

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: P437605

Luminaire Tested: **ISC-SA1D-830-U-T4FT**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437605
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-SA1D-830-U-T4FT
Description: IMPACT ELITE LED CYLINDER LUMINAIRE
(1) 80 CRI, 3000K, 800mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV FORWARD
THROW OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4508 lumens
Efficiency: N/A
Efficacy: 99.7 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

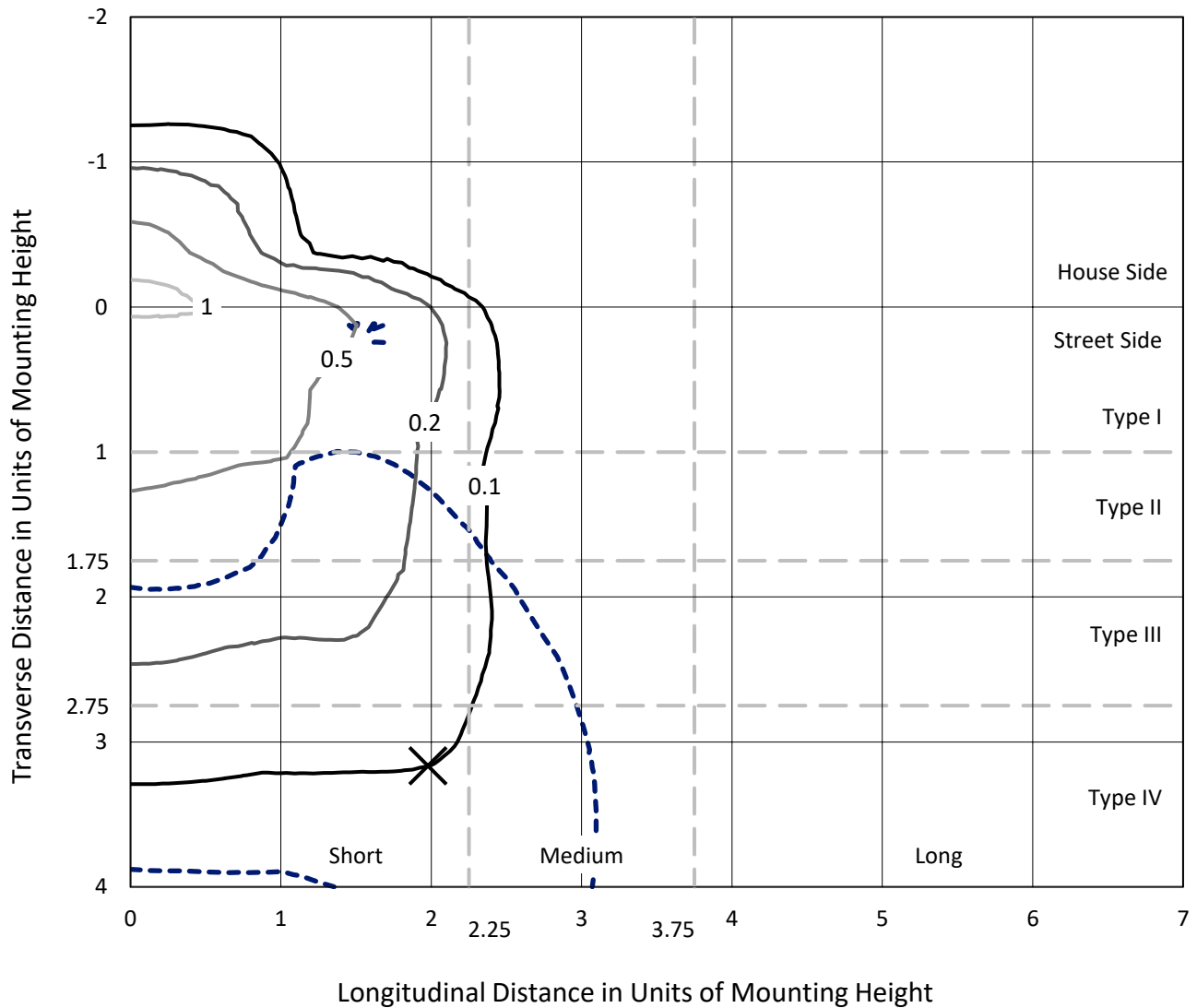
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P437605
 CATALOG NUMBER: ISC-SA1D-830-U-T4FT

Iso-Footcandle Lines of Horizontal Illumination

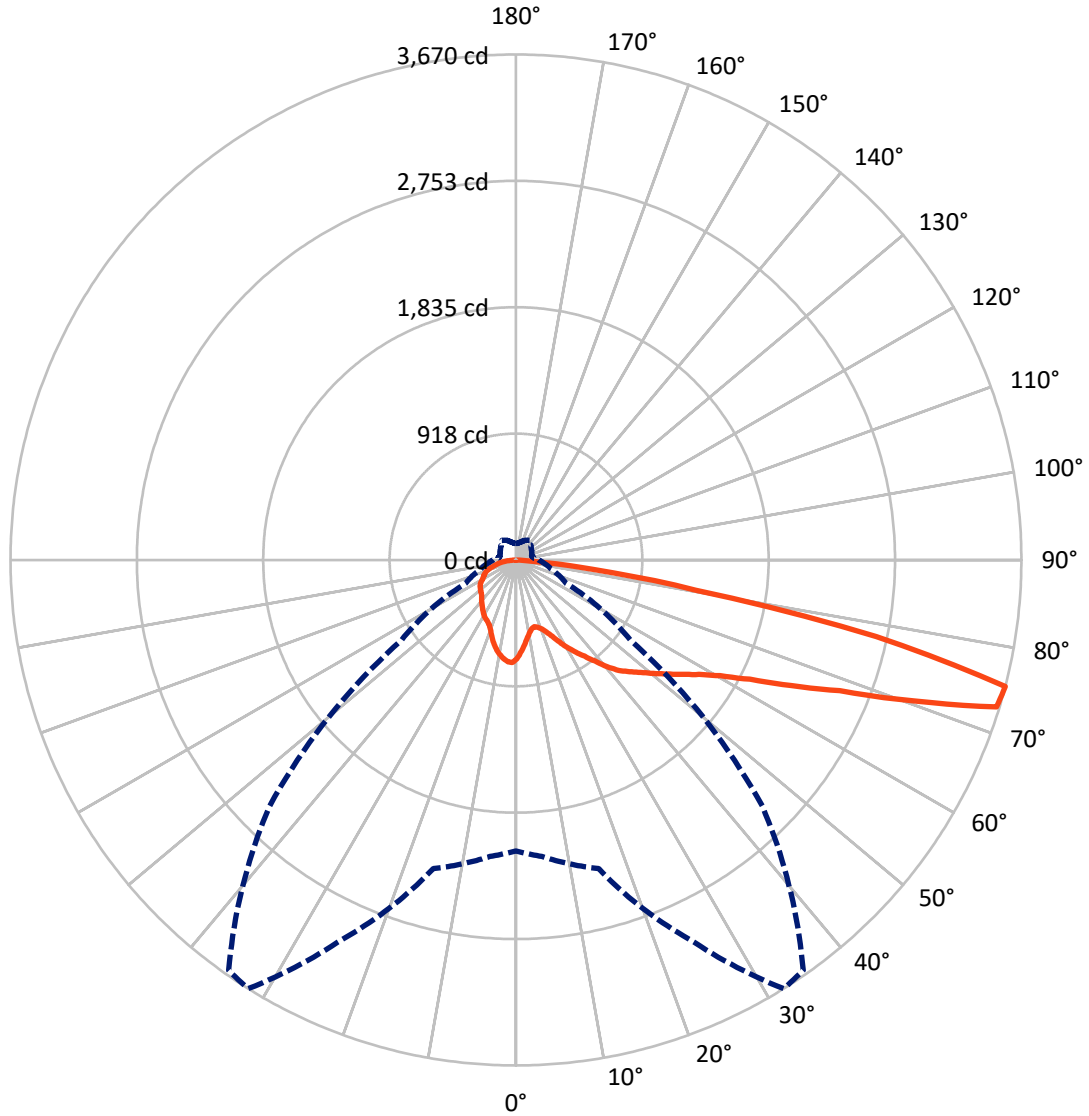
× Max cd
 - - - 1/2 Max cd



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

REPORT NUMBER: P437605
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Luminous Intensity Polar Plot



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

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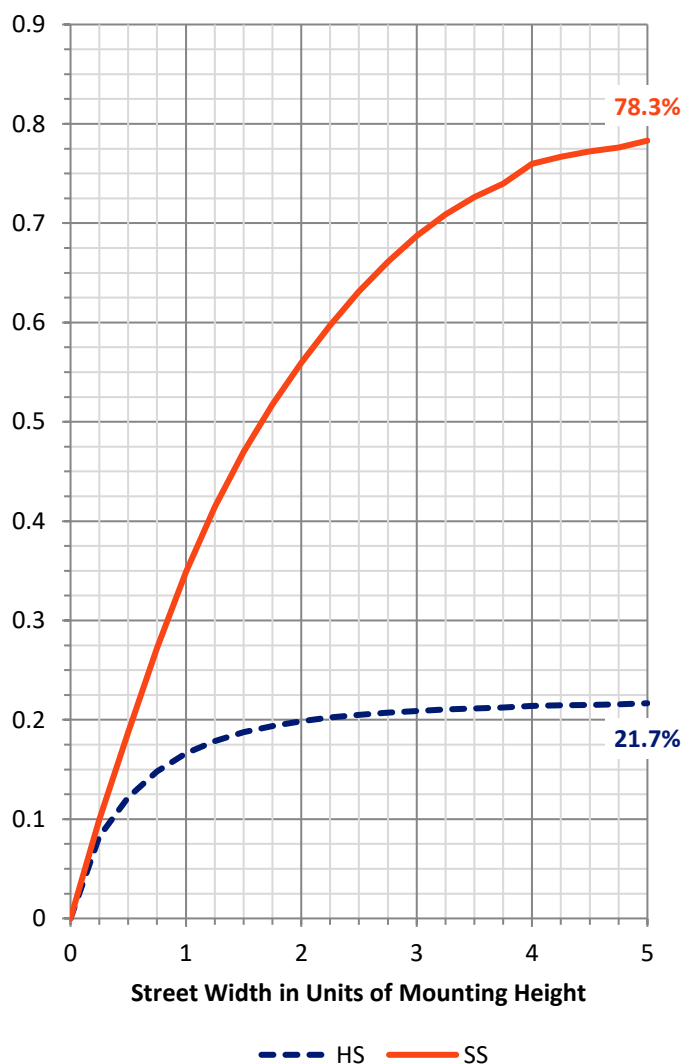
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 987.8 | 0.0 | 987.8 |
| | % Fixture | 21.9 | 0.0 | 21.9 |
| Street Side | Lumens | 3520.2 | 0.0 | 3520.2 |
| | % Fixture | 78.1 | 0.0 | 78.1 |
| Total | Lumens | 4508.0 | 0.0 | 4508.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 65.1 | 1.4 |
| 10°-20° | 178.1 | 4.0 |
| 20°-30° | 294.8 | 6.5 |
| 30°-40° | 439.4 | 9.7 |
| 40°-50° | 625.6 | 13.9 |
| 50°-60° | 860.7 | 19.1 |
| 60°-70° | 1084.6 | 24.1 |
| 70°-80° | 876.8 | 19.5 |
| 80°-90° | 82.8 | 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° | 4508.0 | 100.0 |
| 0°-180° | 4508.0 | 100.0 |

Coefficient of Utilization

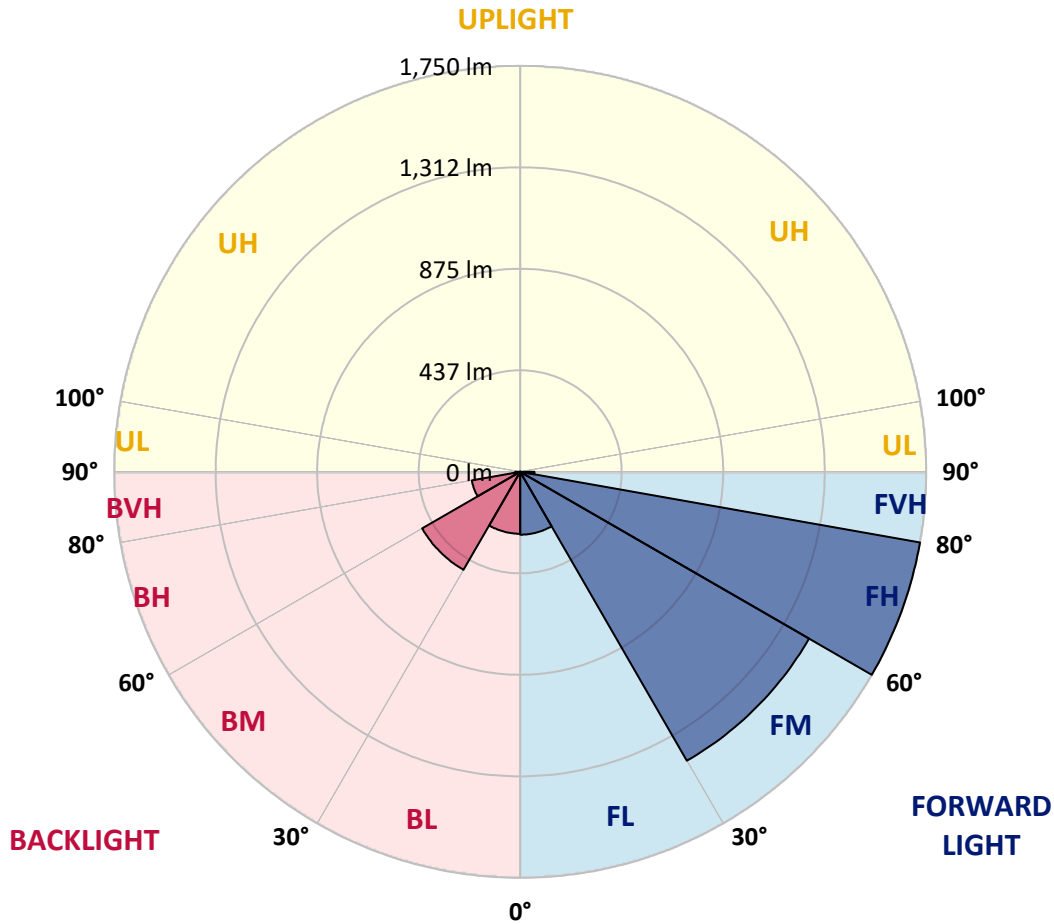


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 CATALOG NUMBER: ISC-SA1D-830-U-T4FT

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 271.0 | 6.0 | | | |
| FM (30°-60°) | 1437.7 | 31.9 | | | |
| FH (60°-80°) | 1749.9 | 38.8 | | | G1/1800 |
| FVH (80°-90°) | 61.5 | 1.4 | | | G1/100 |
| BL (0°-30°) | 267.0 | 5.9 | B1/500 | | |
| BM (30°-60°) | 487.9 | 10.8 | B1/1000 | | |
| BH (60°-80°) | 211.5 | 4.7 | B1/500 | | G1/500 |
| BVH (80°-90°) | 21.3 | 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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CATALOG NUMBER: ISC-SA1D-830-U-T4FT

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 |
| 2.5° | 655.4 | 660.3 | 661.9 | 665.2 | 671.8 | 668.5 | 676.7 | 686.5 | 699.6 | 706.2 | 719.3 |
| 5° | 599.7 | 599.7 | 604.6 | 612.8 | 624.2 | 624.2 | 639.0 | 657.0 | 679.9 | 698.0 | 720.9 |
| 7.5° | 550.5 | 550.5 | 555.4 | 565.3 | 576.7 | 584.9 | 602.9 | 630.8 | 661.9 | 696.3 | 725.8 |
| 10° | 509.5 | 511.2 | 514.5 | 524.3 | 539.0 | 547.2 | 573.4 | 604.6 | 645.5 | 689.8 | 730.7 |
| 12.5° | 494.8 | 493.2 | 491.5 | 499.7 | 511.2 | 517.7 | 547.2 | 586.6 | 634.1 | 688.1 | 740.6 |
| 15° | 506.3 | 503.0 | 498.1 | 498.1 | 503.0 | 506.3 | 530.8 | 571.8 | 624.2 | 686.5 | 752.0 |
| 17.5° | 535.8 | 532.5 | 521.0 | 509.5 | 512.8 | 514.5 | 530.8 | 563.6 | 619.3 | 693.1 | 768.4 |
| 20° | 576.7 | 571.8 | 552.1 | 537.4 | 534.1 | 534.1 | 544.0 | 568.5 | 622.6 | 706.2 | 789.7 |
| 22.5° | 625.9 | 621.0 | 598.0 | 571.8 | 568.5 | 566.9 | 571.8 | 588.2 | 632.4 | 720.9 | 822.5 |
| 25° | 691.4 | 686.5 | 658.6 | 625.9 | 614.4 | 612.8 | 607.9 | 617.7 | 648.8 | 740.6 | 845.4 |
| 27.5° | 761.9 | 763.5 | 730.7 | 686.5 | 675.0 | 670.1 | 657.0 | 655.4 | 668.5 | 756.9 | 884.7 |
| 30° | 827.4 | 824.1 | 789.7 | 753.7 | 737.3 | 730.7 | 709.4 | 699.6 | 691.4 | 781.5 | 930.6 |
| 32.5° | 858.5 | 863.4 | 847.1 | 812.7 | 799.5 | 788.1 | 763.5 | 747.1 | 735.7 | 819.2 | 986.3 |
| 35° | 911.0 | 912.6 | 906.0 | 884.7 | 858.5 | 850.3 | 827.4 | 815.9 | 791.4 | 865.1 | 1053.5 |
| 37.5° | 963.4 | 968.3 | 966.7 | 953.6 | 930.6 | 922.4 | 902.8 | 897.9 | 848.7 | 922.4 | 1137.1 |
| 40° | 1042.0 | 1033.8 | 1022.4 | 1027.3 | 1019.1 | 1014.2 | 1006.0 | 989.6 | 929.0 | 984.7 | 1219.0 |
| 42.5° | 1127.2 | 1112.5 | 1071.5 | 1084.6 | 1096.1 | 1101.0 | 1112.5 | 1094.5 | 1012.5 | 1078.1 | 1286.2 |
| 45° | 1196.0 | 1184.6 | 1130.5 | 1133.8 | 1156.7 | 1173.1 | 1227.2 | 1217.3 | 1120.7 | 1179.7 | 1376.3 |
| 47.5° | 1235.4 | 1225.5 | 1187.9 | 1204.2 | 1219.0 | 1241.9 | 1346.8 | 1338.6 | 1222.3 | 1289.4 | 1484.4 |
| 50° | 1291.1 | 1274.7 | 1238.6 | 1268.1 | 1294.4 | 1312.4 | 1463.1 | 1459.8 | 1309.1 | 1402.5 | 1607.3 |
| 52.5° | 1322.2 | 1305.8 | 1302.5 | 1343.5 | 1374.6 | 1399.2 | 1587.6 | 1577.8 | 1394.3 | 1515.5 | 1723.6 |
| 55° | 1364.8 | 1368.1 | 1389.4 | 1420.5 | 1464.7 | 1505.7 | 1708.9 | 1659.7 | 1472.9 | 1627.0 | 1838.3 |
| 57.5° | 1458.2 | 1454.9 | 1495.9 | 1510.6 | 1568.0 | 1620.4 | 1853.1 | 1746.6 | 1538.5 | 1707.2 | 1892.4 |
| 60° | 1582.7 | 1589.3 | 1604.0 | 1641.7 | 1704.0 | 1784.2 | 1992.3 | 1836.7 | 1581.1 | 1764.6 | 1882.5 |
| 62.5° | 1818.6 | 1781.0 | 1774.4 | 1784.2 | 1907.1 | 2000.5 | 2128.3 | 1917.0 | 1599.1 | 1766.2 | 1779.3 |
| 65° | 2057.9 | 2043.1 | 1992.3 | 2016.9 | 2195.5 | 2280.7 | 2303.6 | 1969.4 | 1563.1 | 1664.6 | 1549.9 |
| 67.5° | 2305.3 | 2303.6 | 2249.6 | 2320.0 | 2534.6 | 2634.6 | 2498.6 | 1959.5 | 1445.1 | 1427.1 | 1191.1 |
| 70° | 2559.2 | 2570.7 | 2570.7 | 2770.6 | 3063.8 | 3090.1 | 2716.5 | 1866.2 | 1210.8 | 1010.9 | 696.3 |
| 72.5° | 2670.6 | 2677.2 | 2736.2 | 3180.2 | 3648.8 | 3657.0 | 2841.0 | 1584.4 | 825.8 | 539.0 | 350.6 |
| 75° | 2111.9 | 2161.1 | 2320.0 | 3062.2 | 3670.1 | 3637.3 | 2531.4 | 1014.2 | 403.1 | 268.7 | 195.0 |
| 77.5° | 829.0 | 847.1 | 1169.8 | 1949.7 | 2673.9 | 2706.7 | 1638.4 | 404.7 | 204.8 | 170.4 | 140.9 |
| 80° | 234.3 | 245.8 | 414.5 | 775.0 | 1320.6 | 1459.8 | 652.1 | 175.3 | 137.6 | 124.5 | 101.6 |
| 82.5° | 83.6 | 95.0 | 154.0 | 296.6 | 563.6 | 594.7 | 176.9 | 86.8 | 88.5 | 80.3 | 62.3 |
| 85° | 11.5 | 9.8 | 21.3 | 54.1 | 124.5 | 104.9 | 29.5 | 22.9 | 36.0 | 37.7 | 26.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 1.6 | 1.6 | 1.6 | 0.0 | 0.0 | 0.0 | 1.6 | 1.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



REPORT NUMBER: P437605
 CATALOG NUMBER: ISC-SA1D-830-U-T4FT

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 | 717.6 |
| 2.5° | 722.5 | 725.8 | 732.4 | 735.7 | 738.9 | 745.5 | 743.8 | 747.1 | 747.1 | 745.5 | 748.8 |
| 5° | 729.1 | 737.3 | 745.5 | 748.8 | 750.4 | 750.4 | 742.2 | 737.3 | 735.7 | 734.0 | 735.7 |
| 7.5° | 735.7 | 747.1 | 755.3 | 753.7 | 747.1 | 735.7 | 725.8 | 717.6 | 709.4 | 706.2 | 709.4 |
| 10° | 747.1 | 758.6 | 763.5 | 752.0 | 734.0 | 716.0 | 701.2 | 689.8 | 676.7 | 675.0 | 676.7 |
| 12.5° | 756.9 | 771.7 | 771.7 | 745.5 | 720.9 | 696.3 | 673.4 | 655.4 | 639.0 | 634.1 | 634.1 |
| 15° | 773.3 | 784.8 | 773.3 | 737.3 | 702.9 | 671.8 | 639.0 | 616.0 | 596.4 | 588.2 | 589.8 |
| 17.5° | 791.4 | 799.5 | 770.1 | 724.2 | 683.2 | 642.3 | 599.7 | 568.5 | 553.8 | 545.6 | 547.2 |
| 20° | 812.7 | 814.3 | 770.1 | 707.8 | 653.7 | 599.7 | 553.8 | 530.8 | 521.0 | 516.1 | 517.7 |
| 22.5° | 840.5 | 834.0 | 765.1 | 686.5 | 616.0 | 557.1 | 514.5 | 507.9 | 507.9 | 507.9 | 512.8 |
| 25° | 870.0 | 852.0 | 756.9 | 658.6 | 566.9 | 506.3 | 489.9 | 498.1 | 504.6 | 504.6 | 507.9 |
| 27.5° | 899.5 | 870.0 | 740.6 | 617.7 | 509.5 | 470.2 | 476.8 | 489.9 | 496.4 | 496.4 | 499.7 |
| 30° | 935.5 | 891.3 | 720.9 | 562.0 | 455.5 | 445.7 | 462.0 | 478.4 | 488.2 | 488.2 | 491.5 |
| 32.5° | 981.4 | 909.3 | 691.4 | 504.6 | 419.4 | 424.4 | 442.4 | 460.4 | 471.9 | 475.1 | 476.8 |
| 35° | 1032.2 | 933.9 | 650.5 | 440.7 | 394.9 | 408.0 | 422.7 | 439.1 | 448.9 | 452.2 | 452.2 |
| 37.5° | 1084.6 | 958.5 | 596.4 | 386.7 | 373.6 | 391.6 | 406.3 | 414.5 | 421.1 | 421.1 | 421.1 |
| 40° | 1137.1 | 971.6 | 525.9 | 344.1 | 352.3 | 378.5 | 391.6 | 388.3 | 386.7 | 381.8 | 383.4 |
| 42.5° | 1191.1 | 981.4 | 450.6 | 312.9 | 331.0 | 363.7 | 373.6 | 365.4 | 352.3 | 344.1 | 345.7 |
| 45° | 1250.1 | 996.2 | 388.3 | 290.0 | 309.7 | 350.6 | 360.5 | 344.1 | 327.7 | 314.6 | 311.3 |
| 47.5° | 1317.3 | 1020.7 | 332.6 | 268.7 | 296.6 | 342.4 | 352.3 | 329.3 | 308.0 | 290.0 | 286.7 |
| 50° | 1409.0 | 1058.4 | 290.0 | 254.0 | 288.4 | 337.5 | 345.7 | 316.2 | 291.6 | 268.7 | 267.1 |
| 52.5° | 1502.4 | 1086.3 | 260.5 | 240.8 | 278.5 | 327.7 | 337.5 | 306.4 | 276.9 | 252.3 | 249.0 |
| 55° | 1571.2 | 1083.0 | 234.3 | 227.7 | 265.4 | 314.6 | 329.3 | 294.9 | 257.2 | 234.3 | 231.0 |
| 57.5° | 1600.7 | 1015.8 | 213.0 | 216.3 | 250.7 | 298.2 | 316.2 | 276.9 | 242.5 | 222.8 | 221.2 |
| 60° | 1549.9 | 907.7 | 198.2 | 203.2 | 234.3 | 276.9 | 291.6 | 263.8 | 232.7 | 214.6 | 213.0 |
| 62.5° | 1461.5 | 786.4 | 186.8 | 193.3 | 217.9 | 257.2 | 276.9 | 247.4 | 219.5 | 206.4 | 204.8 |
| 65° | 1251.8 | 653.7 | 175.3 | 181.9 | 203.2 | 237.6 | 263.8 | 237.6 | 209.7 | 196.6 | 195.0 |
| 67.5° | 945.4 | 470.2 | 163.8 | 170.4 | 190.1 | 222.8 | 252.3 | 224.5 | 195.0 | 185.1 | 185.1 |
| 70° | 563.6 | 288.4 | 149.1 | 158.9 | 173.7 | 204.8 | 234.3 | 206.4 | 176.9 | 173.7 | 170.4 |
| 72.5° | 275.3 | 183.5 | 136.0 | 144.2 | 155.6 | 181.9 | 208.1 | 183.5 | 154.0 | 145.8 | 144.2 |
| 75° | 165.5 | 132.7 | 118.0 | 127.8 | 136.0 | 152.4 | 175.3 | 157.3 | 134.4 | 121.2 | 119.6 |
| 77.5° | 119.6 | 99.9 | 99.9 | 109.8 | 109.8 | 126.2 | 150.7 | 134.4 | 113.1 | 104.9 | 103.2 |
| 80° | 85.2 | 75.4 | 81.9 | 88.5 | 85.2 | 106.5 | 127.8 | 113.1 | 91.8 | 85.2 | 83.6 |
| 82.5° | 55.7 | 52.4 | 62.3 | 60.6 | 60.6 | 81.9 | 104.9 | 85.2 | 67.2 | 55.7 | 52.4 |
| 85° | 22.9 | 26.2 | 36.0 | 34.4 | 34.4 | 45.9 | 54.1 | 44.2 | 31.1 | 24.6 | 24.6 |
| 87.5° | 0.0 | 1.6 | 4.9 | 3.3 | 3.3 | 4.9 | 1.6 | 1.6 | 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 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2408-195-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **GALN-SB1A-830-U-5WQ**
 Description: GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K): 3050
 CIE u': 0.2476
 CIE v': 0.5251
 Duv: 0.0034
 CIE x: 0.4383
 CIE y: 0.4131
 CIE z: 0.1487
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 581
 Purity: 55.55201
 Rf: 81.5
 Rg: 99.2

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 81.0 | | |
| R1: | 79.6 | R9: | 7.1 |
| R2: | 85.6 | R10: | 67.0 |
| R3: | 92.0 | R11: | 82.7 |
| R4: | 82.6 | R12: | 63.2 |
| R5: | 78.9 | R13: | 80.3 |
| R6: | 81.7 | R14: | 95.0 |
| R7: | 85.2 | R15: | 71.7 |
| R8: | 62.0 | | |



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2408-195-9

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2408-195-9

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



CCT = 3050K
 CIE x = 0.4383
 CIE y = 0.4131
 Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2408-195-9

Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|----------------|--------------------------|----------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 81.5$
 $R_g = 99.2$
 $CIE R_a = 81.0$
 $R_9 = 7.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)