

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: STREETWORKS

Report Number: P868094

Luminaire Tested: **MEM2-HSN-SA-60-722-U-T4W**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P868094
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-60-722-U-T4W
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 60W 70CRI 2200K
FITXURE w/ TYPE IV WIDE DISTRIBUTION OPTIC
Light Source: (10) 2200K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

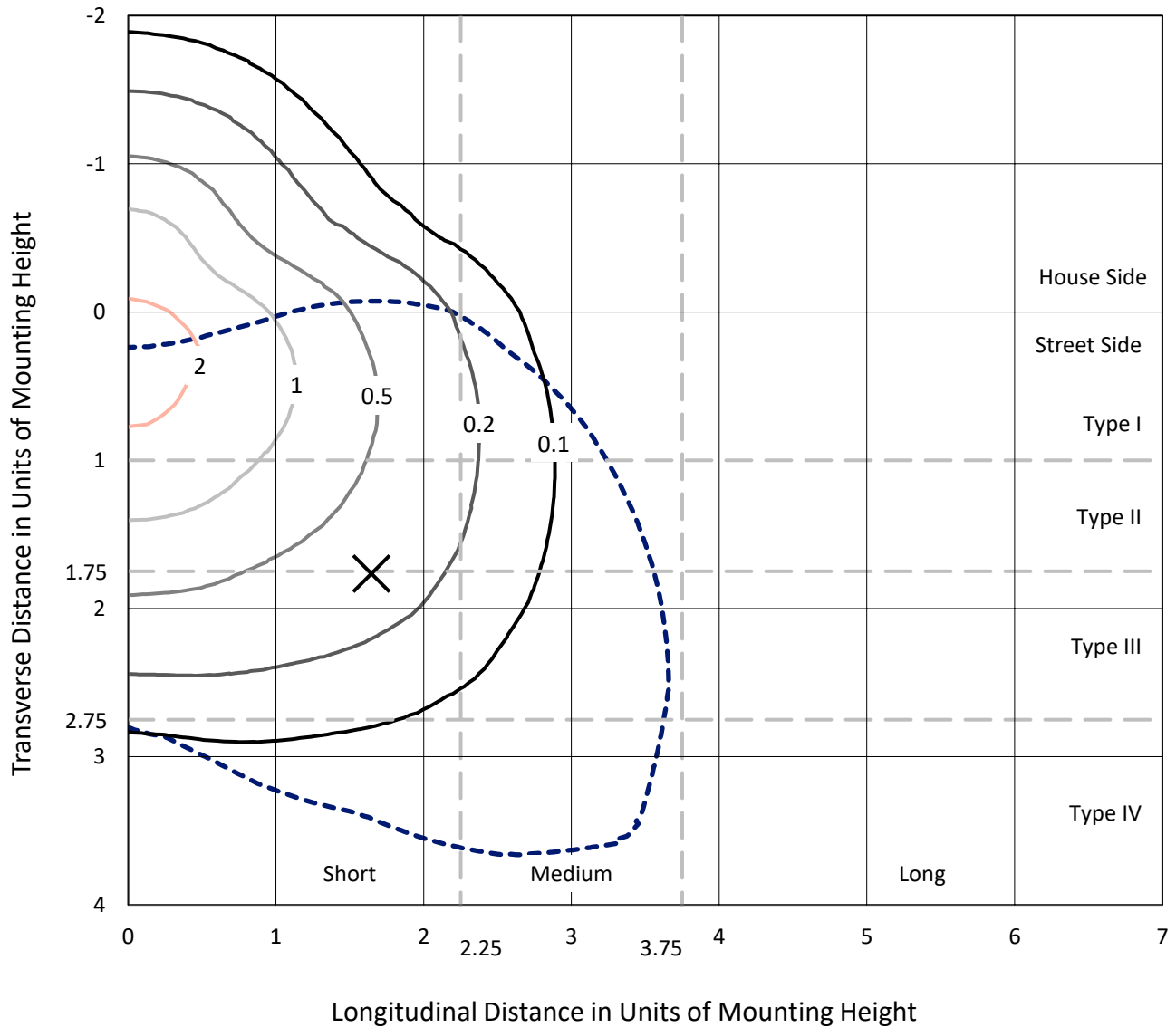
Lumens per Lamp: N/A
Luminaire Lumens: 5302.4 lumens
Efficiency: N/A
Efficacy: 120.5 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G1

Input Watts (W): 44
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.91%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Iso-Footcandle Lines of Horizontal Illumination

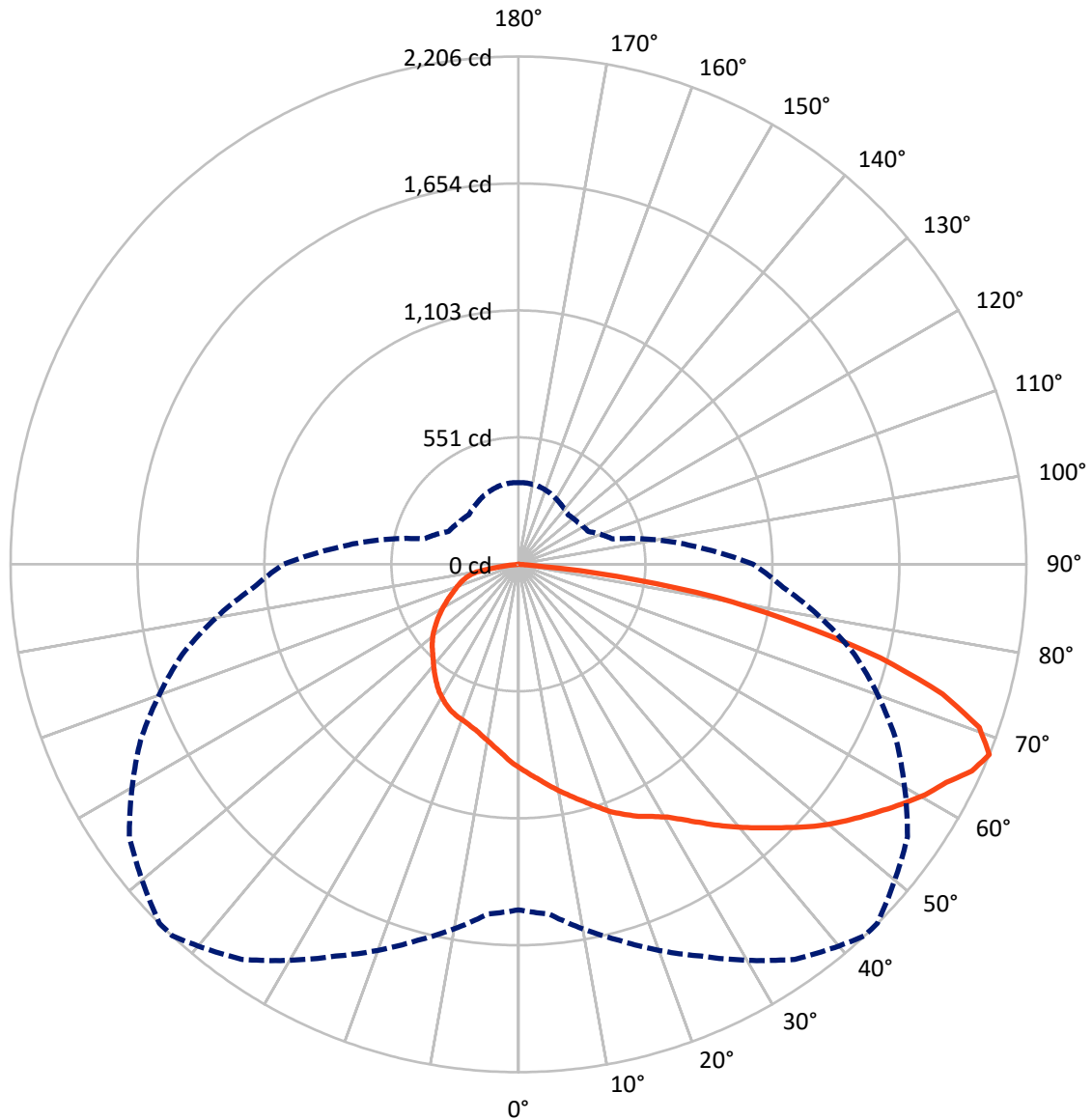
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2.5 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 43-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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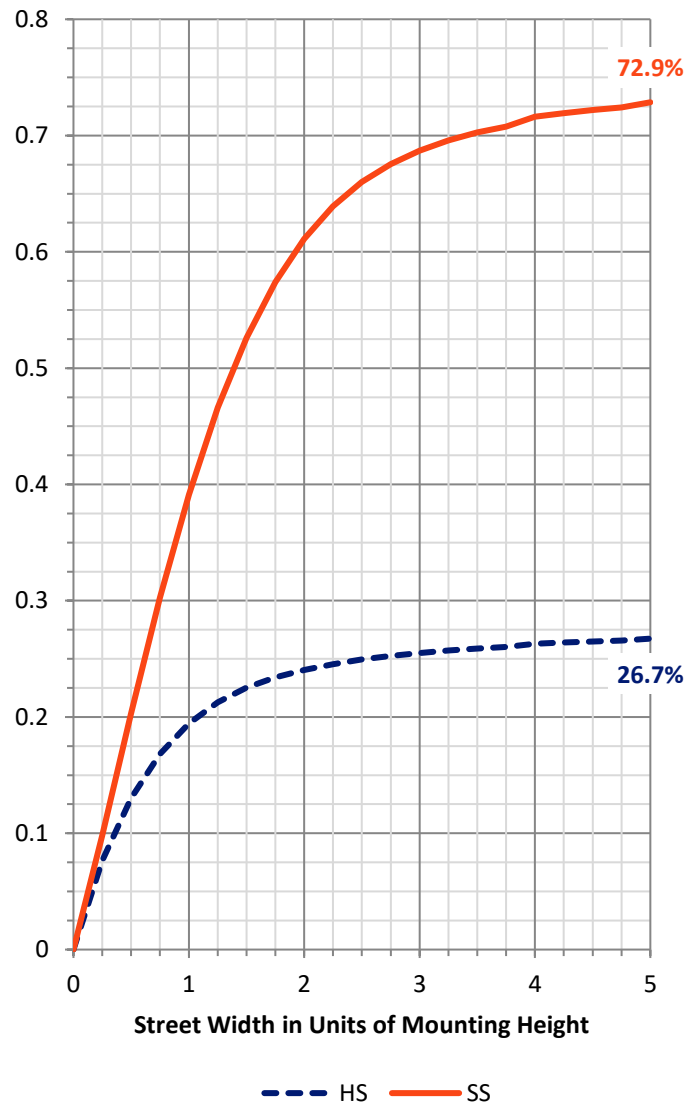
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1426.4 | 0.0 | 1426.4 |
| | % Fixture | 26.9 | 0.0 | 26.9 |
| Street Side | Lumens | 3876.0 | 0.0 | 3876.0 |
| | % Fixture | 73.1 | 0.0 | 73.1 |
| Total | Lumens | 5302.4 | 0.0 | 5302.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 84.7 | 1.6 |
| 10°-20° | 258.7 | 4.9 |
| 20°-30° | 441.4 | 8.3 |
| 30°-40° | 643.7 | 12.1 |
| 40°-50° | 864.8 | 16.3 |
| 50°-60° | 1058.6 | 20.0 |
| 60°-70° | 1114.1 | 21.0 |
| 70°-80° | 727.4 | 13.7 |
| 80°-90° | 109.1 | 2.1 |
| 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° | 5302.4 | 100.0 |
| 0°-180° | 5302.4 | 100.0 |



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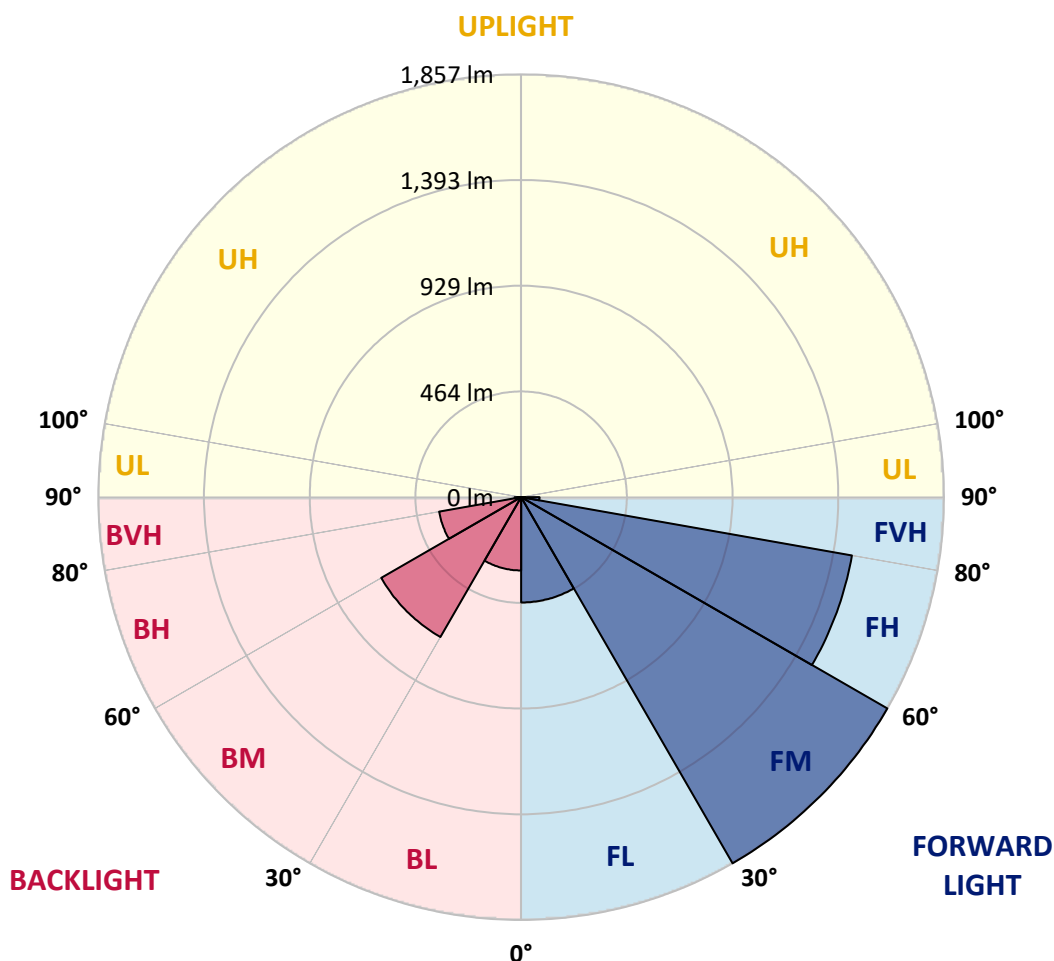
CATALOG NUMBER: MEM2-HSN-SA-60-722-U-T4W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 462.7 | 8.7 | | | |
| FM | (30°-60°) | 1857.4 | 35.0 | | | |
| FH | (60°-80°) | 1475.4 | 27.8 | | | G1/1800 |
| FVH | (80°-90°) | 80.5 | 1.5 | | | G1/100 |
| BL | (0°-30°) | 322.0 | 6.1 | B1/500 | | |
| BM | (30°-60°) | 709.7 | 13.4 | B1/1000 | | |
| BH | (60°-80°) | 366.1 | 6.9 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 28.6 | 0.5 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 43° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 |
| 2.5° | 925.9 | 924.8 | 921.6 | 919.5 | 913.0 | 911.9 | 911.9 | 905.5 | 898.0 | 893.7 | 889.4 |
| 5° | 967.7 | 962.4 | 960.2 | 955.9 | 945.2 | 938.8 | 940.9 | 929.1 | 914.1 | 903.4 | 891.6 |
| 7.5° | 1005.3 | 1003.1 | 995.6 | 990.3 | 977.4 | 971.0 | 968.8 | 950.6 | 931.3 | 915.2 | 895.9 |
| 10° | 1050.3 | 1045.0 | 1040.7 | 1030.0 | 1012.8 | 1003.1 | 999.9 | 976.3 | 951.6 | 930.2 | 904.4 |
| 12.5° | 1091.1 | 1084.7 | 1079.3 | 1068.6 | 1051.4 | 1035.3 | 1031.0 | 1004.2 | 973.1 | 944.1 | 911.9 |
| 15° | 1122.2 | 1123.3 | 1117.9 | 1108.3 | 1089.0 | 1069.7 | 1066.4 | 1031.0 | 993.5 | 958.1 | 919.5 |
| 17.5° | 1151.2 | 1155.5 | 1152.3 | 1145.8 | 1126.5 | 1107.2 | 1104.0 | 1064.3 | 1019.2 | 974.2 | 928.0 |
| 20° | 1179.1 | 1179.1 | 1178.0 | 1173.7 | 1159.8 | 1146.9 | 1140.5 | 1100.8 | 1043.9 | 991.3 | 939.8 |
| 22.5° | 1195.2 | 1199.5 | 1199.5 | 1199.5 | 1190.9 | 1180.2 | 1178.0 | 1139.4 | 1077.2 | 1012.8 | 950.6 |
| 25° | 1219.9 | 1225.2 | 1225.2 | 1223.1 | 1215.6 | 1212.4 | 1209.1 | 1172.7 | 1109.4 | 1037.5 | 962.4 |
| 27.5° | 1272.4 | 1271.4 | 1262.8 | 1252.0 | 1241.3 | 1240.2 | 1236.0 | 1210.2 | 1146.9 | 1064.3 | 978.5 |
| 30° | 1345.4 | 1347.5 | 1336.8 | 1303.5 | 1278.9 | 1273.5 | 1274.6 | 1252.0 | 1190.9 | 1095.4 | 996.7 |
| 32.5° | 1457.0 | 1457.0 | 1415.1 | 1372.2 | 1336.8 | 1322.9 | 1319.6 | 1300.3 | 1236.0 | 1129.7 | 1017.1 |
| 35° | 1540.7 | 1537.4 | 1513.8 | 1463.4 | 1419.4 | 1379.7 | 1374.4 | 1348.6 | 1286.4 | 1168.4 | 1039.6 |
| 37.5° | 1604.0 | 1610.4 | 1592.1 | 1553.5 | 1510.6 | 1441.9 | 1431.2 | 1394.7 | 1332.5 | 1205.9 | 1062.1 |
| 40° | 1726.3 | 1710.2 | 1666.2 | 1630.8 | 1579.3 | 1503.1 | 1493.4 | 1448.4 | 1379.7 | 1247.8 | 1090.0 |
| 42.5° | 1815.3 | 1792.8 | 1742.4 | 1695.1 | 1630.8 | 1564.3 | 1555.7 | 1506.3 | 1434.4 | 1295.0 | 1119.0 |
| 45° | 1943.0 | 1892.6 | 1822.8 | 1781.0 | 1689.8 | 1630.8 | 1620.0 | 1566.4 | 1491.3 | 1345.4 | 1155.5 |
| 47.5° | 2066.4 | 1978.4 | 1904.4 | 1885.0 | 1754.2 | 1702.7 | 1694.1 | 1631.8 | 1552.5 | 1400.1 | 1190.9 |
| 50° | 2050.3 | 1992.3 | 1967.7 | 1949.4 | 1809.9 | 1770.2 | 1761.7 | 1698.4 | 1614.7 | 1458.0 | 1226.3 |
| 52.5° | 2009.5 | 2014.9 | 2015.9 | 1971.9 | 1862.5 | 1833.5 | 1825.0 | 1770.2 | 1679.1 | 1508.5 | 1260.6 |
| 55° | 2052.4 | 2058.9 | 2057.8 | 1991.3 | 1923.7 | 1896.8 | 1891.5 | 1843.2 | 1741.3 | 1555.7 | 1285.3 |
| 57.5° | 2117.9 | 2096.4 | 2093.2 | 2039.5 | 1989.1 | 1964.4 | 1958.0 | 1916.2 | 1793.8 | 1590.0 | 1304.6 |
| 60° | 2129.7 | 2086.7 | 2100.7 | 2050.3 | 2038.5 | 2031.0 | 2028.8 | 1979.5 | 1843.2 | 1617.9 | 1312.1 |
| 62.5° | 1997.7 | 1990.2 | 2044.9 | 2024.5 | 2064.2 | 2085.7 | 2086.7 | 2024.5 | 1870.0 | 1628.6 | 1304.6 |
| 65° | 1772.4 | 1802.4 | 1920.4 | 1979.5 | 2102.8 | 2164.0 | 2161.8 | 2051.3 | 1866.8 | 1597.5 | 1258.5 |
| 67.5° | 1501.0 | 1524.6 | 1690.9 | 1877.5 | 2094.3 | 2205.8 | 2204.8 | 2063.1 | 1811.0 | 1511.7 | 1154.4 |
| 70° | 1138.3 | 1212.4 | 1448.4 | 1694.1 | 1978.4 | 2123.2 | 2141.5 | 1996.6 | 1683.3 | 1355.0 | 996.7 |
| 72.5° | 865.8 | 877.6 | 1163.0 | 1420.5 | 1771.3 | 1926.9 | 1923.7 | 1784.2 | 1469.8 | 1141.5 | 830.4 |
| 75° | 614.8 | 640.5 | 875.5 | 1100.8 | 1451.6 | 1624.3 | 1616.8 | 1463.4 | 1172.7 | 888.3 | 635.1 |
| 77.5° | 458.1 | 467.8 | 640.5 | 816.5 | 1085.8 | 1241.3 | 1238.1 | 1081.5 | 862.6 | 652.3 | 473.1 |
| 80° | 334.7 | 350.8 | 461.3 | 569.7 | 736.0 | 870.1 | 865.8 | 717.8 | 553.6 | 456.0 | 345.5 |
| 82.5° | 187.8 | 199.6 | 268.2 | 344.4 | 388.4 | 430.2 | 412.0 | 344.4 | 252.1 | 196.3 | 169.5 |
| 85° | 5.4 | 6.4 | 9.7 | 11.8 | 20.4 | 34.3 | 37.6 | 33.3 | 39.7 | 24.7 | 26.8 |
| 87.5° | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 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: P868094

CATALOG NUMBER: MEM2-HSN-SA-60-722-U-T4W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 | 885.1 |
| 2.5° | 887.3 | 883.0 | 874.4 | 869.0 | 865.8 | 861.5 | 855.1 | 850.8 | 847.6 | 851.9 | 850.8 |
| 5° | 886.2 | 877.6 | 862.6 | 851.9 | 841.1 | 832.6 | 822.9 | 815.4 | 811.1 | 813.2 | 812.2 |
| 7.5° | 886.2 | 875.5 | 851.9 | 834.7 | 818.6 | 805.7 | 795.0 | 785.3 | 781.1 | 782.1 | 781.1 |
| 10° | 890.5 | 875.5 | 844.4 | 819.7 | 798.2 | 783.2 | 771.4 | 762.8 | 759.6 | 762.8 | 763.9 |
| 12.5° | 894.8 | 875.5 | 837.9 | 806.8 | 778.9 | 762.8 | 752.1 | 746.7 | 748.9 | 749.9 | 751.0 |
| 15° | 896.9 | 874.4 | 831.5 | 791.8 | 760.7 | 743.5 | 737.1 | 736.0 | 741.4 | 746.7 | 747.8 |
| 17.5° | 902.3 | 873.3 | 821.8 | 776.8 | 744.6 | 730.6 | 727.4 | 731.7 | 742.4 | 749.9 | 752.1 |
| 20° | 908.7 | 875.5 | 811.1 | 758.5 | 728.5 | 717.8 | 723.1 | 732.8 | 745.6 | 756.4 | 758.5 |
| 22.5° | 915.2 | 876.5 | 801.4 | 742.4 | 711.3 | 709.2 | 721.0 | 734.9 | 749.9 | 760.7 | 762.8 |
| 25° | 922.7 | 876.5 | 788.6 | 722.0 | 694.2 | 697.4 | 715.6 | 733.8 | 747.8 | 761.7 | 763.9 |
| 27.5° | 930.2 | 878.7 | 774.6 | 699.5 | 672.7 | 682.3 | 704.9 | 727.4 | 742.4 | 756.4 | 759.6 |
| 30° | 943.1 | 883.0 | 762.8 | 680.2 | 651.2 | 664.1 | 690.9 | 716.7 | 732.8 | 747.8 | 751.0 |
| 32.5° | 955.9 | 889.4 | 753.2 | 659.8 | 629.8 | 644.8 | 674.8 | 703.8 | 721.0 | 734.9 | 737.1 |
| 35° | 973.1 | 898.0 | 745.6 | 639.4 | 608.3 | 620.1 | 652.3 | 684.5 | 703.8 | 714.5 | 719.9 |
| 37.5° | 991.3 | 909.8 | 739.2 | 621.2 | 584.7 | 595.4 | 629.8 | 664.1 | 684.5 | 695.2 | 697.4 |
| 40° | 1013.9 | 925.9 | 734.9 | 604.0 | 562.2 | 570.8 | 605.1 | 642.7 | 662.0 | 669.5 | 673.8 |
| 42.5° | 1038.5 | 943.1 | 731.7 | 586.9 | 537.5 | 546.1 | 582.6 | 619.0 | 638.4 | 644.8 | 648.0 |
| 45° | 1069.7 | 965.6 | 729.6 | 568.6 | 517.1 | 524.6 | 561.1 | 597.6 | 613.7 | 622.3 | 625.5 |
| 47.5° | 1098.6 | 988.1 | 723.1 | 547.2 | 494.6 | 505.3 | 538.6 | 570.8 | 589.0 | 594.4 | 597.6 |
| 50° | 1127.6 | 1007.4 | 710.2 | 523.6 | 474.2 | 483.9 | 513.9 | 537.5 | 551.5 | 557.9 | 560.0 |
| 52.5° | 1155.5 | 1021.4 | 689.9 | 498.9 | 452.8 | 459.2 | 483.9 | 506.4 | 516.1 | 518.2 | 524.6 |
| 55° | 1173.7 | 1028.9 | 660.9 | 469.9 | 431.3 | 433.4 | 451.7 | 472.1 | 477.4 | 478.5 | 478.5 |
| 57.5° | 1186.6 | 1024.6 | 626.6 | 441.0 | 409.8 | 409.8 | 420.6 | 436.7 | 438.8 | 439.9 | 442.0 |
| 60° | 1188.7 | 1009.6 | 582.6 | 414.1 | 386.2 | 383.0 | 393.7 | 403.4 | 404.5 | 406.6 | 408.8 |
| 62.5° | 1172.7 | 976.3 | 535.4 | 388.4 | 363.7 | 356.2 | 365.9 | 375.5 | 380.9 | 384.1 | 386.2 |
| 65° | 1123.3 | 908.7 | 481.7 | 362.6 | 342.2 | 329.4 | 341.2 | 357.3 | 368.0 | 369.1 | 369.1 |
| 67.5° | 1020.3 | 799.3 | 424.9 | 335.8 | 316.5 | 304.7 | 319.7 | 336.9 | 349.8 | 355.1 | 354.0 |
| 70° | 864.7 | 678.1 | 372.3 | 307.9 | 290.7 | 283.2 | 299.3 | 318.6 | 329.4 | 333.7 | 335.8 |
| 72.5° | 696.3 | 542.9 | 326.2 | 280.0 | 268.2 | 263.9 | 280.0 | 299.3 | 314.4 | 320.8 | 321.9 |
| 75° | 541.8 | 427.0 | 287.5 | 251.1 | 241.4 | 242.5 | 259.6 | 278.9 | 295.0 | 298.3 | 288.6 |
| 77.5° | 420.6 | 340.1 | 251.1 | 216.7 | 211.4 | 218.9 | 236.0 | 256.4 | 266.1 | 269.3 | 262.9 |
| 80° | 303.6 | 260.7 | 202.8 | 170.6 | 170.6 | 182.4 | 197.4 | 221.0 | 224.2 | 219.9 | 222.1 |
| 82.5° | 143.8 | 126.6 | 99.8 | 82.6 | 77.2 | 85.8 | 91.2 | 98.7 | 107.3 | 109.4 | 104.1 |
| 85° | 19.3 | 12.9 | 9.7 | 10.7 | 9.7 | 6.4 | 4.3 | 4.3 | 4.3 | 3.2 | 3.2 |
| 87.5° | 3.2 | 3.2 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.1 | 1.1 | 1.1 |
| 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
 R2: 88.7
 R3: 85.4
 R4: 63.5
 R5: 69.0
 R6: 88.9
 R7: 68.5
 R8: 32.0
 R9: -36.0
 R10: 78.2
 R11: 61.0
 R12: 74.2
 R13: 72.8
 R14: 92.2
 R15: 58.0



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)