

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: P870481

Luminaire Tested: **MEM2-HSN-SA-40-830-U-T4W-HSS**

Issue Date: 09/05/2024



Test Information

Test Method: LM-79-08
Report Number: P870481
Test Lab: INNOVATION CENTER(G3)
Issue Date: 09/05/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-40-830-U-T4W-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 40W 80CRI 3000K
FIXTURE w/ TYPE IV WIDE DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (10) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

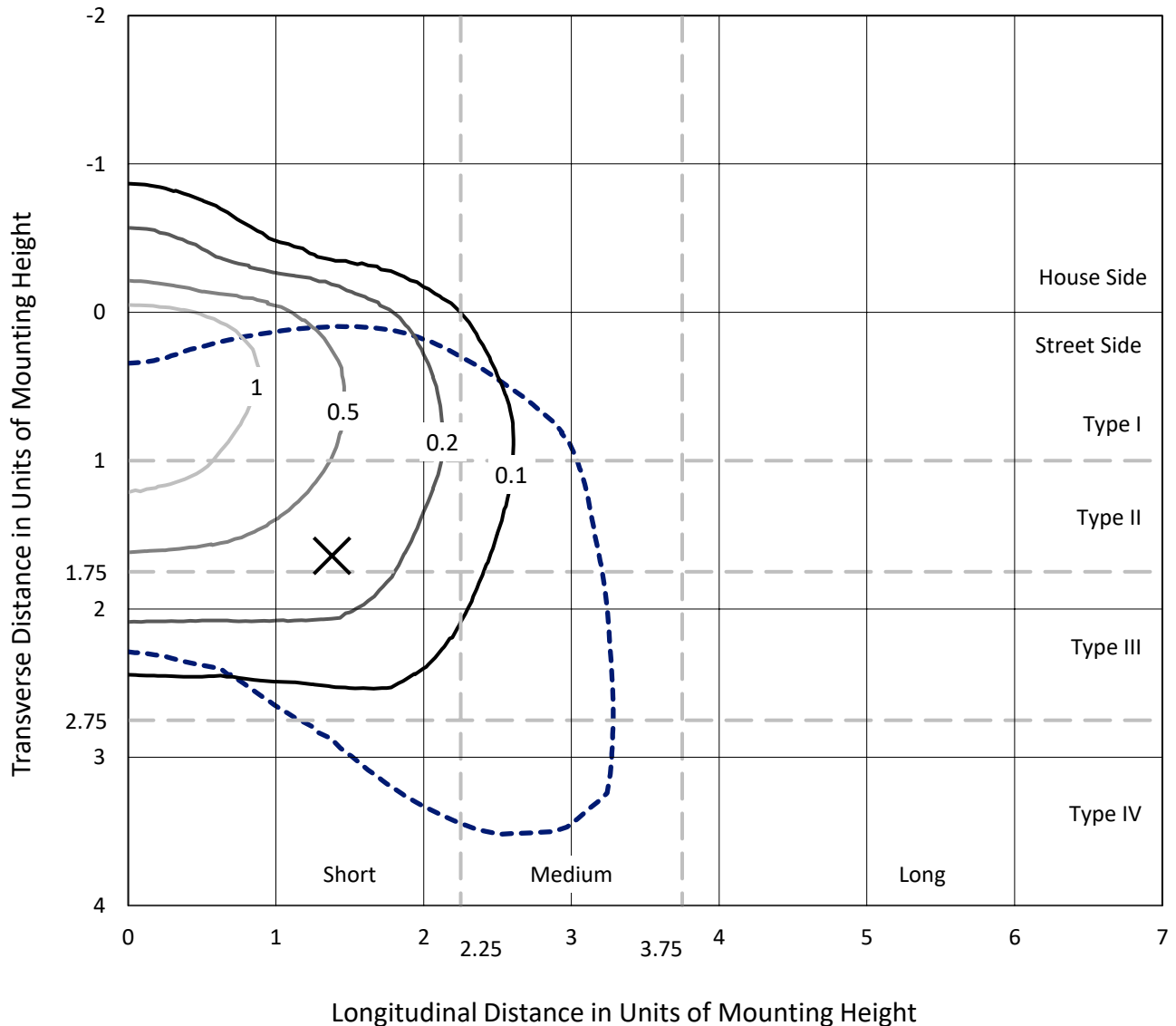
Lumens per Lamp: N/A
Luminaire Lumens: 3061.8 lumens
Efficiency: N/A
Efficacy: 93.3 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B0 - U0 - G1

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

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Iso-Footcandle Lines of Horizontal Illumination

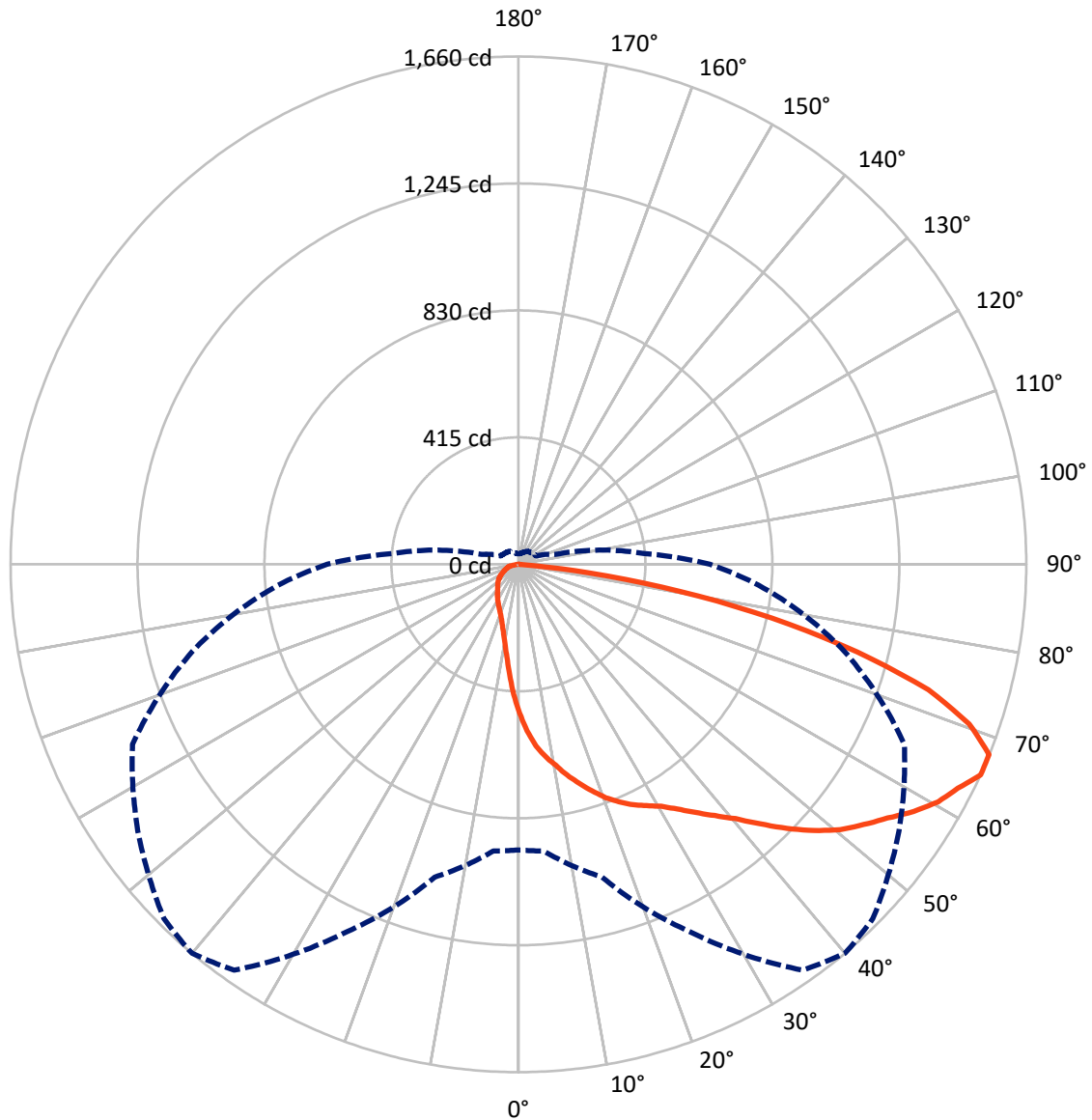
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 1.8 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 40-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical



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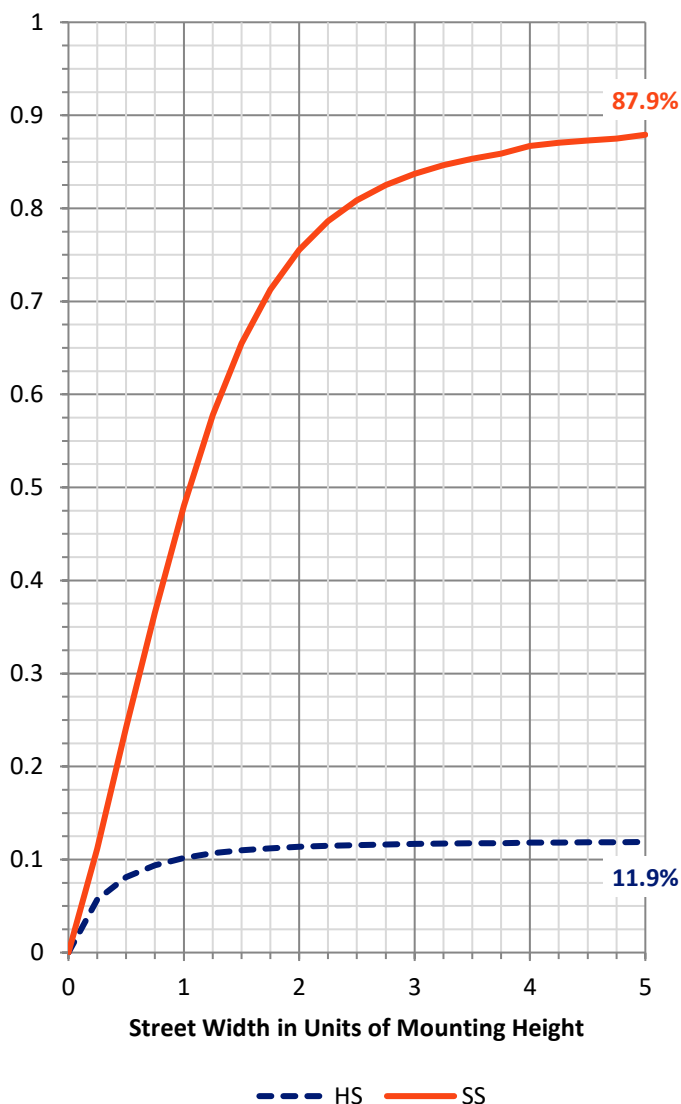
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 366.6 | 0.0 | 366.6 |
| | % Fixture | 12.0 | 0.0 | 12.0 |
| Street Side | Lumens | 2695.2 | 0.0 | 2695.2 |
| | % Fixture | 88.0 | 0.0 | 88.0 |
| Total | Lumens | 3061.8 | 0.0 | 3061.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 45.6 | 1.5 |
| 10°-20° | 137.0 | 4.5 |
| 20°-30° | 235.6 | 7.7 |
| 30°-40° | 356.2 | 11.6 |
| 40°-50° | 520.9 | 17.0 |
| 50°-60° | 665.3 | 21.7 |
| 60°-70° | 663.9 | 21.7 |
| 70°-80° | 389.3 | 12.7 |
| 80°-90° | 48.0 | 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° | 3061.8 | 100.0 |
| 0°-180° | 3061.8 | 100.0 |

Coefficient of Utilization



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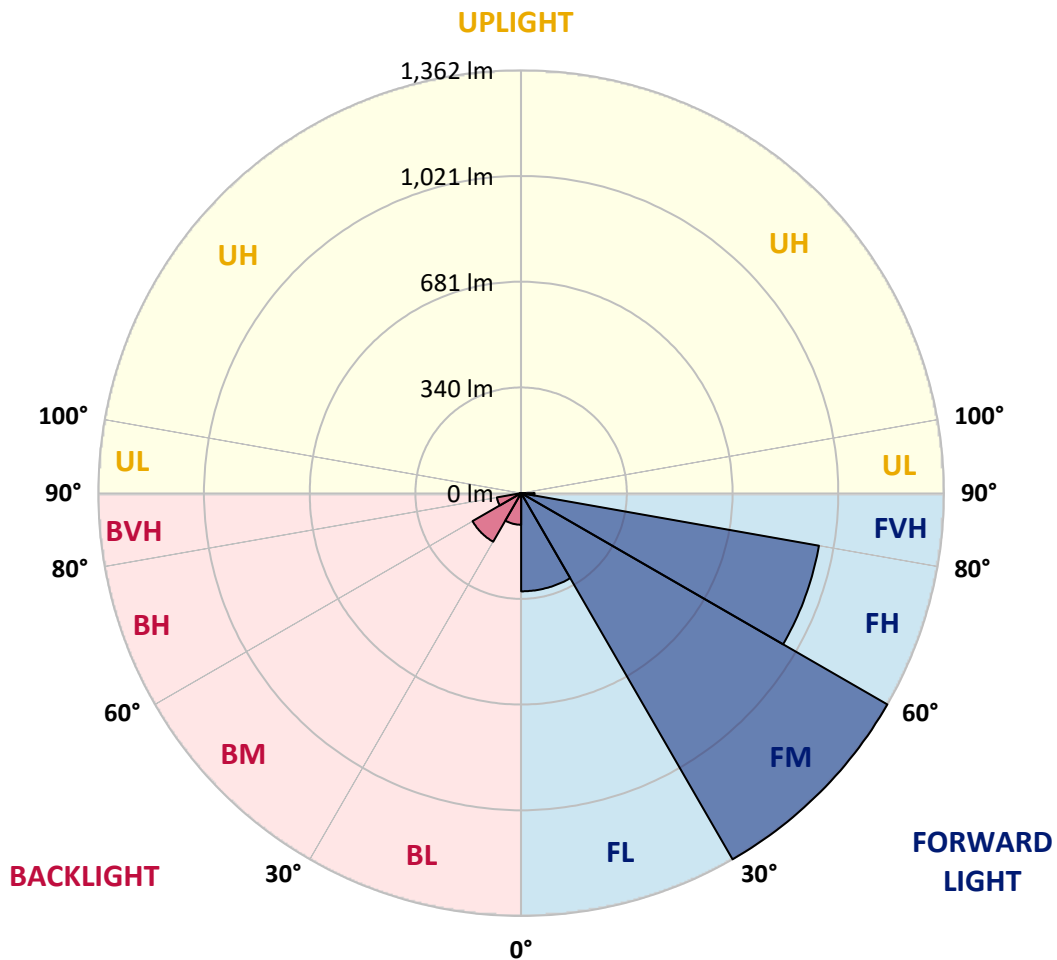
CATALOG NUMBER: MEM2-HSN-SA-40-830-U-T4W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 316.2 | 10.3 | | | |
| FM | (30°-60°) | 1361.7 | 44.5 | | | |
| FH | (60°-80°) | 973.9 | 31.8 | | | G1/1800 |
| FVH | (80°-90°) | 43.3 | 1.4 | | | G1/100 |
| BL | (0°-30°) | 102.0 | 3.3 | B0/110 | | |
| BM | (30°-60°) | 180.6 | 5.9 | B0/220 | | |
| BH | (60°-80°) | 79.4 | 2.6 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 4.6 | 0.2 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G1

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 40° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| 0° | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 |
| 2.5° | 567.8 | 565.2 | 560.0 | 555.7 | 549.7 | 544.5 | 539.3 | 529.8 | 517.8 | 507.4 | 494.5 |
| 5° | 623.9 | 619.6 | 616.1 | 611.0 | 600.6 | 596.3 | 592.8 | 573.0 | 552.3 | 530.7 | 502.2 |
| 7.5° | 663.6 | 667.0 | 660.1 | 652.4 | 639.4 | 634.3 | 629.1 | 609.2 | 583.3 | 552.3 | 511.7 |
| 10° | 709.3 | 710.2 | 701.6 | 692.1 | 678.3 | 667.9 | 661.0 | 636.8 | 608.4 | 573.9 | 522.1 |
| 12.5° | 753.3 | 753.3 | 748.2 | 734.4 | 716.2 | 706.7 | 694.7 | 667.0 | 632.5 | 592.0 | 534.2 |
| 15° | 788.7 | 790.4 | 786.1 | 775.8 | 755.9 | 743.0 | 730.9 | 699.0 | 655.0 | 612.7 | 543.6 |
| 17.5° | 820.7 | 819.8 | 817.2 | 807.7 | 788.7 | 778.4 | 766.3 | 730.9 | 680.9 | 629.1 | 558.3 |
| 20° | 842.2 | 842.2 | 841.4 | 836.2 | 822.4 | 814.6 | 799.9 | 762.8 | 709.3 | 653.2 | 573.9 |
| 22.5° | 858.6 | 857.8 | 857.8 | 858.6 | 850.9 | 843.1 | 837.0 | 799.9 | 738.7 | 674.0 | 589.4 |
| 25° | 872.4 | 871.6 | 874.2 | 875.9 | 872.4 | 870.7 | 863.8 | 835.3 | 774.9 | 698.1 | 604.9 |
| 27.5° | 890.5 | 893.1 | 892.3 | 892.3 | 891.4 | 893.1 | 892.3 | 868.1 | 810.3 | 724.0 | 621.3 |
| 30° | 919.0 | 923.3 | 920.8 | 917.3 | 917.3 | 918.2 | 922.5 | 906.9 | 851.7 | 755.9 | 639.4 |
| 32.5° | 985.5 | 981.2 | 963.0 | 951.0 | 952.7 | 953.5 | 957.9 | 949.2 | 893.1 | 792.2 | 658.4 |
| 35° | 1061.4 | 1056.2 | 1036.4 | 1008.8 | 999.3 | 995.8 | 995.0 | 989.8 | 938.0 | 831.0 | 680.9 |
| 37.5° | 1159.8 | 1161.5 | 1132.2 | 1092.5 | 1064.0 | 1042.4 | 1038.1 | 1026.9 | 976.8 | 866.4 | 704.2 |
| 40° | 1259.9 | 1253.0 | 1228.0 | 1189.1 | 1133.0 | 1093.3 | 1080.4 | 1064.9 | 1020.9 | 903.5 | 726.6 |
| 42.5° | 1356.5 | 1343.6 | 1310.8 | 1268.5 | 1202.9 | 1159.8 | 1130.4 | 1110.6 | 1061.4 | 944.1 | 748.2 |
| 45° | 1482.5 | 1445.4 | 1386.7 | 1348.8 | 1266.8 | 1231.4 | 1204.7 | 1160.6 | 1109.7 | 984.6 | 774.1 |
| 47.5° | 1581.8 | 1510.1 | 1456.6 | 1440.2 | 1333.2 | 1300.4 | 1276.3 | 1215.0 | 1158.9 | 1030.3 | 800.8 |
| 50° | 1563.6 | 1519.6 | 1506.7 | 1492.0 | 1383.3 | 1363.4 | 1341.0 | 1277.1 | 1209.0 | 1078.7 | 826.7 |
| 52.5° | 1517.0 | 1522.2 | 1538.6 | 1513.6 | 1427.3 | 1413.5 | 1398.8 | 1343.6 | 1259.0 | 1118.4 | 850.0 |
| 55° | 1479.9 | 1490.3 | 1534.3 | 1526.5 | 1479.9 | 1464.4 | 1454.0 | 1409.2 | 1307.3 | 1154.6 | 869.8 |
| 57.5° | 1412.6 | 1404.0 | 1459.2 | 1549.0 | 1536.0 | 1523.9 | 1513.6 | 1478.2 | 1356.5 | 1180.5 | 882.8 |
| 60° | 1306.5 | 1274.6 | 1348.8 | 1521.4 | 1574.9 | 1576.6 | 1570.5 | 1530.0 | 1396.2 | 1180.5 | 875.9 |
| 62.5° | 1157.2 | 1127.0 | 1218.5 | 1429.0 | 1595.6 | 1612.0 | 1608.5 | 1548.1 | 1413.5 | 1154.6 | 849.1 |
| 65° | 933.7 | 940.6 | 1058.8 | 1324.6 | 1619.7 | 1660.3 | 1638.7 | 1518.8 | 1391.9 | 1104.6 | 788.7 |
| 67.5° | 745.6 | 766.3 | 872.4 | 1189.1 | 1608.5 | 1659.4 | 1629.2 | 1435.9 | 1299.6 | 1034.7 | 696.4 |
| 70° | 588.5 | 602.3 | 690.3 | 1006.2 | 1510.1 | 1563.6 | 1525.7 | 1309.1 | 1143.4 | 926.8 | 579.0 |
| 72.5° | 459.9 | 472.9 | 548.0 | 805.1 | 1339.3 | 1401.4 | 1353.9 | 1138.2 | 948.4 | 786.1 | 459.9 |
| 75° | 349.5 | 359.0 | 415.1 | 620.5 | 1066.6 | 1144.3 | 1109.7 | 911.3 | 740.4 | 622.2 | 352.1 |
| 77.5° | 225.2 | 238.2 | 301.2 | 434.9 | 753.3 | 846.5 | 850.9 | 680.9 | 532.4 | 449.6 | 258.9 |
| 80° | 149.3 | 154.5 | 193.3 | 283.0 | 463.4 | 535.9 | 560.9 | 459.9 | 340.0 | 286.5 | 186.4 |
| 82.5° | 62.1 | 69.0 | 92.3 | 142.4 | 232.1 | 233.0 | 266.6 | 194.2 | 138.1 | 121.7 | 78.5 |
| 85° | 1.7 | 3.5 | 2.6 | 6.9 | 6.0 | 9.5 | 11.2 | 15.5 | 11.2 | 12.1 | 12.1 |
| 87.5° | 0.0 | 0.0 | 0.9 | 0.9 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 2.6 | 1.7 |
| 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: P870481

CATALOG NUMBER: MEM2-HSN-SA-40-830-U-T4W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 | 486.7 |
| 2.5° | 488.4 | 480.7 | 465.1 | 453.0 | 440.1 | 430.6 | 422.0 | 412.5 | 406.4 | 407.3 | 401.3 |
| 5° | 488.4 | 473.8 | 442.7 | 415.1 | 390.0 | 371.9 | 352.1 | 336.5 | 325.3 | 323.6 | 328.8 |
| 7.5° | 491.0 | 466.8 | 420.2 | 378.8 | 344.3 | 315.8 | 295.1 | 279.6 | 271.8 | 266.6 | 265.8 |
| 10° | 493.6 | 461.7 | 399.5 | 346.9 | 303.8 | 272.7 | 254.6 | 237.3 | 228.7 | 227.8 | 225.2 |
| 12.5° | 495.3 | 455.6 | 380.6 | 315.0 | 270.1 | 240.8 | 222.6 | 208.8 | 201.9 | 201.9 | 201.1 |
| 15° | 501.4 | 453.9 | 360.7 | 290.8 | 244.2 | 215.7 | 200.2 | 189.0 | 184.7 | 182.1 | 181.2 |
| 17.5° | 506.5 | 450.5 | 343.4 | 266.6 | 220.9 | 195.9 | 181.2 | 173.5 | 169.1 | 167.4 | 166.5 |
| 20° | 514.3 | 448.7 | 327.1 | 246.8 | 203.7 | 179.5 | 168.3 | 161.4 | 158.8 | 157.1 | 157.1 |
| 22.5° | 522.1 | 447.0 | 310.7 | 229.5 | 189.0 | 167.4 | 157.1 | 151.0 | 148.4 | 147.6 | 146.7 |
| 25° | 531.6 | 446.1 | 296.8 | 214.9 | 176.0 | 157.9 | 148.4 | 143.2 | 139.8 | 138.1 | 138.1 |
| 27.5° | 541.1 | 447.0 | 283.0 | 200.2 | 164.8 | 149.3 | 139.8 | 133.8 | 131.2 | 127.7 | 128.6 |
| 30° | 554.0 | 447.9 | 271.8 | 188.1 | 155.3 | 140.7 | 132.0 | 124.3 | 120.8 | 119.1 | 119.1 |
| 32.5° | 566.9 | 451.3 | 260.6 | 176.9 | 145.8 | 133.8 | 123.4 | 116.5 | 112.2 | 111.3 | 110.5 |
| 35° | 580.8 | 453.9 | 250.3 | 167.4 | 138.1 | 126.0 | 115.6 | 108.7 | 105.3 | 104.4 | 104.4 |
| 37.5° | 596.3 | 458.2 | 242.5 | 158.8 | 130.3 | 118.2 | 108.7 | 101.8 | 99.2 | 98.4 | 98.4 |
| 40° | 612.7 | 465.1 | 236.4 | 151.0 | 124.3 | 111.3 | 102.7 | 96.6 | 94.9 | 94.1 | 94.1 |
| 42.5° | 629.1 | 471.2 | 231.3 | 145.0 | 118.2 | 105.3 | 98.4 | 92.3 | 89.7 | 89.7 | 89.7 |
| 45° | 644.6 | 475.5 | 226.1 | 138.9 | 112.2 | 101.0 | 93.2 | 88.0 | 85.4 | 85.4 | 85.4 |
| 47.5° | 658.4 | 479.8 | 218.3 | 132.9 | 106.1 | 94.9 | 88.9 | 83.7 | 81.1 | 81.1 | 81.1 |
| 50° | 673.1 | 482.4 | 209.7 | 125.1 | 100.1 | 90.6 | 84.6 | 78.5 | 76.8 | 75.9 | 75.9 |
| 52.5° | 685.2 | 482.4 | 198.5 | 117.4 | 93.2 | 84.6 | 79.4 | 74.2 | 71.6 | 69.9 | 69.9 |
| 55° | 693.8 | 482.4 | 186.4 | 107.9 | 86.3 | 79.4 | 74.2 | 69.0 | 65.6 | 63.0 | 63.0 |
| 57.5° | 699.0 | 479.8 | 172.6 | 96.6 | 79.4 | 72.5 | 69.0 | 63.0 | 56.1 | 50.9 | 49.2 |
| 60° | 694.7 | 472.0 | 157.9 | 84.6 | 71.6 | 66.4 | 63.9 | 56.1 | 46.6 | 44.0 | 44.0 |
| 62.5° | 676.5 | 453.9 | 143.2 | 74.2 | 65.6 | 60.4 | 57.8 | 49.2 | 42.3 | 39.7 | 39.7 |
| 65° | 625.6 | 409.9 | 125.1 | 64.7 | 58.7 | 55.2 | 51.8 | 44.0 | 38.0 | 34.5 | 34.5 |
| 67.5° | 551.4 | 353.8 | 104.4 | 57.0 | 52.6 | 50.1 | 47.5 | 39.7 | 33.7 | 30.2 | 30.2 |
| 70° | 447.0 | 285.6 | 88.9 | 50.1 | 46.6 | 44.9 | 42.3 | 36.2 | 29.3 | 26.8 | 26.8 |
| 72.5° | 351.2 | 224.4 | 74.2 | 44.9 | 43.1 | 39.7 | 38.0 | 31.9 | 26.8 | 24.2 | 24.2 |
| 75° | 261.5 | 167.4 | 65.6 | 39.7 | 39.7 | 35.4 | 34.5 | 28.5 | 23.3 | 21.6 | 21.6 |
| 77.5° | 192.4 | 124.3 | 57.0 | 34.5 | 34.5 | 31.1 | 29.3 | 25.0 | 21.6 | 19.8 | 19.8 |
| 80° | 130.3 | 84.6 | 42.3 | 25.9 | 25.9 | 25.0 | 23.3 | 21.6 | 18.1 | 16.4 | 15.5 |
| 82.5° | 55.2 | 35.4 | 20.7 | 12.9 | 12.1 | 9.5 | 7.8 | 6.0 | 6.0 | 5.2 | 5.2 |
| 85° | 9.5 | 4.3 | 4.3 | 3.5 | 2.6 | 2.6 | 2.6 | 1.7 | 1.7 | 1.7 | 1.7 |
| 87.5° | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 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 |

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CIE 1931 Chromaticity Diagram



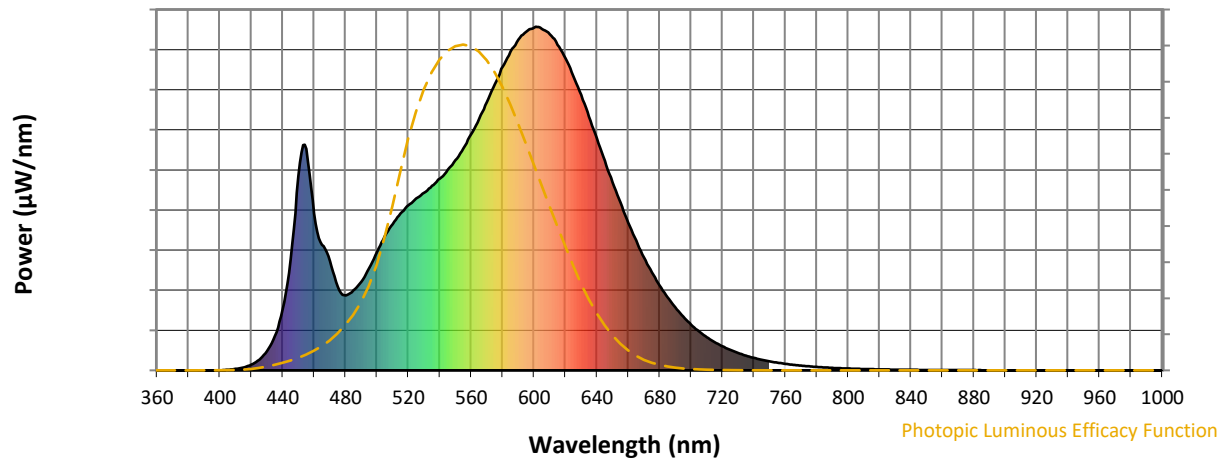
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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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

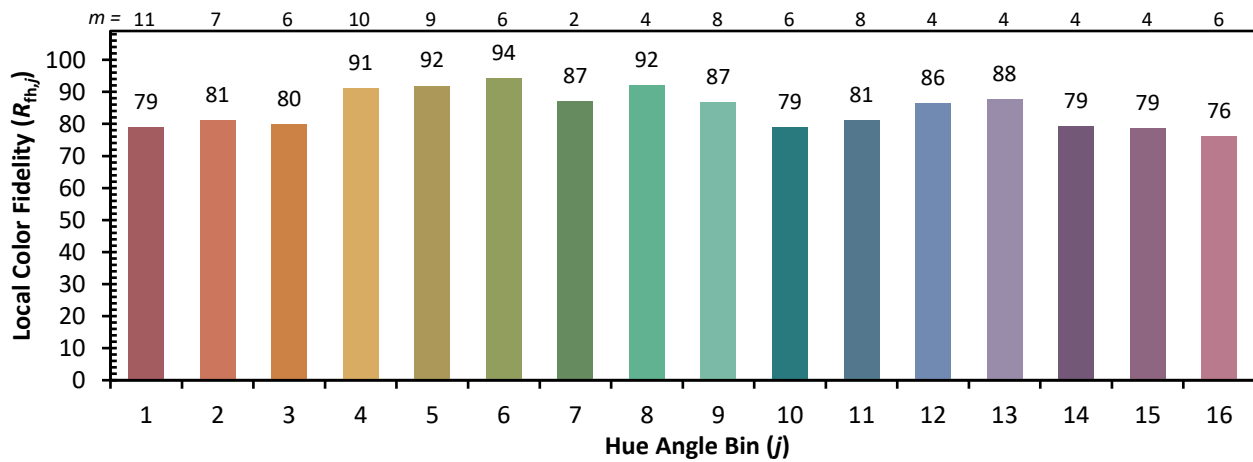


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| 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)