

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: P631570

Luminaire Tested: GWS-SA1F-830-U-T3R-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P631570
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-16)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1F-830-U-T3R-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (16) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4197.6 lumens
Efficiency: N/A
Efficacy: 62.5 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

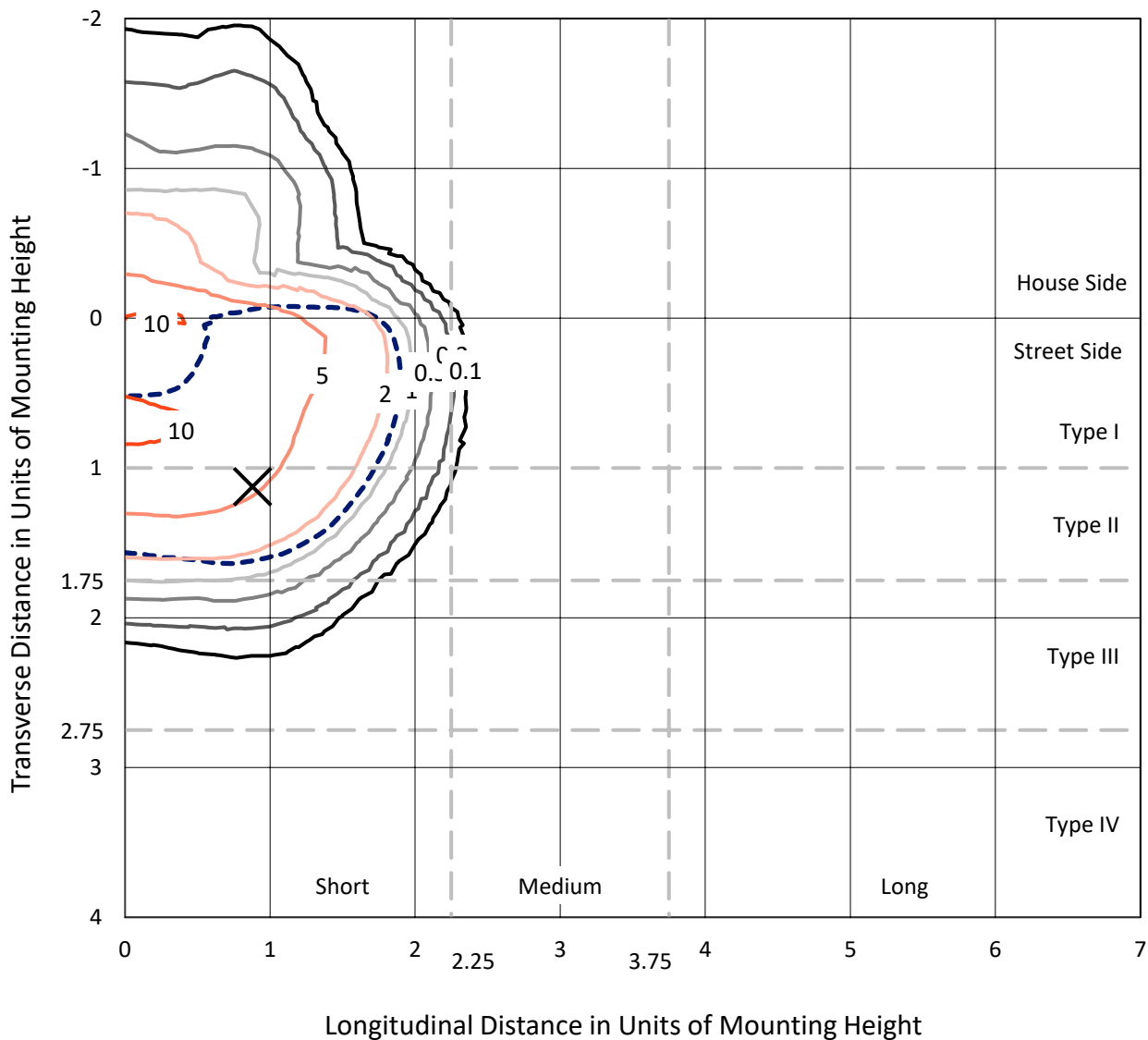
Input Watts (W): 67.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

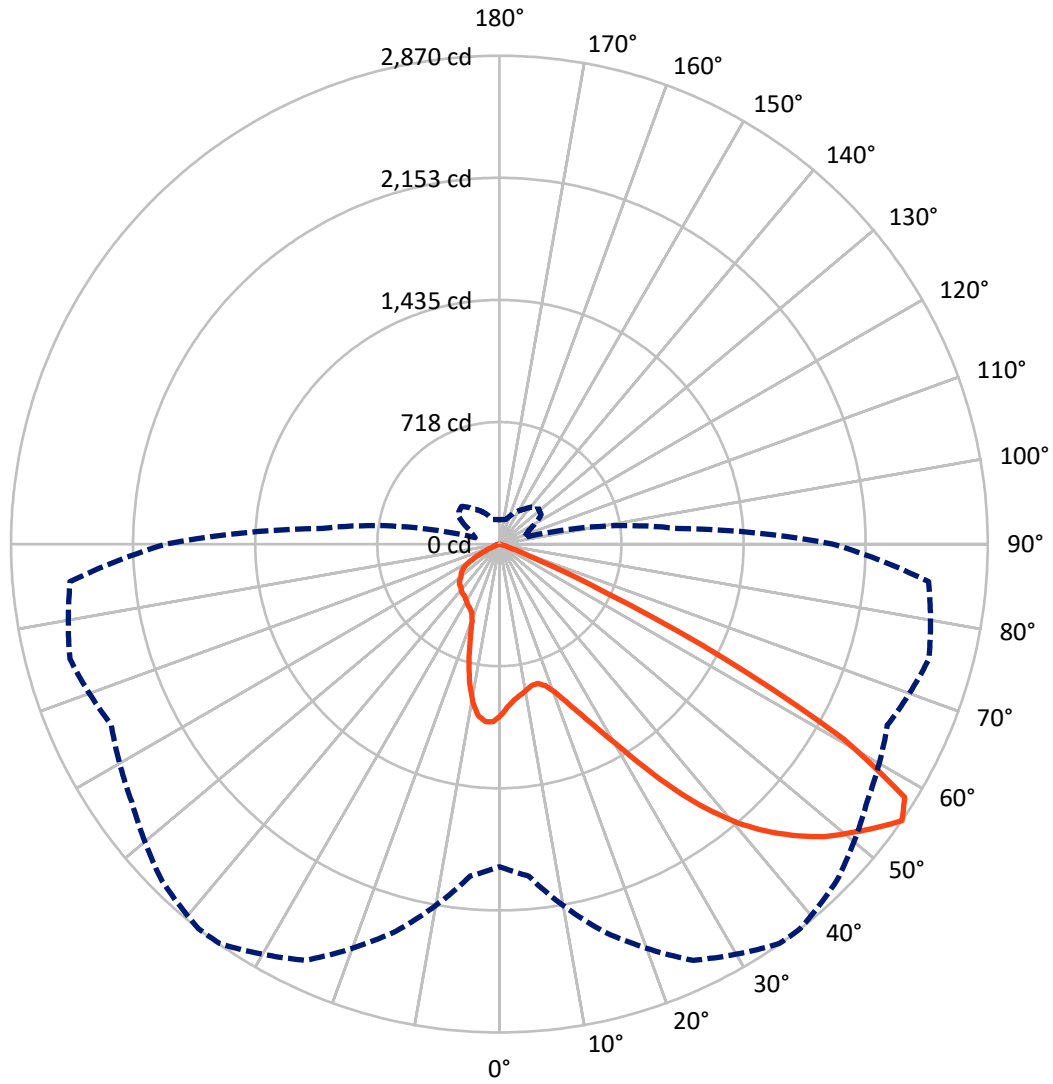
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 10.5 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 38-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 817.8 | 0.0 | 817.8 |
| | % Fixture | 19.5 | 0.0 | 19.5 |
| Street Side | Lumens | 3379.8 | 0.0 | 3379.8 |
| | % Fixture | 80.5 | 0.0 | 80.5 |
| Total | Lumens | 4197.6 | 0.0 | 4197.6 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 93.1 | 2.2 |
| 10°-20° | 250.6 | 6.0 |
| 20°-30° | 430.0 | 10.2 |
| 30°-40° | 713.2 | 17.0 |
| 40°-50° | 1048.4 | 25.0 |
| 50°-60° | 1225.1 | 29.2 |
| 60°-70° | 415.3 | 9.9 |
| 70°-80° | 21.2 | 0.5 |
| 80°-90° | 0.8 | 0.0 |
| 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° | 4197.6 | 100.0 |
| 0°-180° | 4197.6 | 100.0 |

Coefficient of Utilization



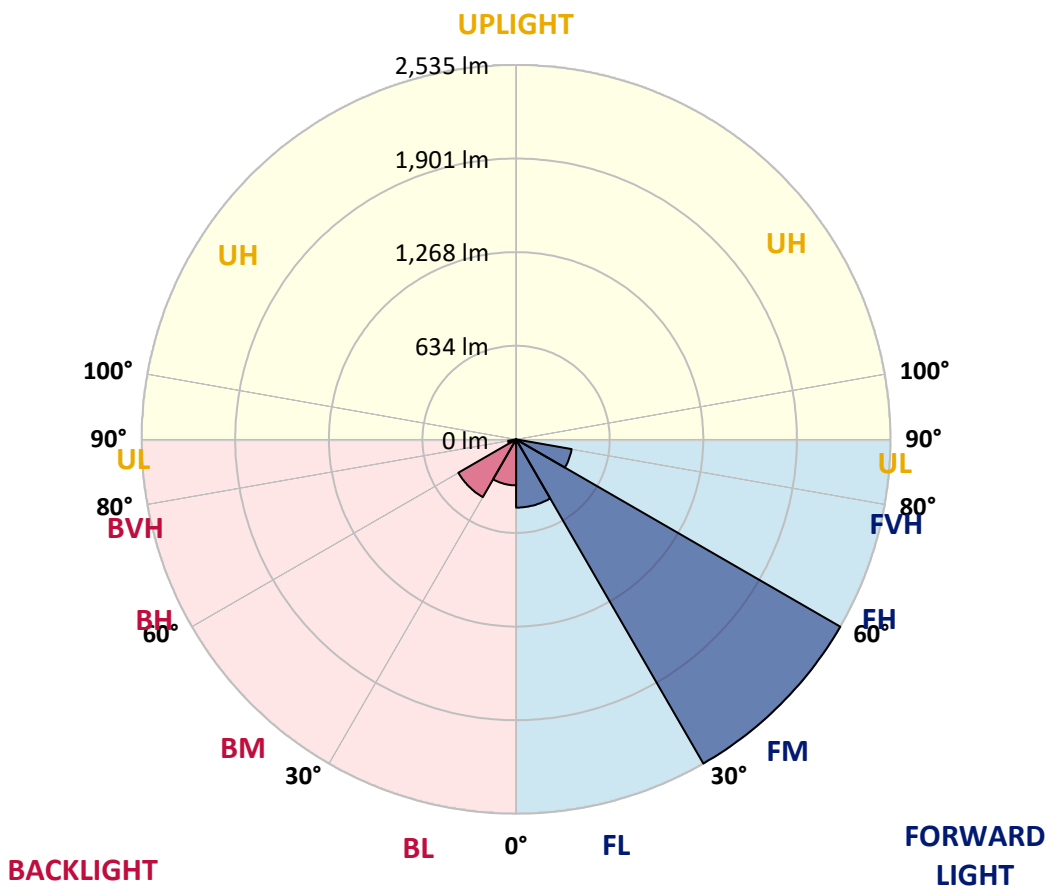
REPORT NUMBER: P631570

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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°) | 462.1 | 11.0 | | | |
| FM (30°-60°) | 2535.2 | 60.4 | | | |
| FH (60°-80°) | 382.0 | 9.1 | | | G0/660 |
| FVH (80°-90°) | 0.5 | 0.0 | | | G0/10 |
| BL (0°-30°) | 311.6 | 7.4 | B1/500 | | |
| BM (30°-60°) | 451.4 | 10.8 | B1/1000 | | |
| BH (60°-80°) | 54.4 | 1.3 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.4 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G0
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 38° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 |
| 2.5° | 937.5 | 935.6 | 939.4 | 947.1 | 954.3 | 956.7 | 963.9 | 974.0 | 980.2 | 995.1 | 1007.1 |
| 5° | 895.3 | 894.3 | 898.2 | 904.9 | 914.5 | 917.9 | 928.9 | 945.7 | 962.5 | 988.4 | 1013.8 |
| 7.5° | 856.9 | 856.4 | 862.2 | 877.1 | 891.0 | 895.3 | 908.7 | 929.4 | 951.9 | 991.7 | 1029.2 |
| 10° | 806.5 | 807.0 | 818.1 | 839.2 | 864.6 | 873.2 | 894.8 | 924.6 | 953.8 | 1005.2 | 1057.0 |
| 12.5° | 790.2 | 791.2 | 796.9 | 813.3 | 841.1 | 852.1 | 882.3 | 927.4 | 964.9 | 1024.4 | 1093.0 |
| 15° | 830.1 | 830.1 | 825.3 | 827.2 | 839.6 | 849.7 | 881.4 | 937.0 | 983.6 | 1047.4 | 1128.5 |
| 17.5° | 907.3 | 904.4 | 892.4 | 876.1 | 871.8 | 875.2 | 900.6 | 957.7 | 1010.0 | 1074.3 | 1168.8 |
| 20° | 1011.9 | 1012.9 | 989.3 | 955.3 | 927.9 | 927.4 | 942.8 | 994.1 | 1047.9 | 1106.4 | 1212.5 |
| 22.5° | 1138.6 | 1134.7 | 1103.5 | 1057.0 | 1009.5 | 1005.7 | 1011.9 | 1049.8 | 1102.6 | 1157.3 | 1266.2 |
| 25° | 1285.4 | 1283.5 | 1239.3 | 1176.9 | 1114.1 | 1105.0 | 1105.0 | 1142.4 | 1180.8 | 1229.7 | 1330.5 |
| 27.5° | 1438.9 | 1438.9 | 1396.2 | 1324.2 | 1240.8 | 1224.4 | 1222.0 | 1266.2 | 1291.6 | 1301.2 | 1384.7 |
| 30° | 1596.8 | 1594.8 | 1552.6 | 1478.7 | 1389.5 | 1372.7 | 1366.0 | 1398.6 | 1416.8 | 1388.1 | 1452.3 |
| 32.5° | 1757.0 | 1760.4 | 1717.7 | 1649.1 | 1569.4 | 1558.4 | 1537.8 | 1537.8 | 1552.6 | 1512.3 | 1558.9 |
| 35° | 1929.3 | 1928.3 | 1894.7 | 1848.2 | 1780.1 | 1767.6 | 1733.5 | 1680.3 | 1702.8 | 1685.1 | 1706.2 |
| 37.5° | 2081.4 | 2088.6 | 2072.2 | 2037.7 | 1982.5 | 1970.1 | 1913.9 | 1817.5 | 1834.7 | 1862.6 | 1881.3 |
| 40° | 2235.9 | 2241.6 | 2257.9 | 2246.9 | 2177.3 | 2154.3 | 2054.5 | 1896.2 | 1915.4 | 2010.8 | 2064.6 |
| 42.5° | 2387.5 | 2390.4 | 2423.5 | 2441.7 | 2348.6 | 2308.3 | 2161.0 | 1944.1 | 1964.3 | 2126.9 | 2221.0 |
| 45° | 2483.9 | 2490.2 | 2544.8 | 2600.5 | 2499.7 | 2444.6 | 2253.6 | 2005.6 | 2014.2 | 2207.6 | 2336.6 |
| 47.5° | 2480.1 | 2494.5 | 2597.1 | 2698.4 | 2629.8 | 2570.3 | 2364.9 | 2103.9 | 2089.5 | 2283.4 | 2412.9 |
| 50° | 2402.8 | 2420.1 | 2567.4 | 2728.1 | 2723.3 | 2668.2 | 2488.7 | 2246.4 | 2201.3 | 2350.5 | 2422.5 |
| 52.5° | 2242.6 | 2292.5 | 2515.1 | 2732.0 | 2798.7 | 2770.8 | 2641.8 | 2438.3 | 2352.5 | 2447.0 | 2437.9 |
| 55° | 1896.2 | 1957.6 | 2356.3 | 2699.3 | 2866.8 | 2870.2 | 2802.5 | 2638.4 | 2516.5 | 2613.0 | 2532.4 |
| 57.5° | 1439.4 | 1488.3 | 1813.6 | 2402.8 | 2754.0 | 2809.2 | 2864.9 | 2744.0 | 2617.8 | 2726.2 | 2554.4 |
| 60° | 867.5 | 924.1 | 1135.7 | 1763.3 | 2224.3 | 2318.4 | 2536.7 | 2513.2 | 2361.1 | 2407.6 | 2094.8 |
| 62.5° | 351.7 | 381.4 | 524.4 | 971.6 | 1400.1 | 1487.9 | 1697.0 | 1732.6 | 1695.1 | 1647.6 | 1270.5 |
| 65° | 128.6 | 140.6 | 210.2 | 401.6 | 643.9 | 676.0 | 786.4 | 849.2 | 901.1 | 767.2 | 472.6 |
| 67.5° | 79.6 | 87.3 | 136.7 | 206.3 | 234.1 | 217.8 | 221.7 | 264.4 | 252.4 | 155.9 | 84.4 |
| 70° | 59.0 | 65.3 | 107.0 | 143.0 | 94.5 | 72.9 | 49.4 | 52.8 | 47.5 | 41.7 | 41.3 |
| 72.5° | 40.8 | 46.5 | 80.1 | 84.4 | 36.5 | 25.9 | 18.2 | 25.4 | 28.8 | 28.3 | 29.3 |
| 75° | 26.9 | 31.2 | 50.4 | 33.1 | 9.1 | 7.2 | 6.2 | 13.4 | 17.3 | 17.3 | 17.8 |
| 77.5° | 15.8 | 18.2 | 17.8 | 6.7 | 1.9 | 1.9 | 1.4 | 2.4 | 3.8 | 4.3 | 5.3 |
| 80° | 1.9 | 1.4 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.4 | 1.4 | 1.4 |
| 82.5° | 0.5 | 0.5 | 0.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.4 | 1.4 |
| 85° | 0.0 | 0.0 | 0.5 | 0.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.4 | 1.4 |
| 87.5° | 0.0 | 0.0 | 0.5 | 0.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.4 | 1.4 |
| 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: P631570

CATALOG NUMBER: GWS-SA1F-830-U-T3R-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 | 1006.6 |
| 2.5° | 1016.2 | 1012.9 | 1026.8 | 1036.8 | 1045.0 | 1048.8 | 1043.6 | 1043.1 | 1043.1 | 1032.5 | 1029.6 |
| 5° | 1028.2 | 1029.6 | 1049.3 | 1058.0 | 1059.4 | 1054.6 | 1042.6 | 1034.4 | 1029.6 | 1018.6 | 1012.4 |
| 7.5° | 1051.2 | 1056.0 | 1074.7 | 1073.3 | 1060.4 | 1038.3 | 1006.6 | 982.1 | 966.3 | 949.0 | 938.5 |
| 10° | 1084.3 | 1093.5 | 1105.0 | 1084.8 | 1043.6 | 987.4 | 922.2 | 875.6 | 847.8 | 828.1 | 816.1 |
| 12.5° | 1124.6 | 1133.8 | 1129.9 | 1082.4 | 996.5 | 896.3 | 812.3 | 745.1 | 713.0 | 695.2 | 682.8 |
| 15° | 1165.4 | 1171.2 | 1146.2 | 1053.6 | 913.5 | 778.7 | 685.2 | 618.5 | 579.1 | 564.7 | 554.2 |
| 17.5° | 1207.2 | 1205.7 | 1149.1 | 997.0 | 802.7 | 646.3 | 554.2 | 508.6 | 497.6 | 495.2 | 494.2 |
| 20° | 1250.8 | 1237.9 | 1137.6 | 915.9 | 669.3 | 515.3 | 463.0 | 465.9 | 486.0 | 495.6 | 497.6 |
| 22.5° | 1300.7 | 1268.1 | 1108.8 | 806.1 | 533.1 | 429.4 | 434.7 | 463.0 | 490.4 | 503.3 | 505.2 |
| 25° | 1354.0 | 1295.9 | 1060.8 | 665.0 | 420.3 | 394.9 | 426.1 | 458.7 | 488.0 | 503.8 | 505.7 |
| 27.5° | 1389.0 | 1302.7 | 982.1 | 523.0 | 360.8 | 381.4 | 414.5 | 445.7 | 476.0 | 493.2 | 495.6 |
| 30° | 1426.9 | 1299.8 | 875.2 | 403.0 | 340.7 | 369.9 | 398.7 | 427.0 | 454.8 | 474.0 | 476.0 |
| 32.5° | 1482.6 | 1297.9 | 744.6 | 327.2 | 332.5 | 360.8 | 381.9 | 405.4 | 424.6 | 435.7 | 434.2 |
| 35° | 1555.5 | 1295.5 | 592.6 | 295.1 | 327.7 | 353.6 | 370.4 | 381.4 | 360.3 | 353.6 | 355.1 |
| 37.5° | 1649.1 | 1301.2 | 464.4 | 281.6 | 326.3 | 351.7 | 366.1 | 334.4 | 301.8 | 289.3 | 287.4 |
| 40° | 1752.7 | 1316.1 | 354.1 | 276.4 | 331.1 | 356.5 | 349.8 | 297.5 | 257.2 | 232.7 | 227.4 |
| 42.5° | 1856.8 | 1332.4 | 280.2 | 274.4 | 339.2 | 369.9 | 322.9 | 270.6 | 210.2 | 196.2 | 194.3 |
| 45° | 1934.1 | 1329.5 | 242.3 | 271.1 | 346.4 | 377.6 | 315.7 | 232.2 | 187.6 | 181.4 | 181.8 |
| 47.5° | 1972.9 | 1297.9 | 221.7 | 263.4 | 349.3 | 369.9 | 298.0 | 216.4 | 172.2 | 179.0 | 184.7 |
| 50° | 1952.3 | 1215.8 | 202.5 | 248.5 | 343.1 | 359.8 | 269.6 | 204.4 | 164.6 | 192.4 | 205.4 |
| 52.5° | 1927.3 | 1115.1 | 181.4 | 225.5 | 328.2 | 345.9 | 258.6 | 201.0 | 159.8 | 185.7 | 195.3 |
| 55° | 1960.5 | 1051.2 | 146.8 | 190.0 | 298.9 | 313.3 | 250.0 | 200.6 | 148.7 | 144.4 | 143.0 |
| 57.5° | 1913.9 | 924.1 | 105.1 | 136.7 | 229.3 | 248.1 | 243.7 | 197.2 | 131.9 | 131.5 | 133.4 |
| 60° | 1479.2 | 563.8 | 72.0 | 86.8 | 140.6 | 158.3 | 221.2 | 188.6 | 113.7 | 104.6 | 105.1 |
| 62.5° | 840.6 | 239.9 | 49.4 | 53.7 | 72.0 | 85.4 | 168.9 | 171.3 | 105.1 | 99.8 | 105.1 |
| 65° | 292.7 | 85.9 | 38.4 | 36.0 | 39.8 | 45.6 | 96.9 | 132.4 | 95.5 | 86.4 | 87.3 |
| 67.5° | 60.5 | 42.7 | 34.1 | 29.7 | 29.7 | 29.7 | 49.4 | 82.5 | 78.7 | 68.6 | 69.6 |
| 70° | 38.4 | 36.5 | 29.7 | 25.4 | 24.5 | 22.6 | 28.3 | 45.6 | 54.2 | 49.9 | 50.4 |
| 72.5° | 28.3 | 27.8 | 23.5 | 20.6 | 18.2 | 16.3 | 17.8 | 22.6 | 27.8 | 28.8 | 29.3 |
| 75° | 17.3 | 17.8 | 15.4 | 13.0 | 11.5 | 10.1 | 10.6 | 10.6 | 10.6 | 9.6 | 10.6 |
| 77.5° | 5.3 | 5.8 | 4.8 | 3.8 | 3.4 | 3.4 | 3.4 | 2.9 | 2.4 | 1.4 | 1.4 |
| 80° | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.0 | 1.0 | 0.5 | 0.5 | 0.0 | 0.0 |
| 82.5° | 1.4 | 1.4 | 1.4 | 1.4 | 1.0 | 1.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 |
| 85° | 1.4 | 1.4 | 1.4 | 1.4 | 1.0 | 1.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.4 | 1.4 | 1.4 | 1.4 | 1.0 | 1.0 | 0.5 | 0.5 | 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 |

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 |

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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

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)