

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: P868065

Luminaire Tested: **MEM2-HSN-SA-30-727-U-T3-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P868065
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-30-727-U-T3-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 30W 70CRI 2700K
FITXURE w/ TYPE III DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (10) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

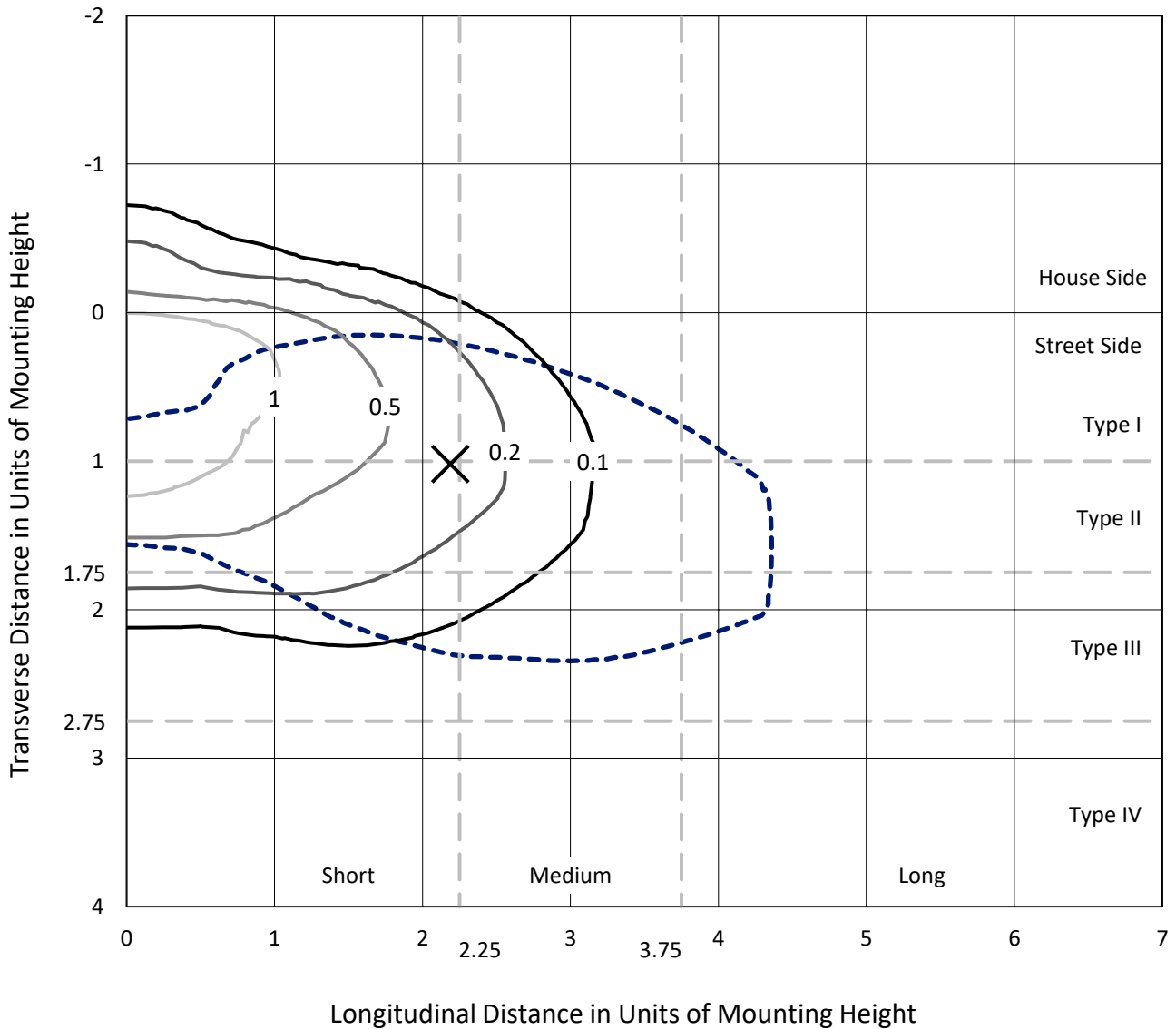
Lumens per Lamp: N/A
Luminaire Lumens: 3195.9 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type III - Short
BUG Rating: B0 - U0 - G1

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

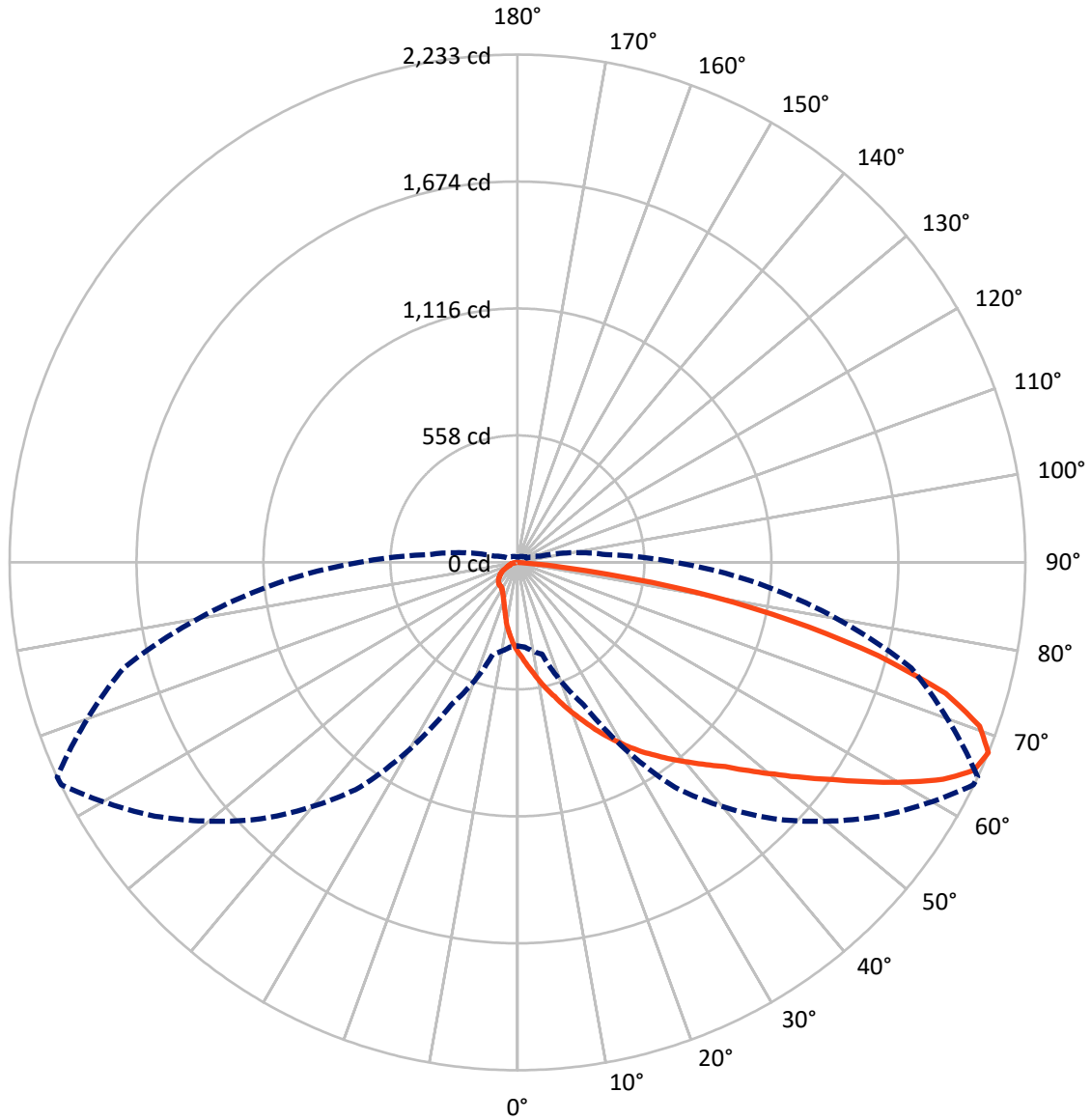
× Max cd
 - - - 1/2 Max cd



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

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Luminous Intensity Polar Plot



— Vertical Plane Through 65-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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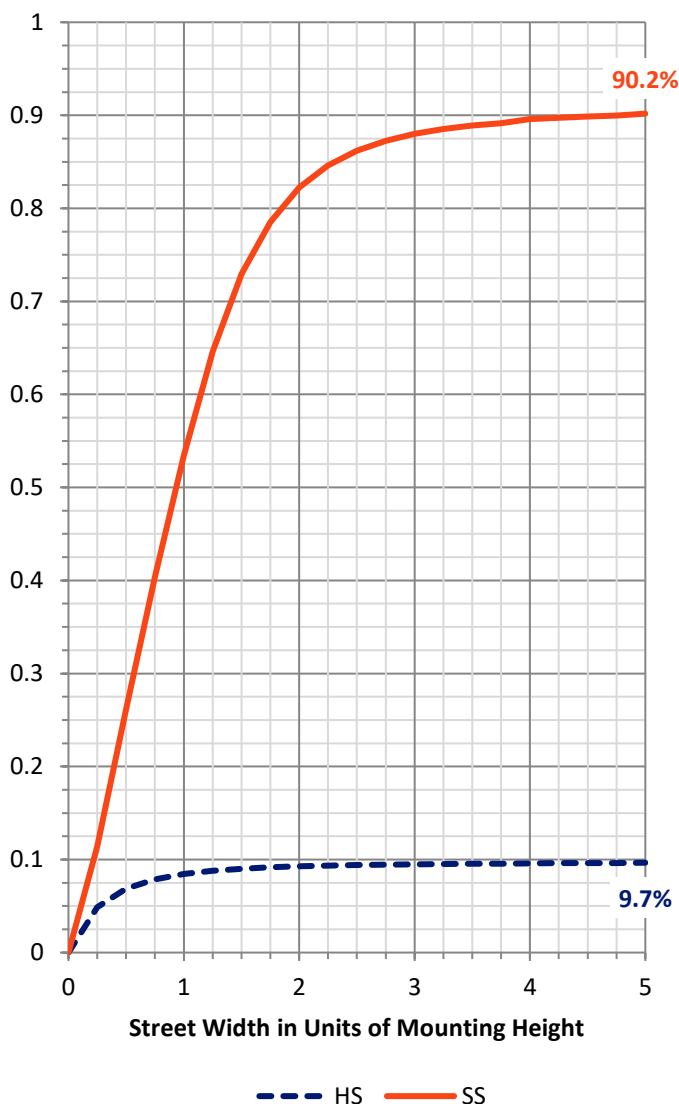
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 311.1 | 0.0 | 311.1 |
| | % Fixture | 9.7 | 0.0 | 9.7 |
| Street Side | Lumens | 2884.8 | 0.0 | 2884.8 |
| | % Fixture | 90.3 | 0.0 | 90.3 |
| Total | Lumens | 3195.9 | 0.0 | 3195.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 38.6 | 1.2 |
| 10°-20° | 128.2 | 4.0 |
| 20°-30° | 233.4 | 7.3 |
| 30°-40° | 361.2 | 11.3 |
| 40°-50° | 546.0 | 17.1 |
| 50°-60° | 710.4 | 22.2 |
| 60°-70° | 700.8 | 21.9 |
| 70°-80° | 426.6 | 13.3 |
| 80°-90° | 50.7 | 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° | 3195.9 | 100.0 |
| 0°-180° | 3195.9 | 100.0 |

Coefficient of Utilization



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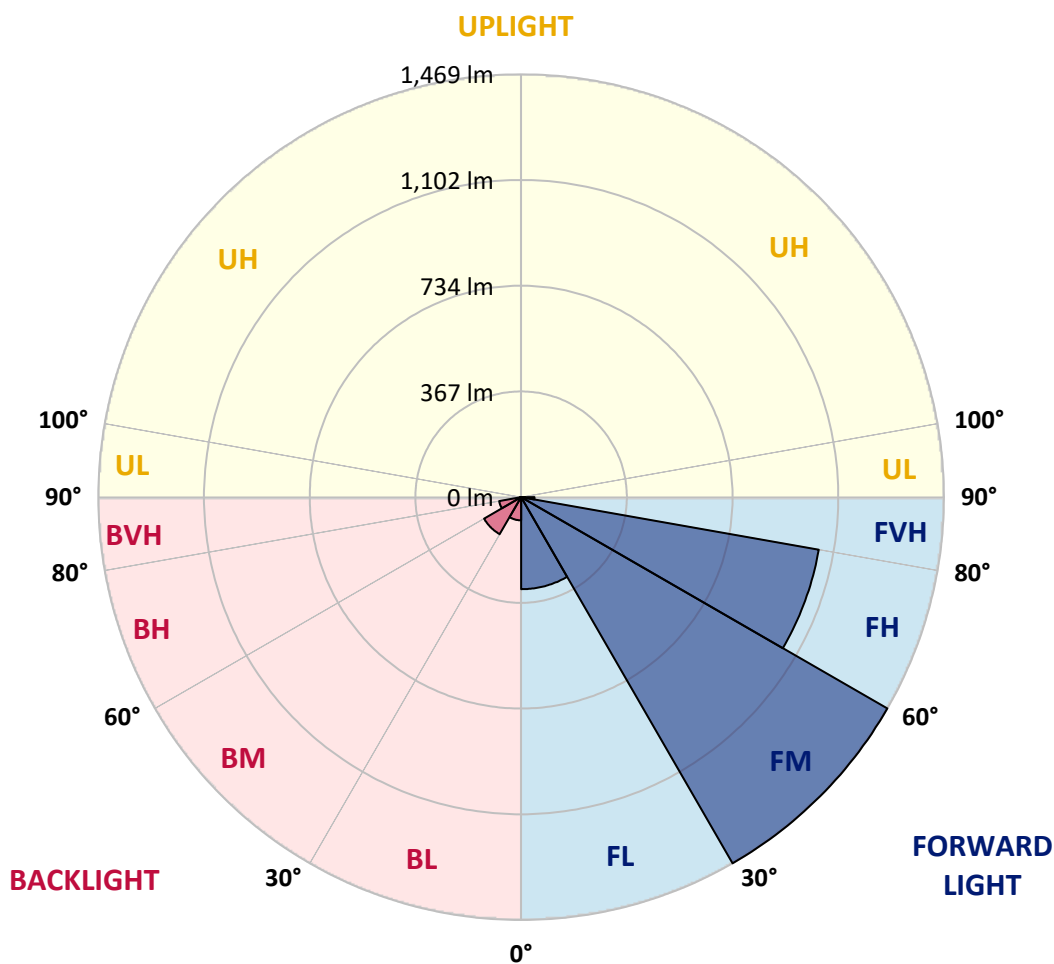
CATALOG NUMBER: MEM2-HSN-SA-30-727-U-T3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 319.8 | 10.0 | | | |
| FM (30°-60°) | 1468.8 | 46.0 | | | |
| FH (60°-80°) | 1049.9 | 32.9 | | | G1/1800 |
| FVH (80°-90°) | 46.3 | 1.5 | | | G1/100 |
| BL (0°-30°) | 80.5 | 2.5 | B0/110 | | |
| BM (30°-60°) | 148.8 | 4.7 | B0/220 | | |
| BH (60°-80°) | 77.5 | 2.4 | B0/110 | | G0/110 |
| BVH (80°-90°) | 4.3 | 0.1 | | | 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 III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 |
| 2.5° | 461.5 | 457.8 | 460.6 | 454.2 | 446.9 | 441.4 | 430.5 | 421.4 | 420.4 | 411.3 | 401.3 |
| 5° | 550.0 | 538.1 | 539.0 | 526.2 | 510.7 | 494.3 | 477.0 | 454.2 | 454.2 | 432.3 | 409.5 |
| 7.5° | 629.3 | 627.5 | 619.3 | 599.2 | 581.0 | 555.4 | 523.5 | 494.3 | 487.9 | 454.2 | 418.6 |
| 10° | 705.9 | 703.2 | 695.9 | 680.4 | 649.4 | 621.1 | 581.0 | 537.2 | 529.0 | 480.6 | 429.6 |
| 12.5° | 767.0 | 767.9 | 759.7 | 747.0 | 719.6 | 685.8 | 632.9 | 578.2 | 570.9 | 506.2 | 440.5 |
| 15° | 820.8 | 819.9 | 818.1 | 807.1 | 780.7 | 749.7 | 687.7 | 623.8 | 612.0 | 533.5 | 451.5 |
| 17.5° | 861.9 | 860.0 | 856.4 | 847.3 | 834.5 | 804.4 | 745.1 | 672.2 | 662.1 | 565.5 | 464.2 |
| 20° | 873.7 | 872.8 | 872.8 | 879.2 | 873.7 | 855.5 | 802.6 | 722.3 | 711.4 | 599.2 | 481.6 |
| 22.5° | 895.6 | 894.7 | 893.8 | 900.2 | 903.8 | 902.0 | 856.4 | 773.4 | 763.4 | 638.4 | 503.4 |
| 25° | 923.9 | 922.1 | 919.3 | 925.7 | 930.3 | 941.2 | 910.2 | 833.6 | 821.7 | 684.0 | 525.3 |
| 27.5° | 961.3 | 963.1 | 959.5 | 958.5 | 958.5 | 964.9 | 957.6 | 887.4 | 876.5 | 727.8 | 550.9 |
| 30° | 1010.5 | 1013.3 | 1006.9 | 1002.3 | 994.1 | 993.2 | 995.0 | 947.6 | 932.1 | 775.2 | 577.3 |
| 32.5° | 1058.9 | 1061.6 | 1058.0 | 1051.6 | 1030.6 | 1022.4 | 1029.7 | 998.7 | 988.6 | 827.2 | 611.1 |
| 35° | 1098.1 | 1104.5 | 1104.5 | 1091.7 | 1062.5 | 1058.0 | 1069.8 | 1048.8 | 1041.5 | 888.3 | 651.2 |
| 37.5° | 1151.0 | 1154.6 | 1151.0 | 1127.3 | 1090.8 | 1096.3 | 1114.5 | 1101.7 | 1097.2 | 954.0 | 698.6 |
| 40° | 1264.1 | 1268.6 | 1244.9 | 1188.4 | 1130.0 | 1136.4 | 1168.3 | 1161.0 | 1153.7 | 1018.7 | 742.4 |
| 42.5° | 1421.9 | 1410.9 | 1406.4 | 1280.5 | 1190.2 | 1186.6 | 1226.7 | 1216.6 | 1215.7 | 1084.4 | 782.5 |
| 45° | 1525.8 | 1529.5 | 1506.7 | 1387.2 | 1317.0 | 1248.6 | 1291.4 | 1287.8 | 1280.5 | 1151.0 | 830.9 |
| 47.5° | 1597.9 | 1589.7 | 1533.1 | 1475.7 | 1489.3 | 1329.7 | 1363.5 | 1372.6 | 1368.0 | 1226.7 | 890.1 |
| 50° | 1628.0 | 1619.8 | 1582.4 | 1544.1 | 1560.5 | 1422.8 | 1437.4 | 1467.5 | 1462.9 | 1303.3 | 940.3 |
| 52.5° | 1590.6 | 1580.5 | 1583.3 | 1593.3 | 1585.1 | 1495.7 | 1528.6 | 1576.0 | 1570.5 | 1392.7 | 998.7 |
| 55° | 1352.5 | 1379.0 | 1481.1 | 1583.3 | 1580.5 | 1551.4 | 1626.1 | 1695.5 | 1684.5 | 1485.7 | 1048.8 |
| 57.5° | 1090.8 | 1105.4 | 1234.9 | 1511.2 | 1566.0 | 1597.9 | 1737.4 | 1823.1 | 1819.5 | 1578.7 | 1094.4 |
| 60° | 867.3 | 882.8 | 981.3 | 1361.7 | 1532.2 | 1646.2 | 1851.4 | 1964.5 | 1960.9 | 1672.7 | 1127.3 |
| 62.5° | 689.5 | 689.5 | 777.0 | 1146.4 | 1467.5 | 1674.5 | 1941.7 | 2106.8 | 2100.4 | 1748.4 | 1135.5 |
| 65° | 496.1 | 502.5 | 568.2 | 922.1 | 1362.6 | 1667.2 | 1985.5 | 2208.0 | 2204.4 | 1791.2 | 1118.1 |
| 67.5° | 366.6 | 373.9 | 417.7 | 691.3 | 1207.5 | 1594.2 | 1945.4 | 2230.8 | 2232.6 | 1792.1 | 1061.6 |
| 70° | 286.4 | 288.2 | 321.0 | 480.6 | 989.6 | 1431.9 | 1794.9 | 2155.1 | 2155.1 | 1747.4 | 977.7 |
| 72.5° | 218.0 | 219.8 | 248.1 | 327.4 | 728.7 | 1183.8 | 1569.6 | 1954.5 | 1968.2 | 1628.9 | 853.7 |
| 75° | 168.7 | 172.4 | 191.5 | 235.3 | 456.9 | 841.8 | 1289.6 | 1600.6 | 1638.0 | 1399.1 | 703.2 |
| 77.5° | 130.4 | 134.1 | 149.6 | 172.4 | 266.3 | 518.9 | 906.6 | 1196.6 | 1230.3 | 1101.7 | 542.7 |
| 80° | 104.9 | 106.7 | 116.7 | 129.5 | 161.4 | 267.2 | 553.6 | 786.2 | 796.2 | 748.8 | 359.3 |
| 82.5° | 48.3 | 52.0 | 62.9 | 71.1 | 80.3 | 124.0 | 236.2 | 290.9 | 303.7 | 297.3 | 147.7 |
| 85° | 5.5 | 5.5 | 6.4 | 7.3 | 8.2 | 12.8 | 16.4 | 14.6 | 14.6 | 17.3 | 15.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.9 | 1.8 | 1.8 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 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: P868065

CATALOG NUMBER: MEM2-HSN-SA-30-727-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 | 394.9 |
| 2.5° | 395.8 | 389.4 | 377.6 | 367.5 | 358.4 | 349.3 | 344.7 | 333.8 | 331.1 | 332.9 | 326.5 |
| 5° | 397.6 | 384.9 | 360.3 | 337.5 | 318.3 | 300.1 | 284.6 | 268.1 | 264.5 | 259.0 | 256.3 |
| 7.5° | 400.4 | 381.2 | 342.9 | 307.4 | 278.2 | 251.7 | 232.6 | 219.8 | 209.8 | 207.0 | 206.1 |
| 10° | 404.0 | 376.7 | 323.8 | 279.1 | 239.0 | 211.6 | 194.3 | 185.1 | 181.5 | 178.8 | 179.7 |
| 12.5° | 406.8 | 372.1 | 305.5 | 247.2 | 207.9 | 183.3 | 175.1 | 167.8 | 166.0 | 165.1 | 165.1 |
| 15° | 410.4 | 367.5 | 283.6 | 218.9 | 181.5 | 166.9 | 158.7 | 156.0 | 156.0 | 155.0 | 155.0 |
| 17.5° | 415.0 | 363.9 | 265.4 | 197.0 | 166.0 | 152.3 | 148.7 | 145.0 | 145.0 | 145.0 | 144.1 |
| 20° | 424.1 | 362.1 | 249.0 | 178.8 | 152.3 | 143.2 | 137.7 | 135.0 | 134.1 | 133.2 | 133.2 |
| 22.5° | 433.2 | 362.1 | 230.7 | 165.1 | 143.2 | 133.2 | 127.7 | 124.9 | 124.0 | 124.0 | 124.0 |
| 25° | 446.0 | 361.2 | 216.2 | 153.2 | 135.0 | 123.1 | 117.7 | 114.9 | 113.1 | 113.1 | 112.2 |
| 27.5° | 460.6 | 361.2 | 203.4 | 144.1 | 125.9 | 114.0 | 107.6 | 104.9 | 102.1 | 102.1 | 101.2 |
| 30° | 475.2 | 363.0 | 192.4 | 136.8 | 116.7 | 105.8 | 97.6 | 93.9 | 92.1 | 91.2 | 91.2 |
| 32.5° | 494.3 | 368.5 | 185.1 | 131.3 | 108.5 | 97.6 | 89.4 | 85.7 | 83.9 | 83.0 | 83.0 |
| 35° | 523.5 | 382.1 | 186.1 | 128.6 | 103.1 | 90.3 | 82.1 | 77.5 | 76.6 | 76.6 | 75.7 |
| 37.5° | 554.5 | 394.9 | 188.8 | 126.8 | 97.6 | 84.8 | 76.6 | 72.1 | 71.1 | 71.1 | 71.1 |
| 40° | 581.0 | 405.9 | 192.4 | 125.9 | 93.0 | 79.3 | 72.1 | 68.4 | 66.6 | 66.6 | 66.6 |
| 42.5° | 607.4 | 412.2 | 193.4 | 123.1 | 90.3 | 74.8 | 68.4 | 64.8 | 62.9 | 63.8 | 63.8 |
| 45° | 633.9 | 416.8 | 190.6 | 119.5 | 87.6 | 71.1 | 64.8 | 61.1 | 59.3 | 59.3 | 59.3 |
| 47.5° | 665.8 | 426.8 | 186.1 | 114.0 | 85.7 | 68.4 | 61.1 | 57.5 | 56.5 | 56.5 | 56.5 |
| 50° | 697.7 | 435.0 | 182.4 | 107.6 | 81.2 | 64.8 | 58.4 | 53.8 | 52.9 | 52.9 | 52.9 |
| 52.5° | 724.2 | 438.7 | 177.8 | 99.4 | 76.6 | 61.1 | 54.7 | 50.2 | 48.3 | 48.3 | 48.3 |
| 55° | 744.2 | 439.6 | 171.5 | 93.0 | 70.2 | 57.5 | 51.1 | 46.5 | 44.7 | 43.8 | 43.8 |
| 57.5° | 760.6 | 438.7 | 165.1 | 86.6 | 64.8 | 52.9 | 46.5 | 42.9 | 40.1 | 39.2 | 39.2 |
| 60° | 769.8 | 436.0 | 156.0 | 78.4 | 57.5 | 48.3 | 42.9 | 38.3 | 36.5 | 35.6 | 35.6 |
| 62.5° | 764.3 | 428.7 | 143.2 | 65.7 | 52.0 | 43.8 | 39.2 | 35.6 | 32.8 | 31.9 | 31.9 |
| 65° | 738.7 | 414.1 | 126.8 | 53.8 | 46.5 | 39.2 | 35.6 | 31.9 | 28.3 | 27.4 | 27.4 |
| 67.5° | 694.1 | 389.4 | 104.9 | 45.6 | 42.9 | 35.6 | 31.9 | 28.3 | 25.5 | 23.7 | 23.7 |
| 70° | 632.0 | 356.6 | 82.1 | 39.2 | 38.3 | 32.8 | 29.2 | 25.5 | 22.8 | 21.0 | 21.0 |
| 72.5° | 543.6 | 302.8 | 61.1 | 33.7 | 33.7 | 30.1 | 26.4 | 23.7 | 21.0 | 19.2 | 19.2 |
| 75° | 439.6 | 228.9 | 46.5 | 31.0 | 30.1 | 27.4 | 23.7 | 21.0 | 19.2 | 17.3 | 17.3 |
| 77.5° | 321.0 | 152.3 | 38.3 | 28.3 | 28.3 | 24.6 | 21.9 | 19.2 | 17.3 | 16.4 | 16.4 |
| 80° | 195.2 | 87.6 | 27.4 | 21.9 | 21.9 | 21.0 | 18.2 | 16.4 | 15.5 | 13.7 | 12.8 |
| 82.5° | 79.3 | 33.7 | 14.6 | 10.9 | 10.9 | 10.0 | 6.4 | 5.5 | 5.5 | 5.5 | 4.6 |
| 85° | 8.2 | 5.5 | 3.6 | 2.7 | 2.7 | 2.7 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 87.5° | 2.7 | 2.7 | 1.8 | 1.8 | 1.8 | 1.8 | 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: SP1-2407-157-3

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-30-727-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-30-727-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-3
 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-30-727-U-5WQ-2**
 Description: Epic Modern Light Square 30W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 2747
 CIE u': 0.2606
 CIE v': 0.5257
 Duv: -0.0005
 CIE x: 0.4552
 CIE y: 0.4082
 CIE z: 0.1366
 Peak Wavelength (nm): 597
 Dominant Wavelength (nm): 584
 Purity: 59.16856
 Rf: 75.5
 Rg: 93.6

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 68.1 | R9: | -35.3 |
| R2: | 83.9 | R10: | 64.2 |
| R3: | 94.7 | R11: | 61.7 |
| R4: | 66.3 | R12: | 53.9 |
| R5: | 67.4 | R13: | 71.2 |
| R6: | 78.7 | R14: | 97.6 |
| R7: | 75.0 | R15: | 59.3 |
| R8: | 39.4 | | |



Test Conditions

Stabilization Time: 22M
 Operation Time: 1H 22M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-3

| 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 2700K 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 | 103 | NR | 620 | 846 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 130 | NR | 625 | 784 | NR | 755 | 17 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 171 | NR | 630 | 720 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 221 | NR | 635 | 652 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 587 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 313 | NR | 645 | 521 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 350 | NR | 650 | 461 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 406 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 407 | NR | 660 | 353 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 435 | NR | 665 | 307 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 462 | NR | 670 | 264 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 496 | NR | 675 | 227 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 534 | NR | 680 | 196 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 582 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 69 | NR | 560 | 638 | NR | 690 | 144 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 120 | NR | 565 | 700 | NR | 695 | 122 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 193 | NR | 570 | 767 | NR | 700 | 103 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 316 | NR | 575 | 836 | NR | 705 | 88 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 469 | NR | 580 | 898 | NR | 710 | 74 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 431 | NR | 585 | 947 | NR | 715 | 63 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 264 | NR | 590 | 982 | NR | 720 | 54 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 197 | NR | 595 | 997 | NR | 725 | 46 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 155 | NR | 600 | 997 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 108 | NR | 605 | 978 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 90 | NR | 610 | 947 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 92 | NR | 615 | 900 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-3

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.13

| 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 | 103 | NR | 620 | 846 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 130 | NR | 625 | 784 | NR | 755 | 17 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 171 | NR | 630 | 720 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 221 | NR | 635 | 652 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 587 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 313 | NR | 645 | 521 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 350 | NR | 650 | 461 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 406 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 407 | NR | 660 | 353 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 435 | NR | 665 | 307 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 462 | NR | 670 | 264 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 496 | NR | 675 | 227 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 534 | NR | 680 | 196 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 582 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 69 | NR | 560 | 638 | NR | 690 | 144 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 120 | NR | 565 | 700 | NR | 695 | 122 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 193 | NR | 570 | 767 | NR | 700 | 103 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 316 | NR | 575 | 836 | NR | 705 | 88 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 469 | NR | 580 | 898 | NR | 710 | 74 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 431 | NR | 585 | 947 | NR | 715 | 63 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 264 | NR | 590 | 982 | NR | 720 | 54 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 197 | NR | 595 | 997 | NR | 725 | 46 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 155 | NR | 600 | 997 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 108 | NR | 605 | 978 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 90 | NR | 610 | 947 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 92 | NR | 615 | 900 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-3

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.04

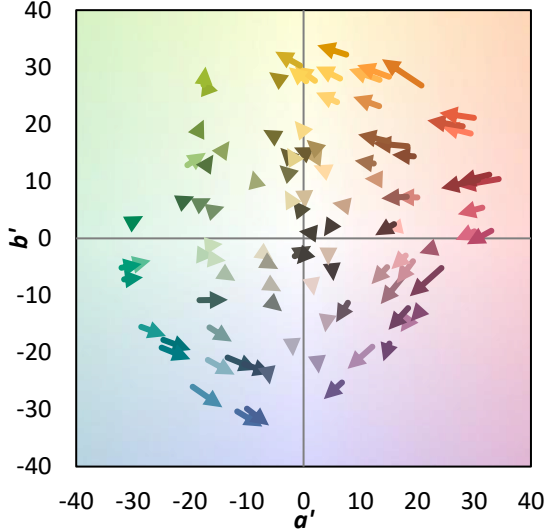
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 103 | NR | 620 | 846 | NR | 750 | 20 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 130 | NR | 625 | 784 | NR | 755 | 17 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 171 | NR | 630 | 720 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 221 | NR | 635 | 652 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 268 | NR | 640 | 587 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 313 | NR | 645 | 521 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 350 | NR | 650 | 461 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 381 | NR | 655 | 406 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 407 | NR | 660 | 353 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 2 | NR | 535 | 435 | NR | 665 | 307 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 462 | NR | 670 | 264 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 9 | NR | 545 | 496 | NR | 675 | 227 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 534 | NR | 680 | 196 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 582 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 69 | NR | 560 | 638 | NR | 690 | 144 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 120 | NR | 565 | 700 | NR | 695 | 122 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 193 | NR | 570 | 767 | NR | 700 | 103 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 316 | NR | 575 | 836 | NR | 705 | 88 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 469 | NR | 580 | 898 | NR | 710 | 74 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 431 | NR | 585 | 947 | NR | 715 | 63 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 264 | NR | 590 | 982 | NR | 720 | 54 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 197 | NR | 595 | 997 | NR | 725 | 46 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 155 | NR | 600 | 997 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 108 | NR | 605 | 978 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 90 | NR | 610 | 947 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 92 | NR | 615 | 900 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 75.5$
 $R_g = 93.6$
 $CIE R_a = 71.7$
 $R_g = -35.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 90 | CES52 = 85 | CES77 = 79 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 66 |
| CES04 = 71 | CES29 = 71 | CES54 = 86 | CES79 = 87 |
| CES05 = 50 | CES30 = 85 | CES55 = 84 | CES80 = 85 |
| CES06 = 52 | CES31 = 74 | CES56 = 75 | CES81 = 67 |
| CES07 = 42 | CES32 = 66 | CES57 = 75 | CES82 = 93 |
| CES08 = 41 | CES33 = 80 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 77 | CES35 = 89 | CES60 = 90 | CES85 = 72 |
| CES11 = 60 | CES36 = 93 | CES61 = 81 | CES86 = 59 |
| CES12 = 66 | CES37 = 88 | CES62 = 91 | CES87 = 77 |
| CES13 = 43 | CES38 = 93 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 97 | CES64 = 67 | CES89 = 65 |
| CES15 = 72 | CES40 = 93 | CES65 = 66 | CES90 = 80 |
| CES16 = 48 | CES41 = 93 | CES66 = 63 | CES91 = 80 |
| CES17 = 51 | CES42 = 89 | CES67 = 61 | CES92 = 55 |
| CES18 = 57 | CES43 = 78 | CES68 = 68 | CES93 = 72 |
| CES19 = 73 | CES44 = 99 | CES69 = 78 | CES94 = 48 |
| CES20 = 67 | CES45 = 85 | CES70 = 63 | CES95 = 66 |
| CES21 = 88 | CES46 = 81 | CES71 = 61 | CES96 = 76 |
| CES22 = 80 | CES47 = 86 | CES72 = 86 | CES97 = 81 |
| CES23 = 92 | CES48 = 74 | CES73 = 56 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 93 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 66 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)