

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: P867651

Luminaire Tested: **MEM2-HTN-SA-150-727-U-T3-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867651
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-150-727-U-T3-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 150W 70CRI 2700K
FIXTURE w/ TYPE III DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (30) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

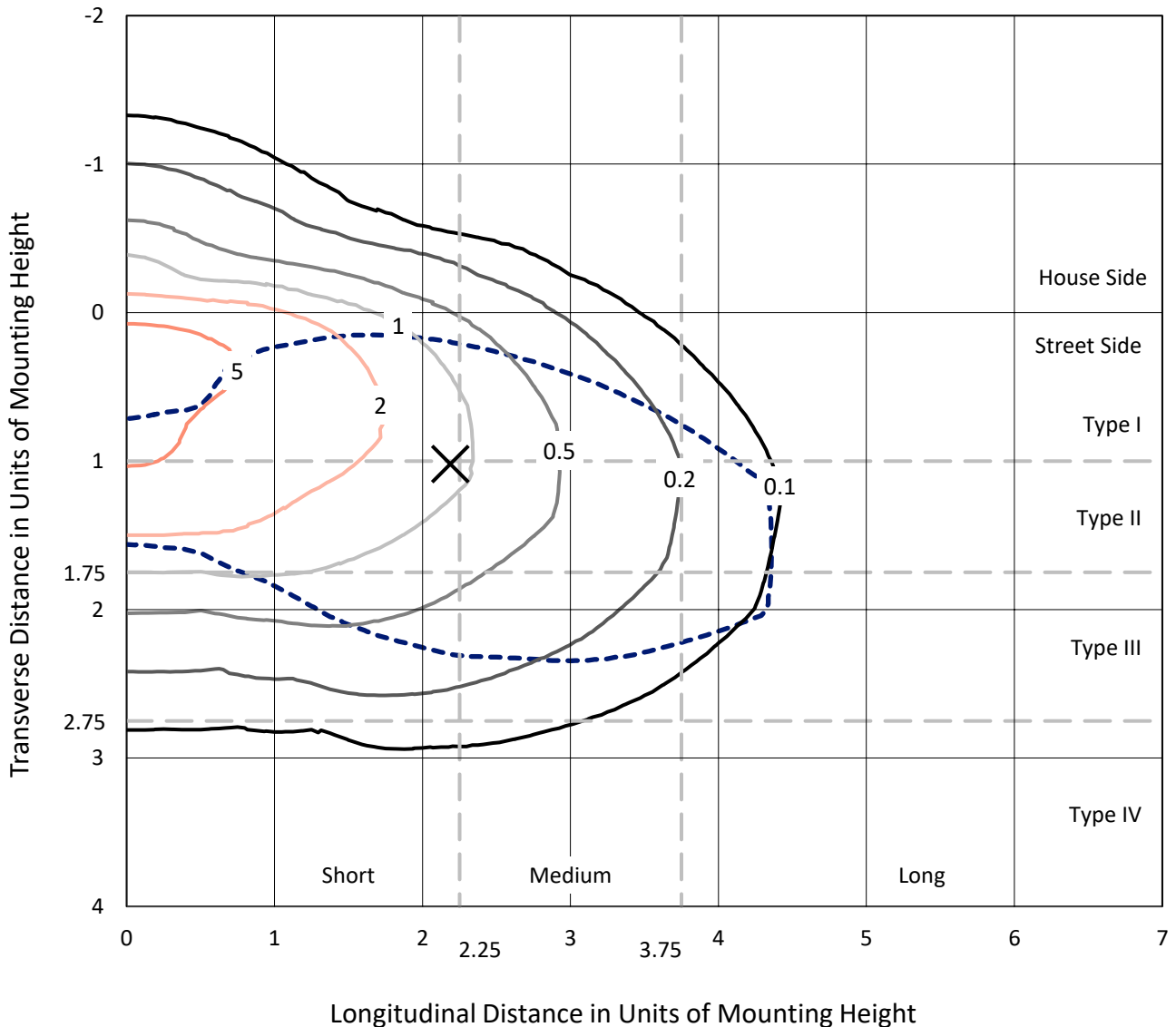
Lumens per Lamp: N/A
Luminaire Lumens: 12301 lumens
Efficiency: N/A
Efficacy: 91.8 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

Input Watts (W): 134
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.70%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P867651
 CATALOG NUMBER: MEM2-HTN-SA-150-727-U-T3-HSS

Iso-Footcandle Lines of Horizontal Illumination

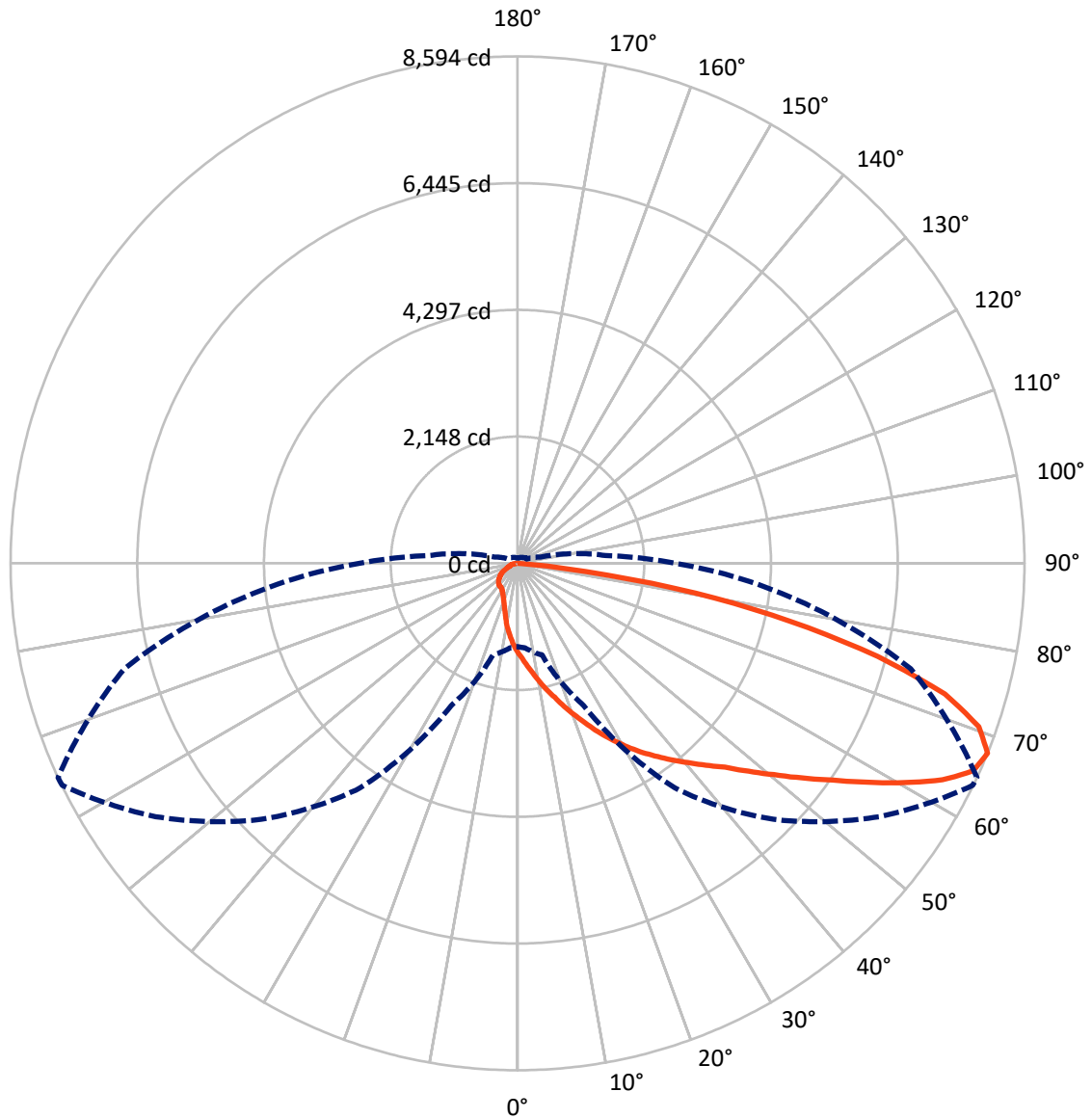
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 7 fc
 Type III - Short - N/A

REPORT NUMBER: P867651
CATALOG NUMBER: MEM2-HTN-SA-150-727-U-T3-HSS

Luminous Intensity Polar Plot



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

REPORT NUMBER: P867651

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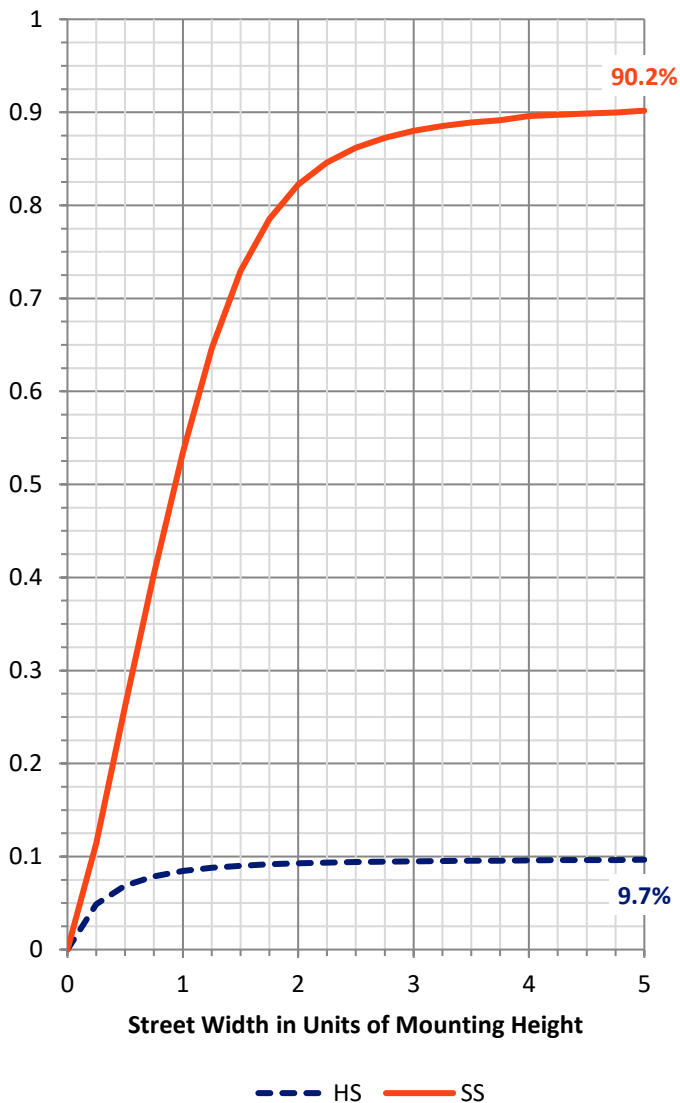
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 1197.2 | 0.0 | 1197.2 |
| | % Fixture | 9.7 | 0.0 | 9.7 |
| Street Side | Lumens | 11103.7 | 0.0 | 11103.7 |
| | % Fixture | 90.3 | 0.0 | 90.3 |
| Total | Lumens | 12301.0 | 0.0 | 12301.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 148.8 | 1.2 |
| 10°-20° | 493.6 | 4.0 |
| 20°-30° | 898.3 | 7.3 |
| 30°-40° | 1390.3 | 11.3 |
| 40°-50° | 2101.7 | 17.1 |
| 50°-60° | 2734.1 | 22.2 |
| 60°-70° | 2697.2 | 21.9 |
| 70°-80° | 1641.8 | 13.3 |
| 80°-90° | 195.1 | 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° | 12301.0 | 100.0 |
| 0°-180° | 12301.0 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P867651

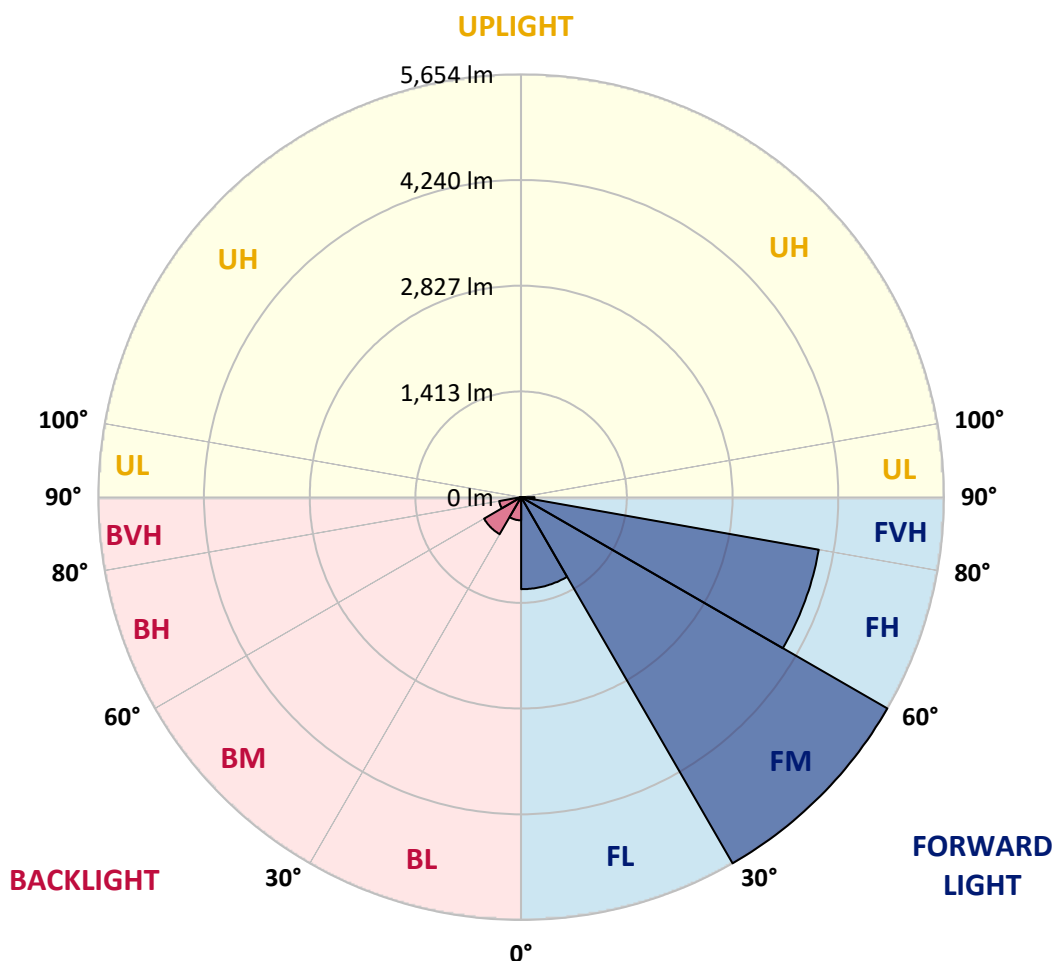
CATALOG NUMBER: MEM2-HTN-SA-150-727-U-T3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|------|-------------|--------|-----------|-------------------------|------|---------|
| | | | | B | U | G |
| FL | (0°-30°) | 1230.9 | 10.0 | | | |
| FM | (30°-60°) | 5653.5 | 46.0 | | | |
| FH | (60°-80°) | 4040.9 | 32.9 | | | G2/5000 |
| FVH | (80°-90°) | 178.4 | 1.5 | | | G2/225 |
| BL | (0°-30°) | 309.8 | 2.5 | B1/500 | | |
| BM | (30°-60°) | 572.6 | 4.7 | B1/1000 | | |
| BH | (60°-80°) | 298.1 | 2.4 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 16.7 | 0.1 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type III Short





REPORT NUMBER: P867651

CATALOG NUMBER: MEM2-HTN-SA-150-727-U-T3-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 |
| 2.5° | 1776.3 | 1762.2 | 1772.8 | 1748.2 | 1720.1 | 1699.0 | 1656.9 | 1621.8 | 1618.3 | 1583.2 | 1544.6 |
| 5° | 2116.8 | 2071.1 | 2074.6 | 2025.5 | 1965.8 | 1902.6 | 1835.9 | 1748.2 | 1748.2 | 1663.9 | 1576.2 |
| 7.5° | 2422.2 | 2415.2 | 2383.6 | 2306.3 | 2236.1 | 2137.8 | 2015.0 | 1902.6 | 1878.1 | 1748.2 | 1611.3 |
| 10° | 2717.0 | 2706.5 | 2678.4 | 2618.8 | 2499.4 | 2390.6 | 2236.1 | 2067.6 | 2036.0 | 1850.0 | 1653.4 |
| 12.5° | 2952.2 | 2955.8 | 2924.2 | 2875.0 | 2769.7 | 2639.8 | 2436.2 | 2225.6 | 2197.5 | 1948.3 | 1695.5 |
| 15° | 3159.4 | 3155.8 | 3148.8 | 3106.7 | 3004.9 | 2885.5 | 2646.8 | 2401.1 | 2355.5 | 2053.6 | 1737.6 |
| 17.5° | 3317.3 | 3310.3 | 3296.3 | 3261.2 | 3212.0 | 3096.2 | 2868.0 | 2587.2 | 2548.5 | 2176.4 | 1786.8 |
| 20° | 3363.0 | 3359.5 | 3359.5 | 3384.0 | 3363.0 | 3292.8 | 3089.2 | 2780.2 | 2738.1 | 2306.3 | 1853.5 |
| 22.5° | 3447.2 | 3443.7 | 3440.2 | 3464.8 | 3478.8 | 3471.8 | 3296.3 | 2976.8 | 2938.2 | 2457.3 | 1937.7 |
| 25° | 3556.0 | 3549.0 | 3538.5 | 3563.1 | 3580.6 | 3622.7 | 3503.4 | 3208.5 | 3162.9 | 2632.8 | 2022.0 |
| 27.5° | 3700.0 | 3707.0 | 3692.9 | 3689.4 | 3689.4 | 3714.0 | 3685.9 | 3415.6 | 3373.5 | 2801.3 | 2120.3 |
| 30° | 3889.5 | 3900.1 | 3875.5 | 3857.9 | 3826.3 | 3822.8 | 3829.8 | 3647.3 | 3587.6 | 2983.8 | 2222.1 |
| 32.5° | 4075.6 | 4086.1 | 4072.1 | 4047.5 | 3966.8 | 3935.2 | 3963.2 | 3843.9 | 3805.3 | 3183.9 | 2352.0 |
| 35° | 4226.5 | 4251.1 | 4251.1 | 4201.9 | 4089.6 | 4072.1 | 4117.7 | 4037.0 | 4008.9 | 3419.1 | 2506.4 |
| 37.5° | 4430.1 | 4444.2 | 4430.1 | 4338.9 | 4198.4 | 4219.5 | 4289.7 | 4240.6 | 4223.0 | 3671.9 | 2689.0 |
| 40° | 4865.4 | 4883.0 | 4791.7 | 4574.0 | 4349.4 | 4374.0 | 4496.8 | 4468.7 | 4440.7 | 3921.1 | 2857.5 |
| 42.5° | 5472.7 | 5430.6 | 5413.0 | 4928.6 | 4581.1 | 4567.0 | 4721.5 | 4682.9 | 4679.4 | 4173.9 | 3011.9 |
| 45° | 5872.9 | 5886.9 | 5799.2 | 5339.3 | 5069.0 | 4805.7 | 4970.7 | 4956.7 | 4928.6 | 4430.1 | 3198.0 |
| 47.5° | 6150.2 | 6118.6 | 5901.0 | 5679.8 | 5732.5 | 5118.2 | 5248.0 | 5283.1 | 5265.6 | 4721.5 | 3426.1 |
| 50° | 6266.1 | 6234.5 | 6090.5 | 5943.1 | 6006.3 | 5476.2 | 5532.4 | 5648.2 | 5630.7 | 5016.4 | 3619.2 |
| 52.5° | 6122.1 | 6083.5 | 6094.1 | 6132.7 | 6101.1 | 5757.1 | 5883.4 | 6066.0 | 6044.9 | 5360.4 | 3843.9 |
| 55° | 5205.9 | 5307.7 | 5700.9 | 6094.1 | 6083.5 | 5971.2 | 6259.0 | 6525.8 | 6483.7 | 5718.4 | 4037.0 |
| 57.5° | 4198.4 | 4254.6 | 4753.1 | 5816.7 | 6027.4 | 6150.2 | 6687.3 | 7017.3 | 7003.2 | 6076.5 | 4212.5 |
| 60° | 3338.4 | 3398.1 | 3777.2 | 5241.0 | 5897.5 | 6336.3 | 7126.1 | 7561.4 | 7547.4 | 6438.1 | 4338.9 |
| 62.5° | 2653.9 | 2653.9 | 2990.9 | 4412.6 | 5648.2 | 6445.1 | 7473.6 | 8109.0 | 8084.4 | 6729.4 | 4370.4 |
| 65° | 1909.7 | 1934.2 | 2187.0 | 3549.0 | 5244.5 | 6417.0 | 7642.1 | 8498.7 | 8484.6 | 6894.4 | 4303.7 |
| 67.5° | 1411.2 | 1439.3 | 1607.8 | 2660.9 | 4647.8 | 6136.2 | 7487.7 | 8586.4 | 8593.5 | 6897.9 | 4086.1 |
| 70° | 1102.3 | 1109.3 | 1235.7 | 1850.0 | 3808.8 | 5511.3 | 6908.5 | 8295.1 | 8295.1 | 6725.9 | 3763.1 |
| 72.5° | 839.0 | 846.0 | 954.8 | 1260.2 | 2804.8 | 4556.5 | 6041.4 | 7522.8 | 7575.4 | 6269.6 | 3285.7 |
| 75° | 649.4 | 663.5 | 737.2 | 905.7 | 1758.7 | 3240.1 | 4963.7 | 6160.7 | 6304.7 | 5385.0 | 2706.5 |
| 77.5° | 502.0 | 516.0 | 575.7 | 663.5 | 1025.0 | 1997.4 | 3489.3 | 4605.6 | 4735.5 | 4240.6 | 2088.7 |
| 80° | 403.7 | 410.7 | 449.3 | 498.5 | 621.3 | 1028.5 | 2130.8 | 3026.0 | 3064.6 | 2882.0 | 1383.1 |
| 82.5° | 186.1 | 200.1 | 242.2 | 273.8 | 308.9 | 477.4 | 909.2 | 1119.8 | 1169.0 | 1144.4 | 568.7 |
| 85° | 21.1 | 21.1 | 24.6 | 28.1 | 31.6 | 49.1 | 63.2 | 56.2 | 56.2 | 66.7 | 59.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 3.5 | 7.0 | 7.0 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 |
| 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: P867651

CATALOG NUMBER: MEM2-HTN-SA-150-727-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 | 1520.0 |
| 2.5° | 1523.5 | 1498.9 | 1453.3 | 1414.7 | 1379.6 | 1344.5 | 1326.9 | 1284.8 | 1274.3 | 1281.3 | 1256.7 |
| 5° | 1530.5 | 1481.4 | 1386.6 | 1298.8 | 1225.1 | 1154.9 | 1095.2 | 1032.1 | 1018.0 | 997.0 | 986.4 |
| 7.5° | 1541.1 | 1467.3 | 1319.9 | 1183.0 | 1070.7 | 968.9 | 895.2 | 846.0 | 807.4 | 796.9 | 793.4 |
| 10° | 1555.1 | 1449.8 | 1246.2 | 1074.2 | 919.7 | 814.4 | 747.7 | 712.6 | 698.6 | 688.0 | 691.5 |
| 12.5° | 1565.6 | 1432.2 | 1176.0 | 951.3 | 800.4 | 705.6 | 674.0 | 645.9 | 638.9 | 635.4 | 635.4 |
| 15° | 1579.7 | 1414.7 | 1091.7 | 842.5 | 698.6 | 642.4 | 610.8 | 600.3 | 600.3 | 596.8 | 596.8 |
| 17.5° | 1597.2 | 1400.6 | 1021.5 | 758.2 | 638.9 | 586.2 | 572.2 | 558.2 | 558.2 | 558.2 | 554.6 |
| 20° | 1632.3 | 1393.6 | 958.3 | 688.0 | 586.2 | 551.1 | 530.1 | 519.5 | 516.0 | 512.5 | 512.5 |
| 22.5° | 1667.4 | 1393.6 | 888.1 | 635.4 | 551.1 | 512.5 | 491.5 | 480.9 | 477.4 | 477.4 | 477.4 |
| 25° | 1716.6 | 1390.1 | 832.0 | 589.7 | 519.5 | 473.9 | 452.8 | 442.3 | 435.3 | 435.3 | 431.8 |
| 27.5° | 1772.8 | 1390.1 | 782.8 | 554.6 | 484.4 | 438.8 | 414.2 | 403.7 | 393.2 | 393.2 | 389.7 |
| 30° | 1828.9 | 1397.1 | 740.7 | 526.6 | 449.3 | 407.2 | 375.6 | 361.6 | 354.6 | 351.0 | 351.0 |
| 32.5° | 1902.6 | 1418.2 | 712.6 | 505.5 | 417.7 | 375.6 | 344.0 | 330.0 | 323.0 | 319.4 | 319.4 |
| 35° | 2015.0 | 1470.9 | 716.1 | 495.0 | 396.7 | 347.5 | 315.9 | 298.4 | 294.9 | 294.9 | 291.4 |
| 37.5° | 2134.3 | 1520.0 | 726.7 | 487.9 | 375.6 | 326.5 | 294.9 | 277.3 | 273.8 | 273.8 | 273.8 |
| 40° | 2236.1 | 1562.1 | 740.7 | 484.4 | 358.1 | 305.4 | 277.3 | 263.3 | 256.3 | 256.3 | 256.3 |
| 42.5° | 2337.9 | 1586.7 | 744.2 | 473.9 | 347.5 | 287.9 | 263.3 | 249.2 | 242.2 | 245.7 | 245.7 |
| 45° | 2439.7 | 1604.3 | 733.7 | 459.9 | 337.0 | 273.8 | 249.2 | 235.2 | 228.2 | 228.2 | 228.2 |
| 47.5° | 2562.6 | 1642.9 | 716.1 | 438.8 | 330.0 | 263.3 | 235.2 | 221.2 | 217.6 | 217.6 | 217.6 |
| 50° | 2685.5 | 1674.5 | 702.1 | 414.2 | 312.4 | 249.2 | 224.7 | 207.1 | 203.6 | 203.6 | 203.6 |
| 52.5° | 2787.3 | 1688.5 | 684.5 | 382.6 | 294.9 | 235.2 | 210.6 | 193.1 | 186.1 | 186.1 | 186.1 |
| 55° | 2864.5 | 1692.0 | 660.0 | 358.1 | 270.3 | 221.2 | 196.6 | 179.0 | 172.0 | 168.5 | 168.5 |
| 57.5° | 2927.7 | 1688.5 | 635.4 | 333.5 | 249.2 | 203.6 | 179.0 | 165.0 | 154.5 | 150.9 | 150.9 |
| 60° | 2962.8 | 1678.0 | 600.3 | 301.9 | 221.2 | 186.1 | 165.0 | 147.4 | 140.4 | 136.9 | 136.9 |
| 62.5° | 2941.7 | 1649.9 | 551.1 | 252.7 | 200.1 | 168.5 | 150.9 | 136.9 | 126.4 | 122.9 | 122.9 |
| 65° | 2843.4 | 1593.7 | 487.9 | 207.1 | 179.0 | 150.9 | 136.9 | 122.9 | 108.8 | 105.3 | 105.3 |
| 67.5° | 2671.4 | 1498.9 | 403.7 | 175.5 | 165.0 | 136.9 | 122.9 | 108.8 | 98.3 | 91.3 | 91.3 |
| 70° | 2432.7 | 1372.6 | 315.9 | 150.9 | 147.4 | 126.4 | 112.3 | 98.3 | 87.8 | 80.7 | 80.7 |
| 72.5° | 2092.2 | 1165.5 | 235.2 | 129.9 | 129.9 | 115.8 | 101.8 | 91.3 | 80.7 | 73.7 | 73.7 |
| 75° | 1692.0 | 881.1 | 179.0 | 119.4 | 115.8 | 105.3 | 91.3 | 80.7 | 73.7 | 66.7 | 66.7 |
| 77.5° | 1235.7 | 586.2 | 147.4 | 108.8 | 108.8 | 94.8 | 84.2 | 73.7 | 66.7 | 63.2 | 63.2 |
| 80° | 751.2 | 337.0 | 105.3 | 84.2 | 84.2 | 80.7 | 70.2 | 63.2 | 59.7 | 52.7 | 49.1 |
| 82.5° | 305.4 | 129.9 | 56.2 | 42.1 | 42.1 | 38.6 | 24.6 | 21.1 | 21.1 | 21.1 | 17.6 |
| 85° | 31.6 | 21.1 | 14.0 | 10.5 | 10.5 | 10.5 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| 87.5° | 10.5 | 10.5 | 7.0 | 7.0 | 7.0 | 7.0 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| 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-40-727-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-727-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-40-727-U-5WQ-2**
 Description: Epic Modern Light Square 40W 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
 R_f: 75.5
 R_g: 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 |

REPORT NUMBER: SP1-2407-157-3

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

REPORT NUMBER: SP1-2407-157-3

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)