

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: P886703

Luminaire Tested: ML310LSFL9FS1E-TIR4D25NFL-TL3SDMW-1000LM-3000K

Issue Date: 7/5/2024

Test Information

Test Method: LM-79-2019
Report Number: P886703
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-13)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/5/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML310LSFL9FS1E-TIR4D25NFL-TL3SDMW-1000LM-3000K
Description: 3IN 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: 1133.9 lumens
Efficiency: N/A
Efficacy: 82.2 lumens/watt
Spacing Criteria (0/90/45): 0.5 / 0.49 / 0.52
Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
CIE Type: Direct

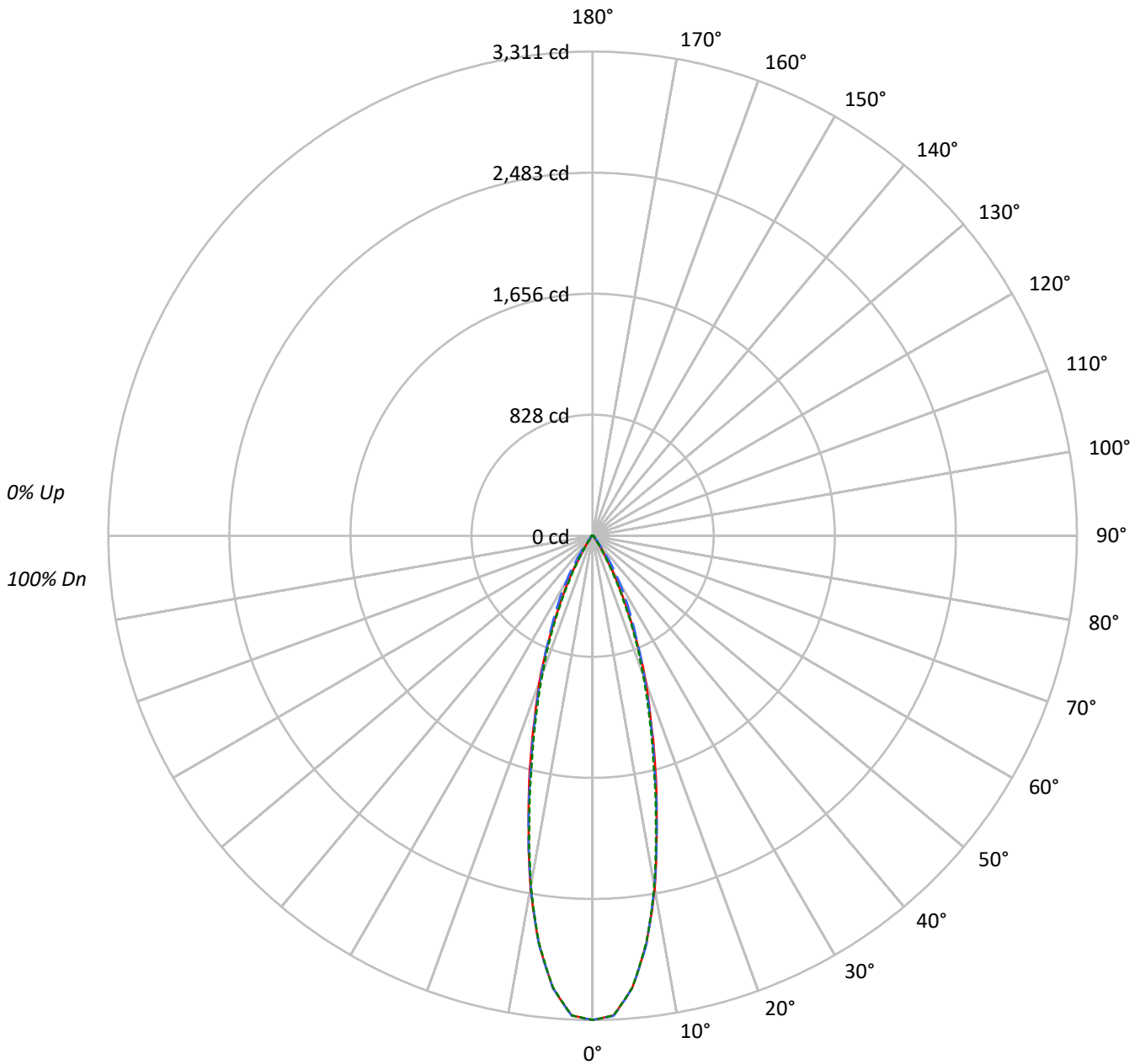
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | | | | | 70 | | | | | 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 | 50 | 30 | 10 | 0 | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | 100 | | | |
| 1 | 114 | 112 | 110 | 108 | 112 | 110 | 108 | 106 | 106 | 104 | 103 | 102 | 101 | 100 | 98 | 98 | 97 | 95 | | | | | 95 | | | |
| 2 | 110 | 105 | 102 | 99 | 107 | 104 | 101 | 98 | 101 | 98 | 96 | 98 | 96 | 94 | 95 | 93 | 92 | 90 | | | | | 90 | | | |
| 3 | 105 | 100 | 96 | 92 | 103 | 98 | 95 | 91 | 96 | 93 | 90 | 94 | 91 | 89 | 91 | 89 | 87 | 86 | | | | | 86 | | | |
| 4 | 101 | 95 | 90 | 87 | 100 | 94 | 90 | 86 | 92 | 88 | 85 | 90 | 87 | 84 | 88 | 85 | 83 | 82 | | | | | 82 | | | |
| 5 | 97 | 91 | 86 | 82 | 96 | 90 | 85 | 82 | 88 | 84 | 81 | 86 | 83 | 80 | 85 | 82 | 80 | 78 | | | | | 78 | | | |
| 6 | 94 | 87 | 82 | 78 | 93 | 86 | 81 | 78 | 84 | 80 | 77 | 83 | 80 | 77 | 82 | 79 | 76 | 75 | | | | | 75 | | | |
| 7 | 91 | 83 | 78 | 75 | 89 | 82 | 78 | 74 | 81 | 77 | 74 | 80 | 76 | 74 | 79 | 76 | 73 | 72 | | | | | 72 | | | |
| 8 | 87 | 80 | 75 | 71 | 86 | 79 | 75 | 71 | 78 | 74 | 71 | 77 | 74 | 71 | 76 | 73 | 71 | 69 | | | | | 69 | | | |
| 9 | 85 | 77 | 72 | 69 | 84 | 76 | 72 | 69 | 75 | 71 | 68 | 75 | 71 | 68 | 74 | 70 | 68 | 67 | | | | | 67 | | | |
| 10 | 82 | 74 | 69 | 66 | 81 | 74 | 69 | 66 | 73 | 69 | 66 | 72 | 68 | 66 | 71 | 68 | 65 | 64 | | | | | 64 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 570246 | 570246 | 570246 |
| 5° | 536794 | 536794 | 536448 |
| 10° | 427668 | 425866 | 424957 |
| 15° | 295547 | 290002 | 285758 |
| 20° | 194694 | 190332 | 182927 |
| 25° | 106054 | 120211 | 100543 |
| 30° | 47350 | 72069 | 40966 |
| 35° | 16336 | 31999 | 14360 |
| 40° | 6048 | 13961 | 6048 |
| 45° | 4798 | 6308 | 4798 |
| 50° | 4153 | 4984 | 4153 |
| 55° | 4354 | 4654 | 4354 |
| 60° | 4271 | 4650 | 4271 |
| 65° | 4238 | 4646 | 4646 |
| 70° | 4179 | 4683 | 4683 |
| 75° | 4126 | 4126 | 4791 |
| 80° | 4066 | 4066 | 5157 |
| 85° | 4150 | 4150 | 4150 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 6308 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 274.6 | 24.2 |
| 10°-20° | 453.3 | 40.0 |
| 20°-30° | 275.9 | 24.3 |
| 30°-40° | 77.7 | 6.9 |
| 40°-50° | 18.3 | 1.6 |
| 50°-60° | 13.4 | 1.2 |
| 60°-70° | 11.1 | 1.0 |
| 70°-80° | 7.2 | 0.6 |
| 80°-90° | 2.3 | 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° | 1003.8 | 88.5 |
| 0°-40° | 1081.5 | 95.4 |
| 0°-60° | 1113.3 | 98.2 |
| 0°-90° | 1133.9 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1133.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3311 | 3311 | 3311 | 3311 | 3311 | |
| 5° | 3105 | 3106 | 3105 | 3105 | 3103 | 275 |
| 15° | 1658 | 1642 | 1626 | 1618 | 1603 | 458 |
| 25° | 558 | 610 | 633 | 589 | 529 | 265 |
| 35° | 78 | 109 | 152 | 97 | 68 | 59 |
| 45° | 20 | 21 | 26 | 21 | 20 | 15 |
| 55° | 14 | 14 | 16 | 14 | 14 | 13 |
| 65° | 10 | 11 | 11 | 11 | 11 | 10 |
| 75° | 6 | 6 | 6 | 7 | 7 | 7 |
| 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° | 3311.1 | 3311.1 | 3311.1 | 3311.1 | 3311.1 |
| 2.5° | 3282.1 | 3281.0 | 3286.2 | 3283.1 | 3282.1 |
| 5° | 3105.0 | 3106.1 | 3105.0 | 3105.0 | 3103.0 |
| 7.5° | 2812.0 | 2807.9 | 2817.2 | 2808.9 | 2807.9 |
| 10° | 2445.5 | 2435.2 | 2435.2 | 2426.9 | 2430.0 |
| 12.5° | 2020.0 | 2028.3 | 2026.2 | 2007.6 | 1998.2 |
| 15° | 1657.6 | 1642.1 | 1626.5 | 1618.3 | 1602.7 |
| 17.5° | 1318.0 | 1319.0 | 1306.6 | 1286.9 | 1282.8 |
| 20° | 1062.3 | 1045.7 | 1038.5 | 1025.0 | 998.1 |
| 22.5° | 798.3 | 827.2 | 810.7 | 797.2 | 760.0 |
| 25° | 558.1 | 609.8 | 632.6 | 589.1 | 529.1 |
| 27.5° | 383.1 | 414.1 | 488.7 | 399.6 | 345.8 |
| 30° | 238.1 | 284.7 | 362.4 | 264.0 | 206.0 |
| 32.5° | 141.8 | 180.2 | 251.6 | 163.6 | 123.2 |
| 35° | 77.7 | 108.7 | 152.2 | 97.3 | 68.3 |
| 37.5° | 40.4 | 60.1 | 95.3 | 55.9 | 38.3 |
| 40° | 26.9 | 34.2 | 62.1 | 32.1 | 26.9 |
| 42.5° | 21.7 | 24.8 | 39.3 | 23.8 | 21.7 |
| 45° | 19.7 | 20.7 | 25.9 | 20.7 | 19.7 |
| 47.5° | 17.6 | 18.6 | 19.7 | 18.6 | 17.6 |
| 50° | 15.5 | 17.6 | 18.6 | 17.6 | 15.5 |
| 52.5° | 15.5 | 15.5 | 16.6 | 15.5 | 15.5 |
| 55° | 14.5 | 14.5 | 15.5 | 14.5 | 14.5 |
| 57.5° | 13.5 | 14.5 | 14.5 | 14.5 | 13.5 |
| 60° | 12.4 | 13.5 | 13.5 | 13.5 | 12.4 |
| 62.5° | 11.4 | 12.4 | 12.4 | 12.4 | 12.4 |
| 65° | 10.4 | 11.4 | 11.4 | 11.4 | 11.4 |
| 67.5° | 9.3 | 10.4 | 10.4 | 10.4 | 10.4 |
| 70° | 8.3 | 9.3 | 9.3 | 9.3 | 9.3 |
| 72.5° | 7.2 | 8.3 | 8.3 | 8.3 | 8.3 |
| 75° | 6.2 | 6.2 | 6.2 | 7.2 | 7.2 |
| 77.5° | 5.2 | 5.2 | 5.2 | 6.2 | 6.2 |
| 80° | 4.1 | 4.1 | 4.1 | 5.2 | 5.2 |
| 82.5° | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 85° | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| 87.5° | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 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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