

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: P867948

Luminaire Tested: **MEM2-HSN-SA-70-750-U-T2R-HSS**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867948
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-70-750-U-T2R-HSS
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 70W 70CRI 5000K
FITXURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC AND HOUSE SIDE SHIELD
Light Source: (20) 5000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

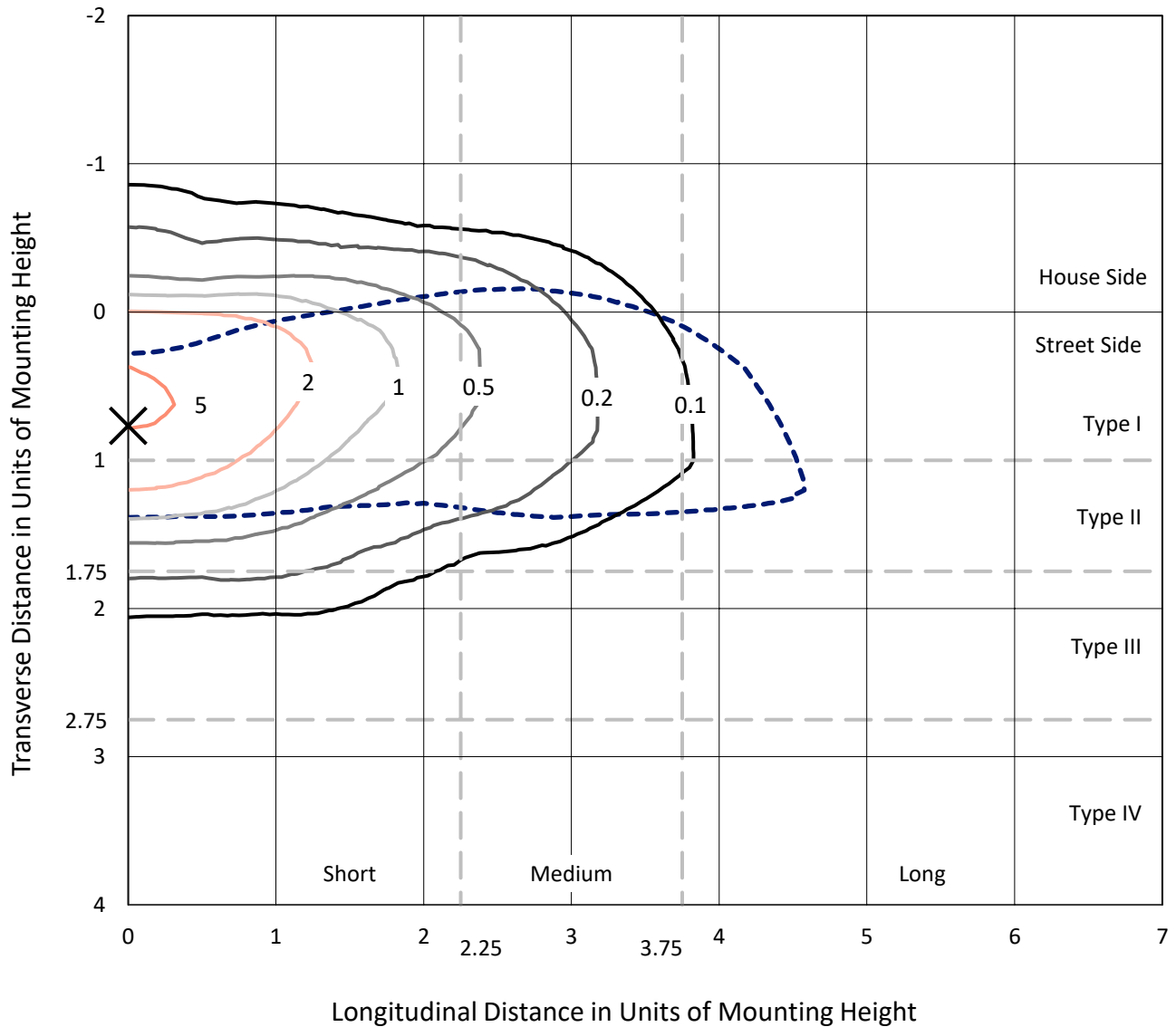
Lumens per Lamp: N/A
Luminaire Lumens: 6586.1 lumens
Efficiency: N/A
Efficacy: 108.0 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G1

Input Watts (W): 61
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.89%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P867948
 CATALOG NUMBER: MEM2-HSN-SA-70-750-U-T2R-HSS

Iso-Footcandle Lines of Horizontal Illumination

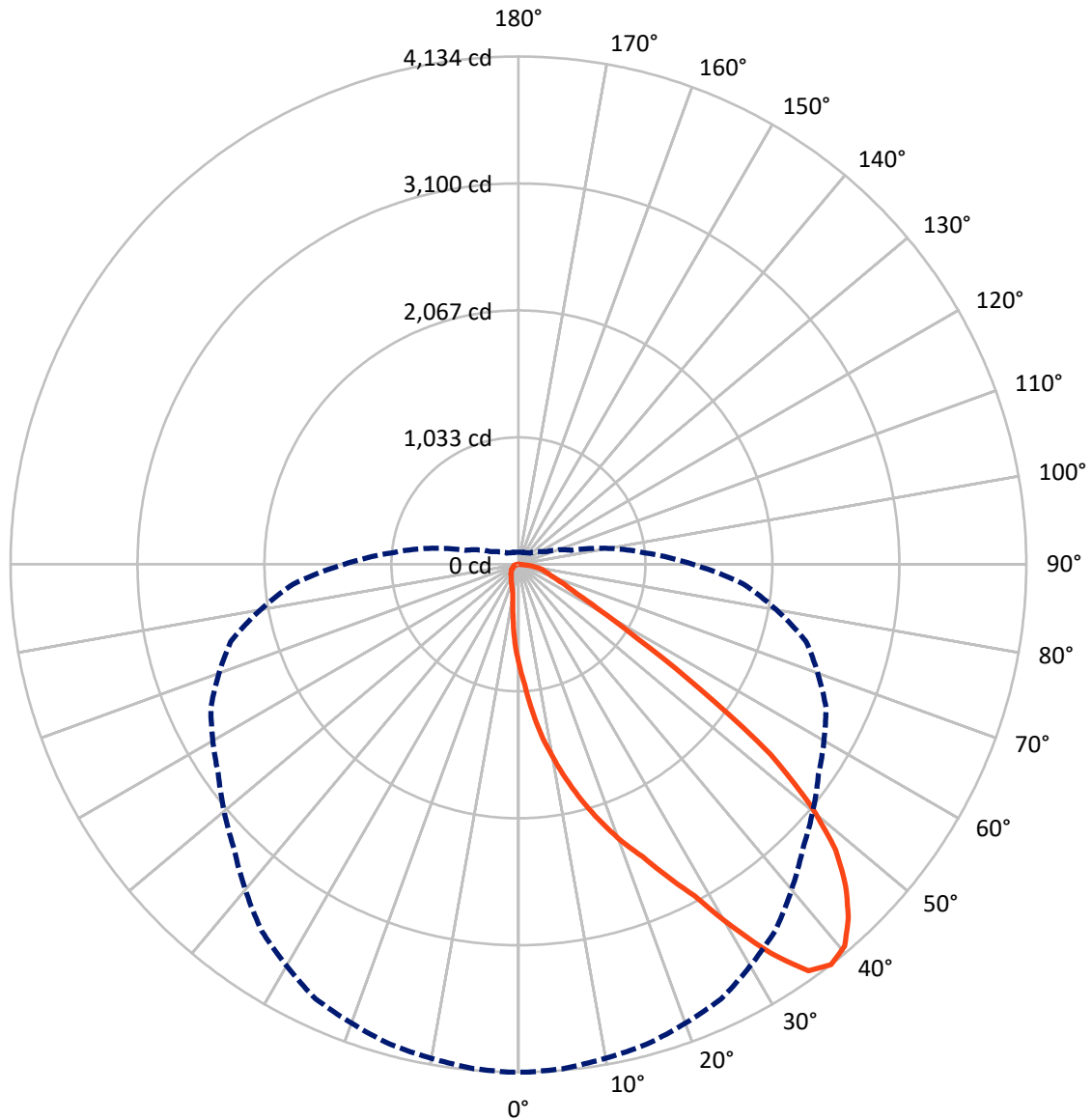
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.6 fc
 Type II - Short - N/A

REPORT NUMBER: P867948
CATALOG NUMBER: MEM2-HSN-SA-70-750-U-T2R-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral - - - Horizontal Cone Through 37.5-Deg Vertical

REPORT NUMBER: P867948

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 785.5 | 0.0 | 785.5 |
| | % Fixture | 11.9 | 0.0 | 11.9 |
| Street Side | Lumens | 5800.5 | 0.0 | 5800.5 |
| | % Fixture | 88.1 | 0.0 | 88.1 |
| Total | Lumens | 6586.1 | 0.0 | 6586.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 81.9 | 1.2 |
| 10°-20° | 286.2 | 4.3 |
| 20°-30° | 590.5 | 9.0 |
| 30°-40° | 1039.0 | 15.8 |
| 40°-50° | 1410.7 | 21.4 |
| 50°-60° | 1397.7 | 21.2 |
| 60°-70° | 1076.1 | 16.3 |
| 70°-80° | 624.5 | 9.5 |
| 80°-90° | 79.4 | 1.2 |
| 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° | 6586.1 | 100.0 |
| 0°-180° | 6586.1 | 100.0 |



REPORT NUMBER: P867948

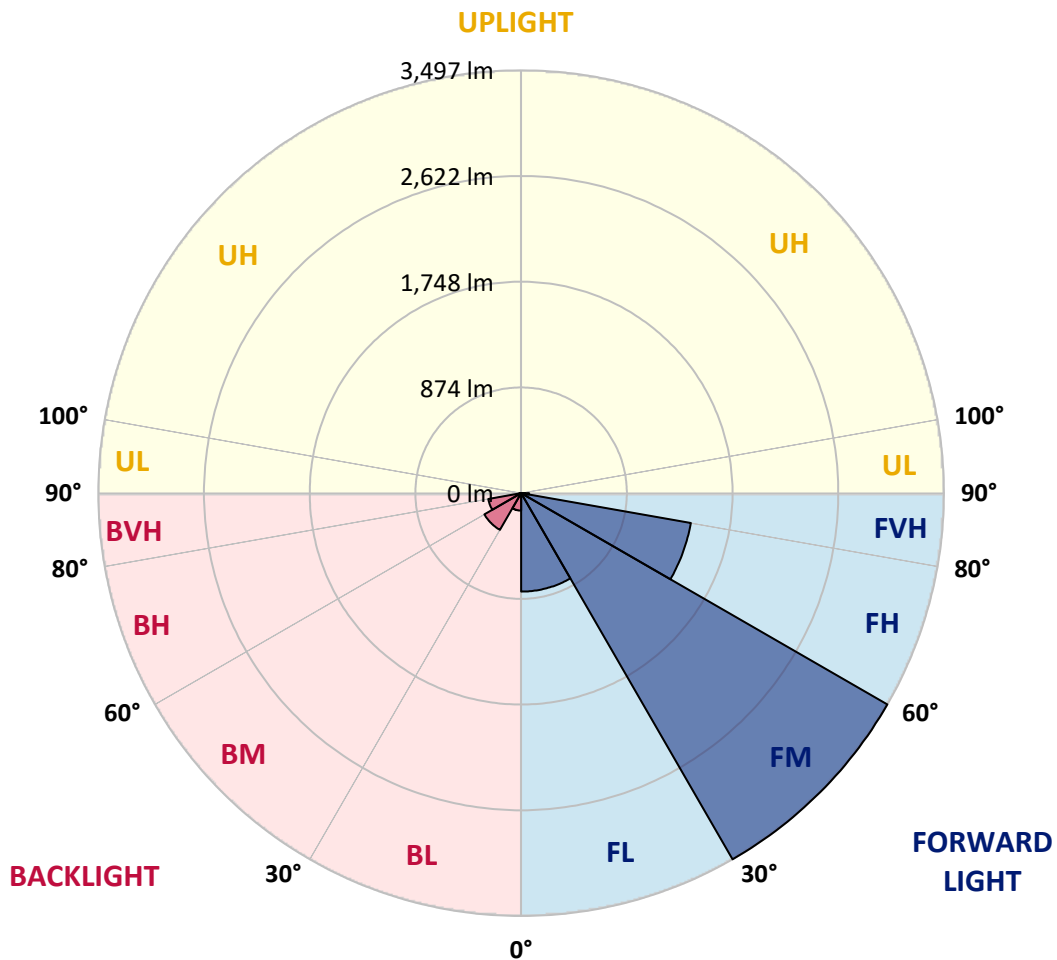
CATALOG NUMBER: MEM2-HSN-SA-70-750-U-T2R-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 814.2 | 12.4 | | | |
| FM (30°-60°) | 3496.6 | 53.1 | | | |
| FH (60°-80°) | 1425.0 | 21.6 | | | G1/1800 |
| FVH (80°-90°) | 64.8 | 1.0 | | | G1/100 |
| BL (0°-30°) | 144.4 | 2.2 | B1/500 | | |
| BM (30°-60°) | 350.8 | 5.3 | B1/1000 | | |
| BH (60°-80°) | 275.6 | 4.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 14.6 | 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-G1

Type II Short





REPORT NUMBER: P867948

CATALOG NUMBER: MEM2-HSN-SA-70-750-U-T2R-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 1° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 |
| 2.5° | 983.4 | 998.1 | 987.0 | 977.9 | 965.0 | 952.1 | 933.7 | 913.5 | 887.8 | 856.5 | 829.0 |
| 5° | 1205.8 | 1213.1 | 1209.5 | 1203.9 | 1163.5 | 1124.9 | 1086.3 | 1038.5 | 972.3 | 913.5 | 851.0 |
| 7.5° | 1428.2 | 1424.5 | 1415.3 | 1398.8 | 1362.0 | 1317.9 | 1248.1 | 1169.0 | 1075.3 | 972.3 | 874.9 |
| 10° | 1623.0 | 1628.5 | 1621.2 | 1595.5 | 1549.5 | 1488.8 | 1404.3 | 1314.2 | 1187.4 | 1044.0 | 908.0 |
| 12.5° | 1827.0 | 1830.7 | 1830.7 | 1775.6 | 1744.3 | 1650.6 | 1560.5 | 1439.2 | 1297.7 | 1132.3 | 946.6 |
| 15° | 2027.4 | 2020.0 | 2020.0 | 1983.3 | 1928.1 | 1823.4 | 1722.3 | 1575.2 | 1415.3 | 1215.0 | 990.7 |
| 17.5° | 2218.6 | 2222.2 | 2205.7 | 2165.3 | 2112.0 | 2010.9 | 1885.9 | 1724.1 | 1531.1 | 1314.2 | 1036.7 |
| 20° | 2407.9 | 2396.9 | 2389.5 | 2349.1 | 2292.1 | 2172.6 | 2053.1 | 1869.3 | 1667.1 | 1426.3 | 1101.0 |
| 22.5° | 2584.3 | 2589.9 | 2571.5 | 2507.1 | 2453.8 | 2345.4 | 2209.4 | 2040.3 | 1810.5 | 1538.5 | 1170.9 |
| 25° | 2812.3 | 2793.9 | 2810.4 | 2733.2 | 2650.5 | 2521.8 | 2367.4 | 2200.2 | 1966.7 | 1676.3 | 1257.2 |
| 27.5° | 3054.9 | 3065.9 | 3056.7 | 2972.2 | 2860.0 | 2687.3 | 2525.5 | 2347.2 | 2124.8 | 1806.8 | 1354.7 |
| 30° | 3417.0 | 3411.5 | 3413.3 | 3286.5 | 3100.8 | 2895.0 | 2696.5 | 2501.6 | 2282.9 | 1966.7 | 1468.6 |
| 32.5° | 3775.4 | 3795.6 | 3746.0 | 3633.9 | 3420.7 | 3110.0 | 2867.4 | 2650.5 | 2435.5 | 2104.6 | 1584.4 |
| 35° | 4064.0 | 4058.5 | 4038.3 | 3913.3 | 3701.9 | 3400.4 | 3062.2 | 2815.9 | 2597.2 | 2273.7 | 1713.1 |
| 37.5° | 4133.8 | 4133.8 | 4121.0 | 4043.8 | 3904.1 | 3643.1 | 3273.6 | 2981.4 | 2762.6 | 2424.4 | 1838.1 |
| 40° | 4087.9 | 4078.7 | 4071.3 | 4019.9 | 3944.5 | 3790.1 | 3496.0 | 3152.3 | 2939.1 | 2619.3 | 1975.9 |
| 42.5° | 3937.2 | 3939.0 | 3929.8 | 3900.4 | 3860.0 | 3801.1 | 3633.9 | 3334.3 | 3111.9 | 2803.1 | 2112.0 |
| 45° | 3735.0 | 3738.6 | 3727.6 | 3723.9 | 3703.7 | 3703.7 | 3665.1 | 3477.6 | 3275.5 | 2990.6 | 2260.8 |
| 47.5° | 3475.8 | 3474.0 | 3468.5 | 3459.3 | 3499.7 | 3543.8 | 3578.7 | 3558.5 | 3420.7 | 3192.7 | 2395.0 |
| 50° | 3080.6 | 3076.9 | 3093.5 | 3139.4 | 3238.7 | 3336.1 | 3439.0 | 3534.6 | 3525.4 | 3380.2 | 2556.8 |
| 52.5° | 2567.8 | 2543.9 | 2562.3 | 2703.8 | 2907.8 | 3124.7 | 3269.9 | 3420.7 | 3578.7 | 3578.7 | 2716.7 |
| 55° | 1795.8 | 1816.0 | 1827.0 | 2034.8 | 2437.3 | 2810.4 | 3065.9 | 3260.7 | 3558.5 | 3736.8 | 2893.1 |
| 57.5° | 1143.3 | 1150.6 | 1183.7 | 1408.0 | 1880.4 | 2347.2 | 2799.4 | 3119.2 | 3483.2 | 3869.2 | 3069.6 |
| 60° | 770.2 | 744.4 | 770.2 | 898.8 | 1352.8 | 1841.8 | 2407.9 | 2940.9 | 3374.7 | 3964.7 | 3264.4 |
| 62.5° | 544.1 | 542.2 | 549.6 | 624.9 | 965.0 | 1384.1 | 1917.1 | 2700.1 | 3288.3 | 3970.2 | 3409.6 |
| 65° | 439.3 | 426.4 | 431.9 | 474.2 | 647.0 | 1014.6 | 1406.1 | 2264.5 | 3211.1 | 3872.8 | 3481.3 |
| 67.5° | 352.9 | 347.4 | 351.1 | 378.6 | 485.3 | 762.8 | 990.7 | 1722.3 | 3047.5 | 3707.4 | 3440.9 |
| 70° | 288.6 | 290.4 | 292.3 | 319.8 | 386.0 | 577.2 | 707.7 | 1181.9 | 2698.3 | 3519.9 | 3258.9 |
| 72.5° | 250.0 | 250.0 | 251.8 | 270.2 | 323.5 | 457.7 | 534.9 | 768.3 | 2183.6 | 3317.7 | 2924.4 |
| 75° | 220.6 | 220.6 | 220.6 | 237.1 | 275.7 | 367.6 | 415.4 | 525.7 | 1567.9 | 2942.8 | 2418.9 |
| 77.5° | 191.2 | 193.0 | 193.0 | 207.7 | 237.1 | 286.7 | 319.8 | 363.9 | 999.9 | 2273.7 | 1830.7 |
| 80° | 147.0 | 147.0 | 148.9 | 165.4 | 202.2 | 224.2 | 235.3 | 257.3 | 525.7 | 1428.2 | 1161.7 |
| 82.5° | 102.9 | 104.8 | 104.8 | 106.6 | 136.0 | 137.9 | 126.8 | 128.7 | 191.2 | 474.2 | 441.1 |
| 85° | 11.0 | 12.9 | 14.7 | 14.7 | 23.9 | 29.4 | 31.2 | 29.4 | 31.2 | 55.1 | 55.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 3.7 | 3.7 | 5.5 | 5.5 | 5.5 | 5.5 |
| 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: P867948

CATALOG NUMBER: MEM2-HSN-SA-70-750-U-T2R-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 | 816.1 |
| 2.5° | 814.3 | 801.4 | 773.8 | 749.9 | 727.9 | 709.5 | 696.6 | 680.1 | 667.2 | 667.2 | 674.6 |
| 5° | 819.8 | 790.4 | 733.4 | 680.1 | 637.8 | 597.4 | 560.6 | 536.7 | 518.3 | 507.3 | 507.3 |
| 7.5° | 827.1 | 783.0 | 696.6 | 615.8 | 549.6 | 485.3 | 428.3 | 400.7 | 373.1 | 363.9 | 365.8 |
| 10° | 841.8 | 779.3 | 663.5 | 558.8 | 459.5 | 378.6 | 323.5 | 294.1 | 279.4 | 272.0 | 272.0 |
| 12.5° | 858.4 | 779.3 | 628.6 | 494.4 | 378.6 | 295.9 | 262.8 | 240.8 | 233.4 | 229.8 | 226.1 |
| 15° | 880.4 | 783.0 | 599.2 | 426.4 | 308.8 | 250.0 | 226.1 | 213.2 | 205.9 | 202.2 | 202.2 |
| 17.5° | 906.2 | 786.7 | 568.0 | 371.3 | 262.8 | 220.6 | 202.2 | 193.0 | 185.6 | 182.0 | 182.0 |
| 20° | 939.3 | 795.9 | 536.7 | 321.7 | 229.8 | 202.2 | 185.6 | 176.5 | 169.1 | 167.3 | 165.4 |
| 22.5° | 979.7 | 810.6 | 505.5 | 281.2 | 207.7 | 183.8 | 169.1 | 161.8 | 156.2 | 152.6 | 152.6 |
| 25° | 1027.5 | 829.0 | 481.6 | 251.8 | 191.2 | 170.9 | 158.1 | 148.9 | 143.4 | 141.5 | 141.5 |
| 27.5° | 1093.7 | 860.2 | 457.7 | 229.8 | 178.3 | 158.1 | 145.2 | 137.9 | 132.3 | 130.5 | 128.7 |
| 30° | 1156.2 | 898.8 | 446.7 | 224.2 | 169.1 | 147.0 | 137.9 | 128.7 | 123.2 | 121.3 | 119.5 |
| 32.5° | 1237.0 | 942.9 | 439.3 | 224.2 | 165.4 | 139.7 | 128.7 | 121.3 | 115.8 | 114.0 | 112.1 |
| 35° | 1323.4 | 994.4 | 439.3 | 231.6 | 167.3 | 134.2 | 121.3 | 114.0 | 108.4 | 104.8 | 104.8 |
| 37.5° | 1417.2 | 1045.9 | 443.0 | 242.6 | 172.8 | 130.5 | 114.0 | 106.6 | 101.1 | 99.3 | 99.3 |
| 40° | 1516.4 | 1115.7 | 450.3 | 251.8 | 178.3 | 128.7 | 106.6 | 101.1 | 95.6 | 91.9 | 91.9 |
| 42.5° | 1608.3 | 1170.9 | 463.2 | 262.8 | 182.0 | 126.8 | 101.1 | 95.6 | 90.1 | 88.2 | 88.2 |
| 45° | 1714.9 | 1231.5 | 474.2 | 270.2 | 182.0 | 121.3 | 95.6 | 90.1 | 86.4 | 84.6 | 82.7 |
| 47.5° | 1799.5 | 1281.1 | 479.7 | 273.9 | 178.3 | 115.8 | 90.1 | 86.4 | 82.7 | 79.0 | 80.9 |
| 50° | 1902.4 | 1334.4 | 488.9 | 275.7 | 170.9 | 108.4 | 86.4 | 80.9 | 77.2 | 75.4 | 75.4 |
| 52.5° | 2001.7 | 1387.7 | 496.3 | 272.0 | 161.8 | 99.3 | 80.9 | 77.2 | 73.5 | 69.8 | 69.8 |
| 55° | 2119.3 | 1446.6 | 507.3 | 266.5 | 147.0 | 90.1 | 75.4 | 71.7 | 66.2 | 64.3 | 62.5 |
| 57.5° | 2253.5 | 1523.8 | 516.5 | 255.5 | 128.7 | 80.9 | 71.7 | 66.2 | 58.8 | 55.1 | 55.1 |
| 60° | 2376.6 | 1612.0 | 523.9 | 227.9 | 112.1 | 75.4 | 66.2 | 60.7 | 53.3 | 51.5 | 51.5 |
| 62.5° | 2509.0 | 1703.9 | 523.9 | 180.1 | 95.6 | 68.0 | 62.5 | 57.0 | 49.6 | 47.8 | 47.8 |
| 65° | 2600.9 | 1786.6 | 507.3 | 134.2 | 80.9 | 64.3 | 60.7 | 53.3 | 46.0 | 44.1 | 44.1 |
| 67.5° | 2626.6 | 1838.1 | 461.4 | 95.6 | 69.8 | 60.7 | 57.0 | 49.6 | 44.1 | 40.4 | 40.4 |
| 70° | 2543.9 | 1797.6 | 376.8 | 73.5 | 60.7 | 55.1 | 51.5 | 46.0 | 40.4 | 38.6 | 38.6 |
| 72.5° | 2306.8 | 1643.2 | 281.2 | 62.5 | 53.3 | 51.5 | 47.8 | 42.3 | 38.6 | 36.8 | 36.8 |
| 75° | 1931.8 | 1365.7 | 198.5 | 55.1 | 49.6 | 46.0 | 42.3 | 38.6 | 34.9 | 34.9 | 34.9 |
| 77.5° | 1463.1 | 987.0 | 123.2 | 49.6 | 42.3 | 42.3 | 38.6 | 34.9 | 33.1 | 31.2 | 31.2 |
| 80° | 944.8 | 623.1 | 69.8 | 34.9 | 29.4 | 31.2 | 27.6 | 23.9 | 23.9 | 22.1 | 22.1 |
| 82.5° | 400.7 | 246.3 | 36.8 | 20.2 | 14.7 | 12.9 | 9.2 | 9.2 | 7.4 | 7.4 | 7.4 |
| 85° | 40.4 | 14.7 | 7.4 | 5.5 | 5.5 | 3.7 | 3.7 | 3.7 | 3.7 | 1.8 | 1.8 |
| 87.5° | 5.5 | 5.5 | 5.5 | 3.7 | 3.7 | 3.7 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 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

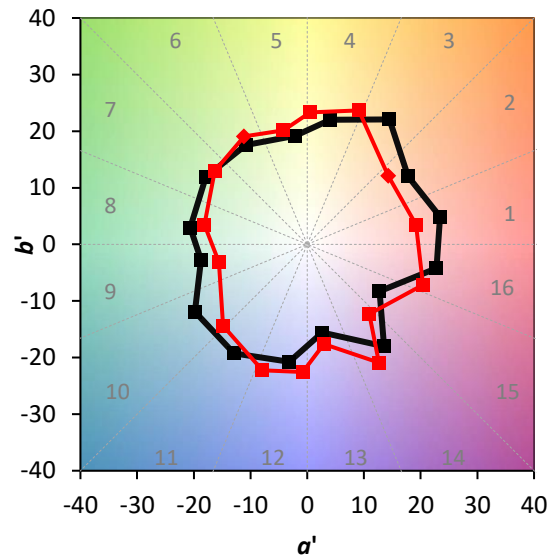
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 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 ($R_{f,i}$)

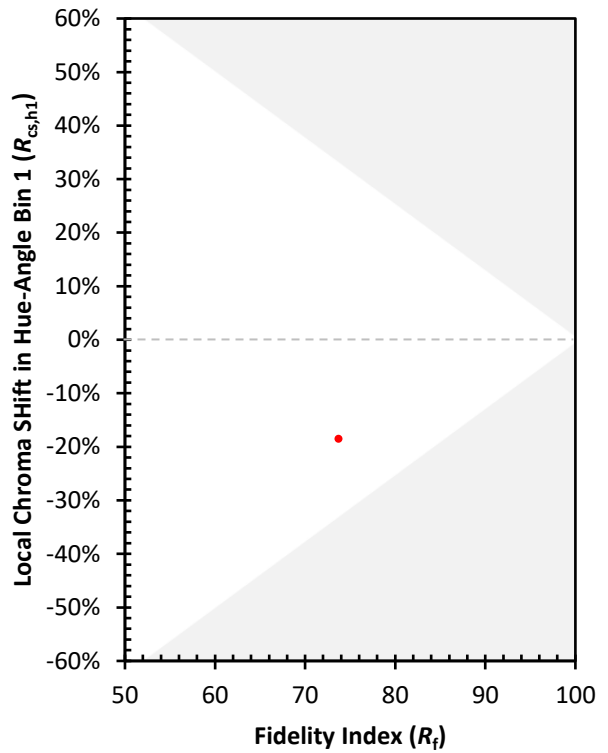
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 62 | CES51 = 90 | CES76 = 50 |
| CES02 = 59 | CES27 = 88 | CES52 = 89 | CES77 = 67 |
| CES03 = 30 | CES28 = 80 | CES53 = 79 | CES78 = 53 |
| CES04 = 69 | CES29 = 69 | CES54 = 84 | CES79 = 80 |
| CES05 = 46 | CES30 = 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)