

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: HALO

Report Number: P886881

Luminaire Tested: ML412LSFL95FS1E-TIR4D25NFL-TL4SDMW-1020LM-3000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886881
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-48)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25NFL-TL4SDMW-1020LM-3000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

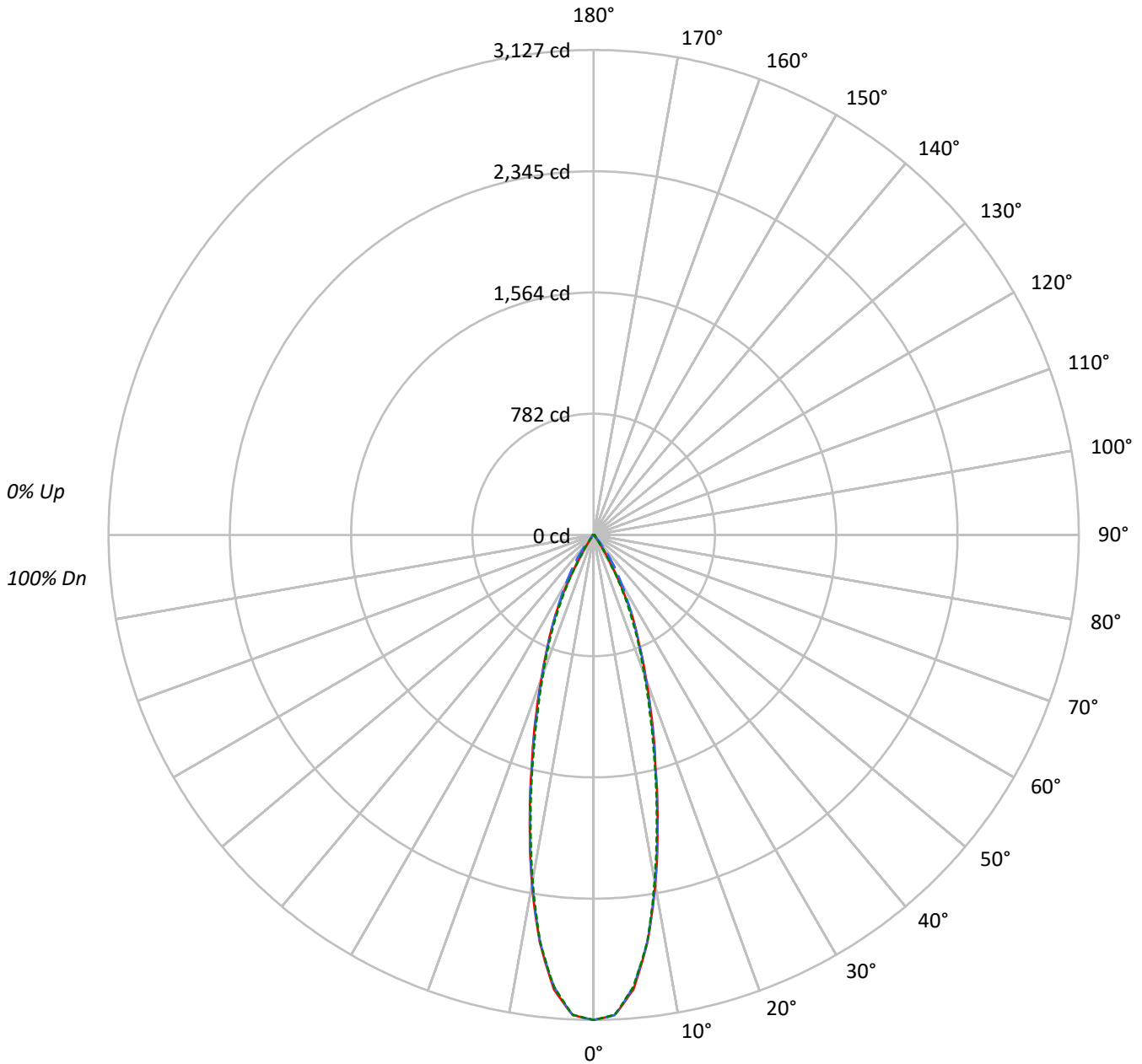
Lumens per Lamp: N/A
Luminaire Lumens: 1078.2 lumens
Efficiency: N/A
Efficacy: 61.3 lumens/watt
Spacing Criteria (0/90/45): 0.49 / 0.49 / 0.52
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 17.6
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: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | |
| RC | 80 | | | | | | | | | 50 | | | | | | | | | 30 | | | | | | | | | 10 | | | | | | | | | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | | | | | | | | | | | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | | | | | | | | | | | | | | | |
| 1 | 114 | 112 | 110 | 108 | 112 | 110 | 108 | 106 | 106 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 95 | | | | | | | | | | | | | | | | | | | |
| 2 | 110 | 105 | 102 | 99 | 108 | 104 | 101 | 98 | 101 | 98 | 96 | 98 | 96 | 94 | 95 | 93 | 92 | 90 | | | | | | | | | | | | | | | | | | | |
| 3 | 105 | 100 | 96 | 92 | 104 | 99 | 95 | 92 | 96 | 93 | 90 | 94 | 91 | 89 | 92 | 89 | 88 | 86 | | | | | | | | | | | | | | | | | | | |
| 4 | 101 | 95 | 90 | 87 | 100 | 94 | 90 | 86 | 92 | 88 | 85 | 90 | 87 | 84 | 88 | 86 | 84 | 82 | | | | | | | | | | | | | | | | | | | |
| 5 | 98 | 91 | 86 | 82 | 96 | 90 | 85 | 82 | 88 | 84 | 81 | 87 | 83 | 81 | 85 | 82 | 80 | 79 | | | | | | | | | | | | | | | | | | | |
| 6 | 94 | 87 | 82 | 78 | 93 | 86 | 81 | 78 | 85 | 81 | 78 | 83 | 80 | 77 | 82 | 79 | 77 | 75 | | | | | | | | | | | | | | | | | | | |
| 7 | 91 | 83 | 78 | 75 | 89 | 82 | 78 | 75 | 81 | 77 | 74 | 80 | 77 | 74 | 79 | 76 | 73 | 72 | | | | | | | | | | | | | | | | | | | |
| 8 | 87 | 80 | 75 | 72 | 86 | 79 | 75 | 71 | 78 | 74 | 71 | 77 | 74 | 71 | 76 | 73 | 71 | 69 | | | | | | | | | | | | | | | | | | | |
| 9 | 85 | 77 | 72 | 69 | 84 | 76 | 72 | 69 | 75 | 71 | 68 | 75 | 71 | 68 | 74 | 70 | 68 | 67 | | | | | | | | | | | | | | | | | | | |
| 10 | 82 | 74 | 69 | 66 | 81 | 74 | 69 | 66 | 73 | 69 | 66 | 72 | 68 | 66 | 71 | 68 | 65 | 64 | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 302968 | 302968 | 302968 |
| 5° | 286018 | 284531 | 284453 |
| 10° | 225247 | 224687 | 222621 |
| 15° | 154441 | 153318 | 151773 |
| 20° | 101484 | 100155 | 97835 |
| 25° | 64979 | 64027 | 59463 |
| 30° | 27954 | 39230 | 25158 |
| 35° | 7723 | 21642 | 7344 |
| 40° | 2757 | 7954 | 2656 |
| 45° | 2096 | 2877 | 1987 |
| 50° | 1944 | 2185 | 1824 |
| 55° | 1909 | 2044 | 1909 |
| 60° | 1879 | 2034 | 1879 |
| 65° | 1857 | 2040 | 1857 |
| 70° | 1841 | 2068 | 1841 |
| 75° | 1797 | 2096 | 1797 |
| 80° | 1785 | 2232 | 1785 |
| 85° | 1778 | 1778 | 1778 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 2877 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 258.9 | 24.0 |
| 10°-20° | 426.0 | 39.5 |
| 20°-30° | 272.4 | 25.3 |
| 30°-40° | 79.5 | 7.4 |
| 40°-50° | 14.9 | 1.4 |
| 50°-60° | 10.3 | 1.0 |
| 60°-70° | 8.6 | 0.8 |
| 70°-80° | 5.7 | 0.5 |
| 80°-90° | 1.9 | 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°-30° | 957.3 | 88.8 |
| 0°-40° | 1036.8 | 96.2 |
| 0°-60° | 1062.0 | 98.5 |
| 0°-90° | 1078.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1078.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3127 | 3127 | 3127 | 3127 | 3127 | |
| 5° | 2941 | 2938 | 2926 | 2927 | 2925 | 259 |
| 15° | 1540 | 1534 | 1529 | 1518 | 1513 | 429 |
| 25° | 608 | 605 | 599 | 584 | 556 | 270 |
| 35° | 65 | 104 | 183 | 96 | 62 | 56 |
| 45° | 15 | 16 | 21 | 16 | 14 | 12 |
| 55° | 11 | 11 | 12 | 11 | 11 | 10 |
| 65° | 8 | 9 | 9 | 9 | 8 | 8 |
| 75° | 5 | 6 | 6 | 6 | 5 | 5 |
| 85° | 2 | 2 | 2 | 2 | 2 | 2 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3127.4 | 3127.4 | 3127.4 | 3127.4 | 3127.4 |
| 2.5° | 3099.2 | 3102.5 | 3100.8 | 3092.0 | 3096.8 |
| 5° | 2941.2 | 2938.0 | 2925.9 | 2926.7 | 2925.1 |
| 7.5° | 2652.6 | 2651.8 | 2647.7 | 2649.3 | 2644.5 |
| 10° | 2289.8 | 2305.9 | 2284.1 | 2284.1 | 2263.1 |
| 12.5° | 1904.4 | 1908.4 | 1898.7 | 1887.4 | 1877.8 |
| 15° | 1539.9 | 1534.3 | 1528.7 | 1518.2 | 1513.3 |
| 17.5° | 1244.9 | 1244.0 | 1230.3 | 1217.4 | 1199.7 |
| 20° | 984.4 | 982.0 | 971.5 | 966.7 | 949.0 |
| 22.5° | 772.4 | 782.1 | 770.8 | 752.2 | 747.4 |
| 25° | 607.9 | 604.7 | 599.0 | 584.5 | 556.3 |
| 27.5° | 421.7 | 455.5 | 462.0 | 435.4 | 391.0 |
| 30° | 249.9 | 303.2 | 350.7 | 289.4 | 224.9 |
| 32.5° | 140.3 | 187.1 | 264.5 | 174.2 | 120.9 |
| 35° | 65.3 | 104.0 | 183.0 | 95.9 | 62.1 |
| 37.5° | 29.8 | 50.8 | 111.3 | 50.0 | 32.3 |
| 40° | 21.8 | 25.8 | 62.9 | 27.4 | 21.0 |
| 42.5° | 17.7 | 19.4 | 35.5 | 19.4 | 16.9 |
| 45° | 15.3 | 16.1 | 21.0 | 16.1 | 14.5 |
| 47.5° | 12.9 | 14.5 | 16.1 | 13.7 | 12.9 |
| 50° | 12.9 | 12.9 | 14.5 | 12.9 | 12.1 |
| 52.5° | 12.1 | 12.1 | 12.9 | 12.1 | 12.1 |
| 55° | 11.3 | 11.3 | 12.1 | 11.3 | 11.3 |
| 57.5° | 10.5 | 10.5 | 11.3 | 10.5 | 10.5 |
| 60° | 9.7 | 10.5 | 10.5 | 9.7 | 9.7 |
| 62.5° | 8.9 | 9.7 | 9.7 | 9.7 | 8.9 |
| 65° | 8.1 | 8.9 | 8.9 | 8.9 | 8.1 |
| 67.5° | 7.3 | 8.1 | 8.1 | 8.1 | 7.3 |
| 70° | 6.5 | 7.3 | 7.3 | 7.3 | 6.5 |
| 72.5° | 5.6 | 6.5 | 6.5 | 6.5 | 5.6 |
| 75° | 4.8 | 5.6 | 5.6 | 5.6 | 4.8 |
| 77.5° | 4.0 | 4.8 | 4.8 | 4.8 | 4.0 |
| 80° | 3.2 | 4.0 | 4.0 | 4.0 | 3.2 |
| 82.5° | 2.4 | 2.4 | 2.4 | 3.2 | 2.4 |
| 85° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 87.5° | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| 90° | 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

Scaled Data Report



Report Generated By 670245859 / DESKTOP-T8S5UU9

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Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270°

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