

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: P837274

Luminaire Tested: HCSQ410D010-HM40525827-41SQH

Issue Date: 5/17/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P837274  
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: HCSQ410D010-HM40525827-41SQH  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT  
Ballast/Driver: -

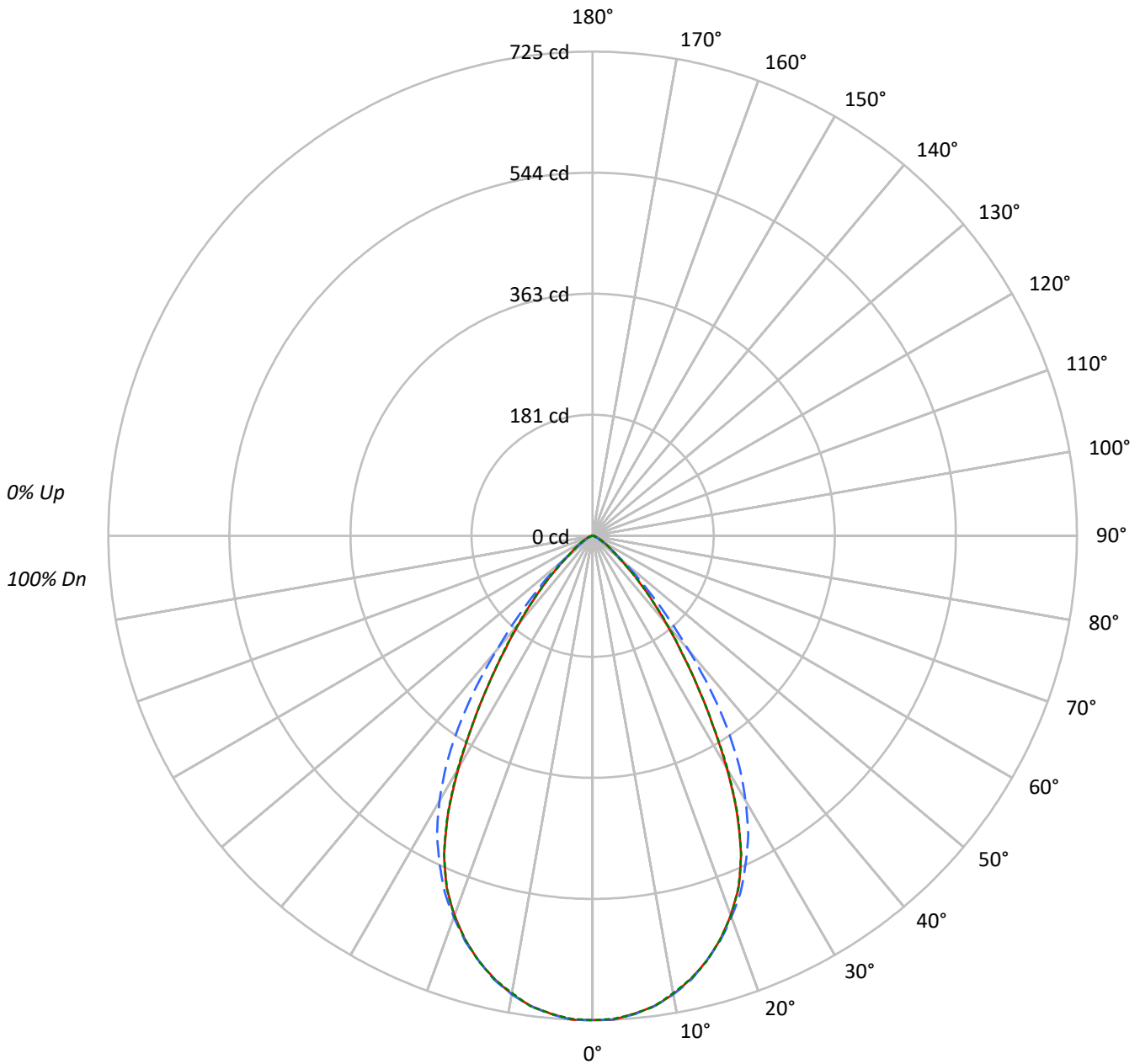
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 815.3 lumens  
Efficiency: N/A  
Efficacy: 82.4 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): 9.9  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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   | 113 | 110 | 107 | 105 | 110 | 108 | 105 | 103 | 104 | 102 | 100 | 100 | 98  | 97  | 96  | 95  | 94  | 92  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 107 | 101 | 97  | 93  | 104 | 100 | 95  | 92  | 96  | 93  | 90  | 93  | 90  | 88  | 90  | 88  | 86  | 85  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 101 | 93  | 88  | 84  | 98  | 92  | 87  | 83  | 89  | 85  | 82  | 87  | 83  | 80  | 85  | 82  | 79  | 77  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 95  | 87  | 80  | 76  | 93  | 85  | 80  | 75  | 83  | 78  | 74  | 81  | 77  | 74  | 79  | 76  | 73  | 71  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 89  | 80  | 74  | 69  | 88  | 79  | 73  | 69  | 77  | 72  | 68  | 76  | 71  | 68  | 74  | 70  | 67  | 65  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 84  | 75  | 68  | 63  | 83  | 74  | 68  | 63  | 72  | 67  | 63  | 71  | 66  | 62  | 69  | 65  | 62  | 60  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 80  | 70  | 63  | 59  | 78  | 69  | 63  | 58  | 68  | 62  | 58  | 66  | 61  | 58  | 65  | 61  | 57  | 56  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 75  | 65  | 59  | 54  | 74  | 65  | 58  | 54  | 63  | 58  | 54  | 62  | 57  | 54  | 61  | 57  | 53  | 52  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 72  | 61  | 55  | 50  | 70  | 61  | 54  | 50  | 60  | 54  | 50  | 59  | 54  | 50  | 58  | 53  | 50  | 48  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 68  | 57  | 51  | 47  | 67  | 57  | 51  | 47  | 56  | 51  | 47  | 55  | 50  | 47  | 55  | 50  | 46  | 45  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 70264 | 70264 | 70264 |
| 5°  | 69842 | 69929 | 69842 |
| 10° | 68534 | 68574 | 68397 |
| 15° | 66093 | 66053 | 66143 |
| 20° | 62309 | 62629 | 62443 |
| 25° | 56224 | 57945 | 56224 |
| 30° | 44901 | 51266 | 45259 |
| 35° | 32049 | 41487 | 32108 |
| 40° | 21638 | 28214 | 21979 |
| 45° | 13755 | 16701 | 13810 |
| 50° | 7837  | 8907  | 7566  |
| 55° | 5151  | 4307  | 5067  |
| 60° | 3565  | 2519  | 3468  |
| 65° | 2476  | 1857  | 2476  |
| 70° | 1784  | 1388  | 1784  |
| 75° | 1160  | 1160  | 1160  |
| 80° | 725   | 1004  | 1004  |
| 85° | 1000  | 1000  | 1000  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 16701 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 68.0   | 8.3       |
| 10°-20°   | 184.8  | 22.7      |
| 20°-30°   | 241.9  | 29.7      |
| 30°-40°   | 190.1  | 23.3      |
| 40°-50°   | 88.8   | 10.9      |
| 50°-60°   | 27.5   | 3.4       |
| 60°-70°   | 9.8    | 1.2       |
| 70°-80°   | 3.4    | 0.4       |
| 80°-90°   | 0.9    | 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°    | 494.6  | 60.7      |
| 0°-40°    | 684.8  | 84.0      |
| 0°-60°    | 801.1  | 98.3      |
| 0°-90°    | 815.3  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 815.3  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 725 | 725   | 725 | 725   | 725 |      |
| 5°  | 718 | 719   | 719 | 720   | 718 | 68   |
| 15° | 659 | 659   | 659 | 659   | 660 | 185  |
| 25° | 526 | 533   | 542 | 534   | 526 | 237  |
| 35° | 271 | 296   | 351 | 299   | 272 | 171  |
| 45° | 100 | 112   | 122 | 110   | 101 | 80   |
| 55° | 30  | 29    | 26  | 28    | 30  | 29   |
| 65° | 11  | 10    | 8   | 9     | 11  | 11   |
| 75° | 3   | 3     | 3   | 3     | 3   | 4    |
| 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°    | 725.3 | 725.3 | 725.3 | 725.3 | 725.3 |
| 2.5°  | 725.3 | 724.4 | 724.9 | 724.0 | 724.0 |
| 5°    | 718.2 | 718.6 | 719.1 | 720.0 | 718.2 |
| 7.5°  | 710.1 | 711.0 | 710.5 | 710.5 | 710.5 |
| 10°   | 696.7 | 697.1 | 697.1 | 697.1 | 695.3 |
| 12.5° | 679.6 | 680.5 | 681.0 | 679.6 | 679.6 |
| 15°   | 659.0 | 659.0 | 658.6 | 659.0 | 659.5 |
| 17.5° | 634.4 | 635.7 | 635.7 | 634.4 | 633.9 |
| 20°   | 604.4 | 606.6 | 607.5 | 605.7 | 605.7 |
| 22.5° | 570.8 | 573.0 | 578.4 | 573.9 | 570.3 |
| 25°   | 526.0 | 533.1 | 542.1 | 533.6 | 526.0 |
| 27.5° | 468.2 | 483.9 | 504.5 | 486.5 | 469.5 |
| 30°   | 401.4 | 427.0 | 458.3 | 428.3 | 404.6 |
| 32.5° | 333.3 | 362.0 | 408.1 | 364.2 | 333.3 |
| 35°   | 271.0 | 295.7 | 350.8 | 299.3 | 271.5 |
| 37.5° | 215.5 | 239.2 | 287.6 | 241.9 | 218.6 |
| 40°   | 171.1 | 190.4 | 223.1 | 190.0 | 173.8 |
| 42.5° | 133.5 | 147.4 | 168.9 | 146.9 | 133.1 |
| 45°   | 100.4 | 112.5 | 121.9 | 110.2 | 100.8 |
| 47.5° | 73.9  | 82.0  | 87.4  | 80.6  | 72.1  |
| 50°   | 52.0  | 57.8  | 59.1  | 56.4  | 50.2  |
| 52.5° | 39.0  | 39.0  | 39.4  | 38.5  | 38.1  |
| 55°   | 30.5  | 28.7  | 25.5  | 28.2  | 30.0  |
| 57.5° | 23.7  | 22.0  | 17.9  | 21.1  | 23.3  |
| 60°   | 18.4  | 16.6  | 13.0  | 16.1  | 17.9  |
| 62.5° | 14.3  | 12.5  | 10.3  | 12.5  | 13.9  |
| 65°   | 10.8  | 9.9   | 8.1   | 9.4   | 10.8  |
| 67.5° | 8.1   | 7.2   | 6.3   | 7.2   | 8.1   |
| 70°   | 6.3   | 5.8   | 4.9   | 5.4   | 6.3   |
| 72.5° | 4.5   | 4.0   | 4.0   | 4.0   | 4.5   |
| 75°   | 3.1   | 3.1   | 3.1   | 3.1   | 3.1   |
| 77.5° | 2.2   | 2.2   | 2.2   | 2.2   | 2.2   |
| 80°   | 1.3   | 1.3   | 1.8   | 1.8   | 1.8   |
| 82.5° | 0.9   | 0.9   | 1.3   | 1.3   | 1.3   |
| 85°   | 0.9   | 0.9   | 0.9   | 0.9   | 0.9   |
| 87.5° | 0.4   | 0.4   | 0.4   | 0.9   | 0.9   |
| 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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