

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: P868931

Luminaire Tested: **EMM2-HSN-SA2B-750-U-T2U-HSS**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868931
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-SA2B-750-U-T2U-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 100W 70CRI 5000K
FITXURE w/ TYPE II URBAN DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 5000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

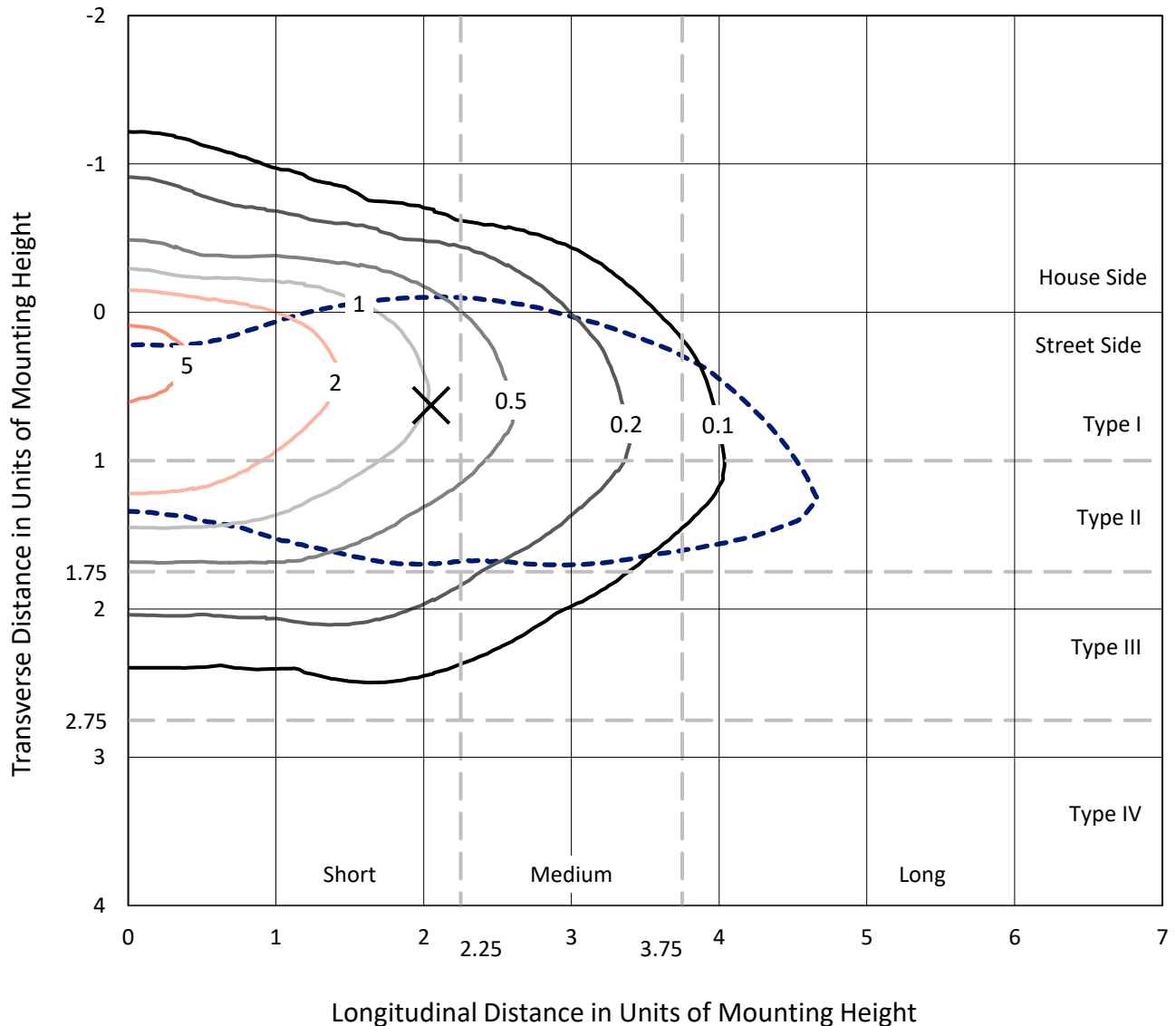
Lumens per Lamp: N/A
Luminaire Lumens: 8588 lumens
Efficiency: N/A
Efficacy: 95.4 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

Input Watts (W): 90
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.20%
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

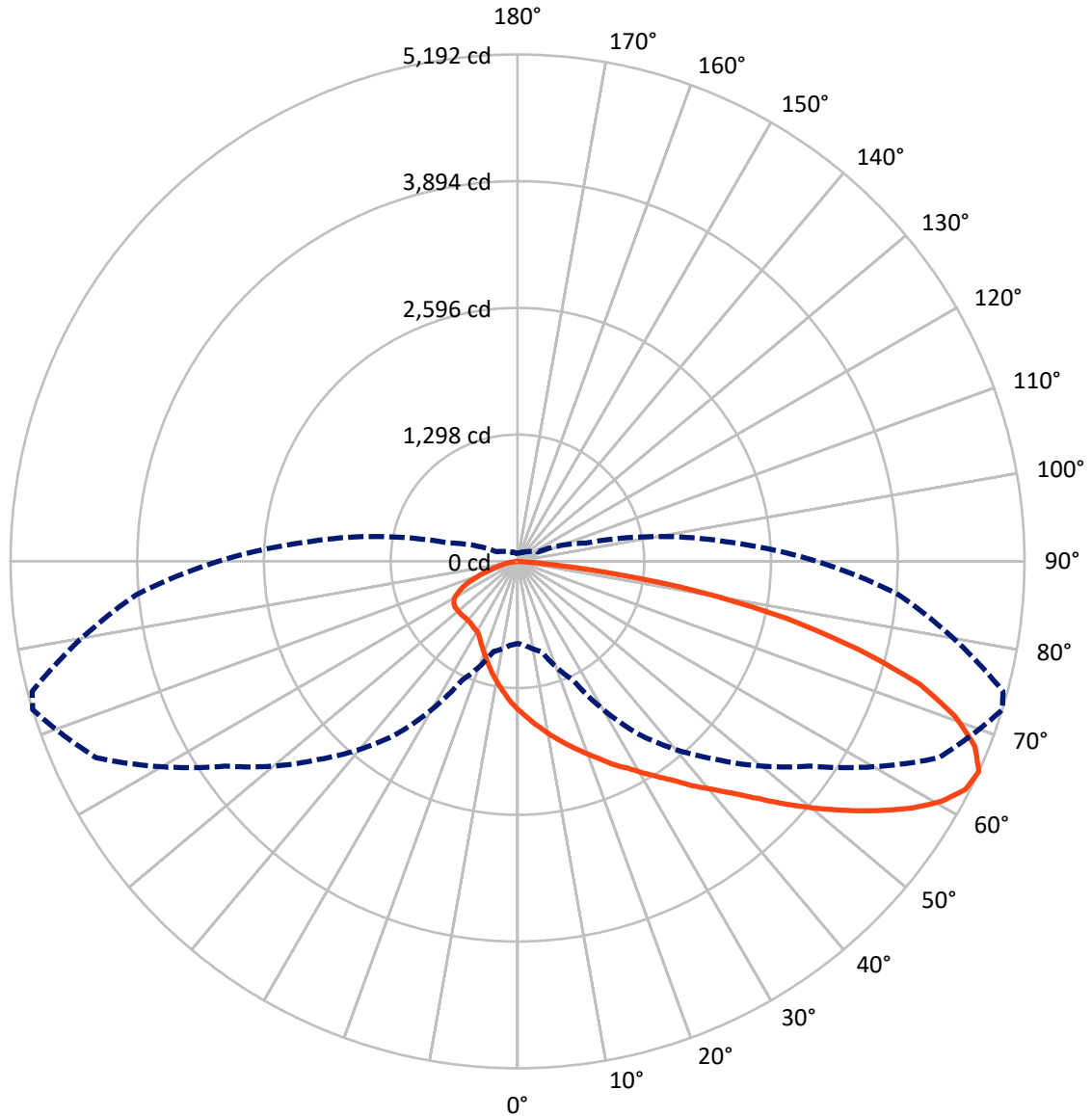
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.1 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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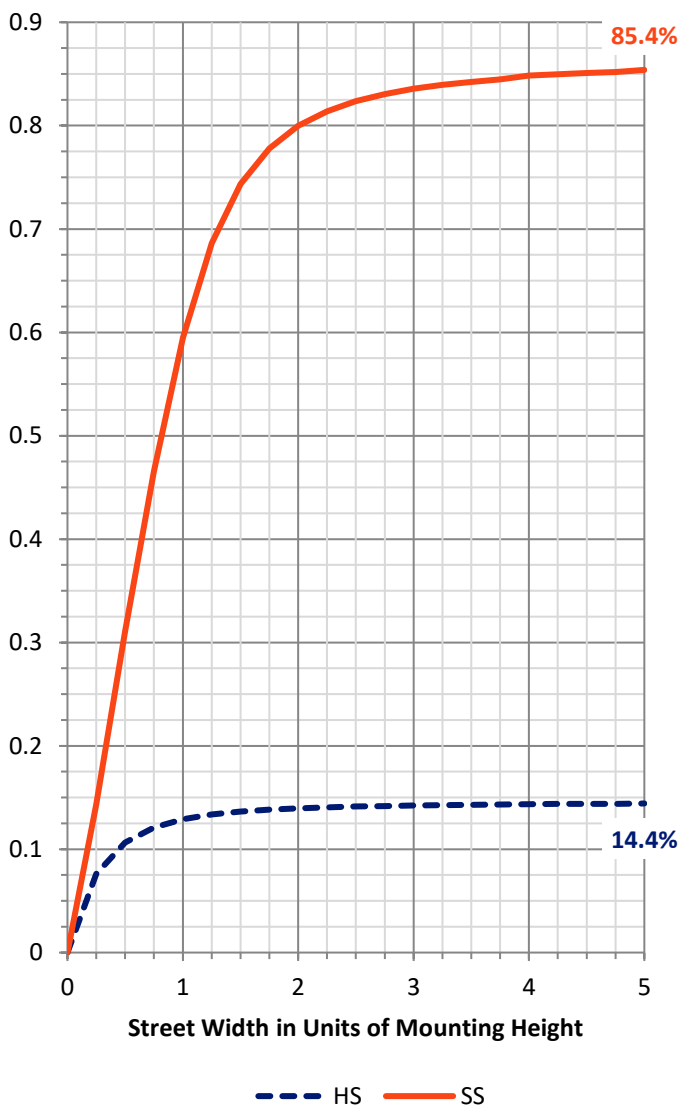
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1248.8 | 0.0 | 1248.8 |
| | % Fixture | 14.5 | 0.0 | 14.5 |
| Street Side | Lumens | 7339.2 | 0.0 | 7339.2 |
| | % Fixture | 85.5 | 0.0 | 85.5 |
| Total | Lumens | 8588.0 | 0.0 | 8588.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 147.1 | 1.7 |
| 10°-20° | 446.9 | 5.2 |
| 20°-30° | 748.5 | 8.7 |
| 30°-40° | 1129.1 | 13.1 |
| 40°-50° | 1595.4 | 18.6 |
| 50°-60° | 1795.2 | 20.9 |
| 60°-70° | 1609.8 | 18.7 |
| 70°-80° | 979.1 | 11.4 |
| 80°-90° | 137.0 | 1.6 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 8588.0 | 100.0 |
| 0°-180° | 8588.0 | 100.0 |

Coefficient of Utilization



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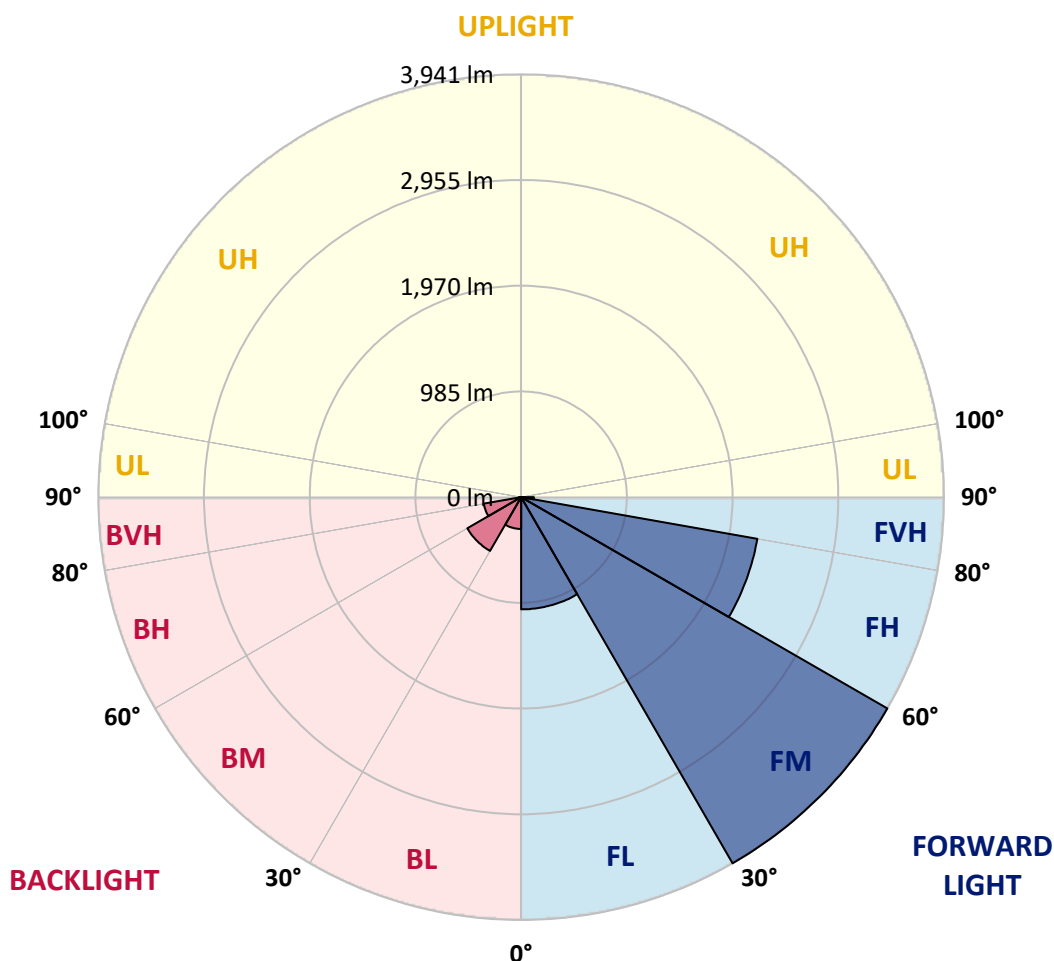
CATALOG NUMBER: EMM2-HSN-SA2B-750-U-T2U-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1045.8 | 12.2 | | | |
| FM (30°-60°) | 3940.6 | 45.9 | | | |
| FH (60°-80°) | 2235.1 | 26.0 | | | G2/5000 |
| FVH (80°-90°) | 117.7 | 1.4 | | | G2/225 |
| BL (0°-30°) | 296.7 | 3.5 | B1/500 | | |
| BM (30°-60°) | 579.1 | 6.7 | B1/1000 | | |
| BH (60°-80°) | 353.7 | 4.1 | B1/500 | | G1/500 |
| BVH (80°-90°) | 19.3 | 0.2 | | | 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 II Short





REPORT NUMBER: P868931

CATALOG NUMBER: EMM2-HSN-SA2B-750-U-T2U-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 73° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 |
| 2.5° | 1758.5 | 1748.4 | 1733.2 | 1720.6 | 1697.9 | 1667.5 | 1642.3 | 1609.4 | 1586.7 | 1579.1 | 1546.3 |
| 5° | 2013.7 | 2001.1 | 1983.4 | 1953.0 | 1892.4 | 1857.0 | 1791.3 | 1715.6 | 1654.9 | 1642.3 | 1566.5 |
| 7.5° | 2276.5 | 2271.4 | 2231.0 | 2185.5 | 2112.2 | 2033.9 | 1932.8 | 1814.1 | 1725.7 | 1705.4 | 1589.2 |
| 10° | 2498.8 | 2476.1 | 2453.3 | 2410.4 | 2332.0 | 2220.9 | 2089.5 | 1925.3 | 1801.5 | 1768.6 | 1612.0 |
| 12.5° | 2632.7 | 2625.1 | 2604.9 | 2554.4 | 2478.6 | 2382.6 | 2225.9 | 2033.9 | 1874.7 | 1829.2 | 1634.7 |
| 15° | 2731.2 | 2738.8 | 2718.6 | 2685.8 | 2607.4 | 2516.5 | 2364.9 | 2147.6 | 1953.0 | 1900.0 | 1660.0 |
| 17.5° | 2824.7 | 2819.7 | 2817.1 | 2779.2 | 2708.5 | 2617.5 | 2463.4 | 2241.1 | 2031.4 | 1973.3 | 1685.2 |
| 20° | 2877.8 | 2880.3 | 2875.3 | 2860.1 | 2791.9 | 2703.4 | 2559.4 | 2352.2 | 2117.3 | 2051.6 | 1718.1 |
| 22.5° | 2905.6 | 2915.7 | 2925.8 | 2923.3 | 2867.7 | 2799.5 | 2650.4 | 2440.7 | 2205.7 | 2137.5 | 1758.5 |
| 25° | 2923.3 | 2930.8 | 2953.6 | 2983.9 | 2933.4 | 2877.8 | 2751.5 | 2546.8 | 2309.3 | 2231.0 | 1806.5 |
| 27.5° | 2938.4 | 2948.5 | 2976.3 | 3021.8 | 2981.4 | 2948.5 | 2839.9 | 2637.8 | 2397.7 | 2327.0 | 1862.1 |
| 30° | 3037.0 | 3049.6 | 3049.6 | 3072.3 | 3026.8 | 3019.3 | 2938.4 | 2746.4 | 2508.9 | 2433.1 | 1932.8 |
| 32.5° | 3297.2 | 3271.9 | 3226.4 | 3203.7 | 3095.1 | 3097.6 | 3034.4 | 2855.0 | 2627.6 | 2551.9 | 2021.3 |
| 35° | 3522.1 | 3522.1 | 3466.5 | 3393.2 | 3218.9 | 3183.5 | 3145.6 | 2999.1 | 2756.5 | 2683.2 | 2137.5 |
| 37.5° | 3739.3 | 3741.9 | 3683.8 | 3620.6 | 3421.0 | 3294.7 | 3274.5 | 3138.0 | 2915.7 | 2829.8 | 2258.8 |
| 40° | 3875.8 | 3890.9 | 3875.8 | 3827.8 | 3635.8 | 3489.2 | 3400.8 | 3294.7 | 3067.3 | 3001.6 | 2397.7 |
| 42.5° | 3898.5 | 3928.8 | 3984.4 | 3999.6 | 3792.4 | 3663.5 | 3562.5 | 3456.4 | 3249.2 | 3175.9 | 2556.9 |
| 45° | 3840.4 | 3850.5 | 3974.3 | 3992.0 | 3908.6 | 3802.5 | 3734.3 | 3645.9 | 3466.5 | 3403.3 | 2733.8 |
| 47.5° | 3681.2 | 3661.0 | 3704.0 | 3858.1 | 3890.9 | 3885.9 | 3903.6 | 3860.6 | 3719.1 | 3638.3 | 2928.3 |
| 50° | 3340.1 | 3347.7 | 3486.7 | 3673.7 | 3787.3 | 3916.2 | 4029.9 | 4077.9 | 3974.3 | 3893.5 | 3138.0 |
| 52.5° | 2718.6 | 2754.0 | 3019.3 | 3461.4 | 3658.5 | 3896.0 | 4120.9 | 4282.6 | 4239.6 | 4161.3 | 3345.2 |
| 55° | 2233.5 | 2286.6 | 2551.9 | 3120.3 | 3481.6 | 3797.5 | 4173.9 | 4497.3 | 4504.9 | 4444.3 | 3534.7 |
| 57.5° | 1748.4 | 1791.3 | 2071.8 | 2592.3 | 3229.0 | 3643.3 | 4181.5 | 4681.8 | 4767.7 | 4696.9 | 3701.4 |
| 60° | 1369.4 | 1399.7 | 1564.0 | 2160.2 | 2918.2 | 3423.5 | 4125.9 | 4828.3 | 4990.0 | 4936.9 | 3845.5 |
| 62.5° | 1038.4 | 1061.2 | 1207.7 | 1708.0 | 2536.7 | 3165.8 | 3938.9 | 4881.4 | 5146.7 | 5096.1 | 3926.3 |
| 65° | 841.4 | 861.6 | 957.6 | 1341.6 | 2160.2 | 2867.7 | 3656.0 | 4760.1 | 5192.1 | 5146.7 | 3916.2 |
| 67.5° | 687.2 | 694.8 | 773.1 | 1046.0 | 1826.7 | 2531.6 | 3241.6 | 4444.3 | 5053.2 | 5050.6 | 3800.0 |
| 70° | 555.8 | 576.1 | 641.8 | 833.8 | 1518.5 | 2145.1 | 2759.0 | 3949.1 | 4752.5 | 4777.8 | 3567.5 |
| 72.5° | 472.5 | 477.5 | 535.6 | 689.8 | 1238.0 | 1740.8 | 2284.0 | 3378.0 | 4310.4 | 4330.6 | 3203.7 |
| 75° | 399.2 | 406.8 | 449.7 | 558.4 | 1005.6 | 1382.0 | 1836.8 | 2728.7 | 3608.0 | 3693.9 | 2698.4 |
| 77.5° | 343.6 | 346.1 | 376.5 | 459.8 | 715.0 | 1038.4 | 1346.7 | 2046.5 | 2824.7 | 2885.4 | 2119.8 |
| 80° | 270.3 | 275.4 | 308.2 | 363.8 | 497.7 | 674.6 | 929.8 | 1399.7 | 1887.4 | 1955.6 | 1467.9 |
| 82.5° | 126.3 | 141.5 | 149.1 | 199.6 | 260.2 | 333.5 | 439.6 | 583.6 | 854.0 | 851.5 | 684.7 |
| 85° | 12.6 | 10.1 | 10.1 | 15.2 | 22.7 | 22.7 | 27.8 | 32.8 | 65.7 | 78.3 | 60.6 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.5 | 5.1 | 5.1 | 5.1 | 7.6 | 7.6 | 7.6 | 7.6 |
| 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: P868931

CATALOG NUMBER: EMM2-HSN-SA2B-750-U-T2U-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 | 1523.5 |
| 2.5° | 1531.1 | 1508.4 | 1467.9 | 1430.0 | 1404.8 | 1384.6 | 1351.7 | 1331.5 | 1316.4 | 1296.1 | 1293.6 |
| 5° | 1526.1 | 1485.6 | 1404.8 | 1336.6 | 1270.9 | 1215.3 | 1157.2 | 1121.8 | 1083.9 | 1066.2 | 1081.4 |
| 7.5° | 1531.1 | 1465.4 | 1339.1 | 1235.5 | 1137.0 | 1048.5 | 972.7 | 924.7 | 889.4 | 871.7 | 874.2 |
| 10° | 1533.6 | 1447.7 | 1283.5 | 1139.5 | 1013.2 | 909.6 | 823.7 | 758.0 | 715.0 | 704.9 | 692.3 |
| 12.5° | 1528.6 | 1425.0 | 1227.9 | 1046.0 | 894.4 | 780.7 | 679.7 | 629.1 | 586.2 | 566.0 | 566.0 |
| 15° | 1533.6 | 1407.3 | 1169.8 | 960.1 | 788.3 | 656.9 | 571.0 | 515.4 | 490.2 | 472.5 | 475.0 |
| 17.5° | 1533.6 | 1392.1 | 1114.2 | 876.7 | 684.7 | 563.4 | 485.1 | 439.6 | 414.4 | 404.3 | 401.7 |
| 20° | 1551.3 | 1379.5 | 1061.2 | 798.4 | 593.7 | 480.1 | 416.9 | 381.5 | 361.3 | 351.2 | 346.1 |
| 22.5° | 1564.0 | 1369.4 | 1013.2 | 722.6 | 517.9 | 419.4 | 366.4 | 333.5 | 318.3 | 313.3 | 313.3 |
| 25° | 1586.7 | 1366.9 | 970.2 | 649.3 | 457.3 | 373.9 | 325.9 | 300.7 | 288.0 | 283.0 | 283.0 |
| 27.5° | 1619.5 | 1371.9 | 929.8 | 586.2 | 411.8 | 328.5 | 293.1 | 272.9 | 265.3 | 262.8 | 260.2 |
| 30° | 1667.5 | 1394.7 | 904.5 | 538.2 | 368.9 | 300.7 | 267.8 | 255.2 | 250.1 | 247.6 | 247.6 |
| 32.5° | 1730.7 | 1435.1 | 894.4 | 512.9 | 343.6 | 277.9 | 250.1 | 240.0 | 235.0 | 235.0 | 232.4 |
| 35° | 1809.0 | 1480.6 | 886.8 | 490.2 | 325.9 | 262.8 | 237.5 | 227.4 | 224.9 | 224.9 | 224.9 |
| 37.5° | 1902.5 | 1528.6 | 874.2 | 475.0 | 315.8 | 250.1 | 227.4 | 217.3 | 217.3 | 217.3 | 217.3 |
| 40° | 2006.1 | 1599.3 | 871.7 | 464.9 | 308.2 | 242.6 | 217.3 | 207.2 | 207.2 | 207.2 | 207.2 |
| 42.5° | 2122.3 | 1675.1 | 869.1 | 457.3 | 303.2 | 237.5 | 207.2 | 197.1 | 197.1 | 197.1 | 197.1 |
| 45° | 2263.8 | 1771.1 | 874.2 | 452.3 | 303.2 | 232.4 | 199.6 | 187.0 | 184.4 | 184.4 | 184.4 |
| 47.5° | 2402.8 | 1862.1 | 879.3 | 447.2 | 298.1 | 224.9 | 189.5 | 176.9 | 174.3 | 171.8 | 171.8 |
| 50° | 2551.9 | 1955.6 | 879.3 | 442.2 | 293.1 | 217.3 | 181.9 | 164.2 | 161.7 | 159.2 | 159.2 |
| 52.5° | 2698.4 | 2033.9 | 881.8 | 434.6 | 280.5 | 204.7 | 169.3 | 154.1 | 149.1 | 146.5 | 144.0 |
| 55° | 2839.9 | 2117.3 | 884.3 | 421.9 | 265.3 | 192.0 | 161.7 | 144.0 | 136.4 | 131.4 | 131.4 |
| 57.5° | 2946.0 | 2185.5 | 871.7 | 396.7 | 245.1 | 179.4 | 149.1 | 131.4 | 121.3 | 116.2 | 116.2 |
| 60° | 3047.1 | 2228.4 | 848.9 | 358.8 | 224.9 | 166.8 | 139.0 | 118.7 | 108.6 | 103.6 | 103.6 |
| 62.5° | 3087.5 | 2236.0 | 795.9 | 293.1 | 199.6 | 154.1 | 126.3 | 108.6 | 101.1 | 98.5 | 98.5 |
| 65° | 3064.7 | 2203.2 | 725.1 | 232.4 | 176.9 | 139.0 | 116.2 | 101.1 | 91.0 | 83.4 | 83.4 |
| 67.5° | 2940.9 | 2089.5 | 629.1 | 184.4 | 154.1 | 126.3 | 106.1 | 91.0 | 80.9 | 73.3 | 73.3 |
| 70° | 2706.0 | 1907.6 | 490.2 | 146.5 | 133.9 | 111.2 | 96.0 | 83.4 | 73.3 | 65.7 | 65.7 |
| 72.5° | 2359.8 | 1654.9 | 356.2 | 123.8 | 116.2 | 98.5 | 85.9 | 75.8 | 65.7 | 60.6 | 60.6 |
| 75° | 1945.5 | 1275.9 | 252.7 | 106.1 | 103.6 | 88.4 | 78.3 | 68.2 | 60.6 | 55.6 | 55.6 |
| 77.5° | 1460.4 | 889.4 | 197.1 | 93.5 | 91.0 | 80.9 | 70.7 | 63.2 | 55.6 | 53.1 | 50.5 |
| 80° | 972.7 | 550.8 | 149.1 | 70.7 | 68.2 | 63.2 | 58.1 | 53.1 | 45.5 | 40.4 | 40.4 |
| 82.5° | 434.6 | 232.4 | 75.8 | 40.4 | 35.4 | 30.3 | 25.3 | 17.7 | 17.7 | 15.2 | 15.2 |
| 85° | 45.5 | 30.3 | 15.2 | 10.1 | 10.1 | 7.6 | 7.6 | 7.6 | 5.1 | 5.1 | 5.1 |
| 87.5° | 7.6 | 7.6 | 5.1 | 5.1 | 5.1 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| 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: SP1-2407-157-6

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-750-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-750-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-6
 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-40-750-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 5094
 CIE u': 0.2082
 CIE v': 0.4867
 Duv: 0.0032
 CIE x: 0.3430
 CIE y: 0.3564
 CIE z: 0.3006
 Peak Wavelength (nm): 451
 Dominant Wavelength (nm): 568
 Purity: 9.86439
 Rf: 73.7
 Rg: 93

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.6 | R9: | -39.6 |
| R2: | 78.1 | R10: | 47.6 |
| R3: | 84.6 | R11: | 68.2 |
| R4: | 71.6 | R12: | 41.4 |
| R5: | 69.6 | R13: | 70.4 |
| R6: | 69.4 | R14: | 91.4 |
| R7: | 80.9 | R15: | 61.4 |
| R8: | 53.1 | | |



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-6

| 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: SP1-2407-157-6

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-6

Photopic Flux vs. Wavelength

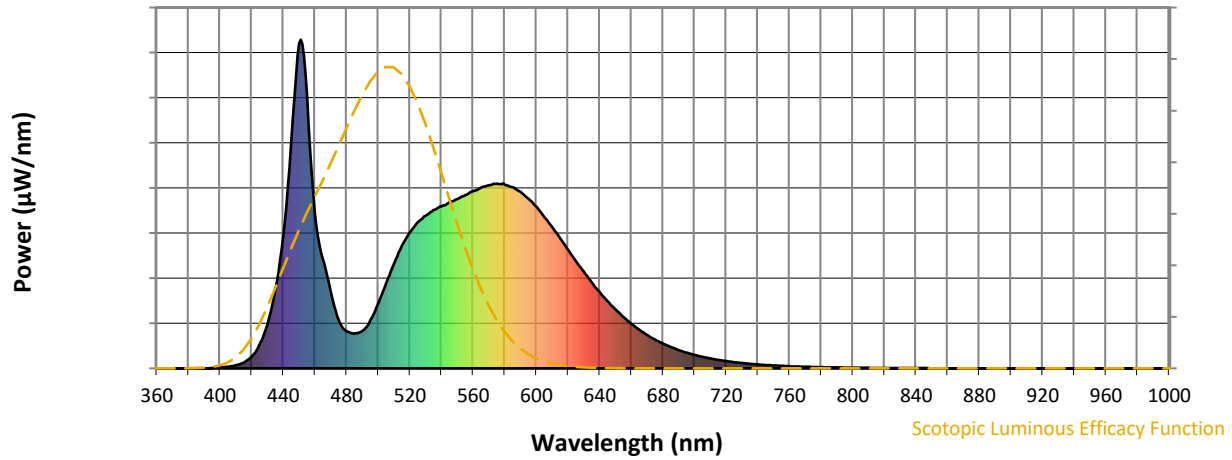


Photopic Lumens: NR

| 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 | 114 | NR | 620 | 361 | NR | 750 | 9 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 145 | NR | 625 | 326 | NR | 755 | 8 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 197 | NR | 630 | 294 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 259 | NR | 635 | 261 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 319 | NR | 640 | 232 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 373 | NR | 645 | 204 | NR | 775 | 4 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 414 | NR | 650 | 179 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 445 | NR | 655 | 157 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 465 | NR | 660 | 136 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 482 | NR | 665 | 118 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 493 | NR | 670 | 102 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 505 | NR | 675 | 87 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 36 | NR | 550 | 515 | NR | 680 | 75 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 72 | NR | 555 | 527 | NR | 685 | 65 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 134 | NR | 560 | 540 | NR | 690 | 56 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 242 | NR | 565 | 550 | NR | 695 | 48 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 407 | NR | 570 | 557 | NR | 700 | 41 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 684 | NR | 575 | 561 | NR | 705 | 35 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 988 | NR | 580 | 559 | NR | 710 | 30 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 828 | NR | 585 | 551 | NR | 715 | 26 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 473 | NR | 590 | 537 | NR | 720 | 22 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 333 | NR | 595 | 516 | NR | 725 | 19 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 232 | NR | 600 | 491 | NR | 730 | 16 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 146 | NR | 605 | 461 | NR | 735 | 14 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 113 | NR | 610 | 429 | NR | 740 | 12 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 106 | NR | 615 | 395 | NR | 745 | 10 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-6

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.81

| 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 | 114 | NR | 620 | 361 | NR | 750 | 9 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 145 | NR | 625 | 326 | NR | 755 | 8 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 197 | NR | 630 | 294 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 259 | NR | 635 | 261 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 319 | NR | 640 | 232 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 373 | NR | 645 | 204 | NR | 775 | 4 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 414 | NR | 650 | 179 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 445 | NR | 655 | 157 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 465 | NR | 660 | 136 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 482 | NR | 665 | 118 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 493 | NR | 670 | 102 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 505 | NR | 675 | 87 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 36 | NR | 550 | 515 | NR | 680 | 75 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 72 | NR | 555 | 527 | NR | 685 | 65 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 134 | NR | 560 | 540 | NR | 690 | 56 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 242 | NR | 565 | 550 | NR | 695 | 48 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 407 | NR | 570 | 557 | NR | 700 | 41 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 684 | NR | 575 | 561 | NR | 705 | 35 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 988 | NR | 580 | 559 | NR | 710 | 30 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 828 | NR | 585 | 551 | NR | 715 | 26 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 473 | NR | 590 | 537 | NR | 720 | 22 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 333 | NR | 595 | 516 | NR | 725 | 19 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 232 | NR | 600 | 491 | NR | 730 | 16 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 146 | NR | 605 | 461 | NR | 735 | 14 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 113 | NR | 610 | 429 | NR | 740 | 12 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 106 | NR | 615 | 395 | NR | 745 | 10 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-6

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.73

| 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 | 114 | NR | 620 | 361 | NR | 750 | 9 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 145 | NR | 625 | 326 | NR | 755 | 8 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 197 | NR | 630 | 294 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 259 | NR | 635 | 261 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 319 | NR | 640 | 232 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 373 | NR | 645 | 204 | NR | 775 | 4 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 414 | NR | 650 | 179 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 445 | NR | 655 | 157 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 465 | NR | 660 | 136 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 482 | NR | 665 | 118 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 493 | NR | 670 | 102 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 505 | NR | 675 | 87 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 36 | NR | 550 | 515 | NR | 680 | 75 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 72 | NR | 555 | 527 | NR | 685 | 65 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 134 | NR | 560 | 540 | NR | 690 | 56 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 242 | NR | 565 | 550 | NR | 695 | 48 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 407 | NR | 570 | 557 | NR | 700 | 41 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 684 | NR | 575 | 561 | NR | 705 | 35 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 988 | NR | 580 | 559 | NR | 710 | 30 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 828 | NR | 585 | 551 | NR | 715 | 26 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 473 | NR | 590 | 537 | NR | 720 | 22 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 333 | NR | 595 | 516 | NR | 725 | 19 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 232 | NR | 600 | 491 | NR | 730 | 16 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 146 | NR | 605 | 461 | NR | 735 | 14 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 113 | NR | 610 | 429 | NR | 740 | 12 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 106 | NR | 615 | 395 | NR | 745 | 10 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 73.7$
 $R_g = 93$
 $CIE R_a = 72.0$
 $R_9 = -39.6$



Color Vector Graphics

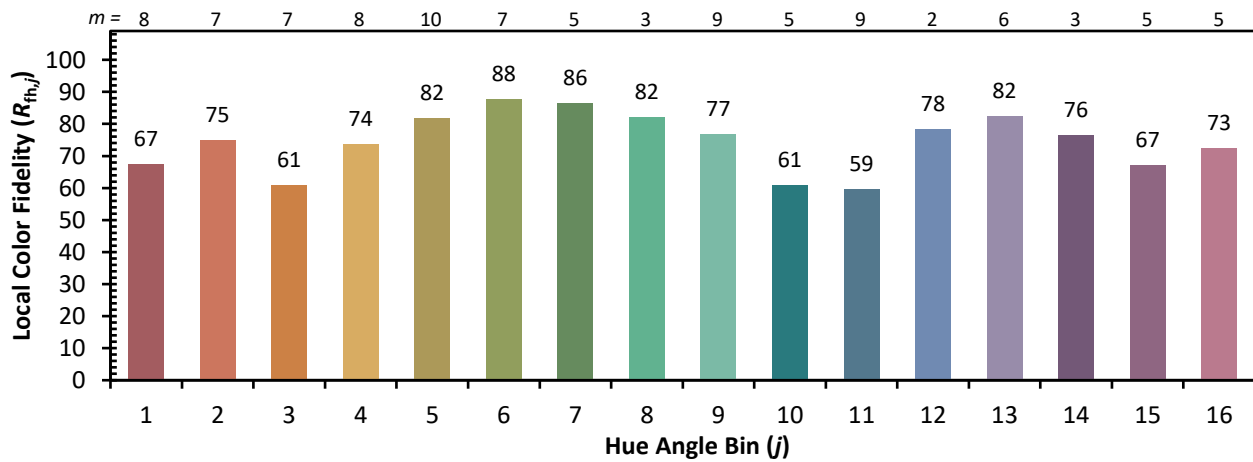


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 62 | CES51 = 90 | CES76 = 50 |
| CES02 = 59 | CES27 = 88 | CES52 = 89 | CES77 = 67 |
| CES03 = 30 | CES28 = 80 | CES53 = 79 | CES78 = 53 |
| CES04 = 69 | CES29 = 69 | CES54 = 84 | CES79 = 80 |
| CES05 = 46 | CES30 = 88 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 72 | CES56 = 74 | CES81 = 78 |
| CES07 = 38 | CES32 = 62 | CES57 = 73 | CES82 = 90 |
| CES08 = 38 | CES33 = 82 | CES58 = 73 | CES83 = 90 |
| CES09 = 29 | CES34 = 69 | CES59 = 86 | CES84 = 85 |
| CES10 = 72 | CES35 = 83 | CES60 = 88 | CES85 = 77 |
| CES11 = 56 | CES36 = 87 | CES61 = 82 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 81 | CES87 = 76 |
| CES13 = 41 | CES38 = 98 | CES63 = 73 | CES88 = 81 |
| CES14 = 74 | CES39 = 96 | CES64 = 63 | CES89 = 72 |
| CES15 = 70 | CES40 = 91 | CES65 = 60 | CES90 = 80 |
| CES16 = 46 | CES41 = 96 | CES66 = 56 | CES91 = 71 |
| CES17 = 49 | CES42 = 79 | CES67 = 53 | CES92 = 58 |
| CES18 = 55 | CES43 = 78 | CES68 = 63 | CES93 = 74 |
| CES19 = 71 | CES44 = 99 | CES69 = 72 | CES94 = 52 |
| CES20 = 63 | CES45 = 86 | CES70 = 55 | CES95 = 64 |
| CES21 = 85 | CES46 = 85 | CES71 = 46 | CES96 = 76 |
| CES22 = 77 | CES47 = 89 | CES72 = 82 | CES97 = 86 |
| CES23 = 91 | CES48 = 80 | CES73 = 45 | CES98 = 76 |
| CES24 = 90 | CES49 = 83 | CES74 = 90 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 48 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)