

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: P437549

Luminaire Tested: **ISC-SA1D-750-U-T4W-HSS**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437549
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-13)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISC-SA1D-750-U-T4W-HSS
Description: IMPACT ELITE LED CYLINDER LUMINAIRE
(1) 70 CRI, 5000K, 800mA 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: 4264 lumens
Efficiency: N/A
Efficacy: 94.3 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

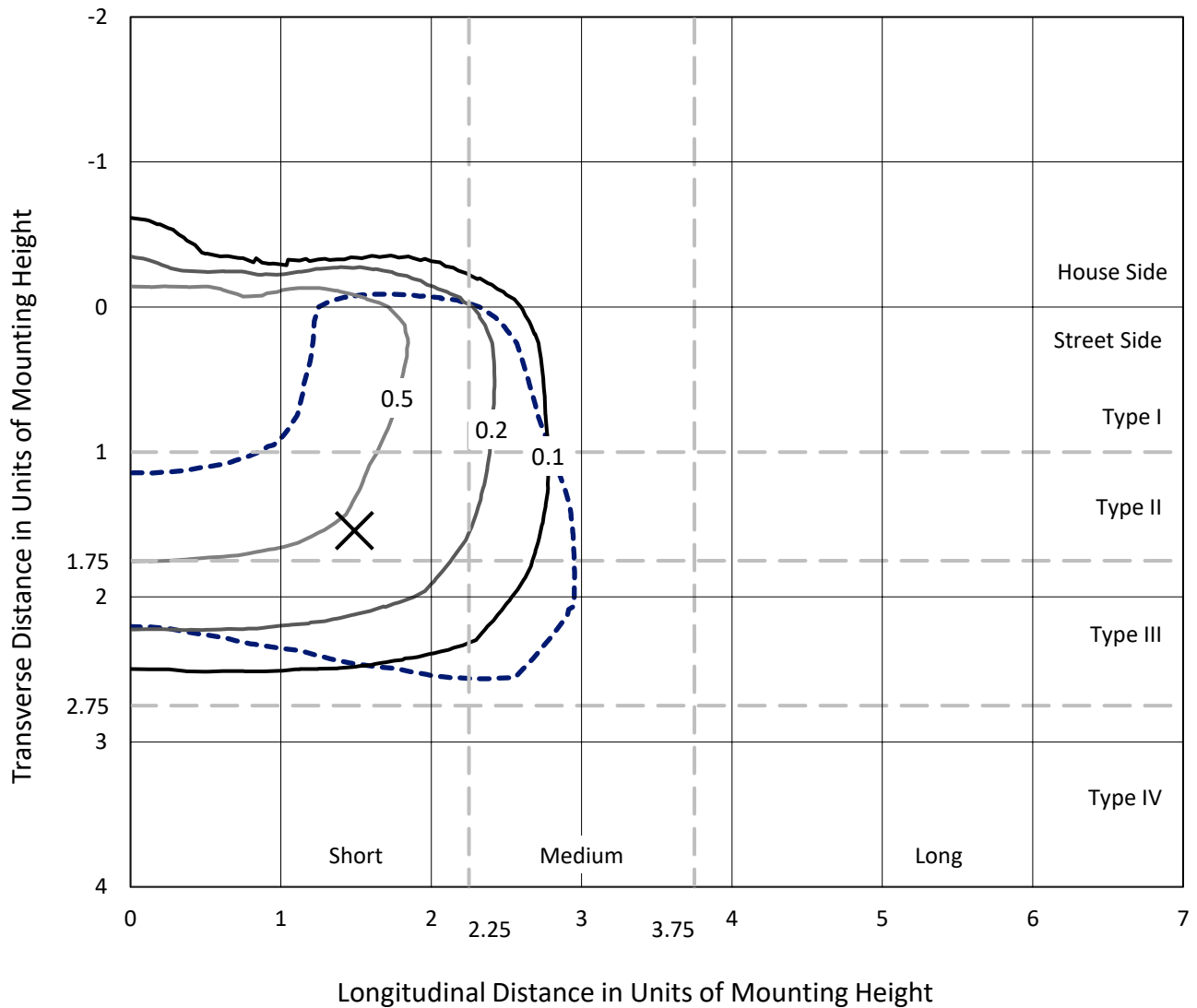
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

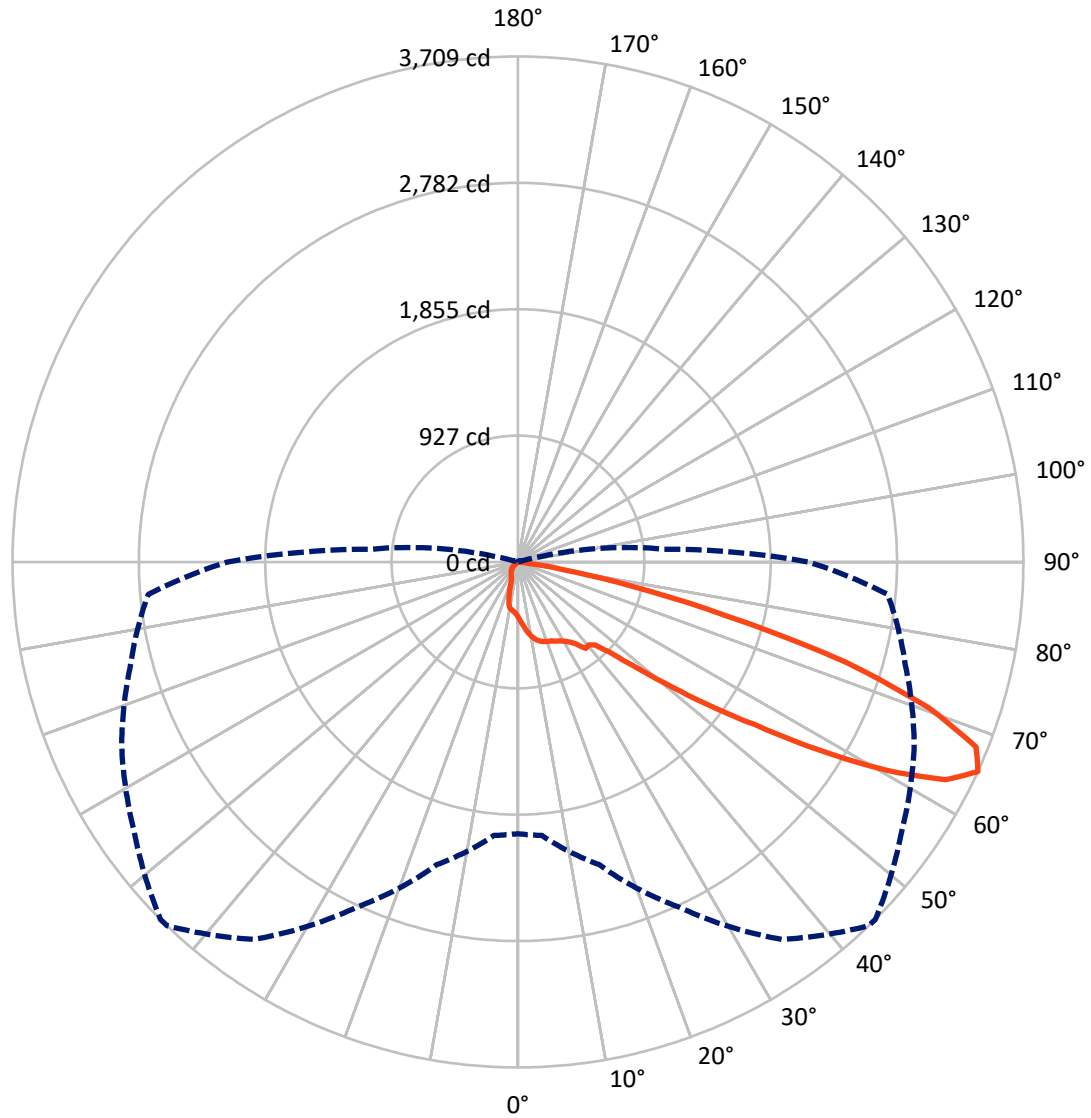
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1 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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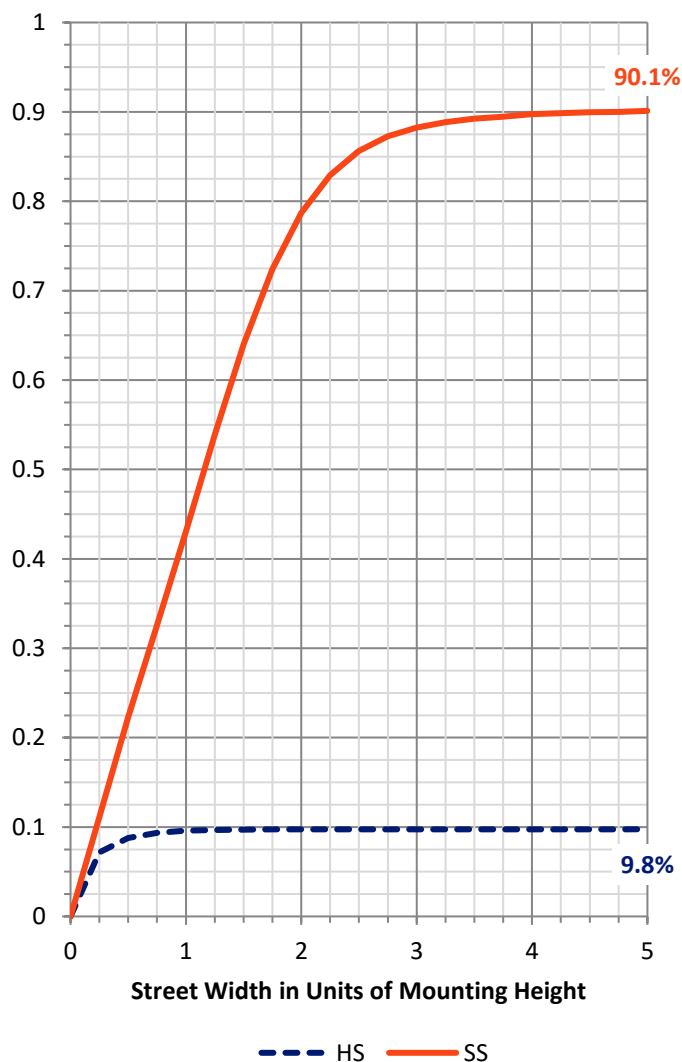
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 419.4 | 0.0 | 419.4 |
| | % Fixture | 9.8 | 0.0 | 9.8 |
| Street Side | Lumens | 3844.6 | 0.0 | 3844.6 |
| | % Fixture | 90.2 | 0.0 | 90.2 |
| Total | Lumens | 4264.0 | 0.0 | 4264.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 41.2 | 1.0 |
| 10°-20° | 124.1 | 2.9 |
| 20°-30° | 198.7 | 4.7 |
| 30°-40° | 295.1 | 6.9 |
| 40°-50° | 537.9 | 12.6 |
| 50°-60° | 1127.9 | 26.5 |
| 60°-70° | 1435.6 | 33.7 |
| 70°-80° | 481.8 | 11.3 |
| 80°-90° | 21.6 | 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° | 4264.0 | 100.0 |
| 0°-180° | 4264.0 | 100.0 |

Coefficient of Utilization



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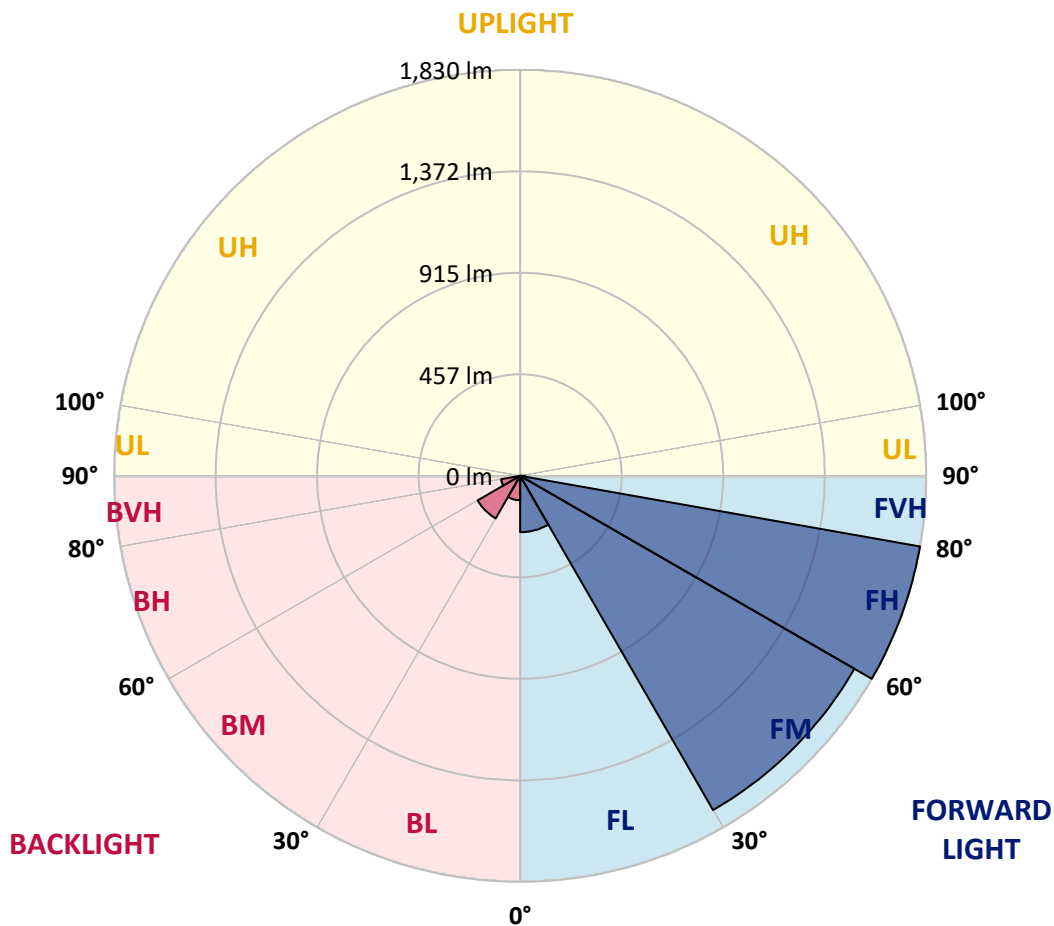
CATALOG NUMBER: ISC-SA1D-750-U-T4W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 253.9 | 6.0 | | | |
| FM (30°-60°) | 1739.7 | 40.8 | | | |
| FH (60°-80°) | 1830.0 | 42.9 | | | G2/5000 |
| FVH (80°-90°) | 21.0 | 0.5 | | | G1/100 |
| BL (0°-30°) | 110.1 | 2.6 | B1/500 | | |
| BM (30°-60°) | 221.3 | 5.2 | B1/1000 | | |
| BH (60°-80°) | 87.4 | 2.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.6 | 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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CATALOG NUMBER: ISC-SA1D-750-U-T4W-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 44° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 |
| 2.5° | 457.7 | 459.8 | 451.5 | 453.6 | 449.5 | 441.2 | 439.2 | 433.0 | 424.7 | 418.5 | 412.4 |
| 5° | 517.5 | 515.4 | 511.3 | 503.1 | 492.8 | 480.4 | 476.3 | 463.9 | 449.5 | 433.0 | 420.6 |
| 7.5° | 567.0 | 567.0 | 560.8 | 552.6 | 536.1 | 519.6 | 515.4 | 498.9 | 478.3 | 455.6 | 433.0 |
| 10° | 610.3 | 608.2 | 602.0 | 591.7 | 571.1 | 556.7 | 550.5 | 529.9 | 505.1 | 480.4 | 453.6 |
| 12.5° | 643.3 | 643.3 | 635.0 | 620.6 | 597.9 | 583.5 | 579.4 | 560.8 | 536.1 | 507.2 | 470.1 |
| 15° | 661.8 | 659.8 | 653.6 | 635.0 | 618.5 | 602.0 | 600.0 | 583.5 | 562.9 | 531.9 | 492.8 |
| 17.5° | 661.8 | 663.9 | 653.6 | 643.3 | 628.8 | 614.4 | 612.3 | 600.0 | 579.4 | 552.6 | 511.3 |
| 20° | 653.6 | 653.6 | 645.3 | 637.1 | 628.8 | 622.7 | 620.6 | 612.3 | 595.8 | 573.2 | 531.9 |
| 22.5° | 643.3 | 641.2 | 639.1 | 633.0 | 630.9 | 628.8 | 630.9 | 626.8 | 616.5 | 591.7 | 552.6 |
| 25° | 641.2 | 639.1 | 635.0 | 630.9 | 633.0 | 643.3 | 643.3 | 645.3 | 635.0 | 614.4 | 577.3 |
| 27.5° | 649.5 | 649.5 | 643.3 | 637.1 | 641.2 | 655.6 | 655.6 | 661.8 | 655.6 | 641.2 | 604.1 |
| 30° | 684.5 | 676.3 | 665.9 | 653.6 | 657.7 | 674.2 | 676.3 | 688.6 | 688.6 | 678.3 | 647.4 |
| 32.5° | 731.9 | 723.7 | 696.9 | 680.4 | 680.4 | 701.0 | 701.0 | 721.6 | 740.2 | 719.6 | 672.1 |
| 35° | 769.0 | 764.9 | 734.0 | 713.4 | 719.6 | 738.1 | 744.3 | 777.3 | 793.8 | 742.2 | 684.5 |
| 37.5° | 892.7 | 886.6 | 826.8 | 750.5 | 754.6 | 806.1 | 810.3 | 824.7 | 810.3 | 752.5 | 709.2 |
| 40° | 1057.7 | 1061.8 | 1000.0 | 874.2 | 777.3 | 800.0 | 800.0 | 824.7 | 832.9 | 797.9 | 769.0 |
| 42.5° | 1307.2 | 1282.4 | 1220.6 | 1049.4 | 878.3 | 832.9 | 835.0 | 870.1 | 913.4 | 892.7 | 896.9 |
| 45° | 1523.6 | 1505.1 | 1439.1 | 1274.2 | 1041.2 | 942.2 | 934.0 | 979.3 | 1063.9 | 1082.4 | 1129.8 |
| 47.5° | 1715.4 | 1696.8 | 1668.0 | 1513.3 | 1284.5 | 1134.0 | 1103.0 | 1148.4 | 1294.8 | 1391.7 | 1424.7 |
| 50° | 1946.3 | 1950.4 | 1884.4 | 1795.8 | 1550.4 | 1391.7 | 1383.4 | 1385.5 | 1616.4 | 1696.8 | 1744.2 |
| 52.5° | 2239.1 | 2232.9 | 2117.4 | 2070.0 | 1919.5 | 1729.8 | 1682.4 | 1711.3 | 1940.1 | 1997.8 | 2076.2 |
| 55° | 2447.3 | 2441.1 | 2385.5 | 2377.2 | 2327.7 | 2105.1 | 2092.7 | 2090.6 | 2296.8 | 2321.5 | 2414.3 |
| 57.5° | 2568.9 | 2579.3 | 2618.4 | 2723.6 | 2764.8 | 2604.0 | 2568.9 | 2500.9 | 2616.4 | 2610.2 | 2711.2 |
| 60° | 2589.6 | 2606.1 | 2717.4 | 2958.6 | 3189.5 | 3102.9 | 3055.5 | 2878.2 | 2909.1 | 2857.6 | 2919.4 |
| 62.5° | 2422.6 | 2470.0 | 2667.9 | 3008.1 | 3404.0 | 3519.4 | 3480.2 | 3206.0 | 3133.9 | 3026.7 | 2948.3 |
| 65° | 1993.7 | 2014.3 | 2298.9 | 2793.7 | 3381.3 | 3709.1 | 3709.1 | 3439.0 | 3208.1 | 2944.2 | 2723.6 |
| 67.5° | 1377.3 | 1387.6 | 1733.9 | 2253.5 | 3034.9 | 3626.6 | 3657.6 | 3434.9 | 3078.2 | 2620.5 | 2220.5 |
| 70° | 781.4 | 839.1 | 1049.4 | 1575.2 | 2391.6 | 3193.7 | 3226.7 | 3125.6 | 2577.2 | 1942.2 | 1455.6 |
| 72.5° | 325.8 | 362.9 | 511.3 | 917.5 | 1626.7 | 2515.3 | 2573.1 | 2478.2 | 1925.7 | 1185.5 | 688.6 |
| 75° | 101.0 | 105.1 | 169.1 | 400.0 | 888.6 | 1579.3 | 1676.2 | 1672.1 | 1150.5 | 554.6 | 280.4 |
| 77.5° | 55.7 | 57.7 | 80.4 | 162.9 | 389.7 | 843.3 | 903.0 | 853.6 | 569.0 | 239.2 | 86.6 |
| 80° | 26.8 | 28.9 | 43.3 | 78.3 | 171.1 | 315.4 | 371.1 | 344.3 | 197.9 | 113.4 | 28.9 |
| 82.5° | 8.2 | 10.3 | 20.6 | 35.0 | 68.0 | 74.2 | 74.2 | 132.0 | 101.0 | 74.2 | 14.4 |
| 85° | 0.0 | 0.0 | 6.2 | 12.4 | 12.4 | 12.4 | 12.4 | 28.9 | 47.4 | 45.4 | 6.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 4.1 | 2.1 |
| 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: P437549
 CATALOG NUMBER: ISC-SA1D-750-U-T4W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 | 406.2 |
| 2.5° | 408.2 | 406.2 | 397.9 | 389.7 | 385.5 | 381.4 | 377.3 | 373.2 | 373.2 | 375.2 | 373.2 |
| 5° | 412.4 | 406.2 | 393.8 | 381.4 | 373.2 | 367.0 | 358.7 | 356.7 | 354.6 | 356.7 | 356.7 |
| 7.5° | 422.7 | 414.4 | 395.9 | 377.3 | 364.9 | 354.6 | 348.4 | 346.4 | 342.3 | 342.3 | 342.3 |
| 10° | 439.2 | 424.7 | 400.0 | 379.4 | 362.9 | 348.4 | 329.9 | 309.3 | 296.9 | 288.6 | 282.5 |
| 12.5° | 455.6 | 439.2 | 406.2 | 381.4 | 362.9 | 321.6 | 276.3 | 237.1 | 216.5 | 206.2 | 204.1 |
| 15° | 474.2 | 453.6 | 418.5 | 389.7 | 340.2 | 263.9 | 202.1 | 169.1 | 160.8 | 160.8 | 158.8 |
| 17.5° | 488.6 | 470.1 | 428.8 | 391.7 | 299.0 | 197.9 | 152.6 | 142.3 | 144.3 | 148.4 | 148.4 |
| 20° | 511.3 | 488.6 | 443.3 | 373.2 | 230.9 | 148.4 | 134.0 | 136.1 | 138.1 | 140.2 | 142.3 |
| 22.5° | 531.9 | 507.2 | 459.8 | 331.9 | 169.1 | 127.8 | 127.8 | 129.9 | 132.0 | 134.0 | 136.1 |
| 25° | 556.7 | 534.0 | 476.3 | 272.2 | 129.9 | 117.5 | 119.6 | 123.7 | 125.8 | 127.8 | 127.8 |
| 27.5° | 585.5 | 560.8 | 476.3 | 214.4 | 113.4 | 109.3 | 109.3 | 113.4 | 115.5 | 119.6 | 119.6 |
| 30° | 624.7 | 597.9 | 463.9 | 158.8 | 105.1 | 101.0 | 99.0 | 103.1 | 105.1 | 109.3 | 109.3 |
| 32.5° | 649.5 | 633.0 | 437.1 | 119.6 | 96.9 | 92.8 | 90.7 | 90.7 | 92.8 | 96.9 | 96.9 |
| 35° | 674.2 | 665.9 | 395.9 | 103.1 | 90.7 | 86.6 | 82.5 | 78.3 | 78.3 | 78.3 | 78.3 |
| 37.5° | 713.4 | 725.7 | 336.1 | 94.8 | 86.6 | 80.4 | 74.2 | 68.0 | 63.9 | 61.9 | 59.8 |
| 40° | 793.8 | 804.1 | 276.3 | 88.7 | 80.4 | 74.2 | 63.9 | 55.7 | 49.5 | 45.4 | 45.4 |
| 42.5° | 919.5 | 911.3 | 210.3 | 84.5 | 74.2 | 66.0 | 53.6 | 45.4 | 37.1 | 33.0 | 33.0 |
| 45° | 1138.1 | 1045.3 | 154.6 | 78.3 | 70.1 | 59.8 | 45.4 | 35.0 | 26.8 | 24.7 | 24.7 |
| 47.5° | 1406.1 | 1199.9 | 117.5 | 74.2 | 63.9 | 51.5 | 35.0 | 26.8 | 20.6 | 18.6 | 18.6 |
| 50° | 1694.8 | 1358.7 | 96.9 | 68.0 | 57.7 | 43.3 | 28.9 | 18.6 | 14.4 | 14.4 | 14.4 |
| 52.5° | 1966.9 | 1465.9 | 80.4 | 61.9 | 49.5 | 35.0 | 20.6 | 14.4 | 12.4 | 12.4 | 12.4 |
| 55° | 2220.5 | 1531.9 | 66.0 | 53.6 | 41.2 | 26.8 | 16.5 | 12.4 | 10.3 | 8.2 | 8.2 |
| 57.5° | 2393.7 | 1521.6 | 53.6 | 43.3 | 30.9 | 18.6 | 12.4 | 10.3 | 8.2 | 6.2 | 6.2 |
| 60° | 2453.5 | 1430.9 | 41.2 | 35.0 | 22.7 | 14.4 | 10.3 | 8.2 | 6.2 | 4.1 | 4.1 |
| 62.5° | 2369.0 | 1251.5 | 33.0 | 26.8 | 16.5 | 12.4 | 8.2 | 6.2 | 4.1 | 2.1 | 2.1 |
| 65° | 2131.9 | 1076.2 | 24.7 | 18.6 | 12.4 | 8.2 | 6.2 | 4.1 | 2.1 | 0.0 | 0.0 |
| 67.5° | 1696.8 | 835.0 | 20.6 | 12.4 | 8.2 | 6.2 | 4.1 | 2.1 | 0.0 | 0.0 | 0.0 |
| 70° | 1061.8 | 523.7 | 16.5 | 8.2 | 6.2 | 4.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 515.4 | 257.7 | 12.4 | 6.2 | 4.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 75° | 191.7 | 84.5 | 10.3 | 6.2 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 61.9 | 28.9 | 8.2 | 6.2 | 4.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 22.7 | 12.4 | 4.1 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 10.3 | 6.2 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 4.1 | 4.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 2.1 | 2.1 | 2.1 | 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 ($\mu\text{W}/\text{nm}$) | 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 | | | |

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)