

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: P867656

Luminaire Tested: **MEM2-HTN-SA-120-730-U-T3-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867656
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-120-730-U-T3-HSS
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 120W 70CRI 3000K
FIXTURE w/ TYPE III DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

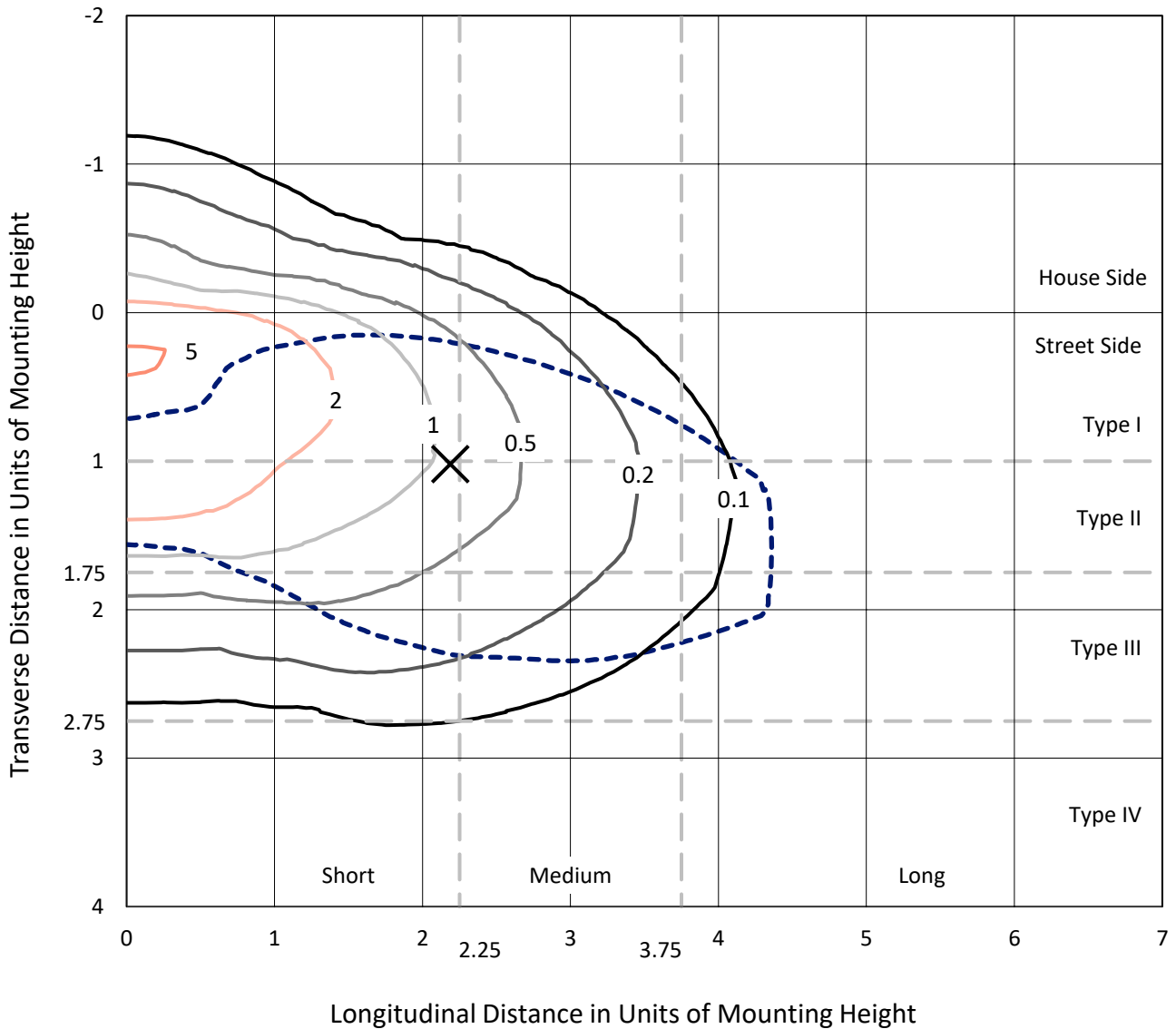
Lumens per Lamp: N/A
Luminaire Lumens: 9062.6 lumens
Efficiency: N/A
Efficacy: 89.7 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

Input Watts (W): 101
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.45%
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

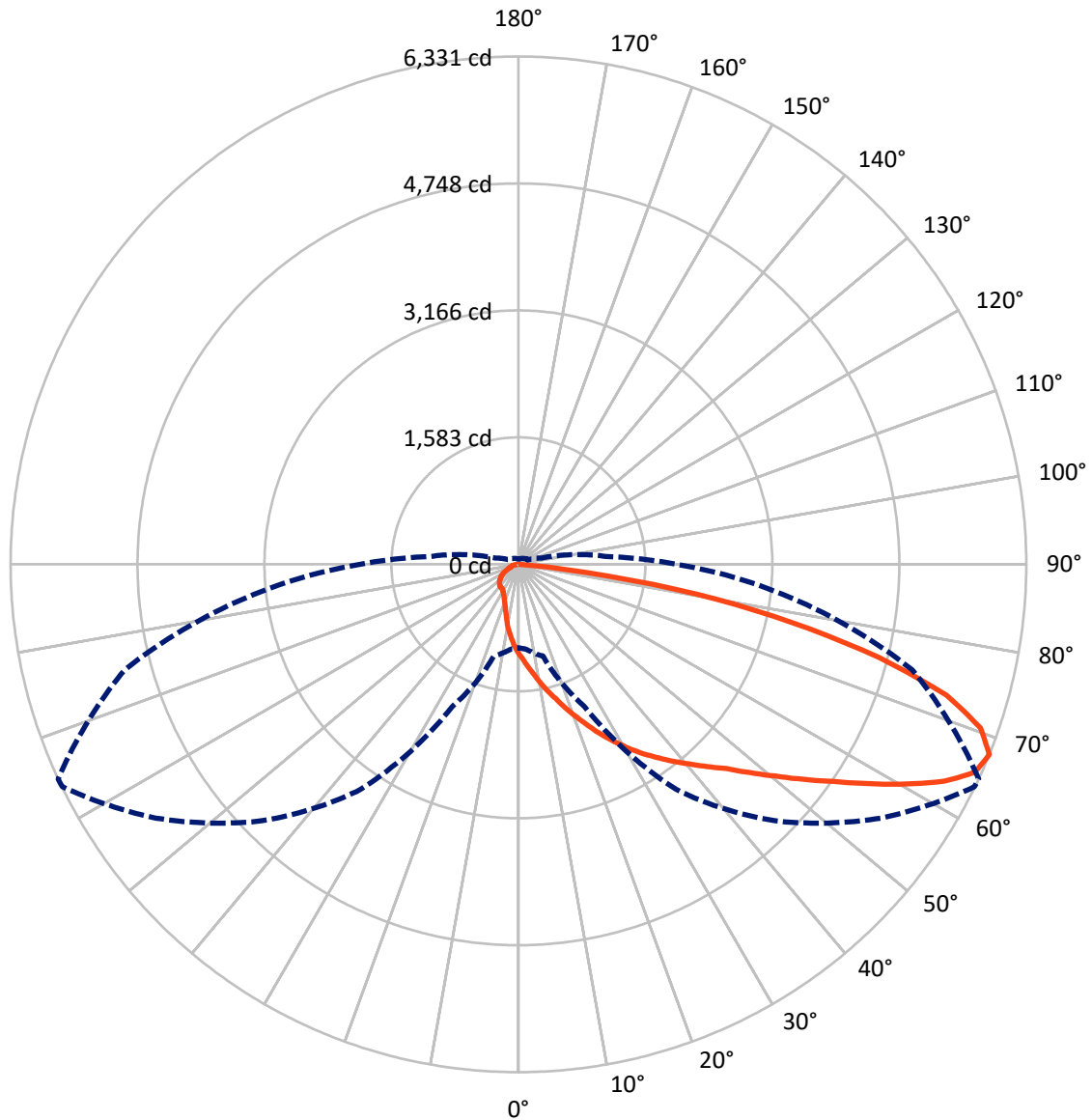
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.2 fc
 Type III - Short - N/A

REPORT NUMBER: P867656
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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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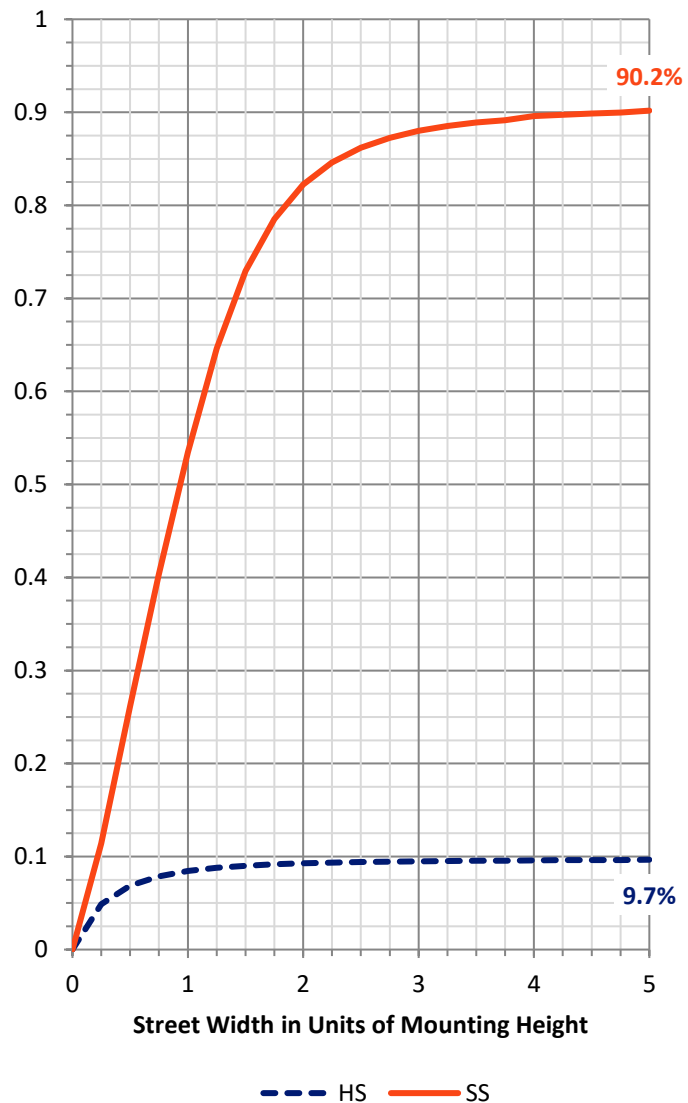
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 882.1 | 0.0 | 882.1 |
| | % Fixture | 9.7 | 0.0 | 9.7 |
| Street Side | Lumens | 8180.5 | 0.0 | 8180.5 |
| | % Fixture | 90.3 | 0.0 | 90.3 |
| Total | Lumens | 9062.6 | 0.0 | 9062.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 109.6 | 1.2 |
| 10°-20° | 363.6 | 4.0 |
| 20°-30° | 661.8 | 7.3 |
| 30°-40° | 1024.3 | 11.3 |
| 40°-50° | 1548.4 | 17.1 |
| 50°-60° | 2014.3 | 22.2 |
| 60°-70° | 1987.1 | 21.9 |
| 70°-80° | 1209.6 | 13.3 |
| 80°-90° | 143.8 | 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° | 9062.6 | 100.0 |
| 0°-180° | 9062.6 | 100.0 |



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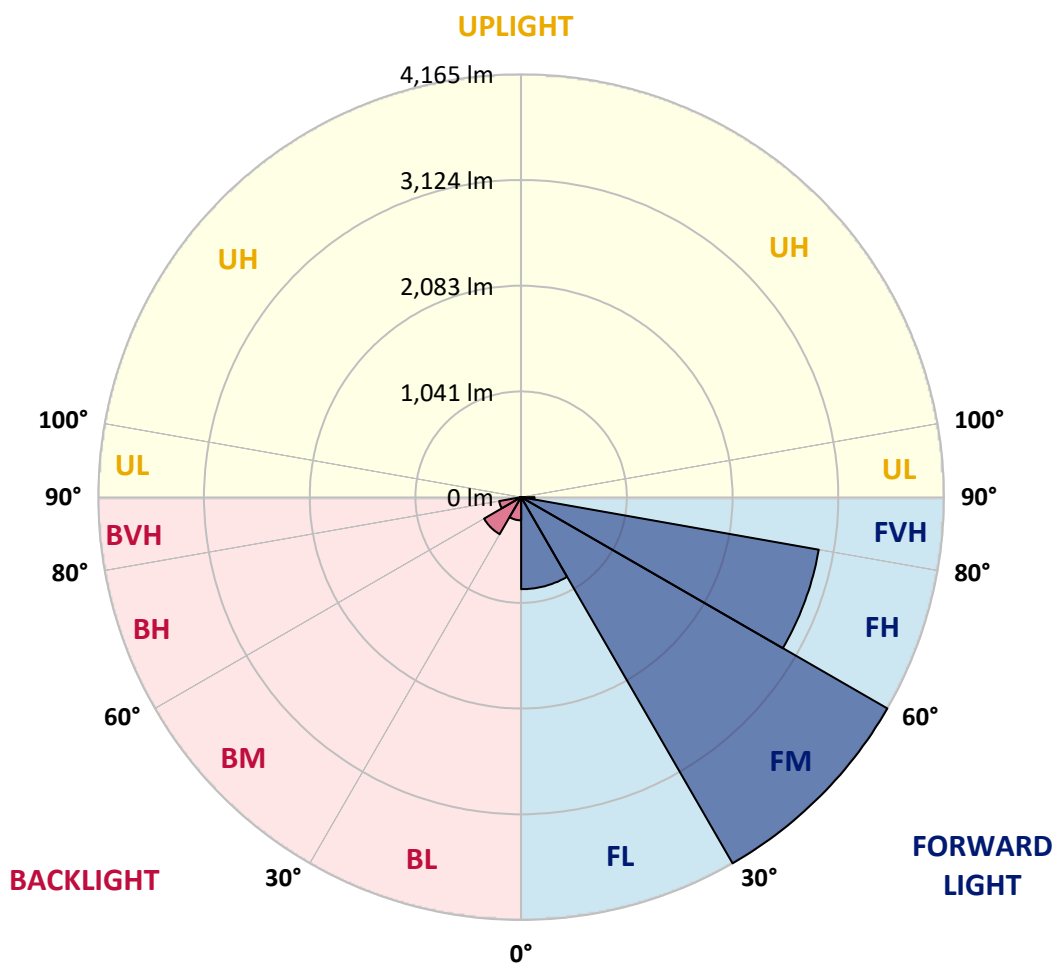
CATALOG NUMBER: MEM2-HTN-SA-120-730-U-T3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 906.8 | 10.0 | | | |
| FM (30°-60°) | 4165.1 | 46.0 | | | |
| FH (60°-80°) | 2977.1 | 32.9 | | | G2/5000 |
| FVH (80°-90°) | 131.4 | 1.5 | | | G2/225 |
| BL (0°-30°) | 228.3 | 2.5 | B1/500 | | |
| BM (30°-60°) | 421.8 | 4.7 | B1/1000 | | |
| BH (60°-80°) | 219.6 | 2.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 12.3 | 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





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 64° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 |
| 2.5° | 1308.6 | 1298.3 | 1306.0 | 1287.9 | 1267.2 | 1251.7 | 1220.7 | 1194.8 | 1192.2 | 1166.4 | 1137.9 |
| 5° | 1559.5 | 1525.9 | 1528.5 | 1492.3 | 1448.3 | 1401.7 | 1352.6 | 1287.9 | 1287.9 | 1225.9 | 1161.2 |
| 7.5° | 1784.5 | 1779.3 | 1756.0 | 1699.1 | 1647.4 | 1575.0 | 1484.5 | 1401.7 | 1383.6 | 1287.9 | 1187.1 |
| 10° | 2001.7 | 1994.0 | 1973.3 | 1929.3 | 1841.4 | 1761.2 | 1647.4 | 1523.3 | 1500.0 | 1362.9 | 1218.1 |
| 12.5° | 2175.0 | 2177.6 | 2154.3 | 2118.1 | 2040.5 | 1944.8 | 1794.8 | 1639.7 | 1619.0 | 1435.4 | 1249.1 |
| 15° | 2327.6 | 2325.0 | 2319.8 | 2288.8 | 2213.8 | 2125.9 | 1950.0 | 1769.0 | 1735.4 | 1512.9 | 1280.2 |
| 17.5° | 2444.0 | 2438.8 | 2428.5 | 2402.6 | 2366.4 | 2281.0 | 2112.9 | 1906.0 | 1877.6 | 1603.5 | 1316.4 |
| 20° | 2477.6 | 2475.0 | 2475.0 | 2493.1 | 2477.6 | 2425.9 | 2275.9 | 2048.3 | 2017.3 | 1699.1 | 1365.5 |
| 22.5° | 2539.7 | 2537.1 | 2534.5 | 2552.6 | 2562.9 | 2557.8 | 2428.5 | 2193.1 | 2164.7 | 1810.4 | 1427.6 |
| 25° | 2619.8 | 2614.7 | 2606.9 | 2625.0 | 2637.9 | 2669.0 | 2581.1 | 2363.8 | 2330.2 | 1939.7 | 1489.7 |
| 27.5° | 2725.9 | 2731.1 | 2720.7 | 2718.1 | 2718.1 | 2736.2 | 2715.5 | 2516.4 | 2485.4 | 2063.8 | 1562.1 |
| 30° | 2865.5 | 2873.3 | 2855.2 | 2842.3 | 2819.0 | 2816.4 | 2821.6 | 2687.1 | 2643.1 | 2198.3 | 1637.1 |
| 32.5° | 3002.6 | 3010.4 | 3000.0 | 2981.9 | 2922.4 | 2899.2 | 2919.8 | 2831.9 | 2803.5 | 2345.7 | 1732.8 |
| 35° | 3113.8 | 3131.9 | 3131.9 | 3095.7 | 3012.9 | 3000.0 | 3033.6 | 2974.2 | 2953.5 | 2519.0 | 1846.6 |
| 37.5° | 3263.8 | 3274.2 | 3263.8 | 3196.6 | 3093.1 | 3108.6 | 3160.4 | 3124.2 | 3111.2 | 2705.2 | 1981.0 |
| 40° | 3584.5 | 3597.4 | 3530.2 | 3369.8 | 3204.3 | 3222.4 | 3313.0 | 3292.3 | 3271.6 | 2888.8 | 2105.2 |
| 42.5° | 4031.9 | 4000.9 | 3988.0 | 3631.1 | 3375.0 | 3364.7 | 3478.5 | 3450.0 | 3447.4 | 3075.0 | 2219.0 |
| 45° | 4326.8 | 4337.1 | 4272.4 | 3933.6 | 3734.5 | 3540.5 | 3662.1 | 3651.7 | 3631.1 | 3263.8 | 2356.0 |
| 47.5° | 4531.1 | 4507.8 | 4347.4 | 4184.5 | 4223.3 | 3770.7 | 3866.4 | 3892.3 | 3879.3 | 3478.5 | 2524.2 |
| 50° | 4616.4 | 4593.1 | 4487.1 | 4378.5 | 4425.0 | 4034.5 | 4075.9 | 4161.2 | 4148.3 | 3695.7 | 2666.4 |
| 52.5° | 4510.4 | 4481.9 | 4489.7 | 4518.1 | 4494.9 | 4241.4 | 4334.5 | 4469.0 | 4453.5 | 3949.2 | 2831.9 |
| 55° | 3835.4 | 3910.4 | 4200.0 | 4489.7 | 4481.9 | 4399.2 | 4611.2 | 4807.8 | 4776.8 | 4213.0 | 2974.2 |
| 57.5° | 3093.1 | 3134.5 | 3501.7 | 4285.4 | 4440.5 | 4531.1 | 4926.8 | 5169.9 | 5159.5 | 4476.8 | 3103.5 |
| 60° | 2459.5 | 2503.5 | 2782.8 | 3861.2 | 4344.9 | 4668.1 | 5250.0 | 5570.7 | 5560.4 | 4743.1 | 3196.6 |
| 62.5° | 1955.2 | 1955.2 | 2203.5 | 3250.9 | 4161.2 | 4748.3 | 5506.1 | 5974.2 | 5956.1 | 4957.8 | 3219.8 |
| 65° | 1406.9 | 1425.0 | 1611.2 | 2614.7 | 3863.8 | 4727.6 | 5630.2 | 6261.2 | 6250.9 | 5079.3 | 3170.7 |
| 67.5° | 1039.7 | 1060.4 | 1184.5 | 1960.4 | 3424.2 | 4520.7 | 5516.4 | 6325.9 | 6331.1 | 5081.9 | 3010.4 |
| 70° | 812.1 | 817.2 | 910.4 | 1362.9 | 2806.1 | 4060.4 | 5089.7 | 6111.2 | 6111.2 | 4955.2 | 2772.4 |
| 72.5° | 618.1 | 623.3 | 703.5 | 928.5 | 2066.4 | 3356.9 | 4450.9 | 5542.3 | 5581.1 | 4619.0 | 2420.7 |
| 75° | 478.5 | 488.8 | 543.1 | 667.2 | 1295.7 | 2387.1 | 3656.9 | 4538.8 | 4644.9 | 3967.3 | 1994.0 |
| 77.5° | 369.8 | 380.2 | 424.1 | 488.8 | 755.2 | 1471.6 | 2570.7 | 3393.1 | 3488.8 | 3124.2 | 1538.8 |
| 80° | 297.4 | 302.6 | 331.0 | 367.2 | 457.8 | 757.8 | 1569.8 | 2229.3 | 2257.8 | 2123.3 | 1019.0 |
| 82.5° | 137.1 | 147.4 | 178.4 | 201.7 | 227.6 | 351.7 | 669.8 | 825.0 | 861.2 | 843.1 | 419.0 |
| 85° | 15.5 | 15.5 | 18.1 | 20.7 | 23.3 | 36.2 | 46.6 | 41.4 | 41.4 | 49.1 | 44.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.6 | 5.2 | 5.2 | 7.8 | 7.8 | 7.8 | 7.8 | 7.8 |
| 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: P867656

CATALOG NUMBER: MEM2-HTN-SA-120-730-U-T3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 | 1119.8 |
| 2.5° | 1122.4 | 1104.3 | 1070.7 | 1042.2 | 1016.4 | 990.5 | 977.6 | 946.6 | 938.8 | 944.0 | 925.9 |
| 5° | 1127.6 | 1091.4 | 1021.6 | 956.9 | 902.6 | 850.9 | 806.9 | 760.3 | 750.0 | 734.5 | 726.7 |
| 7.5° | 1135.4 | 1081.0 | 972.4 | 871.6 | 788.8 | 713.8 | 659.5 | 623.3 | 594.8 | 587.1 | 584.5 |
| 10° | 1145.7 | 1068.1 | 918.1 | 791.4 | 677.6 | 600.0 | 550.9 | 525.0 | 514.7 | 506.9 | 509.5 |
| 12.5° | 1153.5 | 1055.2 | 866.4 | 700.9 | 589.7 | 519.8 | 496.6 | 475.9 | 470.7 | 468.1 | 468.1 |
| 15° | 1163.8 | 1042.2 | 804.3 | 620.7 | 514.7 | 473.3 | 450.0 | 442.2 | 442.2 | 439.7 | 439.7 |
| 17.5° | 1176.7 | 1031.9 | 752.6 | 558.6 | 470.7 | 431.9 | 421.6 | 411.2 | 411.2 | 411.2 | 408.6 |
| 20° | 1202.6 | 1026.7 | 706.0 | 506.9 | 431.9 | 406.0 | 390.5 | 382.8 | 380.2 | 377.6 | 377.6 |
| 22.5° | 1228.5 | 1026.7 | 654.3 | 468.1 | 406.0 | 377.6 | 362.1 | 354.3 | 351.7 | 351.7 | 351.7 |
| 25° | 1264.7 | 1024.1 | 612.9 | 434.5 | 382.8 | 349.1 | 333.6 | 325.9 | 320.7 | 320.7 | 318.1 |
| 27.5° | 1306.0 | 1024.1 | 576.7 | 408.6 | 356.9 | 323.3 | 305.2 | 297.4 | 289.7 | 289.7 | 287.1 |
| 30° | 1347.4 | 1029.3 | 545.7 | 387.9 | 331.0 | 300.0 | 276.7 | 266.4 | 261.2 | 258.6 | 258.6 |
| 32.5° | 1401.7 | 1044.8 | 525.0 | 372.4 | 307.8 | 276.7 | 253.4 | 243.1 | 237.9 | 235.3 | 235.3 |
| 35° | 1484.5 | 1083.6 | 527.6 | 364.7 | 292.2 | 256.0 | 232.8 | 219.8 | 217.2 | 217.2 | 214.7 |
| 37.5° | 1572.4 | 1119.8 | 535.3 | 359.5 | 276.7 | 240.5 | 217.2 | 204.3 | 201.7 | 201.7 | 201.7 |
| 40° | 1647.4 | 1150.9 | 545.7 | 356.9 | 263.8 | 225.0 | 204.3 | 194.0 | 188.8 | 188.8 | 188.8 |
| 42.5° | 1722.4 | 1169.0 | 548.3 | 349.1 | 256.0 | 212.1 | 194.0 | 183.6 | 178.4 | 181.0 | 181.0 |
| 45° | 1797.4 | 1181.9 | 540.5 | 338.8 | 248.3 | 201.7 | 183.6 | 173.3 | 168.1 | 168.1 | 168.1 |
| 47.5° | 1887.9 | 1210.4 | 527.6 | 323.3 | 243.1 | 194.0 | 173.3 | 162.9 | 160.3 | 160.3 | 160.3 |
| 50° | 1978.5 | 1233.6 | 517.2 | 305.2 | 230.2 | 183.6 | 165.5 | 152.6 | 150.0 | 150.0 | 150.0 |
| 52.5° | 2053.5 | 1244.0 | 504.3 | 281.9 | 217.2 | 173.3 | 155.2 | 142.2 | 137.1 | 137.1 | 137.1 |
| 55° | 2110.4 | 1246.6 | 486.2 | 263.8 | 199.1 | 162.9 | 144.8 | 131.9 | 126.7 | 124.1 | 124.1 |
| 57.5° | 2156.9 | 1244.0 | 468.1 | 245.7 | 183.6 | 150.0 | 131.9 | 121.6 | 113.8 | 111.2 | 111.2 |
| 60° | 2182.8 | 1236.2 | 442.2 | 222.4 | 162.9 | 137.1 | 121.6 | 108.6 | 103.4 | 100.9 | 100.9 |
| 62.5° | 2167.3 | 1215.5 | 406.0 | 186.2 | 147.4 | 124.1 | 111.2 | 100.9 | 93.1 | 90.5 | 90.5 |
| 65° | 2094.8 | 1174.1 | 359.5 | 152.6 | 131.9 | 111.2 | 100.9 | 90.5 | 80.2 | 77.6 | 77.6 |
| 67.5° | 1968.1 | 1104.3 | 297.4 | 129.3 | 121.6 | 100.9 | 90.5 | 80.2 | 72.4 | 67.2 | 67.2 |
| 70° | 1792.3 | 1011.2 | 232.8 | 111.2 | 108.6 | 93.1 | 82.8 | 72.4 | 64.7 | 59.5 | 59.5 |
| 72.5° | 1541.4 | 858.6 | 173.3 | 95.7 | 95.7 | 85.3 | 75.0 | 67.2 | 59.5 | 54.3 | 54.3 |
| 75° | 1246.6 | 649.1 | 131.9 | 87.9 | 85.3 | 77.6 | 67.2 | 59.5 | 54.3 | 49.1 | 49.1 |
| 77.5° | 910.4 | 431.9 | 108.6 | 80.2 | 80.2 | 69.8 | 62.1 | 54.3 | 49.1 | 46.6 | 46.6 |
| 80° | 553.5 | 248.3 | 77.6 | 62.1 | 62.1 | 59.5 | 51.7 | 46.6 | 44.0 | 38.8 | 36.2 |
| 82.5° | 225.0 | 95.7 | 41.4 | 31.0 | 31.0 | 28.4 | 18.1 | 15.5 | 15.5 | 15.5 | 12.9 |
| 85° | 23.3 | 15.5 | 10.3 | 7.8 | 7.8 | 7.8 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| 87.5° | 7.8 | 7.8 | 5.2 | 5.2 | 5.2 | 5.2 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| 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: SP1-2407-157-4

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-730-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-4
 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-40-730-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3057
 CIE u': 0.2487
 CIE v': 0.5199
 Duv: -0.0002
 CIE x: 0.4326
 CIE y: 0.4020
 CIE z: 0.1654
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 50.50735
 R_f: 74.6
 R_g: 94

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 68.1 | R9: | -34.8 |
| R2: | 82.0 | R10: | 58.5 |
| R3: | 93.5 | R11: | 62.5 |
| R4: | 67.5 | R12: | 47.5 |
| R5: | 67.2 | R13: | 70.7 |
| R6: | 74.9 | R14: | 96.4 |
| R7: | 77.4 | R15: | 60.0 |
| R8: | 43.1 | | |



Test Conditions

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

REPORT NUMBER: SP1-2407-157-4

| 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: SP1-2407-157-4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3000K 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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.23

| 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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2407-157-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.27

| 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 | 104 | NR | 620 | 818 | NR | 750 | 20 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 135 | NR | 625 | 755 | NR | 755 | 17 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 184 | NR | 630 | 691 | NR | 760 | 15 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 625 | NR | 765 | 13 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 309 | NR | 640 | 561 | NR | 770 | 11 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 369 | NR | 645 | 499 | NR | 775 | 9 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 419 | NR | 650 | 441 | NR | 780 | 8 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 460 | NR | 655 | 388 | NR | 785 | 7 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 492 | NR | 660 | 338 | NR | 790 | 6 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 524 | NR | 665 | 294 | NR | 795 | 5 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 553 | NR | 670 | 253 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 588 | NR | 675 | 218 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 31 | NR | 550 | 625 | NR | 680 | 188 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 60 | NR | 555 | 670 | NR | 685 | 161 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 107 | NR | 560 | 723 | NR | 690 | 139 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 183 | NR | 565 | 780 | NR | 695 | 118 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 289 | NR | 570 | 837 | NR | 700 | 100 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 460 | NR | 575 | 894 | NR | 705 | 85 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 646 | NR | 580 | 942 | NR | 710 | 73 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 976 | NR | 715 | 62 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 331 | NR | 590 | 998 | NR | 720 | 53 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 238 | NR | 595 | 1000 | NR | 725 | 45 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 178 | NR | 600 | 990 | NR | 730 | 39 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 120 | NR | 605 | 962 | NR | 735 | 33 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 96 | NR | 610 | 925 | NR | 740 | 28 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 95 | NR | 615 | 873 | NR | 745 | 24 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 74.6$
 $R_g = 94$
 $CIE R_a = 71.7$
 $R_9 = -34.8$

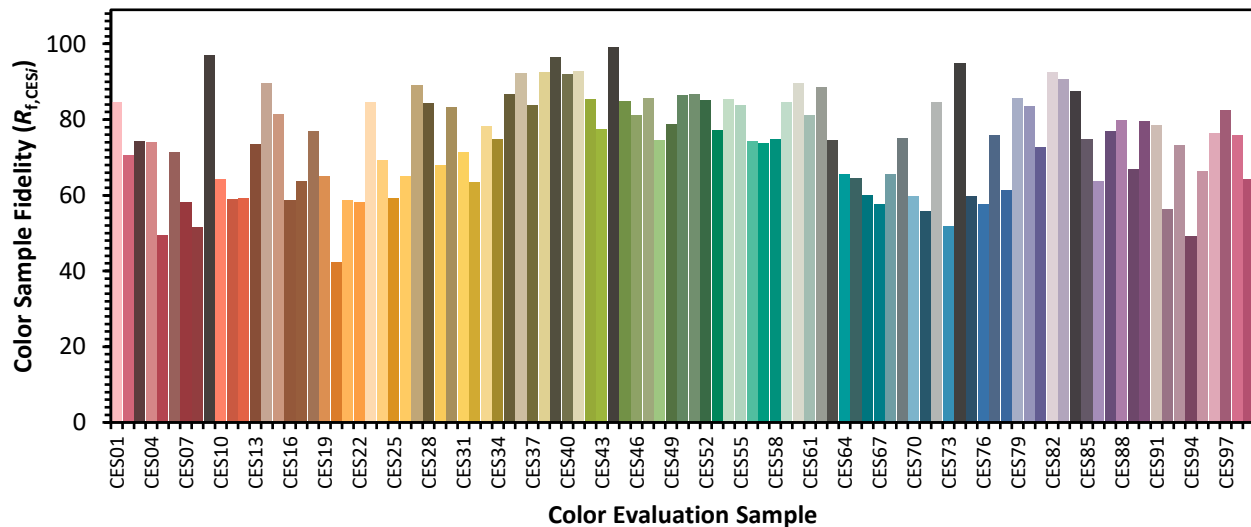


Color Vector Graphics

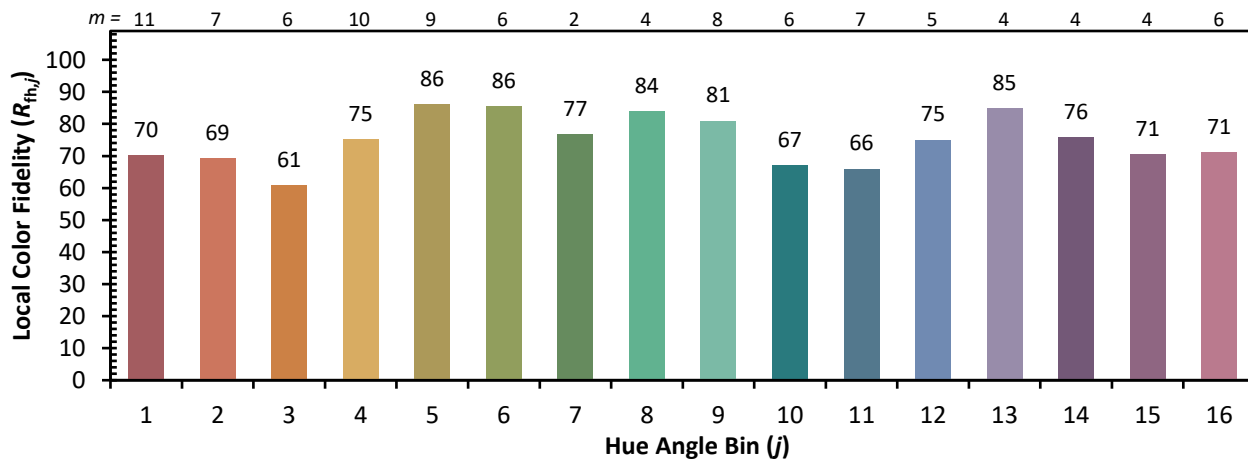


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 65 | CES51 = 87 | CES76 = 58 |
| CES02 = 62 | CES27 = 89 | CES52 = 85 | CES77 = 76 |
| CES03 = 31 | CES28 = 84 | CES53 = 77 | CES78 = 61 |
| CES04 = 71 | CES29 = 68 | CES54 = 85 | CES79 = 86 |
| CES05 = 49 | CES30 = 83 | CES55 = 84 | CES80 = 83 |
| CES06 = 51 | CES31 = 71 | CES56 = 74 | CES81 = 73 |
| CES07 = 41 | CES32 = 64 | CES57 = 74 | CES82 = 93 |
| CES08 = 40 | CES33 = 78 | CES58 = 75 | CES83 = 91 |
| CES09 = 29 | CES34 = 75 | CES59 = 85 | CES84 = 88 |
| CES10 = 76 | CES35 = 87 | CES60 = 90 | CES85 = 75 |
| CES11 = 59 | CES36 = 92 | CES61 = 81 | CES86 = 64 |
| CES12 = 65 | CES37 = 84 | CES62 = 89 | CES87 = 77 |
| CES13 = 43 | CES38 = 92 | CES63 = 75 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 65 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 64 | CES90 = 80 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 78 |
| CES17 = 50 | CES42 = 86 | CES67 = 58 | CES92 = 56 |
| CES18 = 56 | CES43 = 77 | CES68 = 66 | CES93 = 73 |
| CES19 = 73 | CES44 = 99 | CES69 = 75 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 60 | CES95 = 66 |
| CES21 = 87 | CES46 = 81 | CES71 = 56 | CES96 = 76 |
| CES22 = 79 | CES47 = 86 | CES72 = 85 | CES97 = 82 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 95 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 60 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)