

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: P436978

Luminaire Tested: **ISC-SA1A-730-U-T4FT**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P436978
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-10)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: ISC-SA1A-730-U-T4FT
Description: IMPACT ELITE LED CYLINDER LUMINAIRE
(1) 70 CRI, 3000K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV FORWARD
THROW OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2505 lumens
Efficiency: N/A
Efficacy: 124.6 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G1

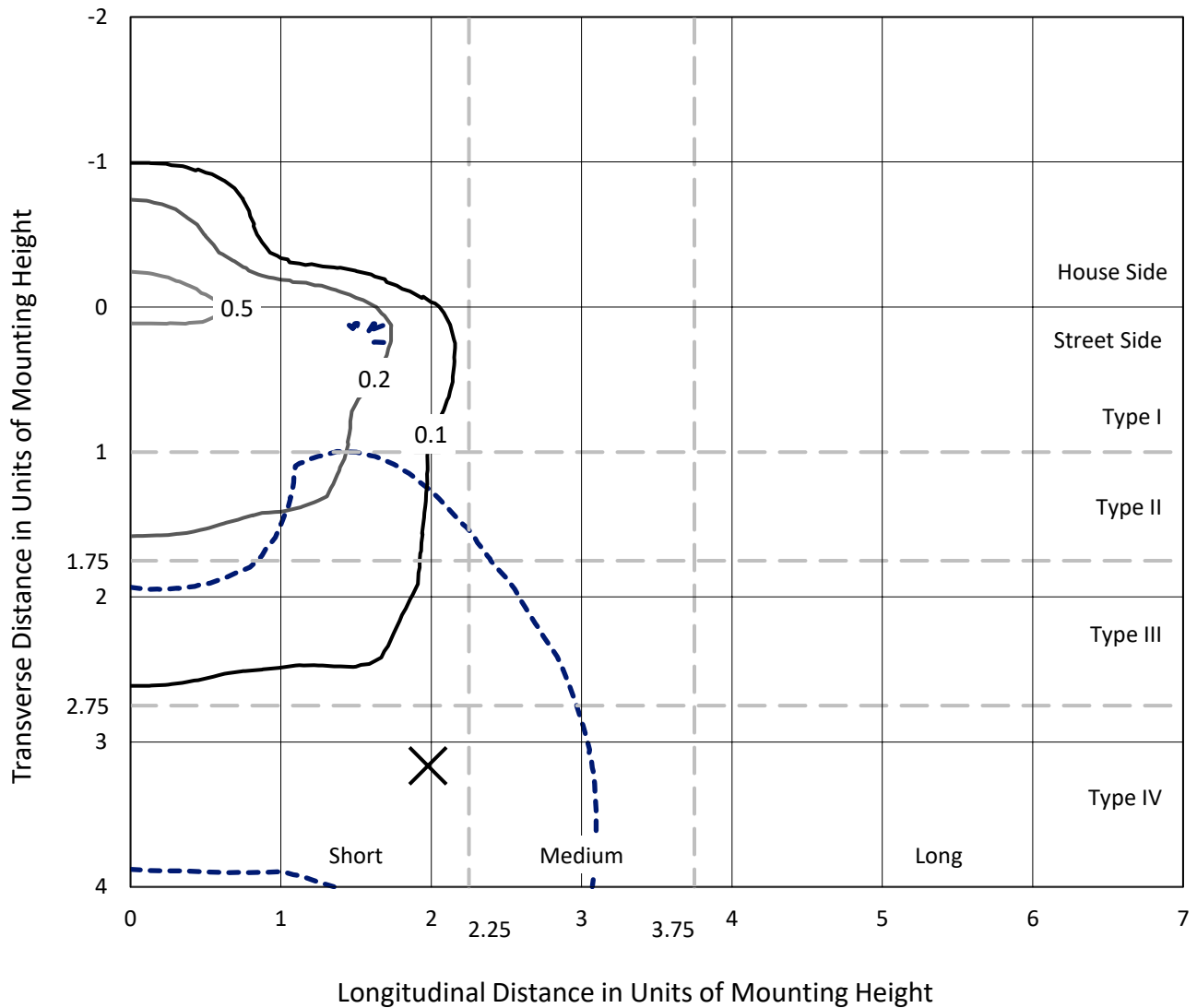
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P436978
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Iso-Footcandle Lines of Horizontal Illumination

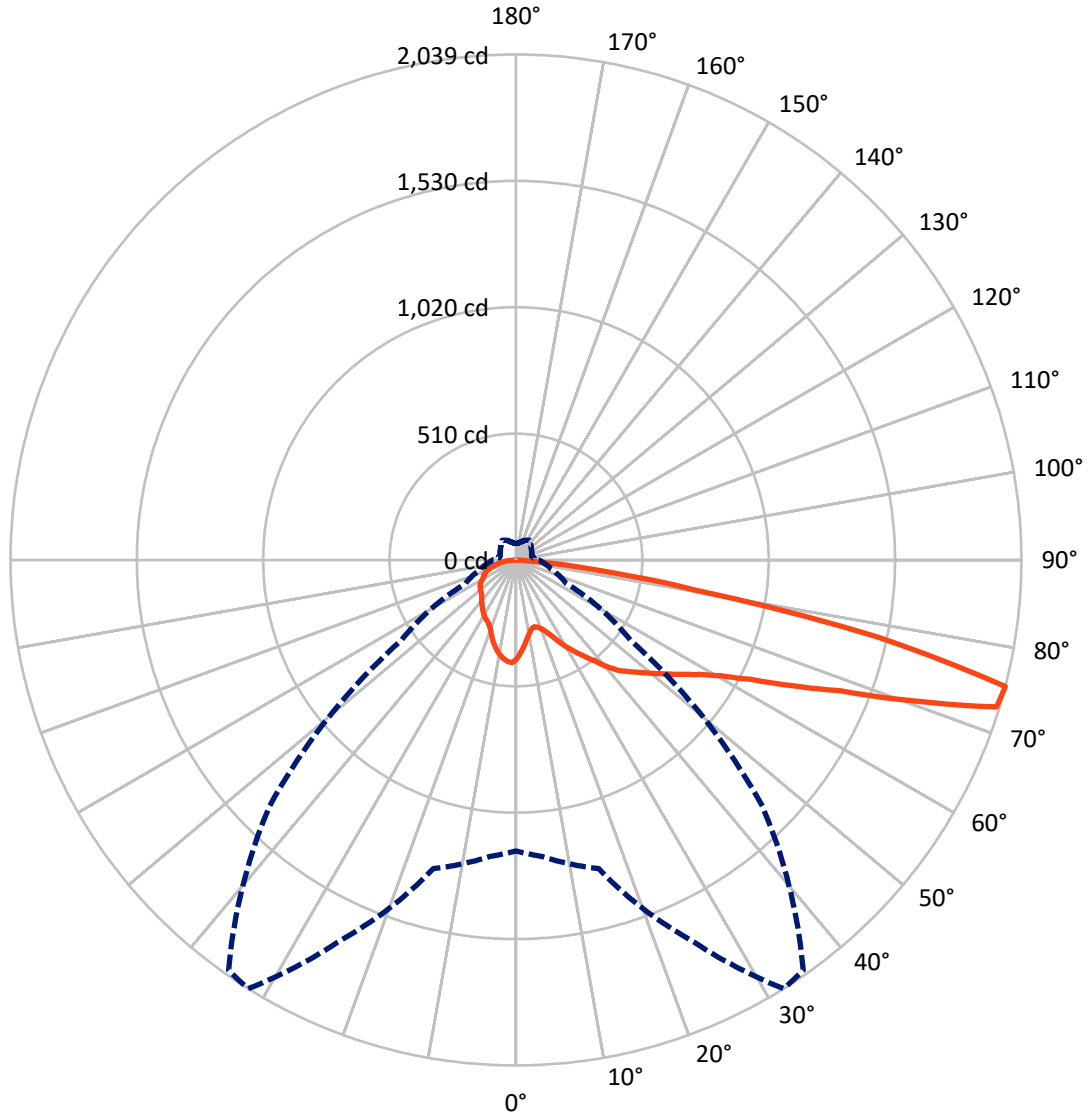
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.6 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



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

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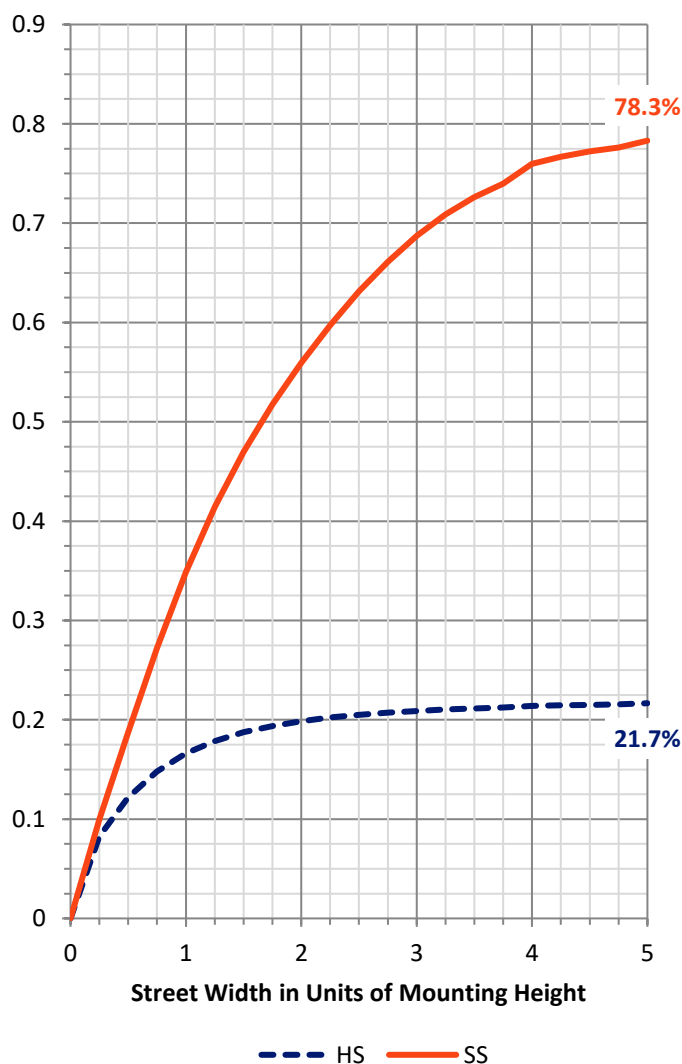
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 548.9 | 0.0 | 548.9 |
| | % Fixture | 21.9 | 0.0 | 21.9 |
| Street Side | Lumens | 1956.1 | 0.0 | 1956.1 |
| | % Fixture | 78.1 | 0.0 | 78.1 |
| Total | Lumens | 2505.0 | 0.0 | 2505.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 36.2 | 1.4 |
| 10°-20° | 99.0 | 4.0 |
| 20°-30° | 163.8 | 6.5 |
| 30°-40° | 244.2 | 9.7 |
| 40°-50° | 347.6 | 13.9 |
| 50°-60° | 478.3 | 19.1 |
| 60°-70° | 602.7 | 24.1 |
| 70°-80° | 487.2 | 19.5 |
| 80°-90° | 46.0 | 1.8 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 2505.0 | 100.0 |
| 0°-180° | 2505.0 | 100.0 |

Coefficient of Utilization

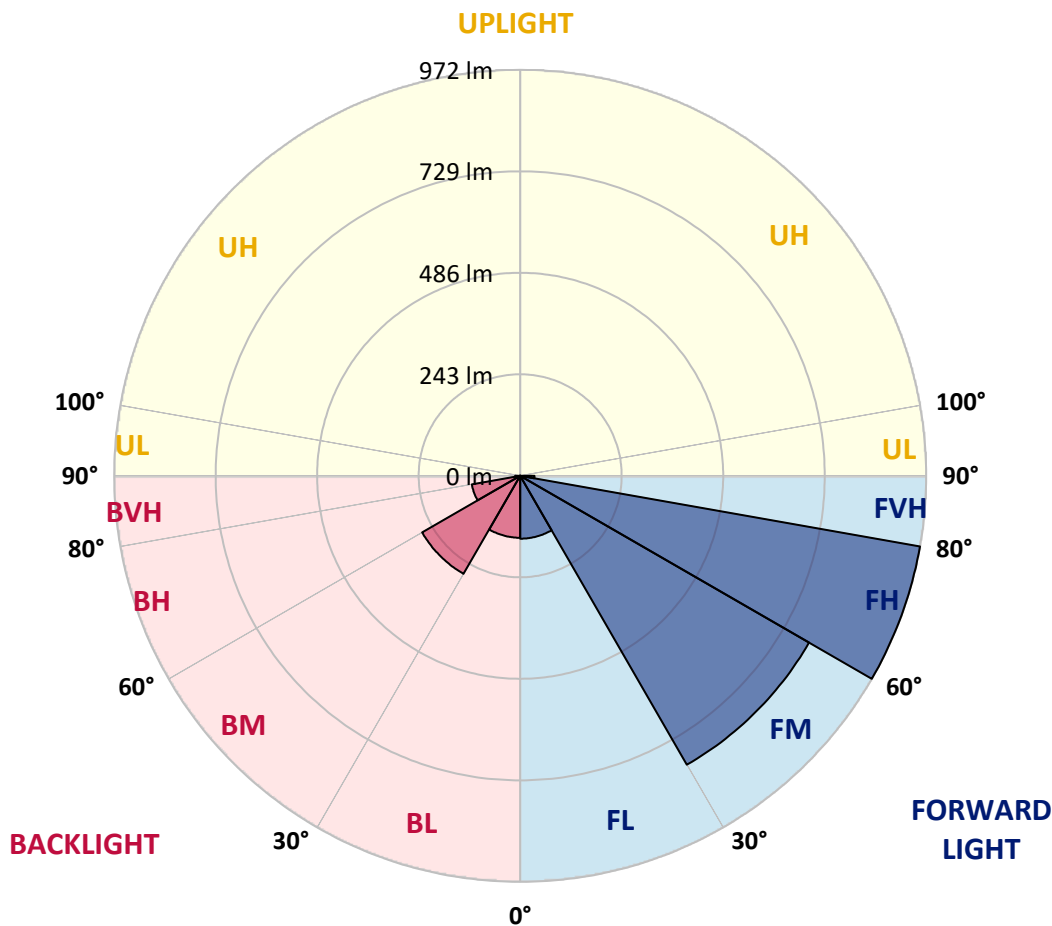


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 150.6 | 6.0 | | | |
| FM (30°-60°) | 798.9 | 31.9 | | | |
| FH (60°-80°) | 972.4 | 38.8 | | | G1/1800 |
| FVH (80°-90°) | 34.2 | 1.4 | | | G1/100 |
| BL (0°-30°) | 148.4 | 5.9 | B1/500 | | |
| BM (30°-60°) | 271.1 | 10.8 | B1/1000 | | |
| BH (60°-80°) | 117.5 | 4.7 | B1/500 | | G1/500 |
| BVH (80°-90°) | 11.8 | 0.5 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1
 Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|
| 0° | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 |
| 2.5° | 364.2 | 366.9 | 367.8 | 369.6 | 373.3 | 371.5 | 376.0 | 381.5 | 388.8 | 392.4 | 399.7 |
| 5° | 333.2 | 333.2 | 336.0 | 340.5 | 346.9 | 346.9 | 355.1 | 365.1 | 377.8 | 387.8 | 400.6 |
| 7.5° | 305.9 | 305.9 | 308.6 | 314.1 | 320.5 | 325.0 | 335.0 | 350.5 | 367.8 | 386.9 | 403.3 |
| 10° | 283.1 | 284.1 | 285.9 | 291.3 | 299.5 | 304.1 | 318.7 | 336.0 | 358.7 | 383.3 | 406.1 |
| 12.5° | 275.0 | 274.0 | 273.1 | 277.7 | 284.1 | 287.7 | 304.1 | 325.9 | 352.3 | 382.4 | 411.5 |
| 15° | 281.3 | 279.5 | 276.8 | 276.8 | 279.5 | 281.3 | 295.0 | 317.7 | 346.9 | 381.5 | 417.9 |
| 17.5° | 297.7 | 295.9 | 289.5 | 283.1 | 285.0 | 285.9 | 295.0 | 313.2 | 344.1 | 385.1 | 427.0 |
| 20° | 320.5 | 317.7 | 306.8 | 298.6 | 296.8 | 296.8 | 302.3 | 315.9 | 346.0 | 392.4 | 438.8 |
| 22.5° | 347.8 | 345.1 | 332.3 | 317.7 | 315.9 | 315.0 | 317.7 | 326.8 | 351.4 | 400.6 | 457.0 |
| 25° | 384.2 | 381.5 | 366.0 | 347.8 | 341.4 | 340.5 | 337.8 | 343.2 | 360.5 | 411.5 | 469.8 |
| 27.5° | 423.4 | 424.3 | 406.1 | 381.5 | 375.1 | 372.4 | 365.1 | 364.2 | 371.5 | 420.6 | 491.6 |
| 30° | 459.8 | 457.9 | 438.8 | 418.8 | 409.7 | 406.1 | 394.2 | 388.8 | 384.2 | 434.3 | 517.1 |
| 32.5° | 477.1 | 479.8 | 470.7 | 451.6 | 444.3 | 437.9 | 424.3 | 415.2 | 408.8 | 455.2 | 548.1 |
| 35° | 506.2 | 507.1 | 503.5 | 491.6 | 477.1 | 472.5 | 459.8 | 453.4 | 439.7 | 480.7 | 585.4 |
| 37.5° | 535.3 | 538.1 | 537.2 | 529.9 | 517.1 | 512.6 | 501.6 | 498.9 | 471.6 | 512.6 | 631.8 |
| 40° | 579.0 | 574.5 | 568.1 | 570.8 | 566.3 | 563.6 | 559.0 | 549.9 | 516.2 | 547.2 | 677.4 |
| 42.5° | 626.4 | 618.2 | 595.4 | 602.7 | 609.1 | 611.8 | 618.2 | 608.2 | 562.6 | 599.1 | 714.7 |
| 45° | 664.6 | 658.2 | 628.2 | 630.0 | 642.8 | 651.9 | 681.9 | 676.5 | 622.7 | 655.5 | 764.8 |
| 47.5° | 686.5 | 681.0 | 660.1 | 669.2 | 677.4 | 690.1 | 748.4 | 743.8 | 679.2 | 716.5 | 824.9 |
| 50° | 717.4 | 708.3 | 688.3 | 704.7 | 719.2 | 729.3 | 813.0 | 811.2 | 727.4 | 779.3 | 893.1 |
| 52.5° | 734.7 | 725.6 | 723.8 | 746.6 | 763.9 | 777.5 | 882.2 | 876.7 | 774.8 | 842.2 | 957.8 |
| 55° | 758.4 | 760.2 | 772.0 | 789.3 | 813.9 | 836.7 | 949.6 | 922.3 | 818.5 | 904.1 | 1021.5 |
| 57.5° | 810.3 | 808.5 | 831.2 | 839.4 | 871.3 | 900.4 | 1029.7 | 970.5 | 854.9 | 948.7 | 1051.6 |
| 60° | 879.5 | 883.1 | 891.3 | 912.3 | 946.9 | 991.5 | 1107.1 | 1020.6 | 878.6 | 980.5 | 1046.1 |
| 62.5° | 1010.6 | 989.6 | 986.0 | 991.5 | 1059.7 | 1111.6 | 1182.7 | 1065.2 | 888.6 | 981.4 | 988.7 |
| 65° | 1143.5 | 1135.3 | 1107.1 | 1120.7 | 1220.0 | 1267.3 | 1280.1 | 1094.3 | 868.6 | 925.0 | 861.3 |
| 67.5° | 1281.0 | 1280.1 | 1250.0 | 1289.2 | 1408.4 | 1464.0 | 1388.4 | 1088.9 | 803.0 | 793.0 | 661.9 |
| 70° | 1422.1 | 1428.5 | 1428.5 | 1539.5 | 1702.5 | 1717.1 | 1509.5 | 1037.0 | 672.8 | 561.7 | 386.9 |
| 72.5° | 1484.0 | 1487.7 | 1520.4 | 1767.2 | 2027.5 | 2032.1 | 1578.7 | 880.4 | 458.9 | 299.5 | 194.8 |
| 75° | 1173.6 | 1200.9 | 1289.2 | 1701.6 | 2039.4 | 2021.2 | 1406.6 | 563.6 | 224.0 | 149.3 | 108.3 |
| 77.5° | 460.7 | 470.7 | 650.1 | 1083.4 | 1485.8 | 1504.0 | 910.4 | 224.9 | 113.8 | 94.7 | 78.3 |
| 80° | 130.2 | 136.6 | 230.3 | 430.6 | 733.8 | 811.2 | 362.4 | 97.4 | 76.5 | 69.2 | 56.4 |
| 82.5° | 46.4 | 52.8 | 85.6 | 164.8 | 313.2 | 330.5 | 98.3 | 48.3 | 49.2 | 44.6 | 34.6 |
| 85° | 6.4 | 5.5 | 11.8 | 30.0 | 69.2 | 58.3 | 16.4 | 12.7 | 20.0 | 20.9 | 14.6 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 0.9 | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 |
| 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: ISC-SA1A-730-U-T4FT

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 | 398.8 |
| 2.5° | 401.5 | 403.3 | 407.0 | 408.8 | 410.6 | 414.2 | 413.3 | 415.2 | 415.2 | 414.2 | 416.1 |
| 5° | 405.1 | 409.7 | 414.2 | 416.1 | 417.0 | 417.0 | 412.4 | 409.7 | 408.8 | 407.9 | 408.8 |
| 7.5° | 408.8 | 415.2 | 419.7 | 418.8 | 415.2 | 408.8 | 403.3 | 398.8 | 394.2 | 392.4 | 394.2 |
| 10° | 415.2 | 421.5 | 424.3 | 417.9 | 407.9 | 397.9 | 389.7 | 383.3 | 376.0 | 375.1 | 376.0 |
| 12.5° | 420.6 | 428.8 | 428.8 | 414.2 | 400.6 | 386.9 | 374.2 | 364.2 | 355.1 | 352.3 | 352.3 |
| 15° | 429.7 | 436.1 | 429.7 | 409.7 | 390.6 | 373.3 | 355.1 | 342.3 | 331.4 | 326.8 | 327.8 |
| 17.5° | 439.7 | 444.3 | 427.9 | 402.4 | 379.7 | 356.9 | 333.2 | 315.9 | 307.7 | 303.2 | 304.1 |
| 20° | 451.6 | 452.5 | 427.9 | 393.3 | 363.3 | 333.2 | 307.7 | 295.0 | 289.5 | 286.8 | 287.7 |
| 22.5° | 467.1 | 463.4 | 425.2 | 381.5 | 342.3 | 309.5 | 285.9 | 282.2 | 282.2 | 282.2 | 285.0 |
| 25° | 483.4 | 473.4 | 420.6 | 366.0 | 315.0 | 281.3 | 272.2 | 276.8 | 280.4 | 280.4 | 282.2 |
| 27.5° | 499.8 | 483.4 | 411.5 | 343.2 | 283.1 | 261.3 | 264.9 | 272.2 | 275.9 | 275.9 | 277.7 |
| 30° | 519.9 | 495.3 | 400.6 | 312.3 | 253.1 | 247.6 | 256.7 | 265.8 | 271.3 | 271.3 | 273.1 |
| 32.5° | 545.4 | 505.3 | 384.2 | 280.4 | 233.1 | 235.8 | 245.8 | 255.8 | 262.2 | 264.0 | 264.9 |
| 35° | 573.6 | 518.9 | 361.4 | 244.9 | 219.4 | 226.7 | 234.9 | 244.0 | 249.5 | 251.3 | 251.3 |
| 37.5° | 602.7 | 532.6 | 331.4 | 214.9 | 207.6 | 217.6 | 225.8 | 230.3 | 234.0 | 234.0 | 234.0 |
| 40° | 631.8 | 539.9 | 292.2 | 191.2 | 195.7 | 210.3 | 217.6 | 215.8 | 214.9 | 212.1 | 213.0 |
| 42.5° | 661.9 | 545.4 | 250.4 | 173.9 | 183.9 | 202.1 | 207.6 | 203.0 | 195.7 | 191.2 | 192.1 |
| 45° | 694.7 | 553.5 | 215.8 | 161.1 | 172.1 | 194.8 | 200.3 | 191.2 | 182.1 | 174.8 | 173.0 |
| 47.5° | 732.0 | 567.2 | 184.8 | 149.3 | 164.8 | 190.3 | 195.7 | 183.0 | 171.2 | 161.1 | 159.3 |
| 50° | 783.0 | 588.1 | 161.1 | 141.1 | 160.2 | 187.5 | 192.1 | 175.7 | 162.1 | 149.3 | 148.4 |
| 52.5° | 834.9 | 603.6 | 144.8 | 133.8 | 154.8 | 182.1 | 187.5 | 170.3 | 153.9 | 140.2 | 138.4 |
| 55° | 873.1 | 601.8 | 130.2 | 126.6 | 147.5 | 174.8 | 183.0 | 163.9 | 142.9 | 130.2 | 128.4 |
| 57.5° | 889.5 | 564.5 | 118.4 | 120.2 | 139.3 | 165.7 | 175.7 | 153.9 | 134.7 | 123.8 | 122.9 |
| 60° | 861.3 | 504.4 | 110.2 | 112.9 | 130.2 | 153.9 | 162.1 | 146.6 | 129.3 | 119.3 | 118.4 |
| 62.5° | 812.1 | 437.0 | 103.8 | 107.4 | 121.1 | 142.9 | 153.9 | 137.5 | 122.0 | 114.7 | 113.8 |
| 65° | 695.6 | 363.3 | 97.4 | 101.1 | 112.9 | 132.0 | 146.6 | 132.0 | 116.5 | 109.3 | 108.3 |
| 67.5° | 525.3 | 261.3 | 91.0 | 94.7 | 105.6 | 123.8 | 140.2 | 124.7 | 108.3 | 102.9 | 102.9 |
| 70° | 313.2 | 160.2 | 82.8 | 88.3 | 96.5 | 113.8 | 130.2 | 114.7 | 98.3 | 96.5 | 94.7 |
| 72.5° | 153.0 | 102.0 | 75.6 | 80.1 | 86.5 | 101.1 | 115.6 | 102.0 | 85.6 | 81.0 | 80.1 |
| 75° | 92.0 | 73.7 | 65.6 | 71.0 | 75.6 | 84.7 | 97.4 | 87.4 | 74.7 | 67.4 | 66.5 |
| 77.5° | 66.5 | 55.5 | 55.5 | 61.0 | 61.0 | 70.1 | 83.8 | 74.7 | 62.8 | 58.3 | 57.4 |
| 80° | 47.3 | 41.9 | 45.5 | 49.2 | 47.3 | 59.2 | 71.0 | 62.8 | 51.0 | 47.3 | 46.4 |
| 82.5° | 31.0 | 29.1 | 34.6 | 33.7 | 33.7 | 45.5 | 58.3 | 47.3 | 37.3 | 31.0 | 29.1 |
| 85° | 12.7 | 14.6 | 20.0 | 19.1 | 19.1 | 25.5 | 30.0 | 24.6 | 17.3 | 13.7 | 13.7 |
| 87.5° | 0.0 | 0.9 | 2.7 | 1.8 | 1.8 | 2.7 | 0.9 | 0.9 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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



Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-2-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-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 2993 | CRI (Ra): | 71.8 | R9: | -38.3 |
| CIE u': | 0.2508 | R1: | 67.5 | R10: | 62.5 |
| CIE v': | 0.5215 | R2: | 82.9 | R11: | 63.7 |
| Duv: | 0.0000 | R3: | 94.7 | R12: | 57.8 |
| CIE x: | 0.4374 | R4: | 67.7 | R13: | 70.4 |
| CIE y: | 0.4043 | R5: | 67.9 | R14: | 97.3 |
| CIE z: | 0.1583 | R6: | 77.6 | | |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |
| Rf: | 75.7 | | | | |
| Rg: | 93.9 | | | | |



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-2-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 3000K 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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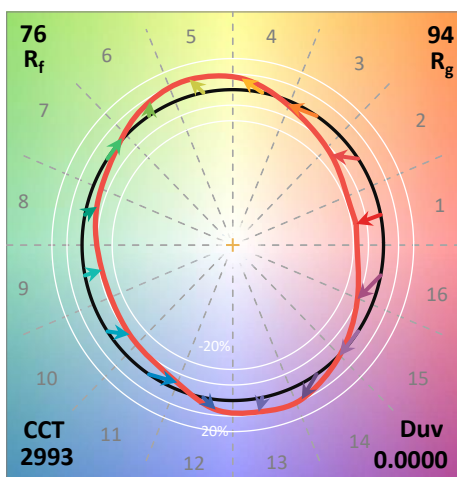
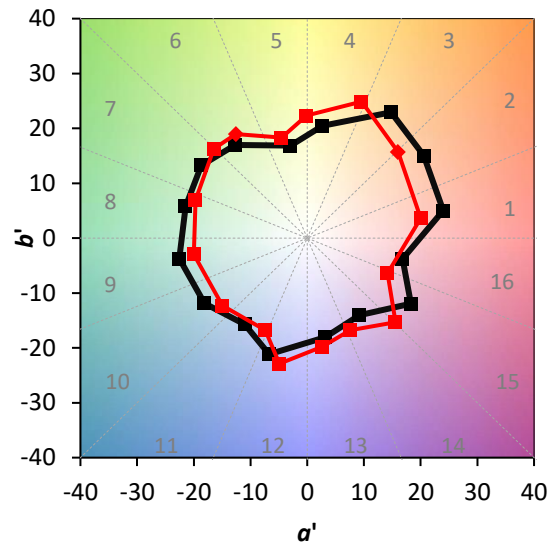
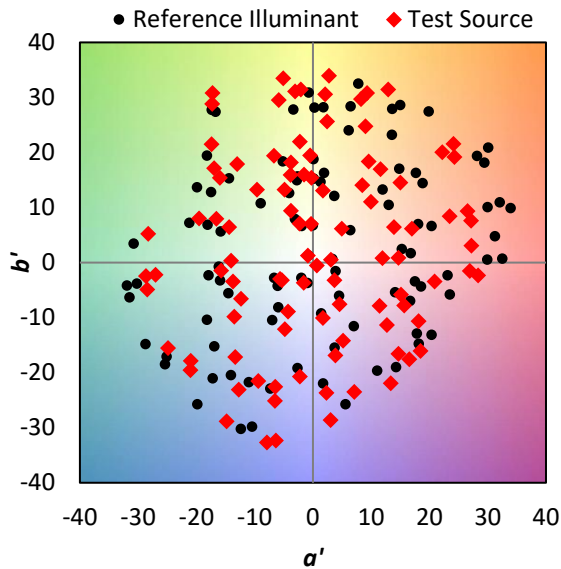
TM-30-18

Summary

$R_f = 75.7$
 $R_g = 93.9$
 $CIE R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)