

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: P869942

Luminaire Tested: **MEM2-HTN-SA-40-830-U-T2U-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P869942
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-40-830-U-T2U-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 40W 80CRI 3000K
FIXTURE w/ TYPE II URBAN DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (10) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

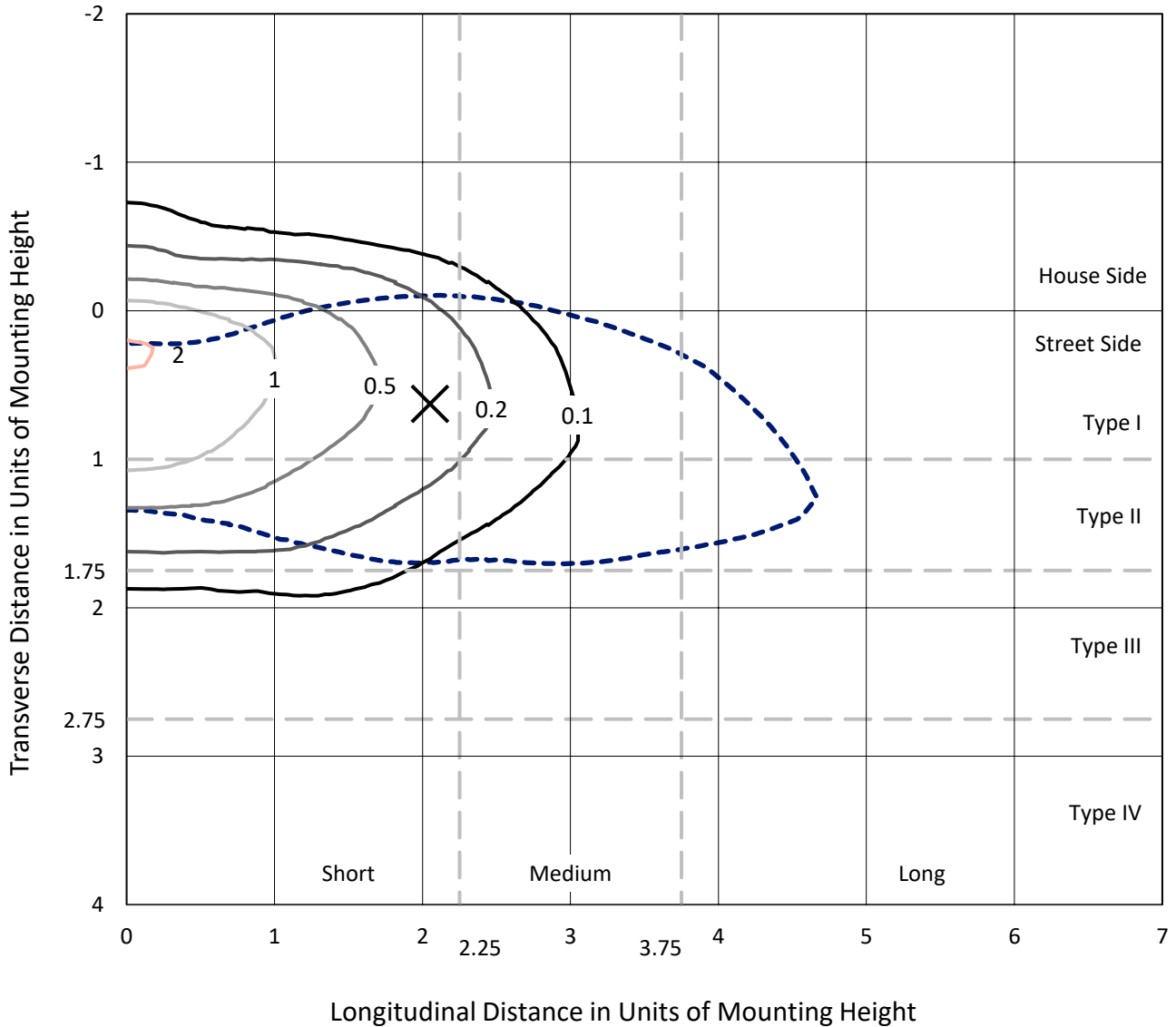
Lumens per Lamp: N/A
Luminaire Lumens: 2933.4 lumens
Efficiency: N/A
Efficacy: 89.4 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

Input Watts (W): 32.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.76%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P869942
 CATALOG NUMBER: MEM2-HTN-SA-40-830-U-T2U-HSS

Iso-Footcandle Lines of Horizontal Illumination

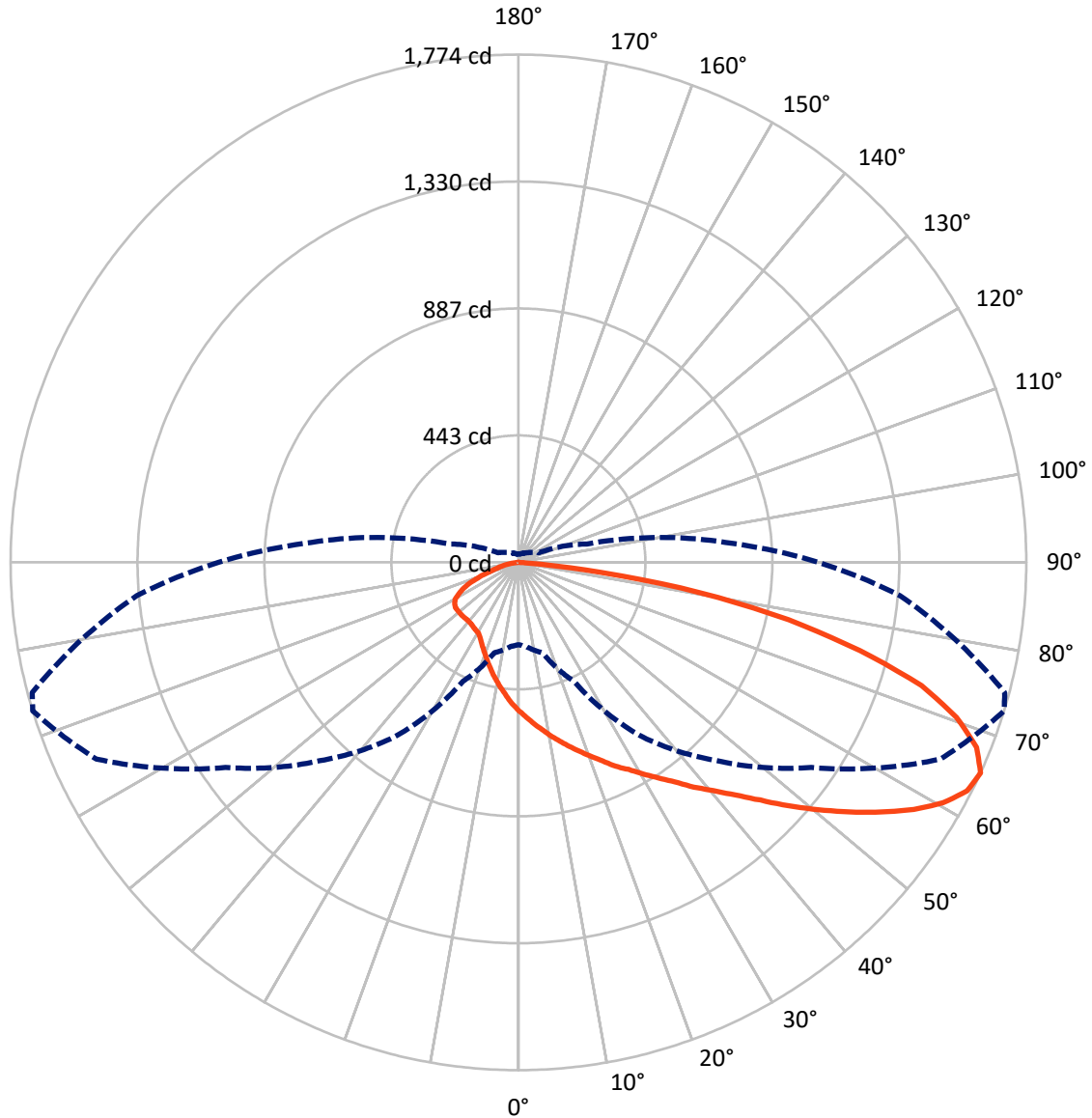
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2.1 fc
 Type II - Short - N/A

REPORT NUMBER: P869942
CATALOG NUMBER: MEM2-HTN-SA-40-830-U-T2U-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 73-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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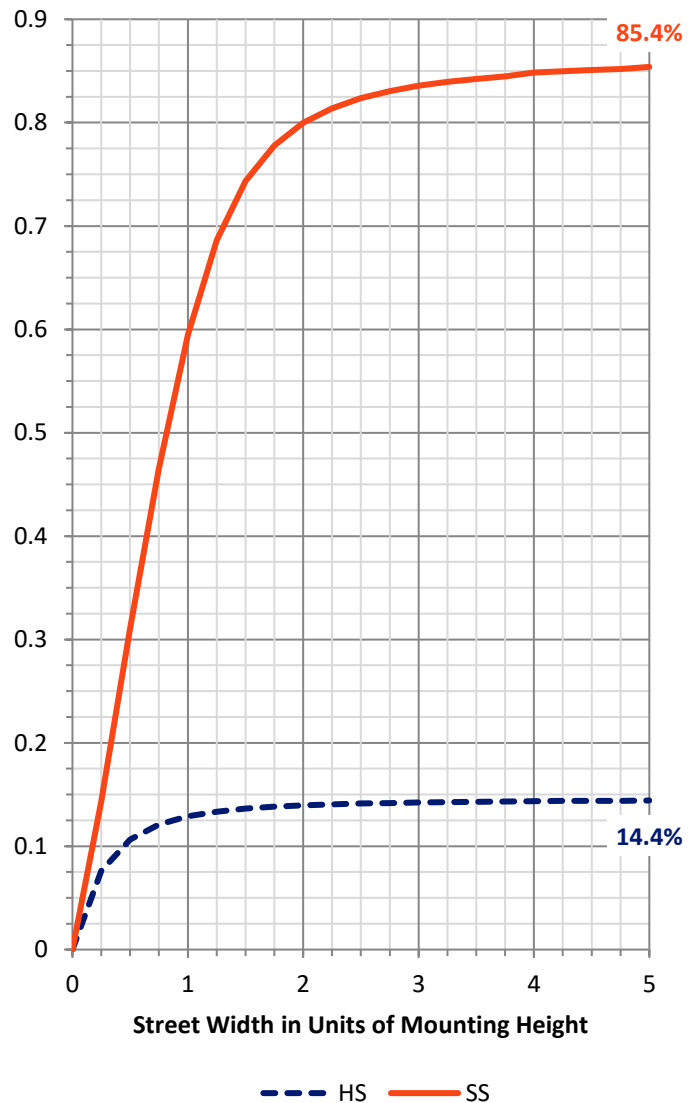
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 426.6 | 0.0 | 426.6 |
| | % Fixture | 14.5 | 0.0 | 14.5 |
| Street Side | Lumens | 2506.9 | 0.0 | 2506.9 |
| | % Fixture | 85.5 | 0.0 | 85.5 |
| Total | Lumens | 2933.4 | 0.0 | 2933.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 50.2 | 1.7 |
| 10°-20° | 152.7 | 5.2 |
| 20°-30° | 255.7 | 8.7 |
| 30°-40° | 385.7 | 13.1 |
| 40°-50° | 544.9 | 18.6 |
| 50°-60° | 613.2 | 20.9 |
| 60°-70° | 549.9 | 18.7 |
| 70°-80° | 334.4 | 11.4 |
| 80°-90° | 46.8 | 1.6 |
| 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° | 2933.4 | 100.0 |
| 0°-180° | 2933.4 | 100.0 |



REPORT NUMBER: P869942

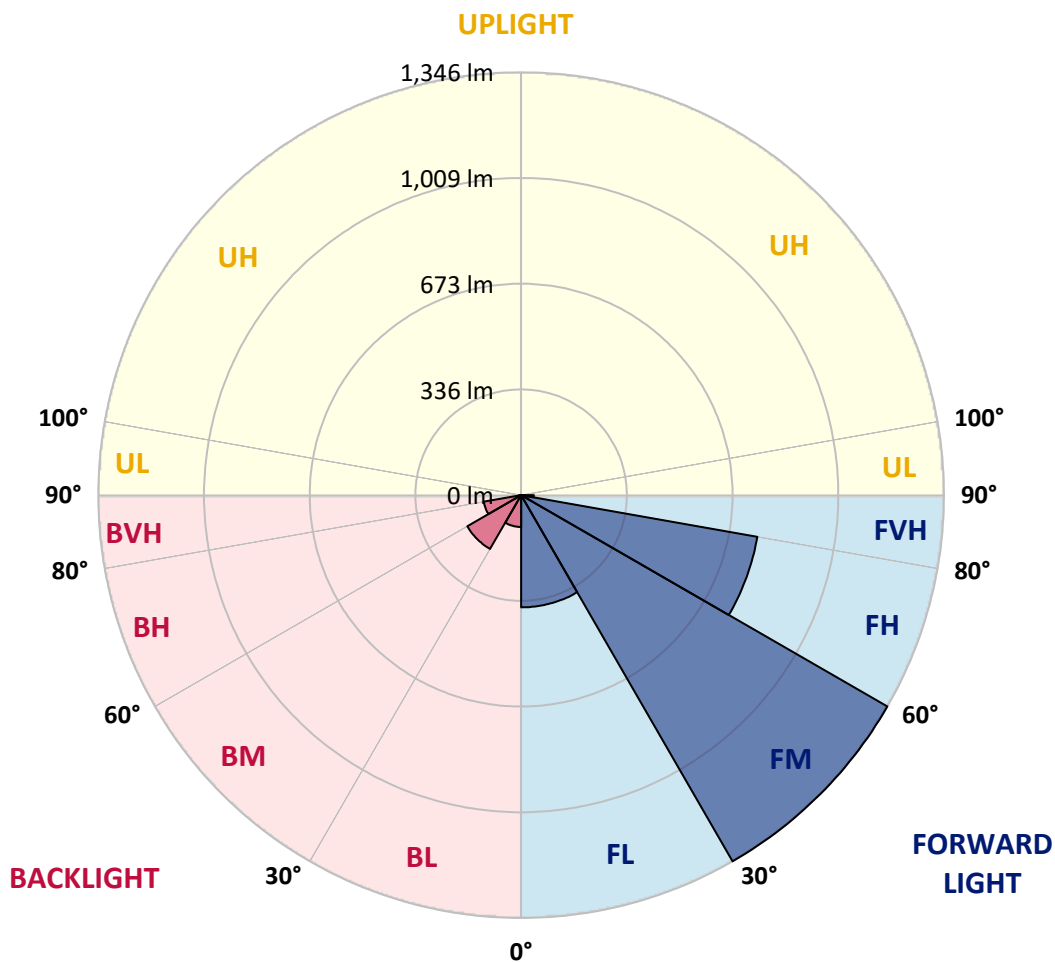
CATALOG NUMBER: MEM2-HTN-SA-40-830-U-T2U-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 357.2 | 12.2 | | | |
| FM (30°-60°) | 1346.0 | 45.9 | | | |
| FH (60°-80°) | 763.5 | 26.0 | | | G1/1800 |
| FVH (80°-90°) | 40.2 | 1.4 | | | G1/100 |
| BL (0°-30°) | 101.3 | 3.5 | B0/110 | | |
| BM (30°-60°) | 197.8 | 6.7 | B0/220 | | |
| BH (60°-80°) | 120.8 | 4.1 | B1/500 | | G1/500 |
| BVH (80°-90°) | 6.6 | 0.2 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1

Type II Short





REPORT NUMBER: P869942

CATALOG NUMBER: MEM2-HTN-SA-40-830-U-T2U-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 73° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 |
| 2.5° | 600.7 | 597.2 | 592.0 | 587.7 | 579.9 | 569.6 | 561.0 | 549.7 | 542.0 | 539.4 | 528.2 |
| 5° | 687.8 | 683.5 | 677.5 | 667.1 | 646.4 | 634.3 | 611.9 | 586.0 | 565.3 | 561.0 | 535.1 |
| 7.5° | 777.6 | 775.8 | 762.0 | 746.5 | 721.5 | 694.7 | 660.2 | 619.6 | 589.4 | 582.5 | 542.8 |
| 10° | 853.5 | 845.8 | 838.0 | 823.3 | 796.6 | 758.6 | 713.7 | 657.6 | 615.3 | 604.1 | 550.6 |
| 12.5° | 899.3 | 896.7 | 889.8 | 872.5 | 846.6 | 813.8 | 760.3 | 694.7 | 640.4 | 624.8 | 558.4 |
| 15° | 932.9 | 935.5 | 928.6 | 917.4 | 890.6 | 859.6 | 807.8 | 733.6 | 667.1 | 649.0 | 567.0 |
| 17.5° | 964.8 | 963.1 | 962.3 | 949.3 | 925.1 | 894.1 | 841.4 | 765.5 | 693.9 | 674.0 | 575.6 |
| 20° | 983.0 | 983.8 | 982.1 | 976.9 | 953.6 | 923.4 | 874.2 | 803.5 | 723.2 | 700.8 | 586.8 |
| 22.5° | 992.5 | 995.9 | 999.4 | 998.5 | 979.5 | 956.2 | 905.3 | 833.7 | 753.4 | 730.1 | 600.7 |
| 25° | 998.5 | 1001.1 | 1008.9 | 1019.2 | 1002.0 | 983.0 | 939.8 | 869.9 | 788.8 | 762.0 | 617.1 |
| 27.5° | 1003.7 | 1007.1 | 1016.6 | 1032.2 | 1018.4 | 1007.1 | 970.0 | 901.0 | 819.0 | 794.8 | 636.0 |
| 30° | 1037.3 | 1041.7 | 1041.7 | 1049.4 | 1033.9 | 1031.3 | 1003.7 | 938.1 | 857.0 | 831.1 | 660.2 |
| 32.5° | 1126.2 | 1117.6 | 1102.1 | 1094.3 | 1057.2 | 1058.1 | 1036.5 | 975.2 | 897.5 | 871.6 | 690.4 |
| 35° | 1203.0 | 1203.0 | 1184.1 | 1159.0 | 1099.5 | 1087.4 | 1074.5 | 1024.4 | 941.5 | 916.5 | 730.1 |
| 37.5° | 1277.3 | 1278.1 | 1258.3 | 1236.7 | 1168.5 | 1125.4 | 1118.5 | 1071.9 | 995.9 | 966.6 | 771.5 |
| 40° | 1323.9 | 1329.0 | 1323.9 | 1307.5 | 1241.9 | 1191.8 | 1161.6 | 1125.4 | 1047.7 | 1025.3 | 819.0 |
| 42.5° | 1331.6 | 1342.0 | 1361.0 | 1366.1 | 1295.4 | 1251.4 | 1216.8 | 1180.6 | 1109.8 | 1084.8 | 873.4 |
| 45° | 1311.8 | 1315.2 | 1357.5 | 1363.6 | 1335.1 | 1298.8 | 1275.5 | 1245.3 | 1184.1 | 1162.5 | 933.8 |
| 47.5° | 1257.4 | 1250.5 | 1265.2 | 1317.8 | 1329.0 | 1327.3 | 1333.4 | 1318.7 | 1270.4 | 1242.7 | 1000.2 |
| 50° | 1140.9 | 1143.5 | 1191.0 | 1254.8 | 1293.7 | 1337.7 | 1376.5 | 1392.9 | 1357.5 | 1329.9 | 1071.9 |
| 52.5° | 928.6 | 940.7 | 1031.3 | 1182.3 | 1249.6 | 1330.8 | 1407.6 | 1462.8 | 1448.1 | 1421.4 | 1142.6 |
| 55° | 762.9 | 781.0 | 871.6 | 1065.8 | 1189.2 | 1297.1 | 1425.7 | 1536.2 | 1538.8 | 1518.0 | 1207.4 |
| 57.5° | 597.2 | 611.9 | 707.7 | 885.5 | 1102.9 | 1244.5 | 1428.3 | 1599.2 | 1628.5 | 1604.3 | 1264.3 |
| 60° | 467.8 | 478.1 | 534.2 | 737.9 | 996.8 | 1169.4 | 1409.3 | 1649.2 | 1704.5 | 1686.3 | 1313.5 |
| 62.5° | 354.7 | 362.5 | 412.5 | 583.4 | 866.5 | 1081.4 | 1345.4 | 1667.3 | 1758.0 | 1740.7 | 1341.1 |
| 65° | 287.4 | 294.3 | 327.1 | 458.3 | 737.9 | 979.5 | 1248.8 | 1625.9 | 1773.5 | 1758.0 | 1337.7 |
| 67.5° | 234.7 | 237.3 | 264.1 | 357.3 | 624.0 | 864.7 | 1107.2 | 1518.0 | 1726.0 | 1725.2 | 1298.0 |
| 70° | 189.9 | 196.8 | 219.2 | 284.8 | 518.7 | 732.7 | 942.4 | 1348.9 | 1623.3 | 1632.0 | 1218.6 |
| 72.5° | 161.4 | 163.1 | 183.0 | 235.6 | 422.9 | 594.6 | 780.2 | 1153.8 | 1472.3 | 1479.2 | 1094.3 |
| 75° | 136.4 | 138.9 | 153.6 | 190.7 | 343.5 | 472.1 | 627.4 | 932.1 | 1232.4 | 1261.7 | 921.7 |
| 77.5° | 117.4 | 118.2 | 128.6 | 157.1 | 244.2 | 354.7 | 460.0 | 699.0 | 964.8 | 985.6 | 724.1 |
| 80° | 92.3 | 94.1 | 105.3 | 124.3 | 170.0 | 230.4 | 317.6 | 478.1 | 644.7 | 668.0 | 501.4 |
| 82.5° | 43.2 | 48.3 | 50.9 | 68.2 | 88.9 | 113.9 | 150.2 | 199.4 | 291.7 | 290.8 | 233.9 |
| 85° | 4.3 | 3.5 | 3.5 | 5.2 | 7.8 | 7.8 | 9.5 | 11.2 | 22.4 | 26.8 | 20.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.9 | 1.7 | 1.7 | 1.7 | 2.6 | 2.6 | 2.6 | 2.6 |
| 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: P869942

CATALOG NUMBER: MEM2-HTN-SA-40-830-U-T2U-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 | 520.4 |
| 2.5° | 523.0 | 515.2 | 501.4 | 488.5 | 479.8 | 472.9 | 461.7 | 454.8 | 449.6 | 442.7 | 441.9 |
| 5° | 521.3 | 507.5 | 479.8 | 456.5 | 434.1 | 415.1 | 395.3 | 383.2 | 370.2 | 364.2 | 369.4 |
| 7.5° | 523.0 | 500.5 | 457.4 | 422.0 | 388.4 | 358.2 | 332.3 | 315.9 | 303.8 | 297.7 | 298.6 |
| 10° | 523.8 | 494.5 | 438.4 | 389.2 | 346.1 | 310.7 | 281.3 | 258.9 | 244.2 | 240.8 | 236.5 |
| 12.5° | 522.1 | 486.7 | 419.4 | 357.3 | 305.5 | 266.7 | 232.2 | 214.9 | 200.2 | 193.3 | 193.3 |
| 15° | 523.8 | 480.7 | 399.6 | 327.9 | 269.3 | 224.4 | 195.0 | 176.1 | 167.4 | 161.4 | 162.2 |
| 17.5° | 523.8 | 475.5 | 380.6 | 299.5 | 233.9 | 192.5 | 165.7 | 150.2 | 141.5 | 138.1 | 137.2 |
| 20° | 529.9 | 471.2 | 362.5 | 272.7 | 202.8 | 164.0 | 142.4 | 130.3 | 123.4 | 120.0 | 118.2 |
| 22.5° | 534.2 | 467.8 | 346.1 | 246.8 | 176.9 | 143.3 | 125.1 | 113.9 | 108.7 | 107.0 | 107.0 |
| 25° | 542.0 | 466.9 | 331.4 | 221.8 | 156.2 | 127.7 | 111.3 | 102.7 | 98.4 | 96.7 | 96.7 |
| 27.5° | 553.2 | 468.6 | 317.6 | 200.2 | 140.7 | 112.2 | 100.1 | 93.2 | 90.6 | 89.8 | 88.9 |
| 30° | 569.6 | 476.4 | 309.0 | 183.8 | 126.0 | 102.7 | 91.5 | 87.2 | 85.4 | 84.6 | 84.6 |
| 32.5° | 591.2 | 490.2 | 305.5 | 175.2 | 117.4 | 94.9 | 85.4 | 82.0 | 80.3 | 80.3 | 79.4 |
| 35° | 617.9 | 505.7 | 302.9 | 167.4 | 111.3 | 89.8 | 81.1 | 77.7 | 76.8 | 76.8 | 76.8 |
| 37.5° | 649.8 | 522.1 | 298.6 | 162.2 | 107.9 | 85.4 | 77.7 | 74.2 | 74.2 | 74.2 | 74.2 |
| 40° | 685.2 | 546.3 | 297.7 | 158.8 | 105.3 | 82.8 | 74.2 | 70.8 | 70.8 | 70.8 | 70.8 |
| 42.5° | 724.9 | 572.2 | 296.9 | 156.2 | 103.6 | 81.1 | 70.8 | 67.3 | 67.3 | 67.3 | 67.3 |
| 45° | 773.3 | 605.0 | 298.6 | 154.5 | 103.6 | 79.4 | 68.2 | 63.9 | 63.0 | 63.0 | 63.0 |
| 47.5° | 820.7 | 636.0 | 300.3 | 152.8 | 101.8 | 76.8 | 64.7 | 60.4 | 59.5 | 58.7 | 58.7 |
| 50° | 871.6 | 668.0 | 300.3 | 151.0 | 100.1 | 74.2 | 62.1 | 56.1 | 55.2 | 54.4 | 54.4 |
| 52.5° | 921.7 | 694.7 | 301.2 | 148.4 | 95.8 | 69.9 | 57.8 | 52.6 | 50.9 | 50.1 | 49.2 |
| 55° | 970.0 | 723.2 | 302.1 | 144.1 | 90.6 | 65.6 | 55.2 | 49.2 | 46.6 | 44.9 | 44.9 |
| 57.5° | 1006.3 | 746.5 | 297.7 | 135.5 | 83.7 | 61.3 | 50.9 | 44.9 | 41.4 | 39.7 | 39.7 |
| 60° | 1040.8 | 761.2 | 290.0 | 122.5 | 76.8 | 57.0 | 47.5 | 40.6 | 37.1 | 35.4 | 35.4 |
| 62.5° | 1054.6 | 763.8 | 271.8 | 100.1 | 68.2 | 52.6 | 43.2 | 37.1 | 34.5 | 33.7 | 33.7 |
| 65° | 1046.8 | 752.5 | 247.7 | 79.4 | 60.4 | 47.5 | 39.7 | 34.5 | 31.1 | 28.5 | 28.5 |
| 67.5° | 1004.5 | 713.7 | 214.9 | 63.0 | 52.6 | 43.2 | 36.2 | 31.1 | 27.6 | 25.0 | 25.0 |
| 70° | 924.3 | 651.6 | 167.4 | 50.1 | 45.7 | 38.0 | 32.8 | 28.5 | 25.0 | 22.4 | 22.4 |
| 72.5° | 806.1 | 565.3 | 121.7 | 42.3 | 39.7 | 33.7 | 29.3 | 25.9 | 22.4 | 20.7 | 20.7 |
| 75° | 664.5 | 435.8 | 86.3 | 36.2 | 35.4 | 30.2 | 26.8 | 23.3 | 20.7 | 19.0 | 19.0 |
| 77.5° | 498.8 | 303.8 | 67.3 | 31.9 | 31.1 | 27.6 | 24.2 | 21.6 | 19.0 | 18.1 | 17.3 |
| 80° | 332.3 | 188.1 | 50.9 | 24.2 | 23.3 | 21.6 | 19.8 | 18.1 | 15.5 | 13.8 | 13.8 |
| 82.5° | 148.4 | 79.4 | 25.9 | 13.8 | 12.1 | 10.4 | 8.6 | 6.0 | 6.0 | 5.2 | 5.2 |
| 85° | 15.5 | 10.4 | 5.2 | 3.5 | 3.5 | 2.6 | 2.6 | 2.6 | 1.7 | 1.7 | 1.7 |
| 87.5° | 2.6 | 2.6 | 1.7 | 1.7 | 1.7 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-7

Test Date: 09/05/2024

Luminaire Tested: MEM2-HTN-SA-40-830-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-40-830-U-5WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 09/05/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-40-830-U-5WQ**
 Description: Epic Modern Light Square 40W 5WQ Optic

Spectral Parameters

CCT (K): 3126
 CIE u': 0.2465
 CIE v': 0.5182
 Duv: -0.0004
 CIE x: 0.4277
 CIE y: 0.3997
 CIE z: 0.1727
 Peak Wavelength (nm): 601
 Dominant Wavelength (nm): 582
 Purity: 48.31913
 Rf: 84.4
 Rg: 94.7

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 82.6 | | |
| R1: | 81.4 | R9: | 5.1 |
| R2: | 92.2 | R10: | 82.2 |
| R3: | 94.9 | R11: | 79.8 |
| R4: | 80.1 | R12: | 70.4 |
| R5: | 81.8 | R13: | 84.2 |
| R6: | 90.5 | R14: | 97.9 |
| R7: | 81.8 | R15: | 73.6 |
| R8: | 58.0 | | |



Test Conditions

Stabilization Time: 22M
 Operation Time: 1H 22M
 Sphere Temperature (°C): 24.3

REPORT NUMBER: SP1-2407-157-7

| 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: SP1-2407-157-7

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: SP1-2407-157-7

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 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-7

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR S/P: 1.42

| 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 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.79

| 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 | 258 | NR | 620 | 908 | NR | 750 | 26 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 297 | NR | 625 | 857 | NR | 755 | 22 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 345 | NR | 630 | 801 | NR | 760 | 19 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 391 | NR | 635 | 738 | NR | 765 | 16 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 426 | NR | 640 | 675 | NR | 770 | 14 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 456 | NR | 645 | 610 | NR | 775 | 12 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 480 | NR | 650 | 547 | NR | 780 | 10 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 500 | NR | 655 | 488 | NR | 785 | 9 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 517 | NR | 660 | 429 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 538 | NR | 665 | 378 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 558 | NR | 670 | 328 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 584 | NR | 675 | 285 | NR | 805 | 5 | NR | 935 | 0 | NR |
| 420 | 16 | NR | 550 | 611 | NR | 680 | 247 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 31 | NR | 555 | 646 | NR | 685 | 212 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 56 | NR | 560 | 687 | NR | 690 | 183 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 101 | NR | 565 | 731 | NR | 695 | 156 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 178 | NR | 570 | 780 | NR | 700 | 133 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 832 | NR | 705 | 114 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 566 | NR | 580 | 883 | NR | 710 | 96 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 645 | NR | 585 | 927 | NR | 715 | 82 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 457 | NR | 590 | 963 | NR | 720 | 70 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 365 | NR | 595 | 985 | NR | 725 | 59 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 317 | NR | 600 | 998 | NR | 730 | 50 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 244 | NR | 605 | 994 | NR | 735 | 43 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 218 | NR | 610 | 978 | NR | 740 | 36 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 233 | NR | 615 | 947 | NR | 745 | 31 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 84.4$
 $R_g = 94.7$
 $CIE R_a = 82.6$
 $R_9 = 5.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 86 | CES51 = 93 | CES76 = 82 |
| CES02 = 63 | CES27 = 92 | CES52 = 93 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 70 | CES29 = 92 | CES54 = 89 | CES79 = 90 |
| CES05 = 49 | CES30 = 91 | CES55 = 86 | CES80 = 89 |
| CES06 = 51 | CES31 = 93 | CES56 = 85 | CES81 = 72 |
| CES07 = 42 | CES32 = 85 | CES57 = 83 | CES82 = 95 |
| CES08 = 41 | CES33 = 97 | CES58 = 84 | CES83 = 94 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 91 |
| CES10 = 76 | CES35 = 96 | CES60 = 90 | CES85 = 74 |
| CES11 = 59 | CES36 = 81 | CES61 = 87 | CES86 = 68 |
| CES12 = 65 | CES37 = 96 | CES62 = 83 | CES87 = 84 |
| CES13 = 43 | CES38 = 86 | CES63 = 87 | CES88 = 88 |
| CES14 = 74 | CES39 = 98 | CES64 = 79 | CES89 = 75 |
| CES15 = 71 | CES40 = 96 | CES65 = 78 | CES90 = 89 |
| CES16 = 47 | CES41 = 96 | CES66 = 77 | CES91 = 73 |
| CES17 = 50 | CES42 = 97 | CES67 = 76 | CES92 = 63 |
| CES18 = 56 | CES43 = 91 | CES68 = 80 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 85 | CES94 = 61 |
| CES20 = 66 | CES45 = 93 | CES70 = 78 | CES95 = 73 |
| CES21 = 87 | CES46 = 90 | CES71 = 74 | CES96 = 84 |
| CES22 = 79 | CES47 = 94 | CES72 = 91 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 74 | CES98 = 85 |
| CES24 = 91 | CES49 = 91 | CES74 = 90 | CES99 = 76 |
| CES25 = 72 | CES50 = 93 | CES75 = 78 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)