

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: P869174

Luminaire Tested: **EMM2-HSN-SA1B-750-U-T5W**

Issue Date: 08/22/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P869174  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/22/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-SA1B-750-U-T5W  
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 60W 70CRI 5000K  
FITXURE w/ TYPE V SQUARE WIDE DISTRIBUTION OPTIC  
Light Source: (10) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

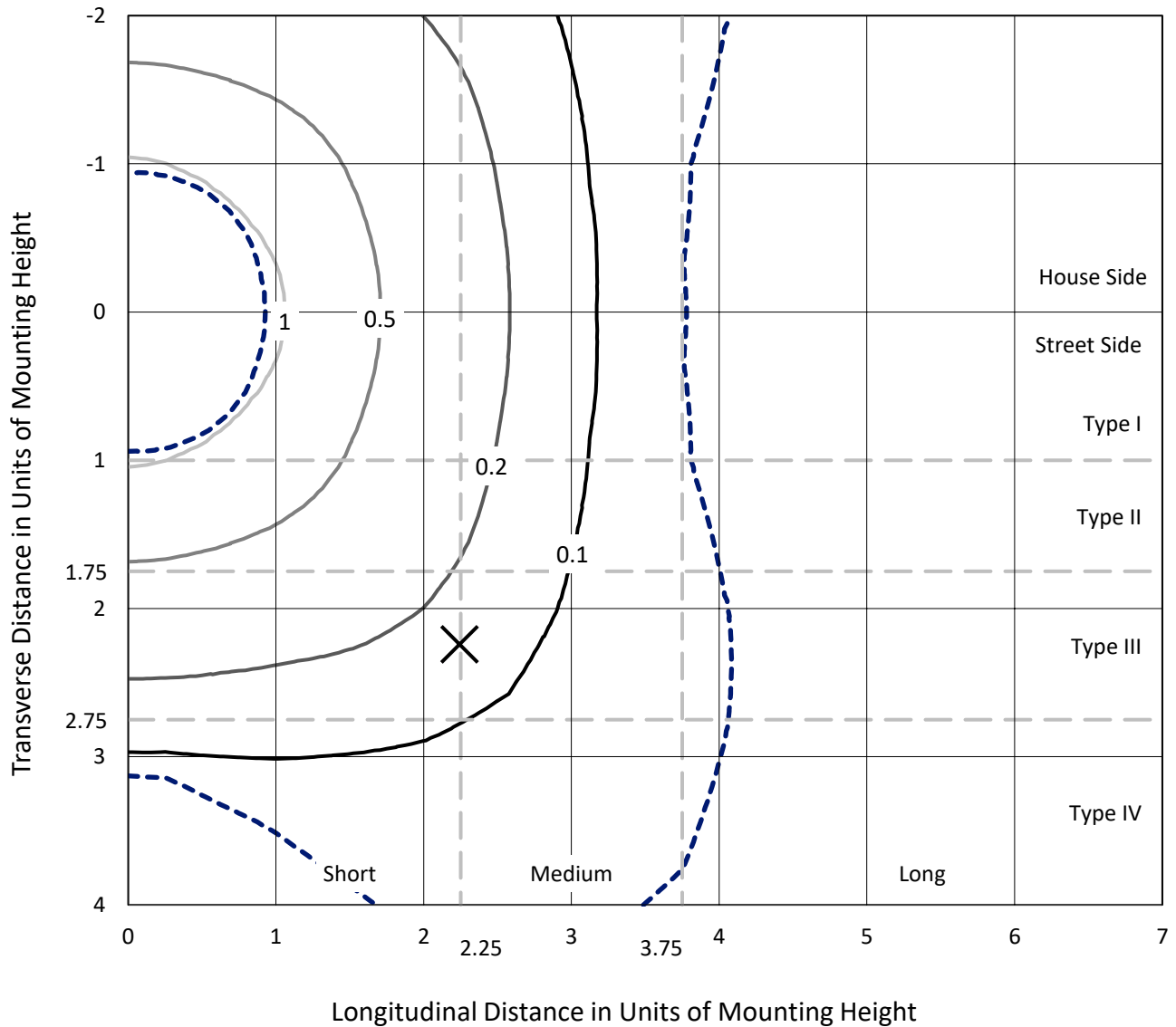
Lumens per Lamp: N/A  
Luminaire Lumens: 6376.3 lumens  
Efficiency: N/A  
Efficacy: 144.9 lumens/watt  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B3 - U0 - G1

Input Watts (W): 44  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 6.91%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

REPORT NUMBER: P869174  
 CATALOG NUMBER: EMM2-HSN-SA1B-750-U-T5W

### Iso-Footcandle Lines of Horizontal Illumination

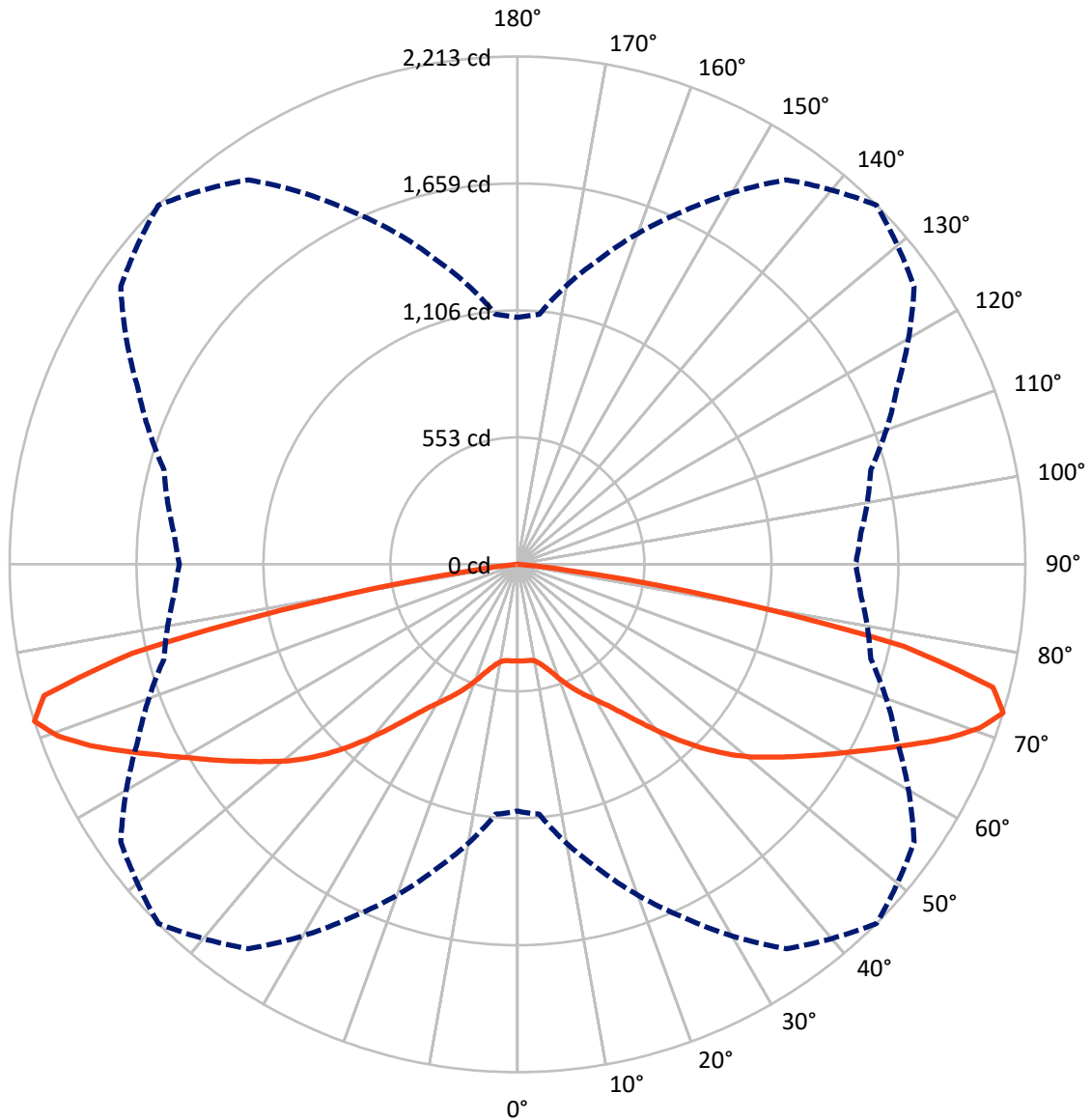
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 1.1 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    | 3188.2   | 0.0    | 3188.2 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Street Side</b> | Lumens    | 3188.2   | 0.0    | 3188.2 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Total</b>       | Lumens    | 6376.3   | 0.0    | 6376.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 40.3   | 0.6       |
| 10°-20°   | 134.7  | 2.1       |
| 20°-30°   | 277.8  | 4.4       |
| 30°-40°   | 511.5  | 8.0       |
| 40°-50°   | 899.3  | 14.1      |
| 50°-60°   | 1304.3 | 20.5      |
| 60°-70°   | 1700.3 | 26.7      |
| 70°-80°   | 1413.3 | 22.2      |
| 80°-90°   | 94.9   | 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°    | 6376.3 | 100.0     |
| 0°-180°   | 6376.3 | 100.0     |



REPORT NUMBER: P869174

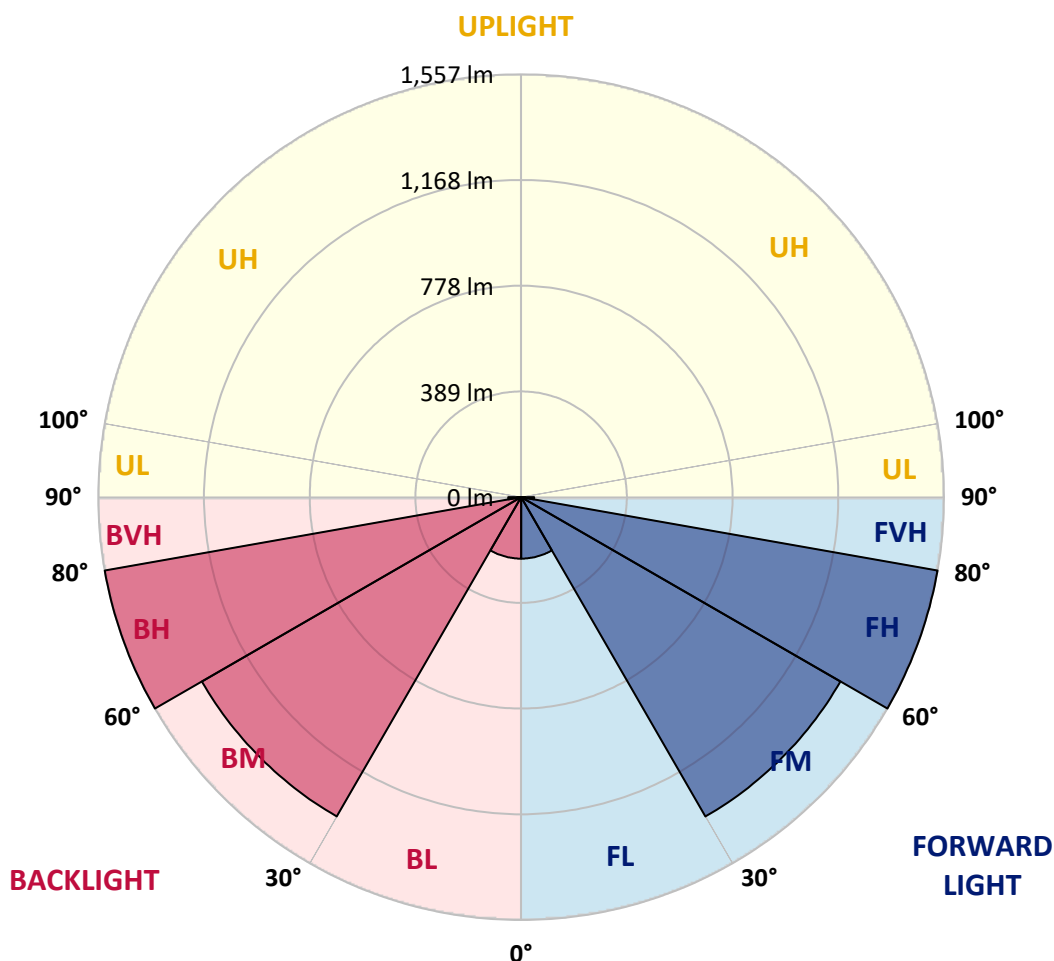
CATALOG NUMBER: EMM2-HSN-SA1B-750-U-T5W

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 226.4  | 3.6       |                         |      |         |
| FM (30°-60°)   | 1357.5 | 21.3      |                         |      |         |
| FH (60°-80°)   | 1556.8 | 24.4      |                         |      | G1/1800 |
| FVH (80°-90°)  | 47.4   | 0.7       |                         |      | G1/100  |
| BL (0°-30°)    | 226.4  | 3.6       | B1/500                  |      |         |
| BM (30°-60°)   | 1357.5 | 21.3      | B2/2500                 |      |         |
| BH (60°-80°)   | 1556.8 | 24.4      | B3/2500                 |      | G1/1800 |
| BVH (80°-90°)  | 47.4   | 0.7       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G1**

Type V Short





REPORT NUMBER: P869174

CATALOG NUMBER: EMM2-HSN-SA1B-750-U-T5W

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    | 90°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 420.9  | 420.9  | 420.9  | 420.9  | 420.9  | 420.9  | 420.9  | 420.9  | 420.9  | 420.9  | 420.9  |
| 2.5°  | 419.6  | 420.3  | 420.3  | 420.3  | 420.9  | 421.6  | 422.3  | 422.9  | 424.3  | 424.9  | 424.9  |
| 5°    | 421.6  | 420.9  | 420.3  | 421.6  | 421.6  | 421.6  | 422.3  | 422.9  | 422.9  | 422.9  | 423.6  |
| 7.5°  | 419.6  | 420.3  | 419.6  | 419.6  | 421.6  | 422.3  | 421.6  | 420.9  | 420.9  | 421.6  | 421.6  |
| 10°   | 426.9  | 426.2  | 425.6  | 425.6  | 427.6  | 428.2  | 427.6  | 426.9  | 426.9  | 428.2  | 428.2  |
| 12.5° | 443.4  | 444.7  | 440.8  | 440.8  | 443.4  | 444.7  | 442.8  | 442.1  | 442.8  | 444.1  | 444.1  |
| 15°   | 469.2  | 468.5  | 465.9  | 463.2  | 465.9  | 467.9  | 465.2  | 463.9  | 464.6  | 467.9  | 465.2  |
| 17.5° | 497.6  | 498.3  | 495.6  | 493.0  | 495.0  | 497.6  | 493.6  | 490.3  | 491.0  | 492.3  | 491.0  |
| 20°   | 529.3  | 528.7  | 528.0  | 528.0  | 532.0  | 535.3  | 529.3  | 521.4  | 519.4  | 518.1  | 518.1  |
| 22.5° | 552.5  | 554.4  | 555.1  | 561.0  | 570.3  | 573.6  | 565.7  | 555.1  | 547.2  | 543.2  | 540.6  |
| 25°   | 588.8  | 586.8  | 585.5  | 592.1  | 606.0  | 611.9  | 602.0  | 587.5  | 579.5  | 578.9  | 580.9  |
| 27.5° | 621.8  | 621.8  | 624.5  | 631.1  | 644.3  | 650.3  | 641.7  | 627.1  | 623.2  | 623.2  | 621.2  |
| 30°   | 664.8  | 662.8  | 665.5  | 676.7  | 686.6  | 690.6  | 683.3  | 673.4  | 670.1  | 670.1  | 666.8  |
| 32.5° | 715.0  | 715.7  | 719.6  | 726.9  | 736.8  | 737.5  | 734.8  | 730.2  | 728.2  | 726.3  | 729.6  |
| 35°   | 791.7  | 791.7  | 790.4  | 795.6  | 798.3  | 799.6  | 800.9  | 798.9  | 798.9  | 798.9  | 796.3  |
| 37.5° | 886.8  | 881.5  | 880.9  | 876.3  | 873.0  | 876.3  | 882.2  | 888.8  | 894.1  | 890.8  | 889.5  |
| 40°   | 981.3  | 978.7  | 970.8  | 963.5  | 960.8  | 962.2  | 969.4  | 983.3  | 989.3  | 989.3  | 994.6  |
| 42.5° | 1083.1 | 1077.8 | 1067.9 | 1059.3 | 1052.0 | 1054.0 | 1060.6 | 1077.8 | 1091.0 | 1097.0 | 1094.3 |
| 45°   | 1174.3 | 1169.7 | 1159.8 | 1151.8 | 1146.5 | 1145.9 | 1154.5 | 1165.7 | 1183.5 | 1188.8 | 1192.8 |
| 47.5° | 1252.3 | 1249.0 | 1240.4 | 1232.5 | 1234.4 | 1235.1 | 1237.7 | 1247.6 | 1262.2 | 1269.5 | 1268.8 |
| 50°   | 1315.7 | 1313.1 | 1305.1 | 1308.4 | 1313.7 | 1319.0 | 1315.7 | 1322.3 | 1331.6 | 1334.9 | 1337.5 |
| 52.5° | 1373.9 | 1369.9 | 1364.6 | 1370.6 | 1384.4 | 1395.0 | 1397.0 | 1392.4 | 1395.0 | 1397.0 | 1395.0 |
| 55°   | 1431.4 | 1426.7 | 1425.4 | 1436.0 | 1457.1 | 1477.0 | 1475.0 | 1461.8 | 1458.5 | 1454.5 | 1452.5 |
| 57.5° | 1478.3 | 1475.0 | 1480.3 | 1498.1 | 1539.1 | 1565.5 | 1556.9 | 1526.5 | 1513.3 | 1504.1 | 1501.4 |
| 60°   | 1508.0 | 1507.4 | 1519.3 | 1560.9 | 1623.0 | 1660.0 | 1646.1 | 1593.9 | 1564.2 | 1555.6 | 1551.6 |
| 62.5° | 1523.9 | 1524.5 | 1545.7 | 1619.7 | 1718.8 | 1769.0 | 1744.6 | 1664.6 | 1618.4 | 1609.8 | 1611.1 |
| 65°   | 1538.4 | 1536.4 | 1564.2 | 1669.3 | 1822.6 | 1890.6 | 1857.6 | 1749.9 | 1682.5 | 1665.3 | 1665.3 |
| 67.5° | 1549.0 | 1551.0 | 1592.6 | 1718.8 | 1923.7 | 2020.8 | 1972.6 | 1840.4 | 1751.2 | 1725.4 | 1722.1 |
| 70°   | 1415.5 | 1434.7 | 1564.8 | 1751.9 | 2003.6 | 2135.8 | 2072.4 | 1895.9 | 1753.8 | 1680.5 | 1673.2 |
| 72.5° | 1075.2 | 1093.0 | 1374.5 | 1693.0 | 2044.6 | 2212.5 | 2109.4 | 1825.2 | 1593.9 | 1500.7 | 1473.0 |
| 75°   | 709.1  | 721.6  | 1024.3 | 1478.9 | 1930.9 | 2139.8 | 1921.0 | 1572.1 | 1254.9 | 1134.0 | 1141.3 |
| 77.5° | 315.9  | 356.2  | 652.9  | 1153.8 | 1590.6 | 1722.1 | 1465.1 | 1072.5 | 766.6  | 648.9  | 636.4  |
| 80°   | 132.2  | 144.7  | 246.5  | 615.2  | 921.9  | 882.2  | 623.8  | 359.5  | 228.6  | 177.8  | 171.8  |
| 82.5° | 38.3   | 39.6   | 48.9   | 106.4  | 187.7  | 220.7  | 132.8  | 67.4   | 64.1   | 50.9   | 46.9   |
| 85°   | 2.6    | 2.6    | 4.0    | 6.6    | 9.3    | 15.2   | 17.2   | 19.8   | 22.5   | 19.2   | 19.2   |
| 87.5° | 1.3    | 1.3    | 1.3    | 2.0    | 2.0    | 2.6    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-6

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-750-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-750-U-5WQ-2



**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-157-6  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 08/20/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Streetworks  
 Catalog Number: **MEM2-HTN-SA-40-750-U-5WQ-2**  
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

**Spectral Parameters**

CCT (K): 5094  
 CIE u': 0.2082  
 CIE v': 0.4867  
 Duv: 0.0032  
 CIE x: 0.3430  
 CIE y: 0.3564  
 CIE z: 0.3006  
 Peak Wavelength (nm): 451  
 Dominant Wavelength (nm): 568  
 Purity: 9.86439  
 Rf: 73.7  
 Rg: 93

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 |      |       |
| R1:       | 68.6 | R9:  | -39.6 |
| R2:       | 78.1 | R10: | 47.6  |
| R3:       | 84.6 | R11: | 68.2  |
| R4:       | 71.6 | R12: | 41.4  |
| R5:       | 69.6 | R13: | 70.4  |
| R6:       | 69.4 | R14: | 91.4  |
| R7:       | 80.9 | R15: | 61.4  |
| R8:       | 53.1 |      |       |



**Test Conditions**

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-6

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

REPORT NUMBER: SP1-2407-157-6

**CIE 1931 Chromaticity Diagram**



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



CCT = 5094K  
 CIE x = 0.3430  
 CIE y = 0.3564  
 Duv = 0.0032

Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-6

**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| λ (nm) | Power W <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    | 114                      | NR            | 620    | 361                      | NR            | 750    | 9                        | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 145                      | NR            | 625    | 326                      | NR            | 755    | 8                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 197                      | NR            | 630    | 294                      | NR            | 760    | 7                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 259                      | NR            | 635    | 261                      | NR            | 765    | 6                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 319                      | NR            | 640    | 232                      | NR            | 770    | 5                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 373                      | NR            | 645    | 204                      | NR            | 775    | 4                        | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 414                      | NR            | 650    | 179                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 445                      | NR            | 655    | 157                      | NR            | 785    | 3                        | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 465                      | NR            | 660    | 136                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 5                        | NR            | 535    | 482                      | NR            | 665    | 118                      | NR            | 795    | 2                        | NR            | 925    | 0                        | NR            |
| 410    | 9                        | NR            | 540    | 493                      | NR            | 670    | 102                      | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 18                       | NR            | 545    | 505                      | NR            | 675    | 87                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 36                       | NR            | 550    | 515                      | NR            | 680    | 75                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 72                       | NR            | 555    | 527                      | NR            | 685    | 65                       | NR            | 815    | 1                        | NR            | 945    | 0                        | NR            |
| 430    | 134                      | NR            | 560    | 540                      | NR            | 690    | 56                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 242                      | NR            | 565    | 550                      | NR            | 695    | 48                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 407                      | NR            | 570    | 557                      | NR            | 700    | 41                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 684                      | NR            | 575    | 561                      | NR            | 705    | 35                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 988                      | NR            | 580    | 559                      | NR            | 710    | 30                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 828                      | NR            | 585    | 551                      | NR            | 715    | 26                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 473                      | NR            | 590    | 537                      | NR            | 720    | 22                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 333                      | NR            | 595    | 516                      | NR            | 725    | 19                       | NR            | 855    | 0                        | NR            | 985    | 0                        | NR            |
| 470    | 232                      | NR            | 600    | 491                      | NR            | 730    | 16                       | NR            | 860    | 0                        | NR            | 990    | 0                        | NR            |
| 475    | 146                      | NR            | 605    | 461                      | NR            | 735    | 14                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 113                      | NR            | 610    | 429                      | NR            | 740    | 12                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 106                      | NR            | 615    | 395                      | NR            | 745    | 10                       | NR            | 875    | 0                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-157-6

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.81**

| λ (nm) | Power W <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    | 114                      | NR            | 620    | 361                      | NR            | 750    | 9                        | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 145                      | NR            | 625    | 326                      | NR            | 755    | 8                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 197                      | NR            | 630    | 294                      | NR            | 760    | 7                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 259                      | NR            | 635    | 261                      | NR            | 765    | 6                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 319                      | NR            | 640    | 232                      | NR            | 770    | 5                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 373                      | NR            | 645    | 204                      | NR            | 775    | 4                        | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 414                      | NR            | 650    | 179                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 445                      | NR            | 655    | 157                      | NR            | 785    | 3                        | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 465                      | NR            | 660    | 136                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 5                        | NR            | 535    | 482                      | NR            | 665    | 118                      | NR            | 795    | 2                        | NR            | 925    | 0                        | NR            |
| 410    | 9                        | NR            | 540    | 493                      | NR            | 670    | 102                      | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 18                       | NR            | 545    | 505                      | NR            | 675    | 87                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 36                       | NR            | 550    | 515                      | NR            | 680    | 75                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 72                       | NR            | 555    | 527                      | NR            | 685    | 65                       | NR            | 815    | 1                        | NR            | 945    | 0                        | NR            |
| 430    | 134                      | NR            | 560    | 540                      | NR            | 690    | 56                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 242                      | NR            | 565    | 550                      | NR            | 695    | 48                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 407                      | NR            | 570    | 557                      | NR            | 700    | 41                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 684                      | NR            | 575    | 561                      | NR            | 705    | 35                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 988                      | NR            | 580    | 559                      | NR            | 710    | 30                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 828                      | NR            | 585    | 551                      | NR            | 715    | 26                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 473                      | NR            | 590    | 537                      | NR            | 720    | 22                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 333                      | NR            | 595    | 516                      | NR            | 725    | 19                       | NR            | 855    | 0                        | NR            | 985    | 0                        | NR            |
| 470    | 232                      | NR            | 600    | 491                      | NR            | 730    | 16                       | NR            | 860    | 0                        | NR            | 990    | 0                        | NR            |
| 475    | 146                      | NR            | 605    | 461                      | NR            | 735    | 14                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 113                      | NR            | 610    | 429                      | NR            | 740    | 12                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 106                      | NR            | 615    | 395                      | NR            | 745    | 10                       | NR            | 875    | 0                        | NR            |        |                          |               |

REPORT NUMBER: SP1-2407-157-6

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.73

| λ (nm) | Power W <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    | 114                      | NR            | 620    | 361                      | NR            | 750    | 9                        | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 145                      | NR            | 625    | 326                      | NR            | 755    | 8                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 197                      | NR            | 630    | 294                      | NR            | 760    | 7                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 259                      | NR            | 635    | 261                      | NR            | 765    | 6                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 319                      | NR            | 640    | 232                      | NR            | 770    | 5                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 373                      | NR            | 645    | 204                      | NR            | 775    | 4                        | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 414                      | NR            | 650    | 179                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 445                      | NR            | 655    | 157                      | NR            | 785    | 3                        | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 465                      | NR            | 660    | 136                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 5                        | NR            | 535    | 482                      | NR            | 665    | 118                      | NR            | 795    | 2                        | NR            | 925    | 0                        | NR            |
| 410    | 9                        | NR            | 540    | 493                      | NR            | 670    | 102                      | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 18                       | NR            | 545    | 505                      | NR            | 675    | 87                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 36                       | NR            | 550    | 515                      | NR            | 680    | 75                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 72                       | NR            | 555    | 527                      | NR            | 685    | 65                       | NR            | 815    | 1                        | NR            | 945    | 0                        | NR            |
| 430    | 134                      | NR            | 560    | 540                      | NR            | 690    | 56                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 242                      | NR            | 565    | 550                      | NR            | 695    | 48                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 407                      | NR            | 570    | 557                      | NR            | 700    | 41                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 684                      | NR            | 575    | 561                      | NR            | 705    | 35                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 988                      | NR            | 580    | 559                      | NR            | 710    | 30                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 828                      | NR            | 585    | 551                      | NR            | 715    | 26                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 473                      | NR            | 590    | 537                      | NR            | 720    | 22                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 333                      | NR            | 595    | 516                      | NR            | 725    | 19                       | NR            | 855    | 0                        | NR            | 985    | 0                        | NR            |
| 470    | 232                      | NR            | 600    | 491                      | NR            | 730    | 16                       | NR            | 860    | 0                        | NR            | 990    | 0                        | NR            |
| 475    | 146                      | NR            | 605    | 461                      | NR            | 735    | 14                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 113                      | NR            | 610    | 429                      | NR            | 740    | 12                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 106                      | NR            | 615    | 395                      | NR            | 745    | 10                       | NR            | 875    | 0                        | NR            |        |                          |               |

**Summary**

$R_f = 73.7$   
 $R_g = 93$   
 $CIE R_a = 72.0$   
 $R_9 = -39.6$

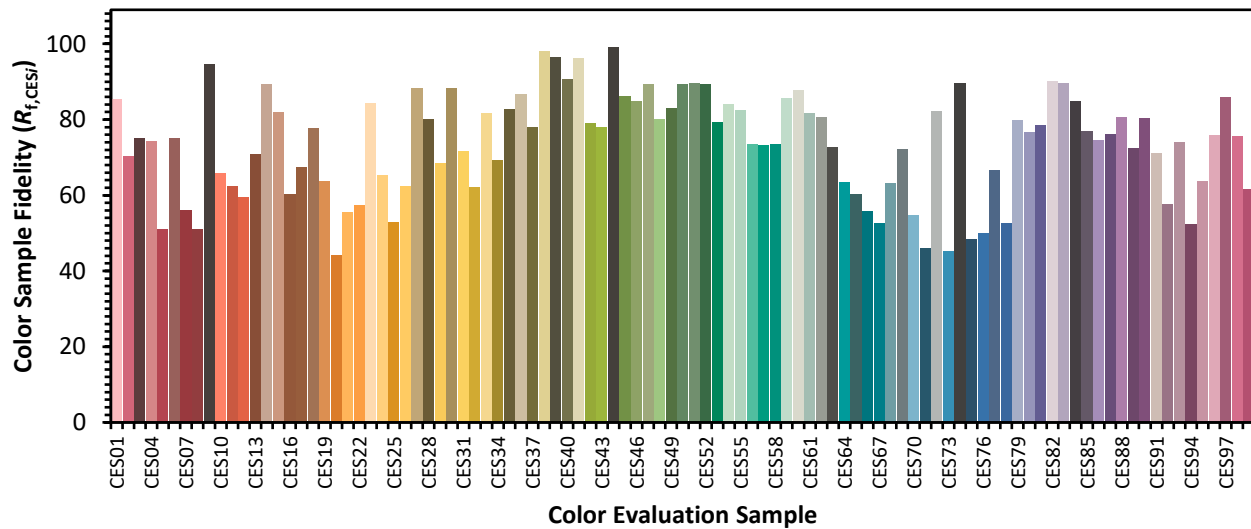


**Color Vector Graphics**



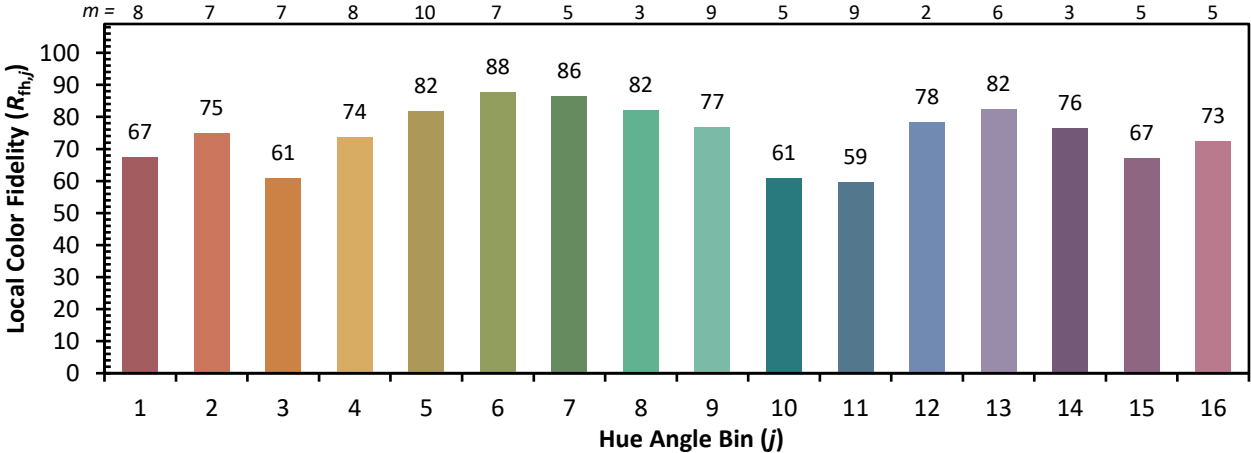
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 62 | CES51 = 90 | CES76 = 50 |
| CES02 = 59 | CES27 = 88 | CES52 = 89 | CES77 = 67 |
| CES03 = 30 | CES28 = 80 | CES53 = 79 | CES78 = 53 |
| CES04 = 69 | CES29 = 69 | CES54 = 84 | CES79 = 80 |
| CES05 = 46 | CES30 = 88 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 72 | CES56 = 74 | CES81 = 78 |
| CES07 = 38 | CES32 = 62 | CES57 = 73 | CES82 = 90 |
| CES08 = 38 | CES33 = 82 | CES58 = 73 | CES83 = 90 |
| CES09 = 29 | CES34 = 69 | CES59 = 86 | CES84 = 85 |
| CES10 = 72 | CES35 = 83 | CES60 = 88 | CES85 = 77 |
| CES11 = 56 | CES36 = 87 | CES61 = 82 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 81 | CES87 = 76 |
| CES13 = 41 | CES38 = 98 | CES63 = 73 | CES88 = 81 |
| CES14 = 74 | CES39 = 96 | CES64 = 63 | CES89 = 72 |
| CES15 = 70 | CES40 = 91 | CES65 = 60 | CES90 = 80 |
| CES16 = 46 | CES41 = 96 | CES66 = 56 | CES91 = 71 |
| CES17 = 49 | CES42 = 79 | CES67 = 53 | CES92 = 58 |
| CES18 = 55 | CES43 = 78 | CES68 = 63 | CES93 = 74 |
| CES19 = 71 | CES44 = 99 | CES69 = 72 | CES94 = 52 |
| CES20 = 63 | CES45 = 86 | CES70 = 55 | CES95 = 64 |
| CES21 = 85 | CES46 = 85 | CES71 = 46 | CES96 = 76 |
| CES22 = 77 | CES47 = 89 | CES72 = 82 | CES97 = 86 |
| CES23 = 91 | CES48 = 80 | CES73 = 45 | CES98 = 76 |
| CES24 = 90 | CES49 = 83 | CES74 = 90 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 48 |            |

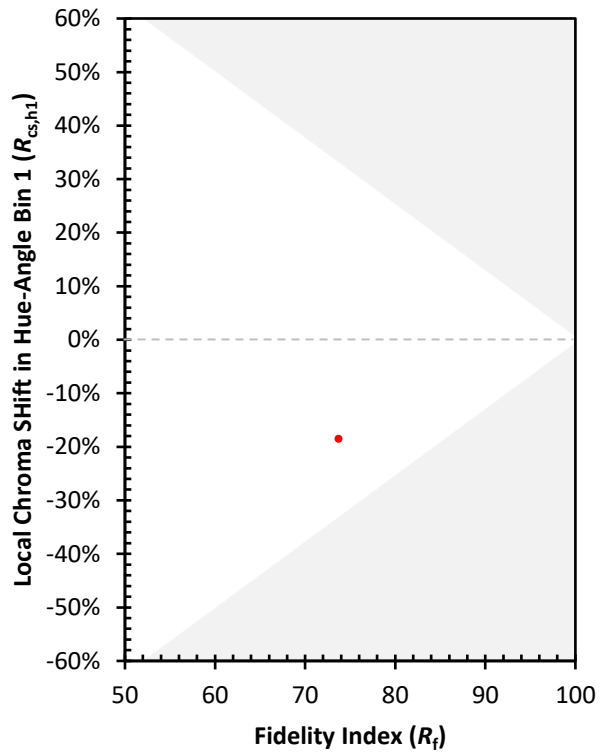




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)