

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: INVUE

Report Number: P868571

Luminaire Tested: **EMM2-HTN-SA1A-740-U-T3-HSS**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868571
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HTN-SA1A-740-U-T3-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 40W 70CRI 4000K
FITXURE w/ TYPE III DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (10) 4000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

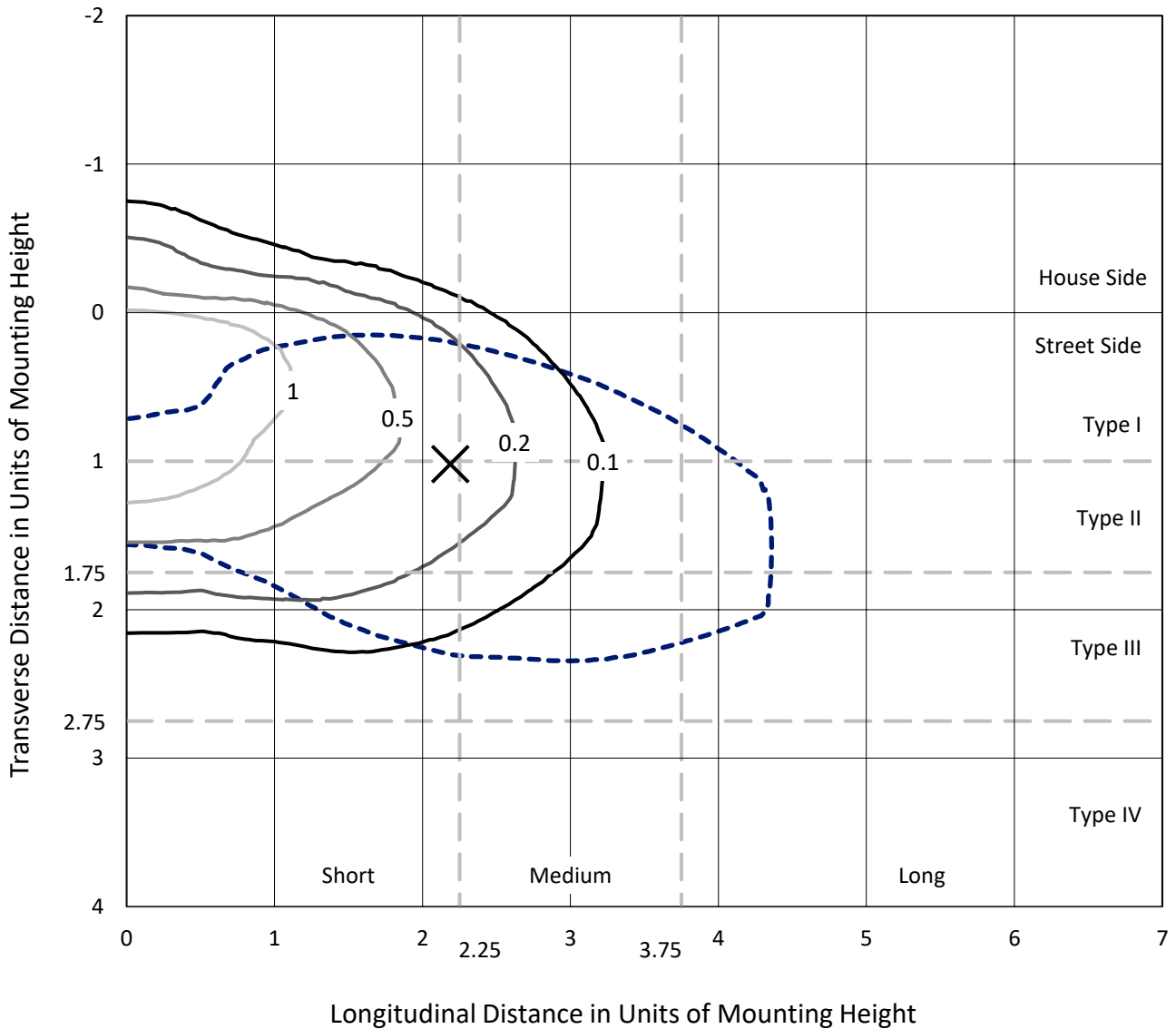
Lumens per Lamp: N/A
Luminaire Lumens: 3462.2 lumens
Efficiency: N/A
Efficacy: 105.6 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type III - Short
BUG Rating: B0 - U0 - G1

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

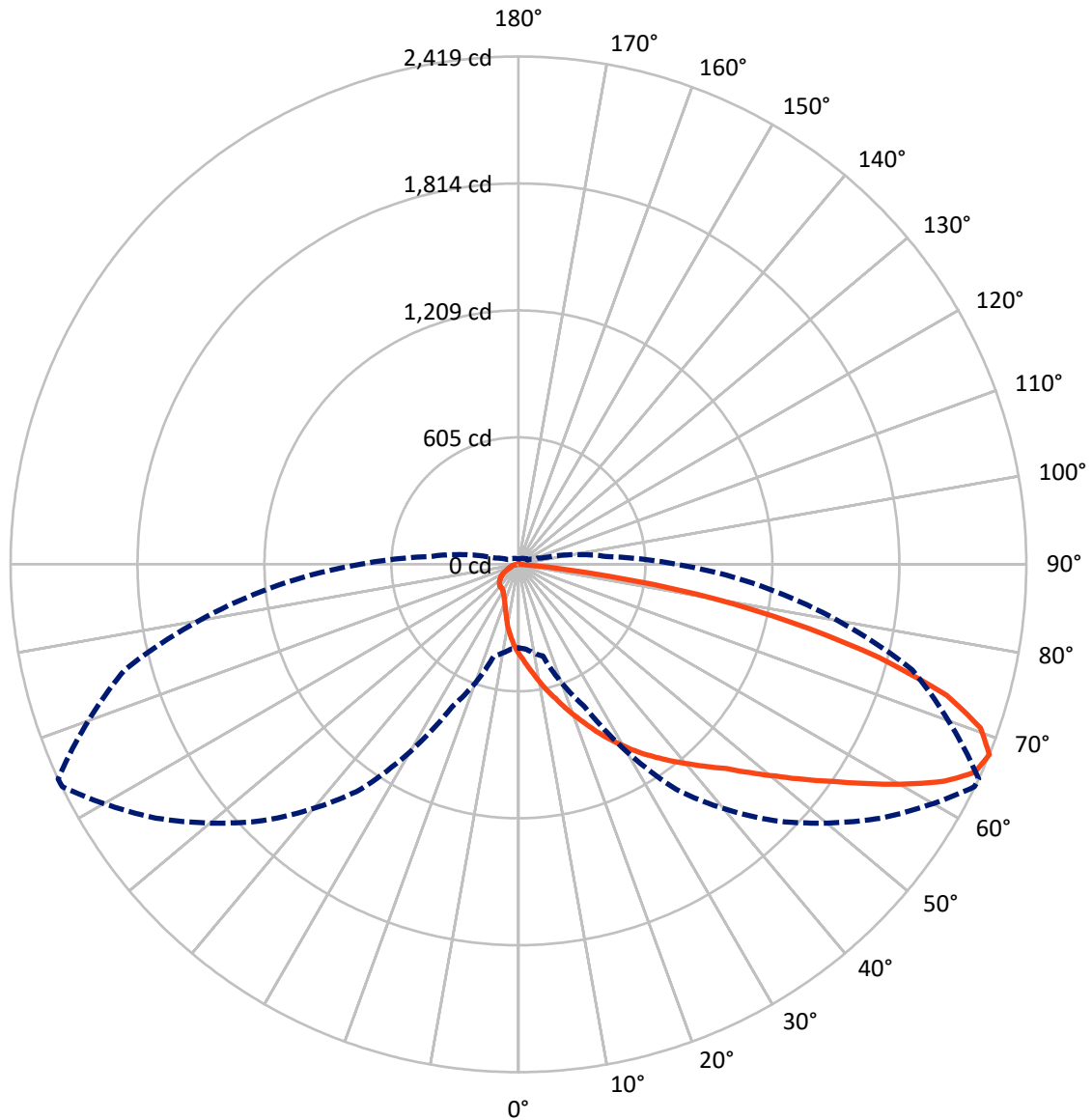
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2 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 | 337.0 | 0.0 | 337.0 |
| | % Fixture | 9.7 | 0.0 | 9.7 |
| Street Side | Lumens | 3125.2 | 0.0 | 3125.2 |
| | % Fixture | 90.3 | 0.0 | 90.3 |
| Total | Lumens | 3462.2 | 0.0 | 3462.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 41.9 | 1.2 |
| 10°-20° | 138.9 | 4.0 |
| 20°-30° | 252.8 | 7.3 |
| 30°-40° | 391.3 | 11.3 |
| 40°-50° | 591.5 | 17.1 |
| 50°-60° | 769.5 | 22.2 |
| 60°-70° | 759.1 | 21.9 |
| 70°-80° | 462.1 | 13.3 |
| 80°-90° | 54.9 | 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° | 3462.2 | 100.0 |
| 0°-180° | 3462.2 | 100.0 |

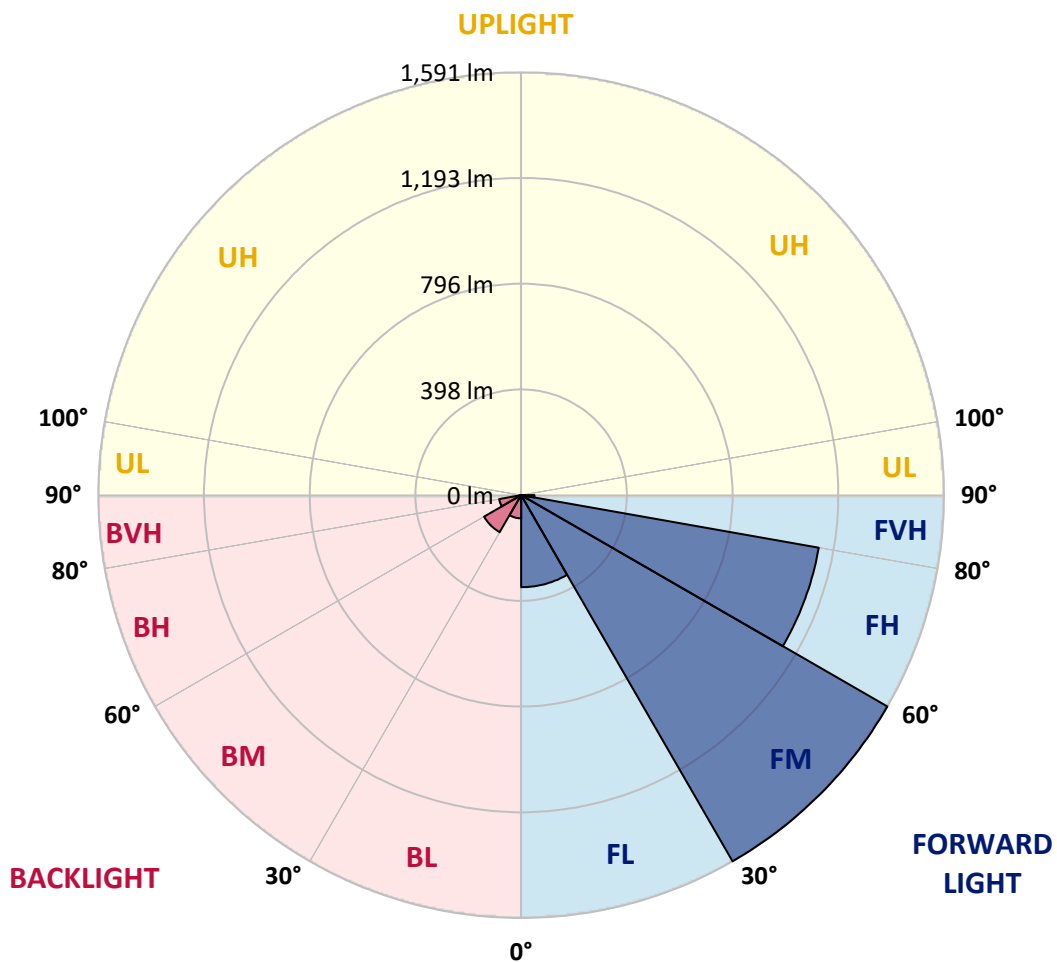


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 346.4 | 10.0 | | | |
| FM (30°-60°) | 1591.2 | 46.0 | | | |
| FH (60°-80°) | 1137.3 | 32.9 | | | G1/1800 |
| FVH (80°-90°) | 50.2 | 1.5 | | | G1/100 |
| BL (0°-30°) | 87.2 | 2.5 | B0/110 | | |
| BM (30°-60°) | 161.2 | 4.7 | B0/220 | | |
| BH (60°-80°) | 83.9 | 2.4 | B0/110 | | G0/110 |
| BVH (80°-90°) | 4.7 | 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° | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 |
| 2.5° | 499.9 | 496.0 | 498.9 | 492.0 | 484.1 | 478.2 | 466.3 | 456.5 | 455.5 | 445.6 | 434.7 |
| 5° | 595.8 | 582.9 | 583.9 | 570.1 | 553.3 | 535.5 | 516.7 | 492.0 | 492.0 | 468.3 | 443.6 |
| 7.5° | 681.7 | 679.7 | 670.9 | 649.1 | 629.4 | 601.7 | 567.1 | 535.5 | 528.6 | 492.0 | 453.5 |
| 10° | 764.7 | 761.8 | 753.9 | 737.1 | 703.5 | 672.8 | 629.4 | 581.9 | 573.0 | 520.7 | 465.4 |
| 12.5° | 830.9 | 831.9 | 823.0 | 809.2 | 779.5 | 743.0 | 685.7 | 626.4 | 618.5 | 548.3 | 477.2 |
| 15° | 889.2 | 888.2 | 886.2 | 874.4 | 845.7 | 812.1 | 745.0 | 675.8 | 663.0 | 578.0 | 489.1 |
| 17.5° | 933.7 | 931.7 | 927.7 | 917.9 | 904.0 | 871.4 | 807.2 | 728.2 | 717.3 | 612.6 | 502.9 |
| 20° | 946.5 | 945.5 | 945.5 | 952.4 | 946.5 | 926.8 | 869.4 | 782.5 | 770.6 | 649.1 | 521.7 |
| 22.5° | 970.2 | 969.2 | 968.2 | 975.2 | 979.1 | 977.1 | 927.7 | 837.8 | 827.0 | 691.6 | 545.4 |
| 25° | 1000.9 | 998.9 | 995.9 | 1002.8 | 1007.8 | 1019.6 | 986.0 | 903.0 | 890.2 | 741.0 | 569.1 |
| 27.5° | 1041.4 | 1043.3 | 1039.4 | 1038.4 | 1038.4 | 1045.3 | 1037.4 | 961.3 | 949.5 | 788.4 | 596.8 |
| 30° | 1094.7 | 1097.7 | 1090.8 | 1085.8 | 1076.9 | 1075.9 | 1077.9 | 1026.5 | 1009.7 | 839.8 | 625.4 |
| 32.5° | 1147.1 | 1150.0 | 1146.1 | 1139.2 | 1116.4 | 1107.6 | 1115.5 | 1081.9 | 1071.0 | 896.1 | 662.0 |
| 35° | 1189.6 | 1196.5 | 1196.5 | 1182.6 | 1151.0 | 1146.1 | 1158.9 | 1136.2 | 1128.3 | 962.3 | 705.4 |
| 37.5° | 1246.9 | 1250.8 | 1246.9 | 1221.2 | 1181.7 | 1187.6 | 1207.3 | 1193.5 | 1188.6 | 1033.5 | 756.8 |
| 40° | 1369.4 | 1374.3 | 1348.6 | 1287.4 | 1224.1 | 1231.1 | 1265.6 | 1257.7 | 1249.8 | 1103.6 | 804.2 |
| 42.5° | 1540.3 | 1528.4 | 1523.5 | 1387.2 | 1289.4 | 1285.4 | 1328.9 | 1318.0 | 1317.0 | 1174.7 | 847.7 |
| 45° | 1652.9 | 1656.9 | 1632.2 | 1502.8 | 1426.7 | 1352.6 | 1399.0 | 1395.1 | 1387.2 | 1246.9 | 900.1 |
| 47.5° | 1731.0 | 1722.1 | 1660.8 | 1598.6 | 1613.4 | 1440.5 | 1477.1 | 1487.0 | 1482.0 | 1328.9 | 964.3 |
| 50° | 1763.6 | 1754.7 | 1714.2 | 1672.7 | 1690.5 | 1541.3 | 1557.1 | 1589.7 | 1584.8 | 1411.9 | 1018.6 |
| 52.5° | 1723.1 | 1712.2 | 1715.2 | 1726.0 | 1717.2 | 1620.3 | 1655.9 | 1707.3 | 1701.3 | 1508.7 | 1081.9 |
| 55° | 1465.2 | 1493.9 | 1604.5 | 1715.2 | 1712.2 | 1680.6 | 1761.6 | 1836.7 | 1824.9 | 1609.5 | 1136.2 |
| 57.5° | 1181.7 | 1197.5 | 1337.8 | 1637.1 | 1696.4 | 1731.0 | 1882.2 | 1975.0 | 1971.1 | 1710.2 | 1185.6 |
| 60° | 939.6 | 956.4 | 1063.1 | 1475.1 | 1659.9 | 1783.4 | 2005.7 | 2128.2 | 2124.2 | 1812.0 | 1221.2 |
| 62.5° | 746.9 | 746.9 | 841.8 | 1241.9 | 1589.7 | 1814.0 | 2103.5 | 2282.3 | 2275.4 | 1894.0 | 1230.1 |
| 65° | 537.5 | 544.4 | 615.5 | 998.9 | 1476.1 | 1806.1 | 2150.9 | 2392.0 | 2388.0 | 1940.4 | 1211.3 |
| 67.5° | 397.2 | 405.1 | 452.5 | 748.9 | 1308.1 | 1727.0 | 2107.4 | 2416.7 | 2418.6 | 1941.4 | 1150.0 |
| 70° | 310.2 | 312.2 | 347.8 | 520.7 | 1072.0 | 1551.2 | 1944.4 | 2334.7 | 2334.7 | 1893.0 | 1059.1 |
| 72.5° | 236.1 | 238.1 | 268.7 | 354.7 | 789.4 | 1282.4 | 1700.4 | 2117.3 | 2132.1 | 1764.6 | 924.8 |
| 75° | 182.8 | 186.7 | 207.5 | 254.9 | 495.0 | 911.9 | 1397.0 | 1734.0 | 1774.5 | 1515.6 | 761.8 |
| 77.5° | 141.3 | 145.2 | 162.0 | 186.7 | 288.5 | 562.2 | 982.1 | 1296.3 | 1332.8 | 1193.5 | 587.9 |
| 80° | 113.6 | 115.6 | 126.5 | 140.3 | 174.9 | 289.5 | 599.7 | 851.7 | 862.5 | 811.2 | 389.3 |
| 82.5° | 52.4 | 56.3 | 68.2 | 77.1 | 86.9 | 134.4 | 255.9 | 315.2 | 329.0 | 322.1 | 160.1 |
| 85° | 5.9 | 5.9 | 6.9 | 7.9 | 8.9 | 13.8 | 17.8 | 15.8 | 15.8 | 18.8 | 16.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 1.0 | 2.0 | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 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: P868571
 CATALOG NUMBER: EMM2-HTN-SA1A-740-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 | 427.8 |
| 2.5° | 428.8 | 421.9 | 409.0 | 398.2 | 388.3 | 378.4 | 373.5 | 361.6 | 358.6 | 360.6 | 353.7 |
| 5° | 430.8 | 416.9 | 390.3 | 365.6 | 344.8 | 325.1 | 308.3 | 290.5 | 286.5 | 280.6 | 277.6 |
| 7.5° | 433.7 | 413.0 | 371.5 | 333.0 | 301.3 | 272.7 | 251.9 | 238.1 | 227.2 | 224.3 | 223.3 |
| 10° | 437.7 | 408.0 | 350.7 | 302.3 | 258.9 | 229.2 | 210.4 | 200.6 | 196.6 | 193.6 | 194.6 |
| 12.5° | 440.7 | 403.1 | 331.0 | 267.8 | 225.3 | 198.6 | 189.7 | 181.8 | 179.8 | 178.8 | 178.8 |
| 15° | 444.6 | 398.2 | 307.3 | 237.1 | 196.6 | 180.8 | 171.9 | 168.9 | 168.9 | 168.0 | 168.0 |
| 17.5° | 449.5 | 394.2 | 287.5 | 213.4 | 179.8 | 165.0 | 161.0 | 157.1 | 157.1 | 157.1 | 156.1 |
| 20° | 459.4 | 392.2 | 269.7 | 193.6 | 165.0 | 155.1 | 149.2 | 146.2 | 145.2 | 144.2 | 144.2 |
| 22.5° | 469.3 | 392.2 | 250.0 | 178.8 | 155.1 | 144.2 | 138.3 | 135.4 | 134.4 | 134.4 | 134.4 |
| 25° | 483.1 | 391.3 | 234.2 | 166.0 | 146.2 | 133.4 | 127.5 | 124.5 | 122.5 | 122.5 | 121.5 |
| 27.5° | 498.9 | 391.3 | 220.3 | 156.1 | 136.3 | 123.5 | 116.6 | 113.6 | 110.7 | 110.7 | 109.7 |
| 30° | 514.8 | 393.2 | 208.5 | 148.2 | 126.5 | 114.6 | 105.7 | 101.8 | 99.8 | 98.8 | 98.8 |
| 32.5° | 535.5 | 399.2 | 200.6 | 142.3 | 117.6 | 105.7 | 96.8 | 92.9 | 90.9 | 89.9 | 89.9 |
| 35° | 567.1 | 414.0 | 201.6 | 139.3 | 111.6 | 97.8 | 88.9 | 84.0 | 83.0 | 83.0 | 82.0 |
| 37.5° | 600.7 | 427.8 | 204.5 | 137.3 | 105.7 | 91.9 | 83.0 | 78.1 | 77.1 | 77.1 | 77.1 |
| 40° | 629.4 | 439.7 | 208.5 | 136.3 | 100.8 | 86.0 | 78.1 | 74.1 | 72.1 | 72.1 | 72.1 |
| 42.5° | 658.0 | 446.6 | 209.5 | 133.4 | 97.8 | 81.0 | 74.1 | 70.1 | 68.2 | 69.2 | 69.2 |
| 45° | 686.7 | 451.5 | 206.5 | 129.4 | 94.8 | 77.1 | 70.1 | 66.2 | 64.2 | 64.2 | 64.2 |
| 47.5° | 721.2 | 462.4 | 201.6 | 123.5 | 92.9 | 74.1 | 66.2 | 62.2 | 61.3 | 61.3 | 61.3 |
| 50° | 755.8 | 471.3 | 197.6 | 116.6 | 87.9 | 70.1 | 63.2 | 58.3 | 57.3 | 57.3 | 57.3 |
| 52.5° | 784.5 | 475.2 | 192.7 | 107.7 | 83.0 | 66.2 | 59.3 | 54.3 | 52.4 | 52.4 | 52.4 |
| 55° | 806.2 | 476.2 | 185.7 | 100.8 | 76.1 | 62.2 | 55.3 | 50.4 | 48.4 | 47.4 | 47.4 |
| 57.5° | 824.0 | 475.2 | 178.8 | 93.9 | 70.1 | 57.3 | 50.4 | 46.4 | 43.5 | 42.5 | 42.5 |
| 60° | 833.9 | 472.3 | 168.9 | 85.0 | 62.2 | 52.4 | 46.4 | 41.5 | 39.5 | 38.5 | 38.5 |
| 62.5° | 828.0 | 464.4 | 155.1 | 71.1 | 56.3 | 47.4 | 42.5 | 38.5 | 35.6 | 34.6 | 34.6 |
| 65° | 800.3 | 448.6 | 137.3 | 58.3 | 50.4 | 42.5 | 38.5 | 34.6 | 30.6 | 29.6 | 29.6 |
| 67.5° | 751.9 | 421.9 | 113.6 | 49.4 | 46.4 | 38.5 | 34.6 | 30.6 | 27.7 | 25.7 | 25.7 |
| 70° | 684.7 | 386.3 | 88.9 | 42.5 | 41.5 | 35.6 | 31.6 | 27.7 | 24.7 | 22.7 | 22.7 |
| 72.5° | 588.9 | 328.0 | 66.2 | 36.6 | 36.6 | 32.6 | 28.7 | 25.7 | 22.7 | 20.7 | 20.7 |
| 75° | 476.2 | 248.0 | 50.4 | 33.6 | 32.6 | 29.6 | 25.7 | 22.7 | 20.7 | 18.8 | 18.8 |
| 77.5° | 347.8 | 165.0 | 41.5 | 30.6 | 30.6 | 26.7 | 23.7 | 20.7 | 18.8 | 17.8 | 17.8 |
| 80° | 211.4 | 94.8 | 29.6 | 23.7 | 23.7 | 22.7 | 19.8 | 17.8 | 16.8 | 14.8 | 13.8 |
| 82.5° | 86.0 | 36.6 | 15.8 | 11.9 | 11.9 | 10.9 | 6.9 | 5.9 | 5.9 | 5.9 | 4.9 |
| 85° | 8.9 | 5.9 | 4.0 | 3.0 | 3.0 | 3.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 87.5° | 3.0 | 3.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 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: SP1-2407-157-5

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-740-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-740-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-5
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-40-740-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3915
 CIE u': 0.2262
 CIE v': 0.5044
 Duv: 0.0010
 CIE x: 0.3850
 CIE y: 0.3816
 CIE z: 0.2334
 Peak Wavelength (nm): 449
 Dominant Wavelength (nm): 578
 Purity: 30.05482
 Rf: 73.2
 Rg: 93.9

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.0 | | |
| R1: | 67.6 | R9: | -38.4 |
| R2: | 78.3 | R10: | 48.9 |
| R3: | 87.1 | R11: | 65.3 |
| R4: | 69.7 | R12: | 40.4 |
| R5: | 67.4 | R13: | 69.3 |
| R6: | 69.3 | R14: | 92.6 |
| R7: | 79.7 | R15: | 59.9 |
| R8: | 48.7 | | |



Test Conditions

Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-5

| 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: SP1-2407-157-5

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-5

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 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-5

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.49

| 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 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.88

| 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 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 73.2$
 $R_g = 93.9$
 $CIE R_a = 71.0$
 $R_g = -38.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 88 | CES76 = 50 |
| CES02 = 61 | CES27 = 88 | CES52 = 87 | CES77 = 69 |
| CES03 = 30 | CES28 = 81 | CES53 = 77 | CES78 = 53 |
| CES04 = 70 | CES29 = 65 | CES54 = 84 | CES79 = 81 |
| CES05 = 47 | CES30 = 81 | CES55 = 83 | CES80 = 78 |
| CES06 = 50 | CES31 = 69 | CES56 = 73 | CES81 = 77 |
| CES07 = 40 | CES32 = 60 | CES57 = 72 | CES82 = 91 |
| CES08 = 39 | CES33 = 76 | CES58 = 73 | CES83 = 89 |
| CES09 = 29 | CES34 = 70 | CES59 = 85 | CES84 = 86 |
| CES10 = 74 | CES35 = 83 | CES60 = 89 | CES85 = 77 |
| CES11 = 57 | CES36 = 91 | CES61 = 81 | CES86 = 71 |
| CES12 = 63 | CES37 = 79 | CES62 = 85 | CES87 = 76 |
| CES13 = 42 | CES38 = 92 | CES63 = 72 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 64 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 61 | CES90 = 79 |
| CES16 = 46 | CES41 = 93 | CES66 = 57 | CES91 = 74 |
| CES17 = 49 | CES42 = 80 | CES67 = 54 | CES92 = 57 |
| CES18 = 56 | CES43 = 76 | CES68 = 63 | CES93 = 74 |
| CES19 = 72 | CES44 = 99 | CES69 = 73 | CES94 = 51 |
| CES20 = 65 | CES45 = 85 | CES70 = 55 | CES95 = 65 |
| CES21 = 86 | CES46 = 82 | CES71 = 48 | CES96 = 76 |
| CES22 = 78 | CES47 = 86 | CES72 = 83 | CES97 = 84 |
| CES23 = 92 | CES48 = 77 | CES73 = 45 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 93 | CES99 = 62 |
| CES25 = 72 | CES50 = 88 | CES75 = 51 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)