

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: P867838

Luminaire Tested: **MEM2-HTN-SA-100-740-U-5WQ**

Issue Date: 08/21/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P867838  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: MEM2-HTN-SA-100-740-U-5WQ  
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 100W 70CRI 4000K  
FITXURE w/ TYPE V SQUARE WIDE DISTRIBUTION OPTIC  
Light Source: (20) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

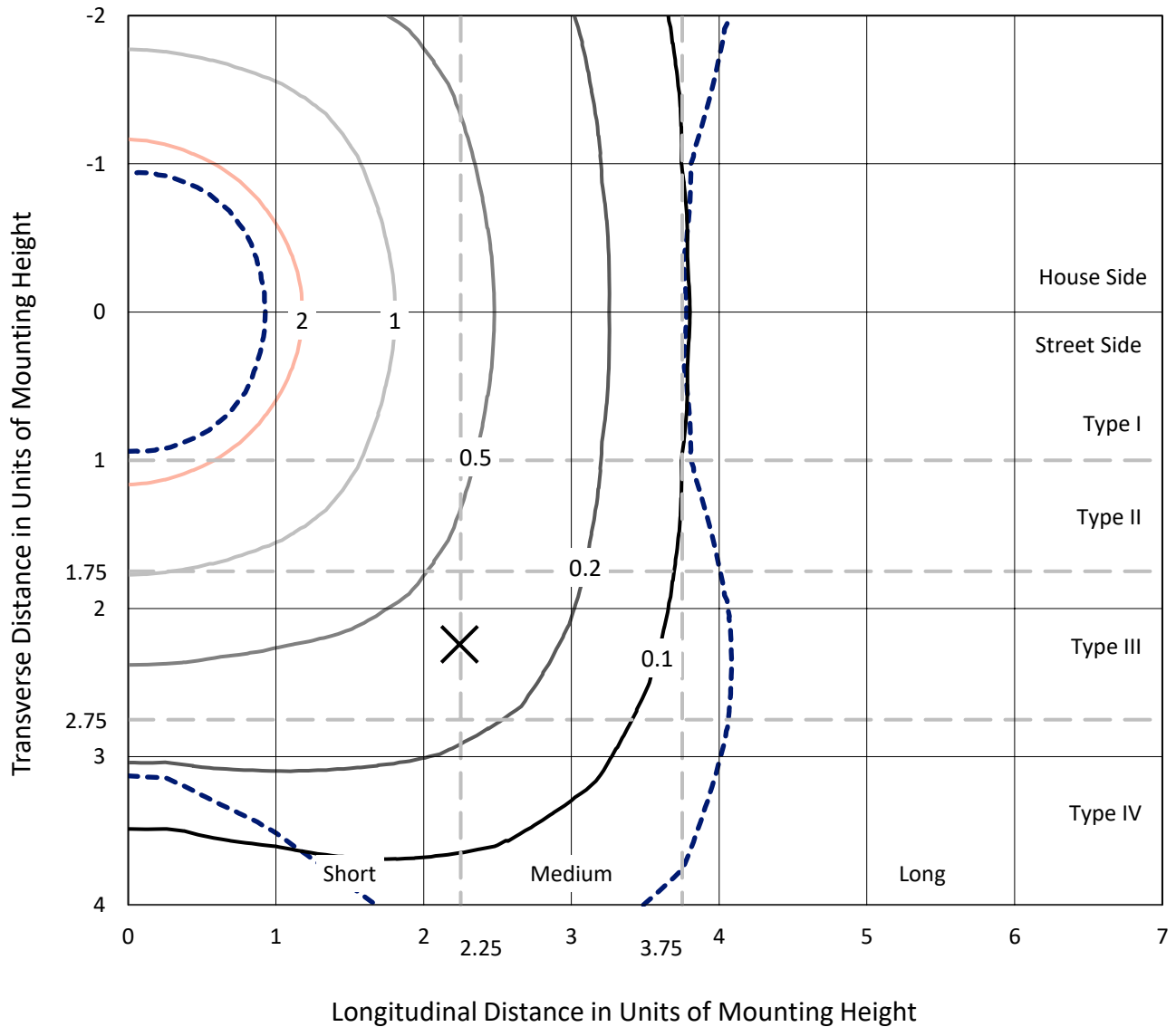
Lumens per Lamp: N/A  
Luminaire Lumens: 14208 lumens  
Efficiency: N/A  
Efficacy: 140.7 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B4 - U0 - G2

Input Watts (W): 101  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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

REPORT NUMBER: P867838  
 CATALOG NUMBER: MEM2-HTN-SA-100-740-U-5WQ

### Iso-Footcandle Lines of Horizontal Illumination

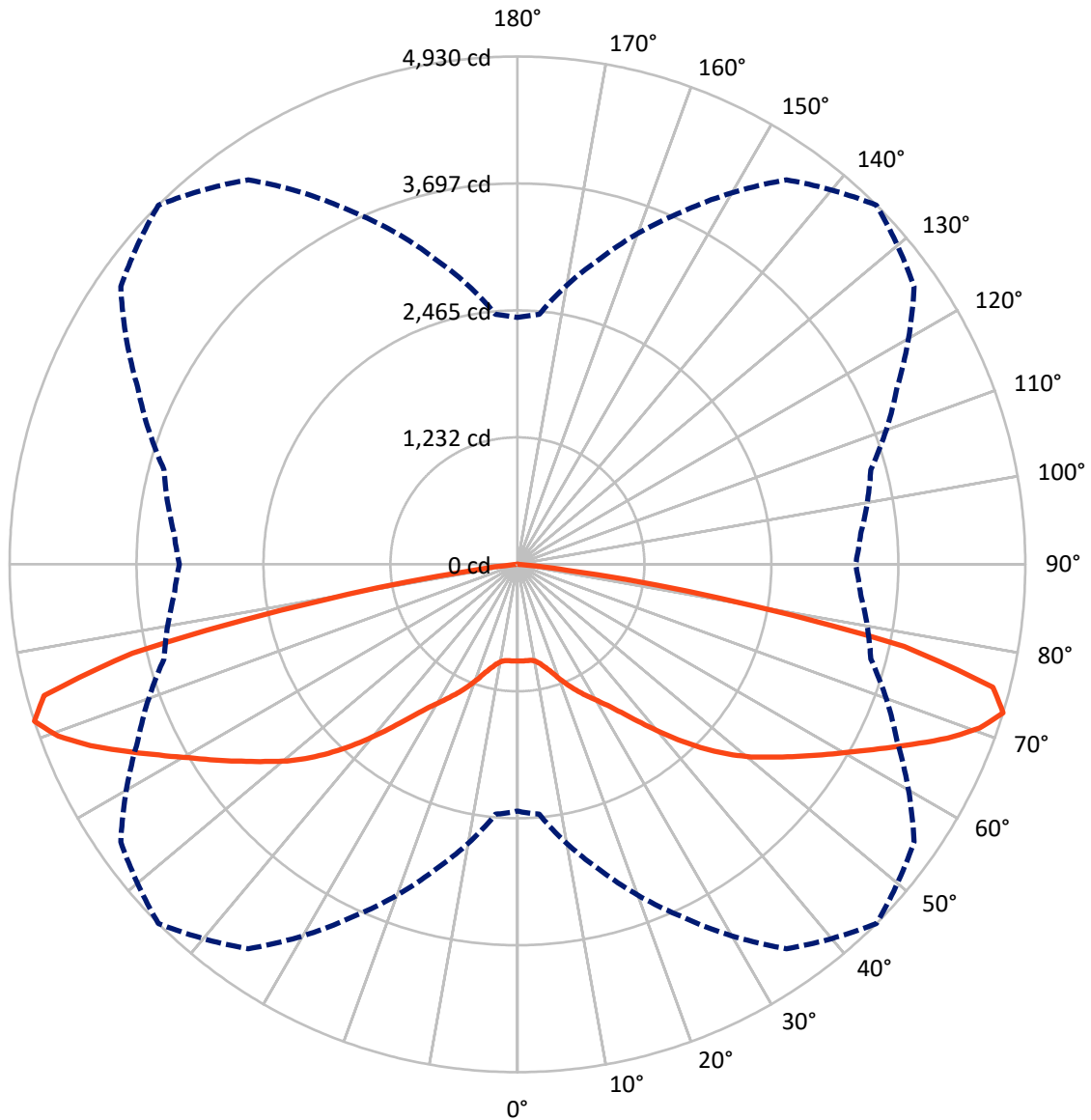
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2.5 fc  
 Type V - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral      - - - Horizontal Cone Through 72.5-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 7104.0   | 0.0    | 7104.0  |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Street Side</b> | Lumens    | 7104.0   | 0.0    | 7104.0  |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Total</b>       | Lumens    | 14208.0  | 0.0    | 14208.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 89.9    | 0.6       |
| 10°-20°   | 300.0   | 2.1       |
| 20°-30°   | 619.0   | 4.4       |
| 30°-40°   | 1139.7  | 8.0       |
| 40°-50°   | 2003.8  | 14.1      |
| 50°-60°   | 2906.2  | 20.5      |
| 60°-70°   | 3788.6  | 26.7      |
| 70°-80°   | 3149.2  | 22.2      |
| 80°-90°   | 211.5   | 1.5       |
| 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°    | 14208.0 | 100.0     |
| 0°-180°   | 14208.0 | 100.0     |



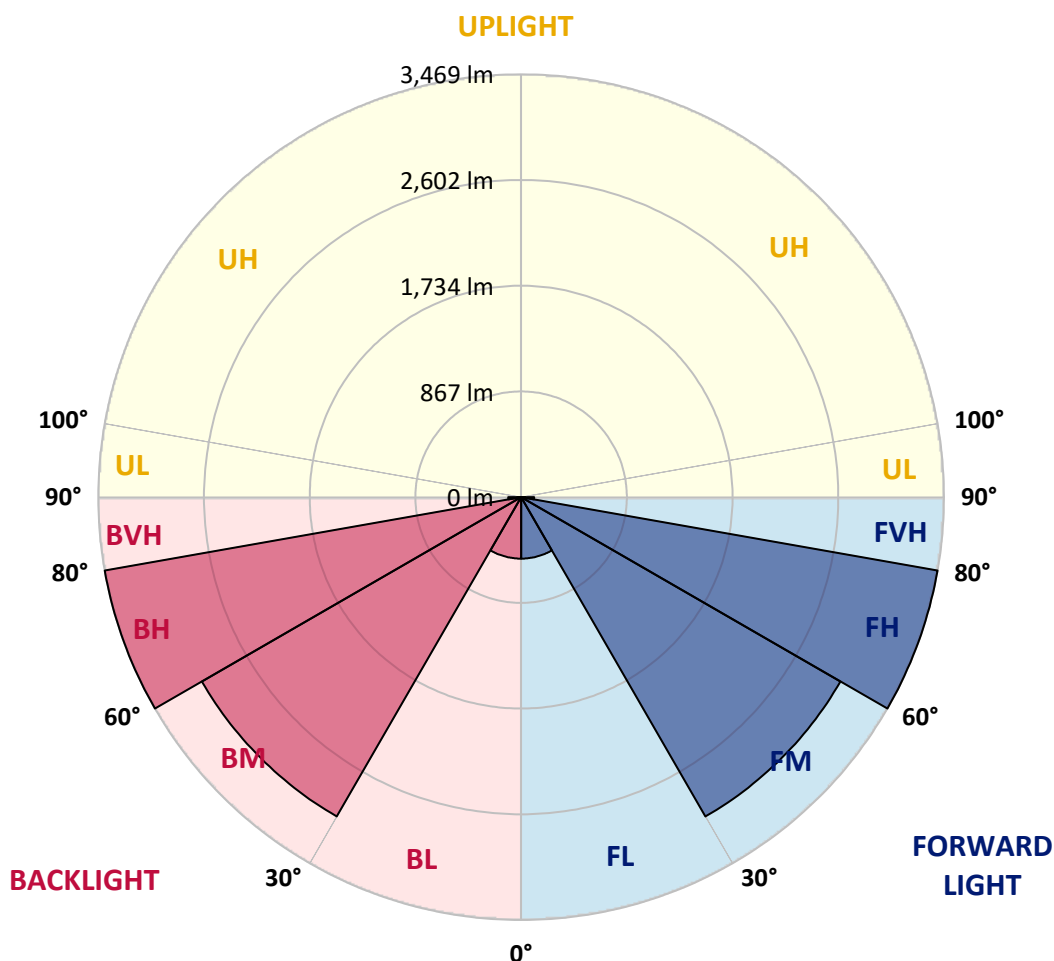
REPORT NUMBER: P867838  
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 504.5  | 3.6       |                         |      |         |
| FM (30°-60°)   | 3024.8 | 21.3      |                         |      |         |
| FH (60°-80°)   | 3468.9 | 24.4      |                         |      | G2/5000 |
| FVH (80°-90°)  | 105.7  | 0.7       |                         |      | G2/225  |
| BL (0°-30°)    | 504.5  | 3.6       | B2/1000                 |      |         |
| BM (30°-60°)   | 3024.8 | 21.3      | B3/5000                 |      |         |
| BH (60°-80°)   | 3468.9 | 24.4      | B4/5000                 |      | G2/5000 |
| BVH (80°-90°)  | 105.7  | 0.7       |                         |      | G2/225  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B4-U0-G2**

Type V Short





REPORT NUMBER: P867838

CATALOG NUMBER: MEM2-HTN-SA-100-740-U-5WQ

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    | 90°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 938.0  | 938.0  | 938.0  | 938.0  | 938.0  | 938.0  | 938.0  | 938.0  | 938.0  | 938.0  | 938.0  |
| 2.5°  | 935.0  | 936.5  | 936.5  | 936.5  | 938.0  | 939.4  | 940.9  | 942.4  | 945.3  | 946.8  | 946.8  |
| 5°    | 939.4  | 938.0  | 936.5  | 939.4  | 939.4  | 939.4  | 940.9  | 942.4  | 942.4  | 942.4  | 943.9  |
| 7.5°  | 935.0  | 936.5  | 935.0  | 935.0  | 939.4  | 940.9  | 939.4  | 938.0  | 938.0  | 939.4  | 939.4  |
| 10°   | 951.2  | 949.8  | 948.3  | 948.3  | 952.7  | 954.2  | 952.7  | 951.2  | 951.2  | 954.2  | 954.2  |
| 12.5° | 988.0  | 991.0  | 982.1  | 982.1  | 988.0  | 991.0  | 986.6  | 985.1  | 986.6  | 989.5  | 989.5  |
| 15°   | 1045.5 | 1044.0 | 1038.1 | 1032.2 | 1038.1 | 1042.5 | 1036.6 | 1033.7 | 1035.2 | 1042.5 | 1036.6 |
| 17.5° | 1108.8 | 1110.3 | 1104.4 | 1098.5 | 1102.9 | 1108.8 | 1099.9 | 1092.6 | 1094.1 | 1097.0 | 1094.1 |
| 20°   | 1179.5 | 1178.0 | 1176.5 | 1176.5 | 1185.3 | 1192.7 | 1179.5 | 1161.8 | 1157.4 | 1154.4 | 1154.4 |
| 22.5° | 1231.0 | 1235.4 | 1236.9 | 1250.1 | 1270.8 | 1278.1 | 1260.4 | 1236.9 | 1219.2 | 1210.4 | 1204.5 |
| 25°   | 1312.0 | 1307.6 | 1304.6 | 1319.3 | 1350.3 | 1363.5 | 1341.4 | 1309.0 | 1291.4 | 1289.9 | 1294.3 |
| 27.5° | 1385.6 | 1385.6 | 1391.5 | 1406.2 | 1435.7 | 1448.9 | 1429.8 | 1397.4 | 1388.6 | 1388.6 | 1384.1 |
| 30°   | 1481.3 | 1476.9 | 1482.8 | 1507.8 | 1529.9 | 1538.7 | 1522.5 | 1500.5 | 1493.1 | 1493.1 | 1485.7 |
| 32.5° | 1593.2 | 1594.7 | 1603.5 | 1619.7 | 1641.8 | 1643.3 | 1637.4 | 1627.1 | 1622.7 | 1618.3 | 1625.6 |
| 35°   | 1764.0 | 1764.0 | 1761.1 | 1772.9 | 1778.8 | 1781.7 | 1784.7 | 1780.2 | 1780.2 | 1780.2 | 1774.3 |
| 37.5° | 1976.1 | 1964.3 | 1962.8 | 1952.5 | 1945.2 | 1952.5 | 1965.8 | 1980.5 | 1992.3 | 1984.9 | 1982.0 |
| 40°   | 2186.6 | 2180.7 | 2163.1 | 2146.9 | 2141.0 | 2143.9 | 2160.1 | 2191.1 | 2204.3 | 2204.3 | 2216.1 |
| 42.5° | 2413.4 | 2401.6 | 2379.5 | 2360.4 | 2344.2 | 2348.6 | 2363.3 | 2401.6 | 2431.1 | 2444.3 | 2438.4 |
| 45°   | 2616.6 | 2606.3 | 2584.2 | 2566.5 | 2554.8 | 2553.3 | 2572.4 | 2597.5 | 2637.2 | 2649.0 | 2657.8 |
| 47.5° | 2790.4 | 2783.0 | 2763.9 | 2746.2 | 2750.6 | 2752.1 | 2758.0 | 2780.1 | 2812.4 | 2828.6 | 2827.2 |
| 50°   | 2931.7 | 2925.8 | 2908.2 | 2915.5 | 2927.3 | 2939.1 | 2931.7 | 2946.4 | 2967.1 | 2974.4 | 2980.3 |
| 52.5° | 3061.3 | 3052.5 | 3040.7 | 3053.9 | 3084.9 | 3108.4 | 3112.8 | 3102.5 | 3108.4 | 3112.8 | 3108.4 |
| 55°   | 3189.4 | 3179.1 | 3176.1 | 3199.7 | 3246.8 | 3291.0 | 3286.6 | 3257.1 | 3249.8 | 3240.9 | 3236.5 |
| 57.5° | 3293.9 | 3286.6 | 3298.4 | 3338.1 | 3429.4 | 3488.3 | 3469.2 | 3401.4 | 3372.0 | 3351.4 | 3345.5 |
| 60°   | 3360.2 | 3358.7 | 3385.2 | 3478.0 | 3616.4 | 3698.9 | 3668.0 | 3551.6 | 3485.4 | 3466.2 | 3457.4 |
| 62.5° | 3395.5 | 3397.0 | 3444.1 | 3609.1 | 3829.9 | 3941.8 | 3887.4 | 3709.2 | 3606.1 | 3587.0 | 3589.9 |
| 65°   | 3427.9 | 3423.5 | 3485.4 | 3719.5 | 4061.1 | 4212.8 | 4139.2 | 3899.1 | 3748.9 | 3710.7 | 3710.7 |
| 67.5° | 3451.5 | 3455.9 | 3548.7 | 3829.9 | 4286.4 | 4502.9 | 4395.4 | 4100.9 | 3902.1 | 3844.7 | 3837.3 |
| 70°   | 3154.1 | 3196.8 | 3486.8 | 3903.6 | 4464.6 | 4759.1 | 4617.7 | 4224.6 | 3908.0 | 3744.5 | 3728.3 |
| 72.5° | 2395.7 | 2435.5 | 3062.8 | 3772.5 | 4555.9 | 4929.9 | 4700.2 | 4067.0 | 3551.6 | 3344.0 | 3282.2 |
| 75°   | 1580.0 | 1608.0 | 2282.4 | 3295.4 | 4302.6 | 4767.9 | 4280.5 | 3503.0 | 2796.2 | 2526.8 | 2543.0 |
| 77.5° | 703.8  | 793.7  | 1454.8 | 2571.0 | 3544.3 | 3837.3 | 3264.5 | 2389.8 | 1708.1 | 1446.0 | 1418.0 |
| 80°   | 294.5  | 322.5  | 549.2  | 1370.9 | 2054.1 | 1965.8 | 1390.0 | 801.0  | 509.5  | 396.1  | 382.8  |
| 82.5° | 85.4   | 88.3   | 109.0  | 237.1  | 418.2  | 491.8  | 296.0  | 150.2  | 142.8  | 113.4  | 104.5  |
| 85°   | 5.9    | 5.9    | 8.8    | 14.7   | 20.6   | 33.9   | 38.3   | 44.2   | 50.1   | 42.7   | 42.7   |
| 87.5° | 2.9    | 2.9    | 2.9    | 4.4    | 4.4    | 5.9    | 4.4    | 4.4    | 4.4    | 4.4    | 4.4    |
| 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: SP1-2407-157-5

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-30-740-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-30-740-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-30-740-U-5WQ-2**  
 Description: Epic Modern Light Square 30W 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           |

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**CIE 1931 Chromaticity Diagram**



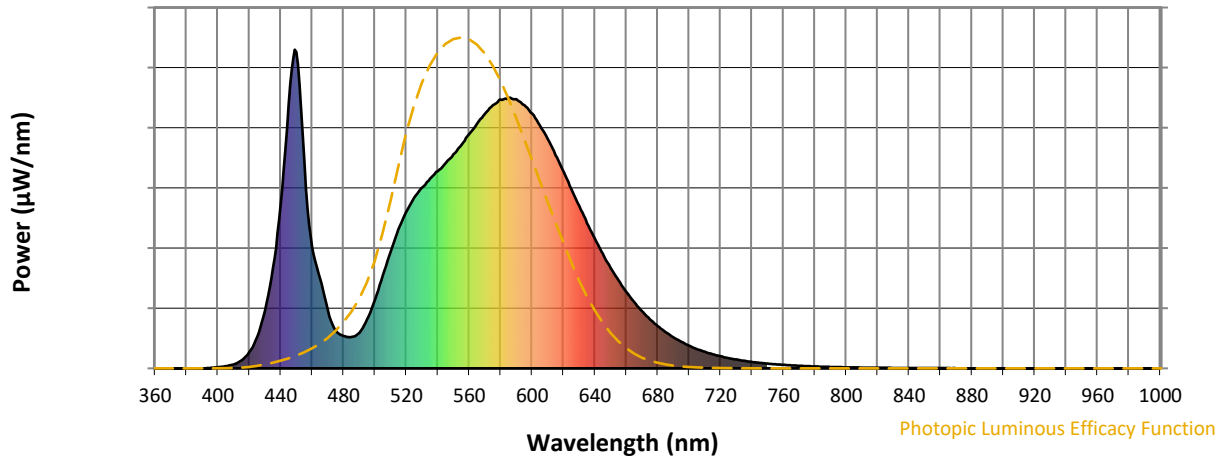
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**

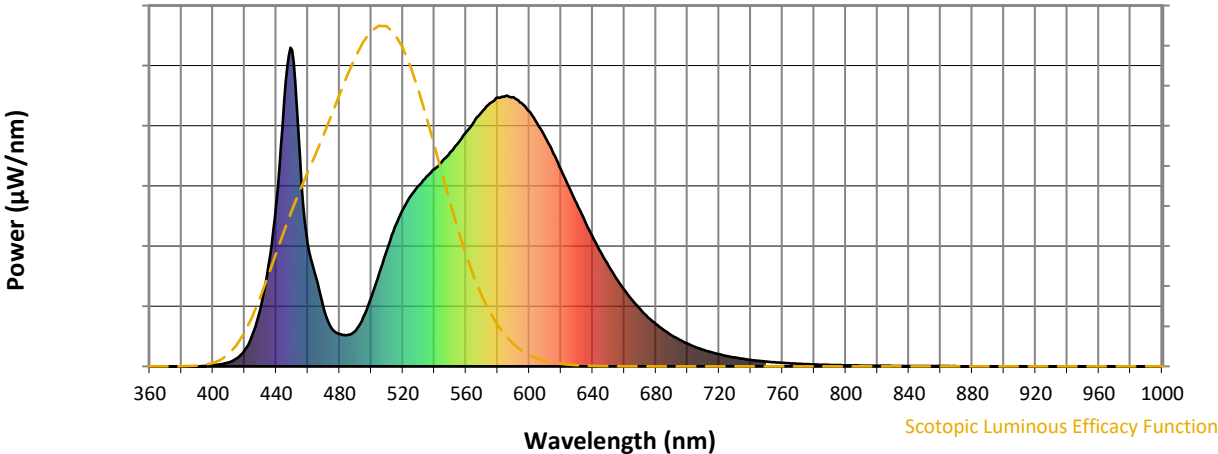


**Photopic Lumens: NR**

| $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /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                      |                   |                             |                         |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR S/P: 1.49**

| $\lambda$ (nm) | Power $W/\text{nm}$ | Lumens ( $\phi/\text{nm}$ ) | $\lambda$ (nm) | Power $W/\text{nm}$ | Lumens ( $\phi/\text{nm}$ ) | $\lambda$ (nm) | Power $W/\text{nm}$ | Lumens ( $\phi/\text{nm}$ ) | $\lambda$ (nm) | Power $W/\text{nm}$ | Lumens ( $\phi/\text{nm}$ ) | $\lambda$ (nm) | Power $W/\text{nm}$ | Lumens ( $\phi/\text{nm}$ ) |
|----------------|---------------------|-----------------------------|----------------|---------------------|-----------------------------|----------------|---------------------|-----------------------------|----------------|---------------------|-----------------------------|----------------|---------------------|-----------------------------|
| 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**

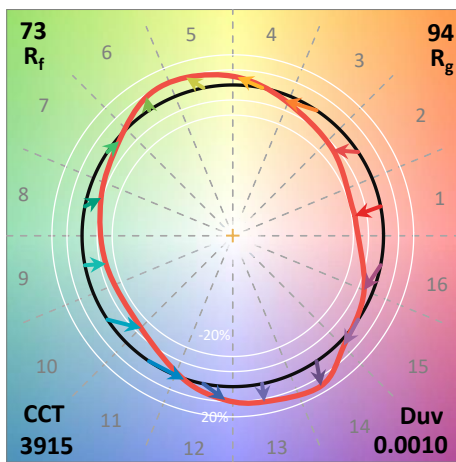
| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 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  $R_a = 71.0$   
 $R_g = -38.4$

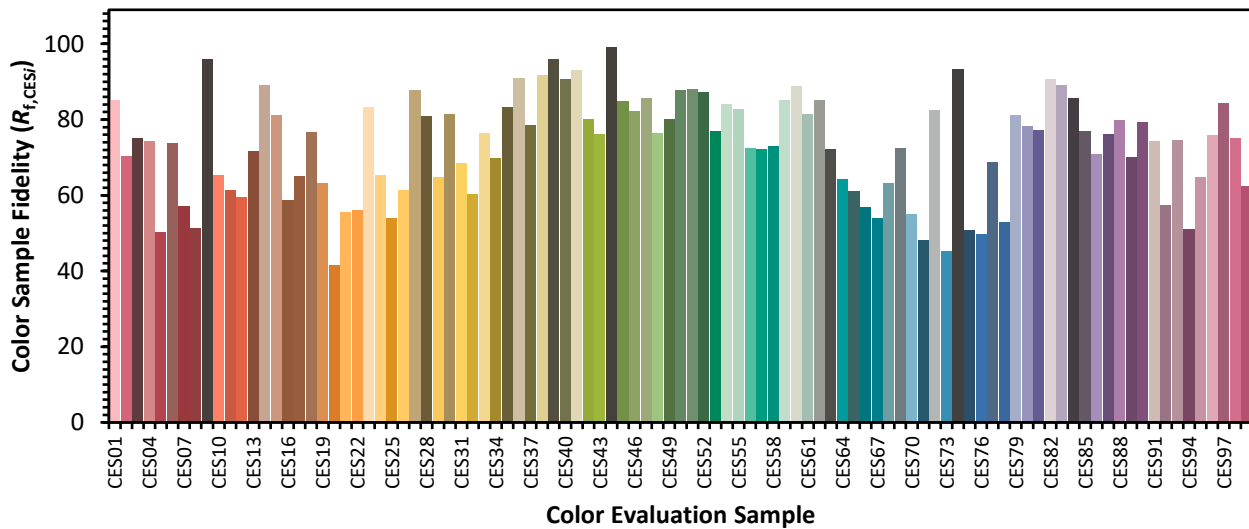


**Color Vector Graphics**



**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 |            |

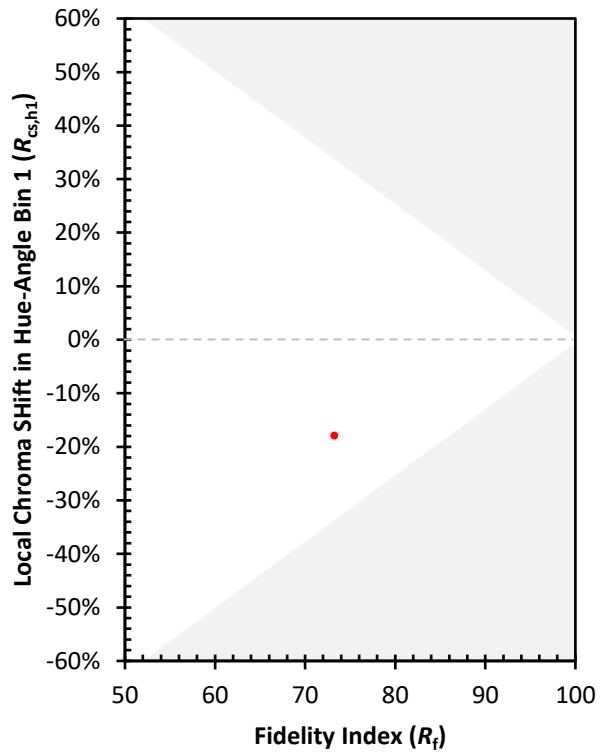
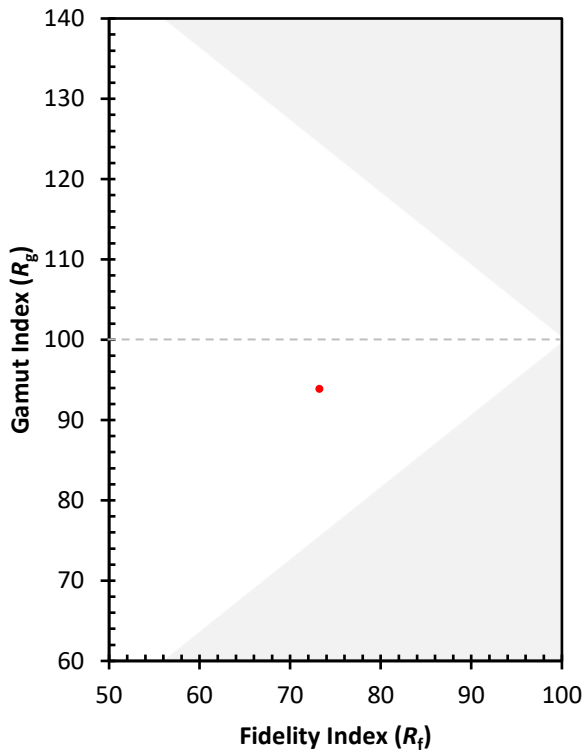




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)