

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: P638503

Luminaire Tested: GWS-SA4E-830-U-T3R-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P638503
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-15)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4E-830-U-T3R-W
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS
Light Source: (64) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 24713.8 lumens
Efficiency: N/A
Efficacy: 122.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B3 - U0 - G4

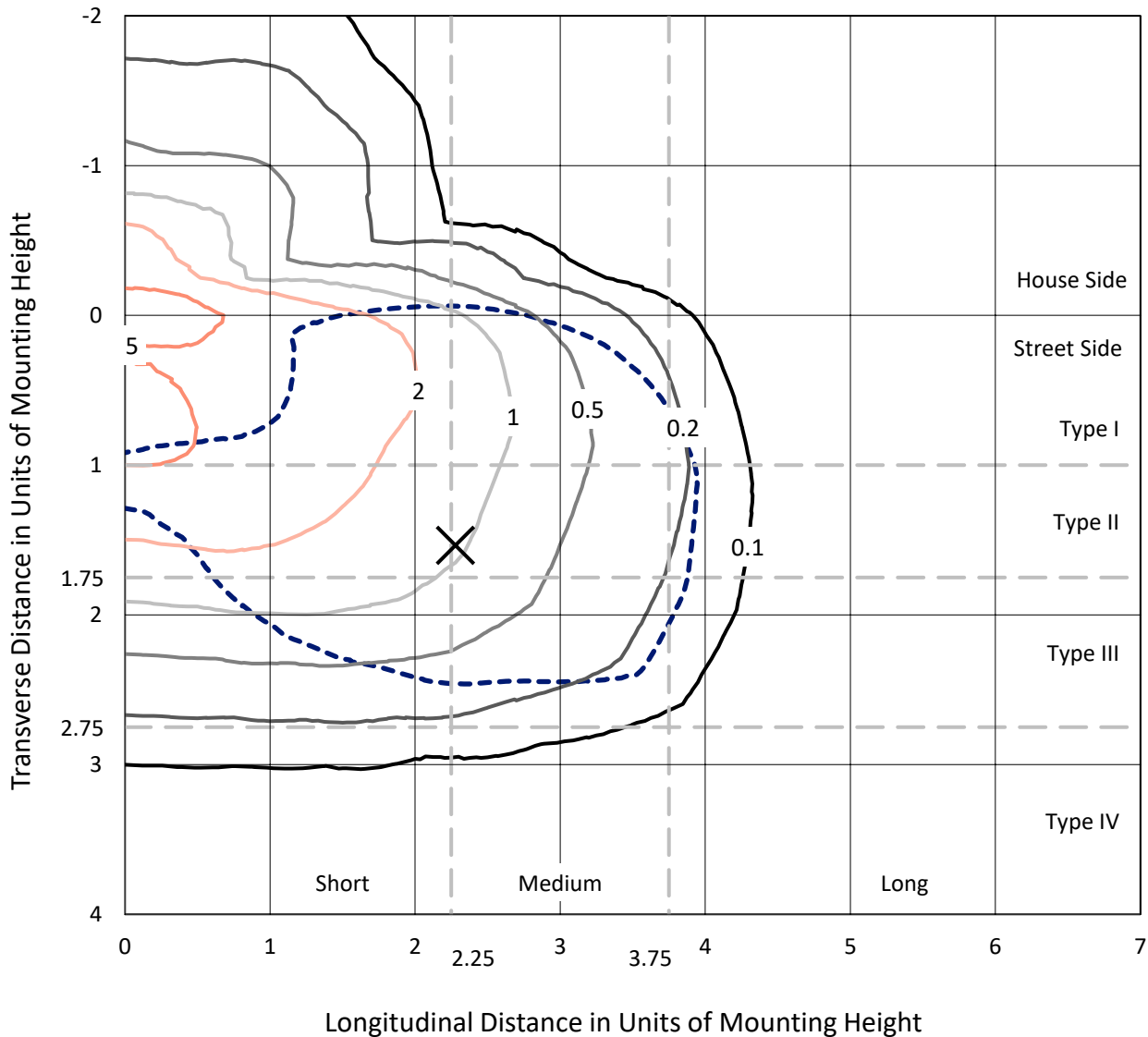
Input Watts (W): 202.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P638503
 CATALOG NUMBER: GWS-SA4E-830-U-T3R-W

Iso-Footcandle Lines of Horizontal Illumination

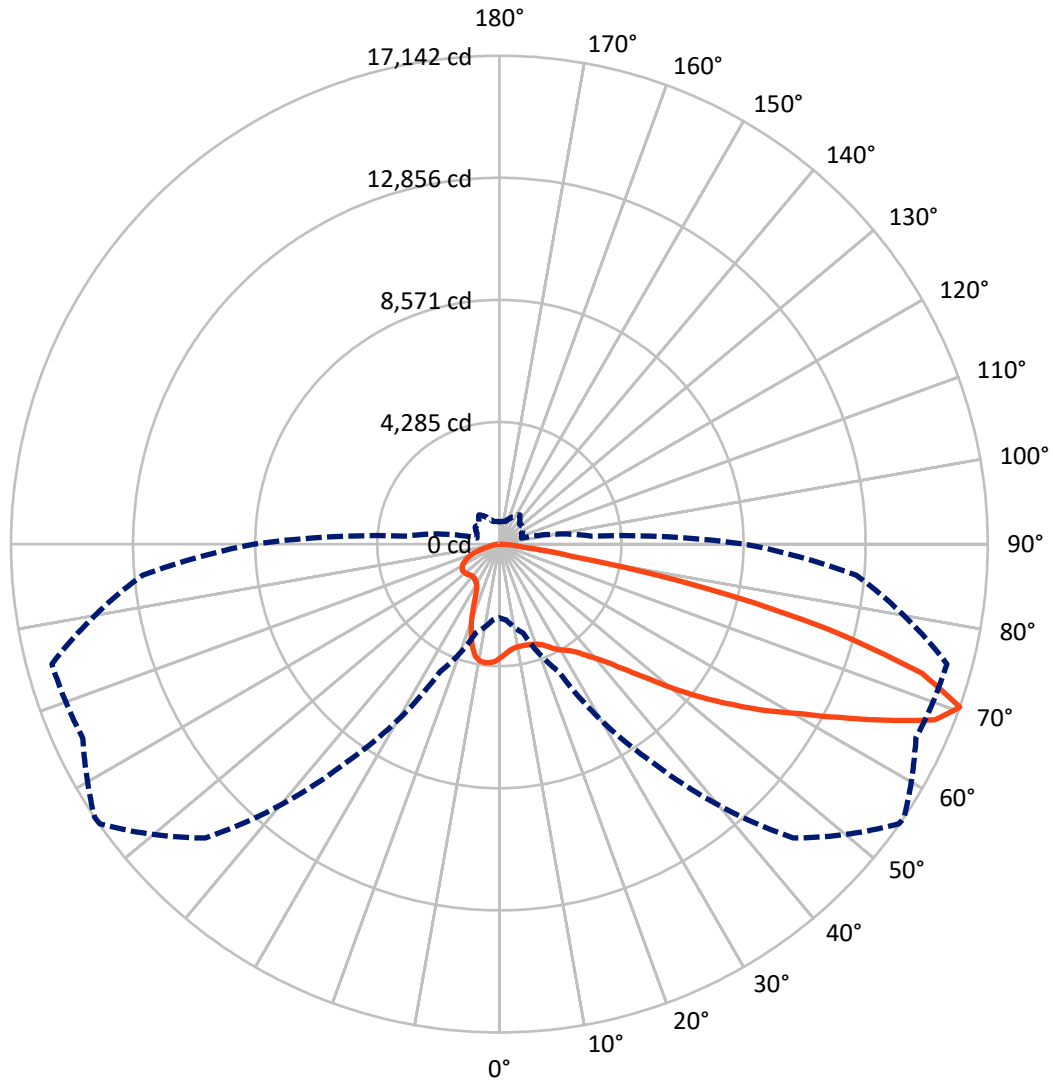
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 6.6 fc
 Type III - Medium - N/A

REPORT NUMBER: P638503
CATALOG NUMBER: GWS-SA4E-830-U-T3R-W

Luminous Intensity Polar Plot



— Vertical Plane Through 56-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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CATALOG NUMBER: GWS-SA4E-830-U-T3R-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 4751.3 | 0.0 | 4751.3 |
| | % Fixture | 19.2 | 0.0 | 19.2 |
| Street Side | Lumens | 19962.5 | 0.0 | 19962.5 |
| | % Fixture | 80.8 | 0.0 | 80.8 |
| Total | Lumens | 24713.8 | 0.0 | 24713.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 369.2 | 1.5 |
| 10°-20° | 1000.2 | 4.0 |
| 20°-30° | 1653.7 | 6.7 |
| 30°-40° | 2472.5 | 10.0 |
| 40°-50° | 3679.3 | 14.9 |
| 50°-60° | 5231.0 | 21.2 |
| 60°-70° | 6478.7 | 26.2 |
| 70°-80° | 3577.3 | 14.5 |
| 80°-90° | 251.9 | 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° | 24713.8 | 100.0 |
| 0°-180° | 24713.8 | 100.0 |

Coefficient of Utilization



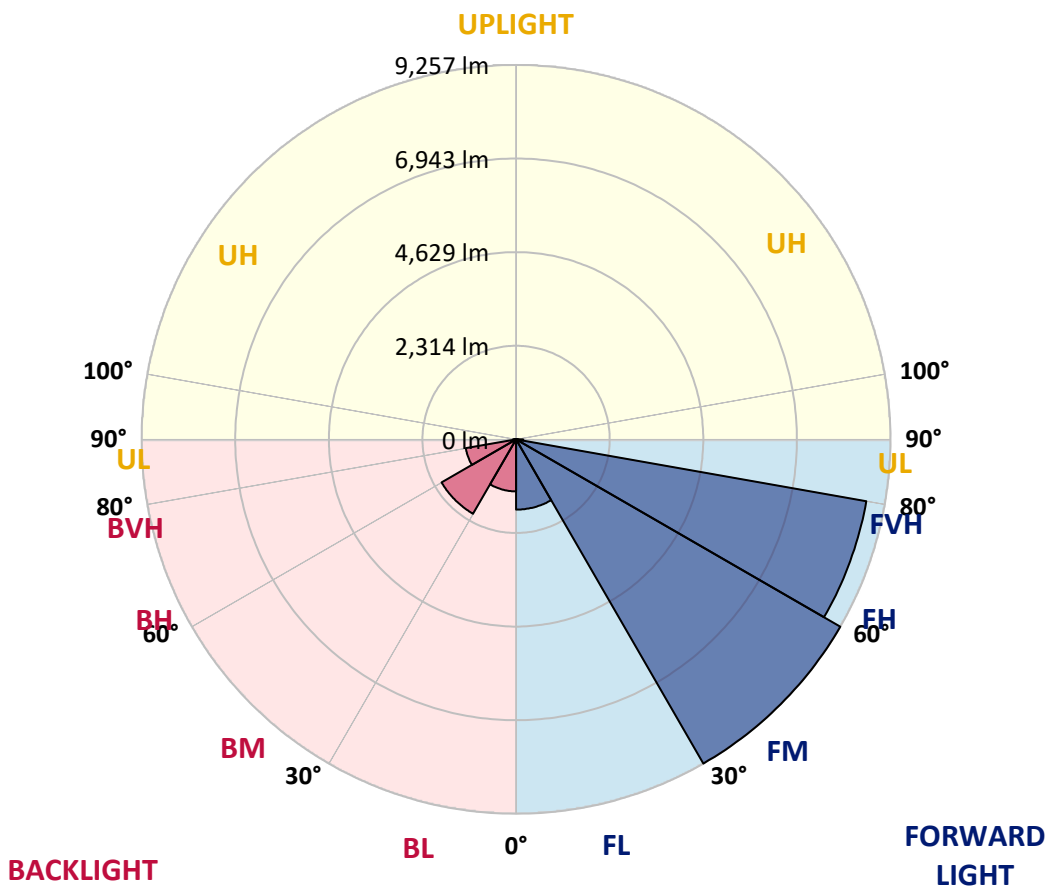
REPORT NUMBER: P638503

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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°) | 1736.9 | 7.0 | | | |
| FM (30°-60°) | 9257.4 | 37.5 | | | |
| FH (60°-80°) | 8793.2 | 35.6 | | | G4/12000 |
| FVH (80°-90°) | 175.1 | 0.7 | | | G2/225 |
| BL (0°-30°) | 1286.2 | 5.2 | B3/2500 | | |
| BM (30°-60°) | 2125.3 | 8.6 | B2/2500 | | |
| BH (60°-80°) | 1262.9 | 5.1 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 76.9 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4
 Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 56° | 65° | 75° | 85° |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 |
| 2.5° | 3733.0 | 3712.1 | 3736.5 | 3748.7 | 3780.1 | 3825.4 | 3865.5 | 3867.2 | 3888.1 | 3938.6 | 3987.4 |
| 5° | 3564.0 | 3553.5 | 3560.5 | 3597.1 | 3630.2 | 3687.7 | 3748.7 | 3753.9 | 3813.2 | 3912.5 | 4010.1 |
| 7.5° | 3433.2 | 3419.3 | 3445.4 | 3492.5 | 3534.3 | 3598.8 | 3679.0 | 3685.9 | 3769.6 | 3919.5 | 4069.4 |
| 10° | 3245.0 | 3234.6 | 3283.4 | 3346.1 | 3436.7 | 3543.0 | 3649.3 | 3658.1 | 3767.9 | 3964.8 | 4173.9 |
| 12.5° | 3163.1 | 3163.1 | 3184.0 | 3243.3 | 3342.6 | 3483.8 | 3644.1 | 3658.1 | 3795.7 | 4034.5 | 4308.1 |
| 15° | 3290.3 | 3299.1 | 3281.6 | 3278.1 | 3318.2 | 3452.4 | 3651.1 | 3672.0 | 3848.0 | 4106.0 | 4440.6 |
| 17.5° | 3546.5 | 3555.2 | 3509.9 | 3438.5 | 3398.4 | 3482.0 | 3677.2 | 3699.9 | 3903.8 | 4184.4 | 4583.5 |
| 20° | 3905.5 | 3916.0 | 3816.7 | 3706.9 | 3569.2 | 3567.4 | 3727.8 | 3748.7 | 3975.2 | 4269.8 | 4735.1 |
| 22.5° | 4325.5 | 4332.5 | 4207.0 | 4032.8 | 3821.9 | 3726.0 | 3814.9 | 3835.8 | 4067.6 | 4388.3 | 4898.9 |
| 25° | 4811.8 | 4832.7 | 4681.1 | 4428.4 | 4142.6 | 3943.9 | 3959.6 | 3984.0 | 4233.2 | 4546.9 | 5092.4 |
| 27.5° | 5331.1 | 5357.3 | 5183.0 | 4904.1 | 4510.3 | 4184.4 | 4146.0 | 4166.9 | 4409.2 | 4644.5 | 5195.2 |
| 30° | 5862.7 | 5881.8 | 5707.6 | 5388.6 | 4905.9 | 4456.2 | 4302.9 | 4315.1 | 4485.9 | 4691.5 | 5299.7 |
| 32.5° | 6453.5 | 6437.8 | 6270.5 | 5902.7 | 5362.5 | 4782.1 | 4449.3 | 4445.8 | 4571.3 | 4785.6 | 5449.6 |
| 35° | 7007.7 | 7030.3 | 6852.5 | 6446.5 | 5864.4 | 5184.7 | 4668.9 | 4654.9 | 4752.5 | 4939.0 | 5660.5 |
| 37.5° | 7678.6 | 7671.6 | 7459.0 | 7019.9 | 6368.1 | 5569.9 | 4977.3 | 4952.9 | 4987.8 | 5177.8 | 5955.0 |
| 40° | 8157.9 | 8206.7 | 8069.0 | 7659.4 | 6957.1 | 6043.9 | 5338.1 | 5284.1 | 5292.8 | 5472.3 | 6348.9 |
| 42.5° | 8550.0 | 8595.3 | 8609.3 | 8347.8 | 7631.6 | 6629.5 | 5787.7 | 5733.7 | 5738.9 | 5993.4 | 6833.4 |
| 45° | 8851.5 | 8912.5 | 9109.4 | 9032.7 | 8391.4 | 7305.7 | 6395.9 | 6340.2 | 6343.7 | 6626.0 | 7418.9 |
| 47.5° | 8975.2 | 9041.5 | 9440.6 | 9623.5 | 9198.3 | 8114.3 | 7152.3 | 7070.4 | 7082.6 | 7394.5 | 8088.2 |
| 50° | 8935.2 | 9024.0 | 9564.3 | 10078.4 | 9874.5 | 8936.9 | 8056.8 | 7999.3 | 7952.2 | 8405.4 | 8814.9 |
| 52.5° | 8590.1 | 8687.7 | 9552.1 | 10367.7 | 10427.0 | 9714.2 | 8990.9 | 8957.8 | 8947.4 | 9478.9 | 9627.0 |
| 55° | 7574.1 | 7737.9 | 9132.1 | 10444.4 | 10859.2 | 10446.1 | 10003.5 | 9947.7 | 10001.7 | 10629.1 | 10447.9 |
| 57.5° | 7011.1 | 7133.1 | 8309.5 | 10359.0 | 11212.9 | 11143.2 | 11014.3 | 11019.5 | 11080.5 | 11878.7 | 11443.0 |
| 60° | 6690.5 | 6833.4 | 7852.9 | 10125.5 | 11552.8 | 11990.2 | 12072.1 | 12072.1 | 12181.9 | 13225.8 | 12453.8 |
| 62.5° | 6265.2 | 6409.9 | 7425.9 | 9675.8 | 11866.5 | 12987.1 | 13401.9 | 13396.6 | 13440.2 | 14670.6 | 13441.9 |
| 65° | 5402.6 | 5536.8 | 6568.5 | 8966.5 | 12019.8 | 14085.0 | 14912.8 | 14897.1 | 14810.0 | 15956.7 | 14095.5 |
| 67.5° | 3923.0 | 4050.2 | 5031.4 | 7617.6 | 11467.4 | 14970.3 | 16469.1 | 16476.1 | 15955.0 | 16767.1 | 14130.3 |
| 70° | 2586.3 | 2673.4 | 3234.6 | 4947.7 | 9325.5 | 14588.7 | 17120.9 | 17141.8 | 16131.0 | 16261.7 | 12575.8 |
| 72.5° | 1613.8 | 1674.8 | 2019.9 | 2950.5 | 5510.6 | 11547.6 | 15447.9 | 15505.4 | 14512.0 | 14290.7 | 10332.8 |
| 75° | 1071.8 | 1113.6 | 1343.7 | 1720.1 | 2549.7 | 6249.6 | 11742.7 | 11927.5 | 11631.2 | 11202.5 | 7199.4 |
| 77.5° | 644.8 | 679.7 | 855.7 | 1092.7 | 1129.3 | 2441.6 | 6854.3 | 7331.8 | 7373.6 | 5848.7 | 3015.0 |
| 80° | 294.5 | 334.6 | 472.3 | 623.9 | 601.3 | 850.5 | 2417.2 | 2528.8 | 2983.6 | 1857.8 | 951.5 |
| 82.5° | 174.3 | 191.7 | 313.7 | 310.2 | 256.2 | 413.0 | 869.6 | 892.3 | 758.1 | 679.7 | 406.1 |
| 85° | 69.7 | 81.9 | 132.5 | 116.8 | 94.1 | 134.2 | 327.6 | 343.3 | 329.4 | 296.3 | 149.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 3.5 | 29.6 | 31.4 | 45.3 | 81.9 | 45.3 |
| 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: P638503
 CATALOG NUMBER: GWS-SA4E-830-U-T3R-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 | 3989.2 |
| 2.5° | 4018.8 | 4008.4 | 4060.6 | 4100.7 | 4118.2 | 4135.6 | 4119.9 | 4114.7 | 4114.7 | 4079.8 | 4062.4 |
| 5° | 4062.4 | 4067.6 | 4139.1 | 4172.2 | 4172.2 | 4158.2 | 4116.4 | 4086.8 | 4076.3 | 4031.0 | 4018.8 |
| 7.5° | 4144.3 | 4166.9 | 4233.2 | 4231.4 | 4182.6 | 4106.0 | 4001.4 | 3921.2 | 3848.0 | 3816.7 | 3797.5 |
| 10° | 4278.5 | 4308.1 | 4353.4 | 4280.2 | 4144.3 | 3942.1 | 3720.8 | 3546.5 | 3442.0 | 3358.3 | 3358.3 |
| 12.5° | 4431.8 | 4459.7 | 4451.0 | 4282.0 | 4001.4 | 3623.2 | 3304.3 | 3103.9 | 2957.5 | 2880.8 | 2880.8 |
| 15° | 4585.2 | 4607.9 | 4513.8 | 4201.8 | 3703.4 | 3199.7 | 2851.2 | 2610.7 | 2483.4 | 2412.0 | 2412.0 |
| 17.5° | 4740.3 | 4738.6 | 4539.9 | 4017.1 | 3314.7 | 2730.9 | 2389.3 | 2202.9 | 2159.3 | 2147.1 | 2145.3 |
| 20° | 4890.2 | 4850.1 | 4506.8 | 3708.6 | 2863.4 | 2258.6 | 2042.5 | 2054.7 | 2119.2 | 2147.1 | 2150.6 |
| 22.5° | 5059.2 | 4959.9 | 4409.2 | 3314.7 | 2351.0 | 1931.0 | 1944.9 | 2046.0 | 2140.1 | 2181.9 | 2187.2 |
| 25° | 5231.8 | 5054.0 | 4245.4 | 2852.9 | 1922.3 | 1810.7 | 1918.8 | 2032.1 | 2138.4 | 2192.4 | 2197.6 |
| 27.5° | 5301.5 | 5054.0 | 3966.5 | 2317.9 | 1694.0 | 1760.2 | 1878.7 | 1988.5 | 2100.0 | 2162.8 | 2175.0 |
| 30° | 5359.0 | 5010.4 | 3576.2 | 1835.1 | 1599.9 | 1711.4 | 1814.2 | 1915.3 | 2025.1 | 2101.8 | 2115.7 |
| 32.5° | 5439.2 | 4972.1 | 3103.9 | 1542.3 | 1556.3 | 1664.3 | 1735.8 | 1821.2 | 1920.5 | 1971.1 | 1965.8 |
| 35° | 5533.3 | 4912.9 | 2534.0 | 1402.9 | 1519.7 | 1624.3 | 1674.8 | 1725.3 | 1680.0 | 1678.3 | 1683.5 |
| 37.5° | 5667.5 | 4860.6 | 2037.3 | 1340.2 | 1495.3 | 1596.4 | 1638.2 | 1530.1 | 1467.4 | 1441.3 | 1430.8 |
| 40° | 5860.9 | 4839.7 | 1606.8 | 1303.6 | 1491.8 | 1594.6 | 1565.0 | 1397.7 | 1312.3 | 1221.7 | 1219.9 |
| 42.5° | 6104.9 | 4824.0 | 1328.0 | 1286.2 | 1504.0 | 1634.7 | 1463.9 | 1310.6 | 1134.5 | 1094.5 | 1091.0 |
| 45° | 6418.6 | 4799.6 | 1188.6 | 1282.7 | 1533.6 | 1666.1 | 1453.5 | 1190.3 | 1070.1 | 1052.6 | 1052.6 |
| 47.5° | 6796.8 | 4761.2 | 1125.8 | 1282.7 | 1566.7 | 1652.1 | 1422.1 | 1164.2 | 1040.4 | 1059.6 | 1071.8 |
| 50° | 7230.7 | 4712.4 | 1092.7 | 1279.2 | 1599.9 | 1652.1 | 1355.9 | 1158.9 | 1033.5 | 1132.8 | 1172.9 |
| 52.5° | 7694.3 | 4656.7 | 1070.1 | 1265.2 | 1622.5 | 1653.9 | 1359.4 | 1176.4 | 1040.4 | 1150.2 | 1183.3 |
| 55° | 8206.7 | 4648.0 | 1038.7 | 1235.6 | 1629.5 | 1608.6 | 1368.1 | 1214.7 | 1050.9 | 1042.2 | 1043.9 |
| 57.5° | 8853.2 | 4752.5 | 1016.0 | 1192.1 | 1601.6 | 1516.2 | 1385.5 | 1242.6 | 1038.7 | 1040.4 | 1052.6 |
| 60° | 9529.4 | 4949.5 | 1035.2 | 1150.2 | 1544.1 | 1429.1 | 1397.7 | 1228.6 | 979.4 | 951.5 | 955.0 |
| 62.5° | 10104.5 | 5099.3 | 1050.9 | 1131.1 | 1460.4 | 1352.4 | 1385.5 | 1197.3 | 946.3 | 939.3 | 955.0 |
| 65° | 10345.0 | 4975.6 | 1012.5 | 1091.0 | 1338.4 | 1258.3 | 1359.4 | 1157.2 | 918.4 | 892.3 | 894.0 |
| 67.5° | 10078.4 | 4395.3 | 937.6 | 1002.1 | 1200.8 | 1138.0 | 1317.5 | 1104.9 | 880.1 | 848.7 | 841.8 |
| 70° | 8609.3 | 3229.3 | 808.6 | 860.9 | 1033.5 | 996.9 | 1253.0 | 1036.9 | 819.1 | 796.4 | 780.8 |
| 72.5° | 6937.9 | 2286.5 | 671.0 | 684.9 | 810.4 | 840.0 | 1141.5 | 951.5 | 749.4 | 684.9 | 662.3 |
| 75° | 4829.2 | 1436.0 | 559.4 | 545.5 | 585.6 | 641.3 | 890.6 | 789.5 | 646.6 | 578.6 | 557.7 |
| 77.5° | 2077.4 | 737.2 | 437.4 | 430.5 | 390.4 | 444.4 | 683.2 | 658.8 | 542.0 | 463.6 | 451.4 |
| 80° | 695.4 | 427.0 | 315.4 | 303.2 | 259.7 | 312.0 | 481.0 | 526.3 | 425.2 | 343.3 | 322.4 |
| 82.5° | 348.6 | 247.5 | 200.4 | 181.2 | 174.3 | 196.9 | 284.1 | 327.6 | 294.5 | 237.0 | 200.4 |
| 85° | 170.8 | 141.2 | 109.8 | 108.1 | 90.6 | 85.4 | 118.5 | 139.4 | 132.5 | 97.6 | 92.4 |
| 87.5° | 62.7 | 55.8 | 34.9 | 27.9 | 17.4 | 12.2 | 7.0 | 7.0 | 5.2 | 5.2 | 5.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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)