

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P628980

Luminaire Tested: GWS-SA1A-760-U-T2R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P628980
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-13)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1A-760-U-T2R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (16) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2525.1 lumens
Efficiency: N/A
Efficacy: 128.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G0

Input Watts (W): 19.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT

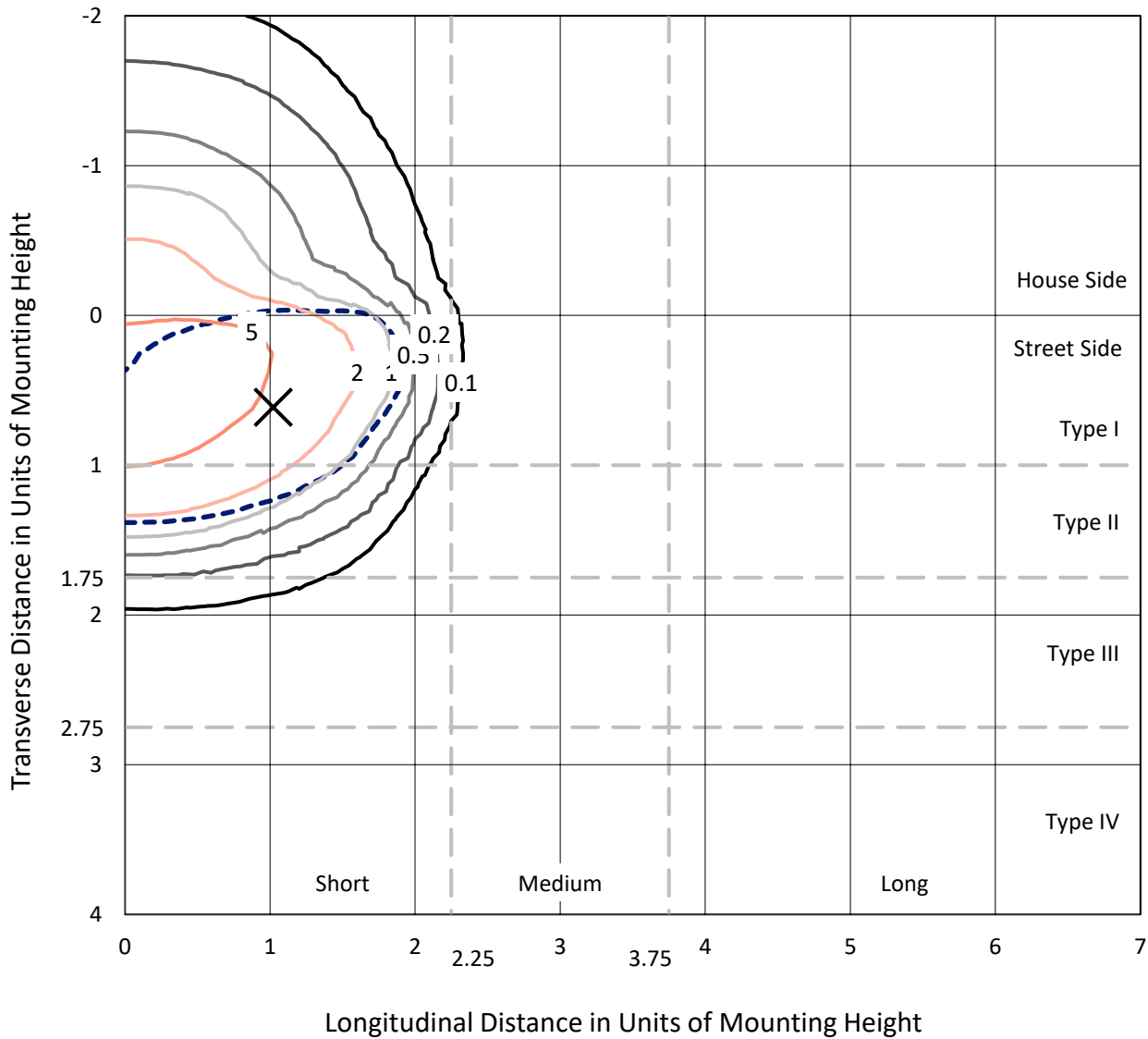


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Iso-Footcandle Lines of Horizontal Illumination

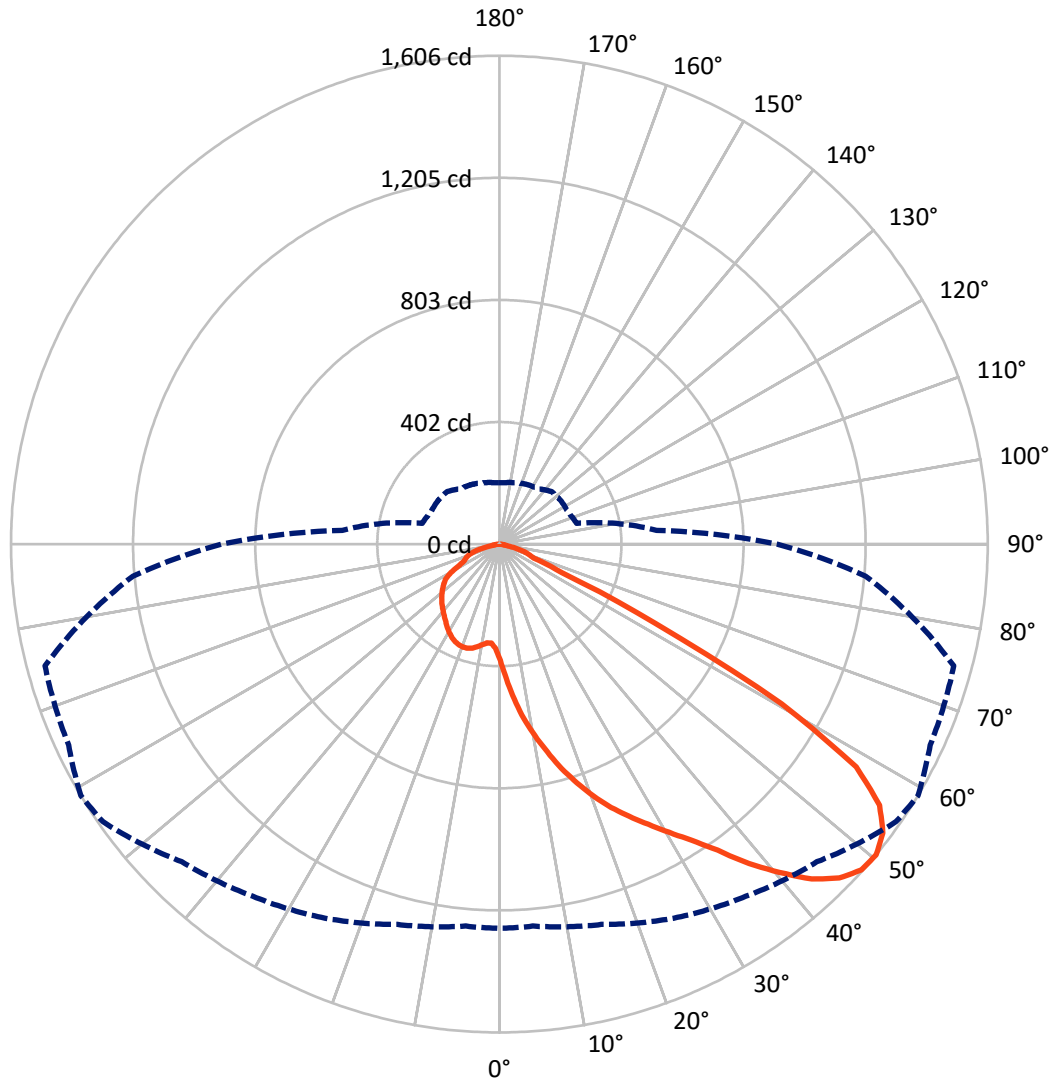
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 7.6 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical



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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 580.8 | 0.0 | 580.8 |
| | % Fixture | 23.0 | 0.0 | 23.0 |
| Street Side | Lumens | 1944.3 | 0.0 | 1944.3 |
| | % Fixture | 77.0 | 0.0 | 77.0 |
| Total | Lumens | 2525.1 | 0.0 | 2525.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 42.9 | 1.7 |
| 10°-20° | 155.8 | 6.2 |
| 20°-30° | 295.0 | 11.7 |
| 30°-40° | 489.2 | 19.4 |
| 40°-50° | 668.3 | 26.5 |
| 50°-60° | 606.7 | 24.0 |
| 60°-70° | 202.0 | 8.0 |
| 70°-80° | 58.9 | 2.3 |
| 80°-90° | 6.2 | 0.2 |
| 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° | 2525.1 | 100.0 |
| 0°-180° | 2525.1 | 100.0 |

Coefficient of Utilization



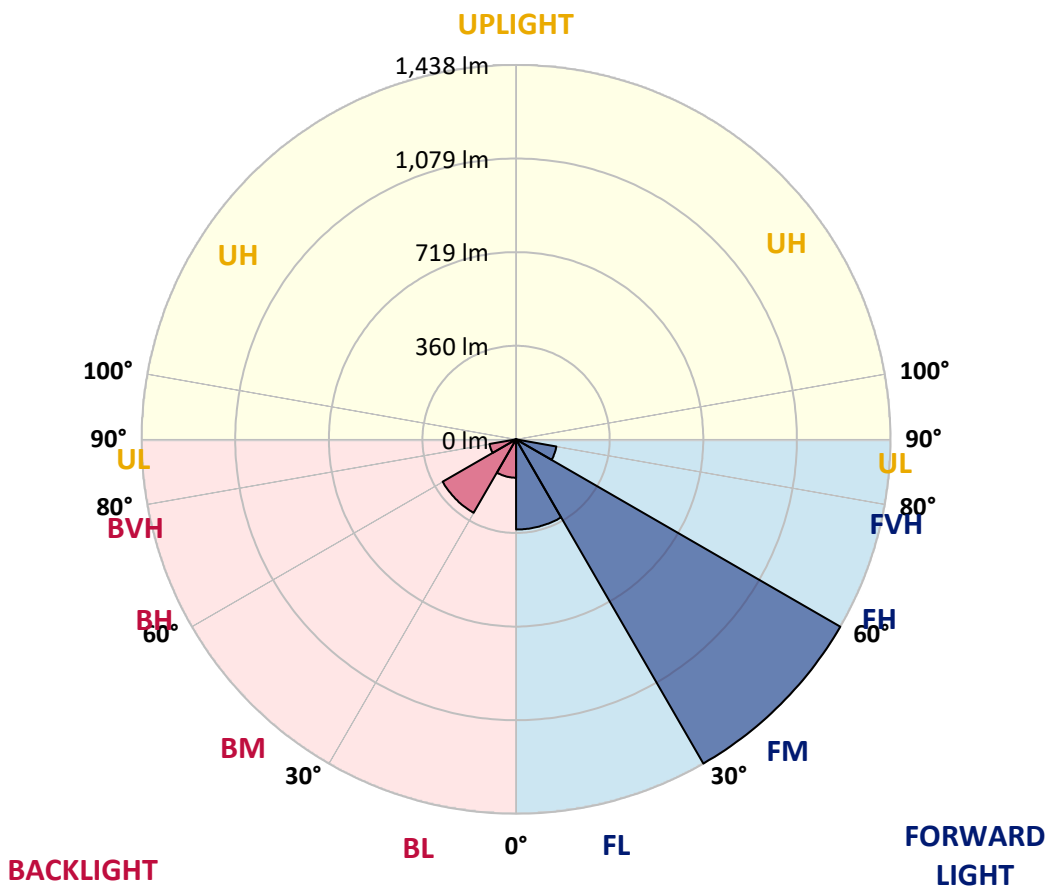
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 346.3 | 13.7 | | | |
| FM (30°-60°) | 1438.3 | 57.0 | | | |
| FH (60°-80°) | 157.3 | 6.2 | | | G0/660 |
| FVH (80°-90°) | 2.4 | 0.1 | | | G0/10 |
| BL (0°-30°) | 147.5 | 5.8 | B1/500 | | |
| BM (30°-60°) | 325.9 | 12.9 | B1/1000 | | |
| BH (60°-80°) | 103.7 | 4.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 3.8 | 0.1 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G0
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 |
| 2.5° | 495.7 | 499.4 | 493.6 | 494.1 | 479.7 | 473.1 | 454.6 | 443.7 | 436.5 | 416.3 | 398.0 |
| 5° | 595.7 | 591.3 | 586.8 | 584.1 | 571.6 | 553.9 | 530.9 | 512.6 | 495.7 | 456.2 | 418.2 |
| 7.5° | 657.0 | 654.7 | 651.6 | 650.0 | 637.6 | 619.1 | 596.1 | 580.4 | 556.0 | 502.5 | 442.6 |
| 10° | 709.0 | 706.3 | 704.5 | 705.7 | 695.6 | 683.7 | 658.6 | 640.7 | 613.1 | 551.4 | 472.2 |
| 12.5° | 749.3 | 750.7 | 751.4 | 757.9 | 753.6 | 746.4 | 720.5 | 701.6 | 670.9 | 603.1 | 507.0 |
| 15° | 781.2 | 780.8 | 788.0 | 800.5 | 807.5 | 803.0 | 782.2 | 766.4 | 728.9 | 653.9 | 544.4 |
| 17.5° | 788.6 | 789.0 | 800.3 | 822.3 | 845.2 | 856.3 | 844.5 | 825.6 | 788.6 | 704.1 | 583.3 |
| 20° | 794.6 | 795.4 | 807.1 | 832.2 | 865.5 | 896.6 | 898.4 | 884.8 | 853.0 | 758.4 | 622.8 |
| 22.5° | 832.2 | 834.0 | 837.1 | 853.0 | 883.0 | 922.3 | 943.9 | 941.0 | 914.3 | 815.3 | 665.4 |
| 25° | 931.1 | 925.6 | 910.6 | 906.0 | 917.6 | 949.4 | 986.3 | 991.8 | 978.6 | 878.1 | 711.3 |
| 27.5° | 1053.3 | 1047.3 | 1025.1 | 1001.7 | 976.8 | 987.9 | 1027.2 | 1043.8 | 1044.0 | 947.2 | 757.3 |
| 30° | 1164.2 | 1159.4 | 1141.3 | 1107.8 | 1064.8 | 1048.8 | 1077.8 | 1100.2 | 1113.6 | 1027.0 | 809.8 |
| 32.5° | 1259.0 | 1254.7 | 1230.2 | 1202.8 | 1160.9 | 1128.6 | 1139.1 | 1160.7 | 1191.9 | 1130.2 | 875.0 |
| 35° | 1338.8 | 1334.5 | 1311.0 | 1283.5 | 1244.6 | 1225.3 | 1221.6 | 1236.4 | 1276.9 | 1238.0 | 949.8 |
| 37.5° | 1403.6 | 1399.3 | 1374.8 | 1348.9 | 1319.3 | 1320.5 | 1326.0 | 1333.2 | 1356.5 | 1353.4 | 1029.9 |
| 40° | 1445.5 | 1441.0 | 1423.5 | 1405.0 | 1386.3 | 1401.1 | 1428.7 | 1420.0 | 1432.4 | 1446.6 | 1103.5 |
| 42.5° | 1464.3 | 1458.5 | 1448.4 | 1444.3 | 1438.5 | 1461.6 | 1514.7 | 1506.0 | 1491.2 | 1508.7 | 1158.2 |
| 45° | 1445.5 | 1440.6 | 1440.4 | 1452.9 | 1466.3 | 1495.9 | 1574.1 | 1567.1 | 1529.7 | 1538.7 | 1190.9 |
| 47.5° | 1388.2 | 1383.8 | 1395.6 | 1428.5 | 1461.4 | 1504.6 | 1600.6 | 1601.9 | 1557.0 | 1551.3 | 1212.1 |
| 50° | 1264.1 | 1261.2 | 1295.2 | 1357.5 | 1414.3 | 1477.6 | 1592.2 | 1606.4 | 1563.6 | 1547.4 | 1209.4 |
| 52.5° | 1012.0 | 1025.3 | 1099.2 | 1203.2 | 1313.5 | 1430.3 | 1560.9 | 1579.4 | 1531.9 | 1521.6 | 1195.0 |
| 55° | 692.7 | 698.9 | 772.8 | 924.8 | 1099.6 | 1327.9 | 1489.1 | 1517.7 | 1494.5 | 1517.3 | 1210.0 |
| 57.5° | 358.7 | 363.6 | 421.9 | 556.8 | 745.8 | 1049.4 | 1289.8 | 1383.6 | 1419.0 | 1539.1 | 1256.7 |
| 60° | 147.3 | 151.4 | 175.4 | 240.6 | 376.2 | 611.1 | 928.2 | 1067.3 | 1150.4 | 1405.6 | 1116.0 |
| 62.5° | 107.0 | 109.0 | 120.5 | 143.6 | 197.0 | 299.5 | 525.3 | 576.5 | 634.9 | 880.9 | 708.6 |
| 65° | 90.1 | 92.4 | 101.6 | 115.6 | 143.8 | 183.7 | 224.4 | 225.6 | 248.7 | 358.9 | 262.7 |
| 67.5° | 75.5 | 77.5 | 85.8 | 97.7 | 116.2 | 130.4 | 120.5 | 120.7 | 120.3 | 130.2 | 125.9 |
| 70° | 58.8 | 60.5 | 68.7 | 81.5 | 91.1 | 83.7 | 94.2 | 104.3 | 100.0 | 103.9 | 109.8 |
| 72.5° | 43.0 | 44.8 | 52.0 | 61.7 | 59.2 | 59.6 | 76.3 | 86.6 | 84.1 | 88.4 | 94.0 |
| 75° | 31.1 | 32.3 | 36.0 | 30.9 | 32.5 | 39.3 | 53.7 | 59.2 | 61.7 | 65.4 | 70.3 |
| 77.5° | 10.1 | 10.1 | 11.3 | 14.2 | 17.7 | 21.8 | 27.4 | 29.6 | 33.3 | 37.4 | 40.9 |
| 80° | 5.1 | 5.3 | 6.4 | 7.8 | 9.9 | 12.5 | 16.0 | 17.1 | 18.9 | 21.2 | 22.6 |
| 82.5° | 2.5 | 2.7 | 3.1 | 3.9 | 5.1 | 6.6 | 8.8 | 9.9 | 11.1 | 12.5 | 13.6 |
| 85° | 0.6 | 0.6 | 0.8 | 1.2 | 1.6 | 2.5 | 3.3 | 3.9 | 4.9 | 6.0 | 6.6 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.6 | 0.8 | 1.0 | 1.2 | 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 |



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CATALOG NUMBER: GWS-SA1A-760-U-T2R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 | 382.6 |
| 2.5° | 389.8 | 378.3 | 363.4 | 350.9 | 339.4 | 330.5 | 322.9 | 319.2 | 315.7 | 313.3 | 314.1 |
| 5° | 400.5 | 380.7 | 353.2 | 334.0 | 322.3 | 316.3 | 312.2 | 310.2 | 309.8 | 308.1 | 307.5 |
| 7.5° | 416.1 | 387.9 | 351.1 | 331.8 | 324.0 | 320.9 | 318.6 | 317.4 | 318.0 | 316.3 | 315.7 |
| 10° | 435.4 | 399.8 | 356.2 | 339.2 | 332.4 | 330.1 | 327.7 | 326.0 | 325.2 | 322.7 | 322.3 |
| 12.5° | 459.5 | 414.7 | 365.5 | 348.6 | 341.8 | 337.9 | 334.6 | 331.8 | 329.9 | 326.8 | 326.0 |
| 15° | 485.4 | 431.1 | 376.4 | 357.9 | 349.9 | 344.1 | 338.8 | 334.4 | 331.1 | 327.0 | 326.4 |
| 17.5° | 513.6 | 448.4 | 385.5 | 364.3 | 354.0 | 346.4 | 338.6 | 332.2 | 327.7 | 322.3 | 321.7 |
| 20° | 543.0 | 465.9 | 392.2 | 367.3 | 354.2 | 343.9 | 333.4 | 325.0 | 319.2 | 313.9 | 313.5 |
| 22.5° | 573.4 | 481.9 | 396.4 | 366.5 | 350.9 | 338.1 | 325.6 | 316.1 | 309.3 | 303.0 | 302.6 |
| 25° | 604.1 | 497.3 | 397.4 | 363.2 | 344.3 | 329.5 | 317.0 | 305.9 | 298.2 | 291.0 | 290.2 |
| 27.5° | 635.1 | 510.3 | 394.9 | 356.7 | 335.5 | 319.4 | 306.9 | 296.0 | 288.2 | 281.0 | 279.7 |
| 30° | 668.3 | 521.4 | 389.6 | 348.0 | 325.2 | 308.7 | 296.4 | 288.2 | 280.8 | 273.6 | 272.3 |
| 32.5° | 703.6 | 531.1 | 382.0 | 337.5 | 313.3 | 298.0 | 289.0 | 281.6 | 274.2 | 267.8 | 266.6 |
| 35° | 745.8 | 537.4 | 370.6 | 324.0 | 302.1 | 290.2 | 284.0 | 275.4 | 266.4 | 259.4 | 258.7 |
| 37.5° | 789.4 | 542.4 | 357.1 | 311.0 | 292.5 | 285.7 | 280.6 | 268.8 | 257.5 | 249.1 | 248.1 |
| 40° | 831.6 | 546.5 | 340.2 | 298.9 | 283.6 | 282.4 | 275.4 | 260.8 | 241.3 | 231.8 | 231.0 |
| 42.5° | 870.9 | 547.7 | 322.5 | 285.9 | 275.6 | 275.0 | 267.2 | 244.6 | 229.5 | 223.6 | 222.8 |
| 45° | 897.8 | 546.7 | 304.2 | 273.8 | 267.6 | 264.3 | 256.1 | 232.8 | 223.6 | 218.2 | 217.2 |
| 47.5° | 917.8 | 541.4 | 283.6 | 261.0 | 258.5 | 254.0 | 236.3 | 225.4 | 216.8 | 211.4 | 210.4 |
| 50° | 914.3 | 519.1 | 262.9 | 248.7 | 247.6 | 243.7 | 221.9 | 216.2 | 208.6 | 202.8 | 202.0 |
| 52.5° | 896.2 | 477.0 | 241.7 | 235.1 | 237.2 | 229.5 | 211.6 | 205.1 | 198.5 | 191.9 | 190.5 |
| 55° | 900.7 | 446.5 | 225.6 | 221.9 | 225.6 | 208.4 | 200.1 | 193.1 | 187.0 | 180.6 | 179.4 |
| 57.5° | 920.4 | 416.5 | 208.6 | 207.7 | 211.6 | 192.1 | 185.3 | 176.5 | 167.6 | 162.5 | 162.5 |
| 60° | 773.0 | 303.6 | 178.5 | 180.6 | 189.4 | 178.9 | 173.0 | 163.9 | 154.3 | 149.7 | 149.7 |
| 62.5° | 457.0 | 190.5 | 148.1 | 145.8 | 151.4 | 158.0 | 161.3 | 153.9 | 142.3 | 136.4 | 136.6 |
| 65° | 201.4 | 138.6 | 130.6 | 128.8 | 127.1 | 131.6 | 140.7 | 141.3 | 129.2 | 122.2 | 122.4 |
| 67.5° | 124.0 | 125.5 | 122.2 | 120.7 | 119.3 | 118.5 | 117.7 | 118.1 | 114.8 | 108.4 | 108.2 |
| 70° | 111.9 | 115.8 | 113.5 | 112.3 | 110.5 | 109.0 | 104.1 | 96.1 | 90.5 | 88.9 | 90.7 |
| 72.5° | 96.3 | 101.6 | 100.4 | 99.8 | 97.5 | 94.0 | 87.4 | 79.6 | 73.0 | 68.9 | 69.7 |
| 75° | 72.6 | 76.9 | 77.5 | 77.7 | 75.3 | 72.0 | 65.2 | 58.6 | 52.9 | 48.5 | 49.6 |
| 77.5° | 41.8 | 44.2 | 44.8 | 45.5 | 43.6 | 42.4 | 37.8 | 33.1 | 30.0 | 25.5 | 26.7 |
| 80° | 23.2 | 24.3 | 24.3 | 24.5 | 23.4 | 22.0 | 18.9 | 16.2 | 14.8 | 12.8 | 13.0 |
| 82.5° | 14.0 | 14.4 | 14.6 | 14.8 | 14.2 | 12.8 | 10.5 | 8.6 | 7.8 | 6.8 | 6.6 |
| 85° | 6.8 | 7.2 | 7.2 | 7.4 | 6.4 | 5.6 | 4.3 | 3.3 | 2.9 | 2.1 | 2.3 |
| 87.5° | 1.6 | 1.9 | 1.9 | 1.6 | 1.4 | 1.0 | 0.6 | 0.2 | 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



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-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-760-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 5474
 CIE u': 0.2052
 CIE v': 0.4804
 Duv: 0.0025
 CIE x: 0.3330
 CIE y: 0.3466
 CIE z: 0.3204
 Peak Wavelength (nm): 442
 Dominant Wavelength (nm): 554
 Purity: 4.1

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.7 | | |
| R1: | 70.6 | R9: | -27.1 |
| R2: | 74.6 | R10: | 40.8 |
| R3: | 78.3 | R11: | 74.6 |
| R4: | 73.8 | R12: | 50.4 |
| R5: | 72.4 | R13: | 70.0 |
| R6: | 67.5 | R14: | 87.8 |
| R7: | 77.5 | | |
| R8: | 58.9 | | |

Rf: 72.1
 Rg: 97.2



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

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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 5700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)