

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: P580664

Luminaire Tested: **HC440D010-HM43040935-41RWWC**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P580664  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-14)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 9/9/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC440D010-HM43040935-41RWWC  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, SPECULAR TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3747.7 lumens  
Efficiency: N/A  
Efficacy: 91.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.15 / 1.21  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

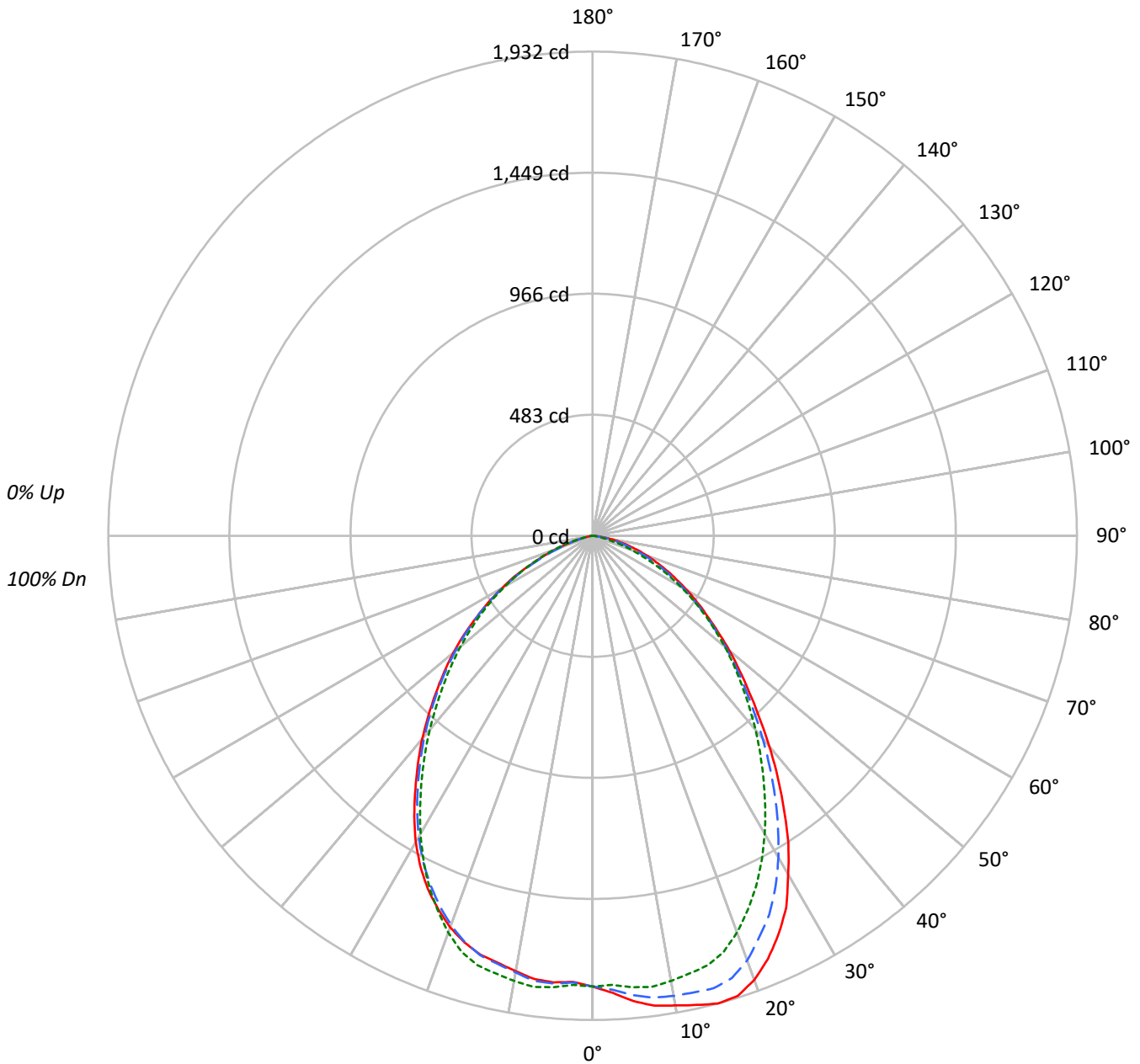
Input Watts (W): 41  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |     | 20  |     |     |     | 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   | 111 | 107 | 103 | 100 | 108 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 93  | 92  | 90  | 88  | 88  | 88  | 88  |
| 2   | 102 | 95  | 90  | 85  | 100 | 94  | 88  | 84  | 90  | 86  | 82  | 87  | 83  | 80  | 84  | 81  | 78  | 76  | 76  | 76  | 76  |
| 3   | 95  | 85  | 78  | 73  | 92  | 84  | 77  | 72  | 81  | 75  | 71  | 78  | 74  | 70  | 76  | 72  | 69  | 67  | 67  | 67  | 67  |
| 4   | 87  | 77  | 69  | 63  | 85  | 76  | 68  | 63  | 73  | 67  | 62  | 71  | 66  | 61  | 69  | 64  | 60  | 58  | 58  | 58  | 58  |
| 5   | 81  | 70  | 61  | 56  | 79  | 68  | 61  | 55  | 66  | 60  | 55  | 65  | 59  | 54  | 63  | 58  | 54  | 52  | 52  | 52  | 52  |
| 6   | 75  | 63  | 55  | 49  | 74  | 62  | 55  | 49  | 61  | 54  | 49  | 59  | 53  | 48  | 58  | 52  | 48  | 46  | 46  | 46  | 46  |
| 7   | 70  | 58  | 50  | 44  | 69  | 57  | 49  | 44  | 56  | 49  | 44  | 54  | 48  | 44  | 53  | 47  | 43  | 41  | 41  | 41  | 41  |
| 8   | 66  | 53  | 45  | 40  | 64  | 53  | 45  | 40  | 51  | 44  | 40  | 50  | 44  | 39  | 49  | 43  | 39  | 37  | 37  | 37  | 37  |
| 9   | 62  | 49  | 42  | 36  | 60  | 49  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 36  | 45  | 40  | 36  | 34  | 34  | 34  | 34  |
| 10  | 58  | 46  | 38  | 33  | 57  | 45  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 42  | 37  | 33  | 31  | 31  | 31  | 31  |

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

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 221825 | 221825 | 221825 |
| 5°  | 230807 | 223886 | 221483 |
| 10° | 238348 | 225873 | 221001 |
| 15° | 246736 | 226547 | 220967 |
| 20° | 247560 | 221071 | 218196 |
| 25° | 238809 | 210038 | 211685 |
| 30° | 222229 | 195567 | 201107 |
| 35° | 200177 | 178961 | 185541 |
| 40° | 176490 | 162787 | 170226 |
| 45° | 154324 | 146684 | 153888 |
| 50° | 136646 | 131964 | 138987 |
| 55° | 120190 | 116555 | 121265 |
| 60° | 107335 | 99515  | 102525 |
| 65° | 94329  | 80875  | 79444  |
| 70° | 82406  | 59577  | 54348  |
| 75° | 68340  | 35886  | 28976  |
| 80° | 51782  | 13780  | 8595   |
| 85° | 24059  | 3538   | 3538   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 173.5  | 4.6       |
| 10°-20°   | 506.2  | 13.5      |
| 20°-30°   | 733.1  | 19.6      |
| 30°-40°   | 773.5  | 20.6      |
| 40°-50°   | 669.4  | 17.9      |
| 50°-60°   | 495.9  | 13.2      |
| 60°-70°   | 285.8  | 7.6       |
| 70°-80°   | 99.8   | 2.7       |
| 80°-90°   | 10.5   | 0.3       |
| 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°    | 1412.8 | 37.7      |
| 0°-40°    | 2186.3 | 58.3      |
| 0°-60°    | 3351.5 | 89.4      |
| 0°-90°    | 3747.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3747.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90°  | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0°  | 1798 | 1798 | 1798 | 1798 | 1798 |      |
| 5°  | 1864 | 1840 | 1808 | 1794 | 1789 | 179  |
| 15° | 1932 | 1869 | 1774 | 1733 | 1730 | 543  |
| 25° | 1755 | 1667 | 1543 | 1534 | 1555 | 803  |
| 35° | 1329 | 1269 | 1188 | 1215 | 1232 | 830  |
| 45° | 885  | 860  | 841  | 872  | 882  | 687  |
| 55° | 559  | 547  | 542  | 561  | 564  | 504  |
| 65° | 323  | 304  | 277  | 262  | 272  | 323  |
| 75° | 143  | 122  | 75   | 61   | 61   | 154  |
| 85° | 17   | 10   | 2    | 2    | 2    | 26   |
| 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°    | 1798.4 | 1798.4 | 1798.4 | 1798.4 | 1798.4 | 1798.4 | 1798.4 | 1798.4 | 1798.4 |
| 2.5°  | 1825.2 | 1820.3 | 1813.0 | 1803.4 | 1793.6 | 1786.3 | 1783.8 | 1781.5 | 1781.5 |
| 5°    | 1864.1 | 1854.4 | 1839.8 | 1820.3 | 1808.2 | 1800.9 | 1793.6 | 1788.8 | 1788.8 |
| 7.5°  | 1890.8 | 1881.0 | 1859.2 | 1832.5 | 1815.5 | 1800.9 | 1791.1 | 1783.8 | 1783.8 |
| 10°   | 1903.0 | 1890.8 | 1864.1 | 1830.0 | 1803.4 | 1783.8 | 1769.3 | 1764.5 | 1764.5 |
| 12.5° | 1917.6 | 1903.0 | 1866.5 | 1822.7 | 1788.8 | 1764.5 | 1749.9 | 1744.9 | 1744.9 |
| 15°   | 1932.2 | 1915.1 | 1868.9 | 1817.9 | 1774.1 | 1744.9 | 1732.8 | 1730.4 | 1730.4 |
| 17.5° | 1924.9 | 1903.0 | 1849.5 | 1788.8 | 1740.1 | 1711.0 | 1698.8 | 1698.8 | 1701.2 |
| 20°   | 1886.0 | 1864.1 | 1803.4 | 1735.3 | 1684.2 | 1662.3 | 1652.6 | 1657.5 | 1662.3 |
| 22.5° | 1827.6 | 1800.9 | 1735.3 | 1669.6 | 1616.1 | 1596.8 | 1596.8 | 1604.0 | 1611.3 |
| 25°   | 1754.7 | 1730.4 | 1667.3 | 1594.3 | 1543.3 | 1528.7 | 1533.5 | 1545.7 | 1555.4 |
| 27.5° | 1672.1 | 1645.3 | 1579.7 | 1511.7 | 1460.7 | 1453.4 | 1465.5 | 1482.5 | 1487.3 |
| 30°   | 1560.3 | 1538.5 | 1482.5 | 1416.8 | 1373.1 | 1370.8 | 1387.7 | 1399.9 | 1412.0 |
| 32.5° | 1453.4 | 1429.1 | 1375.6 | 1312.4 | 1280.7 | 1283.2 | 1302.7 | 1317.3 | 1324.6 |
| 35°   | 1329.4 | 1307.5 | 1268.6 | 1217.6 | 1188.5 | 1193.3 | 1215.2 | 1229.7 | 1232.2 |
| 37.5° | 1212.7 | 1198.1 | 1159.2 | 1120.4 | 1098.5 | 1108.2 | 1127.7 | 1144.7 | 1144.7 |
| 40°   | 1096.1 | 1083.9 | 1054.7 | 1023.1 | 1011.0 | 1023.1 | 1042.6 | 1057.2 | 1057.2 |
| 42.5° | 984.2  | 977.0  | 952.7  | 930.8  | 923.5  | 940.5  | 957.6  | 969.7  | 967.3  |
| 45°   | 884.7  | 877.4  | 860.4  | 843.3  | 840.9  | 857.9  | 872.5  | 879.8  | 882.2  |
| 47.5° | 794.7  | 789.9  | 775.3  | 763.2  | 763.2  | 780.1  | 792.3  | 799.6  | 802.0  |
| 50°   | 712.1  | 707.2  | 695.1  | 685.4  | 687.7  | 704.8  | 714.5  | 721.8  | 724.3  |
| 52.5° | 629.4  | 627.0  | 617.3  | 605.1  | 612.4  | 624.6  | 636.7  | 641.7  | 644.0  |
| 55°   | 558.9  | 558.9  | 546.8  | 537.1  | 542.0  | 554.1  | 561.4  | 563.9  | 563.9  |
| 57.5° | 495.8  | 493.4  | 478.8  | 469.0  | 471.5  | 483.6  | 488.5  | 490.9  | 490.9  |
| 60°   | 435.1  | 432.6  | 418.0  | 403.4  | 403.4  | 410.7  | 413.2  | 415.6  | 415.6  |
| 62.5° | 376.7  | 374.3  | 357.3  | 345.2  | 340.2  | 337.9  | 337.9  | 342.7  | 352.4  |
| 65°   | 323.2  | 320.8  | 303.8  | 284.4  | 277.1  | 269.7  | 262.4  | 267.4  | 272.2  |
| 67.5° | 274.6  | 269.7  | 252.8  | 235.7  | 218.7  | 206.6  | 194.4  | 201.7  | 211.4  |
| 70°   | 228.5  | 223.6  | 204.1  | 184.7  | 165.2  | 145.8  | 136.1  | 145.8  | 150.7  |
| 72.5° | 184.7  | 179.8  | 160.4  | 140.9  | 116.7  | 97.2   | 94.8   | 97.2   | 99.7   |
| 75°   | 143.4  | 140.9  | 121.5  | 99.7   | 75.3   | 60.8   | 60.8   | 60.8   | 60.8   |
| 77.5° | 106.9  | 102.1  | 82.6   | 63.2   | 43.7   | 34.1   | 31.6   | 31.6   | 31.6   |
| 80°   | 72.9   | 68.0   | 51.0   | 36.4   | 19.4   | 14.6   | 14.6   | 12.1   | 12.1   |
| 82.5° | 41.4   | 38.9   | 26.7   | 14.6   | 7.3    | 4.8    | 4.8    | 4.8    | 4.8    |
| 85°   | 17.0   | 14.6   | 9.8    | 4.8    | 2.5    | 2.5    | 2.5    | 2.5    | 2.5    |
| 87.5° | 2.5    | 2.5    | 2.5    | 0.0    | 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    |



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







(END OF REPORT)