

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: McGRAW-EDISON

Report Number: P437966

Luminaire Tested: **ISW-SA1A-722-U-T4FT**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P437966
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-10)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1A-722-U-T4FT
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 2200K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV FORWARD
THROW OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2030 lumens
Efficiency: N/A
Efficacy: 101.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G1

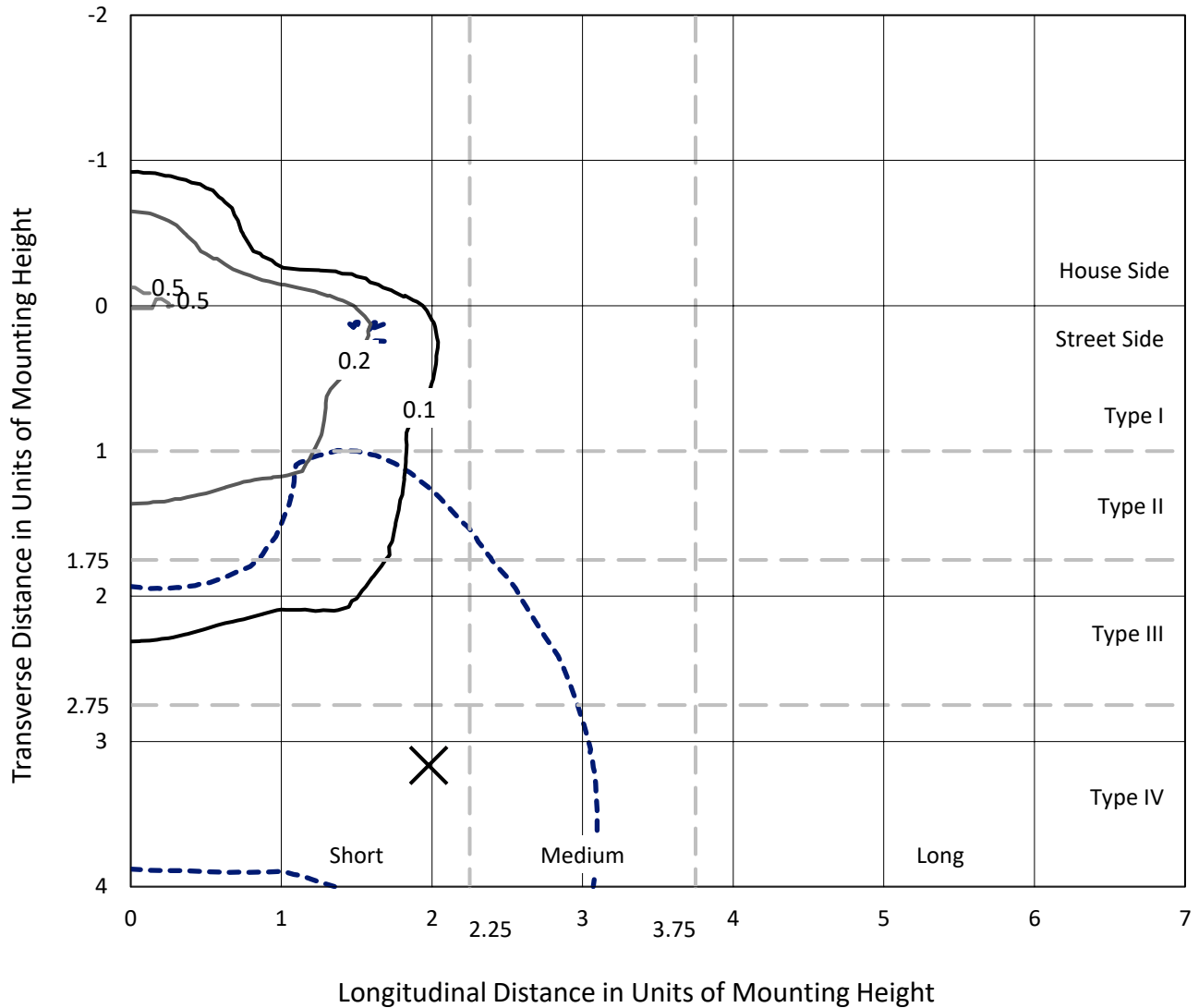
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

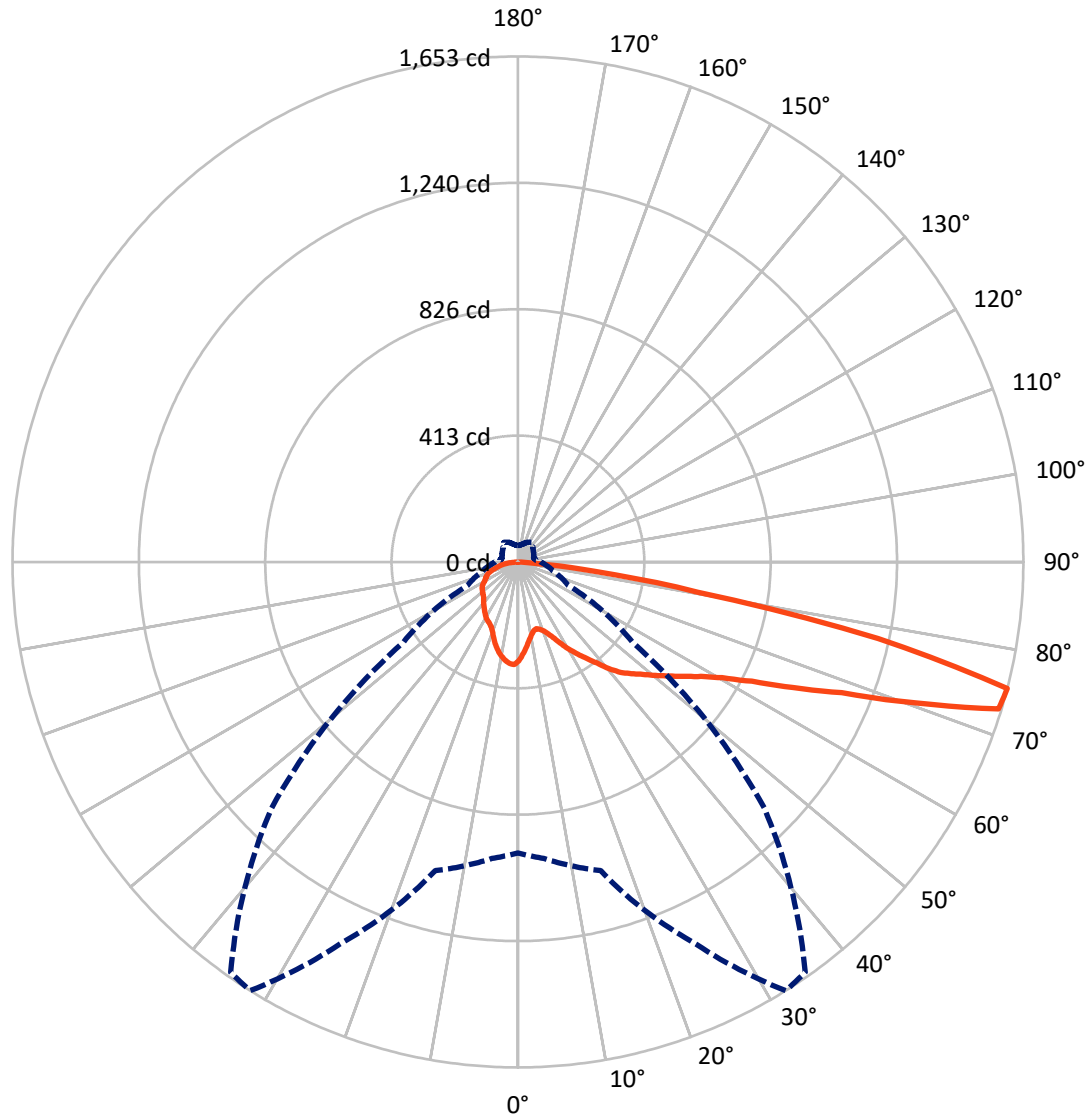
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.5 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 32-Deg Lateral - - - Horizontal Cone Through 75-Deg Vertical

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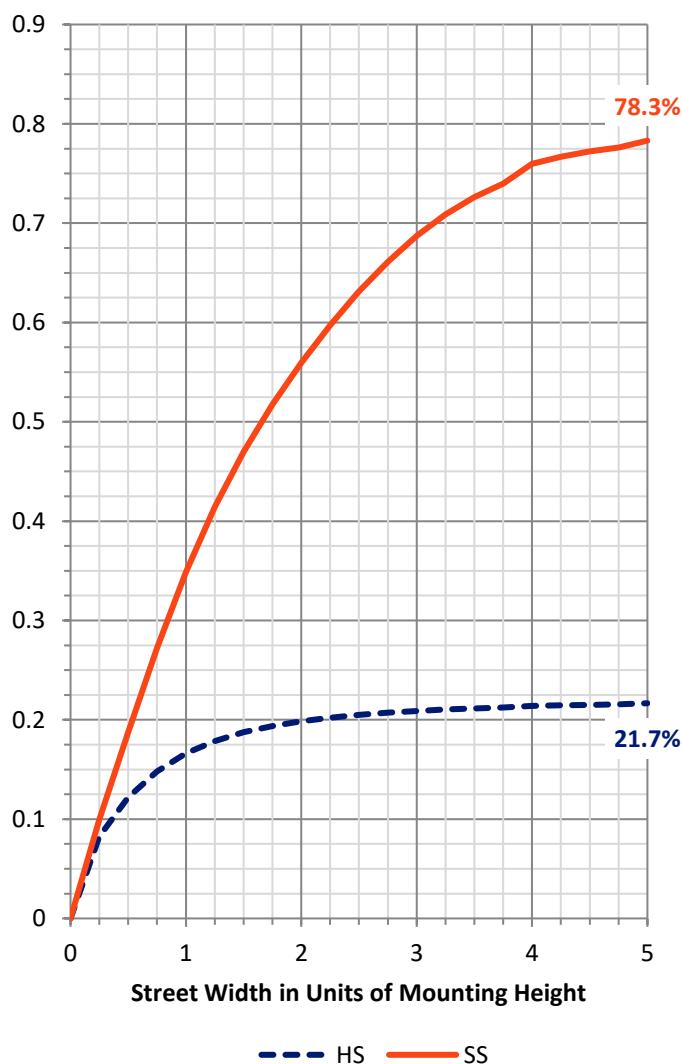
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 444.8 | 0.0 | 444.8 |
| | % Fixture | 21.9 | 0.0 | 21.9 |
| Street Side | Lumens | 1585.2 | 0.0 | 1585.2 |
| | % Fixture | 78.1 | 0.0 | 78.1 |
| Total | Lumens | 2030.0 | 0.0 | 2030.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 29.3 | 1.4 |
| 10°-20° | 80.2 | 4.0 |
| 20°-30° | 132.7 | 6.5 |
| 30°-40° | 197.9 | 9.7 |
| 40°-50° | 281.7 | 13.9 |
| 50°-60° | 387.6 | 19.1 |
| 60°-70° | 488.4 | 24.1 |
| 70°-80° | 394.8 | 19.5 |
| 80°-90° | 37.3 | 1.8 |
| 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° | 2030.0 | 100.0 |
| 0°-180° | 2030.0 | 100.0 |

Coefficient of Utilization



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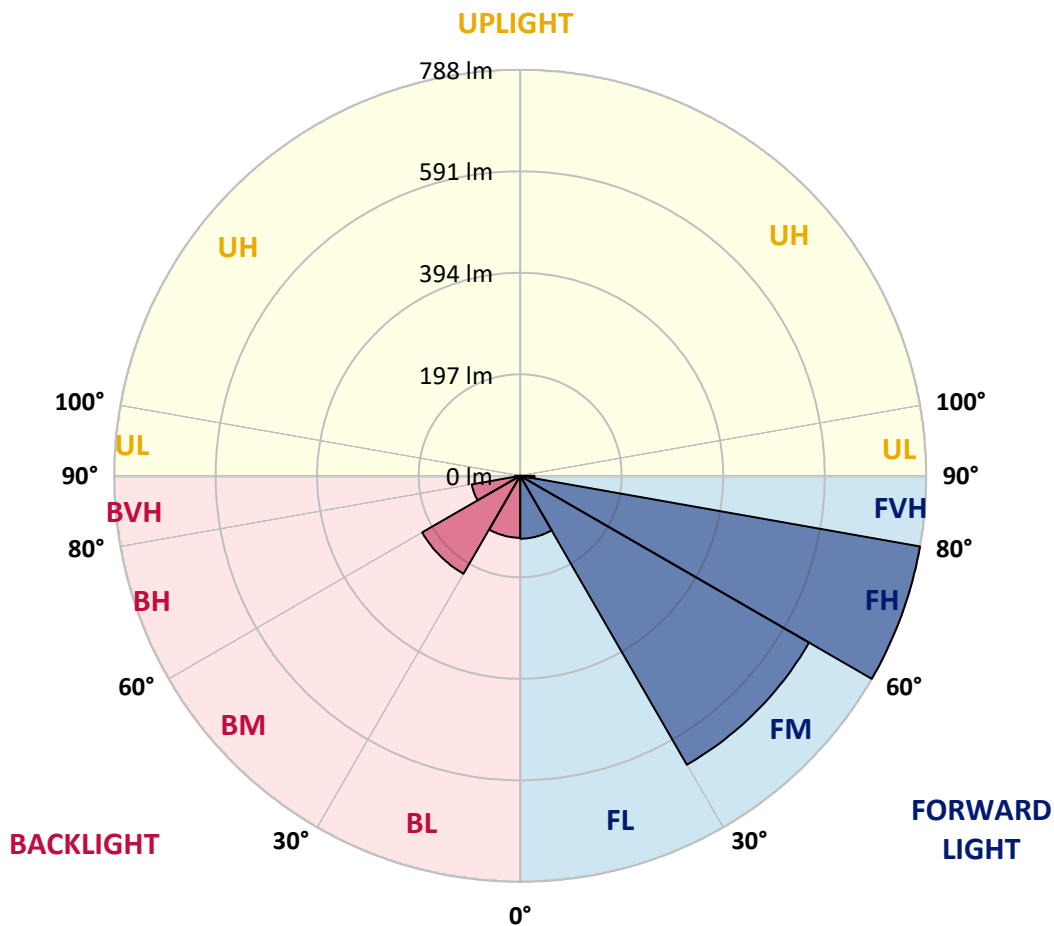
CATALOG NUMBER: ISW-SA1A-722-U-T4FT

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 122.0 | 6.0 | | | |
| FM (30°-60°) | 647.4 | 31.9 | | | |
| FH (60°-80°) | 788.0 | 38.8 | | | G1/1800 |
| FVH (80°-90°) | 27.7 | 1.4 | | | G1/100 |
| BL (0°-30°) | 120.2 | 5.9 | B1/500 | | |
| BM (30°-60°) | 219.7 | 10.8 | B0/220 | | |
| BH (60°-80°) | 95.3 | 4.7 | B0/110 | | G0/110 |
| BVH (80°-90°) | 9.6 | 0.5 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|
| 0° | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 |
| 2.5° | 295.1 | 297.3 | 298.1 | 299.5 | 302.5 | 301.0 | 304.7 | 309.1 | 315.0 | 318.0 | 323.9 |
| 5° | 270.0 | 270.0 | 272.2 | 275.9 | 281.1 | 281.1 | 287.7 | 295.9 | 306.2 | 314.3 | 324.6 |
| 7.5° | 247.9 | 247.9 | 250.1 | 254.5 | 259.7 | 263.4 | 271.5 | 284.1 | 298.1 | 313.6 | 326.8 |
| 10° | 229.5 | 230.2 | 231.7 | 236.1 | 242.7 | 246.4 | 258.2 | 272.2 | 290.7 | 310.6 | 329.1 |
| 12.5° | 222.8 | 222.1 | 221.3 | 225.0 | 230.2 | 233.1 | 246.4 | 264.1 | 285.5 | 309.9 | 333.5 |
| 15° | 228.0 | 226.5 | 224.3 | 224.3 | 226.5 | 228.0 | 239.0 | 257.5 | 281.1 | 309.1 | 338.6 |
| 17.5° | 241.3 | 239.8 | 234.6 | 229.5 | 230.9 | 231.7 | 239.0 | 253.8 | 278.9 | 312.1 | 346.0 |
| 20° | 259.7 | 257.5 | 248.6 | 242.0 | 240.5 | 240.5 | 244.9 | 256.0 | 280.4 | 318.0 | 355.6 |
| 22.5° | 281.8 | 279.6 | 269.3 | 257.5 | 256.0 | 255.3 | 257.5 | 264.9 | 284.8 | 324.6 | 370.4 |
| 25° | 311.4 | 309.1 | 296.6 | 281.8 | 276.7 | 275.9 | 273.7 | 278.1 | 292.2 | 333.5 | 380.7 |
| 27.5° | 343.1 | 343.8 | 329.1 | 309.1 | 304.0 | 301.8 | 295.9 | 295.1 | 301.0 | 340.9 | 398.4 |
| 30° | 372.6 | 371.1 | 355.6 | 339.4 | 332.0 | 329.1 | 319.5 | 315.0 | 311.4 | 351.9 | 419.1 |
| 32.5° | 386.6 | 388.8 | 381.4 | 365.9 | 360.0 | 354.9 | 343.8 | 336.4 | 331.3 | 368.9 | 444.2 |
| 35° | 410.2 | 411.0 | 408.0 | 398.4 | 386.6 | 382.9 | 372.6 | 367.4 | 356.4 | 389.6 | 474.4 |
| 37.5° | 433.8 | 436.0 | 435.3 | 429.4 | 419.1 | 415.4 | 406.5 | 404.3 | 382.2 | 415.4 | 512.0 |
| 40° | 469.2 | 465.6 | 460.4 | 462.6 | 458.9 | 456.7 | 453.0 | 445.6 | 418.3 | 443.4 | 548.9 |
| 42.5° | 507.6 | 501.0 | 482.5 | 488.4 | 493.6 | 495.8 | 501.0 | 492.8 | 456.0 | 485.5 | 579.2 |
| 45° | 538.6 | 533.4 | 509.1 | 510.6 | 520.9 | 528.3 | 552.6 | 548.2 | 504.7 | 531.2 | 619.8 |
| 47.5° | 556.3 | 551.9 | 534.9 | 542.3 | 548.9 | 559.3 | 606.5 | 602.8 | 550.4 | 580.6 | 668.4 |
| 50° | 581.4 | 574.0 | 557.8 | 571.1 | 582.9 | 591.0 | 658.9 | 657.4 | 589.5 | 631.6 | 723.8 |
| 52.5° | 595.4 | 588.0 | 586.5 | 605.0 | 619.0 | 630.1 | 714.9 | 710.5 | 627.9 | 682.5 | 776.2 |
| 55° | 614.6 | 616.1 | 625.7 | 639.7 | 659.6 | 678.0 | 769.5 | 747.4 | 663.3 | 732.6 | 827.8 |
| 57.5° | 656.6 | 655.2 | 673.6 | 680.2 | 706.1 | 729.7 | 834.4 | 786.5 | 692.8 | 768.8 | 852.2 |
| 60° | 712.7 | 715.7 | 722.3 | 739.3 | 767.3 | 803.5 | 897.2 | 827.1 | 712.0 | 794.6 | 847.7 |
| 62.5° | 819.0 | 802.0 | 799.0 | 803.5 | 858.8 | 900.9 | 958.4 | 863.2 | 720.1 | 795.3 | 801.2 |
| 65° | 926.7 | 920.0 | 897.2 | 908.2 | 988.6 | 1027.0 | 1037.3 | 886.8 | 703.9 | 749.6 | 698.0 |
| 67.5° | 1038.1 | 1037.3 | 1013.0 | 1044.7 | 1141.4 | 1186.4 | 1125.1 | 882.4 | 650.7 | 642.6 | 536.4 |
| 70° | 1152.4 | 1157.6 | 1157.6 | 1247.6 | 1379.7 | 1391.5 | 1223.3 | 840.4 | 545.2 | 455.2 | 313.6 |
| 72.5° | 1202.6 | 1205.6 | 1232.1 | 1432.1 | 1643.1 | 1646.8 | 1279.3 | 713.5 | 371.9 | 242.7 | 157.9 |
| 75° | 951.0 | 973.2 | 1044.7 | 1378.9 | 1652.7 | 1637.9 | 1139.9 | 456.7 | 181.5 | 121.0 | 87.8 |
| 77.5° | 373.3 | 381.4 | 526.8 | 878.0 | 1204.1 | 1218.8 | 737.8 | 182.2 | 92.2 | 76.7 | 63.5 |
| 80° | 105.5 | 110.7 | 186.7 | 349.0 | 594.7 | 657.4 | 293.6 | 78.9 | 62.0 | 56.1 | 45.7 |
| 82.5° | 37.6 | 42.8 | 69.4 | 133.5 | 253.8 | 267.8 | 79.7 | 39.1 | 39.8 | 36.2 | 28.0 |
| 85° | 5.2 | 4.4 | 9.6 | 24.3 | 56.1 | 47.2 | 13.3 | 10.3 | 16.2 | 17.0 | 11.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 0.7 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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 CATALOG NUMBER: ISW-SA1A-722-U-T4FT

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 | 323.2 |
| 2.5° | 325.4 | 326.8 | 329.8 | 331.3 | 332.7 | 335.7 | 335.0 | 336.4 | 336.4 | 335.7 | 337.2 |
| 5° | 328.3 | 332.0 | 335.7 | 337.2 | 337.9 | 337.9 | 334.2 | 332.0 | 331.3 | 330.5 | 331.3 |
| 7.5° | 331.3 | 336.4 | 340.1 | 339.4 | 336.4 | 331.3 | 326.8 | 323.2 | 319.5 | 318.0 | 319.5 |
| 10° | 336.4 | 341.6 | 343.8 | 338.6 | 330.5 | 322.4 | 315.8 | 310.6 | 304.7 | 304.0 | 304.7 |
| 12.5° | 340.9 | 347.5 | 347.5 | 335.7 | 324.6 | 313.6 | 303.2 | 295.1 | 287.7 | 285.5 | 285.5 |
| 15° | 348.2 | 353.4 | 348.2 | 332.0 | 316.5 | 302.5 | 287.7 | 277.4 | 268.6 | 264.9 | 265.6 |
| 17.5° | 356.4 | 360.0 | 346.8 | 326.1 | 307.7 | 289.2 | 270.0 | 256.0 | 249.4 | 245.7 | 246.4 |
| 20° | 365.9 | 366.7 | 346.8 | 318.7 | 294.4 | 270.0 | 249.4 | 239.0 | 234.6 | 232.4 | 233.1 |
| 22.5° | 378.5 | 375.5 | 344.6 | 309.1 | 277.4 | 250.9 | 231.7 | 228.7 | 228.7 | 228.7 | 230.9 |
| 25° | 391.8 | 383.7 | 340.9 | 296.6 | 255.3 | 228.0 | 220.6 | 224.3 | 227.2 | 227.2 | 228.7 |
| 27.5° | 405.1 | 391.8 | 333.5 | 278.1 | 229.5 | 211.7 | 214.7 | 220.6 | 223.6 | 223.6 | 225.0 |
| 30° | 421.3 | 401.4 | 324.6 | 253.1 | 205.1 | 200.7 | 208.1 | 215.4 | 219.9 | 219.9 | 221.3 |
| 32.5° | 441.9 | 409.5 | 311.4 | 227.2 | 188.9 | 191.1 | 199.2 | 207.3 | 212.5 | 214.0 | 214.7 |
| 35° | 464.8 | 420.5 | 292.9 | 198.5 | 177.8 | 183.7 | 190.4 | 197.7 | 202.2 | 203.6 | 203.6 |
| 37.5° | 488.4 | 431.6 | 268.6 | 174.1 | 168.2 | 176.3 | 183.0 | 186.7 | 189.6 | 189.6 | 189.6 |
| 40° | 512.0 | 437.5 | 236.8 | 154.9 | 158.6 | 170.4 | 176.3 | 174.9 | 174.1 | 171.9 | 172.6 |
| 42.5° | 536.4 | 441.9 | 202.9 | 140.9 | 149.0 | 163.8 | 168.2 | 164.5 | 158.6 | 154.9 | 155.7 |
| 45° | 562.9 | 448.6 | 174.9 | 130.6 | 139.4 | 157.9 | 162.3 | 154.9 | 147.6 | 141.7 | 140.2 |
| 47.5° | 593.2 | 459.6 | 149.8 | 121.0 | 133.5 | 154.2 | 158.6 | 148.3 | 138.7 | 130.6 | 129.1 |
| 50° | 634.5 | 476.6 | 130.6 | 114.4 | 129.9 | 152.0 | 155.7 | 142.4 | 131.3 | 121.0 | 120.3 |
| 52.5° | 676.6 | 489.2 | 117.3 | 108.5 | 125.4 | 147.6 | 152.0 | 138.0 | 124.7 | 113.6 | 112.1 |
| 55° | 707.5 | 487.7 | 105.5 | 102.6 | 119.5 | 141.7 | 148.3 | 132.8 | 115.8 | 105.5 | 104.0 |
| 57.5° | 720.8 | 457.4 | 95.9 | 97.4 | 112.9 | 134.3 | 142.4 | 124.7 | 109.2 | 100.3 | 99.6 |
| 60° | 698.0 | 408.7 | 89.3 | 91.5 | 105.5 | 124.7 | 131.3 | 118.8 | 104.8 | 96.7 | 95.9 |
| 62.5° | 658.1 | 354.1 | 84.1 | 87.1 | 98.1 | 115.8 | 124.7 | 111.4 | 98.9 | 93.0 | 92.2 |
| 65° | 563.7 | 294.4 | 78.9 | 81.9 | 91.5 | 107.0 | 118.8 | 107.0 | 94.4 | 88.5 | 87.8 |
| 67.5° | 425.7 | 211.7 | 73.8 | 76.7 | 85.6 | 100.3 | 113.6 | 101.1 | 87.8 | 83.4 | 83.4 |
| 70° | 253.8 | 129.9 | 67.1 | 71.6 | 78.2 | 92.2 | 105.5 | 93.0 | 79.7 | 78.2 | 76.7 |
| 72.5° | 124.0 | 82.6 | 61.2 | 64.9 | 70.1 | 81.9 | 93.7 | 82.6 | 69.4 | 65.7 | 64.9 |
| 75° | 74.5 | 59.8 | 53.1 | 57.5 | 61.2 | 68.6 | 78.9 | 70.8 | 60.5 | 54.6 | 53.9 |
| 77.5° | 53.9 | 45.0 | 45.0 | 49.4 | 49.4 | 56.8 | 67.9 | 60.5 | 50.9 | 47.2 | 46.5 |
| 80° | 38.4 | 33.9 | 36.9 | 39.8 | 38.4 | 48.0 | 57.5 | 50.9 | 41.3 | 38.4 | 37.6 |
| 82.5° | 25.1 | 23.6 | 28.0 | 27.3 | 27.3 | 36.9 | 47.2 | 38.4 | 30.2 | 25.1 | 23.6 |
| 85° | 10.3 | 11.8 | 16.2 | 15.5 | 15.5 | 20.7 | 24.3 | 19.9 | 14.0 | 11.1 | 11.1 |
| 87.5° | 0.0 | 0.7 | 2.2 | 1.5 | 1.5 | 2.2 | 0.7 | 0.7 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Test Information

Test Method: LM-79-2008 Report
 Number: SP1-1908-441-10-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-722-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2237
 CIE u': 0.2876
 CIE v': 0.5346
 Duv: -0.0006
 CIE x: 0.5005
 CIE y: 0.4134
 CIE z: 0.0860
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 74.5
 Rf: 69.8
 Rg: 99.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.9 | R9: | -17.4 |
| R2: | 83.0 | R10: | 61.3 |
| R3: | 95.2 | R11: | 59.8 |
| R4: | 66.2 | R12: | 50.5 |
| R5: | 65.9 | R13: | 71.1 |
| R6: | 76.3 | R14: | 96.9 |
| R7: | 76.7 | | |
| R8: | 43.8 | | |



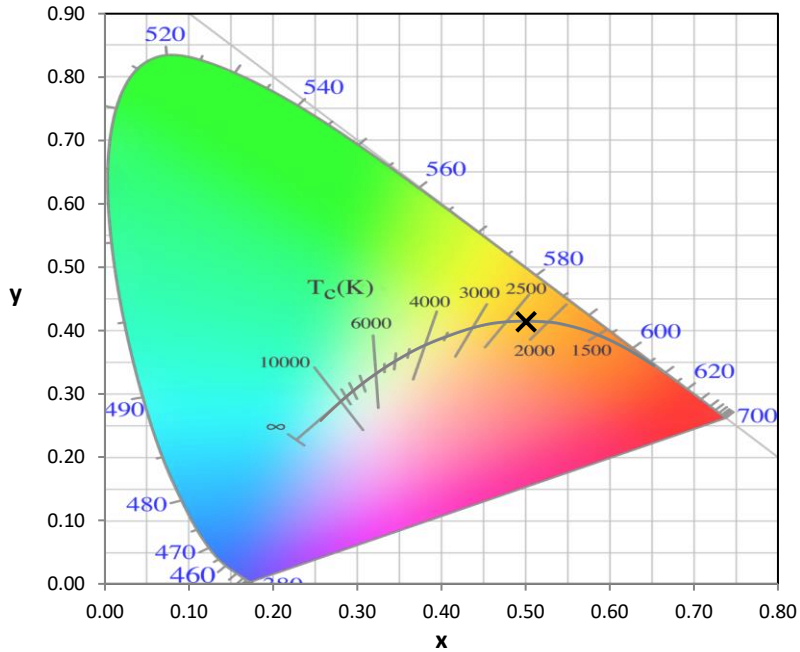
Test Conditions
 Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.7/41%
 Sphere Temperature (°C): 25.6

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| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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CIE 1931 Chromaticity Diagram



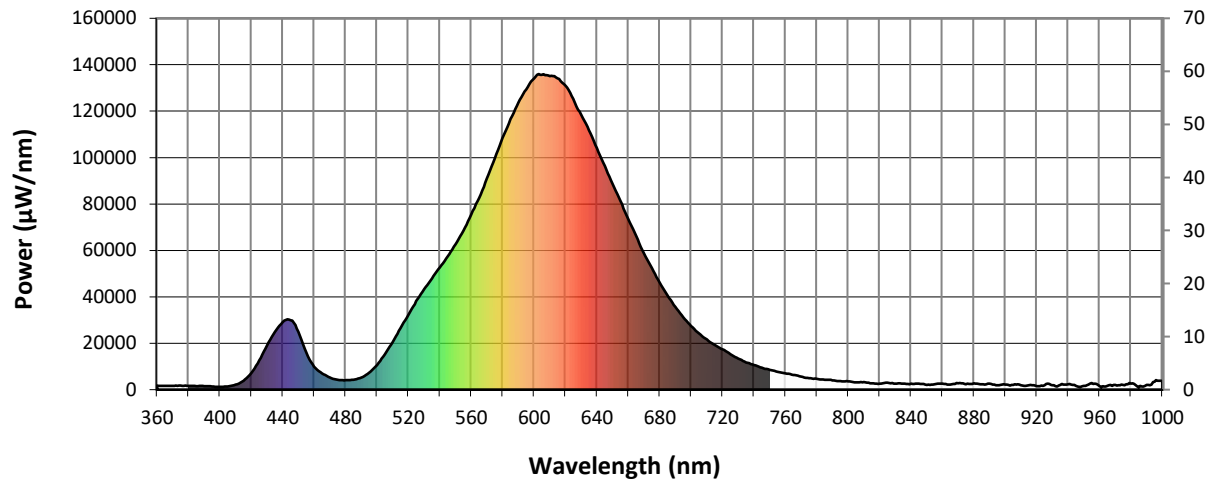
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2200K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 1470.8 M/P: 0.27

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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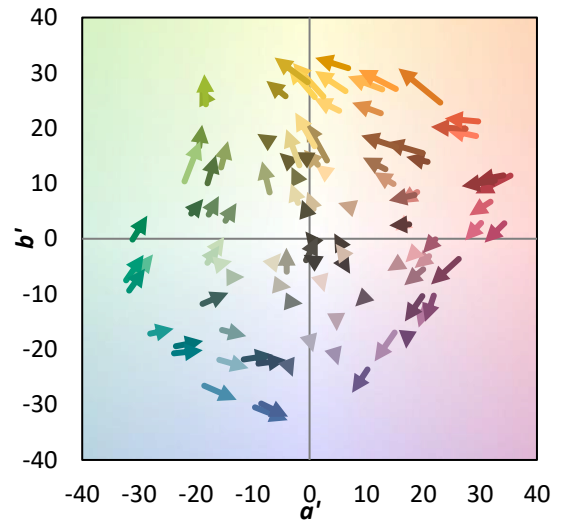
TM-30-18

Summary

$R_f = 69.8$
 $R_g = 99.2$
 $CIE R_a = 72.0$
 $R_9 = -17.4$



Color Vector Graphics



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

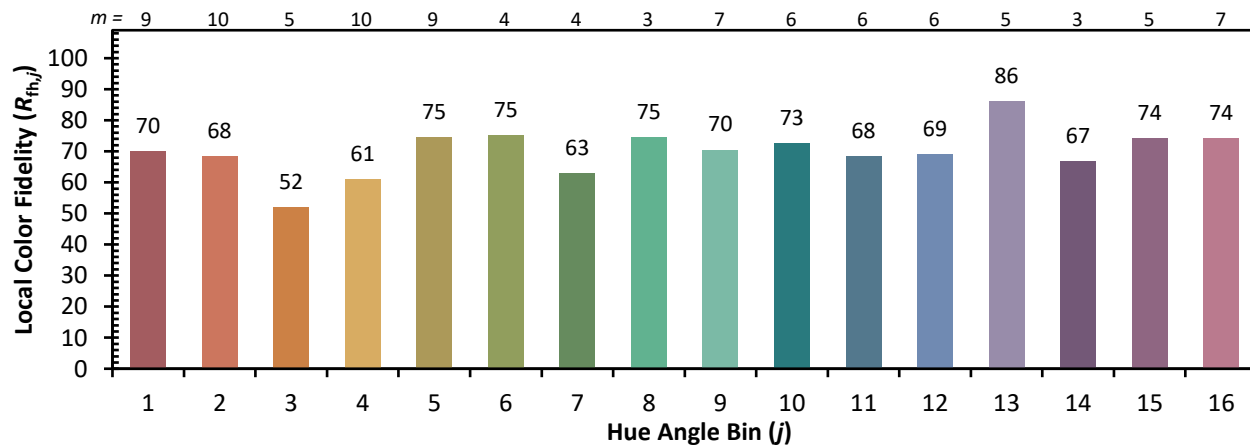
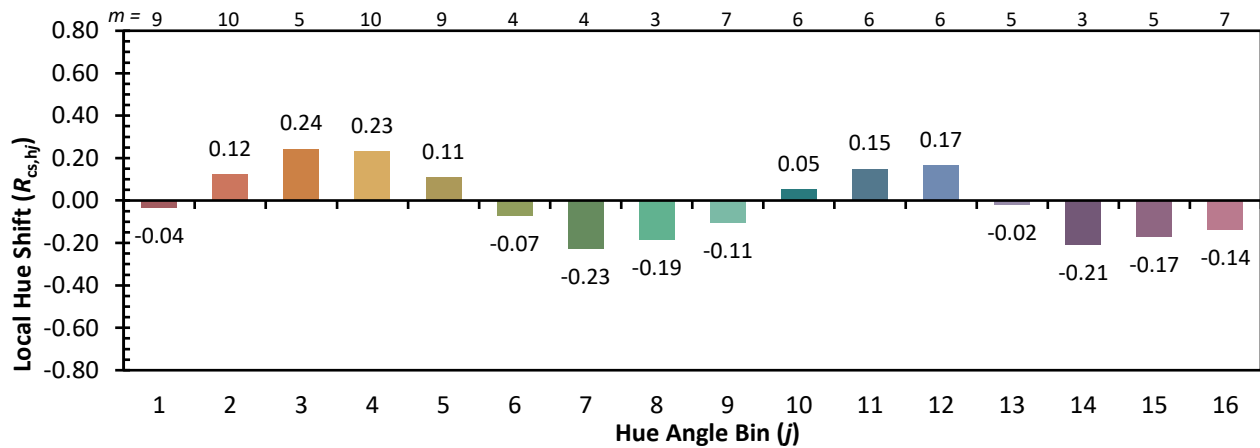
| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)