

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: P580466

Luminaire Tested: **HC435D010-HM43040840-41RWWC**

Issue Date: 9/9/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P580466  
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: HC435D010-HM43040840-41RWWC  
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, SPECULAR TRIM  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

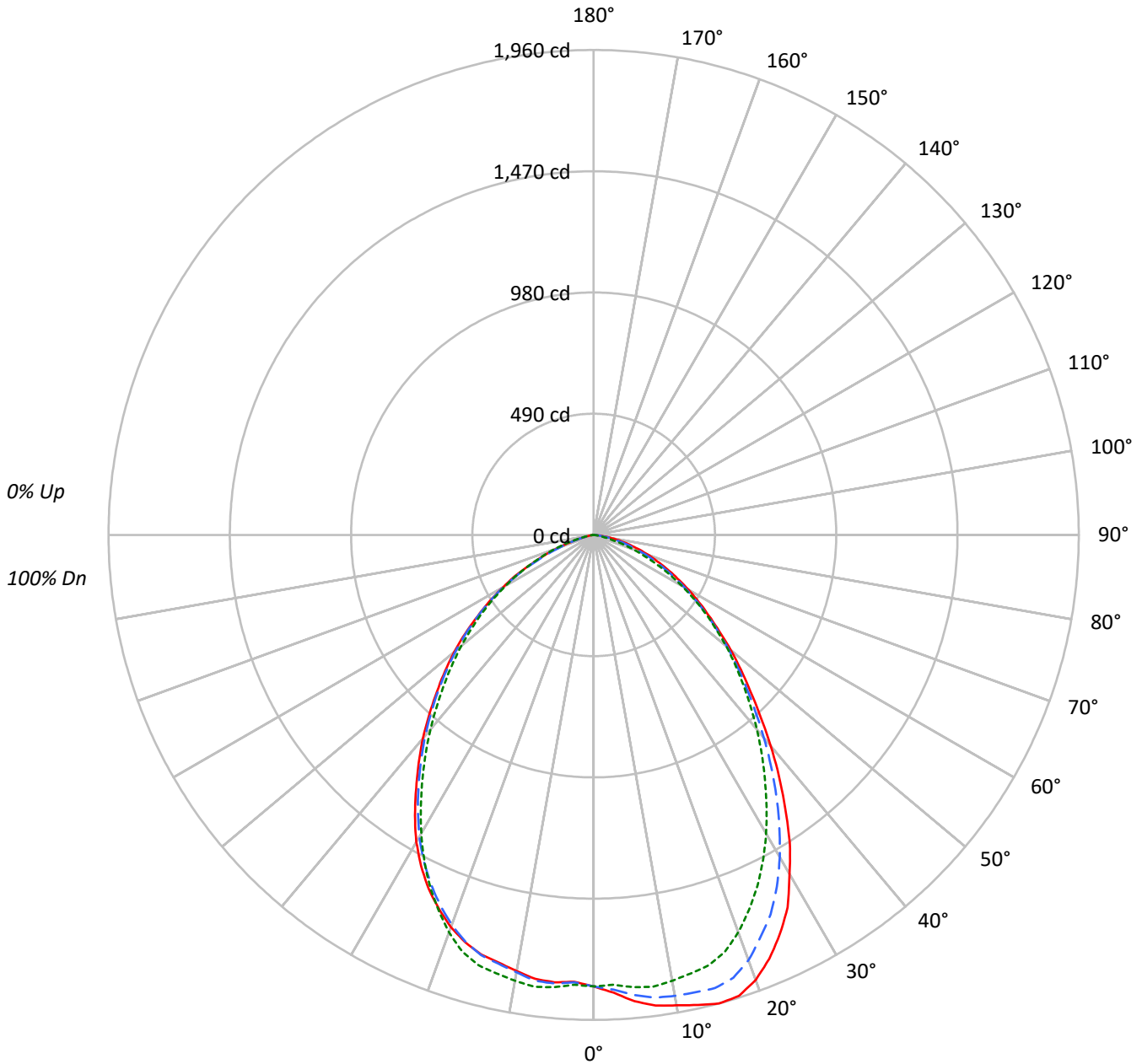
Lumens per Lamp: N/A  
Luminaire Lumens: 3802.5 lumens  
Efficiency: N/A  
Efficacy: 112.8 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.15 / 1.21  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.7  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: 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 |    |    | 100 |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 111 | 107 | 103 | 100 | 108 | 105 | 102 | 99  | 101 | 98  | 96  | 97  | 95  | 93  | 93  | 92  | 90  | 88  |    |    | 88  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 102 | 95  | 90  | 85  | 100 | 94  | 88  | 84  | 90  | 86  | 82  | 87  | 83  | 80  | 84  | 81  | 78  | 76  |    |    | 76  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 95  | 85  | 78  | 73  | 92  | 84  | 77  | 72  | 81  | 75  | 71  | 78  | 74  | 70  | 76  | 72  | 69  | 67  |    |    | 67  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 87  | 77  | 69  | 63  | 85  | 76  | 68  | 63  | 73  | 67  | 62  | 71  | 66  | 61  | 69  | 64  | 60  | 58  |    |    | 58  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 81  | 70  | 61  | 56  | 79  | 68  | 61  | 55  | 66  | 60  | 55  | 65  | 59  | 54  | 63  | 58  | 54  | 52  |    |    | 52  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 75  | 63  | 55  | 49  | 74  | 62  | 55  | 49  | 61  | 54  | 49  | 59  | 53  | 48  | 58  | 52  | 48  | 46  |    |    | 46  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 70  | 58  | 50  | 44  | 69  | 57  | 49  | 44  | 56  | 49  | 44  | 54  | 48  | 44  | 53  | 47  | 43  | 41  |    |    | 41  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 66  | 53  | 45  | 40  | 64  | 53  | 45  | 40  | 51  | 44  | 40  | 50  | 44  | 39  | 49  | 43  | 39  | 37  |    |    | 37  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 62  | 49  | 42  | 36  | 60  | 49  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 36  | 45  | 40  | 36  | 34  |    |    | 34  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 58  | 46  | 38  | 33  | 57  | 45  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 42  | 37  | 33  | 31  |    |    | 31  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°     | 90°    | 180°   |
|-----|--------|--------|--------|
| 0°  | 225069 | 225069 | 225069 |
| 5°  | 234187 | 227154 | 224703 |
| 10° | 241830 | 229155 | 224220 |
| 15° | 250337 | 229867 | 224197 |
| 20° | 251169 | 224300 | 221399 |
| 25° | 242293 | 213100 | 214774 |
| 30° | 225462 | 198430 | 204056 |
| 35° | 203099 | 181566 | 188252 |
| 40° | 179066 | 165171 | 172706 |
| 45° | 156557 | 148830 | 156156 |
| 50° | 138642 | 133902 | 141021 |
| 55° | 121974 | 118254 | 123028 |
| 60° | 108890 | 100995 | 104005 |
| 65° | 95730  | 82042  | 80612  |
| 70° | 83596  | 60479  | 55142  |
| 75° | 69293  | 36410  | 29357  |
| 80° | 52564  | 14064  | 8808   |
| 85° | 24484  | 3538   | 3538   |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 176.0  | 4.6       |
| 10°-20°   | 513.6  | 13.5      |
| 20°-30°   | 743.8  | 19.6      |
| 30°-40°   | 784.8  | 20.6      |
| 40°-50°   | 679.2  | 17.9      |
| 50°-60°   | 503.1  | 13.2      |
| 60°-70°   | 290.0  | 7.6       |
| 70°-80°   | 101.3  | 2.7       |
| 80°-90°   | 10.7   | 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°    | 1433.4 | 37.7      |
| 0°-40°    | 2218.2 | 58.3      |
| 0°-60°    | 3400.5 | 89.4      |
| 0°-90°    | 3802.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3802.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 45°  | 90°  | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0°  | 1825 | 1825 | 1825 | 1825 | 1825 |      |
| 5°  | 1891 | 1867 | 1835 | 1820 | 1815 | 182  |
| 15° | 1960 | 1896 | 1800 | 1758 | 1756 | 551  |
| 25° | 1780 | 1692 | 1566 | 1556 | 1578 | 815  |
| 35° | 1349 | 1287 | 1206 | 1233 | 1250 | 842  |
| 45° | 898  | 873  | 853  | 885  | 895  | 697  |
| 55° | 567  | 555  | 550  | 570  | 572  | 511  |
| 65° | 328  | 308  | 281  | 266  | 276  | 328  |
| 75° | 145  | 123  | 76   | 62   | 62   | 157  |
| 85° | 17   | 10   | 2    | 2    | 2    | 27   |
| 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°    | 1824.7 | 1824.7 | 1824.7 | 1824.7 | 1824.7 | 1824.7 | 1824.7 | 1824.7 | 1824.7 |
| 2.5°  | 1851.8 | 1847.0 | 1839.5 | 1829.6 | 1819.8 | 1812.3 | 1810.0 | 1807.5 | 1807.5 |
| 5°    | 1891.4 | 1881.5 | 1866.6 | 1847.0 | 1834.6 | 1827.2 | 1819.8 | 1814.8 | 1814.8 |
| 7.5°  | 1918.4 | 1908.6 | 1886.4 | 1859.2 | 1842.0 | 1827.2 | 1817.3 | 1810.0 | 1810.0 |
| 10°   | 1930.8 | 1918.4 | 1891.4 | 1856.7 | 1829.6 | 1810.0 | 1795.1 | 1790.2 | 1790.2 |
| 12.5° | 1945.5 | 1930.8 | 1893.7 | 1849.4 | 1814.8 | 1790.2 | 1775.4 | 1770.5 | 1770.5 |
| 15°   | 1960.4 | 1943.1 | 1896.2 | 1844.5 | 1800.1 | 1770.5 | 1758.2 | 1755.7 | 1755.7 |
| 17.5° | 1953.0 | 1930.8 | 1876.5 | 1814.8 | 1765.6 | 1735.9 | 1723.7 | 1723.7 | 1726.1 |
| 20°   | 1913.5 | 1891.4 | 1829.6 | 1760.6 | 1708.8 | 1686.7 | 1676.8 | 1681.7 | 1686.7 |
| 22.5° | 1854.3 | 1827.2 | 1760.6 | 1694.0 | 1639.8 | 1620.0 | 1620.0 | 1627.4 | 1634.9 |
| 25°   | 1780.3 | 1755.7 | 1691.6 | 1617.5 | 1565.8 | 1551.0 | 1556.0 | 1568.3 | 1578.1 |
| 27.5° | 1696.5 | 1669.4 | 1602.8 | 1533.7 | 1482.0 | 1474.6 | 1486.9 | 1504.1 | 1509.1 |
| 30°   | 1583.0 | 1560.9 | 1504.1 | 1437.6 | 1393.2 | 1390.7 | 1408.0 | 1420.3 | 1432.7 |
| 32.5° | 1474.6 | 1450.0 | 1395.7 | 1331.6 | 1299.5 | 1301.9 | 1321.7 | 1336.4 | 1343.9 |
| 35°   | 1348.8 | 1326.7 | 1287.2 | 1235.4 | 1205.8 | 1210.8 | 1232.9 | 1247.8 | 1250.2 |
| 37.5° | 1230.4 | 1215.6 | 1176.2 | 1136.7 | 1114.6 | 1124.4 | 1144.1 | 1161.4 | 1161.4 |
| 40°   | 1112.1 | 1099.7 | 1070.2 | 1038.1 | 1025.8 | 1038.1 | 1057.8 | 1072.6 | 1072.6 |
| 42.5° | 998.7  | 991.3  | 966.6  | 944.4  | 937.0  | 954.3  | 971.6  | 983.8  | 981.4  |
| 45°   | 897.5  | 890.2  | 872.9  | 855.7  | 853.2  | 870.4  | 885.3  | 892.7  | 895.2  |
| 47.5° | 806.4  | 801.4  | 786.6  | 774.3  | 774.3  | 791.5  | 803.9  | 811.3  | 813.8  |
| 50°   | 722.5  | 717.6  | 705.2  | 695.4  | 697.8  | 715.1  | 725.0  | 732.4  | 734.9  |
| 52.5° | 638.7  | 636.2  | 626.3  | 614.0  | 621.3  | 633.7  | 646.1  | 651.0  | 653.5  |
| 55°   | 567.2  | 567.2  | 554.8  | 544.9  | 549.9  | 562.2  | 569.6  | 572.1  | 572.1  |
| 57.5° | 503.0  | 500.5  | 485.8  | 475.9  | 478.4  | 490.7  | 495.7  | 498.0  | 498.0  |
| 60°   | 441.4  | 438.9  | 424.1  | 409.4  | 409.4  | 416.8  | 419.1  | 421.6  | 421.6  |
| 62.5° | 382.2  | 379.7  | 362.5  | 350.1  | 345.2  | 342.7  | 342.7  | 347.7  | 357.5  |
| 65°   | 328.0  | 325.5  | 308.2  | 288.5  | 281.1  | 273.7  | 266.3  | 271.2  | 276.2  |
| 67.5° | 278.6  | 273.7  | 256.5  | 239.2  | 221.9  | 209.6  | 197.3  | 204.7  | 214.6  |
| 70°   | 231.8  | 226.8  | 207.2  | 187.4  | 167.7  | 147.9  | 138.1  | 147.9  | 152.9  |
| 72.5° | 187.4  | 182.4  | 162.8  | 143.0  | 118.4  | 98.7   | 96.2   | 98.7   | 101.0  |
| 75°   | 145.4  | 143.0  | 123.3  | 101.0  | 76.4   | 61.6   | 61.6   | 61.6   | 61.6   |
| 77.5° | 108.5  | 103.5  | 83.9   | 64.1   | 44.4   | 34.5   | 32.0   | 32.0   | 32.0   |
| 80°   | 74.0   | 69.0   | 51.8   | 37.0   | 19.8   | 14.8   | 14.8   | 12.4   | 12.4   |
| 82.5° | 41.9   | 39.5   | 27.1   | 14.8   | 7.4    | 4.9    | 4.9    | 4.9    | 4.9    |
| 85°   | 17.3   | 14.8   | 9.9    | 4.9    | 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)