

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: P543172

Luminaire Tested: **TT-D8-740-U-WQ**

Issue Date: 6/22/2021

Test Information

Test Method: LM-79-08
Report Number: P543172
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2012-100-4)
Test Lab: INNOVATION CENTER
Issue Date: 6/22/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: TT-D8-740-U-WQ
Description: TOPTIER LED PARKING GARAGE LUMINAIRE
4000K, 70 CRI LEDS AND WIDE DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17562 lumens
Efficiency: N/A
Efficacy: 118.1 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G3

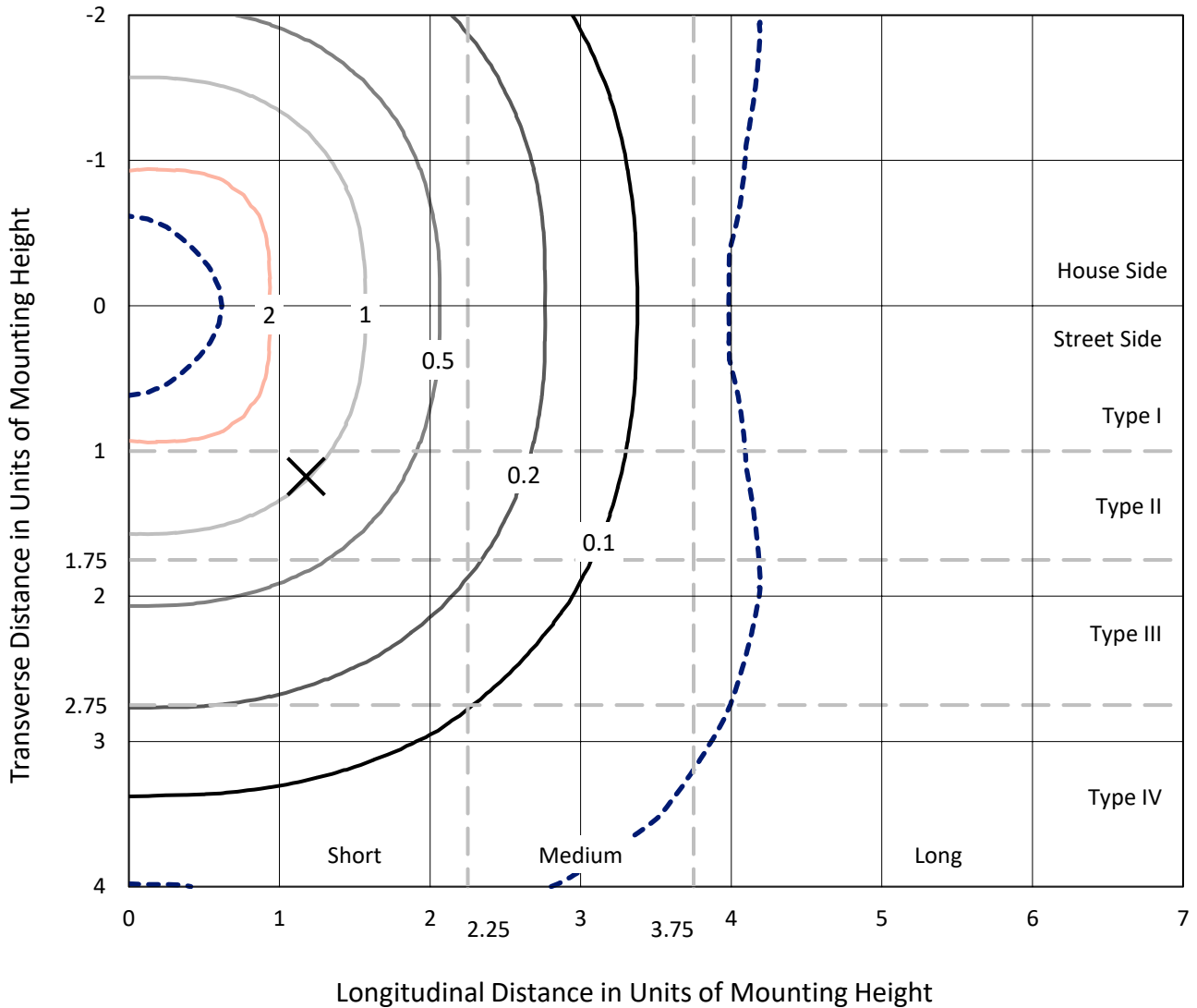
Input Watts (W): 148.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P543172
 CATALOG NUMBER: TT-D8-740-U-WQ

Iso-Footcandle Lines of Horizontal Illumination

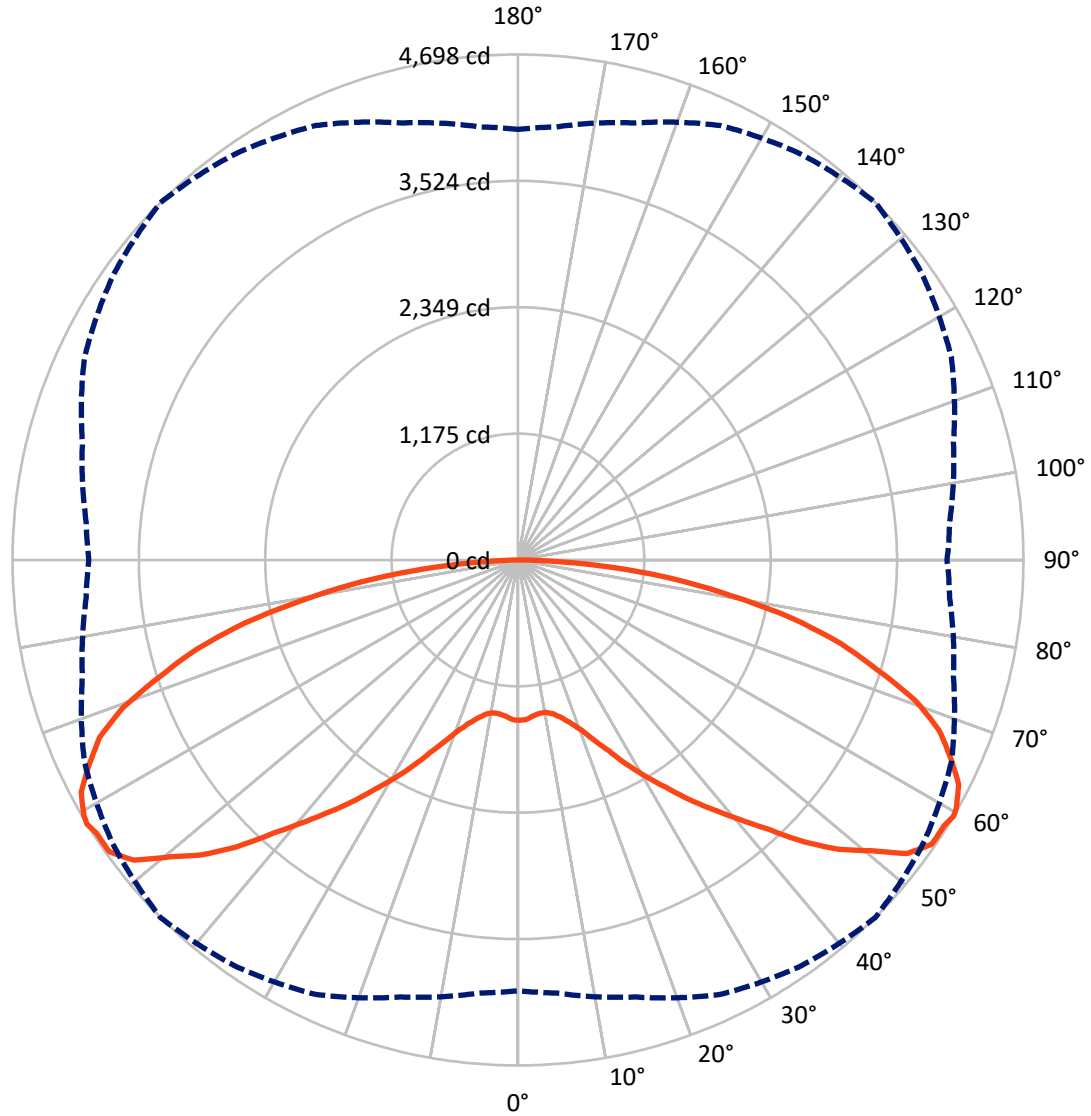
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.4 fc
 Type V - Short - N/A

REPORT NUMBER: P543172
CATALOG NUMBER: TT-D8-740-U-WQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 59-Deg Vertical

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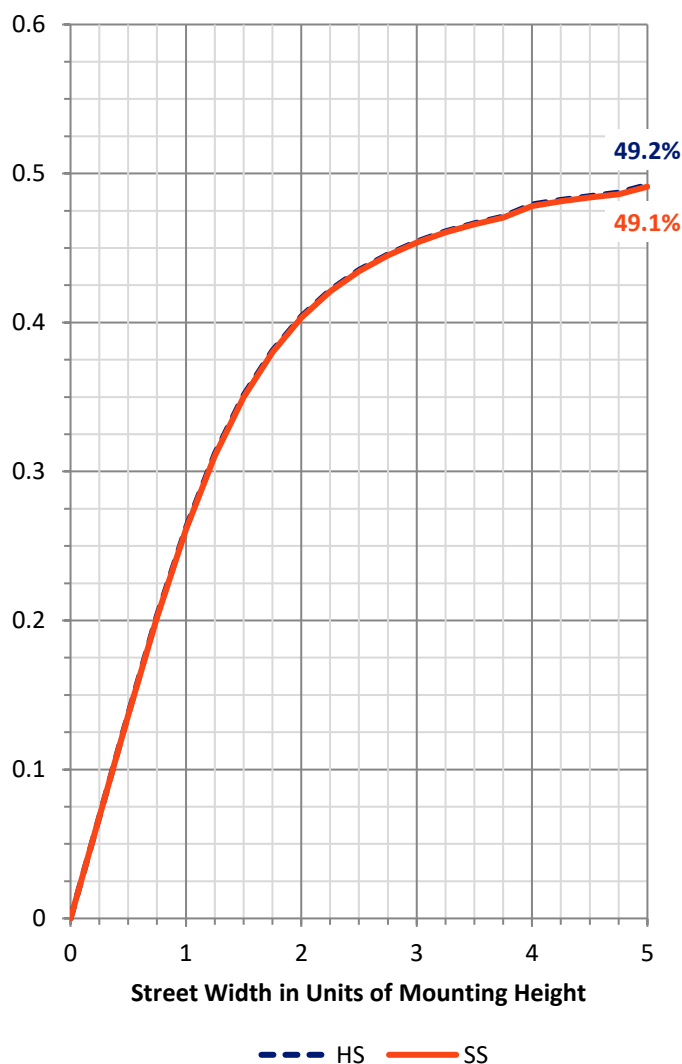
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 8781.0 | 0.0 | 8781.0 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Street Side | Lumens | 8781.0 | 0.0 | 8781.0 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Total | Lumens | 17562.0 | 0.0 | 17562.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 138.0 | 0.8 |
| 10°-20° | 436.0 | 2.5 |
| 20°-30° | 911.3 | 5.2 |
| 30°-40° | 1676.3 | 9.5 |
| 40°-50° | 2758.4 | 15.7 |
| 50°-60° | 3848.1 | 21.9 |
| 60°-70° | 4007.6 | 22.8 |
| 70°-80° | 2920.5 | 16.6 |
| 80°-90° | 865.8 | 4.9 |
| 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° | 17562.0 | 100.0 |
| 0°-180° | 17562.0 | 100.0 |

Coefficient of Utilization

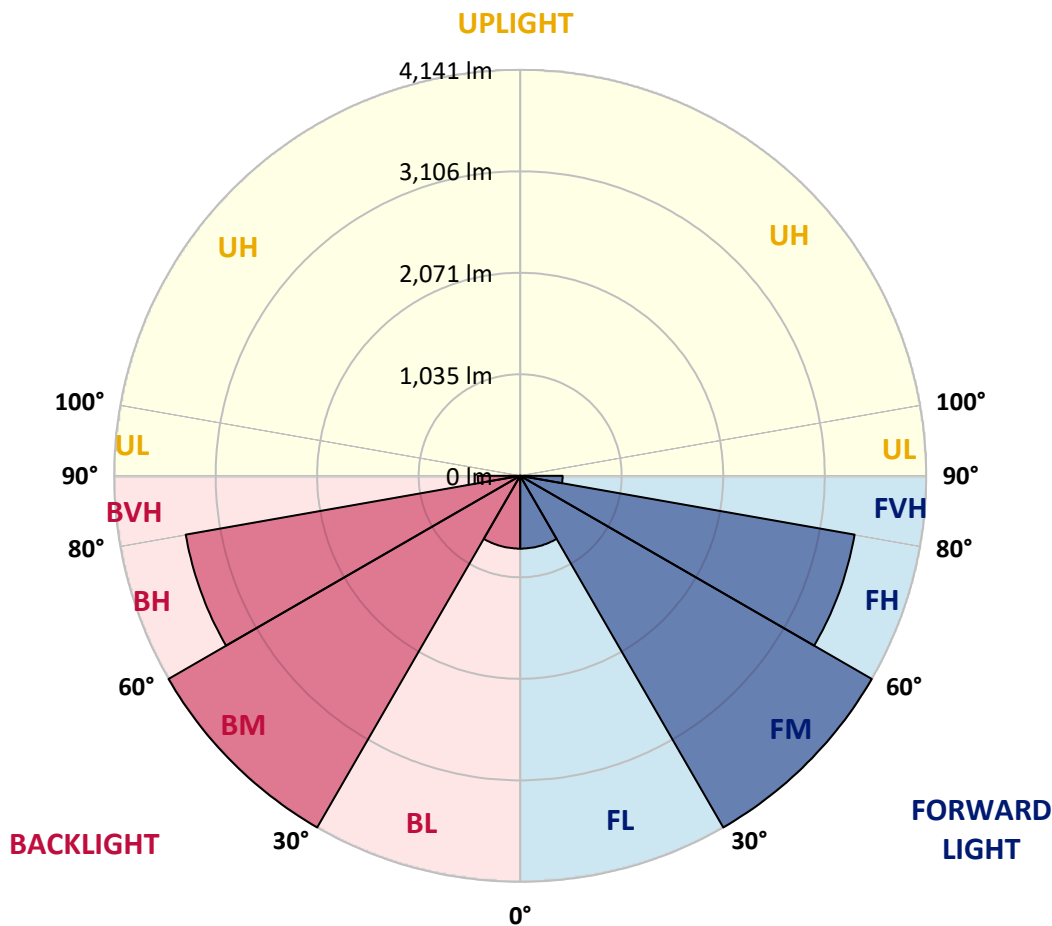


REPORT NUMBER: P543172
 CATALOG NUMBER: TT-D8-740-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 742.6 | 4.2 | | | |
| FM (30°-60°) | 4141.4 | 23.6 | | | |
| FH (60°-80°) | 3464.1 | 19.7 | | | G2/5000 |
| FVH (80°-90°) | 432.9 | 2.5 | | | G3/500 |
| BL (0°-30°) | 742.6 | 4.2 | B2/1000 | | |
| BM (30°-60°) | 4141.4 | 23.6 | B3/5000 | | |
| BH (60°-80°) | 3464.1 | 19.7 | B4/5000 | | G2/5000 |
| BVH (80°-90°) | 432.9 | 2.5 | | | G3/500 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B4-U0-G3
 Type V Short





REPORT NUMBER: P543172

CATALOG NUMBER: TT-D8-740-U-WQ

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1490.8 | 1490.8 | 1490.8 | 1490.8 | 1490.8 | 1490.8 | 1490.8 | 1490.8 | 1490.8 | 1490.8 | 1490.8 |
| 2.5° | 1482.7 | 1483.5 | 1483.5 | 1484.3 | 1483.5 | 1484.3 | 1482.7 | 1481.9 | 1481.1 | 1481.9 | 1481.1 |
| 5° | 1448.3 | 1450.7 | 1450.7 | 1453.1 | 1453.9 | 1456.3 | 1454.7 | 1453.9 | 1451.5 | 1450.7 | 1449.9 |
| 7.5° | 1424.3 | 1425.1 | 1427.5 | 1432.3 | 1436.3 | 1439.5 | 1438.7 | 1435.5 | 1431.5 | 1428.3 | 1427.5 |
| 10° | 1423.5 | 1422.7 | 1425.1 | 1429.1 | 1437.1 | 1439.5 | 1438.7 | 1433.1 | 1429.9 | 1427.5 | 1427.5 |
| 12.5° | 1449.1 | 1448.3 | 1451.5 | 1457.1 | 1467.5 | 1467.5 | 1469.1 | 1460.3 | 1453.9 | 1452.3 | 1452.3 |
| 15° | 1499.6 | 1497.2 | 1505.2 | 1510.0 | 1522.0 | 1522.0 | 1522.8 | 1512.4 | 1505.2 | 1502.8 | 1502.8 |
| 17.5° | 1567.6 | 1565.2 | 1574.0 | 1582.0 | 1594.0 | 1594.8 | 1595.6 | 1584.4 | 1574.8 | 1570.8 | 1572.4 |
| 20° | 1655.7 | 1652.5 | 1660.5 | 1671.7 | 1688.5 | 1687.7 | 1686.9 | 1675.7 | 1663.7 | 1658.9 | 1660.5 |
| 22.5° | 1764.6 | 1768.6 | 1780.6 | 1795.8 | 1816.6 | 1819.8 | 1815.0 | 1799.8 | 1782.2 | 1775.0 | 1775.8 |
| 25° | 1896.7 | 1900.7 | 1915.1 | 1939.1 | 1967.1 | 1966.3 | 1963.1 | 1940.7 | 1915.1 | 1904.7 | 1907.1 |
| 27.5° | 2057.6 | 2060.0 | 2081.6 | 2106.4 | 2144.9 | 2148.9 | 2141.7 | 2106.4 | 2080.0 | 2059.2 | 2056.8 |
| 30° | 2218.5 | 2221.7 | 2242.5 | 2278.6 | 2320.2 | 2330.6 | 2310.6 | 2277.0 | 2242.5 | 2220.1 | 2216.1 |
| 32.5° | 2393.8 | 2401.1 | 2420.3 | 2455.5 | 2510.7 | 2516.3 | 2504.3 | 2456.3 | 2417.1 | 2397.1 | 2396.2 |
| 35° | 2566.8 | 2577.2 | 2604.4 | 2653.2 | 2710.1 | 2730.1 | 2702.9 | 2653.2 | 2606.8 | 2569.2 | 2565.2 |
| 37.5° | 2758.1 | 2771.7 | 2800.6 | 2863.8 | 2920.7 | 2939.9 | 2915.1 | 2859.8 | 2795.0 | 2762.1 | 2758.9 |
| 40° | 2942.3 | 2963.9 | 3017.5 | 3084.0 | 3151.2 | 3168.0 | 3150.4 | 3076.8 | 3007.9 | 2963.1 | 2934.3 |
| 42.5° | 3143.2 | 3156.8 | 3219.3 | 3321.0 | 3388.2 | 3425.8 | 3384.2 | 3316.2 | 3217.7 | 3153.6 | 3147.2 |
| 45° | 3371.4 | 3413.8 | 3466.7 | 3588.4 | 3699.7 | 3741.3 | 3697.3 | 3581.2 | 3457.1 | 3405.8 | 3376.2 |
| 47.5° | 3584.4 | 3616.4 | 3706.9 | 3845.4 | 3979.1 | 4018.3 | 3975.1 | 3841.4 | 3693.3 | 3607.6 | 3578.8 |
| 50° | 3760.5 | 3805.3 | 3897.4 | 4079.1 | 4196.0 | 4246.5 | 4188.0 | 4069.5 | 3888.6 | 3794.9 | 3760.5 |
| 52.5° | 3928.6 | 3979.1 | 4093.6 | 4273.7 | 4462.6 | 4531.5 | 4458.6 | 4260.1 | 4082.4 | 3963.9 | 3915.8 |
| 55° | 4019.1 | 4065.5 | 4189.6 | 4426.6 | 4621.2 | 4666.8 | 4614.8 | 4413.8 | 4178.4 | 4050.3 | 4005.5 |
| 57.5° | 4033.5 | 4071.9 | 4225.7 | 4476.3 | 4622.8 | 4667.6 | 4619.6 | 4465.0 | 4212.1 | 4058.3 | 4020.7 |
| 59° | 4003.1 | 4039.9 | 4204.8 | 4454.6 | 4601.2 | 4698.0 | 4597.9 | 4445.0 | 4190.4 | 4027.9 | 3988.7 |
| 60° | 3984.7 | 4019.9 | 4174.4 | 4423.4 | 4580.3 | 4680.4 | 4577.1 | 4415.4 | 4157.6 | 4009.5 | 3969.5 |
| 62.5° | 3892.6 | 3925.4 | 4127.2 | 4346.6 | 4519.5 | 4597.9 | 4514.7 | 4338.5 | 4114.4 | 3915.0 | 3871.0 |
| 65° | 3714.9 | 3730.9 | 3923.8 | 4140.8 | 4368.2 | 4415.4 | 4361.0 | 4138.4 | 3907.8 | 3719.7 | 3696.5 |
| 67.5° | 3518.7 | 3539.5 | 3705.3 | 3943.8 | 4159.2 | 4222.5 | 4148.0 | 3943.0 | 3693.3 | 3524.3 | 3497.9 |
| 70° | 3200.9 | 3222.5 | 3444.3 | 3648.4 | 3823.0 | 3920.6 | 3804.5 | 3642.0 | 3431.4 | 3216.1 | 3178.5 |
| 72.5° | 2893.4 | 2903.8 | 3061.6 | 3301.7 | 3512.3 | 3493.1 | 3490.7 | 3298.5 | 3049.6 | 2907.8 | 2891.0 |
| 75° | 2492.3 | 2497.9 | 2682.1 | 2881.4 | 3074.4 | 3095.2 | 3044.8 | 2877.4 | 2668.5 | 2495.5 | 2493.1 |
| 77.5° | 2060.0 | 2076.8 | 2202.5 | 2388.2 | 2535.6 | 2606.0 | 2519.5 | 2397.9 | 2189.7 | 2078.4 | 2064.0 |
| 80° | 1585.2 | 1606.0 | 1734.1 | 1882.3 | 2009.6 | 2015.2 | 1997.5 | 1895.1 | 1722.9 | 1608.4 | 1591.6 |
| 82.5° | 1095.2 | 1116.9 | 1229.7 | 1340.2 | 1463.5 | 1469.9 | 1449.9 | 1352.2 | 1219.3 | 1120.9 | 1104.9 |
| 85° | 605.3 | 624.5 | 701.3 | 786.2 | 886.3 | 886.3 | 858.3 | 801.4 | 693.3 | 630.9 | 615.7 |
| 87.5° | 102.5 | 104.1 | 151.3 | 198.6 | 288.2 | 297.8 | 271.4 | 217.0 | 159.3 | 124.9 | 114.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

McGRAW-EDISON

Report Number: SP1-2006-844-6

Luminaire Tested: TT-D2-740-U-RW

Test Date: 06/30/2020

Data applicable to product families TT-x-740 and TTN-x-740

Test Information

Test Method: LM-79-08
 Report Number: SP1-2006-844-6
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 06/30/2020
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: MCGRAW-EDISON
 Catalog Number: **TT-D2-740-U-RW**
 Description: MCGRAW EDISON

RECTANGULAR DISTRIBUTION

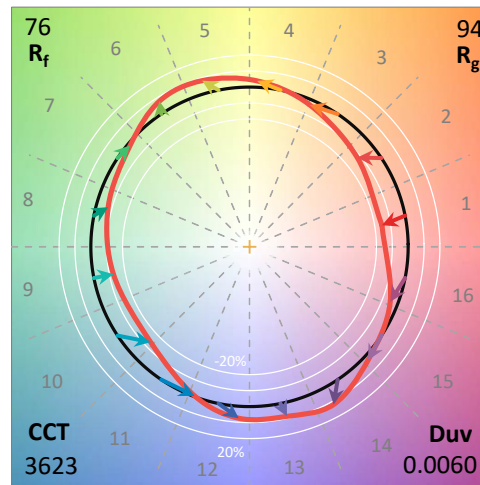
Spectral Parameters

CCT (K): 3623
 CIE u': 0.2297
 CIE v': 0.5166
 Duv: 0.0060
 CIE x: 0.4044
 CIE y: 0.4042
 CIE z: 0.1914
 Peak Wavelength (nm): 588
 Dominant Wavelength (nm): 578
 Purity: 42.8
 Rf: 76.2
 Rg: 94.3

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.6 | | |
| R1: | 69.4 | R9: | -22.4 |
| R2: | 78.4 | R10: | 49.0 |
| R3: | 86.1 | R11: | 67.4 |
| R4: | 72.3 | R12: | 39.3 |
| R5: | 68.2 | R13: | 70.5 |
| R6: | 69.2 | R14: | 91.9 |
| R7: | 83.0 | | |
| R8: | 54.2 | | |

Test Conditions

Stabilization Time: 207M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.9/42%
 Sphere Temperature (°C): 25.8

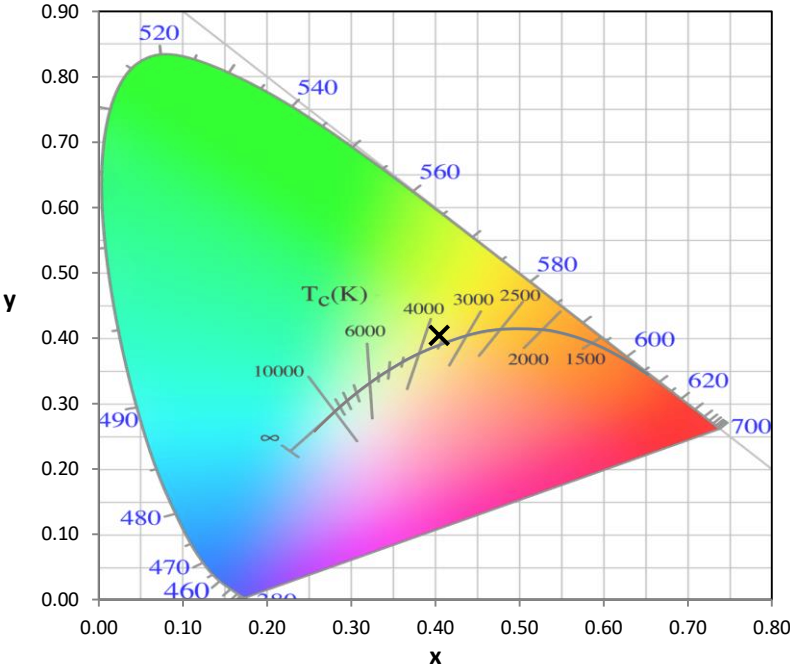


REPORT NUMBER: SP1-2006-844-6

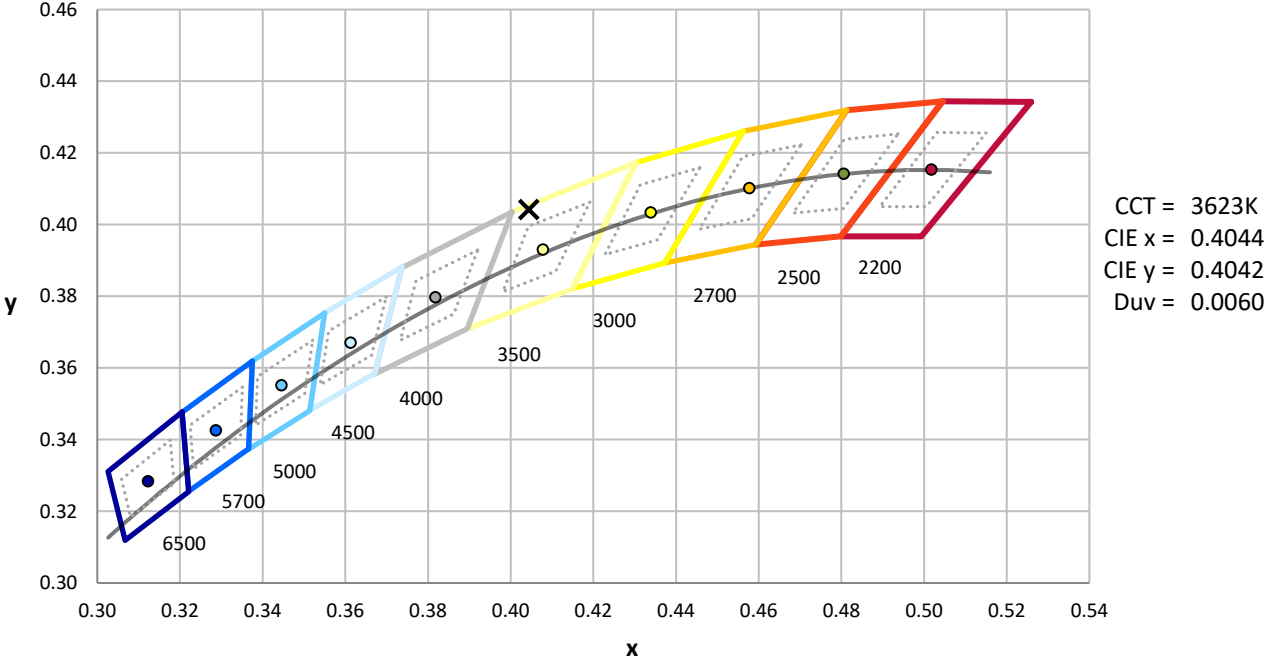
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 7/29/2020 | 1/29/2021 |
| Power Meter | IN0071 | 12/3/2019 | 12/3/2020 |
| AC Power Source | IN0063 | 12/3/2019 | 12/3/2020 |
| DC Power Source | IN0208 | 12/3/2019 | 12/3/2020 |
| Sphere Thermometer | IN0085 | 12/3/2019 | 12/3/2020 |
| Room Thermometer | IN0046 | 12/3/2019 | 12/3/2020 |

REPORT NUMBER: SP1-2006-844-6

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3500K 7-step quadrangle

REPORT NUMBER: SP1-2006-844-6

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 | 1254 | 0.0 | 490 | 9219 | 1.3 | 620 | 54761 | 14.3 | 750 | 2901 | 0.0 | 880 | 1835 | 0.0 |
| 365 | 1158 | 0.0 | 495 | 12322 | 2.2 | 625 | 51064 | 11.3 | 755 | 2733 | 0.0 | 885 | 1690 | 0.0 |
| 370 | 1131 | 0.0 | 500 | 17160 | 3.8 | 630 | 47879 | 8.7 | 760 | 2503 | 0.0 | 890 | 1819 | 0.0 |
| 375 | 1414 | 0.0 | 505 | 23071 | 6.5 | 635 | 44248 | 6.6 | 765 | 2289 | 0.0 | 895 | 1314 | 0.0 |
| 380 | 1275 | 0.0 | 510 | 29162 | 10.0 | 640 | 41034 | 4.9 | 770 | 2078 | 0.0 | 900 | 1547 | 0.0 |
| 385 | 1122 | 0.0 | 515 | 34992 | 14.5 | 645 | 37515 | 3.6 | 775 | 1927 | 0.0 | 905 | 1281 | 0.0 |
| 390 | 1074 | 0.0 | 520 | 40102 | 19.4 | 650 | 33900 | 2.5 | 780 | 1724 | 0.0 | 910 | 1345 | 0.0 |
| 395 | 1058 | 0.0 | 525 | 44194 | 23.7 | 655 | 30384 | 1.7 | 785 | 1617 | 0.0 | 915 | 1561 | 0.0 |
| 400 | 885 | 0.0 | 530 | 48014 | 28.3 | 660 | 26883 | 1.1 | 790 | 1709 | 0.0 | 920 | 1368 | 0.0 |
| 405 | 912 | 0.0 | 535 | 51019 | 31.6 | 665 | 23703 | 0.8 | 795 | 1561 | 0.0 | 925 | 1730 | 0.0 |
| 410 | 1108 | 0.0 | 540 | 53190 | 34.7 | 670 | 20603 | 0.5 | 800 | 1525 | 0.0 | 930 | 1629 | 0.0 |
| 415 | 1763 | 0.0 | 545 | 55452 | 36.9 | 675 | 18039 | 0.3 | 805 | 1332 | 0.0 | 935 | 1796 | 0.0 |
| 420 | 3421 | 0.0 | 550 | 57280 | 38.9 | 680 | 15849 | 0.2 | 810 | 1269 | 0.0 | 940 | 1595 | 0.0 |
| 425 | 6610 | 0.0 | 555 | 59041 | 40.3 | 685 | 13806 | 0.1 | 815 | 1261 | 0.0 | 945 | 1410 | 0.0 |
| 430 | 12444 | 0.1 | 560 | 60976 | 41.4 | 690 | 12093 | 0.1 | 820 | 1551 | 0.0 | 950 | 1937 | 0.0 |
| 435 | 21116 | 0.2 | 565 | 62904 | 41.8 | 695 | 10566 | 0.0 | 825 | 1708 | 0.0 | 955 | 2186 | 0.0 |
| 440 | 33463 | 0.5 | 570 | 64555 | 42.0 | 700 | 9300 | 0.0 | 830 | 1592 | 0.0 | 960 | 1583 | 0.0 |
| 445 | 49089 | 1.0 | 575 | 65785 | 40.9 | 705 | 8110 | 0.0 | 835 | 1642 | 0.0 | 965 | 1953 | 0.0 |
| 450 | 57374 | 1.5 | 580 | 66948 | 39.8 | 710 | 7052 | 0.0 | 840 | 1514 | 0.0 | 970 | 1519 | 0.0 |
| 455 | 42663 | 1.4 | 585 | 67963 | 37.8 | 715 | 6233 | 0.0 | 845 | 1376 | 0.0 | 975 | 1168 | 0.0 |
| 460 | 25334 | 1.0 | 590 | 68001 | 35.2 | 720 | 5362 | 0.0 | 850 | 1592 | 0.0 | 980 | 1593 | 0.0 |
| 465 | 17751 | 0.9 | 595 | 67308 | 31.9 | 725 | 4563 | 0.0 | 855 | 1667 | 0.0 | 985 | 1722 | 0.0 |
| 470 | 12447 | 0.8 | 600 | 66343 | 28.6 | 730 | 3976 | 0.0 | 860 | 1662 | 0.0 | 990 | 1648 | 0.0 |
| 475 | 8641 | 0.7 | 605 | 64393 | 24.9 | 735 | 3424 | 0.0 | 865 | 1916 | 0.0 | 995 | 2495 | 0.0 |
| 480 | 7423 | 0.7 | 610 | 61634 | 21.2 | 740 | 3222 | 0.0 | 870 | 1655 | 0.0 | 1000 | 2643 | 0.0 |
| 485 | 7759 | 0.9 | 615 | 58349 | 17.6 | 745 | 3060 | 0.0 | 875 | 2036 | 0.0 | | | |

REPORT NUMBER: SP1-2006-844-6

Scotopic Flux vs. Wavelength



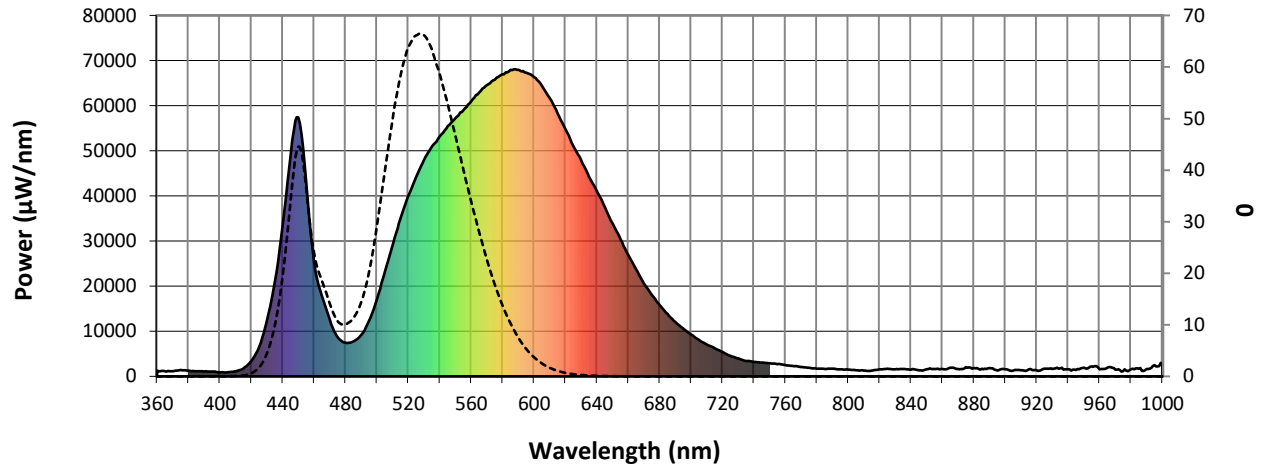
Scotopic Lumens: 1941.7

S/P: 0.51

| 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 | 1254 | 0.0 | 490 | 9219 | 14.2 | 620 | 54761 | 0.7 | 750 | 2901 | 0.0 | 880 | 1835 | 0.0 |
| 365 | 1158 | 0.0 | 495 | 12322 | 19.9 | 625 | 51064 | 0.4 | 755 | 2733 | 0.0 | 885 | 1690 | 0.0 |
| 370 | 1131 | 0.0 | 500 | 17160 | 28.7 | 630 | 47879 | 0.3 | 760 | 2503 | 0.0 | 890 | 1819 | 0.0 |
| 375 | 1414 | 0.0 | 505 | 23071 | 39.2 | 635 | 44248 | 0.2 | 765 | 2289 | 0.0 | 895 | 1314 | 0.0 |
| 380 | 1275 | 0.0 | 510 | 29162 | 49.4 | 640 | 41034 | 0.1 | 770 | 2078 | 0.0 | 900 | 1547 | 0.0 |
| 385 | 1122 | 0.0 | 515 | 34992 | 58.0 | 645 | 37515 | 0.1 | 775 | 1927 | 0.0 | 905 | 1281 | 0.0 |
| 390 | 1074 | 0.0 | 520 | 40102 | 63.7 | 650 | 33900 | 0.0 | 780 | 1724 | 0.0 | 910 | 1345 | 0.0 |
| 395 | 1058 | 0.0 | 525 | 44194 | 66.1 | 655 | 30384 | 0.0 | 785 | 1617 | 0.0 | 915 | 1561 | 0.0 |
| 400 | 885 | 0.0 | 530 | 48014 | 66.2 | 660 | 26883 | 0.0 | 790 | 1709 | 0.0 | 920 | 1368 | 0.0 |
| 405 | 912 | 0.0 | 535 | 51019 | 63.6 | 665 | 23703 | 0.0 | 795 | 1561 | 0.0 | 925 | 1730 | 0.0 |
| 410 | 1108 | 0.1 | 540 | 53190 | 58.8 | 670 | 20603 | 0.0 | 800 | 1525 | 0.0 | 930 | 1629 | 0.0 |
| 415 | 1763 | 0.2 | 545 | 55452 | 53.2 | 675 | 18039 | 0.0 | 805 | 1332 | 0.0 | 935 | 1796 | 0.0 |
| 420 | 3421 | 0.6 | 550 | 57280 | 46.8 | 680 | 15849 | 0.0 | 810 | 1269 | 0.0 | 940 | 1595 | 0.0 |
| 425 | 6610 | 1.6 | 555 | 59041 | 40.3 | 685 | 13806 | 0.0 | 815 | 1261 | 0.0 | 945 | 1410 | 0.0 |
| 430 | 12444 | 4.2 | 560 | 60976 | 34.1 | 690 | 12093 | 0.0 | 820 | 1551 | 0.0 | 950 | 1937 | 0.0 |
| 435 | 21116 | 9.4 | 565 | 62904 | 28.2 | 695 | 10566 | 0.0 | 825 | 1708 | 0.0 | 955 | 2186 | 0.0 |
| 440 | 33463 | 18.7 | 570 | 64555 | 22.8 | 700 | 9300 | 0.0 | 830 | 1592 | 0.0 | 960 | 1583 | 0.0 |
| 445 | 49089 | 32.9 | 575 | 65785 | 17.9 | 705 | 8110 | 0.0 | 835 | 1642 | 0.0 | 965 | 1953 | 0.0 |
| 450 | 57374 | 44.5 | 580 | 66948 | 13.8 | 710 | 7052 | 0.0 | 840 | 1514 | 0.0 | 970 | 1519 | 0.0 |
| 455 | 42663 | 37.3 | 585 | 67963 | 10.4 | 715 | 6233 | 0.0 | 845 | 1376 | 0.0 | 975 | 1168 | 0.0 |
| 460 | 25334 | 24.5 | 590 | 68001 | 7.6 | 720 | 5362 | 0.0 | 850 | 1592 | 0.0 | 980 | 1593 | 0.0 |
| 465 | 17751 | 18.7 | 595 | 67308 | 5.4 | 725 | 4563 | 0.0 | 855 | 1667 | 0.0 | 985 | 1722 | 0.0 |
| 470 | 12447 | 14.3 | 600 | 66343 | 3.7 | 730 | 3976 | 0.0 | 860 | 1662 | 0.0 | 990 | 1648 | 0.0 |
| 475 | 8641 | 10.8 | 605 | 64393 | 2.5 | 735 | 3424 | 0.0 | 865 | 1916 | 0.0 | 995 | 2495 | 0.0 |
| 480 | 7423 | 10.0 | 610 | 61634 | 1.7 | 740 | 3222 | 0.0 | 870 | 1655 | 0.0 | 1000 | 2643 | 0.0 |
| 485 | 7759 | 11.2 | 615 | 58349 | 1.1 | 745 | 3060 | 0.0 | 875 | 2036 | 0.0 | | | |

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Melanopic Flux vs. Wavelength

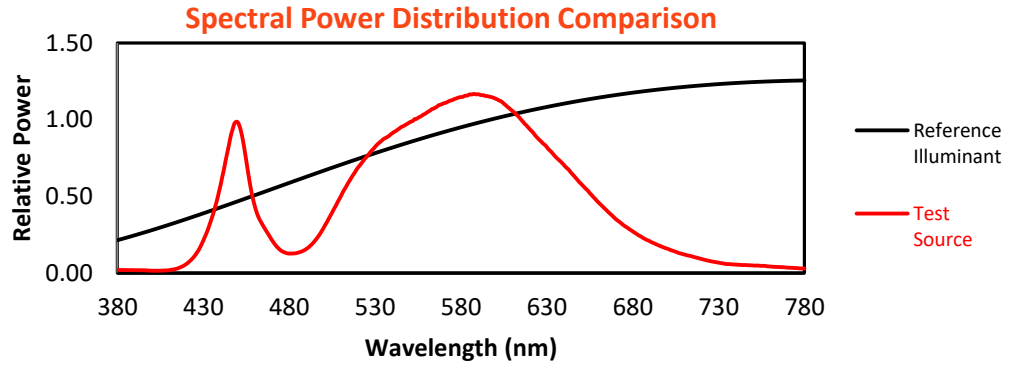


Melanopic Lumens: 5289.9 S/P: 1.39

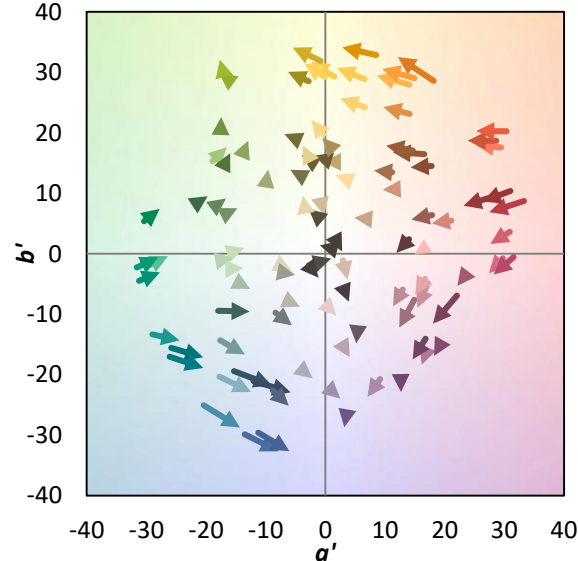
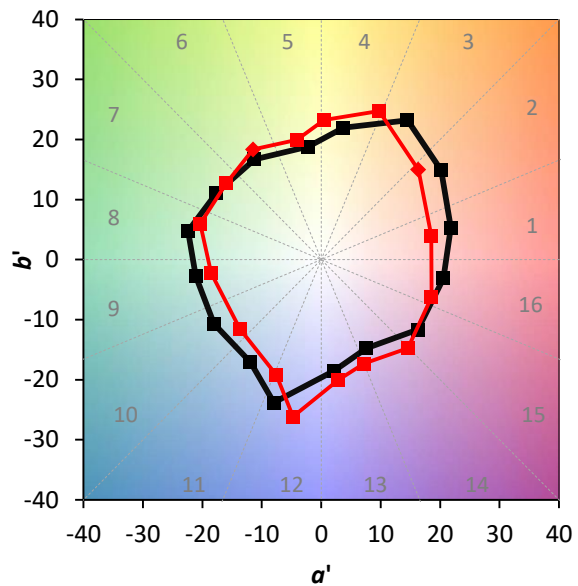
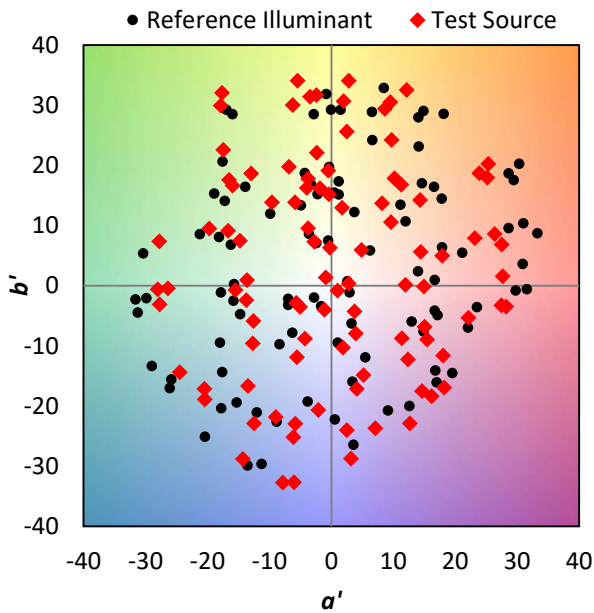
| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1254 | 0.0 | 490 | 9219 | 7.7 | 620 | 54761 | 0.0 | 750 | 2901 | 0.0 | 880 | 1835 | 0.0 |
| 365 | 1158 | 0.0 | 495 | 12322 | 10.2 | 625 | 51064 | 0.0 | 755 | 2733 | 0.0 | 885 | 1690 | 0.0 |
| 370 | 1131 | 0.0 | 500 | 17160 | 13.8 | 630 | 47879 | 0.0 | 760 | 2503 | 0.0 | 890 | 1819 | 0.0 |
| 375 | 1414 | 0.0 | 505 | 23071 | 17.7 | 635 | 44248 | 0.0 | 765 | 2289 | 0.0 | 895 | 1314 | 0.0 |
| 380 | 1275 | 0.0 | 510 | 29162 | 20.9 | 640 | 41034 | 0.0 | 770 | 2078 | 0.0 | 900 | 1547 | 0.0 |
| 385 | 1122 | 0.0 | 515 | 34992 | 22.9 | 645 | 37515 | 0.0 | 775 | 1927 | 0.0 | 905 | 1281 | 0.0 |
| 390 | 1074 | 0.0 | 520 | 40102 | 23.3 | 650 | 33900 | 0.0 | 780 | 1724 | 0.0 | 910 | 1345 | 0.0 |
| 395 | 1058 | 0.0 | 525 | 44194 | 22.4 | 655 | 30384 | 0.0 | 785 | 1617 | 0.0 | 915 | 1561 | 0.0 |
| 400 | 885 | 0.0 | 530 | 48014 | 20.7 | 660 | 26883 | 0.0 | 790 | 1709 | 0.0 | 920 | 1368 | 0.0 |
| 405 | 912 | 0.0 | 535 | 51019 | 18.4 | 665 | 23703 | 0.0 | 795 | 1561 | 0.0 | 925 | 1730 | 0.0 |
| 410 | 1108 | 0.0 | 540 | 53190 | 15.6 | 670 | 20603 | 0.0 | 800 | 1525 | 0.0 | 930 | 1629 | 0.0 |
| 415 | 1763 | 0.1 | 545 | 55452 | 12.9 | 675 | 18039 | 0.0 | 805 | 1332 | 0.0 | 935 | 1796 | 0.0 |
| 420 | 3421 | 0.4 | 550 | 57280 | 10.3 | 680 | 15849 | 0.0 | 810 | 1269 | 0.0 | 940 | 1595 | 0.0 |
| 425 | 6610 | 1.0 | 555 | 59041 | 8.0 | 685 | 13806 | 0.0 | 815 | 1261 | 0.0 | 945 | 1410 | 0.0 |
| 430 | 12444 | 2.6 | 560 | 60976 | 6.0 | 690 | 12093 | 0.0 | 820 | 1551 | 0.0 | 950 | 1937 | 0.0 |
| 435 | 21116 | 5.6 | 565 | 62904 | 4.4 | 695 | 10566 | 0.0 | 825 | 1708 | 0.0 | 955 | 2186 | 0.0 |
| 440 | 33463 | 11.2 | 570 | 64555 | 3.2 | 700 | 9300 | 0.0 | 830 | 1592 | 0.0 | 960 | 1583 | 0.0 |
| 445 | 49089 | 19.4 | 575 | 65785 | 2.2 | 705 | 8110 | 0.0 | 835 | 1642 | 0.0 | 965 | 1953 | 0.0 |
| 450 | 57374 | 26.4 | 580 | 66948 | 1.5 | 710 | 7052 | 0.0 | 840 | 1514 | 0.0 | 970 | 1519 | 0.0 |
| 455 | 42663 | 22.4 | 585 | 67963 | 1.0 | 715 | 6233 | 0.0 | 845 | 1376 | 0.0 | 975 | 1168 | 0.0 |
| 460 | 25334 | 14.9 | 590 | 68001 | 0.7 | 720 | 5362 | 0.0 | 850 | 1592 | 0.0 | 980 | 1593 | 0.0 |
| 465 | 17751 | 11.6 | 595 | 67308 | 0.4 | 725 | 4563 | 0.0 | 855 | 1667 | 0.0 | 985 | 1722 | 0.0 |
| 470 | 12447 | 8.9 | 600 | 66343 | 0.3 | 730 | 3976 | 0.0 | 860 | 1662 | 0.0 | 990 | 1648 | 0.0 |
| 475 | 8641 | 6.6 | 605 | 64393 | 0.2 | 735 | 3424 | 0.0 | 865 | 1916 | 0.0 | 995 | 2495 | 0.0 |
| 480 | 7423 | 6.0 | 610 | 61634 | 0.1 | 740 | 3222 | 0.0 | 870 | 1655 | 0.0 | 1000 | 2643 | 0.0 |
| 485 | 7759 | 6.4 | 615 | 58349 | 0.1 | 745 | 3060 | 0.0 | 875 | 2036 | 0.0 | | | |

Summary

$R_f = 76.2$
 $R_g = 94.3$
 CIE $R_a = 72.6$
 $R_g = -22.4$

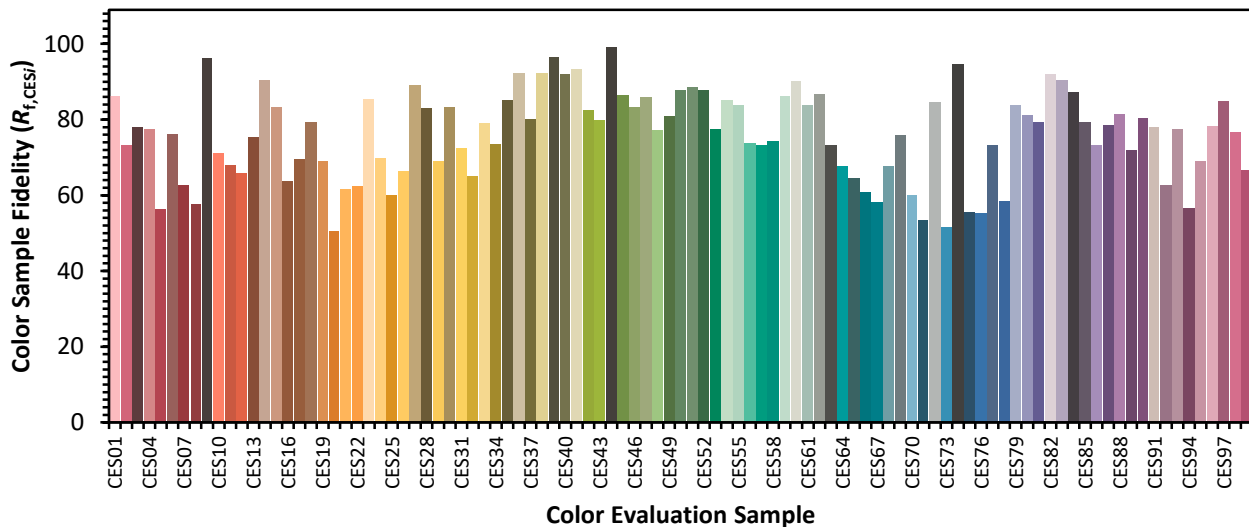


Color Vector Graphics



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

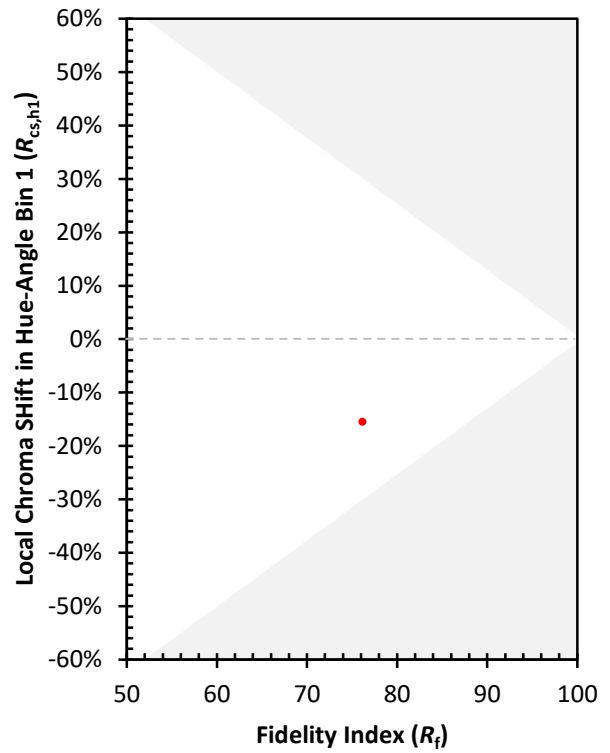
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 66 | CES51 = 88 | CES76 = 55 |
| CES02 = 61 | CES27 = 89 | CES52 = 88 | CES77 = 73 |
| CES03 = 31 | CES28 = 83 | CES53 = 78 | CES78 = 59 |
| CES04 = 70 | CES29 = 69 | CES54 = 85 | CES79 = 84 |
| CES05 = 48 | CES30 = 83 | CES55 = 84 | CES80 = 81 |
| CES06 = 51 | CES31 = 73 | CES56 = 74 | CES81 = 79 |
| CES07 = 40 | CES32 = 65 | CES57 = 73 | CES82 = 92 |
| CES08 = 39 | CES33 = 79 | CES58 = 74 | CES83 = 90 |
| CES09 = 29 | CES34 = 74 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 85 | CES60 = 90 | CES85 = 79 |
| CES11 = 57 | CES36 = 92 | CES61 = 84 | CES86 = 73 |
| CES12 = 63 | CES37 = 80 | CES62 = 87 | CES87 = 78 |
| CES13 = 42 | CES38 = 92 | CES63 = 73 | CES88 = 81 |
| CES14 = 74 | CES39 = 97 | CES64 = 68 | CES89 = 72 |
| CES15 = 71 | CES40 = 92 | CES65 = 65 | CES90 = 80 |
| CES16 = 47 | CES41 = 93 | CES66 = 61 | CES91 = 78 |
| CES17 = 49 | CES42 = 82 | CES67 = 58 | CES92 = 63 |
| CES18 = 56 | CES43 = 80 | CES68 = 68 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 76 | CES94 = 57 |
| CES20 = 65 | CES45 = 86 | CES70 = 60 | CES95 = 69 |
| CES21 = 86 | CES46 = 83 | CES71 = 54 | CES96 = 78 |
| CES22 = 78 | CES47 = 86 | CES72 = 85 | CES97 = 85 |
| CES23 = 92 | CES48 = 77 | CES73 = 52 | CES98 = 77 |
| CES24 = 91 | CES49 = 81 | CES74 = 95 | CES99 = 67 |
| CES25 = 72 | CES50 = 88 | CES75 = 56 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)