

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 COMMERCIAL

Report Number: P837209

Luminaire Tested: HCSQ405D010-HM40525840-41SQH

Issue Date: 5/17/2024

Test Information

Test Method: LM-79-2019
Report Number: P837209
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-2)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 5/17/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCSQ405D010-HM40525840-41SQH
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, HAZE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: -

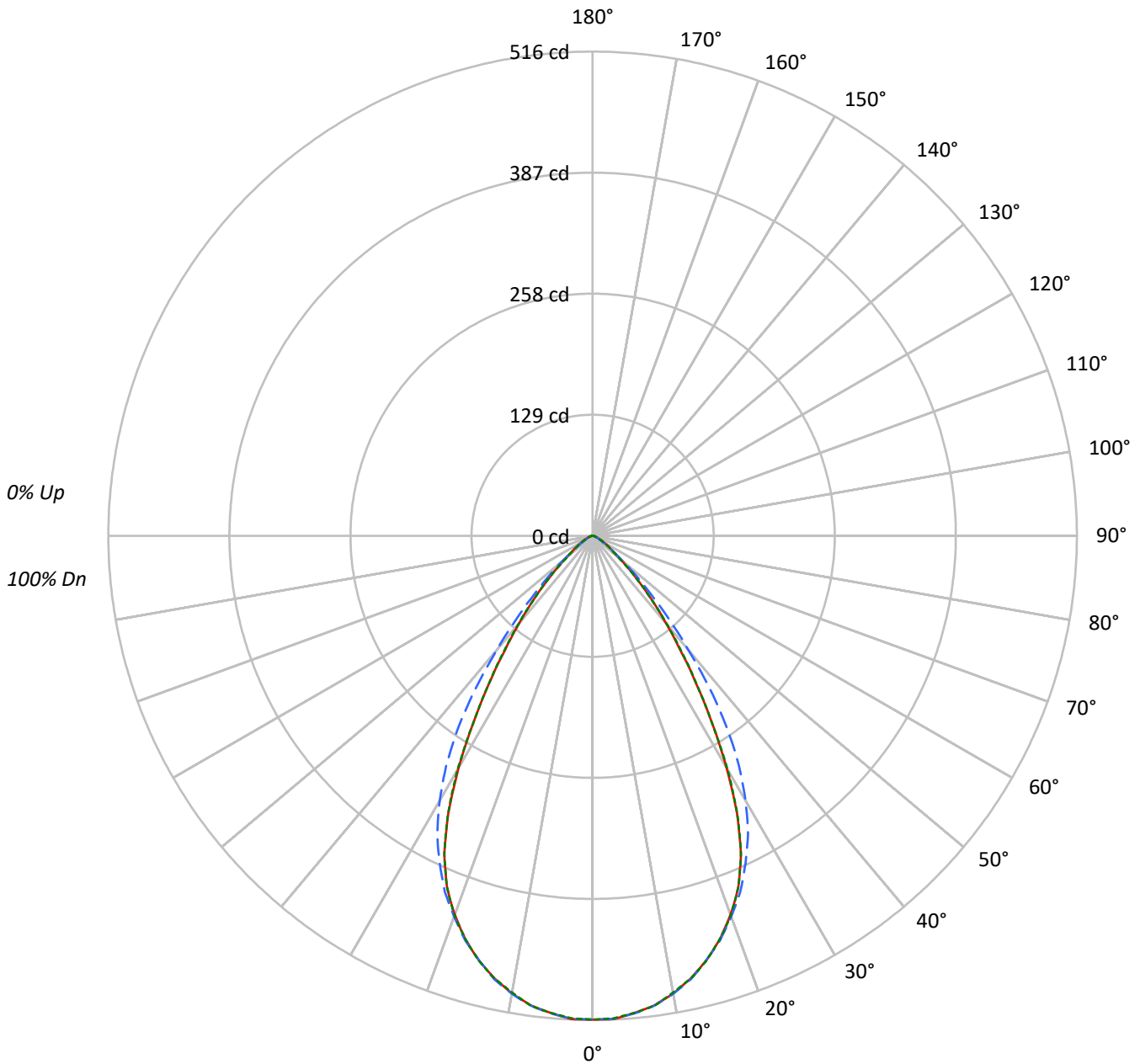
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 579.5 lumens
Efficiency: N/A
Efficacy: 96.6 lumens/watt
Spacing Criteria (0/90/45): 0.98 / 0.98 / 1.01
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 6
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





TEST NUMBER: P837209

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF | 20 | | | | 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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | 100 | 100 |
| 1 | 113 | 110 | 107 | 105 | 110 | 108 | 105 | 103 | 104 | 102 | 100 | 100 | 98 | 97 | 96 | 95 | 94 | 92 | 92 | 92 | 92 |
| 2 | 107 | 101 | 97 | 93 | 104 | 100 | 95 | 92 | 96 | 93 | 90 | 93 | 90 | 88 | 90 | 88 | 86 | 85 | 85 | 85 | 85 |
| 3 | 101 | 93 | 88 | 84 | 98 | 92 | 87 | 83 | 89 | 85 | 82 | 87 | 83 | 80 | 85 | 82 | 79 | 77 | 77 | 77 | 77 |
| 4 | 95 | 87 | 80 | 76 | 93 | 85 | 80 | 75 | 83 | 78 | 74 | 81 | 77 | 74 | 79 | 76 | 73 | 71 | 71 | 71 | 71 |
| 5 | 89 | 80 | 74 | 69 | 88 | 79 | 73 | 69 | 77 | 72 | 68 | 76 | 71 | 68 | 74 | 70 | 67 | 65 | 65 | 65 | 65 |
| 6 | 84 | 75 | 68 | 63 | 83 | 74 | 68 | 63 | 72 | 67 | 63 | 71 | 66 | 62 | 69 | 65 | 62 | 60 | 60 | 60 | 60 |
| 7 | 80 | 70 | 63 | 59 | 78 | 69 | 63 | 58 | 68 | 62 | 58 | 66 | 61 | 58 | 65 | 61 | 57 | 56 | 56 | 56 | 56 |
| 8 | 75 | 65 | 59 | 54 | 74 | 65 | 58 | 54 | 63 | 58 | 54 | 62 | 57 | 54 | 61 | 57 | 53 | 52 | 52 | 52 | 52 |
| 9 | 72 | 61 | 55 | 50 | 70 | 61 | 54 | 50 | 60 | 54 | 50 | 59 | 54 | 50 | 58 | 53 | 50 | 48 | 48 | 48 | 48 |
| 10 | 68 | 57 | 51 | 47 | 67 | 57 | 51 | 47 | 56 | 51 | 47 | 55 | 50 | 47 | 55 | 50 | 46 | 45 | 45 | 45 | 45 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 49949 | 49949 | 49949 |
| 5° | 49644 | 49702 | 49644 |
| 10° | 48713 | 48742 | 48614 |
| 15° | 46977 | 46947 | 47017 |
| 20° | 44289 | 44515 | 44381 |
| 25° | 39966 | 41185 | 39966 |
| 30° | 31914 | 36445 | 32172 |
| 35° | 22789 | 29483 | 22825 |
| 40° | 15378 | 20057 | 15631 |
| 45° | 9768 | 11864 | 9823 |
| 50° | 5561 | 6330 | 5380 |
| 55° | 3665 | 3074 | 3598 |
| 60° | 2538 | 1783 | 2461 |
| 65° | 1742 | 1307 | 1742 |
| 70° | 1275 | 991 | 1275 |
| 75° | 823 | 823 | 823 |
| 80° | 558 | 725 | 725 |
| 85° | 667 | 667 | 667 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 11864 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 48.3 | 8.3 |
| 10°-20° | 131.3 | 22.7 |
| 20°-30° | 172.0 | 29.7 |
| 30°-40° | 135.1 | 23.3 |
| 40°-50° | 63.1 | 10.9 |
| 50°-60° | 19.6 | 3.4 |
| 60°-70° | 7.0 | 1.2 |
| 70°-80° | 2.5 | 0.4 |
| 80°-90° | 0.7 | 0.1 |
| 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° | 351.6 | 60.7 |
| 0°-40° | 486.7 | 84.0 |
| 0°-60° | 569.4 | 98.3 |
| 0°-90° | 579.5 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 579.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 516 | 516 | 516 | 516 | 516 | |
| 5° | 510 | 511 | 511 | 512 | 510 | 48 |
| 15° | 468 | 468 | 468 | 468 | 469 | 131 |
| 25° | 374 | 379 | 385 | 379 | 374 | 168 |
| 35° | 193 | 210 | 249 | 213 | 193 | 121 |
| 45° | 71 | 80 | 87 | 78 | 72 | 57 |
| 55° | 22 | 20 | 18 | 20 | 21 | 20 |
| 65° | 8 | 7 | 6 | 7 | 8 | 8 |
| 75° | 2 | 2 | 2 | 2 | 2 | 3 |
| 85° | 1 | 1 | 1 | 1 | 1 | 1 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 515.6 | 515.6 | 515.6 | 515.6 | 515.6 |
| 2.5° | 515.6 | 514.9 | 515.2 | 514.6 | 514.6 |
| 5° | 510.5 | 510.8 | 511.1 | 511.7 | 510.5 |
| 7.5° | 504.7 | 505.4 | 505.1 | 505.1 | 505.1 |
| 10° | 495.2 | 495.5 | 495.5 | 495.5 | 494.2 |
| 12.5° | 483.1 | 483.7 | 484.0 | 483.1 | 483.1 |
| 15° | 468.4 | 468.4 | 468.1 | 468.4 | 468.8 |
| 17.5° | 450.9 | 451.9 | 451.9 | 450.9 | 450.6 |
| 20° | 429.6 | 431.2 | 431.8 | 430.5 | 430.5 |
| 22.5° | 405.7 | 407.3 | 411.1 | 407.9 | 405.4 |
| 25° | 373.9 | 378.9 | 385.3 | 379.3 | 373.9 |
| 27.5° | 332.8 | 343.9 | 358.6 | 345.8 | 333.7 |
| 30° | 285.3 | 303.5 | 325.8 | 304.4 | 287.6 |
| 32.5° | 236.9 | 257.3 | 290.1 | 258.9 | 236.9 |
| 35° | 192.7 | 210.2 | 249.3 | 212.7 | 193.0 |
| 37.5° | 153.2 | 170.0 | 204.4 | 172.0 | 155.4 |
| 40° | 121.6 | 135.3 | 158.6 | 135.0 | 123.6 |
| 42.5° | 94.9 | 104.8 | 120.1 | 104.5 | 94.6 |
| 45° | 71.3 | 79.9 | 86.6 | 78.3 | 71.7 |
| 47.5° | 52.5 | 58.3 | 62.1 | 57.3 | 51.3 |
| 50° | 36.9 | 41.1 | 42.0 | 40.1 | 35.7 |
| 52.5° | 27.7 | 27.7 | 28.0 | 27.4 | 27.1 |
| 55° | 21.7 | 20.4 | 18.2 | 20.1 | 21.3 |
| 57.5° | 16.9 | 15.6 | 12.7 | 15.0 | 16.6 |
| 60° | 13.1 | 11.8 | 9.2 | 11.5 | 12.7 |
| 62.5° | 10.2 | 8.9 | 7.3 | 8.9 | 9.9 |
| 65° | 7.6 | 7.0 | 5.7 | 6.7 | 7.6 |
| 67.5° | 5.7 | 5.1 | 4.5 | 5.1 | 5.7 |
| 70° | 4.5 | 4.1 | 3.5 | 3.8 | 4.5 |
| 72.5° | 3.2 | 2.9 | 2.9 | 2.9 | 3.2 |
| 75° | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 77.5° | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 80° | 1.0 | 1.0 | 1.3 | 1.3 | 1.3 |
| 82.5° | 0.6 | 0.6 | 1.0 | 1.0 | 1.0 |
| 85° | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 87.5° | 0.3 | 0.3 | 0.3 | 0.6 | 0.6 |
| 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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Scaled Data Report



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