

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: P437320

Luminaire Tested: **ISS-SA1C-730-U-T4FT**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437320
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: ISS-SA1C-730-U-T4FT
Description: IMPACT ELITE LED QUARTER SPHERE LUMINAIRE
(1) 70 CRI, 3000K, 615mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV FORWARD
THROW OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4129 lumens
Efficiency: N/A
Efficacy: 120.7 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

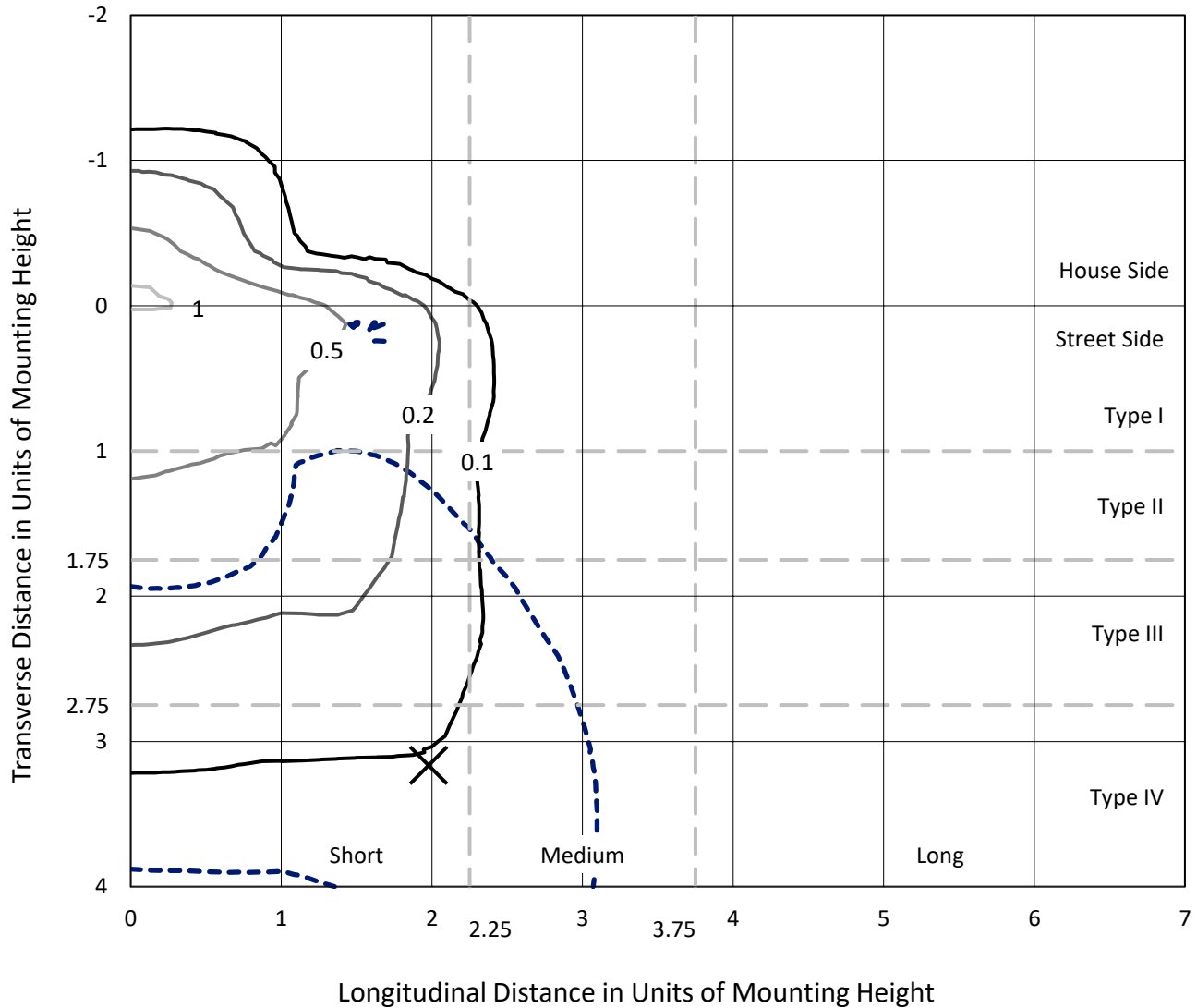
Input Watts (W): 34.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

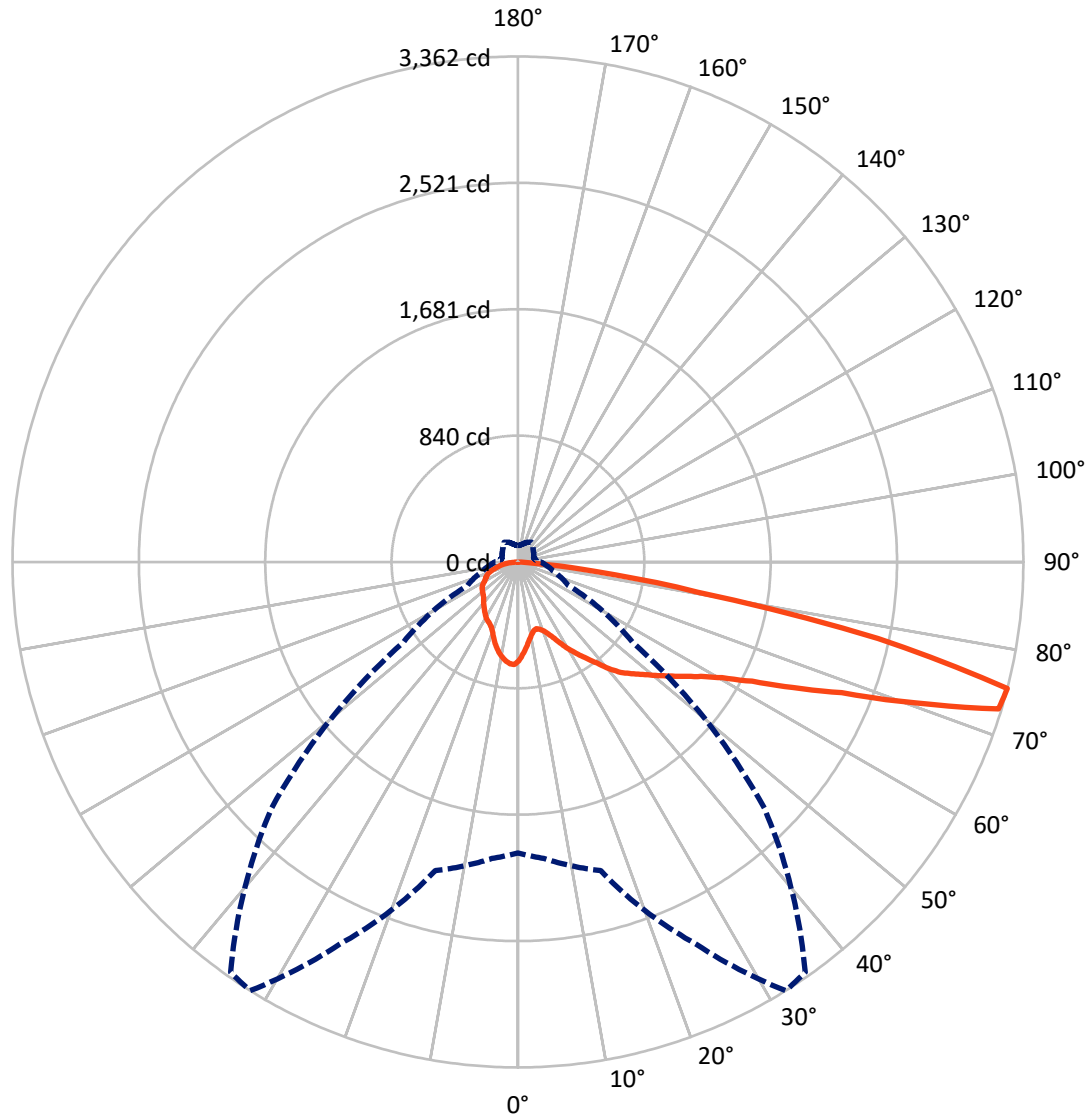
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.1 fc
 Type IV - Short - N/A

REPORT NUMBER: P437320
CATALOG NUMBER: ISS-SA1C-730-U-T4FT

Luminous Intensity Polar Plot



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

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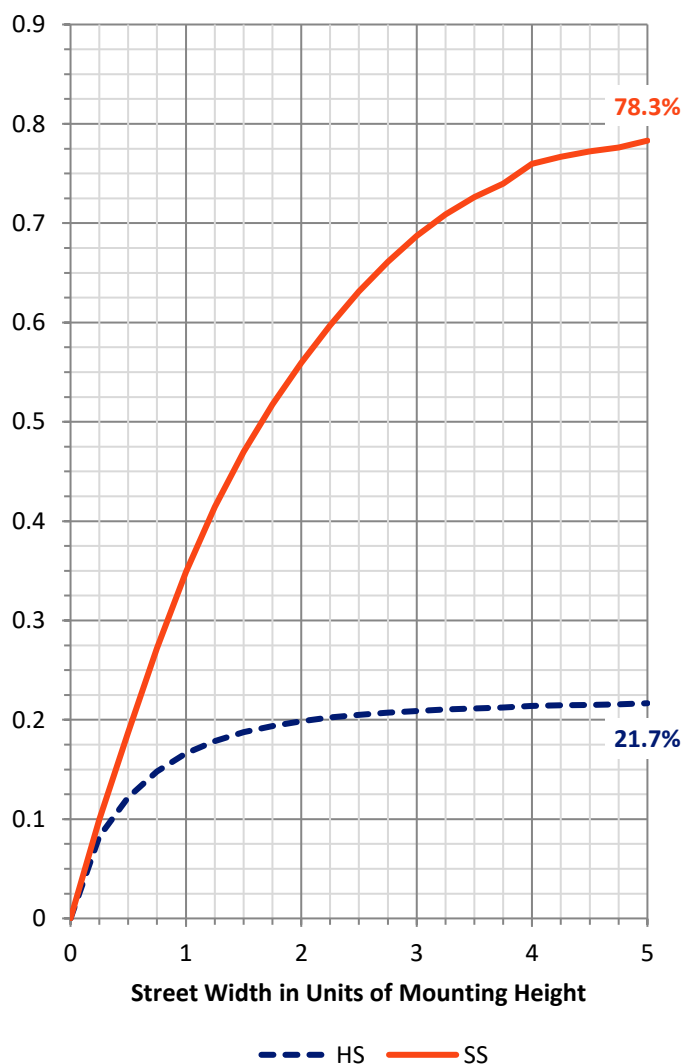
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 904.7 | 0.0 | 904.7 |
| | % Fixture | 21.9 | 0.0 | 21.9 |
| Street Side | Lumens | 3224.3 | 0.0 | 3224.3 |
| | % Fixture | 78.1 | 0.0 | 78.1 |
| Total | Lumens | 4129.0 | 0.0 | 4129.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 59.7 | 1.4 |
| 10°-20° | 163.1 | 4.0 |
| 20°-30° | 270.0 | 6.5 |
| 30°-40° | 402.4 | 9.7 |
| 40°-50° | 573.0 | 13.9 |
| 50°-60° | 788.3 | 19.1 |
| 60°-70° | 993.5 | 24.1 |
| 70°-80° | 803.1 | 19.5 |
| 80°-90° | 75.9 | 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° | 4129.0 | 100.0 |
| 0°-180° | 4129.0 | 100.0 |

Coefficient of Utilization



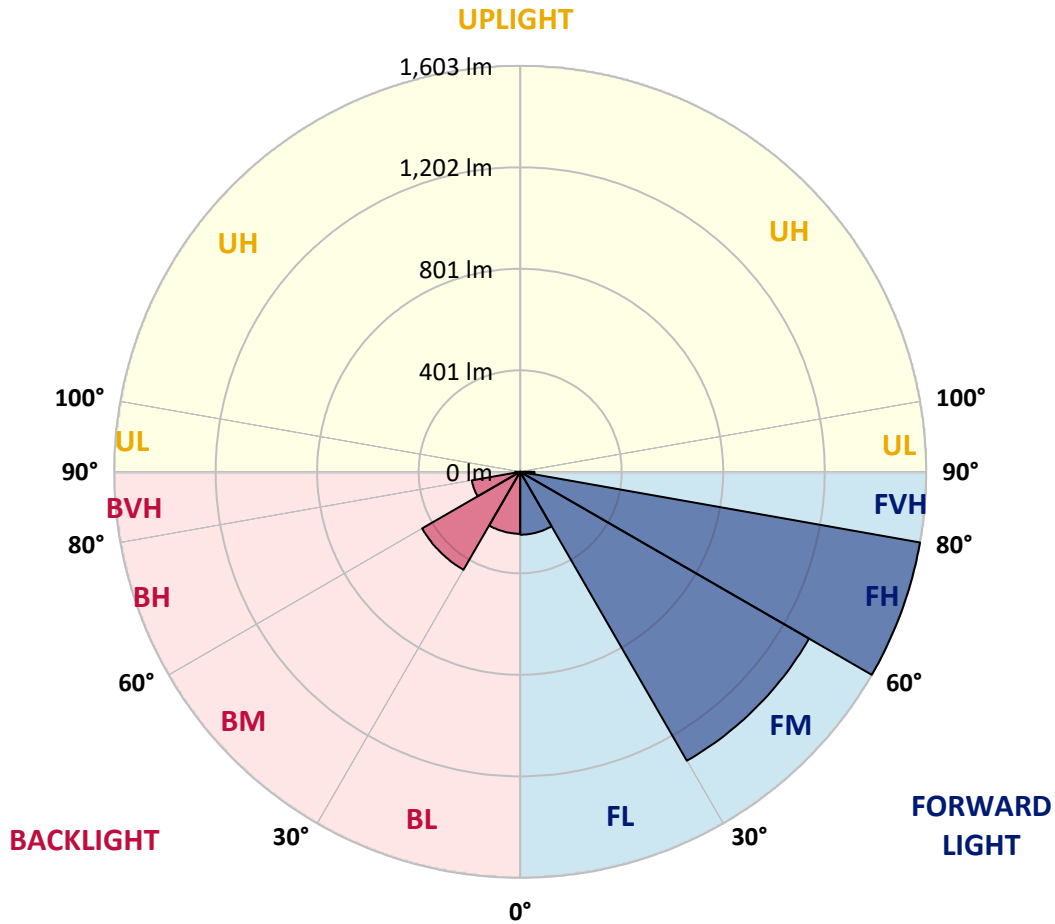
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 CATALOG NUMBER: ISS-SA1C-730-U-T4FT

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 248.2 | 6.0 | | | |
| FM (30°-60°) | 1316.9 | 31.9 | | | |
| FH (60°-80°) | 1602.8 | 38.8 | | | G1/1800 |
| FVH (80°-90°) | 56.4 | 1.4 | | | G1/100 |
| BL (0°-30°) | 244.6 | 5.9 | B1/500 | | |
| BM (30°-60°) | 446.9 | 10.8 | B1/1000 | | |
| BH (60°-80°) | 193.8 | 4.7 | B1/500 | | G1/500 |
| BVH (80°-90°) | 19.5 | 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° | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 |
| 2.5° | 600.3 | 604.8 | 606.3 | 609.3 | 615.3 | 612.3 | 619.8 | 628.8 | 640.8 | 646.8 | 658.8 |
| 5° | 549.2 | 549.2 | 553.7 | 561.3 | 571.8 | 571.8 | 585.3 | 601.8 | 622.8 | 639.3 | 660.3 |
| 7.5° | 504.2 | 504.2 | 508.7 | 517.7 | 528.2 | 535.7 | 552.2 | 577.8 | 606.3 | 637.8 | 664.8 |
| 10° | 466.7 | 468.2 | 471.2 | 480.2 | 493.7 | 501.2 | 525.2 | 553.7 | 591.3 | 631.8 | 669.3 |
| 12.5° | 453.2 | 451.7 | 450.2 | 457.7 | 468.2 | 474.2 | 501.2 | 537.2 | 580.8 | 630.3 | 678.3 |
| 15° | 463.7 | 460.7 | 456.2 | 456.2 | 460.7 | 463.7 | 486.2 | 523.7 | 571.8 | 628.8 | 688.8 |
| 17.5° | 490.7 | 487.7 | 477.2 | 466.7 | 469.7 | 471.2 | 486.2 | 516.2 | 567.3 | 634.8 | 703.8 |
| 20° | 528.2 | 523.7 | 505.7 | 492.2 | 489.2 | 489.2 | 498.2 | 520.7 | 570.3 | 646.8 | 723.3 |
| 22.5° | 573.3 | 568.8 | 547.7 | 523.7 | 520.7 | 519.2 | 523.7 | 538.7 | 579.3 | 660.3 | 753.3 |
| 25° | 633.3 | 628.8 | 603.3 | 573.3 | 562.8 | 561.3 | 556.7 | 565.8 | 594.3 | 678.3 | 774.3 |
| 27.5° | 697.8 | 699.3 | 669.3 | 628.8 | 618.3 | 613.8 | 601.8 | 600.3 | 612.3 | 693.3 | 810.4 |
| 30° | 757.8 | 754.8 | 723.3 | 690.3 | 675.3 | 669.3 | 649.8 | 640.8 | 633.3 | 715.8 | 852.4 |
| 32.5° | 786.4 | 790.9 | 775.8 | 744.3 | 732.3 | 721.8 | 699.3 | 684.3 | 673.8 | 750.3 | 903.4 |
| 35° | 834.4 | 835.9 | 829.9 | 810.4 | 786.4 | 778.8 | 757.8 | 747.3 | 724.8 | 792.4 | 964.9 |
| 37.5° | 882.4 | 886.9 | 885.4 | 873.4 | 852.4 | 844.9 | 826.9 | 822.4 | 777.3 | 844.9 | 1041.5 |
| 40° | 954.4 | 946.9 | 936.4 | 940.9 | 933.4 | 928.9 | 921.4 | 906.4 | 850.9 | 901.9 | 1116.5 |
| 42.5° | 1032.5 | 1019.0 | 981.4 | 993.4 | 1004.0 | 1008.5 | 1019.0 | 1002.4 | 927.4 | 987.4 | 1178.0 |
| 45° | 1095.5 | 1085.0 | 1035.5 | 1038.5 | 1059.5 | 1074.5 | 1124.0 | 1115.0 | 1026.5 | 1080.5 | 1260.6 |
| 47.5° | 1131.5 | 1122.5 | 1088.0 | 1103.0 | 1116.5 | 1137.5 | 1233.6 | 1226.0 | 1119.5 | 1181.0 | 1359.6 |
| 50° | 1182.5 | 1167.5 | 1134.5 | 1161.5 | 1185.5 | 1202.0 | 1340.1 | 1337.1 | 1199.0 | 1284.6 | 1472.2 |
| 52.5° | 1211.0 | 1196.0 | 1193.0 | 1230.6 | 1259.1 | 1281.6 | 1454.2 | 1445.1 | 1277.1 | 1388.1 | 1578.7 |
| 55° | 1250.1 | 1253.1 | 1272.6 | 1301.1 | 1341.6 | 1379.1 | 1565.2 | 1520.2 | 1349.1 | 1490.2 | 1683.8 |
| 57.5° | 1335.6 | 1332.6 | 1370.1 | 1383.6 | 1436.1 | 1484.2 | 1697.3 | 1599.7 | 1409.1 | 1563.7 | 1733.3 |
| 60° | 1449.7 | 1455.7 | 1469.2 | 1503.7 | 1560.7 | 1634.2 | 1824.8 | 1682.3 | 1448.1 | 1616.2 | 1724.3 |
| 62.5° | 1665.7 | 1631.2 | 1625.2 | 1634.2 | 1746.8 | 1832.3 | 1949.4 | 1755.8 | 1464.7 | 1617.7 | 1629.7 |
| 65° | 1884.8 | 1871.3 | 1824.8 | 1847.3 | 2010.9 | 2088.9 | 2109.9 | 1803.8 | 1431.6 | 1524.7 | 1419.6 |
| 67.5° | 2111.4 | 2109.9 | 2060.4 | 2125.0 | 2321.5 | 2413.1 | 2288.5 | 1794.8 | 1323.6 | 1307.1 | 1091.0 |
| 70° | 2344.1 | 2354.6 | 2354.6 | 2537.6 | 2806.3 | 2830.3 | 2488.1 | 1709.3 | 1109.0 | 925.9 | 637.8 |
| 72.5° | 2446.1 | 2452.1 | 2506.1 | 2912.8 | 3342.0 | 3349.5 | 2602.2 | 1451.2 | 756.3 | 493.7 | 321.1 |
| 75° | 1934.4 | 1979.4 | 2125.0 | 2804.8 | 3361.5 | 3331.5 | 2318.5 | 928.9 | 369.2 | 246.1 | 178.6 |
| 77.5° | 759.3 | 775.8 | 1071.5 | 1785.8 | 2449.1 | 2479.1 | 1500.7 | 370.7 | 187.6 | 156.1 | 129.1 |
| 80° | 214.6 | 225.1 | 379.7 | 709.8 | 1209.5 | 1337.1 | 597.3 | 160.6 | 126.1 | 114.1 | 93.0 |
| 82.5° | 76.5 | 87.0 | 141.1 | 271.6 | 516.2 | 544.7 | 162.1 | 79.5 | 81.0 | 73.5 | 57.0 |
| 85° | 10.5 | 9.0 | 19.5 | 49.5 | 114.1 | 96.0 | 27.0 | 21.0 | 33.0 | 34.5 | 24.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 1.5 | 1.5 | 1.5 | 0.0 | 0.0 | 0.0 | 1.5 | 1.5 |
| 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: P437320
 CATALOG NUMBER: ISS-SA1C-730-U-T4FT

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 | 657.3 |
| 2.5° | 661.8 | 664.8 | 670.8 | 673.8 | 676.8 | 682.8 | 681.3 | 684.3 | 684.3 | 682.8 | 685.8 |
| 5° | 667.8 | 675.3 | 682.8 | 685.8 | 687.3 | 687.3 | 679.8 | 675.3 | 673.8 | 672.3 | 673.8 |
| 7.5° | 673.8 | 684.3 | 691.8 | 690.3 | 684.3 | 673.8 | 664.8 | 657.3 | 649.8 | 646.8 | 649.8 |
| 10° | 684.3 | 694.8 | 699.3 | 688.8 | 672.3 | 655.8 | 642.3 | 631.8 | 619.8 | 618.3 | 619.8 |
| 12.5° | 693.3 | 706.8 | 706.8 | 682.8 | 660.3 | 637.8 | 616.8 | 600.3 | 585.3 | 580.8 | 580.8 |
| 15° | 708.3 | 718.8 | 708.3 | 675.3 | 643.8 | 615.3 | 585.3 | 564.3 | 546.2 | 538.7 | 540.2 |
| 17.5° | 724.8 | 732.3 | 705.3 | 663.3 | 625.8 | 588.3 | 549.2 | 520.7 | 507.2 | 499.7 | 501.2 |
| 20° | 744.3 | 745.8 | 705.3 | 648.3 | 598.8 | 549.2 | 507.2 | 486.2 | 477.2 | 472.7 | 474.2 |
| 22.5° | 769.8 | 763.8 | 700.8 | 628.8 | 564.3 | 510.2 | 471.2 | 465.2 | 465.2 | 465.2 | 469.7 |
| 25° | 796.9 | 780.4 | 693.3 | 603.3 | 519.2 | 463.7 | 448.7 | 456.2 | 462.2 | 462.2 | 465.2 |
| 27.5° | 823.9 | 796.9 | 678.3 | 565.8 | 466.7 | 430.7 | 436.7 | 448.7 | 454.7 | 454.7 | 457.7 |
| 30° | 856.9 | 816.4 | 660.3 | 514.7 | 417.2 | 408.2 | 423.2 | 438.2 | 447.2 | 447.2 | 450.2 |
| 32.5° | 898.9 | 832.9 | 633.3 | 462.2 | 384.2 | 388.7 | 405.2 | 421.7 | 432.2 | 435.2 | 436.7 |
| 35° | 945.4 | 855.4 | 595.8 | 403.7 | 361.7 | 373.7 | 387.2 | 402.2 | 411.2 | 414.2 | 414.2 |
| 37.5° | 993.4 | 877.9 | 546.2 | 354.2 | 342.2 | 358.7 | 372.2 | 379.7 | 385.7 | 385.7 | 385.7 |
| 40° | 1041.5 | 889.9 | 481.7 | 315.1 | 322.6 | 346.7 | 358.7 | 355.7 | 354.2 | 349.7 | 351.2 |
| 42.5° | 1091.0 | 898.9 | 412.7 | 286.6 | 303.1 | 333.1 | 342.2 | 334.7 | 322.6 | 315.1 | 316.6 |
| 45° | 1145.0 | 912.4 | 355.7 | 265.6 | 283.6 | 321.1 | 330.1 | 315.1 | 300.1 | 288.1 | 285.1 |
| 47.5° | 1206.5 | 934.9 | 304.6 | 246.1 | 271.6 | 313.6 | 322.6 | 301.6 | 282.1 | 265.6 | 262.6 |
| 50° | 1290.6 | 969.4 | 265.6 | 232.6 | 264.1 | 309.1 | 316.6 | 289.6 | 267.1 | 246.1 | 244.6 |
| 52.5° | 1376.1 | 994.9 | 238.6 | 220.6 | 255.1 | 300.1 | 309.1 | 280.6 | 253.6 | 231.1 | 228.1 |
| 55° | 1439.1 | 991.9 | 214.6 | 208.6 | 243.1 | 288.1 | 301.6 | 270.1 | 235.6 | 214.6 | 211.6 |
| 57.5° | 1466.2 | 930.4 | 195.1 | 198.1 | 229.6 | 273.1 | 289.6 | 253.6 | 222.1 | 204.1 | 202.6 |
| 60° | 1419.6 | 831.4 | 181.6 | 186.1 | 214.6 | 253.6 | 267.1 | 241.6 | 213.1 | 196.6 | 195.1 |
| 62.5° | 1338.6 | 720.3 | 171.1 | 177.1 | 199.6 | 235.6 | 253.6 | 226.6 | 201.1 | 189.1 | 187.6 |
| 65° | 1146.5 | 598.8 | 160.6 | 166.6 | 186.1 | 217.6 | 241.6 | 217.6 | 192.1 | 180.1 | 178.6 |
| 67.5° | 865.9 | 430.7 | 150.1 | 156.1 | 174.1 | 204.1 | 231.1 | 205.6 | 178.6 | 169.6 | 169.6 |
| 70° | 516.2 | 264.1 | 136.6 | 145.6 | 159.1 | 187.6 | 214.6 | 189.1 | 162.1 | 159.1 | 156.1 |
| 72.5° | 252.1 | 168.1 | 124.6 | 132.1 | 142.6 | 166.6 | 190.6 | 168.1 | 141.1 | 133.6 | 132.1 |
| 75° | 151.6 | 121.6 | 108.0 | 117.1 | 124.6 | 139.6 | 160.6 | 144.1 | 123.1 | 111.0 | 109.5 |
| 77.5° | 109.5 | 91.5 | 91.5 | 100.5 | 100.5 | 115.6 | 138.1 | 123.1 | 103.5 | 96.0 | 94.5 |
| 80° | 78.0 | 69.0 | 75.0 | 81.0 | 78.0 | 97.5 | 117.1 | 103.5 | 84.0 | 78.0 | 76.5 |
| 82.5° | 51.0 | 48.0 | 57.0 | 55.5 | 55.5 | 75.0 | 96.0 | 78.0 | 61.5 | 51.0 | 48.0 |
| 85° | 21.0 | 24.0 | 33.0 | 31.5 | 31.5 | 42.0 | 49.5 | 40.5 | 28.5 | 22.5 | 22.5 |
| 87.5° | 0.0 | 1.5 | 4.5 | 3.0 | 3.0 | 4.5 | 1.5 | 1.5 | 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
 CIE u': 0.2508
 CIE v': 0.5215
 Duv: 0.0000
 CIE x: 0.4374
 CIE y: 0.4043
 CIE z: 0.1583
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 53

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.8 | | |
| R1: | 67.5 | R9: | -38.3 |
| R2: | 82.9 | R10: | 62.5 |
| R3: | 94.7 | R11: | 63.7 |
| R4: | 67.7 | R12: | 57.8 |
| R5: | 67.9 | R13: | 70.4 |
| R6: | 77.6 | R14: | 97.3 |
| R7: | 76.0 | | |
| R8: | 40.5 | | |

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

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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 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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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)