

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO COMMERCIAL

Report Number: P580861

Luminaire Tested: **HC450D010-HM44560830-41WDW**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P580861  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-9)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/9/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC450D010-HM44560830-41WDW  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WIDE DISTRIBUTION, WHITE TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4660.2 lumens  
Efficiency: N/A  
Efficacy: 97.1 lumens/watt  
Spacing Criteria (0/90/45): 1.06 / 1.07 / 1.04  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

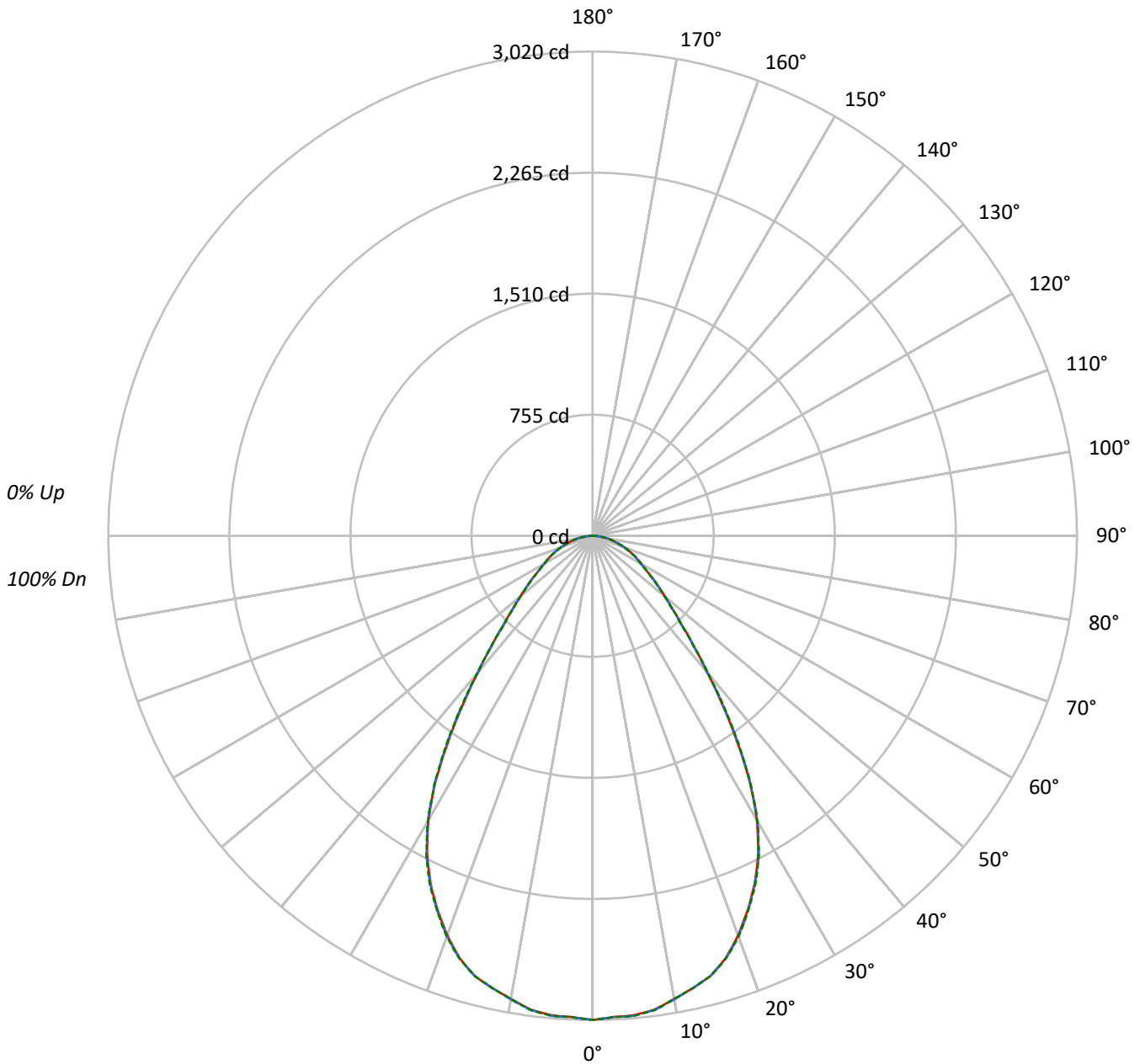
Input Watts (W): 48  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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   | 111 | 107 | 104 | 101 | 108 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 94  | 92  | 90  | 89  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 103 | 97  | 91  | 87  | 101 | 95  | 90  | 86  | 91  | 87  | 84  | 88  | 85  | 82  | 85  | 83  | 80  | 78  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 96  | 87  | 81  | 76  | 94  | 86  | 80  | 75  | 83  | 78  | 74  | 81  | 76  | 72  | 78  | 74  | 71  | 69  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 90  | 80  | 72  | 67  | 87  | 78  | 72  | 66  | 76  | 70  | 66  | 74  | 69  | 65  | 72  | 68  | 64  | 62  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 84  | 73  | 65  | 60  | 82  | 72  | 65  | 59  | 70  | 64  | 59  | 68  | 63  | 58  | 66  | 62  | 58  | 56  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 78  | 67  | 59  | 54  | 77  | 66  | 59  | 54  | 64  | 58  | 53  | 63  | 57  | 53  | 61  | 56  | 53  | 51  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 73  | 62  | 54  | 49  | 72  | 61  | 54  | 49  | 60  | 53  | 49  | 58  | 53  | 48  | 57  | 52  | 48  | 46  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 69  | 57  | 50  | 45  | 68  | 57  | 50  | 45  | 55  | 49  | 45  | 54  | 49  | 44  | 53  | 48  | 44  | 42  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 65  | 53  | 46  | 41  | 64  | 53  | 46  | 41  | 52  | 45  | 41  | 51  | 45  | 41  | 50  | 45  | 41  | 39  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 61  | 50  | 43  | 38  | 60  | 49  | 43  | 38  | 48  | 42  | 38  | 48  | 42  | 38  | 47  | 42  | 38  | 36  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°     | 45°    | 90°    |
|-----|--------|--------|--------|
| 0°  | 372553 | 372553 | 372553 |
| 5°  | 371648 | 372045 | 372045 |
| 10° | 367341 | 367729 | 367341 |
| 15° | 362940 | 362940 | 362940 |
| 20° | 348040 | 348854 | 349274 |
| 25° | 325544 | 325966 | 326809 |
| 30° | 291705 | 292588 | 292588 |
| 35° | 236813 | 238695 | 239177 |
| 40° | 178728 | 179742 | 180242 |
| 45° | 136916 | 136357 | 136357 |
| 50° | 112794 | 112199 | 112199 |
| 55° | 96814  | 96147  | 96147  |
| 60° | 86367  | 85602  | 85602  |
| 65° | 81225  | 81225  | 81225  |
| 70° | 75518  | 75518  | 75518  |
| 75° | 68531  | 70056  | 68531  |
| 80° | 64426  | 62224  | 64426  |
| 85° | 53071  | 53071  | 53071  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 284.6  | 6.1       |
| 10°-20°   | 796.4  | 17.1      |
| 20°-30°   | 1094.3 | 23.5      |
| 30°-40°   | 984.0  | 21.1      |
| 40°-50°   | 621.7  | 13.3      |
| 50°-60°   | 405.9  | 8.7       |
| 60°-70°   | 275.0  | 5.9       |
| 70°-80°   | 154.8  | 3.3       |
| 80°-90°   | 43.5   | 0.9       |
| 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°    | 2175.3 | 46.7      |
| 0°-40°    | 3159.3 | 67.8      |
| 0°-60°    | 4186.9 | 89.8      |
| 0°-90°    | 4660.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4660.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3020 | 3020  | 3020 | 3020  | 3020 |      |
| 5°  | 3002 | 3002  | 3005 | 3005  | 3005 | 284  |
| 15° | 2842 | 2842  | 2842 | 2842  | 2842 | 796  |
| 25° | 2392 | 2395  | 2395 | 2401  | 2401 | 1092 |
| 35° | 1573 | 1579  | 1585 | 1592  | 1588 | 979  |
| 45° | 785  | 782   | 782  | 782   | 782  | 623  |
| 55° | 450  | 450   | 447  | 450   | 447  | 407  |
| 65° | 278  | 278   | 278  | 278   | 278  | 276  |
| 75° | 144  | 147   | 147  | 147   | 144  | 154  |
| 85° | 38   | 38    | 38   | 38    | 38   | 44   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3020.4 | 3020.4 | 3020.4 | 3020.4 | 3020.4 |
| 2.5°  | 3004.8 | 3004.8 | 3004.8 | 3004.8 | 3004.8 |
| 5°    | 3001.6 | 3001.6 | 3004.8 | 3004.8 | 3004.8 |
| 7.5°  | 2979.8 | 2982.9 | 2982.9 | 2982.9 | 2982.9 |
| 10°   | 2932.9 | 2932.9 | 2936.0 | 2936.0 | 2932.9 |
| 12.5° | 2889.2 | 2889.2 | 2889.2 | 2892.3 | 2889.2 |
| 15°   | 2842.2 | 2842.2 | 2842.2 | 2842.2 | 2842.2 |
| 17.5° | 2761.0 | 2764.1 | 2764.1 | 2764.1 | 2764.1 |
| 20°   | 2651.5 | 2657.7 | 2657.7 | 2660.9 | 2660.9 |
| 22.5° | 2526.4 | 2529.5 | 2532.7 | 2535.8 | 2532.7 |
| 25°   | 2392.0 | 2395.1 | 2395.1 | 2401.3 | 2401.3 |
| 27.5° | 2235.6 | 2238.8 | 2245.0 | 2245.0 | 2245.0 |
| 30°   | 2048.1 | 2051.2 | 2054.3 | 2054.3 | 2054.3 |
| 32.5° | 1826.0 | 1826.0 | 1832.3 | 1835.4 | 1832.3 |
| 35°   | 1572.7 | 1579.0 | 1585.2 | 1591.5 | 1588.4 |
| 37.5° | 1331.9 | 1338.3 | 1341.4 | 1341.4 | 1344.5 |
| 40°   | 1110.0 | 1116.3 | 1116.3 | 1122.5 | 1119.4 |
| 42.5° | 934.9  | 931.8  | 931.8  | 938.1  | 934.9  |
| 45°   | 784.9  | 781.7  | 781.7  | 781.7  | 781.7  |
| 47.5° | 675.4  | 672.3  | 672.3  | 672.3  | 672.3  |
| 50°   | 587.8  | 584.7  | 584.7  | 584.7  | 584.7  |
| 52.5° | 515.9  | 512.8  | 512.8  | 512.8  | 509.7  |
| 55°   | 450.2  | 450.2  | 447.1  | 450.2  | 447.1  |
| 57.5° | 390.9  | 390.9  | 390.9  | 390.9  | 390.9  |
| 60°   | 350.1  | 347.0  | 347.0  | 347.0  | 347.0  |
| 62.5° | 312.7  | 312.7  | 312.7  | 312.7  | 312.7  |
| 65°   | 278.3  | 278.3  | 278.3  | 278.3  | 278.3  |
| 67.5° | 243.9  | 240.8  | 243.9  | 243.9  | 240.8  |
| 70°   | 209.4  | 206.3  | 209.4  | 209.4  | 209.4  |
| 72.5° | 175.1  | 175.1  | 175.1  | 178.2  | 175.1  |
| 75°   | 143.8  | 147.0  | 147.0  | 147.0  | 143.8  |
| 77.5° | 115.7  | 118.8  | 115.7  | 115.7  | 115.7  |
| 80°   | 90.7   | 87.6   | 87.6   | 87.6   | 90.7   |
| 82.5° | 62.5   | 62.5   | 62.5   | 62.5   | 62.5   |
| 85°   | 37.5   | 37.5   | 37.5   | 37.5   | 37.5   |
| 87.5° | 15.6   | 15.6   | 15.6   | 15.6   | 15.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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







(END OF REPORT)