

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: P837387

Luminaire Tested: HCSQ420D010-HM40525935-41SQMW

Issue Date: 5/17/2024



Test Information

Test Method: LM-79-2019
Report Number: P837387
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-3)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 5/17/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO COMMERCIAL
Catalog Number: HCSQ420D010-HM40525935-41SQMW
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, MATTE WHITE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

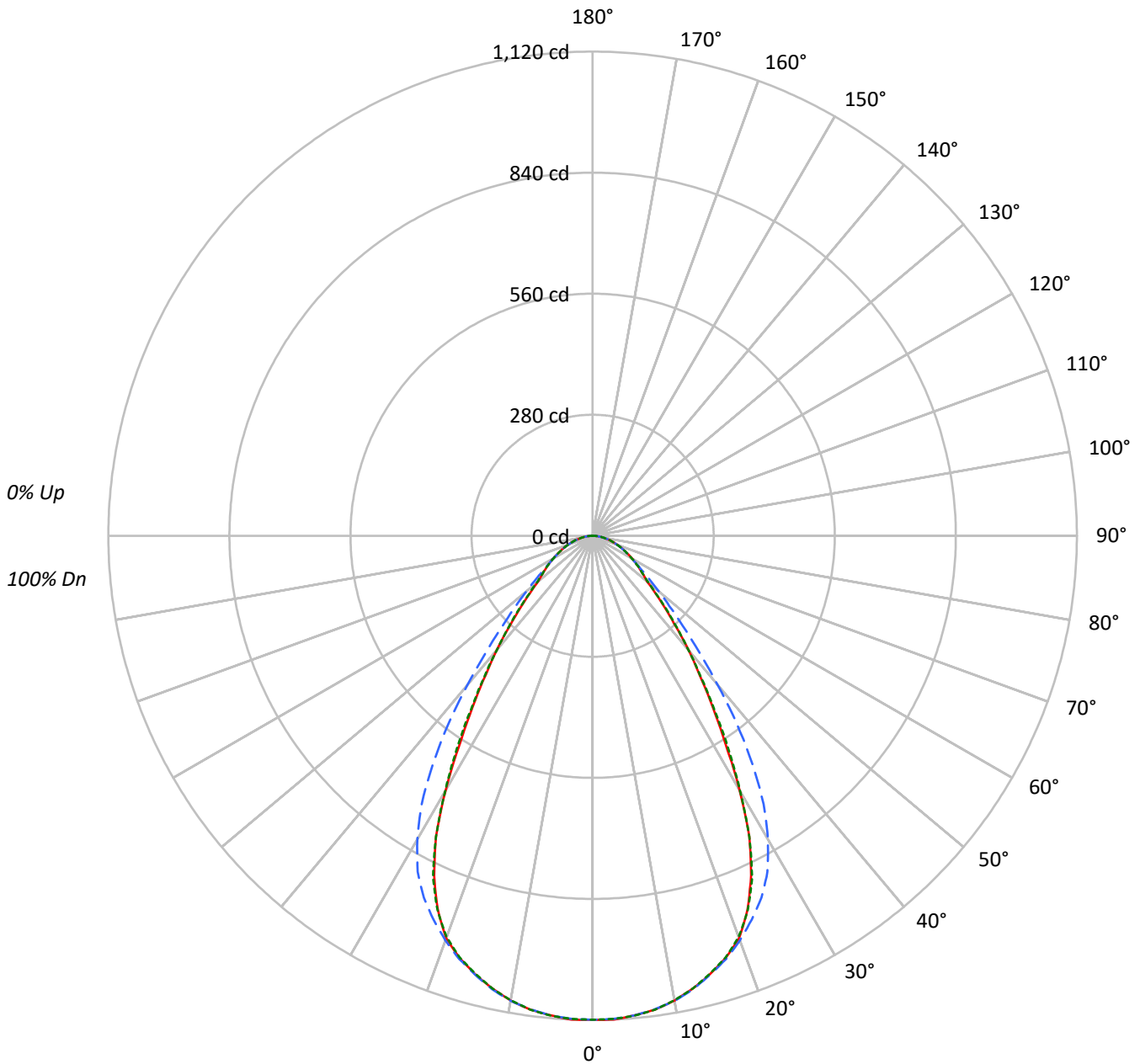
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1624.6 lumens
Efficiency: N/A
Efficacy: 81.2 lumens/watt
Spacing Criteria (0/90/45): 1.03 / 1.03 / 1.07
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 20
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 | | | | | 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 | | | | | | | | |
| 1 | 111 | 108 | 105 | 102 | 109 | 106 | 103 | 100 | 101 | 99 | 97 | 98 | 96 | 94 | 94 | 93 | 91 | 89 | | | | | | | | |
| 2 | 104 | 98 | 92 | 88 | 102 | 96 | 91 | 87 | 92 | 88 | 85 | 89 | 86 | 83 | 86 | 84 | 81 | 79 | | | | | | | | |
| 3 | 97 | 89 | 82 | 77 | 95 | 87 | 81 | 76 | 84 | 79 | 75 | 82 | 78 | 74 | 79 | 76 | 73 | 71 | | | | | | | | |
| 4 | 91 | 81 | 74 | 69 | 89 | 80 | 73 | 68 | 77 | 72 | 67 | 75 | 70 | 66 | 73 | 69 | 66 | 64 | | | | | | | | |
| 5 | 85 | 74 | 67 | 62 | 83 | 73 | 66 | 61 | 71 | 65 | 61 | 70 | 64 | 60 | 68 | 63 | 60 | 58 | | | | | | | | |
| 6 | 79 | 69 | 61 | 56 | 78 | 68 | 61 | 56 | 66 | 60 | 55 | 64 | 59 | 55 | 63 | 58 | 54 | 53 | | | | | | | | |
| 7 | 75 | 63 | 56 | 51 | 73 | 63 | 56 | 51 | 61 | 55 | 50 | 60 | 54 | 50 | 59 | 54 | 50 | 48 | | | | | | | | |
| 8 | 70 | 59 | 52 | 47 | 69 | 58 | 51 | 47 | 57 | 51 | 46 | 56 | 50 | 46 | 55 | 50 | 46 | 44 | | | | | | | | |
| 9 | 66 | 55 | 48 | 43 | 65 | 54 | 48 | 43 | 53 | 47 | 43 | 52 | 47 | 43 | 51 | 46 | 43 | 41 | | | | | | | | |
| 10 | 63 | 51 | 45 | 40 | 62 | 51 | 44 | 40 | 50 | 44 | 40 | 49 | 44 | 40 | 48 | 43 | 40 | 38 | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 108452 | 108452 | 108452 |
| 5° | 108273 | 108273 | 108361 |
| 10° | 107390 | 107469 | 107302 |
| 15° | 105297 | 105388 | 105127 |
| 20° | 102144 | 102680 | 101783 |
| 25° | 92695 | 98745 | 93347 |
| 30° | 76089 | 90687 | 76379 |
| 35° | 57192 | 76126 | 58020 |
| 40° | 43566 | 56756 | 43452 |
| 45° | 32538 | 40279 | 33127 |
| 50° | 24777 | 30022 | 25304 |
| 55° | 22328 | 23510 | 22328 |
| 60° | 20402 | 20228 | 20228 |
| 65° | 18544 | 18544 | 18544 |
| 70° | 17250 | 16995 | 16995 |
| 75° | 15945 | 15646 | 15945 |
| 80° | 14561 | 14059 | 14561 |
| 85° | 12560 | 12560 | 12560 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 40279 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 105.6 | 6.5 |
| 10°-20° | 295.6 | 18.2 |
| 20°-30° | 406.5 | 25.0 |
| 30°-40° | 346.0 | 21.3 |
| 40°-50° | 209.0 | 12.9 |
| 50°-60° | 123.2 | 7.6 |
| 60°-70° | 80.8 | 5.0 |
| 70°-80° | 44.8 | 2.8 |
| 80°-90° | 13.1 | 0.8 |
| 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° | 807.7 | 49.7 |
| 0°-40° | 1153.7 | 71.0 |
| 0°-60° | 1485.9 | 91.5 |
| 0°-90° | 1624.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1624.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1120 | 1120 | 1120 | 1120 | 1120 | |
| 5° | 1113 | 1114 | 1113 | 1112 | 1114 | 106 |
| 15° | 1050 | 1052 | 1051 | 1050 | 1048 | 295 |
| 25° | 867 | 894 | 924 | 896 | 873 | 392 |
| 35° | 484 | 532 | 644 | 547 | 491 | 306 |
| 45° | 238 | 263 | 294 | 265 | 242 | 187 |
| 55° | 132 | 135 | 139 | 135 | 132 | 119 |
| 65° | 81 | 82 | 81 | 81 | 81 | 81 |
| 75° | 43 | 43 | 42 | 42 | 43 | 45 |
| 85° | 11 | 11 | 11 | 11 | 11 | 13 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1119.5 | 1119.5 | 1119.5 | 1119.5 | 1119.5 |
| 2.5° | 1120.4 | 1117.8 | 1118.6 | 1117.8 | 1118.6 |
| 5° | 1113.4 | 1114.3 | 1113.4 | 1112.5 | 1114.3 |
| 7.5° | 1105.6 | 1104.7 | 1104.7 | 1103.8 | 1105.6 |
| 10° | 1091.7 | 1089.9 | 1092.5 | 1090.8 | 1090.8 |
| 12.5° | 1072.5 | 1075.1 | 1074.3 | 1074.3 | 1072.5 |
| 15° | 1049.9 | 1052.5 | 1050.8 | 1049.9 | 1048.2 |
| 17.5° | 1023.8 | 1025.5 | 1026.4 | 1022.9 | 1022.9 |
| 20° | 990.8 | 994.2 | 996.0 | 989.9 | 987.3 |
| 22.5° | 936.0 | 951.6 | 961.2 | 950.7 | 937.7 |
| 25° | 867.2 | 894.2 | 923.8 | 895.9 | 873.3 |
| 27.5° | 784.6 | 822.9 | 875.9 | 829.0 | 784.6 |
| 30° | 680.2 | 736.8 | 810.7 | 742.8 | 682.8 |
| 32.5° | 572.4 | 632.4 | 735.9 | 642.8 | 584.5 |
| 35° | 483.6 | 532.3 | 643.7 | 547.1 | 490.6 |
| 37.5° | 407.1 | 448.8 | 547.1 | 458.4 | 411.4 |
| 40° | 344.5 | 377.5 | 448.8 | 381.9 | 343.6 |
| 42.5° | 284.4 | 315.8 | 363.6 | 320.1 | 287.9 |
| 45° | 237.5 | 262.7 | 294.0 | 265.3 | 241.8 |
| 47.5° | 197.5 | 218.3 | 240.9 | 218.3 | 200.1 |
| 50° | 164.4 | 180.9 | 199.2 | 180.9 | 167.9 |
| 52.5° | 147.0 | 152.2 | 164.4 | 153.1 | 147.0 |
| 55° | 132.2 | 134.8 | 139.2 | 134.8 | 132.2 |
| 57.5° | 118.3 | 120.0 | 119.2 | 119.2 | 118.3 |
| 60° | 105.3 | 106.1 | 104.4 | 105.3 | 104.4 |
| 62.5° | 93.1 | 93.1 | 91.3 | 93.1 | 92.2 |
| 65° | 80.9 | 81.8 | 80.9 | 80.9 | 80.9 |
| 67.5° | 70.5 | 70.5 | 69.6 | 70.5 | 70.5 |
| 70° | 60.9 | 60.9 | 60.0 | 60.9 | 60.0 |
| 72.5° | 51.3 | 51.3 | 50.5 | 50.5 | 50.5 |
| 75° | 42.6 | 42.6 | 41.8 | 41.8 | 42.6 |
| 77.5° | 33.9 | 33.9 | 33.1 | 33.9 | 33.9 |
| 80° | 26.1 | 26.1 | 25.2 | 26.1 | 26.1 |
| 82.5° | 18.3 | 18.3 | 18.3 | 19.1 | 19.1 |
| 85° | 11.3 | 11.3 | 11.3 | 11.3 | 11.3 |
| 87.5° | 5.2 | 5.2 | 5.2 | 5.2 | 6.1 |
| 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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