

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: P438075

Luminaire Tested: **ISW-SA1A-760-U-T2-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438075
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-7)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1A-760-U-T2-HSS
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 5700K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE II OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2045 lumens
Efficiency: N/A
Efficacy: 101.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B0 - U0 - G1

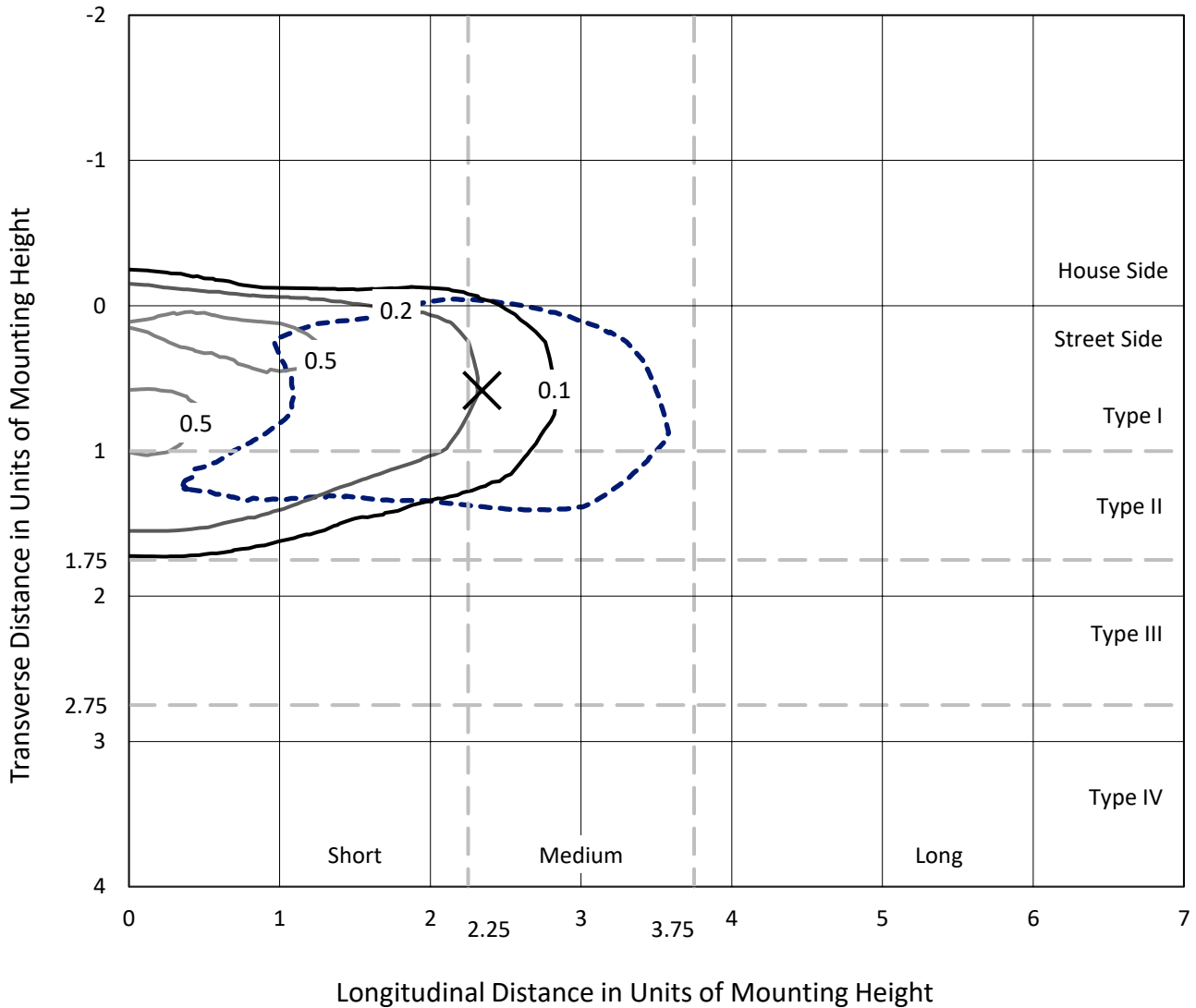
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

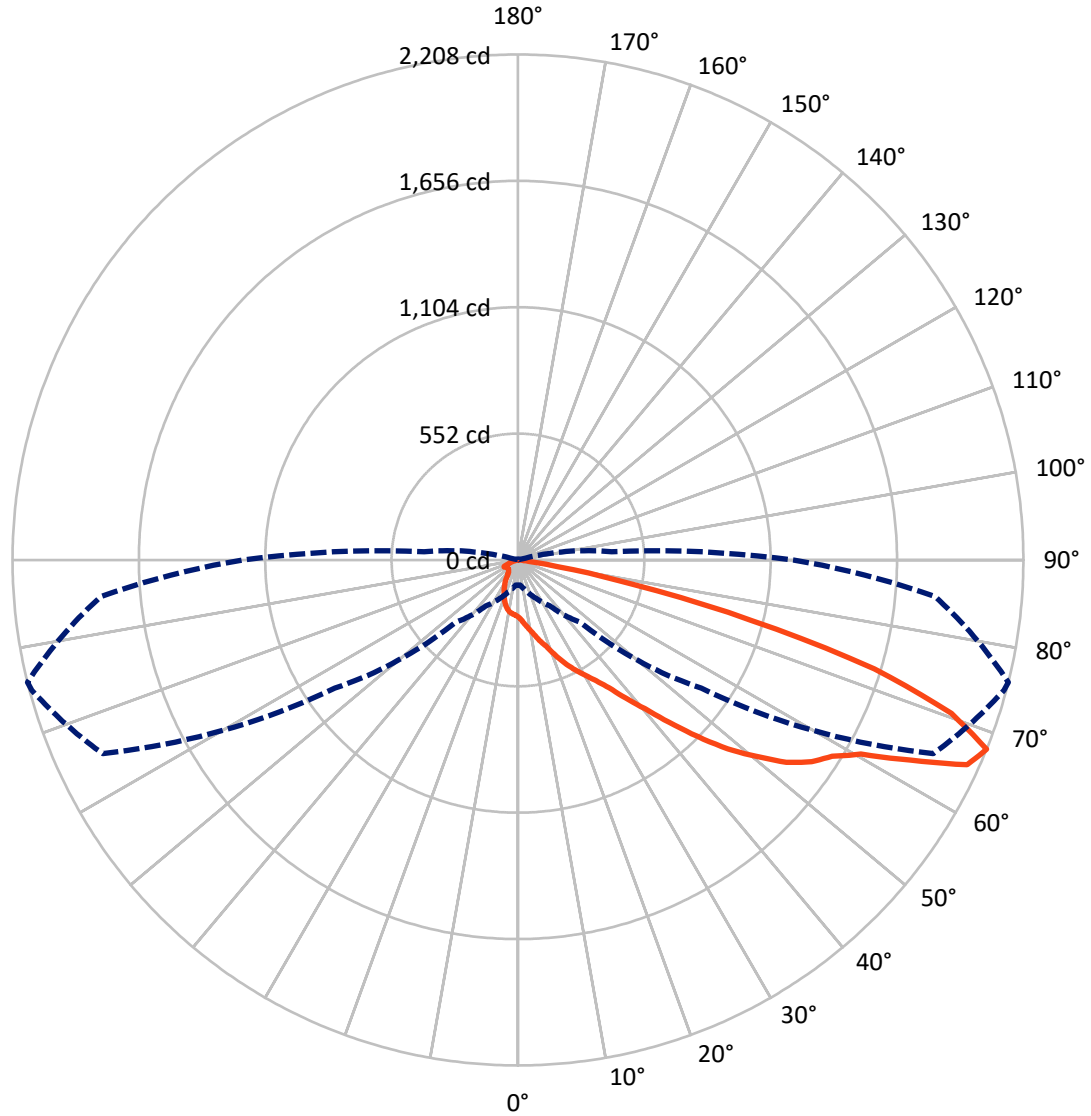
✕ Max cd
 - - - 1/2 Max cd



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

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Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

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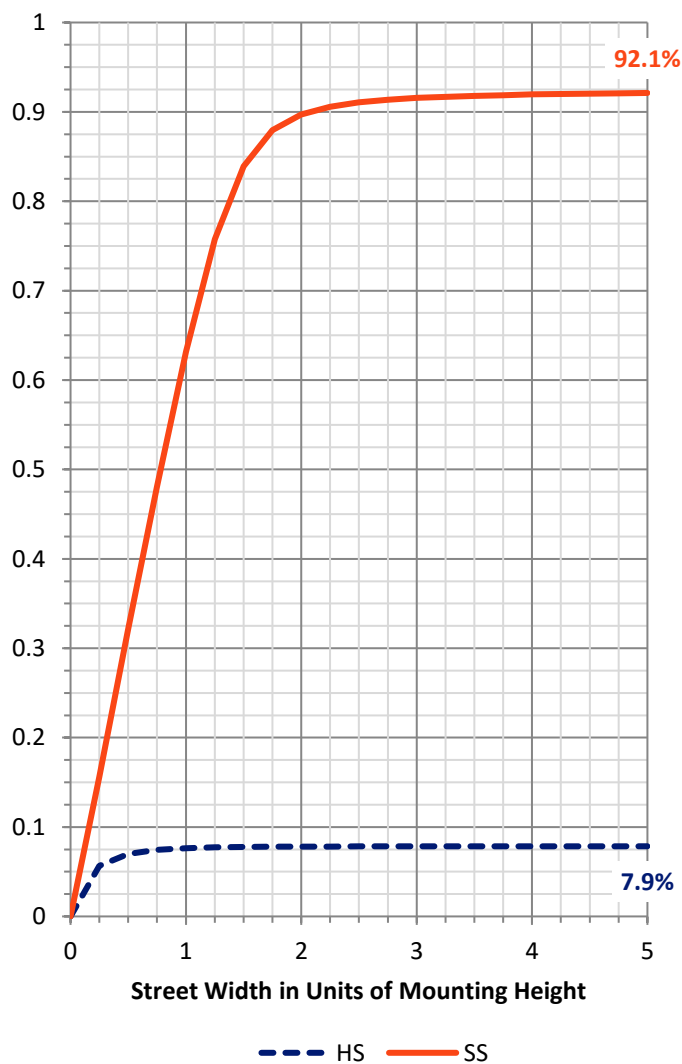
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 161.8 | 0.0 | 161.8 |
| | % Fixture | 7.9 | 0.0 | 7.9 |
| Street Side | Lumens | 1883.2 | 0.0 | 1883.2 |
| | % Fixture | 92.1 | 0.0 | 92.1 |
| Total | Lumens | 2045.0 | 0.0 | 2045.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 23.9 | 1.2 |
| 10°-20° | 66.5 | 3.2 |
| 20°-30° | 114.7 | 5.6 |
| 30°-40° | 204.3 | 10.0 |
| 40°-50° | 363.8 | 17.8 |
| 50°-60° | 545.5 | 26.7 |
| 60°-70° | 516.7 | 25.3 |
| 70°-80° | 201.4 | 9.8 |
| 80°-90° | 8.4 | 0.4 |
| 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° | 2045.0 | 100.0 |
| 0°-180° | 2045.0 | 100.0 |

Coefficient of Utilization

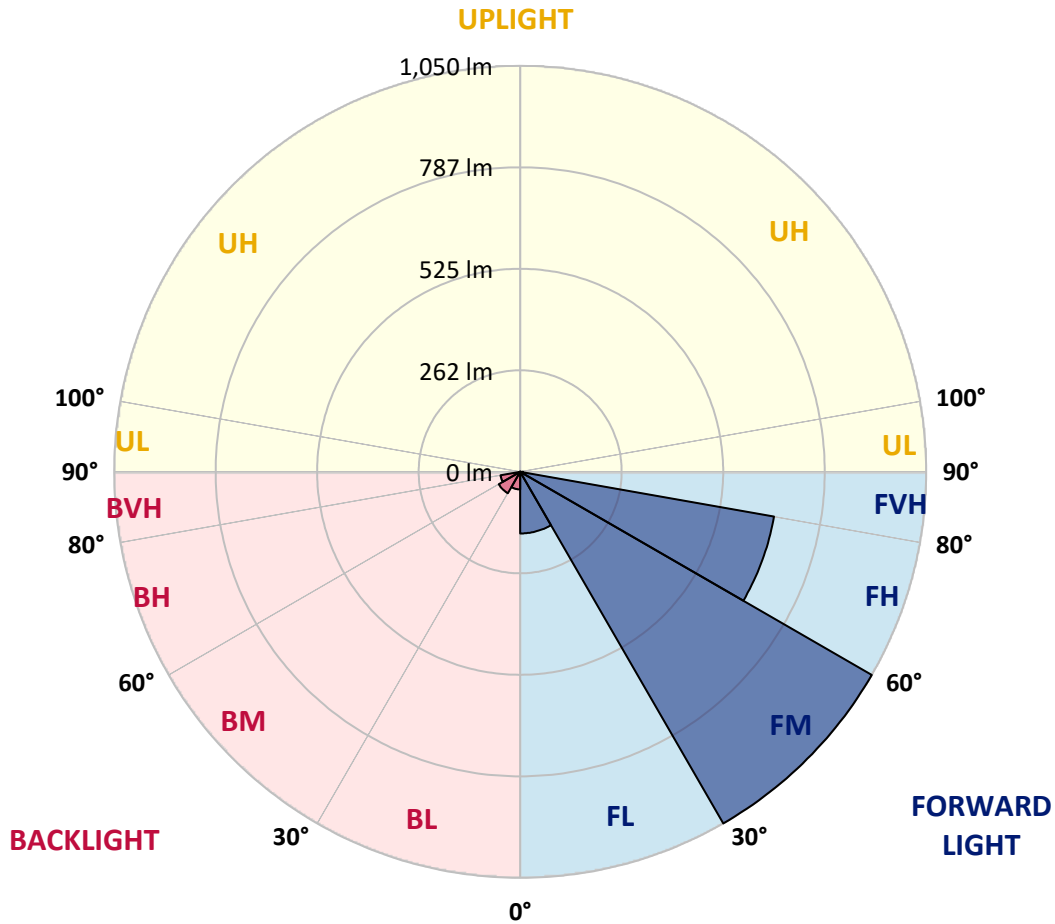


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 159.4 | 7.8 | | | |
| FM (30°-60°) | 1049.7 | 51.3 | | | |
| FH (60°-80°) | 666.4 | 32.6 | | | G1/1800 |
| FVH (80°-90°) | 7.6 | 0.4 | | | G0/10 |
| BL (0°-30°) | 45.5 | 2.2 | B0/110 | | |
| BM (30°-60°) | 63.9 | 3.1 | B0/220 | | |
| BH (60°-80°) | 51.7 | 2.5 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.7 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G1
 Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 |
| 2.5° | 294.6 | 291.7 | 289.8 | 288.9 | 287.0 | 281.2 | 276.4 | 267.8 | 260.2 | 260.2 | 255.4 |
| 5° | 321.4 | 320.4 | 316.6 | 314.7 | 313.7 | 309.9 | 301.3 | 290.8 | 278.3 | 277.4 | 265.9 |
| 7.5° | 329.0 | 330.0 | 330.0 | 331.9 | 332.9 | 331.0 | 323.3 | 313.7 | 297.5 | 295.6 | 278.3 |
| 10° | 326.2 | 326.2 | 329.0 | 334.8 | 342.4 | 346.3 | 345.3 | 337.6 | 318.5 | 316.6 | 292.7 |
| 12.5° | 315.6 | 317.6 | 322.3 | 331.9 | 346.3 | 357.7 | 364.4 | 361.6 | 342.4 | 340.5 | 311.8 |
| 15° | 301.3 | 303.2 | 311.8 | 325.2 | 344.3 | 366.3 | 381.6 | 390.3 | 371.1 | 369.2 | 331.9 |
| 17.5° | 281.2 | 283.1 | 292.7 | 312.8 | 339.6 | 370.2 | 399.8 | 417.0 | 400.8 | 395.0 | 353.0 |
| 20° | 273.6 | 275.5 | 283.1 | 299.4 | 331.0 | 370.2 | 416.1 | 448.6 | 436.2 | 431.4 | 379.7 |
| 22.5° | 304.2 | 303.2 | 296.5 | 298.4 | 322.3 | 367.3 | 428.5 | 487.8 | 478.3 | 471.6 | 408.4 |
| 25° | 359.6 | 363.5 | 353.9 | 331.9 | 328.1 | 364.4 | 437.1 | 518.4 | 517.5 | 510.8 | 438.1 |
| 27.5° | 423.7 | 425.6 | 415.1 | 392.2 | 360.6 | 370.2 | 446.7 | 549.0 | 553.8 | 548.1 | 461.0 |
| 30° | 476.3 | 483.0 | 475.4 | 454.3 | 420.9 | 395.0 | 453.4 | 576.8 | 593.0 | 585.4 | 483.0 |
| 32.5° | 551.9 | 554.8 | 547.1 | 516.5 | 482.1 | 442.9 | 465.8 | 600.7 | 636.1 | 629.4 | 508.9 |
| 35° | 631.3 | 635.1 | 620.8 | 587.3 | 545.2 | 501.2 | 495.5 | 633.2 | 698.2 | 684.9 | 548.1 |
| 37.5° | 702.1 | 705.9 | 699.2 | 658.1 | 616.9 | 570.1 | 548.1 | 677.2 | 773.8 | 765.2 | 596.9 |
| 40° | 758.5 | 768.1 | 766.2 | 730.8 | 692.5 | 650.4 | 623.6 | 728.9 | 860.9 | 853.2 | 659.0 |
| 42.5° | 815.9 | 822.6 | 818.8 | 792.9 | 766.2 | 740.3 | 706.9 | 800.6 | 972.8 | 968.9 | 736.5 |
| 45° | 887.6 | 898.2 | 893.4 | 872.3 | 839.8 | 834.1 | 802.5 | 886.7 | 1105.7 | 1100.0 | 830.2 |
| 47.5° | 993.8 | 1003.4 | 995.7 | 967.0 | 929.7 | 919.2 | 892.4 | 984.2 | 1235.8 | 1232.9 | 923.0 |
| 50° | 1051.2 | 1060.8 | 1080.9 | 1085.6 | 1060.8 | 1004.3 | 972.8 | 1077.0 | 1352.5 | 1347.7 | 1012.0 |
| 52.5° | 1031.1 | 1039.7 | 1088.5 | 1134.4 | 1188.9 | 1141.1 | 1070.3 | 1177.5 | 1459.6 | 1468.2 | 1099.0 |
| 55° | 945.0 | 956.5 | 1026.3 | 1100.0 | 1232.0 | 1296.1 | 1214.8 | 1291.3 | 1543.8 | 1556.2 | 1156.4 |
| 57.5° | 770.9 | 784.3 | 874.2 | 988.1 | 1166.0 | 1335.3 | 1393.6 | 1448.1 | 1601.2 | 1617.5 | 1230.1 |
| 60° | 462.0 | 483.0 | 575.8 | 726.9 | 973.7 | 1242.5 | 1520.8 | 1673.9 | 1713.1 | 1720.8 | 1386.9 |
| 62.5° | 256.3 | 251.6 | 326.2 | 450.5 | 671.5 | 1009.1 | 1501.7 | 1948.4 | 1924.5 | 1924.5 | 1654.8 |
| 65° | 154.0 | 158.8 | 197.0 | 267.8 | 390.3 | 665.7 | 1339.1 | 2117.7 | 2149.3 | 2156.0 | 1871.9 |
| 67.5° | 109.0 | 110.0 | 137.7 | 183.6 | 243.9 | 383.6 | 976.6 | 2001.0 | 2198.1 | 2207.6 | 1828.8 |
| 70° | 70.8 | 71.7 | 98.5 | 131.0 | 174.1 | 211.4 | 596.9 | 1649.0 | 2013.4 | 2008.7 | 1617.5 |
| 72.5° | 43.0 | 45.0 | 62.2 | 96.6 | 133.9 | 119.6 | 321.4 | 1191.8 | 1595.5 | 1628.0 | 1269.3 |
| 75° | 26.8 | 28.7 | 37.3 | 67.0 | 93.7 | 81.3 | 141.6 | 795.8 | 1029.2 | 1054.1 | 819.7 |
| 77.5° | 15.3 | 17.2 | 23.9 | 38.3 | 67.0 | 56.4 | 67.0 | 418.0 | 498.3 | 514.6 | 329.0 |
| 80° | 5.7 | 6.7 | 12.4 | 19.1 | 41.1 | 34.4 | 30.6 | 141.6 | 158.8 | 177.9 | 100.4 |
| 82.5° | 1.0 | 1.9 | 5.7 | 11.5 | 16.3 | 16.3 | 13.4 | 43.0 | 44.0 | 46.9 | 26.8 |
| 85° | 0.0 | 0.0 | 1.9 | 2.9 | 2.9 | 2.9 | 4.8 | 8.6 | 13.4 | 13.4 | 7.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.9 | 1.9 | 1.9 | 1.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 | 248.7 |
| 2.5° | 250.6 | 248.7 | 241.0 | 233.4 | 227.6 | 222.9 | 215.2 | 215.2 | 212.3 | 209.5 | 210.4 |
| 5° | 257.3 | 251.6 | 237.2 | 222.9 | 209.5 | 197.0 | 186.5 | 181.7 | 175.0 | 173.1 | 172.2 |
| 7.5° | 265.9 | 255.4 | 231.5 | 208.5 | 186.5 | 170.3 | 156.9 | 148.3 | 140.6 | 138.7 | 139.6 |
| 10° | 276.4 | 261.1 | 224.8 | 189.4 | 162.6 | 142.5 | 127.2 | 120.5 | 111.9 | 109.0 | 106.2 |
| 12.5° | 291.7 | 267.8 | 214.3 | 168.3 | 138.7 | 118.6 | 96.6 | 80.3 | 74.6 | 72.7 | 72.7 |
| 15° | 304.2 | 271.6 | 200.9 | 148.3 | 118.6 | 87.0 | 68.9 | 66.0 | 65.0 | 65.0 | 65.0 |
| 17.5° | 318.5 | 274.5 | 184.6 | 129.1 | 91.8 | 64.1 | 60.3 | 60.3 | 59.3 | 59.3 | 58.3 |
| 20° | 333.8 | 275.5 | 167.4 | 111.9 | 65.0 | 57.4 | 54.5 | 53.6 | 51.7 | 50.7 | 50.7 |
| 22.5° | 351.0 | 274.5 | 148.3 | 91.8 | 57.4 | 52.6 | 47.8 | 45.9 | 44.0 | 42.1 | 42.1 |
| 25° | 365.4 | 272.6 | 131.0 | 66.0 | 52.6 | 45.9 | 41.1 | 38.3 | 36.3 | 35.4 | 34.4 |
| 27.5° | 377.8 | 262.1 | 113.8 | 56.4 | 47.8 | 41.1 | 35.4 | 32.5 | 30.6 | 29.7 | 29.7 |
| 30° | 378.8 | 244.9 | 99.5 | 52.6 | 44.0 | 36.3 | 30.6 | 28.7 | 27.7 | 26.8 | 26.8 |
| 32.5° | 384.5 | 227.6 | 84.2 | 49.7 | 39.2 | 32.5 | 27.7 | 25.8 | 23.9 | 23.9 | 23.9 |
| 35° | 396.0 | 212.3 | 65.0 | 45.0 | 35.4 | 28.7 | 24.9 | 23.0 | 22.0 | 21.0 | 21.0 |
| 37.5° | 414.2 | 201.8 | 53.6 | 41.1 | 32.5 | 25.8 | 23.0 | 21.0 | 20.1 | 19.1 | 19.1 |
| 40° | 438.1 | 196.1 | 48.8 | 37.3 | 28.7 | 23.9 | 21.0 | 19.1 | 17.2 | 16.3 | 16.3 |
| 42.5° | 479.2 | 196.1 | 45.0 | 33.5 | 25.8 | 22.0 | 19.1 | 17.2 | 15.3 | 14.3 | 14.3 |
| 45° | 527.0 | 203.7 | 42.1 | 29.7 | 23.0 | 20.1 | 17.2 | 14.3 | 12.4 | 11.5 | 11.5 |
| 47.5° | 579.6 | 218.1 | 39.2 | 26.8 | 21.0 | 18.2 | 15.3 | 11.5 | 9.6 | 8.6 | 8.6 |
| 50° | 640.9 | 239.1 | 37.3 | 23.9 | 19.1 | 16.3 | 12.4 | 8.6 | 7.7 | 6.7 | 6.7 |
| 52.5° | 692.5 | 260.2 | 34.4 | 22.0 | 17.2 | 14.3 | 9.6 | 7.7 | 5.7 | 5.7 | 5.7 |
| 55° | 741.3 | 283.1 | 32.5 | 20.1 | 16.3 | 11.5 | 7.7 | 5.7 | 4.8 | 4.8 | 4.8 |
| 57.5° | 806.3 | 311.8 | 29.7 | 18.2 | 13.4 | 8.6 | 6.7 | 4.8 | 3.8 | 3.8 | 3.8 |
| 60° | 939.3 | 375.9 | 25.8 | 16.3 | 11.5 | 7.7 | 5.7 | 4.8 | 3.8 | 2.9 | 2.9 |
| 62.5° | 1155.5 | 480.2 | 22.0 | 14.3 | 8.6 | 6.7 | 4.8 | 3.8 | 2.9 | 1.9 | 1.9 |
| 65° | 1292.2 | 506.0 | 18.2 | 11.5 | 6.7 | 4.8 | 3.8 | 2.9 | 1.9 | 1.0 | 1.0 |
| 67.5° | 1204.2 | 411.3 | 14.3 | 8.6 | 5.7 | 3.8 | 2.9 | 1.9 | 1.0 | 0.0 | 0.0 |
| 70° | 1016.8 | 310.9 | 10.5 | 5.7 | 4.8 | 2.9 | 1.9 | 1.0 | 0.0 | 0.0 | 0.0 |
| 72.5° | 803.5 | 236.3 | 9.6 | 4.8 | 3.8 | 1.9 | 1.9 | 1.0 | 0.0 | 0.0 | 0.0 |
| 75° | 527.0 | 121.5 | 7.7 | 4.8 | 2.9 | 1.9 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 207.6 | 45.9 | 5.7 | 3.8 | 2.9 | 1.9 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 80° | 56.4 | 15.3 | 2.9 | 1.9 | 1.9 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 14.3 | 6.7 | 1.9 | 1.9 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 85° | 4.8 | 1.9 | 1.9 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.9 | 1.9 | 1.9 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 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: SP1-1908-441-9-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 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| 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

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

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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

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

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

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 | | | |

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

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 | | | |

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

TM-30-18

Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



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

TM-30-18

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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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

TM-30-18

Color Rendition by Hue-Angle Bin



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

TM-30-18

Measure Comparisons



(END OF REPORT)