

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: P437970

Luminaire Tested: **ISW-SA1A-727-U-SL2-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P437970
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-15)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1A-727-U-SL2-HSS
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 2700K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE II SPILL LIGHT
ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1849 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B0 - U0 - G1

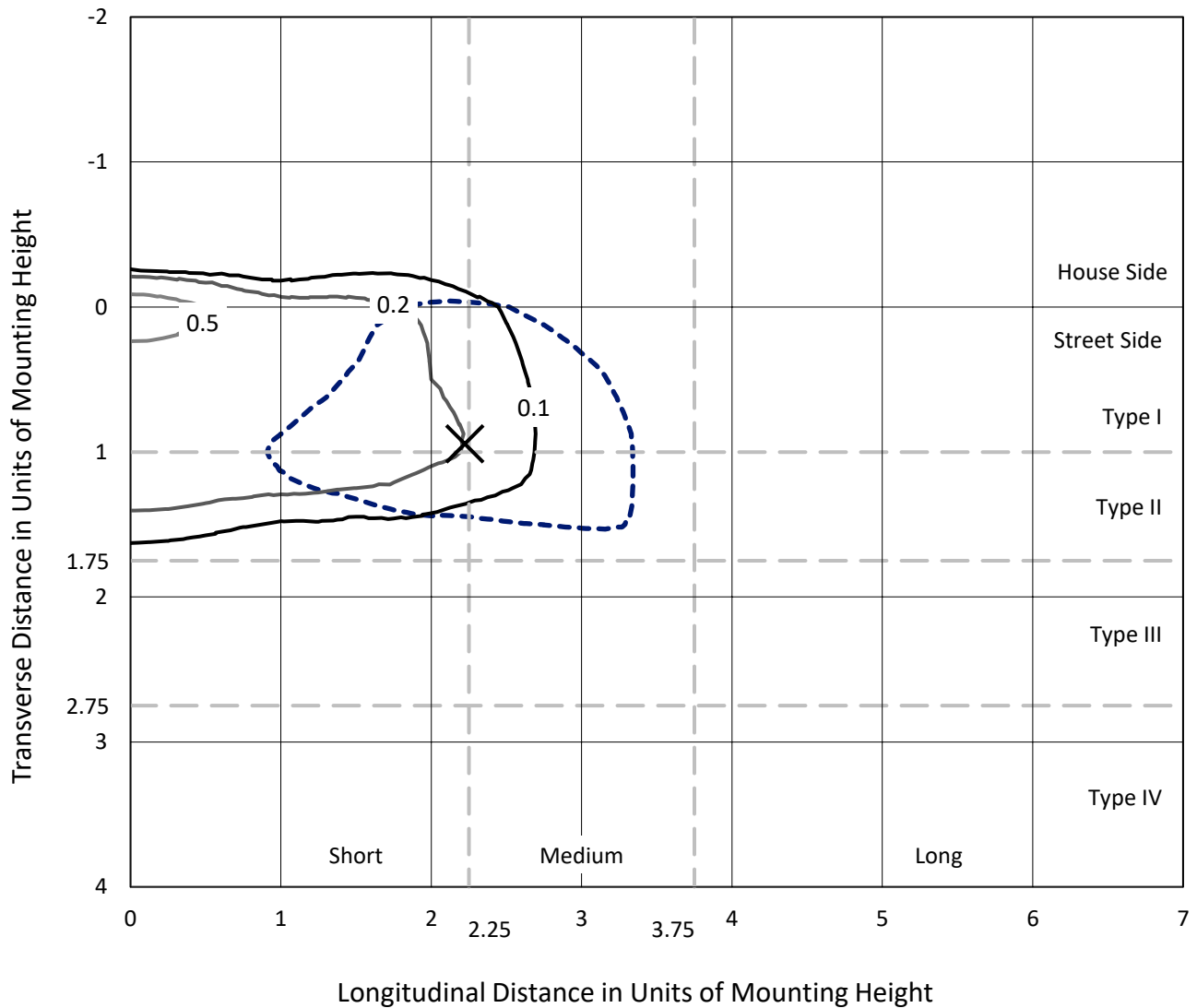
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P437970
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Iso-Footcandle Lines of Horizontal Illumination

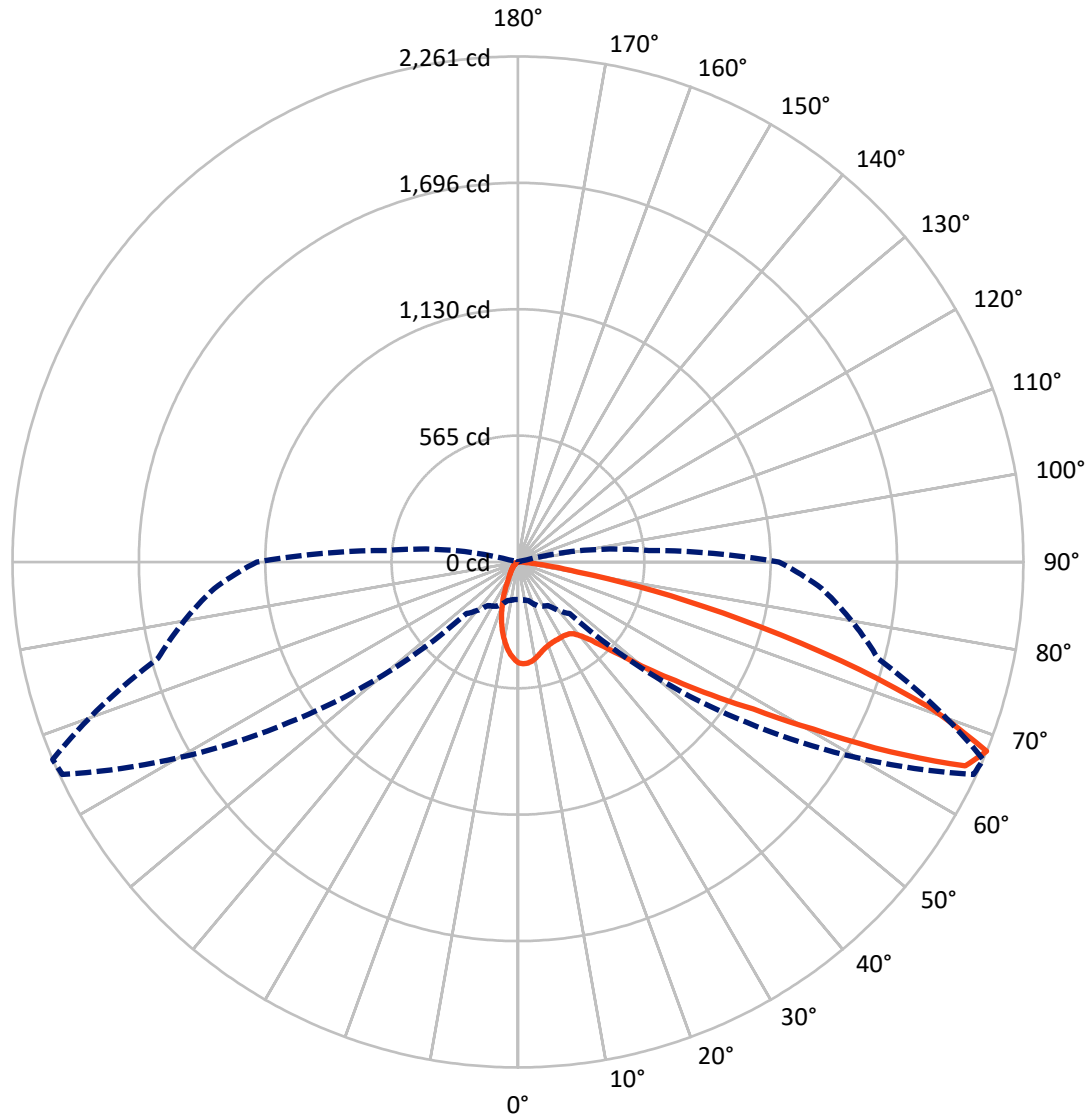
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.7 fc
 Type II - Short - N/A

REPORT NUMBER: P437970
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Luminous Intensity Polar Plot



— Vertical Plane Through 67-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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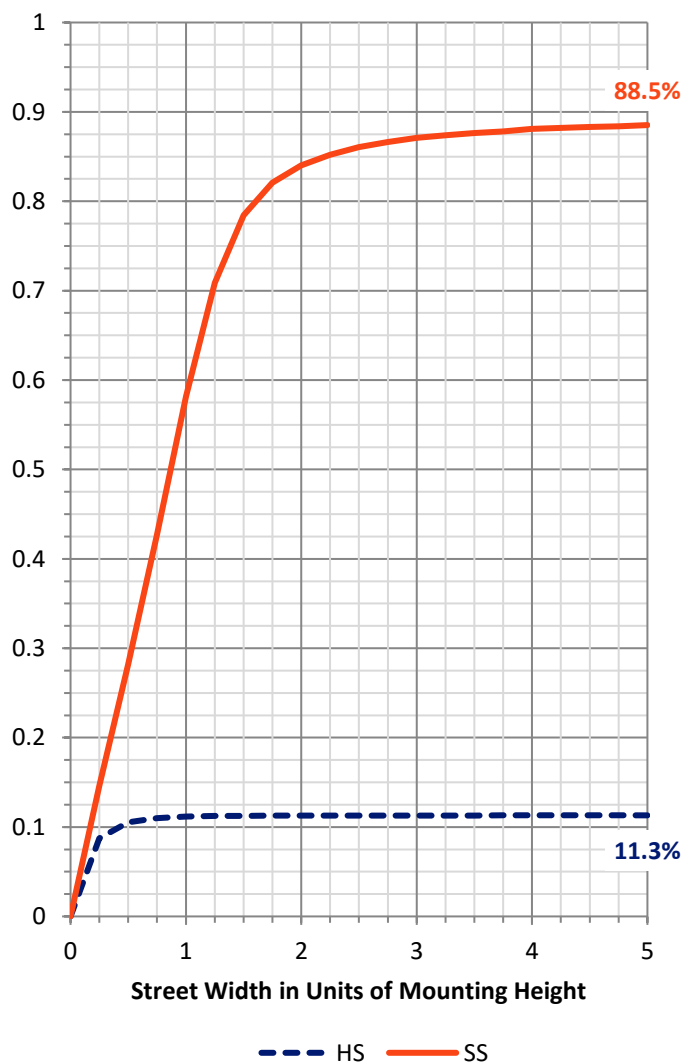
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 211.0 | 0.0 | 211.0 |
| | % Fixture | 11.4 | 0.0 | 11.4 |
| Street Side | Lumens | 1638.0 | 0.0 | 1638.0 |
| | % Fixture | 88.6 | 0.0 | 88.6 |
| Total | Lumens | 1849.0 | 0.0 | 1849.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 36.8 | 2.0 |
| 10°-20° | 79.7 | 4.3 |
| 20°-30° | 114.2 | 6.2 |
| 30°-40° | 168.0 | 9.1 |
| 40°-50° | 277.6 | 15.0 |
| 50°-60° | 446.5 | 24.1 |
| 60°-70° | 486.8 | 26.3 |
| 70°-80° | 221.6 | 12.0 |
| 80°-90° | 17.8 | 1.0 |
| 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° | 1849.0 | 100.0 |
| 0°-180° | 1849.0 | 100.0 |

Coefficient of Utilization



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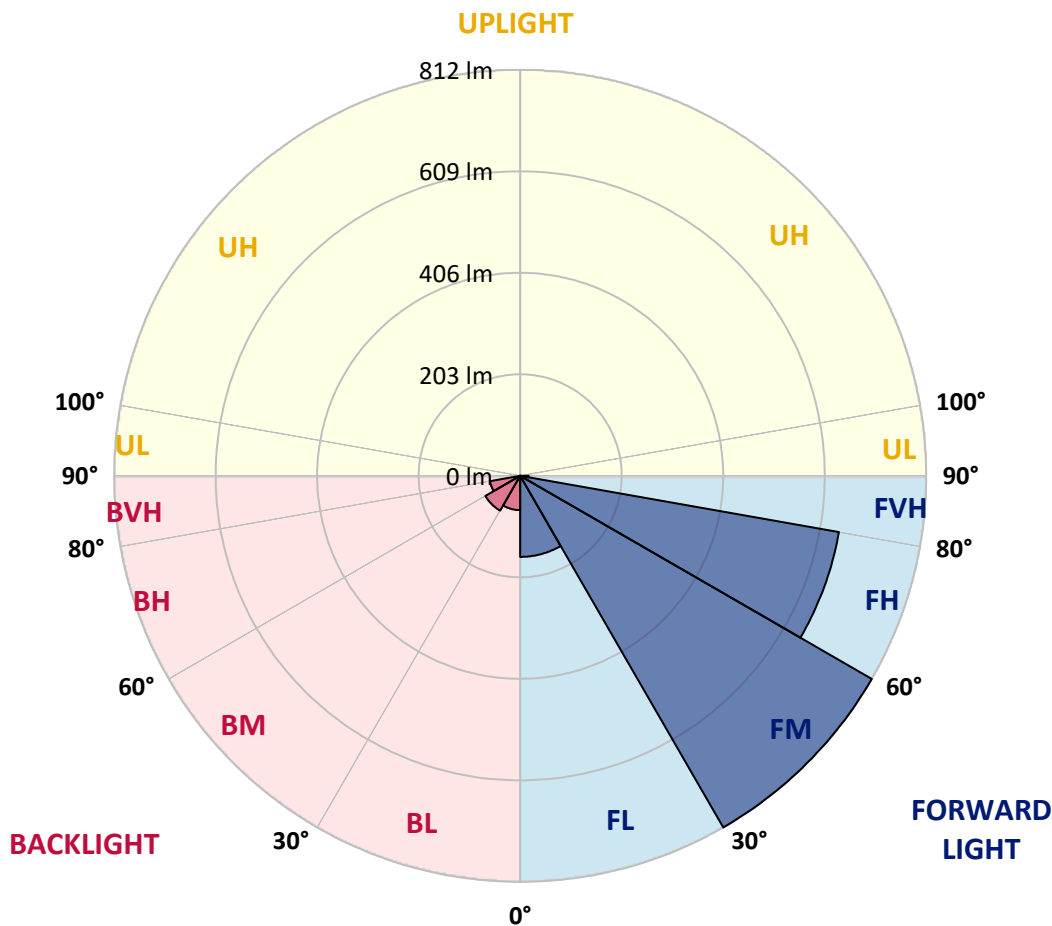
CATALOG NUMBER: ISW-SA1A-727-U-SL2-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 162.1 | 8.8 | | | |
| FM (30°-60°) | 811.8 | 43.9 | | | |
| FH (60°-80°) | 647.2 | 35.0 | | | G0/660 |
| FVH (80°-90°) | 16.9 | 0.9 | | | G1/100 |
| BL (0°-30°) | 68.5 | 3.7 | B0/110 | | |
| BM (30°-60°) | 80.3 | 4.3 | B0/220 | | |
| BH (60°-80°) | 61.2 | 3.3 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.9 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G1

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 67° | 75° | 85° |
|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| 0° | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 |
| 2.5° | 445.5 | 449.5 | 450.4 | 452.0 | 452.0 | 454.4 | 455.2 | 456.9 | 456.0 | 456.9 | 455.2 |
| 5° | 414.7 | 417.9 | 416.3 | 424.4 | 429.3 | 438.2 | 447.1 | 454.4 | 454.4 | 456.9 | 456.0 |
| 7.5° | 383.8 | 387.1 | 387.1 | 393.6 | 401.7 | 414.7 | 429.3 | 446.3 | 447.9 | 456.0 | 453.6 |
| 10° | 359.5 | 361.1 | 362.7 | 370.0 | 379.8 | 392.7 | 412.2 | 434.1 | 437.4 | 451.2 | 452.0 |
| 12.5° | 340.0 | 342.4 | 344.9 | 352.2 | 361.1 | 374.1 | 392.7 | 417.9 | 423.6 | 443.1 | 450.4 |
| 15° | 330.3 | 330.3 | 332.7 | 339.2 | 347.3 | 361.1 | 378.1 | 407.4 | 412.2 | 438.2 | 449.5 |
| 17.5° | 325.4 | 326.2 | 327.8 | 331.1 | 337.6 | 348.9 | 367.6 | 396.0 | 402.5 | 434.1 | 449.5 |
| 20° | 331.9 | 331.9 | 329.5 | 331.1 | 334.3 | 343.2 | 360.3 | 387.9 | 396.0 | 431.7 | 453.6 |
| 22.5° | 345.7 | 345.7 | 341.6 | 339.2 | 336.8 | 340.0 | 355.4 | 384.6 | 391.9 | 431.7 | 456.0 |
| 25° | 366.8 | 366.8 | 364.3 | 357.0 | 346.5 | 344.1 | 356.2 | 383.8 | 389.5 | 432.5 | 459.3 |
| 27.5° | 391.9 | 392.7 | 390.3 | 382.2 | 366.0 | 352.2 | 358.7 | 382.2 | 388.7 | 431.7 | 460.9 |
| 30° | 425.2 | 428.4 | 425.2 | 413.8 | 394.4 | 368.4 | 364.3 | 381.4 | 387.9 | 430.1 | 461.7 |
| 32.5° | 458.5 | 460.9 | 464.2 | 456.9 | 429.3 | 393.6 | 376.5 | 384.6 | 390.3 | 430.9 | 460.1 |
| 35° | 490.9 | 497.4 | 503.1 | 505.5 | 477.1 | 429.3 | 396.8 | 391.9 | 394.4 | 433.3 | 460.1 |
| 37.5° | 525.8 | 532.3 | 544.5 | 556.7 | 533.1 | 469.0 | 426.8 | 408.2 | 408.2 | 441.4 | 465.0 |
| 40° | 570.5 | 573.7 | 597.2 | 611.8 | 600.5 | 533.1 | 469.8 | 435.8 | 434.9 | 464.2 | 478.8 |
| 42.5° | 613.5 | 622.4 | 653.2 | 675.1 | 667.8 | 608.6 | 521.8 | 484.4 | 476.3 | 500.7 | 503.9 |
| 45° | 675.9 | 689.7 | 714.1 | 746.5 | 753.8 | 693.0 | 602.1 | 546.9 | 538.8 | 555.0 | 546.1 |
| 47.5° | 734.4 | 744.1 | 767.6 | 809.0 | 851.2 | 801.7 | 693.0 | 634.6 | 627.3 | 633.7 | 619.1 |
| 50° | 753.0 | 757.9 | 784.7 | 835.8 | 935.6 | 957.5 | 817.9 | 748.2 | 747.4 | 742.5 | 718.1 |
| 52.5° | 720.6 | 721.4 | 752.2 | 814.7 | 970.5 | 1127.9 | 994.8 | 895.0 | 881.2 | 870.7 | 838.2 |
| 55° | 621.6 | 628.9 | 654.8 | 732.7 | 936.4 | 1226.1 | 1278.0 | 1072.7 | 1050.0 | 1011.9 | 971.3 |
| 57.5° | 486.1 | 482.8 | 503.9 | 575.3 | 831.7 | 1265.1 | 1557.2 | 1298.3 | 1241.5 | 1127.1 | 1072.7 |
| 60° | 353.8 | 345.7 | 359.5 | 400.0 | 604.5 | 1188.8 | 1718.7 | 1616.4 | 1519.0 | 1251.3 | 1197.7 |
| 62.5° | 262.9 | 262.9 | 277.5 | 296.2 | 370.8 | 927.5 | 1743.8 | 1980.8 | 1871.2 | 1408.7 | 1330.0 |
| 65° | 210.2 | 209.4 | 221.5 | 249.9 | 264.5 | 575.3 | 1617.2 | 2240.4 | 2199.0 | 1572.6 | 1416.8 |
| 67.5° | 168.0 | 168.0 | 178.5 | 217.5 | 237.8 | 327.0 | 1251.3 | 2248.5 | 2260.7 | 1666.7 | 1364.1 |
| 70° | 118.5 | 122.5 | 135.5 | 181.8 | 229.6 | 249.9 | 758.7 | 1931.3 | 1962.9 | 1638.3 | 1223.7 |
| 72.5° | 66.5 | 69.8 | 93.3 | 134.7 | 220.7 | 240.2 | 424.4 | 1459.0 | 1512.6 | 1373.0 | 998.1 |
| 75° | 31.6 | 34.9 | 54.4 | 92.5 | 184.2 | 228.8 | 258.0 | 1034.6 | 1027.3 | 891.8 | 620.0 |
| 77.5° | 13.8 | 15.4 | 24.3 | 53.6 | 130.6 | 213.4 | 189.1 | 646.7 | 617.5 | 418.7 | 260.5 |
| 80° | 4.9 | 5.7 | 10.5 | 30.8 | 73.8 | 174.5 | 157.4 | 298.6 | 270.2 | 116.0 | 68.2 |
| 82.5° | 0.8 | 0.8 | 4.1 | 14.6 | 33.3 | 97.4 | 129.8 | 142.8 | 123.3 | 29.2 | 29.2 |
| 85° | 0.0 | 0.0 | 0.8 | 4.9 | 8.1 | 8.9 | 58.4 | 57.6 | 47.9 | 9.7 | 14.6 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 2.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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 CATALOG NUMBER: ISW-SA1A-727-U-SL2-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 | 451.2 |
| 2.5° | 451.2 | 450.4 | 442.2 | 434.9 | 425.2 | 417.1 | 409.8 | 402.5 | 399.2 | 400.0 | 401.7 |
| 5° | 452.0 | 447.1 | 430.1 | 411.4 | 391.9 | 372.5 | 353.8 | 342.4 | 333.5 | 330.3 | 333.5 |
| 7.5° | 447.9 | 439.8 | 413.8 | 383.8 | 353.0 | 318.9 | 290.5 | 269.4 | 254.0 | 244.2 | 248.3 |
| 10° | 444.7 | 432.5 | 394.4 | 348.9 | 305.1 | 260.5 | 219.9 | 189.9 | 168.8 | 156.6 | 154.2 |
| 12.5° | 439.0 | 424.4 | 371.6 | 314.0 | 253.2 | 192.3 | 143.6 | 112.0 | 94.9 | 86.0 | 88.4 |
| 15° | 437.4 | 414.7 | 348.9 | 273.5 | 198.0 | 129.8 | 86.8 | 69.0 | 61.7 | 60.0 | 60.0 |
| 17.5° | 435.8 | 408.2 | 324.6 | 233.7 | 142.0 | 81.1 | 60.0 | 55.2 | 53.6 | 52.7 | 53.6 |
| 20° | 434.1 | 399.2 | 300.2 | 190.7 | 95.8 | 58.4 | 51.9 | 49.5 | 47.9 | 47.9 | 47.1 |
| 22.5° | 435.8 | 393.6 | 277.5 | 150.1 | 65.7 | 49.5 | 45.4 | 43.8 | 42.2 | 41.4 | 41.4 |
| 25° | 434.1 | 386.3 | 249.9 | 110.4 | 51.1 | 43.8 | 40.6 | 37.3 | 35.7 | 34.9 | 34.1 |
| 27.5° | 431.7 | 377.3 | 224.0 | 79.5 | 44.6 | 38.9 | 34.9 | 31.6 | 29.2 | 28.4 | 28.4 |
| 30° | 429.3 | 366.0 | 193.9 | 58.4 | 40.6 | 34.9 | 30.0 | 26.8 | 24.3 | 22.7 | 22.7 |
| 32.5° | 422.8 | 355.4 | 164.7 | 47.1 | 36.5 | 30.8 | 26.0 | 21.9 | 20.3 | 19.5 | 19.5 |
| 35° | 418.7 | 343.2 | 133.9 | 40.6 | 33.3 | 26.8 | 21.9 | 18.7 | 17.0 | 16.2 | 16.2 |
| 37.5° | 417.9 | 330.3 | 106.3 | 36.5 | 30.0 | 23.5 | 18.7 | 16.2 | 14.6 | 13.8 | 13.8 |
| 40° | 421.1 | 323.8 | 82.0 | 33.3 | 26.0 | 20.3 | 16.2 | 13.8 | 12.2 | 11.4 | 11.4 |
| 42.5° | 434.1 | 323.0 | 62.5 | 30.0 | 23.5 | 17.9 | 14.6 | 11.4 | 9.7 | 8.9 | 8.9 |
| 45° | 463.3 | 327.8 | 49.5 | 27.6 | 20.3 | 15.4 | 12.2 | 9.7 | 8.1 | 7.3 | 7.3 |
| 47.5° | 511.2 | 348.1 | 41.4 | 25.2 | 17.0 | 13.0 | 9.7 | 8.1 | 5.7 | 5.7 | 5.7 |
| 50° | 589.1 | 391.1 | 36.5 | 21.9 | 14.6 | 10.5 | 8.1 | 5.7 | 4.1 | 4.1 | 4.1 |
| 52.5° | 704.3 | 456.9 | 33.3 | 19.5 | 12.2 | 8.9 | 6.5 | 4.1 | 3.2 | 3.2 | 3.2 |
| 55° | 823.6 | 538.8 | 30.8 | 16.2 | 10.5 | 7.3 | 4.9 | 3.2 | 2.4 | 2.4 | 1.6 |
| 57.5° | 932.4 | 606.2 | 27.6 | 13.8 | 8.1 | 5.7 | 3.2 | 2.4 | 1.6 | 1.6 | 1.6 |
| 60° | 1061.4 | 673.5 | 23.5 | 10.5 | 6.5 | 4.1 | 2.4 | 1.6 | 0.8 | 0.8 | 0.8 |
| 62.5° | 1186.4 | 711.6 | 19.5 | 8.1 | 4.9 | 3.2 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 |
| 65° | 1240.7 | 693.8 | 15.4 | 6.5 | 4.1 | 2.4 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 |
| 67.5° | 1167.7 | 586.7 | 12.2 | 4.9 | 3.2 | 1.6 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 |
| 70° | 1005.4 | 474.7 | 9.7 | 4.1 | 2.4 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 |
| 72.5° | 789.5 | 349.7 | 8.1 | 3.2 | 1.6 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 |
| 75° | 480.4 | 176.1 | 7.3 | 2.4 | 1.6 | 1.6 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 |
| 77.5° | 163.1 | 55.2 | 4.9 | 2.4 | 1.6 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 80° | 47.9 | 17.9 | 4.1 | 1.6 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 82.5° | 25.2 | 8.1 | 2.4 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 85° | 13.8 | 4.1 | 1.6 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.8 | 0.8 | 0.8 |
| 87.5° | 2.4 | 1.6 | 1.6 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-1-R4

Test Date: 08/20/2019

Luminaire Tested: SA1C-727-U-5WQ

Test Information

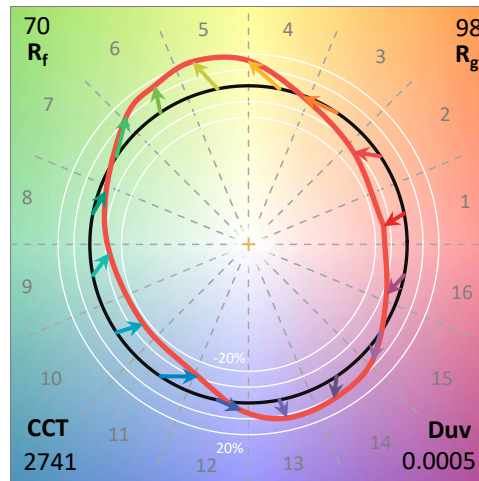
Test Method: LM-79-2008
 Report Number: SP1-1908-441-1-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-727-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-1-R3. TO UPDATE THE CATALOG NUMBER.TESTED IN
 SITU. (1) 70 CRI, 2700K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2741
 CIE u': 0.2605
 CIE v': 0.5272
 Duv: 0.0005
 CIE x: 0.4573
 CIE y: 0.4113
 CIE z: 0.1313
 Peak Wavelength (nm): 602
 Dominant Wavelength (nm): 583
 Purity: 61.2
 Rf: 69.9
 Rg: 98.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.5 | | |
| R1: | 69.2 | R9: | -16.1 |
| R2: | 79.4 | R10: | 51.4 |
| R3: | 87.8 | R11: | 63.1 |
| R4: | 69.4 | R12: | 42.0 |
| R5: | 66.4 | R13: | 70.2 |
| R6: | 69.8 | R14: | 92.4 |
| R7: | 79.8 | | |
| R8: | 50.1 | | |



Test Conditions

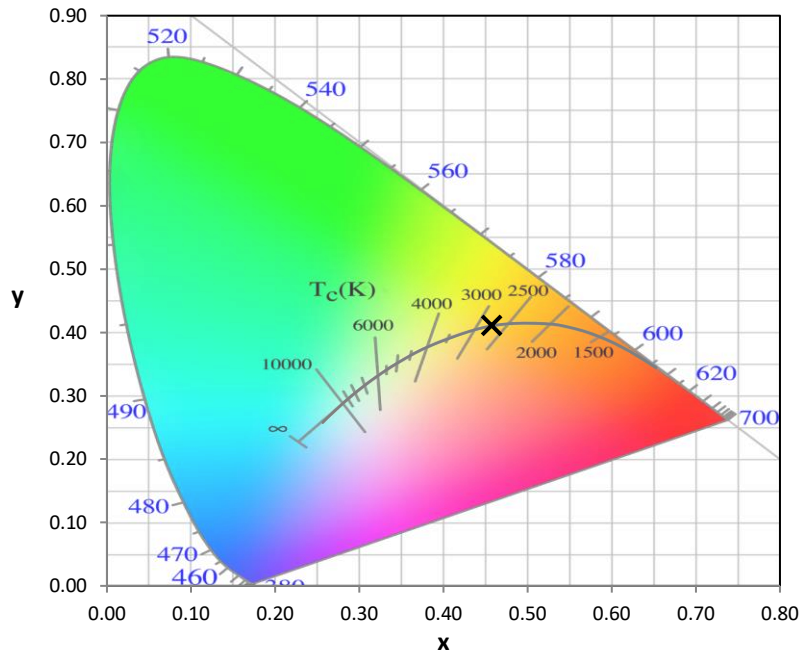
Stabilization Time: 56M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.3./42%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-1-R4

| 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 |

REPORT NUMBER: SP1-1908-441-1-R4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-1-R4

Photopic Flux vs. Wavelength



Photopic Lumens: 6211.7

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 1.0 | 620 | 118034 | 30.7 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 1.9 | 625 | 111884 | 24.7 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 3.4 | 630 | 106119 | 19.2 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 6.3 | 635 | 99706 | 15.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 10.4 | 640 | 92142 | 11.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 16.3 | 645 | 84987 | 8.2 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 22.9 | 650 | 78016 | 5.7 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 29.7 | 655 | 71541 | 4.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 36.7 | 660 | 64863 | 2.7 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 42.5 | 665 | 58485 | 1.9 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.0 | 540 | 73435 | 47.8 | 670 | 51641 | 1.1 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.0 | 545 | 78677 | 52.4 | 675 | 46030 | 0.8 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 0.0 | 550 | 83331 | 56.6 | 680 | 40590 | 0.5 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 0.1 | 555 | 89120 | 60.9 | 685 | 35691 | 0.3 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 0.3 | 560 | 94613 | 64.3 | 690 | 31631 | 0.2 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 0.6 | 565 | 99818 | 66.4 | 695 | 27437 | 0.1 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 0.9 | 570 | 106526 | 69.3 | 700 | 24589 | 0.1 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 1.1 | 575 | 111610 | 69.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 1.0 | 580 | 117163 | 69.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 0.8 | 585 | 122201 | 67.9 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 0.6 | 590 | 125662 | 65.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 0.5 | 595 | 127415 | 60.4 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 0.4 | 600 | 129155 | 55.7 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 0.4 | 605 | 128057 | 49.6 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 0.5 | 610 | 126031 | 43.3 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 0.7 | 615 | 123059 | 37.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 6474.3

S/P: 1.04

| 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 | 2044 | 0.0 | 490 | 7179 | 6.0 | 620 | 118034 | 0.1 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 8.6 | 625 | 111884 | 0.1 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 12.5 | 630 | 106119 | 0.0 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 17.3 | 635 | 99706 | 0.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 21.8 | 640 | 92142 | 0.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 25.7 | 645 | 84987 | 0.0 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 27.5 | 650 | 78016 | 0.0 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 28.1 | 655 | 71541 | 0.0 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 27.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 24.7 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.1 | 540 | 73435 | 21.5 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.5 | 545 | 78677 | 18.3 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 1.6 | 550 | 83331 | 15.0 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 3.9 | 555 | 89120 | 12.0 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 8.1 | 560 | 94613 | 9.3 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 13.3 | 565 | 99818 | 7.0 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 19.1 | 570 | 106526 | 5.2 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 21.6 | 575 | 111610 | 3.7 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 18.1 | 580 | 117163 | 2.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 11.8 | 585 | 122201 | 1.8 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 8.1 | 590 | 125662 | 1.2 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 6.2 | 595 | 127415 | 0.8 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 4.8 | 600 | 129155 | 0.5 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 4.1 | 605 | 128057 | 0.4 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 4.1 | 610 | 126031 | 0.2 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 4.6 | 615 | 123059 | 0.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2145.7 M/P: 0.35

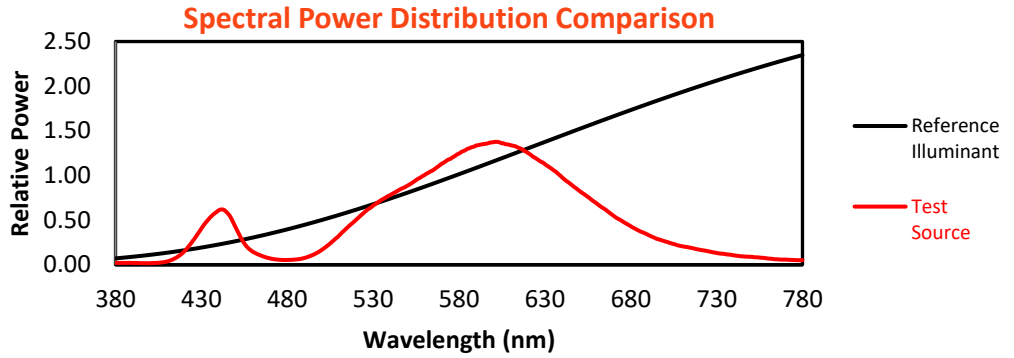
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2044 | 0.0 | 490 | 7179 | 11.1 | 620 | 118034 | 1.5 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 16.9 | 625 | 111884 | 0.9 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 26.0 | 630 | 106119 | 0.6 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 38.2 | 635 | 99706 | 0.4 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 51.6 | 640 | 92142 | 0.2 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 65.1 | 645 | 84987 | 0.1 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 75.2 | 650 | 78016 | 0.1 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 82.9 | 655 | 71541 | 0.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 86.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.1 | 535 | 68520 | 85.4 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.2 | 540 | 73435 | 81.1 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.7 | 545 | 78677 | 75.4 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 2.3 | 550 | 83331 | 68.1 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 6.2 | 555 | 89120 | 60.9 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 13.0 | 560 | 94613 | 52.9 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 22.2 | 565 | 99818 | 44.8 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 32.0 | 570 | 106526 | 37.6 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 36.7 | 575 | 111610 | 30.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 30.4 | 580 | 117163 | 24.1 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 19.7 | 585 | 122201 | 18.7 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 13.2 | 590 | 125662 | 14.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 10.0 | 595 | 127415 | 10.2 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 7.7 | 600 | 129155 | 7.3 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 6.7 | 605 | 128057 | 5.0 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 6.9 | 610 | 126031 | 3.4 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 8.1 | 615 | 123059 | 2.3 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

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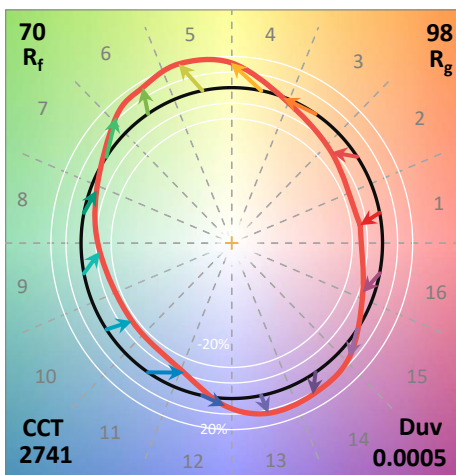
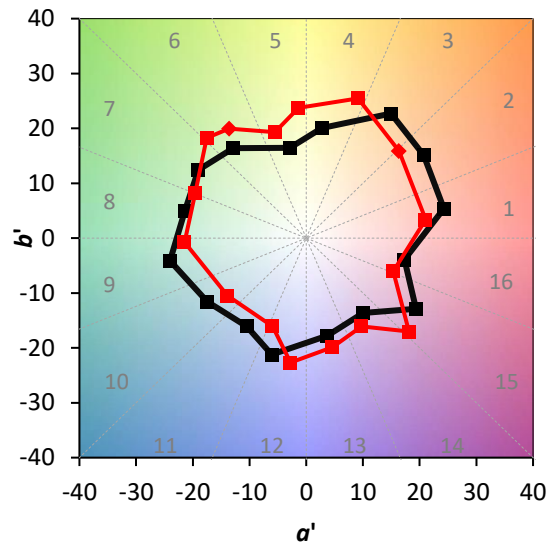
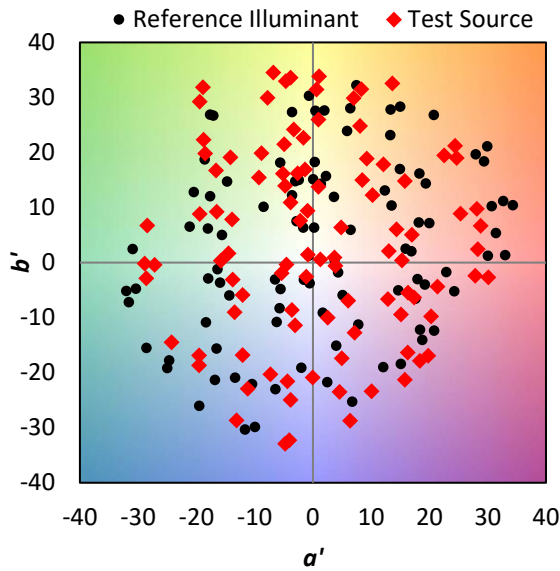
TM-30-18

Summary

$R_f = 69.9$
 $R_g = 98.3$
 $CIE R_a = 71.5$
 $R_9 = -16.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 46 | CES55 = 74 | CES80 = 80 |
| CES06 = 52 | CES31 = 50 | CES56 = 63 | CES81 = 73 |
| CES07 = 42 | CES32 = 49 | CES57 = 60 | CES82 = 91 |
| CES08 = 41 | CES33 = 53 | CES58 = 63 | CES83 = 84 |
| CES09 = 29 | CES34 = 66 | CES59 = 85 | CES84 = 90 |
| CES10 = 77 | CES35 = 82 | CES60 = 89 | CES85 = 87 |
| CES11 = 60 | CES36 = 78 | CES61 = 85 | CES86 = 65 |
| CES12 = 66 | CES37 = 75 | CES62 = 69 | CES87 = 78 |
| CES13 = 43 | CES38 = 53 | CES63 = 68 | CES88 = 73 |
| CES14 = 74 | CES39 = 91 | CES64 = 68 | CES89 = 68 |
| CES15 = 71 | CES40 = 85 | CES65 = 65 | CES90 = 68 |
| CES16 = 48 | CES41 = 76 | CES66 = 62 | CES91 = 91 |
| CES17 = 50 | CES42 = 76 | CES67 = 60 | CES92 = 71 |
| CES18 = 57 | CES43 = 65 | CES68 = 68 | CES93 = 82 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 57 |
| CES20 = 67 | CES45 = 75 | CES70 = 60 | CES95 = 78 |
| CES21 = 88 | CES46 = 70 | CES71 = 57 | CES96 = 80 |
| CES22 = 80 | CES47 = 63 | CES72 = 86 | CES97 = 79 |
| CES23 = 92 | CES48 = 51 | CES73 = 52 | CES98 = 71 |
| CES24 = 91 | CES49 = 68 | CES74 = 90 | CES99 = 64 |
| CES25 = 73 | CES50 = 77 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)