

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: P629585

Luminaire Tested: GWS-SA1B-830-U-T2R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P629585
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-SA1B-830-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) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2505.7 lumens
Efficiency: N/A
Efficacy: 100.2 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

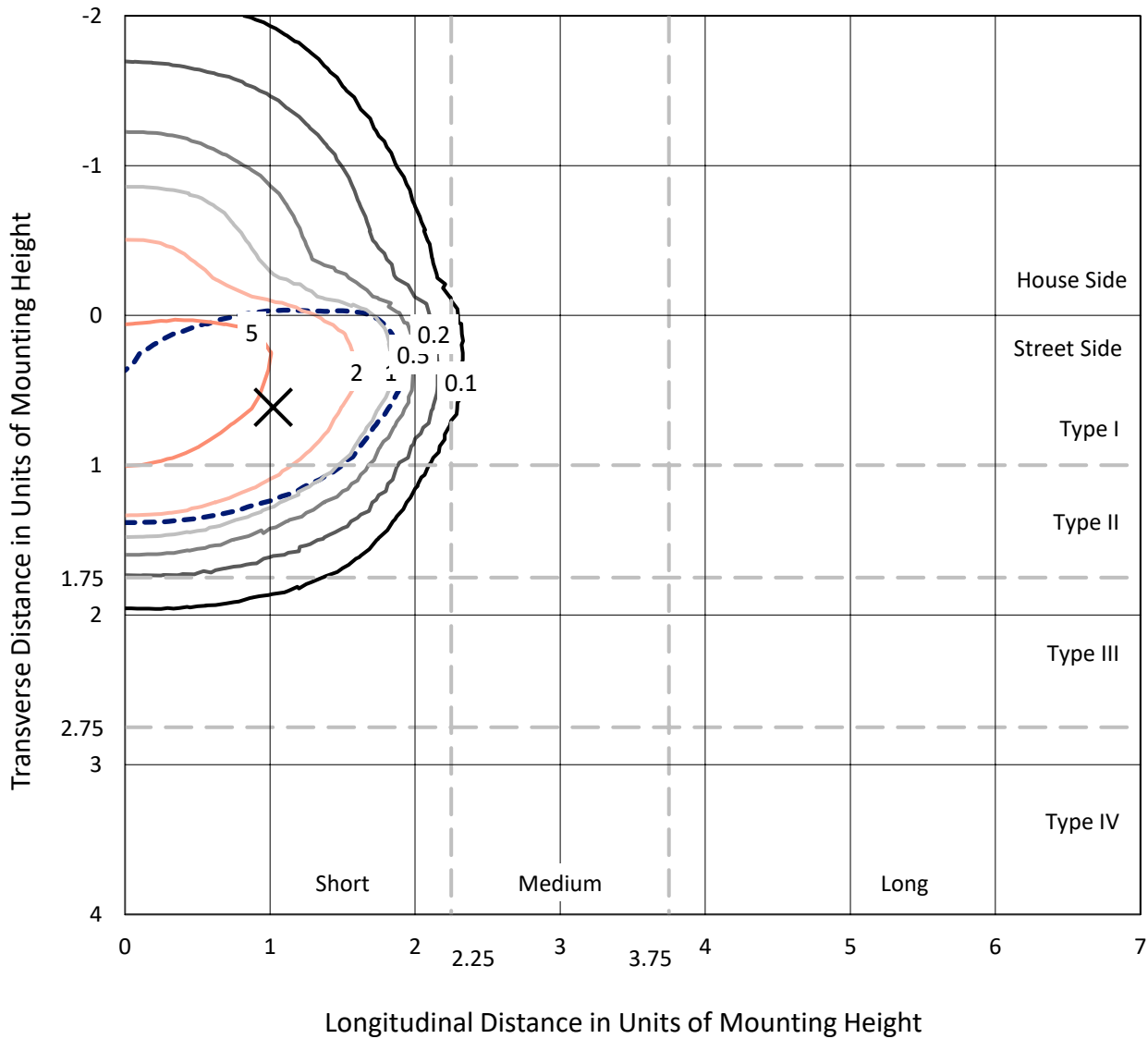
Input Watts (W): 25
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P629585
 CATALOG NUMBER: GWS-SA1B-830-U-T2R-W-GRSWH

Iso-Footcandle Lines of Horizontal Illumination

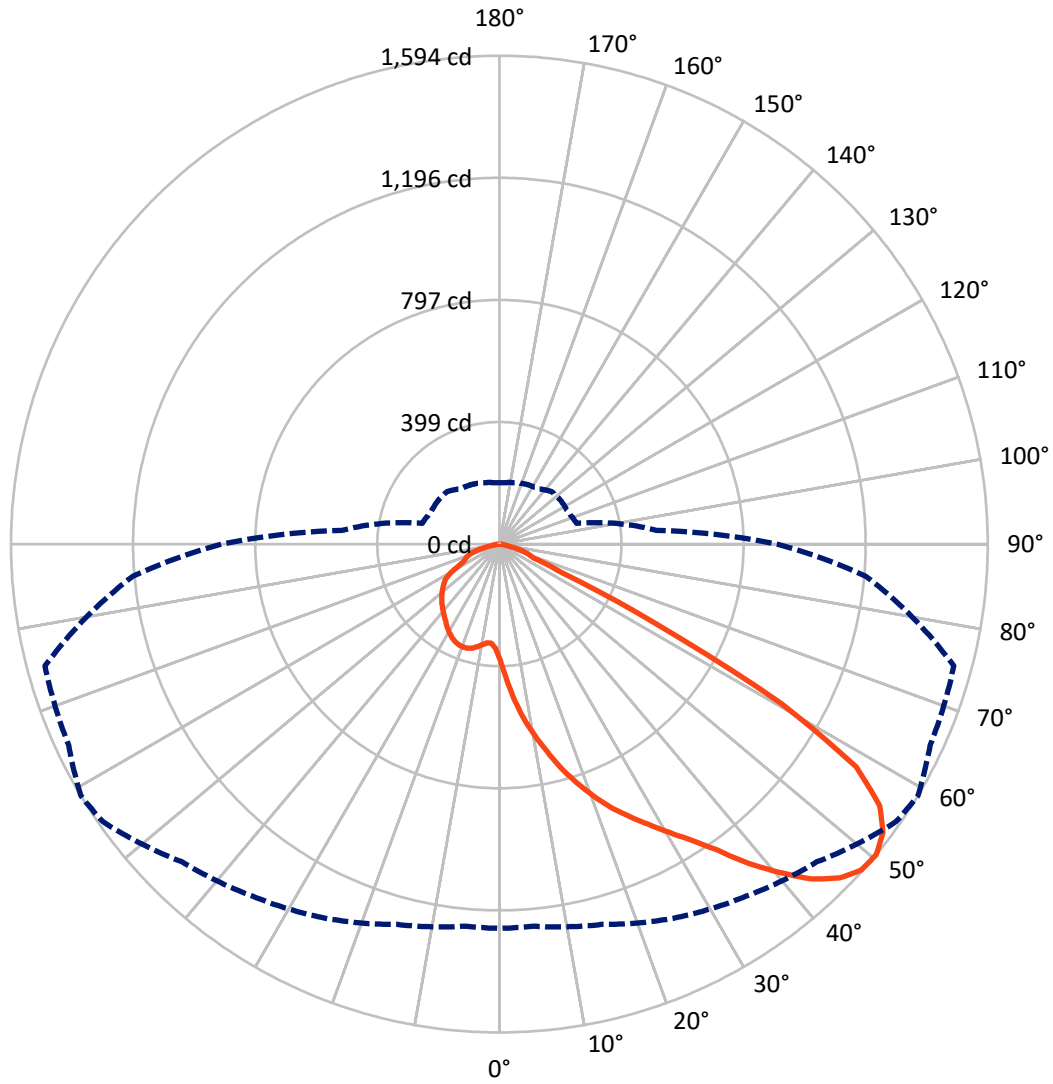
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 7.5 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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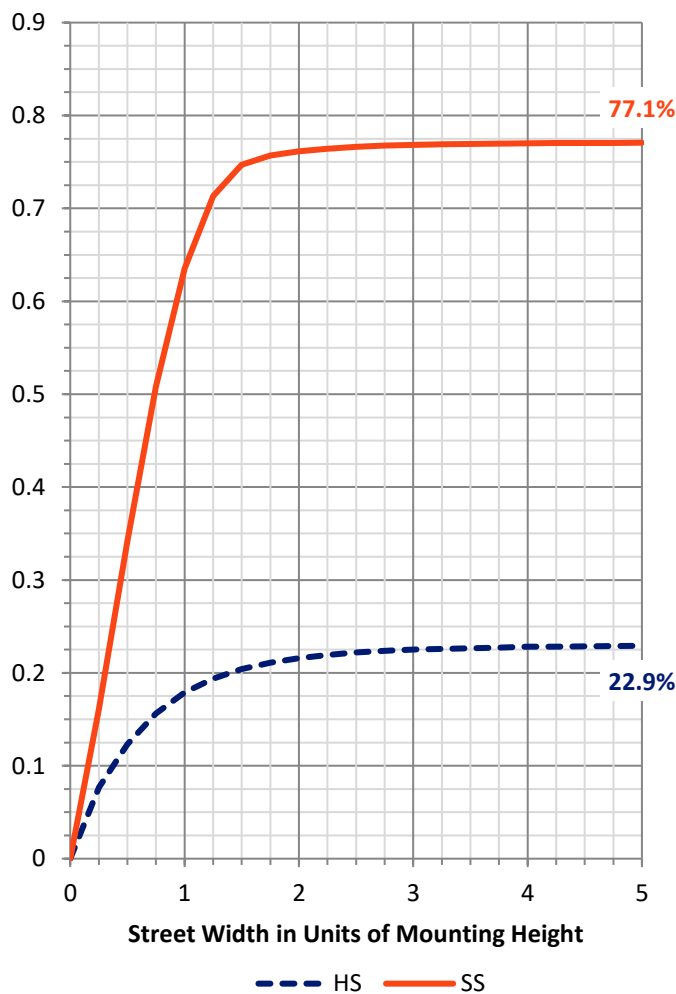
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 576.4 | 0.0 | 576.4 |
| | % Fixture | 23.0 | 0.0 | 23.0 |
| Street Side | Lumens | 1929.3 | 0.0 | 1929.3 |
| | % Fixture | 77.0 | 0.0 | 77.0 |
| Total | Lumens | 2505.7 | 0.0 | 2505.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 42.6 | 1.7 |
| 10°-20° | 154.6 | 6.2 |
| 20°-30° | 292.8 | 11.7 |
| 30°-40° | 485.5 | 19.4 |
| 40°-50° | 663.2 | 26.5 |
| 50°-60° | 602.0 | 24.0 |
| 60°-70° | 200.5 | 8.0 |
| 70°-80° | 58.5 | 2.3 |
| 80°-90° | 6.1 | 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° | 2505.7 | 100.0 |
| 0°-180° | 2505.7 | 100.0 |

Coefficient of Utilization



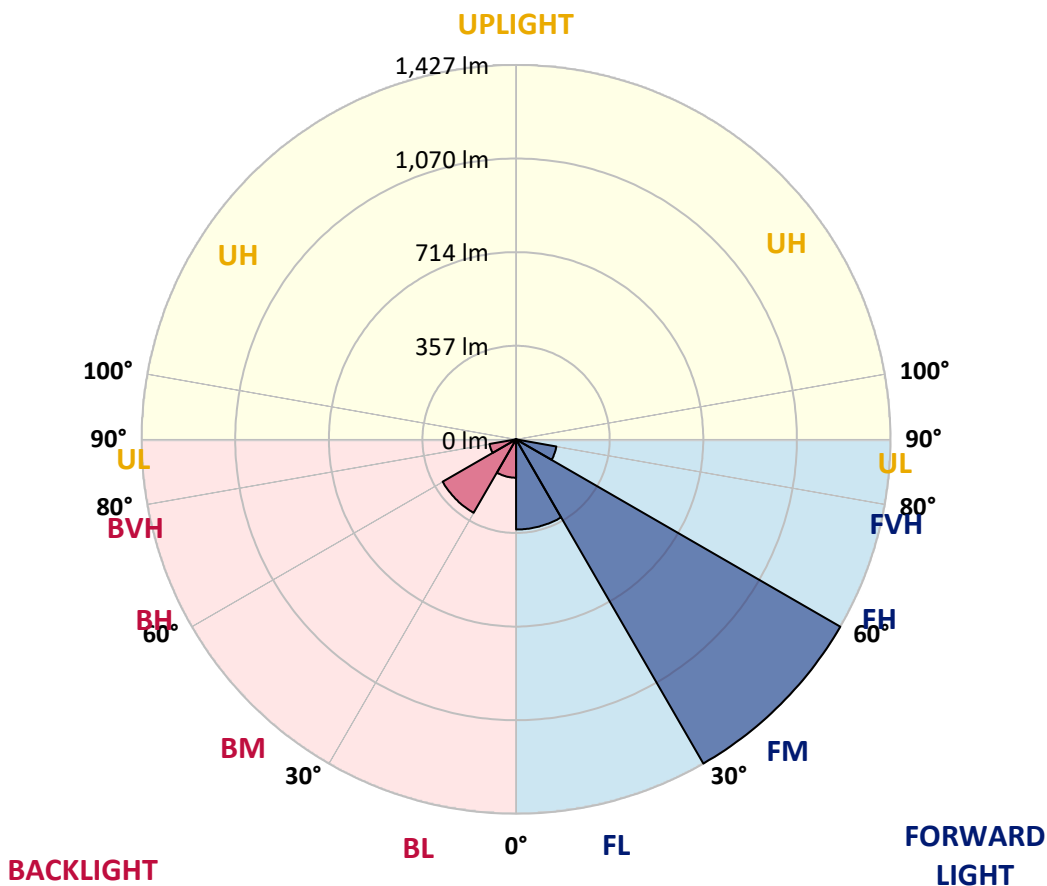
REPORT NUMBER: P629585

CATALOG NUMBER: GWS-SA1B-830-U-T2R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 343.6 | 13.7 | | | |
| FM (30°-60°) | 1427.3 | 57.0 | | | |
| FH (60°-80°) | 156.1 | 6.2 | | | G0/660 |
| FVH (80°-90°) | 2.4 | 0.1 | | | G0/10 |
| BL (0°-30°) | 146.4 | 5.8 | B1/500 | | |
| BM (30°-60°) | 323.4 | 12.9 | B1/1000 | | |
| BH (60°-80°) | 102.9 | 4.1 | B0/110 | | G0/110 |
| BVH (80°-90°) | 3.7 | 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





REPORT NUMBER: P629585

CATALOG NUMBER: GWS-SA1B-830-U-T2R-W-GRSWH

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 |
| 2.5° | 491.9 | 495.6 | 489.8 | 490.3 | 476.0 | 469.4 | 451.1 | 440.2 | 433.1 | 413.1 | 394.9 |
| 5° | 591.1 | 586.8 | 582.3 | 579.7 | 567.2 | 549.6 | 526.8 | 508.6 | 491.9 | 452.7 | 414.9 |
| 7.5° | 651.9 | 649.7 | 646.6 | 645.0 | 632.7 | 614.3 | 591.5 | 576.0 | 551.7 | 498.6 | 439.2 |
| 10° | 703.5 | 700.9 | 699.1 | 700.3 | 690.3 | 678.4 | 653.5 | 635.8 | 608.4 | 547.2 | 468.6 |
| 12.5° | 743.5 | 745.0 | 745.6 | 752.1 | 747.8 | 740.7 | 715.0 | 696.2 | 665.8 | 598.4 | 503.1 |
| 15° | 775.2 | 774.8 | 781.9 | 794.4 | 801.3 | 796.8 | 776.2 | 760.5 | 723.3 | 648.8 | 540.3 |
| 17.5° | 782.5 | 782.9 | 794.2 | 816.0 | 838.7 | 849.7 | 838.0 | 819.3 | 782.5 | 698.6 | 578.8 |
| 20° | 788.4 | 789.3 | 800.9 | 825.8 | 858.9 | 889.7 | 891.5 | 878.1 | 846.4 | 752.5 | 618.0 |
| 22.5° | 825.8 | 827.6 | 830.7 | 846.4 | 876.2 | 915.2 | 936.6 | 933.8 | 907.2 | 809.1 | 660.3 |
| 25° | 924.0 | 918.5 | 903.6 | 899.1 | 910.5 | 942.1 | 978.7 | 984.2 | 971.1 | 871.3 | 705.8 |
| 27.5° | 1045.2 | 1039.3 | 1017.2 | 994.0 | 969.3 | 980.3 | 1019.3 | 1035.8 | 1036.0 | 939.9 | 751.5 |
| 30° | 1155.2 | 1150.5 | 1132.6 | 1099.3 | 1056.6 | 1040.7 | 1069.5 | 1091.7 | 1105.0 | 1019.1 | 803.6 |
| 32.5° | 1249.3 | 1245.0 | 1220.7 | 1193.6 | 1152.0 | 1119.9 | 1130.3 | 1151.8 | 1182.8 | 1121.5 | 868.3 |
| 35° | 1328.5 | 1324.2 | 1301.0 | 1273.6 | 1235.0 | 1215.8 | 1212.2 | 1226.9 | 1267.1 | 1228.5 | 942.5 |
| 37.5° | 1392.8 | 1388.5 | 1364.2 | 1338.5 | 1309.1 | 1310.3 | 1315.9 | 1323.0 | 1346.1 | 1343.0 | 1021.9 |
| 40° | 1434.4 | 1429.9 | 1412.6 | 1394.2 | 1375.7 | 1390.3 | 1417.7 | 1409.1 | 1421.4 | 1435.5 | 1095.0 |
| 42.5° | 1453.0 | 1447.3 | 1437.3 | 1433.2 | 1427.5 | 1450.4 | 1503.0 | 1494.4 | 1479.7 | 1497.1 | 1149.3 |
| 45° | 1434.4 | 1429.5 | 1429.3 | 1441.8 | 1455.0 | 1484.4 | 1562.0 | 1555.1 | 1517.9 | 1526.9 | 1181.8 |
| 47.5° | 1377.5 | 1373.2 | 1384.8 | 1417.5 | 1450.2 | 1493.0 | 1588.3 | 1589.6 | 1545.1 | 1539.3 | 1202.8 |
| 50° | 1254.4 | 1251.6 | 1285.2 | 1347.1 | 1403.4 | 1466.3 | 1580.0 | 1594.0 | 1551.6 | 1535.5 | 1200.1 |
| 52.5° | 1004.2 | 1017.5 | 1090.7 | 1194.0 | 1303.4 | 1419.3 | 1548.9 | 1567.3 | 1520.2 | 1510.0 | 1185.8 |
| 55° | 687.4 | 693.5 | 766.8 | 917.6 | 1091.1 | 1317.7 | 1477.7 | 1506.1 | 1483.0 | 1505.7 | 1200.7 |
| 57.5° | 356.0 | 360.9 | 418.6 | 552.5 | 740.1 | 1041.3 | 1279.9 | 1373.0 | 1408.1 | 1527.3 | 1247.1 |
| 60° | 146.1 | 150.2 | 174.1 | 238.8 | 373.3 | 606.4 | 921.1 | 1059.1 | 1141.5 | 1394.8 | 1107.5 |
| 62.5° | 106.1 | 108.2 | 119.6 | 142.5 | 195.5 | 297.2 | 521.3 | 572.1 | 630.1 | 874.2 | 703.1 |
| 65° | 89.4 | 91.6 | 100.8 | 114.7 | 142.7 | 182.3 | 222.7 | 223.9 | 246.8 | 356.2 | 260.6 |
| 67.5° | 74.9 | 76.9 | 85.1 | 96.9 | 115.3 | 129.4 | 119.6 | 119.8 | 119.4 | 129.2 | 124.9 |
| 70° | 58.4 | 60.0 | 68.2 | 80.8 | 90.4 | 83.1 | 93.5 | 103.5 | 99.2 | 103.1 | 109.0 |
| 72.5° | 42.7 | 44.5 | 51.6 | 61.2 | 58.8 | 59.2 | 75.7 | 85.9 | 83.5 | 87.8 | 93.3 |
| 75° | 30.8 | 32.0 | 35.7 | 30.6 | 32.2 | 39.0 | 53.3 | 58.8 | 61.2 | 64.9 | 69.8 |
| 77.5° | 10.0 | 10.0 | 11.2 | 14.1 | 17.6 | 21.6 | 27.1 | 29.4 | 33.1 | 37.1 | 40.6 |
| 80° | 5.1 | 5.3 | 6.3 | 7.8 | 9.8 | 12.5 | 15.9 | 16.9 | 18.8 | 21.0 | 22.5 |
| 82.5° | 2.4 | 2.7 | 3.1 | 3.9 | 5.1 | 6.5 | 8.8 | 9.8 | 11.0 | 12.5 | 13.5 |
| 85° | 0.6 | 0.6 | 0.8 | 1.2 | 1.6 | 2.4 | 3.3 | 3.9 | 4.9 | 5.9 | 6.5 |
| 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 |



REPORT NUMBER: P629585

CATALOG NUMBER: GWS-SA1B-830-U-T2R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 | 379.6 |
| 2.5° | 386.8 | 375.3 | 360.6 | 348.2 | 336.8 | 328.0 | 320.4 | 316.8 | 313.3 | 310.8 | 311.7 |
| 5° | 397.4 | 377.8 | 350.4 | 331.5 | 319.8 | 313.9 | 309.8 | 307.8 | 307.4 | 305.7 | 305.1 |
| 7.5° | 412.9 | 384.9 | 348.4 | 329.2 | 321.5 | 318.4 | 316.2 | 314.9 | 315.5 | 313.9 | 313.3 |
| 10° | 432.1 | 396.8 | 353.5 | 336.6 | 329.8 | 327.6 | 325.1 | 323.5 | 322.7 | 320.2 | 319.8 |
| 12.5° | 456.0 | 411.5 | 362.7 | 346.0 | 339.2 | 335.3 | 332.1 | 329.2 | 327.4 | 324.3 | 323.5 |
| 15° | 481.7 | 427.8 | 373.5 | 355.1 | 347.2 | 341.5 | 336.2 | 331.9 | 328.6 | 324.5 | 323.9 |
| 17.5° | 509.6 | 444.9 | 382.5 | 361.5 | 351.3 | 343.7 | 336.0 | 329.6 | 325.1 | 319.8 | 319.2 |
| 20° | 538.8 | 462.3 | 389.2 | 364.5 | 351.5 | 341.3 | 330.9 | 322.5 | 316.8 | 311.5 | 311.1 |
| 22.5° | 569.0 | 478.2 | 393.3 | 363.7 | 348.2 | 335.5 | 323.1 | 313.7 | 307.0 | 300.6 | 300.2 |
| 25° | 599.5 | 493.5 | 394.3 | 360.4 | 341.7 | 327.0 | 314.5 | 303.5 | 295.9 | 288.8 | 288.0 |
| 27.5° | 630.3 | 506.4 | 391.9 | 353.9 | 332.9 | 317.0 | 304.5 | 293.7 | 285.9 | 278.8 | 277.6 |
| 30° | 663.1 | 517.4 | 386.6 | 345.3 | 322.7 | 306.4 | 294.1 | 285.9 | 278.6 | 271.5 | 270.2 |
| 32.5° | 698.2 | 527.0 | 379.0 | 334.9 | 310.8 | 295.7 | 286.8 | 279.4 | 272.1 | 265.7 | 264.5 |
| 35° | 740.1 | 533.3 | 367.8 | 321.5 | 299.8 | 288.0 | 281.9 | 273.3 | 264.3 | 257.4 | 256.8 |
| 37.5° | 783.3 | 538.2 | 354.3 | 308.6 | 290.2 | 283.5 | 278.4 | 266.8 | 255.5 | 247.2 | 246.1 |
| 40° | 825.2 | 542.3 | 337.6 | 296.6 | 281.5 | 280.2 | 273.3 | 258.8 | 239.4 | 230.0 | 229.2 |
| 42.5° | 864.2 | 543.5 | 320.0 | 283.7 | 273.5 | 272.9 | 265.1 | 242.7 | 227.8 | 221.9 | 221.0 |
| 45° | 890.9 | 542.5 | 301.9 | 271.7 | 265.5 | 262.3 | 254.1 | 231.0 | 221.9 | 216.6 | 215.5 |
| 47.5° | 910.7 | 537.2 | 281.5 | 259.0 | 256.6 | 252.1 | 234.5 | 223.7 | 215.1 | 209.8 | 208.8 |
| 50° | 907.2 | 515.2 | 260.8 | 246.8 | 245.7 | 241.9 | 220.2 | 214.5 | 207.0 | 201.2 | 200.4 |
| 52.5° | 889.3 | 473.3 | 239.8 | 233.3 | 235.3 | 227.8 | 210.0 | 203.5 | 197.0 | 190.4 | 189.0 |
| 55° | 893.8 | 443.1 | 223.9 | 220.2 | 223.9 | 206.8 | 198.6 | 191.7 | 185.5 | 179.2 | 178.0 |
| 57.5° | 913.4 | 413.3 | 207.0 | 206.1 | 210.0 | 190.6 | 183.9 | 175.1 | 166.3 | 161.2 | 161.2 |
| 60° | 767.0 | 301.3 | 177.2 | 179.2 | 188.0 | 177.6 | 171.7 | 162.7 | 153.1 | 148.6 | 148.6 |
| 62.5° | 453.5 | 189.0 | 147.0 | 144.7 | 150.2 | 156.8 | 160.0 | 152.7 | 141.2 | 135.3 | 135.5 |
| 65° | 199.8 | 137.6 | 129.6 | 127.8 | 126.1 | 130.6 | 139.6 | 140.2 | 128.2 | 121.2 | 121.4 |
| 67.5° | 123.1 | 124.5 | 121.2 | 119.8 | 118.4 | 117.6 | 116.7 | 117.2 | 113.9 | 107.6 | 107.4 |
| 70° | 111.0 | 114.9 | 112.7 | 111.4 | 109.6 | 108.2 | 103.3 | 95.3 | 89.8 | 88.2 | 90.0 |
| 72.5° | 95.5 | 100.8 | 99.6 | 99.0 | 96.7 | 93.3 | 86.7 | 79.0 | 72.5 | 68.4 | 69.2 |
| 75° | 72.0 | 76.3 | 76.9 | 77.2 | 74.7 | 71.4 | 64.7 | 58.2 | 52.5 | 48.2 | 49.2 |
| 77.5° | 41.4 | 43.9 | 44.5 | 45.1 | 43.3 | 42.0 | 37.6 | 32.9 | 29.8 | 25.3 | 26.5 |
| 80° | 23.1 | 24.1 | 24.1 | 24.3 | 23.3 | 21.8 | 18.8 | 16.1 | 14.7 | 12.7 | 12.9 |
| 82.5° | 13.9 | 14.3 | 14.5 | 14.7 | 14.1 | 12.7 | 10.4 | 8.6 | 7.8 | 6.7 | 6.5 |
| 85° | 6.7 | 7.1 | 7.1 | 7.3 | 6.3 | 5.5 | 4.3 | 3.3 | 2.9 | 2.0 | 2.2 |
| 87.5° | 1.6 | 1.8 | 1.8 | 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 |

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

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

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

Test Information

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

Spectral Parameters

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

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



Test Conditions

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

REPORT NUMBER: SP1-2408-195-9

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

REPORT NUMBER: SP1-2408-195-9

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2408-195-9

Photopic Flux vs. Wavelength



Photopic Lumens: NR

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

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

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

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

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

Summary

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



Color Vector Graphics



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

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



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)