

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: P886657

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-2700K

Issue Date: 7/8/2024

Test Information

Test Method: LM-79-2019
Report Number: P886657
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-24)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/8/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-2700K
Description: 3IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 773.3 lumens
Efficiency: N/A
Efficacy: 56.0 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.8 / 1
Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
CIE Type: Direct

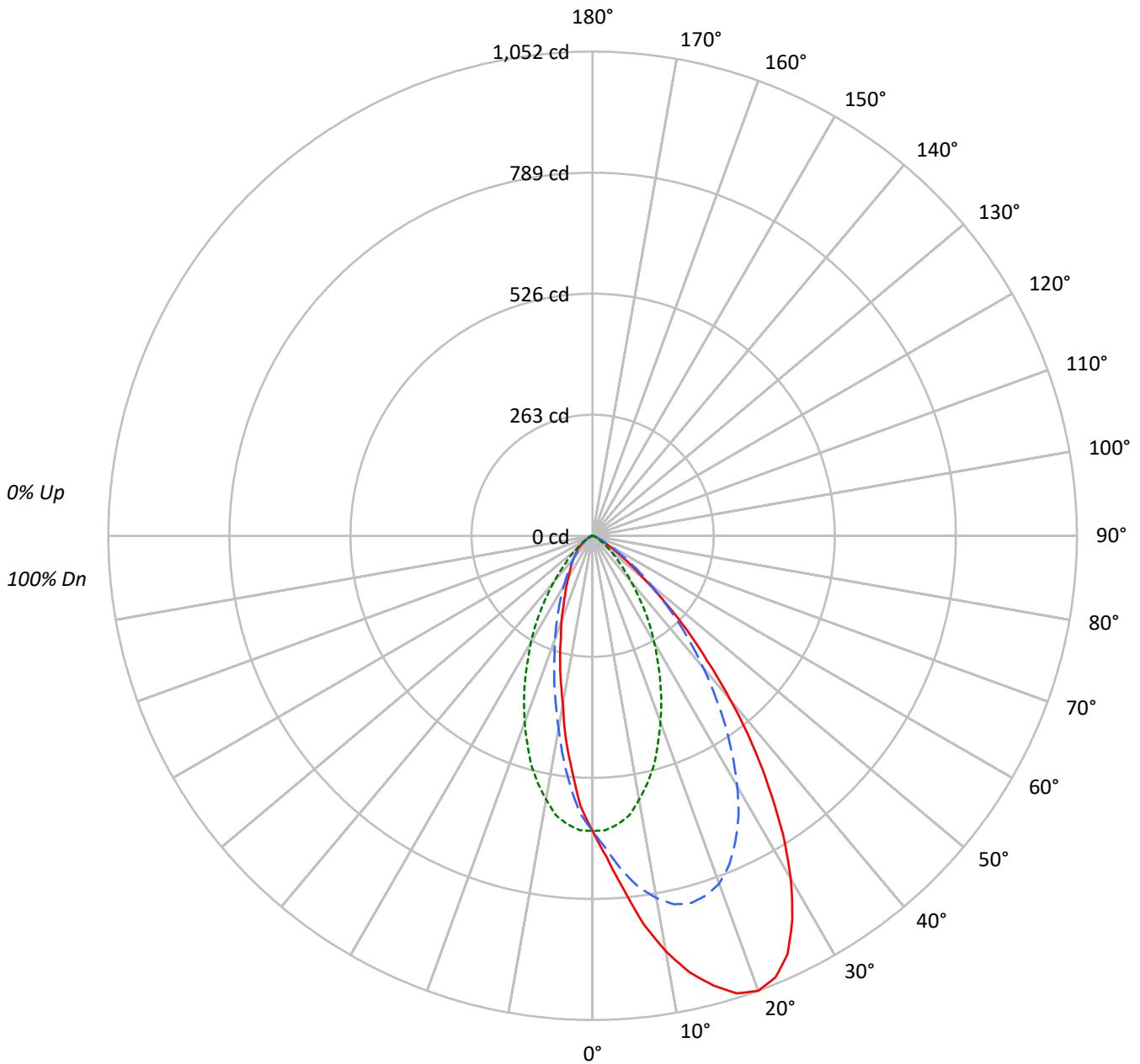
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P886657

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-2700K

Luminous Intensity Polar Plot





TEST NUMBER: P886657

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-2700K

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 | 113 | 110 | 107 | 104 | 110 | 107 | 105 | 103 | 103 | 101 | 100 | 100 | 98 | 97 | 96 | 95 | 94 | 92 | | | | | 92 | | | |
| 2 | 106 | 101 | 96 | 92 | 104 | 99 | 95 | 91 | 96 | 92 | 89 | 93 | 90 | 87 | 90 | 87 | 85 | 84 | | | | | 84 | | | |
| 3 | 100 | 92 | 87 | 82 | 98 | 91 | 86 | 82 | 88 | 84 | 80 | 86 | 82 | 79 | 83 | 80 | 78 | 76 | | | | | 76 | | | |
| 4 | 94 | 85 | 79 | 74 | 92 | 84 | 78 | 74 | 82 | 77 | 73 | 80 | 75 | 72 | 78 | 74 | 71 | 69 | | | | | 69 | | | |
| 5 | 88 | 79 | 72 | 67 | 86 | 78 | 71 | 67 | 76 | 70 | 66 | 74 | 69 | 65 | 72 | 68 | 65 | 63 | | | | | 63 | | | |
| 6 | 83 | 73 | 66 | 61 | 81 | 72 | 66 | 61 | 70 | 65 | 60 | 69 | 64 | 60 | 67 | 63 | 60 | 58 | | | | | 58 | | | |
| 7 | 78 | 68 | 61 | 56 | 77 | 67 | 60 | 56 | 66 | 60 | 56 | 64 | 59 | 55 | 63 | 58 | 55 | 53 | | | | | 53 | | | |
| 8 | 74 | 63 | 56 | 52 | 72 | 62 | 56 | 52 | 61 | 55 | 51 | 60 | 55 | 51 | 59 | 54 | 51 | 49 | | | | | 49 | | | |
| 9 | 70 | 59 | 52 | 48 | 69 | 58 | 52 | 48 | 57 | 52 | 48 | 56 | 51 | 47 | 56 | 51 | 47 | 46 | | | | | 46 | | | |
| 10 | 66 | 55 | 49 | 44 | 65 | 55 | 49 | 44 | 54 | 48 | 44 | 53 | 48 | 44 | 52 | 47 | 44 | 43 | | | | | 43 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° | 135° | 180° |
|-----|--------|--------|--------|--------|--------|
| 0° | 110446 | 110446 | 110446 | 110446 | 110446 |
| 5° | 133170 | 126082 | 108794 | 94773 | 88549 |
| 10° | 160260 | 139781 | 101815 | 74359 | 64898 |
| 15° | 180331 | 147328 | 91859 | 57430 | 48693 |
| 20° | 192879 | 147408 | 79028 | 43638 | 36124 |
| 25° | 190483 | 139347 | 65958 | 33084 | 26813 |
| 30° | 171283 | 124947 | 53316 | 24659 | 20881 |
| 35° | 140297 | 105375 | 41019 | 18502 | 17240 |
| 40° | 104811 | 83881 | 29249 | 14389 | 14389 |
| 45° | 70413 | 63106 | 19728 | 10717 | 11934 |
| 50° | 39145 | 43967 | 13664 | 8038 | 9646 |
| 55° | 20718 | 27324 | 8407 | 6305 | 7507 |
| 60° | 10333 | 14811 | 5511 | 4822 | 5167 |
| 65° | 4890 | 7335 | 3668 | 2853 | 3260 |
| 70° | 2518 | 3021 | 2014 | 1511 | 1007 |
| 75° | 665 | 1331 | 665 | 665 | 0 |
| 80° | 0 | 0 | 0 | 0 | 0 |
| 85° | 0 | 0 | 0 | 0 | 0 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
 Vertical Angle: 45°
 Luminance: 70657 cd/sqm



TEST NUMBER: P886657

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-2700K

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 60.1 | 7.8 |
| 10°-20° | 161.3 | 20.9 |
| 20°-30° | 208.2 | 26.9 |
| 30°-40° | 180.3 | 23.3 |
| 40°-50° | 106.8 | 13.8 |
| 50°-60° | 43.0 | 5.6 |
| 60°-70° | 12.0 | 1.5 |
| 70°-80° | 1.6 | 0.2 |
| 80°-90° | 0.0 | 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°-30° | 429.6 | 55.6 |
| 0°-40° | 609.9 | 78.9 |
| 0°-60° | 759.7 | 98.2 |
| 0°-90° | 773.3 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 773.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|------|-----|-----|------|------|------|
| 0° | 641 | 641 | 641 | 641 | 641 | |
| 5° | 770 | 729 | 629 | 548 | 512 | 78 |
| 15° | 1011 | 826 | 515 | 322 | 273 | 286 |
| 25° | 1002 | 733 | 347 | 174 | 141 | 453 |
| 35° | 667 | 501 | 195 | 88 | 82 | 414 |
| 45° | 289 | 259 | 81 | 44 | 49 | 224 |
| 55° | 69 | 91 | 28 | 21 | 25 | 68 |
| 65° | 12 | 18 | 9 | 7 | 8 | 14 |
| 75° | 1 | 2 | 1 | 1 | 0 | 2 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P886657

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-2700K

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|-------|--------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0° | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 |
| 2.5° | 699.3 | 690.3 | 681.3 | 659.3 | 640.3 | 620.2 | 605.2 | 593.2 | 589.2 |
| 5° | 770.3 | 763.3 | 729.3 | 680.3 | 629.3 | 583.2 | 548.2 | 524.2 | 512.2 |
| 7.5° | 851.3 | 826.3 | 770.3 | 690.3 | 612.2 | 541.2 | 487.2 | 453.2 | 445.2 |
| 10° | 916.4 | 886.4 | 799.3 | 690.3 | 582.2 | 497.2 | 425.2 | 387.2 | 371.1 |
| 12.5° | 971.4 | 931.4 | 820.3 | 680.3 | 550.2 | 449.2 | 371.1 | 329.1 | 319.1 |
| 15° | 1011.4 | 964.4 | 826.3 | 661.3 | 515.2 | 398.2 | 322.1 | 284.1 | 273.1 |
| 17.5° | 1042.4 | 981.4 | 819.3 | 636.3 | 472.2 | 352.1 | 275.1 | 242.1 | 229.1 |
| 20° | 1052.4 | 983.4 | 804.3 | 601.2 | 431.2 | 308.1 | 238.1 | 206.1 | 197.1 |
| 22.5° | 1038.4 | 966.4 | 774.3 | 566.2 | 389.2 | 267.1 | 204.1 | 175.1 | 166.1 |
| 25° | 1002.4 | 927.4 | 733.3 | 520.2 | 347.1 | 230.1 | 174.1 | 147.1 | 141.1 |
| 27.5° | 939.4 | 869.3 | 686.3 | 474.2 | 305.1 | 197.1 | 147.1 | 126.1 | 123.0 |
| 30° | 861.3 | 798.3 | 628.3 | 426.2 | 268.1 | 168.1 | 124.0 | 109.0 | 105.0 |
| 32.5° | 769.3 | 718.3 | 565.2 | 380.2 | 231.1 | 143.1 | 105.0 | 94.0 | 93.0 |
| 35° | 667.3 | 631.3 | 501.2 | 327.1 | 195.1 | 119.0 | 88.0 | 81.0 | 82.0 |
| 37.5° | 568.2 | 538.2 | 436.2 | 278.1 | 160.1 | 97.0 | 76.0 | 71.0 | 72.0 |
| 40° | 466.2 | 449.2 | 373.1 | 230.1 | 130.1 | 79.0 | 64.0 | 62.0 | 64.0 |
| 42.5° | 369.1 | 365.1 | 314.1 | 191.1 | 104.0 | 64.0 | 54.0 | 53.0 | 56.0 |
| 45° | 289.1 | 290.1 | 259.1 | 153.1 | 81.0 | 50.0 | 44.0 | 47.0 | 49.0 |
| 47.5° | 210.1 | 223.1 | 205.1 | 118.0 | 66.0 | 41.0 | 36.0 | 41.0 | 43.0 |
| 50° | 146.1 | 165.1 | 164.1 | 91.0 | 51.0 | 34.0 | 30.0 | 36.0 | 36.0 |
| 52.5° | 106.0 | 118.0 | 125.1 | 68.0 | 38.0 | 27.0 | 25.0 | 31.0 | 30.0 |
| 55° | 69.0 | 84.0 | 91.0 | 49.0 | 28.0 | 20.0 | 21.0 | 26.0 | 25.0 |
| 57.5° | 46.0 | 59.0 | 63.0 | 34.0 | 20.0 | 15.0 | 17.0 | 21.0 | 20.0 |
| 60° | 30.0 | 40.0 | 43.0 | 24.0 | 16.0 | 12.0 | 14.0 | 16.0 | 15.0 |
| 62.5° | 19.0 | 27.0 | 28.0 | 16.0 | 12.0 | 10.0 | 10.0 | 12.0 | 11.0 |
| 65° | 12.0 | 17.0 | 18.0 | 12.0 | 9.0 | 7.0 | 7.0 | 9.0 | 8.0 |
| 67.5° | 8.0 | 11.0 | 11.0 | 8.0 | 7.0 | 5.0 | 5.0 | 6.0 | 5.0 |
| 70° | 5.0 | 6.0 | 6.0 | 6.0 | 4.0 | 4.0 | 3.0 | 3.0 | 2.0 |
| 72.5° | 3.0 | 3.0 | 3.0 | 3.0 | 2.0 | 2.0 | 2.0 | 1.0 | 1.0 |
| 75° | 1.0 | 1.0 | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 |
| 77.5° | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |

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

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report





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

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



(END OF REPORT)