CES88 = 78 |
| CES14 = 75 | CES39 = 97 | CES64 = 70 | CES89 = 61 |
| CES15 = 72 | CES40 = 94 | CES65 = 71 | CES90 = 80 |
| CES16 = 48 | CES41 = 95 | CES66 = 71 | CES91 = 80 |
| CES17 = 51 | CES42 = 89 | CES67 = 70 | CES92 = 51 |
| CES18 = 57 | CES43 = 80 | CES68 = 74 | CES93 = 68 |
| CES19 = 74 | CES44 = 99 | CES69 = 84 | CES94 = 44 |
| CES20 = 68 | CES45 = 83 | CES70 = 72 | CES95 = 66 |
| CES21 = 88 | CES46 = 81 | CES71 = 75 | CES96 = 75 |
| CES22 = 81 | CES47 = 88 | CES72 = 89 | CES97 = 76 |
| CES23 = 92 | CES48 = 73 | CES73 = 68 | CES98 = 72 |
| CES24 = 92 | CES49 = 82 | CES74 = 85 | CES99 = 63 |
| CES25 = 73 | CES50 = 87 | CES75 = 80 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)