

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: P867543

Luminaire Tested: **MEM2-HTN-SA-100-727-U-T2U**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P867543
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HTN-SA-100-727-U-T2U
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 100W 70CRI 2700K
FITXURE w/ TYPE II URBAN DISTRIBUTION OPTIC
Light Source: (20) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

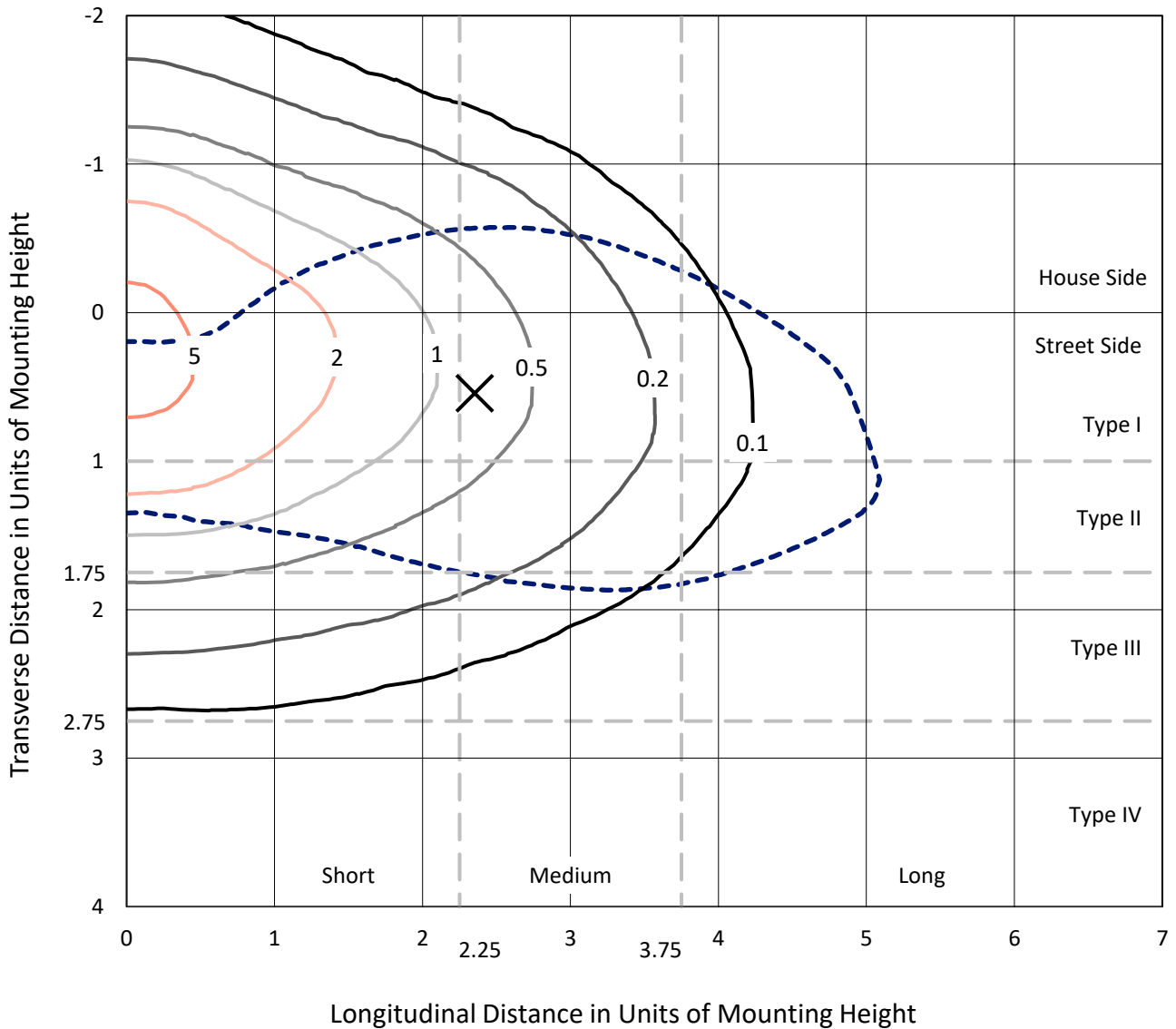
Lumens per Lamp: N/A
Luminaire Lumens: 11947.3 lumens
Efficiency: N/A
Efficacy: 132.7 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G3

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

REPORT NUMBER: P867543
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Iso-Footcandle Lines of Horizontal Illumination

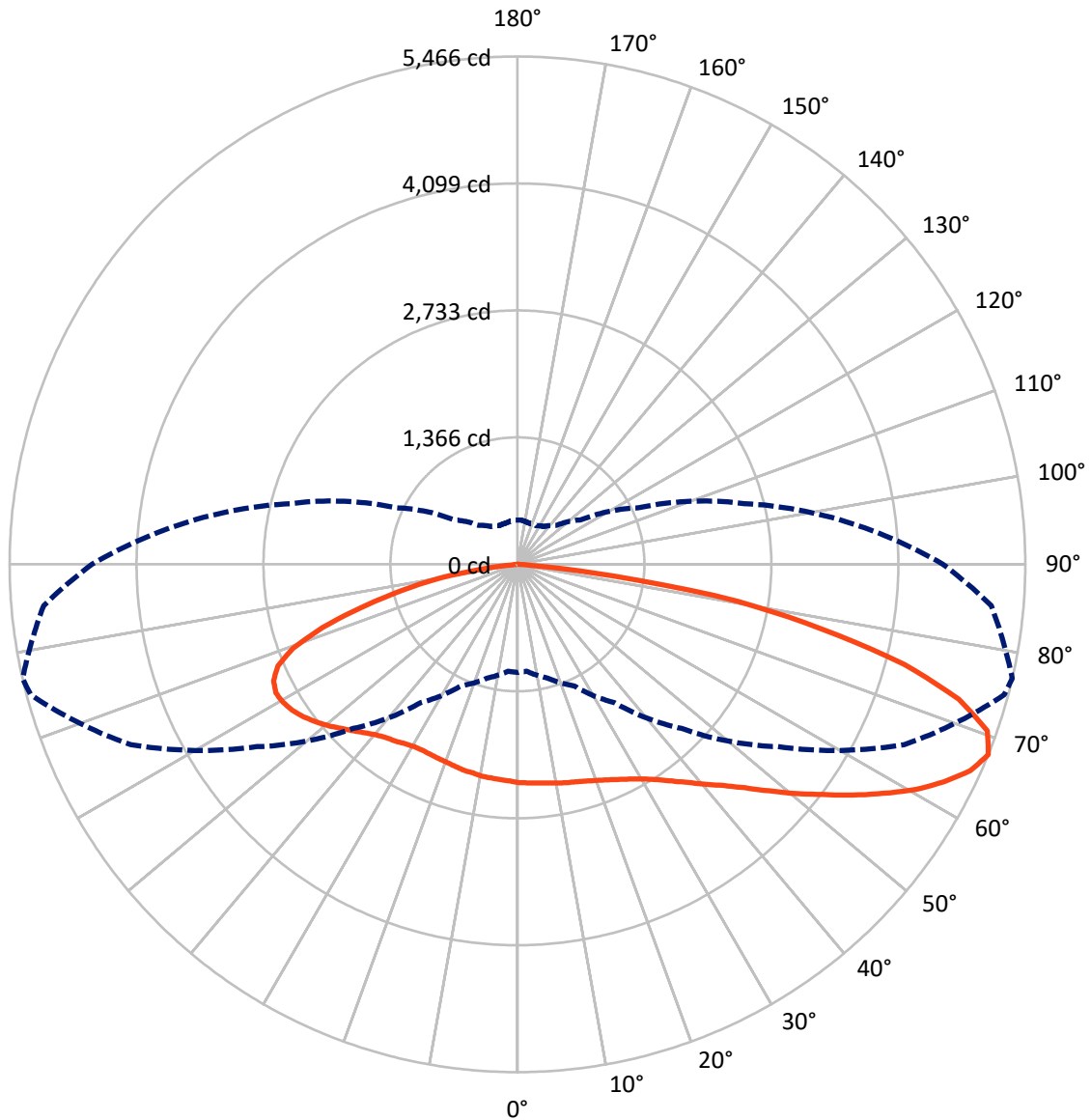
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 6.5 fc
 Type III - Medium - N/A

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CATALOG NUMBER: MEM2-HTN-SA-100-727-U-T2U

Luminous Intensity Polar Plot



— Vertical Plane Through 77-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 3972.9 | 0.0 | 3972.9 |
| | % Fixture | 33.3 | 0.0 | 33.3 |
| Street Side | Lumens | 7974.4 | 0.0 | 7974.4 |
| | % Fixture | 66.7 | 0.0 | 66.7 |
| Total | Lumens | 11947.3 | 0.0 | 11947.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 225.8 | 1.9 |
| 10°-20° | 684.7 | 5.7 |
| 20°-30° | 1154.4 | 9.7 |
| 30°-40° | 1638.1 | 13.7 |
| 40°-50° | 2072.5 | 17.3 |
| 50°-60° | 2270.4 | 19.0 |
| 60°-70° | 2194.7 | 18.4 |
| 70°-80° | 1476.1 | 12.4 |
| 80°-90° | 230.7 | 1.9 |
| 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° | 11947.3 | 100.0 |
| 0°-180° | 11947.3 | 100.0 |

Coefficient of Utilization



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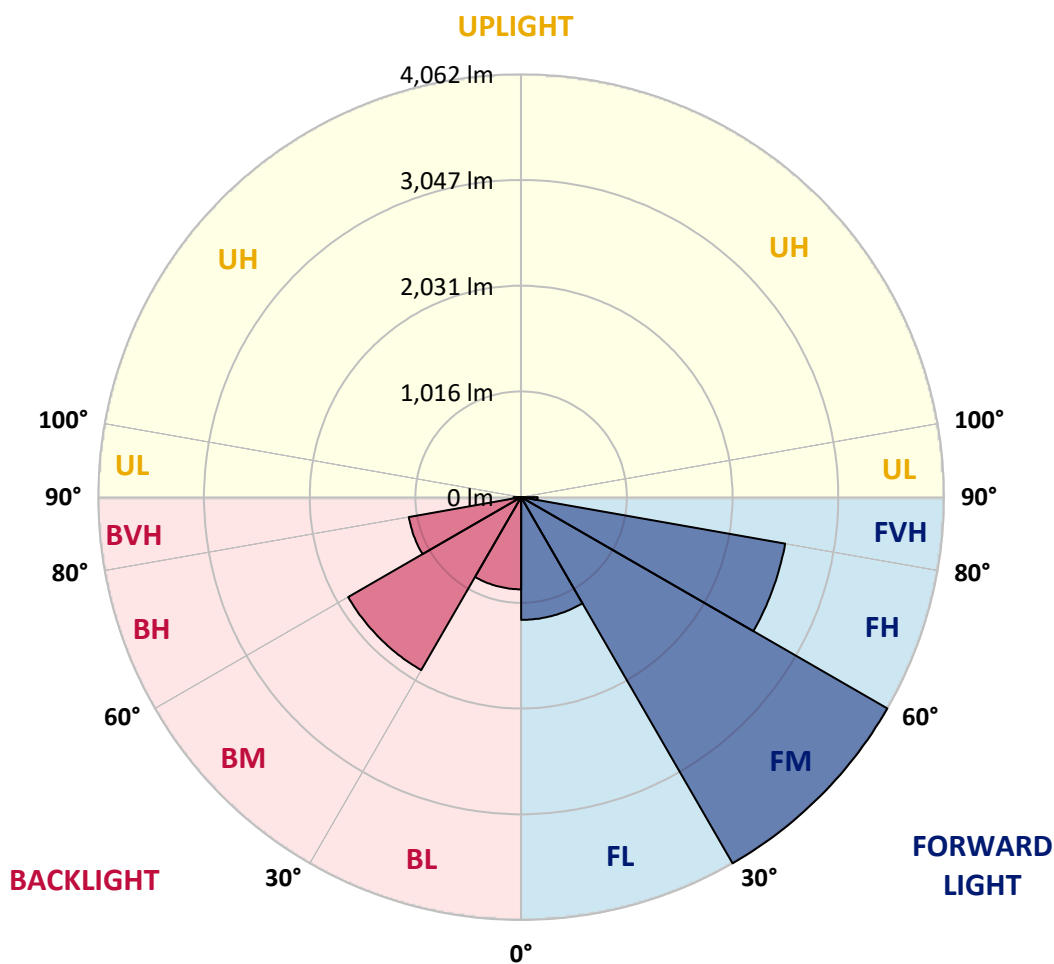
CATALOG NUMBER: MEM2-HTN-SA-100-727-U-T2U

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1179.2 | 9.9 | | | |
| FM (30°-60°) | 4062.2 | 34.0 | | | |
| FH (60°-80°) | 2575.0 | 21.6 | | | G2/5000 |
| FVH (80°-90°) | 158.0 | 1.3 | | | G2/225 |
| BL (0°-30°) | 885.6 | 7.4 | B2/1000 | | |
| BM (30°-60°) | 1918.8 | 16.1 | B2/2500 | | |
| BH (60°-80°) | 1095.7 | 9.2 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 72.7 | 0.6 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G3

Type III Medium





REPORT NUMBER: P867543

CATALOG NUMBER: MEM2-HTN-SA-100-727-U-T2U

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 77° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 |
| 2.5° | 2400.9 | 2398.6 | 2386.8 | 2391.5 | 2377.3 | 2386.8 | 2372.6 | 2360.8 | 2358.4 | 2356.0 | 2358.4 |
| 5° | 2476.6 | 2464.8 | 2452.9 | 2445.8 | 2434.0 | 2429.3 | 2405.7 | 2382.0 | 2367.9 | 2365.5 | 2360.8 |
| 7.5° | 2564.0 | 2559.3 | 2542.7 | 2533.3 | 2500.2 | 2483.7 | 2450.6 | 2408.0 | 2386.8 | 2377.3 | 2365.5 |
| 10° | 2653.8 | 2665.6 | 2644.3 | 2625.4 | 2587.6 | 2552.2 | 2495.5 | 2441.1 | 2398.6 | 2393.9 | 2367.9 |
| 12.5° | 2764.9 | 2762.5 | 2748.3 | 2715.2 | 2670.3 | 2620.7 | 2552.2 | 2476.6 | 2419.9 | 2410.4 | 2372.6 |
| 15° | 2864.1 | 2861.8 | 2842.9 | 2812.1 | 2753.1 | 2691.6 | 2599.4 | 2512.0 | 2441.1 | 2426.9 | 2382.0 |
| 17.5° | 2956.3 | 2951.6 | 2939.7 | 2906.7 | 2833.4 | 2757.8 | 2668.0 | 2552.2 | 2467.1 | 2450.6 | 2389.1 |
| 20° | 3036.6 | 3041.4 | 3027.2 | 2994.1 | 2925.6 | 2845.2 | 2731.8 | 2604.2 | 2500.2 | 2481.3 | 2410.4 |
| 22.5° | 3124.1 | 3126.4 | 3119.3 | 3107.5 | 3020.1 | 2935.0 | 2812.1 | 2663.3 | 2538.0 | 2519.1 | 2434.0 |
| 25° | 3216.2 | 3218.6 | 3223.3 | 3216.2 | 3117.0 | 3024.8 | 2894.8 | 2736.5 | 2590.0 | 2564.0 | 2467.1 |
| 27.5° | 3322.6 | 3324.9 | 3334.4 | 3320.2 | 3213.9 | 3117.0 | 2987.0 | 2814.5 | 2644.3 | 2616.0 | 2495.5 |
| 30° | 3443.1 | 3452.5 | 3445.5 | 3440.7 | 3317.8 | 3223.3 | 3079.2 | 2894.8 | 2715.2 | 2679.8 | 2545.1 |
| 32.5° | 3587.2 | 3584.9 | 3570.7 | 3556.5 | 3431.3 | 3332.0 | 3183.1 | 2998.8 | 2802.7 | 2762.5 | 2625.4 |
| 35° | 3691.2 | 3691.2 | 3670.0 | 3662.9 | 3547.1 | 3443.1 | 3296.6 | 3114.6 | 2901.9 | 2864.1 | 2710.5 |
| 37.5° | 3755.0 | 3764.5 | 3747.9 | 3752.7 | 3641.6 | 3544.7 | 3410.0 | 3232.8 | 3010.6 | 2977.6 | 2814.5 |
| 40° | 3778.7 | 3802.3 | 3816.5 | 3835.4 | 3724.3 | 3641.6 | 3530.5 | 3360.4 | 3150.1 | 3112.3 | 2939.7 |
| 42.5° | 3783.4 | 3818.8 | 3868.5 | 3908.6 | 3783.4 | 3714.9 | 3646.3 | 3490.4 | 3287.1 | 3254.0 | 3076.8 |
| 45° | 3759.7 | 3743.2 | 3863.7 | 3868.5 | 3816.5 | 3773.9 | 3747.9 | 3646.3 | 3485.6 | 3431.3 | 3246.9 |
| 47.5° | 3580.2 | 3561.2 | 3594.3 | 3745.6 | 3776.3 | 3799.9 | 3851.9 | 3828.3 | 3684.1 | 3641.6 | 3443.1 |
| 50° | 3289.5 | 3280.0 | 3412.4 | 3575.4 | 3677.0 | 3797.6 | 3937.0 | 4003.2 | 3903.9 | 3877.9 | 3691.2 |
| 52.5° | 2809.8 | 2783.8 | 3053.2 | 3369.8 | 3547.1 | 3773.9 | 3996.1 | 4182.8 | 4152.0 | 4114.2 | 3903.9 |
| 55° | 2504.9 | 2504.9 | 2686.9 | 3081.5 | 3381.6 | 3688.9 | 4033.9 | 4371.8 | 4426.2 | 4383.6 | 4147.3 |
| 57.5° | 2178.8 | 2204.8 | 2393.9 | 2665.6 | 3143.0 | 3532.9 | 4029.1 | 4530.1 | 4690.8 | 4650.7 | 4404.9 |
| 60° | 1900.0 | 1921.2 | 2029.9 | 2304.1 | 2861.8 | 3327.3 | 3977.2 | 4660.1 | 4936.6 | 4922.4 | 4631.7 |
| 62.5° | 1616.4 | 1642.4 | 1729.8 | 1987.4 | 2490.7 | 3091.0 | 3868.5 | 4731.0 | 5168.2 | 5154.0 | 4861.0 |
| 65° | 1389.5 | 1391.9 | 1479.3 | 1694.4 | 2119.7 | 2805.0 | 3677.0 | 4716.8 | 5347.8 | 5357.2 | 5054.7 |
| 67.5° | 1162.7 | 1155.6 | 1269.0 | 1443.9 | 1817.3 | 2497.8 | 3421.8 | 4591.6 | 5423.4 | 5465.9 | 5118.6 |
| 70° | 855.5 | 864.9 | 1023.2 | 1217.0 | 1536.0 | 2143.4 | 3065.0 | 4348.2 | 5300.5 | 5366.7 | 4972.0 |
| 72.5° | 642.8 | 661.7 | 815.3 | 1016.1 | 1283.2 | 1788.9 | 2675.1 | 3925.2 | 4957.9 | 4967.3 | 4525.4 |
| 75° | 522.3 | 527.0 | 664.0 | 843.6 | 1051.6 | 1434.4 | 2148.1 | 3277.7 | 4192.2 | 4300.9 | 3844.8 |
| 77.5° | 444.3 | 439.5 | 505.7 | 680.6 | 848.4 | 1146.1 | 1618.7 | 2493.1 | 3291.8 | 3341.5 | 3010.6 |
| 80° | 378.1 | 375.7 | 399.4 | 550.6 | 664.0 | 817.6 | 1108.3 | 1736.9 | 2349.0 | 2403.3 | 2138.6 |
| 82.5° | 198.5 | 212.7 | 208.0 | 340.3 | 375.7 | 430.1 | 531.7 | 789.3 | 1025.6 | 1039.8 | 983.1 |
| 85° | 9.5 | 9.5 | 9.5 | 14.2 | 23.6 | 37.8 | 73.3 | 73.3 | 80.3 | 153.6 | 174.9 |
| 87.5° | 2.4 | 2.4 | 4.7 | 4.7 | 4.7 | 7.1 | 7.1 | 9.5 | 9.5 | 9.5 | 9.5 |
| 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: P867543

CATALOG NUMBER: MEM2-HTN-SA-100-727-U-T2U

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 | 2349.0 |
| 2.5° | 2353.7 | 2344.2 | 2330.1 | 2332.4 | 2330.1 | 2330.1 | 2318.2 | 2308.8 | 2306.4 | 2311.1 | 2320.6 |
| 5° | 2356.0 | 2341.9 | 2320.6 | 2313.5 | 2306.4 | 2301.7 | 2282.8 | 2268.6 | 2261.5 | 2266.2 | 2268.6 |
| 7.5° | 2356.0 | 2334.8 | 2311.1 | 2297.0 | 2278.1 | 2263.9 | 2242.6 | 2223.7 | 2214.3 | 2216.6 | 2221.3 |
| 10° | 2351.3 | 2327.7 | 2308.8 | 2280.4 | 2249.7 | 2233.2 | 2200.1 | 2176.4 | 2164.6 | 2167.0 | 2155.2 |
| 12.5° | 2351.3 | 2325.3 | 2287.5 | 2261.5 | 2219.0 | 2183.5 | 2157.5 | 2131.5 | 2122.1 | 2112.6 | 2107.9 |
| 15° | 2353.7 | 2320.6 | 2282.8 | 2228.4 | 2178.8 | 2141.0 | 2107.9 | 2091.4 | 2077.2 | 2072.5 | 2074.8 |
| 17.5° | 2353.7 | 2320.6 | 2263.9 | 2200.1 | 2143.4 | 2096.1 | 2067.7 | 2048.8 | 2044.1 | 2039.4 | 2039.4 |
| 20° | 2365.5 | 2323.0 | 2247.3 | 2171.7 | 2100.8 | 2051.2 | 2025.2 | 2013.4 | 2013.4 | 2006.3 | 2006.3 |
| 22.5° | 2384.4 | 2327.7 | 2237.9 | 2148.1 | 2065.4 | 2011.0 | 1982.7 | 1968.5 | 1975.6 | 1970.9 | 1968.5 |
| 25° | 2405.7 | 2344.2 | 2226.1 | 2115.0 | 2018.1 | 1961.4 | 1933.0 | 1923.6 | 1921.2 | 1909.4 | 1926.0 |
| 27.5° | 2422.2 | 2356.0 | 2219.0 | 2081.9 | 1975.6 | 1909.4 | 1874.0 | 1857.4 | 1845.6 | 1850.3 | 1845.6 |
| 30° | 2467.1 | 2389.1 | 2221.3 | 2053.6 | 1928.3 | 1848.0 | 1805.4 | 1786.5 | 1781.8 | 1781.8 | 1781.8 |
| 32.5° | 2528.6 | 2431.7 | 2237.9 | 2041.7 | 1883.4 | 1788.9 | 1736.9 | 1718.0 | 1713.3 | 1703.8 | 1708.5 |
| 35° | 2606.5 | 2495.5 | 2263.9 | 2022.8 | 1848.0 | 1720.4 | 1663.6 | 1637.7 | 1630.6 | 1621.1 | 1621.1 |
| 37.5° | 2694.0 | 2559.3 | 2282.8 | 2013.4 | 1800.7 | 1649.5 | 1585.7 | 1552.6 | 1547.9 | 1538.4 | 1543.1 |
| 40° | 2805.0 | 2646.7 | 2313.5 | 1994.5 | 1746.4 | 1585.7 | 1500.6 | 1446.2 | 1458.1 | 1462.8 | 1472.2 |
| 42.5° | 2930.3 | 2757.8 | 2360.8 | 1975.6 | 1703.8 | 1519.5 | 1394.3 | 1339.9 | 1354.1 | 1349.4 | 1358.8 |
| 45° | 3100.4 | 2887.8 | 2419.9 | 1968.5 | 1651.8 | 1439.2 | 1285.5 | 1224.1 | 1219.4 | 1212.3 | 1217.0 |
| 47.5° | 3277.7 | 3043.7 | 2476.6 | 1954.3 | 1595.1 | 1339.9 | 1162.7 | 1084.7 | 1065.8 | 1056.3 | 1046.9 |
| 50° | 3462.0 | 3199.7 | 2542.7 | 1944.9 | 1519.5 | 1228.8 | 1039.8 | 950.0 | 914.5 | 902.7 | 890.9 |
| 52.5° | 3670.0 | 3367.5 | 2599.4 | 1921.2 | 1436.8 | 1113.0 | 928.7 | 827.1 | 786.9 | 763.3 | 765.7 |
| 55° | 3889.7 | 3521.1 | 2651.4 | 1892.9 | 1342.3 | 1004.3 | 817.6 | 732.6 | 692.4 | 685.3 | 685.3 |
| 57.5° | 4093.0 | 3679.4 | 2689.2 | 1843.2 | 1247.7 | 898.0 | 725.5 | 652.2 | 633.3 | 642.8 | 642.8 |
| 60° | 4300.9 | 3807.0 | 2708.2 | 1788.9 | 1150.8 | 808.2 | 661.7 | 602.6 | 593.1 | 612.1 | 614.4 |
| 62.5° | 4468.7 | 3908.6 | 2703.4 | 1713.3 | 1044.5 | 730.2 | 600.2 | 553.0 | 557.7 | 590.8 | 597.9 |
| 65° | 4589.2 | 3958.3 | 2644.3 | 1599.8 | 942.9 | 661.7 | 545.9 | 501.0 | 501.0 | 524.6 | 531.7 |
| 67.5° | 4579.8 | 3894.4 | 2526.2 | 1441.5 | 834.2 | 593.1 | 496.3 | 460.8 | 460.8 | 477.4 | 475.0 |
| 70° | 4386.0 | 3674.7 | 2301.7 | 1250.1 | 727.8 | 534.1 | 453.7 | 427.7 | 425.4 | 432.5 | 430.1 |
| 72.5° | 3920.4 | 3228.0 | 1952.0 | 1032.7 | 628.6 | 475.0 | 411.2 | 387.6 | 382.8 | 373.4 | 366.3 |
| 75° | 3235.1 | 2651.4 | 1524.2 | 822.4 | 531.7 | 418.3 | 371.0 | 349.7 | 330.8 | 342.7 | 335.6 |
| 77.5° | 2509.7 | 2034.7 | 1134.3 | 638.0 | 432.5 | 363.9 | 330.8 | 307.2 | 302.5 | 345.0 | 330.8 |
| 80° | 1831.4 | 1406.1 | 801.1 | 456.1 | 335.6 | 295.4 | 276.5 | 257.6 | 326.1 | 437.2 | 434.8 |
| 82.5° | 812.9 | 678.2 | 366.3 | 217.4 | 156.0 | 130.0 | 108.7 | 122.9 | 205.6 | 200.9 | 208.0 |
| 85° | 73.3 | 75.6 | 40.2 | 26.0 | 16.5 | 14.2 | 9.5 | 9.5 | 7.1 | 7.1 | 7.1 |
| 87.5° | 9.5 | 9.5 | 7.1 | 7.1 | 4.7 | 4.7 | 4.7 | 4.7 | 2.4 | 2.4 | 2.4 |
| 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
 Rf: 75.5
 Rg: 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

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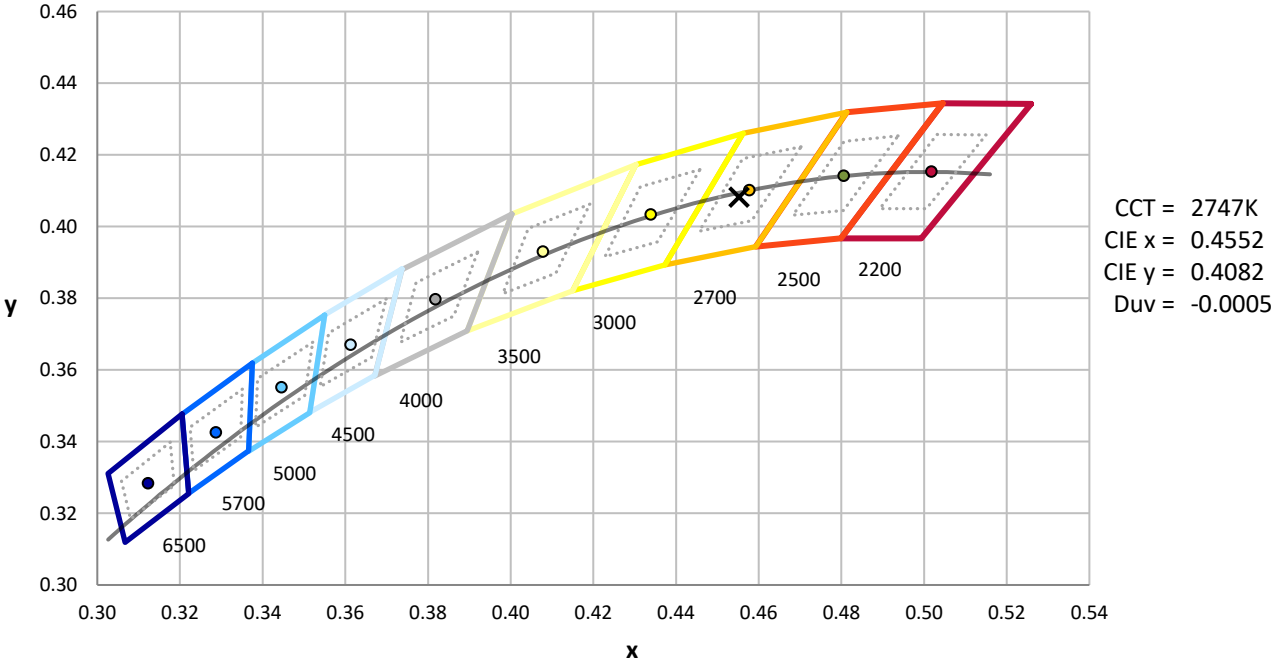
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 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)