

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: P438746

Luminaire Tested: **IST-SA1E-750-U-T4W-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438746
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: IST-SA1E-750-U-T4W-HSS
Description: IMPACT ELITE LED TRAPEZOID LUMINAIRE
(1) 70 CRI, 5000K, 1050mA 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: 5205 lumens
Efficiency: N/A
Efficacy: 89.4 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B1 - U0 - G2

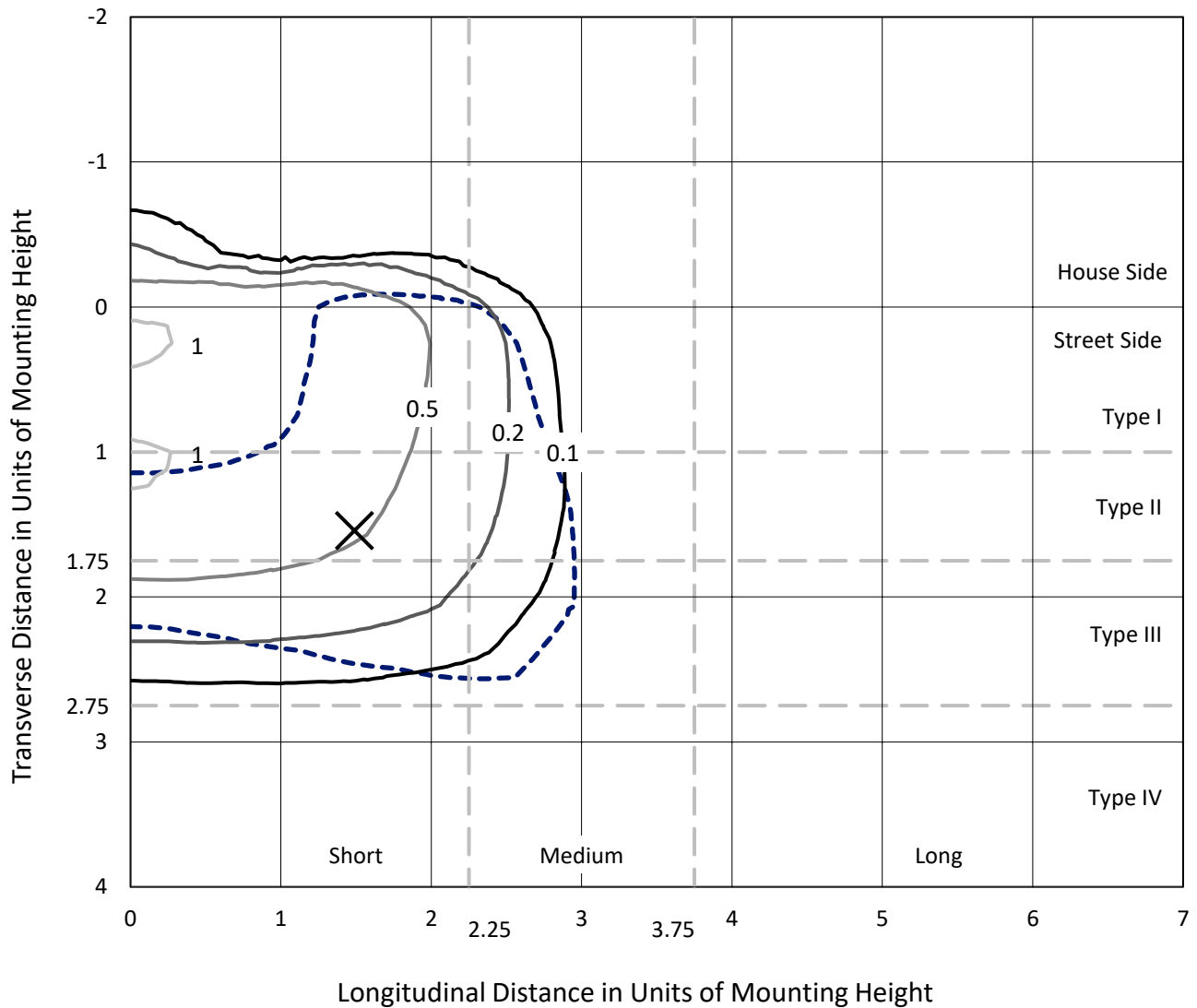
Input Watts (W): 58.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

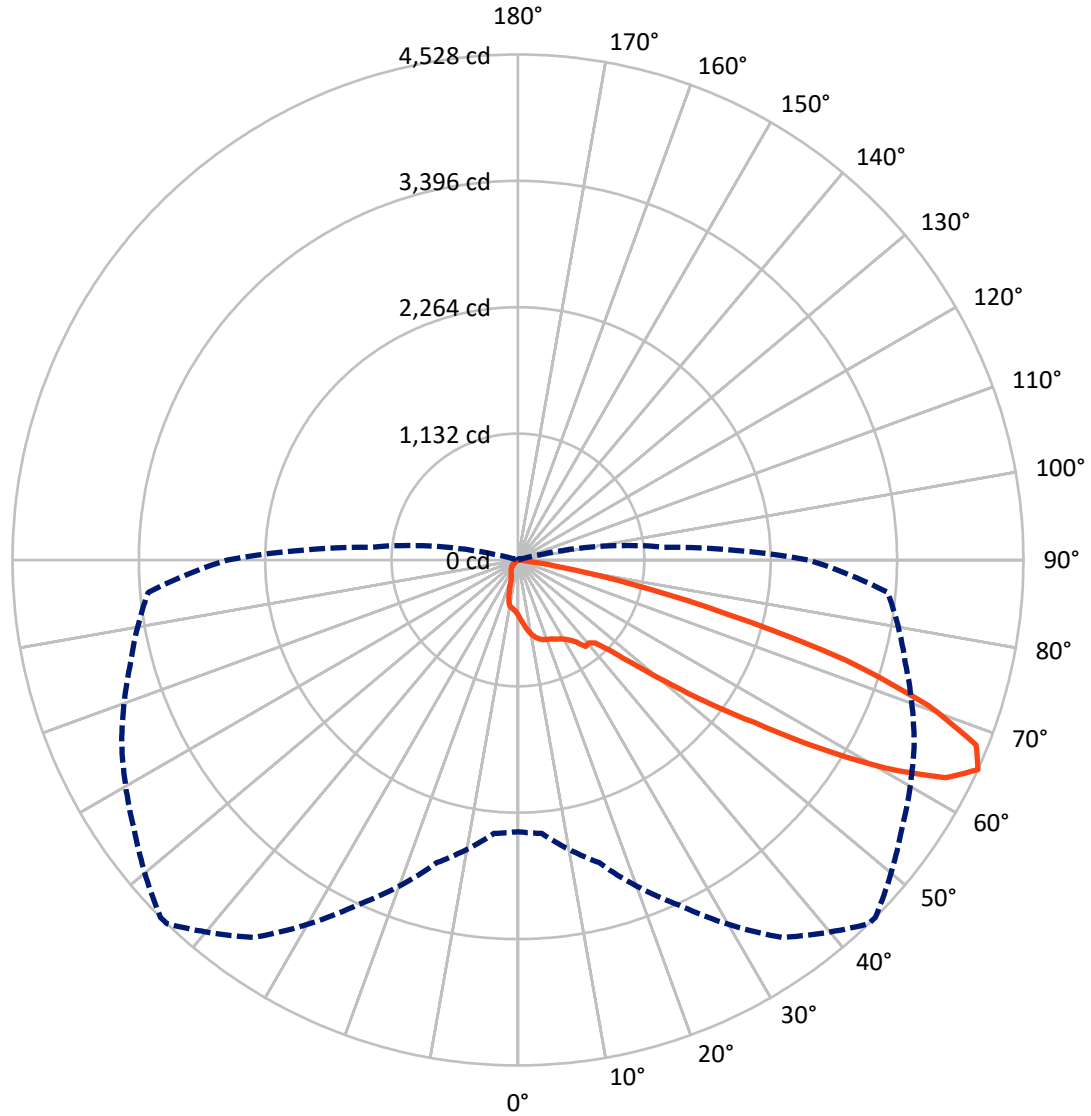
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.2 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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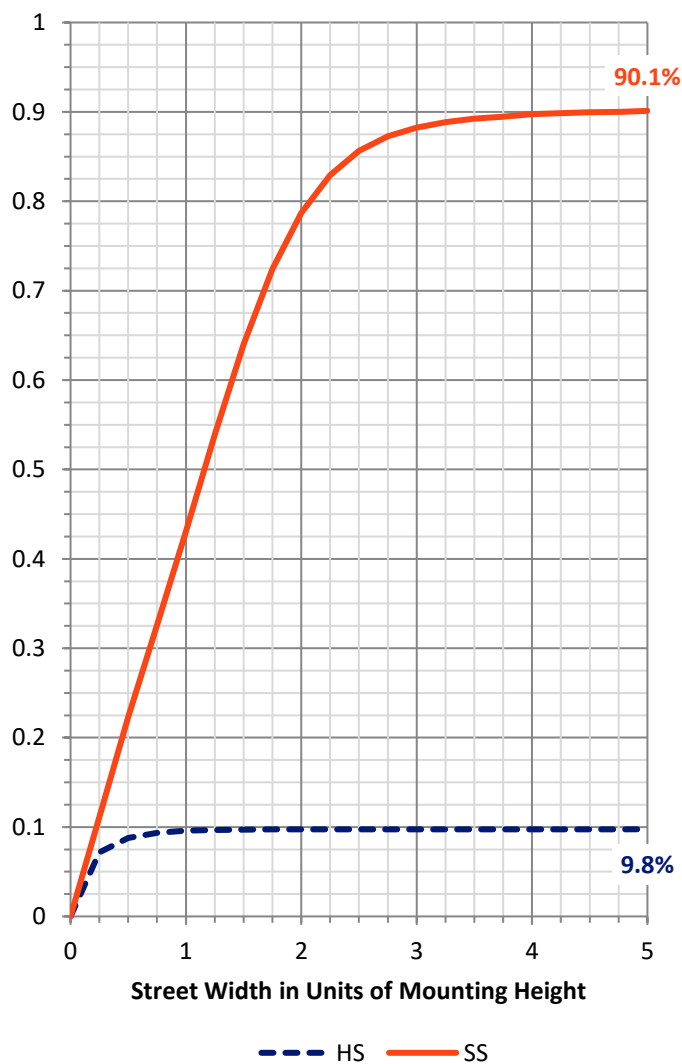
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 512.0 | 0.0 | 512.0 |
| | % Fixture | 9.8 | 0.0 | 9.8 |
| Street Side | Lumens | 4693.0 | 0.0 | 4693.0 |
| | % Fixture | 90.2 | 0.0 | 90.2 |
| Total | Lumens | 5205.0 | 0.0 | 5205.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 50.3 | 1.0 |
| 10°-20° | 151.5 | 2.9 |
| 20°-30° | 242.5 | 4.7 |
| 30°-40° | 360.2 | 6.9 |
| 40°-50° | 656.7 | 12.6 |
| 50°-60° | 1376.8 | 26.5 |
| 60°-70° | 1752.4 | 33.7 |
| 70°-80° | 588.2 | 11.3 |
| 80°-90° | 26.3 | 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° | 5205.0 | 100.0 |
| 0°-180° | 5205.0 | 100.0 |

Coefficient of Utilization



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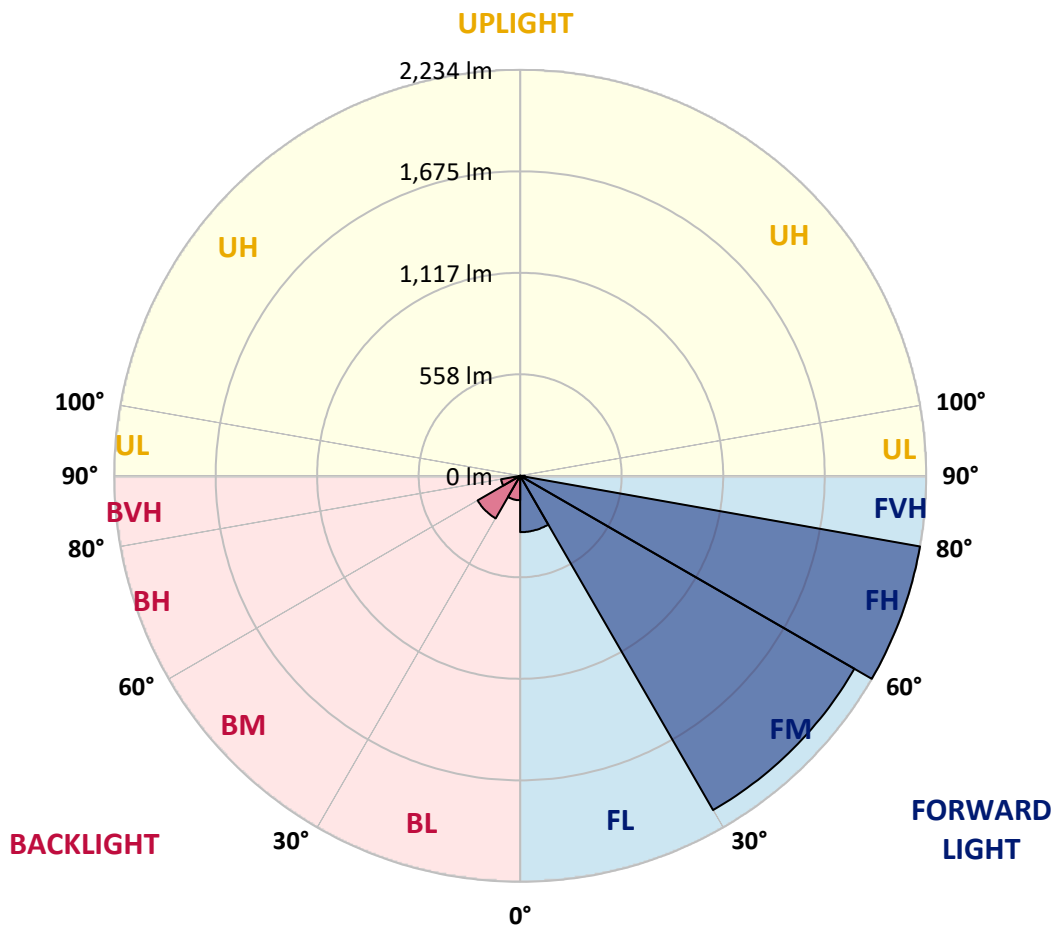
CATALOG NUMBER: IST-SA1E-750-U-T4W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 310.0 | 6.0 | | | |
| FM (30°-60°) | 2123.6 | 40.8 | | | |
| FH (60°-80°) | 2233.8 | 42.9 | | | G2/5000 |
| FVH (80°-90°) | 25.6 | 0.5 | | | G1/100 |
| BL (0°-30°) | 134.4 | 2.6 | B1/500 | | |
| BM (30°-60°) | 270.1 | 5.2 | B1/1000 | | |
| BH (60°-80°) | 106.7 | 2.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.7 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 |
| 2.5° | 558.7 | 561.2 | 551.2 | 553.7 | 548.7 | 538.6 | 536.1 | 528.5 | 518.5 | 510.9 | 503.4 |
| 5° | 631.7 | 629.2 | 624.2 | 614.1 | 601.5 | 586.4 | 581.4 | 566.3 | 548.7 | 528.5 | 513.4 |
| 7.5° | 692.1 | 692.1 | 684.6 | 674.5 | 654.4 | 634.2 | 629.2 | 609.1 | 583.9 | 556.2 | 528.5 |
| 10° | 745.0 | 742.4 | 734.9 | 722.3 | 697.1 | 679.5 | 672.0 | 646.8 | 616.6 | 586.4 | 553.7 |
| 12.5° | 785.2 | 785.2 | 775.2 | 757.5 | 729.9 | 712.2 | 707.2 | 684.6 | 654.4 | 619.1 | 573.8 |
| 15° | 807.9 | 805.4 | 797.8 | 775.2 | 755.0 | 734.9 | 732.4 | 712.2 | 687.1 | 649.3 | 601.5 |
| 17.5° | 807.9 | 810.4 | 797.8 | 785.2 | 767.6 | 750.0 | 747.5 | 732.4 | 707.2 | 674.5 | 624.2 |
| 20° | 797.8 | 797.8 | 787.7 | 777.7 | 767.6 | 760.1 | 757.5 | 747.5 | 727.3 | 699.7 | 649.3 |
| 22.5° | 785.2 | 782.7 | 780.2 | 772.6 | 770.1 | 767.6 | 770.1 | 765.1 | 752.5 | 722.3 | 674.5 |
| 25° | 782.7 | 780.2 | 775.2 | 770.1 | 772.6 | 785.2 | 785.2 | 787.7 | 775.2 | 750.0 | 704.7 |
| 27.5° | 792.8 | 792.8 | 785.2 | 777.7 | 782.7 | 800.3 | 800.3 | 807.9 | 800.3 | 782.7 | 737.4 |
| 30° | 835.6 | 825.5 | 812.9 | 797.8 | 802.8 | 823.0 | 825.5 | 840.6 | 840.6 | 828.0 | 790.3 |
| 32.5° | 893.4 | 883.4 | 850.7 | 830.5 | 830.5 | 855.7 | 855.7 | 880.9 | 903.5 | 878.3 | 820.5 |
| 35° | 938.7 | 933.7 | 896.0 | 870.8 | 878.3 | 901.0 | 908.5 | 948.8 | 969.0 | 906.0 | 835.6 |
| 37.5° | 1089.8 | 1082.2 | 1009.2 | 916.1 | 921.1 | 984.1 | 989.1 | 1006.7 | 989.1 | 918.6 | 865.8 |
| 40° | 1291.1 | 1296.1 | 1220.6 | 1067.1 | 948.8 | 976.5 | 976.5 | 1006.7 | 1016.8 | 974.0 | 938.7 |
| 42.5° | 1595.6 | 1565.4 | 1489.9 | 1281.0 | 1072.1 | 1016.8 | 1019.3 | 1062.1 | 1114.9 | 1089.8 | 1094.8 |
| 45° | 1859.9 | 1837.2 | 1756.7 | 1555.4 | 1271.0 | 1150.2 | 1140.1 | 1195.5 | 1298.6 | 1321.3 | 1379.2 |
| 47.5° | 2093.9 | 2071.3 | 2036.1 | 1847.3 | 1567.9 | 1384.2 | 1346.5 | 1401.8 | 1580.5 | 1698.8 | 1739.1 |
| 50° | 2375.8 | 2380.9 | 2300.3 | 2192.1 | 1892.6 | 1698.8 | 1688.7 | 1691.3 | 1973.1 | 2071.3 | 2129.2 |
| 52.5° | 2733.2 | 2725.6 | 2584.7 | 2526.8 | 2343.1 | 2111.6 | 2053.7 | 2088.9 | 2368.3 | 2438.7 | 2534.4 |
| 55° | 2987.4 | 2979.8 | 2911.9 | 2901.8 | 2841.4 | 2569.6 | 2554.5 | 2552.0 | 2803.7 | 2833.9 | 2947.1 |
| 57.5° | 3135.9 | 3148.5 | 3196.3 | 3324.6 | 3375.0 | 3178.7 | 3135.9 | 3052.8 | 3193.8 | 3186.2 | 3309.5 |
| 60° | 3161.0 | 3181.2 | 3317.1 | 3611.5 | 3893.4 | 3787.7 | 3729.8 | 3513.4 | 3551.1 | 3488.2 | 3563.7 |
| 62.5° | 2957.2 | 3015.1 | 3256.7 | 3671.9 | 4155.2 | 4296.1 | 4248.3 | 3913.6 | 3825.5 | 3694.6 | 3599.0 |
| 65° | 2433.7 | 2458.9 | 2806.2 | 3410.2 | 4127.5 | 4527.6 | 4527.6 | 4197.9 | 3916.1 | 3593.9 | 3324.6 |
| 67.5° | 1681.2 | 1693.8 | 2116.6 | 2750.8 | 3704.7 | 4427.0 | 4464.7 | 4192.9 | 3757.5 | 3198.8 | 2710.5 |
| 70° | 953.9 | 1024.3 | 1281.0 | 1922.8 | 2919.4 | 3898.5 | 3938.7 | 3815.4 | 3145.9 | 2370.8 | 1776.8 |
| 72.5° | 397.6 | 442.9 | 624.2 | 1120.0 | 1985.7 | 3070.4 | 3140.9 | 3025.1 | 2350.6 | 1447.1 | 840.6 |
| 75° | 123.3 | 128.4 | 206.4 | 488.3 | 1084.7 | 1927.8 | 2046.1 | 2041.1 | 1404.3 | 677.0 | 342.3 |
| 77.5° | 68.0 | 70.5 | 98.2 | 198.8 | 475.7 | 1029.4 | 1102.3 | 1041.9 | 694.6 | 291.9 | 105.7 |
| 80° | 32.7 | 35.2 | 52.9 | 95.6 | 208.9 | 385.1 | 453.0 | 420.3 | 241.6 | 138.4 | 35.2 |
| 82.5° | 10.1 | 12.6 | 25.2 | 42.8 | 83.1 | 90.6 | 90.6 | 161.1 | 123.3 | 90.6 | 17.6 |
| 85° | 0.0 | 0.0 | 7.6 | 15.1 | 15.1 | 15.1 | 15.1 | 35.2 | 57.9 | 55.4 | 7.6 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 5.0 | 2.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P438746
 CATALOG NUMBER: IST-SA1E-750-U-T4W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 | 495.8 |
| 2.5° | 498.3 | 495.8 | 485.7 | 475.7 | 470.6 | 465.6 | 460.6 | 455.5 | 455.5 | 458.0 | 455.5 |
| 5° | 503.4 | 495.8 | 480.7 | 465.6 | 455.5 | 448.0 | 437.9 | 435.4 | 432.9 | 435.4 | 435.4 |
| 7.5° | 515.9 | 505.9 | 483.2 | 460.6 | 445.5 | 432.9 | 425.3 | 422.8 | 417.8 | 417.8 | 417.8 |
| 10° | 536.1 | 518.5 | 488.3 | 463.1 | 442.9 | 425.3 | 402.7 | 377.5 | 362.4 | 352.3 | 344.8 |
| 12.5° | 556.2 | 536.1 | 495.8 | 465.6 | 442.9 | 392.6 | 337.2 | 289.4 | 264.3 | 251.7 | 249.2 |
| 15° | 578.9 | 553.7 | 510.9 | 475.7 | 415.3 | 322.1 | 246.6 | 206.4 | 196.3 | 196.3 | 193.8 |
| 17.5° | 596.5 | 573.8 | 523.5 | 478.2 | 364.9 | 241.6 | 186.2 | 173.7 | 176.2 | 181.2 | 181.2 |
| 20° | 624.2 | 596.5 | 541.1 | 455.5 | 281.9 | 181.2 | 163.6 | 166.1 | 168.6 | 171.1 | 173.7 |
| 22.5° | 649.3 | 619.1 | 561.2 | 405.2 | 206.4 | 156.0 | 156.0 | 158.6 | 161.1 | 163.6 | 166.1 |
| 25° | 679.5 | 651.8 | 581.4 | 332.2 | 158.6 | 143.5 | 146.0 | 151.0 | 153.5 | 156.0 | 156.0 |
| 27.5° | 714.8 | 684.6 | 581.4 | 261.7 | 138.4 | 133.4 | 133.4 | 138.4 | 140.9 | 146.0 | 146.0 |
| 30° | 762.6 | 729.9 | 566.3 | 193.8 | 128.4 | 123.3 | 120.8 | 125.8 | 128.4 | 133.4 | 133.4 |
| 32.5° | 792.8 | 772.6 | 533.6 | 146.0 | 118.3 | 113.3 | 110.7 | 110.7 | 113.3 | 118.3 | 118.3 |
| 35° | 823.0 | 812.9 | 483.2 | 125.8 | 110.7 | 105.7 | 100.7 | 95.6 | 95.6 | 95.6 | 95.6 |
| 37.5° | 870.8 | 885.9 | 410.2 | 115.8 | 105.7 | 98.2 | 90.6 | 83.1 | 78.0 | 75.5 | 73.0 |
| 40° | 969.0 | 981.5 | 337.2 | 108.2 | 98.2 | 90.6 | 78.0 | 68.0 | 60.4 | 55.4 | 55.4 |
| 42.5° | 1122.5 | 1112.4 | 256.7 | 103.2 | 90.6 | 80.5 | 65.4 | 55.4 | 45.3 | 40.3 | 40.3 |
| 45° | 1389.2 | 1276.0 | 188.8 | 95.6 | 85.6 | 73.0 | 55.4 | 42.8 | 32.7 | 30.2 | 30.2 |
| 47.5° | 1716.4 | 1464.8 | 143.5 | 90.6 | 78.0 | 62.9 | 42.8 | 32.7 | 25.2 | 22.7 | 22.7 |
| 50° | 2068.8 | 1658.5 | 118.3 | 83.1 | 70.5 | 52.9 | 35.2 | 22.7 | 17.6 | 17.6 | 17.6 |
| 52.5° | 2401.0 | 1789.4 | 98.2 | 75.5 | 60.4 | 42.8 | 25.2 | 17.6 | 15.1 | 15.1 | 15.1 |
| 55° | 2710.5 | 1869.9 | 80.5 | 65.4 | 50.3 | 32.7 | 20.1 | 15.1 | 12.6 | 10.1 | 10.1 |
| 57.5° | 2922.0 | 1857.4 | 65.4 | 52.9 | 37.8 | 22.7 | 15.1 | 12.6 | 10.1 | 7.6 | 7.6 |
| 60° | 2994.9 | 1746.6 | 50.3 | 42.8 | 27.7 | 17.6 | 12.6 | 10.1 | 7.6 | 5.0 | 5.0 |
| 62.5° | 2891.8 | 1527.7 | 40.3 | 32.7 | 20.1 | 15.1 | 10.1 | 7.6 | 5.0 | 2.5 | 2.5 |
| 65° | 2602.3 | 1313.7 | 30.2 | 22.7 | 15.1 | 10.1 | 7.6 | 5.0 | 2.5 | 0.0 | 0.0 |
| 67.5° | 2071.3 | 1019.3 | 25.2 | 15.1 | 10.1 | 7.6 | 5.0 | 2.5 | 0.0 | 0.0 | 0.0 |
| 70° | 1296.1 | 639.3 | 20.1 | 10.1 | 7.6 | 5.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 629.2 | 314.6 | 15.1 | 7.6 | 5.0 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 234.1 | 103.2 | 12.6 | 7.6 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 75.5 | 35.2 | 10.1 | 7.6 | 5.0 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 27.7 | 15.1 | 5.0 | 2.5 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 12.6 | 7.6 | 2.5 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 5.0 | 5.0 | 2.5 | 2.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 2.5 | 2.5 | 2.5 | 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
 CIE u': 0.2101
 CIE v': 0.4904
 Duv: 0.0037
 CIE x: 0.3493
 CIE y: 0.3624
 CIE z: 0.2884
 Peak Wavelength (nm): 444
 Dominant Wavelength (nm): 571
 Purity: 13.7
 Rf: 74.9
 Rg: 96.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 | | |
| R1: | 70.5 | R9: | -28.4 |
| R2: | 77.7 | R10: | 48.6 |
| R3: | 84.6 | R11: | 73.2 |
| R4: | 74.7 | R12: | 50.7 |
| R5: | 71.9 | R13: | 71.2 |
| R6: | 70.7 | R14: | 91.4 |
| R7: | 81.2 | | |
| R8: | 56.9 | | |



Test Conditions

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

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

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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 (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

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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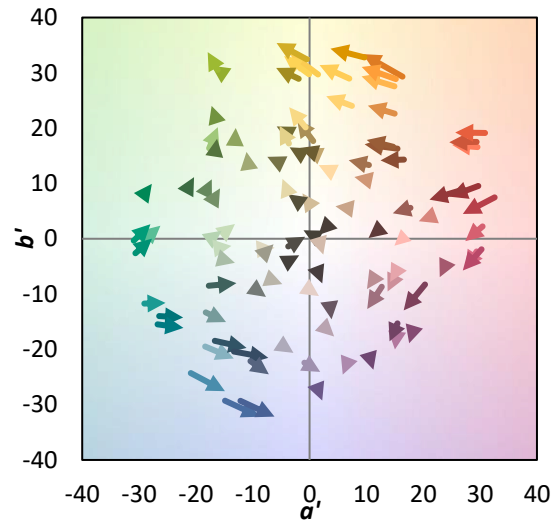
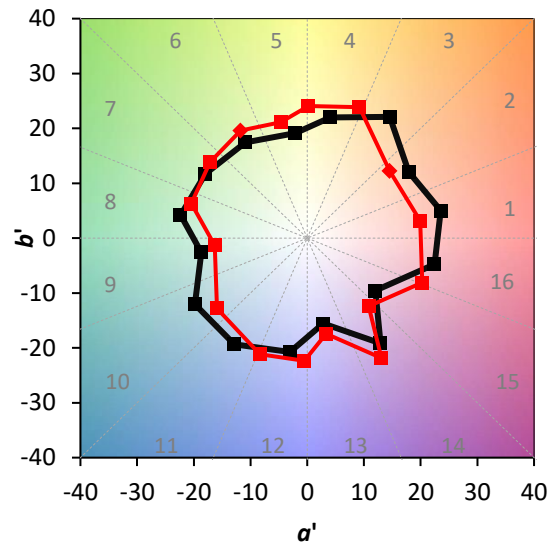
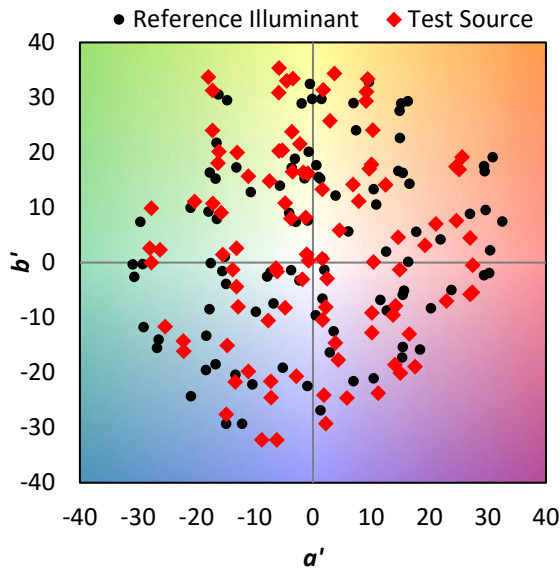
TM-30-18

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)