

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: P438404

Luminaire Tested: **ISW-SA1C-750-U-T4W-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438404
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-13)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1C-750-U-T4W-HSS
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 5000K, 615mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV WIDE OPTICS
WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3320 lumens
Efficiency: N/A
Efficacy: 97.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B0 - U0 - G1

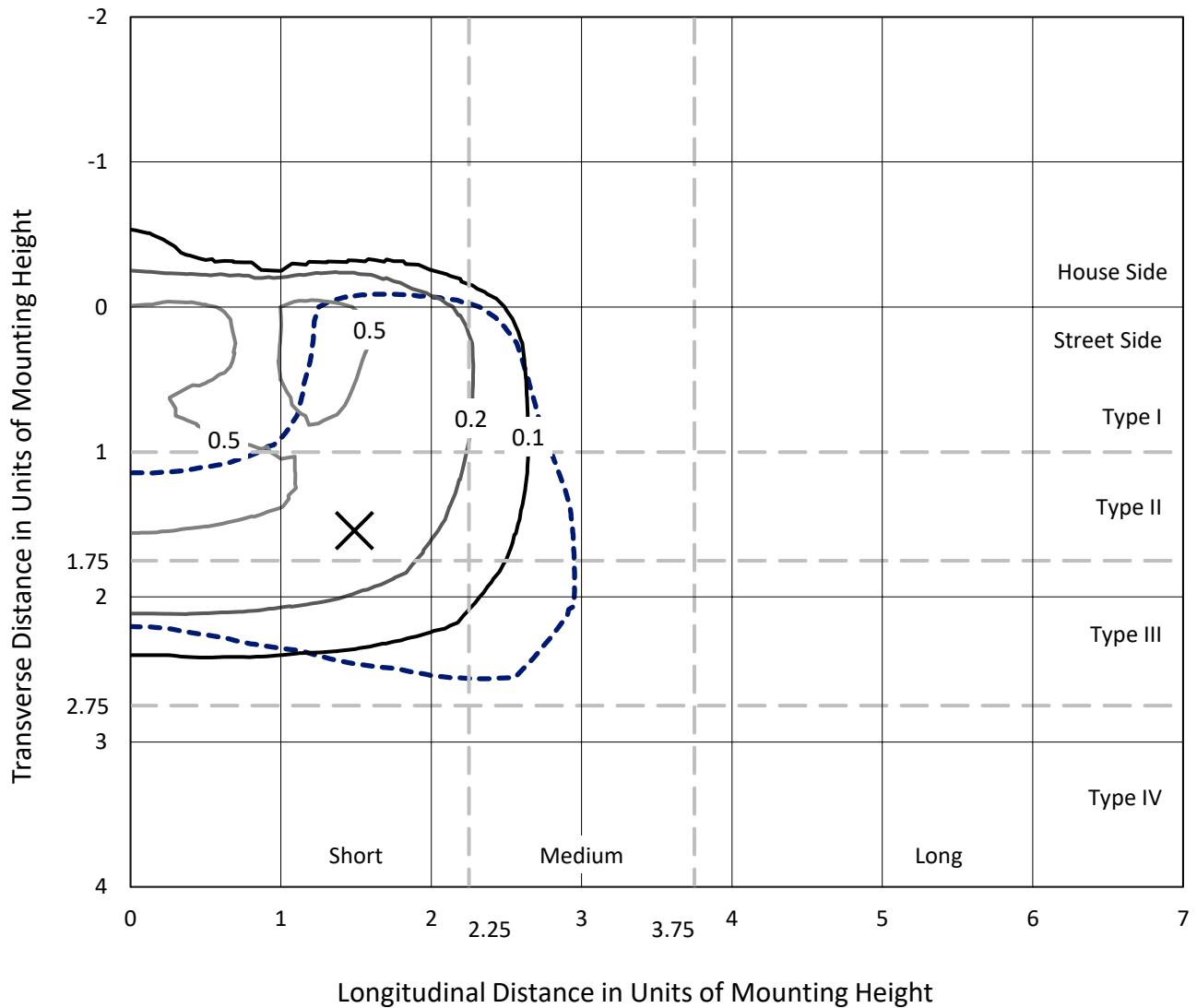
Input Watts (W): 34.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

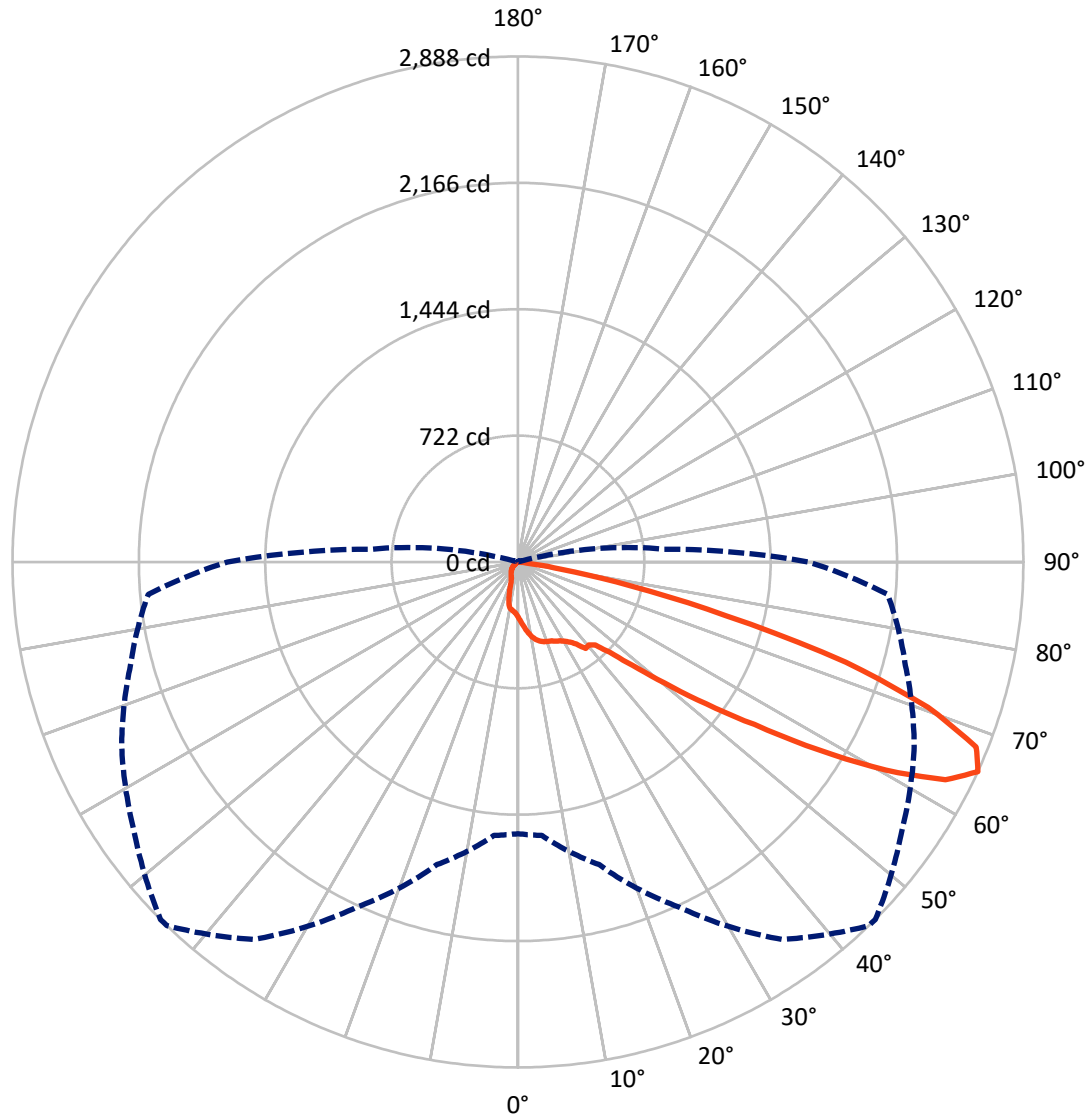
✕ Max cd
 - - - 1/2 Max cd



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

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Luminous Intensity Polar Plot



— Vertical Plane Through 44-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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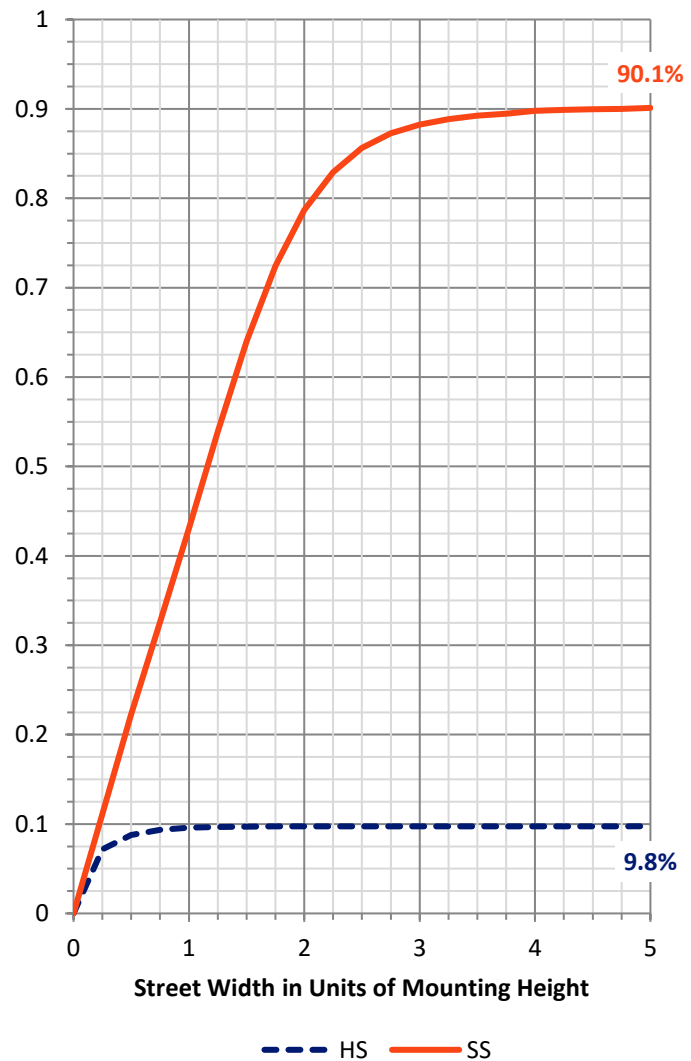
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 326.5 | 0.0 | 326.5 |
| | % Fixture | 9.8 | 0.0 | 9.8 |
| Street Side | Lumens | 2993.4 | 0.0 | 2993.4 |
| | % Fixture | 90.2 | 0.0 | 90.2 |
| Total | Lumens | 3320.0 | 0.0 | 3320.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 32.1 | 1.0 |
| 10°-20° | 96.7 | 2.9 |
| 20°-30° | 154.7 | 4.7 |
| 30°-40° | 229.8 | 6.9 |
| 40°-50° | 418.9 | 12.6 |
| 50°-60° | 878.2 | 26.5 |
| 60°-70° | 1117.8 | 33.7 |
| 70°-80° | 375.2 | 11.3 |
| 80°-90° | 16.8 | 0.5 |
| 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° | 3320.0 | 100.0 |
| 0°-180° | 3320.0 | 100.0 |

Coefficient of Utilization



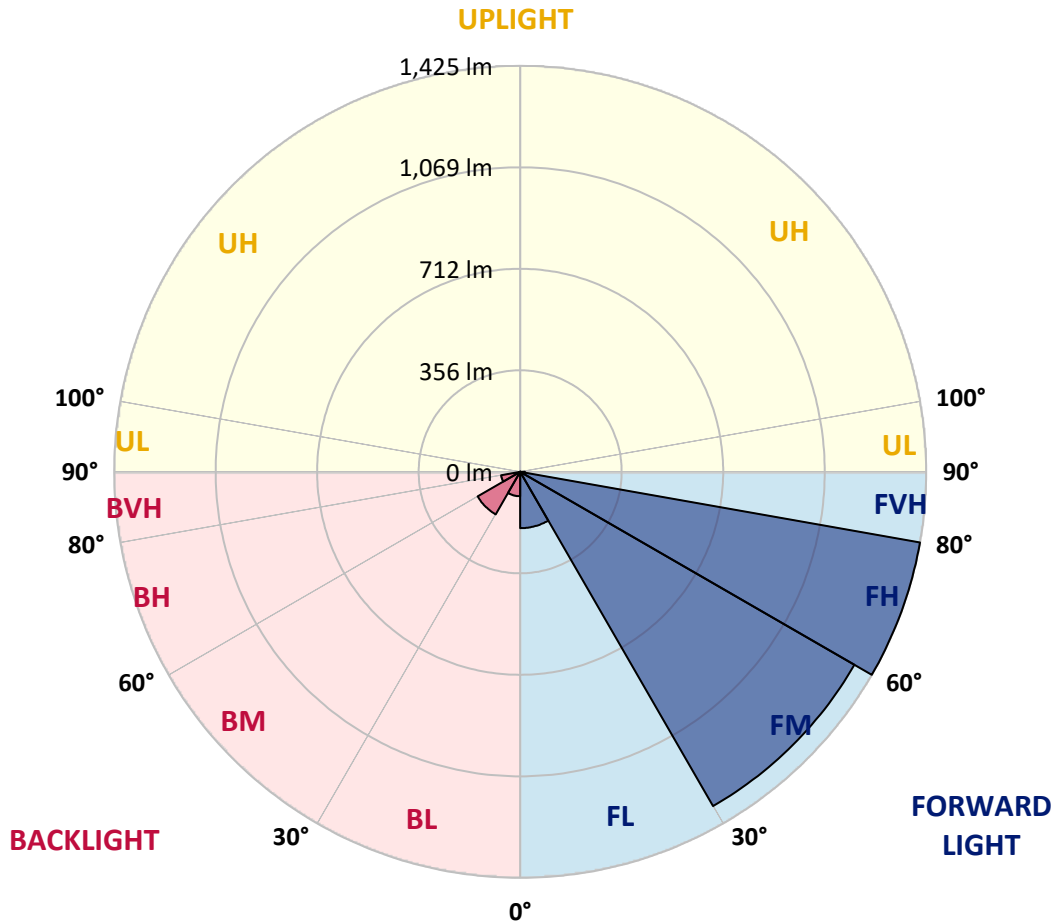
REPORT NUMBER: P438404
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 197.7 | 6.0 | | | |
| FM (30°-60°) | 1354.5 | 40.8 | | | |
| FH (60°-80°) | 1424.8 | 42.9 | | | G1/1800 |
| FVH (80°-90°) | 16.4 | 0.5 | | | G1/100 |
| BL (0°-30°) | 85.7 | 2.6 | B0/110 | | |
| BM (30°-60°) | 172.3 | 5.2 | B0/220 | | |
| BH (60°-80°) | 68.1 | 2.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.5 | 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 III Short





REPORT NUMBER: P438404

CATALOG NUMBER: ISW-SA1C-750-U-T4W-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 |
| 2.5° | 356.4 | 358.0 | 351.6 | 353.2 | 350.0 | 343.5 | 341.9 | 337.1 | 330.7 | 325.9 | 321.1 |
| 5° | 402.9 | 401.3 | 398.1 | 391.7 | 383.7 | 374.0 | 370.8 | 361.2 | 350.0 | 337.1 | 327.5 |
| 7.5° | 441.5 | 441.5 | 436.6 | 430.2 | 417.4 | 404.5 | 401.3 | 388.5 | 372.4 | 354.8 | 337.1 |
| 10° | 475.2 | 473.6 | 468.8 | 460.7 | 444.7 | 433.4 | 428.6 | 412.6 | 393.3 | 374.0 | 353.2 |
| 12.5° | 500.9 | 500.9 | 494.4 | 483.2 | 465.5 | 454.3 | 451.1 | 436.6 | 417.4 | 394.9 | 366.0 |
| 15° | 515.3 | 513.7 | 508.9 | 494.4 | 481.6 | 468.8 | 467.1 | 454.3 | 438.2 | 414.2 | 383.7 |
| 17.5° | 515.3 | 516.9 | 508.9 | 500.9 | 489.6 | 478.4 | 476.8 | 467.1 | 451.1 | 430.2 | 398.1 |
| 20° | 508.9 | 508.9 | 502.5 | 496.0 | 489.6 | 484.8 | 483.2 | 476.8 | 463.9 | 446.3 | 414.2 |
| 22.5° | 500.9 | 499.3 | 497.6 | 492.8 | 491.2 | 489.6 | 491.2 | 488.0 | 480.0 | 460.7 | 430.2 |
| 25° | 499.3 | 497.6 | 494.4 | 491.2 | 492.8 | 500.9 | 500.9 | 502.5 | 494.4 | 478.4 | 449.5 |
| 27.5° | 505.7 | 505.7 | 500.9 | 496.0 | 499.3 | 510.5 | 510.5 | 515.3 | 510.5 | 499.3 | 470.4 |
| 30° | 533.0 | 526.5 | 518.5 | 508.9 | 512.1 | 524.9 | 526.5 | 536.2 | 536.2 | 528.1 | 504.1 |
| 32.5° | 569.9 | 563.5 | 542.6 | 529.8 | 529.8 | 545.8 | 545.8 | 561.9 | 576.3 | 560.3 | 523.3 |
| 35° | 598.8 | 595.6 | 571.5 | 555.4 | 560.3 | 574.7 | 579.5 | 605.2 | 618.0 | 577.9 | 533.0 |
| 37.5° | 695.1 | 690.3 | 643.7 | 584.3 | 587.5 | 627.7 | 630.9 | 642.1 | 630.9 | 585.9 | 552.2 |
| 40° | 823.5 | 826.7 | 778.6 | 680.7 | 605.2 | 622.9 | 622.9 | 642.1 | 648.5 | 621.3 | 598.8 |
| 42.5° | 1017.8 | 998.5 | 950.3 | 817.1 | 683.9 | 648.5 | 650.1 | 677.4 | 711.2 | 695.1 | 698.3 |
| 45° | 1186.3 | 1171.9 | 1120.5 | 992.1 | 810.7 | 733.6 | 727.2 | 762.5 | 828.3 | 842.8 | 879.7 |
| 47.5° | 1335.6 | 1321.2 | 1298.7 | 1178.3 | 1000.1 | 882.9 | 858.8 | 894.2 | 1008.1 | 1083.6 | 1109.3 |
| 50° | 1515.4 | 1518.6 | 1467.3 | 1398.2 | 1207.2 | 1083.6 | 1077.2 | 1078.8 | 1258.6 | 1321.2 | 1358.1 |
| 52.5° | 1743.4 | 1738.5 | 1648.7 | 1611.7 | 1494.5 | 1346.9 | 1309.9 | 1332.4 | 1510.6 | 1555.5 | 1616.5 |
| 55° | 1905.5 | 1900.7 | 1857.3 | 1850.9 | 1812.4 | 1639.0 | 1629.4 | 1627.8 | 1788.3 | 1807.6 | 1879.8 |
| 57.5° | 2000.2 | 2008.2 | 2038.7 | 2120.6 | 2152.7 | 2027.5 | 2000.2 | 1947.2 | 2037.1 | 2032.3 | 2111.0 |
| 60° | 2016.3 | 2029.1 | 2115.8 | 2303.6 | 2483.4 | 2416.0 | 2379.1 | 2241.0 | 2265.1 | 2225.0 | 2273.1 |
| 62.5° | 1886.2 | 1923.2 | 2077.3 | 2342.1 | 2650.4 | 2740.3 | 2709.8 | 2496.3 | 2440.1 | 2356.6 | 2295.6 |
| 65° | 1552.3 | 1568.4 | 1789.9 | 2175.2 | 2632.7 | 2887.9 | 2887.9 | 2677.7 | 2497.9 | 2292.4 | 2120.6 |
| 67.5° | 1072.3 | 1080.4 | 1350.1 | 1754.6 | 2363.0 | 2823.7 | 2847.8 | 2674.4 | 2396.7 | 2040.3 | 1728.9 |
| 70° | 608.4 | 653.4 | 817.1 | 1226.5 | 1862.2 | 2486.6 | 2512.3 | 2433.6 | 2006.6 | 1512.2 | 1133.3 |
| 72.5° | 253.6 | 282.5 | 398.1 | 714.4 | 1266.6 | 1958.5 | 2003.4 | 1929.6 | 1499.4 | 923.1 | 536.2 |
| 75° | 78.7 | 81.9 | 131.6 | 311.4 | 691.9 | 1229.7 | 1305.1 | 1301.9 | 895.8 | 431.8 | 218.3 |
| 77.5° | 43.3 | 44.9 | 62.6 | 126.8 | 303.4 | 656.6 | 703.1 | 664.6 | 443.1 | 186.2 | 67.4 |
| 80° | 20.9 | 22.5 | 33.7 | 61.0 | 133.2 | 245.6 | 289.0 | 268.1 | 154.1 | 88.3 | 22.5 |
| 82.5° | 6.4 | 8.0 | 16.1 | 27.3 | 53.0 | 57.8 | 57.8 | 102.7 | 78.7 | 57.8 | 11.2 |
| 85° | 0.0 | 0.0 | 4.8 | 9.6 | 9.6 | 9.6 | 9.6 | 22.5 | 36.9 | 35.3 | 4.8 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 3.2 | 1.6 |
| 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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CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 | 316.2 |
| 2.5° | 317.9 | 316.2 | 309.8 | 303.4 | 300.2 | 297.0 | 293.8 | 290.6 | 290.6 | 292.2 | 290.6 |
| 5° | 321.1 | 316.2 | 306.6 | 297.0 | 290.6 | 285.7 | 279.3 | 277.7 | 276.1 | 277.7 | 277.7 |
| 7.5° | 329.1 | 322.7 | 308.2 | 293.8 | 284.1 | 276.1 | 271.3 | 269.7 | 266.5 | 266.5 | 266.5 |
| 10° | 341.9 | 330.7 | 311.4 | 295.4 | 282.5 | 271.3 | 256.8 | 240.8 | 231.2 | 224.7 | 219.9 |
| 12.5° | 354.8 | 341.9 | 316.2 | 297.0 | 282.5 | 250.4 | 215.1 | 184.6 | 168.6 | 160.5 | 158.9 |
| 15° | 369.2 | 353.2 | 325.9 | 303.4 | 264.9 | 205.5 | 157.3 | 131.6 | 125.2 | 125.2 | 123.6 |
| 17.5° | 380.5 | 366.0 | 333.9 | 305.0 | 232.8 | 154.1 | 118.8 | 110.8 | 112.4 | 115.6 | 115.6 |
| 20° | 398.1 | 380.5 | 345.1 | 290.6 | 179.8 | 115.6 | 104.3 | 106.0 | 107.6 | 109.2 | 110.8 |
| 22.5° | 414.2 | 394.9 | 358.0 | 258.5 | 131.6 | 99.5 | 99.5 | 101.1 | 102.7 | 104.3 | 106.0 |
| 25° | 433.4 | 415.8 | 370.8 | 211.9 | 101.1 | 91.5 | 93.1 | 96.3 | 97.9 | 99.5 | 99.5 |
| 27.5° | 455.9 | 436.6 | 370.8 | 167.0 | 88.3 | 85.1 | 85.1 | 88.3 | 89.9 | 93.1 | 93.1 |
| 30° | 486.4 | 465.5 | 361.2 | 123.6 | 81.9 | 78.7 | 77.1 | 80.3 | 81.9 | 85.1 | 85.1 |
| 32.5° | 505.7 | 492.8 | 340.3 | 93.1 | 75.4 | 72.2 | 70.6 | 70.6 | 72.2 | 75.4 | 75.4 |
| 35° | 524.9 | 518.5 | 308.2 | 80.3 | 70.6 | 67.4 | 64.2 | 61.0 | 61.0 | 61.0 | 61.0 |
| 37.5° | 555.4 | 565.1 | 261.7 | 73.8 | 67.4 | 62.6 | 57.8 | 53.0 | 49.8 | 48.2 | 46.6 |
| 40° | 618.0 | 626.1 | 215.1 | 69.0 | 62.6 | 57.8 | 49.8 | 43.3 | 38.5 | 35.3 | 35.3 |
| 42.5° | 716.0 | 709.5 | 163.7 | 65.8 | 57.8 | 51.4 | 41.7 | 35.3 | 28.9 | 25.7 | 25.7 |
| 45° | 886.1 | 813.9 | 120.4 | 61.0 | 54.6 | 46.6 | 35.3 | 27.3 | 20.9 | 19.3 | 19.3 |
| 47.5° | 1094.8 | 934.3 | 91.5 | 57.8 | 49.8 | 40.1 | 27.3 | 20.9 | 16.1 | 14.4 | 14.4 |
| 50° | 1319.6 | 1057.9 | 75.4 | 53.0 | 44.9 | 33.7 | 22.5 | 14.4 | 11.2 | 11.2 | 11.2 |
| 52.5° | 1531.5 | 1141.4 | 62.6 | 48.2 | 38.5 | 27.3 | 16.1 | 11.2 | 9.6 | 9.6 | 9.6 |
| 55° | 1728.9 | 1192.7 | 51.4 | 41.7 | 32.1 | 20.9 | 12.8 | 9.6 | 8.0 | 6.4 | 6.4 |
| 57.5° | 1863.8 | 1184.7 | 41.7 | 33.7 | 24.1 | 14.4 | 9.6 | 8.0 | 6.4 | 4.8 | 4.8 |
| 60° | 1910.3 | 1114.1 | 32.1 | 27.3 | 17.7 | 11.2 | 8.0 | 6.4 | 4.8 | 3.2 | 3.2 |
| 62.5° | 1844.5 | 974.4 | 25.7 | 20.9 | 12.8 | 9.6 | 6.4 | 4.8 | 3.2 | 1.6 | 1.6 |
| 65° | 1659.9 | 838.0 | 19.3 | 14.4 | 9.6 | 6.4 | 4.8 | 3.2 | 1.6 | 0.0 | 0.0 |
| 67.5° | 1321.2 | 650.1 | 16.1 | 9.6 | 6.4 | 4.8 | 3.2 | 1.6 | 0.0 | 0.0 | 0.0 |
| 70° | 826.7 | 407.7 | 12.8 | 6.4 | 4.8 | 3.2 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 401.3 | 200.7 | 9.6 | 4.8 | 3.2 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 149.3 | 65.8 | 8.0 | 4.8 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 48.2 | 22.5 | 6.4 | 4.8 | 3.2 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 17.7 | 9.6 | 3.2 | 1.6 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 8.0 | 4.8 | 1.6 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 3.2 | 3.2 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.6 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |

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

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): | 4884 | CRI (Ra): | 73.5 | R9: | -28.4 |
| CIE u': | 0.2101 | R1: | 70.5 | R10: | 48.6 |
| CIE v': | 0.4904 | R2: | 77.7 | R11: | 73.2 |
| Duv: | 0.0037 | R3: | 84.6 | R12: | 50.7 |
| CIE x: | 0.3493 | R4: | 74.7 | R13: | 71.2 |
| CIE y: | 0.3624 | R5: | 71.9 | R14: | 91.4 |
| CIE z: | 0.2884 | R6: | 70.7 | | |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |
| Rf: | 74.9 | | | | |
| Rg: | 96.3 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

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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 5000K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

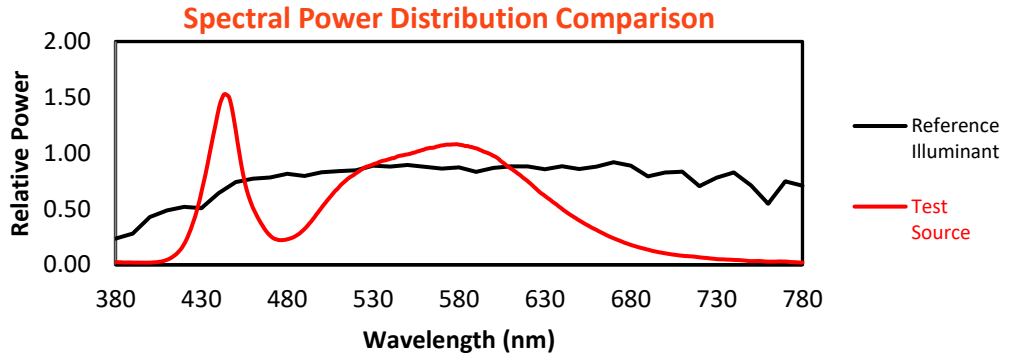
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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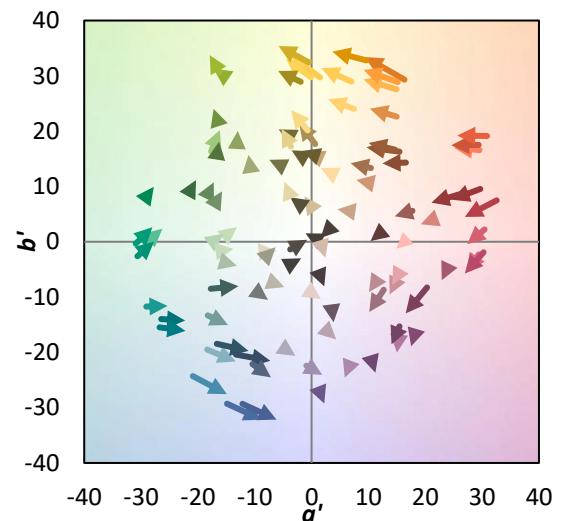
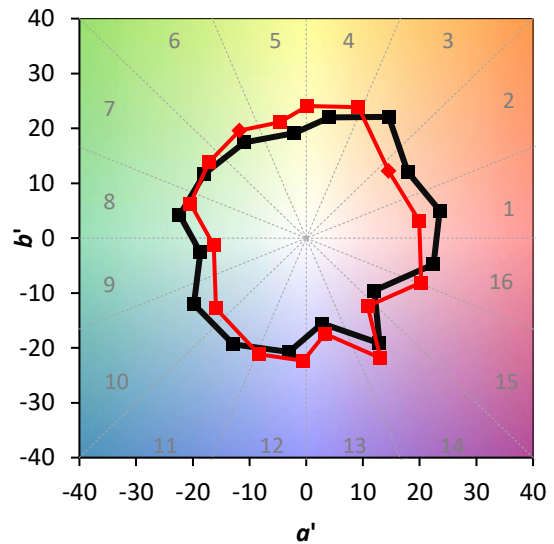
TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 CIE $R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)