

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: P580881

Luminaire Tested: **HC450D010-HM44560835-41RWWH**

Issue Date: 9/9/2021

Test Information

Test Method: LM-41-14
Report Number: P580881
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: HC450D010-HM44560835-41RWWH
Description: HALO COMMERCIAL 4" ROUND, NEW CONSTRUCTION FRAME, WITH 4" WALLWASH DISTRIBUTION, HAZE TRIM
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4823.5 lumens
Efficiency: N/A
Efficacy: 100.5 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

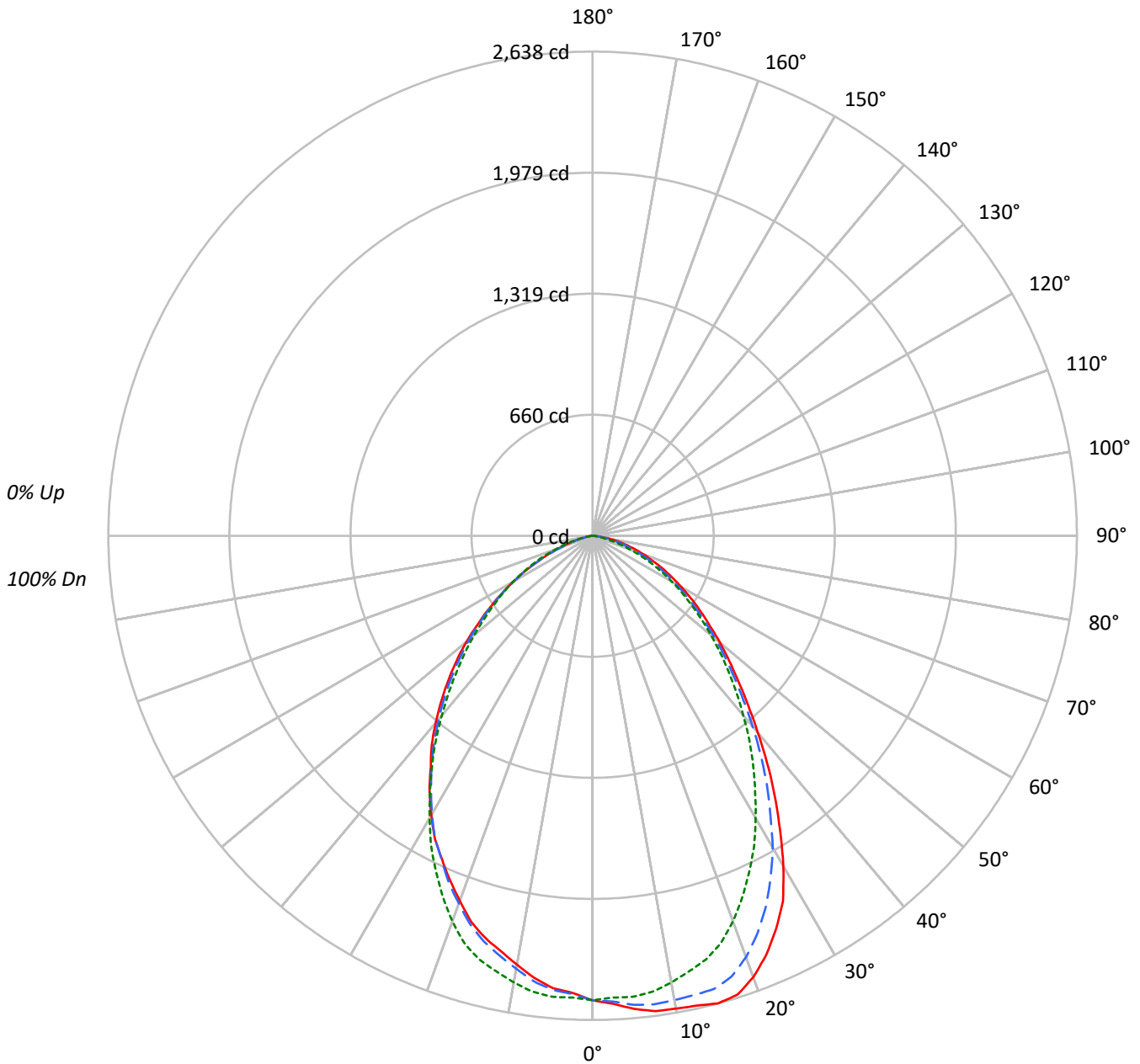
Input Watts (W): 48
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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 | | | | 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° | 312151 | 312151 | 312151 |
| 5° | 320351 | 312167 | 306323 |
| 10° | 327587 | 309476 | 297277 |
| 15° | 336800 | 305093 | 289438 |
| 20° | 335886 | 293383 | 277710 |
| 25° | 321747 | 274684 | 264409 |
| 30° | 295950 | 252979 | 250302 |
| 35° | 260348 | 229585 | 231482 |
| 40° | 225246 | 205521 | 214103 |
| 45° | 195771 | 182618 | 193590 |
| 50° | 173739 | 161055 | 171935 |
| 55° | 154145 | 141286 | 147371 |
| 60° | 137259 | 122532 | 122532 |
| 65° | 122027 | 101830 | 95409 |
| 70° | 105451 | 77105 | 68016 |
| 75° | 88356 | 50945 | 41938 |
| 80° | 66983 | 24506 | 22304 |
| 85° | 35522 | 8916 | 8916 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 239.7 | 5.0 |
| 10°-20° | 679.5 | 14.1 |
| 20°-30° | 958.2 | 19.9 |
| 30°-40° | 989.9 | 20.5 |
| 40°-50° | 839.1 | 17.4 |
| 50°-60° | 610.5 | 12.7 |
| 60°-70° | 356.7 | 7.4 |
| 70°-80° | 132.6 | 2.7 |
| 80°-90° | 17.3 | 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° | 1877.3 | 38.9 |
| 0°-40° | 2867.2 | 59.4 |
| 0°-60° | 4316.8 | 89.5 |
| 0°-90° | 4823.5 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4823.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|------|------|------|------|------|------|
| 0° | 2531 | 2531 | 2531 | 2531 | 2531 | |
| 5° | 2587 | 2565 | 2521 | 2484 | 2474 | 248 |
| 15° | 2638 | 2556 | 2389 | 2289 | 2267 | 741 |
| 25° | 2364 | 2232 | 2018 | 1946 | 1943 | 1081 |
| 35° | 1729 | 1654 | 1525 | 1528 | 1537 | 1080 |
| 45° | 1122 | 1091 | 1047 | 1084 | 1110 | 873 |
| 55° | 717 | 682 | 657 | 679 | 685 | 645 |
| 65° | 418 | 384 | 349 | 327 | 327 | 415 |
| 75° | 185 | 154 | 107 | 85 | 88 | 199 |
| 85° | 25 | 16 | 6 | 6 | 6 | 35 |
| 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° | 2530.7 | 2530.7 | 2530.7 | 2530.7 | 2530.7 | 2530.7 | 2530.7 | 2530.7 | 2530.7 |
| 2.5° | 2552.6 | 2546.4 | 2540.1 | 2530.7 | 2518.1 | 2508.7 | 2499.3 | 2493.0 | 2493.0 |
| 5° | 2587.3 | 2577.9 | 2565.3 | 2543.2 | 2521.2 | 2502.4 | 2483.6 | 2474.0 | 2474.0 |
| 7.5° | 2612.4 | 2599.8 | 2574.7 | 2543.2 | 2505.5 | 2477.2 | 2448.9 | 2436.4 | 2430.1 |
| 10° | 2615.5 | 2603.0 | 2568.4 | 2521.2 | 2470.9 | 2426.9 | 2395.4 | 2376.6 | 2373.5 |
| 12.5° | 2621.8 | 2606.1 | 2562.2 | 2496.1 | 2430.1 | 2376.6 | 2342.1 | 2323.2 | 2317.0 |
| 15° | 2637.5 | 2615.5 | 2555.8 | 2470.9 | 2389.2 | 2326.4 | 2288.6 | 2272.9 | 2266.6 |
| 17.5° | 2621.8 | 2590.4 | 2518.1 | 2417.5 | 2326.4 | 2257.2 | 2219.4 | 2203.7 | 2203.7 |
| 20° | 2558.9 | 2527.5 | 2442.6 | 2332.7 | 2235.1 | 2169.2 | 2131.4 | 2122.0 | 2115.7 |
| 22.5° | 2470.9 | 2436.4 | 2345.2 | 2228.8 | 2131.4 | 2071.6 | 2046.5 | 2034.0 | 2030.8 |
| 25° | 2364.1 | 2329.5 | 2232.0 | 2112.6 | 2018.3 | 1967.9 | 1946.0 | 1946.0 | 1942.8 |
| 27.5° | 2244.6 | 2200.6 | 2100.0 | 1996.3 | 1905.0 | 1867.4 | 1857.9 | 1857.9 | 1861.1 |
| 30° | 2077.9 | 2046.5 | 1961.7 | 1861.1 | 1776.2 | 1751.1 | 1751.1 | 1757.4 | 1757.4 |
| 32.5° | 1898.8 | 1876.8 | 1801.3 | 1713.3 | 1647.3 | 1631.6 | 1637.9 | 1650.4 | 1653.5 |
| 35° | 1729.0 | 1703.9 | 1653.5 | 1575.0 | 1524.7 | 1518.4 | 1527.9 | 1537.3 | 1537.3 |
| 37.5° | 1562.4 | 1537.3 | 1502.6 | 1439.8 | 1402.1 | 1405.2 | 1417.8 | 1430.4 | 1439.8 |
| 40° | 1398.9 | 1380.1 | 1355.0 | 1304.6 | 1276.4 | 1288.9 | 1304.6 | 1317.2 | 1329.7 |
| 42.5° | 1254.3 | 1235.5 | 1216.6 | 1178.8 | 1160.0 | 1175.7 | 1194.6 | 1207.2 | 1219.8 |
| 45° | 1122.3 | 1109.8 | 1090.8 | 1059.4 | 1046.9 | 1062.6 | 1084.5 | 1097.1 | 1109.8 |
| 47.5° | 1009.1 | 1002.8 | 977.7 | 949.4 | 943.1 | 958.8 | 977.7 | 993.4 | 1002.8 |
| 50° | 905.4 | 896.0 | 874.0 | 845.6 | 839.3 | 864.6 | 877.1 | 886.5 | 896.0 |
| 52.5° | 804.8 | 795.4 | 770.3 | 745.0 | 745.0 | 763.9 | 773.4 | 776.4 | 786.0 |
| 55° | 716.8 | 707.4 | 682.1 | 663.3 | 657.0 | 672.7 | 679.0 | 679.0 | 685.3 |
| 57.5° | 635.0 | 625.6 | 600.4 | 578.4 | 575.3 | 584.7 | 584.7 | 584.7 | 587.8 |
| 60° | 556.4 | 547.0 | 521.8 | 503.0 | 496.7 | 499.8 | 496.7 | 493.6 | 496.7 |
| 62.5° | 484.1 | 474.7 | 449.6 | 427.5 | 421.2 | 421.2 | 411.8 | 408.7 | 411.8 |
| 65° | 418.1 | 402.4 | 383.6 | 361.5 | 348.9 | 339.5 | 326.9 | 326.9 | 326.9 |
| 67.5° | 352.1 | 339.5 | 317.5 | 295.5 | 279.7 | 264.0 | 245.2 | 251.5 | 254.6 |
| 70° | 292.4 | 282.9 | 257.8 | 235.8 | 213.8 | 194.9 | 179.2 | 185.4 | 188.6 |
| 72.5° | 238.9 | 226.4 | 204.4 | 179.2 | 160.3 | 135.2 | 125.8 | 132.1 | 132.1 |
| 75° | 185.4 | 172.9 | 154.1 | 128.9 | 106.9 | 84.9 | 84.9 | 88.0 | 88.0 |
| 77.5° | 138.4 | 125.8 | 106.9 | 84.9 | 66.0 | 50.3 | 53.5 | 53.5 | 53.5 |
| 80° | 94.3 | 84.9 | 69.2 | 50.3 | 34.5 | 28.3 | 28.3 | 28.3 | 31.4 |
| 82.5° | 53.5 | 47.2 | 37.7 | 25.1 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 |
| 85° | 25.1 | 18.8 | 15.7 | 9.4 | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 87.5° | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| 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)