

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: P592889

Luminaire Tested: **HC450D010-HM44560850-41WWWB**

Issue Date: 9/9/2021

Test Information

Test Method: LM-41-14
Report Number: P592889
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-18)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 9/9/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC450D010-HM44560850-41WWWB
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 5000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5416.3 lumens
Efficiency: N/A
Efficacy: 112.8 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.07 / 1.15
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

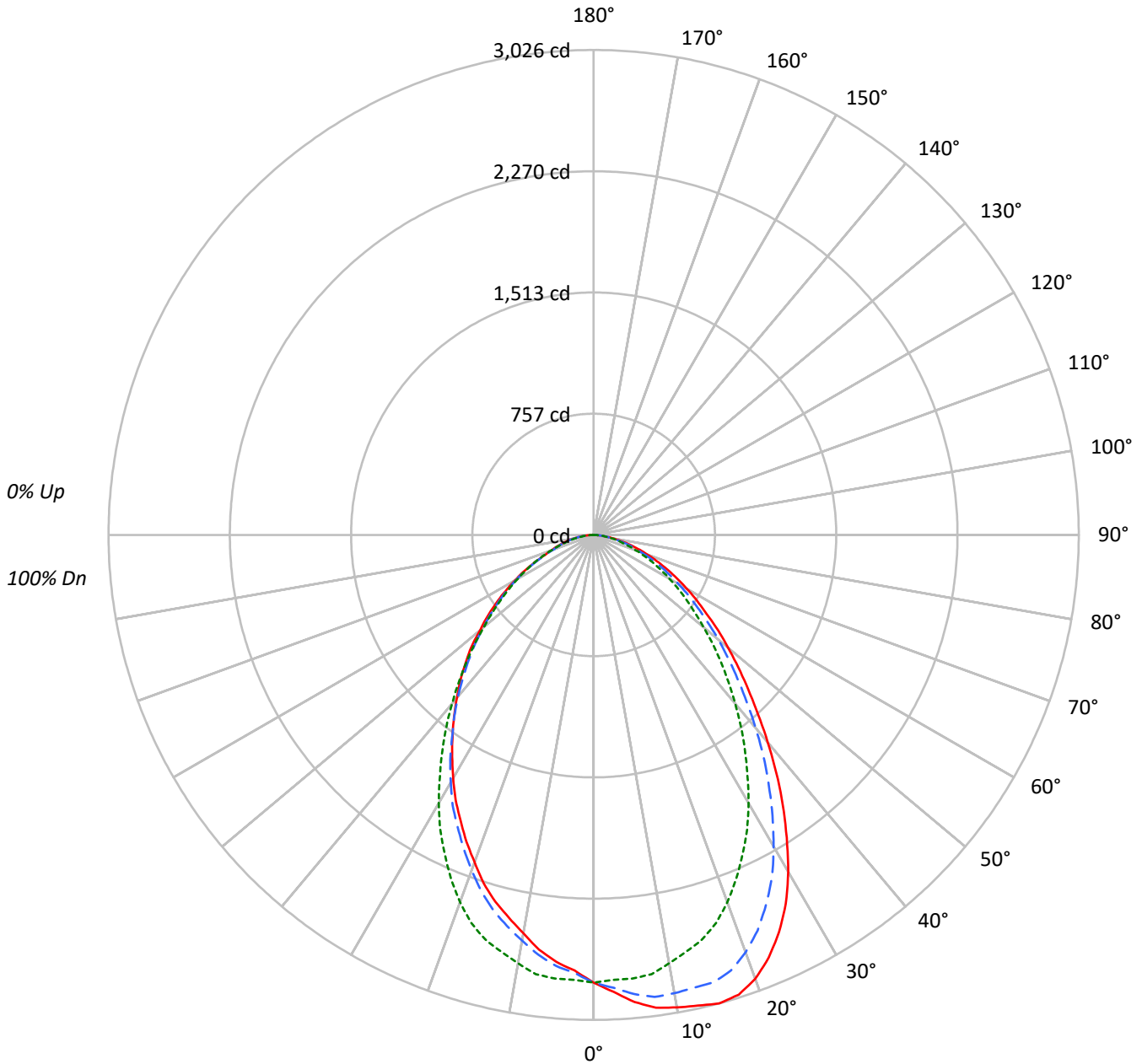
Input Watts (W): 48
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 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 | 110 | 106 | 103 | 99 | 108 | 104 | 101 | 98 | 100 | 97 | 95 | 96 | 94 | 92 | 92 | 91 | 89 | 87 | | | | | 87 | | | |
| 2 | 102 | 95 | 89 | 84 | 99 | 93 | 87 | 83 | 89 | 85 | 81 | 86 | 82 | 79 | 83 | 80 | 77 | 75 | | | | | 75 | | | |
| 3 | 94 | 85 | 77 | 72 | 92 | 83 | 76 | 71 | 80 | 75 | 70 | 78 | 73 | 69 | 75 | 71 | 68 | 66 | | | | | 66 | | | |
| 4 | 87 | 76 | 68 | 62 | 85 | 75 | 68 | 62 | 72 | 66 | 61 | 70 | 65 | 60 | 68 | 63 | 60 | 58 | | | | | 58 | | | |
| 5 | 81 | 69 | 61 | 55 | 79 | 68 | 60 | 55 | 66 | 59 | 54 | 64 | 58 | 53 | 62 | 57 | 53 | 51 | | | | | 51 | | | |
| 6 | 75 | 63 | 55 | 49 | 73 | 62 | 54 | 49 | 60 | 53 | 48 | 59 | 53 | 48 | 57 | 52 | 47 | 46 | | | | | 46 | | | |
| 7 | 70 | 58 | 50 | 44 | 68 | 57 | 49 | 44 | 55 | 48 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | 41 | | | |
| 8 | 65 | 53 | 45 | 40 | 64 | 52 | 45 | 40 | 51 | 44 | 39 | 50 | 44 | 39 | 49 | 43 | 39 | 37 | | | | | 37 | | | |
| 9 | 61 | 49 | 41 | 36 | 60 | 48 | 41 | 36 | 47 | 41 | 36 | 46 | 40 | 36 | 45 | 40 | 36 | 34 | | | | | 34 | | | |
| 10 | 58 | 45 | 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° | 344492 | 344492 | 344492 |
| 5° | 362226 | 344037 | 331148 |
| 10° | 374956 | 339924 | 316127 |
| 15° | 386398 | 333748 | 302629 |
| 20° | 386841 | 320003 | 285179 |
| 25° | 372293 | 299100 | 267389 |
| 30° | 345699 | 275226 | 249703 |
| 35° | 309873 | 247790 | 231046 |
| 40° | 271892 | 221091 | 213588 |
| 45° | 237653 | 195753 | 197009 |
| 50° | 209834 | 171302 | 177500 |
| 55° | 185048 | 151887 | 159586 |
| 60° | 165382 | 134447 | 139751 |
| 65° | 146485 | 118262 | 118262 |
| 70° | 127991 | 100835 | 100835 |
| 75° | 109373 | 85402 | 95695 |
| 80° | 86588 | 76430 | 86588 |
| 85° | 55760 | 65950 | 81093 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 264.6 | 4.9 |
| 10°-20° | 745.2 | 13.8 |
| 20°-30° | 1044.0 | 19.3 |
| 30°-40° | 1075.6 | 19.9 |
| 40°-50° | 915.7 | 16.9 |
| 50°-60° | 678.5 | 12.5 |
| 60°-70° | 425.8 | 7.9 |
| 70°-80° | 211.6 | 3.9 |
| 80°-90° | 55.5 | 1.0 |
| 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° | 2053.7 | 37.9 |
| 0°-40° | 3129.3 | 57.8 |
| 0°-60° | 4723.5 | 87.2 |
| 0°-90° | 5416.3 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5416.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0° | 2793 | 2793 | 2793 | 2793 | 2793 | |
| 5° | 2926 | 2875 | 2779 | 2700 | 2674 | 281 |
| 15° | 3026 | 2890 | 2614 | 2424 | 2370 | 851 |
| 25° | 2736 | 2545 | 2198 | 2008 | 1965 | 1251 |
| 35° | 2058 | 1904 | 1646 | 1538 | 1534 | 1283 |
| 45° | 1362 | 1269 | 1122 | 1101 | 1129 | 1057 |
| 55° | 860 | 792 | 706 | 721 | 742 | 778 |
| 65° | 502 | 452 | 405 | 398 | 405 | 501 |
| 75° | 230 | 204 | 179 | 194 | 201 | 245 |
| 85° | 39 | 39 | 47 | 54 | 57 | 51 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P592889

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2792.9 | 2792.9 | 2792.9 | 2792.9 | 2792.9 | 2792.9 | 2792.9 | 2792.9 | 2792.9 |
| 2.5° | 2853.8 | 2843.1 | 2828.7 | 2803.6 | 2778.6 | 2757.0 | 2735.5 | 2724.8 | 2721.1 |
| 5° | 2925.5 | 2904.0 | 2875.3 | 2828.7 | 2778.6 | 2735.5 | 2699.6 | 2681.7 | 2674.5 |
| 7.5° | 2975.7 | 2954.3 | 2907.6 | 2835.9 | 2764.2 | 2699.6 | 2642.3 | 2617.2 | 2610.0 |
| 10° | 2993.7 | 2968.5 | 2904.0 | 2807.2 | 2714.0 | 2635.1 | 2570.6 | 2538.4 | 2524.0 |
| 12.5° | 3007.9 | 2975.7 | 2893.3 | 2778.6 | 2663.8 | 2567.0 | 2498.8 | 2455.9 | 2445.1 |
| 15° | 3025.9 | 2990.0 | 2889.7 | 2749.9 | 2613.6 | 2498.8 | 2423.6 | 2384.1 | 2369.9 |
| 17.5° | 3007.9 | 2968.5 | 2850.2 | 2692.4 | 2538.4 | 2412.8 | 2330.3 | 2294.5 | 2280.2 |
| 20° | 2947.1 | 2904.0 | 2771.4 | 2602.9 | 2437.9 | 2308.9 | 2226.4 | 2190.5 | 2172.6 |
| 22.5° | 2853.8 | 2807.2 | 2671.0 | 2491.7 | 2323.3 | 2197.7 | 2118.8 | 2083.0 | 2072.2 |
| 25° | 2735.5 | 2688.9 | 2545.4 | 2362.7 | 2197.7 | 2075.8 | 2007.7 | 1975.4 | 1964.7 |
| 27.5° | 2595.7 | 2549.1 | 2409.3 | 2229.9 | 2072.2 | 1957.5 | 1903.7 | 1871.5 | 1864.3 |
| 30° | 2427.2 | 2380.6 | 2244.3 | 2079.4 | 1932.4 | 1824.9 | 1781.8 | 1756.7 | 1753.2 |
| 32.5° | 2240.8 | 2201.3 | 2075.8 | 1925.3 | 1785.5 | 1695.8 | 1663.5 | 1645.6 | 1642.0 |
| 35° | 2057.9 | 2014.9 | 1903.7 | 1767.5 | 1645.6 | 1566.7 | 1538.1 | 1534.4 | 1534.4 |
| 37.5° | 1871.5 | 1828.4 | 1738.8 | 1613.3 | 1509.4 | 1437.7 | 1426.9 | 1430.5 | 1430.5 |
| 40° | 1688.6 | 1649.2 | 1570.3 | 1466.3 | 1373.1 | 1319.3 | 1315.8 | 1323.0 | 1326.5 |
| 42.5° | 1516.6 | 1484.3 | 1412.5 | 1323.0 | 1244.0 | 1201.1 | 1204.6 | 1218.9 | 1229.8 |
| 45° | 1362.4 | 1333.7 | 1269.2 | 1190.2 | 1122.2 | 1090.0 | 1100.7 | 1118.6 | 1129.4 |
| 47.5° | 1222.6 | 1197.4 | 1136.6 | 1064.8 | 1007.5 | 985.9 | 1000.3 | 1021.8 | 1036.2 |
| 50° | 1093.5 | 1072.0 | 1014.6 | 939.3 | 892.7 | 878.4 | 896.3 | 917.8 | 925.0 |
| 52.5° | 978.8 | 957.2 | 896.3 | 831.8 | 795.9 | 788.7 | 806.7 | 824.6 | 835.3 |
| 55° | 860.5 | 842.5 | 792.3 | 734.9 | 706.3 | 702.7 | 720.7 | 734.9 | 742.1 |
| 57.5° | 763.6 | 745.7 | 699.1 | 648.9 | 623.8 | 620.3 | 638.2 | 648.9 | 652.5 |
| 60° | 670.4 | 652.5 | 609.5 | 562.9 | 545.0 | 545.0 | 555.7 | 562.9 | 566.5 |
| 62.5° | 584.4 | 566.5 | 527.0 | 487.6 | 473.2 | 473.2 | 473.2 | 476.8 | 487.6 |
| 65° | 501.9 | 487.6 | 451.8 | 415.9 | 405.2 | 398.0 | 398.0 | 398.0 | 405.2 |
| 67.5° | 426.6 | 412.2 | 383.6 | 351.4 | 340.6 | 329.9 | 326.2 | 333.4 | 333.4 |
| 70° | 354.9 | 344.2 | 315.5 | 290.4 | 279.6 | 268.9 | 265.3 | 279.6 | 279.6 |
| 72.5° | 290.4 | 279.6 | 261.7 | 236.7 | 225.8 | 222.3 | 229.5 | 236.7 | 240.2 |
| 75° | 229.5 | 218.7 | 204.4 | 190.0 | 179.2 | 182.9 | 193.6 | 197.2 | 200.8 |
| 77.5° | 172.1 | 168.5 | 154.2 | 143.4 | 143.4 | 147.0 | 154.2 | 161.3 | 164.9 |
| 80° | 121.9 | 118.3 | 111.1 | 103.9 | 107.6 | 114.7 | 118.3 | 125.5 | 121.9 |
| 82.5° | 75.3 | 75.3 | 71.7 | 71.7 | 75.3 | 82.5 | 86.0 | 89.7 | 93.2 |
| 85° | 39.4 | 39.4 | 39.4 | 43.1 | 46.6 | 50.1 | 53.8 | 57.3 | 57.3 |
| 87.5° | 10.7 | 14.4 | 14.4 | 17.9 | 21.5 | 21.5 | 25.1 | 25.1 | 25.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



Report Generated By 670245859 / DESKTOP-HRDQ47P





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







(END OF REPORT)