Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

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: P592834

Luminaire Tested: **HCC4W40D010MW-HM43040950-41WWW**

Issue Date: 9/9/2021

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Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-41-14 |
| Report Number: | P592834 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-16) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 9/9/2021 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | HALO COMMERCIAL |
| Catalog Number: | HCC4W40D010MW-HM43040950-41WWW |
| Description: | HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, WHITE TRIM |
| Light Source: | (1) HIGH LUMEN LED 90CRI / 5000K CCT |
| | CYLINDER |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 3686.8 lumens |
| Efficiency: | N/A |
| Efficacy: | 89.9 lumens/watt |
| Spacing Criteria (0/90/45): | 1.06 / 1.03 / 1.1 |
| 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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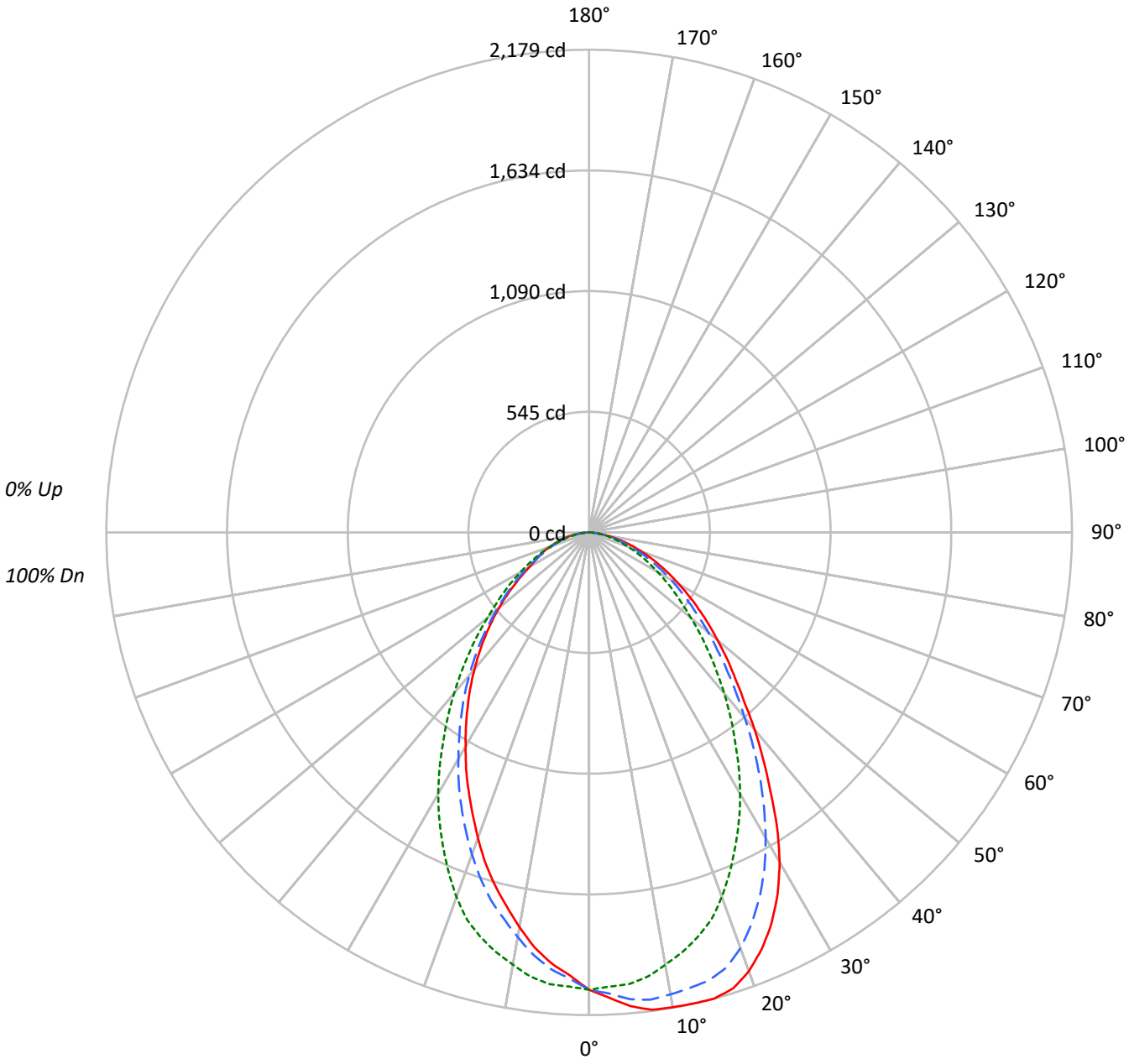
## Luminous Intensity Polar Plot



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## COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| RF | 20 | | | | 20 | | | | 20 | | | 20 | | | 20 | | | 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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 111 | 106 | 103 | 100 | 108 | 104 | 101 | 98 | 100 | 97 | 95 | 96 | 94 | 92 | 93 | 91 | 89 | 87 |
| 2 | 102 | 95 | 89 | 84 | 100 | 93 | 88 | 83 | 90 | 85 | 81 | 87 | 83 | 80 | 84 | 81 | 78 | 76 |
| 3 | 94 | 85 | 78 | 72 | 92 | 84 | 77 | 72 | 81 | 75 | 71 | 78 | 73 | 69 | 76 | 72 | 68 | 66 |
| 4 | 87 | 77 | 69 | 63 | 85 | 76 | 68 | 63 | 73 | 67 | 62 | 71 | 66 | 61 | 69 | 64 | 60 | 58 |
| 5 | 81 | 70 | 62 | 56 | 79 | 69 | 61 | 56 | 67 | 60 | 55 | 65 | 59 | 54 | 63 | 58 | 54 | 52 |
| 6 | 76 | 64 | 56 | 50 | 74 | 63 | 55 | 50 | 61 | 54 | 49 | 59 | 53 | 49 | 58 | 53 | 48 | 47 |
| 7 | 71 | 58 | 50 | 45 | 69 | 58 | 50 | 45 | 56 | 49 | 44 | 55 | 49 | 44 | 53 | 48 | 44 | 42 |
| 8 | 66 | 54 | 46 | 41 | 65 | 53 | 46 | 41 | 52 | 45 | 40 | 51 | 45 | 40 | 50 | 44 | 40 | 38 |
| 9 | 62 | 50 | 42 | 37 | 61 | 49 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 37 | 46 | 41 | 37 | 35 |
| 10 | 59 | 46 | 39 | 34 | 57 | 46 | 39 | 34 | 45 | 38 | 34 | 44 | 38 | 34 | 43 | 38 | 34 | 32 |

## AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° |
|---|---|---|---|
| 0° | 254635 | 254635 | 254635 |
| 5° | 265847 | 253515 | 241789 |
| 10° | 272566 | 248230 | 226637 |
| 15° | 278213 | 241602 | 210278 |
| 20° | 276726 | 229865 | 192574 |
| 25° | 265089 | 212556 | 175184 |
| 30° | 244918 | 194071 | 158778 |
| 35° | 214678 | 172622 | 143726 |
| 40° | 186940 | 152515 | 129457 |
| 45° | 162697 | 133026 | 115669 |
| 50° | 144936 | 114655 | 102067 |
| 55° | 129523 | 100814 | 88277 |
| 60° | 115649 | 88069 | 76104 |
| 65° | 102793 | 77285 | 72294 |
| 70° | 90232 | 66574 | 67439 |
| 75° | 76394 | 56760 | 62526 |
| 80° | 58672 | 48302 | 56968 |
| 85° | 34390 | 37787 | 48118 |

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**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 193.5 | 5.2 |
| 10°-20° | 533.8 | 14.5 |
| 20°-30° | 729.3 | 19.8 |
| 30°-40° | 732.3 | 19.9 |
| 40°-50° | 605.8 | 16.4 |
| 50°-60° | 439.0 | 11.9 |
| 60°-70° | 278.1 | 7.5 |
| 70°-80° | 140.6 | 3.8 |
| 80°-90° | 34.4 | 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° | 1456.6 | 39.5 |
| 0°-40° | 2188.9 | 59.4 |
| 0°-60° | 3233.7 | 87.7 |
| 0°-90° | 3686.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3686.8 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 45° | 90° | 135° | 180° | Flux |
|---|---|---|---|---|---|---|
| 0° | 2064 | 2064 | 2064 | 2064 | 2064 | |
| 5° | 2147 | 2115 | 2048 | 1980 | 1953 | 206 |
| 15° | 2179 | 2094 | 1892 | 1717 | 1647 | 613 |
| 25° | 1948 | 1819 | 1562 | 1365 | 1287 | 890 |
| 35° | 1426 | 1341 | 1146 | 1006 | 954 | 894 |
| 45° | 933 | 879 | 763 | 687 | 663 | 725 |
| 55° | 602 | 549 | 469 | 427 | 410 | 542 |
| 65° | 352 | 313 | 265 | 238 | 248 | 351 |
| 75° | 160 | 138 | 119 | 124 | 131 | 171 |
| 85° | 24 | 24 | 27 | 32 | 34 | 34 |
| 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° | 2064.4 | 2064.4 | 2064.4 | 2064.4 | 2064.4 | 2064.4 | 2064.4 | 2064.4 | 2064.4 |
| 2.5° | 2103.3 | 2096.0 | 2083.9 | 2069.4 | 2052.3 | 2032.9 | 2015.9 | 2006.1 | 2001.3 |
| 5° | 2147.1 | 2137.3 | 2115.4 | 2083.9 | 2047.5 | 2011.1 | 1979.5 | 1960.1 | 1952.8 |
| 7.5° | 2173.7 | 2159.2 | 2127.7 | 2079.0 | 2023.2 | 1969.7 | 1923.6 | 1896.8 | 1889.6 |
| 10° | 2176.2 | 2159.2 | 2117.9 | 2052.3 | 1981.9 | 1911.4 | 1855.6 | 1816.8 | 1809.5 |
| 12.5° | 2178.7 | 2156.8 | 2105.8 | 2028.0 | 1940.6 | 1853.1 | 1785.2 | 1739.0 | 1726.9 |
| 15° | 2178.7 | 2156.8 | 2093.6 | 2001.3 | 1892.0 | 1792.5 | 1717.1 | 1663.8 | 1646.7 |
| 17.5° | 2159.2 | 2134.9 | 2059.6 | 1952.8 | 1833.7 | 1722.1 | 1634.6 | 1578.7 | 1561.8 |
| 20° | 2108.2 | 2081.5 | 1996.5 | 1879.9 | 1751.2 | 1634.6 | 1547.2 | 1488.9 | 1467.1 |
| 22.5° | 2035.3 | 2003.8 | 1913.9 | 1787.7 | 1658.9 | 1539.9 | 1454.8 | 1394.2 | 1374.7 |
| 25° | 1947.8 | 1916.3 | 1819.2 | 1695.3 | 1561.8 | 1450.0 | 1365.0 | 1309.1 | 1287.2 |
| 27.5° | 1841.0 | 1807.1 | 1712.3 | 1588.5 | 1464.6 | 1352.8 | 1275.1 | 1224.1 | 1202.3 |
| 30° | 1719.6 | 1683.2 | 1593.3 | 1474.3 | 1362.6 | 1255.7 | 1180.4 | 1139.2 | 1114.8 |
| 32.5° | 1578.7 | 1547.2 | 1467.1 | 1360.1 | 1255.7 | 1153.7 | 1090.5 | 1054.1 | 1034.7 |
| 35° | 1425.7 | 1408.8 | 1340.7 | 1248.5 | 1146.4 | 1061.4 | 1005.5 | 971.6 | 954.5 |
| 37.5° | 1289.7 | 1272.7 | 1214.4 | 1136.7 | 1046.8 | 969.1 | 922.9 | 893.8 | 879.2 |
| 40° | 1161.0 | 1146.4 | 1090.5 | 1024.9 | 947.2 | 879.2 | 840.4 | 818.6 | 804.0 |
| 42.5° | 1034.7 | 1027.4 | 981.2 | 920.6 | 852.5 | 794.2 | 762.6 | 745.7 | 733.5 |
| 45° | 932.7 | 922.9 | 879.2 | 820.9 | 762.6 | 714.1 | 687.4 | 675.2 | 663.1 |
| 47.5° | 842.8 | 830.7 | 784.5 | 733.5 | 680.1 | 636.4 | 612.1 | 600.0 | 595.0 |
| 50° | 755.3 | 743.2 | 702.0 | 651.0 | 597.5 | 565.9 | 546.5 | 534.4 | 531.9 |
| 52.5° | 677.6 | 665.5 | 619.4 | 570.8 | 529.4 | 502.8 | 485.7 | 473.6 | 468.8 |
| 55° | 602.3 | 587.7 | 549.0 | 502.8 | 468.8 | 444.5 | 427.4 | 415.3 | 410.5 |
| 57.5° | 534.4 | 519.8 | 485.7 | 442.0 | 410.5 | 388.7 | 374.1 | 361.9 | 357.0 |
| 60° | 468.8 | 456.6 | 425.1 | 383.7 | 357.0 | 337.6 | 323.1 | 313.3 | 308.5 |
| 62.5° | 408.0 | 398.3 | 366.8 | 330.4 | 308.5 | 291.5 | 279.4 | 269.6 | 274.4 |
| 65° | 352.2 | 342.5 | 313.3 | 281.7 | 264.8 | 247.7 | 238.0 | 238.0 | 247.7 |
| 67.5° | 298.7 | 289.0 | 264.8 | 238.0 | 223.4 | 211.3 | 204.0 | 211.3 | 218.6 |
| 70° | 250.2 | 240.5 | 218.6 | 196.7 | 184.6 | 174.9 | 174.9 | 182.2 | 187.0 |
| 72.5° | 204.0 | 194.3 | 177.3 | 160.3 | 150.6 | 143.3 | 150.6 | 155.5 | 160.3 |
| 75° | 160.3 | 153.0 | 138.4 | 126.3 | 119.1 | 116.6 | 123.9 | 128.7 | 131.2 |
| 77.5° | 119.1 | 114.1 | 104.5 | 94.7 | 89.9 | 92.3 | 99.5 | 102.0 | 104.5 |
| 80° | 82.6 | 80.2 | 72.9 | 68.0 | 68.0 | 70.4 | 75.3 | 77.7 | 80.2 |
| 82.5° | 51.0 | 51.0 | 46.2 | 43.7 | 46.2 | 51.0 | 53.5 | 55.8 | 55.8 |
| 85° | 24.3 | 26.7 | 24.3 | 24.3 | 26.7 | 31.6 | 31.6 | 34.0 | 34.0 |
| 87.5° | 7.3 | 7.3 | 9.8 | 9.8 | 12.1 | 12.1 | 12.1 | 12.1 | 14.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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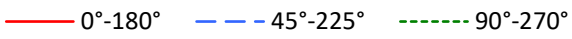
Report Generated By 670245859 / DESKTOP-T8S5UU9


0°-180°
45°-225°
90°-270°

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