

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: P580866

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

Issue Date: 9/9/2021

Test Information

Test Method: LM-41-14
Report Number: P580866
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-HM44560830-41WWWB
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4725.9 lumens
Efficiency: N/A
Efficacy: 98.5 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

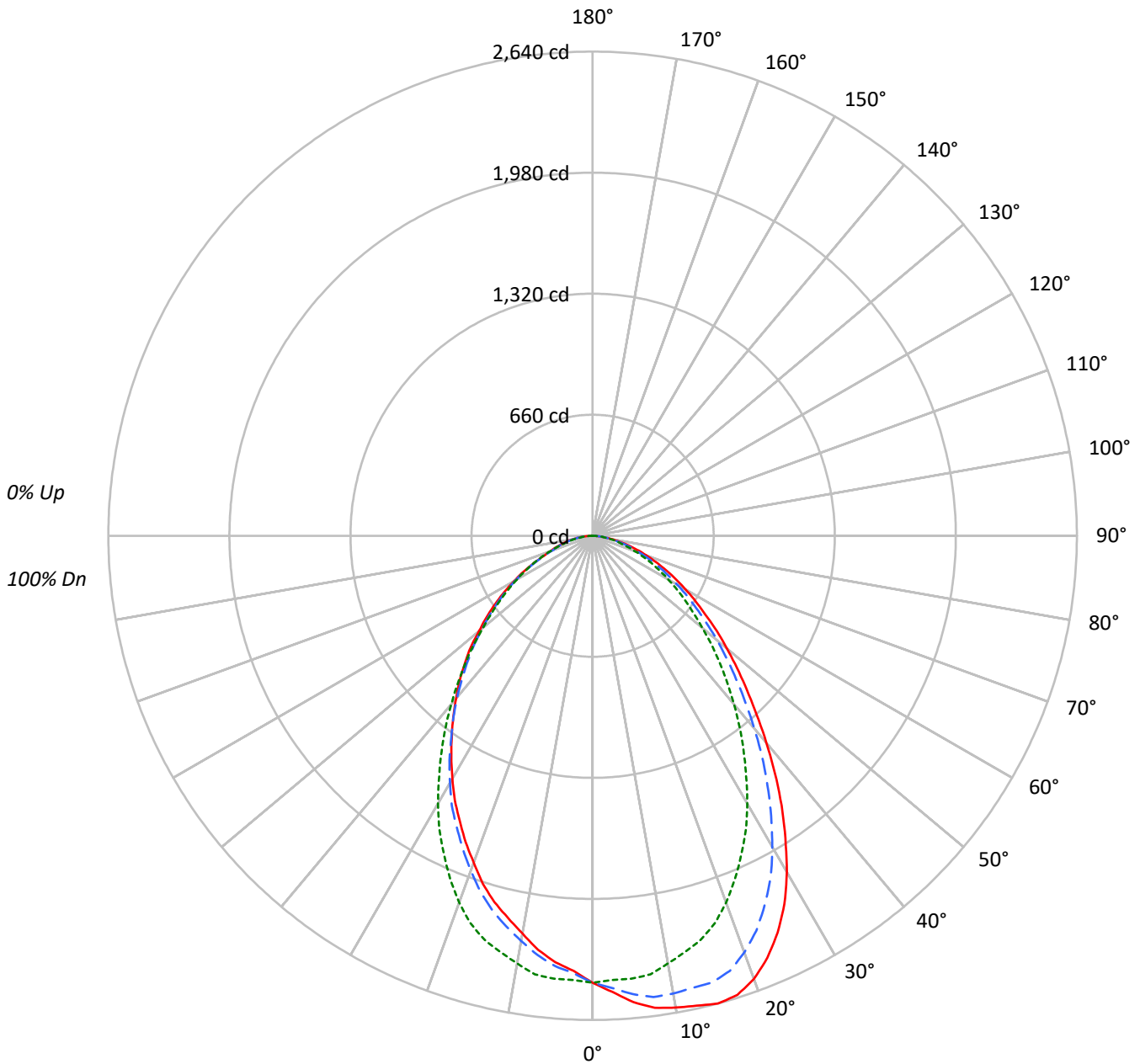
Input Watts (W): 48
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | 110 | 106 | 103 | 99 | 108 | 104 | 101 | 98 | 100 | 97 | 95 | 96 | 94 | 92 | 92 | 91 | 89 | 87 | | | | | | | | | | | | | | | | | | | |
| 2 | 102 | 95 | 89 | 84 | 99 | 93 | 87 | 83 | 89 | 85 | 81 | 86 | 82 | 79 | 83 | 80 | 77 | 75 | | | | | | | | | | | | | | | | | | | |
| 3 | 94 | 85 | 77 | 72 | 92 | 83 | 76 | 71 | 80 | 75 | 70 | 78 | 73 | 69 | 75 | 71 | 68 | 66 | | | | | | | | | | | | | | | | | | | |
| 4 | 87 | 76 | 68 | 62 | 85 | 75 | 68 | 62 | 72 | 66 | 61 | 70 | 65 | 60 | 68 | 63 | 60 | 58 | | | | | | | | | | | | | | | | | | | |
| 5 | 81 | 69 | 61 | 55 | 79 | 68 | 60 | 55 | 66 | 59 | 54 | 64 | 58 | 53 | 62 | 57 | 53 | 51 | | | | | | | | | | | | | | | | | | | |
| 6 | 75 | 63 | 55 | 49 | 73 | 62 | 54 | 49 | 60 | 53 | 48 | 59 | 53 | 48 | 57 | 52 | 47 | 46 | | | | | | | | | | | | | | | | | | | |
| 7 | 70 | 58 | 50 | 44 | 68 | 57 | 49 | 44 | 55 | 48 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | | | | | | | | | | | | | | | |
| 8 | 65 | 53 | 45 | 40 | 64 | 52 | 45 | 40 | 51 | 44 | 39 | 50 | 44 | 39 | 49 | 43 | 39 | 37 | | | | | | | | | | | | | | | | | | | |
| 9 | 61 | 49 | 41 | 36 | 60 | 48 | 41 | 36 | 47 | 41 | 36 | 46 | 40 | 36 | 45 | 40 | 36 | 34 | | | | | | | | | | | | | | | | | | | |
| 10 | 58 | 45 | 38 | 33 | 57 | 45 | 38 | 33 | 44 | 38 | 33 | 43 | 37 | 33 | 42 | 37 | 33 | 31 | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° |
|-----|--------|--------|--------|
| 0° | 300569 | 300569 | 300569 |
| 5° | 316055 | 300169 | 288951 |
| 10° | 327161 | 296588 | 275835 |
| 15° | 337145 | 291200 | 264051 |
| 20° | 337513 | 279220 | 248820 |
| 25° | 324836 | 260966 | 233297 |
| 30° | 301632 | 240147 | 217871 |
| 35° | 270376 | 216199 | 201593 |
| 40° | 237241 | 192914 | 186376 |
| 45° | 207353 | 170791 | 171873 |
| 50° | 183084 | 149464 | 154876 |
| 55° | 161457 | 132533 | 139243 |
| 60° | 144290 | 117302 | 121939 |
| 65° | 127806 | 103173 | 103173 |
| 70° | 111690 | 87996 | 87996 |
| 75° | 95457 | 74536 | 83448 |
| 80° | 75578 | 66699 | 75578 |
| 85° | 48684 | 57458 | 70762 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 230.9 | 4.9 |
| 10°-20° | 650.2 | 13.8 |
| 20°-30° | 910.9 | 19.3 |
| 30°-40° | 938.5 | 19.9 |
| 40°-50° | 799.0 | 16.9 |
| 50°-60° | 592.0 | 12.5 |
| 60°-70° | 371.5 | 7.9 |
| 70°-80° | 184.6 | 3.9 |
| 80°-90° | 48.4 | 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° | 1791.9 | 37.9 |
| 0°-40° | 2730.4 | 57.8 |
| 0°-60° | 4121.4 | 87.2 |
| 0°-90° | 4725.9 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4725.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0° | 2437 | 2437 | 2437 | 2437 | 2437 | |
| 5° | 2553 | 2509 | 2424 | 2356 | 2334 | 245 |
| 15° | 2640 | 2521 | 2280 | 2115 | 2068 | 742 |
| 25° | 2387 | 2221 | 1918 | 1752 | 1714 | 1092 |
| 35° | 1796 | 1661 | 1436 | 1342 | 1339 | 1120 |
| 45° | 1189 | 1107 | 979 | 960 | 985 | 922 |
| 55° | 751 | 691 | 616 | 629 | 648 | 679 |
| 65° | 438 | 394 | 354 | 347 | 354 | 437 |
| 75° | 200 | 178 | 156 | 169 | 175 | 214 |
| 85° | 34 | 34 | 41 | 47 | 50 | 44 |
| 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° | 2436.8 | 2436.8 | 2436.8 | 2436.8 | 2436.8 | 2436.8 | 2436.8 | 2436.8 | 2436.8 |
| 2.5° | 2490.0 | 2480.7 | 2468.2 | 2446.2 | 2424.3 | 2405.5 | 2386.8 | 2377.4 | 2374.3 |
| 5° | 2552.6 | 2533.8 | 2508.8 | 2468.2 | 2424.3 | 2386.8 | 2355.5 | 2339.9 | 2333.7 |
| 7.5° | 2596.4 | 2577.6 | 2536.9 | 2474.4 | 2411.8 | 2355.5 | 2305.4 | 2283.5 | 2277.3 |
| 10° | 2612.1 | 2590.2 | 2533.8 | 2449.3 | 2368.0 | 2299.2 | 2242.9 | 2214.8 | 2202.3 |
| 12.5° | 2624.6 | 2596.4 | 2524.4 | 2424.3 | 2324.3 | 2239.8 | 2180.3 | 2142.8 | 2133.4 |
| 15° | 2640.2 | 2608.9 | 2521.3 | 2399.3 | 2280.4 | 2180.3 | 2114.6 | 2080.3 | 2067.8 |
| 17.5° | 2624.6 | 2590.2 | 2486.9 | 2349.3 | 2214.8 | 2105.3 | 2033.3 | 2002.0 | 1989.5 |
| 20° | 2571.3 | 2533.8 | 2418.1 | 2271.0 | 2127.2 | 2014.5 | 1942.6 | 1911.3 | 1895.6 |
| 22.5° | 2490.0 | 2449.3 | 2330.5 | 2174.0 | 2027.0 | 1917.5 | 1848.8 | 1817.5 | 1808.1 |
| 25° | 2386.8 | 2346.2 | 2221.0 | 2061.5 | 1917.5 | 1811.2 | 1751.8 | 1723.6 | 1714.2 |
| 27.5° | 2264.8 | 2224.2 | 2102.1 | 1945.8 | 1808.1 | 1708.0 | 1661.1 | 1632.9 | 1626.6 |
| 30° | 2117.8 | 2077.1 | 1958.3 | 1814.4 | 1686.1 | 1592.2 | 1554.7 | 1532.8 | 1529.7 |
| 32.5° | 1955.1 | 1920.6 | 1811.2 | 1679.9 | 1557.9 | 1479.6 | 1451.5 | 1435.8 | 1432.7 |
| 35° | 1795.6 | 1758.0 | 1661.1 | 1542.2 | 1435.8 | 1367.0 | 1342.0 | 1338.8 | 1338.8 |
| 37.5° | 1632.9 | 1595.4 | 1517.1 | 1407.7 | 1317.0 | 1254.5 | 1245.0 | 1248.1 | 1248.1 |
| 40° | 1473.4 | 1439.0 | 1370.1 | 1279.5 | 1198.1 | 1151.2 | 1148.1 | 1154.3 | 1157.5 |
| 42.5° | 1323.2 | 1295.1 | 1232.5 | 1154.3 | 1085.5 | 1047.9 | 1051.1 | 1063.6 | 1073.0 |
| 45° | 1188.7 | 1163.7 | 1107.3 | 1038.6 | 979.1 | 950.9 | 960.3 | 976.0 | 985.3 |
| 47.5° | 1066.7 | 1044.8 | 991.7 | 929.1 | 879.1 | 860.2 | 872.8 | 891.6 | 904.1 |
| 50° | 954.1 | 935.3 | 885.3 | 819.6 | 778.9 | 766.4 | 782.1 | 800.8 | 807.1 |
| 52.5° | 853.9 | 835.2 | 782.1 | 725.7 | 694.4 | 688.2 | 703.8 | 719.4 | 728.8 |
| 55° | 750.8 | 735.2 | 691.3 | 641.3 | 616.3 | 613.2 | 628.8 | 641.3 | 647.5 |
| 57.5° | 666.3 | 650.7 | 610.0 | 566.2 | 544.3 | 541.2 | 556.8 | 566.2 | 569.3 |
| 60° | 584.9 | 569.3 | 531.8 | 491.2 | 475.5 | 475.5 | 484.9 | 491.2 | 494.3 |
| 62.5° | 509.9 | 494.3 | 459.8 | 425.4 | 412.9 | 412.9 | 412.9 | 416.0 | 425.4 |
| 65° | 437.9 | 425.4 | 394.2 | 362.9 | 353.5 | 347.3 | 347.3 | 347.3 | 353.5 |
| 67.5° | 372.3 | 359.8 | 334.8 | 306.5 | 297.2 | 287.8 | 284.6 | 290.9 | 290.9 |
| 70° | 309.7 | 300.3 | 275.3 | 253.4 | 244.0 | 234.6 | 231.5 | 244.0 | 244.0 |
| 72.5° | 253.4 | 244.0 | 228.4 | 206.5 | 197.0 | 193.9 | 200.3 | 206.5 | 209.6 |
| 75° | 200.3 | 190.8 | 178.3 | 165.8 | 156.4 | 159.5 | 168.9 | 172.0 | 175.1 |
| 77.5° | 150.1 | 147.0 | 134.5 | 125.1 | 125.1 | 128.3 | 134.5 | 140.8 | 143.9 |
| 80° | 106.4 | 103.3 | 97.0 | 90.7 | 93.9 | 100.1 | 103.3 | 109.5 | 106.4 |
| 82.5° | 65.6 | 65.6 | 62.5 | 62.5 | 65.6 | 72.0 | 75.1 | 78.2 | 81.4 |
| 85° | 34.4 | 34.4 | 34.4 | 37.5 | 40.6 | 43.8 | 46.9 | 50.0 | 50.0 |
| 87.5° | 9.4 | 12.5 | 12.5 | 15.6 | 18.8 | 18.8 | 21.9 | 21.9 | 21.9 |
| 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)