

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: P837270

Luminaire Tested: HCSQ407D010-HM40525940-41SQLWW

Issue Date: 5/17/2024



**Test Information**

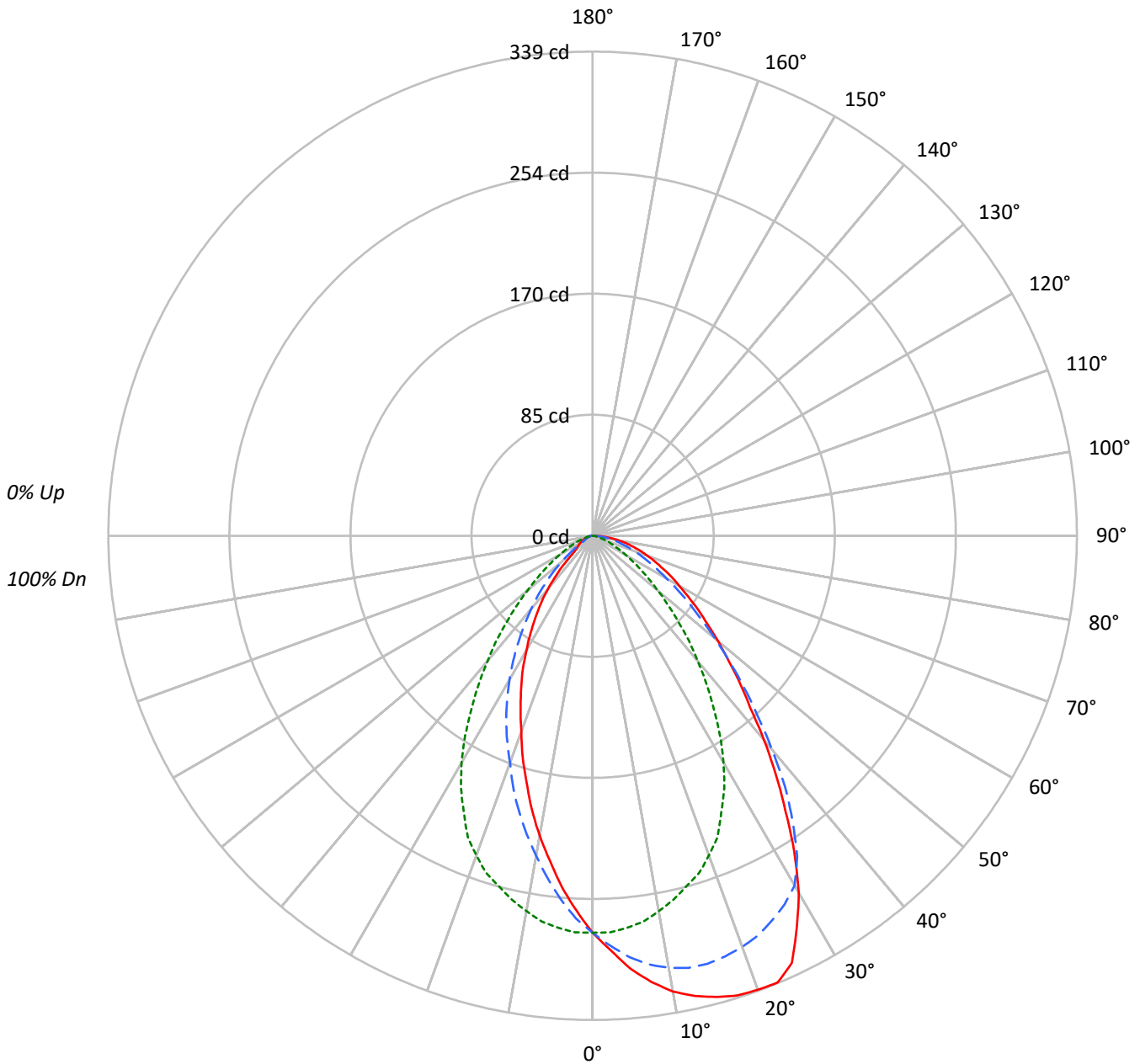
Test Method: LM-79-2019  
Report Number: P837270  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2309-165-5)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 5/17/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCSQ407D010-HM40525940-41SQLWW  
Description: HALO COMMERCIAL 4" SQUARE, NEW CONSTRUCTION FRAME, LENSED WALLWASH TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 449.6 lumens  
Efficiency: N/A  
Efficacy: 56.2 lumens/watt  
Spacing Criteria (0/90/45): 1.07 / 1.04 / 1.12  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 8  
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  |     |     |    |    | 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 | 107 | 104 | 101 | 109 | 105 | 102 | 99  | 101 | 99  | 96  | 97  | 95  | 93  | 94  | 92  | 91  | 89  |    |    |    |  |  |  |  |   |
| 2   | 103 | 97  | 91  | 87  | 101 | 95  | 90  | 86  | 92  | 87  | 84  | 88  | 85  | 82  | 86  | 83  | 80  | 78  |    |    |    |  |  |  |  |   |
| 3   | 96  | 87  | 81  | 76  | 94  | 86  | 80  | 75  | 83  | 78  | 74  | 81  | 76  | 72  | 78  | 74  | 71  | 69  |    |    |    |  |  |  |  |   |
| 4   | 89  | 79  | 72  | 67  | 87  | 78  | 71  | 66  | 76  | 70  | 65  | 74  | 69  | 64  | 72  | 67  | 64  | 62  |    |    |    |  |  |  |  |   |
| 5   | 83  | 72  | 65  | 59  | 81  | 71  | 64  | 59  | 69  | 63  | 58  | 68  | 62  | 58  | 66  | 61  | 57  | 55  |    |    |    |  |  |  |  |   |
| 6   | 78  | 66  | 59  | 53  | 76  | 66  | 58  | 53  | 64  | 57  | 53  | 62  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    |  |  |  |  |   |
| 7   | 73  | 61  | 54  | 48  | 71  | 60  | 53  | 48  | 59  | 53  | 48  | 58  | 52  | 48  | 56  | 51  | 47  | 45  |    |    |    |  |  |  |  |   |
| 8   | 68  | 57  | 49  | 44  | 67  | 56  | 49  | 44  | 55  | 48  | 44  | 54  | 48  | 43  | 52  | 47  | 43  | 42  |    |    |    |  |  |  |  |   |
| 9   | 64  | 53  | 45  | 40  | 63  | 52  | 45  | 40  | 51  | 45  | 40  | 50  | 44  | 40  | 49  | 44  | 40  | 38  |    |    |    |  |  |  |  |   |
| 10  | 61  | 49  | 42  | 37  | 60  | 48  | 42  | 37  | 48  | 41  | 37  | 47  | 41  | 37  | 46  | 41  | 37  | 35  |    |    |    |  |  |  |  |   |

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

|     | 0°    | 45°   | 90°   | 135°  | 180°  |
|-----|-------|-------|-------|-------|-------|
| 0°  | 26922 | 26922 | 26922 | 26922 | 26922 |
| 5°  | 29592 | 28794 | 26801 | 24846 | 24000 |
| 10° | 31872 | 30209 | 26255 | 22379 | 20982 |
| 15° | 33528 | 31121 | 25464 | 20008 | 17912 |
| 20° | 34866 | 31577 | 24546 | 17433 | 15041 |
| 25° | 35274 | 31768 | 22800 | 15296 | 12645 |
| 30° | 32283 | 31623 | 20504 | 13010 | 10358 |
| 35° | 27827 | 28856 | 17479 | 10679 | 8207  |
| 40° | 23585 | 24673 | 14455 | 8422  | 6133  |
| 45° | 19989 | 20468 | 11563 | 6261  | 3946  |
| 50° | 17226 | 16819 | 8967  | 4220  | 2381  |
| 55° | 15184 | 13850 | 6857  | 2331  | 2128  |
| 60° | 13524 | 11606 | 5115  | 1298  | 1918  |
| 65° | 12378 | 9948  | 3805  | 1169  | 1719  |
| 70° | 11500 | 8611  | 2804  | 1105  | 1671  |
| 75° | 10780 | 7523  | 1909  | 1048  | 1460  |
| 80° | 10321 | 6583  | 1339  | 1116  | 1339  |
| 85° | 10115 | 5669  | 889   | 889   | 889   |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 45°  
 Luminance: 20797 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 26.1   | 5.8       |
| 10°-20°   | 71.8   | 16.0      |
| 20°-30°   | 100.3  | 22.3      |
| 30°-40°   | 98.1   | 21.8      |
| 40°-50°   | 71.2   | 15.8      |
| 50°-60°   | 42.9   | 9.5       |
| 60°-70°   | 24.1   | 5.4       |
| 70°-80°   | 11.9   | 2.7       |
| 80°-90°   | 3.3    | 0.7       |
| 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°    | 198.1  | 44.1      |
| 0°-40°    | 296.2  | 65.9      |
| 0°-60°    | 410.2  | 91.3      |
| 0°-90°    | 449.6  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 449.6  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0°  | 278 | 278 | 278 | 278  | 278  |      |
| 5°  | 304 | 296 | 276 | 256  | 247  | 30   |
| 15° | 334 | 310 | 254 | 200  | 179  | 95   |
| 25° | 330 | 297 | 213 | 143  | 118  | 149  |
| 35° | 235 | 244 | 148 | 90   | 69   | 147  |
| 45° | 146 | 149 | 84  | 46   | 29   | 113  |
| 55° | 90  | 82  | 41  | 14   | 13   | 81   |
| 65° | 54  | 43  | 17  | 5    | 8    | 54   |
| 75° | 29  | 20  | 5   | 3    | 4    | 31   |
| 85° | 9   | 5   | 1   | 1    | 1    | 10   |
| 90° | 0   | 0   | 0   | 0    | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   | 112.5° | 135°  | 157.5° | 180°  |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0°    | 277.9 | 277.9 | 277.9 | 277.9 | 277.9 | 277.9  | 277.9 | 277.9  | 277.9 |
| 2.5°  | 290.5 | 289.8 | 287.4 | 282.7 | 277.9 | 272.4  | 268.1 | 264.9  | 262.5 |
| 5°    | 304.3 | 302.8 | 296.1 | 286.2 | 275.6 | 264.9  | 255.5 | 249.9  | 246.8 |
| 7.5°  | 315.0 | 312.2 | 302.8 | 289.0 | 272.4 | 256.2  | 241.7 | 233.0  | 229.4 |
| 10°   | 324.0 | 319.3 | 307.1 | 288.6 | 266.9 | 245.6  | 227.5 | 217.2  | 213.3 |
| 12.5° | 330.0 | 324.8 | 309.9 | 288.2 | 261.0 | 235.0  | 213.7 | 200.3  | 196.3 |
| 15°   | 334.3 | 328.0 | 310.3 | 285.0 | 253.9 | 223.9  | 199.5 | 183.7  | 178.6 |
| 17.5° | 337.5 | 328.8 | 308.7 | 281.5 | 247.6 | 212.5  | 184.9 | 167.9  | 162.8 |
| 20°   | 338.2 | 328.8 | 306.3 | 276.3 | 238.1 | 201.1  | 169.1 | 152.2  | 145.9 |
| 22.5° | 338.6 | 327.6 | 302.8 | 270.0 | 228.3 | 188.0  | 156.1 | 138.4  | 131.7 |
| 25°   | 330.0 | 323.7 | 297.2 | 259.4 | 213.3 | 173.9  | 143.1 | 123.8  | 118.3 |
| 27.5° | 309.5 | 309.1 | 290.9 | 245.2 | 199.5 | 158.5  | 129.7 | 111.2  | 106.0 |
| 30°   | 288.6 | 289.0 | 282.7 | 229.4 | 183.3 | 143.9  | 116.3 | 98.2   | 92.6  |
| 32.5° | 262.9 | 266.9 | 266.5 | 211.7 | 166.0 | 130.1  | 103.3 | 86.3   | 80.8  |
| 35°   | 235.3 | 242.4 | 244.0 | 191.6 | 147.8 | 114.3  | 90.3  | 74.9   | 69.4  |
| 37.5° | 210.5 | 217.6 | 221.2 | 173.9 | 130.9 | 100.5  | 78.1  | 64.7   | 59.1  |
| 40°   | 186.5 | 192.4 | 195.1 | 153.4 | 114.3 | 86.3   | 66.6  | 54.0   | 48.5  |
| 42.5° | 163.2 | 171.9 | 171.1 | 136.0 | 99.7  | 74.9   | 56.4  | 43.8   | 38.2  |
| 45°   | 145.9 | 151.8 | 149.4 | 117.9 | 84.4  | 63.1   | 45.7  | 33.9   | 28.8  |
| 47.5° | 128.5 | 132.9 | 129.3 | 102.5 | 71.4  | 52.0   | 37.1  | 24.8   | 19.3  |
| 50°   | 114.3 | 116.3 | 111.6 | 87.1  | 59.5  | 42.6   | 28.0  | 16.6   | 15.8  |
| 52.5° | 100.9 | 102.1 | 95.4  | 74.1  | 49.3  | 34.3   | 20.5  | 13.0   | 13.8  |
| 55°   | 89.9  | 89.5  | 82.0  | 62.7  | 40.6  | 26.4   | 13.8  | 11.8   | 12.6  |
| 57.5° | 79.2  | 78.1  | 70.6  | 52.0  | 33.1  | 20.5   | 8.3   | 10.2   | 11.0  |
| 60°   | 69.8  | 68.6  | 59.9  | 43.0  | 26.4  | 15.4   | 6.7   | 9.1    | 9.9   |
| 62.5° | 62.3  | 59.5  | 50.9  | 35.5  | 21.3  | 11.0   | 5.9   | 7.9    | 8.7   |
| 65°   | 54.0  | 51.6  | 43.4  | 28.8  | 16.6  | 7.9    | 5.1   | 6.7    | 7.5   |
| 67.5° | 47.3  | 44.5  | 36.7  | 23.7  | 13.4  | 5.5    | 4.7   | 5.9    | 6.7   |
| 70°   | 40.6  | 38.2  | 30.4  | 18.9  | 9.9   | 3.5    | 3.9   | 5.1    | 5.9   |
| 72.5° | 35.1  | 32.3  | 25.2  | 15.0  | 7.5   | 2.8    | 3.5   | 4.3    | 4.7   |
| 75°   | 28.8  | 26.4  | 20.1  | 11.4  | 5.1   | 2.4    | 2.8   | 3.5    | 3.9   |
| 77.5° | 24.0  | 21.7  | 15.8  | 8.7   | 3.5   | 2.0    | 2.4   | 3.2    | 3.2   |
| 80°   | 18.5  | 16.6  | 11.8  | 5.9   | 2.4   | 1.2    | 2.0   | 2.4    | 2.4   |
| 82.5° | 13.4  | 11.8  | 8.3   | 3.9   | 1.2   | 1.2    | 1.2   | 1.6    | 1.6   |
| 85°   | 9.1   | 7.9   | 5.1   | 2.4   | 0.8   | 0.8    | 0.8   | 0.8    | 0.8   |
| 87.5° | 5.1   | 3.9   | 2.4   | 0.8   | 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°

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Scaled Data Report



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Scaled Data Report



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