

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: P581295

Luminaire Tested: **HC460D010-HM44560830-41RWWH**

Issue Date: 9/9/2021

Test Information

Test Method: LM-41-14
Report Number: P581295
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2106-266-15)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 9/9/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC460D010-HM44560830-41RWWH
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, HAZE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5232.4 lumens
Efficiency: N/A
Efficacy: 95.1 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.08 / 1.16
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

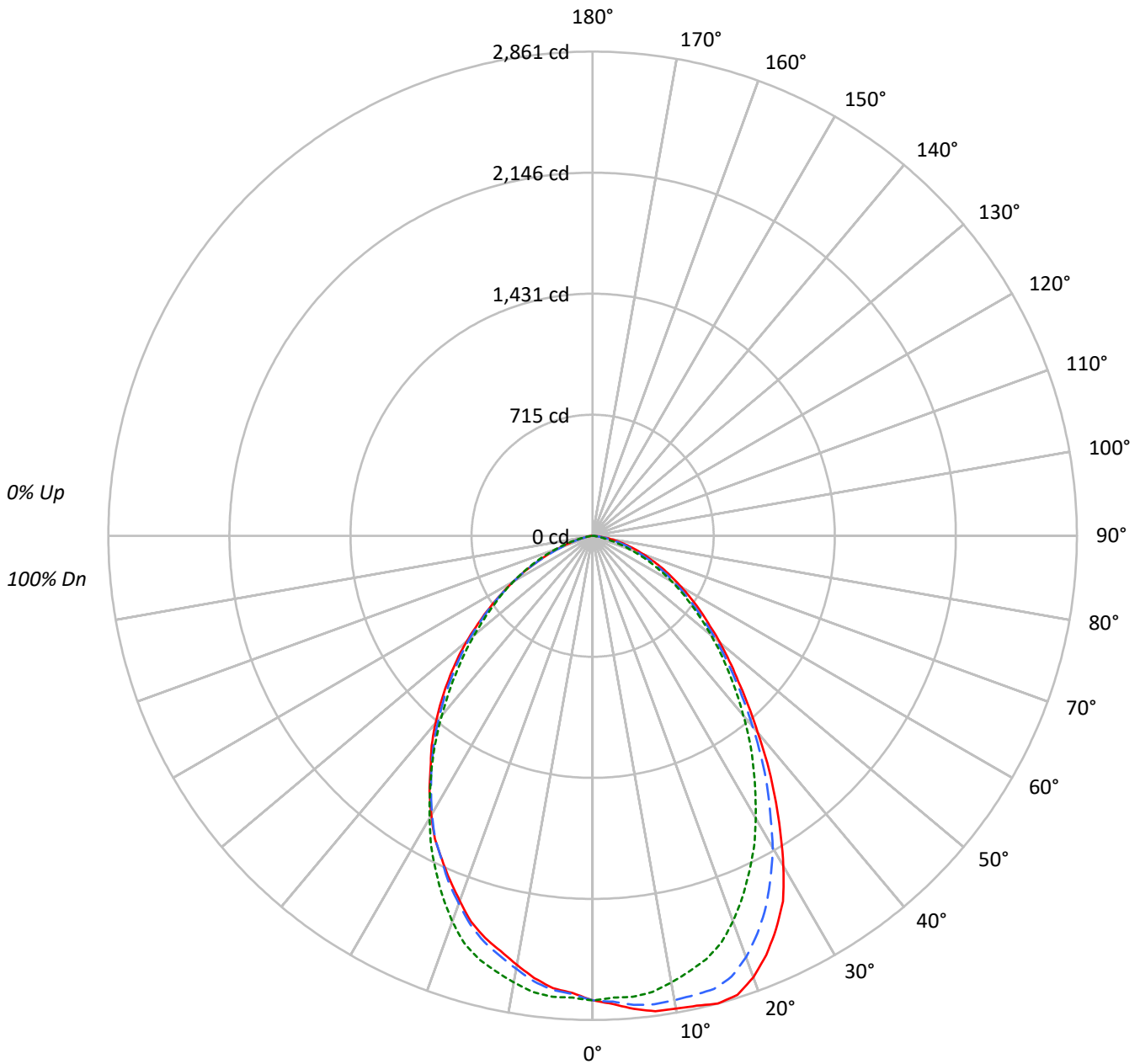
Input Watts (W): 55
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 |
| 1 | 111 | 107 | 104 | 100 | 108 | 105 | 102 | 99 | 101 | 98 | 96 | 97 | 95 | 93 | 93 | 92 | 90 | 88 | | | 88 |
| 2 | 103 | 96 | 90 | 85 | 100 | 94 | 89 | 84 | 90 | 86 | 82 | 87 | 84 | 80 | 84 | 81 | 79 | 77 | | | 77 |
| 3 | 95 | 86 | 79 | 73 | 92 | 84 | 78 | 73 | 81 | 76 | 71 | 79 | 74 | 70 | 76 | 72 | 69 | 67 | | | 67 |
| 4 | 88 | 77 | 70 | 64 | 86 | 76 | 69 | 63 | 74 | 67 | 62 | 71 | 66 | 62 | 69 | 65 | 61 | 59 | | | 59 |
| 5 | 81 | 70 | 62 | 56 | 79 | 69 | 61 | 56 | 67 | 60 | 55 | 65 | 59 | 55 | 63 | 58 | 54 | 52 | | | 52 |
| 6 | 76 | 64 | 56 | 50 | 74 | 63 | 55 | 50 | 61 | 54 | 49 | 60 | 54 | 49 | 58 | 53 | 49 | 47 | | | 47 |
| 7 | 71 | 58 | 51 | 45 | 69 | 58 | 50 | 45 | 56 | 49 | 45 | 55 | 49 | 44 | 54 | 48 | 44 | 42 | | | 42 |
| 8 | 66 | 54 | 46 | 41 | 65 | 53 | 46 | 41 | 52 | 45 | 40 | 51 | 45 | 40 | 50 | 44 | 40 | 38 | | | 38 |
| 9 | 62 | 50 | 42 | 37 | 61 | 49 | 42 | 37 | 48 | 41 | 37 | 47 | 41 | 37 | 46 | 41 | 37 | 35 | | | 35 |
| 10 | 58 | 46 | 39 | 34 | 57 | 46 | 39 | 34 | 45 | 38 | 34 | 44 | 38 | 34 | 43 | 38 | 34 | 32 | | | 32 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° |
|-----|--------|--------|--------|
| 0° | 338608 | 338608 | 338608 |
| 5° | 347504 | 338627 | 332312 |
| 10° | 355367 | 335728 | 322477 |
| 15° | 365366 | 330952 | 313968 |
| 20° | 364369 | 318257 | 301246 |
| 25° | 349020 | 297957 | 286838 |
| 30° | 321060 | 274415 | 271509 |
| 35° | 282423 | 249055 | 251103 |
| 40° | 244342 | 222927 | 232266 |
| 45° | 212377 | 198091 | 209987 |
| 50° | 188457 | 174717 | 186500 |
| 55° | 167199 | 153285 | 159887 |
| 60° | 148903 | 132917 | 132917 |
| 65° | 132388 | 110498 | 103494 |
| 70° | 114395 | 83632 | 73787 |
| 75° | 95886 | 55282 | 45513 |
| 80° | 72666 | 26708 | 24222 |
| 85° | 38636 | 9624 | 9624 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 260.0 | 5.0 |
| 10°-20° | 737.1 | 14.1 |
| 20°-30° | 1039.4 | 19.9 |
| 30°-40° | 1073.8 | 20.5 |
| 40°-50° | 910.2 | 17.4 |
| 50°-60° | 662.3 | 12.7 |
| 60°-70° | 387.0 | 7.4 |
| 70°-80° | 143.8 | 2.7 |
| 80°-90° | 18.8 | 0.4 |
| 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° | 2036.5 | 38.9 |
| 0°-40° | 3110.2 | 59.4 |
| 0°-60° | 4682.8 | 89.5 |
| 0°-90° | 5232.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5232.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0° | 2745 | 2745 | 2745 | 2745 | 2745 | |
| 5° | 2807 | 2783 | 2735 | 2694 | 2684 | 269 |
| 15° | 2861 | 2772 | 2592 | 2483 | 2459 | 804 |
| 25° | 2564 | 2421 | 2189 | 2111 | 2108 | 1173 |
| 35° | 1876 | 1794 | 1654 | 1657 | 1668 | 1171 |
| 45° | 1218 | 1183 | 1136 | 1176 | 1204 | 947 |
| 55° | 778 | 740 | 713 | 737 | 744 | 699 |
| 65° | 454 | 416 | 379 | 355 | 355 | 450 |
| 75° | 201 | 167 | 116 | 92 | 96 | 216 |
| 85° | 27 | 17 | 7 | 7 | 7 | 38 |
| 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° | 2745.2 | 2745.2 | 2745.2 | 2745.2 | 2745.2 | 2745.2 | 2745.2 | 2745.2 | 2745.2 |
| 2.5° | 2769.1 | 2762.2 | 2755.5 | 2745.2 | 2731.6 | 2721.3 | 2711.1 | 2704.3 | 2704.3 |
| 5° | 2806.6 | 2796.3 | 2782.7 | 2758.9 | 2734.9 | 2714.5 | 2694.0 | 2683.9 | 2683.9 |
| 7.5° | 2833.9 | 2820.2 | 2792.9 | 2758.9 | 2717.9 | 2687.2 | 2656.6 | 2642.9 | 2636.1 |
| 10° | 2837.3 | 2823.6 | 2786.2 | 2734.9 | 2680.5 | 2632.6 | 2598.6 | 2578.2 | 2574.7 |
| 12.5° | 2844.1 | 2827.1 | 2779.3 | 2707.7 | 2636.1 | 2578.2 | 2540.6 | 2520.2 | 2513.3 |
| 15° | 2861.2 | 2837.3 | 2772.5 | 2680.5 | 2591.7 | 2523.6 | 2482.6 | 2465.6 | 2458.7 |
| 17.5° | 2844.1 | 2810.0 | 2731.6 | 2622.5 | 2523.6 | 2448.5 | 2407.6 | 2390.6 | 2390.6 |
| 20° | 2775.9 | 2741.8 | 2649.7 | 2530.3 | 2424.6 | 2353.0 | 2312.1 | 2301.9 | 2295.0 |
| 22.5° | 2680.5 | 2642.9 | 2544.0 | 2417.9 | 2312.1 | 2247.3 | 2220.0 | 2206.4 | 2203.0 |
| 25° | 2564.5 | 2526.9 | 2421.3 | 2291.6 | 2189.3 | 2134.7 | 2110.9 | 2110.9 | 2107.6 |
| 27.5° | 2434.9 | 2387.2 | 2278.0 | 2165.4 | 2066.6 | 2025.7 | 2015.4 | 2015.4 | 2018.8 |
| 30° | 2254.2 | 2220.0 | 2128.0 | 2018.8 | 1926.7 | 1899.4 | 1899.4 | 1906.3 | 1906.3 |
| 32.5° | 2059.7 | 2035.9 | 1954.0 | 1858.6 | 1787.0 | 1769.9 | 1776.7 | 1790.4 | 1793.7 |
| 35° | 1875.6 | 1848.3 | 1793.7 | 1708.5 | 1654.0 | 1647.1 | 1657.4 | 1667.6 | 1667.6 |
| 37.5° | 1694.8 | 1667.6 | 1630.1 | 1561.8 | 1521.0 | 1524.4 | 1538.0 | 1551.7 | 1561.8 |
| 40° | 1517.5 | 1497.1 | 1469.8 | 1415.2 | 1384.5 | 1398.2 | 1415.2 | 1428.8 | 1442.5 |
| 42.5° | 1360.7 | 1340.2 | 1319.8 | 1278.8 | 1258.4 | 1275.4 | 1295.8 | 1309.5 | 1323.1 |
| 45° | 1217.5 | 1203.8 | 1183.4 | 1149.2 | 1135.6 | 1152.6 | 1176.5 | 1190.2 | 1203.8 |
| 47.5° | 1094.7 | 1087.8 | 1060.5 | 1029.9 | 1023.1 | 1040.1 | 1060.5 | 1077.6 | 1087.8 |
| 50° | 982.1 | 971.9 | 948.1 | 917.3 | 910.5 | 937.8 | 951.5 | 961.6 | 971.9 |
| 52.5° | 873.0 | 862.8 | 835.5 | 808.2 | 808.2 | 828.6 | 838.9 | 842.3 | 852.5 |
| 55° | 777.5 | 767.3 | 740.0 | 719.6 | 712.8 | 729.8 | 736.6 | 736.6 | 743.5 |
| 57.5° | 688.9 | 678.6 | 651.3 | 627.5 | 624.0 | 634.3 | 634.3 | 634.3 | 637.7 |
| 60° | 603.6 | 593.3 | 566.1 | 545.6 | 538.8 | 542.2 | 538.8 | 535.3 | 538.8 |
| 62.5° | 525.2 | 514.9 | 487.6 | 463.8 | 457.0 | 457.0 | 446.7 | 443.3 | 446.7 |
| 65° | 453.6 | 436.5 | 416.0 | 392.2 | 378.6 | 368.3 | 354.6 | 354.6 | 354.6 |
| 67.5° | 381.9 | 368.3 | 344.4 | 320.6 | 303.5 | 286.5 | 266.0 | 272.9 | 276.2 |
| 70° | 317.2 | 306.9 | 279.6 | 255.7 | 231.9 | 211.4 | 194.4 | 201.2 | 204.6 |
| 72.5° | 259.2 | 245.6 | 221.7 | 194.4 | 173.9 | 146.6 | 136.4 | 143.3 | 143.3 |
| 75° | 201.2 | 187.6 | 167.1 | 139.9 | 116.0 | 92.0 | 92.0 | 95.5 | 95.5 |
| 77.5° | 150.0 | 136.4 | 116.0 | 92.0 | 71.6 | 54.6 | 58.0 | 58.0 | 58.0 |
| 80° | 102.3 | 92.0 | 75.0 | 54.6 | 37.6 | 30.7 | 30.7 | 30.7 | 34.1 |
| 82.5° | 58.0 | 51.1 | 40.9 | 27.3 | 17.0 | 17.0 | 17.0 | 17.0 | 17.0 |
| 85° | 27.3 | 20.4 | 17.0 | 10.3 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 |
| 87.5° | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 |
| 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)