

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: P438003

Luminaire Tested: **IST-SA1A-730-U-T4FT-HSS**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438003
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-11)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: IST-SA1A-730-U-T4FT-HSS
Description: IMPACT ELITE LED TRAPEZOID LUMINAIRE
(1) 70 CRI, 3000K, 350mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV FORWARD
THROW OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1914 lumens
Efficiency: N/A
Efficacy: 95.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B0 - U0 - G1

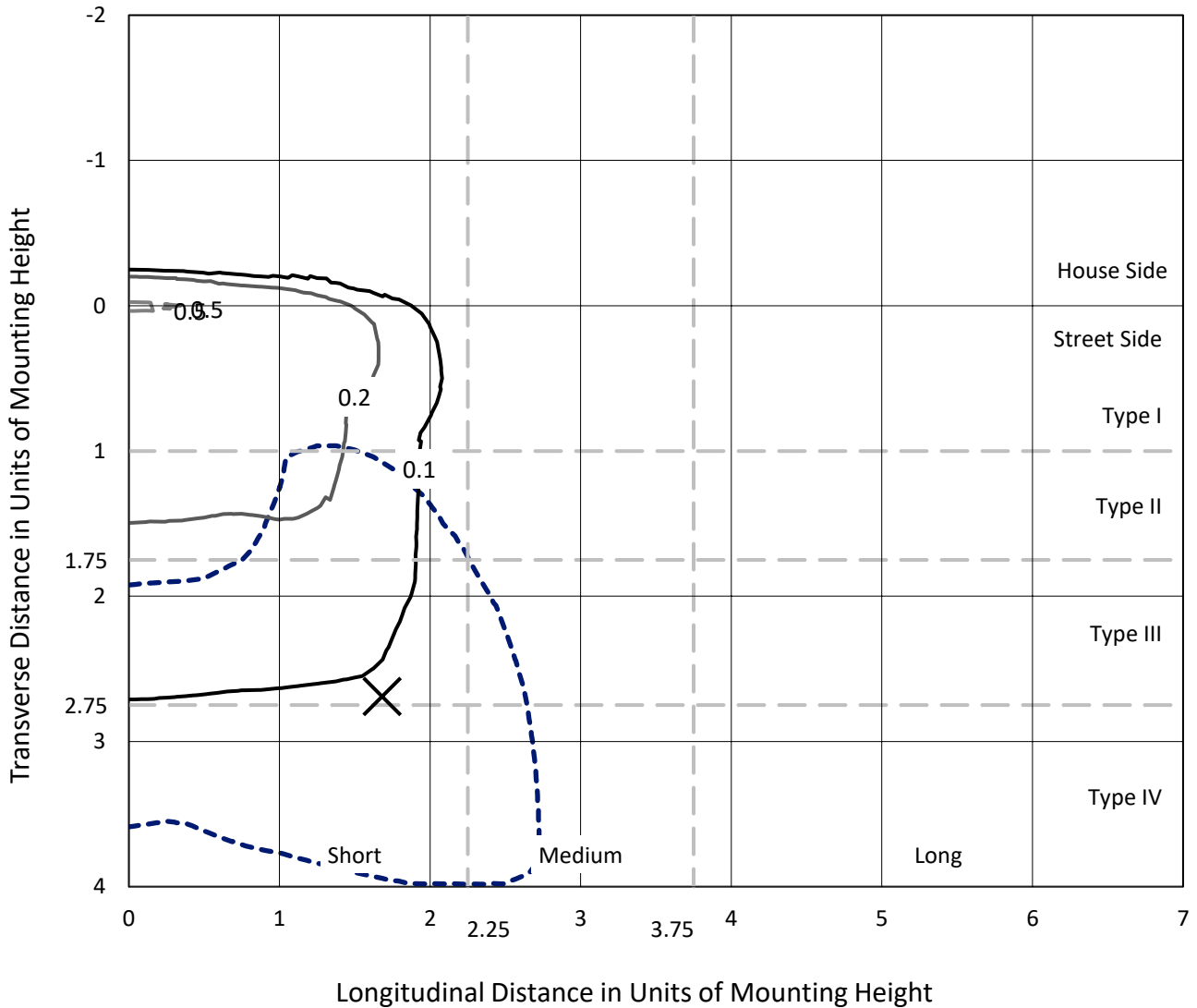
Input Watts (W): 20.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

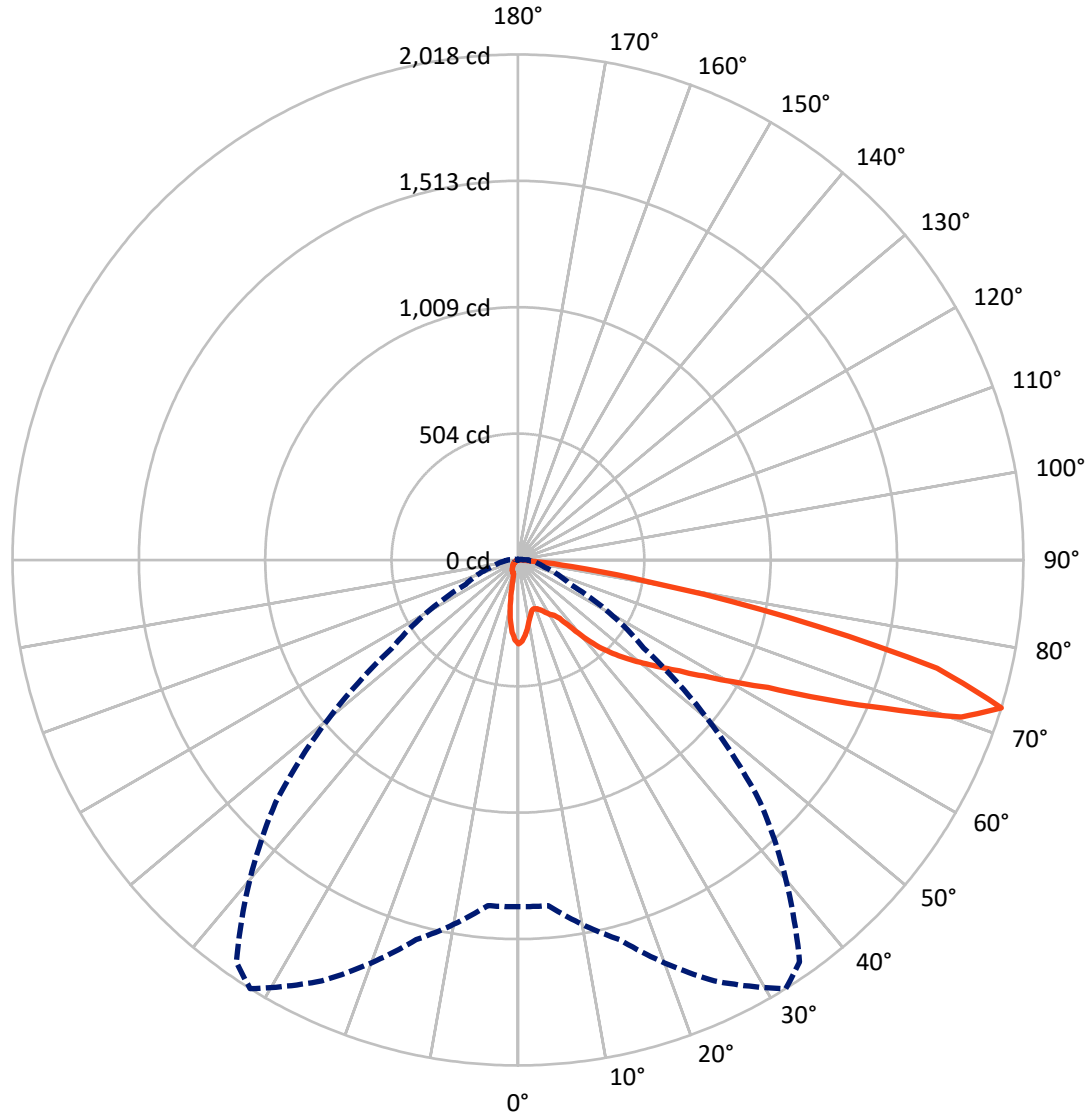
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.5 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 32-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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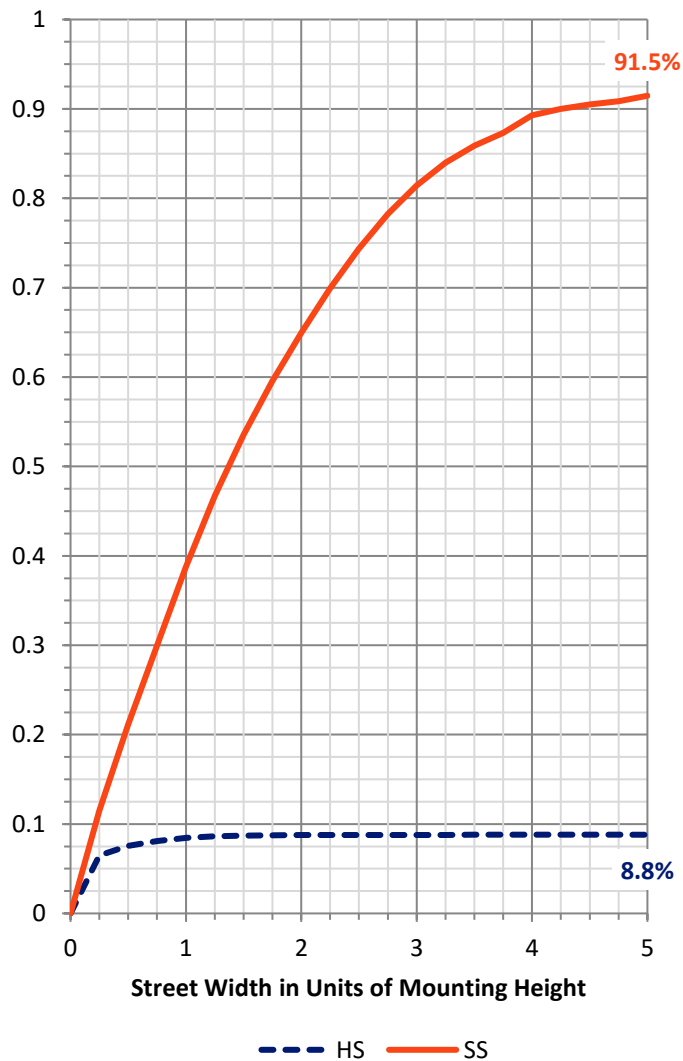
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 169.4 | 0.0 | 169.4 |
| | % Fixture | 8.9 | 0.0 | 8.9 |
| Street Side | Lumens | 1744.6 | 0.0 | 1744.6 |
| | % Fixture | 91.1 | 0.0 | 91.1 |
| Total | Lumens | 1914.0 | 0.0 | 1914.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 27.8 | 1.5 |
| 10°-20° | 60.5 | 3.2 |
| 20°-30° | 91.5 | 4.8 |
| 30°-40° | 147.5 | 7.7 |
| 40°-50° | 261.3 | 13.7 |
| 50°-60° | 400.2 | 20.9 |
| 60°-70° | 535.4 | 28.0 |
| 70°-80° | 369.6 | 19.3 |
| 80°-90° | 20.0 | 1.0 |
| 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° | 1914.0 | 100.0 |
| 0°-180° | 1914.0 | 100.0 |

Coefficient of Utilization



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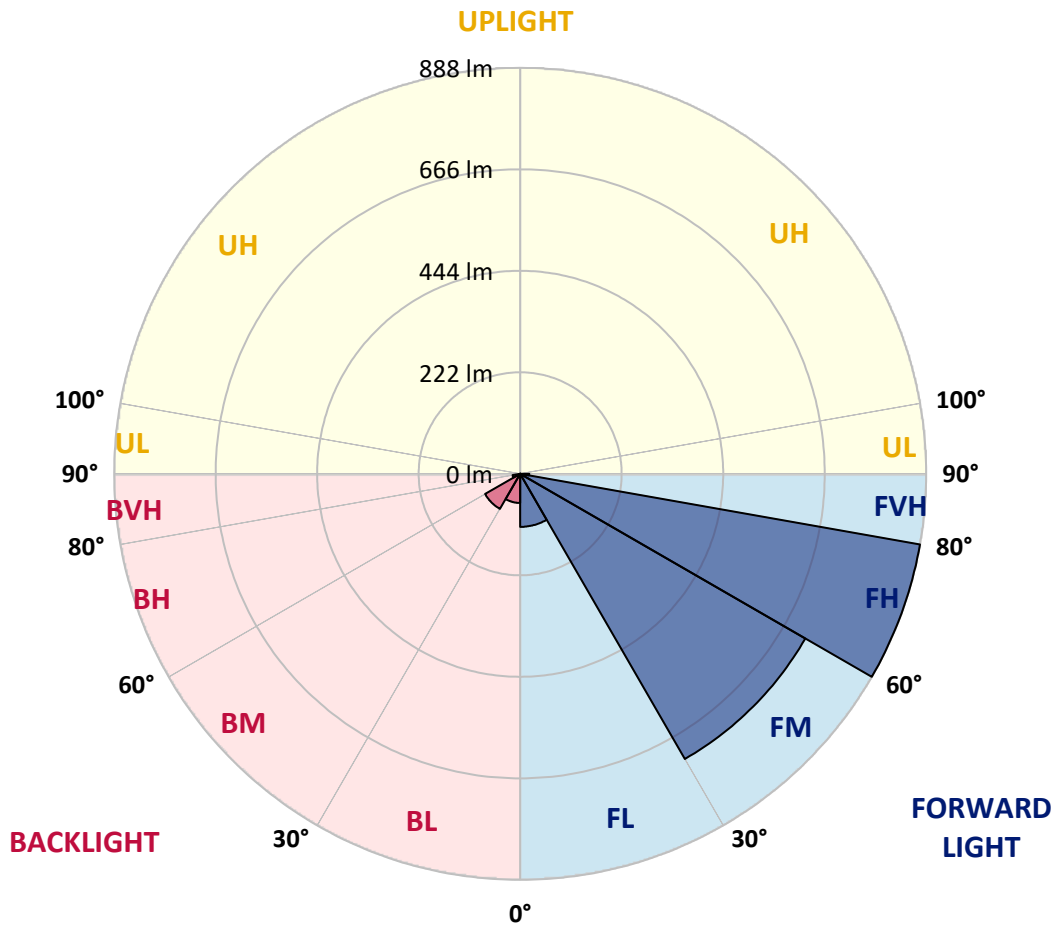
CATALOG NUMBER: IST-SA1A-730-U-T4FT-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 116.1 | 6.1 | | | |
| FM (30°-60°) | 720.5 | 37.6 | | | |
| FH (60°-80°) | 888.3 | 46.4 | | | G1/1800 |
| FVH (80°-90°) | 19.8 | 1.0 | | | G1/100 |
| BL (0°-30°) | 63.8 | 3.3 | B0/110 | | |
| BM (30°-60°) | 88.6 | 4.6 | B0/220 | | |
| BH (60°-80°) | 16.8 | 0.9 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.3 | 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 IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| 0° | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 |
| 2.5° | 322.7 | 322.7 | 323.7 | 324.7 | 324.7 | 327.6 | 331.5 | 332.4 | 335.3 | 337.3 | 338.2 |
| 5° | 288.8 | 292.7 | 292.7 | 297.5 | 301.4 | 305.3 | 315.0 | 320.8 | 330.5 | 337.3 | 339.2 |
| 7.5° | 257.8 | 258.8 | 261.7 | 267.5 | 275.2 | 278.2 | 290.8 | 307.2 | 325.6 | 337.3 | 342.1 |
| 10° | 226.8 | 227.8 | 229.7 | 238.4 | 246.2 | 253.0 | 270.4 | 290.8 | 316.9 | 337.3 | 346.0 |
| 12.5° | 204.5 | 204.5 | 206.4 | 216.1 | 224.8 | 231.6 | 251.0 | 277.2 | 308.2 | 338.2 | 351.8 |
| 15° | 196.7 | 196.7 | 195.8 | 200.6 | 208.4 | 214.2 | 236.5 | 265.6 | 300.4 | 340.2 | 357.6 |
| 17.5° | 200.6 | 200.6 | 196.7 | 197.7 | 204.5 | 208.4 | 227.8 | 256.8 | 296.6 | 344.1 | 367.3 |
| 20° | 208.4 | 208.4 | 200.6 | 200.6 | 207.4 | 210.3 | 226.8 | 252.0 | 294.6 | 350.8 | 380.9 |
| 22.5° | 217.1 | 218.1 | 207.4 | 207.4 | 214.2 | 217.1 | 232.6 | 254.9 | 297.5 | 359.6 | 394.5 |
| 25° | 231.6 | 231.6 | 218.1 | 218.1 | 223.9 | 228.7 | 243.3 | 263.6 | 301.4 | 370.2 | 415.8 |
| 27.5° | 252.0 | 251.0 | 233.6 | 228.7 | 237.4 | 241.3 | 257.8 | 274.3 | 305.3 | 382.8 | 435.2 |
| 30° | 276.2 | 271.4 | 253.9 | 244.2 | 252.0 | 254.9 | 271.4 | 288.8 | 316.9 | 401.2 | 465.2 |
| 32.5° | 302.4 | 304.3 | 276.2 | 258.8 | 262.6 | 266.5 | 287.8 | 311.1 | 336.3 | 425.5 | 505.9 |
| 35° | 353.7 | 353.7 | 324.7 | 291.7 | 284.9 | 286.9 | 310.1 | 340.2 | 360.5 | 466.2 | 552.4 |
| 37.5° | 417.7 | 419.7 | 392.5 | 357.6 | 336.3 | 327.6 | 344.1 | 375.1 | 395.4 | 517.5 | 603.8 |
| 40° | 487.5 | 484.6 | 456.5 | 424.5 | 407.1 | 396.4 | 387.7 | 424.5 | 442.9 | 572.8 | 655.2 |
| 42.5° | 545.6 | 539.8 | 502.0 | 485.6 | 474.9 | 461.3 | 443.9 | 486.5 | 504.0 | 642.6 | 714.3 |
| 45° | 583.4 | 578.6 | 540.8 | 536.0 | 532.1 | 524.3 | 528.2 | 561.2 | 577.6 | 723.0 | 776.3 |
| 47.5° | 612.5 | 605.7 | 573.8 | 580.5 | 588.3 | 596.0 | 630.0 | 654.2 | 650.3 | 796.7 | 826.7 |
| 50° | 652.3 | 642.6 | 612.5 | 626.1 | 646.4 | 661.9 | 739.5 | 746.3 | 716.2 | 859.7 | 872.3 |
| 52.5° | 676.5 | 664.9 | 657.1 | 679.4 | 709.4 | 728.8 | 859.7 | 833.5 | 768.6 | 905.2 | 908.1 |
| 55° | 696.8 | 695.9 | 709.4 | 738.5 | 782.1 | 806.4 | 958.5 | 908.1 | 802.5 | 951.7 | 927.5 |
| 57.5° | 758.9 | 755.0 | 778.2 | 801.5 | 874.2 | 914.9 | 1065.1 | 962.4 | 826.7 | 976.9 | 916.8 |
| 60° | 847.1 | 849.0 | 850.0 | 892.6 | 985.7 | 1041.9 | 1149.4 | 1007.9 | 845.1 | 980.8 | 885.8 |
| 62.5° | 984.7 | 998.3 | 975.0 | 1007.9 | 1120.4 | 1191.1 | 1230.9 | 1040.9 | 839.3 | 952.7 | 807.3 |
| 65° | 1184.3 | 1179.5 | 1146.5 | 1183.4 | 1333.6 | 1377.2 | 1315.2 | 1050.6 | 805.4 | 855.8 | 660.0 |
| 67.5° | 1387.9 | 1389.8 | 1374.3 | 1432.4 | 1578.8 | 1571.0 | 1410.2 | 1017.6 | 718.2 | 646.4 | 413.8 |
| 70° | 1520.6 | 1523.5 | 1562.3 | 1719.3 | 1878.3 | 1825.0 | 1487.7 | 901.3 | 505.9 | 308.2 | 157.0 |
| 72.5° | 1384.0 | 1385.0 | 1569.1 | 1854.0 | 2017.8 | 1959.7 | 1367.5 | 612.5 | 230.7 | 109.5 | 55.2 |
| 75° | 876.1 | 832.5 | 1165.9 | 1572.0 | 1728.0 | 1670.9 | 975.0 | 285.9 | 101.8 | 55.2 | 23.3 |
| 77.5° | 305.3 | 310.1 | 474.9 | 905.2 | 1103.9 | 1127.2 | 501.1 | 94.0 | 56.2 | 37.8 | 12.6 |
| 80° | 61.1 | 68.8 | 140.5 | 333.4 | 523.4 | 543.7 | 181.2 | 45.6 | 36.8 | 29.1 | 6.8 |
| 82.5° | 3.9 | 4.8 | 41.7 | 138.6 | 214.2 | 203.5 | 35.9 | 23.3 | 25.2 | 20.4 | 3.9 |
| 85° | 0.0 | 0.0 | 2.9 | 23.3 | 38.8 | 29.1 | 3.9 | 5.8 | 10.7 | 11.6 | 1.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 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 |



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CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 | 335.3 |
| 2.5° | 338.2 | 338.2 | 333.4 | 331.5 | 328.6 | 324.7 | 320.8 | 318.9 | 315.0 | 316.0 | 316.0 |
| 5° | 339.2 | 337.3 | 331.5 | 322.7 | 313.0 | 303.4 | 291.7 | 284.0 | 275.2 | 277.2 | 276.2 |
| 7.5° | 341.2 | 340.2 | 326.6 | 311.1 | 293.7 | 272.3 | 252.0 | 234.5 | 219.0 | 215.2 | 212.2 |
| 10° | 345.0 | 342.1 | 322.7 | 297.5 | 262.6 | 227.8 | 192.9 | 162.8 | 150.2 | 136.7 | 133.7 |
| 12.5° | 348.9 | 344.1 | 316.0 | 278.2 | 224.8 | 173.5 | 127.9 | 100.8 | 84.3 | 79.5 | 77.5 |
| 15° | 354.7 | 347.0 | 307.2 | 251.0 | 180.3 | 117.3 | 80.4 | 65.9 | 63.0 | 62.0 | 62.0 |
| 17.5° | 362.5 | 348.9 | 298.5 | 220.0 | 132.8 | 75.6 | 59.1 | 59.1 | 60.1 | 61.1 | 61.1 |
| 20° | 374.1 | 353.7 | 285.9 | 182.2 | 89.2 | 57.2 | 56.2 | 57.2 | 58.2 | 59.1 | 59.1 |
| 22.5° | 386.7 | 361.5 | 271.4 | 142.5 | 63.0 | 53.3 | 53.3 | 54.3 | 55.2 | 56.2 | 56.2 |
| 25° | 401.2 | 367.3 | 252.0 | 101.8 | 52.3 | 50.4 | 50.4 | 51.4 | 52.3 | 53.3 | 53.3 |
| 27.5° | 416.7 | 374.1 | 225.8 | 69.8 | 47.5 | 47.5 | 48.5 | 49.4 | 50.4 | 50.4 | 51.4 |
| 30° | 440.0 | 384.8 | 198.7 | 51.4 | 43.6 | 43.6 | 45.6 | 47.5 | 48.5 | 48.5 | 49.4 |
| 32.5° | 470.1 | 393.5 | 161.9 | 43.6 | 40.7 | 39.7 | 41.7 | 44.6 | 46.5 | 47.5 | 47.5 |
| 35° | 503.0 | 406.1 | 121.1 | 39.7 | 37.8 | 36.8 | 37.8 | 40.7 | 44.6 | 46.5 | 46.5 |
| 37.5° | 536.9 | 417.7 | 90.1 | 37.8 | 34.9 | 33.9 | 34.9 | 36.8 | 40.7 | 44.6 | 45.6 |
| 40° | 570.8 | 419.7 | 64.9 | 34.9 | 33.0 | 32.0 | 32.0 | 33.9 | 37.8 | 41.7 | 42.6 |
| 42.5° | 605.7 | 427.4 | 49.4 | 33.0 | 30.0 | 30.0 | 30.0 | 31.0 | 33.9 | 36.8 | 37.8 |
| 45° | 645.5 | 432.3 | 39.7 | 30.0 | 28.1 | 28.1 | 28.1 | 28.1 | 30.0 | 31.0 | 31.0 |
| 47.5° | 679.4 | 425.5 | 32.0 | 27.1 | 26.2 | 26.2 | 26.2 | 25.2 | 25.2 | 24.2 | 24.2 |
| 50° | 703.6 | 410.0 | 26.2 | 24.2 | 24.2 | 25.2 | 23.3 | 21.3 | 21.3 | 19.4 | 19.4 |
| 52.5° | 718.2 | 386.7 | 22.3 | 21.3 | 23.3 | 23.3 | 20.4 | 19.4 | 17.4 | 15.5 | 14.5 |
| 55° | 717.2 | 347.9 | 19.4 | 18.4 | 20.4 | 20.4 | 17.4 | 15.5 | 13.6 | 11.6 | 11.6 |
| 57.5° | 689.1 | 305.3 | 17.4 | 15.5 | 17.4 | 16.5 | 14.5 | 11.6 | 9.7 | 7.8 | 7.8 |
| 60° | 645.5 | 259.7 | 15.5 | 12.6 | 13.6 | 12.6 | 11.6 | 8.7 | 6.8 | 4.8 | 4.8 |
| 62.5° | 586.4 | 217.1 | 12.6 | 10.7 | 9.7 | 9.7 | 8.7 | 6.8 | 3.9 | 2.9 | 2.9 |
| 65° | 473.9 | 160.9 | 9.7 | 7.8 | 6.8 | 7.8 | 5.8 | 3.9 | 1.9 | 1.0 | 1.0 |
| 67.5° | 292.7 | 92.1 | 7.8 | 5.8 | 4.8 | 5.8 | 3.9 | 2.9 | 1.0 | 0.0 | 0.0 |
| 70° | 115.3 | 39.7 | 5.8 | 3.9 | 3.9 | 3.9 | 2.9 | 1.9 | 0.0 | 0.0 | 0.0 |
| 72.5° | 39.7 | 17.4 | 4.8 | 2.9 | 2.9 | 1.9 | 1.9 | 1.0 | 0.0 | 0.0 | 0.0 |
| 75° | 17.4 | 10.7 | 3.9 | 2.9 | 1.9 | 1.9 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 77.5° | 9.7 | 6.8 | 2.9 | 1.9 | 1.9 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 80° | 5.8 | 3.9 | 1.9 | 1.9 | 1.9 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 3.9 | 1.9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 85° | 1.9 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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: SP1-1908-441-2-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2993
 CIE u': 0.2508
 CIE v': 0.5215
 Duv: 0.0000
 CIE x: 0.4374
 CIE y: 0.4043
 CIE z: 0.1583
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 53

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

Rf: 75.7
 Rg: 93.9



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-2-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 |

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CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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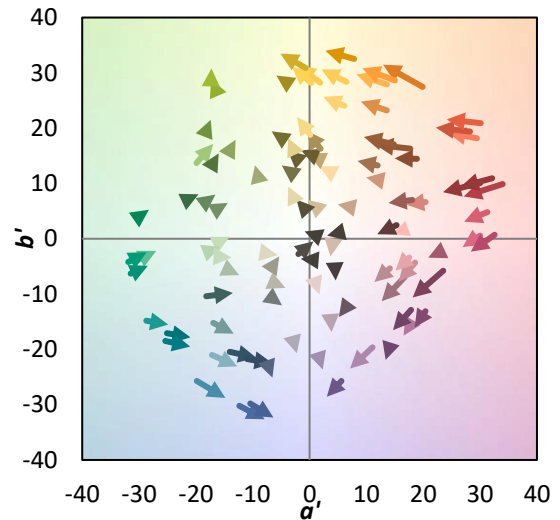
TM-30-18

Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)