

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: P868889

Luminaire Tested: **EMM2-HSN-SA2B-740-U-T2U**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868889
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-SA2B-740-U-T2U
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 100W 70CRI 4000K
FITXURE w/ TYPE II URBAN DISTRIBUTION OPTIC
Light Source: (20) 4000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

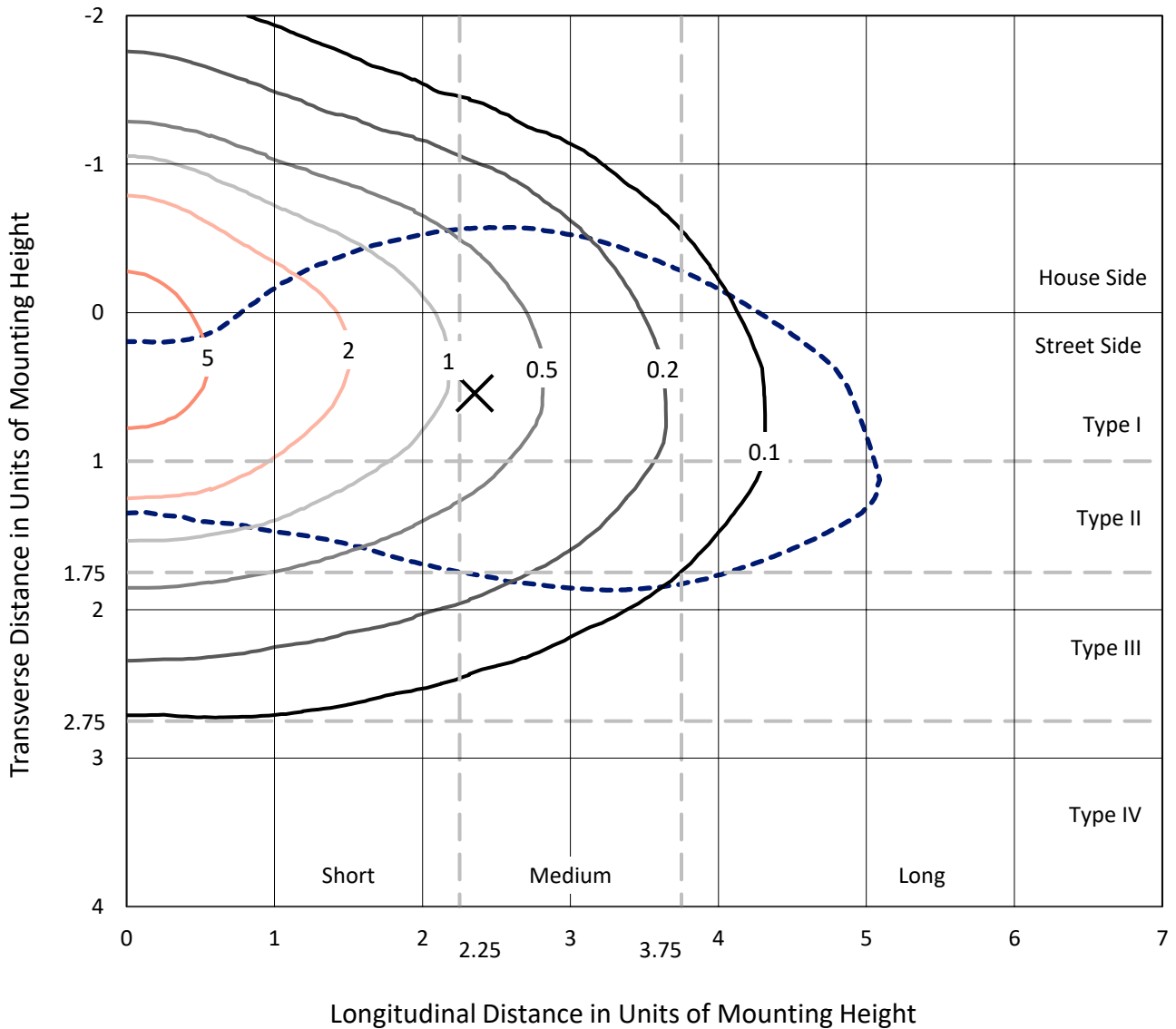
Lumens per Lamp: N/A
Luminaire Lumens: 12942.5 lumens
Efficiency: N/A
Efficacy: 143.8 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G3

Input Watts (W): 90
Input Voltage (V): 120
Input Current (Ain): 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

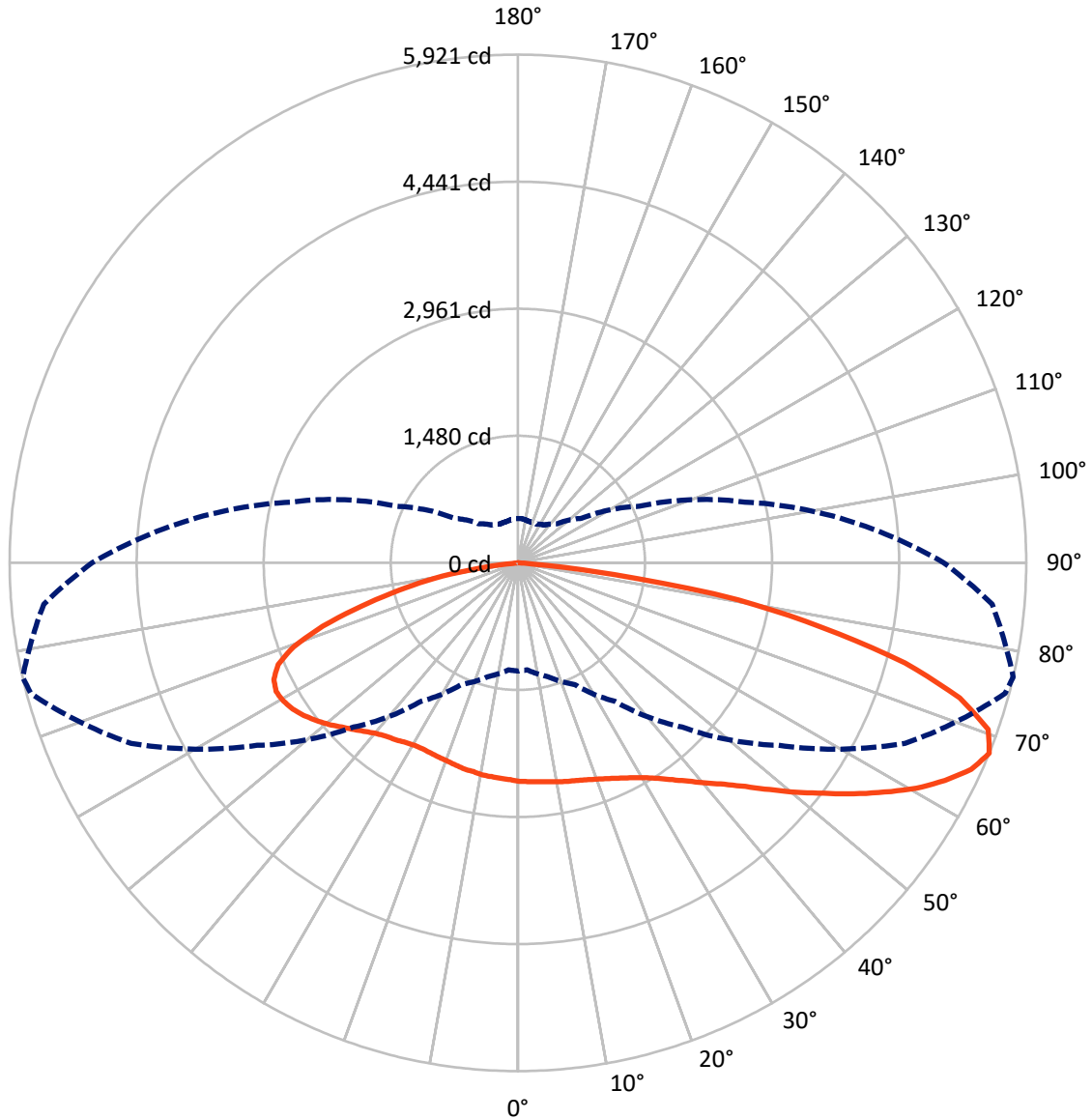
× Max cd
 - - - 1/2 Max cd



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

REPORT NUMBER: P868889
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Luminous Intensity Polar Plot



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

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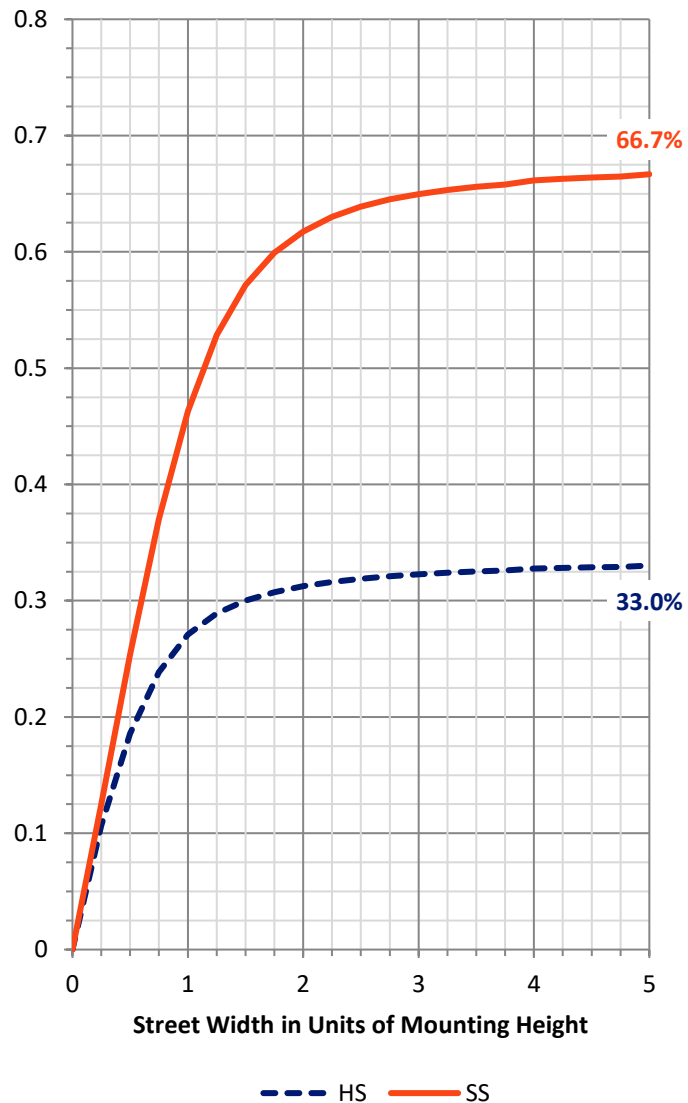
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4303.8 | 0.0 | 4303.8 |
| | % Fixture | 33.3 | 0.0 | 33.3 |
| Street Side | Lumens | 8638.7 | 0.0 | 8638.7 |
| | % Fixture | 66.7 | 0.0 | 66.7 |
| Total | Lumens | 12942.5 | 0.0 | 12942.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 244.6 | 1.9 |
| 10°-20° | 741.7 | 5.7 |
| 20°-30° | 1250.5 | 9.7 |
| 30°-40° | 1774.6 | 13.7 |
| 40°-50° | 2245.2 | 17.3 |
| 50°-60° | 2459.5 | 19.0 |
| 60°-70° | 2377.5 | 18.4 |
| 70°-80° | 1599.0 | 12.4 |
| 80°-90° | 249.9 | 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° | 12942.5 | 100.0 |
| 0°-180° | 12942.5 | 100.0 |



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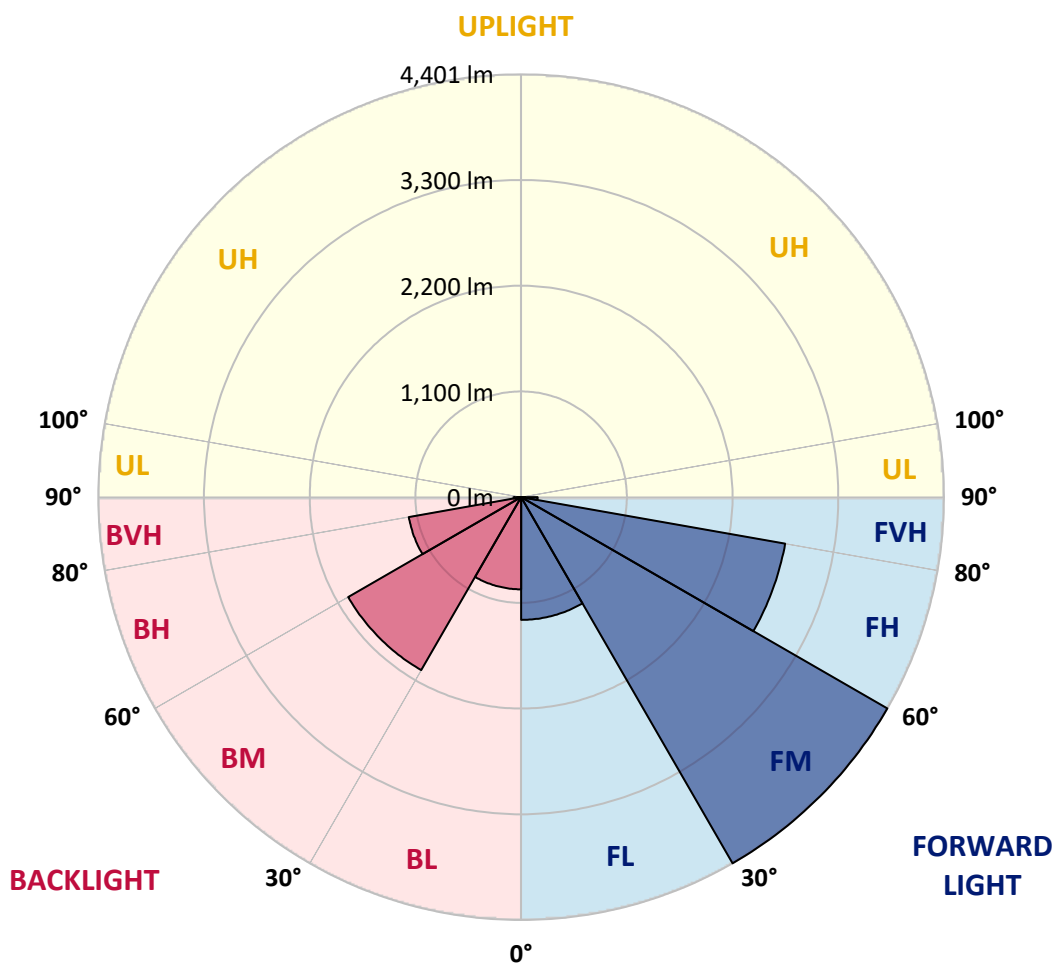
CATALOG NUMBER: EMM2-HSN-SA2B-740-U-T2U

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1277.4 | 9.9 | | | |
| FM (30°-60°) | 4400.6 | 34.0 | | | |
| FH (60°-80°) | 2789.5 | 21.6 | | | G2/5000 |
| FVH (80°-90°) | 171.1 | 1.3 | | | G2/225 |
| BL (0°-30°) | 959.4 | 7.4 | B2/1000 | | |
| BM (30°-60°) | 2078.6 | 16.1 | B2/2500 | | |
| BH (60°-80°) | 1187.0 | 9.2 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 78.8 | 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





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 77° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 |
| 2.5° | 2601.0 | 2598.4 | 2585.6 | 2590.7 | 2575.4 | 2585.6 | 2570.2 | 2557.4 | 2554.9 | 2552.3 | 2554.9 |
| 5° | 2682.9 | 2670.1 | 2657.3 | 2649.6 | 2636.8 | 2631.7 | 2606.1 | 2580.5 | 2565.1 | 2562.6 | 2557.4 |
| 7.5° | 2777.6 | 2772.5 | 2754.6 | 2744.3 | 2708.5 | 2690.6 | 2654.7 | 2608.6 | 2585.6 | 2575.4 | 2562.6 |
| 10° | 2874.9 | 2887.7 | 2864.6 | 2844.2 | 2803.2 | 2764.8 | 2703.4 | 2644.5 | 2598.4 | 2593.3 | 2565.1 |
| 12.5° | 2995.2 | 2992.6 | 2977.3 | 2941.4 | 2892.8 | 2839.0 | 2764.8 | 2682.9 | 2621.4 | 2611.2 | 2570.2 |
| 15° | 3102.7 | 3100.2 | 3079.7 | 3046.4 | 2982.4 | 2915.8 | 2816.0 | 2721.3 | 2644.5 | 2629.1 | 2580.5 |
| 17.5° | 3202.6 | 3197.4 | 3184.6 | 3148.8 | 3069.4 | 2987.5 | 2890.2 | 2764.8 | 2672.6 | 2654.7 | 2588.2 |
| 20° | 3289.6 | 3294.7 | 3279.4 | 3243.5 | 3169.3 | 3082.2 | 2959.4 | 2821.1 | 2708.5 | 2688.0 | 2611.2 |
| 22.5° | 3384.3 | 3386.9 | 3379.2 | 3366.4 | 3271.7 | 3179.5 | 3046.4 | 2885.1 | 2749.4 | 2729.0 | 2636.8 |
| 25° | 3484.2 | 3486.7 | 3491.8 | 3484.2 | 3376.6 | 3276.8 | 3136.0 | 2964.5 | 2805.8 | 2777.6 | 2672.6 |
| 27.5° | 3599.4 | 3601.9 | 3612.2 | 3596.8 | 3481.6 | 3376.6 | 3235.8 | 3049.0 | 2864.6 | 2833.9 | 2703.4 |
| 30° | 3729.9 | 3740.2 | 3732.5 | 3727.4 | 3594.2 | 3491.8 | 3335.7 | 3136.0 | 2941.4 | 2903.0 | 2757.1 |
| 32.5° | 3886.1 | 3883.5 | 3868.2 | 3852.8 | 3717.1 | 3609.6 | 3448.3 | 3248.6 | 3036.2 | 2992.6 | 2844.2 |
| 35° | 3998.7 | 3998.7 | 3975.7 | 3968.0 | 3842.6 | 3729.9 | 3571.2 | 3374.1 | 3143.7 | 3102.7 | 2936.3 |
| 37.5° | 4067.8 | 4078.1 | 4060.2 | 4065.3 | 3945.0 | 3840.0 | 3694.1 | 3502.1 | 3261.4 | 3225.6 | 3049.0 |
| 40° | 4093.4 | 4119.0 | 4134.4 | 4154.9 | 4034.6 | 3945.0 | 3824.6 | 3640.3 | 3412.5 | 3371.5 | 3184.6 |
| 42.5° | 4098.6 | 4137.0 | 4190.7 | 4234.2 | 4098.6 | 4024.3 | 3950.1 | 3781.1 | 3561.0 | 3525.1 | 3333.1 |
| 45° | 4073.0 | 4055.0 | 4185.6 | 4190.7 | 4134.4 | 4088.3 | 4060.2 | 3950.1 | 3776.0 | 3717.1 | 3517.4 |
| 47.5° | 3878.4 | 3857.9 | 3893.8 | 4057.6 | 4090.9 | 4116.5 | 4172.8 | 4147.2 | 3991.0 | 3945.0 | 3729.9 |
| 50° | 3563.5 | 3553.3 | 3696.6 | 3873.3 | 3983.4 | 4113.9 | 4265.0 | 4336.6 | 4229.1 | 4201.0 | 3998.7 |
| 52.5° | 3043.8 | 3015.7 | 3307.5 | 3650.6 | 3842.6 | 4088.3 | 4329.0 | 4531.2 | 4497.9 | 4457.0 | 4229.1 |
| 55° | 2713.6 | 2713.6 | 2910.7 | 3338.2 | 3663.4 | 3996.2 | 4369.9 | 4736.0 | 4794.9 | 4748.8 | 4492.8 |
| 57.5° | 2360.3 | 2388.5 | 2593.3 | 2887.7 | 3404.8 | 3827.2 | 4364.8 | 4907.5 | 5081.6 | 5038.1 | 4771.8 |
| 60° | 2058.2 | 2081.3 | 2199.0 | 2496.0 | 3100.2 | 3604.5 | 4308.5 | 5048.3 | 5347.8 | 5332.5 | 5017.6 |
| 62.5° | 1751.0 | 1779.2 | 1873.9 | 2153.0 | 2698.2 | 3348.5 | 4190.7 | 5125.1 | 5598.7 | 5583.4 | 5265.9 |
| 65° | 1505.3 | 1507.8 | 1602.6 | 1835.5 | 2296.3 | 3038.7 | 3983.4 | 5109.8 | 5793.3 | 5803.5 | 5475.8 |
| 67.5° | 1259.5 | 1251.8 | 1374.7 | 1564.2 | 1968.6 | 2705.9 | 3706.9 | 4974.1 | 5875.2 | 5921.3 | 5545.0 |
| 70° | 926.7 | 937.0 | 1108.5 | 1318.4 | 1664.0 | 2321.9 | 3320.3 | 4710.4 | 5742.1 | 5813.8 | 5386.2 |
| 72.5° | 696.3 | 716.8 | 883.2 | 1100.8 | 1390.1 | 1937.9 | 2897.9 | 4252.2 | 5370.9 | 5381.1 | 4902.4 |
| 75° | 565.8 | 570.9 | 719.4 | 913.9 | 1139.2 | 1553.9 | 2327.0 | 3550.7 | 4541.4 | 4659.2 | 4165.1 |
| 77.5° | 481.3 | 476.2 | 547.8 | 737.3 | 919.0 | 1241.6 | 1753.6 | 2700.8 | 3566.1 | 3619.8 | 3261.4 |
| 80° | 409.6 | 407.0 | 432.6 | 596.5 | 719.4 | 885.8 | 1200.6 | 1881.6 | 2544.6 | 2603.5 | 2316.8 |
| 82.5° | 215.0 | 230.4 | 225.3 | 368.6 | 407.0 | 465.9 | 576.0 | 855.0 | 1111.0 | 1126.4 | 1065.0 |
| 85° | 10.2 | 10.2 | 10.2 | 15.4 | 25.6 | 41.0 | 79.4 | 79.4 | 87.0 | 166.4 | 189.4 |
| 87.5° | 2.6 | 2.6 | 5.1 | 5.1 | 5.1 | 7.7 | 7.7 | 10.2 | 10.2 | 10.2 | 10.2 |
| 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: P868889

CATALOG NUMBER: EMM2-HSN-SA2B-740-U-T2U

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 | 2544.6 |
| 2.5° | 2549.8 | 2539.5 | 2524.2 | 2526.7 | 2524.2 | 2524.2 | 2511.4 | 2501.1 | 2498.6 | 2503.7 | 2513.9 |
| 5° | 2552.3 | 2537.0 | 2513.9 | 2506.2 | 2498.6 | 2493.4 | 2473.0 | 2457.6 | 2449.9 | 2455.0 | 2457.6 |
| 7.5° | 2552.3 | 2529.3 | 2503.7 | 2488.3 | 2467.8 | 2452.5 | 2429.4 | 2409.0 | 2398.7 | 2401.3 | 2406.4 |
| 10° | 2547.2 | 2521.6 | 2501.1 | 2470.4 | 2437.1 | 2419.2 | 2383.4 | 2357.8 | 2345.0 | 2347.5 | 2334.7 |
| 12.5° | 2547.2 | 2519.0 | 2478.1 | 2449.9 | 2403.8 | 2365.4 | 2337.3 | 2309.1 | 2298.9 | 2288.6 | 2283.5 |
| 15° | 2549.8 | 2513.9 | 2473.0 | 2414.1 | 2360.3 | 2319.4 | 2283.5 | 2265.6 | 2250.2 | 2245.1 | 2247.7 |
| 17.5° | 2549.8 | 2513.9 | 2452.5 | 2383.4 | 2321.9 | 2270.7 | 2240.0 | 2219.5 | 2214.4 | 2209.3 | 2209.3 |
| 20° | 2562.6 | 2516.5 | 2434.6 | 2352.6 | 2275.8 | 2222.1 | 2193.9 | 2181.1 | 2181.1 | 2173.4 | 2173.4 |
| 22.5° | 2583.0 | 2521.6 | 2424.3 | 2327.0 | 2237.4 | 2178.6 | 2147.8 | 2132.5 | 2140.2 | 2135.0 | 2132.5 |
| 25° | 2606.1 | 2539.5 | 2411.5 | 2291.2 | 2186.2 | 2124.8 | 2094.1 | 2083.8 | 2081.3 | 2068.5 | 2086.4 |
| 27.5° | 2624.0 | 2552.3 | 2403.8 | 2255.4 | 2140.2 | 2068.5 | 2030.1 | 2012.2 | 1999.4 | 2004.5 | 1999.4 |
| 30° | 2672.6 | 2588.2 | 2406.4 | 2224.6 | 2089.0 | 2001.9 | 1955.8 | 1935.4 | 1930.2 | 1930.2 | 1930.2 |
| 32.5° | 2739.2 | 2634.2 | 2424.3 | 2211.8 | 2040.3 | 1937.9 | 1881.6 | 1861.1 | 1856.0 | 1845.8 | 1850.9 |
| 35° | 2823.7 | 2703.4 | 2452.5 | 2191.4 | 2001.9 | 1863.7 | 1802.2 | 1774.1 | 1766.4 | 1756.2 | 1756.2 |
| 37.5° | 2918.4 | 2772.5 | 2473.0 | 2181.1 | 1950.7 | 1786.9 | 1717.8 | 1681.9 | 1676.8 | 1666.6 | 1671.7 |
| 40° | 3038.7 | 2867.2 | 2506.2 | 2160.6 | 1891.8 | 1717.8 | 1625.6 | 1566.7 | 1579.5 | 1584.6 | 1594.9 |
| 42.5° | 3174.4 | 2987.5 | 2557.4 | 2140.2 | 1845.8 | 1646.1 | 1510.4 | 1451.5 | 1466.9 | 1461.8 | 1472.0 |
| 45° | 3358.7 | 3128.3 | 2621.4 | 2132.5 | 1789.4 | 1559.0 | 1392.6 | 1326.1 | 1321.0 | 1313.3 | 1318.4 |
| 47.5° | 3550.7 | 3297.3 | 2682.9 | 2117.1 | 1728.0 | 1451.5 | 1259.5 | 1175.0 | 1154.6 | 1144.3 | 1134.1 |
| 50° | 3750.4 | 3466.2 | 2754.6 | 2106.9 | 1646.1 | 1331.2 | 1126.4 | 1029.1 | 990.7 | 977.9 | 965.1 |
| 52.5° | 3975.7 | 3648.0 | 2816.0 | 2081.3 | 1556.5 | 1205.8 | 1006.1 | 896.0 | 852.5 | 826.9 | 829.4 |
| 55° | 4213.8 | 3814.4 | 2872.3 | 2050.6 | 1454.1 | 1088.0 | 885.8 | 793.6 | 750.1 | 742.4 | 742.4 |
| 57.5° | 4433.9 | 3985.9 | 2913.3 | 1996.8 | 1351.7 | 972.8 | 785.9 | 706.6 | 686.1 | 696.3 | 696.3 |
| 60° | 4659.2 | 4124.2 | 2933.8 | 1937.9 | 1246.7 | 875.5 | 716.8 | 652.8 | 642.6 | 663.0 | 665.6 |
| 62.5° | 4841.0 | 4234.2 | 2928.6 | 1856.0 | 1131.5 | 791.0 | 650.2 | 599.0 | 604.2 | 640.0 | 647.7 |
| 65° | 4971.5 | 4288.0 | 2864.6 | 1733.1 | 1021.4 | 716.8 | 591.4 | 542.7 | 542.7 | 568.3 | 576.0 |
| 67.5° | 4961.3 | 4218.9 | 2736.6 | 1561.6 | 903.7 | 642.6 | 537.6 | 499.2 | 499.2 | 517.1 | 514.6 |
| 70° | 4751.4 | 3980.8 | 2493.4 | 1354.2 | 788.5 | 578.6 | 491.5 | 463.4 | 460.8 | 468.5 | 465.9 |
| 72.5° | 4247.0 | 3497.0 | 2114.6 | 1118.7 | 681.0 | 514.6 | 445.4 | 419.8 | 414.7 | 404.5 | 396.8 |
| 75° | 3504.6 | 2872.3 | 1651.2 | 890.9 | 576.0 | 453.1 | 401.9 | 378.9 | 358.4 | 371.2 | 363.5 |
| 77.5° | 2718.7 | 2204.2 | 1228.8 | 691.2 | 468.5 | 394.2 | 358.4 | 332.8 | 327.7 | 373.8 | 358.4 |
| 80° | 1984.0 | 1523.2 | 867.8 | 494.1 | 363.5 | 320.0 | 299.5 | 279.0 | 353.3 | 473.6 | 471.0 |
| 82.5° | 880.6 | 734.7 | 396.8 | 235.5 | 169.0 | 140.8 | 117.8 | 133.1 | 222.7 | 217.6 | 225.3 |
| 85° | 79.4 | 81.9 | 43.5 | 28.2 | 17.9 | 15.4 | 10.2 | 10.2 | 7.7 | 7.7 | 7.7 |
| 87.5° | 10.2 | 10.2 | 7.7 | 7.7 | 5.1 | 5.1 | 5.1 | 5.1 | 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: SP1-2407-157-5

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-740-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-740-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-5
 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-40-740-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3915
 CIE u': 0.2262
 CIE v': 0.5044
 Duv: 0.0010
 CIE x: 0.3850
 CIE y: 0.3816
 CIE z: 0.2334
 Peak Wavelength (nm): 449
 Dominant Wavelength (nm): 578
 Purity: 30.05482
 Rf: 73.2
 Rg: 93.9

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.0 | | |
| R1: | 67.6 | R9: | -38.4 |
| R2: | 78.3 | R10: | 48.9 |
| R3: | 87.1 | R11: | 65.3 |
| R4: | 69.7 | R12: | 40.4 |
| R5: | 67.4 | R13: | 69.3 |
| R6: | 69.3 | R14: | 92.6 |
| R7: | 79.7 | R15: | 59.9 |
| R8: | 48.7 | | |



Test Conditions

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

REPORT NUMBER: SP1-2407-157-5

| 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: SP1-2407-157-5

CIE 1931 Chromaticity Diagram



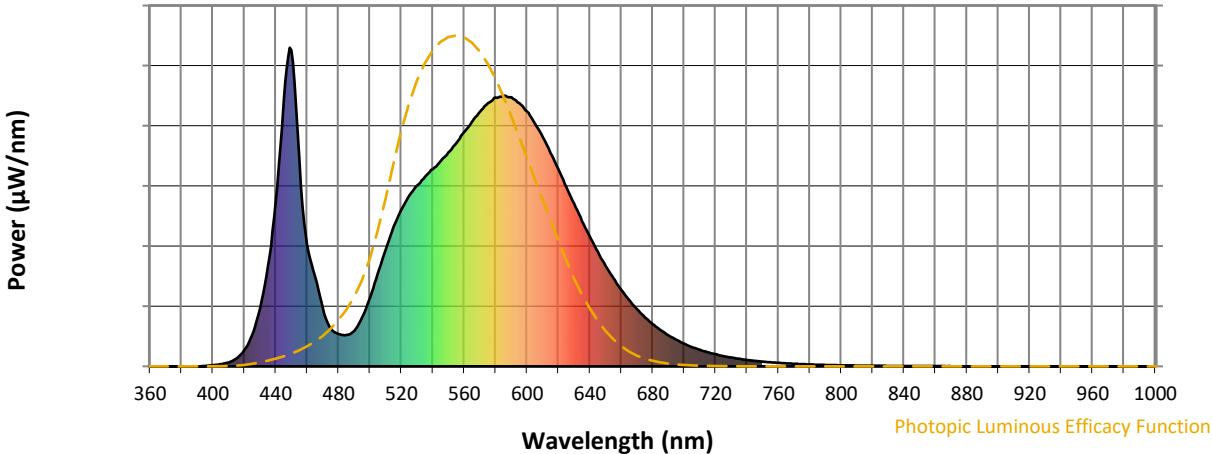
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-5

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 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-5

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.49

| 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 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-157-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.88

| 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 | 112 | NR | 620 | 618 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 153 | NR | 625 | 563 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 216 | NR | 630 | 510 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 291 | NR | 635 | 456 | NR | 765 | 9 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 366 | NR | 640 | 407 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 436 | NR | 645 | 359 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 492 | NR | 650 | 316 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 536 | NR | 655 | 277 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 567 | NR | 660 | 240 | NR | 790 | 4 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 596 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 12 | NR | 540 | 619 | NR | 670 | 179 | NR | 800 | 3 | NR | 930 | 0 | NR |
| 415 | 25 | NR | 545 | 644 | NR | 675 | 154 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 51 | NR | 550 | 671 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 100 | NR | 555 | 701 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 180 | NR | 560 | 735 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 315 | NR | 565 | 768 | NR | 695 | 83 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 514 | NR | 570 | 798 | NR | 700 | 71 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 828 | NR | 575 | 825 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 992 | NR | 580 | 843 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 652 | NR | 585 | 848 | NR | 715 | 44 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 382 | NR | 590 | 844 | NR | 720 | 38 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 282 | NR | 595 | 826 | NR | 725 | 32 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 180 | NR | 600 | 800 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 119 | NR | 605 | 762 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 101 | NR | 610 | 719 | NR | 740 | 20 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 669 | NR | 745 | 17 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 73.2$
 $R_g = 93.9$
 $CIE R_a = 71.0$
 $R_g = -38.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 88 | CES76 = 50 |
| CES02 = 61 | CES27 = 88 | CES52 = 87 | CES77 = 69 |
| CES03 = 30 | CES28 = 81 | CES53 = 77 | CES78 = 53 |
| CES04 = 70 | CES29 = 65 | CES54 = 84 | CES79 = 81 |
| CES05 = 47 | CES30 = 81 | CES55 = 83 | CES80 = 78 |
| CES06 = 50 | CES31 = 69 | CES56 = 73 | CES81 = 77 |
| CES07 = 40 | CES32 = 60 | CES57 = 72 | CES82 = 91 |
| CES08 = 39 | CES33 = 76 | CES58 = 73 | CES83 = 89 |
| CES09 = 29 | CES34 = 70 | CES59 = 85 | CES84 = 86 |
| CES10 = 74 | CES35 = 83 | CES60 = 89 | CES85 = 77 |
| CES11 = 57 | CES36 = 91 | CES61 = 81 | CES86 = 71 |
| CES12 = 63 | CES37 = 79 | CES62 = 85 | CES87 = 76 |
| CES13 = 42 | CES38 = 92 | CES63 = 72 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 64 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 61 | CES90 = 79 |
| CES16 = 46 | CES41 = 93 | CES66 = 57 | CES91 = 74 |
| CES17 = 49 | CES42 = 80 | CES67 = 54 | CES92 = 57 |
| CES18 = 56 | CES43 = 76 | CES68 = 63 | CES93 = 74 |
| CES19 = 72 | CES44 = 99 | CES69 = 73 | CES94 = 51 |
| CES20 = 65 | CES45 = 85 | CES70 = 55 | CES95 = 65 |
| CES21 = 86 | CES46 = 82 | CES71 = 48 | CES96 = 76 |
| CES22 = 78 | CES47 = 86 | CES72 = 83 | CES97 = 84 |
| CES23 = 92 | CES48 = 77 | CES73 = 45 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 93 | CES99 = 62 |
| CES25 = 72 | CES50 = 88 | CES75 = 51 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)