

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: P867575

Luminaire Tested: **MEM2-HTN-SA-30-727-U-T2U-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867575
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-30-727-U-T2U-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 30W 70CRI 2700K
FIXTURE w/ TYPE II URBAN DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (10) 2700K CCT, 70 CRI LEDs
Ballast/Driver: ELECTRONIC DRIVER

Summary

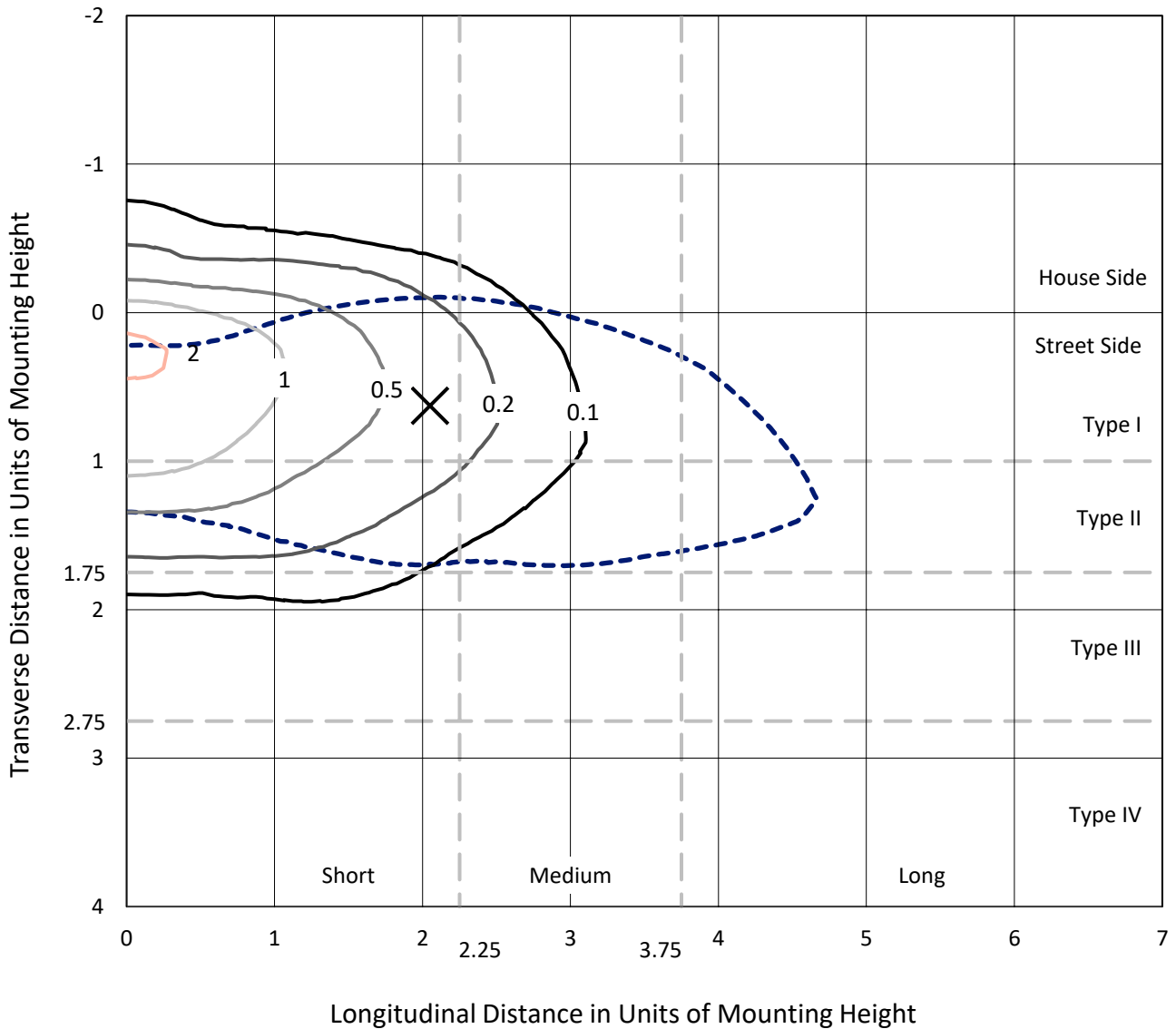
Lumens per Lamp: N/A
Luminaire Lumens: 3100.3 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

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

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Iso-Footcandle Lines of Horizontal Illumination

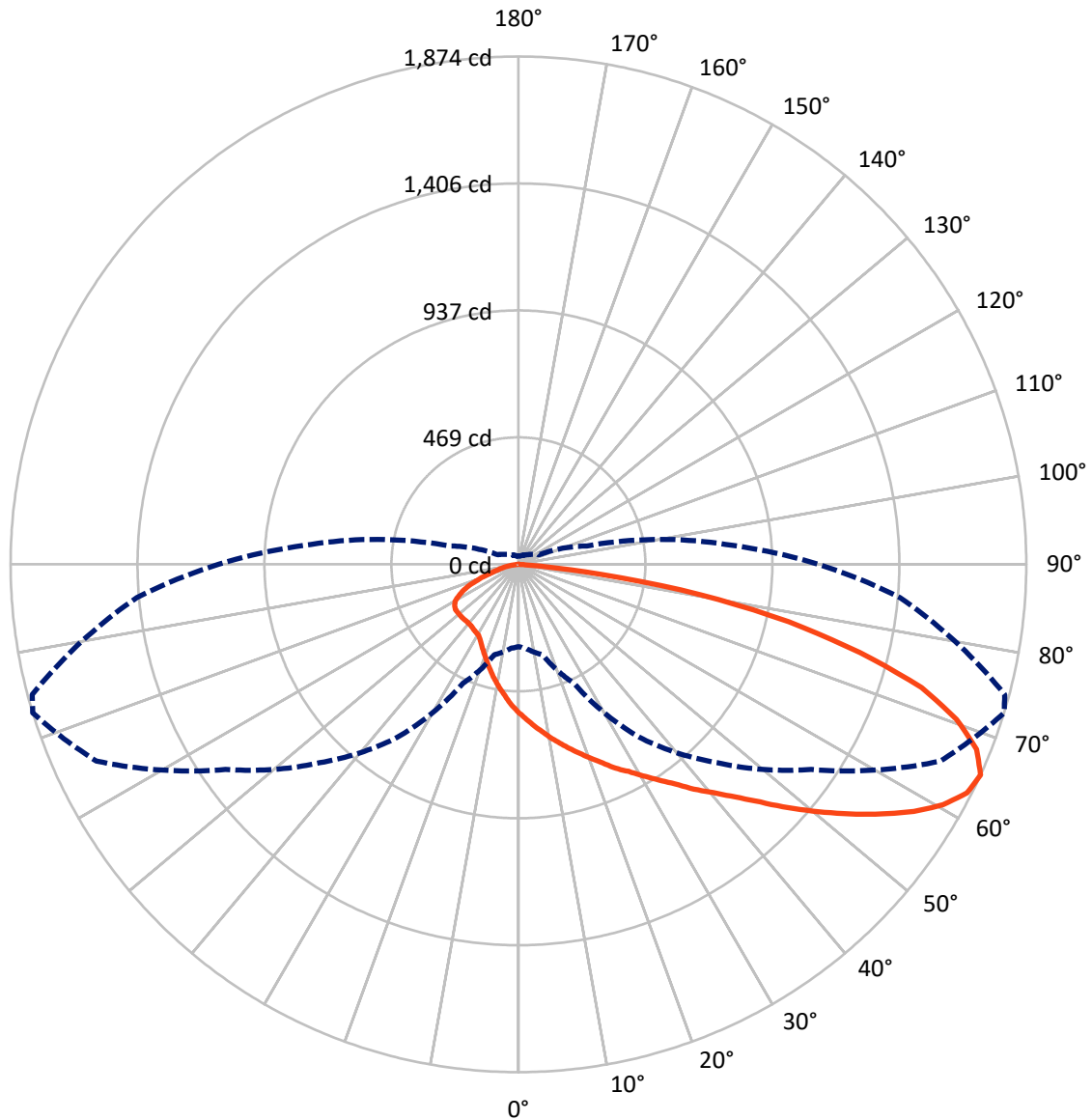
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2.2 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



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

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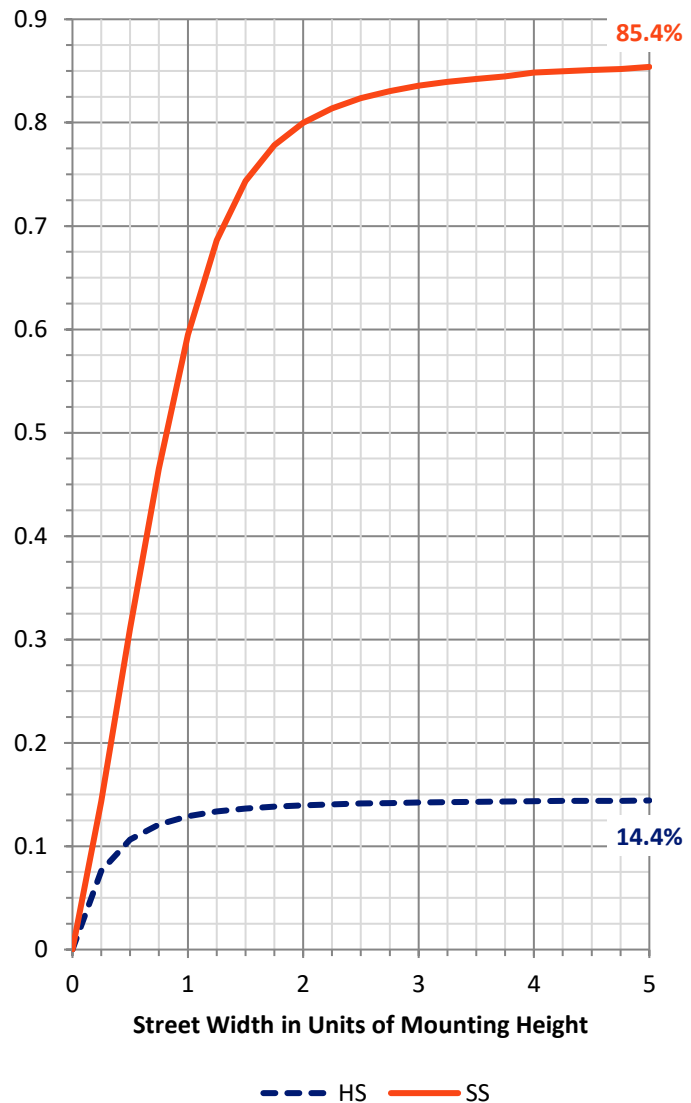
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 450.8 | 0.0 | 450.8 |
| | % Fixture | 14.5 | 0.0 | 14.5 |
| Street Side | Lumens | 2649.5 | 0.0 | 2649.5 |
| | % Fixture | 85.5 | 0.0 | 85.5 |
| Total | Lumens | 3100.3 | 0.0 | 3100.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 53.1 | 1.7 |
| 10°-20° | 161.3 | 5.2 |
| 20°-30° | 270.2 | 8.7 |
| 30°-40° | 407.6 | 13.1 |
| 40°-50° | 576.0 | 18.6 |
| 50°-60° | 648.1 | 20.9 |
| 60°-70° | 581.1 | 18.7 |
| 70°-80° | 353.5 | 11.4 |
| 80°-90° | 49.5 | 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° | 3100.3 | 100.0 |
| 0°-180° | 3100.3 | 100.0 |



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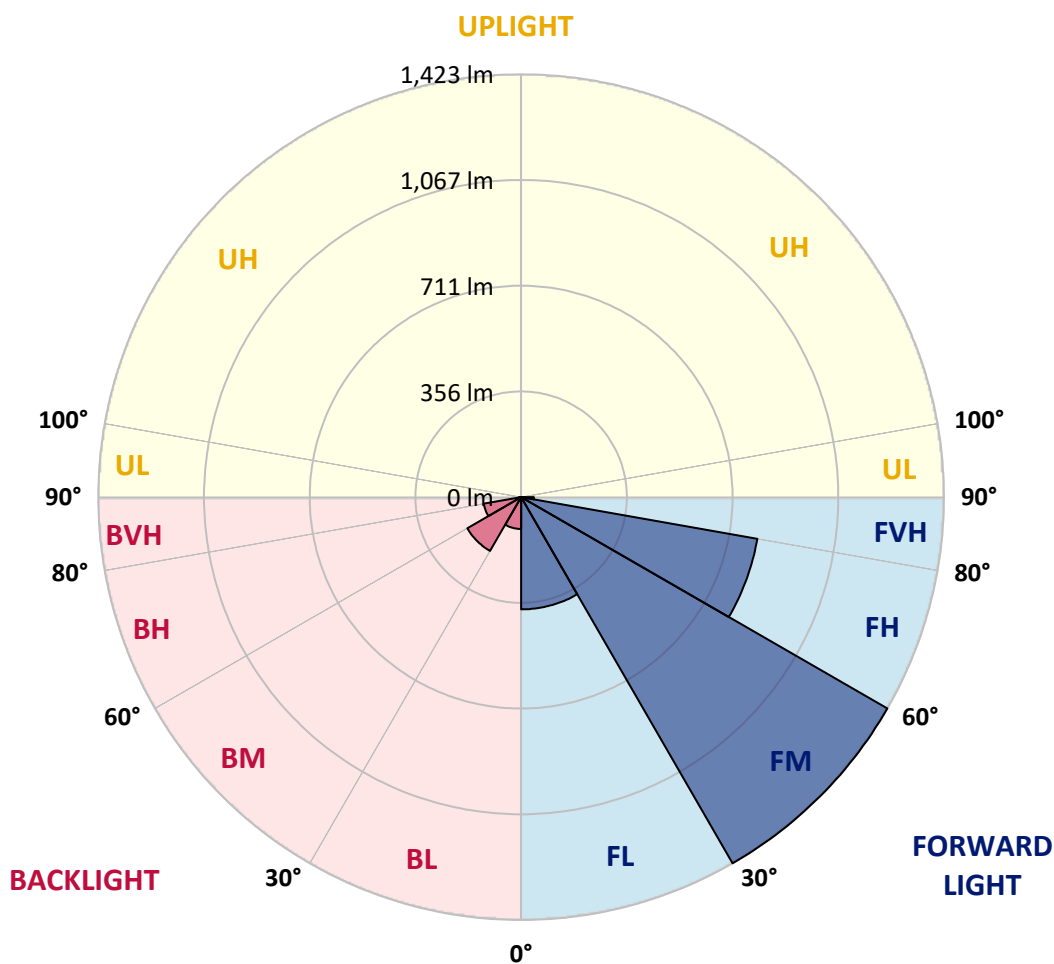
CATALOG NUMBER: MEM2-HTN-SA-30-727-U-T2U-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 377.6 | 12.2 | | | |
| FM (30°-60°) | 1422.6 | 45.9 | | | |
| FH (60°-80°) | 806.9 | 26.0 | | | G1/1800 |
| FVH (80°-90°) | 42.5 | 1.4 | | | G1/100 |
| BL (0°-30°) | 107.1 | 3.5 | B0/110 | | |
| BM (30°-60°) | 209.1 | 6.7 | B0/220 | | |
| BH (60°-80°) | 127.7 | 4.1 | B1/500 | | G1/500 |
| BVH (80°-90°) | 7.0 | 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





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 73° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 |
| 2.5° | 634.8 | 631.2 | 625.7 | 621.2 | 612.9 | 602.0 | 592.9 | 581.0 | 572.8 | 570.1 | 558.2 |
| 5° | 727.0 | 722.4 | 716.0 | 705.1 | 683.2 | 670.4 | 646.7 | 619.3 | 597.4 | 592.9 | 565.5 |
| 7.5° | 821.8 | 820.0 | 805.4 | 789.0 | 762.5 | 734.3 | 697.8 | 654.9 | 623.0 | 615.7 | 573.7 |
| 10° | 902.1 | 893.9 | 885.7 | 870.2 | 841.9 | 801.8 | 754.3 | 695.0 | 650.3 | 638.5 | 581.9 |
| 12.5° | 950.4 | 947.7 | 940.4 | 922.2 | 894.8 | 860.1 | 803.6 | 734.3 | 676.8 | 660.4 | 590.1 |
| 15° | 986.0 | 988.7 | 981.4 | 969.6 | 941.3 | 908.5 | 853.7 | 775.3 | 705.1 | 685.9 | 599.3 |
| 17.5° | 1019.8 | 1017.9 | 1017.0 | 1003.3 | 977.8 | 945.0 | 889.3 | 809.1 | 733.3 | 712.4 | 608.4 |
| 20° | 1038.9 | 1039.8 | 1038.0 | 1032.5 | 1007.9 | 976.0 | 924.0 | 849.2 | 764.4 | 740.6 | 620.2 |
| 22.5° | 1048.9 | 1052.6 | 1056.2 | 1055.3 | 1035.3 | 1010.6 | 956.8 | 881.1 | 796.3 | 771.7 | 634.8 |
| 25° | 1055.3 | 1058.1 | 1066.3 | 1077.2 | 1059.0 | 1038.9 | 993.3 | 919.4 | 833.7 | 805.4 | 652.2 |
| 27.5° | 1060.8 | 1064.4 | 1074.5 | 1090.9 | 1076.3 | 1064.4 | 1025.2 | 952.3 | 865.6 | 840.1 | 672.2 |
| 30° | 1096.4 | 1100.9 | 1100.9 | 1109.1 | 1092.7 | 1090.0 | 1060.8 | 991.5 | 905.7 | 878.4 | 697.8 |
| 32.5° | 1190.3 | 1181.2 | 1164.8 | 1156.6 | 1117.3 | 1118.3 | 1095.5 | 1030.7 | 948.6 | 921.2 | 729.7 |
| 35° | 1271.5 | 1271.5 | 1251.4 | 1225.0 | 1162.0 | 1149.3 | 1135.6 | 1082.7 | 995.1 | 968.7 | 771.7 |
| 37.5° | 1349.9 | 1350.9 | 1329.9 | 1307.1 | 1235.0 | 1189.4 | 1182.1 | 1132.9 | 1052.6 | 1021.6 | 815.4 |
| 40° | 1399.2 | 1404.7 | 1399.2 | 1381.9 | 1312.5 | 1259.6 | 1227.7 | 1189.4 | 1107.3 | 1083.6 | 865.6 |
| 42.5° | 1407.4 | 1418.3 | 1438.4 | 1443.9 | 1369.1 | 1322.6 | 1286.1 | 1247.8 | 1173.0 | 1146.5 | 923.1 |
| 45° | 1386.4 | 1390.1 | 1434.8 | 1441.2 | 1411.1 | 1372.7 | 1348.1 | 1316.2 | 1251.4 | 1228.6 | 986.9 |
| 47.5° | 1329.0 | 1321.7 | 1337.2 | 1392.8 | 1404.7 | 1402.8 | 1409.2 | 1393.7 | 1342.6 | 1313.5 | 1057.1 |
| 50° | 1205.8 | 1208.6 | 1258.7 | 1326.2 | 1367.3 | 1413.8 | 1454.8 | 1472.2 | 1434.8 | 1405.6 | 1132.9 |
| 52.5° | 981.4 | 994.2 | 1090.0 | 1249.6 | 1320.8 | 1406.5 | 1487.7 | 1546.0 | 1530.5 | 1502.3 | 1207.6 |
| 55° | 806.3 | 825.5 | 921.2 | 1126.5 | 1256.9 | 1370.9 | 1506.8 | 1623.6 | 1626.3 | 1604.4 | 1276.1 |
| 57.5° | 631.2 | 646.7 | 747.9 | 935.8 | 1165.7 | 1315.3 | 1509.6 | 1690.2 | 1721.2 | 1695.6 | 1336.3 |
| 60° | 494.4 | 505.3 | 564.6 | 779.9 | 1053.5 | 1235.9 | 1489.5 | 1743.1 | 1801.4 | 1782.3 | 1388.2 |
| 62.5° | 374.9 | 383.1 | 436.0 | 616.6 | 915.8 | 1142.9 | 1422.0 | 1762.2 | 1858.0 | 1839.7 | 1417.4 |
| 65° | 303.7 | 311.0 | 345.7 | 484.3 | 779.9 | 1035.3 | 1319.8 | 1718.4 | 1874.4 | 1858.0 | 1413.8 |
| 67.5° | 248.1 | 250.8 | 279.1 | 377.6 | 659.5 | 913.9 | 1170.3 | 1604.4 | 1824.2 | 1823.3 | 1371.8 |
| 70° | 200.7 | 208.0 | 231.7 | 301.0 | 548.2 | 774.4 | 996.0 | 1425.6 | 1715.7 | 1724.8 | 1287.9 |
| 72.5° | 170.6 | 172.4 | 193.4 | 249.0 | 446.9 | 628.5 | 824.6 | 1219.5 | 1556.1 | 1563.4 | 1156.6 |
| 75° | 144.1 | 146.9 | 162.4 | 201.6 | 363.0 | 498.9 | 663.1 | 985.1 | 1302.5 | 1333.5 | 974.1 |
| 77.5° | 124.0 | 125.0 | 135.9 | 166.0 | 258.1 | 374.9 | 486.2 | 738.8 | 1019.8 | 1041.6 | 765.3 |
| 80° | 97.6 | 99.4 | 111.3 | 131.3 | 179.7 | 243.5 | 335.7 | 505.3 | 681.4 | 706.0 | 529.9 |
| 82.5° | 45.6 | 51.1 | 53.8 | 72.1 | 93.9 | 120.4 | 158.7 | 210.7 | 308.3 | 307.4 | 247.2 |
| 85° | 4.6 | 3.6 | 3.6 | 5.5 | 8.2 | 8.2 | 10.0 | 11.9 | 23.7 | 28.3 | 21.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.9 | 1.8 | 1.8 | 1.8 | 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: P867575

CATALOG NUMBER: MEM2-HTN-SA-30-727-U-T2U-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 | 550.0 |
| 2.5° | 552.7 | 544.5 | 529.9 | 516.3 | 507.1 | 499.8 | 488.0 | 480.7 | 475.2 | 467.9 | 467.0 |
| 5° | 550.9 | 536.3 | 507.1 | 482.5 | 458.8 | 438.7 | 417.8 | 405.0 | 391.3 | 384.9 | 390.4 |
| 7.5° | 552.7 | 529.0 | 483.4 | 446.0 | 410.5 | 378.5 | 351.2 | 333.8 | 321.1 | 314.7 | 315.6 |
| 10° | 553.7 | 522.6 | 463.4 | 411.4 | 365.8 | 328.4 | 297.4 | 273.6 | 258.1 | 254.5 | 249.9 |
| 12.5° | 551.8 | 514.4 | 443.3 | 377.6 | 322.9 | 281.8 | 245.4 | 227.1 | 211.6 | 204.3 | 204.3 |
| 15° | 553.7 | 508.1 | 422.3 | 346.6 | 284.6 | 237.2 | 206.1 | 186.1 | 177.0 | 170.6 | 171.5 |
| 17.5° | 553.7 | 502.6 | 402.2 | 316.5 | 247.2 | 203.4 | 175.1 | 158.7 | 149.6 | 145.9 | 145.0 |
| 20° | 560.0 | 498.0 | 383.1 | 288.2 | 214.3 | 173.3 | 150.5 | 137.7 | 130.4 | 126.8 | 125.0 |
| 22.5° | 564.6 | 494.4 | 365.8 | 260.9 | 187.0 | 151.4 | 132.3 | 120.4 | 114.9 | 113.1 | 113.1 |
| 25° | 572.8 | 493.5 | 350.3 | 234.4 | 165.1 | 135.0 | 117.7 | 108.5 | 104.0 | 102.2 | 102.2 |
| 27.5° | 584.7 | 495.3 | 335.7 | 211.6 | 148.7 | 118.6 | 105.8 | 98.5 | 95.8 | 94.9 | 93.9 |
| 30° | 602.0 | 503.5 | 326.5 | 194.3 | 133.2 | 108.5 | 96.7 | 92.1 | 90.3 | 89.4 | 89.4 |
| 32.5° | 624.8 | 518.1 | 322.9 | 185.2 | 124.0 | 100.3 | 90.3 | 86.7 | 84.8 | 84.8 | 83.9 |
| 35° | 653.1 | 534.5 | 320.2 | 177.0 | 117.7 | 94.9 | 85.7 | 82.1 | 81.2 | 81.2 | 81.2 |
| 37.5° | 686.8 | 551.8 | 315.6 | 171.5 | 114.0 | 90.3 | 82.1 | 78.4 | 78.4 | 78.4 | 78.4 |
| 40° | 724.2 | 577.4 | 314.7 | 167.8 | 111.3 | 87.6 | 78.4 | 74.8 | 74.8 | 74.8 | 74.8 |
| 42.5° | 766.2 | 604.7 | 313.8 | 165.1 | 109.5 | 85.7 | 74.8 | 71.1 | 71.1 | 71.1 | 71.1 |
| 45° | 817.3 | 639.4 | 315.6 | 163.3 | 109.5 | 83.9 | 72.1 | 67.5 | 66.6 | 66.6 | 66.6 |
| 47.5° | 867.4 | 672.2 | 317.4 | 161.4 | 107.6 | 81.2 | 68.4 | 63.8 | 62.9 | 62.0 | 62.0 |
| 50° | 921.2 | 706.0 | 317.4 | 159.6 | 105.8 | 78.4 | 65.7 | 59.3 | 58.4 | 57.5 | 57.5 |
| 52.5° | 974.1 | 734.3 | 318.3 | 156.9 | 101.2 | 73.9 | 61.1 | 55.6 | 53.8 | 52.9 | 52.0 |
| 55° | 1025.2 | 764.4 | 319.2 | 152.3 | 95.8 | 69.3 | 58.4 | 52.0 | 49.3 | 47.4 | 47.4 |
| 57.5° | 1063.5 | 789.0 | 314.7 | 143.2 | 88.5 | 64.8 | 53.8 | 47.4 | 43.8 | 42.0 | 42.0 |
| 60° | 1100.0 | 804.5 | 306.5 | 129.5 | 81.2 | 60.2 | 50.2 | 42.9 | 39.2 | 37.4 | 37.4 |
| 62.5° | 1114.6 | 807.2 | 287.3 | 105.8 | 72.1 | 55.6 | 45.6 | 39.2 | 36.5 | 35.6 | 35.6 |
| 65° | 1106.4 | 795.4 | 261.8 | 83.9 | 63.8 | 50.2 | 42.0 | 36.5 | 32.8 | 30.1 | 30.1 |
| 67.5° | 1061.7 | 754.3 | 227.1 | 66.6 | 55.6 | 45.6 | 38.3 | 32.8 | 29.2 | 26.5 | 26.5 |
| 70° | 976.9 | 688.7 | 177.0 | 52.9 | 48.3 | 40.1 | 34.7 | 30.1 | 26.5 | 23.7 | 23.7 |
| 72.5° | 851.9 | 597.4 | 128.6 | 44.7 | 42.0 | 35.6 | 31.0 | 27.4 | 23.7 | 21.9 | 21.9 |
| 75° | 702.3 | 460.6 | 91.2 | 38.3 | 37.4 | 31.9 | 28.3 | 24.6 | 21.9 | 20.1 | 20.1 |
| 77.5° | 527.2 | 321.1 | 71.1 | 33.7 | 32.8 | 29.2 | 25.5 | 22.8 | 20.1 | 19.2 | 18.2 |
| 80° | 351.2 | 198.8 | 53.8 | 25.5 | 24.6 | 22.8 | 21.0 | 19.2 | 16.4 | 14.6 | 14.6 |
| 82.5° | 156.9 | 83.9 | 27.4 | 14.6 | 12.8 | 10.9 | 9.1 | 6.4 | 6.4 | 5.5 | 5.5 |
| 85° | 16.4 | 10.9 | 5.5 | 3.6 | 3.6 | 2.7 | 2.7 | 2.7 | 1.8 | 1.8 | 1.8 |
| 87.5° | 2.7 | 2.7 | 1.8 | 1.8 | 1.8 | 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 |

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)